



# 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	24.27	20.62	38.5	PASS
		MCH	24.04	20.39	38.5	PASS
		HCH	24.17	20.52	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
WCDMA850	UMTS/TM1	LCH	0.2	13	PASS
		MCH	0.05	13	PASS
		HCH	0.06	13	PASS

### 3Appendix\_C: Modulation Characteristics

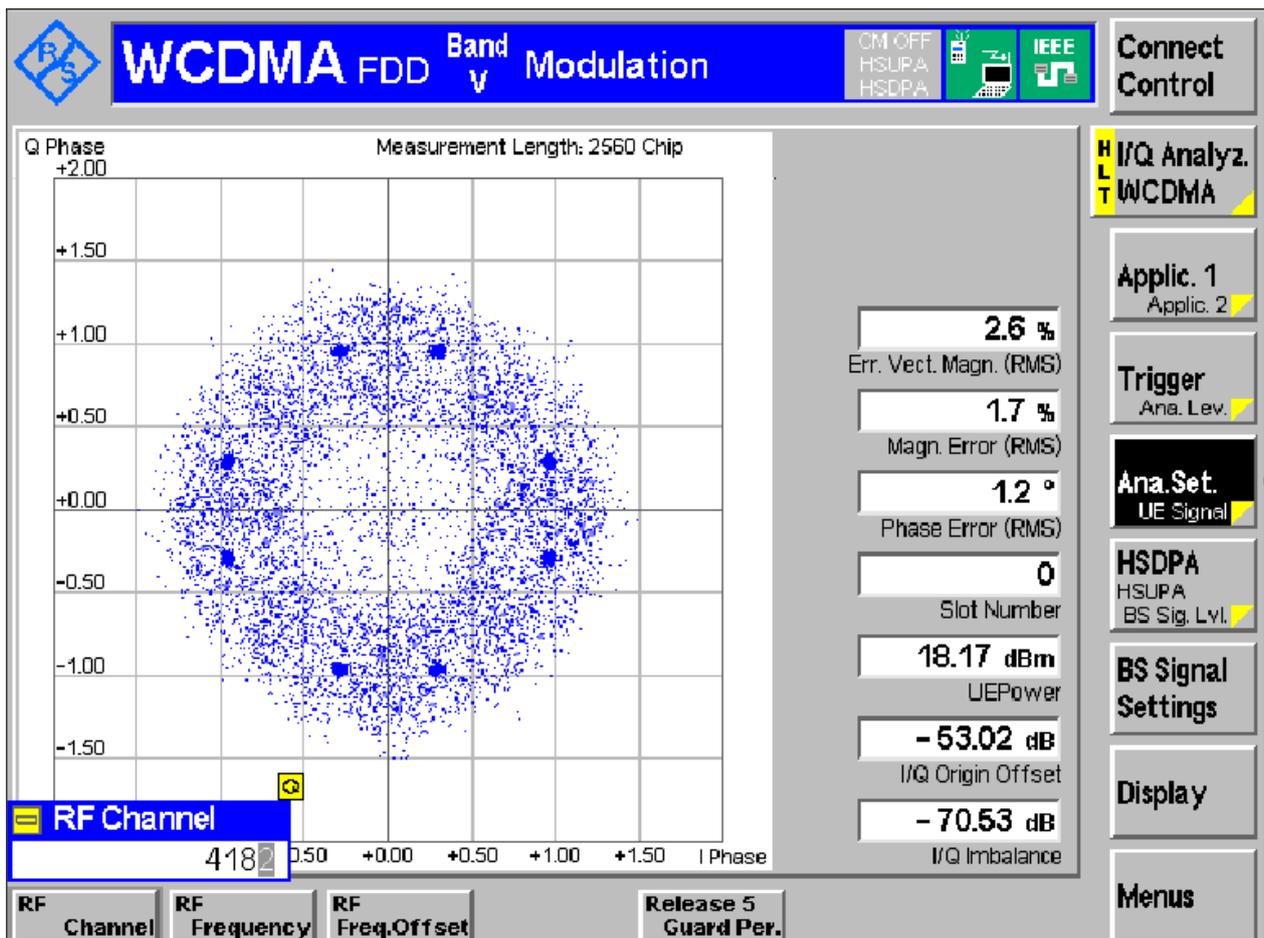
#### Part I - Test Plots

#### 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





## 4Appendix\_D: Bandwidth

### Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.17	4.68	Pass
		MCH	4.15	4.66	Pass
		HCH	4.16	4.68	Pass



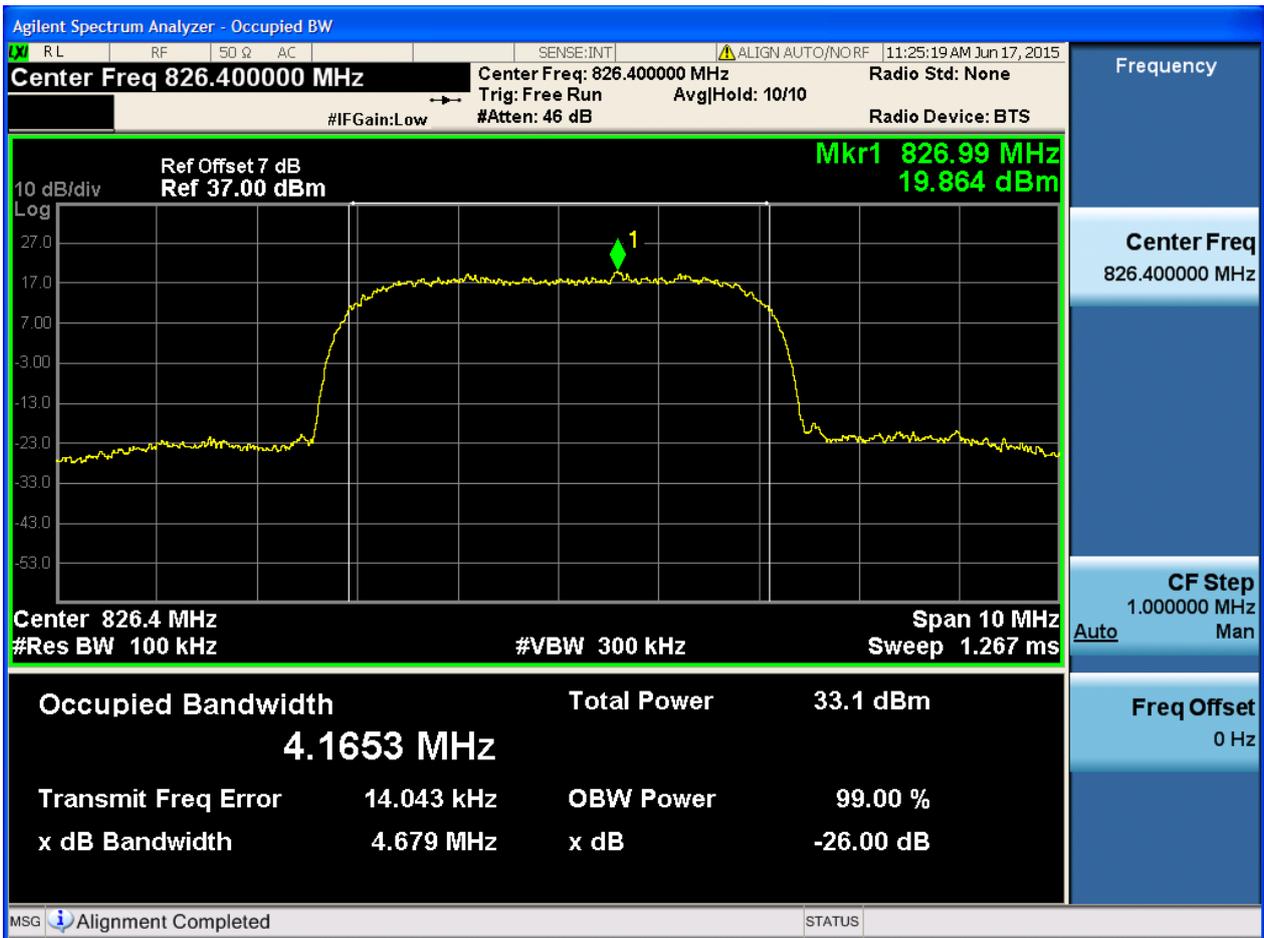
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

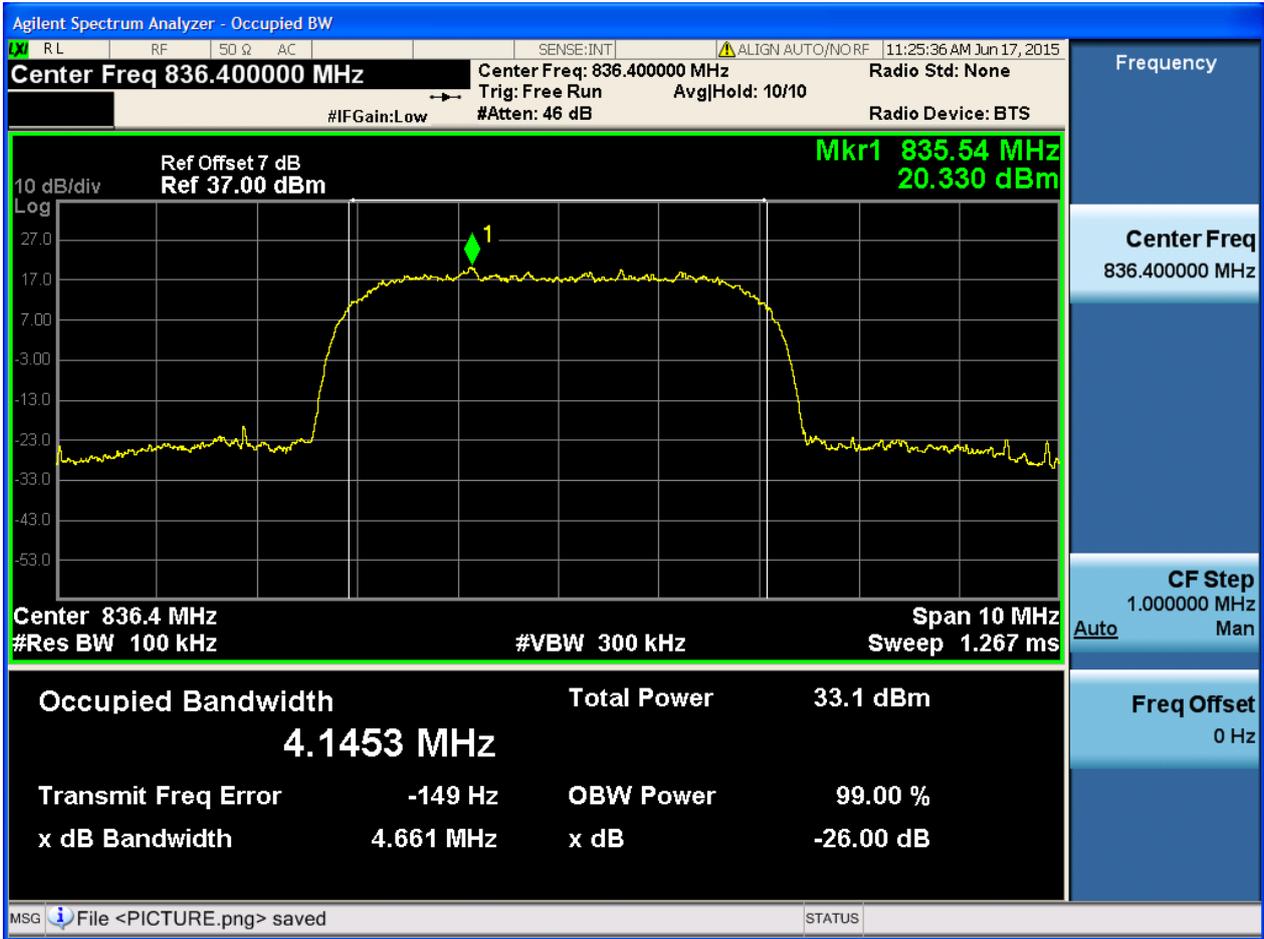
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



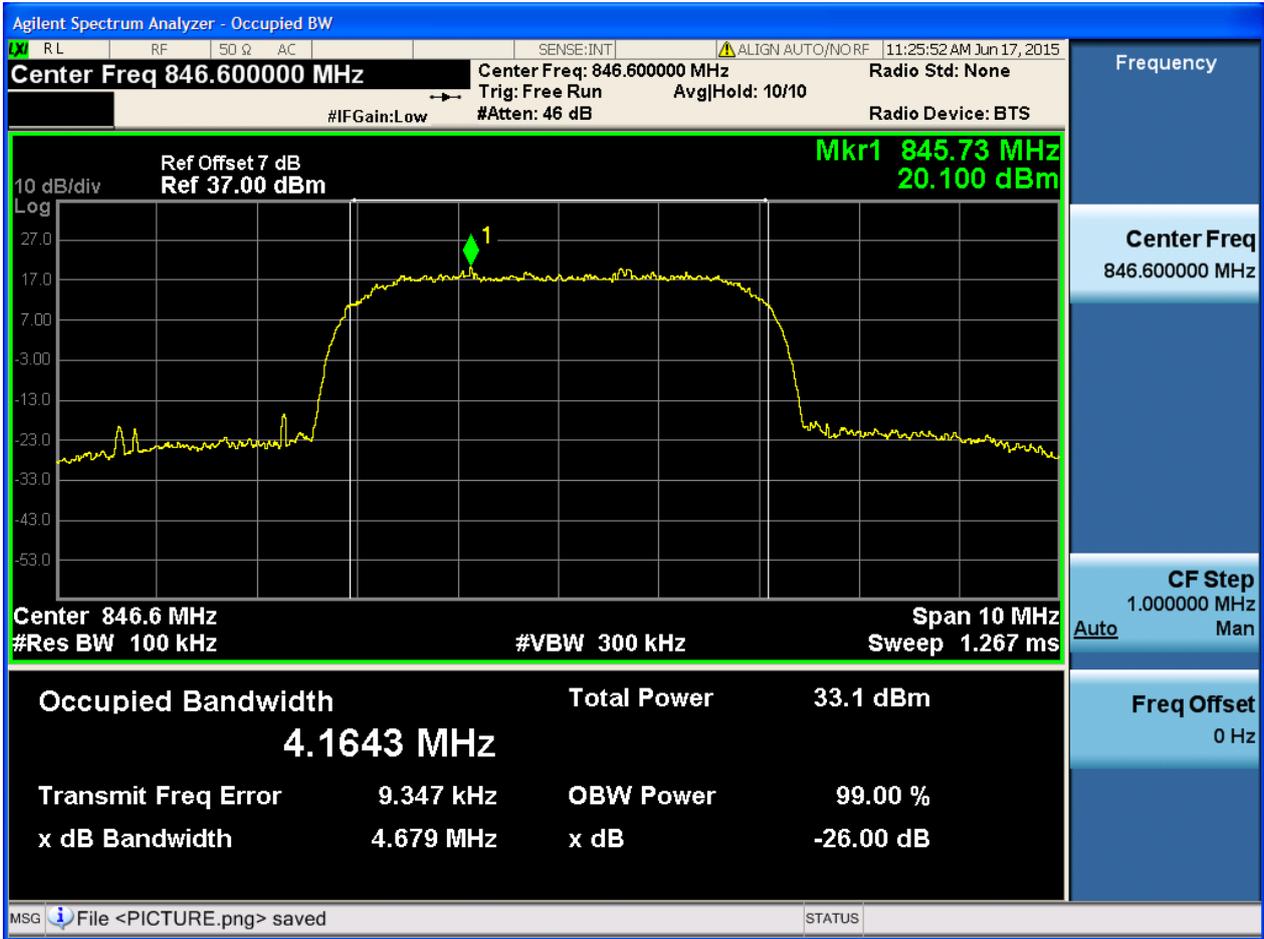


4.1.1.1.2 Test Channel = MCH





4.1.1.1.3 Test Channel = HCH





## 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





## **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.

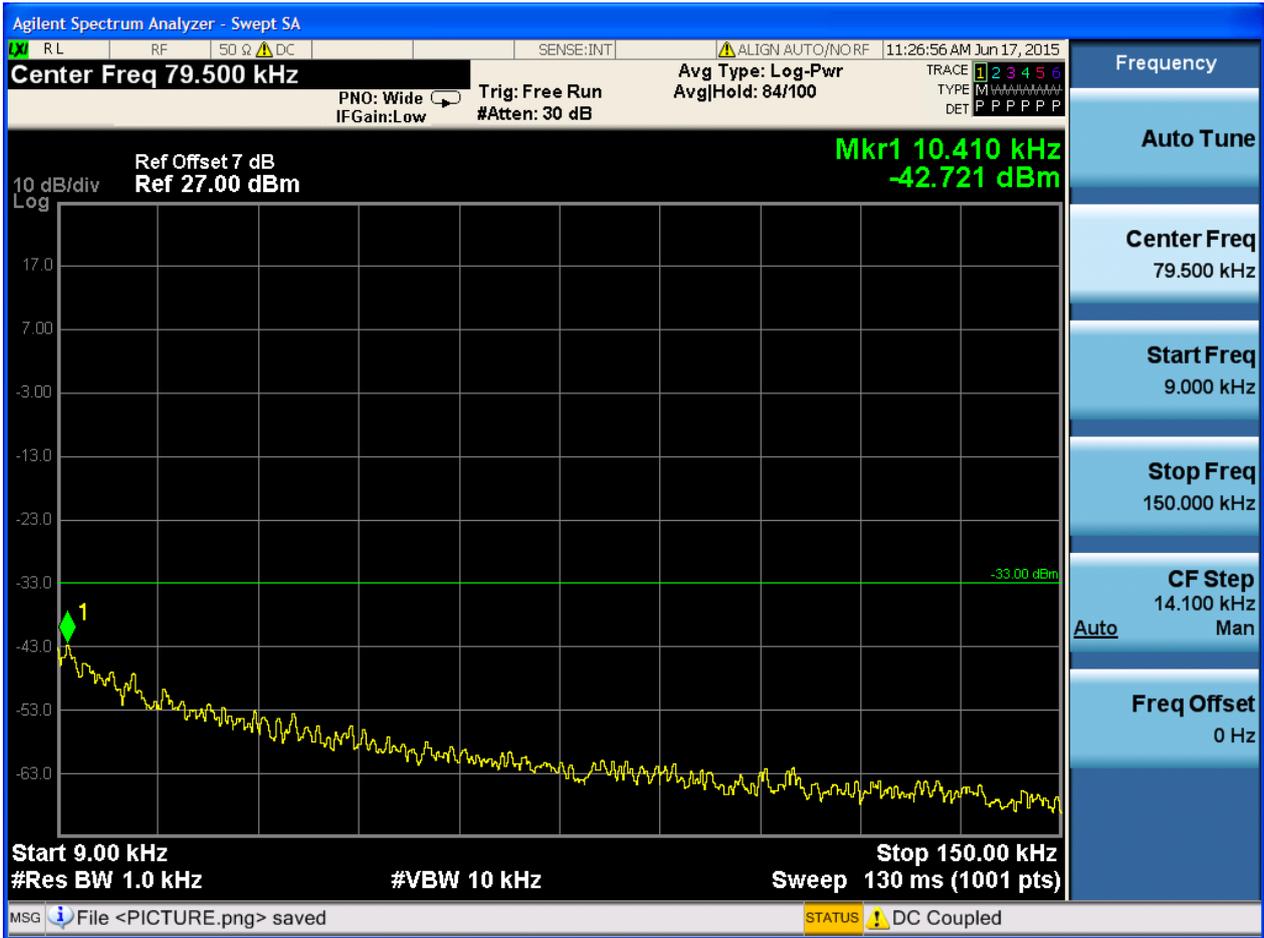
### **Part I - Test Plots**

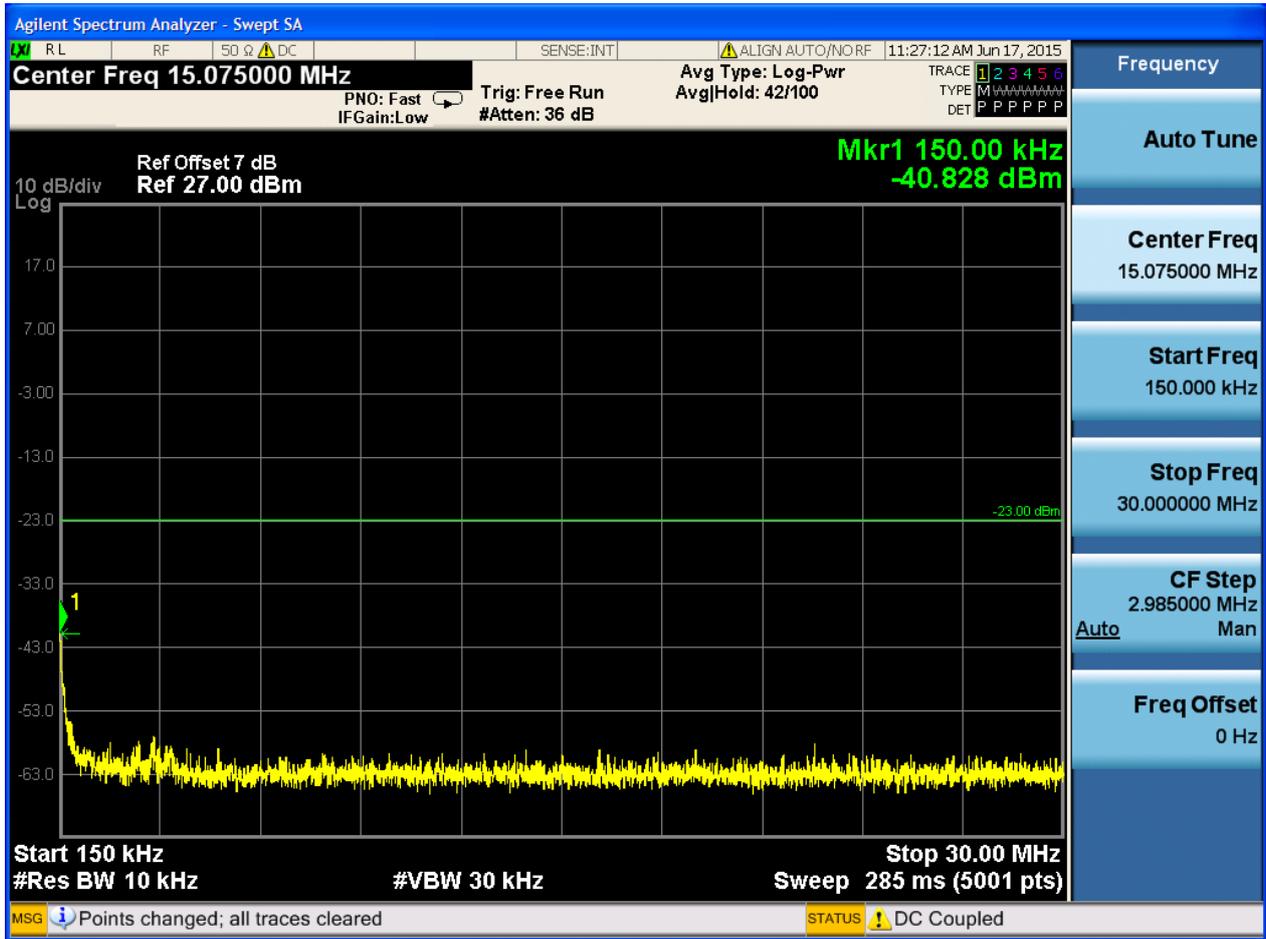
#### **6.1 For UMTS**

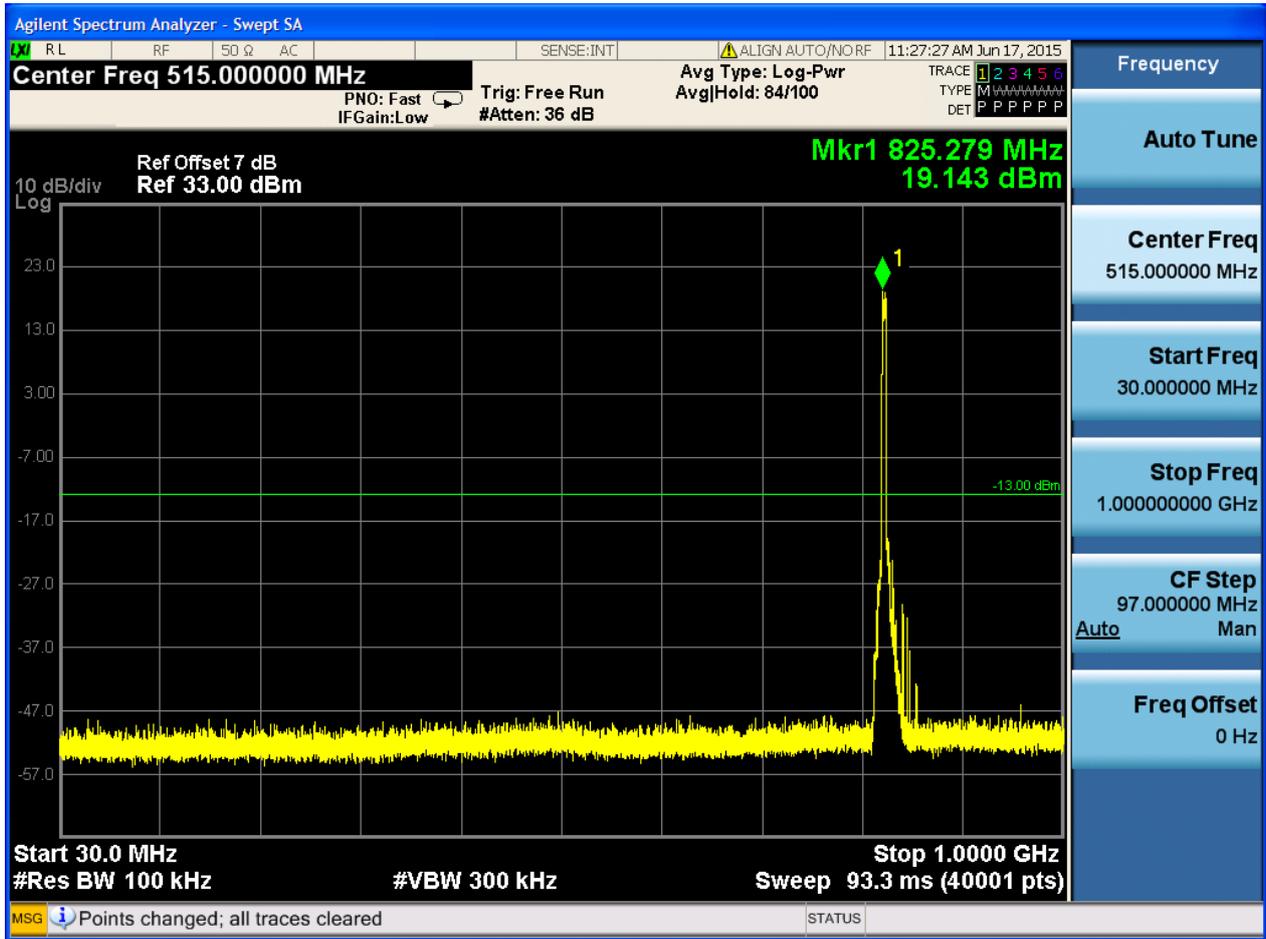
##### **6.1.1 Test Band = WCDMA850**

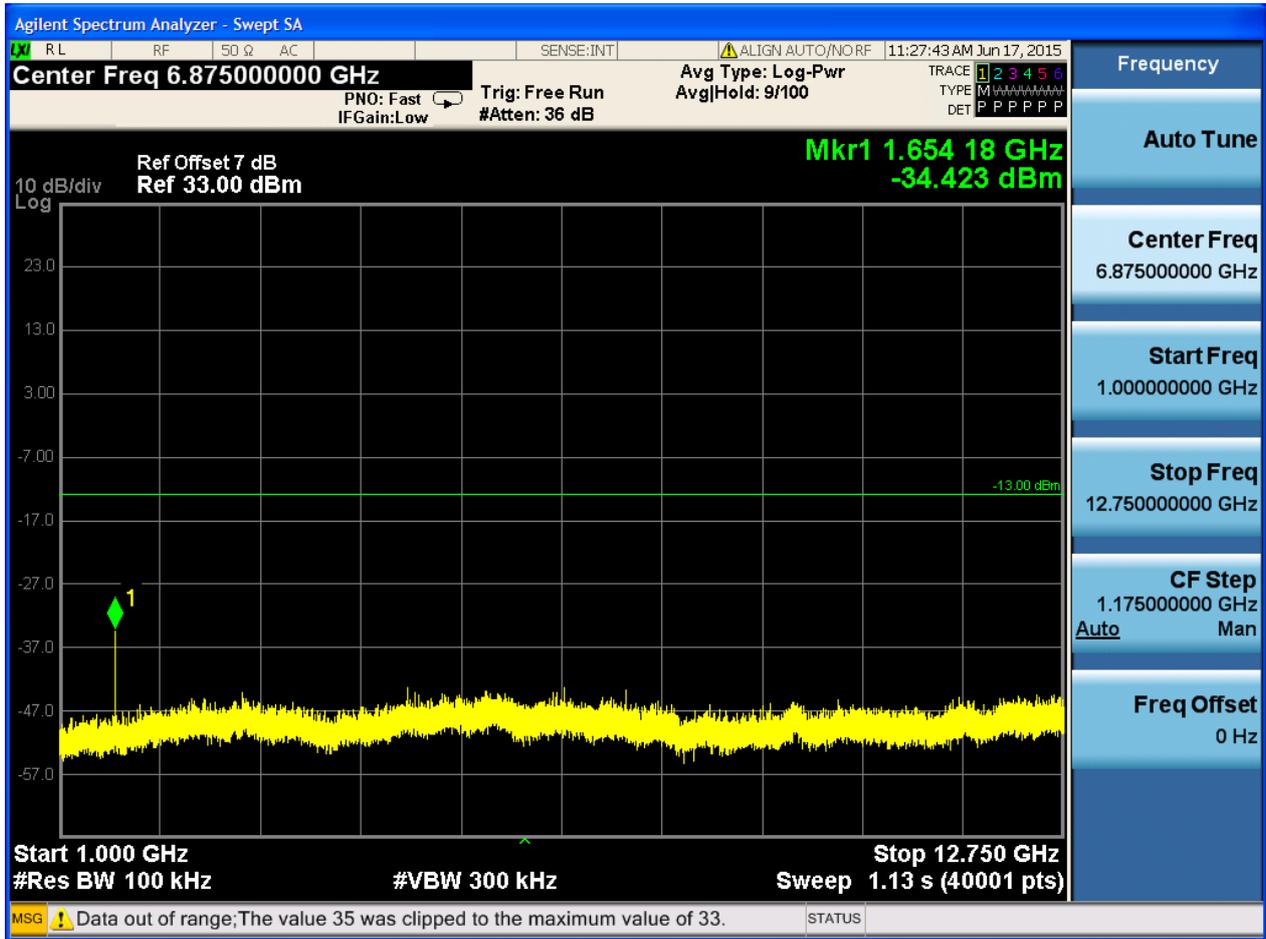
##### **6.1.1.1 Test Mode = UMTS/TM1**

##### **6.1.1.1.1 Test Channel = LCH**

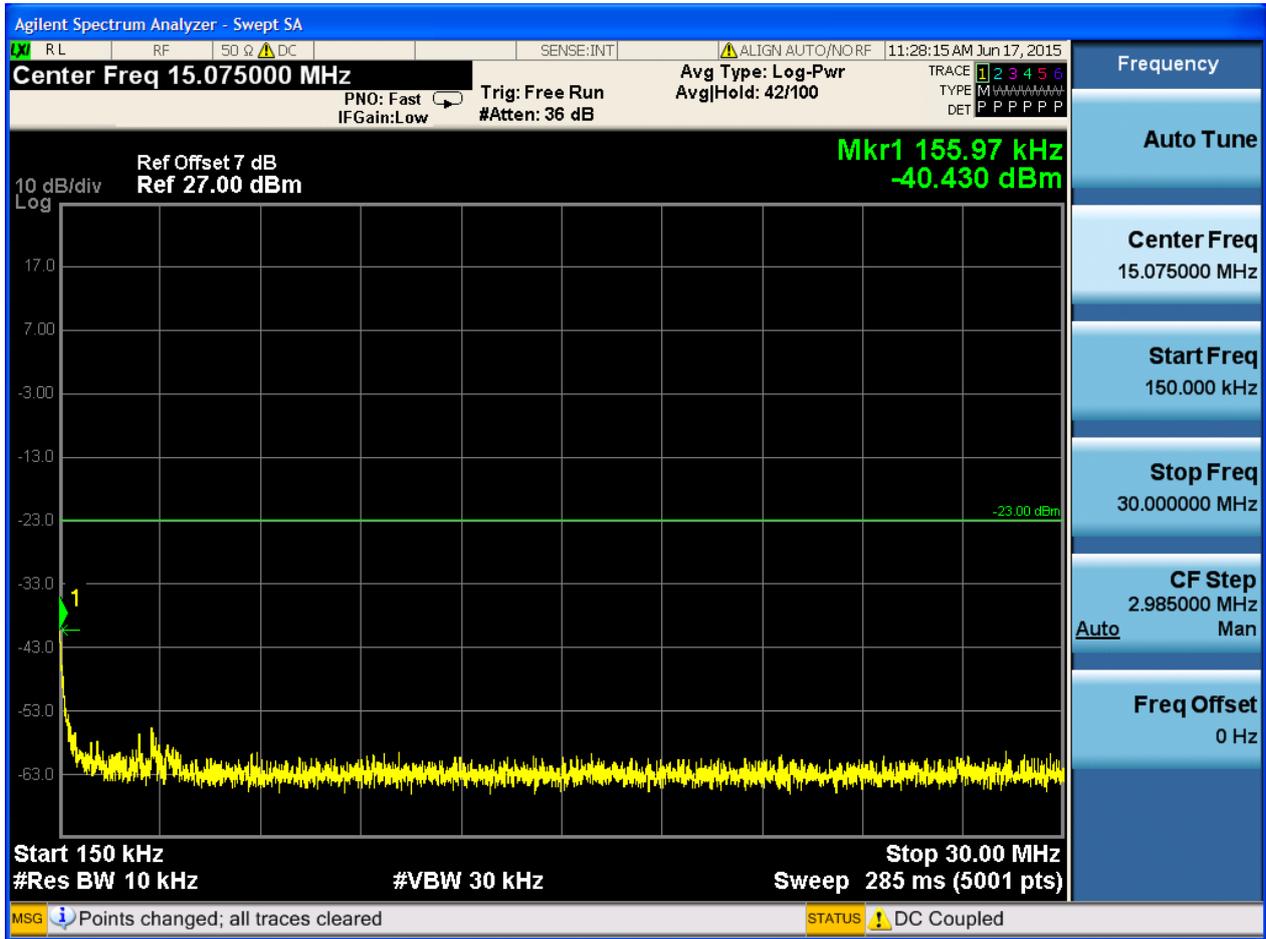


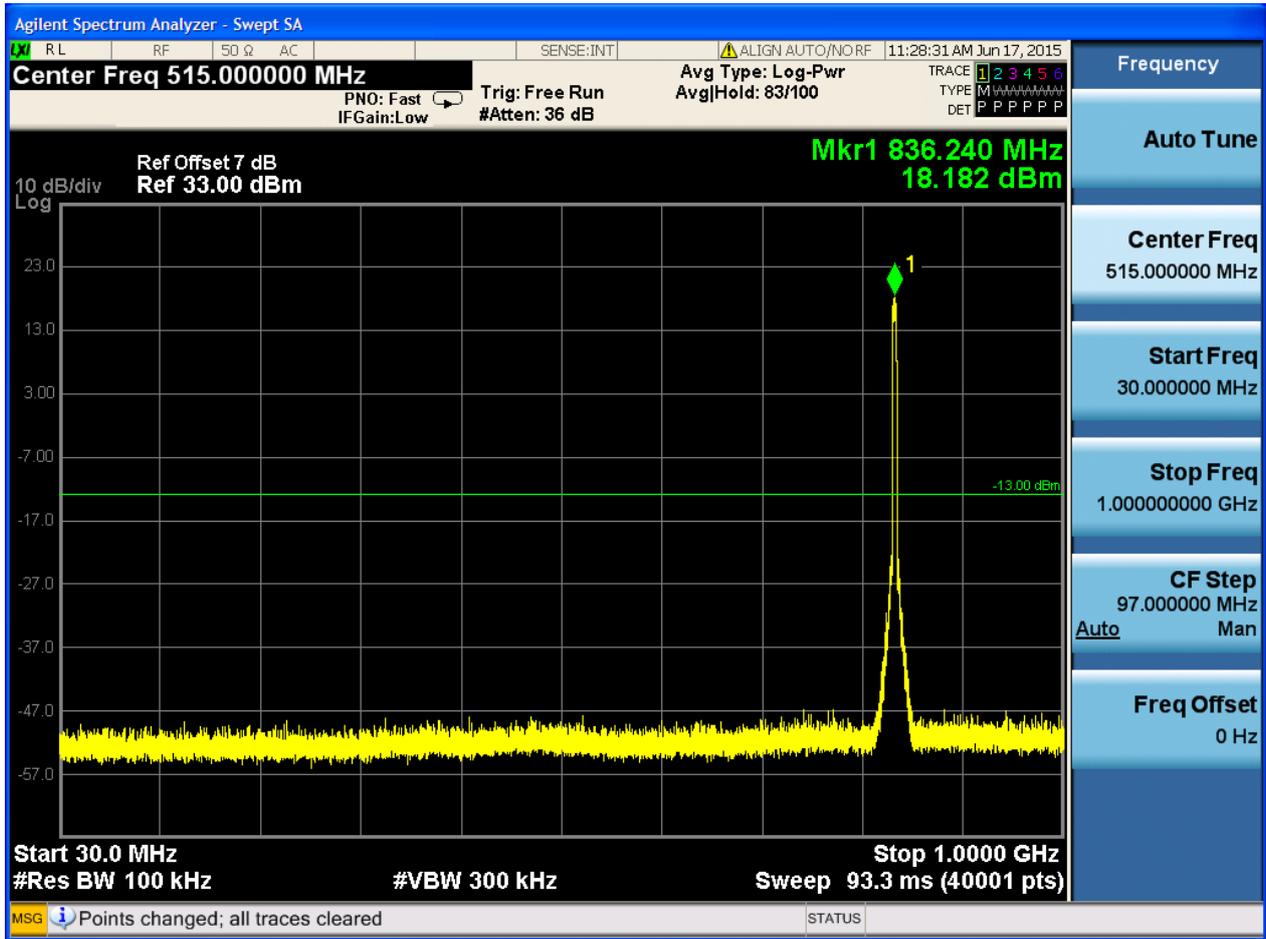


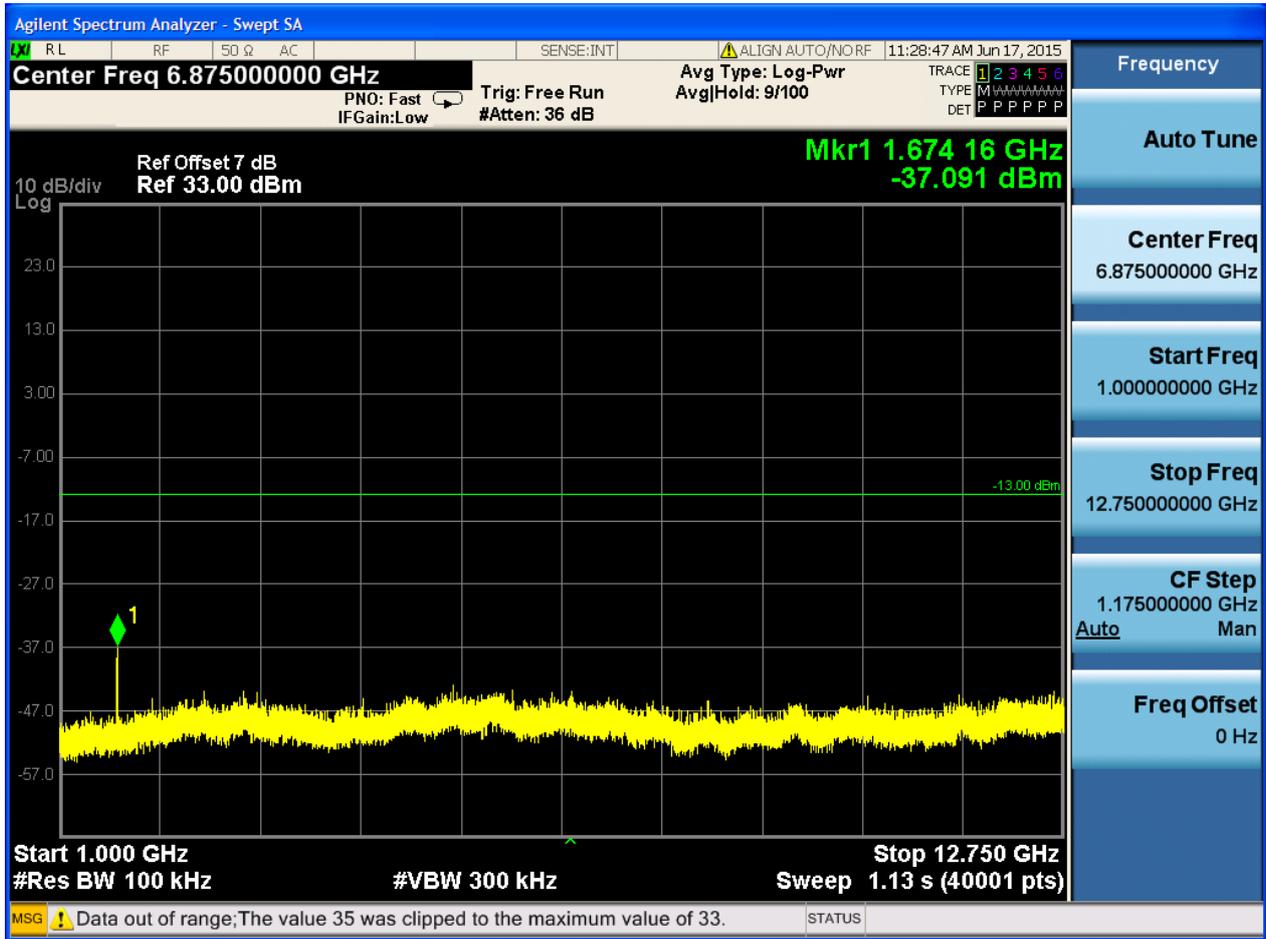






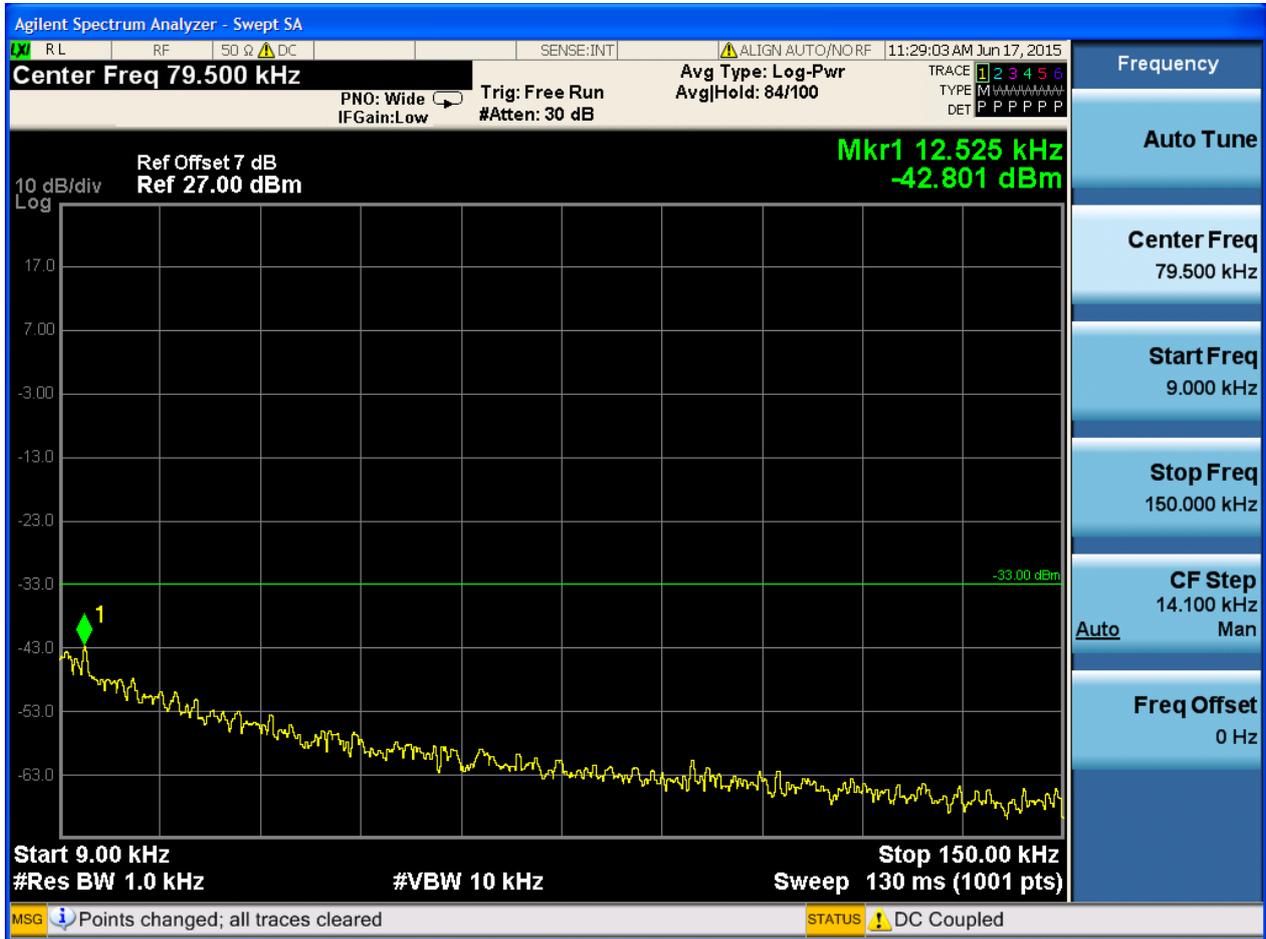


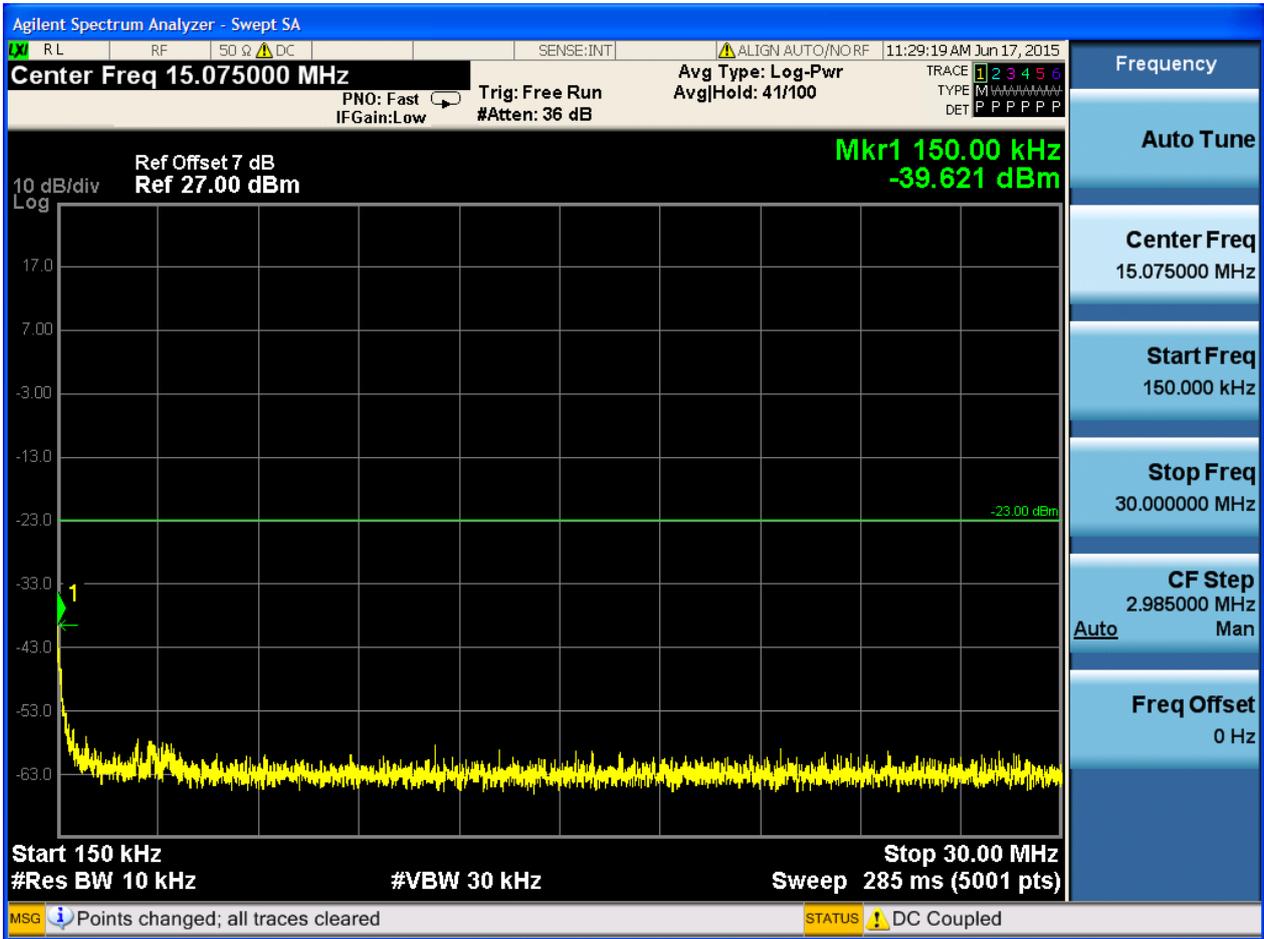


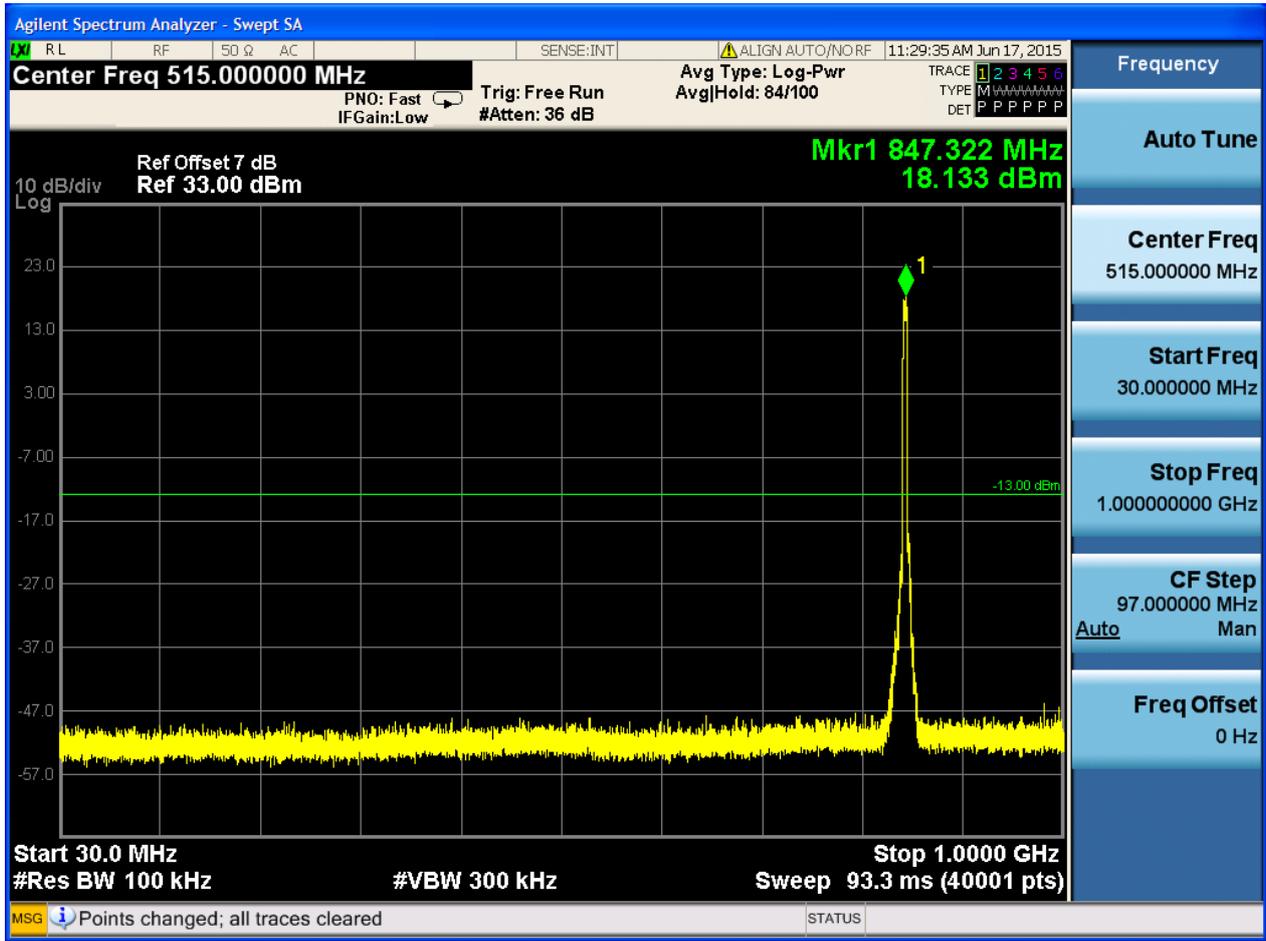


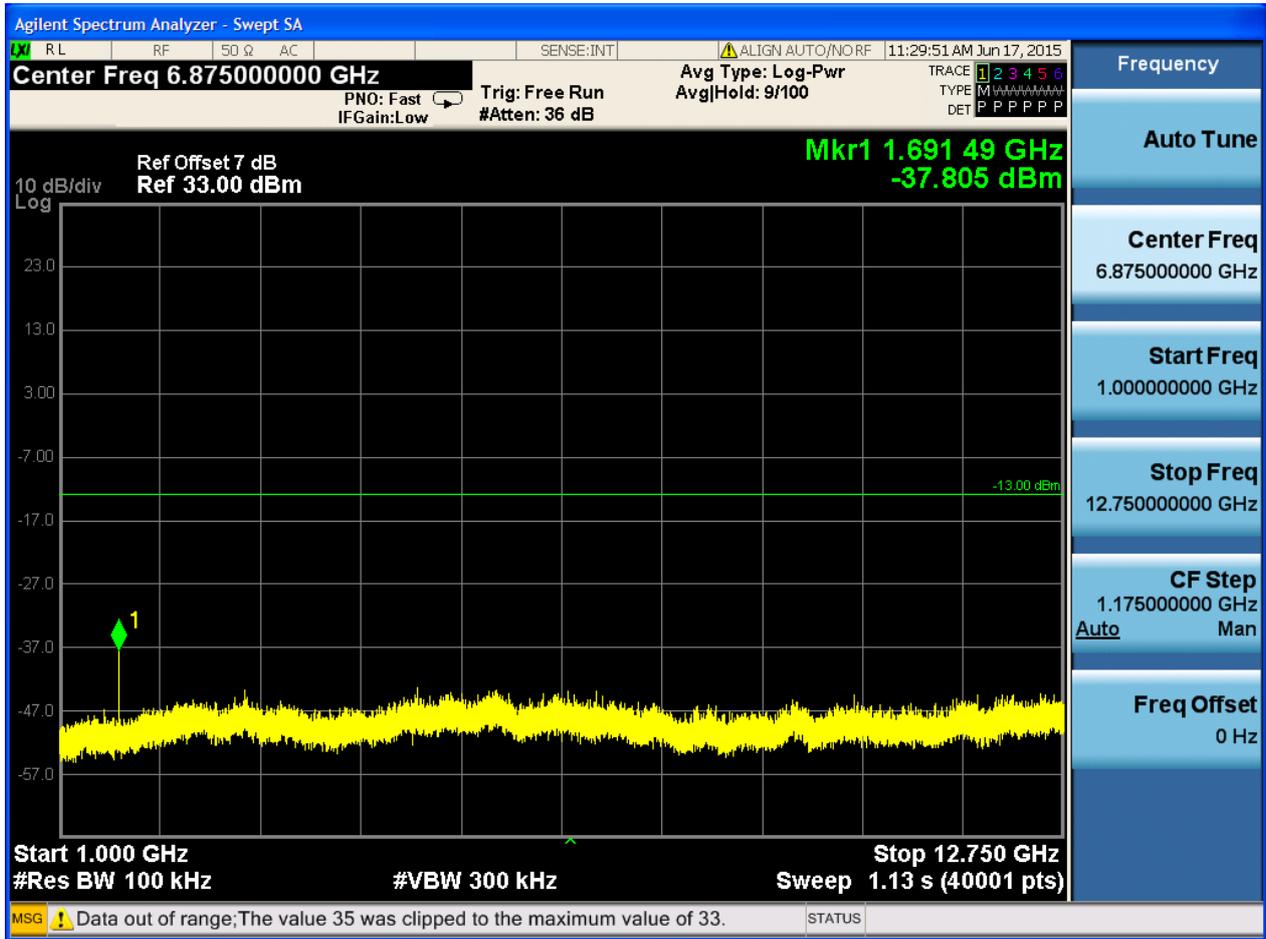


### 6.1.1.1.3 Test Channel = HCH









## 7Appendix\_G: Field Strength of Spurious Radiation

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

9kHz~150kHz, 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

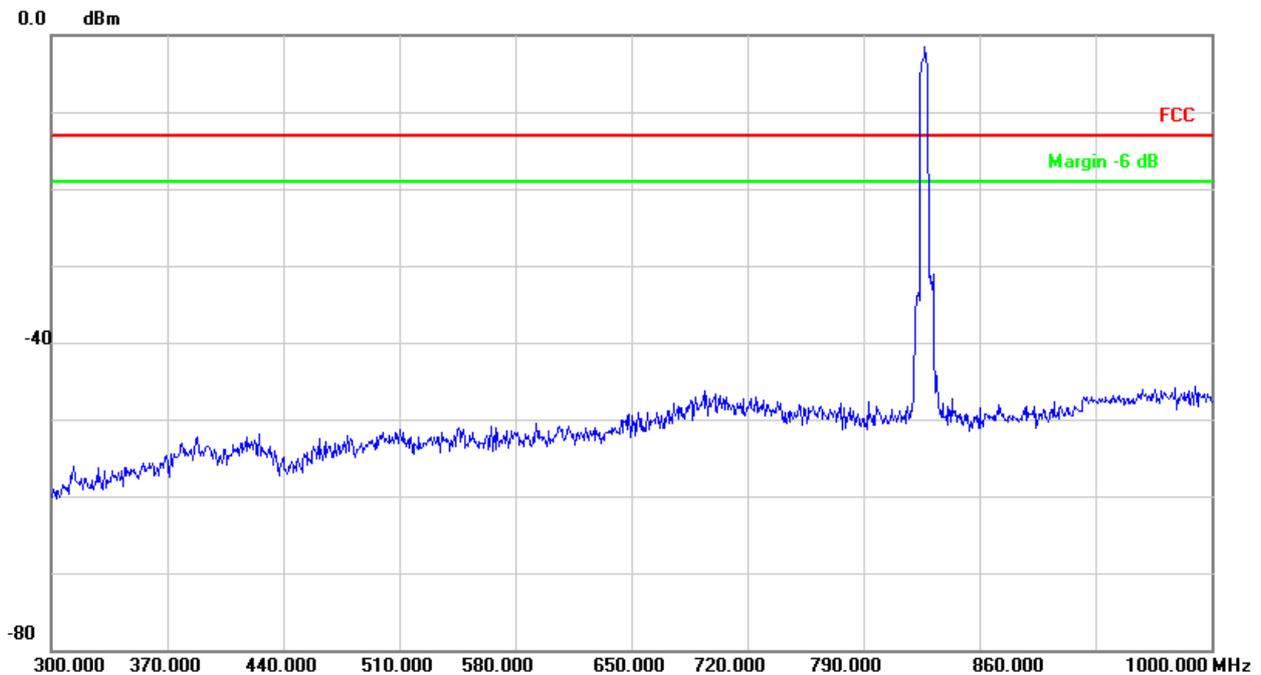
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

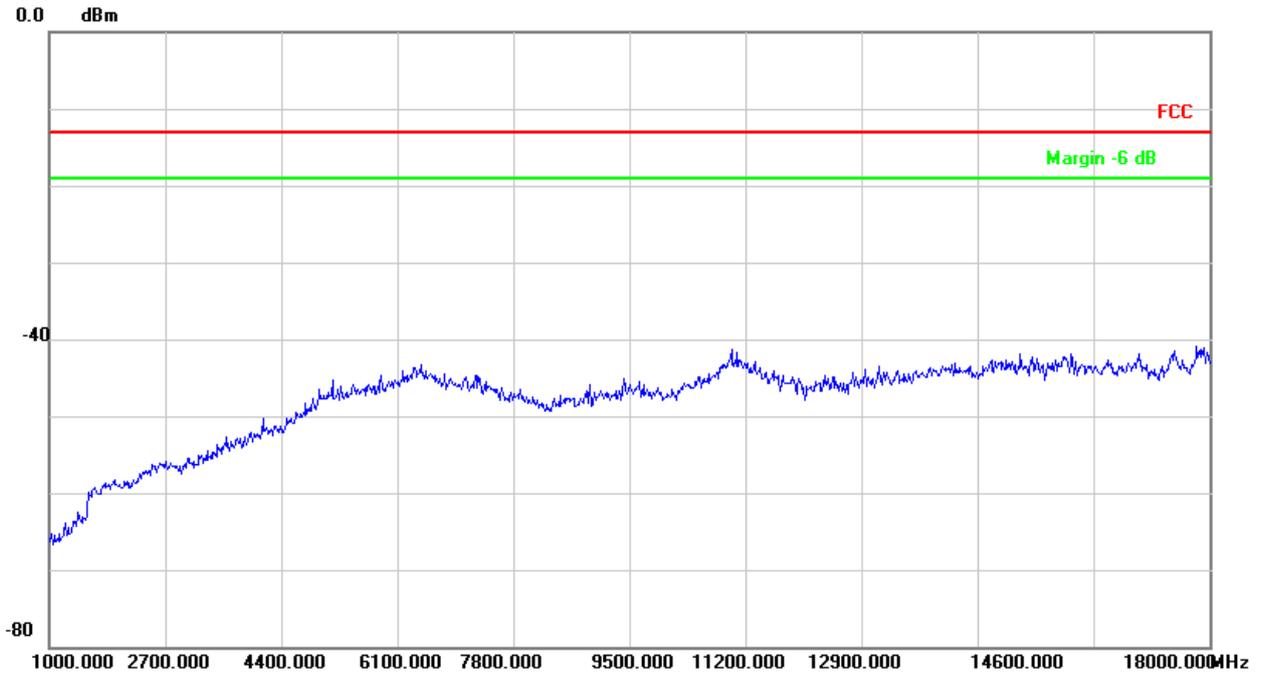
### Part I - Test Plots

#### 7.1 For UMTS

##### 7.1.1 Test Band = WCDMA850

##### 7.1.1.1 Test Mode = UMTS/TM1





## 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	2.03	0.00246	PASS
				VN	-0.37	-0.00045	PASS
				VH	0.85	0.00103	PASS
		MCH	TN	VL	-0.82	-0.00098	PASS
				VN	0.76	0.00091	PASS
				VH	1.28	0.00153	PASS
		HCH	TN	VL	-2.06	-0.00243	PASS
				VN	-0.34	-0.0004	PASS
				VH	-2.76	-0.00326	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	-1.1	-0.00133	PASS
				-20	0.08	0.0001	PASS
				-10	1.53	0.00185	PASS
				0	-0.56	-0.00068	PASS
				10	-0.2	-0.00024	PASS
				20	1.17	0.00142	PASS
				30	0.05	0.00006	PASS
				40	2.64	0.00319	PASS
		MCH	VN	50	1.22	0.00148	PASS
				-30	-1.08	-0.00129	PASS
				-20	-0.44	-0.00053	PASS
				-10	1.53	0.00183	PASS
				0	-0.89	-0.00106	PASS
				10	0.98	0.00117	PASS
				20	-0.49	-0.00059	PASS
				30	0.82	0.00098	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				40	-1.75	-0.00209	PASS
				50	-1.56	-0.00187	PASS
		HCH	VN	-30	0.29	0.00034	PASS
				-20	-1.42	-0.00168	PASS
				-10	-2.9	-0.00343	PASS
				0	-1.94	-0.00229	PASS
				10	-2.94	-0.00347	PASS
				20	-2.58	-0.00305	PASS
				30	-0.78	-0.00092	PASS
				40	-2.44	-0.00288	PASS
				50	-1.53	-0.00181	PASS

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END