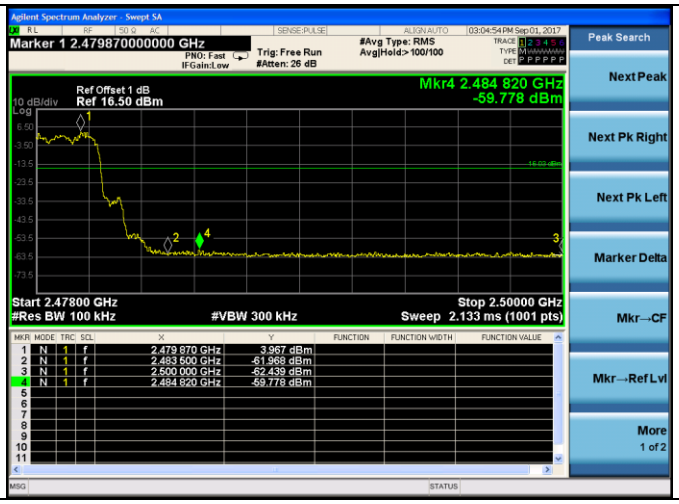
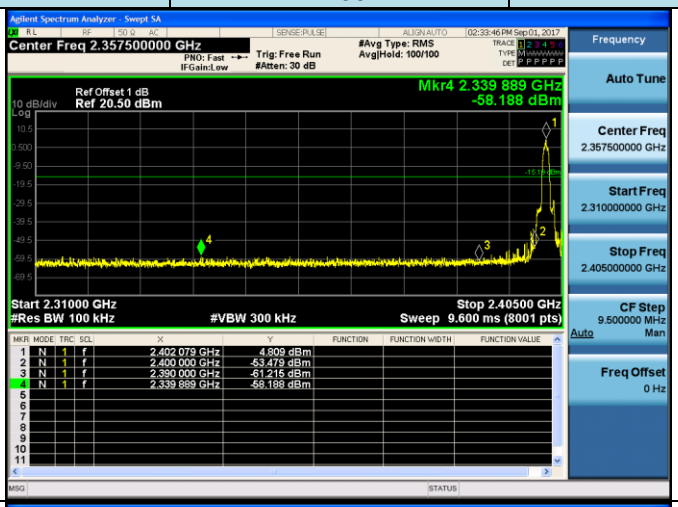
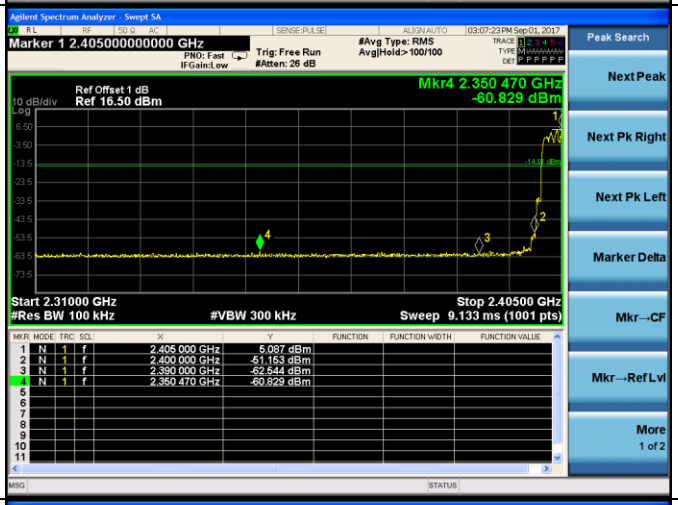
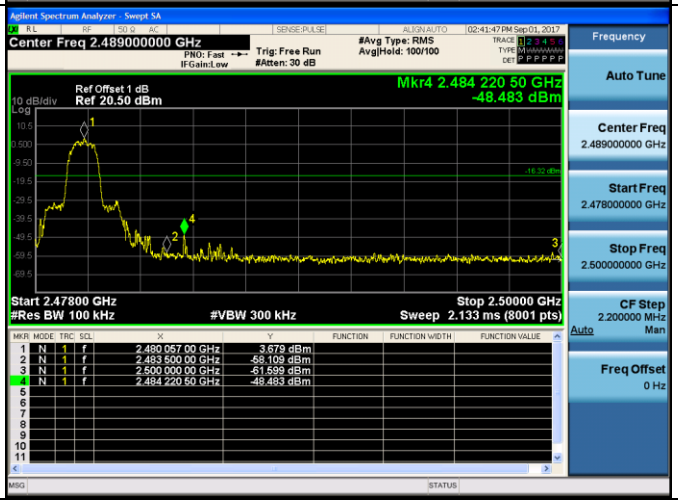
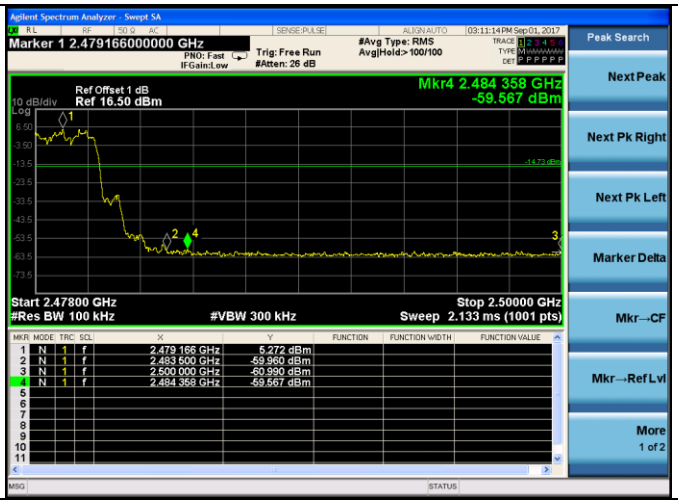
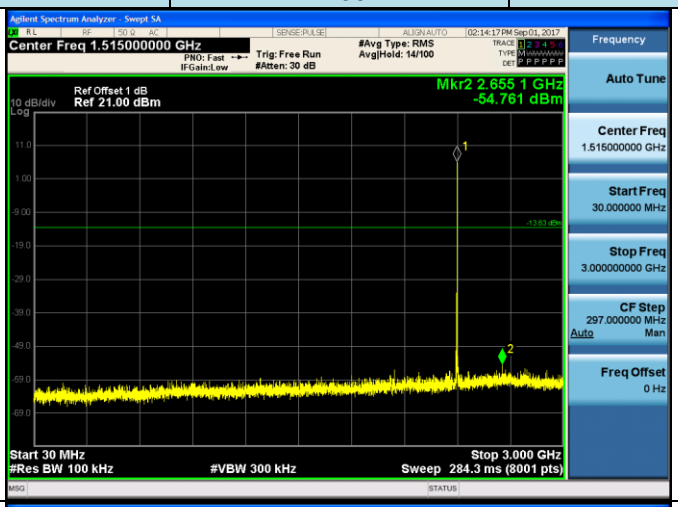
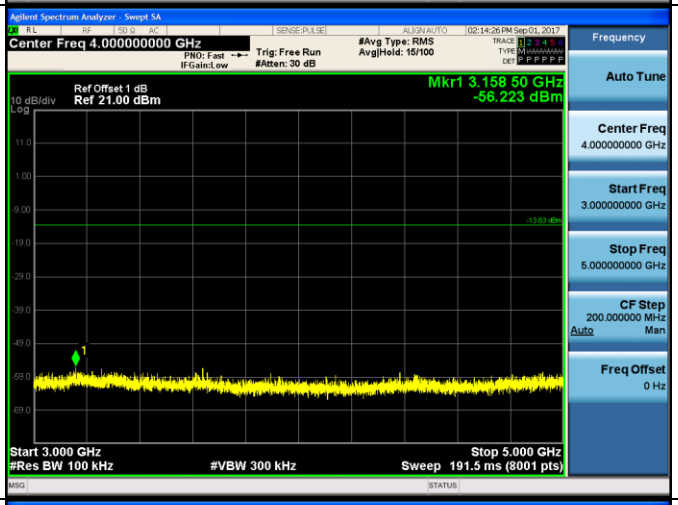
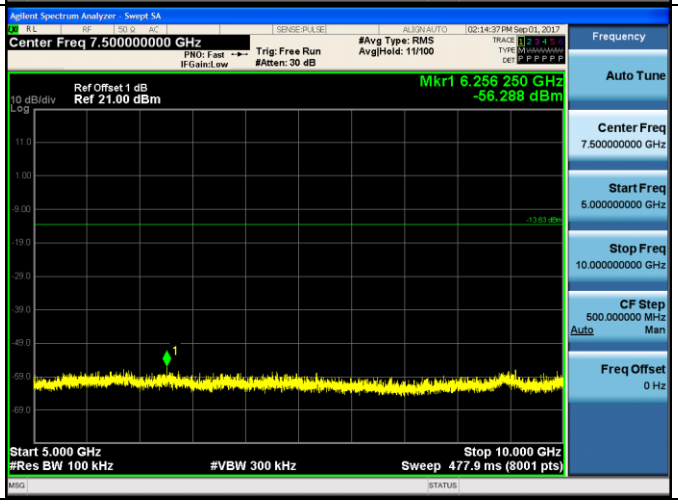
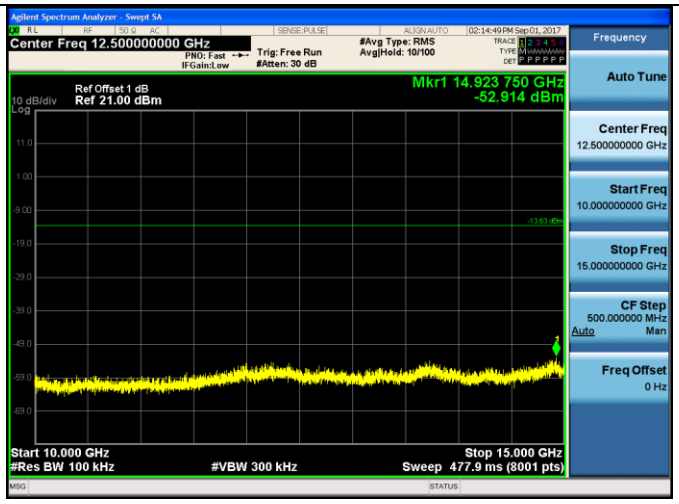
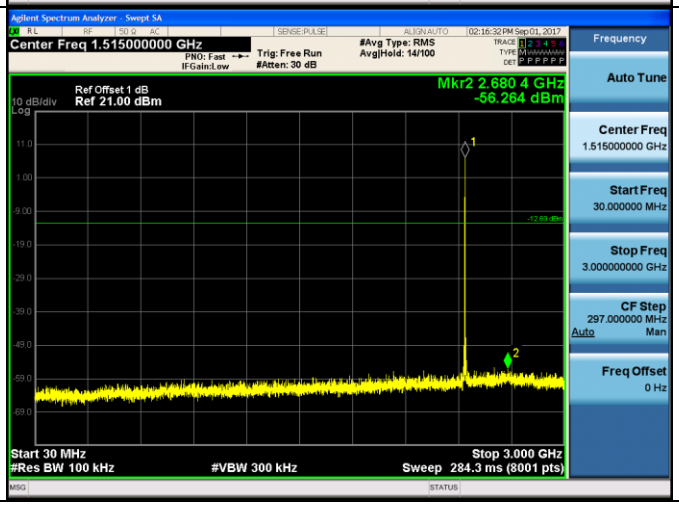
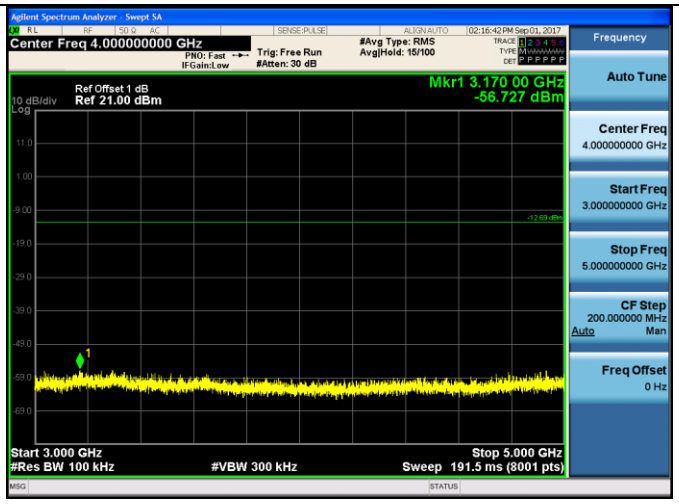
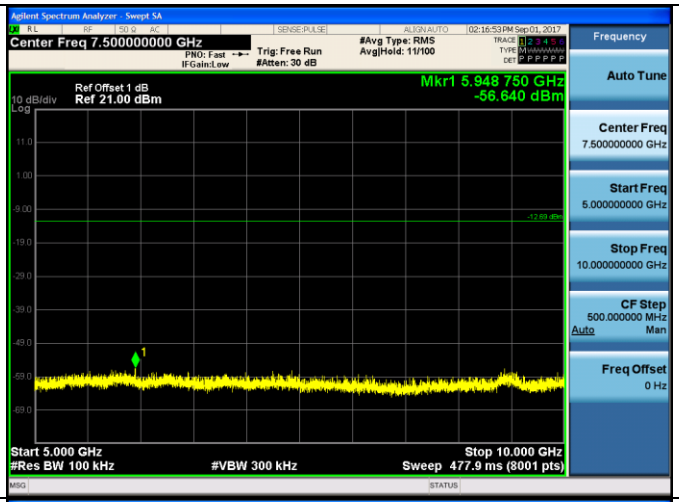
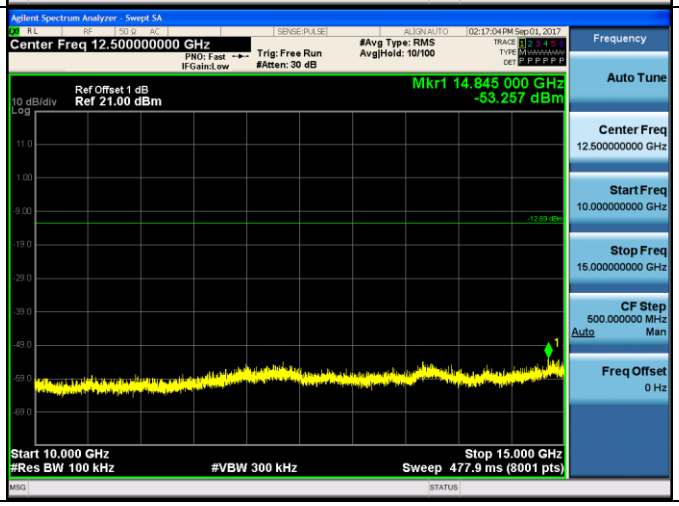
CH78 Hopping mode		

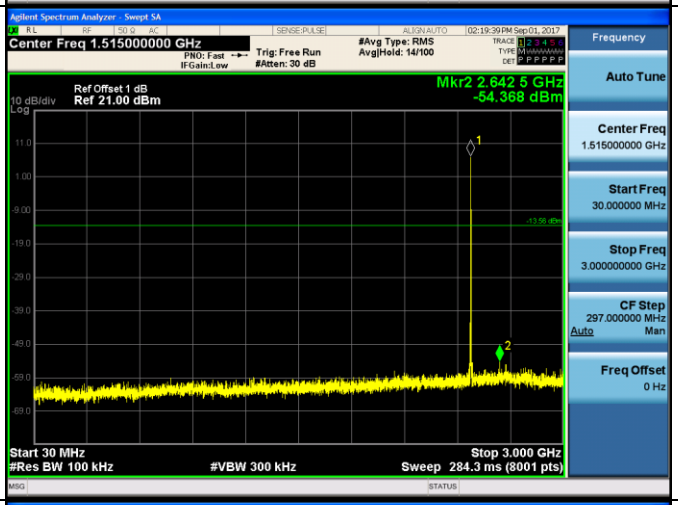
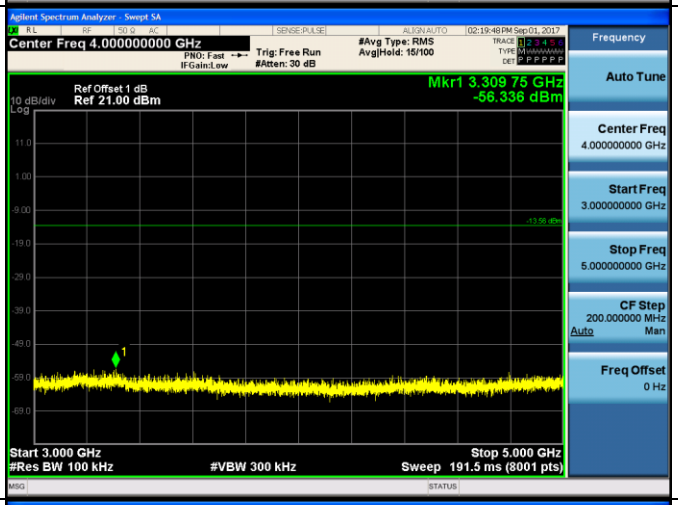
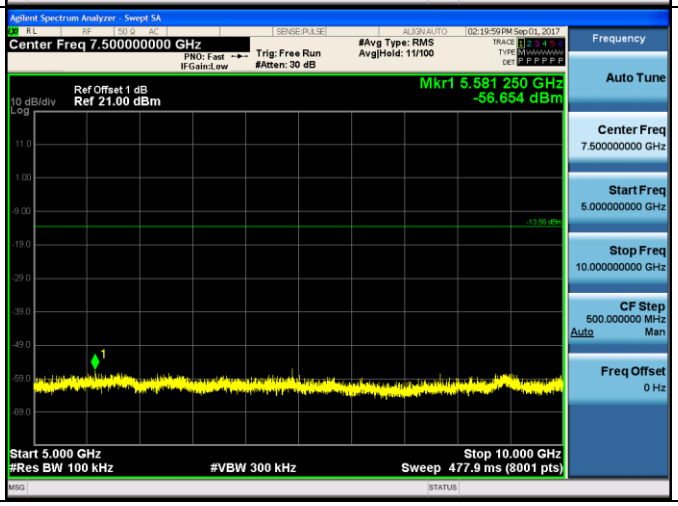
Test Item:	Band edge	Modulation type:	8DPSK
CH00 No hopping mode		
CH00 Hopping mode		
CH78 No hopping mode		

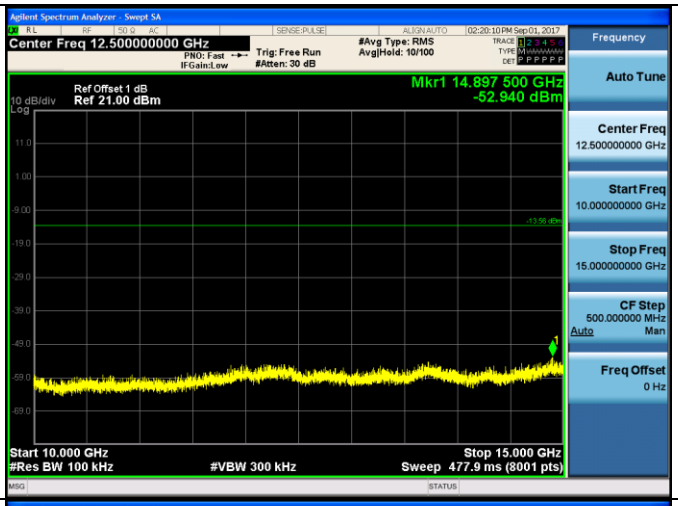
CH78 Hoppig mode		

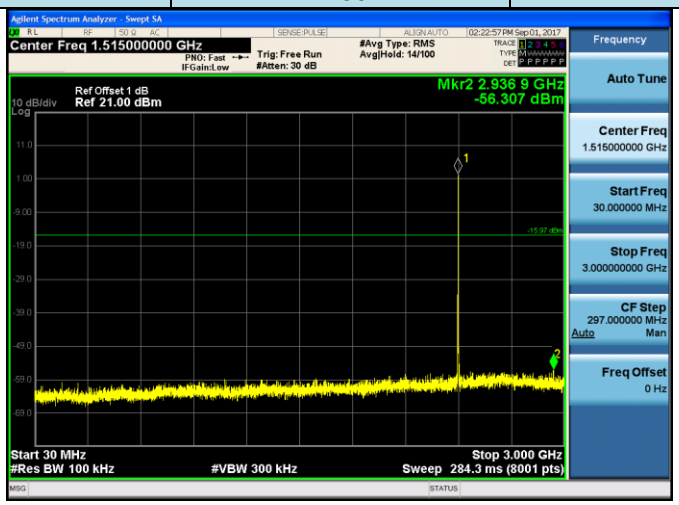
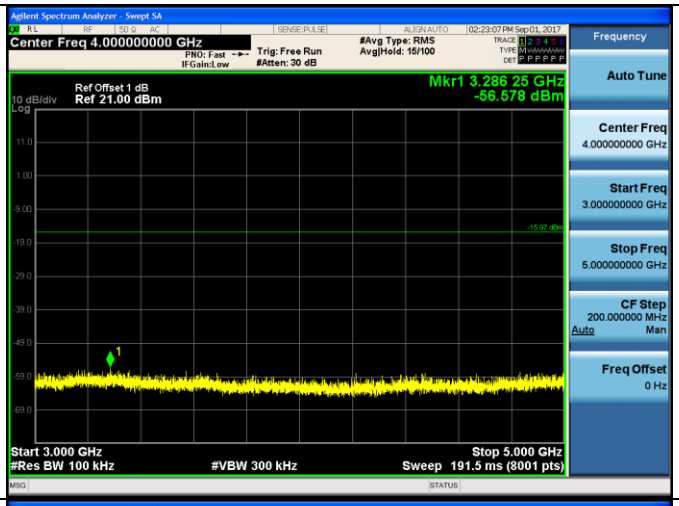
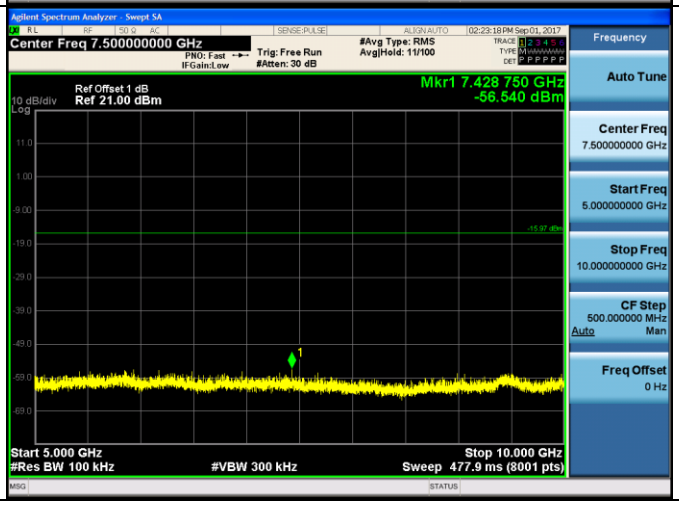
Test Item:	SE	Modulation type:	GFSK
CH00 30MHz~3GHz		
CH00 3GHz~5GHz		
CH00 5GHz~10GHz		

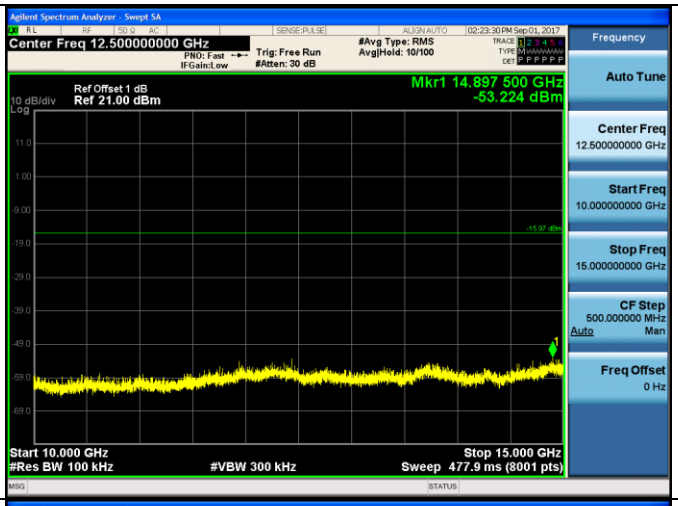
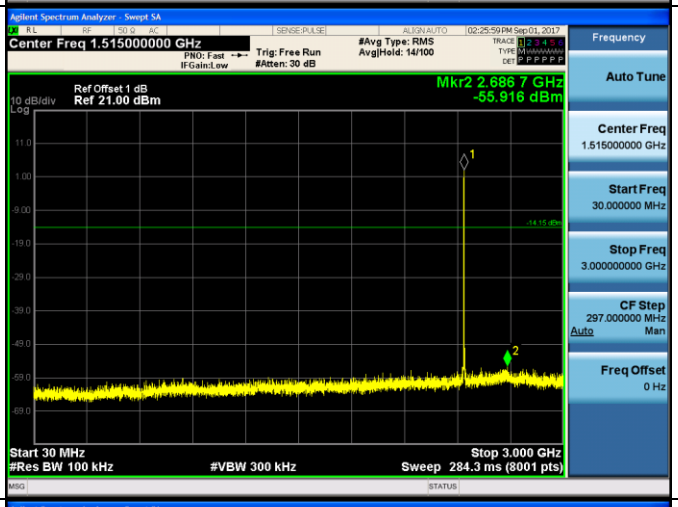
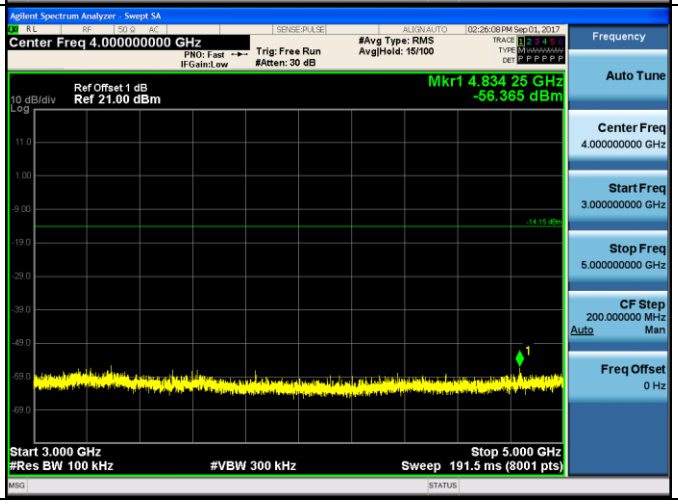
CH00 10GHz~15GHz		
CH00 15GHz~25GHz		
CH39 30MHz~3GHz		

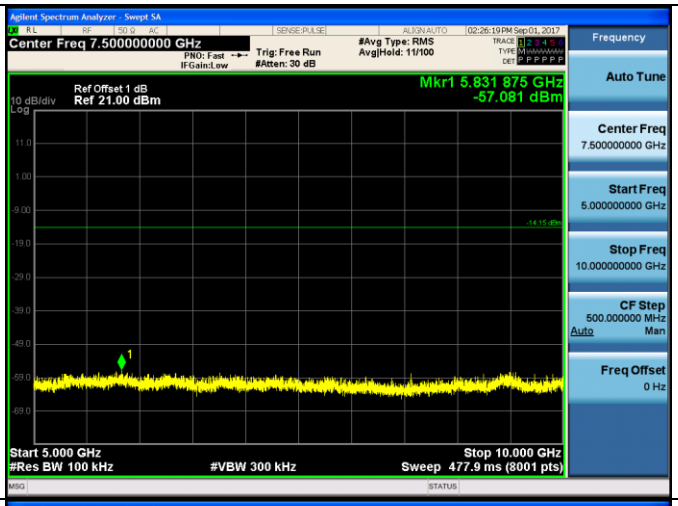
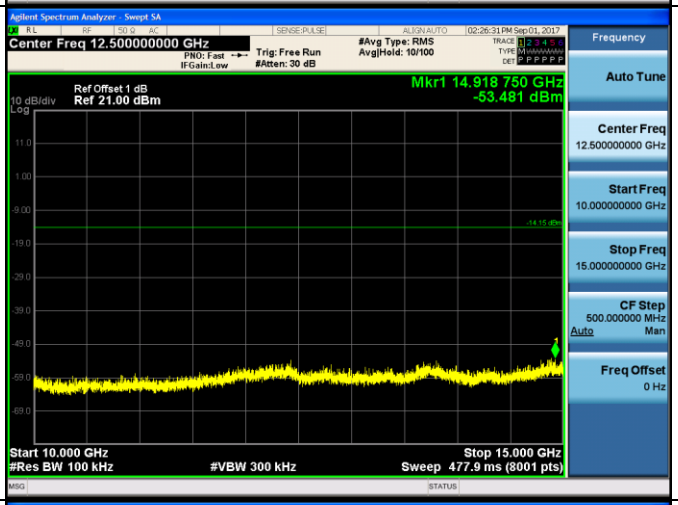
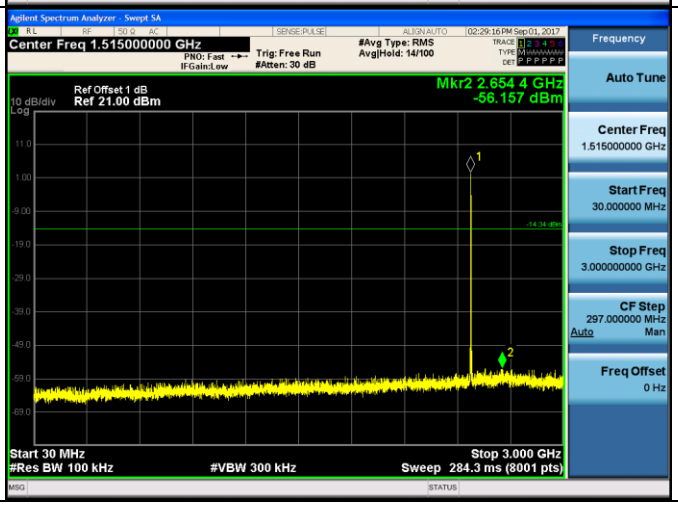
CH39 3GHz~5GHz		
CH39 5GHz~10GHz		
CH39 10GHz~15GHz		

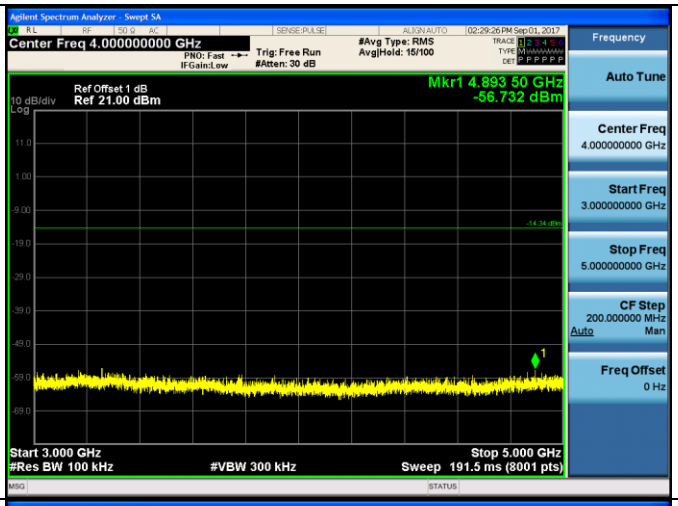
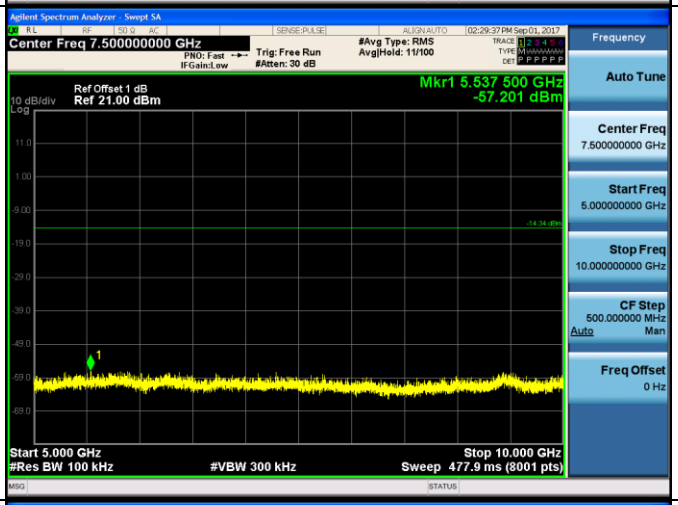
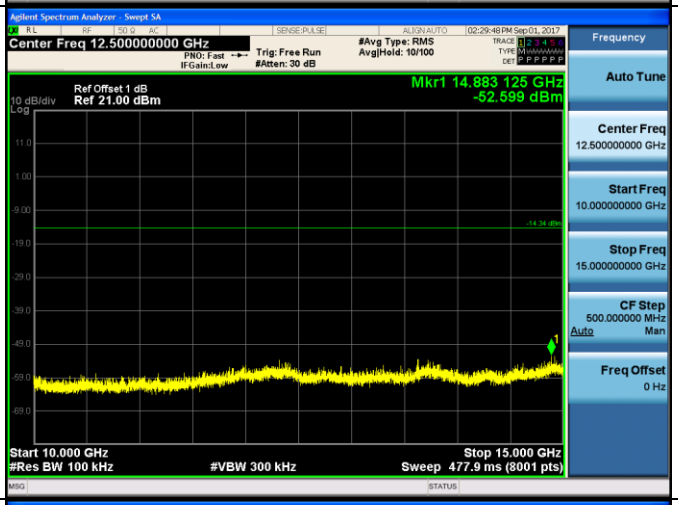
CH39 15GHz~25GHz		
CH78 30MHz~3GHz		
CH78 3GHz~5GHz		
CH78 5GHz~10GHz		

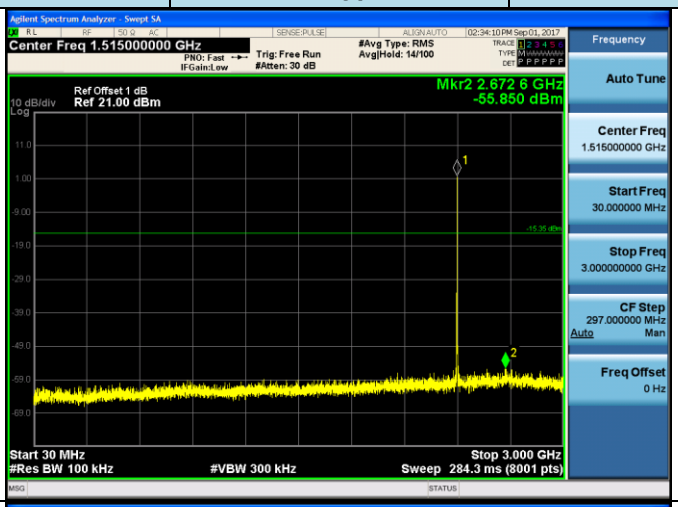
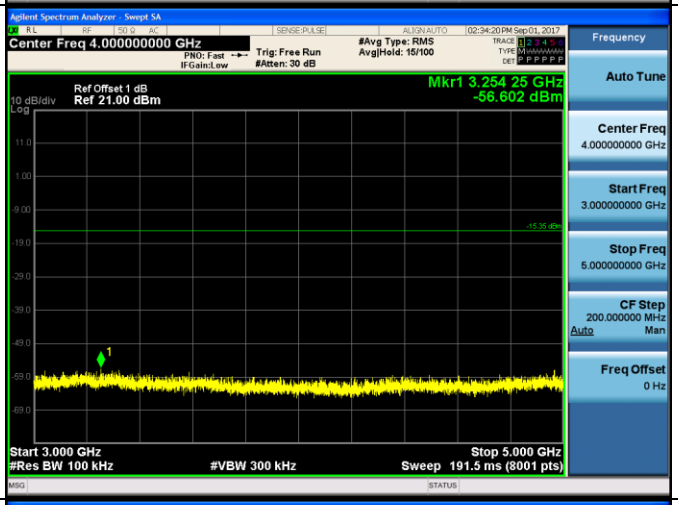
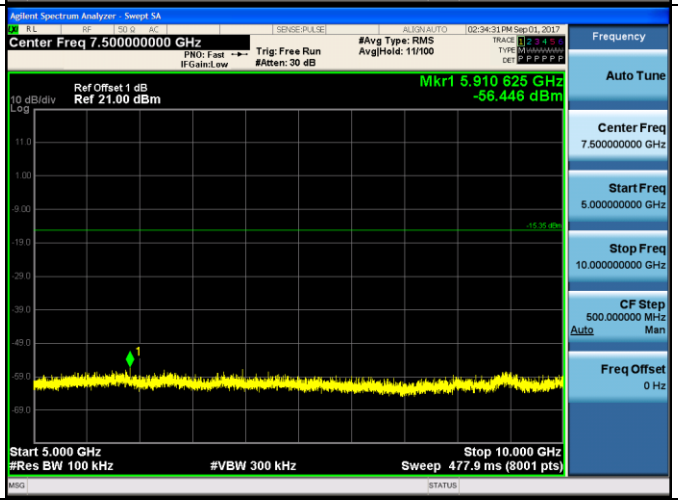
CH78 10GHz~15GHz			
CH78 15GHz~25GHz			

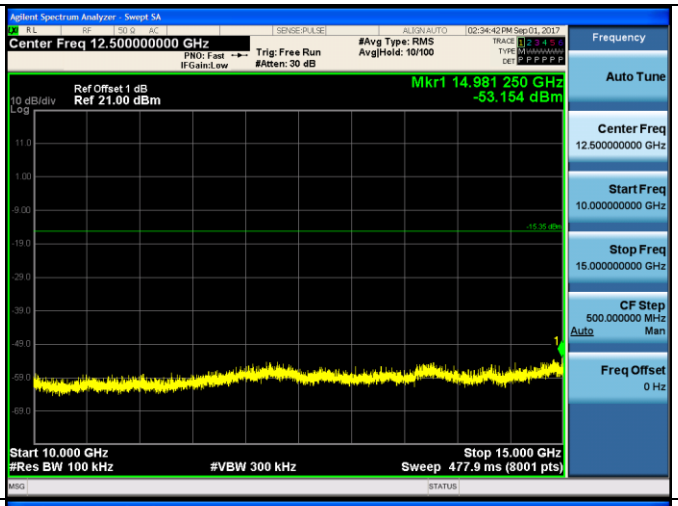
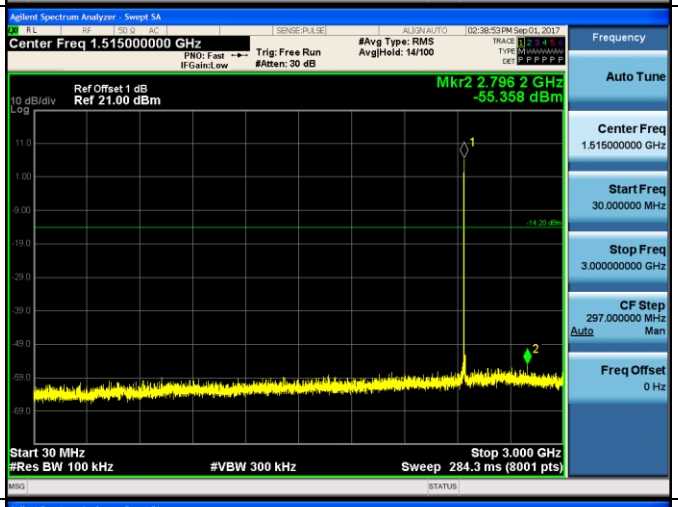
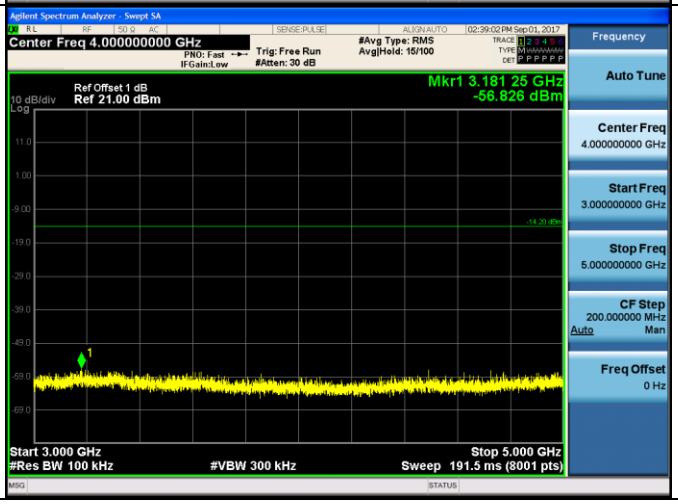
Test Item:	SE	Modulation type:	π/4DQPSK
CH00 30MHz~3GHz	
CH00 3GHz~5GHz	
CH00 5GHz~10GHz	

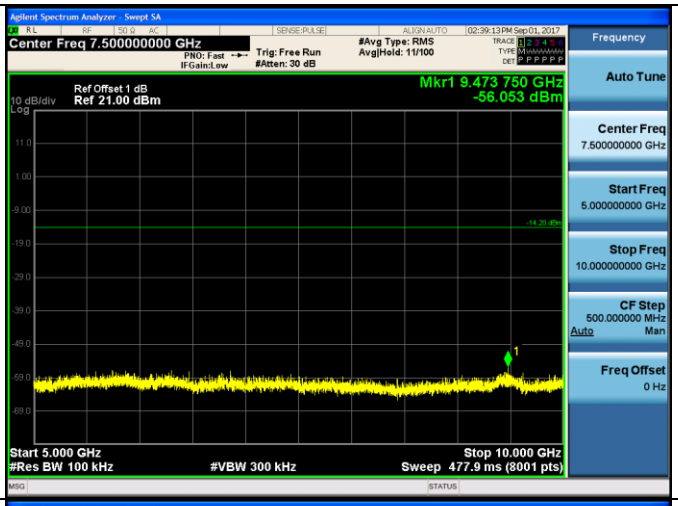
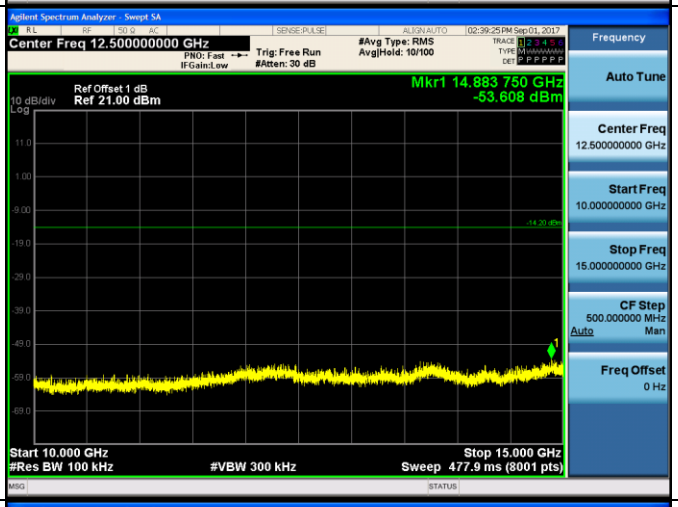
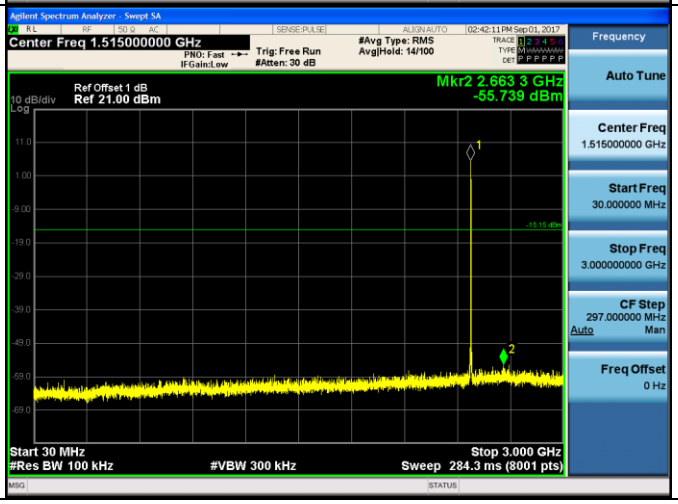
CH00 10GHz~15GHz		
CH00 15GHz~25GHz		
CH39 30MHz~3GHz		
CH39 3GHz~5GHz		

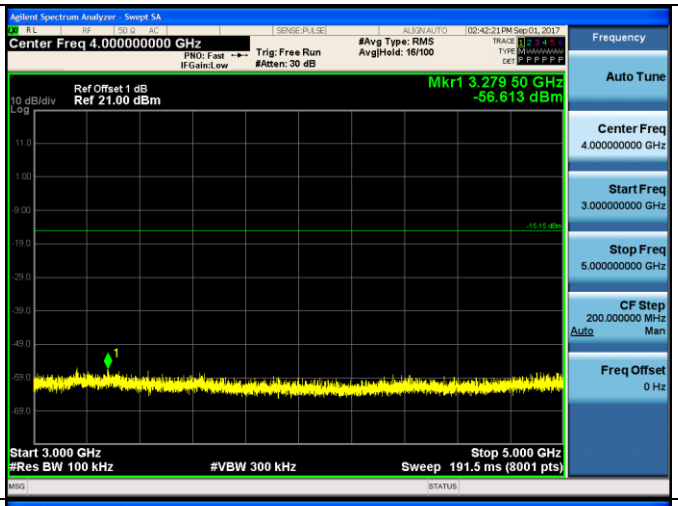
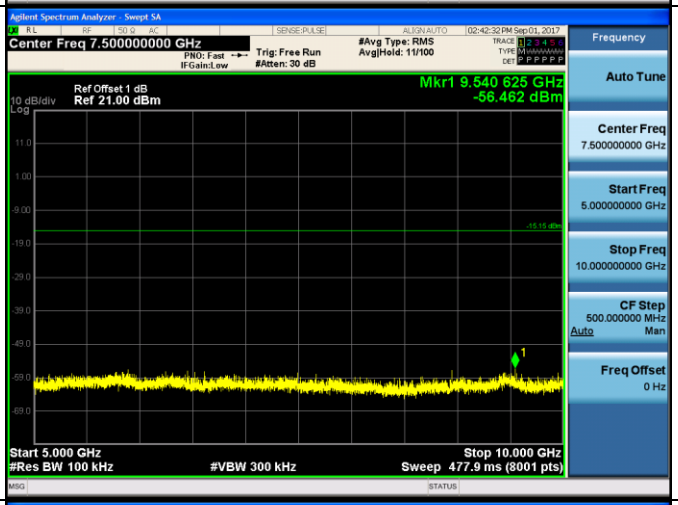
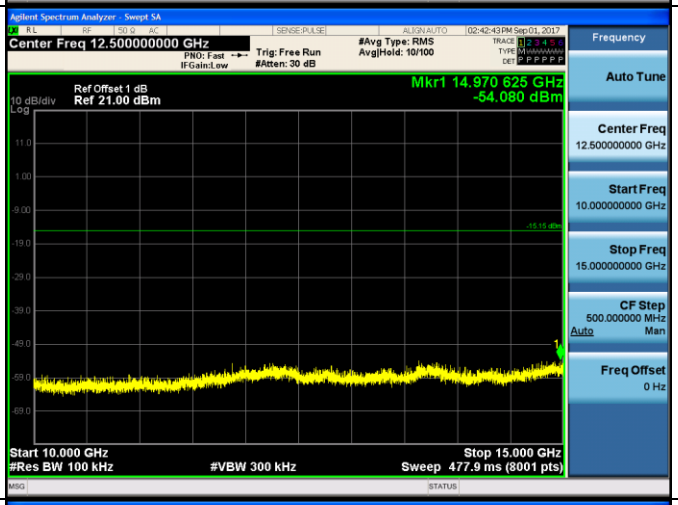
CH39 5GHz~10GHz		
CH39 10GHz~15GHz		
CH39 15GHz~25GHz		
CH78 30MHz~3GHz		

CH78 3GHz~5GHz		
CH78 5GHz~10GHz		
CH78 10GHz~15GHz		
CH78 15GHz~25GHz		

Test Item:	SE	Modulation type:	8DPSK
CH00 30MHz~3GHz		
CH00 3GHz~5GHz		
CH00 5GHz~10GHz		

CH00 10GHz~15GHz			
CH00 15GHz~25GHz			
CH39 30MHz~3GHz			
CH39 3GHz~5GHz			

CH39 5GHz~10GHz		
CH39 10GHz~15GHz		
CH39 15GHz~25GHz		
CH78 30MHz~3GHz		

CH78 3GHz~5GHz		
CH78 5GHz~10GHz		
CH78 10GHz~15GHz		
CH78 15GHz~25GHz		

5.11. Spurious Emissions (radiated)

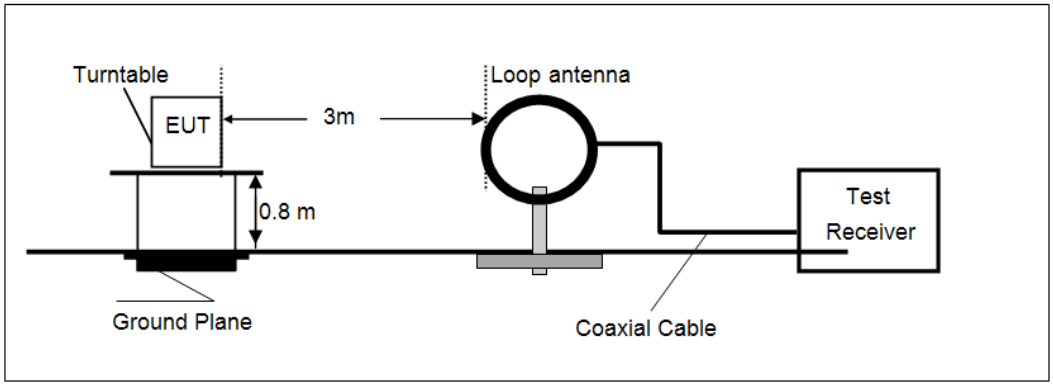
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.209

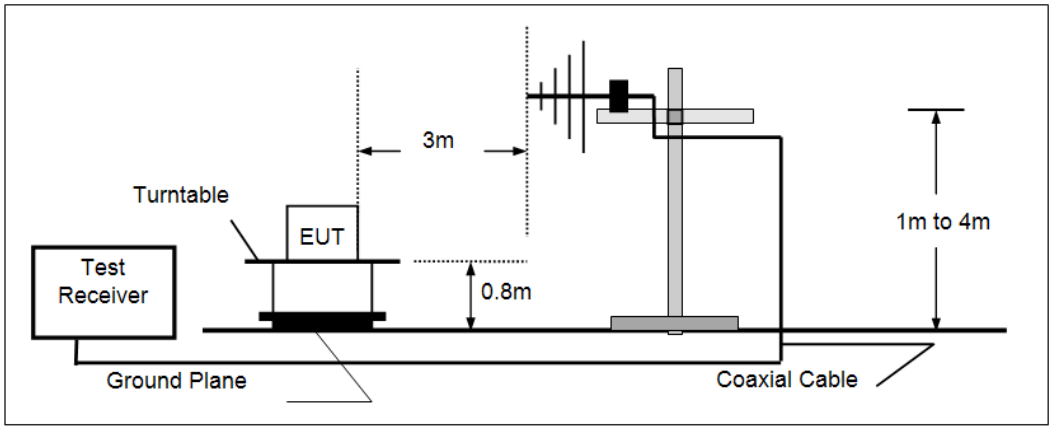
Frequency	Limit (dBuV/m @3m)	Value
30 MHz ~ 88 MHz	40.00	Quasi-peak
88 MHz ~ 216 MHz	43.50	Quasi-peak
216 MHz ~ 960 MHz	46.00	Quasi-peak
960 MHz ~ 1 GHz	54.00	Quasi-peak
Above 1 GHz	54.00	Average
	74.00	Peak

TEST CONFIGURATION

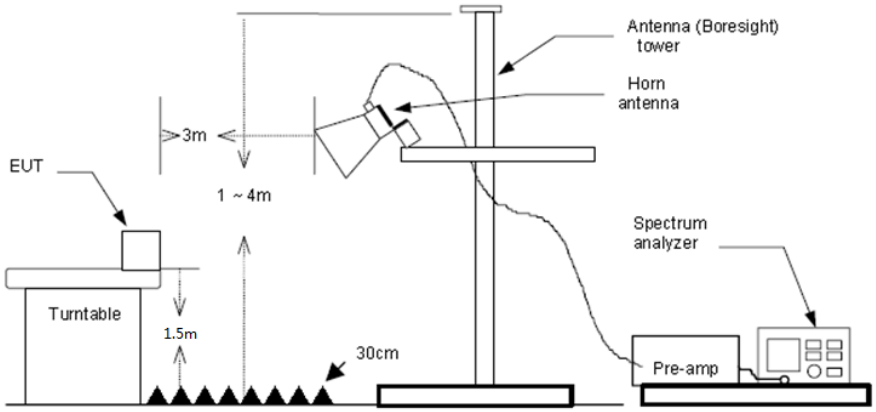
- Below 30 MHz



- 30 MHz ~1000 MHz



- Above 1 GHz



TEST PROCEDURE

1. The EUT was tested according to ANSI C63.10:2013.
2. The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna.
5. Use the following spectrum analyzer settings
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Below 1 GHz, RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;
   If the emission level of the EUT measured by the peak detectoris 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
   (3) Above 1 GHz, RBW=1 MHz, VBW=3 MHz Peak detector for Peak value
   RBW=1 MHz, VBW=10 Hz Peak detector for Average value.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

Note:

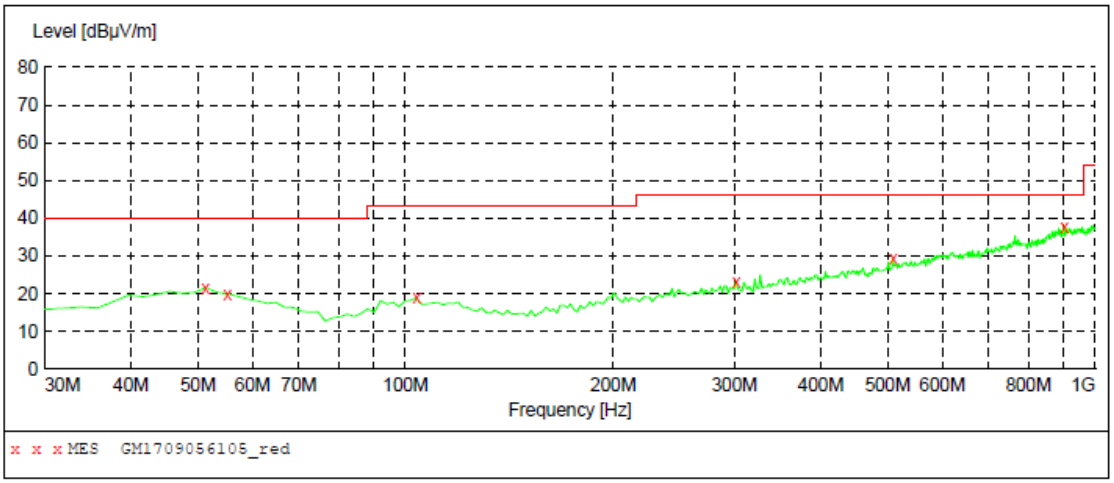
1) Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2) The emission levels of other frequencies are very lower than the limit and not show in test report.
3) Below 1 GHz,Have pre-scan all modulation mode, found the GFSK modulation Mid channel which it was worst case, so only the worst case's data on the test report.
4) Above 1 GHz,Have pre-scan all modulation mode, found the GFSK modulation which it was worst case, so only the worst case's data on the test report
5) The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.

➢ **9 kHz ~ 30 MHz**

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

➢ **30 MHz ~ 1 GHz**

Polarization:	Vertical

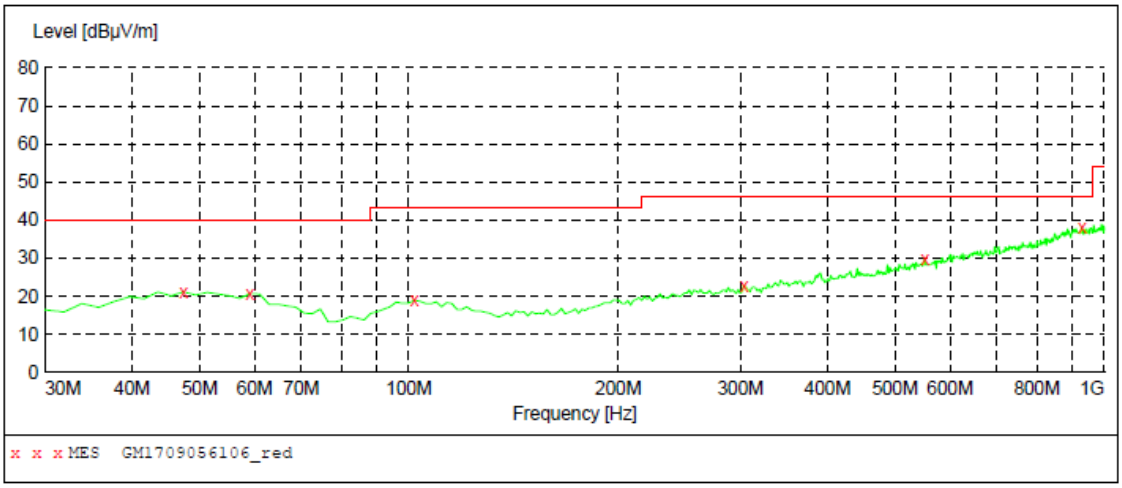


MEASUREMENT RESULT: "GM1709056105_red"

9/5/2017 9:23PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
51.340000	21.60	-8.8	40.0	18.4	QP	100.0	177.00	VERTICAL
55.220000	20.00	-9.2	40.0	20.0	QP	100.0	85.00	VERTICAL
103.720000	18.90	-10.5	43.5	24.6	QP	100.0	360.00	VERTICAL
301.600000	23.10	-7.2	46.0	22.9	QP	100.0	190.00	VERTICAL
509.180000	29.30	-1.5	46.0	16.7	QP	100.0	113.00	VERTICAL
901.060000	37.80	6.7	46.0	8.2	QP	100.0	45.00	VERTICAL

Polarization:	Horizontal



MEASUREMENT RESULT: "GM1709056106_red"

9/5/2017 9:26PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
47.460000	21.20	-8.8	40.0	18.8	QP	100.0	0.00	HORIZONTAL
59.100000	20.70	-9.8	40.0	19.3	QP	100.0	237.00	HORIZONTAL
101.780000	18.90	-10.5	43.5	24.6	QP	100.0	130.00	HORIZONTAL
303.540000	22.90	-7.2	46.0	23.1	QP	100.0	199.00	HORIZONTAL
551.860000	29.70	-0.7	46.0	16.3	QP	100.0	261.00	HORIZONTAL
928.220000	38.00	7.1	46.0	8.0	QP	100.0	248.00	HORIZONTAL

➢ **Above 1 GHz**

CH00									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1491.30	37.72	25.81	5.26	36.58	32.21	74.00	-41.79	Vertical	Peak
3634.91	36.41	29.30	8.31	38.26	35.76	74.00	-38.24	Vertical	Peak
4809.50	60.77	31.58	9.55	36.93	64.97	74.00	-9.03	Vertical	Peak
7209.02	42.94	36.21	11.87	35.07	55.95	74.00	-18.05	Vertical	Peak
7209.02	23.81	36.21	11.87	35.07	36.82	54.00	-17.18	Vertical	Average
4809.50	40.01	31.58	9.55	36.93	44.21	54.00	-9.79	Vertical	Average
1472.44	36.40	25.83	5.21	36.55	30.89	74.00	-43.11	Horizontal	Peak
3534.54	36.19	29.10	8.17	38.36	35.10	74.00	-38.90	Horizontal	Peak
4809.50	58.80	31.58	9.55	36.93	63.00	74.00	-11.00	Horizontal	Peak
7209.02	42.56	36.21	11.87	35.07	55.57	74.00	-18.43	Horizontal	Peak
4809.50	47.67	31.58	9.55	36.93	51.87	54.00	-2.13	Horizontal	Average
7209.02	33.01	36.21	11.87	35.07	46.02	54.00	-7.98	Horizontal	Average

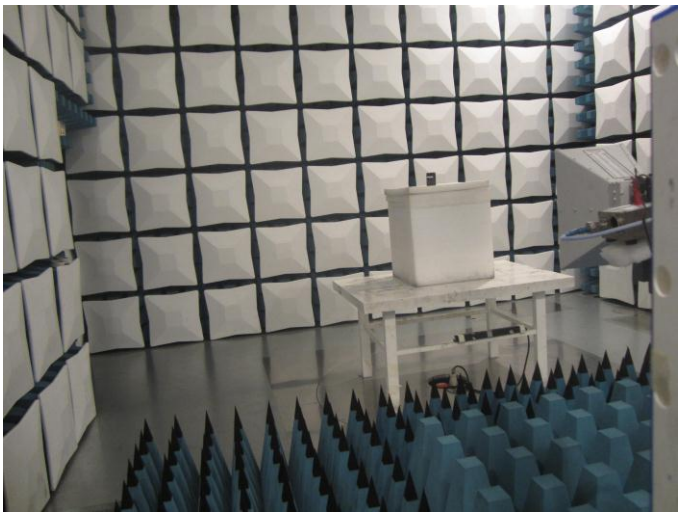
CH39									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1685.12	35.29	25.16	5.74	36.90	29.29	74.00	-44.71	Vertical	Peak
3570.71	34.82	29.21	8.22	38.31	33.94	74.00	-40.06	Vertical	Peak
4883.52	51.50	31.43	9.59	36.73	55.79	74.00	-18.21	Vertical	Peak
7009.96	32.34	35.33	11.85	34.80	44.72	74.00	-29.28	Vertical	Peak
4883.52	30.81	31.43	9.59	36.73	35.10	54.00	-18.90	Vertical	Average
1746.25	37.23	25.29	5.86	37.03	31.35	74.00	-42.65	Horizontal	Peak
3376.24	35.94	28.20	7.93	38.51	33.56	74.00	-40.44	Horizontal	Peak
4883.52	46.97	31.43	9.59	36.73	51.26	74.00	-22.74	Horizontal	Peak
8002.06	33.39	37.10	12.30	34.53	48.26	74.00	-25.74	Horizontal	Peak
4883.52	35.22	31.43	9.59	36.73	39.51	54.00	-14.49	Horizontal	Average

CH78									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1260.67	37.02	26.24	4.76	36.54	31.48	74.00	-42.52	Vertical	Peak
3570.71	35.09	29.21	8.22	38.31	34.21	74.00	-39.79	Vertical	Peak
4958.68	51.80	31.46	9.64	36.52	56.38	74.00	-17.62	Vertical	Peak
7451.57	35.58	36.20	12.24	34.86	49.16	74.00	-24.84	Vertical	Peak
4958.68	32.14	31.46	9.64	36.52	36.72	54.00	-17.28	Vertical	Average
1800.42	37.06	25.40	5.96	37.14	31.28	74.00	-42.72	Horizontal	Peak
3208.66	35.75	28.75	7.73	38.22	34.01	74.00	-39.99	Horizontal	Peak
4958.68	60.29	31.46	9.64	36.52	64.87	74.00	-9.13	Horizontal	Peak
7451.57	49.91	36.20	12.24	34.86	63.49	74.00	-10.51	Horizontal	Peak
7451.57	23.14	36.20	12.24	34.86	36.72	54.00	-17.28	Horizontal	Average
4958.68	27.36	31.46	9.64	36.52	31.94	54.00	-22.06	Horizontal	Average

6. TEST SETUP PHOTOS

Conducted Emissions (AC Mains)

Radiated Emissions



7. EXTERANAL AND INTERNAL PHOTOS

Reference to the test report No.: TRE1708019401.

.....End of Report.....