



# 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
WCDMA1700	UMTS/TM1	LCH	22.18	22.10	30	PASS
		MCH	22.29	22.21	30	PASS
		HCH	22.29	22.21	30	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
WCDMA1700	UMTS/TM1	LCH	2.130	13	PASS
		MCH	2.580	13	PASS
		HCH	2.740	13	PASS

## 3Appendix\_C: Modulation Characteristics

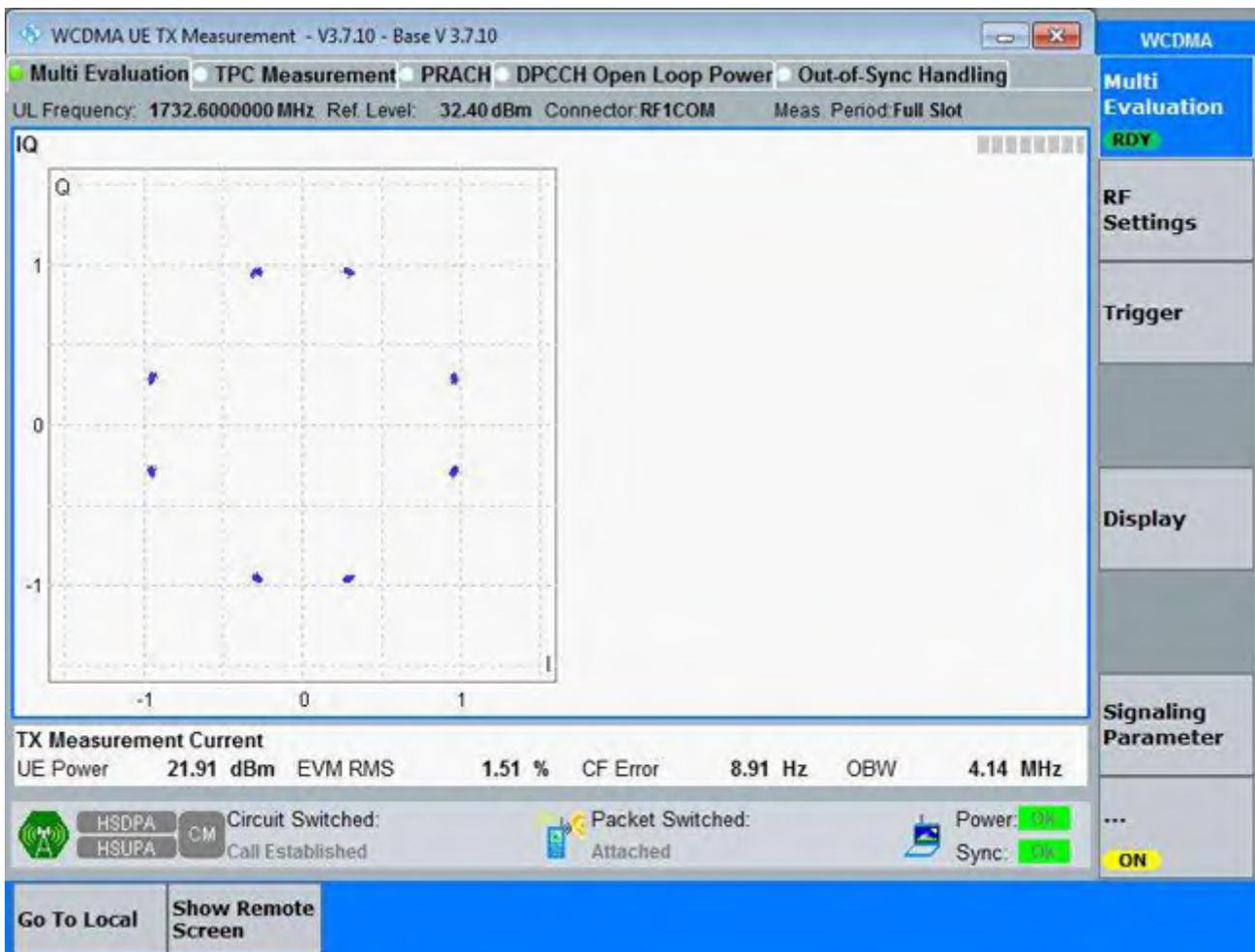
### Part I - Test Plots

#### 3.1 For UMTS

##### 3.1.1 Test Band = WCDMA1700

##### 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
WCDMA1700	UMTS/TM1	LCH	4.20	4.74	Pass
		MCH	4.17	4.72	Pass
		HCH	4.18	4.74	Pass

**Part II - Test Plots**

**4.1 For UMTS**

**4.1.1 Test Band = WCDMA1700**

**4.1.1.1 Test Mode = UMTS/TM1**

**4.1.1.1.1 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 = WCDMA1700

##### 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

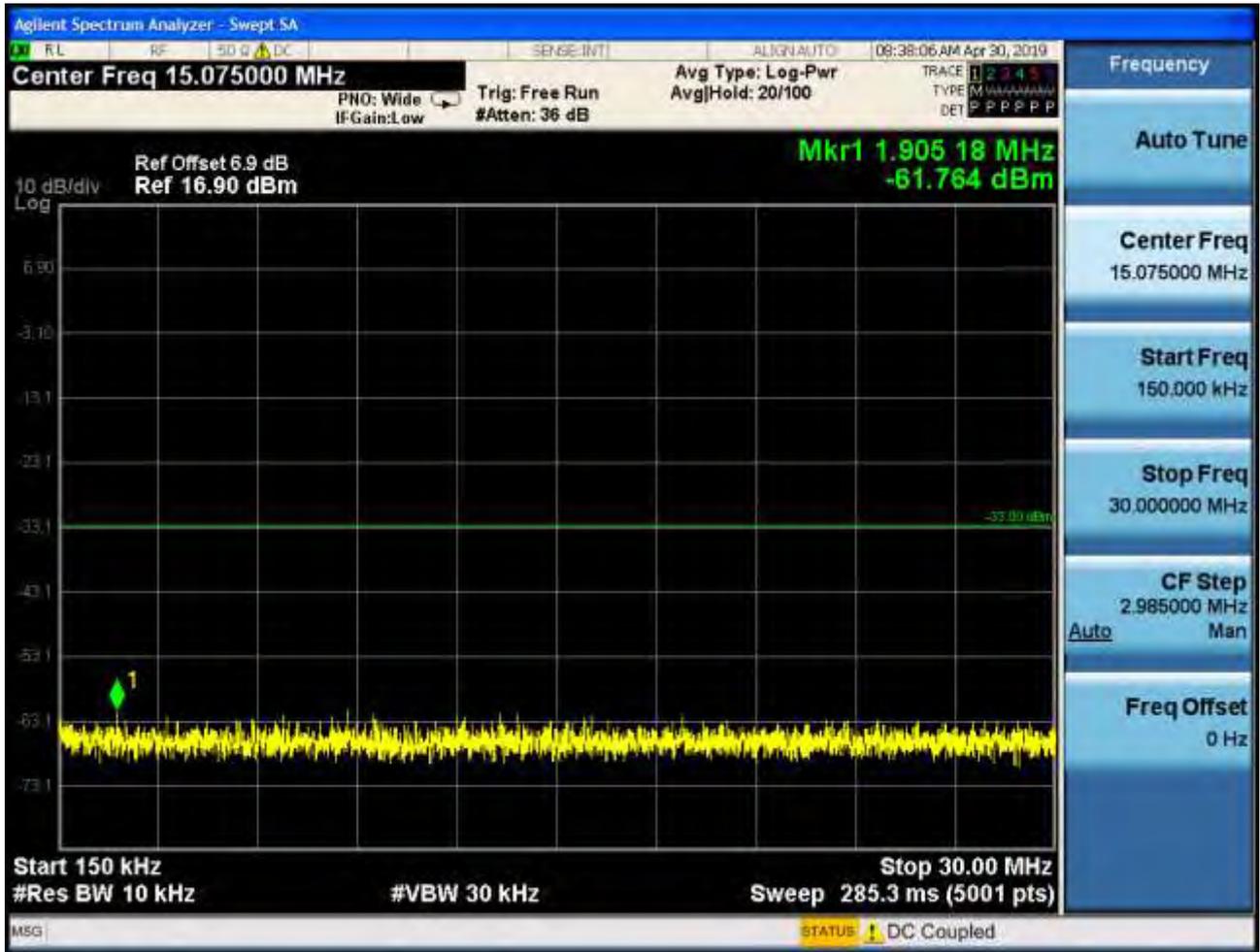
#### 6.1 For UMTS

##### 6.1.1 Test Band = WCDMA1700

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

##### 6.1.1.1.1 Test Channel = LCH



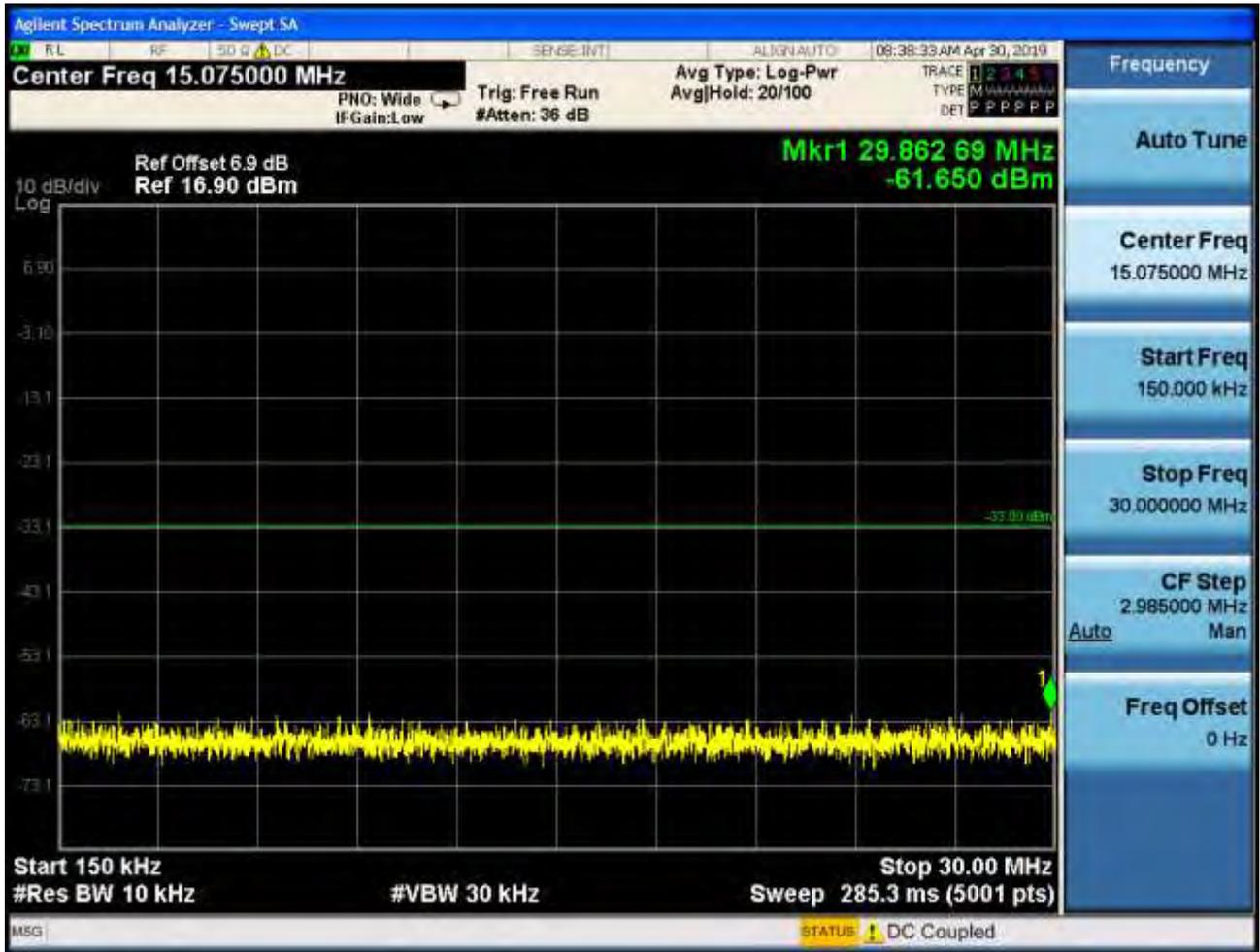






6.1.1.1.2 Test Channel = MCH



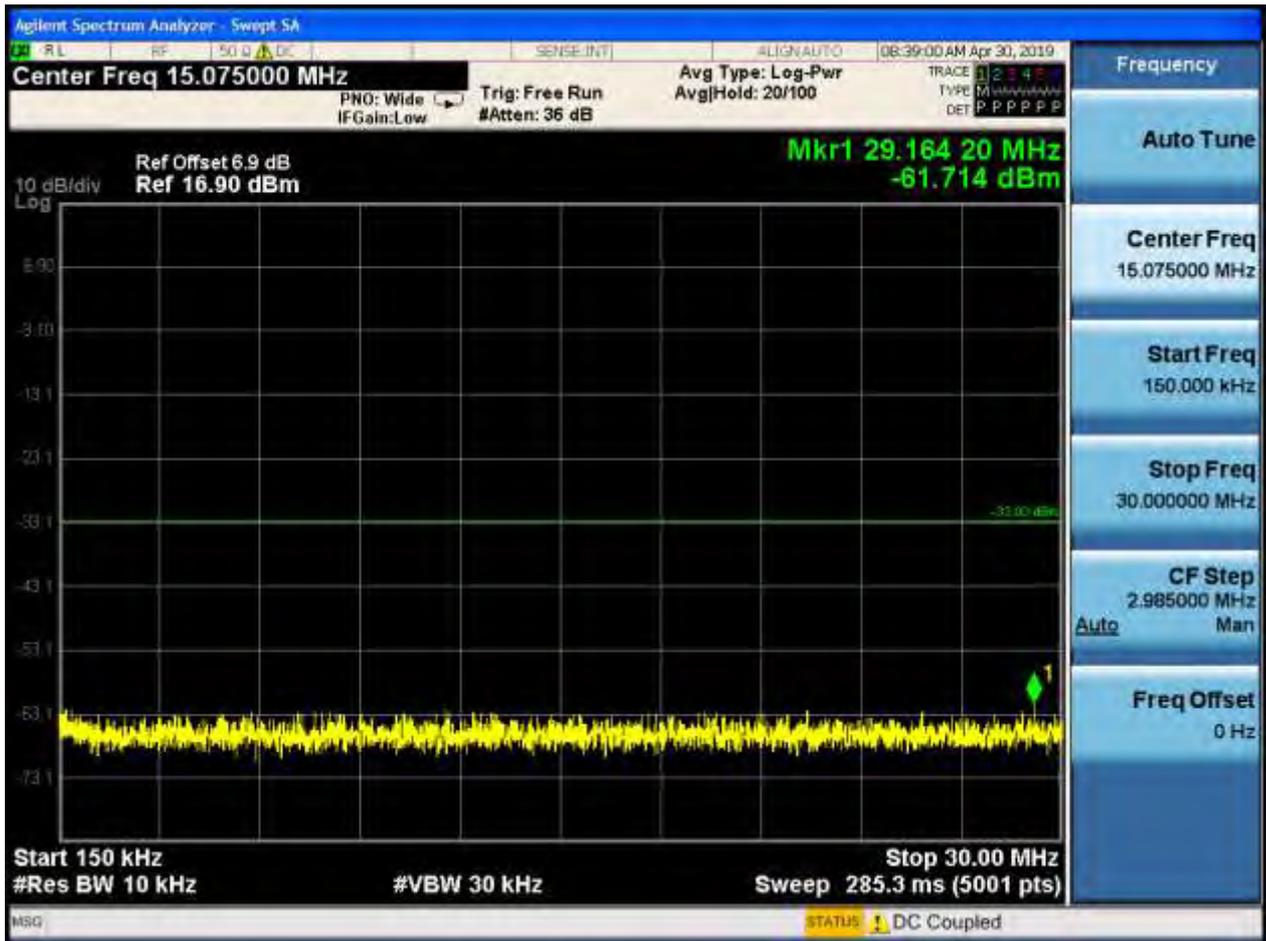






### 6.1.2.1.3 Test Channel = HCH









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

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

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

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

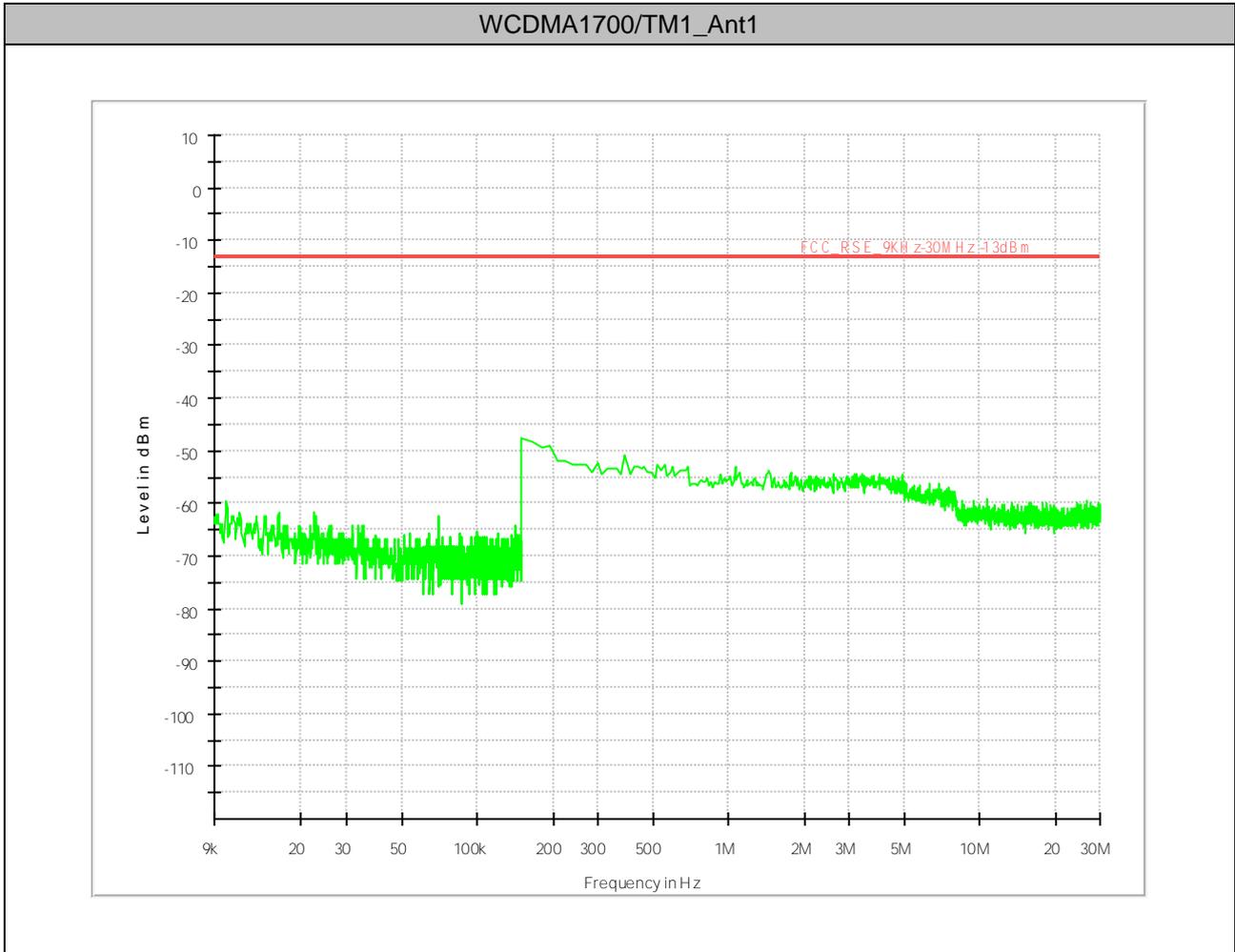
30MHz~1GHz, RBW = 100 kHz, VBW = 300 kHz. Detector: PK

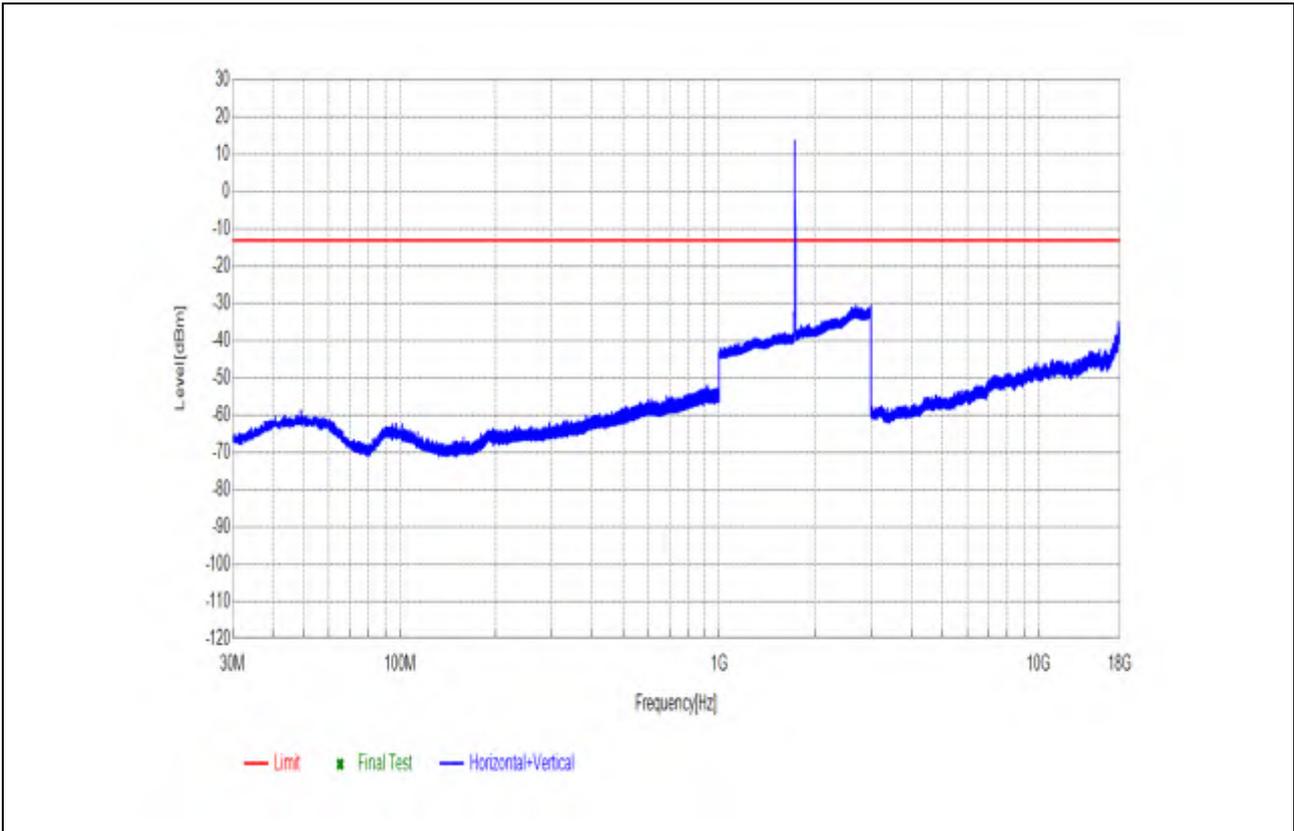
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

### Part I - Test Plots

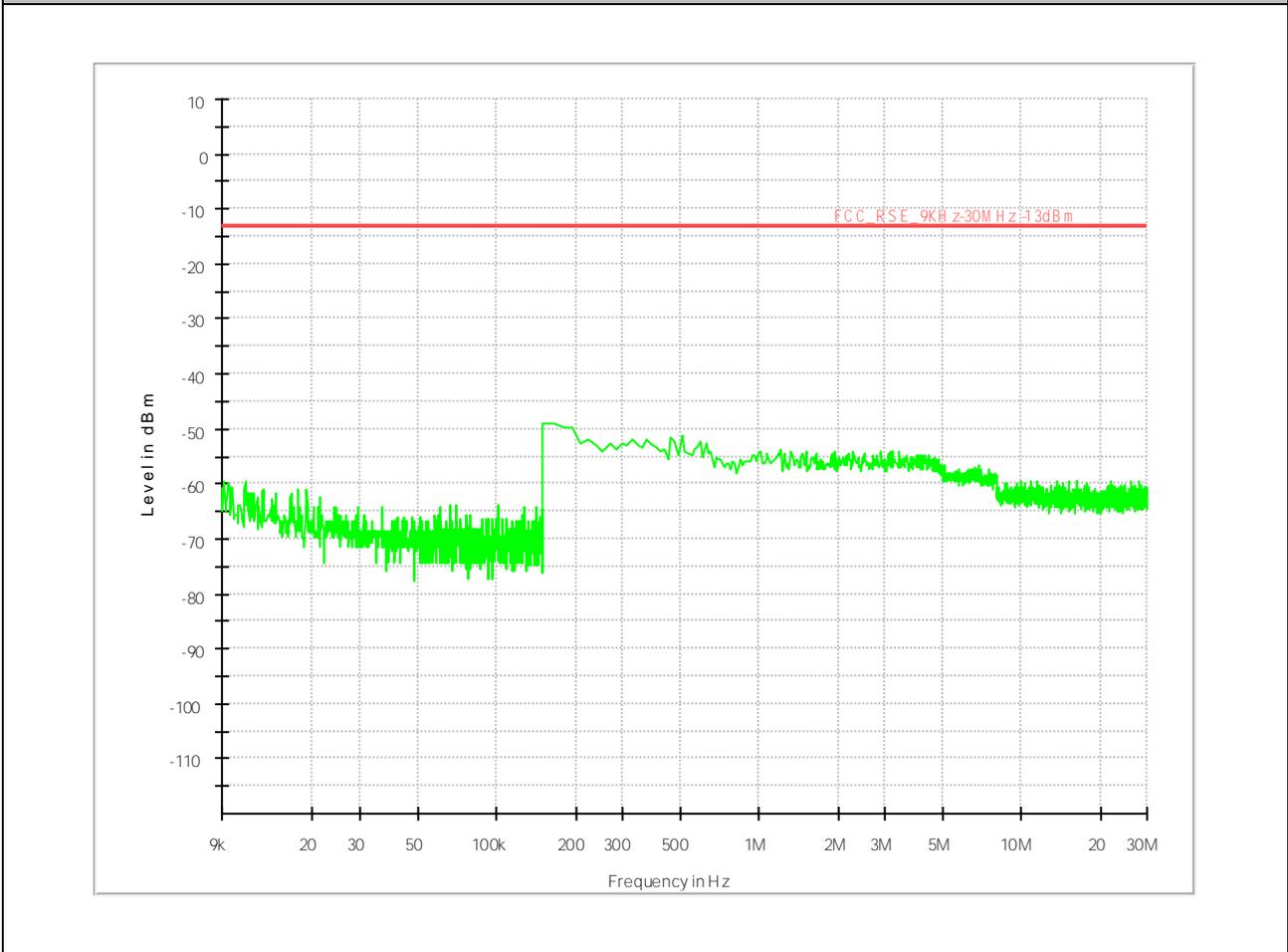
#### 7.1 For UMTS

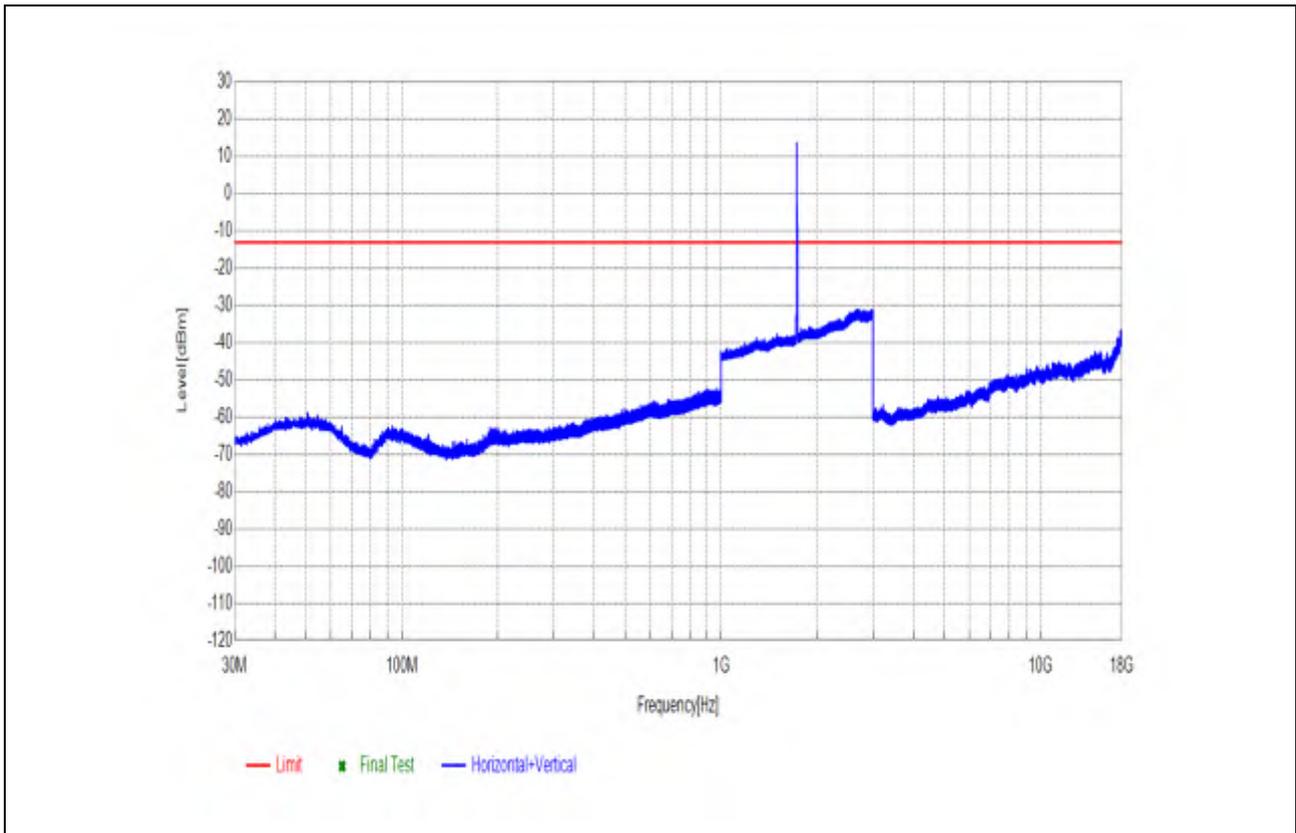
##### 7.1.1 Test Band = WCDMA1700





WCDMA1700/TM1\_Ant2





## 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
WCDMA1700	UMTS/TM1	LCH	TN	VL	10.02073	0.00585	PASS
				VN	10.46419	0.00611	PASS
				VH	11.01494	0.00643	PASS
		MCH	TN	VL	12.78877	0.00738	PASS
				VN	11.05785	0.00638	PASS
				VH	8.84771	0.00511	PASS
		HCH	TN	VL	4.48465	0.00256	PASS
				VN	9.22680	0.00526	PASS
				VH	4.62770	0.00264	PASS

#### 8.1.2 Frequency Error vs. Temperature:

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA1700	UMTS/TM1	LCH	VN	-30	10.60724	0.00619	PASS
				-20	8.96931	0.00524	PASS
				-10	5.08547	0.00297	PASS
				0	11.75880	0.00687	PASS
				10	16.89434	0.00987	PASS
				20	10.46419	0.00611	PASS
				30	9.36985	0.00547	PASS
				40	8.61168	0.00503	PASS
				50	8.94785	0.00523	PASS
		MCH	VN	-30	8.33988	0.00481	PASS
				-20	6.80208	0.00393	PASS
				-10	8.22544	0.00475	PASS
				0	4.85659	0.00280	PASS
				10	8.39710	0.00485	PASS
				20	11.05785	0.00638	PASS
				30	10.98633	0.00634	PASS
				40	9.31978	0.00538	PASS
				50	9.09805	0.00525	PASS
		HCH	VN	-30	11.50846	0.00657	PASS
				-20	11.93762	0.00681	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-10	13.27515	0.00757	PASS
				0	5.35011	0.00305	PASS
				10	8.60453	0.00491	PASS
				20	9.22680	0.00526	PASS
				30	13.11064	0.00748	PASS
				40	12.11643	0.00691	PASS
				50	10.85758	0.00620	PASS

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END