

Copper LC connector interoperability

IEEE 802.3cg Task Force
September 2018

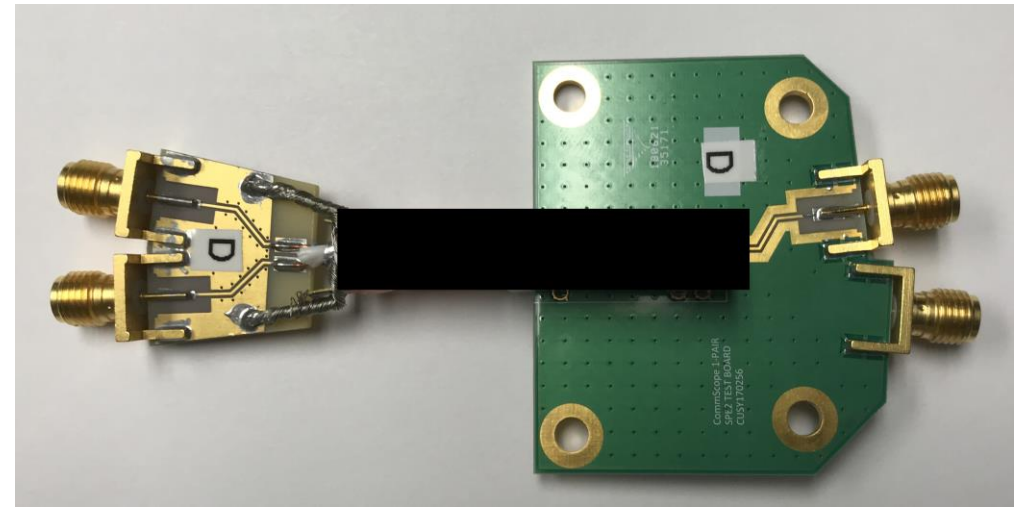
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Test plan overview

- Two (2) manufacturers submitted four (4) pairs of copper LC plug and jack (MDI).
- Each connector pair from both manufacturer was measured (resulting in 8 measurements).
- The plug and jack specimen were interchanged between both manufacturers and the mated performance measured (resulting in another 8 measurements).
- The IL, RL, TCL and TCTL results were compared against the IEC 63171-1 draft standard.

Test specimens and preparation

- The test specimens are prototype samples (not yet in production).
- The test specimens are shielded.
- Each specimen was mounted on a test board.
- Test boards of the same design and manufacturer were used for both connector manufacturers.
- The test boards are part of the whole DUT.



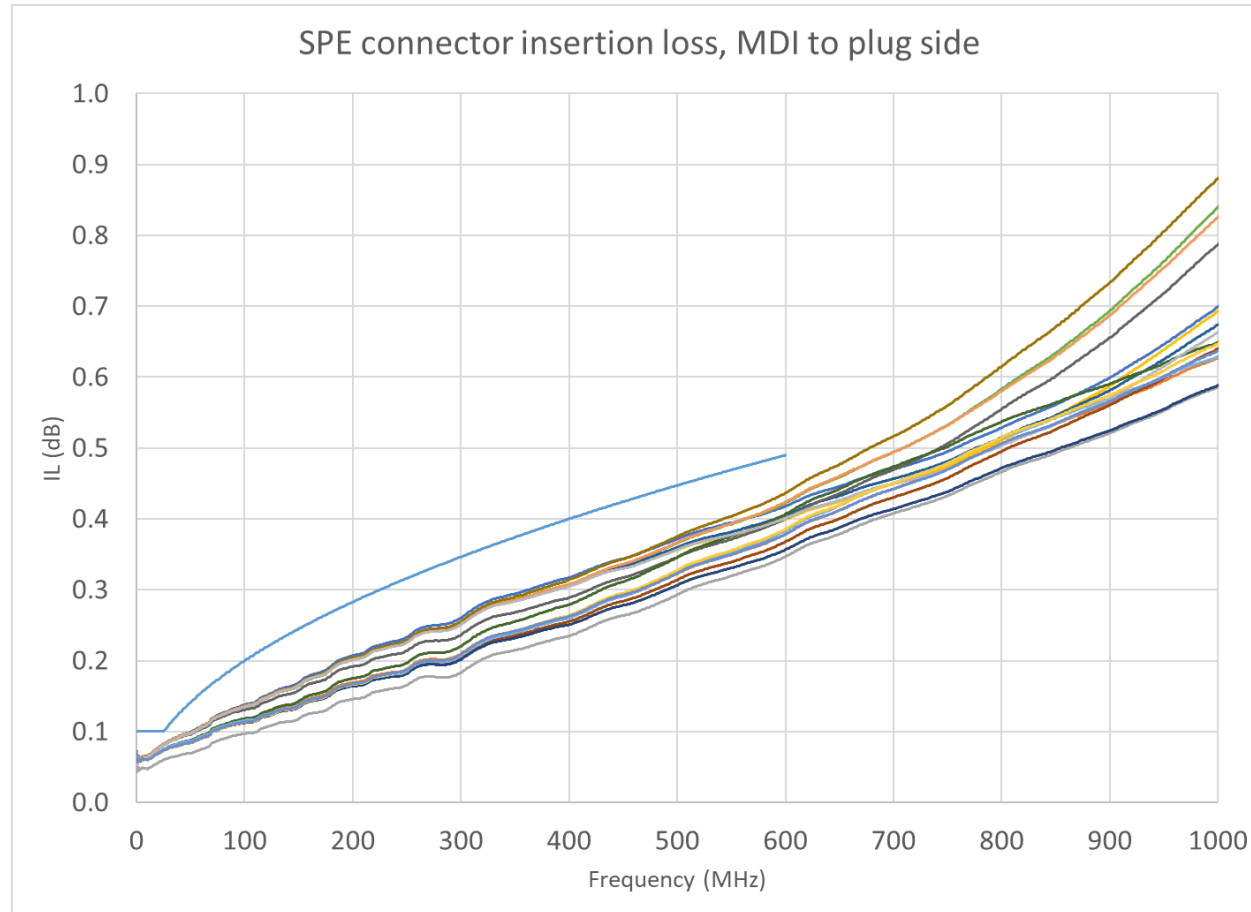
Network analyzer settings

- Network analyzer: Keysight E5071C
- IF BW: 200 Hz
- Sweep type: Segment
 - 300 kHz – 900 kHz, 7 points
 - 1 MHz – 1 001 MHz, 1 001 points
- Power level: 10 dBm
- ECAL was used for calibration
- Note: The particular network analyzer used has a start frequency of 300 kHz which is greater than the 100 kHz minimum frequency of the draft standard. The connectors are expected to meet the requirements below 300 kHz.

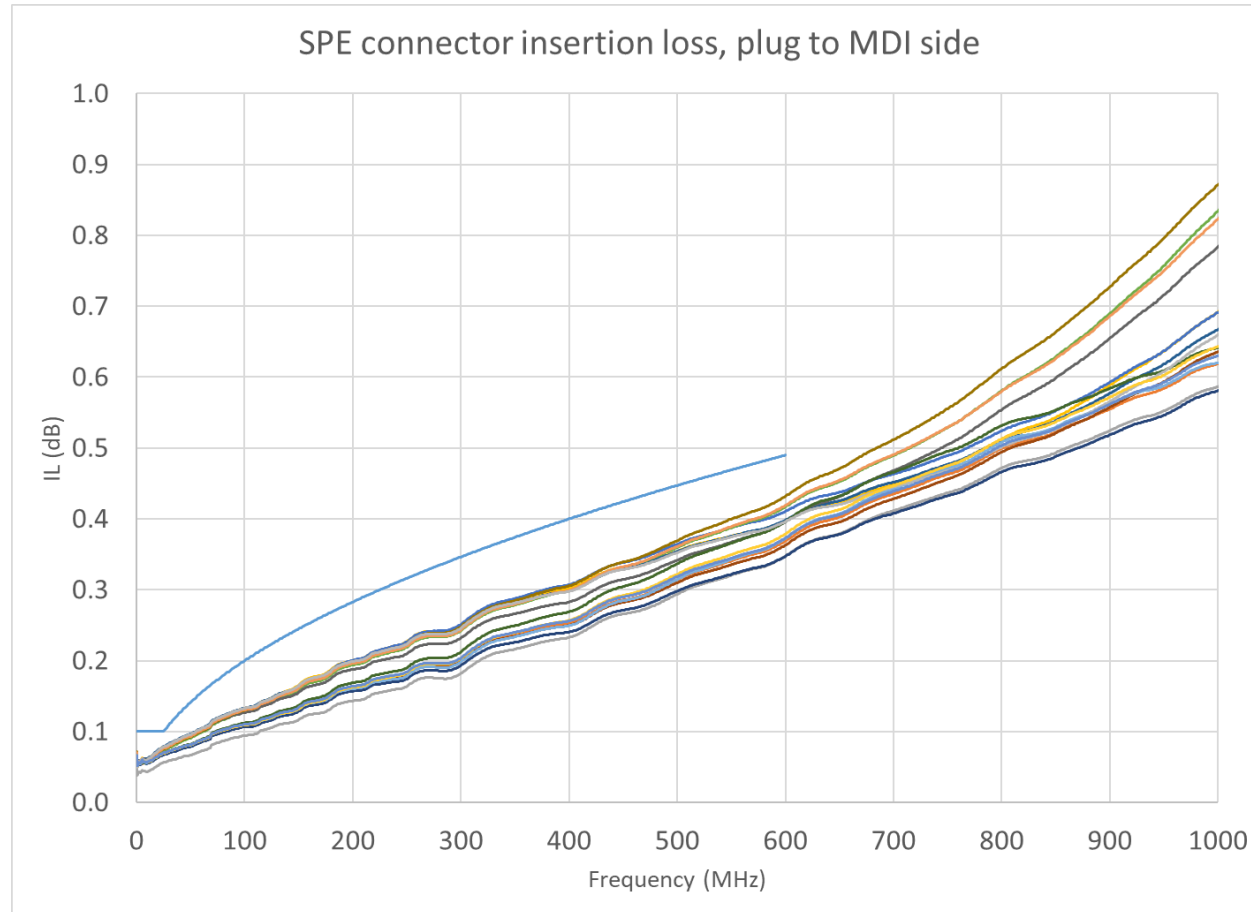
Test results

- The test results are presented in the following eight (8) slides (4 parameters * 2 directions).
- For each parameters, all sixteen (16) test results are superposed.
- The test results are not identified as to which manufacturer combination they belong to.

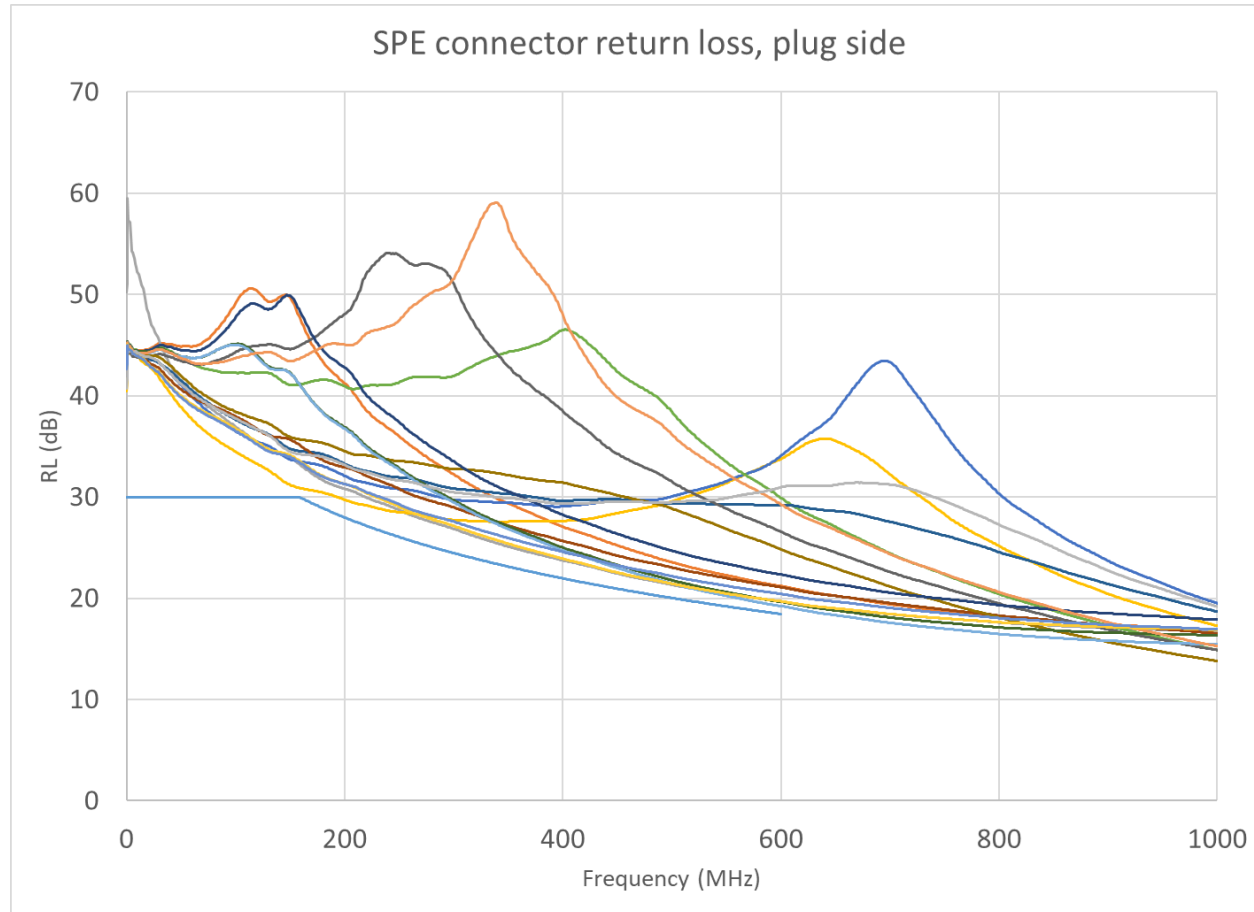
Test results (1/8)



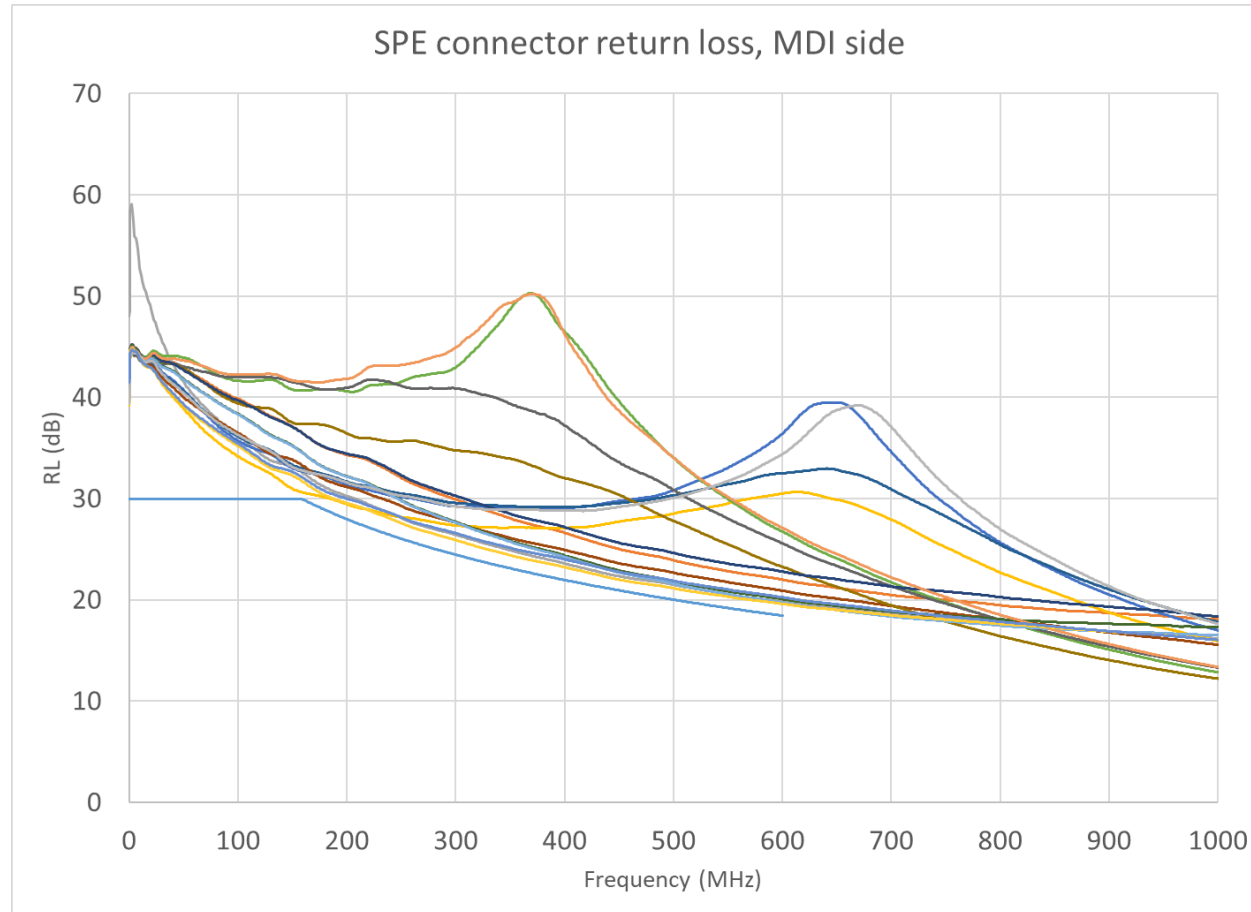
Test results (2/8)



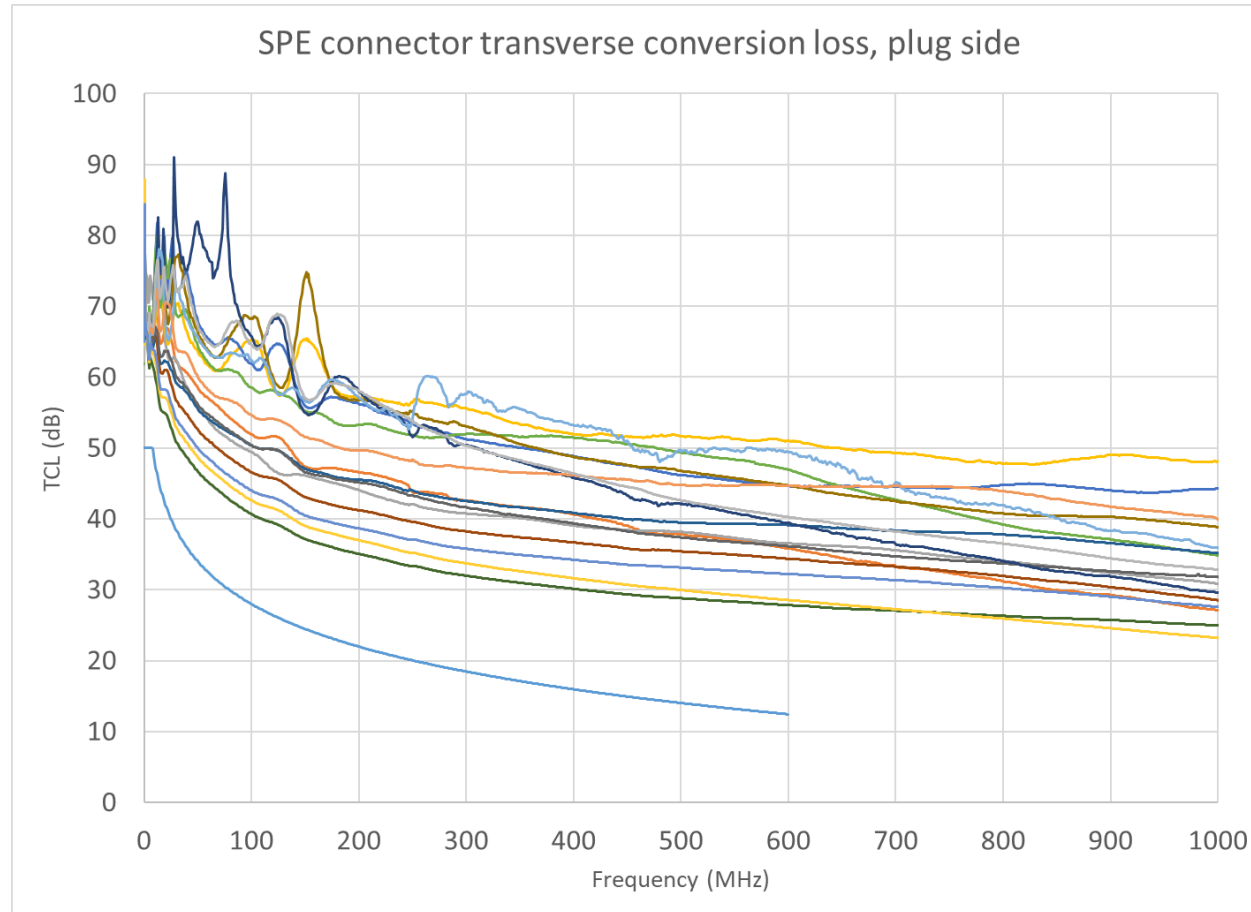
Test results (3/8)



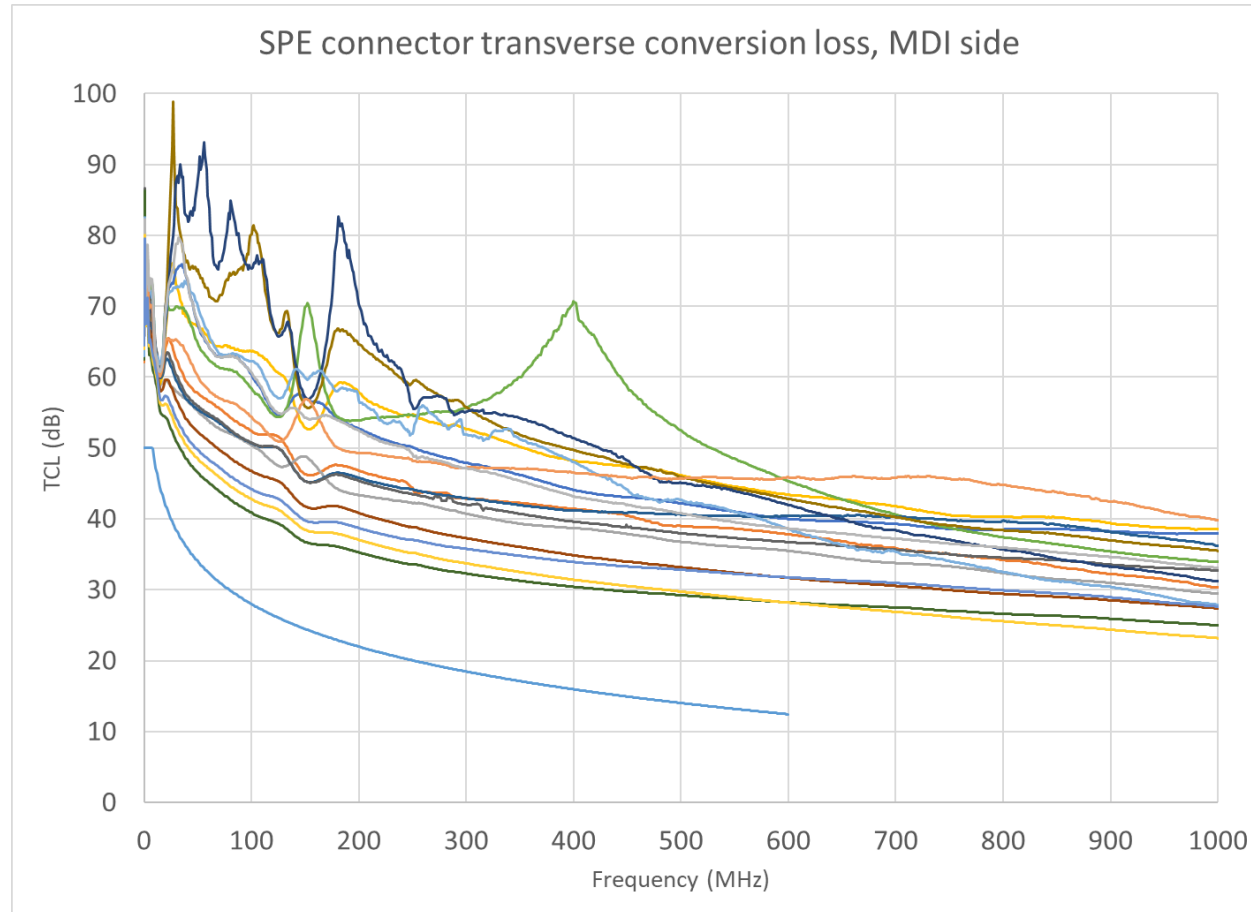
Test results (4/8)



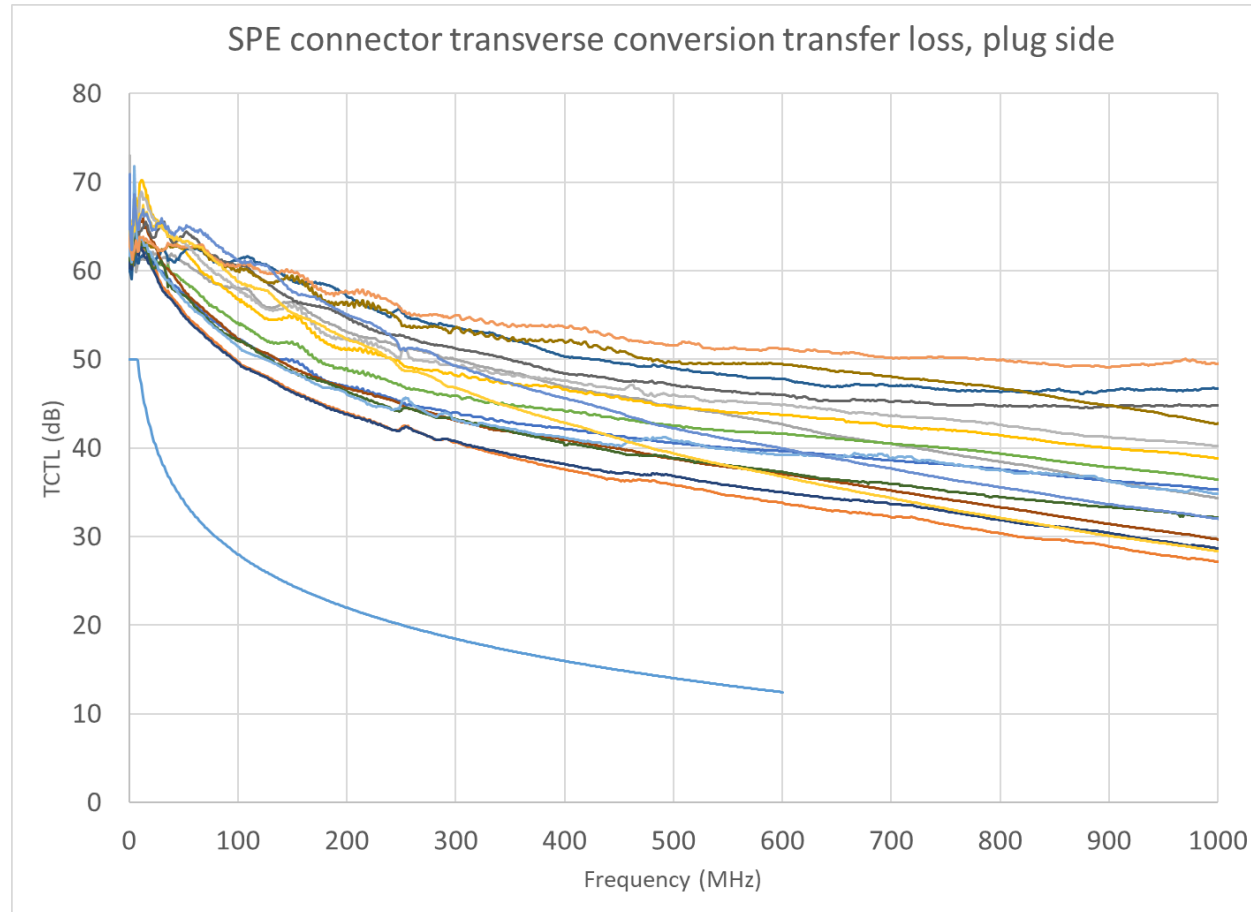
Test results (5/8)



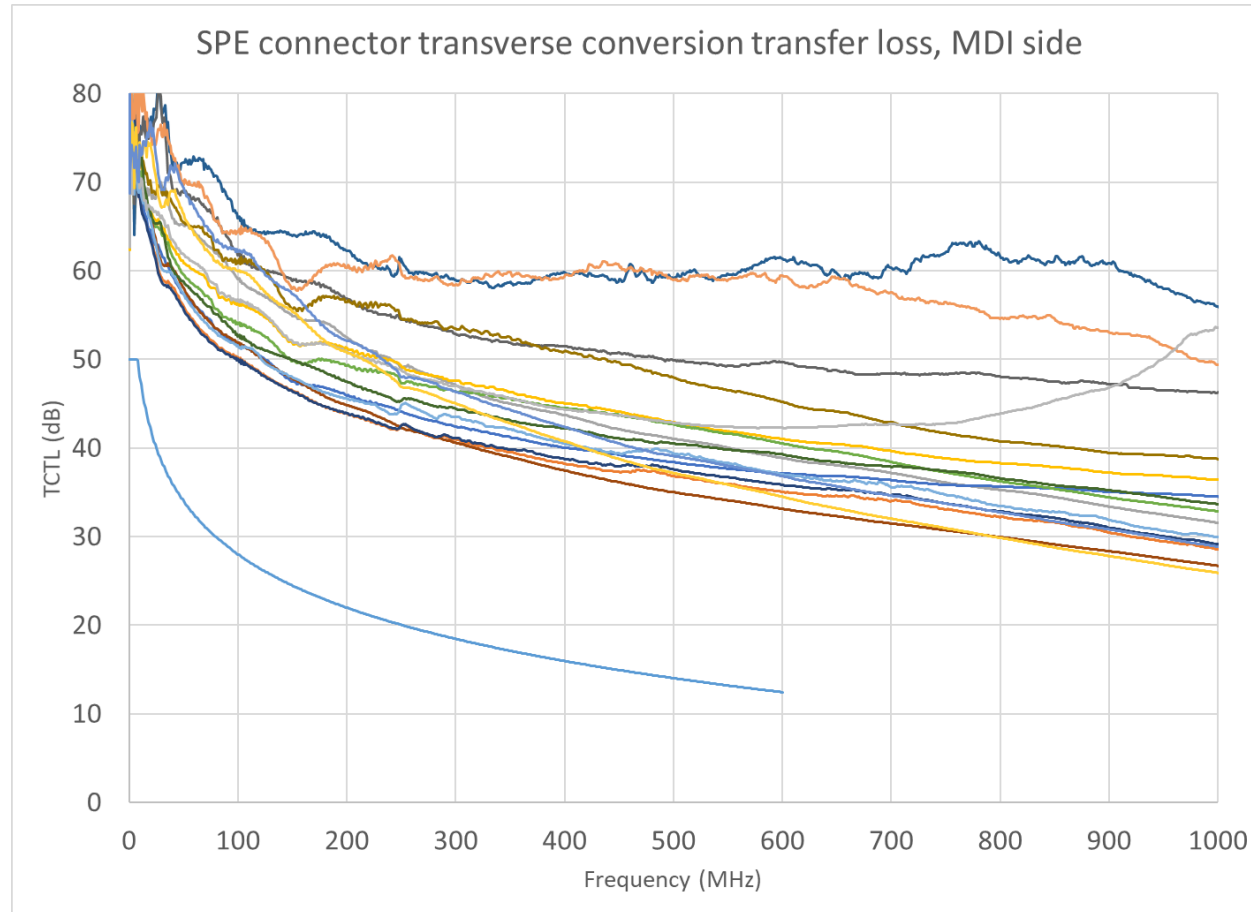
Test results (6/8)



Test results (7/8)



Test results (8/8)



Conclusion

- Two (2) different manufacturers made compliant copper LC connectors.
- The IEC 63171-1 limits for IL, RL, TCL and TCTL are met when plugs and jacks from the two (2) manufacturers are interchanged.