



# C2M Channel Discrepancy Concerns

Why was the IL different in the proposals when everyone used the same loss equation?

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# Reviewers in this Analysis

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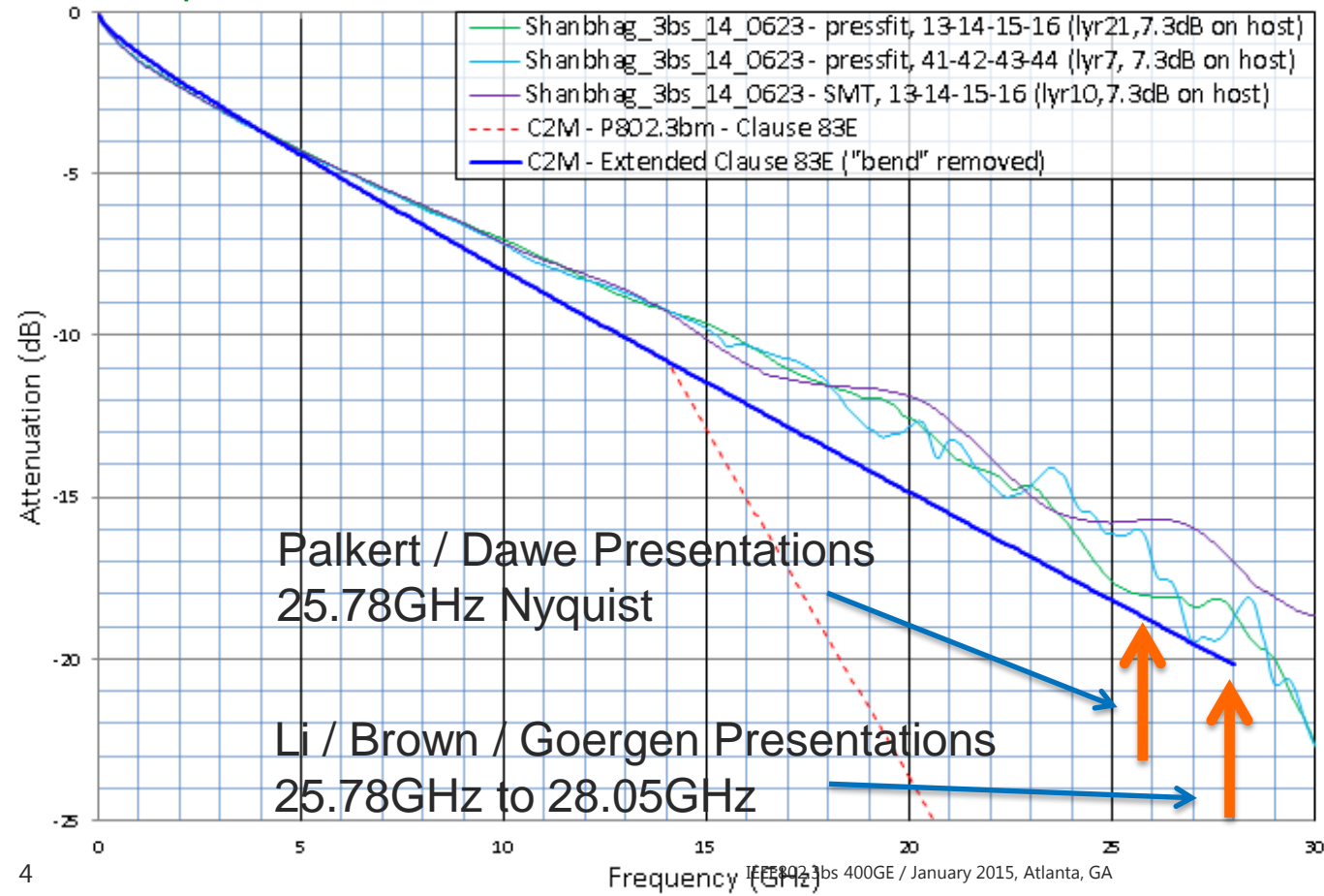
# Opening

There were presentations presented that appear to differ from the 20dB@28GHz point referred to in the Electrical Ad-hoc discussions and channel presentations.

The channel graphs presented are all based on the same equation.

Yikes ... what happened??

# Chip-to-Module (C2M) – goergen\_01\_1114.pdf slide 13



# Proposed Basic Channel Limit Lines – goergen\_01\_1114.pdf

## Equations plotted for C2M and C2C - slide 15 condensed

802.3bm draft – C2M equation (red curve)

$$\text{Insertion loss}(f) \leq \left\{ \begin{array}{ll} 1.076(0.075 + 0.537\sqrt{f} + 0.566f) & 0.01 \leq f < 14 \\ 1.076(-18 + 2f) & 14 \leq f < 18.75 \end{array} \right\} \text{ (dB)} \quad (83E-1)$$

C2M and C2C “extended curve” (blue curves)

Simply extend first portion of above curves for full frequency range; omit 14-18.75G and 12.89-25.78G equations, respectively.

# The Raw Data from goergen\_01\_1114.pdf Slide 13 and Slide 15

Excel equation =1.076\*(0.075+0.537\*SQRT(A119))+0.566\*A119)

25.25	16.23475	17.44445	16.07241	18.36182	25.25
25.5	16.36855	17.57932	16.20379	18.52842	25.5
25.78	16.51759	17.72973	16.35049	18.71492	25.78
26	16.63407	17.84742	16.46543	18.86139	26
26.25	16.76575	17.98065	16.59569	19.02778	26.25
26.5	16.89671	18.11331	16.72557	19.19409	26.5
26.75	17.02692	18.24541	16.85506	19.36034	26.75
27	17.15637	18.37694	16.98416	19.52653	27
27.25	17.28505	18.50789	17.11287	19.69265	27.25
27.5	17.41296	18.63825	17.24118	19.85871	27.5
27.75	17.54006	18.76802	17.36908	20.02471	27.75
28	17.66636	18.8972	17.49658	20.19064	28
28.25	17.79184	19.02576	17.62366		28.25
28.5	17.91648	19.15372	17.75032		28.5
28.75	18.04028	19.28106	17.87656		28.75
29	18.16321	19.40777	18.00237		29
29.25	18.28527	19.53385	18.12775		29.25
29.5	18.40644	19.65929	18.25268		29.5
29.75	18.52671	19.78409	18.37717		29.75
30	18.64606	19.90823	18.50122		30

Range Shown  
25.78GHz to 28.00GHz

# Analysis

- The data points used for Nyquist in the various presentations are different.
- For the Palkert / Dawe presentations, they are assuming 25.78GHz. Assumes zero over-head FEC.
- For Li / Brown presentations, they have been assuming 25.78Gbaud to 28.05Gbaud. KP4 FEC falls in between those rates.
- For Goergen presentations, they have been assuming 28.00GHz.

## Resolution / Questions

- What Nyquist point should we all be using?
- Request – all proposals please state the Nyquist rate in the range discussed from 25.78GHz to 28.05GHz. Or clearly state if you are outside this range.