3GPP TSG-RAN WG2 Meeting #119 electronic Draft R2-2208708

Online, August, 2022

Agenda: 9.8

Source: Session Chair (Intel)

Title: Report from IDC breakout session

Document for: Approval

**Organizational:**

* [AT119-e][650][IDC] Organizational Yi – IDC (Intel)

Scope:

* Share plans for the e-meetings and list/status of ongoing email discussions for the sessions.
* Share meeting notes and agreements for review and endorsement.

* [AT119-e][651][IDC] FDM solution enhancements (Huawei)

Scope: based on companies’ contributions submitted in 8.10.2

A) Identify the use cases or scenarios (e.g. serving/non-serving, E-UTRA frequency, NR frequency and MR-DC) for the FDM solution enhancements.

B) Granularity of frequency indication for identified use case/scenarios

Intended outcome: Report to Wednesday session in R2-2208951

Deadline: Wednesday 2022-08-24 00:30 AM UTC.

* [AT119-e][652][IDC] TDM solution (Xiaomi)

Scope: based on companies’ contributions submitted in 8.10.3

A) Identify the use cases or scenarios (e.g. WLAN, BT multimedia, BT voice) for the TDM solution

B) TDM solutions for identified use cases/scenarios

Intended outcome: Report to Wednesday session in R2-2208952

Deadline: Wednesday 2022-08-24 00:30 AM UTC.

## 8.10 IDC enhancements for NR and MR-DC

(NR\_IDC\_enh-Core; leading WG: RAN2; REL-18; WID: RP-221281)

Time budget: 1 TU

Tdoc Limitation: 2 tdocs

This WI expects to address interference between 3GPP (including various MR-DC architectures, i.e. NR-DC and EN-DC) and non-3GPP RAT (e.g. WiFi). Note: Enhancements to FDM solution is prioritized. LTE IDC solution should be considered as the baseline for the solutions developed in this WI.

### 8.10.1 Organizational

LS in. Rapporteur Input

[R2-2207803](file:///C:\work\RAN2\Extracts\R2-2207803%20Work%20Plan%20for%20Rel-18%20IDC.docx) Work Plan for Rel-18 IDC Xiaomi discussion Rel-18 NR\_IDC\_Enh-Core

### 8.10.2 FDM solution enhancements

Enhancements to FDM solution, to allow more granular indication of affected frequencies (e.g. granularity of BWP or PRB level).

* [AT119-e][651][IDC] FDM solution enhancements (Huawei)

Scope: based on companies’ contributions submitted in 8.10.2

A) Identify the use cases or scenarios (e.g. serving/non-serving, E-UTRA frequency, NR frequency and MR-DC) for the FDM solution enhancements.

B) Granularity of frequency indication for identified use case/scenarios

Intended outcome: Report to Wednesday session in R2-2208951

Deadline: Wednesday 2022-08-24 00:30 AM UTC.

[R2-2208951](file:///C:\work\RAN2\Extracts\R2-2208951%20Report%20of%20%5bAT119-e%5d%5b651%5d%5bIDC%5d%20FDM%20solution%20enhancements.doc) [AT119-e][651][IDC] FDM solution enhancements (Huawei) Huawei, HiSilicon discussion Rel-18 NR\_IDC\_Enh-Core

Proposals for agreement:

Proposal 1: [To agree] [14/14] RAN 2 agrees that the Adjacent channel interference between NR Stand Alone (SA) or MN of NR-DC and non-3GPP should be considered for the FDM enhancement in Rel.18.

Proposal 2: [To agree] [14/14] RAN 2 agrees that the Adjacent channel interference between SN (NR) of MR-DC and non-3GPP should be considered for the FDM enhancement in Rel.18.

Proposal 3: [To agree] [12/14] RAN 2 agrees that the IMD interference from simultaneous Tx in EN-DC to non-3GPP should be considered for the FDM enhancement in Rel.18.

Proposal 4: [To agree] [12/14] RAN 2 agrees that the IMD interference from simultaneous Tx in NR-DC to non-3GPP should be considered for the FDM enhancement in Rel.18.

Proposal 5: [To agree] [10/14] RAN 2 agrees that granular indications of the affected NR frequency reported for IDC issue needs to consider both serving and non-serving frequency as in the legacy FDM solution.

Proposals need further online discussion:

Proposal 6: [To discuss] [7/14] RAN 2 to discuss whether we should have unified FDM solution enhancements with granular indications for both serving and non-serving frequency as the starting point.

Proposal 7: [To discuss] RAN 2 to first have conclusions on P5 and P6, and based on the conclusions, RAN2 to further discuss the solutions with the following direction that is aligning with the conclusions:

- Direction 1: Have a unified solution for both serving frequency and non-serving frequency

o Option 1.1: Frequency range based reporting (original Option 1, 2, 2a series) – UE reports actual affected frequency range in terms of Central/Start frequency + Bandwidth or Start and End frequency among the configured candidate frequency ranges

o Option 1.2: BWP based reporting (original Option 3 series) – UE reports affected BWP among the configured candidate BWP

- Direction 2: Separate solutions for serving frequency and non-serving frequency:

o Option 2.1: BWP based reporting (original Option 3 series) – UE reports affected BWP among the configured candidate BWP for serving frequency, and Frequency range based reporting (original Option 1, 2, 2a series) – UE reports actual affected frequency range in terms of Central/Start frequency + Bandwidth or Start and End frequency among the configured candidate frequency ranges for non-serving frequency

- Direction 3: Only have solution for serving frequency, no enhancement for non-serving frequency

o Option 3.1: BWP based reporting (original Option 3 series) – UE reports affected BWP among the configured candidate BWP for serving frequency

The following documents will not be individually treated

[R2-2207162](file:///C:\work\RAN2\Extracts\R2-2207162.docx) Consideration on the FDM enhancement ZTE Corporation, Sanechips discussion Rel-18 NR\_IDC\_Enh-Core

R2-2207469 Discussion on FDM solution enhancements for IDC OPPO discussion Rel-18 NR\_IDC\_Enh-Core

R2-2207539 Discussion on FDM solution enhancements Sharp discussion

R2-2207556 Assistance information for FDM Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_IDC\_Enh-Core

R2-2207804 Discussion on the IDC FDM solutions Xiaomi discussion Rel-18 NR\_IDC\_Enh-Core

R2-2207844 Discussion on FDM solution for in-device co-existence interference avoidance Samsung discussion Rel-18 NR\_IDC\_Enh-Core

R2-2207936 Discussion on FDM solution in IDC Apple discussion Rel-18 NR\_IDC\_Enh-Core

R2-2207968 Enhanced FDM solution for IDC Intel Corporation discussion Rel-18 NR\_IDC\_Enh-Core

R2-2208116 FDM Solutions in IDC Qualcomm Incorporated discussion Rel-18

R2-2208135 FDM solution for IDC Ericsson discussion Rel-18 NR\_IDC\_Enh-Core

R2-2208230 Discussion on FDM enhancement Huawei, HiSilicon discussion Rel-18 NR\_IDC\_Enh-Core

R2-2208396 Discussion on FDM solution for R18 IDC vivo discussion Rel-18 NR\_IDC\_Enh-Core

R2-2208524 IDC FDM solution LG Electronics discussion Rel-18

moved here from 8.10.1

R2-2207161 Clarification on the IDC scope ZTE Corporation, Sanechips discussion Rel-18 NR\_IDC\_Enh-Core

### 8.10.3 TDM solution

Introduction of TDM solution (e.g. indication of UE preferred TDM pattern for UL/DL).   
Note: The TDM solution is considered complementary to the FDM solution.

* [AT119-e][652][IDC] TDM solution (Xiaomi)

Scope: based on companies’ contributions submitted in 8.10.3

A) Identify the use cases or scenarios (e.g. WLAN, BT multimedia, BT voice) for the TDM solution

B) TDM solutions for identified use cases/scenarios

Intended outcome: Report to Wednesday session in R2-2208952

Deadline: Wednesday 2022-08-24 00:30 AM UTC.

[R2-2208952](file:///C:\work\RAN2\Extracts\R2-2208952_Summary%20of%20%5bAT119-e%5d%5b652%5d%5bIDC%5d%20TDM%20solution%20(Xiaomi).docx) [AT119-e][652][IDC] TDM solution (Xiaomi) Xiaomi discussion Rel-18 NR\_IDC\_Enh-Core

Observation: The Rel-18 IDC TDM solution should be discussed case-by-case.

Potential easy agreements:

Proposal 1 (14/14): The use cases (e.g. BT voice, BT eSCO and WLAN beacon) as described in 3GPP TR 36.816 for LTE TDM solutions are considered for developing the Rel-18 IDC TDM solution in RAN2.

Proposal 2 (12/14): Rel-18 IDC TDM solution(s) targets at resolving the adjacent channel interference issue and the intermodulation distortion interference issue, as LTE.

Proposal 3 (13/14): As the baseline, the UE reports the TDM assistance information for IDC affected frequency list (i.e. not for the frequency combination list of UL CA), as LTE. The frequency granularity relys on the FDM solution.

Proposal 4 (10/14): The UE can report its preferred DRX pattern (including DRX cycle, DRX starting offset and DRX active time), as LTE.

Proposal 8 (11/14): Hardware sharing indication is not included in the Rel-18 IDC work.

Solutions need more discussion:

Proposal 5 (5(Yes)/8(No)): FFS on whether the UE can report its preferred UL and/or DL transmission occasion(s), as LTE.

Proposal 6 (5(Yes)/5(No)/4(No strong view)): FFS on whether the UE can be configured to autonomously deny the NR UL transmission, as LTE.

Proposal 7 (4(Yes/7(No)/3(FFS))): FFS on whether MUSIM gap-like solution is included in Rel-18 IDC work.

The following documents will not be individually treated

R2-2207379 TDM Assistance Information for IDC Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_IDC\_Enh-Core

R2-2207718 TDM solution for IDC problem Lenovo discussion Rel-18

R2-2207805 Candidate TDM solutions for IDC Xiaomi discussion Rel-18 NR\_IDC\_Enh-Core

R2-2207845 Discussion on TDM solution for in-device co-existence interference avoidance Samsung discussion Rel-18 NR\_IDC\_Enh-Core

R2-2207937 Discussion on TDM solution in IDC Apple discussion Rel-18 NR\_IDC\_Enh-Core

R2-2207969 TDM solution for IDC Intel Corporation discussion Rel-18 NR\_IDC\_Enh-Core

R2-2208113 TDM Solution for NR IDC Ericsson discussion Rel-18 NR\_IDC\_Enh-Core

R2-2208118 TDM Solutions in IDC Qualcomm Incorporated discussion Rel-18

R2-2208231 Discussion on TDM solution for NR IDC Huawei, HiSilicon discussion Rel-18 NR\_IDC\_Enh-Core

R2-2208397 Discussion on TDM solution for IDC vivo discussion Rel-18 NR\_IDC\_Enh-Core

R2-2208525 IDC TDM solution LG Electronics discussion Rel-18