

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Comments to the Mapping between Channel Models and Usage Models in IEEE 802.16j-06/013	
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Re:	Response to chair's call for comments on IEEE 802.16j-06/013	
Abstract	This contribution propose the mapping of channel models to usage models for IEEE 802.16j-06/013	
Purpose	Propose the mapping of channel models to usage models for IEEE 802.16j-06/013	
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Comments to the Mapping between Channel Models and Usage Models in IEEE 802.16j-06/013

This contribution proposes the mapping of the channel model types in IEEE 802.16j-06/013 [1] to the usage models proposed in IEEE 802.16j-06/015. The purpose is to help people choose the correct channel model based on the usage model of interest.

1. Propose to insert the following text to “2.1.1.1 The relationship between path-loss models with the relay system usage models” in IEEE C802.16j-06/013

The mapping between each channel model and usage model can help people to choose the correct channel model for their usage model of interest. The following table is proposed to map the channel model of each radio link to the usage models proposed in IEEE 802.16j-06/015. Different models may apply on the radio link of each hop to explore the possible advantage of relaying. Note that this table is just for reference and it should not restrict the possible applications for relay stations.

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Links	Path-loss Type	Applicable Usage Model	Note
BS-RS	Type A/B/C	I , III, IV	RS antenna is located at street level in suburban macro cell
	Type D	I , III	BS antenna is located above high building and RS antenna is located above rooftop
	Type E/F	I , III, IV	BS antenna is located above high building and RS antenna is located at street level
	Type G	I , III	Both BS and RS antennas are located at street level
BS-MS	Type A/B/C	I , III, IV	Suburban, large macro cell, BS antenna is located above high building
	Type E/F	I , III, IV	Suburban and Urban, medium macro cell, BS antenna is located above high building.
	Type G	I , III	Urban micro cell, BS antenna located at street level
RS-RS	Type A/B/C	I , III, IV	One RS antenna is located above high building and another one is located at street level in suburban macro cell
	Type D	I , III	Both RS antennas are located above rooftop
	Type E/F	I , III, IV	One RS antenna is located above rooftop and another one is at street level
	Type G	I , III, IV	Both RS antennas are located at street level
	Type H	II	Both RS antennas are located inside the building
RS-MS	Type A/B/C	I , III, IV	RS antenna is located above high building to cover macro cell coverage in suburban environment
	Type E/F	I , III, IV	RS antenna is located above rooftop
	Type G	I , III, IV	RS antenna is located at street level
	Type H	II	Both RS and MS antennas are inside the building

The usage models are referenced from IEEE 802.16j-06/015, which are:

- I . Fixed Infrastructure Usage Model
- II . In-Building Coverage Usage Model
- III. Temporary Coverage Usage Model
- IV. Coverage on Mobile Vehicle Usage Model

-----End of the text-----

The channel models are referenced from the Table below:

Category	Description		Reference	Note
Type A	Hilly terrain with moderate-to-heavy tree densities (For large macro-cellular systems)		Section 2.1.2.1	IEEE 802.16 Type A model
Type B	Intermediate path-loss condition (For large macro-cellular systems)			IEEE 802.16 Type B model
Type C	Flat terrain with light tree densities (For large macro-cellular systems)			IEEE 802.16 Type C model
Type D	Both node-antennas above rooftop	LOS	Section 2.1.2.2	WINNER B5a or free-space model before the breakpoint Advanced LOS after the breakpoint
Type E	One node-antenna above rooftop and another below rooftop (For suburban macro-cell)	LOS	Section 2.1.2.3	WINNER C1 LOS
		NLOS		WINNER C1 NLOS
Type F	One node-antenna above rooftop and another below rooftop (For urban macro-cell)	NLOS	Section 2.1.2.4	WINNER C2
Type G	Both node-antennas below rooftop (For urban micro-cell)	LOS	Section 2.1.2.5	WINNER B1 LOS
		NLOS		WINNER B1 NLOS
Type H	Indoor office	LOS	Section 2.1.2.6	WINNER A1 LOS
		NLOS		WINNER A1 NLOS

The aforementioned WINNER channel models are referenced from IEEE C802.16j-06/091 and [2].

References

[1] IEEE 802.16j-06/013, “Multi-hop Relay System Evaluation Methodology (Channel Model and Performance Metric)”, September 2006.

[2] IST-2003-507581 WINNER D5.4 v1.4, “Final Report on Link Level and System Level Channel Models”, November 2005. <https://www.ist-winner.org/>