INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION STANDARDIZATION SECTOR

STUDY PERIOD 2025-2028

SG15-LS47

STUDY GROUP 15

Original: English

Question(s): 6/15 Paris, 9–13 June 2025

LS

Source: ITU-T Study Group 15

Title: LS on TQM and B400G

LIAISON STATEMENT

For action to: –

For information to: IEEE 802.3, OIF

Approval: ITU-T Q6/15 meeting (Paris, 13 June 2025)

Deadline: N/A

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Abstract: This liaison provides feedback to IEEE 802.3 and OIF on the status of the Transmitter Quality Metrics (TQM) discussion at Q6/15 on 800G DWDM applications in draft Revised Recommendation ITU-T G.698.2.

We recognize the recent liaisons from the IEEE 802.3 Working Group in progressing ETCC specification as part of the IEEE P802.3dj draft D2.0 and the included validation efforts using the OIF OFC 2025 Plugfest datasets.

ITU-T Q6/15 would also like to express sincere appreciation to OIF for sharing the extensive dataset of transmitter waveforms measured during the OFC 2025 400ZR/800ZR Plugfest. This large-scale, multi-vendor dataset serves as a foundation for the validation of ETCC TQM.

In response to the recent liaison statements and shared data, we would like to provide the following updates from the Q6/15 interim meeting held in Paris during 9-13 June 2025:

1. Validation of ETCC:

Q6/15 has performed further validation of ETCC using the 400ZR/800ZR transmitter waveform datasets from the OIF OFC 2025 Plugfest. The results generally align with the rOSNR trend indicated in OIF Whitepaper for 400ZR. In comparison, 800ZR ETCC results are generally close to the rOSNR readout for most transmitters, except one outlier (Tx L) needing further investigation.

2. Need for Test Equipment's Intrinsic Performances:

The accuracy of transmitter-only ETCC assessment depends on test equipment's intrinsic performances such as the receiver-only eye closure (EC_{Rx}) and the receiver-only noise-to-signal ratio (NSR_{Rx}). As these values were not provided, our ETCC calculations were based on the assumption of an ideal receiver (i.e., EC_{Rx}=1, NSR_{Rx}=0), which may introduce some inaccuracies.

3. Accuracy Evaluation Metrics:

We share with you a contribution, attached to this Liaison letter, that used the similarity score and the maximum estimation error to evaluate the ETCC accuracy in representing the rOSNR penalty.

4. Comparison with Other Implementations:

The above contribution compared our ETCC results with those presented in the contribution shared in the recent IEEE 802.3 liaison on TQM. Some differences were observed, likely because we used direct bit error counting while the IEEE contribution used the EVM-to-BER conversion.

Q6/15 remains committed to using ETCC as a TQM in future G.698.2 revisions with relevance to 800G DWDM interoperable interfaces.

We sincerely thank IEEE 802.3 and OIF for the continued collaboration and data sharing, and we look forward to deepening our joint activities in this area.

Attachment: SG15-TD2R1/WP2, “Draft revised G.698.2 version 3.0.3”

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