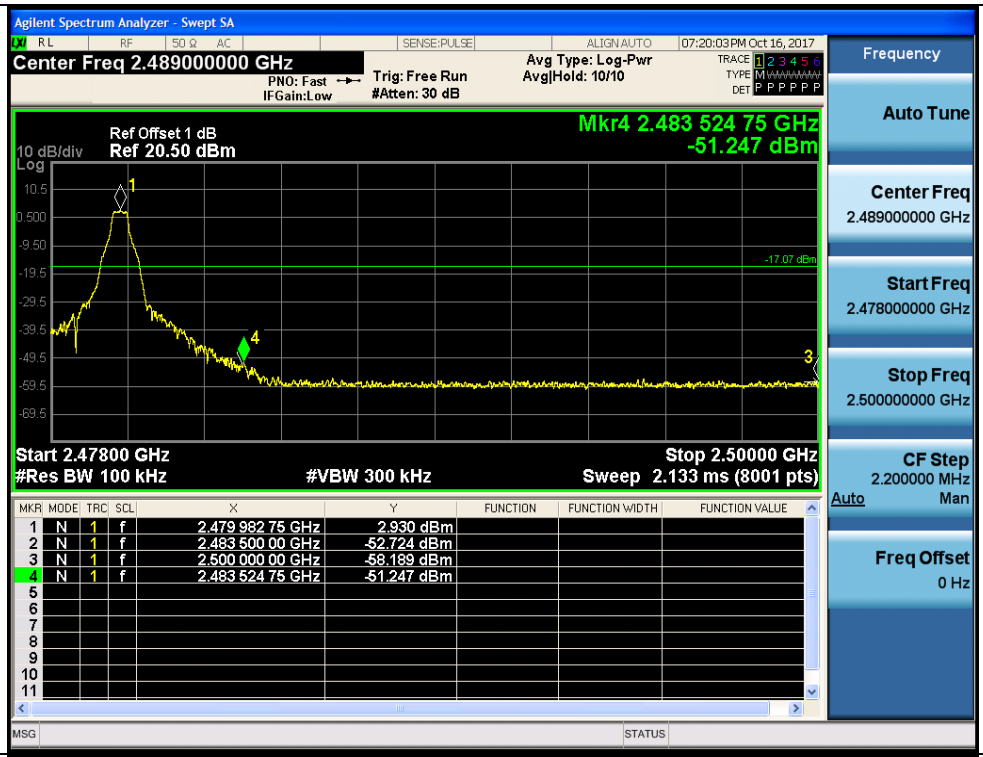
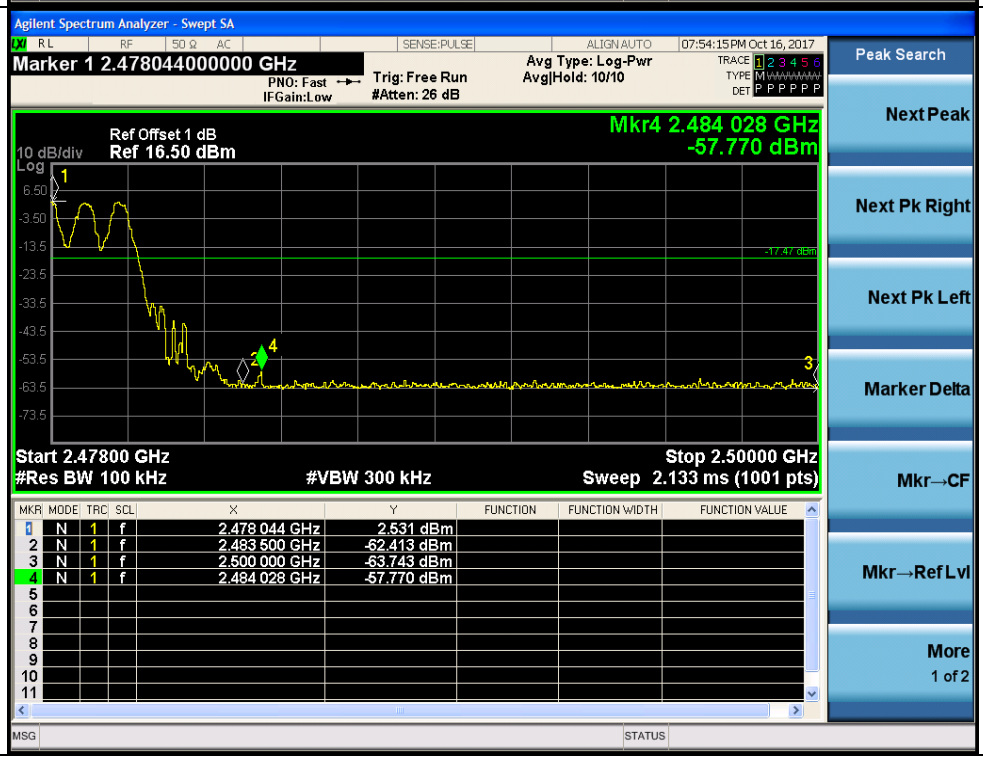
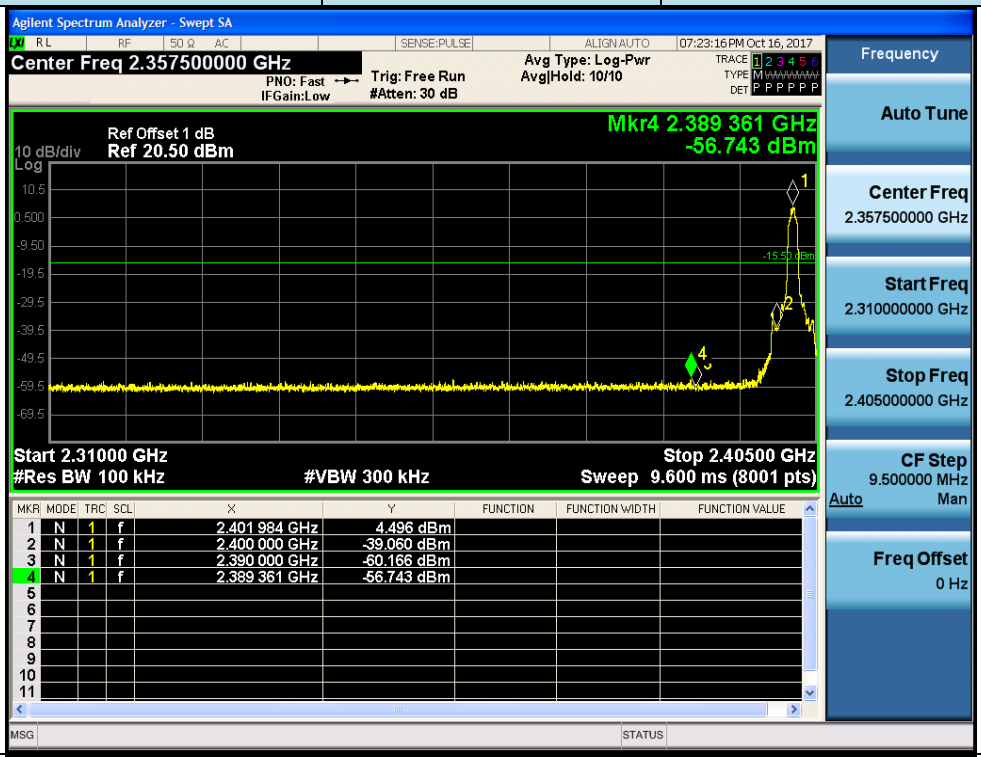
CH78 No hopping mode	
CH78 Hopping mode	

Test Item:	Band edge	Modulation type:	π/4DQPSK

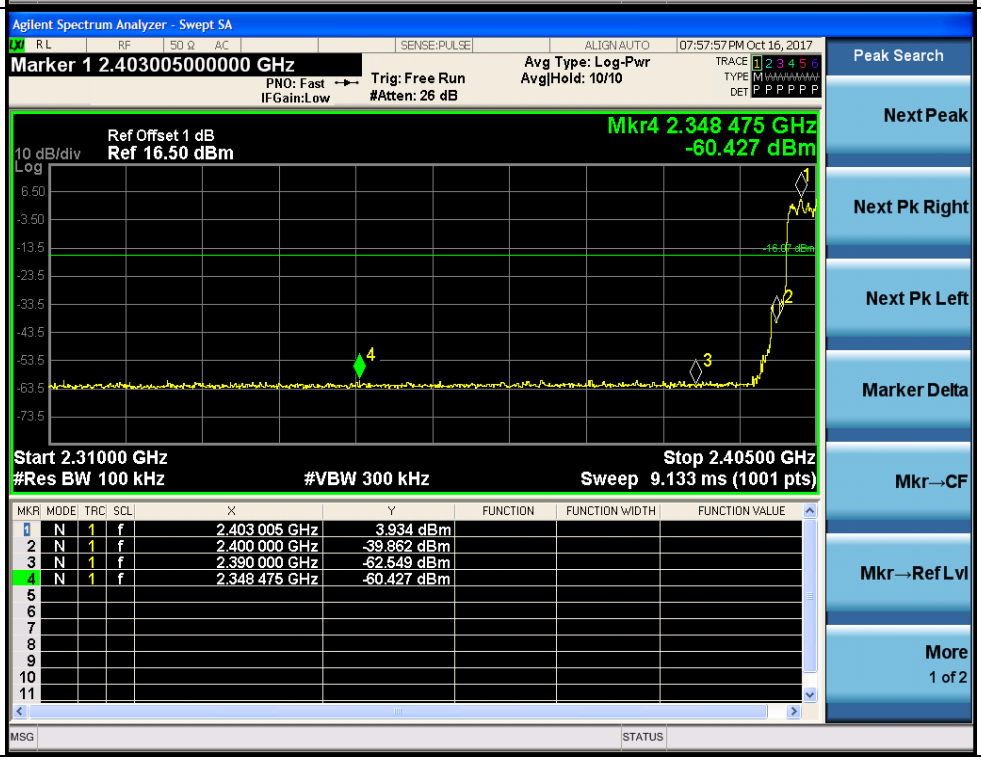
CH00

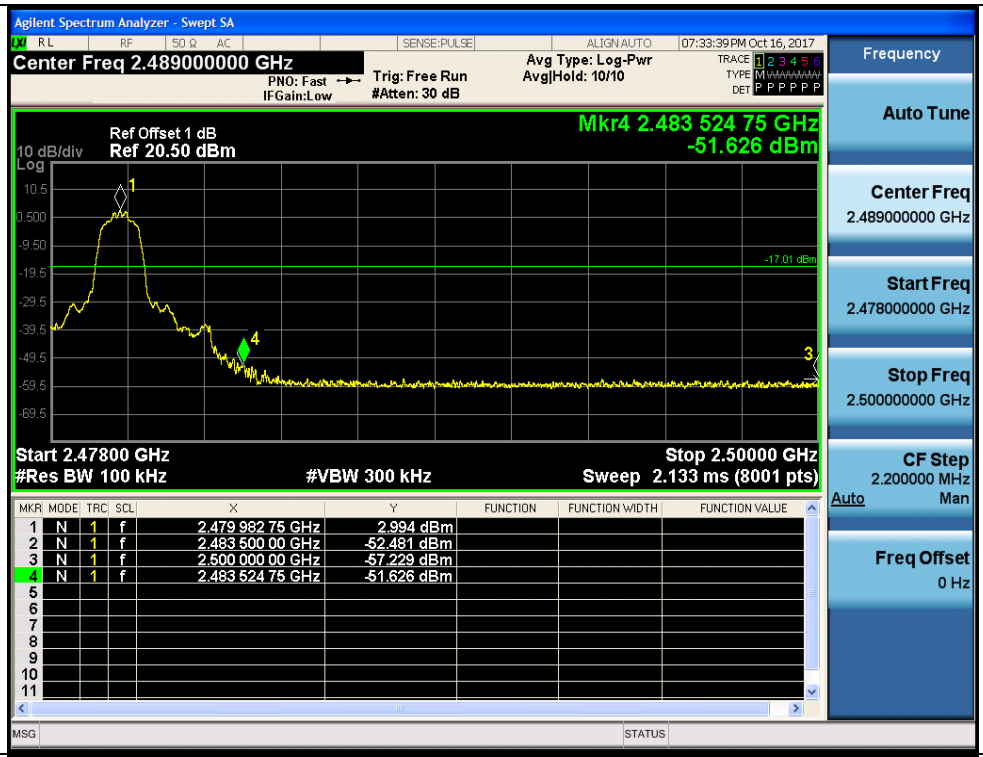
No hopping mode



CH00

Hopping mode

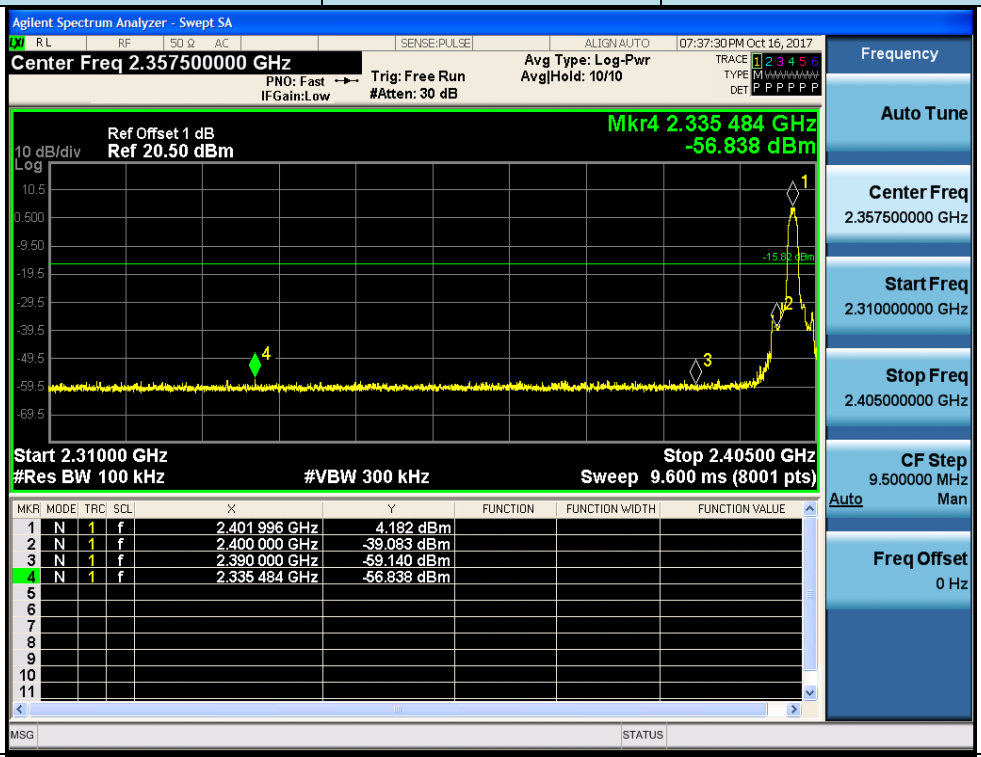


CH78 No hopping mode	
CH78 Hopping mode	

Test Item:	Band edge	Modulation type:	8DPSK

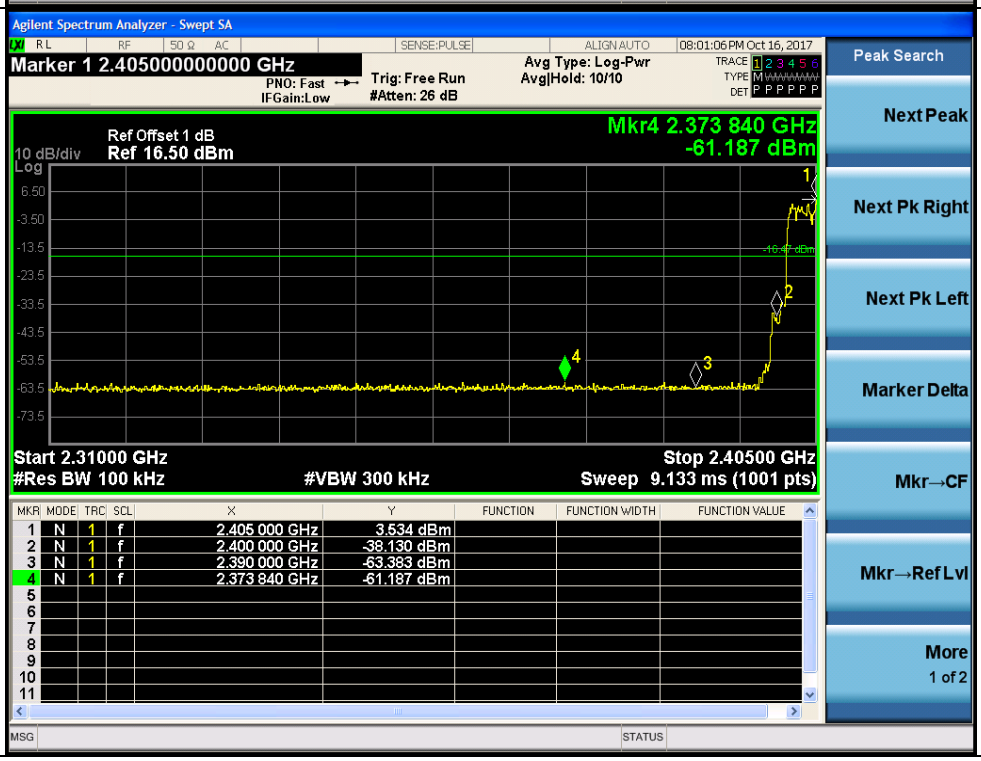
CH00

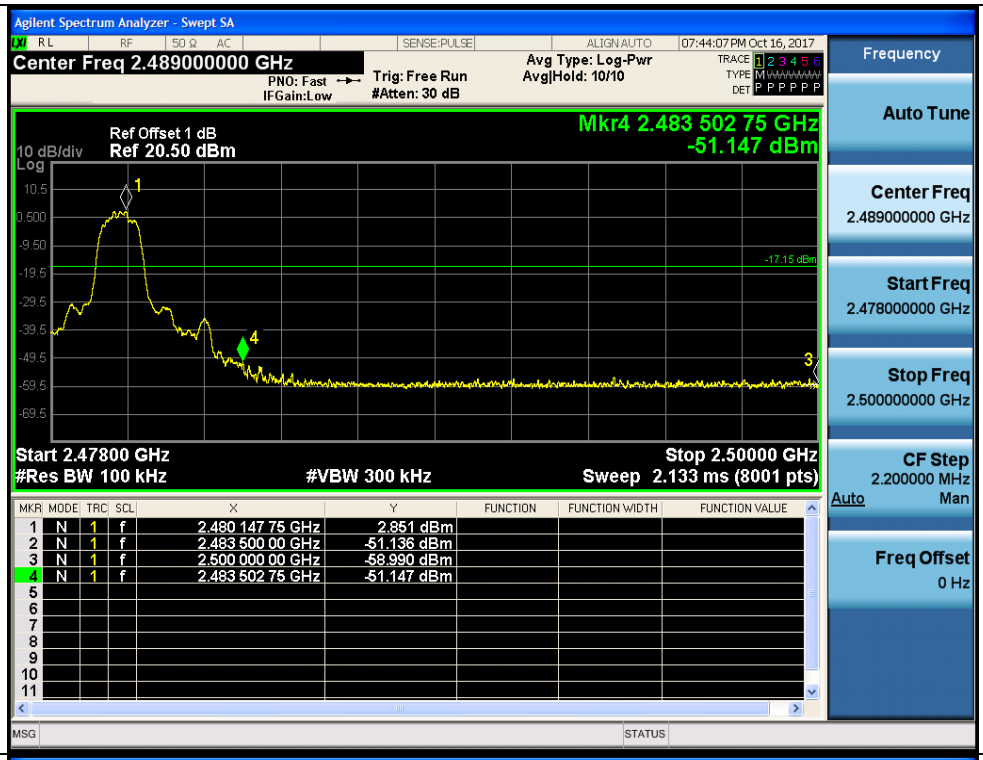
No hopping mode

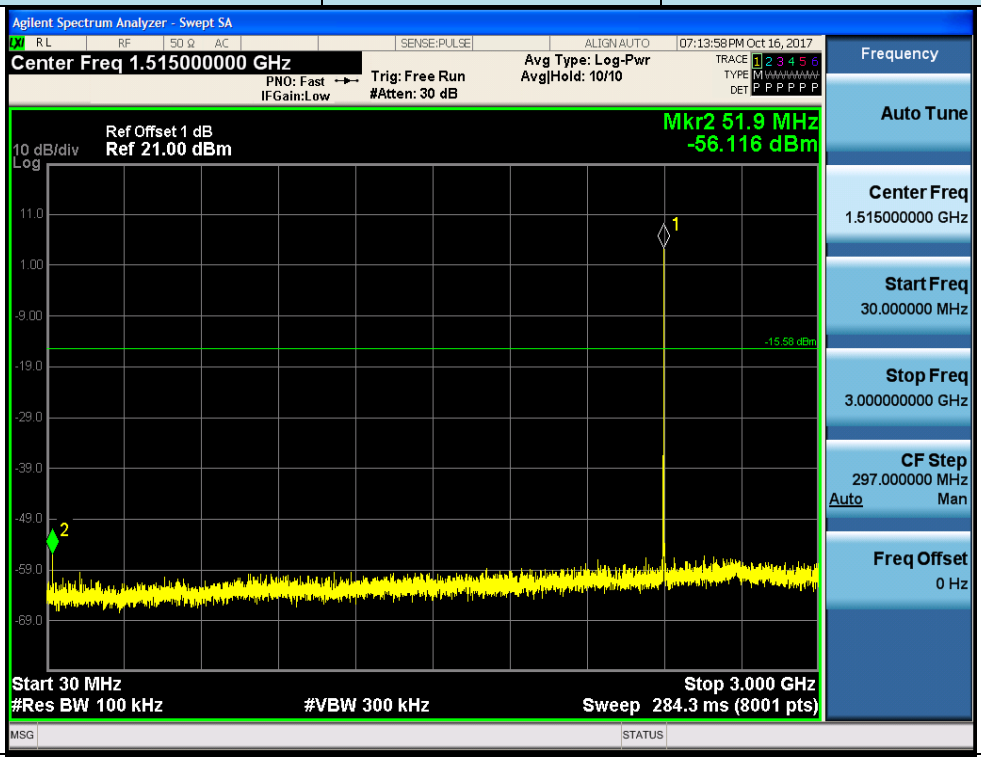
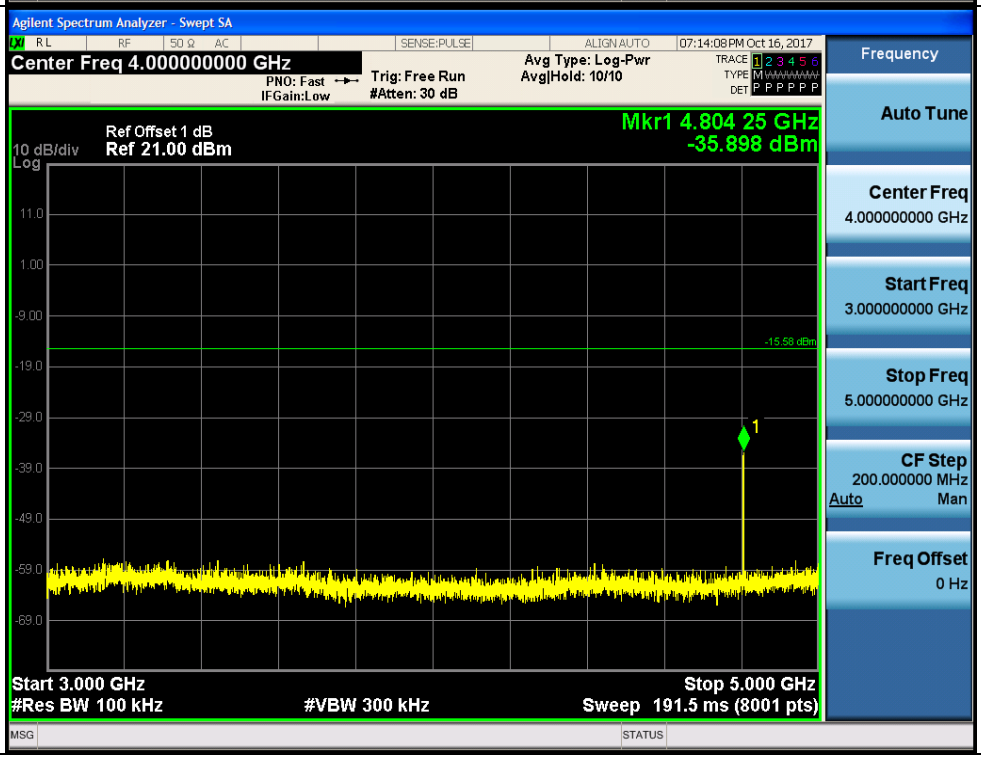


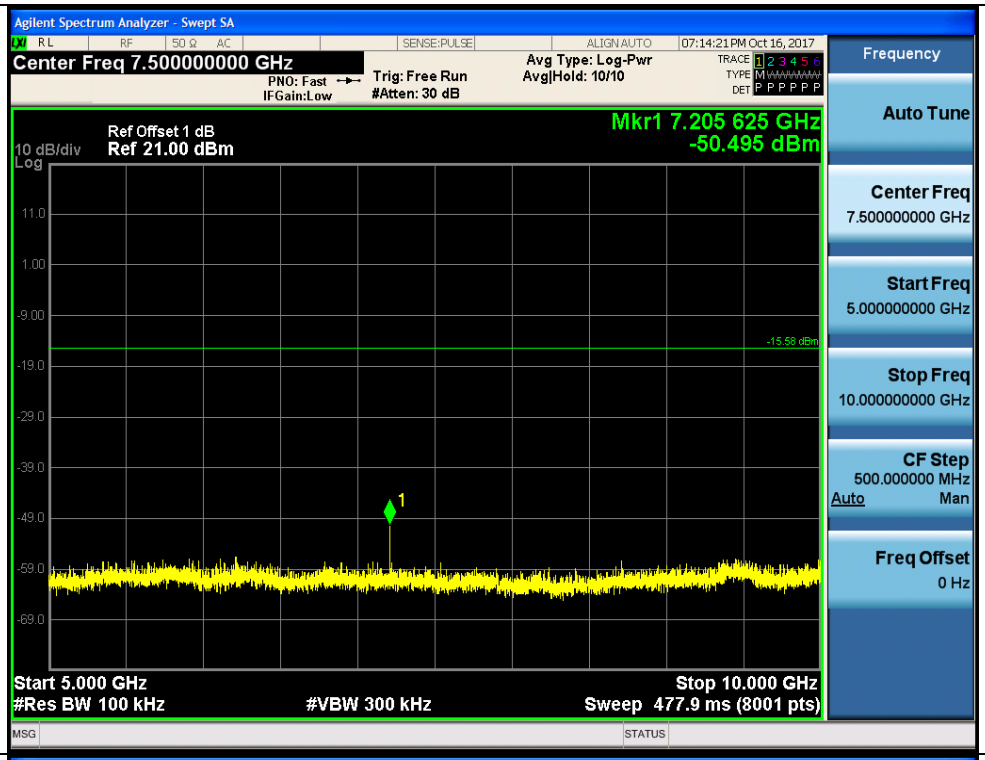
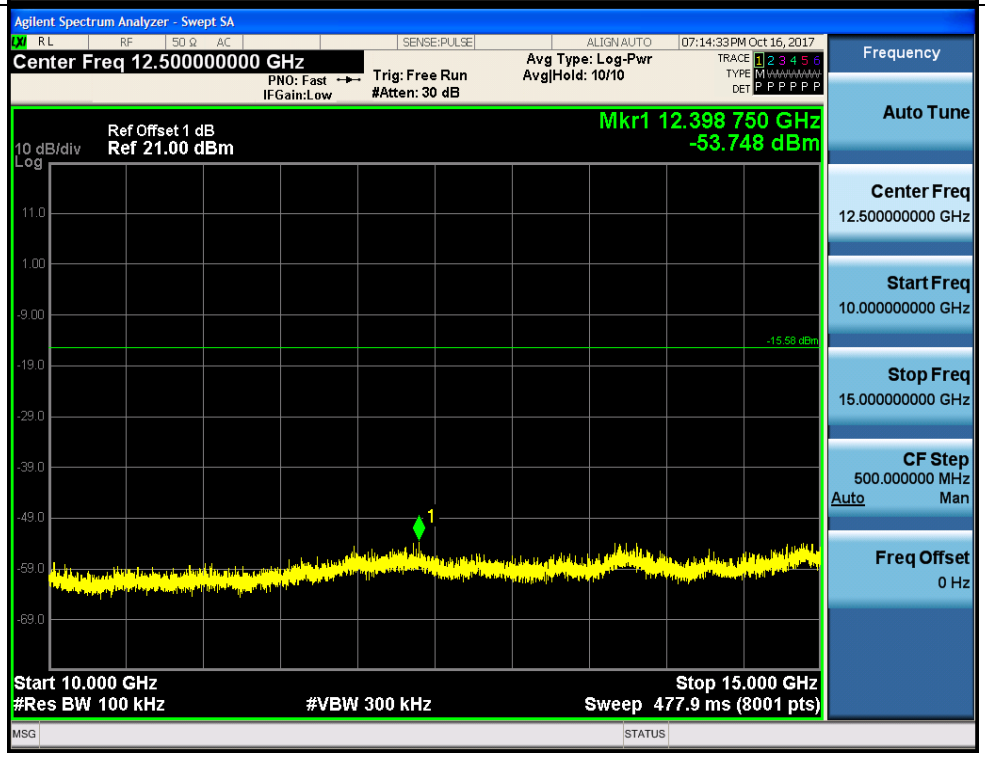
CH00

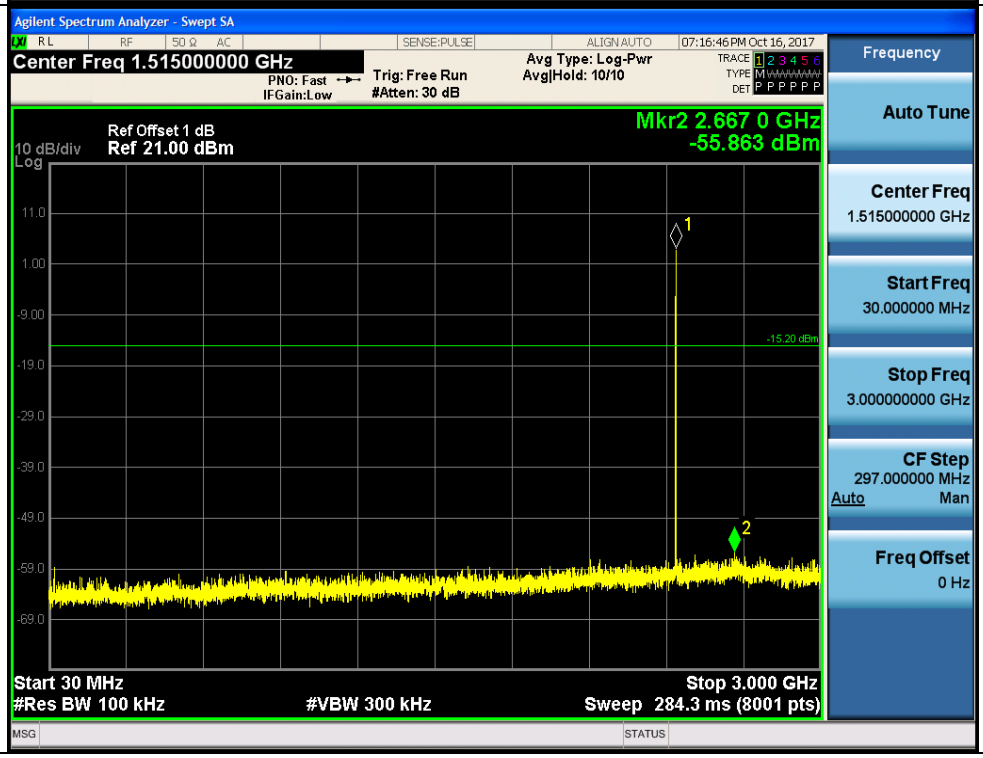
Hopping mode

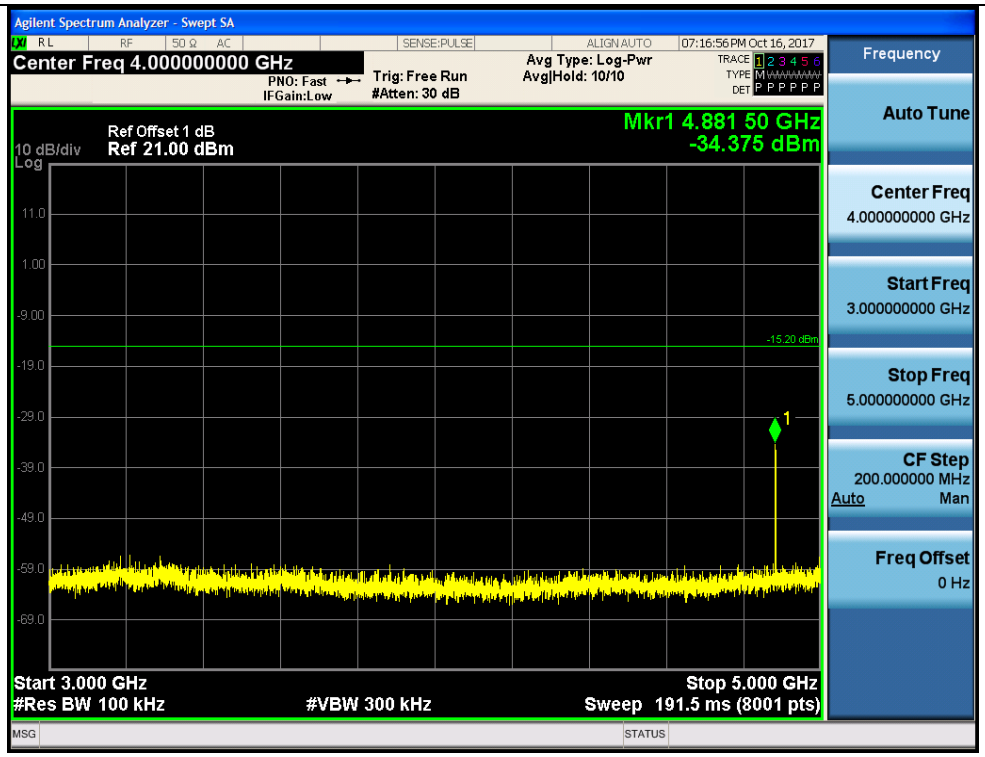
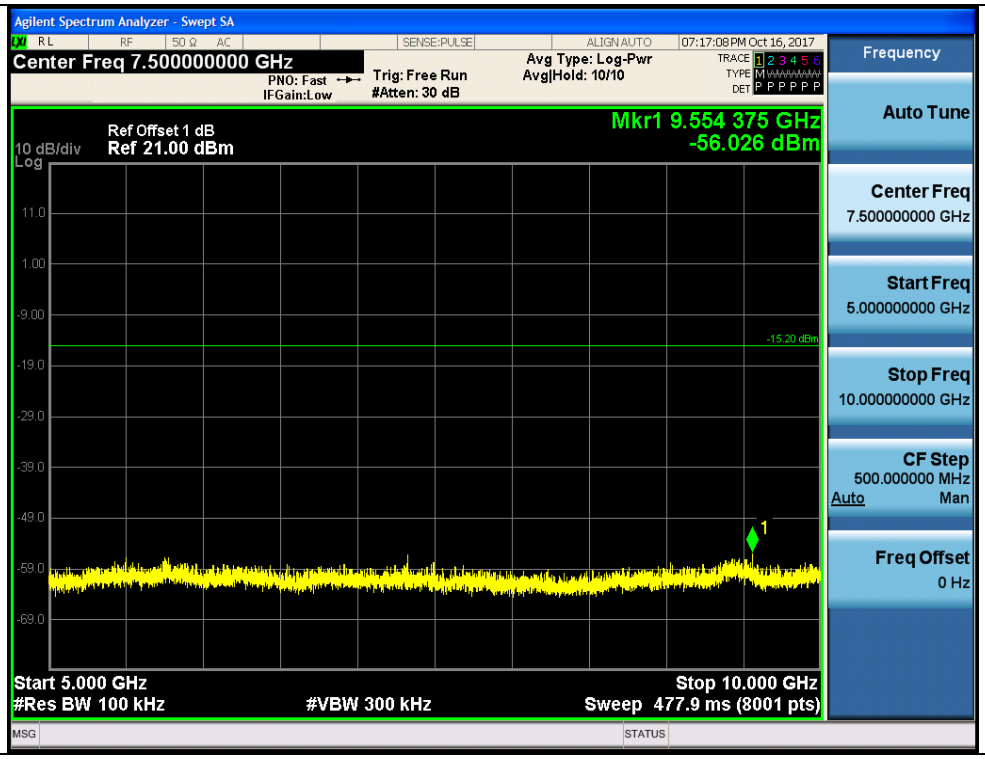


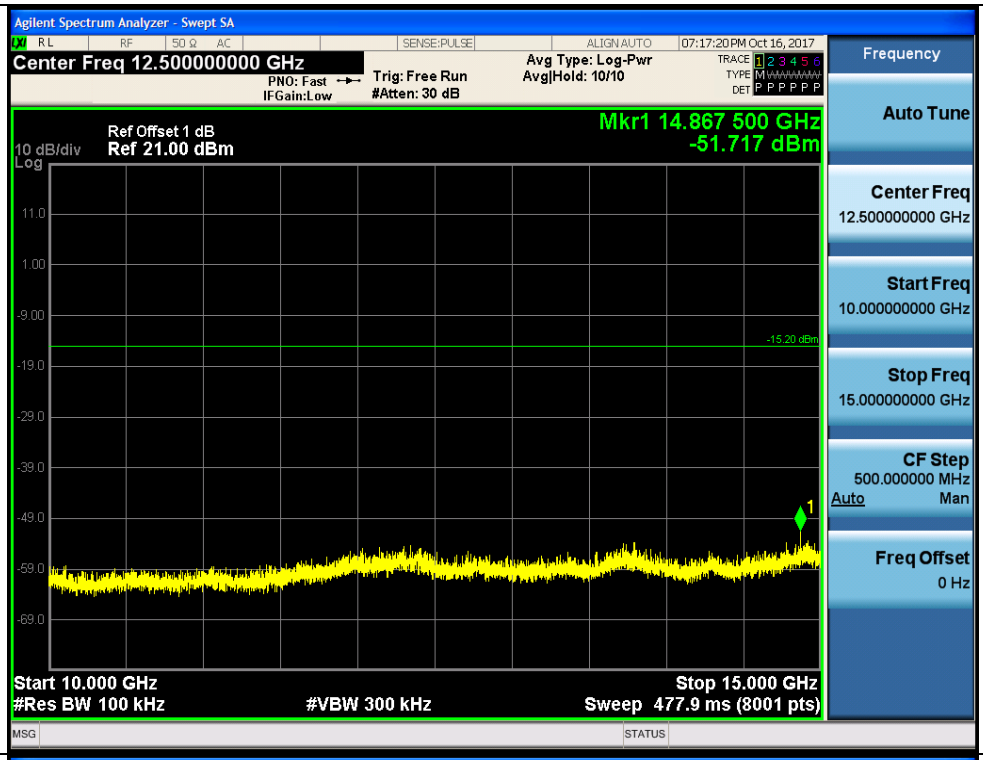
CH78 No hopping mode	
CH78 Hoppig mode	

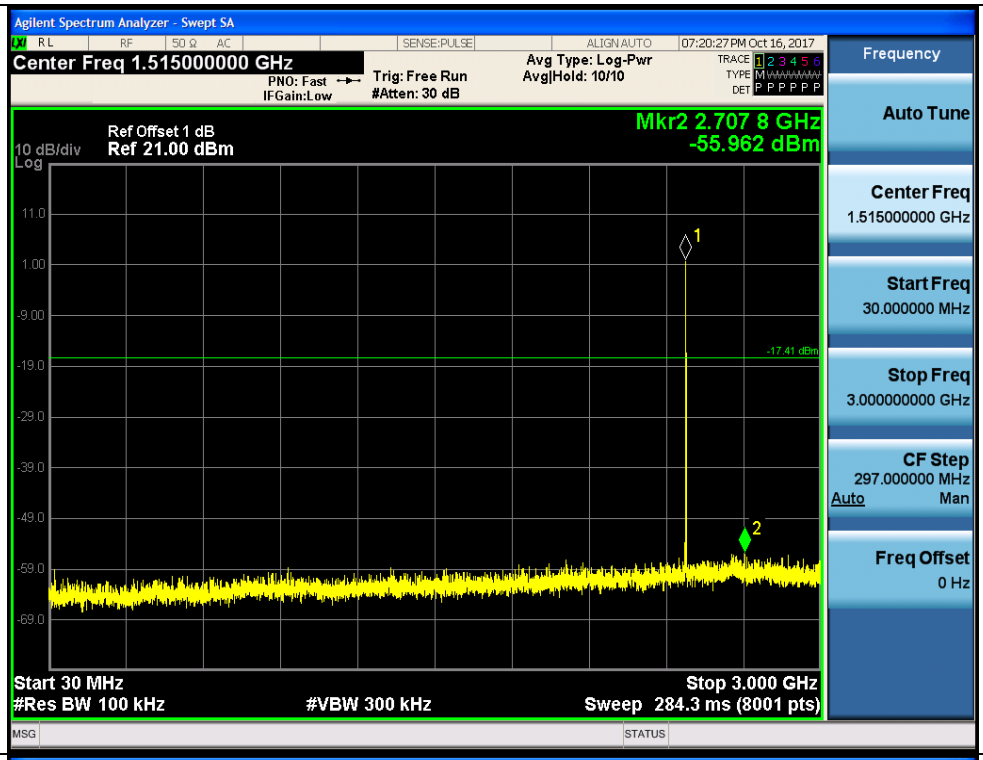
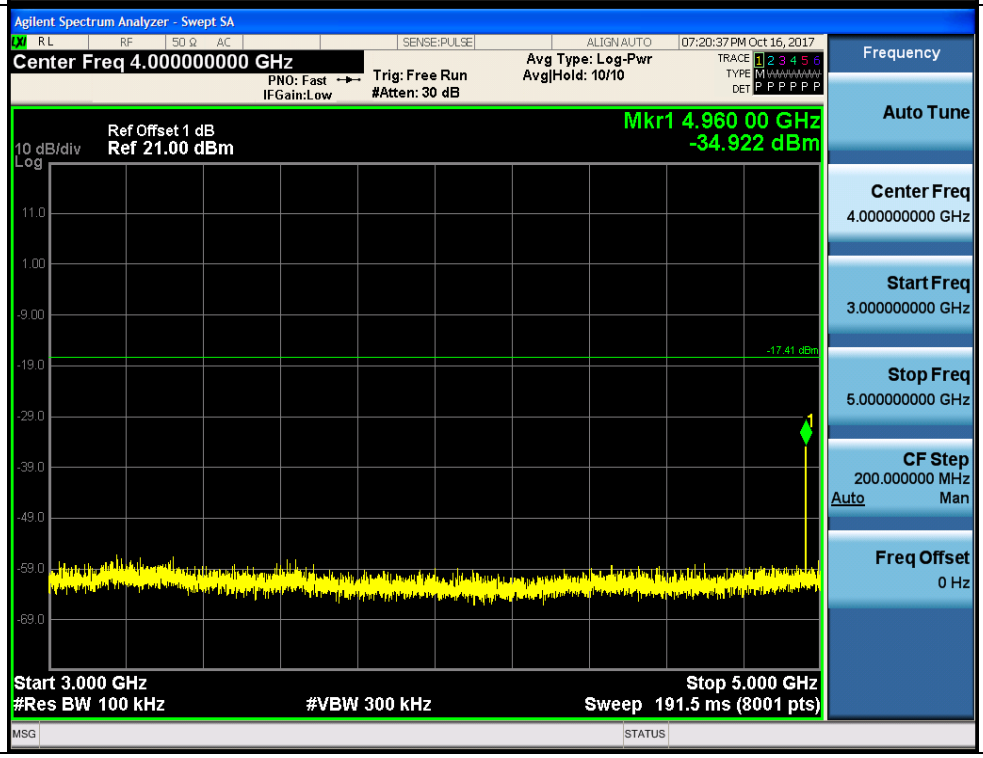
Test Item:	SE	Modulation type:	GFSK
CH00 30MHz~3GHz			
CH00 3GHz~5GHz			

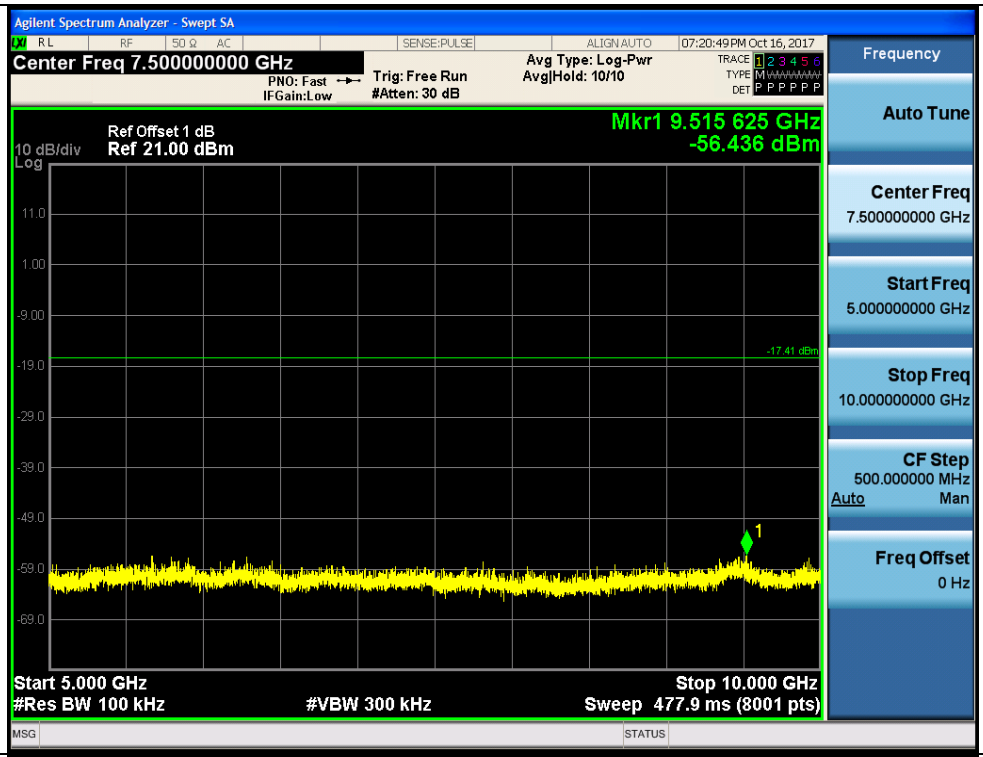
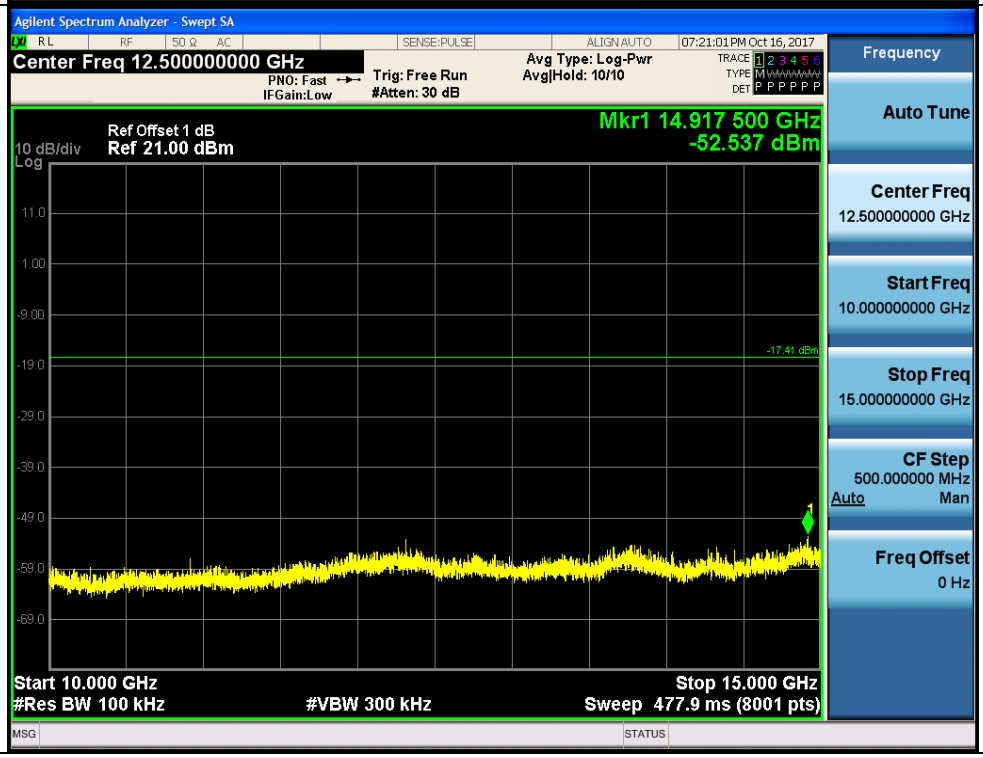
CH00 5GHz~10GHz	
CH00 10GHz~15GHz	

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

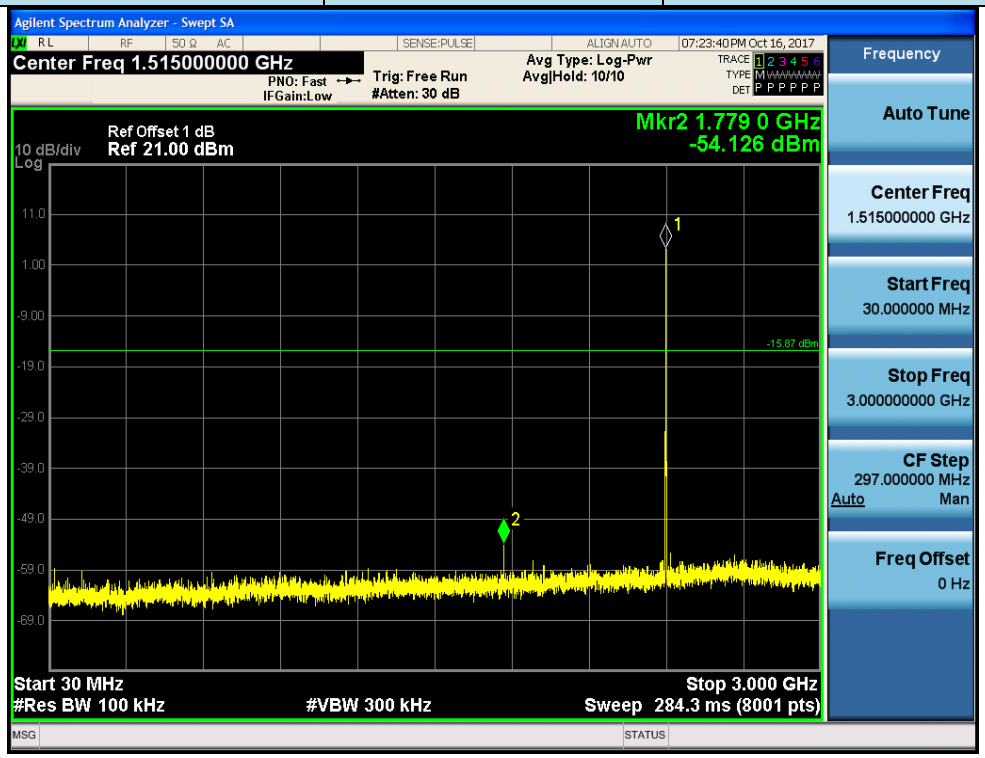
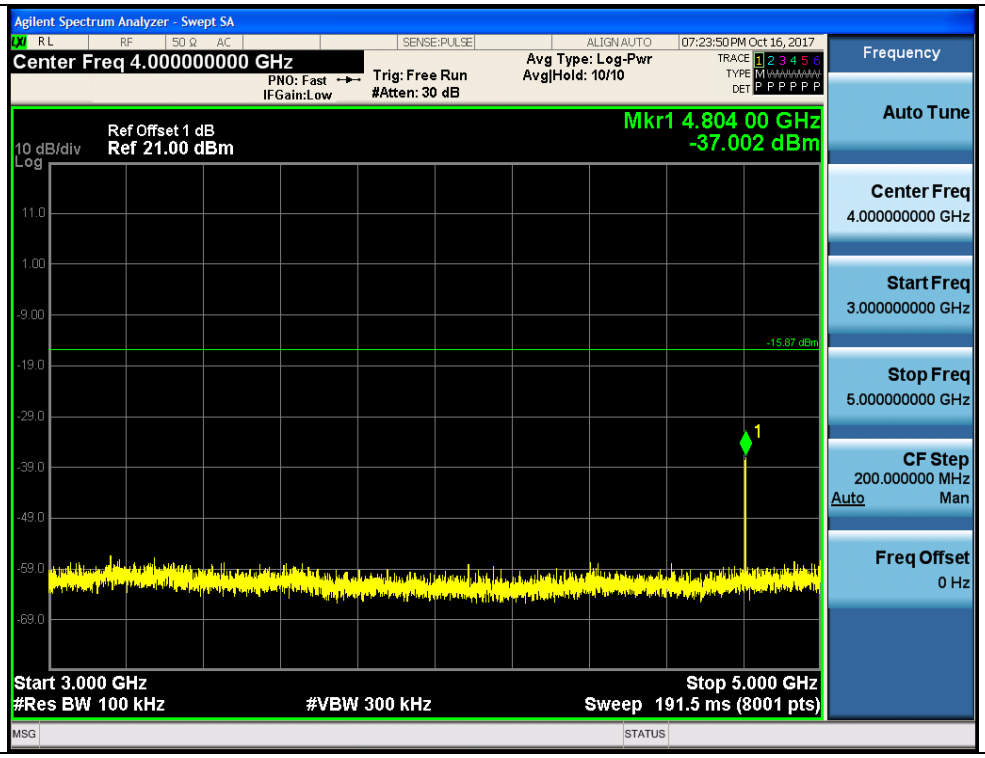
CH39 3GHz~5GHz	
CH39 5GHz~10GHz	

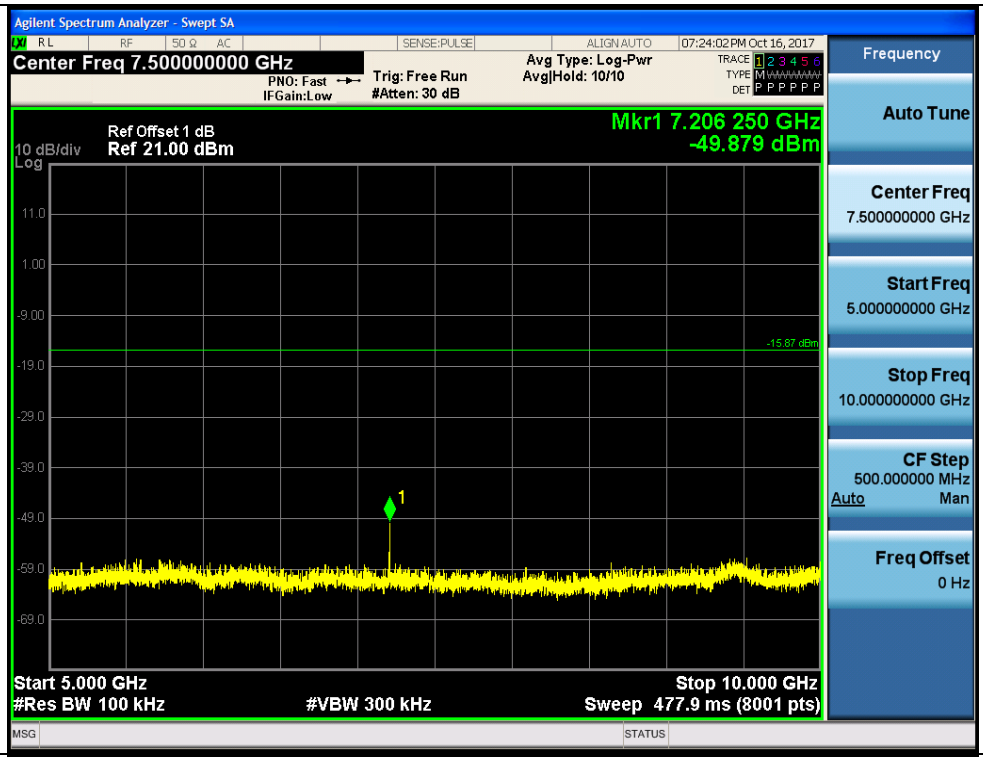
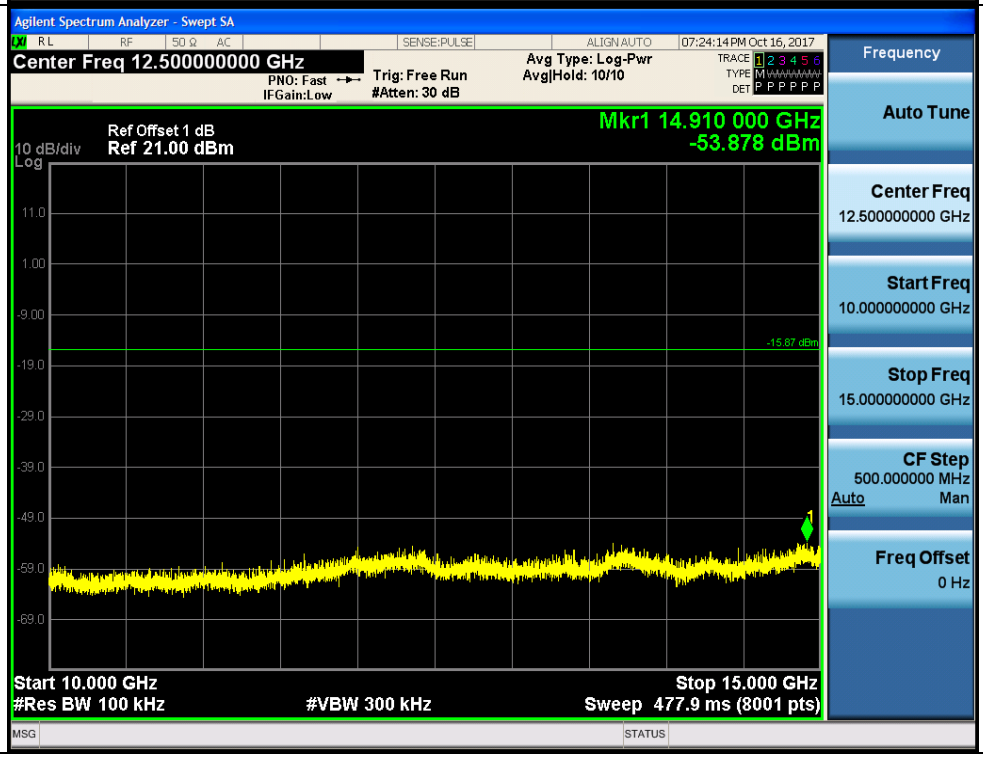
CH39 10GHz~15GHz	
CH39 15GHz~25GHz	

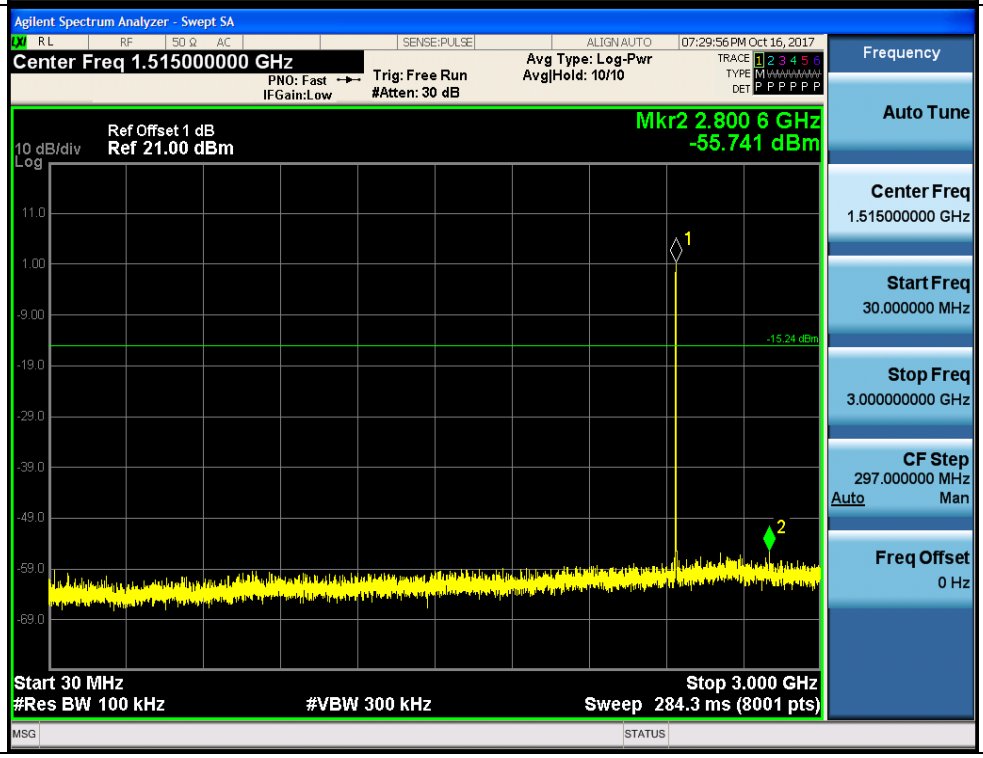
CH78 30MHz~3GHz	
CH78 3GHz~5GHz	

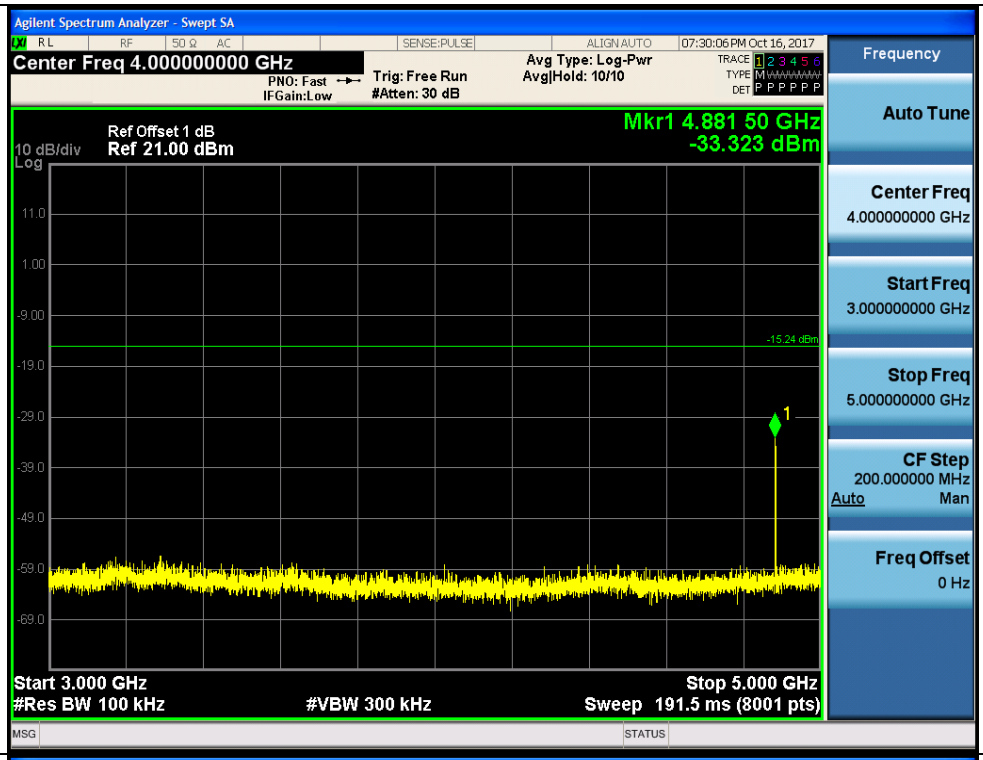
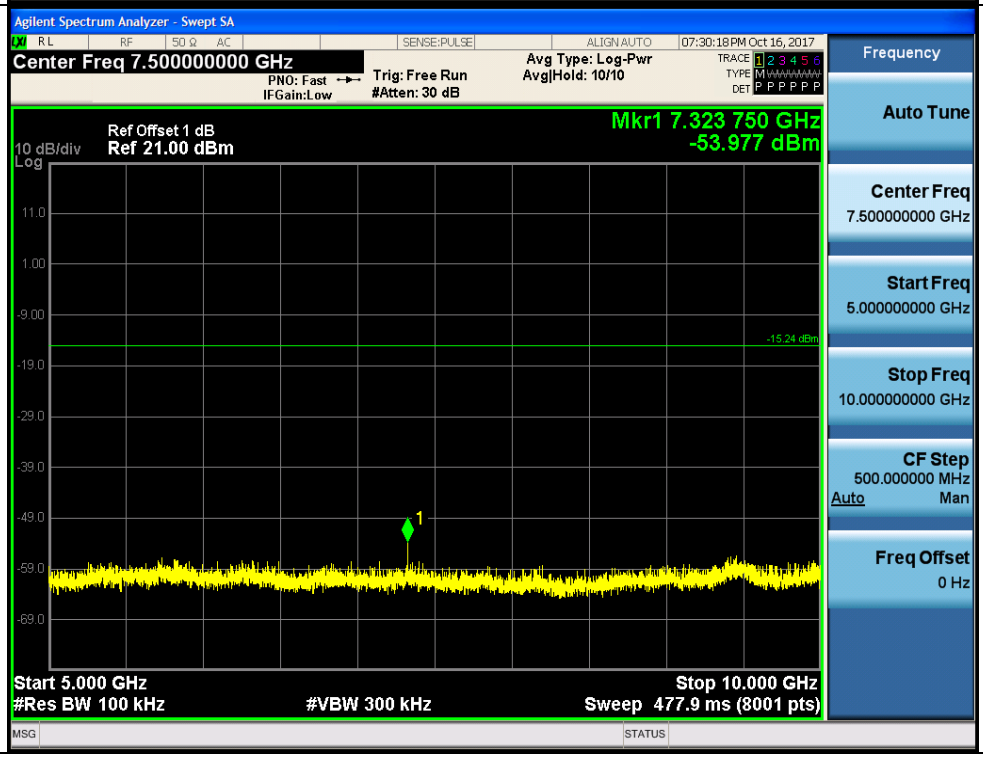
CH78 5GHz~10GHz	
CH78 10GHz~15GHz	

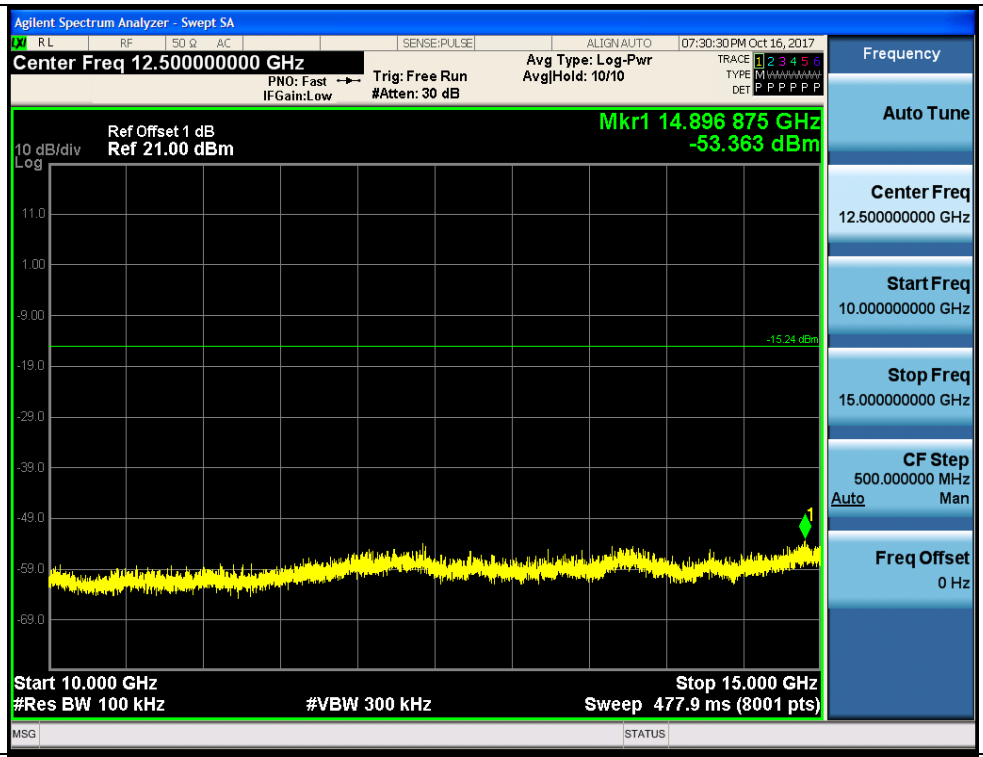
CH78 15GHz~25GHz	

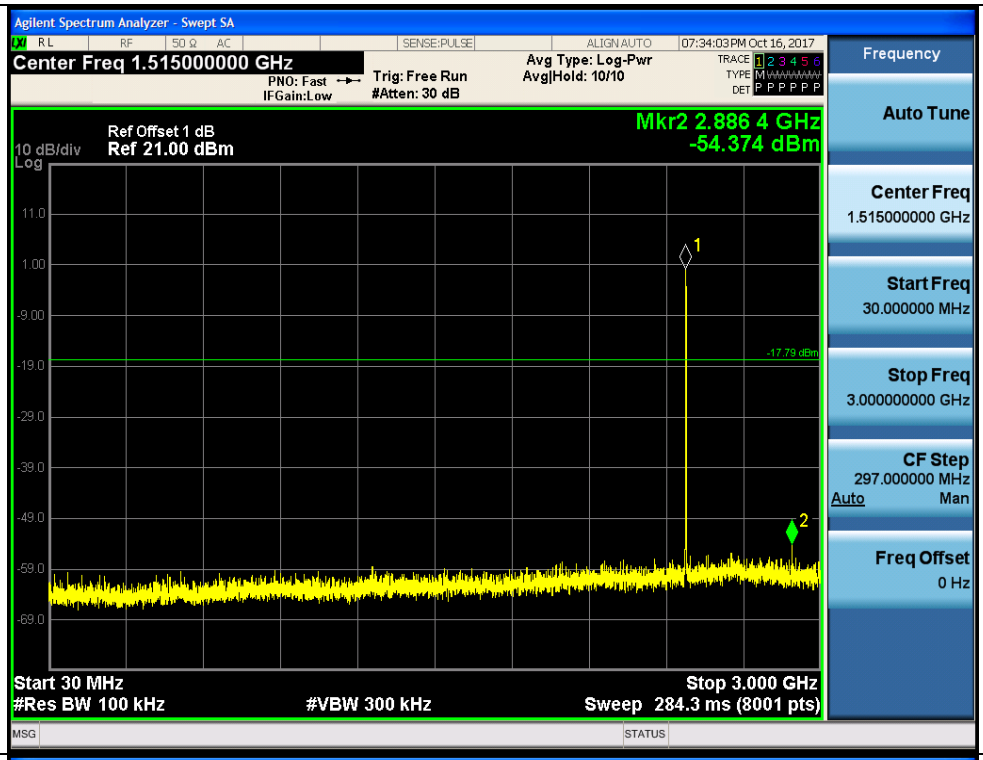
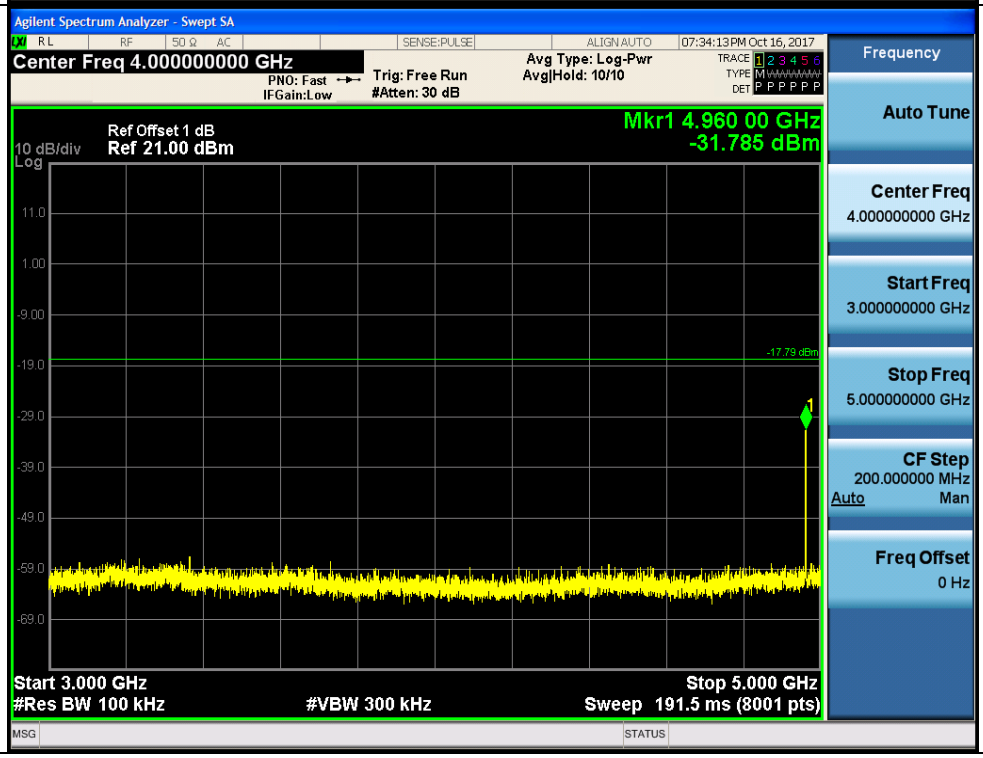
Test Item:	SE	Modulation type:	π/4DQPSK
CH00 30MHz~3GHz			
CH00 3GHz~5GHz			

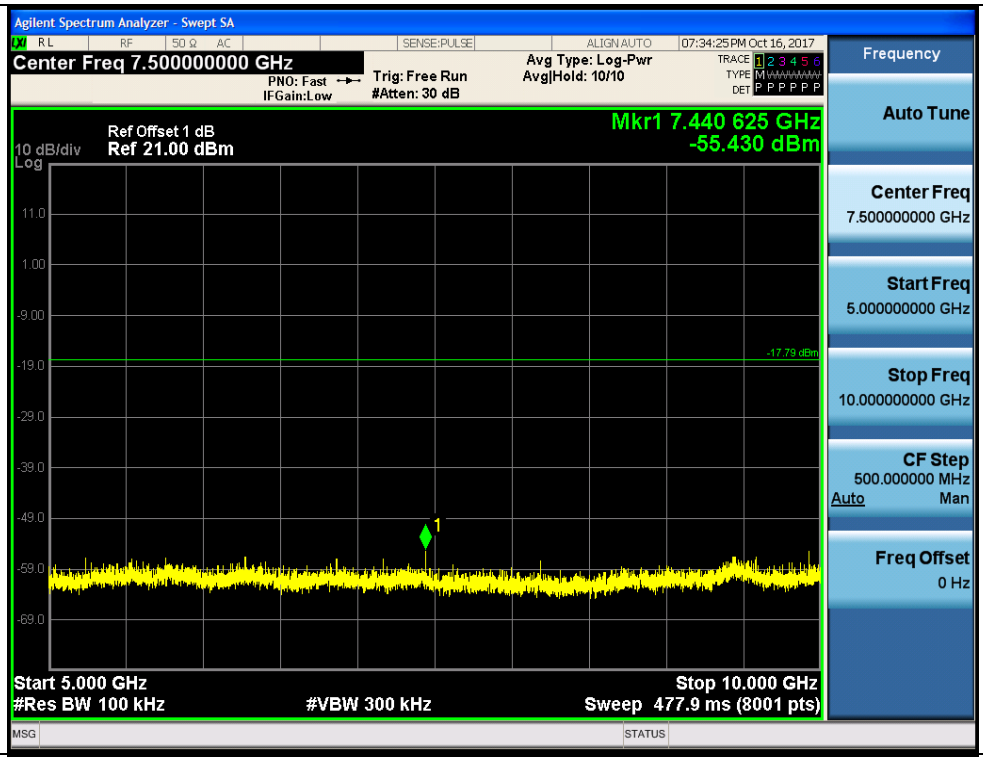
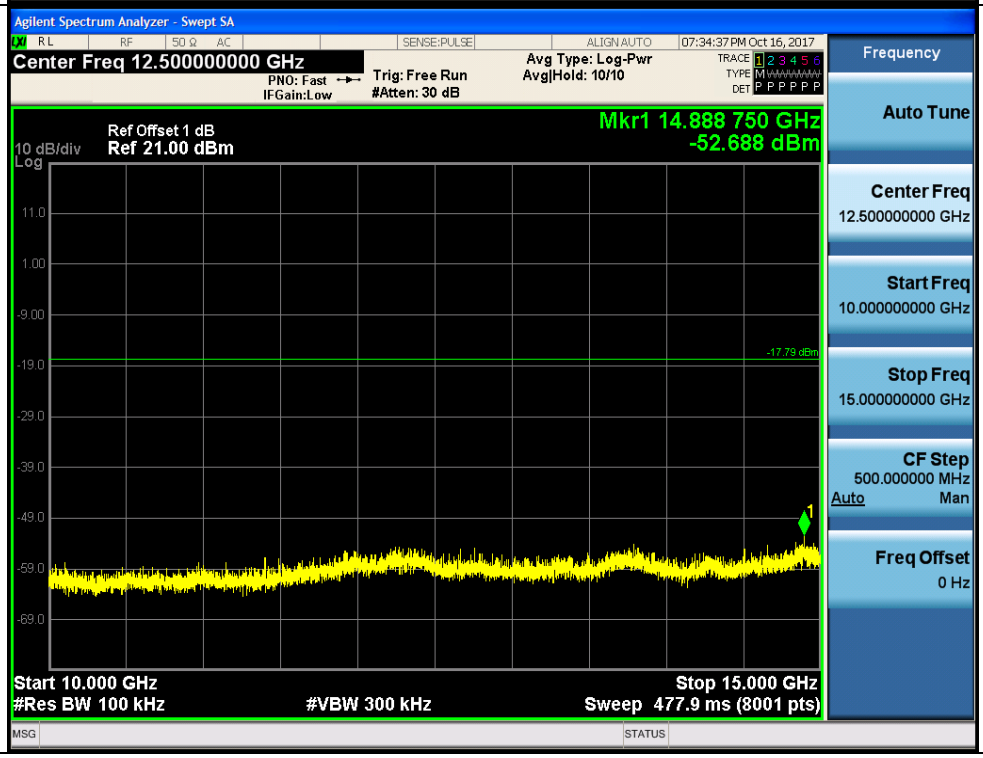
CH00 5GHz~10GHz	
CH00 10GHz~15GHz	

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

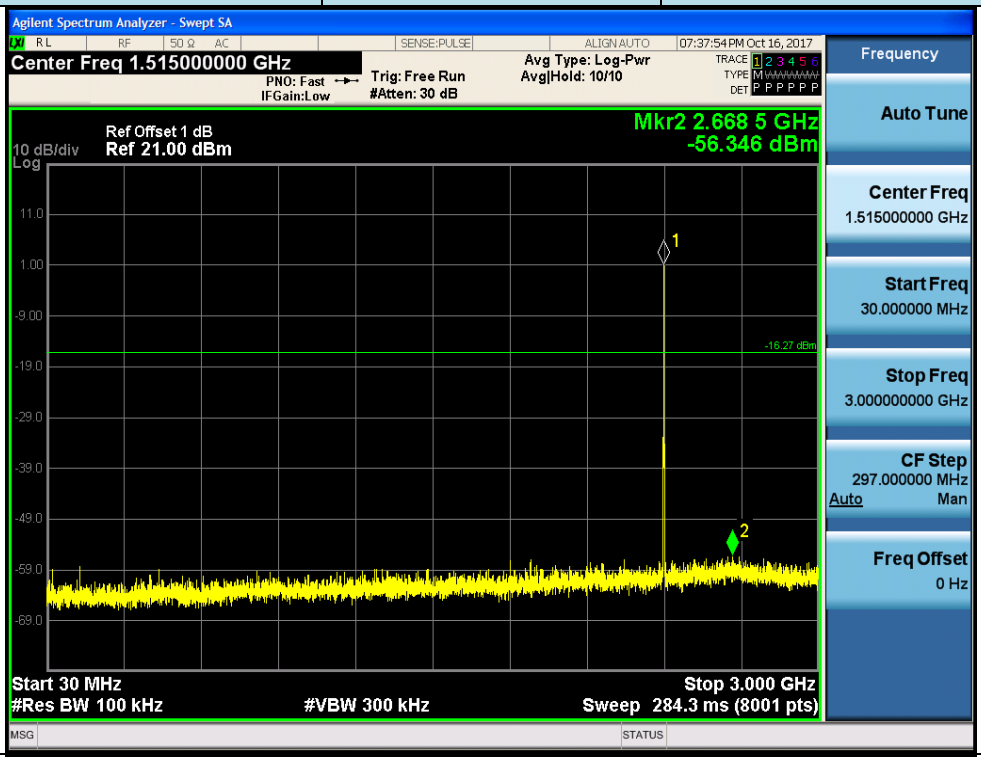
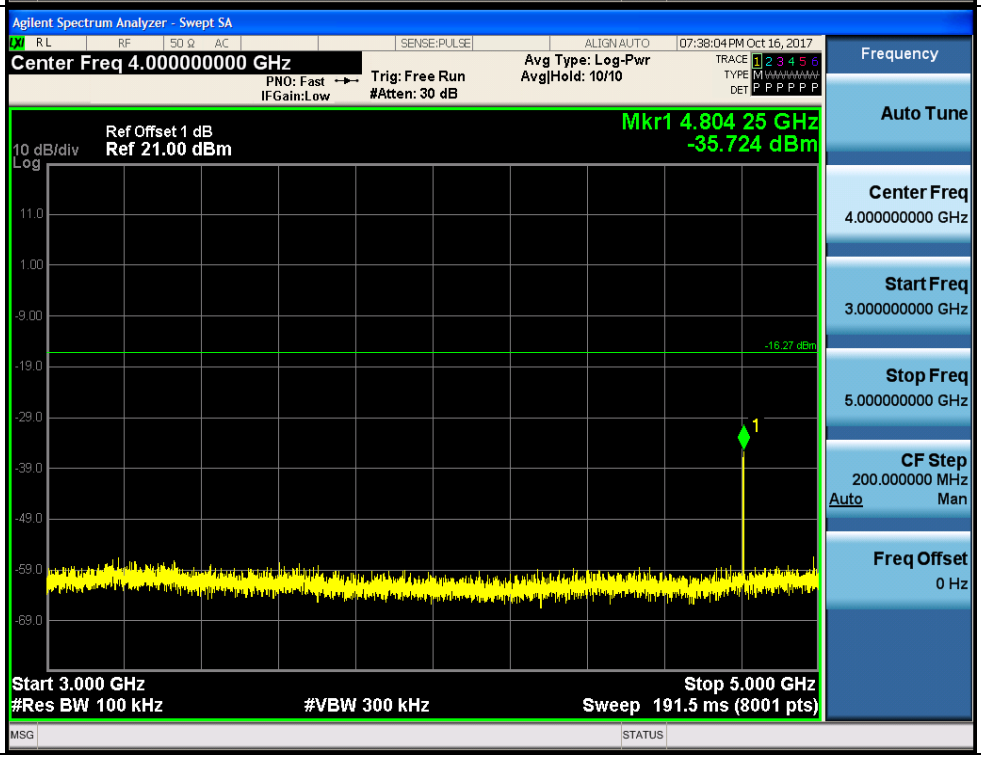
CH39 3GHz~5GHz	
CH39 5GHz~10GHz	

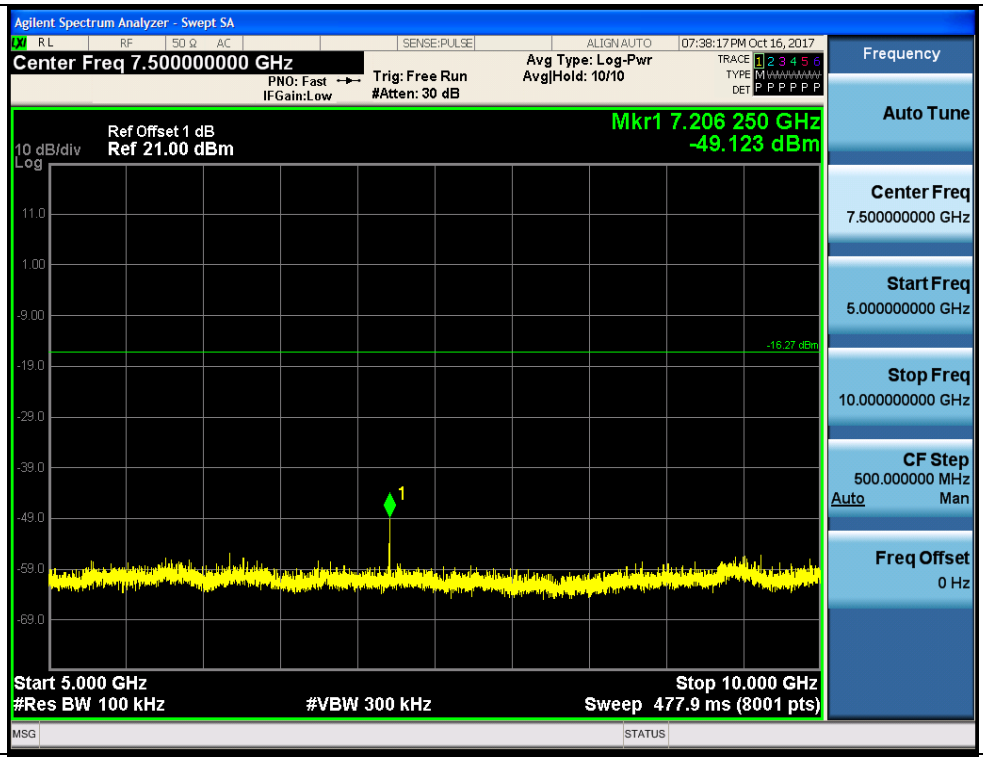
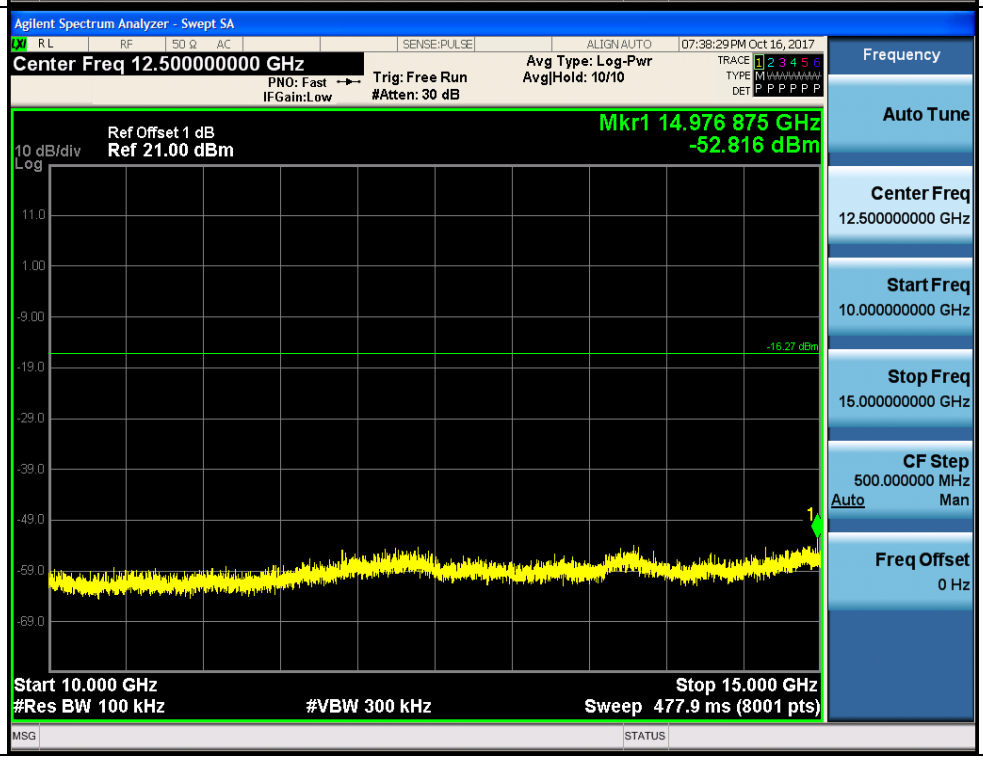
CH39 10GHz~15GHz	
CH39 15GHz~25GHz	

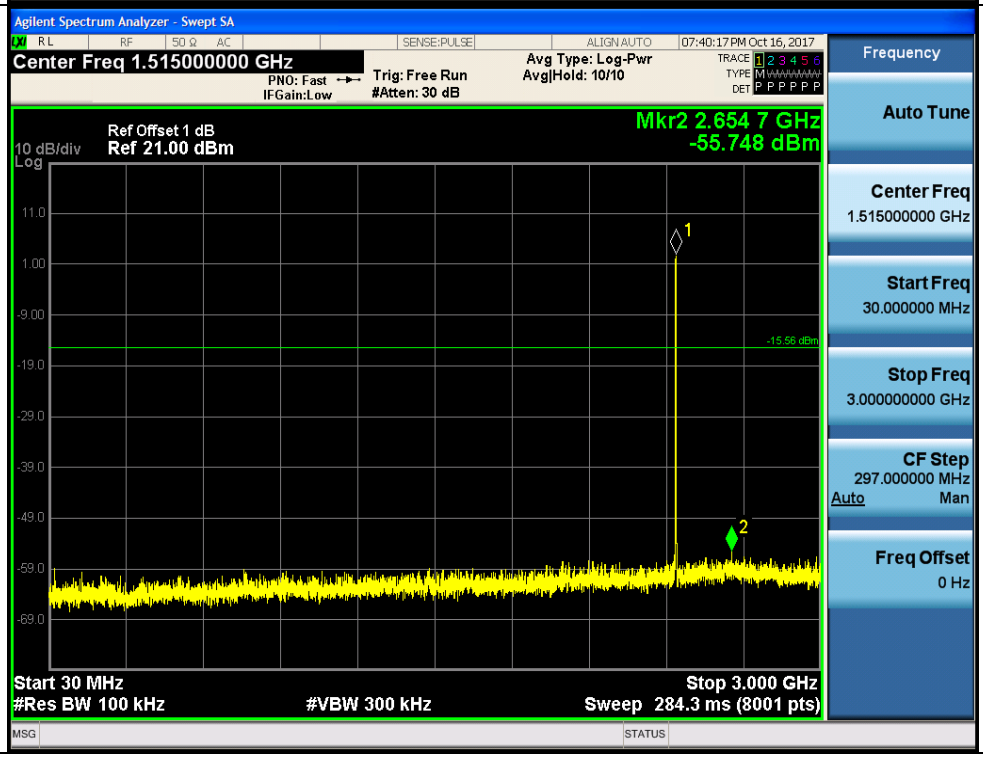
CH78 30MHz~3GHz	
CH78 3GHz~5GHz	

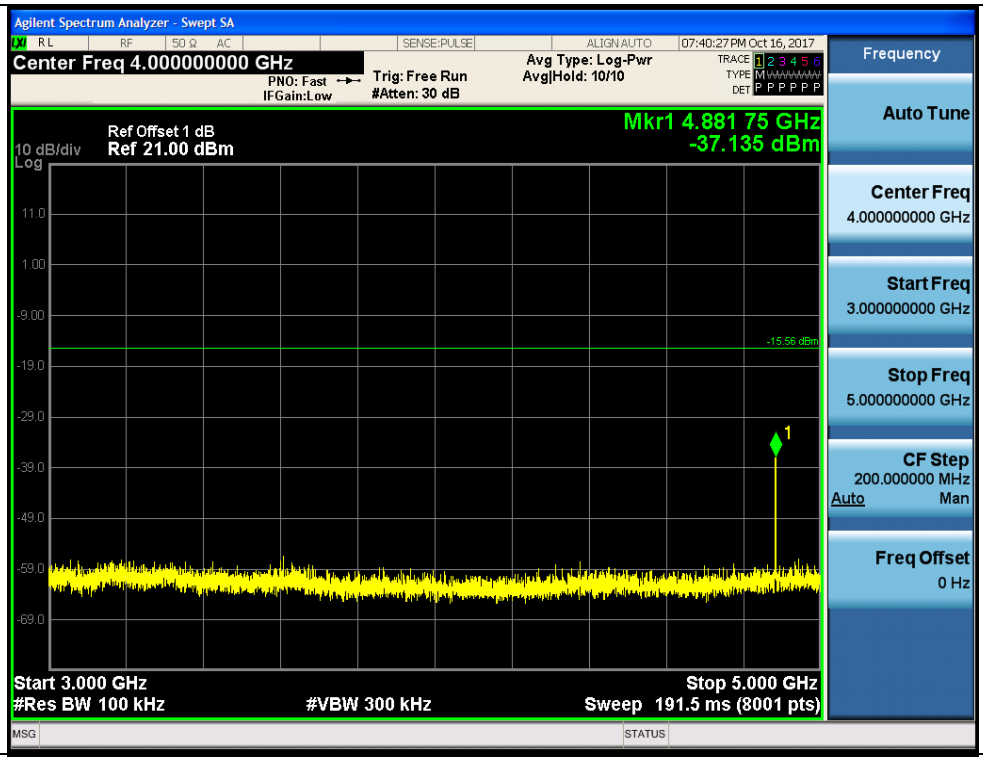
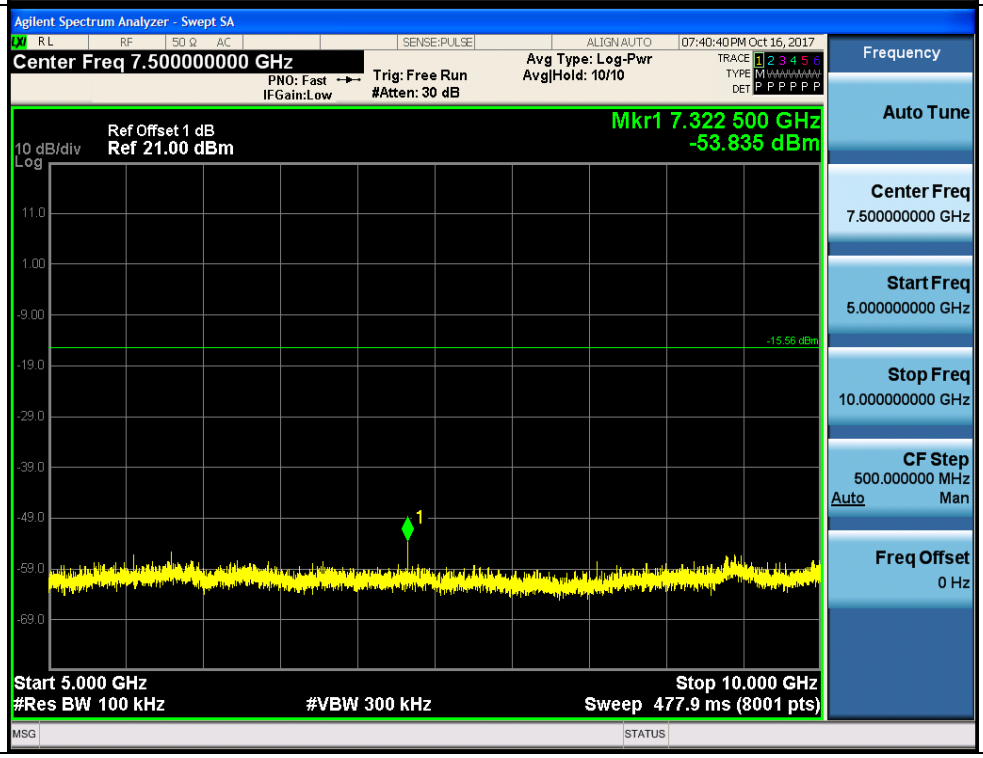
CH78 5GHz~10GHz	
CH78 10GHz~15GHz	

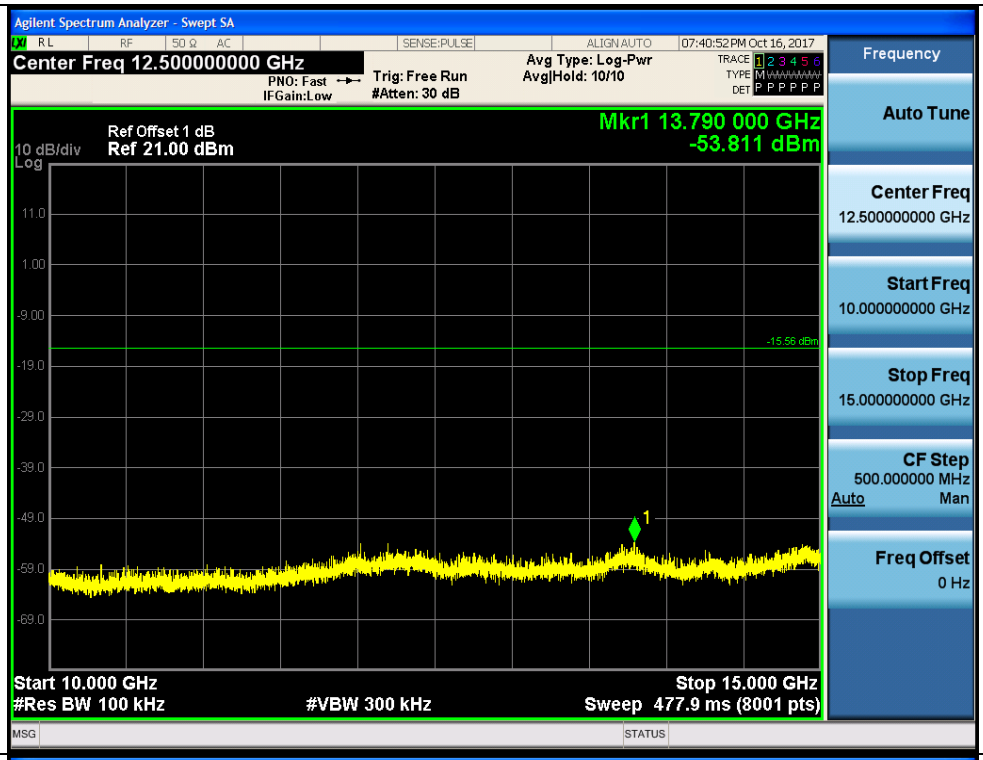
CH78 15GHz~25GHz	

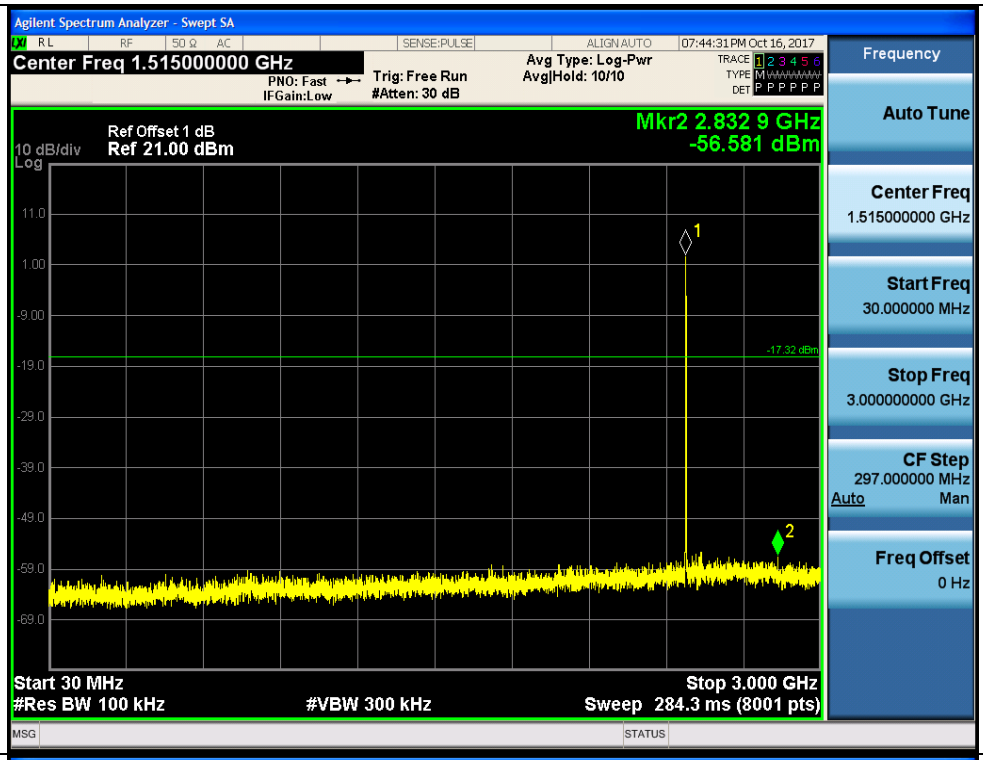
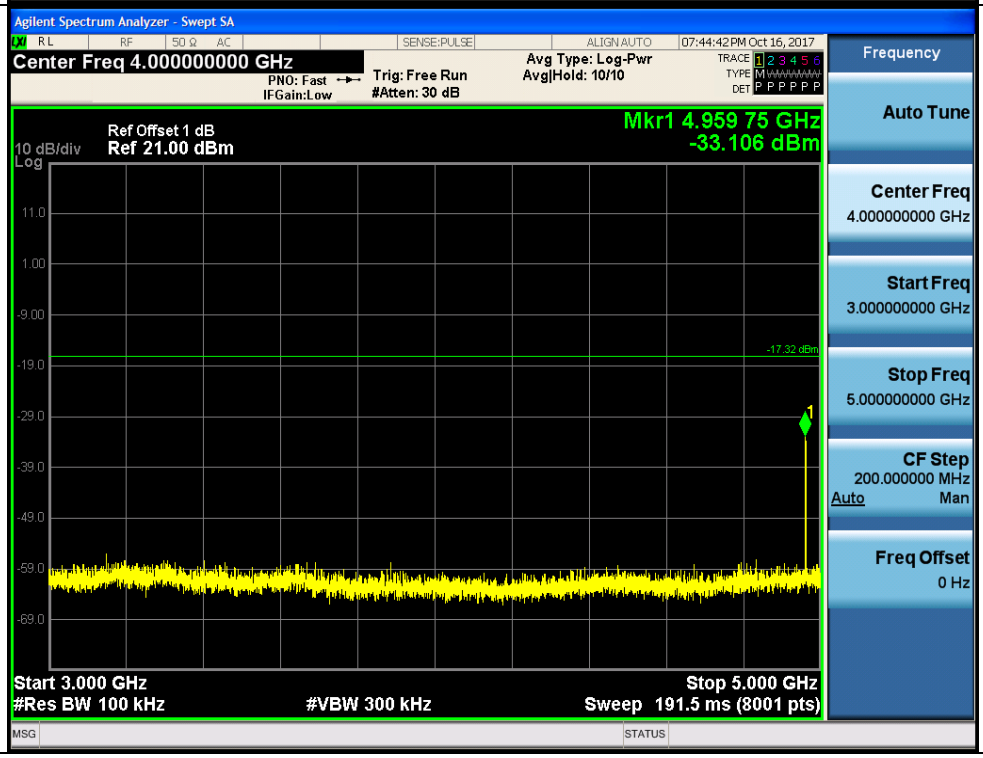
Test Item:	SE	Modulation type:	8DPSK
CH00 30MHz~3GHz			
CH00 3GHz~5GHz			

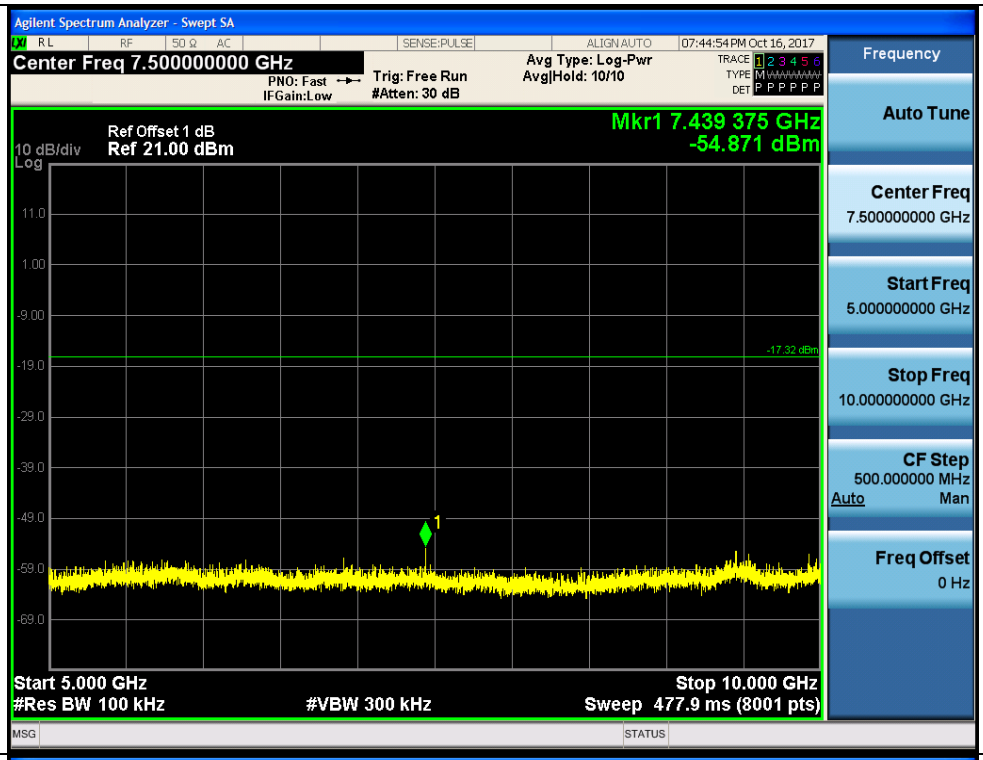
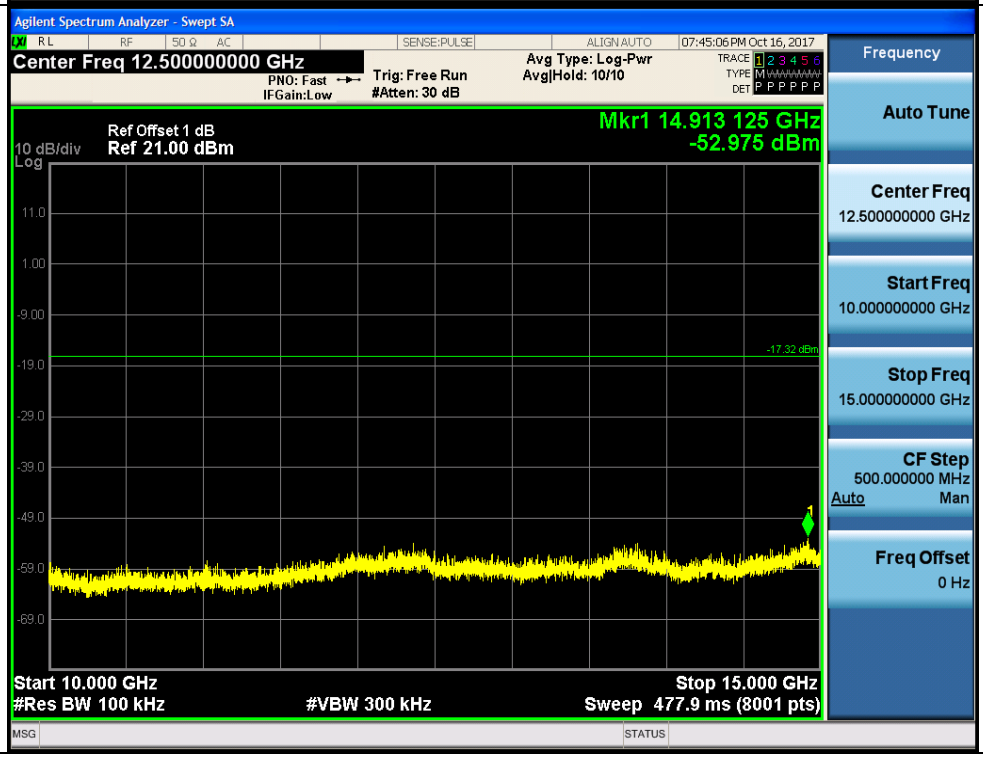
CH00 5GHz~10GHz	
CH00 10GHz~15GHz	

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)

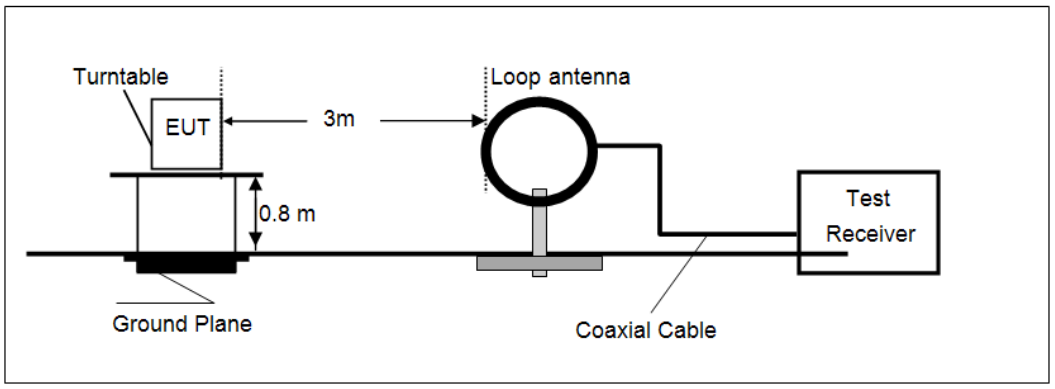
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.209

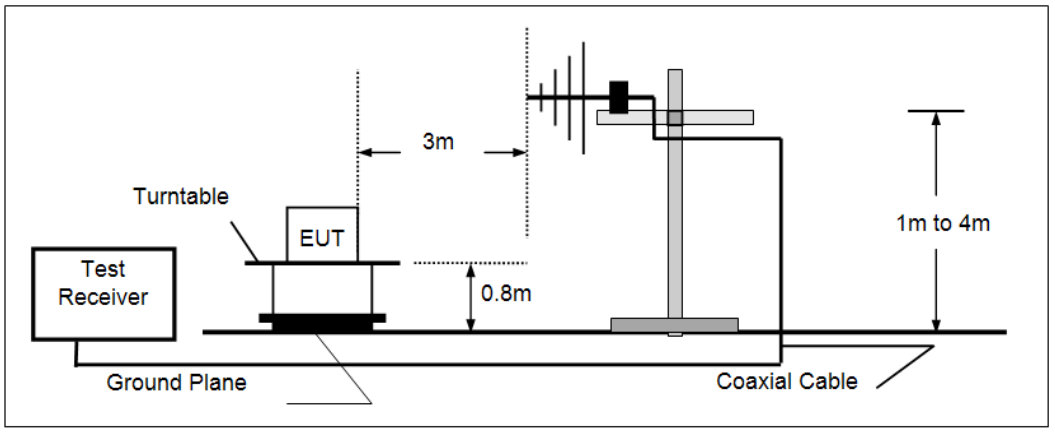
Frequency	Limit (dBuV/m @3m)	Value
30 MHz ~ 88 MHz	40.00	Quasi-peak
88 MHz ~ 216 MHz	43.50	Quasi-peak
216 MHz ~ 960 MHz	46.00	Quasi-peak
960 MHz ~ 1 GHz	54.00	Quasi-peak
Above 1 GHz	54.00	Average
	74.00	Peak

TEST CONFIGURATION

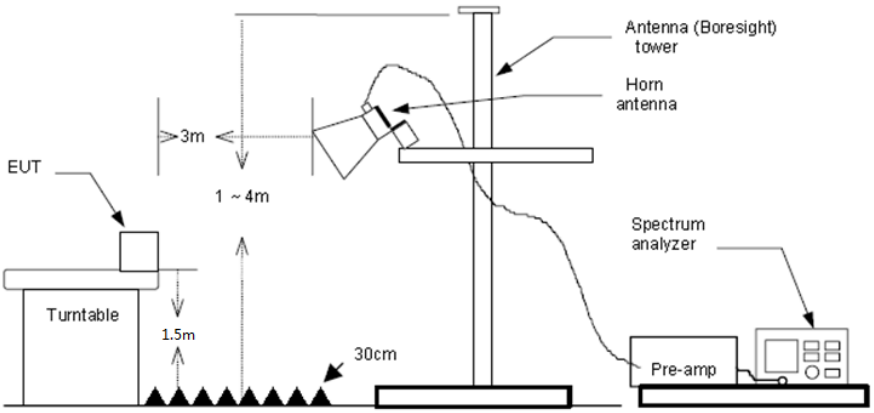
- Below 30 MHz



- 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:

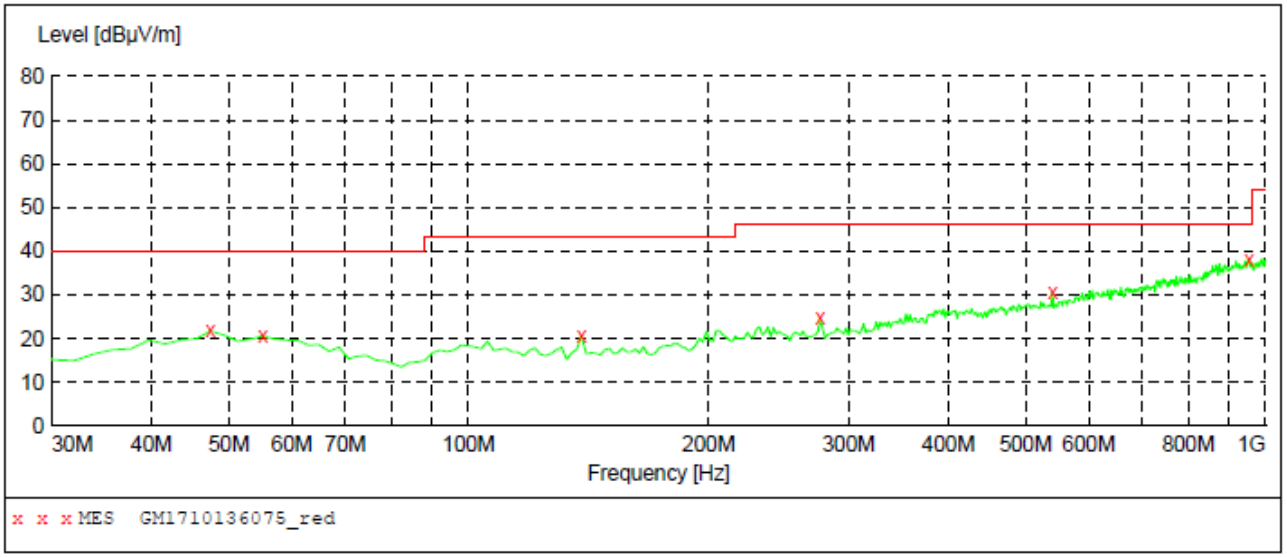
1) Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2) The emission levels of other frequencies are very lower than the limit and not show in test report.
3) Below 1 GHz,Have pre-scan all modulation mode, found the GFSK modulation High channel which it was worst case, 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.

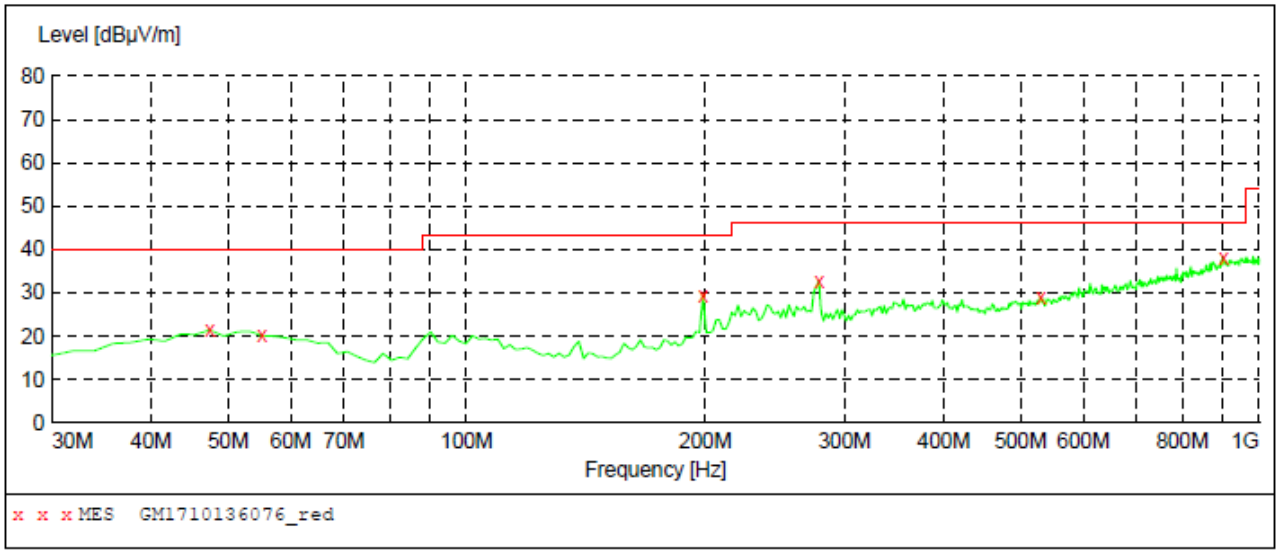
➢ **30 MHz ~ 1 GHz**

Polarization:	Vertical



Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
47.460000	21.80	-8.8	40.0	18.2	QP	100.0	349.00	VERTICAL
55.220000	20.70	-9.2	40.0	19.3	QP	100.0	253.00	VERTICAL
138.640000	20.60	-13.8	43.5	22.9	QP	100.0	241.00	VERTICAL
276.380000	24.70	-7.9	46.0	21.3	QP	100.0	201.00	VERTICAL
540.220000	30.40	-1.0	46.0	15.6	QP	100.0	201.00	VERTICAL
953.440000	38.10	7.3	46.0	7.9	QP	100.0	333.00	VERTICAL

Polarization:	Horizontal



Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
47.460000	21.50	-8.8	40.0	18.5	QP	300.0	245.00	HORIZONTAL
55.220000	20.20	-9.2	40.0	19.8	QP	300.0	137.00	HORIZONTAL
198.780000	29.40	-9.8	43.5	14.1	QP	100.0	7.00	HORIZONTAL
278.320000	32.70	-7.8	46.0	13.3	QP	100.0	271.00	HORIZONTAL
530.520000	29.00	-1.1	46.0	17.0	QP	100.0	0.00	HORIZONTAL
901.060000	38.10	6.7	46.0	7.9	QP	100.0	245.00	HORIZONTAL

➢ **Above 1 GHz**

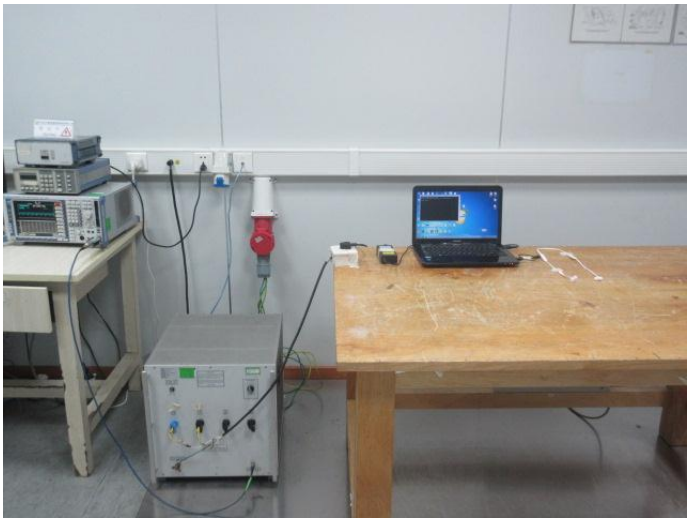
CH00									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1791.27	55.08	25.38	5.94	37.12	49.28	74.00	-24.72	Vertical	Peak
2995.54	44.44	28.60	7.48	38.23	42.29	74.00	-31.71	Vertical	Peak
4809.50	27.32	31.58	9.55	36.93	31.52	54.00	-22.48	Vertical	Average
4809.50	47.92	31.58	9.55	36.93	52.12	74.00	-21.88	Vertical	Peak
7209.01	22.88	36.21	11.87	35.07	35.89	54.00	-18.11	Vertical	Average
7209.02	39.10	36.21	11.87	35.07	52.11	74.00	-21.89	Vertical	Peak
1791.27	45.59	25.38	5.94	37.12	39.79	74.00	-34.21	Horizontal	Peak
3489.84	37.31	28.92	8.10	38.42	35.91	74.00	-38.09	Horizontal	Peak
4809.50	33.89	31.58	9.55	36.93	38.09	54.00	-15.91	Horizontal	Average
4809.50	51.82	31.58	9.55	36.93	56.02	74.00	-17.98	Horizontal	Peak
7209.02	44.48	36.21	11.87	35.07	57.49	74.00	-16.51	Horizontal	Peak
7209.02	26.26	36.21	11.87	35.07	39.27	54.00	-14.73	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
1498.91	42.39	25.80	5.28	36.59	36.88	74.00	-37.12	Vertical	Peak
2698.67	40.22	28.10	7.14	38.10	37.36	74.00	-36.64	Vertical	Peak
4883.52	38.92	31.43	9.59	36.73	43.21	74.00	-30.79	Vertical	Peak
7319.96	34.72	36.30	11.99	34.92	48.09	74.00	-25.91	Vertical	Peak
1593.34	48.94	24.96	5.55	36.71	42.74	74.00	-31.26	Horizontal	Peak
4045.06	35.84	29.79	8.82	38.01	36.44	74.00	-37.56	Horizontal	Peak
4883.52	43.94	31.43	9.59	36.73	48.23	74.00	-25.77	Horizontal	Peak
7319.96	34.15	36.30	11.99	34.92	47.52	74.00	-26.48	Horizontal	Peak

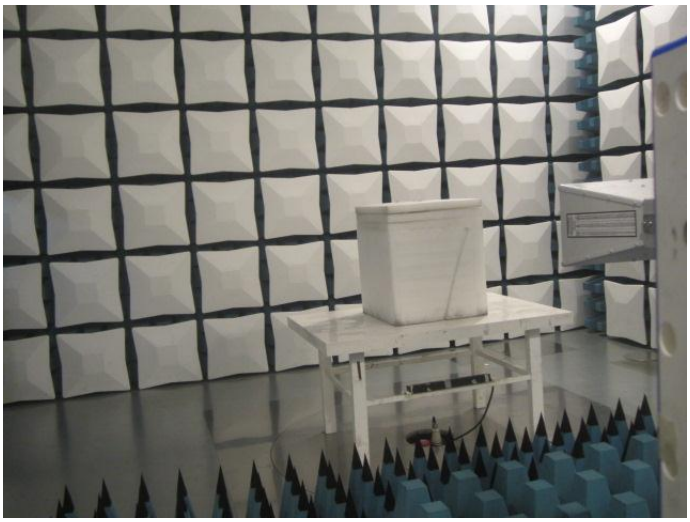
CH78									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1746.25	46.15	25.29	5.86	37.03	40.27	74.00	-33.73	Vertical	Peak
2789.46	42.08	28.10	7.35	38.33	39.20	74.00	-34.80	Vertical	Peak
4958.68	39.39	31.46	9.64	36.52	43.97	74.00	-30.03	Vertical	Peak
7209.02	32.47	36.21	11.87	35.07	45.48	74.00	-28.52	Vertical	Peak
1110.01	42.38	25.58	4.46	36.61	35.81	74.00	-38.19	Horizontal	Peak
2097.51	44.80	26.69	6.35	37.32	40.52	74.00	-33.48	Horizontal	Peak
3525.56	36.18	29.08	8.15	38.37	35.04	74.00	-38.96	Horizontal	Peak
4958.68	43.86	31.46	9.64	36.52	48.44	74.00	-25.56	Horizontal	Peak

6. TEST SETUP PHOTOS

Conducted Emissions (AC Mains)



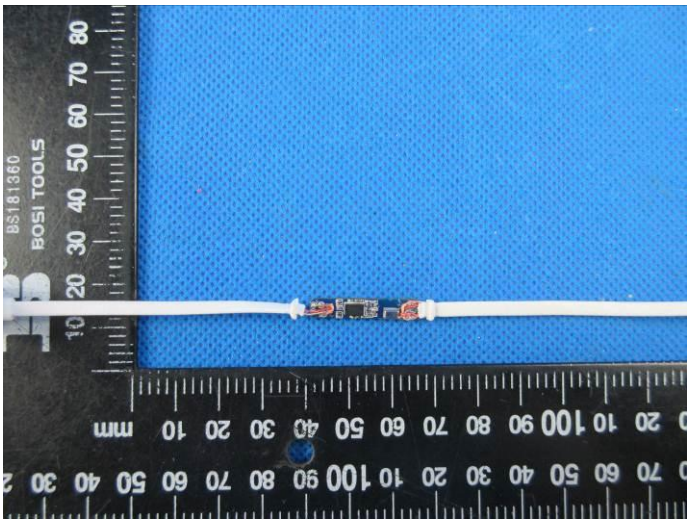
Radiated Emissions

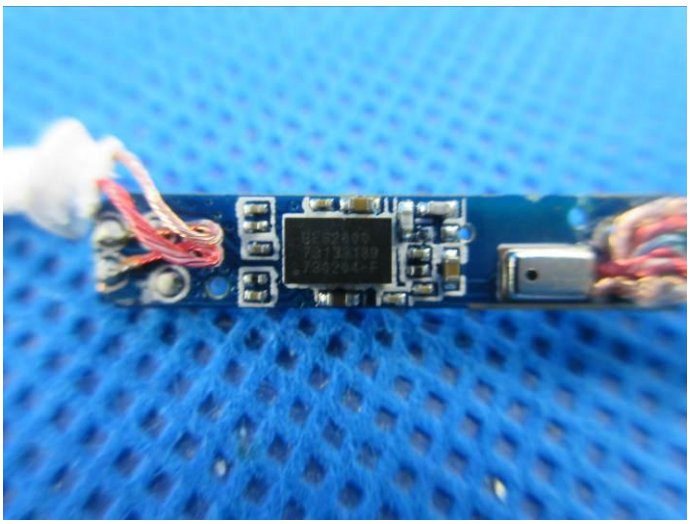


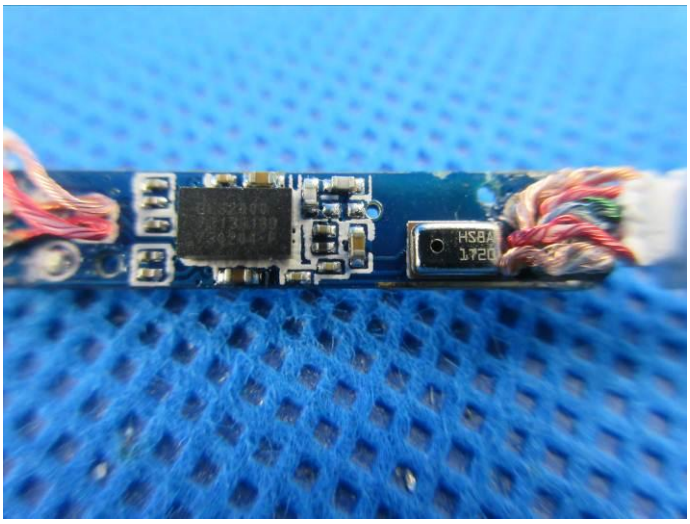
7. EXTERANAL AND INTERNAL PHOTOS

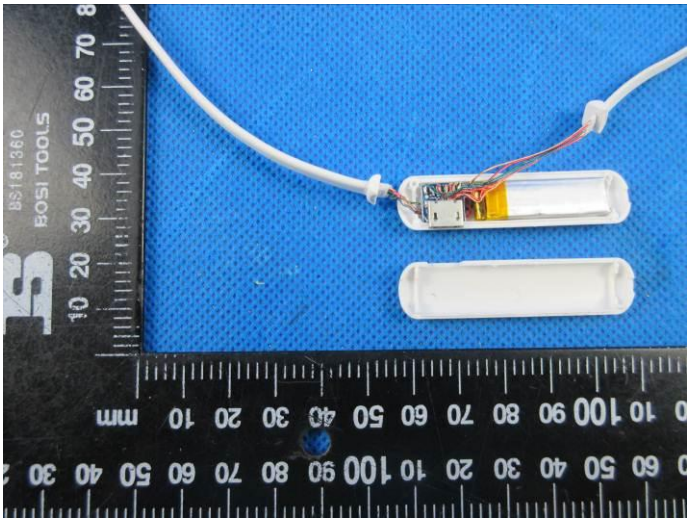
EXTERANAL PHOTOS

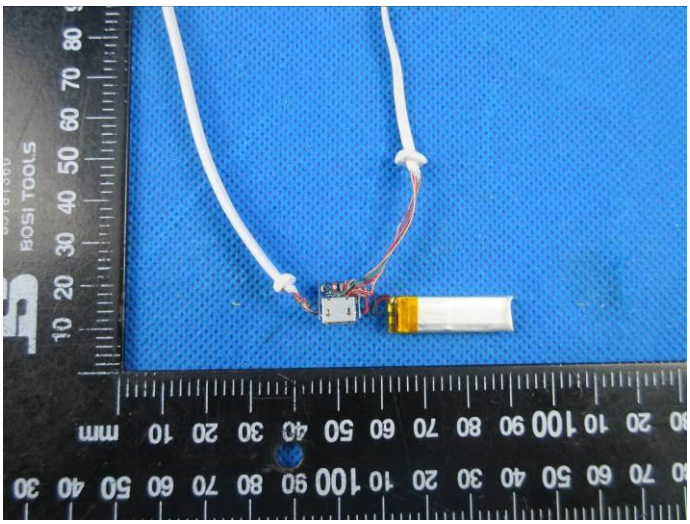
INTERNAL PHOTOS

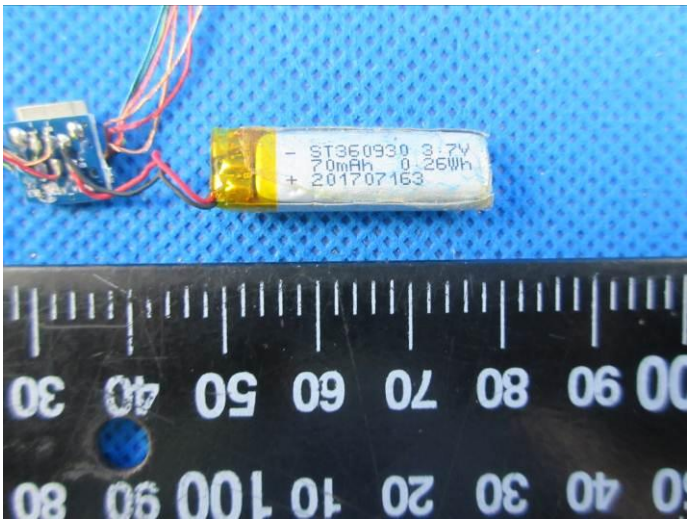







BOSI TOOLS
mm





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