Presentation of the CEG's conclusions

34th meeting of WP 5D

19th – 26th February 2020

Geneva, Switzerland

Conclusions – Inspection

CEG

IMT-2020 SUBMISSION (ITU document number in parentheses)				
CANADIAN EVALUATION GROUP	3GPP		DECT/ETSI (IMT-2020/17(Rev.1)) Partial evaluation (only DECT component RIT)	Nufront RIT (IMT-2020/18(Rev.1)) Partial evaluation
	RIT (IMT-2020/14)	SRIT (IMT-2020/13)		
Minimum Requirement				
Parameters via Inspection				
Bandwidth (& scalability)	✓	✓	✓	Not clear
Energy Efficiency	✓	✓	Not applicable (eMBB)	✓
Spectrum	✓	✓	✓	Not clear
Services	✓	✓	✓	Not clear

- 3GPP RIT and SRIT (full evaluation): pass all minimum requirements via inspection
- DECT/ETSI (partial evaluation – DECT component RIT only): passes 3/4; energy efficiency not applicable as evaluation required in usage scenario eMBB and DECT component applies to mMTC and urLLC

- EUHT (partial evaluation):
  - Bandwidth & scalability – not clear why a guard-band is built into the carrier, exceeding the % claimed by the proponent; inefficient use of spectrum
  - Spectrum: no channel numbering scheme and no channel raster
  - Services: not able to perform any simulations, so cannot confirm the fulfillment of minimum criteria in the 3 usage scenarios

Conclusions – Analysis

CEG

IMT-2020 SUBMISSION (ITU document number in parentheses)				
CANADIAN EVALUATION GROUP	3GPP		DECT/ETSI (IMT-2020/17(Rev.1)) Partial evaluation (only DECT component RIT)	Nufront RIT (IMT-2020/18(Rev.1)) Partial evaluation
	RIT (IMT-2020/14)	SRIT (IMT-2020/13)		
Minimum Requirement				
Parameters via Analysis				
Peak data rate	✓	✓		✓
Peak spectral efficiency	✓	✓		✓
User experienced data rate	✓	✓		
Area traffic capacity	✓	✓		
Latency (UP and CP)	✓	✓		
Mobility interruption time	✓	✓		
Link budget	✓	✓		

- 3GPP RIT and SRIT (full evaluation): pass all minimum requirements via analysis
- DECT/ETSI (partial evaluation – DECT component RIT only): CEG did not evaluate any minimum criteria via analysis
- EUHT (partial evaluation): only evaluated peak data rate and peak spectral efficiency using well-known formulae; both minimum criteria are satisfied

Conclusions – Simulation

CEG

IMT-2020 SUBMISSION (ITU document number in parentheses)				
CANADIAN EVALUATION GROUP	3GPP		DECT/ETSI (IMT-2020/17(Rev.1)) Partial evaluation (only DECT component RIT)	Nufront RIT (IMT-2020/18(Rev.1)) Partial evaluation
	RIT (IMT-2020/14)	SRIT (IMT-2020/13)		
Minimum Requirement				
Parameters via Simulation				
Average spectral efficiency	✓	✓	Not applicable	Eval requires procedures beyond M.2412
5% spectral efficiency	✓	✓	Not applicable	Eval requires procedures beyond M.2412
Mobility	✓	✓	Not applicable	Eval requires procedures beyond M.2412
Reliability	✓	✓	✓	Eval requires procedures beyond M.2412
Connection density	✓	✓	Eval requires procedures beyond M.2412	Eval requires procedures beyond M.2412

- 3GPP RIT and SRIT (full evaluation): pass all minimum requirements via simulation
- DECT/ETSI (partial evaluation – DECT component RIT only):
  - As 5% SE, avg SE and mobility to be evaluated in eMBB, not applicable
  - Reliability (urLLC) passed, but unable to put together the functional blocks to simulate connection density (mMTC). Requires procedures beyond M.2412

- EUHT (partial evaluation): unable to put together the functional blocks to simulate any of the parameters 5% and avg SE, mobility, reliability, connection density. Requires procedures beyond M.2412

Conclusions – Inspection, analysis, simulation & link budget

IMT-2020 SUBMISSION (ITU document number in parentheses)				
CANADIAN EVALUATION GROUP	3GPP RIT (IMT-2020/14)	China RIT (IMT-2020/15)	Korea RIT (IMT-2020/16)	TSDSI RIT (IMT-2020/19(Rev.1))
Minimum Requirement				
Parameters via Inspection		Same evaluation as for 3GPP RIT applies		
Parameters via Analysis		Same evaluation as for 3GPP RIT applies		
Parameters via Simulation		Same evaluation as for 3GPP RIT applies		
Link budget		Same evaluation as for 3GPP RIT applies		Some questions to be resolved; review M.2412

Conclusions – overall comments

CEG

- TSDSI RIT: In the CEG's view, with the additional features disabled for evaluation purposes, this amounts to evaluating 3GPP RIT (IMT-2020/14), just as for the submissions in IMT-2020/15 (China) and IMT-2020/16 (Korea)
- Nufront RIT: The CEG's opinion is that evaluation of this candidate requires procedures beyond those in Report ITU-R M.2412 (even to carry out a partial simulation). In addition, other minimum criteria, evaluated by inspection, have left open questions. Thus, the minimum criteria are not fulfilled
- DECT/ETSI SRIT: The CEG evaluated only the DECT component RIT – which is required to pass the minimum requirements of two test environments: UMa-urLLC and UMa-mMTC. Unfortunately, evaluation of the mMTC connection density criterion requires procedures beyond those in Report ITU-R M.2412. In the CEG's view, the minimum criterion is not fulfilled

Overall process

- July 2019: candidates were mainly 3GPP or 3GPP-based technologies
- However, three additional (distinct?) candidate RITs/SRITs were submitted
  - Extension until 10/09/19, but completeness only determined in Dec'19
  - In retrospect, likely caused more harm than good, ate into the IEGs' time required for evaluation (→ follow schedule!)

Overall process

- Too much material?
  - Technology description template; technology performance, spectrum and services templates, self-evaluation, detailed specifications
  - Reports from ITU (M.2410, M.2411, M.2412), Circular Letter (with addenda), IMT-2020 document, liaison statements, workshops, …
- 5D should give thought to streamlining
  - What are the requirements (technical, services, spectrum)?
  - What are the criteria to pass? In one place, not distributed across reports, CLs, multiple meetings of 5D, etc.
  - What should the proponent submit?
  - What should the IEGs submit? Report, yes, but should there be a template?