

# OSFP112G 2m Cable Assembly Measurements Update

Erdem Matoglu

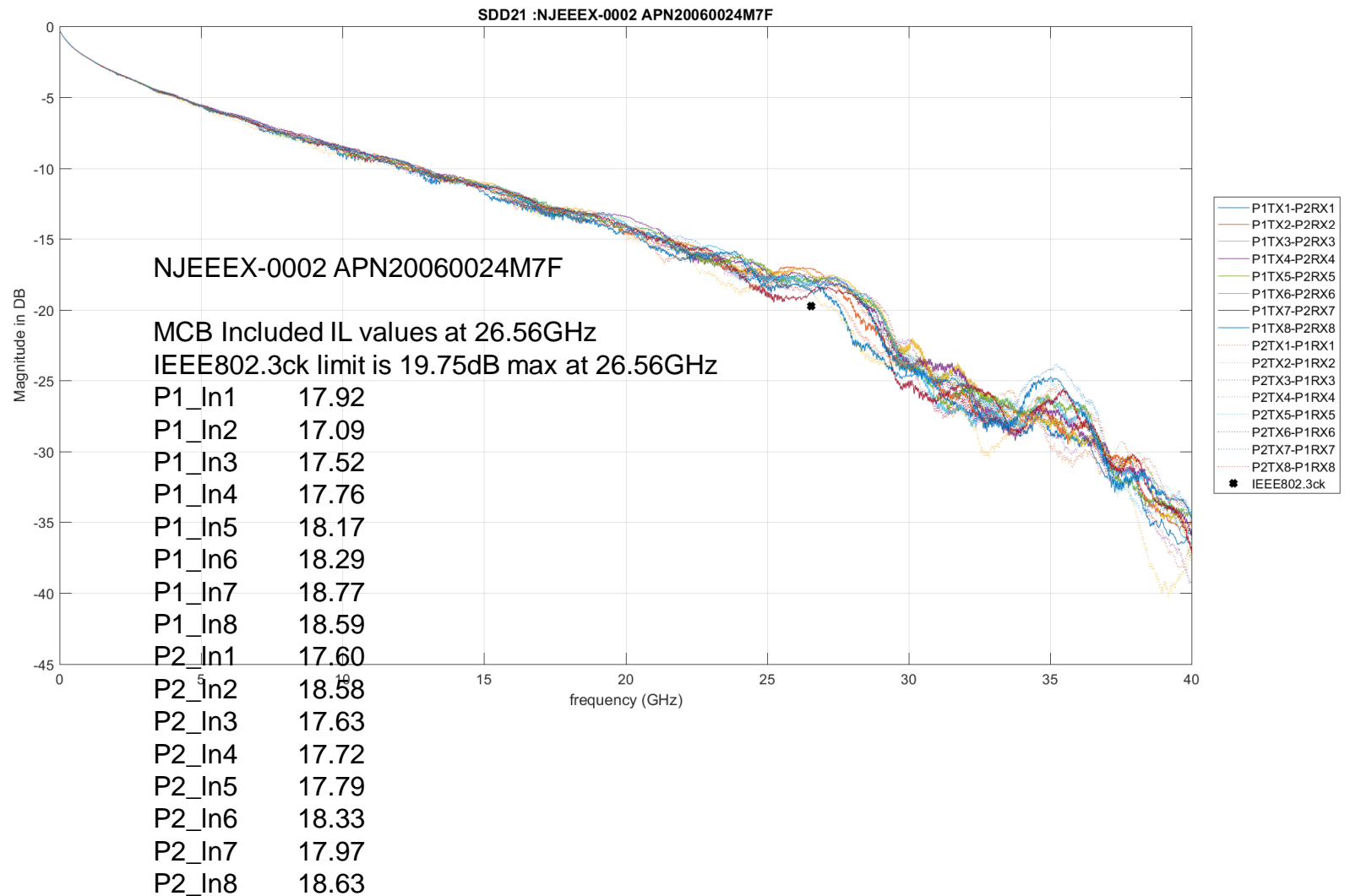
04-March-2020 IEEE802.ck Adhoc Call

Amphenol Information Communications  
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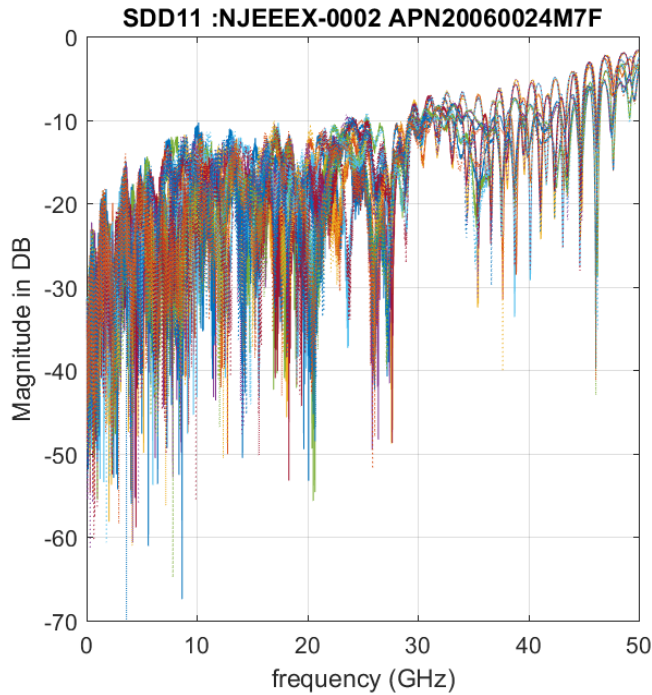


# Amphenol ICC

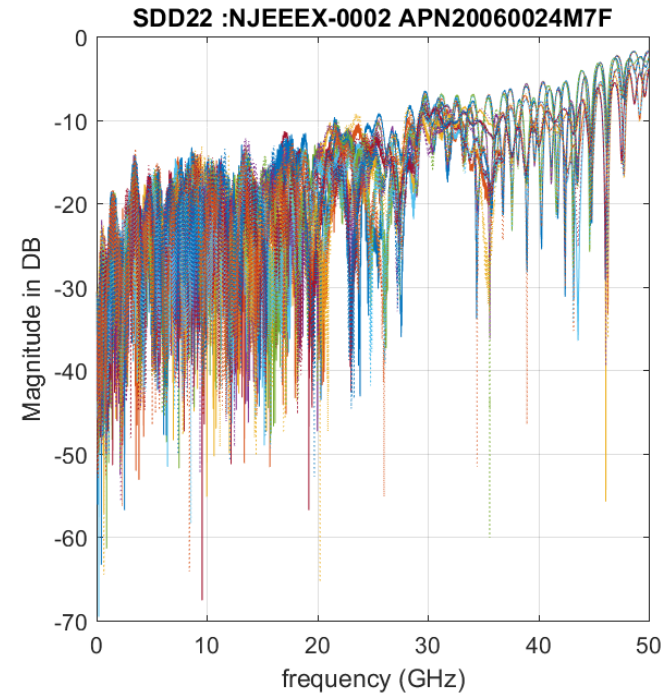
# OSFP 112G Cable Assembly Insertion Loss 2m 25awg NJEEX-0002



# OSFP 112G Cable – 2m 25awg NJEEEX-0002



- P1TX1-P2RX1
- P1TX2-P2RX2
- P1TX3-P2RX3
- P1TX4-P2RX4
- P1TX5-P2RX5
- P1TX6-P2RX6
- P1TX7-P2RX7
- P1TX8-P2RX8
- P2TX1-P1RX1
- P2TX2-P1RX2
- P2TX3-P1RX3
- P2TX4-P1RX4
- P2TX5-P1RX5
- P2TX6-P1RX6
- P2TX7-P1RX7
- P2TX8-P1RX8

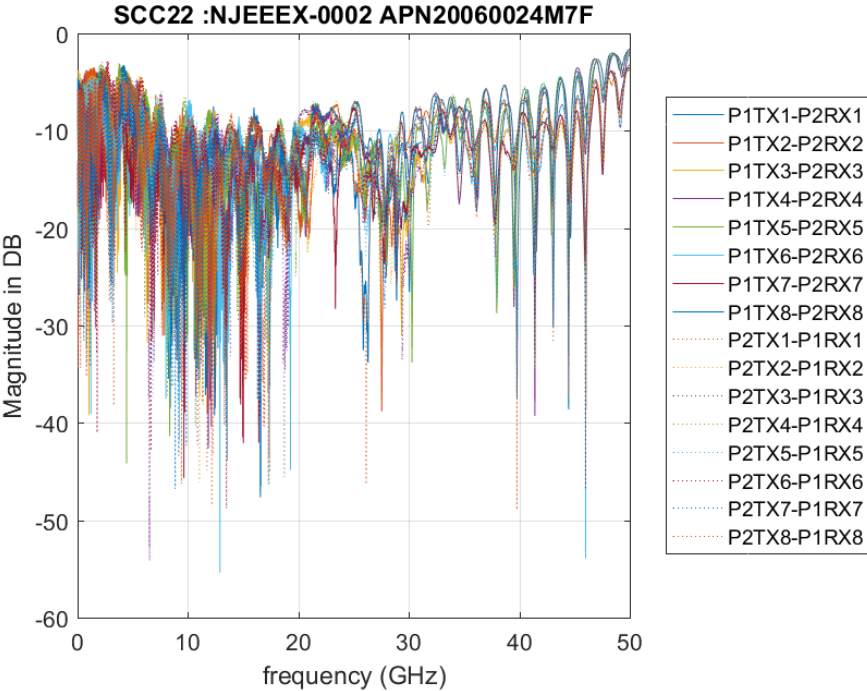
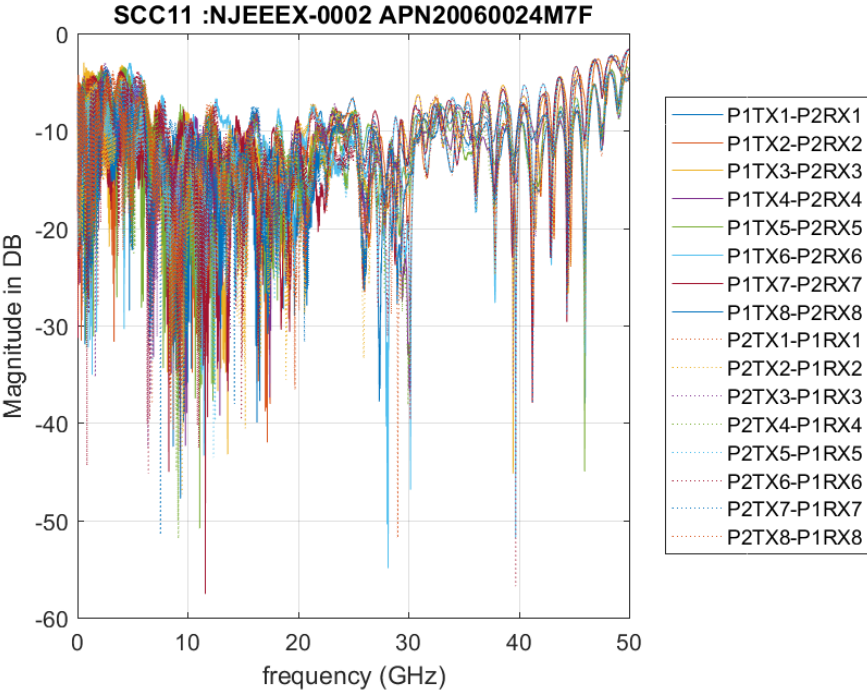


- P1TX1-P2RX1
- P1TX2-P2RX2
- P1TX3-P2RX3
- P1TX4-P2RX4
- P1TX5-P2RX5
- P1TX6-P2RX6
- P1TX7-P2RX7
- P1TX8-P2RX8
- P2TX1-P1RX1
- P2TX2-P1RX2
- P2TX3-P1RX3
- P2TX4-P1RX4
- P2TX5-P1RX5
- P2TX6-P1RX6
- P2TX7-P1RX7
- P2TX8-P1RX8

|             | ERL11 | ERL22 |
|-------------|-------|-------|
| P1TX1_P2RX1 | 11.80 | 14.06 |
| P1TX2_P2RX2 | 14.93 | 13.80 |
| P1TX3_P2RX3 | 13.27 | 13.48 |
| P1TX4_P2RX4 | 13.66 | 13.54 |
| P1TX5_P2RX5 | 12.52 | 14.68 |
| P1TX6_P2RX6 | 14.35 | 13.51 |
| P1TX7_P2RX7 | 13.99 | 13.55 |
| P1TX8_P2RX8 | 13.93 | 12.08 |

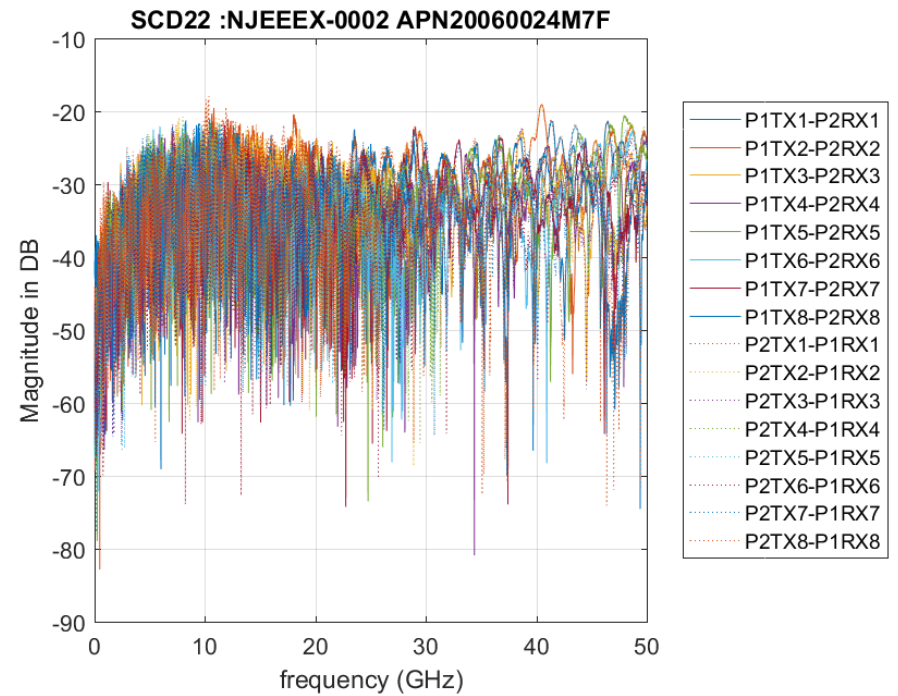
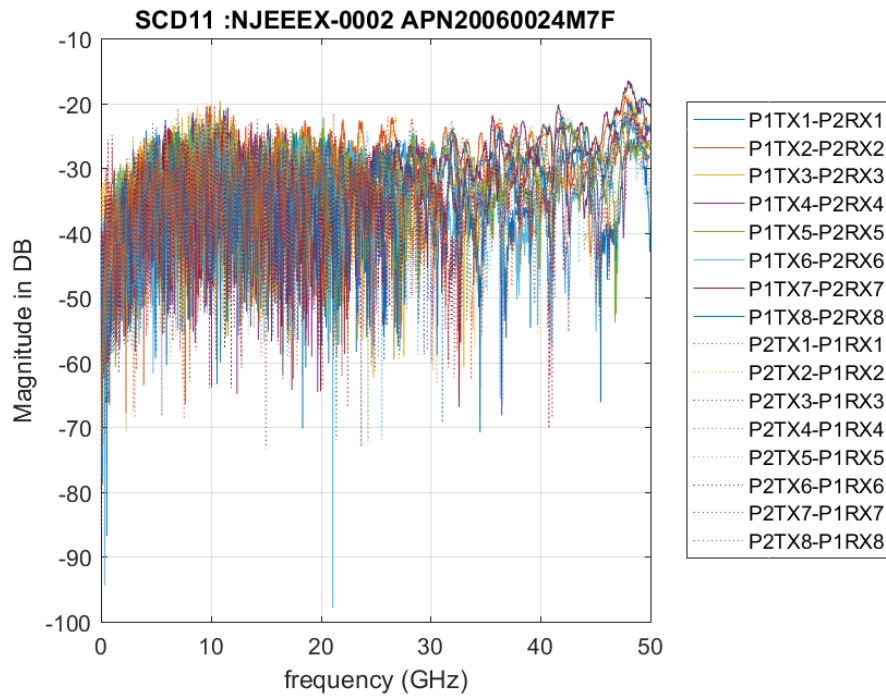
|             | ERL11 | ERL22 |
|-------------|-------|-------|
| P2TX1_P1RX1 | 12.32 | 15.61 |
| P2TX2_P1RX2 | 14.38 | 12.79 |
| P2TX3_P1RX3 | 12.72 | 13.03 |
| P2TX4_P1RX4 | 14.18 | 13.02 |
| P2TX5_P1RX5 | 12.37 | 16.06 |
| P2TX6_P1RX6 | 14.46 | 13.01 |
| P2TX7_P1RX7 | 12.98 | 13.27 |
| P2TX8_P1RX8 | 13.71 | 12.76 |

# OSFP 112G Cable – 2m 25awg NJEEEX-0002

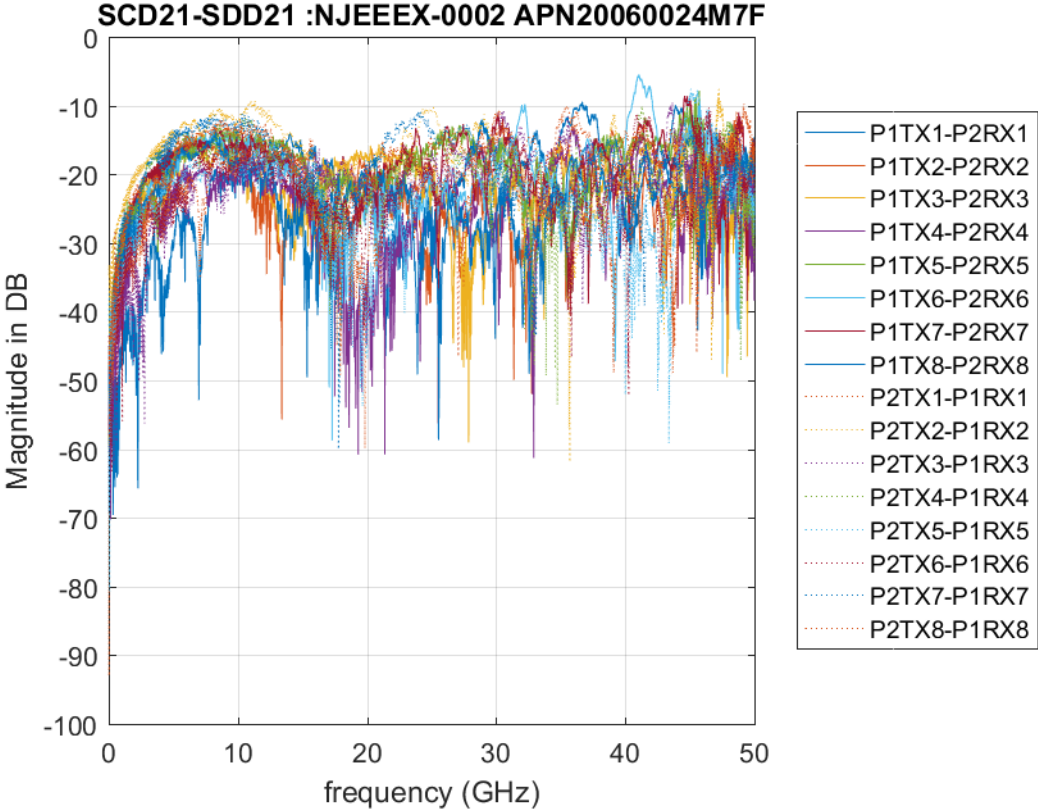




# OSFP 112G Cable – 2m 25awg NJEEEX-0002



# OSFP 112G Cable – 2m 25awg NJEEX-0002



# OSFP 112G Cable – 2m 25awg NJEEEX-0002 COM with and without Crosstalk

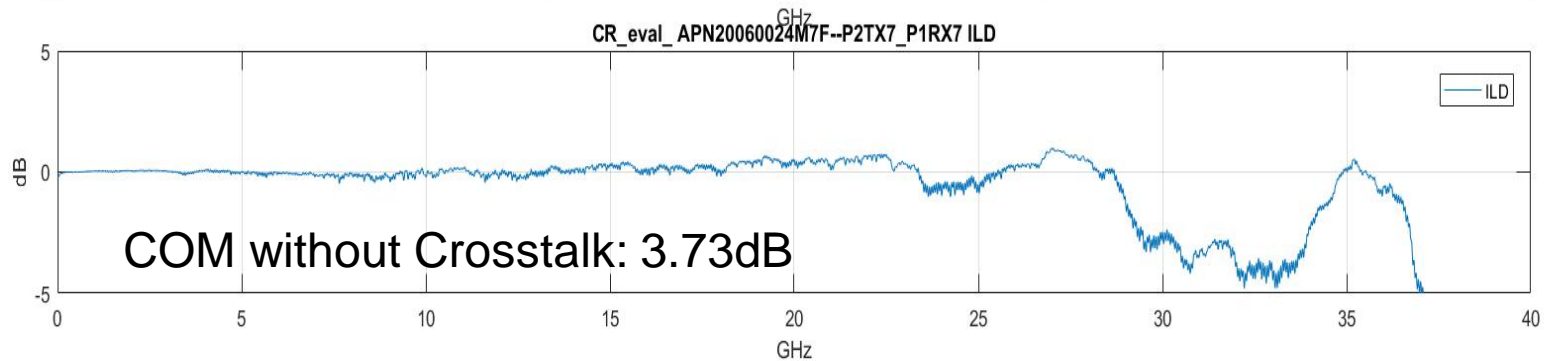
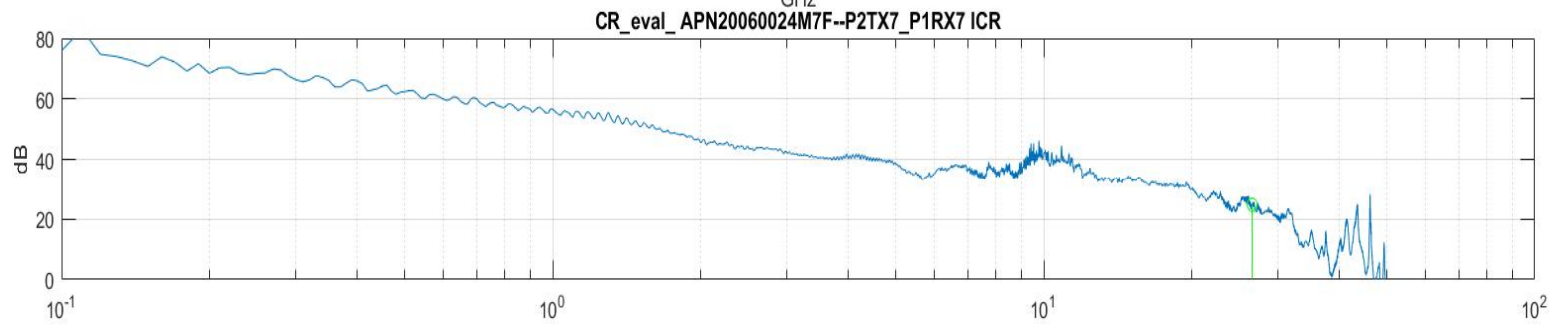
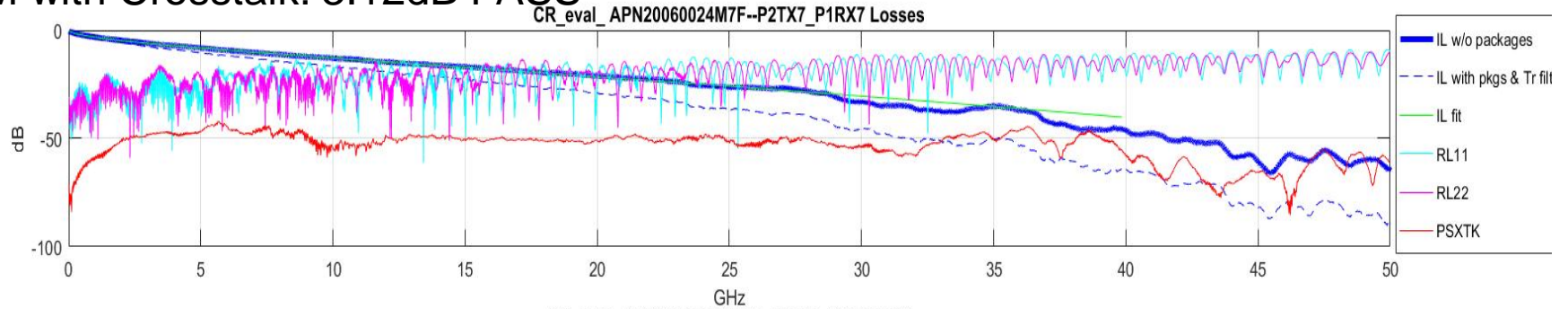


|        | COM without crosstalk | COM with crosstalk included |
|--------|-----------------------|-----------------------------|
| Victim |                       |                             |
| P1RX1  | 3.57                  | 3.04                        |
| P1RX2  | 3.56                  | 3.29                        |
| P1RX3  | 3.50                  | 3.12                        |
| P1RX4  | 3.73                  | 3.35                        |
| P1RX5  | 3.89                  | 3.31                        |
| P1RX6  | 3.80                  | 3.47                        |
| P1RX7  | 3.73                  | 3.12                        |
| P1RX8  | 3.68                  | 3.31                        |
|        |                       |                             |
| P2RX1  | 3.24                  | 2.93                        |
| P2RX2  | 3.86                  | 3.45                        |
| P2RX3  | 3.80                  | 3.47                        |
| P2RX4  | 3.81                  | 3.40                        |
| P2RX5  | 3.88                  | 3.50                        |
| P2RX6  | 3.82                  | 3.38                        |
| P2RX7  | 3.72                  | 2.48                        |
| P2RX8  | 3.62                  | 2.08                        |

# OSFP 112G Cable – 2m 25awg NJEEEX-0002 Crosstalk



COM with Crosstalk: 3.12dB PASS



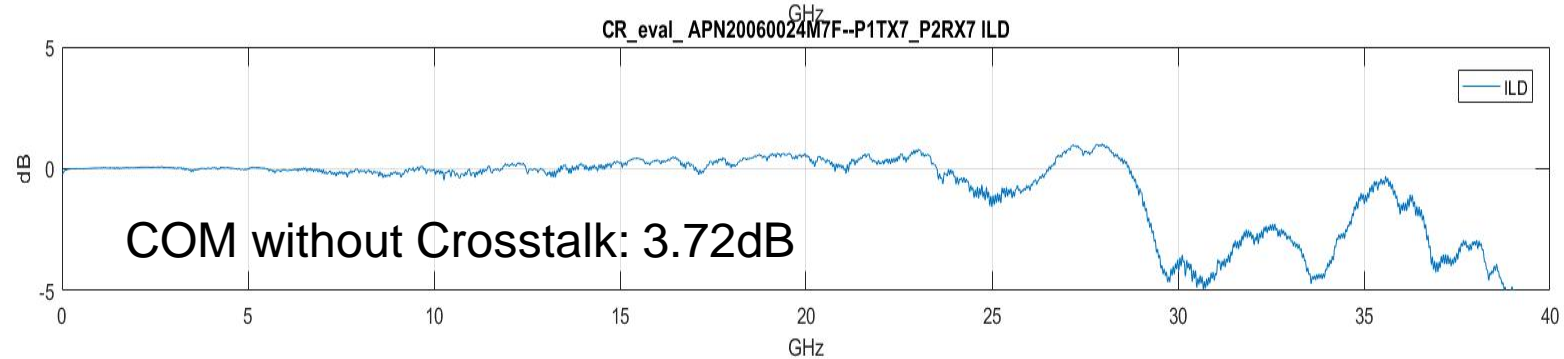
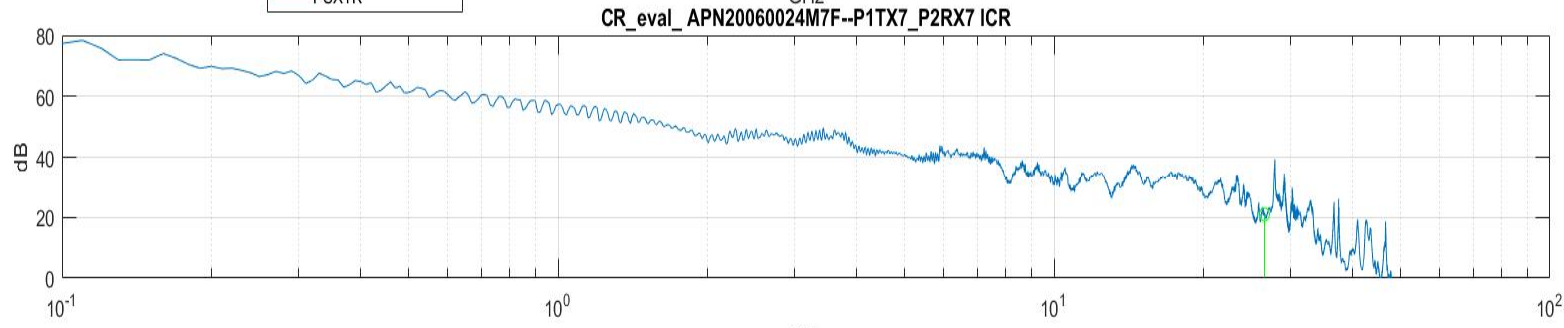
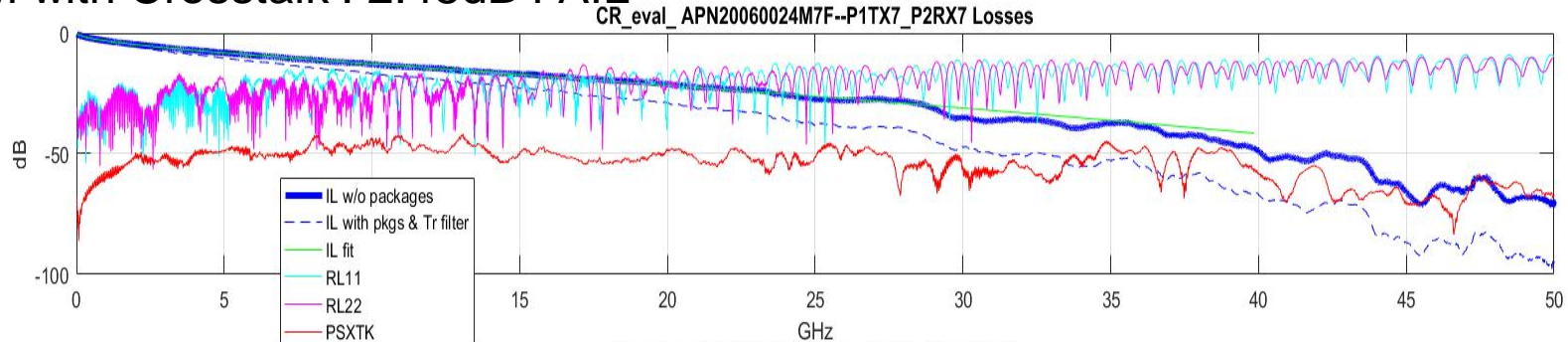
COM without Crosstalk: 3.73dB



# OSFP 112G Cable – 2m 25awg NJEEEX-0002 Crosstalk



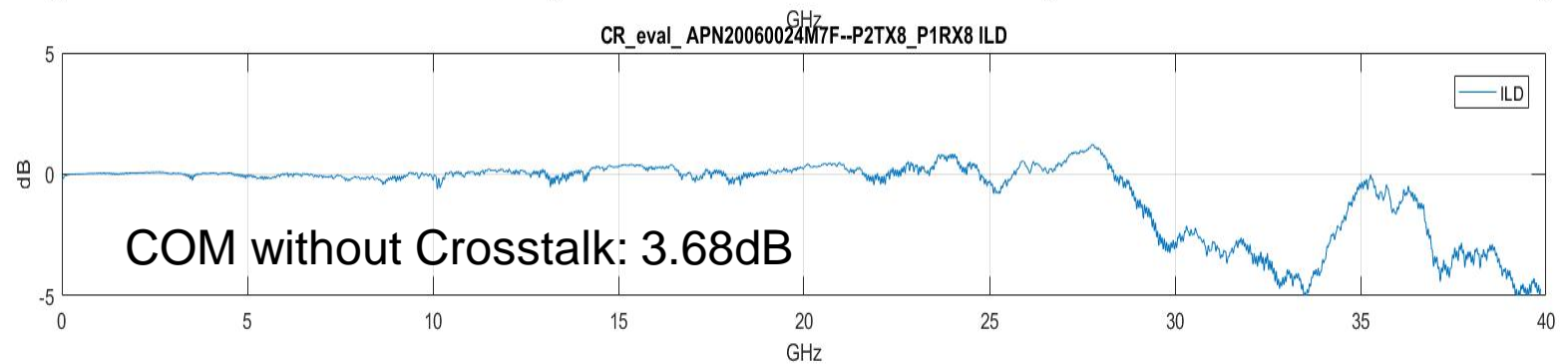
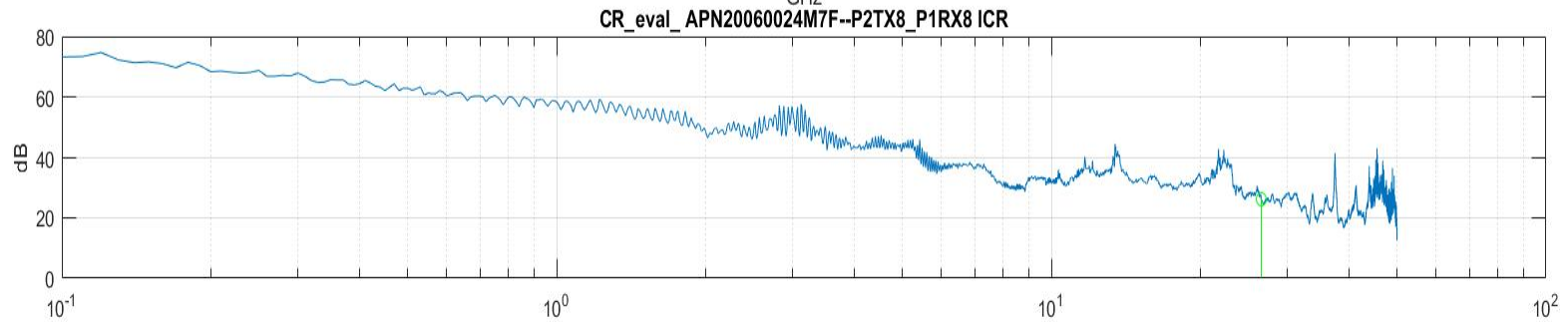
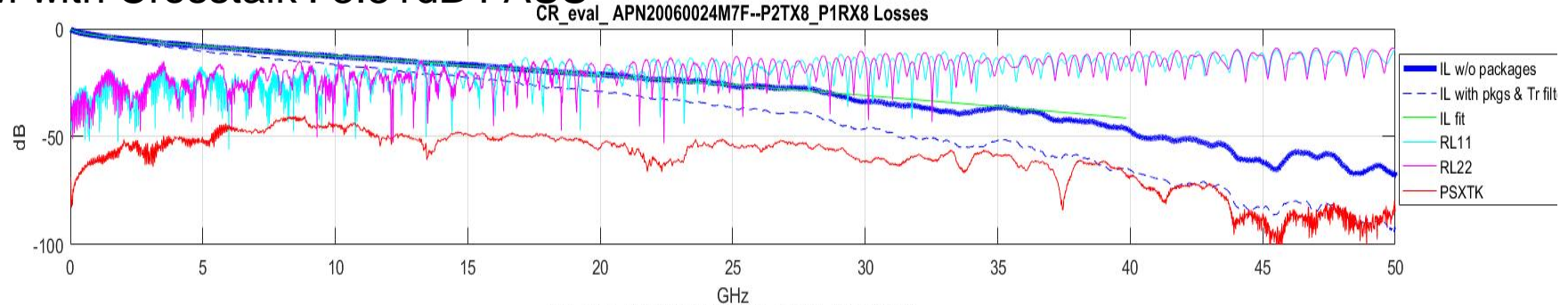
COM with Crosstalk : 2.48dB FAIL



# OSFP 112G Cable – 2m 25awg NJEEEX-0002 Crosstalk



COM with Crosstalk : 3.31dB PASS

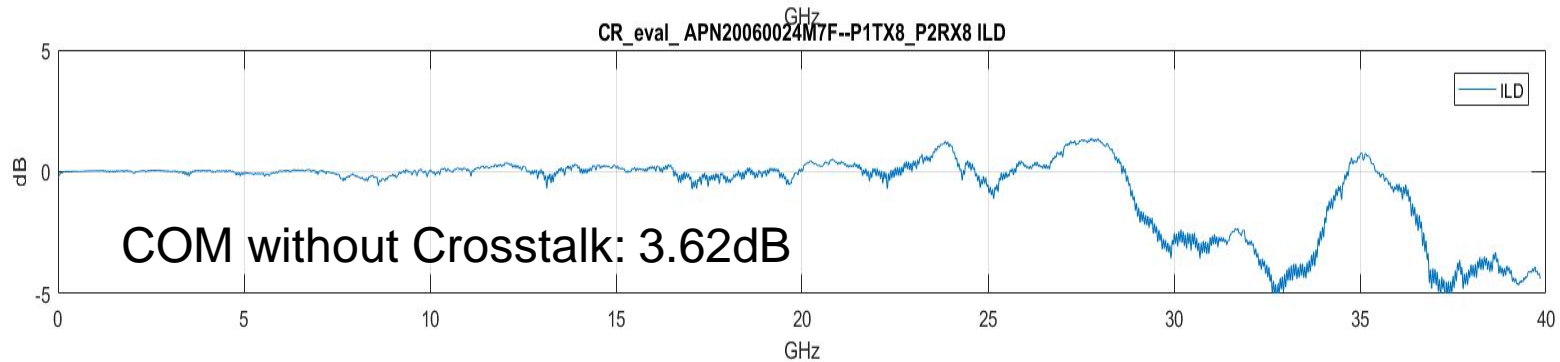
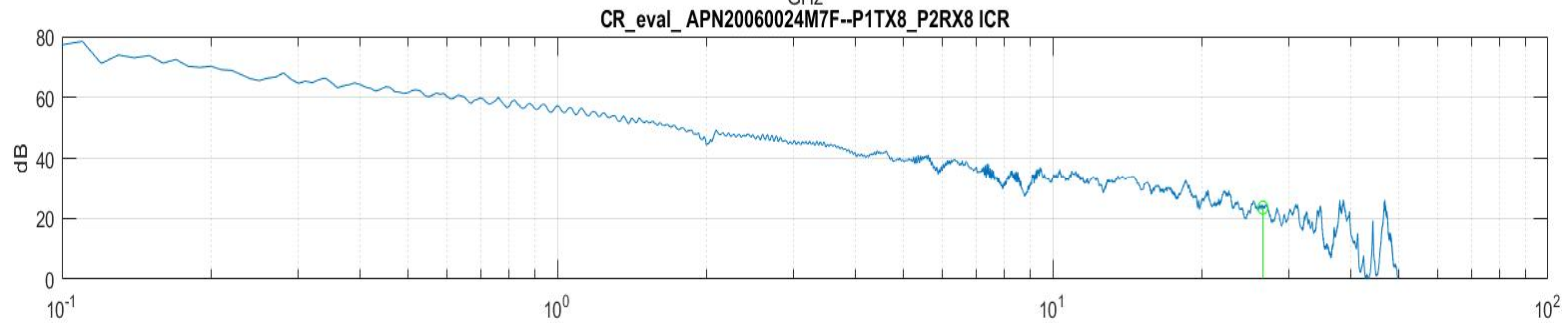
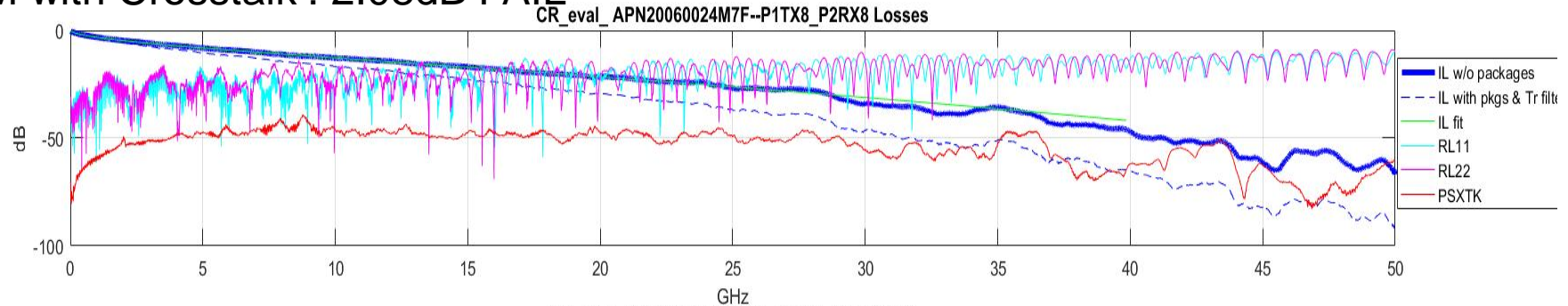


COM without Crosstalk: 3.68dB

# OSFP 112G Cable – 2m 25awg NJEEEX-0002 Crosstalk



COM with Crosstalk : 2.08dB FAIL



# OSFP 112G Cable – COM Table Per IEEE802.3ck D1.1



| Table 93A-1 parameters |                   |       |                     | I/O control         |                             |                 | Table 93A-3 parameters                     |                           |                                 |
|------------------------|-------------------|-------|---------------------|---------------------|-----------------------------|-----------------|--|---------------------------|---------------------------------|
| Parameter              | Setting           | Units | Information         |                     |                             |                 | Parameter                                  | Setting                   | Units                           |
| f_b                    | 53.125            | GBd   |                     | DIAGNOSTICS         | 1                           | logical         | package_tl_gamma0_a1_a2                    | [0 0.0009909 0.0002772]   |                                 |
| f_min                  | 0.05              | GHz   |                     | DISPLAY_WINDOW      | 0                           | logical         | package_tl_tau                             | 6.141E-03                 | ns/mm                           |
| Delta_f                | 0.01              | GHz   |                     | CSV_REPORT          | 1                           | logical         | package_Z_c                                | [87.5 87.5 ; 92.5 92.5 ]  | Ohm                             |
| C_d                    | [1.2e-4 1.2e-4]   | nF    | [TX RX]             | RESULT_DIR          | .\results\100GEL_CR_{date}\ |                 | benartsi_3ck_01_0119 & mellitz_3ck_01_0119 |                           |                                 |
| L_s                    | [0.12, 0.12]      | nH    | [TX RX]             | SAVE_FIGURES        | 0                           | logical         | Table 92-12 parameters                     |                           |                                 |
| C_b                    | [0.3e-4 0.3e-4]   | nF    | [TX RX]             | Port Order          | [1 3 2 4]                   |                 | Parameter                                  | Setting                   |                                 |
| z_p select             | [ 2 ]             |       | [test cases to run] | RUNTAG              | CR_eval_                    |                 | board_tl_gamma0_a1_a2                      | [0 3.8206e-04 9.5909e-05] | 1 dB / in                       |
| z_p (TX)               | [12 31; 1.8 1.8]  | mm    | [test cases]        | COM_CONTRIBUTION    | 0                           | logical         | board_tl_tau                               | 5.790E-03                 | ns/mm                           |
| z_p (NEXT)             | [12 29; 1.8 1.8]  | mm    | [test cases]        | Operational         |                             |                 | board_Z_c                                  | 100                       | Ohm                             |
| z_p (FEXT)             | [12 31; 1.8 1.8]  | mm    | [test cases]        | COM Pass threshold  | 3                           | dB              | z_bp (TX)                                  | 110.3                     | mm                              |
| z_p (RX)               | [12 29; 1.8 1.8]  | mm    | [test cases]        | ERL Pass threshold  | 10                          | dB              | z_bp (NEXT)                                | 110.3                     | mm                              |
| C_p                    | [0.87e-4 0.87e-4] | nF    | [TX RX]             | DER_0               | 1.00E-04                    |                 | z_bp (FEXT)                                | 110.3                     | mm                              |
| R_0                    | 50                | Ohm   |                     | T_r                 | 6.16E-03                    | ns              | z_bp (RX)                                  | 110.3                     | mm                              |
| R_d                    | [ 50 50 ]         | Ohm   | [TX RX]             | FORCE_TR            | 1                           | logical         | C_0  | [0.29e-4]                 | nF                              |
| A_v                    | 0.413             | V     | vp/vf=.694          | TDR and ERL options |                             |                 | C_1  | [0.19e-4]                 | nF                              |
| A_fe                   | 0.413             | V     | vp/vf=.694          | TDR                 | 1                           | logical         | Include PCB                                | 1                         | logical                         |
| A_ne                   | 0.608             | V     |                     | ERL                 | 1                           | logical         | Floating Tap Control                       |                           |                                 |
| L                      | 4                 |       |                     | ERL_ONLY            | 0                           | logical         | N_bg                                       | 3                         | 0 1 2 or 3 groups               |
| M                      | 32                |       |                     | TR_TDR              | 0.01                        | ns              | N_bf                                       | 3                         | taps per group                  |
| filter and Eq          |                   |       |                     | N                   | 3000                        |                 | N_f  | 40                        | UI span for floating taps       |
| f_r                    | 0.75              | *fb   |                     | beta_x              | 2.3407E+09                  |                 | bmaxg                                      | 0.05                      | max DFE value for floating taps |
| c(0)                   | 0.54              |       | min                 | rho_x               | 0.21                        |                 | B_float_RSS_MAX                            | 0.02                      | RSS tail tap limit              |
| c(-1)                  | [-0.34:0.02:0]    |       | [min:step:max]      | fixture delay time  | [5.7e-10 5.7e-10]           | [ port1 port2 ] | N_tail_start                               | 25                        | (UI) start of tail taps limit   |
| c(-2)                  | [0:0.02:0.12]     |       | [min:step:max]      | TDR_W_TXPKG         | 0                           |                 | ICN parameters                             |                           |                                 |
| c(-3)                  | [-0.06:0.02: 0]   |       | [min:step:max]      | N_bx                | 12                          | UI              | f_v  | 0.723                     | *Fb                             |
| c(1)                   | [-0.2:0.02:0]     |       | [min:step:max]      | Receiver testing    |                             |                 | f_f  | 0.723                     | *Fb                             |
| N_b                    | 12                | UI    |                     | RX_CALIBRATION      | 0                           | logical         | f_n  | 0.723                     | *Fb                             |
| b_max(1)               | 0.85              |       |                     | Sigma BBN step      | 5.00E-03                    | V               | f_2  | 39.844                    | GHz                             |
| b_max(2)               | 0.3               |       |                     | Noise, jitter       |                             |                 | A_ft                                       | 0.600                     | V                               |
| g_DC                   | [-20:1:0]         | dB    | [min:step:max]      | sigma_RJ            | 0.01                        | UI              | A_nt                                       | 0.600                     | V                               |
| f_z                    | 21.25             | GHz   |                     | A_DD                | 0.02                        | UI              | heck_3ck_03b_0319                          | Adopted Mar 2019          | kasapi_3ck_02_1119              |
| f_p1                   | 21.25             | GHz   |                     | eta_0               | 1.00E-08                    | V^2/GHz         | walker_3ck_01d_0719                        | Adopted July 2019         | Adopted Nov 2019                |
| f_p2                   | 53.125            | GHz   |                     | SNR_TX              | 32                          | dB              | result of R_d=50                           |                           | under consideration             |
| g_DC_HP                | [-6:1:0]          |       | [min:step:max]      | R_LM                | 0.95                        |                 | benartsi_3ck_01a_0719                      | require COM 2.72 or later |                                 |
| f_HP_PZ                | 0.6640625         | GHz   |                     |                     |                             |                 | mellitz_3ck_03_0919                        | mellitz_3ck_03_1119       |                                 |
| b_max(3..N_b)          | 0.2               |       |                     |                     |                             |                 |  |                           |                                 |

changes per comments in Jan2020

**THANK YOU**

**DISCUSSION AND  
QUESTIONS ?**