**3GPP TSG RAN WG1 Meeting #106-e R1-** **210xxxx**

**e-Meeting, August 16th – 27th, 2021**

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**Source:** Moderator (LG Electronics)

**Title:** Feature lead summary for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements

**Document for:** Discussion and information

1. **Proposals for Monday’s GTW (August 16th)**

After reviewing contributions submitted in this meeting, I observed that companies’ views on supporting inter-UE coordination information for each scheme (see below) are not so much changed compared to the situation at the last meeting.

* Type(s) of inter-UE coordination information
  + In scheme 1,
    - Preferred and non-preferred resource set
      * [Huawei,1] [Mitsubishi,3] [Spreadtrum,5] [CATT,9] [Fraunhofer,10] [Fujitsu,11] [NEC,13] [Panasonic,18] [Qualcomm,19] [CMCC,20] [ETRI,21] [MediaTeK,22] [LG,23] [Intel,24] [Apple,26] [ZTE,27] [Sharp,28] [DCM,29] [CEWiT,35] [Xiaomi,30] [Lenovo/Motorola Mobility] (**21** companies)
    - Preferred resource set only
      * [vivo,4] [Samsung,8] (**2** companies)
    - Non-preferred resource set only
      * [OPPO,17] [Ericsson,36] (**2** companies)
  + In scheme 2,
    - Presence of potential resource conflict and detected resource conflict
      * [Fraunhofer,10] [Fujitsu,11] [Futurewei,12] [NEC,13] [Qualcomm,19] [ETRI,21] [Apple,26] [DCM,29] [Xiaomi,30] [CEWiT,35] [Ericsson,36] [Lenovo/Motorola Mobility, 14] (**12** companies)
    - Presence of potential resource conflict only
      * [Mitsubishi,3] [vivo,4] [LG,23] [Samsung,8] [CATT,9] [Panasonic,18] [ZTE,27] [Sharp,28] [InterDigital,33] (**9** companies)

To be specific, in scheme 1, majority companies support both preferred resource set and non-preferred resource set. So, I put the last proposal suggested at the last meeting as Option 1, which has the 1st priority from FL’s perspective. However, considering the case in which it is difficult to agree on Option 1, I prepare another proposal as Option 2, which has the 2nd priority from FL’s perspective. To be specific, in Option 2, one signalling is used to send inter-UE coordination information informing UE-B of a resource to be excluded from its resource selection, but UE-A could use “preferred resource set” or “non-preferred resource set” to generate the information.

In scheme 2, there is no clear majority to support detected resource conflict indication. So, I list up two alternative options for scheme 2. One is to support both expected/potential resource conflict indication and detected resource conflict indication, which has the 1st priority from FL’s perspective. The other is to support only expected/potential resource conflict indication, which has the 2nd priority from FL’s perspective.

**Regarding this topic**, **RAN1 already had the lengthy discussion at the last meeting, but failed to make the conclusion. I don’t think that having additional email discussion can make any meaningful progress. Also without the relevant conclusion, it is not possible to agree the details to support the feature of inter-UE coordination in Mode 2. So, I ask Chairman to make a decision on Draft Proposal 1/2 in Monday’s GTW session**.

***Draft proposal 1:***

***Option 1 with 1st preference from FL’s point of view****:*

* *For scheme 1, the following inter-UE coordination information signalling from UE-A is supported. FFS details including condition(s)/scenario(s) under which each information is enabled to be sent by UE-A and used by UE-B.*
  + *Set of resources preferred for UE-B’s transmission*
  + *Set of resources non-preferred for UE-B’s transmission*
  + *FFS: Whether in one signalling instance of coordination information, UE-A sends one type of resources (either preferred or non-preferred)*
  + *FFS: Whether information for another resource set can be implicitly derived from signalling of information for a specific resource set*
  + *Note that this implies that RAN1 decides no further down-selection between the preferred resource set and the non-preferred resource set in the following FFS point (marked with grey) of agreement made in RAN1#104bis-e meeting.*

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| *Agreement made in RAN1#104bis-e meeting:*   * *Support the following schemes of inter-UE coordination in Mode 2:*   + *Inter-UE Coordination Scheme 1:*      - *The coordination information sent from UE-A to UE-B is the set of resources preferred and/or non-preferred for UE-B’s transmission*       * *FFS details including a possibility of down-selection between the preferred resource set and the non-preferred resource set, whether or not to include any additional information other than indicating time/frequency of the resources within the set in the coordination information*     - *FFS condition(s) in which Scheme 1 is used*   + *Inter-UE Coordination Scheme 2:*      - *The coordination information sent from UE-A to UE-B is the presence of expected/potential and/or detected resource conflict on the resources indicated by UE-B’s SCI*       * *FFS details including a possibility of down-selection between the expected/potential conflict and the detected resource conflict*     - *FFS condition(s) in which Scheme 2 is used* |

***Option 2 with 2nd preference from FL’s point of view****:*

* *For scheme 1, the following inter-UE coordination information signalling from UE-A is supported. FFS details including condition(s)/scenario(s) under which each information is enabled to be sent by UE-A and used by UE-B.*
  + *A set of resources is indicated in the inter-UE coordination information. UE-B excludes in its resource selection the resources in the set.* 
    - *The set indicated in the inter-UE coordination information is the set of non-preferred resources determined by UE-A or the complementary set of preferred resources determined by UE-A.*

***Draft Proposal 2:***

***Option 1 with 1st preference from FL’s point of view:***

* *For scheme 2, the following inter-UE coordination information signalling from UE-A is supported. FFS details including condition(s)/scenario(s) under which each information is enabled to be sent by UE-A and used by UE-B*
  + *Presence of expected/potential resource conflict on the resources indicated by UE-B’s SCI*
  + *Presence of detected resource conflict on the resources indicated by UE-B’s SCI*
  + *Note that this implies that RAN1 decides no further down-selection between the expected/potential conflict and the detected resource conflict in the following FFS point (marked with grey) of agreement made in RAN1#104bis-e meeting.*

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| *Agreement made in RAN1#104bis-e meeting:*   * *Support the following schemes of inter-UE coordination in Mode 2:*   + *Inter-UE Coordination Scheme 1:*      - *The coordination information sent from UE-A to UE-B is the set of resources preferred and/or non-preferred for UE-B’s transmission*       * *FFS details including a possibility of down-selection between the preferred resource set and the non-preferred resource set, whether or not to include any additional information other than indicating time/frequency of the resources within the set in the coordination information*     - *FFS condition(s) in which Scheme 1 is used*   + *Inter-UE Coordination Scheme 2:*      - *The coordination information sent from UE-A to UE-B is the presence of expected/potential and/or detected resource conflict on the resources indicated by UE-B’s SCI*       * *FFS details including a possibility of down-selection between the expected/potential conflict and the detected resource conflict*     - *FFS condition(s) in which Scheme 2 is used* |

***Option 2 with 2nd preference from FL’s point of view:***

* *For scheme 2, the following inter-UE coordination information signalling from UE-A is supported. FFS details including condition(s)/scenario(s) under which each information is enabled to be sent by UE-A and used by UE-B*
  + *Presence of expected/potential resource conflict on the resources indicated by UE-B’s SCI*

1. **Email discussion after Monday’s GTW (August 16th)**

**2.1 Conditions for UE(s) to be UE-A(s) and/or UE-B(s)**

During a few meetings, the conditions for UE(s) to be UE-A(s) and/or UE-B(s) have been discussed, but have not been concluded since companies have divergent views. I think that one way to overcome this difficulty is to discuss the condition(s) that UE(s) become UE-A(s) and/or UE-B(s), assuming a situation in which a technique supported by majority companies is applied. According to the submitted contributions in this meeting, as majority companies support request-based inter-UE coordination information transmission for scheme 1, I prepare Draft Proposal 3 for the condition(s) that UE(s) become UE-A(s) and/or UE-B(s) under the assumption that this technique is applied. For scheme 2, as majority companies proposed that UE-A transmits inter-UE coordination information after observing resource conflict on resource(s) indicated by UE-B, I prepare Draft Proposal 4 for the condition(s) that UE(s) become UE-A(s).

**I ask companies to provide inputs on the following two questions below. The deadline for companies to provide inputs is August 17th 11:59am UTC. To prepare/make more stable draft proposals before the start of Wednesday’s GTW session (August 18th), it would be highly appreciated if companies make comments as soon as possible. Also to make progress more efficiently, I would like to encourage companies to directly provide “revised wording” or “new wording needed to be added”.**

**Question 1**: Do you agree Draft Proposal 3 for scheme 1?

***Draft Proposal 3****:*

* *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*
  + *A UE sends a request for inter-UE coordination information and can be UE-B*
    - *FFS: Details including whether the condition of sending a request is specified or up to UE implementation*
  + *A UE that received a request from UE-B can be UE-A and send inter-UE coordination information to the UE-B* 
    - *FFS: Details including* 
      * *Whether UE-A that received a request from UE-B always sends inter-UE coordination information to the UE-B*
      * *Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request*
      * *Whether the condition of sending inter-UE coordination information with or without receiving a request from UE-B is specified or up to UE implementation*
  + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B*
    - *FFS: In which cast type UE-A is a destination UE of a TB transmitted by UE-B*
  + *FFS: It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A when higher layer(s) configures*

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| **Company** | **Yes or no** | **Comment** |
| NTT DOCOMO | Yes | In our understanding, the following is still FFS in this proposal.   * non-request-based approach * UE-A is not a destination UE of UE-B’s transmission.   If correct, we are supportive of this proposal. |
| Qualcomm | No | The proposal is specific to request-based schemes and excludes event-based schemes. It is also more suited for the scheme with preferred resources than non-preferred resources. Our results show that event-based schemes have lower latency and provide better gain in many scenarios.  We propose the following   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *At least when preferred resources are indicated:*     - *A UE sends a request for inter-UE coordination information and can be UE-B*       * *FFS: Details including whether the condition of sending a request is specified or up to UE implementation*       * *FFS: Whether the request is dynamic and/or semi-static*     - *A UE that received a request from UE-B can be UE-A and send inter-UE coordination information to the UE-B*        * *FFS: Details including*          + *Whether UE-A that received a request from UE-B always sends inter-UE coordination information to the UE-B*         + *Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request*         + *Whether the condition of sending inter-UE coordination information with or without receiving a request from UE-B is specified or up to UE implementation*     - *It is supported that UE-A is a destination UE of a TB transmitted by UE-B*       * *FFS: In which cast type UE-A is a destination UE of a TB transmitted by UE-B*     - *FFS: It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A when higher layer(s) configures*   + At least when non-preferred resources are indicated:     - A UE sends inter-UE coordination messages when conditions are met and becomes a UE-A:       * FFS: Details, including conditions to transmit inter-UE coordination information.     - A UE that receives the coordination information becomes a UE-B     - It is supported that any UE-A can be a UE-A |
| Lenovo/Motorola Mobility | Yes | We are supportive of the FL proposal. Below are few comments on the FL proposal for consideration   * Conditions of sending a request can be left to UE implementation. * Periodic reporting of inter-coordination message should be supported   UE-A after encountering consecutive TB failure may transmit the inter-UE coordination message which can be an example for the non-request based inter-UE coordination information |
| Futurewei | See comments | UE-B triggering the inter-UE coordination can be one option. Inter-UE coordination can also be configured by higher layer semi-statistically, without explicitly triggering. On the other hand, UE-A can also send request for inter-UE coordination. In public safety, e.g., a fire scene, and truck platooning cases, the chief commander and the leading truck, as UE-A’s, can send the inter-UE request to the transmit UEs when they are either receivers of UE-B or not the receivers of UE-B. We also propose to the last FFS shall be one of the options.  So we propose to revise the proposal as   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE sends a request for inter-UE coordination information and can be UE-B or UE-A*     - *FFS: Details including whether the condition of sending a request is specified or up to UE implementation*   + *A UE that received a request from UE-B can be UE-A and send inter-UE coordination information to the UE-B*     - *FFS: Details including*        * *Whether UE-A that received a request from UE-B always sends inter-UE coordination information to the UE-B*       * *Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request*       * *Whether the condition of sending inter-UE coordination information with or without receiving a request from UE-B is specified or up to UE implementation*   + *A UE that received a request from the UE-A can be UE-B and receive the inter-UE coordination information from UE-A*     - *FFS: Details*   + *Inter-UE coordination can be configured by high layer semi-statically*   + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B*     - *FFS: In which cast type UE-A is a destination UE of a TB transmitted by UE-B*   + *~~FFS:~~ It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A when higher layer(s) configures* |
| InterDigital | Yes with comments | We support the FL proposal in principle. Few comments from our side:   * It would be clearer if 1st bullet that the request based Scheme 1 is supported in all cast types, because the FFS of “in which cast type UE-A is a destination UE of a TB transmitted by UE-B” seems to presume all cast types are supported already   When all cast types can be supported, a broadcast transmission involve many destination UEs and conditions of sending such a request can be quite different from a unicast or groupcast. Therefore, we’d prefer to change it to e.g., “FFS: Details including whether the condition of sending a request for each supported cast type is specified or up to UE implementation” to take cast type into consideration accordingly. |
| Samsung | See comments | At first, we think that this proposal can be applied not only for Scheme 1 but also for Scheme 2. In our understanding, the intension for Proposal 3 and 4 is to decide whether UE-A can be any UE or intended receiver from UE-B. Our preference is that UE-A can only be an intended receiver of UE-B. We think that it not good idea to connect this issue for two schemes of inter-UE coordination since details for managing two schemes were not decided yet. For example, according to current proposal 3 and 4, may UE-A need to send the coordination information at the same time for Scheme1 and Scheme2? Considering the remaining time for this WI, we think that a common design should be considered rather than introducing separate design for each scheme. |
| ZTE | Yes | We are supportive of this proposal. And updates as below are also preferred:  In general, for the 1st bullet, in our view, at least the UE implementation based solution should be supported and whether to define additional condition can be FFS.   * + *At least, a UE sends a request for inter-UE coordination information up to its own implementation and can be UE-B*      - *FFS: Details including whether the condition of sending a request is specified ~~or up to UE implementation~~* |
| Vivo | Yes, with minor wording change | Event-triggered based coordination transmission and periodic coordination transmission is FFS based on the proposal. Then the following bullet should be sub-bullet of the main bullet.   * + - * *Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request*   We also think such mechanism is at least applied to scheme 1 preferred resource; for non-preferred resource, we are free for further discussion. |
| Intel | Yes with comments | It is important to support scenario when UE-A shares inter-UE coordination information without dedicated request based on pre-defined conditions.  ***Draft Proposal 3****:*   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE sends inter-UE coordination information based on pre-configured conditions can be UE-A*     - *FFS conditions to initiate transmission of inter-UE coordination information*   + *A UE that received inter-UE coordination information from UE-A and takes it into account for resource allocation can be UE-B without prior transmission of a request for inter-UE coordination information*   + *A UE sends a request for inter-UE coordination information and can be UE-B*     - *FFS: Details including whether the condition of sending a request is specified or up to UE implementation*   + *A UE that received a request from UE-B can be UE-A and send inter-UE coordination information to the UE-B*      - *FFS: Details including*        * *Whether UE-A that received a request from UE-B always sends inter-UE coordination information to the UE-B*       * *~~Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request~~*       * *Whether the condition of sending inter-UE coordination information with ~~or without~~ receiving a request from UE-B is specified or up to UE implementation*   + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B*     - *FFS: In which cast type UE-A is a destination UE of a TB transmitted by UE-B*   + *~~FFS:~~ It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A ~~when higher layer(s) configures~~* |
| Fujitsu | Yes with comments | 1. The 3rd and 4th sub-bullet should be under the umbrella of the 2nd sub-bullet since the whole proposal is for the request-based inter-UE coordination scheme.  2. “*Whether the condition of sending inter-UE coordination information with or without receiving a request from UE-B is specified or up to UE implementation*” belongs to the 2nd level FFS. Currently, we may only focus on the 1st level FFS and delete this sentence.  3. “*Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request*” should be parallel with the 1st and 2nd sub-bullet since it is not for the request-based inter-UE coordination scheme.  The suggested modifications are summarized as follows.   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE sends a request for inter-UE coordination information and can be UE-B*     - *FFS: Details including whether the condition of sending a request is specified or up to UE implementation*   + *A UE that received a request from UE-B can be UE-A and send inter-UE coordination information to the UE-B*      - *FFS: Details including*        * *Whether UE-A that received a request from UE-B always sends inter-UE coordination information to the UE-B*       * *~~Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request~~*       * *~~Whether the condition of sending inter-UE coordination information with or without receiving a request from UE-B is specified or up to UE implementation~~*     - *It is supported that UE-A is a destination UE of a TB transmitted by UE-B*       * *FFS: In which cast type UE-A is a destination UE of a TB transmitted by UE-B*     - *FFS: It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A when higher layer(s) configures*   + *FFS: Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request* |
| Panasonic | Yes | For scheme 1, UE-A should know whether UE-B needs resource or not. It is similar to a scheduling request in Uu. If this information is not available to UE-A, UE-A does not allocate the resource and does not know how much the resource needs to be allocated. Therefore, UE-B needs to trigger the request to UE-A |
| CMCC |  | We share similar views as other companies that non-request-based solution based on pre-defined conditions is also a big part of UE-A sending inter-UE coordination information, especially for the non-preferred set of resources.  In our understanding, the current proposal includes this solution in the bullets under the FFS bullet of the 2nd main bullet. However, we think that putting request-based and non-request-based solution in a parallel way to discuss the determination of UE-A/UE-B is a clearer layout. |
| OPPO | Fine in general, with comments | 1. we suggest to remove the last FFS, if a UE can be configured to be UE-A by higher layer, e.g. a RSU, a lot of new procedures are needed to support the scenario, e.g. UE-A discovery, connection setup between UE-A and UE-B, connection maintenance, etc., it is better not to touch this in Rel-17.  2. UE-A needs traffic characteristics of UE-B (e.g. priority, PDB, periodicity) to determine the coordination information, these information is supposed to be indicated to UE-A in the request signalling, and without the request, UE-A cannot know when UE-B will trigger resource reselection. So we do not think it is reasonable for UE-A to send the coordination information w/o receiving the request.  3. For the 2nd sub-bullet (UE-A determination), UE-A should be a UE received the request AND send the coordination information, if it does not send the coordination information, it is not UE-A.  4. the 1st sub-bullet and the 3rd sub-bullet under “FFS: details including” are relevant and can be merged.  In general we suggest following changes:   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that sends a request for inter-UE coordination information ~~and~~ can be UE-B*     - *FFS: Details including whether the condition of sending a request is specified or up to UE implementation*   + *A UE that received a request from UE-B ~~can be UE-A~~ and send inter-UE coordination information to the UE-B can be UE-A*     - *FFS: Details including*        * *Whether additional condition(s) needs to be satisfied for the UE~~-A~~ that received a request from UE-B to ~~always~~ send~~s~~ inter-UE coordination information to the UE-B, and if so, Whether the additional condition(s) is specified or up to UE implementation*       * *~~Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request~~*       * *~~Whether the condition of sending inter-UE coordination information with or without receiving a request from UE-B is specified or up to UE implementation~~*   + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B*     - *FFS: In which cast type UE-A is a destination UE of a TB transmitted by UE-B*   + *~~FFS: It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A when higher layer(s) configures~~* |
| LG | Yes | In our view, currently, we do not need to mention about this approach is applied to only preferred resource set or non-preferred resource set. This is related to the issue on how to generate the preferred resource set or non-preferred resource set. If UE-A is intended receiver of UE-B, and the non-preferred resource set is determined by slots where UE-A cannot perform SL reception, the request-based coordination is applied to non-preferred resource set as well.  Regarding the condition-triggering coordination scheme, we also supportive of this approach, but it seems that there are divergent views which condition will be used to trigger coordination information transmission. At least, we can list up some candidates as FFS. For instance, coordination information can be transmitted as indicated by higher layers. It will include periodic transmission. |
| Sony | Yes with modification | We are basically OK with the FL proposal with removing “FFS” in the last sub-bullet as follows:   * + *~~FFS:~~ It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A when higher layer(s) configures*   We think UE-A should be able to be any UE configured by higher layer signaling. |
| Nokia, NSB | See comments | The current wording is focussed on only the case of scheme 1 based on explicit request by UE-B. The structure should be changed to list both the cases of explicit request by UE-B and other triggers/conditions. We are OK to leave other triggers/conditions as FFS for now. |
| Mitsubishi | Yes with comments | We are generally fine with the direction of this proposal. As other companies, we think that non-request based should not be a sub-bullet of request-based techniques but have its own line in the agreement.  We are not favourable to a split by preferred/non-preferred resource type at this point: having a common framework should be privileged, and if somehow this is not possible, a future split by resource type is already covered by the FFS sub-bullets conditions/details.  We agree with IDC that the wording around the cast types is a bit unclear and that some clarification of the intention is needed. I’m not sure of the best wording, we can further discuss.  We do not think that a UE which is not a destination UE of a TB transmitted by UE-B should be UE-A regardless of higher layer(s) configuration. Higher layer configuration can on the other hand be a condition based on which a UE which IS a destination UE of a TB decides to transmit or not coordination information.   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE sends a request for inter-UE coordination information and can be UE-B*     - *FFS: Details including whether the condition of sending a request is specified or up to UE implementation*   + *A UE that received a request from UE-B can be UE-A and send inter-UE coordination information to the UE-B*      - *FFS: Details including*        * *Whether UE-A that received a request from UE-B always sends inter-UE coordination information to the UE-B*       * *~~Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request~~*       * *Whether the condition of sending inter-UE coordination information ~~with or without~~ upon receiving a request from UE-B is specified or up to UE implementation*   + *FFS Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request*   + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B*     - *~~FFS: In which cast type UE-A is a destination UE of a TB transmitted by UE-B~~*     - *FFS: Details including whether specific conditions are needed for each supported cast type*   + *~~FFS: It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A when higher layer(s) configures~~* |
| Xiaomi | Yes / with comment | We are generally fine with FL proposal.  In our understanding, the discussion on case where UE A send inter-UE coordination information without receiving UE-B’s request should not be a sub-bullet of the 2nd sub-bullet, as the 2nd sub-bullet states clearly that UE-A receives request from UE-B. In addition, we think condition based inter-UE coordination should be further studied. Therefore, we propose to revise the proposal as:   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE sends a request for inter-UE coordination information and can be UE-B*     - *FFS: Details including whether the condition of sending a request is specified or up to UE implementation*   + *A UE that received a request from UE-B can be UE-A and send inter-UE coordination information to the UE-B*      - *FFS: Details including*        * *Whether UE-A that received a request from UE-B always sends inter-UE coordination information to the UE-B*       * *~~Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request~~*       * *Whether the condition of sending inter-UE coordination information with ~~or without~~ receiving a request from UE-B is specified or up to UE implementation*   + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B*     - *FFS: In which cast type UE-A is a destination UE of a TB transmitted by UE-B*   + *FFS: It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A when higher layer(s) configures*   + *FFS: Whether there is a case where UE-A sends inter-UE coordination information based on a condition without receiving UE-B’s request.* |
| CATT, GOHIGH | Yes in principle | We are generally fine with the proposal. We think it would be better to add FFS part on supported cast type in scheme 1, the updated proposal is as following:   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE sends a request for inter-UE coordination information and can be UE-B*     - *FFS: Details including whether the condition of sending a request is specified or up to UE implementation*   + *A UE that received a request from UE-B can be UE-A and send inter-UE coordination information to the UE-B*      - *FFS: Details including*        * *Whether UE-A that received a request from UE-B always sends inter-UE coordination information to the UE-B*       * *Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request*       * *Whether the condition of sending inter-UE coordination information with or without receiving a request from UE-B is specified or up to UE implementation*   + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B*     - *~~FFS: In which cast type UE-A is a destination UE of a TB transmitted by UE-B~~*   + *FFS: Supported cast type in scheme 1*   + *FFS: It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A when higher layer(s) configures* |
| Fraunhofer | Yes, with comments | We are supportive of the FL’s proposal, but it is limited to only explicit triggers or request-based schemes. We also support the inclusion of event-based schemes, as mentioned by Qualcomm and others, where a UE-A detects a potential collision for a transmission by UE-B.  We also are supportive of UE-A not being the receiver for UE-B’s intended transmission, for both the request-based and event-based schemes. For request-based schemes, higher layers should be able to configure UE-B to transmit a request to a UE-A that is not the destination UE for its transmission. For event-based schemes, the UE that detects the collision may not be the intended receiver UE for the transmission by UE-B.  Hence we propose the following:   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE sends a request for inter-UE coordination information and can be UE-B*     - *FFS: Details including whether the condition of sending a request is specified or up to UE implementation*   + *A UE that received a request from UE-B can be UE-A and send inter-UE coordination information to the UE-B*      - *FFS: Details including*        * *Whether UE-A that received a request from UE-B always sends inter-UE coordination information to the UE-B*       * *~~Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request~~*       * *~~Whether the condition of sending inter-UE coordination information with or without receiving a request from UE-B is specified or up to UE implementation~~*   + *A UE that detected a condition that results in resource collisions for a TB transmitted by UE-B can be UE-A and send inter-UE coordination information to the UE-B*     - * *FFS: Details including the conditions that UE-A detects to trigger sending inter-UE coordination to the UE-B*   + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B*     - *FFS: In which cast type UE-A is a destination UE of a TB transmitted by UE-B*   + *~~FFS:~~ It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A when higher layer(s) configures* |
| Huawei, HiSilicon | No | This proposal seems to only agree on the request based procedure. However, event-triggered procedure is also useful in some cases and it has the benefits of reduced signalling overhead. For example, UE-A may transmit the coordinating information to UE-B of its own accord, depending on certain pre-defined conditions, e.g. periodically. Therefore, we suggest to also agree on non-request based, i.e. event-triggered, procedure.  On UE-A determination: In Rel-16, the link establishment for unicast and groupcast is performed at higher layer in TS 23.287. V2X application layer can designate the role of UE-A and UE-B when the link is established. The UE-A does not need to be the intended receiver of UE-B, any UE configured by higher layer can be UE-A, and it can be applied to the both Scheme 1 and Scheme. With the higher layer determining UE-A and UE-B, the extra design complexity can be avoided and the impact to specification can also be minimized. So we propose that “higher layer determination” is the baseline solution, and FFS any restriction in addition to this. As a compromise, we can say that it is possible to restrict higher layers to configuring only a destination UE as a UE-A.  In summary, we propose the following changes in red   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE sends a request for inter-UE coordination information, or receives inter-UE coordination information, ~~and~~ can be UE-B*     - *FFS: Details including whether the condition of sending a request is specified or up to UE implementation*   + *A UE that received a request from UE-B can be UE-A and send inter-UE coordination information to the UE-B, or UE-A can send inter-UE coordination information without receiving UE-B’s request*      - *FFS: Details including*        * *Whether UE-A that received a request from UE-B always sends inter-UE coordination information to the UE-B*       * *~~Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request~~*       * *Whether the condition of sending inter-UE coordination information with or without receiving a request from UE-B is specified or up to UE implementation*   + *~~It is supported that UE-A is a destination UE of a TB transmitted by UE-B~~*     - *~~FFS: In which cast type UE-A is a destination UE of a TB transmitted by UE-B~~*   + *~~FFS:~~ It is supported that any UE ~~which is not a destination UE of a TB transmitted by UE-B~~ can be UE-A when higher layer(s) configures*     - *Additional restriction can be applied, including that UE-A is a destination UE of a TB transmitted by UE-B* |
| Ericsson | No | Some comments and proposed modifications to the proposal:  In our view, we do not need the three sub-bullets in the FFS. The last one of them covers the two previous ones. We suggest keeping only the last FFS bullet in order to make the discussion easier without deleting any option.  For the last FFS, we propose to remove it.   * In our view for scheme 1 it is not feasible that a UE that it is not a destination UE of the TB can send the coordination message. Based on the agreements, the payload of the coordination message is expected to be non-negligible (preferred or non-preferred set of resources). Therefore, allowing any UE to send this coordination message could lead to congestion in the system without a clear benefit.   Sending the scheme 1 coordination message without previous enquiry is not an optimal scheme. Since scheme 1 is intended to be mostly as an optimization/assistance information, e.g., in addition to the own sensing results from the UE, sending it without previous enquiry could lead to a waste of resources since the UE-B can discard the information in the coordination message (since it was not expecting it or does not need it). |
| Spreadtrum | Yes with comments | We are generally OK with the proposal. We have similar view with many companies. Non-request-based is also important for scheme 1, but the current proposal mainly focus on request-based. So, we propose the following changes:   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE sends a request for inter-UE coordination information and can be UE-B*     - *FFS: Details including whether the condition of sending a request is specified or up to UE implementation*   + *A UE that received a request from UE-B can be UE-A and send inter-UE coordination information to the UE-B*      - *FFS: Details including*        * *Whether UE-A that received a request from UE-B always sends inter-UE coordination information to the UE-B*       * *~~Whether there is a case where UE-A sends inter-UE coordination information without receiving UE-B’s request~~*       * *~~Whether the condition of sending inter-UE coordination information with or without receiving a request from UE-B is specified or up to UE implementation~~*   + *UE-A sends inter-UE coordination information without receiving UE-B’s request*     - * *FFS: Details including the conditions that trigger UE-A to send inter-UE coordination to UE-B.*   + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B*     - *FFS: In which cast type UE-A is a destination UE of a TB transmitted by UE-B*   + *FFS: It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A when higher layer(s) configures* |
| Apple |  | 1. For the first FFS, we prefer to make it general, since there are several aspects to be discussed, including what is the signaling of the request, the condition of sending the request, etc. Hence, we propose to change to  “*FFS: Details including the condition of sending a request, the signaling of a request”* or simply “*FFS: Details*”  2. For the second FFS, we think the second and the third sub-bullets do not fit in, since it is against the assumption in the second bullet (“*A UE that received a request from UE-B…”*). Also, we prefer not to specify the details here. In other words, we prefer to remove all the three sub-bullets here. |
| CEWiT | Yes | We support modified proposals by Intel. Further we feel that trigerring for inter-coordination should also be based on cast type i.e weather based on request from UE-B or based on pre-defined condition . |
| Convida Wireless |  | We share similar views as other companies that implicit or condition-based approach that is not based on explicit request signal should also be considered for UE-A sending inter-UE coordination information to UE B and should also be considered for deciding UE A and UE B. |

**Question 2**: Do you agree Draft Proposal 4 for scheme 2?

***Draft Proposal 4****:*

* *In scheme 2, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*
  + *Any capable UE that detects resource conflict on resource(s) indicated by UE-B’s SCI can be UE-A and send inter-UE coordination information to UE-B*
    - *FFS: Details including*
      * *Definition of resource conflict, e.g.,*
        + *RSRP value measured on other UE’s reserved resource(s) overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency is larger than (pre)configured RSRP threshold*
        + *UE-B is a destination UE of other UE whose reserved resource(s) overlap with resource(s) indicated by UE-B’s SCI in time*
      * *Whether to define additional condition(s) for UEs to be UE-A(s), e.g.,* 
        + *a UE receives a request from UE-B*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| NTT DOCOMO | Yes with modifications | Based on the last sub-bullet, condition to be UE-A is still FFS. In that sense, ‘any capable UE’ is not good. In addition, ‘resource conflict’ should be clarified sufficiently. Therefore, the following update is preferable.   * + *~~Any~~ A capable UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI can be UE-A and send inter-UE coordination information to UE-B* |
| Qualcomm | Yes with comment | We’d like to remove the examples from the proposal. This can all be addressed as part of FFS details.   * *In scheme 2, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *Any capable UE that detects resource conflict on resource(s) indicated by UE-B’s SCI can be UE-A and send inter-UE coordination information to UE-B*     - *FFS: Details including*       * *Definition of resource conflict, ~~e.g.,~~*         + *~~RSRP value measured on other UE’s reserved resource(s) overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency is larger than (pre)configured RSRP threshold~~*         + *~~UE-B is a destination UE of other UE whose reserved resource(s) overlap with resource(s) indicated by UE-B’s SCI in time~~*       * *Whether to define additional condition(s) for UEs to be UE-A(s), ~~e.g.,~~*          + *~~a UE receives a request from UE-B~~* |
| Lenovo/Motorola Mobility | no | On the definition of resource conflict one additional condition should be considered: the time gap between two SCIs whose reserved resources are overlapping should be smaller than the processing delay. If not, the resource conflict can be addressed by pre-emption checking.  ***Modified Draft Proposal 4****:*   * *In scheme 2, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *Any capable UE that detects resource conflict on resource(s) indicated by UE-B’s SCI can be UE-A and send inter-UE coordination information to UE-B*     - *FFS: Details including*       * *Definition of resource conflict, e.g.,*         + *RSRP value measured on other UE’s reserved resource(s) overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency is larger than (pre)configured RSRP threshold*         + T*he time gap between SCIs whose reserved resources are overlapping is smaller than the processing delay*         + *UE-B is a destination UE of other UE whose reserved resource(s) overlap with resource(s) indicated by UE-B’s SCI in time*       * *Whether to define additional condition(s) for UEs to be UE-A(s), e.g.,*          + *a UE receives a request from UE-B* |
| Futurewei | Yes with comments | We are general fine with the proposal. For FFS, we may include the half-duplex as resource conflict.   * + - *FFS: Details including*       * *Definition of resource conflict, e.g.,*         + *RSRP value measured on other UE’s reserved resource(s) overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency is larger than (pre)configured RSRP threshold*         + *UE-B is a destination UE of other UE whose reserved resource(s) overlap with resource(s) indicated by UE-B’s SCI in time*         + *UE-A as a receiver of UE-B has a resource conflict due to the uplink or other sidelink transmissions*       * *Whether to define additional condition(s) for UEs to be UE-A(s), e.g.,*          + *a UE receives a request from UE-B* |
| InterDigital | No | We support the proposal in principle. However, while it spells out in the proposal that any capable UE can become a UE-A upon a detected conflict based on at least the exemplary conflict definition, the definition in this scenario regarding which UE becoming UE-B is missing. In our view, it is critical to clarify for Scheme 2 which UE becomes UE-B, but the proposal seems to indicate UE-B is already determined prior to the conflict detection.  We consider it difficult to support the scenario in which a UE who is not intended RX UE of any UE-Bs to become a UE-A, e.g., when a UE detect a conflict in sensing between two UEs and this UE is not the intended RX UE of either detected UEs. If any such UE is allowed to become a UE-A and send an indication message to either detected UE, it could cause large overhead and in addition, this conflict detection may likely be already performed by another UE who is the intended RX UE of either detected UE. Without such a priori UE-B definition, a UE-A will perform brute force conflict detection over all resources, which we consider not as the purpose of Scheme 2.  Therefore, for Scheme 2, we suggest to start with a scenario in which a UE becomes UE-A when it is an intended RX UE from a UE-B and upon conflict detection based on this UE-B’s SCI, the UE-A can find another UE with conflicting reservation and the detected UE becomes another UE-B in the sense that the UE-A can send indication to either UE-B. In addition, a UE-B should have certain capability to act on indication received from UE-A in Scheme 2.  In addition, about the definition of resource conflict, we prefer to include further definitions when UE-A is the intended RX UE into consideration. For example, the conditions include UE-A’s resource(s) for SL and/or UL transmissions overlap with resource(s) indicated by UE-B’s SCI in time and UE-A’s resource(s) for SL reception from another UE overlap with resource(s) indicated by UE-B’s SCI. |
| Samsung | No | See our comment in Proposal 3. Our preference is that UE-A can only be an intended receiver of UE-B. If any capable UE may report the coordination message when collision is detected, it will introduce huge overhead and decrease overall system performance. |
| ZTE | Yes with modification | Actually this proposal seems not be strong since all details are FFS.  W.r.t the description of this first sub-bullet, we are negative to enable “any capable UE” to be UE-A since it will lead to complicated mechanism for reporting design including conflict resolving among different reports.  The updated version from DCM can be compromise and following description for scheme-1 should also be applied for scheme-2 as baseline since if the 2rd party UE may not share same understanding due the location difference.   * + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B*     - *FFS: In which cast type UE-A is a destination UE of a TB transmitted by UE-B*   One additional part is that we can remove the “~~e.g., …~~” to avoid the potential “implication”. |
| vivo | Yes in principle | The example for resource conflict should be deleted. |
| Intel | Yes, with comments | If there is no intention to define definition of sidelink conflicts then we prefer to remove examples, otherwise let’s discuss one by one.  Scheme-2 should operate based on request otherwise inter-UE coordination information can be provided but not considered by UE-B.  ***Draft Proposal 4****:*   * *In scheme 2, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *Any UE that performs TB transmission and requests inter-UE coordination information can be UE-B*   + *Any capable UE that detects resource conflict(s) on resource(s) indicated by UE-B’s SCI can be UE-A and send inter-UE coordination information to UE-B*     - *FFS: ~~Details including~~*       * *Additional condition(s) for transmission of inter-UE coordination information*       * *Definition of resource conflict(s)*       * *, ~~e.g.,~~*         + *~~RSRP value measured on other UE’s reserved resource(s) overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency is larger than (pre)configured RSRP threshold~~*         + *~~UE-B is a destination UE of other UE whose reserved resource(s) overlap with resource(s) indicated by UE-B’s SCI in time~~*       * *~~Whether to define additional condition(s) for UEs to be UE-A(s), e.g.,~~*          + *~~a UE receives a request from UE-B~~* |
| Fujitsu | No | 1. Do not support 2nd example in the definition of resource conflict. In our view, the possibility of using inter-UE coordination for 2nd example is very small. If UE B and UE C have a half duplex issue on the resources reserved by prior SCIs, UE B can identify and avoid the issue based on the prior SCIs but not by using inter-UE coordination. One case which may benefit from inter-UE coordination could be that UE B and UE C have half duplex issues on the prior SCIs and have half duplex issues on the resources reserved by prior SCIs. However, the possibility that half duplex happens to more than one TX resource of two UEs is very small.  2. In the 1st example, the relationship of priorities in SCIs of UE-B and other UE is missing.  3. It better be clarified that the proposal is for Scheme 2 with expected/potential resource conflict indication.  The suggested modifications are summarized as follows.   * *In scheme 2, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *Any capable UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI can be UE-A and send inter-UE coordination information to UE-B*     - *FFS: Details including*       * *Definition of resource conflict, e.g.,*         + *RSRP value measured on other UE’s reserved resource(s) overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency is larger than (pre)configured RSRP threshold, and the priority of other UE is higher than that of UE-B*         + *~~UE-B is a destination UE of other UE whose reserved resource(s) overlap with resource(s) indicated by UE-B’s SCI in time~~*       * *Whether to define additional condition(s) for UEs to be UE-A(s), e.g.,*          + *a UE receives a request from UE-B* |
| Panasonic | Yes, with modification | Agree with DOCOMO’s modification. In addition, whether UE-A knows the capability of UE-B or not should be clarified. If UE-B has no capability of inter UE coordination and UE-A send inter UE coordination, UE-B doesn’t aware the inter UE coordination. |
| CMCC | No | In our view, Scheme 2 works better when UE-A is among the destination of UE-B. If UE-A is any UE that is capable of detecting resource conflicts on resources indicated by UE-B’s SCI, then my concerns would be, how does UE-A know that an identified conflict will impact the UE-B’s transmission? For example, suppose that UE-A detects resource conflict between UE-B and UE-C on a resource. In this case, if UE-B intends to use this resource to communicate with UE-C, then half-duplex issue happens; otherwise, if UE-B and UE-C use the same resource to communicate with its own receiver, which maybe far away from each other, no problem on this conflict. However, if UE-A is a third-party UE, how does UE-A recognize that the conflict belongs to which case? |
| OPPO | Fine in general, with comments | Similar as that in Scheme 1, UE-A should be a UE that sends the coordination information.   * *In scheme 2, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *Any capable UE that detects resource conflict on resource(s) indicated by UE-B’s SCI ~~can be UE-A~~ and send inter-UE coordination information to UE-B can be UE-A*     - *FFS: Details including*       * *Definition of resource conflict, e.g.,*         + *RSRP value measured on other UE’s reserved resource(s) overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency is larger than (pre)configured RSRP threshold*         + *UE-B is a destination UE of other UE whose reserved resource(s) overlap with resource(s) indicated by UE-B’s SCI in time*       * *Whether to define additional condition(s) for UEs to be UE-A(s), e.g.,*          + *a UE receives a request from UE-B* |
| LG | Yes | We are fine to remove the examples. It will be handled in the next proposals. In addition, we prefer to add some FFS for the conditions to be UE-B in scheme 2. |
| Sony | Yes | We are OK with the FL proposal. But on FFS part, we are fine with Qualcomm’s update to make a progress. |
| Nokia, NSB | Yes, with additions | * + - * *Whether to define additional condition(s) for UEs to be UE-A(s), e.g.,*          + *a UE receives a request from UE-B*         + *RSRP value measured on UE-B’s SCI (or distance from UE-B)*         + *UE density (e.g., number of UEs within a predefined range/distance of the UE detecting the resource conflict)*   In high-density scenarios (e.g., a traffic jam), allowing every capable UE to indicate a resource conflict may lead to many UEs transmitting a conflict indication. If the PSFCH symbol is used for Scheme 2 (which seems likely), even if the Scheme 2 transmissions add up in an SFN manner (i.e., they don’t interfere with each other), this may lead to conflicts with legacy PSFCH transmissions for SL HARQ-ACK indication (e.g., PSFCH TX/RX conflicts or PSFCH TX/TX conflicts). Thus, a mechanism to dampen Scheme 2 under high UE density might be beneficial.  The examples under “Definition of resource conflict” can be removed, since there is anyway a separate question to discuss this aspect in more detail. |
| Mitsubishi | No | For reasons already spelled out by many companies, we do not think that any UE should be allowed to provide coordination info. UE-A should be among the destination UEs of UE-B. Further detail on who is UE-B is also needed. |
| Xiaomi | Yes /comments | We support with FL’s proposal .  The definition of capable UE need to be clarified, from our understanding, a capable UE is a UE that is able to do inter-UE coordination. Is this understanding aglined with FL? |
| CATT, GOHIGH | See comments | First, we share similar views with DCM, the first sub-bullet should be update:  *~~Any~~ A capable UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI can be UE-A and send inter-UE coordination information to UE-B*  Before we discuss the details on the resource conflict, it would be better to determine the supported cast type for scheme 2, otherwise it is unclear on the “other UE” in the examples of resource conflict. Therefore, similar as scheme 1, and FFS part on supported cast type is necessary.   * *In scheme 2, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *~~Any~~ A capable UE that detects resource conflict on resource(s) indicated by UE-B’s SCI can be UE-A and send inter-UE coordination information to UE-B*     - *FFS: Details including*       * *Definition of resource conflict, ~~e.g.,~~*         + *~~RSRP value measured on other UE’s reserved resource(s) overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency is larger than (pre)configured RSRP threshold~~*         + *~~UE-B is a destination UE of other UE whose reserved resource(s) overlap with resource(s) indicated by UE-B’s SCI in time~~*       * *Supported cast type in scheme 2*       * *Whether to define additional condition(s) for UEs to be UE-A(s), e.g.,*          + *a UE receives a request from UE-B* |
| Fraunhofer | Yes | We are supportive of the FL’s proposal. We are also fine to remove the examples under the definition of resource conflicts. |
| Huawei, HiSilicon | No | If any UE that detects expected/potential resource conflict can be UE-A, then there might be a lot of UE-As for a single UE-B. This would jump ahead of knowing which cast types are supported by scheme 2.  It’s possible that some conflict indications might be inaccurate and cause unnecessary resource re-selection. Therefore, we propose to adopt similar rule as Scheme 1 that the role of UE-A or UE-B can be determined by the V2X application layer and passed to PHY layer.  We suggest to add “expected/potential” prior to “resource conflict” to align with the latest agreement.  The examples under “Definition of resource conflict” are discussed in Proposal 6. So we suggest to remove them to avoid any duplicate discussions.  We suggest to remove the last example, i.e., ”*a UE receives a request from UE-B*”, or companies can further clarify what’s the intended scenario.  In summary, we propose the following changes in red   * *In scheme 2, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *The role of UE-A or UE-B is determined by the V2X application layer and passed to PHY layer.*   + *~~Any capable~~ UE-A that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI ~~can be UE-A and~~ send inter-UE coordination information to UE-B*     - *FFS: Details including*       * *Definition of resource conflict~~, e.g.,~~*         + *~~RSRP value measured on other UE’s reserved resource(s) overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency is larger than (pre)configured RSRP threshold~~*         + *~~UE-B is a destination UE of other UE whose reserved resource(s) overlap with resource(s) indicated by UE-B’s SCI in time~~*       * *Whether to define additional condition(s) for UEs to be UE-A(s)~~, e.g.,~~*          + *~~a UE receives a request from UE-B~~*       * *Applicable cast type(s)* |
| Ericsson | Yes, in principle | For the last bullet, we think it is also important to consider limitations for the UEs that can be UE-A based on the following, e.g., distance to the UE-B, measured RSRP, etc...  These limitations are necessary to avoid having UEs transmit the coordination message if they are too far away. |
| Spreadtrum | No | Firstly, it should be clarified that this proposal is for expected/potential resource conflict indication.  Secondly, in the first example of definition of resource conflict, priority condition should also be added which is similar as pre-emption mechanism.  So, we proposal the following changes:   * *In scheme 2, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *Any capable UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI can be UE-A and send inter-UE coordination information to UE-B*     - *FFS: Details including*       * *Definition of resource conflict, e.g.,*         + *RSRP value measured on other UE’s reserved resource(s) overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency is larger than (pre)configured RSRP threshold, and the priority of other UE is higher than that of UE-B*         + *UE-B is a destination UE of other UE whose reserved resource(s) overlap with resource(s) indicated by UE-B’s SCI in time*       * *Whether to define additional condition(s) for UEs to be UE-A(s), e.g.,*          + *a UE receives a request from UE-B* |
| Apple |  | 1. For scheme 2, we prefer only the receiver UE can be UE-A. Since the inter-UE coordination in scheme 2 is most likely delivered in feedback channel, it is natural that UE-A is an intended receiver of UE-B to qualify UE-A’s usage of the feedback channel corresponding to UE-B’s PSCCH/PSSCH transmissions.  “*~~Any capable~~Receiver UE that detects resource conflict on resource(s) indicated by UE-B’s SCI can be UE-A and send inter-UE coordination information to UE-B……”*  2. In the definition of resource conflict:  “*UE-B is a destination UE of other UE whose reserved resource(s) overlap with resource(s) indicated by UE-B’s SCI in time”* seems to address the half duplex issue at UE-B. However, the half duplex issue at the receiver UE of UE-B’s transmission needs to be considered as well. In this sense, we propose to add one sub-bullet as “*A destination UE of UE-B has scheduled transmission which has time overlap with resources indicated by UE-B’s SCI”* |
| CEWiT | yes | We support the FL’s proposal. We are okay to remove the examples but feels that it will preclude any other possibilities as all are any way FSS. |
| Convida Wireless |  | Some clarification may be needed for the proposal   * + *Any capable UE that detects resource conflict on resource(s) indicated by UE-B’s SCI can be UE-A and send inter-UE coordination information to UE-B*   Regarding capable UE that detects resource conflict, does it imply such UE could be intended receive UE of UE B or non-intended receive UE of UE B? Should it be made more clear in the proposal? |

**2.2 How to determine inter-UE coordination information for each scheme**

During Monday’s GTW session (August 16th), RAN1 agreed to support the following inter-UE coordination information signalling for each scheme.

* Scheme 1
  + Set of resources preferred for UE-B’s transmission
  + Set of resources non-preferred for UE-B’s transmission
* Scheme 2
  + Presence of expected/potential resource conflict on the resources indicated by UE-B’s SCI

From FL’s point of view, further discussion is needed on how inter-UE coordination information is determined in each scheme. One thing I would like to emphasize is that for scheme 1, there should be a difference between “condition(s) for determining preferred resource set” and “condition(s) for determining non-preferred resource set”. Otherwise, from a signalling point of view, there is no need to separate the preferred resource set and the non-preferred resource set.

**I ask companies to provide inputs on the following two questions below. The deadline for companies to provide inputs is August 17th 11:59am UTC. To prepare/make more stable draft proposals before the start of Wednesday’s GTW session (August 18th), it would be highly appreciated if companies make comments as soon as possible. Also to make progress more efficiently, I would like to encourage companies to directly provide “revised wording” or “new wording needed to be added”.**

**Question 1**: Do you agree Draft Proposal 5 for scheme 1?

***Draft Proposal 5****:*

* *In scheme 1, the following is supported to determine inter-UE coordination information:*
  + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*
    - *Condition 1-A-1:*
      * *Resource(s) at least except for* 
        + *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold*

*FFS: Details*

* + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*
    - *Condition 1-B-1:*
      * *Slot(s) where UE-A cannot perform SL reception*
        + *FFS: Details*
  + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| NTT DOCOMO | Comment | It seems that the above direction intends that preferred has the complementary relationship with non-preferred. Whether this view is shared among companies is unclear for us.  If this direction is OK, for example a condition corresponding to condition 1-B-1 should be added to preferred. 1-A-1 to non-preferred is the same.  If this direction is not OK, what is each goal of preferred/non-preferred should be clarified first. |
| Qualcomm | No | In non-preferred resource indication, UE-A’s task is to minimize resource collisions. This is independent of whether UE-A itself can receive or not in that slot.  Separately, we observed in out evaluations that performance significantly improved when utilizing the expected interference level at UE-A as part of selecting preferred resources.  We propose the following update:   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) ~~at least except for~~ excluding*         + *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold*   *FFS: Details*   * + - * + *Reserved resource(s) of other UEs identified by UE-A for which the ratio of the expected RSRP for a transmission from UE-B to the RSRP measured for this reserved resource is below a threshold.*   *FFS: Details*   * + *UE-A considers resource(s) satisfying at least one of the following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *~~Slot(s) where UE-A cannot perform SL reception~~*         + *~~FFS: Details~~*       * *Resources that UE-A has selected for its own initial transmission*         + *FFS Details*     - *Condition 1-B-2:*       * *Resource that other UEs will use for their transmissions.*         + *FFS Details*   + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)* |
| Lenovo/Motorola Mobility | Yes with comments | We are supportive of the FL proposal and below are few comments for further consideration   * Preferred resource may also comprise of resource set information extracted from candidate resource selection which includes SA whose RSRP level above RSRP threshold. * Non-preferred resource may also comprise of resource set information extracted from candidate resource exclusion that are not part of SA whose RSRP level is below RSRP level   On the RSRP threshold used to determine the preferred/non-preferred resource(s) it should be further studied including a) the RSRP threshold is (pre-)configured or b) the RSRP threshold is indicted by UE-B |
| Futurewei | See comments | For non-preferred resource set, it shall include the case that measured RSRP value on the same reserved resources from other UE is larger a configured threshold. So for the sub-bullet, we propose to add   * + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Slot(s) where UE-A cannot perform SL reception*         + *FFS: Details*     - *Condition 1-B-2:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than (pre)configured RSRP threshold*   *FFS: Details* |
| InterDigital | Yes | We support the proposal |
| Samsung | See comments | For Scheme 1, we think that Rel-16 mode 2 sensing and resource selection procedure can be reused as much as possible to decide the set of preferred or non-preferred resource. Specifically, Rel-16 sensing and resource selection procedure can generate a set of candidate resource (this can be candidates for preferred) and a set of excluded resource (this can be candidates for non-preferred). So, we suggest to modify the proposal such that:   * *In scheme 1, Rel-16 mode 2 sensing and resource selection procedure is a starting point*   + *A set of identified resource from Rel-16 mode sensing and resource selection procedure becomes the candidate for preferred resource.*     - * *FFS: how to determine a set of preferred resource for signaling*   + *A set of excluded resource from Rel-16 mode sensing and resource selection procedure becomes the candidate for non-preferred resource.*     - * *FFS: how to determine a set of non-preferred resource for signaling*   FFS: additional conditions to decide a set of preferred or non-preferred resources (ex, excluding scheduled UL resources and reserved SL resources for UE-A’s own transmission) |
| ZTE | Comments | In our views, the intention to introduce the preferred resource is to enable the optimized resource feedback from UE-A based on the UE-B’s guidance, including details requirement for future traffic. Then, for condition 1-A-1, following updated version si preferred:   * + - *Condition 1-A-1:*       * *Resource(s) satisfying the requirement indicated by UE-B*         + *FFS: details of requirement*         + *FFS: indication signalling*       * *~~Resource at least except for~~*          + *~~Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold~~*   *~~FFS: Details~~* |
| vivo | Yes | For preferred resource, the condition is modified as following, since RSRP threshold may be derived by UE-A based on defined rule. We are also fine to discuss the SINR based condition as proposed by QC.   * + - Condition 1-A-1:       * Resource(s) at least except for         + Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than ~~(pre)configured~~ RSRP threshold |
| Intel | Yes, with comments | Additional conditions to define preferred and non-preferred resource sets are added  ***Draft Proposal 5****:*   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Non-reserved resources*       * *~~Resource(s) at least except for~~*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is below ~~larger~~ than (pre)configured RSRP threshold*   *FFS: Details*   * + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Slot(s) where UE-A cannot perform SL reception*         + *FFS: Details*     - *Condition 1-B-2:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold*         + *FFS: Details*   + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)* |
| Fujitsu | No | 1. The proposal is under the assumption that UE-A is the RX UE of UE-B as proposed in draft proposal 3. This should be clarified.  2. Both preferred and non-preferred resources can be determined based on other UE’s reserved resources and UE-A’s TX resources. Therefore, the preferred resources should also exclude the slots determined by the non-monitored slots of UE-A, and the non-preferred resources should also include other UE’s reserved resources. The principle is that UE-B should be able to perform (re)selection based on either preferred resources alone or non-preferred resources alone.  The suggested modifications are summarized as follows.   * *In scheme 1, the following is supported to determine inter-UE coordination information if UE-A is a destination UE of a TB transmitted by UE-B:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) at least except for*          + *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold*   *FFS: Details*   * + - * + *Slot(s) excluded based on UE-A’s non-monitored slot(s)*   *FFS: Details*   * + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Slot(s) where UE-A cannot perform SL reception*          + *FFS: Details*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold*         + *FFS: Details*   + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)* |
| Panasonic | Yes, with comment | We are supportive of the proposal. For condition of preferred resource, when UE-A is receiver UE of UE-B, the resources are selected form UE-A can perform SL reception could be added. |
| CMCC |  | A similar question for clarification, are we precluding other conditions for the UE-A to determine the non-preferred/preferred set of resources?  Regarding the condition 1-A-1, we believe that it also works for UE-A determines non-preferred set of resources. The conditions depend on different detailed solutions. To our understanding, the condition 1-A-1 under preferred set of resources applies for the case when the preferred and non-preferred set of resources are complementary resources. However, there is one possible solution for indicating the non-preferred set of resources is that, UE-A identifies reserved resource(s) of other UE whose RSRP measurement is larger than (pre)configured RSRP threshold, then the UE-A can forward the SCI carrying the detected reservations, which are non-preferred for UE-B’s transmission. In such a case, the non-preferred set of resources sent by UE-A is not the complementary set of preferred resources. Therefore, we believe that the condition 1-A-1 should also be considered for the non-preferred set of resources. |
| OPPO | Yes | Support the proposal |
| LG | Yes | In our understanding, for the preferred resources, other exception conditions could be added depending on the discussion. In this point of view, the position of “Condition 1-A-1” need to be placed before each exceptional condition to be preferred resource set. |
| Sony | Yes | We are fine with the FL proposal basically. |
| Nokia, NSB | Yes, with changes | * + - *Condition 1-A-1:*       * *Resource(s) at least except for*          + *Resources overlapping in time-and-frequency with reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold*     - *Condition 1-B-1:*       * *Slot(s) where UE-A cannot perform SL reception, if UE-A is an intended recipient of UE-B’s transmission* |
| xiaomi | Yes with comments | *For condition 1-A-1, it is not clear from which set the resource is except for. From our understanding, a candidate resource set would be needed for UE- A to decide the preferred resource set. Therefore, the proposal of condition 1-A-1 is suggested to be revised:*   * + - *Condition 1-A-1:*       * *Resource(s)* ***in a candidate resource set*** *at least except for*          + *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold*   *FFS: Details*   * + - * + *FFS on the candidate resource set* |
| CATT, GOHIGH | See comments | From our understanding, the UE-A should be an intended receiver of UE-B’s transmission.  Therefore, for the preferred resource set, slot(s) where UE-A cannot perform SL reception should be excluded from the preferred resource set.  Since there is a “at least” for the conditions, we don’t broad it too much. The updated proposal is as following:   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) at least except for*          + *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold*   *FFS: Details*   * + - *Condition 1-A-2:*       * *Slot(s) where UE-A cannot perform SL reception*         + *FFS: Details*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Slot(s) where UE-A cannot perform SL reception*         + *FFS: Details*   + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)* |
| Fraunhofer | Yes, with comments | We are supportive of the FL’s proposal, and would like to add conditions for determining the preferred and non-preferred resource set.  For the preferred resource set, any resource that is not reserved by other UE’s received SCIs, and is below the RSRP threshold, should also be considered. In other words, any resource that can be included in the candidate resource set as per Rel-16 should be considered as a preferred resource for UE-B.  For the non-preferred resource set, we also agree that resources reserved by other UEs, or resources that can be excluded in the candidate resource set as per Rel-16, where the measured RSRP is larger than the (pre-)configured threshold should be considered.  Hence we propose the following:   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) ~~at least except for~~ identified as candidate resources using Rel-16 sensing and selection procedure*          + *This excludes Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold*   *FFS: Details*   * + - * + *This excludes resource(s) in non-monitored time slots*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Slot(s) where UE-A cannot perform SL reception*         + *FFS: Details*       * *Resource(s) identified to be excluded as candidate resources using Rel-16 sensing and selection procedure*     - *Condition 1-B-2:*       * *Resource(s) reserved by other UEs that overlap with resource(s) indicated by UE-B’s SCI*   + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)* |
| Huawei, HiSilicon | See comments | For preferred resources, when UE-A determines preferred resources for UE-B’s transmission, UE-B’s traffic requirement should be taken into account.  It would be the scenario that UE-A provides the coordination information for multiple UE-Bs (e.g., RSU, platooning, etc.), thus the resource sets have been selected by UE-A for other UE-B’s transmission should be excluded when UE-A determines the preferred resources.  For non-preferred resources, we assume “from UE-B” needs to be added as below to correctly reflect the intention.  It seems the last FFS is redundant with “*Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold*”. So we suggest to remove it. If this FFS has other intentions, it should be clarified first.  In summary, we propose the following changes in red   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) at least except for*          + *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold*   *FFS: Details, including considering UE-B’s traffic requirement*   * + - * + *Resource set selected by UE-A for other UE-Bs’ transmissions*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Slot(s) where UE-A cannot perform SL reception from UE-B*         + *FFS: Details*   + *~~FFS: Details on how UE-A identifies other UE’s reserved resource(s)~~* |
| Ericsson | Yes, with comments | In the first condition (1-A-1), we propose to add the word “all” to the resources:  All resource(s) at least except for |
| Spreadtrum | No | Firstly, reserved resource(s) of other UE identified by UE-A can be used to determine both preferred and non-preferred resources.  Secondly, in condition 1-B-1, “from UE-B” should be added.  So, we proposal the following changes:   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) at least except for*          + *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold*   *FFS: Details*   * + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Slot(s) where UE-A cannot perform SL reception from UE-B*         + *FFS: Details*     - *Condition 1-B-2:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold*         + *FFS: Details*   + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)* |
| Apple |  | For condition 1-B-1, we think “Slot(s) where UE-A cannot perform SL reception” is only applicable where UE-A is the receiver UE of UE-B, since otherwise, it does not matter whether UE-A can or cannot perform SL reception.  Also, we think the criteria of a resource is preferred or non-preferred should be aligned. For example, the criteria *“reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than (pre)configured RSRP threshold”* should be applicable (complementary) to both preferred and non-preferred resources. |
| CEWiT | yes | We support the FL’s proposal. |
| Convida Wireless | Yes | We are ok with the proposal. |

**Question 2**: Do you agree Draft Proposal 6 for scheme 2?

***Draft Proposal 6****:*

* *In scheme 2, the following is supported to determine inter-UE coordination information:*
  + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least following condition(s):* 
    - *Condition 2-A-1:*
      * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*
        + *RSRP value measured on other UE’s reserved resource(s) is larger than (pre)configured RSRP threshold*

*FFS: Details*

* + - *Condition 2-A-2:*
      * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*
        + *Groupcast destination ID of resource(s) reserved by other UE is the same as groupcast destination ID of resource(s) indicated by UE-B’s SCI*

*FFS: Details*

* + - * + *Unicast destination ID of resource(s) reserved by other UE is the same as unicast source ID of resource(s) indicated by UE-B’s SCI*

*FFS: Details*

* + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| NTT DOCOMO | Comment | Condition 2-A-1 should include both full overlapping and partial overlapping. Current text is unclear for this point, so update is needed.   * + - * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*   On condition 2-A-2, there is no motivation for UE-A to transmit UE-B. In this case, it might be feasible that no UE has capability to do so. Condition beneficial for both UE-A and whole system should be discussed in my understanding.  In addition, the following collision should be included.   * Collision between UE-A and UE-B * Collision related to PSFCH * Collision between SL and UL |
| Qualcomm | Yes with comment | We understand the conditions as alternative not that both have to be satisfied simultaneously. With that understanding, we propose the following clarification:   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):* |
| Lenovo/Motorola Mobility | No | We have few comments  *Condition 2-A-1:*   * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time, time-and-frequency.* * *In condition 2-1* besides the RSRP value the time gap between two SCIs whose reserved resources are overlapping should be smaller than the processing delay. If not, the resource conflict can be addressed by pre-emption checking.   ***Modified Draft Proposal 6****:*   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time, time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than (pre)configured RSRP threshold*   *FFS: Details*   * + - * + T*he time gap between SCIs whose reserved resources are overlapping is smaller than the processing delay*     - *Condition 2-A-2:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*         + *Groupcast destination ID of resource(s) reserved by other UE is the same as groupcast destination ID of resource(s) indicated by UE-B’s SCI*   *FFS: Details*   * + - * + *Unicast destination ID of resource(s) reserved by other UE is the same as unicast source ID of resource(s) indicated by UE-B’s SCI*   *FFS: Details*   * + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)* |
| Futurewei | See comments | We are ok with condition 2-A-1. For condition 2-A-2, we are not clear on condition 2-A-2. If it is for the case that other UE reserved the same resources for UE-A, it shall still be the resource indicated by UE-B’s SCI in time-and-frequency meaning at least with a partial overlap in time-and-frequency. The reserved resources on the same time slot does not necessary mean that they have a conflict. So we suggest move it to 2-A-1  Also the proposal does not include the conflict due to half-duplex.  We propose the following change on the proposal   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than (pre)configured RSRP threshold*   *FFS: Details*   * + - * + *Groupcast destination ID of resource(s) reserved by other UE is the same as groupcast destination ID of resource(s) indicated by UE-B’s SCI*   *FFS: Details*   * + - * + *Unicast destination ID of resource(s) reserved by other UE is the same as unicast source ID of resource(s) indicated by UE-B’s SCI*   *FFS: Details*   * + - *Condition 2-A-2:*       * *~~Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time~~*         + *~~Groupcast destination ID of resource(s) reserved by other UE is the same as groupcast destination ID of resource(s) indicated by UE-B’s SCI~~*   *~~FFS: Details~~*   * + - * + *~~Unicast destination ID of resource(s) reserved by other UE is the same as unicast source ID of resource(s) indicated by UE-B’s SCI~~*   *~~FFS: Details~~*   * + - * *Resource(s) reserved for UE-A’s transmissions are overlapping with resource(s) indicated by UE B’s SCI in time*         + *FFS: Details*   + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)* |
| InterDigital | No | As discussed for draft proposal 4, it is not clear to us which SCI is “UE-B’s SCI” indicated in the beginning of the proposal. In our view, It is also necessary to define which UE-B’s SCI in the context of cast type to understand the Condition 2-A-2 correctly. |
| Samsung | See comments | We think the most important condition should be UE-A’s reserved resource(s) is overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency. Also, we can consider other condition additionally, We do not see necessity of condition 2-A-2 on the top of condition 2-A-1. |
| ZTE | Comments | For scheme-2, we should firstly identify the collision between UE-A and UE-B. Then, whether to introduce the additional consideration related to “other UEs” can be considered later once the definition is clear. |
| vivo | See comment | Agree with DCM, at least UL transmission needs to be considered, we proposed to add another condition 2-A-3.   * + - condition 2-A-3       * UE-A’s UL transmission resource and UE-A’s LTE SL transmission/reception resource are overlapping with resource(s) indicated by UE-B’s SCI in time   Regarding condition 2-A-2, the motivation is not clear. Do you mean that UE-B may not able to receive multiple TBs simultaneously? |
| Intel | Yes, with comments | ***Draft Proposal 6****:*   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than (pre)configured RSRP threshold*   *FFS: Details*   * + - * + *FFS: Distance based criteria b/w UE-A and UE-B*     - *Condition 2-A-2:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*         + *Groupcast destination ID of resource(s) reserved by other UE is the same as groupcast destination ID of resource(s) indicated by UE-B’s SCI*   *FFS: Details*   * + - * + *Unicast destination ID of resource(s) reserved by other UE is the same as unicast source ID of resource(s) indicated by UE-B’s SCI*   *FFS: Details*   * + - * + *FFS additional criteria*   + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)* |
| Fujitsu | No | The comments are similar with those for draft proposal 4.  1. We do not support Condition 2-A-2 since its probability is very small.  2. In Condition 2-A-1, the relationship of priorities of UE-B and other UE is missing.  The suggested modifications are as follows.   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than (pre)configured RSRP threshold, and the priority of other UE is higher than that of UE-B*   *FFS: Details*   * + - *~~Condition 2-A-2:~~*       * *~~Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time~~*         + *~~Groupcast destination ID of resource(s) reserved by other UE is the same as groupcast destination ID of resource(s) indicated by UE-B’s SCI~~*   *~~FFS: Details~~*   * + - * + *~~Unicast destination ID of resource(s) reserved by other UE is the same as unicast source ID of resource(s) indicated by UE-B’s SCI~~*   *~~FFS: Details~~*   * + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)* |
| Panasonic | Yes, with comments | We support condition 2-A-1. For condition 2-A-2, the detailed condition should be clarified. In our view, when UE-A can judge UE-B should prioritize reception from UE-C by priority indication, UE-A can transmit the inter -UE coordination to UE-B to cancel transmission. If UE also can transmit inter coordination to UE-C, UE can transmit inter UE coordination to stop transmission from UE-C to UE-B when UE-B should prioritize the transmission. |
| CMCC |  | Regarding the condition 2-A-2, we have a question of how it works? Let’s take the unicast as an example, to our understanding, this condition is for the case when half-duplex issue happens between UE-B and other UEs, e.g, UE-C selects resource X to send messages to UE-B, while UE-B reserves a resource with same slot as resource X to transmit to UE-D. As noted in the proposal, UE-A can only recognize this issue when the destination ID carried in the 2nd stage SCI sent by UE-C is the same as the source ID carried in the SCI sent by UE-B. However, since these are two different unicast links (link 1 is UE-C to UE-B, link 2 is UE-B to UE-D), the destination ID of UE-B in link 1 may not be the same as the source ID in link 2. Similar as our comments to Draft Proposal 4, we think that when UE-A is a third-party UE, the benefit of Scheme 2 seems limited. |
| OPPO | Agree in general with comments | *1. agree with Qualcomm, “one of ” should be added at the end of the first sub-bullet.*  *2. For condition 2-A-2, one more condition is that the other UE is within the communication range of UE-B.*  *Suggested changes as below:*   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than (pre)configured RSRP threshold*   *FFS: Details*   * + - *Condition 2-A-2:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*         + *Groupcast destination ID of resource(s) reserved by other UE is the same as groupcast destination ID of resource(s) indicated by UE-B’s SCI*   *FFS: Details*   * + - * + *Unicast destination ID of resource(s) reserved by other UE is the same as unicast source ID of resource(s) indicated by UE-B’s SCI*   *FFS: Details*   * + - * + *Zone of the other UE is located within the communication range of UE-B*   *FFS: Details*   * + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)* |
| LG | Yes in principle | *In our understanding, Condition 2-A-1 targets resource collision while condition 2-A-2 targets half-duplex problem.*  *For condition 2-A-1, we need additional FFS to determine the resource collision. To be specific, for accuracy, the RSRP value measured by UE-A from UE-B’s transmission needs to be high enough.*  *Regarding the proposal, since it says “at least”, nothing is precluded. In our understanding, the currently listed ones are supported by a majority companies in this meeting.* |
| Sony | Yes with comments | *We are basically fine with the FL proposal, but we think we should classify the resource conflict into two categories like: (1) Resource conflict happened between UE-A and UE-B, we further consider the UE-A reserved resources and UE-A’s UL transmission and so on.*  *(2) Resource conflict happened between other UE and UE-B, and identified by UE-A.* |
| Nokia, NSB | Yes, with additions | * + - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *UE-A is an intended recipient of UE-B’s transmission and/or other UE’s transmission*         + *RSRP value measured on other UE’s reserved resource(s) is larger than (pre)configured RSRP threshold*   *FFS: Details*   * + - * *UE-A’s reserved resource(s) for its transmission of a TB are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *UE-A’s intended recipient(s) overlap with UE-B’s*         + *UE-A’s priority is higher than UE-B’s*     - *Condition 2-A-2:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*         + *Groupcast destination ID of resource(s) reserved by other UE is the same as groupcast destination ID of resource(s) indicated by UE-B’s SCI*   *FFS: Details*   * + - * + *Unicast destination ID of resource(s) reserved by other UE is the same as unicast source ID of resource(s) indicated by UE-B’s SCI*   *FFS: Details*   * + - * *UE-A’s reserved resource(s) for its transmission of a TB are overlapping with resource(s) indicated by UE-B’s SCI in time*         + *UE-A is an intended recipient of UE-B’s transmission*         + *UE-A’s priority is higher than UE-B’s*   For half-duplex detection, in the case of distance-based HARQ feedback the zone and range indicated by UE-B and the zone of the other UE need to be considered. |
| Xiaomi | Comment | *We agree with QC, that two conditions are alternatives, for condition 2-A-2, our understanding is to solve the half duplex issue, if our understanding is correct, we suggest to make the following revision for clarification:*   * + - *Condition 2-A-2:*       * *Other UE’s reserved resource(s) identified by UE-A with UE-B as a destination are overlapping with resource(s) indicated by UE-B’s SCI in time.* |
| CATT, GOHIGH | See comments | Currently, we haven’t discussed the supported cast type for scheme 2. Therefore, we prefer to remove the condition 2-A-2 which is related to the supported cast type in scheme 2.   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than (pre)configured RSRP threshold*   *FFS: Details*   * + - *~~Condition 2-A-2:~~*       * *~~Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time~~*         + *~~Groupcast destination ID of resource(s) reserved by other UE is the same as groupcast destination ID of resource(s) indicated by UE-B’s SCI~~*   *~~FFS: Details~~*   * + - * + *~~Unicast destination ID of resource(s) reserved by other UE is the same as unicast source ID of resource(s) indicated by UE-B’s SCI~~*   *~~FFS: Details~~*   * + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)* |
| Fraunhofer | Yes | We are supportive of the FL’s proposal.  We are supportive of the conditions added by Nokia w.r.t UE-A’s reserved resources. Also, since other conditions are not precluded, and these conditions are a starting point, we would prefer to add an FFS to allow other conditions to be considered. |
| Huawei, HiSilicon | Possible if limited to non-monitored slots. | As analysed in our Tdoc R1-2106478 Section 3.2.2.1, the benefits of expected resource conflict might very limited since UE-B itself will always do pre-emption check before using the reserved resource and can possibly find such collision. Expected resource conflict triggers UE-B to reselect resource and further perform unreserved transmission, which has high chance of collision and increased delay. Therefore, expected/potential resource conflict may have drawbacks in most cases. So we propose to limit it to the case of non-monitor slots of UE-B, where UE-B has no sensing information about the non-monitored slots and such conflict indication might be useful.  According to R16 NR-V design, by transmitting SCI, a UE can reserve up to two resources for re-transmissions (i.e., dynamic reservation), and reserve periodic resources for transmitting different TBs (i.e., periodic reservation). As shown in Figure 10 in our Tdoc R1-2106478 (also copied below), the resource conflict situations may include many cases, e.g., conflict happens on one, or two, or multiple of those dynamically and/or periodically reserved resources by UE-B. RAN1 needs to discuss whether the conflict indication from UE-A needs to differentiate different conflict situations, and which resource(s) should UE-B reselect accordingly. For example, if the conflict indication does not differentiate different conflict situations and UE-B reselects all the dynamically and periodically reserved resources when receiving the conflict indication, there could be some unnecessary reselection since some reserved resources may have no conflicts, and thus cause waste of resources, increased delay, higher collision chance due to unreserved transmission, etc.    **Figure 10: Different resource conflict situations**  We are unclear about the scenario and benefits of Condition 2-A-2 in addition to Condition 2-A-1. Does it refer to half-duplex indication?  Similar as commented for Proposal 5, it seems the last FFS, i.e., “*FFS: Details on how UE-A identifies other UE’s reserved resource(s)*” is redundant with Condition 2-A-1. So we suggest to remove it. If this FFS has other intentions, it should be clarified first.  In summary, we propose the following changes in red   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least following condition(s):*      - *Condition 2-A-1:*       * *When other UE’s SCI is transmitted in the non-monitor slots of UE-B, and o~~O~~ther UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than (pre)configured RSRP threshold*   *FFS: Details*   * + - *~~Condition 2-A-2:~~*       * *~~Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time~~*         + *~~Groupcast destination ID of resource(s) reserved by other UE is the same as groupcast destination ID of resource(s) indicated by UE-B’s SCI~~*   *~~FFS: Details~~*   * + - * + *~~Unicast destination ID of resource(s) reserved by other UE is the same as unicast source ID of resource(s) indicated by UE-B’s SCI~~*   *~~FFS: Details~~*   * + *FFS: whether the conflict indication from UE-A needs to differentiate different conflict situations, and which resource(s) should UE-B reselect accordingly*   + *~~FFS: Details on how UE-A identifies other UE’s reserved resource(s)~~* |
| Ericsson | Yes | Support this proposal |
| Spreadtrum | Yes with comments | Firstly, as the comments in proposal 4, priority condition should be added in condition 2-A-1 which is similar as pre-emption mechanism.  Secondly, when UE-A is an intended RX UE of UE-B’s transmission, the condition that the resource(s) of UE-A’ transmission /reception are overlapping with resource(s) indicated by UE-B’s SCI in time should also be included.  So, we proposal the following changes:   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than (pre)configured RSRP threshold, and the priority of other UE is higher than that of UE-B*   *FFS: Details*   * + - *Condition 2-A-2:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*         + *Groupcast destination ID of resource(s) reserved by other UE is the same as groupcast destination ID of resource(s) indicated by UE-B’s SCI*   *FFS: Details*   * + - * + *Unicast destination ID of resource(s) reserved by other UE is the same as unicast source ID of resource(s) indicated by UE-B’s SCI*   *FFS: Details*   * + - *Condition 2-A-3:*       * *The resource(s) of UE-A’ transmission /reception are overlapping with resource(s) indicated by UE-B’s SCI in time*         + *UE-A is an intended RX UE of UE-B’s transmission*   + *FFS: Details on how UE-A identifies other UE’s reserved resource(s)* |
| Apple |  | For Condition 2-A-2, the last sub-bullet only covers the half duplex at UE-B side (i.e., UE-B’s transmission and reception occurs in same slot). However, we also have the case of half duplex at receiver UE side from UE-B’s transmission. For example, if UE-B sends data to UE-C, while UE-C has sidelink transmission on the same slot, then UE-C is unable to receive the data from UE-B due to half-duplex constraints. Also, we do not restrict the application to unicast. Hence, we propose to  1. Modify the last sub-bullet to “Destination ID of resource(s) reserved by other UE is the same as source ID of resource(s) indicated by UE-B’s SCI”  2. add a new sub-bullet “Source ID of resource(s) reserved by other UE is the same as destination ID of the resource(s) indicated by UE-B’s SCI”  Also, we prefer to cover the half-duplex issue for both PSCCH/PSSCH and PSFCH. |
| CEWiT | yes | We support the FL’s proposal. Also we would prefer to add an FFS to consider other conditions. |
|  |  |  |

1. **Proposals for Wednesday’s GTW (August 18th)**

During the email discussion after Monday’s GTW session (August 16th), we have discussed how to define condition(s) for UE(s) to be UE-A(s) and/or UE-B(s).

For Scheme 1, I suggest to make a decision on which alternative is agreed during Wednesday’s GTW session.

***Draft Proposal 3****:*

***Alt 1****:*

* *In scheme 1, the following two options are supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*
  + *Option A:*
    - *A UE that sends a request for inter-UE coordination information can be UE-B*
      * *At least it is supported that a UE sends a request for inter-UE coordination information up to its own implementation.*
      * *FFS: Details including whether additional condition of sending a request is specified*
    - *A UE that received a request from UE-B and sends inter-UE coordination information to the UE-B can be UE-A*
      * *FFS: Details including whether condition of sending inter-UE coordination information with receiving a request from UE-B is specified or up to UE implementation*
    - *It is supported that UE-A is a destination UE of a TB transmitted by UE-B* 
      * *FFS: Detail including a possibility of specifying additional limitation for UE to be UE-A/UE-B and cast type(s) between UE-A and UE-B*
    - *FFS: It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A*
  + *Option B:*
    - *A UE that sends inter-UE coordination information to UE-B when conditions are met can be UE-A*
      * *FFS: Details*
    - *A UE that receives inter-UE coordination information from UE-A can be UE-B* 
      * *FFS: Details*
    - *It is supported that UE-A is a destination UE of a TB transmitted by UE-B*
      * *FFS: Detail including a possibility of specifying additional limitation for UE to be UE-A/UE-B and cast type(s) between UE-A and UE-B*
    - *FFS: It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A*

***Alt 2****:*

* *In scheme 1, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*
  + *A UE that sends a request for inter-UE coordination information can be UE-B*
    - *At least it is supported that a UE sends a request for inter-UE coordination information up to its own implementation.*
    - *FFS: Details including whether additional condition of sending a request is specified*
  + *A UE that received a request from UE-B and sends inter-UE coordination information to the UE-B can be UE-A*
    - *FFS: Details including whether condition of sending inter-UE coordination information with receiving a request from UE-B is specified or up to UE implementation*
  + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B* 
    - *FFS: Detail including a possibility of specifying additional limitation for UE to be UE-A/UE-B and cast type(s) between UE-A and UE-B*
  + *FFS: It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A*

For Scheme 2, I suggest to make a decision on the following draft proposal during Wednesday’s GTW session.

***Draft Proposal 4****:*

* *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*
  + *A capable UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B can be UE-A*
    - *FFS: Details including*
      * *Definition of expected/potential resource conflict*
      * *Whether/how to specify additional condition for UE to be UE-A/UE-(B)*
  + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B*
    - *FFS: Detail including a possibility of specifying additional limitation for UE to be UE-A/UE-B and cast type(s) between UE-A and UE-B*
  + *FFS: It is supported that a UE which is not a destination UE of a TB transmitted by UE-B can be UE-A*

1. **Email discussion after Wednesday’s GTW (August 18th)**

**4.1 Conditions for UE(s) to be UE-A(s) and/or UE-B(s)**

According to Chairman’s guideline, we can continue further discussion by considering the following contents as a starting point.

***Possible Agreement***

* *In scheme 1, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*
  + *A UE that sends an explicit request for inter-UE coordination information can be UE-B*
  + *A UE that received a request from UE-B and sends inter-UE coordination information to the UE-B can be UE-A*

***Possible Agreement***

* *In scheme 1, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*
  + *A UE that is trigger implicitly by an event sends inter-UE coordination information to the UE-B*

**I ask companies to provide inputs on the following three questions below. The deadline for companies to provide inputs is August 19th 4:59am UTC. To prepare/make more stable draft proposals before the start of Friday’s GTW session (August 20th), it would be highly appreciated if companies make comments as soon as possible. Also to make progress more efficiently, I would like to encourage companies to directly provide “revised wording” or “new wording needed to be added”.**

**Question 1**: Do you agree Draft Proposal 1 for scheme 1?

***Draft Proposal 1****:*

* *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*
  + *A UE that sends an explicit request for inter-UE coordination information is UE-B*
  + *A UE that received an explicit request from UE-B and sends inter-UE coordination information to the UE-B is UE-A*
    - *FFS: Detail including* 
      * *Whether condition of sending an explicit request is specified or up to UE implementation*
      * *Whether condition of sending inter-UE coordination information with receiving an explicit request from UE-B is specified or up to UE implementation*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| Intel | No | We suggest discussing proposals for explicit and implicit Inter-UE coordination triggering together as a single proposal.  We suggest the following changes:  ***Draft Proposal 1****:*   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination information transmission* * *triggered by explicit request in Mode 2:*   + *A UE that sends an explicit request for inter-UE coordination information is UE-B*   + *A UE that received an explicit request from UE-B and sends inter-UE coordination information to the UE-B is UE-A*     - *FFS: Detail including*        * *Whether condition of sending an explicit request is specified or up to UE implementation*       * *Whether condition of sending inter-UE coordination information with receiving an explicit request from UE-B is specified or up to UE implementation* * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination information transmission triggered by a pre-configured condition other than explicit request reception in Mode 2:*   + *A UE that ~~is triggered implicitly by an event to~~ sends inter-UE coordination information ~~to UE-B~~ is UE-A*     - *FFS: Detail including*        * *Whether event of sending inter-UE coordination information is specified or up to UE implementation*   + *A UE that received inter-UE coordination information from UE-A and used it for resource allocation procedures can be UE-B* |
| Ericsson | No | For this proposal we have the following comments:  In our view, it is needed to clarify that UE-A is the destination of the TB transmission from UE-B which was also part of the previous version. Therefore, we propose to add the following sub-bullet to the proposal:   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that sends an explicit request for inter-UE coordination information is UE-B*   + *A UE that received an explicit request from UE-B and sends inter-UE coordination information to the UE-B is UE-A*     - *FFS: Detail including*        * *Whether condition of sending an explicit request is specified or up to UE implementation*       * *Whether condition of sending inter-UE coordination information with receiving an explicit request from UE-B is specified or up to UE implementation*   + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B* |
| Mitsubishi | Yes with comments | While we agree that a UE that sends […] IS UE-B, we believe that the wording of the second bullet is a bit misleading, since it can be interpreted that ALL UEs having received the request must transmit coordination info and become UE-A, which is a bit puzzling in combination with the second FFS point and undesirable in multicast/broadcast. A clarification is proposed:   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that sends an explicit request for inter-UE coordination information is UE-B*   + *A UE that received an explicit request from UE-B and sends inter-UE coordination information to the UE-B is UE-A*     - *Note: this does not imply that all Ues receiving the explicit request must send inter-UE coordination/be UE-A*     - *FFS: Detail including*        * *Whether condition ~~of~~ for sending an explicit request is specified or up to UE implementation*       * *Whether condition ~~of~~ for sending inter-UE coordination information ~~with~~ when receiving an explicit request from UE-B is specified or up to UE implementation*   + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B* |
| InterDigital | Yes | We support this proposal for request-based Scheme 1 coordination |
| Qualcomm | No | We don’t think that either proposal on its own is sufficient to address the use cases identified in the WID. We provide simulation results for those use cases in our contribution.  Proposal 1 would primarily apply to cases where most or all UEs are performing unicast transmissions, e.g., commercial use cases. In V2X multicast cases, the number of requests and their associated latency would be too large. In our contribution, we provided results showing that event-triggered transmission provides significant gains for unicast, groupcast option 1, and groupcast option 2, demonstrating that it is a general approach.  To address all cases identified in the WID, we think both triggered-based and request-based can be adopted with pre-configuration enabling/disabling each as appropriate for the deployment scenario.  We worry that interpreting the request as dynamic for every transmission could lead to work that cannot be finished within the Rel-17 timeframe. We propose to clarify this aspect in the proposal.  We propose some additions to the text proposed by Intel:  Draft Proposal:   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination information transmission triggered by explicit request in Mode 2:*   + *A UE that sends an explicit request for inter-UE coordination information is UE-B*   + *A UE that received an explicit request from UE-B and sends inter-UE coordination information to the UE-B is UE-A*     - *FFS: Detail including*        * *Whether condition of sending an explicit request is specified or up to UE implementation*       * *Whether condition of sending inter-UE coordination information with receiving an explicit request from UE-B is specified or up to UE implementation*       * *Whether the request is for each transmission or for multiple transmissions of the coordination information.*   + *Can be enabled/disabled in a resource pool by (pre-)configuration.* * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination information transmission triggered by a pre-configured condition other than explicit request reception in Mode 2:*   + *A UE that ~~is triggered implicitly by an event to~~ sends inter-UE coordination information ~~to UE-B~~ is UE-A*     - *FFS: Detail including*        * *Whether event of sending inter-UE coordination information is specified or up to UE implementation*   + *A UE that received inter-UE coordination information from UE-A and used it for resource allocation procedures can be UE-B*   + *Can be enabled/disabled in a resource pool by (pre-)configuration.* |
| Apple | Yes with modifications | We are fine with the main bullet.  However, we have a comment on FFS part. Here, only the conditions of sending explicit request and sending inter-UE coordination information are listed. In our view, the signaling details of explicit request also need to be mentioned if the explicit request-based inter-UE coordination is supported. We could either add a sub-bullet of “signaling of explicit request” or remove all the sub-bullets of FFS if it is more acceptable.   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that sends an explicit request for inter-UE coordination information is UE-B*   + *A UE that received an explicit request from UE-B and sends inter-UE coordination information to the UE-B is UE-A*     - *FFS: Detail including*        * *Whether condition of sending an explicit request is specified or up to UE implementation*       * *Whether condition of sending inter-UE coordination information with receiving an explicit request from UE-B is specified or up to UE implementation*       * *Signaling of explicit request* |
| Nokia, NSB | No | We share other companies’ view that explicit and implicit triggering should be combined into one proposal for agreement. |
| ZTE | Yes with updates | We are supportive on this proposal. The request based solution should be the baseline functionality to enable the useful and controllable feedback from UE-A.  Moreover, we also prefer to highlight the case that UE-A is destination UE of UE-B. So, following content should be added  *It is supported that UE-A is a destination UE of a TB transmitted by UE-B* |
| NEC | Yes with modification | ***Draft Proposal 1****:*   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that sends an explicit request for inter-UE coordination information is UE-B (“could be” or “is” here are both fine, because it doesn’t impact the behaviors of UE-B)*   + *A UE that received an explicit request from UE-B and sends inter-UE coordination information to the UE-B is UE-A*     - *FFS: Detail including*        * *Whether condition(s) of sending an explicit request is specified or up to UE implementation*       * *Whether condition(s) of sending inter-UE coordination information with receiving an explicit request from UE-B is specified or up to UE implementation* |
| LG | Yes | As per chairman’s guidance, each proposal needs to be simple enough.  Considering that companies have divergent views on whether UE-A is a destination of UE-B’s transmission or not, it seems not constructive to discuss it together with this proposal. It would be better discuss it separately. |
| Lenovo/Motorola Mobility | Yes with comments | The proposal on the explicit request does not mention whether the request is for the preferred or non-preferred resource and different cast type.   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that sends an explicit request for inter-UE coordination information is UE-B*   + *A UE that received an explicit request from UE-B and sends inter-UE coordination information to the UE-B is UE-A*     - *FFS: Detail including*        * *Whether condition of sending an explicit request is specified or up to UE implementation*       * *Whether condition of sending inter-UE coordination information with receiving an explicit request from UE-B is specified or up to UE implementation*       * *Indication for preferred or non-preferred inter-UE coordination message contained as part of the request message*       * *Supported Cast types*   We propose to include the below in a separate proposal.  *In Scheme 1, It is supported that UE-A is a destination UE of a TB transmitted by UE-B* |
| NTT DOCOMO | Yes | Agree with LGE. Simple proposal is preferable. Otherwise, companies’ views will not converge... It seems that no one object “request-based approach”, so this proposal should be OK. |
| CMCC |  | Share similar views as Intel and QC that the request-based and non-request-based (i.e., explicit and implicit as it is in the proposal) approach should be discussed as a whole, and BOTH should be supported.  In the first GTW session, we have already agreed that preferred and non-preferred set of resources are supported for Scheme 1 without further down-selection, and apparently, both explicit request and implicit trigger based on pre-defined conditions should be supported in order to solve all cases. |
| MediaTek | Yes w/ updates | In general, we agreed with the proposal for request based scheme 1. Since there will be the explicit request, the details for the explicit request should be listed for FFS.  FFS: details of the explicit request signalling (container, content, etc.)  Whether UE sending the explicit request should also be the destination UE can be leave for FFS as well. |
| Fujitsu | Yes | We are also fine to merge Proposal 1 and Proposal 2 into one Proposal. |
| Spreadtrum | No | We share the similar view with other companies. Explicit and implicit triggering should be combined into one proposal. |
| Futurewei | comments | For proposals 1-3, as commented in GTW, it might be better to discuss the triggering or configuration of inter-UE coordination first as some terms are not clearly defined or specified, e.g., trigger, request, etc. But we still provide the responses directly to the proposals if that is the direction for progress that most companies prefer.  Several cases shall be included in this proposal such as 1) UE A requests for inter-UE coordination, 2) Inter-UE coordination is configured by high layer. Also the FFS part in the proposal is applied to all sub-bullets. We suggest the following changes on the proposal:   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that sends an explicit request for inter-UE coordination information is UE-B*   + *A UE that received an explicit request from UE-B and sends inter-UE coordination information to the UE-B is UE-A*   + *A UE that sends an explicit request for sending inter-UE coordination information is UE-A*   + *A UE that received an explicit request for receiving inter-UE coordination information is UE-B*   + *A UE that is configured by high layer for sending inter-UE coordination information is UE-A*   + *A UE that is configured by high layer for receiving inter-UE coordination information is UE-B*   + *FFS: Detail including*      - * *Whether condition of sending an explicit request is specified or up to UE implementation*       * *Whether condition of sending inter-UE coordination information with receiving an explicit request from UE-B is specified or up to UE implementation*       * *Conditions of high layer configuration of inter-UE coordination* |
| Sony |  | We share similar views that the combining proposal the explicit and implicit triggering and support both. We are supportive of Intel’s updates. |
| Samsung | See comments | In general, fine with the direction of the proposal, but would like to add that a UE that receives the request from UE-B is a target receiver of a UE-B transmission.  We think that it is not good idea to mix two cases of request and event based as suggested by other companies.  The following is suggested:   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE, with SL data to transmit, that sends an explicit request for inter-UE coordination information is UE-B*   + *UE-B sends the request to a target receiver UE of the SL data.*   + *A UE that receives~~ed~~ an explicit request from UE-B and sends inter-UE coordination information to the UE-B is UE-A*     - *UE can receive the request from UE-B [only] if it is target receiver of SL data.*     - *FFS: Details including*        * *Whether condition of sending an explicit request is specified or up to UE implementation*       * *Whether condition of sending inter-UE coordination information with receiving an explicit request from UE-B is specified or up to UE implementation* |
| Fraunhofer | Yes, with comments | We are supportive of the proposal in principle, but we agree with Intel, QC and Nokia that the proposals for explicit and implicit triggering should be combined to a single agreement, since both these features are important for achieving the objectives listed in the WID. We are fine with the wording provided by Intel/QC for the 2 main bullets.  Regarding the sub-bullets under the FFS, we are fine with them as proposed by the FL, but can also accept dropping them if this facilitates an easier agreement, and keeps the proposal short and simple. |
| Vivo | Yes | Based on simulation result of many companies, request based solution shows significant performance gain, which should be supported. |
| Sharp | Yes with comments | On the FFS part, “FFS details” is sufficient. |
| Panasonic | Yes | We support this proposal for request-based Scheme 1. An explicit request could be dynamic and semi-static. For clarify it, following could be added.  FFS: Whether the explicit request is dynamic and/or semi-static |
| CATT, GOHIGH | Yes with comment | We are generally fine with current proposal, and separate the discussion on which UE could be a UE-A. But it would be better to add a note as Mitsubishi mentioned.  *Note: this does not imply that all UEs receiving the explicit request must send inter-UE coordination/be UE-A* |
| OPPO | Yes | We support the draft proposal. |
| Huawei, HiSilicon | Suggest to combine Proposal 1 and 2, see comments | Suggest to use pluralise condition(s) since currently RAN1 is not sure whether there is only one condition.  If UE-A/UE-B determination is to be discussed separately, we suggest to have at least an FFS here to leave solutions open for discussion. Or is the FL’s intention that UE-A/UE-B determination is now covered by the FFS on conditions for when to send/receive information?  Suggest to use the term “trigger” in both Proposal 1 and 2, this avoids introducing new terms like “request” which may cause confusion.  Suggest to combine Proposal 1 and 2 into a single proposal to have an overview picture.  In summary, we propose the following changes in red:  ==   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that sends an explicit ~~request~~trigger for inter-UE coordination information is UE-B*   + *A UE that received an explicit ~~request~~trigger from UE-B and sends inter-UE coordination information to the UE-B is UE-A*     - *FFS: Detail including*        * *Whether condition(s) of sending an explicit ~~request~~trigger is specified, and if so in which layer, or up to UE implementation*       * *Whether condition(s) of sending inter-UE coordination information with receiving an ~~request~~trigger request from UE-B is specified, and if so in which layer, or up to UE implementation*       * *Whether UE-A and UE-B are determined by higher layers* |
| xiaomi | Yes | We are supportive to this proposal. |
| Kyocera | Yes, with conditions | In general, we’re fine with the proposal. When explicit request is transmitted then it should be applicable to only unicast/groupcast communications. As several companies suggested, dest. UE must be clarified else the proposal is open to many interpretations. |
| Convida Wireless | Yes with updates | We are fine with this proposal with suggested updates below:  ***Draft Proposal 1****:*   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that sends an explicit request for inter-UE coordination information is UE-B*   + *A UE that receive~~d~~s an explicit request from UE-B and sends inter-UE coordination information to the UE-B is UE-A*     - *FFS: Detail including*        * *Whether condition(s) of sending an explicit request ~~is~~are specified or up to UE implementation*       * *Whether condition(s) of sending inter-UE coordination information with receiving an explicit request from UE-B  ~~is~~are specified or up to UE implementation* |

**Question 2**: Do you agree Draft Proposal 2 for scheme 1?

***Draft Proposal 2****:*

* *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*
  + *A UE that is triggered implicitly by an event to send inter-UE coordination information to UE-B is UE-A*
    - *FFS: Detail including* 
      * *Whether event of sending inter-UE coordination information is specified or up to UE implementation*

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| **Company** | **Yes or no** | **Comment** |
| Intel | No | We suggest discussing proposals for explicit and implicit Inter-UE coordination triggering together as a single proposal. |
| Ericsson | Yes, with comments | In our view, we need to have a common understanding about the events that are considered to trigger the transmission of the inter-UE coordination information.  We do not think that it is feasible to leave the event of sending inter-UE coordination information up to UE implementation. How can UE-B interpret the inter-UE coordination message if it is triggered by a condition that is determined by the implementation of UE-A?  Therefore, we propose to make the following changes to the proposal:   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that is triggered implicitly by a~~n~~ specified event to send inter-UE coordination information to UE-B is UE-A*     - *FFS: Detail including*        * *Definition of triggering event(s)*       * *~~Whether event of sending inter-UE coordination information is specified or up to UE implementation~~* |
| Mitsubishi | Yes with comments | We would like to have implicit triggering supported, but the current wording is very confusing. UE-A sends something to UE-B, but there is no definition of UE-B. Moreover, the FFS point is not agreeable in its current form since we do not believe that having random UEs sending coordination information up to their own liking/implementation should be supported   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that is triggered implicitly by a~~n~~ specified event to send inter-UE coordination information is UE-A*     - *FFS: Detail including*        * *~~Whether event of sending inter-UE coordination information is specified or up to UE implementation~~*       * *Triggering event*   + *A UE that received inter-UE coordination information from UE-A and used it for resource allocation procedures can be UE-B*     - *FFS details, including relationship with the triggering event*   We also believe that the decision on restricting UE-A as being an intended receiver of UE-B is useful and necessary either as standalone agreement or bundled with proposals 1 and 2.   * + *It is supported that UE-A is a destination UE of a TB transmitted by UE-B* |
| InterDigital | Yes | We support this proposal in principle. In addition, we prefer to highlight potential relationship and/or association between the triggering event and UE-B(s).   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that is triggered implicitly by an event to send inter-UE coordination information to UE-B is UE-A*     - *FFS: Detail including*        * *Whether event of sending inter-UE coordination information is specified or up to UE implementation*       * *Association and/or relationship between the event of sending inter-UE coordination and UE-B(s), e.g.,*   + *A UE that receives the triggered inter-UE coordination information can be a UE-B.* |
| Qualcomm |  | We propose to adopt both proposals together to address all use cases listed in the WID. Please see our reply to Question 1 for the proposed text. |
| Apple | Yes with modifications | The “event” may be misunderstood to be “the reception of inter-UE coordination request”, which still does not differentiate with Draft Proposal 1. Hence, we should avoid the usage of event.  We suggest rewording “triggered implicitly by an event” to “non-explicit-request triggered”, and open for other better wording. |
| Nokia, NSB | No | We share other companies’ view that explicit and implicit triggering should be combined into one proposal for agreement. |
| ZTE | No | We have concerns on this solution. In general, for the event based solution, in case of the scenarios for sidelink, there is possibility that multiple UEs will be triggered simultaneously once the condition is satisfied. It will lead to uncontrollable reporting with potential collision. Even such situation can be alleviated by UE-specific configuration of trigger condition, the overhead for configuration is huge with requests on the UE specific connection. Moreover, in sidelink case, since the topology may change dramatically, it will lead to potential need to update the criteria with additional signalling cost. |
| NEC | Yes with suggestion | ***Draft Proposal 2****:*   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that is triggered implicitly by an event to send inter-UE coordination information and sends inter-UE coordination information to UE-B is UE-A*      - *FFS: Detail including*        * *Whether event of sending inter-UE coordination information is specified or up to UE implementation* |
| LG | Yes | In our view, it can be considered that UE-A transmits the inter-UE coordination information in a periodic manner (it does not mean strictly periodic transmission). Another approach is that UE-A transmits the inter-UE coordination as indicated/instructed by higher layers.  On the condition for UE(s) to be UE-B, it is unclear some expression as proposed by some companies is really needed. To be specific, in our understanding, the definition of UE-B itself is UE(s) receiving and using inter-UE coordination information. In this point of view, it does not give any new information. |
| Lenovo/Motorola Mobility | Yes with comments | * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that is triggered implicitly by a~~n~~ configured event to send inter-UE coordination information to UE-B is UE-A*   + *A UE that received inter-UE coordination information from UE-A can be UE-B*     - *FFS: Detail including*   *Definition of events (pre)configured per resource pool* |
| NTT DOCOMO | Yes with comment | It should be clarified that “event” is not UE-B’s explicit/implicit request. “Event” is unclear word for agreements in our view. |
| CMCC |  | Please refer to our comments to Draft Proposal 1.  On the other hand, we would like clarify more on the implicit triggering based on pre-defined conditions. During the GTW session, some companies argued that Scheme 1 does not work without UE-B explicitly sending request to UE-A informing its own transmission parameters, in our views, this mainly targets the preferred set of resources. However, implicit trigger is a valid solution for the non-preferred set of resources. To be specific, the pre-defined condition can be the RSRP measurement performed for the received SCI format is higher than a threshold, when UE-A identifies highly interfered resources, it can “forward” the set of resources, and UE-B will perform legacy resource exclusion procedure to exclude resources that are non-preferred for its transmission. |
| MediaTek | Yes w/ comments | For discussion, we can separately discuss explicit and implicit approach for scheme 1. But for the agreement, it is better to be agreed together. |
| Fujitsu | Yes with comments | Since it is event triggered inter-UE coordination, the event should be specified but not up to UE implementation.   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that is triggered implicitly by an event to send inter-UE coordination information to UE-B is UE-A*     - *FFS: Details of the event ~~including~~*        * *~~Whether event of sending inter-UE coordination information is specified or up to UE implementation~~* |
| Spreadtrum | Yes with comments | We share similar view with Apple. We should avoid using “event” which is unclear. “triggered implicitly by an event” can be modified to “non-explicit-request triggered”. |
| Futurewei | Yes with comments | With event-triggered inter-UE coordination, since UE-B does not know when UE-A is triggered to send coordination information, a certain configuration or signaling may be needed for UE-B to expect to receive inter-UE coordination from UE-A in a certain period. Also following proposal 1, we may need a line for determination of UE-B. We propose following changes on Proposal 2:   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that is triggered implicitly by an event to send inter-UE coordination information to UE-B is UE-A*   + *A UE that receives the inter-UE coordination information implicitly triggered at UE-A can be a UE-B.*   + *FFS: Detail including*      - *Whether event of sending inter-UE coordination information is specified or up to UE implementation*     - *Configuration or signaling for UE-B to expect receiving the coordination information from UE-A* |
| Sony |  | We share similar views that the combining proposal the explicit and implicit triggering and support both. |
| Samsung | No | We understand that introducing many features can be helpful considering different SL use cases. However, this will introduce additional specification work. So, our preference is to introduce request based in Proposal 1 only. |
| Fraunhofer | Yes, with comments | While we are supportive of the FL’s proposal, as mentioned in Q1, we prefer that the proposals for explicit and implicit triggering should be combined to a single agreement. |
| vivo | Yes, with comment | A defined event at UE-A (other than receiving request from UE-B) should be the scope of this proposal. E.g., resource reservation signalling can be regarded as coordination information, and the resource selection can be regarded as trigger event. Of course, there may be other solutions…  However, periodic transmission is not the point of this proposal. periodic coordination transmission belongs to both request based solution and triggered based solution, since, periodic transmission can be also requested by UE-B.  Before agree on this proposal, we need to have common understanding on companies’ solution under this proposal. It is not realistic to discuss lots of different solutions due to limited time for rel-17. |
| Sharp | Yes with comments | On the FFS part, “FFS details” is sufficient. |
| Panasonic |  | What kind of “event” should be clarified before proposal2 is agreed. The inter-UE coordination is for UE-B’s resource selection, UE-A need to know whether UE-B has traffic. In this case request from UE-B is necessary. If it is for multiple UEs and UE-A broadcast/groupcast (non-)preferred resources, (pre-)configured event might be used. |
| CATT, GOHIGH | See comment | Some clarification is necessary, regarding the trigger event, is it triggered by previous UE-B request or by UE-A only? That means how UE-A generate the trigger is unclear now. |
| OPPO | NO | In scheme 1, UE-A needs to know the characteristics of UE-B’s to determine the coordination information, and UE-A also needs to know whether resource reselection has been triggered or will be triggered at UE-B, without explicit Request signalling, UE-A cannot know all these information. |
| Huawei, HiSilicon | Suggest to combine Proposal 1 and 2, see comments | Since the main bullet already mentioned UE-B, it’s better to have a sub-bullet for UE-B. Other comments are similar to our reply for Proposal 1.  In summary, we propose the following changes in red:  ==   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that is a destination UE for inter-UE coordination information from UE-A is UE-B*   + *A UE that is triggered implicitly by an event to send inter-UE coordination information to UE-B is UE-A*     - *FFS: Detail including*        * *Whether event of sending inter-UE coordination information is specified, and if so in which layer, or up to UE implementation*       * *Whether UE-A and UE-B are determined by higher layers* |
| xiaomi | Yes /with comment | We are generally ok with FL’proposal, but we do not think that the definition of event can be up to UE implementation. If the triggering event is not specified but up to UE implementation, a UE can be UE A at any time and send coordination information without any limitation. We do not think this can work. Therefore, we prefer to remove the “up to UE implementation” in the FFS.   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that is triggered implicitly by an event to send inter-UE coordination information to UE-B is UE-A*     - *FFS: Detail including*        * *Whether event of sending inter-UE coordination information is specified ~~or up to UE implementation~~* |
| CEWiT | Yes with comments | We share similar views as with some other companies in this proposal that event for triggering to transmit co-ordination information from UE-A to UE-B should be specified in spec and not upto UE implementation. |
| Kyocera | See comments | Unless the triggering events are defined it is very difficult to agree to this proposal. Based on UE implementation is not acceptable because coordination info receiving UE may not be able to decipher the reason for sending the IUC info. |
| Convida Wireless | Yes with updates | We are ok with proposal with suggested updates below:  ***Draft Proposal 2****:*   * *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that is triggered implicitly by an event to send inter-UE coordination information to UE-B is UE-A*     - *FFS: Detail including*        * *Whether event(s) of sending inter-UE coordination information ~~is~~are specified or up to UE implementation* |

**Question 3**: Do you agree Draft Proposal 3 for scheme 2?

***Draft Proposal 3****:*

* *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*
  + *A capable UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*
    - *FFS: Detail including* 
      * *Definition of expected/potential resource conflict*
      * *Whether condition of sending inter-UE coordination information when expected/potential resource conflict is detected is specified or up to UE implementation*

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| **Company** | | **Yes or no** | **Comment** |
| Intel | | Yes, with comments | When we introduce definition for UE-A, the referred UE-B is not defined.  In addition, Scheme-2 should operate based on request otherwise inter-UE coordination information can be provided but not considered by UE-B.  To fix this issue we propose to modify proposal as follows:  ***Draft Proposal 3****:*   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *Any UE that performs TB transmission and requests inter-UE coordination information can be UE-B*   + *A capable UE that detects expected/potential resource conflict(s) on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*     - *FFS: ~~Detail including~~*        * *Additional condition(s) for transmission of inter-UE coordination information for identified resource conflict(s)*       * *Definition of expected/potential resource conflict* * *Note: The above is also applicable for the case of detected resource conflict on the resources indicated by UE-B’s SCI if it is agreed* |
| Ericsson | | Yes, with comments | We propose to remove the word “capable” from the first bullet. We think that at this stage of the discussion we do not need to get into capability discussions that will come at the end of the release.  Moreover, in our view, the last sub-bullet makes no sense. Clearly the condition for detecting a resource conflict will have to be specified. Otherwise, UE-B does not know how to interpret the coordination message. Therefore, we propose to modify it.  The updated proposal is as follows:   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A ~~capable~~ UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*     - *FFS: Detail including*        * *Definition of expected/potential resource conflict*       * *~~Whether~~ condition of sending inter-UE coordination information when expected/potential resource conflict is detected is specified ~~or up to UE implementation~~* |
| InterDigital | | Yes, with comments | As we pointed out in last round of discussions, the formulation of this proposal indicates UE-B is determined prior to the conflict detection, because UE-A detects collision on the resources indicated by UE-B’s SCI. Thus, in our view, it is important to include which UE’s SCI UE-A’s conflict detection is based on. We can start with supporting UE-A is the intended RX UE for a UE-B and we suggest the following:   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A capable UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*     - *UE-B is any UE sending transmissions with UE-A as an intended RX UE*     - *FFS: Detail including*        * *Definition of expected/potential resource conflict*       * *Whether condition of sending inter-UE coordination information when expected/potential resource conflict is detected is specified or up to UE implementation* |
| Qualcomm | | Yes | We agree with the proposal but would like to add a parameter to enable/disable the signalling per resource pool to accommodate different deployments.  ***Draft Proposal 3****:*   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A capable UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*     - *FFS: Detail including*        * *Definition of expected/potential resource conflict*       * *Whether condition of sending inter-UE coordination information when expected/potential resource conflict is detected is specified or up to UE implementation*   + *Can be enabled/disabled in a resource pool by (pre-)configuration.* |
| Apple | | No | We could accept that only the receiver UE be to UE-A. This is because in Scheme 2, the inter-UE coordination is likely sent in feedback channel or FDM-ed with PSFCH, which is designed for receiver UEs. We have the following modifications:   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A ~~capable~~ targeted receiver UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*     - *FFS: Detail including*        * *Definition of expected/potential resource conflict*       * *Whether condition of sending inter-UE coordination information when expected/potential resource conflict is detected is specified or up to UE implementation* |
| Nokia, NSB | | Yes |  |
| ZTE | Yes | | We are general fine with proposal, but also prefer to support the case that the UE is at least the destination UE of UE-B with following updates   * *It is supported that UE-A is a destination UE of a TB transmitted by UE-B* |
| NEC | Yes | |  |
| LG | Yes | | As per chairman’s guidance, each proposal needs to be simple enough.  Considering that companies have divergent views on whether UE-A is a destination of UE-B’s transmission or not, it seems not constructive to discuss it together with this proposal. It would be better discuss it separately. |
| Lenovo/Motorola Mobility | Yes with comments | | This proposal is only related to the determination of UE-A, not about how to determine UE-B.  We support the note from Intel to be added as part of the proposal.  We propose following modifications:     * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that reserved future resource(s) by its SCI is UE-B*   + *A capable UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*     - *FFS: Detail including*        * *Definition of expected/potential resource conflict*       * *Whether condition of sending inter-UE coordination information when expected/potential resource conflict is detected is specified or up to UE implementation*   *Note: The above is also applicable for the case of detected resource conflict on the resources indicated by UE-B’s SCI if it is agreed* |
| NTT DOCOMO | Yes | | Any additional rule/restriction/condition/etc. are FFS. Just keeping current proposal should be OK. If adding each company’s preferred text, discussions cannot be concluded... especially updates on FFS part. |
| CMCC |  | | As we mentioned in the last round of email discussion, we think that for Scheme 2, UE-A should be only among the destinations of the UE-B; otherwise, we are confused about how UE-A could recognize an identified resource conflict will impact the UE-B’s transmission, and therefore the benefits of Scheme 2 limit. |
| MediaTek | Yes w/ comments. | | In general, it is fine. Sharing the similar comments as E///, “capable” can be removed and conditions should be specified in this case.  Agreed with the LG that the other issues can be discussed later. |
| Fujitsu | Yes with comments | | 1. If the word “capable” does not have a special meaning, it better be deleted.  2. Whether UE-A sends coordination information should not be up to UE implementation. Therefore, “up to UE implementation” should be deleted.   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A ~~capable~~ UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*     - *FFS: Detail including*        * *Definition of expected/potential resource conflict*       * *~~Whether~~ The condition of sending inter-UE coordination information when expected/potential resource conflict is detected ~~is specified or up to UE implementation~~* |
| Spreadtrum | Yes | |  |
| Futurewei | Yes with comments | | Since the proposal is to determine UE-A/UE-B in Scheme 2, a subbullet for UE-B can be added as   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that requests/triggers or is triggered/requested or is configured to receive inter UE coordination information for its transmissions can be UE-B*   + *A capable UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*     - *FFS: Detail including*        * *Definition of expected/potential resource conflict*       * *Whether condition of sending inter-UE coordination information when expected/potential resource conflict is detected is specified or up to UE implementation* |
| Sony | Yes | |  |
| Samsung | See comments | | In general OK, It would be better to define conditions for UE-B and for UE-A, the wording ‘capable’ is ambiguous  The following is suggested:   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE,*     - *with SL data to transmit,*     - *enabled for scheme 2, and*     - *sends an SCI with reserved resources*   *is UE-B*   * + *A ~~capable~~ UE that*     - *Detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI,*     - *Is a target receiver of UE-B’s SL data, and*     - *sends inter-UE coordination information to UE-B*   *is UE-A*   * + - *FFS: Detail including*        * *Definition of expected/potential resource conflict*       * *Whether condition of sending inter-UE coordination information when expected/potential resource conflict is detected is specified or up to UE implementation* |
| Fraunhofer | Yes | | We are supportive of the FL’s main proposal.  We agree with the text changes suggested by Ericsson, for the main and sub-bullets. Regarding the sub-bullets under the FFS, we can also accept dropping them if this facilitates an easier agreement, and leave it as “FFS details”. |
| vivo | Yes | |  |
| Sharp | Yes with comments | | On the FFS part, “FFS details” is sufficient. |
| Panasonic | Yes | |  |
| CATT, GOHIGH | Yes with comment | | Similar comment as Q1.  We are generally fine with current proposal and separate the discussion on which UE could be a UE-A. But it would be better to add a note.  *Note: this does not imply that all UEs detected the resource confilct must send inter-UE coordination/be UE-A* |
| OPPO | Yes | | We support the proposal |
| Huawei, HiSilicon | No | | In the 1st sub-bullet, although “Any capable UE” is replaced with “A capable UE”, we feel the technical meaning is still similar, i.e., any UE that detects such conflict is UE-A. Then, there might be a lot of UE-As for a single UE-B. This would jump ahead of knowing which cast types are supported by scheme 2.  It’s possible that some conflict indications might be inaccurate and cause unnecessary resource re-selection. Therefore, we propose to adopt similar rule as Scheme 1 that the role of UE-A or UE-B can be determined by the V2X application layer and passed to PHY layer.  So we suggest the following changes in red:  ==   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A capable UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*     - *FFS: Detail including*        * *Definition of expected/potential resource conflict*       * *Whether condition of sending inter-UE coordination information when expected/potential resource conflict is detected is specified, and if so in which layer, or up to UE implementation*       * *Applicable cast type(s)*       * *Whether UE-A and UE-B are determined by higher layers* |
| xiaomi | Yes | | We support the FL’s proposal |
| CEWiT | yes | | We support the FL’s proposal. Instead of “A capable-UE” we support to replace it with A UE. Regarding the triggering condition of sending inter-UE coordination information, we tend to believe that UE-B should be able to interpret the information sent by UE-A; therefore need to be specified in the spec but we are okay to keep open both the options for now as any way it is expected to be FSS. |
| Convida Wireless | Yes with updates | | We are ok with the proposal with suggested updates below:  ***Draft Proposal 3****:*   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A ~~capable~~ UE that detects expected/potential resource conflict on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*     - *FFS: Details including*        * *Definition of expected/potential resource conflict*       * *Whether condition(s) of sending inter-UE coordination information when expected/potential resource conflict is detected ~~is~~are specified or up to UE implementation* |

**4.2 How to determine inter-UE coordination information for each scheme**

Based on the email discussion after Monday’s GTW session (August 16th), I have updated the draft proposals.

**I ask companies to provide inputs on the following two questions below. The deadline for companies to provide inputs is August 19th 4:59am UTC. To prepare/make more stable draft proposals before the start of Friday’s GTW session (August 20th), it would be highly appreciated if companies make comments as soon as possible. Also to make progress more efficiently, I would like to encourage companies to directly provide “revised wording” or “new wording needed to be added”.**

**Question 1**: Do you agree Draft Proposal 4 for scheme 1?

***Draft Proposal 4****:*

* *In scheme 1, the following is supported to determine inter-UE coordination information:*
  + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*
    - *Condition 1-A-1:*
      * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*
        + *FFS: Details including*

*Whether/how to specify metric other than RSRP*

*Whether/how UE-B’s traffic requirement is considered*

* + - *Condition 1-A-2:*
      * *Resource(s) excluding slot(s) where UE-A cannot perform SL reception from UE-B* 
        + *FFS: Details*
    - *FFS: Other condition(s) including*
      * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*
      * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*
  + *UE-A considers resource(s) satisfying at least one of the following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*
    - *Condition 1-B-1:*
      * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*
        + *FFS: Details*
    - *Condition 1-B-2:*
      * *Slot(s) where UE-A cannot perform SL reception from UE-B*
        + *FFS: Details*
    - *FFS: Other condition(s) including*
      * *Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| Intel | Yes | Additional information on top of preferred/non-preferred resources may be included into inter-UE coordination information. We suppose that information on conditions (1-B-1, 1-B-2 etc.) used to identify non-preferred resources may be useful at UE-B side. We also think that multiple sets can be provided.  Therefore, we propose to modify text as follows:  ***Draft Proposal 4****:*   * *In scheme 1, at least the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A cannot perform SL reception from UE-B*          + *FFS: Details*     - *FFS: Other condition(s) including*       * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*       * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*   + *UE-A considers resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details*     - *Condition 1-B-2:*       * *Slot(s) where UE-A cannot perform SL reception from UE-B*         + *FFS: Details*     - *FFS: Other condition(s) including*       * *Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)*   + *Condition used to identify set of non-preferred resource(s)*      - *FFS indication details* * *FFS other information* |
| Ericsson | Yes, with comments | We are supportive of the proposal, but we think some clarifications are necessary:  Regarding the first bullet where RSRP threshold is mentioned, we have the following comments:   * Is the RSRP threshold the one defined in Rel-16 for the resource selection procedure as defined in TS 38.214? * Moreover, we propose that in order to exclude resources that are reserved by other UE(s), the same procedure as in Rel-16 should be used, i.e., measured RSRP + reserved resources based on SCI.   For the FFS on other conditions, we propose to remove then since the main bullet already says “at least” so there is no need to list options, since there are no options precluded yet.  Therefore, we propose the following updated proposal:   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers any resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A reusing the Rel-16 procedure for resource (re-)selection, i.e., resources reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A cannot perform SL reception from UE-B*          + *FFS: Details*     - *~~FFS: Other condition(s) including~~*       * *~~Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)~~*       * *~~Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions~~*   + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A reusing the Rel-16 procedure for resource (re-)selection, i.e., resources reserved by and SCI and whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details*     - *Condition 1-B-2:*       * *Slot(s) where UE-A cannot perform SL reception from UE-B*         + *FFS: Details*     - *~~FFS: Other condition(s) including~~*       * *~~Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)~~* |
| InterDigital | Yes | We support this proposal. Considering the information included can be a starting baseline information set, we suggest to add “*at least”* before *“the following is supported…”* into the proposal. |
| Qualcomm | Yes with comments | In Condition 1-B-2, it’s the resources that are considered as non-preferred, not the slots. We propose to update the wording to say resources since the scheme indicates non-preferred resources.  We also think that the conditions should be enabled/disabled by resource pool (pre-)configuration to match the deployment scenario.  We’re not clear about the benefit of Condition 1-A-2 to determining preferred resources. We’re ok to further consider and propose to move it under the FFS bullet.  ***Draft Proposal 4****:*   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*   * + - *~~Condition 1-A-2:~~*       * *~~Resource(s) excluding slot(s) where UE-A cannot perform SL reception from UE-B~~*          + *~~FFS: Details~~*     - *FFS: Other condition(s) including*       * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*       * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*       * *Resource(s) excluding slot(s) where UE-A cannot perform SL reception from UE-B*     - Conditions can be independently enabled/disabled by resource pool (pre-)configuration.   + *UE-A considers resource(s) satisfying at least one of the following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details*     - *Condition 1-B-2:*       * *~~Slot(s)~~ Resource(s) where UE-A cannot perform SL reception from UE-B*         + *FFS: Details*     - *FFS: Other condition(s) including*       * *Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)*     - Conditions can be independently enabled/disabled by resource pool (pre-)configuration. |
| Apple |  | The conditions 1-A-2 and 1-B-2 are applicable only when UE-A is the receiver UE of UE-B. If UE-A is not the targeted receiver UE of UE-B, then does not matter whether UE-A can or cannot perform SL reception.  This proposal is lengthy, and it is preferred to shorten it by not listing all the FFS points.   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *~~FFS: Details including~~*   *~~Whether/how to specify metric other than RSRP~~*  *~~Whether/how UE-B’s traffic requirement is considered~~*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where targeted receiver UE ~~UE-A~~ cannot perform SL reception from UE-B*          + *~~FFS: Details~~*     - *FFS: Details ~~Other condition(s) including~~*       * *~~Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)~~*       * *~~Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions~~*   + *UE-A considers resource(s) satisfying at least one of the following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *~~FFS: Details~~*     - *Condition 1-B-2:*       * *Slot(s) where targeted receiver UE ~~UE-A~~ cannot perform SL reception from UE-B*         + *~~FFS: Details~~*     - *FFS: Details ~~Other condition(s) including~~*       * *~~Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)~~* |
| Nokia, NSB | No, see comments | It should be explicitly indicated that Condition 1-A-2 & 1-B-2 are only applicable when UE-A is an intended recipient of UE-B’s transmission.  Condition 1-A-1 & 1-B-1 are problematic when UE-A is not an intended recipient of UE-B’s transmission, because UE-A cannot know the actual interference experienced by the actual intended recipients. For example, according to Condition 1-A-1, a resource reserved by UE-C located very close to UE-A would be excluded (high RSRP measured) from the preferred resource set even if the intended recipients of UE-B’s transmission are far away from UE-C, thus adversely impacting spatial reuse. |
| ZTE | No | Regarding the determination of resource set, e.g., preferred resource set, in our view, at least the legacy sensing in Rel-16 and partial sensing in Rel-17 can be reused. Moreover, w.r.t the details, we prefer to update the condition 1-A-1 and 1-B-1 with following updates:   * + - *Condition 1-A-1:*       * *Resource(s) including resource with satisfaction on UE-B’s requirement ~~excluding reserved resource(s) of other UE~~ identified by UE-A via sensing. ~~Whose RSRP measurement is larger than a RSRP threshold~~*         + *At least the RSRP is one of requirement.*         + *FFS: Details including*   *~~Whether/how to specify~~ FFS: metric other than RSRP*  *~~Whether/how UE-B’s traffic requirement is considered~~*   * + - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A which cannot meet with UE-B’s requirement ~~the whose RSRP measurement is larger than a RSRP threshold~~*         + *At least the RSRP is one of requirement.*         + *FFS: Details including*   *~~Whether/how to specify~~ FFS: metric other than RSRP* |
| NEC | Yes |  |
| LG | Yes | On the RSRP measurement and RSRP threshold, we can discuss it in details later. Considering that the RSRP threshold in Rel-16 resource (re)selection is determined by TX priority and RX priority, it seems further discussion is needed whether it is feasible to reuse Rel-16 resource (re)selection procedure.  Even for the RSRP measurement, it would be necessary to determine which reference signal will be used and how to configure/indicate it to UE-A. |
| Lenovo/Motorola Mobility | Yes with comments | * Preferred resource may also comprise of resource set information extracted from candidate resource selection which includes SA whose RSRP level above RSRP threshold. * Non-preferred resource may also comprise of resource set information extracted from candidate resource exclusion that are not part of SA whose RSRP level is below RSRP level   On the RSRP threshold used to determine the preferred/non-preferred resource(s) it should be further studied including a) the RSRP threshold is (pre-)configured or b) the RSRP threshold is indicted by UE-B  Modified draft proposal  ***Draft Proposal 4****:*   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*  *Preferred resource may also comprise of resource set information extracted from candidate resource selection which includes SA whose RSRP level above RSRP threshold.*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A cannot perform SL reception ~~from UE-B~~*          + *FFS: Details*     - *FFS: Other condition(s) including*       * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*       * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*   + *UE-A considers resource(s) satisfying at least one of the following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details*         + *Non-preferred resource may also comprise of resource set information extracted from candidate resource exclusion that are not part of SA whose RSRP level is below RSRP level*     - *Condition 1-B-2:*       * *Slot(s) where UE-A cannot perform SL reception ~~from UE-B~~*         + *FFS: Details*     - *FFS: Other condition(s) including*       * *Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)* |
| NTT DOCOMO | Yes | BTW, short proposal is better according to chair’s request. So how about separate proposal between preferred and non-preferred? |
| CMCC | Yes |  |
| MediaTek | Yes w/ updates | * RSRP threshold may need be FFS or clarified. In this case, it could be RSRP received at UE-A from UE-B, which may be different than Rel’16 pre-configured threshold. Priority may also need to be considered since it may be different than rel’16 when combining with the threshold   + FFS: definition of RSRP threshold and relation with priorities |
| Fujitsu | Yes with comments | 1. For Condition 1-A-1, we are also interested in FFS whether/how to specify metric other than RSRP.  2. Some Conditions may have overlap with the contents of FFS. To avoid any potential conflict, the two sub-bullets can be modified as follows.   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A determines the set of resource(s) preferred for UE-B’s transmission ~~considers~~ based on resource(s) satisfying at least following condition(s) as ~~set of resource(s) preferred for UE-B’s transmission~~*     - *Condition 1-A-1:*     - *Condition 1-A-2:*     - *FFS: Other condition(s) including*   + *UE-A determines the set of resource(s) preferred for UE-B’s transmission ~~considers~~ based on resource(s) satisfying at least one of the following condition(s) ~~as set of resource(s) non-preferred for UE-B’s transmission~~*     - *Condition 1-B-1:*     - *Condition 1-B-2:*     - *FFS: Other condition(s) including* |
| Spreadtrum | No | When UE-A is the receiver UE of UE-B, “Resource(s) that UE-A has selected for its own transmission(s)” in scheme 2 belongs to condition 1-B-2. When UE-A is not the targeted receiver UE of UE-B, it’s OK. And we have not discussed clearly whether a UE can be not a targeted receiver UE of UE-B.  So, we proposal the following changes:  ***Draft Proposal 4****:*   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A cannot perform SL reception from UE-B*          + *FFS: Details*     - *FFS: Other condition(s) including*       * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*       * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*   + *UE-A considers resource(s) satisfying at least one of the following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details*     - *Condition 1-B-2:*       * *Slot(s) where UE-A cannot perform SL reception from UE-B*         + *FFS: Details*     - *FFS: Other condition(s)*        * *~~Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)~~* |
| Futurewei | Yes with comments | We are generally ok with the proposal. For non-preferred resource set, the preferred resource set sent to other UE-Bs may be included as the non-preferred resource set for UE-B’s transmission. We propose the following change as   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A cannot perform SL reception from UE-B*          + *FFS: Details*     - *FFS: Other condition(s) including*       * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*       * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*   + *UE-A considers resource(s) satisfying at least one of the following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details*     - *Condition 1-B-2:*       * *Slot(s) where UE-A cannot perform SL reception from UE-B*         + *FFS: Details*     - *Condition 1-B-3:*       * *Resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*         + *FFS: Details*     - *FFS: Other condition(s) including*       * *Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)* |
| Sony | Yes | We propose to update the proposal for the clarification.   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A cannot perform SL reception from UE-B*          + *FFS: Details*     - *FFS: Other condition(s) including*       * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*       * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*   + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details*     - *Condition 1-B-2:*       * *Slot(s) where UE-A cannot perform SL reception from UE-B*         + *FFS: Details*     - *FFS: Other condition(s) including*       * *Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)* |
| Samsung | See comments | In general OK, For condition 1-A-2, we suggest to add an important case. Also, the last bullet can be an important case for 1-B-2,  The following is suggested:   * *In scheme 1, at least the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A cannot perform SL reception from UE-B*          + *Resource(s) other than resource(s) selected or reserved by UE-A for UE-A’s own transmissions*         + *~~FFS: Details~~*     - *FFS: Other condition(s) including*       * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*       * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*   + *UE-A considers resource(s) satisfying at least one of the following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details*     - *Condition 1-B-2:*       * *Slot(s) where UE-A cannot perform SL reception from UE-B*         + *Resource(s) other than resource(s) selected or reserved by UE-A for UE-A’s own transmissions*         + *~~FFS: Details~~*     - *~~FFS: Other condition(s) including~~*       * *~~Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)~~* |
| Fraunhofer | Yes | We are supportive of the FL’s proposal, but have a few comments.  We agree with Ericsson that the determination of resources using the RSRP threshold and whether UE-A has non-monitored slots should be as defined in Rel-16’s sensing and selection procedure.  While we are supportive of the other FFSs mentioned, they make the proposal quite long. |
| vivo | Yes with editorial update | * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A cannot perform SL reception from UE-B*   For the condition above, the excluded slots include UE-A’s NR/LTE SL transmission slot or UL transmission slot, or slots that will incur lots of simultaneous PSFCH transmission at UE-A. Actually, UE-A can perform reception on any of the above mentioned slots. We suggest the following wording …   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A does not expected to perform SL reception from UE-B* |
| Panasonic | Yes | We support this proposal, and we support Apple’s modification on Condition 1-A-2 and Condition 1-B-2 as UE-A  targeted receiver UE |
| CATT, GOHIGH | Yew with comment | We are generally fine with the proposal. Regarding the text below the two FFS on other conditions, we prefer to remove it, otherwise, we also need to list other conditions which is not included in current list.  We prefer to just simply say “FFS: other condition(s)” , and remove the examples. |
| OPPO | Yes | Support the proposal in general, however, we suggest the following changes considering that there is “at least” in each sub-bullet.   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A cannot perform SL reception from UE-B*          + *FFS: Details*     - *~~FFS: Other condition(s) including~~*       * *~~Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)~~*       * *~~Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions~~*   + *UE-A considers resource(s) satisfying at least one of the following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details*     - *Condition 1-B-2:*       * *Slot(s) where UE-A cannot perform SL reception from UE-B*         + *FFS: Details*     - *~~FFS: Other condition(s) including~~*       * *~~Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)~~* |
| Huawei, HiSilicon | See comments | For preferred resources, when UE-A determines preferred resources for UE-B’s transmission, UE-B’s traffic requirement should be taken into account.  ==   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold, considering UE-B’s traffic requirement*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *~~Whether/how UE-B’s traffic requirement is considered~~*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A cannot perform SL reception from UE-B*          + *FFS: Details*     - *FFS: Other condition(s) including*       * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*       * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions* |
| Xiaomi | yes | We are fine with FL’s proposal.  For condition 1-A-1 and 1-A-2, the resource(s) excluding non-preferred resource are defined as preferred resource. However, it is not clear from which set of resource these non-preferred resource(s) are precluded. Therefore, we suggest to add a FFS under the 1st subbullet:   * In scheme 1, the following is supported to determine inter-UE coordination information:   + UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission     - Condition 1-A-1:       * Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold         + FFS: Details including   Whether/how to specify metric other than RSRP  Whether/how UE-B’s traffic requirement is considered   * + - Condition 1-A-2:       * Resource(s) excluding slot(s) where UE-A cannot perform SL reception from UE-B         + FFS: Details     - **FFS: how to determine the set of resource(s) before excluding**     - FFS: Other condition(s) including       * Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)       * Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions   + UE-A considers resource(s) satisfying at least one of the following condition(s) as set of resource(s) non-preferred for UE-B’s transmission     - Condition 1-B-1:       * Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold         + FFS: Details     - Condition 1-B-2:       * Slot(s) where UE-A cannot perform SL reception from UE-B         + FFS: Details     - FFS: Other condition(s) including       * Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission) |
| CEWiT | yes | We support the FL’s proposal and share similar thoughts with Ericsson |
| Convida Wireless | Yes with updates | We are ok with the proposal with suggested updates.  ***Draft Proposal 4****:*   * *In scheme 1, the following is supported to determine inter-UE coordination information:*   + *UE-A considers resource(s) satisfying at least following condition(s) as set of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a (pre-)configured RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A cannot perform SL reception from UE-B*          + *FFS: Details*     - *FFS: Other condition(s) including*       * *Resource(s) other than slot(s) excluded based on UE-A’s ~~non~~un-monitored slot(s)*       * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*   + *UE-A considers resource(s) satisfying at least one of the following condition(s) as set of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a (pre-)configured RSRP threshold*         + *FFS: Details*     - *Condition 1-B-2:*       * *Slot(s) where UE-A cannot perform SL reception from UE-B*         + *FFS: Details*     - *FFS: Other condition(s) including*   *Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)* |

**Question 2**: Do you agree Draft Proposal 5 for scheme 2?

***Draft Proposal 5****:*

* *In scheme 2, the following is supported to determine inter-UE coordination information:*
  + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):* 
    - *Condition 2-A-1:*
      * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*
        + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*

*FFS: Details including*

*Whether/how to consider priority values of overlapped resource(s) between UE-B and other UE*

* + - * + *FFS: Whether/how to specify additional criteria including*

*Whether/how to consider distance between UE-A and UE-B*

*Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).*

* + - *Condition 2-A-2:*
      * *UE-A’s reserved resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*
        + *FFS: Details*
    - *FFS: Other condition(s) including*
      * *UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time*
      * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI*
      * *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| Intel | No | Resource overlapped in time but not overlapped in frequency should be also considered as a conflict. Priority should be considered for *Condition 2-A-2:*  Therefore, we propose to modify proposal as follows:  ***Draft Proposal 5****:*   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time only*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resource(s) between UE-B and other UE*   * + - * + *FFS: Whether/how to specify additional criteria including*   *Whether/how to consider distance between UE-A and UE-B*  *Whether/how to consider distance between UE-B and Other UE*  *Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).*  *Whether/how to consider Source/Destination IDs of UE-B and Other UE(s)*   * + - *Condition 2-A-2:*       * *UE-A’s reserved resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resource(s) between UE-B and other UE*   * + - *FFS: Other condition(s) including*       * *UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time*       * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI*       * *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay* |
| Ericsson | Yes, with some modifications | For this proposal, we propose the following modifications and clarifications:  Regarding the first bullet where RSRP threshold is mentioned, we have the following comments:   * Is the RSRP threshold the one defined in Rel-16 for the resource selection procedure as defined in TS 38.214? If that is the case, we propose to add a clarification.   For the FFS on other conditions, we propose to remove then since the main bullet already says “at least” so there is no need to list options, since there are no options precluded yet.  Therefore, we propose the following updated proposal:   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resource(s) between UE-B and other UE*   * + - * + *FFS: Whether/how to specify additional criteria including*   *Whether/how to consider distance between UE-A and UE-B*  *Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).*   * + - *Condition 2-A-2:*       * *UE-A’s reserved resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *FFS: Details*     - *~~FFS: Other condition(s) including~~*       * *~~UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time~~*       * *~~PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI~~*       * *~~Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay~~* |
| InterDigital | Yes | We suggest to include priority associate with UE-A’s UL/SL transmission into consideration in Condition 2-A-2.  ***Draft Proposal 5****:*   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resource(s) between UE-B and other UE*   * + - * + *FFS: Whether/how to specify additional criteria including*   *Whether/how to consider distance between UE-A and UE-B*  *Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).*   * + - *Condition 2-A-2:*       * *UE-A’s reserved resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*   *FFS: Details including*  *Whether/how to consider priority value associated with UE-A’s transmission and that indicated in UE-B’s SCI*   * + - *FFS: Other condition(s) including*       * *UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time*       * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI*       * *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay* |
| Qualcomm | Yes with comments | One aspect to consider is the impact of the inter-UE coordination on reception of other signals, e.g. feedback on PSFCH, at UE-B. For example, the near-far effect when UE-A is close to UE-B could cause UE-B to not properly receive feedback on PSFCH from other UEs. To mitigate this issue, an upper bound on the measured RSRP could be used to determine whether to transmit the coordination information or not.  We share Intel’s view to consider overlap in time only with (pre-)configuration selecting between the two.  Condition 2-A-2 is already covered, at least in many cases, by pre-emption and re-evaluation checking. We’re ok to further discuss it as an FFS.  We propose that the conditions can be enabled/disabled by resource (pre-)configuration to match the deployment scenario.  ***Draft Proposal 5****:*   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold and below another RSRP threshold*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resource(s) between UE-B and other UE*   * + - * + *FFS: Whether/how to specify additional criteria including*   *Whether/how to consider distance between UE-A and UE-B*  *Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).*   * + - * + *Resource pool (pre-)configuration indicates whether the overlap is time-and-frequency or in time.*     - *~~Condition 2-A-2:~~*       * *~~UE-A’s reserved resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency~~*         + *~~FFS: Details~~*     - *FFS: Other condition(s) including*       * *UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time*       * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI*       * *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay*       * *UE-A’s reserved resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *FFS: Details*     - Conditions can be independently enabled/disabled by resource pool (pre-)configuration. |
| Apple |  | For condition 2-A-1:  The sub-bullets of the last FFS seem to be too specific. We suggest removing these two sub-bullets.  For condition 2-A-2:  1. The resource conflict in time (but not in frequency) should also be supported.  2. “UE-A’s reserved resource has overlap with resources reserved by UE-B’s SCI” should be based on the assumption that UE-A is the receiver UE of UE-B. This applies to the other conditions as well.   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resource(s) between UE-B and other UE*   * + - * + *FFS: Whether/how to specify additional criteria ~~including~~*   *~~Whether/how to consider distance between UE-A and UE-B~~*  *~~Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).~~*   * + - *Condition 2-A-2:*       * *UE-A’s reserved resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or time-only, if UE-A is a targeted receiver UE of UE-B.*         + *FFS: Details*     - *FFS: Other condition(s) including*       * *UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time, if UE-A is a targeted receiver UE of UE-B.*       * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI, if UE-A is a targeted receiver UE of UE-B.*       * *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay* |
| Nokia, NSB | No, see comments | We think it is necessary to distinguish between two cases:   * UE-A is an intended recipient of UE-B’s transmission in the resources indicated by UE-B’s SCI. In this case, the condition should be:   + - * *UE-A’s reserved resource(s) for its transmission are overlapping with resource(s) indicated by UE-B’s SCI in time.*         + *FFS Whether/how to consider priority values* * UE-A is not an intended recipient. In this case, Conditions 2-A-1 and 2-A-2 are problematic because UE-A cannot know the actual interference experienced by the actual intended recipients. |
| ZTE | Yes | We are general supportive on this proposal |
| NEC | Yes |  |
| LG | Yes | We are also fine to modification to add UE-A’s reserved resource(s) are overlapping with UE-B’s reserved resource(s) in time. |
| Lenovo/Motorola Mobility | Yes | We prefer the wording from Intel |
| NTT DOCOMO | Yes with update | Agree with Apple’s modification. The update of Option 2-A-2 is necessary; otherwise, half-duplex issue cannot be solved.  The updates on FFS part by Apple is preferable for us, but keeping as it is is also fine since it is FFS. |
| CMCC |  | In our view, condition 2-A-2 is used to solve the half-duplex issue, and therefore, it should be “*UE-A’s reserved resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time~~-and-frequency~~*”. |
| MediaTek | Yes | Similar to previous comments. RSRP threshold and relation with priorities can be for FFS.  FFS: definition of RSRP threshold and relations with priorities. |
| Fujitsu |  | We are OK with Condition 2-A-1, but have doubt on Condition 2-A-2. We doubt whether Condition 2-A-2 should trigger coordination information exchange. In our view, if UE-A identifies conflict with UE-B, UE-A can actively avoid such conflict by itself. In this case, sending coordination information to UE-B will introduce additional signalling overhead or collision of coordination information. |
| Spreadtrum | No | Another condition should be added, when UE-A is a targeted receiver UE of UE-B.  So, we proposal the following changes:  ***Draft Proposal 5****:*   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resource(s) between UE-B and other UE*   * + - * + *FFS: Whether/how to specify additional criteria including*   *Whether/how to consider distance between UE-A and UE-B*  *Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).*   * + - *Condition 2-A-2:*       * *UE-A’s reserved resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *FFS: Details*     - *Condition 2-A-3:*       * *UE-A’s transmission resources are overlapping with resource(s) indicated by UE-B’s SCI in time, if UE-A is a targeted receiver UE of UE-B.*         + *FFS: Details*     - *FFS: Other condition(s) including*       * *UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time*       * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI*   *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay* |
| Futurewei | Yes with comments | Since condition 2-A-2 is for half-duplex issue, no overlapping for particular time-and-frequency resource is still a conflict. We propose the following change on condition 2-A-2   * + - *Condition 2-A-2:*       * *UE-A’s reserved resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time~~-and-frequency~~*         + *FFS: Details* |
| Sony | Yes |  |
| Samsung | See comments | In general OK, For condition 2-A-2, it’s TX/RX collision, we think that time domain overlapping should also be avoided. In addition, we suggest to add condition 2-A-3. We suggest one more FFS in the last bullet.  The following is suggested:   * *In scheme 2, at least the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved SL resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resource(s) between UE-B and other UE*   * + - * + *FFS: Whether/how to specify additional criteria including*   *Whether/how to consider distance between UE-A and UE-B*  *Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).*   * + - *Condition 2-A-2:*       * *UE-A’s reserved SL resource(s) for its transmission are ~~fully/partially~~ overlapping with resource(s) indicated by UE-B’s SCI in time~~-and-frequency~~*         + *FFS: Details*     - *Condition 2-A-3:*       * *UE-A’s scheduled UL resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI at least in time*         + *FFS: Details*     - *FFS: Other condition(s) including*       * *~~UE-A’s UL transmission resource and/or~~ UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time*       * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI*       * *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay*       * *Use of priority to indicate resource conflict when multiple UEs have reserved resources that overlap (In this case, UE-A allows the UE with the higher priority to use the resource and indicates to the other UE that it should not use the reserved resource.)* |
| Fraunhofer | Yes | We are supportive of the FL’s proposal, and also support the inclusion of the time only overlapping aspect for both conditions.  Due to the high number of FFSs mentioned in the proposal, it might be more constructive to have a generic “FFS: Details and other condition(s)” at the end of the proposal, and remove the FFSs under each sub-bullet. |
| vivo | No | Do no support condition 2-A-2. in case of time overlap between UE-A’s and UE-B’s SL transmission, UE-A can directly take action to address the conflict, no need to inform UE-B to reselect resource, meanwhiles UE-B can also detects UE-A’s resource reservation, UE-B can autonomously take action to handle the conflict. The scenario can be treated as enhancement for scheme 1 non-preferred resource.  For UL and SL conflict, suggest to try to agree on it. There is much more performance gain compared with condition 2-A-1, and the feature is important for SL relay commercial use case. |
| Panasonic | Yes |  |
| CATT, GOHIGH | Yes with comment | We are generally fine with current proposal.  Regarding the condition 2-A-2, we prefer to add “or in time only”   * + - *Condition 2-A-1:*       * *UE-A’s reserved resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time only*   Regarding the FFS on other conditions including, we prefer to remove it, just simply say “FFS: other condition(s)” |
| OPPO | Yes with comments | We are fine with Condition 2-A-1, as to Condition 2-A-2 we agree with CATT that overlapping only in time should be added considering that UE-A may be a destination UE of UE-B. |
| Huawei, HiSilicon | See comments | As analysed in our Tdoc R1-2106478 Section 3.2.2.1, the benefits of expected resource conflict might very limited since UE-B itself will always do pre-emption check before using the reserved resource and can possibly find such collision. Expected resource conflict triggers UE-B to reselect resource and further perform unreserved transmission, which has high chance of collision and increased delay. Therefore, expected/potential resource conflict may have drawbacks in most cases. So we propose to limit it to the case of non-monitor slots of UE-B, where UE-B has no sensing information about the non-monitored slots and such conflict indication might be useful.  Condition 2-A-2 should be removed, because in this case, UE-A should proactively do re-evaluation/pre-emption check to avoid the resource collision instead of sending the resource conflict indication.  Suggest to remove the final set of FFS. These conditions each need more analysis by companies before deciding which should be specifically looked at by RAN1, which is implied if we write them down now. These issues can anyway be discussed under the umbrella of “FFS: Details”.  ==   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *When other UE’s SCI is transmitted in the non-monitor slots of UE-B, and o~~O~~ther UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resource(s) between UE-B and other UE*   * + - * + *FFS: Whether/how to specify additional criteria including*   *Whether/how to consider distance between UE-A and UE-B*  *~~Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).~~*   * + - *~~Condition 2-A-2:~~*       * *~~UE-A’s reserved resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency~~*         + *~~FFS: Details~~*     - *~~FFS: Other condition(s) including~~*       * *~~UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time~~*       * *~~PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI~~*       * *~~Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay~~* |
| Xiaomi | Yes/ comment | We are generally fine with the FL’s proposal.  However, we have concern on condition 2-A-2. For 2-A-2, the case is the same as pre-emption check of UE-A reserved resource. We think this has already been handled in Rel-16 pre-emption design, and do not need to be discussed again for inter-UE coordination.  In addition, we think another case needs to be considerd, where UE-A is the destination UE of UE-B, and its future transmission collide with UE-B transmission in time. Therefore, we would like to suggest to change condition 2-A-2 as:   * + - * UE-A’s reserved resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI with UE-A is a destination UE in time~~-and-frequency~~ |
| CEWiT | Yes with comment | We support FL’s proposal and additionally we support to add one more case where reserved resources of UE-A are overlapping with resource reserved by UE-B’s in time. |
| Convida Wireless | Yes with updates | We are ok with the proposal with suggested updates.   * *In scheme 2, the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a (pre-)configured RSRP threshold*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resource(s) between UE-B and other UE*   * + - * + *FFS: Whether/how to specify additional criteria including*   *Whether/how to consider distance between UE-A and UE-B*  *Whether UE-A’s sensing is limited to UE-B’s ~~non~~un-monitored slot(s).*   * + - *Condition 2-A-2:*       * *UE-A’s reserved resource(s) for its transmission are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *FFS: Details*     - *FFS: Other condition(s) ~~including~~*       * *~~UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time~~*       * *~~PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI~~*       * *~~Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay~~* |

**4.3 UE-B’s behaviour when receiving inter-UE coordination information**

I think that we need to discuss how to define UE-B’s behaviour when it receives inter-UE coordination information from UE-A.

**I ask companies to provide inputs on the following two questions below. The deadline for companies to provide inputs is August 19th 4:59am UTC. To prepare/make more stable draft proposals before the start of Friday’s GTW session (August 20th), it would be highly appreciated if companies make comments as soon as possible. Also to make progress more efficiently, I would like to encourage companies to directly provide “revised wording” or “new wording needed to be added”.**

**Question 1**: Do you agree Draft Proposal 6 for scheme 1?

***Draft Proposal 6****:*

* *In scheme 1, at least following UE-B’s behavior is supported for inter-UE coordination:* 
  + *For preferred resource set,* 
    - *UE-B excludes in its resource selection resource(s) not belonging to the preferred resource set*
      * *FFS: Details including condition that UE-B takes resource(s) not belonging to the preferred resource set into account in its resource selection*
  + *For non-preferred resource set,* 
    - *UE-B excludes in its resource selection resource(s) belonging to the non-preferred resource set*
      * *FFS: Details including condition that UE-B takes resource(s) belonging to the non-preferred resource set into account in its resource selection*
    - *UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*
      * *FFS: Details including condition that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| Intel | Yes, with comments / modifications | In general case each UE-B may receive assistance information from one or multiple UE-A(s). For that case it should be further studied how to generate preferred/non-preferred resource sets used in UE-B resource selection.  We also have questions whether proposal is also applicable for re-evaluation procedure?  We would like to better understand the meaning of “resource selection *resource(s)*” and “*resources to be used for transmission*”. Is it about selected candidate resource set for transmission, reserved resources or pre-selected resources which are subject to re-evaluation procedure or none of the above options is precluded at this stage?  ***Draft Proposal 6****:*   * *In scheme 1, at least following UE-B’s behavior is supported for inter-UE coordination:*    + *For preferred resource set,*      - *UE-B excludes in its resource selection resource(s) not belonging to the preferred resource set*       * *FFS how preferred resource set is generated using inter-UE coordination information received from multiple UE-A(s)*       * *~~FFS: Details including condition that~~ UE-B can take~~s~~ resource(s) not belonging to the preferred resource set into account in its resource selection*         + *FFS details*   + *For non-preferred resource set,*      - *UE-B excludes in its resource selection resource(s) belonging to the non-preferred resource set*       * *FFS how non-preferred resource set is generated using inter-UE coordination information received from multiple UE-A(s)*       * *~~FFS: Details including condition that~~ UE-B can take~~s~~ resource(s) belonging to the non-preferred resource set into account in its resource selection*         + *FFS details*     - *UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*       * *FFS: Details including condition that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set* |
| Ericsson | No, see comments | For this proposal, we have the following comments and modifications:  In the bullet related to preferred resource set, we propose to modify the exclusion of resources not belonging to the preferred set, and instead to prioritize the set of resources which are included in the preferred set when performing the resource re-selection as defined in Rel-16 procedure.   * By doing this, we achieve that UE-B uses the information of the preferred resource set contained in the inter-UE coordination message to enhance its resource selection. * Additionally, by using this wording we avoid that the sensing results obtained by UE-B are not used. This is something we cannot agree to. We have shown in our contribution (R1-2108137) that UEs which do not use its sensing results, i.e., for resource re-selection and re-evaluation/pre-emption checking, and only use the coordination information have a worse performance than those which use both information. * The only situation where a UE can perform the resource selection without using its own sensing results, it is for the case where UE-B does not perform/is not capable of sensing.   ***Draft Proposal 6****:*   * *In scheme 1, at least following UE-B’s behavior is supported for inter-UE coordination:*    + *For preferred resource set,*      - *UE-B ~~excludes~~ prioritizes in its resource selection procedure, resource(s) ~~not~~ belonging to the preferred resource set*       * *FFS: Details including condition that UE-B takes resource(s) not belonging to the preferred resource set into account in its resource selection procedure*   + *For non-preferred resource set,*      - *UE-B excludes in its resource selection procedure resource(s) belonging to the non-preferred resource set*       * *FFS: Details including condition that UE-B takes resource(s) belonging to the non-preferred resource set into account in its resource selection procedure*     - *UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*       * *FFS: Details including condition that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*   + *Rel-16 (re-)selection procedure is used as the baseline.* |
| Mitsubishi |  | OK with the wording and reasoning from Ericsson |
| InterDigital | Yes | We support the proposal |
| Qualcomm | Please see comment | We like to clarify that “UE-B excludes in its resource selection resource(s) not belonging to the preferred resource set” hasn’t down-selected to one of the options from the RAN1 104-bis agreement on UE-B behavior and that subsequent discussion on the options is still needed. We’re ok with the wording if that’s the intention.  The wording “UE-B excludes in its resource selection resource(s) belonging to the non-preferred resource set” implies that UE-B always excludes those resources, which is not necessarily the case. We propose to incorporate the non-preferred resources into the resource selection mechanism.  We think that reselection based on non-preferred resource set could be beneficial and would like to further consider this case as a second priority after resource exclusion. Therefore, we propose to make it FFS for now.  ***Draft Proposal 6****:*   * *In scheme 1, at least following UE-B’s behavior is supported for inter-UE coordination:*    + *For preferred resource set,*      - *UE-B excludes in its resource selection resource(s) not belonging to the preferred resource set*       * *FFS: Details including condition that UE-B takes resource(s) not belonging to the preferred resource set into account in its resource selection*   + *For non-preferred resource set,*      - *UE-B potentially excludes in its resource selection resource(s) belonging to the non-preferred resource set*       * *FFS: Details including condition that UE-B takes resource(s) belonging to the non-preferred resource set into account in its resource selection and how the non-preferred resources are incorporated into UE-B’s resource selection*     - *FFS UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*       * *FFS: Details including condition that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set* |
| Apple | Yes with comments | For preferred resource set, does “*UE-B excludes in its resource selection resource(s) not belonging to the preferred resource set”* mean any resources not in the preferred resource set will not be selected by UE-B? This may not work for multiple UE-A case. Consider the example where UE-B receives two sets of preferred resource sets from UE-A1 and UE-A2. If there is no intersection between the two sets, then UE-B cannot select any resources by the above statement.  For non-preferred resource set, UE-B may use this information also for its resource re-evaluation. Does “*UE-B excludes in its resource selection resource(s) belonging to the non-preferred resource set*” mean any resources in the non-preferred resource set will not be selected by UE-B? This may not work for multiple UE-A case. |
| Nokia, NSB | Yes, with modifications | ***Draft Proposal 6****:*   * *In scheme 1, at least following UE-B’s behavior is supported for inter-UE coordination:*    + *For preferred resource set,*      - *UE-B excludes in its resource selection resource(s) not belonging to the preferred resource set*       * *FFS: Details including condition that UE-B takes resource(s) not belonging to the preferred resource set into account in its resource selection*   + *For non-preferred resource set,*      - *UE-B excludes in its resource selection resource(s) ~~belonging to~~ overlapping with the non-preferred resource set*       * *FFS: Details including condition that UE-B takes resource(s) ~~belonging to~~ overlapping with the non-preferred resource set into account in its resource selection*     - *UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*       * *FFS: Details including condition that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set* |
| ZTE | No | For both preferred and non-preferred resource set, the reporting information should be delivered to MAC layer for resource selection and reselection. |
| NEC | No | We prefer the version from E///. Current version seems to restrict UE-B to use only the resources within the preferred set. |
| LG | Yes | For the constructive discussion, it would be better not to mix it with other topics such as how the resource set is generated or whether UE-B’s sensing is used or not. We can focus on only how UE-B use the inter-UE coordination information when the UE-B receive it. |
| Lenovo/Motorola Mobility | Yes with comments | In the determination of UE-A/UE-B we have not determined whether UE-A is the RX UE of UE-B’s transmission, we think this proposal is only feasible for the case that UE-A is the RX UE of UE-B’s transmission.  ***Draft Proposal 6****:*   * *In scheme 1, at least following UE-B’s behavior is supported for inter-UE coordination:*    + *For preferred resource set,*      - *UE-B excludes in its resource selection resource(s) not belonging to the preferred resource set*       * *FFS: Details including condition that UE-B takes resource(s) not belonging to the preferred resource set into account in its resource selection*       * *Details including when UE-B resources are fully/partially overlapping with the preferred resource set*   + *For non-preferred resource set,*      - *UE-B excludes in its resource selection resource(s) belonging to the non-preferred resource set*       * *FFS: Details including condition that UE-B takes resource(s) belonging to the non-preferred resource set into account in its resource selection*     - *UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*       * *FFS: Details including condition that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set* |
| NTT DOCOMO | Comment | Preferred type is still unclear for us. Preferred resources have the complementary relationship with non-preferred resources? In other words, 1) all resources are either preferred or non-preferred? Or 2) there are resources other than preferred and non-preferred?  If 1) is correct, current proposal is OK. If 2) is correct, Ericsson’s proposal would be valid. |
| CMCC |  | Regarding the 1st bullet under the non-preferred set of resources, we would like to clarify the intention. Does it mean that UE-B should exclude all resources belonging to the non-preferred resource set? If so, we disagree with the intention.  To our understanding, the UE-A could forward the resources reserved by other UEs, and the UE-B performs the resource exclusion procedure to exclude non-preferred resources for its own transmission. We think that QC’s comments of “incorporate the non-preferred resources into the resource selection mechanism” aligns with our intention, and we are supportive of the revised version proposed by QC. |
| MediaTek | Yes w/ updates | For the non-prefered resource information, UE-B can not simply exclude them. UE-B may need to further consider its own priority for exclusion.   * *UE-B may exclude~~s~~ in its resource selection resource(s) belonging to the non-preferred resource set depending on the conditions*   + - * *FFS: Details including condition that UE-B takes resource(s) belonging to the non-preferred resource set into account in its resource selection* |
| Fujitsu | Yes | We are supportive of the proposal. |
| Spreadtrum | Yes | Support. |
| Futurewei | comments | For preferred resource set, the case that UE-B takes resources not belonging to the preferred resource set into account in its resource selection should be included now instead of FFS and parallel to the first subbullet. Similar comment for the second FFS part. We propose the following changes on the proposal   * *In scheme 1, at least following UE-B’s behavior is supported for inter-UE coordination:*    + *For preferred resource set,*      - *UE-B excludes in its resource selection resource(s) not belonging to the preferred resource set*     - *~~FFS: Details including condition that~~ UE-B takes resource(s) not belonging to the preferred resource set into account in its resource selection*       * *FFS: Detailed conditions*   + *For non-preferred resource set,*      - *UE-B excludes in its resource selection resource(s) belonging to the non-preferred resource set*     - *~~FFS: Details including condition that~~ UE-B takes resource(s) belonging to the non-preferred resource set into account in its resource selection*       * *FFS: Detailed conditions*     - *UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*       * *FFS: Details including condition that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set* |
| Sony | Yes with modification | For preferred resource set, if UE-B exclude the resources not belonging to the preferred set, it may face not enough candidate resources in resource selection set.   * *In scheme 1, at least following UE-B’s behavior is supported for inter-UE coordination:*    + *For preferred resource set,*      - *UE-B ~~excludes~~ deprioritizes in its resource selection resource(s) not belonging to the preferred resource set*       * *FFS: Details including condition that UE-B takes resource(s) not belonging to the preferred resource set into account in its resource selection*   + *For non-preferred resource set,*      - *UE-B excludes in its resource selection resource(s) belonging to the non-preferred resource set*       * *FFS: Details including condition that UE-B takes resource(s) belonging to the non-preferred resource set into account in its resource selection*     - *UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set, and excludes in its resource selection the resource(s) belonging to the non-preferred resource set*       * *FFS: Details including condition that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set* |
| Samsung | No | We agree with Apple’s comment. The current wording seems that UE-B should follow the coordination message always. Then, does not the above proposal itself support a case of multiple UE-As ?. |
| Fraunhofer | No, with comments | While we are supportive of the sub-bullet for the preferred resource set in the case where UE-B does not have any sensing results, we are not sure why UE-B would discard candidate resources obtained by sensing in favour of the resources received from UE-A.  We prefer the wording provided by Ericsson for the preferred resource set.  We are fine with the sub-bullets for the non-preferred resource set. |
| vivo | No | For preferred resource set, we can further consider whether to enhance step 1 or step 2, it is more simple to enhance step 2, for which re-evaluation and pre-emption operation will not be impacted at all. |
| Sharp | No | We agree with changes proposed by Ericsson. |
| Panasonic |  | For preferred resource, we support Ericsson’s modification as excludes →prioritize. For non-preferred resources, potentially or may should be added. Whether inter-UE-coordination is used in UE-B is UE-B’s implementation. |
| CATT, GOHIGH | Yes | We are fine with the current proposal.  Regarding whether there is multiple UE-A(s) in inter-UE coordination, we think it should be discussed with the supported cast type, at least in unicast, we think this proposal is valid. |
| OPPO | Yes | We support the proposal |
| Huawei, HiSilicon | See comments | The proposal seems to discard the options from RAN1#104b-e, but they are agreed already. It’s better that we can follow options from previous agreements, where people are already familiar with.  For preferred case, we propose to distinguish whether only UE-B sense or both UE sense.  ==   * *In scheme 1, at least following UE-B’s behavior is supported for inter-UE coordination:*    + *For preferred resource set,*      - *~~UE-B excludes in its resource selection resource(s) not belonging to the preferred resource set~~*       * *~~FFS: Details including condition that UE-B takes resource(s) not belonging to the preferred resource set into account in its resource selection~~*     - *When only UE-A performs sensing and resource exclusion, UE-B uses the transmission resources indicated by UE-A, i.e. option 1-2.*     - *When both UE-A and UE-B perform sensing and resource exclusion, UE-B determines its transmission resources based on the sensing results from both UE-A and UE-B, i.e. option 1-1.*     - *FFS: Details*   + *For non-preferred resource set,*      - *UE-B excludes in its resource selection resource(s) belonging to the non-preferred resource set, i.e. option 1-1*       * *FFS: Details including condition that UE-B takes resource(s) belonging to the non-preferred resource set into account in its resource selection*     - *UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set, i.e. option 1-3*       * *FFS: Details including condition that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set* |
| xiaomi | Yes | We support the proposal |
| Convida Wireless | Yes | We are ok with the proposal. |

**Question 2**: Do you agree Draft Proposal 7 for scheme 2?

***Draft Proposal 7****:*

* *In scheme 2, at least following UE-B’s behavior is supported for inter-UE coordination:* 
  + *UE-B reselects resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict*
    - *FFS: Details including condition that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| Intel | Yes with comments | Scheme-2 should operate based on request otherwise inter-UE coordination information can be provided but not considered by UE-B.  We suggest to support scenario when UE-B may not reselect resource.  ***Draft Proposal 7****:*   * *In scheme 2, at least following UE-B’s behavior is supported for inter-UE coordination:*    + *UE-B indicates whether feedback on expected/potential resource conflict detection is requested*   + *UE-B can reselect~~s~~ resource(s) reserved for transmission ~~to be used for its transmission~~ when the reserved resource(s) is indicated with expected/potential resource conflict*     - *FFS: Details including condition that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict* |
| Ericsson | Yes | We are supportive of this proposal. |
| InterDigital | Yes | In our view, Scheme 2 can be triggered at UE-A when a conflict is detected on a resource indicated in a UE-B’s SCI and this UE-B has UE-A as the intended RX UE. In addition, when a conflict is detected, the UE with the overlapping resource reservation should be considered as a UE-B as well. Basically, these UE-Bs can decide whether or not to act on the indication from UE-A based on certain conditions or (pre)configurations. Certain UE-B may not have the capability to act, e.g. re-select the resources when receiving an indication, e.g. a UE performing random selection RA. This capability or (pre)configuration should be taken into consideration. Thus, we suggest to modify the conditions for FFS in this proposal as following  ***Draft Proposal 7****:*   * *In scheme 2, at least following UE-B’s behavior is supported for inter-UE coordination:*    + *UE-B reselects resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict*     - *FFS: Details including condition(s) that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict*     - *FFS: Details including (pre)configuration and corresponding indication of UE-B’s ability to reseslect resource(s) upon receiving the indication* |
| Qualcomm | Yes |  |
| Apple | Yes with comments | UE-B may indicate the inter-UE coordination request, and UE-A only sends inter-UE coordination at this request. In this sense, we support the proposed first sub-bullet from Intel. |
| Nokia, NSB | Yes |  |
| ZTE | Yes | We are supportive on this proposal.  In our view, the FFS part is only once the UE-A is destination UE of UE-B’s transmission. Otherwise, the detected collision may not be valid to trigger the reselection behaviour at UE-B side. |
| NEC | Yes |  |
| LG | Yes | For the constructive discussion, it would be better not to mix it with other topics such as how the resource set is generated or whether UE-B’s sensing is used or not. We can focus on only how UE-B use the inter-UE coordination information when the UE-B receive it. |
| Lenovo/Motorola Mobility | Yes |  |
| NTT DOCOMO | Yes | Support the proposal without any update. |
| CMCC | Yes |  |
| MediaTek | Yes |  |
| Fujitsu | Yes | We are supportive of the proposal. |
| Spreadtrum | Yes | Support. |
| Futurewei | Yes | We are ok with this proposal |
| Sony | Yes |  |
| Samsung | Yes |  |
| Fraunhofer | Yes | We are supportive of the FL’s proposal. |
| vivo | Yes |  |
| Sharp | Yes |  |
| Panasonic | Yes |  |
| CATT, GOHIGH | Yes |  |
| OPPO | Yes |  |
| Huawei, HiSilicon | See comments | According to R16 NR-V design, by transmitting SCI, a UE can reserve up to two resources for re-transmissions (i.e., dynamic reservation), and reserve periodic resources for transmitting different TBs (i.e., periodic reservation). As shown in Figure 10 in our Tdoc R1-2106478 (also copied below), the resource conflict situations may include many cases, e.g., conflict happens on one, or two, or multiple of those dynamically and/or periodically reserved resources by UE-B. RAN1 needs to discuss whether the conflict indication from UE-A needs to differentiate different conflict situations, and which resource(s) should UE-B reselect accordingly. For example, if the conflict indication does not differentiate different conflict situations and UE-B reselects all the dynamically and periodically reserved resources when receiving the conflict indication, there could be some unnecessary reselection since some reserved resources may have no conflicts, and thus cause waste of resources, increased delay, higher collision chance due to unreserved transmission, etc.    **Figure 10: Different resource conflict situations**  ==   * *In scheme 2, at least following UE-B’s behavior is supported for inter-UE coordination:*    + *UE-B reselects resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict*     - *FFS: Details including condition that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict*     - *FFS: whether the conflict indication from UE-A needs to differentiate different conflict situations, and which resource(s) should UE-B reselect accordingly* |
| xiaomi | Yes | We support FL’s proposal. |
| CEWiT | yes | We are fine with this proposal |
| Convida Wireless | Yes | We are ok with the FL proposal. |

1. **Proposals for Friday’s GTW (August 20th)**

**5.1 Conditions for UE(s) to be UE-A(s) and/or UE-B(s)**

According to the email discussion after Wednesday’s GTW, FL observed that for scheme 1, majority companies support both “coordination information Tx triggered by an explicit request” and “coordination information Tx triggered by a condition other than explicit request reception”. On the other hand, few companies object “coordination information Tx triggered by a condition other than explicit request reception” since condition itself is unclear at this stage. From the perspective of FL, details can be discussed after the feature is agreed, and “coordination information Tx triggered by an explicit request” also needs to develop further details on explicit request signalling. Following is the summary of companies’ views on this topic.

* Coordination information Tx triggered by an explicit request
  + Supported by Intel, Ericsson, Mitsubishi, InterDigital, Qualcomm, Apple, Nokia, ZTE, NEC, LG, Lenovo, DCM, CMCC, MTK, Fujitsu, Spreadtrum, Futurewei, Sony, Samsung, Fraunhofer, vivo, Sharp, Panasonic, CATT, OPPO, Huawei, Xiaomi, Convida Wireless (**~~27~~28**)
* Coordination information Tx triggered by a condition other than explicit request reception
  + Supported by Intel, Ericsson, Mitsubishi, InterDigital, Qualcomm, Apple, Nokia, NEC, LG, Lenovo, DCM, CMCC, MTK, Fujitsu, Spreadtrum, Futurewei, Sony,Fraunhofer, vivo, Sharp, Huawei, Xiaomi, CEWiT, Convida Wireless (**~~23~~24**)
  + Objected by ZTE, Samsung, Panasonic, CATT, OPPO, Kyocera (**6**)

In addition, FL observed that few companies proposed to narrow down for UE-A to be a destination of UE-B’s transmission in scheme 1.

* Further restriction so that UE-A is a destination of a TB transmitted by UE-B
  + Supported by Ericsson, Mitsubishi, ZTE, Lenovo, MTK, Samsung, (**6**)

***Updated Draft Proposal 1/2****:*

***Alt 1 with 1st preference from FL’s point of view:***

* *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination information transmission triggered by an explicit request in Mode 2:*
  + *A UE that sends an explicit request for inter-UE coordination information is UE-B*
  + *A UE that received an explicit request from UE-B and sends inter-UE coordination information to the UE-B is UE-A*
  + *It can be enabled/disabled in a resource pool by (pre-)configuration*
  + *FFS: Detail including* 
    - *Whether condition(s) for sending an explicit request is specified, and if so in which layer, or up to UE implementation*
    - *Whether condition(s) for sending inter-UE coordination information when receiving an explicit request from UE-B is specified, and if so in which layer, or up to UE implementation*
    - *Additional condition(s) that a UE can send/receive an explicit request and send inter-UE coordination information after receiving the explicit request*
    - *Whether explicit request is for each transmission or for multiple transmissions of coordination information*
    - *Whether to support a case where a UE that sends an explicit request for sending inter-UE coordination information is UE-A and a UE that received the explicit request for receiving the inter-UE coordination information is UE-B*
    - *Signaling of explicit request (e.g., container, contents, etc.)*
* *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination information transmission triggered by a condition other than explicit request reception in Mode 2:*
  + *A UE that sends inter-UE coordination information is UE-A*
  + *A UE that received inter-UE coordination information from UE-A and uses it for resource selection is UE-B*
  + *It can be enabled/disabled in a resource pool by (pre-)configuration*
  + *FFS: Detail including*
    - *Triggering condition(s)*
    - *Additional condition(s) that a UE can send/receive inter-UE coordination information*
    - *Whether to support configuration or signaling for UE-B to expect receiving the coordination information from UE-A*

***Alt 2 with 2nd preference from FL’s point of view:***

* *In scheme 1, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination information transmission triggered by an explicit request in Mode 2:*
  + *A UE that sends an explicit request for inter-UE coordination information is UE-B*
  + *A UE that received an explicit request from UE-B and sends inter-UE coordination information to the UE-B is UE-A*
  + *It can be enabled/disabled in a resource pool by (pre-)configuration*
  + *FFS: Detail including* 
    - *Whether condition(s) for sending an explicit request is specified, and if so in which layer, or up to UE implementation*
    - *Whether condition(s) for sending inter-UE coordination information when receiving an explicit request from UE-B is specified, and if so in which layer, or up to UE implementation*
    - *Additional condition(s) that a UE can send/receive an explicit request and send inter-UE coordination information after receiving the explicit request*
    - *Whether explicit request is for each transmission or for multiple transmissions of coordination information*
    - *Whether to support a case where a UE that sends an explicit request for sending inter-UE coordination information is UE-A and a UE that received the explicit request for receiving the inter-UE coordination information is UE-B*
    - *Signaling of explicit request (e.g., container, contents, etc.)*

For scheme 2, FL observed that majority companies are supportive of the draft proposal with some wording changes. On the other hand, few companies proposed to narrow down for UE-A to be a destination of UE-B’s transmission in scheme 2. Following is the summary of companies’ views on this topic.

* Draft proposal in principle
  + Supported by Intel, Ericsson, InterDigital, Qualcomm, Apple, Nokia, ZTE, NEC, LG, Lenovo, DCM, MTK, Fujitsu, Spreadtrum, Futurewei, Sony, Samsung, Fraunhofer, vivo, Sharp, Panasonic, CATT, OPPO, Xiaomi, CEWiT, Convida Wireless (**~~25~~26**)
  + Objected by CMCC (**1**)
* Further restriction so that UE-A is a destination of a TB transmitted by UE-B
  + Supported by Apple, ZTE, CMCC, Samsung (**4**)

***Updated Draft Proposal 3****:*

* *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*
  + *A UE that transmitted SCI indicating reserved resource(s) to be used for its transmission, received inter-UE coordination from UE-A, and uses it for resource selection is UE-B*
  + *A UE that detects expected/potential resource conflict(s) on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*
  + *It can be enabled/disabled in a resource pool by (pre-)configuration*
  + *FFS: Detail including* 
    - *Definition of expected/potential resource conflict*
    - *Additional condition(s) for transmission/reception of inter-UE coordination information for detected expected/potential resource conflict(s)*
    - *Whether to support explicit request for inter-UE coordination information*

**5.2 How to determine inter-UE coordination information for each scheme**

For scheme 1, following is the summary of companies’ views on this topic.

* Supports in principle
  + Condition 1-A-1
    - Supported by Intel, Ericsson, InterDigital, Qualcomm, Apple, NEC, LG, Lenovo, DCM, CMCC, MTK, Fujitsu, Spreadtrum, Futurewei, Sony, Samsung, Fraunhofer, vivo, Panasonic, CATT, OPPO, Huawei, Xiaomi, CEWiT, Convida Wireless (**~~24~~25**)
    - Objected by Nokia (**1**)
  + Condition 1-A-2
    - Supported by Intel, Ericsson, InterDigital, Apple, Nokia, NEC, LG, Lenovo, DCM, CMCC, MTK, Fujitsu, Spreadtrum, Futurewei, Sony, Samsung, Fraunhofer, vivo, Panasonic, CATT, OPPO, Huawei, Xiaomi, CEWiT, Convida Wireless (**~~24~~25**)
    - Objected by Qualcomm (**1**)
  + Condition 1-B-1
    - Supported by Intel, Ericsson, InterDigital, Qualcomm, Apple, NEC, LG, Lenovo, DCM, CMCC, MTK, Fujitsu, Spreadtrum, Futurewei, Sony, Samsung, Fraunhofer, vivo, Panasonic, CATT, OPPO, Xiaomi, CEWiT, Convida Wireless (**~~23~~24**)
    - Objected by Nokia (**1**)
  + Condition 1-B-2
    - Supported by Intel, Ericsson, InterDigital, Apple, Nokia, NEC, LG, Lenovo, DCM, CMCC, MTK, Fujitsu, Spreadtrum, Futurewei, Sony, Samsung, Fraunhofer, vivo, Panasonic, CATT, OPPO, Xiaomi, CEWiT, Convida Wireless (**~~23~~24**)
    - Objected by Qualcomm (**1**)
* Additional condition proposed by
  + ZTE (resource(s) satisfying UE-B’s requirement)
  + Futurewei (resource(s) selected by UE-A as preferred resource set for other UE-B)
  + Qualcomm (Resource(s) where UE-A cannot perform SL reception from UE-B)

***Updated Draft Proposal 4-1****:*

* *In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):*
  + *UE-A considers any resource(s) satisfying at least following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission*
    - *Condition 1-A-1:*
      * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*
        + *FFS: Details including*

*Whether/how to specify metric other than RSRP*

*Whether/how UE-B’s traffic requirement is considered*

*Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*

* + - *Condition 1-A-2:*
      * *Resource(s) excluding slot(s) where UE-A, which is intended receiver of UE-B, does not expect to perform SL reception from UE-B* 
        + *FFS: Details*
    - *FFS: Other condition(s) including, e.g.,*
      * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*
      * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*
      * *Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level above RSRP threshold*
  + *FFS: Details including*
    - *Signaling of preferred resource set(s)*
    - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration*

***Updated Draft Proposal 4-2****:*

* *In scheme 1, at least the following is supported to determine inter-UE coordination information of non-preferred resource set(s):*
  + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*
    - *Condition 1-B-1:*
      * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*
        + *FFS: Details including*

*Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*

* + - *Condition 1-B-2:*
      * *Resource(s) where UE-A, which is intended receiver of UE-B, cannot perform SL reception from UE-B*
        + *FFS: Details*
    - *FFS: Other condition(s) including, e.g.,*
      * *Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)*
      * *Resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*
      * *Non-preferred resource comprises of resource set information extracted from candidate resource exclusion that are not part of S\_A whose RSRP level is below RSRP level*
  + *FFS: Details including*
    - *Signaling of non-preferred resource set(s)*
    - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration*

For scheme 2, following is the summary of companies’ views on this topic.

* Supports in principle
  + Condition 2-A-1
    - Supported by Intel, Ericsson, InterDigital, Qualcomm, Apple, ZTE, NEC, LG, Lenovo, DCM, MTK, Fujitsu, Spreadtrum, Futurewei, Sony, Samsung, Fraunhofer, Panasonic, CATT, OPPO, Xiaomi, CEWiT, Convida Wireless (**~~22~~23**)
    - Objected by Nokia (**1**)
  + Condition 2-A-2
    - Supported by Intel, Ericsson, InterDigital, Apple, ZTE, NEC, LG, Lenovo, DCM, MTK, Spreadtrum, Sony, Fraunhofer, Panasonic, CATT, CEWiT, Convida Wireless (**~~16~~17**)
    - Objected by Qualcomm, Nokia, Fujitsu, vivo, Huawei (**5**)

***Updated Draft Proposal 5****:*

* *In scheme 2, at least the following is supported to determine inter-UE coordination information:*
  + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):* 
    - *Condition 2-A-1:*
      * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*
        + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*

*FFS: Details including*

*Whether/how to consider priority values of overlapped resources between UE-B and other UE*

*Whether/how to specify an upper limit threshold of RSRP value measured on other UE’s reserved resource(s)*

* + - * + *FFS: Whether/how to specify additional criteria including*

*Whether/how to consider distance between UE-A and UE-B and/or between UE-B and other UE*

*Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).*

*Whether/how to consider Source/Destination IDs of UE-B and Other UE*

* + - *FFS: Other condition(s) including, e.g.,*
      * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*
      * *UE-A’s reserved resource(s) for its transmission are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time only*
      * *UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time*
      * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI*
      * *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay*
  + *FFS: Details including,*
    - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration*
    - *Whether/how to use priority values of resources overlapped among UEs to decide sending expected/potential resource conflict indication to which UE(s)*

**5.3 UE-B’s behaviour when receiving inter-UE coordination information**

FL observed some comments that UE-B’s behaviour is specified with respect to whether UE-B performs sensing operation or not. Also it was observed that a number of companies considers the possibility that UE-B may not follow the received inter-UE coordination information. Following is the summary of companies’ views on this topic.

* Draft proposal in principle
  + Supported by Intel, InterDigital, Nokia, LG, Lenovo, Fujitsu, Spreadtrum, CATT, OPPO, Xiaomi, Convida Wireless (**~~10~~11**)
* Proposal modified by Ericsson, Qualcomm
  + Supported by Ericsson, Mitsubishi, Qualcomm, Apple, NEC, DCM, CMCC, MTK, Futurewei, Sony, Fraunhofer, Sharp, Panasonic (**13**)
* It is up to MAC layer how to use inter-UE coordination information
  + Supported by ZTE (**1**)
* Separate description for the case which UE performs sensing
  + Supported by Huawei (**1**)

***Updated Draft Proposal 6****:*

* *In scheme 1, at least following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*
  + *For preferred resource set, the following two options are supported:*
    - *Option 1): UE-B prioritizes in its resource selection, resource(s) belonging to the preferred resource set*
      * *UE-B uses in its resource selection, resource(s) not belonging to the preferred resource set when condition(s) are met*
        + *FFS: Details of condition(s)*
      * *This option is supported when UE-B performs sensing/resource exclusion*
    - *Option 2): UE-B uses in its resource selection, resource(s) belonging to the preferred resource set*
      * *This option is supported when UE-B does not perform sensing/resource exclusion*
    - *FFS: Details including* 
      * *How UE-B takes preferred resource sets received from multiple UE-A(s) into account in its resource selection*
      * *Condition(s) for UE-B to take preferred resource set received from UE-A into account in its resource selection*
  + *For non-preferred resource set,* 
    - *UE-B deprioritize in its resource selection, resource(s) overlapping with the non-preferred resource set*
      * *FFS: Details including* 
        + *Whether/how to specify condition(s) that UE-B uses in its resource selection, resource(s) overlapping with the non-preferred resource set, and whether/how the resource(s) overlapping with the non-preferred resource set are taken into account in UE-B’s resource selection*
    - *FFS: UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*
    - *FFS: Details including* 
      * *How UE-B takes non-preferred resource sets received from multiple UE-A(s) into account in its resource selection*
      * *Condition(s) for UE-B to take non-preferred resource set received from UE-A into account in its resource selection*
  + *FFS: Which layer of UE-B performs the resource selection based inter-UE coordination information received from UE-A*

FL observed that majority companies support the draft proposal in principle. Meanwhile, few companies proposed further restriction on the UE-B’s resources which can be indicated by inter-UE coordination based on UE-B’s explicit request. Following is the summary of companies’ views on this topic.

* Draft proposal in principle
  + Supported by Intel, Ericsson, InterDigital, Qualcomm, Apple, Nokia, ZTE, NEC, LG, Lenovo, DCM, CMCC, MTK, Fujitsu, Spreadtrum, Futurewei, Sony, Samsung, Fraunhofer, vivo, Sharp, Panasonic, CATT, OPPO, Huawei, Xiaomi, CEWiT, Convida Wireless (**~~27~~28**)
* UE-B can reselect resources which is requested by the UE-B
  + Supported by Intel, Apple (**2**)

***Updated Draft Proposal 7****:*

* *In scheme 2, at least following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*
  + *UE-B reselects resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict*
    - *FFS: Details including* 
      * *Condition(s) that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict*
      * *Additional condition(s) for UE-B to reselect resource(s) upon receiving expected/potential resource conflict (e.g., UE-B’s capability, (pre)configuration, etc.)*
      * *Whether expected/potential resource conflict indication from UE-A needs to differentiate different conflict situations, and which resource(s) should UE-B reselect accordingly*

1. **Email discussion after Friday’s GTW (August 20th)**

**6.1 Conditions for UE(s) to be UE-A(s) and/or UE-B(s)**

Based on the email discussion after Wednesday’s GTW session (August 18th), I have updated the draft proposal. I would like to strongly encourage companies to be more flexible in making progress so that we can avoid the unfortunate situation to narrow-down or drop the feature of inter-UE coordination in the upcoming plenary meeting. Please keep this in mind.

**I ask companies to provide inputs on the following one question below. The deadline for companies to provide inputs is August 23rd 11:59am UTC. To prepare/make more stable draft proposals before the start of the next GTW session (maybe August 24th), it would be highly appreciated if companies make comments as soon as possible. Also to make progress more efficiently, I would like to encourage companies to directly provide “revised wording” or “new wording needed to be added”.**

**Question 1**: Do you agree the following proposal for scheme 2? According to Chairman’s guideline, including/listing many FFS points in the proposal is not desirable given the limited number of meetings for Rel-17, please consider simplifying/removing FFS points when making comments.

***Updated Draft Proposal 3 (Note that after the proposal for scheme 1 being discussed in the reflector is agreed, the yellow marked part below will be updated accordingly)****:*

* *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*
  + *A UE that transmitted SCI indicating reserved resource(s) to be used for its transmission, received inter-UE coordination from UE-A, and* *uses it for resource (re-)selection is UE-B*
  + *A UE that detects expected/potential resource conflict(s) on resource(s) indicated by UE-B’s SCI and* *sends inter-UE coordination information to UE-B is UE-A*
  + *The above feature can be enabled or disabled or controlled by (pre-)configuration*
    - *FFS: Details on how to support this*
  + *FFS: Detail including* 
    - *Definition of expected/potential resource conflict*
    - *Additional condition(s) for transmission/reception of inter-UE coordination information for detected expected/potential resource conflict(s)*
    - *Whether to support explicit request for inter-UE coordination information*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| Nokia, NSB | Yes | We support the proposal in its current form. |
| InterDigital | Yes with minor change | We support this proposal with minor changes. In our view the enabled/disabled condition of this feature may not be only specified for a resource pool, but also for certain UE. For example, a UE performing a random selection RA due to lack of RX HW may not become UE-B, because it is not able to act on the conflict indication, so this type of UEs’s SCI shouldn’t be considered as a “UE-B’s SCI” as described in the proposal. However, when such types of UEs share resource pool with full-sensing UEs, the current SCI information will not differentiate between them. Essentially, we consider it necessary for potential UE-A and UE-B(s) to be aware of each other’s enabled/disabled and/or (pre-)configuration of this feature. In other words, a potential UE-A should be able to tell if a SCI belongs to a UE that may not become a UE-B and such UE should not receive any conflict indication transmission related resources reserved in their SCIs.  In addition, we think the last FFS topics on “explicit request-based Scheme 2” is not as essential as the first two FFS topics that are closely related to this proposal. As FL kindly pointed out, we should focus our limited time on a main solution that supported by the majority companies. Thus, we suggest removing this option in FFS.  Therefore, we suggest the changes below   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that transmitted SCI indicating reserved resource(s) to be used for its transmission, received inter-UE coordination from UE-A, and uses it for resource (re-)selection is UE-B*   + *A UE that detects expected/potential resource conflict(s) on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*   + *The above feature can be enabled or disabled or controlled by (pre-)configuration*     - *FFS: Details on how to support this, e.g., conditions for enabled or disabled and indication of such enabled/disabled and/or (pre-)configuration*   + *FFS: Detail including*      - *Definition of expected/potential resource conflict*     - *Additional condition(s) for transmission/reception of inter-UE coordination information for detected expected/potential resource conflict(s)*     - *~~Whether to support explicit request for inter-UE coordination information~~* |
| Vivo | Yes with comment | For the 2nd FFS, reception of coordination information does not need a specified condition.   * + - Whether/how to specify additional condition(s) for transmission/reception of inter-UE coordination information for detected expected/potential resource conflict(s) |
| Apple | Yes with comment | We support the proposal in general. One preferred modification is on the last sub-bullet  *Whether/how to support explicit request for inter-UE coordination information* |
| Futurewei | Yes | We are ok with this proposal |
| ZTE | Yes with comments | W.r.t the yellow, we need to clarify the signalling granularity. In our view, such configurability should be for the whole scheme-2 instead of potential the 2nd level feature or condition.  Meanwhile, we also prefer to clarify the inter-UE coordination information with following updates:  inter-UE coordination information refers to the resource set including the resource(s) in expected/potential resource conflict(s)”.  And, we need to further investigate the case with more than one UE-A since it will impact the design of the determination of coordination information since the result of each UE-A may be not the same. |
| Xiaomi | Yes | We support the FL’s proposal. |
| Qualcomm | Yes |  |
| LG | Yes with comment | As in the latest proposal for scheme 1, we can reuse the wording for the FFS as follows:   * + - FFS: Details on how to support this, including (pre-)configuration signaling granularity |
| NEC | Yes with comments | * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that transmitted SCI indicating reserved resource(s) to be used for its transmission, received inter-UE coordination from UE-A, and uses it for resource (re-)selection is UE-B*   + *A UE that detects expected/potential resource conflict(s) on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*   + *FFS: Details including*      - *Definition of expected/potential resource conflict(s)*     - *Additional condition(s) for transmission of inter-UE coordination information for detected expected/potential resource conflict(s)*     - *Whether to support explicit request for inter-UE coordination information*   We prefer to remove the highlighted bullet, the intention is unclear for us. What’s the features referring to? Does it refer to “*uses it for resource (re-)selection*” and “*sends inter-UE coordination information to UE-B*” or the entire scheme 2? |
| Sharp | Yes with comments | In the first sub-bullet, there is currently no connection between the inter-UE coordination information (transmitted by UE-A) and the resource(s) reserved by the SCI (transmitted by UE-B). The following changes are suggested to clarify this:   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that transmitted SCI indicating reserved resource(s) to be used for its transmission, received inter-UE coordination information from UE-A indicating expected/potential resource conflict(s) for the reserved resource(s), and uses it for resource (re-)selection is UE-B* |
| CMCC | Yes |  |
| Lenovo/Motorola Mobility | Yes | We support the proposal |
| Sony | Yes |  |
| Fujitsu | Yes | We are fine with the proposal. |
| OPPO | Yes with comments | We are basically fine with the proposal. In line with Chairman’s guideline and also some other companies’ preference, we also prefer to focus more on essential details in the following discussion and make the FFS list short.   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that transmitted SCI indicating reserved resource(s) to be used for its transmission, received inter-UE coordination from UE-A, and uses it for resource (re-)selection is UE-B*   + *A UE that detects expected/potential resource conflict(s) on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*   + *The above feature can be enabled or disabled or controlled by (pre-)configuration*     - *FFS: Details on how to support this*   + *FFS: Definition of expected/potential resource conflict and other details (if any) ~~including~~*      - *~~Definition of expected/potential resource conflict~~*     - *~~Additional condition(s) for transmission/reception of inter-UE coordination information for detected expected/potential resource conflict(s)~~*     - *~~Whether to support explicit request for inter-UE coordination information~~* |
| Intel | Yes, with comments | We suggest clarifying the proposal:   1. SCI reserving resources is transmitted with PSSCH 2. UE can autonomously detect sidelink conflict on reserved resources. FFS if such UE is UE-B and its behavior 3. Generation of inter-UE coordination feedback for scheme-2 requires explicit request from UE-B  * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination in Mode 2:*   + *A UE that transmitted PSSCH with SCI indicating reserved resource(s) to be used for its transmission, received inter-UE coordination from UE-A, and uses it to decide on ~~for~~ resource (re-)selection is UE-B*     - *FFS whether UE that autonomously detected sidelink conflict on its reserved resources is UE-B and details of UE behavior*   + *A UE that detects expected/potential resource conflict(s) on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*   + *The above feature can be enabled or disabled or controlled by (pre-)configuration*     - *FFS: Details on how to support this*   + *FFS: Detail including*      - *Definition of expected/potential resource conflict*     - *Additional condition(s) for transmission/reception of inter-UE coordination information for detected expected/potential resource conflict(s)*     - *Whether/how to support explicit request for inter-UE coordination information* |
| Spreadtrum | Yes | We support the proposal. |
| CATT, GOHIGH | Yes |  |
| Huawei, HiSilicon | Yes with comments | We are generally ok.  As mentioned by Chairman and FL, it’s better not to list so many FFS points, which is already reflected in Proposal 1/2.  So we suggest to take similar approach here, e.g., remove the last two FFS points.  ==   * + *FFS: Detail including*      - *Definition of expected/potential resource conflict*     - *~~Additional condition(s) for transmission/reception of inter-UE coordination information for detected expected/potential resource conflict(s)~~*     - *~~Whether to support explicit request for inter-UE coordination information~~* |
| Samsung | Yes with comments | We want to keep FFS bullet for this proposal.  We are O.K for the suggested wording on FFS bullet by Vivo and Apple.  W.r.t the yellow, we can reuse the wording suggested in the discussion of Scheme 1.  •        FFS: Details on how to support this, including (pre-)configuration signaling granularity  In addition, we suggest to add one more sub-bullet as Scheme 1 discussion as   * UE-A is a destination UE of a TB transmitted by UE-B.   As you know, this is to avoid additional design consideration. We can try (working assumption) if it is controversial. |
| Ericsson | Yes | We are supportive of this proposal. |
| Fraunhofer | Yes | We are supportive of the FL’s proposal.  For the text in yellow, we are fine to take the wording from the agreement made for scheme 1, as suggested by LG. |
| CEWiT | Yes with comments | We support the main bullet in FL’s proposal, However in FFS case we suport 1st and 2nd sub-bullet I.e Definition of expected/potential resource conflict and conditions for transmission/reception of inter-UE co-ordination information should be sufficient enough to include the 3rd sub-bullet as well. |
| NTT DOCOMO | Yes | For the yellow part, LGE’s version is preferable.  For the FFS part, let’s minimize FFS in the proposal. It seems that the first sub-bullet under the FFS is sufficient. |

**6.2 How to determine inter-UE coordination information for each scheme**

Based on the email discussion after Wednesday’s GTW session (August 18th), I have updated the draft proposals. I would like to strongly encourage companies to be more flexible in making progress so that we can avoid the unfortunate situation to narrow-down or drop the feature of inter-UE coordination in the upcoming plenary meeting. Please keep this in mind.

**I ask companies to provide inputs on the following three questions below. The deadline for companies to provide inputs is August 23rd 11:59am UTC. To prepare/make more stable draft proposals before the start of the next GTW session (maybe August 24th), it would be highly appreciated if companies make comments as soon as possible. Also to make progress more efficiently, I would like to encourage companies to directly provide “revised wording” or “new wording needed to be added”.**

**Question 1**: Do you agree the following proposal for scheme 1? According to Chairman’s guideline, including/listing many FFS points in the proposal is not desirable given the limited number of meetings for Rel-17, please consider simplifying/removing FFS points when making comments.

***Updated Draft Proposal 4-1****:*

* *In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):*
  + *UE-A considers any resource(s) satisfying at least following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission*
    - *Condition 1-A-1:*
      * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*
        + *FFS: Details including*

*Whether/how to specify metric other than RSRP*

*Whether/how UE-B’s traffic requirement is considered*

*Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*

* + - *Condition 1-A-2:*
      * *Resource(s) excluding slot(s) where UE-A, which is intended receiver of UE-B, does not expect to perform SL reception from UE-B* 
        + *FFS: Details*
    - *FFS: Other condition(s) including, e.g.,*
      * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*
      * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*
      * *Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level above RSRP threshold*
  + *FFS: Details including*
    - *Signaling of preferred resource set(s)*
    - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Company** | | **Yes or no** | | | **Comment** |
| Nokia, NSB | | Yes | | | We support the proposal in its current form. |
| InterDigital | | Yes | | | We support the proposal. Also, in our view there is an overlapping between the 3rd FFS topics of condition 1-A-1 *(‐ Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*) and the 3rd FFS Other condition example of (*Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level above RSRP threshold*), because this reuse of the procedure will provide the information including this, as S\_A is a result of an exclusion procedure. So this seems an overlapping to us.  Thus, in our view, there is no need to spell out the 3rd condition example and we suggest deleting it for the sake of conciseness.   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*  *Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A, which is intended receiver of UE-B, does not expect to perform SL reception from UE-B*          + *FFS: Details*     - *FFS: Other condition(s) including, e.g.,*       * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*       * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*       * *~~Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level above RSRP threshold~~*   + *FFS: Details including*     - *Signaling of preferred resource set(s)*     - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration* |
| vivo | | Yes with comment | | | We share view as IDC, for condition 1-A-1, the following bullet can be removed, which is overlapped with main bullet for the condition.  Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold |
| Futurewei | | Yes with comment | | | For the third FFS in for condition 1-A-2, “identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, ..”, since Rel-16 resource exclusion procedure is an iterative process by increasing the RSRP threshold with a criterion for stopping the loop, we may need some change on the criterion. Since there are many details to be discussed, we suggest remove this FFS to leave it open.   * + - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*  *~~Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold~~* |
| ZTE | | Yes with comments | | | In our view, for define the preferred resource with consideration on the UE-B’s traffic, except for the RSRP, other factors as resource size, should also be considered. In current stage, we prefer to remove all of the conditions under the first sub-bullet and keep the description as below:   * + UE-A considers any resource(s) satisfying at least following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission     - Sensing mechanism for Tx UE is used as baseline     - FFS: other enhancements |
| Xiaomi | | Yes/with comment | | | We are generally fine with the FL’s proposal.  1) For condition 1-A-1 and 1-A-2, the resource(s) excluding non-preferred resource as preferred resource. However, it is not clear from which set of resource these non-preferred resource(s) are precluded. Therefore, we suggest to add a FFS under the 1st 1-A-1 and 1-A-2:  FFS: how to determine the set of resource(s) before excluding  2) Meanwhile, For condition 1-A-1, the bullet has made a restriction whose RSRP measurement is larger than a RSRP threshold, but it is mentioned in FFS under this bullet Whether/how to specify metric other than RSRP, we suggest to remove this FFS point, because it is convenient to reuse the RSRP specified in R16 to excluding the resource, meanwhile, it is better not to introduce unnecessary metric parameter with the limited number of meetings.  3) The third comment, we are confused with the third FFS point in the third sub-bullet: FFS: Other condition(s) including. If the S\_A is the candidate resource set speicifed in R16, the S\_A’s RSRP level is below RSRP threshold.   * In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):   + UE-A considers any resource(s) satisfying at least following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission     - Condition 1-A-1:       * Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold         + FFS: Details including   ~~Whether/how to specify metric other than RSRP~~  Whether/how UE-B’s traffic requirement is considered  Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold   * + - Condition 1-A-2:       * Resource(s) excluding slot(s) where UE-A, which is intended receiver of UE-B, does not expect to perform SL reception from UE-B         + FFS: Details     - ***FFS: how to determine the set of resource(s) before excluding***     - FFS: Other condition(s) including, e.g.,       * Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)       * Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions       * Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level *~~above~~ below* RSRP threshold   + FFS: Details including     - Signaling of preferred resource set(s)     - Whether conditions can be independently enabled/disabled by resource pool (pre)configuration |
| Qualcomm | | Yes with comments | | | We’d like to clarify that resources overlapping with other UEs reserved resources are excluded. We think this is the intention of the proposal, but it would be clearer to capture explicitly:  *Resource(s) excluding those overlapping with reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*  We prefer to move Condition 1-A-2 to the FFS list and to expand to cases where UE determines that it cannot successfully decode a message from UE-B, this could be due to half-duplex, IBE due to a strong interferer, …   * + - *~~Condition 1-A-2:~~ FFS*       * *Resource(s) excluding slot(s) where UE-A, which is intended receiver of UE-B, does not expect to successfully perform SL reception from UE-B*          + *FFS: Details* |
| LG | | Yes | | | If there are some different views on the FFS part, we are open to remove all the FFS parts.  In our view, depending on the further details on signalling format of the preferred resource(s) and how the inter-UE coordination information is triggered, UE-A may not need to know UE-B’s traffic including resource size. All these thing could be discussed later, and we are supportive of the current proposal. |
| NEC | | Yes | | | Agree. Also, we’re open with the FFS points |
| Lenovo/Motorola Mobility | | Yes with comments | | | *We would like to emphasize that the candidate resource exclusion process considers Half duplex constraints for that destination.*  *Condition 1-A-1:*   * + - * *Resource(s) excluding those overlapping in time/frequency and time only with the reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*  *Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure candidate resource selection ~~for resource (re-)selection~~, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold* |
| Sony | | Yes | | | We are fine with the FL’s proposal. But we propose the following update for the clarification.   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission* |
| Fujitsu | | Yes with comments | | | We are generally fine but have comments on FFS. The following modifications are suggested.   * + - *FFS: Other condition(s) including, e.g.,*       * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*       * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*       * *Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level ~~above~~ below RSRP threshold*   + *FFS: Details including*     - *Signaling of preferred resource set(s)*     - *Whether conditions can be independently enabled/disabled by ~~resource pool~~ (pre)configuration*   The wording “above” seems to be a typo. “By resource pool (pre)configuration” should be changed into “by (pre)configuration” to align with previous proposals. It can be further studied whether the granularity of (pre)configuration is per UE or per resource pool or something else. |
| OPPO | Fine with comments | | The proposal is basically fine to us.  However, we also agree that some FFS points are overlapping with each other. For example, the 3rd FFS bullets of Condition 1-A-1(reuse R-16 procedure) is overlapping with the 1st and 2nd FFS bullets, as in R-16 procedure, metric other than RSRP and UE-B’s traffic requirements are all considered.  For the 3rd sub-bullet of the “FFS: Other condition(s) including, e.g.,” we do not think it is clear to us.  We suggest to remove these FFS sub-bullets:   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*  *~~Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold~~*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A, which is intended receiver of UE-B, does not expect to perform SL reception from UE-B*          + *FFS: Details*     - *FFS: Other condition(s) including, e.g.,*       * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*       * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*       * *~~Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level above RSRP threshold~~*   + *FFS: Details including*     - *Signaling of preferred resource set(s)*     - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration* | | |
| Intel | Yes, with comments | | We suggest revising Condition 1-A-2 since in current form it looks like UE-A cansimply cancel reception   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A, which is intended receiver of UE-B, does not expect to perform SL reception from UE-B at least due to its own transmission(s)*         + *FFS: Details* | | |
| Spreadtrum | Yes with comments | | We share the similar view with InterDigital and vivo. The following 3rd FFS is overlapped with the 3rd FFS of condition 1-A-1. So, the following 3rd FFS can be removed.   * + - *FFS: Other condition(s) including, e.g.,*       * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*       * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*       * *~~Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level above RSRP threshold~~* | | |
| CATT, GOHIGH | Yes with comment | | If the FFS part on other conditions is kept. We prefer to add another condition as following:   * + - *FFS: Other condition(s) including, e.g.,*       * *Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)*       * *Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*       * *Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level above RSRP threshold*       * *Resource(s) other than slot(s) reserved for UE-B’s transmission* | | |
| Huawei, HiSilicon | See comments | | We assume the intention is the resources are identified as preferred resources if all the following conditions are met, i.e. not one of them. So we suggest to add “… at least all the following …” to be clearer.  We think “considering UE-B’s traffic requirement” needs to agreed. Because this is preferred resources for UE-B’s transmission, if UE-B’s traffic requirement is not considered, how can we ensure the preferred resources match UE-B’s traffic requirement? The details of “how to consider UE-B’s traffic requirement” can be left FFS.  On Condition 1-A-2, we think “when it is” is more accurate than “which is”, because it is still open for discussion that UE-A can be any UE.  On the following FFS point, we assume “above” should be changed to “below”. Because “above” means the interference level is high, and should not be a preferred resource. However, if it is changed to “below”, maybe it’s already covered by Condition 1-A-1 and should be removed? Some clarifications are needed.   * *“Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level above RSRP threshold”*   In summary, we suggest the following changes in red:  ==   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least all the following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold considering UE-B’s traffic requirement*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *~~Whether/~~how UE-B’s traffic requirement is considered*  *Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A, ~~which~~when it is intended receiver of UE-B, does not expect to perform SL reception from UE-B*          + *FFS: Details*     - *…*     - *FFS: Other condition(s) including, e.g.,*       * *…*       * *~~Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level above RSRP threshold~~* | | |
| Samsung | See comments | | At first, we suggest to remove all the FFS and to focus on the main contents of the proposal.  For condition 1-A-2, we suggest to modify as   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A, which is intended receiver of UE-B, does not expect to perform SL reception from UE-B*          + *~~FFS: Details~~ This includes resource(s) other than resource(s) selected or reserved by UE-A for UE-A’s own transmissions*         + *FFS: others*   The reason we make this modification is that the ‘red’ part is most important case for 1-A-2. In Scheme 1, UE-A need to consider not only reserved resource(s) by other UE by condition 1-A-1 but also its own transmission by condition 1-A-2. | | |
| Ericsson | Yes, with modifications | | In our view, there is no need to add specific ‘FFS: other conditions’ to the proposal since there are no potential conditions precluded, i.e., more than these listed options can be studied, and naming several specific options could make the proposal more difficult to be agreed.  Moreover, we would like to get some clarification in the following condition:   * *Condition 1-A-2:*   + *Resource(s) excluding slot(s) where UE-A, which is intended receiver of UE-B, does not expect to perform SL reception from UE-B* * [Q]: Is this condition intended to exclude resources due to the half-duplex case?   To finalize we propose that the reserved resources are identified not only based on the RSRP measurement but also on whether these resources have been reserved by an SCI.  Therefore, we propose the following modifications to the proposal  ***Updated Draft Proposal 4-1****:*   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) by an SCI of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*  *~~Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold~~*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A, which is intended receiver of UE-B, does not expect to perform SL reception from UE-B*          + *FFS: Details*     - *FFS: Other condition(s) ~~including, e.g.,~~*       * *~~Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)~~*       * *~~Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions~~*       * *~~Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level above RSRP threshold~~*   + *FFS: Details including*     - *Signaling of preferred resource set(s)*     - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration* | | |
| Fraunhofer | Yes | | We are supportive of the FL’s proposal.  We are fine with removing the FFS, but if they are retained, we agree with IDC and Vivo that there is an overlap in the FFS points. We would prefer to remove the 3rd FFS under condition 1-A-1, and retain the main FFS sub bullet with the following modification:  *Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level is above RSRP threshold**, reusing Rel-16 procedure for resource (re-)selection* | | |
| Bosch | Yes, comments | | | We agree with the proposal. It is important to clarify in the first condition (Condition 1-A-1) that these resources are overlapping, e.g. as Qualcomm propsoal:   * Resource(s) excluding those overlapping with reserved resource(s)   We also agree that:   * + - * *Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level above RSRP threshold*   needs clarification what “above” vs “Preferred” here means. | |
| CEWiT | Yes with comments | | | In 1-A-1 we support the main bullet. Here the sub-bullet “Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold” seems redundant with main bullet and can be removed. We are also not in support to define additional metric which seems unnecessary at this point. | |
| NTT DOCOMO | Yes with comments | | | It seems that still FFS points are controversial. Let’s remove all sub-bullets under FFSs. | |
| Convida Wireless | Yes with updates. | | | We are ok with the proposal with some updates below:  ***Updated Draft Proposal 4-1****:*   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether/how to specify metric other than RSRP*  *Whether/how UE-B’s traffic requirement is considered*  *Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*   * + - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A, which is intended receiver of UE-B, does not expect to perform SL reception from UE-B*          + *FFS: Details*     - *FFS: Other condition(s) ~~including, e.g.,~~*       * *~~Resource(s) other than slot(s) excluded based on UE-A’s non-monitored slot(s)~~*       * *~~Resource(s) other than resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions~~*       * *~~Preferred resource set comprises of resource set information extracted from candidate resource selection which includes S\_A whose RSRP level above RSRP threshold~~*   + *FFS: Details including*     - *Signaling of preferred resource set(s)*     - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration* | |

**Question 2**: Do you agree the following proposal for scheme 1? According to Chairman’s guideline, including/listing many FFS points in the proposal is not desirable given the limited number of meetings for Rel-17, please consider simplifying/removing FFS points when making comments.

***Updated Draft Proposal 4-2****:*

* *In scheme 1, at least the following is supported to determine inter-UE coordination information of non-preferred resource set(s):*
  + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*
    - *Condition 1-B-1:*
      * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*
        + *FFS: Details including*

*Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*

* + - *Condition 1-B-2:*
      * *Resource(s) where UE-A, which is intended receiver of UE-B, cannot perform SL reception from UE-B*
        + *FFS: Details*
    - *FFS: Other condition(s) including, e.g.,*
      * *Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)*
      * *Resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*
      * *Non-preferred resource comprises of resource set information extracted from candidate resource exclusion that are not part of S\_A whose RSRP level is below RSRP level*
  + *FFS: Details including*
    - *Signaling of non-preferred resource set(s)*
    - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| Nokia, NSB | Yes, with additions | We support the proposal in its current form. However, we’d like to propose an additional condition as indicated below.   * + - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*   * + - *Condition 1-B-2:*       * *Resource(s) where UE-A, which is intended receiver of UE-B, cannot perform SL reception from UE-B*         + *FFS: Details*     - *Condition 1-B-3:*       * *Reserved resource(s) of other UE identified by UE-A whose intended receiver(s) include UE-A*         + *FFS: Details* |
| InterDigital | Yes | We support the proposal. We suggest the same change as discussed above by deleting the 3rd FFS Other condition example due to the overlapping |
| vivo | Yes with comment | For condition 1-B-2 and FFS, the condition needs also to describe time-only conflict to address HD issue. So, the following modification is suggested. We are also fine with both resource level and slot level conflict.   * + - Condition 1-B-2:       * Resource(s)/slot(s) where UE-A, which is intended receiver of UE-B, cannot perform SL reception from UE-B         + FFS: Details     - FFS: Other condition(s) including, e.g.,       * Resource(s)/slot(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission) |
| Futurewei | Yes with comments | As in our comment for proposal 4-1, we suggest remove the FFS related to “*reuses Rel-16 procedure for resource (re-)selection”.*   * + - * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details ~~including~~*   *~~Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold~~* |
| ZTE | Yes with comments | In our view, the destination of a transmission is based on Tx UE’s LCP in MAC layer and it means that based on the coordination information, UE-A cannot identify that whether the UE is the destination UE for UE-B or not. In this case, the Condition 1-B-2 may not be feasible. In general, we prefer to remove all of the conditions under the first sub-bullet and keep the description as below:   * + UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission     - The rest resources which are not included in candidate resource set based on sensing(Sensing mechanism for Tx UE can be reused)     - Other restrictions. |
| Xiaomi | Yes | We are support the FL’s proposal.  A typo comment in FFS: Other condition(s) including as below:   * + - FFS: Other condition(s) including, e.g.,       * Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)       * Resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions       * Non-preferred resource comprises of resource set information extracted from candidate resource exclusion that are not part of S\_A whose RSRP level is below RSRP *~~level~~ threshold* |
| Qualcomm | No | Condition 1-B-2 indicates that UE-A has to be an intended recipient of UE-A, which hasn’t been agreed. The condition needs to be generalized. Similar to the previous proposal, we’d like to add “successfully”:   * + - *Condition 1-B-2:*       * *Resource(s) where UE-A, ~~which is intended receiver of UE-B,~~ cannot* successfully *perform SL reception ~~from UE-B~~*         + *FFS: Details*   Separately, we support adding Condition 1-B-3 as proposed by Nokia. |
| LG | Yes | If there are some different views on the FFS part, we are open to remove all the FFS parts.  To make progress, rather than adding another conditions, we’d like to focus on conditions listed on the proposal which are supported by majority companies. I believe that we can discuss it later for the additional conditions if necessary since the proposal wording uses “at least”.  Regarding ZTE’s comment, one way to consider Condition 1-B-2 is that UE-A transmits inter-UE coordination information to potential TX UE of the UE-A, and inform that this information is valid only if the destination of UE-B’s transmission is UE-A. All these can be discussed later. |
| NEC | Yes | Agree. Also, we’re open with the FFS points |
| CMCC | Comments | Regarding Condition 1-B-2, we don’t see the need to restrict the UE-A as the intended receiver of UE-B, nor we have reached any consensus on this.  In addition, for Condition 1-B-2 and the first FFS bullet, to solve the half-duplex issue, the non-preferred set of resources should be slot level. We are fine with the updates by vivo. |
| Lenovo/Motorola Mobility | Yes with comments | *Condition 1-B-1:*   * + - * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for candidate resource selection ~~resource (re-)selection~~, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*  *Condition 1-B-2:*   * + - * *Resource(s) where UE-A, which is intended receiver of UE-B, cannot perform SL reception from UE-B*         + *FFS: Details*     - *FFS: Other condition(s) including, e.g.,*       * *Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)*       * *Resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*       * *Non-preferred resource comprises of resource set information extracted from candidate resource exclusion that are not part of S\_A whose RSRP level is below RSRP level*       * *Whether/how to consider Source/Destination IDs of UE-B and Other UE(s) in the candidate resource exclusion process* |
| Sony | Yes |  |
| Fujitsu | Yes with comments | Previously in Condition 1-A-2, the wording is “slot(s) where UE-A does not expect to perform SL reception from UE-B”. Here, in Condition 1-B-2, the wording is “resource(s) where UE-A cannot perform SL reception from UE-B”. Is there any special consideration for Condition 1-B-2? If not, these two may be unified to either slot(s) or resource(s).  “By resource pool (pre)configuration” should be changed into “by (pre)configuration” to align with previous proposals.   * + *FFS: Details including*     - *Signaling of non-preferred resource set(s)*     - *Whether conditions can be independently enabled/disabled by ~~resource pool~~ (pre)configuration* |
| OPPO | Fine with comments | Similar comments as above for draft proposal 4-1, we suggest to remove following FFS sub-bullet.   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of non-preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*   * + - *Condition 1-B-2:*       * *Resource(s) where UE-A, which is intended receiver of UE-B, cannot perform SL reception from UE-B*         + *FFS: Details*     - *FFS: Other condition(s) including, e.g.,*       * *Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)*       * *Resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*       * *~~Non-preferred resource comprises of resource set information extracted from candidate resource exclusion that are not part of S\_A whose RSRP level is below RSRP level~~*   + *FFS: Details including*     - *Signaling of non-preferred resource set(s)*   *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration* |
| Intel | Yes, with comments | We suggest revising Condition 1-B-2 since in current form it looks like UE-A can simply cancel reception   * + *Condition 1-B-2:*     - *Resource(s) where UE-A, which is intended receiver of UE-B, cannot perform SL reception from UE-B at least due to its own transmission(s)*        * *FFS: Details* |
| Spreadtrum | Yes with comments | We are generally OK with the proposal.  In condition 1-B-2, we share the similar view with vivo, “slot(s)” should be added for half duplex conflict.  In the FFS “Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)”, “UE-A is not intended receiver of UE-B” should be clarified. Because, when UE-A is intended receiver of UE-B, this FFS is overlapped with condition 1-B-2.  As the comments in proposal 4-1, 3rd condition FFS can be removed.   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of non-preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*   * + - *Condition 1-B-2:*       * *Resource(s)/slot(s) where UE-A, which is intended receiver of UE-B, cannot perform SL reception from UE-B*         + *FFS: Details*     - *FFS: Other condition(s) including, e.g.,*       * *Resource(s) that UE-A, which is not intended receiver of UE-B, has selected for its own transmission(s) (e.g., initial transmission)*       * *Resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions*       * *~~Non-preferred resource comprises of resource set information extracted from candidate resource exclusion that are not part of S\_A whose RSRP level is below RSRP level~~*   + *FFS: Details including*     - *Signaling of non-preferred resource set(s)*     - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration* |
| CATT, GOHIGH | Yes with comment | We share similar views as Nokia, if the resource(s) intended for UE-A to receive other UE’s transmission, it should be included in the non-preferred resource set. |
| Huawei, HiSilicon | See comments | Our comments are similar to Proposal 4-1.  “considering UE-B’s traffic requirement” is also needed to match UE-B’s requirement.  On Condition 1-B-2, we think “when it is” is more accurate than “which is”, because it is still open for discussion that UE-A can be any UE.  On the following FFS point, we assume “below” should be changed to “above”? Because “below” means the interference level is low, and should be a preferred resource. However, if it is changed to “above”, maybe it’s already covered by Condition 1-B-1 and should be removed. Some clarifications are needed.   * *“Non-preferred resource comprises of resource set information extracted from candidate resource exclusion that are not part of S\_A whose RSRP level is below RSRP level”*   In summary, we suggest the following changes in red:  ==   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of non-preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold considering UE-B’s traffic requirement*         + *FFS: Details including*   *Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*  *how UE-B’s traffic requirement is considered*   * + - *Condition 1-B-2:*       * *Resource(s) where UE-A, ~~which~~when it is intended receiver of UE-B, cannot perform SL reception from UE-B*         + *FFS: Details*     - …     - *FFS: Other condition(s) including, e.g.,*       * *…*       * *~~Non-preferred resource comprises of resource set information extracted from candidate resource exclusion that are not part of S\_A whose RSRP level is below RSRP level~~* |
| Samsung | See comments | We suggest to remove all the FFS and to focus on the main contents of the proposal.  For condition 1-B-2, we suggest to modify as   * + - *Condition 1-B-2:*       * *Resource(s) where UE-A, which is intended receiver of UE-B, cannot perform SL reception from UE-B*         + *~~FFS: Details~~ This includes resource(s) selected or reserved by UE-A for UE-A’s own transmissions*         + *FFS: others*   We make this modification because the ‘red’ part is most important case for 1-B-2. With the reason in Proposal 4-1, UE-A need to consider not only reserved resource(s) by other UE by condition 1-B-1 but also its own transmission by condition 1-B-2. |
| Ericsson | Yes, with modifications | In our view, there is no need to add specific ‘FFS: other conditions’ to the proposal since there are no potential conditions precluded, i.e., more than these listed options can be studied, and naming several specific options could make the proposal more difficult to be agreed.  Moreover, similar to our comment in the previous proposal, we would like to get some clarification in the following condition:   * *Condition 1-B-2:*   + *Resource(s) where UE-A, which is intended receiver of UE-B, cannot perform SL reception from UE-B*     - *FFS: Details* * [Q]: Is this condition intended to exclude resources due to the half-duplex case?   Therefore, we propose the following modifications to the proposal  ***Updated Draft Proposal 4-2****:*   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of non-preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) by an SCI of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details ~~including~~*   *~~Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold~~*   * + - *Condition 1-B-2:*       * *Resource(s) where UE-A, which is intended receiver of UE-B, cannot perform SL reception from UE-B*         + *FFS: Details*     - *FFS: Other condition(s) ~~including, e.g.,~~*       * *~~Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)~~*       * *~~Resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions~~*       * *~~Non-preferred resource comprises of resource set information extracted from candidate resource exclusion that are not part of S\_A whose RSRP level is below RSRP level~~*   + *FFS: Details including*     - *Signaling of non-preferred resource set(s)*     - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration* |
| Fraunhofer | Yes with comments | We are supportive of the FL’s proposal with a few comments.  Similar to Proposal 4-1, if the FFSs are retained, we prefer to remove the FFS sub-bullet under Condition 1-B-1 and adapt the 3rd sub bullet of the main FFS as mentioned in our answer to Proposal 4-1.  We also agree with Vivo and others that the time-only resource conflict needs to be added, and are fine with the suggested wording – “Resource(s)/Slots”.  We also support the adaptation of the 2nd sub bullet under the main FFS like previous agreements, by making the following modification:  *“Whether conditions can be independently enabled/disabled by ~~resource pool~~ (pre)configuration”* |
| Bosch | Yes, with addition | We agree with the FL proposal. It is very important to note that Nokia’s comment is very critical. We are very interested to agree on this, or at least add it as an FFS:   * + - Condition 1-B-3:       * Reserved resource(s) of other UE identified by UE-A whose intended receiver(s) include UE-A         + FFS: Details |
| CEWiT | Yes with modifications | In our view the proposal can be further simplified based on the nature of UE-A, weather it is an intended receiver or not.If UE-A is intended receiver then set of resource(s) non-preferred for UE-B’s transmission should be “Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold” and Resource(s) where UE-A, cannot perform SL reception from UE-B.  In case where UE-A, is not an intended receiver, set of resource(s) non-preferred for UE-B’s transmission can simply be “Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold” and additional condition can be FFS |
| NTT DOCOMO | Yes with comments | It seems that still FFS points are controversial. Let’s remove all sub-bullets under FFSs. |
| Convida Wireless | Yes with some updates | We are ok with the proposal with some updates below:  ***Updated Draft Proposal 4-2****:*   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of non-preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*         + *FFS: Details including*   *Whether identifying other UE’s reserved resource(s) reuses Rel-16 procedure for resource (re-)selection, i.e., resource(s) reserved by an SCI and whose RSRP measurement is larger than a RSRP threshold*   * + - *Condition 1-B-2:*       * *Resource(s) where UE-A, which is intended receiver of UE-B, cannot perform SL reception from UE-B*         + *FFS: Details*     - *FFS: Other condition(s) ~~including, e.g.,~~*       * *~~Resource(s) that UE-A has selected for its own transmission(s) (e.g., initial transmission)~~*       * *~~Resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions~~*       * *~~Non-preferred resource comprises of resource set information extracted from candidate resource exclusion that are not part of S\_A whose RSRP level is below RSRP level~~*   + *FFS: Details including*     - *Signaling of non-preferred resource set(s)*     - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration* |

**Question 3**: Do you agree the following proposal for scheme 2? According to Chairman’s guideline, including/listing many FFS points in the proposal is not desirable given the limited number of meetings for Rel-17, please consider simplifying/removing FFS points when making comments.

***Updated Draft Proposal 5****:*

* *In scheme 2, at least the following is supported to determine inter-UE coordination information:*
  + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):* 
    - *Condition 2-A-1:*
      * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*
        + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*

*FFS: Details including*

*Whether/how to consider priority values of overlapped resources between UE-B and other UE*

*Whether/how to specify an upper limit threshold of RSRP value measured on other UE’s reserved resource(s)*

* + - * + *FFS: Whether/how to specify additional criteria including*

*Whether/how to consider distance between UE-A and UE-B and/or between UE-B and other UE*

*Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).*

*Whether/how to consider Source/Destination IDs of UE-B and Other UE*

* + - *FFS: Other condition(s) including, e.g.,*
      * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*
      * *UE-A’s reserved resource(s) for its transmission are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time only*
      * *UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time*
      * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI*
      * *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay*
  + *FFS: Details including,*
    - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration*
    - *Whether/how to use priority values of resources overlapped among UEs to decide sending expected/potential resource conflict indication to which UE(s)*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| Nokia, NSB | Yes | We support the proposal in its current form. |
| InterDigital | Yes with comments | We support the proposal in principle. We suggest a couple of changes.  First, we’d like Condition 2-A-1 to include a FFS consideration for reservation interval of the overlapping resources. In our view, it is important to identify whether the detected overlap is one-time event (aperiodic transmission) or multiple recurring events (overlap occur every or every few intervals). The latter can cause persistent collision and thus should be considered along with priority and RSRP.  Second, we’d like to consolidate a couple of FFS Other conditions for conciseness, as in our view they all about half-duplex conflict.  Thus, we suggest the follow:   * *In scheme 2, at least the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resources between UE-B and other UE*  *Whether/how to specify an upper limit threshold of RSRP value measured on other UE’s reserved resource(s)*  *Whether/how to consider reservation interval of overlapped resources between UE-B and other UE*   * + - * + *FFS: Whether/how to specify additional criteria including*   *Whether/how to consider distance between UE-A and UE-B and/or between UE-B and other UE*  *Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).*  *Whether/how to consider Source/Destination IDs of UE-B and Other UE*   * + - *FFS: Other condition(s) including, e.g.,*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*       * *~~UE-A’s reserved resource(s) for its transmission are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time only~~*       * *UE-A’s UL transmission resource and/or UE-A’s ~~LTE~~ SL (either LTE or NR) transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time*       * *~~UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time~~*       * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI*       * *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay*   + *FFS: Details including,*     - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration*     - *Whether/how to use priority values of resources overlapped among UEs to decide sending expected/potential resource conflict indication to which UE(s)* |
| vivo | See comment | For the FFS of Condition 2-A-1, the rule to determine RSRP threshold should be discussed firstly, then we consider whether a upper bound is specified or not.   * + - ~~Whether/how to specify an upper limit threshold of RSRP value measured on other UE’s reserved resource(s)~~     - FFS how to determine the RSRP threshold. |
| Apple | No | We think at least the half duplex issue at the targeted receiver UE (e.g., UE-A) of UE-B’s data transmission should also be considered as one condition. Similar to Condition 1-B-2 in Proposal 4, we hope to add the corresponding condition (i.e., condition 2-A-2 as follows).  Also, we feel the number of FFS can be largely reduced.   * *In scheme 2, at least the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: Details ~~including~~*  *~~Whether/how to consider priority values of overlapped resources between UE-B and other UE~~*  *~~Whether/how to specify an upper limit threshold of RSRP value measured on other UE’s reserved resource(s)~~*   * + - * + *FFS: Whether/how to specify additional criteria ~~including~~*   *~~Whether/how to consider distance between UE-A and UE-B and/or between UE-B and other UE~~*  *~~Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).~~*  *~~Whether/how to consider Source/Destination IDs of UE-B and Other UE~~*   * + - *Condition 2-A-2:*       * *Resource(s) where UE-A, which is intended receiver of UE-B, cannot perform SL reception from UE-B*         + *FFS: Details*     - *FFS: Other condition(s) including, e.g.,*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*       * *~~UE-A’s reserved resource(s) for its transmission are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time only~~*       * *~~UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time~~*       * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI*       * *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay*   + *FFS: Details including,*     - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration*     - *Whether/how to use priority values of resources overlapped among UEs to decide sending expected/potential resource conflict indication to which UE(s)* |
| Futurewei | comments | We shall consider the half duplex conflict in scheme 2 as UE-B may reselect the resource on the same slot as that of the initial resource reservation. We propose to remove the related subbullets from the FFS part and added as condition 2-A-2.   * *In scheme 2, at least the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resources between UE-B and other UE*  *Whether/how to specify an upper limit threshold of RSRP value measured on other UE’s reserved resource(s)*   * + - * + *FFS: Whether/how to specify additional criteria including*   *Whether/how to consider distance between UE-A and UE-B and/or between UE-B and other UE*  *Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).*  *Whether/how to consider Source/Destination IDs of UE-B and Other UE*   * + - *Condition 2-A-2:*       * *UE-A’s SL transmissions (LTE or NR) and/or UE-A’s UL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time*     - *FFS: Other condition(s) including, e.g.,*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*       * *~~UE-A’s reserved resource(s) for its transmission are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time only~~*       * *~~UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time~~*       * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI*       * *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay*   + *FFS: Details including,*     - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration*     - *Whether/how to use priority values of resources overlapped among UEs to decide sending expected/potential resource conflict indication to which UE(s)* |
| ZTE | No | Considering the condition of being UE-A, more than one UEs could be UE-A, in this case, according to the conditions in the proposal, the result would not be same. We suggest to discuss this issue after the detail of determination of the UE-A is done. |
| Xiaomi | Yes/with comment | We are generally fine with FL’s proposal,  In the second sub-bullet of FFS: Other condition(s) including, we sugguest to remove the case of overlapping in time-frequency as it has been solved by the current pre-emption mechanism. For the case of resource overlapping in time only, the assumption is that UE-A has half-duplex issue in the slot of resource overlapping, UE-A should be a receiver UE of UE-B. Therefore, we suggest to make following revision:   * + - FFS: Other condition(s) including, e.g.,       * Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time       * UE-A’s reserved resource(s) for its transmission are overlapping with resource(s) indicated by UE-B’s SCI *with UE-A as a destination UE ~~in time-and-frequency~~ ~~or~~* in time only       * UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time       * PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI       * Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay |
| Qualcomm | Yes with comments | We agree with vivo on the need to add an “FFS how to determine the RSRP threshold” as it might not be a single, fixed value. However, we think this is a separate issue from the upper limit as the latter pertains to how many comparisons are performed.   * *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   + *FFS: Details including*     - *Whether/how to consider priority values of overlapped resources between UE-B and other UE*     - *Whether/how to specify an upper limit threshold of RSRP value measured on other UE’s reserved resource(s)*     - FFS how to determine the RSRP threshold(s).   While we would have preferred to be part of the main text, we are ok with putting overlap in time as an FFS here for progress. We consider it an important issue as it extends beyond half-duplex and includes IBE as discussed for previous proposals.  Could you please clarify the difference between the following FFS and pre-emption? In our understanding they are the same. If that’s the case, then the FFS should be removed.   * + - * *UE-A’s reserved resource(s) for its transmission are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time only*   As we are introducing mechanisms to signal resource preference other than SCI-1, we think the following FFS needs to be expanded to cover those new mechanisms:   * + - * *Time gap between reservations ~~SCIs~~ whose resources of UE-B and other UE are overlapping is smaller than a processing delay*   As part of the discussions resolving the last FFS, we think it important to also discuss tie-breaking rules. However, that can be discussed later. |
| LG | Yes | In our understanding, it seems not easy to agree on whether UE-A is only a destination of a TB transmitted by UE-B or not. To make progress, we’re OK to discuss this proposal first.  Regarding Condition 2-A-2, we are also supportive of considering UE-A’s UL transmission and LTE SL transmission. In case of NR SL, there is a possibility that the UE-A avoid the overlapping via its resource selection.  Meanwhile, we can accept the proposal for the progress, and discuss any other conditions later. |
| NEC | Yes | Agree. |
| Sharp |  | On the first sub-bullet under Condition 2-A-1, “*fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*”, is it a correct understanding that this means the overlapping should be on both time and frequency? If so we don’t think this covers the half-duplex case. Suggest to reword it as “*fully/partially overlapping with time/frequency resource(s) indicated by UE-B’s SCI ~~in time-and-frequency~~*” |
| CMCC | Yes, with modifications | Share similar views as Apple and Futurewei that, the conditions regarding the half-duplex issue in the FFS bullet should be listed in parallel with Condition 2-A-1. |
| Lenovo/Motorola Mobility | Yes | We support the proposal   * + - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency and time only* |
| Sony | Yes |  |
| Fujitsu | Yes with comments | “By resource pool (pre)configuration” should be changed into “by (pre)configuration”   * + *FFS: Details including,*     - *Whether conditions can be independently enabled/disabled by ~~resource pool~~ (pre)configuration* |
| OPPO | Comments | We think half duplex between UE-A and UE-B due to SL transmission should be included.   * *In scheme 2, at least the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resources between UE-B and other UE*  *Whether/how to specify an upper limit threshold of RSRP value measured on other UE’s reserved resource(s)*   * + - * + *FFS: Whether/how to specify additional criteria including*   *Whether/how to consider distance between UE-A and UE-B and/or between UE-B and other UE*  *Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).*  *Whether/how to consider Source/Destination IDs of UE-B and Other UE*   * + - *Condition 2-A-2:*       * *UE-A’s reserved resource(s) for its SL transmission are overlapping with resource(s) indicated by UE-B’s SCI in time*   *FFS details.*   * + - *FFS: Other condition(s) including, e.g.,*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*       * *~~UE-A’s reserved resource(s) for its transmission are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time only~~*       * *UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time*       * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI*       * *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay*   + *FFS: Details including,*     - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration*     - *Whether/how to use priority values of resources overlapped among UEs to decide sending expected/potential resource conflict indication to which UE(s)* |
| Intel | Yes, with comments | We need to consider and treat half-duplex issue separately therefore we suggest adding condition 2-A-0  ***Updated Draft Proposal 5****:*   * *In scheme 2, at least the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-0:*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*          + *FFS Details*     - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resources between UE-B and other UE*  *Whether/how to specify an upper limit threshold of RSRP value measured on other UE’s reserved resource(s)*   * + - * + *FFS: Whether/how to specify additional criteria including*   *Whether/how to consider distance between UE-A and UE-B and/or between UE-B and other UE*  *Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).*  *Whether/how to consider Source/Destination IDs of UE-B and Other UE*   * + - *FFS: Other condition(s) including, e.g.,*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*       * *UE-A’s reserved resource(s) for its transmission are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time only*       * *UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time*       * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI*       * *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay*   + *FFS: Details including,*     - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration*     - *Whether/how to use priority values of resources overlapped among UEs to decide sending expected/potential resource conflict indication to which UE(s)* |
| Spreadtrum | Yes with comments | Half duplex conflict in scheme 2 should be listed as condition 2-A-2, which is similar with condition 1-B-2 in Proposal 4-2.   * + - *Condition 2-A-2:*       * *Resource(s)/slot(s) where UE-A, which is intended receiver of UE-B, cannot perform SL reception from UE-B*         + *FFS: Details*     - *FFS: Other condition(s) including, e.g.,*       * *Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time*       * *~~UE-A’s reserved resource(s) for its transmission are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time only~~*       * *~~UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time~~*       * *PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI*       * *Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay*   + *FFS: Details including,*     - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration*     - *Whether/how to use priority values of resources overlapped among UEs to decide sending expected/potential resource conflict indication to which UE(s)* |
| CATT, GOHIGH | Yes with comment | We share the similar views as other companies, another condition(2-A-2) should be list for half-duplex issue when UE-A is UE-B’s intended receiver, and remove the related sub-bullet in FFS other conditions |
| Huawei, HiSilicon | No, see comments | UE-B will always do pre-emption check by itself, so such conflict indication is needed only when other UE’s SCI is transmitted in the non-monitor slots of UE-B. Otherwise, such resource conflict may cause UE-B to reselect resource and perform unreserved transmission frequently, which has high chance of collision and increased delay.  So we are ok to support conflict indication in this case, and open for discussion whether other cases need to be supported. The following changes are suggested.   * + - *…*     - *Condition 2-A-1:*       * *At least when other UE’s SCI is transmitted in the non-monitor slots of UE-B, and o~~O~~ther UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *…*   We suggest to add “*Whether/how expected/potential resource conflict indication from UE-A to differentiate different conflict situations*”. As shown in Figure 10 in our Tdoc R1-2106478 (also copied below), the resource conflict situations may include many cases, e.g., conflict happens on one, or two, or multiple of those dynamically and/or periodically reserved resources by UE-B. RAN1 needs to discuss whether the conflict indication from UE-A needs to differentiate different conflict situations, and which resource(s) should UE-B reselect accordingly.    **Figure 10: Different resource conflict situations**  There are too many FFS points on other conditions, which are not good for progress. We suggest to remove them, and keeping “*FFS: Other condition(s)*” is enough.  We do not support to agree the half-duplex issue. Because UE-A will always do re-evaluation/pre-emption check by itself, if such half-duplex issue happens, UE-A will re-select resources instead of sending a conflict indication.  Furthermore, if RAN1 is going to agree on Condition 2-A-1, the benefits of having additional conditions are unclear.  The vast majority of the other FFS points are matters that companies need to raise in tdocs after we have the basic agreement. They are not a necessary part of reaching any potential agreement on scheme 2, and simply serve to make scheme 2 look infeasible in the available time.  In summary, we suggest the following changes in red:  ==   * *In scheme 2, at least the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *At least when other UE’s SCI is transmitted in the non-monitor slots of UE-B, and o~~O~~ther UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: Details including*  *Whether/how expected/potential resource conflict indication from UE-A to differentiate different conflict situations*  *Whether/how to consider priority values of overlapped resources between UE-B and other UE*  *~~Whether/how to specify an upper limit threshold of RSRP value measured on other UE’s reserved resource(s)~~*   * + - * + *FFS: Whether/how to specify additional criteria ~~including~~*   *~~Whether/how to consider distance between UE-A and UE-B and/or between UE-B and other UE~~*  *~~Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).~~*  *~~Whether/how to consider Source/Destination IDs of UE-B and Other UE~~*   * + - *FFS: Other condition(s) ~~including, e.g.,~~*       * *~~Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time~~*       * *~~UE-A’s reserved resource(s) for its transmission are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time only~~*       * *~~UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time~~*       * *~~PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI~~*       * *~~Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay~~*   + *~~FFS: Details including,~~*     - *~~Whether conditions can be independently enabled/disabled by resource pool (pre)configuration~~*     - *~~Whether/how to use priority values of resources overlapped among UEs to decide sending expected/potential resource conflict indication to which UE(s)~~* |
| Samsung | See comments | We suggest to remove all the FFS and to focus on the main contents of the proposal.  Instead, we suggest to add condition 2-A-2 and 2-A-3 as   * + - *Condition 2-A-2:*       * *UE-A’s SL transmissions (LTE or NR) and/or UE-A’s UL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time*     - *Condition 2-A-3:*       * *UE-A’s reserved or selected resource(s) for UE-A’s own transmissions*   In addition to condition 2-A-1, we think that the ‘red’ parts above are most important cases need to be considered for Scheme 2. |
| Ericsson | Yes, with modifications | We are in general supportive of this proposal, however, in order to have an easier proposal to be agreed and also following the Chairman’s suggestion, we propose to remove the following FFS:    ***Updated Draft Proposal 5****:*   * *In scheme 2, at least the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: Details including*  *Whether/how to consider priority values of overlapped resources between UE-B and other UE*  *Whether/how to specify an upper limit threshold of RSRP value measured on other UE’s reserved resource(s)*   * + - * + *FFS: Whether/how to specify additional criteria including*   *Whether/how to consider distance between UE-A and UE-B and/or between UE-B and other UE*  *Whether UE-A’s sensing is limited to UE-B’s non-monitored slot(s).*  *Whether/how to consider Source/Destination IDs of UE-B and Other UE*   * + - *FFS: Other condition(s) ~~including, e.g.,~~*       * *~~Other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time~~*       * *~~UE-A’s reserved resource(s) for its transmission are overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time only~~*       * *~~UE-A’s UL transmission resource and/or UE-A’s LTE SL transmission resource are overlapping with resource(s) indicated by UE-B’s SCI in time~~*       * *~~PSFCH occasion of UE-A’s reserved resource(s) for its transmission is overlapping with PSFCH occasion of resource(s) indicated by UE-B’s SCI~~*       * *~~Time gap between SCIs whose resources of UE-B and other UE are overlapping is smaller than a processing delay~~*   + *FFS: Details including,*     - *Whether conditions can be independently enabled/disabled by resource pool (pre)configuration*     - *Whether/how to use priority values of resources overlapped among UEs to decide sending expected/potential resource conflict indication to which UE(s)* |
| Fraunhofer | Yes with comments | We are supportive of the FL’s proposal, and would also support the inclusion of Condition 2-A-2 to inform UE-B of potential resource collisions due to the half-duplex issue. We prefer the wording provided by Futurewei, which will remove the 2nd and 3rd sub bullet under the main FFS. |
| Bosch | Yes, support with comments | We do support the proposal with this comment: clarify whether/how to consider reservation interval for overlapped resources (similar to nokia’s comment).  Whether/how to consider reservation interval of overlapped resources between UE-B and other UE |
| NTT DOCOMO | Yes with comments | At least half-duplex case should be condition 2-A-2 without FFS, as commented by Apple/FW.  Then as commented for scheme 1, let’s remove all sub-bullets under FFSs. They do not help for better progress.  Honestly speaking, we prefer to have other condition like SL/UL overlap, PSFCH overlap, but they can be discussed future. All companies shall consider compromise for progress.  For HW’s comments, we think they are not valid.  Regarding “non-monitor slots”, the comment is invalid since companies consider also hidden-node issue. There is a case that UE-B does not detect other UE’s signal, but UE-A does.  Regarding “half-duplex issue”, the comment is invalid since in R16 re-evaluation/pre-emption check is not performed even if half-duplex is detected. And if priority of UE-A’s TX is higher (smaller value) than that of UE-B’s TX, the collision indication is definitely reasonable. |
| Convida Wireless | Yes | We are ok with the proposal. |

**6.3 UE-B’s behaviour when receiving inter-UE coordination information**

Based on the email discussion after Wednesday’s GTW session (August 18th), I have updated the draft proposals. I would like to strongly encourage companies to be more flexible in making progress so that we can avoid the unfortunate situation to narrow-down or drop the feature of inter-UE coordination in the upcoming plenary meeting. Please keep this in mind.

**I ask companies to provide inputs on the following two questions below. The deadline for companies to provide inputs is August 23rd 11:59am UTC. To prepare/make more stable draft proposals before the start of the next GTW session (maybe August 24th), it would be highly appreciated if companies make comments as soon as possible. Also to make progress more efficiently, I would like to encourage companies to directly provide “revised wording” or “new wording needed to be added”.**

**Question 1**: Do you agree the following proposal for scheme 1? According to Chairman’s guideline, including/listing many FFS points in the proposal is not desirable given the limited number of meetings for Rel-17, please consider simplifying/removing FFS points when making comments.

***Updated Draft Proposal 6****:*

* *In scheme 1, at least following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*
  + *For preferred resource set, the following two options are supported:*
    - *Option 1): UE-B prioritizes in its resource selection, resource(s) belonging to the preferred resource set*
      * *UE-B uses in its resource selection, resource(s) not belonging to the preferred resource set when condition(s) are met*
        + *FFS: Details of condition(s)*
      * *This option is supported when UE-B performs sensing/resource exclusion*
    - *Option 2): UE-B uses in its resource selection, resource(s) belonging to the preferred resource set*
      * *This option is supported when UE-B does not perform sensing/resource exclusion*
    - *FFS: Details including* 
      * *How UE-B takes preferred resource sets received from multiple UE-A(s) into account in its resource selection*
      * *Condition(s) for UE-B to take preferred resource set received from UE-A into account in its resource selection*
  + *For non-preferred resource set,* 
    - *UE-B deprioritize in its resource selection, resource(s) overlapping with the non-preferred resource set*
      * *FFS: Details including* 
        + *Whether/how to specify condition(s) that UE-B uses in its resource selection, resource(s) overlapping with the non-preferred resource set, and whether/how the resource(s) overlapping with the non-preferred resource set are taken into account in UE-B’s resource selection*
    - *FFS: UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*
    - *FFS: Details including* 
      * *How UE-B takes non-preferred resource sets received from multiple UE-A(s) into account in its resource selection*
      * *Condition(s) for UE-B to take non-preferred resource set received from UE-A into account in its resource selection*
  + *FFS: Which layer of UE-B performs the resource selection based inter-UE coordination information received from UE-A*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| Nokia, NSB | Yes, with additions | We support the proposal in its current form. However, we’d like to propose a third option as indicated below.   * + *For preferred resource set, the following ~~two~~ three options are supported:*     - *Option 1a): UE-B prioritizes in its resource selection, resource(s) belonging to the preferred resource set*       * *UE-B uses in its resource selection, resource(s) not belonging to the preferred resource set when condition(s) are met*         + *FFS: Details of condition(s)*       * *This option is supported when UE-B performs sensing/resource exclusion*     - *Option 1b): UE-B* ***de****prioritizes in its resource selection, resource(s)* ***overlapping with*** *the preferred resource set*       * *This option is supported when UE-B receives inter-UE coordination information* ***not intended for this UE-B***     - *Option 2): UE-B uses in its resource selection, resource(s) belonging to the preferred resource set*       * *This option is supported when UE-B does not perform sensing/resource exclusion*     - *FFS: Details including*        * *How UE-B takes preferred resource sets received from multiple UE-A(s) into account in its resource selection*       * *Condition(s) for UE-B to take preferred resource set received from UE-A into account in its resource selection* |
| InterDigital | Yes | We support the proposal. A quick clarification regarding the difference between this and this:   * + - * + *Whether/how to specify condition(s) that UE-B uses in its resource selection, resource(s) overlapping with the non-preferred resource set, and whether/how the resource(s) overlapping with the non-preferred resource set are taken into account in UE-B’s resource selection*   In our view, “taken into account” is more general and at least include “uses under certain specified conditions”. If we intend to cover more options, we suggest   * + - * + *whether/how the resource(s) overlapping with the non-preferred resource set are taken into account in UE-B’s resource selection, e.g., whether/how to specify condition(s) that UE-B uses in its resource selection, resource(s) overlapping with the non-preferred resource set*   Otherwise, we suggest removing this in the final proposal to keep the discussion focused going forward. |
| vivo | Yes with minor comment | We think it is not necessary to specify rules for the case when multiple UE-B receives multiple coordination information from multiple UE-As.  It is also not clear why to specify condition for UE-B to use the coordination information, clarification is needed.   * + - FFS: Details including       * ~~How UE-B takes preferred resource sets received from multiple UE-A(s) into account in its resource selection~~       * Condition(s) for UE-B to take preferred resource set received from UE-A into account in its resource selection |
| Apple | Yes | We are fine with the proposal in principle. Please change “selection” to “(re)selection” in the proposal. |
| Futurewei | comments | We prefer not adding the condition that the option 1) (or option 2) is supported when UE-B performs (or does not preform) sensing/resource exclusion for option 1) (or 2) , respectively. We propose to remove them   * + - *Option 1): UE-B prioritizes in its resource selection, resource(s) belonging to the preferred resource set*       * *UE-B uses in its resource selection, resource(s) not belonging to the preferred resource set when condition(s) are met*         + *FFS: Details of condition(s)*       * *~~This option is supported when UE-B performs sensing/resource exclusion~~*     - *Option 2): UE-B uses in its resource selection, resource(s) belonging to the preferred resource set*       * *~~This option is supported when UE-B does not perform sensing/resource exclusion~~* |
| ZTE | Yes with comment | W.r.t the last FFS, we still prefer to keep the MAC layer for resource selection.  Moreover, w.r.t the following sub-bullet in Option-2   * + - * This option is supported when UE-B does not perform sensing/resource exclusion   We still have concerns on the corresponding power saving gain since the UE-B is mandated to receiving the coordination information via PSSCH without sensing. |
| Xiaomi |  | We are generally fine with FL’s proposal,  RAN1 has not decided whether UE-A can be multiple UE(s).Therefore, we suggest to add “whether” for the FFS bullet of multiple UE-A. we suggest to make following revision:   * In scheme 1, at least following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:   + For p we suggest to discuss firstly whether UE-B takes preferred resource sets received from one UE-A or multiple UE-A(s)referred resource set, the following two options are supported:     - Option 1): UE-B prioritizes in its resource selection, resource(s) belonging to the preferred resource set       * UE-B uses in its resource selection, resource(s) not belonging to the preferred resource set when condition(s) are met         + FFS: Details of condition(s)       * This option is supported when UE-B performs sensing/resource exclusion     - Option 2): UE-B uses in its resource selection, resource(s) belonging to the preferred resource set       * This option is supported when UE-B does not perform sensing/resource exclusion     - FFS: Details including       * *Whether/How* UE-B takes preferred resource sets received from multiple UE-A(s) into account in its resource selection       * Condition(s) for UE-B to take preferred resource set received from UE-A into account in its resource selection   + For non-preferred resource set,     - UE-B deprioritize in its resource selection, resource(s) overlapping with the non-preferred resource set       * FFS: Details including         + Whether/how to specify condition(s) that UE-B uses in its resource selection, resource(s) overlapping with the non-preferred resource set, and whether/how the resource(s) overlapping with the non-preferred resource set are taken into account in UE-B’s resource selection     - FFS: UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set     - FFS: Details including       * *Whether/How* UE-B takes non-preferred resource sets received from multiple UE-A(s) into account in its resource selection       * Condition(s) for UE-B to take non-preferred resource set received from UE-A into account in its resource selection   + FFS: Which layer of UE-B performs the resource selection based inter-UE coordination information received from UE-A |
| Qualcomm | Please see comments | We’re ok with the changes for the preferred-resource portion but would like to ask the feature lead for clarification about the following:   * What does “prioritize” entails here? * What are some conditions referred to in this bullet? “UE-B uses in its resource selection, resource(s) not belonging to the preferred resource set when condition(s) are met”   For non-preferred resources, we’re not sure about the word “deprioritize” in “*UE-B deprioritize in its resource selection”.* In our view, UE-B will either exclude or not exclude the non-preferred resources from UE-A subject to some conditions. It is not clear how UE-B would deprioritize those resource and whether that procedure could exclude those resources in the end or not. In the previous round, we proposed to say “potentially excludes” and MediaTek proposed “may exclude”. Either of the two is ok with us but not “deprioritize”.  The details of the overlap, e.g. time-frequency or time-only need to be discussed as part of the FFS.  We prefer to remove the last FFS on which layer to use. In our view, the focus should be on L1 solutions for now.   * + *For non-preferred resource set,*      - *UE-B ~~deprioritize~~ may/potentially excludes in its resource selection, resource(s) overlapping with the non-preferred resource set*       * *FFS: Details including*          + *Whether/how to specify condition(s) that UE-B uses in its resource selection, resource(s) overlapping with the non-preferred resource set, and whether/how the resource(s) overlapping with the non-preferred resource set are taken into account in UE-B’s resource selection, including definition of overlap*     - *FFS: UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set, including definition of overlap*     - *FFS: Details including*        * *How UE-B takes non-preferred resource sets received from multiple UE-A(s) into account in its resource selection*       * *Condition(s) for UE-B to take non-preferred resource set received from UE-A into account in its resource selection*   + *~~FFS: Which layer of UE-B performs the resource selection based inter-UE coordination information received from UE-A~~* |
| LG | Yes | If there are some different views on the FFS part, we are open to remove all the FFS parts.  Regarding the applicable scenario of each option, we’d like to keep it. We do not think that Option 2 is used when UE-B performs sensing and resource exclusion. Similarly, we do not think that Option 1 is used when UE-B does performs sensing/resource exclusion. |
| NEC | Yes | Agree. Also, we’re open with the FFS points |
| Sharp | Yes |  |
| CMCC | See comments | Regarding the non-preferred set of resources, the wording “deprioritize” seems misleading. To us, it may refer to cases that UE-B already has candidate resources for transmission, and for those indicated as non-preferred, the UE-B deprioritize them when performing selection. However, as we commented in the last round, when receiving the coordination information with non-preferred set of resources, the UE-B performs the resource exclusion procedure, and the non-preferred set of resources may or may not be excluded, which depends on a pre-configured RSRP threshold per priority pair. Therefore, we prefer to use the wording “potentially exclude” suggested by QC in the last round. |
| Lenovo/Motorola Mobility | Yes with comments | * + - *FFS: UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set in time/frequency and time only* |
| Sony | Yes |  |
| Fujitsu |  | As for the bullets under “preferred resource set”, we suggest adding FFS to Option 2). In our view, Option 2) requires a centralized architecture where UE-B is scheduled by UE-A. This may involve additional RAN2 work and thus should be further discussed.   * + - *FFS Option 2): UE-B uses in its resource selection, resource(s) belonging to the preferred resource set*       * *This option is supported when UE-B does not perform sensing/resource exclusion*   As for the bullets under “non-preferred resource set”, the following parts of FFS seem to be redundant since “whether/how the resources are taken into account” has already been answered in the upper-level bullet, i.e., the resources will be deprioritized.   * + *For non-preferred resource set,*      - *UE-B deprioritize in its resource selection, resource(s) overlapping with the non-preferred resource set*       * *FFS: Details including*          + *Whether/how to specify condition(s) that UE-B uses in its resource selection, resource(s) overlapping with the non-preferred resource set~~, and whether/how the resource(s) overlapping with the non-preferred resource set are taken into account in UE-B’s resource selection~~* |
| OPPO | OK in general | We are fine with the proposal in general with only one comment on the last FFS. At this stage, in which layer the coordination should be considered should be further discussed, however, in this proposal, “prioritize/deprioritize/use” is used in each option, seems it implies that the coordination information is used in MAC layer. |
| Intel | Yes, with comments | We think Option 2 should be discussed separately for the case of non-sufficient sensing information and UE behaviour. It is a separate topic for discussion. Therefore, we propose to remove it.   * *In scheme 1, at least following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*   + *For preferred resource set, the following ~~two options are~~ is supported:*     - *~~Option 1):~~ UE-B ~~prioritizes~~ uses in its resource selection, resource(s) belonging to the preferred resource set*       * *UE-B uses in its resource selection, resource(s) not belonging to the preferred resource set when condition(s) are met*         + *FFS: Details of condition(s)*       * *~~This option is supported when UE-B performs sensing/resource exclusion~~*     - *~~Option 2): UE-B uses in its resource selection, resource(s) belonging to the preferred resource set~~*       * *~~This option is supported when UE-B does not perform sensing/resource exclusion~~*     - *FFS: Details including*        * *How UE-B takes preferred resource sets received from multiple UE-A(s) into account in its resource selection*       * *Condition(s) for UE-B to take preferred resource set received from UE-A into account in its resource selection*   + *For non-preferred resource set,*      - *UE-B ~~deprioritize~~ avoids using in its resource selection, resource(s) overlapping with the non-preferred resource set*       * *FFS: Details including*          + *Whether/how to specify condition(s) that UE-B uses in its resource selection, resource(s) overlapping with the non-preferred resource set, and whether/how the resource(s) overlapping with the non-preferred resource set are taken into account in UE-B’s resource selection*     - *FFS: UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*     - *FFS: Details including*        * *How UE-B takes non-preferred resource sets received from multiple UE-A(s) into account in its resource selection*       * *Condition(s) for UE-B to take non-preferred resource set received from UE-A into account in its resource selection*   + *FFS: Which layer of UE-B performs the resource selection based inter-UE coordination information received from UE-A* |
| Spreadtrum | Yes | We are OK with the proposal. |
| CATT, GOHIGH | Yes with comment | We prefer to remove the following FFS in non-preferred resource set, since it is somehow conflict with scheme 2’s functionality.   * + *For non-preferred resource set,*      - *UE-B deprioritize in its resource selection, resource(s) overlapping with the non-preferred resource set*       * *FFS: Details including*          + *Whether/how to specify condition(s) that UE-B uses in its resource selection, resource(s) overlapping with the non-preferred resource set, and whether/how the resource(s) overlapping with the non-preferred resource set are taken into account in UE-B’s resource selection*     - *~~FFS: UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set~~*     - *FFS: Details including*        * *How UE-B takes non-preferred resource sets received from multiple UE-A(s) into account in its resource selection*       * *Condition(s) for UE-B to take non-preferred resource set received from UE-A into account in its resource selection*   + *FFS: Which layer of UE-B performs the resource selection based inter-UE coordination information received from UE-A* |
| Huawei, HiSilicon | No, as ignores existing agreements. | None of these options respects the existing agreements, and we doubt that any progress is possible whilst a FL continues to take that approach. We asked in the previous round why this was done, but received no reply. It will need discussion on GTW about reverting the existing agreements. Given the FL’s statements about scope of the WI, we strongly suggest to stop overlooking existing agreements, and go for the proper approach of working within and on top of them.  In the changes below, we have inserted the already agreed definitions, from 104bis, of the options which match the intention of the ‘new’ options proposed by the FL. Note in the non-preferred resource, we have contained the FL’s proposal within the existing agreement so far as possible.  Suggest to remove some FFS points as per Chairman’s guideline. “FFS: Details” is enough.  Considering the progress, we suggest RAN1 to focus on single UE-A case first. Multiple UE-A case will further complicate the discussion.  ==   * *In scheme 1, at least following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*   + *For preferred resource set, the following two options are supported:*     - *Option 1): ~~UE-B prioritizes in its resource selection, resource(s) belonging to the preferred resource set~~ UE-B’s resource(s) to be used for its transmission resource (re)-selection is based on both UE-B’s sensing result (if available) and the received coordination information*       * *UE-B uses in its resource selection, resource(s) not belonging to the preferred resource set when condition(s) are met*         + *FFS: Details of condition(s)*       * *This option is supported when UE-B performs sensing/resource exclusion*     - *Option 2): ~~UE-B uses in its resource selection, resource(s) belonging to the preferred resource set~~ UE-B’s resource(s) to be used for its transmission resource (re)-selection is based only on the received coordination information*       * *This option is supported when UE-B does not perform sensing/resource exclusion*     - *FFS: Details ~~including~~*        * *~~How UE-B takes preferred resource sets received from multiple UE-A(s) into account in its resource selection~~*       * *~~Condition(s) for UE-B to take preferred resource set received from UE-A into account in its resource selection~~*   + *For non-preferred resource set,*      - UE-B’s resource(s) to be used for its transmission resource (re)-selection is based on the received coordination information       * *UE-B deprioritize in its resource selection, resource(s) overlapping with the non-preferred resource set*       * *FFS: Details ~~including~~*          + *~~Whether/how to specify condition(s) that UE-B uses in its resource selection, resource(s) overlapping with the non-preferred resource set, and whether/how the resource(s) overlapping with the non-preferred resource set are taken into account in UE-B’s resource selection~~*     - *~~FFS: UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set~~*     - *~~FFS: Details including~~*        * *~~How UE-B takes non-preferred resource sets received from multiple UE-A(s) into account in its resource selection~~*       * *~~Condition(s) for UE-B to take non-preferred resource set received from UE-A into account in its resource selection~~*   + *FFS: Which layer of UE-B performs the resource selection based inter-UE coordination information received from UE-A* |
| Samsung | See comments | As suggested by HW, we agree that re-use wording in the previous agreement is better.  However, if the previous agreement is used, the bellow should be clarified with if available means.  *UE-B’s sensing result (if available)*  From the FL’s suggested proposal, we suggest to remove all the FFS and to focus on the main contents of the proposal.  Also, we suggest the following modification as   * *In scheme 1, at least following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*   + *For preferred resource set, the following two options are supported:*     - *Option 1): UE-B prioritizes in its resource selection, resource(s) belonging to the preferred resource set*       * *UE-B uses in its resource selection, resource(s) not belonging to the preferred resource set when condition(s) are met*         + *FFS: Details of condition(s)*       * *~~This option is supported when UE-B performs sensing/resource exclusion~~*   *(We think that this can apply to both options)*   * + - *Option 2): UE-B uses in its resource selection, resource(s) ~~belonging to~~ from the preferred resource set*       * *FFS additional conditions*       * *~~This option is supported when UE-B does not perform sensing/resource exclusion~~*     - *FFS: Details ~~including~~*        * *~~How UE-B takes preferred resource sets received from multiple UE-A(s) into account in its resource selection~~*       * *~~Condition(s) for UE-B to take preferred resource set received from UE-A into account in its resource selection~~*   + *For non-preferred resource set,*      - *UE-B ~~deprioritize~~ excludes in its resource selection, resource(s) overlapping with the non-preferred resource set*       * *FFS: Details ~~including~~*          + *~~Whether/how to specify condition(s) that UE-B uses in its resource selection, resource(s) overlapping with the non-preferred resource set, and whether/how the resource(s) overlapping with the non-preferred resource set are taken into account in UE-B’s resource selection~~*     - *~~FFS: UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set~~*     - *~~FFS: Details including~~*        * *~~How UE-B takes non-preferred resource sets received from multiple UE-A(s) into account in its resource selection~~*       * *~~Condition(s) for UE-B to take non-preferred resource set received from UE-A into account in its resource selection~~*   + *~~FFS: Which layer of UE-B performs the resource selection based inter-UE coordination information received from UE-A~~* |
| Ericsson | Some modifications | For this proposal, we propose the following modifications:  For the case of Option 1), we do not think that it is needed to consider that the resources not belonging to the preferred resource set under certain conditions. The UE will use a combination of the resources in the inter-UE coordination message and its own sensing information. Therefore, we propose to make it clear in the proposal:   * *Option 1): UE-B prioritizes in its resource selection, resource(s) belonging to the preferred resource set in combination with its own sensing information*   + *~~UE-B uses in its resource selection, resource(s) not belonging to the preferred resource set when condition(s) are met~~*     - *~~FFS: Details of condition(s)~~*   The conditions to combine the information of the sensing information and the inter-UE coordination message are already included in the following FFS:   * *Condition(s) for UE-B to take preferred resource set received from UE-A into account in its resource selection*   Moreover, we propose to include additional clarifications for the behaviour of UE-B’s upon receiving the inter-UE coordination information from UE-A for preferred resource set in Option 2.   * For the case of preferred resources upon performing the resource selection in Option 2, in our view, UE-B shall trigger resource re-evaluation and/or pre-emption checking if the UE supports sensing. * This procedure has shown an improvement in PRR in our simulations (see R1-2108137) where a UE performing sensing for re-evaluation and/or pre-emption checking after selecting resources based only on the IUC message, outperforms those which do not perform re-selection and/or pre-emption checking. Therefore, we propose the following options   + UE-B does not support sensing, e.g., P-UE.     - UE-B performs the resource selection using the Inter-UE coordination information   + UE-B does not perform sensing (e.g., random resource selection) but it supports it.     - UE-B performs resource re-selection/re-evaluation and/or pre-emption checking based on the information from the Inter-UE coordination information and its own sensing information.   Based on our previous comment, we propose the following modification to the proposal:  ***Updated Draft Proposal 6****:*   * *In scheme 1, at least following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*   + *For preferred resource set, the following two options are supported:*     - *Option 1): UE-B prioritizes in its resource selection, resource(s) belonging to the preferred resource set in combination with its own sensing information*       * *~~UE-B uses in its resource selection, resource(s) not belonging to the preferred resource set when condition(s) are met~~*         + *~~FFS: Details of condition(s)~~*       * *This option is supported when UE-B performs sensing/resource exclusion*     - *Option 2): UE-B uses in its resource selection, resource(s) belonging to the preferred resource set*       * *This option is supported when UE-B does not ~~perform~~support sensing/resource exclusion*       * *UE-B performs re-evaluation and/or pre-emption checking following Rel-16 procedure if UE-B supports sensing.*     - *FFS: Details including*        * *How UE-B takes preferred resource sets received from multiple UE-A(s) into account in its resource selection*       * *Condition(s) for UE-B to take preferred resource set received from UE-A into account in its resource selection*   + *For non-preferred resource set,*      - *UE-B deprioritize in its resource selection, resource(s) overlapping with the non-preferred resource set*       * *FFS: Details including*          + *Whether/how to specify condition(s) that UE-B uses in its resource selection, resource(s) overlapping with the non-preferred resource set, and whether/how the resource(s) overlapping with the non-preferred resource set are taken into account in UE-B’s resource selection*     - *FFS: UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*     - *FFS: Details including*        * *How UE-B takes non-preferred resource sets received from multiple UE-A(s) into account in its resource selection*       * *Condition(s) for UE-B to take non-preferred resource set received from UE-A into account in its resource selection*   + *FFS: Which layer of UE-B performs the resource selection based inter-UE coordination information received from UE-A* |
| Fraunhofer | Yes | We are supportive of the FL’s proposal.  Regarding the non-preferred resource set, we support QC and Samsung and can replace the word “deprioritize” with “exclude”.  We also support the retention of Option 2, as it can be used by UE-Bs that do not perform sensing and resource exclusion. |
| Bosch | Yes, comments | Yes, only modifying this FFS:   * + FFS: details on layer performing inter-UE coordination and signaling for scheme 2 |
| NTT DOCOMO | Yes with comments | Again, let’s remove sub-bullets under FFSs. |
| Convida Wireless | With updates | We are ok with the proposal with the suggested changes/updates below:  ***Updated Draft Proposal 6****:*   * *In scheme 1, at least following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*   + *For preferred resource set, the following two options are supported:*     - *Option 1): UE-B prioritizes in its resource selection, resource(s) belonging to the preferred resource set*       * *UE-B uses in its resource selection, resource(s) not belonging to the preferred resource set when condition(s) are met*         + *FFS: Details of condition(s)*       * *This option is supported when UE-B performs sensing/resource exclusion*     - *Option 2): UE-B uses in its resource selection, resource(s) belonging to the preferred resource set*       * *This option is supported when UE-B does not perform sensing/resource exclusion*       * *This option includes that UE-B uses in its resource (re-)selection, the exact resource(s) indicated in the coordination information*     - *FFS: Details including*        * *How UE-B takes preferred resource sets received from multiple UE-A(s) into account in its resource selection*       * *Condition(s) for UE-B to take preferred resource set received from UE-A into account in its resource selection*   + *For non-preferred resource set,*      - *UE-B deprioritize in its resource selection, resource(s) overlapping with the non-preferred resource set*       * *FFS: Details including*          + *Whether/how to specify condition(s) that UE-B uses in its resource selection, resource(s) overlapping with the non-preferred resource set, and whether/how the resource(s) overlapping with the non-preferred resource set are taken into account in UE-B’s resource selection*     - *FFS: UE-B reselects resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*     - *FFS: Details including*        * *How UE-B takes non-preferred resource sets received from multiple UE-A(s) into account in its resource selection*       * *Condition(s) for UE-B to take non-preferred resource set received from UE-A into account in its resource selection*   + *FFS: Which layer of UE-B performs the resource selection based inter-UE coordination information received from UE-A* |

**Question 2**: Do you agree the following proposal for scheme 2? According to Chairman’s guideline, including/listing many FFS points in the proposal is not desirable given the limited number of meetings for Rel-17, please consider simplifying/removing FFS points when making comments.

***Updated Draft Proposal 7****:*

* *In scheme 2, at least following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*
  + *UE-B reselects resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict*
    - *FFS: Details including* 
      * *Condition(s) that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict*
      * *Additional condition(s) for UE-B to reselect resource(s) upon receiving expected/potential resource conflict (e.g., UE-B’s capability, (pre)configuration, etc.)*
      * *Whether expected/potential resource conflict indication from UE-A needs to differentiate different conflict situations, and which resource(s) should UE-B reselect accordingly*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| Nokia, NSB | Yes | We are fine with the proposal in its current form. Perhaps the first and second FFS points could be simplified into one FFS point, although we understand that the conditions in the first FFS point may be of a different nature (e.g., more “dynamic”) than the conditions in the second FFS point (e.g., more “static”). |
| InterDigital | Yes | We support proposal |
| vivo | Yes, with comment | For the FFS, the 3 bullets are saying the same thing, i.e., which conflicted resource is reselected, which is not… it is better to simplify them. |
| Apple | Yes | We are fine with the proposal in general. However, we think the second last sub-bullet and the third last sub-bullet are more or less describe something complementary. In this sense, we think the second last sub-bullet can be removed.   * + - *FFS: Details including*        * *Condition(s) that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict*       * *~~Additional condition(s) for UE-B to reselect resource(s) upon receiving expected/potential resource conflict (e.g., UE-B’s capability, (pre)configuration, etc.)~~*       * *Whether expected/potential resource conflict indication from UE-A needs to differentiate different conflict situations, and which resource(s) should UE-B reselect accordingly* |
| Futurewei | Yes | We are ok with the proposal |
| ZTE | No | We should clarify that the solution for the case that If more than one UE-A(s) can provide the indication with different results, e.g. how to construct a final resource set for resource reselection. |
| Xiaomi | Yes | We support FL’s proposal. |
| Qualcomm | Yes with comment | It is important for UE-B to select resources such that it is possible to receive and act upon an inter-UE coordination message between retransmissions. We propose to add an FFS to address this point.   * *FFS: Details including*    + *Whether/how to introduce a gap between retransmissions of UE-B in order to receive inter-UE coordination messages.* |
| LG | Yes | If there are some different views on the FFS part, we are open to remove all the FFS parts. |
| NEC | Yes |  |
| Sharp | Yes |  |
| CMCC | Yes |  |
| Lenovo/Motorla Mobility | Yes | We support the FL proposal |
| Sony | Yes |  |
| Fujitsu | Yes | We are fine with the proposal. |
| OPPO | Yes | support the proposal |
| Intel | Yes, with comments | We suggest the following modifications:   * *In scheme 2, at least following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*   + *UE-B can reselect~~s~~ resource(s) ~~to be used~~ reserved for its transmission when the reserved resource(s) is indicated with expected/potential resource conflict*     - *FFS: Details including*        * *Condition(s) that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict*       * *Additional condition(s) for UE-B to reselect resource(s) upon receiving expected/potential resource conflict (e.g., UE-B’s capability, (pre)configuration, etc.)*       * *Whether expected/potential resource conflict indication from UE-A needs to differentiate different conflict situations, and which resource(s) should UE-B reselect accordingly* |
| Spreadtrum | Yes | We are OK with the proposal |
| CATT, GOHIGH | Yes with comment | We share similar view as Qualcomm, the time gap between the retransmission resource due to inter-UE coordination should be also need to further study. |
| Huawei, HiSilicon | No, as ignores existing agreements | As with scheme 1, this reverts or avoids existing agreements, which we mentioned previously, and is not how RAN1 works.  This appears to be option 2-1 from 104bis, so can be structured as shown below.  At least the following FFS point should be kept, otherwise it’s unclear which resource(s) should UE-B reselect.  ==   * *UE-B can determine resource(s) to be re-selected based on the received coordination information*   + *UE-B reselects resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict* * *FFS: Details, including*   + *Whether expected/potential resource conflict indication from UE-A needs to differentiate different conflict situations, and which resource(s) should UE-B reselect accordingly* |
| Samsung | See comments | As suggested by HW, we agree that re-use wording in the previous agreement seems good start point.  From the FL’s suggested proposal, we suggest to remove all the FFS and to focus on the main contents of the proposal.  Also, we suggest the following modification as   * *In scheme 2, ~~at least~~ following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*   + *UE-B reselects resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict*     - *FFS: Details ~~including~~*        * *~~Condition(s) that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict~~*       * *~~Additional condition(s) for UE-B to reselect resource(s) upon receiving expected/potential resource conflict (e.g., UE-B’s capability, (pre)configuration, etc.)~~*       * *~~Whether expected/potential resource conflict indication from UE-A needs to differentiate different conflict situations, and which resource(s) should UE-B reselect accordingly~~* |
| Ericsson | Yes, with minor modification | We are supportive of this proposal with the following modification for clarification:  ***Updated Draft Proposal 7****:*   * *In scheme 2, at least following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*   + *UE-B reselects resource(s) to be used for its transmission when ~~the resource(s) is indicated with expected/potential resource conflict~~ expected/potential resource conflict is indicated*     - *FFS: Details including*        * *Condition(s) that UE-B does not reselect resource(s) to be used for its transmission when the resource(s) is indicated with expected/potential resource conflict*       * *Additional condition(s) for UE-B to reselect resource(s) upon receiving expected/potential resource conflict (e.g., UE-B’s capability, (pre)configuration, etc.)*       * *Whether expected/potential resource conflict indication from UE-A needs to differentiate different conflict situations, and which resource(s) should UE-B reselect accordingly* |
| Fraunhofer | Yes | We are supportive of the FL’s proposal. |
| Bosch |  | Yes, Supported! |
| CEWiT | Yes | We are okay with the main proposal |
| NTT DOCOMO | Yes with comment | Again, let’s remove sub-bullets under FFSs. |
| Convida Wireless | Yes | We are fine with the proposal. |

1. **Proposals for Tuesday’s GTW (August 24th)**

**7.1 Conditions for UE(s) to be UE-A(s) and/or UE-B(s)**

On Draft proposal 3 in Section 6.1, majority companies support it in principle, and suggest some changes in FFS parts. A single company suggests that UE-A is a destination UE of a TB transmitted by UE-B.

FL’s observation on Draft proposal 3 in Section 6.1:

* Agreed in principle:
  + Nokia, InterDigital, vivo, Apple, Futurewei, ZTE, Xiaomi, Qualcomm, LG, NEC, Sharp, CMCC, Lenovo, Sony, Fujitsu, OPPO, Intel, Spreadtrum, CATT, Huawei, Samsung, Ericsson, Fraunhofer, CEWiT, DCM (25)
* Add condition, which is that UE-A is a destination UE of a TB transmitted by UE-B
  + Supported by Samsung (1)

Considering this situation, the updated version of Draft proposal 3 is as follows. Note that as Chairman and some companies already commented, spending time on the discussion of modifying/adding/deleting FFS parts makes progress slow, so I simplified all FFS parts as much as possible.

***Updated Draft Proposal 3****:*

* *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination transmission triggered by a detection of expected/potential resource conflict(s) in Mode 2:*
  + *A UE that transmitted PSCCH/PSSCH with SCI indicating reserved resource(s) to be used for its transmission, received inter-UE coordination information from UE-A indicating expected/potential resource conflict(s) for the reserved resource(s), and uses it to determine resource re-selection is UE-B*
  + *A UE that detects expected/potential resource conflict(s) on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*
  + *The above feature can be enabled or disabled or controlled by (pre-)configuration*
    - *FFS: Details on how to support this, including (pre-)configuration signaling granularity*
  + *FFS: Definition of expected/potential resource conflict(s) and other details (if any)*

**7.2 How to determine inter-UE coordination information for each scheme**

On Draft proposal 4-1 in Section 6.2, majority companies support it in principle, and suggest some changes in FFS parts. On Condition 1-A-1, some companies suggest to consider UE-B’s traffic requirement while a company want to keep it as FFS. On Condition 1-A-2, a company suggests to put it as FFS with some wording change to include IBE problem on top of half-duplex problem. On the other hand, two companies suggest to clarify that the condition 1-A-2 is to cover half-duplex problem. A company suggests to clarify that the condition 1-A-2 is applicable when UE-A is intended receiver of UE-B.

FL’s observation on Draft proposal 4-1 in Section 6.2:

* Agreed in principle:
  + Nokia, InterDigital, vivo, Futurewei, ZTE, Xiaomi, LG, NEC, Lenovo, Sony, Fujitsu, OPPO, Intel, Spreadtrum, CATT, Samsung, Ericsson, Fraunhofer, Bosch, CEWiT, DCM, Convida Wireless (22)
* On Condition 1-A-1, update it to consider UE-B’s traffic requirement
  + Supported by ZTE, Huawei (2)
  + Keep it as FFS: LG (1)
* On Condition 1-A-2,
  + Put it as FFS
    - Supported by Qualcomm (1)
  + Update it to include IBE problem on top of half-duplex problem
    - Supported by Qualcomm (1)
  + Clarify it to consider half-duplex problem
    - Supported by Intel, Samsung (2)
  + Update it to be applicable when UE-A is intended receiver of UE-B
    - Supported by Huawei (1)
* Comments on FFS parts
  + InterDigital, vivo, Futurewei, Xiaomi, Fujitsu, OPPO, Spreadtrum, CATT, Ericsson, CEWiT, DCM, Convida Wireless (12)

Considering this situation, the updated version of Draft proposal 4-1 is as follows. Note that as Chairman and some companies already commented, spending time on the discussion of modifying/adding/deleting FFS parts makes progress slow, so I simplified all FFS parts as much as possible.

***Updated Draft Proposal 4-1****:*

* *In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):*
  + *UE-A considers any resource(s) satisfying at least all the following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission*
    - *Condition 1-A-1:*
      * *Resource(s) excluding those overlapping with reserved resource(s) by a SCI of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold* 
        + *FFS: How to determine the RSRP threshold and other details (if any)*
    - *Condition 1-A-2:*
      * *Resource(s) excluding slot(s) where UE-A, when it is intended receiver of UE-B, does not expect to perform SL reception from UE-B at least due to its own transmission(s)*
        + *FFS: Other details (if any)*
    - *Condition 1-A-3:*
      * *Resource(s) satisfying UE-B’s traffic requirement (if available)*
        + *FFS: Other details (if any)*
    - *FFS: Other condition(s)*
  + *FFS: Other details (if any)*

On Draft proposal 4-2 in Section 6.2, majority companies support it in principle, and suggest some changes in FFS parts. On Condition 1-B-1, a company suggests to consider UE-B’s traffic requirement. On Condition 1-B-2, a company suggests to put it as FFS. Four companies suggest to add “Slot(s)” on top of “Resource(s)” as the non-preferred resource set. A company suggests to update Condition 1-B-2 to include IBE problem on top of half-duplex problem. On the other hand, two companies suggest to clarify that the condition 1-B-2 is to cover half-duplex problem. A company suggests to clarify that the condition 1-B-2 is applicable when UE-A is intended receiver of UE-B while two companies suggest to remove the condition that UE-A is intended receiver of UE-B.

FL’s observation on Draft proposal 4-2 in Section 6.2:

* Agreed in principle:
  + Nokia, InterDigital, vivo, Futurewei, Xiaomi, LG, NEC, Lenovo, Sony, Fujitsu, OPPO, Intel, Spreadtrum, CATT, Samsung, Ericsson, Fraunhofer, Bosch, CEWiT, DCM, Convida Wireless (21)
* On Condition 1-B-1, update it to consider UE-B’s traffic requirement
  + Supported by Huawei (1)
* On Condition 1-B-2,
  + Update is to include “Slot(s)” on top of “Resource(s)”
    - Supported by vivo, CMCC, Fujitsu, Spreadtrum, Fraunhofer (4)
  + Put it as FFS
    - Supported by ZTE (1)
  + Update it to include IBE problem on top of half-duplex problem
    - Supported by Qualcomm (1)
  + Clarify that it is due to half-duplex problem
    - Supported by Intel, Samsung (2)
  + Update it to be applicable when UE-A is intended receiver of UE-B
    - Supported by Huawei (1)
  + Update it to remove that UE-A is intended receiver of UE-B
    - Supported by Qualcomm, CMCC (2)
* Add new condition, which is that reserved resource(s) of other UE identified by UE-A whose intended receiver(s) include UE-A
  + Supported by Nokia, Qualcomm, CATT, Bosch (4)
* Comments on FFS parts
  + InterDigital, Futurewei, Xiaomi, Lenovo, Fujitsu, OPPO, Spreadtrum, Huawei, Ericsson, DCM, Convida Wireless (11)

Considering this situation, the updated version of Draft proposal 4-2 is as follows. Note that as Chairman and some companies already commented, spending time on the discussion of modifying/adding/deleting FFS parts makes progress slow, so I simplified all FFS parts as much as possible.

***Updated Draft Proposal 4-2****:*

* *In scheme 1, at least the following is supported to determine inter-UE coordination information of non-preferred resource set(s):*
  + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*
    - *Condition 1-B-1:*
      * *Reserved resource(s) by a SCI of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*
        + *FFS: How to determine the RSRP threshold and other details (if any)*
    - *Condition 1-B-2:*
      * *Resource(s) (e.g., slot(s)) where UE-A cannot successfully perform SL reception*
        + *FFS: Other details (if any)*
    - *Condition 1-B-3:*
      * *Reserved resource(s) by a SCI of other UE identified by UE-A whose a destination UE of a TB transmitted by other UE includes UE A*
        + *FFS: Other details (if any)*
    - *Condition 1-B-4:*
      * *Resource(s) not satisfying UE-B’s traffic requirement (if available)*
        + *FFS: Other details (if any)*
    - *FFS: Other condition(s)*
  + *FFS: Other details (if any)*

On Draft proposal 5 in Section 6.2, a number of companies support it in principle, and suggest some changes in FFS parts. On Condition 2-A-1, a company suggests to add further restriction, which is when other UE’s SCI is transmitted in the non-monitor slots of UE-B. 11 companies suggest to consider Condition 2-A-2, which is to cover half-duplex problem between UE-A and UE-B. A company suggests to add new condition, which is that other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time.

FL’s observation on Draft proposal 5 in Section 6.2:

* Agreed in principle:
  + Nokia, InterDigital, Xiaomi, Qulcomm, LG, NEC, Sony, Fujitsu, Intel, CATT, Ericsson, Fraunhofer, Bosch, DCM, Convida Wireless (15)
* On Condition 2-A-1,
  + Add additional condition, which is when other UE’s SCI is transmitted in the non-monitor slots of UE-B
    - Supported by Huawei (1)
* Add Condition 2-A-2 to cover half-duplex problem between UE-A and UE-B
  + Supported by Apple, Futurewei, LG, Sharp, CMCC, Lenovo, OPPO, Spreadtrum, CATT, Samsung, Fraunhofer, DCM (12)
  + Update it to include IBE problem on top of half-duplex problem
    - Supported by Qualcomm (1)
* Add new condition, which is that other UE’s reserved resource(s) identified by UE-A are overlapping with resource(s) indicated by UE-B’s SCI in time
  + Supported by Intel (1)
* Comments on FFS parts
  + InterDigital, vivo, Apple, Xiaomi, Qualcomm, Fujitsu, Huawei, Ericsson, Bosch, DCM (10)

Considering this situation, the updated version of Draft proposal 5 is as follows. Note that as Chairman and some companies already commented, spending time on the discussion of modifying/adding/deleting FFS parts makes progress slow, so I simplified all FFS parts as much as possible.

***Updated Draft Proposal 5****:*

* *In scheme 2, at least the following is supported to determine inter-UE coordination information:*
  + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):* 
    - *Condition 2-A-1:*
      * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*
        + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*

*FFS: How to determine the RSRP threshold and other details (if any)*

* + - * + *FFS: Whether/how to specify additional criteria (e.g., UE-A’s sensing is limited to UE-B’s non-monitored slot(s)) and other details (if any)*

*FFS: Other details (if any)*

* + - *Condition 2-A-2:*
      * *Resource(s) (e.g., slot(s)) where UE-A cannot successfully perform SL reception*
        + *FFS: Other details (if any)*
    - *FFS: Other condition(s)*
  + *FFS: Other details (if any)*

**7.3 UE-B’s behaviour when receiving inter-UE coordination information**

On Draft proposal 6 in Section 6.3, majority companies support it in principle, and suggest some changes in FFS parts. On two options for the preferred resource set, two companies suggest to remove applicable scenarios. On Option B, 3 companies suggest to put it as FFS. On Option B, a company suggests to update it to be applicable when UE-B does not support sensing/resource exclusion. A company suggests to add new condition, which is that UE-B deprioritizes in its resource selection, resource(s) overlapping with the preferred resource set when UE-B receives inter-UE coordination information not intended for this UE-B.

FL’s observation on Draft proposal 6 in Section 6.3:

* Agreed in principle:
  + Nokia, InterDigital, vivo, Apple, ZTE, Xiaomi, LG, NEC, Sharp, Lenovo, Sony, OPPO, Intel, Spreadtrum, CATT, Huawei, Ericsson, Fraunhofer, Bosch, DCM, Convida Wireless (21)
* Remove applicable scenario of each option
  + Supported by Futurewei, Samsung (2)
* On Option B,
  + Put it as FFS
    - Supported by ZTE, Fujitsu, Intel (3)
  + Update Option B that applicable scenario is when UE-B does not support sensing/resource exclusion
    - Supported by Ericsson (1)
* Add option, which is that UE-B deprioritizes in its resource selection, resource(s) overlapping with the preferred resource set when UE-B receives inter-UE coordination information not intended for this UE-B
  + Supported by Nokia (1)
* Comments on FFS parts
  + InterDigital, vivo, Xiaomi, Qualcomm, Lenovo, Fujitsu, OPPO, Intel, CATT, Huawei, Samsung, Bosch, DCM (13)

Considering this situation, the updated version of Draft proposal 6 is as follows. Note that as Chairman and some companies already commented, spending time on the discussion of modifying/adding/deleting FFS parts makes progress slow, so I simplified all FFS parts as much as possible.

***Updated Draft Proposal 6 (Note that to avoid unnecessary confusion, the yellow marked part is a sentence borrowed from the agreement made in RAN1#104bis-e meeting)****:*

* *In scheme 1, at least following UE-B’s behavior in its resource (re-)selection is supported when it receives inter-UE coordination information from UE-A:*
  + *For preferred resource set, the following two options are supported:*
    - *Option A): UE-B’s resource(s) to be used for its transmission resource (re-)selection is based on both UE-B’s sensing result (if available) and the received coordination information*
      * *UE-B uses in its resource (re-)selection, resource(s) belonging to the preferred resource set* *in combination with its own sensing result*
        + *UE-B uses in its resource (re-)selection, resource(s) not belonging to the preferred resource set when condition(s) are met*

*FFS: Details of condition(s)*

* + - * + *This option is supported when UE-B performs sensing/resource exclusion*
    - *Option B): UE-B’s resource(s) to be used for its transmission resource (re-)selection is based only on the received coordination information*
      * *UE-B uses in its resource (re-)selection, resource(s) belonging to the preferred resource set*
        + *This option is supported when UE-B does not support sensing/resource exclusion*
        + *FFS: Other details (if any)*
    - *FFS: Other option(s), and other details (if any)*
  + *For non-preferred resource set,* 
    - *UE-B’s resource(s) to be used for its transmission resource (re-)selection is based on both UE-B’s sensing result (if available) and the received coordination information* 
      * *UE-B potentially excludes in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set*
        + *FFS: Definition of the overlap and other details (if any)*
    - *FFS: Other option(s), and other details (if any)*

On Draft proposal 7 in Section 6.3, majority companies support it in principle, and suggest some changes in FFS parts.

FL’s observation on Draft proposal 7 in Section 6.3:

* Agreed in principle:
  + Nokia, InterDigital, vivo, Apple, Futurewei, Xiaomi, Qualcomm, LG, NEC, Sharp, CMCC, Lenovo, Sony, Fujitsu, OPPO, Intel, Spreadtrum, CATT, Huawei, Samsung, Ericsson, Fraunhofer, Bosch, CEWiT, DCM, Convida Wireless (26)
* Comments on FFS parts
  + vivo, Apple, Qualcomm, CATT, DCM (5)

Considering this situation, the updated version of Draft proposal 7 is as follows. Note that as Chairman and some companies already commented, spending time on the discussion of modifying/adding/deleting FFS parts makes progress slow, so I simplified all FFS parts as much as possible.

***Updated Draft Proposal 7 (Note that to avoid unnecessary confusion, the yellow marked part is a sentence borrowed from the agreement made in RAN1#104bis-e meeting)****:*

* *In scheme 2, at least following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*
  + *UE-B can determine resource(s) to be re-selected based on the received coordination information*
    - *UE-B reselects resource(s) reserved for its transmission when expected/potential resource conflict is indicated*
      * *FFS: Other details (if any)*

1. **Updated proposals for Tuesday’s GTW (August 24th)**

**8.1 Conditions for UE(s) to be UE-A(s) and/or UE-B(s)**

***Updated Draft Proposal 3****:*

*Alt 1:*

* *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination transmission triggered by a detection of expected/potential resource conflict(s) in Mode 2:*
  + *A UE that transmitted PSCCH/PSSCH with SCI indicating reserved resource(s) to be used for its transmission, received inter-UE coordination information from UE-A indicating expected/potential resource conflict(s) for the reserved resource(s), and uses it to determine resource re-selection is UE-B*
  + *A UE that detects expected/potential resource conflict(s) on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*
  + *The above feature can be enabled or disabled or controlled by (pre-)configuration*
    - *FFS: Details on how to support this, including (pre-)configuration signaling granularity*
  + *(Working assumption) At least a destination UE of a TB transmitted by UE-B can be UE-A*
  + *FFS: Additional details and conditions on UE-A and UE-B, definition of expected/potential resource conflict(s), and other details (if any)*

*Alt 2:*

* *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination transmission triggered by a detection of expected/potential resource conflict(s) in Mode 2:*
  + *A UE that transmitted PSCCH/PSSCH with SCI indicating reserved resource(s) to be used for its transmission, received inter-UE coordination information from UE-A indicating expected/potential resource conflict(s) for the reserved resource(s), and uses it to determine resource re-selection is UE-B*
  + *A UE that detects expected/potential resource conflict(s) on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*
  + *The above feature can be enabled or disabled or controlled by (pre-)configuration*
    - *FFS: Details on how to support this, including (pre-)configuration signaling granularity*
  + *Any UE that satisfies a condition can be UE-A*
  + *FFS: Details of the condition, definition of expected/potential resource conflict(s), and other details (if any)*

**8.2 How to determine inter-UE coordination information for each scheme**

***Updated Draft Proposal 4-1****:*

* *In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):*
  + *UE-A considers any resource(s) satisfying at least all the following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission*
    - *Condition 1-A-1:*
      * *Resource(s) excluding those overlapping with reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold* 
        + *FFS: How to determine the RSRP threshold and other details (if any)*
    - *Condition 1-A-2:*
      * *Resource(s) excluding slot(s) where UE-A, when it is intended receiver of UE-B, does not expect to perform SL reception from UE-B*
        + *FFS: Other details (if any)*
    - *Condition 1-A-3:*
      * *Resource(s) satisfying UE-B’s traffic requirement (if available)*
        + *FFS: Other details (if any)*
    - *FFS: Other condition(s)*
  + *FFS: Other details (if any)*

***Updated Draft Proposal 4-2****:*

* *In scheme 1, at least the following is supported to determine inter-UE coordination information of non-preferred resource set(s):*
  + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*
    - *Condition 1-B-1:*
      * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold, considering UE-B’s traffic requirement (if available)*
        + *FFS: How to determine the RSRP threshold and other details (if any)*
    - *Condition 1-B-2:*
      * *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, cannot perform SL reception from UE-B*
        + *FFS: Other details (if any)*
    - *FFS: Other condition(s)*
  + *FFS: Other details (if any)*

***Updated Draft Proposal 5****:*

* *In scheme 2, at least the following is supported to determine inter-UE coordination information:*
  + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):* 
    - *Condition 2-A-1:*
      * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*
        + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*

*FFS: How to determine the RSRP threshold and other details (if any)*

* + - * + *FFS: Whether/how to specify additional criteria and other details (if any)*
    - *Condition 2-A-2:*
      * *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, cannot perform SL reception from UE-B*
        + *FFS: Other details (if any)*
    - *FFS: Other condition(s)*
  + *FFS: Other details (if any)*

**8.3 UE-B’s behaviour when receiving inter-UE coordination information**

***Updated Draft Proposal 6 (Note that to avoid unnecessary confusion, the yellow marked part is a sentence borrowed from the agreement made in RAN1#104bis-e meeting)****:*

* *In scheme 1, at least following UE-B’s behavior in its resource (re-)selection is supported when it receives inter-UE coordination information from UE-A:*
  + *For preferred resource set, the following two options are supported:*
    - *Option A): UE-B’s resource(s) to be used for its transmission resource (re-)selection is based on both UE-B’s sensing result (if available) and the received coordination information*
      * *UE-B uses in its resource (re-)selection, resource(s) belonging to the preferred resource set* *in combination with its own sensing result*
        + *UE-B uses in its resource (re-)selection, resource(s) not belonging to the preferred resource set when condition(s) are met*

*FFS: Details of condition(s)*

* + - * + *This option is supported when UE-B performs sensing/resource exclusion*
    - *Option B): UE-B’s resource(s) to be used for its transmission resource (re-)selection is based only on the received coordination information*
      * *UE-B uses in its resource (re-)selection, resource(s) belonging to the preferred resource set*
        + *This option is supported when UE-B does not perform sensing/resource exclusion*
        + *FFS: Other details (if any)*
    - *FFS: Other option(s), and other details (if any)*
  + *For non-preferred resource set,* 
    - *UE-B’s resource(s) to be used for its transmission resource (re-)selection is based on both UE-B’s sensing result (if available) and the received coordination information* 
      * *UE-B excludes in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set*
        + *FFS: Whether/how UE-B can use in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set, definition of the overlap, and other details (if any)*
      * *FFS: UE-B reselects in its resource (re-)selection, resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*
    - *FFS: Other option(s), and other details (if any)*

***Updated Draft Proposal 7 (Note that to avoid unnecessary confusion, the yellow marked part is a sentence borrowed from the agreement made in RAN1#104bis-e meeting)****:*

* *In scheme 2, the following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*
  + *UE-B can determine resource(s) to be re-selected based on the received coordination information*
    - *UE-B reselects resource(s) reserved for its transmission when expected/potential resource conflict on the resource(s) is indicated*
      * *FFS: Other details (if any)*

1. **Email discussion after Tuesday’s GTW (August 24th)**

**9.1 Conditions for UE(s) to be UE-A(s) and/or UE-B(s)**

According to Chairman’s guideline, we can continue further discussion by considering the following contents as a starting point.

***Updated Draft Proposal 3****:*

* *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination transmission triggered by a detection of expected/potential resource conflict(s) in Mode 2:*
  + *A UE that transmitted PSCCH/PSSCH with SCI indicating reserved resource(s) to be used for its transmission, received inter-UE coordination information from UE-A indicating expected/potential resource conflict(s) for the reserved resource(s), and uses it to determine resource re-selection is UE-B*
  + *A UE that detects expected/potential resource conflict(s) on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*
  + *The above feature can be enabled or disabled or controlled by (pre-)configuration*
    - *FFS: Details on how to support this, including (pre-)configuration signaling granularity*
  + *A UE that satisfies one of the following conditions and enabled by (pre-)configuration can be UE-A including details of the condition*
    - *At least a destination UE of a TB transmitted by UE-B can be UE-A*
    - *(working assumption) At least a destination UE or transmitting UE of a conflicting TB*
  + *FFS: Additional details and conditions on UE-A and UE-B, definition of expected/potential resource conflict(s), and other details (if any)*

**I ask companies to provide inputs on the following question below. The deadline for companies to provide inputs is August 25th 11:59am UTC. To prepare/make more stable draft proposals before the start of Thursday’s GTW session (August 26th), it would be highly appreciated if companies make comments as soon as possible. Also to make progress more efficiently, I would like to encourage companies to directly provide “revised wording” or “new wording needed to be added”.**

**Question 1**: Do you agree the above-mentioned latest version of proposal suggested by Chairman for scheme 2? As there was no concern on the rest of the parts except the red part during the GTW session, please focus on making a compromise for the red part.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Company** | | **Yes or no** | | **Comment** |
| NTT DOCOMO | | Yes | | As commented at the GTW, the working assumption is important one. For example, if UE-B’s TX to UE-D is collided with UE-C’s TX to UE-A, and UE-C’s TX has higher priority (smaller value), UE-A should transmit a coordination message to UE-B, not UE-C. This situation is intended in this bullet. There is no technical reason to preclude this procedure.  BTW, “including details of the condition” of the first bullet with red would be unnecessary, right? |
| InterDigital | | Yes | | We support this proposal |
| vivo | | No | | Regarding the working assumption, we can agree with QC’s proposal, i.e., At least a destination UE of a conflicting TB is UE-A. It is noted that ‘transmitting UE of a conflicting TB’ is UE-B, not UE-A, the wording seems unclear or we may not fully understand the intention.  If our understanding is correct, the controversial part is whether UE-B is source UE of the conflict TB, or one of transmitting UE incurring the TB conflict is UE-B. that can be discussed later. |
| Apple | | Yes | | Clarification question: We are not sure what does “enabled by (pre-)configuration” mean in the red text? Does that mean that a UE has to be enabled by (pre-)configuration to be a UE-A? |
| Qualcomm | | Yes | | We support the proposal.  We don’t see an issue with the conditions to become UE-A and think the intention is clear but we are open to discuss improved wording and provide an example if needed:   * + *A UE that detects expected/potential resource conflict(s) on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B, subject to satisfying one of the following conditions, is UE-A*      - *At least a destination UE of a TB transmitted by UE-B can be UE-A*     - *(working assumption) At least a destination UE or transmitting UE of a conflicting TB* |
| Futurewei | Yes with comments | | We support the proposal. We also prefer to confirm the working assumption if possible. Although not the receive UE of UE B, a destination UE or transmitting UE with a resource reservation conflicting with UE B’s resource can signal UE-B the conflict so that UE-B can reselect the resource to avoid the collision. The important applicable scenarios are for example, public safety case, truck platooning, and RSU. The commander UE, leading truck, or RSU, although not the receiver of a SL transmission from UE-B, has its own data transmission to or receiver from another UE. He does not want his link to be interfered as he has more important information to send or receive. Therefore, he can signal the UE-B the conflict for resource reselection.   * + *A UE that satisfies one of the following conditions and enabled by (pre-)configuration can be UE-A including details of the condition*     - *At least a destination UE of a TB transmitted by UE-B can be UE-A*     - *~~(working assumption)~~ At least a destination UE or transmitting UE of a conflicting TB* | |
| LG | | Yes except for “a transmitting UE” | | We are Ok with the black part.  On the red part, first of all, we do not think “transmitting UE” in the working assumption part is not needed. In our understanding, if UE-B can receive the inter-UE coordination information from the transmitting UE, the UE-B can also receive SCI from the transmitting UE. In this case, the UE-B can perform re-evaluation or pre-emption based on the SCI from the transmitting UE, so the inter-UE coordination information from the transmitting UE is redundant.  In addition, UE-A and UE-B need to belong to the same TX pool. To be specific, as we know, the periodic reservation period is applied to TX resource pool. To have same understanding on the location of the reserved resources of UE-B between UE-A and UE-B, they needs to belong to the same TX resource pool. |
| Sharp | | Comments | | Without a clear definition, it is unclear what the term “conflicting TB” actually means.  In DCM’s example, UE D fulfils the first condition and can thus act as “UE-A” in transmitting the coordination message. The added value of the second condition is unclear. |
| NEC | | Comment | | Red part without the working assumption are directly agreeable to us. Regarding the working assumption, clarification is needed.  When it’s receiver of a conflicting TB, the case seems to be same with the first bullet. When it’s transmitter of a conflicting TB, why could it be UE-A? in our understanding, the transmitter of a conflicting TB needs coordination information to help its resource selection, but this is actually UE-B’s behaviour. |
| Fujitsu | | Yes | | Agree taking it as a working assumption. Some explanations are as follows.  1. A RX-UE receiving from UE-C can be UE-A. E.g., UE-A identifies the conflict between UE-B and UE-C. To avoid impacting reception from UE-C, UE-A can notify UE-B to perform re-selection.  2. A TX-UE transmitting to UE-B can be UE-A. E.g., UE-A intends to transmit to UE-B in the same slot where UE-B performs transmission to UE-C. To avoid the half-duplex issue at UE-B, UE-A can notify UE-B to perform re-selection. |
| OPPO | NO | | | Firstly, we agree with LG that transmitting UE should not be included in the (working assumption) bullet, as the transmitting UE may trigger reselection according to pre-emption checking. Even for a destination of a conflicting TB, we do not think it can transmit the conflict indication to UE-B if it is not the intended receiver of UE-B, as the conflict indication is supposed to trigger resource reselection and re-transmission at UE-B side, however, re-transmission may not be needed if the intended receiver has already decoded the previous TB.  We also would like to refine the wording, as there are 2 bullets related to the definition of UE-A and seems conflicting with each other.   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination transmission triggered by a detection of expected/potential resource conflict(s) in Mode 2:*   + *A UE that transmitted PSCCH/PSSCH with SCI indicating reserved resource(s) to be used for its transmission, received inter-UE coordination information from UE-A indicating expected/potential resource conflict(s) for the reserved resource(s), and uses it to determine resource re-selection is UE-B*   + *A UE that detects expected/potential resource conflict(s) on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*     - *The UE should at least a destination UE of a TB transmitted by UE-B, FFS other restriction (if any)*   + *The above feature can be enabled or disabled or controlled by (pre-)configuration*     - *FFS: Details on how to support this, including (pre-)configuration signaling granularity*   + *~~A UE that satisfies one of the following conditions and enabled by (pre-)configuration can be UE-A including details of the condition~~*     - *~~At least a destination UE of a TB transmitted by UE-B can be UE-A~~*     - *~~(working assumption) At least a destination UE or transmitting UE of a conflicting TB~~*   + *FFS: Additional details and conditions on UE-A and UE-B, definition of expected/potential resource conflict(s), and other details (if any)* |
| Nokia, NSB | Yes | | | We support the proposal as a compromise for the sake of progress, although we would prefer to keep it more open (e.g., a UE that is neither a destination of UE-B nor a transmitter of a conflicting TB might help detect an otherwise undetectable conflict, e.g., if UE-1 and UE-2 transmit in the same slot, UE-3 detects a half-duplex conflict and becomes UE-A). |
| Intel | Yes, with comments | | | Comment #1: Our understanding is that the wording in working assumption should be receiving UE instead of transmitting UE, i.e., RX UE of conflicting TB can provide inter-UE coordination feedback to UE-B. Alternative change is to replace or with of transmitting UE  Comment #2: We propose to remove working assumption   * + - *~~(working assumption)~~ At least a destination UE ~~or~~ of transmitting UE of a conflicting TB* |
| Huawei, HiSilicon | No, see comments | | | Technically, a UE can be UE-A if the 2nd sub-bullet and one of the red sub-sub-bullet are satisfied simultaneously. For example, if a UE is the receiver of UE-B, but does not detect conflict, it is not a UE-A.  We suggest to change WA to FFS. This issue is not discussed before, and needs further study about the scenario and benefits.  In the current WA, “a transmitting UE of a conflicting TB” is UE-B rather than UE-A, we suggest to remove this part to avoid confusion.  In summary, we suggest the changes in purple as below:  ==   * + *in addition to the above conditions, A UE that further satisfies one of the following conditions and enabled by (pre-)configuration can be UE-A including details of the condition*     - *At least a destination UE of a TB transmitted by UE-B can be UE-A*     - *~~(working assumption)~~FFS: At least a destination UE ~~or transmitting UE~~ of a conflicting TB*   + *FFS: Additional details and conditions on UE-A and UE-B, definition of expected/potential resource conflict(s), and other details (if any)* |
| Xiaomi | Yes | | | We support FL’s proposal. |
| Samsung | See comments | | | We suggest the following modification to make progress as   * + *A UE that satisfies one of the following conditions ~~and enabled by (pre-)configuration~~ can be UE-A including details of the condition*     - *At least a destination UE of a TB transmitted by UE-B can be UE-A*     - *(working assumption) At least a destination UE ~~or transmitting UE~~ of a conflicting TB*   + *FFS: Additional details and conditions on UE-A and UE-B, definition of expected/potential resource conflict(s), and other details (if any)*   The first part that is crossed out is redundant we already have this condition in a separate bullet.  For the second part that is crossed out, the transmitting UE can do re-evaluation and pre-emption to avoid conflicts. Therefore, this part is not needed.  Our preference is FFS rather than (working assumption). However, we can accept for progress. |
| ZTE | comments | | | We are not support to define the “transmitting UE” in the working assumption part is not needed. W.r.t the whole WA, we still have concerns on the gain since the corresponding information is already done by the destination UE. Reporting from others will lead to more resource consumption and potential conflicts. |
| Ericsson | Yes, with modifications | | | We propose the following modifications for this proposal:  ***Updated Draft Proposal 3****:*   * *In scheme 2, at least the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination transmission triggered by a detection of expected/potential resource conflict(s) in Mode 2:*   + *A UE that transmitted PSCCH/PSSCH with SCI indicating reserved resource(s) to be used for its transmission, received inter-UE coordination information from UE-A indicating expected/potential resource conflict(s) for the reserved resource(s), and uses it to ~~determine~~ perform resource re-selection is UE-B*   + *A UE that detects expected/potential resource conflict(s) on resource(s) indicated by UE-B’s SCI and sends inter-UE coordination information to UE-B is UE-A*   + *The above feature can be enabled or disabled or controlled by (pre-)configuration*     - *FFS: Details on how to support this, including (pre-)configuration signaling granularity*   + *A UE that satisfies one of the following conditions and enabled by (pre-)configuration can be UE-A including details of the condition*     - *~~At least a destination UE of a TB transmitted by UE-B can be UE-A~~*     - *~~(working assumption) At least a destination UE or transmitting UE of a conflicting TB~~*     - *At least a destination UE or a transmitting UE of any of the conflicting TBs.*     - *(working assumption) Any other UE that is within a predefined range. This feature can be disabled by (pre-)configuration. Details FFS, including range.*     - *FFS other UEs*   + *FFS: Additional details and conditions on UE-A and UE-B, definition of expected/potential resource conflict(s), and other details (if any)* |

**9.2 How to determine inter-UE coordination information for each scheme**

Based on the email discussion after Friday’s GTW (August 20th), I have updated the draft proposals below.

**I ask companies to provide inputs on the following three questions below. The deadline for companies to provide inputs is August 25th 11:59am UTC. To prepare/make more stable draft proposals before the start of Thursday’s GTW session (August 26th), it would be highly appreciated if companies make comments as soon as possible. Also to make progress more efficiently, I would like to encourage companies to directly provide “revised wording” or “new wording needed to be added”.**

**Question 1**: Do you agree the following proposal for scheme 1? As we already spent a lot of email discussion time to find agreeable contents, I strongly recommend that companies focus on making compromise by modifying the currently described condition(s) rather than adding new condition(s) to the proposal.

***Updated Draft Proposal 4-1****:*

* *In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):*
  + *UE-A considers any resource(s) satisfying at least all the following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission*
    - *Condition 1-A-1:*
      * *Resource(s) excluding those overlapping with reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold* 
        + *FFS: How to determine the RSRP threshold and other details (if any)*
    - *Condition 1-A-2:*
      * *Resource(s) excluding slot(s) where UE-A, when it is intended receiver of UE-B, does not expect to perform SL reception from UE-B*
        + *FFS: Other details (if any)*
    - *Condition 1-A-3:*
      * *Resource(s) satisfying UE-B’s traffic requirement (if available)*
        + *FFS: Other details (if any)*
    - *FFS: Other condition(s)*
  + *FFS: Other details (if any)*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| NTT DOCOMO | Yes |  |
| InterDigital | Yes with comments. | We support the proposal, but there is another condition for consideration, which is related to the slots UE-A is not able to monitor (e.g., due to half-duplex condition). In sensing, slots within the resource selection window related (due to Preserv) to non-monitored slots in the sensing window are excluded. Similarly, since UE-A doesn’t have any reservation information from these non-monitored slots, any resources that can be potentially reserved in these slots should be excluded from the preferred resource set. This condition and condition 1-A-1 are the two types of exclusion performed in sensing already and should be covered as basic conditions for Scheme 1.  Thus, we suggest adding:   * + - *Condition 1-A-x:*       * *Resource(s) excluding those that may be reserved in the slots which UE-A does not monitor* |
| vivo | Yes |  |
| Apple | Yes |  |
| Qualcomm | Please see comments | We prefer to move 1-A-2 to an FFS. We’re not clear on when this case would be used for preferred resources.  We prefer to remove condition 1-A-3. It is not clear how to capture such a mechanism. If the intention is UE-B’s transmission priority, which needs to be known, it would be clearer to capture as an FFS under 1-A-1  ***Updated Draft Proposal 4-1****:*   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least all the following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding those overlapping with reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*          + *FFS: How to determine the RSRP threshold and other details (if any)*         + *FFS: How to select resource(s) according to UE-B’s transmission priority*     - *FFS Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A, when it is intended receiver of UE-B, does not expect to perform SL reception from UE-B*         + *FFS: Other details (if any)*     - *~~Condition 1-A-3:~~*       * *~~Resource(s) satisfying UE-B’s traffic requirement (if available)~~*         + *~~FFS: Other details (if any)~~*     - *FFS: Other condition(s)*   + *FFS: Other details (if any)* |
| Futurewei | Yes | We are ok with the proposal |
| LG | Yes | We are also fine with new condition proposed by InterDigital. |
| Sharp | Yes in principle, with questions. | 1. Is it intended that all resources satisfying the conditions are in the preferred resource set? In other words, is UE-A allowed to include only a subset of those resources in the preferred resource set?  2. What is the intention of “*preferred resource set(s)*”? Does it imply that there may be multiple preferred resource sets in one inter-UE coordination message? |
| NEC | Yes |  |
| Fujitsu | Yes | We are OK with the proposal. |
| OPPO | Yes |  |
| Nokia, NSB | See comments | If UE-A is not an intended receiver of UE-B, the RSRP based exclusion in Condition 1-A-1 is not very meaningful.   * + - *Condition 1-A-1:*       * *Resource(s) excluding those overlapping with reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold when UE-A is an intended receiver of UE-B*         + *FFS: How to determine the RSRP threshold and other details (if any)* |
| Intel | Yes, with comments | We think Condition 1-A-2 can be supported for non-preferred resource set. Use of condition for preferred resource set requires additional study since it is not applicable to all scenarios. It may be OK in case of unicast communication and feedback from destination UE, but it is not useful for broadcast communication. Therefore, we prefer to put it under FFS or limit its applicability. In addition, if the same information is considered for non-preferred resource set, condition 1-A-2 may not be needed at all.  Regarding Condition 1-A-3, we would like to understand the motivation better and therefore suggest adding it under FFS. In general case, feedback may be generated w/o traffic considerations but for the predefined resource selection window, etc.  Therefore, our proposed changes are:   * *FFS Condition 1-A-2:* * *FFS Condition 1-A-3:* |
| Huawei, HiSilicon | Yes | We are fine with the proposal.  Condition 1-A-3 is necessary. Because this is preferred resources for UE-B’s transmission, if UE-B’s traffic requirement is not considered, how can UE-A ensures the preferred resources match UE-B’s traffic requirement? The details of “how to consider UE-B’s traffic requirement” can be left FFS. |
| Xiaomi | Yes | We support FL’s proposal.  For condition 1-A-3, we think it is necessary, otherwise the set of preferred resource would include infinity number of resources. Condition 1-A-1 and 1-A-2 does not given any restriction on the initial set of resources before excluding. |
| Samsung | See comments | We suggest the following modification as   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least all the following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding those overlapping with reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*          + *FFS: ~~How to determine the RSRP threshold and~~ other details (if any)*     - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A, when it is intended receiver of UE-B, does not expect to perform SL reception from UE-B at least due to its own transmission(s)*         + *FFS: Other details (if any)*     - *~~Condition 1-A-3:~~*       * *~~Resource(s) satisfying UE-B’s traffic requirement (if available)~~*         + *~~FFS: Other details (if any)~~*     - *FFS: Other condition(s)*   + *FFS: Other details (if any)*   The first part that is crossed out is redundant. Details are FFS.  We suggest to add ‘blue’ wording in Condition 1-A-2. In our understanding, this is one of essential cases for Condition 1-A-2. So, it would be good to include this case.  For the second part that is crossed out, one issue with condition 1-A-3 is that it would require additional signalling from UE-B to UE-A. If we consider Scheme 1 only in unicast, this can be considered since we can use PC5-RRC or MAC-CE for this signalling. However, at this stage, without decision on applied scenario, we need further discussion. |
| ZTE | Yes with modification | We are in general fine with this proposal and prefer to remove the (if available) for condition 1-A-3. |
| Ericsson | Yes, with modifications | One question for clarification. In the first sub-bullet, what does “at least” mean in the first bullet, if we want to consider resources that fulfil all the conditions why not keep only “all”?  It is not clear in our view what is the intention of condition 1-A-3. If it is intended to consider priority of the transmission or PDB or other metrics related to it, this can be considered under the details of Condition 1-A-1.  Moreover, if the intention is to consider other parameters for the traffic requirements it is not clear how to specify such mechanism. Therefore, we propose to delete this condition on focus on the other two.  To finalize we propose that the reserved resources are identified not only based on the RSRP measurement but also on whether these resources have been reserved by an SCI. This wording is also used in Proposal 5.  ***Updated Draft Proposal 4-1****:*   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least all the following condition(s) as set(s) of resource(s) preferred for UE-B’s transmission*     - *Condition 1-A-1:*       * *Resource(s) excluding those overlapping with reserved resource(s) by SCI of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold*          + *FFS: How to determine the RSRP threshold and other details (if any)*     - *Condition 1-A-2:*       * *Resource(s) excluding slot(s) where UE-A, when it is intended receiver of UE-B, does not expect to perform SL reception from UE-B*         + *FFS: Other details (if any)*     - *~~Condition 1-A-3:~~*       * *~~Resource(s) satisfying UE-B’s traffic requirement (if available)~~*         + *~~FFS: Other details (if any)~~*     - *FFS: Other condition(s)*   + *FFS: Other details (if any)* |

**Question 2**: Do you agree the following proposal for scheme 1? As we already spent a lot of email discussion time to find agreeable contents, I strongly recommend that companies focus on making compromise by modifying the currently described condition(s) rather than adding new condition(s) to the proposal.

***Updated Draft Proposal 4-2****:*

* *In scheme 1, at least the following is supported to determine inter-UE coordination information of non-preferred resource set(s):*
  + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*
    - *Condition 1-B-1:*
      * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold, considering UE-B’s traffic requirement (if available)*
        + *FFS: How to determine the RSRP threshold and other details (if any)*
    - *Condition 1-B-2:*
      * *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, cannot perform SL reception from UE-B*
        + *FFS: Other details (if any)*
    - *FFS: Other condition(s)*
  + *FFS: Other details (if any)*

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or no** | **Comment** |
| NTT DOCOMO | Comment | On 1-B-1, meaning/necessity of “*considering UE-B’s traffic requirement (if available)*” is unclear for us. The intention would be that any non-preferred resources should satisfy UE-B’s traffic requirement, then modification is needed.  On 1-B-2, the text is a bit different from 1-A-2. Let’s use same text.   * + - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold~~, considering UE-B’s traffic requirement (if available)~~*         + *The resource(s) satisfies UE-B’s traffic requirement (if available)*         + *FFS: How to determine the RSRP threshold and other details (if any)*     - *Condition 1-B-2:*       * *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, ~~cannot~~ does not expect to perform SL reception from UE-B*         + *The resource(s) satisfies UE-B’s traffic requirement (if available)*         + *FFS: Other details (if any)* |
| InterDigital | Yes with comments | Based on our discussion for Q1, we suggest adding   * + - *Condition 1-B-x:*       * *Resource(s) that may be reserved in the slots which UE-A does not monitor* |
| vivo | No | Comment 1. We propose to down-select from condition 1-B-x. Current condition 1-B-x intends to include multiple solutions which have different frameworks, e.g., if resource reservation signaling is regarded as container of non-preferred resource, only condition 1-B-2 will be used; if 'scheme 1 preferred resoruce' and 'scheme 1 non-preferred resource' reuse the same framework, all the conditions can be further considered. Since the direction of 'scheme 1 non-preferred resource' is not confirmed yet, we propose down-selection from the condition 1-B-x.  Comment 2.Condition 1-B-2 should be aligned with condition 1-A-2, i.e., *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, does not expect to perform SL reception from UE-B.* Reasons are listed below.  To avoid PSSCH HD, the slots selected for UE-A’s transmission needs to be excluded, but this cannot be achieved based on current 1-B-2. Since UE-A may not able to judge whether the selected resource is actually used for TB transmission, the resource can be reserved but unused resource, in such case, UE-A can still perform reception on corresponding slots.  To avoid PSFCH HD, besides the slots selected for UE-A’s transmission, the slots corresponding to the same PSFCH occasion with UE-A’s selected resource should be excluded. This cannot be achieved by current 1-B-2.  To avoid conflicting with UL transmission, UE-A should exclude the slots occupied by UL grant to protect the UL transmission. it is noted that SL reception may be performed in the slot overlapped with UL grant, which depends on UL/SL prioritization rule. This cannot be achieved by current 1-B-2. |
| Apple | Yes |  |
| Qualcomm | Please see comments | ***Updated Draft Proposal 4-2****:*   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of non-preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold or is/are intended for UE-A to receive, ~~considering UE-B’s traffic requirement (if available)~~*         + *FFS: How to determine the RSRP threshold and other details (if any)*     - *FFS Condition 1-B-2:*       * *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, cannot perform SL reception from UE-B*         + *FFS: Other details (if any)*     - *FFS: Other condition(s)*   + *FFS: Other details (if any)*   We would like to introduce 1-B-3. The simulation results in our contribution show why this is very important to have. We’d be ok with the wording from Nokia or from OPPO. Following the feature lead’s request to not add new options, and the note on the reflector that it could be a subset of 1-B-1, we’re ok to go in that direction and suggest a modification below.  We don’t agree with limiting Condition 1-B-2 to the case when UE-A is an intended recipient of UE-B. The non-preferred resources are also used to avoid interference with UE-A transmission or reception regardless of whether UE-B is targeting UE-A or not. We’d like to emphasize that 1-B-2 needs to cover all cases that cause UE-A to not successfully decode a packet in a slot, either due to half duplex, collisions, IBE leakage from other UEs to UE B transmission, or IBE leakage from UE B to other UE transmission. If the intention is to cover half duplex then we do not know if it beneficial on its own. We have shown in our contribution (Fig. 11 in R1-2108340) that if UE-A does not signal the selected initial resource to UE-B, the half duplex loss cannot be avoided for example.  In the below plot, protect initial transmission is a scheme using “*Resource(s) that UE-A has selected for its own transmission(s) (e.g. initial transmission)”* as a non-preferred resource, while protect half duplex is “*Resource(s) where UE-A cannot perform SL reception”* as a non-preferred resource. In other words, the result shows that we can only fully address the half duplex problem if *Resource(s) where UE-A cannot perform SL reception* include *initial transmission resource of UE-A*. Furthermore, the *initial transmission resource of UE-A* also needs to be visible to other UEs in the system, not only when UE-A is an intended recipient of UE-B. If this is not the case, the resource selected by UE-A is subjected to re-evaluation after already being communicated to UE-B. Then either UE-B would avoid the wrong slot, or UE-A has to keep sending new update to UE-B every time the resource is changed.    On the other hand, we see that in the urban scenario (figure below), IBE is a major bottleneck. For example, when we consider a simplistic setting where traffic is periodic and hidden node can be completely avoided using the non-preferred resource scheme per the current proposal, the remaining performance gap is still quite significant, which is mostly caused by IBE (gap between red curve and dashed red curve).    Since it seems that companies do not have a common understanding about what condition 1-B-2 entails, we propose to put it as FFS for now.  Similar to Proposal 4-1, we’re not clear on to determine the traffic requirements of each UE-B in groupcast. We think UE-B would be the one to account for its traffic requirements as part of using the inter-UE coordination information. |
| Futurewei | Comment | We prefer to have condition 1-B-3 in previous version back with modifications. This is different from condition 1-B-1. The UE-A sends his scheduled resources, either as the receiver or the transmitter of the TB, as non-preferred resources.   * + - *Condition 1-B-3:*       * *Reserved resource(s) by a SCI (signaled or to be signaled) of other UE identified by UE-A whose destination UE of a TB transmitted by other UE includes UE-A or whose transmitting UE of a TB being UE-A*         + *FFS: Other details (if any)*   Also we prefer to have the one other condition in previous proposal back, i.e. the preferred resources for other UE-B’s can be indicated as non-preferred resources to reduce the collision rate. This condition was in FFS, but removed later as it is in FFS without any technical justification.   * + - *Condition 1-B-4:*       * *Resource(s) selected by UE-A as preferred resource set for other UE-Bs’ transmissions* |
| LG | Yes | Regarding the Condition 1-B-3 in the previous version, considering that a UE can change usage of its reserved resource(s) in the future including destination UE across different reservation period, UE-A would not know whether the destination of the reserved resource(s) in the future is the UE-A itself or not. Wrong decision on the inter-UE coordination information will degrades system performance.  Regarding the new condition proposed by Futurewei, it is not yet discussed whether UE-B can receive or use inter-UE coordination information of which target is not UE-B.  At this moment, we prefer to focus on the conditions in the current proposal. |
| Sharp | Yes in principle, with questions. | Similar questions as for Updated Draft Proposal 4-1. |
| NEC | Yes |  |
| Fujitsu | Yes | We are OK with the proposal. |
| OPPO | Yes |  |
| Nokia, NSB | No | Condition 1-B-2 is fine with us.  However, Condition 1-B-1 needs some refinement in order to protect not only UE-A’s reception of UE-B’s transmission (in case UE-A is an intended receiver of UE-B’s transmission), but also UE-A’s reception of other UE’s transmission (in case UE-A is an intended receiver of other UE’s transmission).   * + - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A ~~whose~~ satisfying at least one of the following:*         + *RSRP measurement is larger than a RSRP threshold, considering UE-B’s traffic requirement (if available) when UE-A is an intended receiver of UE-B*   *[Note for understanding: This is needed to ensure other UE’s transmission does not interfere with UE-A’s reception of UE-B’s transmission.]*   * + - * + *UE-A is an intended receiver of other UE’s transmission in the reserved resource(s)*   *[Note for understanding: This is needed to ensure UE-B’s transmission does not interfere with UE-A’s reception of other UE’s transmission.]*   * + - * + *FFS: How to determine the RSRP threshold and other details (if any)* |
| Intel | Yes, with comments | We can accept condition 1-B-2 only, if it is expected to be a separate non-preferred resource set (i.e. separate from the one generated based on Condition 1-B-1) and it is clarified that UE cannot perform SL reception due to potential sidelink transmission   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of non-preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold, considering UE-B’s traffic requirement (if available)*         + *FFS: How to determine the RSRP threshold and other details (if any)*     - *Condition 1-B-2:*       * *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, cannot perform SL reception from UE-B at least due to its own sidelink transmission(s)*       * *Separate independent resource set is generated for Condition 1-B-2*          + *FFS: Other details (if any)*     - *FFS: Other condition(s)*   + *FFS: Other details (if any)* |
| Huawei, HiSilicon | Yes | We are fine with the proposal.  In Condition 1-B-1: “*considering UE-B’s traffic requirement (if available)*” is necessary. For example, if UE-A knows UE-B’s traffic requirement of priority, resource selection window, etc., these factors can be used to determine the non-preferred more accurately.  In Condition 1-B-2: “*when it is intended receiver of UE-B*” is necessary. If UE-A is not the receiver of UE-B, whether UE-A can perform SL reception on these resources is irrelevant on determining the non-preferred resources. |
| Xiaomi | Yes | We support the FL’s proposal. |
| Samsung | See comments | We suggest the following modification as   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of non-preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold, considering UE-B’s traffic requirement (if available)*         + *FFS: ~~How to determine the RSRP threshold and~~ other details (if any)*     - *Condition 1-B-2:*       * *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, cannot perform SL reception from UE-B at least due to its own transmission(s)*         + *FFS: Other details (if any)*     - *FFS: Other condition(s)*   + *FFS: Other details (if any)*   The first part that is crossed out is redundant. Details are FFS.  We suggest to add ‘blue’ wording in Condition 1-B-2. In our understanding, this is one of essential cases for Condition 1-B-2. So, it would be good to include this case. |
| ZTE | Yes with modification | In our view, we prefer to add one more condition that the resource may not satisfied the requirement for UE’s B traffic should also be defined as the non-preferred resource. |
| Ericsson | Yes, with modifications | The intention of the wording in Condition 1-B-1 “*considering UE-B’s traffic requirement*” is not clear to us. If the intention is to consider for instance the priority of UE-B’s transmission – which is a factor to consider when performing the RSRP threshold procedure – then we agree that it is important to study it. However, this is already covered in the FFS bullet of this condition, so we propose to remove it to avoid redundant work.  Moreover, we have a similar comment as in P4-1 regarding the addition of “by SCI”. Similar wording is also used in Proposal 5.  ***Updated Draft Proposal 4-2****:*   * *In scheme 1, at least the following is supported to determine inter-UE coordination information of non-preferred resource set(s):*   + *UE-A considers any resource(s) satisfying at least one of the following condition(s) as set(s) of resource(s) non-preferred for UE-B’s transmission*     - *Condition 1-B-1:*       * *Reserved resource(s) by SCI of other UE identified by UE-A whose RSRP measurement is larger than a RSRP threshold~~, considering UE-B’s traffic requirement (if available)~~*         + *FFS: How to determine the RSRP threshold and other details (if any)*     - *Condition 1-B-2:*       * *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, cannot perform SL reception from UE-B*         + *FFS: Other details (if any)*     - *FFS: Other condition(s)*   + *FFS: Other details (if any)* |

**Question 3**: Do you agree the following proposal for scheme 2? As we already spent a lot of email discussion time to find agreeable contents, I strongly recommend that companies focus on making compromise by modifying the currently described condition(s) rather than adding new condition(s) to the proposal.

***Updated Draft Proposal 5****:*

* *In scheme 2, at least the following is supported to determine inter-UE coordination information:*
  + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):* 
    - *Condition 2-A-1:*
      * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*
        + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*

*FFS: How to determine the RSRP threshold and other details (if any)*

* + - * + *FFS: Whether/how to specify additional criteria and other details (if any)*
    - *Condition 2-A-2:*
      * *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, cannot does not expect to perform SL reception from UE-B*
        + *FFS: Other details (if any)*
    - *FFS: Other condition(s)*
  + *FFS: Other details (if any)*

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| **Company** | **Yes or no** | **Comment** |
| NTT DOCOMO | Yes with Comment | On 2-A-2, same comment as Proposal 4-2.   * + - *Condition 2-A-2:*       * *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, ~~cannot~~ does not expect to perform SL reception from UE-B*         + *FFS: Other details (if any)* |
| InterDigital | Yes | We support the proposal. |
| vivo | No | For Condition 2-A-2, PSSCH HD and PSFCH HD should not in the scope of the discussion. If both UE-A and UE-B are performing PSSCH transmission, UE-B can avoid/resolve the conflict autonomously, no need for UE-A to trigger UE-B to perform the corresponding action.  In our understanding, at least conflict between UL transmission and SL transmission is in the scope of 2-A-2.To avoid conflicting with UL transmission, UE-A should exclude the slots occupied by UL grant to protect the UL transmission. However, the wording should be changed to *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, does not expect to perform SL reception from UE-B*. |
| Apple | Yes | Agree with DCM’s changes. |
| Qualcomm | Please see comments | We have the same comments on 2-A-2 as we did on 1-B-2, namely that it shouldn’t be limited to the case where UE-A is an intended recipient.   * + - *Condition 2-A-2:*       * *Resource(s) (e.g., slot(s)) where UE-A~~, when it is intended receiver of UE-B,~~ cannot perform SL reception ~~from UE-B~~* |
| Futurewei | Yes | We are ok with the proposal |
| LG | Yes | On Condition 2-A-2, if there is a views on handling the half-duplex problem at UE-A side via UE-A’s resource (re)selection procedure (note that this is also not supported in Rel-16 resource (re)selection procedure), for compromise, we can change the wording to handle the half-duplex problem due to UE-A’s UL transmission by adding “due to UE-A’s UL transmission(s)” |
| Sharp | Yes |  |
| NEC | Yes |  |
| Fujitsu |  | We have a doubt on whether coordination information has to be used under Condition 2-A-2. A more efficient way is to define UE-A procedures so that UE A can proactively avoid such conflict. For the progress, we can accept this if most companies are fine with it. |
| OPPO | Yes | Ok with the correction suggested by DCM. |
| Nokia, NSB | Yes |  |
| Intel | Yes, with comments | We propose the following changes to accommodate half-duplex conflict in Condition 2-A-1 and clarify background behind Condition 2-A-2   * + - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency or in time only*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: How to determine the RSRP threshold and other details (if any)*   * + - * + *FFS: Whether/how to specify additional criteria and other details (if any)*     - *Condition 2-A-2:*       * *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, ~~cannot~~ does not expect to perform SL reception from UE-B due to its own transmission(s)*         + *FFS: Other details (if any)* |
| Huawei, HiSilicon | See comments | Condition 2-A-1: The resource conflict situations may include many cases, e.g., conflict happens on one, or two, or multiple of those dynamically and/or periodically reserved resources by UE-B. RAN1 needs to further discuss whether/how expected/potential resource conflict indication from UE-A to differentiate different conflict situations. Because this will impact signaling design and related UE-B behaviors. We suggest to add “*At least one of o~~O~~ther UE’s reserved resource(s) …* ” to address this.  Condition 2-A-2: “*when it is intended receiver of UE-B*” is necessary. If UE-A is not the receiver of UE-B, whether UE-A can perform SL reception on these resources is irrelevant on determining whether there is any conflict.  ==   * + - *Condition 2-A-1:*       * *At least one of o~~O~~ther UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: How to determine the RSRP threshold and other details (if any)*   * + - * + *FFS: Whether/how to specify additional criteria and other details (if any)*     - *Condition 2-A-2:*       * *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, ~~cannot~~ does not expect to perform SL reception from UE-B*         + *FFS: Other details (if any)* |
| Xiaomi | Yes | We support the FL’s proposal. |
| Samsung | See comments | We suggest the following modification as   * *In scheme 2, at least the following is supported to determine inter-UE coordination information:*   + *Among resource(s) indicated by UE-B’s SCI, UE-A considers that expected/potential resource conflict occurs on the resource(s) satisfying at least one of the following condition(s):*      - *Condition 2-A-1:*       * *Other UE’s reserved resource(s) identified by UE-A are fully/partially overlapping with resource(s) indicated by UE-B’s SCI in time-and-frequency*         + *RSRP value measured on other UE’s reserved resource(s) is larger than a RSRP threshold*   *FFS: ~~How to determine the RSRP threshold and~~ other details (if any)*   * + - * + *FFS: Whether/how to specify additional criteria and other details (if any)*     - *Condition 2-A-2:*       * *Resource(s) (e.g., slot(s)) where UE-A, when it is intended receiver of UE-B, cannot perform SL reception from UE-B at least due to its own transmission(s)*         + *FFS: Other details (if any)*     - *FFS: Other condition(s)*   + *FFS: Other details (if any)*   The first part that is crossed out is redundant. Details are FFS.  We suggest to add ‘blue’ wording in Condition 2-A-2. In our understanding, this is one of essential cases for Condition 2-A-2. So, it would be good to include this case. |
| ZTE | Yes | We are in general fine and for 2-A-2, we prefer to mandate the UE-A as the Rx UE. Otherwise, the benefit is limited. |
| Ericsson | Yes | Supportive of the proposal |

**9.3 UE-B’s behaviour when receiving inter-UE coordination information**

Based on the email discussion after Friday’s GTW (August 20th), I have updated the draft proposals below.

**I ask companies to provide inputs on the following two questions below. The deadline for companies to provide inputs is August 25th 11:59am UTC. To prepare/make more stable draft proposals before the start of Thursday’s GTW session (August 26th), it would be highly appreciated if companies make comments as soon as possible. Also to make progress more efficiently, I would like to encourage companies to directly provide “revised wording” or “new wording needed to be added”.**

**Question 1**: Do you agree the following proposal for scheme 1? As we already spent a lot of email discussion time to find agreeable contents, I strongly recommend that companies focus on making compromise by modifying the currently described condition(s) rather than adding new condition(s) to the proposal.

***Updated Draft Proposal 6 (Note that to avoid unnecessary confusion, the yellow marked part is a sentence borrowed from the agreement made in RAN1#104bis-e meeting)****:*

* *In scheme 1, at least following UE-B’s behavior in its resource (re-)selection is supported when it receives inter-UE coordination information from UE-A:*
  + *For preferred resource set, the following two options are supported:*
    - *Option A): UE-B’s resource(s) to be used for its transmission resource (re-)selection is based on both UE-B’s sensing result (if available) and the received coordination information*
      * *UE-B uses in its resource (re-)selection, resource(s) belonging to the preferred resource set* *in combination with its own sensing result*
        + *UE-B uses in its resource (re-)selection, resource(s) not belonging to the preferred resource set when condition(s) are met*

*FFS: Details of condition(s)*

* + - * + *This option is supported when UE-B performs sensing/resource exclusion*
    - *Option B): UE-B’s resource(s) to be used for its transmission resource (re-)selection is based only on the received coordination information*
      * *UE-B uses in its resource (re-)selection, resource(s) belonging to the preferred resource set*
        + *This option is supported when UE-B does not perform sensing/resource exclusion*
        + *FFS: Other details (if any)*
    - *FFS: Other option(s), and other details (if any)*
  + *For non-preferred resource set,* 
    - *UE-B’s resource(s) to be used for its transmission resource (re-)selection is based on both UE-B’s sensing result (if available) and the received coordination information* 
      * *UE-B excludes in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set*
        + *FFS: Whether/how UE-B can use in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set, definition of the overlap, and other details (if any)*
      * *FFS: UE-B reselects in its resource (re-)selection, resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*
    - *FFS: Other option(s), and other details (if any)*

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| **Company** | **Yes or no** | **Comment** |
| NTT DOCOMO | Comment | It seems that current Option B allows UE not to use sensing information even when the UE has sensing results. We do not see the benefit since it leads to other UE’s degradation. Rather, “cannot” should be used.   * + - *Option B): UE-B’s resource(s) to be used for its transmission resource (re-)selection is based only on the received coordination information*       * *UE-B uses in its resource (re-)selection, resource(s) belonging to the preferred resource set*         + *This option is supported when UE-B ~~does not~~ cannot perform sensing/resource exclusion*         + *FFS: Other details (if any)* |
| InterDigital | Yes | We support the proposal. |
| vivo | Yes |  |
| Apple |  | Regarding   * + - * *UE-B excludes in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set*         + *FFS: Whether/how UE-B can use in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set, definition of the overlap, and other details (if any)*   It seems the bullet and the sub-bullet contradict with each other. Is the intention of the sub-bullet “how to exclude resource(s) overlapping with the non-preferred resource set”? |
| Qualcomm | Please see comments | We agree with the proposal in general with some changes.  In our understanding, RAN1 still needs to discuss in which cases UE-B’s sensing results are not available. Is this correct?  We’d like to clarify what the condition could be in the following point:   * *UE-B uses in its resource (re-)selection, resource(s) not belonging to the preferred resource set when condition(s) are met*   Perhaps the proponents could provide some examples.  We don’t think that UE-B will always excludes non-preferred resources from the candidate resource set. We prefer to use “*UE-B potentially excludes”* but would be ok with capturing it as an FFS:   * + - * *UE-B excludes in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set*         + *FFS: Whether/how UE-B can use in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set, definition of the overlap, and other details (if any)*         + *FFS: When UE-B excludes resource(s) overlapping with the non-preferred resource set* |
| Futurewei | comments | We proposed to remove the applicable scenario for option B). In some scenario, UE B can select resources based only on the received preferred resources even it performs sensing. For example, for some UE-A, depending on UE-A’s attribute (whether it is commander UE or not), UE-B may complete follow UE-A recommendation (option B) or based on its sensing results and UE-A coordination information (option A). In this case, UE-B always performs sensing.   * + - *Option B): UE-B’s resource(s) to be used for its transmission resource (re-)selection is based only on the received coordination information*       * *UE-B uses in its resource (re-)selection, resource(s) belonging to the preferred resource set*         + *~~This option is supported when UE-B does not perform sensing/resource exclusion~~*         + *FFS: Other details (if any)* |
| LG | Yes | Regarding the new option for the preferred resource set in the previous version, it is not yet discussed whether UE-B can receive or use inter-UE coordination information of which target is not UE-B. We’d like to focus on the options in the current proposal.  On the applicable scenario of Option A and Option B, it is necessary to keep it for progress. The wording itself makes sense. |
| Sharp | Yes |  |
| NEC | Yes |  |
| Fujitsu |  | We have a concern on Option B where UE-B does not perform sensing but can receive coordination information. However, for the progress, we can accept this if most companies are fine with it. |
| OPPO | Yes |  |
| Nokia, NSB | Yes |  |
| Intel | Yes, with comments | We propose to remove Option B. In our views, it is a separate discussion whether/how to support UE-B without sufficient sensing data |
| Huawei, HiSilicon | Yes | We are fine with this proposal.  We support following previous agreements as much as possible, this is better for progress and avoid any further confusion.  We support using “*when UE-B does not perform sensing/resource exclusion*” as in the current proposal. This is more accurate than “does not support”. Because there could be various reasons that UE-B does not perform sensing, e.g., for some public safety and commercial use cases, the devices in these cases may choose not to perform sensing for power saving, or choose to not have the ability to perform sensing for device simplification. |
| Xiaomi | Yes | We support the FL’s proposal. |
| Samsung | See comments | We suggest the following modification as   * *In scheme 1, at least following UE-B’s behavior in its resource (re-)selection is supported when it receives inter-UE coordination information from UE-A:*   + *For preferred resource set, the following two options are supported:*     - *Option A): UE-B’s resource(s) to be used for its transmission resource (re-)selection is based on both UE-B’s sensing result (if available) and the received coordination information*       * *UE-B uses in its resource (re-)selection, resource(s) belonging to both the preferred resource set* *~~in combination with~~ and candidate resource set of its own sensing result, if exists*         + *~~UE-B uses in its resource (re-)selection, resource(s) not belonging to the preferred resource set when condition(s) are met~~*   *~~FFS: Details of condition(s)~~*   * + - * + *This option is supported when UE-B performs sensing/resource exclusion*         + *FFS: other details (e.g., How to combine preferred resources from more than one UE-A)*     - *Option B): UE-B’s resource(s) to be used for its transmission resource (re-)selection is based only on the received coordination information*       * *UE-B uses in its resource (re-)selection, resource(s) belonging to the preferred resource set*         + *This option is supported when UE-B does not perform sensing/resource exclusion*         + *FFS: Other details (if any)*     - *FFS: Other option(s), and other details (if any)*   + *For non-preferred resource set,*      - *UE-B’s resource(s) to be used for its transmission resource (re-)selection is based on both UE-B’s sensing result (if available) and the received coordination information*        * *UE-B excludes in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set from candidate resource set of its own sensing result*          + *~~FFS: Whether/how UE-B can use in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set, definition of the overlap, and other details (if any)~~*       * *~~FFS:~~ UE-B reselects in its resource (re-)selection, resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*   *FFS: ~~Other option(s), and~~ other details (if any)* |
| ZTE | Comments | We still have concerns to enable the case that UE-B does not or can not conduct the sensing. The benefits are not clear and may also not be aligned with typical UE definition for mode-2.  Moreover, we prefer to keep the FFS on whether resource (re-)selection is done in PHY or MAC layer. |
| Ericsson | No | We have the following comments on this proposal:   * For Option A): we propose to remove the following sub-bullet: “UE-B uses in its resource (re-)selection, resource(s) not belonging to the preferred resource set when condition(s) are met”.   + For this sub-bullet, if the intention is to consider that UE-B can also take into consideration resources which are only included in its own sensing results –and not part of the inter-UE coordination message—we think that this is already covered by the previous bullet, so we do not need to have it again.   + In order to address the intention of this sub-bullet we propose to include the wording “prioritizes” in the one above. * For Option B): we propose to leave this bullet as FFS since we do not see the technical benefit of it and more study is needed. Additionally, the following sub-bullet “This option is supported when UE-B does not perform sensing/resource exclusion” should be rephrased:   + In our view, the current wording precludes UEs to use their own sensing results even if these UEs can obtain their own sensing information. As shown in our contribution (R1-2108137), this is not a good system design, and we propose the following changes:     - “This option is supported only when UE-B does not support sensing/resource exclusion”   + The intention behind our proposed wording is to avoid that a UE does not perform sensing when it is possible or discards its own sensing information. * For non-preferred resources set in order to be consistent with our modifications for the preferred resources, we propose to add the word “down-prioritizes”   ***Updated Draft Proposal 6 (Note that to avoid unnecessary confusion, the yellow marked part is a sentence borrowed from the agreement made in RAN1#104bis-e meeting)****:*   * *In scheme 1, at least following UE-B’s behavior in its resource (re-)selection is supported when it receives inter-UE coordination information from UE-A:*   + *For preferred resource set, the following two options are supported:*     - *Option A): UE-B’s resource(s) to be used for its transmission resource (re-)selection is based on both UE-B’s sensing result (if available) and the received coordination information*       * *UE-B prioritizes in its resource (re-)selection, resource(s) belonging to the preferred resource set* *in combination with its own sensing result*         + *~~UE-B uses in its resource (re-)selection, resource(s) not belonging to the preferred resource set when condition(s) are met~~*   *FFS: Details ~~of condition(s)~~*   * + - * + *This option is supported when UE-B performs sensing/resource exclusion*     - *FFS: Option B): UE-B’s resource(s) to be used for its transmission resource (re-)selection is based only on the received coordination information*       * *UE-B uses in its resource (re-)selection, resource(s) belonging to the preferred resource set*         + *This option is supported only when UE-B does not support sensing/resource exclusion”*         + *FFS: Other details (if any)*       * *FFS: Other option(s), and other details (if any)*   + *For non-preferred resource set,*      - *UE-B’s resource(s) to be used for its transmission resource (re-)selection is based on both UE-B’s sensing result (if available) and the received coordination information*        * *UE-B down-prioritizes ~~excludes~~ in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set*         + *FFS: Whether/how UE-B can use in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set, definition of the overlap, and other details (if any)*       * *FFS: UE-B reselects in its resource (re-)selection, resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*     - *FFS: Other option(s), and other details (if any)* |

**Question 2**: Do you agree the following proposal for scheme 1? As we already spent a lot of email discussion time to find agreeable contents, I strongly recommend that companies focus on making compromise by modifying the currently described condition(s) rather than adding new condition(s) to the proposal.

***Updated Draft Proposal 7 (Note that to avoid unnecessary confusion, the yellow marked part is a sentence borrowed from the agreement made in RAN1#104bis-e meeting)****:*

* *In scheme 2, the following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*
  + *UE-B can determine resource(s) to be re-selected based on the received coordination information*
    - *UE-B reselects resource(s) reserved for its transmission when expected/potential resource conflict on the resource(s) is indicated*
      * *FFS: Other details (if any)*

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| **Company** | **Yes or no** | **Comment** |
| NTT DOCOMO | Yes | Maybe just yellow part can be removed? |
| InterDigital | Yes | We support the proposal. |
| vivo | Yes |  |
| Apple | Yes |  |
| Qualcomm | Yes | We agree with the proposal |
| Futurewei | Yes | We are ok with the proposal. |
| LG | Yes |  |
| Sharp | Yes |  |
| NEC | Yes |  |
| Fujitsu | Yes | We are OK with this proposal. |
| OPPO | ok |  |
| Nokia, NSB | Yes, with comments | * + - *UE-B reselects resource(s) reserved for its transmission when expected/potential resource conflict on the resource(s) is indicated*       * *FFS: Other details (if any) including conditions under which UE-B does not reselect resource(s) reserved for its transmission* |
| Intel | Yes | We are OK with minor corrections   * *In scheme 2, the following UE-B’s behavior in its resource (re)selection is supported when it receives inter-UE coordination information from UE-A:*   + *UE-B can determine reserved resource(s) to be re-selected based on the received coordination information*     - *UE-B can reselect~~s~~ resource(s) reserved for its transmission when expected/potential resource conflict on the resource(s) is indicated*       * *FFS: Other details (if any)* |
| Huawei, HiSilicon | Yes | We are fine with this proposal.  We support following previous agreements as much as possible, this is better for progress and avoid any further confusion. So we suggest to keep the yellow sentence. |
| Xiaomi | Yes | We support the FL’s proposal. |
| Samsung | Yes |  |
| ZTE | Comments | we prefer to keep the FFS on whether resource (re-)selection is done in PHY or MAC layer. |
| Ericsson | Yes | Supportive of the proposal |

**9.4 Combination(s) of features to be supported**

According to the agreements made so far for Scheme 1, the following types of inter-UE coordination information signaling and mechanisms to trigger inter-UE coordination information transmission are supported.

* Types of inter-UE coordination information signaling
  + Option A: Set of resources preferred for UE-B’s transmission
  + Option B: Set of resources non-preferred for UE-B’s transmission
* Mechanisms to trigger inter-UE coordination information transmission
  + Option 1: Triggered by an explicit request
  + Option 2: Triggered by a condition other than explicit request reception

In terms of preparing future discussion in advance, I think that it would be good to gather/check companies’ views in advance on which combination(s) of the above-motioned features (e.g., Option A with Option 1, Option B with Option 2) would be preferred to be supported for Scheme 1. Of course, if the time permits and companies’ views can be converged, we can try to make agreement.

**I ask companies to provide inputs on the following question below. The deadline for companies to provide inputs is August 25th 11:59am UTC. It would be highly appreciated if companies make comments as soon as possible.**

**Question 1**: Which combination(s) of the above-motioned features (e.g., Option A with Option 1, Option B with Option 2) should be supported for Scheme 1?

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| **Company** | **Combination(s) of the above-motioned features that should be supported** | **Comment** |
| NTT DOCOMO | Comment | Before answer, this question is intended for scheme 1? Or scheme 2 as well? |
| InterDigital | At least Option B with Option 2  Option A with Option 1 | We consider Option B covers both Scheme 1 and Scheme 2, which in essence informs UE-B on resources not suitable for UE-B’s transmissions. This information is based on e.g., reservation conflict, half-duplex condition, etc., and these conditions can occur often and UE-A should be allowed to update these conditions when they occur without UE-B’s request. We think it should be supported. Option A involves UE determination of preferred resources potentially based on a “sensing-like” mechanism, which can require UE-B input to UE-A and a request transmission lends itself to this signaling exchange. Thus we support at least Option B with Option 2 and Option A with Option 1.  We consider the remaining options with less benefit and would suggest to down-prioritize them. |
| vivo |  | Option A + option 1  Option B + option 2  However, we are open to discuss option B + option 1, if motivation is clarified. |
| Apple |  | At least Option A + option 1; Option B + option 2. We are also open to Option B+ option 1 |
| Qualcomm | Combo 1: Option A with Option 1  Combo 2:  Option B with Option 2 | We think it is reasonable to pair preferred resources (Option A) with explicit requests (Option 1). UE-A would not know when UE-B has information to transmit otherwise. We note that this does not imply dynamic requests, i.e. one request for each transmission of coordination information.  Non-preferred resources (Option B) need to be available to many UEs as it also needs to work for groupcast. The cost of every UE sending a request in terms of latency and resource overhead is too high. Therefore, we think that triggering by a condition (Option 2) is more suitable for this case. |
| Futurewei | All possible combinations | Both options A and B can be triggered by option 1 an explicit request. Similarly for option 2. Therefore, all possible combination can be supported. |
| LG | Option A with Option 1,  Option B with Option 2 | UE-A does not need to send the preferred resource set to UE-B when the UE-B does not have available data. The simplest way for UE-A to know when UE-B has available data is to receive explicit request from UE-B.  In case of non-preferred resource set, UE-A can sends inter-UE coordination information when UE-A’s own resources to be transmitted are changed. If time is allowed, we can further consider request signalling approach as well. |
| NEC | Option 1+A,  Option 1+B,  Option 2+B. | We are also open to option 2+A if deemed beneficial |
| Fujitsu | Option A with Option 1.  Option B with Option 2.  Option B with Option 1. | For Option A, UE-A needs to know UE-B’s traffic requirements to determine the preferred resources for UE-B’s transmission. Therefore, explicit request in Option 1 is needed to indicate UE-B’s requirements.  For Option B, UE-A can determine non-preferred resources for UE-B’s transmission even if UE-B’s traffic requirements are not available. Anyway, UE-B can ensure its requirements to be satisfied when using coordination information. Therefore, Option 2 can work together with Option B.  We are also open to Option B with Option 1. |
| Nokia, NSB | **A1**, A2, B1, **B2** | At least combinations A1 and B2 should be supported.  However, we prefer to support all combinations (A1, A2, B1, B2) for maximum flexibility, especially with the goal of minimizing Scheme 1 signaling overhead:   * When most candidate resources (within a resource selection window) are non-preferred (e.g., at high load), signaling the “preferred resource set” may incur much lower overhead, regardless of the trigger.   When most candidate resources are preferred (e.g., at low load), signaling the “non-preferred resource set” may incur much lower overhead, regardless of the trigger. |
| Intel | All possible combinations | We are supportive for all potential combinations. In addition, we assume that Option A and Option B can be enabled simultaneously. |
| Huawei, HiSilicon | Support all combinations, but no need to discuss this question | We are unclear about the intention of this question.  RAN1 already agreed these options are supported, what RAN1 should do in the next step is to complete the design details.  We suggest not spending time discussing down-scoping combinations at this stage, we all know this is very time consuming and not good for progress. |
| xiaomi | Option A with Option 1    Option B with Option 1  Option B with Option 2 | 1) UE-A needs some parameters related with UE-B’s sensing from UE-B’s explicit request, such as, priority, UE-B’s resource selection window/PDB, then UE-A can provide coordination information which is suitable for UE-B. Therefore, option 1 is more suitable for option A.  2) Option B can be triggered by both option 1 and option 2. |
| Samsung | See comments | Support separate enabling/disabling, which means support any type of combination |
| ZTE | A+1, B+1  B+2 | The first two are preferred |
| Ericsson | Need to agree on other aspects first. | In our view, we first need to complete the previous agreements and then we can start deciding on this mechanism.  Right now, it is difficult to decide on combinations without having a clear picture of the mechanism. |

**9.5 Container used to send “inter-UE coordination information” or “explicit request to trigger inter-UE coordination information”**

In terms of preparing future discussion in advance, I think that it would be good to gather/check companies’ views in advance on which container is used to send “inter-UE coordination information” or “explicit request to trigger inter-UE coordination information (including information that should be conveyed on the explicit request)”. Of course, if the time permits and companies’ views can be converged, we can try to make agreement.

**I ask companies to provide inputs on the following seven questions below. The deadline for companies to provide inputs is August 25th 11:59am UTC. It would be highly appreciated if companies make comments as soon as possible.**

**Question 1**: Which option do you prefer as a container for sending **inter-UE coordination information** in Scheme 1? If a company supports a combination of more than one option, please provide the combination as well.

* Option 1: SCI format 1-A on a PSCCH transmission
* Option 2: New 2nd-stage SCI format (i.e. SCI format 2-C) on a PSSCH transmission
* Option 3: MAC CE on a PSSCH transmission
* Option 4: PC5-RRC signaling

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| **Company** | **Option(s)** | **Comment** |
| NTT DOCOMO | Option 3 | PHY signalling is not preferable due to spec impact and backward compatibility.  RRC signalling is not preferable due to the large latency |
| InterDigital | Option 3 Option 4 | We consider Option 1 is not flexible and limited in terms of payload and Option 2 relies on UE-A’s traffic. We prefer sending this information in either MAC CE or via RRC signaling. |
| Apple | Option 3 for non-preferred resources; Option 2 for preferred resources | For non-preferred resources, the payload size may be larger and the information will be valid for a longer time. Hence, Option 3 is preferred.  For preferred resources, the payload size may be limited and latency requirement may be tight. Hence, Option 2 is preferred. |
| Qualcomm | Options 2 and 3 | Latency is an important aspect when sending inter-UE coordination. It is also important to maximize the amount of information that can be conveyed in a transmission. Therefore, we think a combination of SCI-2 and MAC-CE is suitable. We’re also open to using SCI-1 in a combination with backward compatibility considerations. |
| Futurewei | Options 1, 2, 3 | We are open to options 1, 2, 3 as they may be applicable to different scenarios. Option 1 SCI format 1-A can be used for a small set of preferred or non-preferred resource set, e.g. <=3. Option 2 is more flexible with signaling. Option 3 may cover one or both resource sets with a large set size. |
| LG | Option 3 | 2nd-stage SCI format already has many fields to support TB scheduling, so the payload size for the inter-UE coordination information would be limited. |
| Sharp | Option 1 |  |
| NEC | Option 3(preferred),4 |  |
| Fujitsu | Option 3, Option 2 | Option 3 is the 1st preference. We are also open to Option 2. |
| Nokia, NSB | Option 1, 2, 3 | Option 1 is limited, as SC1 1-A may only convey 2 resources (and only within a resource selection window of 31 logical slots or for periodic traffic); however, the benefit is that it can used to indicate non-preferred resources to Rel-16 UEs, and that the specification effort is small.  On the other hand, Options 2-4 may essentially convey a resource set of arbitrary cardinality (i.e., the number of elements in the set is flexible). Option 2 may incur less signaling overhead and latency than Options 3-4, but the specification effort may be significant. In addition, Option 4 may only work for unicast. |
| Intel | Option 3 |  |
| Huawei, HiSilicon | Option 2 | Considering the processing time of PC5-RRC signaling, the processing delay can be tens of milliseconds approximately. While for MAC-CE, the processing delay would be smaller than PC5-RRC, but a few milliseconds is needed at least. Therefore, to guarantee the effectiveness of coordination procedure, the 2nd stage SCI can be the proper container of the trigger information and coordination information. |
| xiaomi | Option 2 | The processing time of MAC CE and PC5-RRC signaling is more than SCI signaling. To reduce latency caused by inter-UE coordination, the SCI is the best choice to carry coordination information. Meanwhile, if we use the first stage SCI to carry coordination information, it will cause backward compatibility issue. In addition, the number of information bits can be conveyed by 1st stage SCI is limited. Therefore, we prefer option 2 as a container. |
| Samsung | Option 2 |  |
| ZTE | Option 4 (preferred), and option 3 |  |
| Ericsson | Neither | We did not define the content of the inter-UE coordination message, so it is not feasible to decide which option is preferred. |

**Question 2**: If the answer of Q1 is Option 1, which option is preferred?

* Option A: 1st-stage SCI can be transmitted without the corresponding PSSCH in a slot
* Option B: 1st-stage SCI is transmitted together with the corresponding PSSCH in the same slot

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| **Company** | **Option(s)** | **Comment** |
| Futurewei | Both | Option A is clear, a small resource set as coordination information is sent in 1st stage SCI.  For Option B, just provide an example, 1st stage SCI can be used to transmit a small preferred resource and together with a large non-preferred resource set in MAC CE transmitted in the corresponding PSSCH in the same slot. |
| LG | Comment | New physical layer structure including multiplexing between PSCCH and PSSCH should be avoided considering the workload. |
| Sharp | Option B |  |
| Nokia, NSB | Option B | Option A would require more specification effort |
| Ericsson | Neither | See answer to Q1 |

**Question 3:** If the answer of Q1 is Option 2, which option is preferred?

* Option C: 2nd-stage SCI can be transmitted without SL-SCH on a PSSCH transmission
* Option D: 2nd-stage SCI is transmitted together with SL-SCH on the same PSSCH transmission

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| **Company** | **Option(s)** | **Comment** |
| Apple | C | It does not have to be together with SL-SCH. |
| Qualcomm |  | We’d like to clarify Option C. Does it mean that SCI-2 is rate-matched to fill REs that would’ve been used by SL-SCH or that SL-SCH can be an arbitrary payload in some cases?  Similarly for Option D, does it mean that the UE needs to wait for a data transmission to send the inter-UE coordination message or would the MAC-CE from Q1 be considered as part of SL-SCH? |
| Futurewei | Option D | The new SCI can cover the existing 2nd stage SCI. Therefore, it can be transmitted together with SL-SCH on the same PSSCH transmission |
| LG | Comment | New physical layer structure including multiplexing between 2nd SCI and SL-SCH on the same PSSCH should be avoided considering the workload. |
| Fujitsu | Option C | In our view, coordination information does not have to be transmitted only when UE-A has data to transmit. Even if UE-A has nothing to transmit, it can still transmit coordination information. |
| Nokia, NSB | Option C | We believe it is essential that inter-UE coordination scheme 1 signaling be transmitted in dedicated time resources, as shown in the figure below, to avoid collisions with data transmissions (SL-SCH). Thus, the baseline should be that scheme 1 signaling is / can be transmitted without SL-SCH. However, piggybacking of scheme 1 signaling with SL-SCH on a same PSSCH transmission should also be supported, but only if the resource for the PSSCH transmission has itself been selected by UE-B already taking into account received inter-UE coordination information from the same UE-A.    A standalone 2nd-stage SCI (e.g., new format SCI-2C) may be transmitted in the dedicated time resources, with an accompanying PSCCH (1st-stage SCI) to allow for reservation and sensing within the dedicated time resources (in order to reduce collisions among scheme 1 transmissions from different UE-As / UE-Bs). |
| Huawei, HiSilicon | Second-level discussion | This can be a second-level discussion. |
| xiaomi | C | We think the coordination information can be transmitted without user plane data. |
| Samsung | Option C |  |
| Ericsson | Neither | See answer to Q1 |

**Question 4:** If the answer of Q1 is Option 3 and/or Option 4, which option is preferred?

* Option E: Inter-UE coordination information can be multiplexed with data other than coordination information
* Option F: Inter-UE coordination information is not multiplexed with data other than coordination information

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| **Company** | **Option(s)** | **Comment** |
| NTT DOCOMO | Option E | No reason to preclude the multiplexing. |
| InterDigital | Both | We think both can be considered depending on UE-A’s traffic pattern. |
| Apple | Both |  |
| Qualcomm |  | We’d like to clarify whether Option E means that in some cases inter-UE coordination is multiplexed with data but in other cases it doesn’t have to be? |
| Futurewei | Comments | Since we choose option 3 over option 4 for the large set, we prefer option F to send the coordination information reliably to UE-B with minimum delay. But we are open to option E if there is some scenario that requires this. |
| LG | Option F | Considering the scheme 1 is inter-UE coordination in proactive manner, at least we need to develop the case where the PSSCH conveys only inter-UE coordination without multiplexing with other data.  It would not be always guaranteed that UE-B is a destination of a data transmitted by UE-A while the UE-B will receive inter-UE coordination information from UE-A. For simplicity, we can focus on Option F first. |
| NEC | Option E | Can be multiplexing include the case not |
| Fujitsu | Option E | In our view, it is not necessary to restrict that coordination information cannot be multiplexed with data. For flexibility, coordination information can be multiplexed with data if possible. Also, coordination information can be transmitted without multiplexing with data. |
| Nokia, NSB | Both |  |
| Intel | Option E |  |
| ZTE | Option E | We prefer to support Option-E to avoid additional impacts on the resource pool design in Option F |
| Ericsson | Neither | See answer to Q1 |

**Question 5:** Which option do you prefer as a container for sending **explicit request** in Scheme 1? If a company supports a combination of more than one option, please provide the combination as well.

* Option 1: SCI format 1-A on a PSCCH transmission
* Option 2: New 2nd-stage SCI format (i.e. SCI format 2-C) on a PSSCH transmission
* Option 3: MAC CE on a PSSCH transmission
* Option 4: PC5-RRC signaling

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| **Company** | **Option(s)** | **Comment** |
| NTT DOCOMO | Option 3 | Same comment as Q1. |
| InterDigital | Option 2  Option 3 | The explicit request can include information UE-A needs to determine the preferred or non-preferred resources and thus we don’t think SCI-1 is suitable. Option 2 and Option 3 are suitable both in terms of payload and flexibility. |
| Qualcomm | Option 4 | We support sending the request for preferred resource indication on PC5-RRC. In which case, the request could trigger several inter-UE coordination messages being transmitted over time. |
| Futurewei | comments | We are open to all options as each can be used for different scenarios. Also the definition of request can be interpreted different. It can be the triggering of inter-UE coordination for a long period within which UE-B can sends explicit request dynamically, e.g. with 1-bit in SCI 1-A using the reserved bit. Therefore combination of the options is possible.  SCI 1-A can be used to trigger with reserved bits. The new 2nd stage SCI is more flexible with the addition signaling. MAC CE can also be used if some information of a large size, e.g., some sensing related information, need to be delivered to UE-A. High layer configuration with PC5-RRC is also a possible solution for a long semi-static period of inter-UE coordination. |
| LG | Option 3 | 2nd-stage SCI format already has many fields to support TB scheduling, so the payload size for the inter-UE coordination information would be limited.  Considering that a number of information could be transmitted on the request, MAC CE can be considered. |
| NEC | Option 3,4 | We consider the request may contains more information related to the request itself, similar with Q7 |
| Fujitsu | Option 2, Option 3 | Similarly as in coordination information, it should be further discussed whether explicit request can be multiplexed with data or not. |
| Nokia, NSB | Option 2, Option 3 | The container for the explicit request needs to be flexible enough to convey at the very least UE-B’s traffic requirements (e.g., priority, remaining PDB, number of subchannels, resource reservation interval, etc.). It may also be beneficial to include in the explicit request a “set of preferred or non-preferred resources for UE-B’s transmission determined at UE-B”. Option 1 is unable to provide such flexibility. On the other hand, Options 3-4 may incur higher overhead and latency than Option 2. And Option 4 may only support unicast, whereas it may be beneficial for explicit requests (e.g., including UE-B’s preferences) to be received by other UEs in a group, allowing them to further optimize their resource selection. On the other hand, Option 2 may require significant specification effort, therefore Option 3 should not be ruled out at this point. |
| Intel | Option 3 |  |
| Huawei, HiSilicon | Option 2 | Considering the processing time of PC5-RRC signaling, the processing delay can be tens of milliseconds approximately. While for MAC-CE, the processing delay would be smaller than PC5-RRC, but a few milliseconds is needed at least. Therefore, to guarantee the effectiveness of coordination procedure, the 2nd stage SCI can be the proper container of the trigger information and coordination information.  In order to have a unified design, we support both explicit request and inter-UE coordination information are conveyed in new 2nd SCI. |
| xiaomi | Option 2 | The explicit request carries the parameters to determine coordination information, the first stage SCI may not have enough size to carry these parameters. Option 2 is suitable both in terms of latency and flexibility. |
| Samsung | Option 2 |  |
| ZTE | Option 4 (preferred), and option 3 |  |
| Ericsson | Option 3 or 4 | Higher layer signalling is the most appropriate |

**Question 6**: Do you agree the following proposal as container used to send expected/potential resource conflict in Scheme 2?

* PSFCH format 0 is used to convey the presence of expected/potential resource conflict
  + FFS: Details including
    - How to define the relevant PSFCH resource set
    - How to determine PSFCH resource with respect to UE-B’s reserved resource(s) indicated as expected/potential resource conflict

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| **Company** | **Yes or no** | **Comment** |
| NTT DOCOMO | Yes |  |
| InterDigital | Yes | We think it is important to study Scheme 2 timeline including time instances of UE-A conflict detection and PSFCH format 0 transmission with respect to the timing of UE-B’s reserved resource(s) indicated as expected/potential resource conflict. Also, UE processing time for UE-A conflict detection and transmission of PSFCH format 0 and UE-B reception of the PSFCH format 0 and performing resource re-selection should be considered. This study will help determine the PSFCH format 0 transmission occasion(s).  Thus, we suggest to add in FFS:   * + FFS: Details including     - How to determine PSFCH format 0 transmission occasion(s)     - How to define the relevant PSFCH resource set     - How to determine PSFCH resource with respect to UE-B’s reserved resource(s) indicated as expected/potential resource conflict |
| Apple | Yes |  |
| Qualcomm | Yes | We agree with the proposal in general but would like to add to the following FFS:  FFS How to ensure that the inter-UE coordination message is distinguishable from ACK/NACK. |
| Futurewei | Comments | We are open to the existing PSFCH format or defining a new PSFCH format using the existing PSFCH channel. |
| LG | Yes |  |
| NEC | Yes | PSFCH-like channel |
| Fujitsu | Yes | We are OK with the proposal. |
| Nokia, NSB | Yes | Possibly a new PSFCH format may be defined. |
| Huawei, HiSilicon | No, need to discuss contents first | RAN1 needs to discuss the contents of the conflict indication first, because this will impact what is a proper container.  As shown in Figure 10 in our Tdoc R1-2106478 (also copied below), the resource conflict situations may include many cases, e.g., conflict happens on one, or two, or multiple of those dynamically and/or periodically reserved resources by UE-B. RAN1 needs to discuss whether the conflict indication from UE-A needs to differentiate different conflict situations, and which resource(s) should UE-B reselect accordingly.    **Figure 10: Different resource conflict situations** |
| xiaomi |  | We are open to design a new PSFCH format, but we can also accept the FL’s proposal. |
| Samsung |  | We think that it is possible option |
| Ericsson | Yes |  |

**Question 7**: What information should be conveyed on the **explicit request** in scheme 1?

|  |  |  |
| --- | --- | --- |
| **Company** | **Information that should be conveyed on the explicit request** | **Comment** |
| InterDigital | The information related to UE-B’s SL TB including at least priority, remaining PDB, sub-channel number, resource pool, indication of Scheme 1 information. | We think there are at least two types of information UE-B should indicate in the explicit request   * The information needed for UE-A to determine a preferred or non-preferred resource set * The indication of which type of resource UE-B requests, either preferred or non-preferred. |
| Qualcomm | Priority, PDB, Number of retransmissions, number of sub-channels |  |
| Futurewei | Sensing related information, transmission periodicity, resource selection window, coordination resource pool, PDB. | Sensing related information is needed for UE-A. Other information is needed for UE-A to form a valid resource set as coordination information. Depending on the scenarios, some may be conveyed by high layers. |
| LG | TX priority,  Resource selection window location,  Non-monitored slot(s), destination ID to be used for UE-B’s transmission | TX priority can be used to determine RSRP threshold to generate inter-UE coordination.  Resource resection window can efficiently reduce the inter-UE coordination information.  UE-A at least use its own sensing results in non-monitored slot(s) of UE-B.  With the destination ID in the request, the UE-A could know whether the received request is valid for the UE-A. In other words, the UE-A can send inter-UE coordination information when the destination ID on the request is the destination ID which UE-A tries to receive. In case of unicast, it is source ID of UE-A.  Depending on the signalling format of the preferred resource set, it can be further considered to include TX resource reservation period, the number of sub-channels, (max) number of retransmissions, whether SL HARQ-ACK feedback enabled or not, and resource reselection counter value as well. |
| Sharp | A time window within which the preferred / non-preferred resources are confined.  Granularity of a “resource”. |  |
| NEC | At least sensing related information |  |
| Fujitsu | Priority, X%, size of Rxy, selection window, remaining PDB | Generally, the information used for UE-B’s resource (re)selection should be conveyed in the explicit request. |
| Nokia, NSB | 1. UE-B’s traffic requirements (e.g., priority, remaining PDB, number of subchannels, resource reservation interval, etc.) 2. Reserved resource for UE-A’s transmission of inter-UE coordination information to UE-B 3. Number of preferred resources to be reported by UE-A in its inter-UE coordination message (when applicable)   Set of preferred or non-preferred resources for UE-B’s transmission determined at UE-B |  |
| Huawei, HiSilicon | Sub-channel size,  Resource selection window,  Priority,  Period,  UE-A ID,  UE-B ID | The sub-channel size, priority, period and resource selection window reflect UE-B’s transmission requirement and need to be included in the explicit request to help UE-A to determine the coordination resources.  The UE-A ID and UE-B ID are used to determine whether the information is targeted for itself by detecting these two IDs. |
| Xiaomi | The information related with UE-B’s resource selection, at least including following parameter:  1)L 1 priority of UE-B’s data packet  2)UE-B’s resource selection window  3)Remaining PDB of UE-B  4）maximum number of reported resources | UE-A should perform resource sensing and determine coordination information with these information which are provided by UE-B rather than used by itself, therefore, UE-A provides more accurate coordination information according to UE-B’s requirement. |
| Samsung | See comment | At least trigger to trigger UE-A to send inter-UE co-ordination information, other information can be further discussed. |
| ZTE | At least the information relate to the requirement s from UE-B to assist the resource determination at UE-A. Also the indication on the resource type for reporting should also be delivered. | For the requirement, it can be the information related to UE-B’s SL TB including at least priority, remaining PDB, sub-channel number, resource pool, indication of Scheme 1 information. |
| Ericsson | * Details of the inter-UE coordination message * Priority and number of subchannels of the transmission * PDB or time to report for the inter-UE coordination message | Nevertheless, we did not define any details of the explicit request message, so it is difficult to decide on its content at this point in time. |

1. **Summary of contributions**

* Type(s) of inter-UE coordination information
  + In scheme 1,
    - Preferred and non-preferred resource set
      * [Huawei,1] [Mitsubishi,3] [Spreadtrum,5] [CATT,9] [Fraunhofer,10] [Fujitsu,11] [NEC,13] [Panasonic,18] [Qualcomm,19] [CMCC,20] [ETRI,21] [MediaTeK,22] [LG,23] [Intel,24] [Apple,26] [ZTE,27] [Sharp,28] [DCM,29] [CEWiT,35] [Xiaomi,30] [Lenovo/MoTM, 14] (21 companies)
    - Preferred resource set only
      * [vivo,4] [Samsung,8] (2 companies)
    - Non-preferred resource set only
      * [OPPO,17] [Ericsson,36] (2 companies)
  + In scheme 2,
    - Presence of potential resource conflict and detected resource conflict
      * [Fraunhofer,10] [Fujitsu,11] [Futurewei,12] [NEC,13] [Qualcomm,19] [ETRI,21] [Apple,26] [DCM,29] [Xiaomi,30] [CEWiT,35] [Ericsson,36] [Lenovo/MoTM, 14] (12 companies)
    - Presence of potential resource conflict only
      * [Mitsubishi,3] [vivo,4] [LG,23] [Samsung,8] [CATT,9] [Panasonic,18] [ZTE,27] [Sharp,28] [InterDigital,33] (9 companies)
* Details of inter-UE coordination signaling
  + In scheme 1,
    - Sensing-related information
      * [Fujitsu,11] [Apple,26] [InterDigital,33] [ASUSTeK,34]
    - Indicator to indicate either preferred resource or non-preferred resource
      * [Fraunhofer,10]
    - Purpose of the set of resources (e.g. avoiding half-duplex problem or high interference resources)
      * [LG,23]
    - Target UE-B’s transmission to use inter-UE coordination information
      * [Fraunhofer,10] [LG,23]
    - Reference feedback timestamp
      * [Intel,24]
    - Location information
      * [InterDigital,33]
  + In scheme 2,
    - Indication of whether resource conflict is due to either half-duplex or resource collision
      * [LG,23] [Intel,24] [InterDigital,33]
    - Time location of the resource conflict
      * [Zhejiang Lab,6] [Intel,24]
    - Indication of whether half-duplex in reception of UE-A
      * [Intel,24]
* Condition(s) for UEs to be UE-A(s)/UE-B(s) for inter-UE coordination
  + For scheme 1,
    - UE(s) among the intended receiver(s) of UE-B can be a UE-A
      * The intended receiver(s) is the destination UE(s) of a TB transmitted by UE-B
        + [Mitsubishi,3] [vivo,4] [Spreadtrum,5] [Samsung,8] [CATT,9] [Fujitsu,11] [Futurewei,12] [NEC,13] [OPPO,17] [Qualcomm,19](for preferred resource) [CMCC,20] [LG,23] [Intel,24] [ZTE,27] [Sharp,28] [DCM,29] [Xiaomi,30] [InterDigital,33] [Ericsson,36] [Lenovo/MoTM, 14] (20 companies)
    - Any UE can be a UE-A
      * [Huawei,1] [vivo,4] [Spreadtrum,5] [Fraunhofer,10] [Futurewei,12] [Panasonic,18] [Qualcomm,19](for non-preferred resource) [CMCC,20] [MediaTeK,22] [LG,23] [Intel,24] [InterDigital,33] [Lenovo/MoTM, 14] (13 companies)
      * Additional condition
        + UE-A is RX UE of the PSSCH of which resource(s) is conflicted with UE-B’s resource [Fujitsu,11]
        + Radio or geometric distance between UEs are close [Ericsson,36]
        + Negotiation between UEs to be UE-A and/or UE-B [vivo,4] [Samsung,8] [LG,23]
        + Semi-persistent transmissions are enabled for a resource pool [Intel,24]
        + Provided by its own higher layer to be UE-A and/or UE-B

[Huawei,1] [Fraunhofer,10] [CMCC,20] [LG,23]

* + - * + Pre-configuration and UE-capability

[Panasonic,18]

* + For scheme 2,
    - UE(s) among the intended receiver(s) of UE-B can be a UE-A
      * The intended receiver(s) is the destination UE(s) of a TB transmitted by UE-B
      * [Mitsubishi,3] [vivo,4] [Spreadtrum,5] [Samsung,8] [CATT,9] [Fujitsu,11] [Futurewei,12] [NEC,13] [OPPO,17] [LG,23] [Intel,24] [Apple,26] [Sharp,28] [DCM,29] [InterDigital,33] [Lenovo/MoTM, 14] (16 companies)
    - Any UE can be a UE-A
      * [Huawei,1] [Spreadtrum,5] [Fraunhofer,10] [Fujitsu,11] [Futurewei,12] [Panasonic,18] [Qualcomm,19] [MediaTeK,22] [LG,23] [Intel,24] [DCM,29] [Xiaomi,30] [InterDigital,33] [Ericsson,36] (14 companies)
      * Additional conditions
        + UE-A is RX UE of the PSSCH of which resource(s) is conflicted with UE-B’s resource [Fujitsu,11] [DCM,29] [Lenovo/MoTM, 14]
        + Radio or geometric distance between UEs are close [Intel,24] [Ericsson,36]
        + Negotiation between UEs to be UE-A and/or UE-B [LG,23]
        + Provided by higher layer to be UE-A and/or UE-B

[Huawei,1] [Fraunhofer,10] [LG,23]

* + - * + Pre-configuration and UE-capability

[Panasonic,18]

* Information to generate inter-UE coordination information
  + In scheme 1,
    - Other UEs’ reserved resources or candidate resource set based on UE-A’s sensing result
      * [Huawei,1] [vivo,4] [Samsung,8] [CATT,9] [Fraunhofer,10] [Fujitsu,11] [Futurewei,12] [NEC,13] [Lenovo,14] [OPPO,17] [CMCC,20] [ETRI,21] [LG,23] [Intel,24] [Kyocera,25] [Apple,26] [ZTE,27] [DCM,29] [Xiaomi,30] [InterDigital,33] (20 companies)
      * Details
        + Sensing operation is performed based on UE-B’s traffic requirements if available [Huawei,1] [vivo,4] [Samsung,8] [NEC,13] [Lenovo,14] [OPPO,17] [LG,23] [ZTE,27]
        + Estimated SINR is used instead of RSRP measurement [Fujitsu,11]
        + UE-A’s sensing results in non-monitored slot(s) of UE-B [Fujitsu,11] [LG,23]
        + RSRP measurement is within a certain range [LG,23]
        + Periodic transmissions [Kyocera,25]
    - Coordination information received from other UEs
      * [Samsung,8] [Futurewei,12] [Qualcomm,19] [LG,23] [Apple,26] (5 companies)
      * Details
        + Resources to be used for other UE’s initial transmission [Qualcomm,19]
        + Non-preferred resources identified by scheme 2 [Samsung,8]
        + Preferred or non-preferred resources for UE-B’s transmission [LG,23]
    - Resource set for other UE-B’s transmissions is selected by UE-A
      * [Huawei,1] [vivo,4] [CATT,9] [DCM,29] (4 companies)
    - For the case where UE-A is intended receiver of UE-B’s transmission
      * UE-A’s NR SL resources selected for its transmission(s) of TB(s)
        + [Huawei,1] [CATT,9] [Futurewei,12] [NEC,13] [Lenovo,14] [Qualcomm,19] [CMCC,20] [LG,23] [Intel,24] [Kyocera,25] [Apple,26] [DCM,29] (12 companies)
        + Details

Only resources to be used for initial transmisison [Qualcomm,19]

* + - * UE-A’s scheduled and/or configured resources for UL
        + [Nokia,2] [Futurewei,12] [NEC,13] [LG,23] [Intel,24] [Kyocera,25] [Apple,26] [DCM,29] (8 companies)
      * LTE SL transmission and/or reception of UE-A
        + [CATT,9] [Futurewei,12] [LG,23] [Kyocera,25] [DCM,29] (5 companies)
      * PSFCH transmission and/or reception of UE-A
        + [Apple,26] [DCM,29] (2 companies)
      * Non-active time
        + [Kyocera,25]
  + In scheme 2,
    - Other UEs’ reserved resources based on UE-A’s sensing result
      * [Huawei,1] [Nokia,2] [vivo,4] [Fraunhofer,10] [Futurewei,12] [NEC,13] [OPPO,17] [ETRI,21] [MediaTeK,22] [LG,23] [Intel,24] [Apple,26] [DCM,29] (13 companies)
      * Details
        + UE-A’s sensing results in non-monitored slot(s) of UE-B [Huawei,1] [LG,23]
        + RSRP measurement is within a certain range [LG,23]
        + Source ID/destination ID of other UE’s resource [Intel,24]
    - Other UEs’ existing transmission (i.e. used resources) based on UE-A’s sensing result
      * [Nokia,2] [Fraunhofer,10] [NEC,13] [Intel,24] [Apple,26] [DCM,29] (6 companies)
      * Details
        + Source ID/destination ID of other UE’s resource [Intel,24]
    - Coordination information received from other UEs
      * [Samsung,8] [Fraunhofer,10] [Futurewei,12] [LG,23] [Apple,26] (5 companies)
      * Details
        + Preferred or non-preferred resources for UE-B’s transmission [Samsung,8] [LG,23]
    - SL resources indicated by UE-B’s SCI
      * [vivo,4] [Samsung,8] [OPPO,17] [LG,23] [Intel,24] [Apple,26] (6 companies)
    - For the case where UE-A is intended receiver of UE-B’s transmission
      * UE-A’s NR SL resources selected for its transmission(s) of TB(s)
        + [Nokia,2] [Futurewei,12] [NEC,13] [LG,23] [Apple,26] [DCM,29] (6 companies)
      * UE-A’s scheduled/configured resources for UL
        + [Nokia,2] [vivo,4] [Futurewei,12] [NEC,13] [LG,23] [Apple,26] [DCM,29] (7 companies)
      * LTE SL transmission and/or reception of UE-A
        + [vivo,4] [Futurewei,12] [LG,23] [DCM,29] (4 companies)
      * PSFCH transmission and/or reception of UE-A
        + [vivo,4] [Apple,26] [DCM,29] (3 companies)
  + Further consideration on the processing time budget for generating and transmitting inter-UE coordination information from UE-A
    - [vivo,4] [Fraunhofer,10] [Futurewei,12] [Lenovo,14] [LG,23] [Apple,26] (6 companies)
* Condition(s) for UE-A to send inter-UE coordination information to UE-B
  + In scheme 1,
    - UE-A receives the request from UE-B
      * [Huawei,1] [Nokia,2] [vivo,4] [Spreadtrum,5] [Sony,7] [Samsung,8] [CATT,9] [Fraunhofer,10] [Fujitsu,11] [Futurewei,12] [NEC,13] [Lenovo,14] [OPPO,17] [Panasonic,18] [CMCC,20] [ETRI,21] [LG,23] [Intel,24] [Kyocera,25] [Apple,26] [ZTE,27] [Sharp,28] [Xiaomi,30] [ITL,31] [InterDigital,33] [CEWiT,35] (26 companies)
      * Details of the request signaling
        + Information

A set of preferred or non-preferred resources determined at UE-B [Nokia,2]

UE-B’s resource (re)selection procedure-related parameters [Huawei,1] [vivo,4] [CATT,9] [Fujitsu,11] [OPPO,17] [LG,23] [Xiaomi,30] [InterDigital,33] (8 companies)

Resource reserved for UE-A’s transmission with coordination information [Nokia,2]

Type of coordination information to be requested [Fraunhofer,10] [ZTE,27]

* + - * + Container

PSFCH-like format [ETRI,21] [Kyocera,25]

SCI [Huawei,1] [Nokia,2] [vivo,4] [Futurewei,12] [Lenovo,14] [Kyocera,25]

MAC CE [vivo,4] [Lenovo,14] [LG,23] [ZTE,27]

PC5-RRC signaling [ZTE,27]

* + - * + Further consideration on how UE-B to transmit the request [Nokia,2] [vivo,4] [Xiaomi,30]
    - UE-A’s higher layer decision [Futurewei,12] [NEC,13] [LG,23]
    - Based on (pre)configured periodicity [Huawei,1] [vivo,4] [LG,23] [CEWiT,35]
    - Based on presence of resource conflict [Spreadtrum,5] [Sony,7] [Fraunhofer,10] [OPPO,17] [LG,23] [ITL,31] [InterDigital,33]
    - Based on RSRP measurement and/or distance at UE-A side [Mitsubishi,3] [CMCC,20] [Xiaomi,30] [ITL,31]
    - Based on the SL HARQ-ACK states [NEC,13] [Lenovo,14] [ITL,31]
  + In scheme 2,
    - UE-A receives the request from UE-B
      * [Samsung,8] [CATT,9] [Panasonic,18] [Intel,24] [Sharp,28]
      * Details of the request signaling
        + Container

SCI [CATT,9] [Intel,24]

* + - Based on presence of resource conflict [vivo,4] [Spreadtrum,5] [Sony,7] [CATT,9] [Fraunhofer,10] [Lenovo,14] [Panasonic,18] [LG,23] [Intel,24] [Apple,26] [Xiaomi,30] [InterDigital,33]
      * Further consideration on checking condition to decide resource conflict [Fujitsu,11] [Lenovo,14] [LG,23] [Intel,24] [Apple,26] [Xiaomi,30]
        + Portion of overlapping [Fujitsu,11] [Lenovo,14] [LG,23]
        + RSRP measurement [Lenovo,14] [LG,23] [Intel,24]
        + Location of UE-B and other UEs [LG,23] [Intel,24] [Xiaomi,30]
        + Whether this transmission is UE-B’s last retransmission or not [Apple,26]
        + Whether or not L2-IDs are achieved [Lenovo,14] [LG,23]
    - Based on the SL HARQ-ACK states [Fujitsu,11] [Futurewei,12] [Lenovo,14]
* Container used for carrying coordination information
  + In scheme 1,
    - 1st SCI format
      * [Fujitsu,11] [Futurewei,12] [CAICT,15] [Hyundai,16] [CMCC,20] [MediaTeK,22] [Sharp,28]
    - 2nd SCI format
      * [Huawei,1] [vivo,4] [Spreadtrum,5] [Sony,7] [Samsung,8] [Fraunhofer,10] [Fujitsu,11] [Futurewei,12] [Hyundai,16] [OPPO,17] [CMCC,20] [Apple,26] [Xiaomi,30] [CEWiT,35]
    - MAC CE
      * [vivo,4] [Spreadtrum,5] [Fujitsu,11] [NEC,13] [Panasonic,18] [LG,23] [Intel,24] [ZTE,27] [DCM,29] [InterDigital,33] [CEWiT,35]
    - PC5-RRC signaling
      * [NEC,13] [OPPO,17] [ZTE,27] [InterDigital,33] [CEWiT,35] [Ericsson,36]
    - PSFCH-like signaling
      * [NEC,13] [OPPO,17]
    - Details
      * Whether or how to Multiplex with data
        + SCI transmission without SL-SCH [Huawei,1] [Fraunhofer,10] [Qualcomm,19]
        + Multiplexing without data other than coordination information [Fraunhofer,10] [Qualcomm,19] [LG,23]
        + Multiplexing with data other than coordination information[Fraunhofer,10] [Intel,24]
      * Cast type of inter-UE coordination signaling
        + Unicast [Huawei,1] [Spreadtrum,5]
        + Groupcast [Nokia,2] [OPPO,17]
        + Broadcast
  + In scheme 2,
    - PSFCH-like format
      * [Huawei,1] [Nokia,2] [vivo,4] [Zhejiang Lab,6] [Sony,7] [Fraunhofer,10] [Fujitsu,11] [Futurewei,12] [NEC,13] [CAICT,15] [Hyundai,16] [Panasonic,18] [Qualcomm,19] [MediaTeK,22] [LG,23] [Intel,24] [Apple,26] [DCM,29] [Xiaomi,30] [InterDigital,33] [Ericsson,36]
      * Details
        + Unused PSFCH resources for SL HARQ-ACK feedback are used [Huawei,1] [Lenovo,14]
        + Unused PSFCH resources for SL HARQ-ACK feedback Option 2 can be used [Nokia,2]
        + Timing of the PSFCH-like channel

With respect to the time location of the potential conflicted PSSCH resource

[vivo,4] [Fraunhofer,10] [LG,23] [DCM,29]

With respect to the time location of a SCI indicating PSSCH resource with potential resource conflict

[Apple,26]

* + - * + NACK transmission of UE-A on behalf of the intended receiver for detected resource conflict [Lenovo,14] [Qualcomm,19] [Intel,24]
        + More than 1 bits can be conveyed on a PSFCH-like channel [Intel,24]
      * Further consideration prioritization rule for PSFCHs for SL HARQ-ACK feedback and inter-UE coordination [Fujitsu,11] [Lenovo,14] [Intel,24]
    - 1st SCI format
      * [Sharp,28]
    - 2nd SCI format
      * [Samsung,8]
    - MAC CE
      * [Futurewei,12]
  + Further consideration on whether shared or dedicated resource is used for inter-UE coordination signaling [Nokia,2] [Qualcomm,19] [Kyocera,25]
* UE-B’s behavior upon receiving inter-UE coordination information from UE-A
  + In scheme 1,
    - Option 1-1: UE-B’s resource(s) to be used for its transmission resource (re)-selection is based on both UE-B’s sensing result (if available) and the received coordination information
      * [Huawei,1] [Mitsubishi,3] [vivo,4] [Samsung,8] [CATT,9] [Fraunhofer,10] [Fujitsu,11] [Futurewei,12] [NEC,13] [Lenovo,14] [Hyundai,16] [OPPO,17] [Qualcomm,19] [CMCC,20] [ETRI,21] [MediaTeK,22] [LG,23] [Intel,24] [Kyocera,25] [Apple,26] [ZTE,27] [Sharp,28] [DCM,29] [Xiaomi,30] [Convida,32] [InterDigital,33] [CEWiT,35] [Ericsson,36]
      * Details
        + For preferred resource set, use intersection of preferred resource set and UE-B’s candidate resource set [Huawei,1] [vivo,4] [Samsung,8] [Fraunhofer,10] [Lenovo,14] [LG,23]
        + For preferred resource set, use union of preferred resource set and UE-B’s candidate resource set [vivo,4]
        + For non-preferred resource set, exclude the non-preferred resource set from UE-B’s candidate resource set [Huawei,1] [CATT,9] [Lenovo,14] [LG,23]
        + For non-preferred resource set, reselect UE-B’s transmission resource overlapping with the non-preferred resources [Lenovo,14] [OPPO,17] [CMCC,20] [MediaTeK,22] [LG,23] [Apple,26] [InterDigital,33]
        + Inter-UE coordination information is used in resource (re)selection procedure at MAC layer [ZTE,27]
      * Further clarification when UE-B has no available sensing results [LG,23]
    - Option 1-2: UE-B’s resource(s) to be used for its transmission resource (re)-selection is based only on the received coordination information
      * [Huawei,1] [vivo,4] [Fraunhofer,10] [Futurewei,12] [NEC,13] [Hyundai,16] [Qualcomm,19] [CMCC,20] [ETRI,21] [MediaTeK,22] [Apple,26] [Convida,32] [InterDigital,33]
      * Condition
        + When UE-A is a leading UE of a UE group of UE-B [Huawei,1] [vivo,4]
        + When UE-B has no sensing results [ETRI,21] [InterDigial,32]
        + When UE-A is the intended receiver of the UE-B’s transmission [MediaTeK,22]
      * Further clarification when UE-B has no available sensing results [LG,23]
  + In scheme 2,
    - Option 2-1: UE-B can determine resource(s) to be re-selected based on the received coordination information
      * [vivo,4] [Samsung,8] [CATT,9] [Fujitsu,11] [NEC,13] [OPPO,17] [Qualcomm,19] [ETRI,21] [MediaTeK,22] [LG,23] [Intel,24] [Apple,26] [Sharp,28] [DCM,29] [Xiaomi,30] [Convida,32] [InterDigital,33] [Ericsson,36]
      * Details
        + Exclude resource and perform resource reselection [LG,23] [Intel,24]

When the type of resource conflict is resource collision, UE-B assumes that its reserved time-and-frequency PSSCH resources associated with resource conflict is non-preferred resources for UE-B’s transmission [LG,23]

When the type of resource conflict is half-duplex problem, UE-B assumes that all the frequency resources in a slot associated with the resource conflict is non-preferred resources for UE-B’s transmission [LG,23]

* + - * + Continue transmission on reserved resource [Intel,24]
        + Skip transmission on reserved resource [Intel,24]
    - Option 2-2: UE-B can determine a necessity of retransmission based on the received coordination information
      * [Fraunhofer,10] [Fujitsu,11] [NEC,13] [Qualcomm,19] [ETRI,21] [Intel,24] [Apple,26] [DCM,29] [Xiaomi,30] [Convida,32] [Ericsson,36]
      * Condition
        + Groupcast with SL HARQ-ACK feedback option 1 is enabled [Fujitsu,11] [Apple,26] [DCM,29] [Xiaomi,30]
      * Details
        + Increase amount of intended (re)transmission or increment max number of retransmissions [Intel,24]
  + Further consideration whether using the coordination information is mandated or not [Futurewei,12] [DCM,29] [Convida,32]
* Validity check for the inter-UE coordination information received by UE-B
  + In scheme 1,
    - Based on PDB [Samsung,8]
    - Based on whether the indicated resource set is inside UE-B’s selection window [Fraunhofer,10] [LG,23]
    - Based on RSRP values conveyed by coordination information [Fraunhofer,10]
    - Based on distance between UE-A and UE-B [Samsung,8] [Fraunhofer,10] [Fujitsu,11]
    - Based on RSRP measured by coordination information signaling [Samsung,8] [Fraunhofer,10] [Fujitsu,11] [LG,23]
    - Based on the target of the coordination information and/or the parameters of PSCCH/PSSCH to be transmitted by UE-B [Samsung,8] [Fraunhofer,10] [LG,23]
    - Based on the candidate resource ratio [LG,23]
    - Based on the aging time with respect to the reference feedback timestamp [Intel,24]
  + In scheme 2,
    - Based on PDB [Samsung,8]
    - Based on distance between UE-A and UE-B [Samsung,8] [Fraunhofer,10]
    - Based on the target of the coordination information and/or the parameters of PSCCH/PSSCH to be transmitted by UE-B [Samsung,8] [Fraunhofer,10] [LG,23]
* Others
  + Further consideration of indication to UE-A of ID(s) used by UE-B and the intended receiver(s) of UE-B’s transmission [Nokia,2]
  + Further consideration on relaying the received SCI [Nokia,2]
  + Further consideration on having preferred resources with different preference levels [Samsung,8]
  + Send SL to RAN2 to ask the feasibility of hierarchical mechanism [Panasonic,18]
  + Further consideration on the impact on Rel-16 UE sharing the same resource pool with UEs using inter-UE coordination operation [Panasonic,18]
  + Further consideration on the possibility that UE-B changes PSCCH/PSSCH parameters (e.g. source ID, destination ID, whether SL HARQ-ACK feedback enabled or disabled) period-to-period [LG,23]
  + Further consideration on SL DRX to determine “A set of resources” at UE-A side [ASUSTeK,34]
  + Further consideration of that non-sensing UE uses scheme 2 [Ericsson,36]

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34. R1-2108036 On inter-UE coordination for Mode 2 enhancement InterDigital, Inc.
35. R1-2108097 Discussion on V2X mode 2 enhancements ASUSTeK
36. R1-2108115 Feasibility and benefits for NR Sidelink mode 2 enhancements CEWiT
37. R1-2108137 Feasibility and benefits of mode 2 enhancements for inter-UE coordination Ericsson
38. **Appendix**

**12.1 Conclusions made in RAN1#103-e meeting**

* ***Conclusion****:*
  + *The schemes of inter-UE coordination in Mode 2 are categorized as being based on the following types of “A set of resources” sent by UE-A to UE-B:*
    - *UE-A sends to UE-B the set of resources preferred for UE-B’s transmission*
      * + *e.g., based on its sensing result*
    - *UE-A sends to UE-B the set of resources not preferred for UE-B’s transmission*
      * + *e.g., based on its sensing result and/or expected/potential resource conflict*
    - *UE-A sends to UE-B the set of resource where the resource conflict is detected*
    - *FFS: details of resource conflict, e.g., including type of resource conflict*
    - *FFS: details of sensing operation at UE-A side*
    - *FFS: which type(s) of resource set information is(are) beneficial/feasible to which cast type(s)*
    - *Note: these different types may be used in combination with each other*
  + *From RAN1 perspective, further study on the feasibility/benefit of inter-UE coordination is required*
  + *Send an LS to RAN plenary*
    - *Final LS in R1-2009841*
* ***Conclusion****:*
  + *For the schemes of inter-UE coordination identified as feasible/beneficial, at least the following aspects are further discussed.*
    - *How/when UE-A determines the contents of ”A set of resources”, including consideration of UL scheduling*
    - *When UE-A sends ”A set of resources” to UE-B, including which UE(s) sends it*
    - *How UE-A and UE-B are determined*
    - *How UE-A sends ”A set of resources” to UE-B, including container used for carrying it, implicitly or explicitly or both*
    - *How/when/whether UE-B receives “A set of resources” and takes it into account in the resource selection for its own transmission*
    - *How/whether to define the relationship between support/signaling of inter-UE coordination and cast type*

**12.2 Conclusions made in RAN1#104-e meeting**

* ***Conclusion****:*
  + *RAN1 concludes that the inter-UE coordination in Mode 2 is feasible, and is beneficial (e.g., reliability, etc.) compared to Rel-16 Mode 2 RA, and thus recommends specification of the feature.*
    - *The detailed observations can be found in the attachment of the LS*
* *Draft LS in R1-2102165, along with the attachment R1-2102166, is approved (with a typo fix)* 
  + *Final LS in R1-2102168*

**12.3 Agreements made in RAN1#104bis-e meeting**

* *Agreement:*
  + *Support the following schemes of inter-UE coordination in Mode 2:*
    - *Inter-UE Coordination Scheme 1:* 
      * *The coordination information sent from UE-A to UE-B is the set of resources preferred and/or non-preferred for UE-B’s transmission*
        + *FFS details including a possibility of down-selection between the preferred resource set and the non-preferred resource set, whether or not to include any additional information other than indicating time/frequency of the resources within the set in the coordination information*
      * *FFS condition(s) in which Scheme 1 is used*
    - *Inter-UE Coordination Scheme 2:* 
      * *The coordination information sent from UE-A to UE-B is the presence of expected/potential and/or detected resource conflict on the resources indicated by UE-B’s SCI*
        + *FFS details including a possibility of down-selection between the expected/potential conflict and the detected resource conflict*
      * *FFS condition(s) in which Scheme 2 is used*
* *Agreement:*
  + *Study further to determine the conditions for UEs to be UE-A(s)/UE-B(s) for inter-UE coordination:*
    - *Details include applicable scenario(s)/inter-UE coordination scheme(s)*
    - *E.g., only UE(s) among the intended receiver(s) of UE-B can be a UE-A, any UE can be a UE-A, high-layer configured, etc.*
      * *Including the possibility of being subject to certain conditions and/or capability*
* *Agreement:*
  + *When UE-B receives the inter-UE coordination information from UE-A, consider at least one of the following options (with details FFS including possibly down-selecting/merging one or more of the options below, applicable scenario(s)/condition(s) for each option, UE behavior) for UE-B’s to take it into account in the resource (re)-selection for its own transmission*
    - *For scheme 1:*
      * *Option 1-1: UE-B’s resource(s) to be used for its transmission resource (re)-selection is based on both UE-B’s sensing result (if available) and the received coordination information*
      * *Option 1-2: UE-B’s resource(s) to be used for its transmission resource (re)-selection is based only on the received coordination information*
      * *Option 1-3: UE-B’s resource(s) to be re-selected based on the received coordination information*
      * *Option 1-4: UE-B’s resource(s) to be used for its transmission resource (re)-selection is based on the received coordination information*
    - *For scheme 2:*
      * *Option 2-1: UE-B can determine resource(s) to be re-selected based on the received coordination information*
      * *Option 2-2: UE-B can determine a necessity of retransmission based on the received coordination information*

**12.4 Agreements made in RAN1#106-e meeting**

* *Agreement:*
  + *For scheme 1, the following inter-UE coordination information signalling from UE-A is supported. FFS details including condition(s)/scenario(s) under which each information is enabled to be sent by UE-A and used by UE-B.*
    - *Set of resources preferred for UE-B’s transmission*
    - *Set of resources non-preferred for UE-B’s transmission*
* *Agreement:*
  + *For scheme 2, the following inter-UE coordination information signalling from UE-A is supported. FFS details including condition(s)/scenario(s) under which each information is enabled to be sent by UE-A and used by UE-B*
    - *Presence of expected/potential resource conflict on the resources indicated by UE-B’s SCI*
      * *FFS: UE behaviour when the presence of expected/potential resource conflict is detected by the transmitter*
    - *FFS: Whether to additionally support the presence of detected resource conflict on the resources indicated by UE-B’s SCI*
* *Agreement:*
  + *In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination information transmission triggered by an explicit request in Mode 2:*
    - *A UE that sends an explicit request for inter-UE coordination information can be UE-B*
    - *A UE that received an explicit request from UE-B and sends inter-UE coordination information to the UE-B can be UE-A*
    - *(Working assumption) At least a destination UE of a TB transmitted by UE-B can be UE A*
    - *The above feature can be enabled or disabled or controlled by (pre-)configuration*
      * *FFS: Details on how to support this, including (pre-)configuration signaling granularity*
    - *FFS: Additional details and conditions on UE-A and UE-B*
  + *(Working Assumption) In scheme 1, the following is supported for UE(s) to be UE-A(s)/UE-B(s) in the inter-UE coordination information transmission triggered by a condition other than explicit request reception in Mode 2:*
    - *A UE that satisfies the condition mentioned in the main bullet and sends inter-UE coordination information is UE-A*
    - *A UE that received inter-UE coordination information from UE-A and uses it for resource (re-)selection is UE-B*
    - *The above feature can be enabled or disabled or controlled by (pre-)configuration*
      * *FFS: Details on how to support this, including (pre-)configuration signaling granularity*
    - *FFS: Additional details and conditions on UE-A and UE-B*