Channel Model Ad Hoc

Report

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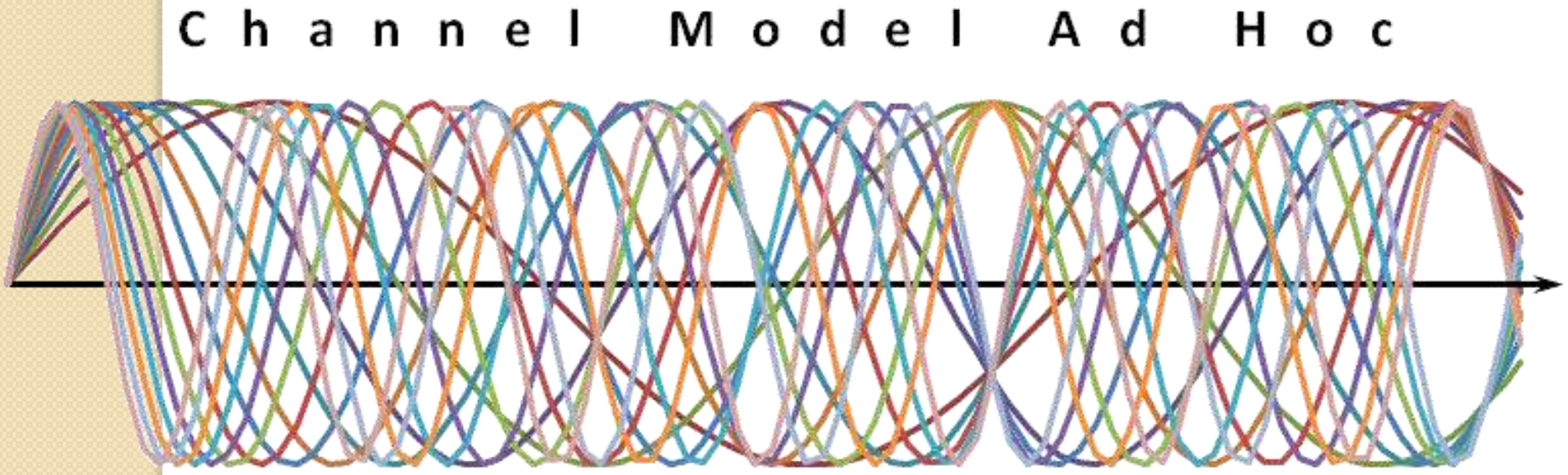
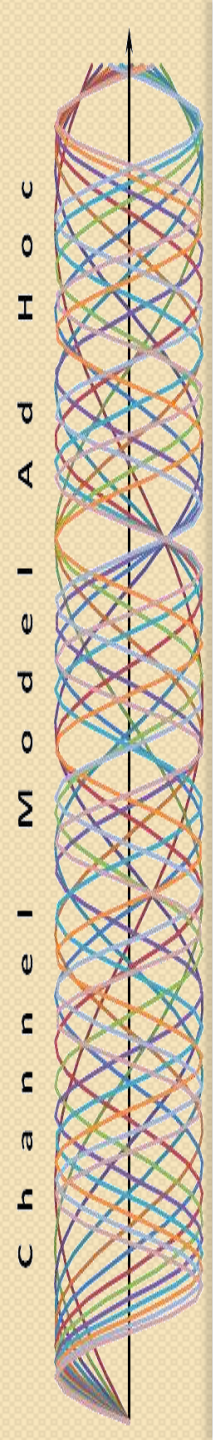
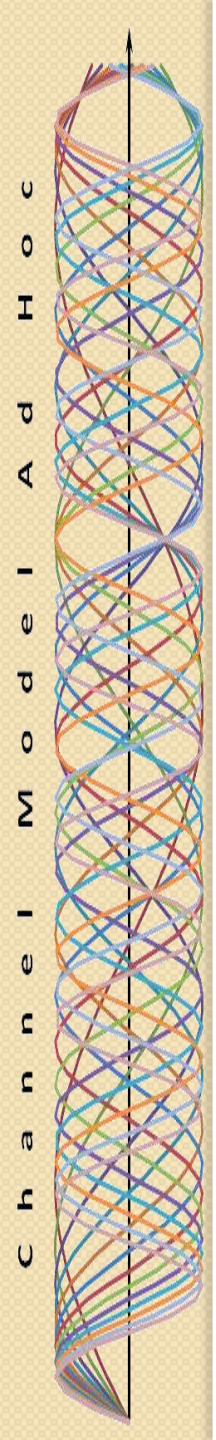




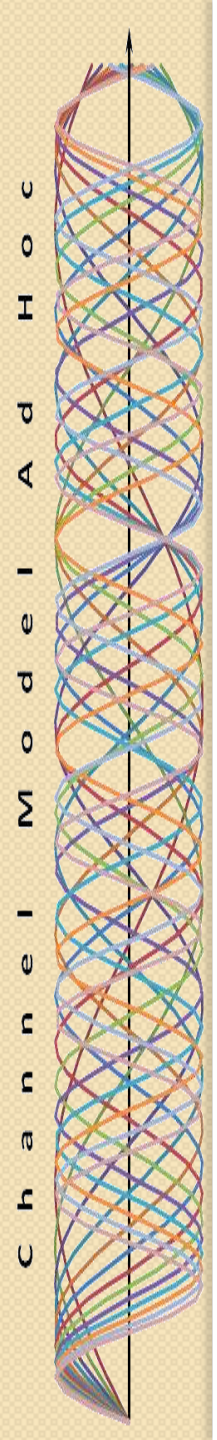
Activities

- Held 3 Teleconferences before Hangzhou and an additional 2 after
  - Scheduled on Thursdays 1:00 PM (EST)
  - Average 15 attendees
- Adopted Purpose & Scope statements
- Discussed tools
- Defined preliminary Parameter List



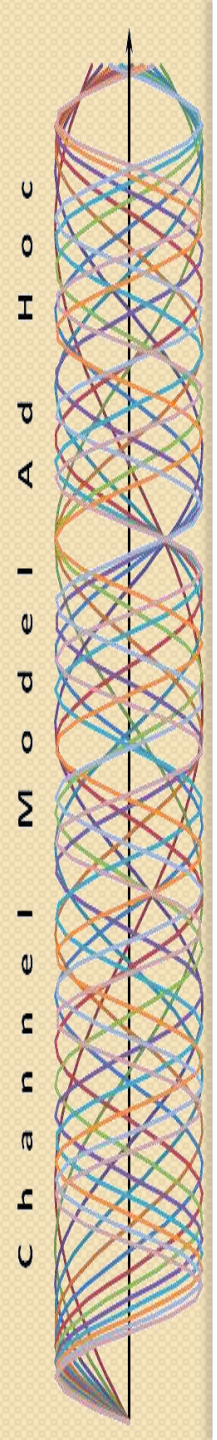
Ad Hoc Purpose & Scope

- Channel Model Purpose
  - Purpose 1: To facilitate the evaluation of multiple PHY modulation proposals for use in 802.3bn
  - Purpose 2: To facilitate the selection of a range of PHY parameters within the selected PHY proposal to allow adaption to changing PHY conditions within the coax environment
- Channel Model Scope
  - Model should be limited to the minimum set of critical parameters necessary for above purposes.



Tools

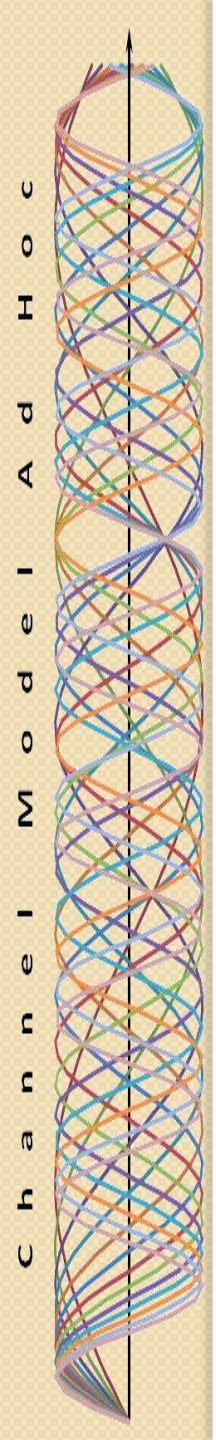
- Discussed Tools
  - Excel – for input and “static modeling”
    - Parametric data tables
    - Quick check tool to assess proposals
  - GNU Octave – if we need to adopt a simulator
  - Results from other tools OK if input consistent with parametric data tables



Parameter List

(1 of 2)

Channel Param	DS Min	DS Max	DS Nom	US Min	US Max	US Nom	Units	Notes
Noise Power Ratio								Parameters affected: QAM Level and dB/dB dynamic range
Composite Channel Noise								details tbd
Microreflections								Parameters affected: Cyclic Prefix duration, Subcarrier Bandwidth
≤ 0.5 µsec							dBc	sub-parameter limits tbd, 4 buckets OK
<= 1.0 µsec							dBc	
<= 1.5 µsec							dBc	
> 1.5 µsec							dBc	
Group Delay Ripple								Parameters affected: Cyclic Prefix duration, Subcarrier Bandwidth
@ lower channel							ns/MHz	
@ center Channel							ns/MHz	Should be frequency dependent, 2-3 frequency ranges, relative to channel size
@ high Channel							ns/MHz	
Impulse Noise								Wide band, intermittent in time
duration							ns	Parameters affected: FEC Overhead, Interleaver?
amplitude							dBc	exact sub-parameters/units tbd
periodicity							kHz(?)	
Burst Noise								Narrow band noise, intermittent in time
duration							ns	exact sub-parameters/units tbd
amplitude							dBc	
periodicity							kHz(?)	
frequency band							MHz	such as LTE



Parameter List

(2 of 2)

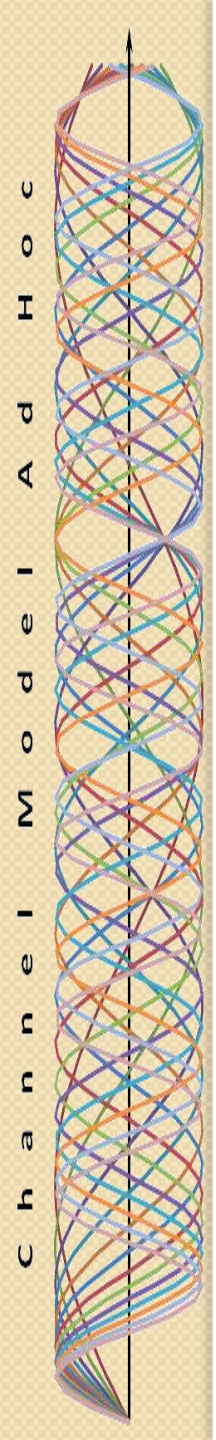
Channel Param	DS Min	DS Max	DS Nom	US Min	US Max	US Nom	Units	Notes
Sub-Carrier to Discrete Interference								This parameter needs more detail, i.e. how many sub-carriers below XdB CIR? See channel parameters sent Nov 2nd, 2:06pm Central Time to reflector. This parameter is open to discussion. exact number of sub-parameters tbd
Percent S-Cs with 0dBc < SIR < 5dBc							%	
Percent S-Cs with 5dBc < SIR < 10dBc							%	
Percent S-Cs with 10dBc < SIR < 15dBc							%	
Percent S-Cs with 15dBc < SIR < 20dBc							%	
Percent S-Cs with 20dBc < SIR < 25dBc							%	
Amplitude Ripple							dB/MHz	Should subcarriers have different QAM? This parameter is likely be expanded into 3-4 entries
Carrier Hum Modulation							dBc	Should be added to CPL, can sub-carrier tracking loops follow 60/120 Hz hum? Defines short term variations due to active elements in the channel (e.g., amplifiers), may or may not be included
Transit Delay							us	Both upstream and downstream
Channel Loading (outside EPoC channel)								Multiple tables may need to be generated based on the specific topology.

Notes

Phase Noise limites are included in the transmitter and receiver specifications.

Shaded cell to remain empty (not needed)

Empty columns to be removed prior to baseline



Plans

- Fill in the blanks on parameter list
- Create Definition list of all terms in parameter list

THANK YOU