Downstream Continuous Pilot Proposal

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FDD Downstream Continuous Pilots

- This is a follow-up to our joint contribution from the previous meeting in Orlando (Downstream Pilot Proposal, C. Pietsch, A. Kliger, 802.1bn Orlando, March 2013")
- Provides updates/modification to the Continuous Pilots proposal
  1. Exclude option 1 from the previous proposal
  2. Details Continuous Pilots in the PLC 6.4 MHz band
  3. Rules for the location of Continuous Pilots outside the 6.4 MHz PLC band
  4. Add power boosting

Continuous Pilots Proposal Updated Rules

- Eight Continuous Pilots are located in the 6.4 MHz PLC band
- Equally spaced around the center frequency of the PLC
  - Every 800 KHz
- All other Continuous Pilots (Up to 24) locations are configurable by the CLT PHY according to actual available sub-carriers
  - Up to 8 (FDD) and up to 24 (TDD) of them are equally spaced in the 192 MHz OFDM Channel
  - All others are randomly spaced
  - Exclusion bands are always bounded by Continuous Pilots
- Locations are communicated by the CLT via the PLC channel

Continuous Pilot Boosting

- Continuous Pilots will be transmitted with a power greater by 3 dB (TBD) than the average power of data subcarriers
- Provides additional SNR for the CP to enhance receiver performance
- Implication on the total transmission power is minor

Allocating Continuous Pilots Outside the PLC band

- Let Q be the number of subcarriers of the OFDM symbols outside the 6.4MHz band containing the PLC. Then the number of continuous pilots transmitted outside the PLC band should be at least

  $P = \text{ceil}(Q/(3840-128)*24)$

- With max(0,P-X) pilots distributed uniformly, and the rest randomly (i.e., not on a grid) where X = 16 for FDD and X ≤ 16 for TDD.

Thank You