QSFP-100G-SR4 Design Verification Test Report

Reviewers

Department	Name	Review Date
Technical Testing Department	Liuchang	2022-5-24

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1 Overview

100G SR4 is a 4 channel, pluggable, QSFP28 optical transceiver, designed for use in 100G Ethernet. The transceiver operates over MMF fiber, using a nominal wavelength of 850nm, and is SFF and IEEE compliant.

The purpose of this report is to characterize the electrical and optical performance of transceiver.

1.1   Related Documentation

- IEEE 802.3bm
- IEEE 802.3 100GBASE-SR4
- SFF-8636-QSFP28 Management Interface for Cabled Environments

1.2   Document Conventions

- LT: Low Temperature 0°C

1.3   NT: Nominal Temperature 25°C

- HT: High Temperature 70°C
- LV: Low Voltage 3.135V
- NV: Nominal Voltage 3.3V
- HV: High Voltage 3.465V

2 Test Guidelines

2.1 Design verification Test Descriptions

Parameter	Min	MAX	Unit	SS/Fail
Supply Current	-	750	mA	12/0
Power Consumption	-	2.5	W	12/0
TX Optical Power	-6	2.4	dBm	12/0
TX Extinction Ratio	2	-	dB	12/0
TX RMS Jitter	-	5	ps	12/0
TX P-P Jitter	-	40	ps	12/0
TX Eye Mask Margin[NOTE1,2]	10	-	%	12/0
TX Crossing	40	60	%	12/0
RX Sensitivity[NOTE1,3]	-	-5.2	dBm	12/0
Data Output Swing(diff)	200	600	mV	12/0

RX Eye Height(diff)	228	-	mV	12/0
RX Eye Width	23	-	ps	12/0
RX Rise Time	12	-	ps	12/0
RX Fall Time	12	-	ps	12/0
Overload	2.4	-	dBm	12/0
LOS Assert	-30	-	dBm	12/0
LOS De-assert	-	-12	dBm	12/0
LOS Hysteresis	0.5	-	dBm	12/0
Temperature Accuracy	-3	3	℃	12/0
Voltage Accuracy	-5%	5%	V	12/0
IBias DDMI	5	8	mA	12/0
TX Power Accuracy	-3	3	dB	12/0
RX Power Accuracy	-3	3	dB	12/0

Notes：

1. PRBS2^31-1@25.78125Gbps
2. Hit Rate = 1E-12
3. Sensitivity Test Error Bit Rate @1E-12

3 Test Results Summary

3.1 Pass Criteria And Test Data

Parameter	Min	Typical	MAX	Unit	Pass/Total
Supply Current	546	570	598	mA	12/12
Power Consumption	1.69	1.89	2.09	W	12/12
TX Optical Power	-0.1	1.5	2.3	dBm	12/12
TX Extinction Ratio	3.7	4.7	5.9	dB	12/12
TX RMS Jitter	1.4	1.6	1.7	ps	12/12

TX P-P Jitter	9.9	11.5	14.1	ps	12/12
TX Eye Mask Margin[NOTE1,2]	18.2	33.5	46.1	%	12/12
TX Crossing	41.6	47.5	52.9	%	12/12
RX Sensitivity[NOTE1,3]	-10.1	-8.5	-7.2	dBm	12/12
Data Output Swing(diff)	384.0	443.2	501.9	mV	12/12
RX Eye Height(diff)	241.5	269.9	306.9	mV	12/12
RX Eye Width	27.2	29.5	31.8	ps	12/12
RX Rise Time	26	27.4	29.1	ps	12/12
RX Fall Time	29.7	32.0	34.7	ps	12/12
Overload	2.6	2.6	2.6	dBm	12/12
LOS Assert	-17.5	-16.6	-15.8	dBm	12/12
LOS De-assert	-14.7	-13.5	-12.4	dBm	12/12
LOS Hysteresis	2.8	3.1	3.5	dBm	12/12
Temperature Accuracy	-1.5	0.1	1.6	℃	12/12
Voltage Accuracy	0.86	1.6	2.58	%	12/12
IBias DDMI	5.92	6.01	6.11	mA	12/12
TX Power Accuracy	-1.27	0.44	1.43	dB	12/12
RX Power Accuracy[NOTE4]	-0.5	0.26	1.1	dB	12/12

Notes：

1. **PRBS2^31-1@25.78125Gbps**
2. **Hit Rate = 1E-12**
3. **Sensitivity Test Error Bit Rate @1E-12**
4. **RX Power Accuracy test @ -10dBm**

4 TX Optical Output Waveform

4.1 Typical TX Eyes

Figure 4a1 – T1 Output optical eye @LT

Figure 4a2 – T2 Output optical eye @LT

Figure 4a3 – T3 Output optical eye @LT

Figure 4a4 – T4 Output optical eye @LT

Figure 4b1 – T1 Output optical eye @NT

Figure 4b2 – T2 Output optical eye @NT

Figure 4b3 – T3 Output optical eye @NT

Figure 4b4 – T4 Output optical eye @NT
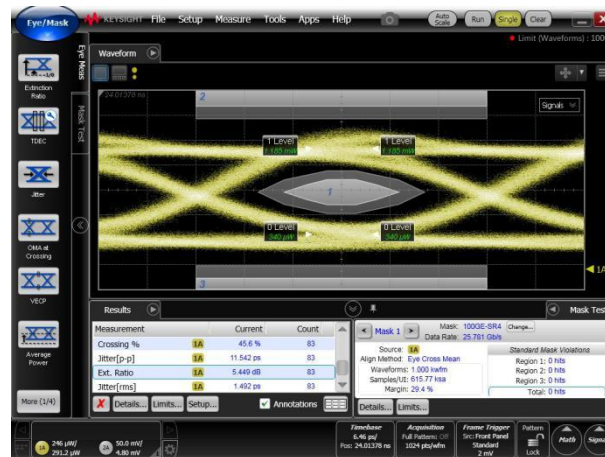
Figure 4c1 – T1 Output optical eye @HT

Figure 4c2 – T2 Output optical eye @HT

Figure 4c3 – T3 Output optical eye @HT

Figure 4c4 – T4 Output optical eye @HT

4.2 TX Optical Output Waveform Test Data

TX optical Output waveform test data in table4-2.

Table 4-2a   Module1 TX optical Output waveform test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
TX Optical Power[dBm]	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.0	1.9	1.9	2.1	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.1	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.2	0.5	0.4
TX Extinction Ratio[dB]	4.0	4.1	4.0	4.2	4.3	4.4	4.4	4.5	4.5	4.8	4.8	4.9	4.4	4.5	4.3	4.7	4.7	4.7	4.7	4.9	4.9	5.1	5.0	5.2	5.0	5.0	5.1	5.2	5.4	5.4	5.5	5.6	5.5	5.5	5.6	5.8

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
TX RMS Jitter [ps]	1.7	1.5	1.5	1.6	1.5	1.5	1.7	1.6	1.6	1.7	1.6	1.6	1.7	1.6	1.7	1.7	1.5	1.6	1.7	1.6	1.5	1.5	1.6	1.5	1.6	1.7	1.7	1.7	1.6	1.7	1.5	1.5	1.7	1.7	1.6	1.6
TX P-P Jitter [ps]	12.4	11.9	10.9	12.1	11.9	12.2	11.3	11.3	12.9	10.5	13.0	10.2	11.6	10.6	12.7	11.3	12.1	12.4	11.5	11.6	10.2	10.8	11.6	10.2	10.2	11.3	12.6	11.5	12.3	11.3	12.8	10.7	12.5	11.2	12.7	11.5
TX Eye Mask Margin[%]	28.0	33.1	35.7	40.8	29.5	35.8	37.2	42.8	30.4	37.0	38.6	45.2	30.2	33.8	36.7	37.9	31.0	37.1	37.8	39.1	34.2	37.6	40.1	41.0	20.2	23.8	26.4	25.5	20.6	25.3	27.4	27.4	23.9	26.9	30.0	30.9
TX Crossing [%]	49.5	47.2	46.1	43.2	49.7	49.1	48.1	46.4	53.2	50.0	50.0	49.8	48.2	45.4	45.9	46.2	48.2	47.7	48.1	46.3	48.2	50.0	48.8	49.1	47.2	46.0	45.9	42.3	47.8	46.8	47.9	45.4	48.8	48.0	49.6	48.3

Table 4-2b   Module2 TX optical Output waveform test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
TX Optical Power[dBm]	2.3	2.2	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.2	2.2	0.2	0.1	0.4	0.3	0.3	0.2	0.4	0.4	0.4	0.2	0.4	0.3
TX Extinction Ratio[dB]	3.9	3.9	3.7	3.8	4.1	4.3	4.0	4.2	4.4	4.7	4.2	4.5	4.2	4.3	3.8	4.1	4.4	4.5	4.2	4.4	4.8	4.8	4.6	4.6	4.8	5.0	4.6	4.9	5.1	5.4	5.0	5.2	5.4	5.6	5.3	5.5
TX RMS Jitter [ps]	1.6	1.5	1.6	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.5	1.6	1.7	1.7	1.6	1.6	1.5	1.5	1.6	1.5	1.4	1.7	1.5	1.5	1.7
TX P-P Jitter [ps]	12.3	10.4	12.2	10.4	11.2	11.1	10.4	11.3	12.6	10.4	12.1	11.8	11.1	11.3	12.4	10.0	13.0	11.5	11.0	11.4	10.8	11.7	10.6	12.3	12.1	10.7	10.0	12.7	10.6	11.7	11.6	11.0	12.2	11.4	12.5	12.4
TX Eye Mask Margin[%]	35.6	37.9	37.2	38.3	36.8	39.2	40.6	38.9	37.5	41.6	43.4	39.3	32.0	30.8	38.0	34.2	35.0	31.7	39.1	35.6	37.0	35.0	41.2	35.9	28.0	23.8	29.5	30.4	29.0	25.8	29.5	30.4	29.5	27.3	30.6	33.2
TX Crossing [%]	48.4	47.1	45.6	48.3	48.6	48.3	48.0	49.8	49.6	50.2	48.9	52.0	46.2	46.0	44.1	48.0	47.6	47.3	47.3	48.8	50.3	49.9	47.7	50.5	44.5	43.5	43.0	43.8	46.6	46.2	46.1	47.0	47.4	47.1	46.4	49.1

Table 4-2c   Module3 TX optical Output waveform test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
TX Optical Power[dBm]	2.0	2.1	2.1	2.3	2.1	2.1	2.2	2.3	2.2	2.2	2.3	2.3	1.7	1.8	1.9	2.0	1.8	1.8	1.9	2.0	1.8	1.9	1.8	2.1	0.0	-0.1	-0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
TX Extinction Ratio[dB]	3.7	3.9	3.9	4.0	4.1	4.2	4.2	4.2	4.4	4.6	4.4	4.6	4.2	4.2	4.2	4.2	4.4	4.4	4.4	4.6	4.7	4.7	4.7	5.0	4.8	4.8	4.8	5.0	5.0	5.0	5.2	5.3	5.3	5.2	5.4	5.5
TX RMS Jitter [ps]	1.6	1.5	1.6	1.5	1.5	1.6	1.6	1.5	1.6	1.5	1.6	1.6	1.5	1.7	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.5	1.5	1.6	1.5	1.5	1.6	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5
TX P-P Jitter [ps]	12.8	13.0	12.7	11.1	10.7	10.9	11.4	12.2	12.8	10.6	10.6	10.4	12.3	12.5	12.3	11.5	11.5	10.9	10.6	11.9	10.8	11.0	11.0	10.2	12.3	10.4	11.9	10.5	12.0	12.9	10.9	11.1	10.1	11.3	10.9	12.9
TX Eye Mask Margin[%]	33.8	37.3	38.0	36.5	34.0	38.8	40.2	38.8	34.9	41.8	43.5	41.5	29.2	32.0	33.3	31.5	32.2	33.7	34.6	33.5	33.9	36.5	36.1	36.1	22.3	20.4	20.2	19.2	23.3	21.4	21.2	22.6	26.3	22.9	21.6	24.2
TX Crossing [%]	48.1	45.8	46.3	45.2	49.6	47.8	48.6	47.7	51.4	48.9	49.1	47.9	47.2	46.0	46.2	44.2	49.5	47.5	47.4	47.2	52.8	49.0	50.0	48.6	45.6	43.1	46.2	44.3	47.7	46.1	46.3	46.1	50.6	46.7	47.2	49.3

Table 4-2d   Module4 TX optical Output waveform test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
TX Optical Power[dBm]	1.9	2.1	2.2	2.3	2.0	2.2	2.2	2.3	1.9	2.2	2.3	2.2	1.7	1.8	1.9	2.0	1.7	1.8	1.9	2.0	1.8	1.9	1.9	1.9	0.1	0.0	0.1	0.3	0.1	0.1	0.2	0.3	0.1	0.0	0.3	0.4
TX Extinction Ratio[dB]	3.8	4.0	3.7	3.9	4.2	4.3	4.1	4.3	4.6	4.5	4.3	4.5	4.4	4.2	4.1	4.4	4.6	4.6	4.5	4.6	5.0	4.9	4.7	5.0	5.0	4.9	5.0	5.1	5.2	5.3	5.2	5.3	5.5	5.4	5.5	5.4
TX RMS Jitter [ps]	1.6	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.5	1.5	1.7	1.7	1.7	1.5	1.6	1.7	1.6	1.6	1.7	1.7	1.5	1.7	1.7	1.5	1.6	1.6	1.7	1.6	1.6	1.5	1.6	1.5	1.5	1.6	1.7	1.6
TX P-P Jitter [ps]	12.4	10.5	12.2	12.3	10.7	11.2	9.9	11.6	10.8	11.9	10.9	10.2	10.9	10.2	11.6	13.0	11.8	11.9	12.3	12.4	11.8	12.5	12.6	10.7	11.3	12.3	12.6	10.7	13.3	11.1	11.6	10.6	10.2	11.2	11.8	10.3
TX Eye Mask Margin[%]	40.0	35.6	35.1	37.4	41.3	36.4	37.0	37.6	41.7	37.6	37.9	40.9	35.2	35.3	36.8	28.6	36.4	36.2	37.3	31.6	39.7	37.4	40.1	34.8	19.1	21.5	26.0	22.2	21.8	23.0	27.5	24.0	25.3	23.0	30.0	25.6
TX Crossing [%]	47.9	46.2	47.4	47.8	48.4	47.1	49.0	47.9	51.4	48.3	49.9	51.2	45.4	45.6	44.6	45.8	47.8	46.1	48.1	47.2	49.0	49.1	50.9	48.8	45.8	43.1	46.6	43.7	46.4	45.0	46.6	45.7	48.1	47.9	47.0	47.5

Table 4-2e   Module5 TX optical Output waveform test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
TX Optical Power[dBm]	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.1	2.0	1.9	2.0	2.1	2.1	1.9	2.0	2.1	2.1	1.9	2.0	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.3	0.3	0.2	0.2	0.2
TX Extinction Ratio[dB]	3.9	4.0	4.0	3.9	4.2	4.3	4.3	4.2	4.6	4.5	4.6	4.4	4.3	4.3	4.5	4.4	4.5	4.6	4.7	4.7	4.8	4.9	5.1	4.9	4.8	5.2	5.2	5.0	5.1	5.4	5.4	5.2	5.3	5.5	5.7	5.3
TX RMS Jitter [ps]	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.6	1.7	1.7	1.7	1.5	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.7	1.6	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.5	1.6	1.7	1.5	1.7
TX P-P Jitter [ps]	12.7	11.9	10.8	11.3	11.4	10.4	10.9	10.7	10.2	12.1	10.6	13.0	10.4	10.8	11.1	10.6	12.4	11.0	11.5	11.6	11.9	12.4	10.6	11.2	10.8	12.5	12.0	11.5	11.7	11.4	11.4	12.2	11.9	12.6	12.5	13.0
TX Eye Mask Margin[%]	36.3	37.9	36.6	32.2	36.6	40.4	37.1	34.7	36.6	42.9	40.3	36.1	35.9	34.5	35.1	38.1	37.6	37.1	36.2	41.5	39.8	38.1	36.5	44.8	27.3	25.9	18.2	28.9	28.8	28.1	21.4	30.4	31.8	29.7	21.6	33.7
TX Crossing [%]	49.0	45.8	46.5	47.2	49.9	47.6	47.3	48.6	52.8	48.8	49.9	51.3	46.4	43.6	43.5	46.5	48.6	46.6	46.0	48.1	51.6	48.1	48.6	50.6	46.9	41.6	42.2	43.7	47.4	44.8	44.5	46.4	50.5	47.5	46.3	47.9

Table 4-2f   Module6 TX optical Output waveform test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
TX Optical Power[dBm]	2.3	2.0	2.3	2.2	2.3	2.0	2.3	2.2	2.2	2.1	2.3	2.3	1.9	1.7	2.0	2.0	2.0	1.8	2.1	2.0	2.1	1.8	2.2	2.1	0.1	0.0	0.2	0.2	0.2	0.0	0.3	0.3	0.2	0.0	0.4	0.4
TX Extinction Ratio[dB]	3.9	4.2	4.2	4.2	4.3	4.4	4.4	4.4	4.6	4.6	4.8	4.8	4.5	4.3	4.3	4.5	4.7	4.7	4.6	4.7	5.0	5.1	4.8	5.0	5.0	5.1	4.9	5.0	5.4	5.3	5.3	5.4	5.7	5.4	5.4	5.7
TX RMS Jitter [ps]	1.6	1.5	1.6	1.7	1.5	1.6	1.6	1.6	1.5	1.7	1.6	1.7	1.6	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.6	1.6	1.5	1.6	1.7	1.5	1.4	1.6	1.5	1.5	1.5	1.7	1.7	1.6
TX P-P Jitter [ps]	12.8	10.6	12.5	10.5	10.6	11.0	11.0	11.2	10.9	10.6	12.1	11.8	10.4	10.3	11.2	12.3	10.5	14.1	10.6	11.1	12.4	13.0	10.5	11.2	10.3	11.9	11.2	12.7	11.5	11.4	11.3	10.9	12.4	12.5	12.9	12.4
TX Eye Mask Margin[%]	39.4	33.5	34.9	39.1	39.5	36.5	38.2	39.7	39.5	39.1	39.9	42.7	35.0	32.6	33.5	32.8	35.2	34.2	36.0	34.5	37.8	34.5	39.1	37.6	27.0	25.8	28.8	27.6	29.4	25.9	30.5	29.2	29.8	27.2	31.2	32.4
TX Crossing [%]	45.5	44.6	49.4	47.7	48.4	46.9	49.6	48.1	49.1	49.9	50.2	49.5	44.0	44.3	46.3	45.3	47.2	46.8	49.0	47.8	47.7	47.0	49.5	50.7	43.3	44.9	46.2	44.9	45.6	45.2	47.3	46.1	47.7	47.0	47.6	46.2

Table 4-2g   Module7 TX optical Output waveform test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
TX Optical Power[dBm]	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.2	2.3	2.2	2.2	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.0	2.2	2.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.1	0.3	0.3
TX Extinction Ratio[dB]	3.8	4.1	4.2	3.9	4.2	4.4	4.4	4.2	4.5	4.6	4.7	4.6	4.4	4.4	4.5	4.2	4.6	4.7	4.7	4.5	4.8	5.0	5.0	4.8	5.0	5.2	5.3	4.8	5.4	5.4	5.5	5.2	5.7	5.5	5.6	5.4
TX RMS Jitter [ps]	1.6	1.6	1.7	1.6	1.5	1.7	1.6	1.5	1.6	1.7	1.6	1.5	1.6	1.7	1.7	1.5	1.6	1.6	1.6	1.6	1.7	1.5	1.5	1.5	1.7	1.6	1.5	1.5	1.7	1.6	1.5	1.7	1.6	1.7	1.7	1.6
TX P-P Jitter [ps]	12.6	12.1	10.7	13.0	10.7	11.9	10.6	12.9	11.9	10.1	10.6	10.1	11.0	11.2	11.4	10.8	11.1	10.5	12.4	11.8	11.4	10.1	11.8	11.2	11.1	11.8	11.1	11.1	13.0	10.6	12.6	12.6	12.0	10.8	10.4	12.2
TX Eye Mask Margin[%]	37.8	34.9	35.9	38.7	41.3	36.5	38.8	40.1	44.7	38.2	39.9	40.8	38.5	36.3	38.0	35.5	39.3	37.0	38.2	35.5	41.1	40.3	41.4	36.5	30.3	22.9	29.8	21.7	30.9	25.9	29.9	23.5	31.8	28.0	33.2	26.5
TX Crossing [%]	45.2	48.4	48.2	46.3	48.7	48.9	49.4	48.2	48.8	49.5	51.0	51.4	44.3	46.5	47.0	48.2	47.4	48.0	48.2	48.2	47.5	50.9	48.5	50.2	44.9	46.2	44.9	43.7	46.7	47.5	47.2	46.7	49.2	50.6	48.4	49.9

Table 4-2h   Module8 TX optical Output waveform test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
TX Optical Power[dBm]	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.3	2.2	2.3	2.2	2.0	2.0	1.9	1.9	2.1	2.0	2.0	2.0	2.0	2.0	1.9	2.0	0.2	0.1	0.3	0.0	0.2	0.1	0.4	0.1	0.1	0.1	0.4	0.1
TX Extinction Ratio[dB]	4.0	3.9	4.1	4.3	4.3	4.3	4.4	4.5	4.5	4.5	4.7	4.9	4.4	4.3	4.3	4.6	4.6	4.6	4.7	4.9	5.0	4.8	5.0	5.1	5.0	5.2	5.2	5.5	5.4	5.4	5.5	5.7	5.6	5.5	5.7	5.9
TX RMS Jitter [ps]	1.6	1.5	1.5	1.5	1.7	1.6	1.6	1.6	1.6	1.7	1.6	1.7	1.5	1.5	1.7	1.7	1.6	1.6	1.6	1.6	1.5	1.7	1.7	1.7	1.7	1.6	1.7	1.5	1.6	1.6	1.5	1.7	1.7	1.6	1.7	1.5
TX P-P Jitter [ps]	12.0	12.3	11.1	10.6	11.1	11.5	10.9	10.0	11.9	11.9	12.7	10.6	12.9	11.4	11.2	11.8	11.8	11.2	12.0	11.3	12.9	11.4	11.2	11.0	10.4	12.7	11.5	11.3	12.8	12.5	10.6	10.6	10.5	12.3	10.9	10.4
TX Eye Mask	41.5	42.4	33.6	37.4	42.3	43.1	34.0	39.3	44.0	44.9	37.5	41.4	37.7	34.9	32.1	33.7	37.8	38.2	35.6	36.6	39.9	41.0	36.7	39.9	27.0	28.1	24.7	23.7	27.9	28.2	25.5	26.9	28.1	29.2	28.3	27.4

Margin[%]																																				
TX Crossing [%]	46.5	45.7	45.7	43.8	48.5	47.7	47.6	46.5	50.4	48.1	47.7	46.7	45.5	45.8	45.9	46.2	47.1	46.5	47.1	46.4	47.1	49.1	50.4	49.0	44.9	44.6	46.8	45.3	46.5	46.0	47.0	45.8	47.6	48.0	50.5	48.9

Table 4-2i   Module9 TX optical Output waveform test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
TX Optical Power[dBm]	2.2	2.0	2.1	2.0	2.3	2.0	2.1	2.0	2.3	1.9	2.2	2.1	1.9	1.7	1.9	1.8	2.0	1.8	1.9	1.8	1.9	1.9	2.0	1.8	0.0	-0.1	0.0	0.0	0.1	-0.1	0.0	0.0	0.2	-0.1	0.0	-0.1
TX Extinction Ratio[dB]	4.0	3.9	3.9	4.0	4.3	4.3	4.3	4.4	4.7	4.5	4.7	4.8	4.2	4.3	4.3	4.6	4.6	4.7	4.6	4.8	4.9	5.0	5.0	5.0	5.2	5.3	5.2	5.3	5.5	5.5	5.5	5.6	5.6	5.6	5.6	5.9
TX RMS Jitter [ps]	1.5	1.5	1.7	1.5	1.6	1.6	1.7	1.5	1.5	1.6	1.7	1.7	1.6	1.5	1.7	1.5	1.6	1.6	1.6	1.6	1.7	1.5	1.7	1.7	1.5	1.5	1.7	1.7	1.5	1.5	1.5	1.7	1.5	1.6	1.6	1.5
TX P-P Jitter [ps]	12.7	12.1	12.8	11.9	10.4	10.2	11.1	12.7	10.2	12.0	12.9	10.5	11.3	12.8	12.6	10.5	12.5	10.5	11.5	11.7	10.5	12.0	10.8	11.0	11.1	10.8	11.1	11.4	11.2	12.9	10.5	10.9	12.4	10.0	11.1	10.8
TX Eye Mask Margin[%]	37.2	33.9	33.7	33.7	37.7	37.1	36.8	34.5	39.2	40.6	39.7	34.5	33.2	38.4	30.6	34.2	36.7	38.7	33.4	34.4	36.9	40.7	36.1	37.7	22.6	29.2	19.7	21.5	25.0	30.1	22.9	22.5	28.5	30.7	22.9	23.3
TX Crossing [%]	46.2	47.6	44.4	43.0	47.6	48.9	47.1	45.5	48.0	51.5	47.8	45.6	46.1	45.7	46.3	44.5	47.6	47.5	47.1	45.3	48.2	49.9	49.9	48.5	47.1	44.3	44.8	43.1	47.1	46.8	45.6	44.8	47.3	48.0	46.6	48.0

Table 4-2j   Module10 TX optical Output waveform test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
TX Optical Power[dBm]	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.1	2.0	2.0	1.8	2.1	2.1	2.1	1.9	2.1	2.2	2.1	1.9	0.2	0.2	0.3	0.1	0.3	0.2	0.4	0.1	0.3	0.2	0.4	0.0
TX Extinction Ratio[dB]	3.8	3.8	3.9	3.8	4.1	4.1	4.1	4.2	4.3	4.3	4.5	4.5	3.9	4.1	4.3	4.2	4.3	4.3	4.5	4.5	4.5	4.5	4.7	4.7	4.5	4.8	4.7	4.9	4.9	5.0	5.1	5.2	5.0	5.1	5.2	5.4
TX RMS Jitter [ps]	1.6	1.6	1.7	1.5	1.6	1.7	1.6	1.5	1.6	1.6	1.5	1.6	1.5	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.6	1.5	1.6	1.6	1.6	1.5	1.6	1.5	1.6
TX P-P Jitter [ps]	12.8	12.5	12.2	11.1	11.2	11.1	10.7	12.9	10.0	10.0	12.0	11.7	10.9	10.2	12.1	12.8	12.9	11.8	11.6	11.6	10.2	12.2	11.8	12.7	11.5	10.2	11.0	12.9	10.1	11.3	11.5	11.7	11.3	10.2	11.4	13.0
TX Eye Mask Margin[%]	44.4	37.4	34.3	33.5	45.2	39.1	37.0	34.5	46.1	41.2	39.1	35.4	38.0	32.9	35.2	31.8	41.1	36.2	36.5	33.9	41.1	39.4	38.8	36.6	32.2	22.7	23.4	23.0	32.9	25.2	26.9	24.0	33.6	27.9	29.3	24.9
TX Crossing [%]	48.2	47.2	48.8	47.9	48.8	49.4	48.8	48.3	50.9	52.3	51.7	50.3	47.4	44.9	46.2	45.1	48.7	48.4	48.2	47.0	49.3	49.6	51.7	49.9	46.7	46.2	45.9	46.2	48.0	47.6	48.1	46.5	50.7	50.2	51.4	49.9

Table 4-k   Module11 TX optical Output waveform test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
TX Optical Power[dBm]	2.3	2.0	2.0	1.9	2.3	2.0	2.1	1.9	2.3	2.1	2.2	1.8	1.9	1.7	1.7	1.7	2.0	1.8	1.8	1.7	2.1	1.8	1.8	1.6	0.4	0.2	0.2	-0.1	0.4	0.3	0.2	0.0	0.3	0.2	0.2	-0.1
TX Extinction Ratio[dB]	4.0	4.1	4.0	4.2	4.2	4.4	4.3	4.5	4.6	4.6	4.7	4.8	4.4	4.4	4.4	4.5	4.6	4.8	4.7	4.9	4.8	5.1	5.0	5.2	5.0	5.1	5.2	5.2	5.2	5.5	5.4	5.6	5.3	5.6	5.6	5.9
TX RMS Jitter [ps]	1.7	1.7	1.6	1.5	1.6	1.7	1.5	1.6	1.7	1.7	1.7	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.6	1.6	1.6	1.6	1.7	1.7	1.6	1.7	1.7	1.5	1.5	1.5	1.7	1.6	1.6
TX P-P Jitter [ps]	11.9	12.3	10.8	11.0	12.0	11.2	11.5	11.8	10.5	11.0	12.2	12.8	12.3	11.7	11.7	10.0	12.2	12.8	10.9	10.9	12.4	12.5	12.4	12.6	10.0	12.8	12.6	10.6	12.3	11.4	10.6	12.0	10.0	11.8	10.5	12.0
TX Eye Mask Margin[%]	33.4	33.9	32.9	27.3	36.0	36.3	36.0	30.4	38.8	37.9	38.9	31.8	34.2	31.5	33.0	26.8	34.2	34.0	34.5	30.0	34.6	36.3	36.4	33.3	21.7	22.6	23.2	18.4	23.9	22.8	25.7	20.3	25.6	25.7	27.2	21.4
TX Crossing [%]	48.1	45.8	45.8	44.8	48.1	48.2	49.1	46.6	50.2	50.9	51.5	49.2	44.5	46.2	44.7	44.9	47.1	46.8	47.9	45.4	47.2	47.0	51.0	47.6	43.6	45.9	45.0	44.1	47.0	46.0	47.0	44.8	50.3	46.0	48.0	46.4

Table 4-2l   Module12 TX optical Output waveform test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
TX Optical Power[dBm]	2.2	2.1	2.2	2.2	2.3	2.1	2.2	2.3	2.3	2.2	2.3	2.3	2.0	1.8	1.7	1.8	2.0	1.8	1.7	1.8	2.0	1.8	1.8	1.8	0.5	0.2	0.1	0.2	0.5	0.3	0.2	0.2	0.5	0.3	0.3	0.3
TX Extinction Ratio[dB]	4.1	4.0	4.2	4.0	4.4	4.3	4.4	4.3	4.7	4.6	4.6	4.7	4.4	4.6	4.3	4.6	4.6	4.8	4.7	4.9	4.9	5.2	5.1	5.1	5.0	5.0	5.1	4.9	5.4	5.3	5.4	5.2	5.7	5.6	5.7	5.4

TX RMS Jitter [ps]	1.7	1.7	1.6	1.5	1.7	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.7	1.6	1.7	1.7	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.6	1.7	1.7	1.7	1.5	1.5	1.5	1.5	1.6	1.5	1.6	1.7
TX P-P Jitter [ps]	13.0	11.4	10.5	12.8	10.6	11.5	11.2	12.5	10.3	12.7	12.5	10.9	10.3	10.8	12.4	10.9	11.6	12.7	12.3	10.9	11.4	12.1	12.4	11.0	11.4	12.6	11.0	10.6	11.7	10.7	10.6	10.9	12.0	12.1	11.1	12.4
TX Eye Mask Margin[%]	38.8	38.1	39.3	37.0	40.6	41.6	42.1	39.3	43.0	43.7	44.2	39.5	37.7	38.2	36.3	35.3	38.3	39.8	37.6	35.6	40.9	40.2	40.1	37.2	29.2	28.0	27.5	22.7	30.1	31.4	27.9	24.5	32.9	34.6	28.5	25.0
TX Crossing [%]	46.9	48.4	45.6	48.6	49.5	50.1	48.7	49.4	52.9	50.8	50.5	52.4	45.9	48.3	47.1	46.8	48.8	48.8	47.8	47.9	52.1	49.4	51.3	48.2	47.0	46.4	45.5	46.5	48.4	48.2	47.5	47.1	50.2	49.0	49.0	48.6

4.3 TX Optical Test Data Results
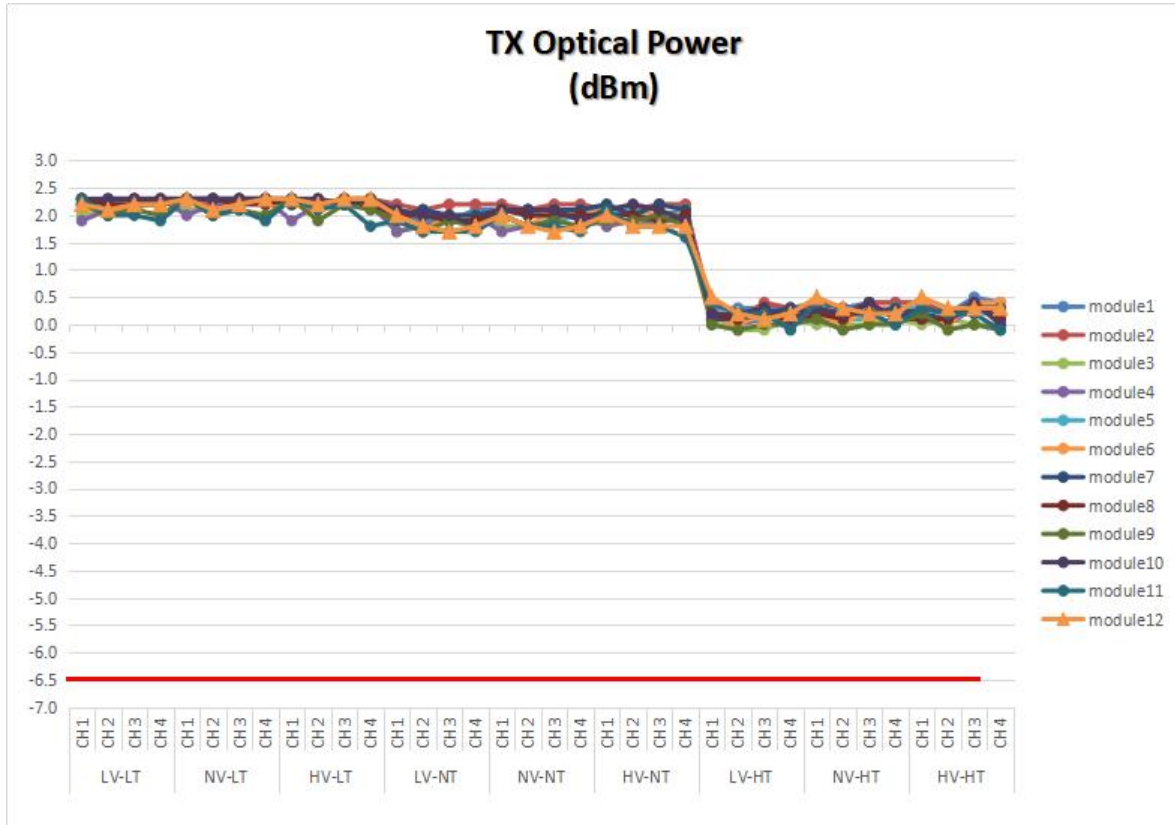
Figure 4-3a   TX Optical Power test results for nine corners

Figure 4-3b   TX Extinction Ratio test results for nine corners

Figure 4-3c   TX RMS Jitter test results for nine corners
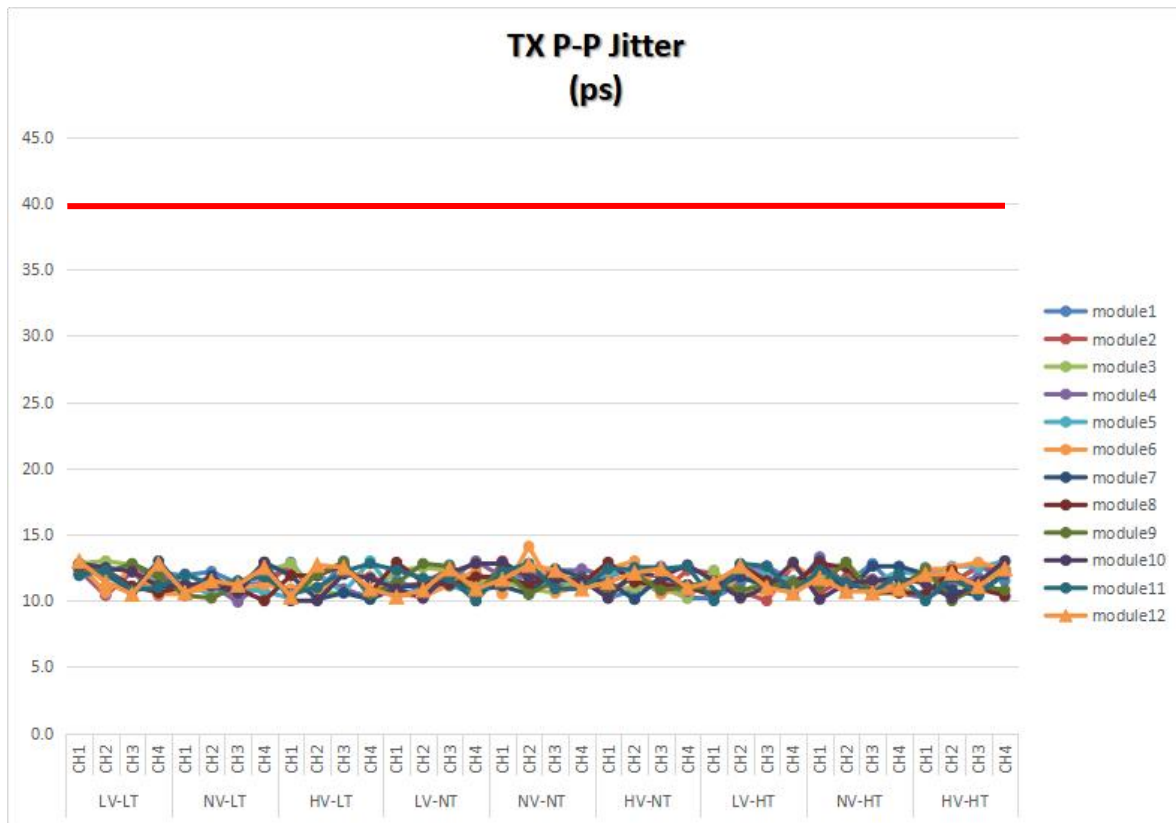
Figure 4-3d   TX P-P Jitter test results for nine corners
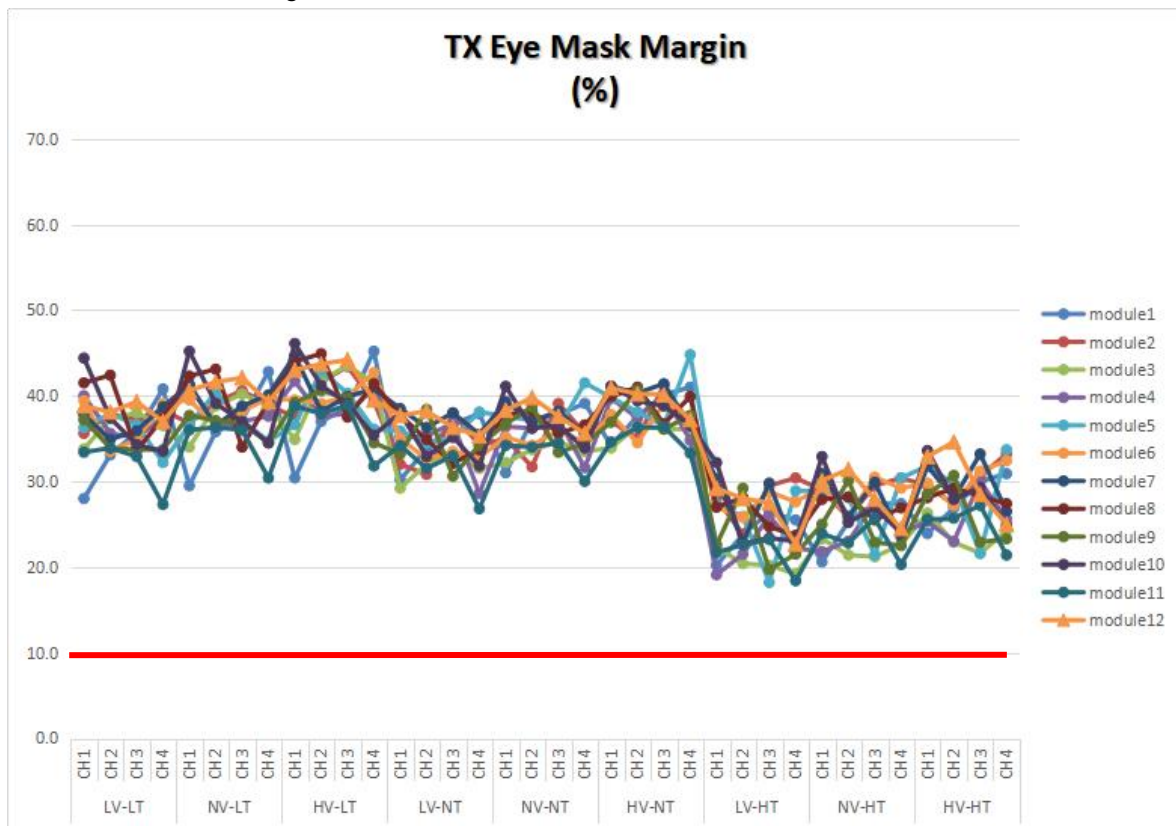
Figure 4-3e   TX Eye Mask test results for nine corners
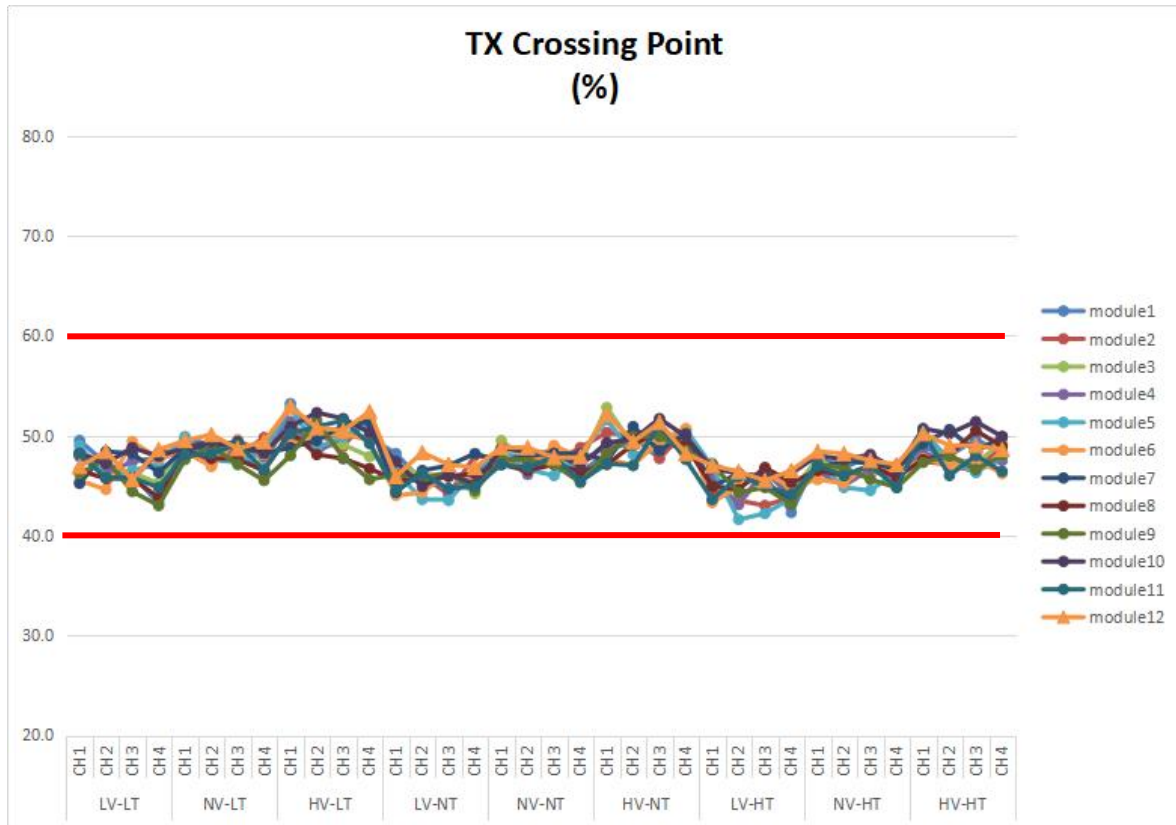
Figure 4-3f   TX Crossing test results for nine corners

5   RX Test Result

5.1 RX Electrical Eyes
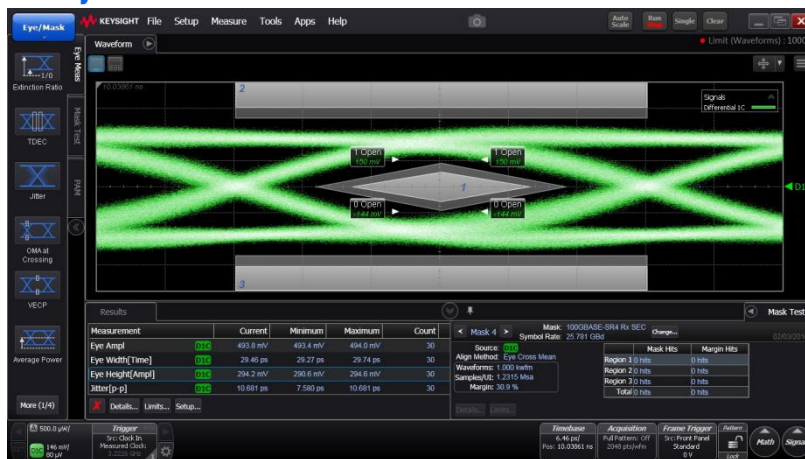
Figure 5a1 – R1 Output electrical eye @LT
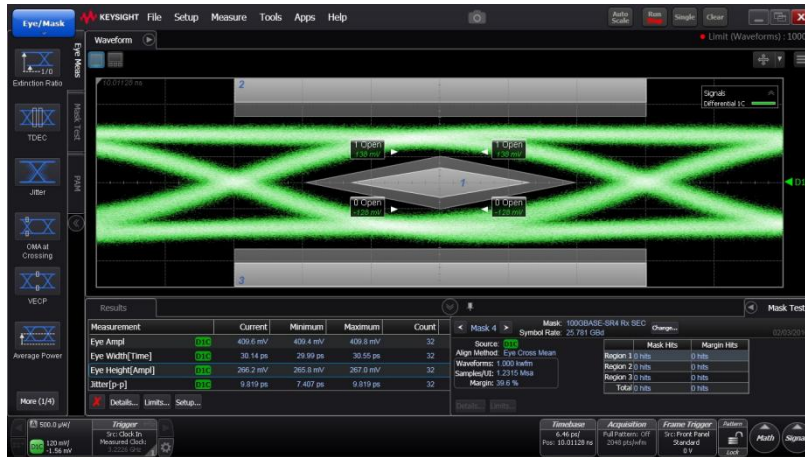
Figure 5a2 – R2 Output electrical eye @LT
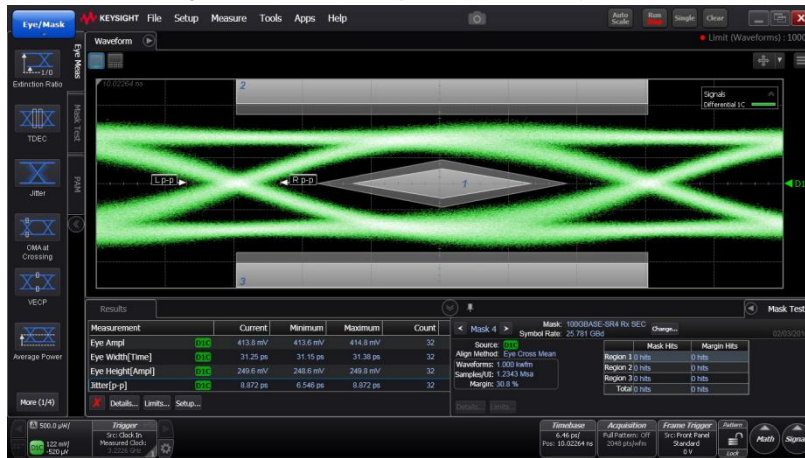
Figure 5a3 – R3 Output electrical eye @LT
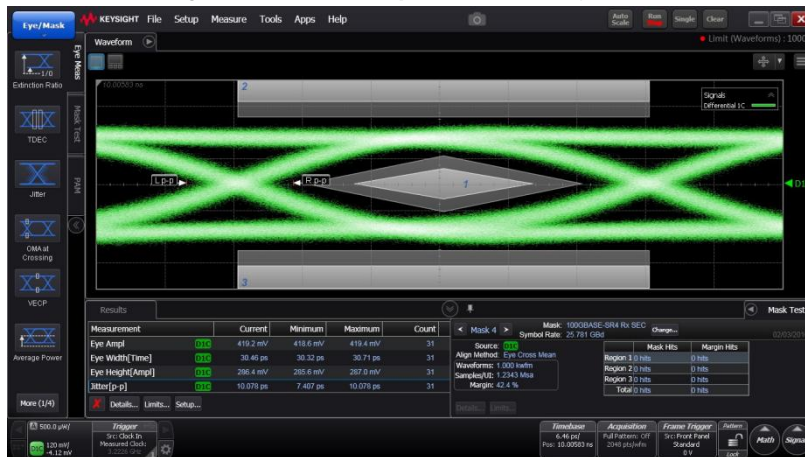
Figure 5a4 – R4 Output electrical eye @LT
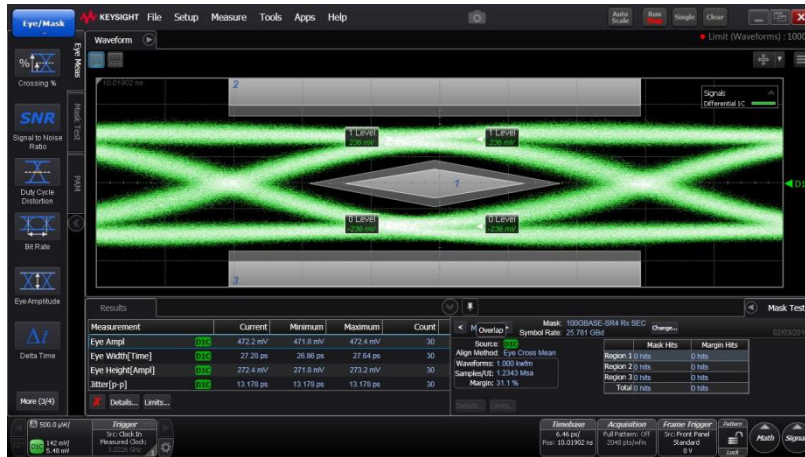
Figure 5b1 – R1 Output electrical eye @NT

Figure 5b2 – R2 Output electrical eye @NT

Figure 5b3 – R3 Output electrical eye @NT
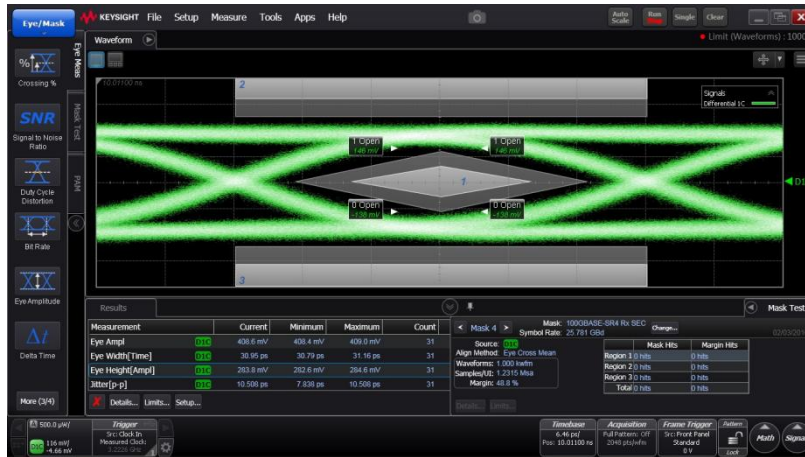
Figure 5b4 – R4 Output electrical eye @NT
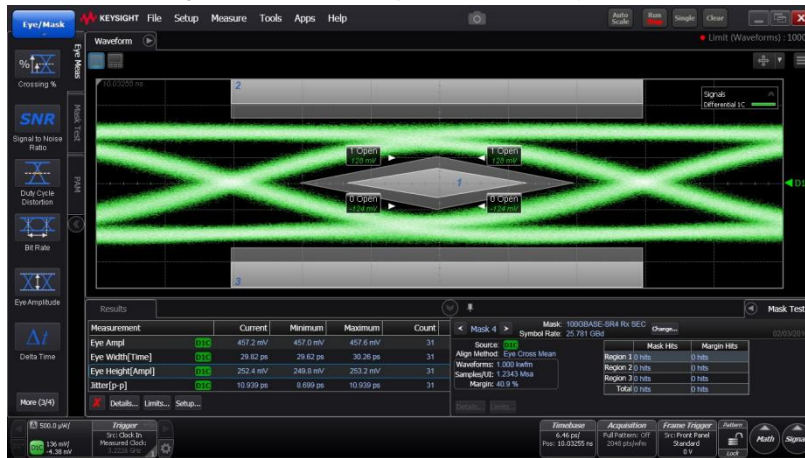
Figure 5b2 – R1 Output electrical eye @HT

Figure 5b2 – R2 Output electrical eye @HT
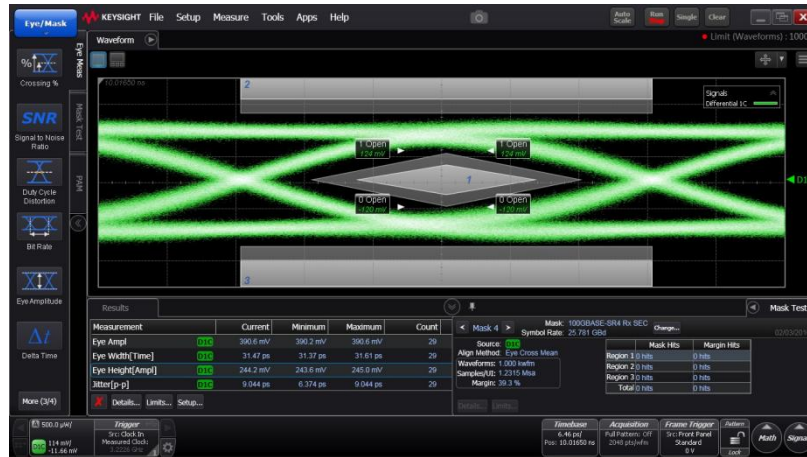
Figure 5b3 – R3 Output electrical eye @HT

Figure 5b4 – R4 Output electrical eye @HT

5.2 RX Test Date

RX test data in table5-2.

Table 5-2a   Module1 RX test data

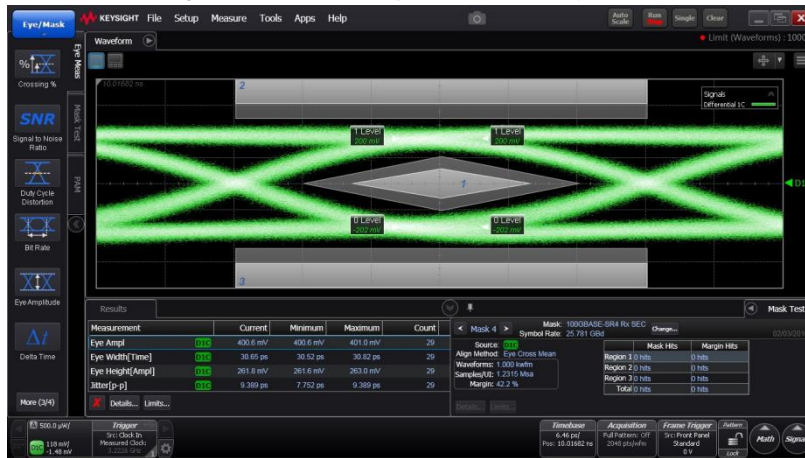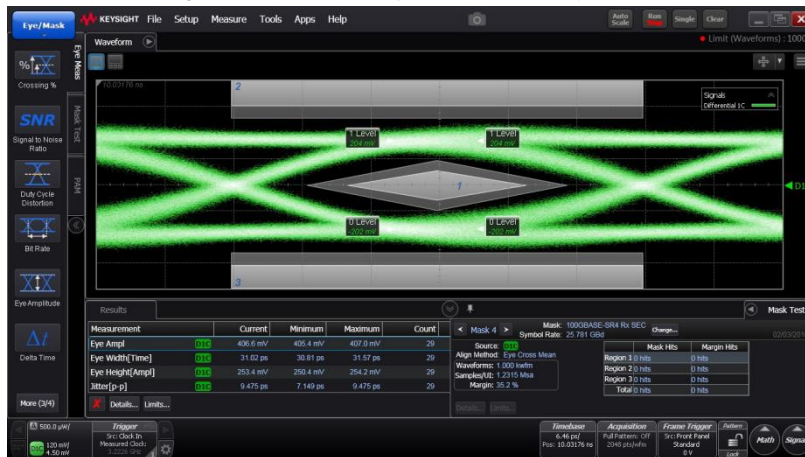| Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
RX Sensitivity [dBm]	-9.2	-9.0	-8.6	-9.2	-9.6	-9.4	-8.9	-9.6	-10.0	-9.3	-9.1	-9.6	-8.7	-8.8	-8.0	-8.8	-8.9	-9.1	-8.4	-9.2	-9.1	-9.5	-8.3	-9.6	-8.2	-8.4	-7.3	-8.7	-8.3	-8.6	-7.6	-8.8	-8.5	-8.7	-7.6	-8.8
Data Output swing(diff)[mV]	493.8	409.6	414.0	419.2	493.0	409.6	413.0	419.2	494.0	410.0	413.0	419.0	471.6	400.0	407.2	400.6	472.4	400.6	406.6	400.6	472.0	400.4	406.2	400.0	456.0	384.0	390.3	396.0	457.2	385.0	390.6	396.6	457.4	385.4	389.3	396.2
RX Eye Height(diff)[mV]	294.0	266.2	249.0	286.6	294.2	266.2	269.6	286.8	294.4	266.4	249.4	285.8	271.3	263.4	253.2	283.8	272.4	261.8	253.4	283.3	272.8	261.2	253.4	283.6	252.2	246.4	244.8	269.4	252.4	246.4	244.2	268.6	253.4	247.2	243.4	267.8
RX Eye Width[UI]	29.5	30.1	31.3	30.4	29.4	30.1	31.2	30.4	29.6	30.0	31.3	30.3	27.3	29.5	30.6	31.0	27.2	30.6	31.0	30.9	27.3	30.6	31.0	30.9	29.7	30.9	31.3	31.3	29.8	30.9	31.4	31.2	29.6	30.8	31.2	31.2
RX Eye Rise Time[ps]	26.7	27.3	26.8	27.6	26.4	27.4	27.6	27.3	26.5	27.1	27.0	27.1	26.9	27.5	27.2	27.7	26.8	27.7	27.8	27.6	26.9	27.3	27.2	27.5	27.3	27.7	27.8	28.4	27.4	28.2	28.2	27.9	27.2	27.8	27.8	27.7
RX Eye Fall Time[ps]	29.9	30.1	30.9	30.7	30.3	30.1	31.4	30.8	30.7	30.4	31.5	31.0	30.2	30.4	31.1	31.1	30.7	30.4	31.6	31.0	30.8	30.7	31.9	31.3	30.7	30.9	31.4	31.6	31.0	30.8	32.1	31.5	31.5	31.0	32.4	31.9
Overload (dBm)	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
LOS assert (dBm)	-16.5	-17.2	-16.7	-16.6	-16.6	-17.4	-16.7	-16.8	-16.3	-17.1	-16.9	-16.9	-16.7	-17.2	-17.1	-16.6	-16.4	-17.1	-16.9	-16.7	-16.4	-17.4	-16.9	-16.5	-16.7	-17.2	-16.8	-16.8	-16.5	-17.0	-16.6	-16.4	-16.4	-17.3	-16.9	-16.6
LOS de-assert (dBm)	-13.2	-14.2	-13.8	-13.4	-13.1	-14.4	-13.3	-13.9	-13.3	-14.1	-13.7	-13.9	-13.9	-14.1	-13.9	-13.8	-13.4	-14.3	-13.6	-13.9	-13.1	-13.9	-13.6	-13.3	-13.7	-14.2	-14.0	-13.9	-13.3	-13.7	-13.7	-13.4	-12.9	-14.5	-13.8	-13.4
LOS Hysteresis (dB)	3.3	3.0	2.9	3.2	3.5	3.0	3.4	2.9	3.0	3.0	3.2	3.0	2.8	3.1	3.2	2.8	3.0	2.8	3.3	2.8	3.3	3.5	3.3	3.2	3.0	3.0	2.8	2.9	3.2	3.3	2.9	3.0	3.5	2.8	3.1	3.2

Table 5-2b   Module2 RX test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
RX Sensitivity [dBm]	-8.6	-8.7	-8.3	-8.4	-8.7	-9.0	-8.6	-8.5	-9.1	-8.9	-8.8	-8.4	-8.1	-8.4	-7.6	-7.9	-8.3	-8.7	-8.0	-8.2	-8.4	-8.7	-8.1	-8.6	-7.6	-7.9	-7.2	-7.5	-7.7	-8.0	-7.4	-7.8	-7.6	-7.8	-7.3	-7.9
Data Output swing(diff)[mV]	470.7	458.6	451.5	438.3	469.1	472.9	473.0	460.8	470.3	474.4	473.5	459.9	455.9	456.8	449.7	434.7	453.8	457.2	449.5	434.5	455.9	456.7	449.8	434.1	431.2	432.7	434.1	421.0	432.6	432.2	433.3	418.8	431.7	431.2	434.4	417.2
RX Eye Height(diff)[mV]	278.3	282.2	298.7	277.1	278.1	283.8	297.0	278.7	276.6	282.2	296.2	278.8	267.2	263.4	276.1	268.0	266.7	265.3	278.0	266.6	265.2	265.5	279.5	265.7	251.4	246.9	261.0	247.9	250.8	245.8	259.3	249.5	251.0	245.7	258.6	248.9
RX Eye Width[UI]	28.1	30.9	27.8	30.4	28.4	30.6	27.9	30.8	27.4	30.4	27.6	30.7	28.2	30.6	27.6	30.5	27.9	30.3	27.6	30.7	27.7	30.5	27.3	30.6	28.1	30.6	27.2	30.5	27.4	30.6	27.6	30.2	27.6	30.0	27.6	30.3
RX Eye Rise Time[ps]	27.7	26.7	26.1	26.3	27.5	27.3	26.7	26.6	28.0	27.9	27.2	27.1	28.0	26.9	26.5	26.4	27.7	27.5	26.9	26.8	28.3	28.1	27.5	27.3	28.6	27.3	26.8	26.7	28.3	27.8	27.5	27.4	28.6	28.6	27.8	27.7
RX Eye Fall Time[ps]	32.4	32.7	33.8	30.3	32.5	33.5	33.5	30.8	32.4	33.2	33.9	30.5	32.6	33.1	34.2	30.6	32.8	33.7	33.8	31.0	32.8	33.6	34.1	30.9	32.8	33.3	34.7	31.3	33.4	34.0	34.3	31.6	33.1	33.8	34.6	31.1
Overload (dBm)	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
LOS assert (dBm)	-17.5	-16.3	-16.4	-15.9	-17.1	-16.7	-16.3	-16.5	-17.3	-16.6	-16.2	-16.3	-17.5	-16.8	-16.3	-15.9	-17.2	-16.6	-16.3	-16.2	-17.1	-16.3	-16.6	-15.9	-17.0	-16.4	-16.6	-16.4	-17.3	-16.3	-16.1	-16.2	-17.5	-16.3	-16.5	-15.9
LOS de-assert (dBm)	-14.0	-13.5	-13.3	-13.1	-13.7	-13.5	-13.3	-13.6	-14.5	-13.7	-13.2	-13.2	-14.2	-14.0	-12.8	-12.6	-14.1	-13.3	-12.8	-12.9	-14.0	-13.4	-13.5	-13.1	-13.5	-13.4	-13.2	-13.4	-13.8	-13.4	-12.8	-13.3	-14.2	-13.5	-13.2	-13.0
LOS Hysteresis (dB)	3.5	2.8	3.1	2.8	3.4	3.2	3.0	2.9	2.8	2.9	3.0	3.1	3.3	2.8	3.5	3.3	3.1	3.3	3.5	3.3	3.1	2.9	3.1	2.8	3.5	3.0	3.4	2.9	3.5	3.2	3.3	2.9	3.3	2.8	3.3	2.9

Table 5-2c   Module3 RX test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
RX Sensitivity [dBm]	-9.1	-8.6	-9.1	-8.7	-9.4	-9.0	-9.5	-9.1	-9.7	-9.4	-9.7	-9.1	-8.5	-8.1	-8.8	-8.3	-8.9	-8.3	-9.0	-8.7	-9.3	-8.5	-8.9	-8.6	-8.0	-7.6	-8.2	-8.0	-8.3	-7.7	-8.4	-8.1	-8.5	-7.5	-8.2	-8.1
Data Output swing(diff)[mV]	431.1	434.2	436.5	463.8	431.9	444.5	453.3	475.2	433.6	442.4	455.2	474.6	415.7	432.4	432.9	462.0	416.7	433.7	433.8	461.3	417.4	432.3	435.3	459.4	404.5	409.4	408.7	445.9	404.5	411.4	410.5	445.7	404.0	412.4	408.9	443.5
RX Eye Height(diff)[mV]	306.2	267.6	301.8	287.5	306.3	269.4	300.7	286.8	307.1	271.1	299.3	285.1	285.9	260.4	290.0	278.7	286.8	261.4	290.2	280.7	288.7	262.5	289.1	279.0	271.2	248.3	270.8	263.5	271.5	246.4	270.9	263.0	270.4	245.2	270.1	261.5
RX Eye Width[UI]	30.1	30.7	31.1	29.0	29.3	29.8	30.9	29.1	29.6	29.8	30.8	28.7	29.7	30.3	31.1	28.6	29.5	30.0	30.9	28.7	29.6	30.1	30.8	28.5	29.4	30.6	30.7	28.5	29.8	29.6	30.6	28.7	29.3	29.6	30.8	28.7
RX Eye Rise Time[ps]	26.8	27.1	26.1	26.7	27.0	26.8	26.8	27.2	27.7	26.2	26.6	27.0	26.9	27.5	26.5	27.0	27.3	27.1	27.0	27.4	27.9	26.6	26.8	27.4	27.6	27.7	26.9	27.5	27.7	27.6	27.5	28.0	28.4	27.1	27.0	28.0
RX Eye Fall Time[ps]	30.4	31.2	31.0	32.6	29.7	31.7	31.0	32.4	29.6	32.0	30.6	32.9	30.6	31.6	31.2	33.0	30.0	32.1	31.2	32.6	29.8	32.4	30.8	33.1	31.1	32.0	31.5	33.4	30.4	32.7	31.6	32.9	30.3	32.6	31.5	33.6
Overload (dBm)	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
LOS assert (dBm)	-16.1	-16.6	-17.4	-16.1	-16.6	-16.9	-17.0	-16.3	-16.4	-16.7	-17.0	-16.1	-16.1	-16.4	-17.2	-16.1	-16.3	-16.7	-17.2	-16.4	-16.0	-16.8	-17.2	-16.7	-16.6	-16.7	-17.5	-16.5	-16.3	-16.8	-17.1	-16.2	-16.0	-16.6	-17.2	-16.7
LOS de-assert (dBm)	-13.2	-13.1	-14.1	-12.8	-13.2	-14.1	-14.1	-13.0	-13.4	-13.7	-14.1	-12.9	-13.0	-13.3	-14.0	-13.3	-13.0	-13.6	-13.7	-13.0	-12.8	-13.3	-14.0	-13.7	-13.1	-13.8	-14.5	-13.2	-13.5	-13.5	-14.0	-13.4	-13.2	-13.6	-14.2	-13.5
LOS Hysteresis (dB)	2.9	3.5	3.3	3.3	3.4	2.8	2.9	3.3	3.0	3.0	2.9	3.2	3.1	3.1	3.2	2.8	3.3	3.1	3.5	3.4	3.2	3.5	3.2	3.0	3.5	2.9	3.0	3.3	2.8	3.3	3.1	2.8	2.8	3.0	3.0	3.2

Table 5-2d   Module4 RX test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
RX Sensitivity [dBm]	-9.3	-8.2	-9.1	-8.6	-9.7	-8.6	-9.3	-8.8	-10.1	-8.4	-9.5	-8.7	-8.6	-8.2	-8.2	-8.0	-9.0	-8.4	-8.6	-8.2	-8.9	-8.5	-9.0	-8.6	-8.1	-7.4	-7.5	-7.4	-8.3	-7.6	-7.8	-7.6	-8.2	-7.7	-7.6	-7.5
Data Output swing(diff)[mV]	493.3	443.9	454.6	465.3	492.2	458.2	471.8	484.8	490.2	459.0	470.3	483.5	475.7	438.5	452.8	463.5	474.6	437.9	451.9	464.7	476.8	439.9	451.1	463.4	459.3	414.5	440.8	445.5	459.6	414.8	439.6	444.0	459.8	413.8	440.8	445.7
RX Eye Height(diff)[mV]	279.5	281.6	281.4	279.9	281.2	280.4	280.5	281.0	279.6	279.4	281.7	280.9	271.7	261.3	274.4	272.7	272.8	261.7	272.9	270.9	272.9	259.7	274.0	270.2	254.1	244.2	254.3	250.0	255.6	243.5	253.7	251.4	255.5	242.6	253.2	251.0
RX Eye Width[UI]	28.5	28.9	27.8	31.0	28.3	28.7	27.5	31.4	28.2	28.2	27.8	31.2	28.0	28.5	27.8	31.0	28.2	28.4	27.5	31.0	28.3	28.4	27.7	30.9	28.2	28.5	27.5	30.6	28.0	28.0	27.8	31.1	27.9	28.6	27.9	30.6
RX Eye Rise Time[ps]	26.5	28.3	27.3	26.9	26.8	27.7	27.2	26.7	27.2	28.2	26.6	26.4	26.7	28.5	27.6	27.0	27.1	27.9	27.5	26.9	27.6	28.5	26.9	26.7	27.2	28.8	27.9	27.3	27.6	28.3	27.2	27.2	27.9	28.8	27.1	27.2

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
RX Eye Fall Time[ps]	30.8	29.7	32.3	29.8	31.2	29.8	31.4	30.3	30.8	29.6	31.9	29.6	31.0	30.1	32.4	30.0	31.4	30.0	31.8	30.5	31.0	29.9	32.2	29.9	31.5	30.6	32.7	30.6	31.9	30.6	32.3	31.0	31.3	30.3	32.4	30.1
Overload (dBm)	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
LOS assert (dBm)	-17.1	-16.3	-16.7	-16.3	-17.1	-16.0	-16.9	-15.9	-16.8	-15.9	-16.6	-16.2	-16.8	-15.8	-16.4	-16.1	-16.9	-16.1	-16.6	-16.2	-16.7	-16.3	-16.6	-16.4	-17.0	-16.0	-16.4	-16.3	-16.9	-15.9	-16.8	-16.1	-16.7	-16.2	-16.3	-16.5
LOS de-assert (dBm)	-14.2	-12.9	-13.4	-13.0	-13.7	-13.0	-13.8	-12.5	-14.0	-12.6	-13.6	-13.2	-13.6	-12.4	-12.9	-13.0	-13.7	-12.9	-13.2	-13.1	-13.2	-13.0	-13.7	-13.3	-13.7	-12.8	-13.5	-13.2	-14.0	-13.0	-13.3	-13.0	-13.7	-13.3	-13.4	-13.7
LOS Hysteresis (dB)	2.9	3.4	3.3	3.3	3.4	3.0	3.1	3.4	2.8	3.3	3.0	3.0	3.2	3.4	3.5	3.1	3.2	3.2	3.4	3.1	3.5	3.3	2.9	3.1	3.3	3.2	2.9	3.1	2.9	2.9	3.5	3.1	3.0	2.9	2.9	2.8

Table 5-2e   Module5 RX test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
RX Sensitivity [dBm]	-8.6	-9.0	-8.0	-8.8	-8.8	-9.4	-8.2	-9.1	-8.7	-9.7	-8.2	-8.9	-7.7	-8.9	-7.7	-8.0	-8.1	-9.2	-8.0	-8.4	-8.1	-9.0	-8.2	-8.4	-7.3	-8.5	-7.4	-7.7	-7.4	-8.6	-7.6	-8.0	-7.6	-8.8	-7.6	-8.1
Data Output swing(diff)[mV]	450.9	467.5	466.9	472.1	450.7	479.4	475.3	490.2	449.8	477.2	476.0	490.5	431.1	462.1	463.3	470.3	430.4	459.9	464.9	469.7	428.6	457.8	464.2	471.4	408.6	443.9	452.0	451.6	407.4	445.7	452.2	453.2	407.4	446.7	451.9	454.3
RX Eye Height(diff)[mV]	282.1	284.4	283.2	271.1	283.0	282.9	281.4	271.6	284.4	282.6	281.8	272.9	267.8	274.5	274.4	261.3	266.3	274.2	273.7	263.1	267.1	276.0	273.1	262.7	248.5	258.9	255.3	244.2	249.0	257.5	255.9	244.0	250.9	255.5	254.8	243.2
RX Eye Width[UI]	30.6	27.5	29.9	29.8	29.7	28.0	30.0	29.3	29.7	27.7	30.1	29.0	30.1	27.5	30.2	29.7	29.9	27.5	30.2	29.4	29.8	27.5	29.9	29.3	30.3	27.1	30.1	29.5	29.9	27.4	29.9	29.4	29.6	27.6	29.6	29.0
RX Eye Rise Time[ps]	26.7	28.4	27.0	27.7	27.0	27.6	26.7	27.4	27.4	27.3	26.3	27.3	26.9	28.6	27.3	28.1	27.4	28.0	26.9	27.6	27.8	27.5	26.5	27.6	27.5	29.1	27.9	28.6	28.0	28.6	27.3	27.9	28.4	28.1	26.9	28.0
RX Eye Fall Time[ps]	30.4	30.0	33.8	30.9	29.9	30.5	33.2	31.6	29.9	30.5	33.2	31.3	30.7	30.4	34.0	31.2	30.2	30.8	33.4	31.8	30.1	30.9	33.4	31.4	31.0	30.7	34.3	31.8	30.8	31.3	34.0	32.4	30.7	31.3	33.7	31.8
Overload (dBm)	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
LOS assert (dBm)	-17.5	-16.5	-16.9	-16.7	-17.5	-16.9	-17.0	-16.5	-17.1	-16.8	-16.9	-16.9	-17.1	-16.7	-17.3	-16.5	-17.2	-16.6	-17.1	-16.6	-17.0	-16.5	-17.0	-16.7	-17.4	-16.3	-17.1	-16.7	-17.4	-16.6	-17.2	-16.7	-17.1	-16.7	-17.0	-16.7
LOS de-assert (dBm)	-14.2	-13.1	-14.1	-13.8	-14.7	-13.4	-14.0	-13.6	-14.2	-13.8	-13.6	-13.7	-13.7	-13.5	-14.4	-13.0	-13.8	-13.2	-14.1	-13.3	-14.1	-13.3	-13.9	-13.3	-13.9	-13.2	-14.1	-13.4	-14.5	-13.8	-13.8	-13.6	-13.9	-13.7	-13.9	-13.4
LOS Hysteresis (dB)	3.3	3.4	2.8	2.9	2.8	3.5	3.0	2.9	2.9	3.0	3.3	3.2	3.4	3.2	2.9	3.5	3.4	3.4	3.0	3.3	2.9	3.2	3.1	3.4	3.5	3.1	3.0	3.3	2.9	2.8	3.4	3.1	3.2	3.0	3.1	3.1

Table 5-2f   Module6 RX test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
RX Sensitivity [dBm]	-8.5	-9.0	-8.8	-8.6	-8.6	-9.2	-9.0	-8.9	-8.5	-9.2	-9.3	-9.3	-7.9	-8.5	-8.4	-8.2	-8.1	-8.7	-8.7	-8.6	-8.5	-8.5	-8.8	-8.8	-7.3	-7.8	-7.8	-7.7	-7.5	-7.9	-8.0	-7.8	-7.7	-8.0	-8.2	-7.8
Data Output swing(diff)[mV]	444.7	425.1	470.5	470.5	442.8	444.7	500.2	486.1	441.7	446.7	501.9	486.7	418.7	419.7	472.3	466.9	420.2	418.6	474.0	464.8	418.2	417.4	472.4	463.9	395.2	404.9	452.7	448.6	396.8	406.2	452.3	450.8	397.6	407.6	454.4	451.4
RX Eye Height(diff)[mV]	301.1	297.8	276.5	286.1	301.5	299.1	275.9	284.6	303.5	300.1	277.0	282.7	281.5	285.9	264.8	269.5	282.9	287.1	266.4	268.3	283.9	285.9	265.3	269.4	266.2	271.4	249.4	250.4	266.1	269.7	248.3	249.8	267.2	268.7	249.9	251.8
RX Eye Width[UI]	29.2	31.2	27.9	28.8	29.2	30.3	28.6	29.1	28.9	30.6	28.6	29.1	29.4	30.7	28.0	29.0	29.3	30.5	28.1	28.8	29.0	30.4	28.2	28.6	29.4	30.8	28.0	29.0	28.8	30.3	28.1	28.6	29.0	30.6	28.0	28.9
RX Eye Rise Time[ps]	26.5	27.7	26.9	26.4	27.0	27.3	27.5	27.1	26.5	27.5	27.8	26.3	26.9	27.9	27.3	26.8	27.3	27.5	27.8	27.3	26.8	27.9	28.1	26.7	27.3	28.3	27.6	27.2	27.9	27.9	28.3	27.6	27.2	28.4	28.6	27.2
RX Eye Fall Time[ps]	33.0	30.2	32.8	31.2	33.0	30.9	33.0	31.0	33.6	31.1	32.5	30.4	33.4	30.5	33.2	31.6	33.3	31.1	33.3	31.2	33.9	31.5	32.9	30.8	33.8	31.1	33.6	32.0	33.6	31.7	33.8	31.6	34.4	32.0	33.3	31.3
Overload (dBm)	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
LOS assert (dBm)	-16.8	-16.9	-16.4	-17.1	-16.6	-17.5	-16.6	-17.2	-16.6	-17.0	-16.1	-17.3	-16.6	-17.5	-16.1	-17.2	-16.6	-17.2	-16.3	-17.0	-16.3	-17.0	-16.4	-16.8	-16.8	-17.4	-16.0	-16.8	-16.7	-16.9	-16.1	-16.7	-16.6	-17.2	-16.3	-16.9
LOS de-assert (dBm)	-13.7	-13.7	-13.0	-13.9	-13.2	-14.2	-13.2	-13.9	-13.6	-13.5	-12.8	-13.9	-13.7	-14.3	-13.0	-14.2	-13.7	-14.3	-13.4	-13.6	-12.9	-14.1	-13.4	-13.7	-13.9	-14.4	-13.1	-13.9	-13.9	-13.9	-13.3	-13.5	-13.6	-14.4	-13.0	-13.9
LOS Hysteresis (dB)	3.1	3.2	3.4	3.2	3.4	3.3	3.4	3.3	3.0	3.5	3.3	3.4	2.9	3.2	3.1	3.0	2.9	2.9	2.9	3.4	3.4	2.9	3.0	3.1	2.9	3.0	2.9	2.9	2.8	3.0	2.8	3.2	3.0	2.8	3.3	3.2

Table 5-2g   Module7 RX test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
RX Sensitivity [dBm]	-8.7	-9.1	-9.4	-9.0	-9.0	-9.5	-9.6	-9.4	-9.1	-9.3	-10.0	-9.8	-8.3	-8.9	-8.9	-8.7	-8.5	-9.1	-9.2	-8.9	-8.9	-9.3	-9.2	-8.8	-7.6	-8.3	-8.6	-8.3	-7.7	-8.6	-8.8	-8.5	-7.9	-8.6	-8.6	-8.4
Data Output swing(diff)[mV]	456.0	426.0	453.2	480.0	454.6	437.0	469.2	494.1	455.1	434.8	471.0	493.7	432.7	422.4	455.0	474.6	434.7	422.9	456.1	474.8	436.2	422.1	455.1	473.0	413.9	406.5	434.2	461.8	412.5	405.7	433.9	461.5	411.3	407.1	433.0	462.4
RX Eye Height(diff)[mV]	286.9	266.0	298.5	292.8	285.7	267.6	299.3	294.4	285.5	267.2	299.5	293.1	275.2	261.3	282.0	285.1	273.5	262.4	281.7	283.9	274.1	260.4	282.8	281.9	258.1	244.8	266.6	265.6	256.2	244.9	266.1	266.0	257.0	245.5	266.6	266.9
RX Eye Width[UI]	30.0	30.0	29.9	30.6	29.7	30.3	30.0	30.4	30.1	29.6	30.1	30.5	29.5	30.3	30.1	30.5	29.7	30.2	30.1	30.6	29.8	29.9	30.3	30.3	29.5	30.1	30.2	30.0	29.3	29.9	29.8	30.8	30.1	30.0	29.8	30.2
RX Eye Rise Time[ps]	27.9	27.3	28.0	26.4	27.6	27.3	27.6	27.0	27.6	27.4	27.5	27.5	28.1	27.5	28.3	26.7	28.0	27.7	27.9	27.2	27.8	27.7	27.9	27.7	28.4	27.7	28.9	27.0	28.6	28.0	28.4	27.7	28.3	28.1	28.2	28.0
RX Eye Fall Time[ps]	33.3	32.5	31.3	33.8	33.6	33.1	31.5	33.6	34.1	32.5	31.8	34.0	33.5	32.9	31.7	34.0	33.9	33.3	31.9	33.9	34.4	32.9	32.2	34.2	34.0	33.6	31.9	34.5	34.3	33.6	32.5	34.3	34.9	33.2	32.8	34.7
Overload (dBm)	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
LOS assert (dBm)	-16.6	-17.1	-17.3	-16.7	-16.8	-16.7	-17.0	-16.2	-17.0	-16.6	-17.2	-16.1	-16.6	-17.2	-16.9	-16.1	-16.8	-16.9	-17.2	-16.4	-17.0	-16.9	-16.9	-16.2	-16.6	-17.2	-17.3	-16.5	-17.1	-16.7	-17.0	-16.6	-16.5	-16.8	-17.5	-16.2
LOS de-assert (dBm)	-13.3	-14.3	-14.3	-13.9	-13.7	-13.9	-13.6	-13.1	-13.7	-13.2	-13.9	-13.2	-13.3	-14.1	-13.9	-12.8	-13.7	-14.0	-14.3	-13.1	-14.2	-13.4	-14.0	-12.7	-13.7	-14.4	-14.2	-13.5	-13.6	-13.7	-13.7	-13.7	-13.3	-13.6	-14.5	-12.9
LOS Hysteresis (dB)	3.3	2.8	3.0	2.8	3.1	2.8	3.4	3.1	3.3	3.4	3.3	2.9	3.3	3.1	3.0	3.3	3.1	2.9	2.9	3.3	2.8	3.5	2.9	3.5	2.9	2.8	3.1	3.0	3.5	3.0	3.3	2.9	3.2	3.2	3.0	3.3

Table 5-2h   Module8 RX test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
RX Sensitivity [dBm]	-9.0	-8.0	-9.1	-8.6	-9.3	-8.4	-9.3	-9.0	-9.7	-8.5	-9.3	-8.9	-8.4	-7.9	-8.8	-8.4	-8.8	-8.2	-9.0	-8.5	-9.0	-8.6	-9.2	-8.3	-7.8	-7.6	-8.2	-7.8	-8.0	-7.7	-8.5	-7.9	-8.1	-7.6	-8.7	-7.9
Data Output swing(diff)[mV]	461.0	469.0	442.9	418.1	460.4	496.0	463.1	430.2	458.5	497.0	465.3	430.6	441.3	467.2	444.7	418.1	441.4	468.9	442.6	417.6	443.0	469.0	442.8	419.5	417.2	448.0	422.4	393.8	418.4	448.2	422.6	393.0	417.4	450.2	423.2	391.6
RX Eye Height(diff)[mV]	276.0	275.1	282.2	271.9	275.4	275.3	283.2	269.9	277.1	275.2	281.5	269.2	265.6	264.7	270.7	260.9	264.3	264.2	271.7	261.0	262.3	263.1	272.4	259.3	249.7	246.3	253.1	244.2	248.5	245.5	253.8	242.5	250.2	244.2	252.2	241.3
RX Eye Width[UI]	28.9	28.6	28.9	29.5	29.0	29.4	29.3	29.2	29.2	28.9	28.7	29.4	28.6	28.7	29.1	29.2	28.7	28.9	28.9	29.4	28.9	28.7	28.7	29.6	28.4	28.6	28.8	28.8	28.4	28.4	28.6	29.3	28.8	28.8	28.2	29.3
RX Eye Rise Time[ps]	27.6	26.3	27.0	27.1	27.8	26.7	27.3	26.7	28.3	27.2	27.0	26.9	28.0	26.7	27.3	27.4	28.0	27.1	27.7	26.9	28.5	27.4	27.3	27.2	28.4	27.0	27.6	28.0	28.5	27.7	28.0	27.5	28.8	28.0	28.0	27.8
RX Eye Fall Time[ps]	33.8	31.9	33.2	32.0	32.9	32.0	32.5	32.0	33.4	32.5	33.0	31.5	33.9	32.1	33.3	32.2	33.3	32.3	32.7	32.2	33.6	32.7	33.2	31.8	34.6	32.4	33.7	32.8	33.7	32.9	33.2	32.8	33.9	33.3	33.7	32.2
Overload (dBm)	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
LOS assert (dBm)	-16.2	-17.0	-16.9	-17.2	-16.6	-16.9	-17.1	-17.0	-16.4	-16.7	-17.1	-17.4	-16.3	-17.3	-16.6	-17.0	-16.3	-17.0	-16.9	-17.2	-16.5	-16.7	-17.2	-17.3	-16.0	-16.9	-17.0	-17.1	-16.3	-17.2	-16.8	-17.4	-16.4	-17.1	-17.1	-17.5
LOS de-assert (dBm)	-12.9	-13.8	-13.7	-14.3	-13.3	-13.5	-13.6	-14.1	-12.9	-13.6	-13.8	-14.5	-12.9	-14.4	-13.5	-13.5	-13.4	-13.7	-13.5	-13.7	-13.5	-13.4	-14.2	-14.0	-12.5	-13.4	-13.9	-14.1	-13.1	-14.4	-13.6	-14.2	-13.2	-14.0	-14.0	-14.3
LOS Hysteresis (dB)	3.3	3.2	3.2	2.9	3.3	3.4	3.5	2.9	3.5	3.1	3.3	2.9	3.4	2.9	3.1	3.5	2.9	3.3	3.4	3.5	3.0	3.3	3.0	3.3	3.5	3.5	3.1	3.0	3.2	2.8	3.2	3.2	3.2	3.1	3.1	3.2

Table 5-2i   Module9 RX test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
RX Sensitivity [dBm]	-8.6	-8.7	-9.6	-8.6	-8.9	-9.1	-9.7	-8.8	-9.1	-8.9	-10.0	-9.1	-8.3	-8.6	-8.8	-8.0	-8.5	-8.8	-9.0	-8.1	-8.3	-8.9	-8.9	-8.1	-8.0	-7.8	-8.2	-7.4	-8.1	-8.0	-8.4	-7.6	-7.9	-7.8	-8.6	-7.6
Data Output swing(diff)[mV]	477.5	451.9	418.0	475.3	478.1	459.1	435.3	493.8	477.3	457.4	435.4	493.4	461.2	448.3	412.6	469.9	462.0	447.7	414.7	471.4	463.7	448.0	415.0	473.4	445.2	428.4	391.4	454.4	445.9	426.3	391.6	454.6	444.5	426.3	393.6	456.2
RX Eye Height(diff)[mV]	306.9	281.0	283.8	271.6	306.3	279.8	284.2	273.3	306.2	280.7	285.8	273.3	287.5	266.3	262.2	258.8	288.0	264.4	262.1	258.7	289.4	266.4	265.4	258.0	269.2	246.7	246.7	243.2	271.2	244.8	248.5	242.6	272.5	244.6	246.6	241.5
RX Eye Width[UI]	27.6	29.0	30.5	30.3	28.0	29.8	30.1	29.8	28.1	29.3	30.7	30.1	27.7	29.3	30.4	29.9	27.8	29.5	30.2	30.0	27.9	29.2	30.2	29.7	27.8	28.8	29.9	30.2	27.3	29.8	30.4	30.2	27.4	28.8	30.1	29.6
RX Eye Rise Time[ps]	26.1	26.8	27.8	26.1	26.7	26.9	27.6	26.4	26.9	27.3	28.0	26.4	26.3	27.1	28.0	26.3	26.9	27.2	28.0	26.8	27.3	27.6	28.1	26.7	26.5	27.5	28.6	26.8	27.3	27.8	28.6	27.3	27.8	27.8	28.8	27.3

Table 5-2j Module10 RX test data (continued):

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
RX Eye Fall Time[ps]	30.6	33.6	29.8	29.4	30.2	33.1	30.0	29.6	30.7	32.8	29.4	29.6	30.9	33.8	30.1	29.8	30.4	33.3	30.2	30.0	31.0	33.2	29.6	29.8	31.3	34.3	30.3	30.3	30.7	33.6	30.8	30.3	31.5	33.6	30.0	30.3
Overload (dBm)	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
LOS assert (dBm)	-16.3	-17.2	-16.4	-16.3	-16.0	-17.2	-16.2	-16.4	-16.0	-17.0	-16.4	-16.1	-16.3	-17.0	-16.4	-16.6	-16.2	-17.2	-16.2	-16.4	-16.2	-16.9	-16.0	-16.5	-16.4	-17.2	-16.3	-16.7	-15.9	-17.5	-16.5	-16.3	-16.5	-17.2	-16.2	-16.5
LOS de-assert (dBm)	-12.9	-14.2	-13.5	-13.1	-13.2	-14.2	-12.9	-13.5	-12.5	-13.8	-13.6	-12.7	-13.5	-14.2	-13.4	-13.2	-13.1	-14.4	-13.3	-12.9	-13.1	-13.7	-12.5	-13.3	-13.1	-14.2	-13.4	-13.7	-13.0	-14.7	-13.0	-13.3	-13.6	-13.8	-13.1	-13.3
LOS Hysteresis (dB)	3.4	3.0	2.9	3.2	2.8	3.0	3.3	2.9	3.5	3.2	2.8	3.4	2.8	2.8	3.0	3.4	3.1	2.8	2.9	3.5	3.1	3.2	3.5	3.2	3.3	3.0	2.9	3.0	2.9	2.8	3.5	3.0	2.9	3.4	3.1	3.2

Table 5-2j Module10 RX test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
RX Sensitivity [dBm]	-8.5	-9.1	-9.1	-9.0	-8.9	-9.4	-9.4	-9.3	-8.8	-9.8	-9.6	-9.2	-8.4	-8.6	-8.7	-8.7	-8.7	-8.9	-8.9	-8.8	-8.9	-9.0	-9.0	-8.6	-7.9	-8.1	-8.0	-7.9	-8.2	-8.4	-8.2	-8.0	-8.2	-8.4	-8.3	-7.8
Data Output swing(diff)[mV]	438.2	458.6	464.0	433.9	440.0	483.6	482.7	441.6	438.6	484.3	483.8	442.2	420.3	455.0	462.2	430.2	421.1	456.0	462.1	430.6	422.4	456.6	463.1	430.3	399.5	431.4	451.8	416.6	399.3	432.0	449.7	417.9	400.4	434.0	451.4	418.5
RX Eye Height(diff)[mV]	289.7	274.7	274.8	272.8	289.1	274.7	276.2	272.5	287.9	274.3	276.1	273.1	283.0	264.9	263.7	262.3	283.3	264.3	261.7	263.9	283.4	263.1	263.6	265.1	266.5	246.2	244.9	246.0	267.7	247.2	246.3	246.5	267.9	249.0	246.9	247.3
RX Eye Width[UI]	28.8	29.9	30.7	28.5	29.0	29.5	30.2	28.5	28.8	29.0	30.4	27.9	28.7	29.5	30.6	28.3	28.9	29.3	30.3	28.3	29.0	29.2	30.1	28.1	28.6	29.6	30.6	28.6	28.5	28.9	30.2	28.3	28.7	28.8	30.2	27.7
RX Eye Rise Time[ps]	27.7	27.3	26.8	26.1	27.3	26.8	27.4	26.7	27.0	26.4	26.9	26.1	28.1	27.6	27.0	26.3	27.5	27.0	27.6	26.9	27.1	26.6	27.4	26.4	28.6	28.0	27.5	26.7	27.8	27.3	28.2	27.4	27.6	27.1	27.6	27.0
RX Eye Fall Time[ps]	31.6	31.7	32.8	30.4	31.7	31.2	33.3	30.2	31.2	30.7	33.7	30.5	32.0	32.0	33.0	30.8	32.1	31.4	33.5	30.5	31.6	31.0	33.9	30.6	32.6	32.7	33.6	31.1	32.5	31.9	33.9	30.8	32.2	31.3	34.1	30.9
Overload (dBm)	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
LOS assert (dBm)	-17.4	-16.8	-16.0	-17.2	-17.2	-16.4	-16.3	-16.7	-17.2	-16.8	-16.5	-17.1	-17.0	-17.0	-16.5	-16.6	-17.2	-16.7	-16.3	-16.9	-17.2	-16.6	-16.4	-17.0	-17.2	-16.7	-16.3	-16.8	-16.9	-16.8	-16.1	-16.7				
LOS de-assert (dBm)	-14.5	-13.9	-13.0	-14.0	-13.8	-13.4	-13.1	-13.7	-13.7	-13.5	-13.0	-13.9	-13.5	-14.2	-13.5	-13.3	-14.1	-13.7	-13.1	-13.8	-14.2	-13.9	-13.2	-14.3	-13.7	-13.2	-13.2	-13.7	-13.9	-13.4	-13.5	-13.5	-13.7	-14.0	-13.1	-13.5
LOS Hysteresis (dB)	2.9	2.9	3.0	3.2	3.4	3.0	3.2	3.0	3.5	3.3	3.5	3.2	3.5	2.8	3.0	3.3	3.1	3.0	3.2	3.1	3.0	2.8	3.1	2.9	3.5	3.4	3.2	3.3	3.3	3.3	2.8	3.3	3.2	2.8	3.0	3.2

Table 5-2k Module11 RX test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
RX Sensitivity [dBm]	-9.1	-8.8	-9.5	-9.2	-9.3	-9.1	-9.8	-9.3	-9.2	-9.4	-9.7	-9.3	-8.6	-8.3	-8.7	-8.6	-9.0	-8.4	-9.1	-8.8	-9.2	-8.6	-9.0	-9.2	-7.9	-7.8	-8.1	-8.1	-8.2	-7.9	-8.4	-8.2	-8.2	-7.8	-8.4	-8.1
Data Output swing(diff)[mV]	435.6	435.6	475.9	448.3	434.2	463.9	491.0	471.0	435.9	463.1	489.9	471.7	417.0	435.6	472.3	448.3	418.1	437.3	471.6	447.7	416.3	437.6	471.3	446.5	399.0	414.9	451.7	429.4	399.4	412.7	450.8	427.2	397.3	411.3	451.7	427.3
RX Eye Height(diff)[mV]	288.8	290.1	284.1	279.5	287.6	289.7	282.4	280.3	286.5	291.1	282.8	278.5	282.6	277.1	265.6	267.5	282.0	277.8	266.8	265.5	281.5	277.4	265.6	264.4	263.3	257.5	248.6	245.9	264.9	258.3	248.4	245.6	265.5	258.8	249.6	246.9
RX Eye Width[UI]	29.4	31.2	29.9	30.6	29.4	30.9	29.0	30.5	29.5	30.7	29.3	30.7	29.5	31.0	29.4	30.4	29.4	30.8	29.1	30.5	29.6	30.7	29.2	30.6	29.0	31.3	29.2	30.0	28.9	30.5	29.0	30.6	29.2	31.0	28.8	30.3
RX Eye Rise Time[ps]	27.2	27.2	27.2	26.4	26.5	26.8	27.7	26.4	26.2	27.5	28.2	26.9	27.4	27.6	27.4	26.8	26.9	27.1	28.0	26.8	26.4	27.7	28.6	27.3	27.7	28.2	27.6	27.2	27.2	27.4	28.4	27.4	26.7	28.4	28.9	27.8
RX Eye Fall Time[ps]	33.4	32.5	32.9	31.3	33.3	32.2	33.5	30.6	33.9	32.3	33.3	30.6	33.7	32.9	33.3	31.5	33.7	32.6	33.8	30.9	34.2	32.7	33.4	30.8	34.1	33.5	33.7	32.2	34.1	33.0	34.2	31.2	34.7	33.0	33.7	31.2
Overload (dBm)	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
LOS assert (dBm)	-17.3	-15.9	-15.8	-16.7	-17.1	-15.9	-16.2	-16.5	-16.7	-16.1	-16.2	-16.5	-16.9	-15.9	-16.4	-16.6	-17.0	-16.2	-16.1	-16.4	-17.3	-16.1	-16.4	-16.7	-17.1	-16.5	-16.1	-16.5	-17.0	-16.3	-16.2	-16.2	-17.2	-15.9	-16.4	-16.7
LOS de-assert (dBm)	-14.4	-12.5	-12.4	-13.4	-13.6	-12.4	-12.7	-13.7	-13.8	-13.1	-13.4	-13.3	-13.8	-13.0	-13.0	-13.6	-13.8	-13.0	-12.9	-13.4	-14.3	-13.2	-13.0	-13.4	-13.6	-13.7	-12.7	-13.6	-13.5	-13.3	-13.3	-12.9	-14.4	-12.6	-13.2	-13.8
LOS Hysteresis (dB)	2.9	3.4	3.4	3.3	3.5	3.5	3.5	2.8	2.9	3.0	2.8	3.2	3.1	2.9	3.4	3.0	3.2	3.2	3.2	3.0	3.0	2.9	3.4	3.3	3.5	2.8	3.4	2.9	3.5	3.0	2.9	3.3	2.8	3.3	3.2	2.9

Table 5-2l Module12 RX test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
RX Sensitivity [dBm]	-8.3	-8.8	-8.6	-8.8	-8.6	-9.1	-8.8	-9.0	-8.7	-9.0	-9.1	-9.2	-7.6	-8.8	-8.1	-8.5	-8.0	-8.9	-8.3	-8.7	-8.4	-8.9	-8.5	-8.5	-7.2	-8.1	-7.6	-8.0	-7.3	-8.3	-7.7	-8.2	-7.2	-8.3	-7.7	-8.2
Data Output swing(diff)[mV]	429.2	468.3	465.3	440.1	428.6	489.9	476.8	461.6	426.4	489.1	478.5	461.2	416.2	462.9	467.1	436.5	414.6	464.4	465.0	435.7	416.8	463.4	467.1	436.3	400.0	442.4	449.0	420.5	399.6	441.5	449.5	421.2	399.3	440.3	451.2	422.0
RX Eye Height(diff)[mV]	283.4	304.9	300.0	277.6	283.8	305.4	298.8	275.6	285.5	303.7	300.3	274.1	277.0	290.6	287.8	262.9	275.4	290.7	287.0	261.3	276.6	289.5	286.0	261.2	258.8	272.6	269.5	243.5	259.5	274.4	270.7	244.4	260.5	276.2	269.9	242.8
RX Eye Width[UI]	30.4	30.3	31.8	29.0	30.9	30.8	31.1	29.6	30.9	30.7	31.6	28.9	30.6	30.3	31.4	29.1	30.6	30.5	31.4	29.2	30.6	30.4	31.1	28.9	30.4	29.9	31.0	29.1	30.3	30.6	31.2	29.4	30.2	30.0	31.2	28.7
RX Eye Rise Time[ps]	26.0	27.0	26.8	26.4	26.4	27.7	26.9	26.8	26.7	27.7	27.3	26.7	26.2	27.3	27.1	26.7	26.8	27.9	27.3	27.1	27.1	28.0	27.7	27.1	26.8	27.9	27.6	27.4	27.3	28.5	27.7	27.7	27.7	28.5	28.2	27.4
RX Eye Fall Time[ps]	32.5	32.7	32.9	29.7	32.7	32.8	32.5	30.2	32.5	32.0	31.9	30.2	32.9	33.0	33.1	30.2	32.9	33.0	32.7	30.4	32.9	32.4	32.2	30.4	33.2	33.3	33.7	30.7	33.5	33.5	33.2	31.0	33.3	33.0	32.5	30.7
Overload (dBm)	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
LOS assert (dBm)	-16.2	-15.9	-16.1	-16.1	-16.5	-16.4	-16.1	-15.9	-16.0	-16.2	-15.9	-15.9	-16.1	-16.4	-16.4	-15.9	-16.3	-16.1	-16.1	-16.1	-16.4	-16.3	-16.2	-15.9	-16.3	-16.2	-16.3	-16.3	-16.4	-16.4	-16.2	-15.9	-16.3	-16.1	-15.8	-16.2
LOS de-assert (dBm)	-13.0	-12.5	-13.2	-13.0	-13.1	-13.1	-12.7	-12.8	-13.1	-13.2	-12.7	-13.1	-13.0	-13.3	-13.2	-13.1	-13.1	-12.6	-12.6	-12.6	-12.9	-12.8	-13.1	-12.6	-13.0	-13.3	-12.9	-13.1	-13.1	-13.0	-13.3	-12.6	-13.2	-12.7	-12.6	-13.0
LOS Hysteresis (dB)	3.2	3.4	2.9	3.1	3.4	3.3	3.4	3.1	2.9	3.0	3.2	2.8	3.1	3.1	3.2	2.8	3.2	3.5	3.5	3.5	3.5	3.5	3.1	3.3	3.3	2.9	3.4	3.2	3.3	3.4	2.9	3.3	3.1	3.4	3.2	3.2

5.3 RX Test Results For Nine Corners
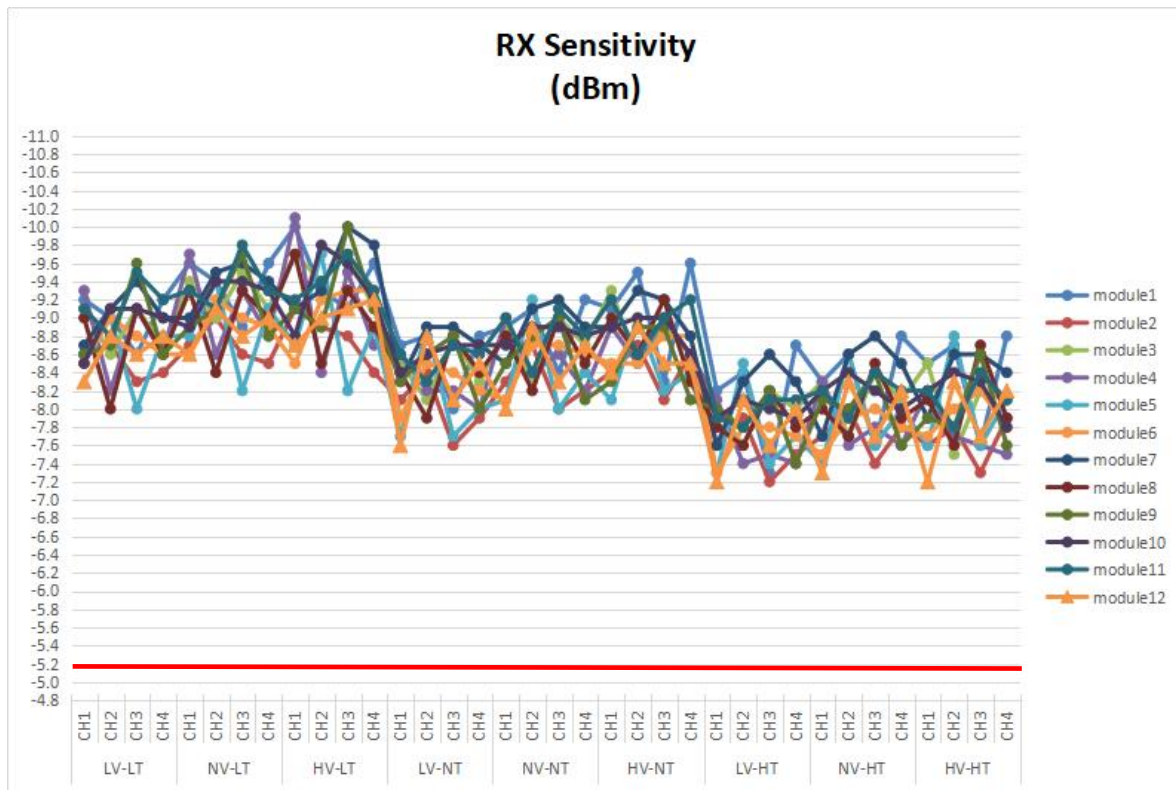
Figure 5-3a   RX Optical Sensitivity@1E-12 test results for nine corners
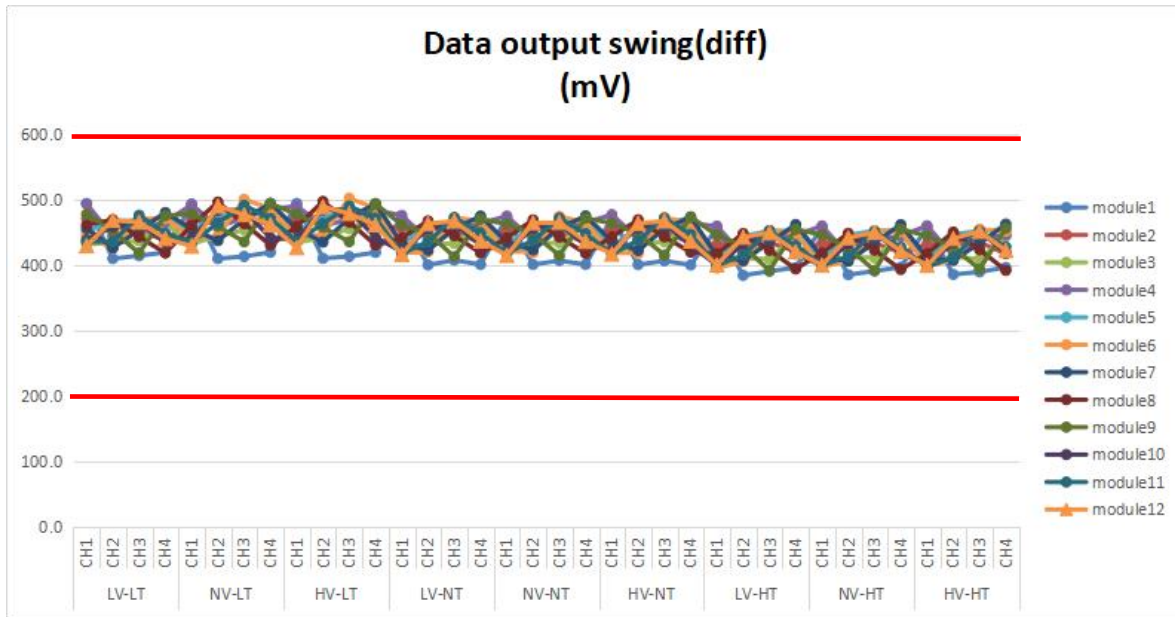
Figure 5-3b   RX Data Output swing(single) test results for nine corners
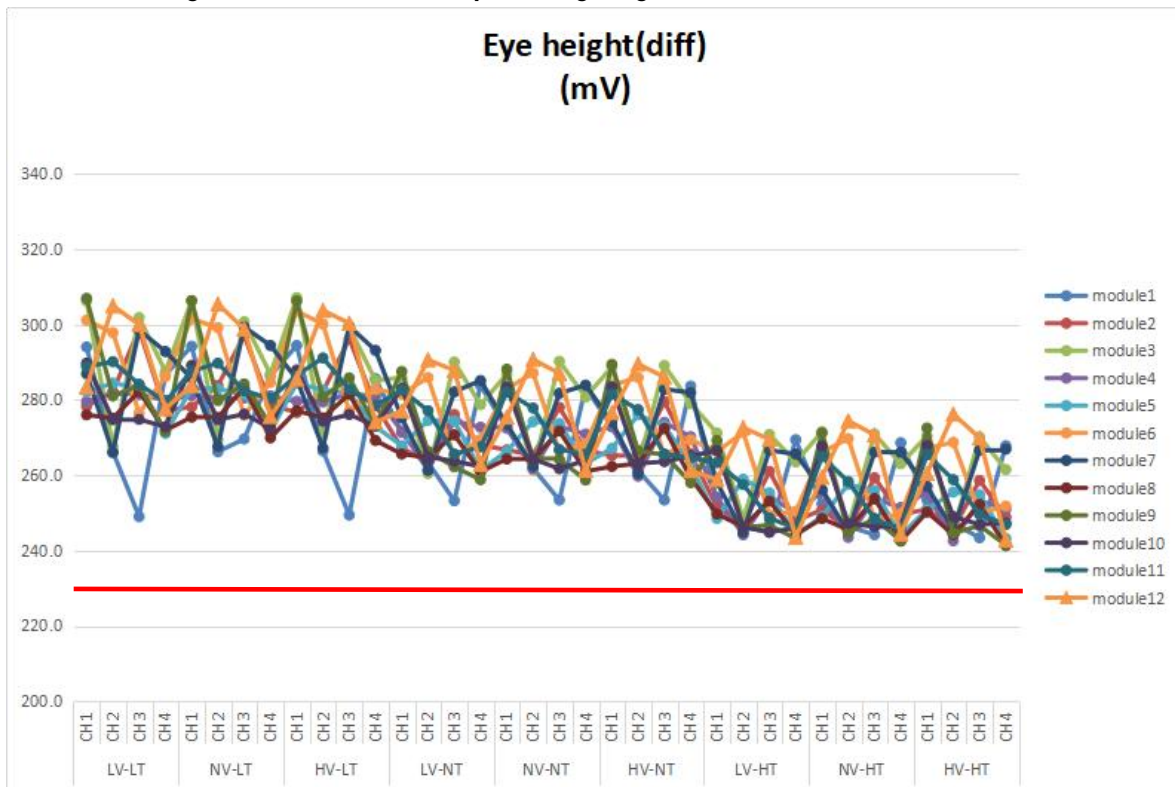
Figure 5-3c   RX Eye Height(diff) test results for nine corners
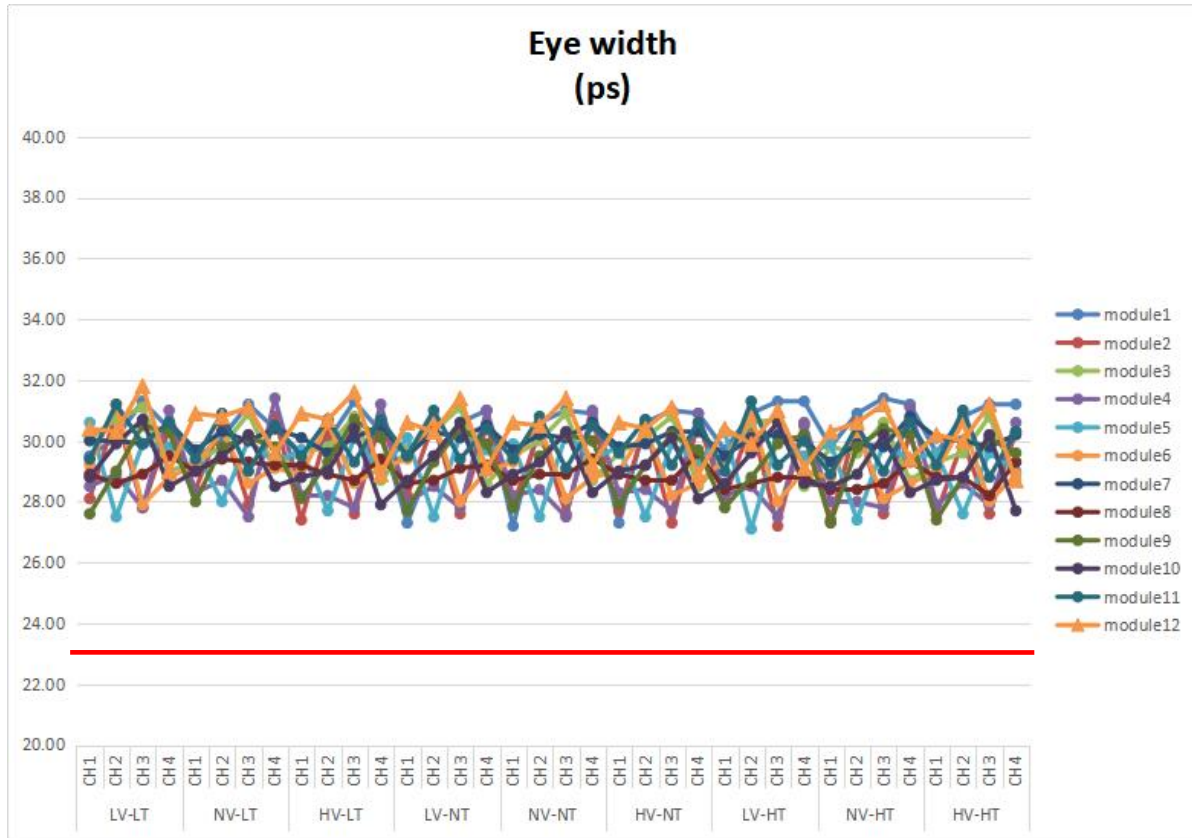
Figure 5-3d   RX Eye Width test results for nine corners
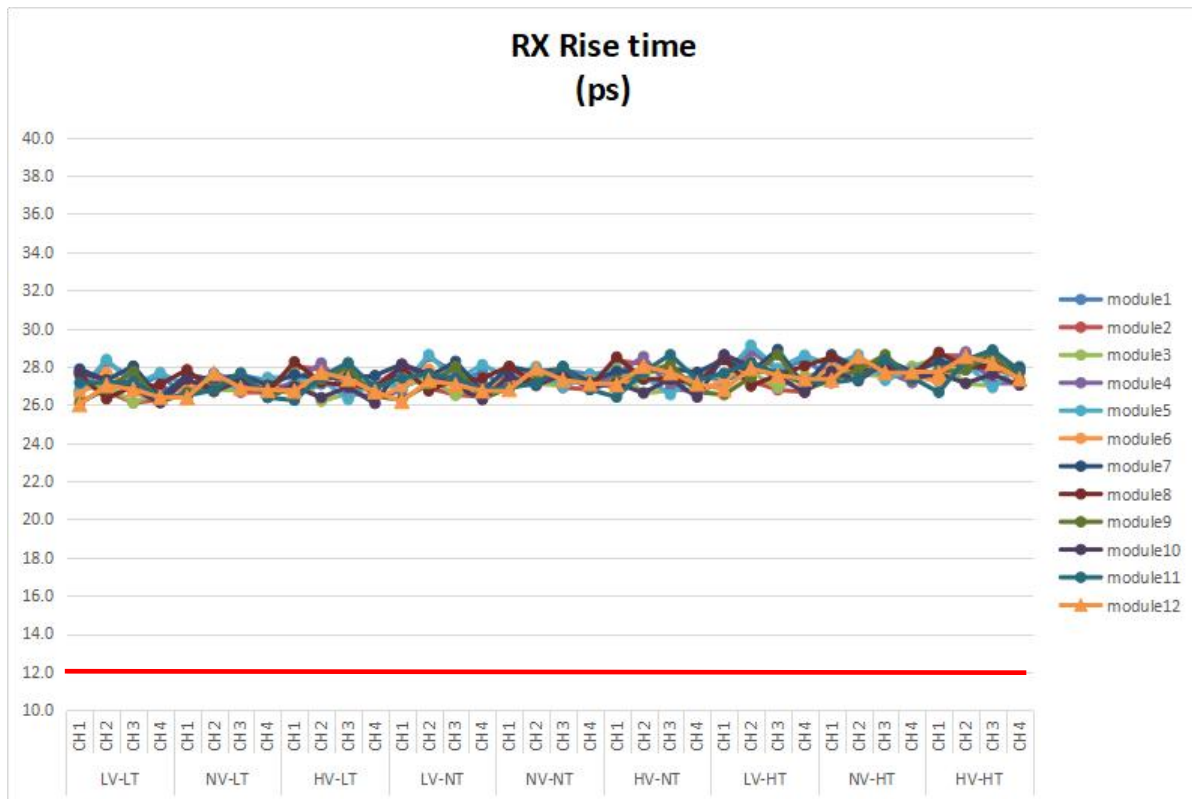
Figure 5-3e   RX Eye rise time test results for nine corners
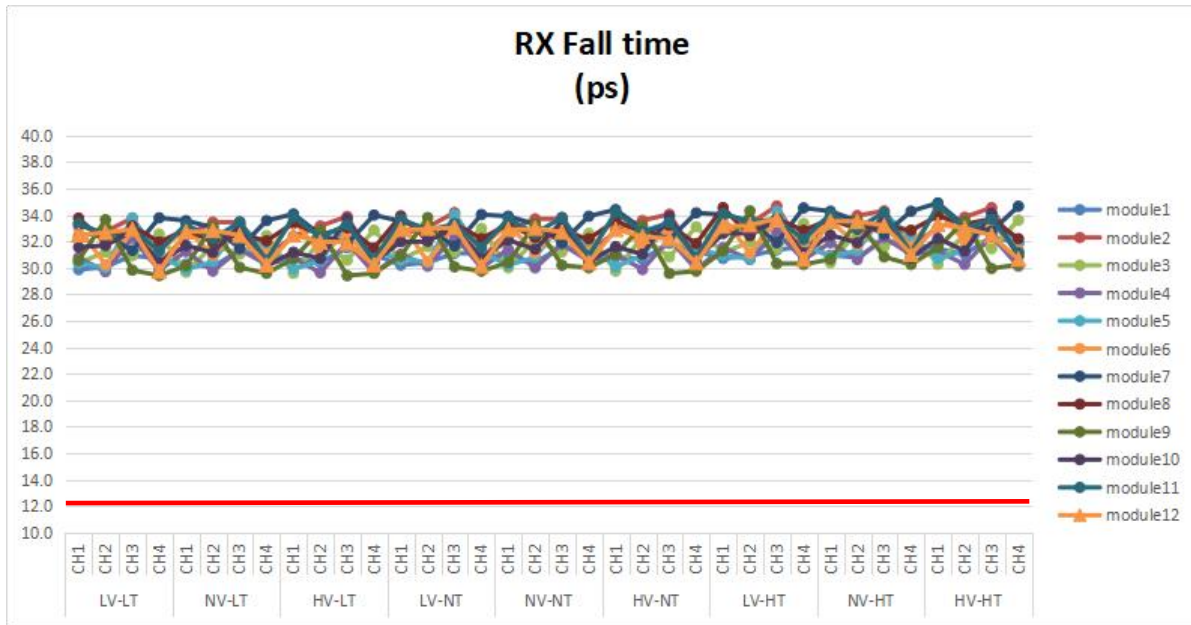
Figure 5-3f   RX Eye fall time test results for nine corners
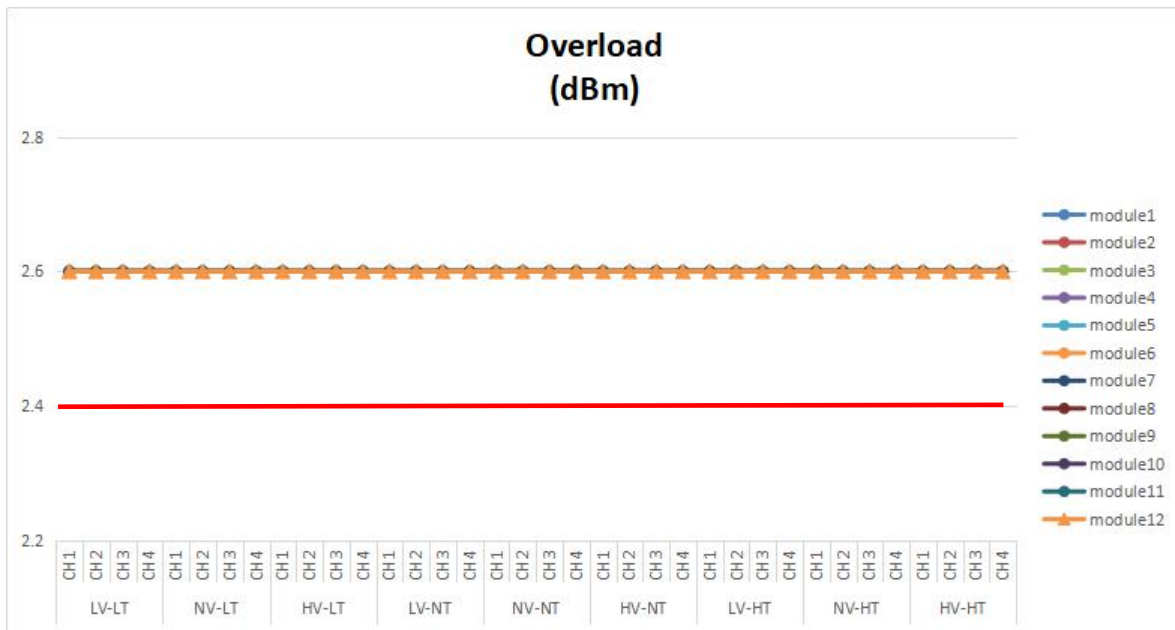
Figure 5-3g   RX Overload test results for nine corners
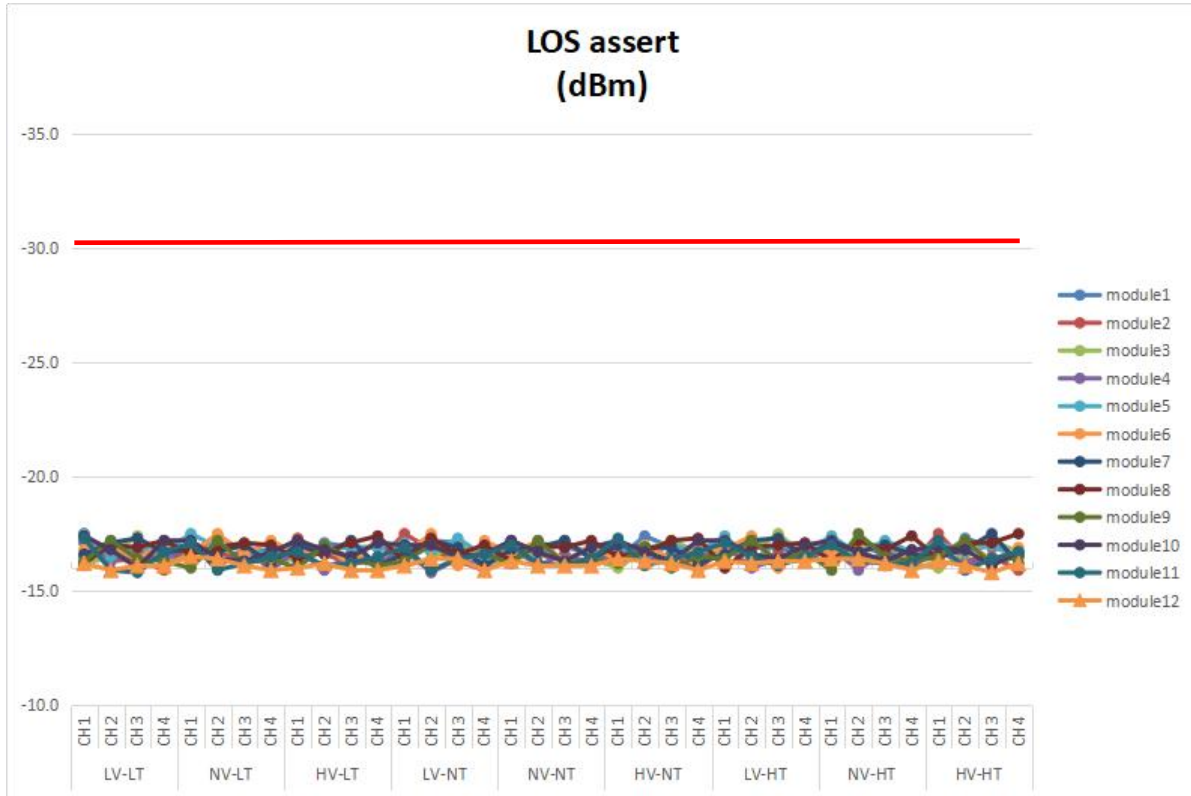
Figure 5-3h　RX LOS assert test results for nine corners
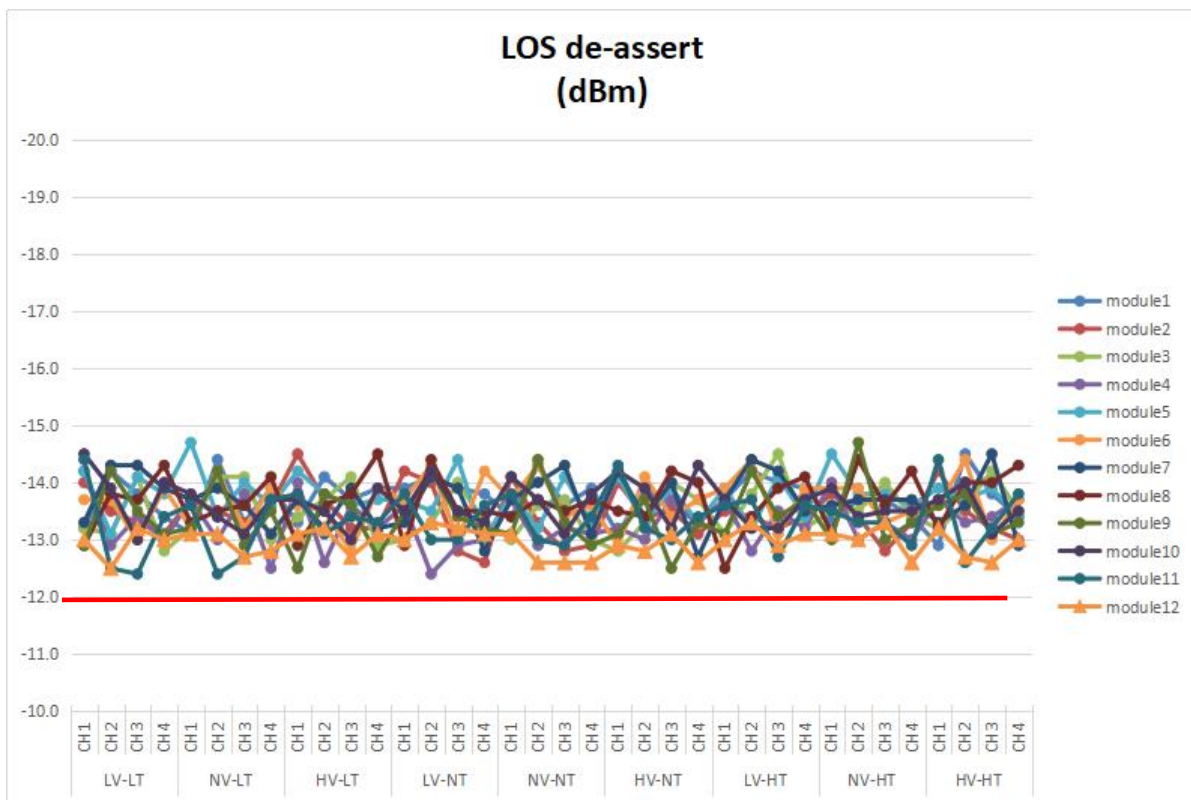
Figure 5-3i　RX LOS de-assert test results for nine corners
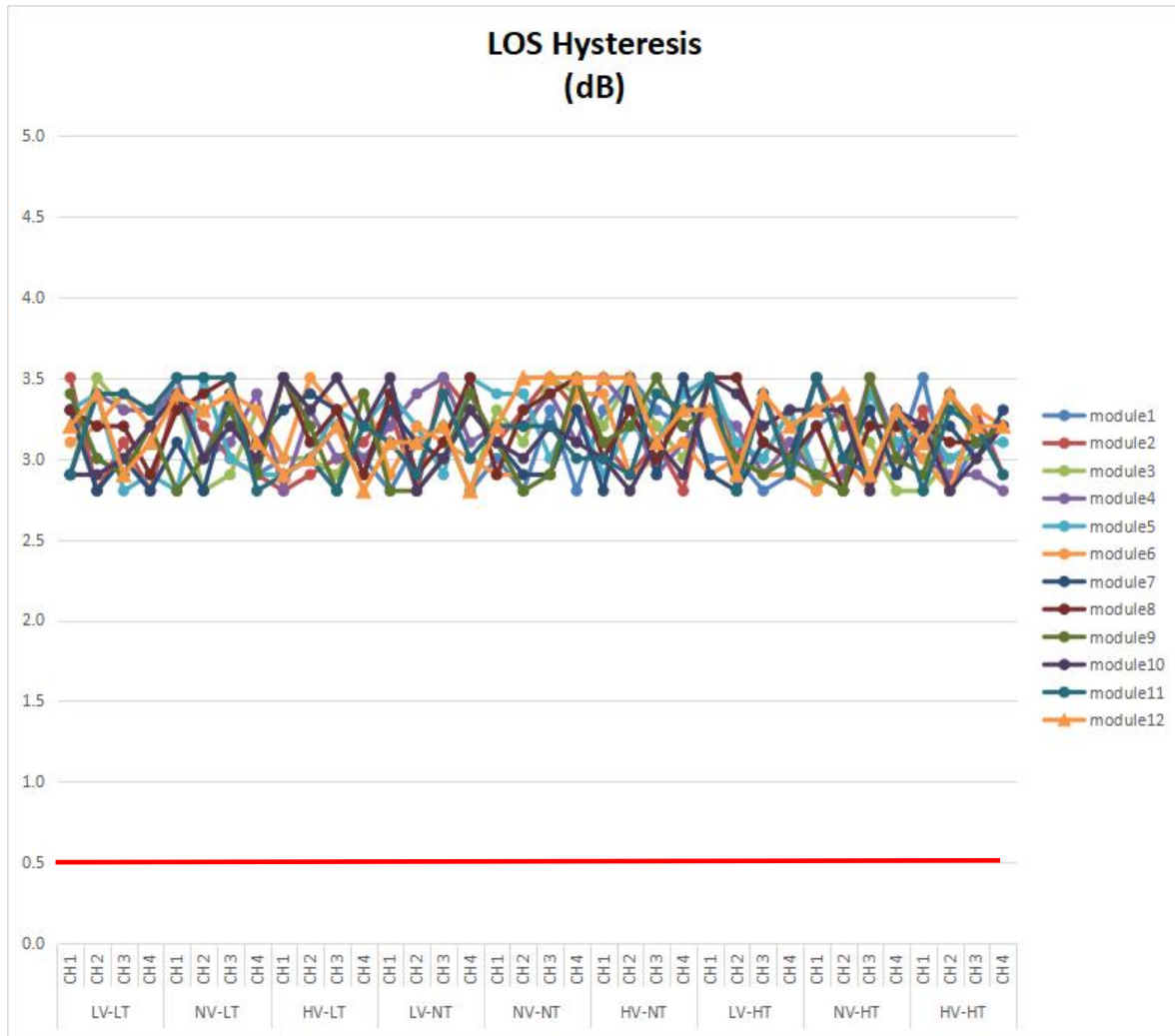
Figure 5-3j RX LOS Hysteresis test results for nine corners

6 DDMI Accuracy

6.1 DDMI Accuracy Test Data

DDMI accuracy test data in table 6-1.

Table 6-1a Module#1 DDMI accuracy test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Case Temperature[℃]	0.34				0.63				0.9				30.26				30				29.41				76.21				76.5				77.04			
DDMI Temperature[℃]	1.33				1.7				1.96				28.76				28.9				29.21				75.31				75.5				75.84			
Temperature Accuracy[℃]	-0.99				-1.07				-1.06				1.5				1.1				0.2				0.9				1				1.2			
Voltage DDMI[V]	3.05				3.27				3.44				3.04				3.23				3.45				3.03				3.22				3.47			
Voltage Accuracy[%]	1.61				0.91				1.71				1.94				2.12				1.43				2.26				2.42				0.86			
IBias DDMI	6.02	6.11	6.08	6.10	5.96	5.94	6.03	5.92	6.06	6.04	6.00	6.09	6.05	6.11	5.92	6.00	6.08	5.92	6.08	6.09	5.98	6.01	5.97	6.07	6.07	5.95	6.01	6.09	5.99	6.03	5.97	6.08	6.10	6.08	6.10	5.94
TX Power DDMI [dBm]	0.83	1.12	0.86	0.81	1.14	1.06	1.18	0.86	0.83	1.20	1.13	0.81	1.12	1.05	0.89	0.90	1.07	0.88	0.89	1.16	1.10	1.21	1.17	0.94	0.90	1.07	1.09	0.99	0.92	1.21	1.03	0.91	1.10	1.16	0.87	1.00
TX Power Accuracy[dBm]	1.37	1.08	1.34	1.39	1.16	1.14	1.02	1.44	1.37	1.00	1.17	1.49	0.88	0.85	1.01	1.20	1.03	1.12	1.11	0.94	1.00	0.79	0.83	1.16	-0.60	-0.71	-0.79	-0.69	-0.52	-0.91	-0.63	-0.51	-0.70	-0.96	-0.37	-0.60

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
RX Power (-10dBm) DDMI [dBm]	-11.0	-10.6	-10.3	-9.6	-10.9	-10.8	-10.4	-10.7	-10.3	-10.6	-11.1	-9.7	-10.2	-9.8	-10.8	-10.0	-10.8	-9.6	-10.8	-9.9	-10.6	-9.9	-10.9	-10.0	-9.8	-9.6	-9.9	-9.7	-9.9	-10.2	-9.7	-11.1	-10.2	-11.1	-10.0	-10.6
RX Power Accuracy[dBm]	1.0	0.6	0.3	-0.4	0.9	0.8	0.4	0.7	0.3	0.6	1.1	-0.3	0.2	-0.2	0.8	0.0	0.8	-0.4	0.8	-0.1	0.6	-0.1	0.9	0.0	-0.2	-0.4	-0.1	-0.3	-0.1	0.2	-0.3	1.1	0.2	1.1	0.0	0.6

Table 6-1b   Module#2 DDMI accuracy test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Case Temperature[℃]	0.47				1.33				1.32				28.76				26.9				26.93				73.91				75.3				75.11			
DDMI Temperature[℃]	1.26				1.6				1.84				27.76				28.2				28.43				73.81				74.1				74.41			
Temperature Accuracy[℃]	-0.79				-0.27				-0.52				1				-1.3				-1.5				0.1				1.2				0.7			
Voltage DDMI[V]	3.06				3.26				3.43				3.07				3.27				3.43				3.04				3.25				3.45			
Voltage Accuracy[%]	1.29				1.21				2.00				0.97				0.91				2.00				1.94				1.52				1.43			
IBias DDMI	6.11	5.93	5.97	5.98	6.04	6.04	6.11	6.06	6.07	6.10	6.04	6.07	6.10	6.05	5.95	5.96	6.02	6.11	5.92	6.10	6.06	5.98	5.98	5.97	6.02	5.92	5.99	6.09	5.97	5.92	5.94	5.93	6.07	5.95	6.06	6.05
TX Power DDMI [dBm]	0.94	0.94	0.88	0.91	0.99	0.82	1.09	0.93	0.91	1.14	0.91	0.97	1.00	1.10	1.01	1.10	1.06	1.21	0.94	0.97	0.95	0.96	0.95	1.20	1.04	1.07	1.11	1.18	0.91	0.84	0.89	1.04	0.88	1.02	0.83	0.88
TX Power Accuracy[dBm]	1.36	1.26	1.42	1.39	1.31	1.38	1.21	1.37	1.39	1.06	1.39	1.33	1.20	1.00	1.19	1.10	1.14	0.89	1.26	1.23	1.15	1.14	1.25	1.00	-0.84	-0.97	-0.71	-0.88	-0.61	-0.64	-0.49	-0.64	-0.48	-0.82	-0.43	-0.58
RX Power (-10dBm) DDMI [dBm]	-11.0	-10.3	-10.5	-11.0	-9.5	-10.0	-10.3	-10.7	-10.1	-10.8	-10.9	-11.1	-9.6	-10.0	-10.2	-10.7	-10.9	-9.7	-10.2	-10.3	-10.9	-10.3	-11.1	-10.3	-9.9	-11.1	-9.8	-9.6	-9.5	-9.9	-9.5	-10.8	-10.1	-10.6	-10.9	-11.0
RX Power Accuracy[dBm]	1.0	0.3	0.5	1.0	-0.5	0.0	0.3	0.7	0.1	0.8	0.9	1.1	-0.4	0.0	0.2	0.7	0.9	-0.3	0.2	0.3	0.9	0.3	1.1	0.3	-0.1	1.1	-0.2	-0.4	-0.5	-0.1	-0.5	0.8	0.1	0.6	0.9	1.0

Table 6-1c   Module#3 DDMI accuracy test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Case Temperature[℃]	1.56				1.67				2.33				26.94				28.9				29.9				74.2				73.5				74.39			
DDMI Temperature[℃]	1.83				2.2				2.57				27.84				28.3				28.7				73				73.1				73.29			
Temperature Accuracy[℃]	-0.27				-0.53				-0.24				-0.9				0.6				1.2				1.2				0.4				1.1			
Voltage DDMI[V]	3.04				3.24				3.47				3.05				3.25				3.46				3.07				3.27				3.45			
Voltage Accuracy[%]	1.94				1.82				0.86				1.61				1.52				1.14				0.97				0.91				1.43			
IBias DDMI	5.99	6.05	6.05	5.92	6.06	5.93	5.98	6.10	6.01	6.02	6.08	6.05	6.03	5.99	5.94	6.06	5.98	6.09	5.96	6.11	6.05	6.09	5.97	5.95	6.01	6.02	6.10	5.94	5.99	5.95	6.10	6.09	6.00	5.99	6.10	6.00
TX Power DDMI [dBm]	1.22	0.95	1.03	1.01	1.06	0.88	0.89	1.13	1.19	1.05	0.93	1.12	0.96	1.01	1.13	1.12	0.88	0.93	1.14	1.12	0.94	1.01	1.10	0.99	0.98	0.96	1.02	0.84	1.03	0.94	1.15	0.93	0.90	0.95	1.14	0.86
TX Power Accuracy[dBm]	0.78	1.15	1.07	1.29	1.04	1.22	1.31	1.17	1.01	1.15	1.37	1.18	0.74	0.79	0.77	0.88	0.92	0.87	0.76	0.88	0.86	0.89	0.70	1.11	-0.98	-1.06	-1.12	-0.74	-1.03	-0.94	-1.15	-0.83	-0.90	-0.85	-1.14	-0.86
RX Power (-10dBm) DDMI [dBm]	-10.5	-10.7	-11.1	-10.6	-10.1	-9.9	-10.5	-10.8	-10.8	-9.6	-9.5	-9.9	-9.7	-10.2	-10.7	-10.2	-10.7	-9.6	-9.7	-10.2	-10.9	-9.9	-10.9	-10.9	-9.9	-10.9	-9.9	-10.3	-9.6	-9.5	-10.2	-11.0	-10.5	-9.7	-10.0	-11.0
RX Power Accuracy[dBm]	0.5	0.7	1.1	0.6	0.1	-0.1	0.5	0.8	0.8	-0.4	-0.5	-0.1	-0.3	0.2	0.7	0.2	0.7	-0.4	-0.3	0.2	0.9	-0.1	0.9	0.9	-0.1	0.9	-0.1	0.3	-0.4	-0.5	0.2	1.0	0.5	-0.3	0.0	1.0

Table 6-1d   Module#4 DDMI accuracy test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4

Parameter	LV-LT CH1	CH2	CH3	CH4	NV-LT CH1	CH2	CH3	CH4	HV-LT CH1	CH2	CH3	CH4	LV-NT CH1	CH2	CH3	CH4	NV-NT CH1	CH2	CH3	CH4	HV-NT CH1	CH2	CH3	CH4	LV-HT CH1	CH2	CH3	CH4	NV-HT CH1	CH2	CH3	CH4	HV-HT CH1	CH2	CH3	CH4
Case Temperature[℃]	0.39				1.5				1.94				26.44				28.9				29				74.96				74.4				74.51			
DDMI Temperature[℃]	1.63				2.1				2.51				27.64				28.1				28.4				73.46				73.9				74.01			
Temperature Accuracy[℃]	-1.24				-0.6				-0.57				-1.2				0.8				0.6				1.5				0.5				0.5			
Voltage DDMI[V]	3.06				3.25				3.46				3.05				3.24				3.47				3.02				3.25				3.44			
Voltage Accuracy[%]	1.29				1.52				1.14				1.61				1.82				0.86				2.58				1.52				1.71			
IBias DDMI	5.98	6.06	6.09	6.08	6.08	6.10	6.02	5.93	5.96	6.02	6.06	6.10	6.00	6.03	6.11	6.02	5.93	6.04	6.05	5.97	6.11	6.06	6.00	5.96	6.01	6.03	6.07	5.92	6.10	6.02	6.06	5.92	5.92	5.98	6.09	6.09
TX Power DDMI [dBm]	1.17	1.15	0.98	0.97	1.16	0.85	1.03	0.87	1.07	1.19	1.02	1.09	1.06	0.94	0.87	0.93	1.14	0.90	0.86	0.83	1.07	1.04	0.89	1.03	0.83	1.18	0.81	0.95	1.19	1.21	0.93	0.85	0.83	0.87	0.84	1.11
TX Power Accuracy[dBm]	0.73	0.95	1.22	1.33	0.84	1.35	1.17	1.43	0.83	1.01	1.28	1.11	0.64	0.86	1.03	1.07	0.56	0.90	1.04	1.17	0.73	0.86	1.01	0.87	-0.73	-1.18	-0.71	-0.65	-1.09	-1.11	-0.73	-0.55	-1.09	-0.87	-0.54	-0.71
RX Power（-10dBm）DDMI [dBm]	-10.3	-10.5	-11.1	-10.2	-9.7	-9.5	-10.8	-10.3	-10.0	-9.6	-10.6	-9.5	-9.5	-11.1	-9.9	-11.1	-10.9	-9.9	-10.3	-9.7	-10.7	-9.7	-10.1	-10.3	-9.5	-10.0	-10.7	-9.6	-9.8	-10.2	-10.5	-10.4	-9.6	-10.2	-9.6	-9.7
RX Power Accuracy[dBm]	0.3	0.5	1.1	0.2	-0.3	-0.5	0.8	0.3	0.0	-0.4	0.6	-0.5	-0.5	1.1	-0.1	1.1	0.9	-0.1	0.3	-0.3	0.7	-0.3	0.1	0.3	-0.5	0.0	0.7	-0.4	-0.2	0.2	0.5	0.4	-0.4	0.2	-0.4	-0.3

Table 6-1e Module#5 DDMI accuracy test data

Parameter	LV-LT CH1	CH2	CH3	CH4	NV-LT CH1	CH2	CH3	CH4	HV-LT CH1	CH2	CH3	CH4	LV-NT CH1	CH2	CH3	CH4	NV-NT CH1	CH2	CH3	CH4	HV-NT CH1	CH2	CH3	CH4	LV-HT CH1	CH2	CH3	CH4	NV-HT CH1	CH2	CH3	CH4	HV-HT CH1	CH2	CH3	CH4
Case Temperature[℃]	0.03				1.22				1.1				30				29.8				27.85				73.1				74.2				73.77			
DDMI Temperature[℃]	1.36				1.5				1.82				28.9				29				29.25				72.5				73				73.17			
Temperature Accuracy[℃]	-1.33				-0.28				-0.72				1.1				0.8				-1.4				0.6				1.2				0.6			
Voltage DDMI[V]	3.04				3.26				3.45				3.03				3.27				3.44				3.03				3.26				3.43			
Voltage Accuracy[%]	1.94				1.21				1.43				2.26				0.91				1.71				2.26				1.21				2.00			
IBias DDMI	5.95	5.98	5.93	5.98	5.97	5.93	5.98	6.02	6.09	6.05	6.01	5.97	5.93	6.11	5.96	5.93	6.08	6.02	6.03	6.05	6.10	5.94	5.97	6.00	6.11	5.95	6.02	6.01	6.06	5.92	6.09	5.92	6.05	6.08	6.00	6.04
TX Power DDMI [dBm]	1.16	0.91	1.07	0.91	1.07	1.07	1.09	0.94	1.00	0.85	0.84	1.05	0.96	1.03	0.83	0.83	0.97	1.09	0.92	0.81	1.21	0.89	1.03	1.08	1.06	0.96	0.87	0.94	0.82	0.84	1.02	0.94	0.88	1.01	1.12	0.97
TX Power Accuracy[dBm]	1.04	1.29	1.13	1.39	1.23	1.23	1.21	1.36	1.30	1.35	1.36	1.25	1.14	0.97	1.07	1.17	1.13	1.01	0.98	1.19	0.89	1.21	0.87	0.92	-0.86	-0.86	-0.77	-0.74	-0.62	-0.74	-0.92	-0.64	-0.58	-0.81	-0.92	-0.77
RX Power（-10dBm）DDMI [dBm]	-11.1	-10.7	-9.5	-9.5	-10.6	-10.0	-10.5	-10.0	-10.2	-10.6	-10.4	-10.3	-9.6	-10.9	-10.7	-10.0	-11.1	-10.0	-10.4	-10.9	-10.2	-10.7	-11.0	-9.6	-9.6	-10.3	-9.9	-9.5	-10.9	-9.8	-10.4	-10.2	-9.7	-10.4	-9.6	-10.1
RX Power Accuracy[dBm]	1.1	0.7	-0.5	-0.5	0.6	0.0	0.5	0.0	0.2	0.6	0.4	0.3	-0.4	0.9	0.7	0.0	1.1	0.0	0.4	0.9	0.2	0.7	1.0	-0.4	-0.4	0.3	-0.1	-0.5	0.9	-0.2	0.4	0.2	-0.3	0.4	-0.4	0.1

Table 6-1f Module#6 DDMI accuracy test data

Parameter	LV-LT CH1	CH2	CH3	CH4	NV-LT CH1	CH2	CH3	CH4	HV-LT CH1	CH2	CH3	CH4	LV-NT CH1	CH2	CH3	CH4	NV-NT CH1	CH2	CH3	CH4	HV-NT CH1	CH2	CH3	CH4	LV-HT CH1	CH2	CH3	CH4	NV-HT CH1	CH2	CH3	CH4	HV-HT CH1	CH2	CH3	CH4
Case Temperature[℃]	0.4				1.1				1.0				29.5				29.1				29.6				73.8				73.9				75.5			
DDMI Temperature[℃]	1.1				1.5				1.8				28.1				28.5				28.8				73.4				73.6				73.9			
Temperature Accuracy[℃]	-0.7				-0.4				-0.7				1.4				0.6				0.8				0.4				0.3				1.6			
Voltage DDMI[V]	3.03				3.23				3.47				3.05				3.23				3.44				3.04				3.24				3.45			
Voltage Accuracy[%]	2.26				2.12				0.86				1.61				2.12				1.71				1.94				1.82				1.43			
IBias DDMI	6.00	5.93	5.96	5.92	6.01	5.99	6.10	6.10	5.97	6.02	6.08	6.00	5.99	5.98	6.02	5.98	6.04	5.93	6.03	6.04	6.11	6.08	6.03	5.98	6.05	6.05	5.94	6.06	5.99	5.98	5.94	6.10	6.06	6.05	6.01	6.08

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
TX Power DDMI [dBm]	1.0	1.2	1.2	1.2	1.1	1.0	0.9	1.2	1.2	1.1	0.9	0.9	1.0	0.9	1.1	1.0	1.2	1.1	1.1	1.1	1.0	1.1	1.0	0.8	1.1	0.8	1.0	1.1	1.0	1.1	1.1	1.0	1.1	1.0	1.1	1.0
TX Power Accuracy[dBm]	1.4	0.8	1.1	1.0	1.2	1.0	1.4	1.0	1.0	1.0	1.4	1.4	0.9	0.9	0.9	1.0	0.9	0.7	1.0	1.0	1.1	0.7	1.2	1.3	-1.0	-0.8	-0.8	-0.9	-0.8	-1.1	-0.8	-0.7	-0.9	-1.0	-0.7	-0.6
RX Power（-10dBm） DDMI [dBm]	-11.0	-10.7	-11.0	-9.7	-10.9	-10.0	-11.1	-10.9	-10.2	-10.3	-9.7	-10.2	-9.5	-10.7	-9.9	-10.0	-9.5	-10.7	-9.8	-10.7	-11.0	-10.4	-10.9	-9.8	-10.2	-9.9	-10.2	-9.5	-10.2	-10.4	-9.9	-10.3	-10.5	-10.8	-10.8	-10.3
RX Power Accuracy[dBm]	1.0	0.7	1.0	-0.3	0.9	0.0	1.1	0.9	0.7	0.3	-0.3	0.2	-0.5	0.7	-0.1	0.0	-0.5	0.7	-0.2	0.7	1.0	0.6	0.9	-0.2	0.2	-0.1	0.2	-0.5	0.2	0.6	-0.1	0.3	0.5	0.8	0.8	0.3

Table 6-1g   Module#7 DDMI accuracy test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Case Temperature[°C]	1.08				1.04				1.56				26.04				29.4				28.57				75.97				75.2				75.19			
DDMI Temperature[°C]	1.59				1.7				2.18				27.54				28				28.37				74.37				74.5				74.99			
Temperature Accuracy[°C]	-0.51				-0.66				-0.62				-1.5				1.4				0.2				1.6				0.7				0.2			
Voltage DDMI[V]	3.07				3.24				3.45				3.04				3.23				3.43				3.02				3.24				3.43			
Voltage Accuracy[%]	0.97				1.82				1.43				1.94				2.12				2.00				2.58				1.82				2.00			
IBias DDMI	5.97	5.92	5.93	5.96	5.96	5.92	6.02	5.97	5.99	5.94	5.96	6.04	5.98	5.95	6.00	6.05	5.98	5.92	6.10	6.04	5.99	6.03	6.02	6.04	5.92	5.96	5.94	6.00	6.00	6.01	5.96	5.94	5.93	5.99	5.93	6.01
TX Power DDMI [dBm]	1.21	1.20	1.02	1.08	1.14	0.93	0.84	0.97	0.91	1.13	1.09	1.14	1.14	1.10	0.94	1.15	1.16	1.10	0.96	1.05	1.04	1.19	1.08	0.88	1.06	1.12	1.22	1.16	0.92	1.13	0.92	1.08	0.90	0.86	1.04	1.14
TX Power Accuracy[dBm]	0.99	1.10	1.28	1.12	1.16	1.37	1.46	1.33	1.29	1.17	1.11	1.06	0.86	1.00	1.06	0.85	0.94	1.00	1.14	1.05	1.16	0.81	1.12	1.22	-0.94	-1.02	-1.02	-0.86	-0.72	-0.93	-0.72	-0.78	-0.70	-0.76	-0.74	-0.84
RX Power（-10dBm） DDMI [dBm]	-10.4	-9.6	-10.2	-10.0	-10.2	-10.4	-11.0	-10.1	-11.1	-10.1	-10.7	-9.6	-11.1	-9.5	-10.3	-10.0	-10.5	-10.7	-9.6	-11.0	-11.0	-10.5	-11.1	-10.1	-9.6	-10.0	-11.1	-9.7	-10.9	-9.6	-9.5	-10.5	-11.1	-9.6	-10.4	-10.3
RX Power Accuracy[dBm]	0.4	-0.4	0.2	0.0	0.2	0.4	1.0	0.1	1.1	0.1	0.7	-0.4	1.1	-0.5	0.3	0.0	0.5	0.7	-0.4	1.0	1.0	0.5	1.1	0.1	-0.4	0.0	1.1	-0.3	0.9	-0.4	-0.5	0.5	1.1	-0.4	0.4	0.3

Table 6-1h   Module#8 DDMI accuracy test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Case Temperature[°C]	1.09				1.4				0.92				28.6				29				27.91				76.01				76.4				76.84			
DDMI Temperature[°C]	1.22				1.7				2.1				27.8				28.3				28.71				75.41				75.6				75.74			
Temperature Accuracy[°C]	-0.13				-0.3				-1.18				0.8				0.7				-0.8				0.6				0.8				1.1			
Voltage DDMI[V]	3.06				3.25				3.42				3.07				3.22				3.42				3.06				3.22				3.44			
Voltage Accuracy[%]	1.29				1.52				2.29				0.97				2.42				2.29				1.29				2.42				1.71			
IBias DDMI	6.06	6.01	6.07	6.01	6.07	6.01	5.97	5.94	5.99	6.10	5.93	6.11	5.95	5.98	5.93	5.92	6.08	5.99	6.00	5.97	6.01	6.00	6.11	6.11	5.95	5.96	6.02	5.93	6.04	6.01	5.96	6.00	5.93	6.06	6.06	5.98
TX Power DDMI [dBm]	0.97	1.19	0.82	0.88	0.90	1.12	0.81	1.20	1.14	1.07	1.13	1.05	0.87	1.17	0.94	1.16	0.88	1.17	0.94	0.95	0.88	0.87	1.16	0.98	1.01	1.07	0.93	1.02	1.03	0.97	0.95	1.12	0.86	1.10	1.21	1.01
TX Power Accuracy[dBm]	1.33	1.01	1.38	1.32	1.40	1.18	1.39	1.00	1.16	1.13	1.17	1.15	1.13	0.83	0.96	0.74	1.22	0.83	1.06	1.05	1.12	1.13	0.74	1.02	-0.81	-0.97	-0.63	-1.02	-0.83	-0.87	-0.55	-1.02	-0.76	-1.00	-0.81	-0.91
RX Power（-10dBm） DDMI [dBm]	-9.5	-9.6	-10.9	-10.7	-9.7	-11.1	-10.8	-10.2	-10.8	-9.5	-11.1	-10.9	-9.5	-9.8	-11.0	-9.8	-10.5	-10.9	-10.2	-9.9	-9.9	-10.2	-10.1	-10.6	-10.5	-9.7	-10.6	-10.8	-9.7	-10.2	-11.1	-10.2	-9.9	-10.4	-10.6	-10.4
RX Power Accuracy[dBm]	-0.5	-0.4	0.9	0.7	-0.3	1.1	0.8	0.2	0.8	-0.5	1.1	0.9	-0.5	-0.2	1.0	-0.2	0.5	0.9	0.2	-0.1	-0.1	0.2	0.1	0.6	0.5	-0.3	0.6	0.8	-0.3	0.2	1.1	0.2	-0.1	0.4	0.6	0.4

Table 6-1i   Module#9 DDMI accuracy test data

Parameter	LV-LT	NV-LT	HV-LT	LV-NT	NV-NT	HV-NT	LV-HT	NV-HT	HV-HT

	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Case Temperature[℃]	1.16				1.58				1.52				27.62				28.4				29.7				74.19				74.1				74.22			
DDMI Temperature[℃]	1.5				1.7				1.8				28.12				28.3				28.4				73.79				74				74.12			
Temperature Accuracy[℃]	-0.34				-0.12				-0.28				-0.5				0.1				1.3				0.4				0.1				0.1			
Voltage DDMI[V]	3.02				3.26				3.46				3.03				3.26				3.46				3.02				3.27				3.43			
Voltage Accuracy[%]	2.58				1.21				1.14				2.26				1.21				1.14				2.58				0.91				2.00			
IBias DDMI	6.05	5.99	6.09	6.03	6.01	6.08	6.07	5.94	6.01	6.05	6.00	6.05	5.96	5.94	6.03	6.04	5.92	6.09	5.97	5.98	5.94	5.97	5.98	5.97	6.10	6.06	6.11	6.03	5.99	6.10	6.00	6.09	5.94	5.94	5.97	5.99
TX Power DDMI [dBm]	0.91	1.11	0.98	1.08	0.95	1.08	1.06	1.06	0.95	0.86	1.17	0.90	0.97	0.95	0.96	1.15	1.08	1.03	1.10	1.13	1.11	1.09	0.98	0.91	0.82	1.02	0.85	1.23	1.21	1.15	1.07	1.01	1.15	1.17	0.84	0.90
TX Power Accuracy[dBm]	1.29	0.89	1.12	0.92	1.35	0.92	1.04	0.94	1.35	1.04	1.03	1.20	0.93	0.75	0.94	0.65	0.92	0.77	0.80	0.67	0.79	0.81	1.02	0.89	-0.82	-1.12	-0.85	-1.23	-1.11	-1.25	-1.07	-1.01	-0.95	-1.27	-0.84	-1.00
RX Power（-10dBm）DDMI [dBm]	-10.4	-9.6	-10.6	-9.8	-9.6	-9.9	-10.4	-10.0	-9.5	-9.7	-10.3	-10.5	-11.0	-10.5	-10.6	-9.7	-9.7	-10.5	-9.9	-9.9	-10.1	-11.0	-10.1	-9.8	-9.9	-9.5	-9.7	-10.0	-9.8	-11.0	-10.8	-9.9	-10.4	-10.3	-9.9	-9.9
RX Power Accuracy[dBm]	0.6	-0.4	0.6	-0.2	-0.4	-0.1	0.4	0.0	-0.5	-0.3	0.3	0.5	1.0	0.5	0.6	-0.3	-0.3	0.5	-0.1	-0.1	0.1	1.0	0.1	-0.2	-0.1	-0.5	-0.3	0.0	-0.2	1.0	0.8	-0.1	0.4	0.3	-0.1	-0.1

Table 6-1j Module#10 DDMI accuracy test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Case Temperature[℃]	1.07				1.72				1.57				28.49				30.2				30.54				74.23				74.5				75.98			
DDMI Temperature[℃]	1.8				2.2				2.52				28.79				29				29.24				74.13				74.3				74.58			
Temperature Accuracy[℃]	-0.73				-0.48				-0.95				-0.3				1.2				1.3				0.1				0.2				1.4			
Voltage DDMI[V]	3.07				3.25				3.42				3.02				3.23				3.45				3.03				3.27				3.44			
Voltage Accuracy[%]	0.97				1.52				2.29				2.58				2.12				1.43				2.26				0.91				1.71			
IBias DDMI	6.09	6.00	6.08	5.95	6.08	6.04	6.11	6.10	6.08	5.98	6.03	5.94	6.04	5.94	5.98	6.10	5.99	5.97	5.95	5.98	6.10	5.93	6.00	5.93	6.06	6.05	6.07	6.10	6.09	5.96	5.98	5.96	5.96	5.94	6.08	5.98
TX Power DDMI [dBm]	0.97	0.94	0.93	0.88	1.18	0.86	0.95	1.10	1.14	1.11	1.18	1.05	1.04	1.21	1.13	0.82	1.03	1.14	0.92	0.99	1.08	1.03	1.03	1.00	1.18	1.15	1.17	1.17	1.01	1.11	1.09	0.87	1.22	1.18	1.04	1.00
TX Power Accuracy[dBm]	1.33	1.36	1.37	1.42	1.12	1.44	1.35	1.20	1.16	1.19	1.02	1.25	1.06	0.79	0.87	0.98	1.07	0.96	1.18	0.91	1.02	1.17	1.07	0.90	-0.98	-0.95	-0.87	-1.07	-0.71	-0.91	-0.69	-0.77	-0.92	-0.98	-0.64	-1.00
RX Power（-10dBm）DDMI [dBm]	-9.8	-10.7	-9.5	-9.7	-10.1	-10.3	-11.0	-11.0	-10.3	-9.8	-9.8	-10.5	-10.1	-10.1	-9.7	-10.8	-10.4	-10.3	-9.5	-10.5	-9.9	-9.6	-10.3	-10.1	-9.9	-9.9	-11.1	-10.1	-9.8	-10.3	-9.6	-10.3	-9.7	-9.9	-10.4	-10.6
RX Power Accuracy[dBm]	-0.2	0.7	-0.5	-0.3	0.1	0.3	1.0	1.0	0.3	-0.2	-0.2	0.5	0.1	0.1	-0.3	0.8	0.4	0.3	-0.5	0.5	-0.1	-0.4	0.3	0.1	-0.1	-0.1	1.1	0.1	-0.2	0.3	-0.4	0.3	-0.3	-0.1	0.4	0.6

Table 6-1k Module#11 DDMI accuracy test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Case Temperature[℃]	0.67				1.39				0.81				26.86				29.6				28.06				75.04				75.7				75.24			
DDMI Temperature[℃]	1.41				1.9				2.13				27.96				28.3				28.46				74.34				74.8				75.14			
Temperature Accuracy[℃]	-0.74				-0.51				-1.32				-1.1				1.3				-0.4				0.7				0.9				0.1			
Voltage DDMI[V]	3.03				3.27				3.42				3.04				3.25				3.43				3.02				3.27				3.44			
Voltage Accuracy[%]	2.26				0.91				2.29				1.94				1.52				2.00				2.58				0.91				1.71			

Parameter																																				
IBias DDMI	5.94	6.10	5.97	5.94	6.04	6.02	6.07	6.00	6.02	5.97	5.95	6.10	6.08	6.06	6.09	6.06	6.03	5.99	6.04	6.00	5.96	6.02	6.05	5.99	6.10	6.05	6.02	6.06	6.00	6.10	5.93	5.97	5.94	5.95	6.11	6.06
TX Power DDMI [dBm]	0.87	1.21	1.15	0.98	1.21	1.01	1.02	1.07	0.92	1.08	1.00	1.21	0.97	0.99	1.08	0.91	0.81	0.95	1.14	1.12	1.19	0.97	1.09	1.06	0.83	0.88	1.07	0.82	0.83	1.11	0.90	1.22	1.18	1.20	0.87	0.89
TX Power Accuracy[dBm]	1.43	0.79	0.85	0.92	1.09	0.99	1.08	0.83	1.38	1.02	1.20	0.59	0.93	0.71	0.62	0.79	1.19	0.85	0.66	0.58	0.91	0.83	0.71	0.54	-0.43	-0.68	-0.87	-0.92	-0.43	-0.81	-0.70	-1.22	-0.88	-1.00	-0.67	-0.99
RX Power（-10dBm）DDMI [dBm]	-9.9	-9.5	-10.6	-9.5	-10.8	-10.9	-9.6	-9.8	-9.5	-10.9	-10.6	-10.8	-10.4	-10.4	-9.7	-10.1	-9.7	-10.7	-10.5	-10.8	-10.7	-10.0	-10.5	-10.0	-10.2	-10.7	-10.9	-9.8	-10.9	-9.9	-10.6	-10.8	-9.7	-10.2	-9.7	-11.0
RX Power Accuracy[dBm]	-0.1	-0.5	0.6	-0.5	0.8	0.9	-0.4	-0.2	-0.5	0.9	0.6	0.8	0.4	0.4	-0.3	0.1	-0.3	0.7	0.5	0.8	0.7	0.0	0.5	0.0	0.2	0.7	0.9	-0.2	0.9	-0.1	0.6	0.8	-0.3	0.2	-0.3	1.0

Table 6-1l   Module#12 DDMI accuracy test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Case Temperature[℃]	1.05				0.88				0.93				29.15				28				28.44				74.73				74				74.71			
DDMI Temperature[℃]	1.39				1.8				2.05				28.75				29				29.24				73.63				73.8				74.21			
Temperature Accuracy[℃]	-0.34				-0.92				-1.12				0.4				-1				-0.8				1.1				0.2				0.5			
Voltage DDMI[V]	3.07				3.26				3.45				3.05				3.25				3.47				3.04				3.25				3.45			
Voltage Accuracy[%]	0.97				1.21				1.43				1.61				1.52				0.86				1.94				1.52				1.43			
IBias DDMI	6.07	6.01	6.04	6.10	6.07	5.96	6.08	6.01	6.04	5.99	5.95	6.03	5.93	5.96	6.03	6.07	6.04	6.08	6.05	6.01	6.02	6.06	6.08	6.03	5.94	6.01	5.99	6.11	5.92	6.09	5.96	5.99	5.99	6.06	5.95	6.02
TX Power DDMI [dBm]	1.15	0.93	1.10	0.85	0.97	0.82	0.90	1.19	1.23	0.91	0.98	1.12	0.98	0.90	0.89	1.09	1.12	0.93	0.84	1.21	0.88	0.88	1.14	1.16	1.10	0.90	0.87	1.16	1.15	0.86	0.95	0.82	0.96	1.13	1.04	0.91
TX Power Accuracy[dBm]	1.05	1.17	1.10	1.35	1.33	1.28	1.30	1.11	1.07	1.29	1.32	1.18	1.02	0.90	0.81	0.71	0.88	0.87	0.86	0.59	1.12	0.92	0.66	0.64	-0.60	-0.70	-0.77	-0.96	-0.65	-0.56	-0.75	-0.62	-0.46	-0.83	-0.74	-0.61
RX Power（-10dBm）DDMI [dBm]	-9.6	-10.2	-10.2	-9.9	-9.9	-9.7	-10.1	-10.7	-9.8	-10.6	-10.5	-10.8	-10.2	-9.5	-10.4	-10.1	-9.7	-10.1	-9.8	-11.1	-10.0	-11.1	-11.0	-9.6	-11.0	-10.7	-9.7	-10.4	-10.7	-9.6	-9.8	-10.8	-10.8	-10.8	-10.0	-10.5
RX Power Accuracy[dBm]	-0.4	0.2	0.2	-0.1	-0.1	-0.3	0.1	0.7	-0.2	0.6	0.5	0.8	0.2	-0.5	0.4	0.1	-0.3	0.1	-0.2	1.1	0.0	1.1	1.0	-0.4	1.0	0.7	-0.3	0.4	0.7	-0.4	-0.2	0.8	0.8	0.8	0.0	0.5

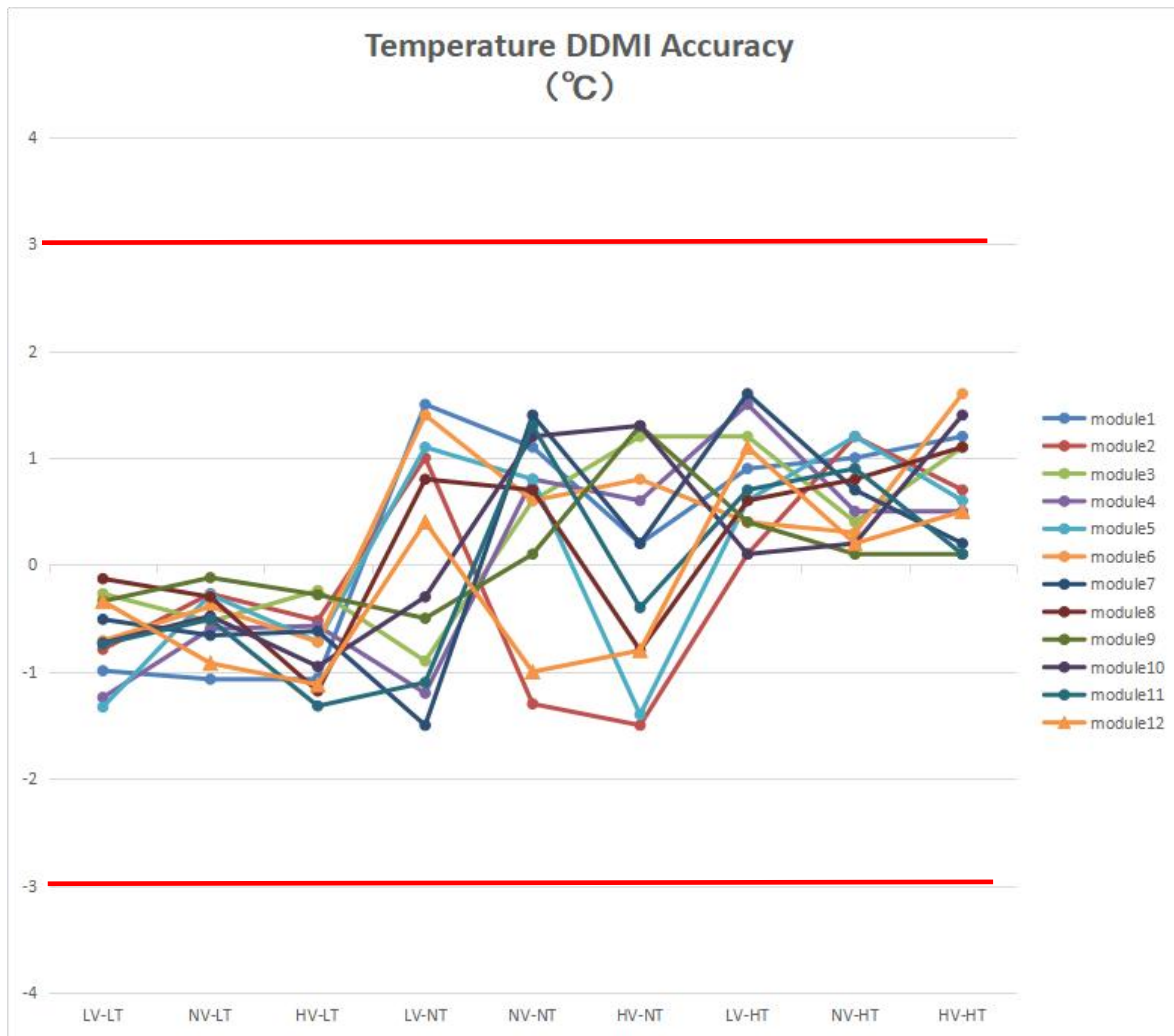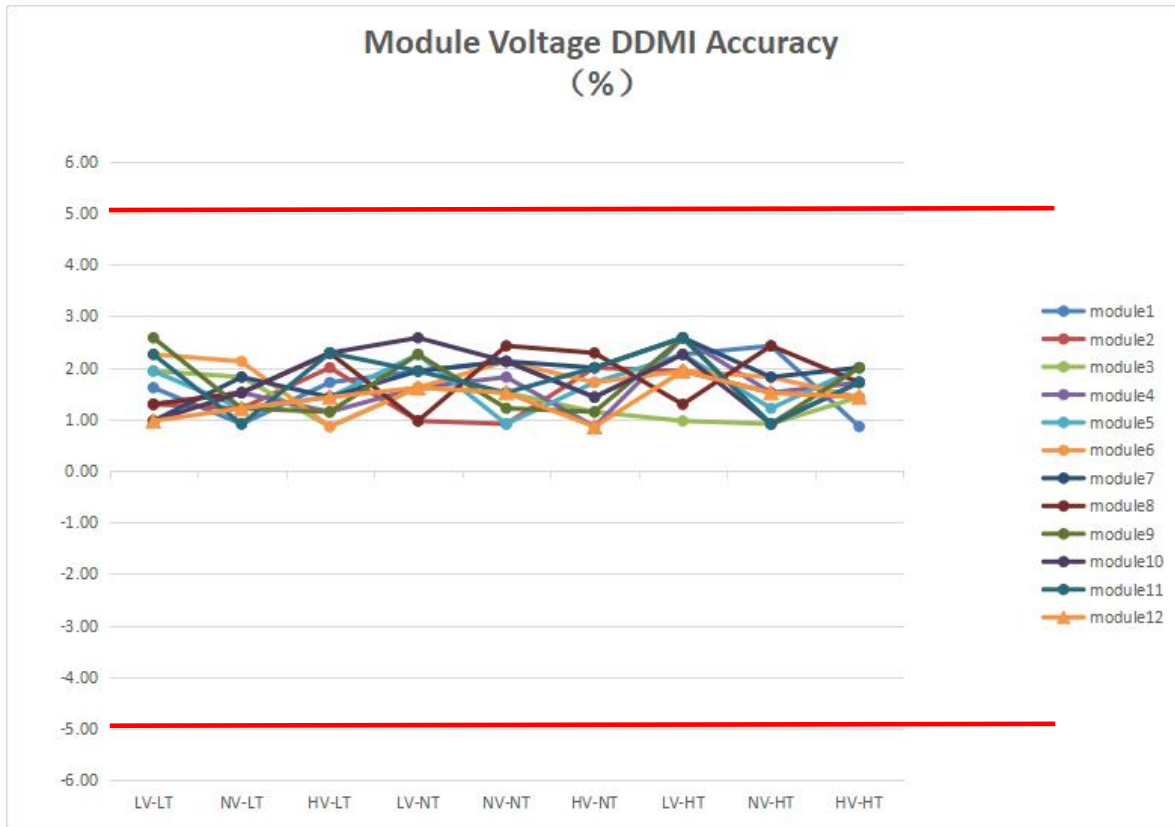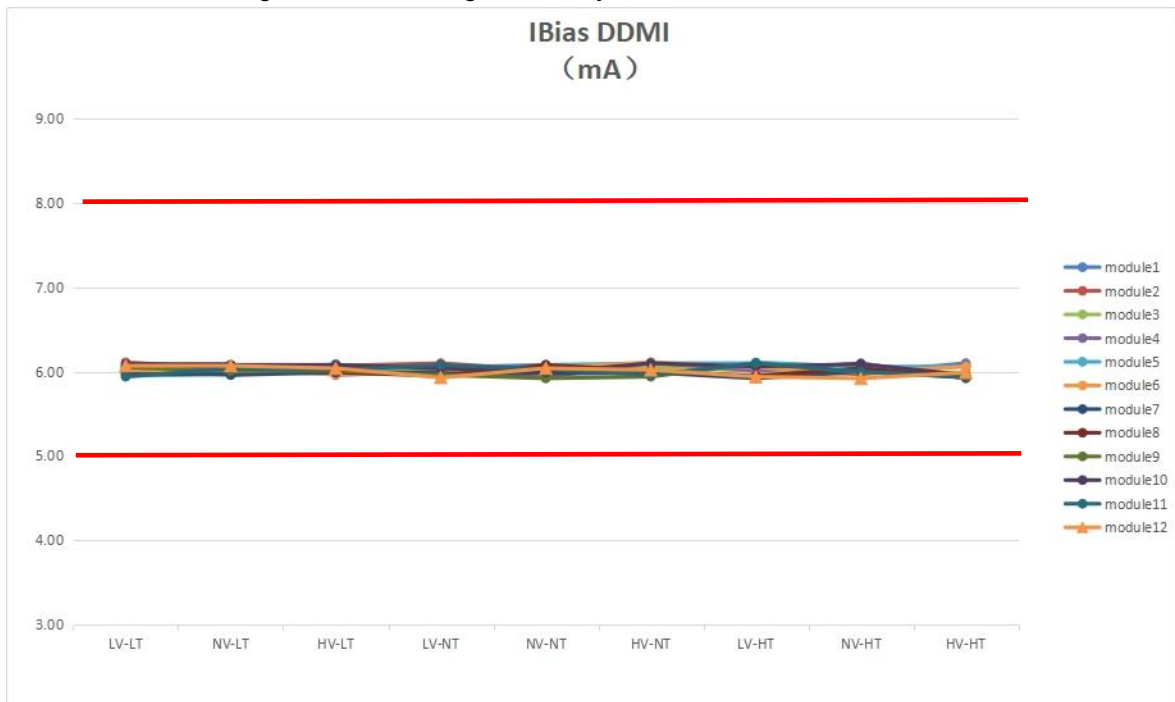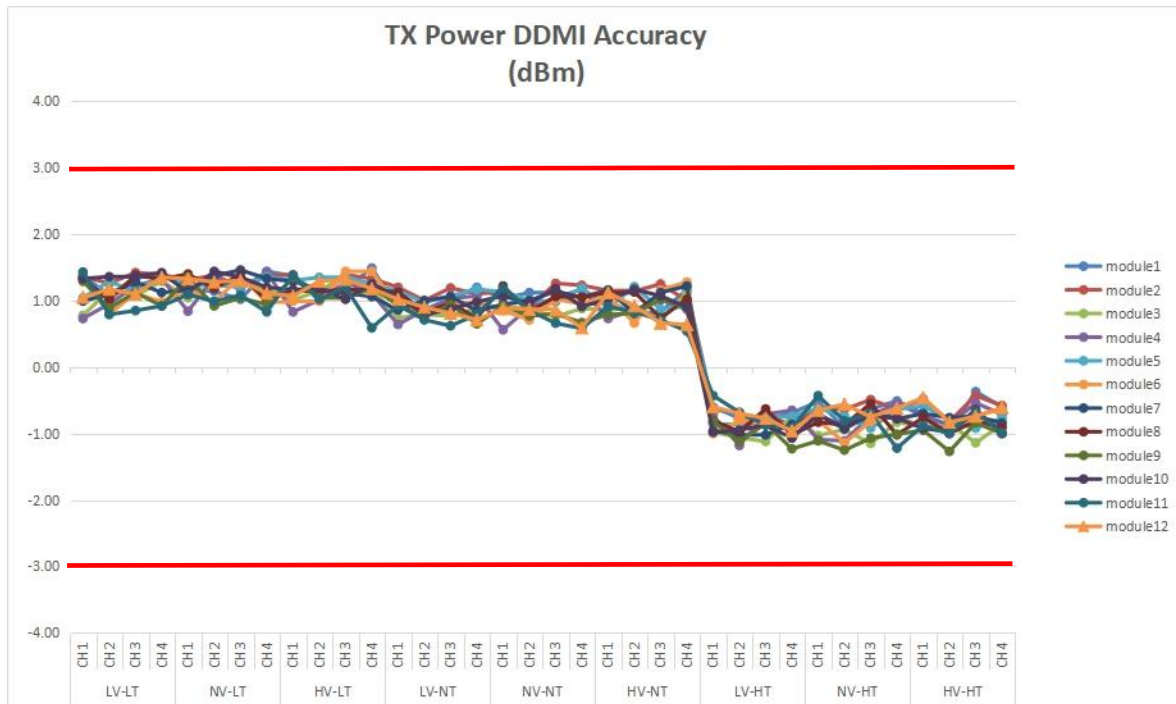## 6.2 DDMI Accuracy Test Results For Nine Corners

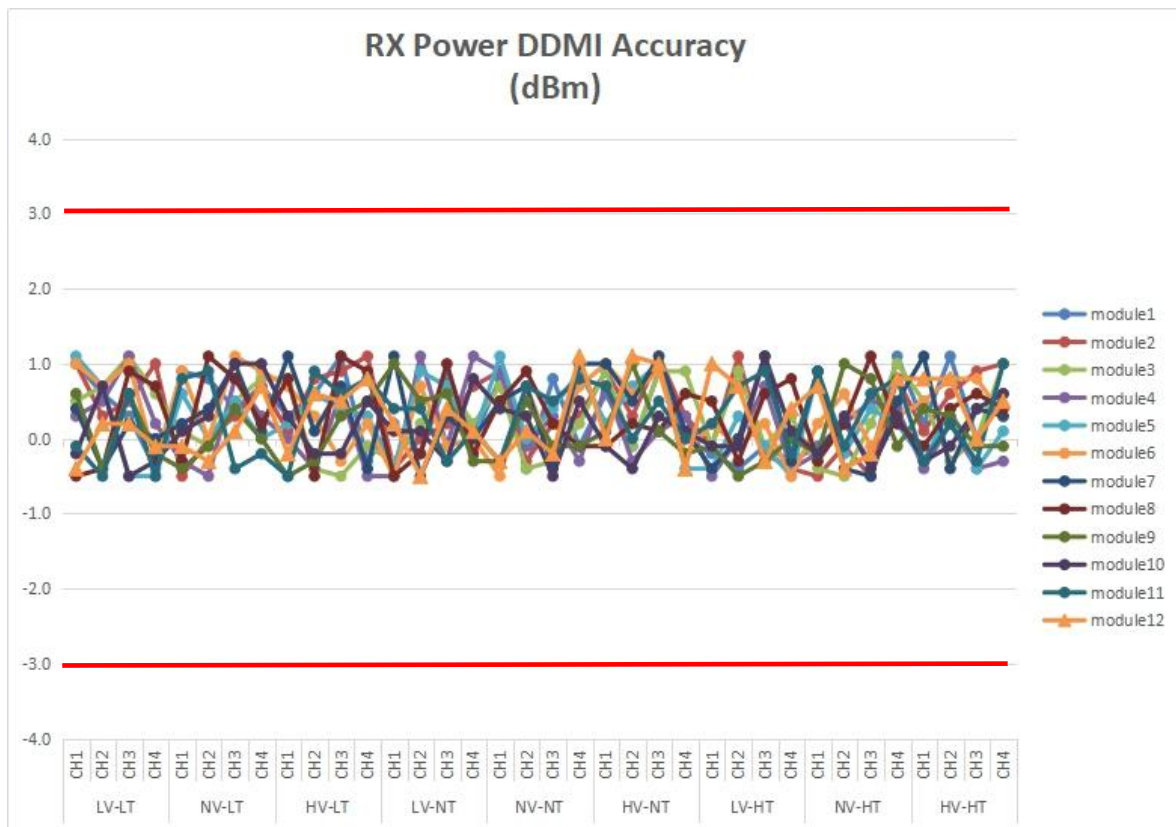**Figure 6-2a   Temperature Accuracy test results for nine corners**

Figure 6-2b   Voltage Accuracy test results for nine corners

Figure 6-2c   IBias DDMI test results for nine corners

Figure 6-2d TX Power Accuracy test results for

nine corners

Figure 6-2e RX Power Accuracy test results for nine corners

7　Power Consumption Test Result

7.1　Power Consumption Test Data

Power Consumption test data in table 7-1.

Table 7-1a　Module#1 Power Consumption test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Supply Current[mA]	548				566				582				554				571				585				554				564				578			
Power Consumption[W]	1.70				1.87				2.04				1.72				1.88				2.05				1.72				1.86				2.03			

Table 7-1b　Module#2 Power Consumption test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Supply Current[mA]	547				559				571				546				566				579				548				560				573			
Power Consumption[W]	1.70				1.84				2.00				1.69				1.87				2.03				1.70				1.85				2.01			

Table 7-1c　Module#3 Power Consumption test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Supply Current[mA]	549				565				577				561				573				585				555				567				579			
Power Consumption[W]	1.70				1.86				2.02				1.74				1.89				2.05				1.72				1.87				2.03			

Table 7-1d　Module#4 Power Consumption test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Supply Current[mA]	558				570				581				565				578				590				559				570				584			
Power Consumption[W]	1.73				1.88				2.03				1.75				1.91				2.07				1.73				1.88				2.05			

Table 7-1e　Module#5 Power Consumption test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Supply Current[mA]	564				576				596				566				581				595				566				576				589			
Power Consumption[W]	1.75				1.90				2.09				1.75				1.92				2.08				1.75				1.90				2.07			

Table 7-1f　Module#6 Power Consumption test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Supply Current[mA]	554				568				585				564				575				585				550				569				589			
Power Consumption[W]	1.72				1.87				2.05				1.75				1.90				2.05				1.71				1.88				2.07			

Table 7-1g　Module#7 Power Consumption test data

Parameter	LV-LT	NV-LT	HV-LT	LV-NT	NV-NT	HV-NT	LV-HT	NV-HT	HV-HT

Parameter																																			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Supply Current[mA]	561				572				589				566				580				597				552				569				582			
Power Consumption[W]	1.74				1.89				2.06				1.75				1.91				2.09				1.71				1.88				2.04			

Table 7-1h   Module#8 Power Consumption test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Supply Current[mA]	554				565				584				549				569				587				554				564				584			
Power Consumption[W]	1.72				1.86				2.04				1.70				1.88				2.05				1.72				1.86				2.05			

Table 7-1i   Module#9 Power Consumption test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Supply Current[mA]	555				571				585				557				576				591				558				570				585			
Power Consumption[W]	1.72				1.88				2.05				1.73				1.90				2.07				1.73				1.88				2.05			

Table 7-1j   Module#10 Power Consumption test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Supply Current[mA]	563				577				594				564				582				598				559				578				596			
Power Consumption[W]	1.75				1.90				2.08				1.75				1.92				2.09				1.73				1.91				2.08			

Table 7-1k   Module#11 Power Consumption test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Supply Current[mA]	549				565				584				556				573				590				550				567				585			
Power Consumption[W]	1.70				1.86				2.04				1.72				1.89				2.07				1.71				1.87				2.05			

Table 7-1l   Module#12 Power Consumption test data

Parameter	LV-LT				NV-LT				HV-LT				LV-NT				NV-NT				HV-NT				LV-HT				NV-HT				HV-HT			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
Supply Current[mA]	554				564				577				555				571				584				549				564				578			
Power Consumption[W]	1.72				1.86				2.02				1.72				1.88				2.04				1.70				1.86				2.03			

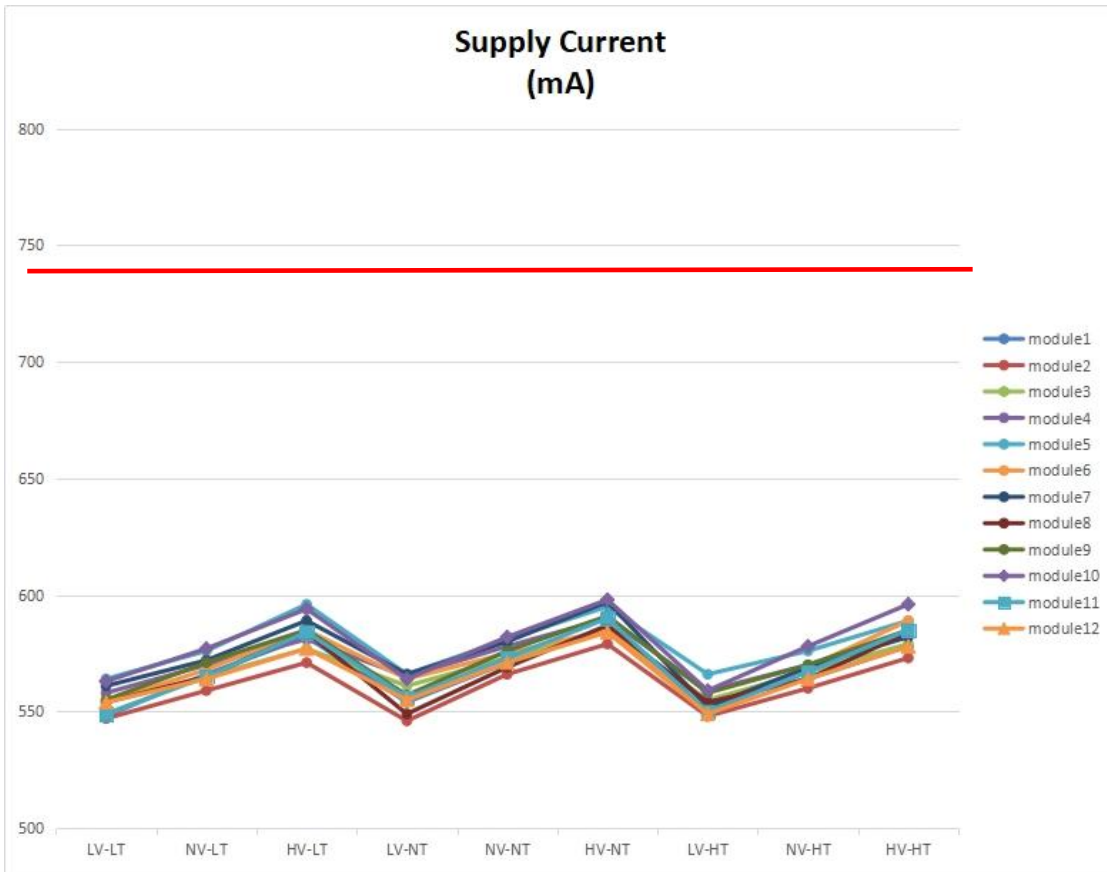## 7.2 Power Consumption Test Data

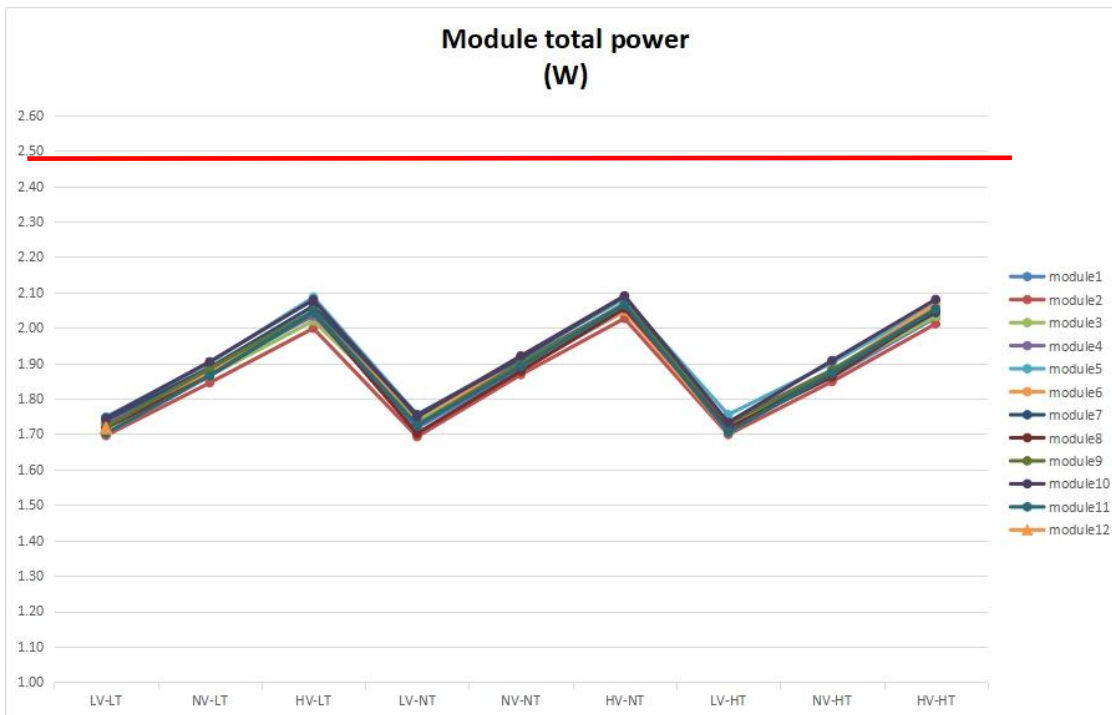**Figure 7-2a   Supply Current test results for nine corners**

Figure 7-2b   Power Consumption test results for nine corners

8   Conclusion

The 100G SR4 transceivers pass this Design Verification Test program

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