Mobile Channel Models for 802.16m

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Purpose:

To help develop the Mobile Channel Models for 802.16m evaluation.

Mobile Channel Models for 16m

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Outline

- Introduction
- Link Level Channel Models
- System Level Channel Models
- Conclusion

Introduction

- IEEE802.16m is calling for the initial contributions in the areas of deployment scenarios, mobile channel models and services to be provided.

- This briefing presents some consideration about mobile channel models for 16m evaluation.

Link Level Channel Models(1/2)

- Scenarios:
  - Indoor;
  - Pedestrian;
  - Vehicle: lower speed(<60km/h),
    higher speed(>120km/h, 250km/h, higher)

- Classification
  - single antenna link level channel model
  - multiple antenna link level channel model

- General factors:
  - Path Gain
  - Path Delay
  - Doppler Profile
  - Antenna Pattern
  - Spatial Coherence
  - LOS

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Link Level Channel Models(2/2)

- Have defined
  - Recommendation ITU-R M.1225 for IMT-2000 (3GPP,3GPP2)
  - SUI Channel Model for 16d
  - SCM and SCME

System Level Channel Models (1/2)

- Scenarios
  - Suburban (Macro)
  - Urban (Macro, Micro, others)

- Classification
  multi-path channel model
  spatial channel model

- General factors
  - Center frequency
  - Bandwidth
  - Antenna pattern
  - Power delay profile
  - Angle spread (AOD, AOA)
  - Power azimuth spectrum
  - Doppler spectrum
  - Spatial correlation
  - Pathloss model
  - Shadowing

- Other factors based on scenarios
  - Antenna polarization
  - Scattering channel model
  - LOS
  - Urban canyon model

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System Level Channel Models (2/2)

- Have defined
  - ITU: for single antenna
  - SCM: for MIMO simulation up to 5MHz
  - SCME: extension up to wider bandwidth

- Other problem –
  - Various pathloss models: Okumura-Hata, Cost 231, Cost 231-WI, and so on
    - for different scenarios
    - for different frequency
    - for some frequency, no suitable pathloss models
    - Modify pathloss model basically based on experience

Conclusion

- Same Channel Models are required for 16m and IMT-Advanced.
- Newly define, reuse or modify current channel models for 16m evaluation?
- More discussion