



Class F_A (category 7_A) Cabling for 25GBASE-T

Channel Test Report

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Channel Test Report

Abstract

Category 7_A cables are used in Class F_A (IEC/ISO 111801 standard) installations. This contribution provides test data to support the deployment of proposed 25GBASE-T technology over Class F_A cabling, including the existing infrastructure. 7, 30 and 50m long channels utilizing IEC 61076-3-110 connectivity were included in this study. The study utilized commercially available cables and test equipment. The data is presented up to 1200 MHz for NEXT, Return Loss, Insertion Loss , ACR. It is believed that the data reflects typical performance of the installed infrastructure. Additional measurements are underway

RATIONALE

If the existing category 7A cabling can be used for 25 GBASE-T two immediate benefits to help to accelerate the deployment and reduce the investment risk are possible:

A) The use of the existing infrastructure

B) The use of proven technology

Category 7A cables (IEC 61156-7) for Class FA (IEC/ISO 11801) standard are specified for 1200 MHz.

Class F is used for 10GBASE-T (see IEEE 802.3 part 3, section 4 , clause 44, 45 ,55) . Class FA is an upgrade to Class F

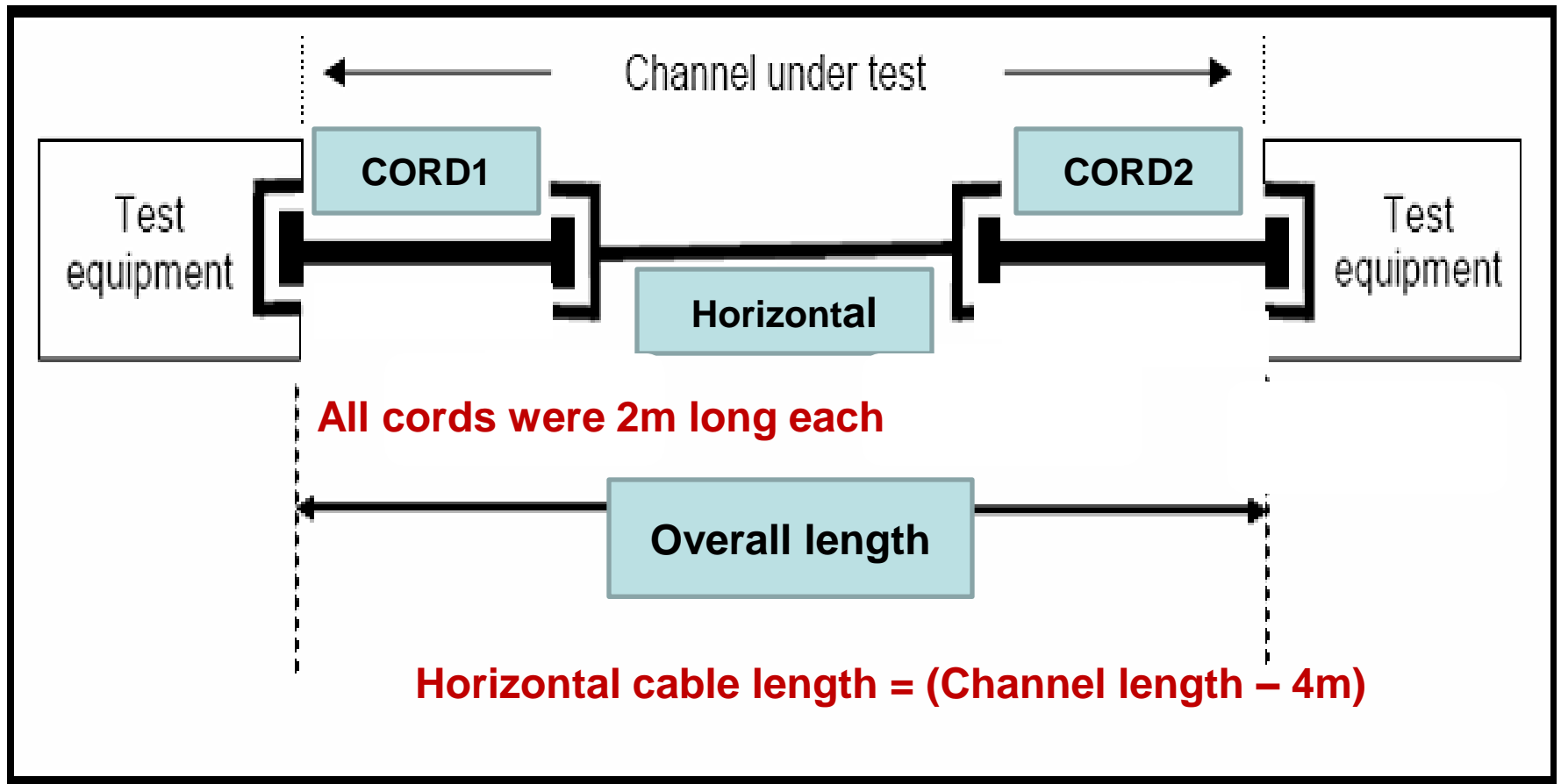
This report is intended to provide information on selected transmission test parameters.

Classes and Categories

ISO/IEC 11801	Cable/connector category	Freq. max. Characterization	Typical / proposed Application
Class C	3	16 MHz	Token Ring
Class D	5e	100 MHz	10MbE to 1GbE (5GbE *)
Class E	6	250 MHz	10MbE to 1 GbE(5GbE*)
Class E _A	6 _A	500 MHz	0.01 to 10 GbE
Class F	7	600 MHz	1 to 10 GbE
Class F _A	7 _A	1000 MHz	1 to 25 GbE
Class I	8.1	2000 MHz	1 to 40 GbE
Class II	8.2	2000 MHz **	1 to 100 GbE **

Note : * to be defined

** bandwidth to be increased with further enhancements



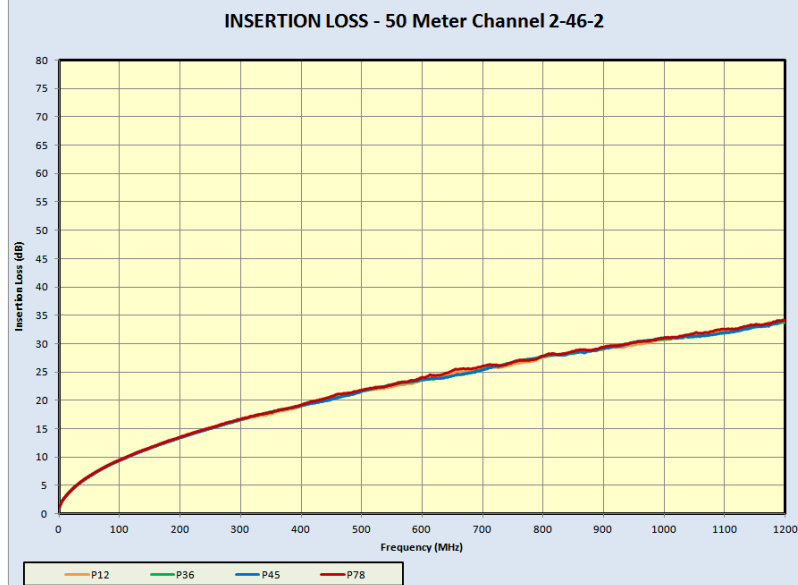
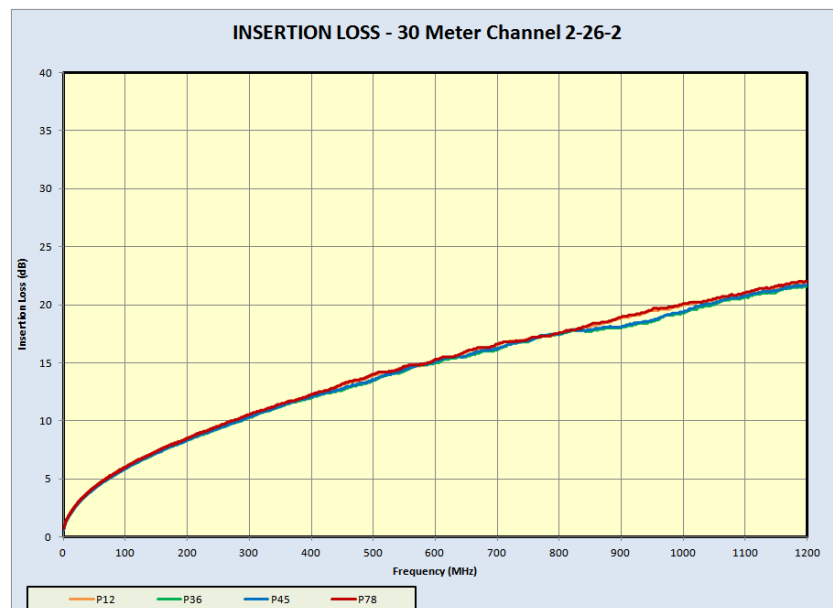
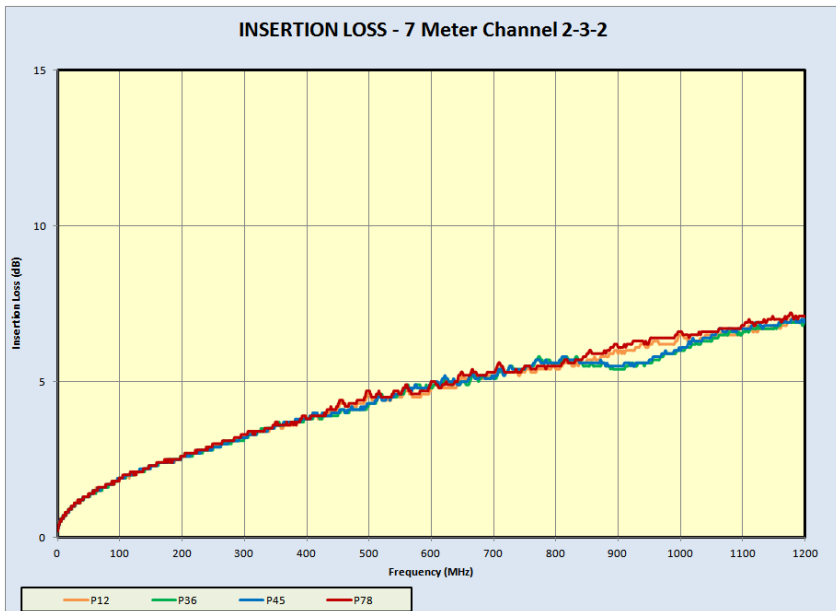
**Measured data apply to the tested channels only
and may not represent all the available Class F_A channels**

Class F_A Channel and 25 GbE.

Insertion Loss

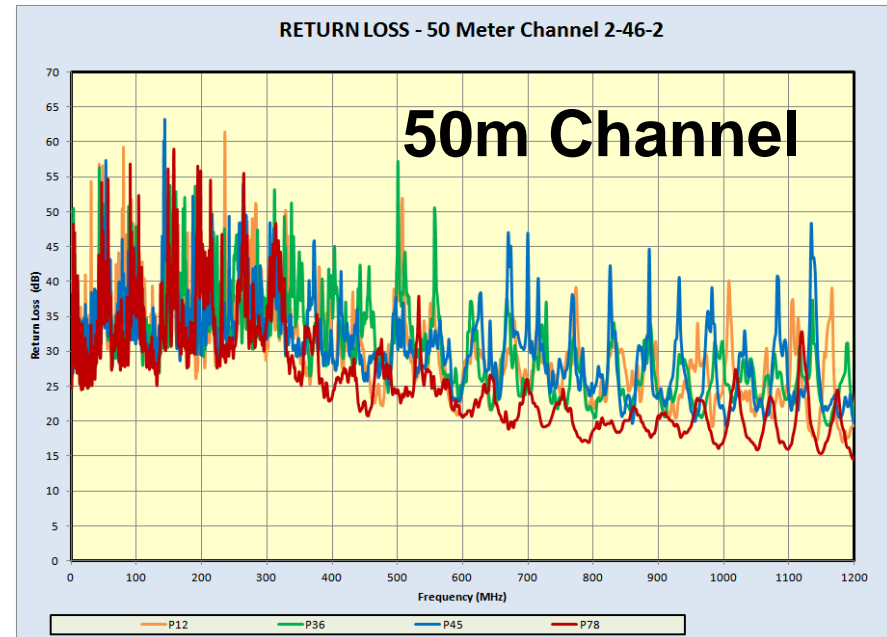
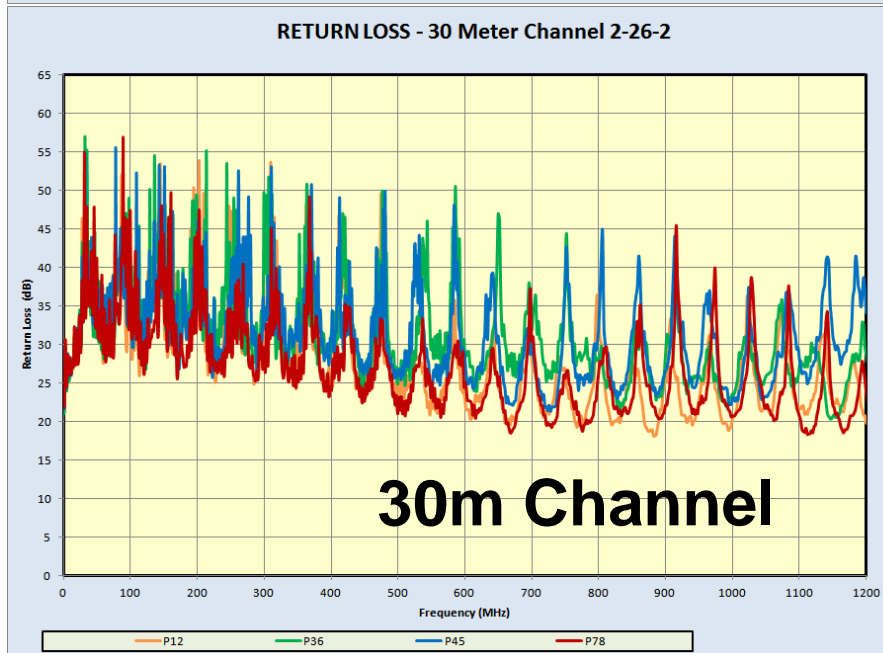
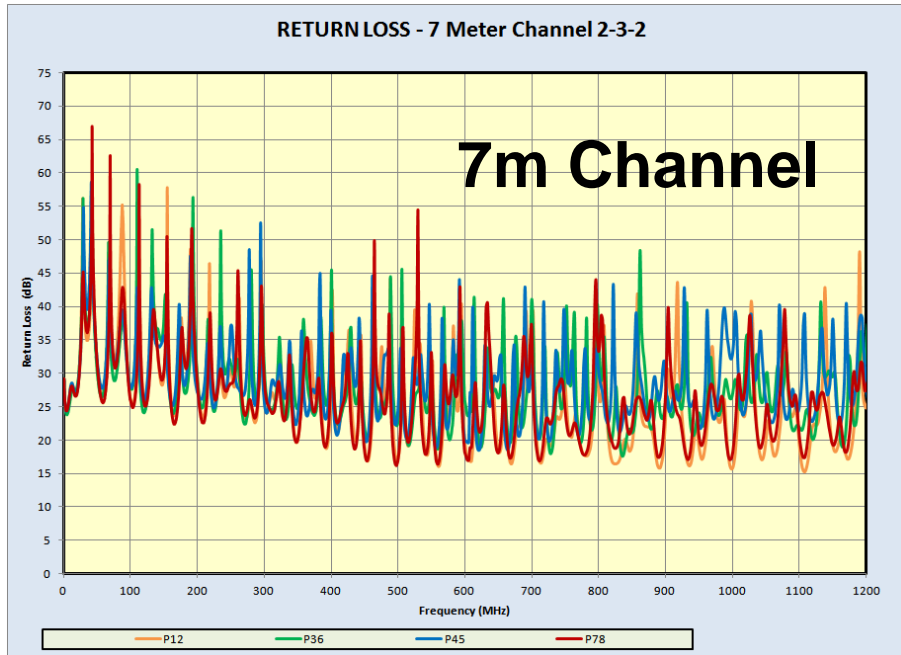
Insertion Loss

Channel Length	IL
7m	7dB
30m	22 dB
50 m	33 dB



Class F_A Channel and 25 GbE.

Return Loss

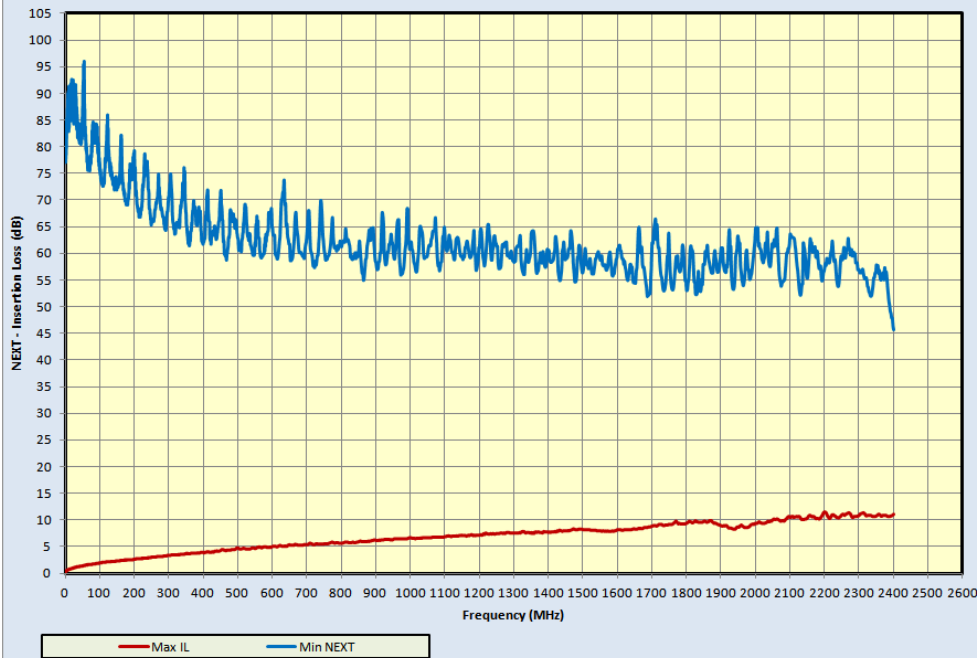


Measurements done with laboratory-level fixtures and equipment

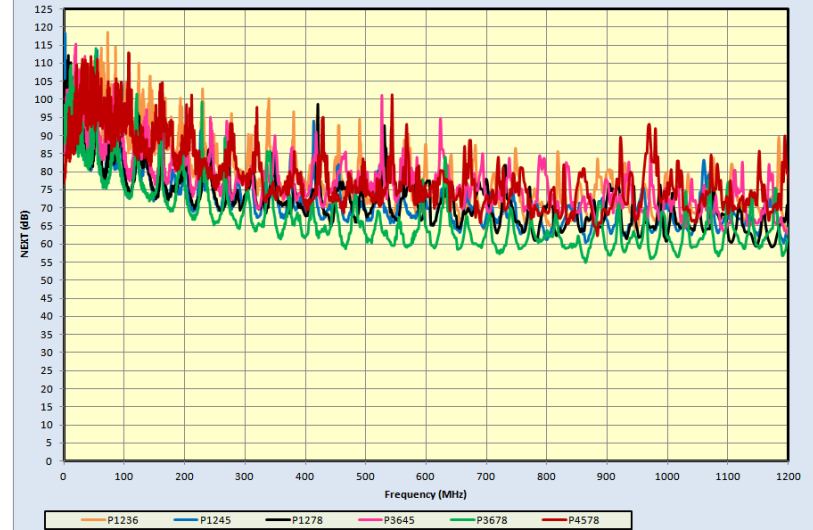
Class F_A Channel and 25 GbE.

NEXT and ACR - 7m

ACR - 7 Meter Channel 2-3-2



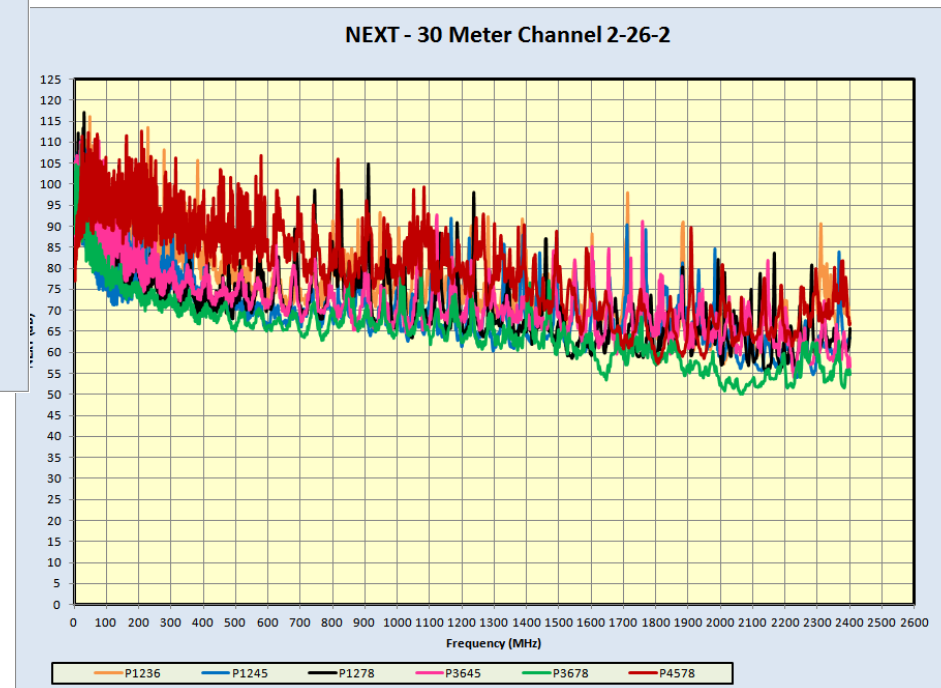
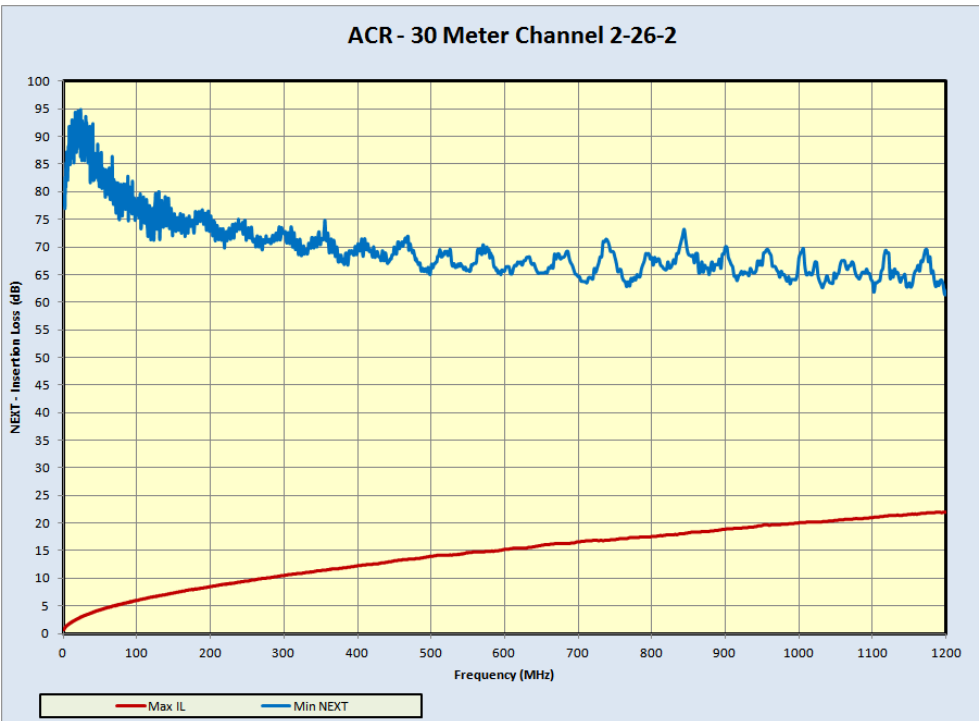
NEXT - 7 Meter Channel 2-3-2



ACR:
Worst case NEXT
compared to
worst case IL

Class F_A Channel and 25 GbE.

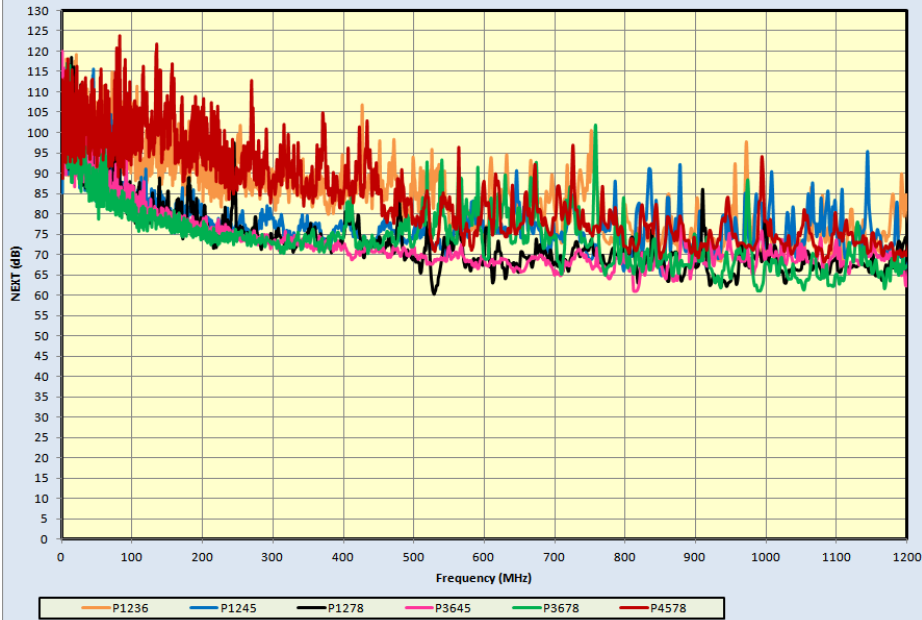
NEXT and *ACR* - 30m



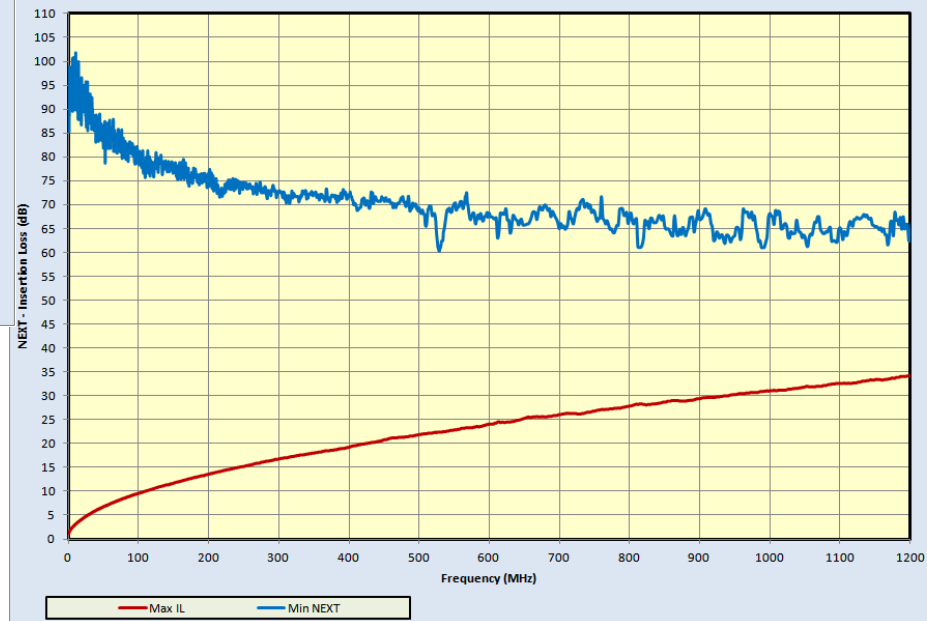
Class F_A Channel and 25 GbE.

NEXT and ACR - 50m

NEXT - 50 Meter Channel 2-46-2



ACR - 50 Meter Channel 2-46-2



ACR:
Worst case NEXT
compared to
worst case IL

Summary

- ✓ Category 7_A cabling can provide two immediate benefits for a new 25GBASE-T standard:
 - 1) the existing infrastructure
 - 2) the proven technology
- ✓ Class F_A Channel Tests provided IL, ACR, RL and NEXT data to assess the compatibility with yet-to-be-defined 25GBASE-T requirements
- ✓ If 25 GBASE-T upper frequency spectra to be within 1000-1250MHz spectra , the utilization of the existing Class F_A – based on the observed transmission parameters – should be feasible

Conclusion

Move that 30m of Class F_A (category 7_A cabling) be incorporated into clause 113.7 of the next IEEE P802.3bq draft for support of 25GBASE-T