



Appendix for test report

1Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Conducte d Power [dBm]	ERP [dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	23.28	18.36	38.5	PASS
		MCH	23.19	18.46	38.5	PASS
		HCH	23.10	18.46	38.5	PASS

Test Band	Test Mode	Test Channel	Conducte d Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1700	UMTS/TM1	LCH	23.16	21.66	33	PASS
		MCH	23.10	21.57	33	PASS
		HCH	23.09	21.78	33	PASS
WCDMA1900	UMTS/TM1	LCH	23.01	21.92	30	PASS
		MCH	23.08	21.91	30	PASS
		HCH	23.08	21.76	30	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	3.03	13	PASS
		MCH	2.95	13	PASS
		HCH	2.93	13	PASS
WCDMA1700	UMTS/TM1	LCH	3.31	13	PASS
		MCH	3.23	13	PASS
		HCH	3.52	13	PASS
WCDMA1900	UMTS/TM1	LCH	3.2	13	PASS
		MCH	3.23	13	PASS
		HCH	3.19	13	PASS

3Appendix_C: Modulation Characteristics

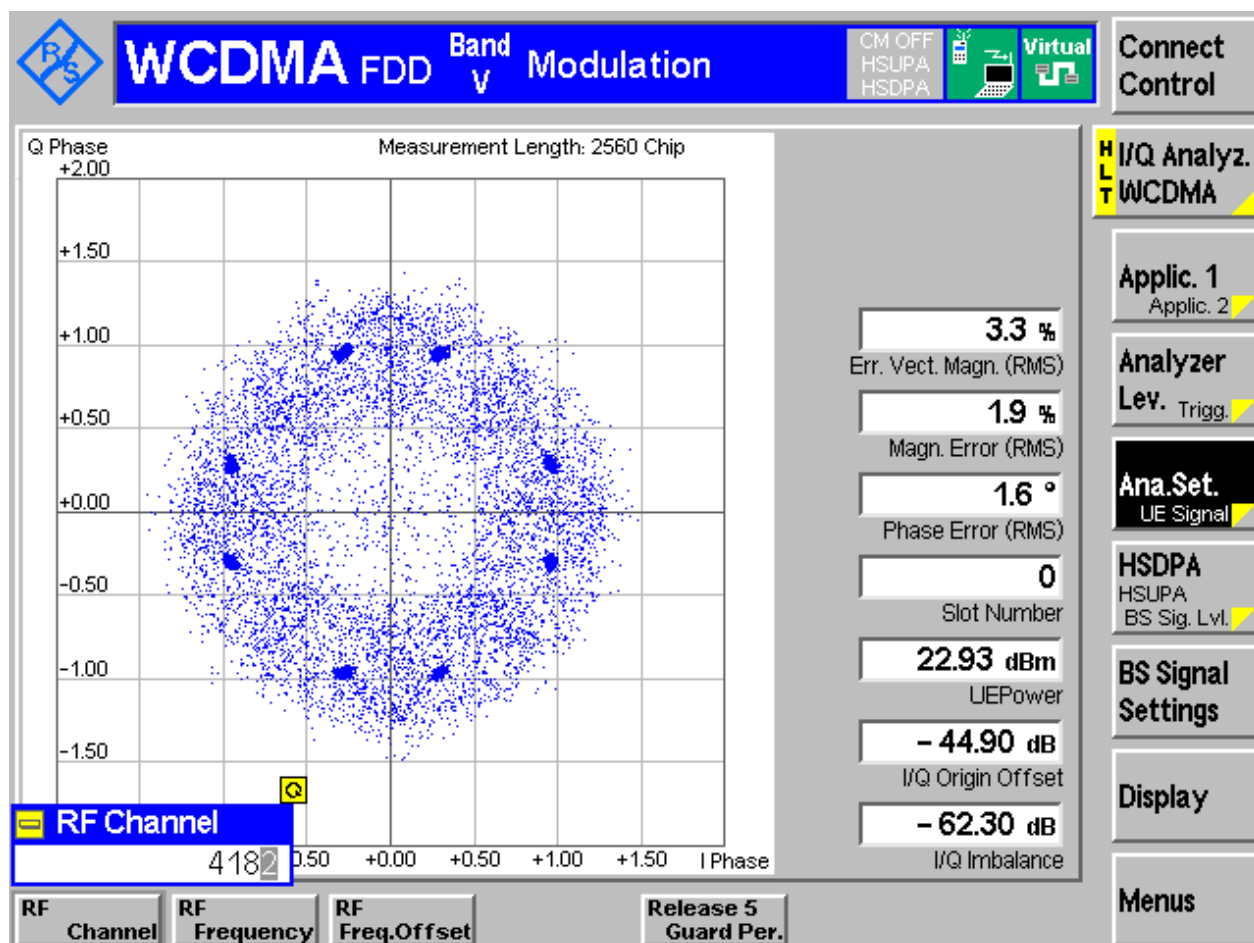
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

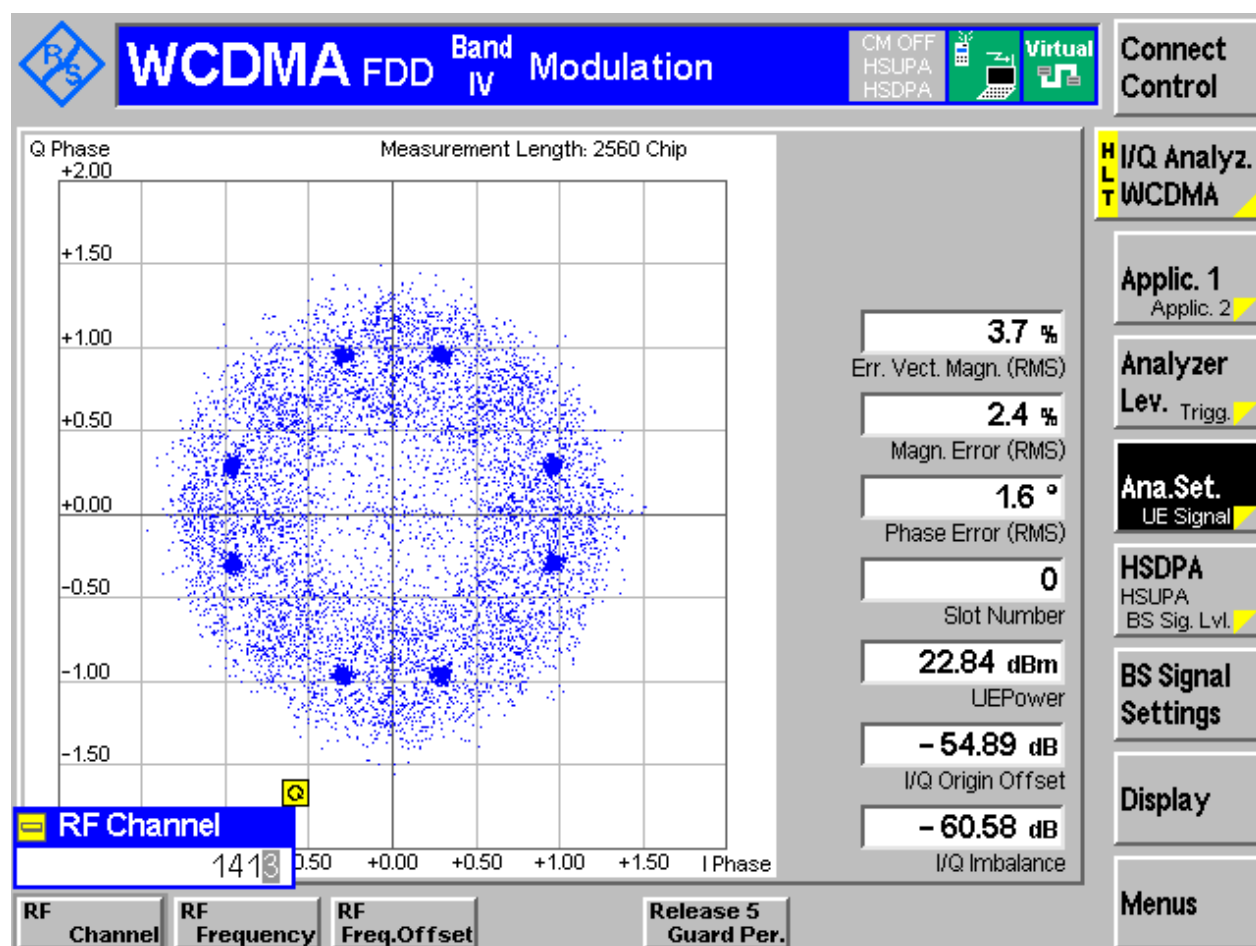
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1700

3.1.2.1 Test Mode = UMTS/TM1

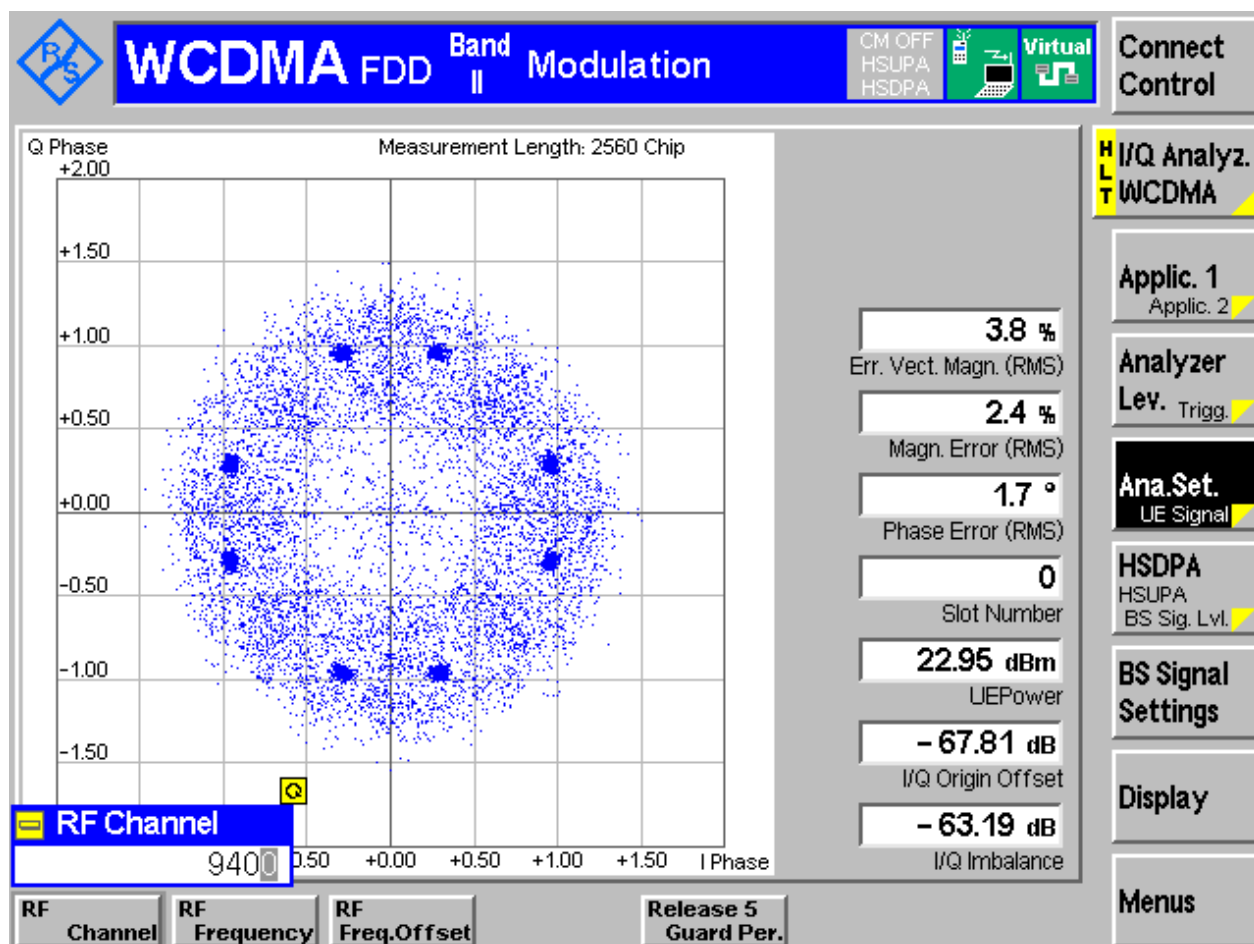
3.1.2.1.1 Test Channel = MCH



3.1.3 Test Band = WCDMA1900

3.1.3.1 Test Mode = UMTS/TM1

3.1.3.1.1 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	4.73	Pass
		MCH	4.15	4.72	Pass
		HCH	4.15	4.72	Pass
WCDMA1700	UMTS/TM1	LCH	4.16	4.70	Pass
		MCH	4.15	4.71	Pass
		HCH	4.15	4.69	Pass
WCDMA1900	UMTS/TM1	LCH	4.15	4.71	Pass
		MCH	4.15	4.71	Pass
		HCH	4.15	4.70	Pass

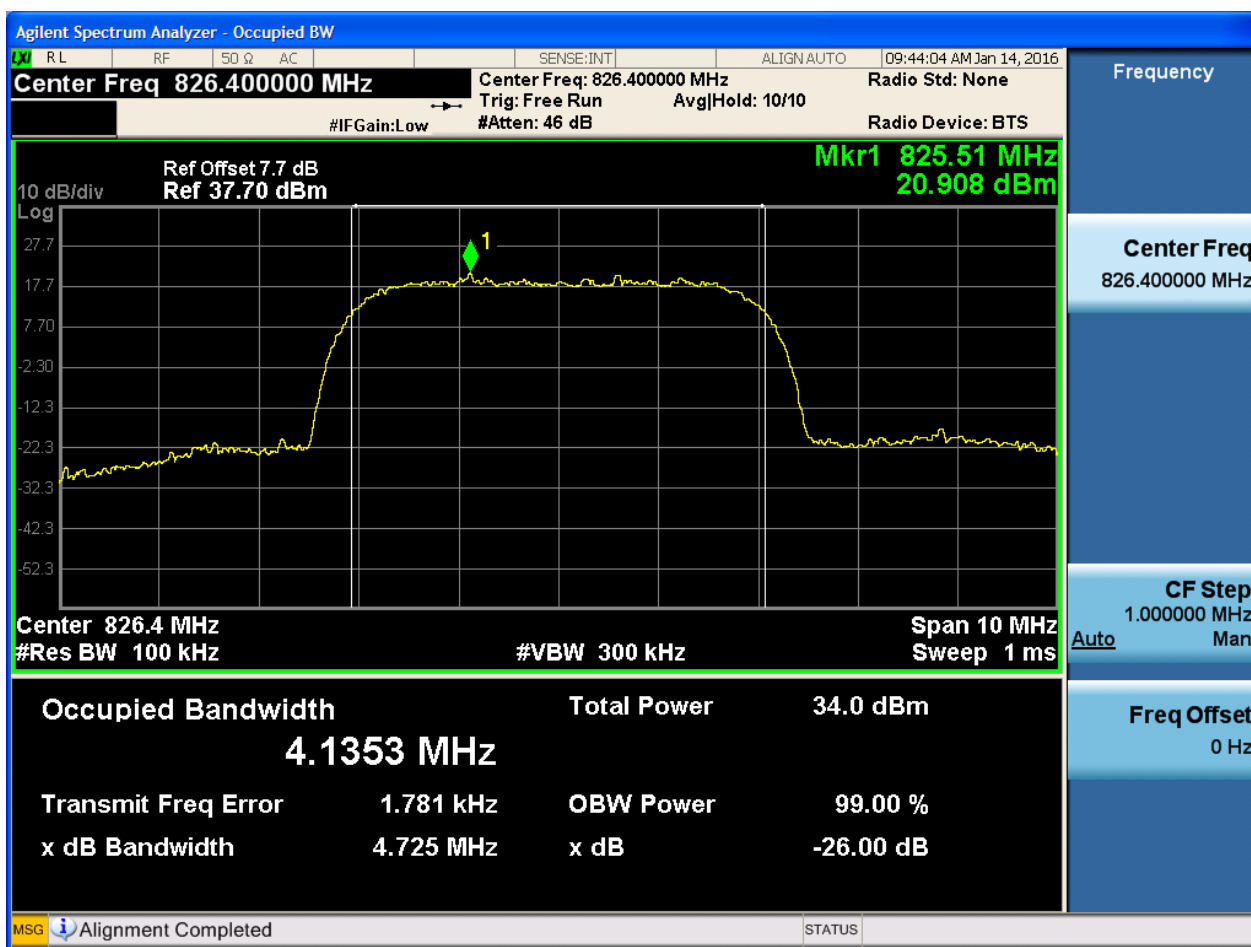
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

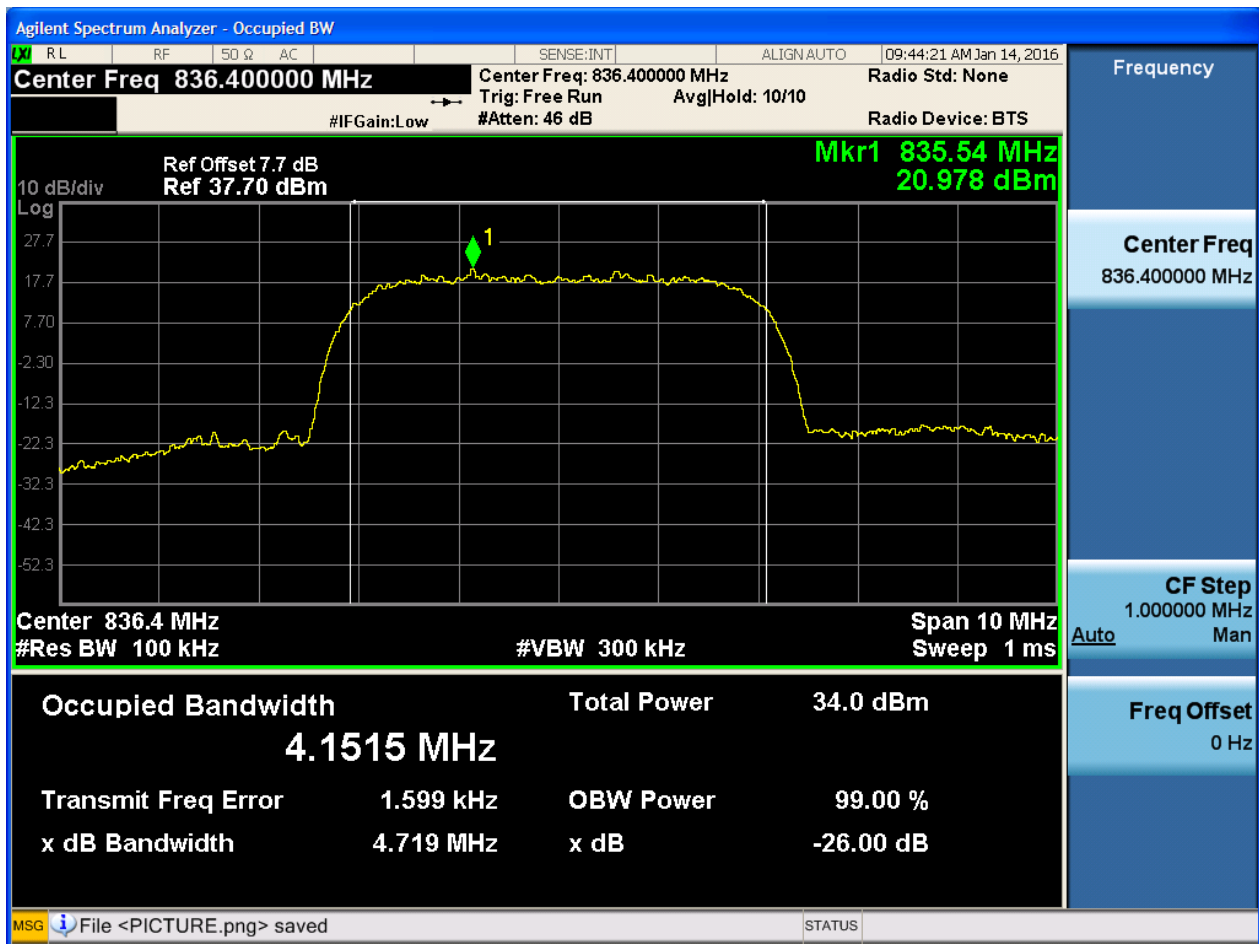
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



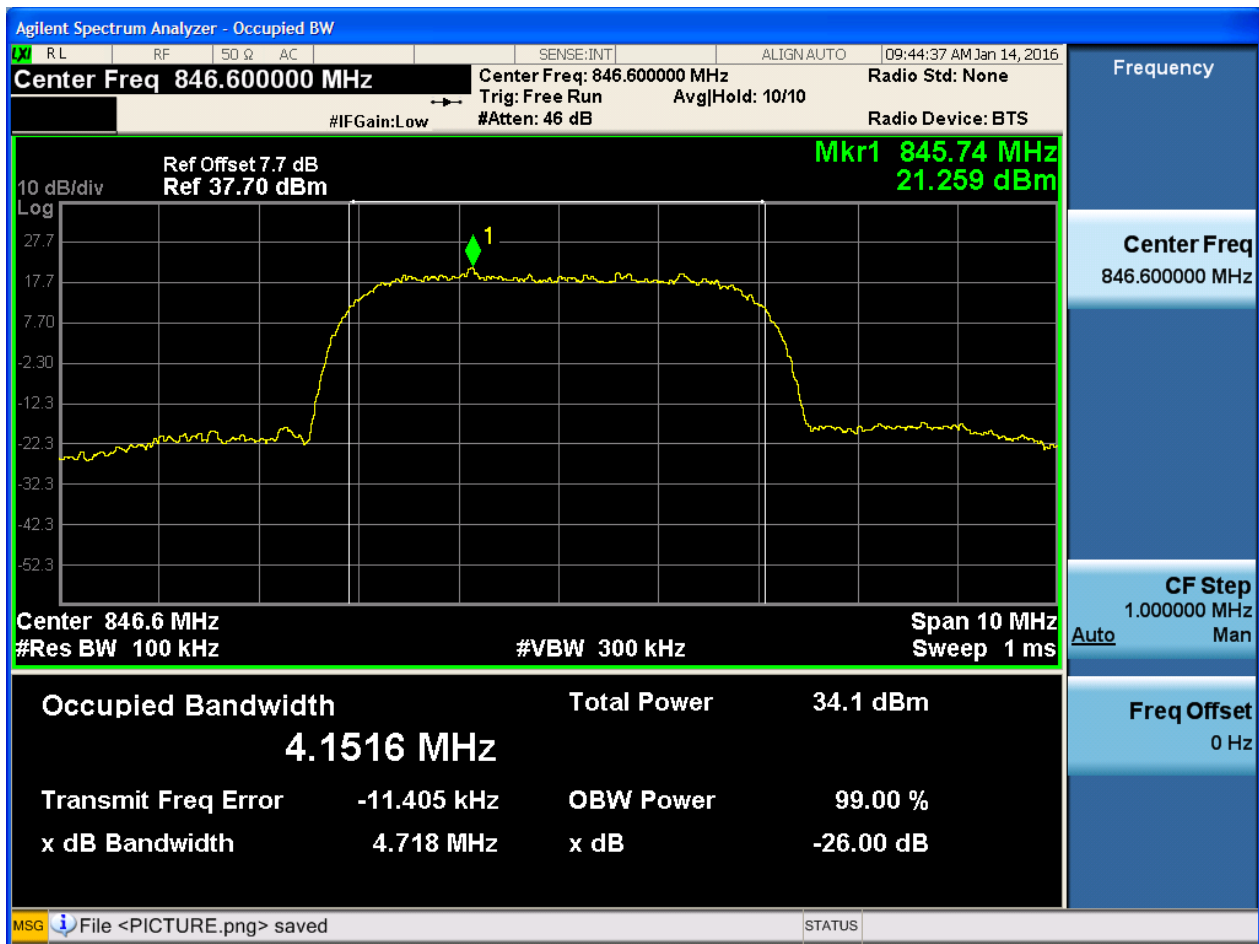


4.1.1.1.2 Test Channel = MCH





4.1.1.1.3 Test Channel = HCH

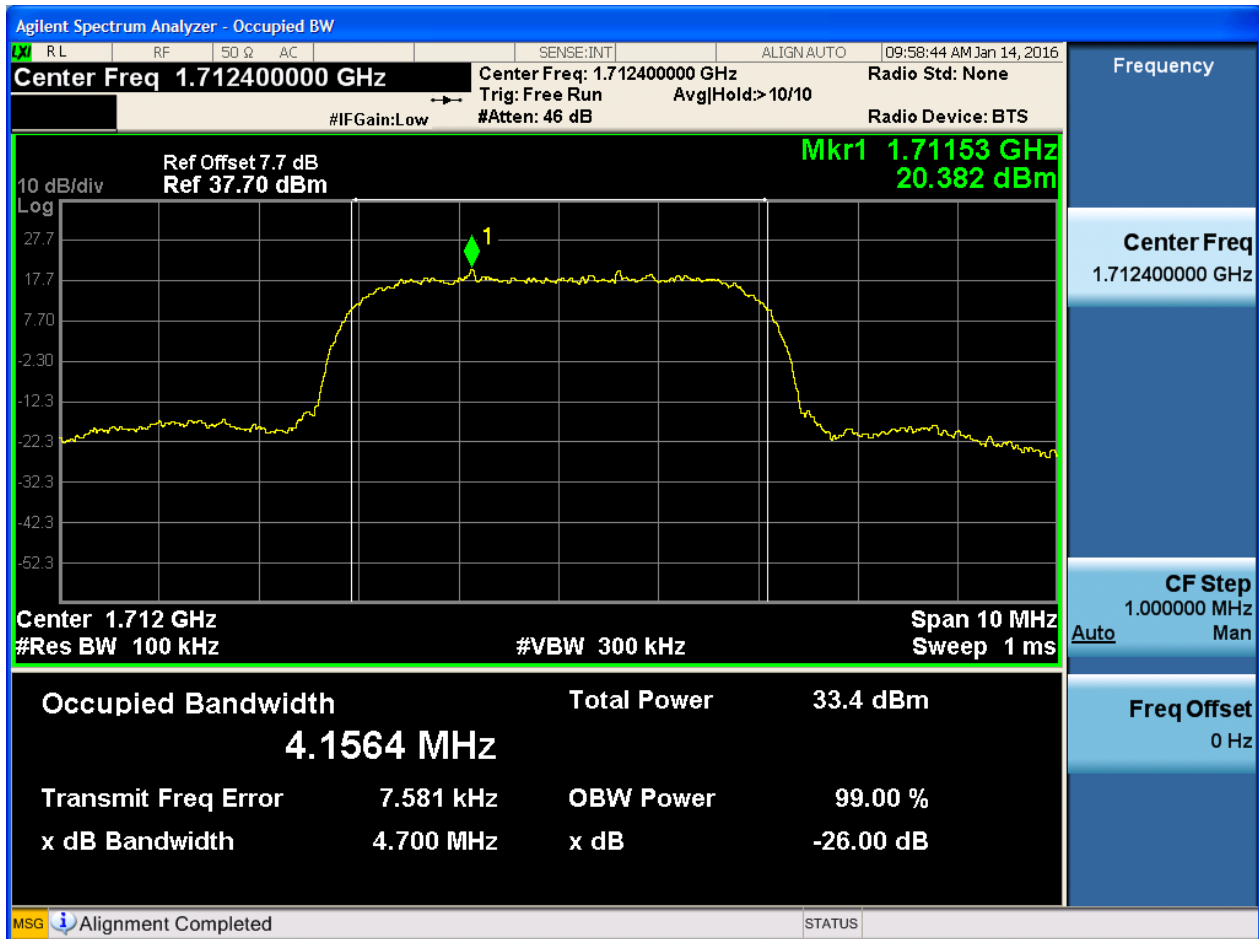




4.1.2 Test Band = WCDMA1700

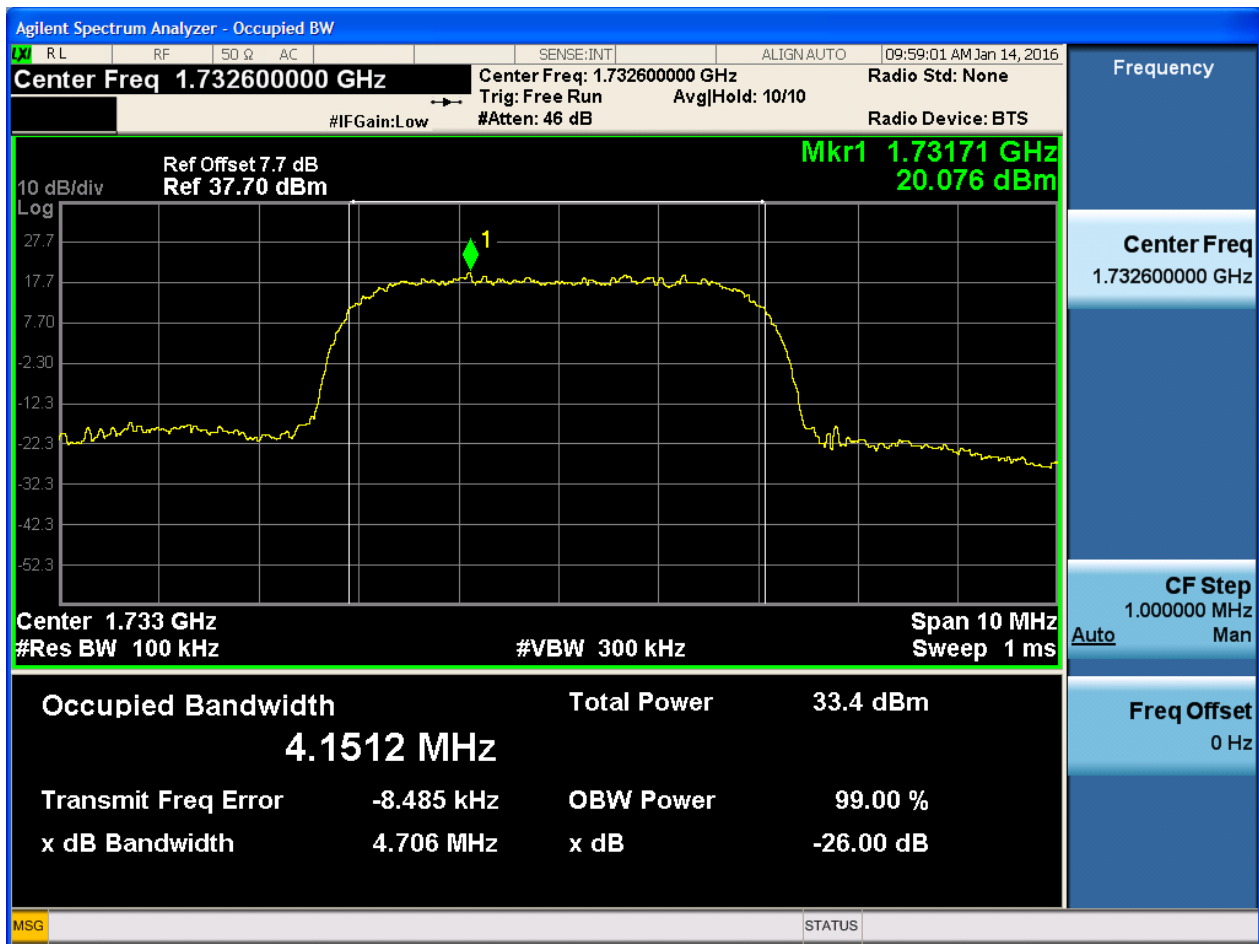
4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH



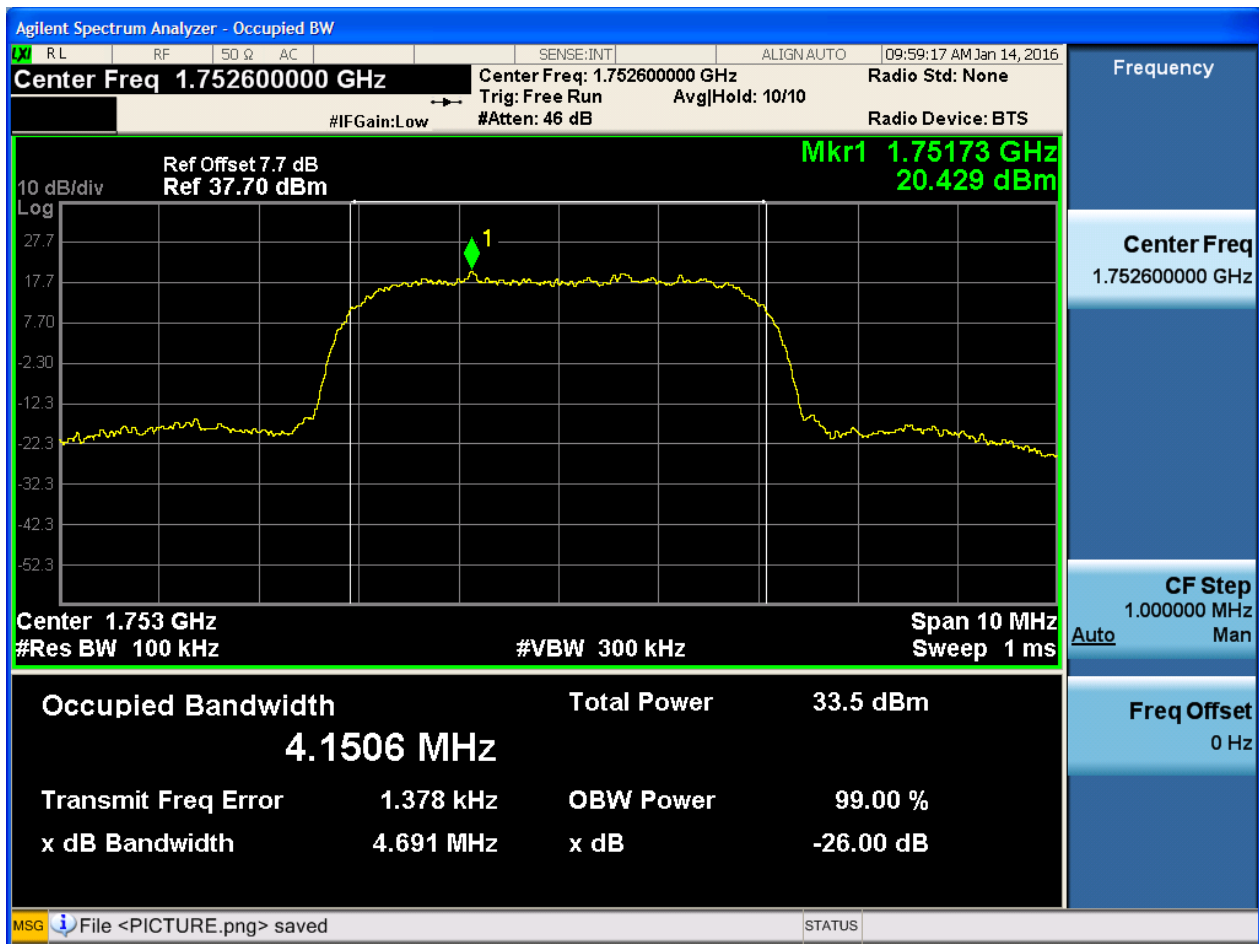


4.1.2.1.2 Test Channel = MCH





4.1.2.1.3 Test Channel = HCH

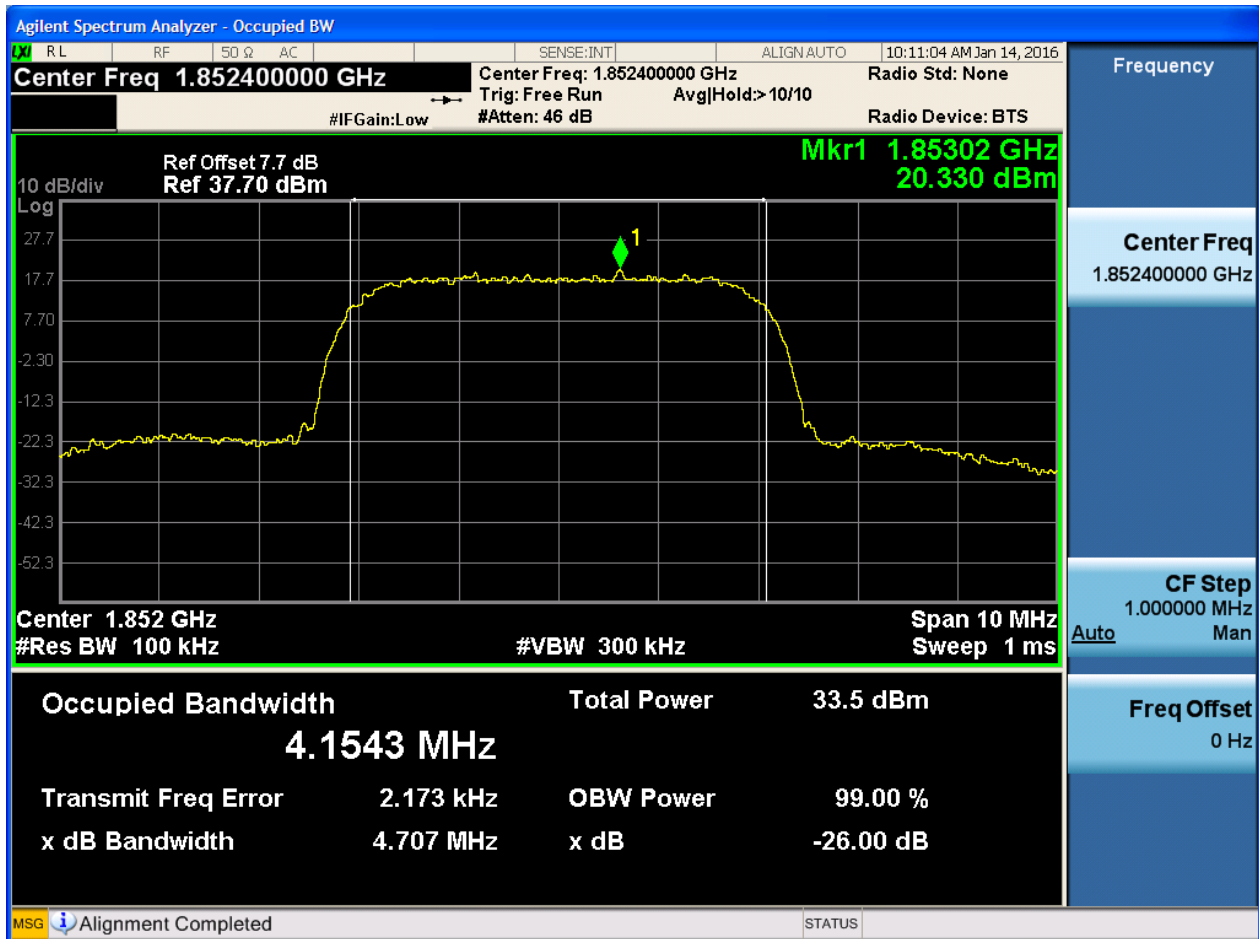




4.1.3 Test Band = WCDMA1900

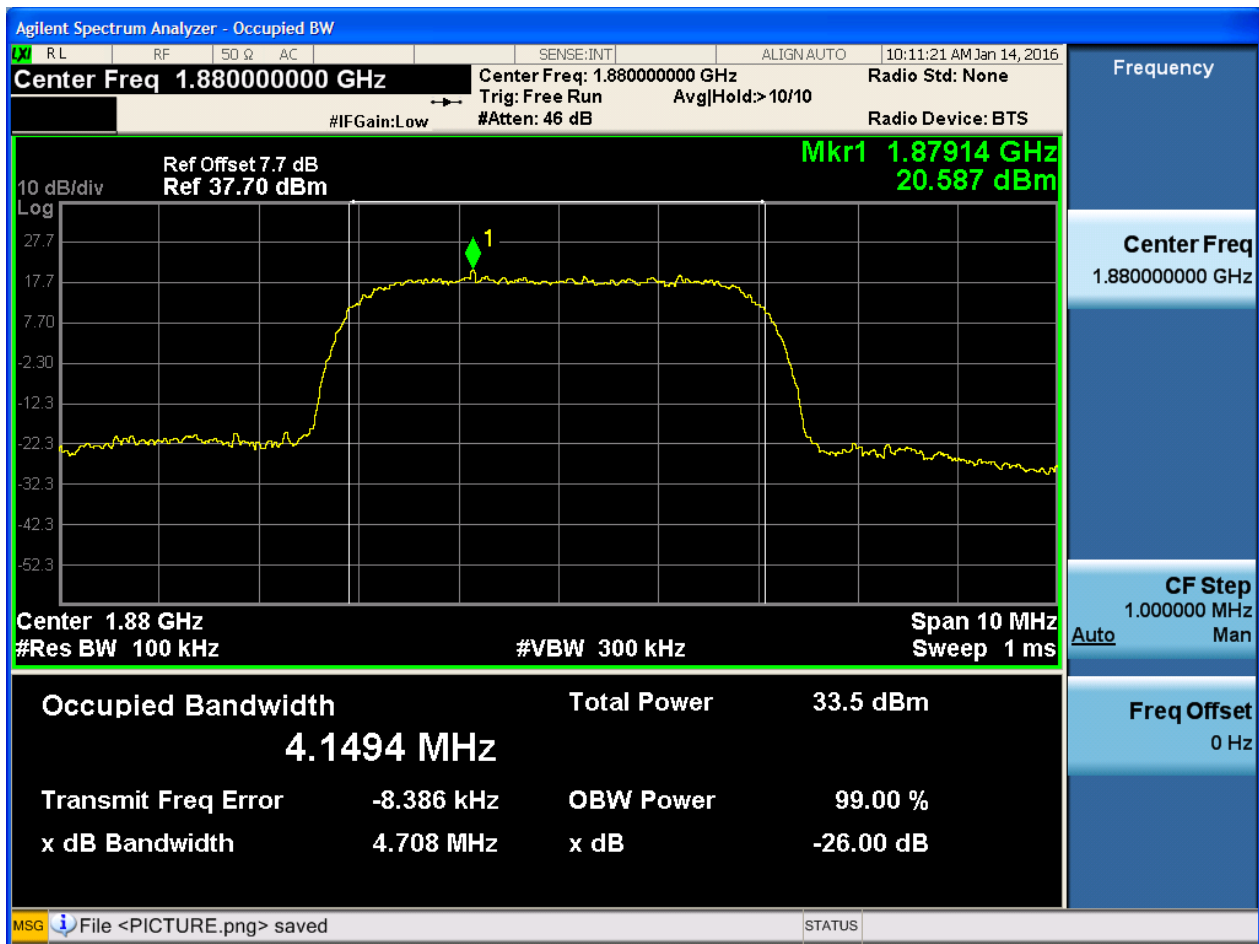
4.1.3.1 Test Mode = UMTS/TM1

4.1.3.1.1 Test Channel = LCH



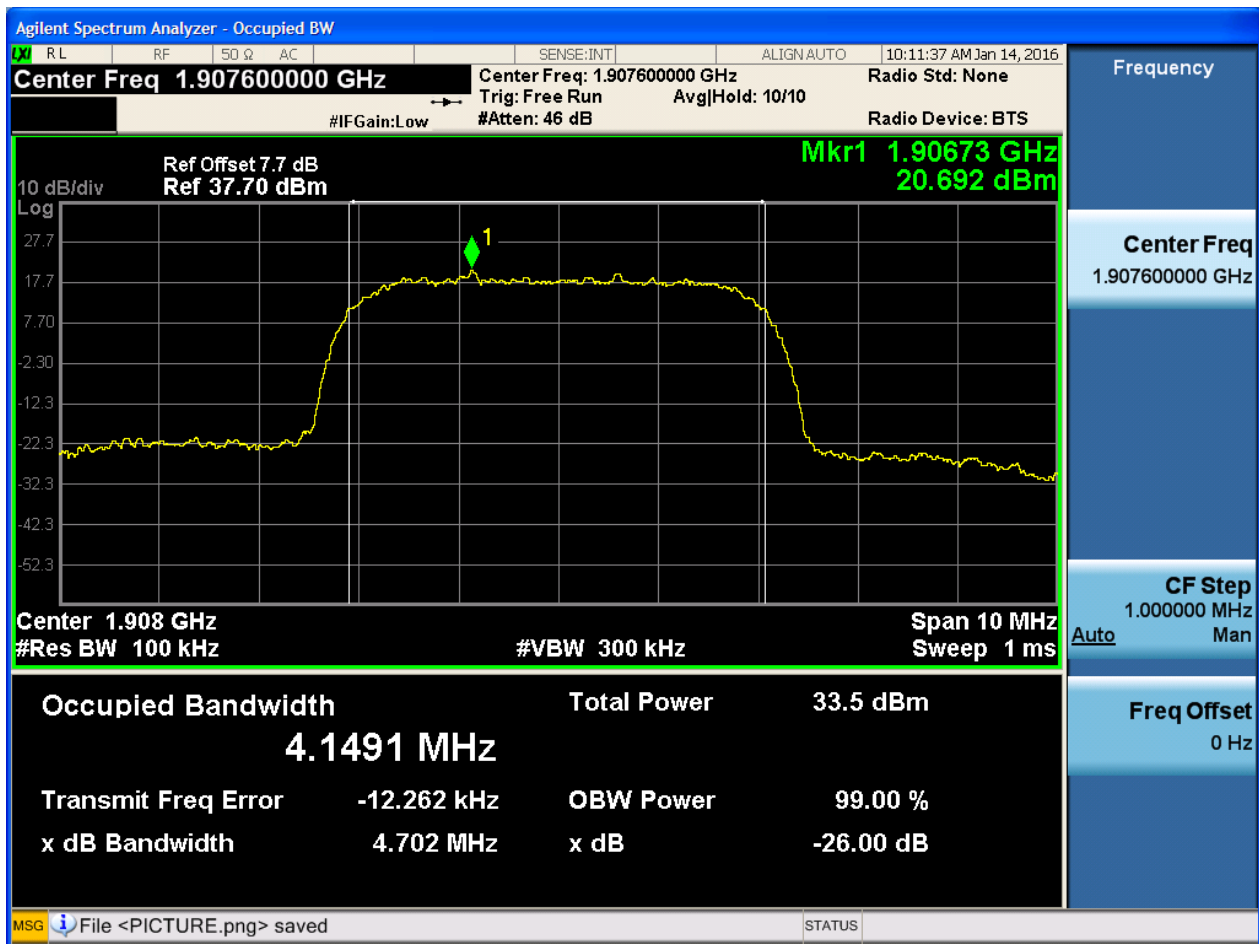


4.1.3.1.2 Test Channel = MCH





4.1.3.1.3 Test Channel = HCH





5Appendix_E: Band Edges Compliance

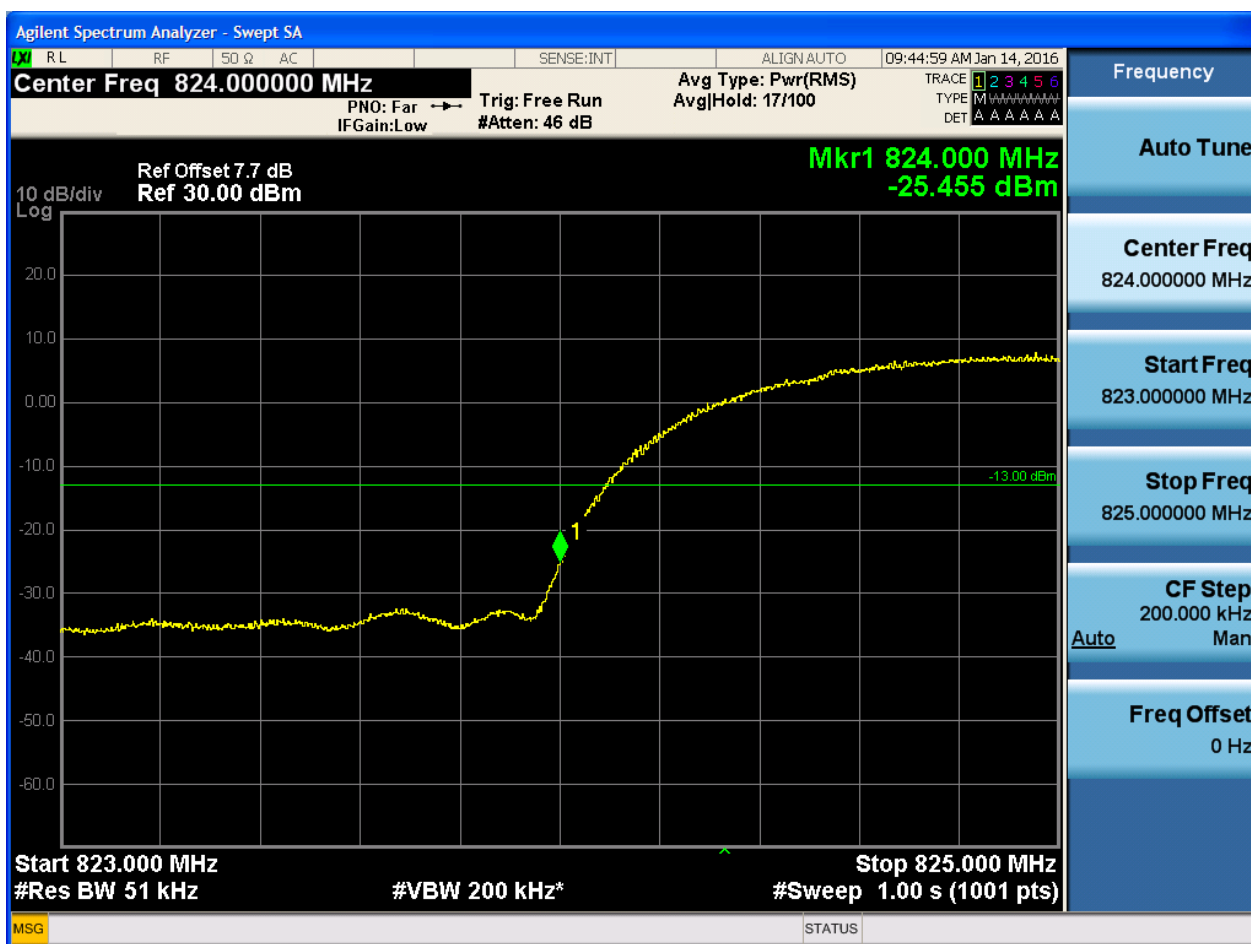
Part I - Test Plots

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



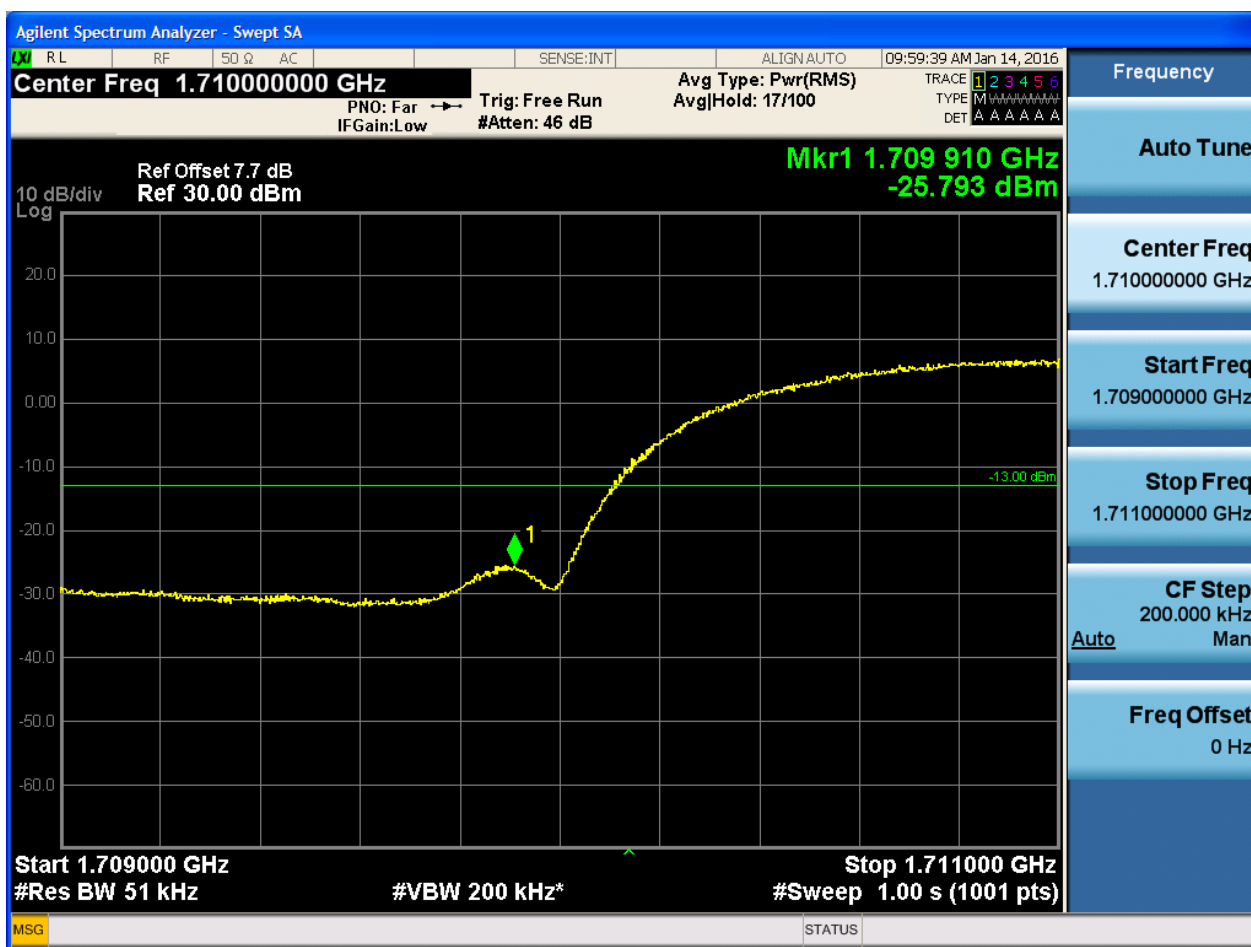
5.1.1.1.2 Test Channel = HCH



5.1.2 Test Band = WCDMA1700

5.1.2.1 Test Mode = UMTS/TM1

5.1.2.1.1 Test Channel = LCH



5.1.2.1.2 Test Channel = HCH





5.1.3 Test Band = WCDMA1900

5.1.3.1 Test Mode = UMTS/TM1

5.1.3.1.1 Test Channel = LCH



5.1.3.1.2 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.

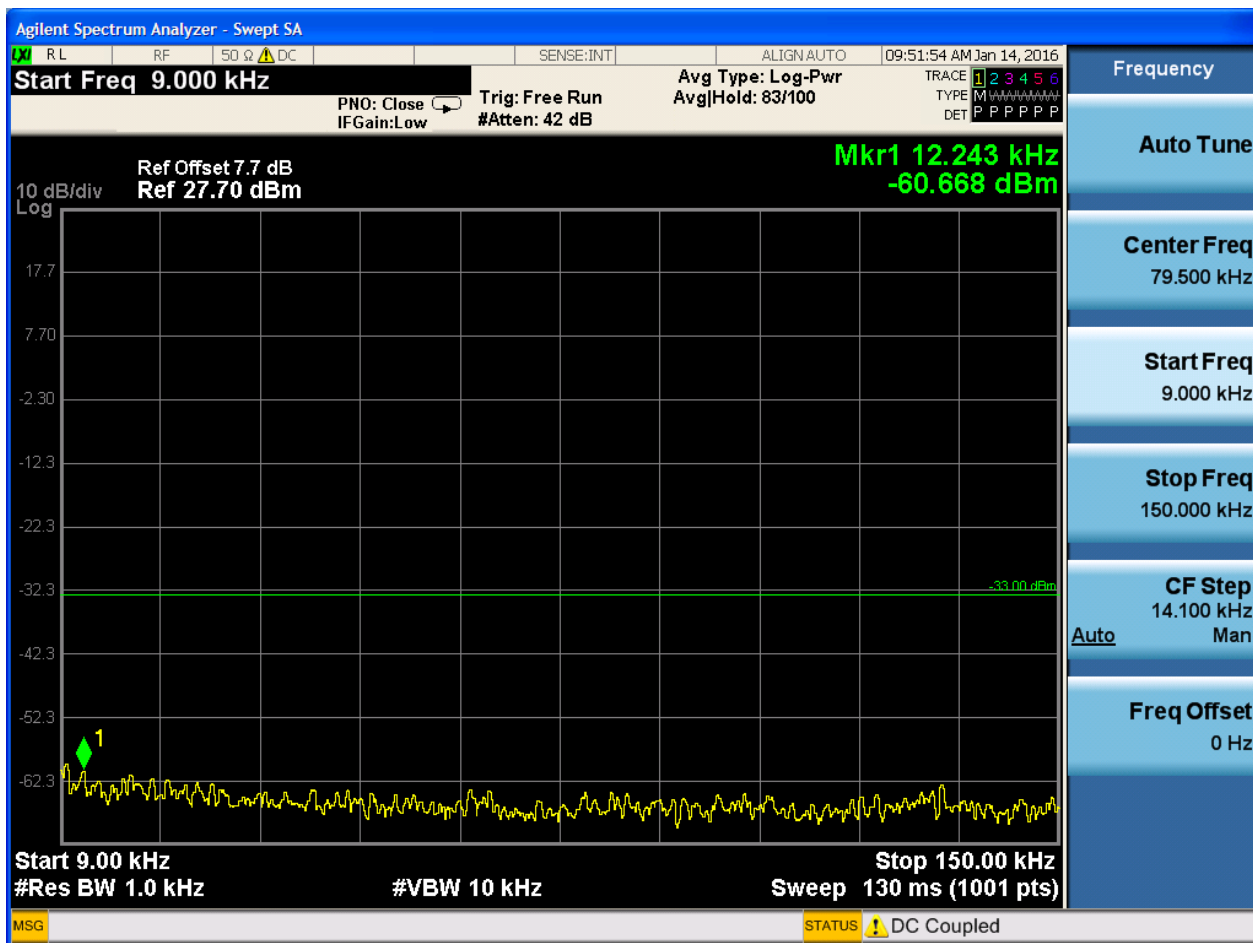
Part I - Test Plots

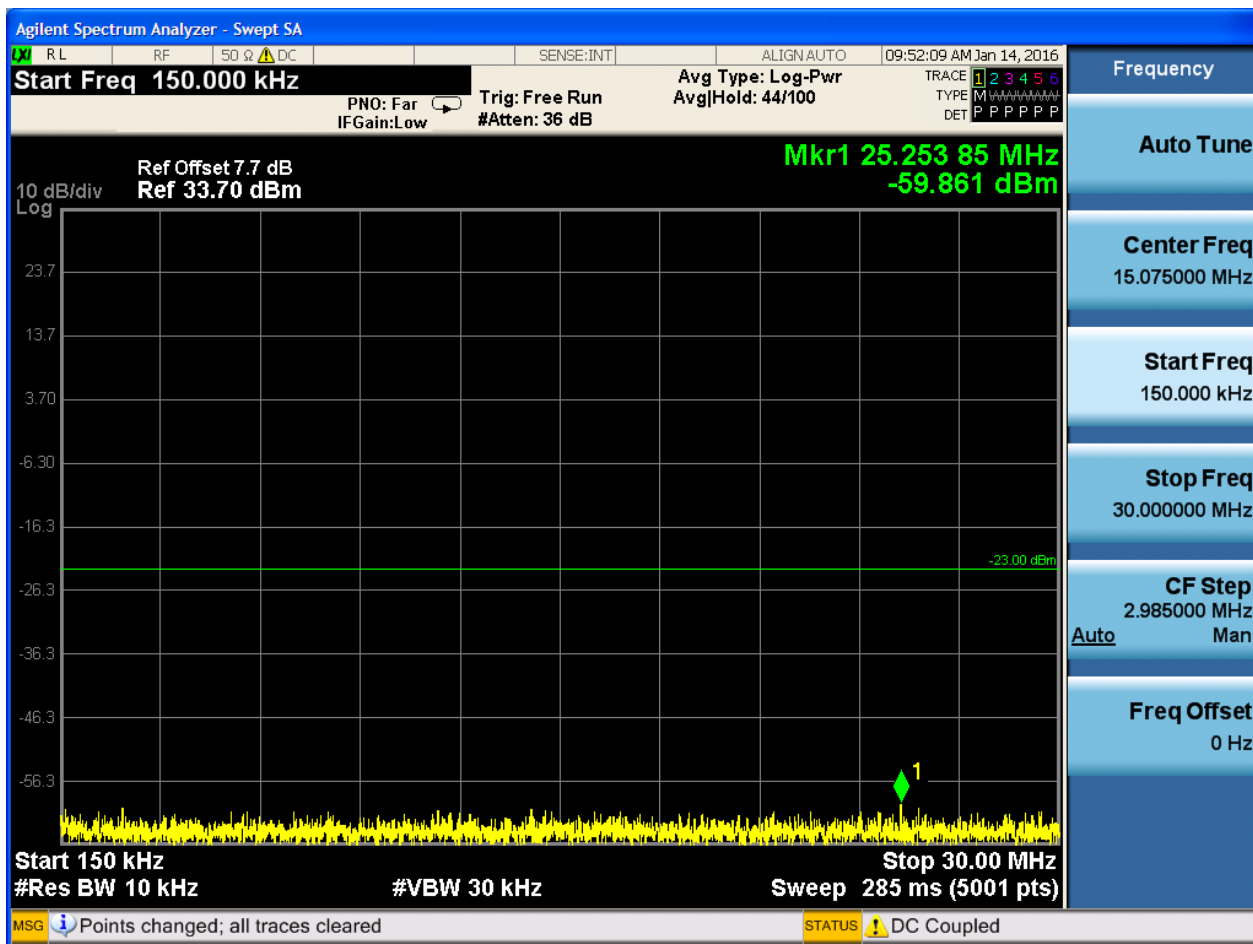
6.1 For UMTS

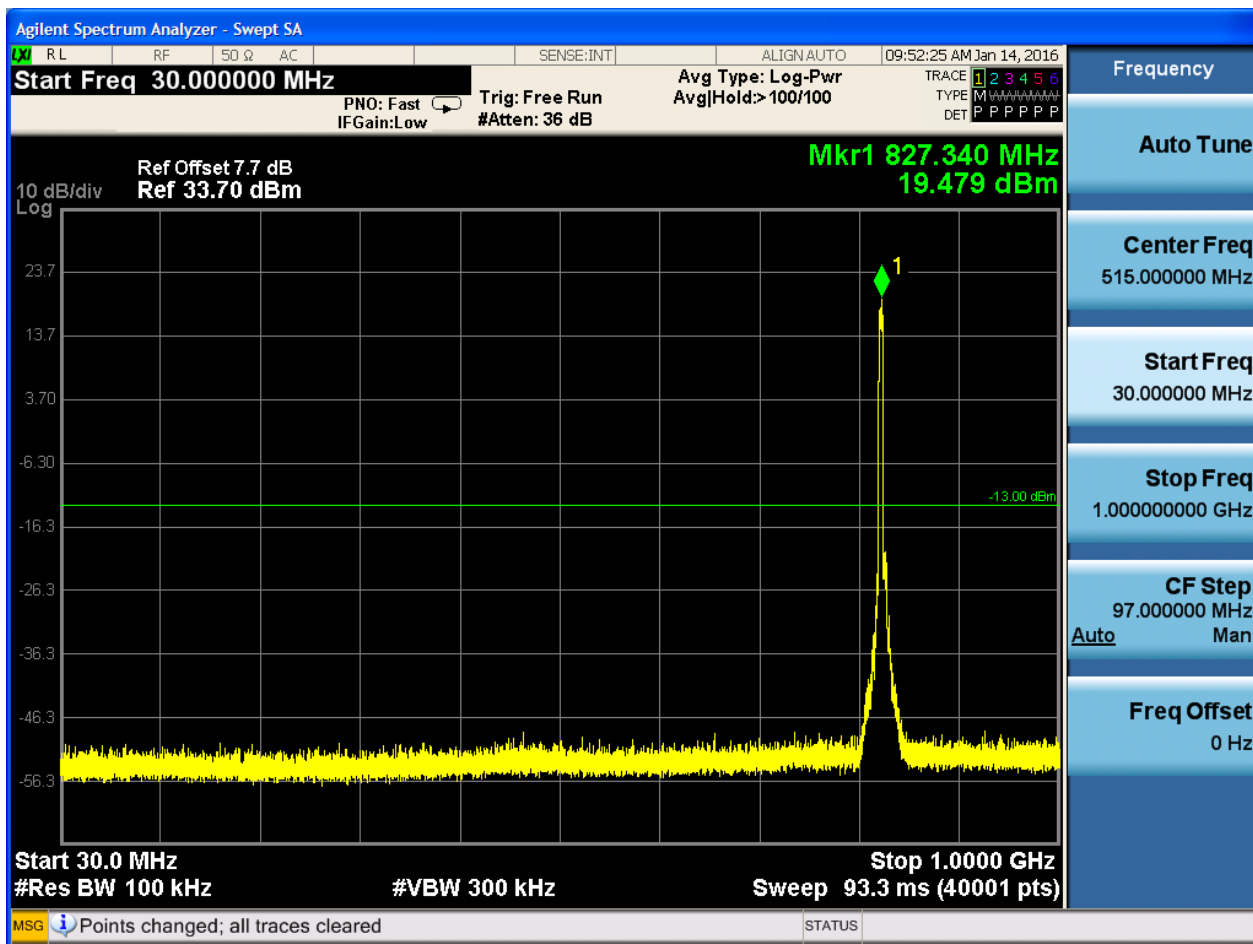
6.1.1 Test Band = WCDMA850

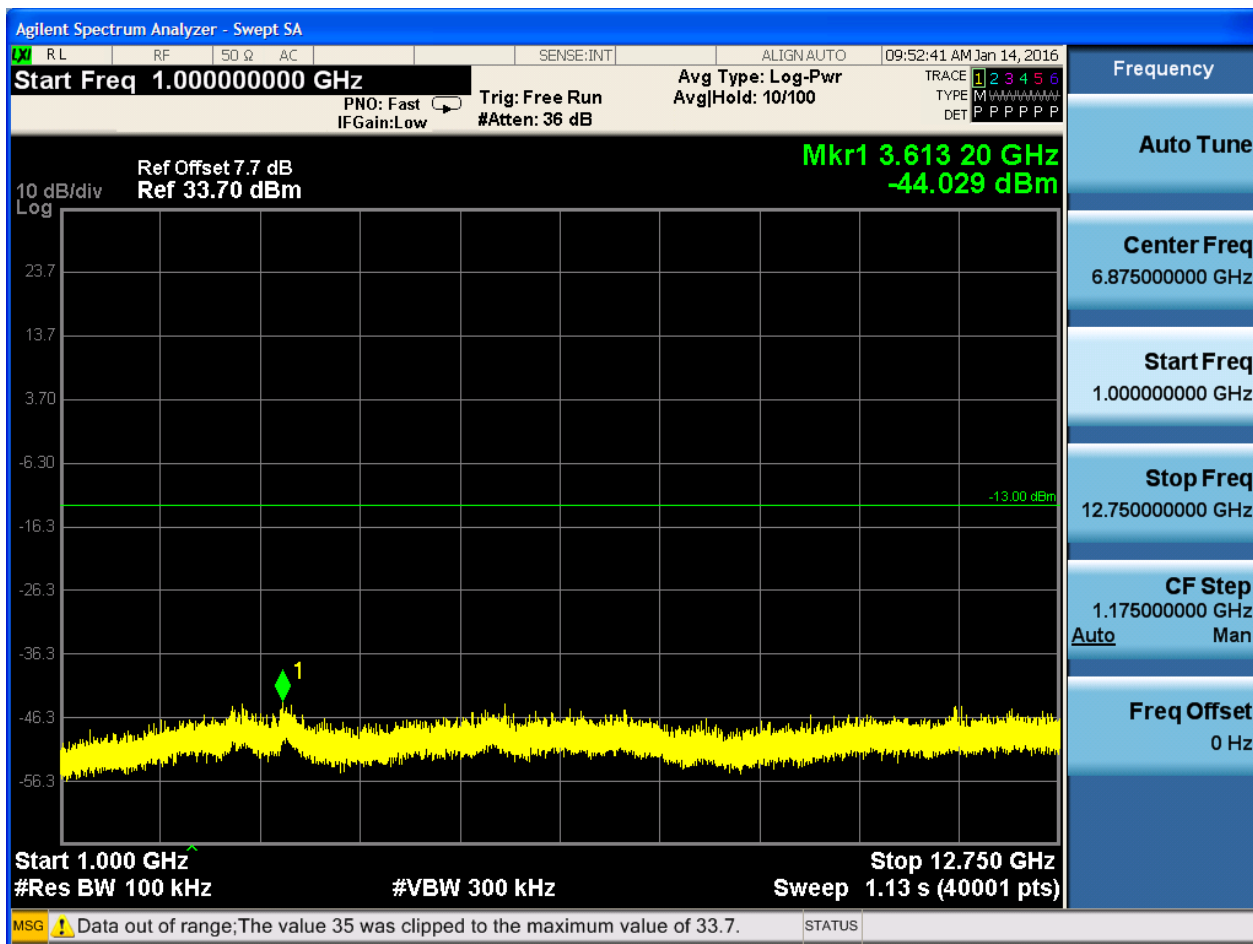
6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH

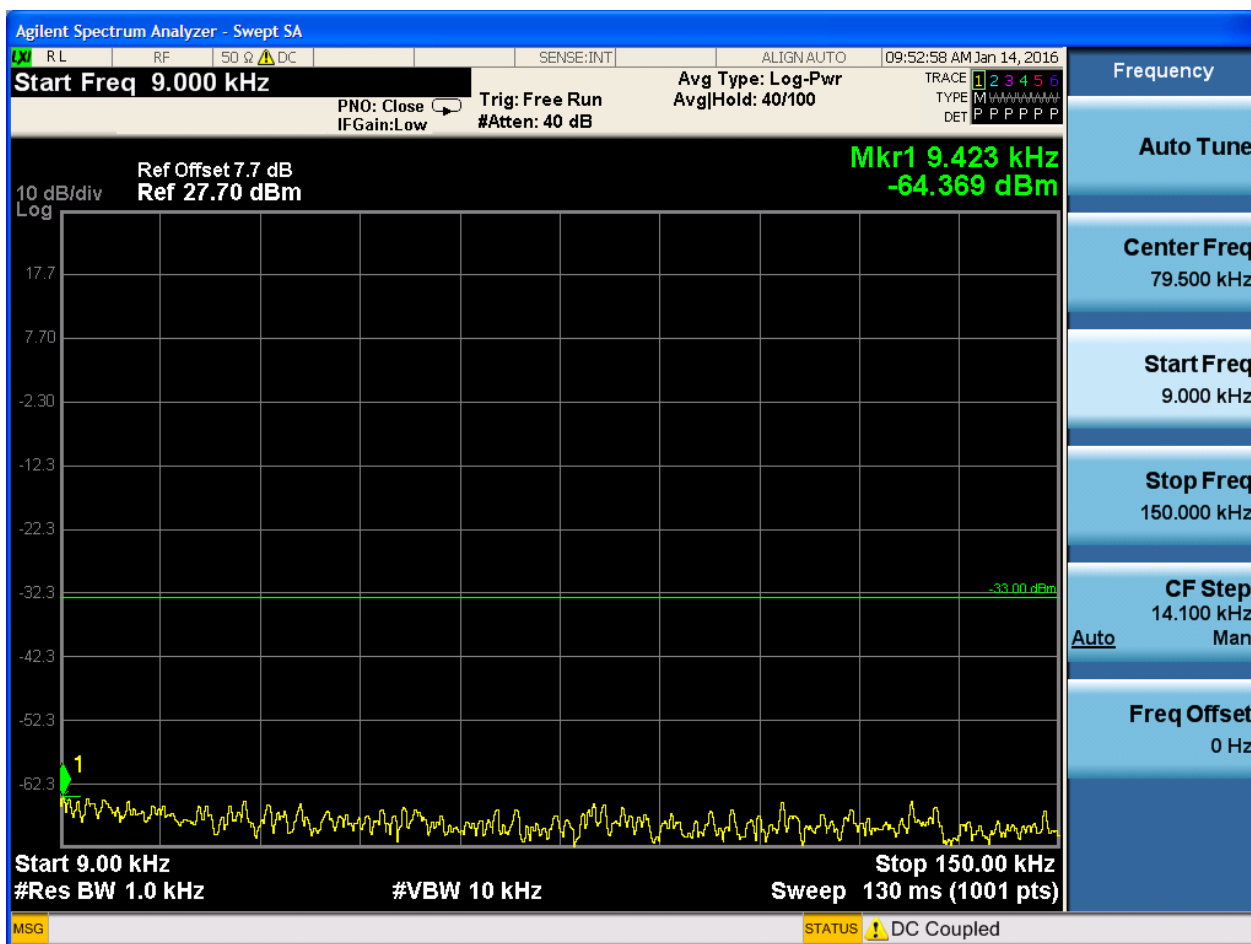




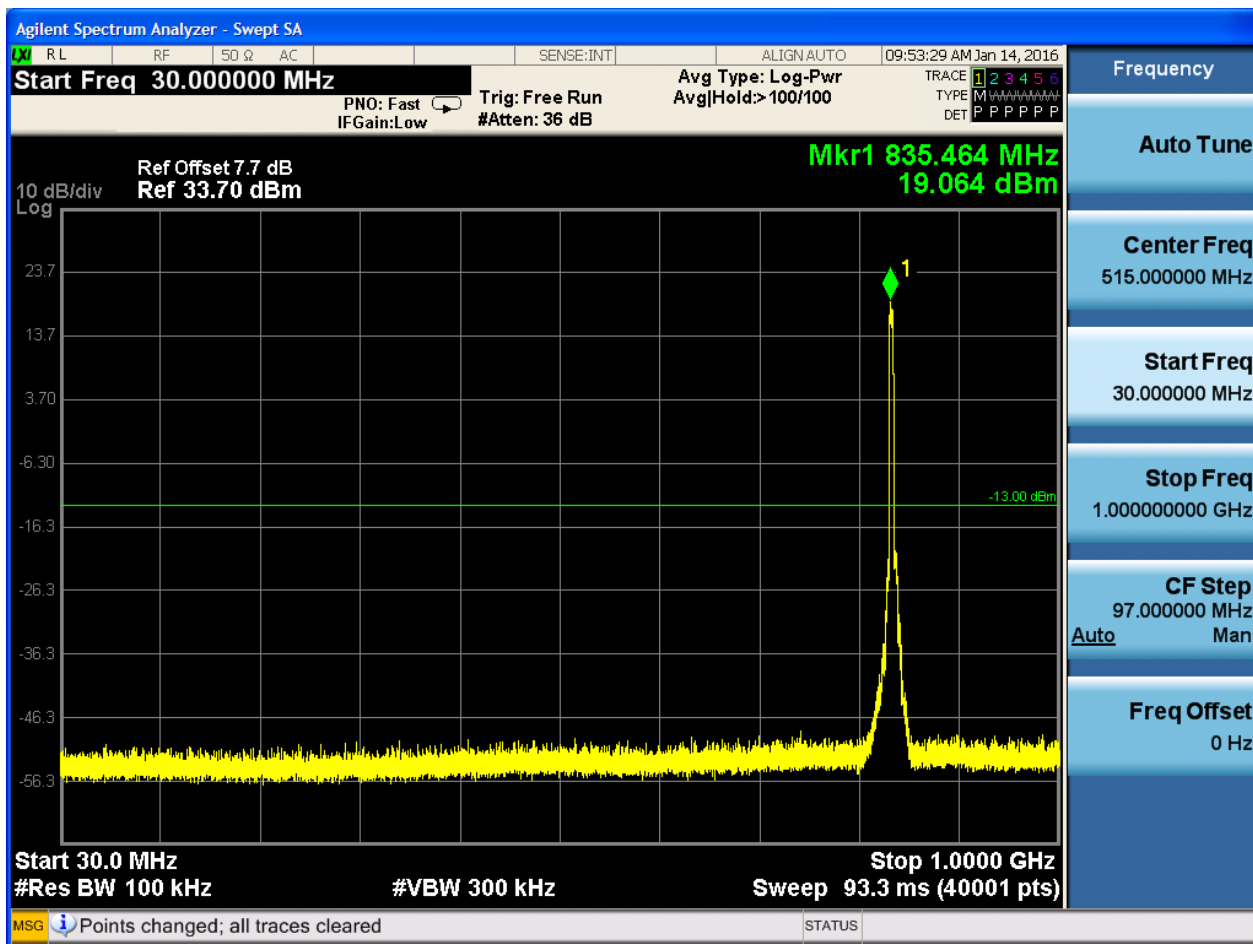


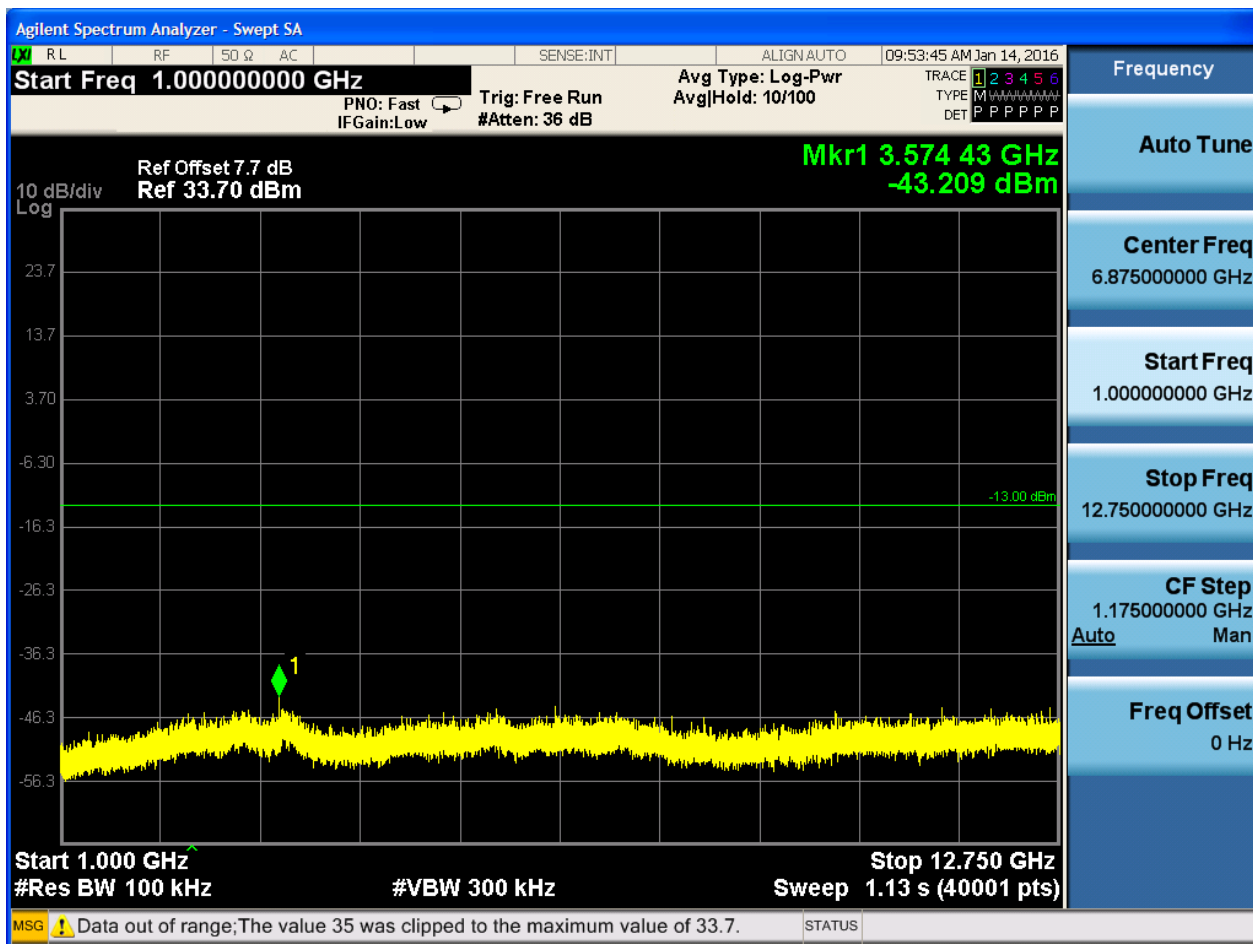


6.1.1.1.2 Test Channel = MCH

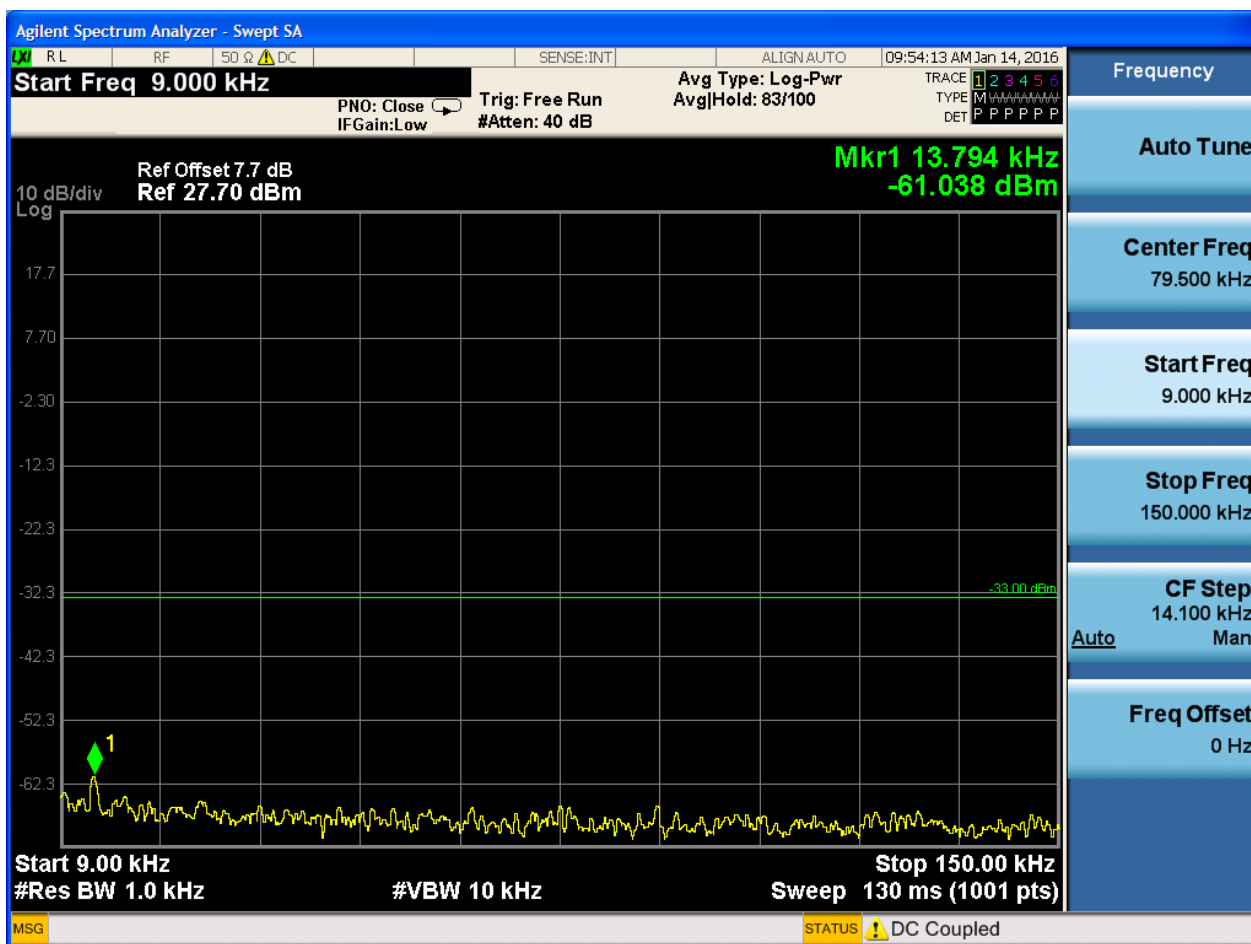


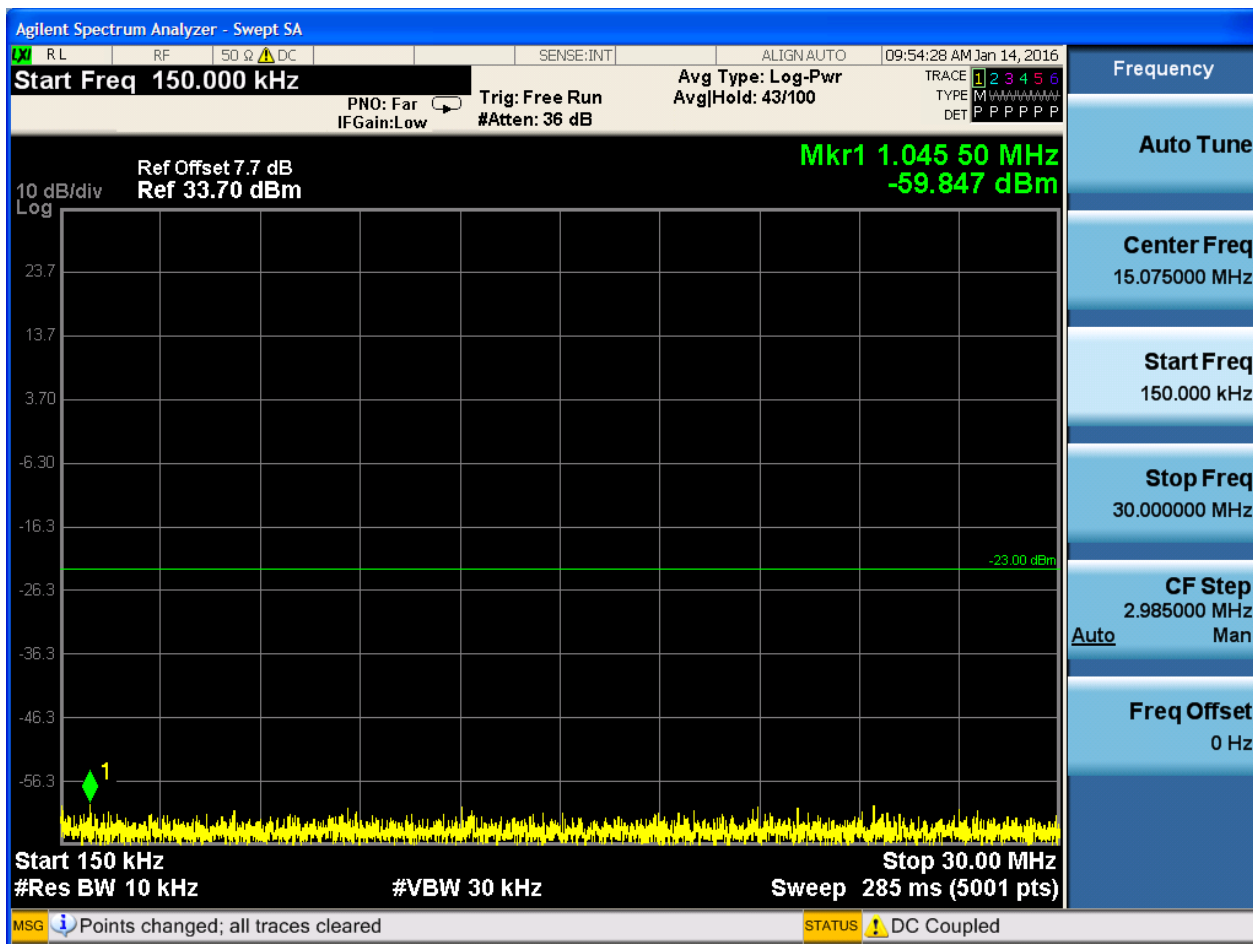


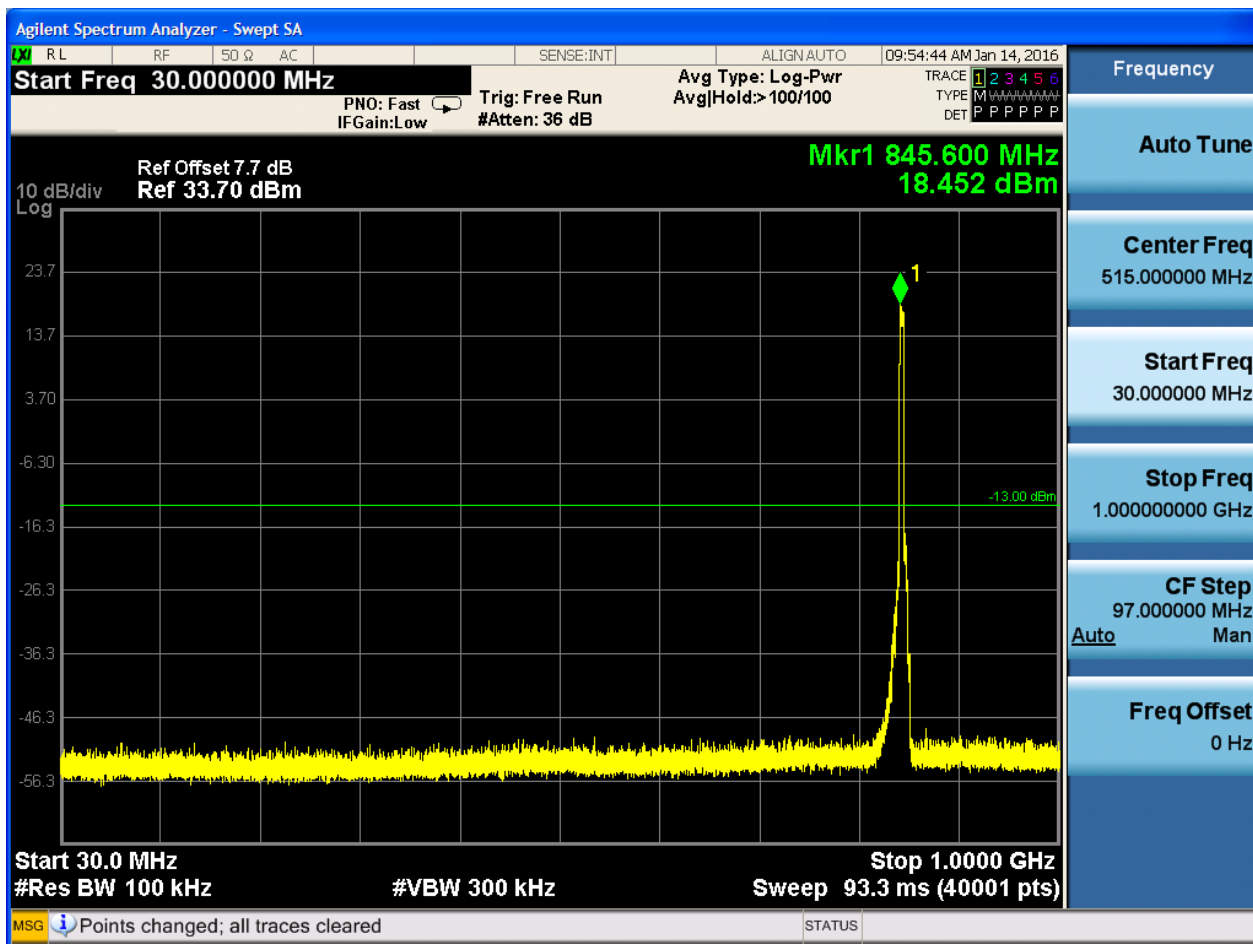


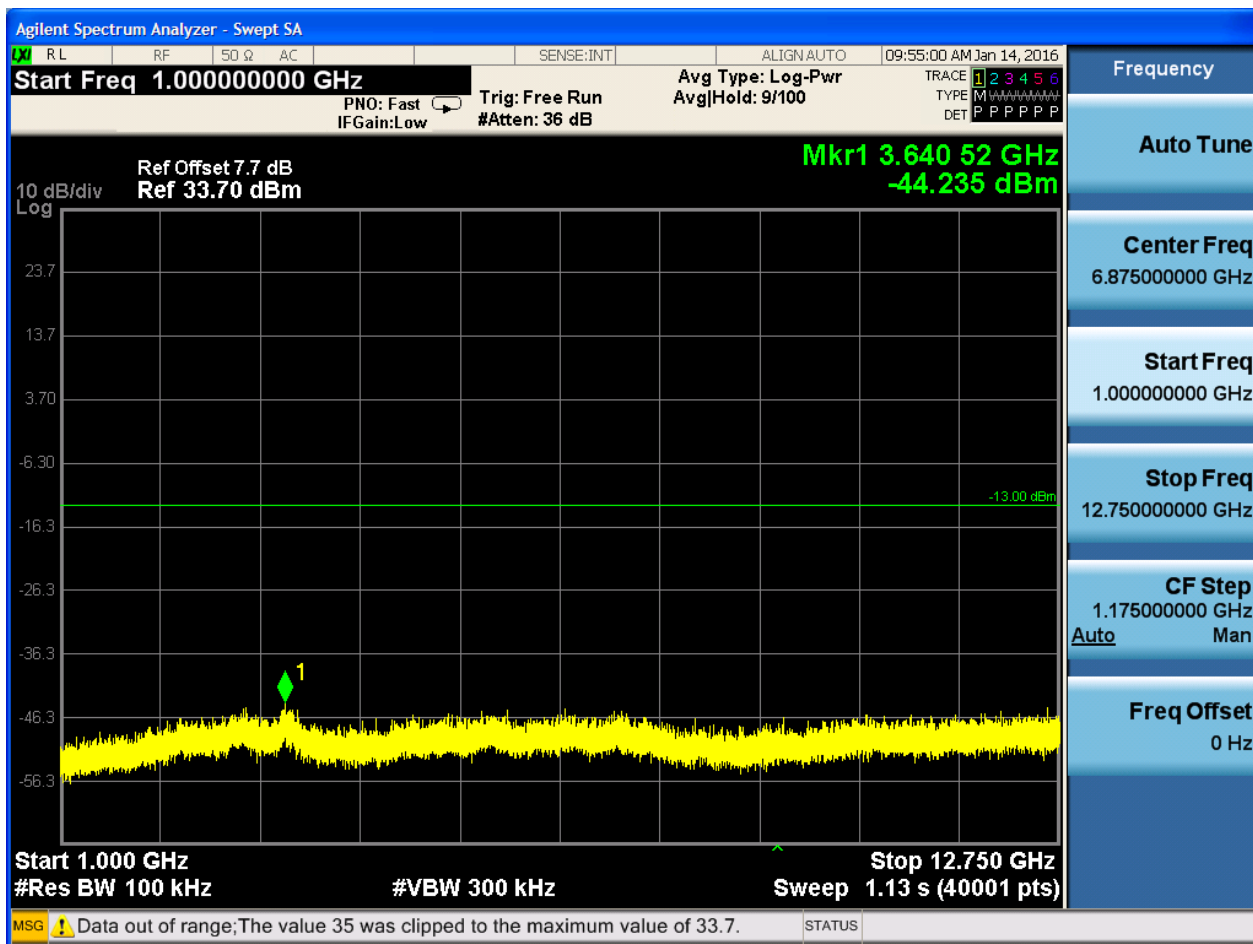


6.1.1.1.3 Test Channel = HCH







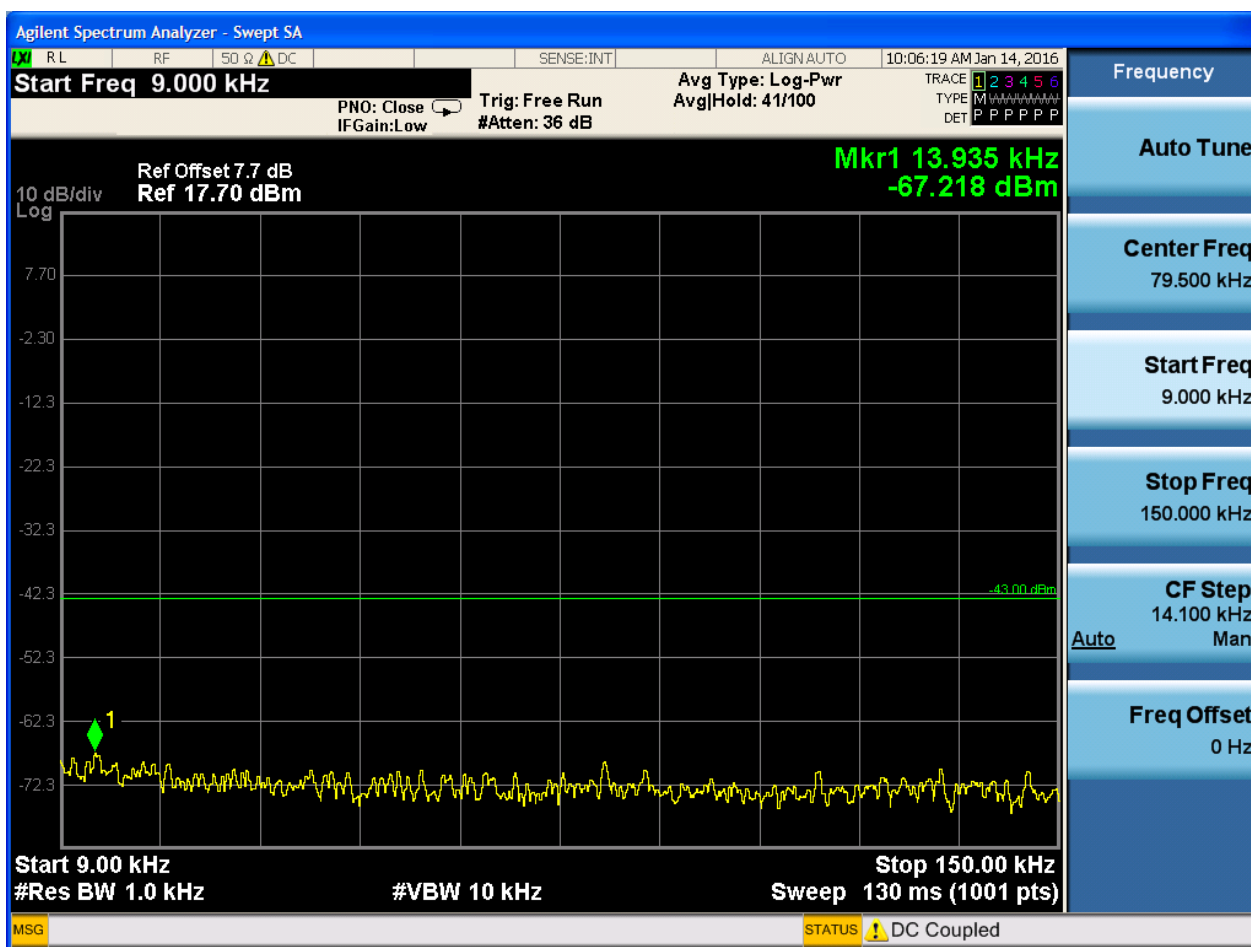


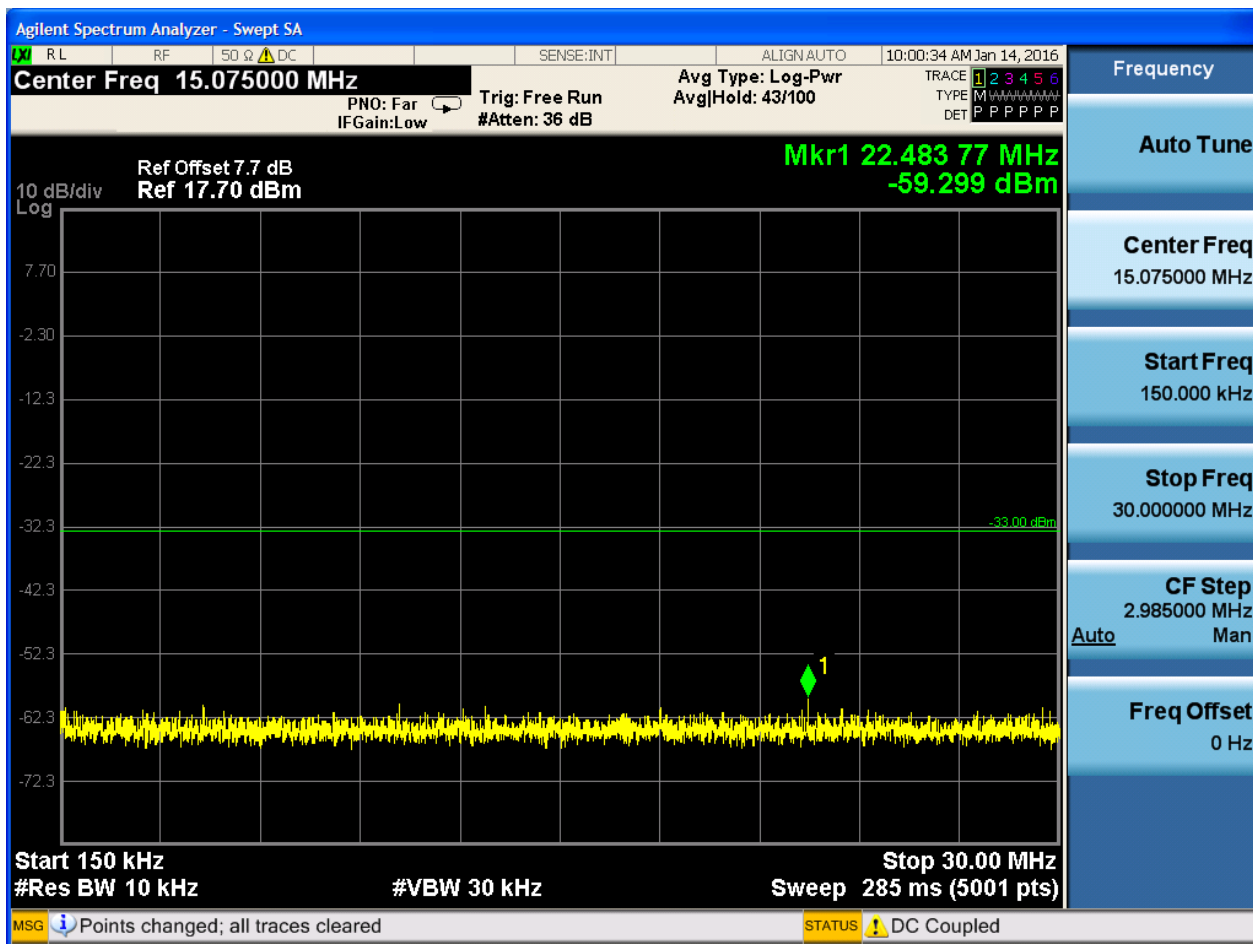


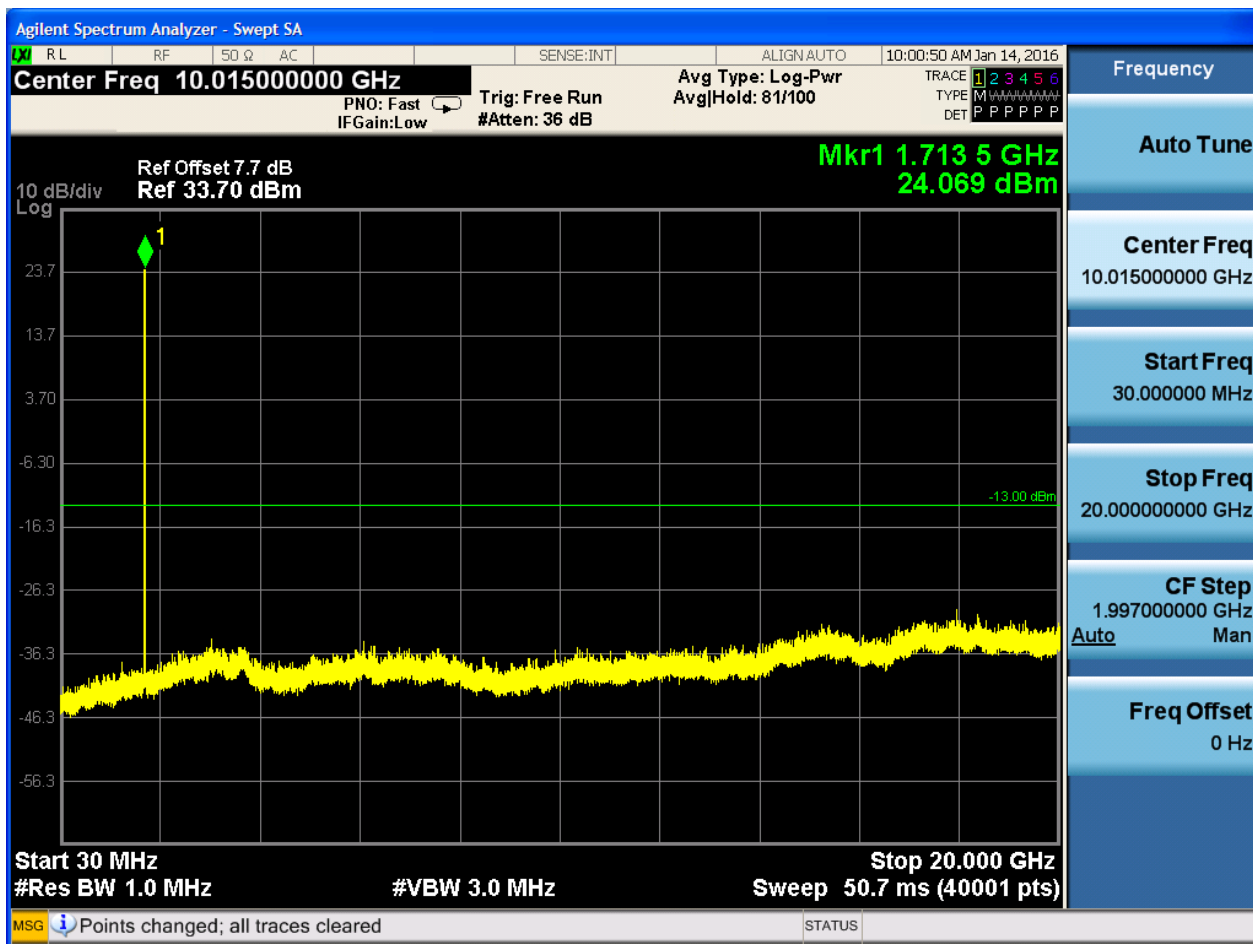
6.1.2 Test Band = WCDMA1700

6.1.2.1 Test Mode = UMTS/TM1

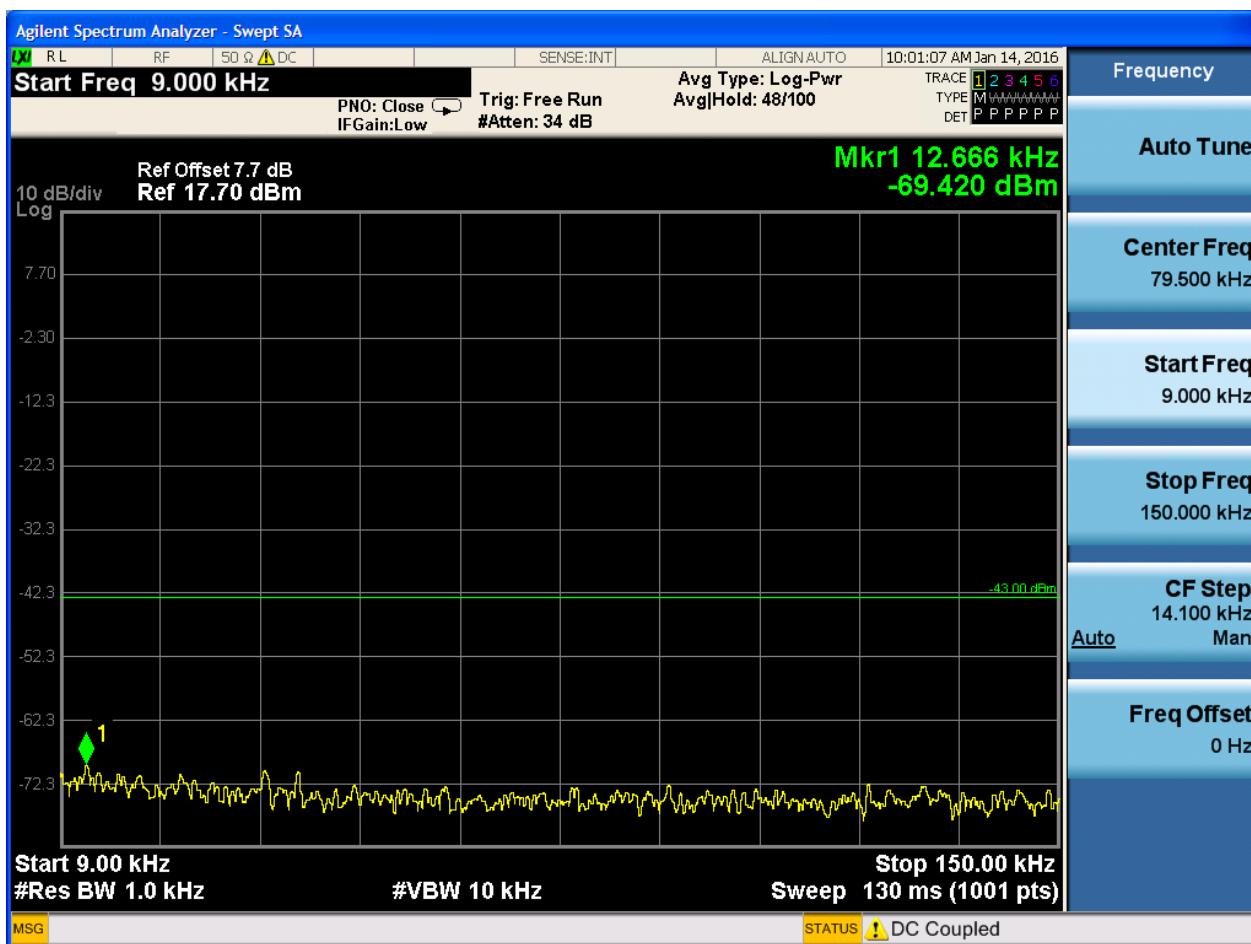
6.1.2.1.1 Test Channel = LCH

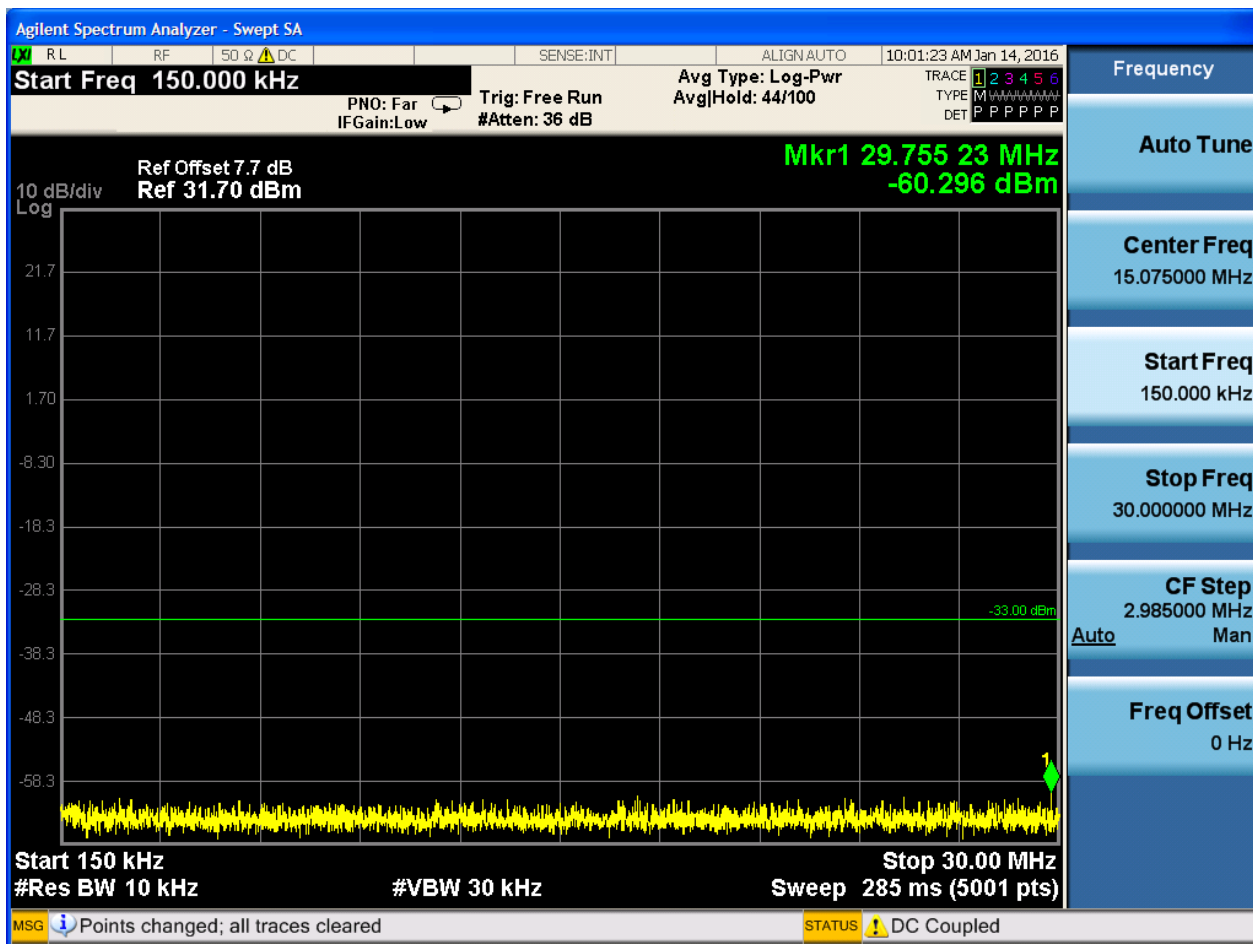


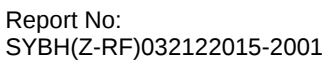




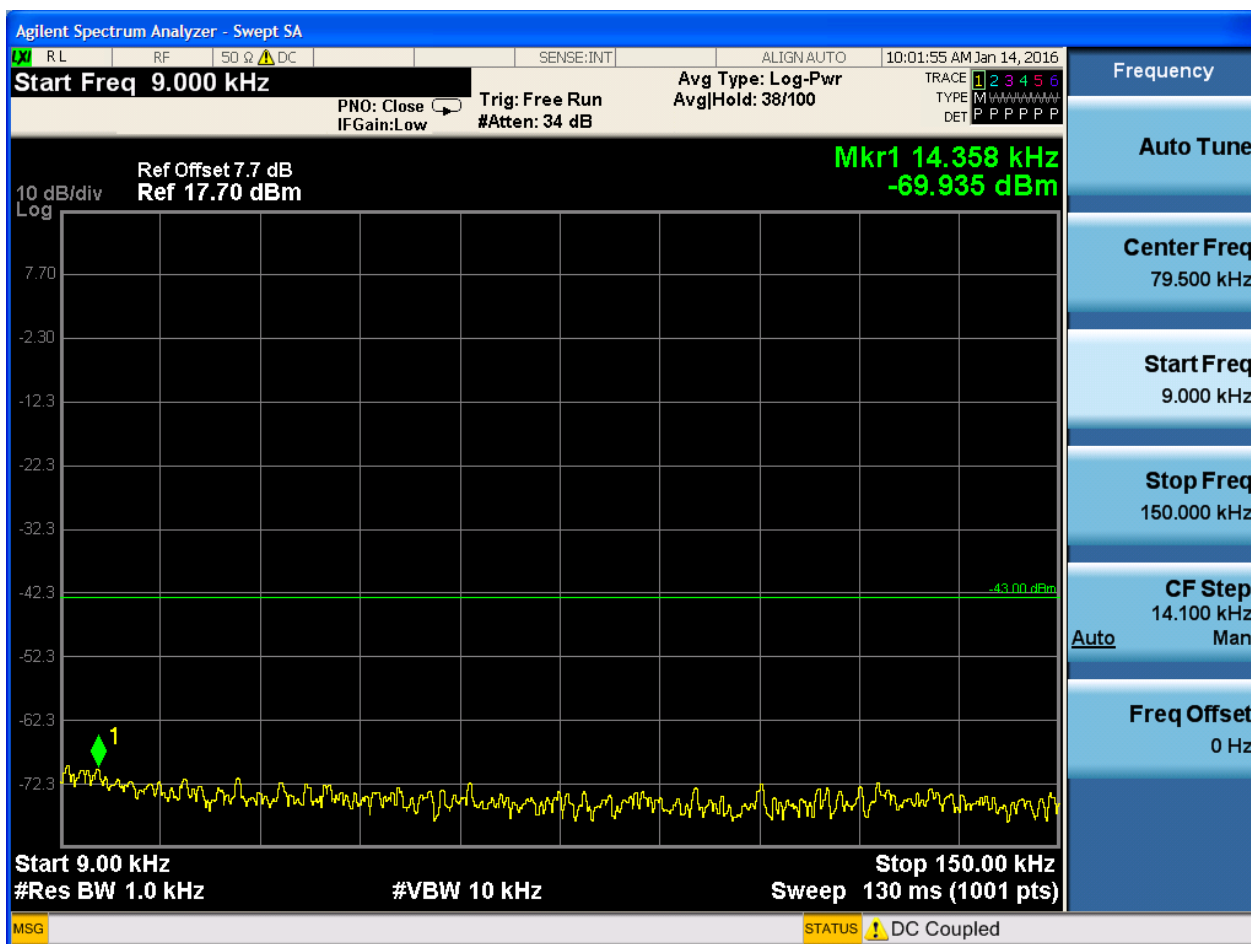
6.1.2.1.2 Test Channel = MCH

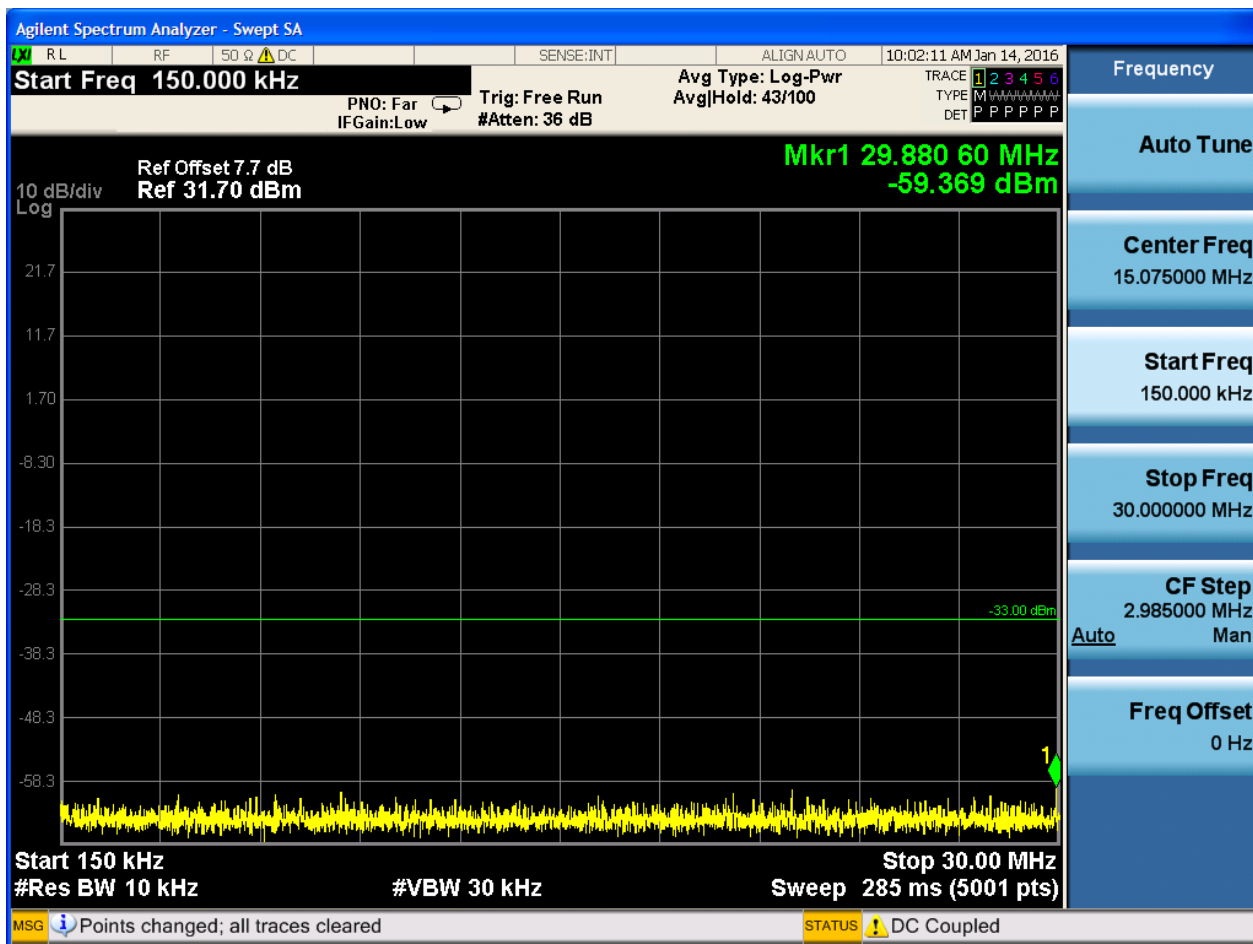


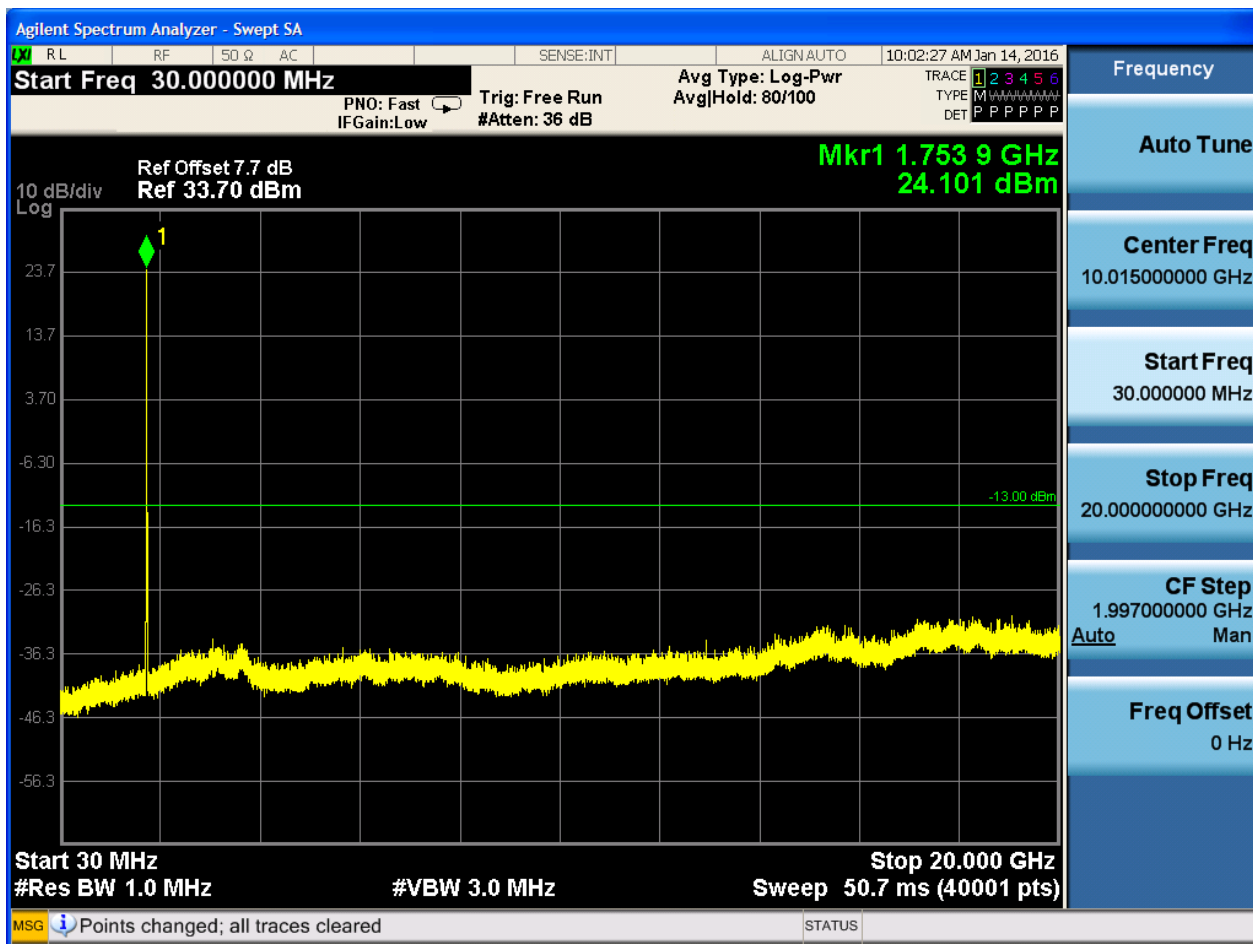




6.1.2.1.3 Test Channel = HCH



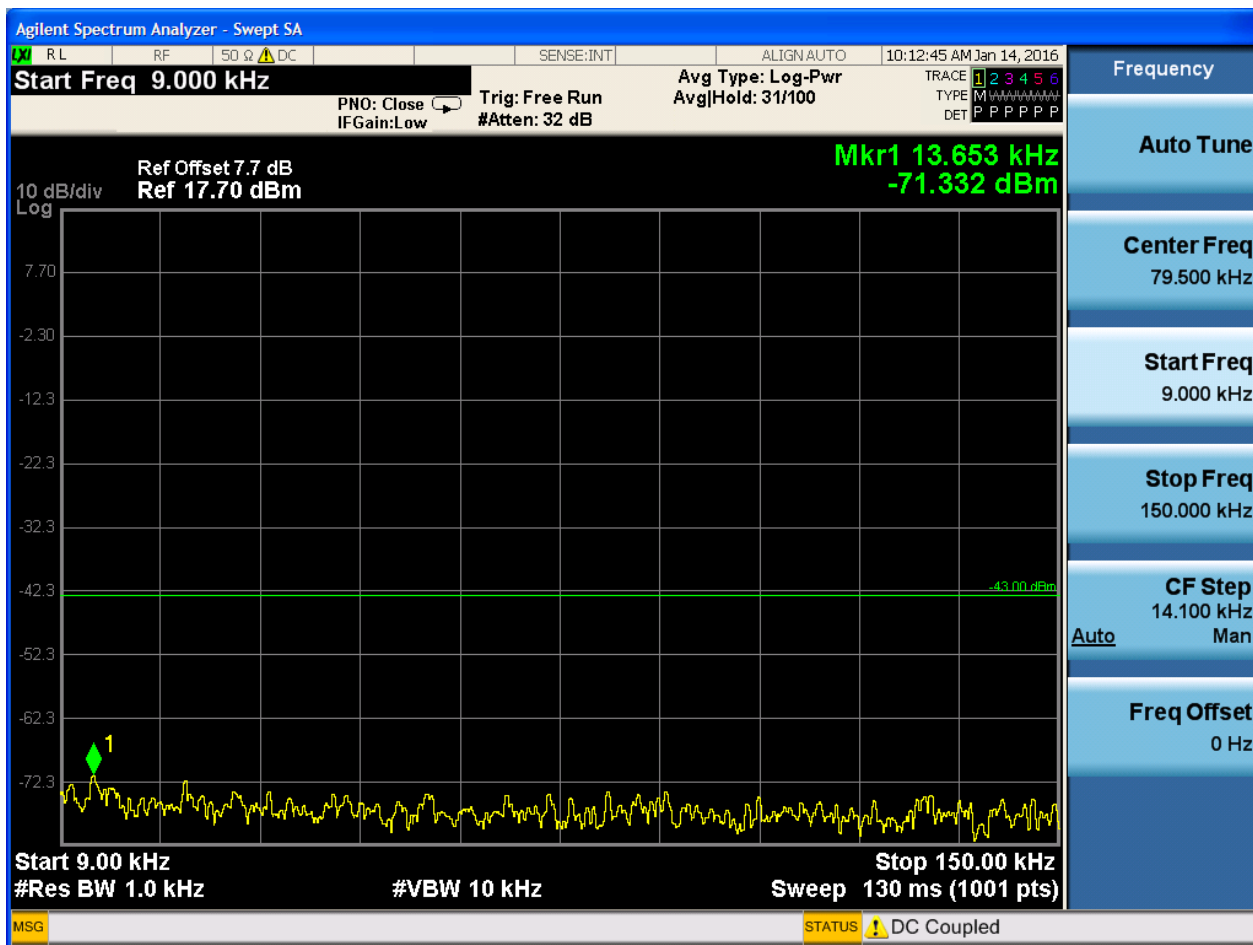


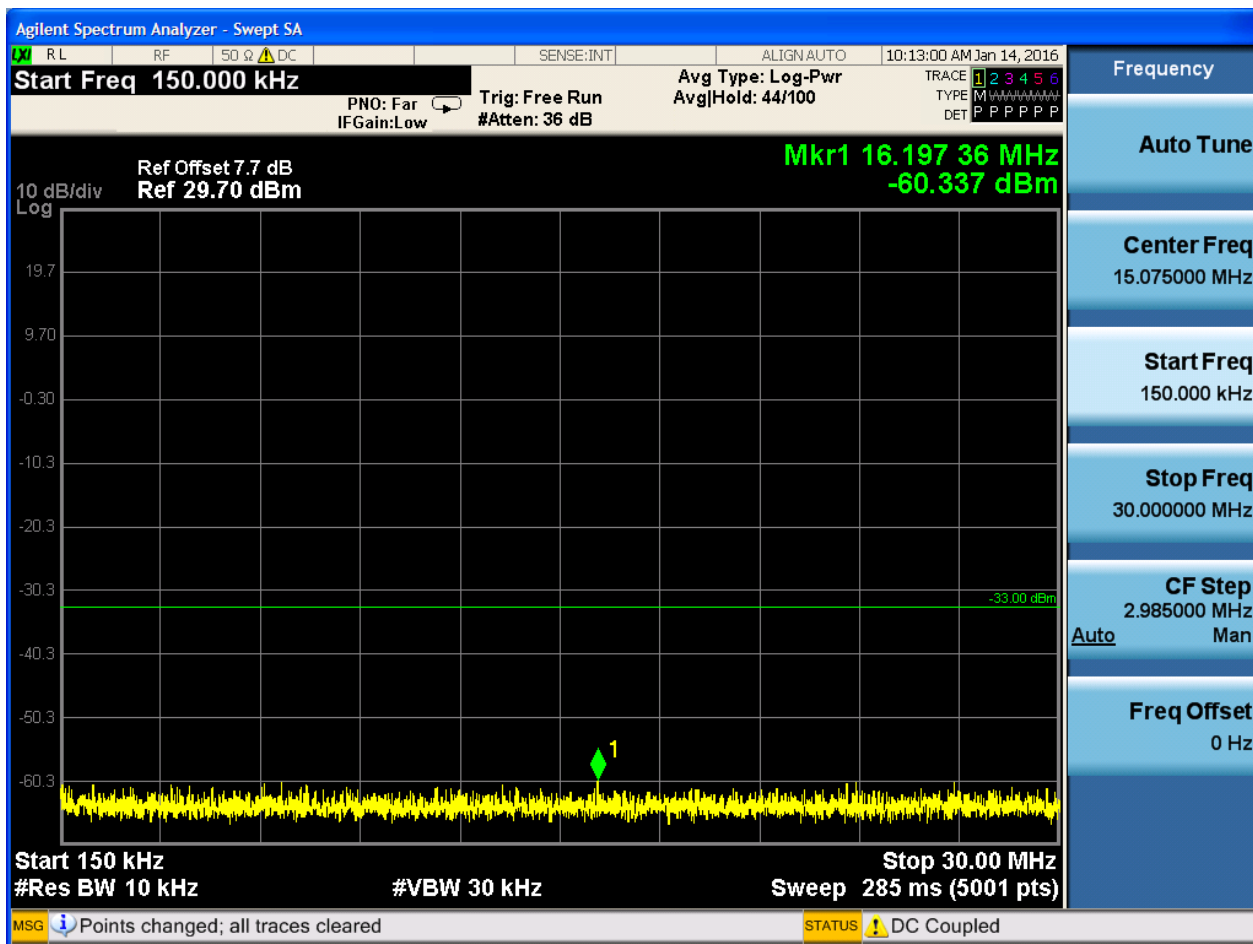


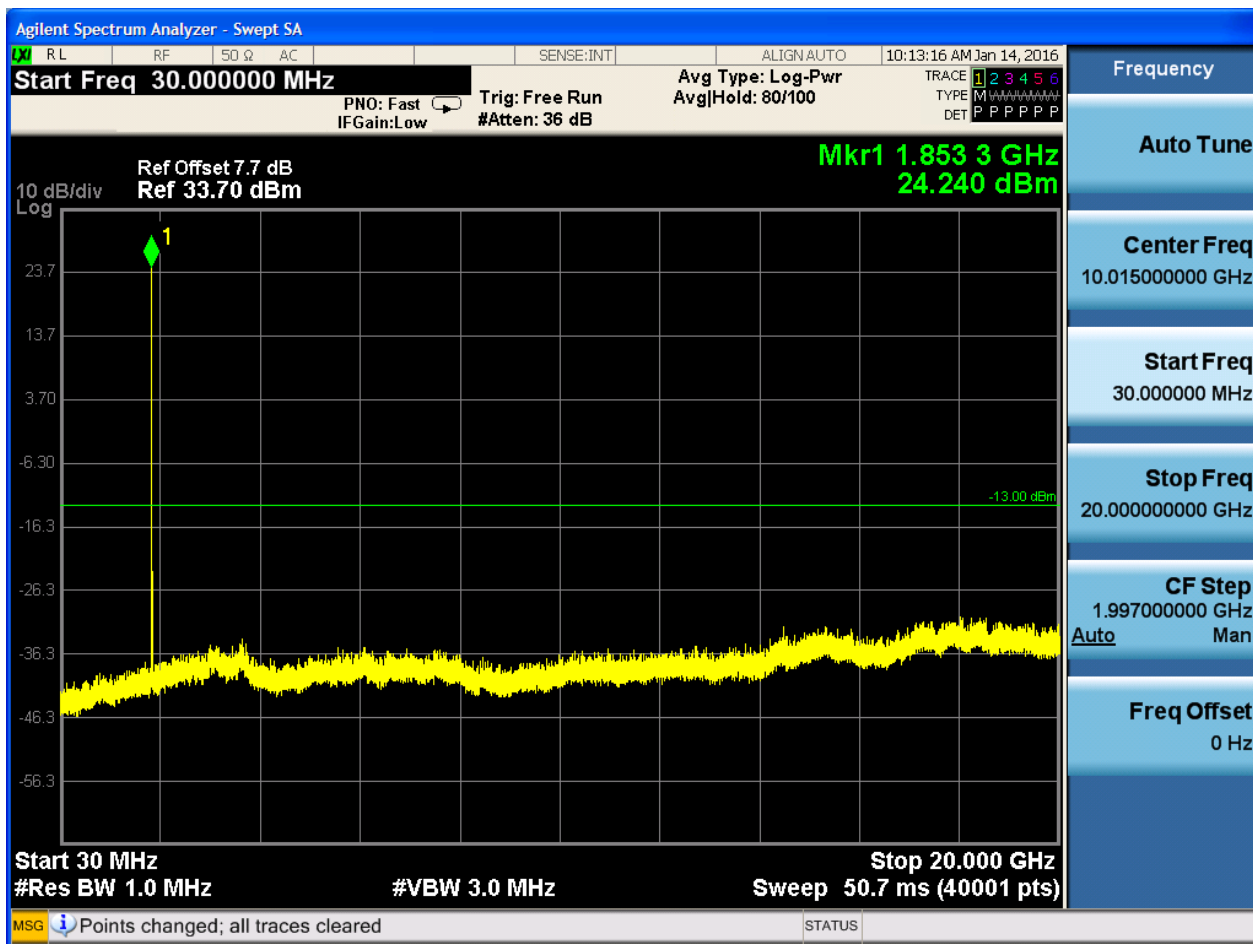
6.1.3 Test Band = WCDMA1900

6.1.3.1 Test Mode = UMTS/TM1

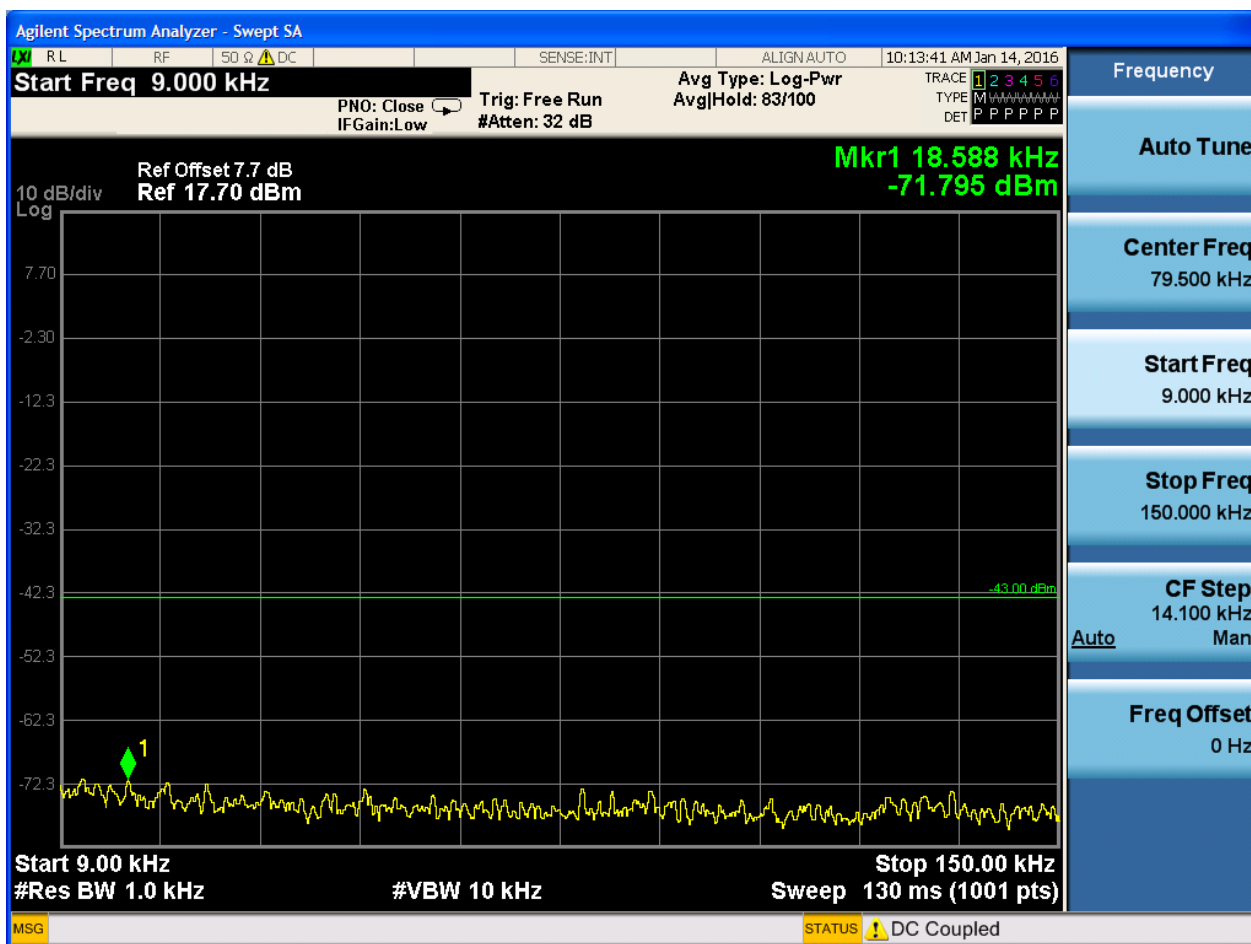
6.1.3.1.1 Test Channel = LCH

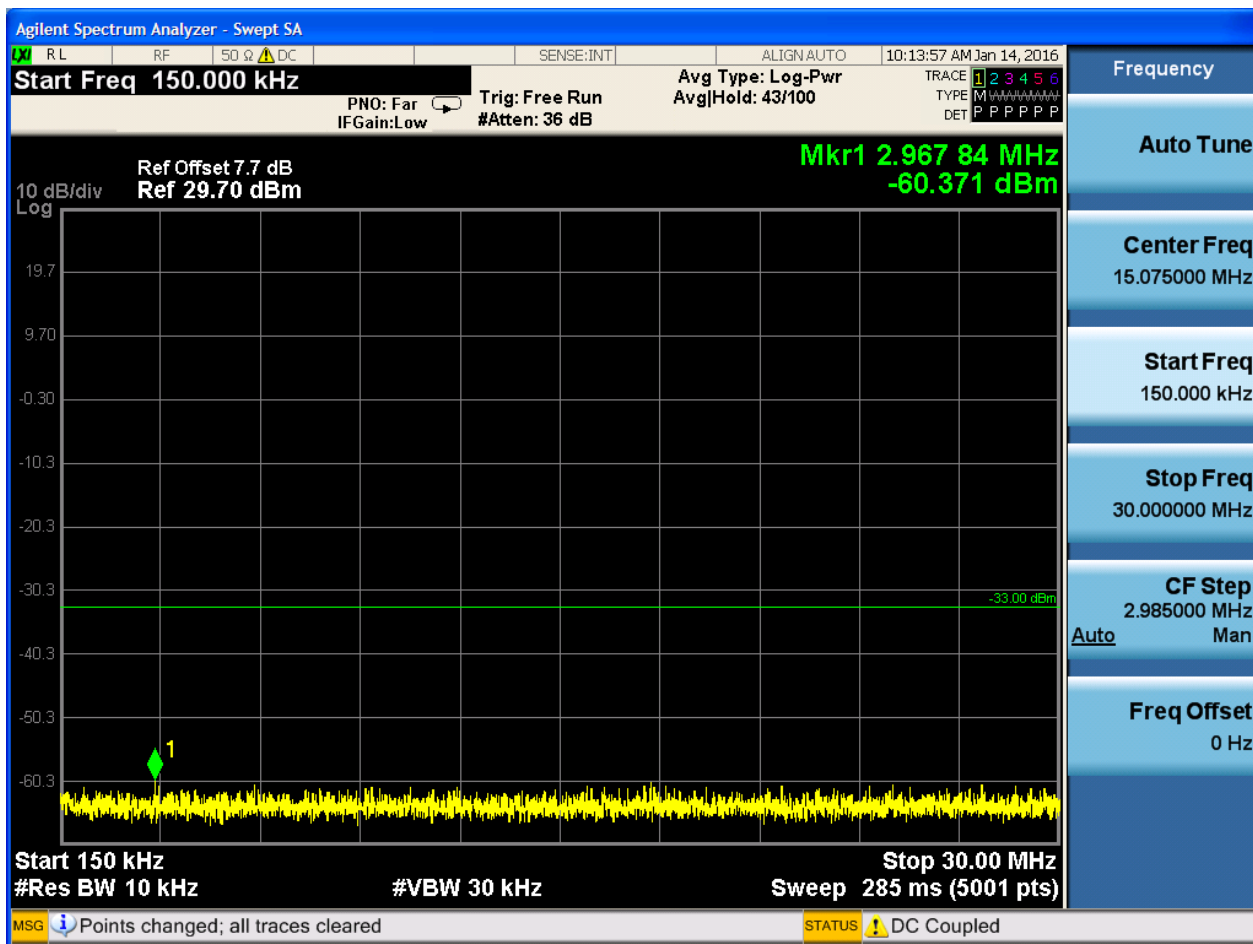


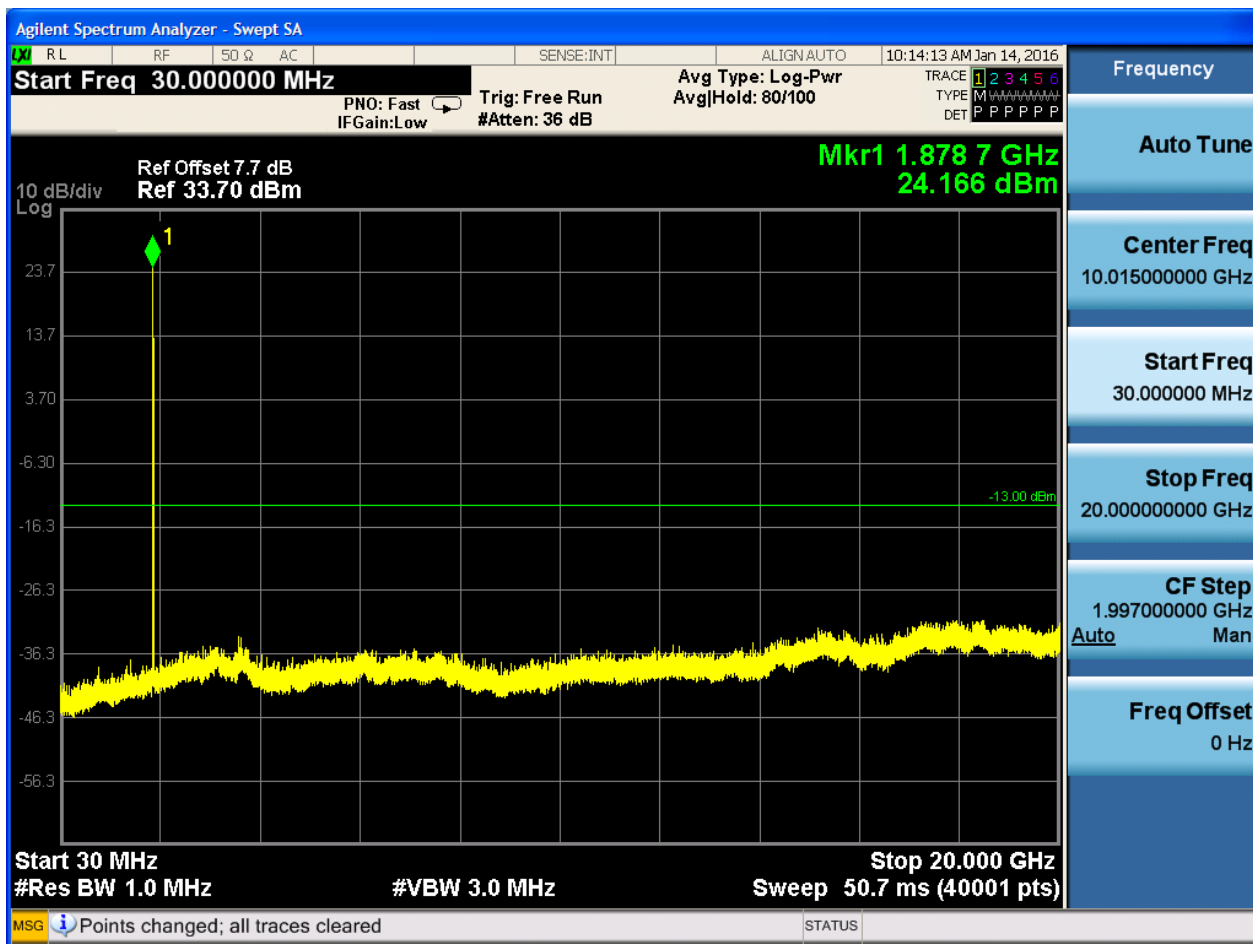




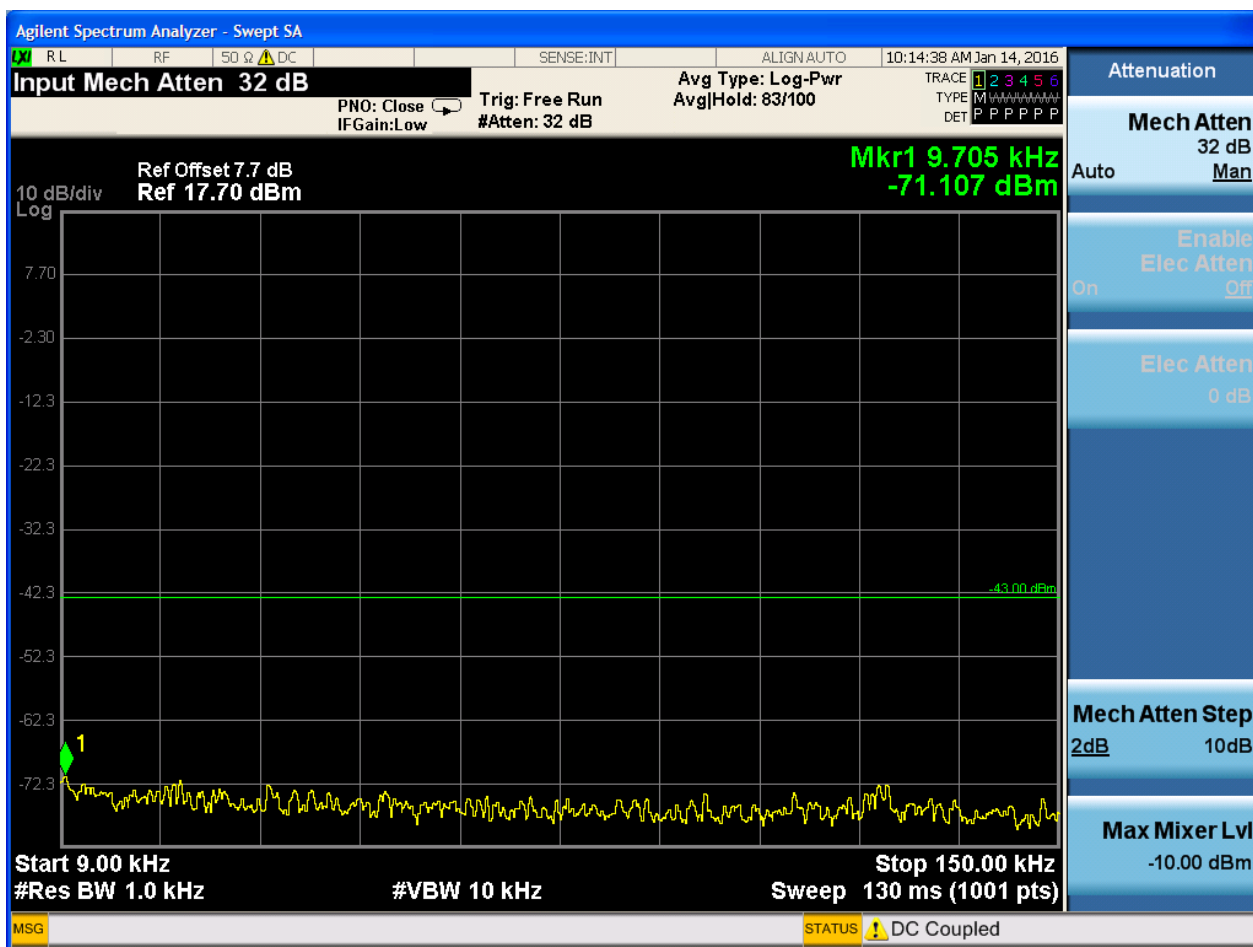
6.1.3.1.2 Test Channel = MCH

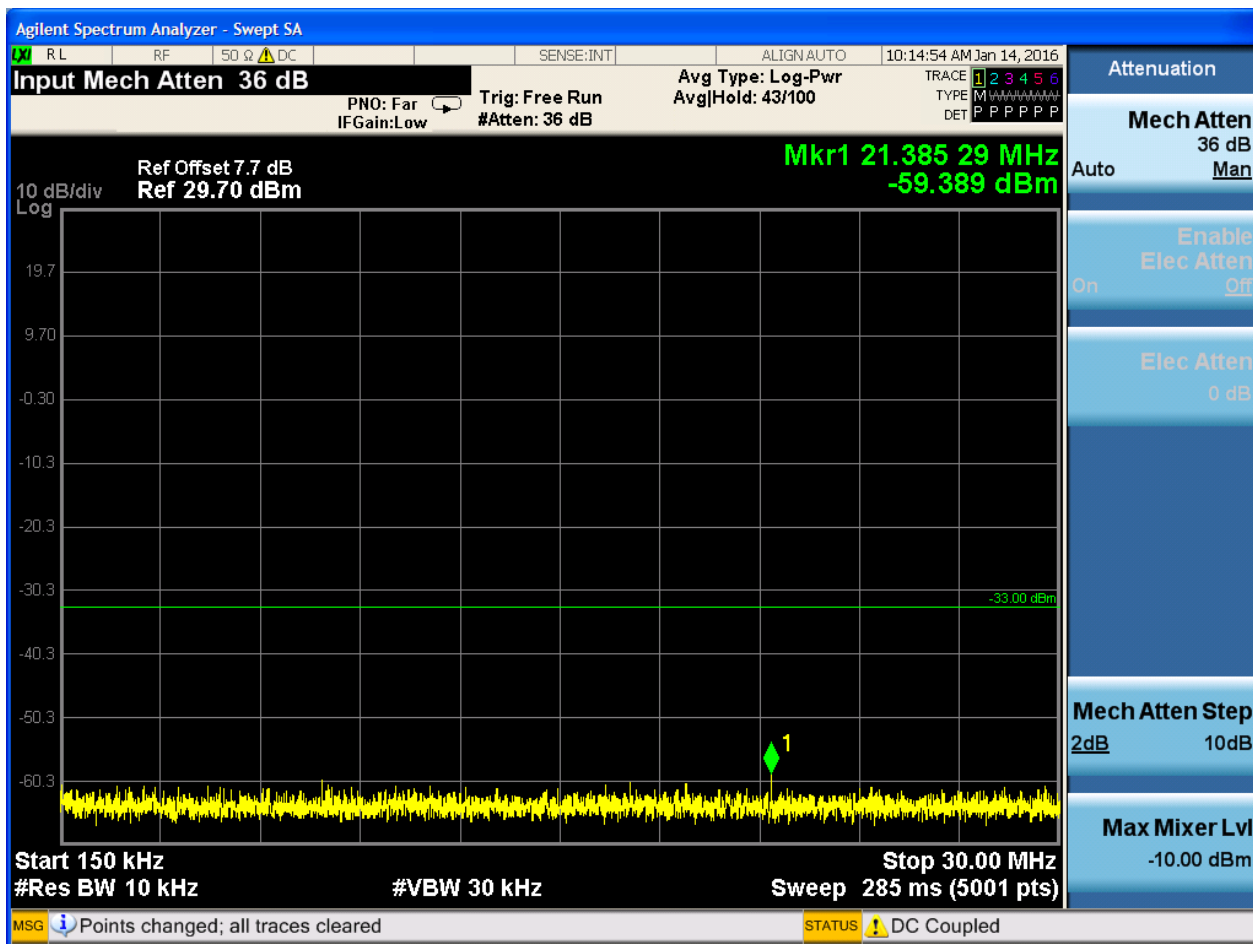


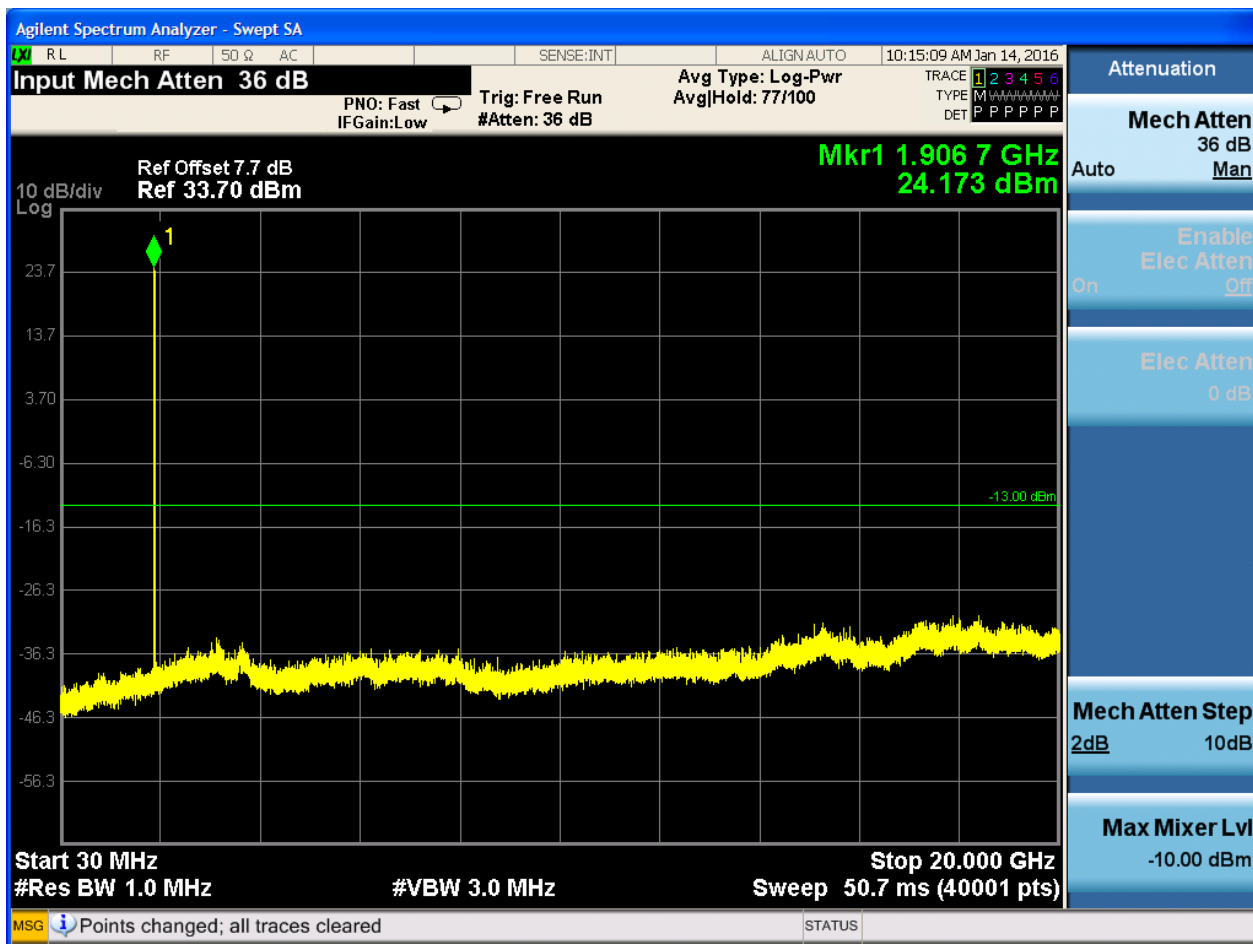




6.1.3.1.3 Test Channel = HCH







7Appendix_G: Field Strength of Spurious Radiation

Note:

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

150kHz~30MHz, VBW = 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

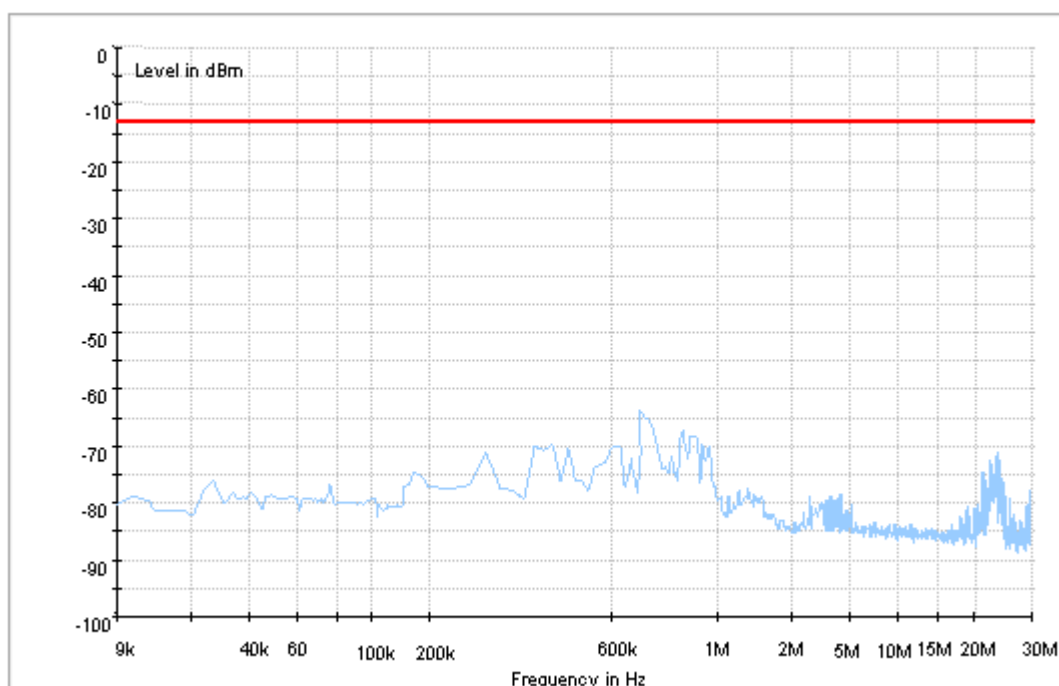
We tested all modes, but the data presented below is the worst case.

Part I - Test Plots

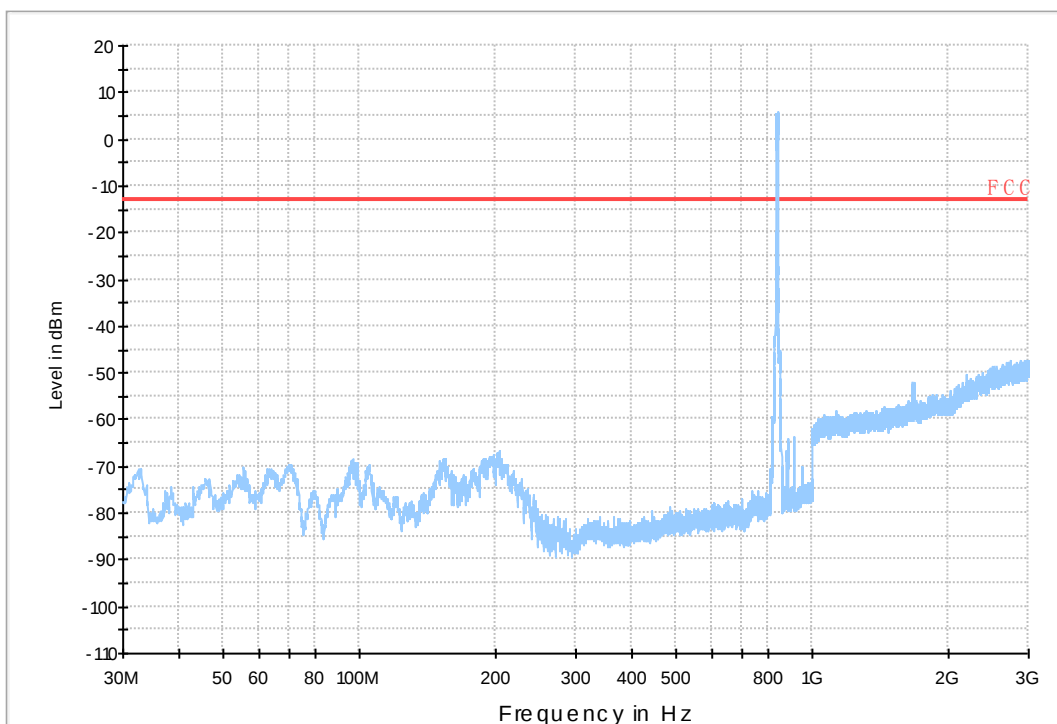
7.1 For UMTS

7.1.1 Test Band = WCDMA850

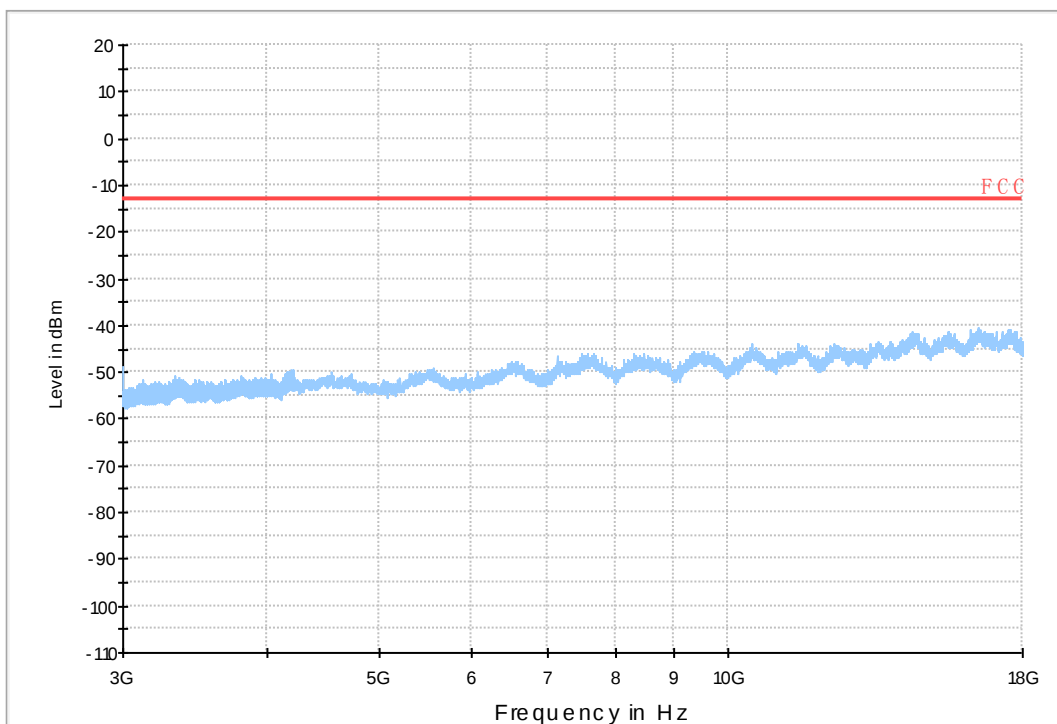
7.1.1.1 Test Mode = UMTS/TM1



Copy of FCC PART22 W CDMA850_L

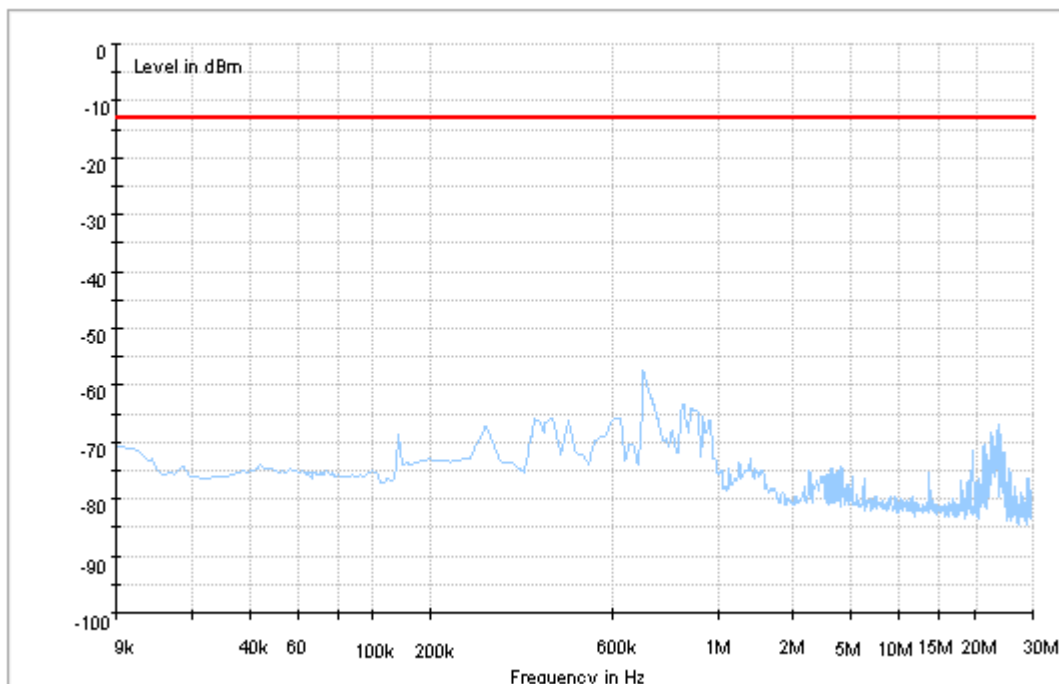


Copy of FCC PART22 W CDMA850_H

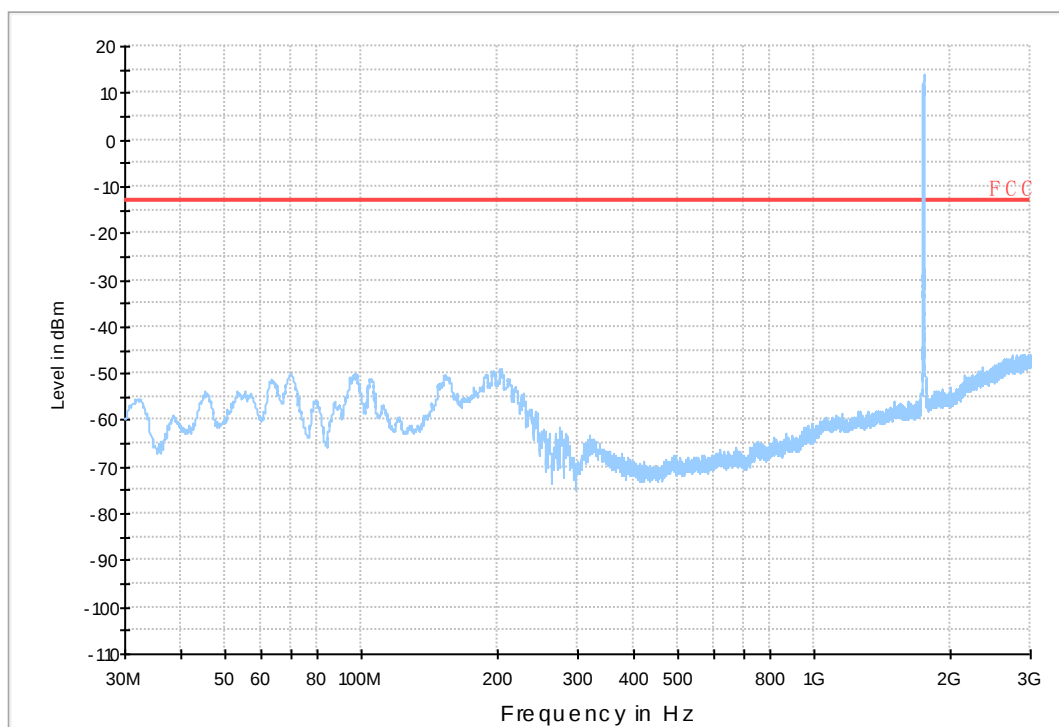


7.1.2 Test Band = WCDMA1700

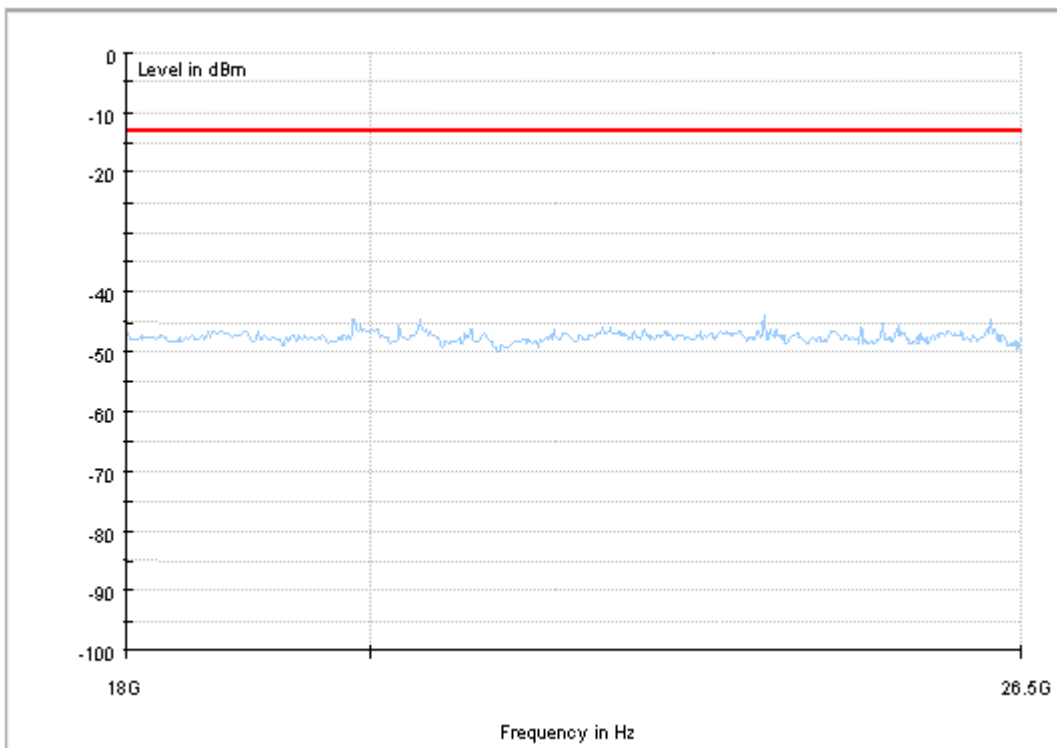
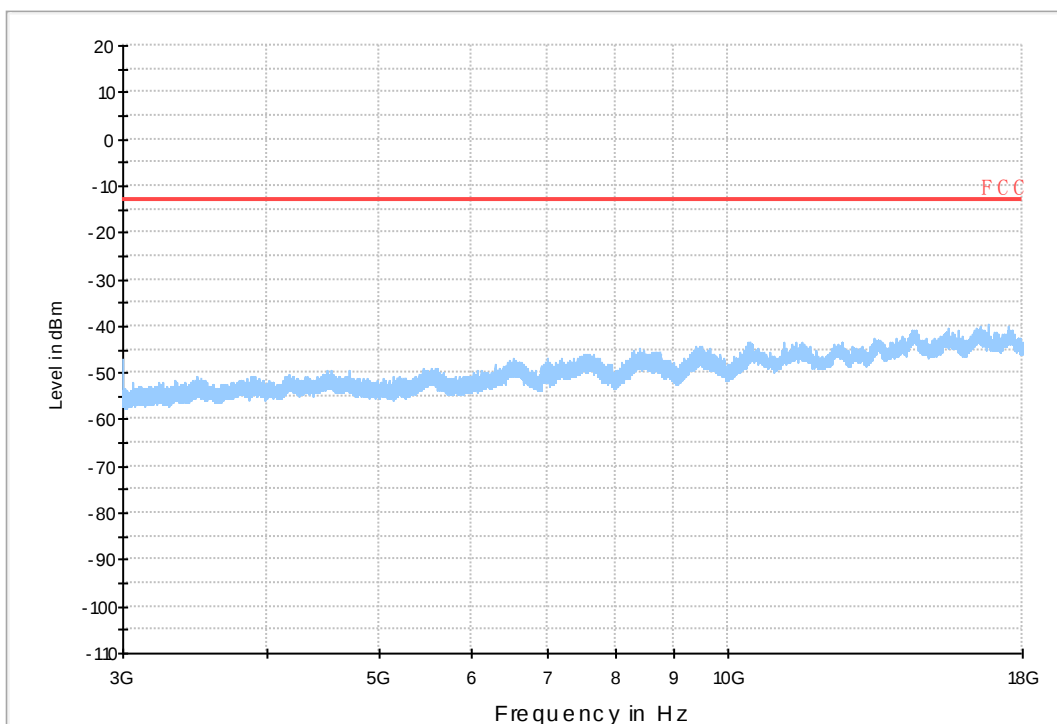
7.1.2.1 Test Mode = UMTS/TM1



Copy of FCC PART 27 W CDMA1700_L

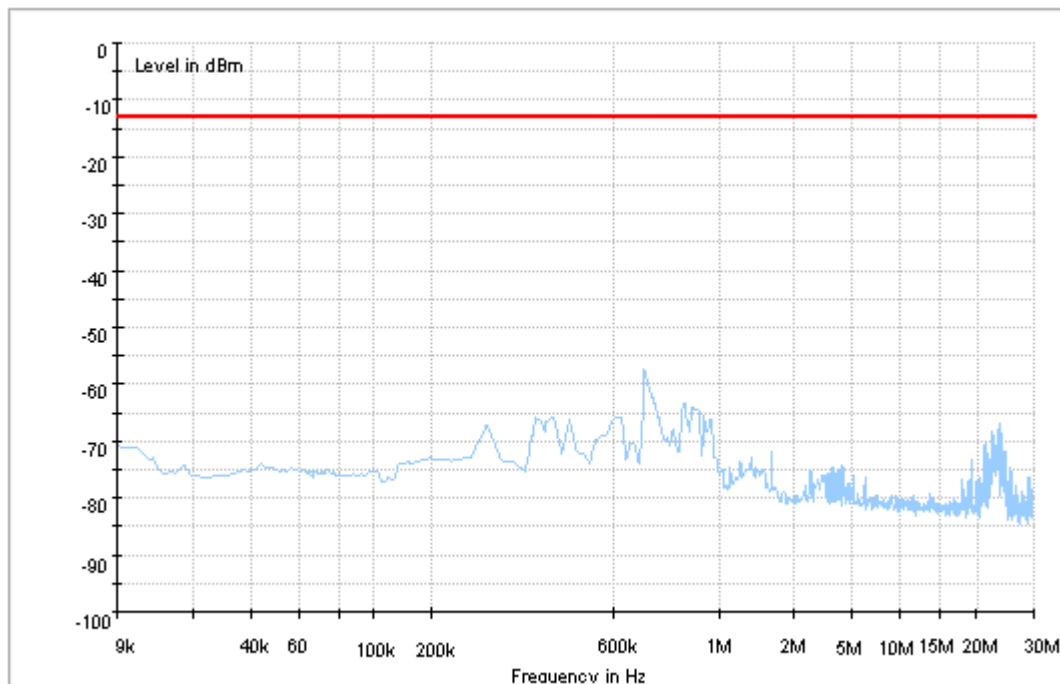


Copy of FCC PART27 W CDMA1700_H

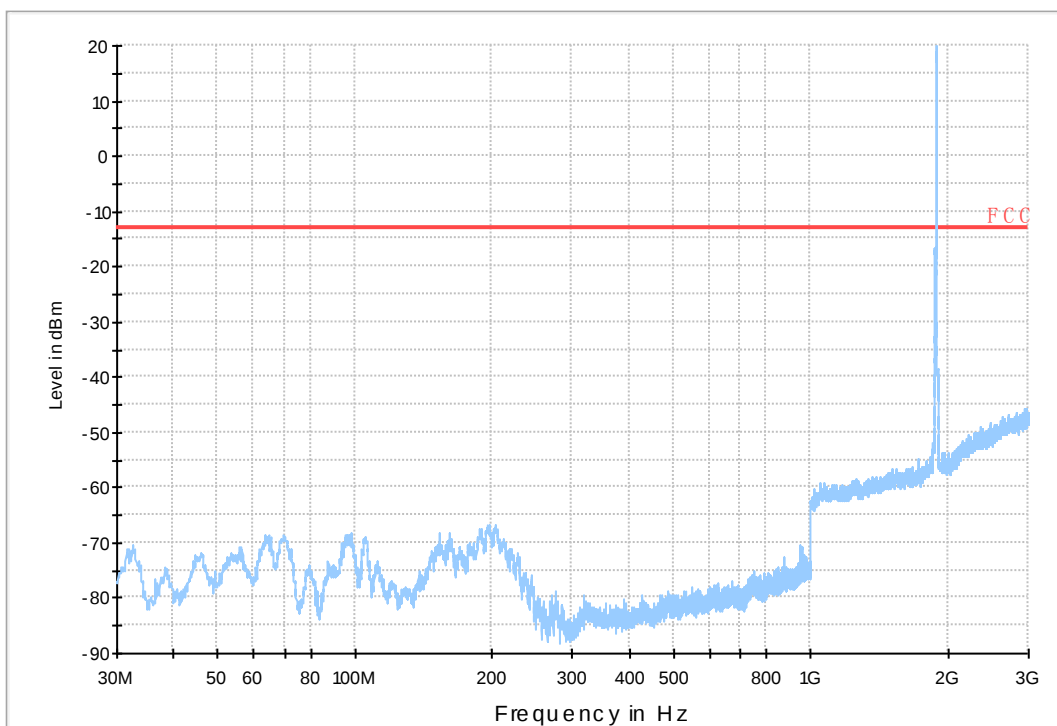


7.1.3 Test Band = WCDMA1900

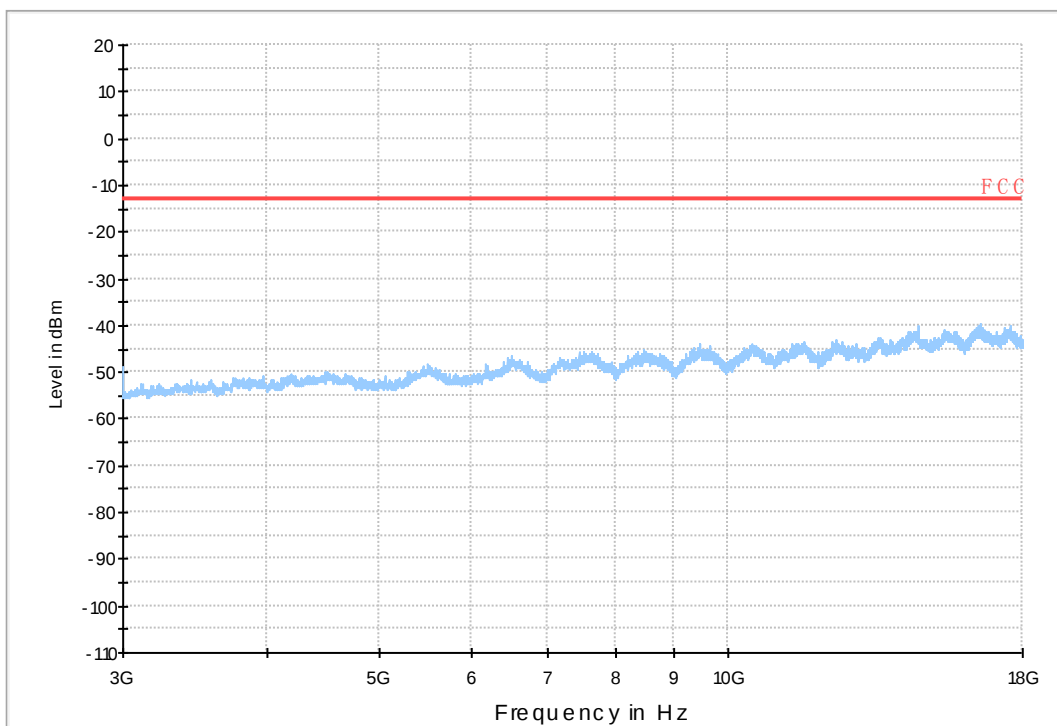
7.1.3.1 Test Mode = UMTS/TM1

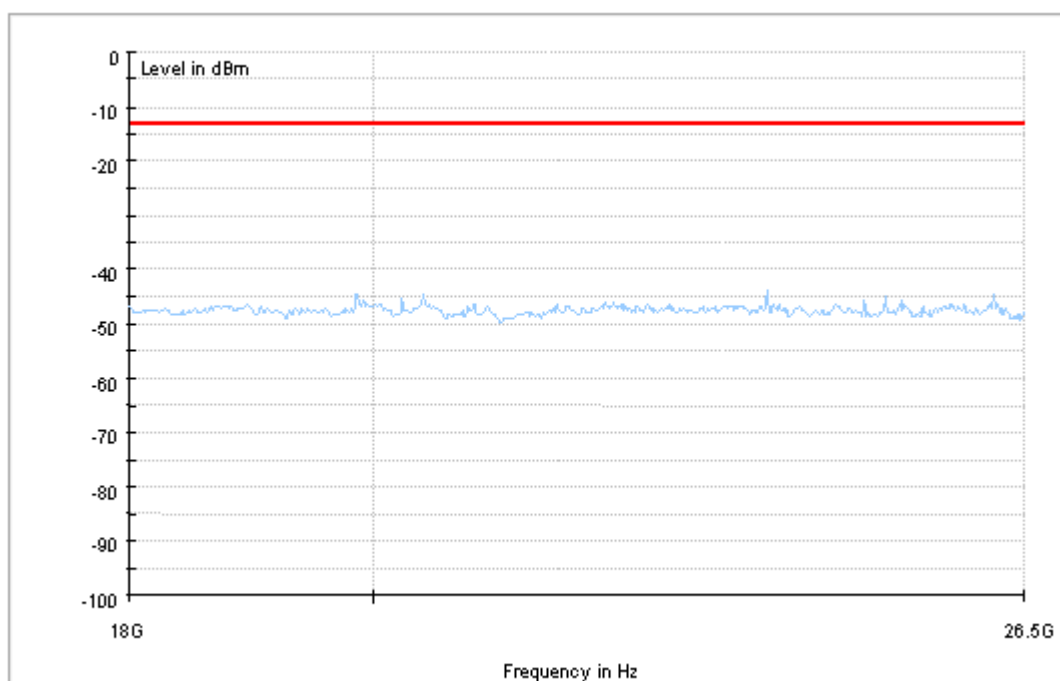


Copy of FCC PART24 W CDMA1900_L



Copy of FCC PART24 W CDMA1900_H





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	-1.14	-0.00138	PASS
				VN	2.11	0.00255	PASS
				VH	7.87	0.00952	PASS
		MCH	TN	VL	8.03	0.0096	PASS
				VN	3.39	0.00405	PASS
				VH	-0.2	-0.00024	PASS
		HCH	TN	VL	-8.97	-0.0106	PASS
				VN	3.66	0.00432	PASS
				VH	3.2	0.00378	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	2.26	0.00132	PASS
				VN	8.82	0.00515	PASS
				VH	1.94	0.00113	PASS
		MCH	TN	VL	1.48	0.00085	PASS
				VN	3.85	0.00222	PASS
				VH	7.43	0.00429	PASS
		HCH	TN	VL	-3.51	-0.002	PASS
				VN	-5.48	-0.00313	PASS
				VH	5.14	0.00293	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	-1.91	-0.00103	PASS
				VN	1.63	0.00088	PASS
				VH	-1.69	-0.00091	PASS
		MCH	TN	VL	-1.07	-0.00057	PASS
				VN	0.64	0.00034	PASS
				VH	0.55	0.00029	PASS
		HCH	TN	VL	-8.12	-0.00426	PASS
				VN	-1.53	-0.0008	PASS
				VH	-0.98	-0.00051	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	5.49	0.00664	PASS
				-20	6.52	0.00789	PASS
				-10	1.62	0.00196	PASS
				0	8.27	0.01001	PASS
				10	-5.8	-0.00702	PASS
				20	1.36	0.00165	PASS
				30	2.23	0.0027	PASS
				40	0.06	0.00007	PASS
				50	0.46	0.00056	PASS
		MCH	VN	-30	4.41	0.00527	PASS
				-20	7.37	0.00881	PASS
				-10	4.49	0.00537	PASS
				0	6.73	0.00805	PASS
				10	1.77	0.00212	PASS
				20	0.75	0.0009	PASS
				30	1.92	0.0023	PASS
				40	1.17	0.0014	PASS
				50	4.78	0.00571	PASS
		HCH	VN	-30	3.94	0.00465	PASS
				-20	0.95	0.00112	PASS
				-10	-1.27	-0.0015	PASS
				0	4.76	0.00562	PASS
				10	-1.79	-0.00211	PASS
				20	6.36	0.00751	PASS
				30	2.52	0.00298	PASS
				40	5.66	0.00669	PASS
				50	2.61	0.00308	PASS
WCDMA1700	UMTS/TM1	LCH	VN	-30	-1.98	-0.00116	PASS
				-20	-4.2	-0.00245	PASS
				-10	3.88	0.00227	PASS
				0	3.39	0.00198	PASS
				10	5.65	0.0033	PASS
				20	7.11	0.00415	PASS
				30	0.73	0.00043	PASS
				40	2.49	0.00145	PASS
				50	1.07	0.00062	PASS
		MCH	VN	-30	4.65	0.00268	PASS
				-20	-4.23	-0.00244	PASS
				-10	-3.27	-0.00189	PASS
				0	-5.72	-0.0033	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				10	-0.67	-0.00039	PASS
				20	-2.38	-0.00137	PASS
				30	1.91	0.0011	PASS
				40	14.28	0.00824	PASS
				50	-1.83	-0.00106	PASS
		HCH	VN	-30	-0.09	-0.00005	PASS
				-20	-5.26	-0.003	PASS
				-10	-8.76	-0.005	PASS
				0	9.66	0.00551	PASS
				10	1.04	0.00059	PASS
				20	-3.95	-0.00225	PASS
				30	7.37	0.00421	PASS
				40	0.55	0.00031	PASS
				50	6.79	0.00387	PASS
WCDMA1900	UMTS/TM1	LCH	VN	-30	-1.5	-0.00081	PASS
				-20	1.66	0.0009	PASS
				-10	-0.37	-0.0002	PASS
				0	7.4	0.00399	PASS
				10	5.02	0.00271	PASS
				20	-6.39	-0.00345	PASS
				30	-4.04	-0.00218	PASS
				40	-2.81	-0.00152	PASS
				50	2.98	0.00161	PASS
		MCH	VN	-30	3.1	0.00165	PASS
				-20	3.66	0.00195	PASS
				-10	2.14	0.00114	PASS
				0	4.44	0.00236	PASS
				10	2.47	0.00131	PASS
				20	5.08	0.0027	PASS
				30	-2.04	-0.00109	PASS
				40	-0.24	-0.00013	PASS
				50	-4.65	-0.00247	PASS
		HCH	VN	-30	0.23	0.00012	PASS
				-20	-1.4	-0.00073	PASS
				-10	3.98	0.00209	PASS
				0	2.26	0.00118	PASS
				10	0.09	0.00005	PASS
				20	-1.65	-0.00086	PASS
				30	3.78	0.00198	PASS
				40	1.3	0.00068	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				50	-0.32	-0.00017	PASS

END