Call To Action: EVM Test Data

Gary Nicholl, Cisco
John D'Ambrosia, Futurewei, U.S. Subsidiary of Huawei
Greg LeCheminant, Keysight
Bernd Nebendahl, Keysight

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Supporters

- Binbin Guan, Microsoft
- Mark Filer, Microsoft
- Yawei Yin, Microsoft
- Kyle Edwards, Microsoft
- Yang Fu, Facebook
- Rob Stone, Facebook
- Jeff Rahn, Facebook
- Tad Hofmeister, Google
- Cedric Lam, Google
- Tom Issenhuth, Huawei
- Mark Nowell, Cisco
- Peter Stassar, Huawei

Introduction

- Per IEEE P802.3ct Draft 3.4

154.9.9 Error vector magnitude

The error vector magnitude shall be within the limits given in Table 154–7 and is as defined in Recommendation ITU-T G.698.2, with the exception that the samples are acquired with the effect of a clock recovery unit (CRU) with a corner frequency of 1.5 MHz and a slope of 20 dB/decade.

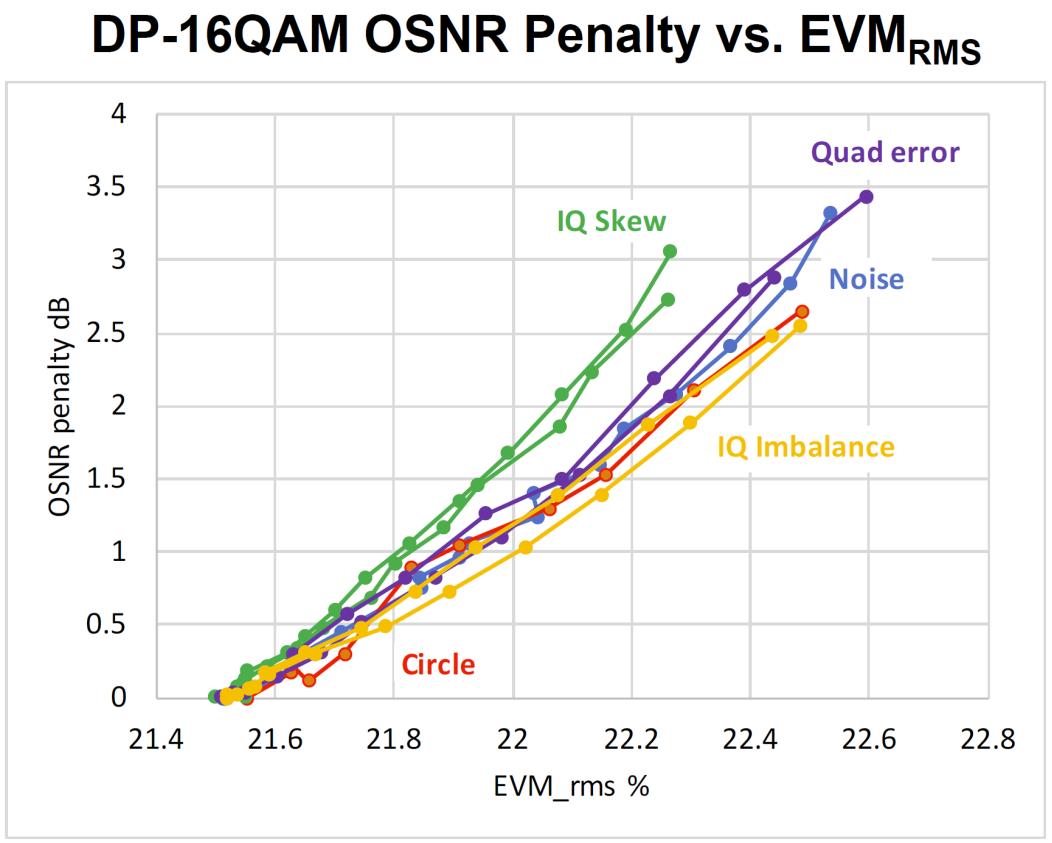
NOTE—This definition in Recommendation ITU-T G.698.2 includes the definition of a reference equalizer.

- 100GBASE-ZR based on DP-DQPSK modulation
- EVM was validated as a Tx quality metric within ITU-T based on test data from actual interface implementations from several vendors

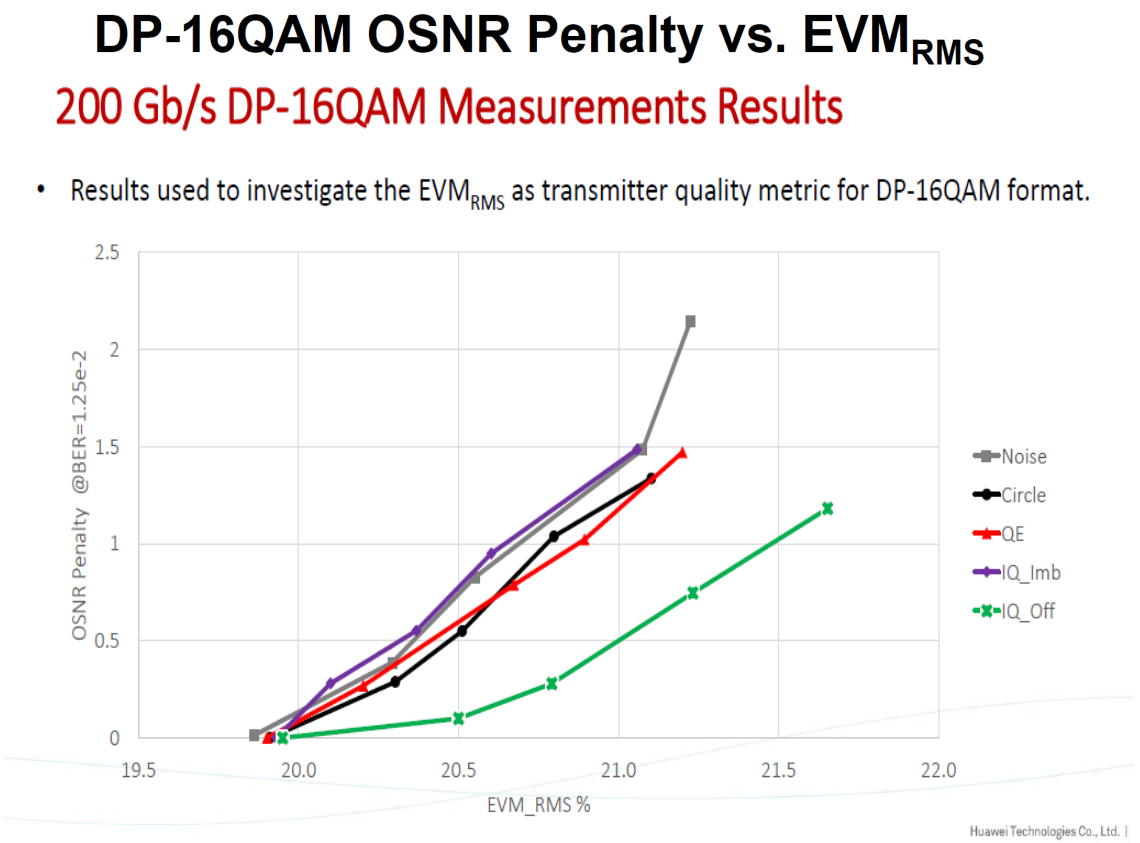
For IEEE P802.3cw

- 400GBASE-ZR is based on DP-16QAM modulation
- In line with work going on in ITU-T SG15 and the OIF, IEEE P802.3cw D1.1 specifies EVM_{RMS} as Tx quality metric with a “TBD” value
- Limited test data submitted to date. Not sufficient to validate EVM_{RMS} as quality metric for a DP-16QAM Tx.
- All data submitted previously during P802.3ct meetings in 2019 shown on next slide

Previous data made available for IEEE P802.3cw



Initial measurement results on EVM$_{RMS}$ for DP-16QAM presented in https://www.ieee802.org/3/ct/public/19_03/anslow_3ct_02_0319.pdf



Initial measurement results on EVM$_{RMS}$ for DP-16QAM presented in https://www.ieee802.org/3/ct/public/19_07/pittala_3ct_01a_0719.pdf

Call to Action

- EVM is one of the key candidate metrics being proposed for the quality of a DP-16QAM transmitter to support multi-vendor inter-operability, and currently is a suitable starting point
- A multi-vendor interoperable specification is critical for 400GBASE-ZR
- It is critical that data be submitted to IEEE P802.3cw to:
  - Validate the suitability of EVM as a Tx quality metric for DP-16QAM
  - Recommend values for any EVM related parameters