**3GPP TSG RAN WG1 Meeting #104-e R1-210xxxx**

**E-meeting, January 25 –February 05, 2021**

**Agenda Item: 8.13.3**

**Source: Moderator (Huawei)**

**Title: Summary#1 of efficient SCell activation/de-activation mechanism of NR CA**

**Document for: Discussion and Decision**

# Introduction

As per chairman’s guidance, three rounds with check points below are planned. This summary is for the first round and is expected to complete by Jan/27.

[104-e-NR-DSS-03] Email discussion/approval for efficient activation/de-activation mechanism for SCells in NR CA – Frank (Huawei)

* 1st check point: Jan 27
* 2nd check point: Feb 1
* 3rd check point: Feb 5

According to the contribution papers under agenda item 8.13.3 for efficient activation/de-activation mechanism for NR CA SCells, and in light of the working assumption and agreements achieved the last meeting, all identified issues are summarized in section and can be discussed in Section 3.

# Summary of issues and priorities

According to all of companies’ contribution documents, all the issues are summarized below, including 7 specific issues and 7 general issues, with more details in Section 3. Please companies provide your views in Section 3 with taking into consideration the information of check points and GTW session.

For the specific issues to activation/deactivation process:

* **Issue-1:** Triggering command for SCell activation/de-activation and temporary RS
* **Issue-2:** Time-domain property of TRS
* **Issue-3:** QCL configuration of TRS
* **Issue-4:** Timeline for temporary RS and SCell activation
* **Issue-5:** Associated BWP for temporary RS
* **Issue-6:** Tactivation reduction with BS assistance but no temporary RS nor SSB
* **Issue-7:** Enhancement for CSI reporting

For general issues, they are mostly extracted from a proposal of one company:

* **Question G1:** Whether or not temporary RS should be introduced for unknown cells?
* **Question G2:** Whether or not temporary RS should be introduced for both FR1 and FR2 case?
* **Question G3:** Whether or not to additionally support AP CSI-RS, P/SP CSI-RS, SRS, and RS based on SSS/PSS as temporary RS, one or more of which may be used during SCell activation depends on network configuration / UE capability.
* **Question G4:** Whether or not support additional functionality of temporary RS during SCell activation, e.g. CSI measurement/acquisition, cell search.
* **Question G5:** Whether RAN1 need to clarify whether to support A-TRS for RRC-based SCell activation.
* **Question G6:** For cases where Rel15/16 TRS structure is re-used for ‘temporary RS’, whether there is need to define a separate ‘temporary RS’ configuration in addition to already existing TRS configuration.
* **Question G7:** whether aperiodic TRS is decoupled with periodic TRS related to the time-domain pattern if aperiodic TRS is served as temporary RS.

According to previous discussions, companies’ top interests and focus seems to be the detailed designs of temporary RS. Therefore, the following discussion order is suggested. Besides any issue is always welcome for any comment, but the first check point and the GTW session on Thursday could focus more on some issues as listed. If any issue reaches potential early consensus based on companies’ feedbacks, it is also surely reviewed by its earliest check point.

## Schedule

* For 1st check point: 1/27, and GTW session on Thursday

Note: The following issues have impacts on details of TRS

* **Issue-1:** Triggering command for SCell activation/de-activation and temporary RS
* **Issue-2:** Time-domain property of TRS
* **Issue-3:** QCL configuration of TRS
* For 2nd check point: 2/01, and potential new GTW session
* **Follow-ups for all issues listed in 1st check point**
* **The remaining issues with potential consensus**
* 3rd check point: 2/05
* **Wrap-up for all issues with potential consensus**

In case of different views or suggestions on the schedule, they are welcome here.

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# Discussions

In current specifications, when a UE receives a SCell activation command in a PDSCH in slot $n$, the UE shall complete SCell activation no earlier than $n+k$ and no later than slot *n*+ [*THARQ* + *Tactivation\_time* + *TCSI\_Reporting*]/$T\_{slotlength}$ as shown in Figure 1. Therefore, reducing *THARQ*, *Tactivation\_time* and *TCSI\_Reporting* is the key to achieve efficient SCell activation/de-activation mechanism. Companies’ views are summarized in the sections below. In addition to your feedback to Section 2, more detailed comments are welcome.



Figure 1 SCell activation procedure

## THARQ reduction

### Issue-1: Triggering command for SCell activation/de-activation and temporary RS

In the last meeting, some candidates for the trigger of temporary RS and SCell activation are agreed. Combining new alternatives proposed in this meeting, all the candidates and companies’ views are summarized as follows:

* Alt 1: The trigger of temporary RS is integrated into a single triggering signaling with the trigger of SCell activation transmitted on an activated cell [2]
	+ Alt 1.1: A PDSCH TB, e.g. containing two respective MAC-CEs for both triggers, one MAC-CE for both triggers [6][10][13][15]
		- Alt 1.1.1: A PDSCH TB containing two respective MAC-CEs for both triggers
		- Alt 1.1.2: A PDSCH TB containing one new MAC-CE for both triggers [9]
	+ Alt 1.2: A DCI for both triggers [7][10]
		- Alt 1.2.1: An existing AP CSI-RS trigger [1]
		- Alt 1.2.2: An existing AP SRS trigger [1]
		- Alt 1.2.3: An existing AP TRS trigger [1]
		- Alt 1.2.4: A single UL DCI format 0\_1 or 0\_2 [11]
		- Alt 1.2.5: group-common DCI [12]
		- Alt 1.2.6: at least DCI format 0\_1/1\_1/2\_6 [18]
	+ Alt 1.3: A PDSCH TB and its scheduling DL grant, e.g. MAC-CE for activation and DL grant for temporary RS [5][10][13]
	+ Alt 1.4: A DL grant and a UL grant received in the same slot/OFDM symbols of PDCCH where the DL grant is scheduling a MAC-CE for SCell activation and the UL grant is triggering the RS.
	+ Alt 1.5: Rel-15/16 SCell activation MAC-CE and a specific configuration of temporary RS being implicitly triggered as well [1][3][4][6][8]
	+ Alt 1.6: New MAC CE for SCell activation and temporary RS triggering as well as A-CSI-RS transmission [14]
* Alt2: Triggering of temporary RS separately from SCell activation command is not precluded and both ‘separate’ triggers (examples below) and ‘integrated’ triggers (examples in Alt 1) are considered for SCell activation
	+ Alt 2.1: Rel-15/16 SCell activation MAC-CE and Rel 15/16 DCI triggering [5]
		- Alt 2.1.1: No NW restriction on slot n+m1 receiving trigger of temporary RS where n is the slot carrying the SCell activation command; [16]
		- Alt 2.1.2: NW restriction on slot n+m1 receiving trigger of temporary RS where n is the slot carrying the SCell activation command, and m1 is no earlier than [k1 + 3ms + 1]; [15]
	+ Alt 2.2: Rel-15/16 SCell activation MAC-CE and new DCI triggering for temporary RS [16]

Summary of main concerns:

For Alt1,

* Additional spec impact for new MAC CE/DCI of triggering
* Unclear main benefit over reusing the legacy triggerings.

For Alt2,

* Additional spec impact to define a valid window to receive DCI trigger of A-TRS after the DCI scheduling SCell activation command is received. (Beyond the window, such DCI trigger is not effective for SCell activation.)
* Lack of integrity of triggering commands and its resulting false alarm of either one triggering.
* In case of simultaneous activation of multiple SCells, the size of CSI-AperiodicTriggerStateList used to A-TRS triggering may be too limited to accommodate all different combinations of SCells, or more frequent RRC updates of CSI-AperiodicTriggerStateList may be required.

**Question 1-1: Whether the trigger of temporary RS is integrated into a single triggering signaling with the trigger of SCell activation transmitted on an activated cell, i.e. Alt 1 or Alt 2 is selected?**

Taking into the main concerns of both sides, companies’ views are very welcome.

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**Question 1-2: if Alt 1 is preferred, which triggering command for SCell activation/de-activation is preferable?**

Companies’ views are very welcome.

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**Question 1-3: if Alt 2 is preferred, which triggering command for SCell activation/de-activation is preferable?**

Companies’ views are very welcome.

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## Tactivation reduction

### Temporary-RS based

#### Issue-2: Time-domain property of TRS

In the previous meeting, TRS is selected as the temporary RS. Some companies further analyze the TRS type, including periodic TRS, aperiodic TRS and semi-persistent TRS. Companies’ views are summarized as follows:

* **Opt 2.1** Aperiodic TRS [6][8][13][14][15]
* **Opt 2.2** Periodic TRS [15]
* **Opt 2.3** Semi-persistent TRS [6]

**Question 2: Which TRS above should be selected as the temporary RS? Your views on benefit/gain, specification impact, implementation complexity are encouraged.**

Companies’ views are very welcome.

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#### Issue-3: QCL configuration of TRS

In current specification, aperiodic TRS should be QCLed with a periodic TRS and the periodic TRS can be QCLed with an SSB. During the SCell activation, for the QCL configuration of TRS, three sub-issues can be discussed, and corresponding companies’ views are summarized.

Issue-3.1: if aperiodic TRS is selected as temporary RS, whether a periodic TRS should be sent first as a QCL source for the temporary RS (aperiodic TRS based)?

* **Opt 3.1.1:** No [2][4][6][11]

**Question 3.1: if aperiodic TRS is selected as temporary RS, whether a periodic TRS should be sent first as a QCL source for the temporary RS (aperiodic TRS based)?**

Companies’ views are very welcome.

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| Huawei, HiSilicon | No, if additional periodic TRS has to be sent first as a QCL source, then the periodic TRS can be used as temporary RS for SCell activation which makes the subsequent aperiodic TRS is redundant. Therefore, it is straightforward not to require such periodic TRS as a QCL source. |
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**Issue-3.2: which source QCL RS can be selected for temporary RS?**

* **Opt 3.2.1:** No need [2][3]
* **Opt 3.2.2:** SSB for at least known SCell [4]

**Question 3.2: which source QCL RS can be selected for temporary RS?**

Companies’ views are very welcome.

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| Huawei, HiSilicon | In case of a known SCell, the SSB measured by a UE for measurement report is still detectable according to the definition of known SCell in TS 38.133. Therefore, the SSB can be a QCL source to facilitate temporary RS for AGC and time/frequency synchronization. |
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**Issue-3.3: for which subsequent RS/channel can temporary RS serve as QCL source?**

* **Opt 3.3.1:** subsequent CSI-RS [2][3][14][16]
* **Opt 3.3.2:** SSB [3]
* **Opt 3.3.3:** initial PDCCH/PDSCH DMRS [16]
* **Opt 3.3.4:** subsequent periodic TRS after SCell activation [4]
* **Opt 3.3.5:** No change to existing QCL framework [15]

**Question 3.3: for which subsequent RS/channel can temporary RS serve as QCL source?**

Companies’ views are very welcome.

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#### Issue-4: Timeline for temporary RS and SCell activation

Based on the triggering command, some timelines for temporary RS and SCell activation are proposed. Companies’ views on it are summarized as follows:

* **Opt 4.1**

*“The TRS is triggered r slots after the UE sends HARQ-ACK to the triggering MAC CE, plus 0.5ms MAC-to-PHY processing delay, where r is configured by RRC or indicated by MAC CE.”*[6]

* **Opt 4.2**

*“Offset between Scell activation and temporary RS can be configured by RRC singling and starting point of the offset is the HARQ-ACK feedback slot of triggering command”* [10]

* **Opt 4.3**

*“The actual slot for the triggered TRS can be r slot after the slot the UE sends HARQ-ACK for the PDSCH converting TRS triggering MAC CE, where the r can be configured by RRC, or more flexibly, indicated by the MAC CE.*”[13]

* **Opt 4.4**

*“The timing of A-TRS transmission is defined relative to the PUCCH transmission that carries the HARQ-ACK for triggering command, and the offset value of TRS transmission is indicated in triggering command.”[14]*

**Question 4: which timeline of temporary RS and SCell activation should be supported?**

Companies’ views are very welcome.

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#### Issue-5: Associated BWP for temporary RS

All the BWP(s) configured on a cell are inactive before the cell is activated. If a UE measures the triggered temporary RS during SCell activation procedure, the measurement on the target BWP should be allowed despite of the activation state of the BWP. On which BWP the UE measures the temporary RS should be considered. Companies’ views are summarized as follows:

* **Opt 5.1** The BWP configured by “*firstActiveDownlinkBWP-Id”* [3][4][6][18]
* **Opt 5.2** gNB indicates the BWP along with the indication of triggering the temporary RS [5][11][18]

**Question 5: Which option listed above is preferable? Your views on benefit/gain, specification impact, implementation complexity are encouraged.**

Companies’ views are very welcome.

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### The To-be-activated Scell acquires essential information for activation enhancement from an active cell

#### Issue-6: Tactivation reduction with BS assistance but no temporary RS nor SSB

It is proposed in [4][18] that activation time of the To-be-activated cell can be reduced by acquiring activation information (e.g. synchronization and AGC-related information) from active cell(s) which are co-located with the To-be-activated cell. For example, the BS provides a UE the information of co-located reference active cells or QCL-source cell to assist the activation of the To-be-activated cell, which may speed up the procedure of synchronization and AGC.

**Question 6: Whether it is beneficial for Tactivation reduction that BS assistance information or common property (e.g. frequency/timing synchronization, path loss, coupling loss, RSRP) derived from activated cell?**

Companies’ views are very welcome.

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## TCSI\_reporting reduction

### Issue-7: Enhancement for CSI reporting

TCSI\_reporting reduction may be beneficial to achieve efficient SCell activation. Companies’ views are summarized as follows:

* **Opt 7.1** for acquisition of CSI after activation, reuse the existing R15/R16 framework. [2][9]
* **Opt 7.2** short interval P/SP- CSI-RS report [4]

“*The specific P/SP-CSI-RS/reporting for SCell activation can be received during the required period. This short interval P/SP-CSI-RS/reporting for fast SCell activation is beneficial with little specification impacts.*”[4]

* **Opt 7.3** remove TCSI\_reporting for the case of FR2 unknown cell[4]

“*During the procedure of SCell activation, when gNB receives the beam reporting, i.e. the L1-RSRP report, it implies that UE has completed beam selection and timing synchronization which are necessary conditions for downlink transmission. It means that gNB can start downlink transmission with a conservative or rough MCS on the SCell, and UE can start to monitor PDCCH on the SCell, even the valid CSI report is not yet reported. Thus the gNB and UE can assume the SCell is activated after the Tactivation\_time.*”[4]

* **Opt 7.4** Support aperiodic CSI reporting based on PUCCH for the SCell being activated [12]

*“The group-common DCI can include fields at least for bitmap for SCell activation and CSI request. Since group-common DCI does not include any scheduling information for PUSCH, PUCCH-based CSI reporting should be supported. Using a group-common DCI avoid potential errors for HARQ-ACK codebook determination that would occur if the DCI format activating an SCell was missed and the UE was expected to report both A-CSI and HARQ-ACK in a same PUCCH or PUSCH that does not trigger the A-CSI report.”[12]*

**Question 7: which option above of CSI reporting enhancement should be supported?**

Companies’ views are very welcome.

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## General Issues

* **Question G1:** Whether or not temporary RS should be introduced for unknown cells? [3][16]

Companies’ views are very welcome.

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* **Question G2:** Whether or not temporary RS should be introduced for both FR1 and FR2 case?[13]

Companies’ views are very welcome.

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* **Question G3:** Whether or not to additionally support AP CSI-RS, P/SP CSI-RS, SRS, and RS based on SSS/PSS as temporary RS, one or more of which may be used during SCell activation depends on network configuration / UE capability. [1]

Companies’ views are very welcome.

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**Question G4:** Whether or not support additional functionality of temporary RS during SCell activation, e.g. CSI measurement/acquisition, cell search. [2][7][18]

Companies’ views are very welcome.

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**Question G5:** Whether RAN1 need to clarify whether to support A-TRS for RRC-based SCell activation. [3][15]

Companies’ views are very welcome.

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**Question G6:** For cases where Rel15/16 TRS structure is re-used for ‘temporary RS’, whether there is need to define a separate ‘temporary RS’ configuration in addition to already existing TRS configuration. [16]

Companies’ views are very welcome.

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**Question G7:** whether aperiodic TRS is decoupled with periodic TRS related to the time-domain pattern if aperiodic TRS is served as temporary RS. [2]

Companies’ views are very welcome.

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## Other Issues

Issues or comments that do not fit in any of the previous sections of this document can be provided in this section.

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# Conclusions

# References

1. R1-2100045 Support efficient activation/de-activation mechanism for Scells FUTUREWEI
2. [R1-2100112](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2100112.zip) Discussion on Support Efficient Activation De-activation Mechanism for SCells in NR CA ZTE
3. [R1-2100188](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2100188.zip) Discussion on efficient activation/de-activation for Scell OPPO
4. [R1-2100192](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2100192.zip) Discussion on efficient activation/de-activation mechanism for SCells Huawei, HiSilicon
5. [R1-2100360](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2100360.zip) Discussion on efficient activation and de-activation mechanism for SCell in NR CA CATT
6. [R1-2100475](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2100475.zip) Discussion on efficient activation/de-activation mechanism for Scells vivo
7. [R1-2100679](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2100679.zip) On efficient activation/de-activation for SCells Intel Corporation
8. [R1-2100695](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2100695.zip) Discussion on efficient activation mechanism for SCells NEC
9. [R1-2100721](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2100721.zip) On low latency Scell activation Nokia, Nokia Shanghai Bell
10. [R1-2100795](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2100795.zip) Discussion on efficient activation/de-activation mechanism for SCells in NR CA Spreadtrum Communications
11. [R1-2101067](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2101067.zip) Discussion on efficient activation/de-activation mechanism for SCells CMCC
12. [R1-2101239](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2101239.zip) On efficient activation/de-activation mechanism for Scells Samsung
13. [R1-2101294](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2101294.zip) Fast SCell Activation InterDigital, Inc.
14. [R1-2101364](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2101364.zip) On Efficiency Activation/De-activation for SCells in CA Apple
15. [R1-2101492](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2101492.zip) Efficient activation/de-activation mechanism for SCells in NR CA Qualcomm Incorporated
16. [R1-2101563](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2101563.zip) Reduced Latency SCell Activation Ericsson
17. [R1-2101566](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2101566.zip) Efficient activation/deactivation of SCell ASUSTeK
18. [R1-2101634](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_104%5CDocs%5CR1-2101634.zip) Discussion on efficient activation/deactivation mechanism for SCells NTT DOCOMO, INC.

# Appendix: Agreements

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| Agreements:As working assumption, with respect to efficient SCell activation, reuse existing Rel-15/16 TRS structure for temporary RS* FFS: how many burst/symbols are required for both AGC settling and Time/Frequency tracking for different cases, e.g. FR1 and FR2, known and unknown SCell
	+ A burst of temporary RS is notated as in S5.1.6.1.1 of TS 38.214
		- “2-slot with four CSI-RSs resources (4 samples)” for FR1
		- either “1-slot with two CSI-RSs resources (2 samples)” or “2-slot with four CSI-RSs resources (4 samples)” for FR2
* The working assumption can be confirmed after RAN4 check. (A LS for such request is planned).

Agreements:For efficient SCell activation, discuss and agree from the following alternatives at RAN1#104-e* Alt 1: the trigger of temporary RS is integrated into a single triggering signaling with the trigger of SCell activation transmitted on an activated cell.
	+ FFS detailed design of this integrated triggering signaling.
	+ Potential examples of single triggering signaling for further discussions
	+ A PDSCH TB, e.g. containing two respective MAC-CEs for both triggers, one MAC-CE for both triggers
	+ A DCI for both triggers
	+ A PDSCH TB and its scheduling DL grant, e.g. MAC-CE for activation and DL grant for temporary RS
	+ A DL grant and a UL grant received in the same slot/OFDM symbols of PDCCH where the DL grant is scheduling a MAC-CE for SCell activation and the UL grant is triggering the RS.
	+ Rel-15/16 SCell activation MAC-CE and a specific configuration of temporary RS being implicitly triggered as well
* Alt2: Triggering of temporary RS separately from SCell activation command is not precluded and both ‘separate’ triggers (examples below) and ‘integrated’ triggers (examples in Alt 1) are considered for SCell activation
	+ FFS detailed design of separate triggering signaling.
	+ Potential examples of separate triggering signaling for further discussions
	+ Rel-15/16 SCell activation MAC-CE and Rel 15/16 DCI triggering
	+ Rel-15/16 SCell activation MAC-CE and new DCI triggering for temporary RS
* Note: temporary RS should be triggered by DCI or MAC-CE.
* Note: the final mechanism of trigger signaling targets at applicability to one or more SCell activation.
* FFS handling of  SCell activation by existing Rel15/16 CA activation command when temporary RS is configured and triggered/not triggered

**Working Assumption**At least for the case of known cell, temporary RS is supported to expedite the activation process during the SCell activation procedure for efficient SCell activation for both FR1 and FR2:         The temporary RS should provide at least the functionalities of AGC settling and time/frequency tracking during SCell activation procedure.         FFS potential functionalities of CSI measurement/acquisition and cell searchAgreements:TRS is selected as temporary RS for Scell activation         If more functionalities are confirmed to be supported by temporary RS, other RS candidates, e.g. aperiodic CSI-RS, P/SP-CSI RS, SRS and RS based on SSS/PSS, are not precluded.         The TRS should be triggered by DCI or MAC-CE. FFS which exact triggering command.  Agreements:UEs measure the triggered temporary RS during Scell activation procedure no earlier than a slot m:         FFS timeline values m which may need coordination with RAN4.         FFS if the triggered temporary RS can be associated with a BWP, then the measurement above is independent of the activation state of the BWP.Agreements:Companies are encouraged to provide design details of temporary RS next meeting, at least including:* TRS structure, e.g. whether to fully reuse existing Rel-15/16 TRS structure and configuration restriction (refer to S5.1.6.1.1 of TS 38.214), or any modification
* QCL information, if any
* Triggering command: DCI format/fields or MAC-CE fields
* Triggering timeline/scheduling offset
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