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Agenda Item 9.10

Lower UE capabilities in Rel-16

Acer, Apple, AT&T, CEWiT, China Mobile, China Telecom, China Unicom, Dish, Fujitsu, Google, IITH, IITM, Kyocera, Mitsubishi Electric, OnePlus, Oppo, Panasonic, Qualcomm, Reliance Jio, Samsung, Sharp, SoftBank, Tejas Networks, T-Mobile USA, TCL, Vivo, Xiaomi, ZTE

Background

- The supporting companies believe there is business value in introducing a lower NR UE capability in Rel-16 timeframe
- A lower NR UE capability will help in the timely proliferation of NR into more tiers of devices e.g. “non premium” devices, “low end” smartphones & other segments
 - “Timely” means ~2021/2022 timeframe
- Related to the above, a lower NR UE capability will also help in ensuring that subscribers that make use of those lower tiers of devices can be served by spectrum resources where NR is deployed, and thus can migrate away from LTE spectrum. This will improve the operator flexibility in deploying NR into more frequency bands

Proposal

- We propose to enable the following in the 3GPP Rel-16 NR specifications
 - (a) For FR1, allow UEs to support a bandwidth of 50 MHz for bands that mandate 100 MHz
 - (b) For FR1, allow UEs to support 2 Rx for NR bands that mandates 4 Rx

NOTES

1. If desired, an access restriction mechanism could be introduced, which allows the network to indicate whether it can accept lower capability UEs or not. This is a behavior that has been standardized in LTE for UE Cat0
2. To make the subscribers aware of capabilities of tiers of UEs, a mechanism could be introduced to label the visible capability of different tiers of UEs
3. The proposals in this contribution have no intersection with the proposed Rel-17 NR Light WI

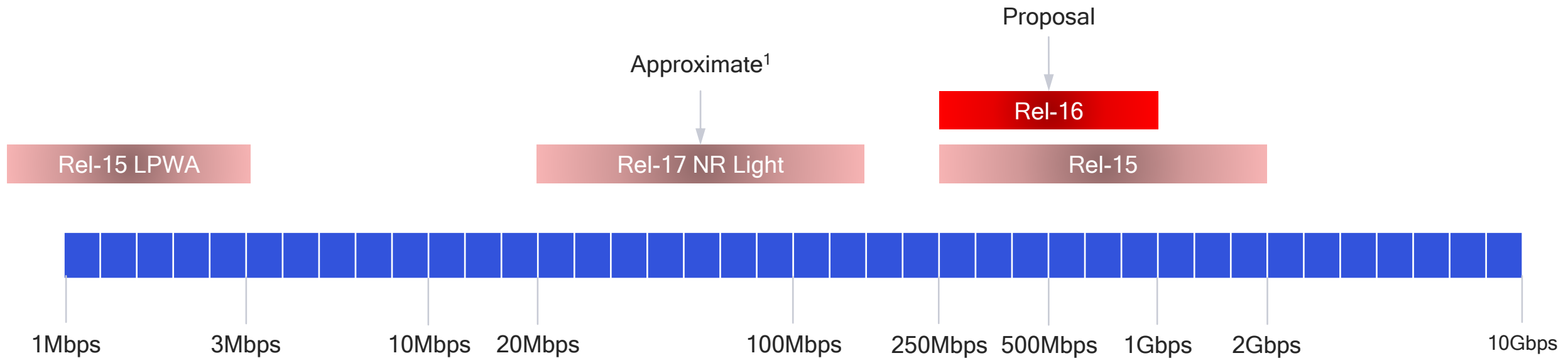
Annex 1

- The currently **allowed** minimum of the data rate that a Rel-15 device operating in an FR1 band that fully complies with the 100MHz BW and 4Rx mandatory requirements are:
 - Before v15.8.0 : **100Mbps** $\{100\text{MHz} \times 4L \times \text{RefModOrder}=1 \times \text{ScalingFactor}=0.4\}$
 - After v15.8.0¹ : **250Mbps** $\{100\text{MHz} \times \max(4, 4L \times \text{RefModOrder}=1 \times \text{ScalingFactor}=0.4)\}$
- **It is not the intent of the proposals in this contribution to replace or reduce the currently allowed (Rel-15) minimum data rate for devices operating in bands that in Rel-15 requires 100MHz BW and 4Rx**

¹ See agreed LS in R1-1913552

Annex 2





- Representation of target DL date rates in bands that require 100MHz BW and 4Rx in Rel-15



¹ from 18.75Mbps {5MHz x 1L x 64QAM} to 150Mbps {20MHz x 2L x 64QAM}



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