

# Proposal to modify the SRS test for 100GBASE-DR

In support of comment i-78  
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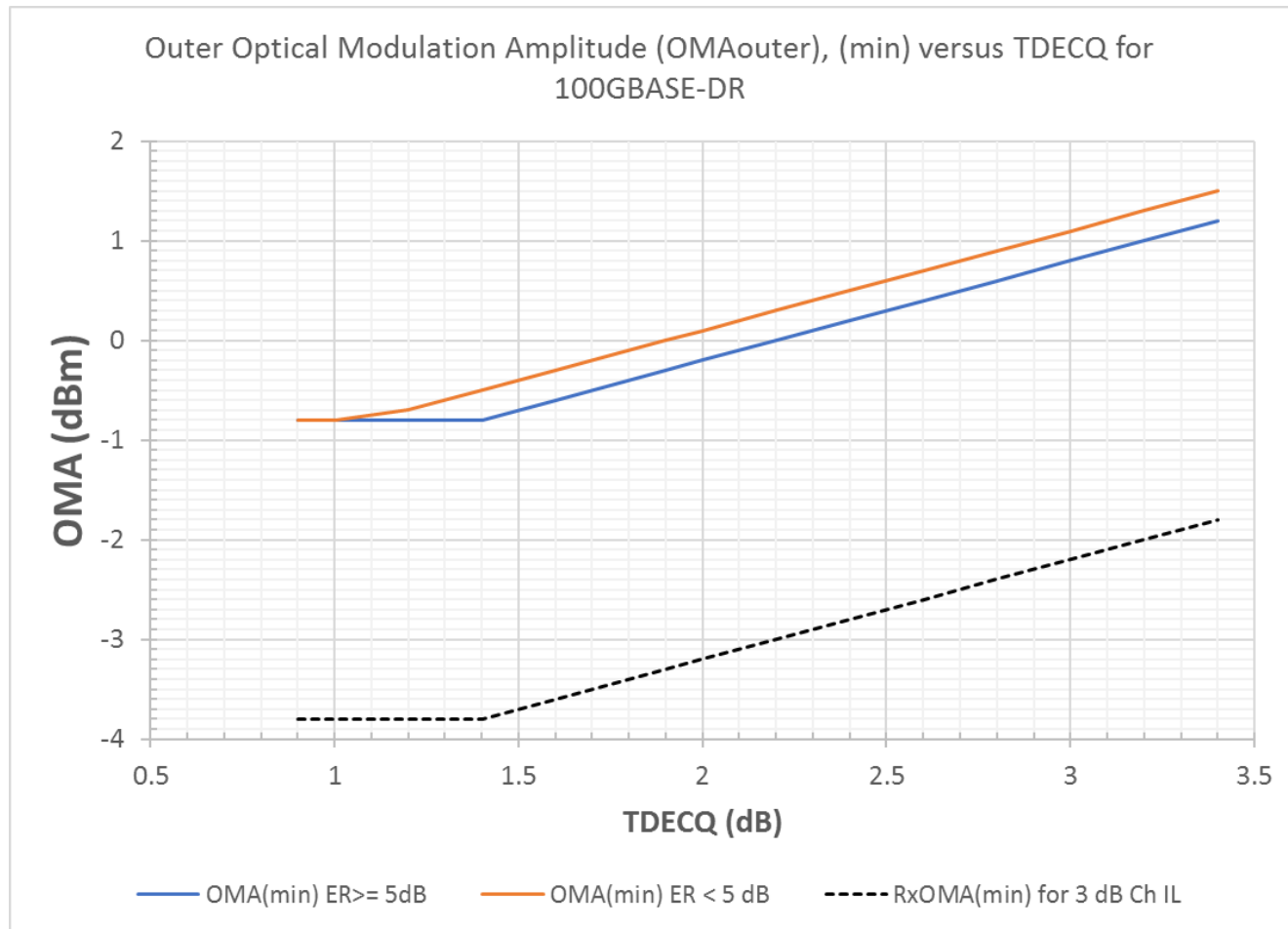
# Supporters

# Minimum Transmit OMA varies with TDECQ

Table 140–6—100GBASE-DR transmit characteristics

| Description  | Value            | Unit |
|--|------------------|------|
| Signaling rate (range)   | 53.125 ± 100 ppm | GBd  |
| Modulation format  | PAM4             | —    |
| Wavelength (range)   | 1304.5 to 1317.5 | nm   |
| Side-mode suppression ratio (SMSR), (min)  | 30               | dB   |
| Average launch power (max)   | 4                | dBm  |
| Average launch power <sup>a</sup> (min)  | -2.9             | dBm  |
| Outer Optical Modulation Amplitude (OMA <sub>outer</sub> ) (max)                       | 4.2              | dBm  |
| Outer Optical Modulation Amplitude (OMA <sub>outer</sub> ) (min) <sup>b</sup>          | -0.8             | dBm  |
| Launch power in OMA <sub>outer</sub> minus TDECQ (min):<br>for extinction ratio ≥ 5 dB | -2.2             | dBm  |
| for extinction ratio < 5 dB  | -1.9             | dBm  |
| Transmitter and dispersion eye closure for PAM4 (TDECQ) (max)                          | 3.4              | dB   |

# OMA (min) at the receiver input (TP3) varies depending on the transmitter TDECQ



# Receiver test is only required at SECQ of 3.4 dB

Table 140–7—100GBASE-DR receive characteristics

| Description  | Value            | Unit |
|--|------------------|------|
| Signaling rate (range)   | 53.125 ± 100 ppm | GBd  |
| Modulation format  | PAM4             | —    |
| Wavelengths (range)  | 1304.5 to 1317.5 | nm   |
| Damage threshold <sup>a</sup>  | 5                | dBm  |
| Average receive power (max)  | 4                | dBm  |
| Average receive power <sup>b</sup> (min)                                 | −5.9             | dBm  |
| Receive power (OMA <sub>outer</sub> ) (max)                              | 4.2              | dBm  |
| Receiver reflectance (max)   | −26              | dB   |
| Receiver sensitivity (OMA <sub>outer</sub> ) <sup>c</sup> (max)          | −4.4             | dBm  |
| Stressed receiver sensitivity (OMA <sub>outer</sub> ) <sup>d</sup> (max) | −1.9             | dBm  |
| Conditions of stressed receiver sensitivity test: <sup>e</sup>           |                  |      |
| Stressed eye closure for PAM4 (SECQ)                                     | 3.4              | dB   |

<sup>a</sup>The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level. The receiver does not have to operate correctly at this input power.

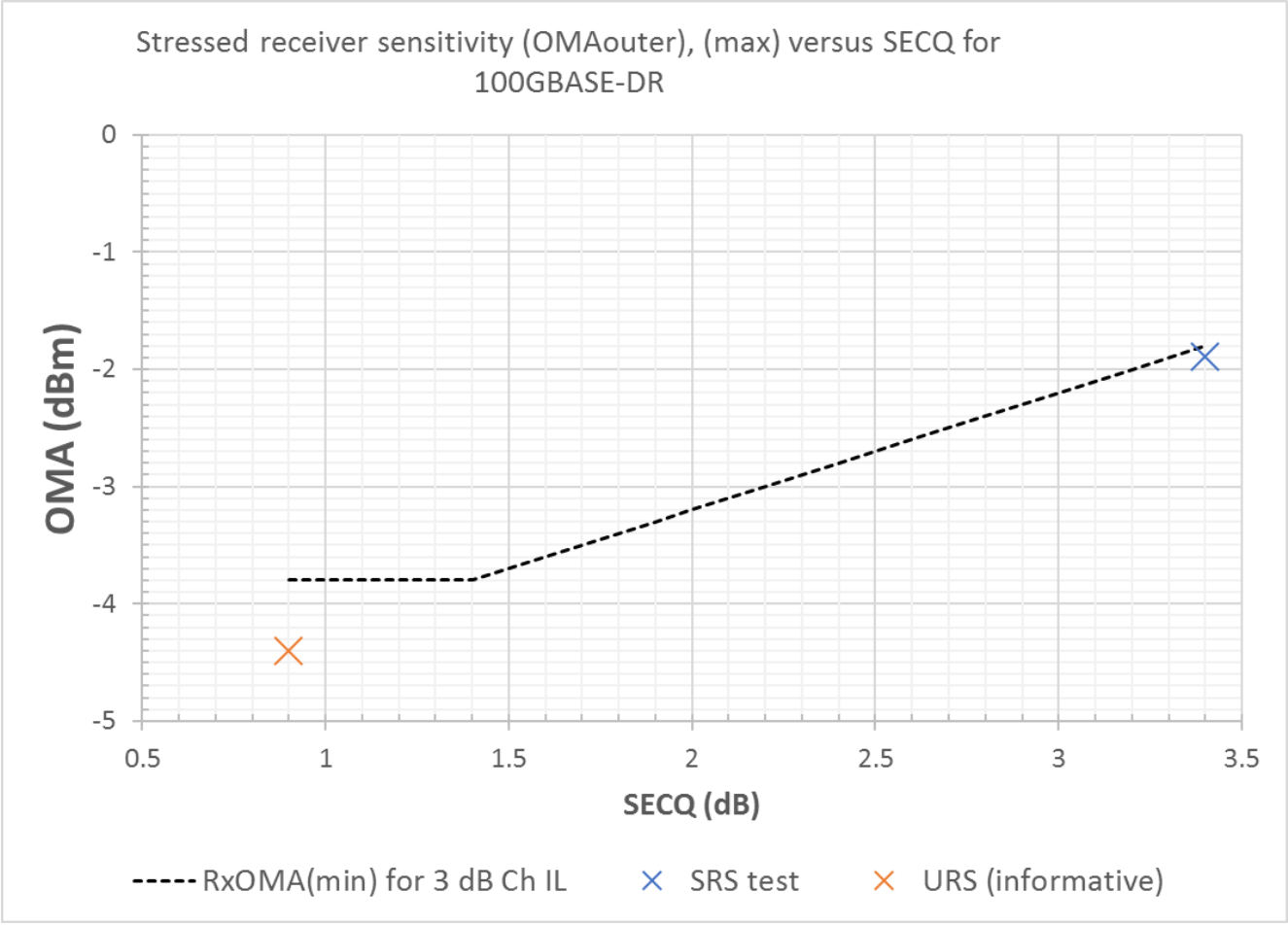
<sup>b</sup>Average receive power (min) is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance.

<sup>c</sup>Receiver sensitivity (OMA<sub>outer</sub>) (max) is informative and is defined for a transmitter with SECQ = 0.9 dB.

<sup>d</sup>Measured with conformance test signal at TP3 (see 140.7.9) for the BER specified in 140.1.1.

<sup>e</sup>These test conditions are for measuring stressed receiver sensitivity. They are not characteristics of the receiver.

# SRS test verifies that receiver meets BER requirements for a worst case transmitter



# Discussion

- With TDECQ max of 3.4 dB, a real receiver can see input OMA of 2 dB lower than the SRS test limit.
- Real receivers need to demonstrate that they meet the BER threshold at RxOMA lower than the signal supplied by a good transmitter (TDECQ  $\leq$  1.4 dB)
- Proposal of comment i-78 is to add that requirement to the SRS test by allowing SECQ to vary between 0.9 and 3.4 dB and requiring real receivers to demonstrate they are below the mask in Figure XX (next page)

# Proposed Figure XX





**THANK YOU !**