

RAN #73, New Orleans, USA, September 19 - 22, 2016
Agenda Item: 10.1.4

RP-161697



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MOTIVATION FOR NEW WORK ITEM ON NETWORK BASED CRS MITIGATION

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BACKGROUND & MOTIVATION



LTE transmits **CRS across the system bandwidth** in every subframe

→ High inter-cell interference even at low/medium load

→ Unnecessarily **low per-user throughput**, mainly due to higher order modulations not being usable

NETWORK BASED CRS MITIGATION



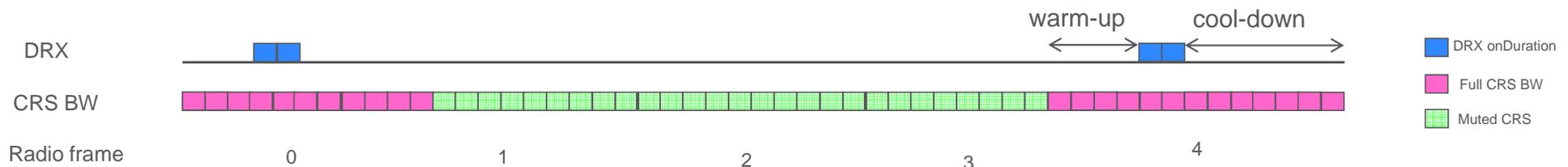
- › Network based CRS mitigation **supporting legacy UEs**
 - A cell **omits CRS transmissions if it expects all (connected mode) UEs to be in DRX**, but
 - › maintains CRSs on the inner 6 PRBs continuously (for idle mode support)
 - A cell enables CRS when it expects at least one UE to leave DRX
 - Aligned on-durations among UEs increase the muting possibilities
- › Already tested **in life networks**
 - It performs very well with legacy UEs
 - No additional RLFs observed
 - **Up to 80% increased DL throughput** in low to medium load (of neighbor cells)
 - › Especially due to lower utilization of higher order modulation, like DL 256 QAM

LEGACY UE PROTECTION



- › Tested UEs show stable RSRP measurements if CRS in few TTIs before and after DRX on duration is enabled
 - The ratio of blanked to non-blanked sub-frames determines feature gain
 - Shortening warm-up and cool-down increases performance gains, i.e., per-user throughput
- › Specify Rel-14 UE perf. requirements for warm-up and cool down phases
 - Aim at 1 warm-up and 0 cool-down subframes with full CRS BW

➔ Higher efficiency of Network based CRS mitigation





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