3GPP TSG RAN Meeting #75
Dubrovnik, Croatia, March 6-9, 2017

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Discussion on the specification of shortened TTI in Rel-14

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Background

- A work item on shortened TTI and processing time for LTE was approved in RAN#72
  - Core part target completion date Sep. 2017

- A phased approach has been agreed in RAN #73 and included in the revised WID (RP-162014).
  - Complete the following objectives (including striving to complete the corresponding ASN.1) by RAN#76, with further discussions on which release to include the following objectives in future RAN meetings
  - Processing time reduction for legacy 1ms TTI, for FS1/2/3
  - For FS1, sPDCCH/sPDSCH/sPUSCH/sPUCCH design based on
    - 2-symbol for sPDCCH/sPDSCH
    - 2-symbol for sPUSCH/sPUCCH
  - CRS based and DMRS based sPDCCH/sPDSCH for FS1
  - DL CA and UL non-CA for FS1
  - The other objectives will be completed by RAN#77 as currently planned, and will be discussed in WG meetings before RAN#76

Discussions on the WG progress

- Good progress has been made in WGs prior to RAN #75
  - For 2-symbol sTTI, conclusions are made in
    - UL/DL layout and combinations
    - Scheduling baseline and additional optimization details
    - sPDCCH modulation and coding schemes
    - sPUCCH format for large payload size and candidates for small payload size
    - Supported DL/UL transmission modes and max. layers
    - UL DMRS pattern and sequence
    - DL DMRS candidates
    - Some collision handling issues
    - Agreements on MAC entity and LCP principle
    - Agreements on potentially impacted RRM impacts and almost all RF requirements
    - Agreements on on/off mask for single sTTI
  - For 2-symbol sTTI, open issues include
    - sPDCCH structure, multiplexing and sDCI formats
    - Max. TA , processing time and CSI feedback
    - Downselect of sPUCCH format for small payload size, sPUCCH resource, UCI on sPUSCH
    - Downselect of DL DMRS pattern
    - Remaining issues on collision handling
    - HARQ processing
    - Related RAN1/RAN2 functions and signaling
    - Detailed RRM and RF requirements definition, transition period

Observations and Proposals

- **Observations**
  - **The current timeline for the sTTI WI can be maintained.**

- **Proposals**
  - **RAN tasks WG1 to provide RRC parameters to RAN2 after RAN1#88bis**
  - **RAN tasks RAN WGs to start preparing CRs for sTTI after April WGs**
  - **RAN tasks RAN WGs to agree CRs (including ASN.1) for sTTI by RAN#76, for approval at RAN#76**

THANK YOU

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