

3GPP MRP Mini Workshop: 3GPP Rel-18. Requirements from industry verticals 23 June 2021





Critical Communications/Public Safety requirements for Release 17

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Association/project representing: TCCA on behalf of PSC Europe

Key requirement: Mission Critical functionality support in 5G NR

Market intake: MC services testing capability (end-to-end)

5G operational model:

- Communications at all times everywhere: device-to-device communication, UE network relay, Satellite connectivity
- In building location and coverage
- Capacity efficiency: multicast/broadcast capability

Work on-going in all of these

Drivers

- Coverage
- Availability
- Resilience
- Performance
- Scalability
- Functional suitability





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1. NR multicast broadcast
2. Sidelink enhancements: UE to UE relay (inc. multihop), Vehicle Mounted Relay
3. Positioning enhancements: Ranging, Enhanced Sidelink location
4. Scenarios for satellite usage
5. Other
 1. NR coverage enhancement
 2. Mobile Integrated Access and Backhaul
 3. High power UE < 1GHz bands
 4. Below 5 MHz NR Channel Bandwidth
 5. 5G Timing Resiliency
 6. Security enhancements
6. Predictive QoS
7. Non public networks
8. IIoT and URLLC

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Connectivity is the lifeline in critical communications – be it public safety, transport or another sector. Every action that improve coverage, availability and resilience are important as lives are at stake.

Once a trusted connection is in place then ability to perform given duties safely and efficiently becomes the focus i.e. need for secure MC services over 5G, positioning for situational awareness.

For the market to move forward certified interoperability is required to enabel govermental actors to buy products.

For railways below 5 MHz NR channel bandwidths are to enable migration from GSM-R.

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1. MC Services over 5G utilizing ProSe and 5MBS
 - Critical need for public safety for reliable off-network operation and on-network operation in congested cells requiring NR sidelink and 5MBS.
2. UE to UE Relay including multi-hop
 - NR sidelink solutions cannot match LMR legacy off-network coverage without this feature.
 - Towards service continuity enhancements, inter-gNB mobility, indirect/indirect path switch and group mobility, should be considered in Rel-18 sidelink relay enhancement.
3. Vehicle Mounted Relay (VMR)/Smart Repeaters
 - On-network coverage extension is important for public safety incident handling.
4. Ranging (distance and direction)
 - Accurate knowledge of first responder location is critical in emergency situations.
5. Enhanced Location utilizing Side link
 - In-coverage, partial coverage, and out-of-coverage NR including floor-level positioning for public safety
6. Enhancements to 5G over satellite
 - Support broadcast and MC services.