

LG Uplus views on Rel-17



Basic principles for Rel-17

- **Target commercialization : Q2 in 2022**
 - After 12 months from Q2 in 2021, completion of Rel-17 stage 3.
 - Initial mobile 5G commercialization was in April, 2019 : 10 months from Rel-15 (14 months from NSA) stage 3.
- **Pain points identified from initial 5G commercialization should be resolved for improving 5G UXs**
 - Interoperability issue, battery life, balance between LTE and 5G NR capacity and static TDD configuration.
- **Evolution of eMBB should be continued to achieve successful 5G B2C market.**
 - 5G B2B use cases and corresponding technologies are being identified and standardized.
 - From business perspective, still successful 5G B2C market is required.
- **Evolution of corresponding technologies for 5G B2B/Verticals should be continued as well.**
 - NR V2X enhancements, NR broadcast/multicast, NR-IoT, relay.
- **The call for 5G in Railways, maritime and public warning system is opening the new door in B2G market.**
 - The introduction of 5G for these areas is desired in Korean industry/government as well[1].
- **More granularity for operation/optimization is required from operator perspective.**
 - RDCU/5G MDT(not covered within Rel-16) enhancements, RAN Slicing(E2E perspective) additional treatment for uLI.

- **Interoperability issue**

- When Rel-17 completion is coming, stability and maturity for specification is the first than fancy ideas.
- Please do not introduce early/late drop of 5G NR-advanced, NR Phase 3, Beyond 5G(B5G), etc, whatsoever.
- Sometimes for marketing purpose, it is desired but when “the time is coming”, industry/government believes, and nobody tells the truth.

- **Battery life**

- As everyone expected, it is identified obviously due to wide NR bandwidth and more chipsets in UE.
- Even though most techniques should consider trade-off between the performance and battery of the UE, we need more options to select.
- Additional treatments on CDRX, BWP, paging, etc and new scheme will be welcomed.

- **Balance between LTE and 5G NR capacity**

- Spectrum utilization of existing LTE(or 2G/3G) spectrum while the amount 5G NR traffic is increasing.
- Refarming and finding efficient way to maximize the refarmed spectrum efficiency. i.e. enhanced FDD MIMO
- Utilizing existing spectrum. i.e. flexible/full duplex, flexible spectrum, SUL/ULS with DLS(DL spectrum sharing)

- **Static TDD configuration**

- Even though 3GPP supports dynamic TDD, still commercialized with static TDD configuration where multiple operators within same band.
- Resurrection of eIMTA is required : enhanced CLI
- Preferable for Macro, but if it is not available, for specific use cases with other technologies. e.g. flexible duplex, IAB, limited area, etc.

- **Enhanced NR-MIMO / Beam related mechanisms**

- Multi-panels in frequency range higher than FR1 and something not covered in Rel-16.
- RACH, Scell activation related items, etc.

- **Mobility enhancements**

- Key direction for enhancing “mobile” is also important.
- Additional treatment for reducing E2E delay, multi-options(EN-DC to SA), SRS report enhancements, etc.

- **TCP enhancements**

- For achieving higher DL data throughput.

- **New and wider spectrum**

- Frequency ranges other than FR1 and FR2 should be investigated.
- 7.125~24.25GHz, [above 52.6GHz].

- **NR V2X enhancements**
 - NR sidelink enhancements, power saving for pedestrian UE, etc.
- **NR broadcast/multicast**
 - For specific use cases as NR V2X broadcast and traditional consideration on media transmission.
- **NR-IoT**
 - NR based IoT technology should be defined and designed with careful consideration on use cases.
 - It considers : UL/DL data transferring in inactive state, battery efficiency, etc.
- **Coverage enhancements for indoor operation**
 - Enhancements of IAB, relay, etc.
- **Secured/Different types of networks for specific purposes**
 - Enhancements in NPN(Non-Public Networks).
 - Enhancements in NTN(Non-terrestrial Networks).

More granularity in optimization

- **Enhancements of RAN-centric data collection and utilization / MDT**

- NR MDT enhancements : not covered within Rel-16 timeframe
- SON : reporting of Rel-16 features for NW optimization. e.g. conditional HO, RACH enhancements performances, etc.

- **RAN Slicing**

- Slice-based control, continuity in RAN, aspects not addressed from E2E perspective.

- **Improvement for using upperLayerIndication(uLI)**

- Now uLI is band-agnostic indication. So the mismatch between the indication and frequency range should be addressed [2].
- e.g. For EN-DC UE supporting LTE and FR2, the UE can be indicated also within the area supporting LTE and FR1 only.
- This treatment will not address the mismatch between SIB2 area and UE-measurement based area still, but to reduce wrong indication case above.

References

[1] 2019 ICT standard strategy map, TTA

[2] 5GSI19 Doc 004_Discussion on spectrum bands and config D_LGU, LG Uplus