3GPP TSG-RAN WG2 Meeting #109-e R2-2002218

Electronic Meeting, 24th February – 6th March 2020

Agenda: 5.4.1.2

Source: Nokia, ZTE

Title: Coordination on number of measurement identities

Document for: Discussion, Decision

# 1 Introduction

This document is to kick-off the following email discussion:

* [AT109e][005][NR15] Coordination on number of measurment ID (Nokia, ZTE)

 Scope: Coordination on number of measurement ID, Treat the documents above

 Intended outcome: Agreed CRs

 Deadline: Feb 27 1200 CET (can be prolonged if needed).

# 2 Discussion

For measurement identity coordination between MN and SN, RAN2 discussed the issue last meeting based on [1][2], and an LS[3] is sent to RAN4 to confirm the understanding on EN-DC case. After last RAN4 meeting, RAN4 already clarified in their spec, that the limitation of maximum number of reporting criteria defined for NE-DC also applies to (NG)EN-DC case.

In general, the limitations are summarized as below:

* In (NG)EN-DC, the maximum number of measIDs for “MN(LTE) configured NR serving frequency” and “SN(NR) configured NR serving frequency and non-serving frequency” is 10+9\*n;
* In NE-DC, the maximum number of measIDs for “MN(NR) configured LTE serving frequency” and “SN(LTE) configured LTE serving frequency and non-serving frequency” is 10+10\*n;
* In NR-DC, the maximum number of measIDs for “MN(NR) configured NR serving frequency and non-serving frequency” together with “SN(NR) configured NR serving frequency and non-serving frequency” is 10+9\*n;

Therefore, to make sure the network configured measurements do not exceed UE’s capability. The measurement coordination signalling should be updated. During this meeting, following contribution and CRs are provided for measurement identity coordination in MR-DC.

Coordination on number of measurment ID

[R2-2000245](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_109_e%5CDocs%5CR2-2000245.zip) Corrections on maxMeasIdentitiesSCG-NR in MR-DC ZTE Corporation, Sanechips, Ericsson, NEC, CATT CR Rel-15 38.331 15.8.0 1272 2 F NR\_newRAT-Core R2-1914906

2 below Move from 5.4.1.4

[R2-2000163](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_109_e%5CDocs%5CR2-2000163.zip) TDOC Capability Coordination for Measurement Reporting Identities in MR-DC Nokia, Nokia Shanghai Bell discussion Rel-15 NR\_newRAT-Core

[R2-2000162](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_109_e%5CDocs%5CR2-2000162.zip) TS 38.331 Capability Coordination for Measurement Reporting Identities in MR-DC Nokia, Nokia Shanghai Bell CR Rel-15 38.331 15.8.0 1428 - F NR\_newRAT-Core

As highlighted in R2-2000163, the main difference between R2-2000245 and R2-2000162 is whether to allow coexistence of legacy and new signalling.

Note:

* The new field (i.e. *maxIntraFreqMeasIdentitiesSCG*) is used for MN to directly indicate the maximum number of measurement identities that SN can configure for intra-frequency measurement on each serving frequency. (based on RAN4 requirement)
* The legacy field (i.e. maxMeasIdentitiesSCG) was defined for MN to indicate the total maximum number of measurement identities that SN can configure for both intra-frequency and inter-frequency measurements.

In this email discussion, companies are invited to show your preference to this question.

## Q1: For MN indicated maximum number of measurement identities that can be configured by SN. Do company think there is a need to allow coexistence of both legacy and new fields?

|  |  |  |
| --- | --- | --- |
| Company  | Yes(needed)/No(not needed) | Comments |
| Nokia, Nokia Shanghai Bell | Yes | Mainly for EN-DC case which is what is deployed in the field today, instead of replacing signalling for products out in the field, we propose to keep the existing legacy signalling and add the refinements proposed by ZTE on top. This will allow newer deployments to implement the new signalling and still work with legacy products without an interoperability issue.We are not in favor of changing upgrading existing implementation as our understanding is that the limits of usage are not reached in Rel-15 that the signalling can be considered fully broken and nothing works. |
| Ericsson | No | Having old and new signaling will cause unclearity and inter-compatibility issue in inter-vendor scenarios.On top of this, according to the agreement made in RAN2#105, the old signaling should not have used anyway for EN-DC as the remaining FFS (on whether to keep the old field in the inter-node RRC messages) was only for late drop.Further, we sent an LS to RAN4 and a decision was made after almost half a year. According to their decision, RAN4 changed its specification and i believe that RAN2 should take into account these changes.We are strongly against to have coexistance of both signaling. |
| Samsung | No | Same view with Ericsson, the old signlaing is not used for EN-DC and now it is clear from RAN4 decsion. We prefer to make clear operation with less signaling.Keeping the old signaling as it is makes more complicate, and we don’t care so much about NBC for network interfaces. |
| Huawei, HiSilicon | Yes | According to current specification, maxMeasIdentitiesSCG-NR can be used for EN-DC. Even if this does not allow configuring as many measurements as supported by the UE as now specified by RAN4, it can be sufficient for existing implementations, so the existing field should be kept as it is and it should be possible for implementations to use it without any new field.We are ok to discuss addition of new fields for optimization, but it should be possible for legacy nodes to use only the legacy field. |
| NEC | No | Firstly, it should be confirmed that the legacy field is not used for EN-DC, which was the agreement. By implementation, it can be used e.g. in intra-vendor network but it should not be assumed as the baseline.sGiven the EN-DC case has to be fixed according to late RAN4 updates, the new field needs to be introduced anyway. |
| ZTE | No | Agree with Ericsson and NEC, we also want to highlight that in RAN2 #104 meeting, we already made following agreement. => RAN2 understand the maxMeasIdentitiesSCG-NR between MN and SN is not used for EN-DC.So in any case, that field should not be used in EN-DC. And the field is kept only because we haven’t concluded on late drop at that time.So we don’t think keeping the legacy field can help interoperability of inter-vendor scenario. For intra-vendor, anyway it is up to network implementation. But the design of inter-node RRC message in spec should focus on inter-vendor case.On the other hand, based on requirement of UE capability defined in current RAN4 spec, the total number of measIDs indeed cannot express the real limitation on SN side. There’s still a risk for SN to configure more intra-freq measurement and exceeds UE’s capability, which makes the field meaningless. |
| CATT | No | Same view with ZTE.We also agree the old signlaing is not used for EN-DC. So we don’t think keeping the legacy field can help interoperability of inter-vendor scenario. |
| Docomo | No | We show sympathy for Nokia’s solution. But considering the old field is not used for EN-DC, ZTE’s solution looks more clear and brings less complexity for operation. |

 **Summary：**

8 companies participate this discussion, 6 companies prefer to NOT allow coexistence of both old and new fields. And 2 companies suggest to keep the legacy field “maxMeasIdentitiesSCG” because it is already used in EN-DC scenario. However, as spotted by some companies, RAN2 already made decision in RAN2#104 that maxMeasIdentitiesSCG field is not used for EN-DC. So keeping that field and field description does not help inter operability. Therefore, we propose:S

**Proposal 1: For measurement identity coordination in MR-DC, coexistence of legacy field and new fields is not supported. (I.e. the legacy field and field description will be revised accordingly)**

## Q2: Any comments to the CR?

(Note: except maxMeasIdentitiesSCG field mentioned in Q1, other corrections are almost the same in both CRs, so companies can directly raise your comments to specific field or field description)

|  |  |
| --- | --- |
| Company  | Comments |
| Nokia, Nokia Shanghai Bell | To be constructive and allow for reasonable compromise and progress on this issue we are fine to have the changes proposed by ZTE **on top** of the legacy signalling. In fact we have used the same fields from ZTE CR and **retained legacy implementation** in our version of the CRs. |
| Ericsson | We agree with the version of ZTE. Therefore, **no coexistance of old and new signaling.** |
| Samsung | We prefer the version of ZTE. |
| Huawei, HiSilicon | We are ok to discuss additions of new fields for optimization but we think it is too late for Rel-15, it should be in Rel-16.**With respect to maxIntraFreqMeasIdentitiesSCG and maxInterFreqMeasIdentitiesSCG:** absence of the fields cannot have a meaning otherwise it is not backward compatible. Other than that, we are ok with the addition of these parameters.**With respect to the exchange of serving frequency lists between MN and SN:** it is possible to set maxIntraFreqMeasIdentitiesSCG and maxInterFreqMeasIdentitiesSCG such that coordination is possible even without any knowledge of serving frequencies, even if the full UE measurement capabilities are not used, and exchange of frequencies requires involving the other node in many cases (e.g. for any SCell addition/removal), which was never discussed and may require significant changes to existing procedures in order to ensure inter-operability. To us, the extra benefit of these fields really does not justify the extra complexity.  |
| NEC | Regarding Huawei comment on the meaning of absence of the updated and new fields (max Inter/Intra MeasIdentitesSCG), until the SN supporting the changes firstly receives these fields, the SN does not assume anything or follow the legacy mechanism. Later, the SN can assume that nothing is allowed, if the field(s) is absent (although we do not expect such extreme case).By the way, our understanding on the field maxIMeasIdentitiesSCG-NR is that it is not used even for the late drop so far, as currently ASN.1 says TBD anyway.. |
| ZTE | As indicated in Q1, we don’t think coexistance of old and new fields helps.Regarding Huawei’s comment on absence of maxIntraFreqMeasIdentitiesSCG and maxInterFreqMeasIdentitiesSCG, at least we cannot assume the fields are mandatory present, so we need to define the interpretation when it is absent. Except assuming the SN can use the maximum number. If we go the opposite way: “SN assumes no intra-freq measurement can be configured when it is absent“, this seems cause bigger problem to inter-operation. Regarding the exchange of serving freq list, I have to say, this is the pain in RAN2 based on the RAN4’s decision. If network does not exchage these information, MN or SN hardly knows what’s the “full UE capabillity“. For network implementation, network could restrain itself to a very limited number of measIDs to avoid signaling exchange upon SCell add/remove, but the specification should provide the oppotunity to network, when network wants to configure more or full measurements. |
| CATT | We agree the version of ZTE. |
| Docomo | We prefer the version of ZTE.  |

**Summary：**

8 companies provide response, and majority prefer the correction in ZTE’s CR. Therefore, we propose:

**Proposal 2: Agree the CR R2-2000245.**

# 3 Update based on follow-up email discussion

During the follow-up discussion in email, some companies show the strong concern on revising the legacy field “maxMeasIdentitiesSCG”. So the final compromised solution is to dummify the legacy field, and add new fields (i.e. maxIntraFreqMeasIdentitiesSCG and maxInterFreqMeasIdentitiesSCG) independently. The CR is revised in R2-2002344.

In addition, companies also suggest to capture the expected MN/SN coordination procedures in specification. Similar to other coordination procedures, it can be captured in stage 2 TS 37.340. The Stage 2 CR is supposed to be submitted to RAN2 April meeting.

Therefore, the Proposals are updated into followings:

**Proposal 1: For measurement identity coordination in MR-DC, dummify the legacy field (i.e. maxMeasIdentitiesSCG), and introduce new fields (i.e. maxIntraFreqMeasIdentitiesSCG, maxInterFreqMeasIdentitiesSCG) for intra-frequency and inter-frequency measurement identity coordination.**

**Proposal 2: Agree Stage 3 CR in R2-2002344.**

# 4 Conclusion

**Proposal 1: For measurement identity coordination in MR-DC, dummify the legacy field (i.e. maxMeasIdentitiesSCG), and introduce new fields (i.e. maxIntraFreqMeasIdentitiesSCG, maxInterFreqMeasIdentitiesSCG) for intra-frequency and inter-frequency measurement identity coordination.**

**Proposal 2: Agree Stage 3 CR in R2-2002344.**

# 4 Reference

[1] R2-1914905 Measurement coordination on maxMeasIdentitiesSCG in MR-DC ZTE Corporation, Sanechips, Ericsson, NEC, CATT discussion Rel-15 NR\_newRAT-Core R2-1912765

[2] R2-1915509 On the capability coordination of measurement reporting criteria for MR-DC Nokia, Nokia Shanghai Bell discussion Rel-15 NR\_newRAT-Core

[3] R2-1916595 LS on measurement reporting criteria for EN-DC Nokia LS out Rel-15 NR\_newRAT-Core To:RAN4