



# **Sample Cable Data for 50 Gbps Ethernet**

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**Jan, 2015**

# Background

## › 5 sample cables built

- .5m 32 awg
- 1m 30 awg
- 1m,2m,3m 26 awg

## › Built using readily available materials and manufacturing techniques

## › Tested using PHY-SCI zQSFP+ MCB's with current generation connectors

## › COM calculated using ran\_com\_3bj\_3bm\_01\_1114 with config\_com\_ieee8023\_93a=100GBASE-CR4.xls

# Supporters

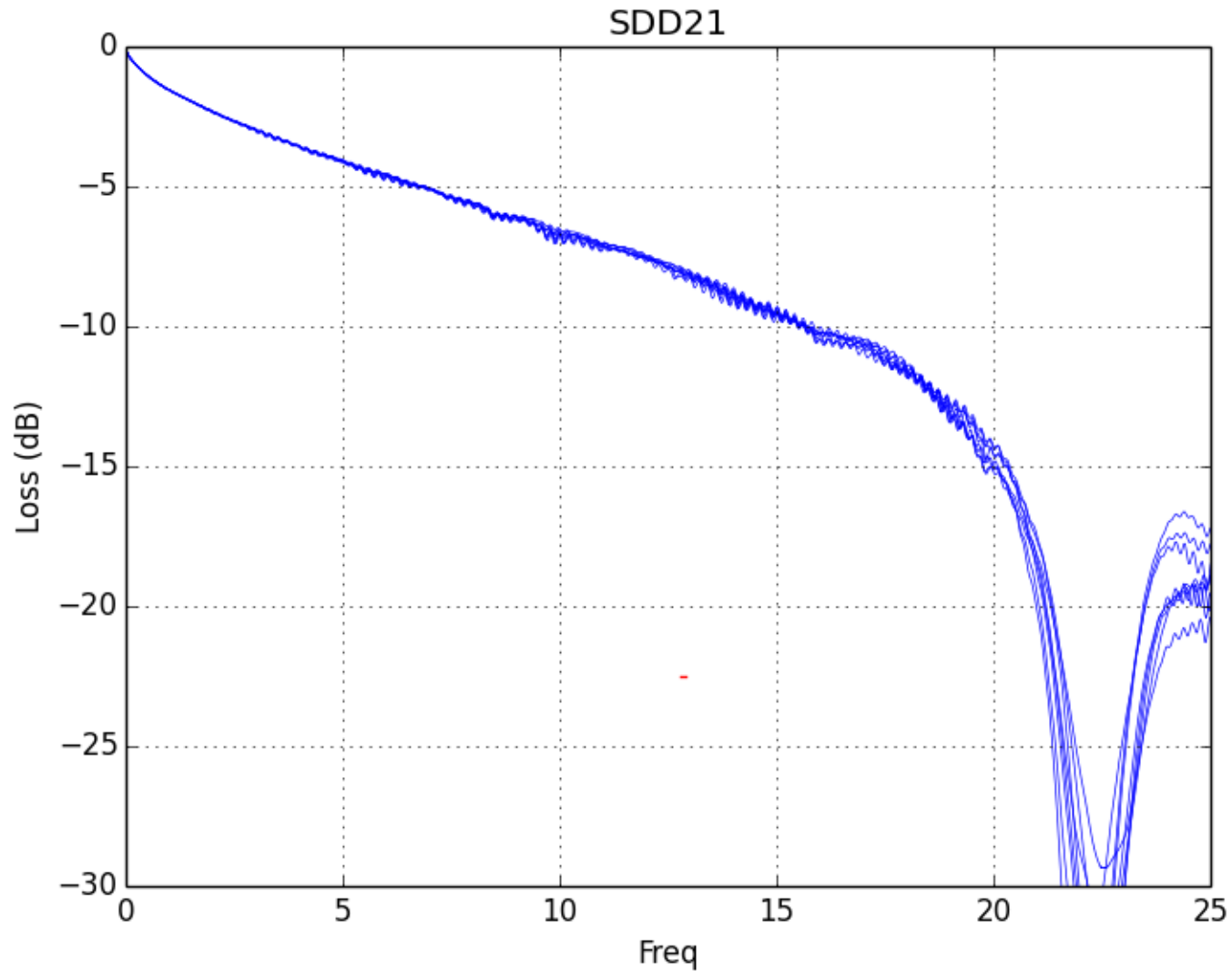




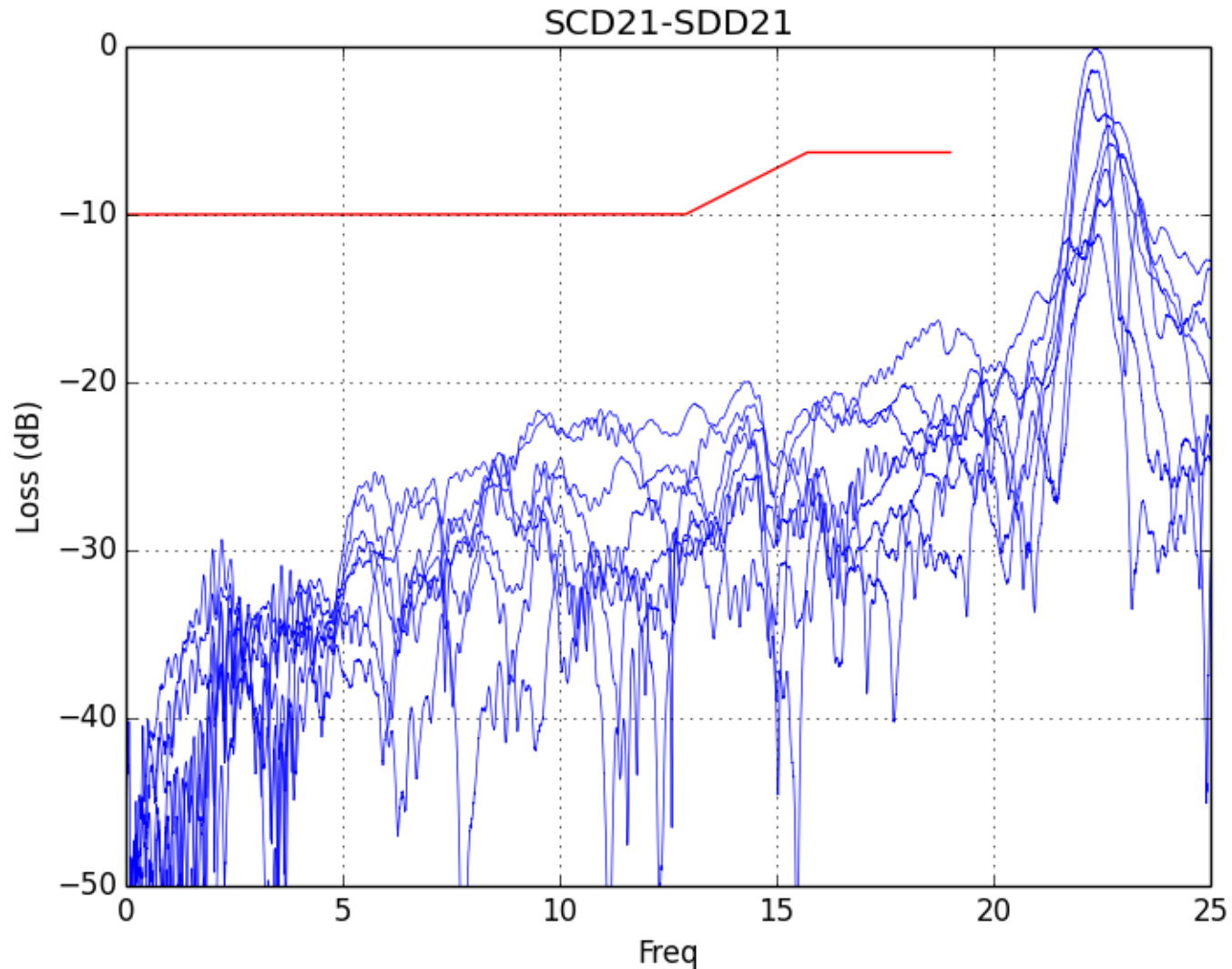
**0.5m 32 awg**

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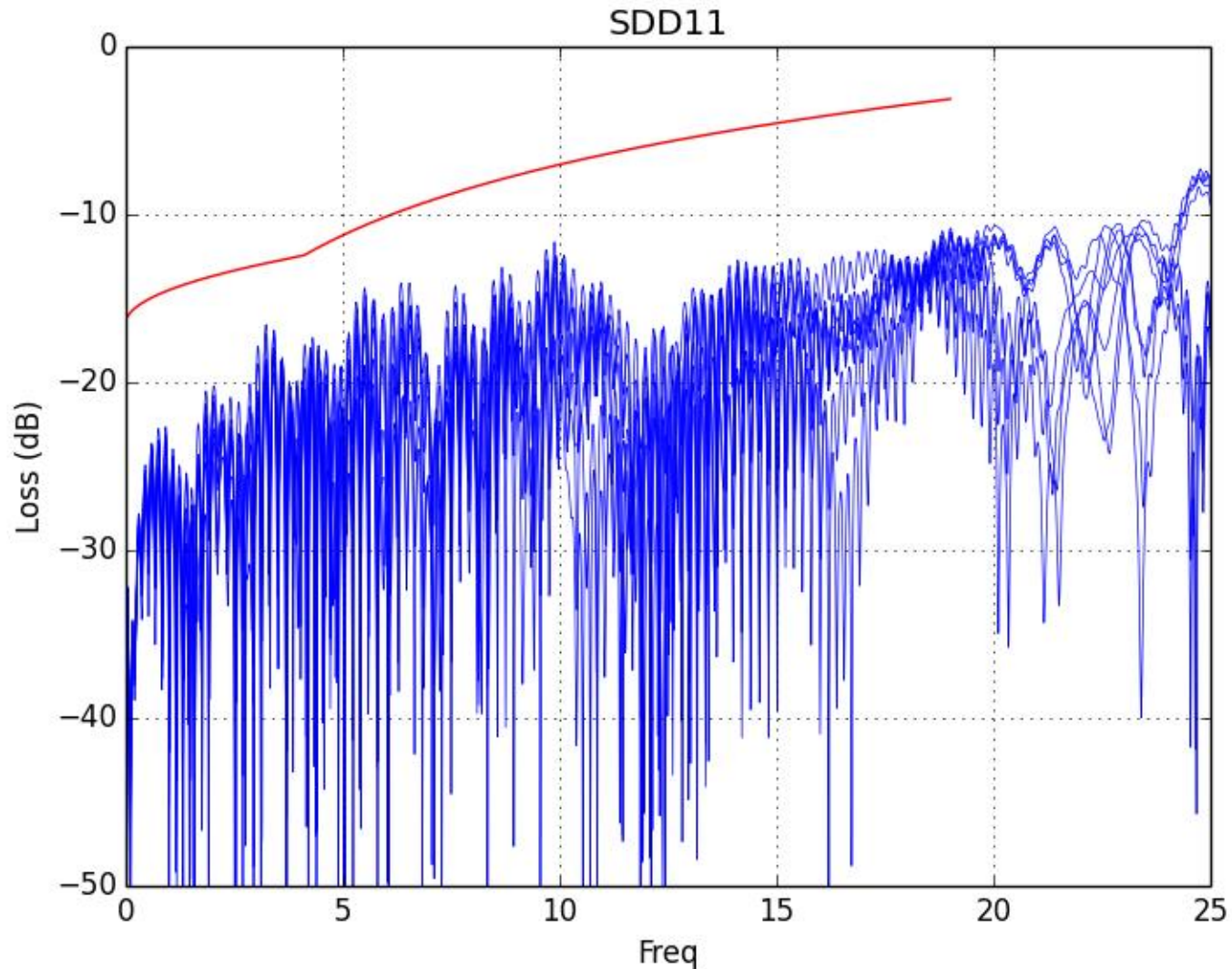
# .5m 32 awg - IL



# .5m 32 awg – Conversion Loss

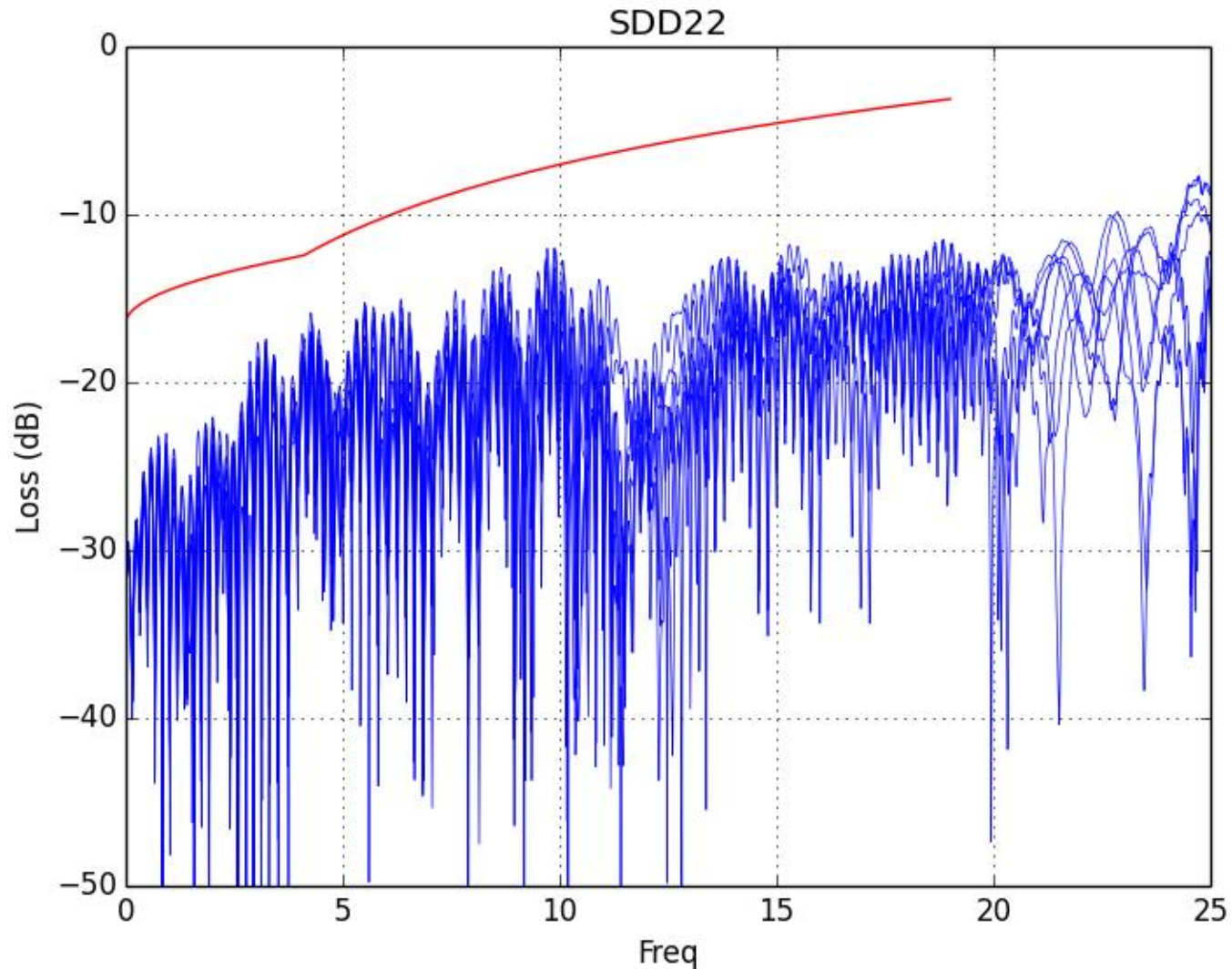


# .5m 32 awg – Input RL



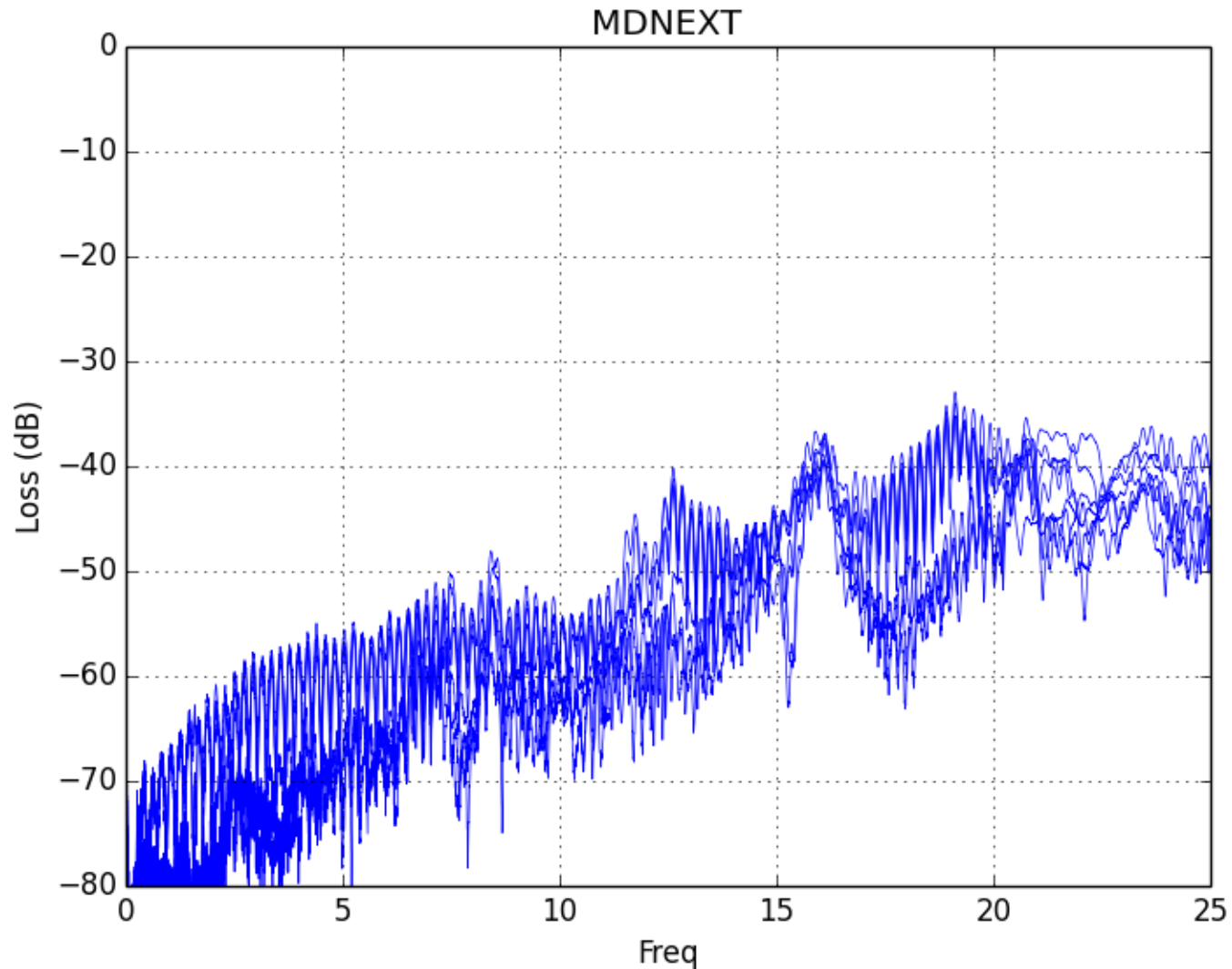


# .5m 32 awg – Output RL

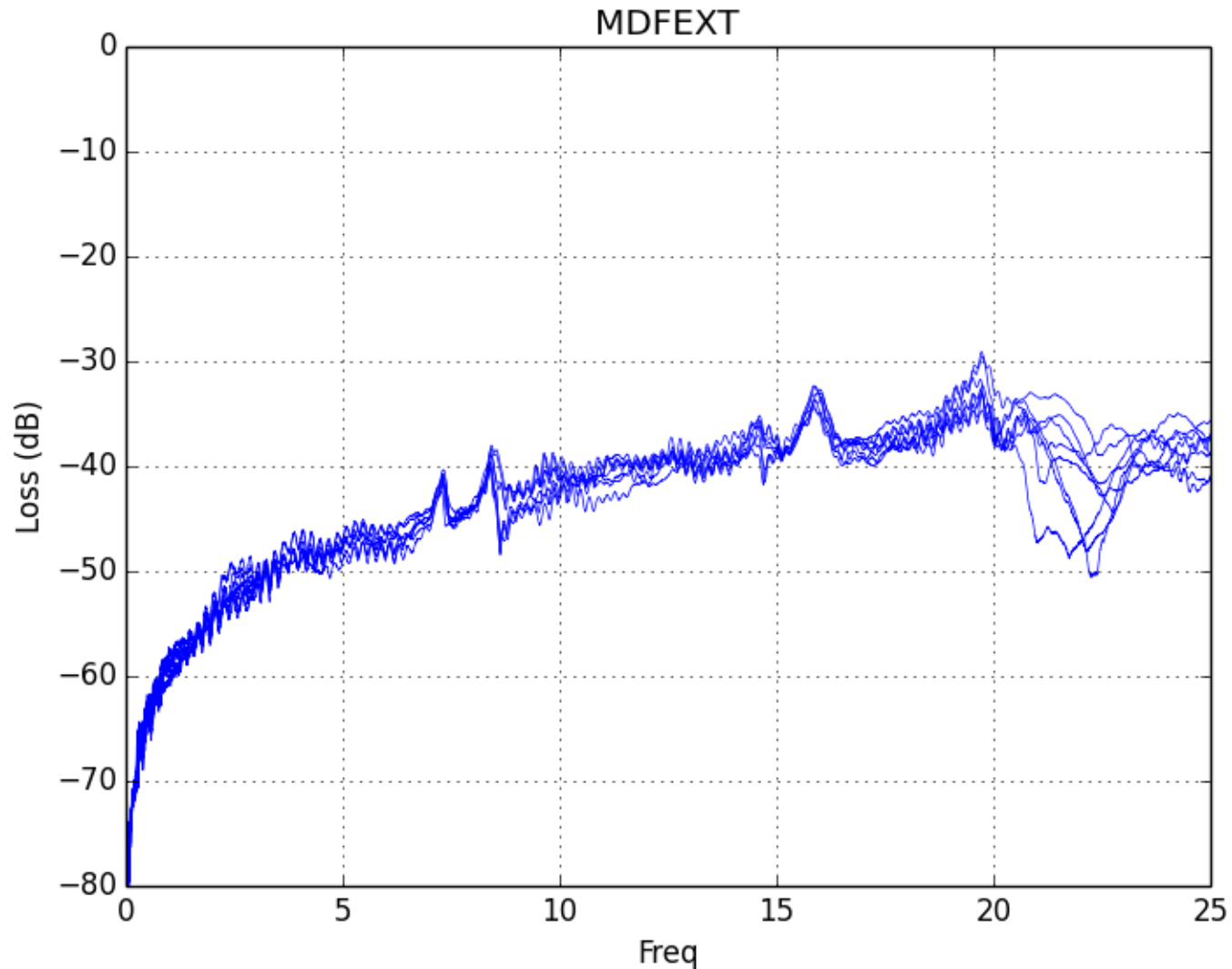




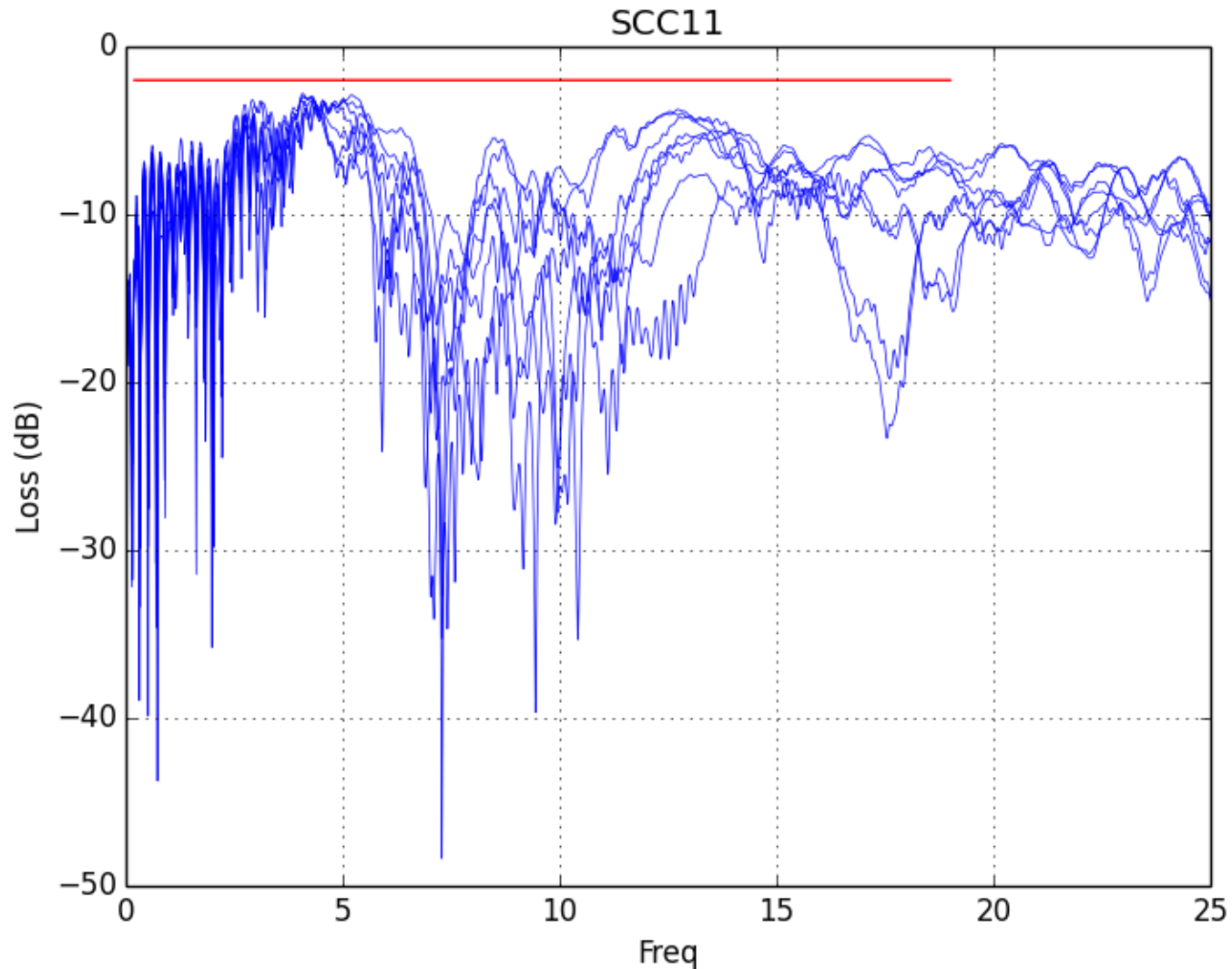
# .5m 32 awg – MDNEXT



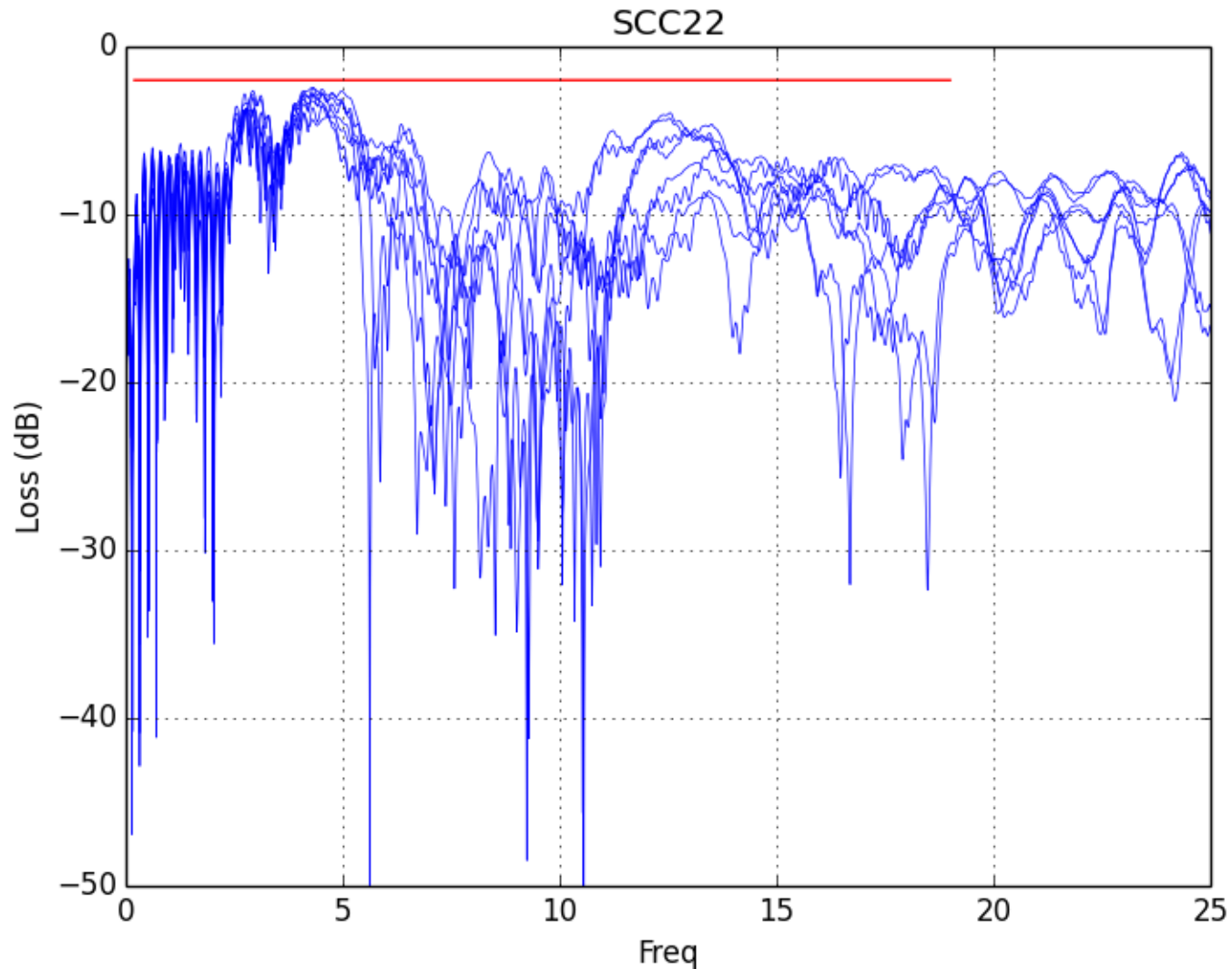
# .5m 32 awg – MDFEXT



# .5m 32 awg – Input CM RL

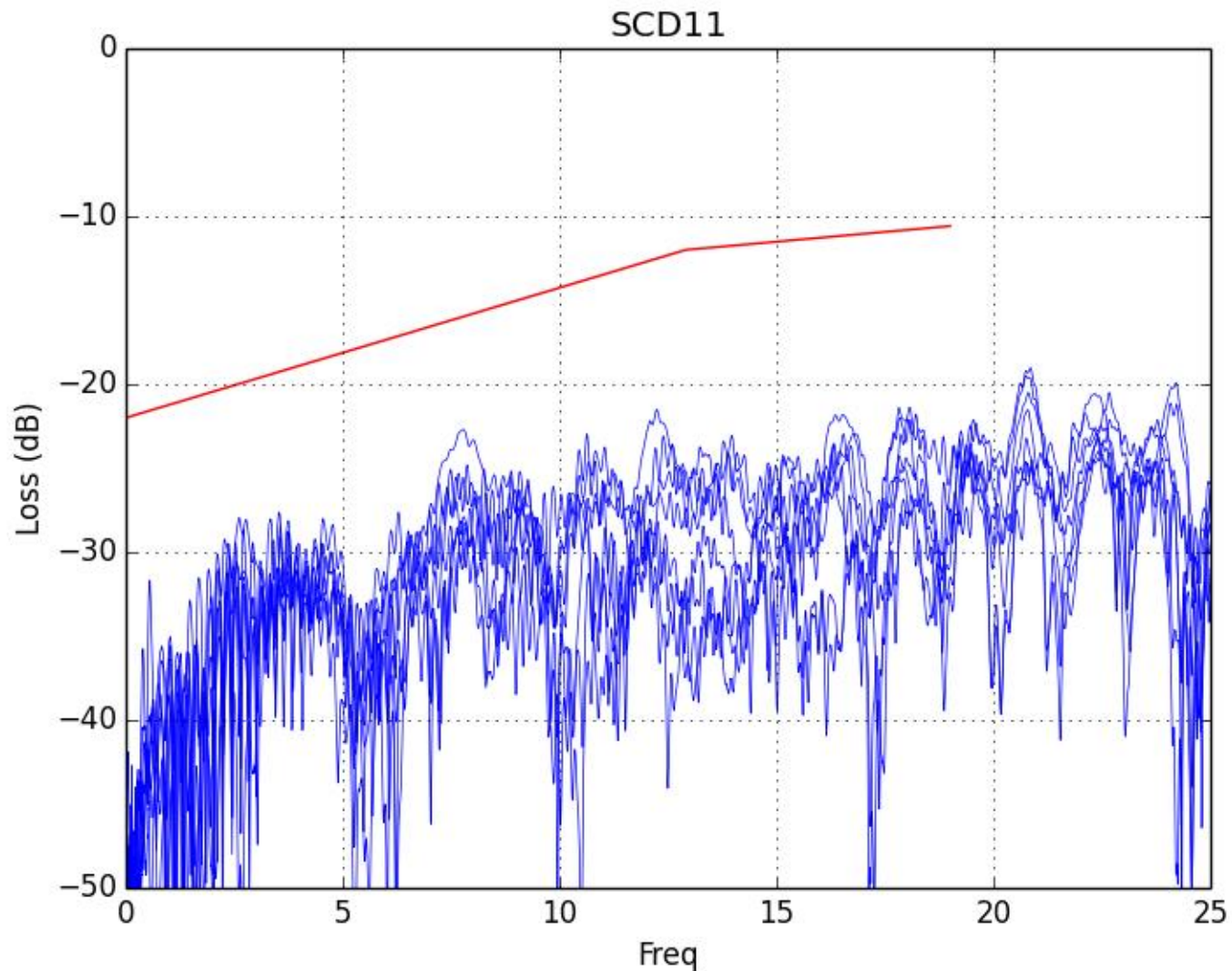


# .5m 32 awg – Output CM RL

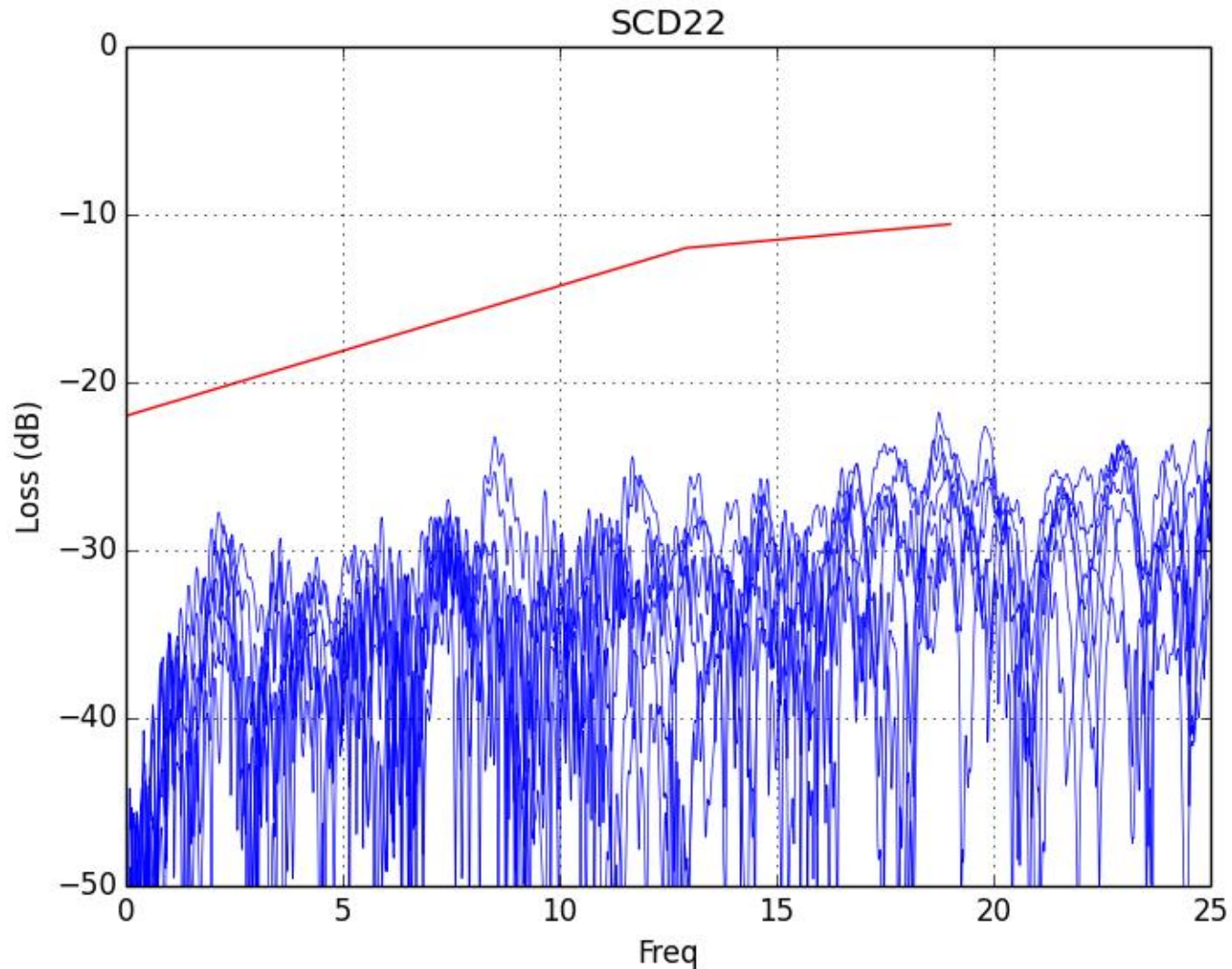




# .5m 32 awg – Input CM to DIFF RL



# .5m 32 awg – Output CM to DIFF RL



# Channel Operating Margin

COM		
Pair	Case 1	Case 2
P1Tx1 P2Rx1	8.39	7.77
P1Tx2 P2Rx2	8.38	7.80
P1Tx3 P2Rx3	8.27	7.64
P1Tx4 P2Rx4	8.28	7.69
P2Tx1 P1Rx1	8.31	7.64
P2Tx2 P1Rx2	8.41	7.76
P2Tx3 P1Rx3	8.22	7.64
P2Tx4 P1Rx4	8.37	7.74

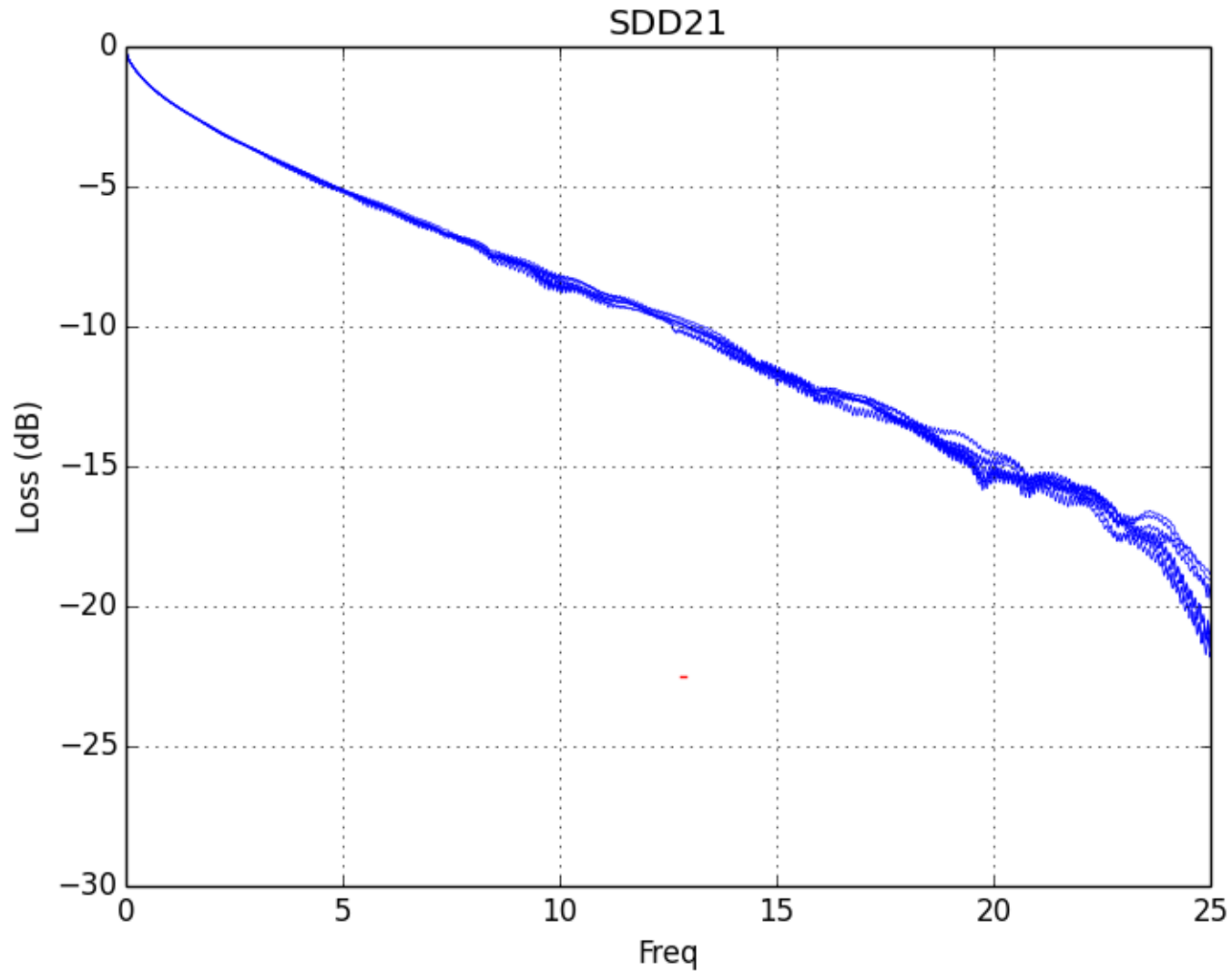




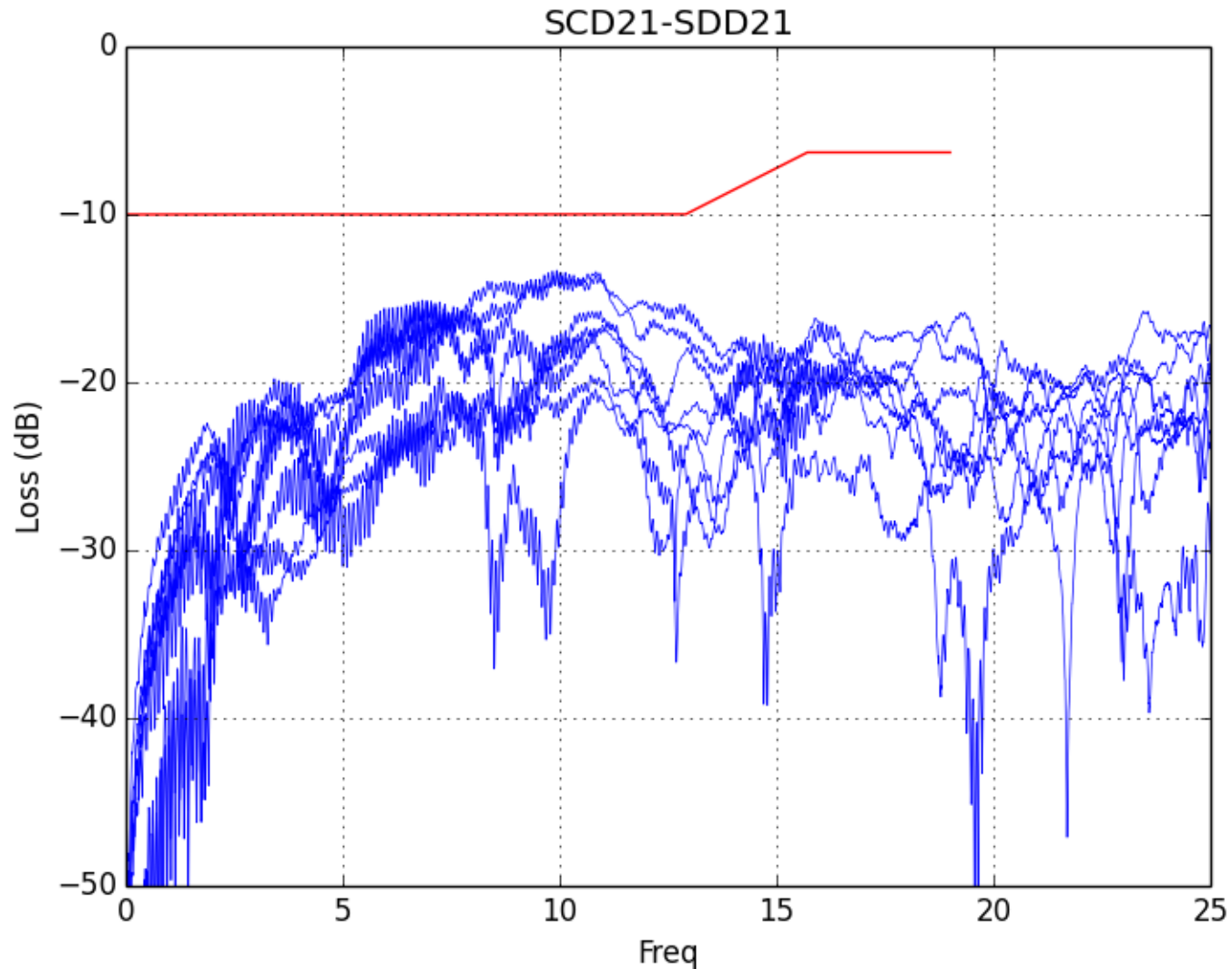
**1m 30 awg**



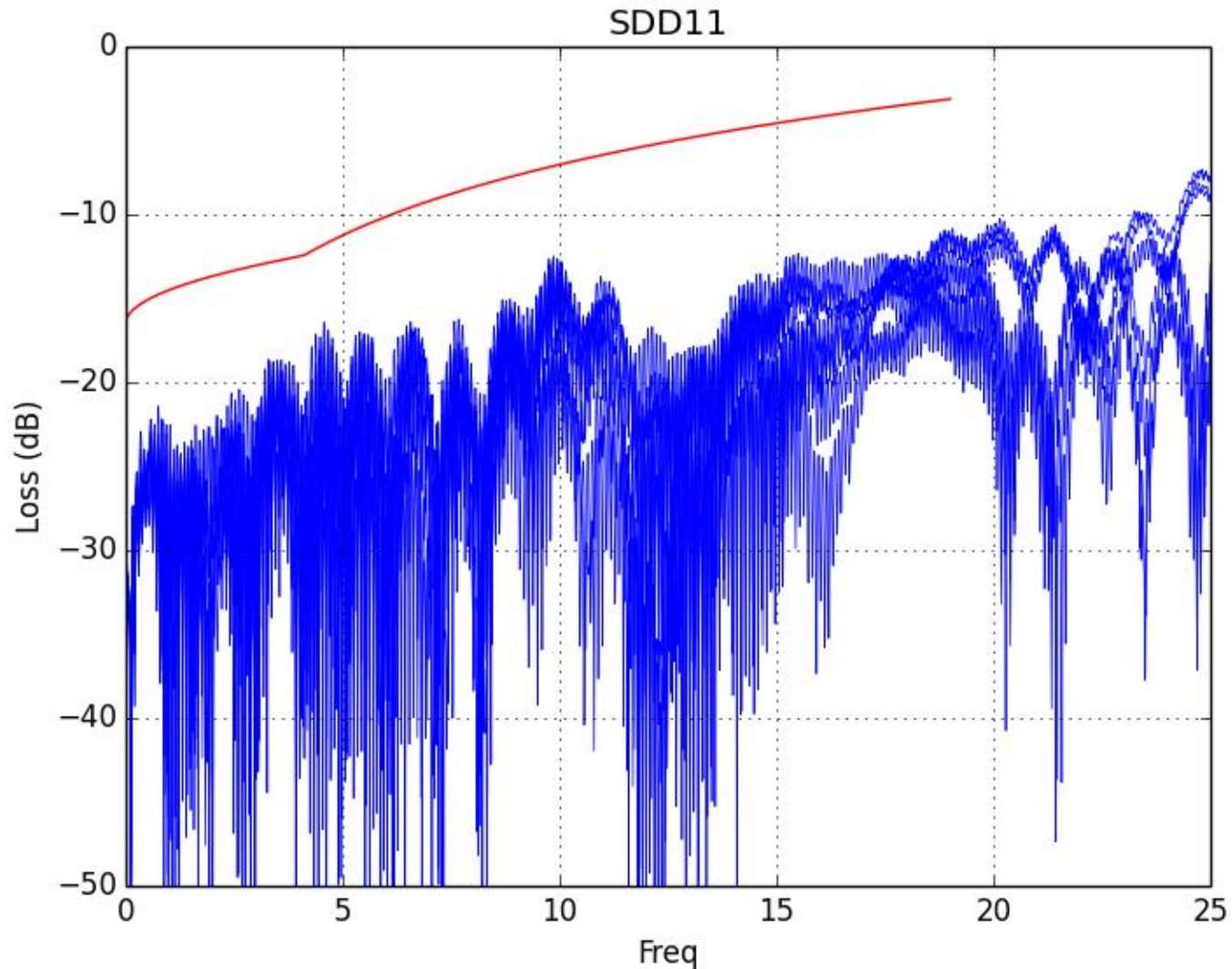
# 1m 30 awg - IL



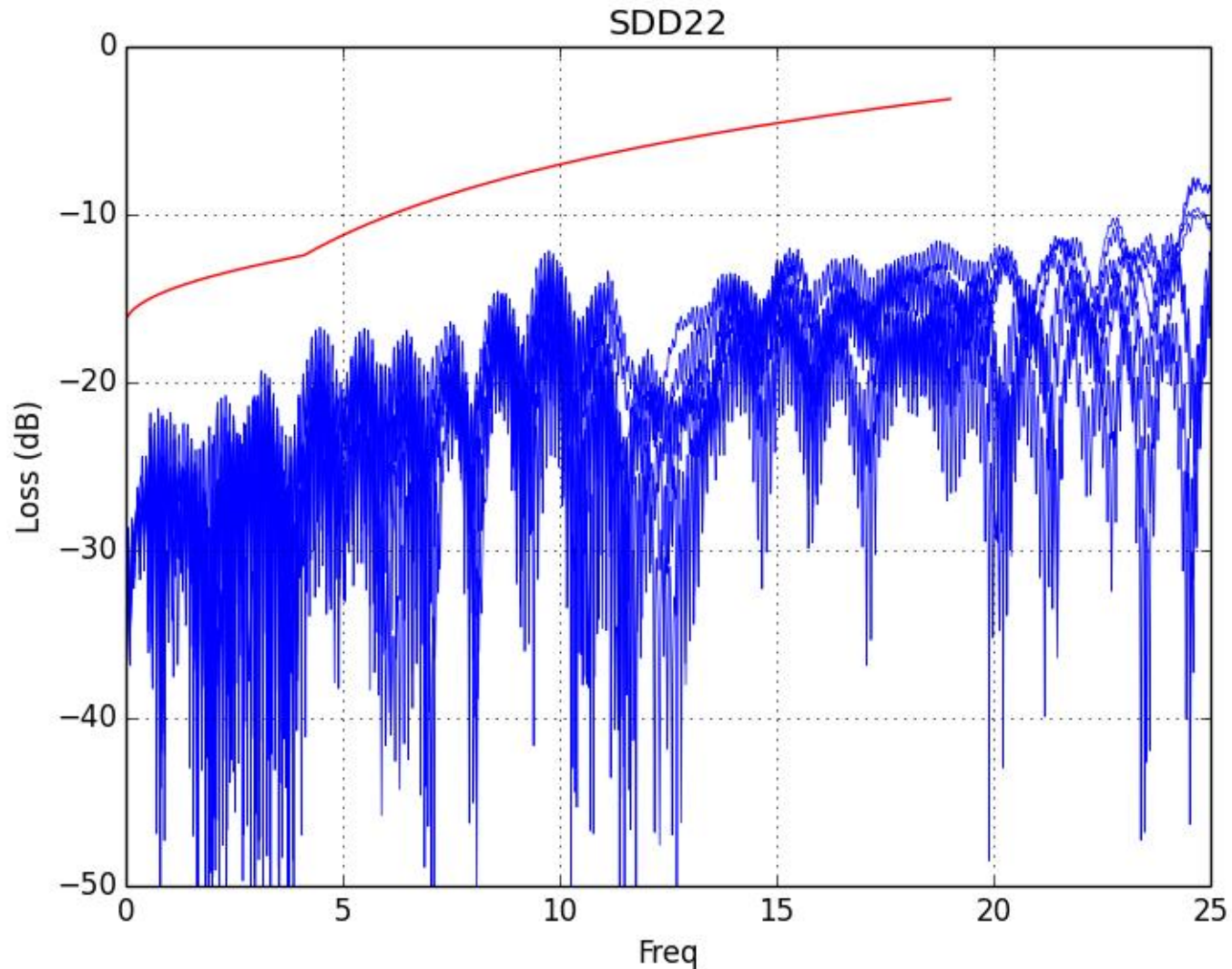
# 1m 30 awg – Conversion Loss



# 1m 30 awg – Input RL

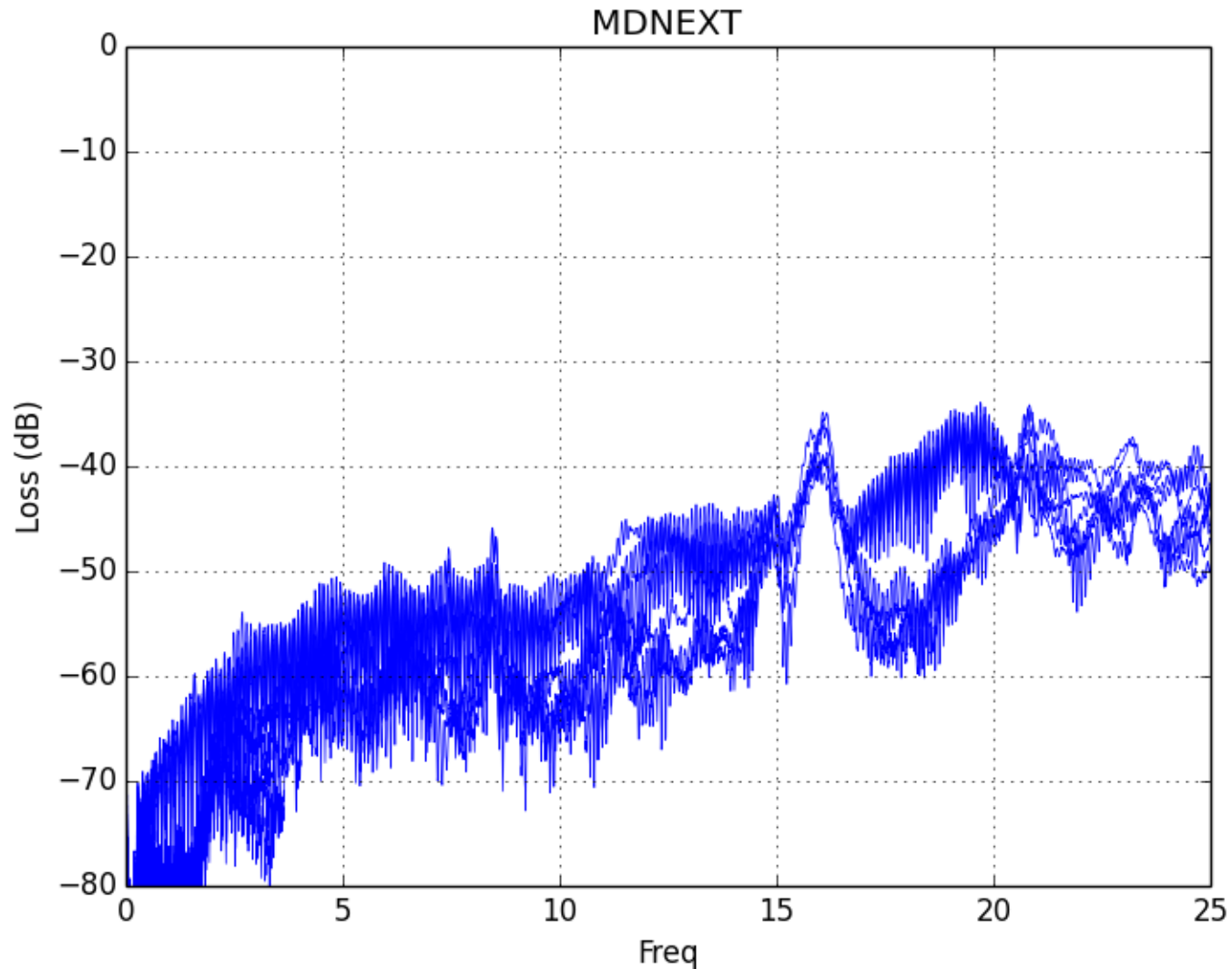


# 1m 30 awg – Output RL

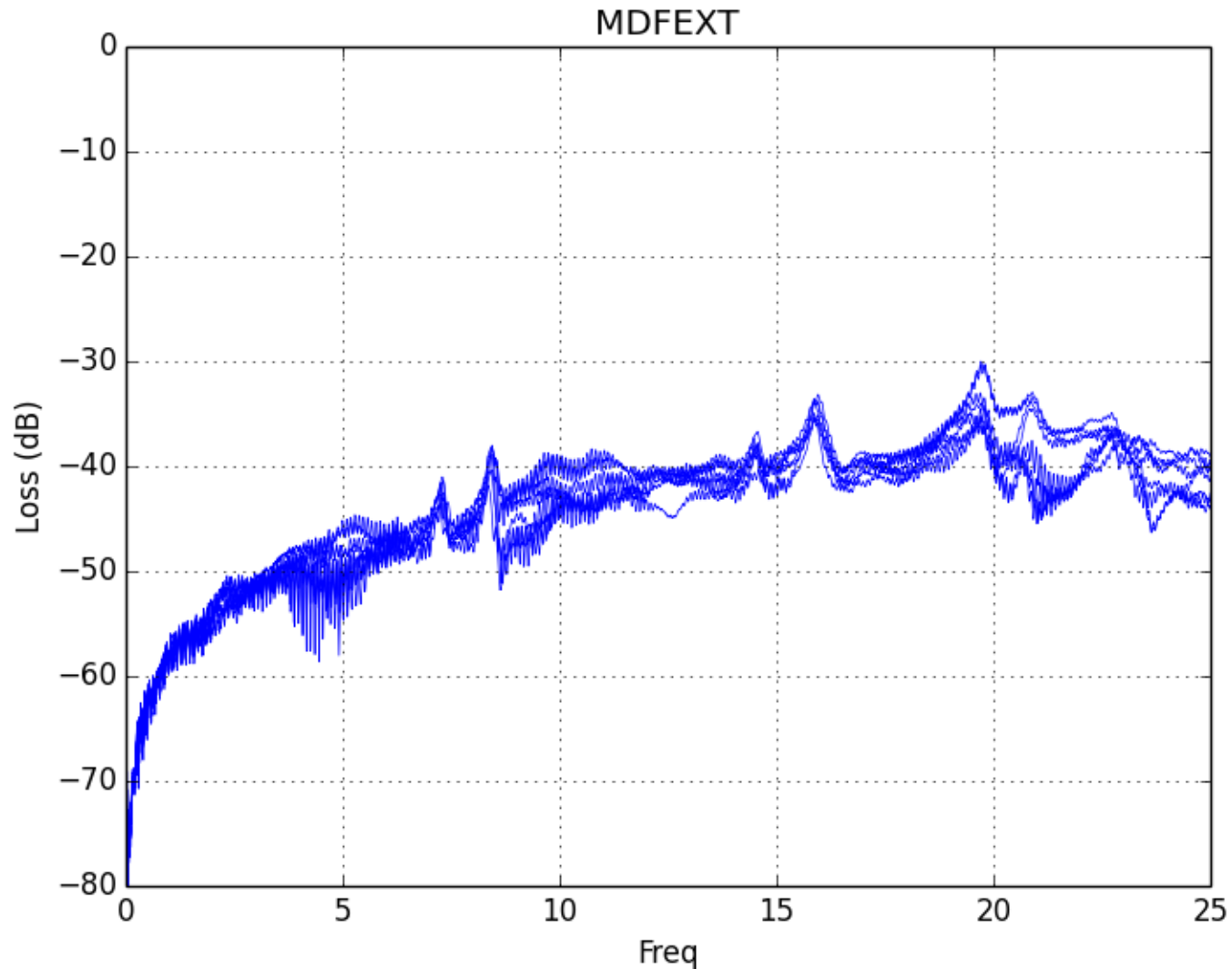




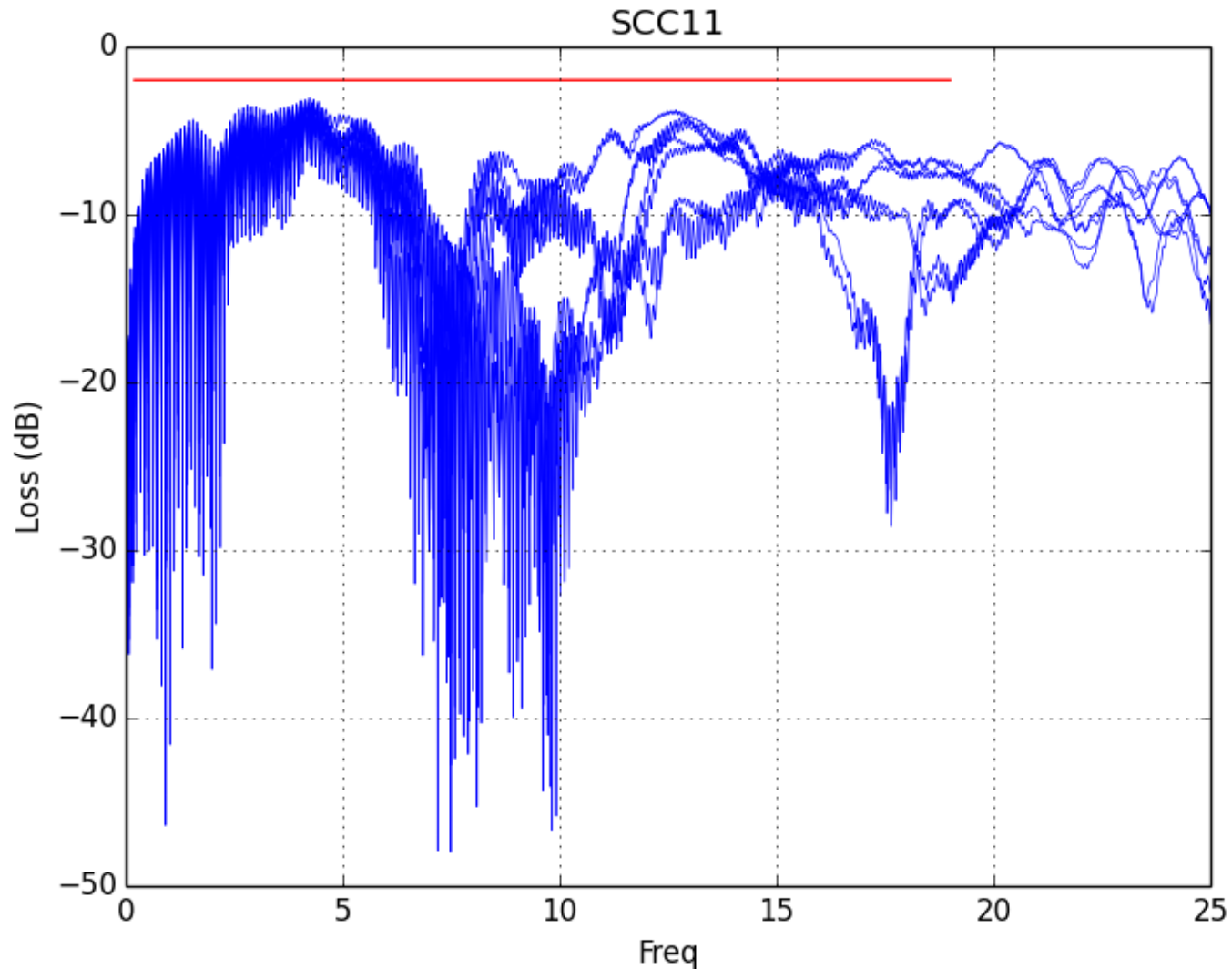
# 1m 30 awg – MDNEXT



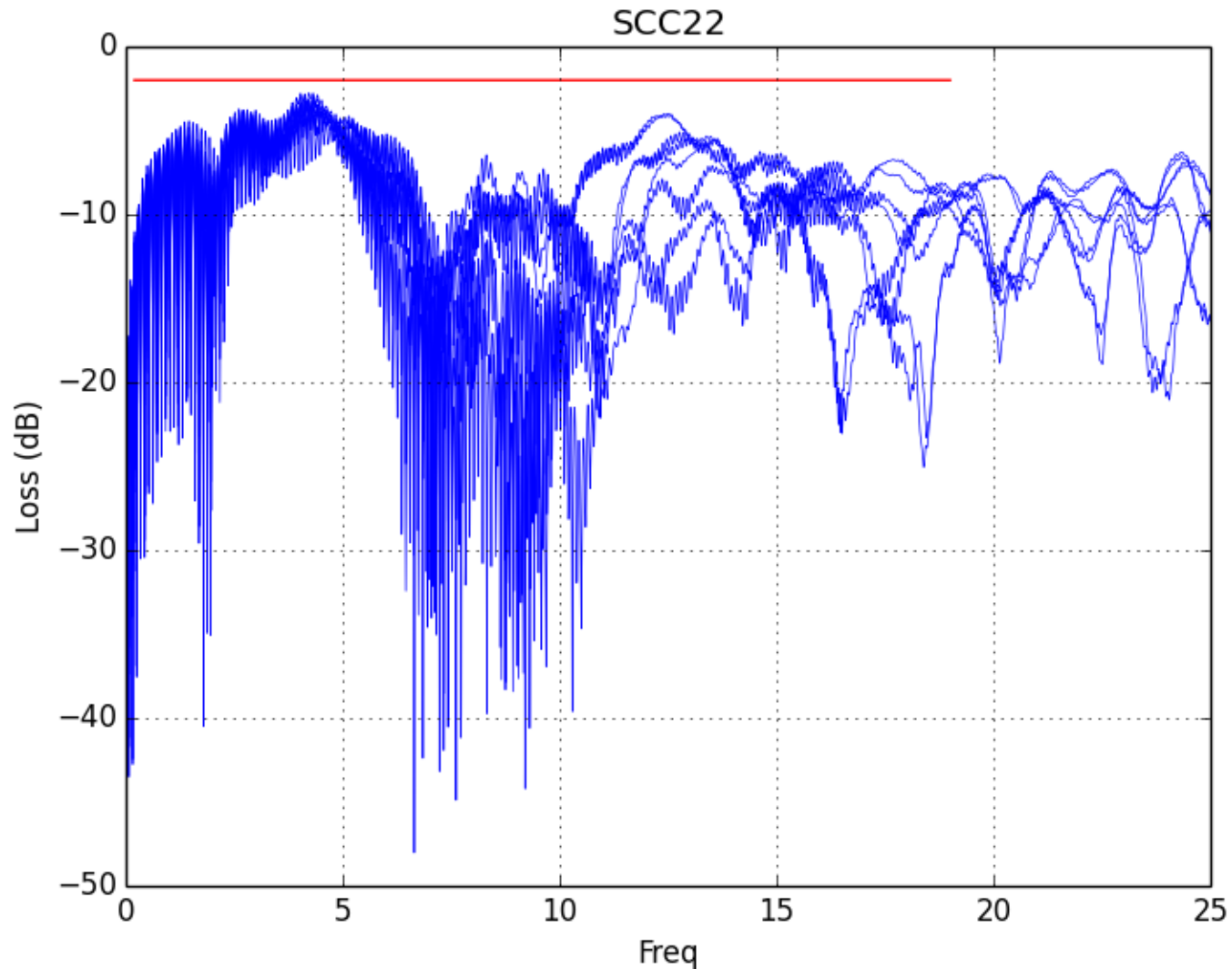
# 1m 30 awg – MDFEXT



# 1m 30 awg – Input CM RL

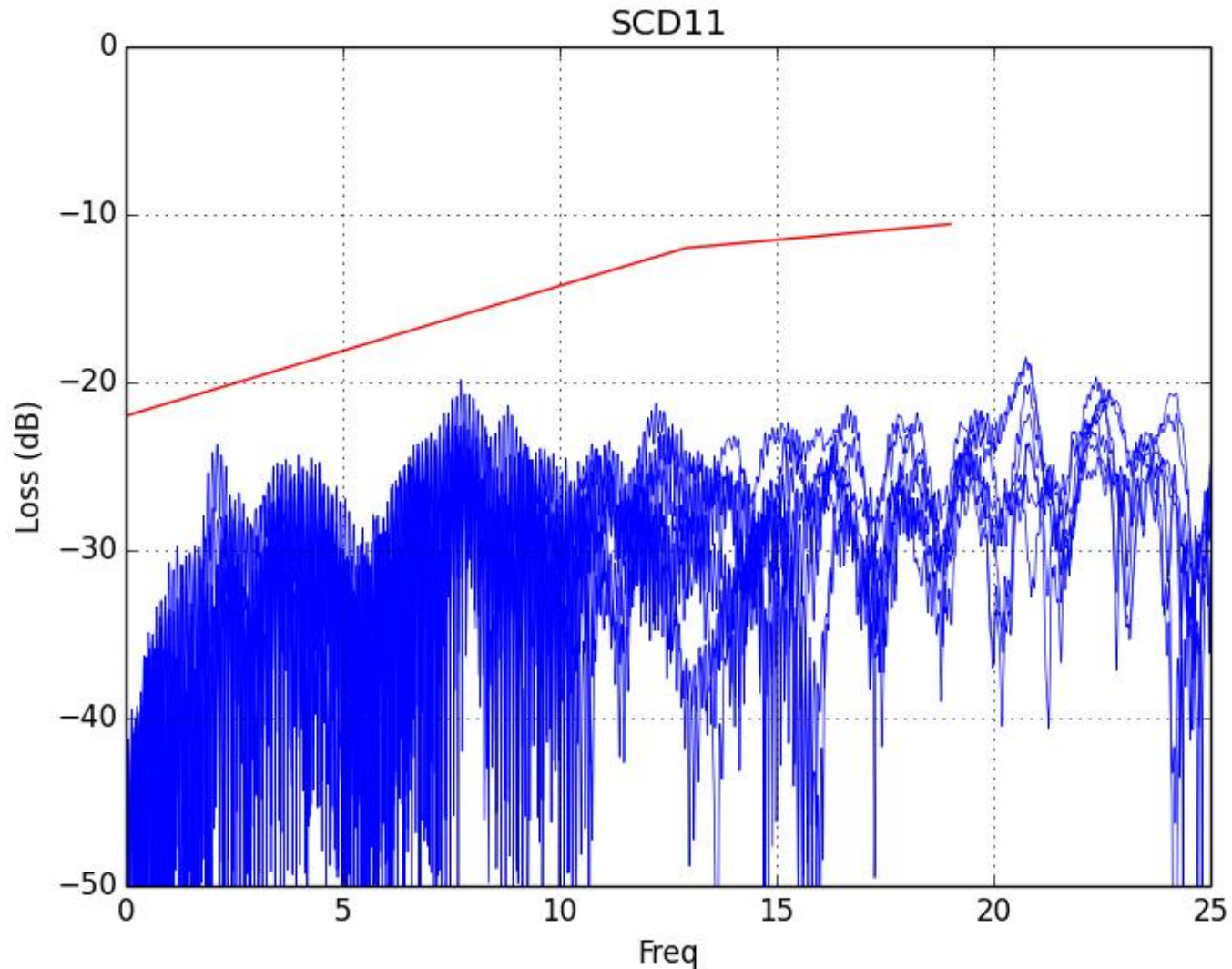


# 1m 30 awg – Output CM RL

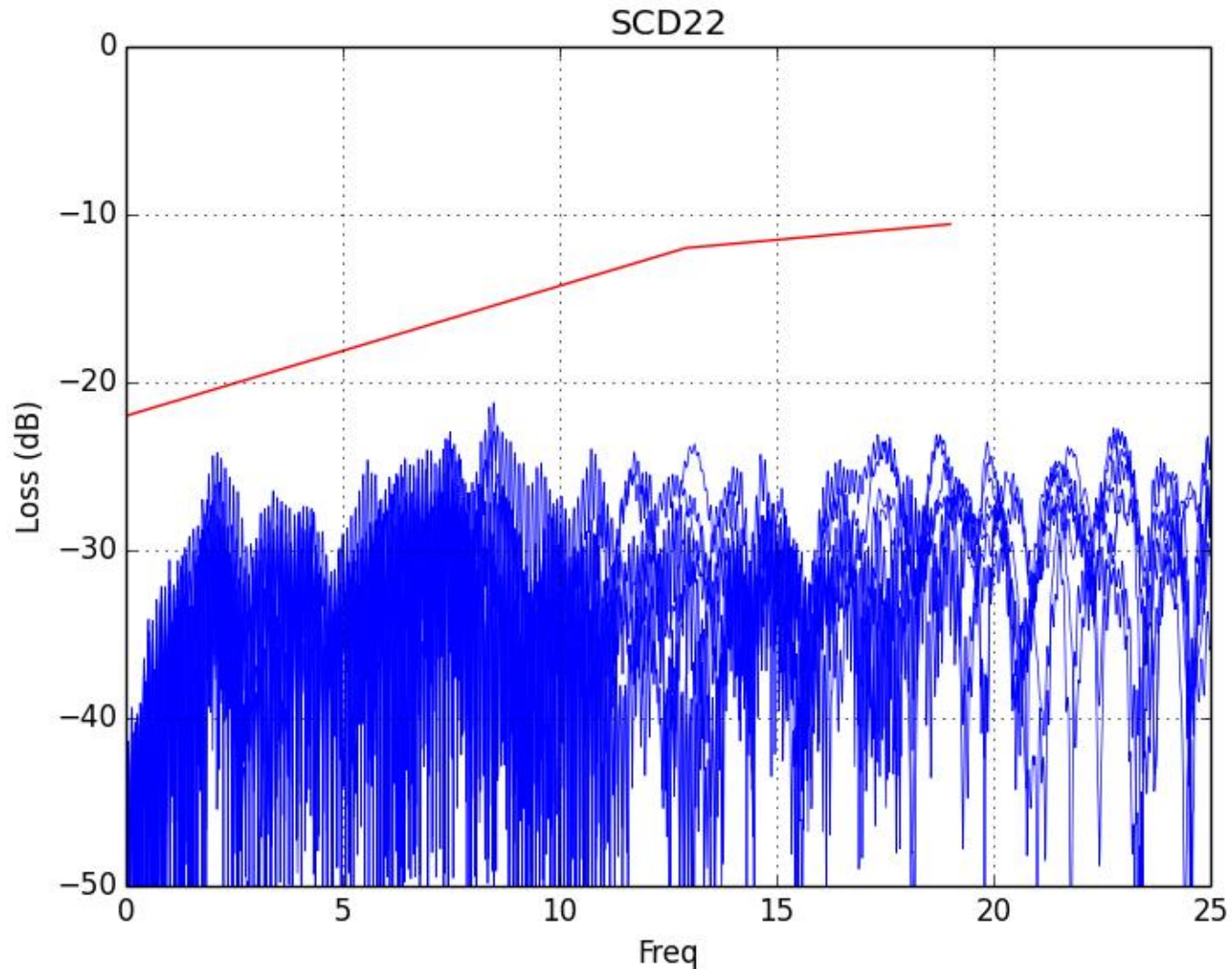




# 1m 30 awg – Input CM to DIFF RL



# 1m 30 awg – Output CM to DIFF RL



# Channel Operating Margin

COM		
Pair	Case 1	Case 2
P1Tx1 P2Rx1	8.38	7.63
P1Tx2 P2Rx2	8.31	7.61
P1Tx3 P2Rx3	8.20	7.41
P1Tx4 P2Rx4	8.14	7.41
P2Tx1 P1Rx1	8.32	7.61
P2Tx2 P1Rx2	8.33	7.60
P2Tx3 P1Rx3	8.17	7.52
P2Tx4 P1Rx4	8.25	7.52

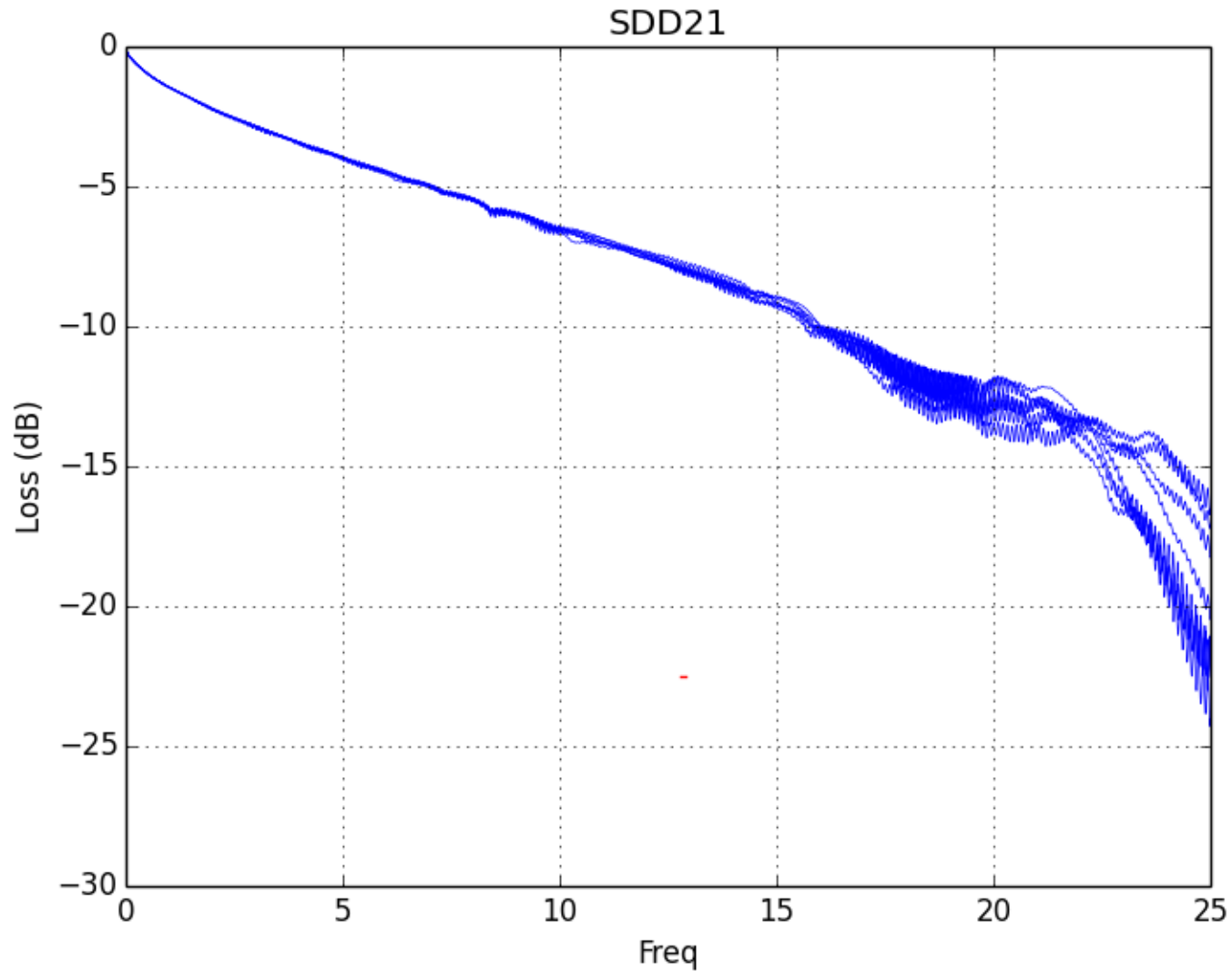




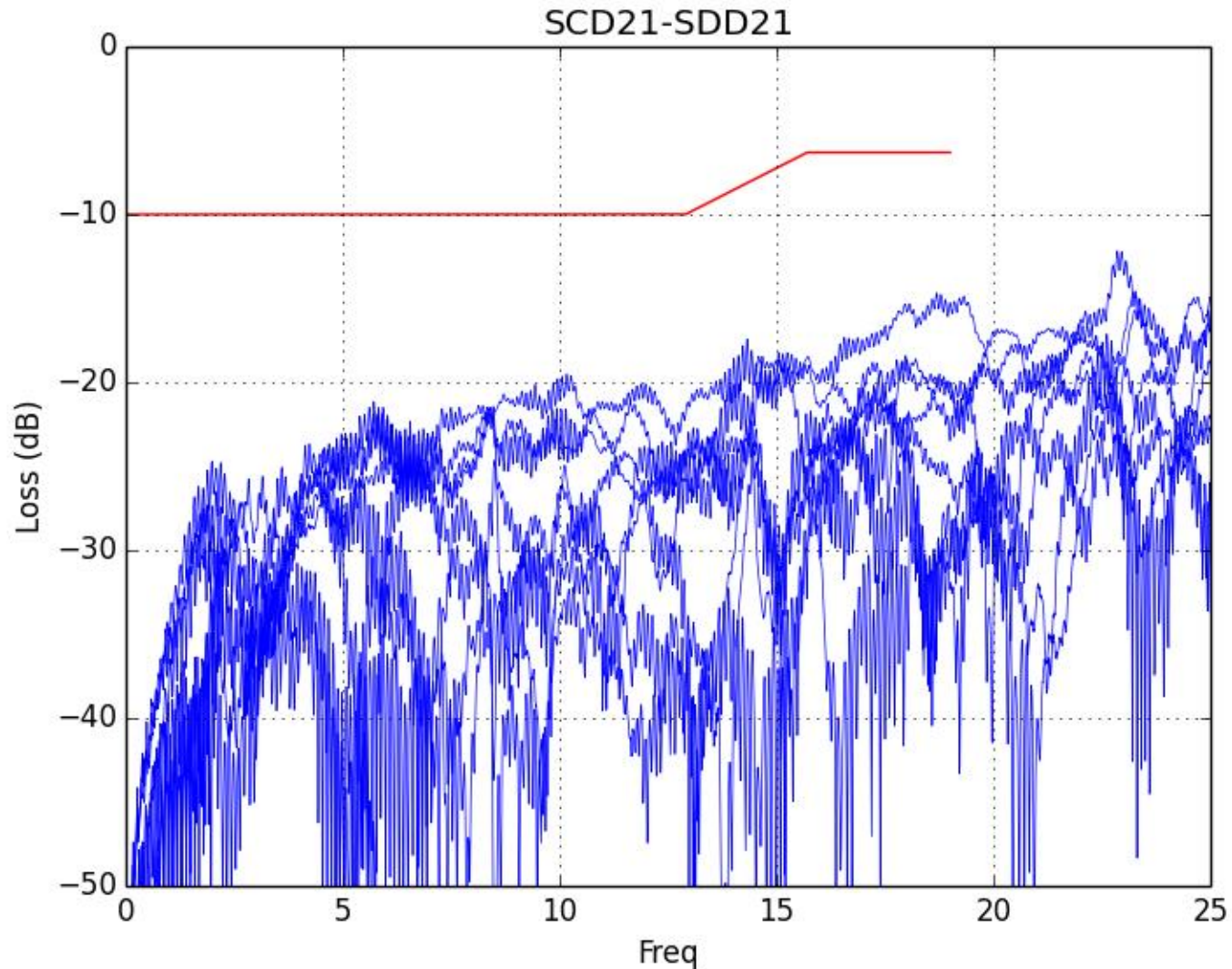
**1m 26 awg**



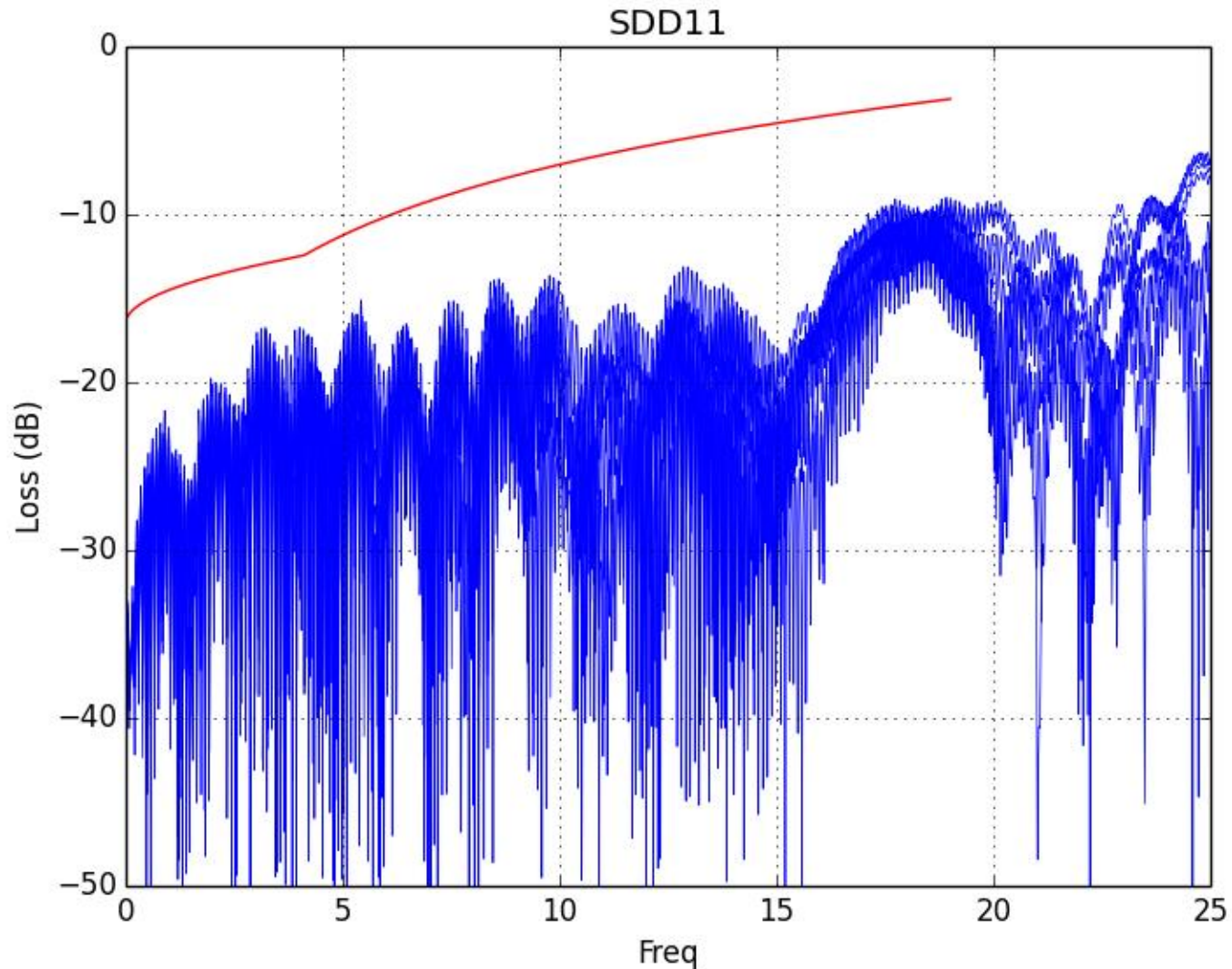
# 1m 26 awg - IL



# 1m 26 awg – Conversion Loss

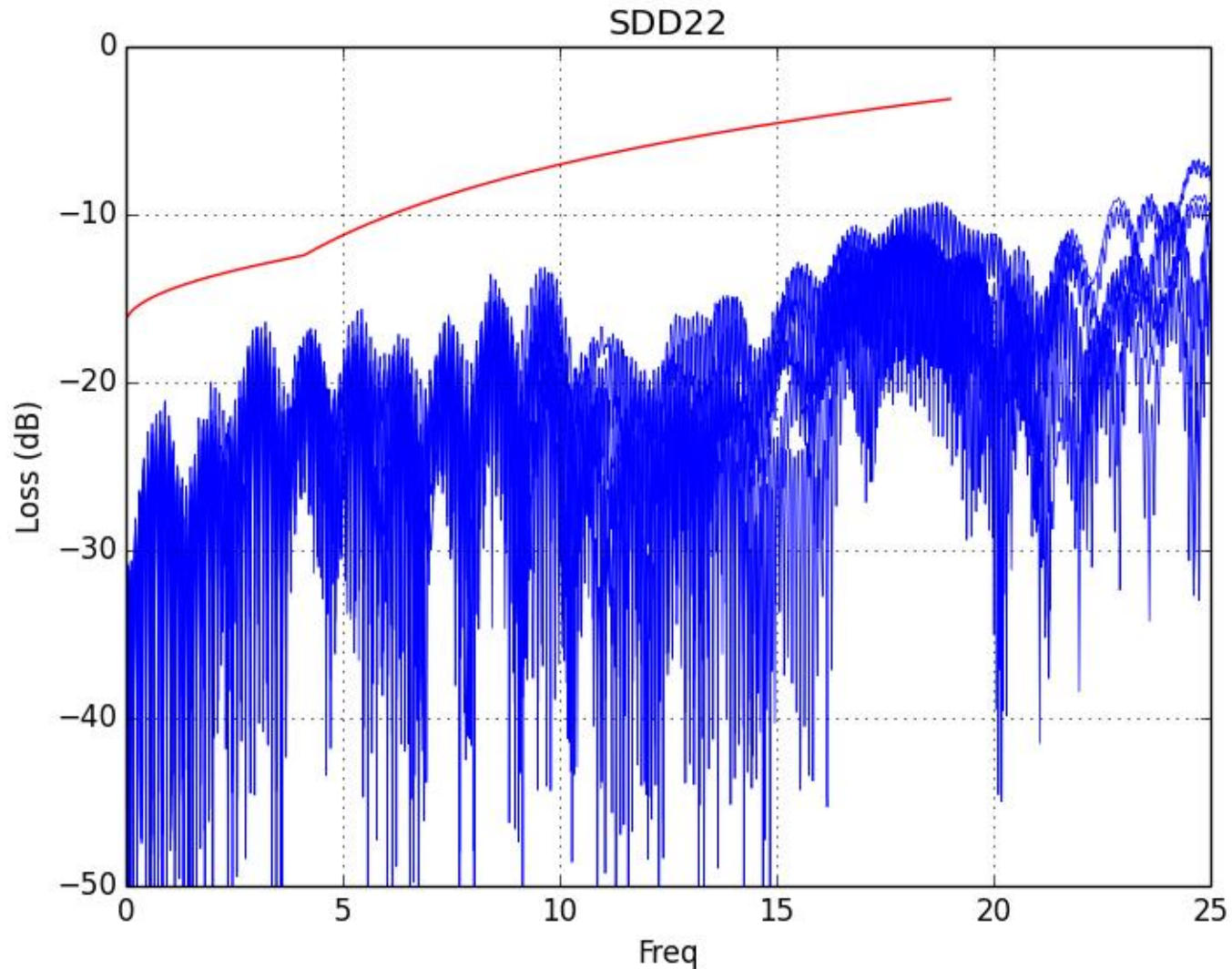


# 1m 26 awg – Input RL



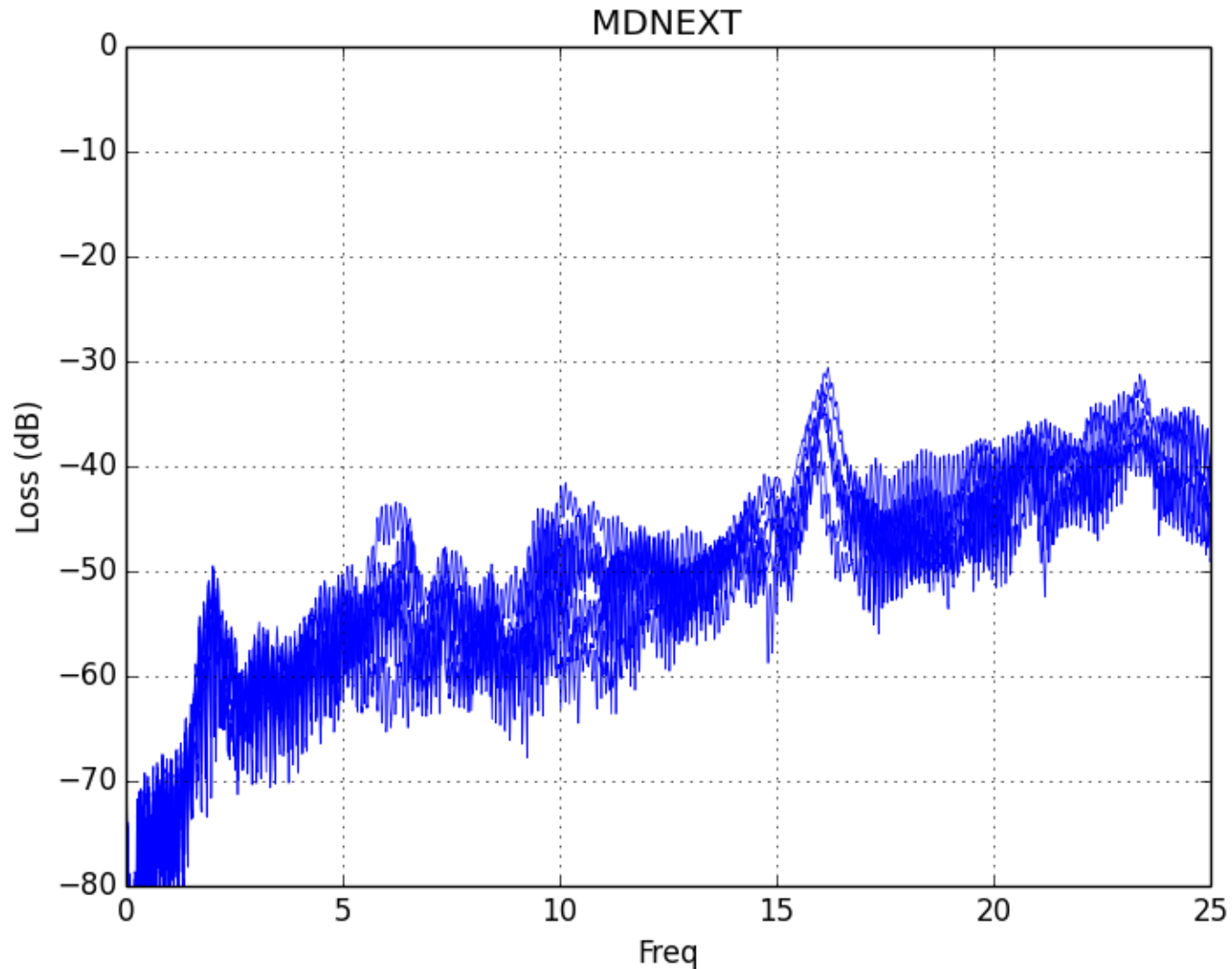


# 1m 26 awg – Output RL

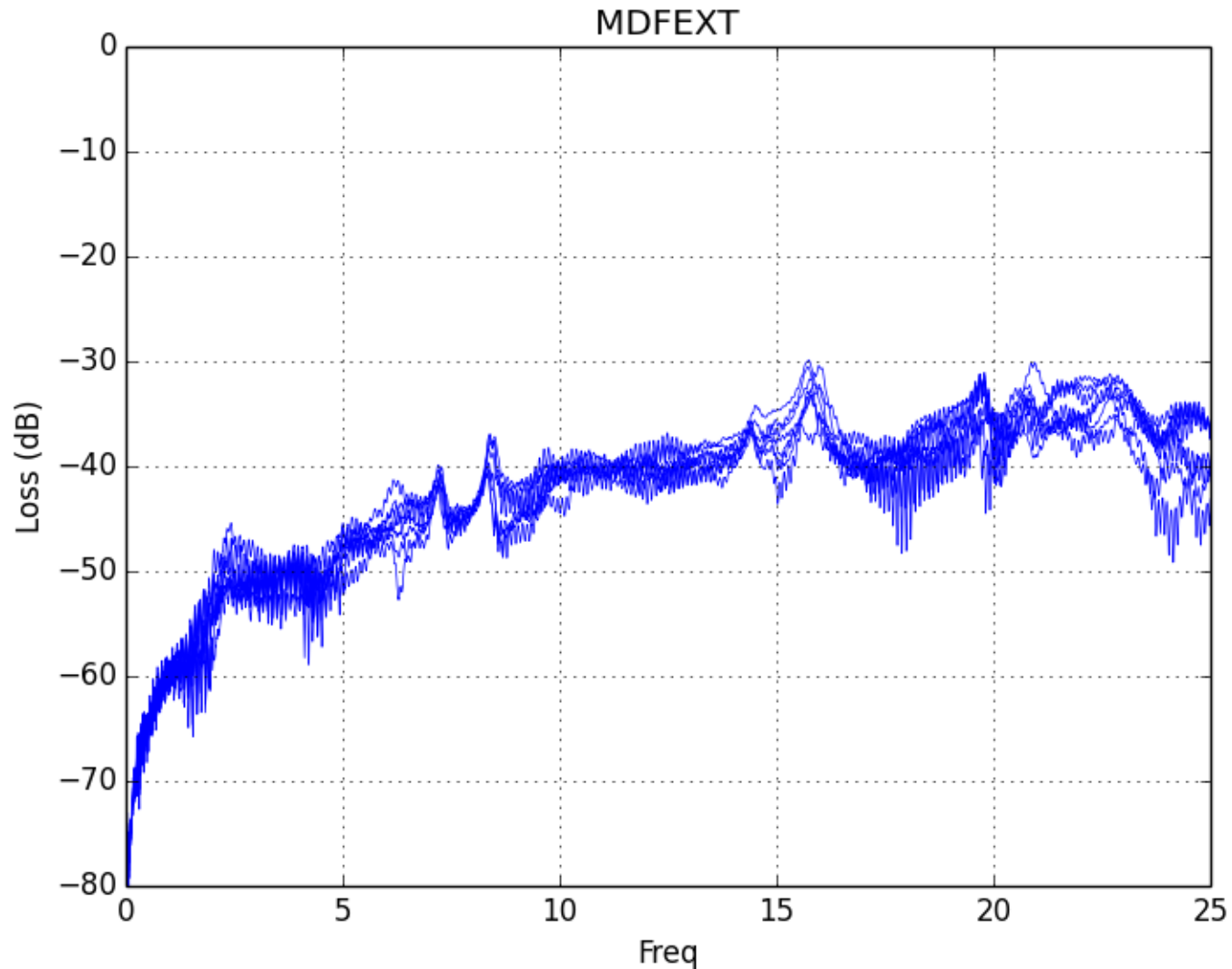




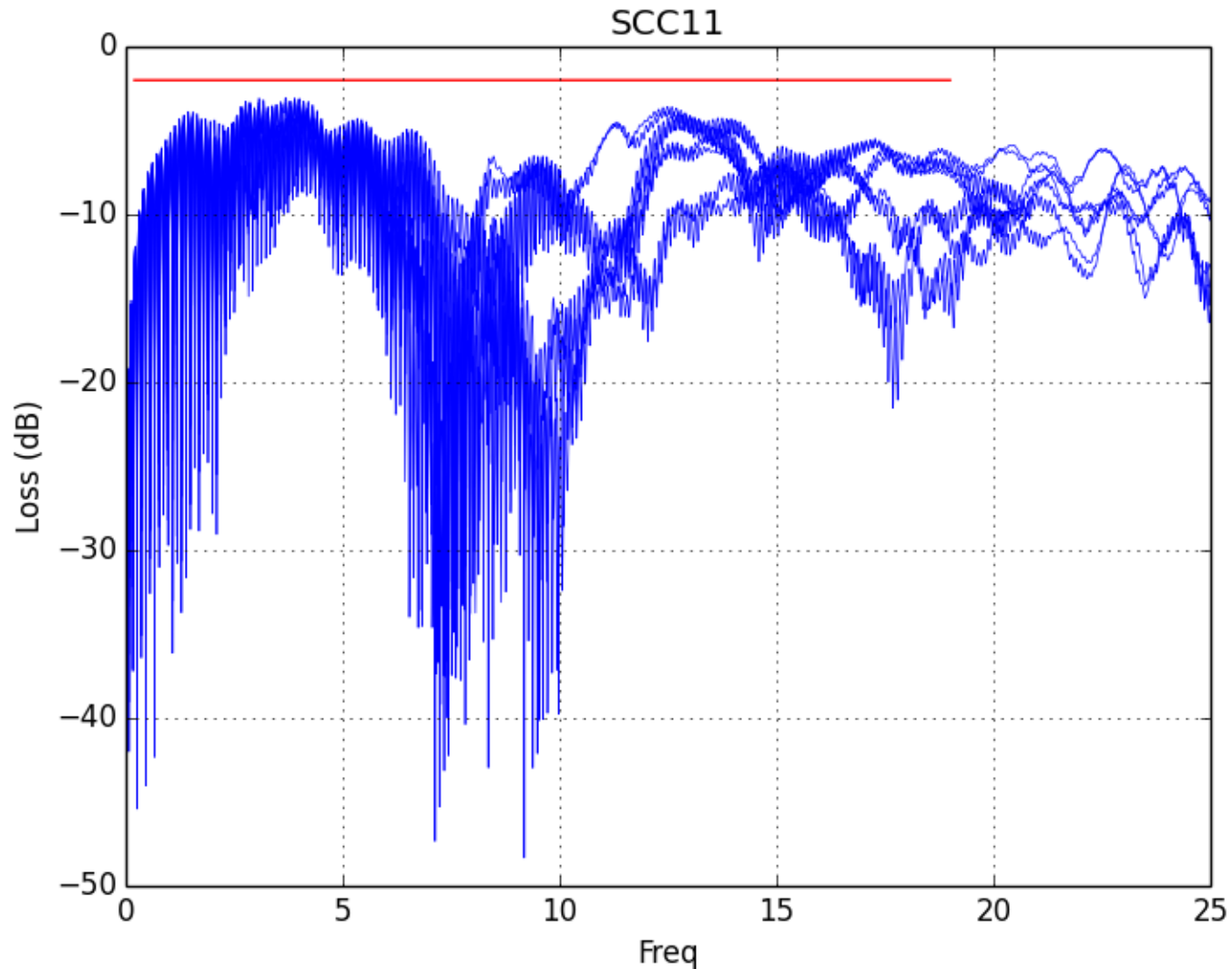
# 1m 26 awg – MDNEXT



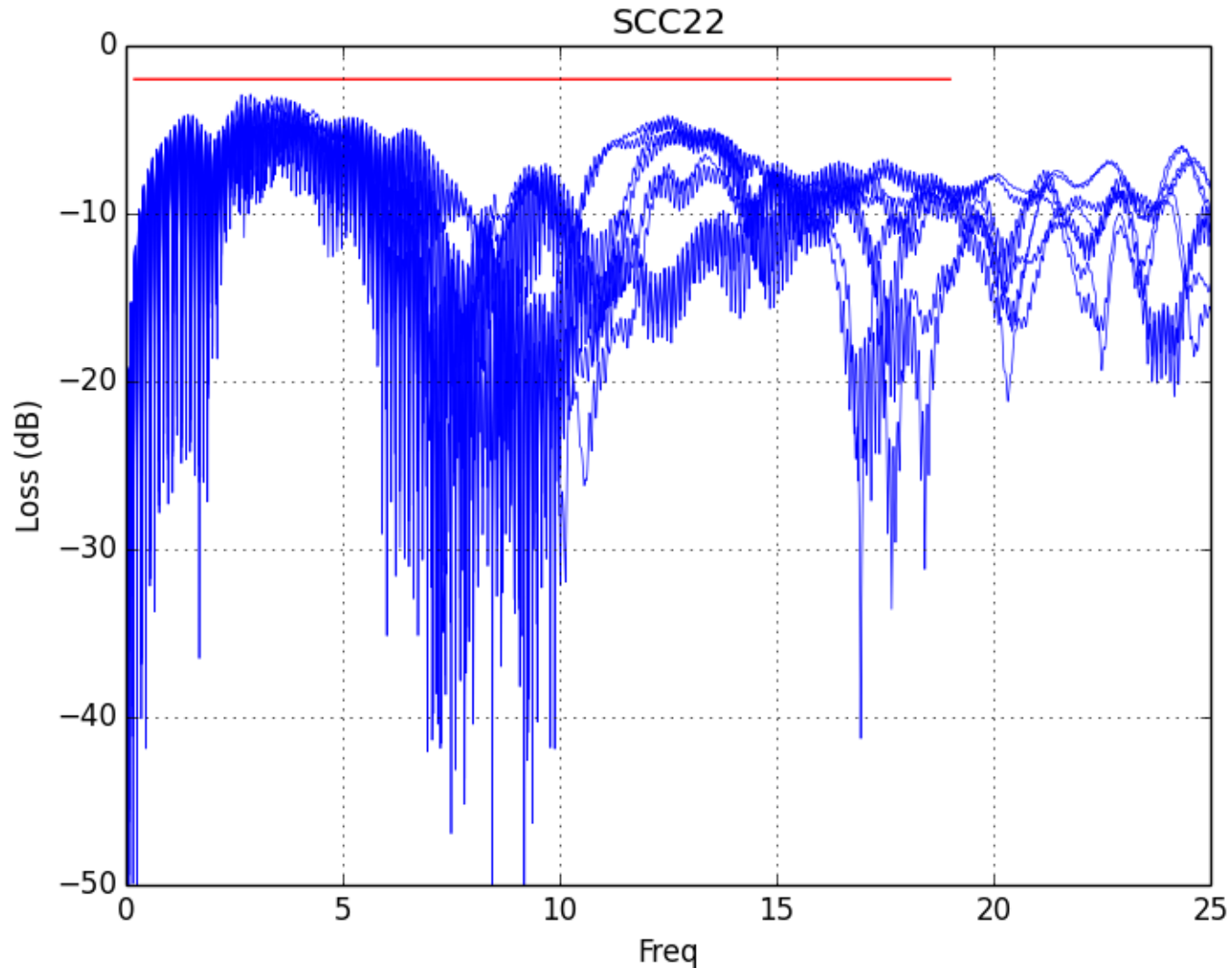
# 1m 26 awg – MDFEXT



# 1m 26 awg – Input CM RL

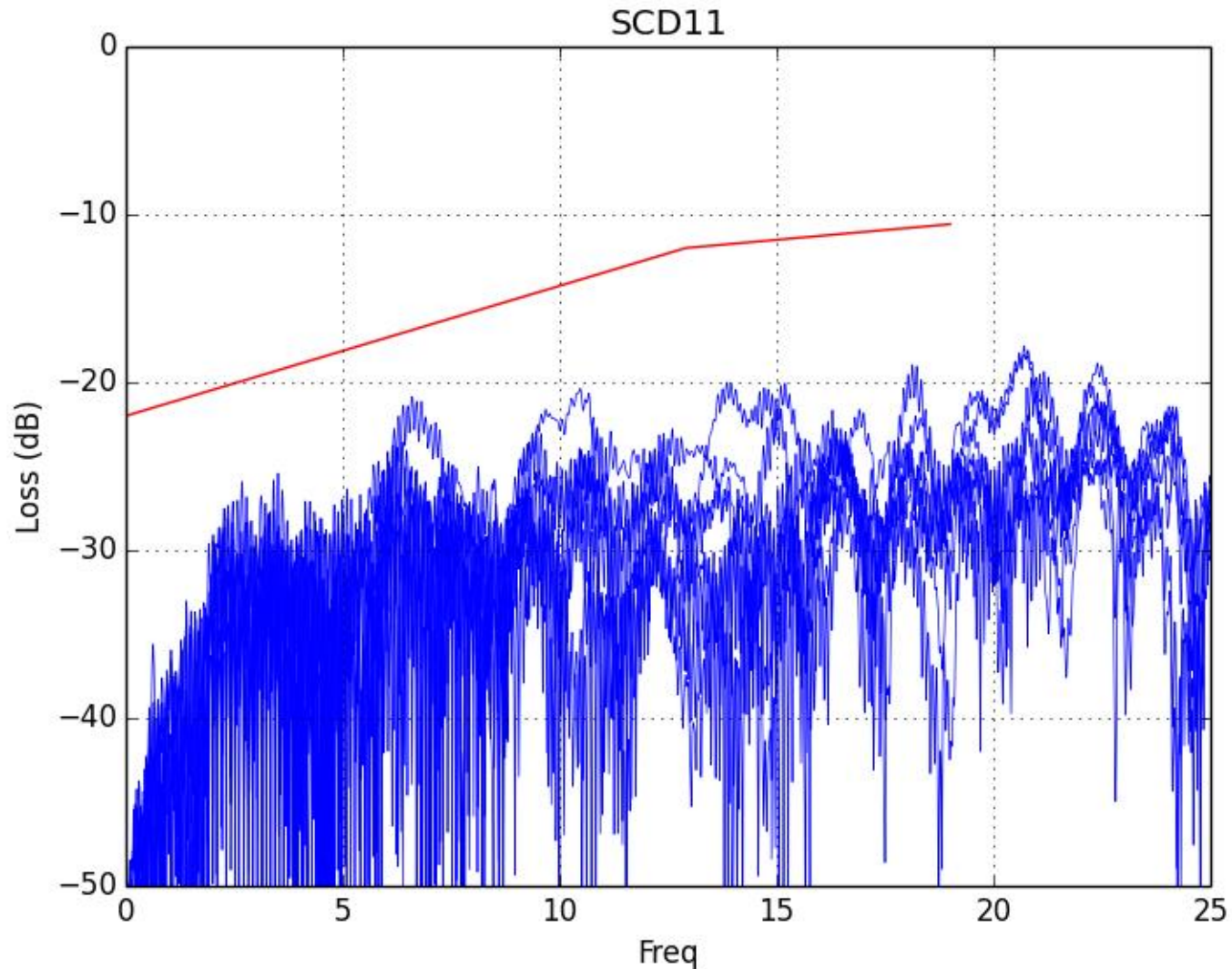


# 1m 26 awg – Output CM RL

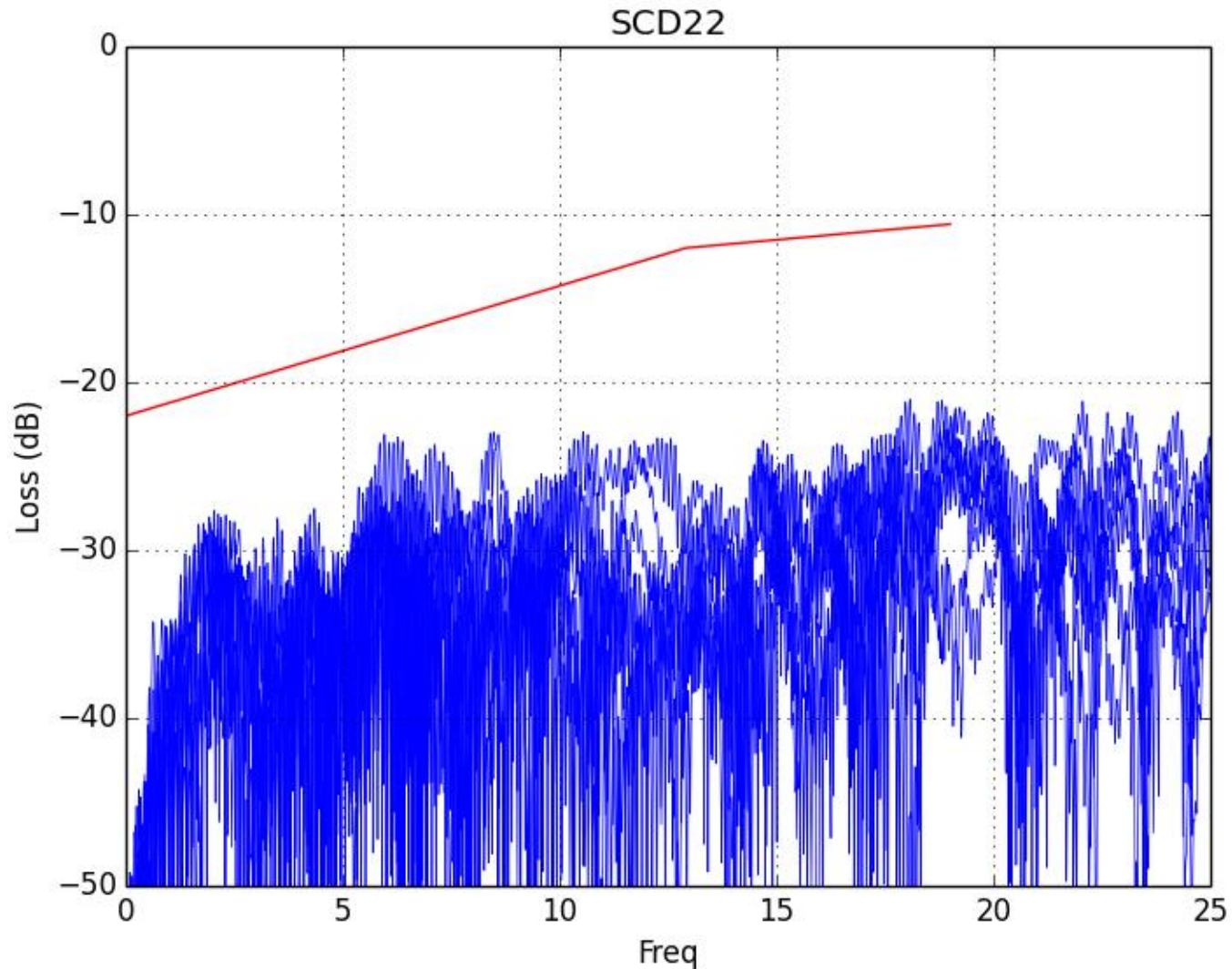




# 1m 26 awg – Input CM to DIFF RL



# 1m 26 awg – Output CM to DIFF RL



# Channel Operating Margin

COM		
Pair	Case 1	Case 2
P1Tx1 P2Rx1	8.45	7.84
P1Tx2 P2Rx2	8.45	7.85
P1Tx3 P2Rx3	8.48	7.81
P1Tx4 P2Rx4	8.43	7.88
P2Tx1 P1Rx1	8.46	7.86
P2Tx2 P1Rx2	8.53	7.89
P2Tx3 P1Rx3	8.50	7.82
P2Tx4 P1Rx4	8.52	7.83

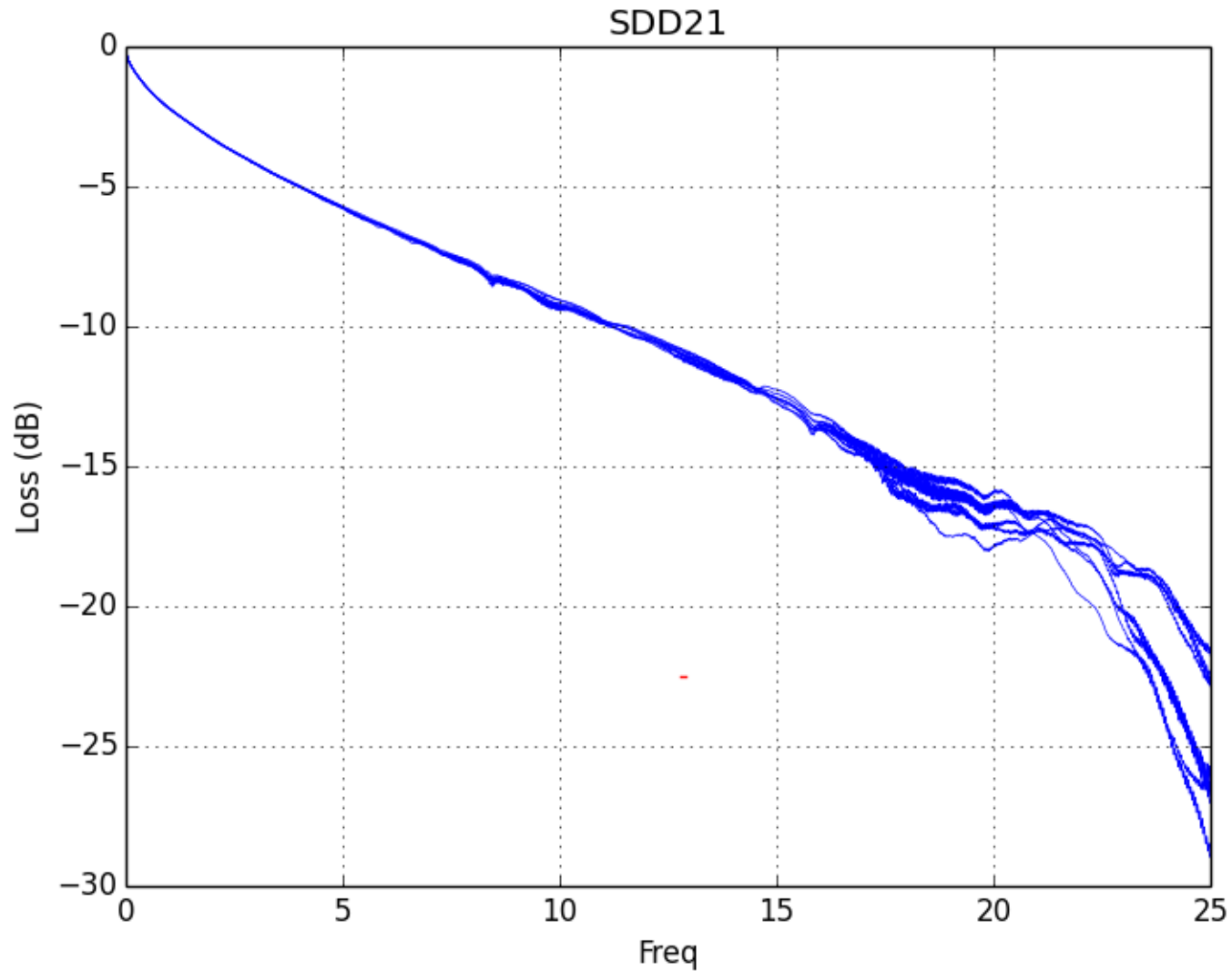




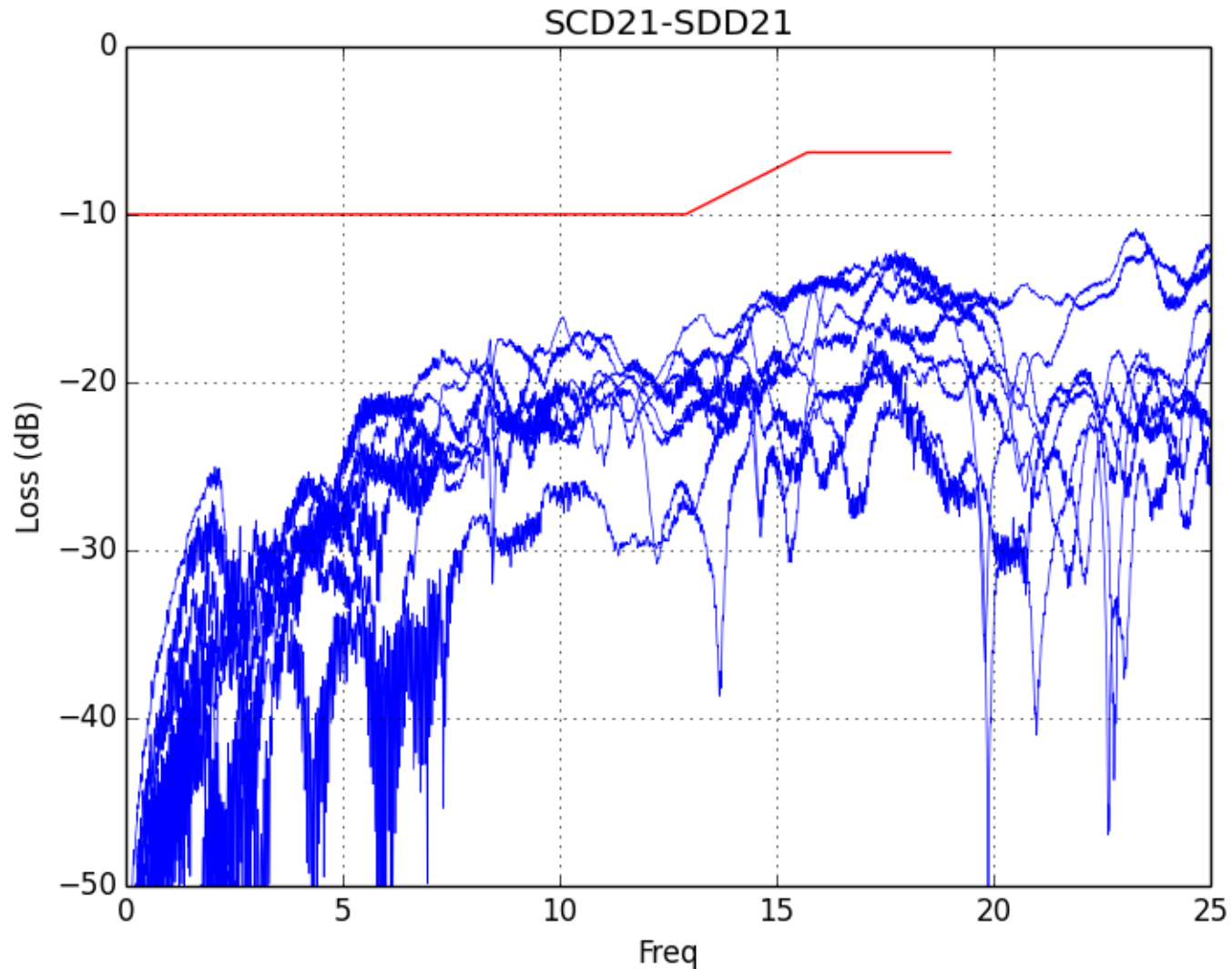
**2m 26 awg**



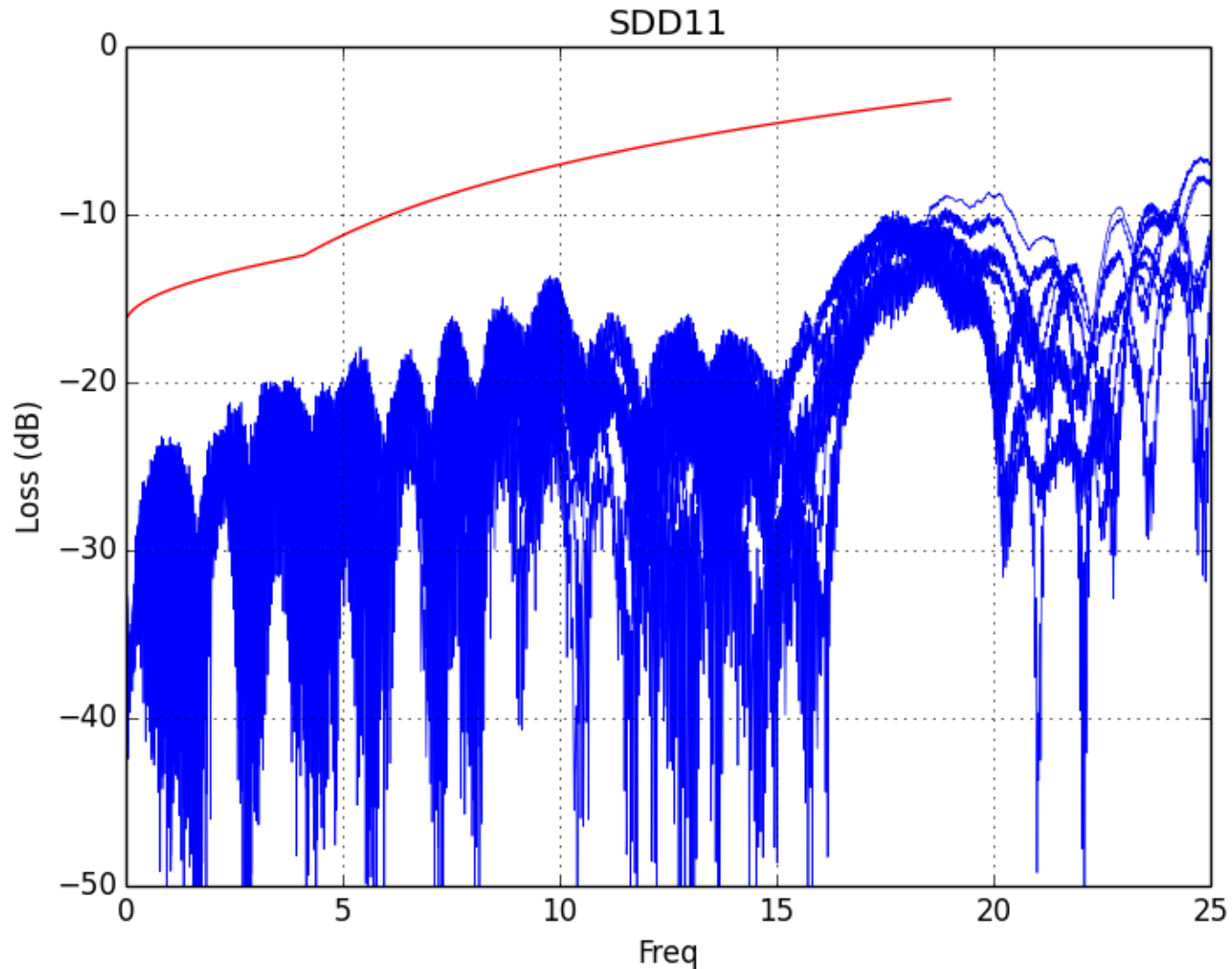
# 2m 26 awg - IL



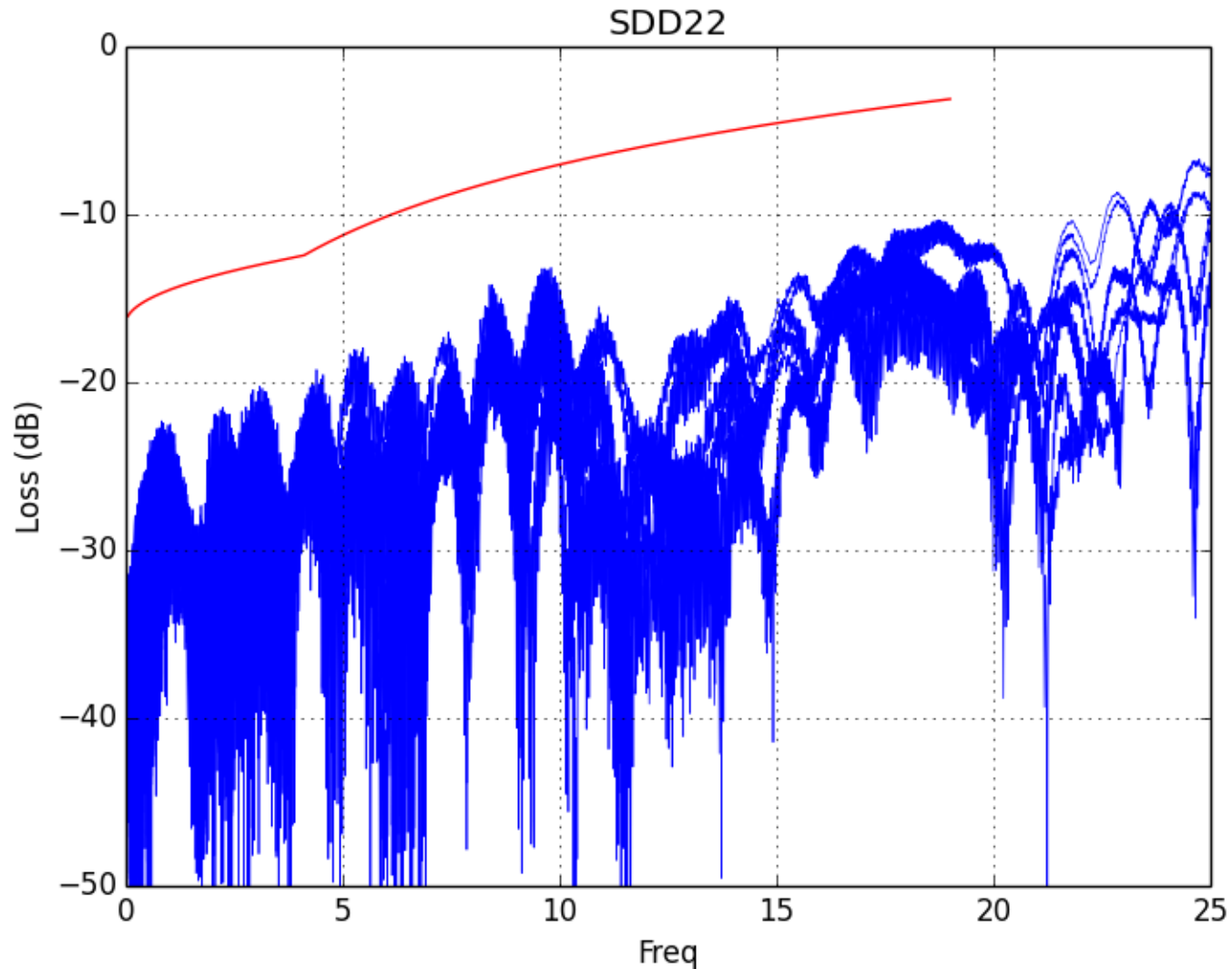
# 2m 26 awg – Conversion Loss



# 2m 26 awg – Input RL

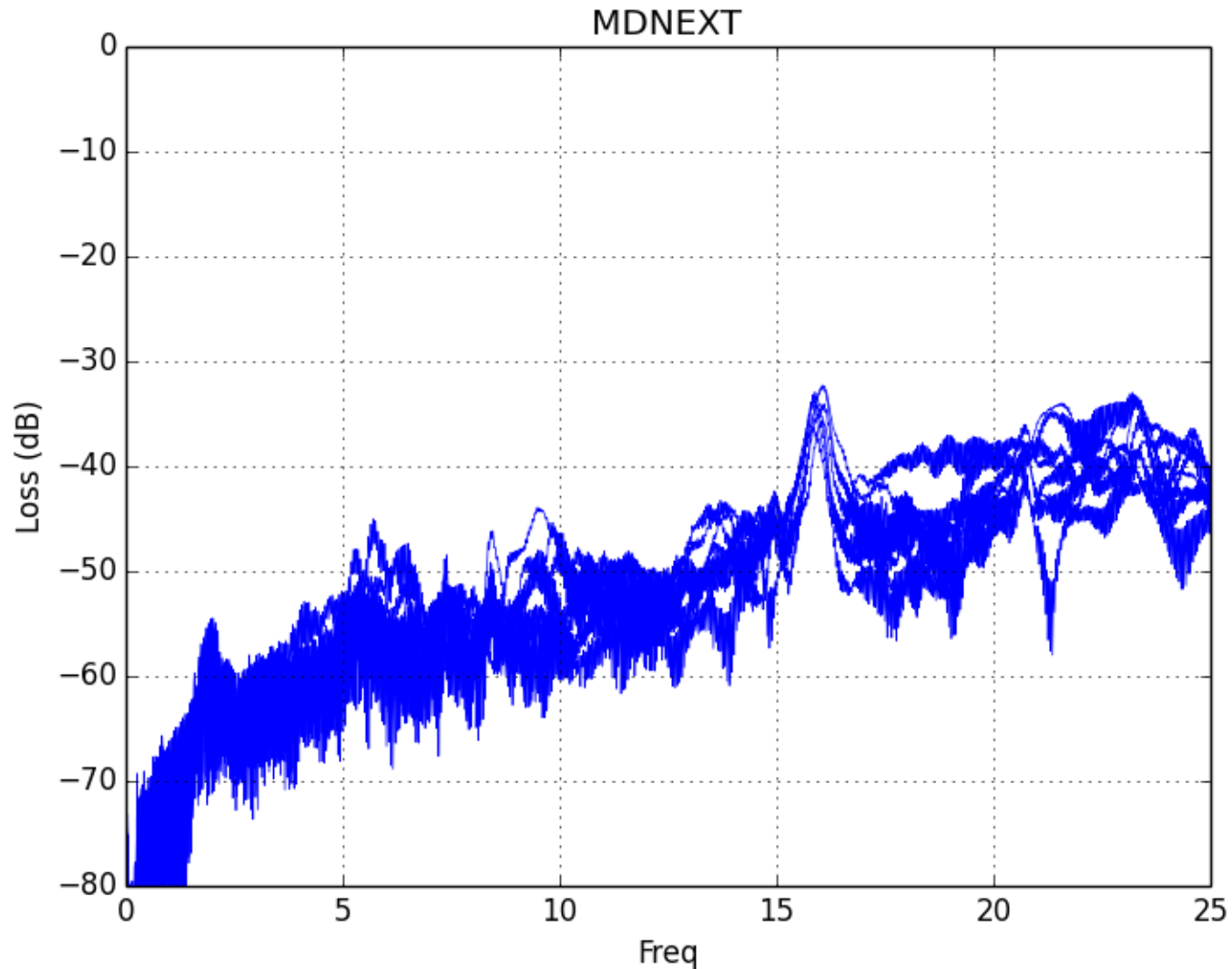


# 2m 26 awg – Output RL

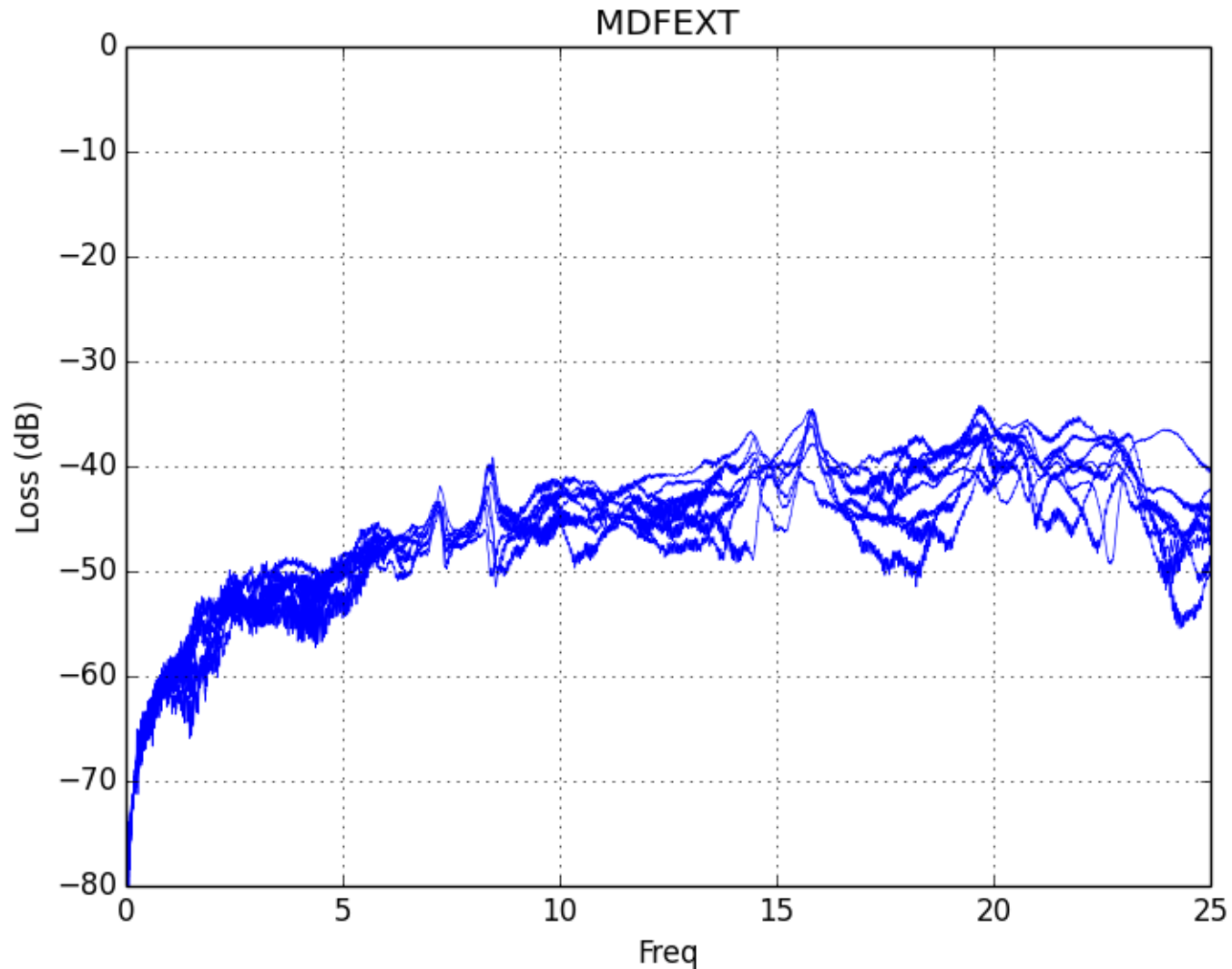




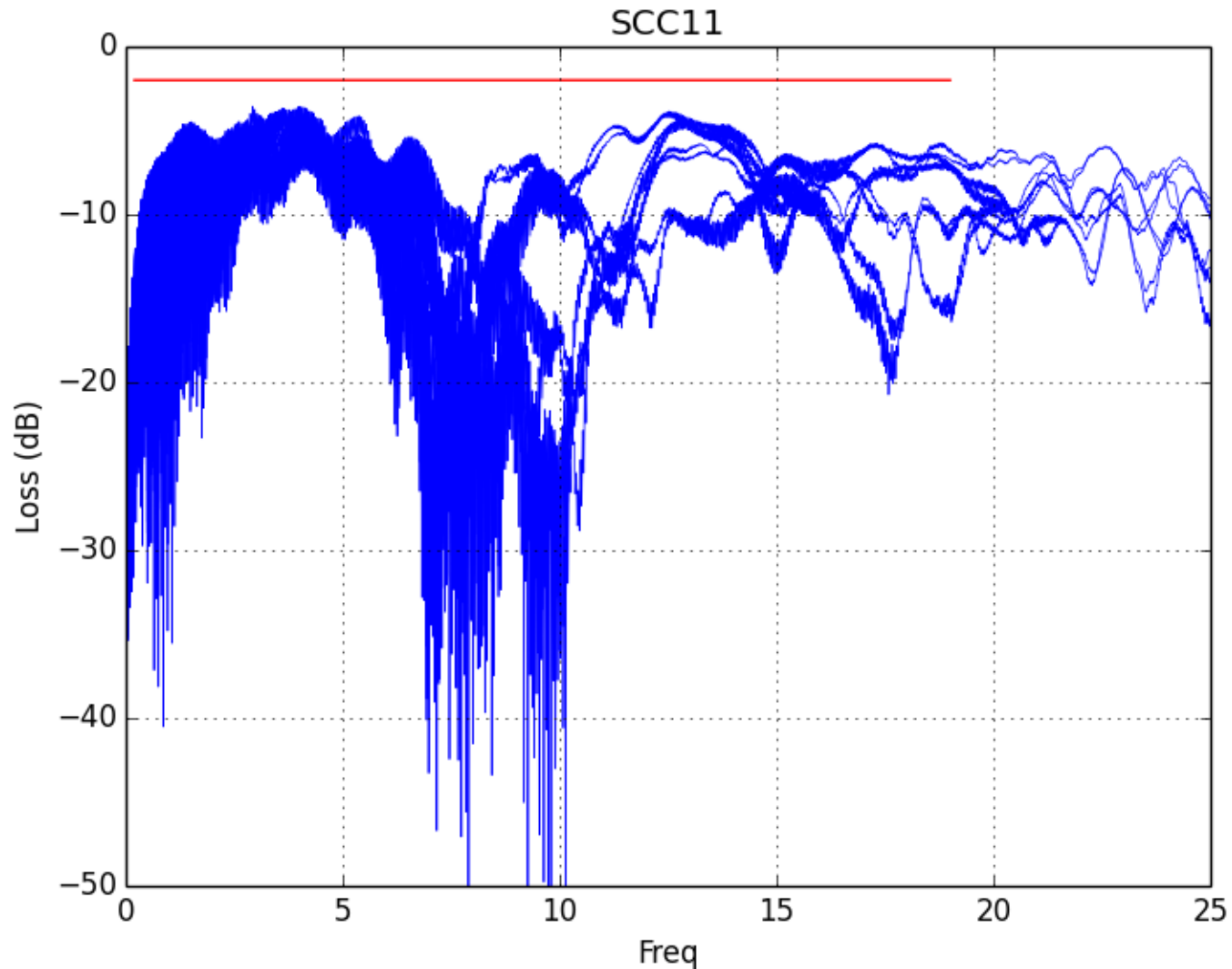
# 2m 26 awg – MDNEXT



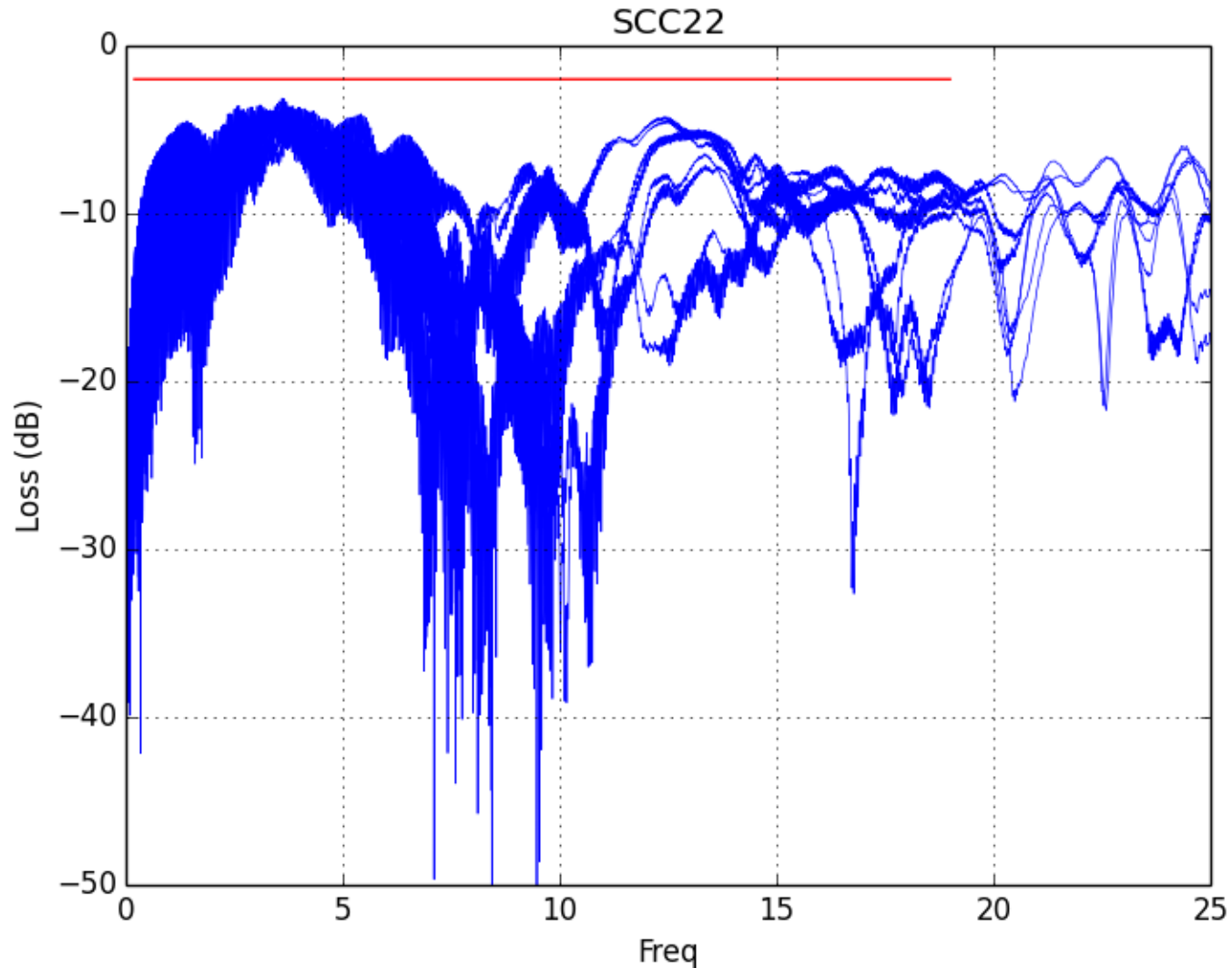
# 2m 26 awg – MDFEXT



# 2m 26 awg – Input CM RL

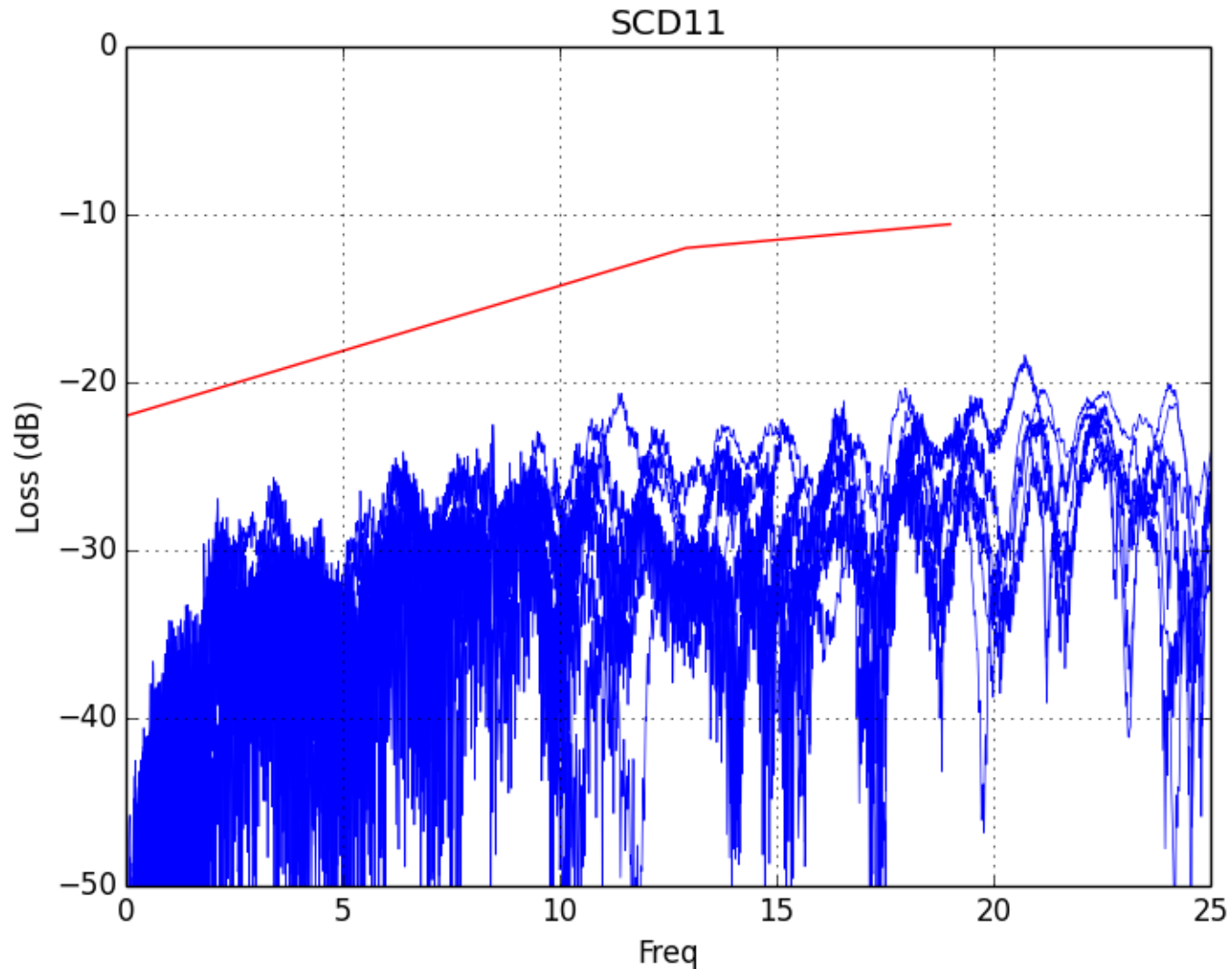


# 2m 26 awg – Output CM RL

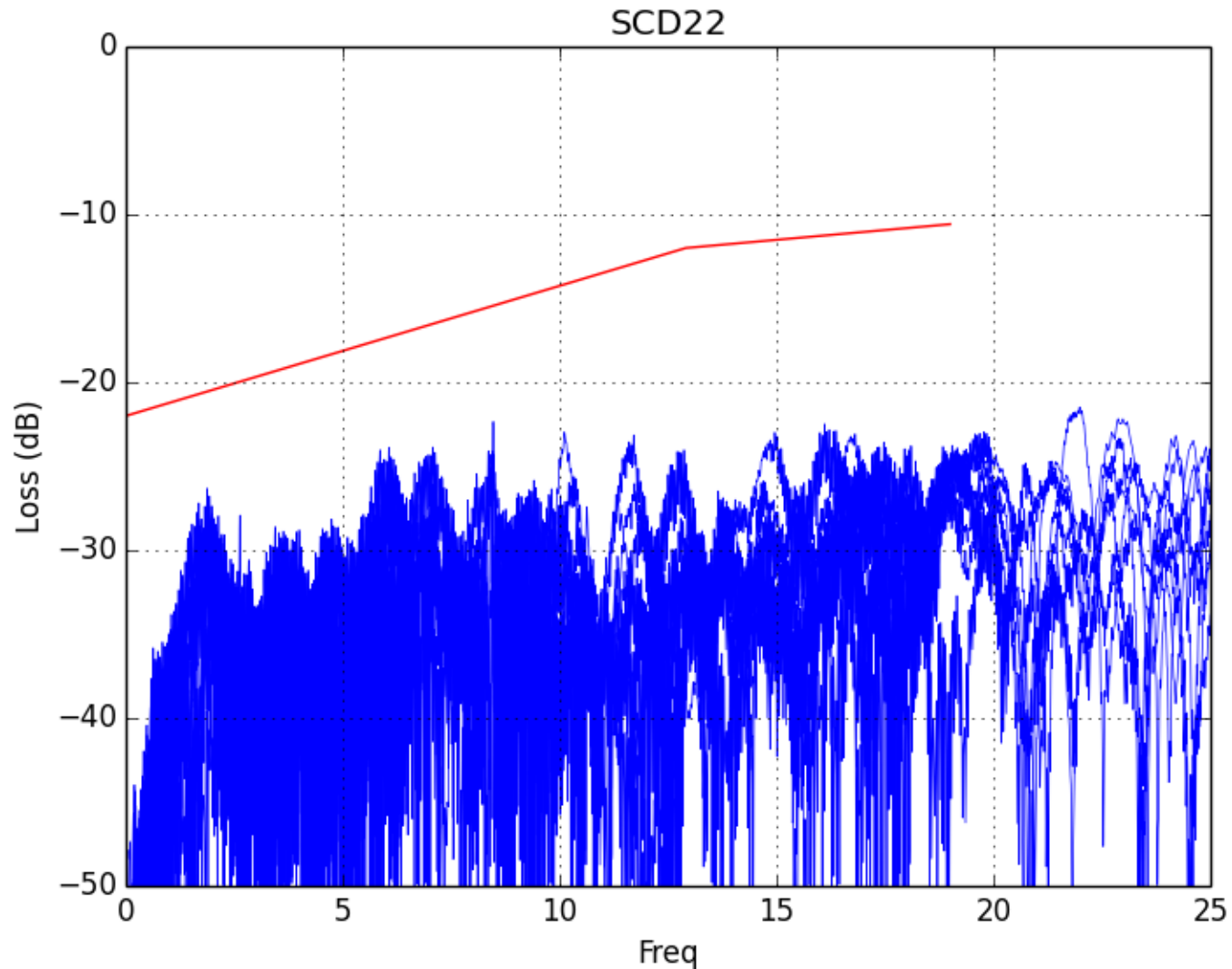




# 2m 26 awg – Input CM to DIFF RL



# 2m 26 awg – Output CM to DIFF RL



# Channel Operating Margin

COM		
Pair	Case 1	Case 2
P1Tx1 P2Rx1	8.02	7.33
P1Tx2 P2Rx2	7.92	7.23
P1Tx3 P2Rx3	7.93	7.25
P1Tx4 P2Rx4	8.01	7.26
P2Tx1 P1Rx1	8.00	7.33
P2Tx2 P1Rx2	7.98	7.29
P2Tx3 P1Rx3	8.04	7.38
P2Tx4 P1Rx4	7.95	7.30

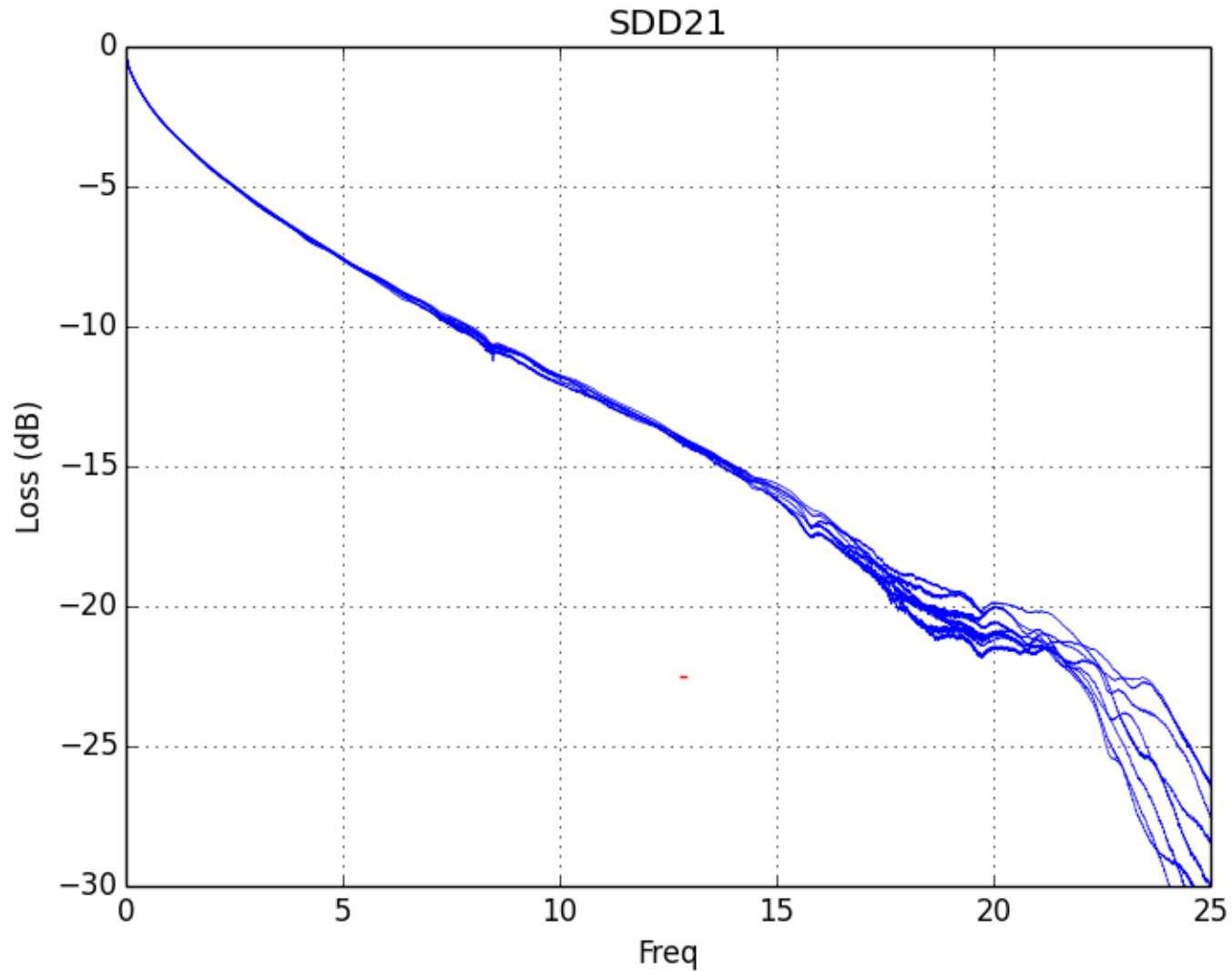


**3m 26 awg**

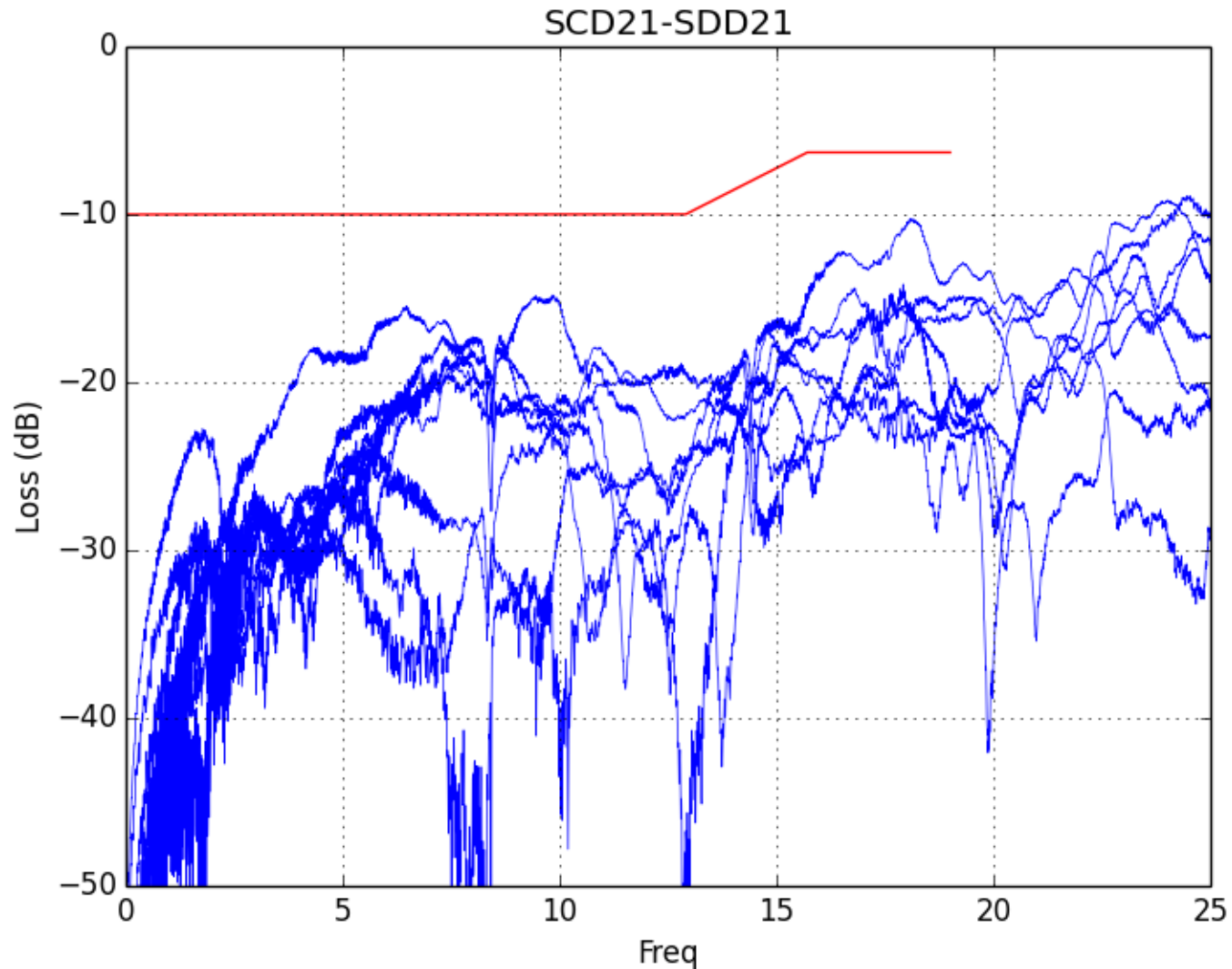
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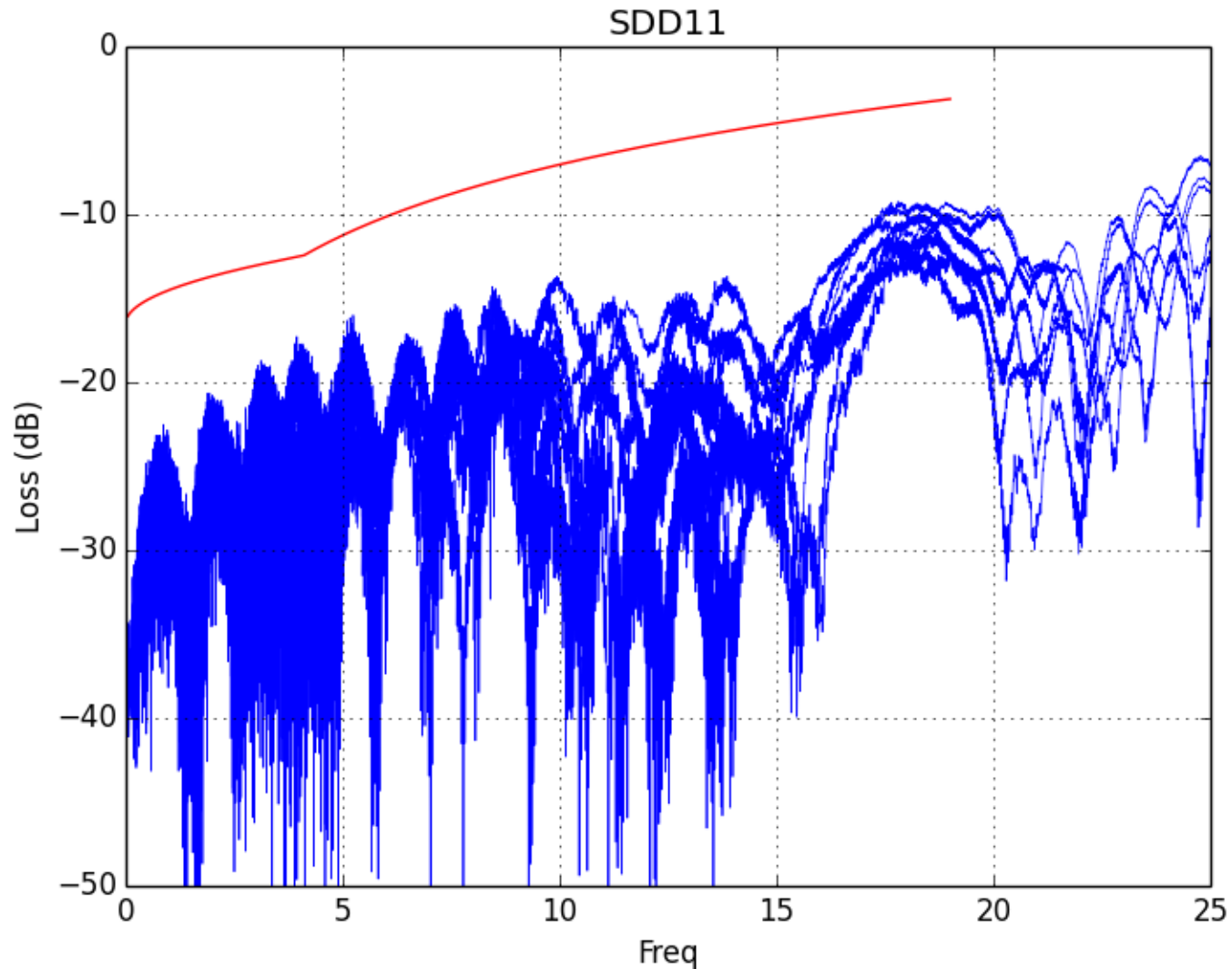
# 3m 26 awg - IL



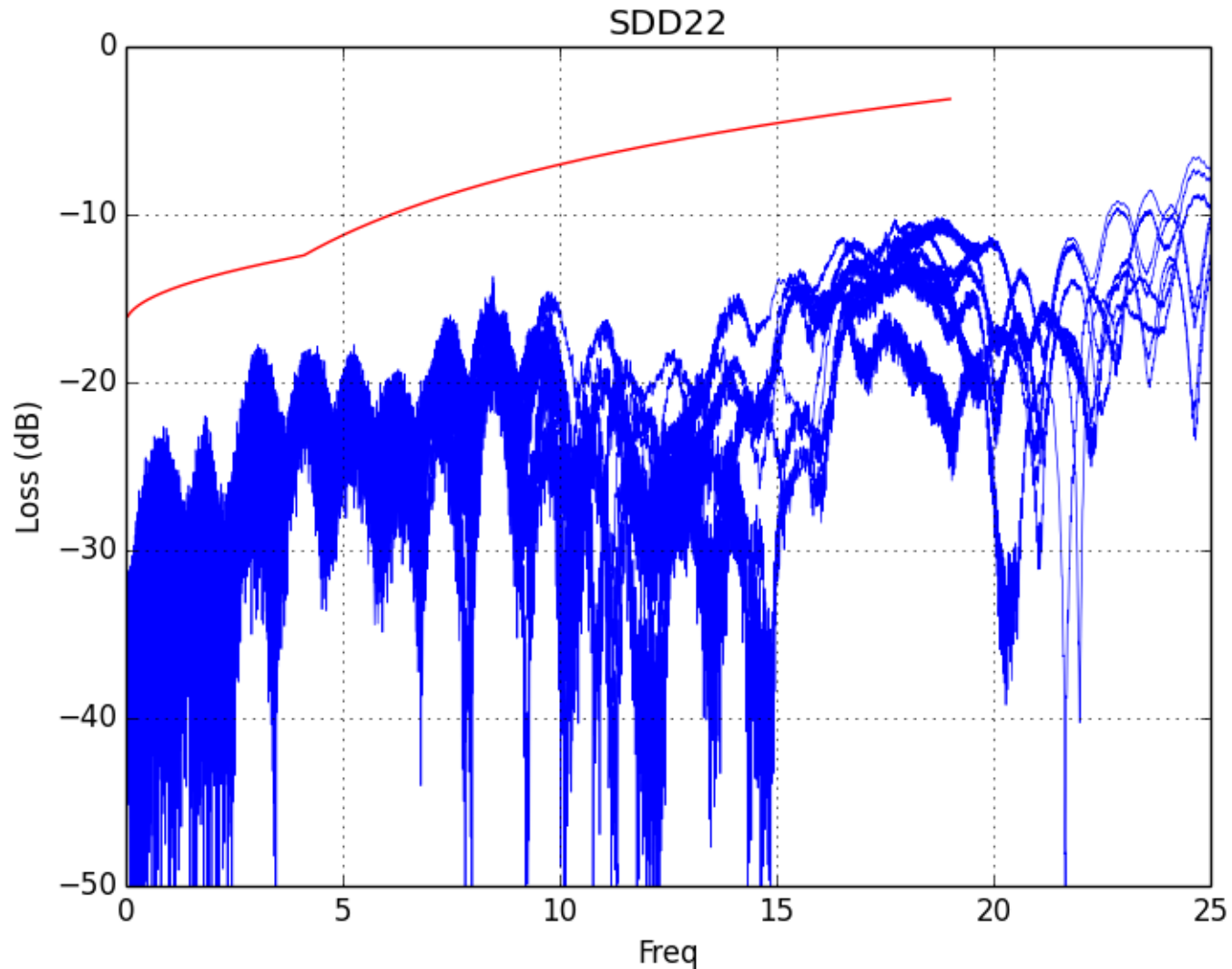
# 3m 26 awg – Conversion Loss



# 3m 26 awg – Input RL

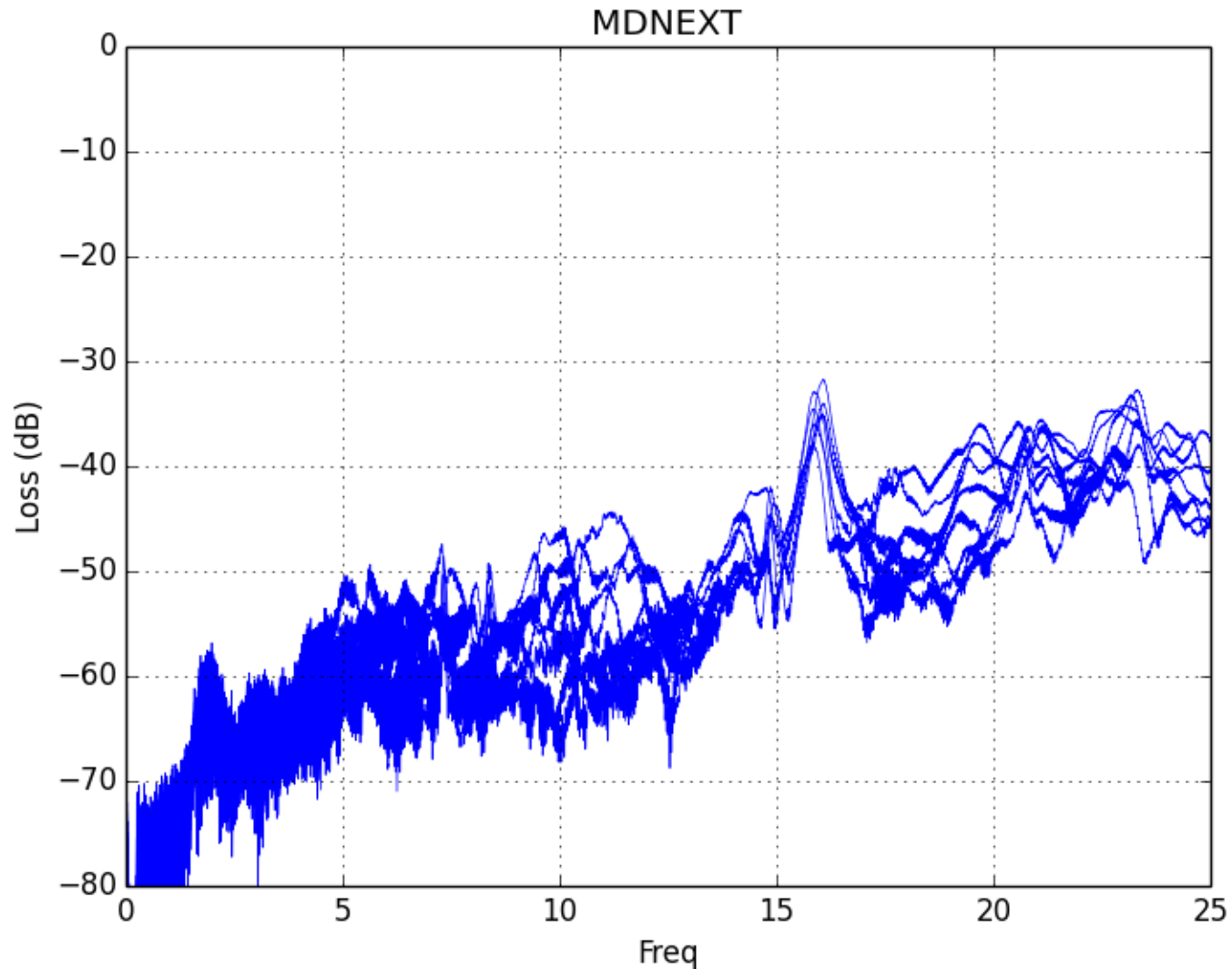


# 3m 26 awg – Output RL

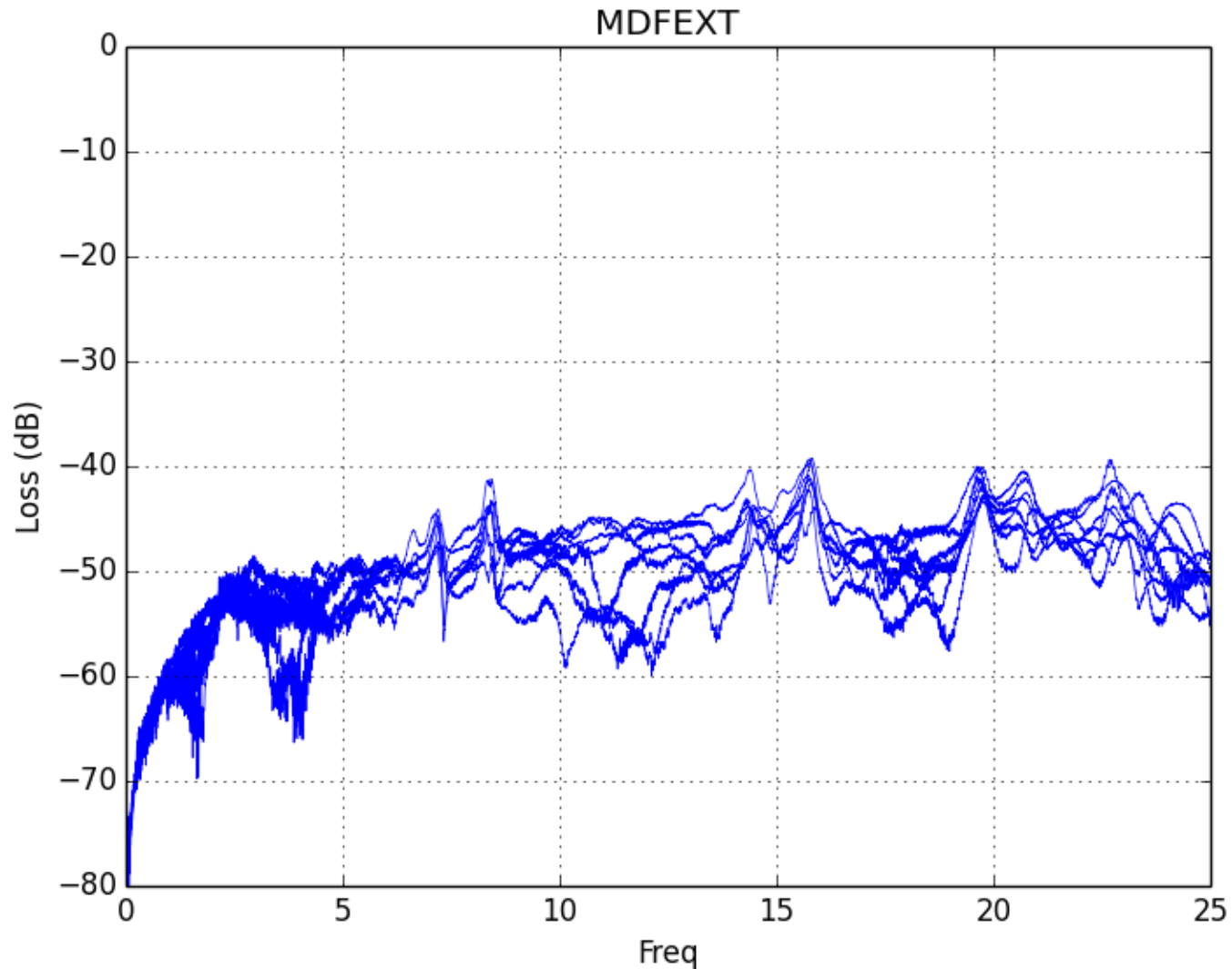




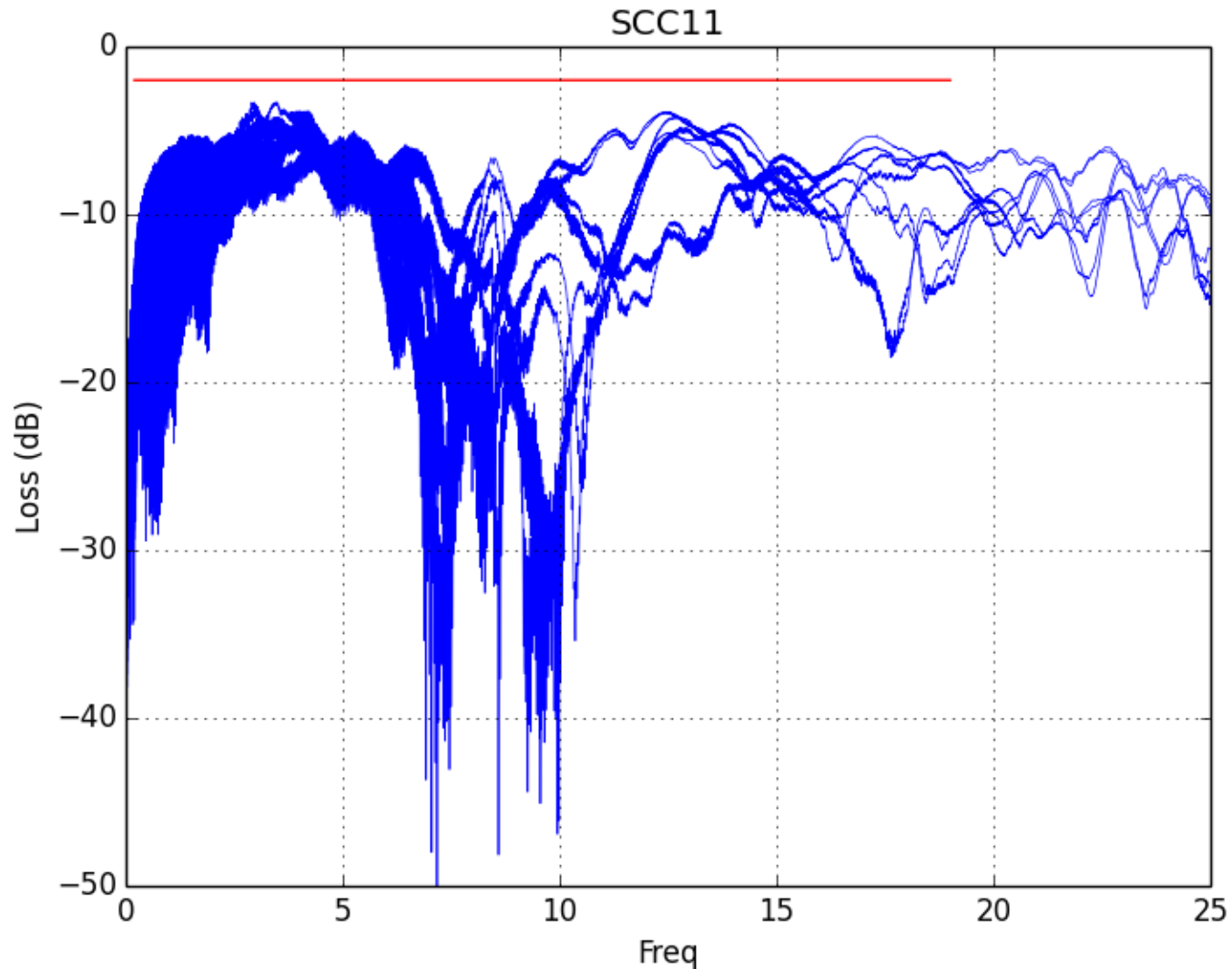
# 3m 26 awg – MDNEXT



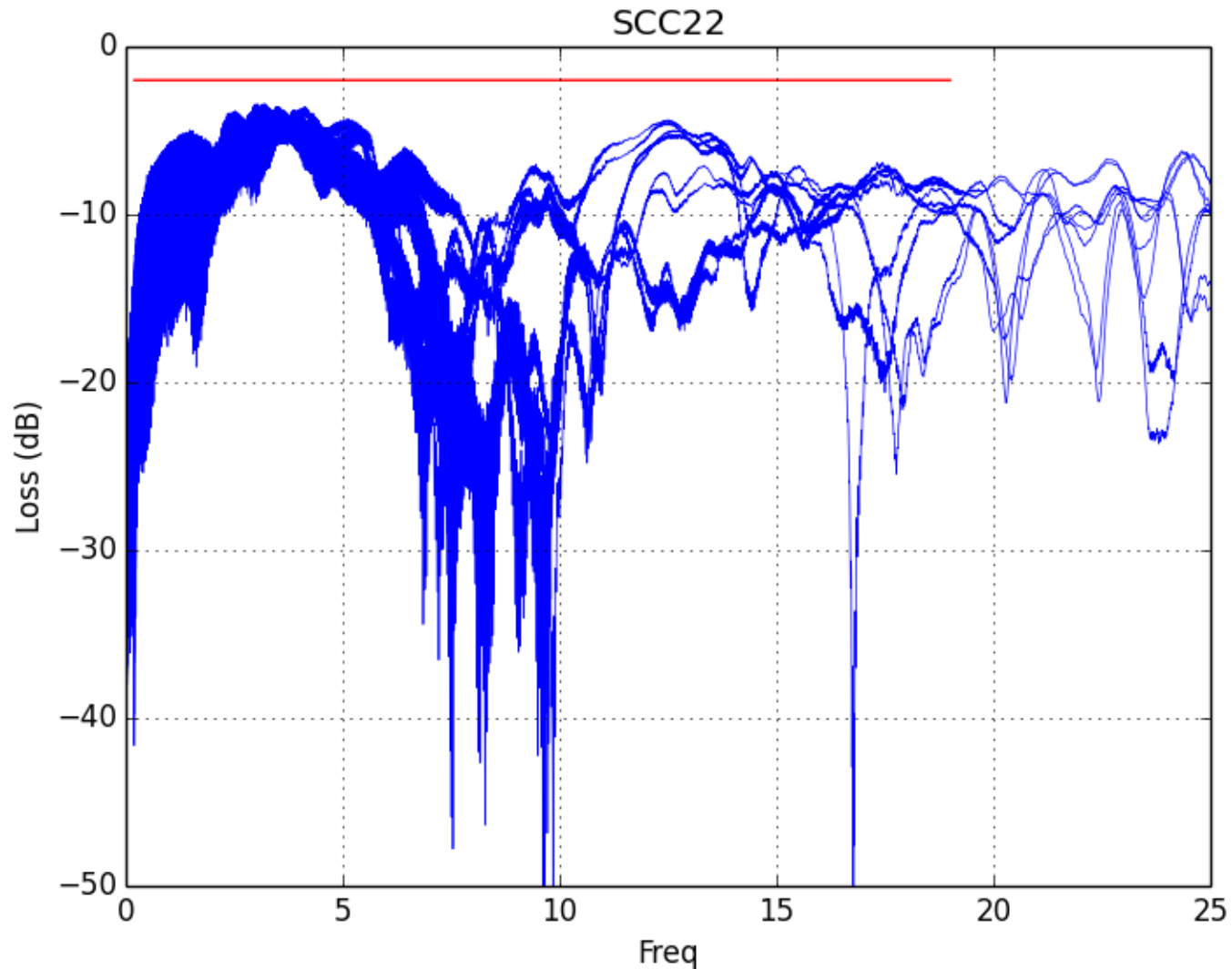
# 3m 26 awg – MDFEXT



# 3m 26 awg – Input CM RL

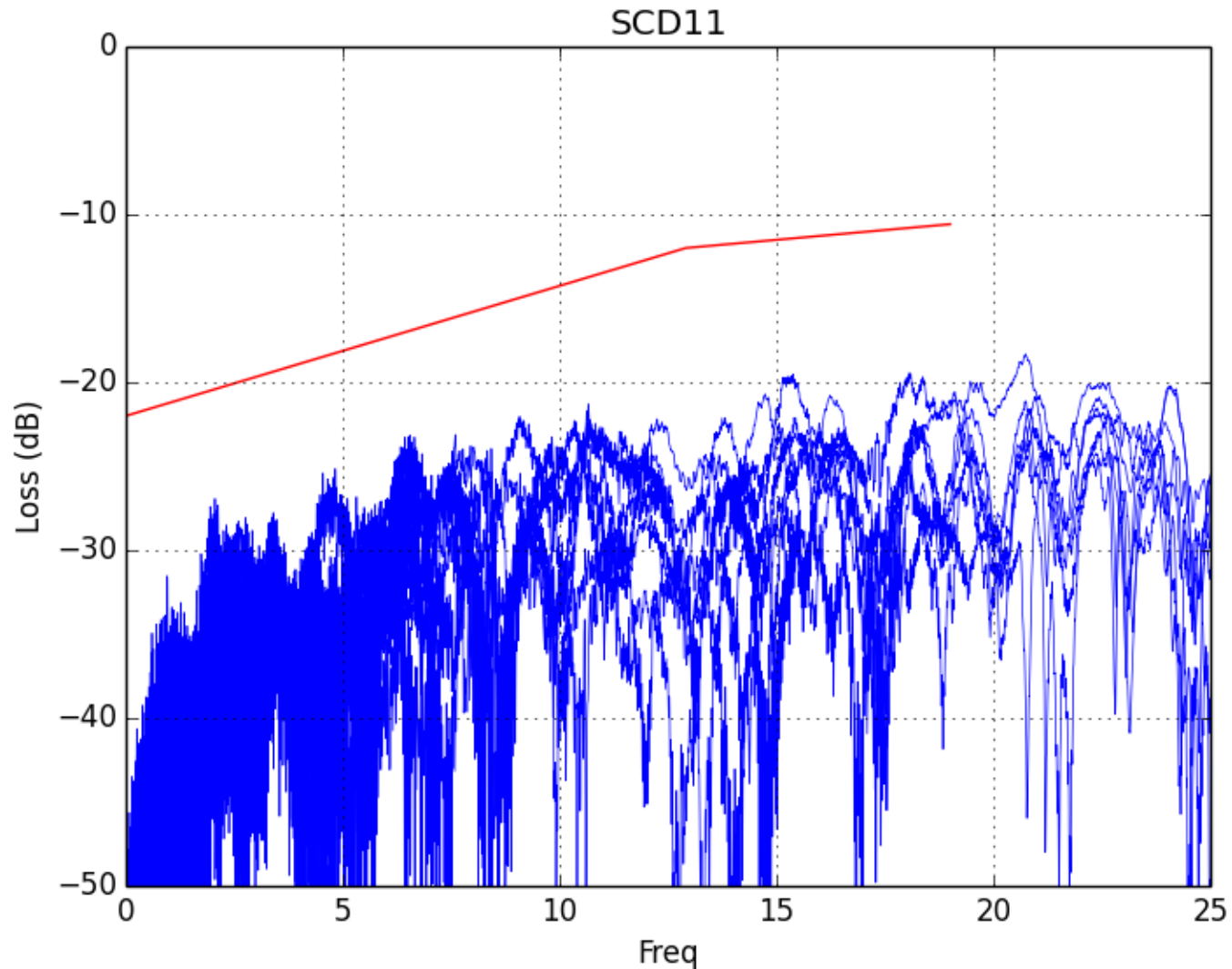


# 3m 26 awg – Output CM RL

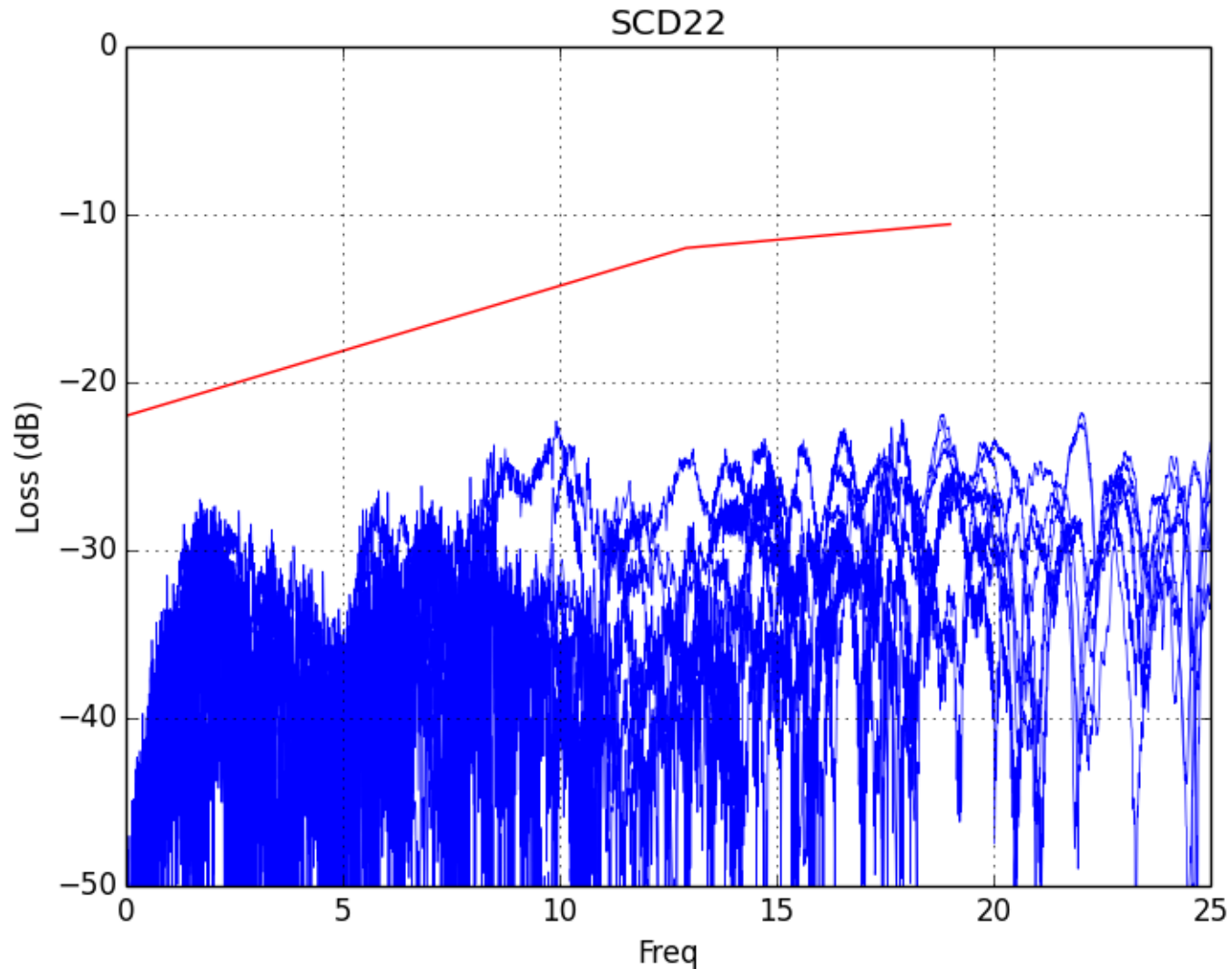




# 3m 26 awg – Input CM to DIFF RL



# 3m 26 awg – Output CM to DIFF RL



# Channel Operating Margin

COM		
Pair	Case 1	Case 2
P1Tx1 P2Rx1	7.40	6.53
P1Tx2 P2Rx2	7.23	6.30
P1Tx3 P2Rx3	7.34	6.54
P1Tx4 P2Rx4	7.37	6.51
P2Tx1 P1Rx1	7.22	6.38
P2Tx2 P1Rx2	7.40	6.55
P2Tx3 P1Rx3	7.36	6.50
P2Tx4 P1Rx4	7.44	6.60

# Next Steps

- **Run COM with new code and configurations from mellitz\_01\_011116\_elect**
- **Upload Channel Data if requested**



# Thank You

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