



Appendix for test report

1Appendix_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
WCDMA1900	UMTS/TM1	LCH	23.85	24.05	33	PASS
		MCH	23.48	23.68	33	PASS
		HCH	23.59	23.79	33	PASS
WCDMA850	UMTS/TM1	LCH	23.66	19.31	38.5	PASS
		MCH	23.61	19.26	38.5	PASS
		HCH	23.63	19.28	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: RBW > emission bandwidth, VBW > 3 x RBW.

Detector: RMS



2Appendix_B: Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA1900	UMTS/TM1	LCH	3.14	13	PASS
		MCH	3.18	13	PASS
		HCH	3	13	PASS
WCDMA850	UMTS/TM1	LCH	3.23	13	PASS
		MCH	3.4	13	PASS
		HCH	3.36	13	PASS

3Appendix_C: Modulation Characteristics

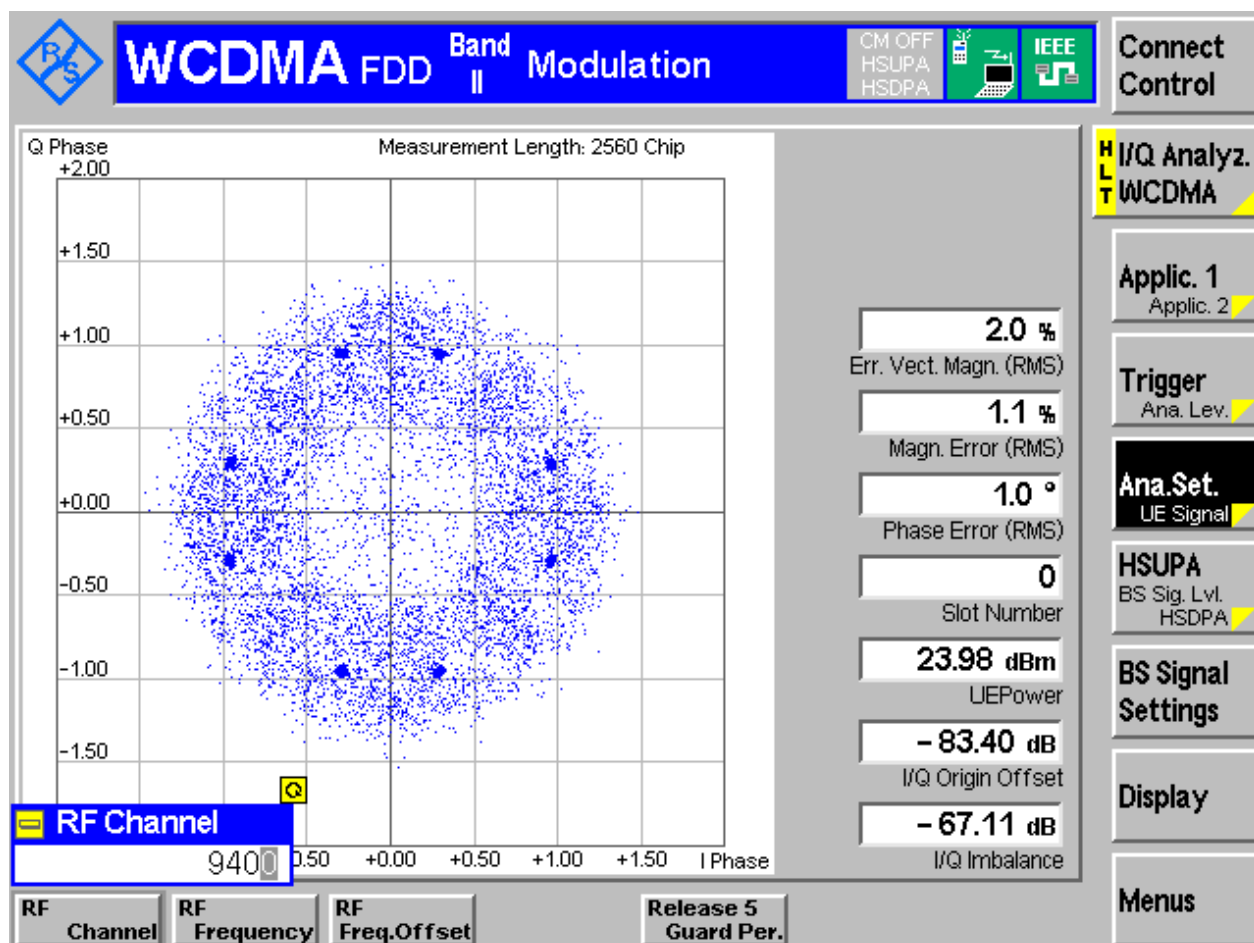
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA1900

3.1.1.1 Test Mode = UMTS/TM1

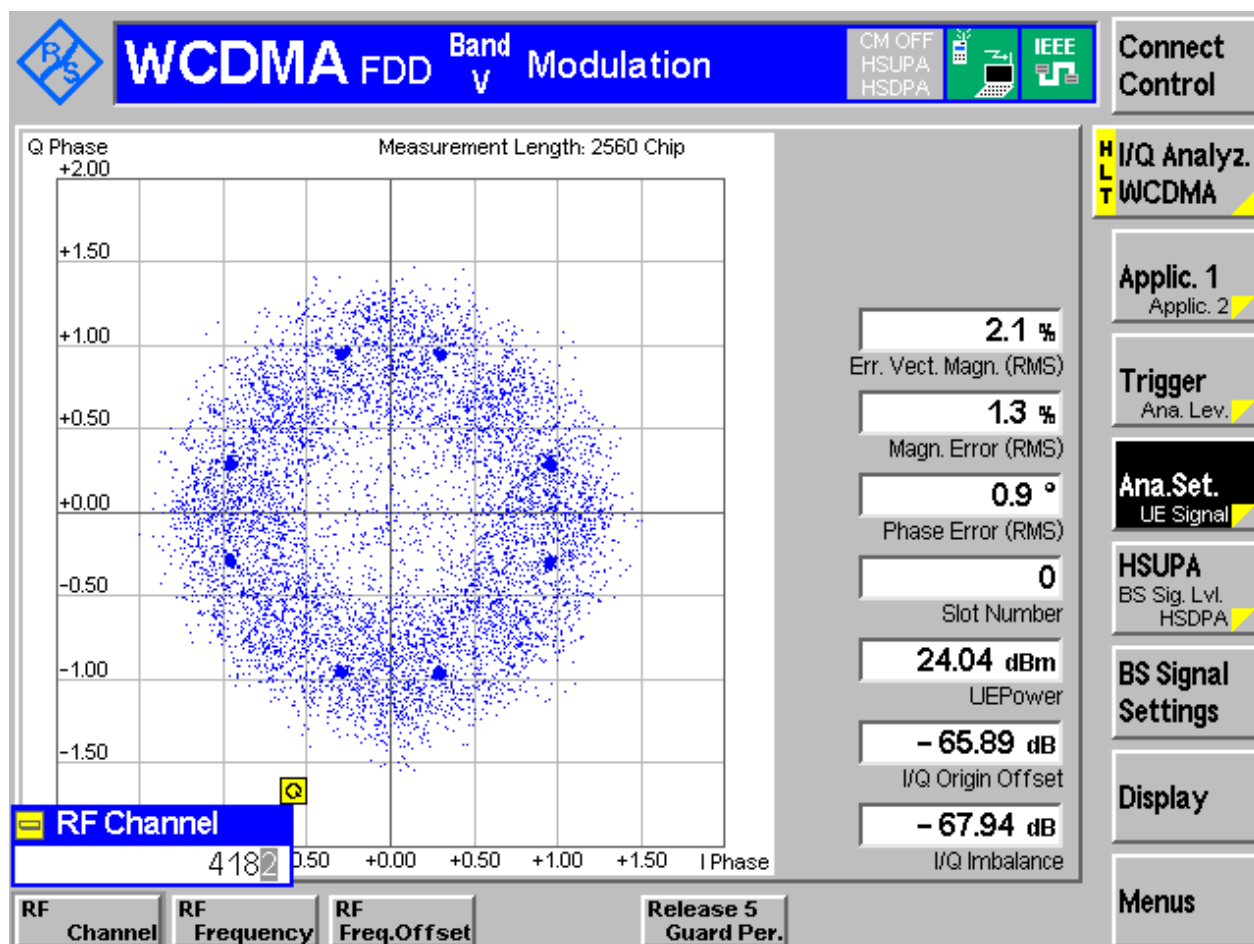
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA850

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
WCDMA1900	UMTS/TM1	LCH	4.16	4.74	Pass
		MCH	4.16	4.73	Pass
		HCH	4.17	4.75	Pass
WCDMA850	UMTS/TM1	LCH	4.14	4.73	Pass
		MCH	4.14	4.72	Pass
		HCH	4.13	4.73	Pass

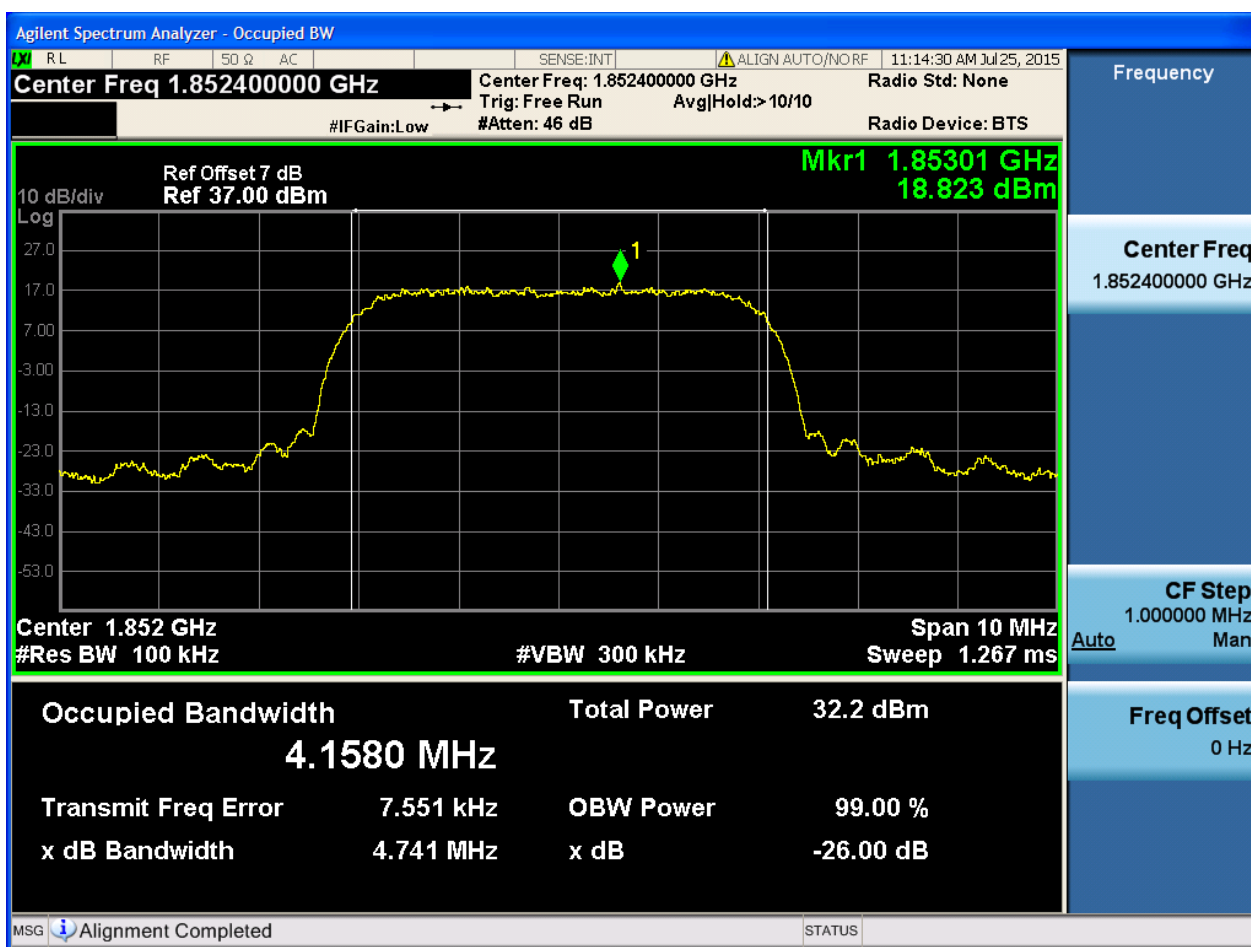
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA1900

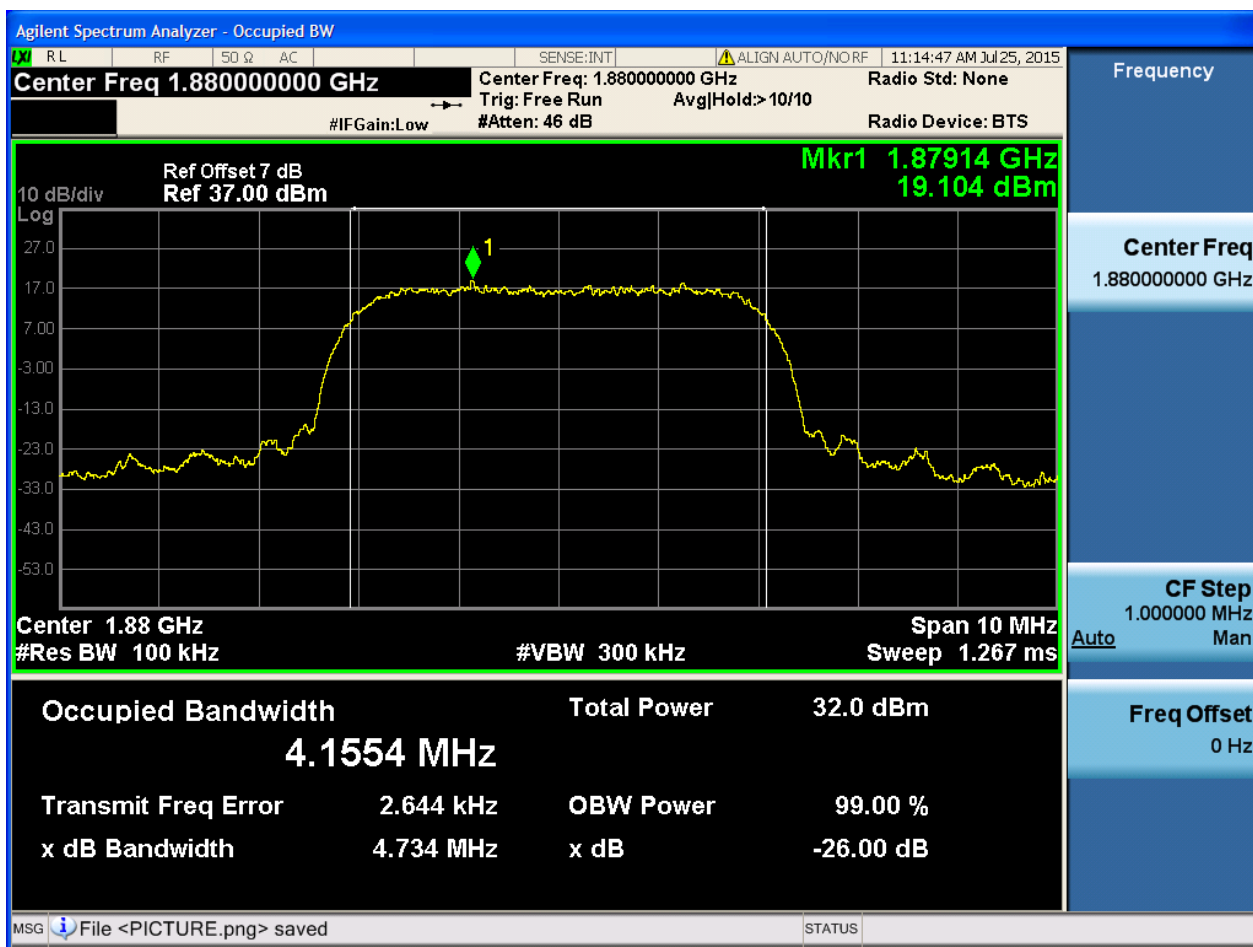
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



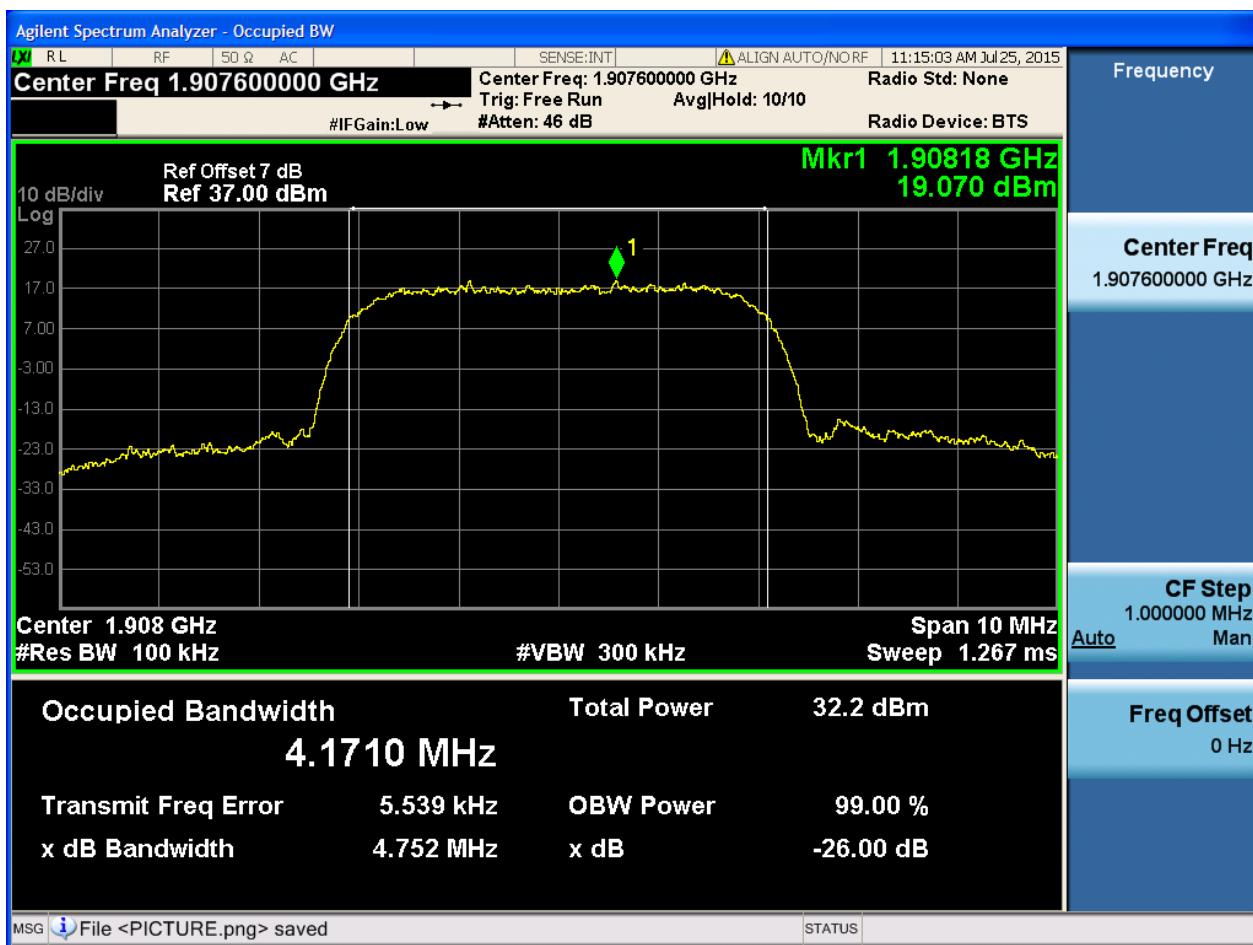


4.1.1.1.2 Test Channel = MCH





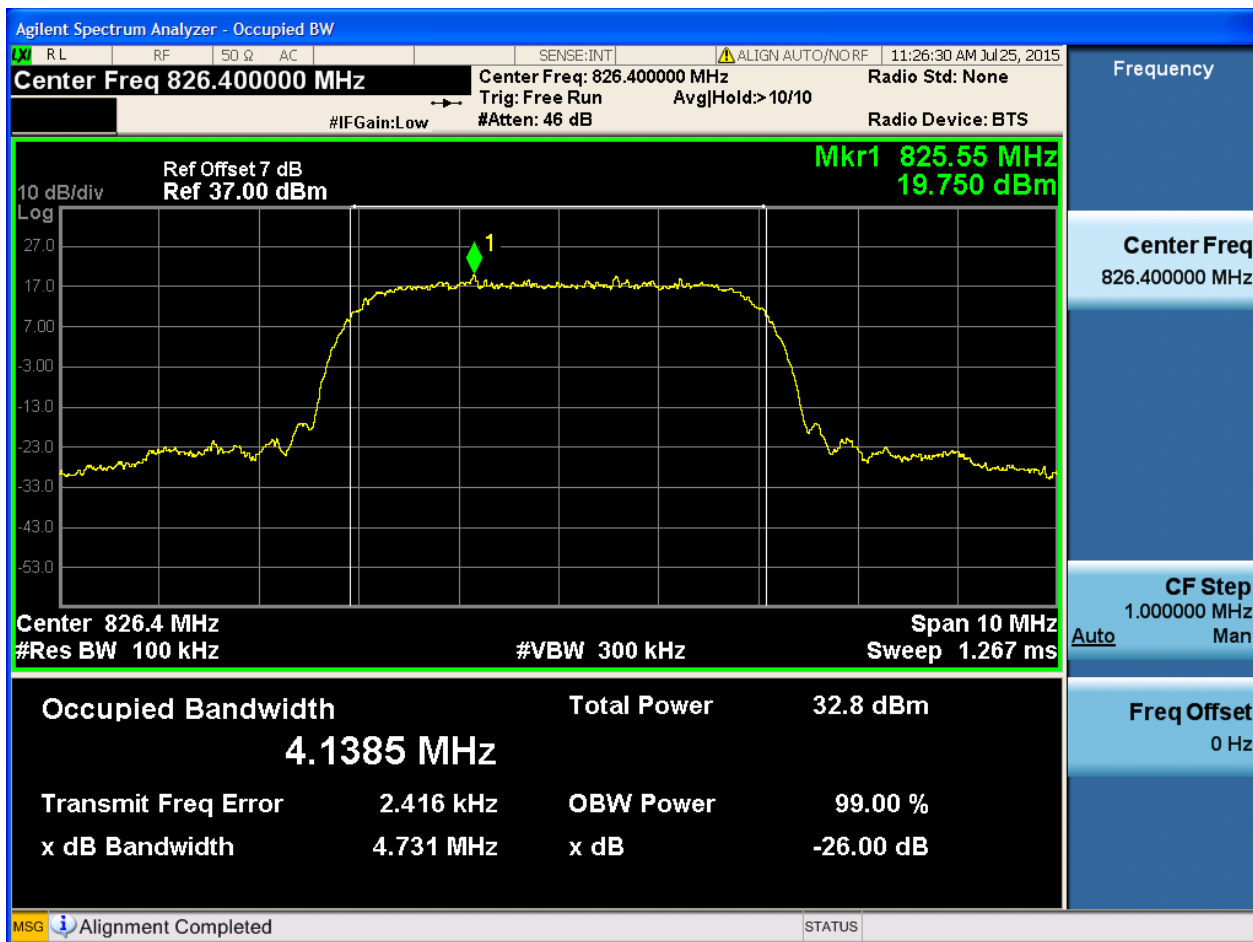
4.1.1.1.3 Test Channel = HCH



4.1.2 Test Band = WCDMA850

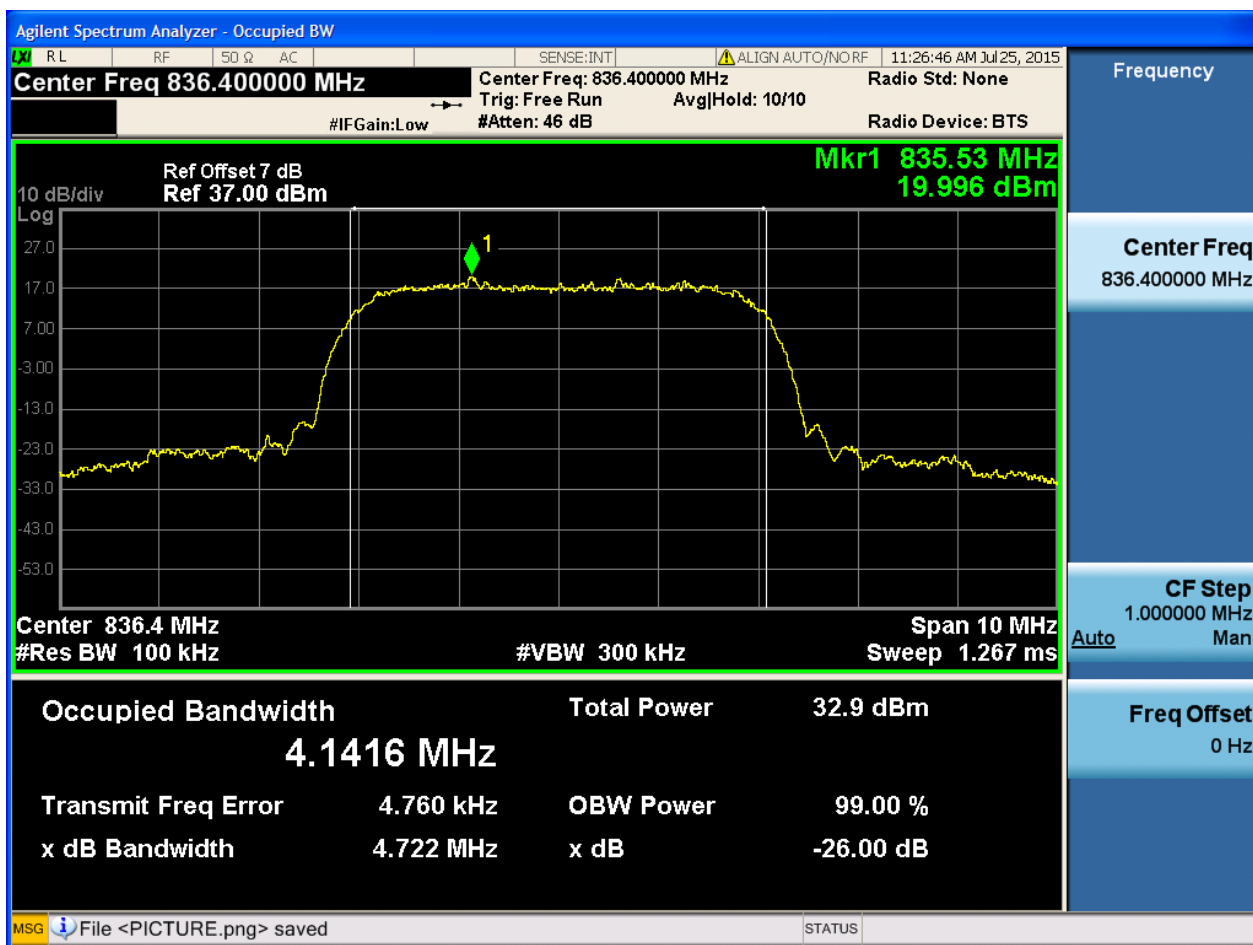
4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH



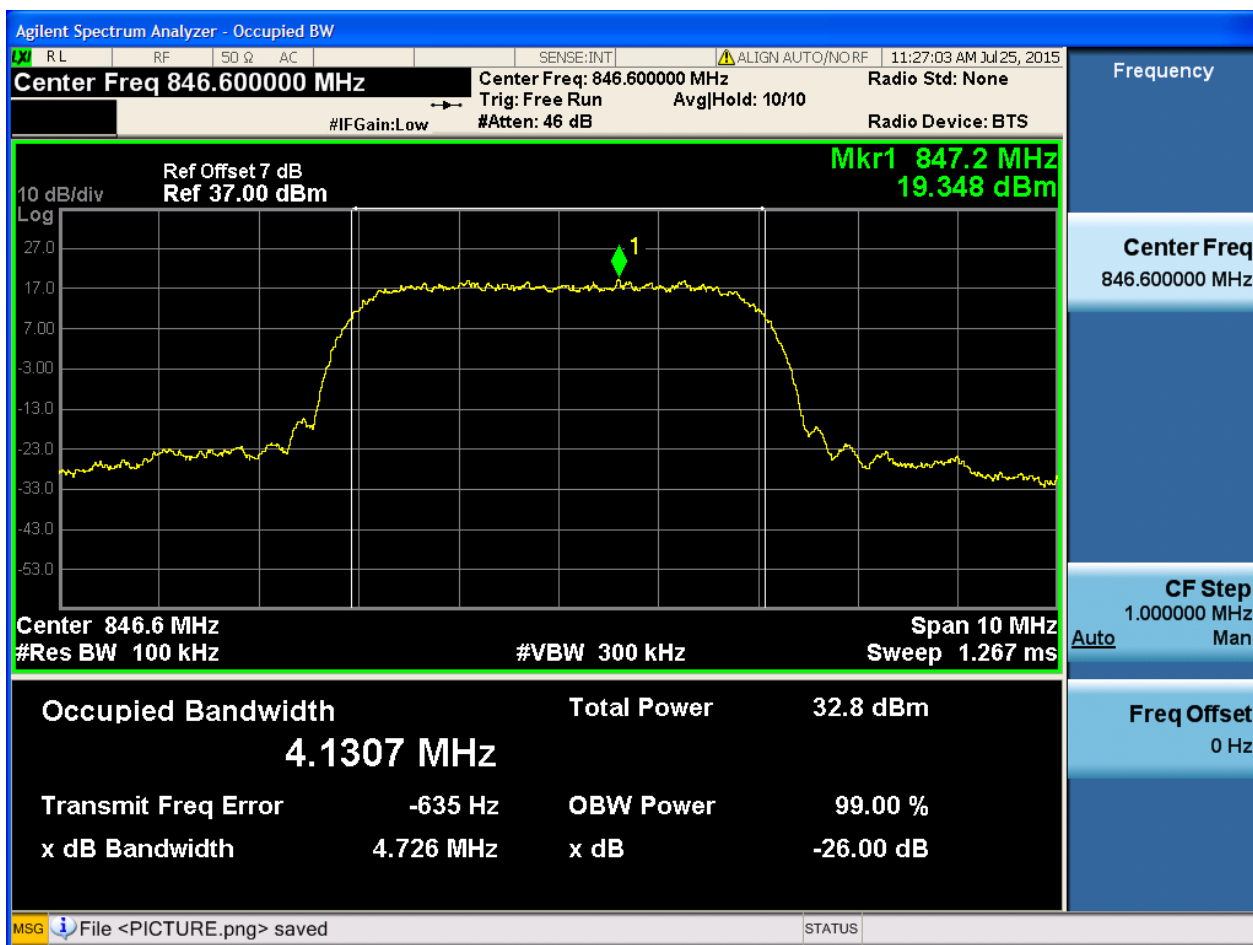


4.1.2.1.2 Test Channel = MCH





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 = WCDMA1900

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 = WCDMA850

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

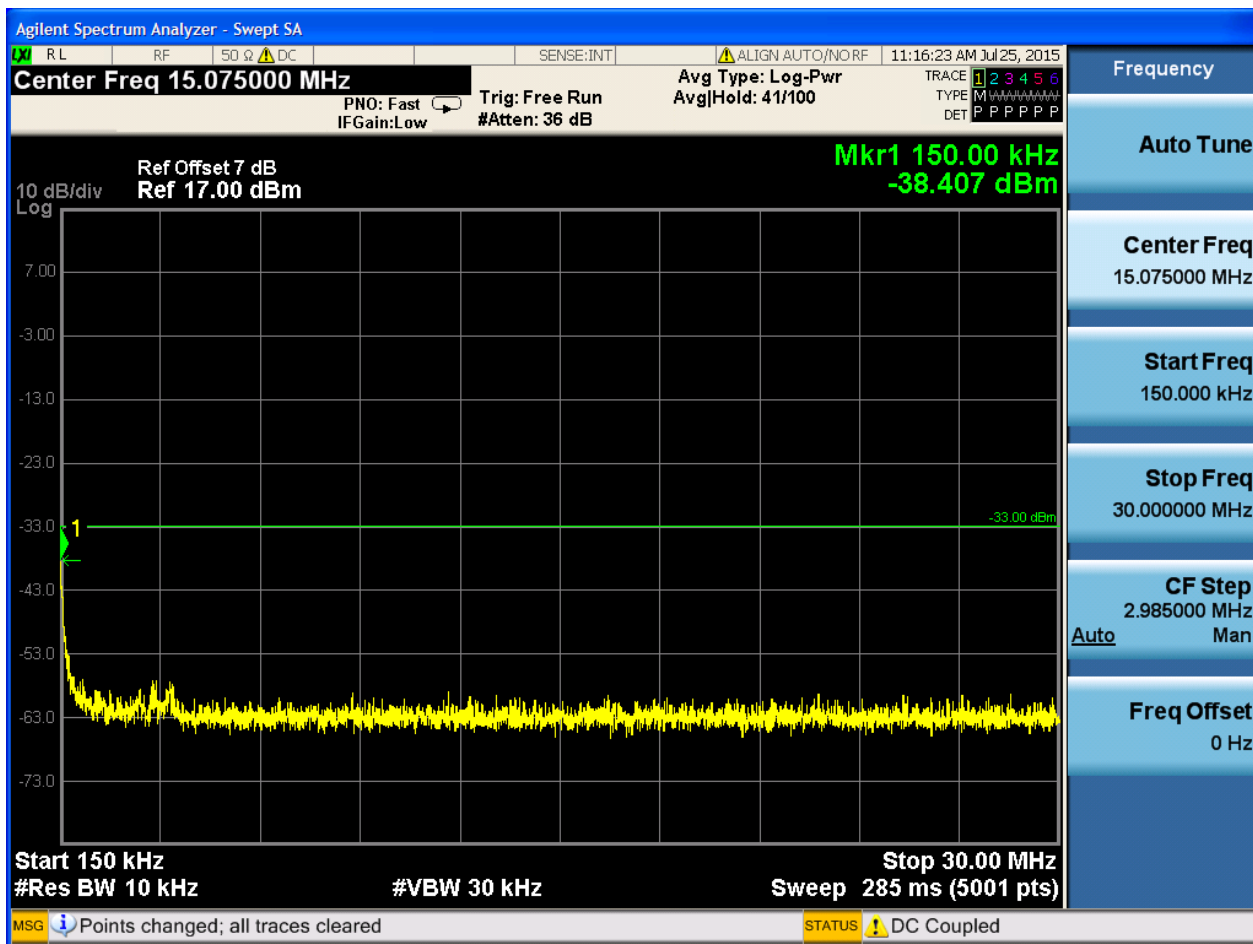
6.1 For UMTS

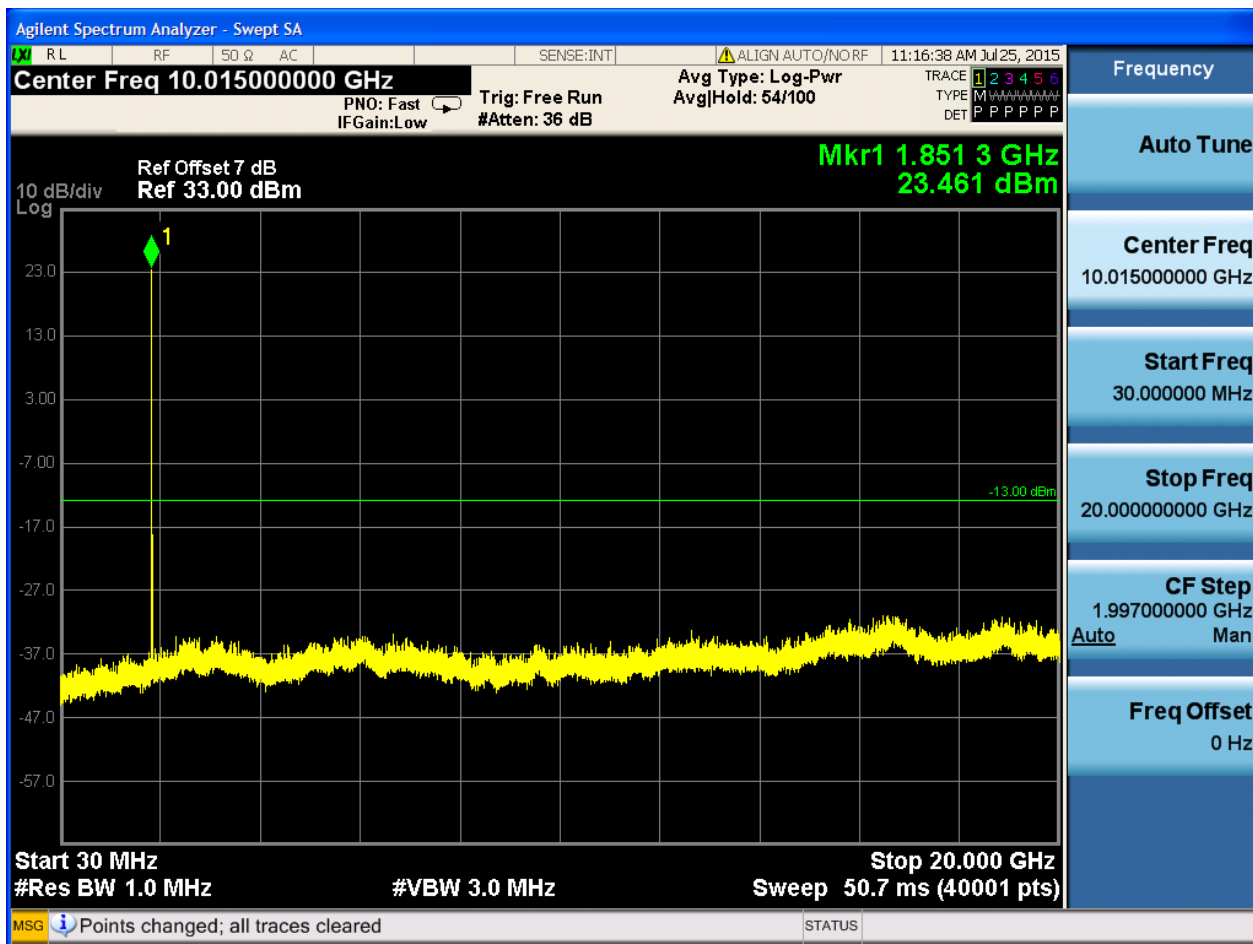
6.1.1 Test Band = WCDMA1900

6.1.1.1 Test Mode = UMTS/TM1

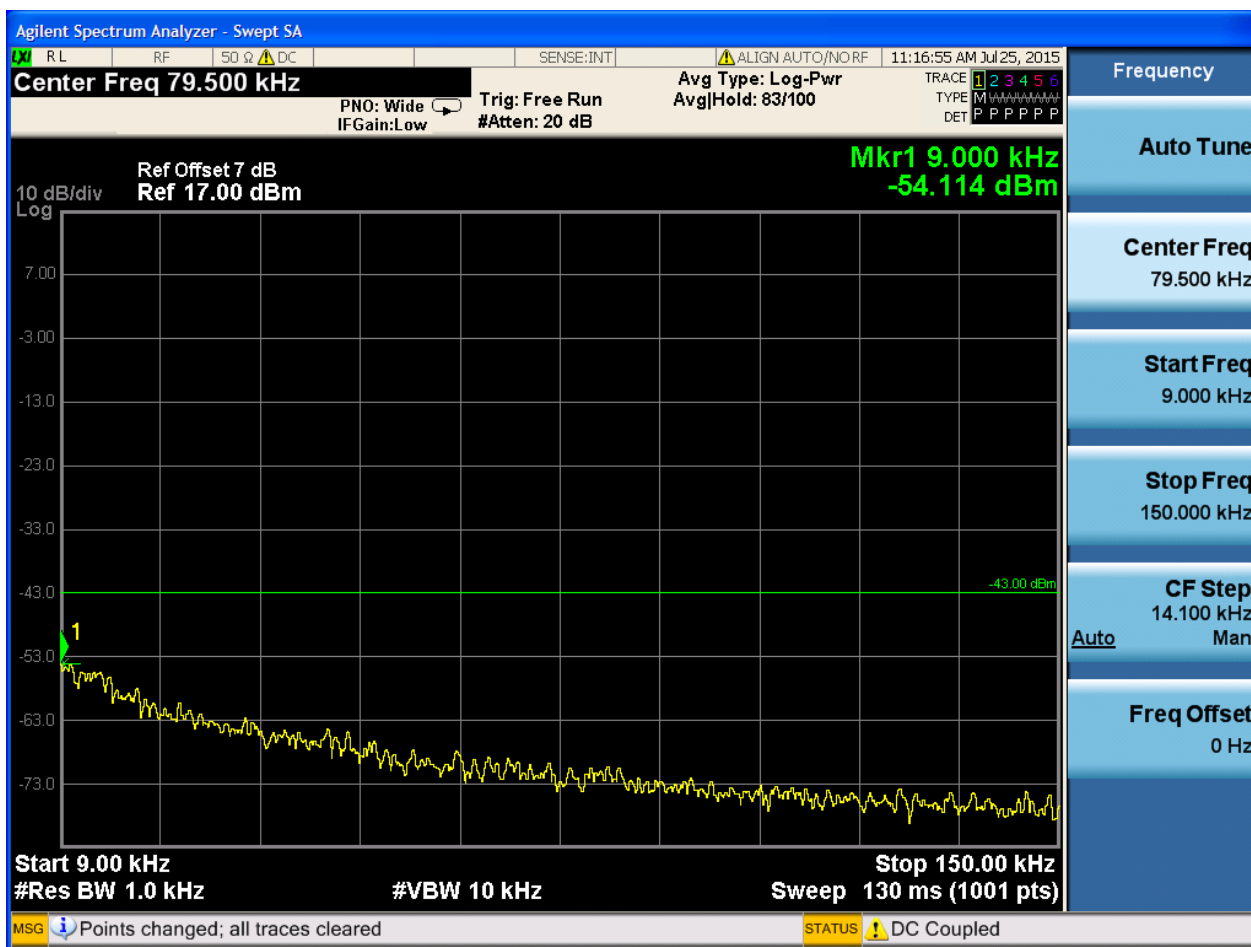
6.1.1.1.1 Test Channel = LCH

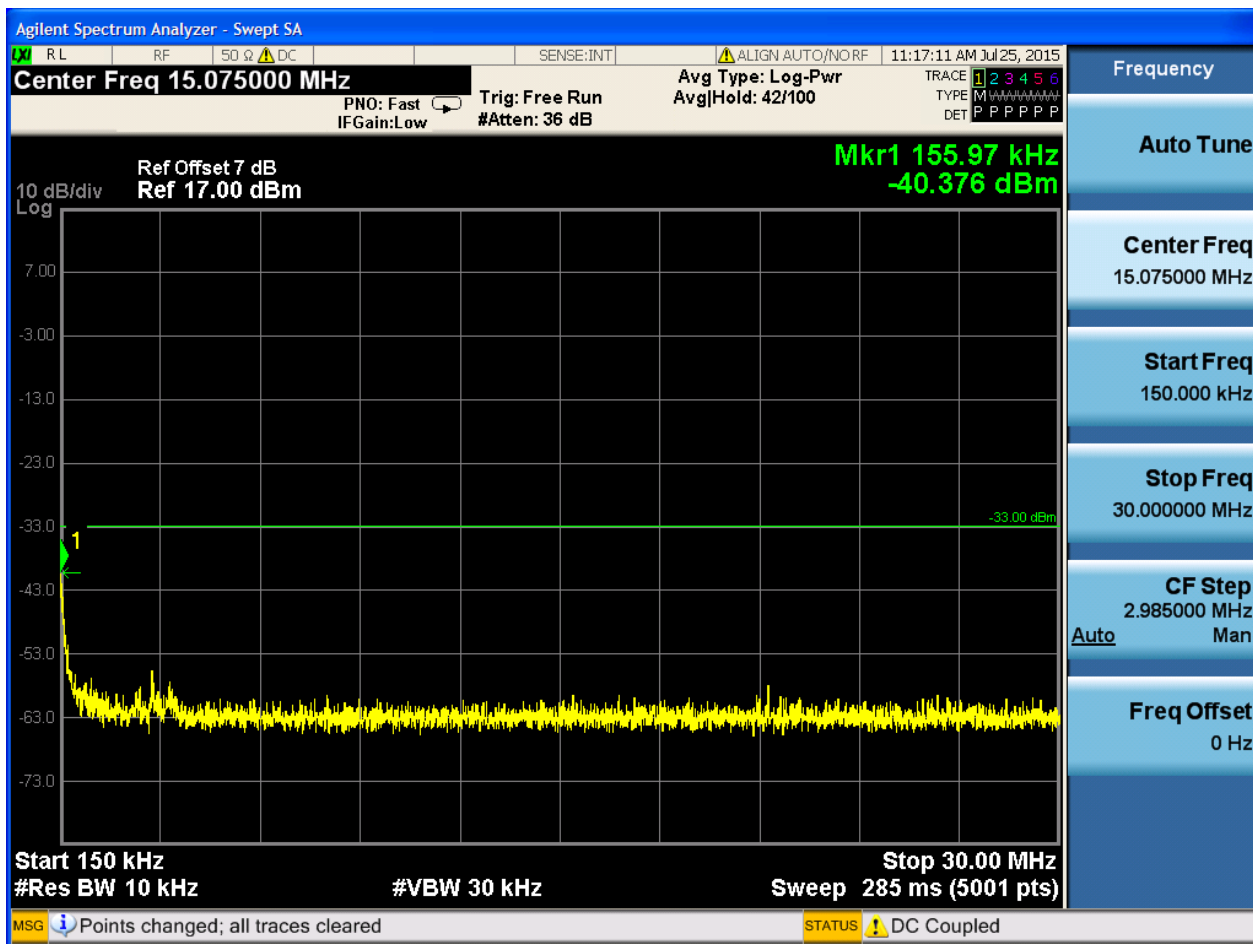


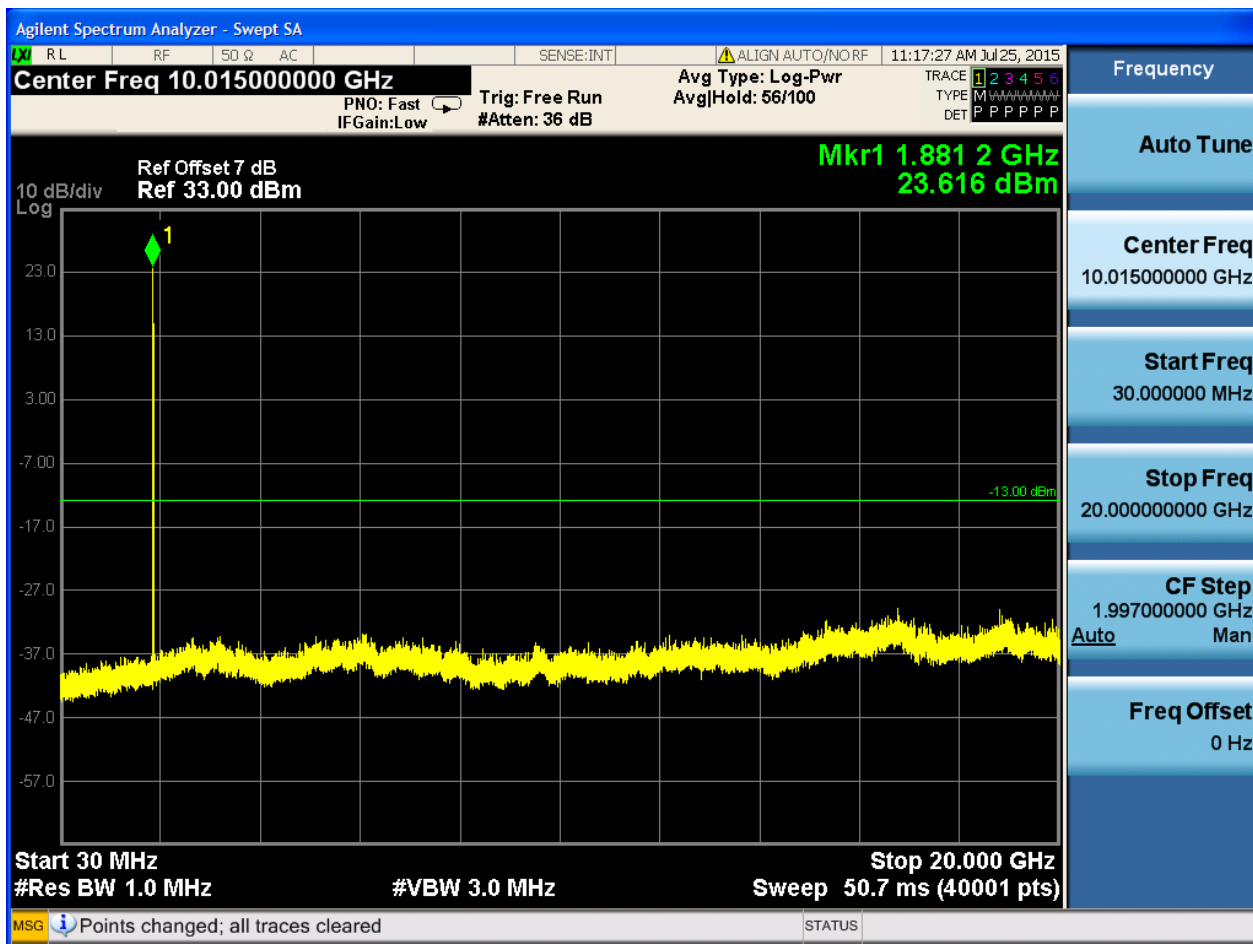




6.1.1.1.2 Test Channel = MCH









Agilent Spectrum Analyzer - Swept SA

Center Freq 79.500 kHz

Ref Offset 7 dB
Ref 17.00 dBm

Mkr1 11.256 kHz
-53.680 dBm

Start 9.00 kHz
#Res BW 1.0 kHz

Stop 150.00 kHz
Sweep 130 ms (1001 pts)

#VBW 10 kHz

Trig: Free Run
#Atten: 20 dB

PNO: Wide
IFGain: Low

Avg Type: Log-Pwr
Avg|Hold: 84/100

TRACE 1 2 3 4 5 6
TYPE M W W W W W W W
DET P P P P P P

Frequency

Auto Tune

Center Freq
79.500 kHz

Start Freq
9.000 kHz

Stop Freq
150.000 kHz

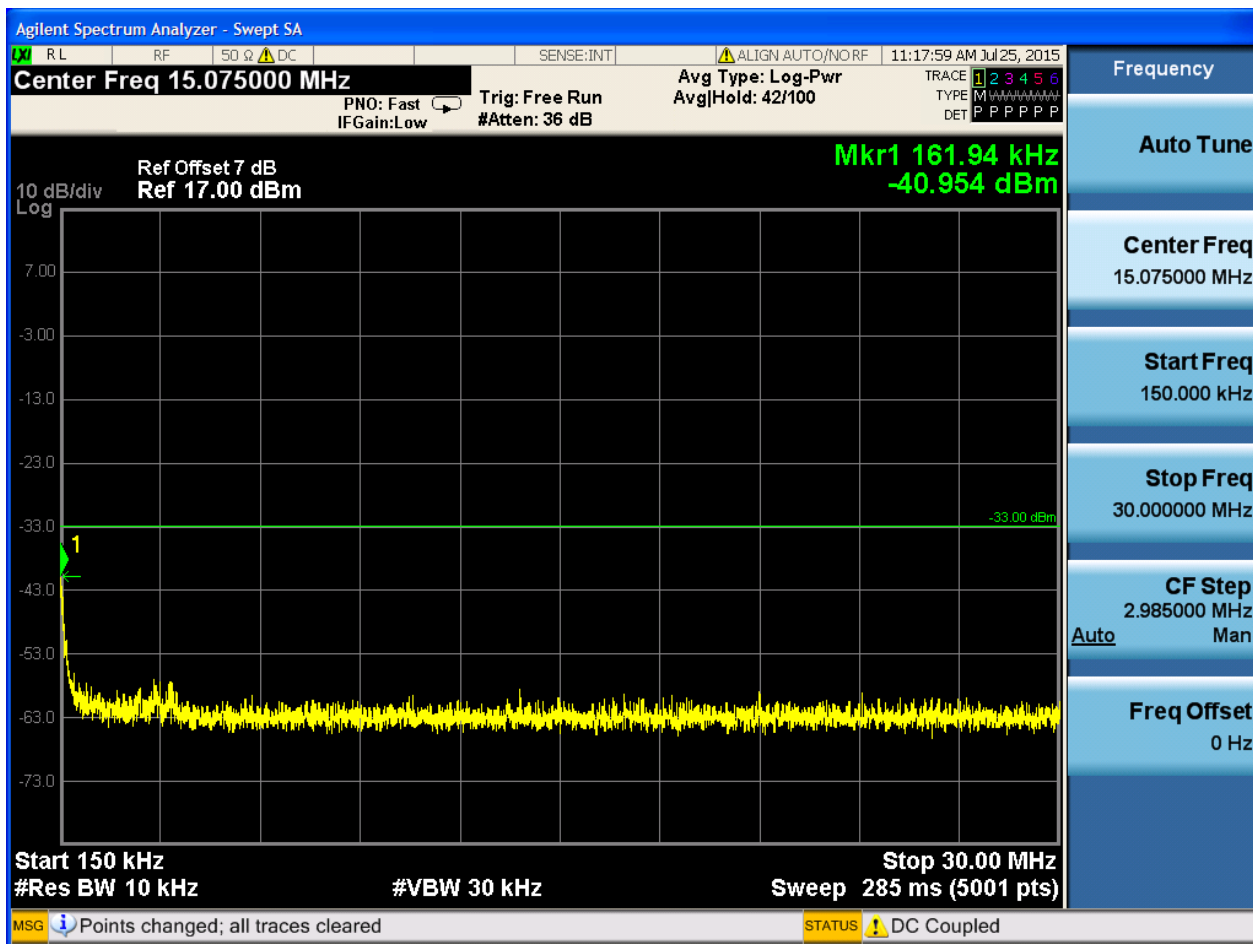
CF Step
14.100 kHz
Man

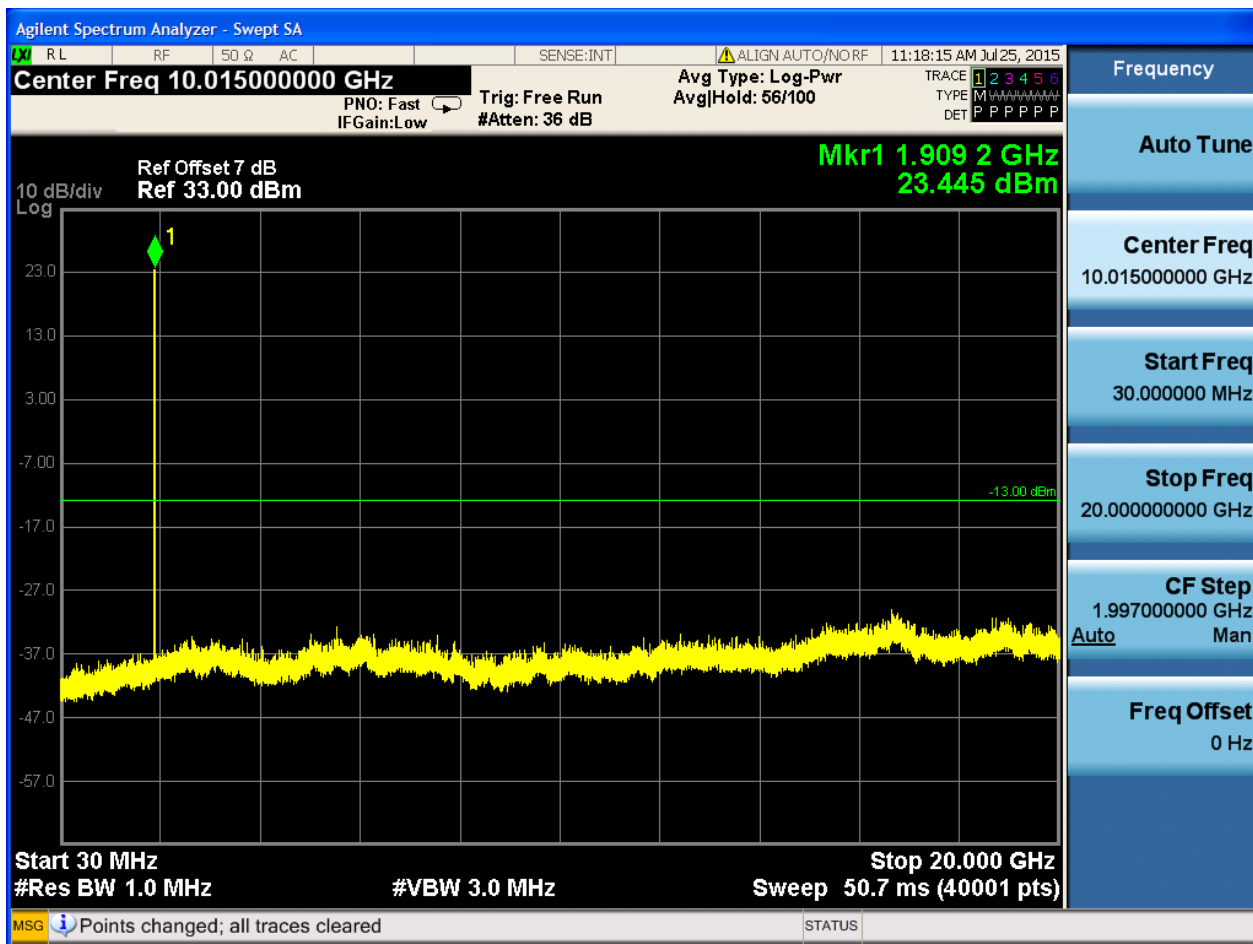
Auto

Freq Offset
0 Hz

MSG ⓘ Points changed; all traces cleared

STATUS ⚠ DC Coupled

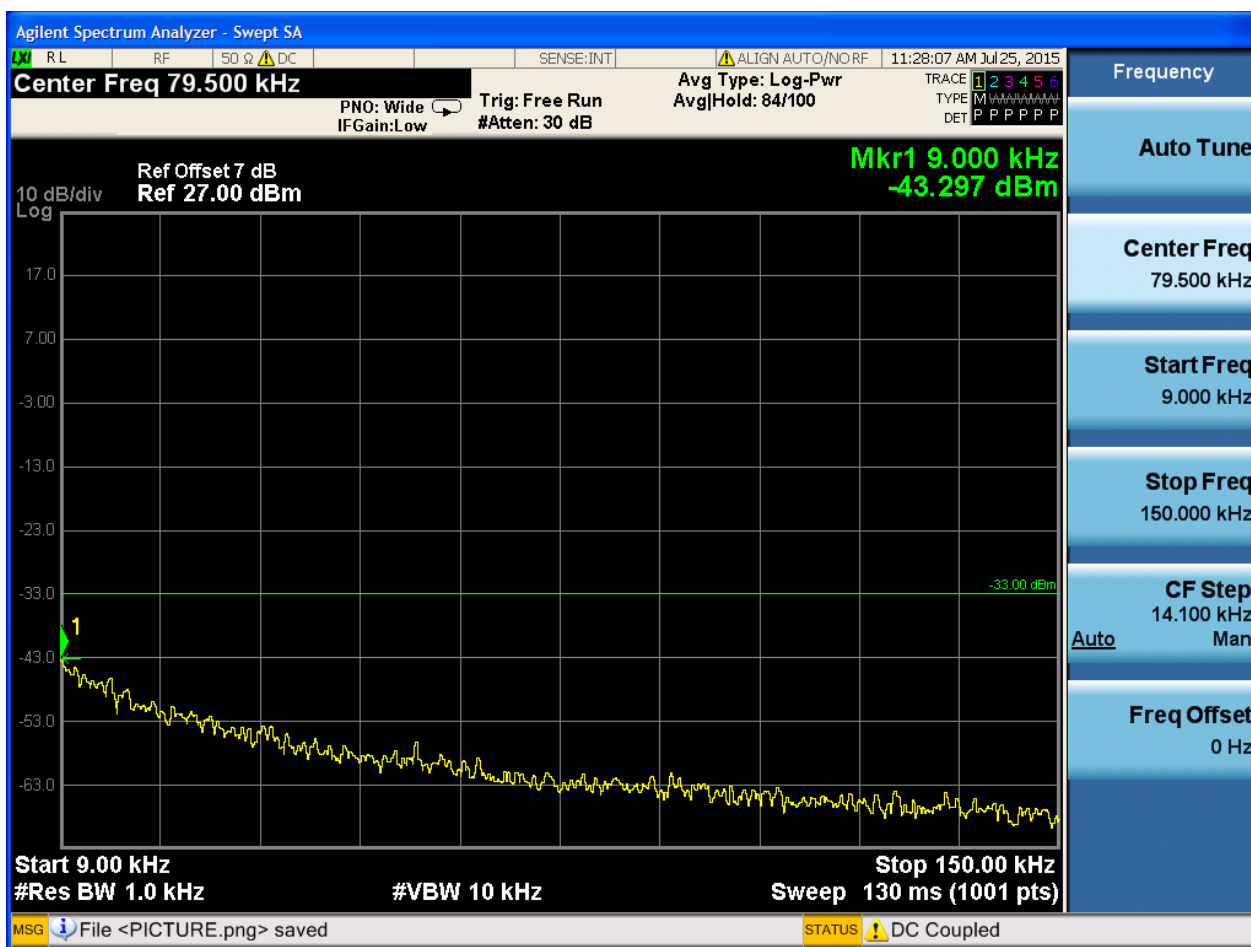


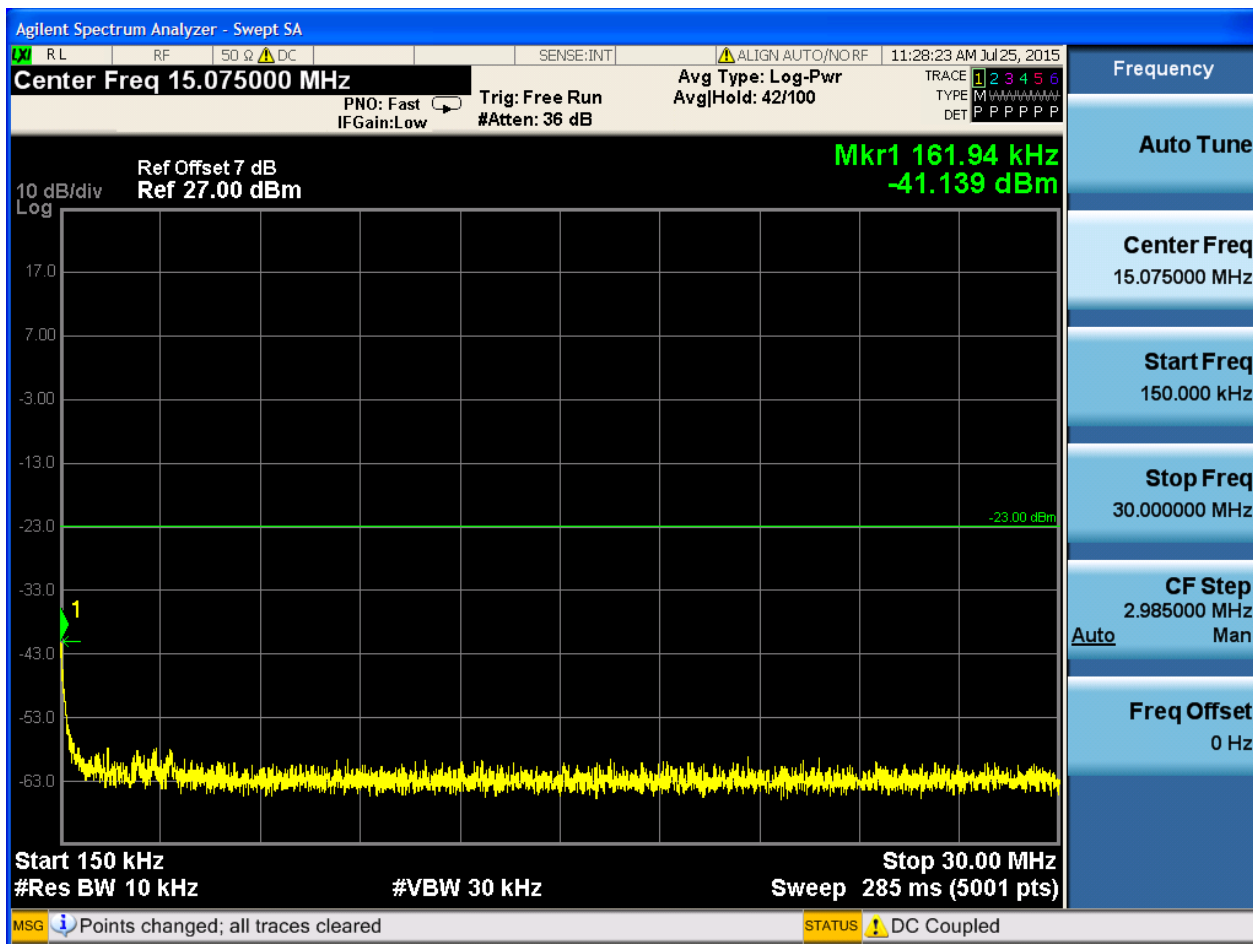


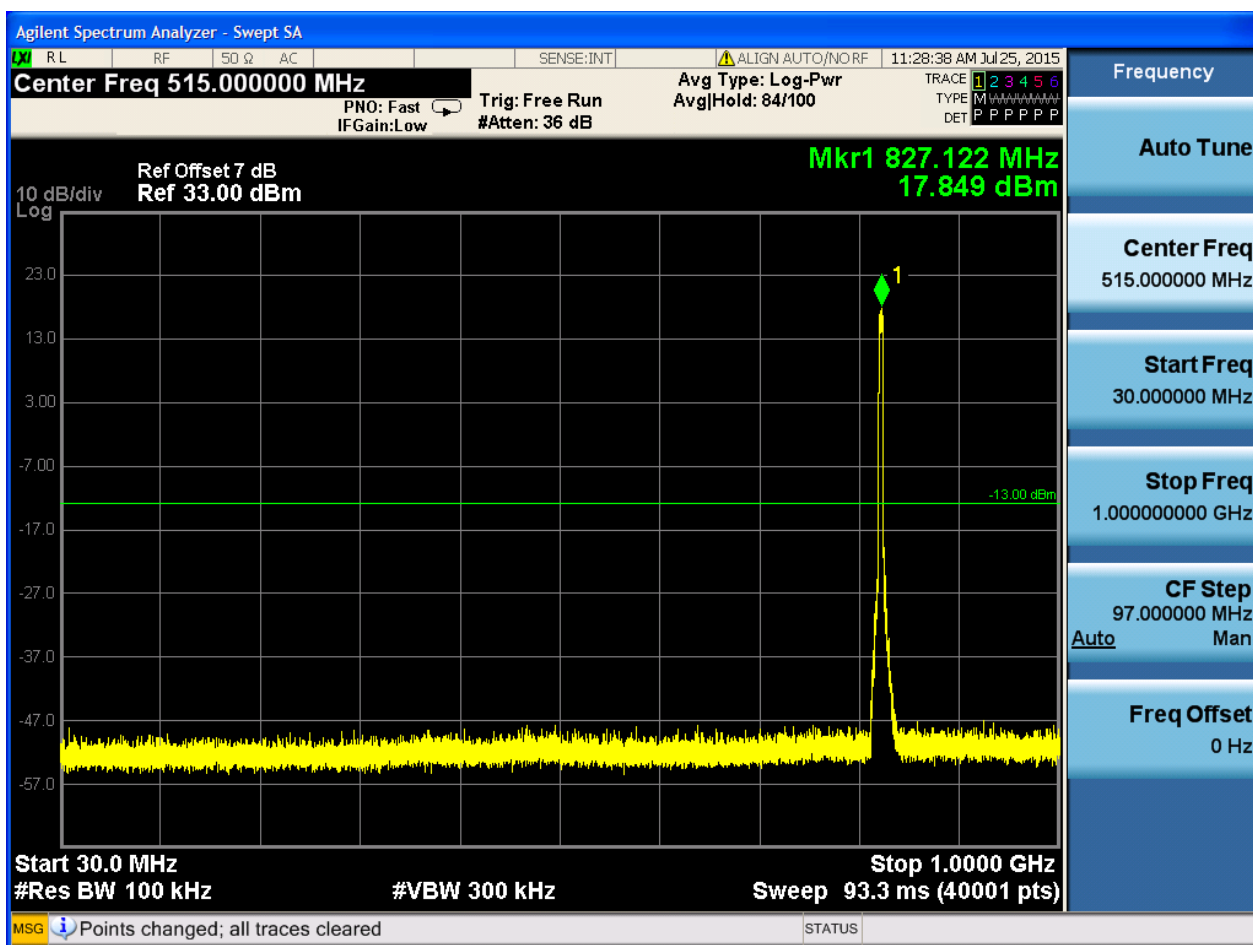
6.1.2 Test Band = WCDMA850

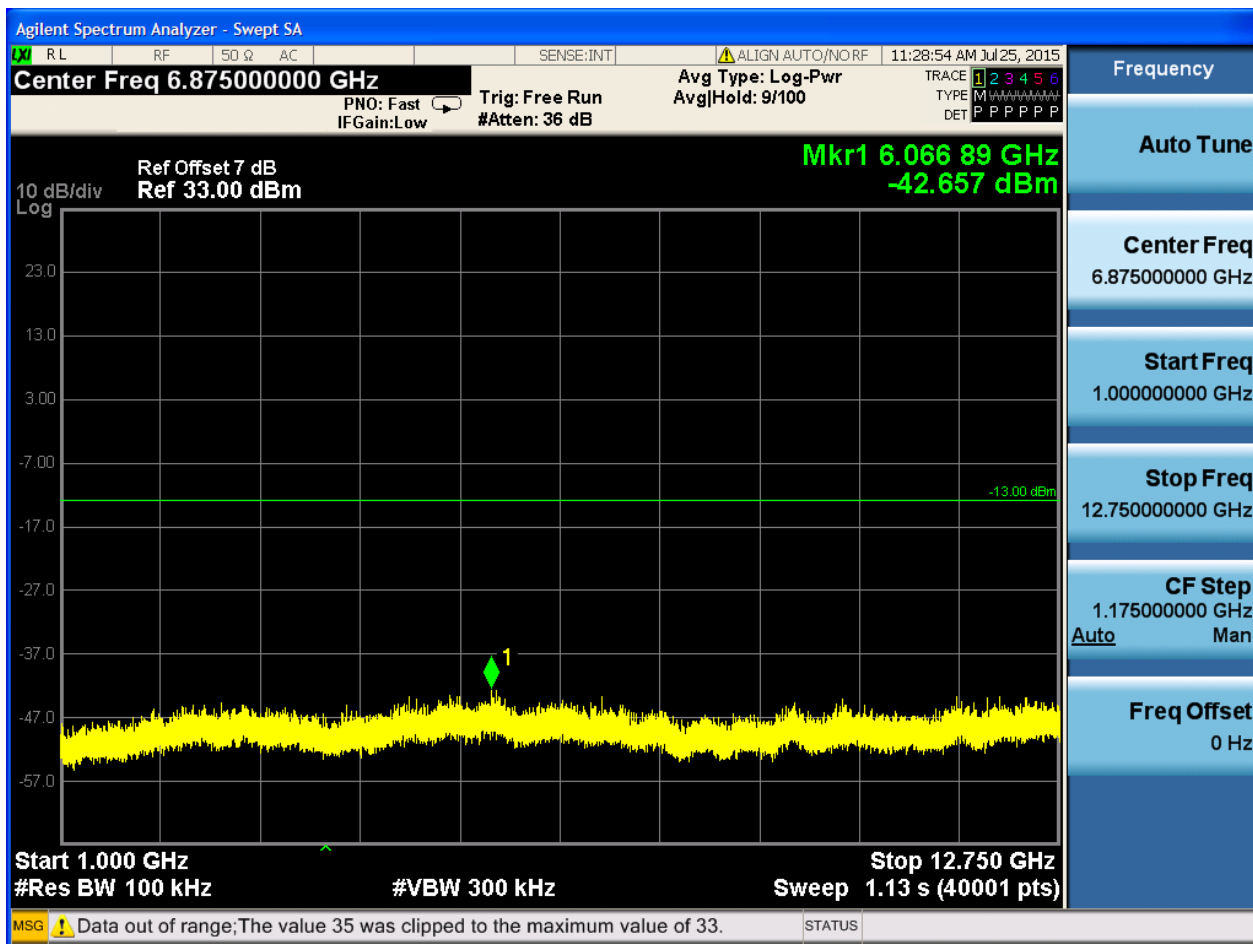
6.1.2.1 Test Mode = UMTS/TM1

6.1.2.1.1 Test Channel = LCH

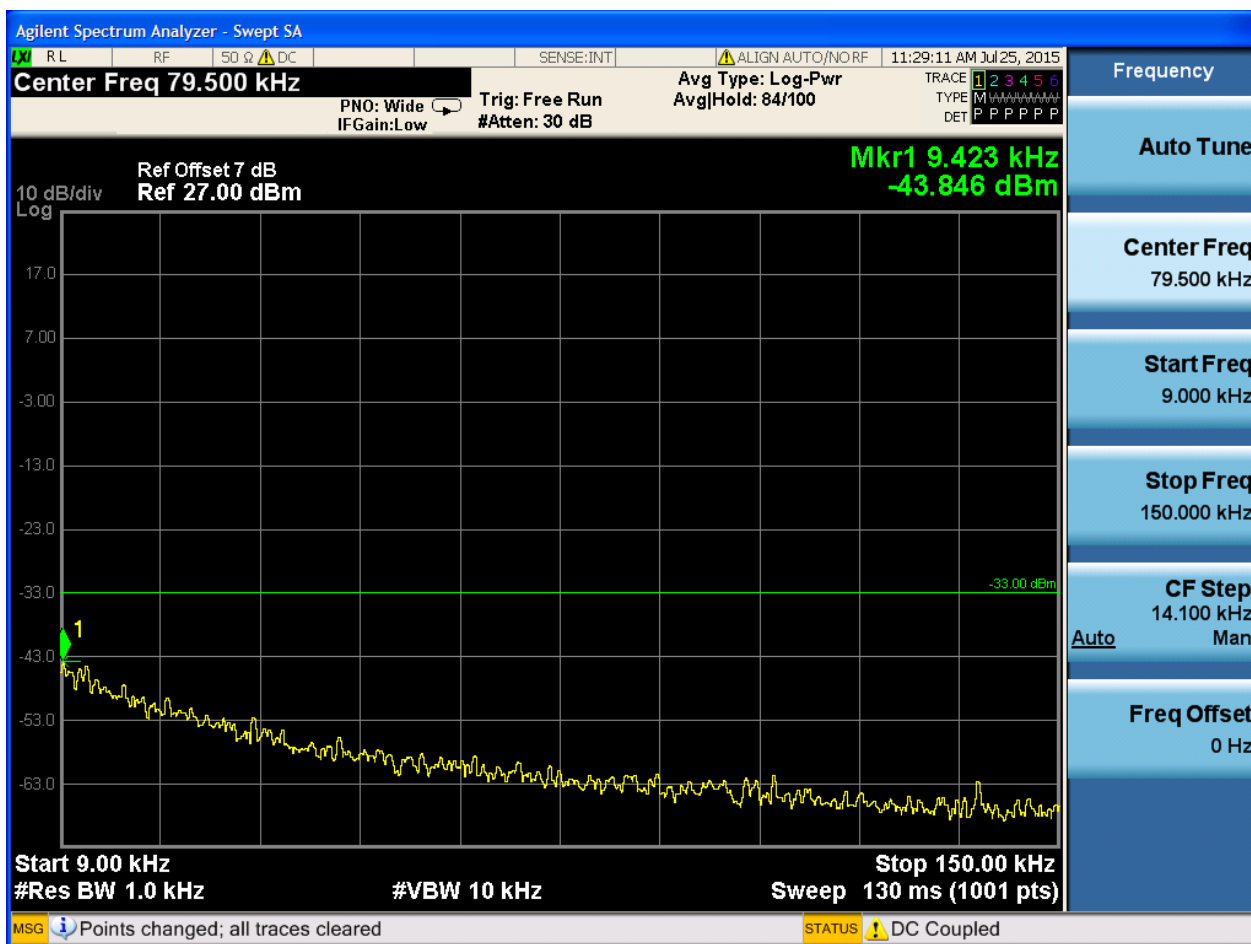


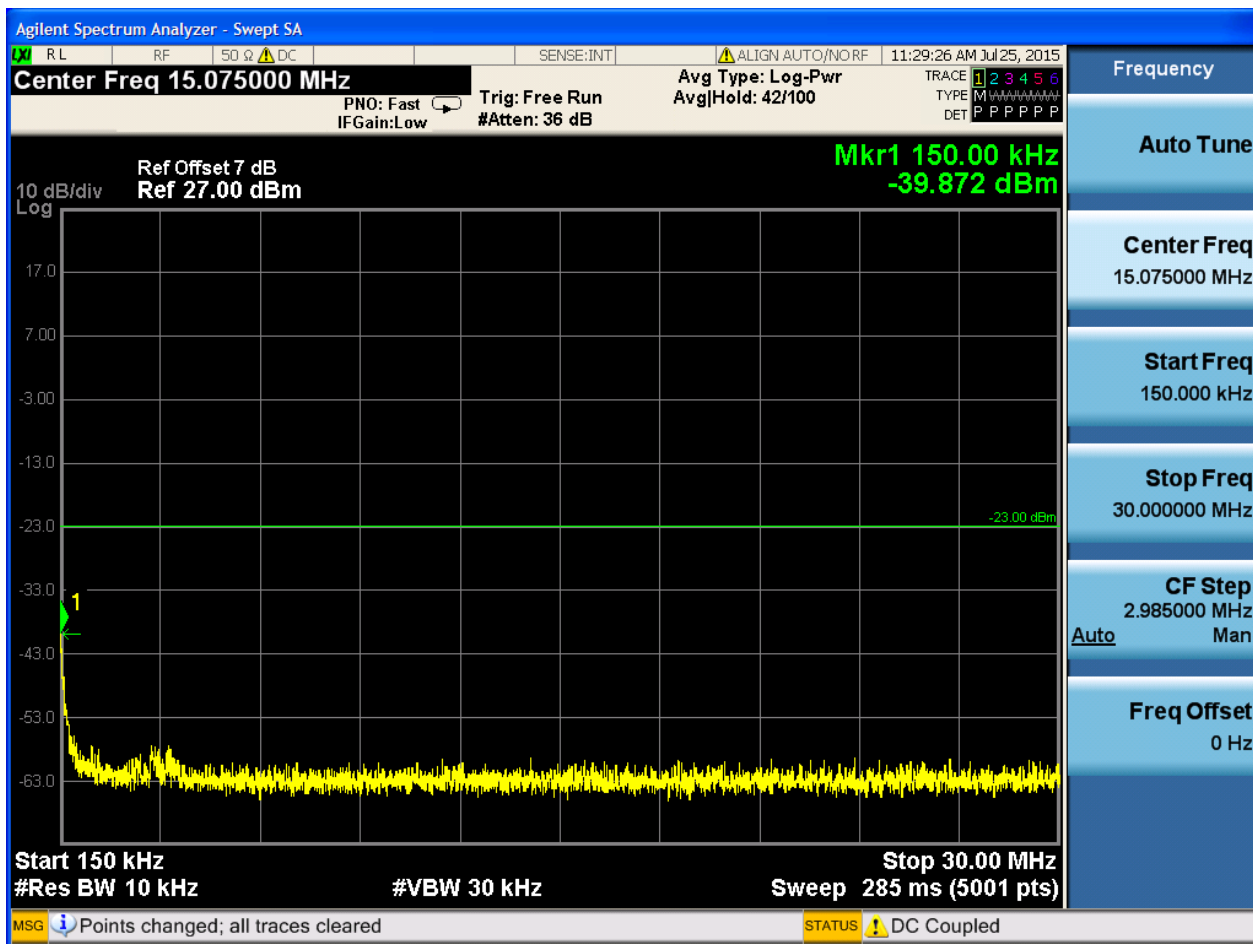


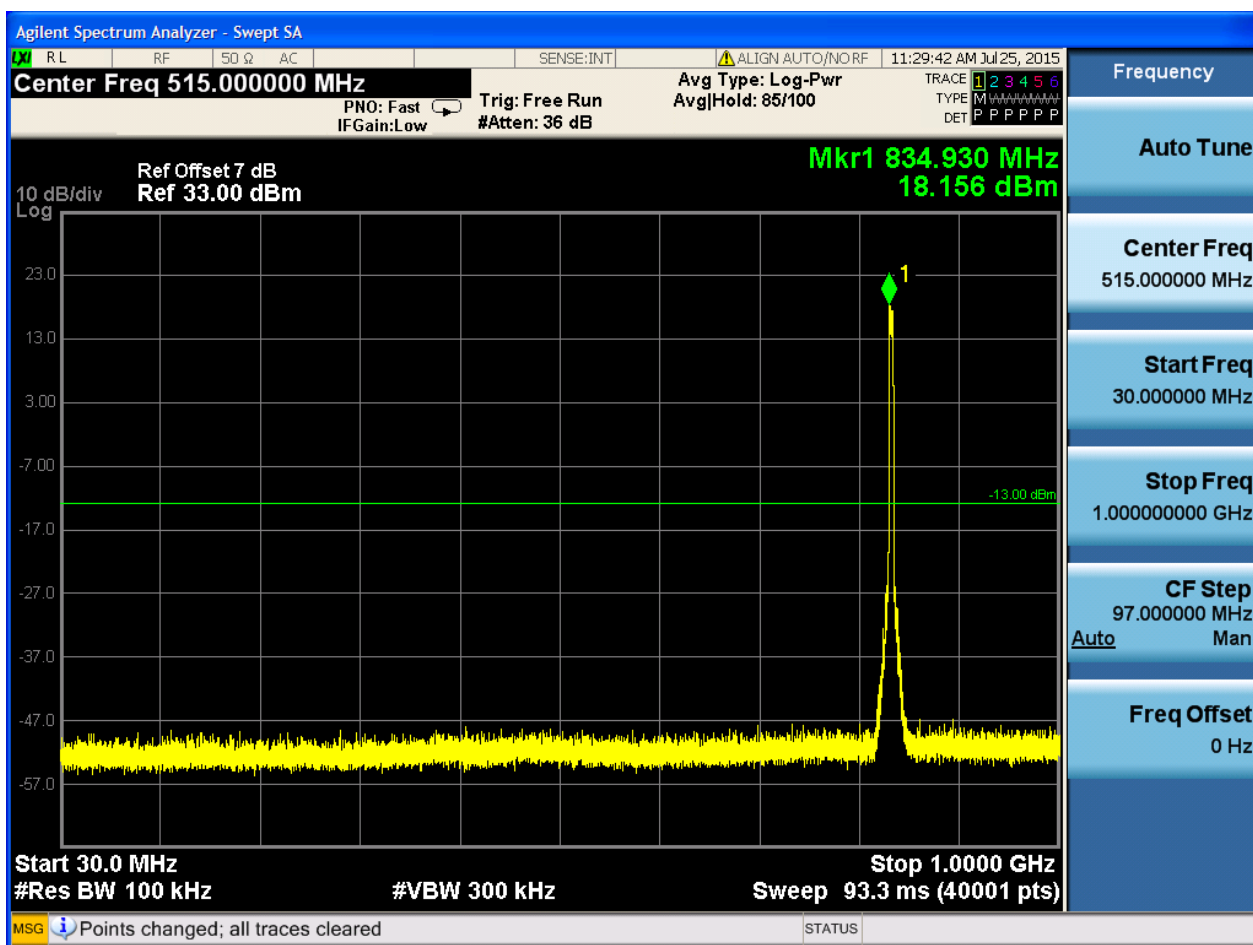


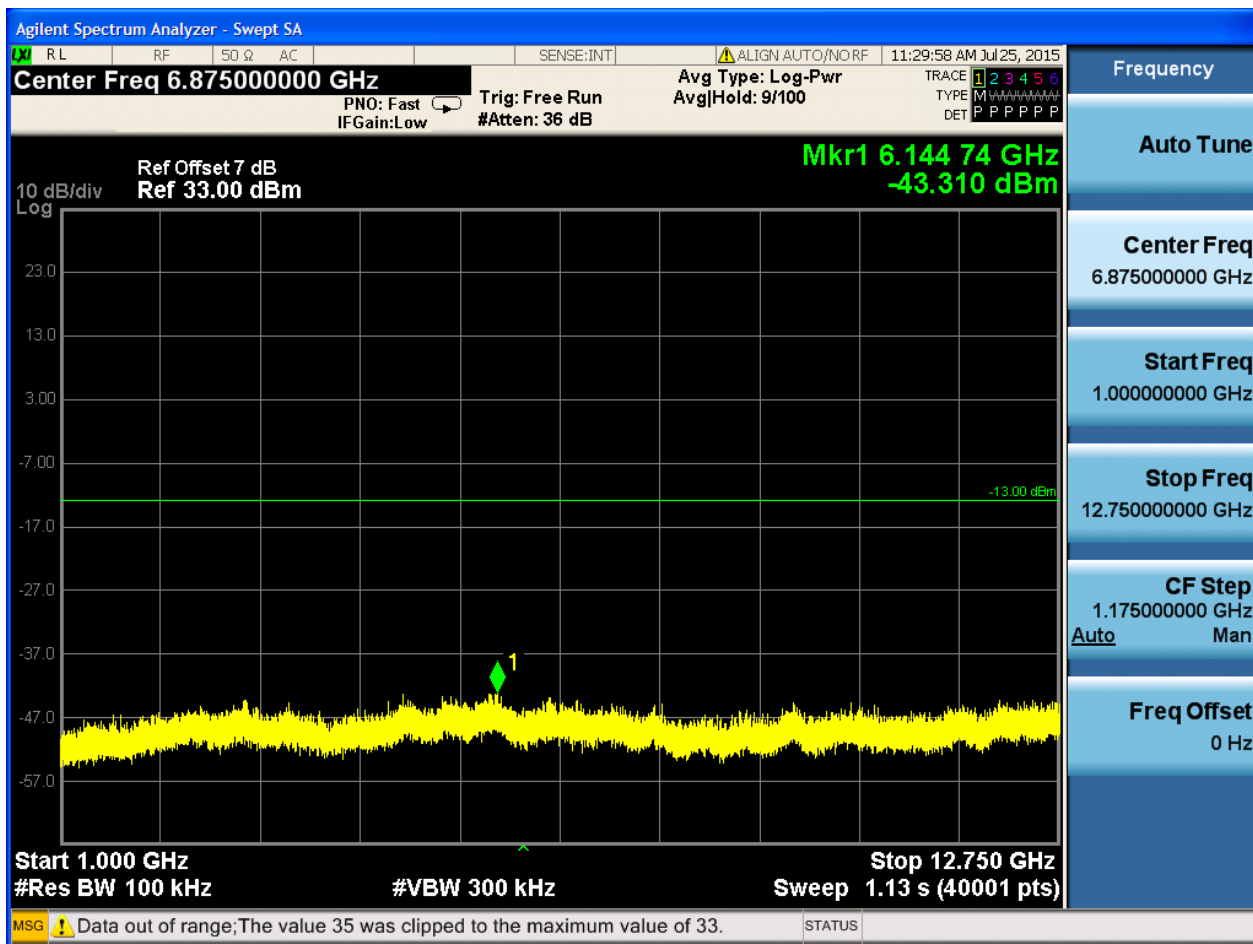


6.1.2.1.2 Test Channel = MCH

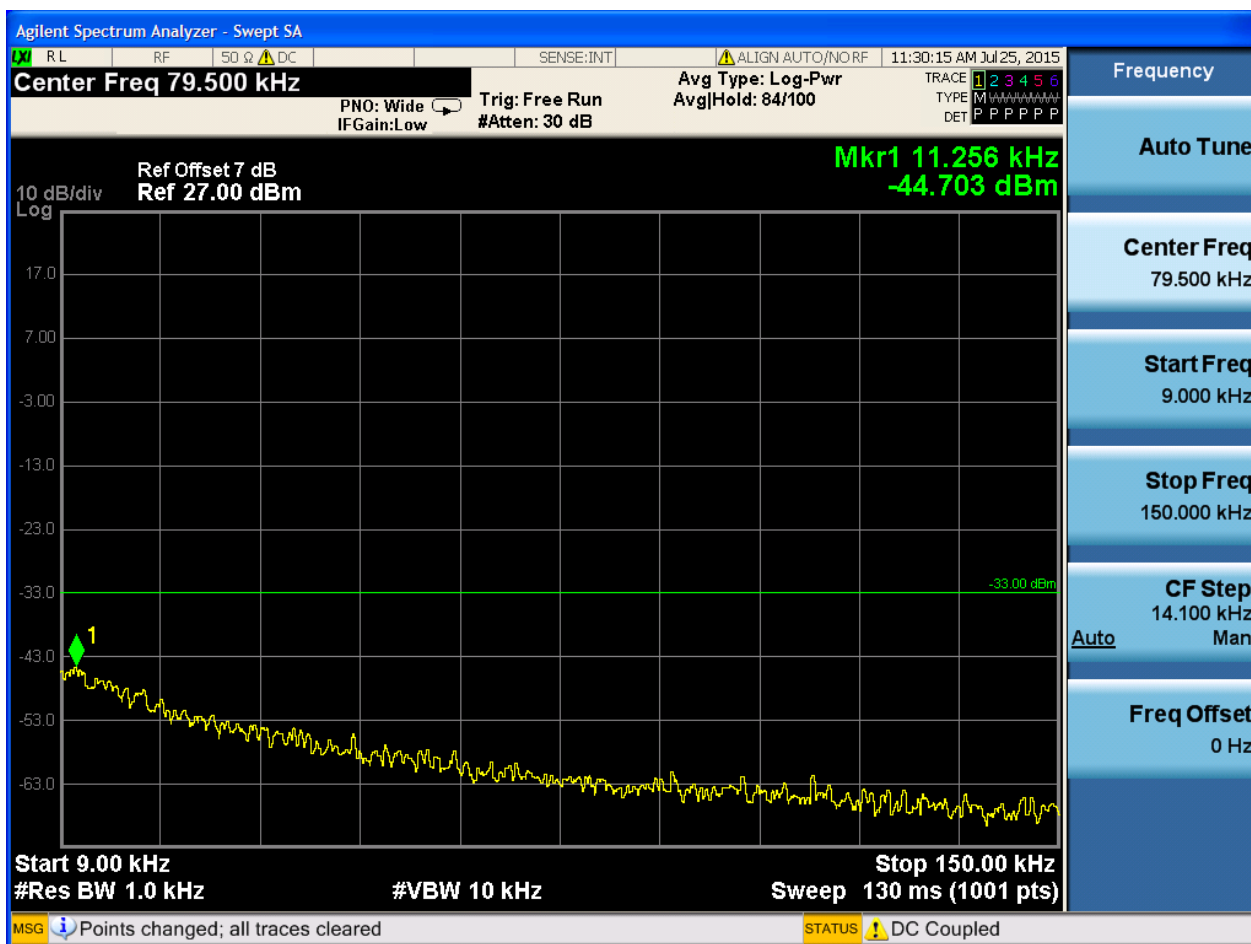


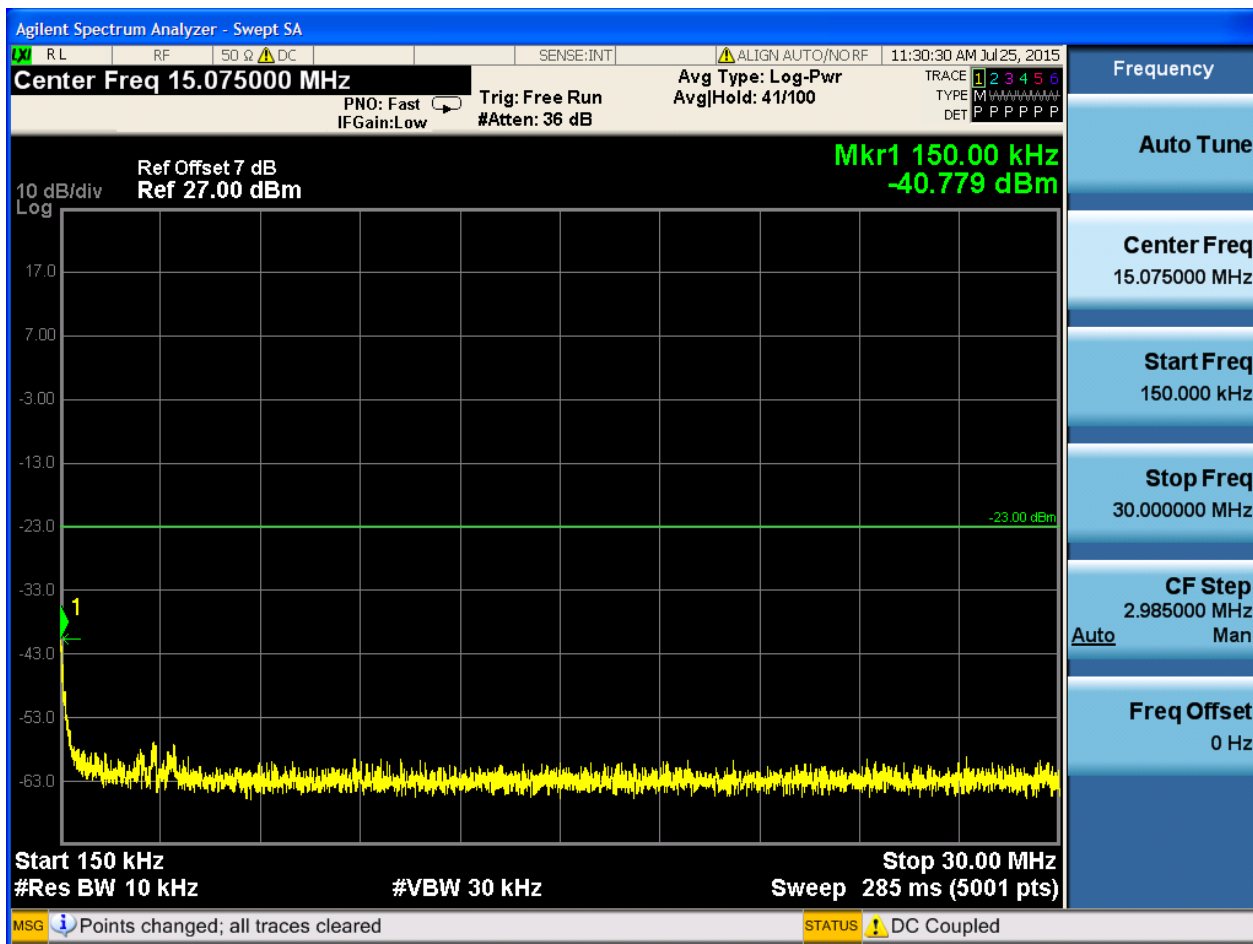


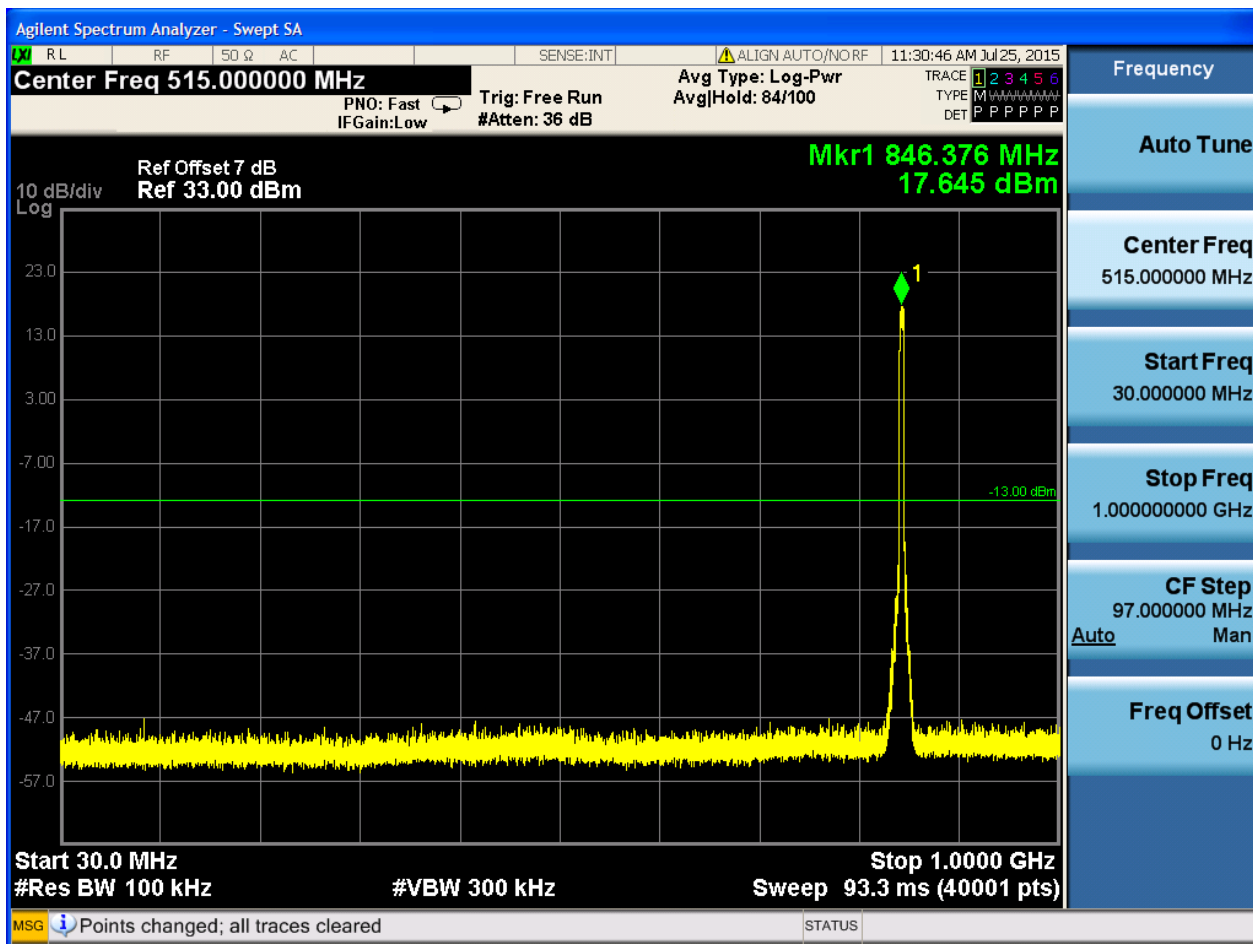


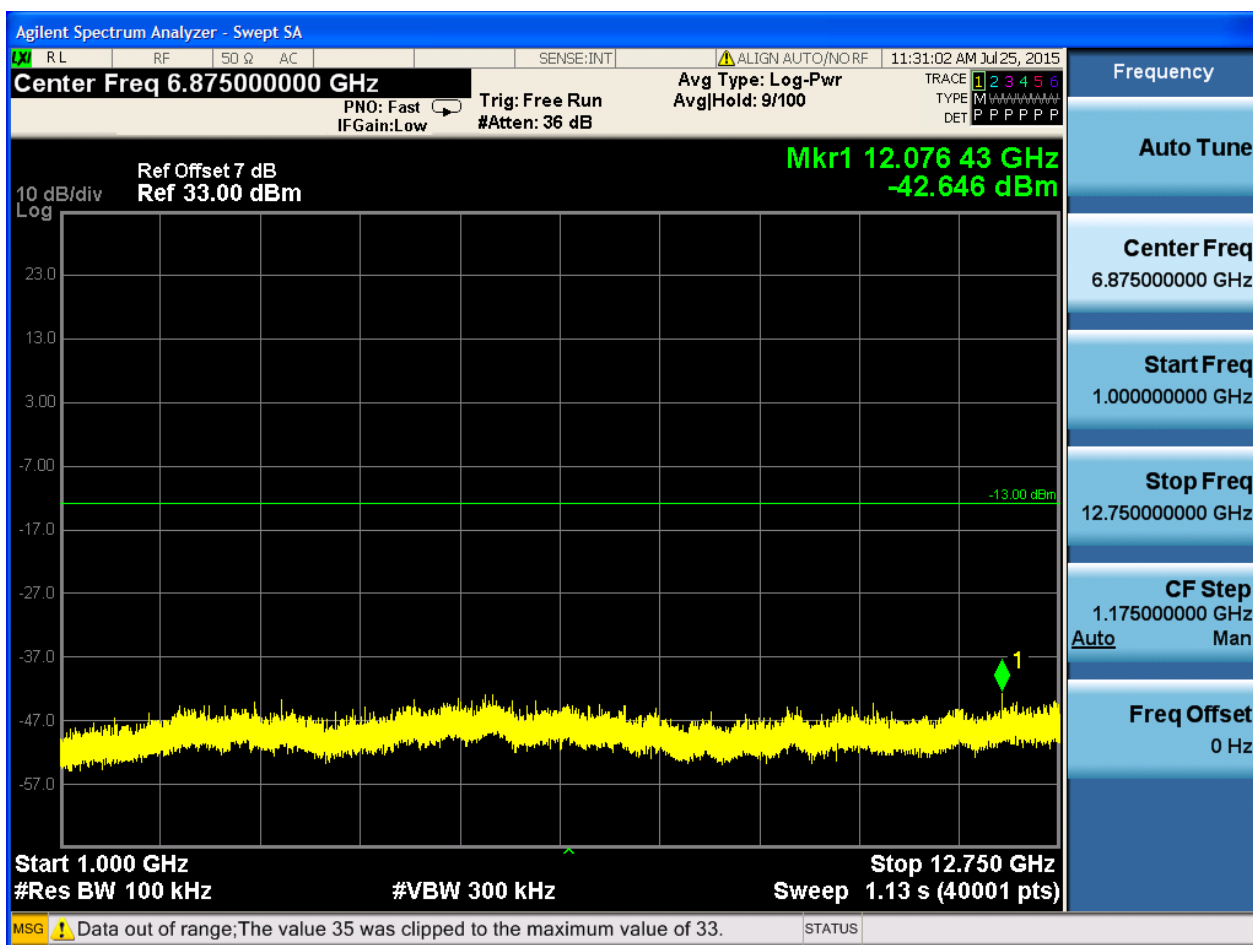


6.1.2.1.3 Test Channel = HCH









7Appendix_G: Field Strength of Spurious Radiation

Note:

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

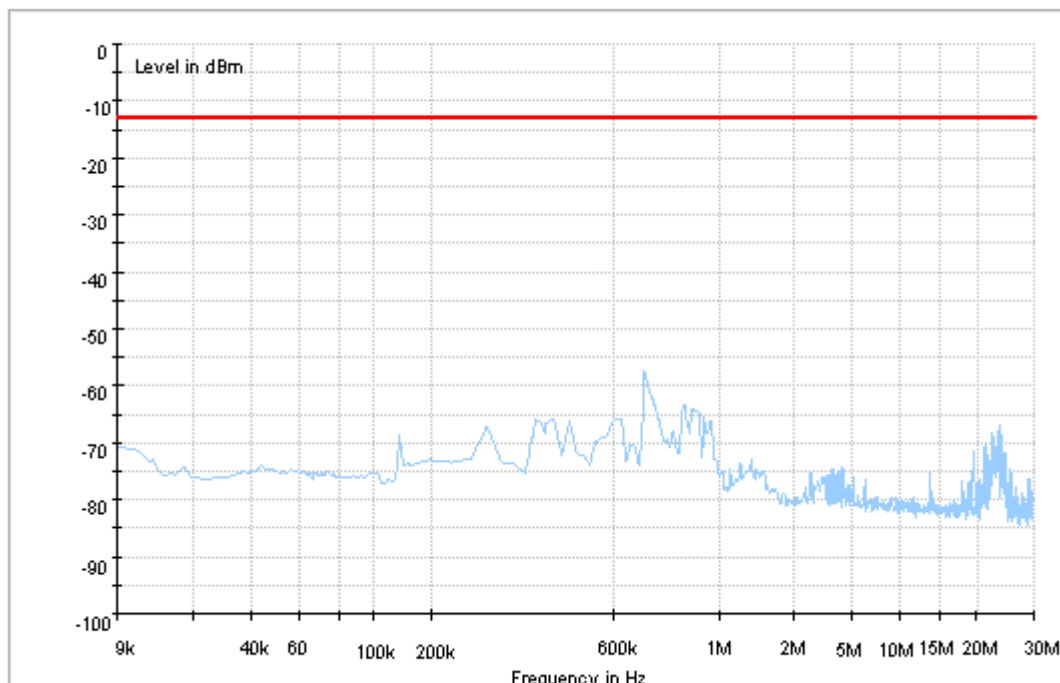
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

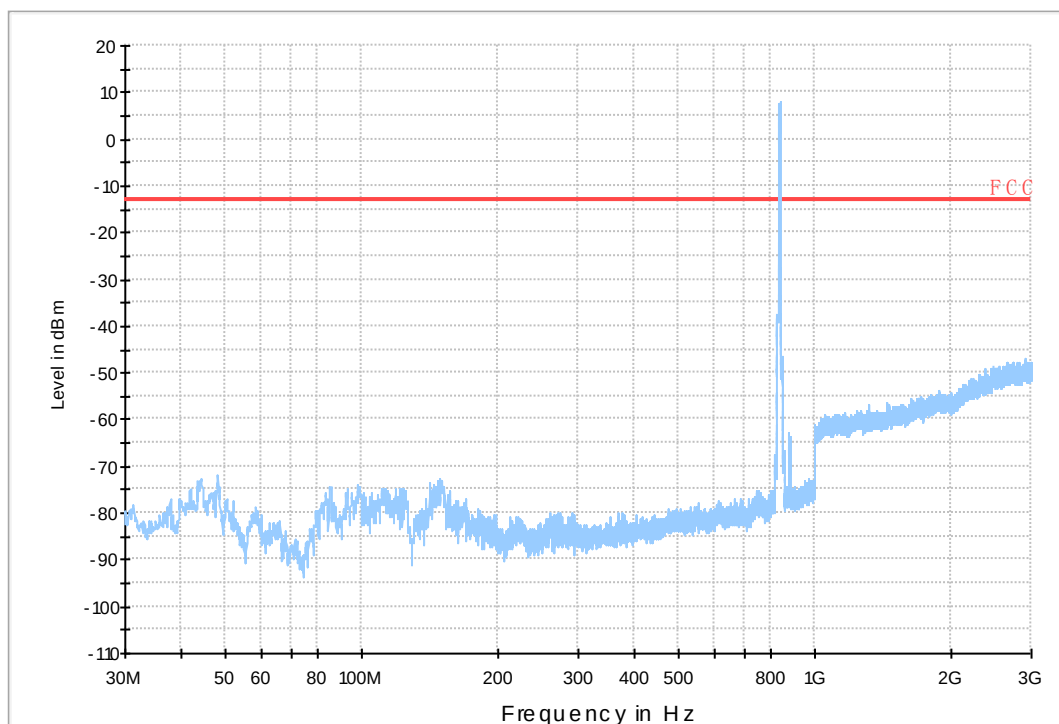
7.1 For UMTS

7.1.1 Test Band = WCDMA850

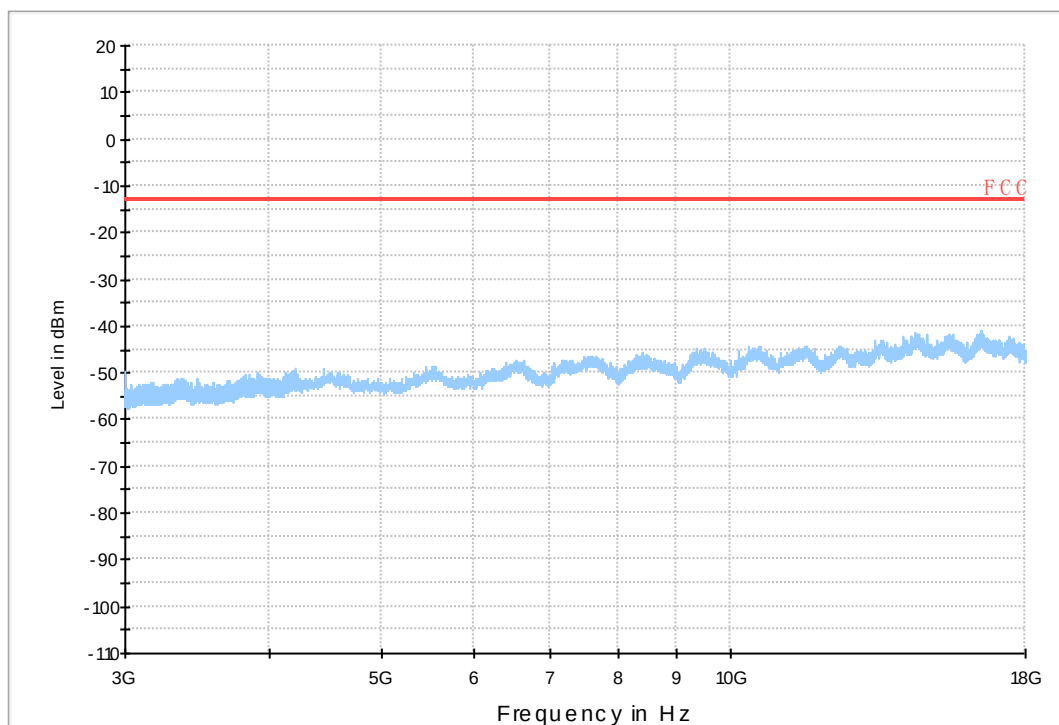
7.1.1.1 Test Mode = UMTS/TM1



Copy of FCC PART22 W CDMA850_L

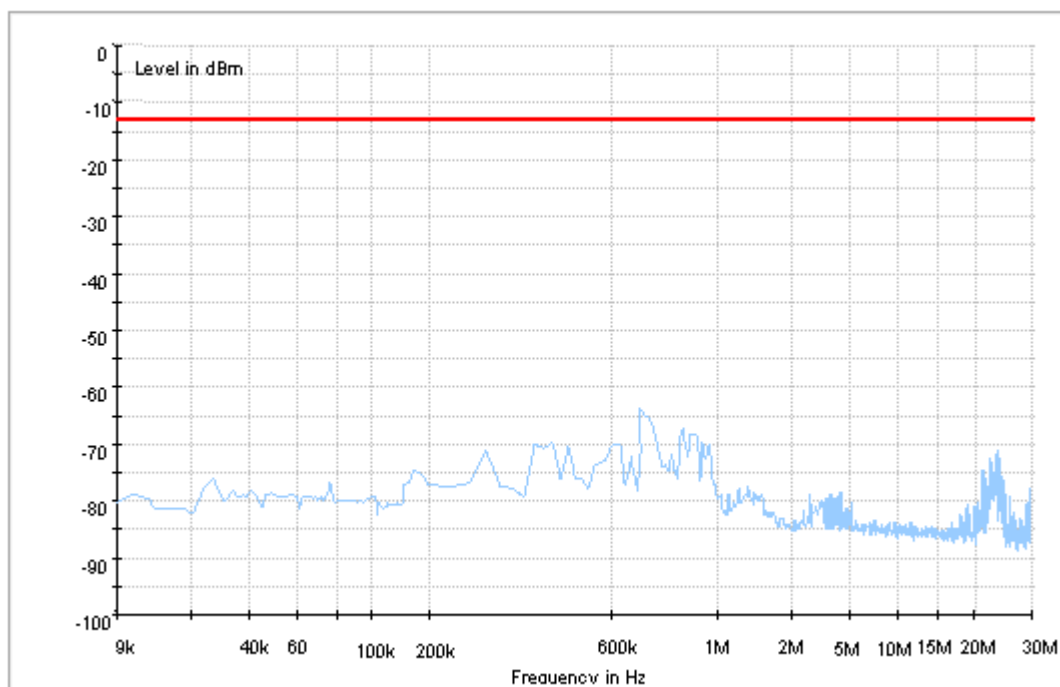


Copy of FCC PART22 W CDMA850_H

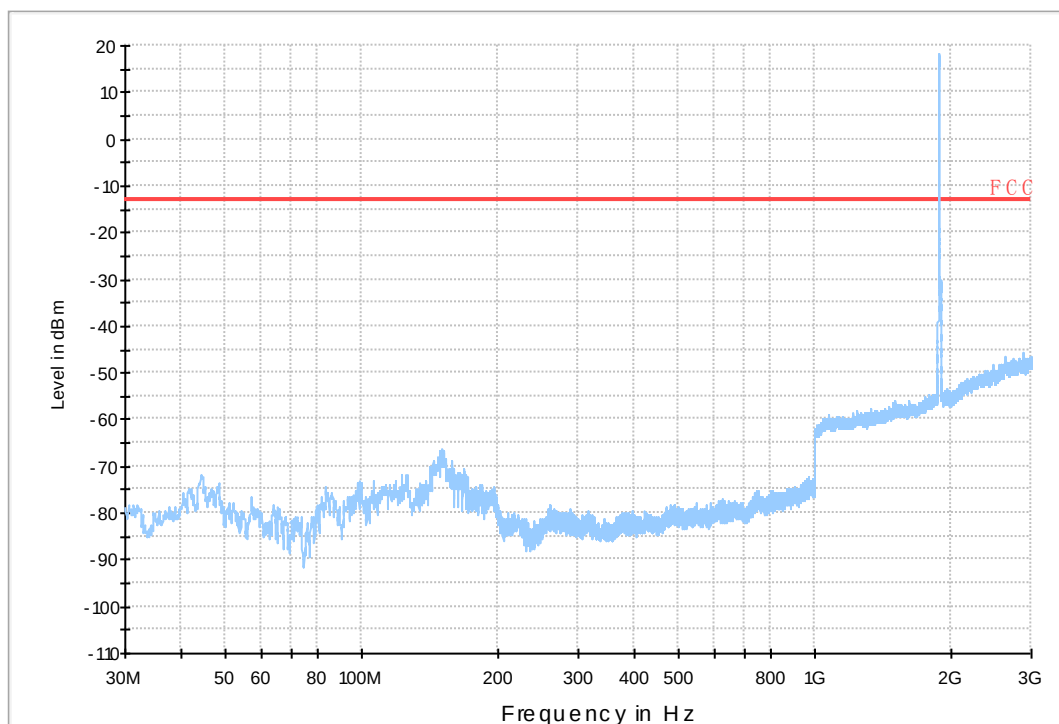


7.1.2 Test Band = WCDMA1900

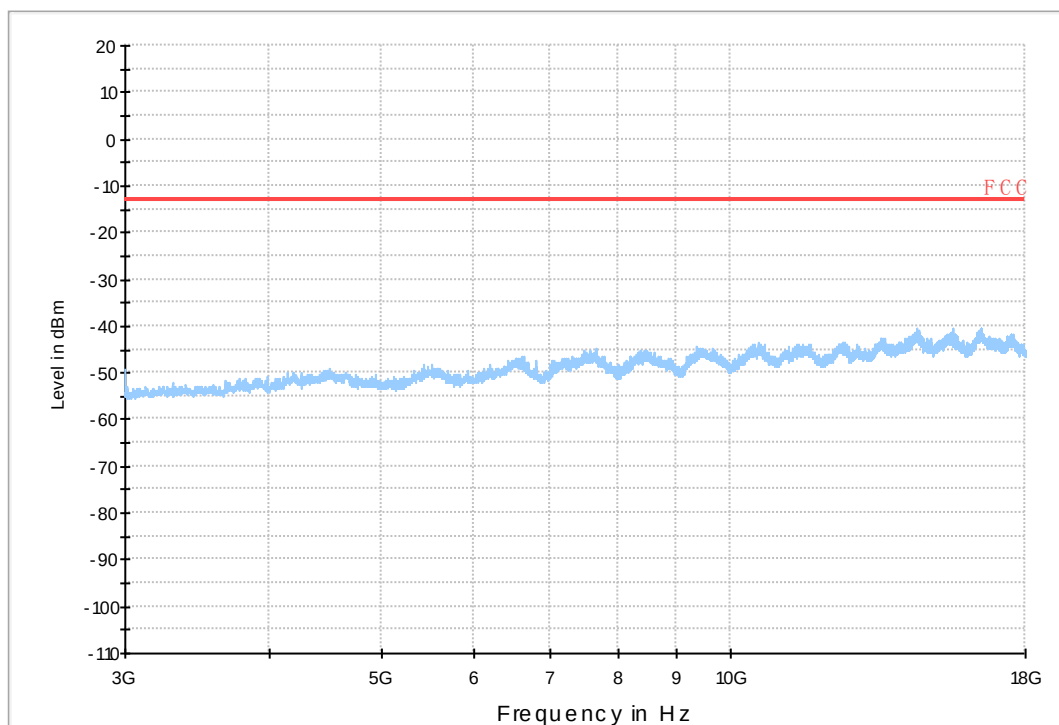
7.1.2.1 Test Mode = UMTS/TM1

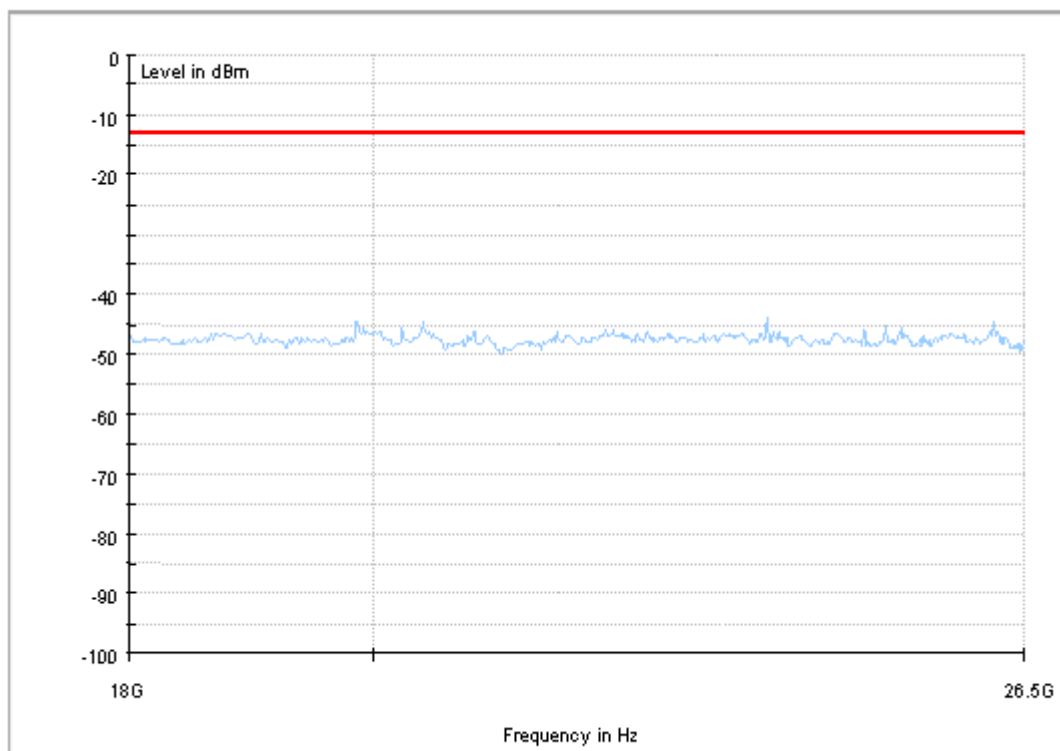


Copy of FCC PART24 W CDMA1900_L



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
WCDMA1900	UMTS/TM1	LCH	TN	VL	5.34	0.00288	PASS
				VN	3.51	0.00189	PASS
				VH	5.00	0.0027	PASS
		MCH	TN	VL	0.61	0.00032	PASS
				VN	2.55	0.00136	PASS
				VH	2.66	0.00141	PASS
		HCH	TN	VL	-2.96	-0.00155	PASS
				VN	-2.96	-0.00155	PASS
				VH	-8.18	-0.00429	PASS
WCDMA850	UMTS/TM1	LCH	TN	VL	-0.82	-0.00099	PASS
				VN	1.07	0.00129	PASS
				VH	1.02	0.00123	PASS
		MCH	TN	VL	-2.85	-0.00341	PASS
				VN	1.19	0.00142	PASS
				VH	-0.34	-0.00041	PASS
		HCH	TN	VL	-5.43	-0.00641	PASS
				VN	-2.58	-0.00305	PASS
				VH	-2.37	-0.0028	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
WCDMA1900	UMTS/TM1	LCH	VN	-30	4.18	0.00226	PASS
				-20	7.68	0.00415	PASS
				-10	3.68	0.00199	PASS
				0	3.48	0.00188	PASS
				10	8.62	0.00465	PASS
				20	7.75	0.00418	PASS
				30	7.97	0.0043	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				40	5.87	0.00317	PASS
				50	7.20	0.00389	PASS
		MCH	VN	-30	-1.17	-0.00062	PASS
				-20	1.46	0.00078	PASS
				-10	-0.44	-0.00023	PASS
				0	-1.42	-0.00076	PASS
				10	1.82	0.00097	PASS
				20	6.30	0.00335	PASS
				30	-0.81	-0.00043	PASS
				40	-0.76	-0.0004	PASS
				50	0.40	0.00021	PASS
		HCH	VN	-30	-5.89	-0.00309	PASS
				-20	-8.71	-0.00457	PASS
				-10	-2.32	-0.00122	PASS
				0	-8.44	-0.00442	PASS
				10	-5.87	-0.00308	PASS
				20	-4.43	-0.00232	PASS
				30	-4.39	-0.0023	PASS
				40	-3.68	-0.00193	PASS
				50	-5.49	-0.00288	PASS
WCDMA850	UMTS/TM1	LCH	VN	-30	5.43	0.00657	PASS
				-20	-0.47	-0.00057	PASS
				-10	2.43	0.00294	PASS
				0	4.65	0.00563	PASS
				10	2.56	0.0031	PASS
				20	1.68	0.00203	PASS
				30	4.88	0.00591	PASS
				40	-0.32	-0.00039	PASS
				50	4.46	0.0054	PASS
		MCH	VN	-30	-1.27	-0.00152	PASS
				-20	1.42	0.0017	PASS
				-10	-1.83	-0.00219	PASS
				0	1.31	0.00157	PASS
				10	0.43	0.00051	PASS
				20	-4.17	-0.00499	PASS
				30	-0.35	-0.00042	PASS
				40	1.56	0.00187	PASS
				50	-1.51	-0.00181	PASS
		HCH	VN	-30	-3.94	-0.00465	PASS
				-20	-1.65	-0.00195	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-10	-7.23	-0.00854	PASS
				0	-5.33	-0.0063	PASS
				10	-7.74	-0.00914	PASS
				20	-2.75	-0.00325	PASS
				30	-4.53	-0.00535	PASS
				40	-5.58	-0.00659	PASS
				50	-2.99	-0.00353	PASS

END