



JDSU

32GFC Jitter Tracking Proposal

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13-159v0

Background

- FC-PI-4 introduced Rx Jitter Tracking test for 8GFC. The test method is in MSQS 2.3.4

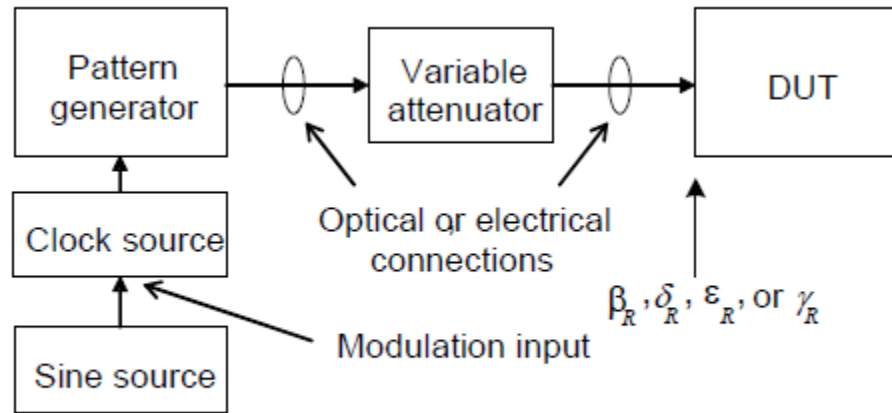


Figure 2.14 - Measurement configuration for 8GFC receiver jitter tracking test

- FC-PI-5 extended the test to 16GFC by scaling the frequencies:

Rx jitter tolerance test, OMA	mW (dBm)	0.048 (-13.2)	0.048 (-13.2)	0.066 (-11.8)	0.066 (-11.8)	0.095 (-10.2)	0.095 (-10.2)	
Rx jitter tracking test, frequency and pk-pk amplitude	(kHz, U l)	NA		(510, 1) (100, 5)	(510, 1) (100, 5)	(840, 1) (168, 5)	(840, 1) (168, 5)	13
Unstressed receiver	mW	0.029	0.029	0.042	0.042	0.063	0.063	--

Background (cont'd)

- The 8GFC “corner” frequency is $8500/1667 \approx 5$ MHz
- The 5UI SJ tolerance is at 100 kHz, i.e. $5\text{MHz} / 50$.

- Separately, IEEE 802.3 defined a SJ tolerance mask as part of the Rx stressed Rx sensitivity test.
- That mask uses a corner frequency of $10000/2500 = 4$ MHz
- The 5UI SJ tolerance is at 40 kHz, i.e. $4\text{ MHz} / 100$.

- IEEE is using optical dB for the SJ amplitude, since it is an optical test.
- FC-PI-4 used electrical dB for SJ amplitude, although gamma-R could be an optical test.

10GBASE-R SJ Mask for 10.3Gb/s 64B66B

52.8.1 Sinusoidal jitter for receiver conformance test

The sinusoidal jitter is used to test receiver jitter tolerance. Sinusoidal jitter may vary over a magnitude range as required to accurately calibrate a stressed eye per 52.9.9. The range is limited by the constraints of Table 52–19.

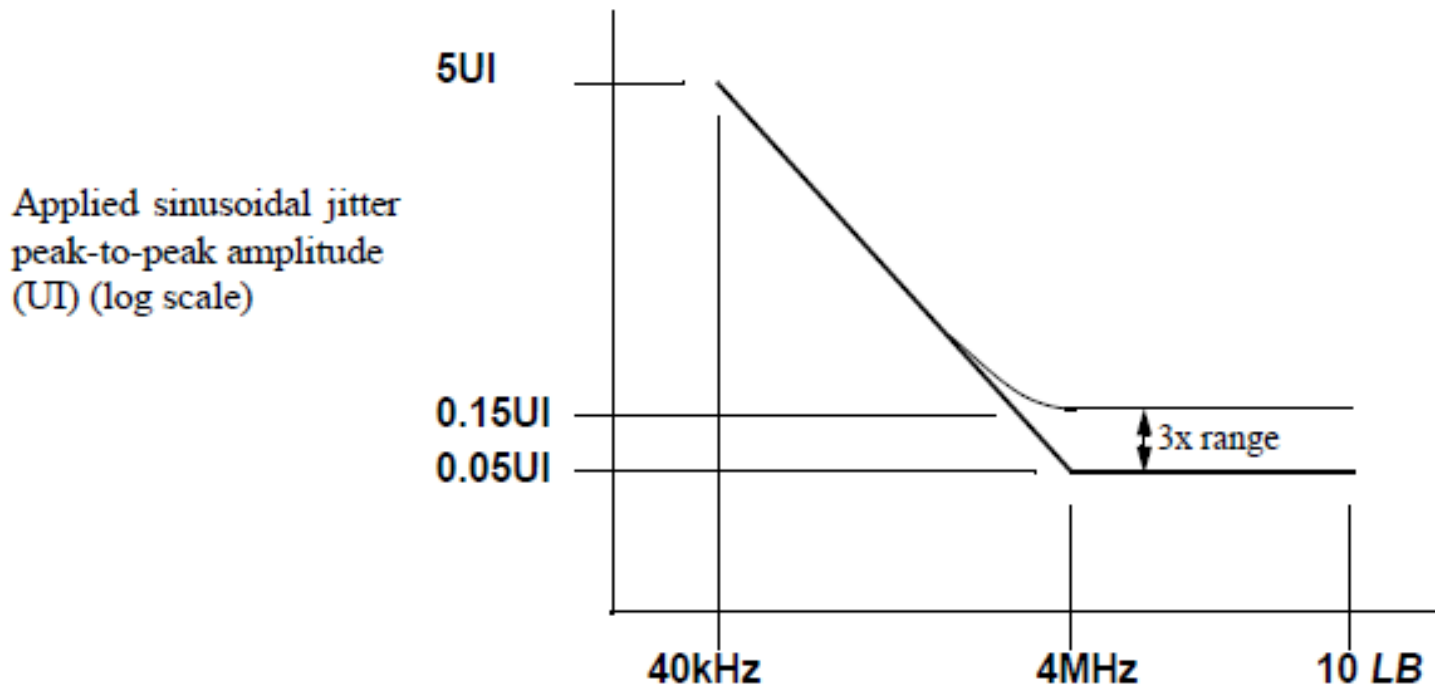


Figure 52–4—Mask of the sinusoidal component of jitter tolerance (informative)

16GFC and 32GFC scaled from 10GE SJ mask

■ 32GFC

- $>5\text{UI tolerance at } 40\text{kHz} * 28/10 = 112 \text{ kHz}$
- $>1\text{UI tolerance at } 200\text{kHz} * 28/10 = 560 \text{ kHz}$
- Mask corner at $4 \text{ MHz} * 28/10 = 11.2 \text{ MHz}$
- $10*LB = 80 \text{ MHz} * 28/10 = 224 \text{ MHz}$ (proposed)

■ 16GFC

- $>5\text{UI tolerance at } 40\text{kHz} * 14/10 = 56 \text{ kHz}$ (PI-5 has 168 kHz)
- $>1\text{UI tolerance at } 200\text{kHz} * 14/10 = 280 \text{ kHz}$ (PI-5 has 840 kHz)
- Mask corner at $4 \text{ MHz} * 28/10 = 5.6 \text{ MHz}$ (not in PI-5 or MSQS)
- $10*LB = 80 \text{ MHz} * 14/10 = 112 \text{ MHz}$ (proposed)
- Since these 16GFC numbers are more relaxed than FC-PI-5, propose that FC-PI-6 include a note saying that these are corrected from what is in PI-5 and that either one can be used for compliance.



Thank You