



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]	EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1900	UMTS/TM1	LCH	23.08	20.58	33	PASS
		MCH	23.11	20.61	33	PASS
		HCH	23.2	20.7	33	PASS
WCDMA1700	UMTS/TM1	LCH	23.11	22.01	30	PASS
		MCH	23.08	21.98	30	PASS
		HCH	23.19	22.09	30	PASS
Test Band	Test Mode	Test Channel	Conducted Power [dBm]	ERP [dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	23.14	17.34	38.5	PASS
		MCH	23.15	17.35	38.5	PASS
		HCH	23.08	17.28	38.5	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:

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

SET RBW = 1% 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	2.72	13	PASS
		MCH	2.76	13	PASS
		HCH	2.67	13	PASS
WCDMA1700	UMTS/TM1	LCH	3.25	13	PASS
		MCH	2.58	13	PASS
		HCH	3.23	13	PASS
WCDMA1900	UMTS/TM1	LCH	2.9	13	PASS
		MCH	2.82	13	PASS
		HCH	2.98	13	PASS

3Appendix_C: Modulation Characteristics

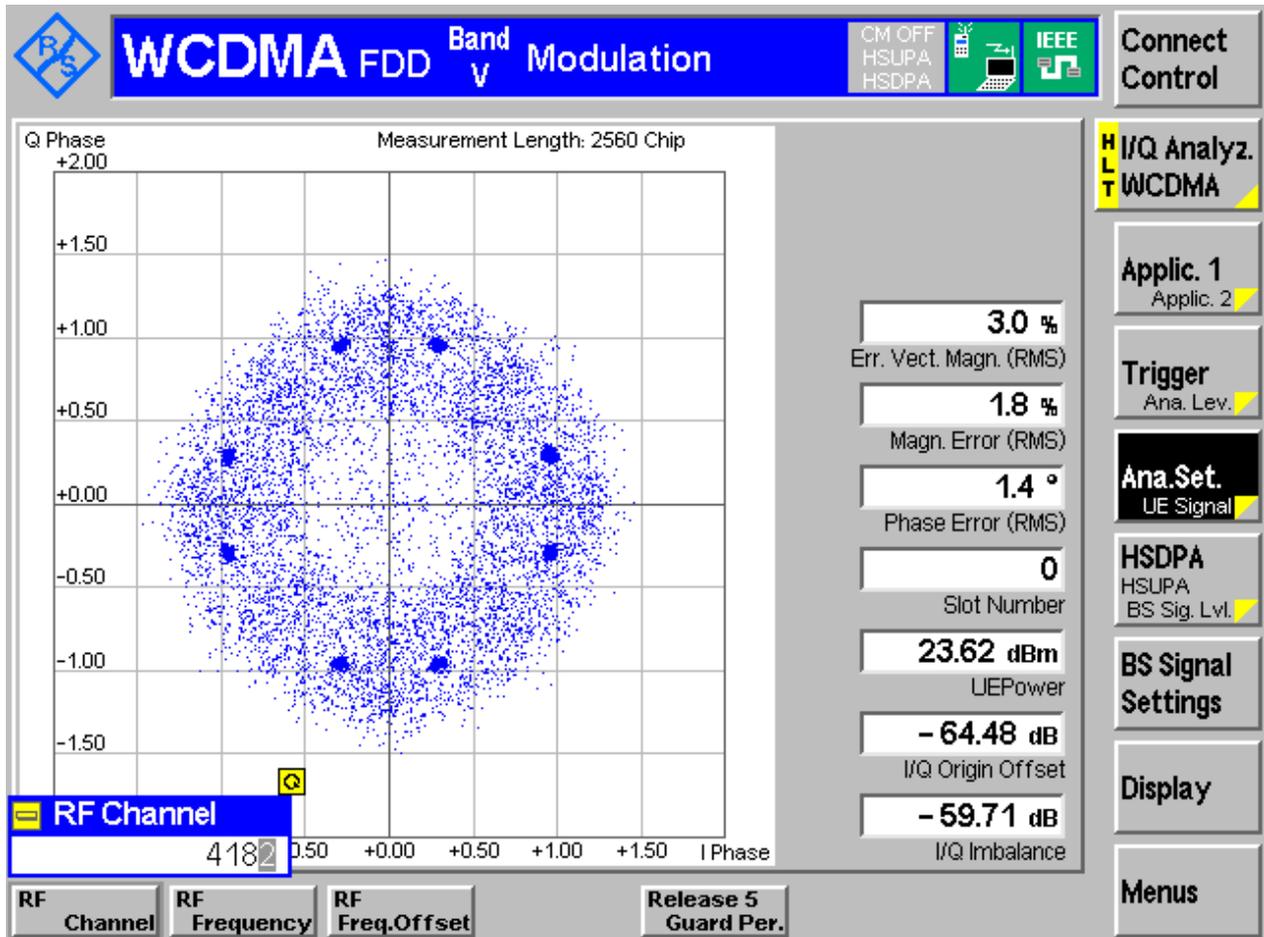
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

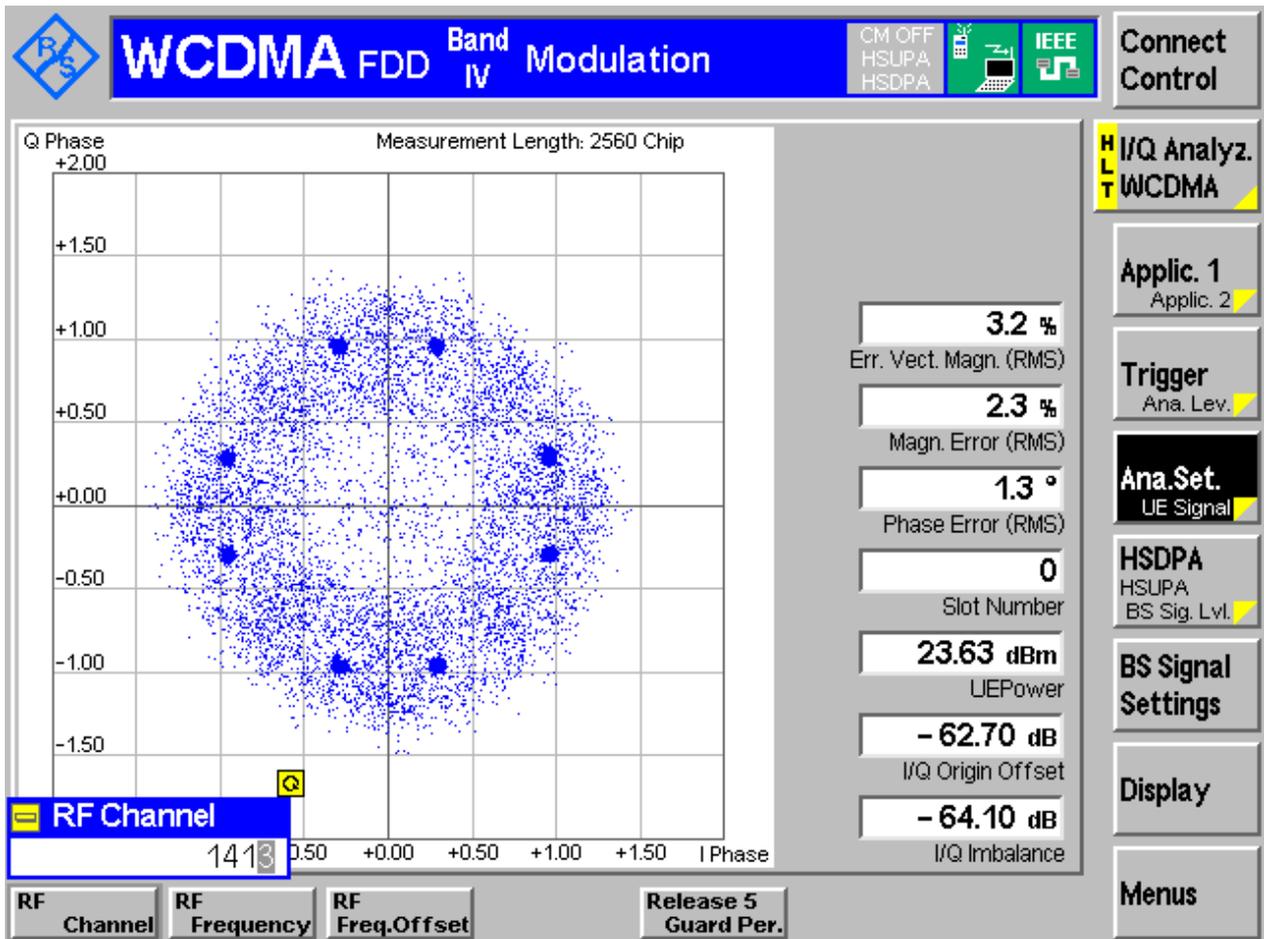
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1700

3.1.2.1 Test Mode = UMTS/TM1

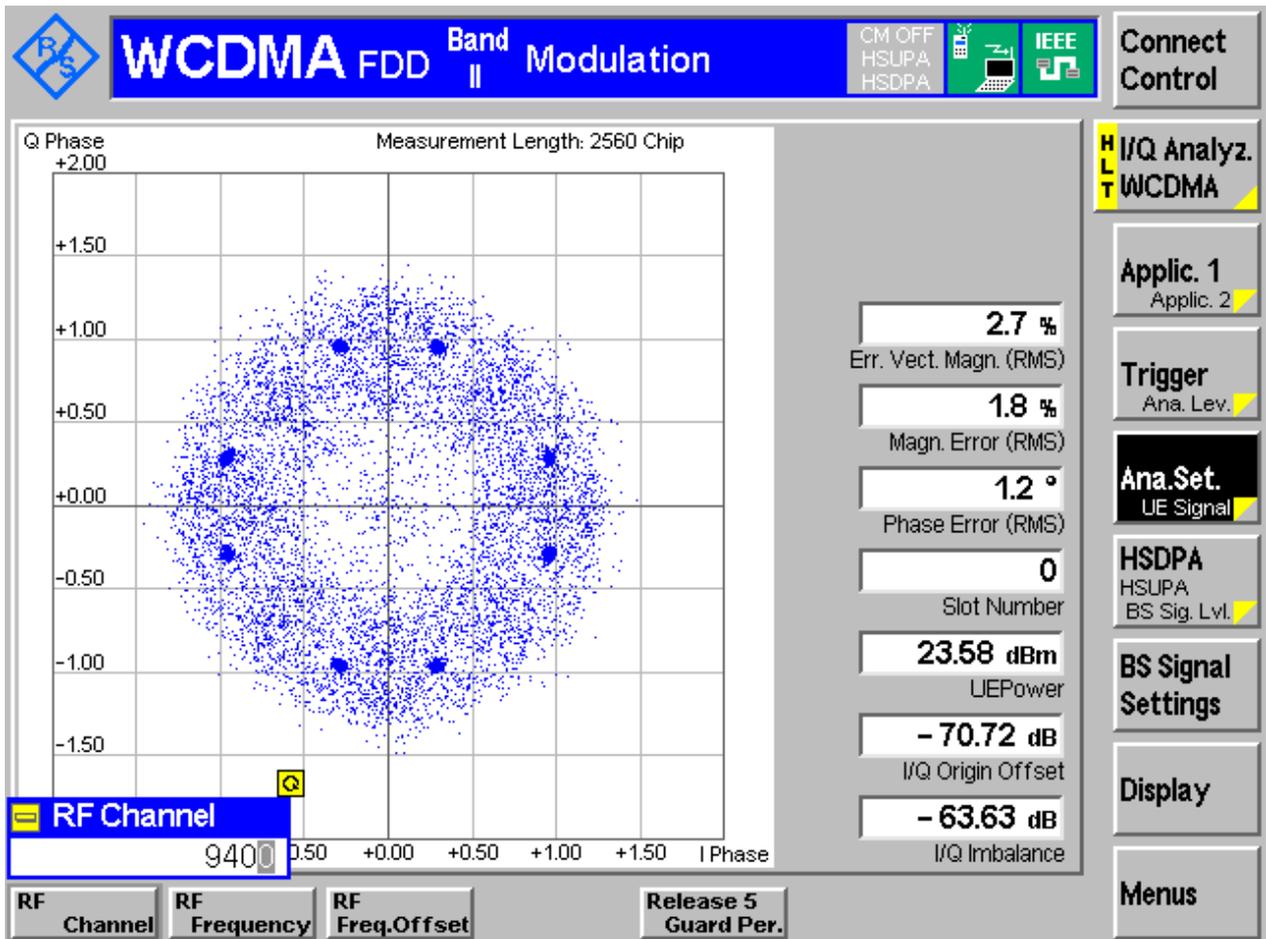
3.1.2.1.1 Test Channel = MCH



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	4.16	4.74	Pass
		MCH	4.16	4.74	Pass
		HCH	4.17	4.74	Pass
WCDMA1700	UMTS/TM1	LCH	4.15	4.71	Pass
		MCH	4.15	4.72	Pass
		HCH	4.14	4.71	Pass
WCDMA1900	UMTS/TM1	LCH	4.14	4.71	Pass
		MCH	4.16	4.72	Pass
		HCH	4.16	4.71	Pass



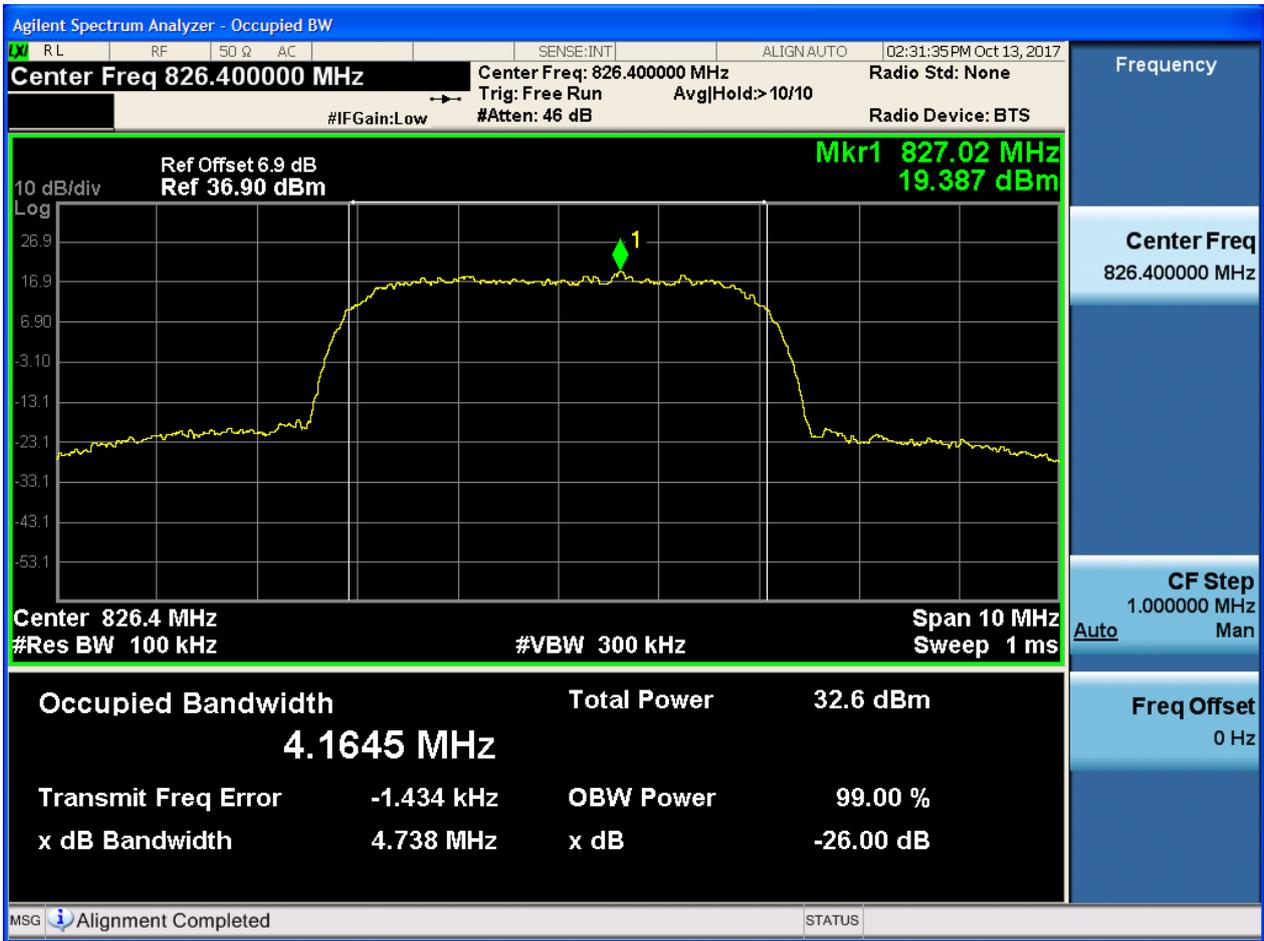
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

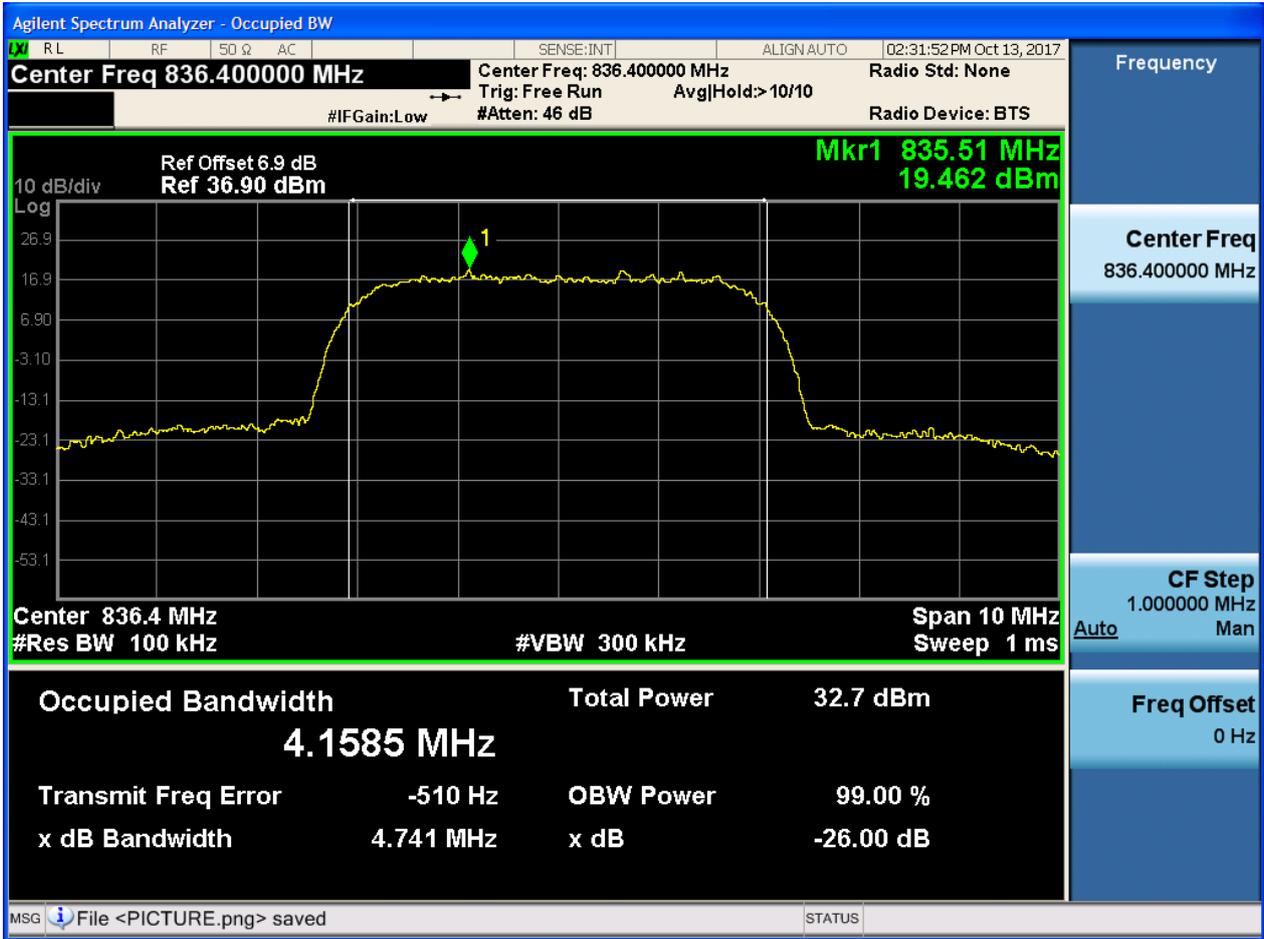
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



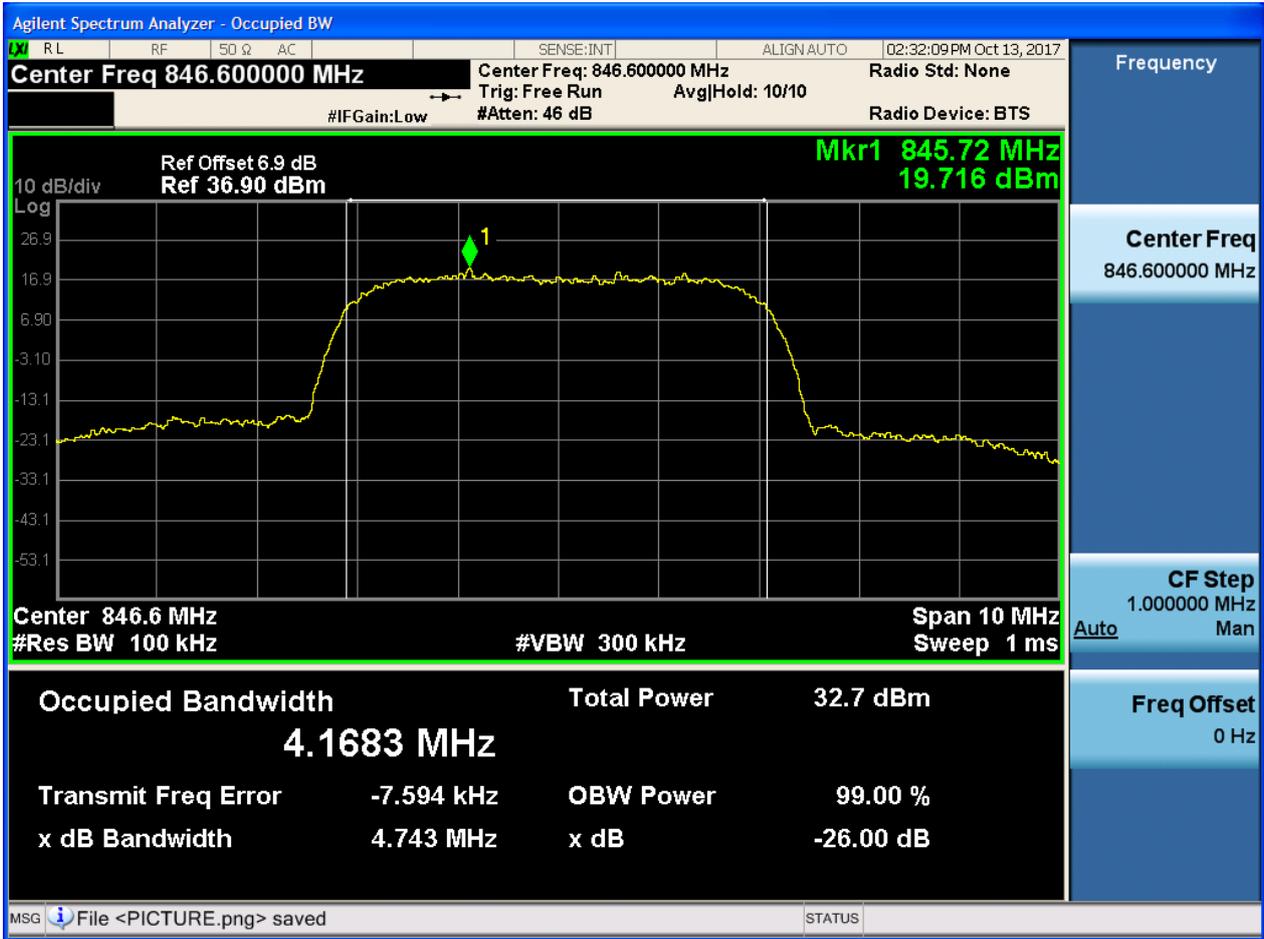


4.1.1.1.2 Test Channel = MCH





4.1.1.1.3 Test Channel = HCH

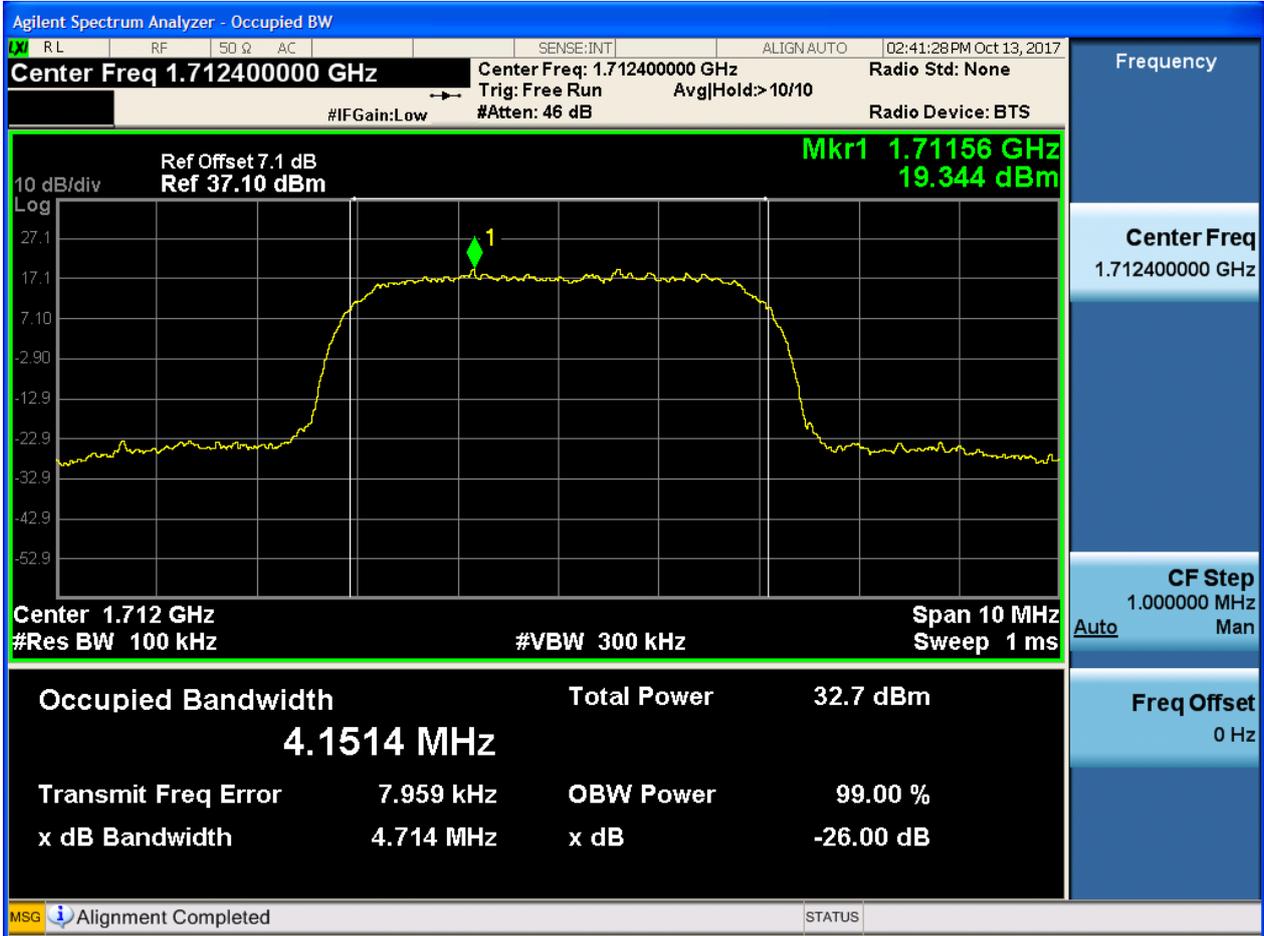




4.1.2 Test Band = WCDMA1700

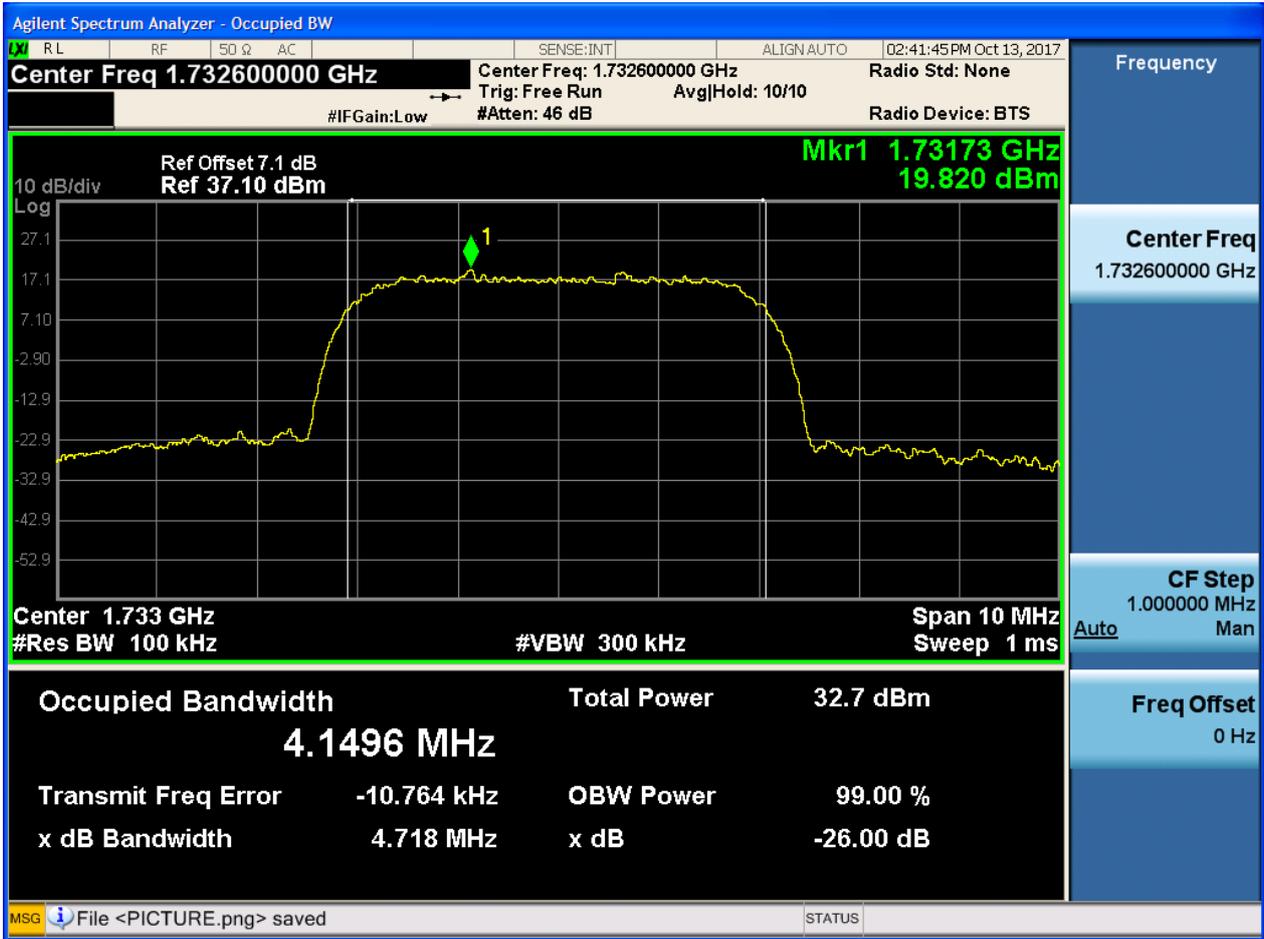
4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH



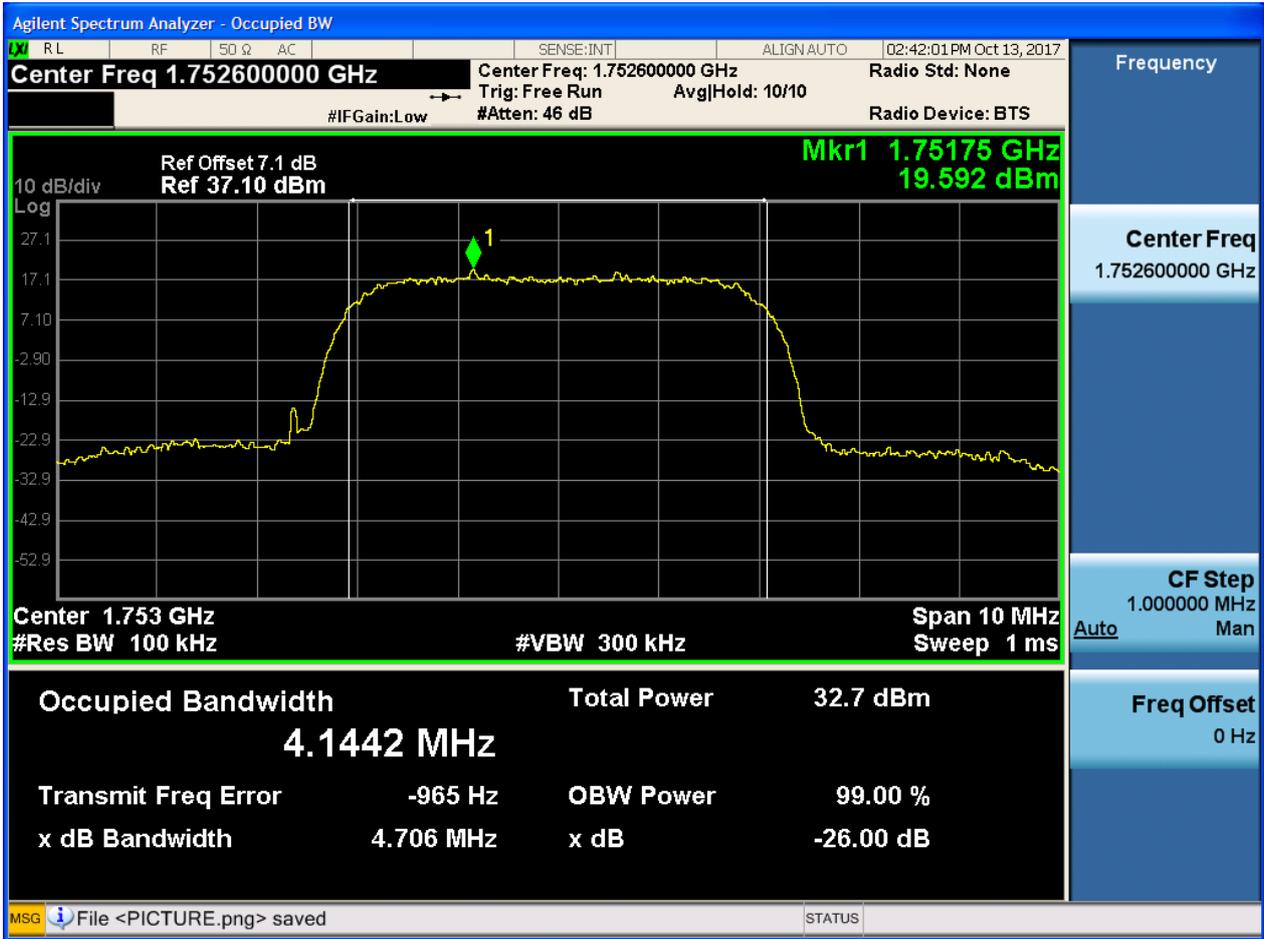


4.1.2.1.2 Test Channel = MCH





4.1.2.1.3 Test Channel = HCH

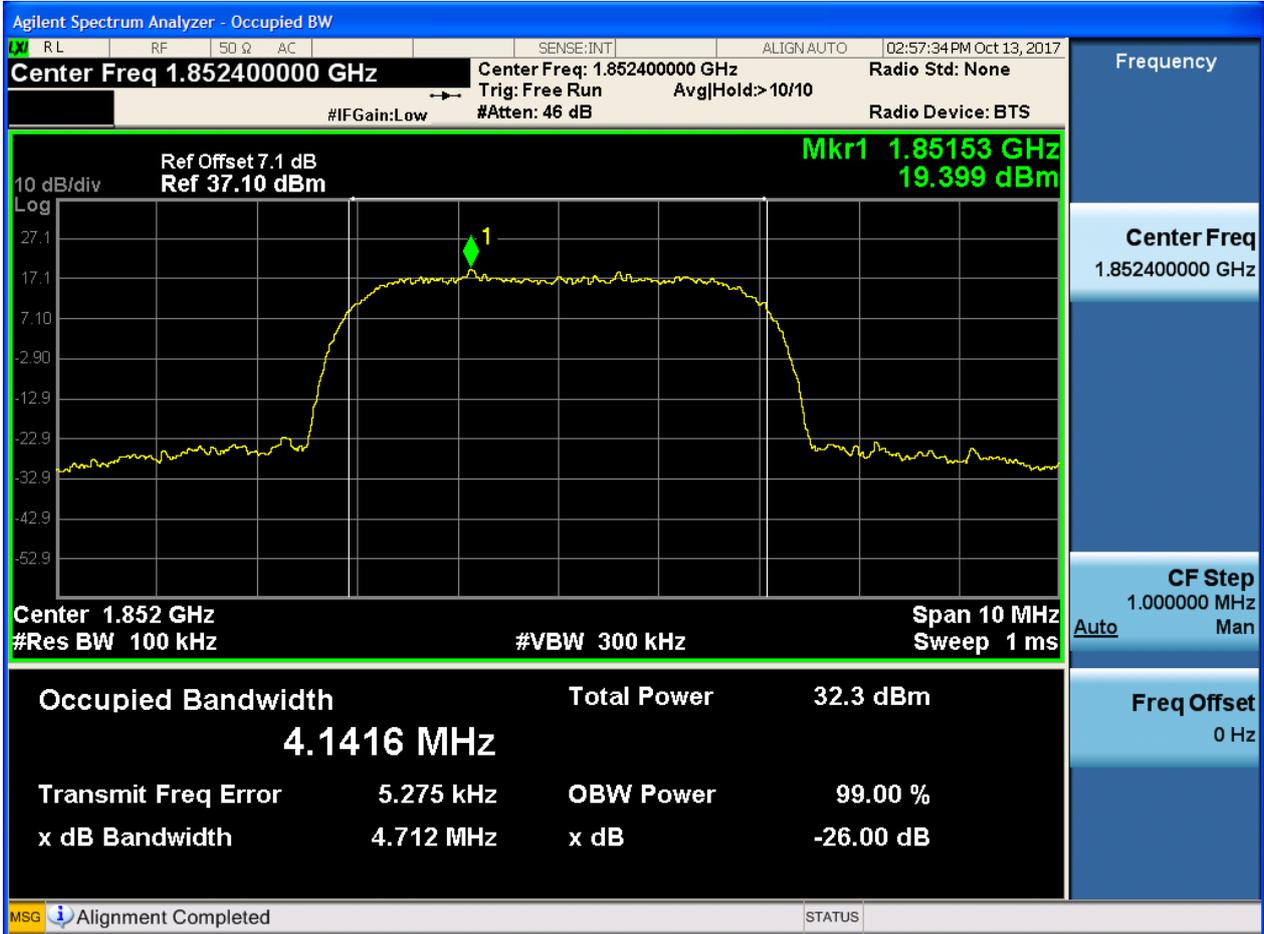




4.1.3 Test Band = WCDMA1900

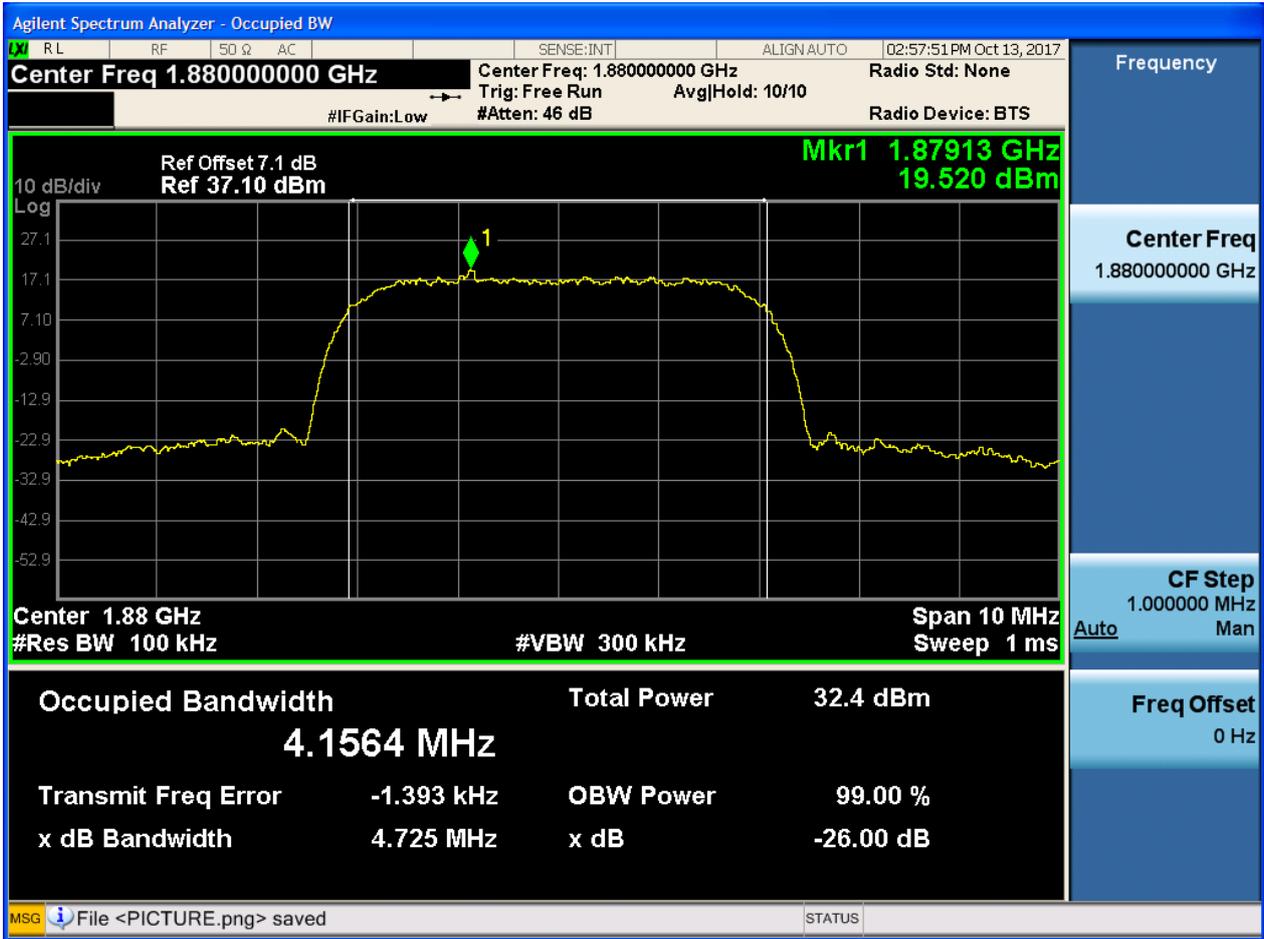
4.1.3.1 Test Mode = UMTS/TM1

4.1.3.1.1 Test Channel = LCH



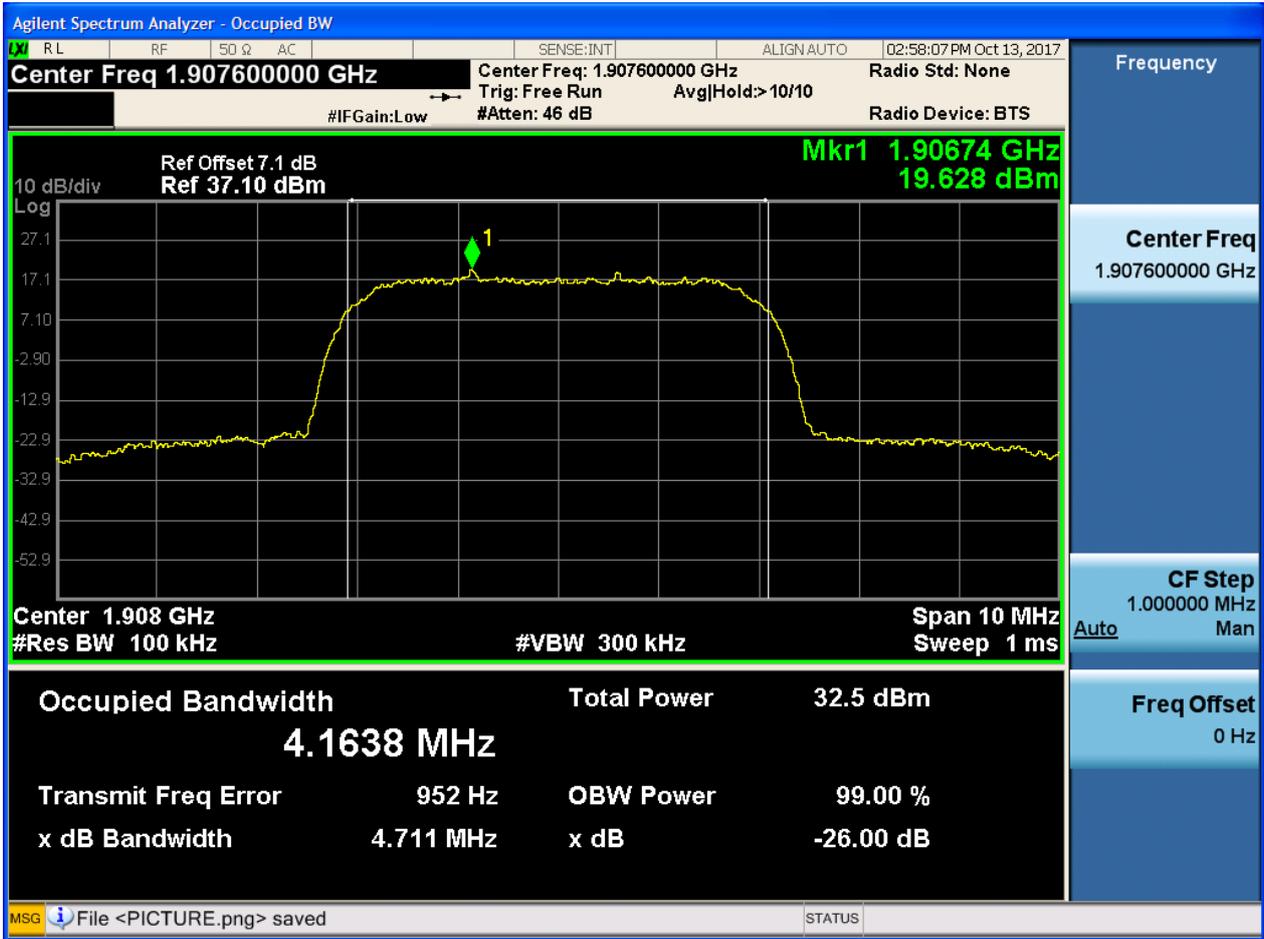


4.1.3.1.2 Test Channel = MCH





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

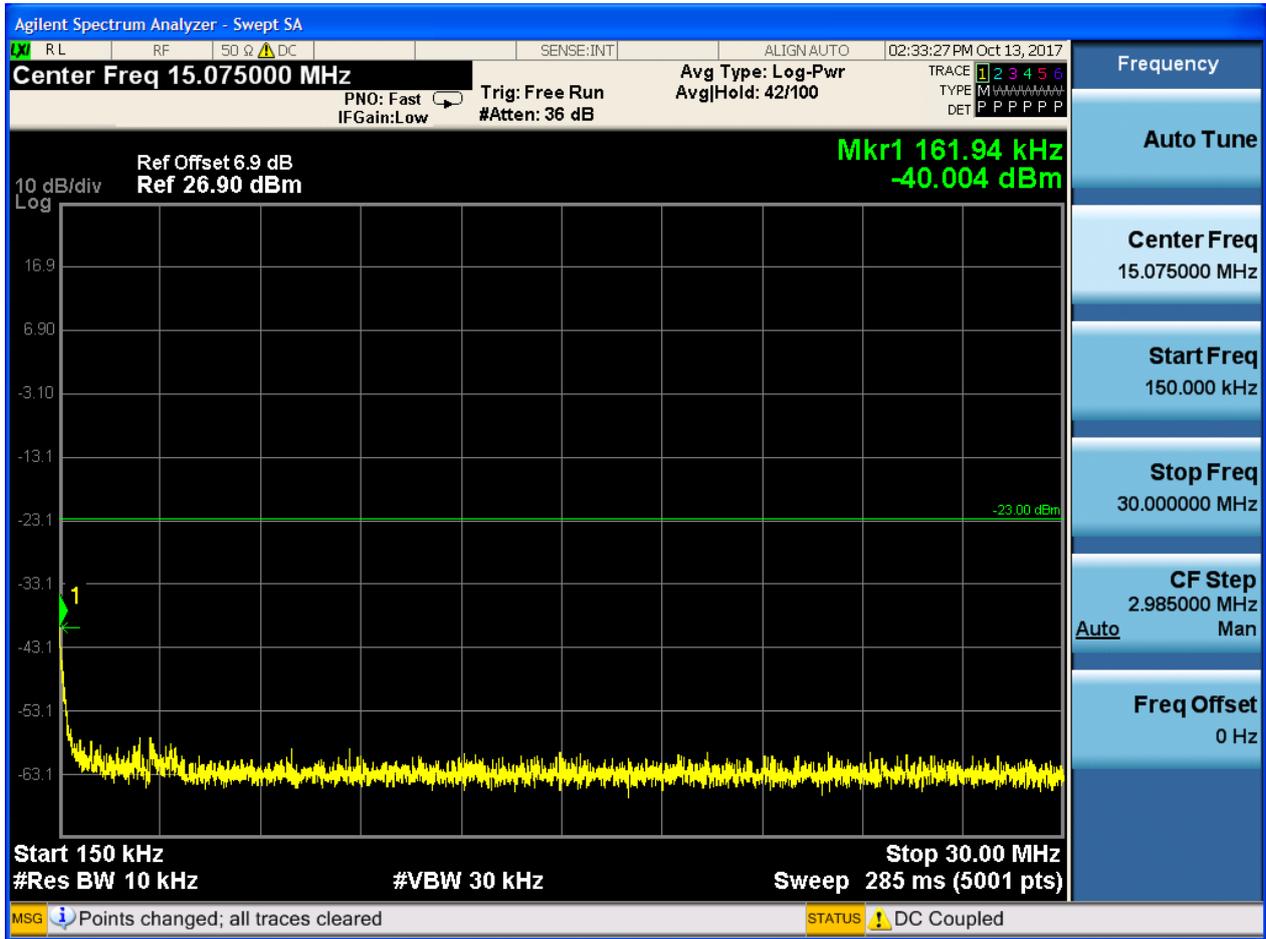
6.1 For UMTS

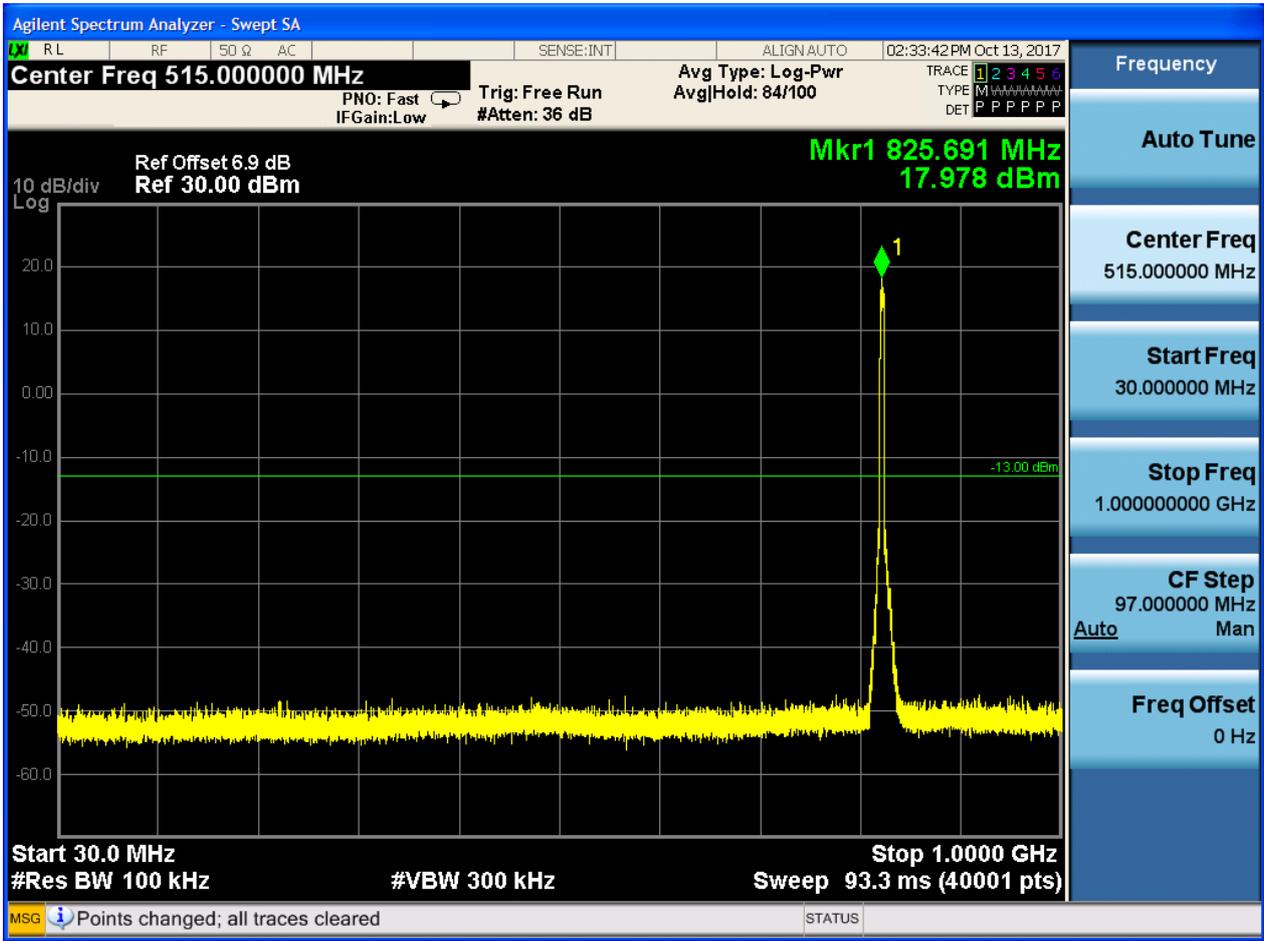
6.1.1 Test Band = WCDMA850

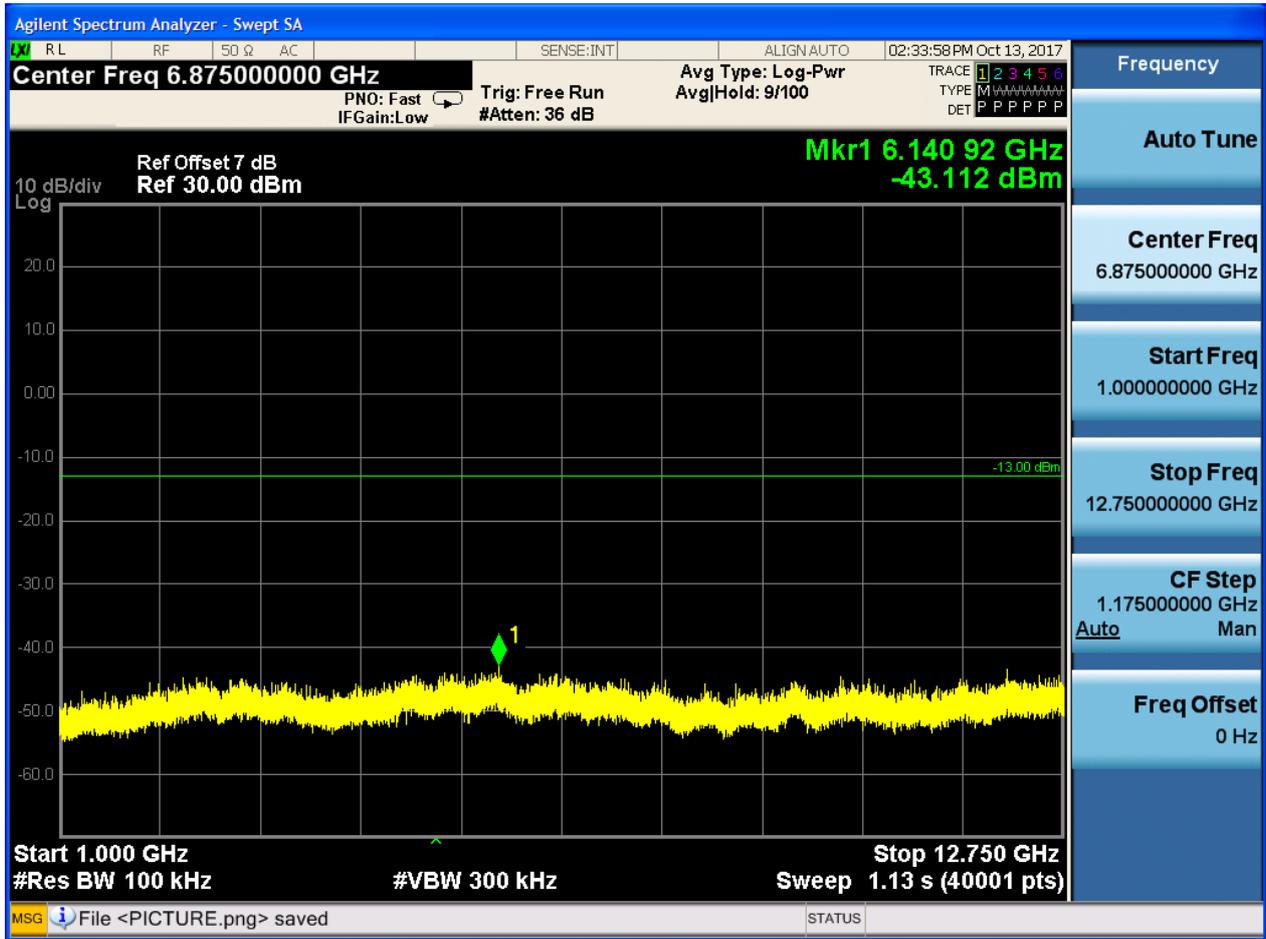
6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH



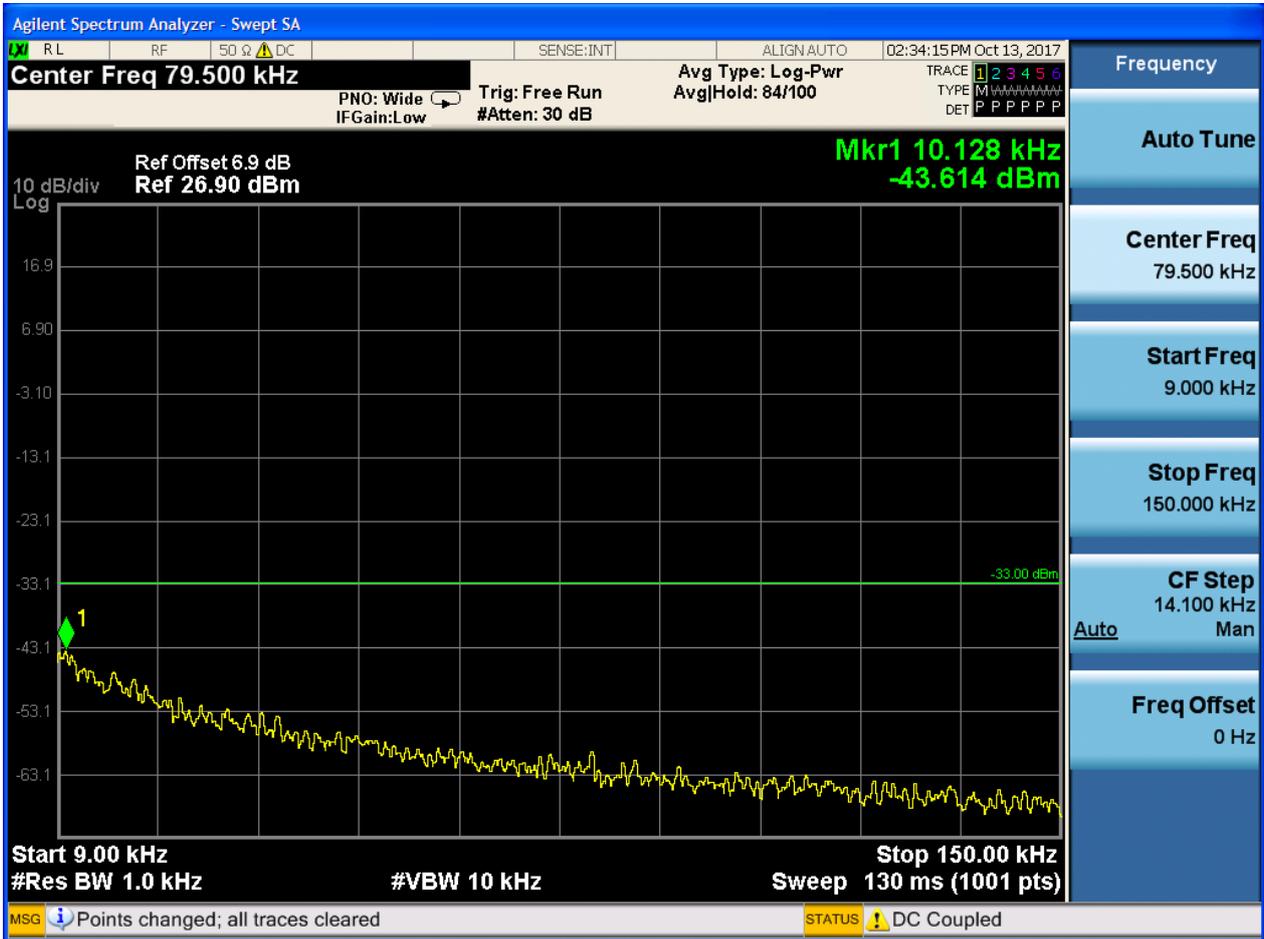


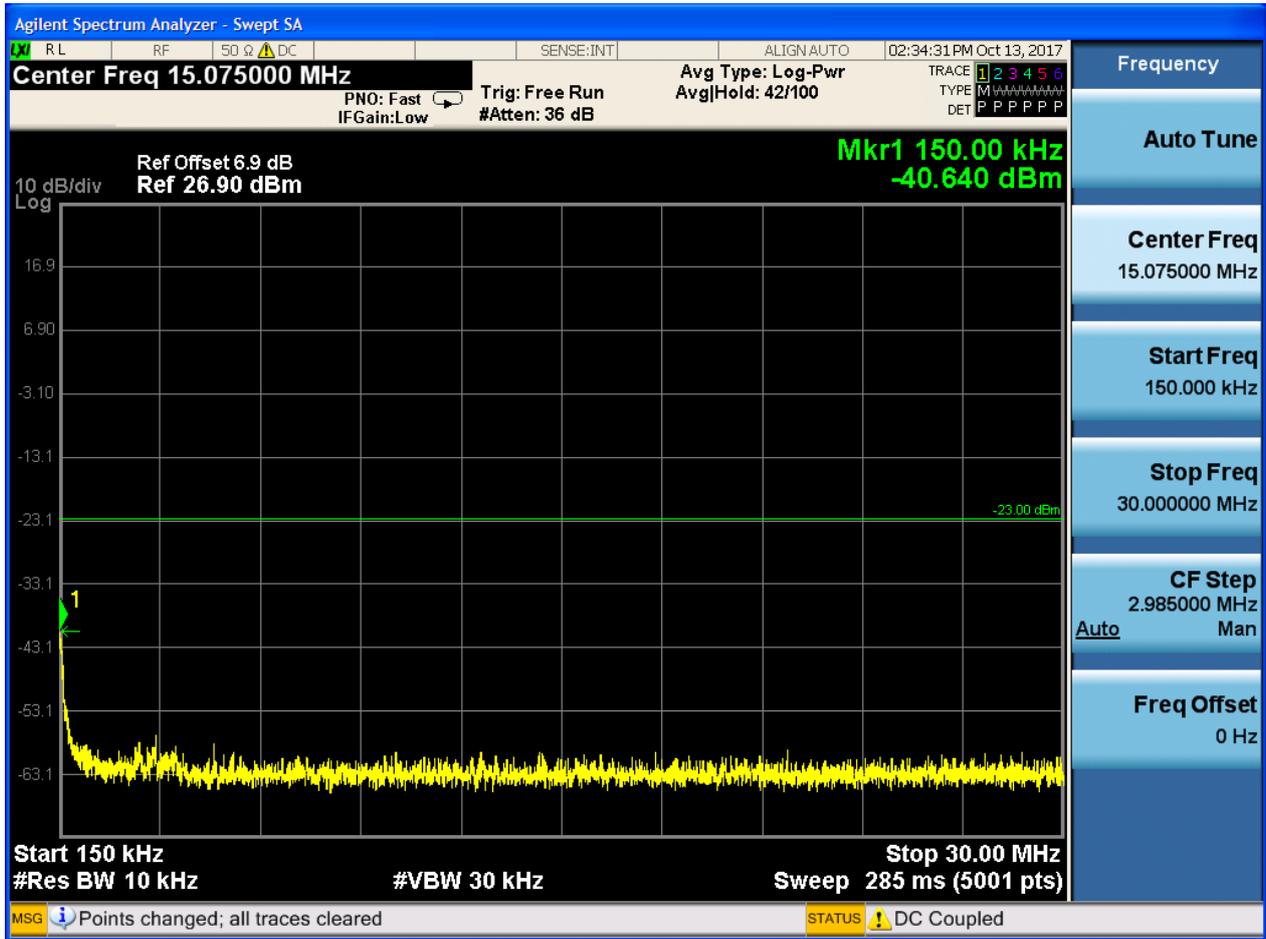


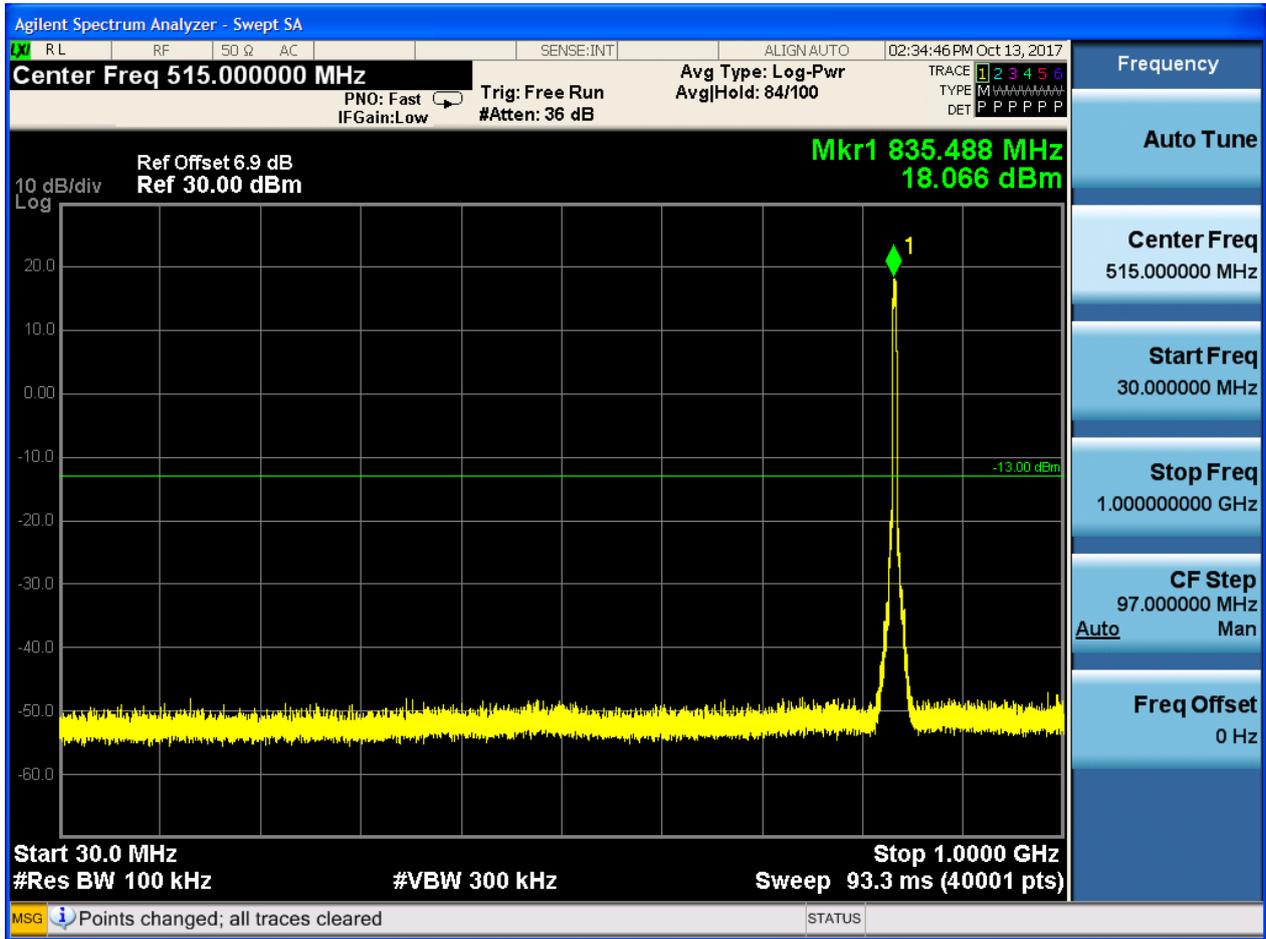


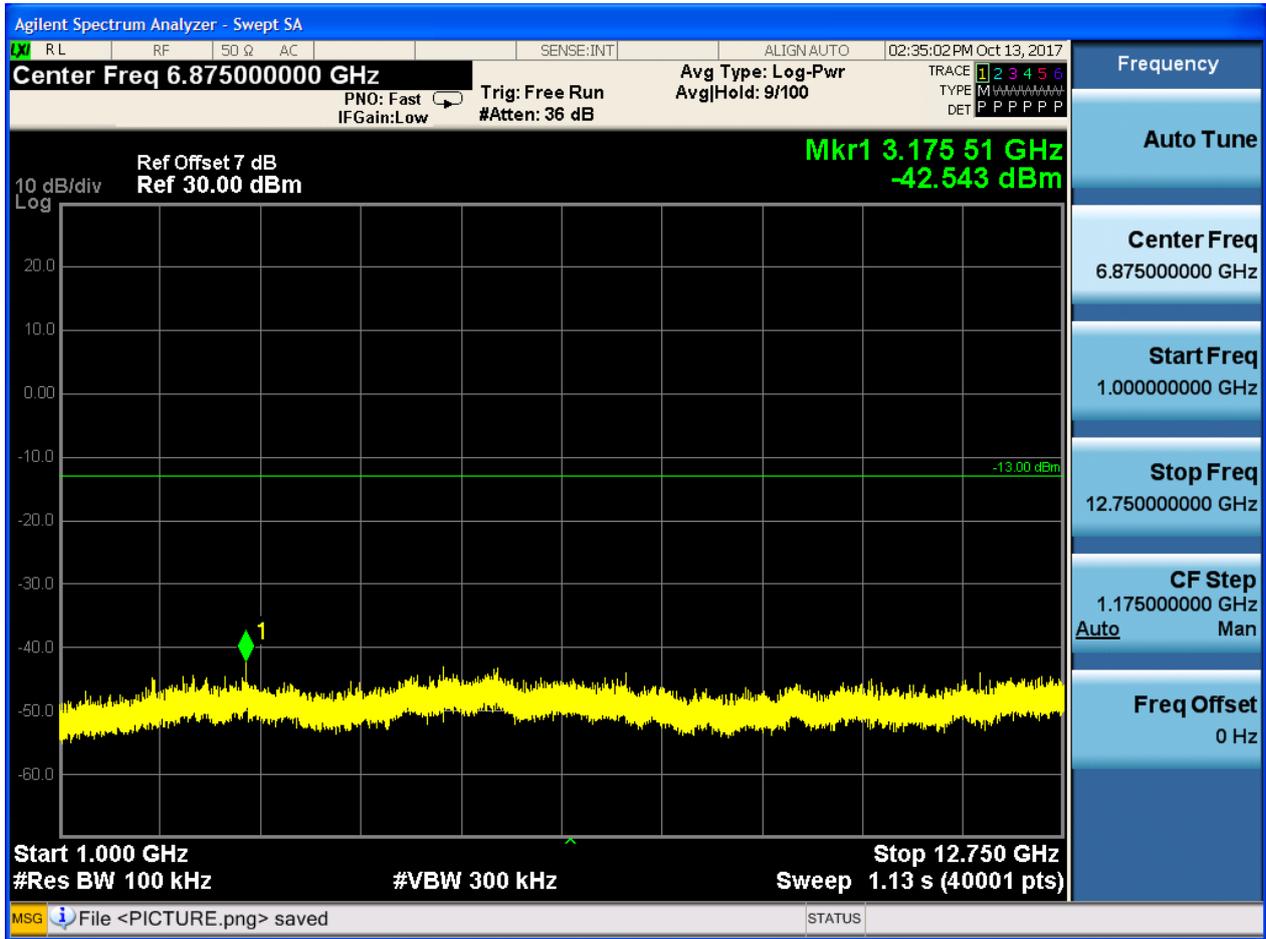


6.1.1.1.2 Test Channel = MCH



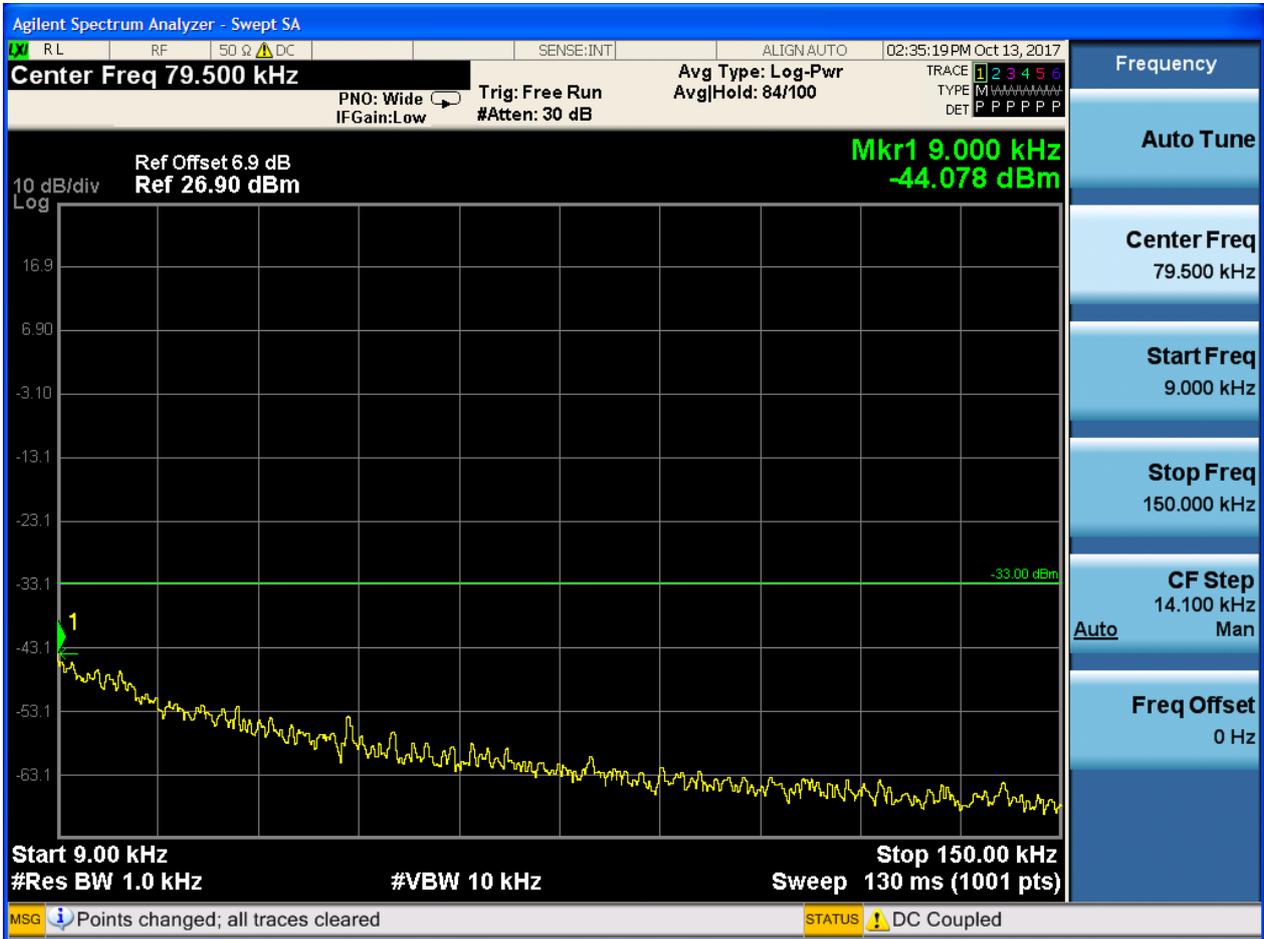


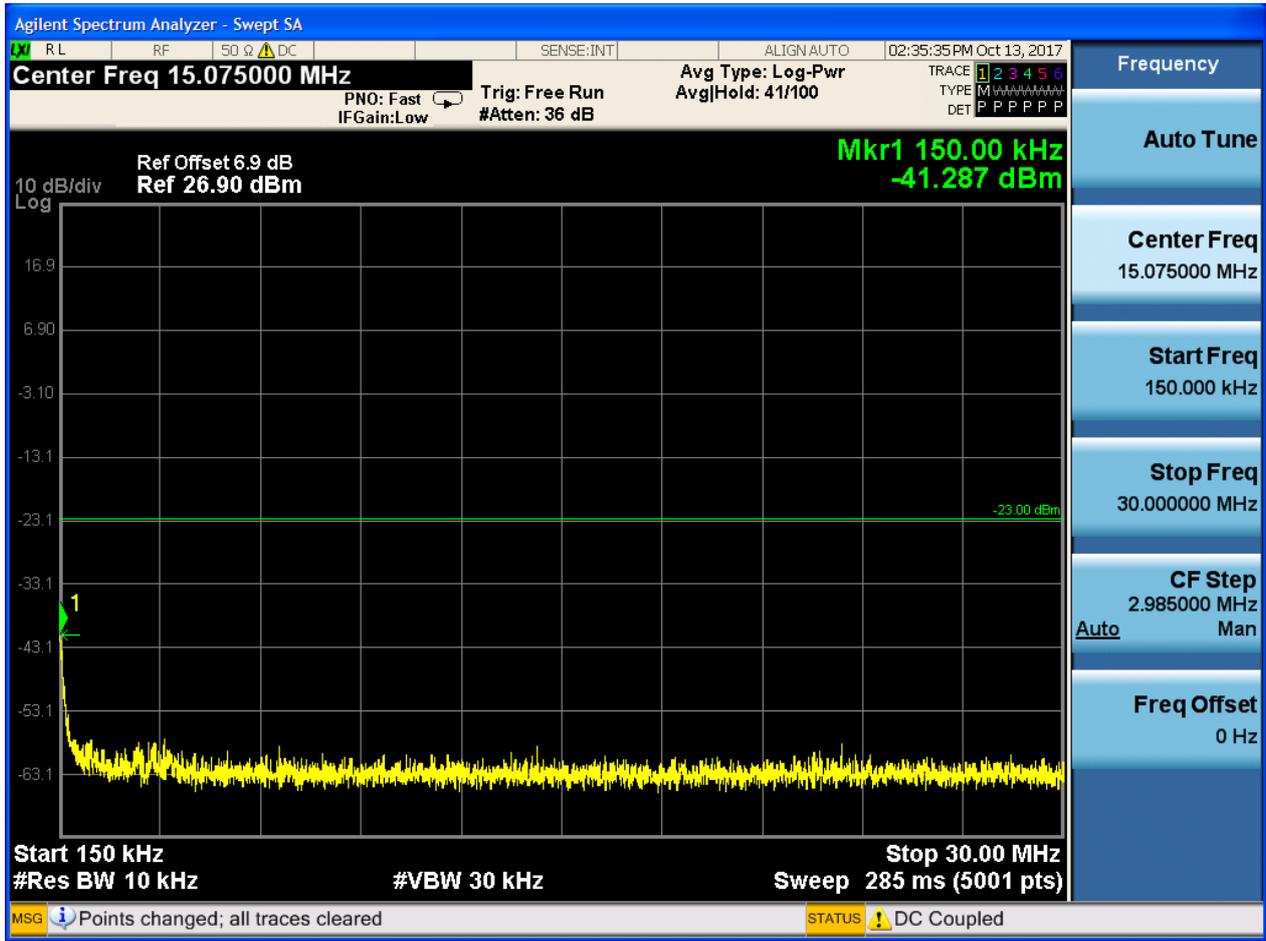


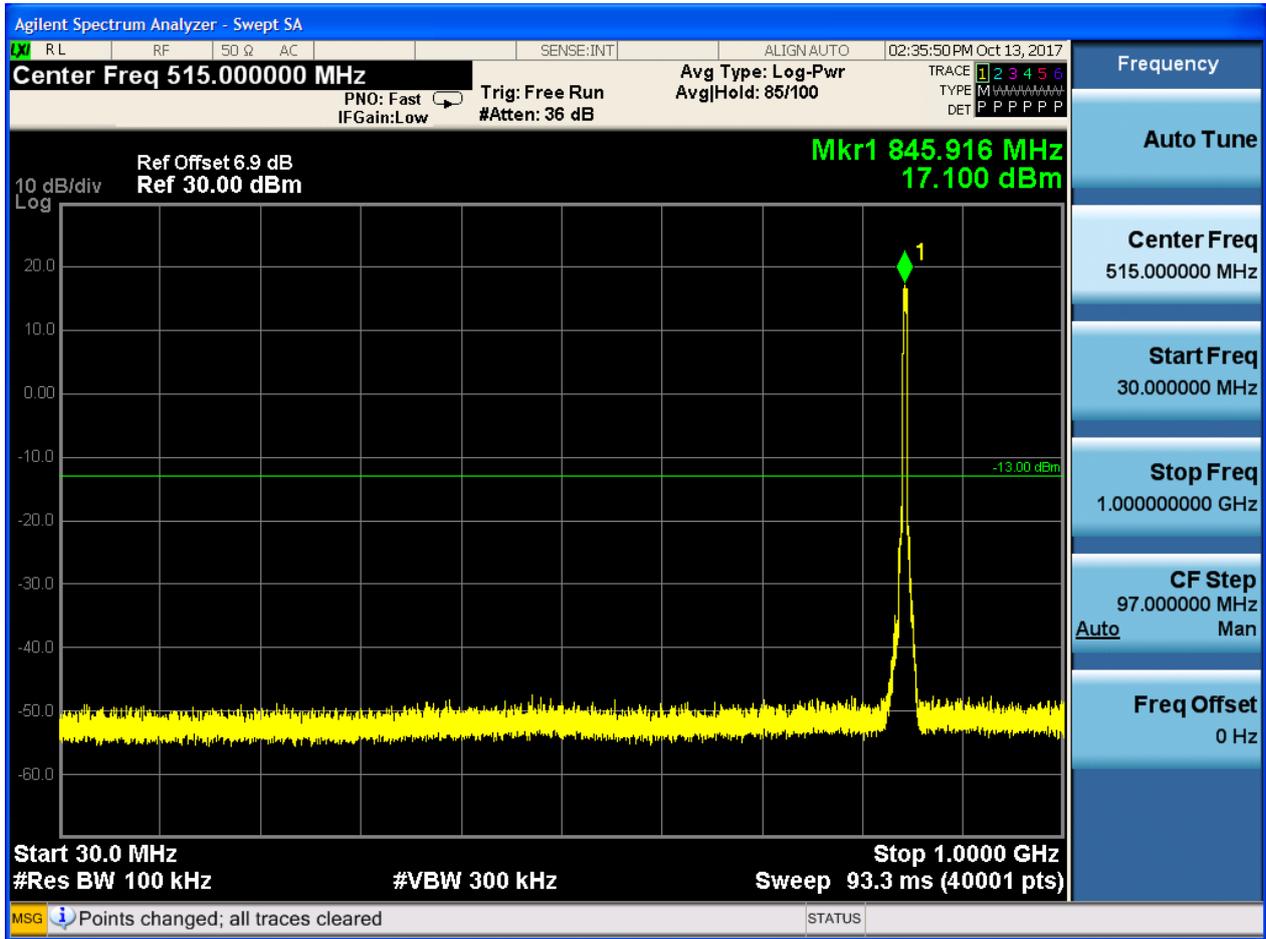


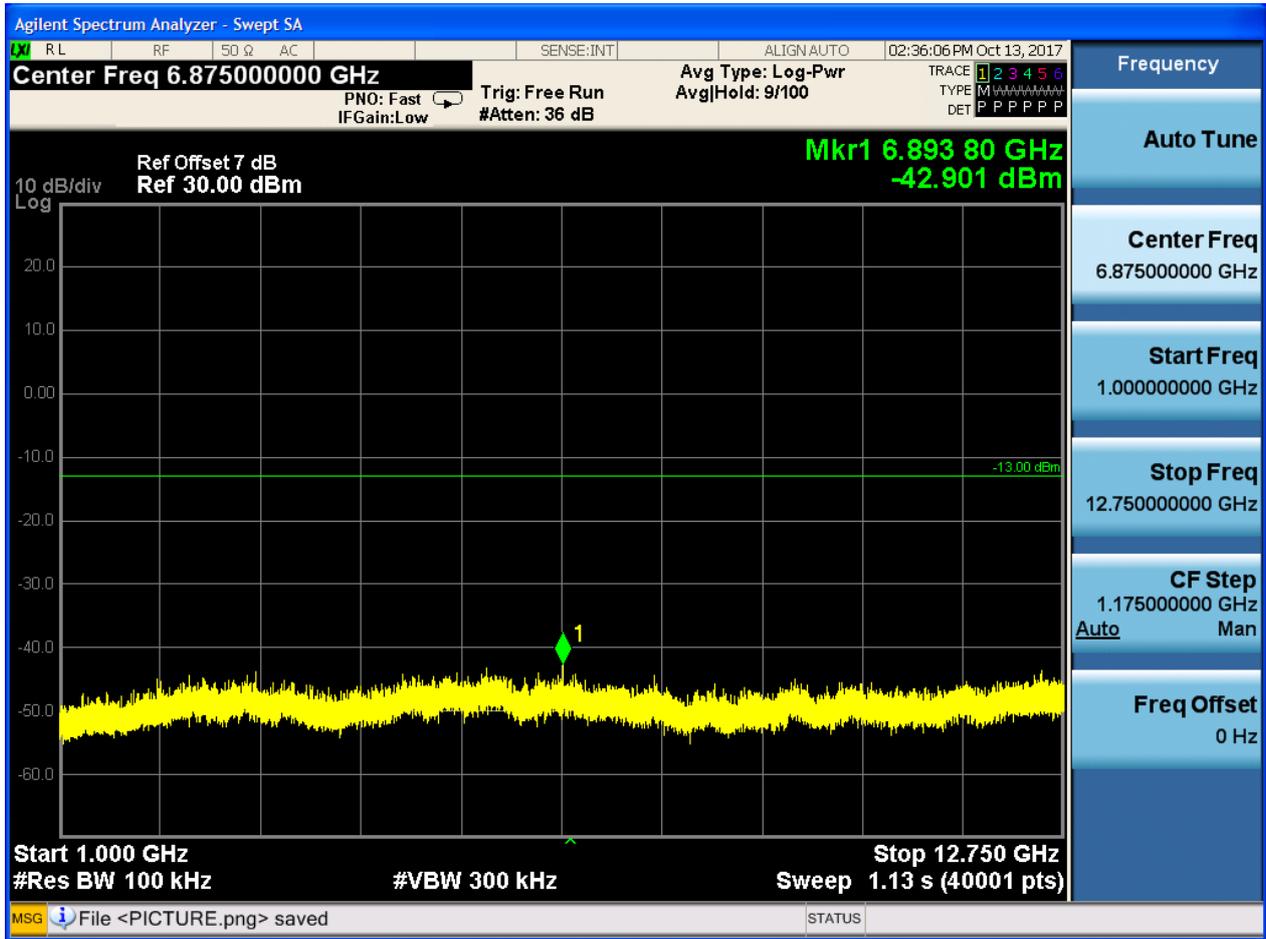


6.1.1.1.3 Test Channel = HCH







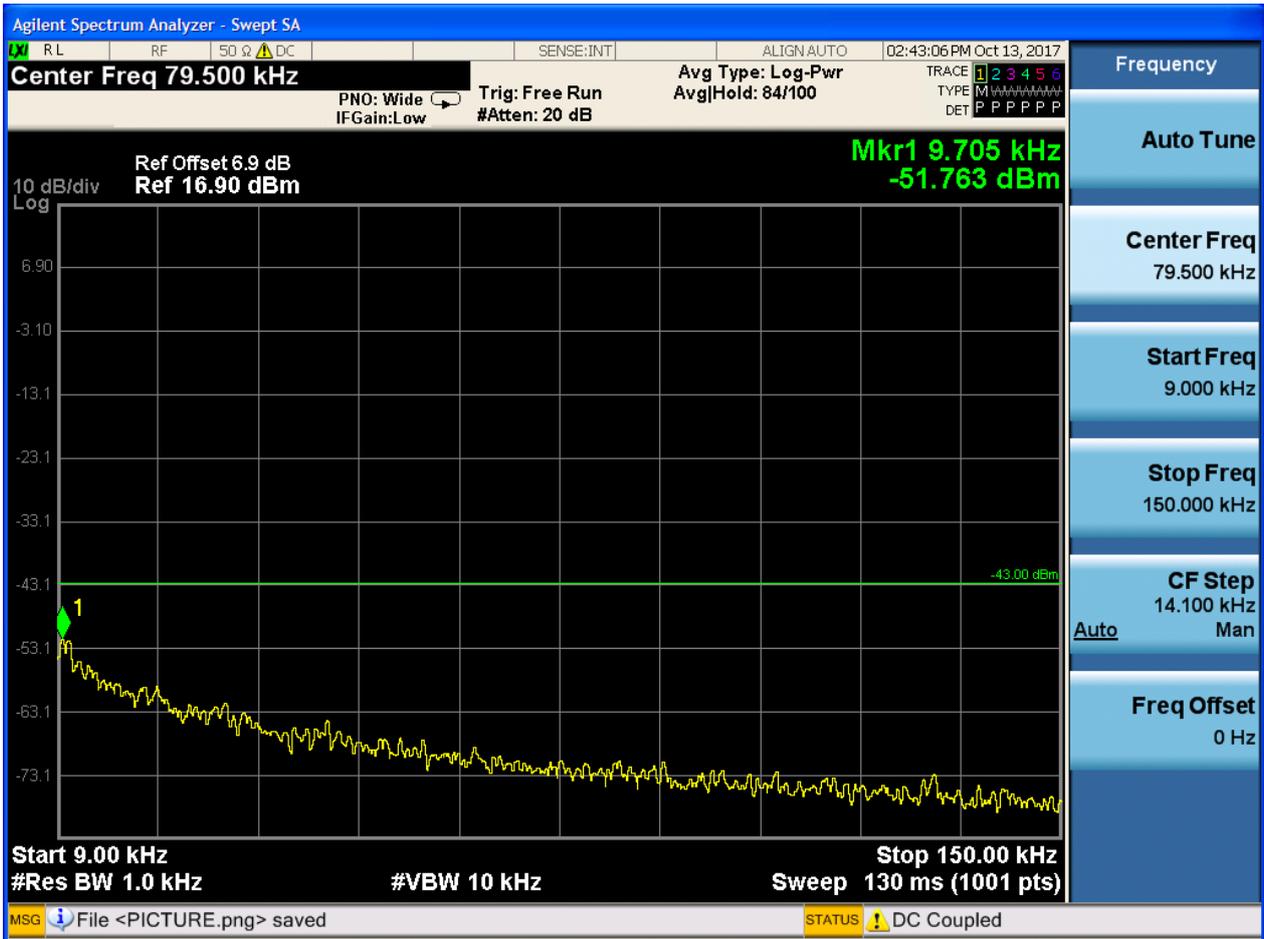


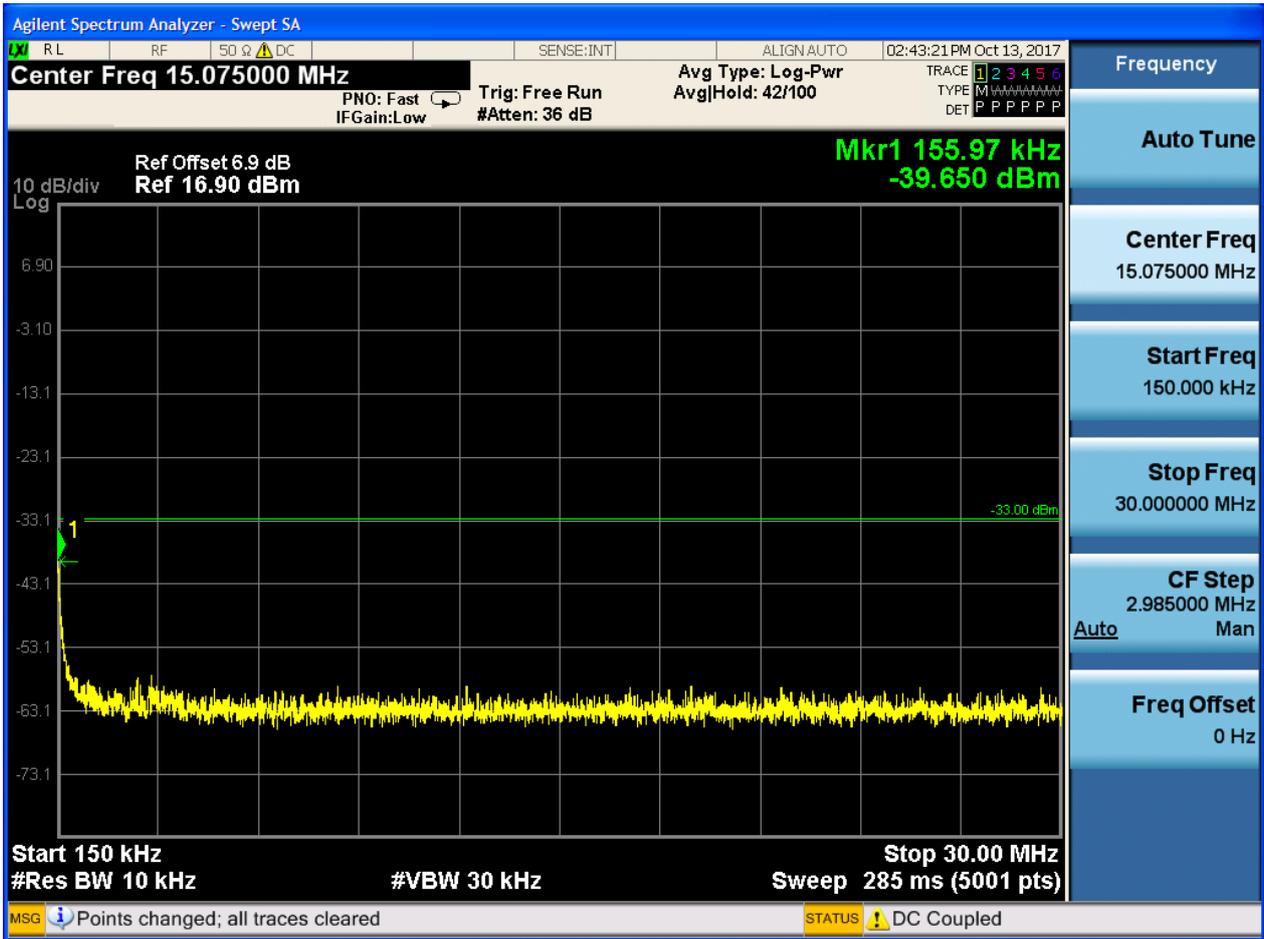


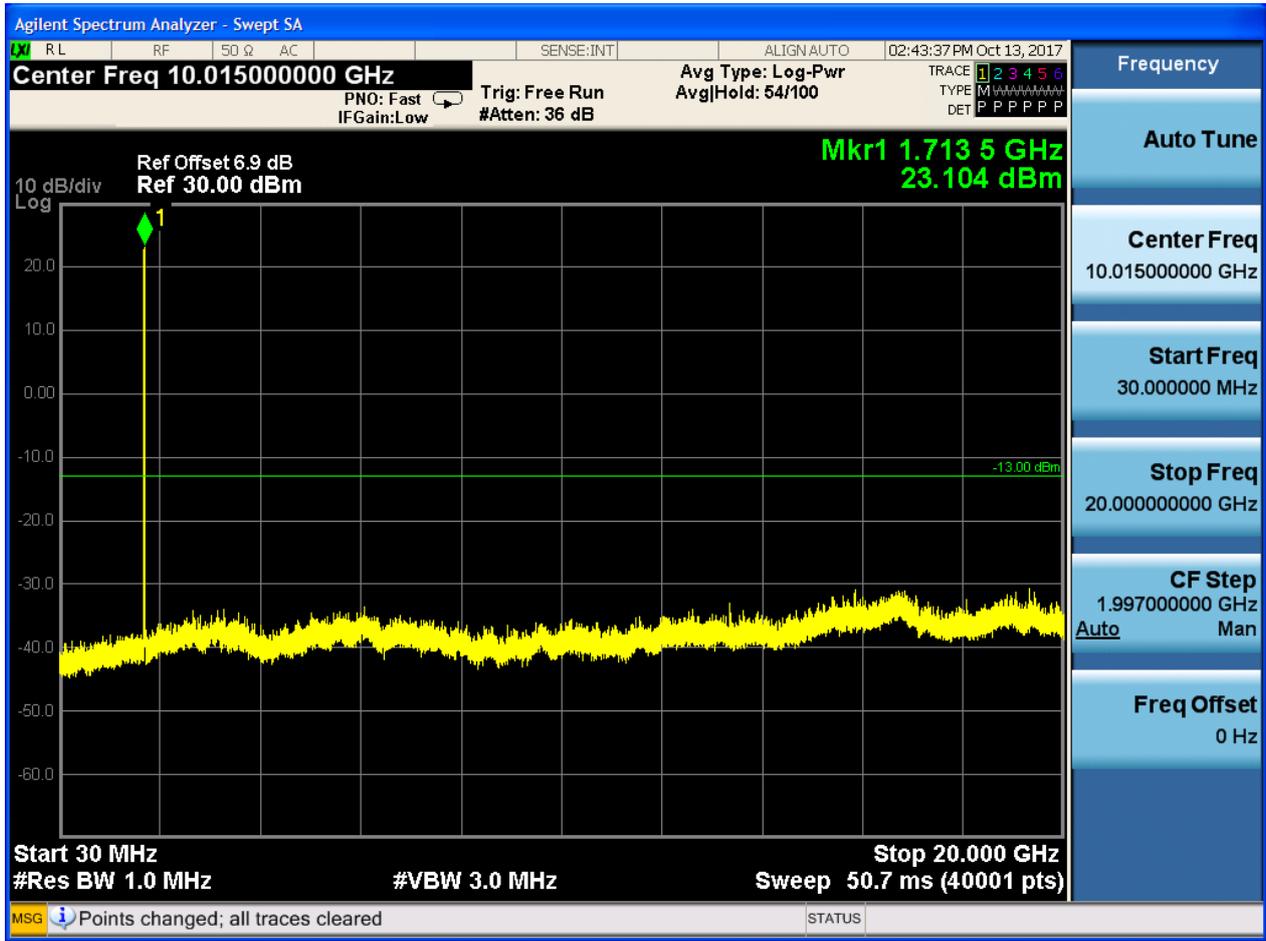
6.1.2 Test Band = WCDMA1700

6.1.2.1 Test Mode = UMTS/TM1

6.1.2.1.1 Test Channel = LCH

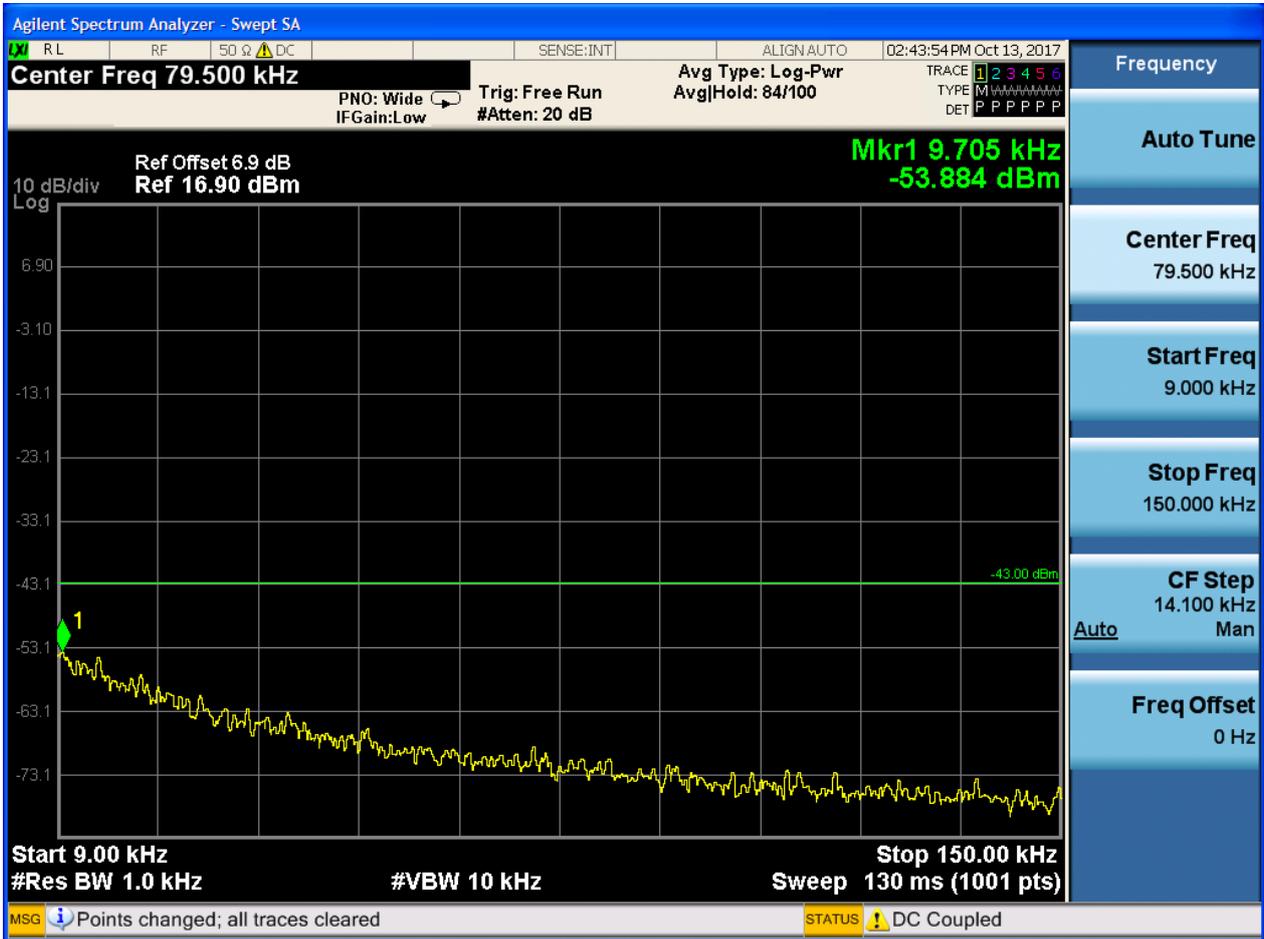


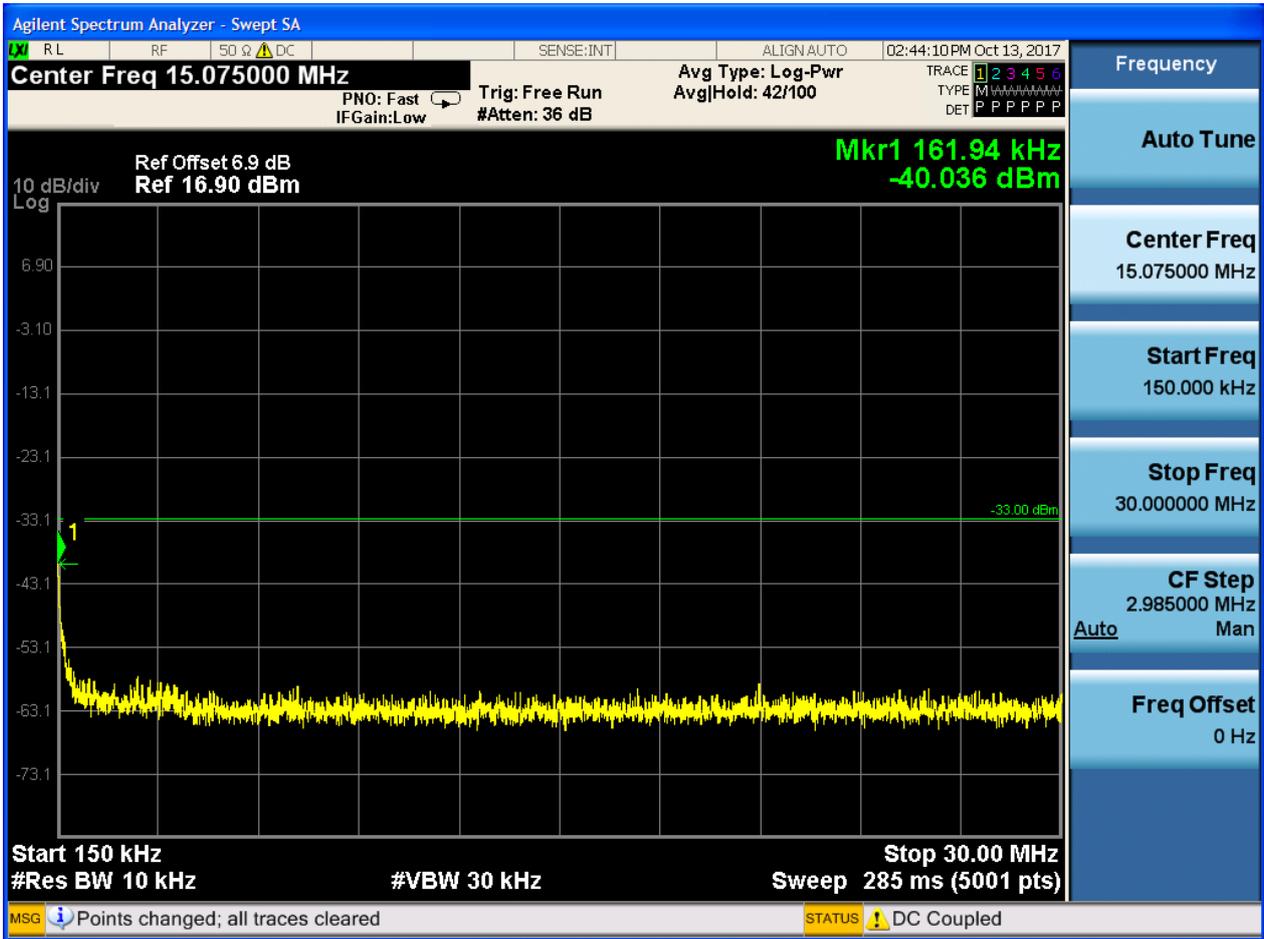


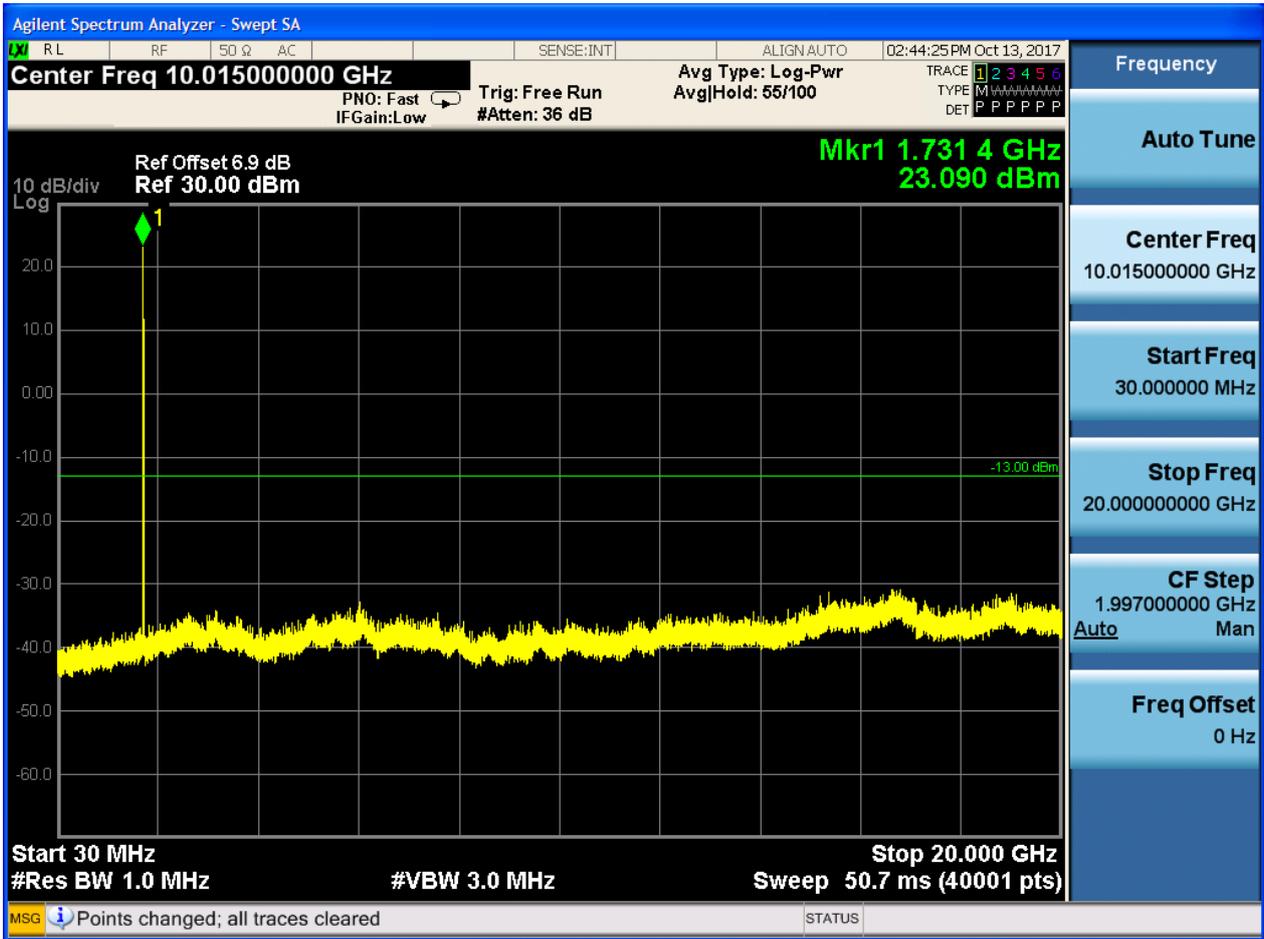




6.1.2.1.2 Test Channel = MCH



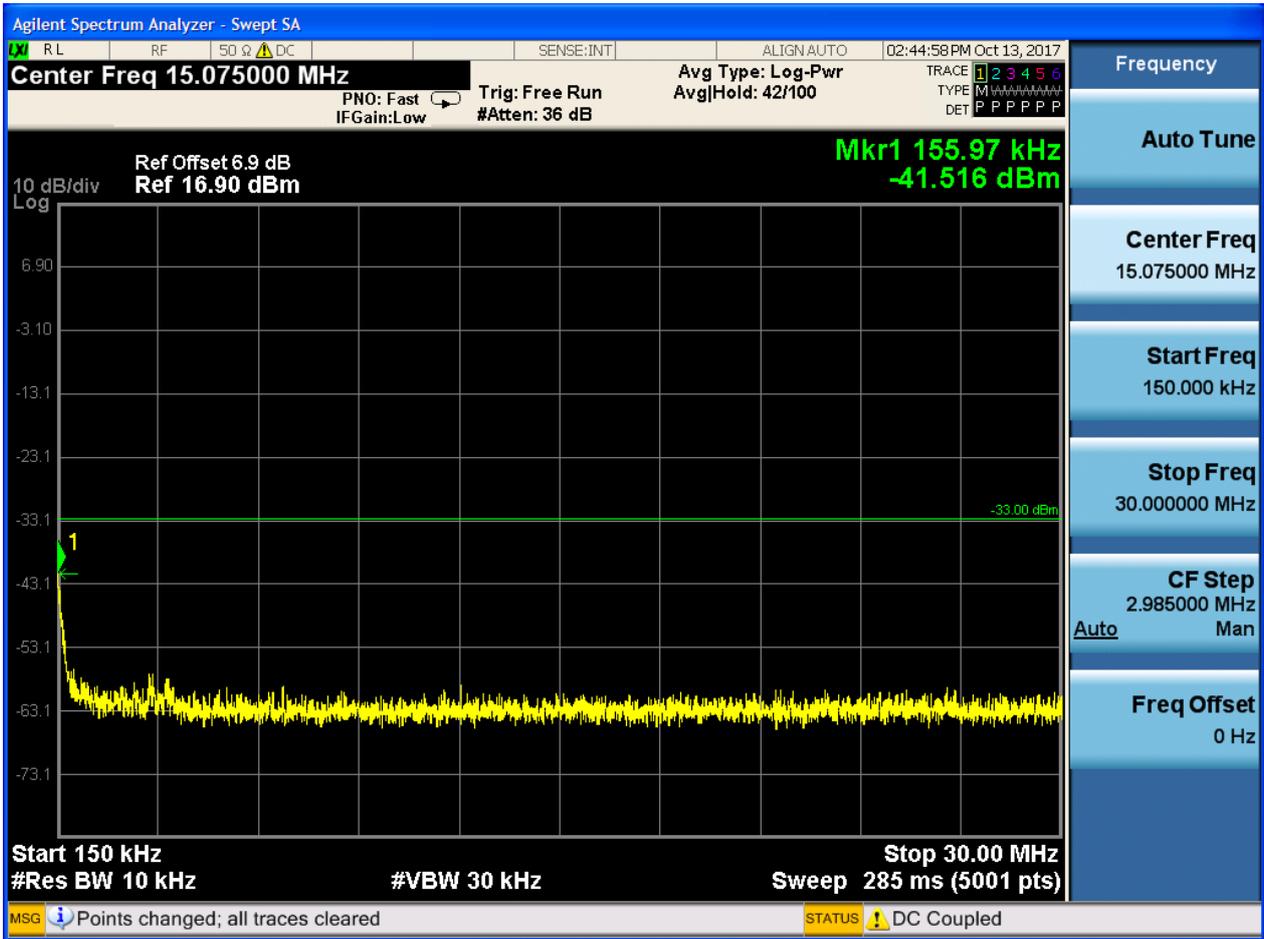


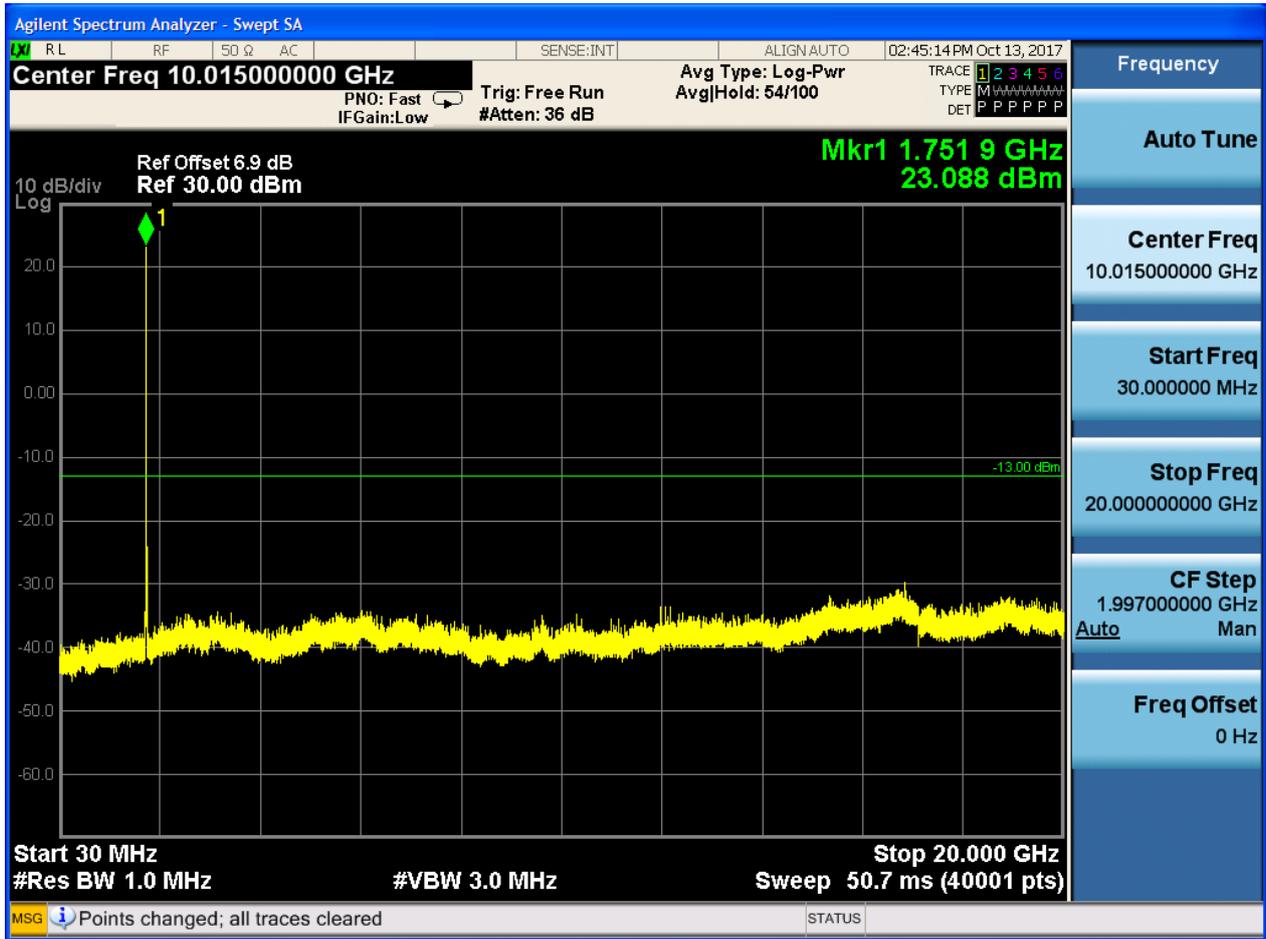




6.1.2.1.3 Test Channel = HCH







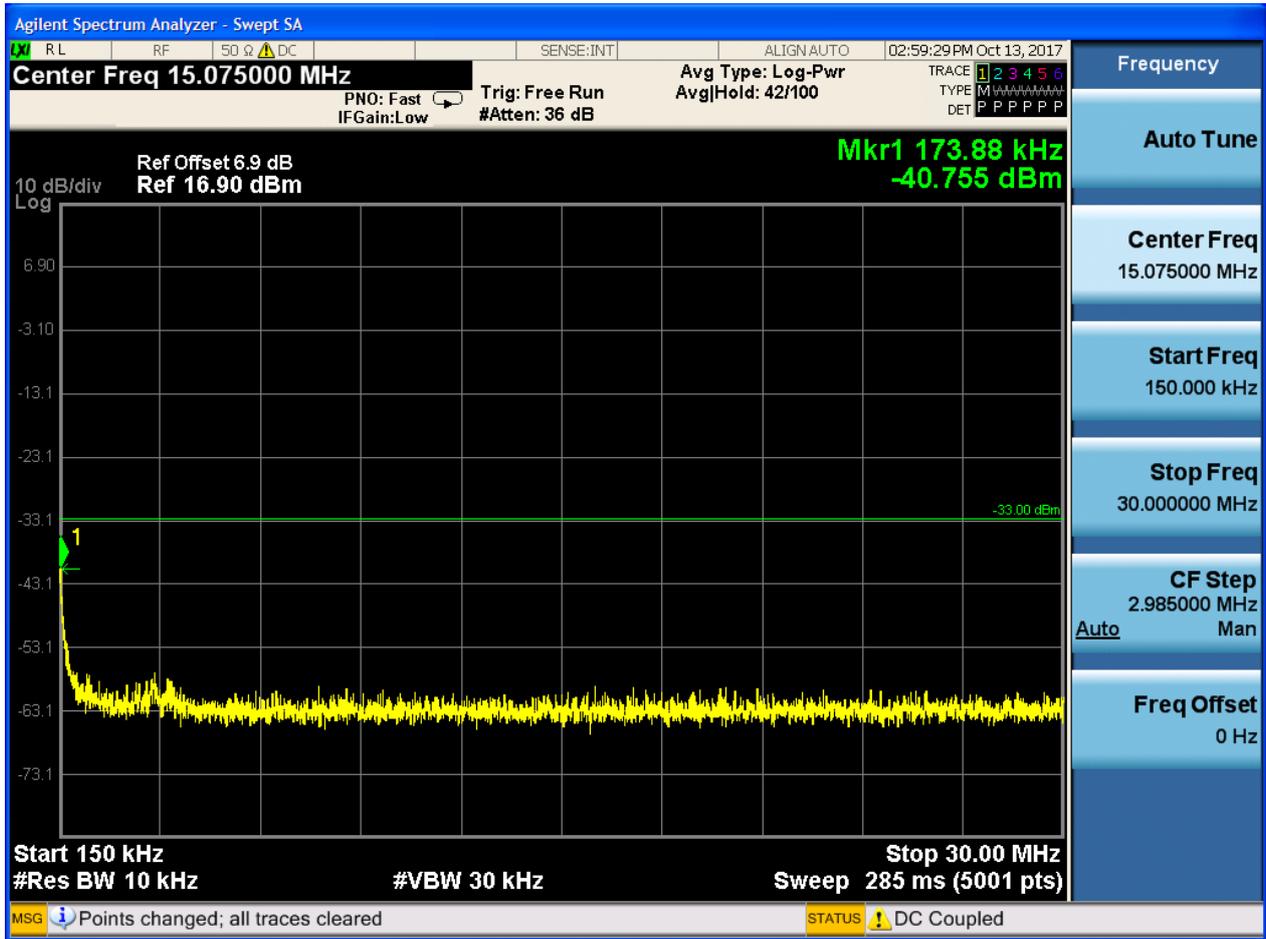


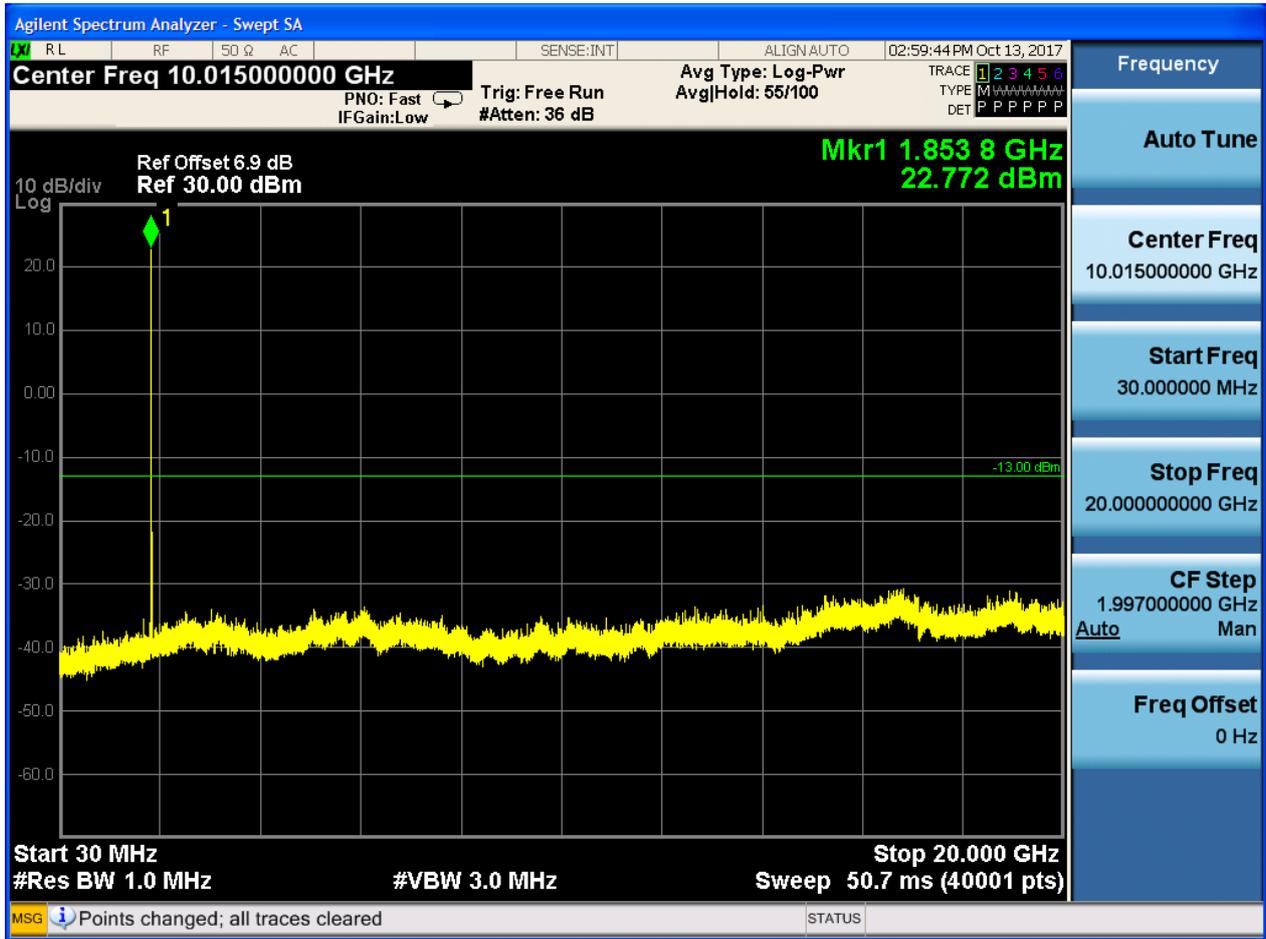
6.1.3 Test Band = WCDMA1900

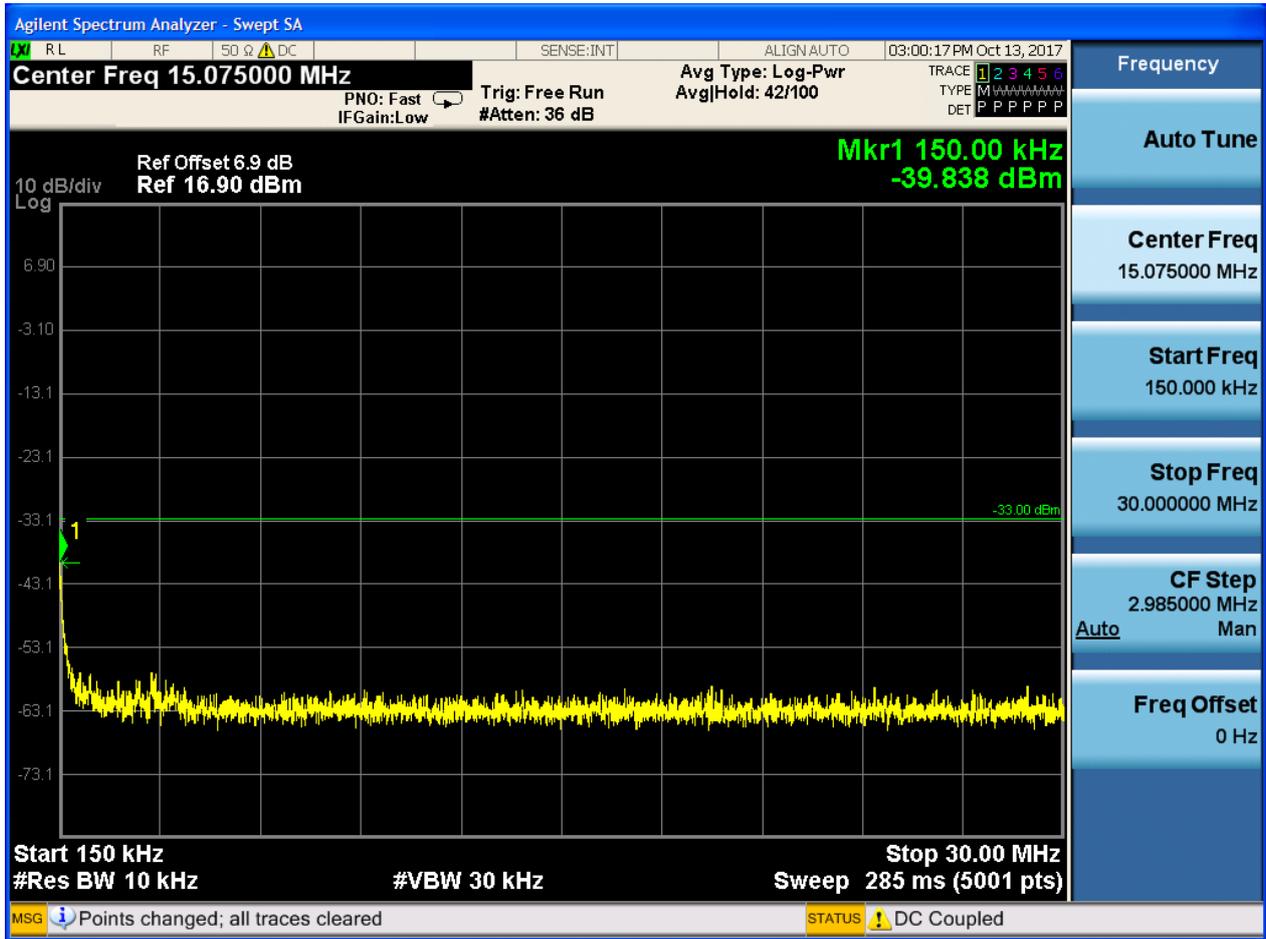
6.1.3.1 Test Mode = UMTS/TM1

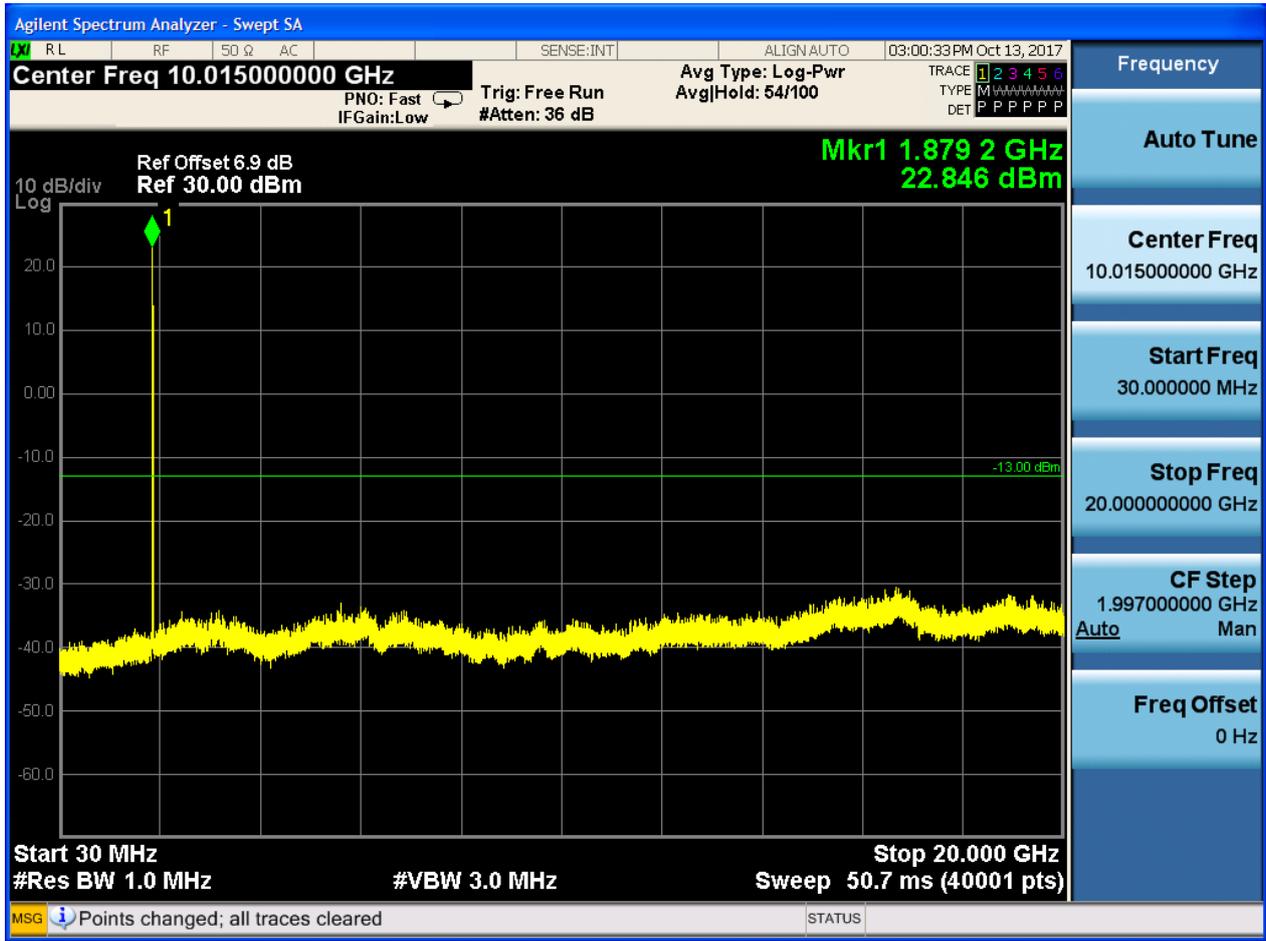
6.1.3.1.1 Test Channel = LCH

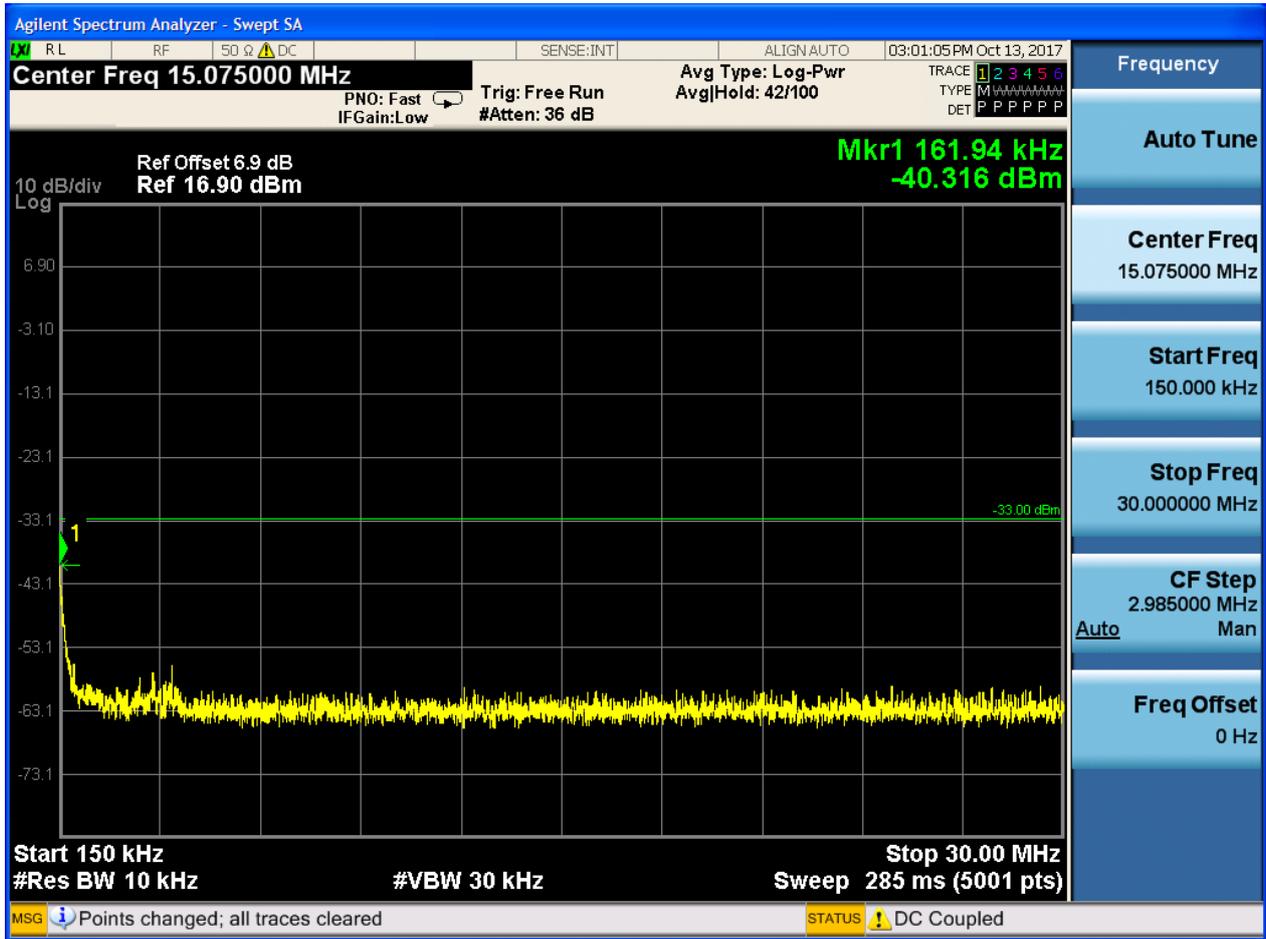


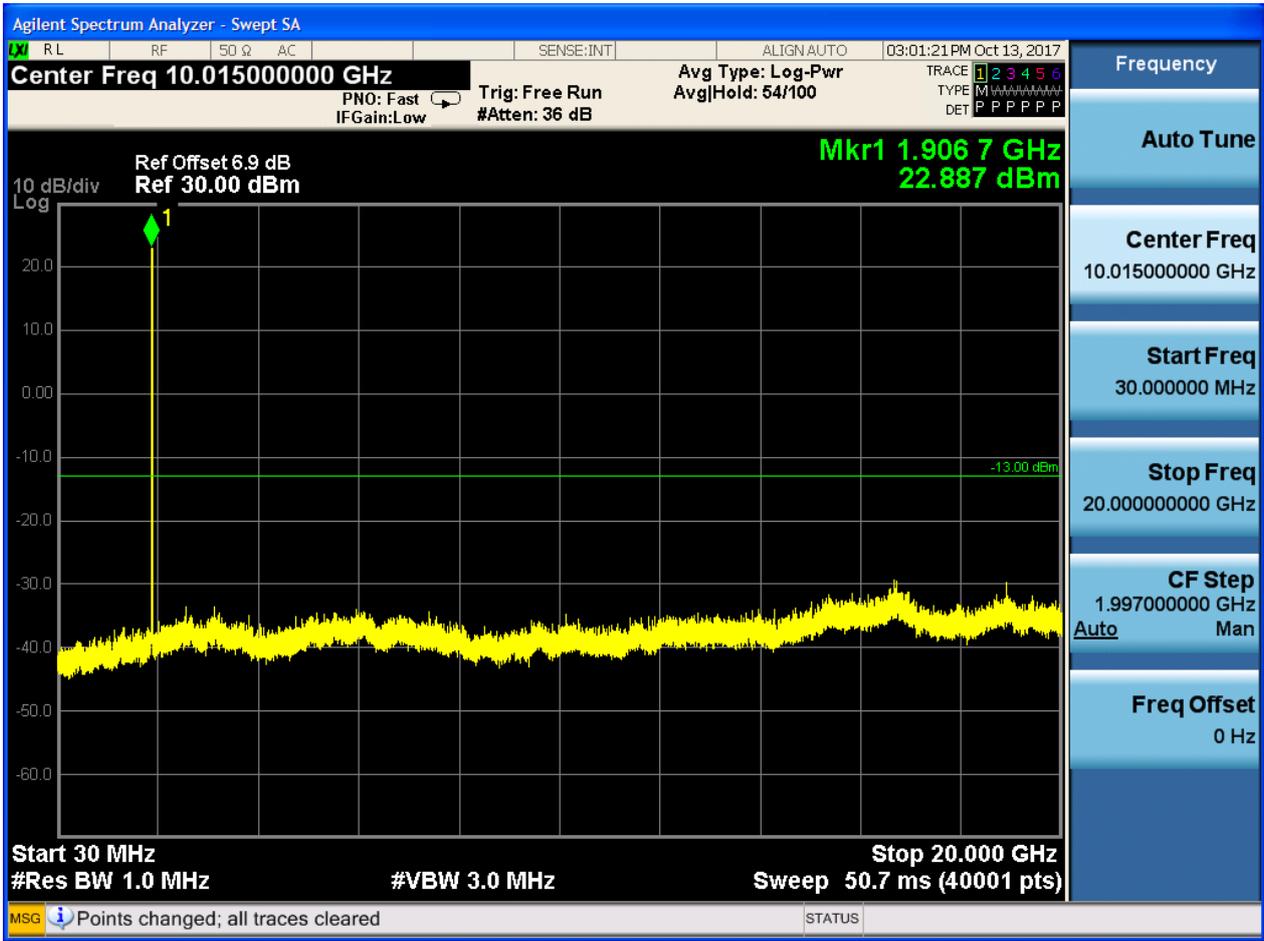












7Appendix_G: Field Strength of Spurious Radiation

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

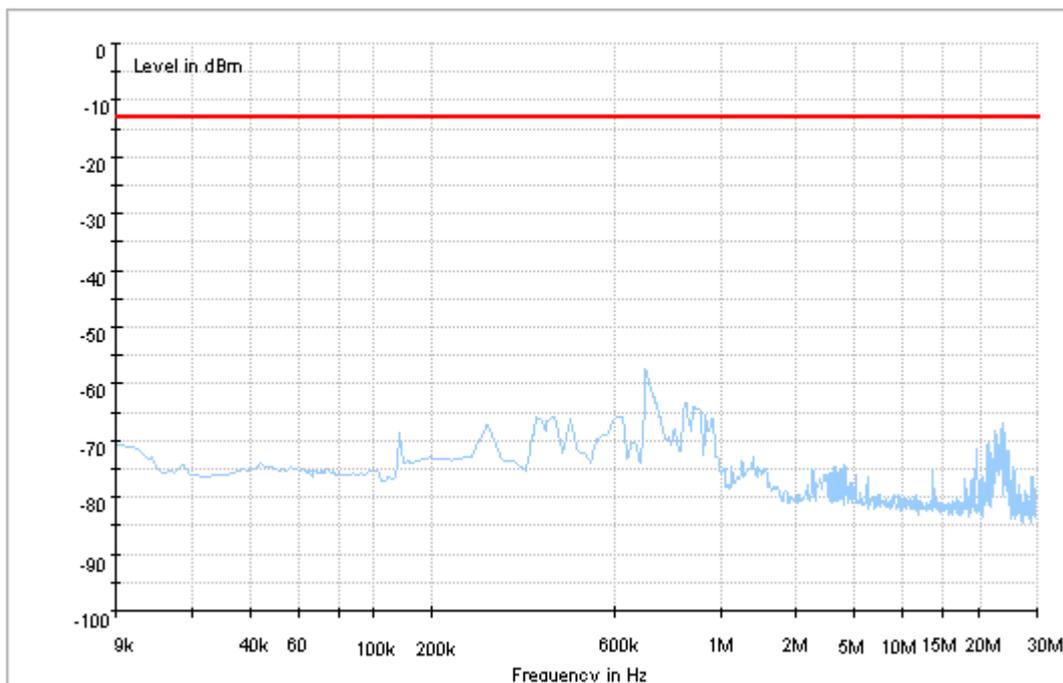
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

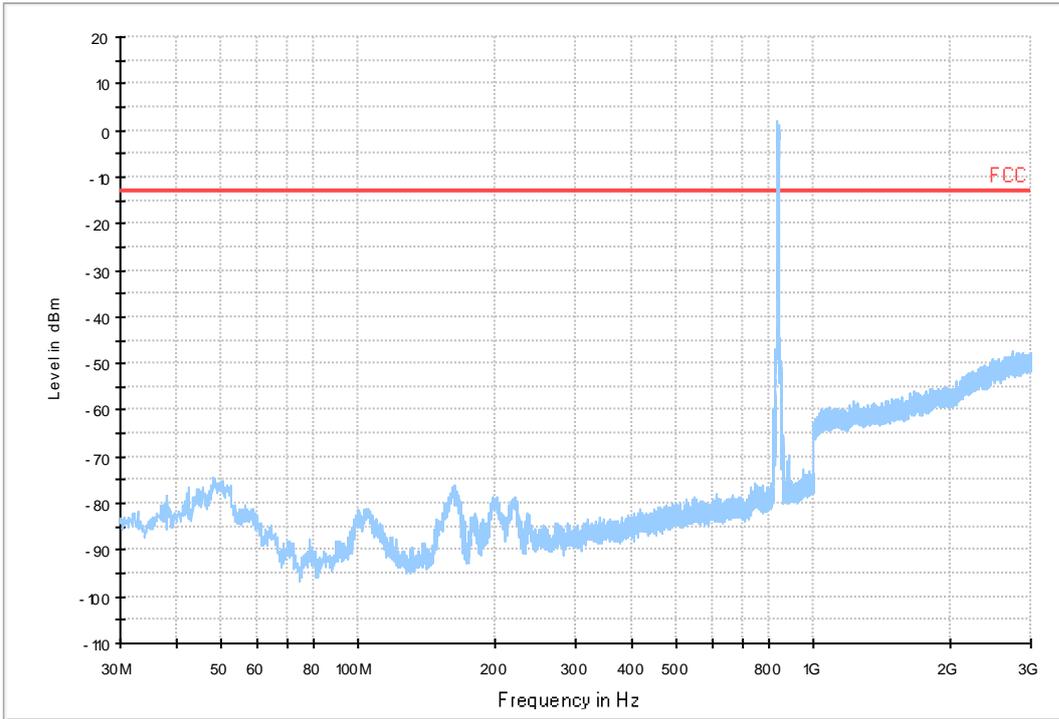
7.1 For UMTS

7.1.1 Test Band = WCDMA850_ANT1

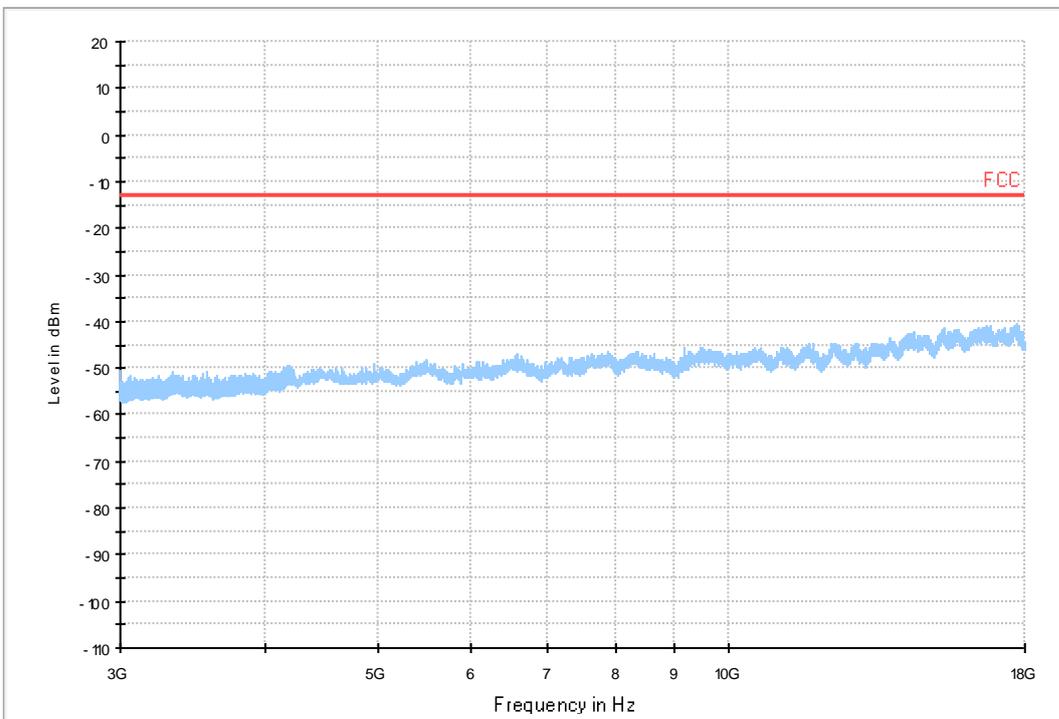
7.1.1.1 Test Mode = UMTS/TM1



Copy of FCC PART 22 WCDMA850_L

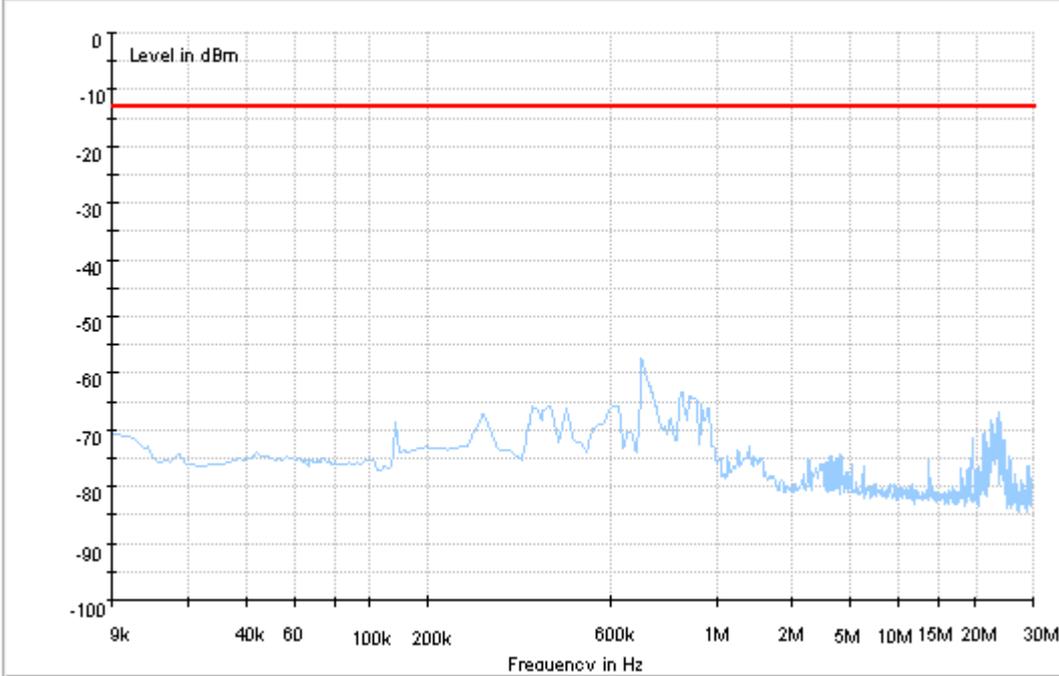


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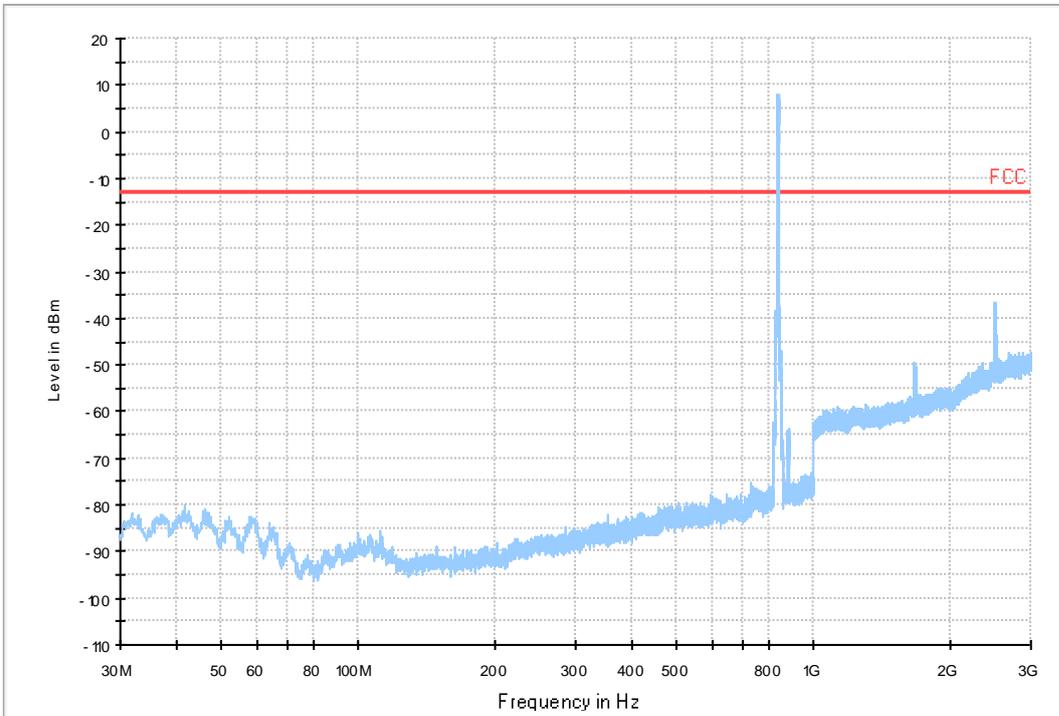


7.1.2 Test Band = WCDMA850_ANT2

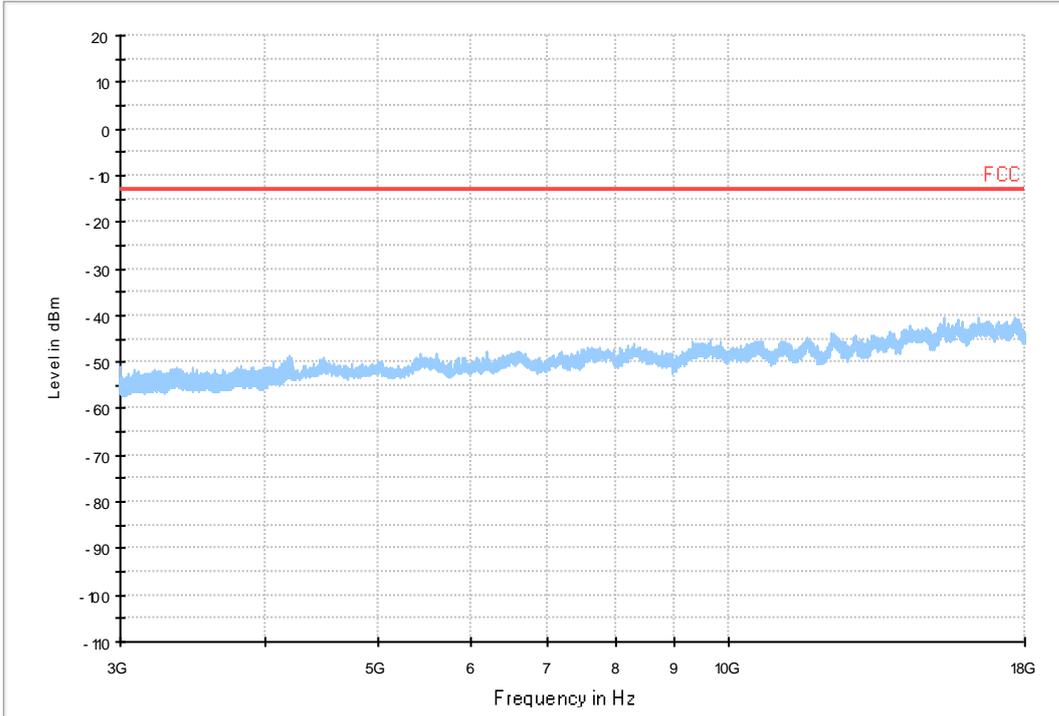
7.1.2.1 Test Mode = UMTS/TM1



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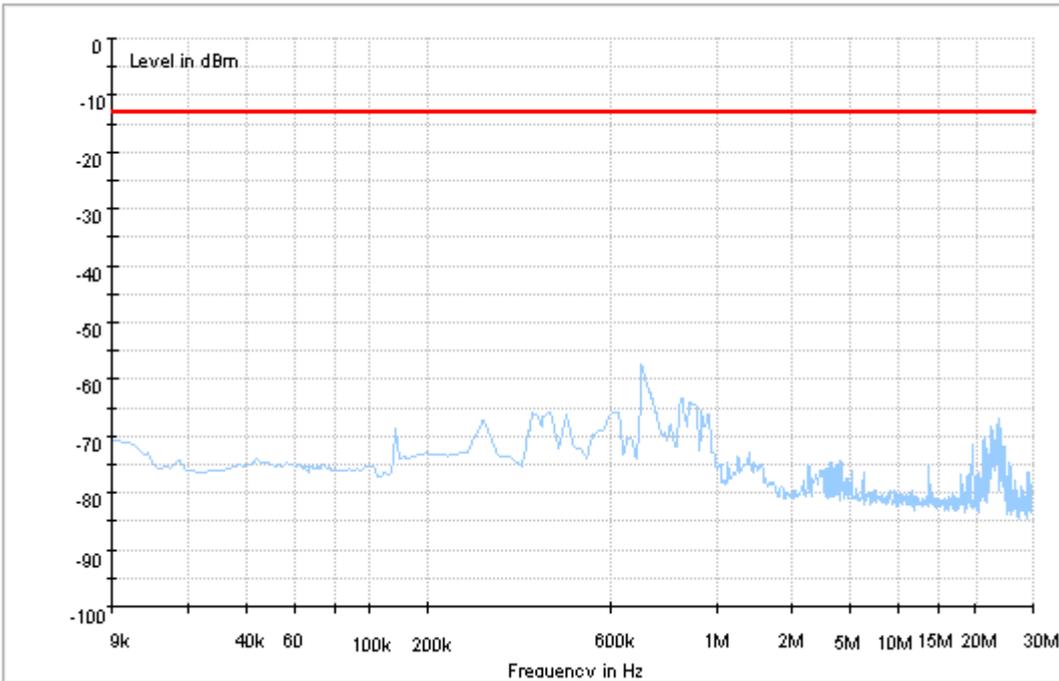


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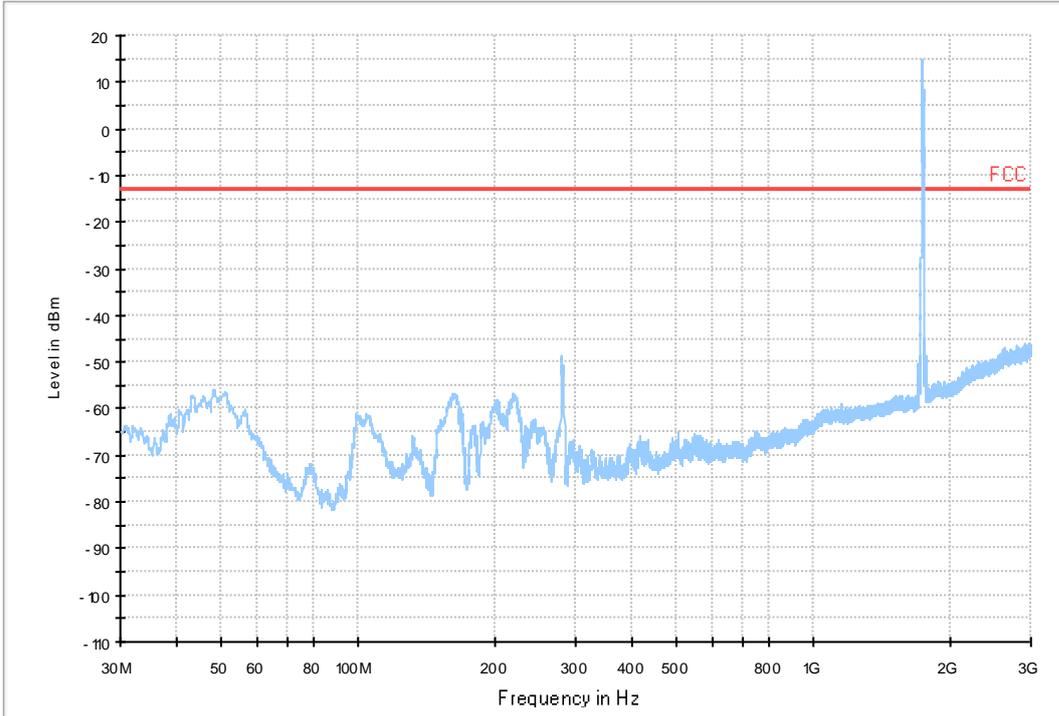


7.1.3 Test Band = WCDMA1700_ANT1

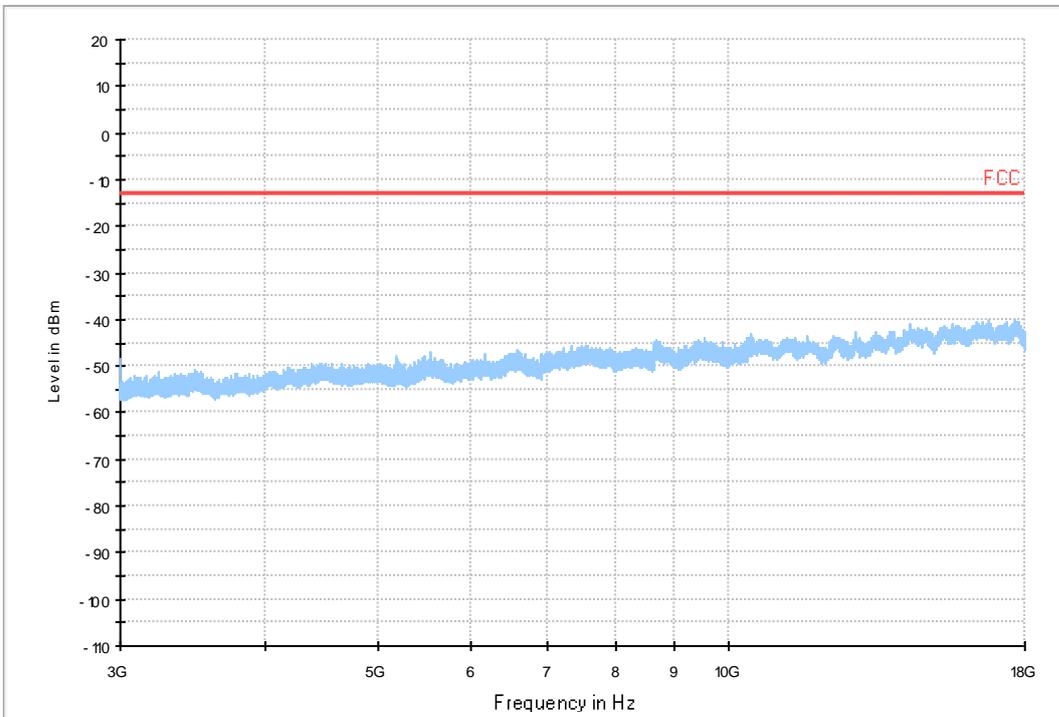
7.1.3.1 Test Mode = UMTS/TM1



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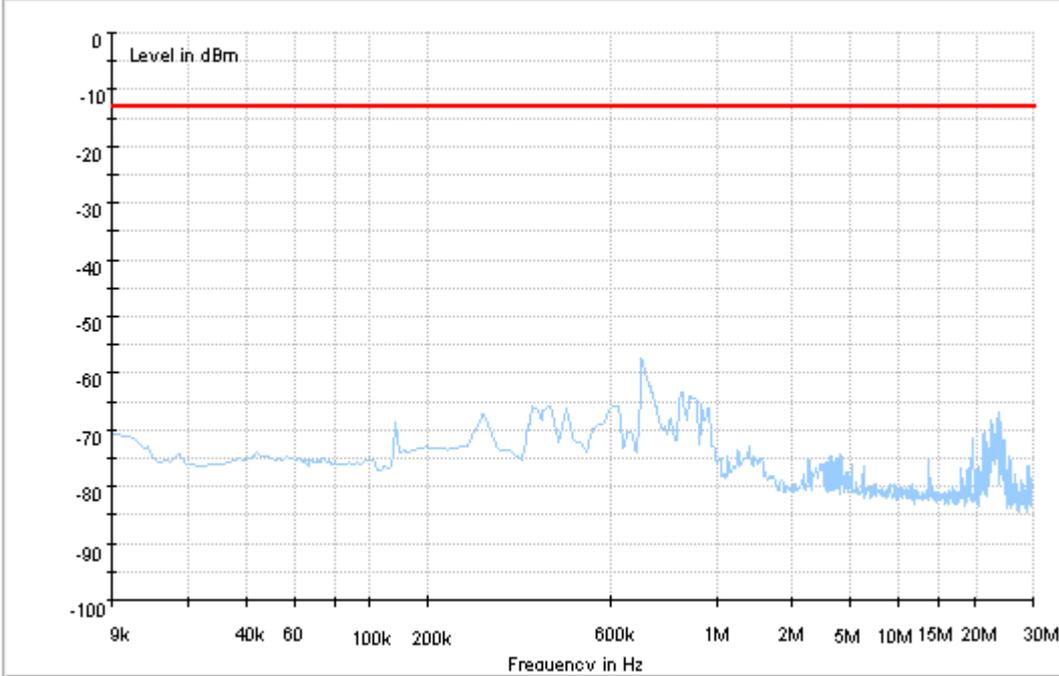


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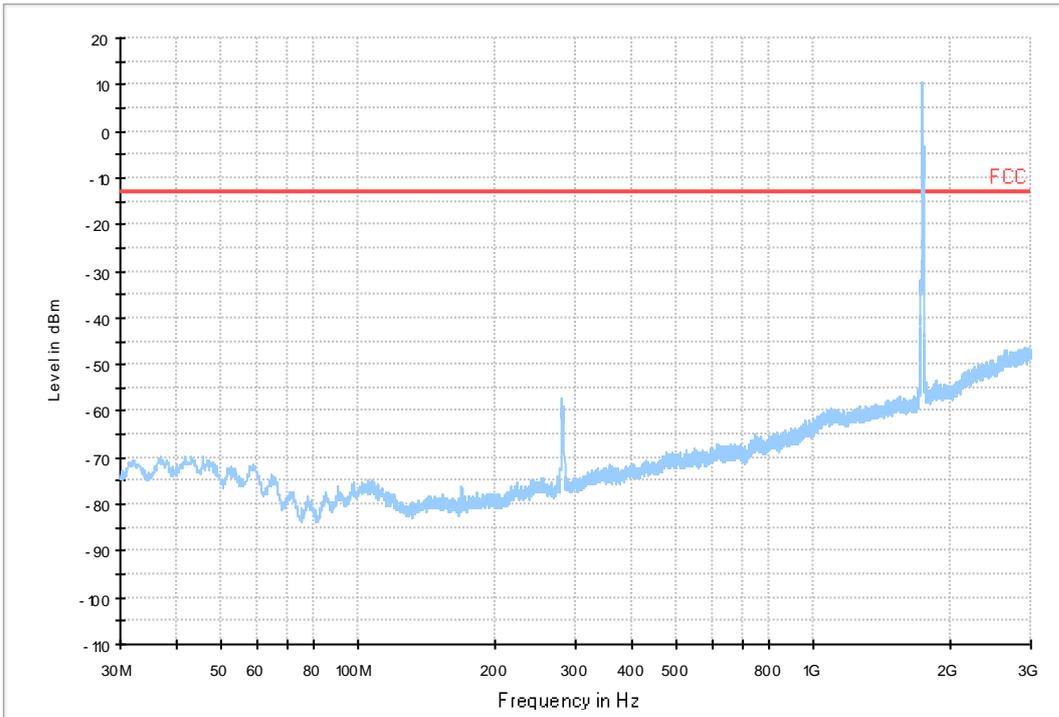


7.1.4 Test Band = WCDMA1700_ANT2

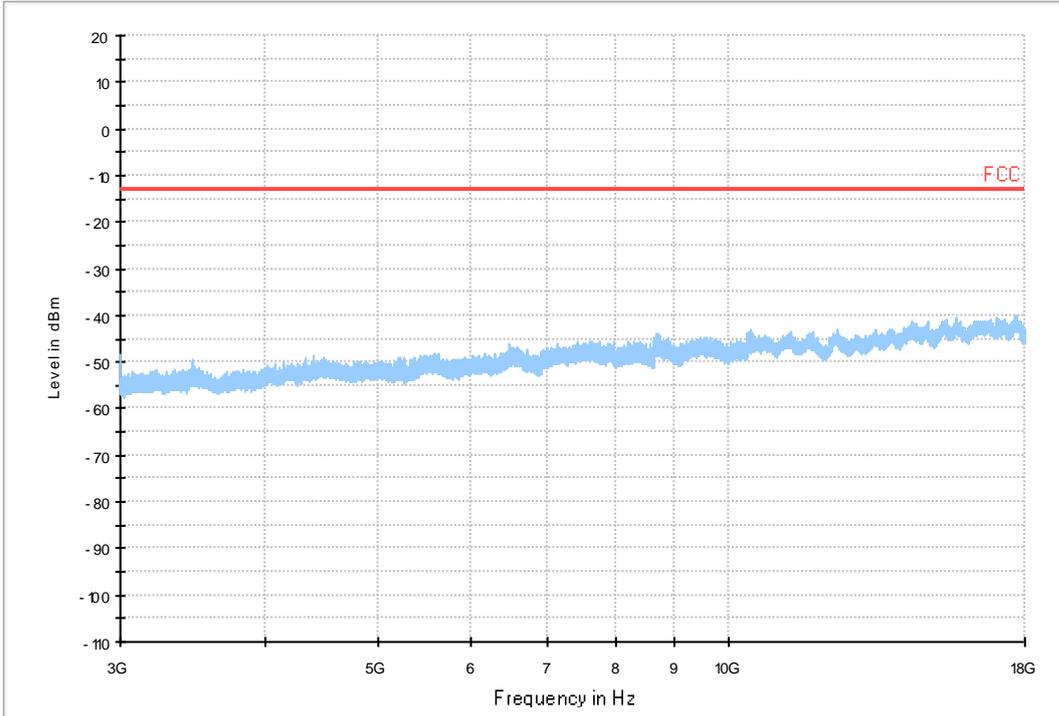
7.1.4.1 Test Mode = UMTS/TM1



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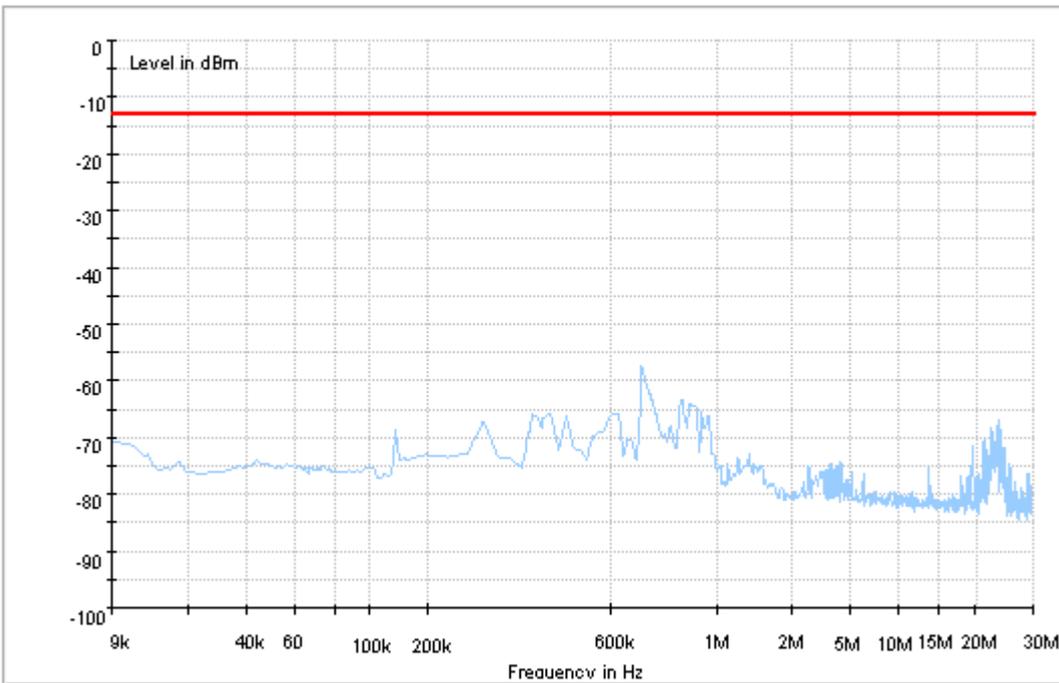


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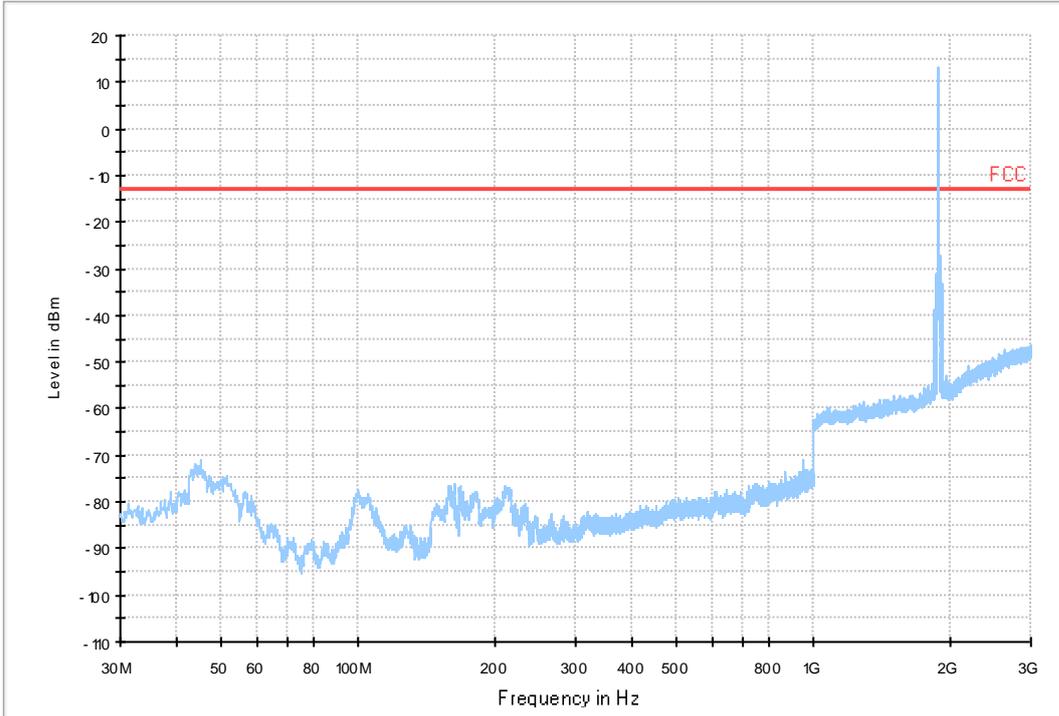


7.1.5 Test Band = WCDMA1900_ANT1

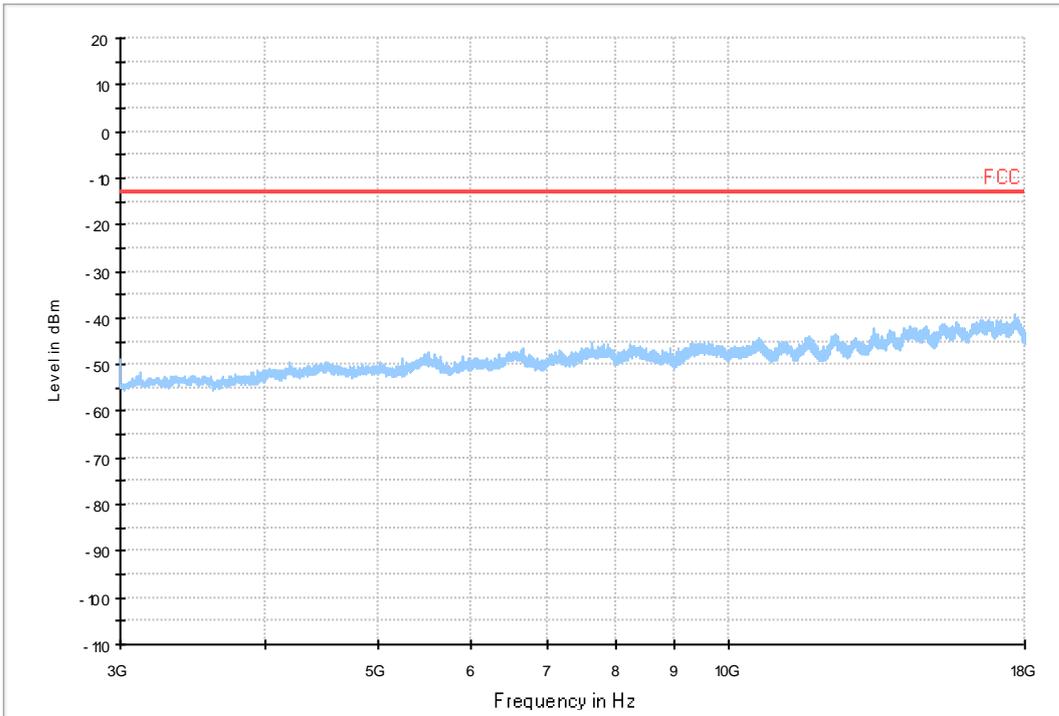
7.1.5.1 Test Mode = UMTS/TM1

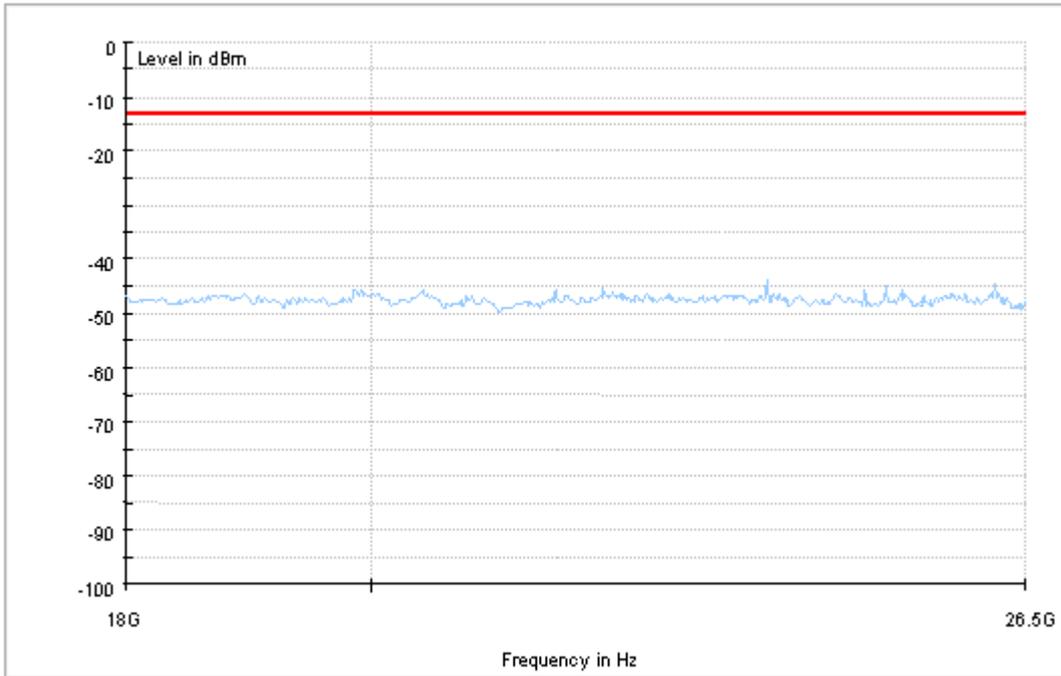


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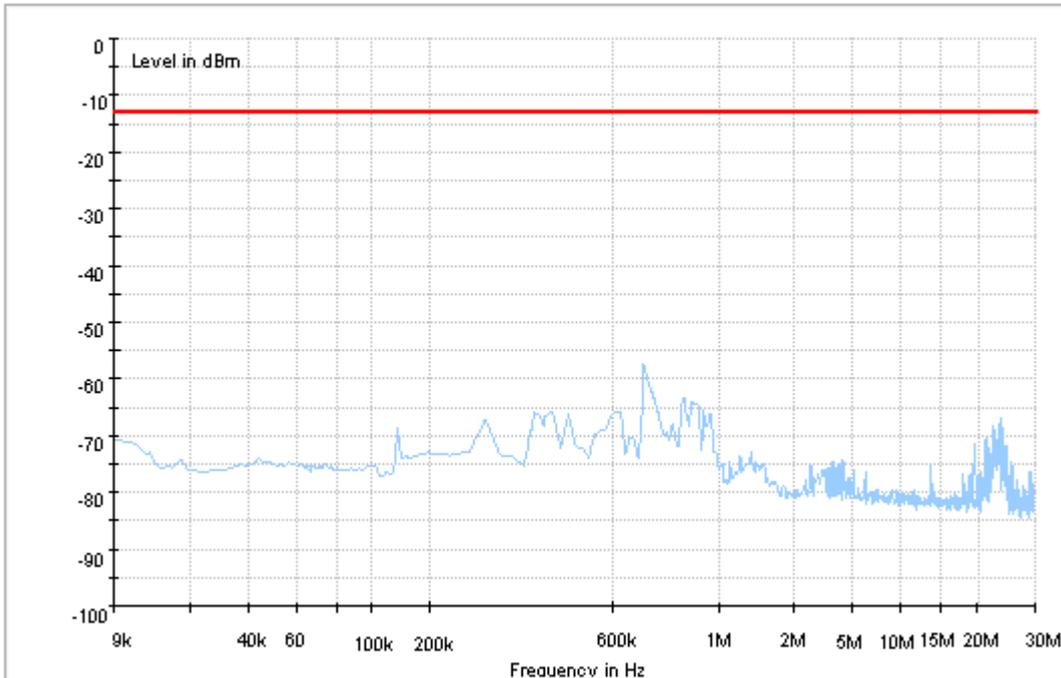
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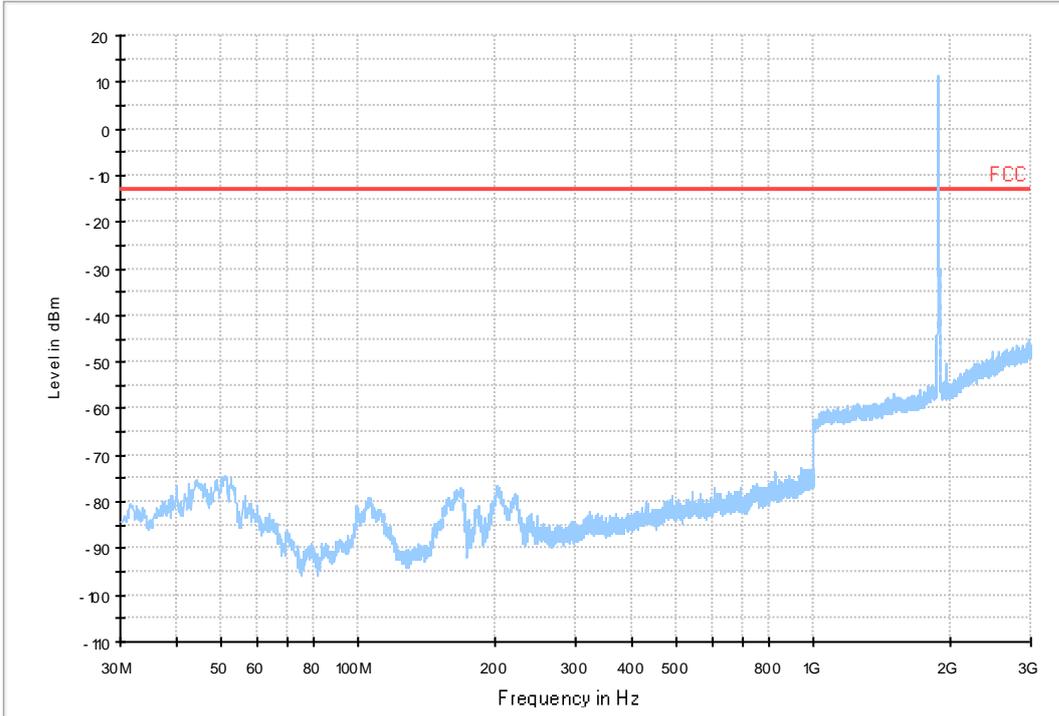


7.1.6 Test Band = WCDMA1900_ANT2

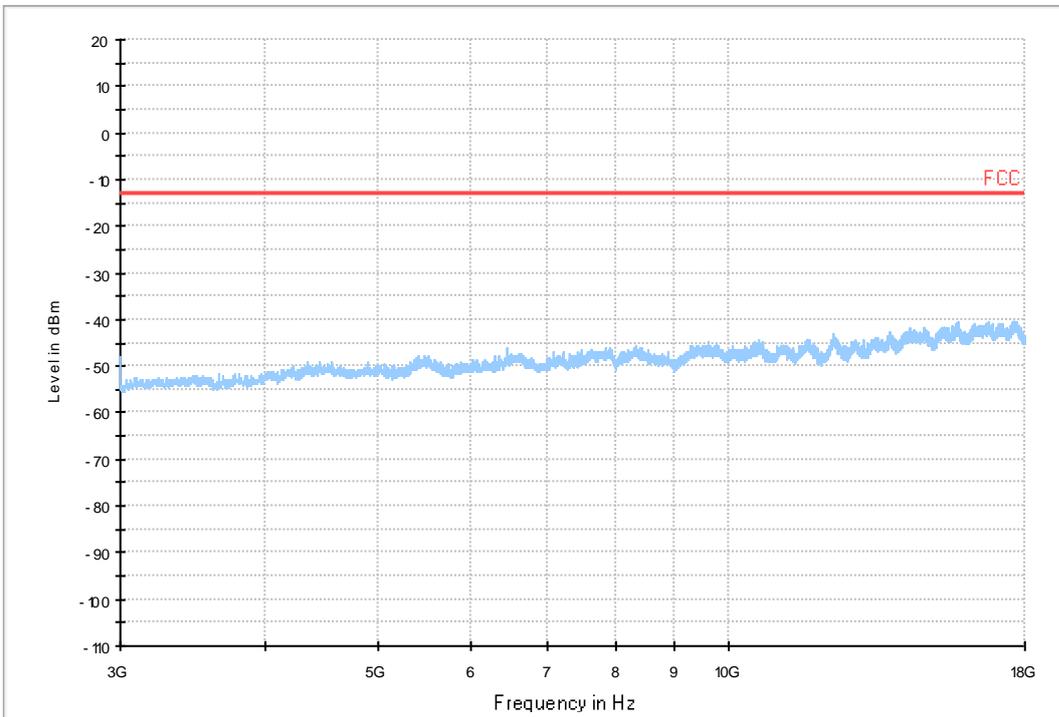
7.1.6.1 Test Mode = UMTS/TM1

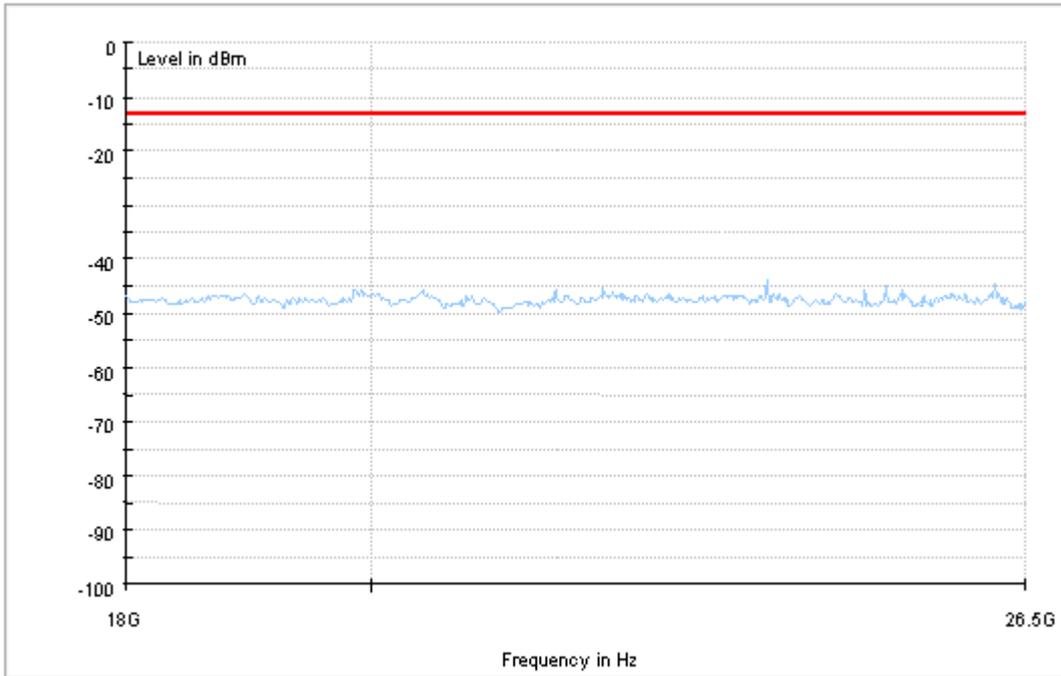


Copy of FCC PART 24 WCDMA1900_L



Copy of FCC PART 24 WCDMA1900_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	2.94	0.00356	PASS
				VN	2.56	0.0031	PASS
				VH	2.59	0.00313	PASS
		MCH	TN	VL	-6.15	-0.00735	PASS
				VN	4.52	0.0054	PASS
				VH	-8.24	-0.00985	PASS
		HCH	TN	VL	6.07	0.00717	PASS
				VN	0.76	0.0009	PASS
				VH	-1.34	-0.00158	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	4.18	0.00244	PASS
				VN	-0.82	-0.00048	PASS
				VH	0.17	0.0001	PASS
		MCH	TN	VL	-9.52	-0.00549	PASS
				VN	-0.44	-0.00025	PASS
				VH	3.36	0.00194	PASS
		HCH	TN	VL	6.67	0.00381	PASS
				VN	-0.37	-0.00021	PASS
				VH	0.99	0.00056	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	3.88	0.00209	PASS
				VN	0.27	0.00015	PASS
				VH	1.69	0.00091	PASS
		MCH	TN	VL	7.71	0.0041	PASS
				VN	5.17	0.00275	PASS
				VH	7.64	0.00406	PASS
		HCH	TN	VL	-4.67	-0.00245	PASS
				VN	-2.58	-0.00135	PASS
				VH	1.53	0.0008	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	1.69	0.00205	PASS
				-20	4.46	0.0054	PASS
				-10	1.37	0.00166	PASS
				0	-2.23	-0.0027	PASS
				10	-2.69	-0.00326	PASS
				20	-0.70	-0.00085	PASS
				30	1.01	0.00122	PASS
				40	6.62	0.00801	PASS
				50	-0.21	-0.00025	PASS
		MCH	VN	-30	-3.17	-0.00379	PASS
				-20	10.27	0.01228	PASS
				-10	-0.52	-0.00062	PASS
				0	-6.03	-0.00721	PASS
				10	-9.43	-0.01127	PASS
				20	-5.57	-0.00666	PASS
				30	-4.50	-0.00538	PASS
				40	0.21	0.00025	PASS
				50	-3.68	-0.0044	PASS
		HCH	VN	-30	2.47	0.00292	PASS
				-20	-2.30	-0.00272	PASS
				-10	6.77	0.008	PASS
				0	-0.46	-0.00054	PASS
				10	4.56	0.00539	PASS
				20	5.36	0.00633	PASS
				30	-0.81	-0.00096	PASS
				40	1.16	0.00137	PASS
				50	-9.25	-0.01093	PASS
WCDMA1700	UMTS/TM1	LCH	VN	-30	2.50	0.00146	PASS
				-20	-3.27	-0.00191	PASS
				-10	-6.93	-0.00405	PASS
				0	2.33	0.00136	PASS
				10	-1.08	-0.00063	PASS
				20	-1.75	-0.00102	PASS
				30	6.09	0.00356	PASS
				40	-8.56	-0.005	PASS
				50	-3.22	-0.00188	PASS
		MCH	VN	-30	-3.75	-0.00216	PASS
				-20	-1.08	-0.00062	PASS
				-10	-6.29	-0.00363	PASS
				0	-5.25	-0.00303	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				10	-15.63	-0.00902	PASS
				20	3.81	0.0022	PASS
				30	-2.47	-0.00143	PASS
				40	-9.99	-0.00577	PASS
				50	-4.81	-0.00278	PASS
		HCH	VN	-30	1.37	0.00078	PASS
				-20	0.52	0.0003	PASS
				-10	1.30	0.00074	PASS
				0	-1.19	-0.00068	PASS
				10	-5.17	-0.00295	PASS
				20	-5.13	-0.00293	PASS
				30	0.67	0.00038	PASS
				40	-6.59	-0.00376	PASS
				50	1.46	0.00083	PASS
WCDMA1900	UMTS/TM1	LCH	VN	-30	-2.72	-0.00147	PASS
				-20	-6.56	-0.00354	PASS
				-10	-7.55	-0.00408	PASS
				0	-1.01	-0.00055	PASS
				10	0.78	0.00042	PASS
				20	3.42	0.00185	PASS
				30	-2.59	-0.0014	PASS
				40	2.90	0.00157	PASS
				50	-2.37	-0.00128	PASS
		MCH	VN	-30	8.38	0.00446	PASS
				-20	8.51	0.00453	PASS
				-10	1.56	0.00083	PASS
				0	-3.78	-0.00201	PASS
				10	-3.43	-0.00182	PASS
				20	-4.81	-0.00256	PASS
				30	3.97	0.00211	PASS
				40	-2.64	-0.0014	PASS
				50	1.45	0.00077	PASS
		HCH	VN	-30	-5.49	-0.00288	PASS
				-20	2.55	0.00134	PASS
				-10	1.88	0.00099	PASS
				0	0.81	0.00042	PASS
				10	1.27	0.00067	PASS
				20	-2.06	-0.00108	PASS
				30	-0.09	-0.00005	PASS
				40	-2.04	-0.00107	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				50	2.03	0.00106	PASS

END