Power Budget Ad Hoc Report

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Participants

- Raymond Leung – Huawei
- Don Ming Fang – Huawei
- Brian Holden – PMC Sierra
- Eric Lynskey – Teknovus
- Frank Change – Vitesse
- Mike Dudek – Picolight
- Ketan Gadkare – Alloptic
- Tsutomo Tatsuta – NTT
- Akihiro Otaka – NTT
- Koichi Suzuki – NTT
- Keiji Tanaka – KDDI
- Glen Kramer – Teknovus
- Shinji Tsuji – Sumitomo
- Steve Swanson – Corning
- Milind Gokhale - Apogee
- Rick Pimpenella – Panduit
- Marek Hadjuczenia – Siemens
- Duane Remein – Alcatel-Lucent
- Pete Anslow – Nortel
- Ryan Latchmann – Gennum
- Takizawa – Fujitsu
- Hamano – Fujitsu
- David Li – Ligent Photonics
- Maurice Rientjes – Mindspeed
- Saeki – NEC
- Haim Ben-Amram – PMC Sierra
- Thomas Schrans – OCP
- David Piehler - Alphion

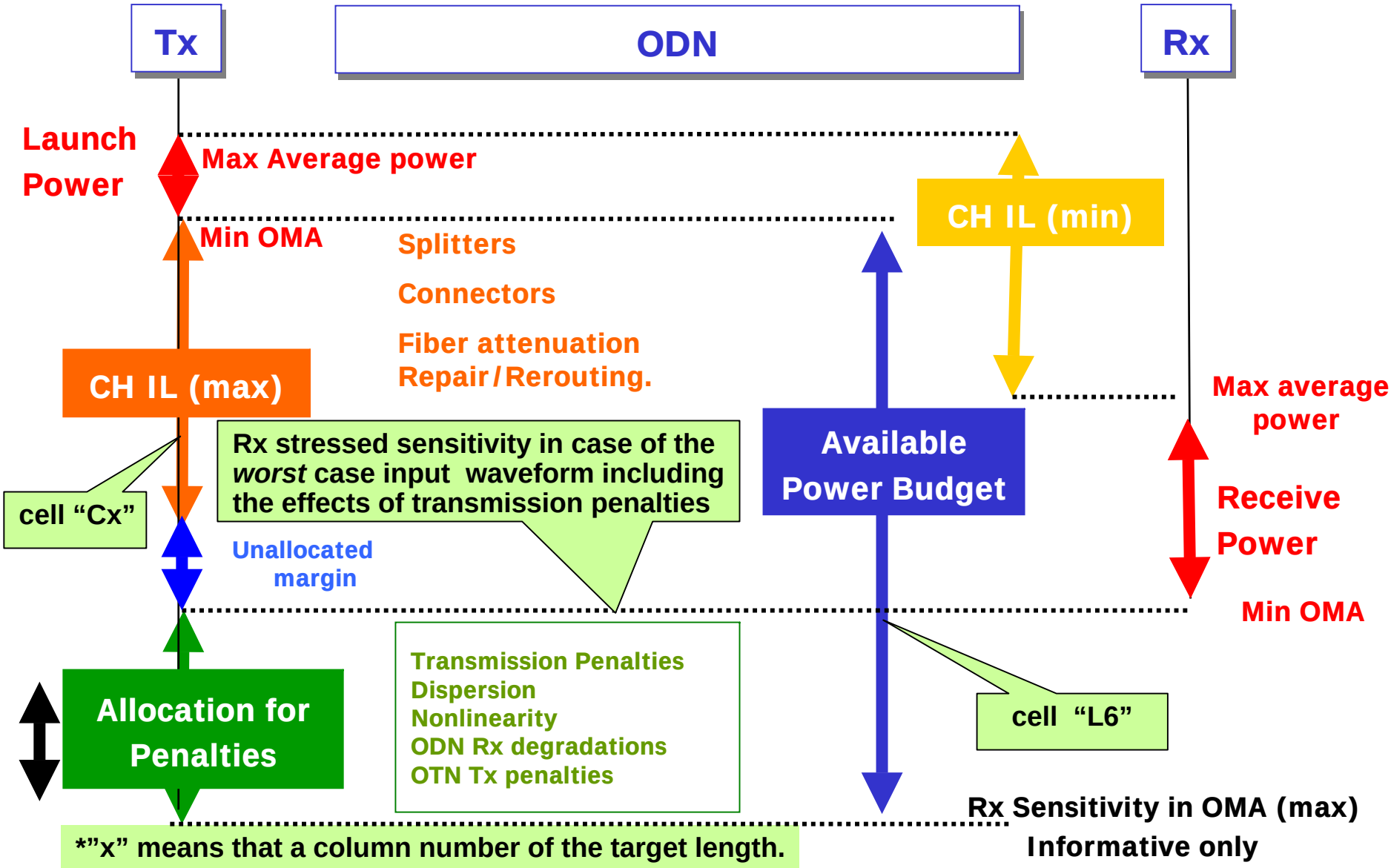
- Goal: produce draft of Tx and Rx characteristics tables, such as Tables 60-3, 5, 6, and 8 in Clause 60, for the three channel insertion loss cases.
- Meetings
  - January 29/30
  - February 6/7
  - February 27/28

Plan

- Review IEEE terminology, usage and power budget specifications, esp. compared to ITU.
- Review / seek consensus on assumptions about component performance and relative costs
- Review all past 10G EPON presentations related to satisfying 29 dB CH IL to identify workable PMDs with acceptable relative costs to use to produce draft tables of characteristics.
  - Example: use physical realization of EML+EDFA → PIN-PD to write draft tables that could be met by EDFA today and perhaps SOA in the future.
- Work through lower loss cases as well

Channel IL (dB)	**802.3ah EFM**	**802.3av 10GEPON**
20	10km with 1:16 split (PX10)	10km with 1:16 split
24	20km with 1:16 split (PX20)	20km with 1:16 split 10km with 1:32 split
29	N/A	10/20km with 1:32 split

Definitions of Terminology in 802.3-2005 (Dudek)



Key Questions Highlighted

- The 29 dB CH IL case was requested for 1:32 split over 10km distance; it may also do 20km in many cases, as long as penalties remain low.
- DS: PIN-PD vs. APD at the ONU?
- DS: What assumptions should be used for SOA output power, both today and in two years? Are there any fundamental limitations?
- DS: How do we specify SBS suppression for the 29, and perhaps 24 dB, CH IL cases?
- US: Can 10G upstream operate at 1310nm with a pre-amplified Rx and still co-exist with the 1310nm 1G signal? W/o pre-amplifier, is it possible for the 29 dB CH IL case power budget to close?
- D/US: What is the relative cost and power dissipation of FEC for 3 dBo? 4 dBo? Is it affected by PIN vs. APD?