

IMT-Advanced Technical Requirements

Summary of status after 22nd
Meeting of WP8F

Outline

- Overview of Circular Letter on IMT-Advanced
- Overview of IMT.TECH
- Relationship between IMT.TECH and Circular Letter
- More detailed look at current draft of IMT.TECH
- Next steps and timeline

Circular Letter on an invitation to propose candidate radio interface technologies for IMT-Advanced

- Main body
- Annex 1: Background on IMT-Advanced
- Annex 2: Submission and evaluation process and consensus building
- Annex 3: Requirements related to service capabilities
- Annex 4: Requirements related to technical system performance
- Annex 5: Spectrum related issues including relevant requirements
- Annex 6: Submission guidelines and template for submission
- Annex 7: Evaluation guidelines and criteria and methodology
- Annex 8: Relevant ITU-R Recommendations, Reports and others
- Annex 9: IPR Policy

Draft [report on] requirements related to technical system performance for imt-advanced radio interface(s) [IMT.TECH]

1. Introduction
2. Scope and Purpose
3. Related Documents
4. Minimum Requirements
5. Technological Items Required To Describe Candidate Air Interface
6. Required technology criteria for evaluation
7. Conclusions
8. Terminology, abbreviations
9. Appendices

Relationship between IMT.TECH and Circular Letter

- IMT.TECH chapter 4 = CL Annex 4
- IMT.TECH chapter 5 -> CL Annex 6
- IMT.TECH chapter 6 -> CL Annex 7
 - Also provides input to IMT.EVAL, which forms primary basis of CL Annex 7
- IMT TECH chapter 3 -> CL Annex 8

Key progress on IMT.TECH at 22nd meeting of WP8F

- Minimum requirements chapter
 - Created
 - Sub-sections agreed and baseline text
 - All numbers in square brackets
 - Baseline for Circular Letter Annex 4 created
- Technological items to describe air interface
 - Items (sub-sections) agreed
 - No discussion on text
- Required technology items for evaluation
 - Included all minimum requirements
 - Other items (headings) agreed
 - No discussion on text
- Deleted general requirements section
 - Input material retained in an appendix

Minimum requirements*

- Cell spectral efficiency
 - Values to be set per test environment, downlink/uplink separately
- Peak data rate
 - Defined as peak spectral efficiency with data rates given as an example
 - Some countries would prefer peak data rate, current text all in square brackets
- Cell edge user throughput
- Latency
 - Control plane
 - Transport
 - Placeholder for QoS
- Mobility
 - 4 classes defined: stationary, pedestrian, vehicular, high speed
 - Mapped to test environments
 - Optimisation of performance to mobility class defined
- Handover
 - Support for continuous service
 - Interruption times will be set: intra/inter-frequency, [inter-system]

* Requirements (and other criteria) evaluated according to details in IMT.EVAL/Annex 7 of Circular Letter

Technological items required to describe candidate air interface (1)

1. Multiple access methods
2. Modulation scheme
3. Error control coding scheme
4. Physical channel structure and multiplexing
5. Frame structure
6. Spectrum capabilities
7. Support of advanced antenna capabilities
8. Link adaptation and power control
9. RF channel parameters
10. [Scheduling algorithm]

Technological items required to describe candidate air interface (2)

11. Radio interface architecture and protocol stack
12. Positioning
13. Support of multicast and broadcast
14. QoS support and management
15. Security aspects
16. Network topology
17. Mobility management and RRM
18. Interference mitigation within radio interface
19. Synchronisation
20. Power efficiency

Required technology criteria for evaluation*

- Minimum requirement parameters
- Other parameters for evaluation:
 - VoIP capacity
 - [Technology complexity]
 - Cell coverage
 - CCDF of user throughput
 - QoS
 - Capacity considerations/supported user density

* Requirements (and other criteria) evaluated according to details in IMT.EVAL/Annex 7 of Circular Letter

Next steps and timeline

- Correspondence group on ITU Jive forum, concluding 11th November 2007
- IMT.TECH and Circular Letter to be finalised at next WP8F meeting
 - 28th January – 1st February 2008
- Work to be done:
 - Include IMT-Advanced Common Text into the introduction
 - Agree on peak data rate/spectral efficiency definition
 - Agree all numbers for minimum requirement parameters
 - Discuss and harmonise text in chapter 5
 - Discuss and harmonise text in chapter 6.2
 - Consider requirements currently held in Appendix 3
 - Review appendices 1 and 2
- Obviously take into account new contributions to 23rd meeting!

References

- Draft [Report on] Requirements Related To Technical System Performance for IMT-Advanced Radio Interface(s) [IMT.TECH], ITU-R document [8F/1322](#) [attachment 6.8](#)