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LTE Lean Carrier

Ericsson

Background



- › UEs of Rel-8 and beyond may expect CRS across the system bandwidth in every subframe
 - High inter-cell interference even at low/medium load
 - ➔ Unnecessarily low per-user throughput
 - Prevents eNB's Power Amplifier from entering deep sleep
 - ➔ Unnecessarily high power consumption even at low/medium load

- › Rel-13: On an LAA* SCell the UE shall not expect any reference symbols other than DRS and other than in PDSCH transmission bursts
 - ➔ An LAA SCell is lean but available for unlicensed spectrum only

*) LAA: License Assisted Access

WI Scope: Lean Carrier

Reuse the LAA Carrier Design



- › Support “Lean SCell” only
- › Minimal changes & additions for “Lean SCell”
 - extended DRS configurability, e.g., of 5, 10 and 20ms
 - capability signaling

Migration Backwards Compatibility



- › A Lean Carrier is not backwards compatible (due to lack of CRSs)

- › However, the Lean Carrier ...
 - may act as deactivated SCell for Rel-12 UEs (SCE-L1)
 - may temporarily send full CRSs while used as SCell for pre-Rel-14 UEs
 - may revert to legacy carrier operation when needed (e.g. if a neighboring legacy carrier can temporarily not handle all legacy UEs)

- › **It is possible to introduce Lean Carrier step-wise and seamlessly if network operates with two or more carriers.**

- › **Benefits visible already during the migration**



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