Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: Thoughts on Channel Realizations

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Re: n/a

Abstract: Basis for the discussion on how to include a set of concrete channel realizations to the channel model and the CMD.

Purpose: Contribution towards finalizing the channel modeling document of TG3d

Thoughts on
Channel Realizations

Alexander Fricke, TU Braunschweig

Frequency Band (1)

- A channel impulse response (CIR) depends on the bandwidth of the underlying signal

vs.

- Do we have to define frequency bands?

- Data Center / Intra-Device models output **channel transfer functions (CTF)**
→ **via IFFT, any CIR** in any (sub-) band of the envisaged 252 GHz – 325 GHz range **can be evaluated**

- OK for the Close-Proximity P2P model?

Frequency Band (2)

- Proposal: Inclusion of a **set of channel transfer functions** (CTFs) rather than channel impulse responses (CIRs)

- System proposals have to be tested against the CIRs that are generated from these CTFs according to the frequency bands defined in the proposals

- Advantages:
  - Method covers the full possible frequency range
  - Allows for system designs using sub-bands
  - → Agreed on providing channel transfer functions

Composition of the set

- So far, we have agreed upon a number of 100 data sets per application case (P2P, Intra-Device, …)

- Does it make sense to define sub-sets e.g. 10 mandatory CTFs along with 100 optional ones?

- → Agreed on providing 100 CTFs for optional testing and 10 CTFs for mandatory testing

Generation of a CIR

- Applied filter functions, … , IFFT parameters must be defined or at least documented for every proposal

- → Agreed.

- → The frequency step between bins should be chosen appropriately according to the expected maximum excess delay of the respective scenario

Format

- .mat, .s2p, .csv
  - we should agree
  - → agreed on: ASCII-file with appropriate variable names and indices and comments
- To be embedded in the CMD file or to be stored on a separate webspace
  - where is it hosted?
  - → IEEE mentor, embedded in the CMD if possible
  - how is it linked / referenced? → embedded or referenced by doc.number

Thank You
for Your Attention