**3GPP TSG RAN WG2#121 R2-2301947**

**Athens, Greece, February 27th - 3rd March, 2023**

**Source: ZTE Corporation, Sanechips**

**Title: Summary of 8.13.4 SHR and SPCR**

**Agenda item:** **8.13.4**

**Document for:** **Discussion and Decision**

# Introduction

**[Pre121][8xx][R18 SON/MDT] Summary of 8.13.4 SHR and SPCR (ZTE)**

* Summarize the papers in 8.13.4

Comments are welcome no later than Monday 27 Feb. 2023, 13:00 p.m. Athens local time

This document provides the summary of the contributions submitted to agenda item 8.13.4 SHR and SPCR identifying issues can be discussed in RAN2 with consideration on RAN3 progress.

In subclause 2, companies’ proposals are categorized into different topics, where for each topic an initial analysis and proposals are made. Based on level of support proposals are classified into different categories in conclusion part, and it is expected that all proposals shall be discussed and confirmed online.

# Discussion

## Inter-RAT SHR

Relevant proposals:

|  |  |  |
| --- | --- | --- |
| **TDoc** | **Company name** | **Proposals** |
| [1] [R2-2300294](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2300294.zip) | CATT | Proposal 5: The inter-RAT SHR is always encoded in source RAT format, i.e. NR format, and is reported to NR cell when the UE is back to NR in case of HO from NR to LTE. |
| [3]R2-2300954 | Lenovo | Proposal 1: Configuration of triggering inter-RAT SHR from NR to LTE may be transmitted to the UE via the MobilityFromNRCommand message.  Proposal 2: Target C-RNTI can be included in the inter-RAT SHR from NR to LTE.  Proposal 3: The UE can encode the inter-RAT SHR from NR to LTE in NR format, if the inter-RAT SHR is triggered due to T310 or T312 trigger threshold is fulfilled.  Proposal 4: When T310/T312 triggers inter-RAT SHR from NR to LTE, inter-RAT SHR encoded in NR format can be transmitted to a NR node, or, to the target LTE node or a second LTE node together with source cell ID outside of the inter-RAT SHR. |
| [7] [R2-2301044](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301044.zip) | Xiaomi | For inter-RAT SHR (including from LTE to NR and from NR to LTE), the SHR configuration, recording and reporting are implemented at NR side.  For inter-RAT SHR from NR to LTE, UE records source cell information, target cell information and neighbor cell measurements. For target cell, the cell information includes cell id, cell level measurement results. For source cell, the cell information includes cell id, cell level measurement results and RS level measurement results.  For inter-RAT SHR from NR to LTE, the SHR also includes location information, SHR cause, C-RNTI, random access information.  For inter-RAT SHR is from NR to LTE, UE records the successful handover report in the VarSuccessHO-Report of the source NR cell.  If there is available inter-RAT SHR, UE indicates the availability of inter-RAT SHR only when UE is accessing NR cell. The current mechanism of availability indication for SHR in NR is reused. And gNB retrives the SHR through UE information request/response as legacy. |
| [8][R2-2301145](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301145.zip) | ZTE | Proposal 1:For mobility from NR to LTE, UE stores the SHR in NR format when storing condition(s) is fulfilled.  Proposal 2: Inter-RAT SHR reporting (i.e., report NR SHR to LTE) is not supported.  Proposal 3: For mobility from NR to LTE, below information is included in SHR:   1. Source NR cell information 2. Target LTE cell information 3. Measurement results for source, target and neighbours 4. Cause to indicate which inter-RAT SHR triggering condition was met 5. UE location Information   Proposal 4: Reuse current IEs for element a, c-e of P3. For b of P3, EUTRA target cell CGI is introduced in SHR. |
| [9] [R2-2301195](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301195.zip) | Samsung | Proposal 4: Inter-RAT SHR retrieval follows same principle as RLF retrieval. |
| [10] [R2-2301276](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301276.zip) | Ericsson | [Proposal 7 RAN2 agree to enhance the inter-RAT SHR configuration with a triggering condition associated to the number of random accesses attempts toward the LTE cell.](#_Toc127483952)  [Proposal 8 For Inter-RAT handover from NR to LTE, augment the SHR with a counter for the number of RA attempts made for the successful handover.](#_Toc127483953)  [Proposal 9 For Inter-RAT handover from NR to LTE, augment the SHR with a flag on whether contention was observed for the successful handover.](#_Toc127483954)  [Proposal 10 Intra-NR SHR and Inter-RAT SHR to include the time between report generation and report fetching.](#_Toc127483955)  [Proposal 11 Inter-RAT SHRs, generated during NR-to-LTE handovers, are fetched by NR nodes but not by LTE nodes.](#_Toc127483956)  [Proposal 12 For Inter-RAT SHR, a new field is needed to hold the LTE CGI.](#_Toc127483957)  [Proposal 13 For Inter-RAT SHR, the shr-Cause-r17 IE needs to be extended with a new cause for RACH issues.](#_Toc127483958)  [Proposal 14 For Inter-RAT SHR, an IE for LTE RA related information needs to be added.](#_Toc127483959)  [Proposal 15 For Inter-RAT SHR, the description for the c-RNTI-r17 IE needs to be updated so it refers to the source cell instead of the target cell.](#_Toc127483960)  [Proposal 16 RAN2 is requested to consider the attached draft reply of RAN3 LS.](#_Toc127483961) |
| [11][R2-2301421](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301421.zip) | Qualcomm | Proposal 1: Similar to the rel-17 intra-NR SHR report, the T310 and T312 threshold is provided to the UE by source-MN in the otherConfig.  Proposal 2: T310 and T312 thresholds are configured as the percentage of the timer value, similar to the threshold configured for intra-NR SHR.  Proposal 3: There is no need for cross-RAT reporting of inter-RAT SHR, i.e., UE reports the SHR report to the network when it comes back to NR.  Proposal 4: To support inter-RAT SHR from LTE to NR without having an LTE specification impact, RAN2 only supports the T304 threshold.  Proposal 5: Similar to intra-NR SHR, the T304 threshold is provided by the target cell.  Proposal 6: NR SHR is generated when the T304 trigger condition meets during inter-RAT mobility from LTE to NR. |
| [13] [R2-2301571](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301571.zip) | Huawei | Proposal 1: For Q1 in the LS R2-2211160, RAN2 agrees to reduce/avoid the impact on LTE specification to support inter-RAT SHR.  Proposal 2: For the SHR from NR to LTE, the UE stores the successful handover information into the NR variable varSuccessHO-Report and generates the SHR in NR format.  Proposal 3: For the SHR from NR to LTE, it can be only reported in NR when the UE comes back to NR cell.  Proposal 4: Reuse the existing IEs defined in Rel-17 for intra-NR SHR to capture the following parameters:  a. Source NR cell information  c. Measurement results for source, target and neighbours  d. Cause to indicate which inter-RAT SHR triggering condition was met  e. UE location Information  Proposal 5: Introduce the new target LTE cell information in the existing SHR to capture the parameter b:  b. Target LTE cell information.  Proposal 6: If the new target LTE cell information is set, the target NR cell information is set to a special value, e.g., 0. |

### General

In RAN3’LS in, RAN3 has asked below question:

**Q1. Is RAN2 planning to impact LTE specifications to support inter-RAT SHR?**

One company(Huawei) has proposed to have explicit agreements on RAN2 reference on above question. RAN2 has discussed this question last meeting, and there is a consensus that RAN2 would like to avoid/minimize LTE impact when discussing this feature. Rapporteur tends to agree that to have a clear RAN2 view is helpful for proceed on this topic. Therefore below proposal is made:

**Potential easy agreement**

**Proposal 1: For Q1 in the LS R2-2211160, RAN2 agrees to reduce/avoid the impact on LTE specification to support inter-RAT SHR.**

### From NR to LTE

It has been agreed in RAN2#120 RAN2 will prioritize handover from NR to LTE scenarios, therefore summary on two scenarios are made separately with prioritization on mobility from NR case.

#### On SHR content

First issue is on the format used for storing SHR when UE is handover from NR to LTE. 5 companies ( i.e., CATT, Lenovo, Xiaomi, ZTE, Huawei ) propose to use NR format to store the SHR, no opposing opinion is proposed. Considering for this use case only T310 and T312 trigger is supported and for such triggers it is source node (i.e., gNB) responsible for optimization. It is reasonable to use NR format. Therefore below proposal is made:

**Potential easy agreement**

**Proposal 2: For handover from NR to LTE,UE encodes the inter-RAT SHR in NR format when the inter-RAT SHR is triggered due to T310 or T312 trigger threshold is fulfilled.**

Another relevant issue is the inter-RAT SHR content and whether existing IEs can be reused. Below is ASN.1 of current SHR content supported for intra-NR HO case:

----------------------------------------------------------------From 38.331 ------------------------------------------------------------------

SuccessHO-Report-r17 ::= SEQUENCE {

sourceCellInfo-r17 SEQUENCE {

sourcePCellId-r17 CGI-Info-Logging-r16,

sourceCellMeas-r17 MeasResultSuccessHONR-r17 OPTIONAL,

rlf-InSourceDAPS-r17 ENUMERATED {true} OPTIONAL

},

targetCellInfo-r17 SEQUENCE {

targetPCellId-r17 CGI-Info-Logging-r16,

targetCellMeas-r17 MeasResultSuccessHONR-r17 OPTIONAL

},

measResultNeighCells-r17 SEQUENCE {

measResultListNR-r17 MeasResultList2NR-r16 OPTIONAL,

measResultListEUTRA-r17 MeasResultList2EUTRA-r16 OPTIONAL

} OPTIONAL,

locationInfo-r17 LocationInfo-r16 OPTIONAL,

timeSinceCHO-Reconfig-r17 TimeSinceCHO-Reconfig-r17 OPTIONAL,

shr-Cause-r17 SHR-Cause-r17 OPTIONAL,

ra-InformationCommon-r17 RA-InformationCommon-r16 OPTIONAL,

upInterruptionTimeAtHO-r17 UPInterruptionTimeAtHO-r17 OPTIONAL,

c-RNTI-r17 RNTI-Value OPTIONAL,

...

}

----------------------------------------------------------------From 38.331 ------------------------------------------------------------------

Below summarized inter-RAT SHR contents proposed to be included:

|  |  |  |
| --- | --- | --- |
| Content | Support | Comments |
| C-RNTI | Lenovo/Xiaomi | Lenovo: Target  Ericsson: Update description to source |
| Target cell id | Xiaomi/ZTE/Huawei/Ericsson | ZTE/Ericsson/Huawei: New IE for EUTRA target cell CGI is introduced  Huawei: If the new target LTE cell information is set, the target NR cell information is set to a special value, e.g., 0. |
| Cell measurements | Xiaomi/ZTE/huawei | Xiaomi: both cell and beam level for source while only cell for source  ZTE/Huawei: Reusing existing IEs for target/source/Neighboring cell measurements |
| Source cell id | Xiaomi/ZTE/Huawei | ZTE/Huawei: Reusing existing IEs |
| SHR cause | Xiaomi/ZTE/Ericsson/Huawei | ZTE/Huawei: Reusing existing IEs  Ericsson: Needs to extend with new field a new cause for RACH issues  [Rapp: relevant to new trigger] |
| Location information | Xiaomi/ZTE/Huawei | ZTE/Huawei: Reusing existing IEs |
| Random access information | Xiaomi/Ericsson |  |
| Time between report generating and fetching [Rapp: new] | Ericsson |  |

5 companies have provided proposals on inter-RAT SHR content, among which identity and measurements of target cell and source cell, SHR cause and location information have a majority support. Also there are comments that source cell identity, SHR measurements of source/target/neighboring cells and Location information can reuse exsting IEs and there is no different view given. For target cell since it is a EUTRA cell for concerning scenario, a new IE is proposed to include target EUTRA CGI. Based on analysis below proposals are made:

**Potential easy agreement**

**Proposal 3: For inter-RAT SHR, below parameters is stored, reuse the existing IEs defined in Rel-17 for intra-NR SHR:**

**a. Source NR cell information**

**c. Measurement results for source, target and neighbours**

**d. Cause to indicate which inter-RAT SHR triggering condition was met**

**e. UE location Information**

**Proposal 4: A new EUTRA target cell CGI is introduced in inter-RAT SHR.**

Regarding SHR cause, Ericsson propose to extend it with a new cause for random access issue, which is relevant to new triggering conditions. It is suggested to discuss first if new trigger is needed, no proposal will be made for now. Regarding EUTRA CGI, there is one additional comment from Huawei that current target CGI is mandatory presented, if new EUTRA CGI is included, some different handling is needed. Since it is first time this issue is mentioned, it is suggested to discuss this proposal:

**For further discussion if P4 is agreed**

**Proposal 5: If the new target LTE cell information is set, the target NR cell information is set to a special value, e.g., 0.**

There are also some parameters has less supports, which is proposed for further discussion:

**For further discussion**

**Proposal 6: RAN2 further discuss if below content is needed for inter-RAT SHR when HO from NR to LTE:**

1. **C-RNTI (FFS target or source)**
2. **Random access information**
3. **Time between report generating and fetching**

Furthermore, Xiaomi and Huawei propose to store inter-RAT SHR in NR variable varSuccessHO-Report.Considering the most of IEs are reused for inter-RAT SHR, it is reasonable to reuse the same variable. Below proposal is made:

**Potential easy agreement**

**Proposal 7: For HO from NR to LTE, UE records the inter-RAT SHR in the VarSuccessHO-Report.**

For configuration, since T312/T310 trigger is assumed to be reused for inter-RAT SHR, QC has proposed that oterhConfig is used for deliver such configuration, which is also straightforward.

**Potential easy agreement**

**Proposal 8: For HO from NR to LTE, the T310 and T312 threshold is provided to the UE by source gNB in the otherConfig.**

#### On inter-RAT report

RAN2 has slightly discussed whether to support inter-RAT report for inter-RAT SHR but not conclusion has been made. There are 7 companies express opinions,. among which 6 out of 7 propose not to support inter-RAT HO report as shown in below

Support inter-RAT report: Lenovo,

Against inter-RAT report: CATT,Xiaomi,ZTE,Samsung, Qualcomm, Huawei

Based on majority view, below proposal is made:

**Potential easy agreement**

**Proposal 9: For handover from NR to LTE, cross-RAT reporting is not supported, i.e., UE reports the SHR report to the network when it comes back to NR.**

#### Further enhancements

In Ericcson’s paper below proposals have been made, which intends to introduce new trigger condition for storing inter-RAT SHR.

[Proposal 7 RAN2 agree to enhance the inter-RAT SHR configuration with a triggering condition associated to the number of random accesses attempts toward the LTE cell.](#_Toc127483952)

[Proposal 8 For Inter-RAT handover from NR to LTE, augment the SHR with a counter for the number of RA attempts made for the successful handover.](#_Toc127483953)

[Proposal 9 For Inter-RAT handover from NR to LTE, augment the SHR with a flag on whether contention was observed for the successful handover.](#_Toc127483954)

Rapporteur understands for inter-RAT SHR the discussion focus will still on RAN3 relevant issues, therefore discussion on new trigger will not be considered as high priority, and is suggested to be treated if time allows for this meeting. And before going into detailed discussion, first issue needs to be confirmed is whether to introduce new RACH relevant trigger for inter-RAT SHR . Therefore below proposal is made:

**Treated below proposals if time allows**

**[Proposal A RAN2 discuss whether to introduce new RACH relevant trigger for inter-RAT SHR .](#_Toc127483952)**

### From LTE to NR

Only one company provides proposals on this topic. Also based on agreements last meeting, this topic will be treated as low priority, therefore below proposals are considered to be treated if time allows this meeting.

**Treated below proposals if time allows**

**Proposal B: To support inter-RAT SHR from LTE to NR without having an LTE specification impact, RAN2 only supports the T304 threshold.**

**Proposal C: Similar to intra-NR SHR, the T304 threshold is provided by the target cell.**

**Proposal D: NR SHR is generated when the T304 trigger condition meets during inter-RAT mobility from LTE to NR.**

## SPR

Relevant proposals are listed in below table:

|  |  |  |
| --- | --- | --- |
| **TDoc** | **Company name** | **Proposals** |
| [1] [R2-2300294](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2300294.zip) | CATT | Proposal 1: UE stores two SPR configurations configured by MN and SN respectively.  Proposal 2: CPAC candidate cell flag can reuse CHO candidate cell flag to indicate whether a neighbor cell is CPAC candidate cell or not.  Proposal 3: Include location information in SPR.  Proposal 4: UE can store SPR at most 48 hours after the last successful PSCell addition/PSCell change report is stored at UE. |
| [2] R2-2300681 | vivo | Proposal 1: The current agreed triggering conditions of SPR are sufficient, i.e., no other triggering condition is needed.  Proposal 2: Regarding values of the triggering conditions of SPR, RAN2 to agree the following:   * Define separate thresholds for T310/T312/T304; * The percentage values are 40%, 60%, 80%, and the percentage value also includes 20% for the threshold for T312; * The percentage is to indicate the ratio of the threshold value (unit: ms) over the signalled T310/T312/T304 value (unit: ms).   Proposal 3: The CHO candidate cell flag can be reused for the CPAC candidate cells.  Proposal 4: The location information can be included in SPR.  Proposal 5: The following information should be included in the SPR:   * An indication to indicate the type of PSCell addition/change, i.e., PSCell addition, MN-initiated PSCell change or SN-initiated PSCell change; * PCell ID during PSCell addition/change procedure.   Proposal 6: For HO with SN change, the existing SHR and SPR mechanisms are sufficient and no additional work is needed. |
| [4] R2-2300955 | Lenovo | Proposal 1: A percentage value of T310/T312/T304 can be configured as the trigger condition of the SPR.  Proposal 2: For the SN-initiated CPC, the source SN sends the Successful PSCell Change configuration within the container through MN to the UE.  Proposal 3: For the MN-initiated PSCell Change/CPC, MN decides T310/T312 trigger threshold for SPR.  Proposal 4: For the MN-initiated CPC/CPA, MN sends the SPR configuration to the UE.  Proposal 5: SPR is logged in a new IE and stored in a new UE variable.  Proposal 6: The following information can be included in the SPR:  - location information  - a new flag to indicate CPAC candidate PSCell  Proposal 7: The UE sends an indication for availability of SPR to MN, MN may request and receive the SPR from the UE via the UE Information Request/Response procedure.  Proposal 8: The UE keeps the stored SPR until at least one of the following cases happens:  - a new SPR is initiated;  - retrieval of SPR is successfully completed;  - specific time (e.g. 48 hours) has passed since SPR is stored/logged;  - upon power off or detach is initiated. |
| [5] [R2-2301002](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301002.zip) | Nokia | Proposal 1: The initiating node of PSCell change should also carry out the root cause analysis based on the contents of the SPR.  Proposal 2: MN may forward the SPR to the initiating node for root cause analysis.  [RAPP]: P1/2 is more relevant to RAN3.  Proposal 3: RAN2 to discuss solutions for determining the initiating node for PSCell change associated with an SPR to enable the forwarding of the SPR to the initiating node for root cause analysis.  Proposal 4: RAN2 to discuss the possibility of including user plane interruption time measurements on a per cell group type in SPR. |
| [6] [R2-2301003](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301002.zip) | Nokia | Proposal 1: RAN2 agrees that current SPR procedure (as well as SHR procedure) does not provide means to distinguish the case when T310 has almost expired when CPC executed from the case when T310 has been stopped before CPC executed.  Proposal 2: RAN2 agrees to means how SPR (as well as SHR procedure) should be enhanced to enable the distinction of the case when T310 has almost expired when CPC executed from the case when T310 has been stopped before CPC executed.  Proposal 3: RAN2 discusses a different mechanism (other than indicating it in RRCReconfigurationComplete message) to indicate SPR availability to the network. |
| [7] [R2-2301044](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301044.zip) | Xiaomi | choCandidate flag in MeasResultNR of neighbor cell is reused for indicating CPAC candidate cells flag.  For SPR, Random access related information is not included when SPR is triggered by T310/T312.  For SPR, available location information is included.  For SPR, UE may keep the SPR 48 hours. |
| [8][R2-2301145](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301145.zip) | ZTE | Proposal 5: For PSCell change without MN involvement, source SN provides SPR configuration directly to UE.  Proposal 6: Below information is included in SPR:   1. reuse CHO candidate cell flag to indicate CPAC candidate cell; 2. Location information |
| [9] [R2-2301195](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301195.zip) | Samsung | Proposal 1: UE stores the SPR and keeps it for 48 hours like SHR.  Proposal 2: UE clears SPR configuration during the following   * 1. RRC Reestablishment   2. RRC Resume initiation   3. SCGFailure initiation   4. Reception of SCGRelease   Proposal 3: A new flag is used to indicate CPAC candidate cell in SPR |
| [10] [R2-2301276](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301276.zip) | Ericsson | [Proposal 1 RAN2 confirm that T310 and T312 timer related triggering conditions are set by node initiating the PSCell change procedure. i.e., - MN initiated PSCell change, MN configures the T310 and T312 related triggering conditions; - SN initiated PSCell change, source SN configures the T310 and T312 related triggering conditions.](#_Toc127483942)  [Proposal 2 RAN2 define binary flags for T310 and T312 timer-based thresholds to trigger SPR if the timer T310 or T312 of the source PSCell were running before execution of the PSCell change.](#_Toc127483943)  [Proposal 3 SPR is triggered based on the following additional triggers: - time between CPAC events threshold - time between receiving CPAC configuration to the execution of the CPAC - Experiencing LBT issues during PSCell change/addition execution](#_Toc127483944)  [Proposal 4 UE includes a binary flag in the RRCReconfigurationComplete message to indicate the availability of SPR to the network.](#_Toc127483945)  [Proposal 5 Network collects the SPR from UE using UEInformationRequest / UEinformationRespose messages.](#_Toc127483946)  [Proposal 6 UE logs the following additional information in the SPR report:](#_Toc127483947)  [ Random access related information if SPR is triggered due to consistent LBT failure](#_Toc127483948)  [ Location information, if available](#_Toc127483949)  [ Time between SPR generation at the UE and fetching by the network.](#_Toc127483950)  [ LBT related information and measurements when operating in NR-U](#_Toc127483951) |
| [11][R2-2301421](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301421.zip) | Qualcomm | Proposal 7: For CPA, the T304 trigger (e.g timer threshold) is configured by the target SN. T310/T312 triggers are not configured for CPA.  Proposal 8: RAN2 should discuss the following two methods for determining/configuring T310/T312 threshold at the UE,  Option 1 MN decides T310/T312 threshold for SPR after SN provides assistance (i.e., configured T310/T312 values) to MN via Xn signaling for deciding T310/T312 thresholds. MN configures the T310/T312 SPR thresholds to UE via MN RRCReconfiguration.  Option 2 Source SN decides T310/T312 threshold for SPR and indicates MN via Xn signaling. MN configures the T310/T312 SPR threshold to UE via MN RRCReconfiguration.  Option 3 Source SN decides T310/T312 threshold for SPR and configures UE via SN RRCReconfiguration.  Proposal 9: UE can clear SPCR upon PCell change, i.e., UE generates the PSCell change report when configured trigger condition meets. Send the availability indicator in RRCReconfigurationComplete (containing RRCReconfigurationWithSYNC for SCG) messages. Clear after UE changes PCell. |
| [12] [R2-2301557](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301557.zip) | Sharp | Proposal 1: percentage values for timer T310/T312/T304 are configured in SPR configuration.  Proposal 2: RAN2 discusses which node configures the SPR configuration in case both MN-initiated CPC and SN-initiated CPC are configured for a UE.  Proposal 3: reuse CHO candidate cell flag to indicate CPAC candidate cell in neighbor cell measurements.  Proposal 4: location information is included in SPR if available.  Proposal 5: SPR includes information that is used for SPR retrieval, e,g, PCell information, PSCell change type information. |
| [13] [R2-2301571](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301571.zip) | Huawei | Proposal 7: No other triggering condition is needed.  Proposal 8: Send a LS to RAN3 for more clarifications on T310/T312 trigger in case of MN-initiated PSCell Change.  Proposal 9: Define a new flag to indicate CPAC candidate cell.  Proposal 10: Whether to include location information needs also to consider user consent aspects.  Proposal 11: The UE can keep the SPR for 48 hours after the SPR is generated and if not fetched.  Proposal 12: The UE logs the PCell information in case of PSCell addition and MN-initiated PSCell change.  Proposal 13: MN sends the indicator to inform UE whether MN initiates the PSCell change.  Proposal 14: The UE logs PCell information instead of PSCell if the indicator is received in case of MN-initiated PSCell change. |
| [14] [R2-2301763](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301763.zip) | NTT Docomo | Proposal1: Introduce an indication show whether the classic/conditional PScell change is MN initiated or SN initiated in the SPR.  Proposal2: Introduce a new UE variable and UE capability for SPR.  Proposal3: Time for UE keeping SPR is 48 hours. |

In order to progress on this topic, the summary focus on generic principles, some detailed proposals will be skipped until high-level structure is stable, or go into second round discussion if time allows.

### On SPR configuration

First issue is whether new trigger is needed for SPR. 3 companies provide analysis on this topic, two (vivo/huaiwei) suggest not to define new triggers while one (Ericsson) suggest to introduce new trigger relevant CPAC and LBT failure, since it is first time RAN2 discuss this issue, it is proposed for further discussion.

**For further discussion**

**Proposal 10: RAN2 discuss how to handle new trigger for SPR based on below options:**

* **No new trigger (vivo/Huawei)**
* **New trigger based on time between CPAC events threshold (Ericsson)**
* **New trigger based on time between receiving CPAC configuration to the execution of the CPAC (Ericsson)**
* **New trigger when experiencing LBT issues during PSCell change/addition execution (Ericsson)**

Regarding the agreed T312/T310/T304 triggering conditions it has been agreed with values ffs. Only three companies provide analysis on this topic and they all propose to use percentage to indicate the thresholds (as in legacy) but only one company provide detailed value range. Based on the minimum consensus, it is proposed to discuss if percentage will be used for providing the conditions, and companies can based on the agreements to further discuss the detailed value range.

**For further discussion**

**Proposal 11: RAN2 chooses one of the following options for SPR configuration**

1. **Percentage is used for T312/T310/T304 thresholds configuration for SPR. (3/4)**
2. **A binary flag is used for T310/T312 based trigger, and percentage is used for T304 threshold (1/4)**

**Percentage is used for T312/T310/T304 thresholds configuration for SPR. (3/4)**

Another key issue relevant to triggering condition is on which nodes determines the corresponding triggers values and gives the configuration to UE. High level agreements were made last meeting as below:

|  |
| --- |
| 4 For Q8, RAN2 agree following options: depends on which of nodes initiates SPR, i.e.:  For the MN-initiated PSCell Change/Addition, MN sends the SPR config to the UE  For the SN-initiated PSCell Change, the source-SN sends the Successful PSCell Change configuration within the container through MN.  T304 trigger needs to be configured by the target SN node. |

It has also been observed that RAN3#118 meeting has reached below agreements:

|  |
| --- |
| **For SN-initiated classic PScell change the source SN node decides the T310/T312 triggers (e.g timer threshold) and the target SN node decides the T304 triggers (e.g timer threshold).** |

|  |  |  |
| --- | --- | --- |
| **TDoc** | **Company name** | **Proposals** |
| [9] [R2-2301195](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301195.zip) | Samsung | Proposal 2: UE clears SPR configuration during the following   * 1. RRC Reestablishment   2. RRC Resume initiation   3. SCGFailure initiation   4. Reception of SCGRelease |
| [4] R2-2300955 | Lenovo | Proposal 2: For the SN-initiated CPC, the source SN sends the Successful PSCell Change configuration within the container through MN to the UE.  [Rapp: align with existing agreements]  Proposal 3: For the MN-initiated PSCell Change/CPC, MN decides T310/T312 trigger threshold for SPR.  Proposal 4: For the MN-initiated CPC/CPA, MN sends the SPR configuration to the UE.  [Rapp: align with existing agreements] |
| [8][R2-2301145](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301145.zip) | ZTE | Proposal 5: For PSCell change without MN involvement, source SN provides SPR configuration directly to UE.  [Rapp: revise agreements with exception for PSCell change without MN involvement] |
| [10] [R2-2301276](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301276.zip) | Ericsson | [Proposal 1 RAN2 confirm that T310 and T312 timer related triggering conditions are set by node initiating the PSCell change procedure. i.e., - MN initiated PSCell change, MN configures the T310 and T312 related triggering conditions; - SN initiated PSCell change, source SN configures the T310 and T312 related triggering conditions.](#_Toc127483942) |
| [11][R2-2301421](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301421.zip) | Qualcomm | Proposal 7: For CPA, the T304 trigger (e.g timer threshold) is configured by the target SN. T310/T312 triggers are not configured for CPA.  Proposal 8: RAN2 should discuss the following two methods for determining/configuring T310/T312 threshold at the UE,  Option 1 MN decides T310/T312 threshold for SPR after SN provides assistance (i.e., configured T310/T312 values) to MN via Xn signaling for deciding T310/T312 thresholds. MN configures the T310/T312 SPR thresholds to UE via MN RRCReconfiguration.  Option 2 Source SN decides T310/T312 threshold for SPR and indicates MN via Xn signaling. MN configures the T310/T312 SPR threshold to UE via MN RRCReconfiguration.  Option 3 Source SN decides T310/T312 threshold for SPR and configures UE via SN RRCReconfiguration. |
| [13] [R2-2301571](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301571.zip) | Huawei | Proposal 8: Send a LS to RAN3 for more clarifications on T310/T312 trigger in case of MN-initiated PSCell Change. |

Taking into above agreements into account, 7 companies observes further issues and have provide proposals on this topics. Since RAN2 has agreed for MN-initiated CPAC And it remains uncertain on how to provide values of T312/T310 triggers for MN-Initiated CPAC, and 5 companies provide analysis, in QC’s papers three options are identified, where option 1 implies MN determine and configures with UE the thresholds as proposed by Ericsson and Lenovo.

* Option 1 MN decides T310/T312 threshold for SPR after SN provides assistance (i.e., configured T310/T312 values) to MN via Xn signaling for deciding T310/T312 thresholds. MN configures the T310/T312 SPR thresholds to UE via MN RRCReconfiguration.
* Option 2 Source SN decides T310/T312 threshold for SPR and indicates MN via Xn signaling. MN configures the T310/T312 SPR threshold to UE via MN RRCReconfiguration.
* Option 3 Source SN decides T310/T312 threshold for SPR and configures UE via SN RRCReconfiguration.

Furthermore, there is one proposal from Huawei that RAN3 shall be consulted for this use case. It can be observed that some options provided will have clear NW interface impact, it is reasonable to consult RAN3 to avoid duplicated discussions. Therefore it is proposed that RAN2 consider below proposal for further discussion:

**For further discussion**

**Proposal 12: For MN-initiated PSCell change/addition, RAN2 consider below options to determine/configure T310/T312 triggers:**

* **Option 1: MN decides T310/T312 threshold for SPR after SN provides assistance (i.e., configured T310/T312 values) to MN via Xn signaling for deciding T310/T312 thresholds. MN configures the T310/T312 SPR thresholds to UE via MN RRCReconfiguration.**
* **Option 2: Source SN decides T310/T312 threshold for SPR and indicates MN via Xn signaling. MN configures the T310/T312 SPR threshold to UE via MN RRCReconfiguration.**
* **Option 3: Source SN decides T310/T312 threshold for SPR and configures UE via SN RRCReconfiguration.**
* **Option 4: with binary flags for T310/T312 no coordination between RAN nodes is needed.**
* **Option 5: Consult RAN3**

Furthermore, it is clarified in QC’s contribution that T312/T310 is provided by source SN therefore it is shall not be considered for CPA. Rapporteur understands this is handled by NW implementation, since NW knows what triggers are applicable or not for CPAC, therefore no proposal is made.

In addition there is one company suggest to revise previous agreements on a specific use case for PSCell change without MN involvement. And the argument is that in such scenarios, MN has no awareness of the PSCell change as well as the configuration of corresponding triggers and it is intentionally to not informing MN since the configuration (for measurements or reconfigurationWithSync) is solely made by SN. Considering only one company brings proposals on this issue, it is suggested to discuss if time allows.

**Treated below proposals if time allows**

**Proposal E: For PSCell change without MN involvement, source SN provides SPR configuration directly to UE.**

There is also one proposal from Samsung discussing conditions to release SPR configurations. Similar principle applies here, since it is not relevant to ffs issue and only one company provides analysis. It is proposed to discuss if time allows.

**Treated below proposals if time allows**

**Proposal F: UE clears SPR configuration during the following**

* 1. **RRC Reestablishment**
  2. **RRC Resume initiation**
  3. **SCGFailure initiation**
  4. **Reception of SCGRelease**

### On SPR report

Below summarize the parameters proposed to include in SPR report:

|  |  |  |
| --- | --- | --- |
| Content | Support | Comments |
| CPAC candidate cell | CATT/vivo | CATT/vivo/Xiaomi/ZTE/Sharp: reuse CHO candidate cell flag  Lenovo/ss/Huawei: New flag |
| location information, if available | CATT/vivo/Lenovo/Xiaomi/ZTE/Ericsson/sharp/Huawei |  |
| An indication to indicate the type of PSCell addition/change, | Vivo/sharp | Vivo: i.e., PSCell addition, MN-initiated PSCell change or SN-initiated PSCell change |
| RA information | Xiaomi/Ericsson | Xiaomi:Random access related information is not included when SPR is triggered by T310/T312  Ericsson: if SPR is triggered due to consistent LBT failure |
| User plane interruption time measurements on a per cell group type | Nokia |  |
| Time [between SPR generation at the UE and fetching by the network.](#_Toc127483950) | Ericsson |  |
| LBT related information and measurements when operating in NR-U | Ericsson |  |
| PCell information | Sharp/Huawei/vivo | Huawei: in case of PSCell addition and MN-initiated PSCell change. |
| Indication whether SN or MN initiated | NTT Docomo |  |

There is majority support on includes location information if available. Therefore it is proposed for easy agreements:

**Potential easy agreement**

**Proposal 13: UE includes available location information in SPR .**

There is majority support to includes CAPC candidate cells but whether to reuse existing CHO indication flag is still not clear, the supporting rate is 5 vs 3. Therefore it is propose to further discuss based on majority’s views:

**For further discussion**

**Proposal 14: In SPR, reuse CHO candidate cell flag to indicate whether a neighbor cell is CPAC candidate cell or not. (5 out of 8)**

Regarding the remaining information, considering the level of supports, it is proposed that RAN2 further discuss if below content is needed for SPR:

**For further discussion**

**Proposal 15: RAN2 further discuss if any of below parameters is needed for SPR:**

* **PSCell change/addition type, i.e., PSCell addition, MN-initiated PSCell change or SN-initiated PSCell change (2)**
* **PCell information, ffs if conditional included, ffs conditions (3)**
* **RA information,ffs if conditional included, ffs conditions (2)**
* **User plane interruption time measurements on a per cell group type (1)**
* **Time [between SPR generation at the UE and fetching by the network.](#_Toc127483950)(1)**
* **Indication whether SN or MN initiated (1)**

Another ffs issues is on how long UE will stores the SPR, and below conditions are identified.

|  |  |
| --- | --- |
| Content | Support |
| Store SPR at most 48 hours after the last successful PSCell addition/PSCell change report is stored at UE if not fetched | CATT/Lenovo/Xiaomi/Huawei/NTT Docomo |
| 1. New SPR is initiated 2. Upon retrieval of SPR 3. upon power off or detach is initiated. | Lenovo |
| 1. Upon PSCell change | QC |

Based on majority view below agreements is proposed it is proposed:

**Potential easy agreement**

**Proposal 16: UE stores SPR at most 48 hours after the last successful PSCell addition/PSCell change report is stored at UE if not fetched.**

Also it is proposed to further discuss if any additional conditions can be used to release SPR report stored.

**For further discussion**

**Proposal 17: RAN2 further discuss if any of below options is needed for releasing SPR report:**

1. **New SPR is initiated**
2. **Upon retrieval of SPR**
3. **Upon power off or detach is initiated.**
4. **Upon PSCell change**

### On new issues

|  |  |  |
| --- | --- | --- |
| **TDoc** | **Company name** | **Proposals** |
| [5] [R2-2301002](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301002.zip) | Nokia | Proposal 1: The initiating node of PSCell change should also carry out the root cause analysis based on the contents of the SPR.  Proposal 2: MN may forward the SPR to the initiating node for root cause analysis.  [Rapp]: P1/2 is more relevant to RAN3.  Proposal 3: RAN2 to discuss solutions for determining the initiating node for PSCell change associated with an SPR to enable the forwarding of the SPR to the initiating node for root cause analysis.  Proposal 4: RAN2 to discuss the possibility of including user plane interruption time measurements on a per cell group type in SPR. |
| [6] [R2-2301003](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301002.zip) | Nokia | Proposal 1: RAN2 agrees that current SPR procedure (as well as SHR procedure) does not provide means to distinguish the case when T310 has almost expired when CPC executed from the case when T310 has been stopped before CPC executed.  Proposal 2: RAN2 agrees to means how SPR (as well as SHR procedure) should be enhanced to enable the distinction of the case when T310 has almost expired when CPC executed from the case when T310 has been stopped before CPC executed.  Proposal 3: RAN2 discusses a different mechanism (other than indicating it in RRCReconfigurationComplete message) to indicate SPR availability to the network. |
| [12] [R2-2301557](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301557.zip) | Sharp | Proposal 2: RAN2 discusses which node configures the SPR configuration in case both MN-initiated CPC and SN-initiated CPC are configured for a UE. |

Above are proposals from companies on new issues observed but not covered by previous RAN2 discussion, it is proposed to discuss if any of them needs to be addressed in RAN2. Considering the time budget, it is proposed to discuss if time allows.

**Treated below proposals if time allows**

**Proposal G: RAN2 further discuss if any of below issues needs to be discussed in RAN2 for SPR:**

1. **Solutions for determining the initiating node for PSCell change associated with an SPR to enable the forwarding of the SPR to the initiating node for root cause analysis.**
2. **Necessity to distinguish the case when T310 has almost expired when CPC executed from the case when T310 has been stopped before CPC executed.**
3. **How to support SPR configuration in case both MN-initiated CPC and SN-initiated CPC are configured for a UE.**

# Conclusion

Based on analysis in section 2, following proposals are made for further discussion, and some proposals are only discussed under certain conditions.

## Inter-RAT SHR

**Potential easy agreement**

**Proposal 1: For Q1 in the LS R2-2211160, RAN2 agrees to reduce/avoid the impact on LTE specification to support inter-RAT SHR.**

**Proposal 2: For handover from NR to LTE,UE encodes the inter-RAT SHR in NR format when the inter-RAT SHR is triggered due to T310 or T312 trigger threshold is fulfilled.**

**Proposal 3: For inter-RAT SHR, below parameters is stored, reuse the existing IEs defined in Rel-17 for intra-NR SHR:**

**a. Source NR cell information**

**c. Measurement results for source, target and neighbours**

**d. Cause to indicate which inter-RAT SHR triggering condition was met**

**e. UE location Information**

**Proposal 4: A new EUTRA target cell CGI is introduced in inter-RAT SHR.**

**Proposal 7: For HO from NR to LTE, UE records the inter-RAT SHR in the VarSuccessHO-Report.**

**Proposal 8: For HO from NR to LTE, the T310 and T312 threshold is provided to the UE by source gNB in the otherConfig.**

**Proposal 9: For handover from NR to LTE, cross-RAT reporting is not supported, i.e., UE reports the SHR report to the network when it comes back to NR.**

**For further discussion**

**Proposal 5: If the new target LTE cell information is set, the target NR cell information is set to a special value, e.g., 0.**

**Proposal 6: RAN2 further discuss if below content is needed for inter-RAT SHR when HO from NR to LTE:**

1. **C-RNTI (FFS target or source)**
2. **Random access information, conditional included , ffs conditions**
3. **Time between report generating and fetching**

**Treated if time allows**

**[Proposal A RAN2 discuss whether to introduce new RACH relevant trigger for inter-RAT SHR .](#_Toc127483952)**

**Proposal B: To support inter-RAT SHR from LTE to NR without having an LTE specification impact, RAN2 only supports the T304 threshold.**

**Proposal C: Similar to intra-NR SHR, the T304 threshold is provided by the target cell.**

**Proposal D: NR SHR is generated when the T304 trigger condition meets during inter-RAT mobility from LTE to NR.**

## SPR

**Potential easy agreement**

**Proposal 13: UE includes available location information in SPR .**

**Proposal 16: UE stores SPR at most 48 hours after the last successful PSCell addition/PSCell change report is stored at UE if not fetched.**

**For further discussion**

**Proposal 10: RAN2 discuss how to handle new trigger for SPR based on below options:**

* **No new trigger (2)**
* **New trigger based on time between CPAC events threshold (1)**
* **New trigger based on time between receiving CPAC configuration to the execution of the CPAC (1)**
* **New trigger when experiencing LBT issues during PSCell change/addition execution (1)**

**Proposal 11: RAN2 chooses one of the following options for SPR configuration**

1. **Percentage is used for T312/T310/T304 thresholds configuration for SPR. (3/4)**
2. **A binary flag is used for T310/T312 based trigger, and percentage is used for T304 threshold (1/4)**

**Proposal 12: For MN-initiated PSCell change/addition, RAN2 consider below options to determine/configure T310/T312 triggers:**

* **Option 1: MN decides T310/T312 threshold for SPR after SN provides assistance (i.e., configured T310/T312 values) to MN via Xn signaling for deciding T310/T312 thresholds. MN configures the T310/T312 SPR thresholds to UE via MN RRCReconfiguration.**
* **Option 2: Source SN decides T310/T312 threshold for SPR and indicates MN via Xn signaling. MN configures the T310/T312 SPR threshold to UE via MN RRCReconfiguration.**
* **Option 3: Source SN decides T310/T312 threshold for SPR and configures UE via SN RRCReconfiguration.**
* **Option 4: with binary flags for T310/T312 no coordination between RAN nodes is needed.**
* **Option 5: Consult RAN3**

**Proposal 14: In SPR, reuse CHO candidate cell flag to indicate whether a neighbor cell is CPAC candidate cell or not. (5 out of 8)**

**Proposal 15: RAN2 further discuss if any of below parameters is needed for SPR:**

1. **PSCell change/addition type, i.e., PSCell addition, MN-initiated PSCell change or SN-initiated PSCell change (2)**
2. **PCell information, ffs if conditional included, ffs conditions (3)**
3. **RA information,ffs if conditional included, ffs conditions (2)**
4. **User plane interruption time measurements on a per cell group type (1)**
5. **Time [between SPR generation at the UE and fetching by the network.](#_Toc127483950)(1)**
6. **Indication whether SN or MN initiated (1)**

**Proposal 17: RAN2 further discuss if any of below options is needed for releasing SPR report:**

1. **New SPR is initiated**
2. **Upon retrieval of SPR**
3. **Upon power off or detach is initiated.**
4. **Upon PSCell change**

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**Treated if time allows**

**Proposal E: For PSCell change without MN involvement, source SN provides SPR configuration directly to UE.**

**Proposal F: UE clears SPR configuration during the following**

* 1. **RRC Reestablishment**
  2. **RRC Resume initiation**
  3. **SCGFailure initiation**
  4. **Reception of SCGRelease**

**Proposal G: RAN2 further discuss if any of below issues needs to be discussed in RAN2 for SPR:**

1. **Solutions for determining the initiating node for PSCell change associated with an SPR to enable the forwarding of the SPR to the initiating node for root cause analysis.**
2. **Necessity to distinguish the case when T310 has almost expired when CPC executed from the case when T310 has been stopped before CPC executed.**
3. **How to support SPR configuration in case both MN-initiated CPC and SN-initiated CPC are configured for a UE.**

# Reference

1. [R2-2300294](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2300294.zip) Discussion on inter-RAT SHR and SPR CATT discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core
2. [R2-2300681](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2300681.zip) Remaining issues on SON for SPR vivo discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh-Core
3. [R2-2300954](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2300954.zip) Successful Handover Report for inter-RAT HO Lenovo discussion Rel-18
4. [R2-2300955](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2300955.zip) SON enhancements for SPR Lenovo discussion Rel-18
5. [R2-2301002](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301002.zip) SPR content enhancements Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core
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7. [R2-2301044](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301044.zip) Discussion on SHR and SPCR Xiaomi discussion Rel-18
8. [R2-2301145](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301145.zip) Consideration on SHR and SPR ZTE Corporation, Sanechips discussion Rel-18
9. [R2-2301195](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301195.zip) SON/MDT enhancements for SHR and SPCR Samsung discussion
10. [R2-2301276](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301276.zip) SPR and SHR enhancements Ericsson discussion NR\_ENDC\_SON\_MDT\_enh2-Core
11. [R2-2301421](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301421.zip) Discussion on SHR for inter-RAT handover and successful PSCell change reporting Qualcomm Incorporated discussion Rel-18
12. [R2-2301557](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301557.zip) Discussion on successful PSCell change report Sharp discussion
13. [R2-2301571](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301571.zip) Discussion on SHR and SPR Huawei, HiSilicon discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core
14. [R2-2301763](file://D://3GPP Sync\\RAN2\\TSGR2_121\\Docs\\R2-2301763.zip) Discussion on SPR NTT DOCOMO, INC. discussion Rel-18

# Annex: RAN2 Agreements

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| --- |
| ***RAN2#119bis-e agreements***  1 RAN2 confirms the scenarios for SPR for NR-DC, including:  • SN- and MN-initiated classic PSCell change / CPC  • Intra-SN classic PSCell change / CPC  • Classic Addition / CPA  1a RAN2 will discuss HO with SN change later, after the basic solution for SPR is known  2 Given that PSCell addition is proposed by all companies, SPR is used as the abbreviations to use for the feature.  3 RAN2 confirm to prioritize NR-DC scenario for SPR.  4 SHR solution is taken as baseline for the SPR in terms of configuration and reporting at high level. Details of the configuration and report need to be tailored/customized/new message per use case.  5 Network configures SPR configuration IE for the UE, with at least the following triggering conditions:  • T310 triggering condition  • T312 triggering condition  • T304 triggering condition  5a: Other triggering conditions are FFS  5b: Values of the triggering conditions are FFS  5c: Which node configures the triggering condition is FFS.  6 RAN2 agree to the following:  A. SPR configuration is configured by network through otherConfig  B. SPR is fetched via UE Information Request/Response procedure  7 UE logs at least the following information and measurements in the SPR IE (other information and measurements are FFS).  a) Source PSCell info (cell ID, measurement result)  b) Target PScell info (cell ID, measurement result)  c) Neighbour Cells info (cell ID, measurement result, CPAC Candidate cells flag)  d) Success PSCell change/addition cause value (e.g., t304, t310, t312 cause, etc.)  f) The time elapsed between the CPAC execution towards the target cell and the corresponding latest CPAC configuration received for the selected target cell  7a: FFS on whether to reuse CHO candidate cell flag for the CPAC candidate cells or define a new flag to indicate CPAC candidate cell.  7b: FFS on whether to include or on conditional inclusion of random access related information.  7c: FFS on Location Information |
| ***RAN2#120 agreements***  1 For Q5 in R2-2211160, RAN2 confirms the support for the parameters for inter-RAT SHR from NR to LTE when T310 and T312 are configured as triggering condition.  2 T304 trigger for inter-RAT SHR from NR to LTE is not supported.  3 Only MN can retrieve the SPR from the UE.  4 For Q8, RAN2 agree following options: depends on which of nodes initiates SPR, i.e.:  For the MN-initiated PSCell Change/Addition, MN sends the SPR config to the UE  For the SN-initiated PSCell Change, the source-SN sends the Successful PSCell Change configuration within the container through MN.  T304 trigger needs to be configured by the target SN node.  1 UE stores both SPCR and SHR configuration (one for each type at most) if received from NW.  2 UE can send the (stored) SPR to gNB. FFS how long UE keeping SPR is FFS.  3 Only the latest successful PSCell change/addition is reported by the UE.  4 Random access related information is included in SPR at least when the SPR is triggered due to T304 exceeds the configured threshold. Other conditions are FFS.  5 UE records/reports PCell SHR and PSCell SPR separately  => RAN2 to prioritise inter-RAT HO from NR to LTE first. Inter-RAT HO from LTE to NR can be considered after that. |