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# MTF Data using Two of the Latest OSFP 1.6T Connectors 802.3dj Annex 179B

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Wilder Technologies

# Intent

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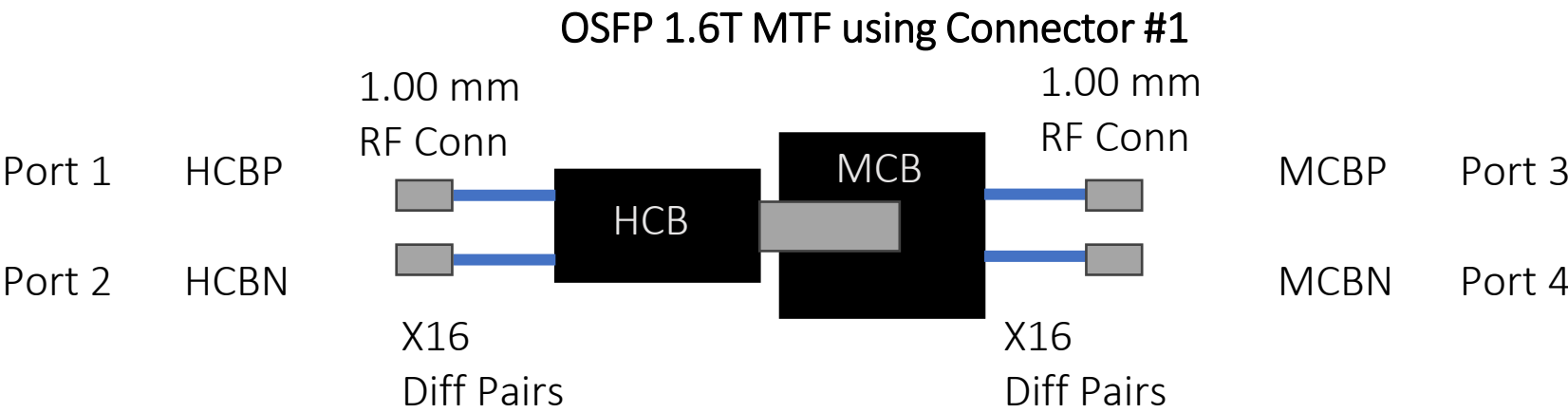
- The purpose of this presentation is to share two sets of mated test fixture (MTF) data that use OSFP 1.6T connectors from two different vendors. The data currently available is only through measurements.

# Mated Test Fixture (MTF) Setup

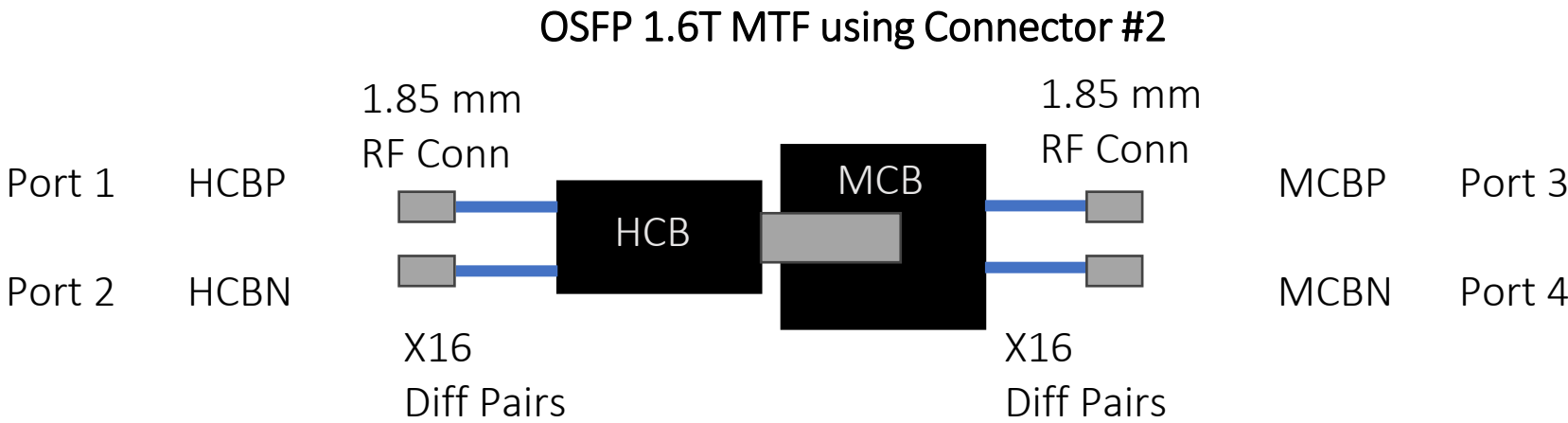
Only Wilder Technologies test fixtures are used.

## VNA Information:

Keysight 110 GHz VNA using Port Extenders, 1.00 mm cable (300 mm)  
IFBW = 1 kHz  
Frequency Start: 10 MHz  
Frequency Stop: 110 GHz  
Frequency Step: 10 MHz



Keysight 110 GHz VNA using Port Extenders, 1.85 mm adapters and Cable (900 mm)  
IFBW = 1 kHz  
Frequency Start: 10 MHz  
Frequency Stop: 67 GHz  
Frequency Step: 10 MHz



# MTF Files in Data Package

MTF using Connector #1

QTY 16 MTF files measured to 110 GHz

QTY 16 MTF files truncated to 67 GHz

MTF using Connector #2

QTY 16 MTF files measured out to 67 GHz

OSFP1p6T\_Mated\_File\_HCB-WT32954\_MCB-OCONN1\_RX1.s4p

Form Factor

Config

HCB Name

MCB Name

Diff Pair

4-port  
touchstone  
format

File Header

```
!Wilder-Technologies
!FILE: OSFP1p6T_Mated_File_HCB-WT32954_MCB-OCONN1_RX1.s4p
!OSFP1p6T HCB/MCB
!Port1=HCB Coax Connector P
!Port2=HCB Coax Connector N
!Port3=MCB Coax Connector P
!Port4=MCB Coax Connector N
# MHz S RI R 50.00
```

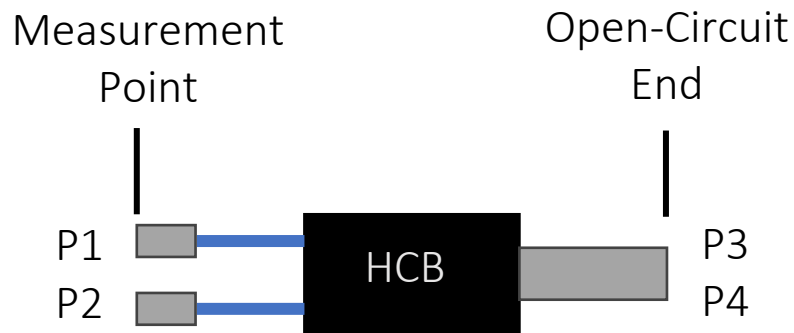
All touchstone files are not renormalized and remain at 50-ohm port impedance.

All plots are renormalized to 46.25-ohm port impedance.

# Characterization Files in Data Package

## OSFP 1.6T HCB

QTY 16 1x Through Characterization File, HCB from MTF Conn #1  
QTY 16 1x Through Characterization File, HCB from MTF Conn #2

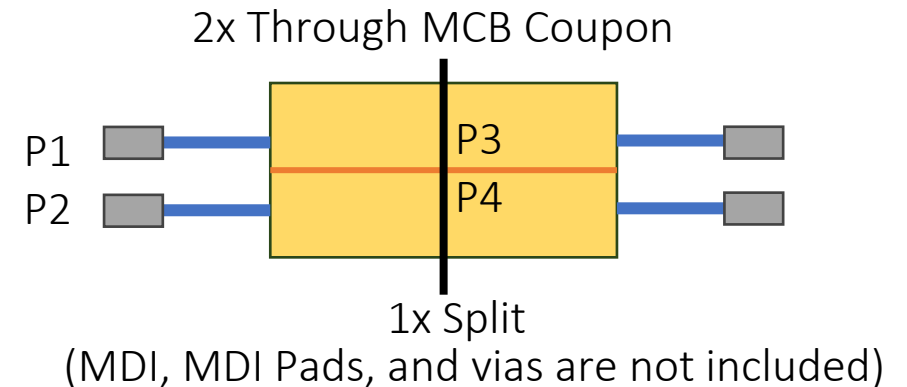


The 1x through characterization files are extracted from the exact HCB used in the mated measurement. 1x throughs are generated from the open-circuit measurement of each differential pair. The edge card fingers are included.

**Average Differential Insertion Loss (53.125 GHz) = 3.59 dB**

## OSFP 1.6T MCB

QTY 1 1x Through Characterization File



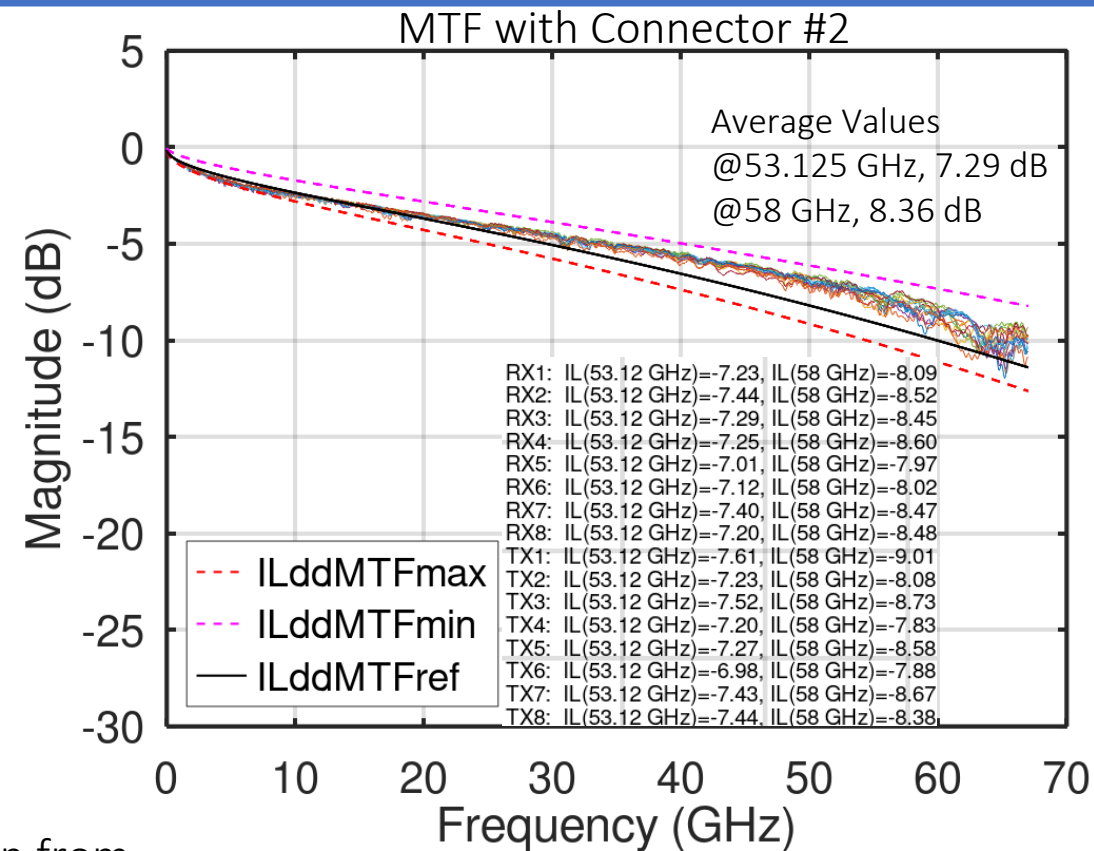
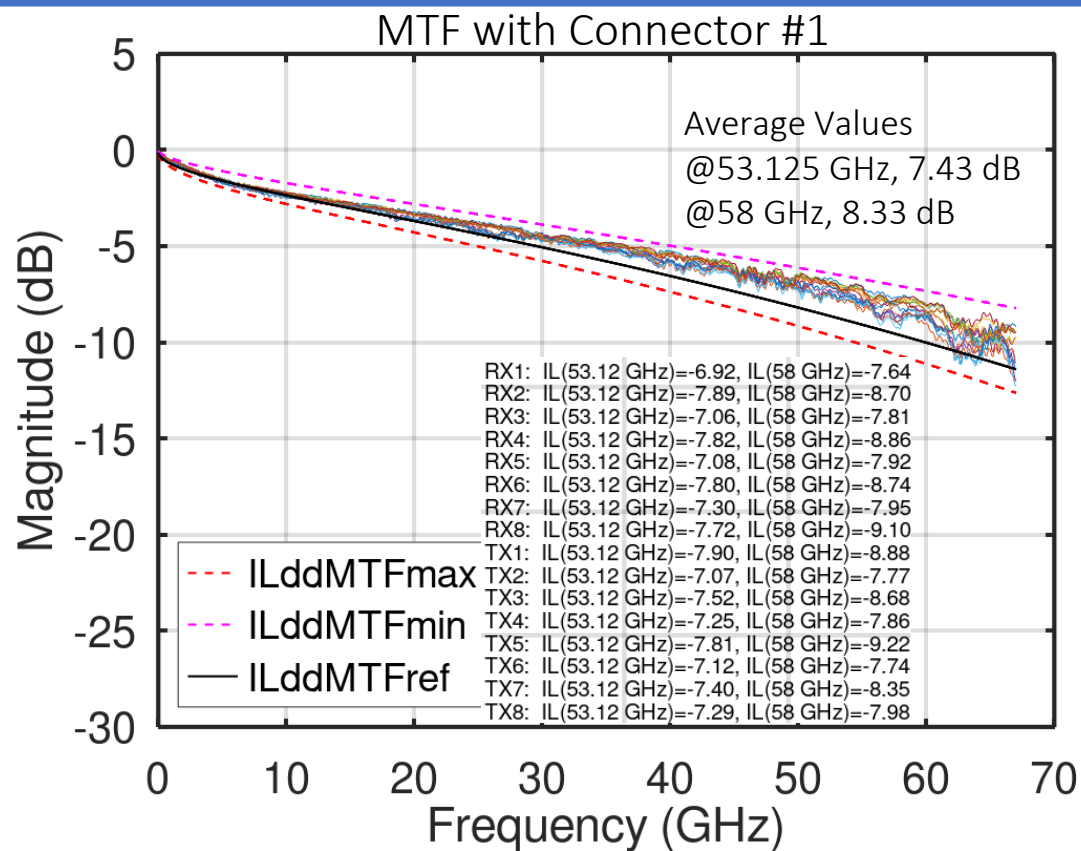
The 1x through characterization file is extracted from a 2x through MCB coupon measurement. It is not extracted from the exact MCB in the MTF measurement, but it is a representation of it.

**Differential Insertion Loss (53.125 GHz) = 2.64 dB**

# Mated Test Fixture (MTF) ILdd

110 GHz data is truncated for specification comparison and calculation. Full 110 GHz data available in data package.

## Limits from IEEE P802.3dj™/D2.3



	Frequency (GHz)			
	8.69	26.51	57.92	67
Margin from Max	0.15	0.49	1.41	0.35
Margin from Min	0.49	0.43	0.56	0.93

Margin from  
limit lines at  
points along the  
bandwidth

	Frequency (GHz)			
	4.49	27.04	55.46	65.18
Margin from Max	-0.17	0.7	1.48	0.27
Margin from Min	0.66	0.62	0.7	1.27

# MTF ERL and FOMILD

MTF with Connector #1

	ERL11	ERL22	ERL11tfx	ERL22tfx	FOMILD
RX1	13.506	12.841	14.675	14.054	0.055
RX2	12.694	12.013	13.829	12.845	0.07
RX3	13.773	13.315	14.88	14.642	0.05
RX4	13.183	12.385	14.204	13.363	0.069
RX5	13.74	13.331	15.045	14.549	0.053
RX6	12.164	11.711	13.069	12.479	0.072
RX7	13.183	12.891	14.704	14.014	0.059
RX8	12.374	11.965	13.355	12.853	0.075
TX1	11.979	11.47	12.86	12.342	0.071
TX2	13.392	12.735	14.54	13.953	0.063
TX3	12.167	11.542	12.91	12.396	0.08
TX4	13.432	12.627	14.61	13.837	0.06
TX5	12.709	11.697	13.601	12.509	0.078
TX6	13.243	12.338	14.343	13.506	0.059
TX7	12.324	11.681	13.303	12.571	0.078
TX8	13.576	12.762	14.614	13.647	0.063

	ERL	ERL tfx	FOMILD
Minimum	11.470	12.342	0.050
Maximum	13.773	15.045	0.080
Average	12.648	13.691	0.066

ERL Limit:  
9 dB

ERL tfx Limit:  
10.3 dB

FOMILD:  
15 dB

For columns  
labeled with tfx.  
tfx = 0.15 ns  
instead of 0 s

MTF with Connector #2

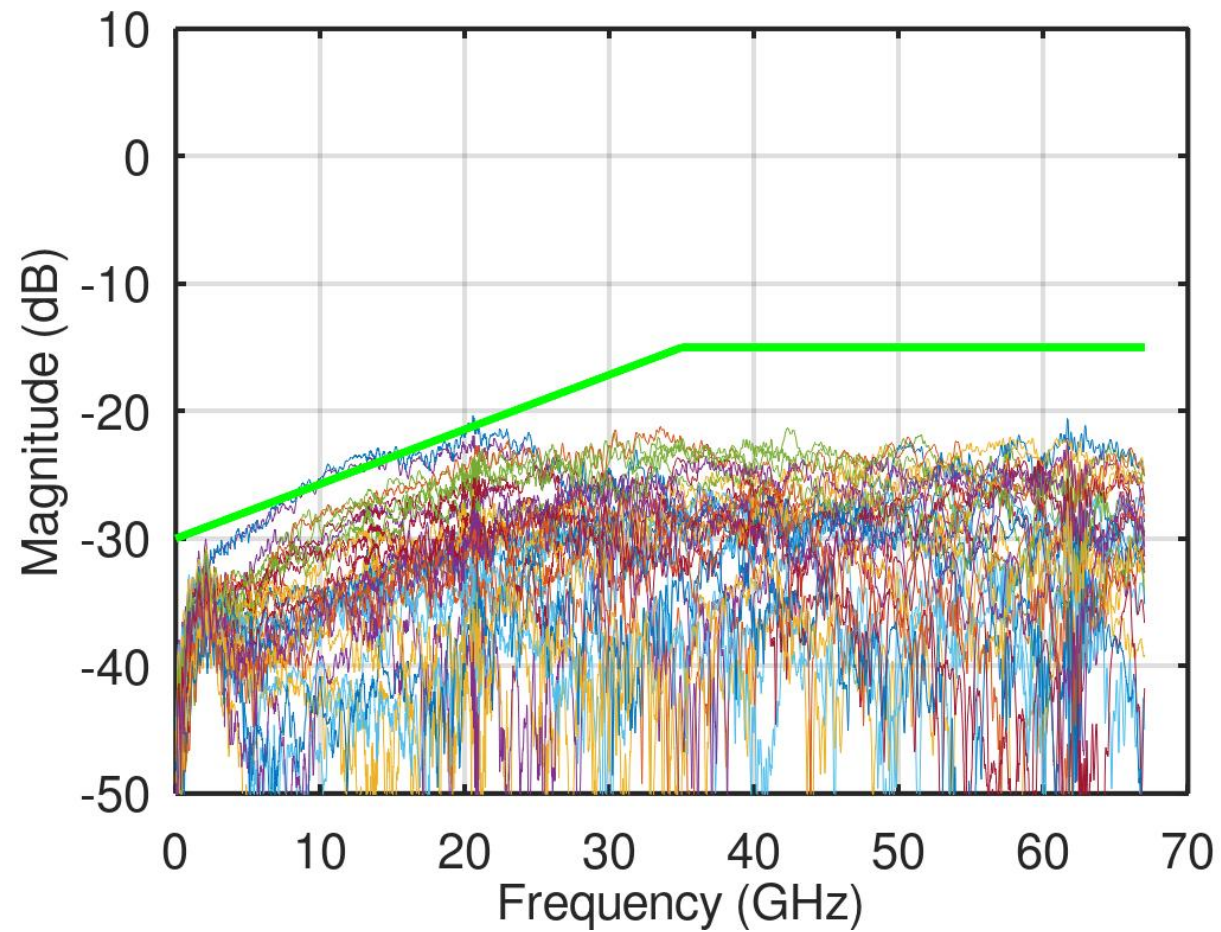
	ERL11	ERL22	ERL11tfx	ERL22tfx	FOMILD
RX1	13.283	12.937	15.289	14.393	0.057
RX2	12.86	12.436	15.224	13.74	0.061
RX3	12.899	12.498	15.011	13.681	0.054
RX4	13.424	13.026	15.89	14.741	0.057
RX5	13.144	12.872	15.274	14.293	0.053
RX6	13.191	12.754	15.447	14.357	0.054
RX7	12.66	12.066	14.68	13.335	0.056
RX8	12.72	11.839	14.375	13.14	0.063
TX1	11.515	11.069	12.887	12.174	0.083
TX2	12.891	12.178	14.582	13.676	0.062
TX3	11.754	11.493	13.42	12.735	0.071
TX4	12.234	11.876	14.128	13.295	0.067
TX5	12.425	11.869	14.239	13.227	0.065
TX6	12.27	12.16	14.416	13.556	0.058
TX7	12.185	11.644	13.945	12.929	0.08
TX8	12.01	11.107	13.601	12.171	0.076

	ERL	ERL tfx	FOMILD
Minimum	11.069	12.171	0.053
Maximum	13.424	15.890	0.083
Average	12.353	13.995	0.064

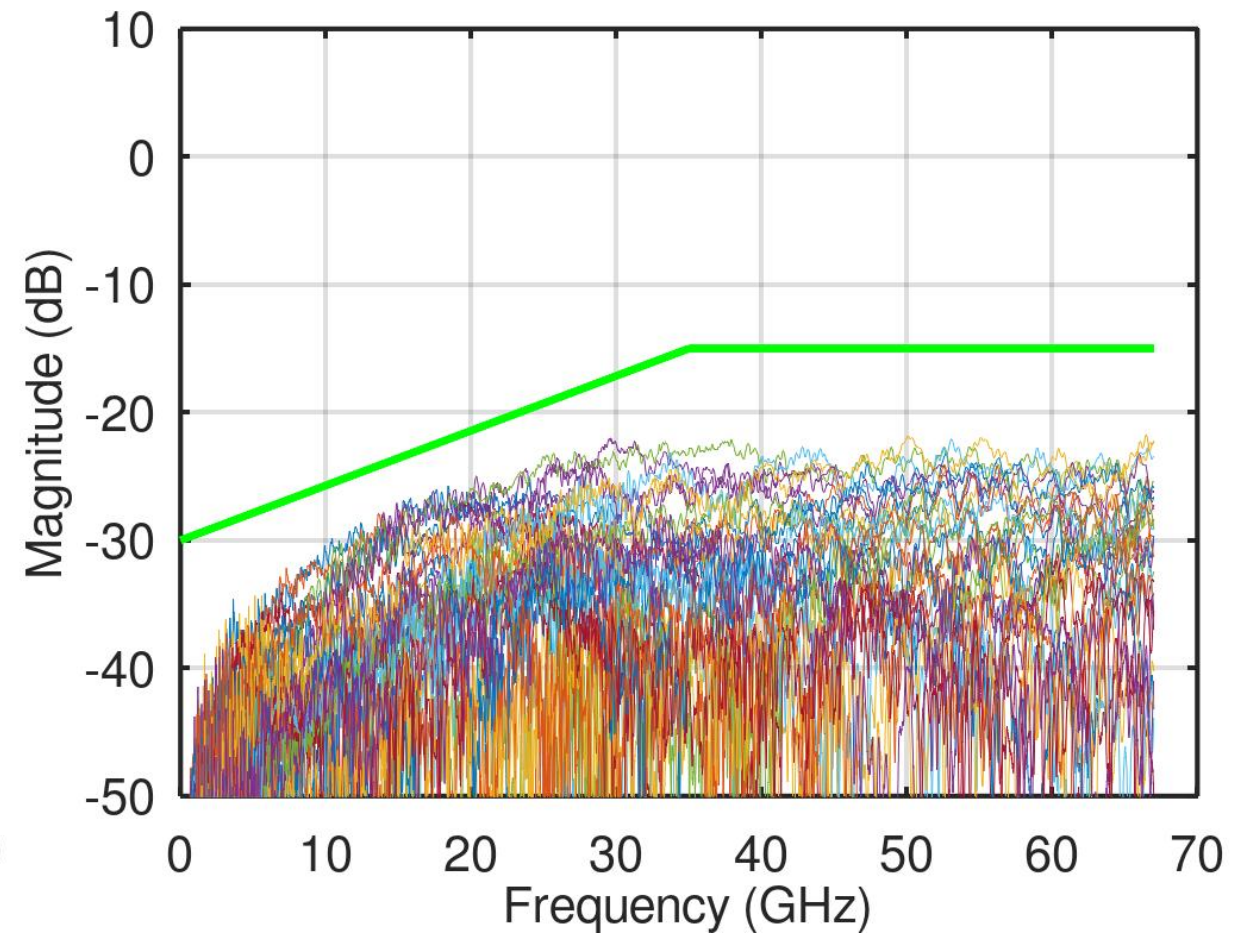


# MTF ILdc

MTF with Connector #1



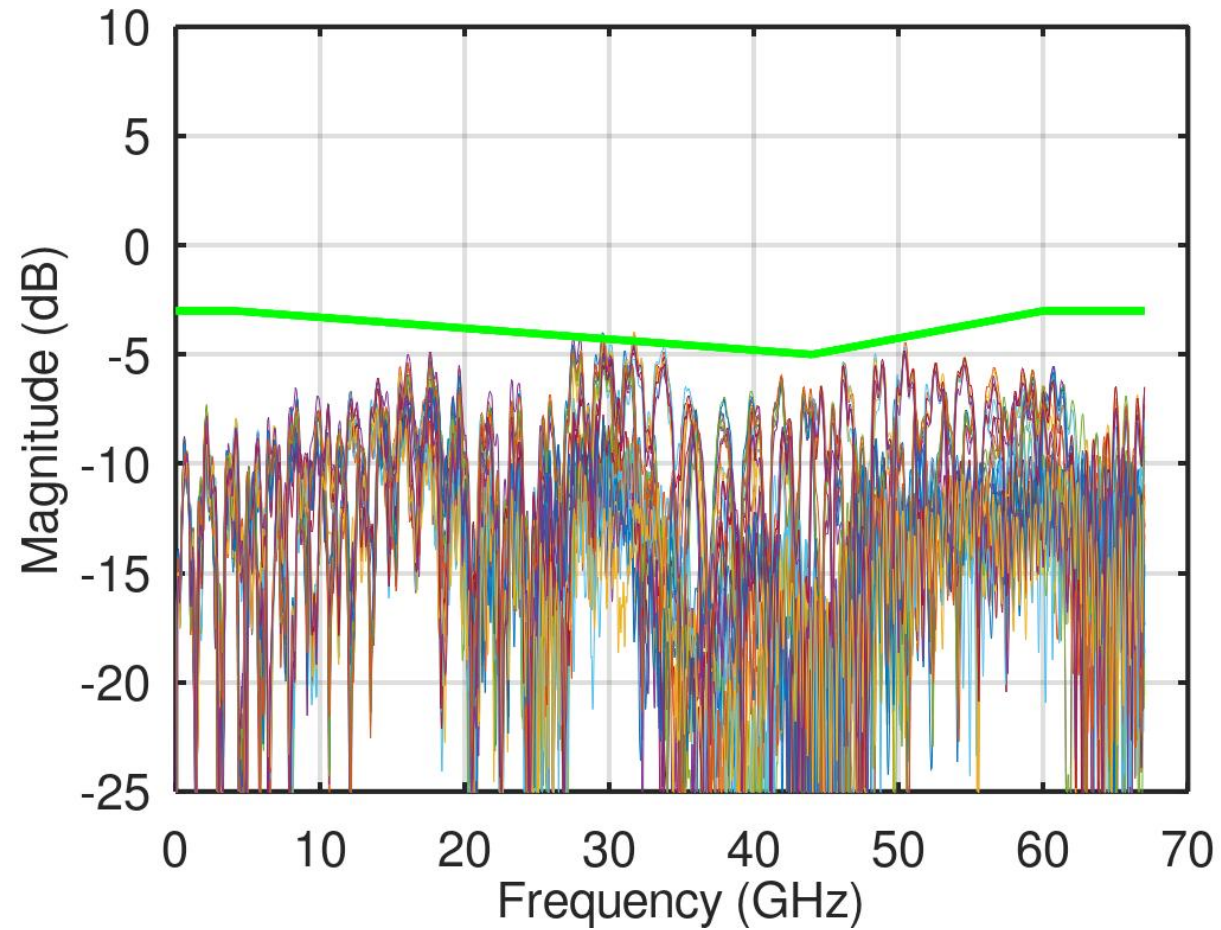
MTF with Connector #2



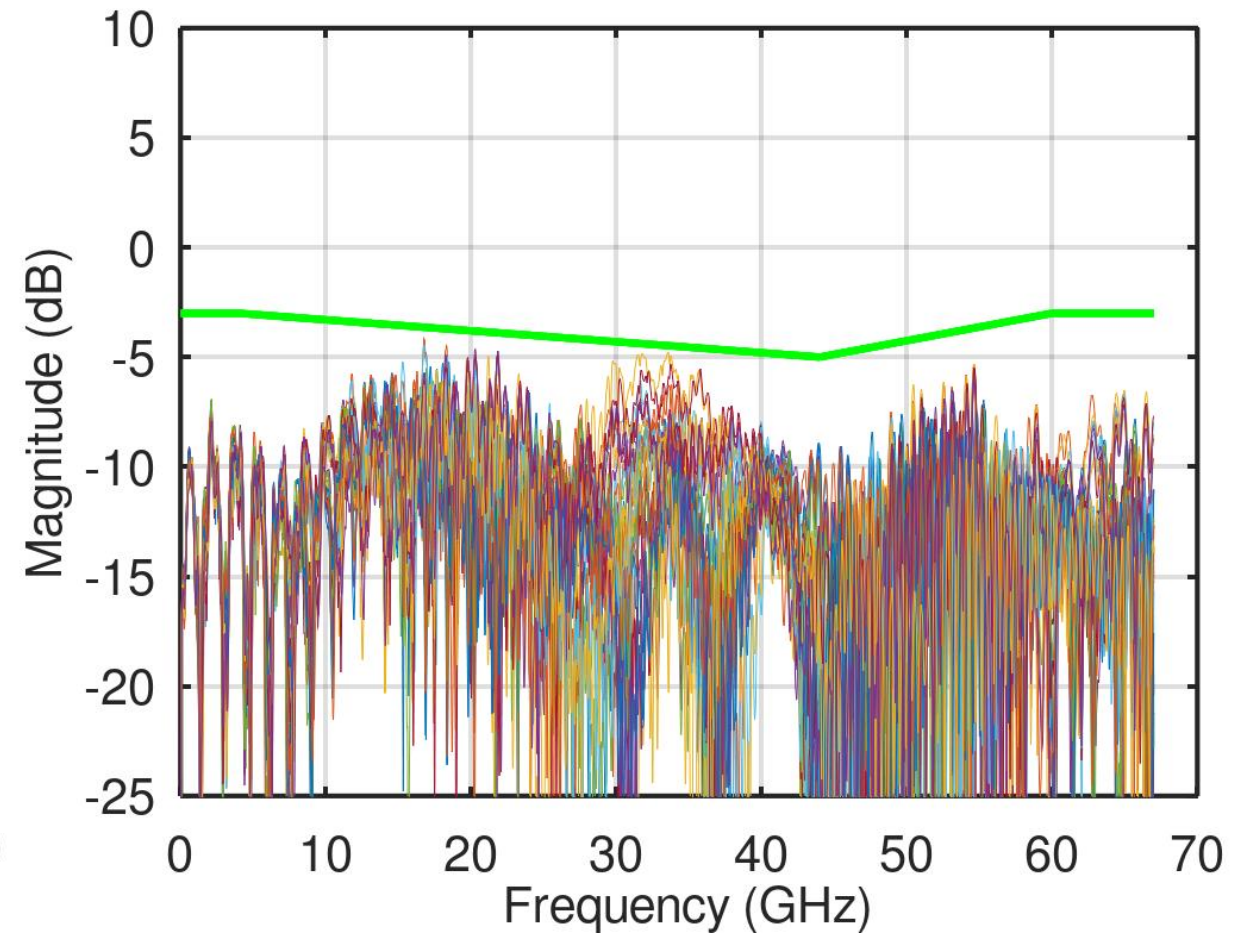


# MTF RLcc

MTF with Connector #1

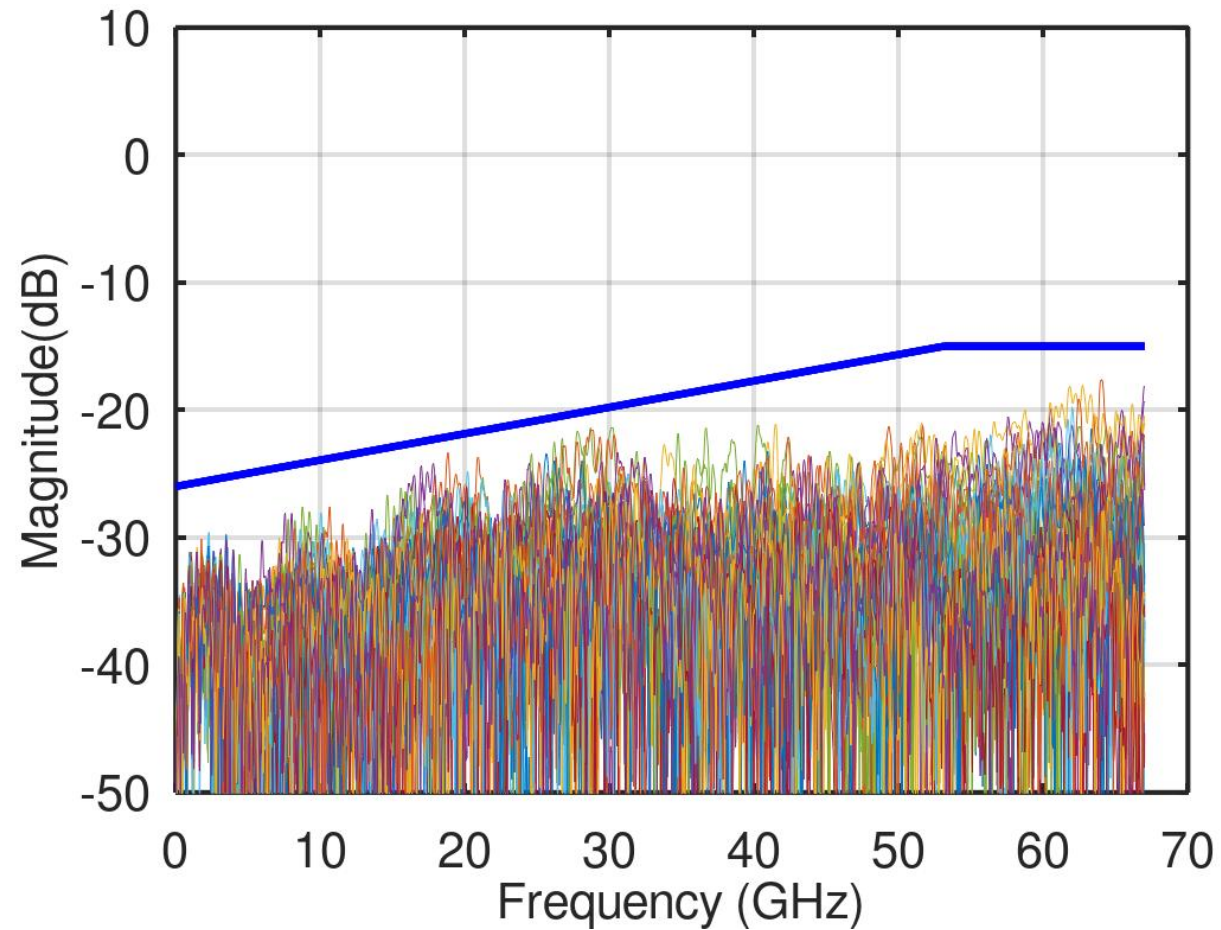


MTF with Connector #2

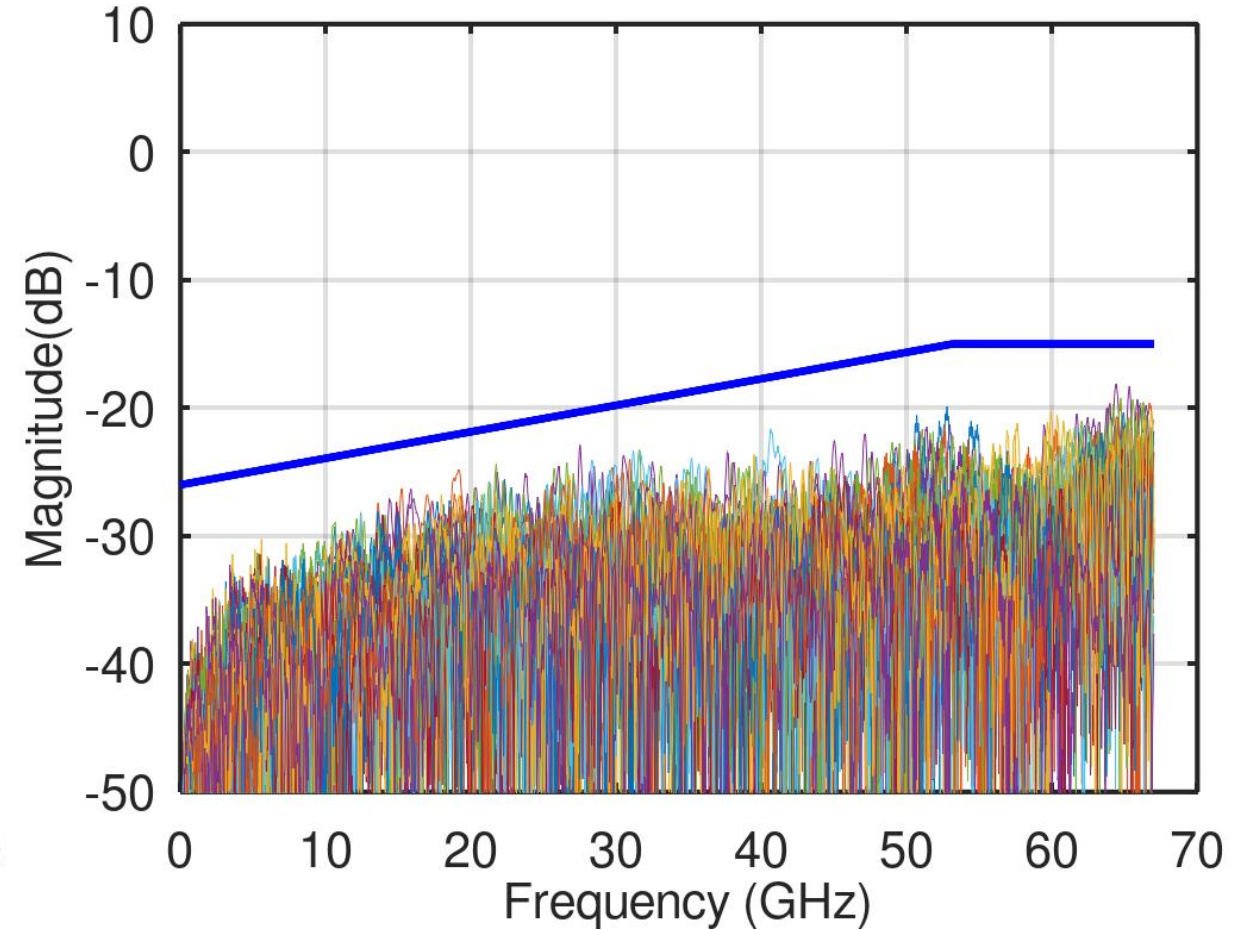


# MTF RLdc

MTF with Connector #1



MTF with Connector #2



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# Questions