Transmit Power Adjustment Requirements for 400GBASE-ZR

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Comments addressed by this contribution

Cl **156** *SC* **156.7.1** *P* **82** *L* **30** # 353

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Comment Type **TR** *Comment Status* **X**

Limiting Adjacent channel crosstalk penalty requires a reduction in the power deltas between channels. To ensure this, adjustable power must be specified.

SuggestedRemedy

Add an entry "Adjustable Range of Tx Output Power" with Min limited to -13 to -9 dBm

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.7.1** *P* **82** *L* **30** # 354

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Comment Type **TR** *Comment Status* **X**

When adding the Tx output power tuning, its accuracy should be defined as well

SuggestedRemedy

Add an entry "Transmit output power control absolute accuracy" with Min = -1.0 dB and Max = 1.0 dB

Proposed Response *Response Status* **O**

Overview

- Adjacent channel crosstalk increases with power variations between channels
- Variations between channel powers can occur both through different Tx powers at TP2, due to patch panel loss variations, and due to loss variations at a Mux
- Currently the Channel powers are specified:
  - Min -10 dBm
  - Max -6 dBm

Adjacent Channel Penalty calculations

- The impact of adjacent channel crosstalk was analyzed by treating the crosstalk as AWGN for both perfect and worst-case spectra in:
  - maniloff_3cw_01_200528
  - maniloff_3cw_200910
- Based on penalty analysis, spectral parameters were defined in:
  - way_cw_01b_201116

- The penalty allocation used to derive the spectral parameters assumed
  - Mux port-to-port variation of 1.5dB
  - Power control to control Tx power to < ± 0.5dB

Channel power adjustment recommendations

- Accuracy of ± 1 dB is recommended to balance performance with implementation complexity (comment 354)
- The tuning should include -9dBm to ensure that a Tx will meet the -10dBm minimum power specification at maximum setting.
- A minimum power of -13dBm should be specified to allow at least 4dB tuning range
  - This allows adjustment to offset patch panel losses or Mux port variation
  - Methods of using the tuning range are not specified
- A tuning range of Minimum -13dBm to -9dBm should be specified (comment 353)

Thanks!