Pre Equalization Coefficients

And other thoughts on MDIO registers

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Background

- **TD#64 (Motion # 27 Victoria) "Each CNU shall configure transmit pre-equalization based on feedback from the CLT. (Reference: montreuil_01_0512.pdf and kliger_01a_0912.pdf)" – no details provided**
- **Some discussion in RF Spectrum call 6/18.**
- **Unique to each CNU**
  - stored at CLT?
- **Details needed**

Pre Equalizer Coefficient Characteristics

- **Size – suggested as**
  - 16b value each for real & imaginary parts (32b total)
  - Per Subcarrier (3840)
  - Per CNU (Qty unk)
- **Total of ~8K mdio registers for one CNU Table**
  - Clearly cannot have one table per CNU
- **Does CLT store full table for each CNU?**
- **How does CLT setup the CNU table initially?**
  - It will take several hundred ms to transfer the full table.

Resource Block register definition (proposed)

- **Resource Block duration – the number of symbols in Resource Blocks**
  - 2 b field

X X

1 1 = reserved

1 0 = 16 symbols per resource block

0 1 = 12 symbols per resource block

0 0 = 8 symbols per resource block

  - RW
  - Part of US OFDM desc. . (Reg 19bb)

- **Resource Block spectrum – the number of subcarriers in Resource Blocks**
  - 2b field

x x

1 1 = 8 subcarriers per resource block

1 0 = 4 subcarriers per resource block

0 1 = 2 subcarriers per resource block

0 0 = 1 subcarrier per resource block

  - RW
  - Part of US OFDM desc. (Reg 19bb)

Other registers to think about

- **Burst Marker in use**
  - Enum List
  - Part of profile definition
- **US/DS Signal Quality (MER?)**
  - Per SC?, Pilot?, RB?
  - Units/range of parameter?
- **Probe control**
  - Some parameters defined in baseline text, nothing in CL 45
- **RF On/Off time?**
- **US/DS errored FEC Frames (CRC errors)**
  - Data path & PHY Link
- **US/DS error free FEC Frames**
  - Data path & PHY Link
- **US/DS Symbol count?**
- **Other???**
  - CLT/CNU Rx Equalize Coefficients?
  - Trigger mechanism?

Straw Poll – PM registers in PHY

Chicago rules, can we split out service providers?

- Error Free FEC Frames
- Errored FEC Frames (CRC errors)
- Symbols Tx
- Symbols Rx
- RB's Tx
- RB's Rx

- Others TBD during call

Thank you

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Pre EQ Table transmission time

- **DS PHY Link frame**
  - 128 sym
  - 8 Sym preamble
  - 400 kHz spectrum
  - 16-QAM
  - CP min/max – 1.25/3.75 us
  - FEC (384, 288) 75% eff.
  - Data capacity
    - **Min 456 kbps**
    - **Max 756 kbps**
- **DS PHY Link per frame overhead**
  - Timestamp 72b
  - PHY Frame Header 56b
  - NCP 56b
- **Time to transmit 122880b**
  - Min – 225 ms
  - Max – 372 ms