**3GPP TSG-RAN RAN2 #123 R2-23xxxxx**

**Toulouse, France, 21 – 25 August, 2023**

**Agenda Item:**  **7.13.4 SHR and SPCR**

**Source: Huawei (email rapporteur)**

**Title:** **Pre-meeting summary of 7.13.4**

**Document for: Discussion and Decision**

# 1 Introduction

This is the email report of pre-meeting summary for 7.13.4 SHR and SPCR. In addition, [12] is also added here as it is about the retrieval of mobility information.

[1] R2-2307283 Reply LS proposal to R2-2307030/R3-233380 Nokia, Nokia Shanghai Bell discussion

[2] R2-2307284 Inter-RAT SHR and SPR related issues Nokia, Nokia Shanghai Bell discussion

[3] R2-2307430 Remaining issues on SPR vivo discussion

[4] R2-2307707 Further discussion on SPR CATT discussion

[5] R2-2308015 Discussion on inter-RAT SHR from NR to LTE Lenovo discussion

[6] R2-2308016 SON enhancements for SPR Lenovo discussion

[7] R2-2308425 Discussion on inter-RAT SHR and SPR Ericsson discussion

[8] R2-2308496 SON/MDT enhancements for SHR and SPR Samsung discussion

[9] R2-2308504 Consideration on SHR and SPR remaining issues ZTE Corporation, Sanechips discussion

[10] R2-2308620 Remain issues on SPR SHARP Corporation discussion

[11] R2-2308629 Discussion on voice fallback, SHR and SPR Huawei, HiSilicon discussion

[12] R2-2308801 Discussion on RAN2 impacts due to the LS R3-233380 Samsung, CMCC, Qualcomm discussion

# 2 Discussion

## 2.1 How to retrieve mobility information for SHR and SPR (RAN3 LS R2-2307030/R3-233380)

In this meeting, some Tdocs have provided analysis regarding the RAN3 LS R2-2307030/R3-233380. In our understanding, the scenario includes:

* Inter-RAT SHR from NR to LTE
* SPR

(RAN2#122 agreed to deprioritize intra-NR SHR and inter-RAT SHR from LTE to NR in RAN2 for R18)

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| --- |
| One potential solution RAN3 discussed is as follows: * The node involved in mobility procedure (via implementation) create references to a configuration or a set of parameters used by one or a group of UEs and can send this “Configuration Information” to the UE in order to assist in the analysis of SHR or SPR or other SON reports (if needed).
* this “Configuration Information” can be optionally sent to the UE in dedicated signaling (e.g., together with the SHR/SPR configuration or in any other RRCReconfiguration). If received, UE should then store this “Configuration Information” together with the SON report(s) and UE should report it back to the gNB along with the SON report(s) (e.g., SHR/SPR).
* How to encode this “Configuration Information” is up to RAN2, taking into account RAN3 guidance related to the size of this information. One example to do this would be to encode this as an OCTET STRING (e.g., 32 bits) as is done for Mobility Information in XnAP (i.e., TS 38.423).
* This solution shall cover all existing mobility scenarios, including dual-connectivity scenarios.

RAN3 therefore have the following questions to RAN2:**Q1:** Whether RAN2 sees any issues in defining a solution for “Configuration Information” as described above?**Q2:** For SHR/SPR, is there any issue to include this “Configuration Information” in the RRC Reconfiguration message with sync containing Handover Command or PSCell change command?**Q3:** In cases when this “Configuration Information” is not configured by the network to the UE, RAN3 discussed whether UE can include the source cell C-RNTI and the time between the event that triggered the report and the sending of the report to the network. RAN3 wants to check with RAN2 if it’s feasible in the above scenario?Further, RAN3 discussed the following information to be reported in the SPR to assist in the forwarding of SPR over network interfaces:* CGI of the PCell which sent the SPR configuration (already agreed in RAN3);
* Indication whether the PSCell change was MN-initiated or SN-initiated (WA but not agreed in RAN3). Explicit or implicit indicator can be decided by RAN2.

**Q4:** RAN3 kindly asks RAN2 to confirm RAN3’s understanding on CGI of the PCell and update their specifications if feasible, and also take the above information for indication on whether the PSCell change was MN-initiated or SN-initiated into account and provide feedback.**2. Actions:**RAN3 respectfully asks RAN2 to take the above information into account, provide feedback to the above questions and update their specification if needed. |

Relevant proposals:

|  |  |  |
| --- | --- | --- |
| **Tdoc** | **Company** | **Proposals** |
| [3], R2-2307430 | vivo | **Proposal 3: The following should be included in the reply LS regarding the solution for “Configuration Information”:*** **RAN2 does not see any issues in defining a solution for “Configuration Information”;**
* **RAN2 does not see any issues on including “Configuration Information” in the RRC Reconfiguration message with sync containing Handover Command or PSCell change command;**
* **The scenario in Q3 is feasible for including the source cell C-RNTI but not for including** **the time between the event that triggered the report and the sending of the report to the network.**

**Proposal 4: The following should be included in the reply LS regarding the content of SPR:*** **RAN2 thinks CGI of PCell and explicit indication of the type of PSCell addition/change (i.e., PSCell addition, MN-initiated change or SN-initiated PSCell change) is needed.**
 |
| [6], R2-2308016 | Lenovo | **Proposal 1: For retrieval of UE context at source RAN node during inter-RAT HO from NR to LTE, the UE can include source C-RNTI, and time between HO command and SHR retrieval in the inter-RAT SHR.****Proposal 2: Source C-RNTI can be included in the inter-RAT SHR from NR to LTE for correlating inter-RAT SHR and LTE RLF report, in case that there is a RLF shortly after a successful HO.** |
| [7], R2-2308425 | Ericsson | 1. RAN2 to discuss the benefit of the Configuration Index based solution by answering the following questions:
	1. What prevents the network from storing the C-RNTI, and the time period for which a configuration is assigned to the UE, alongside the configuration pool?
	2. What benefits does sending the configuration index to the UE (as a parameter in SHR/SPR configuration) offer, considering that the current information (CRNTI + time details) seem sufficient for enabling the configuration pool based implementation?
2. With only two meetings remaining to finalize Rel-18 and absence of clear benefits, RAN2 postpone the discussion on configuration index to the next releases.
3. For Rel-18 UE logs C-RNTI of the source PCell and time information in the inter-RAT SHR.
 |
| [8], R2-2308496 | Samsung | **Proposal 4: RAN2 to discuss below two options for configuring “configuration information”****a. Include configuration information in SHR/SPR configuration. UE logs the configuration information received for the corresponding configuration in SHR/SPR.****b. Include configuration information in RRCReconfiguration outside SHR/SPR config. UE logs the configuration information received for the corresponding cellgroup in SHR/SPR.** |
| [9], R2-2308504 | ZTE | **Proposal 1a: Considering the gain of using configuration information is not obvious compared to the additional signalling overhead and extra complexity introduced, it is proposed that configuration information is not supported in R18.****Proposal 1b: UE includes source C-RNTI and time between events triggering the report to the time the report is fetched in SHR and SPR.** |
| [11], R2-2308629 | Huawei, HiSilicon | **Proposal 3: Introduce source C-RNTI in inter-RAT SHR from NR to LTE.****Proposal 4: Introduce time between reception of HO Command and inter-RAT SHR fetching in inter-RAT SHR from NR to LTE.** |
| [1], R2-2307283 | Nokia | **Proposal 1: RAN2 should reply to Q1 and Q2 of the RAN3 LS on SHR and SPR that the proposed solution is feasible and the required RRC changes can be specified.****Proposal 2.1: Introduce a new optional configuration index parameter that is provided by the network with the configuration in the *RRCReconfiguration* message. The UE stores only the most recently received configuration index and provides it within the RLF reports.** **Proposal 2.2: Inform RAN3 in the reply LS about the introduction of the configuration index for RLF reports.** **Proposal 3: RAN2 should reply to Q3 of R3-233380 that it is feasible, but having two solution options would increase specification and implementation complexity.****Proposal 4: RAN2 confirms RAN3’s understanding on CGI of the PCell reporting and RAN2 sees no problem of indicating whether the PSCell change was MN-initiated or SN-initiated.** |
| [12], R2-2308801 | Samsung, CMCC, Qualcomm | **Proposal 1: There is no issue in defining the solution for “configuration information” from RAN2 pov.****Proposal 2: For Intra-NR SHR or SPR, the “Configuration Information” can be included in the RRC Reconfiguration message with sync containing Handover Command or PSCell change command. For Inter-RAT SHR, it may be added in the RRCReconfiguration including SHR configuration than in the MobilityFromInformationCommand.****Proposal 3: It is not preferred for the UE to include the source cell C-RNTI and the time between the event that triggered the report and the sending of the report to the network when configuration information is not available.****Proposal 4: RAN2 confirms the support of PCell CGI and information on whether the PSCell change was MN-initiated or SN-initiated.** |
|  |  |  |

For Q1/Q2/Q3 in the RAN3 LS, the companies’ views are summarized as below:

* Support: vivo, Samsung, Nokia, CMCC, Qualcomm
* Do not support: Lenovo, Ericsson, ZTE, Huawei, HiSilicon

It is the email rapporteur’s understanding that RAN2 can firstly discuss whether there are issues for the solution “Configuration Information” mentioned in the RAN3 LS. And then, RAN2 can go the next phase discussion.

Among all papers, the following two papers provide some analysis on issues, which can be used for RAN2 discussions.

[7] R2-2308425 Discussion on inter-RAT SHR and SPR Ericsson discussion

[9] R2-2308504 Consideration on SHR and SPR remaining issues ZTE Corporation, Sanechips discussion

**Proposal 1: For the solution “Configuration Information”, RAN2 to discuss issues from: Proposal 1 from R2-2308425, Observation 1 to 7 from R2-2308504.**

For Q4 in the RAN3 LS, vivo, Nokia, Samsung, CMCC, Qualcomm would like to confirm RAN3’s understanding, and explicit indication of the type of PSCell addition/change can be considered.

**Proposal 2: RAN2 confirms:**

* **The support of Pcell CGI**
* **explicit indication of the type of PSCell addition/change (i.e., PSCell addition, MN-initiated change or SN-initiated PSCell change) is needed.**

## 2.2 SPR

At RAN2#122, RAN2 agreed to only focus on critical issues. In the following, the email rapporteur will try to identify critical issues, so that RAN2 can firstly discuss them and make some progress.

### 2.2.1 On SPR configuration

Relevant proposals:

|  |  |  |
| --- | --- | --- |
| **Tdoc** | **Company** | **Proposals** |
| [2], R2-2307284 | Nokia | **Proposal 1.1: Coordination between MN and source SN is needed for the MN-initiated SN change to allow the MN to properly configure SPR.** [Rapp] This proposal looks like RAN3 proposal. |
| [3], R2-2307430 | Vivo | **Proposal 2: If one of the following events occurs, UE shall release all the SPR configurations:*** **Initiate RRC connection re-establishment;**
* **Initiate RRC connection resume;**
* **SPR is generated;**
* **SCG failure due to PSCell addition/change.**
 |
| [4], R2-2307707 | CATT | **Proposal 1: UE should be allowed to store two SPR configurations configured by MN and SN respectively.****Proposal 2: For legacy PSCell change, the PSCell change type indication information should be configured to UE to indicate the executed PSCell change type.**[Rapp] P1 is more like stage-3 issue, so it can be discussed in running CR. P2 is related to Q4 in the RAN3 LS. |
| [7], R2-2308425 | Ericsson | Proposal 7 RAN2 to discuss which T310/T312 thresholds are to be monitored by the UE when MN and source SN configures the UE with SPR configuration, based on the following options* UE only monitors the SPR configuration configured by the node that initiated the PSCell change
* UE monitors both SPR configurations
 |
| [8], R2-2308496 | Samsung | **Proposal 1: UE clears SPR configuration during the following** 1. **RRC Reestablishment**
2. **RRC Resume initiation**
3. **Reception of SCGRelease**
4. **Successful PSCellAddition or PSCellChange**

**Proposal 1a: UE clears SPR configuration upon SCGFailure initiation.** |
|  |  |  |

Some proposals are about conditions for UE to release the SPR configuration. The email rapporteur thinks that it is about a critical issue, so it can be discussed.

**Proposal 3: UE clears SPR configurations if one of the following conditions is met:**

**- Initiate RRC connection re-establishment**

**- Initiate RRC connection resume**

**- SPR is generated (i.e. Successful PSCellAddition or PSCellChange)**

**- SCG failure due to PSCell addition/change**

**- Reception of SCG Release**

One proposal is about how UE monitors the SPR configuration in case that both MN and source SN configure the UE with SPR configuration.

**Proposal 4: RAN2 to discuss which T310/T312 thresholds are to be monitored by the UE when MN and source SN configures the UE with SPR configuration, based on the following options**

**• UE only monitors the SPR configuration configured by the node that initiated the PSCell change**

**• UE monitors both SPR configurations**

### 2.2.2 On SPR content and reporting

Relevant proposals:

|  |  |  |
| --- | --- | --- |
| **Tdoc** | **Company** | **Proposals** |
| [2], R2-2307284 | Nokia | **Proposal 2: RAN2 discusses a different mechanism (other than indicating it in *RRCReconfigurationComplete* message) to indicate SPR availability to the network.** |
| [3], R2-2307430 | Vivo | **Proposal 1: The following information should be included in the SPR:*** **CGI of the PCell which sent the SPR configuration.**
* **An indication to indicate the type of PSCell addition/change, i.e., PSCell addition, MN-initiated change or SN-initiated PSCell change.**

[Rapp] P1 is related to Q4 in the RAN3 LS. |
| [7], R2-2308425 | Ericsson | Proposal 8 RAN2 discuss how the UE provides the location information:* Based on the location configuration configured by node initiating the PSCell change
* Based on the location configuration of the node that its configured triggering SPR conditions are fulfilled, e.g., if T304 threshold is fulfilled UE logs location info based on the target SCG location configuration; if T310 threshold configured by the source SN is fulfilled the UE logs the location based on the location configuration of the source SN and so on.
 |
| [7], R2-2308425 | Ericsson | Proposal 9 The network includes a flag in the SPR configuration on whether the PSCell change procedure is MN initiated or SN initiated.Proposal 10 The UE logs an indication in the SPR on whether the PSCell change that led to the SPR was MN initiated or SN initiated.[Rapp] P10 is related to Q4 in the RAN3 LS. P9 can be discussed as it is related to P10. There are also similar proposals from other companies, which can be discussed together. |
| [7], R2-2308425 | Ericsson | Proposal 11 UE logs C-RNTI of the MCG in the SPR. FFS on whether SCG related C-RNTI should be loggedProposal 12 UE logs the CGI of the PCell in the SPR.Proposal 13 UE logs the PCI and ARFCN of the source/target PSCells in the SPR in case the CGI is not available at the UE. Proposal 14 UE logs the elapsed time between SPR generation and fetching the report by the network. |
| [8], R2-2308496 | Samsung | **Proposal 2: SPR reporting does not depend on whether SCG Reconfiguration complete is send via MN.****Proposal 3: In SPR, UE reports the measurements up to the moment random access is successfully completed.** [Rapp] Both P2 and P3 can be discussed as they aim at a valid issue. |
| [9], R2-2308504 | ZTE | **Proposal 2a: RAN2 confirms it is feasible to include CGI of PCell which sent the configuration in SPR.****Proposal 2b: RAN2 confirms for classic PSCell change, assisting information to indicate whether the PSCell change is MN/SN initiated is needed in the SPR configuration, so that UE can include whether PSCell change is MN/SN initiated in SPR.** [Rapp] P2b is related to P9 in [7] Ericsson, so it can be discussed. |
| [10], R2-2308620 | Sharp | **Proposal 1: RAN2 discusses which node configures the SPR configuration in case both MN-initiated CPC and SN-initiated CPC are configured for a UE.****Proposal 2: UE may include the PCell identity in the SPR.****Proposal 3: RAN2 discusses whether the PCell identity should be always included in SPR.****Proposal 4: UE includes PSCell change type, e.g. whether PSCell change is initiated by SN or MN, in the SPR.****Proposal 5: RAN2 discusses how the UE knows whether PSCell change is initiated by SN or MN.**[Rapp] P4 is related to Q4 in the RAN3 LS. |
| [11], R2-2308629 | Huawei, HiSilicon | **Proposal 5: No other triggering condition is needed.****Proposal 6: The UE logs the PCell information where the SPR configuration is sent.****Proposal 7: Network sends the indicator to inform UE whether MN initiates the PSCell change.****Proposal 8: The UE logs indicator whether the PSCell change was MN-/SN-initiated.** **Proposal 9: Random access related information is not included for any other conditions.** |
|  |  |  |

For proposal 1, if “configuration information” is not selected by RAN2, the following proposals can be discussed:

Proposal 5 UE logs C-RNTI of the MCG in the SPR. FFS on whether SCG related C-RNTI should be logged

Proposal 6 UE logs the CGI of the PCell in the SPR.

Proposal 7 UE logs the PCI and ARFCN of the source/target PSCells in the SPR in case the CGI is not available at the UE.

Proposal 8 UE logs the elapsed time between SPR generation and fetching the report by the network.

Related to P2, if explicit indication of the type of PSCell addition/change is needed, how the UE gets the indication is FFS. The email rapporteur thinks that it is about a critical issue, so it can be discussed.

**Proposal 9: RAN2 confirms for classic PSCell change, assisting information to indicate whether the PSCell change is MN/SN initiated is needed in the SPR configuration, so that UE can include whether PSCell change is MN/SN initiated in SPR.**

Regarding when/how the UE reports the SPR, two proposals are provided. The email rapporteur thinks that it is about a critical issue, so it can be discussed.

**Proposal 10: SPR reporting does not depend on whether SCG Reconfiguration complete is send via MN.**

**Proposal 11: In SPR, UE reports the measurements up to the moment random access is successfully completed.**

The following proposals may be discussed if time allows:

**Proposal 12: RAN2 discusses a different mechanism (other than indicating it in *RRCReconfigurationComplete* message) to indicate SPR availability to the network.**

Proposal 13 RAN2 discuss how the UE provides the location information:

* Based on the location configuration configured by node initiating the PSCell change
* Based on the location configuration of the node that its configured triggering SPR conditions are fulfilled, e.g., if T304 threshold is fulfilled UE logs location info based on the target SCG location configuration; if T310 threshold configured by the source SN is fulfilled the UE logs the location based on the location configuration of the source SN and so on.

## 2.3 Others

### 2.3.1 Inter-RAT SHR from NR to LTE

#### 2.3.1.1 Triggering

Relevant proposals:

|  |  |  |
| --- | --- | --- |
| **Tdoc** | **Company** | **Proposals** |
| [7], R2-2308425 | Ericsson | 1. RAN2 agree to enhance the inter-RAT SHR configuration with one or both of the following triggering conditions:- Option a: A triggering condition associated to the number of random accesses attempts toward the LTE cell. - Option B: The source (NR) node configures triggers for T304 for inter-RAT SHR.
 |

#### 2.3.1.2 Reporting

Relevant proposals:

|  |  |  |
| --- | --- | --- |
| **Tdoc** | **Company** | **Proposals** |
| [7], R2-2308425 | Ericsson | 1. 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.
2. For Inter-RAT handover from NR to LTE, augment the SHR with a flag on whether contention was observed for the successful handover.
 |

### 2.3.2 Correlation of inter-RAT SHR with RLF report

Relevant proposals:

|  |  |  |
| --- | --- | --- |
| **Tdoc** | **Company** | **Proposals** |
| [2], R2-2307284 | Nokia | **Proposal 3.1: RAN2 should abandon the C-RNTI (plus time measurement) based solution.**[Rapp] P3.1 is related to the RAN3 LS discussion.**Proposal 3.2: It is proposed to amend the SHR with a new flag added by the UE when RLF happens shortly after successful inter-RAT handover completion. The correlation afterwards can be derived in MRO domain from the created inter-RAT MRO counters.** |

For this section, if time allows, RAN2 can discuss the relevant proposals:

**Proposal 14: If time allows, the following proposals can be discussed:**

* **P4, P5, P6 in R2-2308425**
* **P3.2 in R2-2307284**

# 3 Conclusion

Based on the analysis made in section 2, the following summary proposals have been made:

**How to retrieve mobility information for SHR and SPR (RAN3 LS R2-2307030/R3-233380)**

**Proposal 1: For the solution “Configuration Information”, RAN2 to discuss issues from: Proposal 1 from R2-2308425, Observation 1 to 7 from R2-2308504.**

**Proposal 2: RAN2 confirms:**

* **The support of Pcell CGI**
* **explicit indication of the type of PSCell addition/change (i.e., PSCell addition, MN-initiated change or SN-initiated PSCell change) is needed.**

**SPR**

P3, P9, P10 and P11 are about critical issues from the email rapporteur’s point of view, so they can be discussed.

**Proposal 3: UE clears SPR configurations if one of the following conditions is met:**

**- Initiate RRC connection re-establishment**

**- Initiate RRC connection resume**

**- SPR is generated (i.e. Successful PSCellAddition or PSCellChange)**

**- SCG failure due to PSCell addition/change**

**- Reception of SCG Release**

**Proposal 9: RAN2 confirms for classic PSCell change, assisting information to indicate whether the PSCell change is MN/SN initiated is needed in the SPR configuration, so that UE can include whether PSCell change is MN/SN initiated in SPR.**

**Proposal 10: SPR reporting does not depend on whether SCG Reconfiguration complete is send via MN.**

**Proposal 11: In SPR, UE reports the measurements up to the moment random access is successfully completed.**

Other proposals may be discussed if time allows:

**Proposal 4: RAN2 to discuss which T310/T312 thresholds are to be monitored by the UE when MN and source SN configures the UE with SPR configuration, based on the following options**

**• UE only monitors the SPR configuration configured by the node that initiated the PSCell change**

**• UE monitors both SPR configurations**

**Proposal 5 UE logs C-RNTI of the MCG in the SPR. FFS on whether SCG related C-RNTI should be logged**

**Proposal 6 UE logs the CGI of the PCell in the SPR.**

**Proposal 7 UE logs the PCI and ARFCN of the source/target PSCells in the SPR in case the CGI is not available at the UE.**

**Proposal 8 UE logs the elapsed time between SPR generation and fetching the report by the network.**

**Proposal 12: RAN2 discusses a different mechanism (other than indicating it in *RRCReconfigurationComplete* message) to indicate SPR availability to the network.**

Proposal 13: RAN2 discuss how the UE provides the location information:

* Based on the location configuration configured by node initiating the PSCell change
* Based on the location configuration of the node that its configured triggering SPR conditions are fulfilled, e.g., if T304 threshold is fulfilled UE logs location info based on the target SCG location configuration; if T310 threshold configured by the source SN is fulfilled the UE logs the location based on the location configuration of the source SN and so on.

**Others**

**Proposal 14: If time allows, the following proposals can be discussed:**

* **P4, P5, P6 in R2-2308425**
* **P3.2 in R2-2307284**

# 4 Reference

[1] R2\_123\_Skeleton\_v2

# 5 The previous RAN2 agreements

## 5.1 RAN2#122 agreements

R2-2306752 Pre-meeting summary of 7.13.4 Huawei

=> intra-NR SHR and Inter-RAT SHR from LTE to NR will be deprioritized in RAN2 for R18.

=> SPR except the critical issues will not be further enhanced from this meeting until the end of R18.

=> Send LS RAN3 the above conclusion is acceptable for RAN3 (Huawei# 579).

Agreements:

SPR

1 For values of triggering conditions of SPR, Percentage based threshold variables for SHR (T310/T312/T304) can be reused for SPR is applied.

* **[At122][549][R18 SON/MDT] LS to RAN3 on SHR and SPCR (Huawei)**

 Scope: Capturing the above agreements and check RAN3’s view.

Intended outcome: Agreeable LS to RAN3

 Deadline: 23:24 UTC, Thursday

R2-2306846 [DRAFT] Reply LS on SHR and SPR

=> LS is approved in R2-2306896

R2-2306896 Reply LS on SHR and SPR

=> Approved

## 5.1 RAN2#121 agreements

R2-2301947 Summary of 8.13.4 SHR and SPCR ZTE discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

Inter-RAT SHR:

Agreement:

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

2: For handover from NR to LTE,UE generates the NR SHR when SHR for inter-RAT mobility is triggered due to T310 or T312 trigger threshold is fulfilled.

3: For HO from NR to LTE, UE records the SHR for inter-RAT mobility in the VarSuccessHO-Report.

4: 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

5: A new EUTRA target cell CGI is introduced in inter-RAT SHR.

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

7: 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.

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

a. C-RNTI (FFS target or source)

c. FFS: Time between report generating and fetching

Agreement

1: UE includes available location information in SPR .

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

3: At least the following options are needed for releasing SPR report:

a. New SPR is initiated

b. Upon retrieval of SPR

c. Detach is initiated.

4: In SPR, reuse CHO candidate cell flag to indicate whether a neighbor cell is CPAC candidate cell or not.

## 5.2 RAN2#120 agreements

R2-2213197 Report of [Pre120][801][R18 SON/MDT] SHR and SPR (Huawei)

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.

For SPR enhancements (other than LS-related discussions):

Agreements:

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.

## 5.3 RAN2#119b-e agreements

R2-2210798 Pre-meeting summary of 8.13.4 SHR and SPCR (Ericsson)

* **[AT119bis-e][802][R17 SON/MDT] SHR and SPR (Ericsson)**

Discussion on the proposals 1-7 in R2-2210798

 Intended outcome: Report

 Deadline: 04:44 UTC, Friday October 14th

R2-2210986 [AT119bis-e][802][R18 SON/MDT] SHR and SPR (Ericsson)

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