**3GPP TSG RAN meeting #95e RP-220945**

**Electronic Meeting, March 17-23, 2022**

## Status Report to TSG

**Agenda item:** 9.5.1.3

|  |  |
| --- | --- |
| **WI / SI Name** |  |
| included in this status report | Study Item: No | Core part: Yes | Performance part:Yes | Testing part:No |
| **Acronym** | NR\_SL\_enh |
| **Unique ID** | 860042 |
| **TSG Tdoc of latest approved WI/SI description (if any)** | RP-202846 |
| **Target Completion Date****(indicate if changed)** | Study Item: mm/yyyy | Core part: 03/2022 | Performance part: 09/2022 | Testing part: mm/yyyy |
| **Overall Completion level** | Study Item: xx % | Core part: 100% | Performance Part: 10% | Testing part: xx% |

Note: Overall completion level percentage numbers should use one of the colors below:

* xx%: Normal progress, no RAN plenary action needed
* xx%: Progress behind schedule, may need RAN plenary intervention. If so, SR should clearly define requested action
* xx%: Progress critically behind, RAN plenary shall intervene. SR should define requested action

**Source:**

|  |  |
| --- | --- |
| **Leading WG** | RAN WG1 |
| **Rapporteur** | **Name** | Seungmin Lee |
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## 1 Work plan related evaluation

|  |  |
| --- | --- |
| **Do you want to modify the time budget for this WI/SI compared to what was endorsed at the last RAN meeting?** | No |

*If you answered No: Then please remove the Excel file from the zip file of this status report.*

*If you answered Yes: Then please fill out the attached Excel template to request a modification of the time budgets for your WI /SI. The Excel table has to be filled out for all affected RAN WGs and up to the target date of the WI/SI. The basis are the endorsed time budgets of the last RAN meeting. Please highlight all changes of the values.
 One time unit (TU) corresponds to ~ 2 hours in the meeting.
 If this status report covers a WI with Core and Performance part, then please have one line for each in the attached Excel table.
 Note: If no Excel table is attached, then this means no time budget change.*

**Additional explanations/motivations for the time budget changes in the attached Excel table:**

## 2. Detailed progress in RAN WGs since last TSG meeting (for all involved WGs)

 NOTE: Agreements and Open issues impacted cross-TSG aspects shall be explicitly highlighted

## 2.1 RAN1

#### 2.1.1 Agreements

**RAN1#107bis-e**:

Regarding resource allocation for power saving, the following agreements/working assumptions were made:

* Agreements on details of SL CBR measurement when a UE performs partial sensing (including SL DRX operation)
	+ When UE is configured to perform partial sensing by a UE higher layer (including when SL DRX is configured), SL RSSI is measured in slots where the UE performs partial sensing and PSCCH/PSSCH reception over the SL CBR measurement window defined in Rel-16. The calculation of SL CBR is limited within the slots for which the SL RSSI is measured.
		- If the number of SL RSSI measurement slots is below a (pre-)configured threshold, a (pre-)configured SL CBR value is used.
* Agreements/working assumptions on details of re-evaluation and pre-emption checking for aperiodic transmission
	+ When UE is triggered to perform re-evaluation and pre-emption checking for aperiodic transmission (Prsvp\_TX=0) in slot n,
		- The candidate resource set (SA) is initialized to the remaining Y’ candidate slots that starts from slot $t\_{yi}^{SL}$ and ends at the last slot of the Y’ candidate slots.
			* $t\_{yi}^{SL}$ is the first candidate slot after slot n+T3.
		- UE may perform PBPS for periodic sensing occasions after the resource (re)selection when sl-MultiReserveResource is enabled for the mode 2 Tx resource pool
			* It is up to UE implementation
		- UE performs CPS starting from at least M consecutive logical slots earlier than $t\_{yi}^{SL}$ to $T\_{proc,0}^{SL}+T\_{proc,1}^{SL}$ slots earlier than $t\_{yi}^{SL}$.
			* FFS: When the minimum M slots for CPS cannot be guaranteed,
		- All available sensing results not earlier than n–T0 for the resource pool indicated by higher layer are applied for re-evaluation and pre-emption checking procedures
	+ When UE performs at least contiguous partial sensing in a mode 2 Tx pool for a resource (re)selection procedure and re-evaluation/pre-emption checking triggered by aperiodic transmission (Prsvp\_TX=0) in slot n,
		- For minimum size M of the CPS monitoring window [n+TA, n+TB]:
			* By default, M is 31 unless (pre-)configured with another value
			* The range of (pre-)configured M is from 0 (working assumption) to 30
* Agreements on details of resource selection window for a Tx pool with periodic reservation for another TB is disabled
	+ When UE performs only contiguous partial sensing (CPS) in a mode 2 Tx pool with periodic reservation for another TB (sl-MultiReserveResource) disabled, and a resource (re)selection is triggered in slot n,
		- T1 is defined based on step 1) of Rel-16 TS 38.214 Sec. 8.1.4.
			* No update to specification is necessary due to this agreement
		- Note: The selected Y’ slots do not overlap with the sensing window
* Agreements on details of partial sensing in SL DRX inactive time
	+ Whether UE performs SL reception of PSCCH and RSRP measurement for partial sensing on slots in SL DRX inactive time is enabled/disabled by (pre-)configuration per resource pool when partial sensing is configured in the UE by a higher layer.
		- When it is enabled,
			* When UE performs periodic-based partial sensing for a given Preserve, UE monitors only the default periodic sensing occasion.
			* When UE performs contiguous partial sensing, UE monitors a minimum of M slots for CPS.
		- Note, when it is disabled, the UE is not required to perform SL reception of PSCCH and RSRP measurement in SL DRX inactive time.
		- Note: no further optimization on the resource (re)selection procedure with regard to SL DRX operation is specified in Rel.17.
		- FFS the case when full sensing is configured in the UE by a higher layer

Regarding inter-UE coordination for mode 2 enhancements, the following agreements/working assumptions/conclusions were made:

* Agreements/working assumptions on details of Scheme 1 for inter-UE coordination
	+ For Scheme 1, when the inter-UE coordination information transmission is triggered by UE-B’s explicit request,
		- Starting/Ending time locations of resource selection window is provided by UE-B’s explicit request
			* Starting/Ending time locations of resource selection window is a form of combination of DFN index and slot index
	+ For Scheme 1, a resource pool level (pre-)configuration can enable one of the following alternatives:
		- (Working assumption) Alt1: MAC CE and 2nd SCI are used as the container of an explicit request transmission from UE-B to UE-A
			* A single format SCI 2-C is used for inter-UE coordination information and request
				+ 1 bit in format 2-C is used to indicate whether the SCI is used for request to coordination information or for conveying coordination information
			* SCI 2-C is UE RX optional
			* It is up to UE implementation to additionally use 2nd SCI (for UE-B).
		- Alt2: MAC CE is used as the container of an explicit request transmission from UE-B to UE-A
	+ For Scheme 1, unicast is supported for an explicit request transmission for inter-UE coordination information
		- Unicast is used for the inter-UE coordination information transmission triggered by the explicit request
	+ Working Assumption:
		- For Scheme 1, following cast type(s) are supported for inter-UE coordination information transmission triggered by a condition other than explicit request reception
			* Groupcast/Broadcast for non-preferred resource set, FFS for preferred resource set
				+ FFS: Under which conditions groupcast/broadcast can be supported
			* Unicast
				+ FFS: Under which conditions unicast can be supported
	+ For determining preferred resource set in Scheme 1, the value of Cresel is determined by UE-A according to Rel-16 procedure.
		- This information is not conveyed to/from UE-B
		- When inter-UE coordination information is triggered by UE-B’s request, P\_rsvp\_TX used for determining SL\_RESOURCE\_RESELECTION\_COUNTER according to Rel-16 procedure is provided by resource reservation interval indicated by UE-B’s request
	+ For the indication of resource set in Scheme 1, the value of Sl-MaxNumPerReserve is fixed to 3.
	+ The following working assumption is confirmed with modification in RED.
		- MAC CE or 2nd SCI are used as the container of inter-UE coordination information transmission from UE A to UE B.
			* For the indication of resource set, the following is supported:
				+ N combinations of TRIV, FRIV, resource reservation period as specified in Rel-16 TS 38.214 Section 8.1.5 with following modification. The value of resource reservation period is omitted at least when the transmission of preferred resource set is triggered by UE-B’s explicit request.

First resource location of each TRIV is separately indicated by the inter-UE coordination information

* + - * + If [N <= 3], MAC CE is used and it is up to UE implementation to additionally use 2nd SCI. When 2nd SCI and MAC CE are both used, the same resource set is indicated in the 2nd SCI and the MAC CE. If [N > 3], only MAC CE is used.

FFS: UE capability details

2nd SCI is UE RX optional

The field size of the indication of resource set in a SCI format 2-C is determined by [N=3]

* + For inter-UE coordination information transmission in Scheme 1,
		- Inter-UE coordination information can be multiplexed with other data only if the source/destination ID pair is the same
			* Retransmission of the TB carrying inter-UE coordination information is supported
	+ For explicit request transmission in Scheme 1,
		- Explicit request can be multiplexed with other data only if the source/destination ID pair is the same
			* Retransmission of the TB carrying request is supported
	+ For inter-UE coordination triggered by an explicit request in Scheme 1, whether or not to transmit the inter-UE coordination information upon the request reception is determined by UE-A’s implementation subject to the following procedures.
		- Rel-16 procedure of UL/SL prioritization, LTE SL/NR SL prioritization, and congestion control
	+ For inter-UE coordination triggered by a condition rather than request reception in Scheme 1,
		- A resource pool level (pre-)configuration can enable one of the following alternatives:
			* Alt 1: it is up to UE-A’s implementation whether or not to trigger the inter-UE coordination information generation.
			* Alt 2: the inter-UE coordination information generation can be triggered only when UE-A has data to be transmitted together with the inter-UE coordination information to UE-B
		- Note: Rel-16 procedure of UL/SL prioritization, LTE SL/NR SL prioritization, and congestion control is applied to the transmission of the inter-UE coordination information triggered by a condition.
	+ For inter-UE coordination triggered by UE-B’s explicit request in Scheme 1,
		- A resource pool level (pre-)configuration can enable one of the following alternatives:
			* Alt 1: it is up to UE-B’s implementation whether or not to trigger the request generation
			* Alt 2: the request generation can be triggered only when UE-B has data to be transmitted to UE-A
		- Note: Rel-16 procedure of UL/SL prioritization, LTE SL/NR SL prioritization, and congestion control is applied to the transmission of the request transmission.
	+ For Scheme 1 with preferred resource set Option A,
		- MAC layer selects resources using S\_A and the received preferred resource set
			* MAC layer firstly selects resources for transmissions within the intersection of S\_A and the preferred resource set until it becomes impossible to select a resource within the intersection under the constraint defined in Rel-16.
				+ It is up to the UE whether to use the preferred resource set from SCI format 2-C and/or MAC CE
			* After this, if the number of selected resources is smaller than the required number of transmissions for a TB, MAC layer selects resources for the remaining transmissions outside the intersection but inside S\_A under the constraint defined in Rel-16.
	+ For Scheme 1 with preferred resource set Option B,
		- MAC layer selects resources belonging to the received preferred resource set under the constraint defined in Rel-16
			* It is up to the UE whether to use the preferred resource set from SCI format 2-C and/or MAC CE
	+ For inter-UE coordination information triggered by an explicit request in Scheme 1, the priority value of the inter-UE coordination information is (pre)configured priority value if it is provided by (pre)configuration. Otherwise, the priority value is the same as indicated by UE-B’s explicit request.
		- For the case when inter-UE coordination information is transmitted together with other data, the priority value of the multiplexed sidelink transmission is determined by the smallest priority value between the inter-UE coordination information and data
	+ For inter-UE coordination information triggered by an explicit request in Scheme 1, the priority value of explicit request is (pre)configured priority value if it is provided by (pre)configuration. Otherwise, the priority value is the same as that of a TB to be transmitted by UE-B.
		- For the case when the explicit request is transmitted together with other data, the priority value of the multiplexed sidelink transmission is determined by the smallest priority value between the explicit request and data
	+ For inter-UE coordination information triggered by a condition other than explicit request reception in Scheme 1, the priority value of the inter-UE coordination information is (pre)configured priority value if it is provided by (pre)configuration.
		- FFS: Otherwise, the priority value is determined by UE-A’s implementation.
		- For the case when inter-UE coordination information is transmitted together with other data, the priority value of the multiplexed sidelink transmission is determined by the smallest priority value between the inter-UE coordination information and data
	+ For sidelink transmission carrying inter-UE coordination information in Scheme 1,
		- UE-A performs its resource (re)selection according to the same procedure in TS 38.214 Section 8.1.4 to transmit the inter-UE coordination information to UE-B.
	+ For sidelink transmission carrying request in Scheme 1,
		- UE-B performs its resource (re)selection according to the same procedure in TS 38.214 Section 8.1.4 to transmit the request for the inter-UE coordination information to UE-A if UE-B performs sensing/resource exclusion. Otherwise, at least UE-B can perform random selection
	+ Note: RAN1 does not pursue specific enhancement of Rel-17 resource (re)selection for the transmission of inter-UE coordination information and its request.
	+ Working assumption:
		- First resource location of each TRIV is a slot offset with respect to a reference slot
			* Alt 2:
				+ The slot offset is the number of logical slots from the reference slot

The value range of slot offsets is from 0 to maximum value that is (pre)configurable up to [256]

FFS: The detailed value range including granularity

Slot offset for each TRIV to indicate the set of resources is separately indicated by inter-UE coordination information

* + - * For the reference slot,
				+ The reference slot is the slot indicated by the inter-UE coordination information in a form of combination of DFN index and slot index
	+ For determining preferred resource set in Scheme 1, when inter-UE coordination information transmission is triggered by a condition other than explicit request reception,
		- Values of following parameters are (pre)configured for a resource pool. If there is no (pre)configuration, UE-A determines by its implementation the values of the following parameters
			* prio\_TX
			* L\_subCH
			* P\_rsvp\_TX
		- UE-A determines by its implementation values of following parameters
			* n+T\_1, n+T\_2
		- FFS: Whether/how to support (pre)configuration of n+T\_1 and n+T\_2
		- Note that it is up to RAN2 decision whether/how the values of these parameters are provided by PC5-RRC signaling from UE-B to UE-A and UE-A uses the received information to determine the preferred resource set
	+ For inter-UE coordination information is triggered by UE-B’s request,
		- A resource pool level (pre-)configuration can enable one of the following alternatives:
			* Alt 1:
				+ Resource set type to be provided by inter-UE coordination information transmission is determined by UE-A’s implementation and its information is indicated by UE-A’s inter-UE coordination information

UE-A’s inter-UE coordination information indicates either preferred resource set or non-preferred resource set

* + - * Alt 2:
				+ Resource set type to be provided by inter-UE coordination information transmission is indicated by UE-B’s request

UE-B’s request indicates either preferred resource set or non-preferred resource set

* + - Note that it is up to RAN2 decision whether/how UE-B provides its support of sensing/resource exclusion to UE-A via PC5-RRC signaling and UE-A uses the received information to determine the type of resource set to be transmitted to UE-B
	+ For inter-UE coordination information is triggered by a condition other than explicit request reception,
		- Resource set type to be provided by inter-UE coordination information transmission is determined by UE-A’s implementation and its information is indicated by UE-A’s inter-UE coordination information
			* UE-A’s inter-UE coordination information indicates either preferred resource set or non-preferred resource set
* Agreements/working assumptions/conclusions on details of Scheme 2 for inter-UE coordination
	+ When PSFCH occasion is derived by a slot where expected/potential resource conflict occurs on PSSCH resource indicated by UE-B’s SCI, time gap between the PSFCH and SCI(s) scheduling conflicting TBs is larger than or equal to X value
		- X = sl-MinTimeGapPSFCH
	+ UE does not transmit the conflict indicator or receive the conflict indicator if the timeline is not satisfied
	+ Conclusion:
		- For Scheme 2, there is no consensus to support indication of the following
			* Condition type of a resource conflict
			* Time location of a resource conflict
	+ For Scheme 2,
		- The PHY layer reports S\_A after Step 7) of TS 38.214 Section 8.1.4 to higher layer.
		- When UE-B receives a conflict indicator for resource(s) indicated by its SCI,
			* PHY layer at UE-B reports resources overlapping with the next reserved resource indicated by the corresponding UE-B’s SCI for current TB transmission to higher layer.
				+ If (pre)configured, the PHY layer reports resources in a slot including the next reserved resource indicated by the corresponding UE-B’s SCI for current TB transmission to higher layer.
			* Higher layer at UE-B re-selects the resource(s) indicated by the conflict indicator among the S\_A excluding the reported resources.
		- FFS: Whether/How the conflict in periodic transmission is indicated by UE-A and handled by UE-B
	+ For PSFCH TX/RX or TX/TX prioritization in Scheme 2,
		- Priority value of PSFCH TX for a resource conflict indication is the smallest priority value of the conflicting TBs
		- Priority value of PSFCH RX for a resource conflict indication is priority value indicated by UE-B’s SCI
		- For PSFCH TX/RX or TX/TX prioritization between SL HARQ-ACK feedback(s) and resource conflict indication(s), PSFCH TX/RX for SL HARQ-ACK feedback is always prioritized over PSFCH TX/RX for a resource conflict indication
	+ Working assumption:
		- For Scheme 2, (pre)configuration is supported to enable or disable that 1 LSB of reserved bits of a SCI format 1-A is used to indicate of whether UE scheduling a conflict TB can be UE-B or not.
			* FFS: UE-A's behavior for the case when at least one of UEs scheduling conflicting TBs is not capable of receiving the conflict indication

**RAN1#108-e**:

Regarding resource allocation for power saving, the following agreements/conclusions were made:

* Agreements on details of contiguous partial for periodic transmission
	+ The lower bound of M value for CPS in the case of periodic transmission (contiguousSensingWindowPeriodic) for both resource (re)selection and re-evaluation / pre-emption checking is a non-zero value (lower bound for M is 5)
	+ Note: CATT indicated that they do not agree to the technical benefits of this agreement

* Agreements on details of re-evaluation and pre-emption checking for aperiodic transmission
	+ When a UE is triggered to perform re-evaluation and pre-emption checking for aperiodic transmission (Prsvp\_TX=0) in slot n and the minimum M slots for CPS cannot be guaranteed,
		- UE senses in all available slots starting from the resource (re)selection trigger slot of the same TB to $T\_{proc,0}^{SL}+T\_{proc,1}^{SL}$ slots earlier than $t\_{yi}^{SL}$.
			* The UE re-evaluation and pre-emption checking is based on all available sensing results after n-T0
* Conclusions on details of handling non-monitored slot in partial sensing
	+ The existing Step 5 and 5a are applicable for UE configured for partial sensing by its higher layer.
* Agreements on details of partial sensing
	+ In Step 6 c) of TS38.214 Section 8.1.4, when UE is configured with partial sensing by its higher layer, adopt the following changes:
		- $t'\_{n^{'}}^{SL}=t\_{yi}^{SL}-T\_{proc,1}^{SL}$ if slot $t\_{yi}^{SL}-T\_{proc,1}^{SL}$ belongs to the set $\left(t'\_{0}^{SL},t'\_{1}^{SL},...,t'\_{T'\_{max}-1}^{SL}\right)$, otherwise, slot $t'\_{n^{'}}^{SL}$ is the first slot after slot $t\_{yi}^{SL}-T\_{proc,1}^{SL}$ belonging to the set $\left(t'\_{0}^{SL},t'\_{1}^{SL},...,t'\_{T'\_{max}-1}^{SL}\right)$.
		- Option D: $T\_{scal}=t\_{yL}^{SL}-(t\_{yi}^{SL}-T\_{proc,1}^{SL})$ converted to milliseconds, where slot $t\_{yL}^{SL}$ is the last slot of the Y or Y’ candidate slots.
		- Slot $t\_{yi}^{SL}$ is the first slot of the selected/remaining set of Y or Y’ candidate slots.

Regarding inter-UE coordination for mode 2 enhancements, the following agreements/conclusions were made:

* Agreements/conclusions on details of Scheme 1 for inter-UE coordination
	+ For a slot offset that is (pre)configured to indicate the first resource location of each TRIV with respect to a reference slot,
		- Granularity of the slot offset is 1 logical slot
		- (Pre)configured maximum value of the slot offset is up to 8000
			* When both SCI format 2-C and MAC CE are used as the container of inter-UE coordination information, the maximum value of the slot offset is 255
			* When MAC CE only is used as the container of inter-UE coordination information, the maximum value of the slot offset is the (pre)configured maximum value
	+ A SCI format 2-C includes all the fields present in SCI format 2-A except cast type indicator
	+ Conclusion:
		- For cast type(s) of inter-UE coordination information with preferred resource set triggered by a condition other than explicit request reception, there is no consensus in RAN1 on the support of groupcast or broadcast for preferred resource set
	+ For Scheme 1, when both SCI format 2-C and MAC CE are used as the container of an explicit request for inter-UE coordination information, the same bit field size for the request in a SCI format 2-C is applied to MAC CE
	+ For Scheme 1, when MAC CE only is used as the container of an explicit request for inter-UE coordination information, the same bit field size for the request in a SCI format 2-C is applied to MAC CE
	+ Confirm the following working assumption with modification in RED

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| --- |
| * + - Working assumption made in RAN1#107bis-e:
			* First resource location of each TRIV is a slot offset with respect to a reference slot
				+ Alt 2:

The slot offset is the number of logical slots from the reference slotThe value range of slot offsets is from 0 to maximum value that is (pre)configurable up to ~~[~~8000~~256]~~~~FFS: The detailed value range including granularity~~Slot offset for each TRIV except for first TRIV to indicate the set of resources is separately indicated by inter-UE coordination informationSlot offset for first TRIV is 0* + - * + For the reference slot,

The reference slot is the slot indicated by the inter-UE coordination information in a form of combination of DFN index and slot index |

* + MAC CE or 2nd SCI are used as the container of inter-UE coordination information transmission from UE A to UE B.
		- For the indication of resource set, the following is supported:
			* N combinations of TRIV, FRIV, resource reservation period as specified in Rel-16 TS 38.214 Section 8.1.5 with following modification. The value of resource reservation period is omitted at least when the transmission of preferred resource set is triggered by UE-B’s explicit request.
				+ First resource location of each TRIV is separately indicated by the inter-UE coordination information
			* If N <= 2, MAC CE is used and it is up to UE implementation to additionally use 2nd SCI. When 2nd SCI and MAC CE are both used, the same resource set is indicated in the 2nd SCI and the MAC CE. If N > 2, only MAC CE is used.
				+ FFS: UE capability details
				+ 2nd SCI is UE RX optional
				+ The field size of the indication of resource set in a SCI format 2-C is determined by N=2
	+ For Scheme 1, each bit field size of a SCI format 2-C for inter-UE coordination information is given by following table:
		- Note that lowest subchannel index for the first resource location of each TRIV is separately indicated by inter-UE coordination information

|  |  |
| --- | --- |
| **Field name** | **Field size (in bits)** |
| Providing/requesting indicator  | 1 |
| Resource combination(s) | $$2\*\left\{\left⌈log\_{2}(\frac{N\_{ subchannel}^{ SL}\left(N\_{subchannel}^{ SL} + 1\right)\left(2N\_{subchannel}^{ SL} + 1\right)}{6})\right⌉+9+Y\right\}$$Where $N\_{ subchannel}^{ SL}$ is provided by the higher layer parameter sl-NumSubchannel, $Y=\left⌈log\_{2}N\_{rsv\\_period}\right⌉$ with that $N\_{rsv\\_period}$ is the number of entries in the higher layer parameter sl-ResourceReservePeriodList, if higher layer parameter sl-MultiReserveResource is configured; $Y=0$ otherwise. |
| First resource location(s)  | 8 |
| Reference slot location | $$10+\left⌈log\_{2}(10∙2^{μ})\right⌉$$Where $μ$ is 0, 1, 2, 3 for SCS of 15kHz, 30kHz, 60kHz, 120kHz, respectively.  |
| Resource set type | 1 |
| Lowest subchannel indices for the first resource location of each TRIV | $$2\*\left⌈log\_{2}\left(N\_{subchannel}^{SL}\right)\right⌉$$where $N\_{subchannel}^{SL}$ is provided by the higher layer parameter sl-NumSubchannel |
| (FFS) Actual number of resource combination | 1 Note: Support of this field is to be concluded by Feb 28.  |

* + For Scheme 1, each bit field size of a SCI format 2-C for an explicit request for inter-UE coordination information is given by following table:

|  |  |
| --- | --- |
| **Field name** | **Field size (in bits)** |
| Providing/requesting indicator | 1 |
| Priority | 3 |
| Number of subchannels | $$\left⌈log\_{2}(N\_{ subChannel}^{ SL})\right⌉$$Where $N\_{ subChannel}^{ SL}$ is provided by the higher layer parameter sl-NumSubchannel |
| Resource reservation period | $$Y$$Where $Y=\left⌈log\_{2}N\_{rsv\\_period}\right⌉$with that $N\_{rsv\\_period}$ is the number of entries in the higher layer parameter sl-ResourceReservePeriodList, if higher layer parameter sl-MultiReserveResoure is configured; $Y=0$ otherwise. |
| Resource selection window location | $$2\left(10+\left⌈log\_{2}(10∙2^{μ})\right⌉\right)$$Where $μ$ is 0, 1, 2, 3 for SCS of 15kHz, 30kHz, 60kHz, 120kHz, respectively. |
| Resource set type | 1 bit if determineResourceSetTypeScheme1 is set to ‘UE-B’s request’, otherwise, 0 bit |

* + - This agreement does not imply that new field requested by RAN2 cannot be further added.
	+ For Scheme 1, when MAC CE only is used as the container of inter-UE coordination information, each bit field size for inter-UE coordination information is given by following table from RAN1’s perspective, and RAN1 understands that the maximum value of N resource combinations to be conveyed in inter-UE coordination information is bounded so that the total payload size of inter-UE coordination information leads not to exceed the size of TB including the MAC CE
		- Details (e.g., whether/how to separately indicate the value of N in the inter-UE coordination information, how to put the following fields into MAC CE and the related field sizes in MAC CE) are up to RAN2

|  |  |
| --- | --- |
| **Field name** | **Field size (in bits)** |
| Providing/requesting indicator  | 1 |
| Resource combination(s) | $$N\*\left\{\left⌈log\_{2}(\frac{N\_{ subChannel}^{ SL}\left(N\_{ subChannel}^{ SL} + 1\right)\left(2N\_{ subChannel}^{ SL} + 1\right)}{6})\right⌉+9+Y\right\}$$Where $N\_{ subChannel}^{ SL}$ is provided by the higher layer parameter sl-NumSubchannel, $Y=\left⌈log\_{2}N\_{rsv\\_period}\right⌉$with that $N\_{rsv\\_period}$ is the number of entries in the higher layer parameter sl-ResourceReservePeriodList, if higher layer parameter sl-MultiReserveResoure is configured; $Y=0$ otherwise. |
| First resource location(s)  | $$\left(N-1\right)\*\left⌈log\_{2}(X)\right⌉$$Where X is provided by the (pre)configured maximum value of slot offset for the case when MAC CE only is used as a container of inter-UE coordination information  |
| Reference slot location | $$10+\left⌈log\_{2}(10∙2^{μ})\right⌉$$Where $μ$ is 0, 1, 2, 3 for SCS of 15kHz, 30kHz, 60kHz, 120kHz, respectively.  |
| Resource set type | 1 |
| Lowest subchannel indices for the first resource location of each TRIV | $$N\*\left⌈log\_{2}\left(N\_{subchannel}^{SL}\right)\right⌉$$Where $N\_{subchannel}^{SL}$ is provided by the higher layer parameter sl-NumSubchannel. |

* + Conclusion:
		- There is no consensus in RAN1 on indicating actual number of resource combination in a SCI format 2-C for inter-UE coordination information.
			* Note: Different resource combinations can indicate the same set of resources for the case when only one resource combination is actually used

* + For Scheme 1, when both SCI format 2-C and MAC CE are used as the container of inter-UE coordination information, the same inter-UE coordination information is indicated in the SCI format 2-C and the MAC CE
		- Details (e.g., how to put the fields of SCI format 2C for inter-UE coordination information into MAC CE and the related field sizes in MAC CE) are up to RAN2
	+ (Pre)configuration of parameters related to n+T\_1 and n+T\_2 for determining the set of preferred resources in inter-UE coordination information triggered by a condition other than explicit request reception is not supported.
		- Note that T\_2 is no smaller than T\_2,min and 0 <= T\_1 <= Tproc,1 as specified in TS 38.214 section 8.1.4.
	+ For inter-UE coordination information transmission, only when the cast type of inter-UE coordination information is unicast regardless of whether or not it is multiplexed with other data, a SCI format 2-C can be used in addition to MAC CE
	+ For UE-B’s behavior when UE-B receives multiple preferred resource sets from the same UE-A
		- It is up to UE-B implementation to use one or multiple of them in its resource (re)selection
	+ Conclusion: UE-B’s behavior when UE-B receives multiple non-preferred resource sets from the same UE-A
		- No RAN1 specification change to TS38.214 is deemed necessary in RAN1#108-e
	+ For UE-B’s behavior when UE-B receives both a single preferred resource set and a single non-preferred resource set from the same UE-A
		- FFS: It is up to UE-B implementation to use one or multiple of them in its resource (re)selection
	+ For UE-B’s behavior when UE-B receives multiple preferred resource sets from the different UE-As,
		- UE-B uses each received preferred resource set for its resource selection for each TB to be transmitted to each UE-A providing the preferred resource set.
	+ Conclusion: UE-B’s behavior when UE-B receives multiple non-preferred resource sets from the different UE-As.
		- No RAN1 specification change to TS38.214 is deemed necessary in RAN1#108-e (except for the processing timeline)
	+ For UE-B’s behavior when UE-B receives both a single preferred resource set and a single non-preferred resource set from the different UE-As,
		- FFS: It is up to UE-B implementation to use one or multiple of them in its resource (re)selection
	+ Notations:
		- (n+T\_1) – Start slot of resource selection window for determining the set of resources
			* For inter-UE coordination information triggered by UE-B’s explicit request, this value of (n+T\_1) is provided by UE-B’s request as per the existing agreement
			* For inter-UE coordination information triggered by a condition other than explicit request reception, this value of (n+T\_1) is determined by UE-A’s implementation as per the existing agreement
		- (n+T\_2) – End slot of resource selection window for determining the set of resources
			* For inter-UE coordination information triggered by UE-B’s explicit request, this value of (n+T\_2) is provided by UE-B’s request as per the existing agreement
			* For inter-UE coordination information triggered by a condition other than explicit request reception, this value of (n+T\_2) is determined by UE-A’s implementation as per the existing agreement
		- (n’+T’\_1) – Start slot of resource selection window used for sidelink transmission carrying inter-UE coordination information
		- (n’+T’\_2) – End slot of resource selection window used for sidelink transmission carrying inter-UE coordination information
		- n' is the slot where UE procedure of determining TX resources of sidelink transmission carrying inter-UE coordination information is triggered
	+ For inter-UE coordination information triggered by UE-B’s explicit request
		- Alt 1-1:
			* X1 ≤ (n’+T’\_1)
			* (n’+T’\_2) ≤ X2
	+ For inter-UE coordination information triggered by a condition other than explicit request reception,
		- Alt 2-2:
			* (n’+T’\_2) < X3
	+ FFS: Values for X1, X2, X3
	+ For sensing window for determining the set of resources in Scheme 1,
		- Notations:
			* For inter-UE coordination information triggered by UE-B’s explicit request, the values of (n+T\_1) and (n+T\_2) are provided by the request as per the existing agreement.
			* For inter-UE coordination information triggered by a condition other than explicit request reception, the values of (n+T\_1) and (n+T\_2) are determined by UE-A’s implementation as per the existing agreement.
			* T’’\_1 is up to UE-A’s implementation under 0 <= T’’\_1 <= Tproc,1
			* (n’+T’\_1) – Start slot of resource selection window used for sidelink transmission carrying inter-UE coordination information
			* n' is the slot where UE procedure of determining TX resources of inter-UE coordination information is triggered
		- Alt 1:
			* No further change is supported. Note that the sensing window for determining the set of resources is already derived based on the location (n+T\_1) and (n+T\_2) used for determining the set of resources in TS38.214 section 8.1.4, i.e., sensing window is defined by the range of slots [(n+T\_1) – T\_0 – T’’\_1, (n+T\_1) – T\_proc,0 – T’’\_1].
	+ For the case when it is not possible that the number of candidate single-slot resources after applying the received non-preferred resource set as per the existing agreement meets the requirement of X\*M\_total in step 7),
		- It is up to UE-B’s implementation whether to take the received non-preferred resource set in its resource selection after step 6) to meet this requirement
* Agreements/conclusions on details of Scheme 2 for inter-UE coordination
	+ For Scheme 2, m\_CS for a resource conflict indication for the next reserved resource indicated by the corresponding UE-B’s SCI for either current TB transmission or next TB transmission is 0
	+ For Scheme 2, when UE-B receives a conflict indicator for resource(s) indicated by its SCI, it up to UE-B’s implementation whether/how to set the reservation periodicity in the re-selected resource.
	+ For Scheme 2,
		- m\_0 for a resource conflict indication is derived in the same way as specified for HARQ-ACK information in TS 38.213 Section 16.3
		- A UE expects that different PRBs are (pre)configured between conflict indication and HARQ-ACK information
	+ For Scheme 2,
		- The PHY layer reports S\_A after Step 7) of TS 38.214 Section 8.1.4 to higher layer.
		- When UE-B receives a conflict indicator for resource(s) indicated by its SCI,
			* PHY layer at UE-B reports resources overlapping with the next reserved resource indicated by the corresponding UE-B’s SCI ~~for current TB transmission~~ to higher layer.
				+ If (pre)configured, the PHY layer reports resources in a slot including the next reserved resource indicated by the corresponding UE-B’s SCI ~~for current TB transmission~~ to higher layer.
			* Higher layer at UE-B re-selects the resource(s) indicated by the conflict indicator among the S\_A excluding the reported resources.
	+ Confirm the following working assumption with modification in RED. Note that the terminology of “indicationUEB flag” means the indication of whether UE scheduling a conflict TB can be UE-B or not.
		- Working Assumption:
			* For Condition 2-A-1 in Scheme 2, when “a non-destination UE of a TB transmitted by UE-B can be UE-A” is enabled or when “a non-destination UE of a TB transmitted by UE-B can be UE-A” is disabled and the destination UE of the conflicting TBs is UE-A,
				+ for each pair of UEs scheduling the conflicting TBs whose PSFCH occasions for resource conflict indication are not yet passed and indicationUEB flag is set to 1 if the higher parameter of indicationUEBScheme2 is (pre)configured to ‘Enabled’, a UE with the higher priority value is UE-B. When the UEs in the pair have the same priority value, UE-A determines one of the UEs to be UE-B by its implementation.

UE-A considers the SCIs received earlier than or equal to sl-MinTimeGapPSFCH before the PSFCH occasion for conflict indication when determining UE-B.

* + A UE performs PSFCH TX/RX or TX/TX prioritization between SL HARQ-ACK feedback(s) and resource conflict indication(s) first, and then the UE performs prioritization between prioritized PSFCH TX(s) or RX(s) and LTE SL TX/RX or UL by reusing prioritization rule as specified in TS 38.213 Section 16.2.4.1 and 16.2.4.3.1.
	+ Conclusion:
		- RAN1 does not pursue specific enhancement of Rel-17 inter-UE coordination operation for handling the overlapping between UL with SL-HARQ-ACK information and PSFCH for a conflict indication, i.e., there is no case in Rel-17 where the overlapping between UL with SL-HARQ-ACK information and PSFCH for a conflict indication occur at a UE performing inter-UE coordination operation
	+ Conclusion:
		- There is no consensus in RAN1 to further introduce enhancement in Rel-17 on Mode 2 resource selection procedure to ensure the timeline (i.e., minimum time gap between PSFCH and a slot where a SCI is transmitted of sl-MinTimeGapPSFCH, minimum time gap between PSFCH and a slot where expected/potential resource conflict occurs on PSSCH resource indicated by a SCI of T\_3) for a conflict indication.
	+ Conclusion:
		- When PSFCH occasion is derived by a slot where UE-B’s SCI is transmitted,
			* if there is a PSFCH occasion satisfying “the minimum time gap (sl-MinTimeGapPSFCH) between the PSFCH occasion and a slot where the SCI is transmitted” but not satisfying “the minimum time gap (T\_3) between the PSFCH occasion and a slot of the earliest reserved PSSCH resource indicated by the corresponding SCI after the PSFCH occasion”,
				+ the PSFCH occasion cannot be used by UE-A for a conflict indication for reserved PSSCH resource other than the earliest reserved PSSCH resource indicated by the corresponding SCI after the PSFCH occasion

* Cconclusions on details of resource allocation mode for inter-UE coordination
	+ Conclusion:
		- For inter-UE coordination operation in Rel-17, RAN1 understands that only UE(s) in mode 2 can be UE-A
			* Note that RAN1 does not pursue specific enhancement of Rel-17 inter-UE coordination operation for handling the case where UE(s) in mode 1 can be UE-A

#### 2.1.2 Remaining Open issues

Following issues are to be handled as part of RAN1 maintenance work.

* Finalization of UE-B’s behavior when it receives both preferred resource set and non-preferred resource set from the same UE-A or different UE-As
* Finalization of relationship between start/end slots of resource selection window used for sidelink transmission carrying inter-UE coordination information and start/end slots of resource selection window for determining the set of resources

## 2.2 RAN2

#### 2.2.1 Agreements

**RAN2#116b-e**:

* Agreements on SL DRX configuration:
* For unicast and TX UE in RRC CONNECTED and Mode 1 RA, the serving gNB of TX UE determines the SL DRX configurations for RX UE.
* For unicast and TX UE in RRC CONNECTD, it is up to TX UE’s gNB implementation to determine alignment between Uu DRX of TX UE and SL DRX of RX UE, i.e., no spec change is foreseen.
* For unicast and RX UE in RRC CONNECTED, RX UE uses an existing Uu RRC signalling to report a received SL DRX configuration to the gNB. Which RRC signalling to use will rely on outcome of the email discussion 715.
* For unicast and RX UE in RRC CONNECTED, it is up to RX UE to indicate either acceptance or rejection to TX UE for a received SL DRX configuration.
* For groupcast or broadcast, it is up to the gNB implementation to provide proper Uu DRX configuration to TX UE or RX UE, i.e., no spec change is foreseen.
* For unicast and TX UE in RRC CONNECTED and Mode 2 RA, TX UE determines SL DRX for RX UE.
* For groupcast or broadcast, the existing information content in the existing RRC signaling (e.g., SidelinkUEInformationNR) is reused by TX UE if in RRC CONNECTED to report assistance information to the gNB in order to achieve alignment of Uu DRX of TX UE and SL DRX of RX UE. FFS on additional information.
* For groupcast or broadcast, RX UE in RRC CONNECTED can report L2 id and QoS profile associated with its interested services that SL DRX is applied to the gNB in order to achieve alignment of Uu DRX of RX UE and SL DRX of RX UE.
* Agreements on RRC open issues:
* UE uses SUI to report sidelink DRX configuration or sidelink assistance information to its serving gNB.
* UE reports sidelink assistance information to its serving gNB, upon receiving sidelink DRX assistance information from the peer UE.
* For IDLE/INACTIVE/OOC UE, It is up to TX UE implementation to set sl-DRX-ConfigUC-PC5.
* Remove the EN in clause 5.8.9.X.3 of running CR and update the description as “For sidelink unicast, when a UE in IDLE/INACTIVE or OOC has obtained this assistance information from its peer UE, it may derive the values for SL DRX based on UE implementation.”
* Use an extension marker for SL-PHY-MAC-RLC-Config-v17xy.
* UE reports sidelink DRX configuration to its serving gNB, upon accepting sidelink DRX configuration information from the peer UE.
* Agreements on MAC open issues:
* The priority order of Sidelink DRX Command MAC CE is between Sidelink CSI Reporting MAC CE and data from any STCH.
* When an Rx UE receives SL DRX command MAC CE from a TX UE, the Rx UE can stop the running onduration timer and inactivity timer associated with a unicast link.
* For the same pair of L2 SRC/DST ID, the SL DRX command MAC CE can be transmitted alone or with data in the MAC PDU.
* When a MAC PDU carrying only the SL DRX Command MAC CE is transmitted, it is transmitted as a HARQ Feedback disabled MAC PDU.
* RAN2 does not define a separate SR configuration for SL DRX Command MAC CE.
* drx-HARQ-RTT-TimerSL is supported in case PSFCH is configured in resource pool and sl-PUCCH-Config is not configured. NW can set value as zero or any other value.
* UE uses configured sl-drx-HARQ-RTT-Timer value when the resource assignment information for the next re-transmission does not exist in the SCI regardless of whether HARQ feedback is enabled or disabled.
* Working assumption: when mode 1 SL grant is not in SL active time of any destination that has data to be sent, for initial transmission and the mode 1 grant is dropped, UE sends ACK to gNB.
* Working assumption: slots associated with the announced periodic transmissions by the TX UE are considered as SL active time of the RX UE.
* Working assumption (down-selection for DRX cycle and on-duration for GC/BC when multiple QoS profiles are associated with the same DST L2 id) is confirmed as an agreement.
* TX/RX UE determines the DRX cycle applied for groupcast/broadcast transmissions associated with a specific L2 destination ID as the minimum DRX cycle configured for any of the QoS profiles associated with that L2 destination ID.
* Working assumption: TX/RX UE determines the on-duration timer applied for groupcast/broadcast transmissions associated with a specific L2 destination ID as the maximum on duration timer configured for any of the QoS profiles associated with that L2 destination ID.
* Reconfirmed no optimization at MAC PDU decoding failure (e.g. if the received L2 id is not RX UE’s actual interested L2 id).
* Tx UE should select a destination associated with an Rx UE that is in SL active time for the SL transmission occasion in SL LCP.
* drx-RetransmissionTimerSL is started after expiring drx-HARQ-RTT-TimerSL when the PUCCH (NACK) transmission is dropped.
* Following RAN2 agreement is also applied to GC NACK only.
	+ - “If the RX UE does not transmit PSFCH for a HARQ enabled transmission (e.g. due to UL/SL prioritization or ACK) the RX UE still starts the HARQ RTT timer in the symbol/slot following the end of PSFCH resource.”
* For unicast, sl-drx-RetransmissionTimer is started after expiring sl-drx-HARQ-RTT-Timer when the PSFCH (NACK) transmission is dropped. FFS for ACK transmission dropping.
* Working assumption: for GC, sl-drx-StartOffset (ms) = DST L2 ID MOD sl-drx-Cycle (ms)
* Agreements on resource allocation enhancements RAN2 scopes:
* Inter-UE coordination (IUC) issues RAN2 mainly relies on RAN1:
	+ - HARQ retransmission number for inter-UE coordination information
		- Information and length of information of IUC MAC CE. The information indicated in RAN1 LS should be taken into account as baseline.
		- UE-B procedure (e.g. final selection of resources) to the (non-)preferred resource set in IUC
		- Scheme 2 inter-UE coordination design
		- Condition for the UE-A to transmit IUC
		- Signaling design and trigger conditions for the request from UE-B to UE-A
		- Cast types(UC/GC/BC) of inter-UE coordination
		- Transmission of inter-UE coordination MAC CE on dedicated resource
		- L1 parameters/configurations for IUC in Uu RRC (including L1 configurations per resource pool)
		- Whether UE-A can be in mode1 or mode2 (interested companies are invited to raise/discuss the issue directly in RAN1)
* IUC issues RAN2 starts discussion:
	+ - LCP for inter-UE coordination MAC CE, support for standalone inter-UE coordination MAC CE/multiplex MAC CE and MAC SDU in a MAC PDU
		- Timer to handle latency bound for inter-UE coordination
		- Priority value/priority order of inter-UE coordination MAC CE. RAN1 progress can be taken into account in phase-2 discussion.
		- HARQ feedback option of inter-UE coordination MAC CE
* IUC in SL DRX is deprioritized in Rel-17 from RAN2 point of view

**RAN2#117-e**:

* Agreements on SL DRX open issues:
* The default SL DRX configuration for BC/GC [(including at least DRX cycle, start offset and on-duration timer)] can be used for both BC-based and UC-based DCR message.
* RAN2 needs to handle different scenarios where gNB supports or not supports SL DRX.
* For gNB supporting SL-DRX, Tx-UE report assistance information only in mode-1.
* For gNB not supporting SL-DRX, Tx-UE does not report assistance information or DRX configuration reject information, and Rx-UE does not report DRX configuration information for UC or QoS information for GC/BC.
* For DRX configuration report by Rx-UE, Include DRX parameter(s) of 1) SL DRX cycle length, 2) SL DRX start offset, and 3) SL DRX on-duration timer length.
* For mode-1 DG [14/14] and mode-2 grant [13/13], if the initial transmission occasion was dropped due to no Rx-UE in DRX active time, TX-UE can use re-transmission occasion for initial transmission.
* gNB notify supporting SL-DRX based on the presence of SL-DRX configuration for GC/BC in SIB12.
* For resource pool without PSFCH, sl-drx-HARQ-RTT-Timer starts in the slot following the end of PSSCH transmission (i.e., currently received PSSCH).
* The conclusion for “sl-PUCCH-Config is not configured” also applied to “sl-PUCCH-Config is configured but PUCCH resource is not scheduled”
* For Uu-DRX for SL operation, define it as optional per-UE capability, with capability bits in Uu-RRC, with neither FR1-FR2 nor FDD-TDD differentiation.
* For gNB supporting SL-DRX, Tx-UE report DRX configuration reject information only in mode-1.
* For GC, we will check with SA2 whether the mapping from L2 id to TX profile is feasible in the gNB (like what we did in LTE). Working assumption: no additional RAN2 work if SA2 confirms it’s feasible.
* For resource pool with PSFCH, for FB-disabled case, if SCI does not indicate re-transmission resource, sl-drx-HARQ-RTT-Timer starts in the slot following the end of PSFCH resource.
* For resource pool with PSFCH, for FB-disabled case, if SCI indicates re-transmission resource, sl-drx-HARQ-RTT-Timer starts in the slot following the end of PSSCH transmission (i.e., currently received PSSCH).
* For resource pool without PSFCH, if SCI does not indicate re-transmission resource, allow sl-drx-HARQ-RTT-Timer timer length configuration different from the value for resource pool with PSFCH. The value of the RTT timer length (fixed to be zero, or allow non-zero value configuration as well) is FFS.
* For sl-drx-RetransmissionTimer, a single value is sufficient to cover all cases (FB-enable/disable, PSFCH configured/not-configured).
* For resource pool without PSFCH, if sl-PUCCH-Config is not configured, support drx-HARQ-RTT-TimerSL with a fixed value as zero.
* For SL-DRX over PC5 interface, define a single capability bit covering all cast types and both Tx and Rx sides.
* No need to capture in spec the condition for Rx-UE to reject a DRX configuration.
* Check with SA2 whether a same L2 ID may associate with multiple Tx profiles, and thus may associate with both DRX-based Tx profile and non-DRX based Tx profile in Rel-16. Then also check with SA2 if feasible for Rel-17 SL DRX operation, L2 id is only associated with either DRX-based TX profile(s) or non-DRX based TX profile(s). DCR issue raised by ZTE can be discussed as part of LS preparation. If the question is valid to companies, we’re also adding that question otherwise we’re not adding it. Working assumption: no additional RAN2 work if SA2 confirms it’s feasible for Rel-17 SL DRX operation, L2 id is only associated with either DRX-based TX profile(s) or non-DRX based TX profile(s).
* For unicast, sl-drx-RetransmissionTimer is not started after expiry of sl-drx-HARQ-RTT-Timer when the PSFCH of ACK transmission is dropped.
* For resource reselection due to pre-emption, the reselected resource should not be earlier than the pre-empted resource in time domain.
* For messages delivery after PC5-S DCR message until and including PC5-RRC RRCReconfigurationSidelink message including initial DRX configuration, UE remains in active. FFS on PC5-RRC RRCReconfigurationSidelinkComplete.
* Not include HARQ RTT timer and retransmission timer in assistance information from RX UE to TX UE. FFS on inactivity timer.
* In assistance information from Rx UE to Tx UE, multiple DRX settings can be included (detailed signalling format can be left to RRC running-CR discussion).
* Add a NOTE that Tx-UE derives the DRX setting by taking assistance information into account (detailed wording left to RRC running-CR discussion).
* If sl-PUCCH-Config is not configured, for both PSFCH configured and not-configured cases, drx-HARQ-RTT-TimerSL starts at the first symbol after end of PDCCH resource.
* Working assumption: if there is no SL grant in the SL DRX active time of the destination that has data to be sent, trigger resource reselection.
* The delivery of assistance information can be initiated if peer-UE is capable of sidelink DRX, the assistance information has not been sent previously if the RX UE is interested in sending assistance information.
* Keep RX UE’s reject option for SL DRX configuration sent by TX UE. If reject happens for initial SL DRX configuration, default SL DRX configuration is no UC SL DRX. FFS on the default SL DRX configuration for non-initial SL DRX configuration. No enhancement to resolve any deadlock issue in Rel-17.
* For Tx-UE in mode-1, SL-DRX command MAC-CE can be used, and RAN2 not pursue further optimization for it.
* Working assumption: For mode-1 re-transmission grant, if the re-transmission grant is dropped due to no Rx-UE in active time, Tx-UE report NACK to network via PUCCH
* The Tx profile should include at least the information of DRX support or not. Include this agreement into the LS to SA2.
* For SL-DRX over PC5 interface, define it as optional per-UE capability, with capability bits in PC5-RRC, with neither FR1-FR2 nor FDD-TDD differentiation, and with capability bits in Uu-RRC, with no FR1-FR2 or FDD-TDD differentiation.
* Agreements on working assumptions:
* Confirm the following working assumptions as agreements
	+ - Slots associated with the announced periodic transmissions by the TX UE are considered as SL active time of the RX UE.
		- For GC/BC, sl-drx-StartOffset (ms) = DST L2 ID MOD sl-drx-Cycle (ms)
		- TX/RX UE determines the on-duration timer applied for groupcast/broadcast transmissions associated with a specific L2 destination ID as the maximum on duration timer configured for any of the QoS profiles associated with that L2 destination ID.
		- When mode 1 SL grant is not in SL active time of any destination that has data to be sent, for initial transmission and the mode 1 grant is dropped, UE sends ACK to gNB.
* Agreements on TP for SL DRX active time indication to PHY and resource (re)selection in SL DRX:
* For specification of destination-selection, adopt the NOTE-based approach (in R2-2202900), i.e., leave it to UE implementation.
* For specification of resource selection for initial transmission of groupcast, RAN2 use the normative text ”The UE may select resource for the initial transmission of groupcast within the time when sl-drx-onDurationTimer or sl-drx-InactivityTimer of the destination is running.”
* For specification of active-time definition, RAN2 adopt a compromise-way i.e. use “e.g.” in the normative text to describe “the timer running or will be running in the future”.
* Agreements on power-saving resource allocation:
* A UE decides which resource allocation scheme(s) can be used in the AS based on UE capability (for a UE in RRC idle/inactive) and the allowed resource schemes (i.e. allowedResourceSelectionConfig) in the resource pool configuration.
* A UE does not report the type of NR SL communication it is performing to the RAN (which decides what resource configuration and resource allocation scheme the UE can use based on UE capability).
* There is a restriction that a UE can only use a resource allocation scheme to transmit in a pool allowing this scheme with “allowedResourceSelectionConfig”. Whether/what spec impact may be handled during CR implementation.
* It is up to UE implementation how to consider the per-pool allowedResourceSelectionConfig and UE capability (for a UE in RRC idle/inactive) during resource pool selection. Whether to capture it as a NOTE in the Spec may be discussed during CR implementation.
* It is up to UE implementation to select an allowed resource allocation scheme finally used in the selected resource pool (if the selected pool allows multiple resource allocation schemes the UE is capable to perform).
* Agreements on IUC:
* A standalone MAC CE for UE-A’s IUC information is transmitted through HARQ Feedback disabled MAC PDU.
* When a MAC CE for IUC information is multiplexed with MAC SDU(s), the HARQ attribute of a MAC PDU is determined by following sl-HARQ-FeedbackEnabled being set to enabled or disabled for the highest priority logical channel included in the MAC PDU.
* A standalone MAC CE for UE-B’s explicit request is transmitted through HARQ Feedback disabled MAC PDU.
* When a MAC CE for explicit request is multiplexed with MAC SDU(s), the HARQ attribute of a MAC PDU is determined by following sl-HARQ-FeedbackEnabled being set to enabled or disabled for the highest priority logical channel included in the MAC PDU.
* The priority order of a MAC CE for UE-B’s explicit request is between SL CSI reporting MAC CE and SL DRX command MAC CE (when priority of IUC REQ MAC CE is fixed as “1”).
* The priority order of a IUC Information MAC CE is between SL CSI reporting MAC CE and SL DRX command MAC CE (when priority of IUC Information MAC CE is fixed as “1”).
* Send LS to RAN1 to inform RAN2 understanding on the priority of IUC INFO/IUC REQ MAC CE and RAN2 preference to fix the priority of IUC INFO/IUC REQ MAC CE as “1”.
* RAN2 introduces a mechanism of timer-based latency bound restriction for transmission of UE-A’s IUC information.
* Timer-based latency bound restriction is applied for the explicit request based UE-A’s IUC information transmission.
* RAN2 introduces the timer-based latency bound restriction on the transmission of UE-A’s IUC information for both preferred resource set and non-preferred resource set in explicit request-based IUC.
* Working assumption: UE-B sets the timer value to UE-A through PC5 RRC signalling
* RAN2 supports that UE-A starts the timer for the transmission of UE-A's IUC information in the explicit request-based IUC when receiving an explicit request from UE-B and deciding to trigger IUC information to be transmitted UE-B.
* RAN2 supports that UE-A can stop the timer for the transmission of IUC information in explicit request-based IUC when an IUC information to UE-B is generated by the Multiplexing and Assembly procedure.
* RAN2 supports that UE-A can cancel the transmission of IUC information in explicit request-based IUC if the timer for the triggered UE-A’s IUC information reporting expires.
* RAN2 supports that UE-A can cancel the transmission of IUC information in explicit request-based IUC when an IUC information to UE-B is generated by the Multiplexing and Assembly procedure.
* For determining preferred resource set in Scheme 1, PC5-RRC signalling from UE-B to UE-A for transmitting the parameters (i.e., prio\_TX, L\_subCH, P\_rsvp\_TX, n+T\_1, n+T\_2) is not supported when inter-UE coordination information transmission is triggered by a condition other than explicit request reception.
* For inter-UE coordination information is triggered by UE-B’s request, RAN2 not further discuss PC5-RRC signaling from UE-B to UE-A to provide information on whether UE-B supports sensing/resource exclusion.
* No special handling is needed to handle IUC REQ MAC CE latency bound.

#### 2.2.2 Remaining Open issues

## 2.3 RAN3

#### 2.3.1 Agreements

#### 2.3.2 Remaining Open issues

## 2.4 RAN4

#### 2.4.1 Agreements

**RAN4#101bis-e: RF**

RAN4 endorsed 4 draft CRs, 4 WFs and updated TR38.785 v0.5.0 for SL enhancements in Rel-17 as follows:

* New SL enhancement RF requirements:
	+ New SL enhancement RF requirements:
		- Based on the endorsed CRs and agreed WF, we provide detail results as follows:
		- Add additional definitions and symbols in TR38.785 and TS38.101-1
		- Completed Detail RF core requirements for PS UE using SL operation in n14
			* Support power class 1 and Power class 3 for PS UE in n14
			* Define A-MPR requirements for PC1 PS UE to reuse PC3 V2X A-MPR
			* Reuse NS\_06 with A-SEM (clause 6.5.2.3.4)
			* Define 5MHz REFSENS requirements. FFS the detail FRC tables for SCS15kHz
		- Updated TR38.785 v0.5.0 was agreed (R4-2200833)
			* RAN4 captured as following approved TPs
				+ TP for TR 38.785: Addition of definitions and symbols to Chapter 3
				+ TP on RF requirements for NR PS UE in n14 for NRSL\_enh WI in Rel-17
				+ TP on RF requirements for intra-band con-current V2X operation in licensed band
				+ TP on sync issue for intra-band V2X operation
* Left over issue:
	+ Supporting PC2 NR SL UE RF requirements
		- WF on PC2 HPUE for NR sidelink enhancements (R4-2202363)
			* Issue 1-1: Whether need to update the Pcmax definition for inter-band V2X UE
				+ Agreements

Further check if the majority view (no changes) is agreeable.

* + - * Issue 2-1: Whether the licensed band and frequency can be used for NR-V out-of-coverage scenario?
				+ Agreements

Option 1, i.e. the deployment scenarios for n14 support both in-coverage and out-of-coverage

* + - * Issue 2-2: Should the co-channel co-existence issue under discussion need to be guaranteed by RAN4 requirements
				+ Proposed WF

No RAN4 requirements to be specified for the discussed co-channel co-existence issue

If the content of a revised LS can be agreed in the group, sending LS to RAN2 to describe the issue discussed by RAN4 can be considered.

If no agreed LS to RAN2, no further discussion in Rel-17

If LS to RAN2 is agreed, no further discussion until receiving feedback from RAN2

If no agreed LS to RAN2, TP in TR to document the issue (1708) in next meeting.

* + Supporting intra-band con-current V2X operation in licensed band
		- WF on switching time mask and sync issue for V2X intra-band con-current operation (R4-2202360)
			* Issue 1-1-1: Clarification of same carrier and different carrier cases
				+ Agreement:

Base on the agreements made in the last RAN4 meeting, RAN4 will define one time mask requirement for Case A and one time mask requirement for Case B and Case C

Case A: Same bandwidth with same carrier frequency

Case B: Different bandwidths with same carrier frequency

Case C:

Same bandwidth with different carrier frequency

Different bandwidth with different carrier frequency

Case A is considered as same carrier case while Case B and C are considered as different carrier case.

* + - * Issue 1-1-3: Whether to differentiate UL and DL if RAN4 agree on TA inclusion for switching time mask
				+ Agreement: No need to differentiate UL and DL if RAN4 agree on TA inclusion for switching time mask.
			* Issue 1-4-1: Capture note in TS or TR
				+ Proposals

Option 1: Capture the note for interference problem in TS 38.101-1

Option 2: Capture the note for interference problem in TR 38.785

* + - * + Recommended WF

Option 2 is agreeable based on majority of view. Issue 1-1-3: Pcmax definition of V2X UE for intra-band V2X UE in TS38.101-3 in Rel-16

* + - WF on Configured Tx power for intra-band V2X con-current operation UE in a licensed band (R4-2202361)
			* Issue 1-2-1: Configured transmitted power for intra-band V2X con-current operation
				+ Agreements

For the TDM operation intra-band V2X con-current UE, the configured Tx power for each RAT applies per carrier at a given time.

For the FDM operation intra-band V2X con-current UE, RAN4 can applied the principle of of NR intra-band CA for the configured Tx power.

FDM or TDM operation is determined by whether simultaneous transmission of Uu and SL overlap in time or not.

TP and Draft CR will be updated based on the WF.

* + - WF on MPR for intra-band V2X con-current operation (R4-2202362)
			* Issue 1-2-1: MPR for intra-band V2X con-current operation
				+ Agreements

Further discuss in Feb meeting and make a decision based on consideration for the following aspects:

Whether there should be big difference between the case of intra-band con-current operation and intra-band UL CA taken the implementation architectures into consideration

Whether similar manner of MPR definition for UL CA could be considered for SL as well, e.g. category of RB allocation of inner, outer1 and outer2

Difference between simulation and measurement should be considered based on the agreed MPR simulations assumptions in TR38.785.

Other aspects helpful to address the difference between the two options can also be considered

**RAN4#102-e: RF**

RAN4 agreed formal big CR and endorsed 7 draft CRs, 2 WFs and updated TR38.785 v1.0.0 for SL enhancements in Rel-17 as follows:

* New SL enhancement RF requirements:
	+ Based on the formal big CR and endorsed 7 CRs, we provide detail results as follows:
	+ New SL enhancement RF requirements:
		- Completed Detail RF core requirements for PS UE using SL operation in n14
			* Support power class 1 and Power class 3 for PS UE in n14
			* Define A-MPR requirements for PC1 PS UE to reuse PC3 V2X A-MPR
			* Reuse NS\_06 with A-SEM (clause 6.5.2.3.4)
			* Define 5MHz REFSENS requirements. Finalize and update the detail FRC tables for SCS15kHz
		- Conclusion of Rel-17 WI
			* According to the coexistence simulation results and analysis, RAN4 made consensus for the NR SL enhancement UE will be coexisted with legacy NR system for PC2 V2X UE, intra-band con-current V2X UE and NR PS UE with sidelink operation.
			* For the leftover issues, RAN4 studied the coexistence evaluation in section 5.1.1 and specified the PC2 V2X UE RF requirements in section 5.1.2 and 5.1.3.
			* To support intra-band con-current V2X UE operation, RAN4 studied coexistence evaluation in section 5.2.2 and specified RF requirements in section 5.2.3 and 5.2.4.
			* The SL enhancement for advanced V2X service and public safety and other commercial use case, RAN4 evaluated the coexistence analysis in section 6.1 and specified the NR V2X UE RF requirements to support the following scenarios.
				+ Specify operating NR V2X bands and system parameters (Section 7)
				+ Specify RF core requirements (Section 8)

Specify Tx requirements including A-MPR requirements for PC1/PC3 PS UE

Specify Rx requirements

* + - * Above RF core requirements for NR SL enhancement, RAN4 will specify NR SL enhancement UE RF core requirements in TS38.101-1 for NR PC2 V2X operation, intra-band con-current V2X UE and PS UE using sidelink in FR1.
		- Updated TR38.785 v1.0.0 was agreed (R4-2204152)
			* RAN4 captured as following approved TPs
				+ TP on the RF requirements for the remaining open issues for SL enhancements
				+ TP to TR 38.785 switching time mask between SL and Uu for different carriers
				+ TP to TR 38.785 on the co-channel co-existence issue
* Left over issue:
	+ Supporting PC2 NR SL UE RF requirements
		- Approved TP on the co-channel co-existence issue (R4-2206532)
	+ Supporting intra-band con-current V2X operation in licensed band
		- Way forward on switching time mask for intra-band V2X con-current operation (R4-2206525)
			* Issue 1-1-1: Whether to include TA difference into switching time mask
				+ Agreement: Define the switching time mask requirement only considering the hardware limitation

Add the note to clarify that there will be additional TA difference included in the switching time in the real field.

There is no test case for it

* + - * Issue 1-1-5: Whether to capture into TR 38.785 the statement that no RF test for switching time is needed if agreed.
				+ Agreement: Capture into TR 38.785 the statement that no RF test for switching time is needed and the switching time for different carrier case is 140us.
			* Issue 1-1-7: Switching time mask for same carrier case
				+ Agreement: Adopt the switching time mask for same carrier case as below.

 

* + - * Issue 1-1-8: Switching time mask for different carrier case
				+ Agreement: Adopt the switching time mask for different carrier case as below.

 

* + - RAN4 agreed to send LS to RAN5 for On/Off time mask for TDM operation in licensed band (R4-2206526)
			* The switching time shall be located on the link with lower priority when NR Uu and NR SL have different priorities based on priority information specified in TS 38.321. It is up to UE implementation when NR Uu and NR SL have the same priority based on priority information specified in TS 38.321. The above time mask requirement in issue 1-1-8 is to give criteria on how the switching period position is decided based on priority information. RAN4 made an agreement that no RF test is needed for this NR Uu to NR SL switching time mask requirement defined in TS 38.101-1 Clause 6.3E.3.4.
		- Way forward on MPR requirements for intra-band V2X con-current operation (R4-2206527)

<PC3 MPR>

Table 1: MPR for contiguous RB allocation for power class 3 NR V2X con-current UE

|  |  |
| --- | --- |
| Higher Modulation order between Sidelink and Uplink | MPR for bandwidth class B(dB) |
| Inner RB allocation | Outer RB allocation |
| CP-OFDM | QPSK | ≤ [1.0] 🡪 [2.5] | ≤ [1.0] 🡪 [4.5] |
| 16QAM | ≤ [1.0] 🡪 [2.5] | ≤ [1.0] 🡪 [4.5] |
| 64QAM | ≤ [1.0] 🡪 [4.5] | ≤ [1.0] 🡪 [5.0] |
| 256QAM | ≤ [2.0] 🡪 [6.0] | ≤ [2.5] 🡪 [6.0] |

Table 2: MPR for non-contiguous RB allocation for power class 3 NR V2X con-current UE

|  |  |
| --- | --- |
| Higher Modulation order between Sidelink and Uplink | MPR for bandwidth class B(dB) |
| Inner RB allocation | Outer1 RB allocation | Outer2 RB allocation |
| CP-OFDM | QPSK | ≤ [1.0] 🡪 [2.5] | ≤ [1.5] 🡪 [4.0] | ≤ [3.0] 🡪 [4.5] |
| 16QAM | ≤ [1.0] 🡪 [2.5] | ≤ [1.5] 🡪 [4.0] | ≤ [3.0] 🡪 [4.5] |
| 64QAM | ≤ [1.0] 🡪 [4.5] | ≤ [1.5] 🡪 [4.5] | ≤ [3.0] 🡪 [5.0] |
| 256QAM | ≤ [2.5] 🡪 [6.0] | ≤ [2.5] 🡪 [6.0] | ≤ [3.5] 🡪 [6.0] |

<PC2 MPR>

Table 3: MPR for contiguous RB allocation for power class 2 NR V2X con-current UE

|  |  |
| --- | --- |
| Higher Modulation order between Sidelink and Uplink | MPR for bandwidth class B(dB) |
| Inner RB allocation | Outer RB allocation |
| CP-OFDM | QPSK | ≤ [1.5] 🡪 [3.0] | ≤ [3.5] 🡪 [5.5] |
| 16QAM | ≤ [2.0] 🡪 [4.0] | ≤ [3.5] 🡪 [5.5] |
| 64QAM | ≤ [3.0] 🡪 [5.5] | ≤ [3.5] 🡪 [6.0] |
| 256QAM | ≤ [5.0] 🡪 [7.5] | ≤ [5.5] 🡪 [7.5] |

Table 4: MPR for non-contiguous RB allocation for power class 2 NR V2X con-current UE

|  |  |
| --- | --- |
| Higher Modulation order between Sidelink and Uplink | MPR for bandwidth class B(dB) |
| Inner RB allocation | Outer1 RB allocation | Outer2 RB allocation |
| CP-OFDM | QPSK | ≤ [2.0] 🡪 [3.0] | ≤ [4.0] 🡪 [5.5] | ≤ [6.0] 🡪 [6.0] |
| 16QAM | ≤ [2.5] 🡪 [4.5] | ≤ [4.0] 🡪 [5.5] | ≤ [6.0] 🡪 [6.5] |
| 64QAM | ≤ [3.5] 🡪 [5.5] | ≤ [4.5] 🡪 [6.5] | ≤ [6.0] 🡪 [7.0] |
| 256QAM | ≤ [5.5] 🡪 [8.0] | ≤ [5.5] 🡪 [8.0] | ≤ [6.5] 🡪 [8.0] |

**RAN4#101bis-e: RRM**

Draft Big CR was endorsed based on endorsed 6 draft CRs. And WF was approved:

* Endorsed Draft Big CR and draft CRs

|  |  |  |
| --- | --- | --- |
| Tdoc number | Title | Source |
| R4-2202747 | Draft Big CR- RRM requirements for Rel-17 NR SL enhancement | LG Electronics |
| R4-2202651 | Draft CR on UE transmit timing requirements for sidelink enhancement | CATT |
| R4-2202652 | draft CR on interruption requirement for SL | LG Electronics |
| R4-2202653 | Draft CR on requirements for InitiationCease of SLSS Transmissions impact by SL-DRX | Xiaomi |
| R4-2202654 | Draft CR on Selection Reselction of V2X Synchronization Reference Source for sidelink enhancement | vivo |
| R4-2202655 | DraftCR on scheduling availability requirements for NR eV2X | Huawei, Hisilicon |
| R4-2202021 | CR: SL autonomous resource allocation requirements (draft CR) | Qualcomm communications-France |

* WF on RRM requirements : R4-2202650
	+ Related to new operating scenario (intra-band con-current operation)
		- 1.1 NTA\_offset & NTA,SL when NR Cell is configured as synchronization reference source
			* In R17, the requirements on NTA,SL and NTA-offset for NR cell as synchronization reference are updated as follows
				+ The sidelink transmissions takes place (NTA,SL+NTA-offset)×TC before the reception of the first detected path (in time) of the corresponding downlink frame from the reference cell, where NTA,SL=0. If uplink transmission and sidelink transmission are in the same band, NTA-offset is defined in Table 7.1.2-2, otherwise NTA-offset is defined as 0
		- 1.2 Scheduling restriction calculation when switching TDM based intra-band con-current SL operation
			* Consider only RF switching time for scheduling availability
				+ When switch from uplink transmision to NR V2X sidelink transmision occurs in sidelink slot ‘n’,

UE is not expected to transmit or receive on NR V2X sidelink on the sidelink slot ‘n’.

When switch from NR V2X sidelink transmision to uplink transmision occurs in sidelink slot ‘n-1’,

* + - * + UE is not expected to transmit or receive on NR V2X sidelink on the sidelink slot ‘n-1’.
				+ When switch from NR V2X sidelink transmision to uplink transmision occurs in Uu slot ‘n’,

UE is not expected to transmit uplink or receive downlink on the Uu slot ‘n’.

* + - * + When switch from uplink transmision to NR V2X sidelink transmision occurs in Uu slot ‘n-1’,

UE is not expected to transmit uplink or receive downlink on the Uu slot ‘n-1’.

* + - * FFS: whether the requirement is different when NTA is smaller than the switching time
		- 1.2.1 Timeline applicability when switching TDM based intra-band con-current SL operation
			* FFS Tx preparation time by
				+ SL to Uu Tx switch: K2 >= 2 slots for the first UL grant when switching from SL to Uu
				+ Uu to SL Tx switch: N2 >= one slot + PSSCH preparation time for the first SL grant when switching from Uu to SL
		- 1.3 Interruption on SL due to Uu BWP switch for FDM based intra-band con-current SL operation
			* Reuse the interruption length in Table 8.2.1.2.7-1(=Table8.2.2.2.5-1) as interruption on SL due to Uu BWP switch, excluding μ=3.

Table: Interruption length X

|  |  |  |
| --- | --- | --- |
|  | NR Slot | Interruption length X (slots) |
|  | length (ms) |  |
| 0 | 1 | 1 |
| 1 | 0.5 | 1 |
| 2 | 0.25 | 3 |

* + - * Only allow interruption on SL within TBWPswitchDelay for DCI-based or timer-based BWP switch, or within TRRCprocessingDelay + TBWPswitchDelayRRC for RRC-based BWP switch
	+ Related to SL-DRX
		- 2.1 RRM requirements at transition when SL DRX cycle periodicity changes in the configured multiple SL-DRX cycles
			* When the SL-DRX changes, the UE is not required to meet corresponding requirements within this DRX cycle
		- 2.2.2 SyncRef UE detection time (Tdetect,SyncRef UE\_V2X) for Asynchronized SLSS measurement & search
			* 8s
		- 2.2.3 UE Rx(Data) drop rate requirements for Asynchronized SLSS measurement & search
			* Further discuss in next meeting
				+ Option 1: maximum drop rate(X) during Tdetect,SyncRef UE\_V2X

Option 1a : X = 0.3%(Rel-16) (CATT, vivo, Xiaomi)

Option 1b : X = 0.3%(Rel-16) with additional clarification that “The dropping rate is calculated ignoring SL-DRX configuration” (Oppo)

Option 1c : X = max{2 slots, 0.3% of its V2X data reception} (LGE)

* + - * + Option 2 : maximum aggregated drop window(Y) during Tdetect,SyncRef UE\_V2X (Oppo)

Y = 480ms

* + - * + Moderator’s suggestion based on 2nd round

Up to 24 slots(or 5%) of V2X data reception during maximum aggregated drop window of 480ms is allowed to be dropped for PSBCH monitoring

* + - 2.2.4 Conditional SyncRef UE detection requirements for Asynchronized SLSS measurement & search
			* Further discuss in next meeting
				+ Option 1 : Define conditional SyncRef UE detection requirements (QC, LGE, vivo)

Option 1a: (Qualcomm)

UE can skip asynchronized SyncRef UE search to save power when the following conditions are all satisfied over an evaluation period:

SLSS RSRP is larger than a threshold

SLSS RSRP variation is lower than a threshold. The SLSS RSRP variation is the average value of (instantaneous RSRP - current filtered RSRP)^2 during the evaluation period

Data connection is maintained with the current SyncRef UE source

The evaluation period is the same as SLSS Tx initiation/cease evaluation period when SLSS is the synchronization source

Option 1b: (LGE)

UE can skip asynchronized SyncRef UE search to save power when the following conditions are all satisfied over an evaluation period, Tevaluate,SLSS:

All SLSS RSRPs are larger than a threshold, syncTxThreshOoC.

Data connection is maintained with the current SyncRef UE source

Option 1c : FFS (vivo)

* + - * + Option 2 : Not define conditional SyncRef UE detection requirements for asynchronized SLSS measurement & search in R17 (Huawei, Xiaomi)
		- 2.2.5 UE Tx(Data & SLSS) drop rate requirements for Asynchronized SLSS measurement & search
			* Specify based on the previous agreements
				+ Allow Tx dropping at most in an aggregated window of 480ms during Tdetect,SyncRef UE\_V2X async search
			* If needed, revisit in next meeting
		- 2.3.1 Whether to define interruption to WAN due to SL-DRX
			* Agreement (GTW)
				+ Define interruption requirements on NR transmission if configured due to NR SL transitions between active and non-active in SL DRX when NR SL is in SL-DRX but NR is in non-DRX

Used as baseline

* + - * + FFS whether interruptions are applicable for the following WAN conditions and impact on SL transitions between active and non-active SL DRX if interruptions are not applicable:

Reception of paging

Reception of system information

While onDurationTimer is running

While RLF timer is running

While UE is performing CBD

* + - * + FFS on interruptions for the case when NR is in DRX and SL is in SL-DRX
		- 2.3.1.1 Interruption length on WAN due to SL-DRX when interruption is allowed
			* Reuse table 8.2.1.2.1-1 for sync & async case in TS 38.133

|  |  |  |
| --- | --- | --- |
|  | NR Slot  | Interruption length X (slots) |
|  | length (ms) | Sync | Async |
| 0 | 1 | 1 | 2 |
| 1 | 0.5 | 1 | 2 |
| 2 | 0.25 | 3 |
| 3 | 0.125 | 5 |

* + - 2.3.1.2 Allowed probability of missed Ack/Nack on WAN due to SL-DRX when interruption is allowed
			* Allow up to 1 % probability of missed ACK/NACK when the configured SL-DRX cycle is less than 640ms, and up to 0.625 % probability of missed ACK/NACK when the configured configured SL-DRX cycle]is 640ms or longer.
			* When multiple SL-DRX cycles are configured,
				+ A shortest SL-DRX cycle is applied
		- 2.3.4 Interruption to WAN due to SyncRef UE detection and/or Sensing during SL DRX off duration
			* Define interruption
			* Further discuss how to specify it in next meeting
		- 2.3.5 Sensing requirement during SL-DRX
			* For active time, define requirements
				+ ‘When partial sensing mechanism is enabled for the resource pool that UE is monitoring and selecting resource from, the UE shall be capable of performing the L1 SL-RSRP measurements on the sensing periods specified in TS38.214[26]. When SL-DRX is enabled, the UE shall be capable of performing the L1 SL-RSRP measurements and select resource during SL-DRX active time as specified in TS38.214 [26].’
		- 2.4.1 Interruption to SL due to Uu DRX
			* ACK/NACK miss probability requirements are only applied when HARQ process on SL is supported
	+ Related to L1-RSRP
		- 3.1.1 L1-RSRP measurement for partial sensing
			* Existing L1 SL-RSRP measurement accuracy requirements can be applied
		- 3.1.2 L1-RSRP measurement for inter-UE coordination
			* Existing L1 SL-RSRP measurement accuracy requirements can be applied

**RAN4#102-e: RRM**

For RRM core requirements, Big CR was agreed based on the endorsed draft Big CR in the RAN4#101bis-e and additionally endorsed 2 draft CRs. For RRM performance requirements, Work plan and test cases were agreed. Related WF was approved

* Agreed Big CR and Endorsed draft CRs

|  |  |  |
| --- | --- | --- |
| Tdoc number | Title | Source |
| R4-2204147 | Big CRs : RRM requirements for Rel-17 NR SL enhancement | LG Electronics |
| R4-2206917 | draft CR on interruption requirement for SL | LG Electronics |
| R4-2206918 | Draft CR on Selection Reselction of V2X Synchronization Reference Source for sidelink enhancement | vivo |

* WF on RRM requirements : R4-2206916
	+ Related to new operating scenario (intra-band con-current operation)
		- 1.1.1 Scheduling availability when switching TDM based intra-band con-current SL operation
			* Scheduling availability requirement apply regardless of NTA
		- 1.1.2 Timeline applicability when switching TDM based intra-band con-current SL operation
			* Keep the endorsed scheduling availability requirements in RAN4#101bis-e meeting.
				+ Not consider Tx preparation time for defining scheduling availability
				+ If needed, option 1 can be discussed under maintenance.

Option 1: When switch from uplink transmission to V2X sidelink transmission (or vice versa) occurs in sidelink (or Uu) slot ‘x’, UE is not expected to transmit or receive on V2X sidelink and Uu DL/UL on the sidelink (or Uu) slot ‘x’ since SL and Uu are on the same band

* + Related to SL-DRX
		- 2.1.1 UE Rx(Data) drop rate requirements for Asynchronized SLSS measurement & search
			* UE is allowed to drop up to 2 slots of its V2X data reception per PSBCH monitoring occasion and UE is allowed to drop at most an aggregated window of 24ms of its V2X data reception during Tdetect,SyncRef UE\_V2X for the purpose of selection / reselection to the SyncRef UE when SL-DRX is used
		- 2.1.2 Conditional SyncRef UE detection requirements for Asynchronized SLSS measurement & search
			* Relax asynchronized SyncRef UE search requirement for R17 UE supporting DRX when the conditions are satisfied for an evaluation period, e.g. Tevaluate,SLSS in initial/cease of SLSS Tx:
				+ UE can extend the detection time to max(X\*50 DRX cycle length, 8s) when a set of conditions are satisfied over an evaluation period

DRX cycle length is the longest DRX cycle

X = 4

Set of conditions is,

Option 1: SLSS RSRP is larger than a threshold, e.g., syncTxThreshOoC

* + - * + Other options for Set of conditions can be discussed under maintenance

Option 2-a: SLSS RSRP variation, (instantaneous RSRP – current filtered RSRP)^2 , is lower than a threshold

Option 2-b: UE is aware of high priority async SyncRef UE sources.

Option 2-c: The current SyncRef UE source is not of Priority 6.

Option 3-a: Data connection is maintained with the current SyncRef UE source

Option 3-b: Data connection is reliable with current SyncRef UE sources

* + - 2.2.1 Avoidance of Interruption to WAN due to SL-DRX
			* Define the following applicability rules for interruptions to WAN due to SL DRX
				+ For SL DRX active to inactive state transition

|  |  |
| --- | --- |
| WAN operation | Applicability of WAN interruptions due to SL DRX transition between active/non-active states |
| SL resource allocation mode 1 | SL resource allocation mode 2 |
| Reception of paging | Applicable | Not applicable |
| Reception of system information | Applicable | Not applicable |
| While RLF timer is running | Applicable | Not applicable for DRX cycle length < X msApplicable for other cases |
| While UE is performing CBD | Applicable |

X = 320ms

Do not specify UE behavior for the case when WAN interruption is avoided. UE may postpone SL-DRX transition.

* + - * + For SL DRX inactive to active state transition all interruption requirements apply
		- 2.2.2 Interruption to WAN due to SL-DRX when NR is in DRX and SL is in SL-DRX
			* When NR is DRX, the avoidance of interruptions to WAN due to SL-DRX follows 2.2.1
		- 2.2.3 Interruption to WAN due to SyncRef UE detection and/or Sensing during SL DRX off duration
			* Reuse same requirements of interruption to WAN due to SL-DRX
	+ WF on RRM performance requirements
		- Work Plan
			* RAN4#102-e meeting (’22.February)
				+ Agree with list of RRM test cases
				+ Do work-split of test cases for draft CRs
			* RAN4#103-e meeting (’22.May)
				+ Discuss the draft CRs with the detailed test configurations and related parameter
			* RAN4#104 meeting (’22.August)
				+ Endorse the final draft CRs.
				+ Approve a Big CR based on all endorsed draft CRs.
		- Test Cases
			* Introduce following test cases

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Feature/requirements | Comment | No of tests | Proposed section | Company |
| 1 | 12.3.1.4 Initiation/Cease of SLSS transmissions with SyncRef UE as synchronization reference source | Need test for SL-DRX | 1 | - A.9.1.2.3 Test for SyncRef UE as synchronization reference source under SL-DRX | Huawei |
| 2-1 | 12.4 Selection / Reselection of V2X Synchronization Reference Source | Need test for SL-DRX | 1 | - A.9.1.3.3 Test for GNSS configured as the highest priority under SL-DRX | vivo |
| 2-2 | Need test for SL-DRX | 1 | - A.9.1.3.4 Test for FR1 NR Cell configured as the highest priority under SL-DRX | vivo |
| 3-1 | 12.5.2 SL-RSRP measurements | Need test for Partial sensing(Periodic, Contiguous) | 2 | - A.9.1.4.4 Test for V2X UE Partial Sensing | Qualcomm |
| 3-2 | Need test to verify that Tx UE performs proper sensing and select the resource during Rx UE DRx active time | 1 | - A.9.1.4.5 Test for V2X UE Sensing during Rx UE SL-DRX active time | Qualcomm |
| 4-2 | 12.7.4 Interruptions to WAN at transitions between active and non-active during SL-DRX  | Need test for SL-DRX | 1 | - A.9.1.6.3 Test for Interruption to WAN at transitions between active and non-active during SL-DRX for Asynchronized case | LG Electronics |

**RAN4#102-e: Demodulation (performance part)**

In demodulation session, 2 contributions were submitted to RAN4#102-e, and e-mail discussion summary was submitted for information. WF (R4-2207224) on NR SL enhancement demodulation was approved with following contents.

* Work plan

|  |  |
| --- | --- |
| RAN4 meeting | Work plan |
| RAN4#102-e | * Discuss work plan and work scope of performance test cases
 |
| RAN4#103-e | * Discuss whether to introduce test cases for 256QAM demodulation and CSI reporting
* Discuss initial simulation assumptions if test cases are identified.
 |
| RAN4#104 | * For identified test cases,
	+ Collect simulation results
	+ Finalize performance requirements based on collected simulation results
	+ Submit draft CRs and approve Big CR based on the draft CRs
* Complete NR SL enhancement demodulation performance requirements
 |

* Work scope
	+ Test case for demodulation and CSI performance in Rel-17
		- Do not define test cases for demodulation and CSI performance based on new feature introduced in Rel-17
	+ Test case for 256QAM demodulation
		- Whether to introduce the demodulation performance test case for 256QAM will be discussed in the next meeting.
	+ Test case for rank 2 demodulation
		- Do not define test case for rank 2 demodulation.
	+ Test case for con-current operation scenario (WAN+SL)
		- Do not define test case for con-current operation scenario.
	+ Test case for gNB based sync source
		- Do not define test case for gNB based sync source
	+ Test case for CSI reporting
		- Whether to introduce CSI reporting performance test case will be discussed in the next meeting

#### 2.4.2 Remaining Open issues

**RF-Core**:

* None
	+ RAN4 completed Rel-17 NR\_SL\_enh RF core requirements. TR38.785 v1.0.0 was agreed in RAN4. There was no open issues.

**RRM-Core**:

* None
	+ RAN4 completed Rel-17 NR\_SL\_enh RRM core requirements.

**RRM-Performance**:

* Continue discussion of test cases which were identified in RAN4#102-e meeting.

**Demodulation (performance part)**:

* Identification of test cases for demodulation and CSI performance

## 2.5 RAN5

#### 2.5.1 Agreements

#### 2.5.2 Remaining Open issues

#### 2.5.3 Remaining Open issues with cross-WG dependencies

## 2.6 RAN6

#### 2.6.1 Agreements

#### 2.6.2 Remaining Open issues

## 3. Detailed progress in SA/CT WGs since last TSG meeting (for all involved WGs)

NOTE: This section only needs to be filled in for WI/SIs where there is a corresponding relevant WI/SI in SA/CT.

## 3.1 SA2

#### 3.1.0 SA2 eV2XARC\_Ph2 status – general

Normative work on eV2XARC\_Ph2 (Architecture enhancements for 3GPP support of advanced V2X services – Phase 2) was 100% complete at SA#94e.

No progress during 2022 Q1.

#### 3.1.1 Agreements with cross-TSG impacts

#### 3.1.2 Remaining Open issues with cross-TSG impacts

NOTE: This section should also flag any critical dependencies that need TSG attention.

## 3.2 CT WGs

#### 3.2.0 CT WGs eV2XARC\_Ph2 status – general

Regarding normative work on eV2XARC\_Ph2 (CT aspects of Architecture enhancements for 3GPP support of advanced V2X services – Phase 2) to specify support of PC5 DRX operation based on the stage 2 requirements:

* CT1 has progressed normative work in TS 24.587 and TS 24.588, and 100% completed.
* CT6 submitted an Exception Sheet to CT#95e in order to extend the completion date to June 2022 (CT#96): CP-220144.

## 4. References

NOTE: This can be e.g. a list of all related Tdocs in the affected WGs since last TSG, references to LSs, produced TRs/TSs, the work/study item description or status reports of previous TSGs.

 10.01.2022 minor adaptations for RAN #95e

 04.10.2021 minor adaptations for RAN #94e

 08.08.2021 minor adaptations for RAN #93e

 17.05.2021 minor adaptations for RAN #92e

 28.01.2021 minor adaptations for RAN #91e

 09.11.2020 minor adaptations for RAN #90e

 31.08.2020 minor adaptations for RAN #89e

 20.04.2020 minor adaptations for RAN #88e

 18.02.2020 minor adaptations for RAN #87e

 14.11.2019 minor adaptations for RAN #86

 18.08.2019 minor adaptations for RAN #85

 12.05.2019 minor adaptations for RAN #84

 27.02.2019 minor adaptations for RAN #83

 21.11.2018 completion levels with colours added (for RAN #82)

v04.81 31.07.2018 simplification of template and addition of cross-TSG aspects (for RAN #81)

v04.80 21.05.2018 minor adaptations for RAN #80

v04.79 26.02.2018 minor adaptations for RAN #79

v04.78 18.11.2017 minor adaptations for RAN #78

v04.77 06.08.2017 minor adaptations for RAN #77

v04.76 15.05.2017 minor adaptations for RAN #76

v04.75 31.01.2017 minor adaptations for RAN #75

v04.74 28.10.2016 minor adaptations for RAN #74

v04.73 01.09.2016 adaptations for RAN #73 (time units in extra Excel table, RAN6 reporting included)

v04.72 26.05.2016 adaptations for RAN #72 (introduction of NR & GERAN TUs)

v04.71 10.02.2016 minor adaptations for RAN #71

v04.70 30.10.2015 minor adaptations for RAN #70

v04.69 12.08.2015 minor adaptations for RAN #69

v04.68 21.05.2015 minor adaptations for RAN #68

v04.67 01.02.2015 minor adaptations for RAN #67

v04.66 16.11.2014 minor adaptations for RAN #66

v04.65 16.08.2014 minor adaptations for RAN #65

v04.64 22.05.2014 minor adaptations for RAN #64

v04.63 24.01.2014 restructuring for RAN #63 to cover Core & Perf. in one doc file

v03.62 11.11.2013 section 1.2.3 adapted for RAN #62

v03 11.08.2013 section 1.2.3 added on time budget

v02 07.05.2010 history added, some spelling corrections

v01 13.11.2009 First version of the template

**RAN1#107bis-e**

1. R1-2200015 Resource allocation for power saving Nokia, Nokia Shanghai Bell
2. R1-2200016 Inter-UE coordination for Mode 2 enhancements Nokia, Nokia Shanghai Bell
3. R1-2200021 Power consumption reduction for sidelink resource allocation FUTUREWEI
4. R1-2200022 Discussion on techniques for inter-UE coordination FUTUREWEI
5. R1-2200041 Sidelink resource allocation to reduce power consumption Huawei, HiSilicon
6. R1-2200042 Inter-UE coordination in sidelink resource allocation Huawei, HiSilicon
7. R1-2200091 Remaining issues on resource allocation for sidelink power saving vivo
8. R1-2200092 Remaining issues on mode-2 enhancements vivo
9. R1-2200093 Other aspects on SL enhancements vivo
10. R1-2200125 Considerations on partial sensing and DRX in NR Sidelink Fujitsu
11. R1-2200126 Considerations on inter-UE coordination for mode 2 enhancements Fujitsu
12. R1-2200130 Remaining issues on sidelink resource allocation enhancements for power saving CATT, GOHIGH
13. R1-2200131 Remaining issues on Inter-UE coordination for Mode 2 enhancements CATT, GOHIGH
14. R1-2200132 Discussion on the status of Rel-17 Sidelink enhancements CATT, GOHIGH
15. R1-2200168 Discussion on resource allocation for power saving LG Electronics
16. R1-2200169 Discussion on inter-UE coordination for Mode 2 enhancements LG Electronics
17. R1-2200170 Feature lead summary #1 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
18. R1-2200171 Feature lead summary #2 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
19. R1-2200172 Feature lead summary #3 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
20. R1-2200181 Discussion on sidelink resource allocation for power saving Sony
21. R1-2200182 Discussion on inter-UE coordination for Mode 2 enhancements Sony
22. R1-2200189 Remaining issues on resource allocation for power saving InterDigital, Inc.
23. R1-2200190 Discussions on remaining issues for Mode 2 inter-UE coordination InterDigital, Inc.
24. R1-2200191 On gNB-designated resources for inter-UE coordination and sensing in SL DRX InterDigital, Inc.
25. R1-2200210 On Resource Allocation for Power Saving Samsung
26. R1-2200211 On Inter-UE Coordination for Mode2 Enhancements Samsung
27. R1-2200212 Discussion on Sidelink Enhancement Samsung
28. R1-2200224 Remaining Issues on Sidelink Resource Allocation for Power Saving Panasonic Corporation
29. R1-2200225 Inter-UE coordination for mode 2 enhancements ITL
30. R1-2200241 Discussion on sidelink resource allocation for power saving NTT DOCOMO, INC.
31. R1-2200242 Resource allocation for reliability and latency enhancements NTT DOCOMO, INC.
32. R1-2200270 Considerations on mode2 enhancements CAICT
33. R1-2200281 Discussion on sidelink resource allocation for power saving Spreadtrum Communications
34. R1-2200282 Discussion on inter-UE coordination in sidelink resource allocation Spreadtrum Communications
35. R1-2200306 Power Savings for Sidelink Qualcomm Incorporated
36. R1-2200307 Reliability and Latency Enhancements for Mode 2 Qualcomm Incorporated
37. R1-2200347 Remaining issues on power saving RA OPPO
38. R1-2200348 Inter-UE coordination in mode 2 of NR sidelink OPPO
39. R1-2200359 Discussion on resource allocation for power saving ETRI
40. R1-2200360 Discussion on inter-UE coordination for Mode 2 enhancements ETRI
41. R1-2200361 Inter-UE coordination for enhanced resource allocation Mitsubishi Electric RCE
42. R1-2200384 Remaining Details of Sidelink Resource Allocation Schemes for UE Power Saving Intel Corporation
43. R1-2200385 Inter-UE Coordination Solutions for Sidelink Communication Intel Corporation
44. R1-2200425 On Remaining Issues of Sidelink Resource Allocation for Power Saving Apple
45. R1-2200426 On Remaining Issues of Inter-UE Coordination Apple
46. R1-2200436 Discussion on resource allocation for power saving ZTE, Sanechips
47. R1-2200437 Remaining issues on the inter-UE coordination ZTE, Sanechips
48. R1-2200439 Other enhancements on power saving ZTE, Sanechips
49. R1-2200449 Discussion on sidelink resource allocation enhancement for power saving xiaomi
50. R1-2200450 Discussion on inter-UE coordination xiaomi
51. R1-2200474 Sidelink resource allocation for power saving Lenovo, Motorola Mobility
52. R1-2200475 Inter-UE coordination for Mode 2 enhancements Lenovo, Motorola Mobility
53. R1-2200504 Discussion on inter-UE coordination for mode 2 enhancements Sharp
54. R1-2200505 Discussion on resource allocation for power saving Sharp
55. R1-2200510 Discussion on resource allocation for power saving NEC
56. R1-2200511 Discussion on mode 2 enhancements NEC
57. R1-2200523 Remaining issues on partial sensing and SL DRX impact ASUSTeK
58. R1-2200524 Remaining issues on V2X mode 2 enhancements ASUSTeK
59. R1-2200545 Resource allocation for sidelink power saving MediaTek Inc.
60. R1-2200554 Discussion on Mode 2 enhancements MediaTek Inc.
61. R1-2200593 Remaining issues on resource allocation for power saving CMCC
62. R1-2200594 Remaining issues on inter-UE coordination for mode 2 enhancement CMCC
63. R1-2200629 NR Sidelink Resource Allocation for UE Power Saving Fraunhofer HHI, Fraunhofer IIS
64. R1-2200630 Inter-UE Coordination for Mode 2 Enhancements Fraunhofer HHI, Fraunhofer IIS
65. R1-2200638 Remains on resource allocation for power saving in NR sidelink enhancement ITL
66. R1-2200641 Remaining aspects of resource allocation procedures for power saving Ericsson
67. R1-2200642 Details on mode 2 enhancements for inter-UE coordination Ericsson
68. R1-2200643 Additional considerations on resource allocation regarding power saving and inter-UE coordination Ericsson
69. R1-2200651 Physical layer impacts of sidelink DRX Huawei, HiSilicon
70. R1-2200675 Inter-UE coordination for Mode 2 enhancements Panasonic
71. R1-2200720 FL summary #1 for AI 8.11.1.1 – resource allocation for power saving Moderator (OPPO)
72. R1-2200721 FL summary #2 for AI 8.11.1.1 – resource allocation for power saving Moderator (OPPO)
73. R1-2200722 FL summary #3 for AI 8.11.1.1 – resource allocation for power saving Moderator (OPPO)
74. R1-2200723 FL summary #4 for AI 8.11.1.1 – resource allocation for power saving Moderator (OPPO)
75. R1-2200724 FL summary for AI 8.11.1.1 – resource allocation for power saving (EOM) Moderator (OPPO)
76. R1-2200745 Feature lead summary #4 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
77. R1-2200746 Feature lead summary #5 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
78. R1-2200747 Feature lead summary #6 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
79. R1-2200748 Feature lead summary #7 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
80. R1-2200749 Feature lead summary #8 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
81. R1-2200786 FL summary #5 for AI 8.11.1.1 – resource allocation for power saving Moderator (OPPO)
82. R1-2200807 [107bis-e-R17-RRC-Sidelink] Summary of email discussion on Rel-17 RRC parameters for sidelink enhancement Moderator (LG Electronics)
83. R1-2200815 Corrections further to the introduction of sidelink enhancements in NR Samsung
84. R1-2200827 Corrections further to the introduction of sidelink enhancements in NR Nokia
85. R1-2200830 Corrections on NR sidelink enhancement in 38.212 Huawei

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1. R1-2200963 Sidelink resource allocation to reduce power consumption Huawei, HiSilicon
2. R1-2200964 Inter-UE coordination in sidelink resource allocation Huawei, HiSilicon
3. R1-2200980 Resource allocation for power saving Nokia, Nokia Shanghai Bell
4. R1-2200981 Inter-UE coordination for Mode 2 enhancements Nokia, Nokia Shanghai Bell
5. R1-2200982 Power consumption reduction for sidelink resource allocation FUTUREWEI
6. R1-2200983 Discussion on techniques for inter-UE coordination FUTUREWEI
7. R1-2201111 Remaining issues on resource allocation for sidelink power saving vivo
8. R1-2201112 Remaining issues on mode-2 enhancements vivo
9. R1-2201113 Other aspects on SL enhancements vivo
10. R1-2201182 Inter-UE coordination for Mode 2 enhancements Panasonic Corporation
11. R1-2201254 Remaining essential issues on power saving RA OPPO
12. R1-2201255 Inter-UE coordination in mode 2 of NR sidelink OPPO
13. R1-2201335 Remaining issues on sidelink resource allocation enhancements for power saving CATT, GOHIGH
14. R1-2201336 Remaining issues on Inter-UE coordination for Mode 2 enhancements CATT, GOHIGH
15. R1-2201337 Discussion on the status of Rel-17 Sidelink enhancements CATT, GOHIGH
16. R1-2201386 Remaining Issues on Sidelink Resource Allocation for Power Saving Panasonic Corporation
17. R1-2201437 Discussion on partial sensing and DRX in NR Sidelink Fujitsu
18. R1-2201438 Discussion on inter-UE coordination for Mode 2 enhancements Fujitsu
19. R1-2201494 Remaining issues on sidelink resource allocation for power saving NTT DOCOMO, INC.
20. R1-2201495 Remaining issues on sidelink resource allocation for reliability and latency NTT DOCOMO, INC.
21. R1-2201530 Remaining issues on resource allocation for power saving InterDigital, Inc.
22. R1-2201531 Discussions on remaining issues for Mode 2 inter-UE coordination InterDigital, Inc.
23. R1-2201532 On gNB-designated resources for inter-UE coordination and sensing in SL DRX InterDigital, Inc.
24. R1-2201557 Discussion on sidelink resource allocation for power saving Spreadtrum Communications
25. R1-2201558 Discussion on inter-UE coordination in sidelink resource allocation Spreadtrum Communications
26. R1-2201584 Discussion on sidelink resource allocation for power saving Sony
27. R1-2201585 Discussion on inter-UE coordination for Mode 2 enhancements Sony
28. R1-2201616 Discussion on resource allocation for power saving ETRI
29. R1-2201617 Discussion on inter-UE coordination for Mode 2 enhancements ETRI
30. R1-2201715 Remaining opens of sidelink resource allocation schemes for UE power saving Intel Corporation
31. R1-2201716 Remaining opens of sidelink inter-UE coordination schemes Intel Corporation
32. R1-2201784 Remaining Issues of Sidelink Resource Allocation for Power Saving Apple
33. R1-2201785 Remaining Issues of Inter-UE Coordination Apple
34. R1-2201819 Remaining issues on partial sensing and SL DRX impact ASUSTeK
35. R1-2201820 Remaining issues on V2X mode 2 enhancements ASUSTeK
36. R1-2201873 Remaining issues on resource allocation for power saving CMCC
37. R1-2201874 Remaining issues on inter-UE coordination for mode 2 enhancement CMCC
38. R1-2201906 Discussion on resource allocation for power saving NEC
39. R1-2201907 Discussion on mode 2 enhancements NEC
40. R1-2201920 Discussion on inter-UE coordination Xiaomi
41. R1-2201929 Discussion on sidelink resource allocation enhancement for power saving Xiaomi
42. R1-2202031 On Resource Allocation for Power Saving Samsung
43. R1-2202032 On Inter-UE Coordination for Mode2 Enhancements Samsung
44. R1-2202033 Discussion on Sidelink Enhancement Samsung
45. R1-2202063 Resource allocation for sidelink power saving MediaTek Inc.
46. R1-2202086 Discussion on Mode 2 enhancements MediaTek Inc.
47. R1-2202158 Power Savings for Sidelink Qualcomm Incorporated
48. R1-2202159 Reliability and Latency Enhancements for Mode 2 Qualcomm Incorporated
49. R1-2202201 Discussion on resource allocation for power saving Sharp
50. R1-2202202 Discussion on inter-UE coordination for mode 2 enhancements Sharp
51. R1-2202230 Sidelink resource allocation for power saving Lenovo, Motorola Mobility
52. R1-2202231 Inter-UE coordination for Mode 2 enhancements Lenovo, Motorola Mobility
53. R1-2202245 Inter-UE coordination for mode 2 enhancements ITL
54. R1-2202252 Discussion on resource allocation for power saving LG Electronics
55. R1-2202253 Discussion on inter-UE coordination for Mode 2 enhancements LG Electronics
56. R1-2202254 Feature lead summary #1 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
57. R1-2202255 Feature lead summary #2 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
58. R1-2202256 Feature lead summary #3 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
59. R1-2202257 Feature lead summary #4 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
60. R1-2202258 Feature lead summary #5 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
61. R1-2202262 Remaining aspects of resource allocation procedures for power saving Ericsson
62. R1-2202263 Details on mode 2 enhancements for inter-UE coordination Ericsson
63. R1-2202264 Additional considerations on resource allocation for power saving and inter-UE coordination Ericsson
64. R1-2202356 Inter-UE coordination for enhanced resource allocation Mitsubishi Electric RCE
65. R1-2202373 Remains on resource allocation for power saving in NR sidelink enhancement ITL
66. R1-2202376 Discussion on resource allocation for power saving ZTE, Sanechips
67. R1-2202377 Remaining issues on the inter-UE coordination ZTE, Sanechips
68. R1-2202378 Consideration on UE-A for inter-UE coordination ZTE, Sanechips
69. R1-2202444 Physical layer impacts of sidelink DRX Huawei, HiSilicon
70. R1-2202482 Resource allocation for power saving Fraunhofer HHI
71. R1-2202483 Inter-UE coordination for Mode 2 enhancements Fraunhofer HHI
72. R1-2202561 FL summary #1 for AI 8.11.1.1 – NR sidelink resource allocation for power saving Moderator (OPPO)
73. R1-2202562 FL summary #2 for AI 8.11.1.1 – NR sidelink resource allocation for power saving Moderator (OPPO)
74. R1-2202563 FL summary #3 for AI 8.11.1.1 – NR sidelink resource allocation for power saving Moderator (OPPO)
75. R1-2202564 FL summary #4 for AI 8.11.1.1 – NR sidelink resource allocation for power saving Moderator (OPPO)
76. R1-2202565 FL summary for AI 8.11.1.1 – NR sidelink resource allocation for power saving (EOM) Moderator (OPPO)
77. R1-2202665 Feature lead summary #6 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
78. R1-2202666 Feature lead summary #7 for AI 8.11.1.2 Inter-UE coordination for Mode 2 enhancements Moderator (LG Electronics)
79. R1-2202708 [108-e-R17-RRC-Sidelink] Summary of email discussion on Rel-17 RRC parameters for sidelink enhancement Moderator (LG Electronics)

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1. R2-2200007 Summary of [POST116-e][718][V2X SL] SL DRX configuration (Ericsson) Ericsson
2. R2-2200045 Summary of [POST116-e][715][V2X/SL] RRC open issues Huawei, HiSilicon (Rapporteur)
3. R2-2200051 Summary of [POST116-e][716][SL] MAC open issues LG Electronics Inc. (Rapporteur)
4. R2-2200263 Discussion on inter-UE coordination ZTE Corporation, Sanechips
5. R2-2200264 Discussion on remaining issues of SL DRX ZTE Corporation, Sanechips
6. R2-2200265 Running CR of TS 38.304 for eSL ZTE Corporation, Sanechips
7. R2-2200317 Consideration on Resource Allocation Enhancements CATT
8. R2-2200318 Leftover Issues for Sidelink Unicast DRX CATT
9. R2-2200319 Leftover issues for Sidelink GCBC DRX CATT
10. R2-2200344 Further discussions on leftover issues of sidelink DRX configuration NEC Corporation
11. R2-2200345 Further discussions on sidelink MAC open issues NEC Corporation
12. R2-2200349 Discussion on candidate resource selection with DRX and inter-UE coordination NEC Corporation
13. R2-2200373 Discussion on DRX left issues OPPO
14. R2-2200374 Discussion on DRX left issues from [716] [718] OPPO
15. R2-2200375 Discussion on resource allocation enhancement OPPO
16. R2-2200379 RAN2 aspects on resource allocation enhancements for Rel-17 eSL vivo
17. R2-2200415 SL DRX CP aspects Lenovo, Motorola Mobility
18. R2-2200482 RRC running CR for NR Sidelink enhancements Huawei, HiSilicon
19. R2-2200483 Remaining issues for sidelink DRX Huawei, HiSilicon
20. R2-2200484 Remaining issues of SL communication impact on Uu DRX Huawei, HiSilicon
21. R2-2200485 Consideration on resource allocation enhancement Huawei, HiSilicon
22. R2-2200528 Leftover aspects on SL DRX Intel Corporation
23. R2-2200529 On resource allocation and inter-UE coordination Intel Corporation
24. R2-2200530 On SL DRX and candidate resource selection Intel Corporation
25. R2-2200535 Discussion on remaining issues for SL DRX LG Electronics France
26. R2-2200536 Consideration on sidelink DRX for unicast LG Electronics France
27. R2-2200537 Discussion on Inter-UE Coondination MAC CE LG Electronics France
28. R2-2200544 Consideration on sidelink DRX for unicast LG Electronics France
29. R2-2200545 Discussion on resource (re-)selection in SL DRX SHARP Corporation
30. R2-2200550 Running CR of TS 38.321 for Sidelink enhancement LG Electronics France
31. R2-2200642 Discussion on resource allocation enhancement for NR sidelink Spreadtrum Communications
32. R2-2200749 Discussion on remaining issues regarding Sidelink DRX ASUSTeK
33. R2-2200750 Discussion on inter-UE coordination ASUSTeK
34. R2-2200762 Remaining MAC issues for SL DRX Lenovo, Motorola Mobility
35. R2-2200763 RAN2 impacts on SL Resource allocation enhancements Lenovo, Motorola Mobility
36. R2-2200786 NR Sidelink Synchronization Reference Search Optimization at UE for Power Saving Nokia, Nokia Shanghai Bell
37. R2-2200790 Discussion on Uu impact Xiaomi
38. R2-2200791 Discussion on Sidelink DRX open issues Xiaomi
39. R2-2200792 Discussion on inter-UE coordination impact in RAN2 Xiaomi
40. R2-2200799 On Signalling for Inter UE Coordination Nokia, Nokia Shanghai Bell
41. R2-2200893 RRC remaining issues on SL DRX vivo
42. R2-2200894 MAC remaining issues on SL DRX vivo
43. R2-2200938 Remaining aspects of SL DRX Ericsson
44. R2-2200939 MAC CE design of inter-UE coordination Ericsson
45. R2-2201061 Discussion on remaining issues of SL DRX timers ZTE Corporation, Sanechips
46. R2-2201134 Discussion on Inter-UE Coordination Apple
47. R2-2201135 Discussion on remaining issues on SL-DRX Apple
48. R2-2201150 Resource Selection Considering DRX InterDigital
49. R2-2201151 Consideration of the Active Time for Periodic Transmissions InterDigital, Ericsson, ZTE, AsusTek, Huawei, HiSilicon, Lenovo, Motorola Mobility, Nokia, Nokia Shanghai Bell
50. R2-2201152 Remaining Aspects on SL DRX InterDigital
51. R2-2201457 Power Reduction for Sidelink Mode 2 Resource Allocation Fraunhofer IIS, Fraunhofer HHI
52. R2-2201458 SL data transmission considering SL DRX active time Nokia, Nokia Shanghai Bell
53. R2-2201459 Inter-UE Coordination for Sidelink Mode 2 Resource Allocation Fraunhofer IIS, Fraunhofer HHI
54. R2-2201478 Resource selection considering SL DRX ITL
55. R2-2201479 Interaction between partial sensing and DRX Ericsson
56. R2-2201523 SL DRX CP aspects Lenovo, Motorola Mobility
57. R2-2201582 UE report on SL DRX for Uu DRX alignment Samsung Research America
58. R2-2201585 Remaining details for GC/BC Samsung Research America
59. R2-2201591 Resource allocation enhancements Samsung Research America
60. R2-2201624 Discussion on Remaining Design Aspects for SL DRX Qualcomm Finland RFFE Oy
61. R2-2201625 Discussion on Inter-UE Coordination Qualcomm Finland RFFE Oy
62. R2-2201635 Consideration of the Active Time for Periodic Transmissions InterDigital Inc., Ericsson, ZTE, AsusTek, Huawei, HiSilicon, Lenovo, Motorola Mobility, Nokia, Nokia Shanghai Bell, Samsung
63. R2-2201801 Running CR of TS 38.304 for eSL ZTE Corporation, Sanechips
64. R2-2201802 RRC running CR for NR Sidelink enhancements Huawei, HiSilicon
65. R2-2201803 Running CR of TS 38.321 for Sidelink enhancement LG Electronics France
66. R2-2201804 "Summary of [AT116bis-e][704][V2X/SL] Resource allocation enhancements" LG Electronics Inc. (Rapporteur)
67. R2-2201805 Summary of [705] OPPO
68. R2-2201806 Summary of [POST116bis-e][706][V2X/SL] Open issues on power-saving resource allocation, Phase 1 vivo
69. R2-2201807 Summary of [POST116bis-e][707][V2X/SL] Open issues on IUC, Phase 1 LG
70. R2-2201808 Stage 2 Running CR of TS 38.300 for eSL InterDigital
71. R2-2201809 LS to RAN1 on Inter-UE coordination RAN2

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1. R2-2202190 Discussion on DRX left issues OPPO
2. R2-2202191 Discussion on power saving resource allocation enhancement OPPO
3. R2-2202192 Discussion on inter-UE coordination OPPO
4. R2-2202203 Summary of [POST116bis-e][705][V2X/SL] Open issues on SL DRX (OPPO) OPPO
5. R2-2202204 Introduction of sidelink DRX capability OPPO
6. R2-2202205 Introduction of sidelink DRX capability OPPO
7. R2-2202387 IUC Request and Response MAC CE Design CATT
8. R2-2202388 Leftover Issue for Sidelink DRX CATT
9. R2-2202391 Introduction of sidelink DRX capability OPPO
10. R2-2202430 Remaining aspects of SL DRX Ericsson
11. R2-2202431 MAC CE design of inter-UE coordination Ericsson
12. R2-2202432 Remaining issues for power saving resource allocation Ericsson
13. R2-2202451 Discussion on Inter-UE coordination ZTE Corporation
14. R2-2202452 Discussion on SL DRX remaining issues for unicast ZTE Corporation, Sanechips
15. R2-2202453 Discussion on TX profile issues for SL DRX ZTE Corporation, Sanechips
16. R2-2202474 Rapporteur Inputs on Stage 2 Open Issues InterDigital (Rapporteur)
17. R2-2202475 Consideration of the Active Time for Periodic Transmissions InterDigital, Ericsson, vivo, Huawei, HiSilicon, Nokia, ASUSTek, Lenovo, Motorola Mobility, Samsung
18. R2-2202476 Resource Allocation for DRX InterDigital
19. R2-2202477 On the Allowable Cast Types for IUC InterDigital
20. R2-2202478 Introduction of eSL in TS.38300 InterDigital (Rapporteur)
21. R2-2202540 Discussion on remaining issues on SL-DRX Apple
22. R2-2202541 Discussion on Inter-UE Coordination Apple
23. R2-2202542 Discussion on power saving resource selection Apple
24. R2-2202581 Remaining MAC issues for SL DRX Lenovo, Motorola Mobility
25. R2-2202582 Open issues on SL inter-UE coordination Lenovo, Motorola Mobility
26. R2-2202667 On SL DRX and candidate resource selection Intel Corporation
27. R2-2202668 Inter-UE coordination open issues Intel Corporation
28. R2-2202712 RRC running CR for NR Sidelink enhancements Huawei, HiSilicon
29. R2-2202713 Remaining issue on sidelink DRX Huawei, HiSilicon
30. R2-2202764 Consideration on the different DRX status among RX UEs in SL groupcast Huawei, HiSilicon
31. R2-2202823 Summary of [POST116bis-e][706][V2X/SL] Open issues on power-saving resource allocation, Phase 2 vivo (Rapporteur)
32. R2-2202866 Consideration on Inter-UE coordination Huawei, HiSilicon
33. R2-2202900 Draft-CR for NOTE-based approach for Q2.3.3-1b in [POST116bis-e][705] OPPO
34. R2-2202901 Draft-CR for normative-text-based approach for Q2.3.3-1b in [POST116bis-e][705] OPPO
35. R2-2202902 Draft-CR for NOTE-based approach for Q2.3.3-2b in [POST116bis-e][705] OPPO
36. R2-2202903 Draft-CR for normative-text-based approach for Q2.3.3-2b in [POST116bis-e][705] OPPO
37. R2-2202941 Discussion on remaining issues for SL DRX LG Electronics France
38. R2-2202942 Discussion on Inter-UE Coordination LG Electronics France
39. R2-2202948 Running CR of TS 38.321 for Sidelink enhancement LG Electronics France
40. R2-2202984 consideration on the remaining issues for SL DRX LG Electronics France
41. R2-2203046 Latency bound and remaining PDB related to inter-UE coordination MAC CE not covered by open issue list vivo
42. R2-2203047 SL-DRX negotiation procedure in unicast vivo
43. R2-2203048 Unsolved issues on SL-DRX vivo
44. R2-2203082 Remaining issues for SL DRX Samsung Research America
45. R2-2203083 Partial-sensing/random selection based resource allocation in SL DRX Samsung Research America
46. R2-2203084 Introduction of IUC MAC CE Samsung Research America
47. R2-2203147 Discussion on sidelink DRX open issues Xiaomi
48. R2-2203152 Resource selection considering SL DRX ITL
49. R2-2203159 Summary of [POST116bis-e][707][V2X/SL] Open issues on IUC (LG) LG (Rapporteur)
50. R2-2203182 SL DRX CP aspects Lenovo, Motorola Mobility
51. R2-2203200 Handling of sidelink mode-1 grant drop due to misalignment with SL-DRX Nokia, Nokia Shanghai Bell
52. R2-2203207 Whether UE-A in IUC can be in mode 1 or mode 2 Nokia, Nokia Shanghai Bell
53. R2-2203274 Down-selection for SL DRX configuration for GC/BC with multiple QoS profiles associated with the same L2 DST ID Nokia, Nokia Shanghai Bell
54. R2-2203472 Discussion on Inter-UE Coordination Qualcomm Finland RFFE Oy

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1. [R4-2200138](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200138.zip) Draft CR for TS 38.101-1, Correction on MOP requirements for inter-band V2X con-current operation (Rel-17) CATT
2. R4-2200139 Draft CR for TS 38.101-1, Correction on MOP requirements for inter-band V2X con-current operation (Rel-16) CATT
3. [R4-2200140](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200140.zip) Draft CR for TS 38.101-3, Correction on MOP requirements for inter-band V2X con-current operation (Rel-17) CATT
4. R4-2200141 Draft CR for TS 38.101-3, Correction on MOP requirements for inter-band V2X con-current operation (Rel-16) CATT
5. [R4-2200142](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200142.zip) Discussion on time mask for Uu and SL switching CATT
6. [R4-2200143](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200143.zip) TP on configured transmitted power for intra-band V2X con-current operation CATT
7. [R4-2200509](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200509.zip) n14 REFSENS for PS in licensed band Qualcomm Incorporated
8. [R4-2200510](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200510.zip) RF switching time for V2X intra-band con-current operation with different carriers in TDD bands and time masks for same carrier switching Qualcomm Incorporated
9. [R4-2200556](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200556.zip) MPR for NR V2X intra-band con-current operation with Uu LG Electronics
10. R4-2200833 TR38.785 v0.5.0 TR Update for SL enhancement in Rel-17 LG Electronics France
11. [R4-2200834](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200834.zip) RF requirements for intra-band con-current V2X operation in licensed band LG Electronics France
12. [R4-2200840](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200840.zip) TP on RF requirements for intra-band con-current V2X operation in licensed band LG Electronics France
13. [R4-2200841](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200841.zip) Draft CR on RF requirements for intra-band con-current V2X operation in Rel-17 LG Electronics France
14. [R4-2200842](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200842.zip) TP on RF requirements for NR PS UE in n14 for NRSL\_enh WI in Rel-17 LG Electronics France
15. [R4-2200848](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200848.zip) Draft CR on RF requirements for SL enhancement for public safety service in n14 LG Electronics France
16. [R4-2200946](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200946.zip) TP for TR 38.785: Addition of definitions and symbols to Chapter 3 vivo
17. [R4-2200947](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200947.zip) Remaining issues for intra-band con-current operation vivo
18. R4-2201021 TP on sync issue for intra-band V2X operation CATT
19. [R4-2201496](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201496.zip) draft CR for TS 38.101-1 correctiron on intra-band concurrent operation Xiaomi
20. [R4-2201497](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201497.zip) draft CR for TS 38.101-1 on switching time mask between SL and Uu Xiaomi
21. [R4-2201498](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201498.zip) draft CR for TS 38.101-3 on Pcmax definition on inter-band V2X UE Xiaomi
22. [R4-2201499](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201499.zip) further discussion on co-existence issue for HPUE Xiaomi
23. [R4-2201500](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201500.zip) further discussion on configured power for intra-band concurrent operation Xiaomi
24. [R4-2201501](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201501.zip) further discussion on Pcmax definition on inter-band V2X UE Xiaomi
25. [R4-2201502](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201502.zip) further discussion on switching time mask between SL and Uu Xiaomi
26. [R4-2201708](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201708.zip) Co-channel existing Ericsson
27. [R4-2201948](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201948.zip) On SL switching time mask Huawei, HiSilicon
28. [R4-2201949](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201949.zip) Draft CR for TS 38.101-1: configured transmitted power for intra-band con-current operation Huawei, HiSilicon
29. [R4-2201950](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201950.zip) MPR for intra-band con-current operation Huawei, HiSilicon
30. [R4-2201951](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201951.zip) On co-channel existence issue in RAN4 Huawei, HiSilicon
31. [R4-2201952](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201952.zip) TP for 38.785: TxD requirements for NR V2X Huawei, HiSilicon
32. [R4-2201953](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201953.zip) Big CR: introduction of TxD requirements for NR V2X Huawei, HiSilicon
33. R4-2202224 Email discussion summary for [101-bis-e][124] NRSL\_enh\_Part\_1 Moderator (LGE)
34. R4-2202225 Email discussion summary for [101-bis-e][125] NRSL\_enh\_Part\_2 Moderator (CATT)
35. R4-2202324 Email discussion summary for [101-bis-e][124] NRSL\_enh\_Part\_1 Moderator (LGE)
36. R4-2202325 Email discussion summary for [101-bis-e][125] NRSL\_enh\_Part\_2 Moderator (CATT)
37. R4-2202355 TP for TR 38.785: Addition of definitions and symbols to Chapter 3 vivo
38. R4-2202356 Draft CR on RF requirements for intra-band con-current V2X operation in Rel-17 LG Electronics
39. R4-2202357 TP on RF requirements for intra-band con-current V2X operation in licensed band LG Electronics
40. R4-2202358 draft CR for TS 38.101-1 correction on intra-band concurrent operation Xiaomi
41. R4-2202359 TP on sync issue for intra-band V2X operation CATT
42. R4-2202360 WF on switching time mask and sync issue for intra-band V2X con-current operation CATT
43. R4-2202361 WF on configured transmitted power for intra-band V2X con-current operation LG Electronics
44. R4-2202362 WF on MPR for intra-band V2X con-current operation Huawei, HiSilicon
45. R4-2202363 WF on PC2 HPUE for NR sidelink enhancements Huawei
46. R4-2202407 TP on RF requirements for NR PS UE in n14 for NRSL\_enh WI in Rel-17 LG Electronics France
47. R4-2202408 Draft CR on RF requirements for SL enhancement for public safety service in n14 LG Electronics France
48. [R4-2200107](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200107.zip) Draft CR on UE transmit timing requirements for sidelink enhancement CATT
49. [R4-2200108](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200108.zip) Further discussion on RRM requirements related to SL-DRX CATT
50. [R4-2200326](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200326.zip) On NR SL RRM Requirement Qualcomm, Inc.
51. [R4-2200557](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200557.zip) RRM requirements for SL-DRX LG Electronics
52. [R4-2200558](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200558.zip) draft CR on interruption requirement for SL LG Electronics
53. [R4-2200687](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200687.zip) Further discussion on RRM requirements for intra-band con-current V2X operation Xiaomi
54. [R4-2200688](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200688.zip) Further discussion on RRM requirements related to SL-DRX Xiaomi
55. [R4-2200689](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200689.zip) Draft CR on requirements for InitiationCease of SLSS Transmissions impact by SL-DRX Xiaomi
56. [R4-2201144](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201144.zip) Discussion on RRM impact of intra-band concurrent V2X operation OPPO
57. [R4-2201162](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201162.zip) Discussion on SL-DRX OPPO
58. [R4-2201365](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201365.zip) Further discussion on Intra-band con-current V2X operation RRM requirements vivo
59. [R4-2201366](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201366.zip) Further discussion on SL-DRX RRM requirements vivo
60. [R4-2201367](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201367.zip) Draft CR on Selection Reselction of V2X Synchronization Reference Source for sidelink enhancement vivo
61. [R4-2201403](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201403.zip) Discussions on DRX in NR SL enhancement ZTE Corporation
62. [R4-2201404](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201404.zip) RRM requirements for FDM based intra-band con-current SL operation ZTE Corporation
63. [R4-2201613](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201613.zip) Discussion on RRM requirements related to intra-band con-current V2X operation Huawei, Hisilicon
64. [R4-2201614](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201614.zip) Discussion on RRM requirements related to SL DRX Huawei, Hisilicon
65. [R4-2201615](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201615.zip) DraftCR on scheduling availability requirements for NR eV2X Huawei, Hisilicon
66. [R4-2201871](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201871.zip) Discussions on SL DRX for Rel-17 SL operation Ericsson
67. [R4-2202021](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2202021.zip) CR: SL autonomous resource allocation requirements Qualcomm communications-France
68. R4-2202226 Email discussion summary for [101-bis-e][126] NRSL\_enh\_Part\_3 Moderator (Huawei)
69. R4-2202326 Email discussion summary for [101-bis-e][126] NRSL\_enh\_Part\_3 Moderator (Huawei)
70. R4-2202566 Email discussion summary for [101-bis-e][215] NR\_SL\_enh\_RRM Moderator (LGE)
71. R4-2202650 WF on NR SL enhancements RRM requirements LG Electronics
72. R4-2202651 Draft CR on UE transmit timing requirements for sidelink enhancement CATT
73. R4-2202652 draft CR on interruption requirement for SL LG Electronics
74. R4-2202653 Draft CR on requirements for InitiationCease of SLSS Transmissions impact by SL-DRX Xiaomi
75. R4-2202654 Draft CR on Selection Reselction of V2X Synchronization Reference Source for sidelink enhancement vivo
76. R4-2202655 DraftCR on scheduling availability requirements for NR eV2X Huawei, Hisilicon
77. R4-2202732 Email discussion summary for [101-bis-e][215] NR\_SL\_enh\_RRM Moderator (LGE)
78. R4-2202747 Draft Big CR: RRM requirements for Rel-17 NR SL enhancement LG Electronics

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1. [R4-2203911](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203911.zip) Time mask for Uu and SL switching CATT
2. [R4-2203912](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203912.zip) Draft CR for TS 38.101-1, Remaining RF requirements for intra-band con-current operation CATT
3. [R4-2204015](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204015.zip) RF switching for V2X intra-band con-current operation with different carriers in TDD bands Qualcomm Incorporated
4. [R4-2204017](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204017.zip) Frequency error measurement period for NR SL MIMO and NR V2X TxD Qualcomm Incorporated
5. [R4-2204144](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204144.zip) MPR for NR V2X intra-band con-current operation with Uu LG Electronics
6. R4-2204152 TR38.785 v1.0.0 TR Update for SL enhancement in Rel-17 LG Electronics France
7. [R4-2204153](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204153.zip) TP on the RF requirements for the remaining open issues for SL enhancements LG Electronics France
8. [R4-2204154](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204154.zip) Draft CR on FRC for 5MHz CBW for SL enhancement for public safety service in n14 LG Electronics France
9. [R4-2204155](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204155.zip) Draft CR on MPR and ON/OFF time mask for intra-band con-current V2X operation in Rel-17 LG Electronics France
10. [R4-2204156](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204156.zip) Draft big CR to merge the endorsed CRs for SL enhancement PS UE in Part1 LG Electronics France
11. R4-2204157 Formal big CR to introduce SL enhancements UE RF requirements in Rel-17 LG Electronics France
12. R4-2204174 Draft big CR for TS 38.101-1, RF requirements for intra-band con-current operation CATT, LGE
13. [R4-2204920](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204920.zip) Synchronous operation between SL and Uu ZTE Corporation
14. [R4-2204929](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204929.zip) Draft CR for TS 38.101-1, Correction on configured transmitted power for SL (Rel-16) vivo
15. R4-2204930 Draft CR for TS 38.101-1, Correction on configured transmitted power for SL (Rel-17) vivo
16. [R4-2204931](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204931.zip) Further discussion on switching time mask for intra-band V2X con-current operation vivo
17. [R4-2205133](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205133.zip) on Switching time mask Xiaomi
18. [R4-2205134](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205134.zip) TP to TR 38.785 on the co-channel co-existence issue Xiaomi
19. [R4-2205135](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205135.zip) TP to TR 38.785 switching time mask between SL and Uu for different carriers Xiaomi
20. [R4-2205136](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205136.zip) draft CR for TS 38.101-1 on default power class for intra-band concurrent operation Xiaomi
21. [R4-2205137](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205137.zip) draft CR for TS 38.101-1 on switching time mask between SL and Uu Xiaomi
22. [R4-2205538](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205538.zip) Tp for Co-channel existing Ericsson
23. [R4-2205582](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205582.zip) On configured output power for NR SL inter-band con-current operation Huawei, HiSilicon
24. [R4-2205583](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205583.zip) draft CR for TS 38.101-1: introduction of PC2 TxD for SL Huawei, HiSilicon
25. [R4-2205584](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205584.zip) On MPR for intra-band con-current operation Huawei, HiSilicon
26. [R4-2205585](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205585.zip) On time mask for SL intra-band con-current operation Huawei, HiSilicon
27. [R4-2205586](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205586.zip) draft CR for TS 38.101-1: On time mask for SL intra-band con-current operation Huawei, HiSilicon
28. R4-2206330 Email discussion summary for [102-e][130] NRSL\_enh\_Part\_1 Moderator (LGE)
29. R4-2206331 Email discussion summary for [102-e][131] NRSL\_enh\_Part\_2 Moderator (CATT)
30. R4-2206332 Email discussion summary for [102-e][132] NRSL\_enh\_Part\_3 Moderator (Huawei)
31. R4-2206430 Email discussion summary for [102-e][130] NRSL\_enh\_Part\_1 Moderator (LGE)
32. R4-2206431 Email discussion summary for [102-e][131] NRSL\_enh\_Part\_2 Moderator (CATT)
33. R4-2206432 Email discussion summary for [102-e][132] NRSL\_enh\_Part\_3 Moderator (Huawei)
34. [R4-2203718](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203718.zip) On NR SL RRM Core Requirement Qualcomm, Inc.
35. [R4-2203906](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203906.zip) Discussion on remaining issues for intra-band con-current SL operation CATT
36. [R4-2203907](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203907.zip) Discussion on remaining issues for RRM requirements related to SL-DRX CATT
37. [R4-2204145](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204145.zip) RRM requirements for SL-DRX LG Electronics
38. [R4-2204146](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204146.zip) draft CR on interruption requirement for SL LG Electronics
39. R4-2204147 Big CRs : RRM requirements for Rel-17 NR SL enhancement LG Electronics
40. [R4-2204244](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204244.zip) Further discussion on RRM requirements for intra-band con-current V2X operation Xiaomi
41. [R4-2204245](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204245.zip) Further discussion on RRM requirements related to SL-DRX Xiaomi
42. [R4-2204298](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204298.zip) Discussion on RRM impact of intra-band concurrent V2X operation OPPO
43. [R4-2204299](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204299.zip) Discussion on SL-DRX OPPO
44. [R4-2204644](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204644.zip) Remaining issues on Intra-band con-current V2X operation RRM requirements vivo
45. [R4-2204645](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204645.zip) Remaining issues on SL-DRX RRM requirements vivo
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48. [R4-2205401](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205401.zip) Discussions on DRX in NR SL enhancement ZTE Corporation
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50. [R4-2205641](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205641.zip) Draft CR on WAN interruptions due to SL DRX for Rel-17 SL enhancement in TS 38.133 Ericsson
51. R4-2206766 Email discussion summary for [102-e][223] NR\_SL\_enh\_RRM Moderator (LGE)
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60. R4-2207444 Email discussion summary for [102-e][332] NR\_SL\_enh\_Demod\_NWM Moderator (LGE)