



Summary after TSG-RAN#77

3GPP webinar – 25 September 2017



Balazs Bertenyi
Chairman of 3GPP RAN
balazs.bertenyi@nokia.com
+36 20 9849152

Introduction

- 📶 The following presentation will cover a very specific area. It isn't intended to be an intro to 3GPP, or a detailed piece on NR, or 5G, but rather a status report after the last RAN meeting... Working on NR and 5G!
- 📶 Balazs will talk for 15 minutes about the RAN#77 meeting, held in Sapporo, Japan – September 11 – 14, 2017.
- 📶 Then we will have time for Q&A, so please submit short questions.
- 📶 The webinar will stay on [BrightTalk](#), but there will also be a story posted on www.3gpp.org after the webinar – with links to the documents referred to here.



Balazs Bertenyi
3GPP RAN Chairman,
Nokia

Kevin Flynn
3GPP Marketing and Communications Officer
kevin.flynn@3gpp.org

Outline

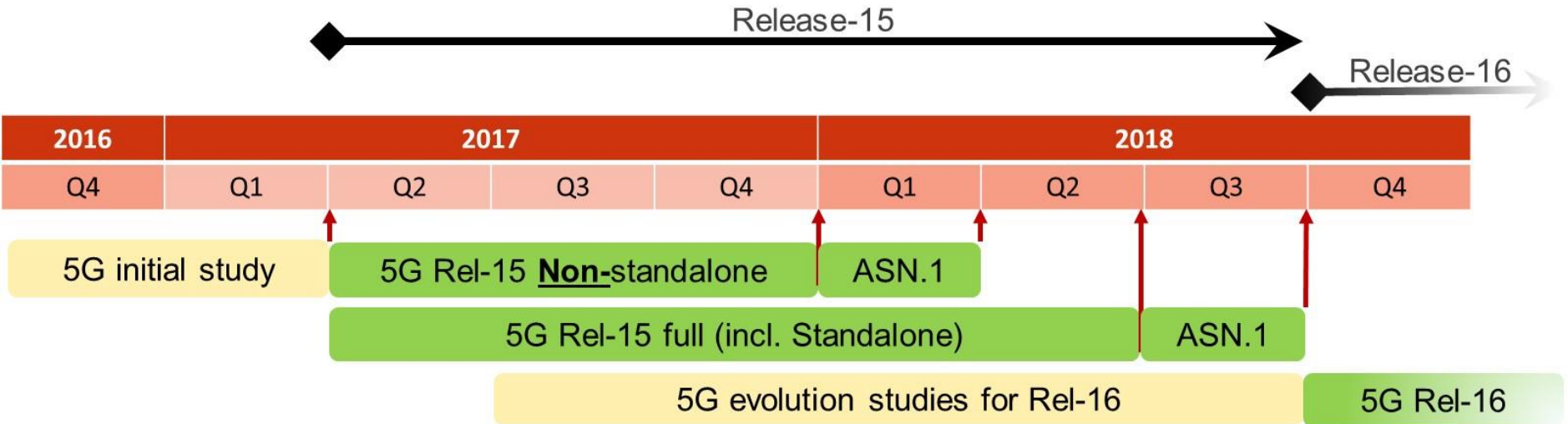
- 📶 5G related decisions
 - Key measures to meet the timeline
 - IMT-2020 submission and self-evaluation
- 📶 LTE related decisions
- 📶 Annex – references to key decisions



5G-related decisions

5G NR timeline

- Overall timeline had been agreed at RAN#75 in March/2017
- This time plan still holds
- RAN#77 took some **key measures to ensure timeline is met**

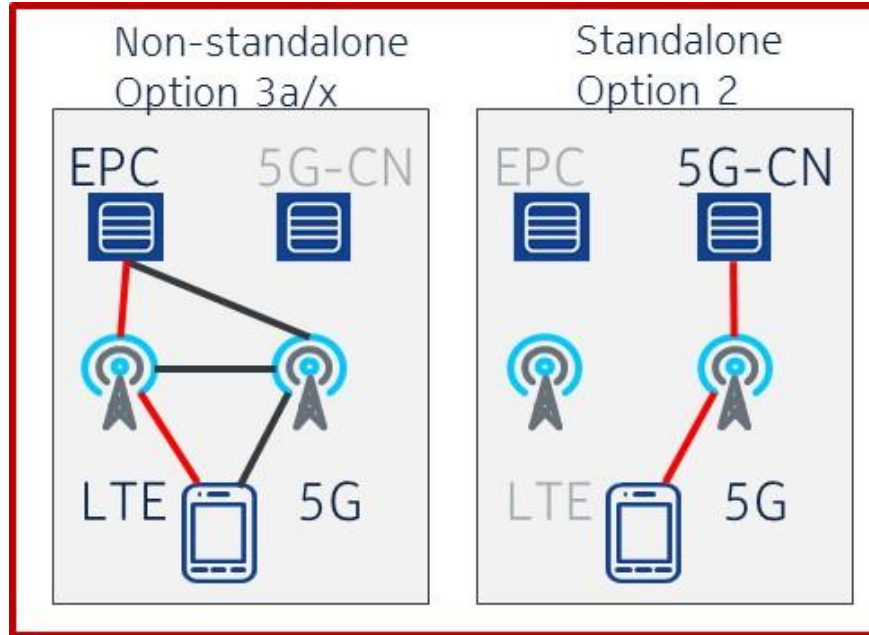


Handling of NR Study Items in Q4

- 📶 NR Study Items led by RAN1 or RAN2 would remain on hold until December/2017
 - Non-orthogonal multiple access
 - Unlicensed spectrum for NR
 - Non-terrestrial network (channel modeling)
 - eV2X evaluation methodology
 - Integrated access and backhaul
- 📶 Time lost on these Study Items will be recuperated in 1H/2018
- 📶 RAN1 impacts of RAN3 Study Items are on hold in Q4

5G Architecture options

📶 All architecture options remain within the scope of the NR WID







📶 Option-3 family (non-standalone) is the **focus until Dec/2017**

📶 Option-2 (standalone) has best effort focus until Dec/2017, and afterwards with **priority until June/2018**

Focus on essential NR functionality

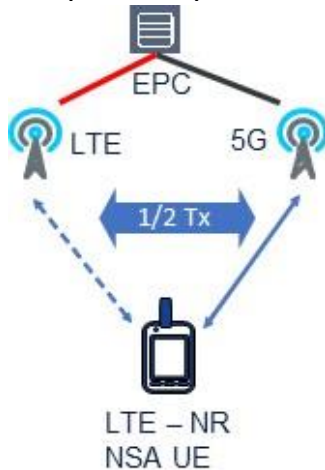
Essential functionality to enable NSA deployments to be completed by Dec/2017

-  Dynamic and semi-static TDD support
-  FDD full duplex support
-  Essential L1 and L2 functionality
 - Initial access and basic mobility, Modulation, and basic MIMO support, Channel coding: LDPC for data, Polar for control channel, Scheduling and HARQ, Power Control
 - NR-LTE co-existence and dual connectivity
-  Essential radio protocol functionality

Single vs dual transmit

Single-transmission vs dual-transmission in Uplink for LTE-NR DC

- In easy and intermediate band combinations **dual UL transmission is mandatory** for all UEs
- In difficult LTE – NR band and channel combinations **dual UL transmission support is optional** for UE
 - Single Tx uses TDM semi-static switching scheme between LTE and NR
- RAN4 to investigate LTE- NR band combinations and related channel allocations define rules and for which parts of problematic band combinations 1Tx UL using TDM switching scheme is allowed for UE.



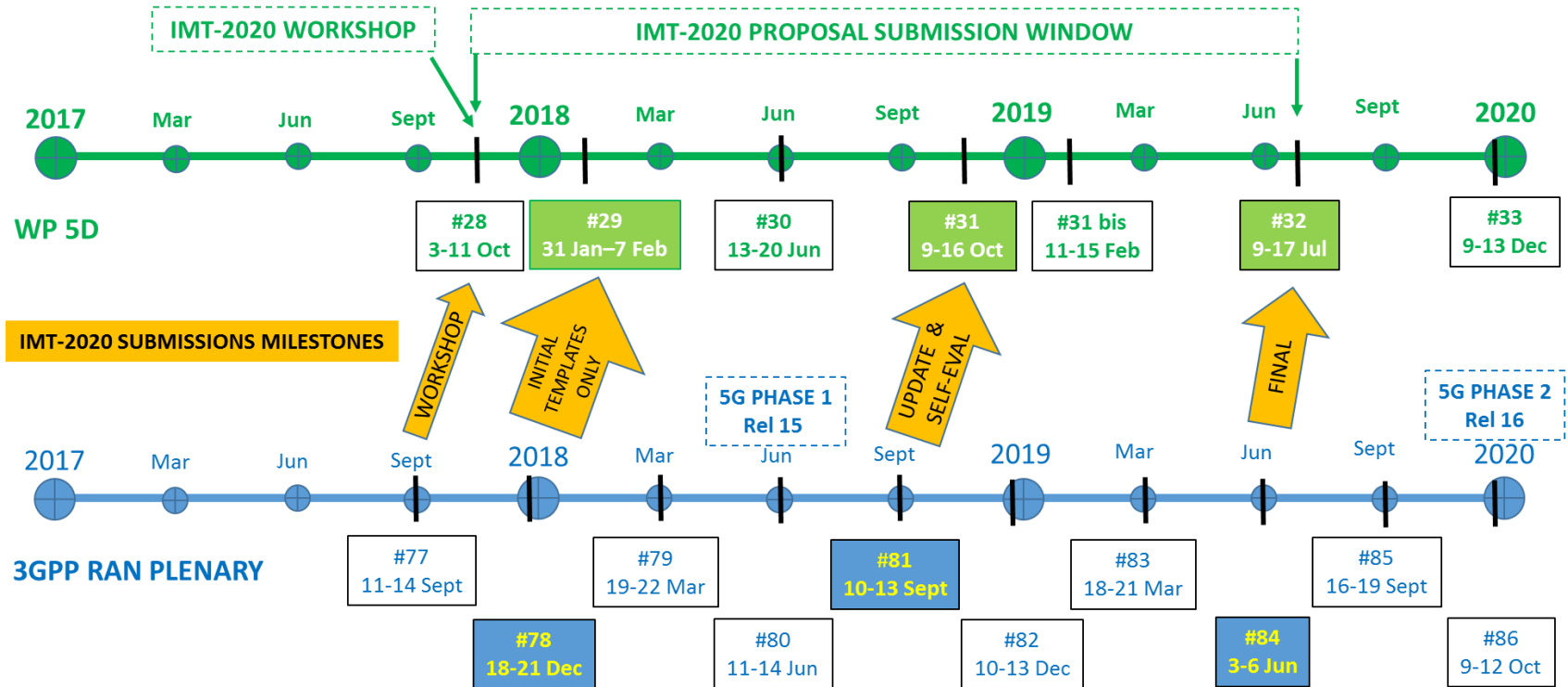
Uplink sharing

- 📶 It was agreed to specify support for Supplemental Uplink with and without LTE/NR ***UL sharing only from network perspective*** in Rel-15 by Dec 2017
- 📶 Strive for specifying support for LTE/NR ***UL sharing from UE perspective*** in Rel-15 by June 2018
 - There is no NR L1/L2 impact after Dec 2017
 - Completion of standalone NR has priority until June 2018
 - No additional work specific to UL sharing from UE perspective in WGs until Dec 2017



IMT-2020 submission

IMT2020 submission - timeplan



IMT2020 submission - timeplan

Submission Milestone Name	3GPP Meeting	ITU-R Meeting	General Submission Content	Submission Templates (Release Basis)	Self-Evaluation (Release Basis)
Workshop	RAN # 77 Sept 2017	WP 5D #28 Oct 2017	Overview	-	-
Initial Templates Only	RAN # 78 Dec 2017	WP 5D # 29 Feb 2018	Description Templates	Description Templates 5.2.3 (R15)	-
Update & Self-Eval	RAN # 81 Sept 2018	WP 5D # 31 Oct 2018	Description Templates Compliance Templates Self-Evaluation	Description Templates 5.2.3 (R15) Compliance Templates 5.2.4 (R15)	Self-Evaluation (R15)
Final	RAN # 84 June 2019	WP 5D # 32 July 2019	Description Templates Compliance Templates Self-Evaluation	Description Templates 5.2.3 (R15+R16) Compliance Templates 5.2.4 (R15+R16)	Self-Evaluation (R15+R16)

IMT2020 submission format

Submission 1

- SRIT
 - Component RIT: NR (TBD incl. NB-IoT, eMTC)
 - Component RIT: EUTRA/LTE (incl. standalone LTE, NB-IoT, eMTC, and LTE-NR DC)
 - full 38 and 36 series, and subset of 37 series (excluding operation in unlicensed spectrum, details TBD)
- For each component RIT, evaluation shall be performed for all IMT2020 requirements and test environments, and IMT2020 compliance demonstrated against as many IMT2020 requirements and test environments as possible

Submission 2

- In addition to above, submit an NR RIT on it's own
- The plan is to leverage the NR RIT as in submission 1; exact proposal TBD by final submission

Naming

- Name : 5G
- Footnote: Developed by 3GPP as 5G, Release 15 and beyond

Self-evaluation

- Detailed plan for 3GPP's self-evaluation agreed in [RP-172101](#)



LTE-related decisions

LTE-related decisions

Uplink Data Compression

- Study Item completed, focusing on 2 main alternatives: APDC and DEFLATE
- Following an informative show of hands a Working Agreement was taken to proceed normative work for the DEFLATE option
- [RP-172076](#) was approved, subject to [Working Agreement #20](#)

New downlink UE category

- Addition of a new downlink UE Category for 2Gbps (Cat 20) was agreed in principle ([RP-171599](#), further details to be discussed at RAN#78

Shortened TTI on PC5

- For reduced latency work on PC5 it was agreed to prioritize other means than STTI

It was agreed to split out specification of unlicensed operation related functionality to separate TSs from Rel-15 onwards, further details to be discussed at RAN#78



Annex - references

References to key decisions

- 📶 The overall TU allocation for 5G SIs shown in [RP-172070](#)
- 📶 RAN1 and RAN4 priorities are shown in [RP-172108](#)
- 📶 RAN2 priorities are shown in [RP-172087](#)
- 📶 Single-transmission vs dual-transmission way forward shown in [RP-172064](#) and [RP-172085](#)
- 📶 Uplink sharing way forward shown in [RP-172104](#)
- 📶 Most recent version of the NR WID is in [RP-172115](#)



Thank you!



Balazs Bertenyi
Chairman of 3GPP RAN
balazs.bertenyi@nokia.com
+36 20 9849152