3GPP TSG RAN Rel-19 Workshop
Taipei, Taiwan – June 15th – 16th, 2023

RWS-230109
Agenda Item 5

[RAN-led] Study on Spectrum for Future Radio Access [SI]

MediaTek Inc.

Motivation
Problem Statement

- Channel Modeling activities need to start in Rel-19 for new spectrum candidates, namely midband 7-24GHz and potentially Sub-THz
- This raises the questions *a)* of a "clean-slate" radio access in this spectrum and in turn *b)* of compatibility and coexistence between applicable radio access in this spectrum and also in existing spectrum i.e.
  - FR1 (licensed, unlicensed)
  - FR2-1
  - FR2-2
  - New: 7-24GHz
  - New: (Sub-)THz
- Important considerations need to be addressed in a timely manner, in Rel-19, in order to aim at a common understanding that could frame potential future work in Rel-20 at least on
  - The target use cases, usage scenarios for the new spectrum candidates incl. their deployment/operational challenges
  - The regulatory aspects for these new spectrum candidates incl. their designations/regimes
  - The intended radio configurations involving a "clean-slate" radio access and other legacy access
  - The coexistence needs with incumbents (midband)
- Late considerations of the above could lead to substantial, unmanageable effort and resulting inadequate choices in Rel-20
- NOTE: this is ONLY intended to be a study (leading to a Rel-20 study)

Proposal

SA/CT Dependency: No

Key Message: Study of compatibility and coexistence aspects between clean-slate radio access and legacy radio access (incl. incumbents) in new and existing spectrum

Objective I: Identify new spectrum candidates [RAN]

Objective II: Identify target use cases / usage scenarios for identified spectrum candidates [RAN]

- E.g. wide area, local area, hyperlocal area, coverage, capacity, offload, D2D, etc.
- Their deployment and operational challenges
- NG-RAN arch. (incl. CU/DU deployment) gap analysis considering the requirements (e.g. coverage) of the spectrum candidates

Objective III: Identify regulatory aspects including [RAN]

- Designations/regimes for the identified spectrum candidates;
- Coexistence needs with spectrum incumbents (7-24GHz spectrum candidate) incl. both co-channel coexistence and adjacent channel coexistence

Objective IV: Identify intended radio configurations involving a “clean-slate” radio access and other legacy access focusing on [RAN]

- Spectrum sharing schemes (e.g. DSS) with legacy radio
- Joint connectivity with legacy radio
- Standalone “clean-slate radio access” configurations

NOTE 1: Progress to be coordinated with work on channel models
NOTE 2: Inputs from RAN WGs may be required during the study and will be addressed by means of LS between TSG RAN and applicable RAN WGs

Expected TU

	2024												2025 [Calendar TBC at the time of writing]												2026		
	Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
RAN			**103**			**104**			**105**			**106**			**107**			**108**			**109**			**110**			**111**
R1	115b	116		116b	117			118		118b	119		119b	120		120b	121			122		122b	123		123b	124	
R2	124b	125		125b	126			127		127b	128		128b	129		129b	130			131		131b	132				
R3	122b	123		123b	124			125		125b	126		126b	127		127b	128			129		129b	130				
R4	109b	110		110b	111			112		112b	113		113b	114		114b	115			116		116b	117		117b	118	
R1		N/A		N/A	N/A			N/A		N/A	N/A			N/A		N/A	N/A										
R2				N/A	N/A			N/A		N/A	N/A			N/A		N/A	N/A			N/A							
R3				N/A	N/A			N/A		N/A	N/A			N/A		N/A	N/A			N/A							
R4 RD				N/A	N/A			N/A		N/A	N/A			N/A		N/A	N/A			N/A							
R4 RF				N/A	N/A			N/A		N/A	N/A			N/A		N/A	N/A			N/A							

RAN4 Core

RAN4 Perf

Study TU

Feature TU

Thank you!