

Report on Non-linearity discussion

- **Nonlinearity proposal in pagnanelli_20105.pdf**
 - Supported by Keyeye, Solarflare, Teranetics
 - Failed (Yes: 20 No: 7)
- **Additional participants**
 - Joseph Babanezhad, Bijit Halder (Plato Networks)
 - Anil Tammineedi (Broadcom)
 - Amir Mezer, Luis Magram, Baruch Bublil (Intel)
 - Bill Woodruff (Aqauntia)
- **Discussion on the topic lasted 3 hours**
- **New participants wanted to increase linearity specification**
- **Hence following proposal**
 - Two parts

Transmitter Linearity Specification

55.5.4 Transmitter linearity

When in Test mode 4 and transmitting on a single pair into a 100Ω differential resistive load per the test configuration shown in Figure 55-22, the signal to noise plus distortion ratio of the differential signal at the MDI output is required to be greater 40+ **TBD** dB in a broadband sense (1 to 400 MHz band), based on measurements made with either sinusoidal output waveforms, or alternatively, based on measurements made with precoded DSQ output waveforms.

For sinusoidal measurements, the MDI shall be configured to output single-tone and two-tone waveforms at the frequencies specified for the five test cases given in Table 55-x, such that the peak-to-peak output of the sinusoidal signal corresponds to ± 16 with respect to a DSQ output signal. The measured signal to noise plus distortion ratio shall be greater than the values specified in Table 55-x. For two-tone waveforms, signal power shall be defined as the total (sum) power of both tones. Signal to noise plus distortion ratio measurements shall be made across a 1 MHz to 400 MHz band, using a resolution bandwidth of less than or equal to 100 kHz.

Transmitter Linearity Specification

Table 55-x: Signal to Noise Plus Distortion Requirements

Output Waveform Frequencies	SINR Specification (dB)
Single tone:	
(101/1024)*800 MHz and below	45dB + TBD dB
(167/1024)*800 MHz	43dB + TBD dB
Two tone:	
(179/1024)*800 MHz, (181/1024)*800MHz	43dB + TBD dB
(277/1024)*800 MHz, (281/1024)*800MHz	39dB + TBD dB
(397/1024)*800 MHz, (401/1024)*800MHz	36dB + TBD dB

Next steps

- **Get agreement on TBDs**
- **Current status**
 - Two camps
 - One with TBD=3, other at TBD=6

