

CFP4 Modeled Performance

IEEE 802.3bj 100Gb/s Backplane and Copper Cable Task Force

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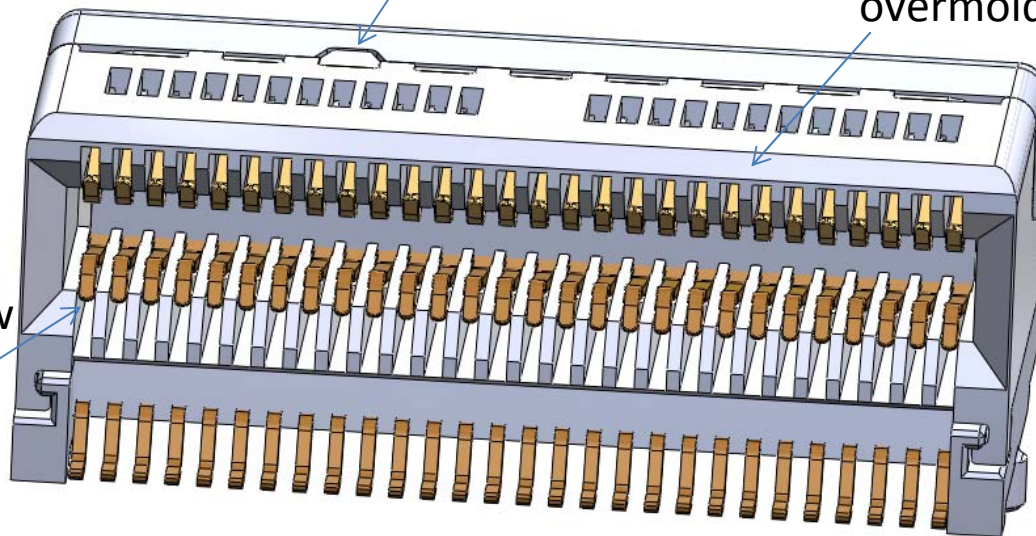
07-16-2012

CFP4 CONNECTOR

Conductive clip in
contact with ground
positions

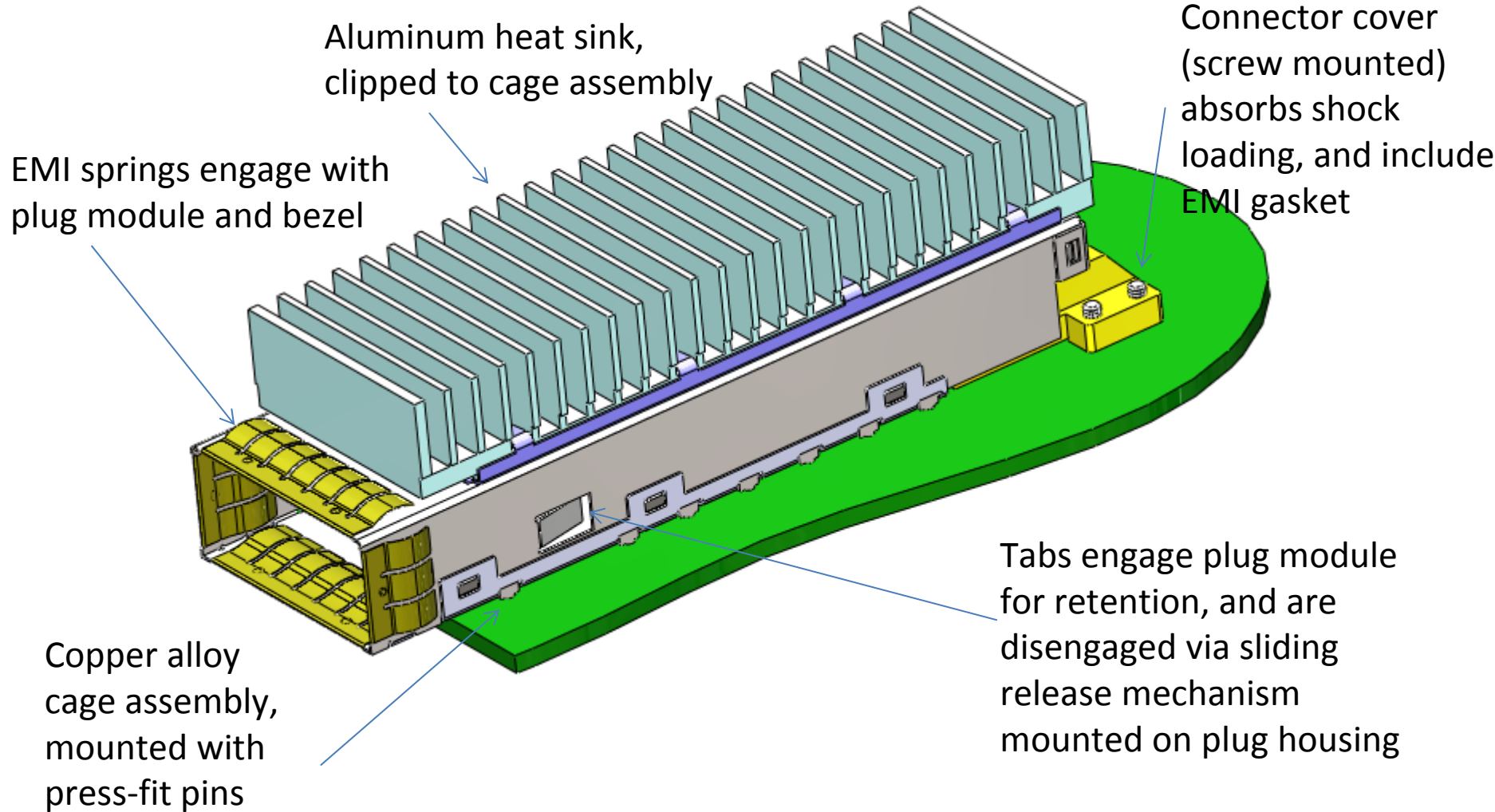
Upper contact row (high
speed positions) in
overmolded assembly

Lower contact row
(low speed
positions)
assembled by
'stitched' method



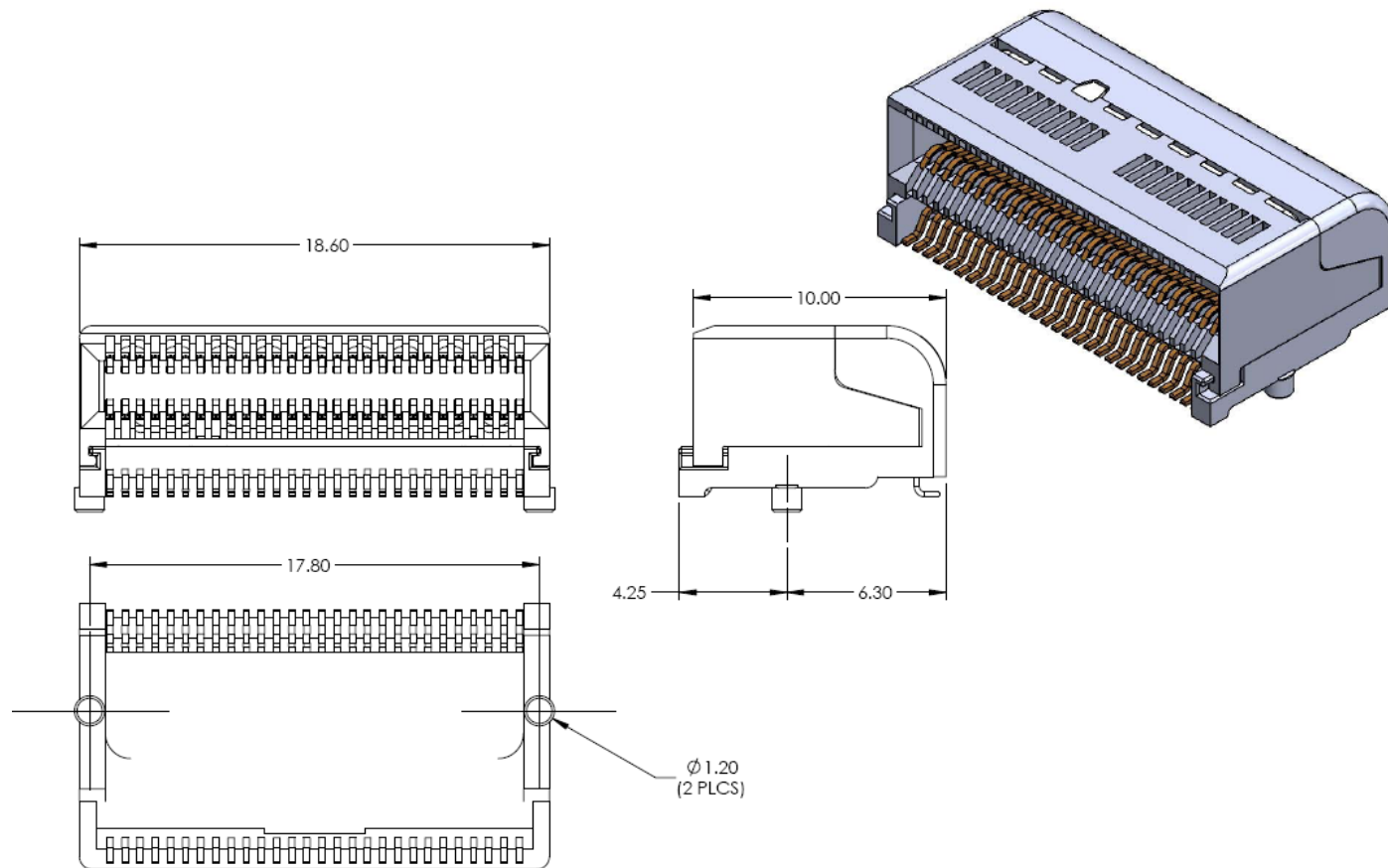
- 56 position, 0.6mm contact pitch
- High speed differential signal contacts in upper row
- 4x25G
- Reflow solder mounted to PCB

CFP4 CAGE ASSEMBLY



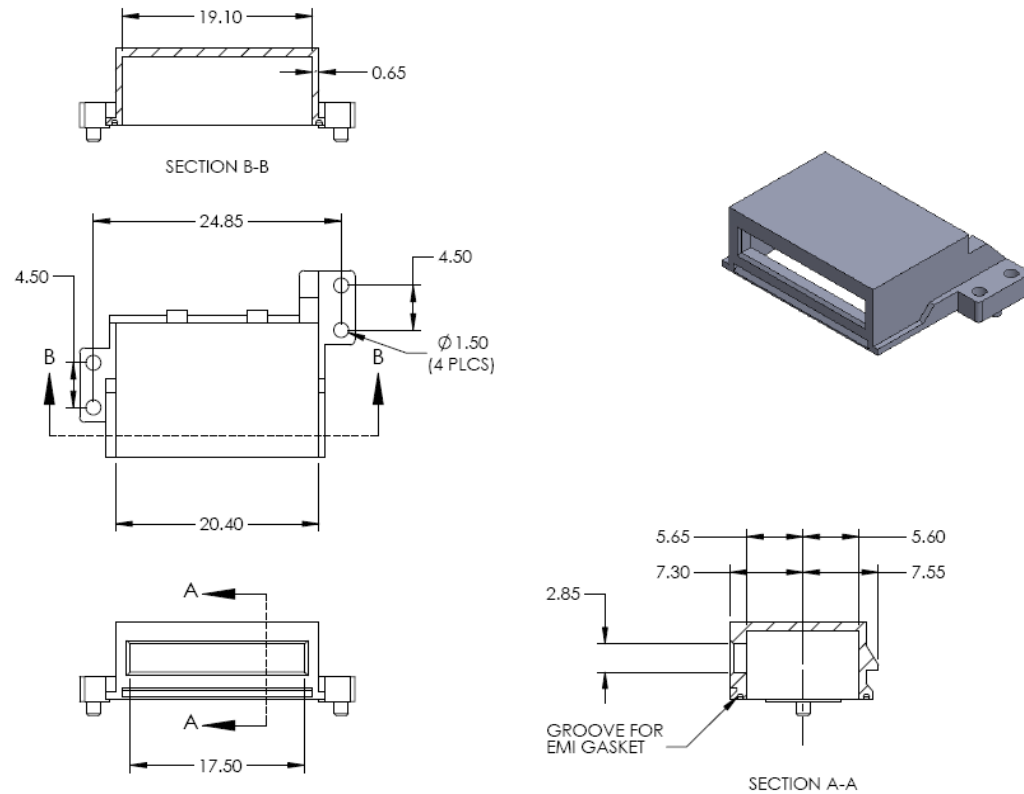
Connector Dimensions

HOST CONNECTOR ASSEMBLY



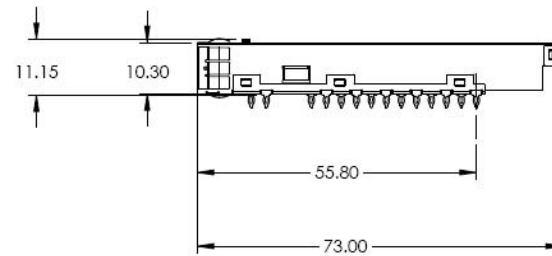
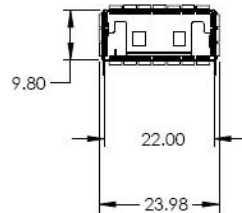
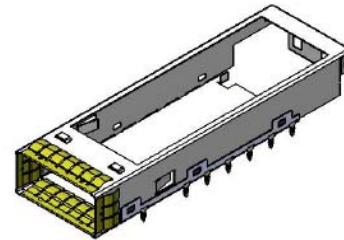
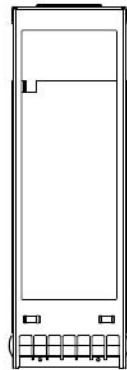
Connector Cover

CONNECTOR COVER (SCREW MOUNTED)



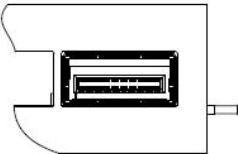
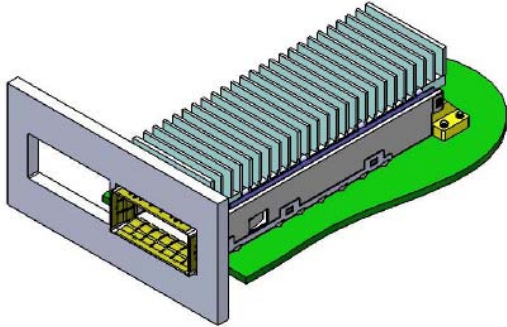
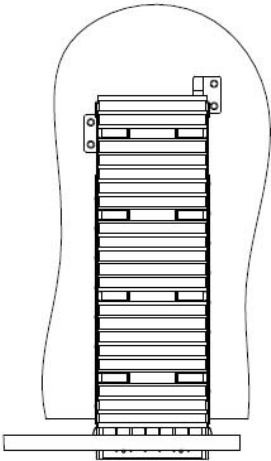
Single Port Cage

SINGLE-PORT CAGE ASSEMBLY

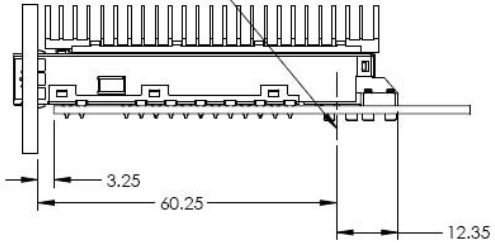


Connector and Cage Assembly

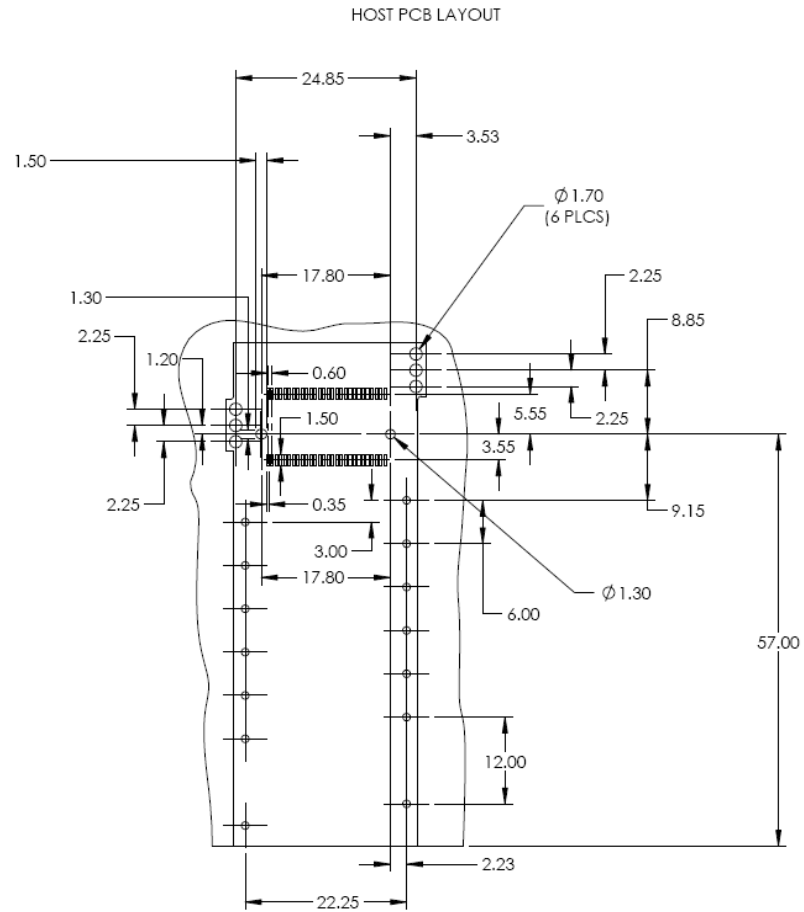
CAGE & CONNECTOR ASSEMBLY



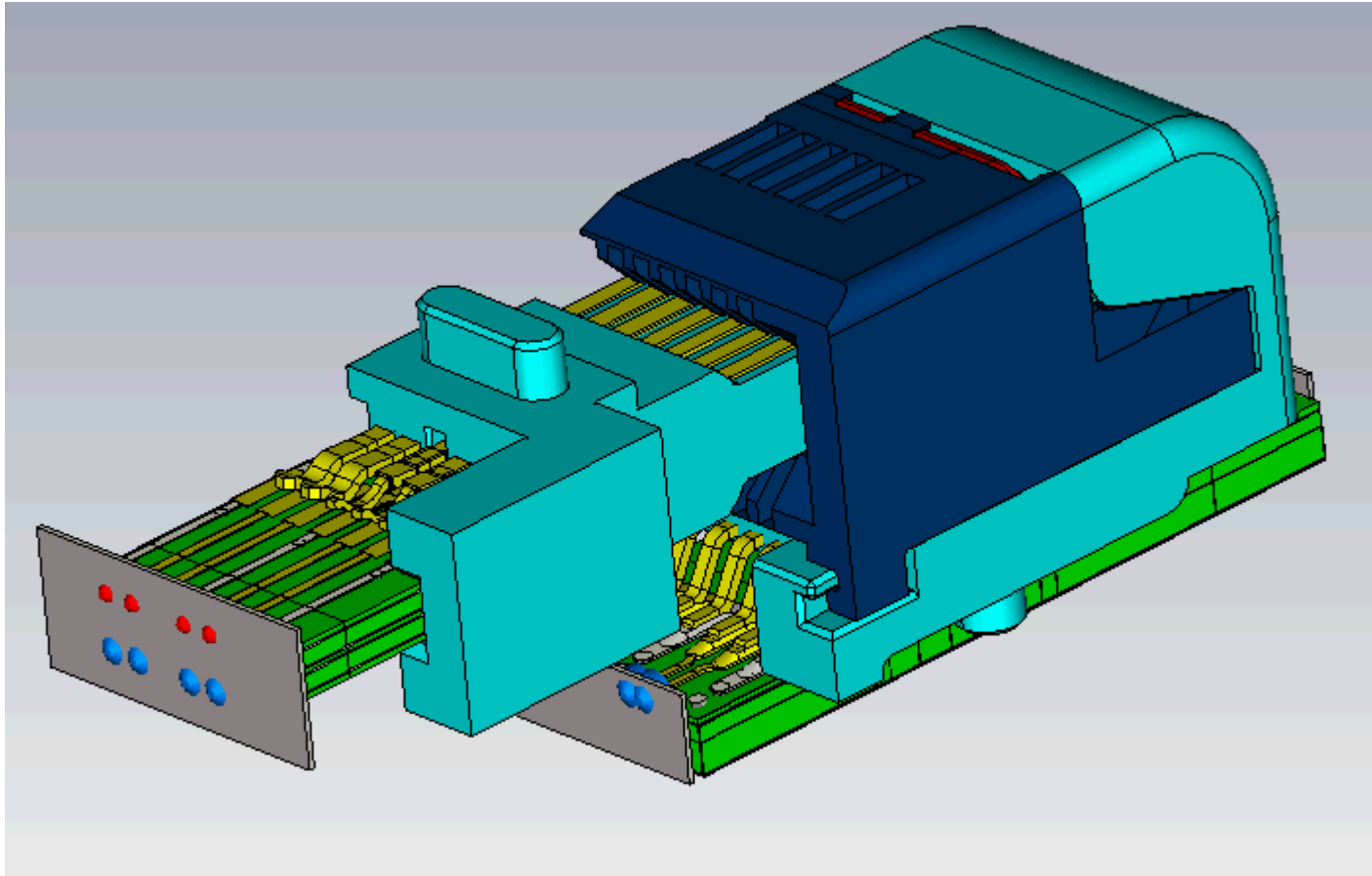
CONNECTOR ALIGNMENT PIN ϵ



PCB Layout

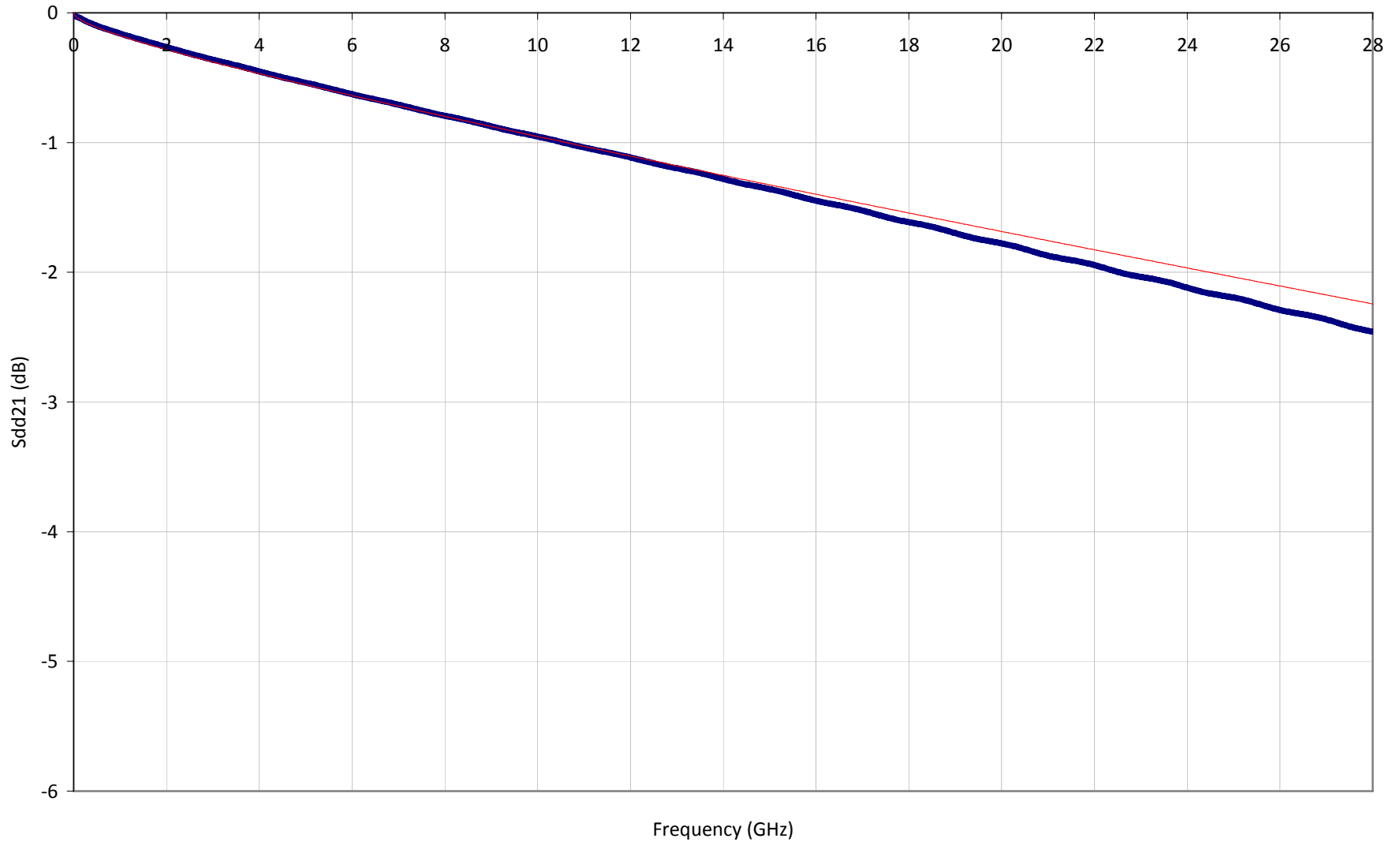


Receptacle Model Simulation Setup



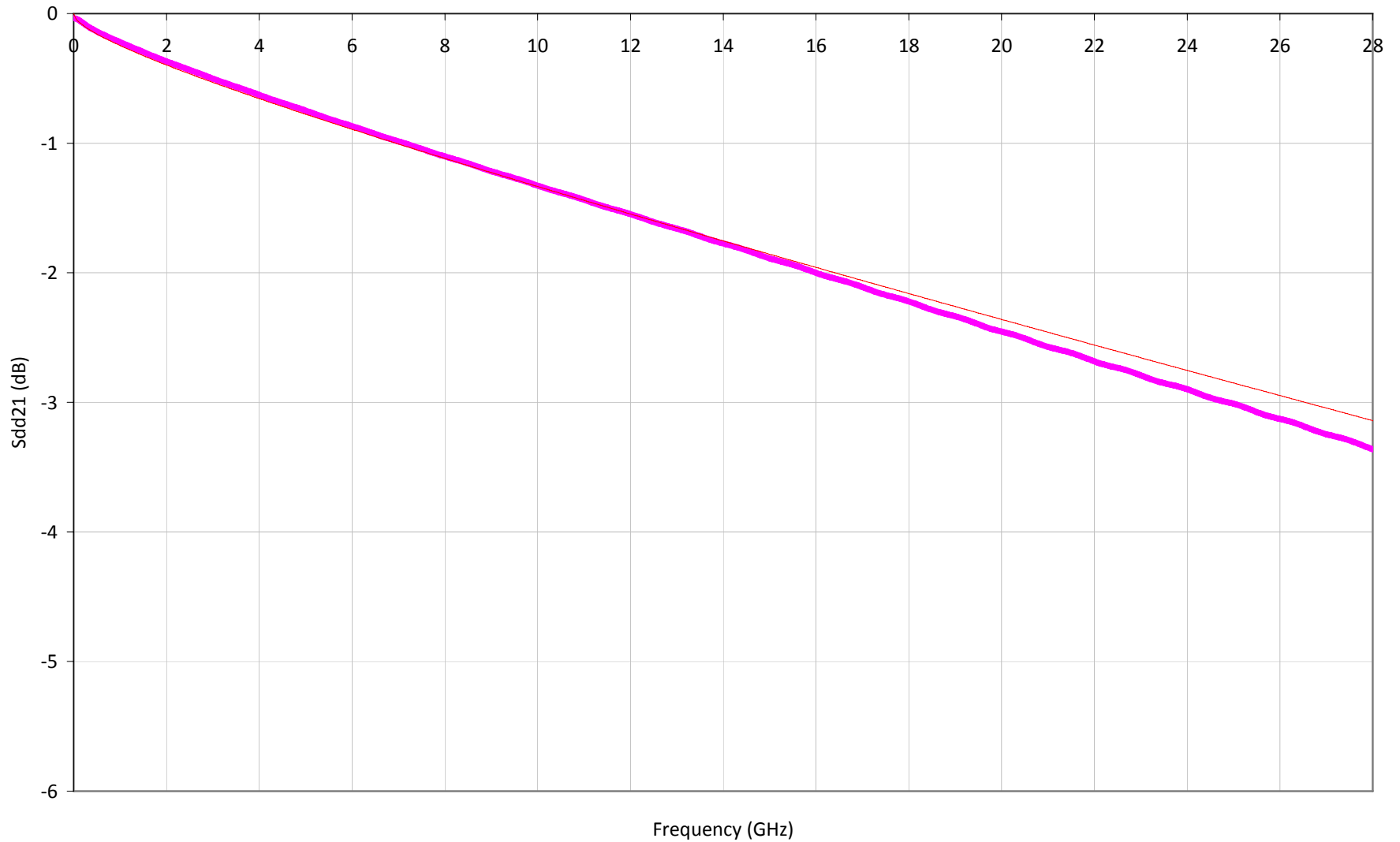
Model Results - MCB (Insertion Loss)

CFP2/4 Module Compliance Board Insertion Loss



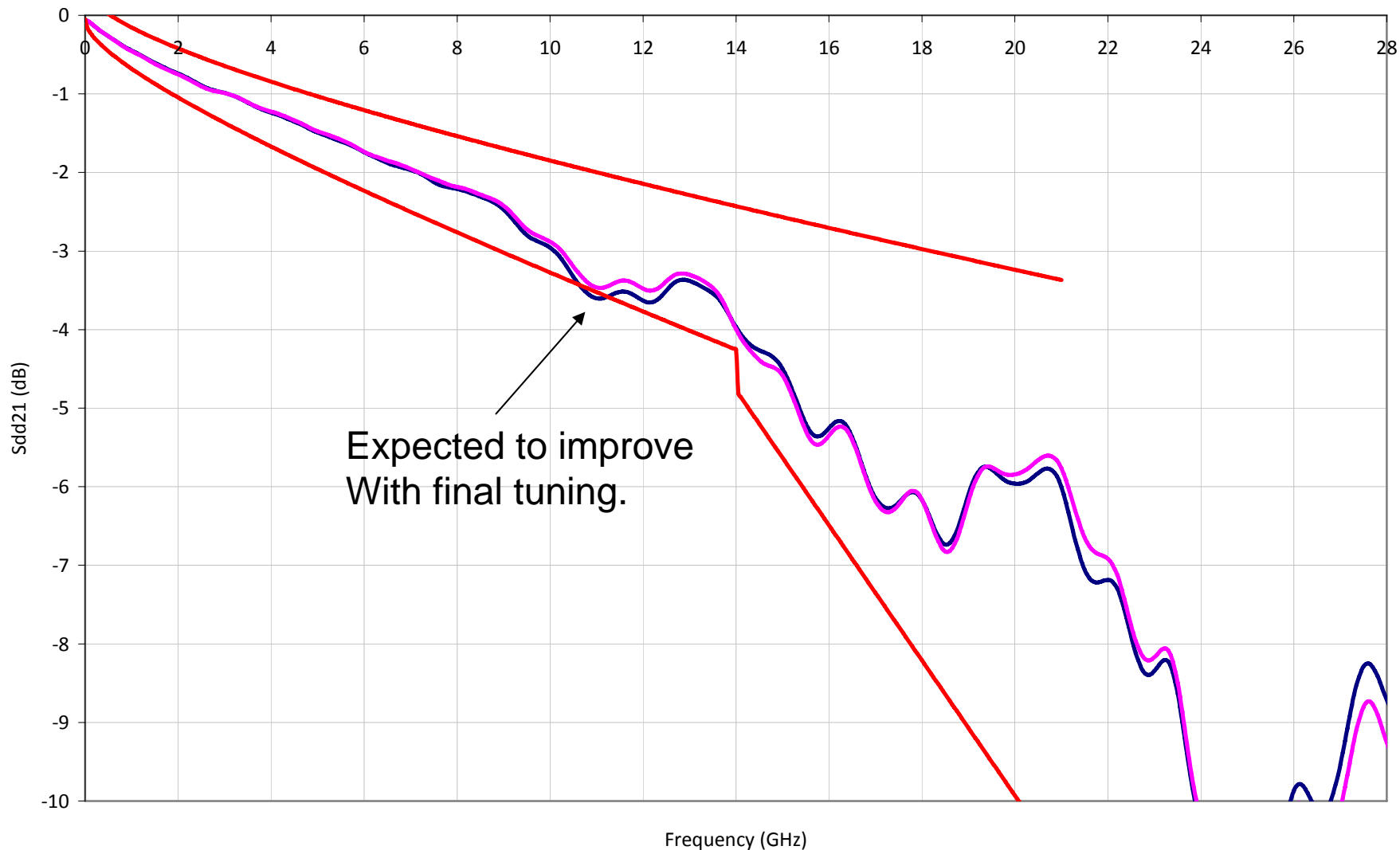
Model Results - HCB (Insertion Loss)

CFP2/4 Host Compliance Board Insertion Loss



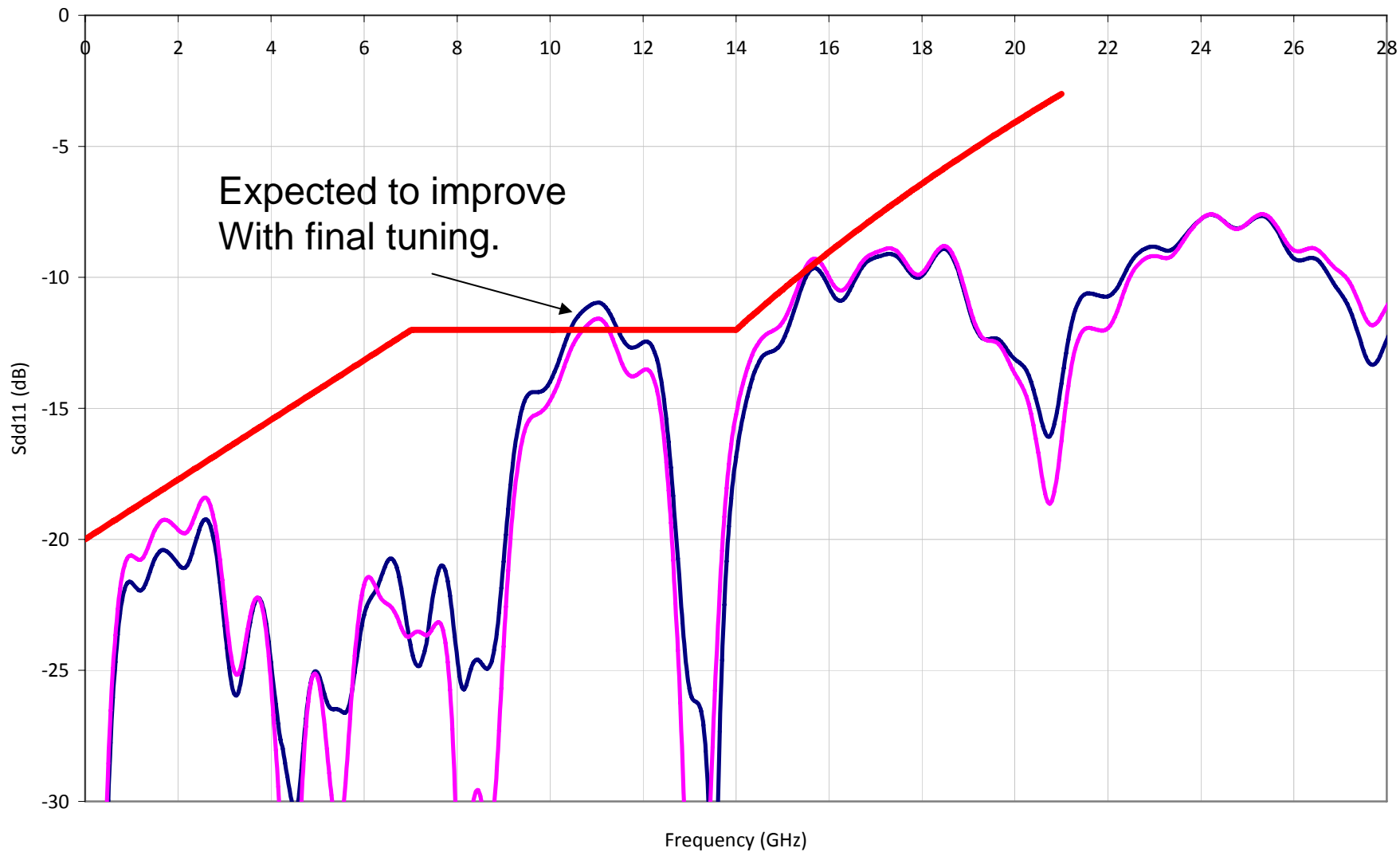
Model Results - MCB+Receptacle+HCB (Insertion Loss)

CFP 2/4 Mated MCB and HCB Compliance (Insertion Loss)



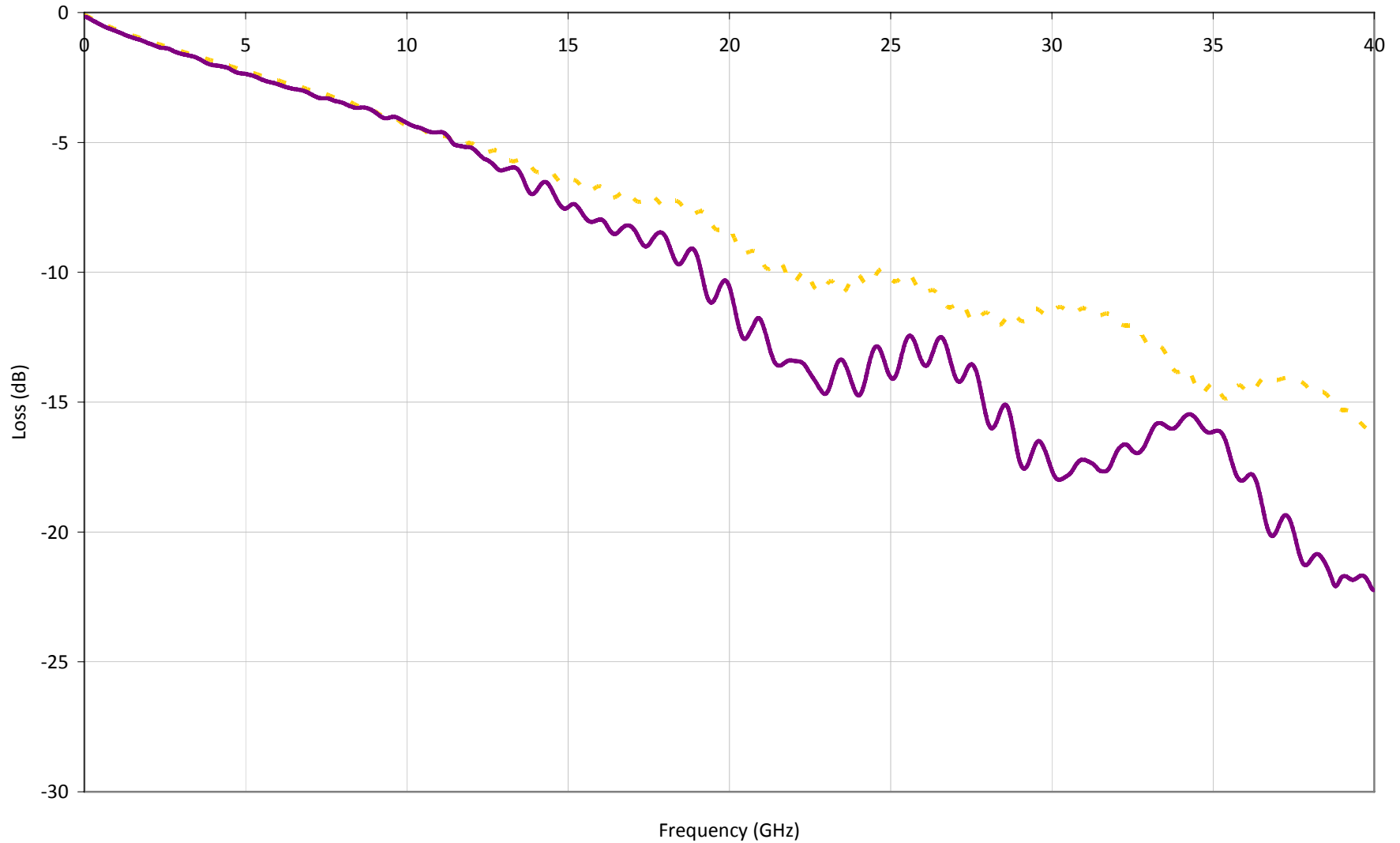
Model Results - MCB+Receptacle+HCB (Return Loss)

CFP 2/4 Mated MCB and HCB Compliance (Return Loss)



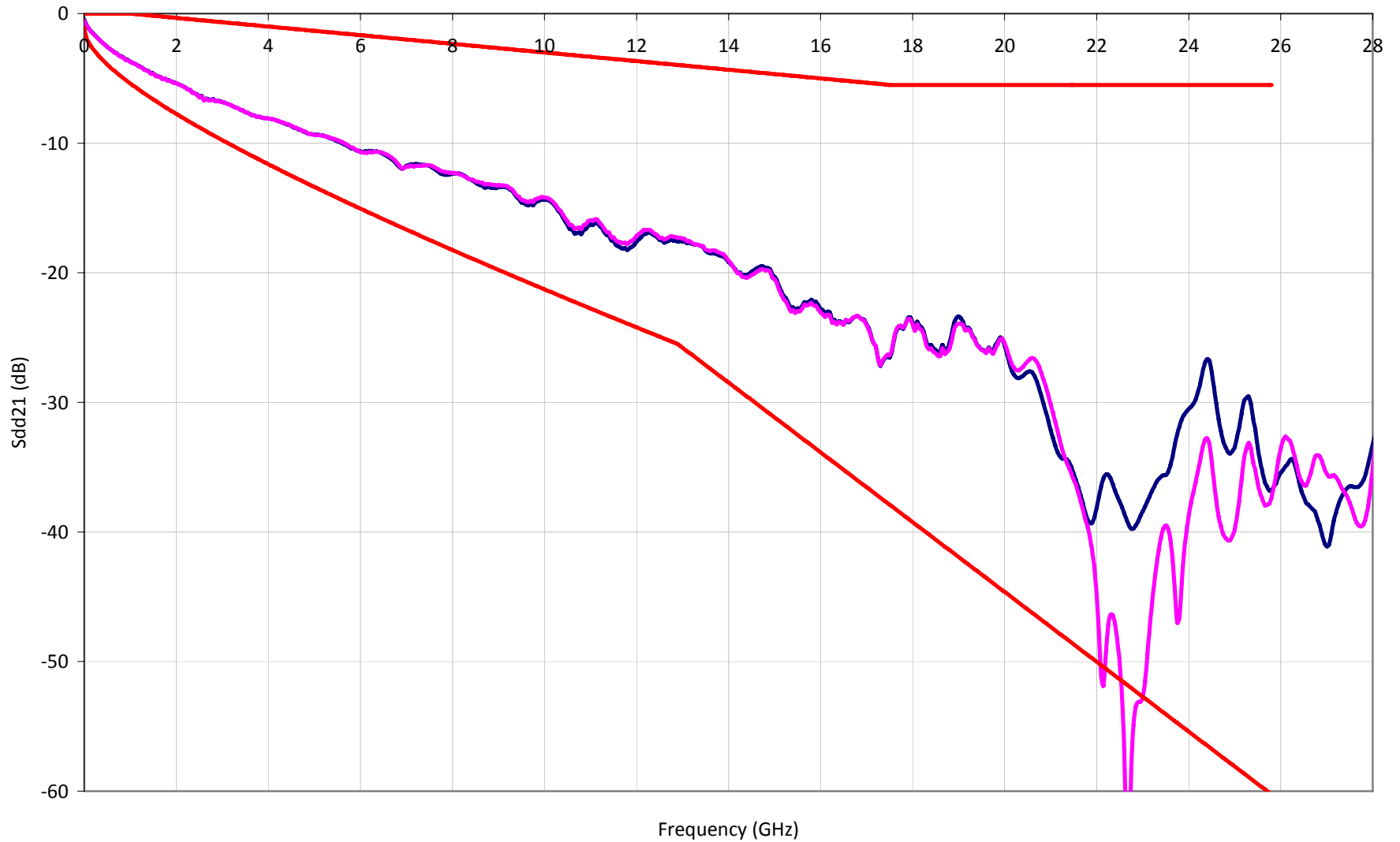
Model vs Measure – QSFP 28G Mated MCB HCB (Insertion Loss)

QSFP receptacle simulation hcb+mcb 25gbps - model vs measured



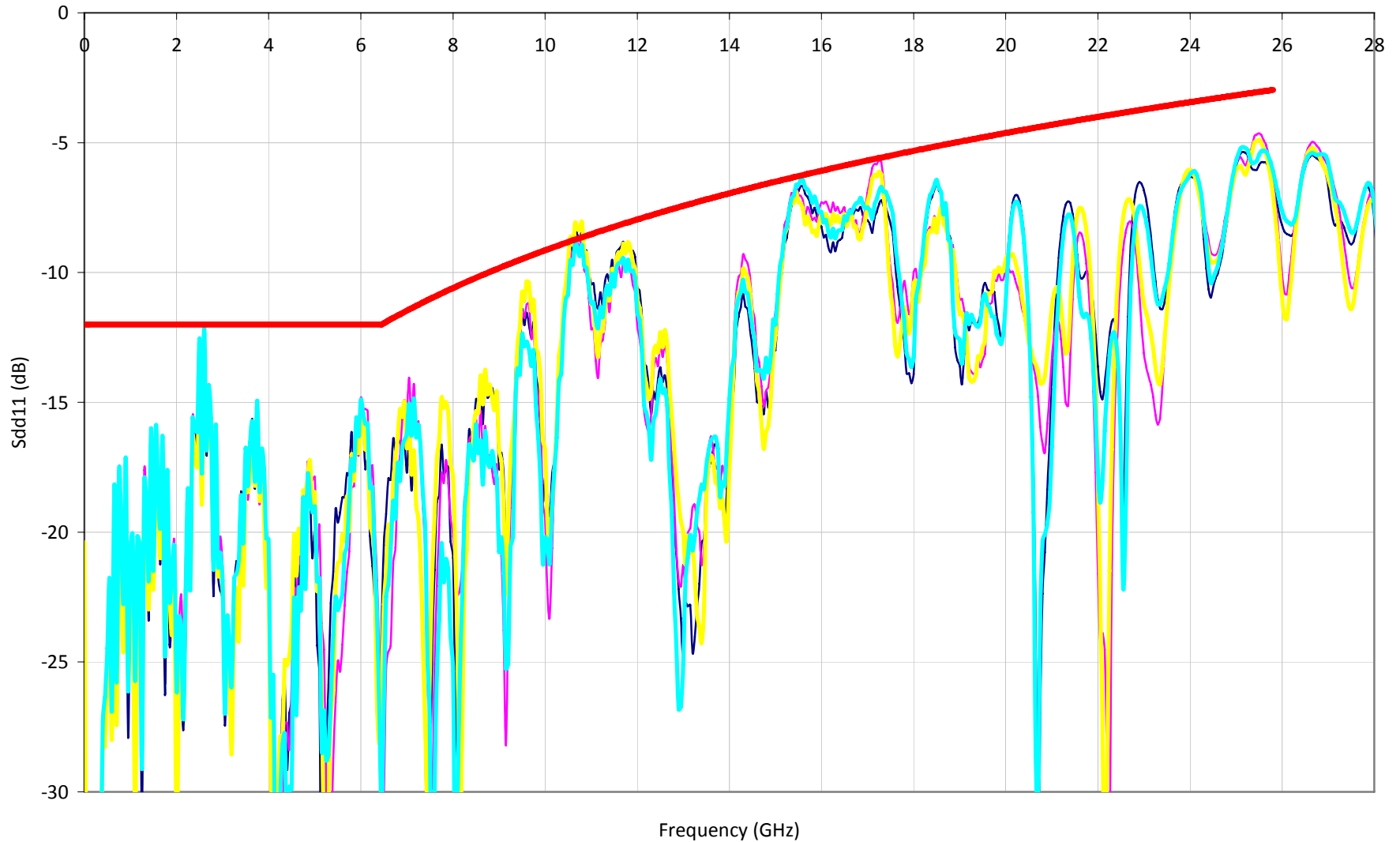
Model Results - MCB+Receptacle+3m Cable Assy (Insertion Loss)

CFP 2/4 MCB + 3m Cable Assembly (Insertion Loss)



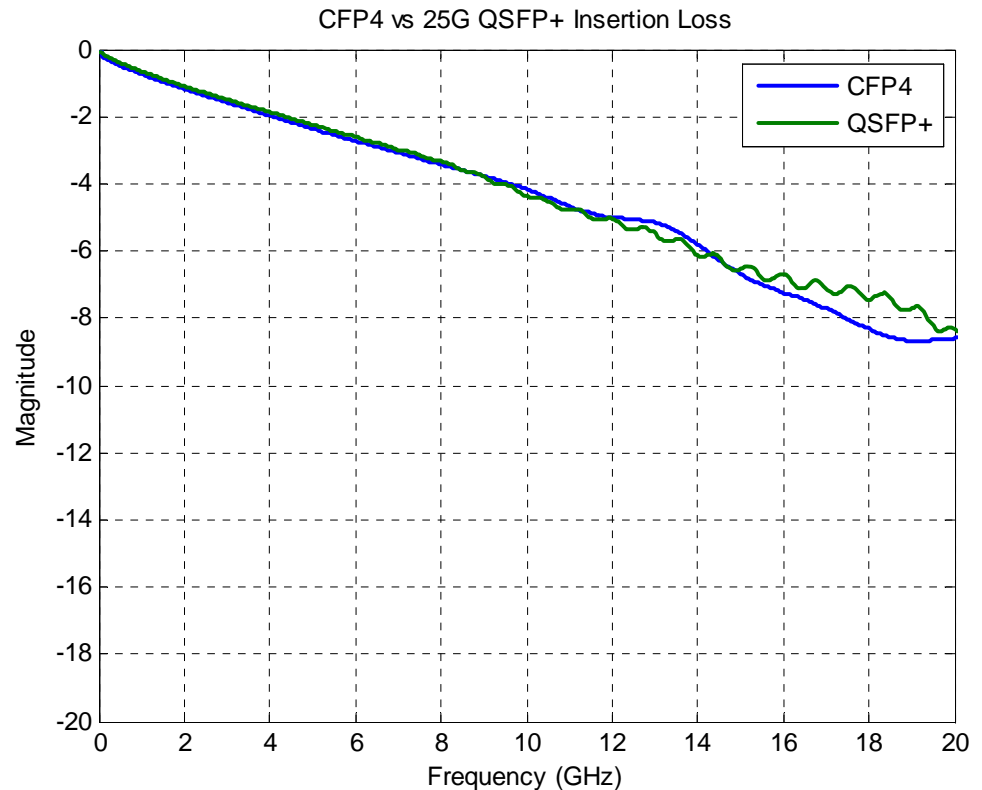
Model Results - MCB+Receptacle+3m Cable Assy (Return Loss)

CFP 2/4 Mated MCB + 3m Cable Assembly (Return Loss)



Electrical Properties – QSFP Comparison

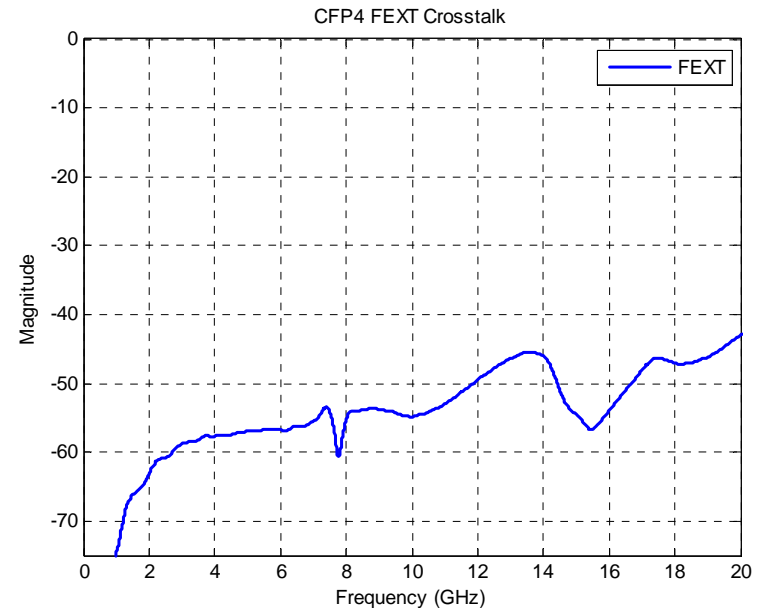
- CFP4 Properties are very closely correlated to the enhanced QSFP+ products being design for 25Gbps Solutions
- The simulations include HCB and MCB (1.8dB and 1.3dB @ 14GHz respectively)



Pinout and Crosstalk

- Based on the recommended pinout below.
 - The crosstalk is dominated by the FEXT which is plotted to right.
 - NEXT has multiple pins for Isolation
 - Crosstalk results also present 25Gbps capability.

CFP4 Top			CFP4 Top ALT1			CFP4 Bottom			
SEQUENCE	Pin	Value	SEQUENCE	Pin	Value	SEQUENCE	Pin	Value	
56	GND	1	GND	1	3.3V GND	2	1	3.3V GND	2
55	TX3n	4	TX0n	4	3.3V GND	2	2	3.3V GND	2
54	TX3p	4	TX0p	4	3.3V	2	3	3.3V	2
53	GND	1	GND	1	3.3V	2	4	3.3V	2
52	TX2n	4	TX1n	4	3.3V	2	5	3.3V	2
51	TX2p	4	TX1p	4	3.3V	2	6	3.3V	2
50	GND	1	GND	1	3.3V GND	2	7	3.3V GND	2
49	TX1n	4	TX2n	4	3.3V GND	2	8	3.3V GND	2
48	TX1p	4	TX2p	4	VND IO A	3	9	VND IO A	3
47	GND	1	GND	1	VND IO B	3	10	VND IO B	3
46	TX0n	4	TX3n	4	TX DIS	3	11	TX DIS	3
45	TX0p	4	TX3p	4	RX LOS	3	12	RX LOS	3
44	GND	1	GND	1	CLB ALRMn	3	13	CLB ALRMn	3
43	(/REFCLKn)	4	(/REFCLKn)	4	MOD LOPWR	4	14	MOD LOPWR	4
42	(/REFCLKp)	4	(/REFCLKp)	4	MOD ABS	4	15	MOD ABS	4
41	GND	1	GND	1	MOD RSTn	3	16	MOD RSTn	3
40	RX3n	4	RX3n	4	MDC	3	17	MDC	3
39	RX3p	4	RX3n	4	MDIO	3	18	MDIO	3
38	GND	1	GND	1	PRTADR0	3	19	PRTADR0	3
37	RX2n	4	RX2p	4	PRTADR1	3	20	PRTADR1	3
36	RX2p	4	RX2n	4	PRTADR2	3	21	PRTADR2	3
35	GND	1	GND	1	VND IO C	3	22	VND IO C	3
34	RX1n	4	RX1p	4	VND IO D	3	23	VND IO D	3
33	RX1p	4	RX1n	4	VND IO E	3	24	VND IO E	3
32	GND	1	GND	1	GND	1	25	GND	1
31	RX0n	4	RX0p	4	(/MCLKn)	4	26	(/MCLKn)	4
30	RX0p	4	RX0n	4	(/MCLKp)	4	27	(/MCLKp)	4
29	GND	1	GND	1	GND	1	28	GND	1



Thank you!