

ZNB8 vs AEM Test

RF Measurements

Measurement Setup



Vector Network Analyzer

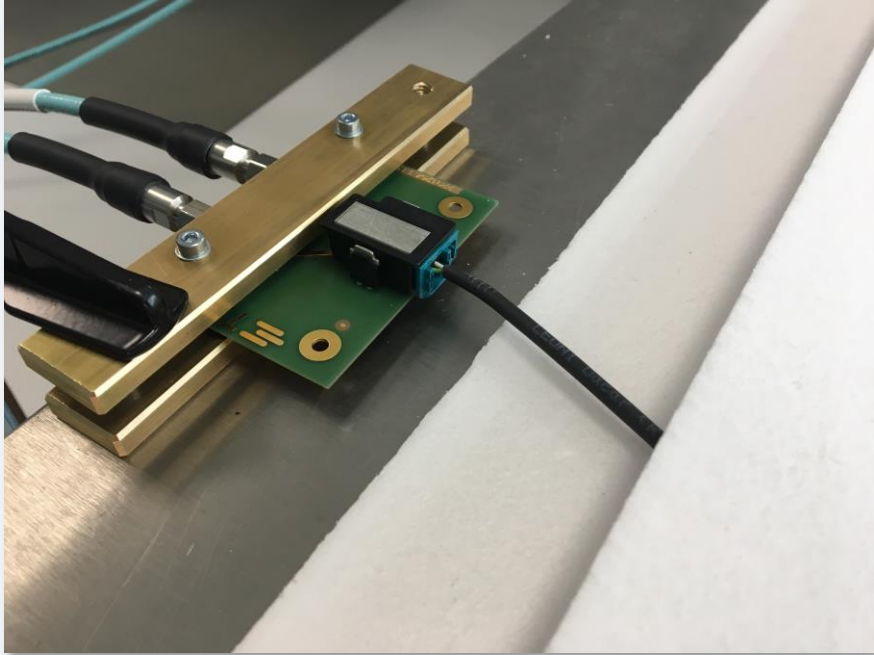
- › Rohde & Schwarz ZNB8
- › 4port Vector Network Analyzer
- › 9kHz-8.5GHz
- › New frontend for 1000Base-T1 LCL accuracy



MMVNA

- › AEM Test
- › Portable 8-port VNA
- › 125kHz-3GHz

Measurement Setup



RF test fixture

- › TE MATEnet 1port

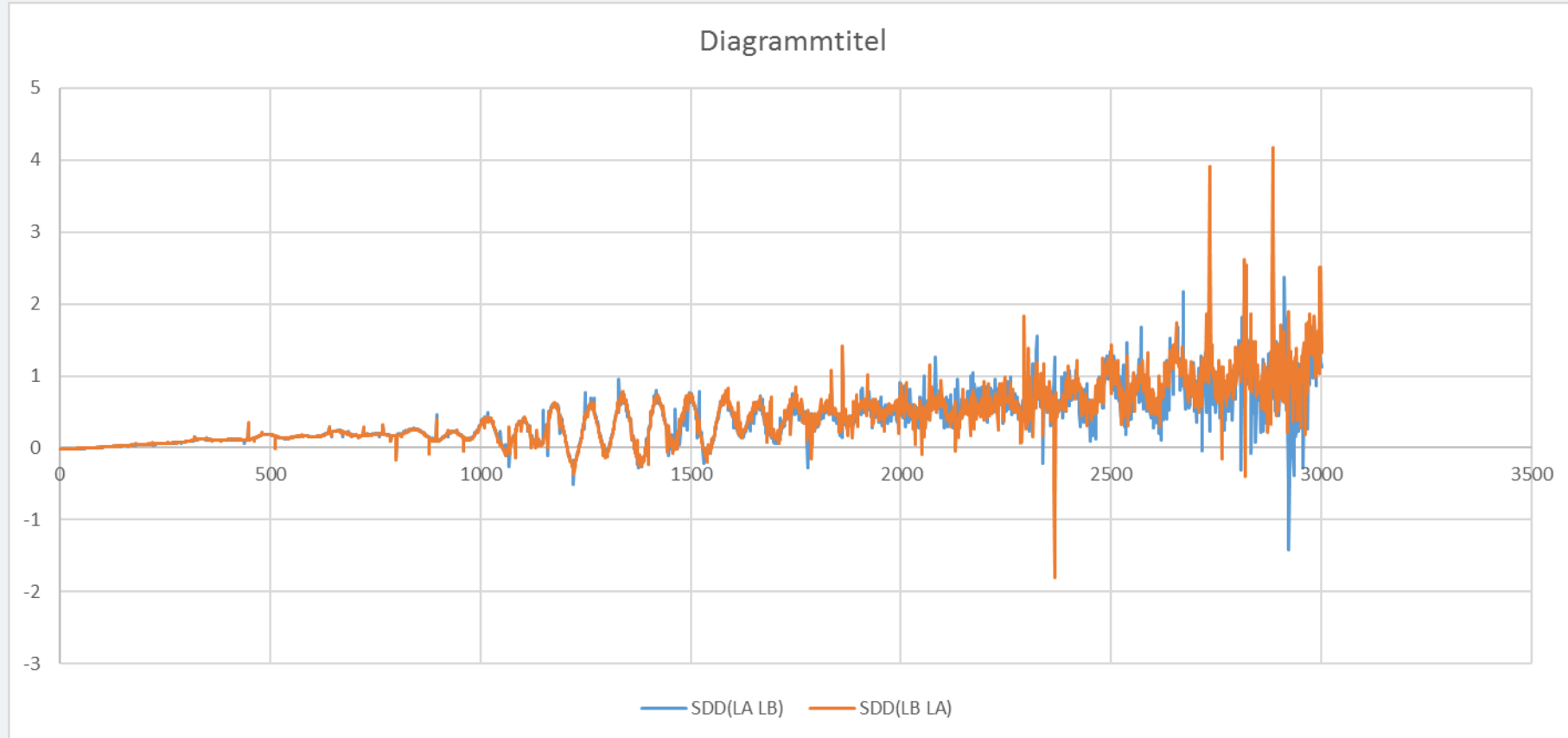


Test setup

- › According to OPEN Alliance TC2*

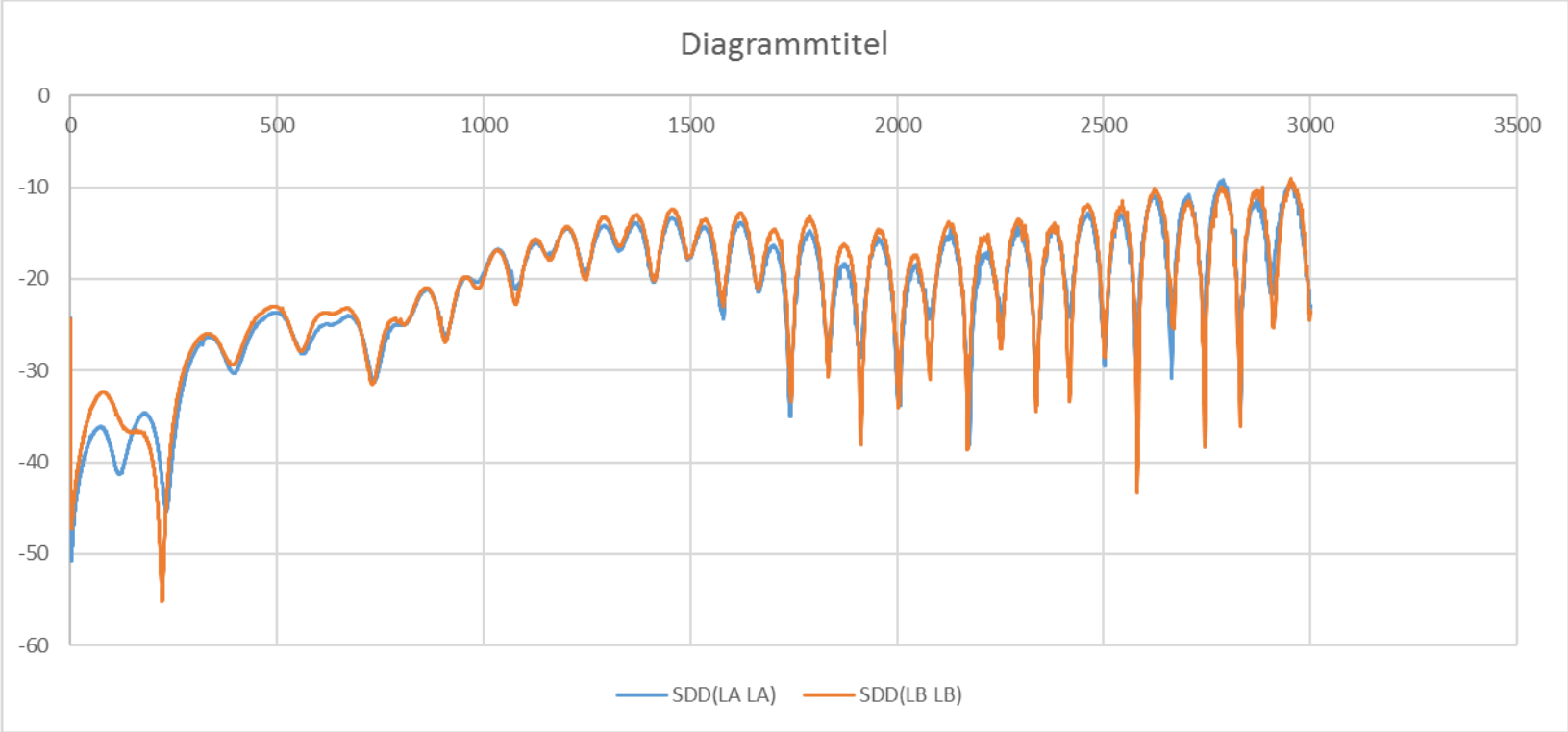
AEM Test

Calibration Insertion Loss THRU LA-LB



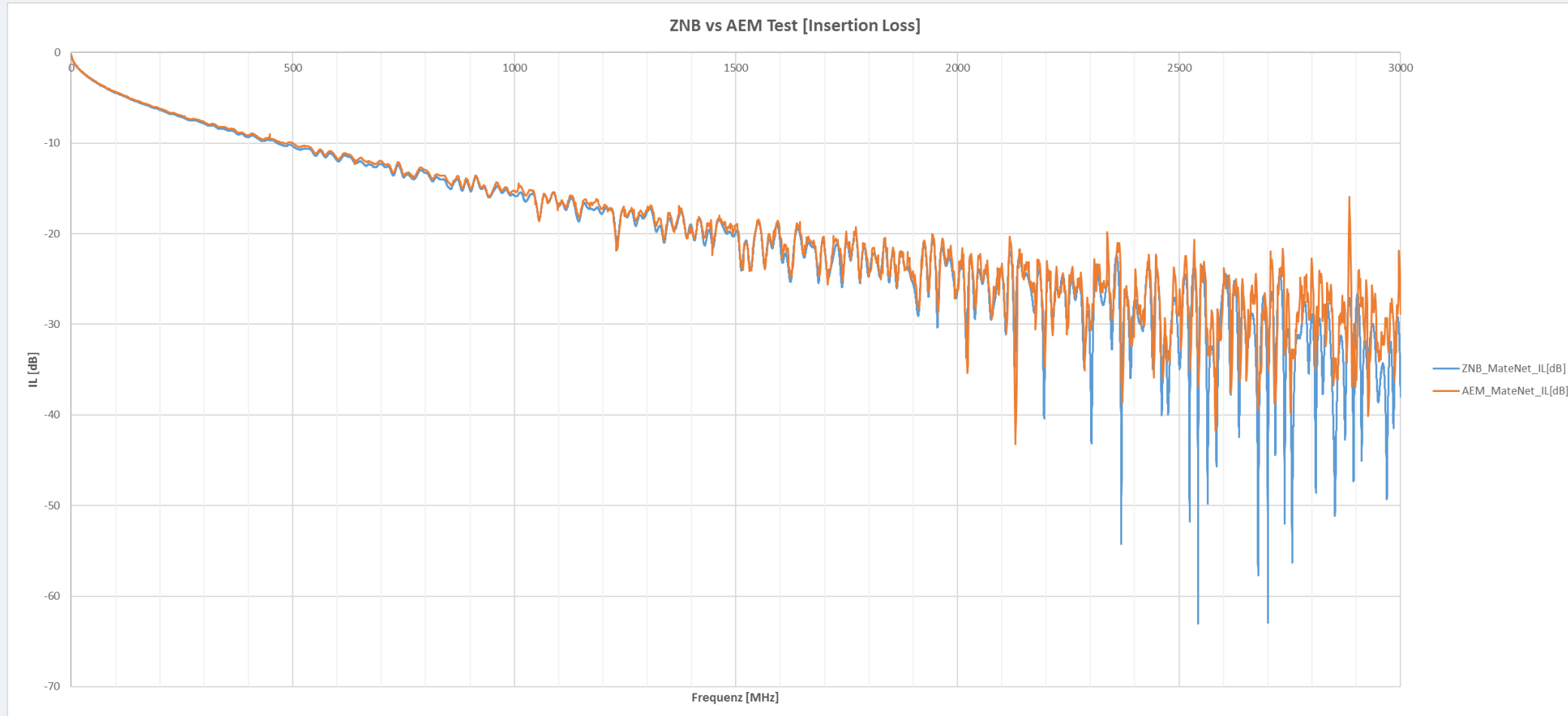
AEM Test

Calibration MATCHED Return Loss



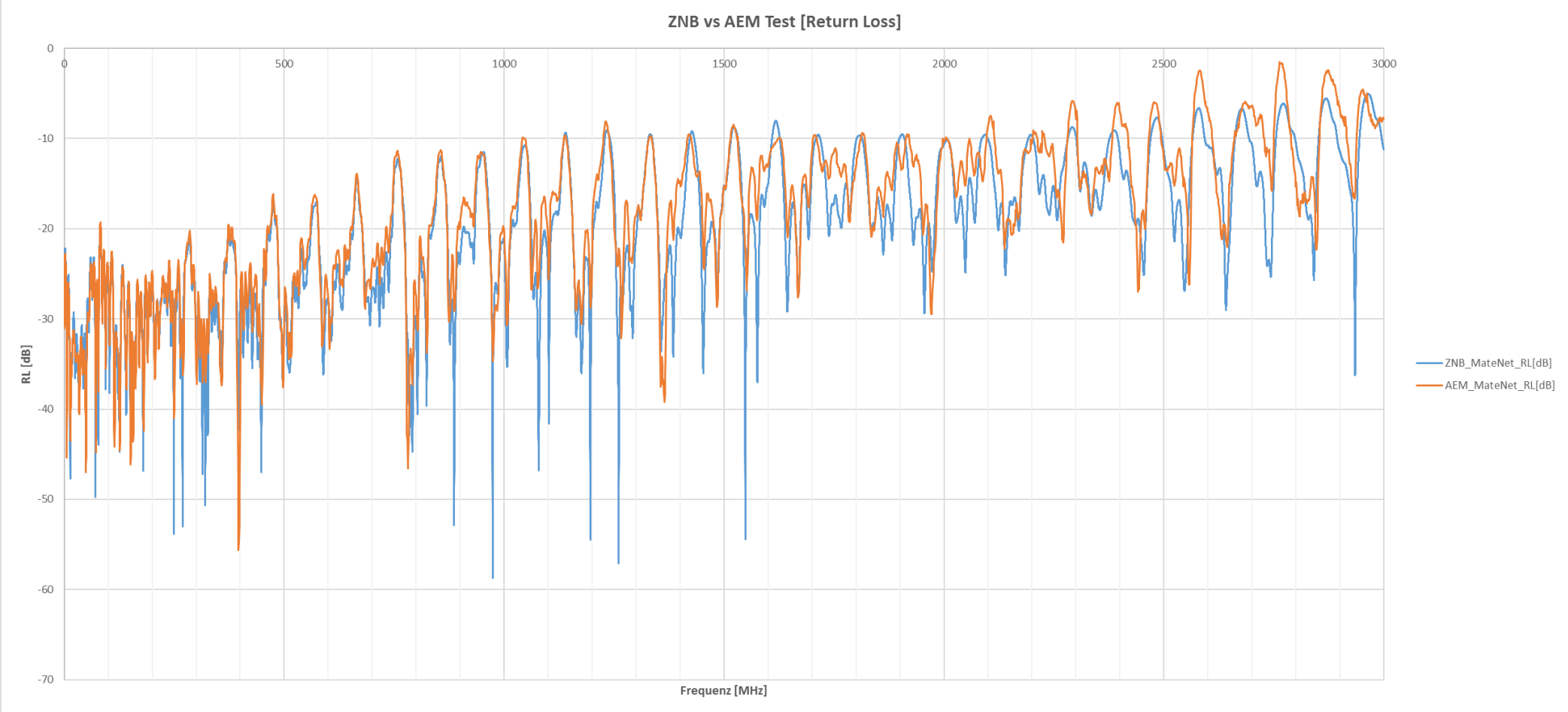
ZNB vs AEM test

Insertion Loss – Sdd21



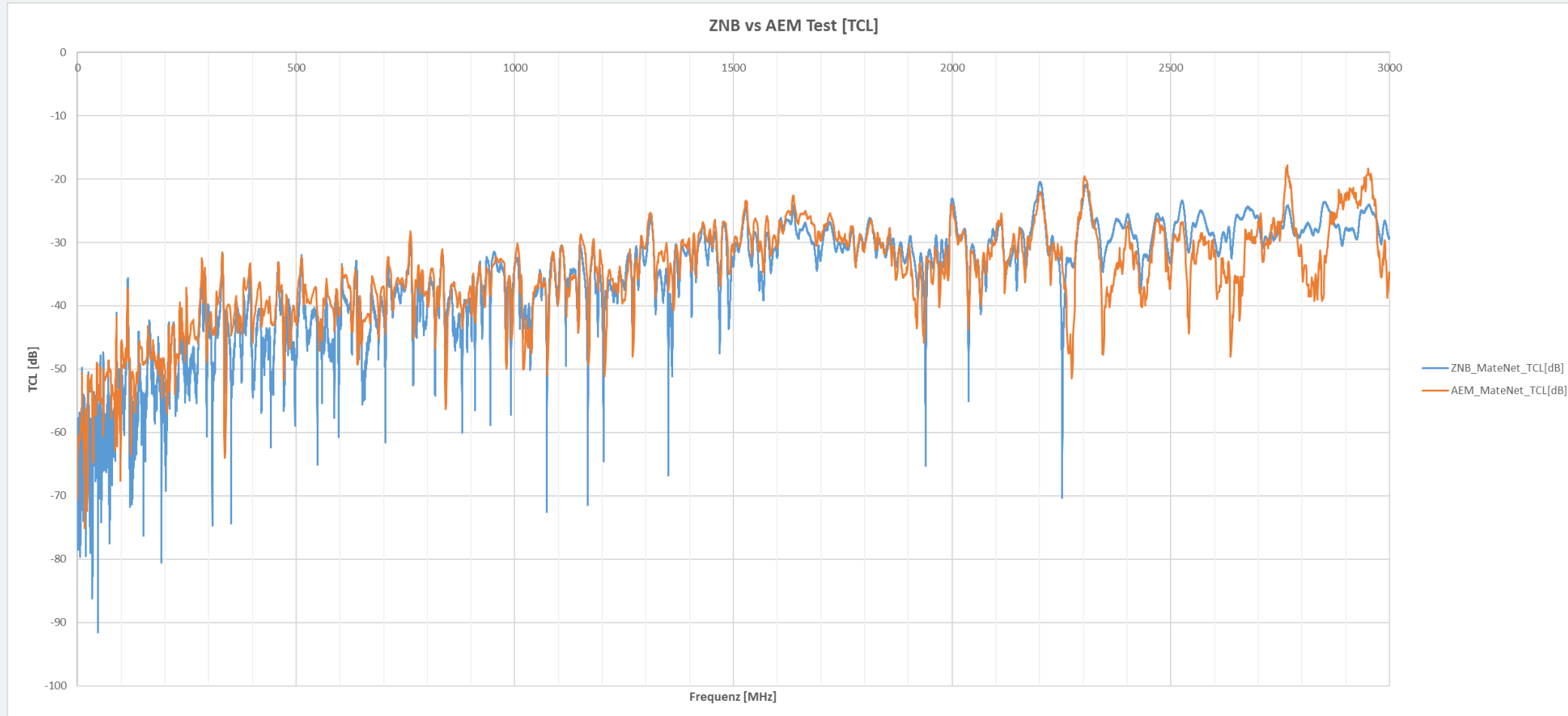
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Return Loss – Sdd11



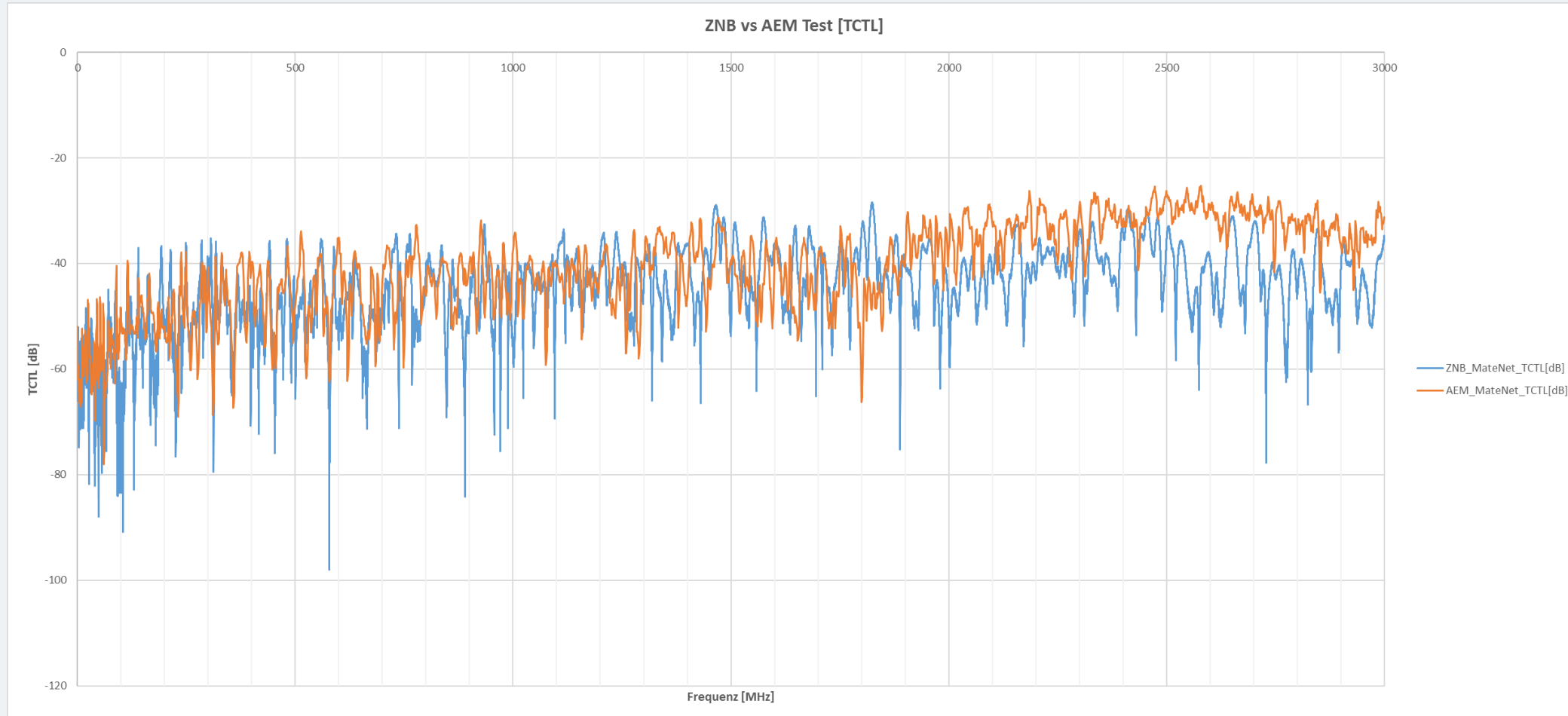
ZNB vs AEM test

TCL- Scd11



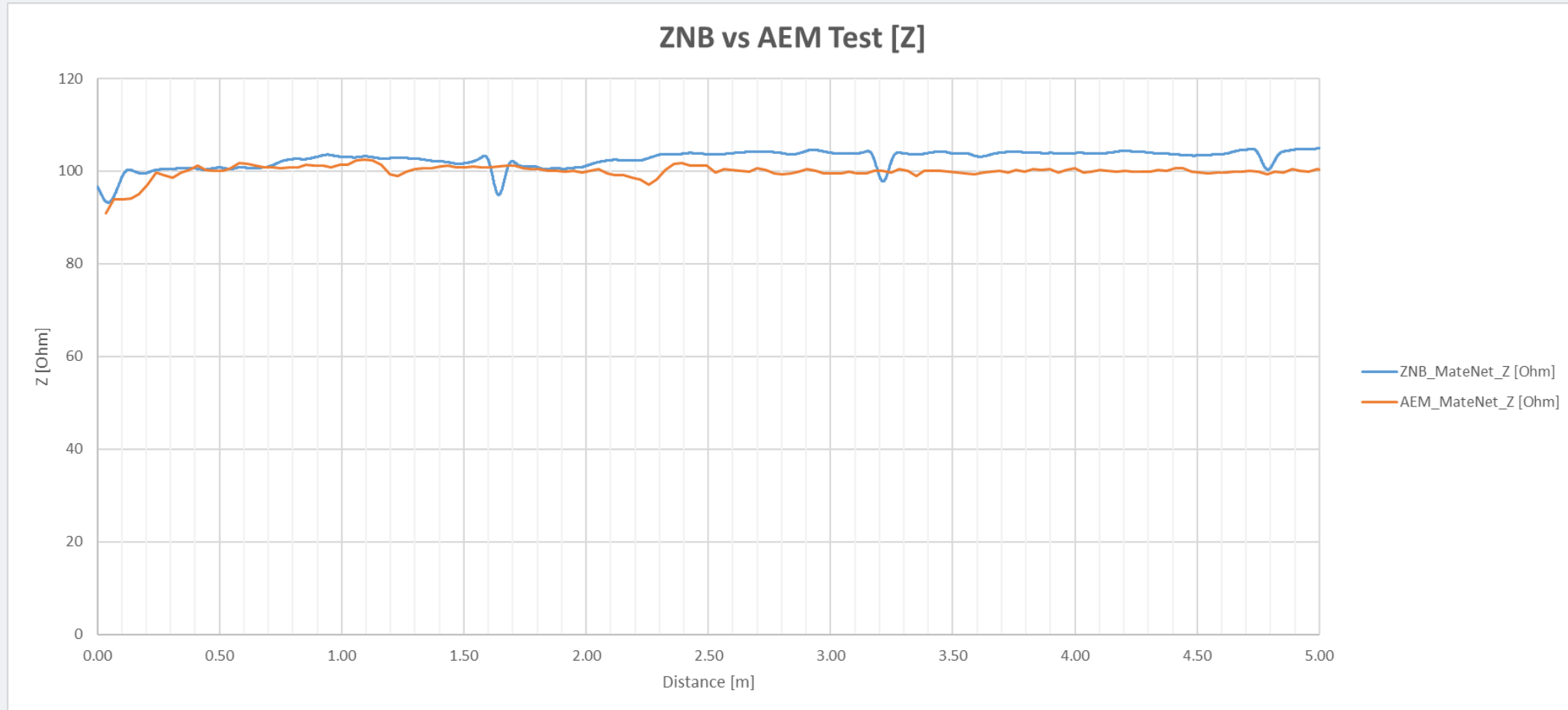
ZNB vs AEM test

TCTL- Scd21



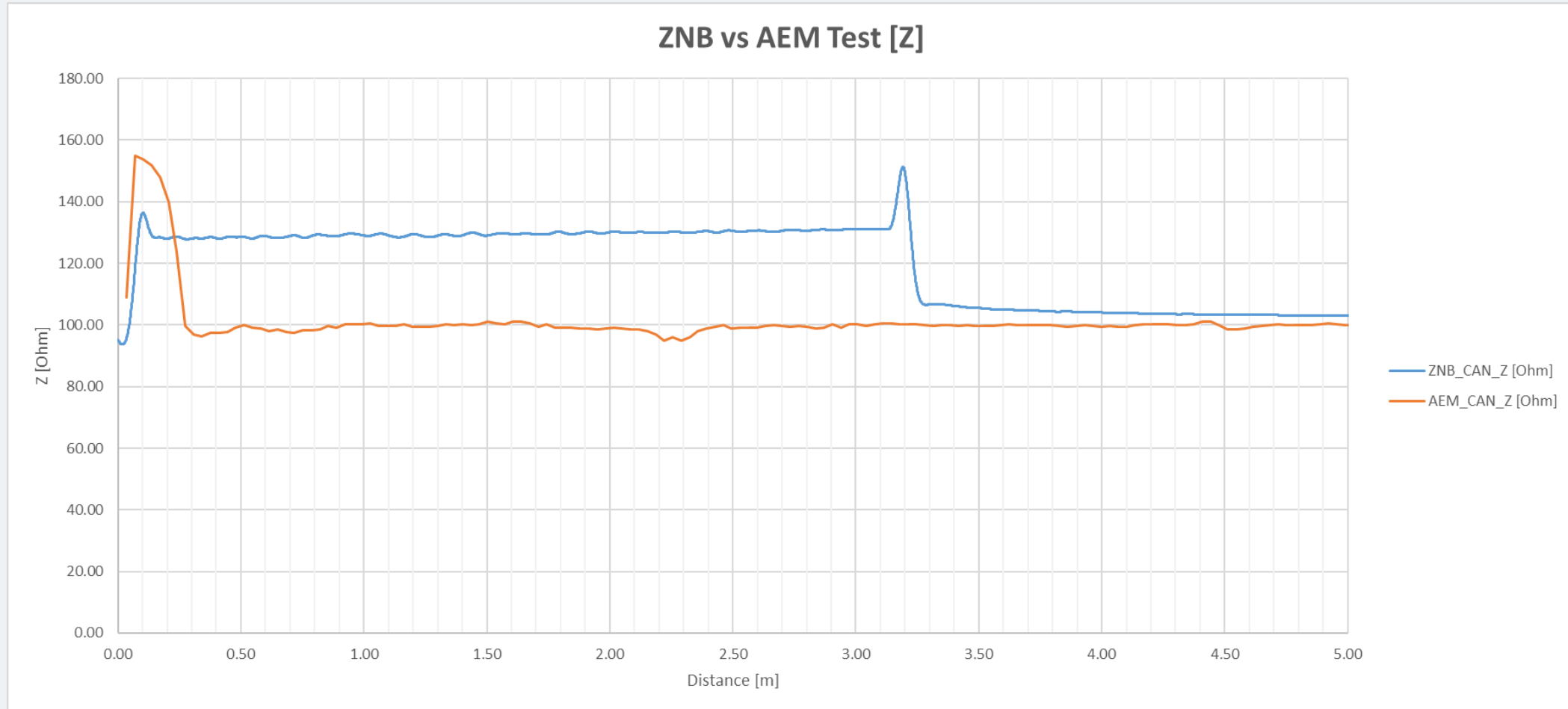
ZNB vs AEM test

Characteristic Impedance – Z (Ethernet Cable)



ZNB vs AEM test

Characteristic Impedance – Z (CAN Cable)



Summary

Results

- › Usecase: Test Automotive Ethernet cable assemblies (un-shielded twisted pairs)
- › Verification of AEM test calibration: Insertion loss of THRU (LA-LB) is not 0dB due to PCB traces on calibration kit PCBs
- › Measurement results very accurate compared to Rhode&Schwarz ZNB8 VNA
- › AEM TDR not representative