



Appendix for test report

1 Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	ERP / EIRP[dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	23.95	18.9	38.5	PASS
		MCH	23.92	18.87	38.5	PASS
		HCH	23.87	18.82	38.5	PASS
WCDMA1900	UMTS/TM1	LCH	23.57	25.57	33	PASS
		MCH	23.6	25.6	33	PASS
		HCH	23.47	25.47	33	PASS



Note1:

a, For getting the ERP (Efficient Radiated Power) or EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

$$\text{ERP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBi]}$$

b, SGP=Signal Generator Level

Note2:

$$\text{SET Span} = 1.5 * \text{OBW}$$

$$\text{SET RBW} = 1\% \text{ of the OBW, not to exceed 1MHz}$$

$$\text{SET VBW} \geq 3 * \text{RBW}$$

SET Sweep time = auto - couple.

Detector: RMS



2Appendix_B: Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA850	UMTS/TM1	LCH	2.89	13	PASS
		MCH	3.03	13	PASS
		HCH	3.03	13	PASS
WCDMA1900	UMTS/TM1	LCH	2.99	13	PASS
		MCH	3.08	13	PASS
		HCH	2.99	13	PASS

3Appendix_C: Modulation Characteristics

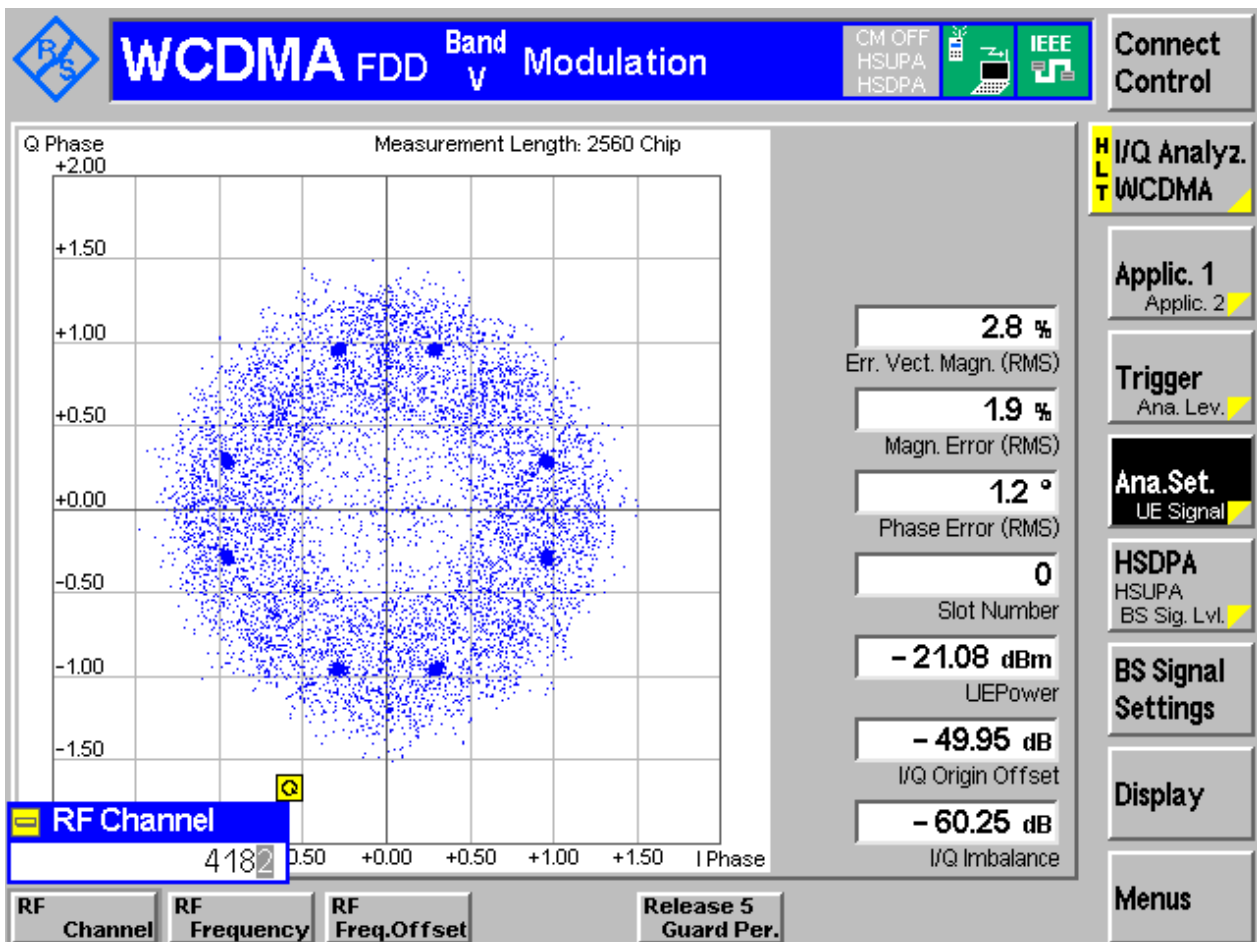
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

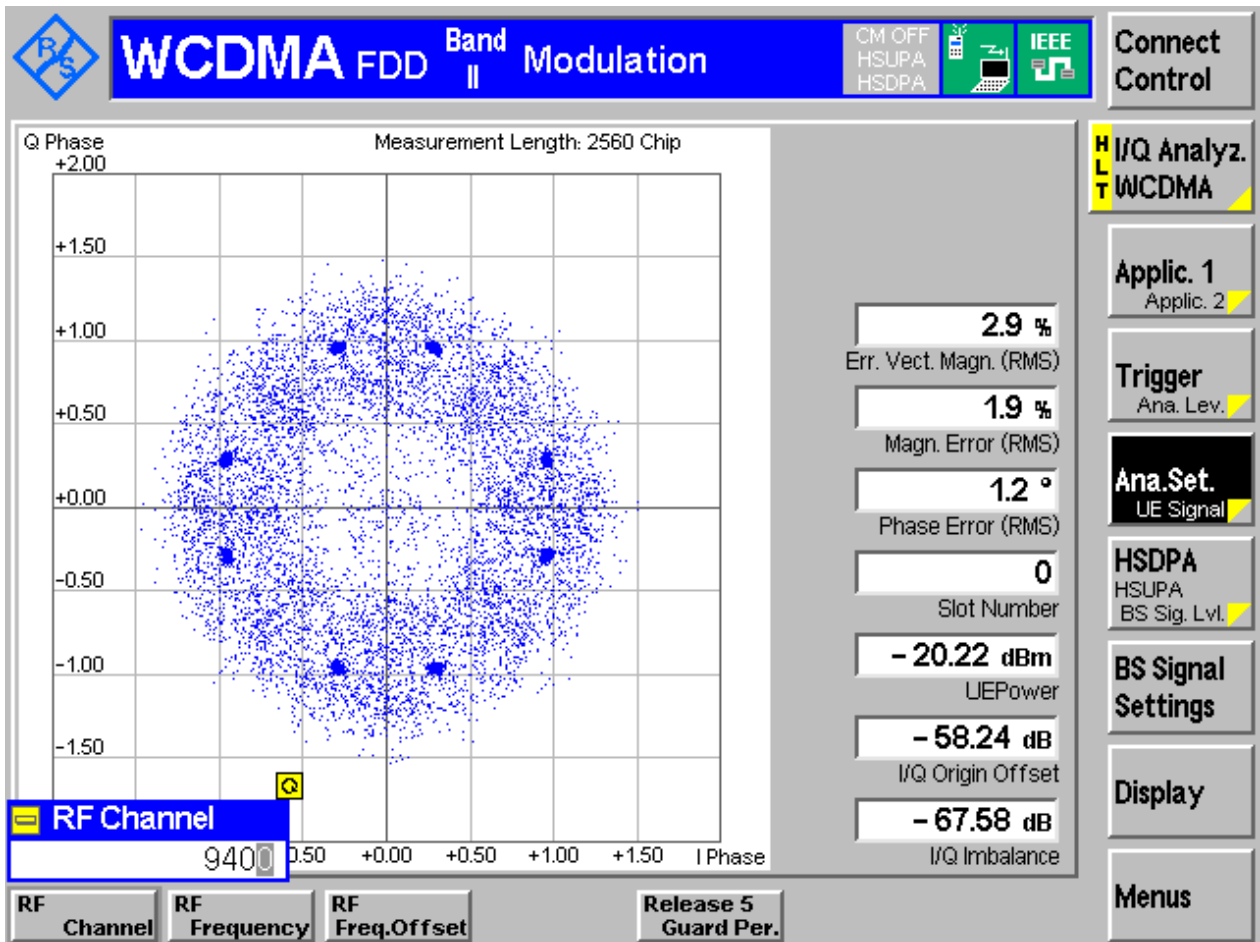
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1900

3.1.2.1 Test Mode = UMTS/TM1

3.1.2.1.1 Test Channel = MCH





4Appendix_D: Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.14	4.70	Pass
		MCH	4.14	4.70	Pass
		HCH	4.13	4.70	Pass
WCDMA1900	UMTS/TM1	LCH	4.14	4.70	Pass
		MCH	4.13	4.69	Pass
		HCH	4.13	4.70	Pass



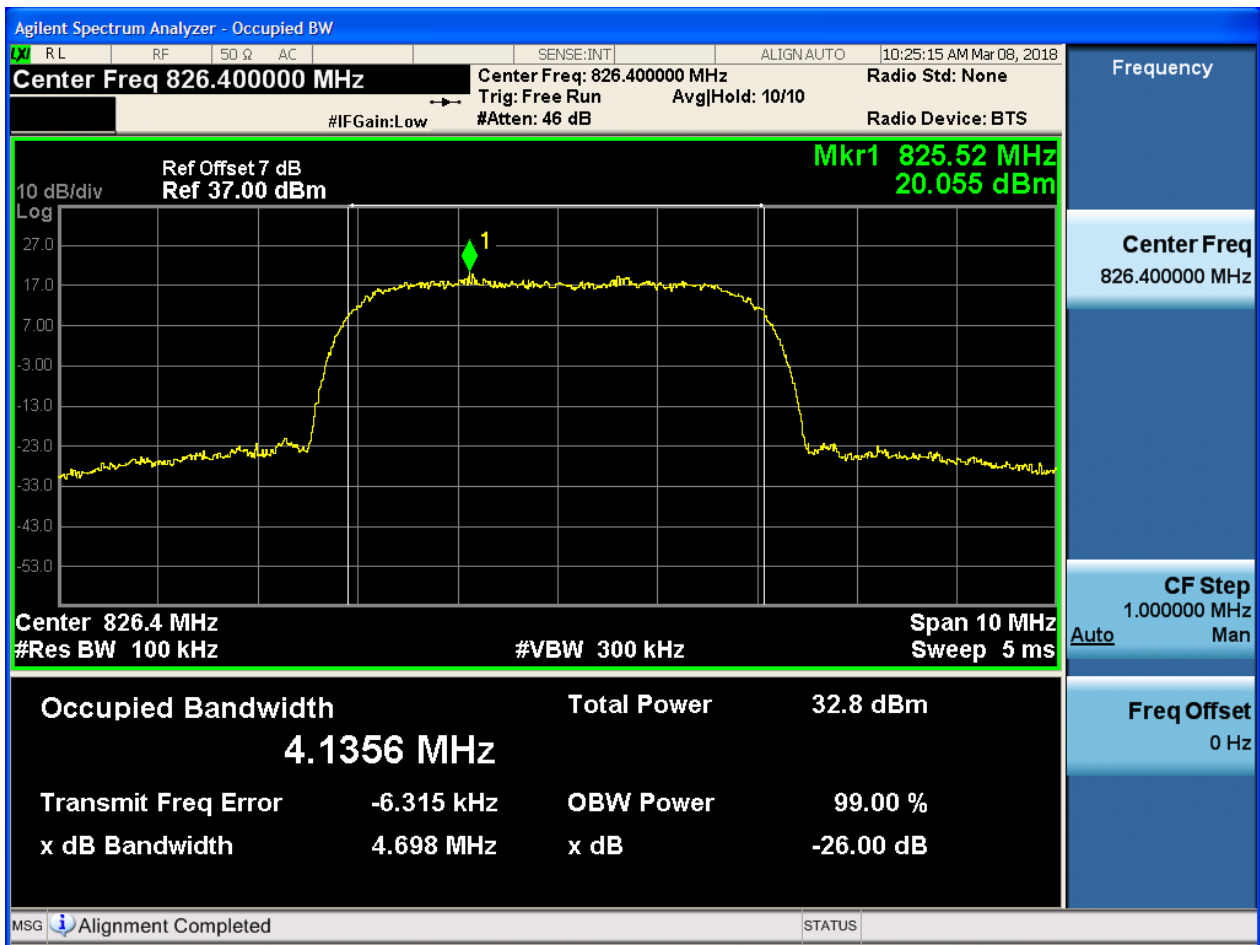
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

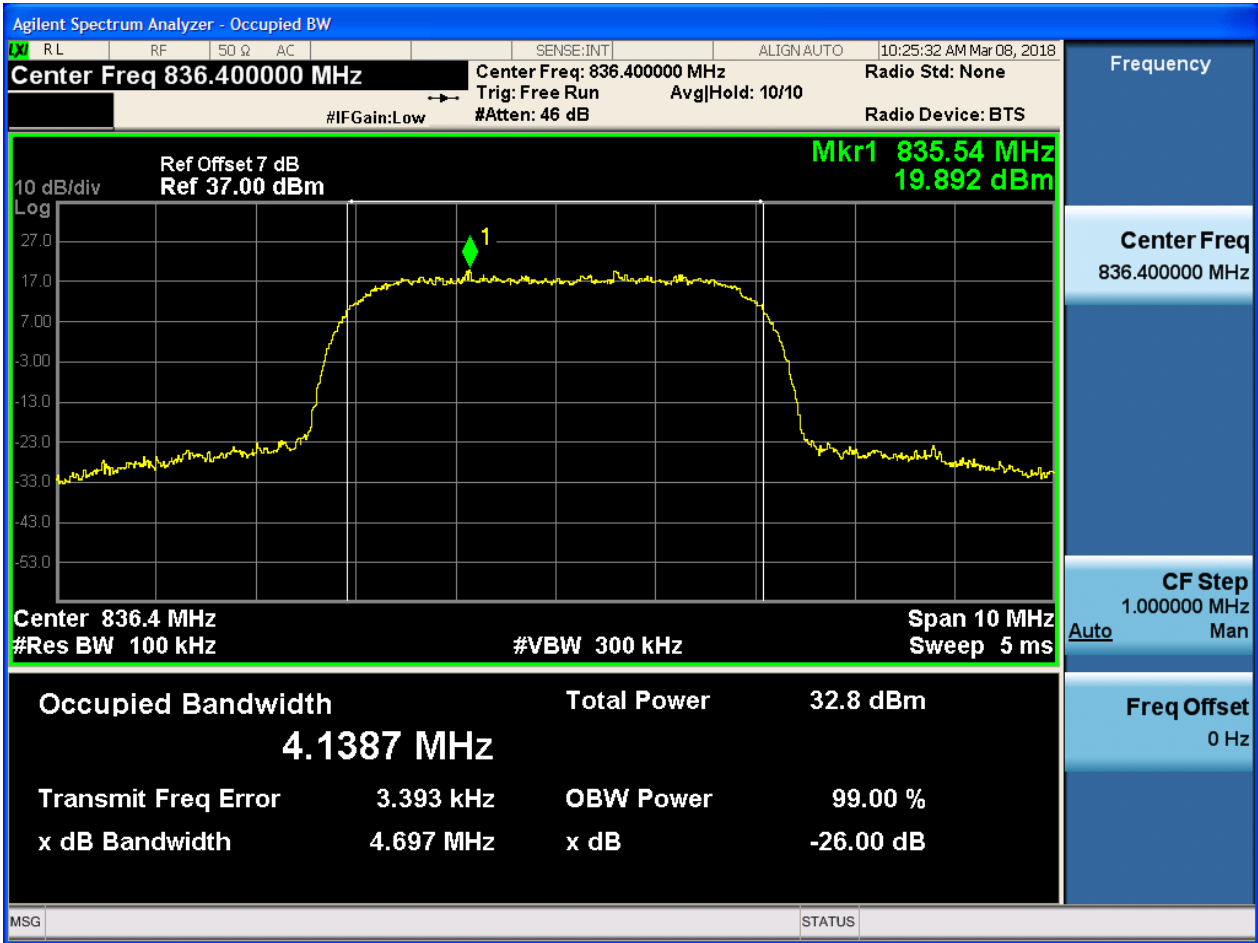
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



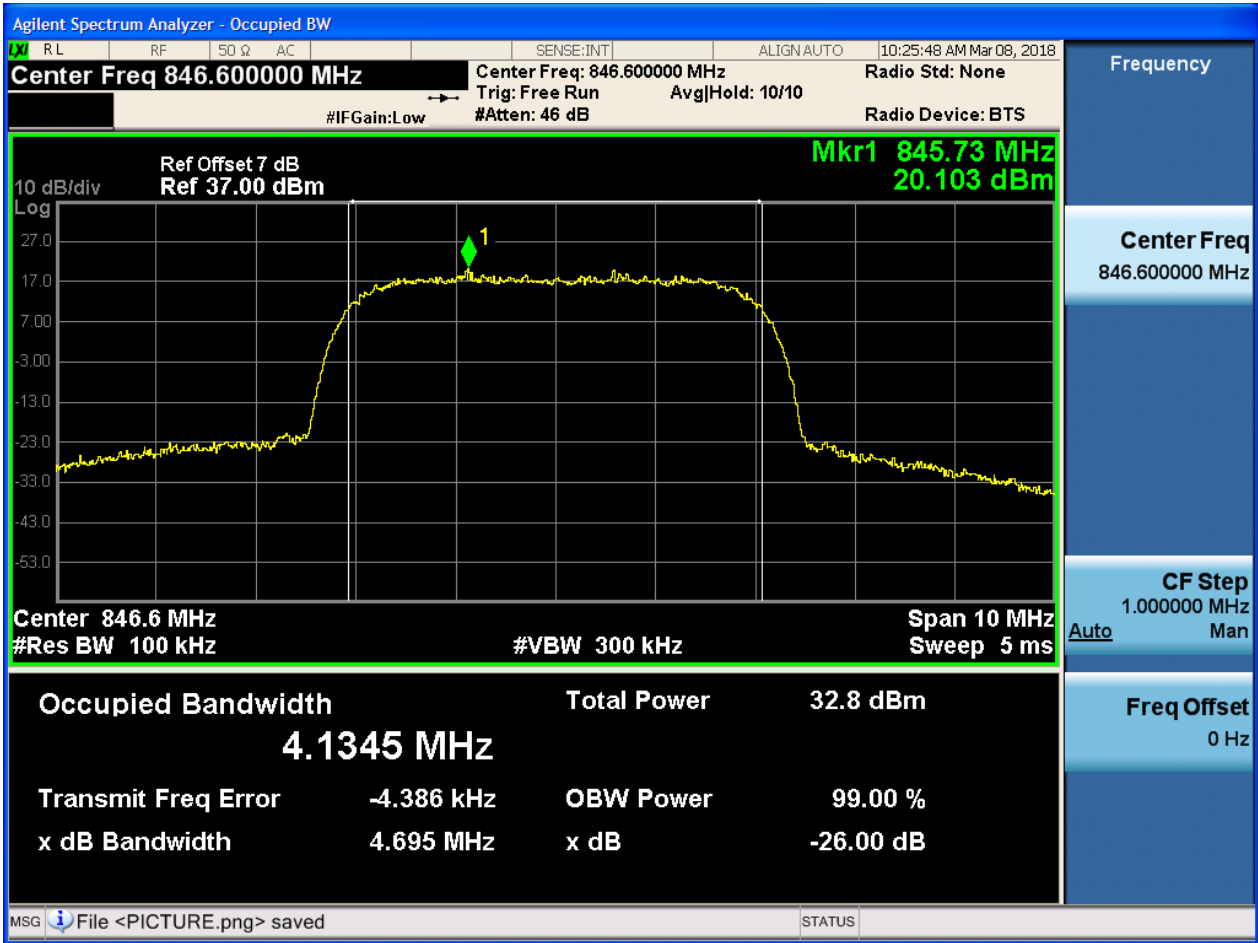


4.1.1.1.2 Test Channel = MCH





4.1.1.1.3 Test Channel = HCH

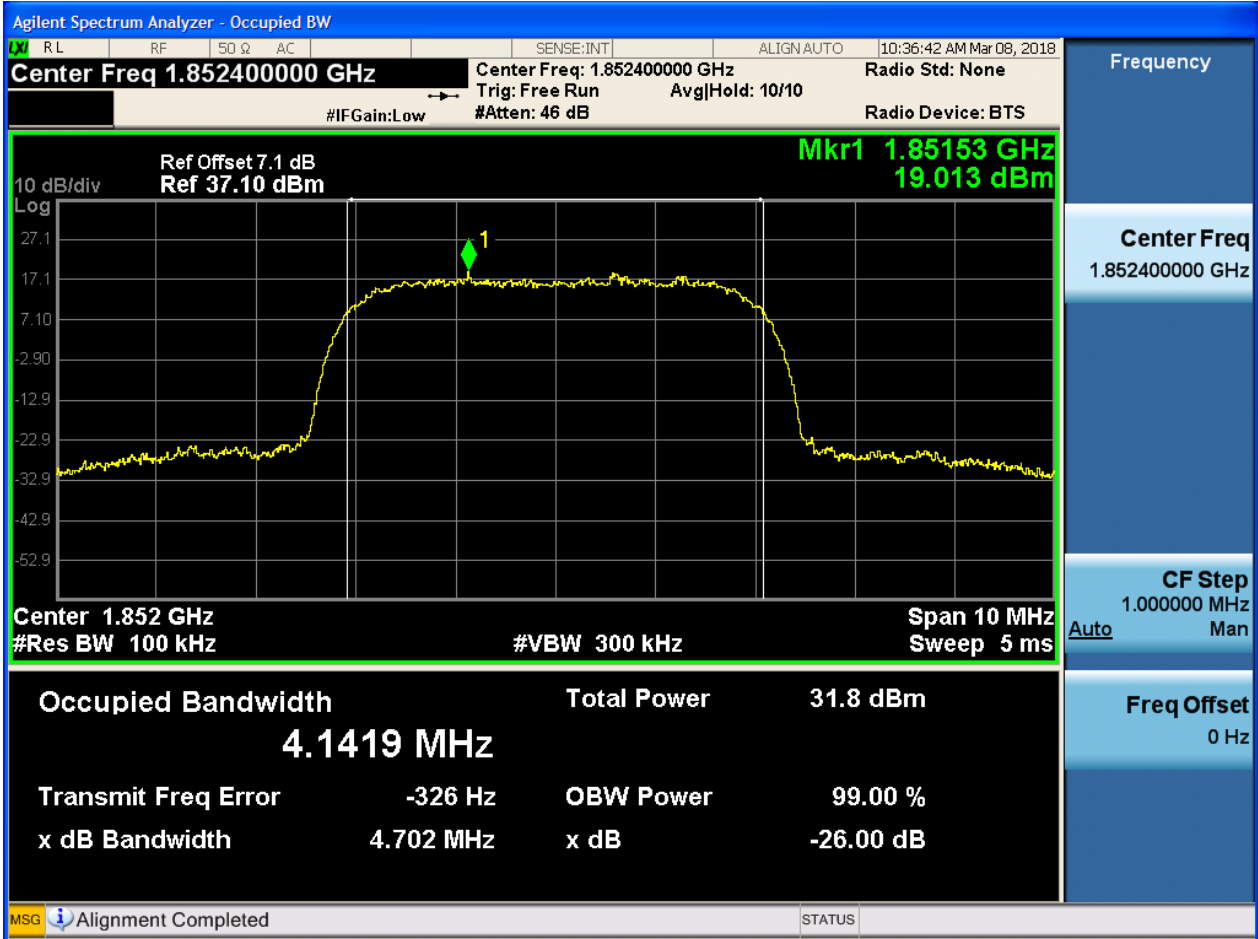




4.1.2 Test Band = WCDMA1900

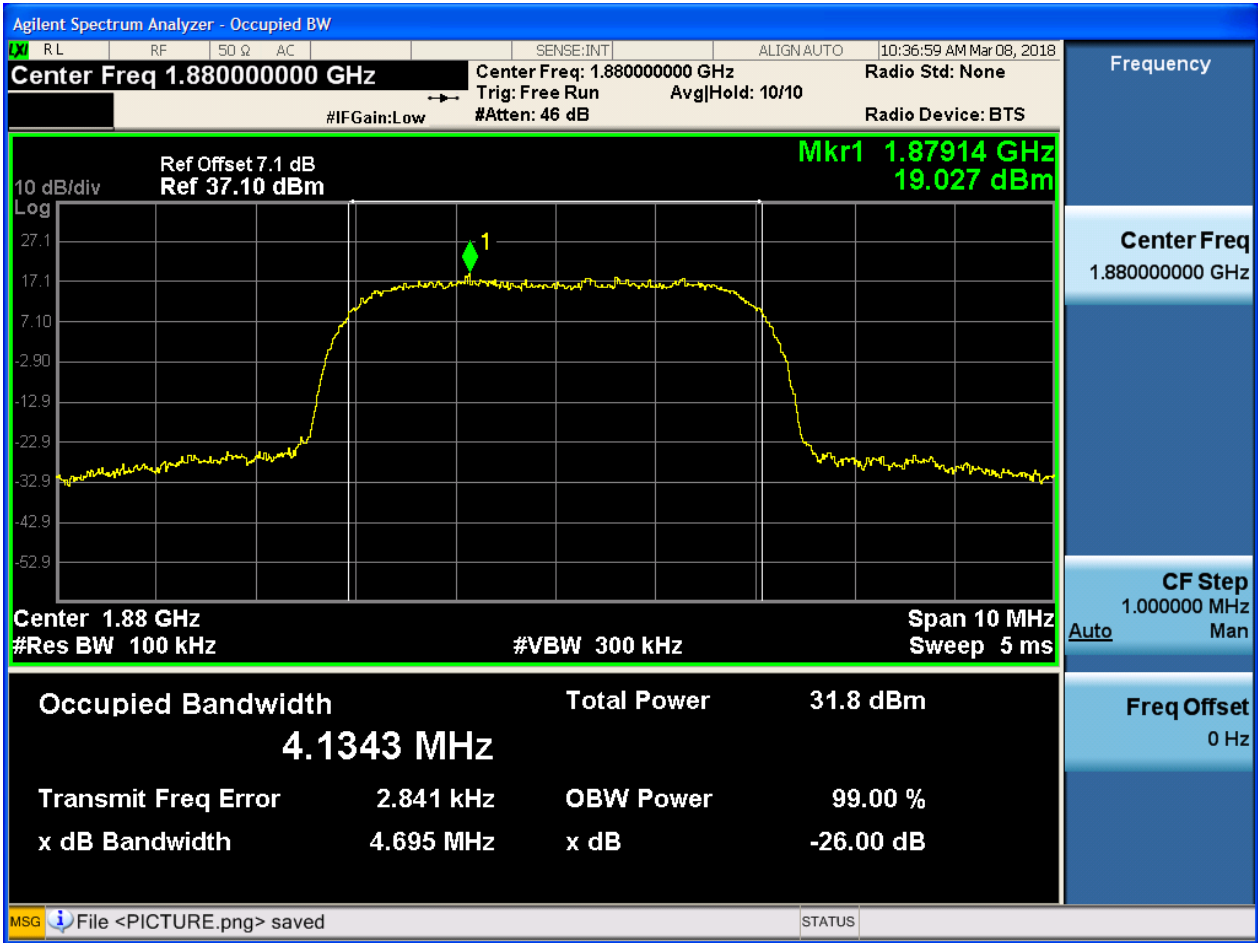
4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH



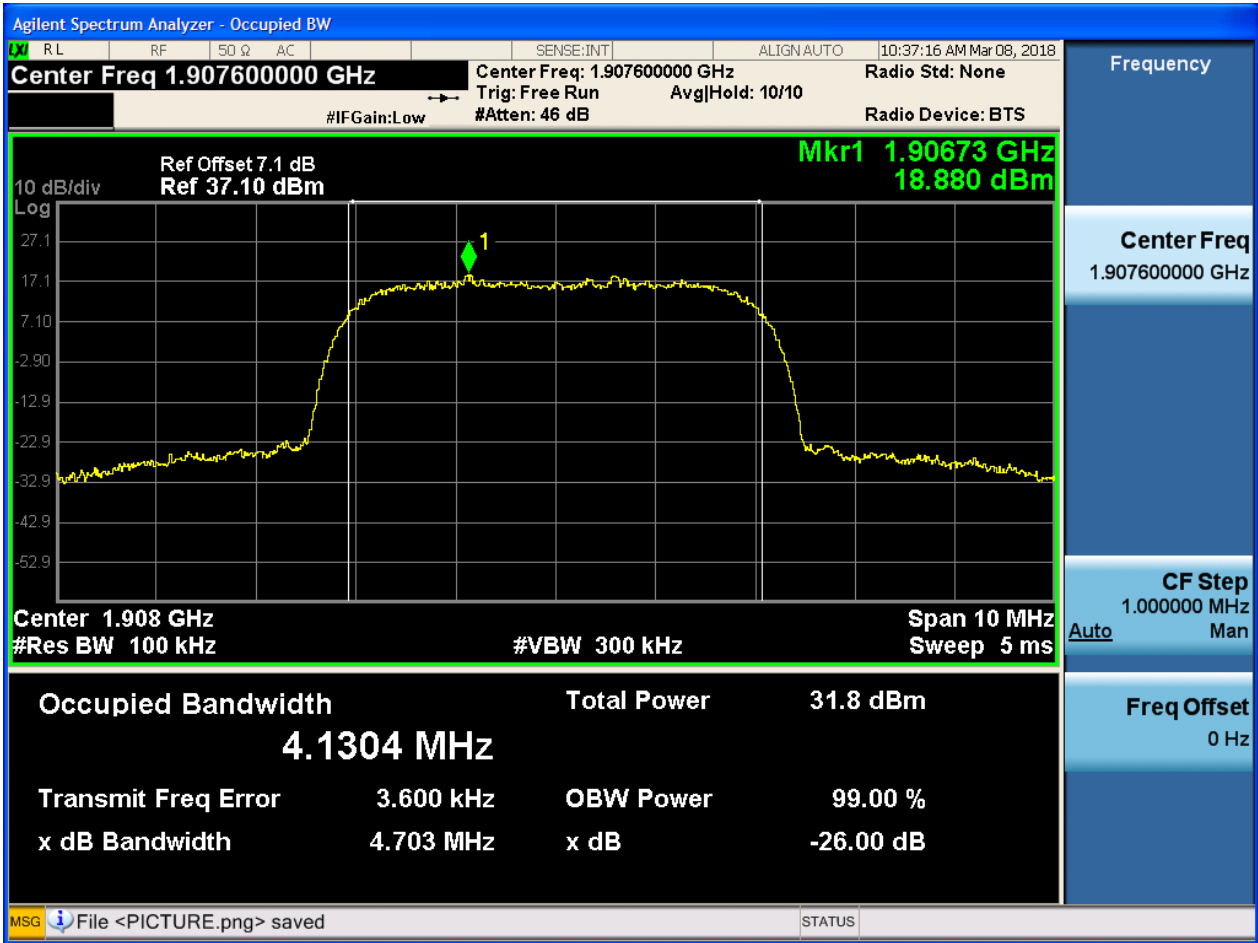


4.1.2.1.2 Test Channel = MCH





4.1.2.1.3 Test Channel = HCH





5Appendix_E: Band Edges Compliance

Part I - Test Plots

5.1 For UMTS

5.1.1 Test Band = WCDMA850

5.1.1.1 Test Mode = UMTS/TM1

5.1.1.1.1 Test Channel = LCH





5.1.1.1.2 Test Channel = HCH

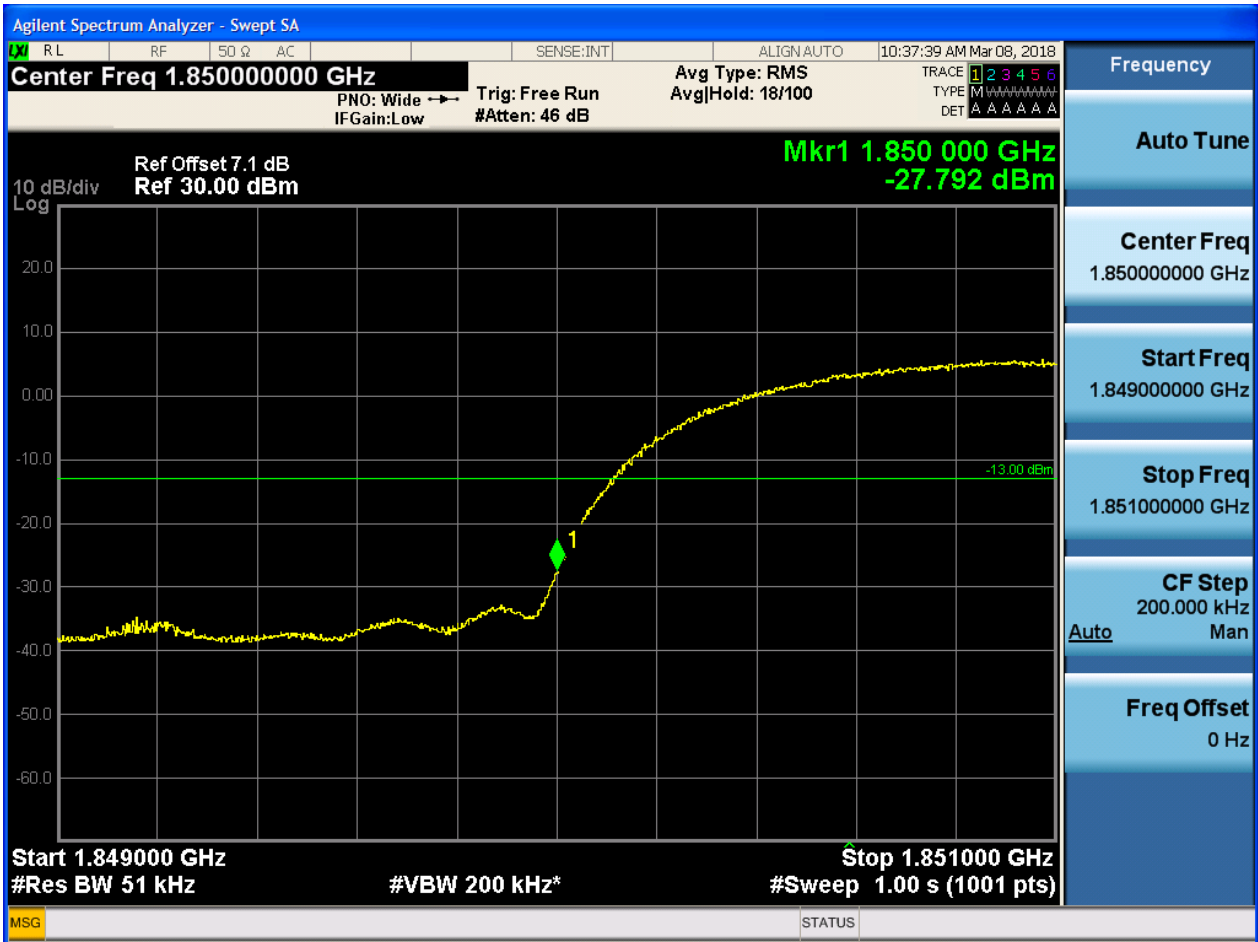




5.1.2 Test Band = WCDMA1900

5.1.2.1 Test Mode = UMTS/TM1

5.1.2.1.1 Test Channel = LCH



5.1.2.1.2 Test Channel = HCH





6Appendix_F: Spurious Emission at Antenna Terminal

NOTE: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of $< RBW/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = $k * (Span / RBW)$ " with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

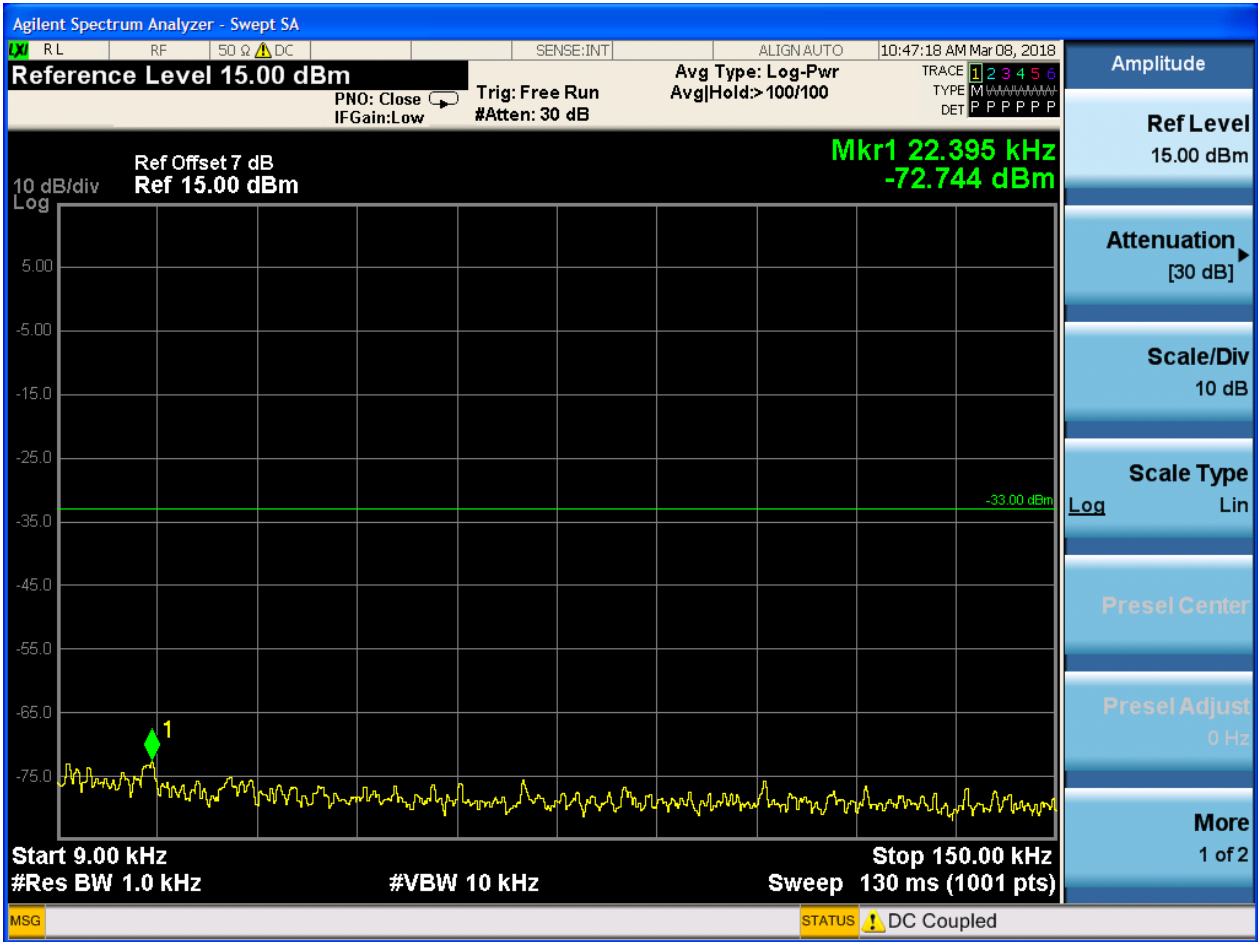
Part I - Test Plots

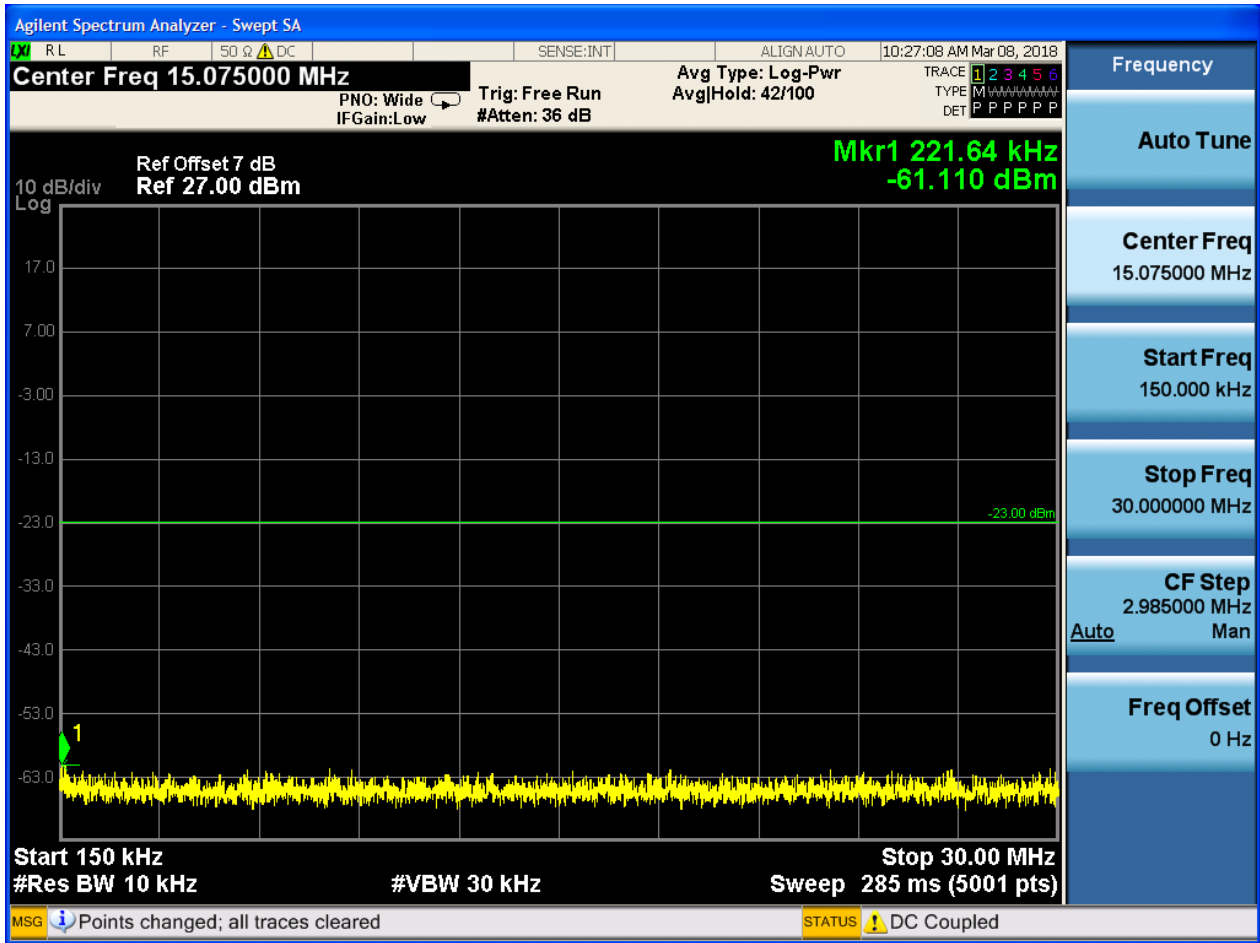
6.1 For UMTS

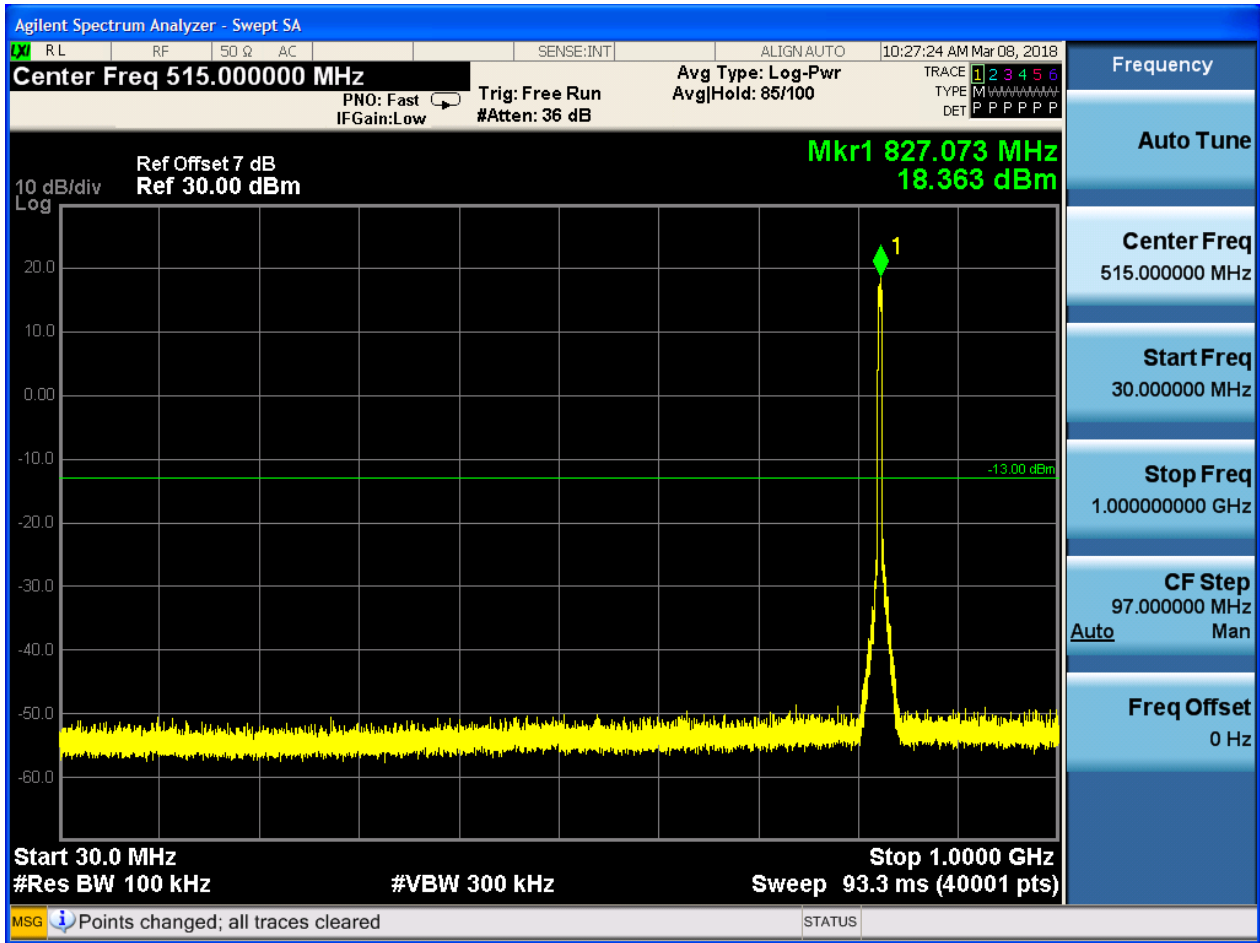
6.1.1 Test Band = WCDMA850

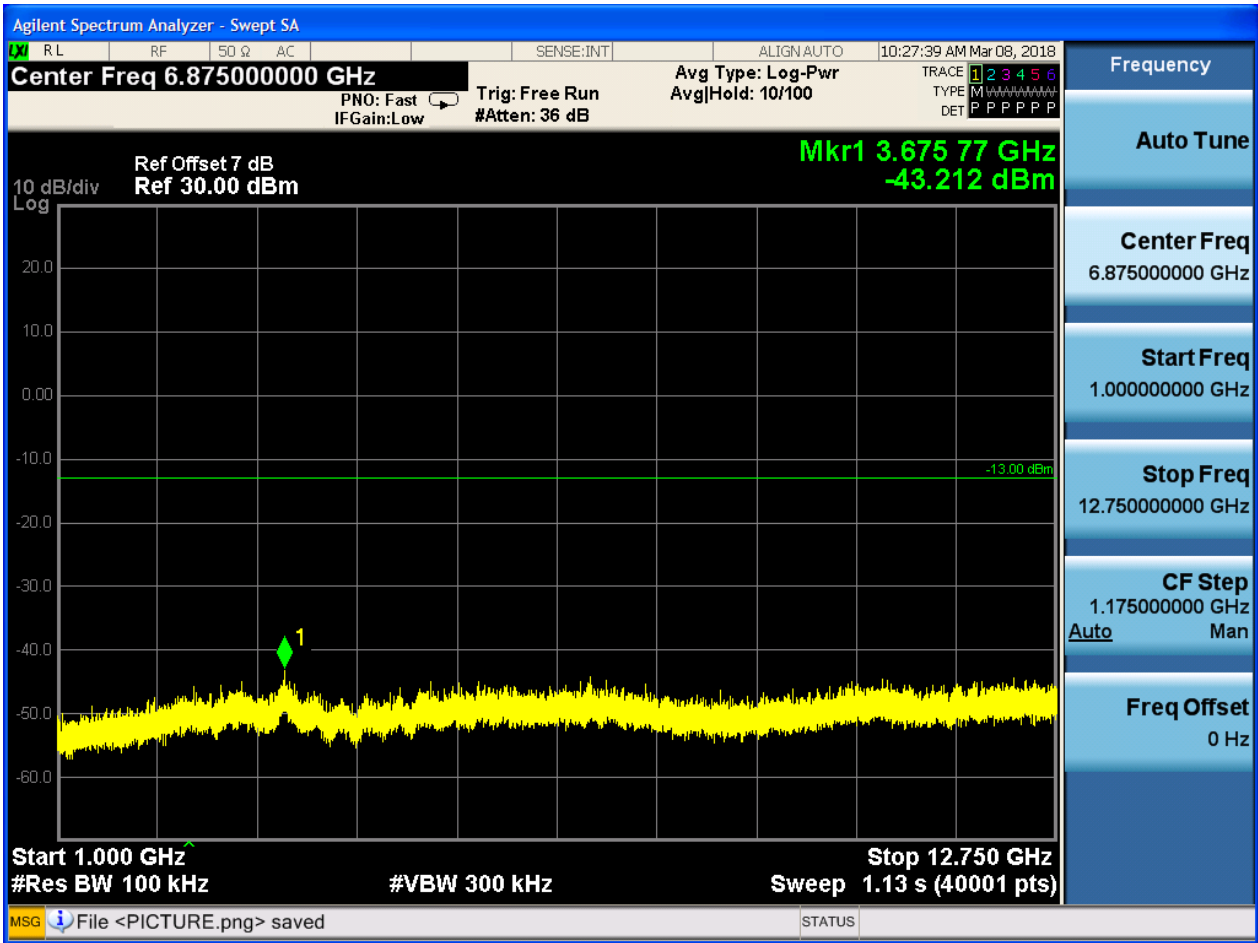
6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH



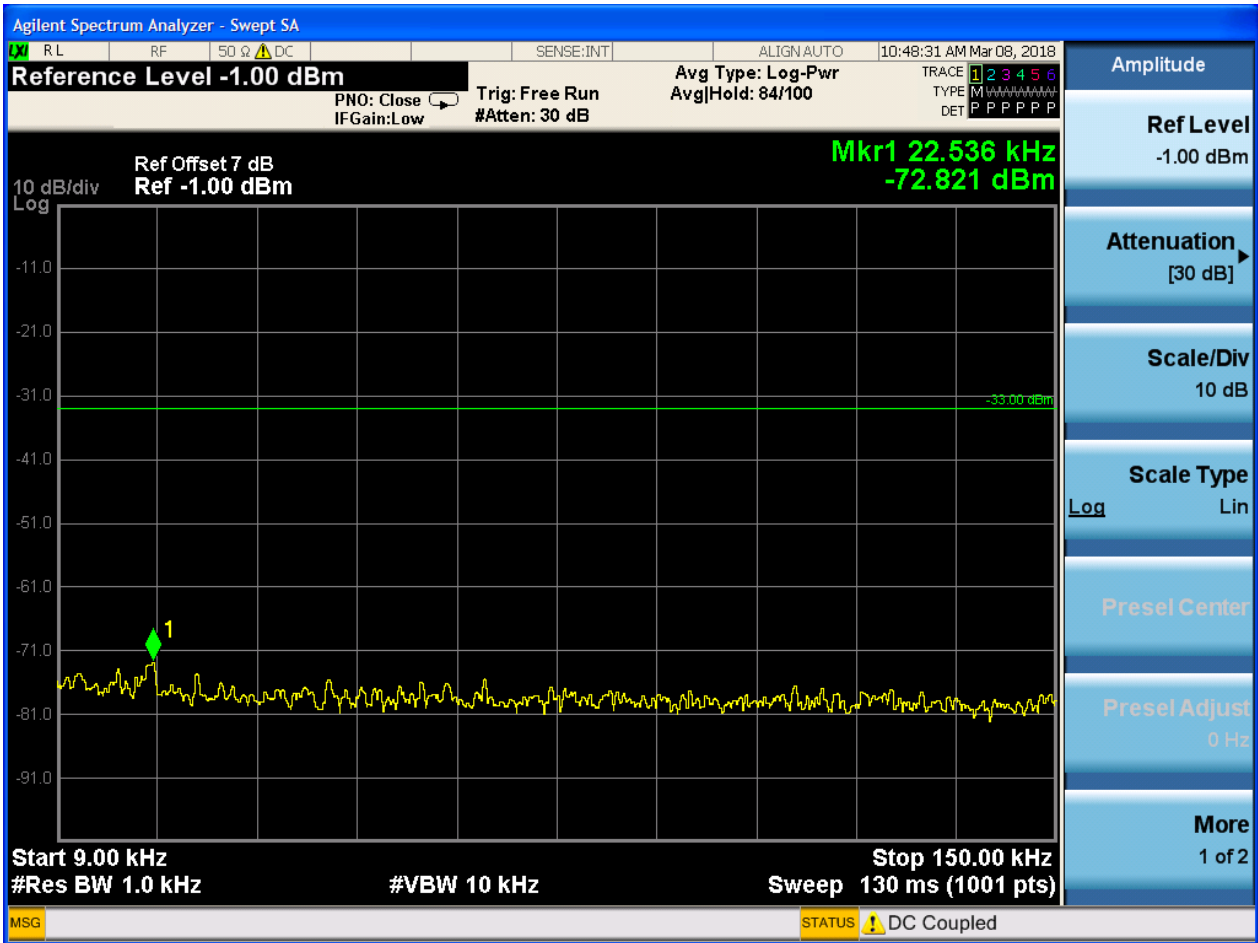


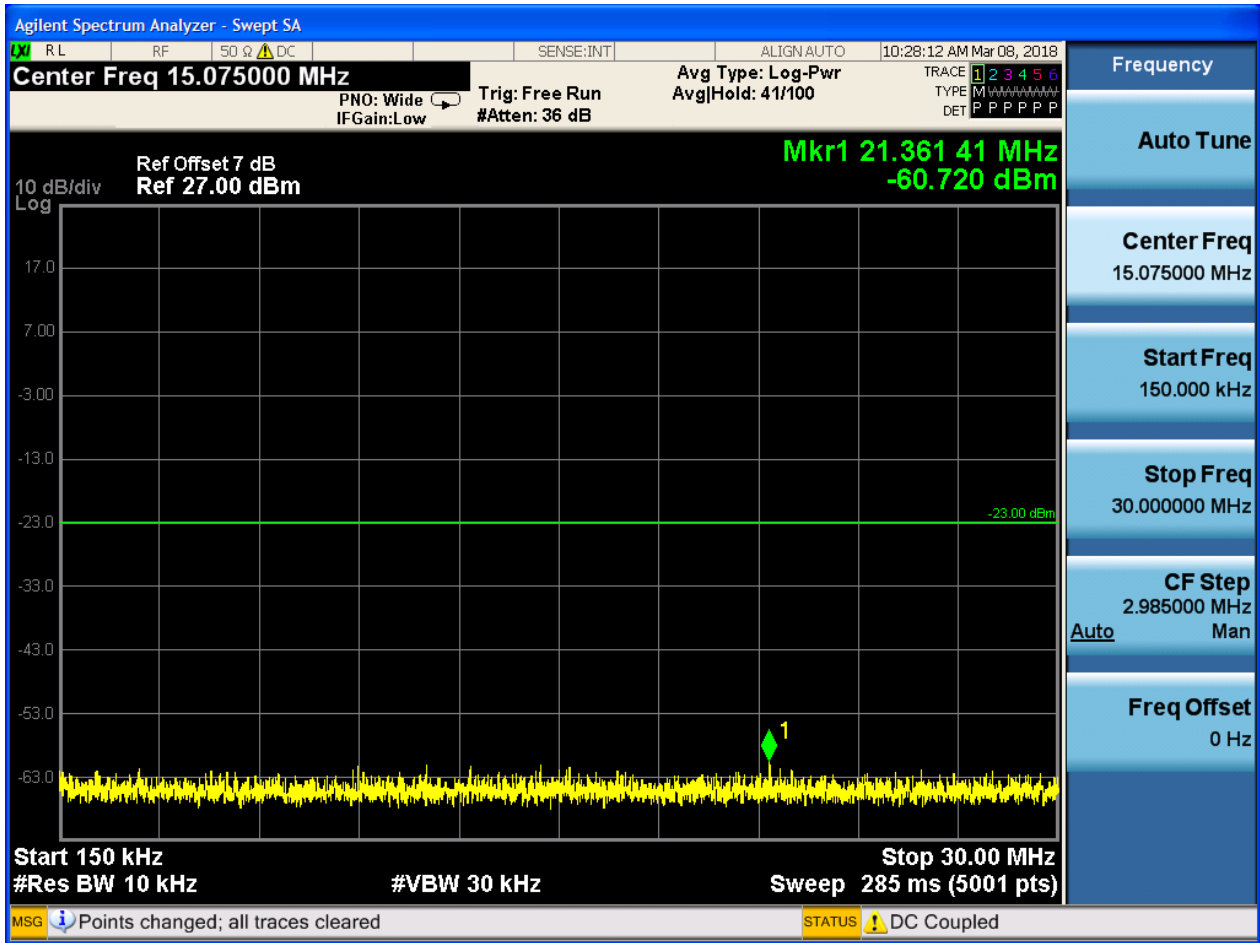


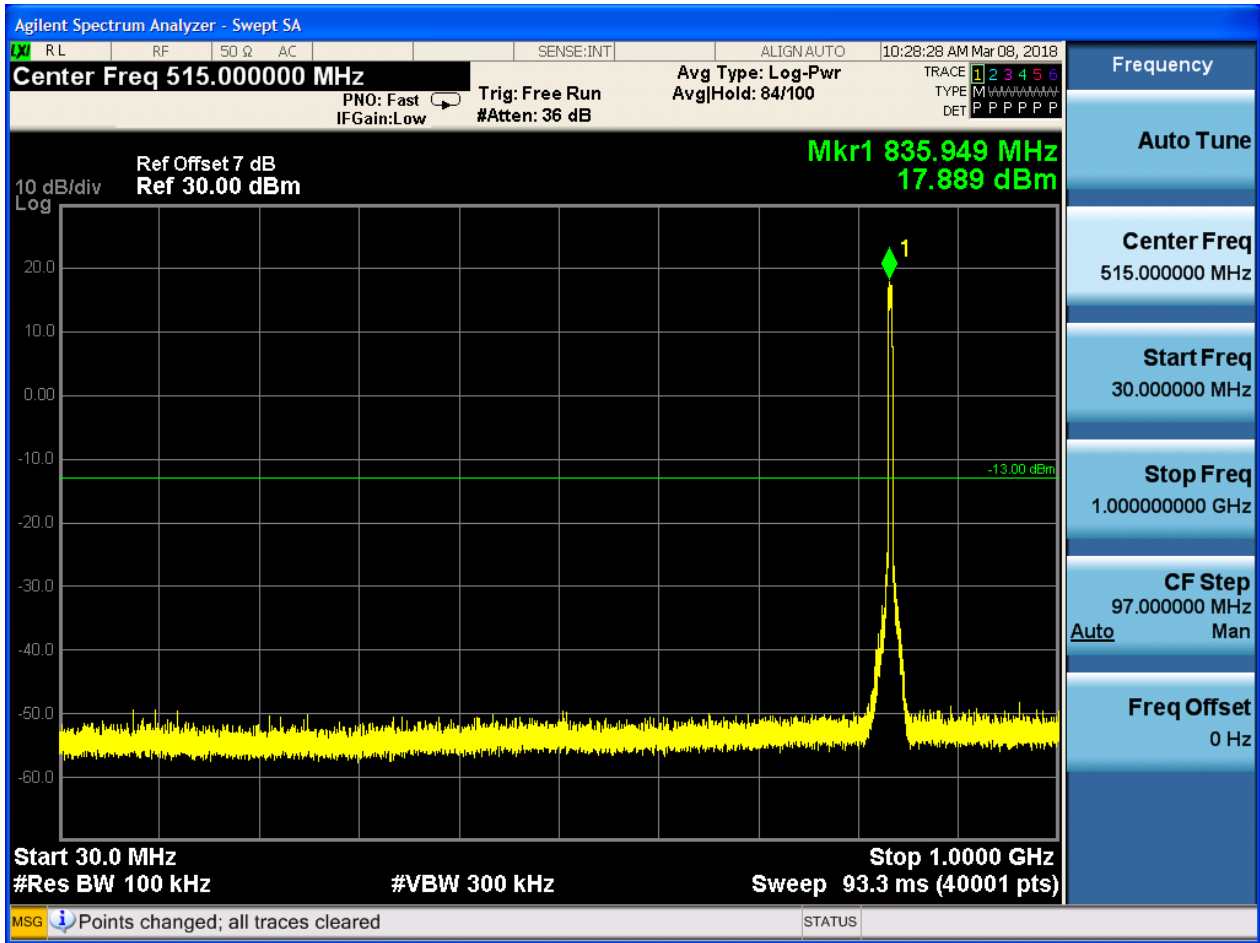


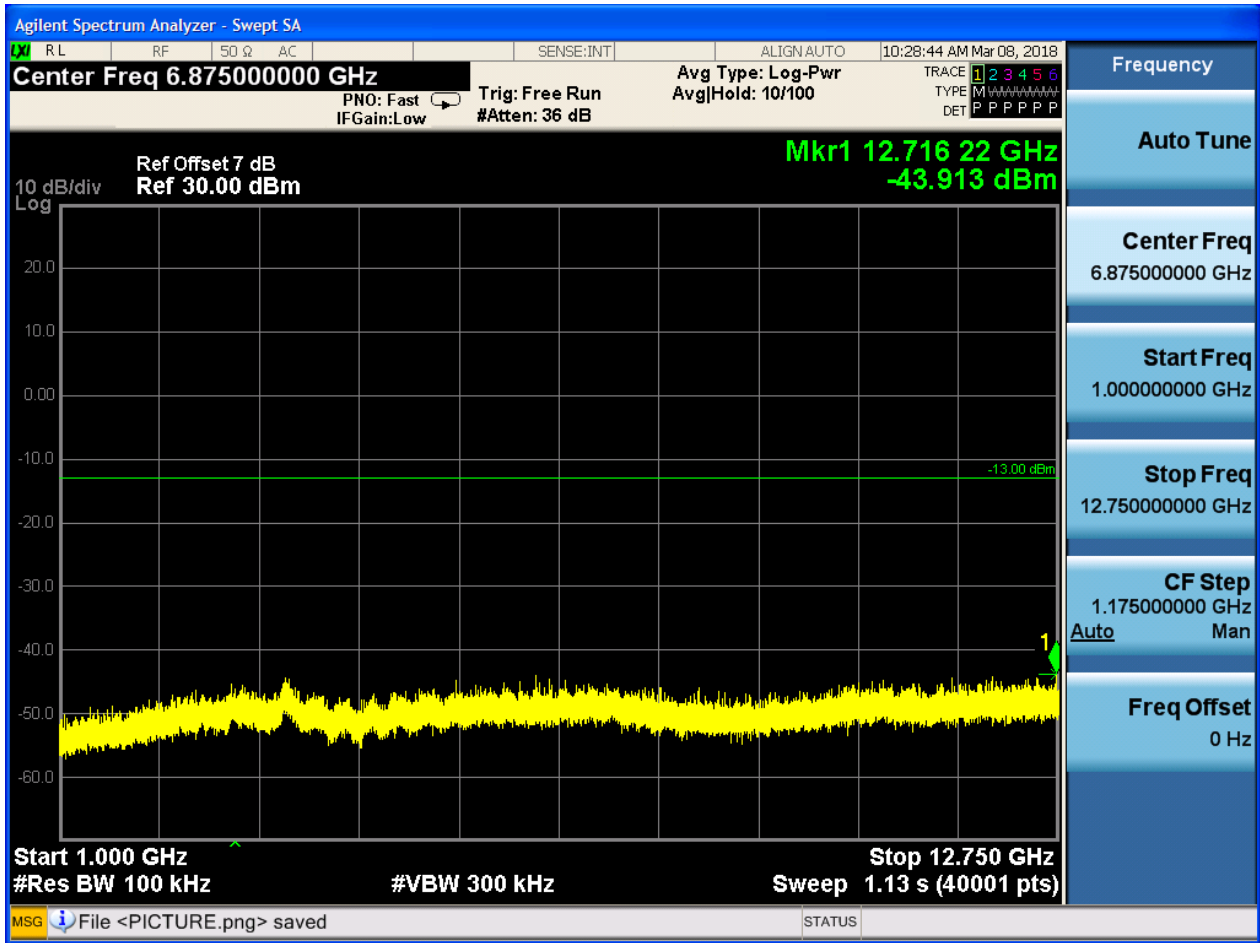


6.1.1.1.2 Test Channel = MCH



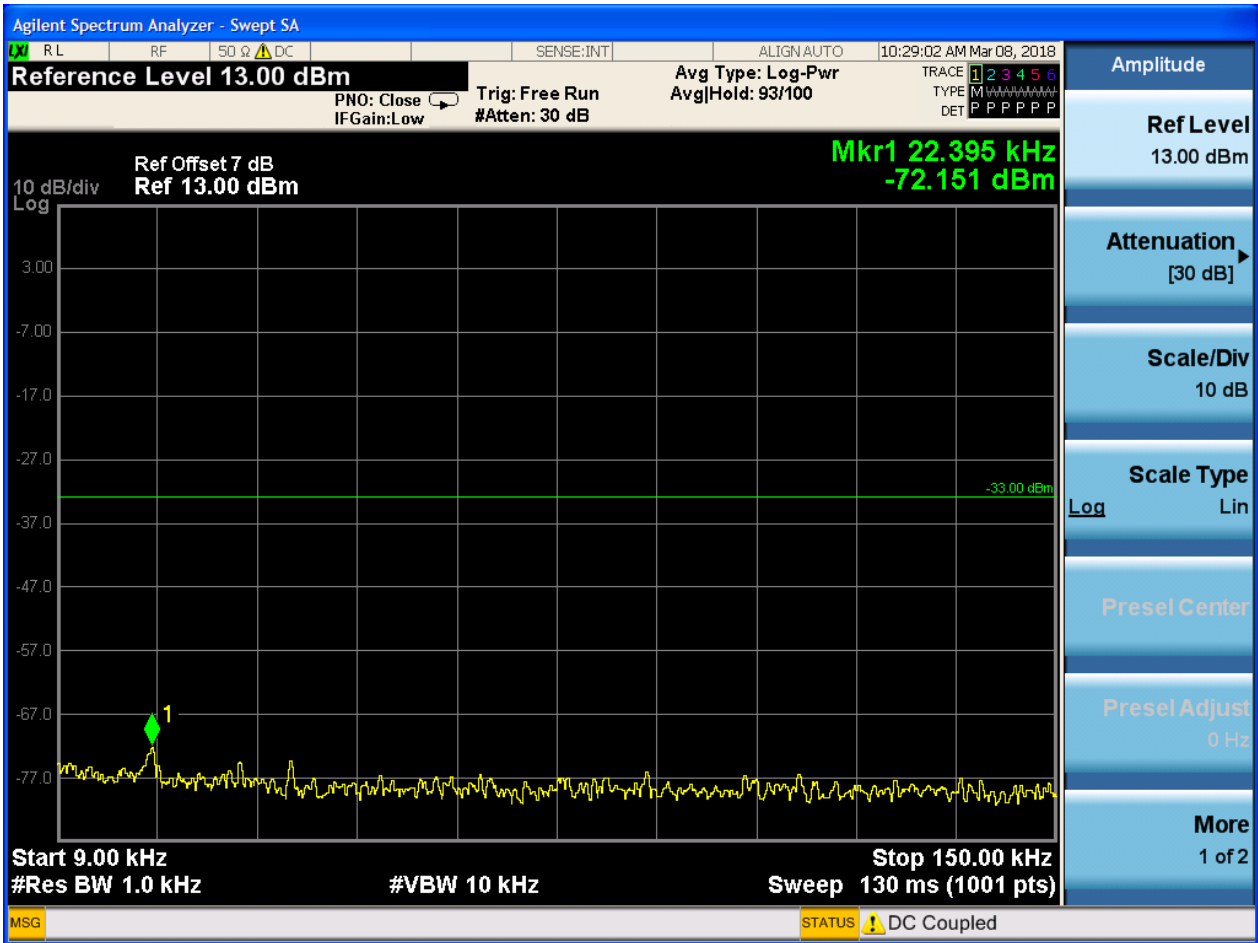


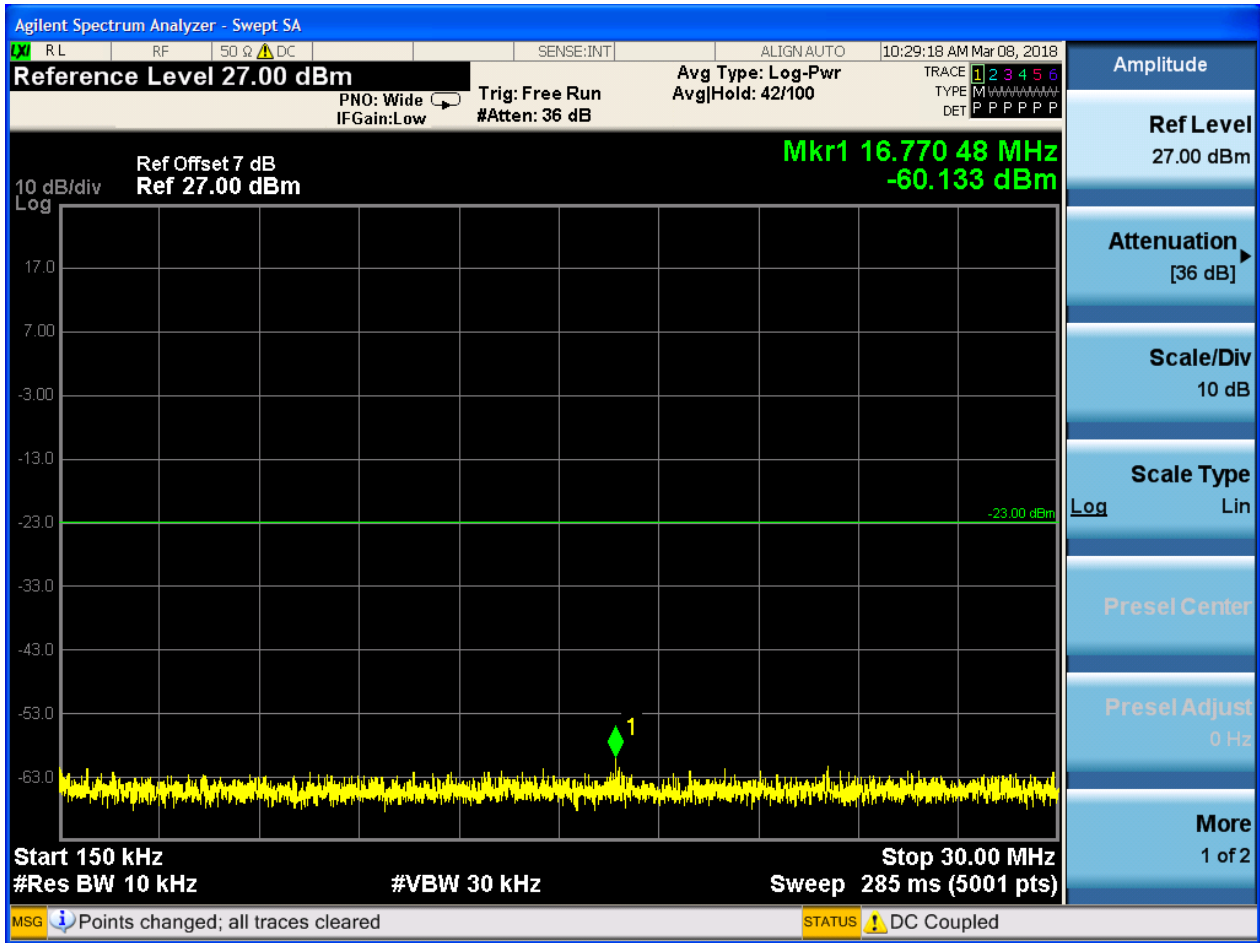


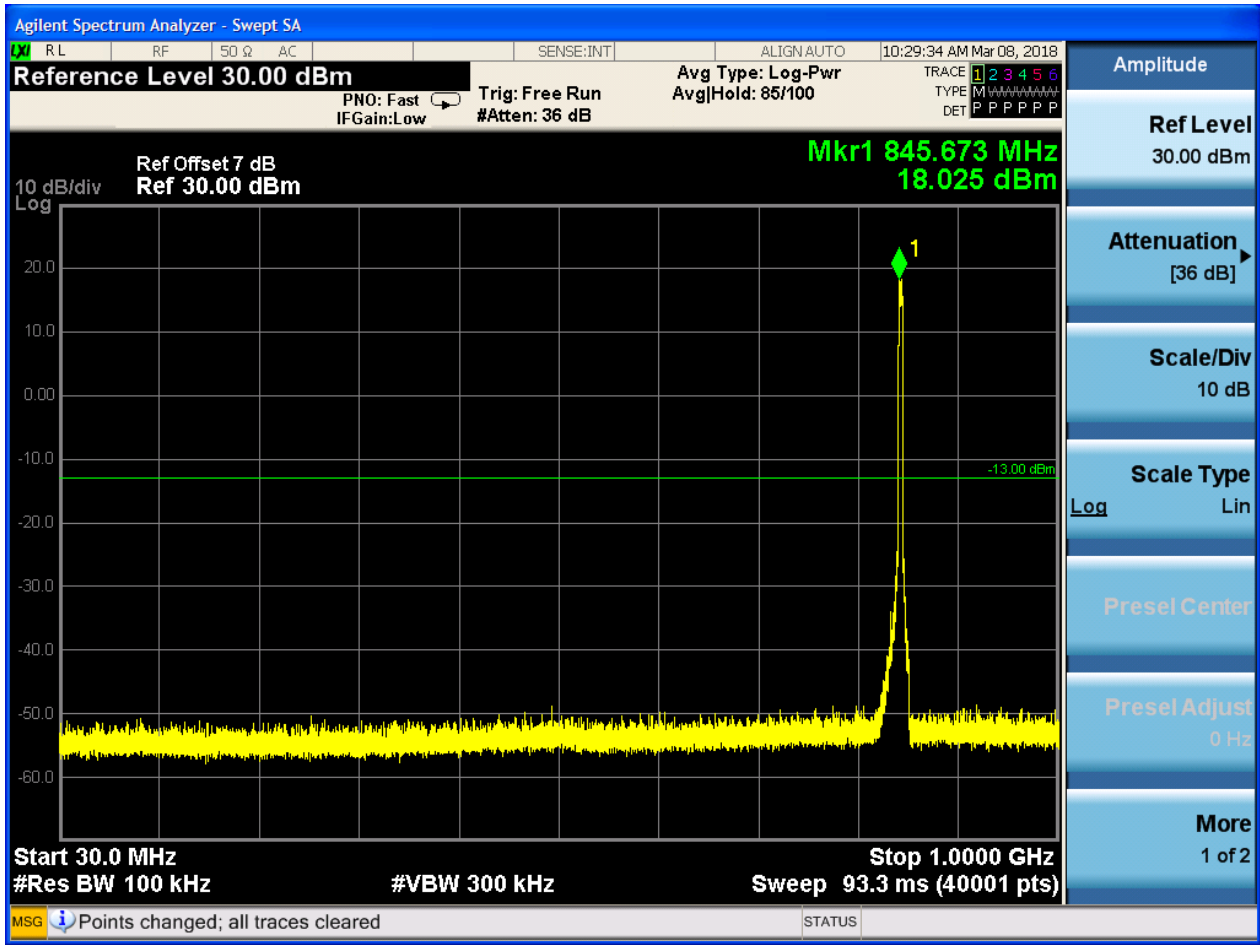


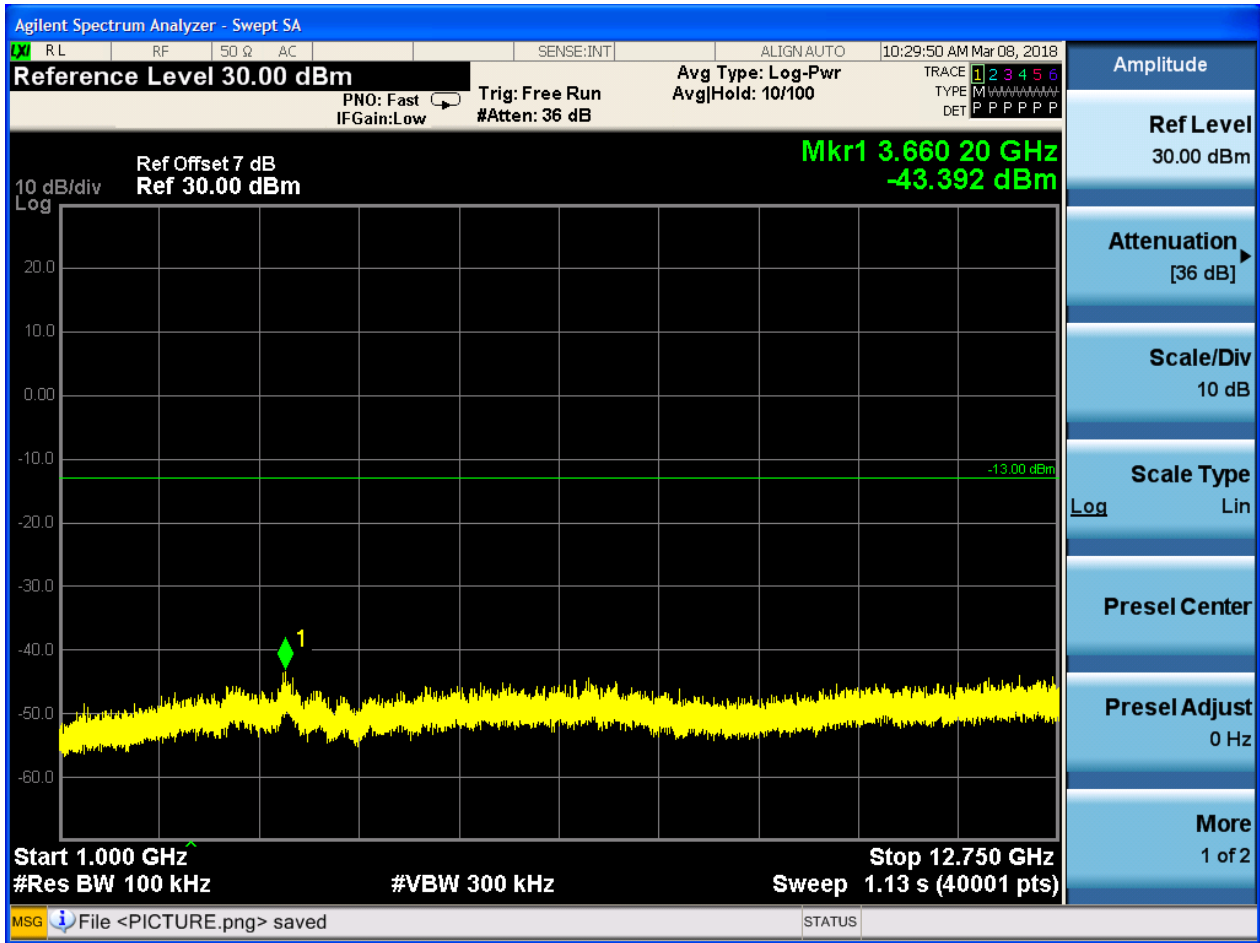


6.1.1.1.3 Test Channel = HCH







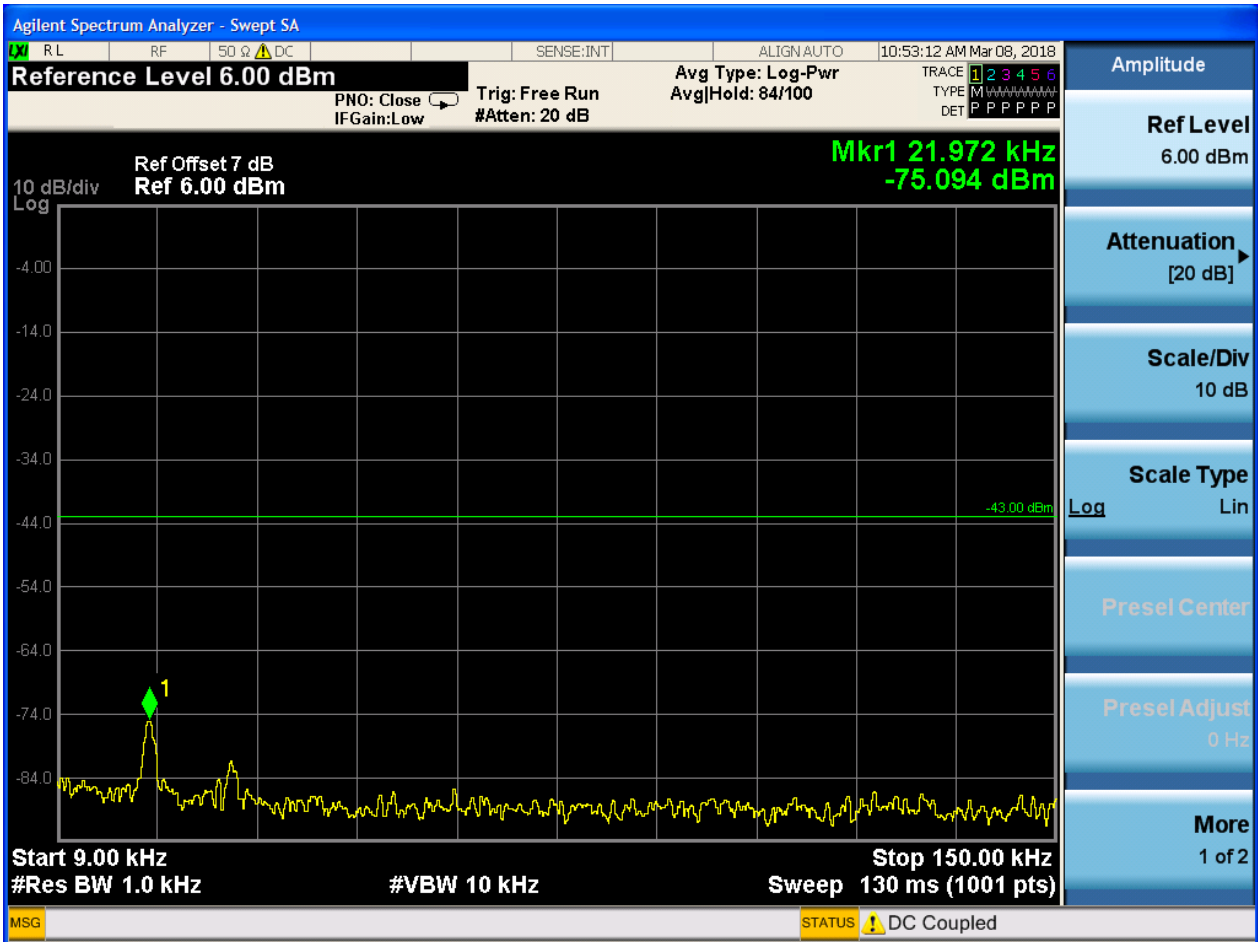


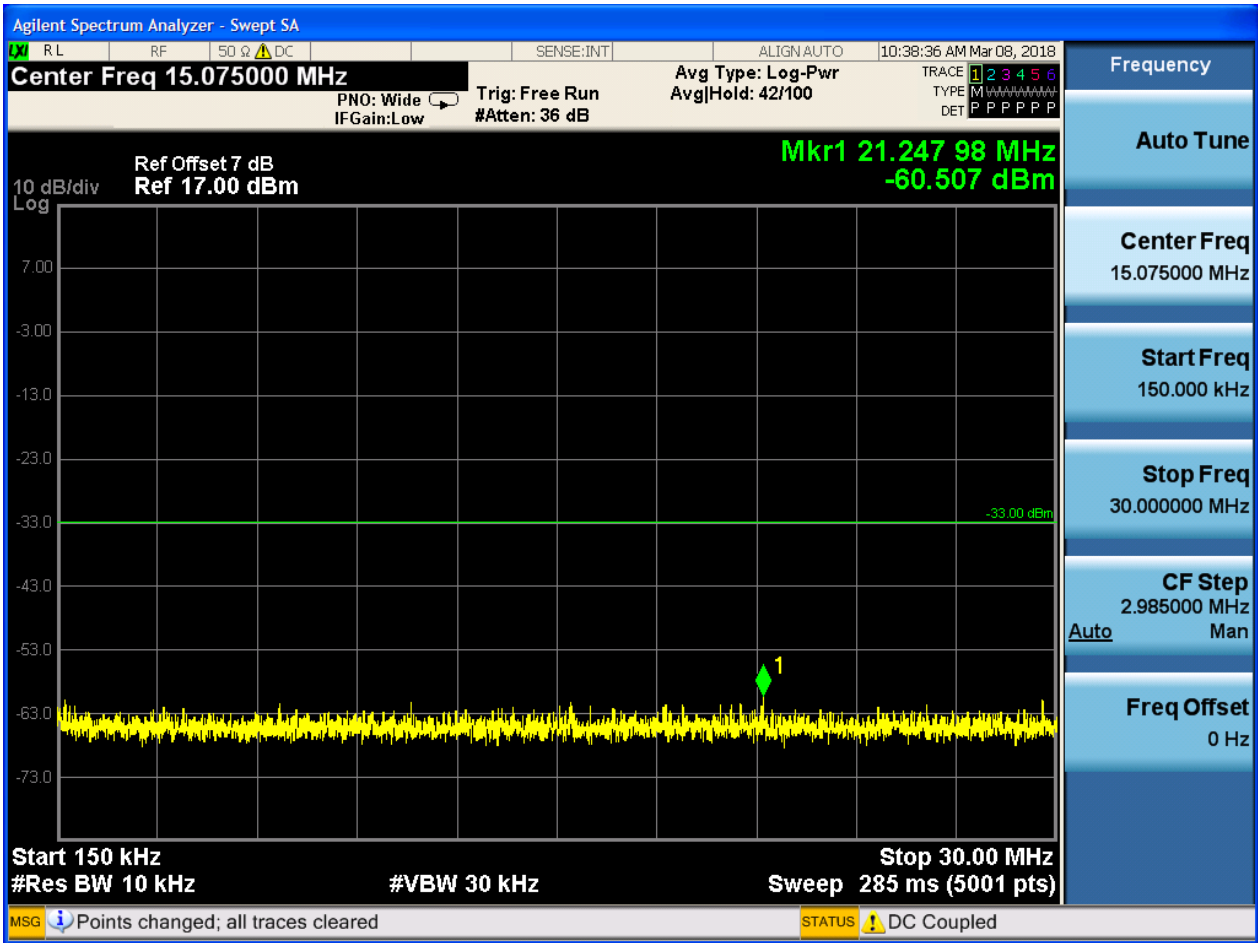


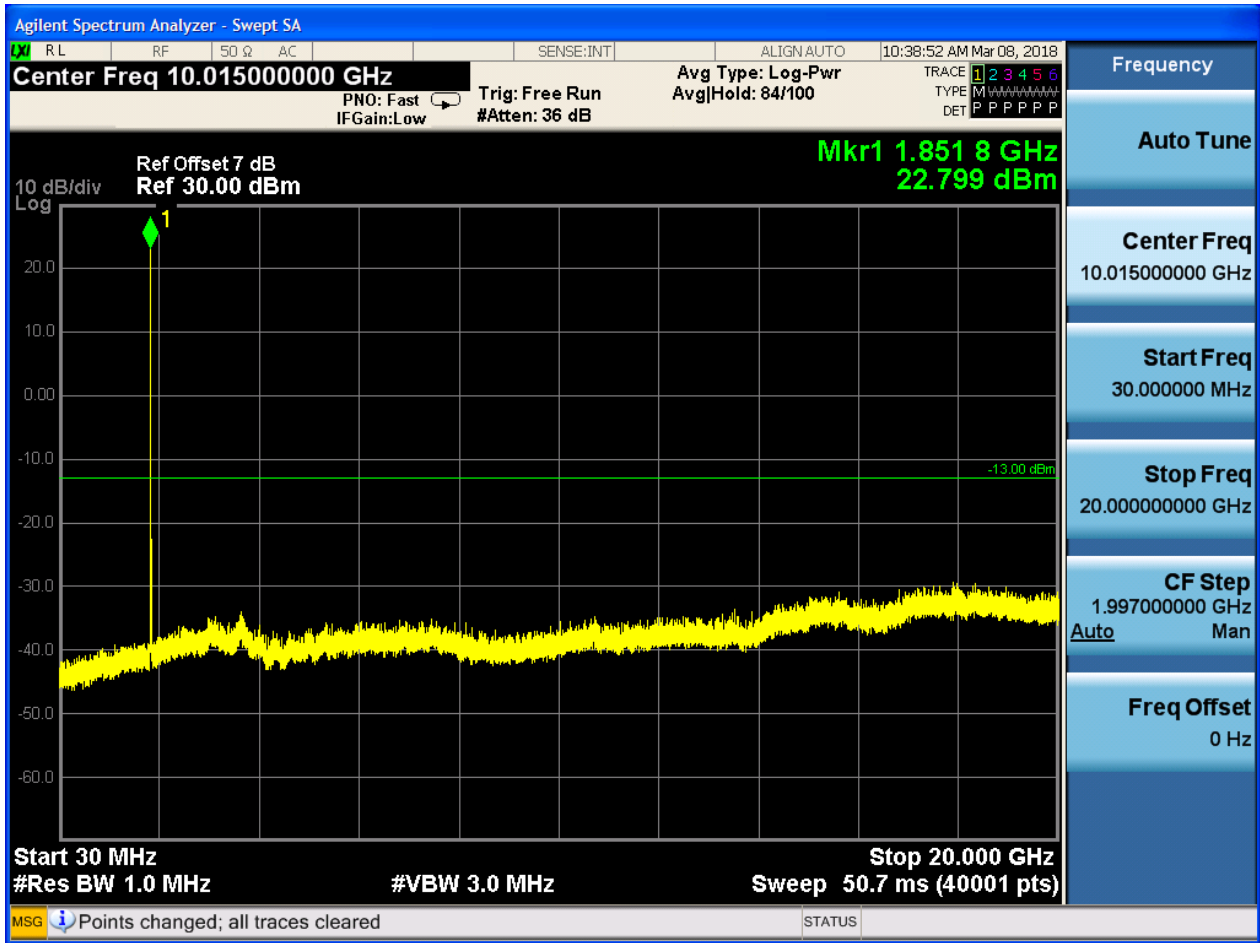
6.1.2 Test Band = WCDMA1900

6.1.2.1 Test Mode = UMTS/TM1

6.1.2.1.1 Test Channel = LCH

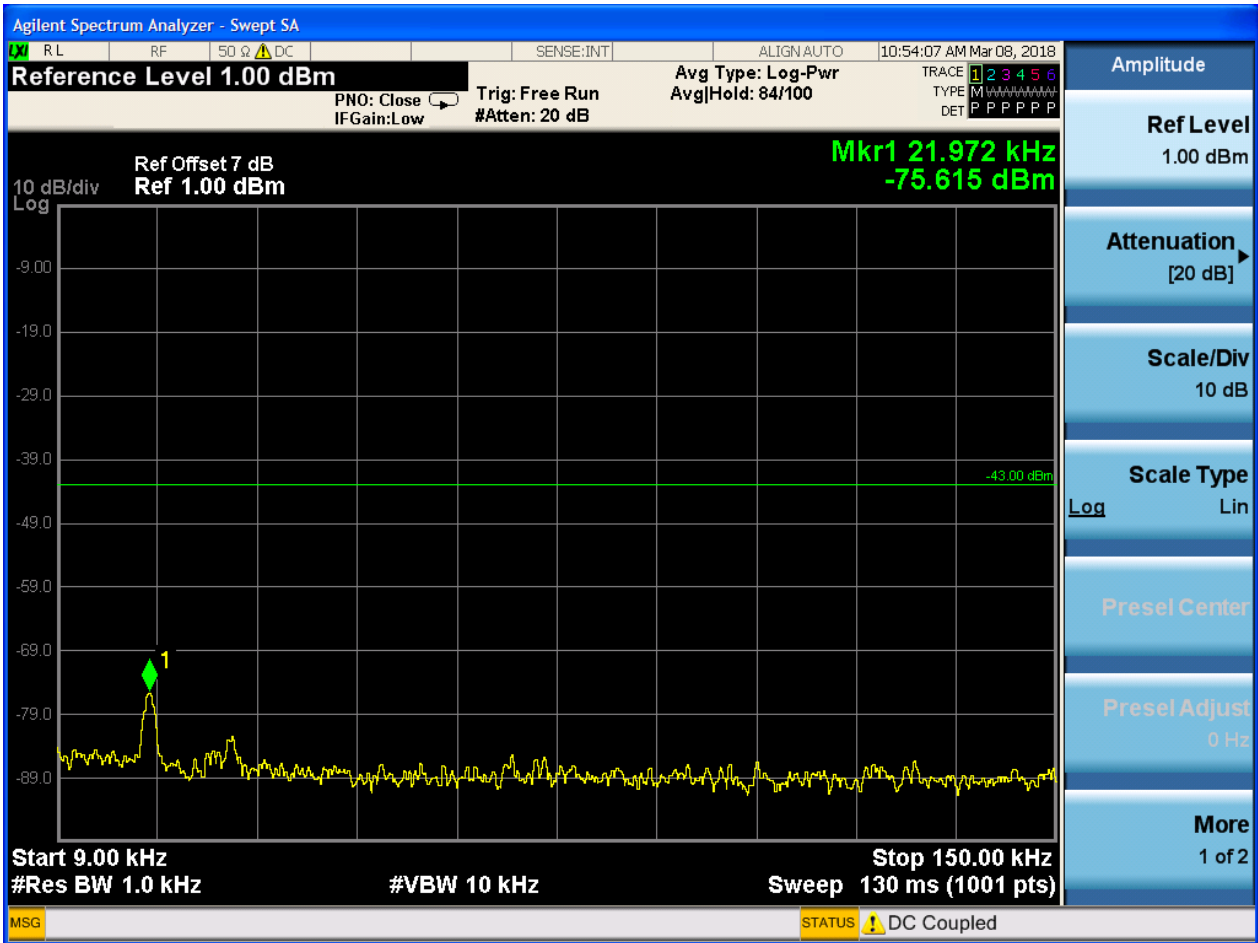


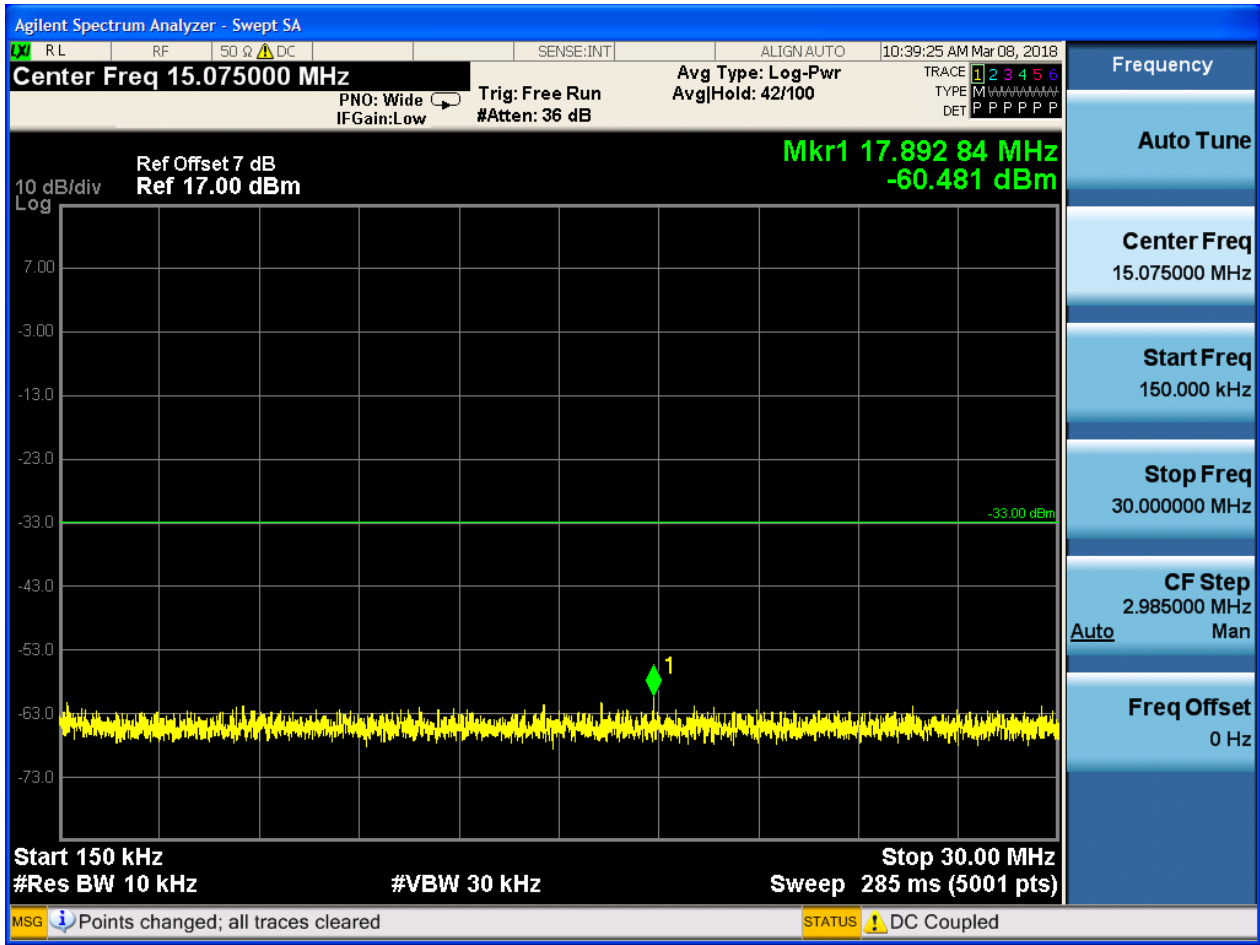


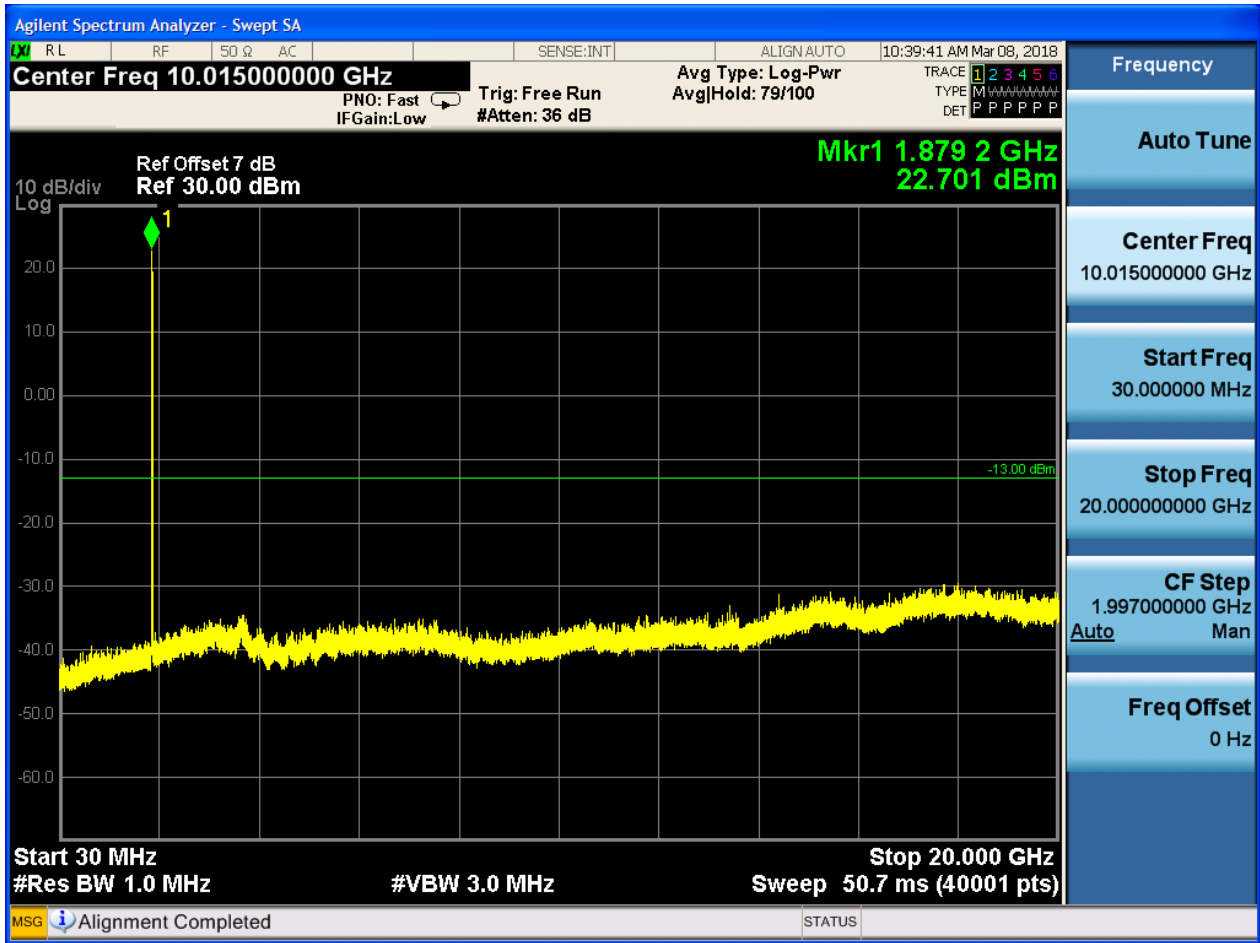




6.1.2.1.2 Test Channel = MCH

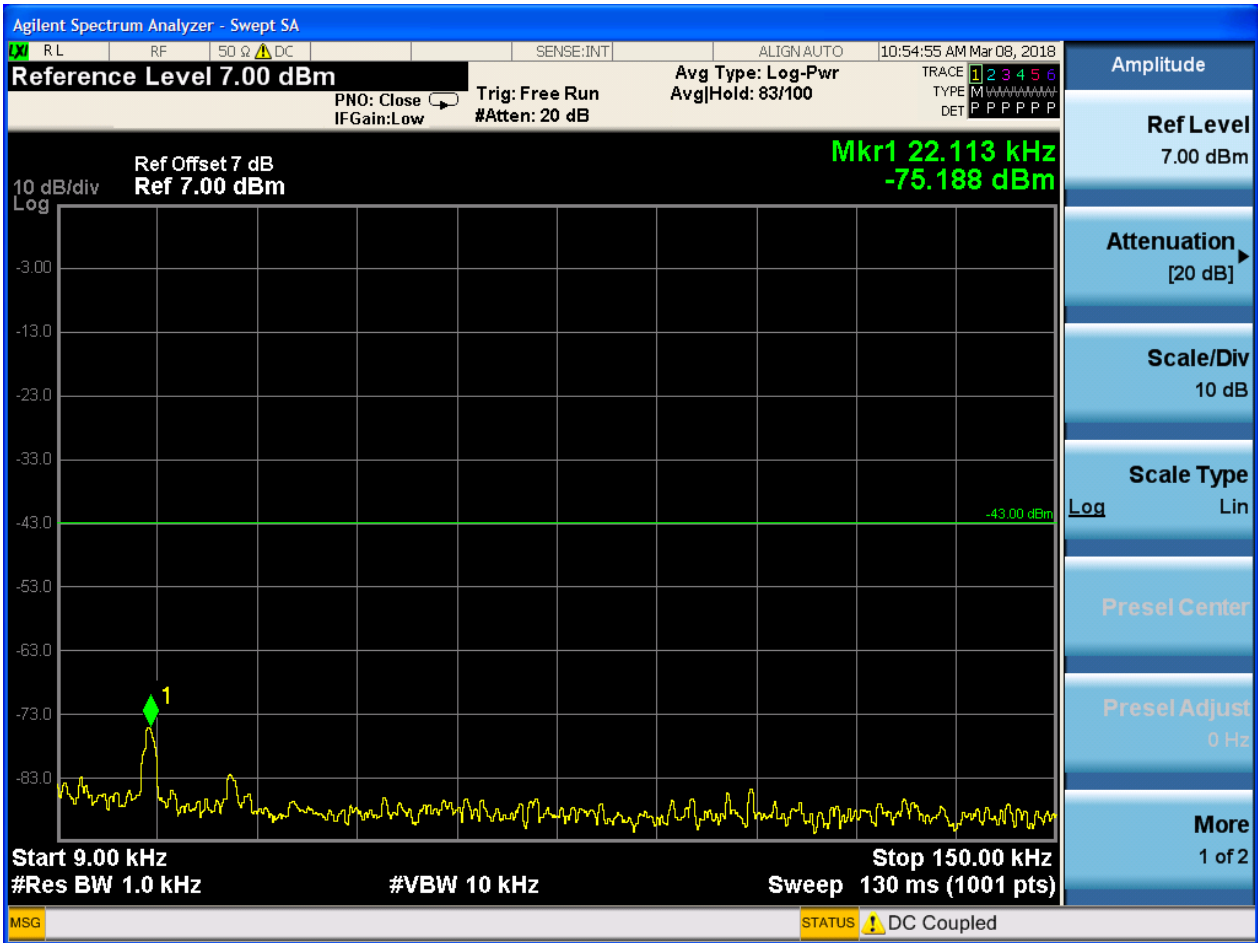


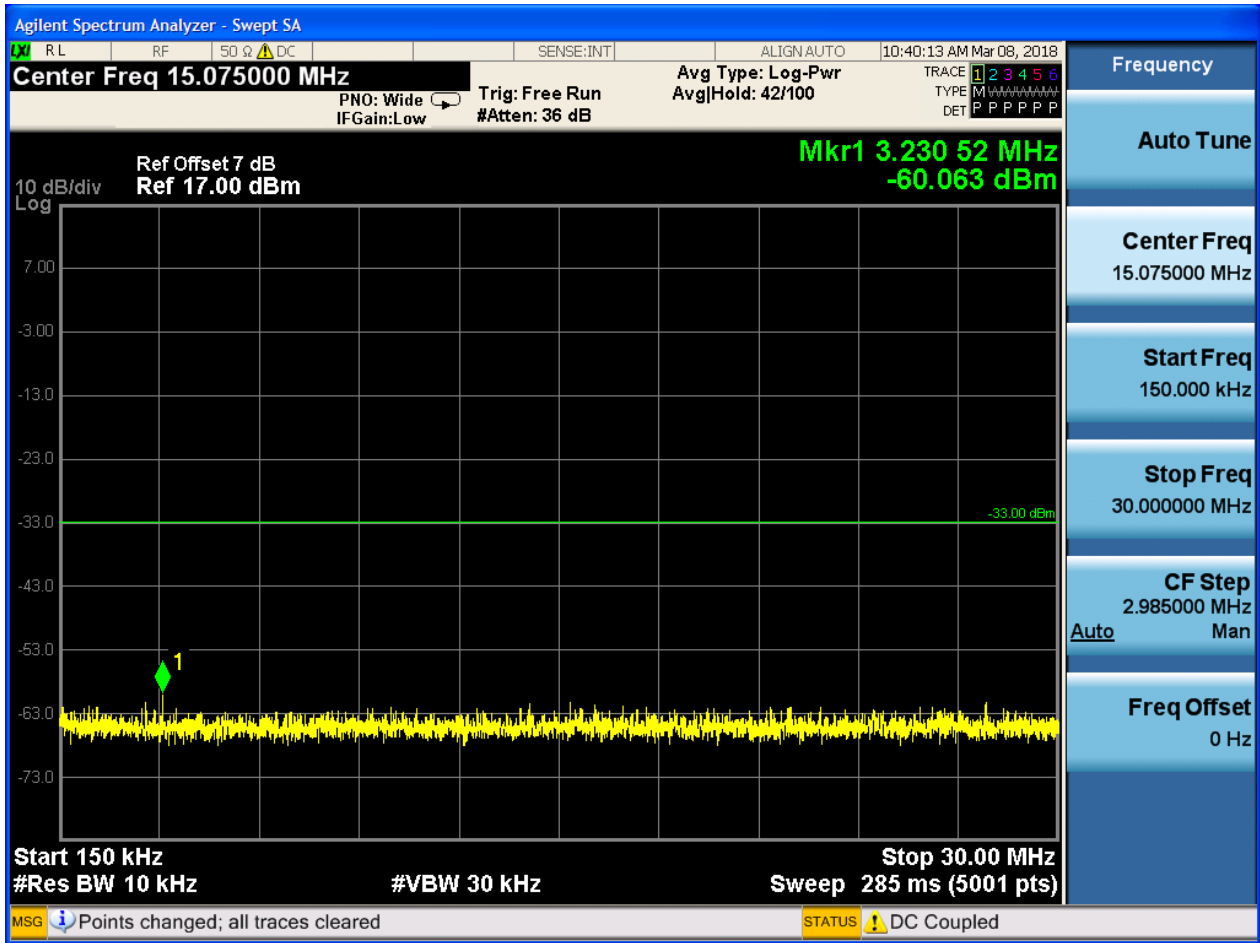






6.1.2.1.3 Test Channel = HCH









7Appendix_G: Field Strength of Spurious Radiation

Note: We tested all modes, but the data presented below is the worst case.

9kHz~150kHz, RBW = 200Hz, VBW = 600 Hz, Detector: PK

150kHz~30MHz, RBW = 9kHz, VBW = 30k Hz, Detector: PK

30MHz~1GHz, RBW = 100 kHz, VBW = 300 kHz. Detector: PK

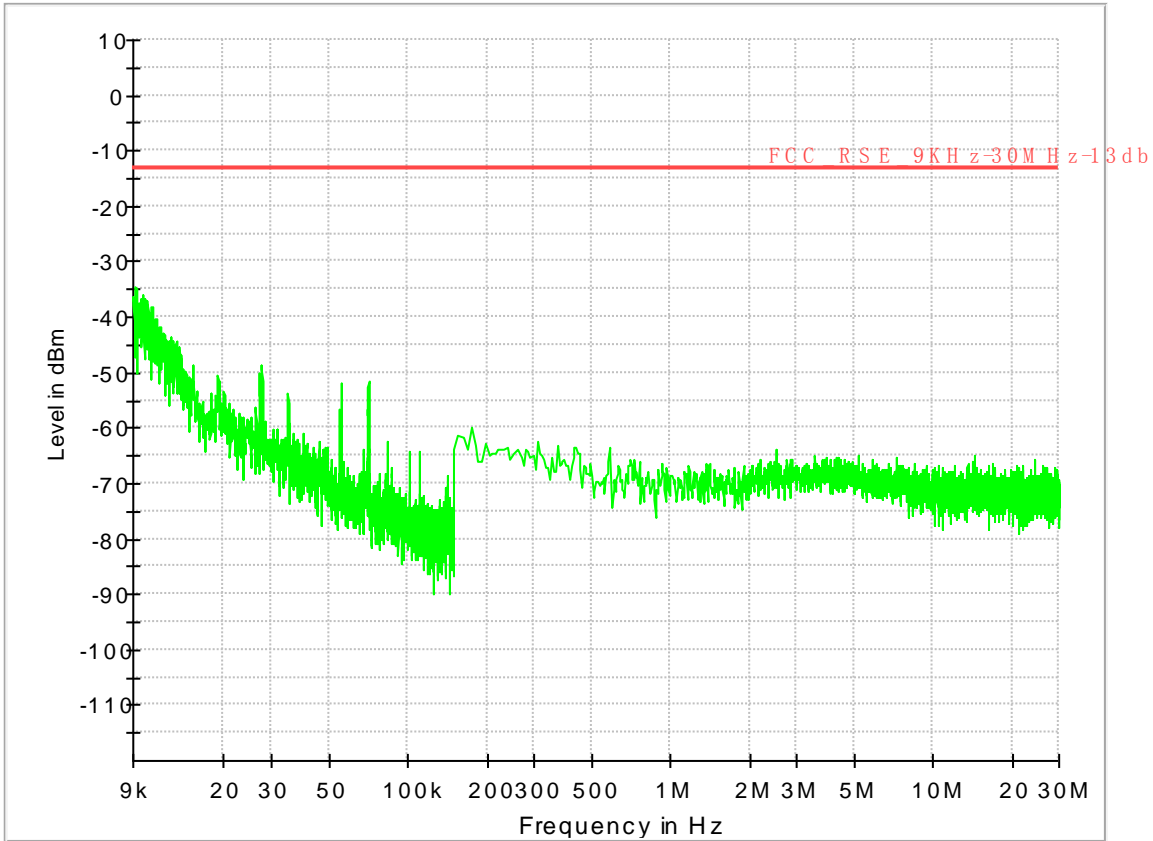
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

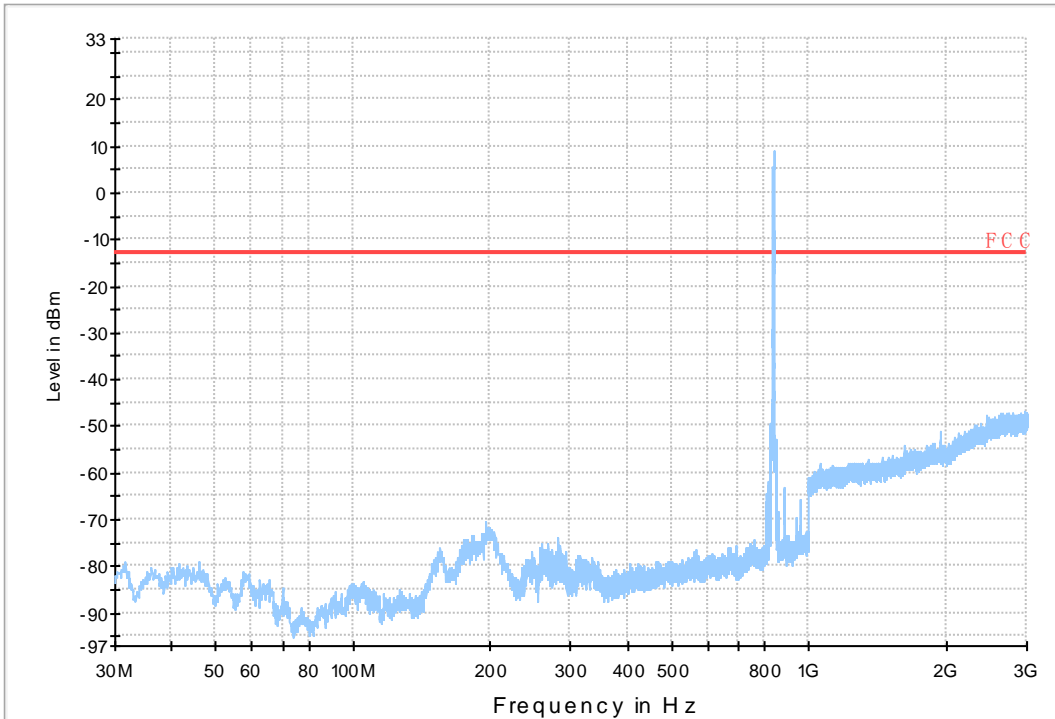
7.1 For UMTS

7.1.1 Test Band = WCDMA850-Ant1

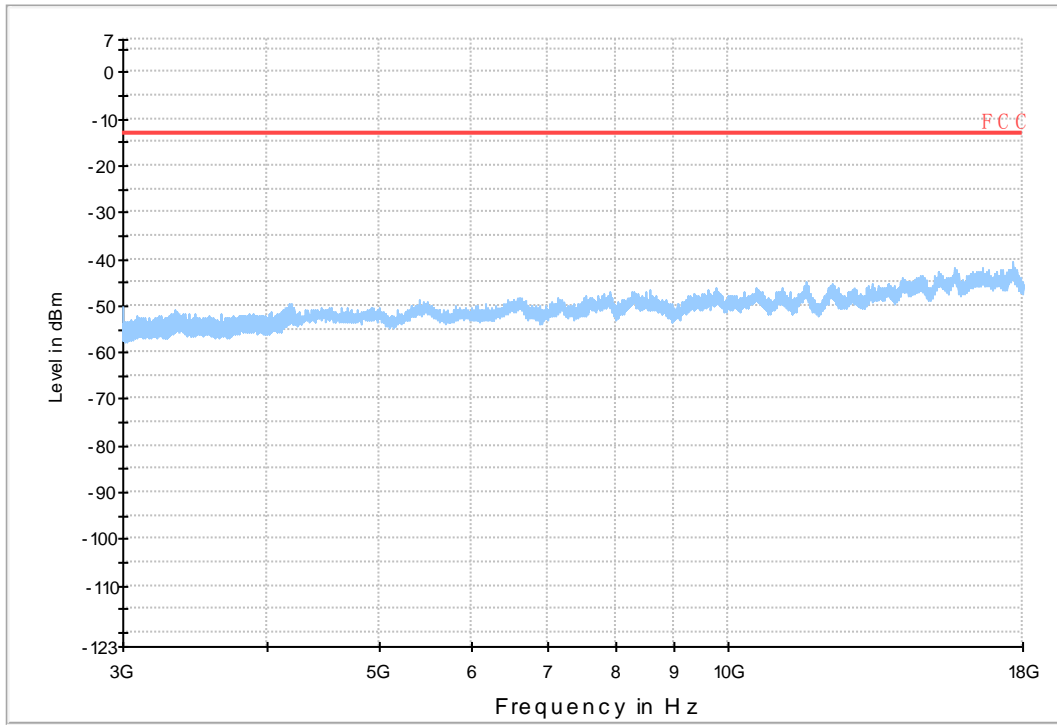
7.1.1.1 Test Mode = UMTS/TM1



Copy of FCC PART22 W CDMA850_L

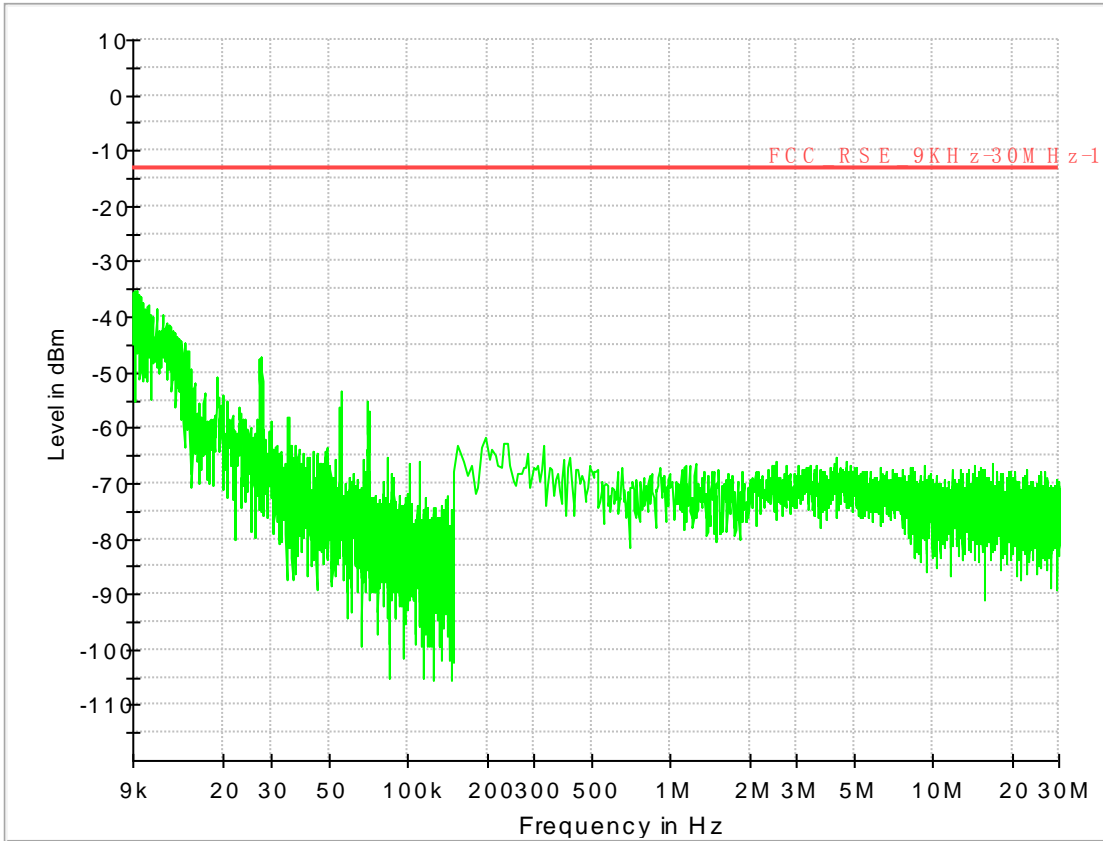


Copy of FCC PART22 W CDMA850_H

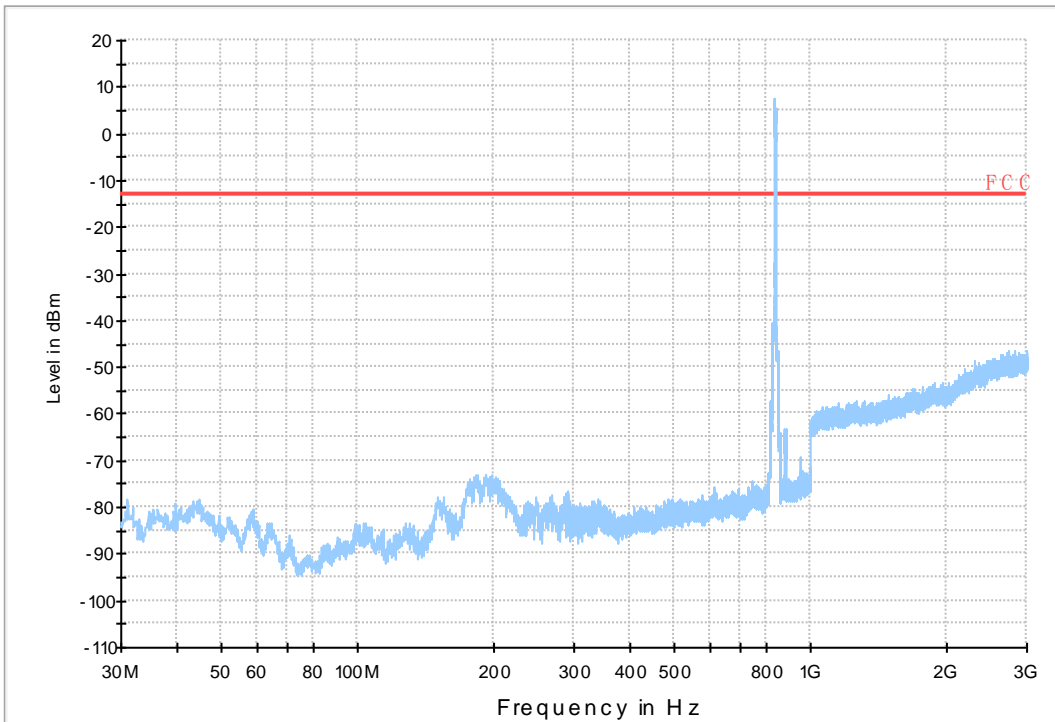


7.1.2 Test Band = WCDMA850-Ant2

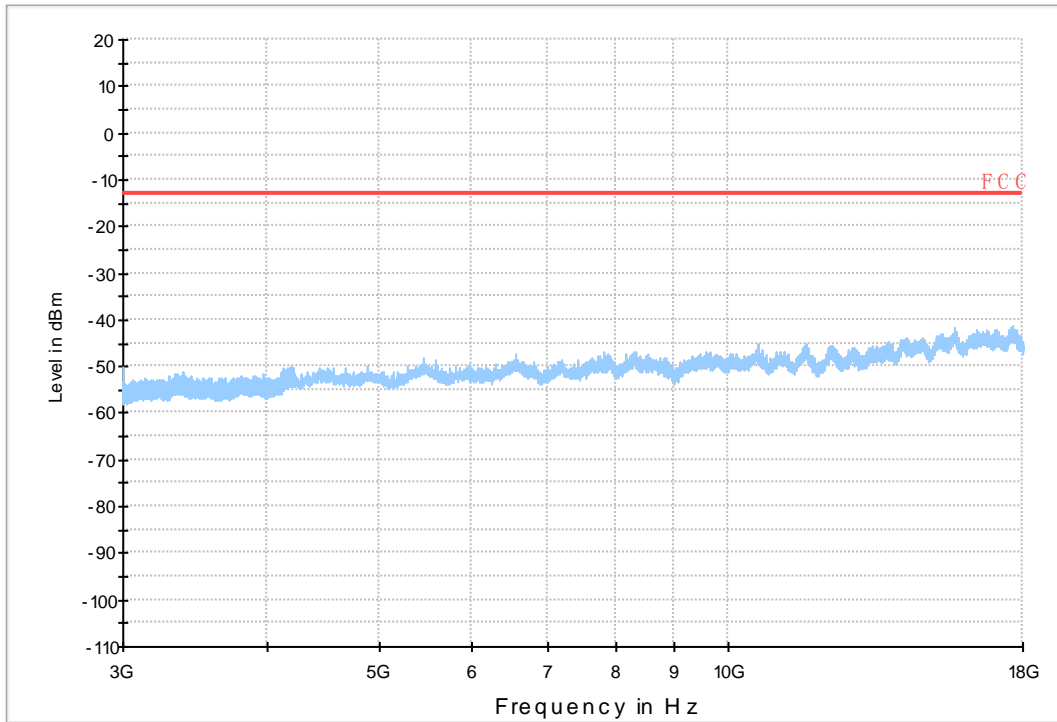
7.1.1.1 Test Mode = UMTS/TM1



Copy of FCC PART22 W CDMA850_L

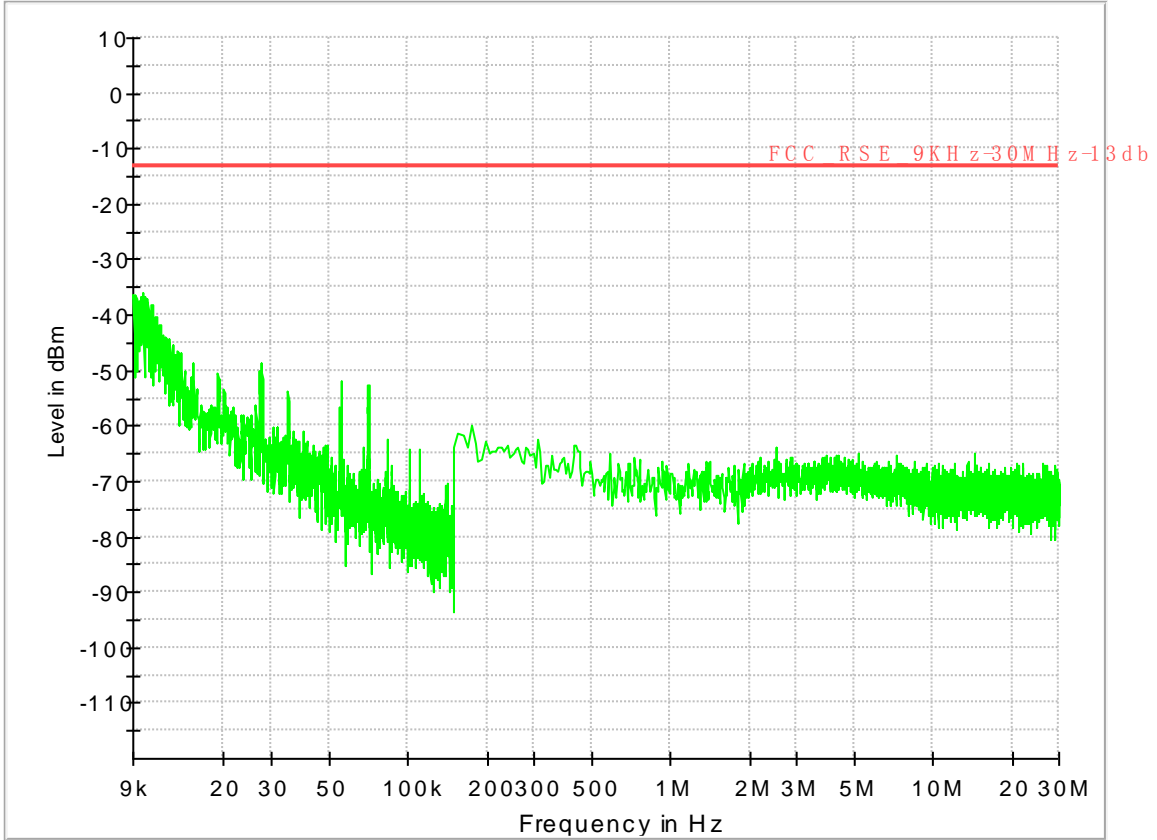


Copy of FCC PART22 W CDMA850_H

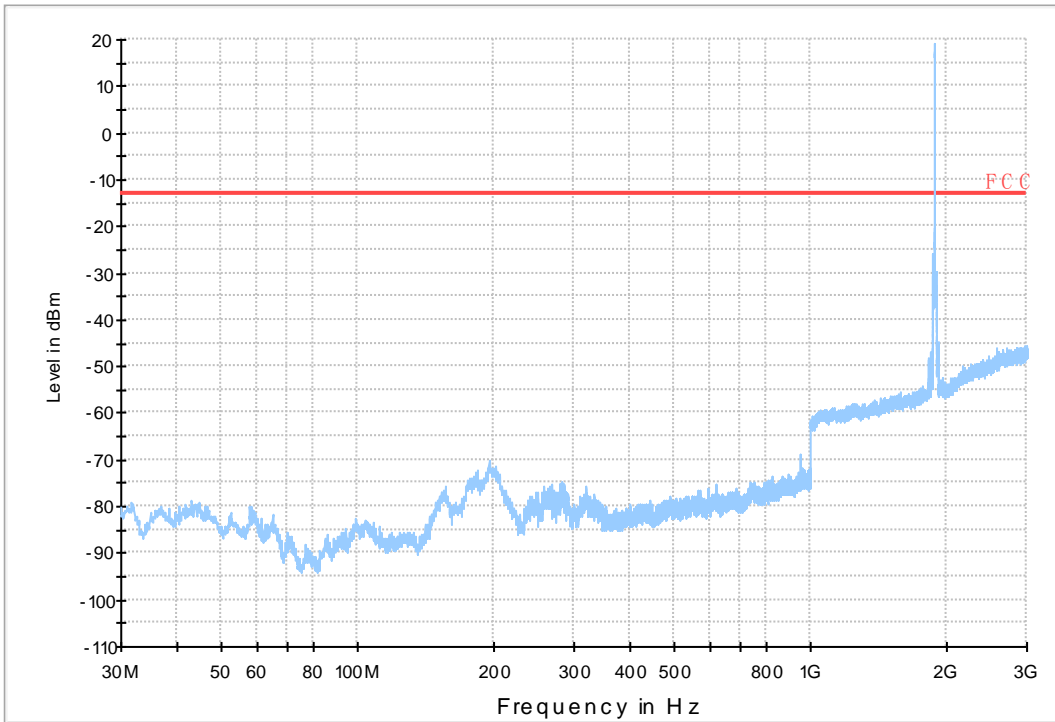


7.1.3 Test Band = WCDMA1900-Ant1

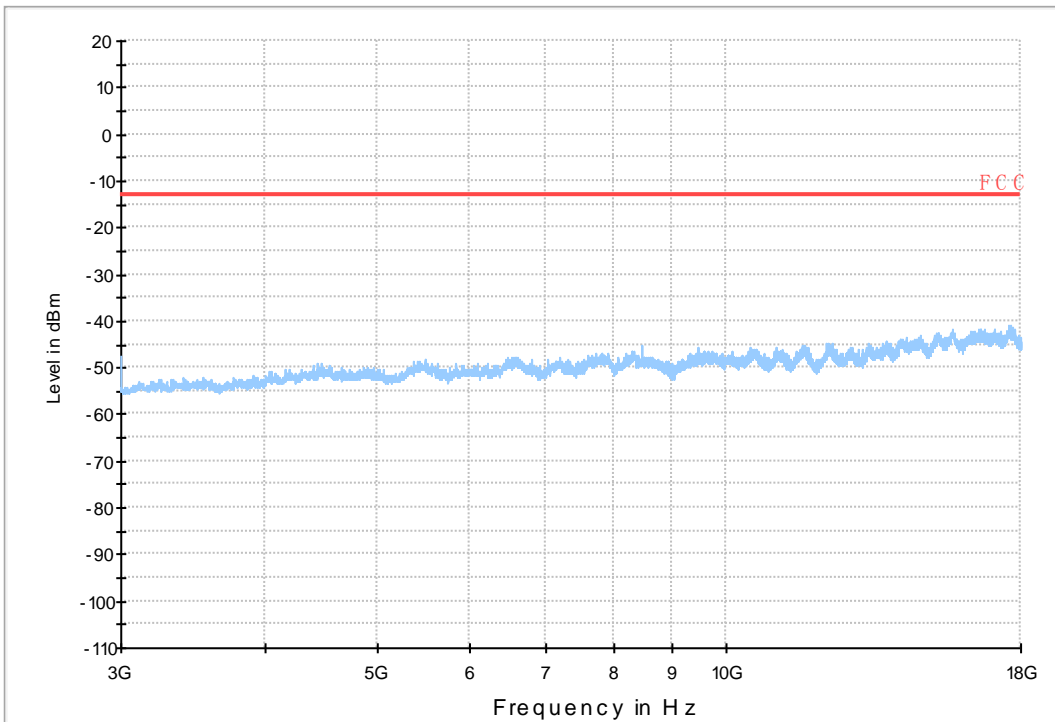
7.1.3.1 Test Mode = UMTS/TM1



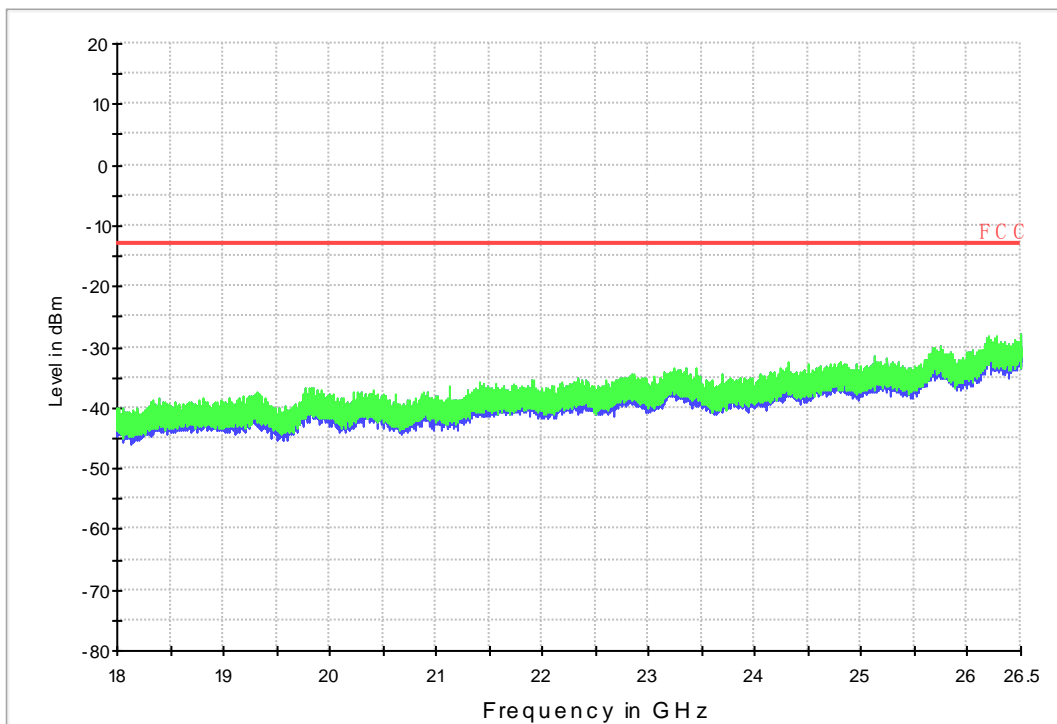
Copy of FCC PART24 W CDMA1900_L



Copy of FCC PART24 W CDMA1900_H



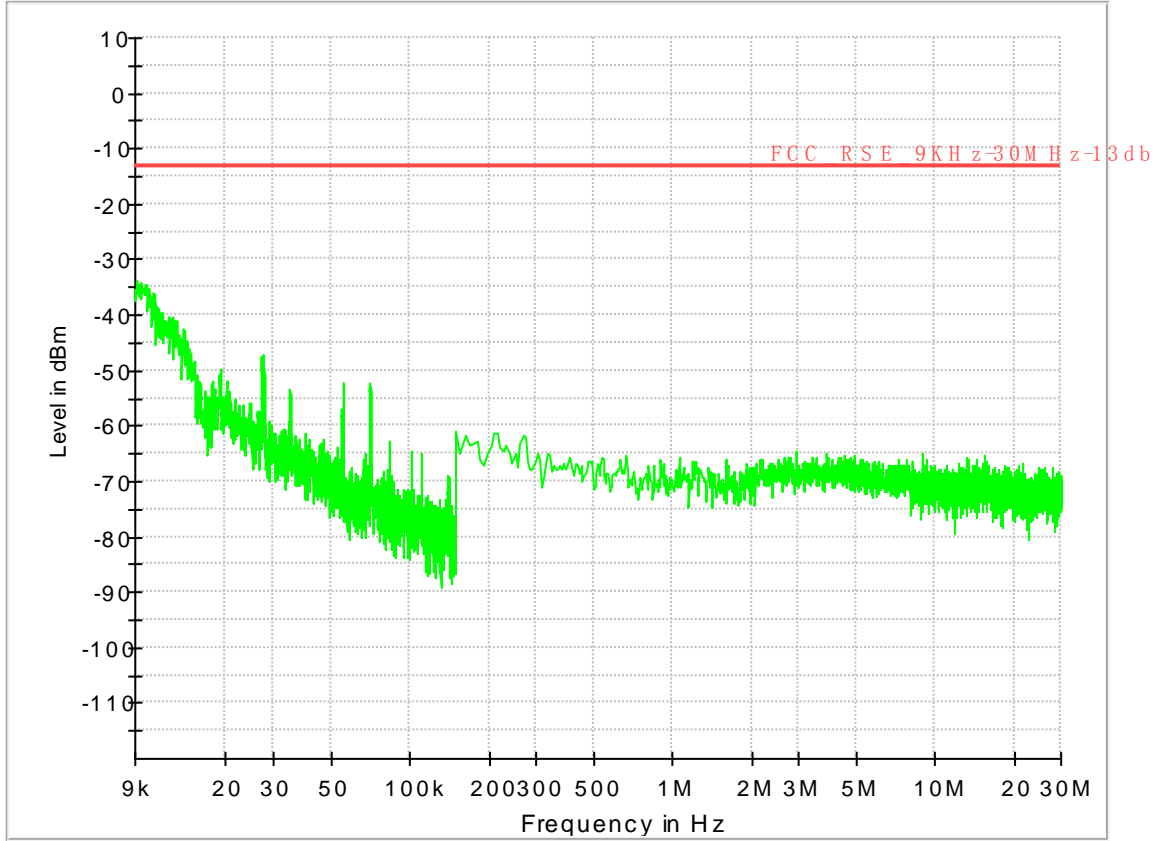
18G~26.5G RSE-TX-DIRECTOR ABOVE 1.5G PK



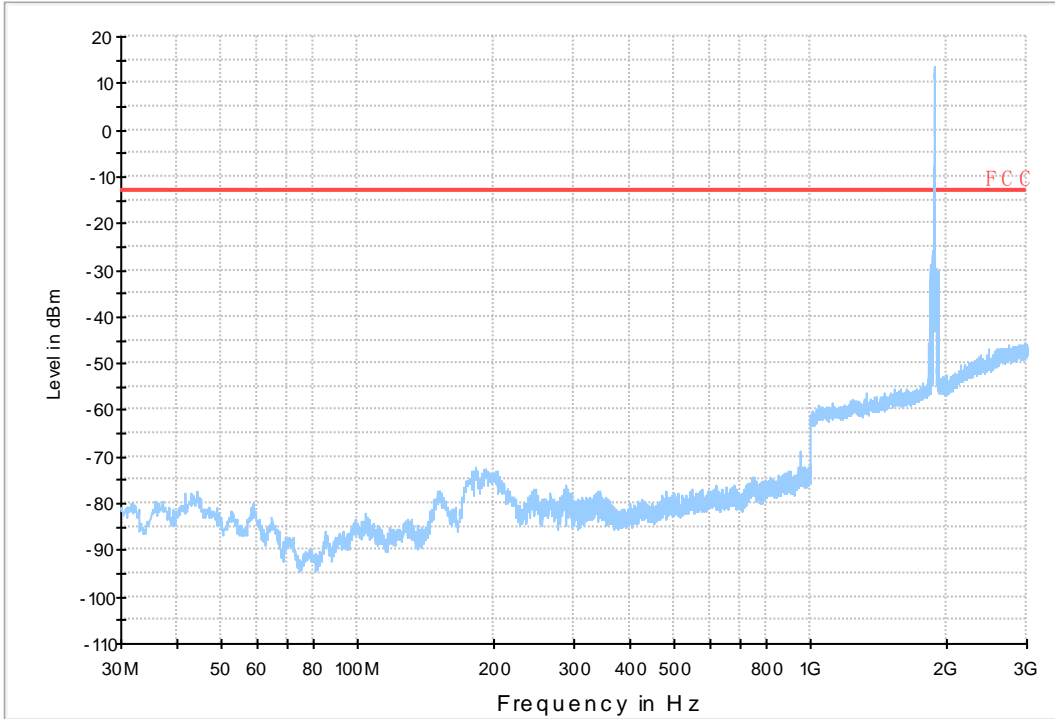


7.1.4 Test Band = WCDMA1900-Ant2

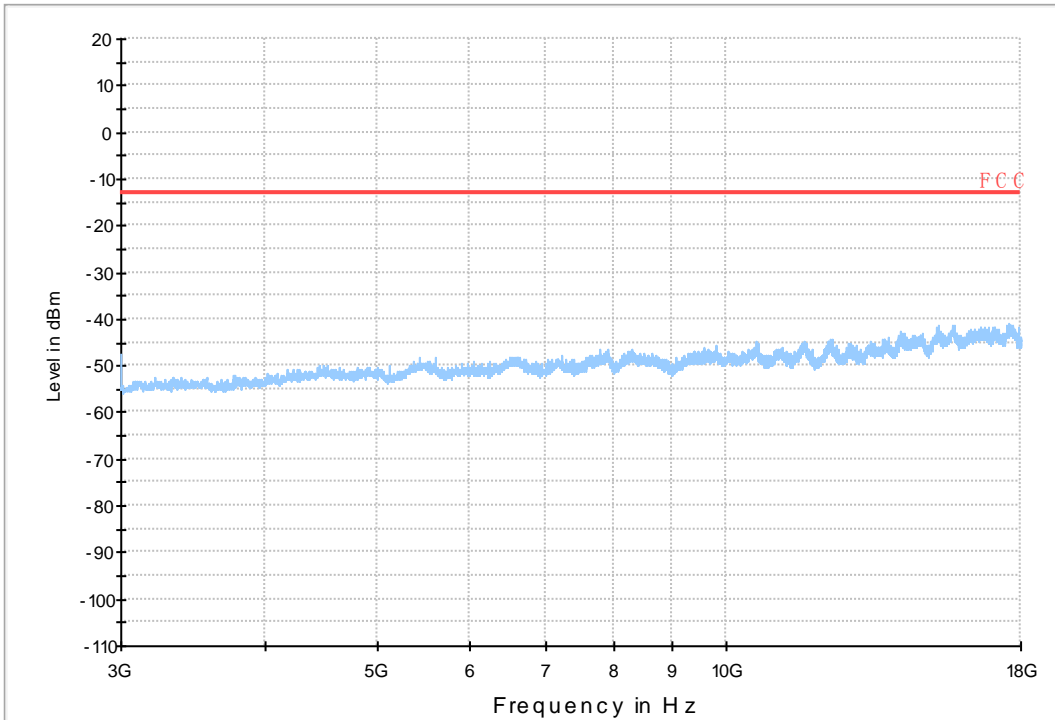
7.1.4.1 Test Mode = UMTS/TM1



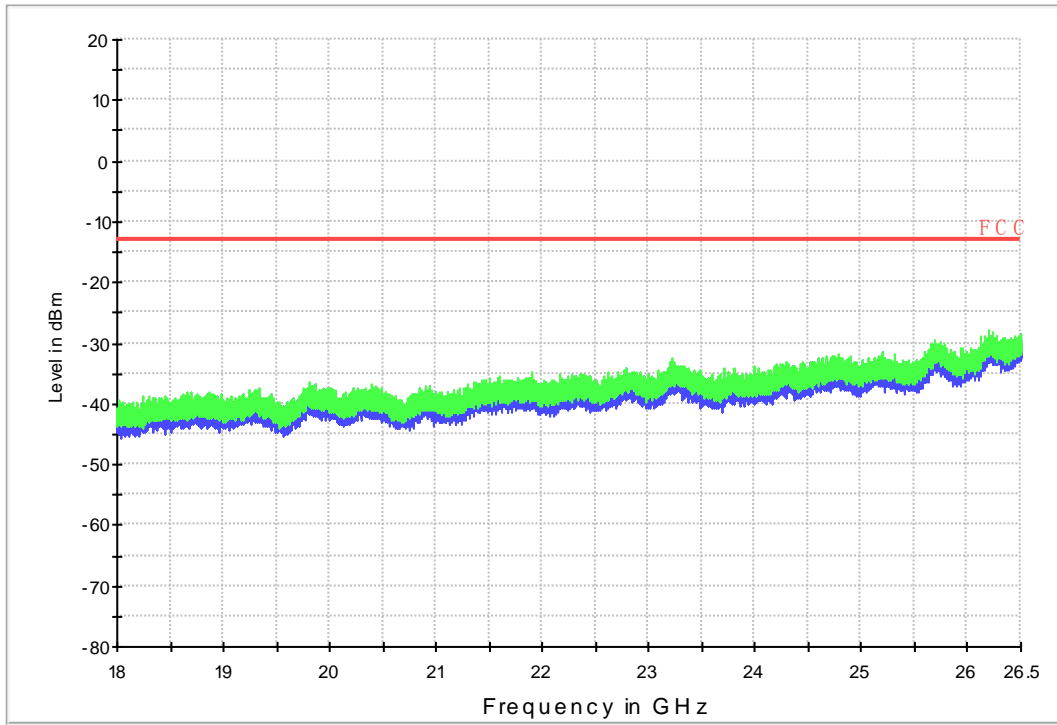
Copy of FCC PART24 W CDMA1900_L



Copy of FCC PART24 W CDMA1900_H



18G~26.5G RSE-TX-DIRECTOR ABOVE 1.5G PK



8Appendix_H: Frequency Stability

8.1 For UMTS

8.1.1Frequency Error vs. Voltage:

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA850	UMTS/TM1	LCH	TN	VL	-2.49	-0.00301	PASS
				VN	3.81	0.00461	PASS
				VH	-2.82	-0.00341	PASS
		MCH	TN	VL	2.18	0.00261	PASS
				VN	5.07	0.00606	PASS
				VH	-3.45	-0.00412	PASS
		HCH	TN	VL	1.01	0.00119	PASS
				VN	0.96	0.00113	PASS
				VH	3.16	0.00373	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	-8.76	-0.00473	PASS
				VN	-3.92	-0.00212	PASS
				VH	0.58	0.00031	PASS
		MCH	TN	VL	-1.80	-0.00096	PASS
				VN	-5.94	-0.00316	PASS
				VH	-4.49	-0.00239	PASS
		HCH	TN	VL	-3.17	-0.00166	PASS
				VN	0.66	0.00035	PASS
				VH	-2.62	-0.00137	PASS

8.1.2Frequency Error vs. Temperature:

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA850	UMTS/TM1	LCH	VN	-30	1.11	0.00134	PASS
				-20	-8.56	-0.01036	PASS
				-10	0.14	0.00017	PASS
				0	-4.76	-0.00576	PASS
				10	-2.82	-0.00341	PASS
				20	2.40	0.0029	PASS
				30	-9.02	-0.01091	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				40	5.68	0.00687	PASS
				50	1.54	0.00186	PASS
		MCH	VN	-30	1.33	0.00159	PASS
				-20	3.22	0.00385	PASS
				-10	-0.20	-0.00024	PASS
				0	4.88	0.00583	PASS
				10	-3.94	-0.00471	PASS
				20	9.09	0.01087	PASS
				30	-1.79	-0.00214	PASS
				40	-7.71	-0.00922	PASS
				50	-7.43	-0.00888	PASS
				HCH	VN	-30	0.73
		-20	-0.76			-0.0009	PASS
		-10	-2.15			-0.00254	PASS
		0	-5.48			-0.00647	PASS
		10	2.69			0.00318	PASS
		20	7.25			0.00856	PASS
		30	2.03			0.0024	PASS
		40	-2.49			-0.00294	PASS
		50	-3.13	-0.0037	PASS		
WCDMA1900	UMTS/TM1	LCH	VN	-30	-2.35	-0.00127	PASS
				-20	-4.32	-0.00233	PASS
				-10	-2.85	-0.00154	PASS
				0	-4.41	-0.00238	PASS
				10	-10.85	-0.00586	PASS
				20	-0.76	-0.00041	PASS
				30	-6.29	-0.0034	PASS
				40	-5.00	-0.0027	PASS
		50	-1.11	-0.0006	PASS		
		MCH	VN	-30	-7.42	-0.00395	PASS
				-20	-2.90	-0.00154	PASS
				-10	3.49	0.00186	PASS
				0	-15.47	-0.00823	PASS
				10	-1.62	-0.00086	PASS
				20	-11.83	-0.00629	PASS
				30	-4.36	-0.00232	PASS
				40	-17.56	-0.00934	PASS
		50	-2.32	-0.00123	PASS		
		HCH	VN	-30	-2.72	-0.00143	PASS
				-20	-5.52	-0.00289	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-10	0.82	0.00043	PASS
				0	0.67	0.00035	PASS
				10	0.43	0.00023	PASS
				20	3.77	0.00198	PASS
				30	8.62	0.00452	PASS
				40	-1.13	-0.00059	PASS
				50	-2.41	-0.00126	PASS

END