

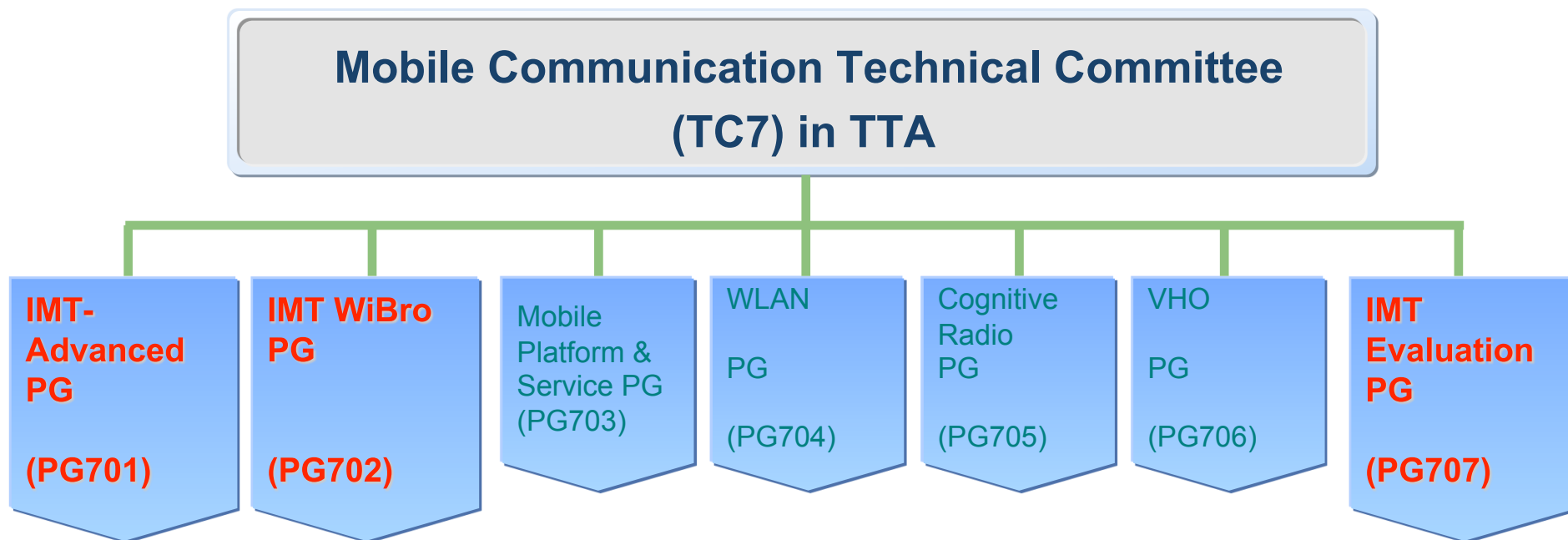
# IEEE 802.16m Evaluation by TTA PG 707

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# ToR (Terms of Reference) of TTA PG707

- **Evaluate proposals of IMT-Advanced RIT/SRIT**
  - **Develop evaluation report / Submit evaluation report to ITU-R**
- **Cooperate and coordinate with other standardization bodies related to evaluation works**
  - **ITU-R WP5D, 3GPPs, IEEE 802, CJK SIG, SDOs**



# About TTA PG 707

- **Members**
  - **13 organizations, 47 members**
  - **ETRI, Korea Univ., Samsung Electronics, LG Electronics, TTA, LG Telecom, Intel, KT, Qualcomm Korea, LG-Nortel, RRA, KEIT, Telcoware**
- **Web-site**
  - [http://www.tta.or.kr/English/new/standardization/Committee\\_newEngList\\_pop.jsp?commit\\_code=PG707](http://www.tta.or.kr/English/new/standardization/Committee_newEngList_pop.jsp?commit_code=PG707)
- **Chair**
  - **Dr. Chung HK, ETRI, hkchung@etri.re.kr**
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  - **Dr. Kim, Ki-Jun, LG Electronics**
  - **Dr. Cho, Jaeweon, Samsung Electronics**
- **Secretary**
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# IEEE 802.16m Evaluation Process

- **Full scale evaluation of IEEE 802.16m's TDD and FDD**
  - **Most of the simulation results were presented in preliminary report**
  - **Additional metrics were obtained with some modifications of already presented numbers**
  
- **Contribution-based Approach**
  - **Members submit contribution (simulation results)**
  - **On-line/Off-line meetings to discuss the technical issues including detailed simulation configurations**
  - **Evaluation report after the consensus**
  - **For non-simulation results, we validate the self-evaluation report**

# Summary of Simulation Results

- **In all four configurations (InH, UMi, UMa, RMa), the simulation results show that IEEE 802.16m meets the ITU-R requirements**
  - **Most of simulation configurations and parameters are from IEEE's self-evaluation**
- **Our numbers are similar to IEEE's self-evaluation**
  - **Based on the contributions received by 2010 April 30**
  - **Four Configurations in TDD then FDD**
  - **The following results are obtained**
    - ✓ **Cell Spectral Efficiency (CSE) – Bits/Sec/Hz/Sector**
    - ✓ **Cell Edge User Spectral Efficiency (CEUSE) – Bits/Sec/Hz/User**
    - ✓ **VoIP capacity**
    - ✓ **Mobility (new from preliminary report) Spectral Efficiency**

# CSE and CEUSE (DL/TDD)

		InH	UMi	UMa	RMa
Cell-Spectral Efficiency	TTA PG 707	6.54	3.65	2.59	3.39
	IEEE self	6.93	3.22	2.41	3.23
	ITU-R Req.	3	2.6	2.2	1.1
Cell-edge User Spectral Efficiency	TTA PG 707	0.289	0.117	0.075	0.084
	IEEE self	0.26	0.092	0.069	0.093
	ITU-R Req.	0.1	0.075	0.06	0.04

# CSE and CEUSE (DL/FDD)

		InH	UMi	UMa	RMa
Cell-Spectral Efficiency	TTA PG 707	6.52	3.42	2.54	3.01
	IEEE self	6.87	3.27	2.41	3.15
	ITU-R Req.	3	2.6	2.2	1.1
Cell-edge User Spectral Efficiency	TTA PG 707	0.21	0.10	0.07	0.086
	IEEE self	0.253	0.097	0.069	0.091
	ITU-R Req.	0.1	0.075	0.06	0.04

# CSE and CEUSE (UL/TDD)

		InH	UMi	UMa	RMa
Cell-Spectral Efficiency	TTA PG 707	5.74	2.7	2.57	2.52
	IEEE self	5.99	2.58	2.57	2.66
	ITU-R Req.	2.25	1.8	1.4	0.7
Cell-edge User Spectral Efficiency	TTA PG 707	0.363	0.110	0.110	0.103
	IEEE self	0.426	0.111	0.109	0.119
	ITU-R Req.	0.07	0.05	0.03	0.015



# CSE and CEUSE (UL/FDD)

		InH	UMi	UMa	RMa
Cell-Spectral Efficiency	TTA PG 707	5.98	2.78	2.61	2.53
	IEEE self	6.23	2.72	2.69	2.77
	ITU-R Req.	2.25	1.8	1.4	0.7
Cell-edge User Spectral Efficiency	TTA PG 707	0.357	0.117	0.109	0.104
	IEEE self	0.444	0.119	0.114	0.124
	ITU-R Req.	0.07	0.05	0.03	0.015

# VoIP Capacity (TDD/FDD)

	InH♪	UMi♪	UMa♪	RMa♪	
TDD.	TTA PG707 (UL)	165♪	106♪	95♪	103♪
	TTA PG707 (DL)	140♪	82♪	74♪	89♪
	IEEE self♪	140♪	82♪	74♪	89♪
FDD.	TTA PG707 (UL)	166♪	102♪	96♪	101♪
	TTA PG707 (DL)	139♪	77♪	72♪	90♪
	IEEE self♪	139♪	77♪	72♪	90♪
ITU-R Requirement♪	50♪	40♪	40♪	30♪	

# Mobility Spectral Efficiency (TDD/FDD)

		InH	UMi	UMa	RMa
TDD.	TTA PG707 (LOS)	3.84	1.81	1.67	1.71
	IEEE self (LOS)	3.755	1.81	1.715	1.695
	TTA PG707 (NLOS)	3.54	1.51	1.29	1.41
	IEEE self (NLOS)	3.41	1.495	1.295	1.23
FDD.	TTA PG707 (LOS)	3.96	1.74	1.62	1.64
	IEEE self (LOS)	3.86	1.72	1.63	1.605
	TTA PG707 (NLOS)	3.61	1.52	1.31	1.41
	IEEE self (NLOS)	3.56	1.505	1.34	1.27
ITU-R Requirement		1.0	0.75	0.55	0.25

# For Non-Simulation Metrics

- **We have checked the following items of the IEEE's self evaluation by inspection and analysis**
  - Control Plane Latency
  - User Plane Latency
  - Handover Interruption Time
  - Peak Spectral Efficiency



**Thank you**