

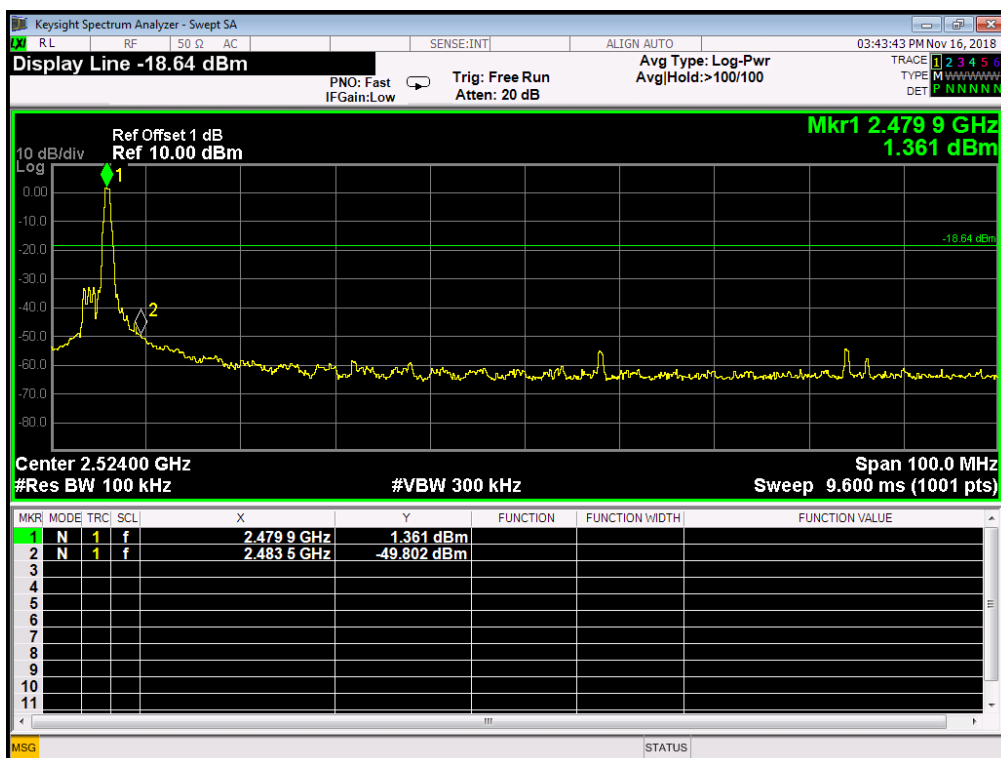
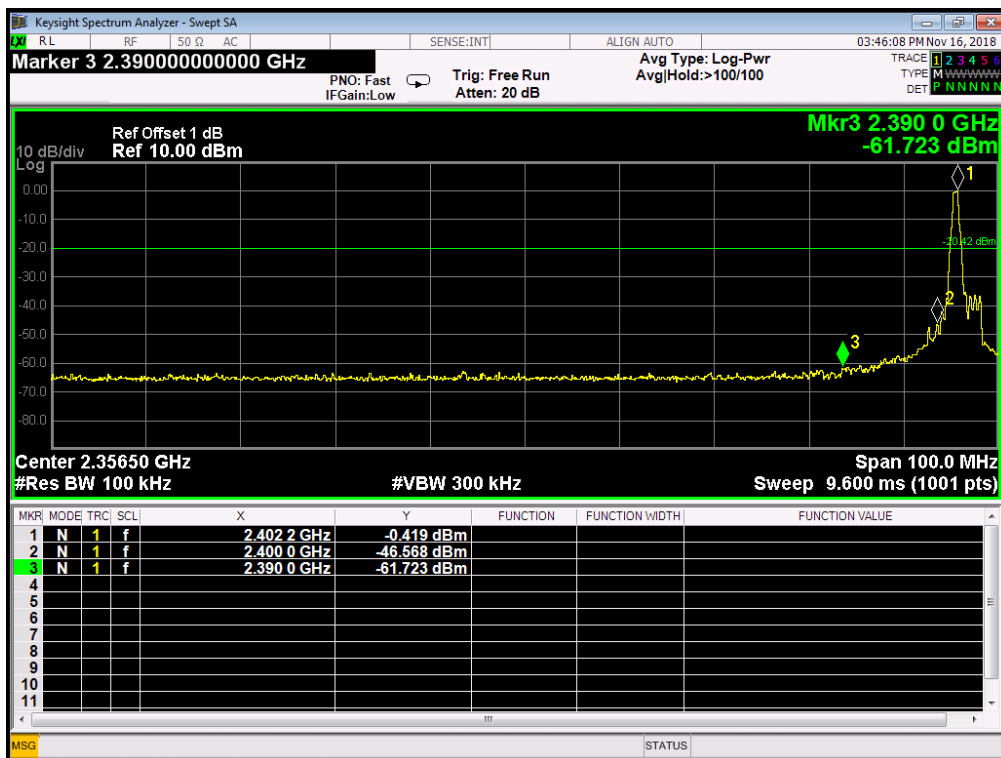
9.4. Test result

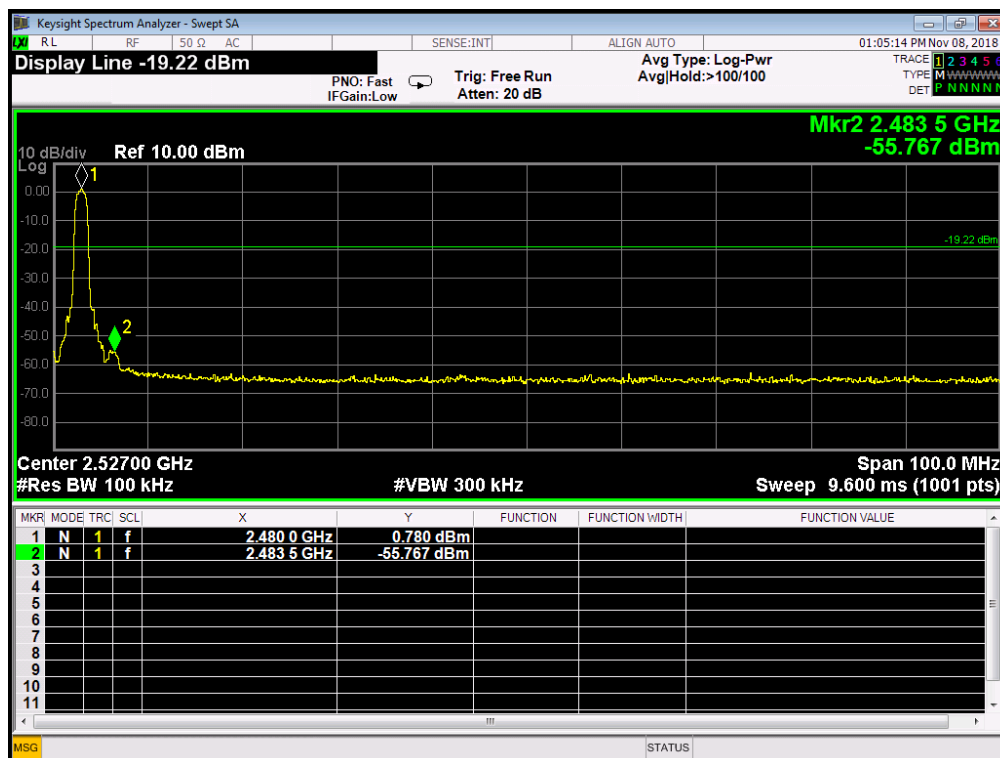
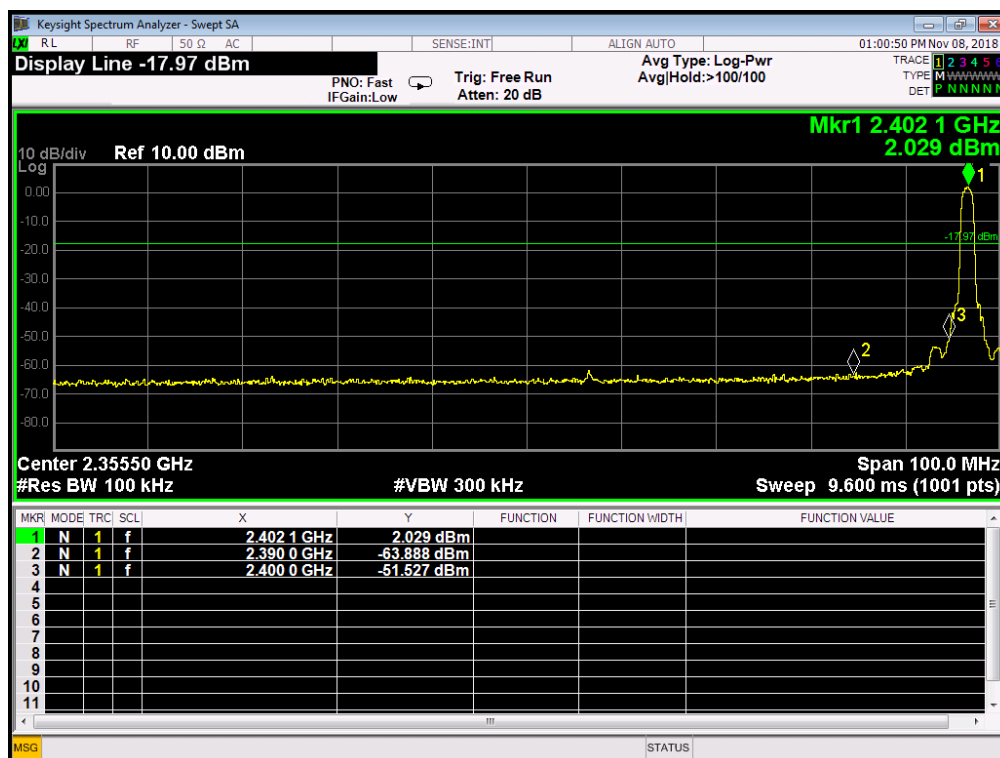
PASS (See below detailed test result.)

Frequency Band	Delta Peak to band emission (dBc)	>Limit (dBc)	Result
1Mbps Non-hopping			
2400	57.36	20	Pass
2483.5	56.64	20	Pass
2Mbps Non-hopping			
2400	53.56	20	Pass
2483.5	56.55	20	Pass
3Mbps Non-hopping			
2400	53.11	20	Pass
2483.5	56.53	20	Pass

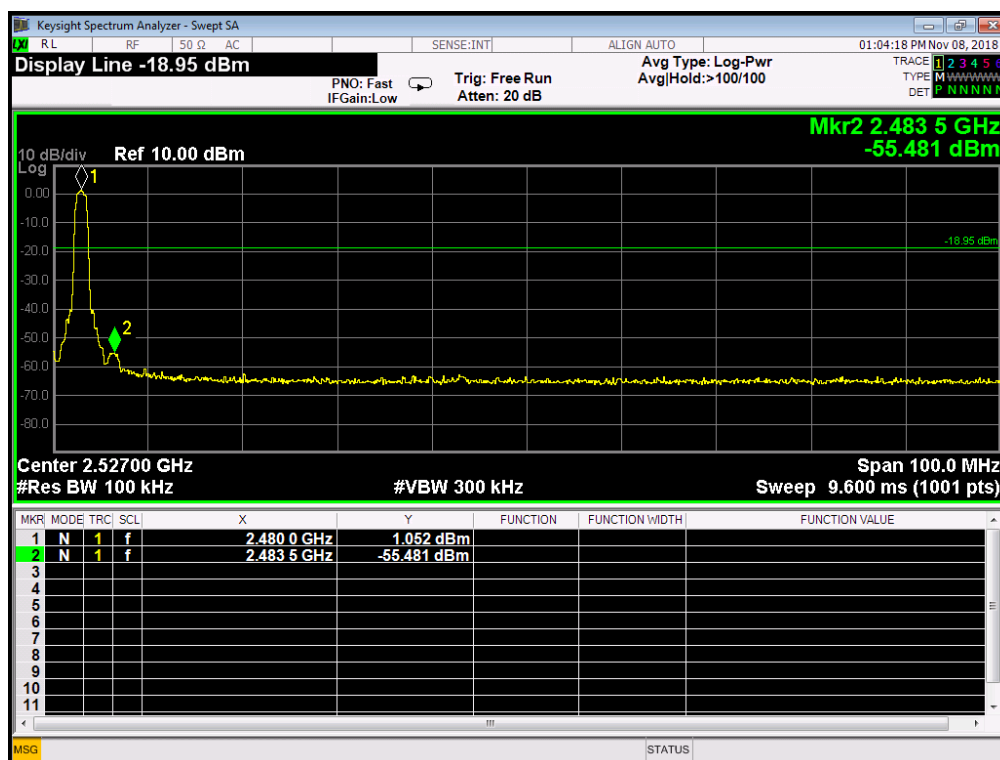
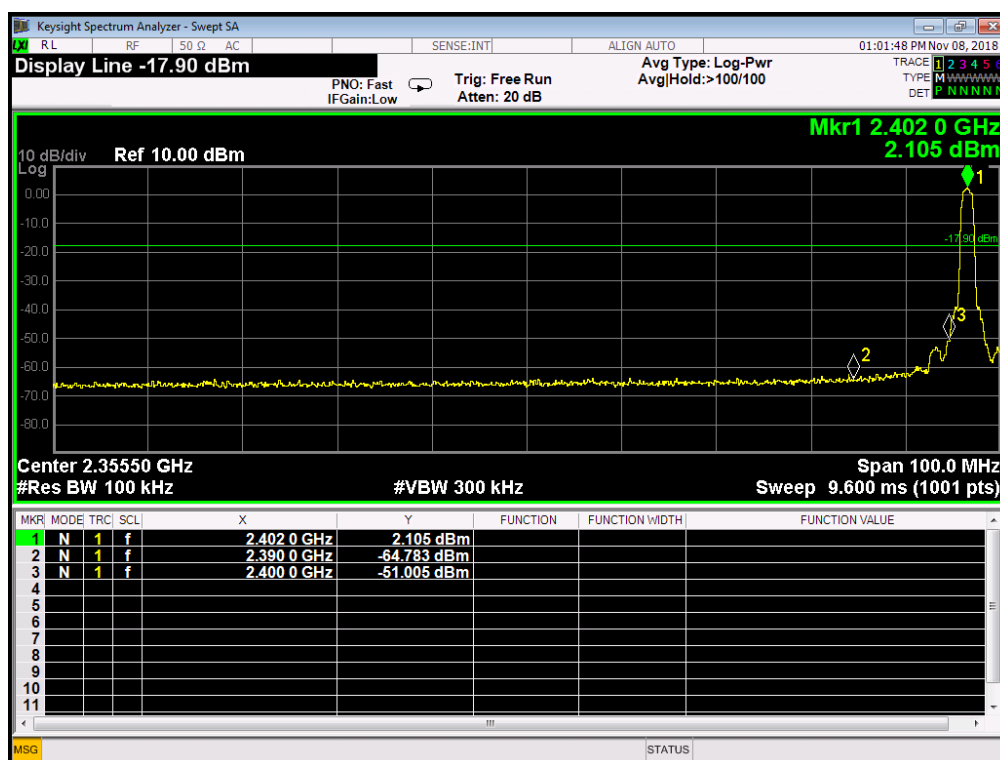
Frequency Band	Delta Peak to band emission (dBc)	>Limit (dBc)	Result
1Mbps hopping			
2400	48.81	20	Pass
2483.5	52.07	20	Pass
2Mbps hopping			
2400	52.61	20	Pass
2483.5	63.05	20	Pass
3Mbps hopping			
2400	55.26	20	Pass
2483.5	61.72	20	Pass

GFSK

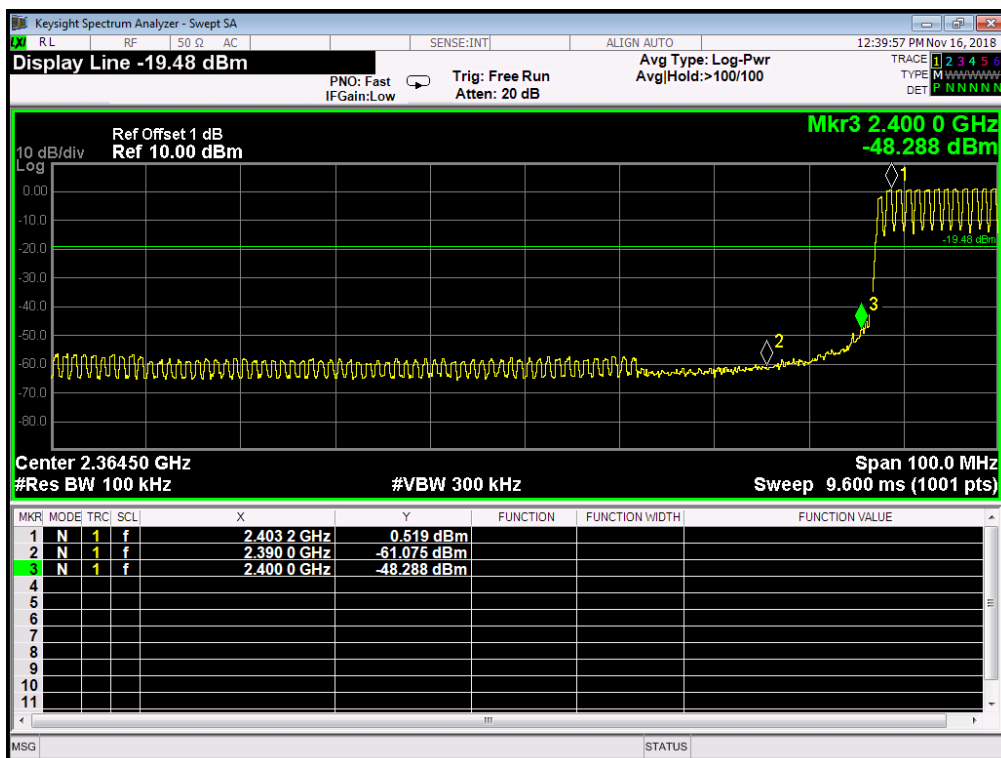


$\pi/4$ DQPSK

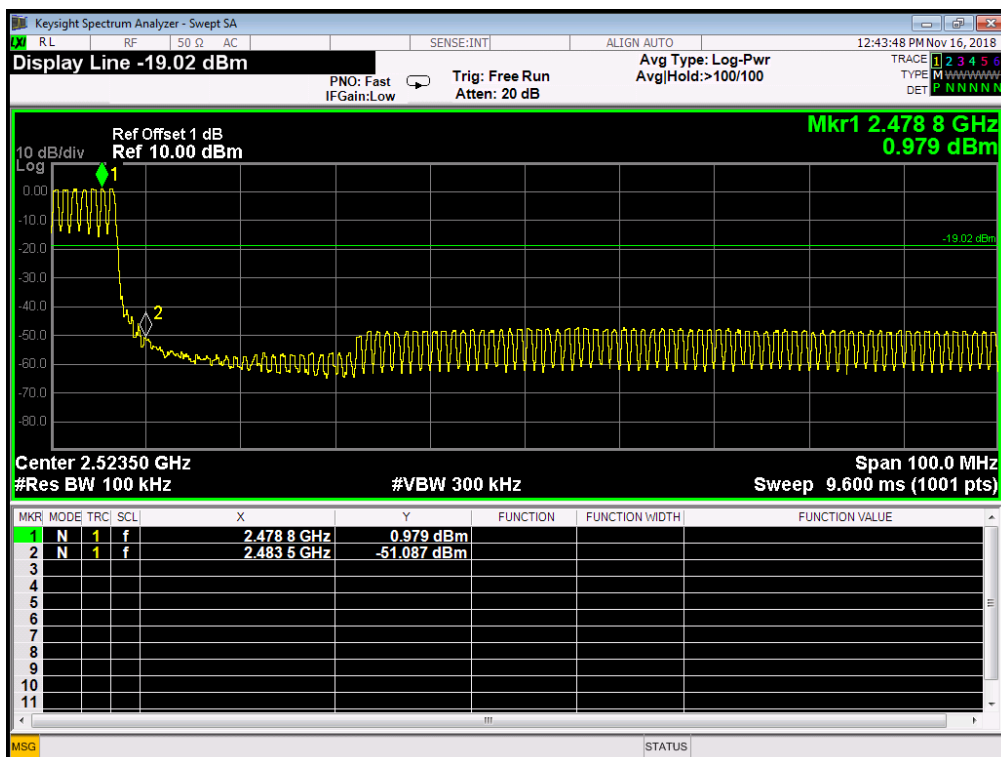
8DPSK

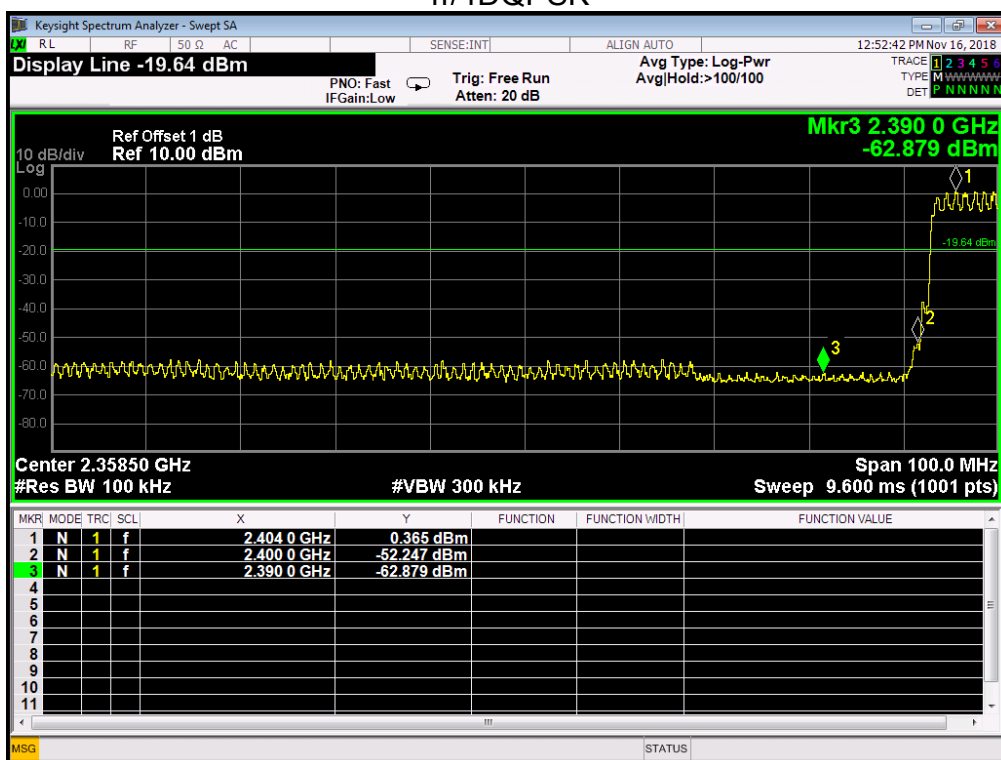
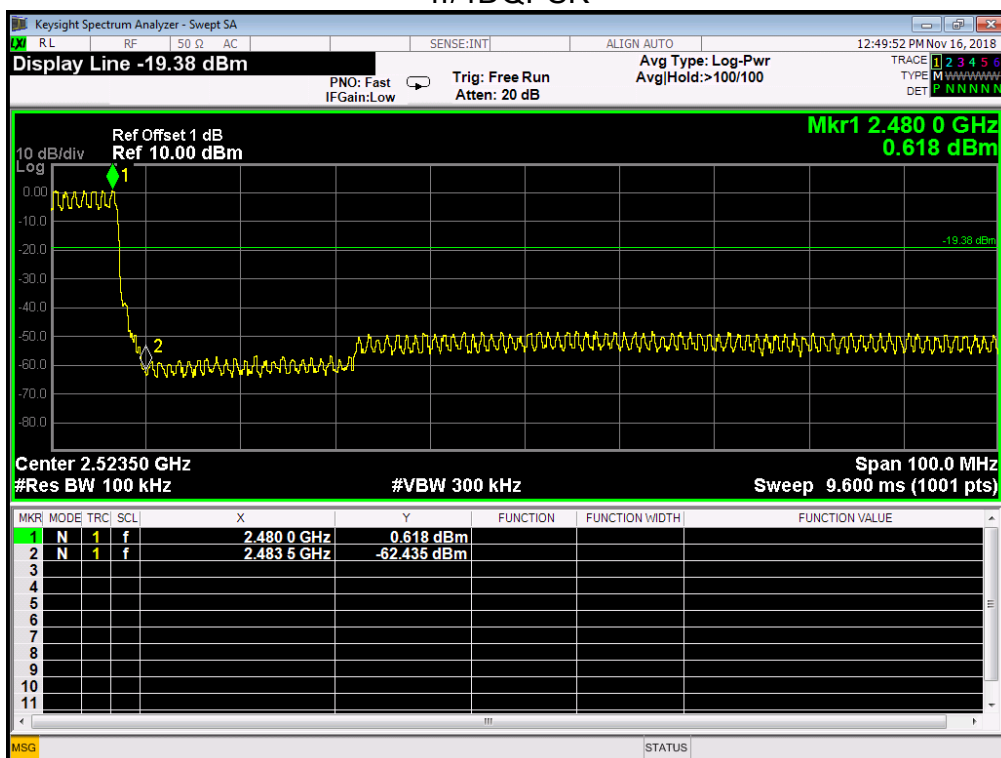


GFSK

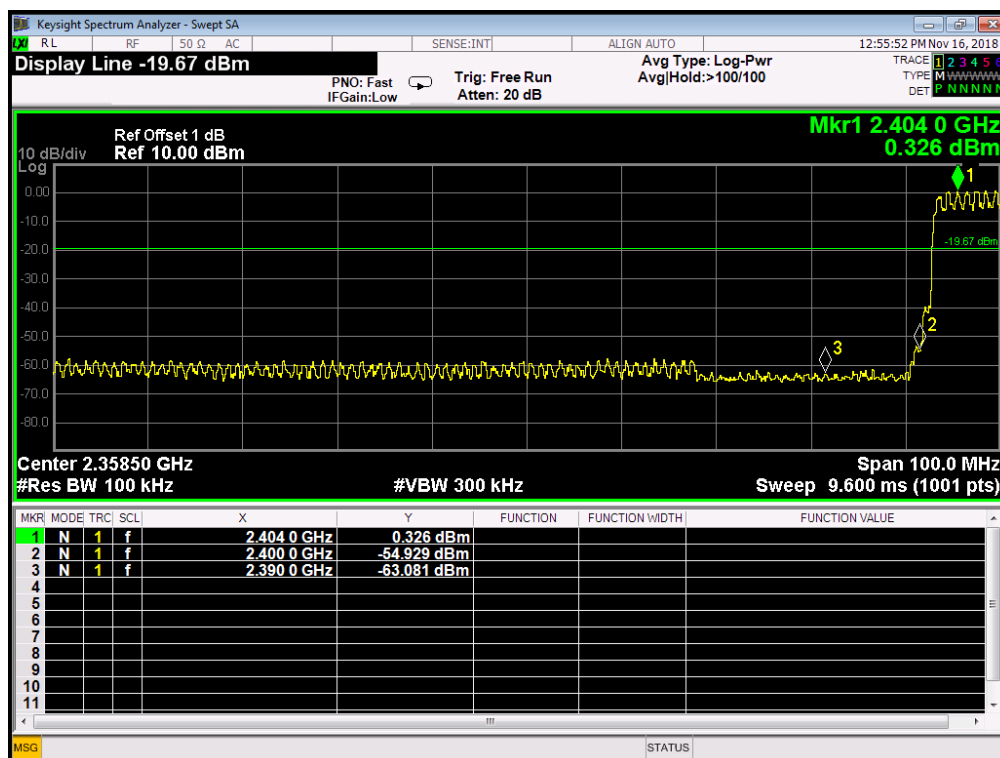


GFSK

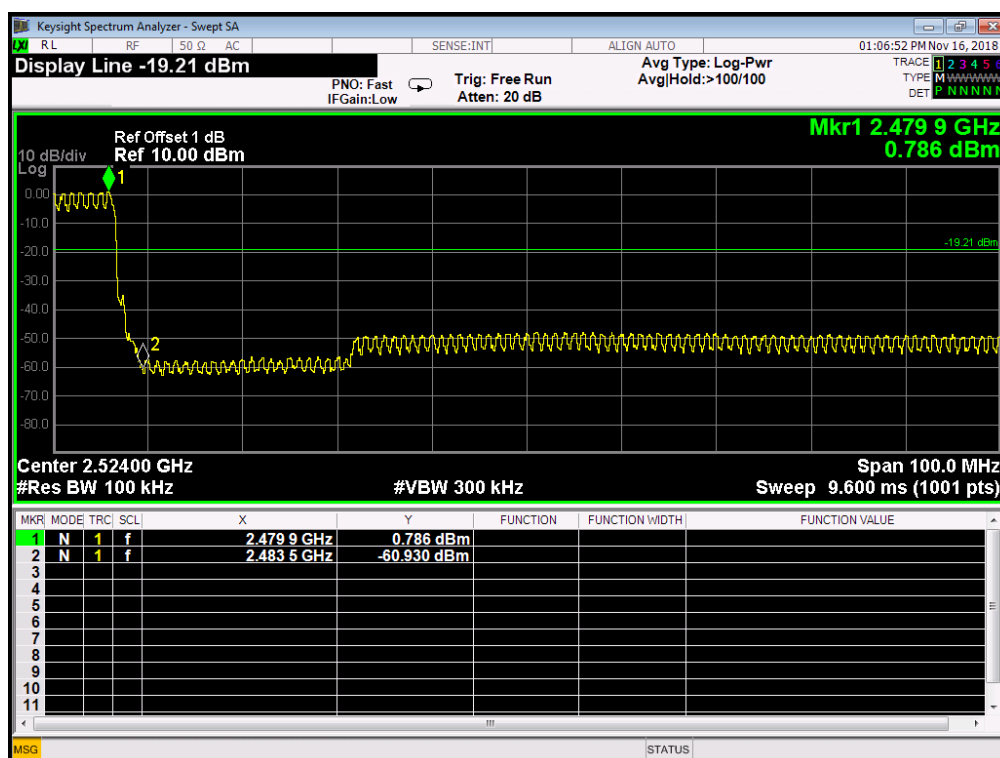


$\pi/4$ DQPSK $\pi/4$ DQPSK

8DPSK

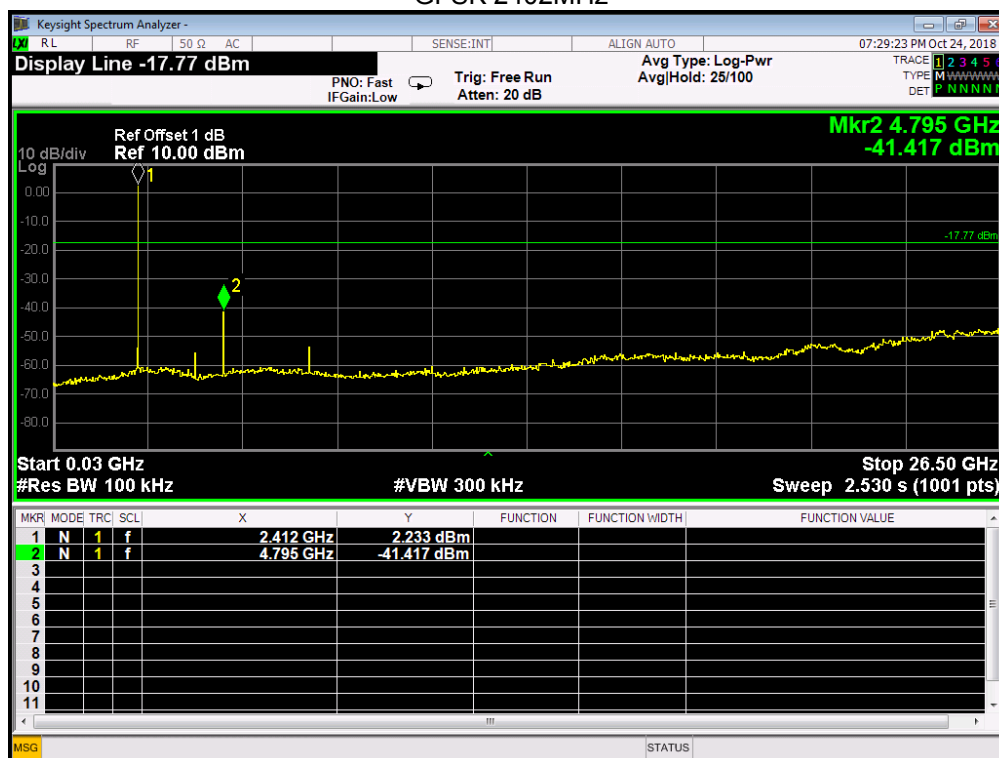


8DPSK

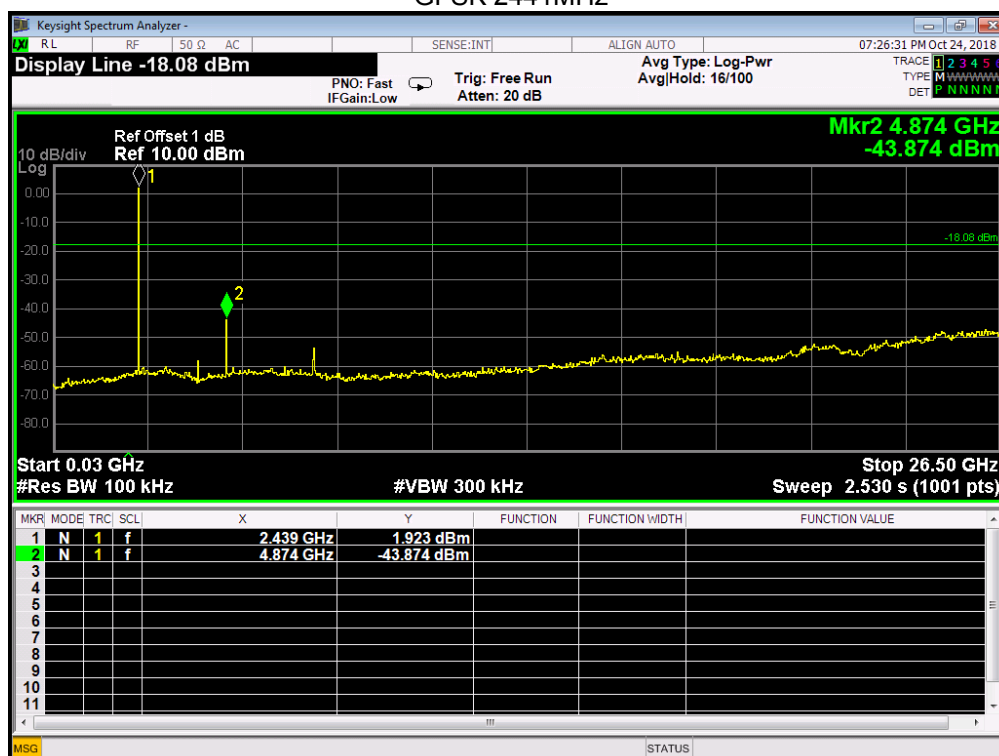


Conducted Emission

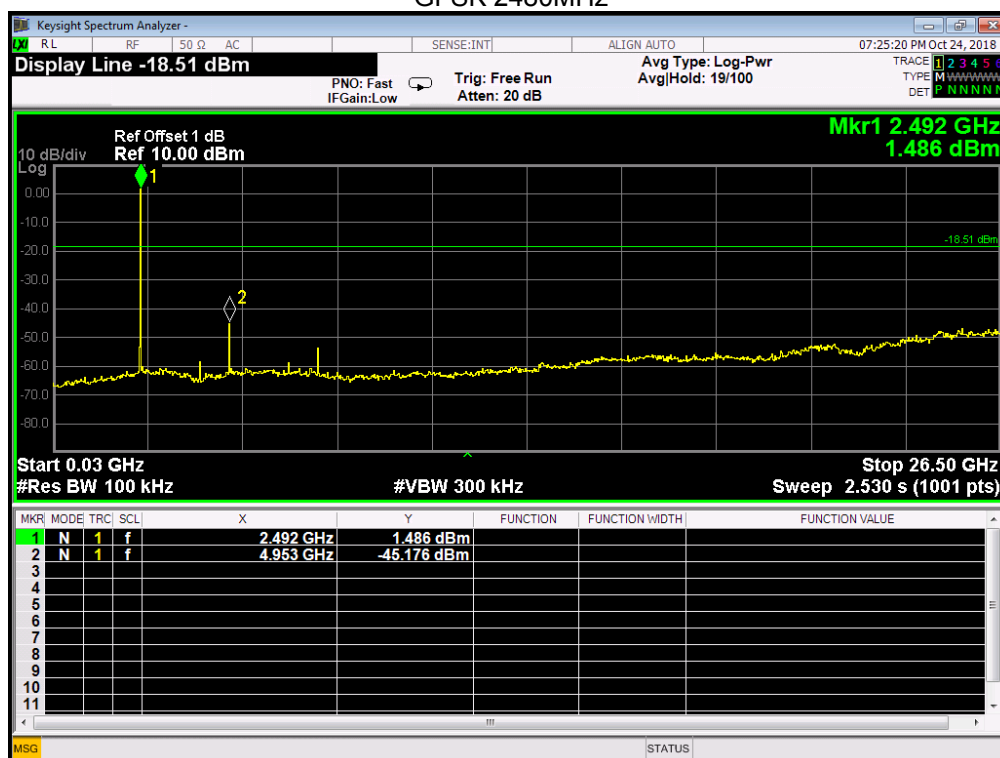
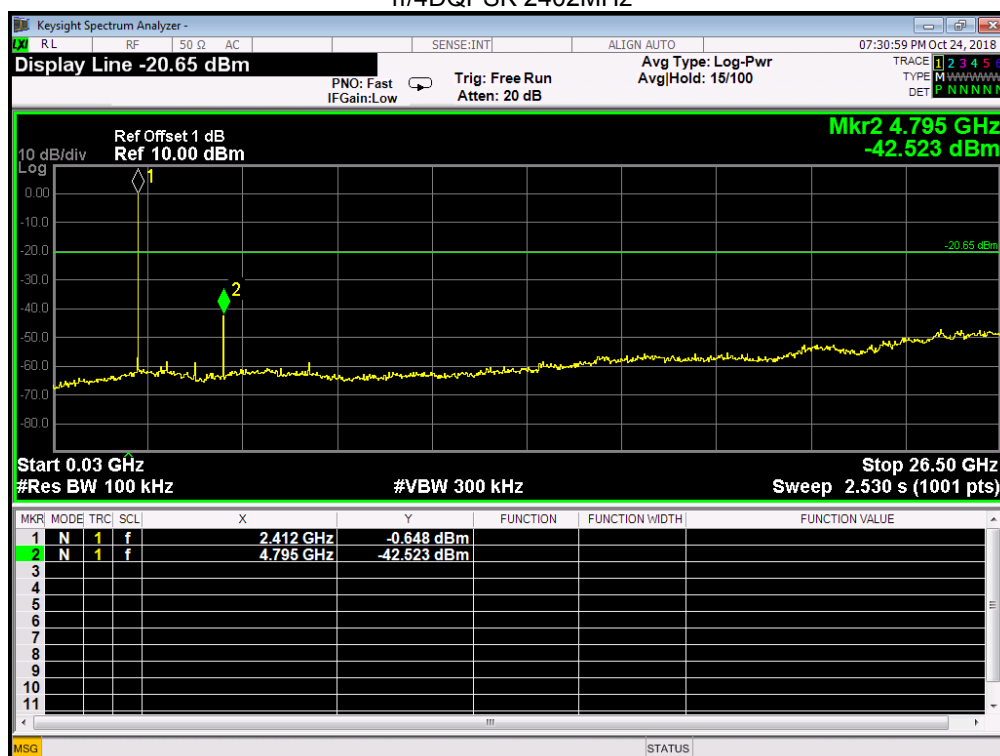
GFSK 2402MHz

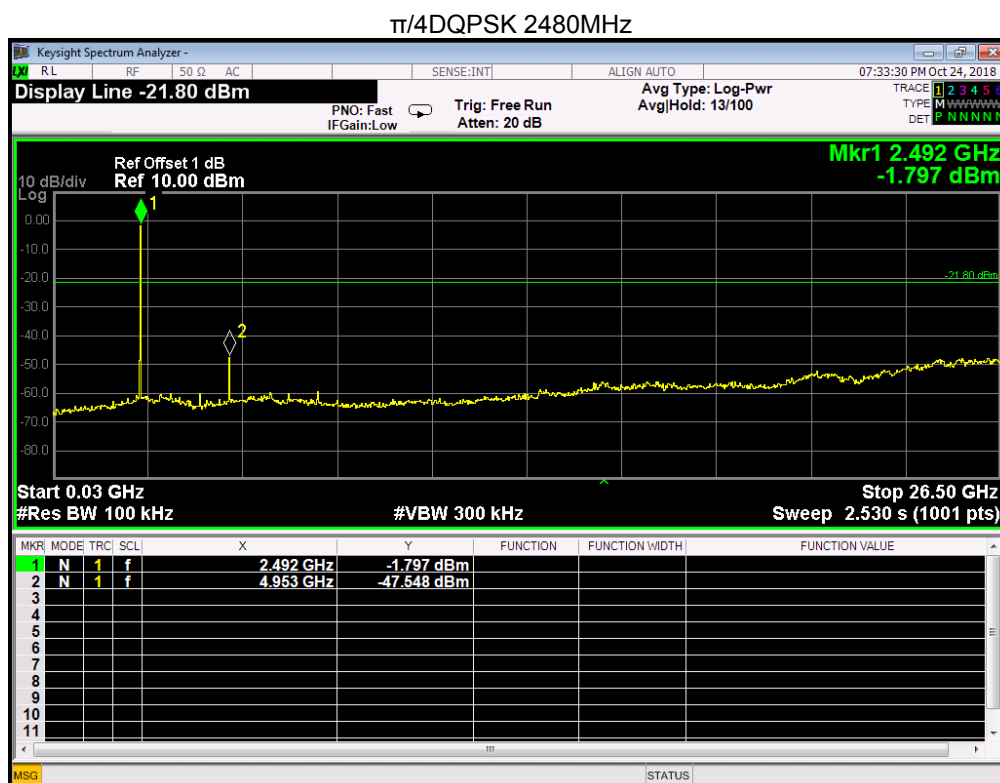
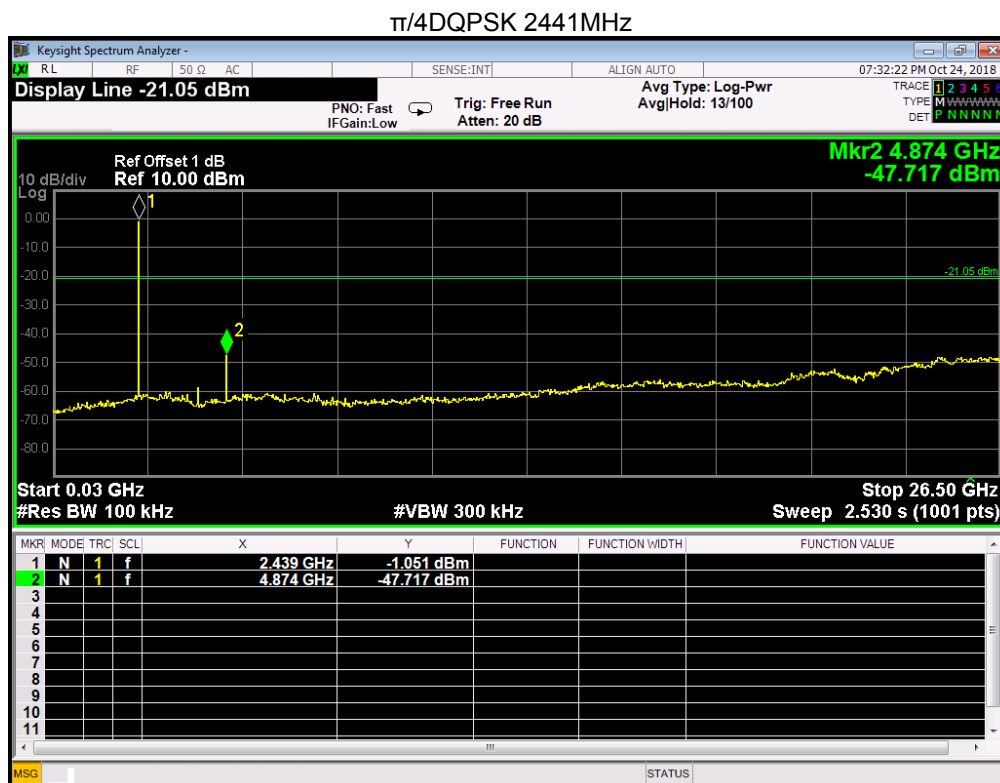


GFSK 2441MHz

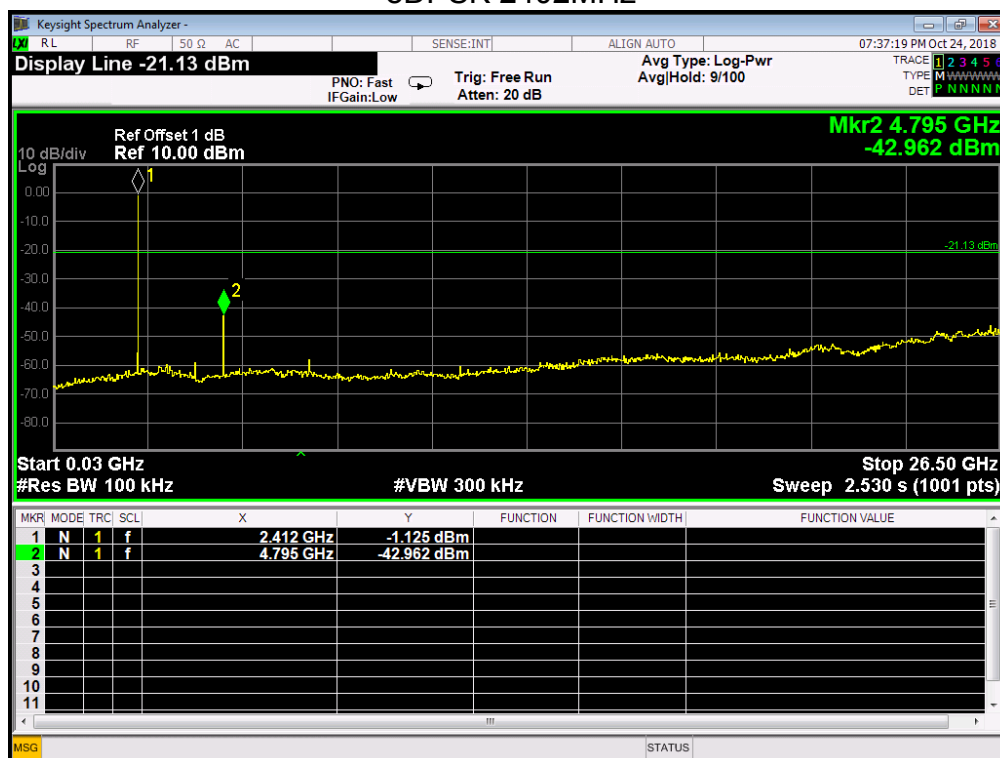


GFSK 2480MHz

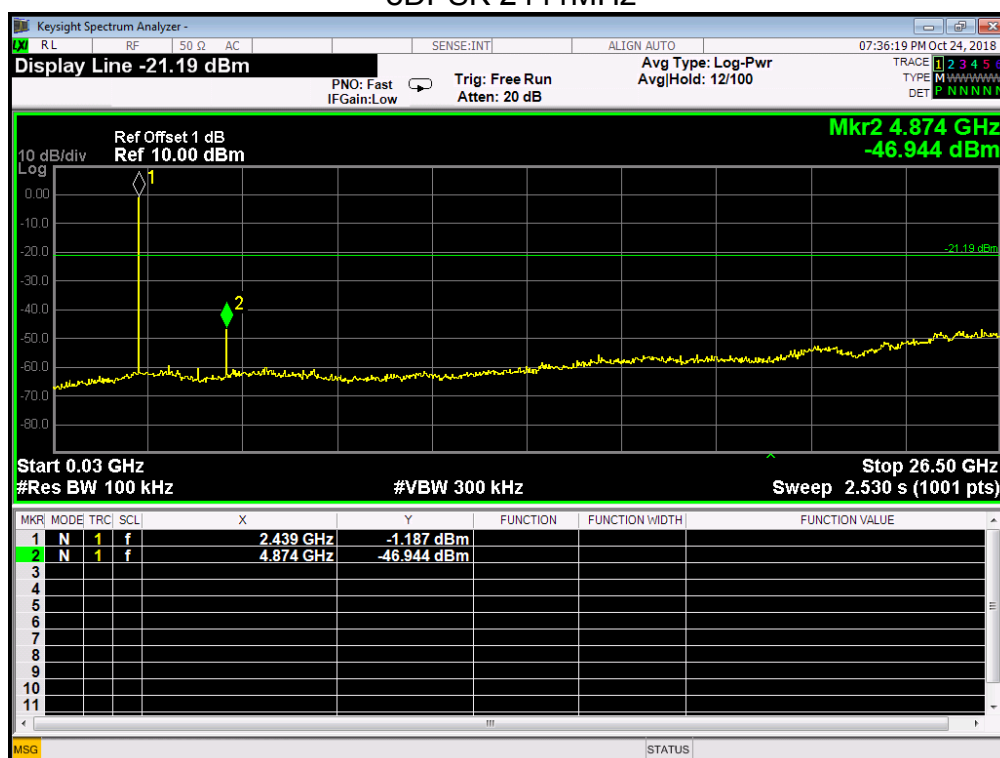
 $\pi/4$ DQPSK 2402MHz



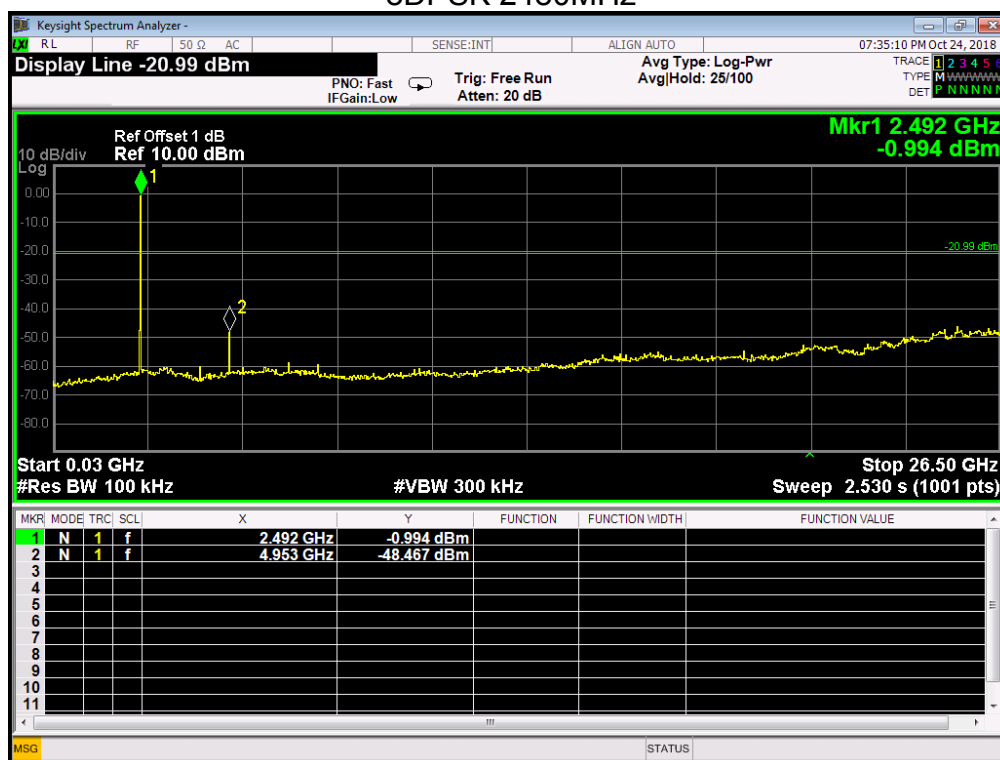
8DPSK 2402MHz



8DPSK 2441MHz



8DPSK 2480MHz

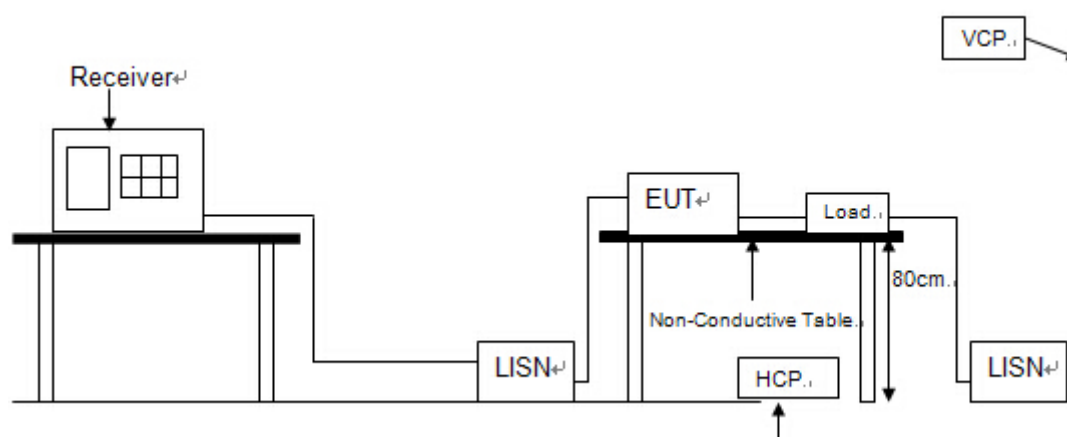


10. POWER LINE CONDUCTED EMISSION

10.1 Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Pulse Limiter	MTS-systemtechnik	MTS-IMP-136	261115-010-0024	12/17/2018
2	EMI Test Receiver	R&S	ESCI	101308	12/17/2018
3	LISN	AFJ	LS16	16011103219	12/17/2018
4	LISN	Schwarzbeck	NSLK 8127	8127-432	12/17/2018
5	Measurement Software	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A
6	MeasurementSoftware	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A

10.2 Block diagram of test setup



10.3 Power Line Conducted Emission Limits(Class B)

Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

10.4 Test Procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 10.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 KHz.

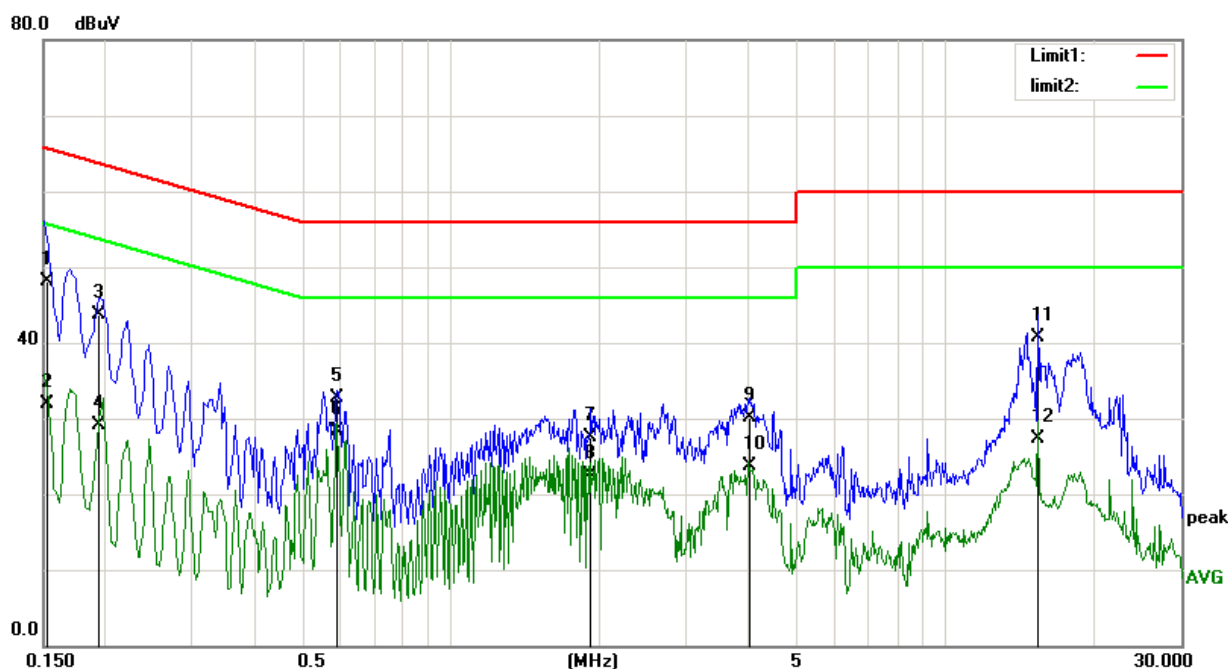
10.5 Test Result

PASS. (See below detailed test result)

Note1: All emissions not reported below are too low against the prescribed limits.

Note2: “----” means peak detection; “----” mans average detection

EUT:	Crazybaby NANO 1S	Model No.:	H183
Temperature:	23℃	Relative Humidity:	52%
		Test Power:	AC 120V/60Hz
Probe:	N	Test Result:	Pass
Test Time:	2018-10-29	Test By:	
Standard:	(CE)FCC PART 15 class B_QP		
Test Mode:	Charging mode		
Note:			

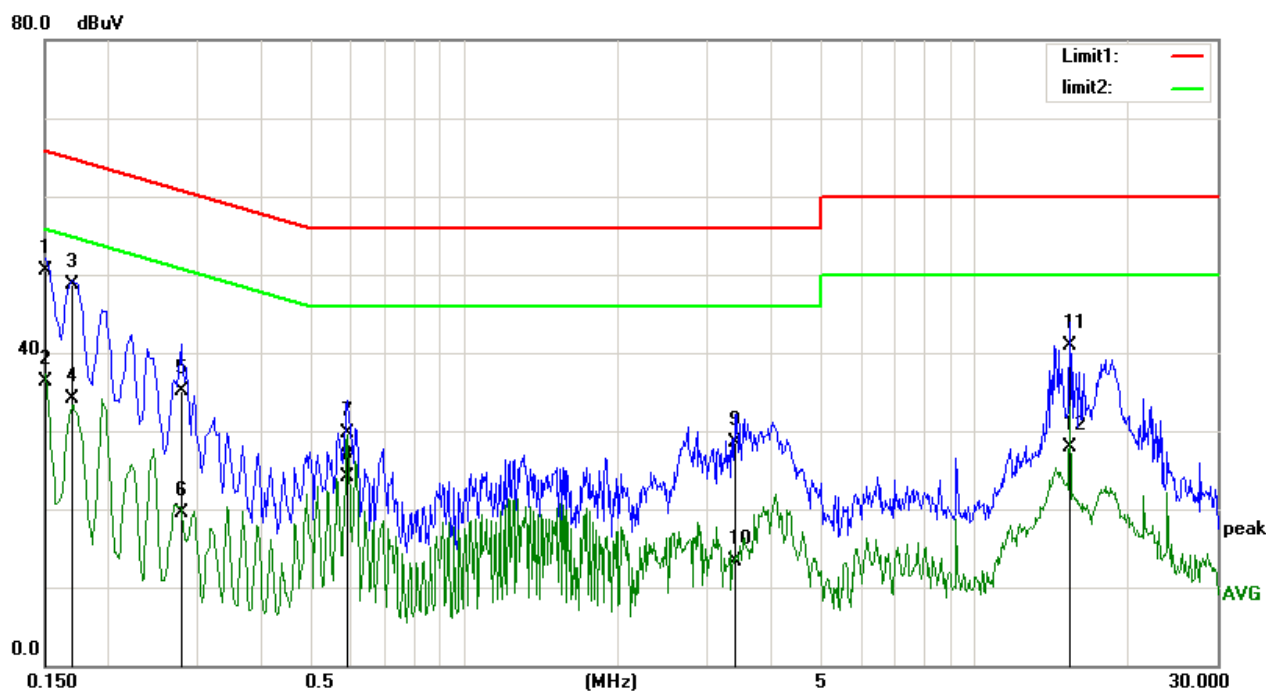


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1527	36.69	11.45	48.14	65.85	-17.71	QP
2	0.1527	20.37	11.45	31.82	55.85	-24.03	AVG
3	0.1929	32.47	11.17	43.64	63.91	-20.27	QP
4	0.1929	17.94	11.17	29.11	53.91	-24.80	AVG
5	0.5872	22.56	10.15	32.71	56.00	-23.29	QP
6	0.5872	18.17	10.15	28.32	46.00	-17.68	AVG
7	1.9260	17.30	10.11	27.41	56.00	-28.59	QP
8	1.9260	12.31	10.11	22.42	46.00	-23.58	AVG
9	4.0379	19.87	10.14	30.01	56.00	-25.99	QP
10	4.0379	13.56	10.14	23.70	46.00	-22.30	AVG
11	15.4071	30.51	10.17	40.68	60.00	-19.32	QP
12	15.4071	17.14	10.17	27.31	50.00	-22.69	AVG

The test result is calculated as the following:

- (1) Result = Reading + Correct Factor
- (2) Correct Factor = (LISN, ISN, PLC or Current Probe) Factor + Cable Loss + Attenuator
- (3) Margin = Result - Limit

EUT:	Crazybaby NANO 1S	Model No.:	H183
Temperature:	23℃	Relative Humidity:	52%
		Test Power:	AC 120V/60Hz
Probe:	L1	Test Result:	Pass
Test Time:	2018-10-29	Test By:	
Standard:	(CE)FCC PART 15 class B_QP		
Test Mode:	Charging mode		
Note:			



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1503	38.98	11.47	50.45	65.98	-15.53	QP
2	0.1503	24.86	11.47	36.33	55.98	-19.65	AVG
3	0.1694	37.38	11.34	48.72	64.98	-16.26	QP
4	0.1694	22.81	11.34	34.15	54.98	-20.83	AVG
5	0.2777	24.42	10.59	35.01	60.88	-25.87	QP
6	0.2777	9.00	10.59	19.59	50.88	-31.29	AVG
7	0.5930	19.64	10.15	29.79	56.00	-26.21	QP
8	0.5930	14.00	10.15	24.15	46.00	-21.85	AVG
9	3.3940	18.34	10.14	28.48	56.00	-27.52	QP
10	3.3940	3.22	10.14	13.36	46.00	-32.64	AVG
11	15.4132	30.83	10.17	41.00	60.00	-19.00	QP
12	15.4132	17.76	10.17	27.93	50.00	-22.07	AVG

The test result is calculated as the following:

(1) Result = Reading + Correct Factor

(2) Correct Factor = (LISN, ISN, PLC or Current Probe) Factor + Cable Loss + Attenuator

Margin = Result - Limit

11 Antenna Requirements

11.1 Limit

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

11.2 EUT ANTENNA

The EUT antenna is integral antenna. It comply with the standard requirement.

END OF REPORT