

Proposal for 5G-NR schedule adjustment and further definition

Source:

Vodafone, AT&T, China Mobile, China Unicom, KDDI,
NTT DOCOMO, SouthernLINC, Sprint, Telus, Acer,
Ericsson, Hitachi, HTC, Huawei, Intel, ITRI, Mediatek,
Mitsubishi Electric, Nokia, Qualcomm, Sony

Document for: Decision

Agenda Item: 9

Problem with standards timeline vs market situation

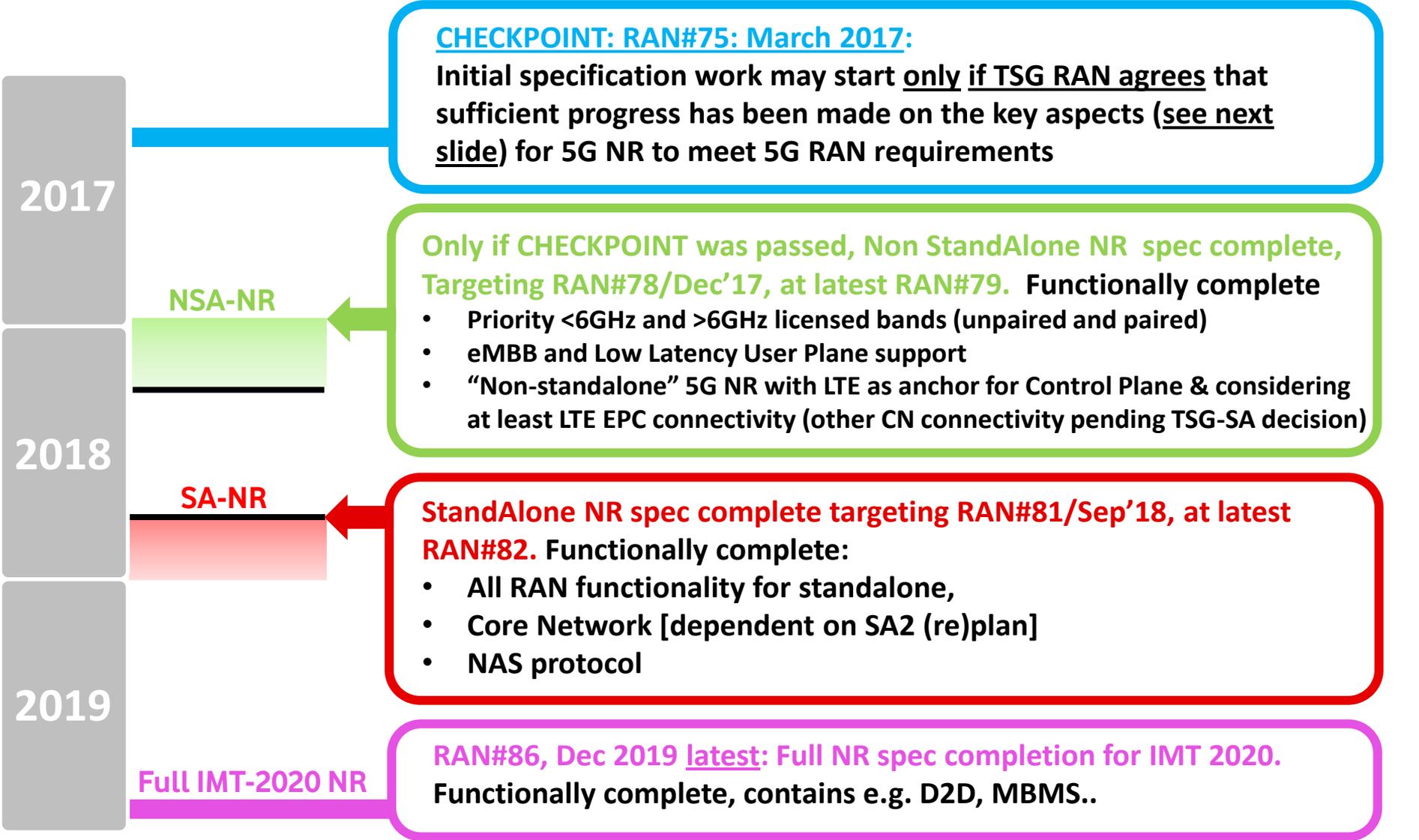
- Initial 5G NR Phase 1 specifications target June 2018 completion
- Press announcements claim that commercial “5G” deployments (presumably not using LTE) will appear before initial Phase 1 of 3GPP NR specifications are completed
- Large risk that competitive pressures will lead to others adopting “non-standard” 5G deployments, where
 - Market fragmentation will likely lead to higher equipment costs to provide the same level of service
 - Availability of a common global communications solution, and showing that 3GPP can adapt to meet market needs on time, will encourage potential new vertical/industry sectors to rely on 3GPP systems in future

However...

...3GPP needs to stay focussed on meeting the **original goals of 5G-NR**

- The ability of 5G NR to meet full set of 5G RAN requirements SHALL NOT be compromised
- The ability of 5G NR to be a flexible platform for rapid and optimal support of future services (already-known and unknown) SHALL be ensured
- To avoid multiple evolution tracks, before initial specification work starts, it SHALL be evaluated & documented how forwards compatibility can be achieved

Proposed re-schedule - milestones & checkpoint



Proposed key aspects to be completed by CHECKPOINT

- ALL concepts that may help us to meet the full set of 5G RAN requirements shall be evaluated, such concepts shall have multi-company support and sufficient details shall be available to enable evaluation before the end of the study phase
 - Departure from LTE design should be clearly justified
- Overall performance evaluation of combined concepts shall be achieved
- Flexibility and forward compatibility are critical for optimal system evolution (low & high bands):
 - Waveform/multiple access and their performance
 - Principles for frame structure scalability : Flexibility of numerology/TTI/Resource Blocks
 - Flexible data/control (including pilot) structure including channel coding concept
 - Channel bandwidth scalability principles for UE and Base Station
 - Forward compatibility with standalone at least on control channel and reference signal design, and consensus on standalone L1 design principles
- UE reference model and concept to be used for RF requirements in UE and BS
- For high frequency bands specifically:
 - Consensus of the target deployment scenarios and corresponding concepts applicable for high frequency band operation
 - Full understanding of RF impacts for radio design, and principles for defining RF requirements
- Target architectures: including connectivity/mobility concepts (including inter-RAT mobility – also covering WiFi, in conjunction with TSG-SA), protocol split, RRC states
- Principles for how to test the UE/network and phase in features/structures to deployments

Relation between Non-Standalone (NSA) and Standalone (SA) spec work

- **3GPP Release mapping:** It is proposed that both NSA-NR and SA-NR are included in Release 15, and that the planned Release 15 stage 3 freeze is shifted to September 2018 accordingly.
 - *Note: 3GPP has established procedures for the “early implementation” of features*
- **Compatibility/coexistence:** NSA shall not be specified in isolation of SA, and shall not compromise SA performance. Assuming this can be achieved, we should aim for the following:
 - For UEs only supporting NSA-NR operation to be NSA-NR operable in deployments composed of an LTE network and an SA-NR network (see NSA-NR definition in slide 4).
 - To ensure that the UE supporting SA-NR can also support NSA-NR – and that fundamental PHY design for NSA is not overhauled for SA.
 - Requires an understanding of certain SA-eMBB procedures while we design NSA

Thanks!