



ERICSSON

SCOPE FOR LTE-M IN REL-16



OUTLOOK

- › LTE-M was during Release 13/14 designed as a versatile and low complexity mMTC access technology.
- › Release 15 introduces support e.g. for higher velocity, early data transmission and a wake-up signal.
- › The number of connected devices is expected to grow rapidly in the coming years.
- › Our vision
 - Make LTE-M network more efficient, further improve UE performance, support new use cases, ...
 - Continue to follow LTE-M design principles while improving areas where improvements are needed.



OVERVIEW



- › Enhanced network management tools
- › Further reduced signaling
- › Further improved spectral efficiency

ENHANCED NETWORK MANAGEMENT TOOLS



› Congestion/overload control in RRC connected mode [RAN2 lead]

- The network shall be able to control the behavior of UEs in RRC connected mode to prevent mobile originating signaling and/or data traffic
- With lower priority, this feature may be considered as a general LTE feature also for non-BL/CE UEs

› Proactive load distribution over time [RAN2 lead]

- Introduce tool(s) for implicit load distribution over time to manage traffic spikes
- Introduce a mechanism for preventing CE level ramping due to access overload

FURTHER REDUCED SIGNALING



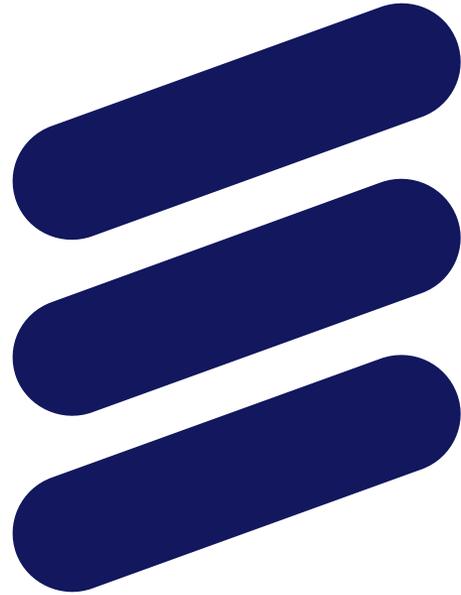
› Configured grant/assignment in idle mode [RAN2 lead]

- Study and, if found beneficial and feasible with a minimum of physical layer changes, specify support for configured grant/assignment in idle mode (using the Rel-15 Early Data Transmission feature as a starting point but eliminating the need for transmitting Msg1 and Msg2 in low-mobility scenarios)

FURTHER IMPROVED SPECTRAL EFFICIENCY



- › **More flexible resource allocation** [RAN1 lead, RAN2]
 - Support for a single DL/UL DCI scheduling of multiple PDSCH/PUSCH transport blocks
- › **CE mode enhancement for non-BL UE** [RAN1 lead, RAN2, RAN4]
 - E.g. enhanced UE demodulation performance requirements, mobility enhancements
- › **Improved measurement abilities** [RAN1 lead, RAN2, RAN4]
 - Consider a more compact UL PHR format (e.g. similar to NB-IoT) for smaller overhead in CE
 - Early reporting of DL RSRQ (or CQI) in Msg3 or Msg5 for improved link adaptation in CE
 - Improved DL RSRP measurement accuracy e.g. through use of other signals than CRS



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