

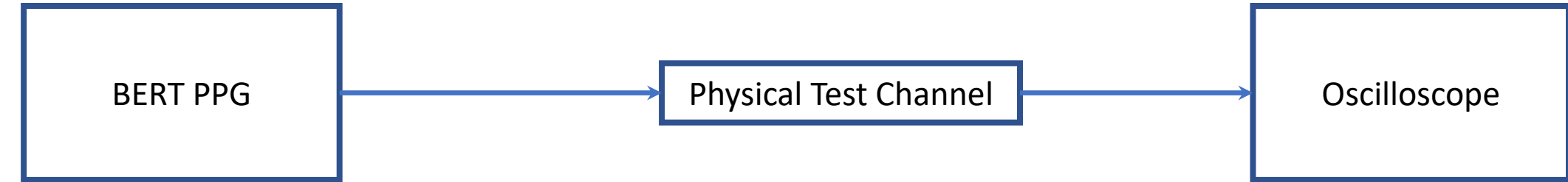
TX SNDR and R_{peak} limits for CR and C2M

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Introduction

- The current limits for R_{peak} seem to be placeholders. When tested with an instrument-grade TX and practical host channels, these limits are marginal for HL and cannot be met for HN.
- Current limits for SNDR for most of the presets cannot be met even with instrument-grade TX and practical host channels.
- Currently the SNDR limits are the same for all CR and C2M host types. Measurements indicate a dependence of SNDR on the host loss and signal strength.
- Relates to comments 299 and 300.

Test setup



Vf calibrated to 400, 450
and 500 mV

PCB trace + OSFP connector + HCB

Test channels with IL matching the
different host loss case. All channels
include an OSFP connector and a test
fixture.

For all tested channels – ERL > 12 dB.

Rpeak Measurements

Case	Test channel IL @ 53.125 GHz [dB]	Vf [mV]	Rpeak limit	Measured Rpeak
HL	12.6	400	0.456	0.474
		450		0.476
		500		0.464
HN	17.4	400	0.345	0.324
		450		0.325
		500		0.322
HH	22.6	400	0.234	0.274
		450		0.275
		500		0.275
C2M	32	400	0.123	0.197
		450		0.197
		500		0.204

- Borderline measurements for HL (<2% margin).
- Measured values below limit for HN.

SNDR Measurements

Preset 1



Preset 2

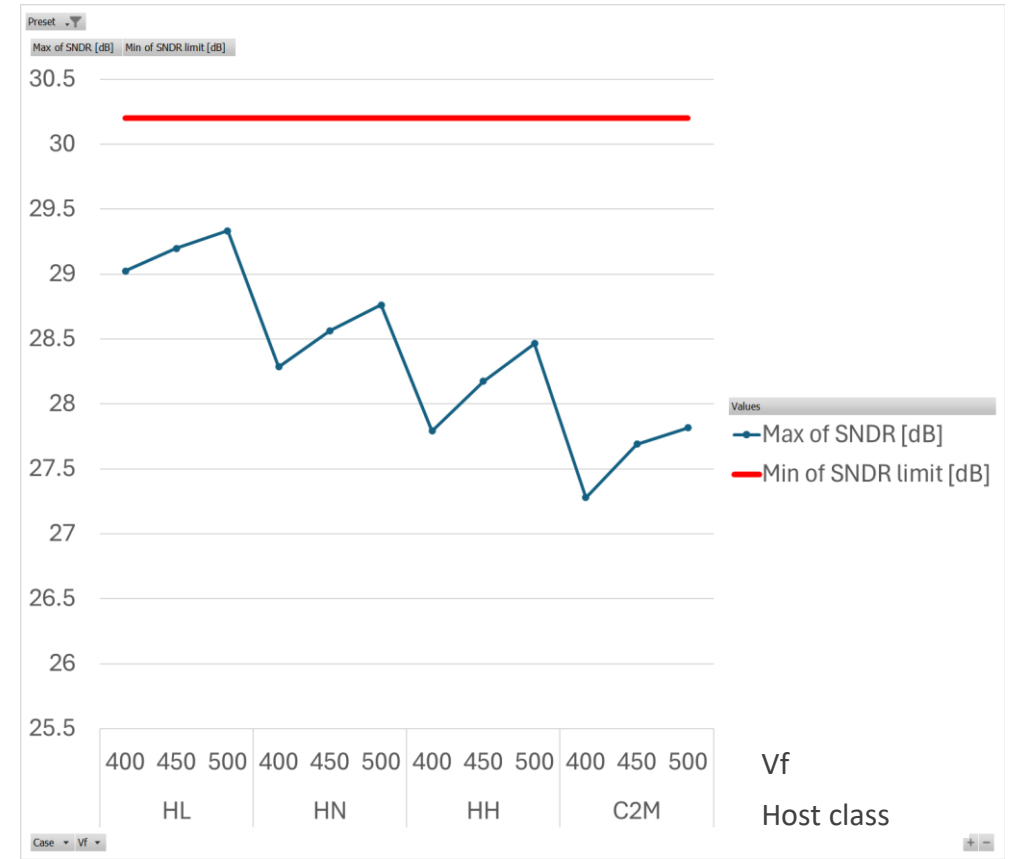


SNDR Measurements

Preset 3



Preset 4



SNDR Measurements

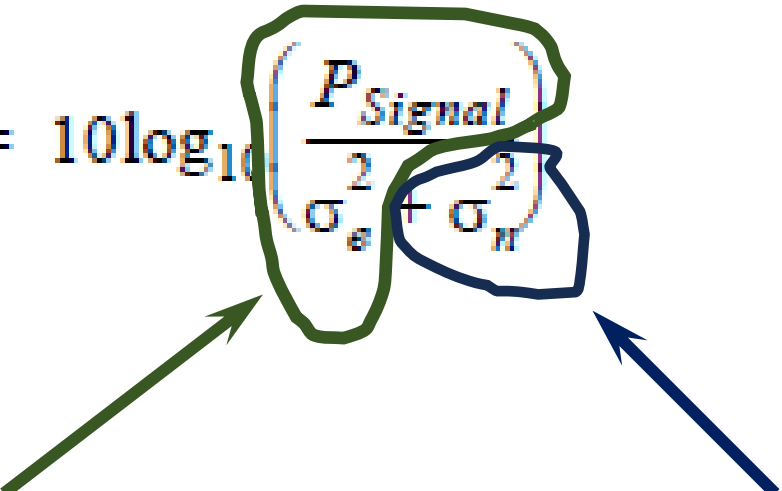
Preset 5



Preset 6



SNDR Measurements

$$SNDR = 10\log_{10}\left(\frac{P_{Signal}}{\sigma_e^2 + \sigma_n^2}\right) \quad (179-8)$$


Scale with V_f and
channel loss

Less dependent on
 V_f and channel loss

Conclusions

- Current Rpeak limits are marginal for HL and cannot be met for HN when tested with instrument-grade TX and practical host channels.
- SNDR limits for most presets cannot be met in practice, even with instrument-grade TX and practical host channels.
- Measured data shows a dependence of SNDR on the host loss and signal strength.

Proposed changes

- Adjust Rpeak limits in CL179 for HL and HN classes:
 - Rpeak for HL = 0.425
 - Rpeak for HN = 0.3
- Adjust the SNDR limits based on the lab data:

Preset	Current limit [dB]	Proposed limit [dB]
1	33.5	32
2	27.5	28
3	30.7	29.5
4	30.2	27
5	28.7	25.7
6 (initialize)	31	30

- Alternatively, define SNDR limits per host class, with values derived from lab data and reflecting measured dependence on loss and signal swing.

Thank you!