



# 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	23.05	18.9	38.5	PASS
		MCH	23.05	18.9	38.5	PASS
		HCH	23.05	18.9	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	2.97	13	PASS
		MCH	3.04	13	PASS
		HCH	2.9	13	PASS

### 3Appendix\_C: Modulation Characteristics

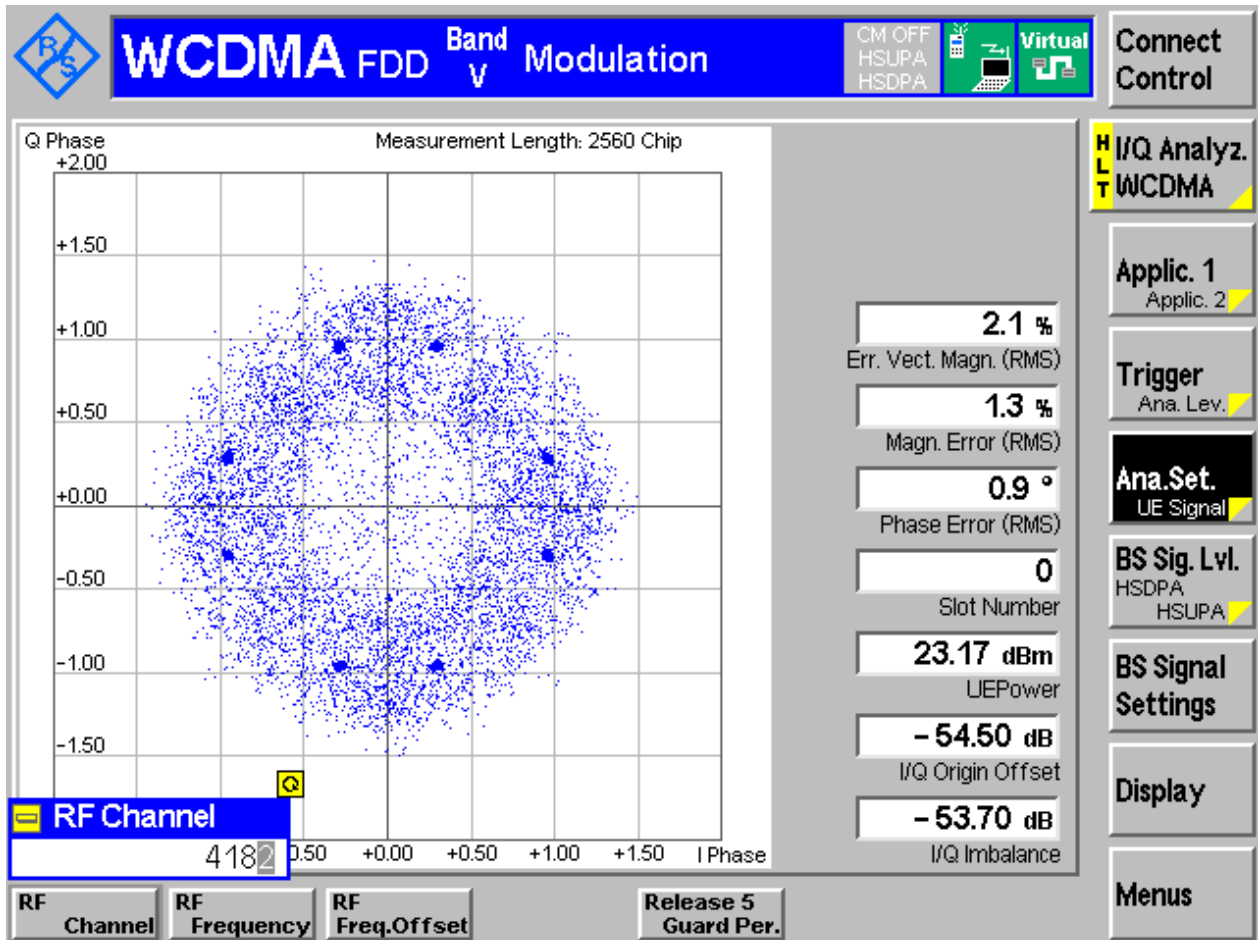
#### Part I - Test Plots

#### 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	4.14	4.71	Pass
		MCH	4.14	4.70	Pass
		HCH	4.15	4.72	Pass



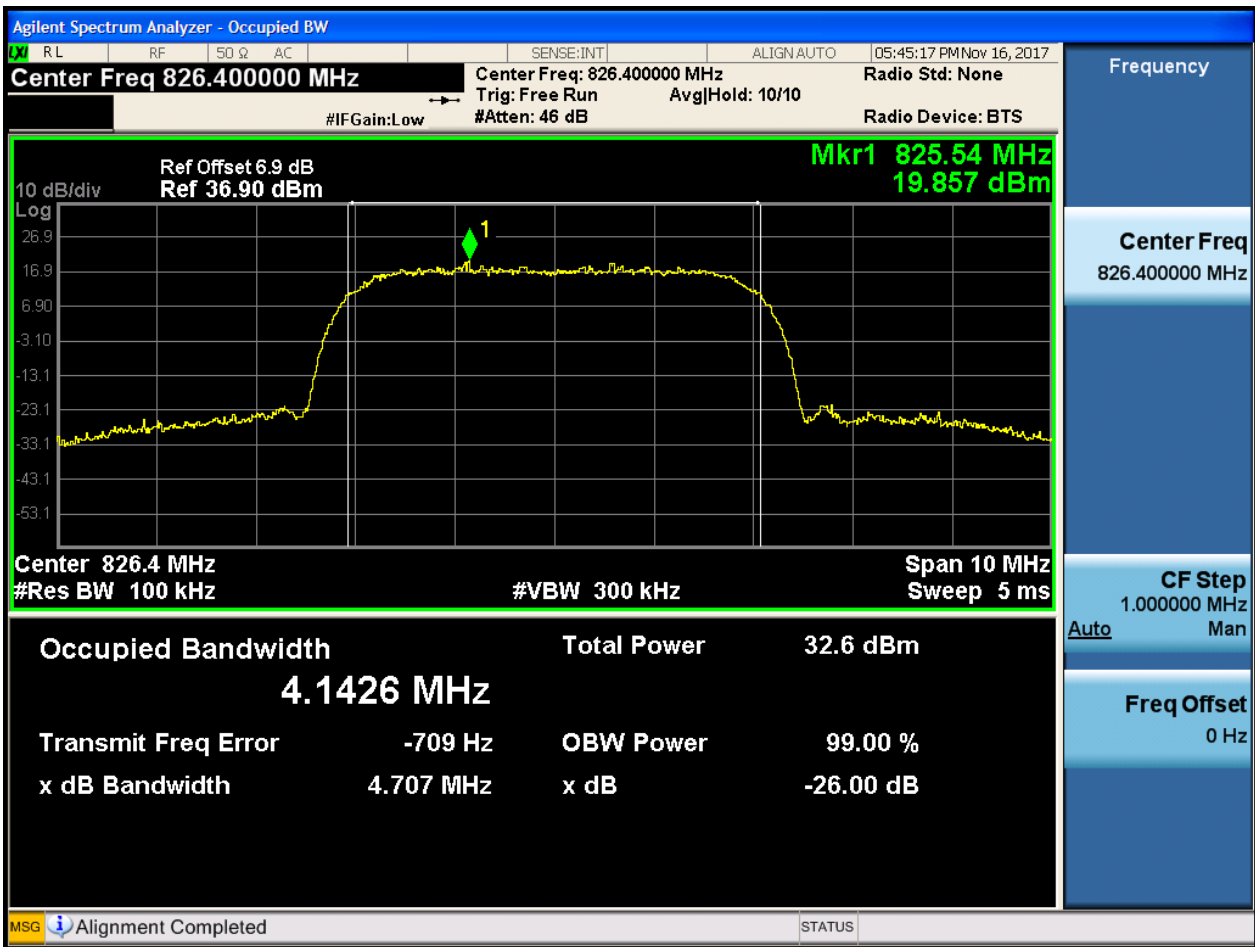
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

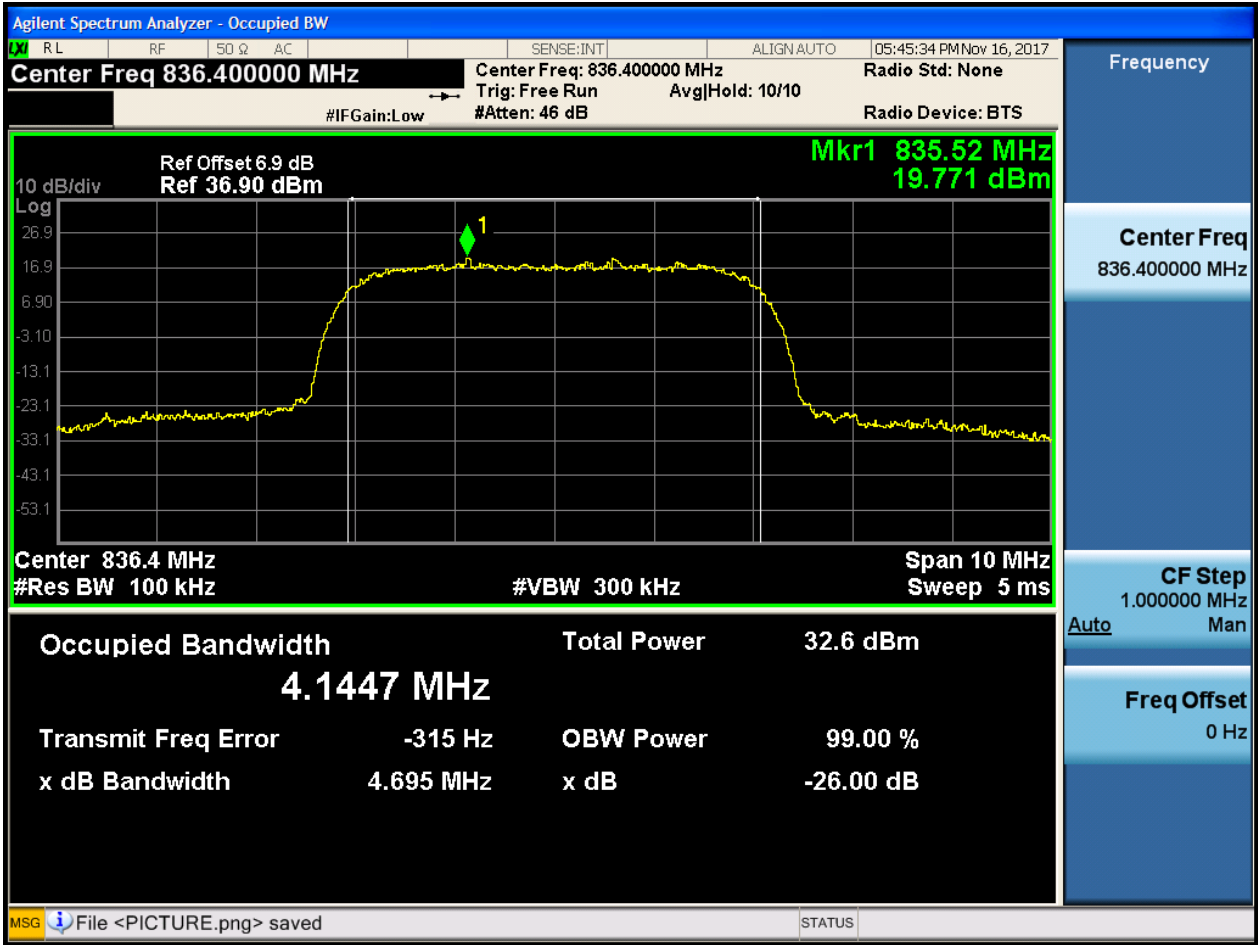
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH





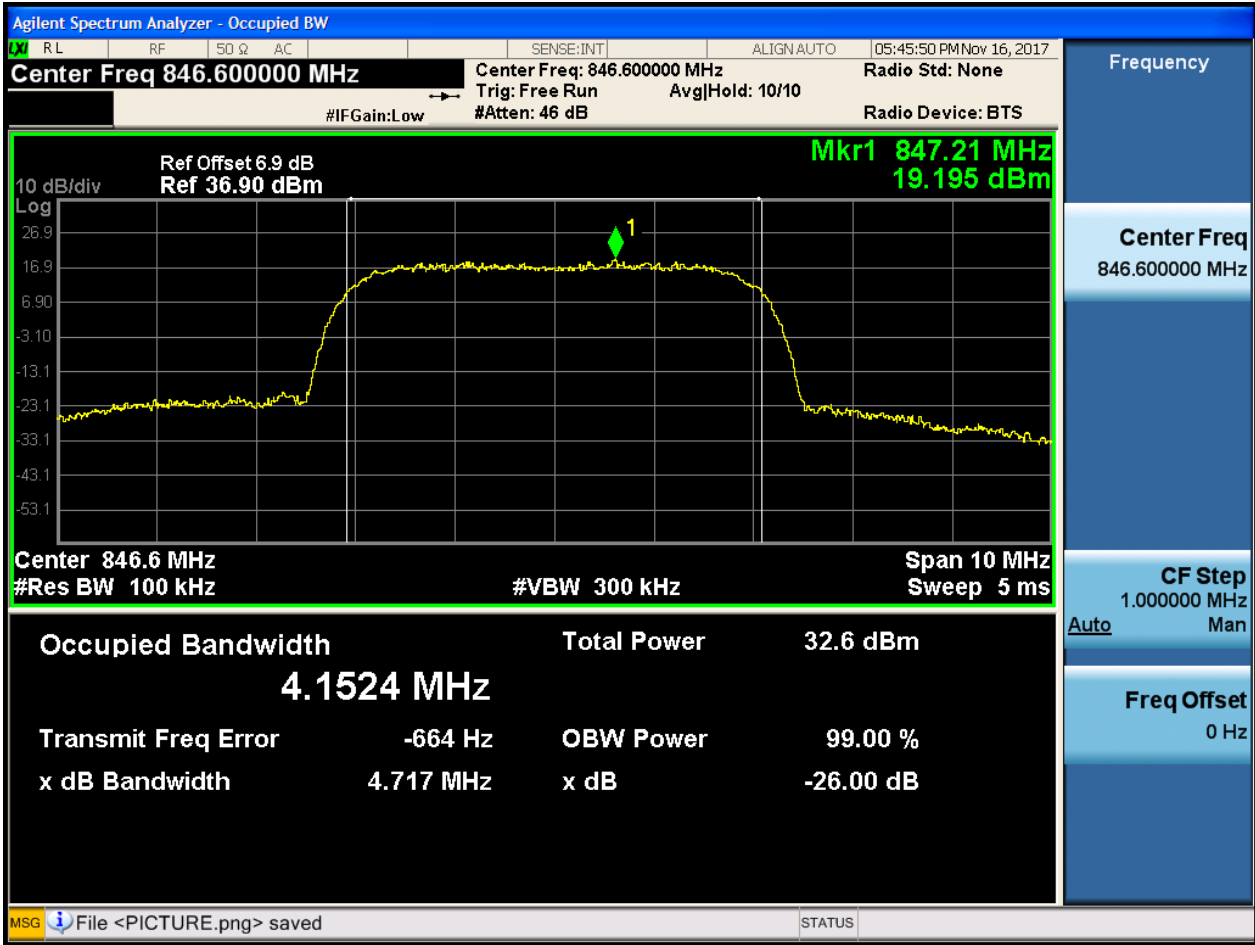
4.1.1.1.2 Test Channel = MCH







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.

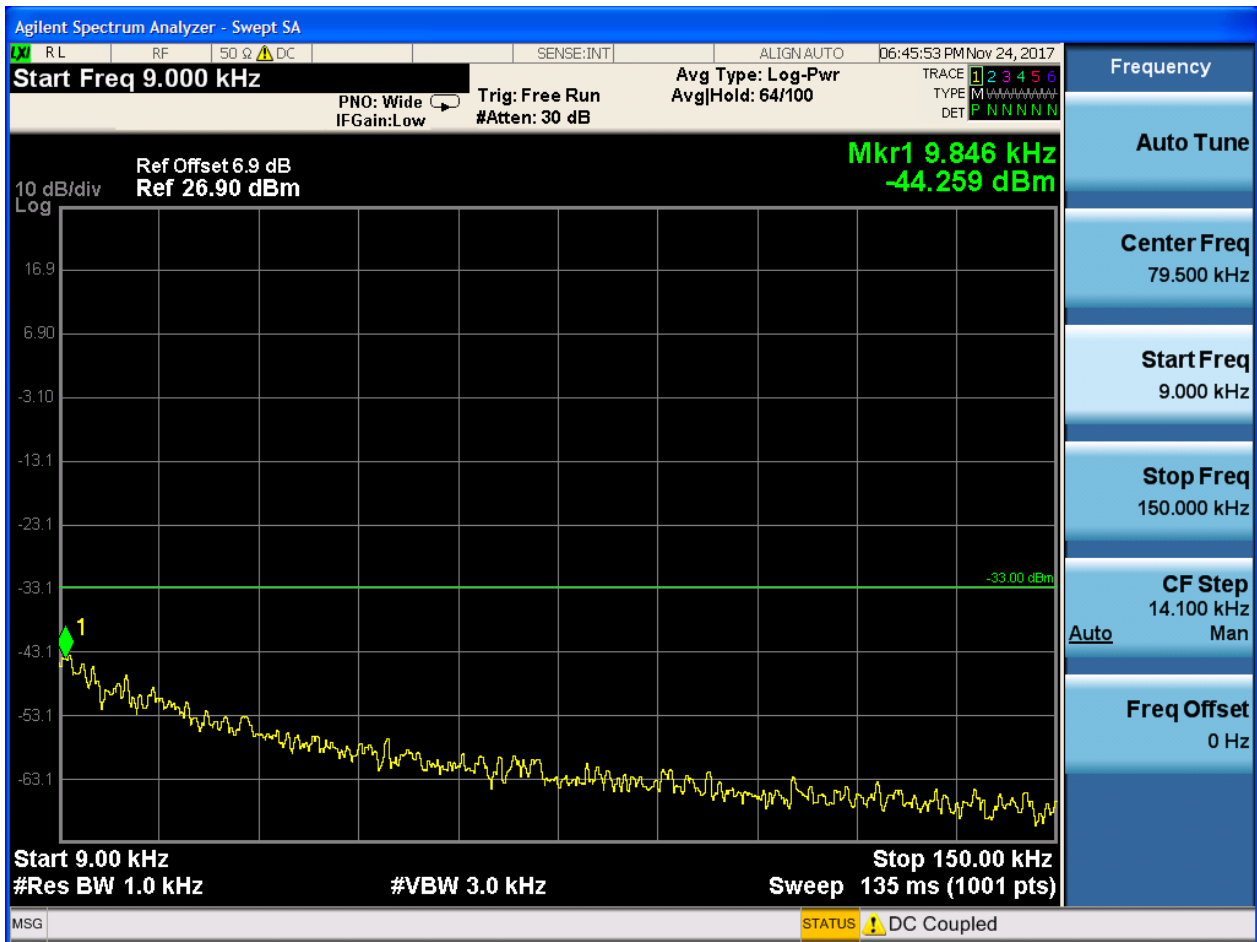
### Part I - Test Plots

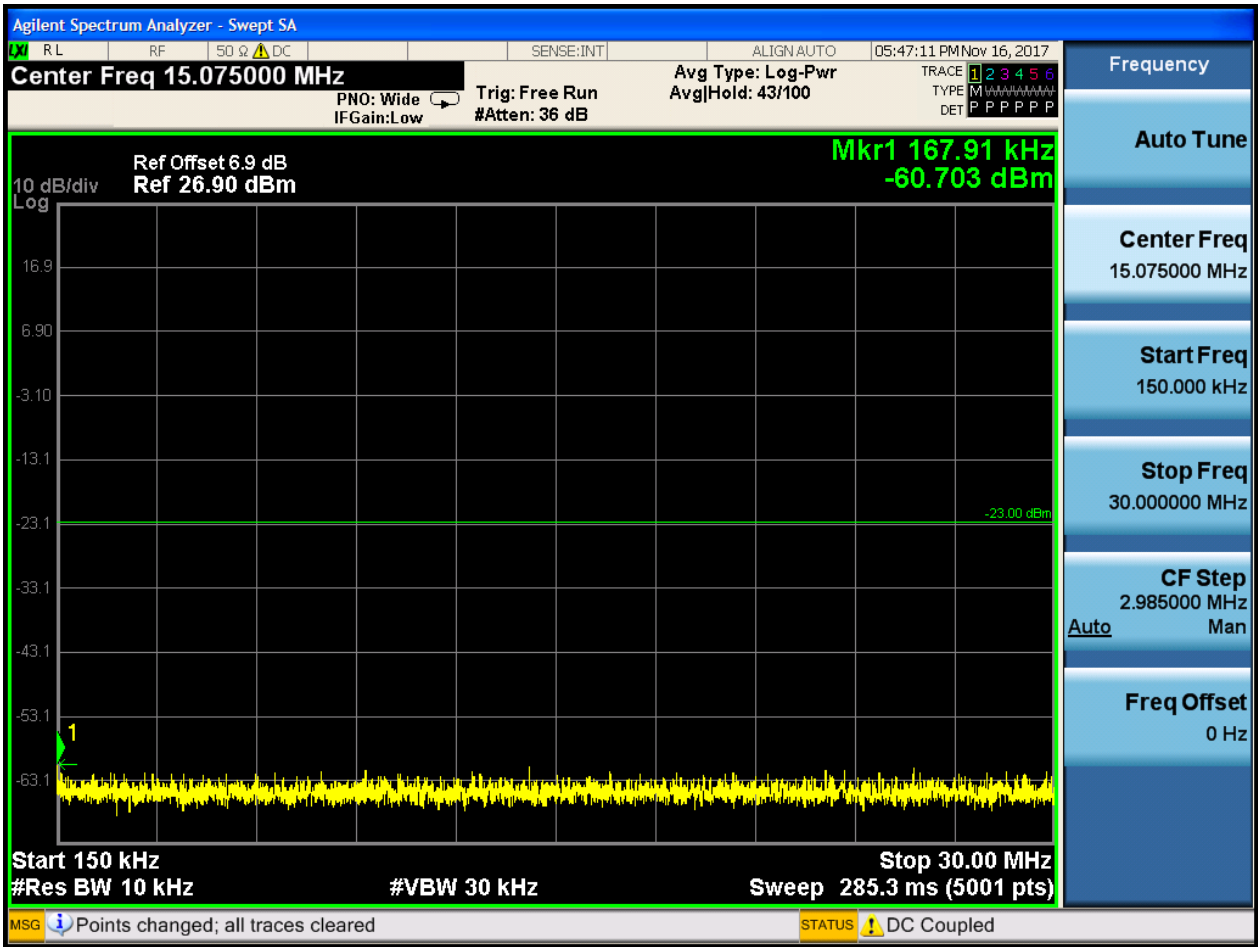
#### 6.1 For UMTS

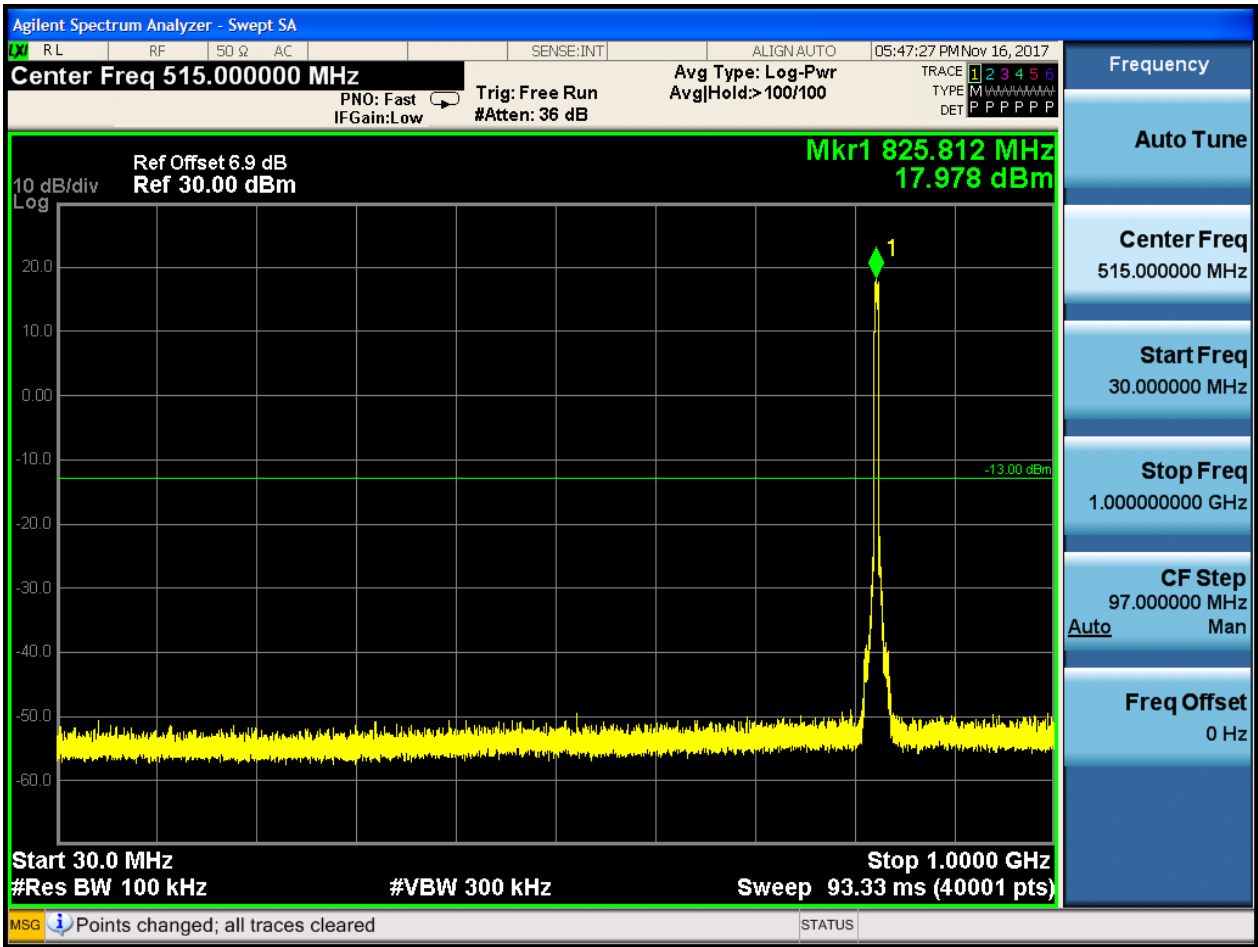
##### 6.1.1 Test Band = WCDMA850

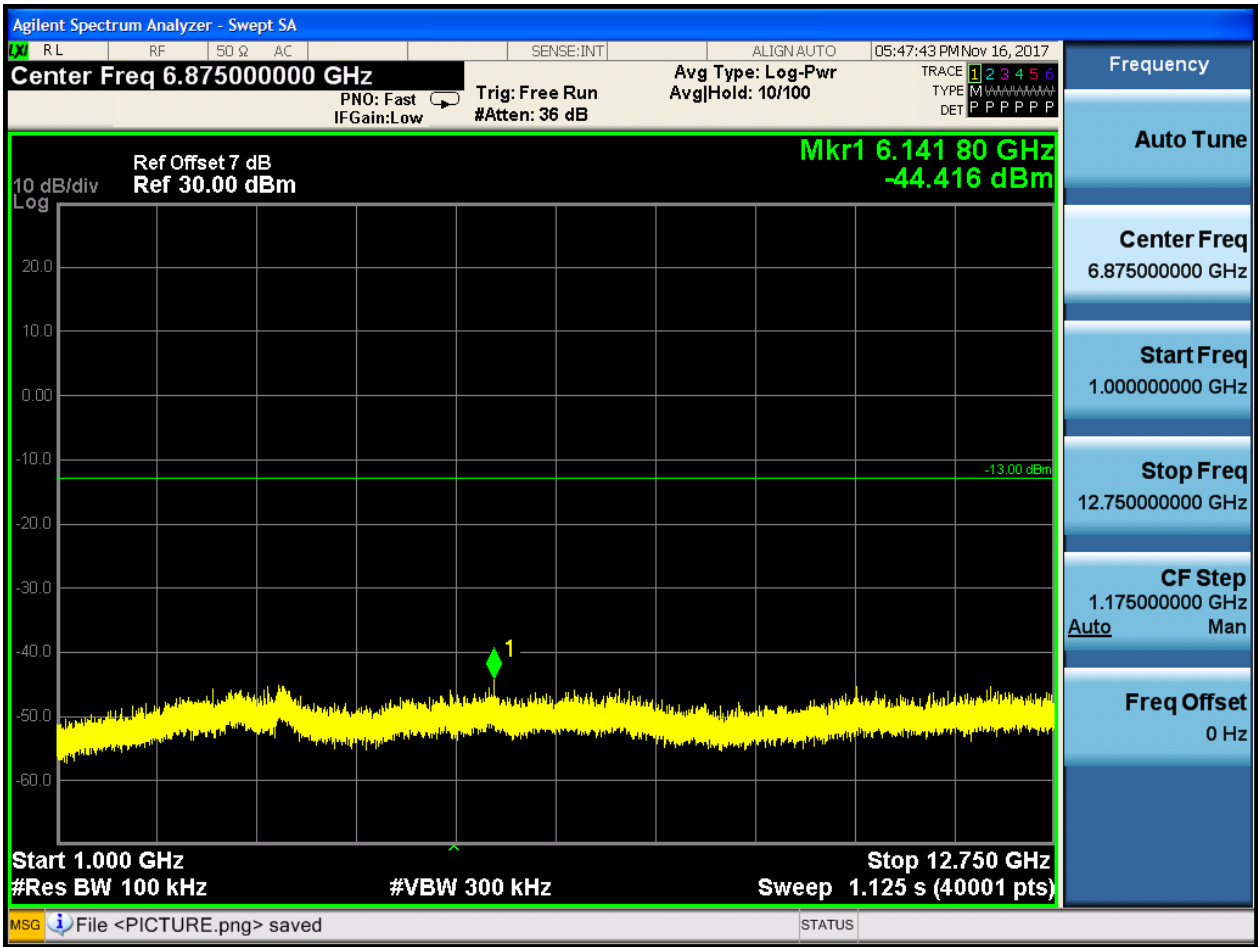
##### 6.1.1.1 Test Mode = UMTS/TM1

##### 6.1.1.1.1 Test Channel = LCH



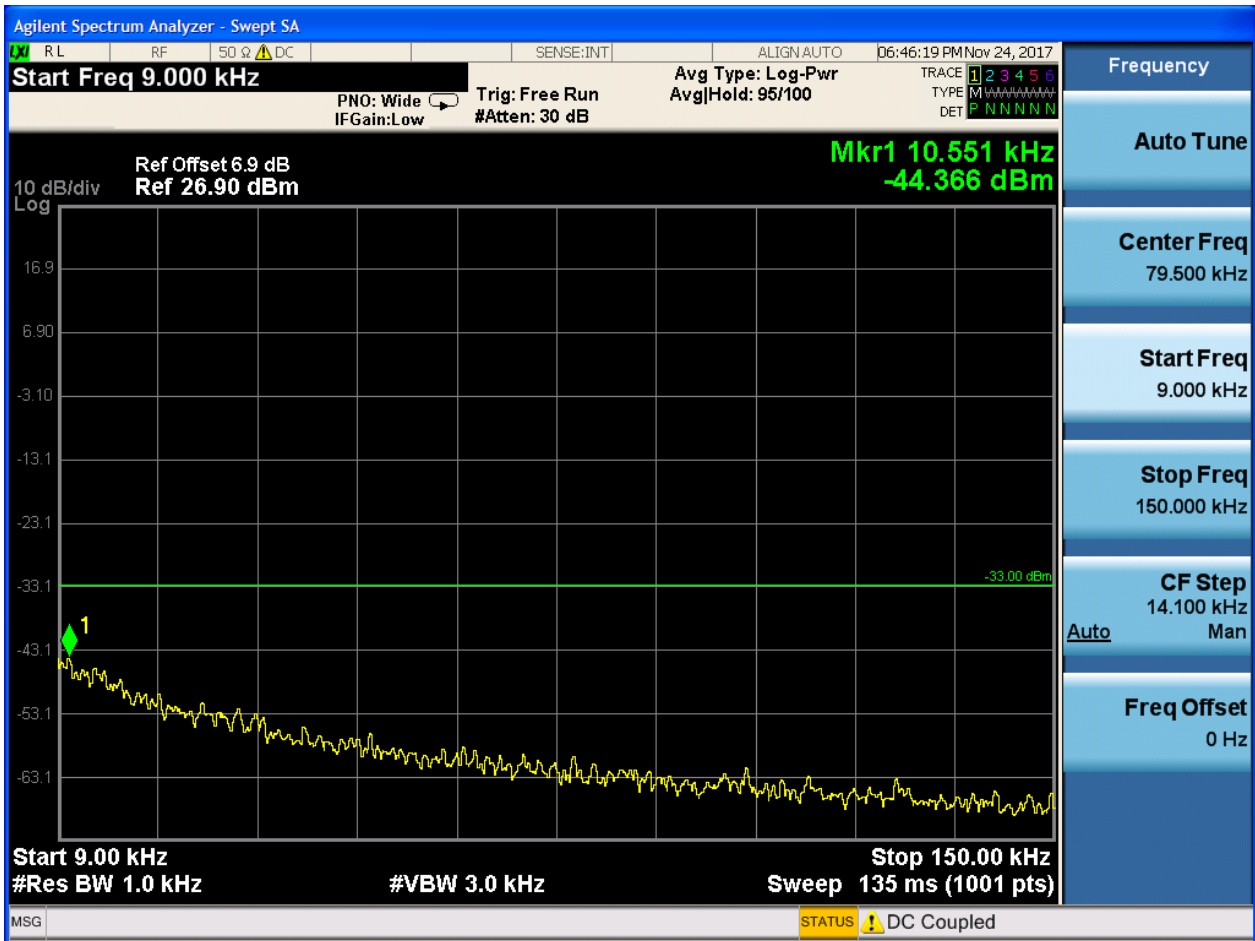




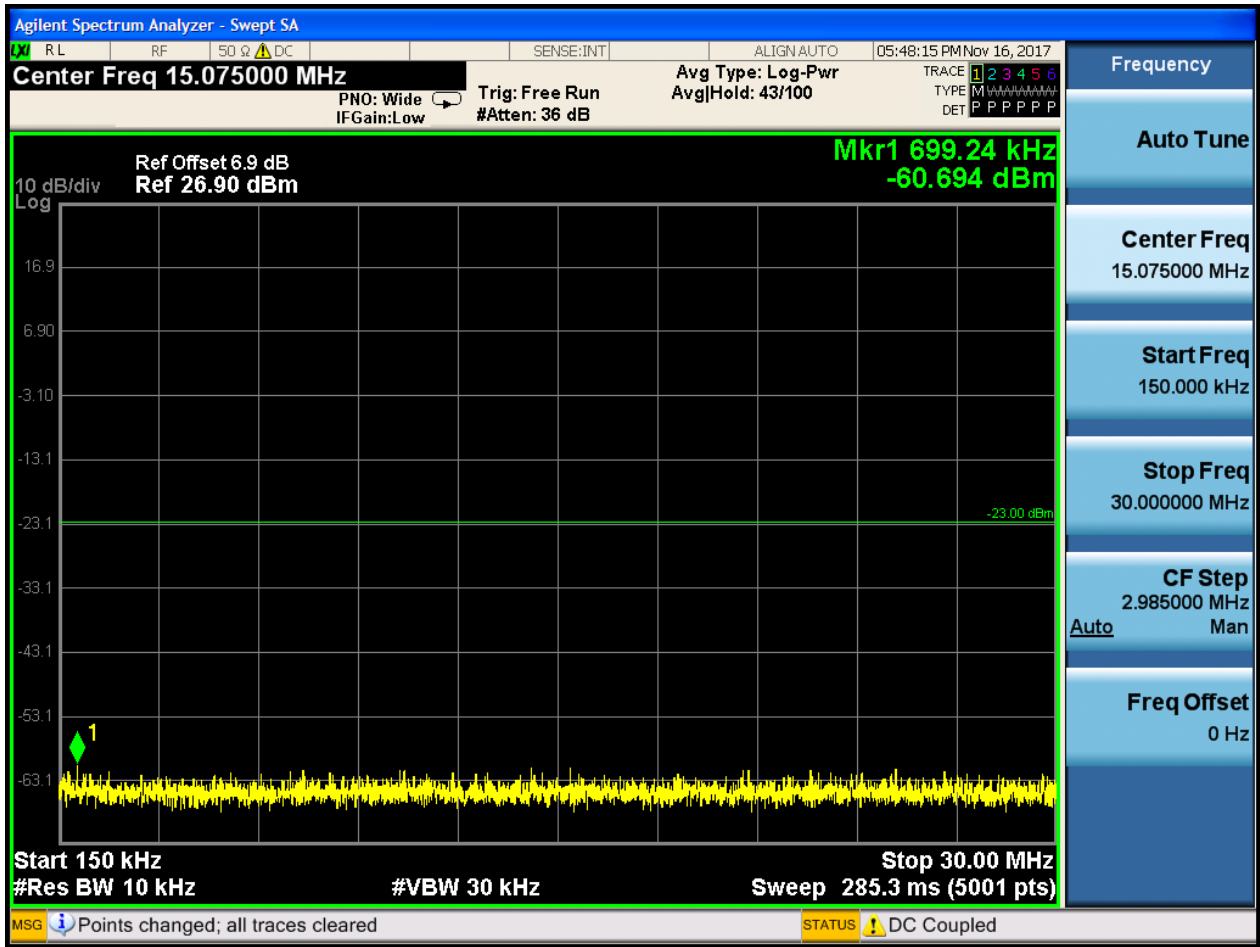




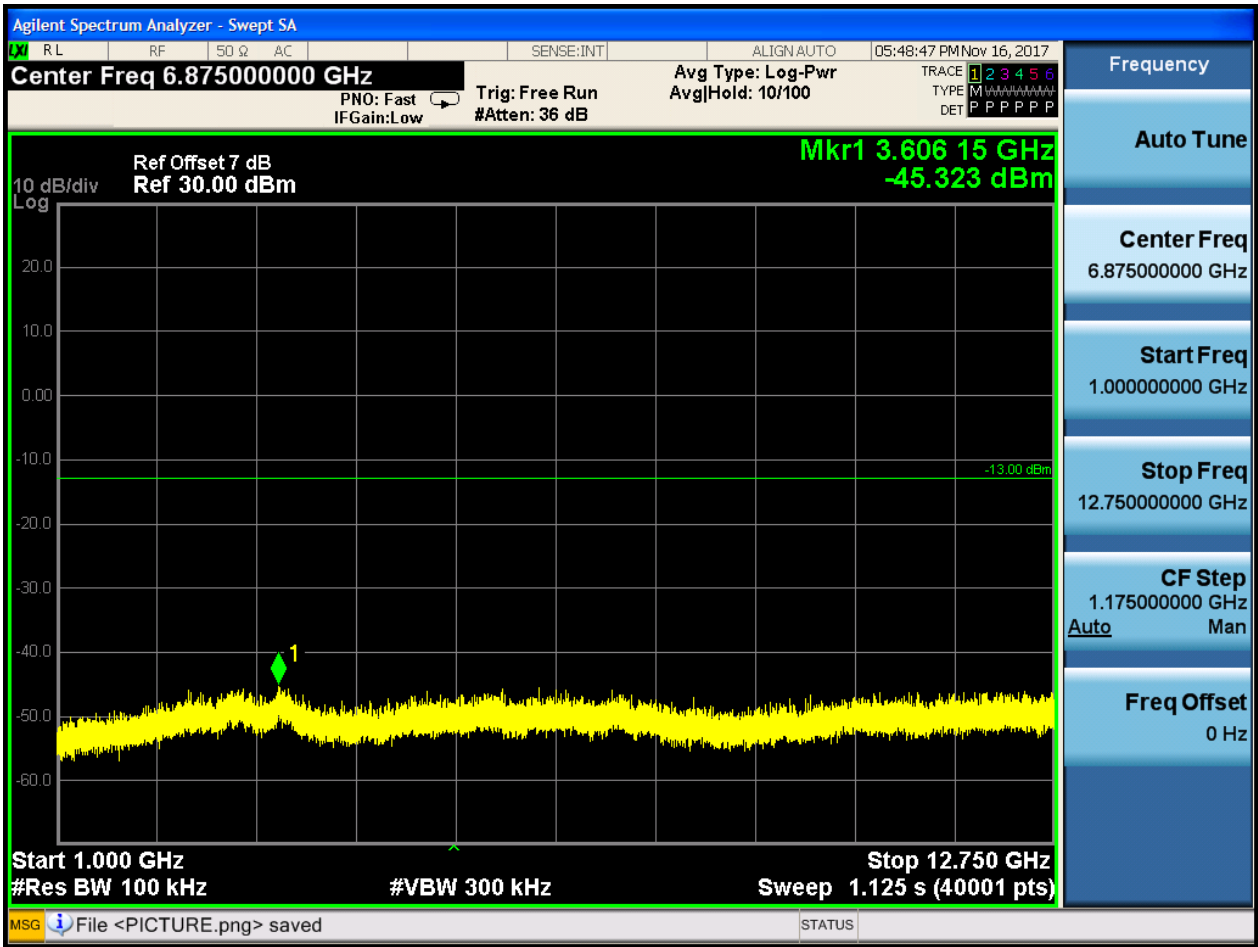
### 6.1.1.1.2 Test Channel = MCH





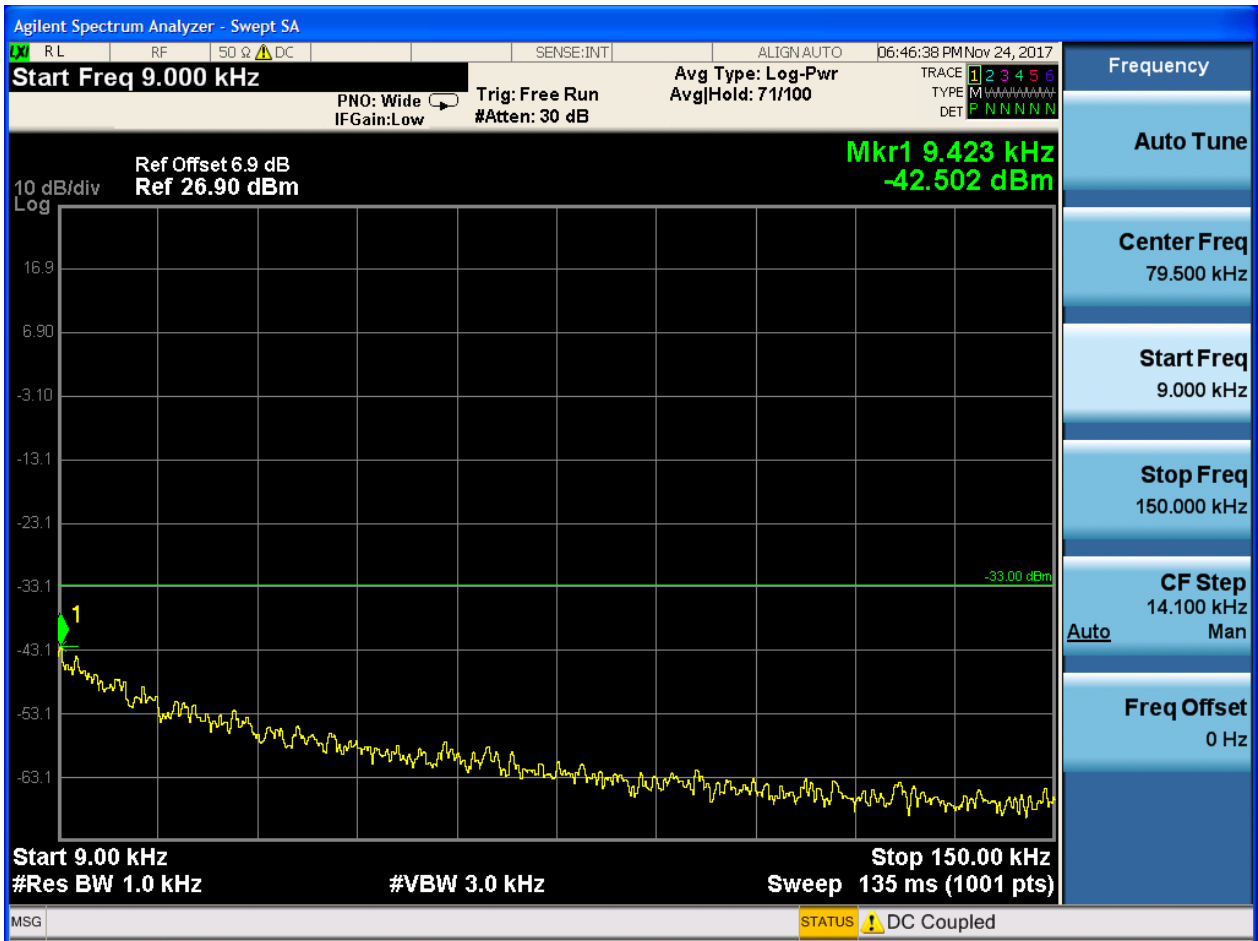


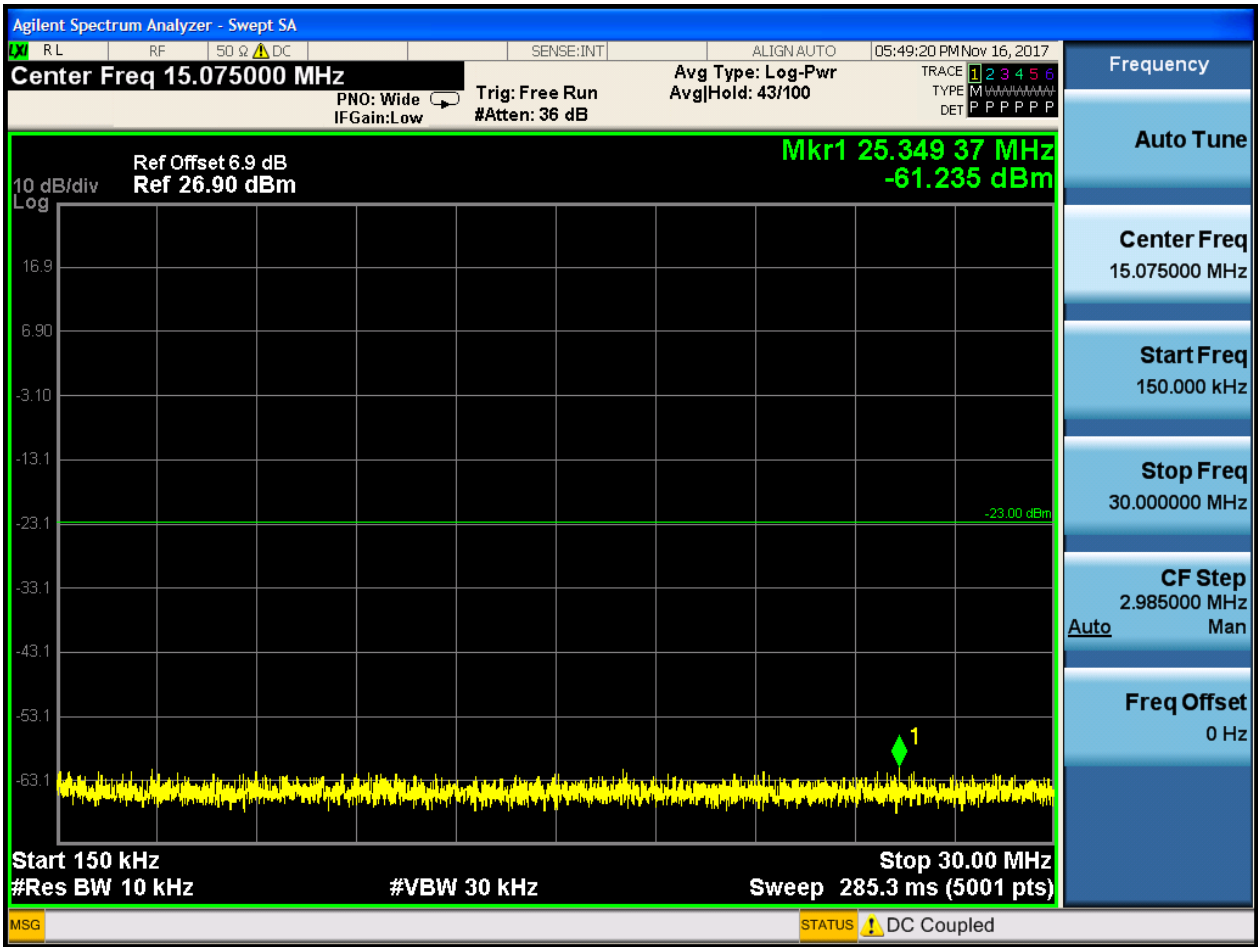




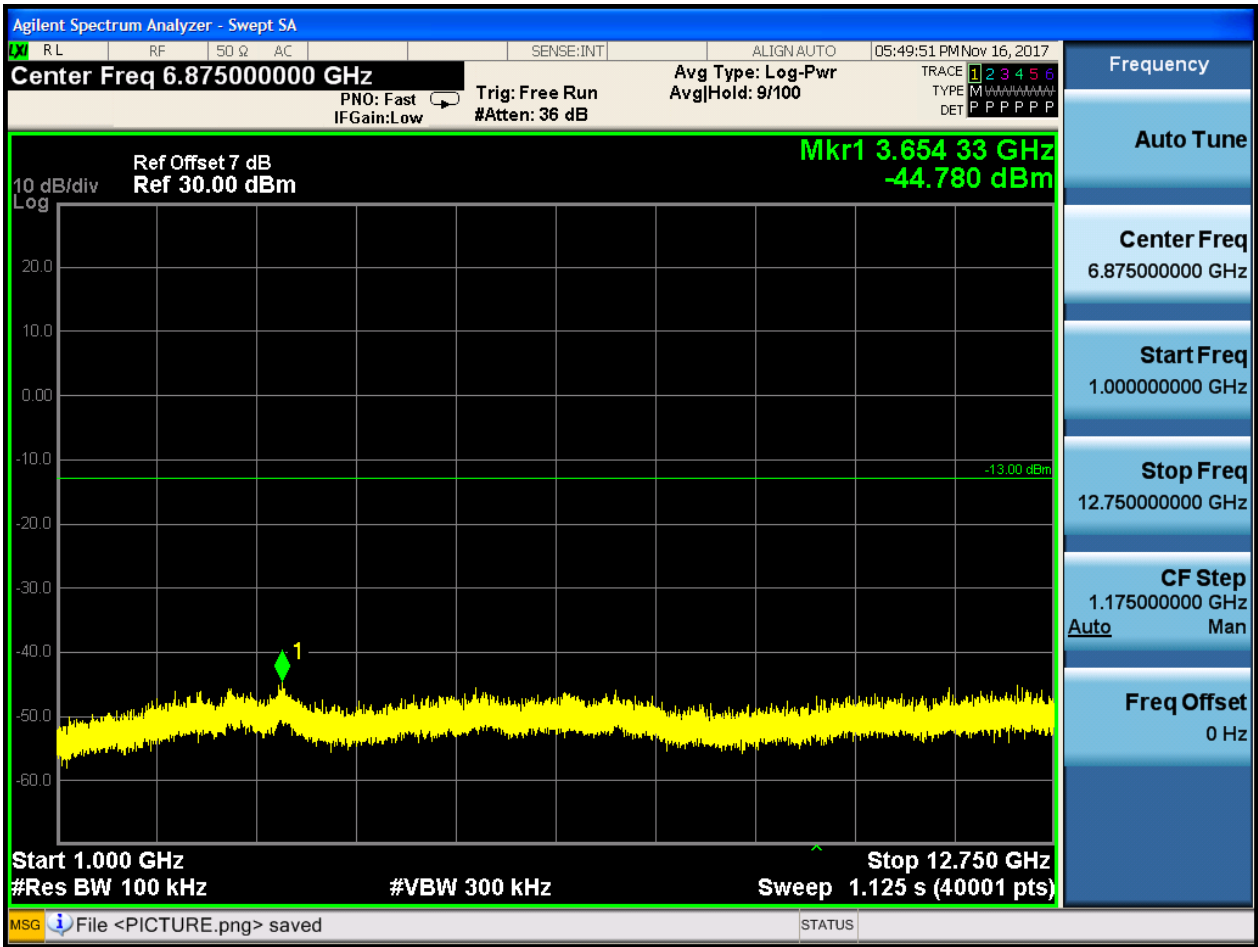


### 6.1.1.1.3 Test Channel = HCH









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

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

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

150 kHz~30MHz, RBW = 9kHz, VBW = 30k Hz, Detector: PK

30MHz~1GHz, RBW = 100 kHz, VBW = 300 kHz. Detector: PK

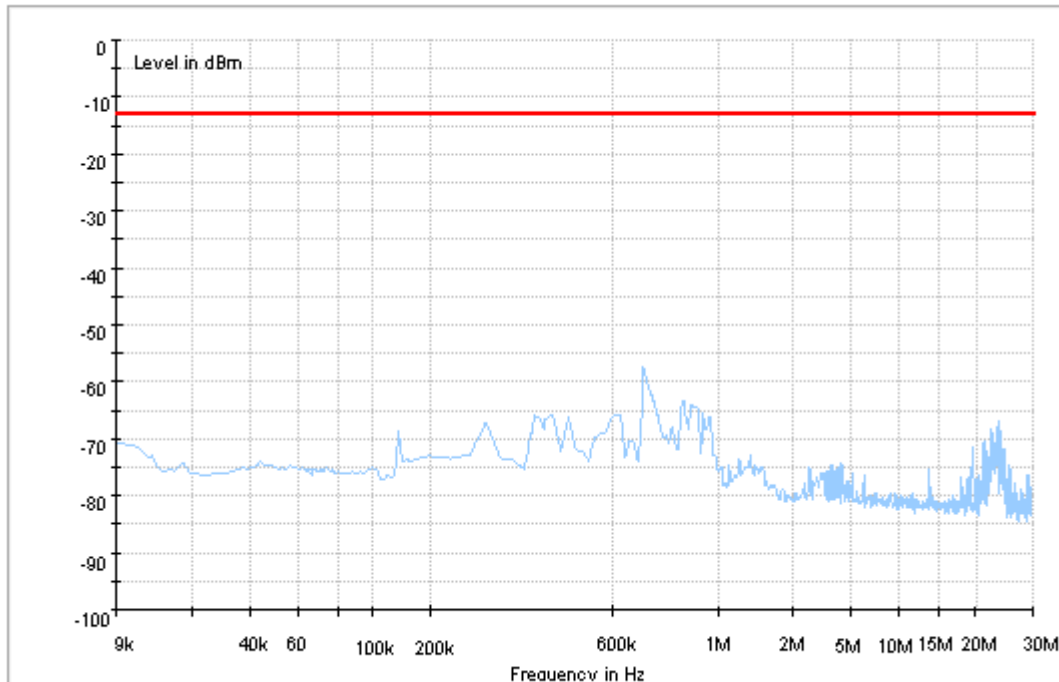
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz Detector: PK

### Part I - Test Plots

#### 7.1 For UMTS

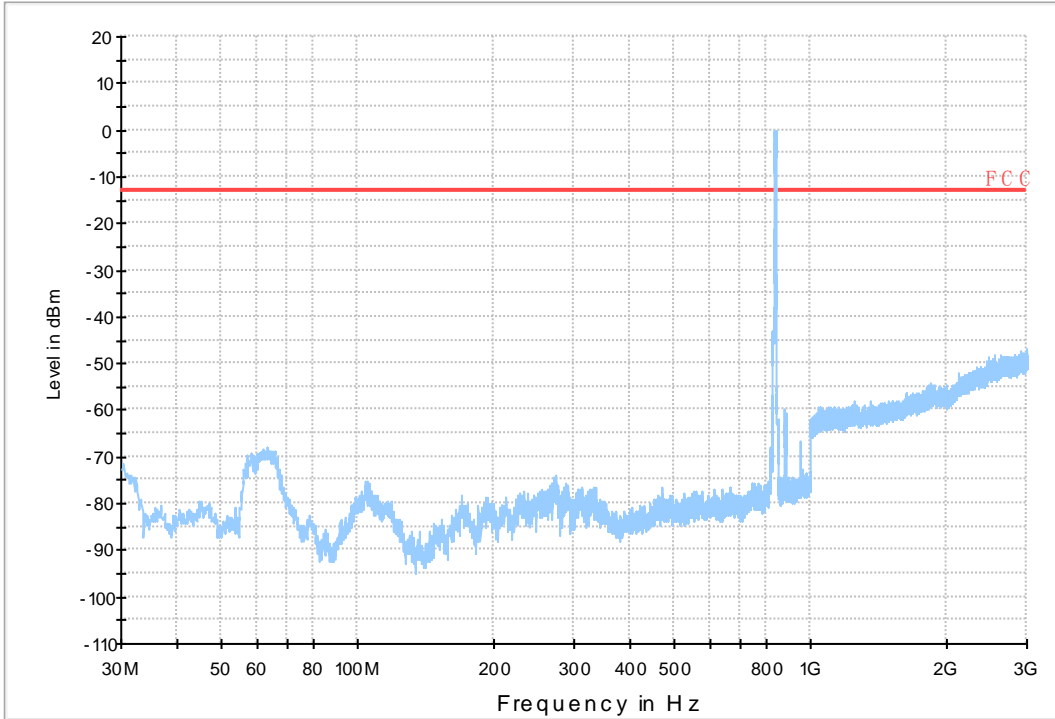
##### 7.1.1 Test Band = WCDMA850\_ANT1

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

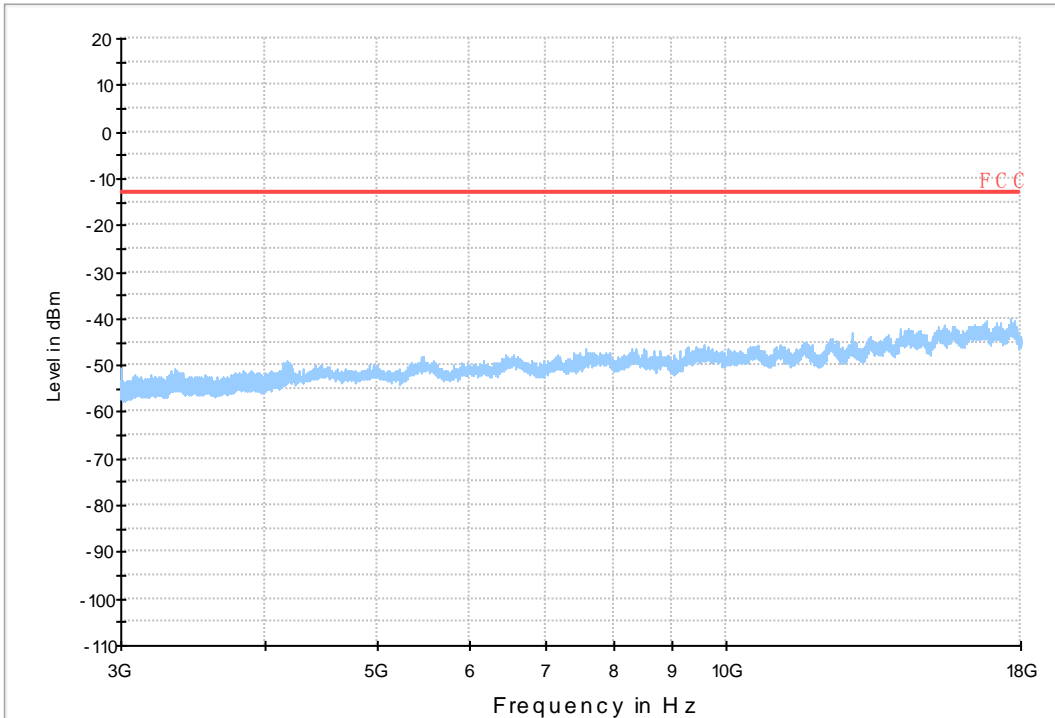




Copy of FCC PART22 W CDMA850\_L

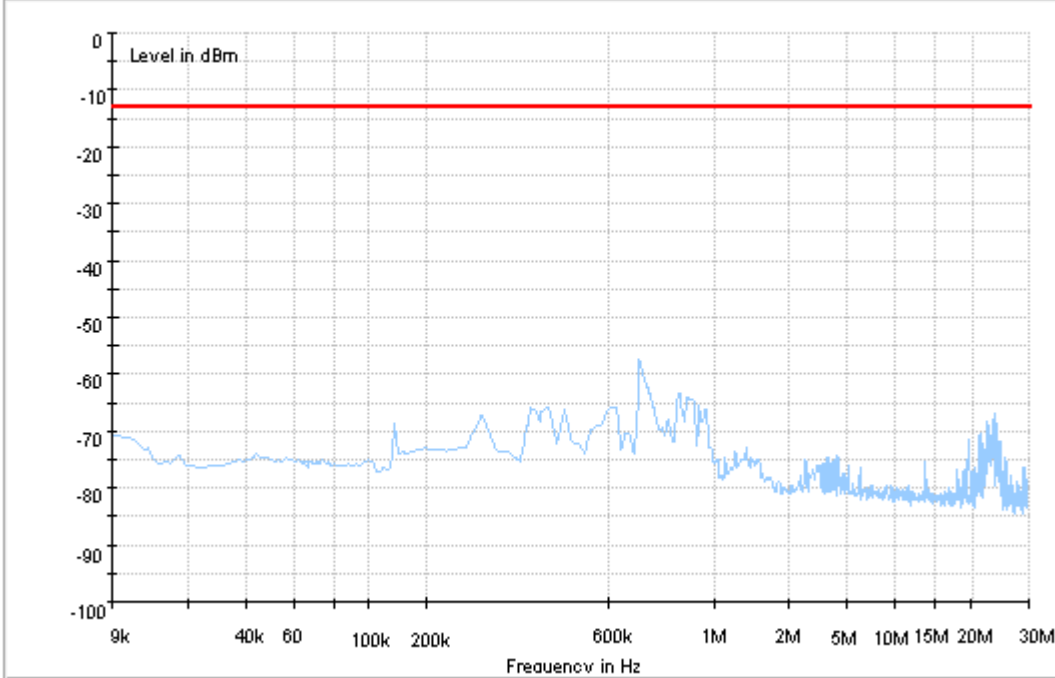


Copy of FCC PART22 W CDMA850\_H

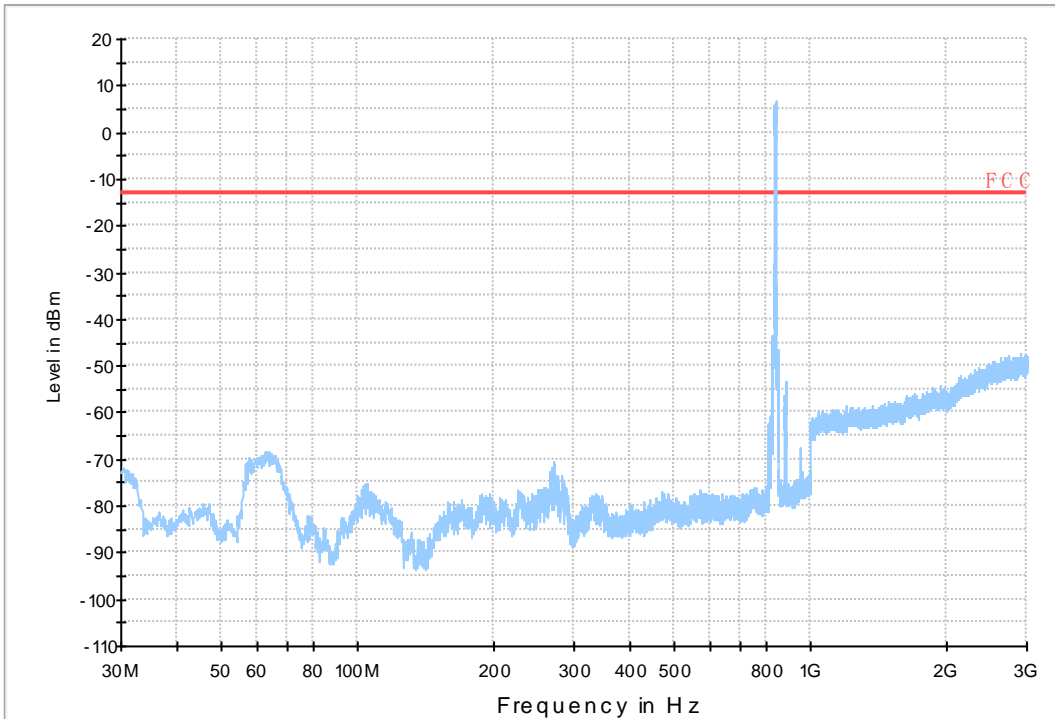


### 7.1.2 Test Band = WCDMA850\_ANT2

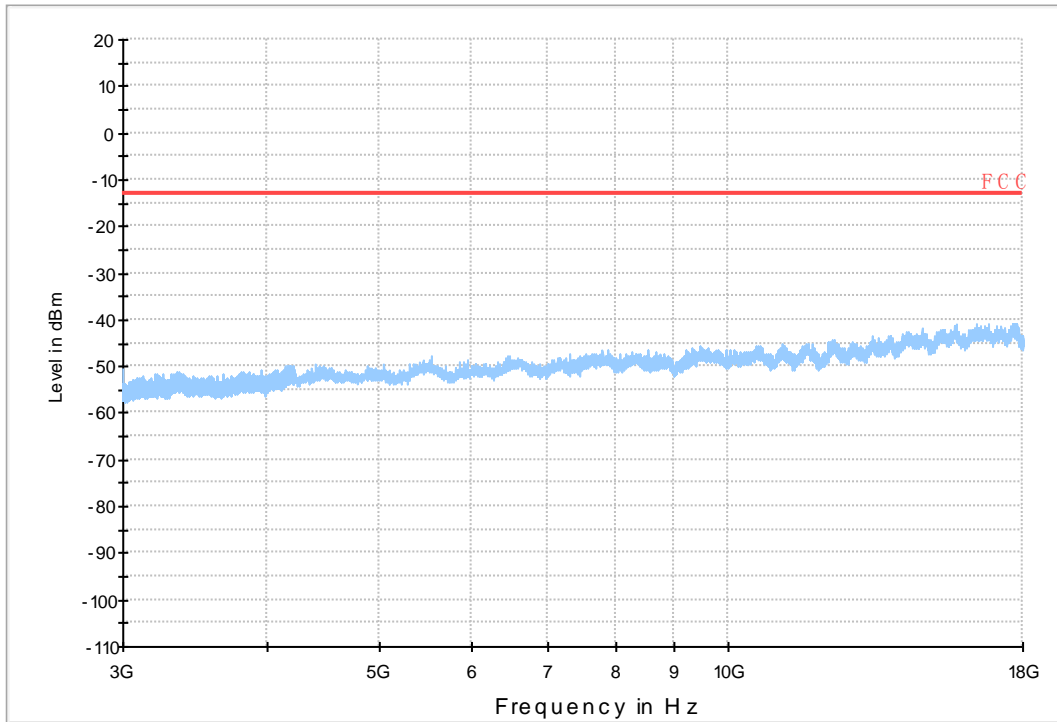
#### 7.1.2.1 Test Mode = UMTS/TM1



Copy of FCC PART22 W CDMA850\_L



Copy of FCC PART22 W CDMA850\_H



## 8Appendix\_H: Frequency Stability

### 8.1 For UMTS

#### 8.1.1 Frequency 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	5.29	0.0064	PASS
				VN	-2.09	-0.00253	PASS
				VH	2.17	0.00263	PASS
		MCH	TN	VL	6.00	0.00717	PASS
				VN	11.17	0.01335	PASS
				VH	8.00	0.00956	PASS
		HCH	TN	VL	7.00	0.00827	PASS
				VN	3.33	0.00393	PASS
				VH	7.78	0.00919	PASS

#### 8.1.2 Frequency Error vs. Temperature:

Test Band	Test Temp.	Test Mode	Test Channel	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA850	-30	UMTS/TM1	LCH	VN	3.30	0.00399	PASS
			MCH	VN	6.01	0.00719	PASS
			HCH	VN	-3.78	-0.00446	PASS
	-20	UMTS/TM1	LCH	VN	1.69	0.00205	PASS
			MCH	VN	2.87	0.00343	PASS
			HCH	VN	5.77	0.00682	PASS
	-10	UMTS/TM1	LCH	VN	3.10	0.00375	PASS
			MCH	VN	2.98	0.00356	PASS
			HCH	VN	6.67	0.00788	PASS
	0	UMTS/TM1	LCH	VN	0.09	0.00011	PASS
			MCH	VN	0.00	0	PASS
			HCH	VN	1.50	0.00177	PASS
	10	UMTS/TM1	LCH	VN	-10.24	-0.01239	PASS
			MCH	VN	1.33	0.00159	PASS
			HCH	VN	3.98	0.0047	PASS
	20	UMTS/TM1	LCH	VN	5.94	0.00719	PASS
			MCH	VN	1.39	0.00166	PASS

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			HCH	VN	-4.03	-0.00476	PASS
	30	UMTS/TM1	LCH	VN	-5.10	-0.00617	PASS
			MCH	VN	7.57	0.00905	PASS
			HCH	VN	-2.76	-0.00326	PASS
	40	UMTS/TM1	LCH	VN	-7.16	-0.00866	PASS
			MCH	VN	2.04	0.00244	PASS
			HCH	VN	-0.63	-0.00074	PASS
	50	UMTS/TM1	LCH	VN	10.80	0.01307	PASS
			MCH	VN	2.49	0.00298	PASS
			HCH	VN	3.45	0.00408	PASS

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END