

# DMT power budget discussion

IEEE802.3 Orland Plenary, March, 2013

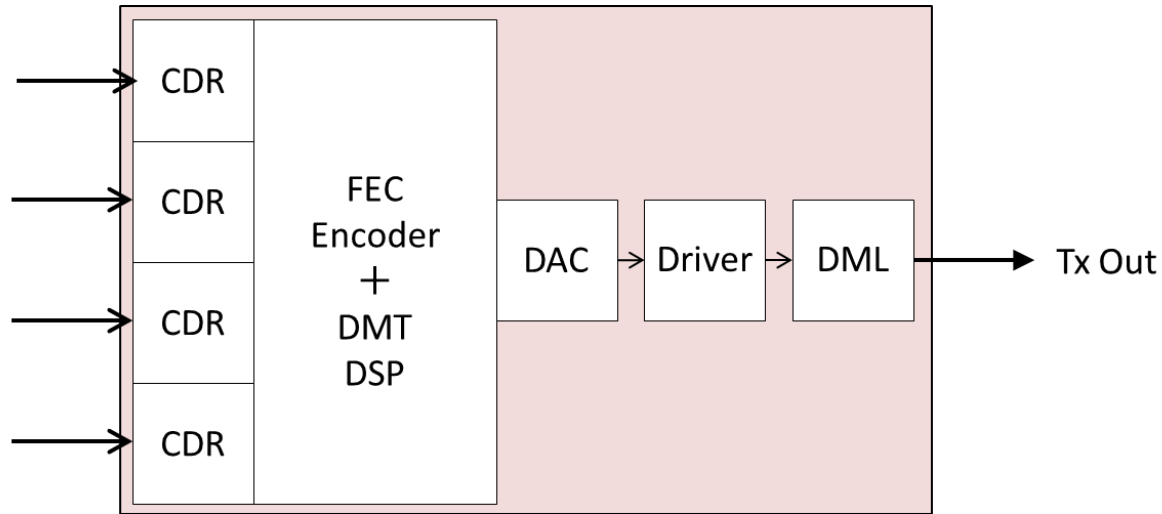
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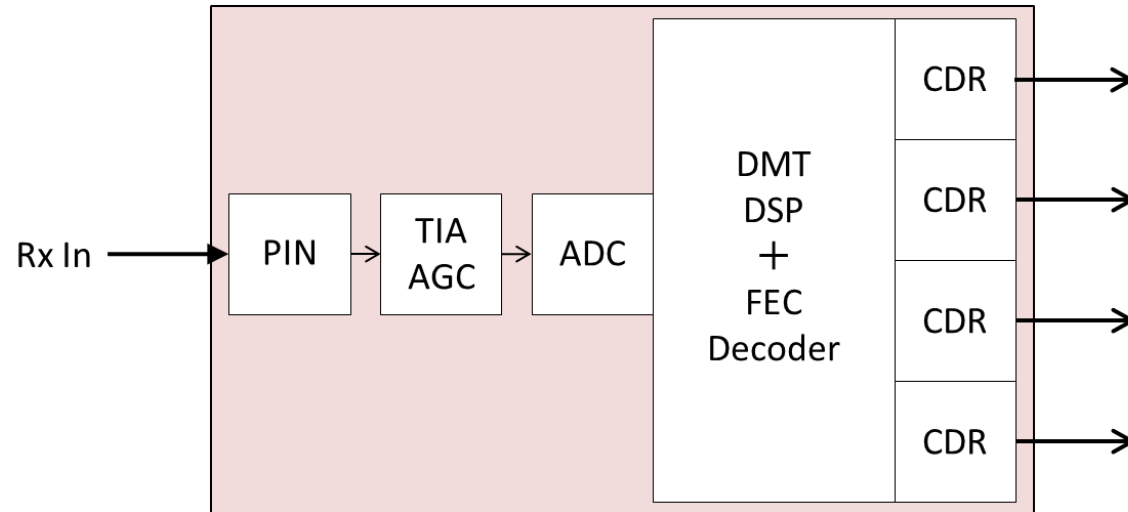
# Supporters

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# Discrete Multi-Tone Block Diagram

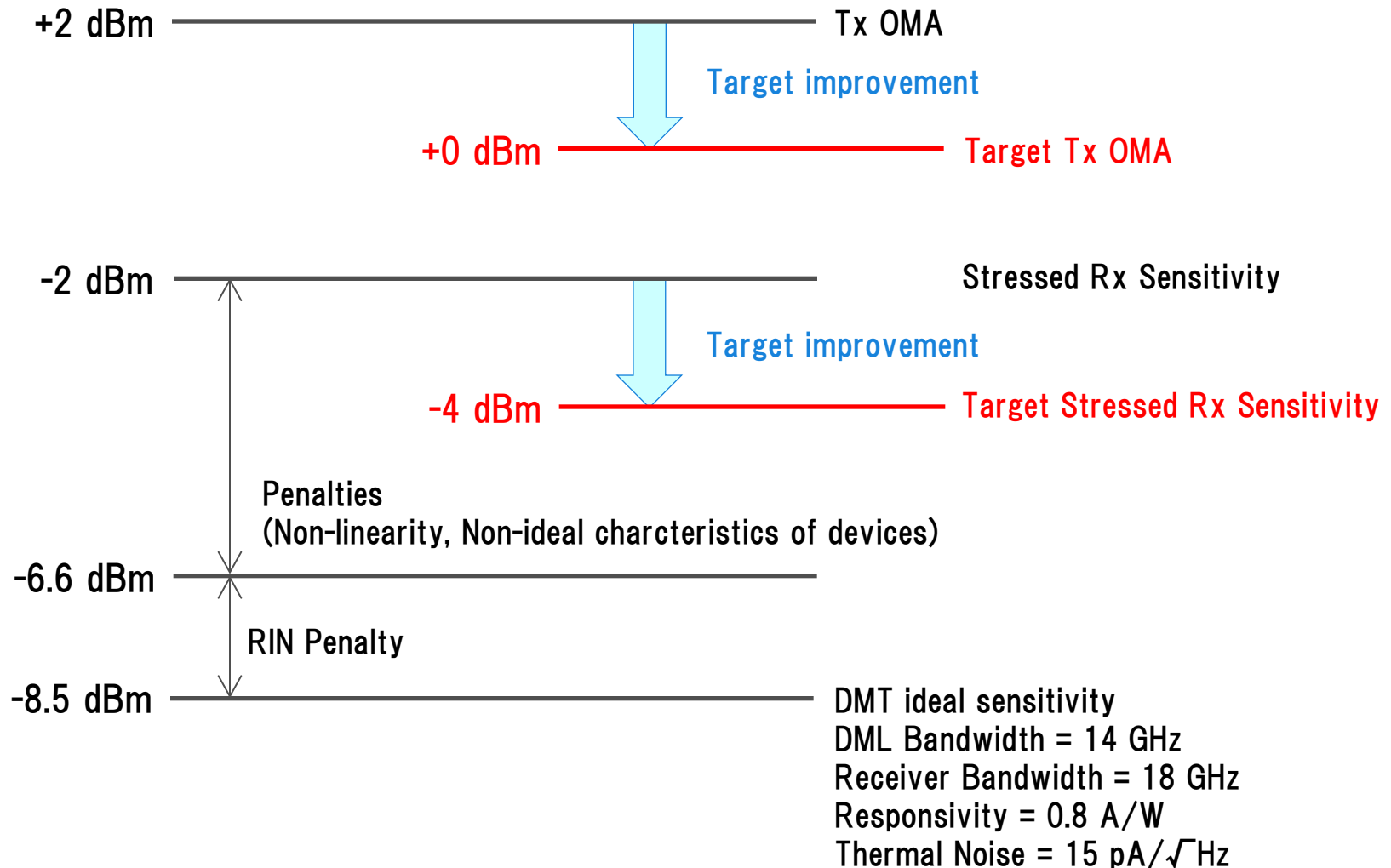


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# Discrete Multi-Tone Power Budget

Now!



# Further study

- Output power of transmitter is slightly high.

This output power is based on experimental results.

- Continuous efforts for reduction of this power are important.

- Optimization of transmitter and receiver should be investigated.

- Improvement factor

- Non-linear influence mitigation by digital signal processing
- Optimization of receiver amplifier parameter
- Characteristic enhancement of DAC and ADC

# Transmitter characteristics

Parameter		Unit
Modulation	Discrete Multi-Tone	
Electrical Baud Rate	25.78125	GBd
Center Wavelength <sup>*1</sup>	1310	nm
Tx Average Output Power	+2 => 0	dBm
RIN	-140	dB/Hz
Extinction Ratio, min	TBD	dB
Transmitter Reflectance	-35	dB
Initial Negotiation	Bit and Power Loading	
FEC Coding Gain	8.12 <sup>*2</sup>	dB

\*1 Initial stage of technology spread, TEC will be required.

\*2 for 1E-15 BER, with 7 % Overhead

# Receiver characteristics

Parameter		Unit
Modulation	Discrete Multi-Tone	
Electrical Baud Rate	25.78125	GBd
Wavelength Range	1310	nm
Rx Average Power (Max.)	+3	dBm
Rx Reflectance	-35	dB
Stressed Receiver Sensitivity	-2 => -4 <sup>*3</sup>	dBm

\*3 Penalties are included.

# Channel characteristics

Parameter		Unit
Operating Distance	500	m
Channel Insertion Loss	4 *4	dB
Positive Dispersion	+1	dB
Negative Dispersion	-2	dB

\*4      bhatt\_01\_0113\_optx.pdf  
          kolesar\_01\_0213\_smf.pdf



# Summary

- We have proposed revised DMT power budget for 802.3bm 500 m SMF objective.

Thank you