RP-151970

OPERATOR REQUIREMENTS FOR NB-IOT STANDARDISATION.

3GPP RAN#70 | Sitges, Spain | 7th – 10th December 2015

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“ WE NEED COST OPTIMISED NB-IOT TERMINALS AS SOON AS POSSIBLE. ”

NB-IOT PHY & ARCHITECTURE.

UL / DL Physical Layer Design

- **3.75kHz UL is needed for coverage reasons**
  - no concern raised on 3.75kHz therefore RAN#70 can finally decide and RAN1can work directly on the PHY design.
- **Singletone transmission with 3.75 and 15 kHz is mandatory for UE to support.**
- **Multitone transmission is mandatory for UE and indication on interoperability testing** can be decided in the WG.
  - This allows deployment flexibility, does not fragment the UE market and cost increase should be limited.

NB-IoT Architecture

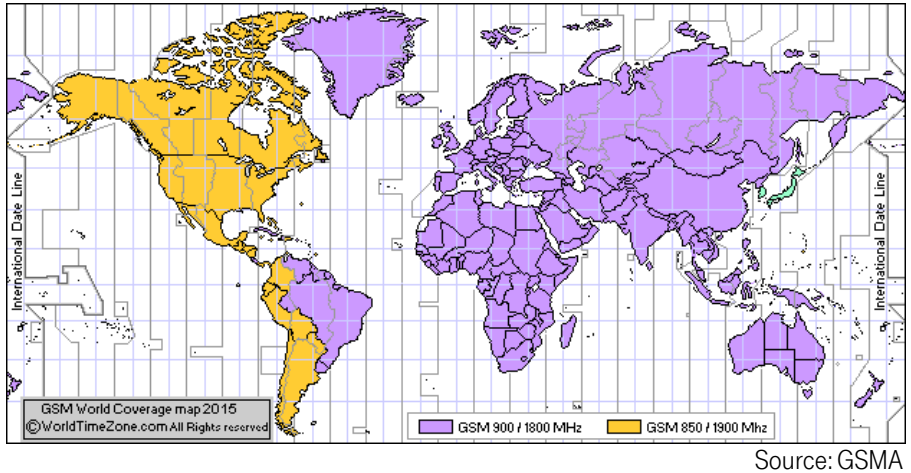
- **C-Plane solution** in SA2 and RAN2 **is optimized for NB-IoT.**
- U-Plane solution can be used for NB-IoT and other MTC radio (e.g. eMTC, Cat-M).
- We prefer to **focus the efforts in RAN WGs on the C-Plane solution** in order to drive down cost and transmission efficiency up.
- **Header compression (PDCP) is not needed for C-Plane,** but might be used for the U-Plane solution, if IP traffic is used (not for non-IP traffic).

NB-IOT BAND & DUPLEX MODE

NB-IoT Band Support

- **Single Band UE capability assumed for UE** cost reasons.
- Deutsche Telekom has a **clear preference for Band 8 (900 MHz).**
- A second band below 1GHz for which RAN4 requirements are prioritized is Band 20 (800 MHz).

All countries with 1800 have also 900 coverage



Source: GSMA

Duplex Mode

- As none of the bands prioritized for NB-IoT deployment (e.g. 800/900) are TDD bands and there is no requirement for TDD support of NB-IoT…
- **We propose to postpone discussion on TDD support for NB-IoT to Rel-14 in order to ensure timely finalization of Rel-13 work.**

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