



Appendix for test report



1Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dBm]	ERP[dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	22.11	20.09	38.5	PASS
		MCH	22.22	20.20	38.5	PASS
		HCH	22.28	20.26	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: Modulation Characteristics

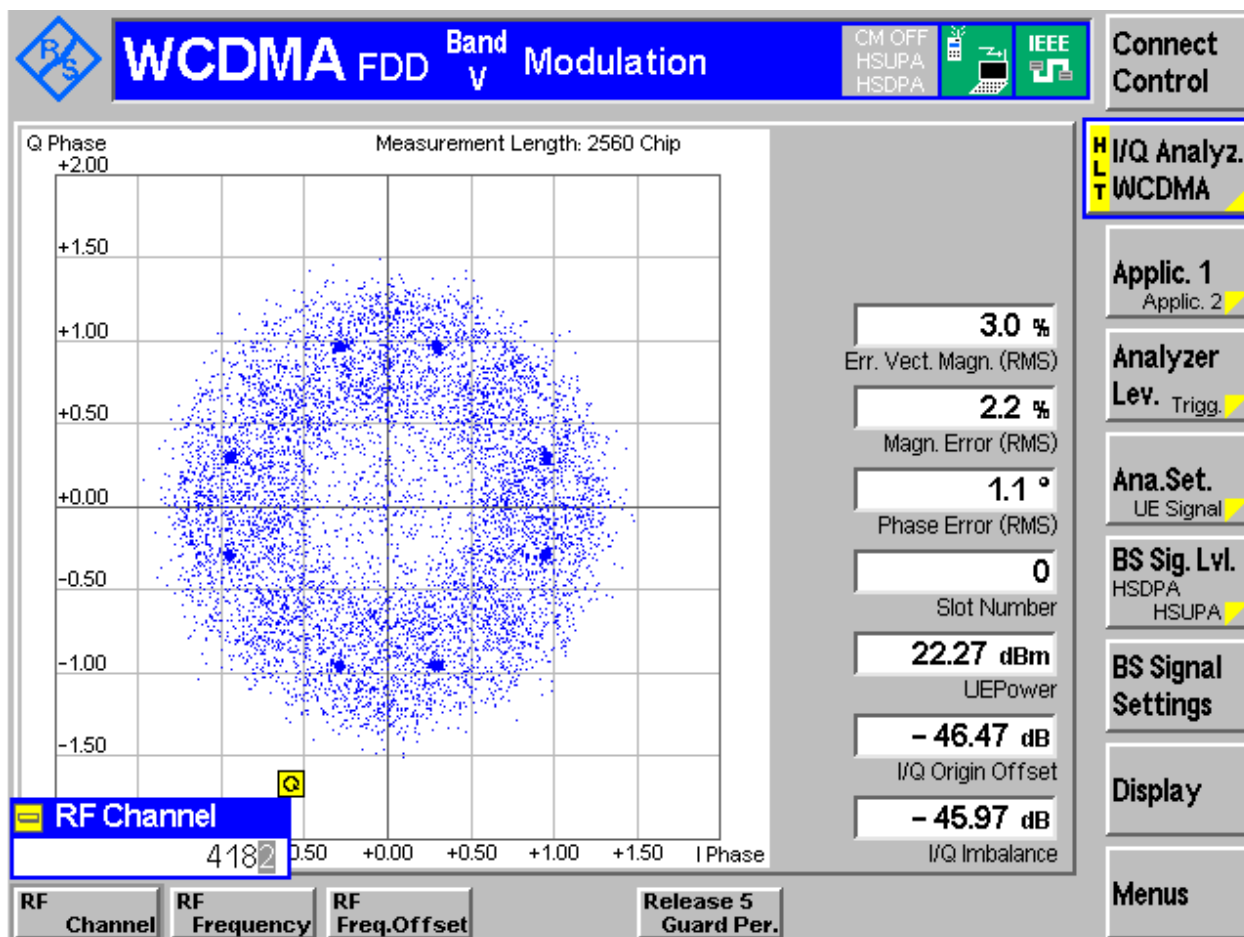
Part I - Test Plots

2.1 For UMTS

2.1.1 Test Band = WCDMA850

2.1.1.1 Test Mode = UMTS/TM1

2.1.1.1.1 Test Channel = MCH





3Appendix_C: Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.17	4.73	Pass
		MCH	4.17	4.72	Pass
		HCH	4.15	4.72	Pass



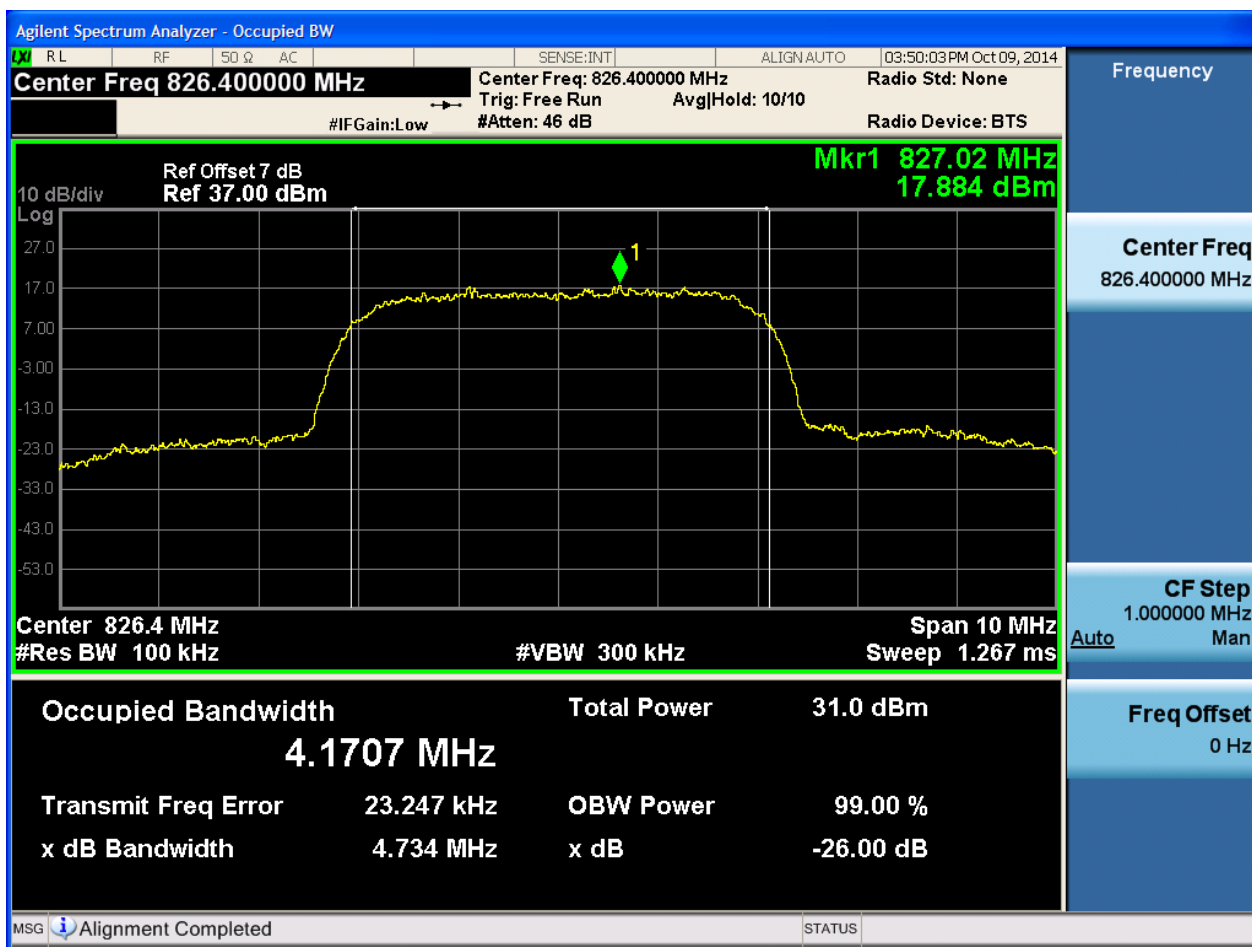
Part II - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

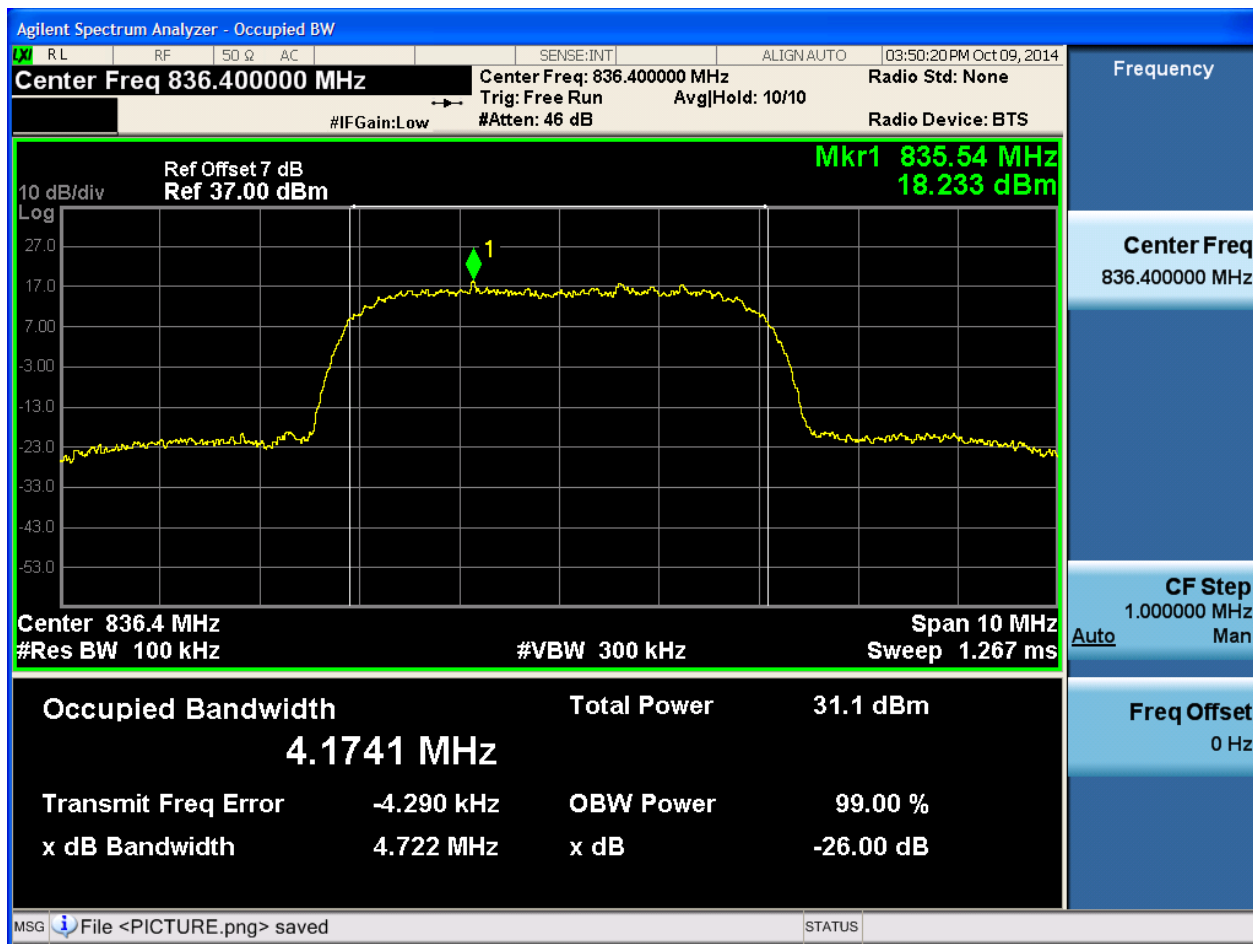
3.1.1.1 Test Mode = UMTS/TM1

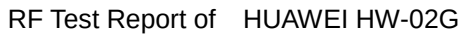
3.1.1.1.1 Test Channel = LCH





3.1.1.1.2 Test Channel = MCH





Agilent Spectrum Analyzer - Occupied BW

RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 03:50:36 PM Oct 09, 2014

Center Freq 846.600000 MHz Center Freq: 846.600000 MHz Radio Std: None
 Trig: Free Run Avg/Hold: >10/10
 #IF Gain: Low #Atten: 46 dB Radio Device: BTS

10 dB/div Ref Offset 7 dB Mkr1 845.72 MHz
 Log Ref 37.00 dBm 18.167 dBm

Center 846.6 MHz Span 10 MHz
 #Res BW 100 kHz #VBW 300 kHz Sweep 1.267 ms

Occupied Bandwidth		Total Power	
4.1548 MHz		31.0 dBm	

Transmit Freq Error		OBW Power	
1.112 kHz		99.00 %	
x dB Bandwidth		x dB	
4.722 MHz		-26.00 dB	

MSG File <PICTURE.png> saved STATUS

Frequency

Center Freq
846.600000 MHz

CF Step
1.000000 MHz
Man

Freq Offset
0 Hz



5Appendix_D: Band Edges Compliance

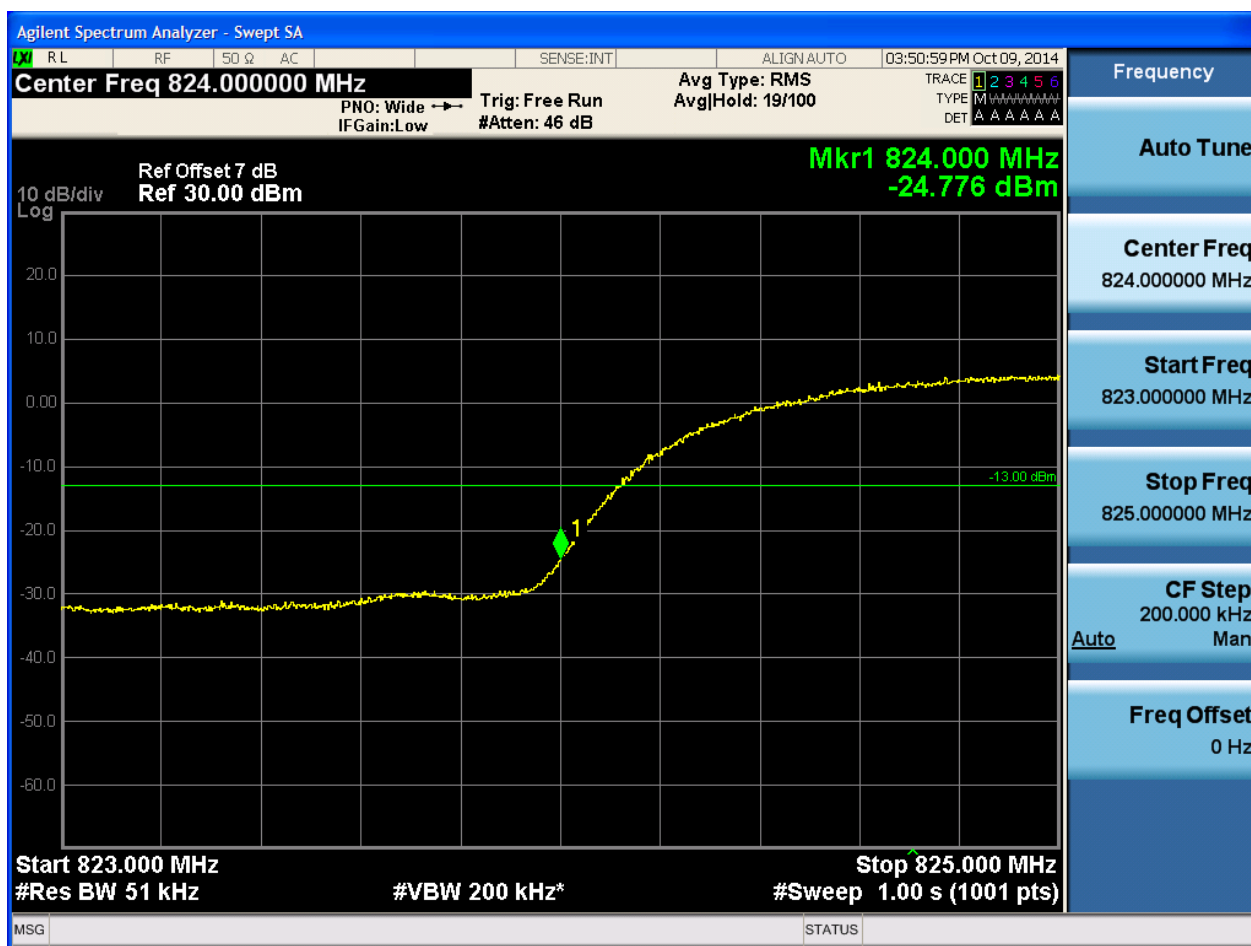
Part I - Test Plots

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 = HCH



5Appendix_E: 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.

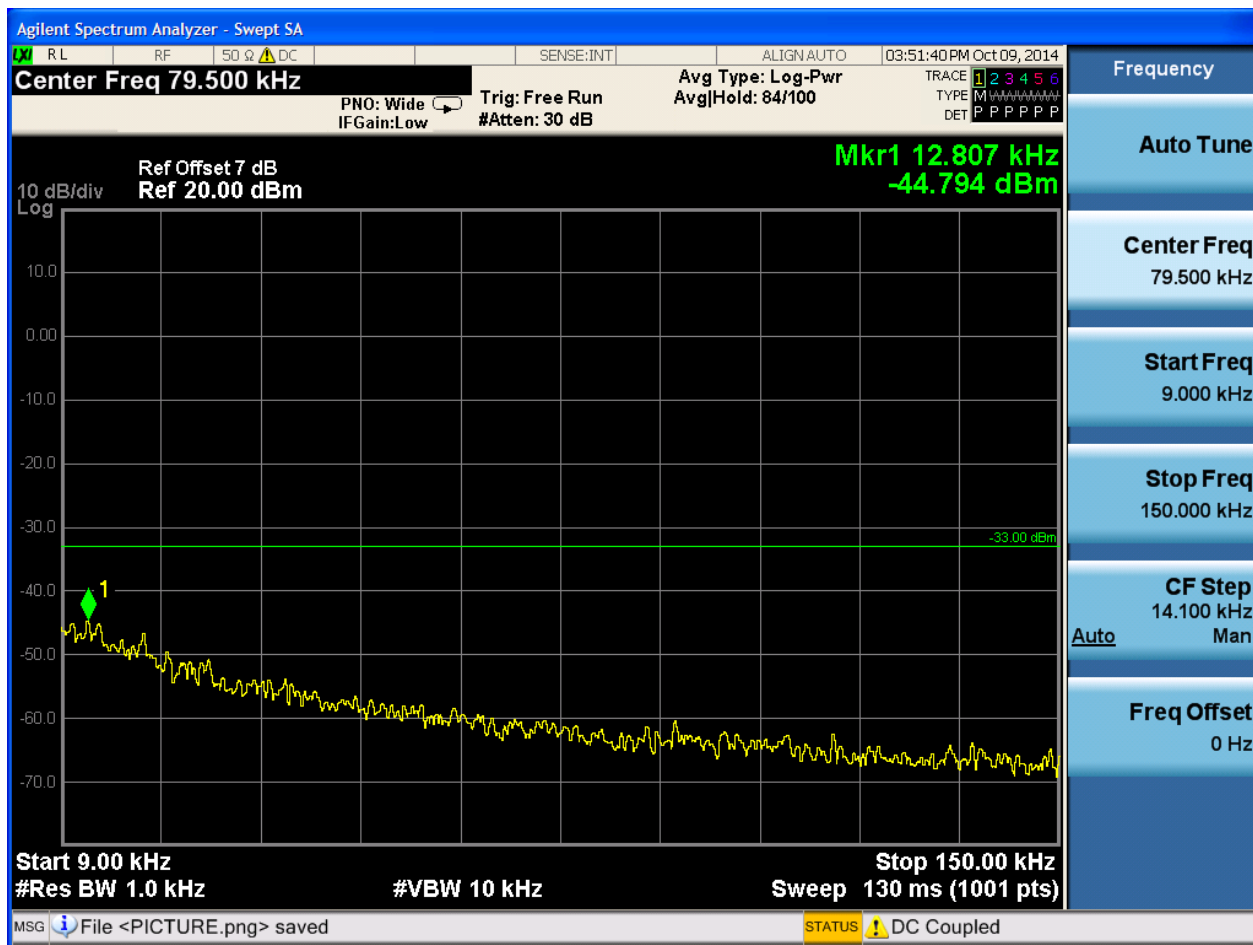
Part I - Test Plots

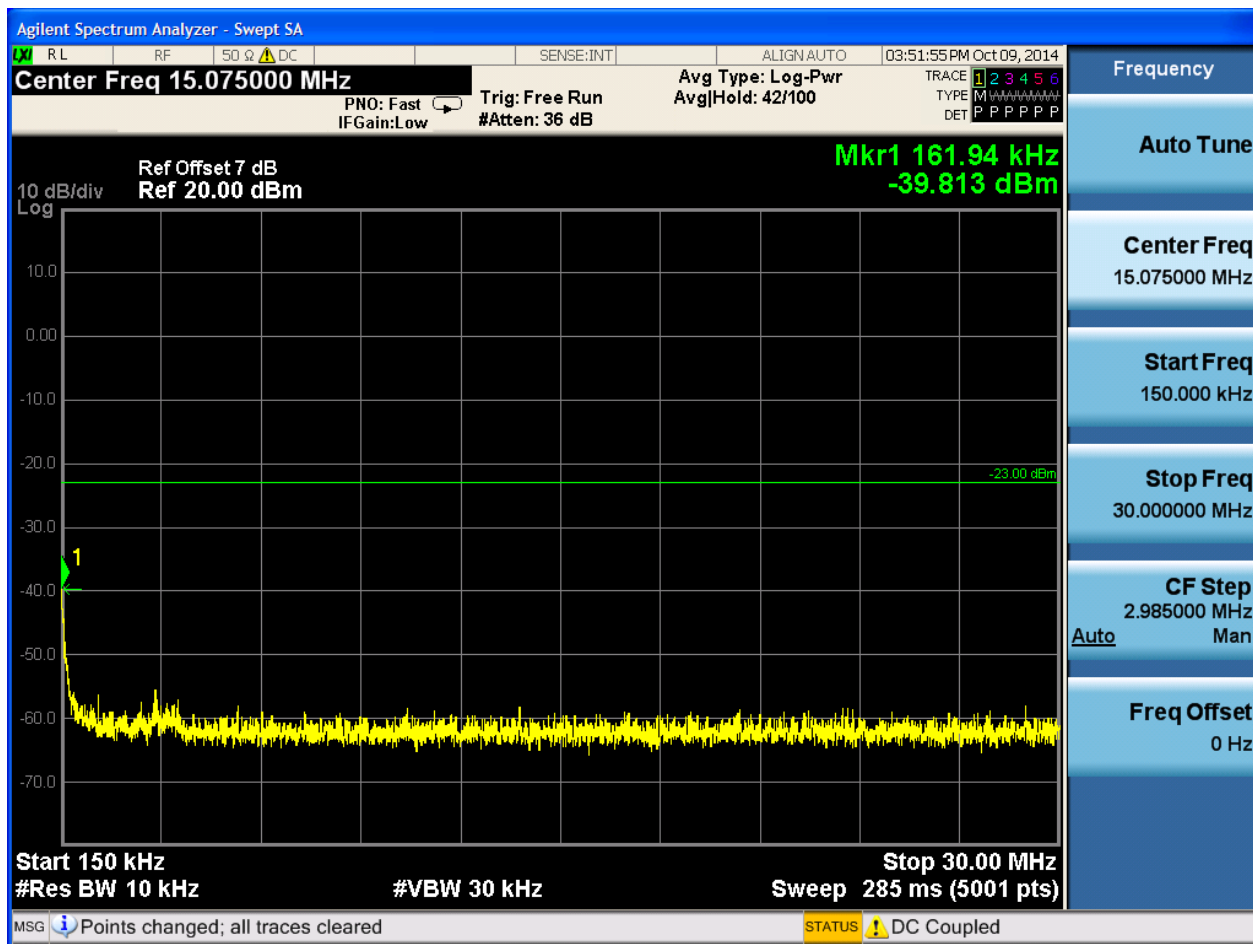
5.1 For UMTS

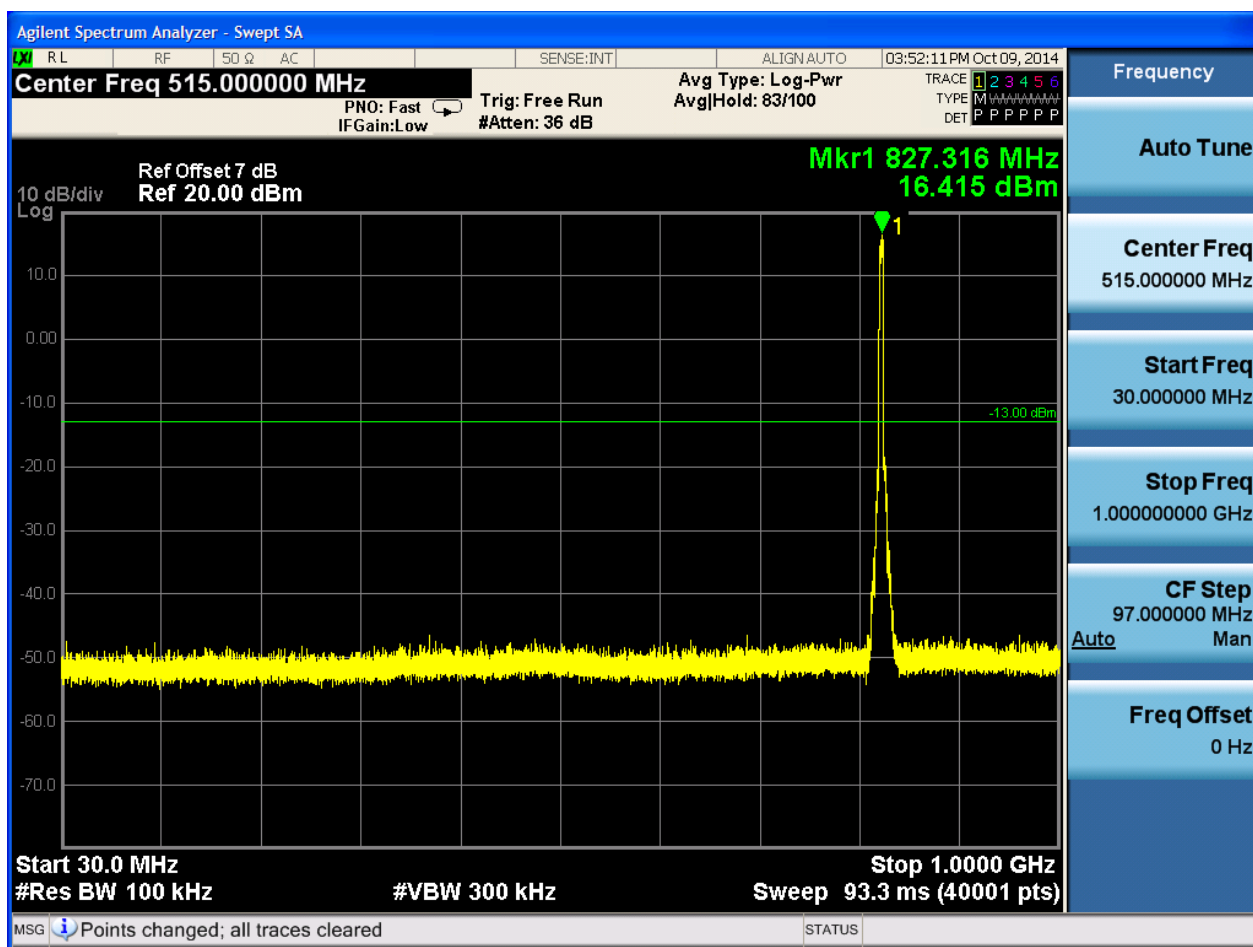
5.1.1 Test Band = WCDMA850

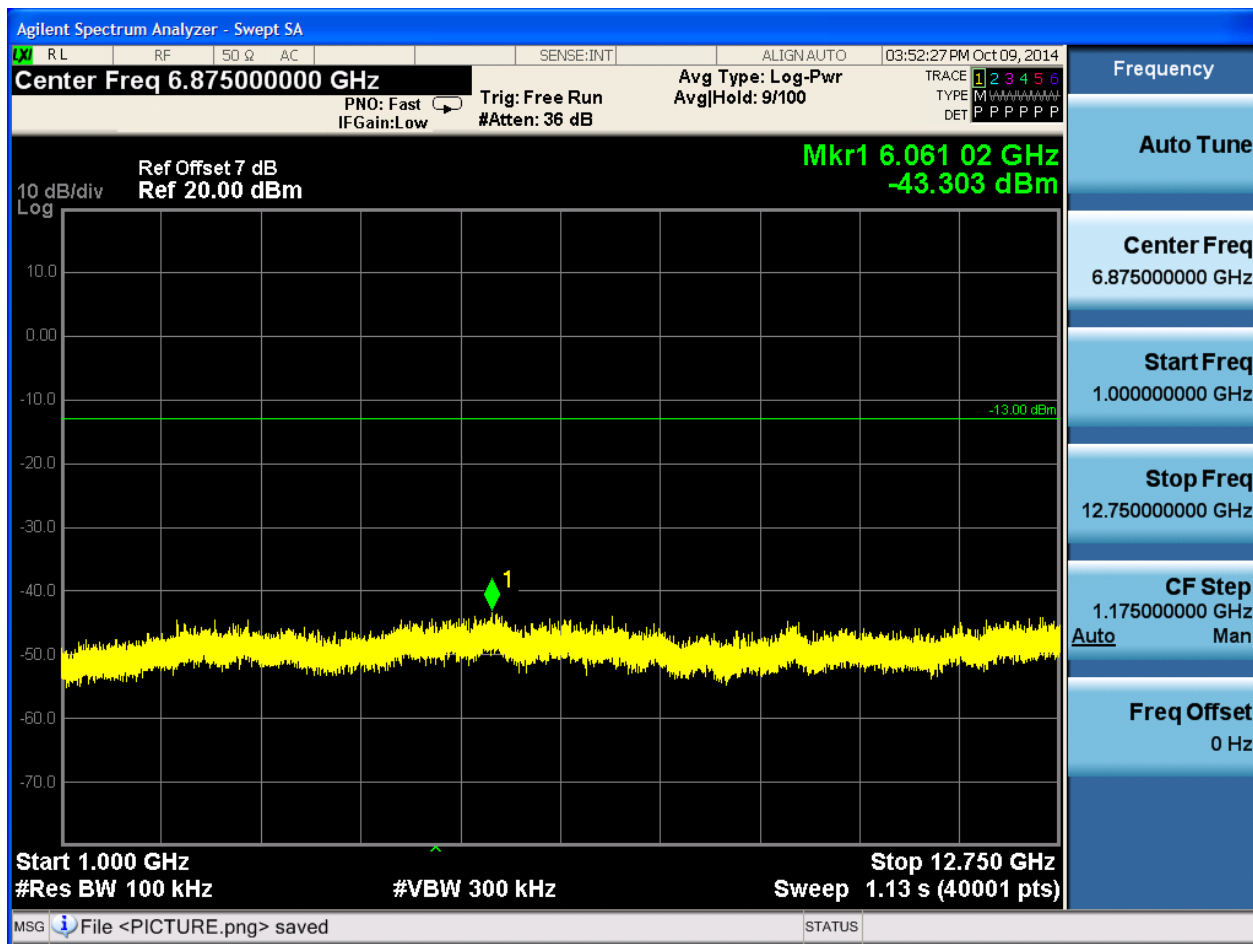
5.1.1.1 Test Mode = UMTS/TM1

5.1.1.1.1 Test Channel = LCH



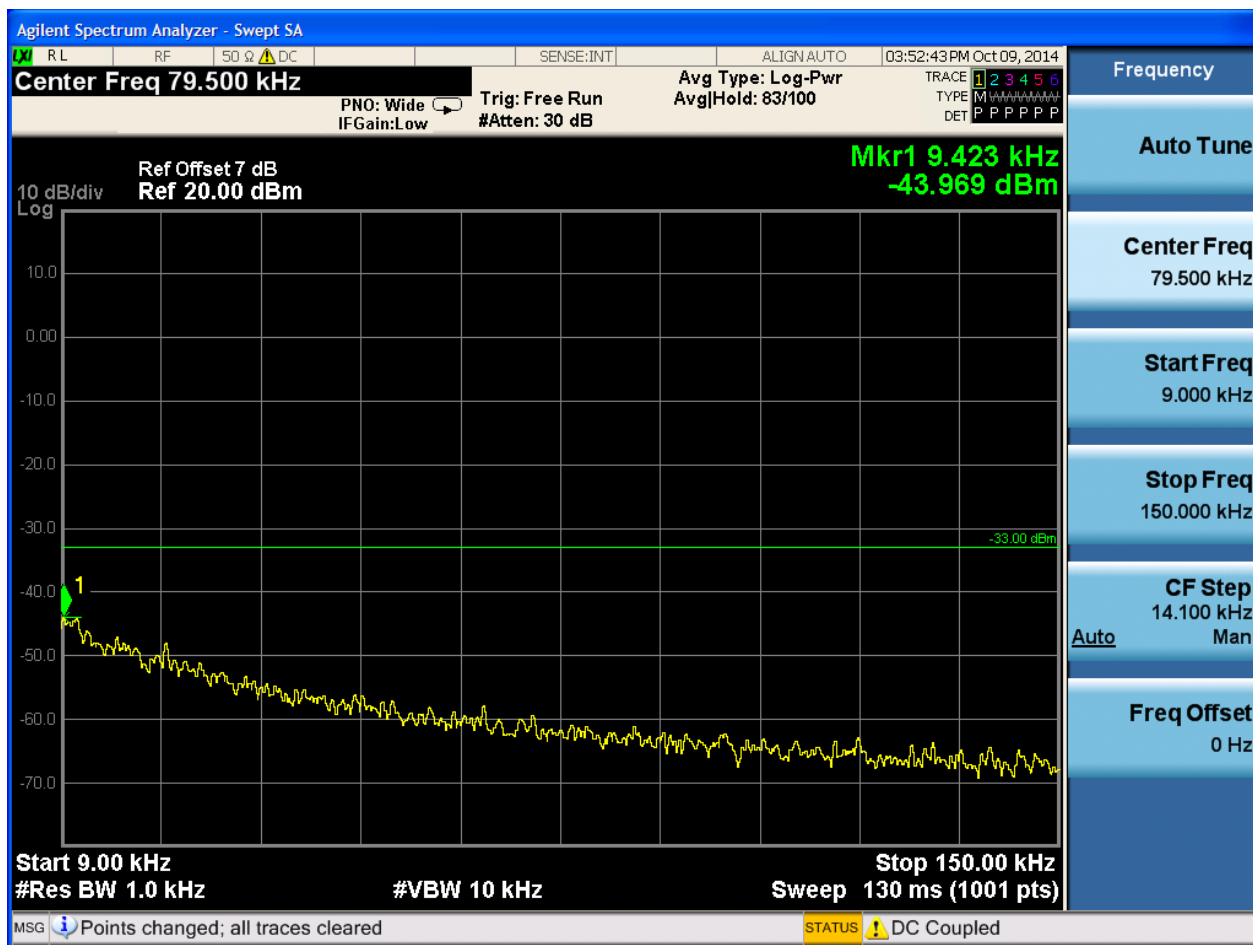


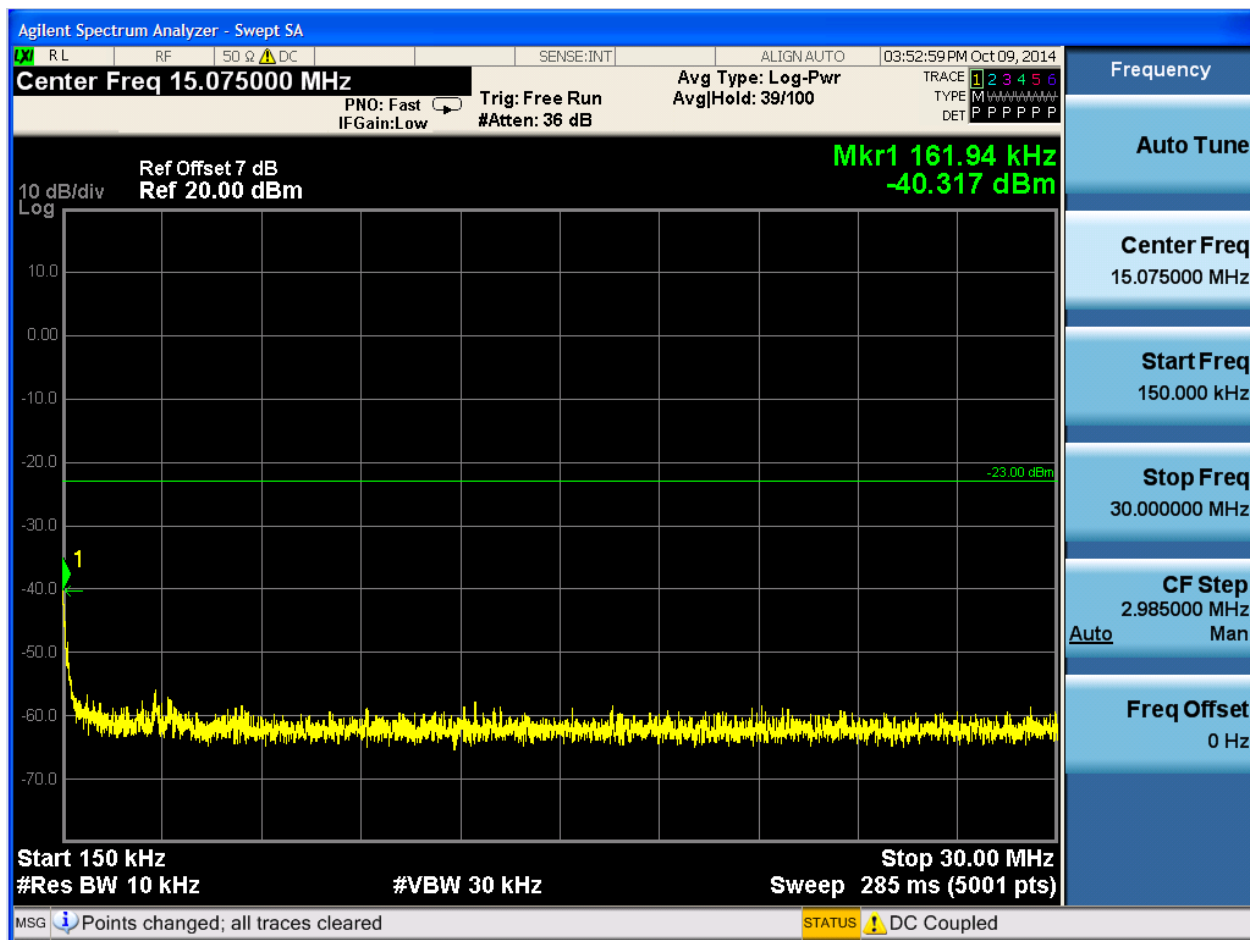


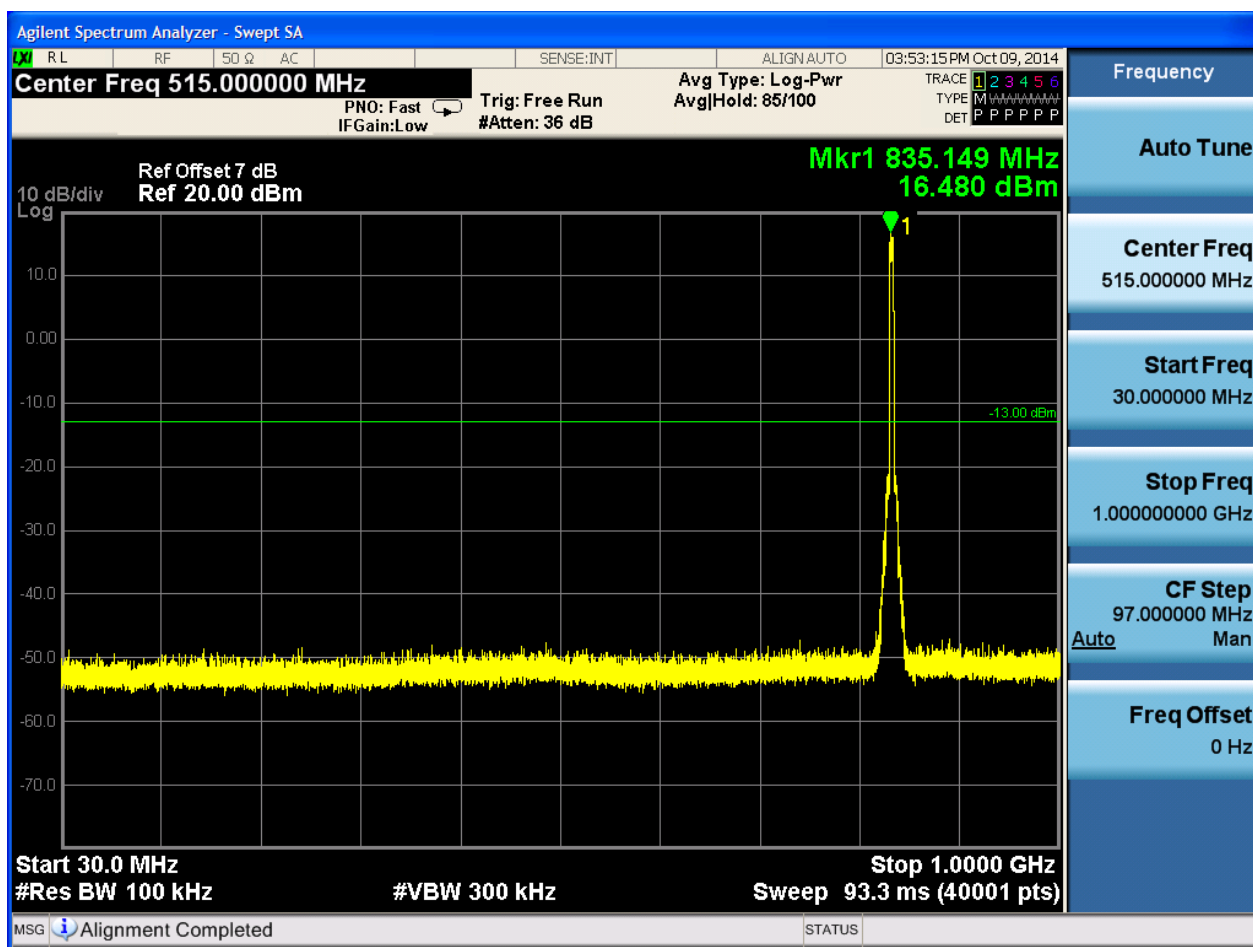


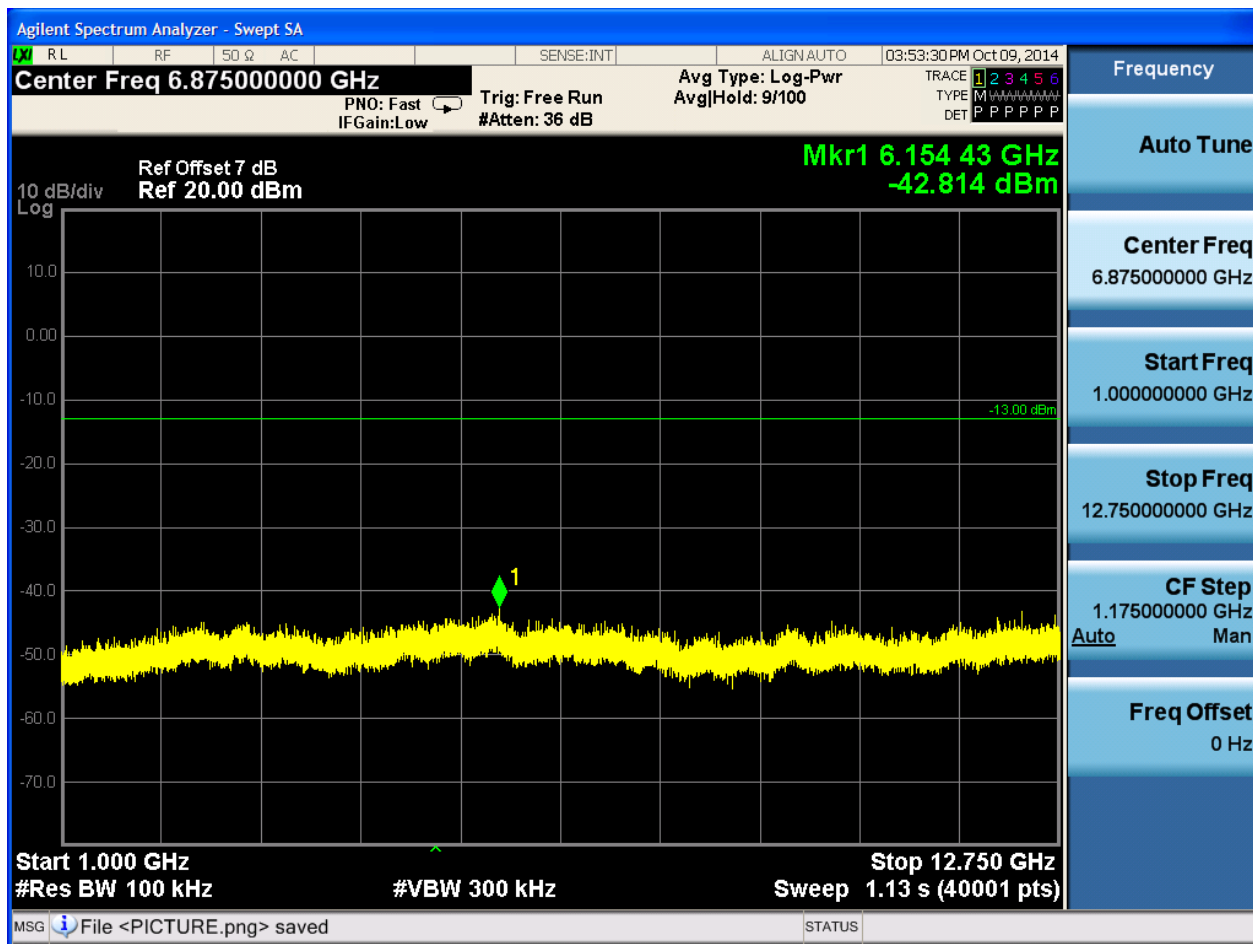


5.1.1.1.2 Test Channel = MCH



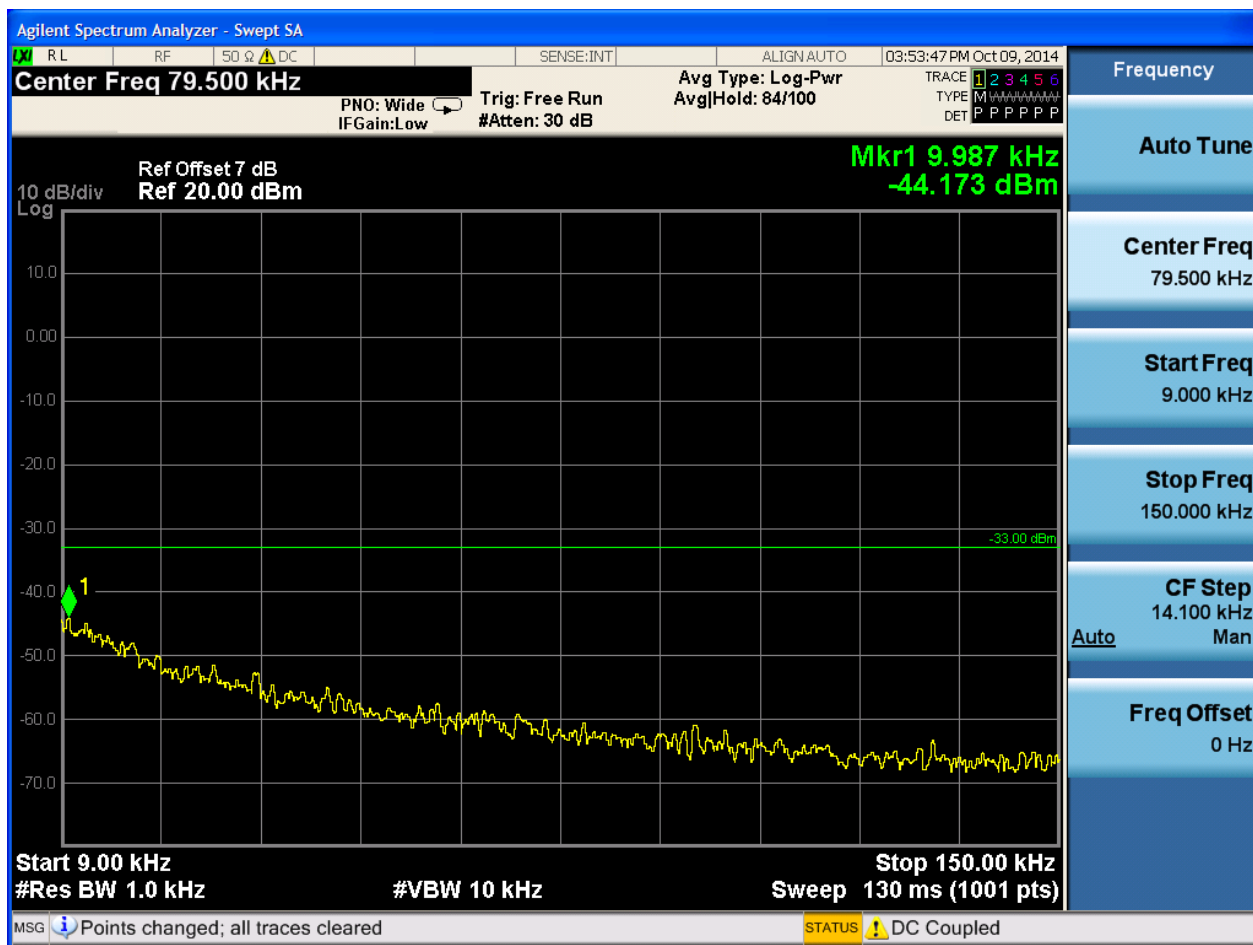


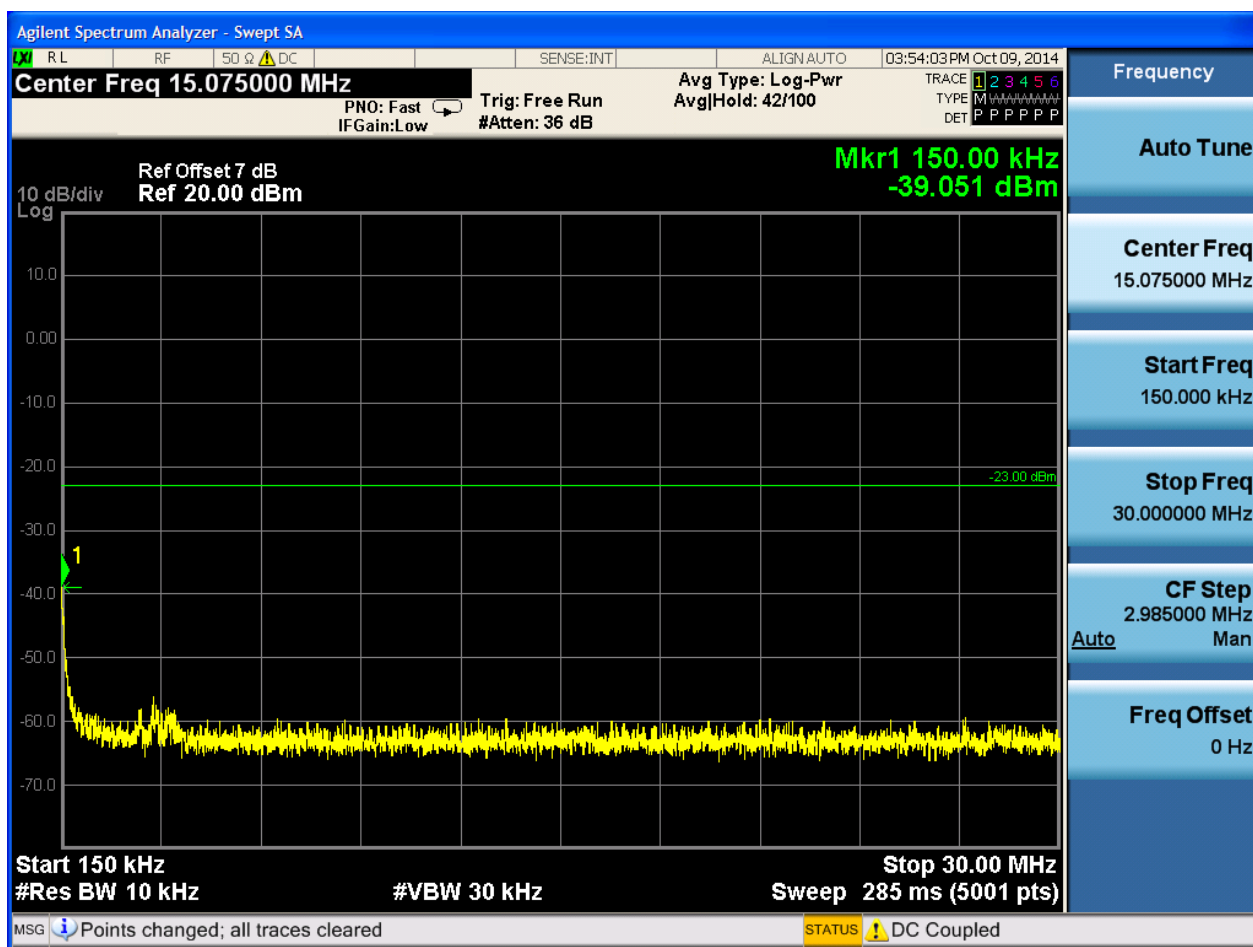


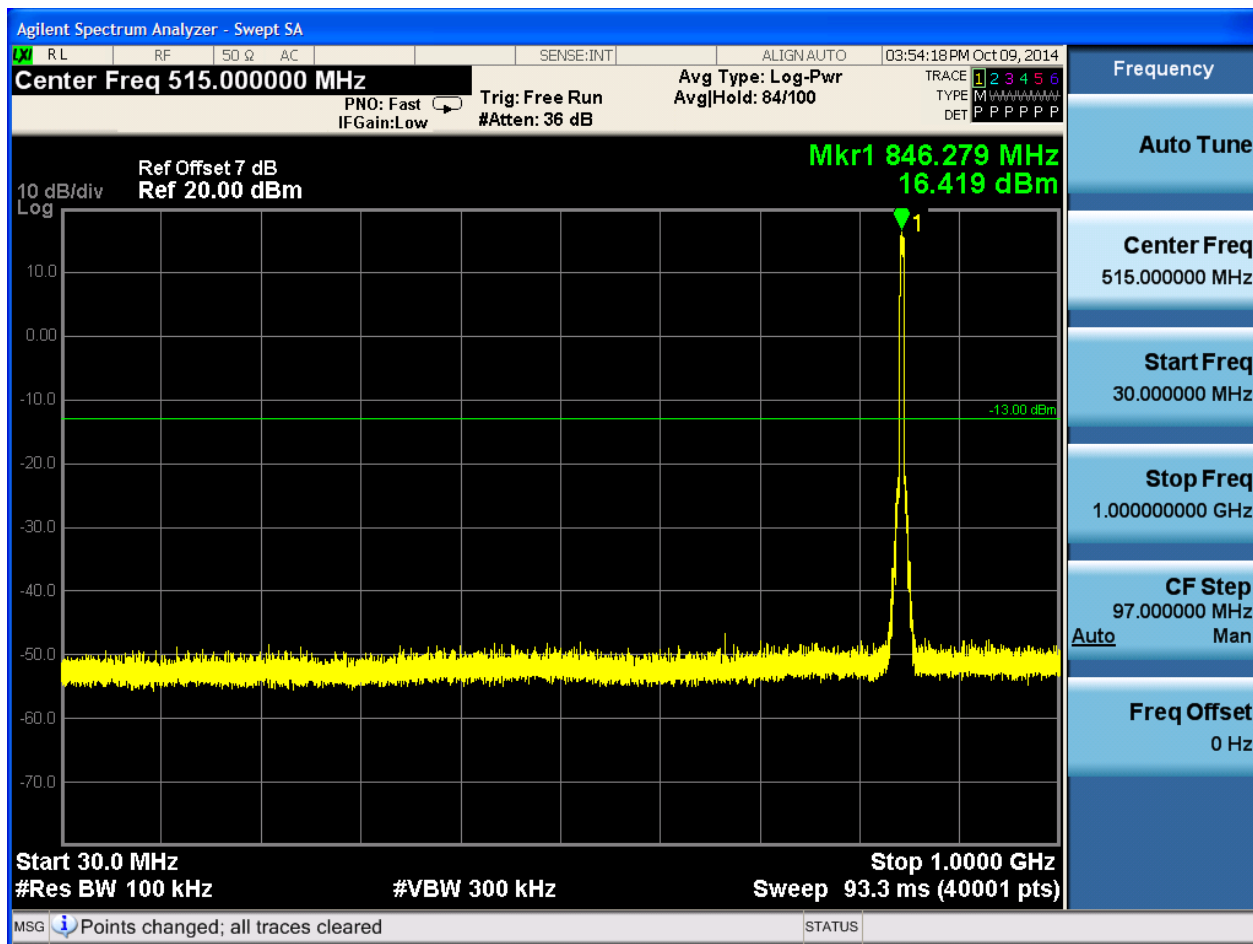


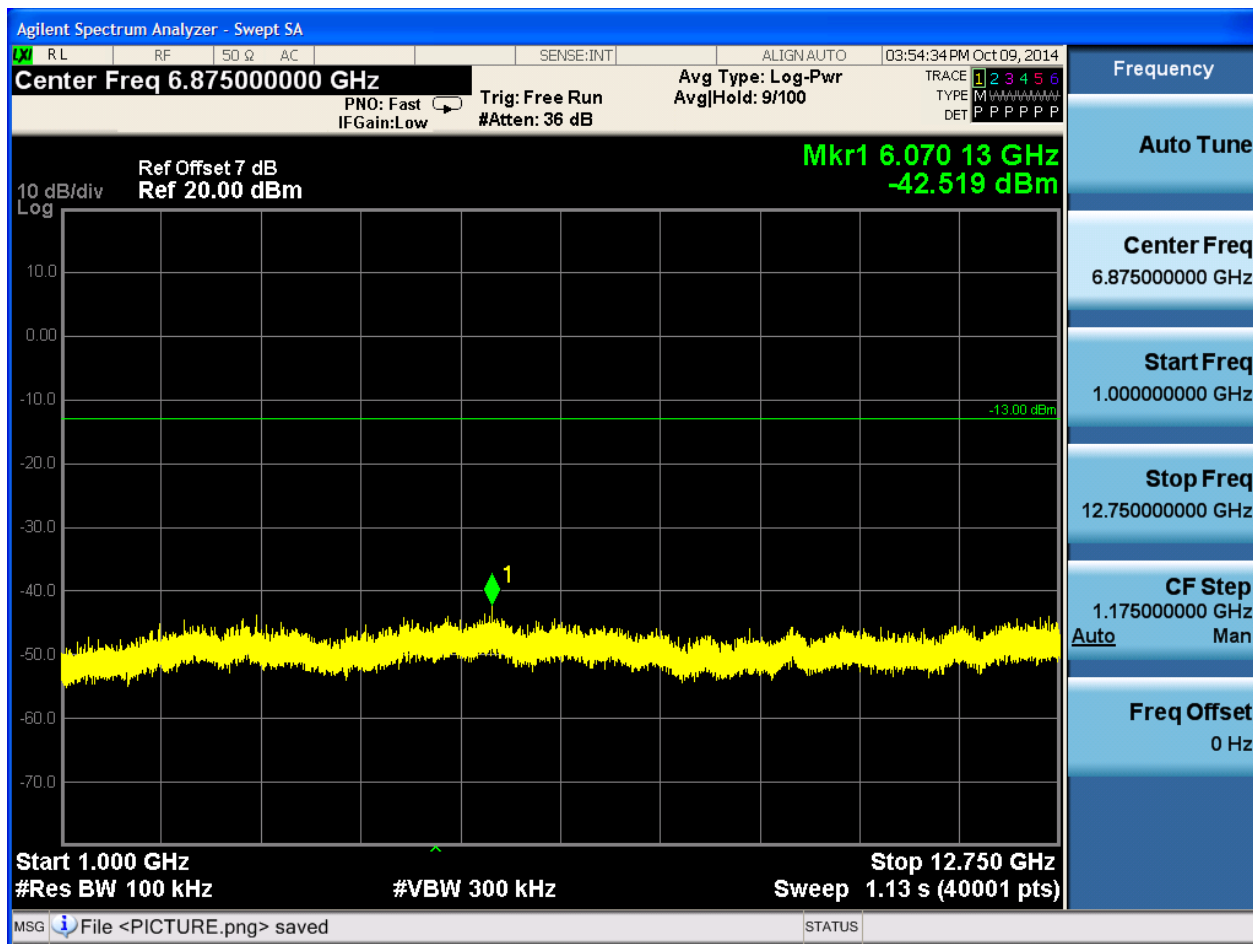


5.1.1.1.3 Test Channel = HCH









6Appendix_F: 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

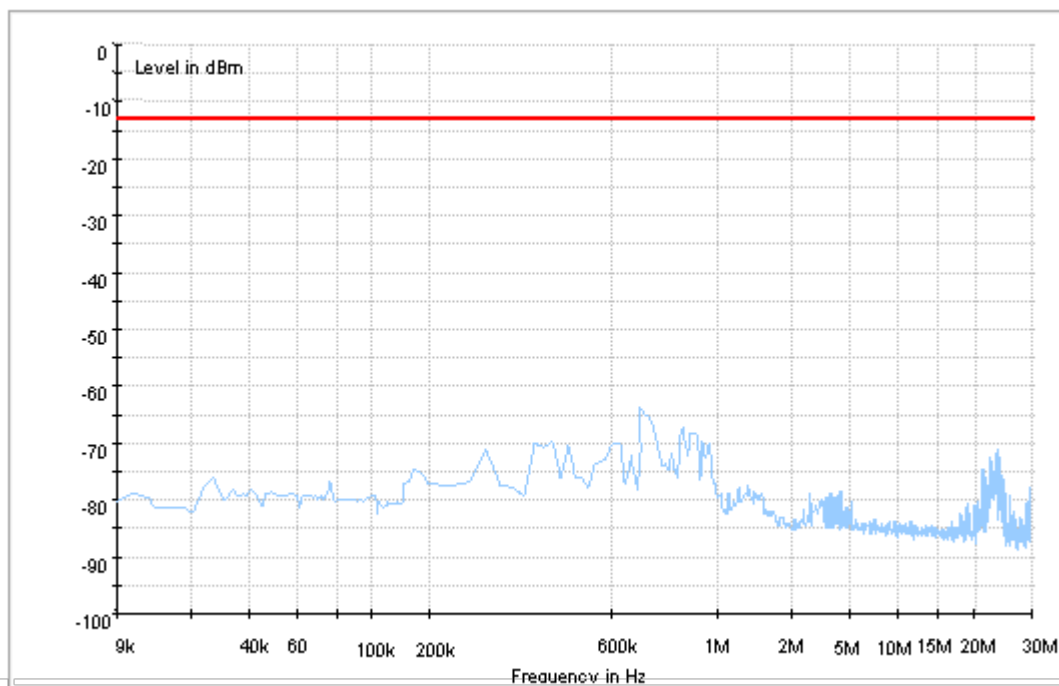
We tested all modes, but the data presented below is the worst case.

Part I - Test Plots

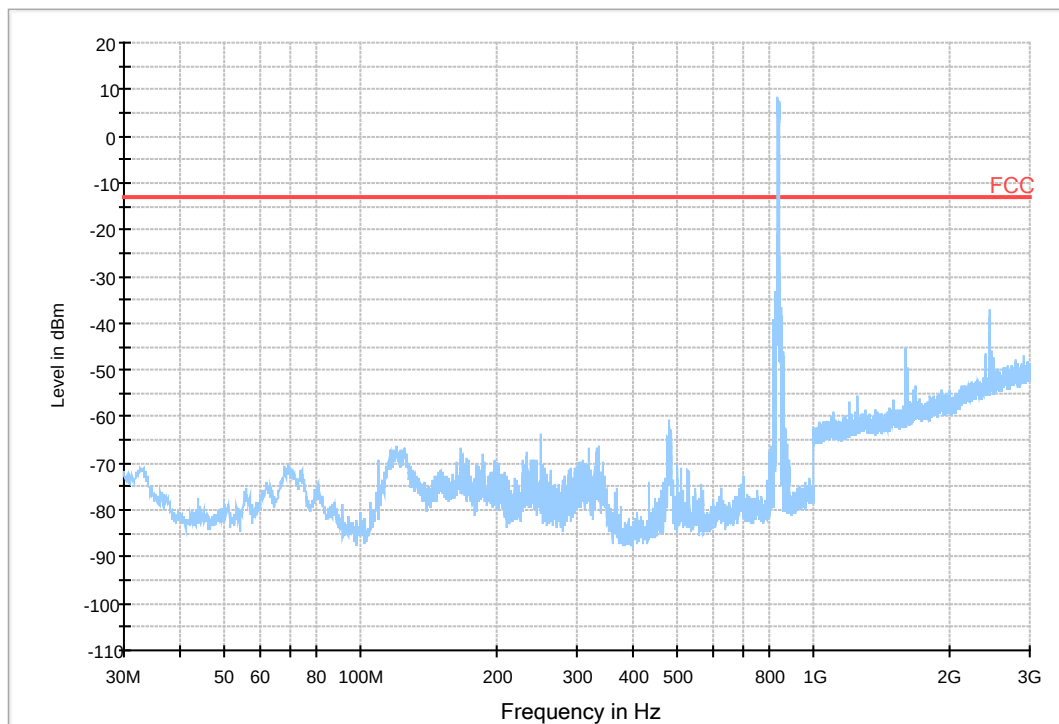
6.1 For UMTS

6.1.1 Test Band = WCDMA850

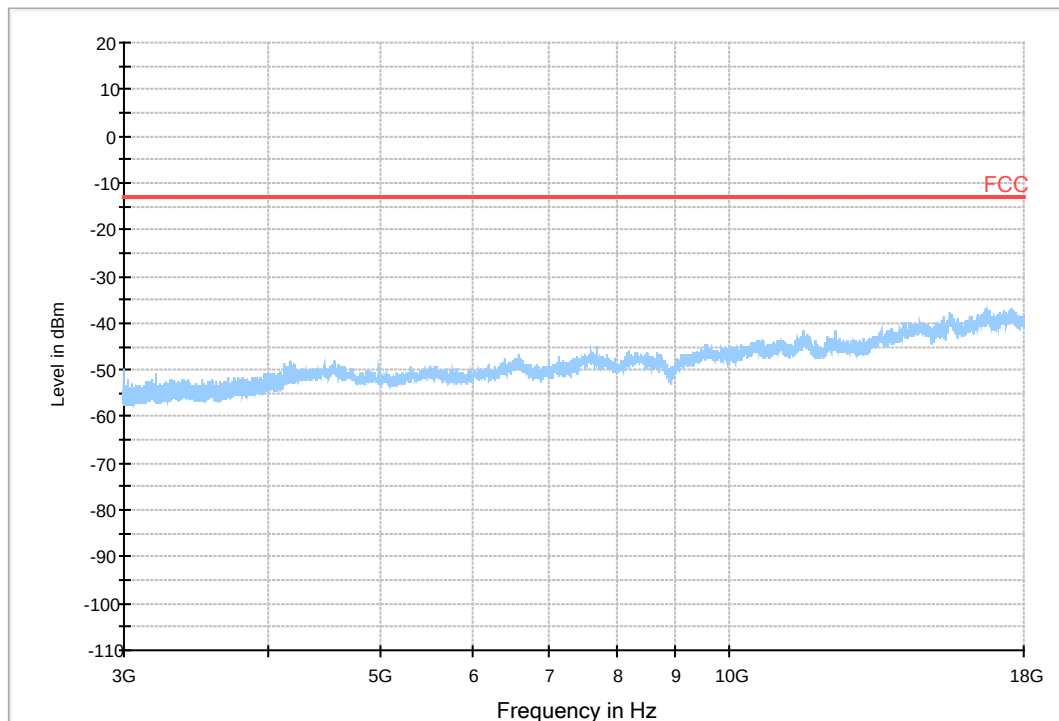
6.1.1.1 Test Mode = UMTS/TM1



Copy of FCC PART22 WCDMA850_L



Copy of FCC PART22 WCDMA850_H



7Appendix_G: Frequency Stability

7.1 For UMTS

7.1.1Frequency 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	8.12	0.00983	PASS
				VN	5.20	0.00629	PASS
				VH	8.35	0.0101	PASS
		MCH	TN	VL	3.77	0.00451	PASS
				VN	3.27	0.00391	PASS
				VH	-2.03	-0.00243	PASS
		HCH	TN	VL	-3.51	-0.00415	PASS
				VN	-2.14	-0.00253	PASS
				VH	-3.94	-0.00465	PASS

7.1.2Frequency 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	0.47	0.00057	PASS
				-20	-0.60	-0.00073	PASS
				-10	0.98	0.00119	PASS
				0	5.11	0.00618	PASS
				10	3.22	0.0039	PASS
				20	0.92	0.00111	PASS
				30	2.88	0.00348	PASS
				40	6.41	0.00776	PASS
				50	2.06	0.00249	PASS
		MCH	VN	-30	-7.39	-0.00884	PASS
				-20	0.15	0.00018	PASS
				-10	-2.38	-0.00285	PASS
				0	-3.11	-0.00372	PASS
				10	-2.43	-0.00291	PASS
				20	-0.14	-0.00017	PASS
				30	0.38	0.00045	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				40	-1.94	-0.00232	PASS
				50	3.74	0.00447	PASS
		HCH	VN	-30	0.87	0.00103	PASS
				-20	0.85	0.001	PASS
				-10	3.02	0.00357	PASS
				0	3.39	0.004	PASS
				10	-3.34	-0.00395	PASS
				20	-0.58	-0.00069	PASS
				30	-3.25	-0.00384	PASS
				40	-0.60	-0.00071	PASS
				50	-3.13	-0.0037	PASS

END