



## 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 |
|-----------|-----------|--------------|---------------|-----------|-------------|---------|
| WCDMA1900 | UMTS/TM1  | LCH          | 23.26         | 21.14     | 33          | PASS    |
|           |           | MCH          | 23.06         | 20.94     | 33          | PASS    |
|           |           | HCH          | 23.35         | 21.23     | 33          | 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:

SET Span=1.5\*OBW

SET RBW=1%of the OBW, not to exceed 1MHz

SET VBW>= 3\*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 |
|-----------|-----------|--------------|--------------|------------|---------|
| WCDMA1900 | UMTS/TM1  | LCH          | 2.75         | 13         | PASS    |
|           |           | MCH          | 3            | 13         | PASS    |
|           |           | HCH          | 2.78         | 13         | PASS    |

## 3Appendix\_C: Modulation Characteristics

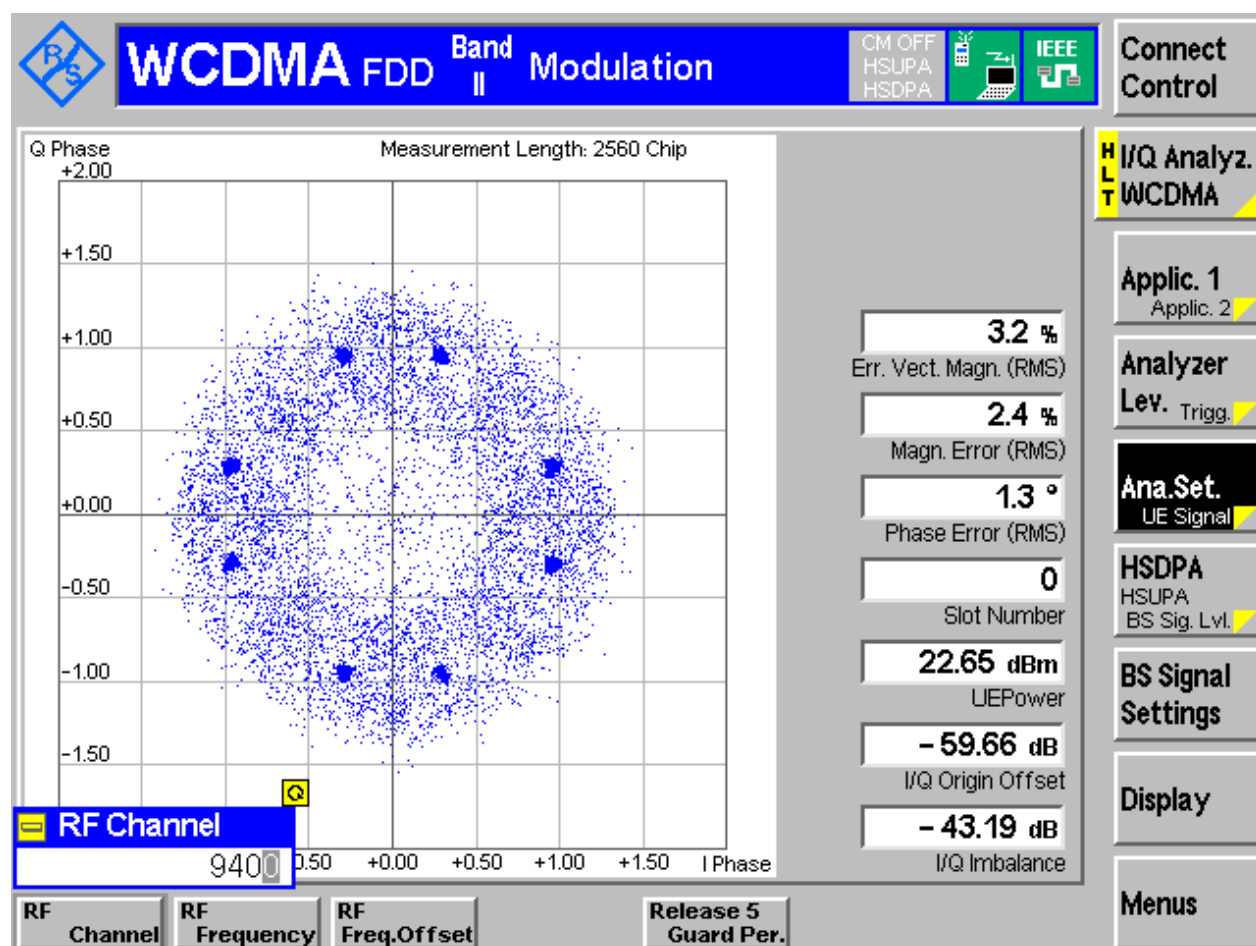
### Part I - Test Plots

#### 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



## 4Appendix\_D: Bandwidth

### Part I - Test Results

| Test Band | Test Mode | Test Channel | Occupied Bandwidth [MHz] | Emission Bandwidth [MHz] | Verdict |
|-----------|-----------|--------------|--------------------------|--------------------------|---------|
| WCDMA1900 | UMTS/TM1  | LCH          | 4.21                     | 4.87                     | Pass    |
|           |           | MCH          | 4.20                     | 4.89                     | Pass    |
|           |           | HCH          | 4.21                     | 4.87                     | Pass    |



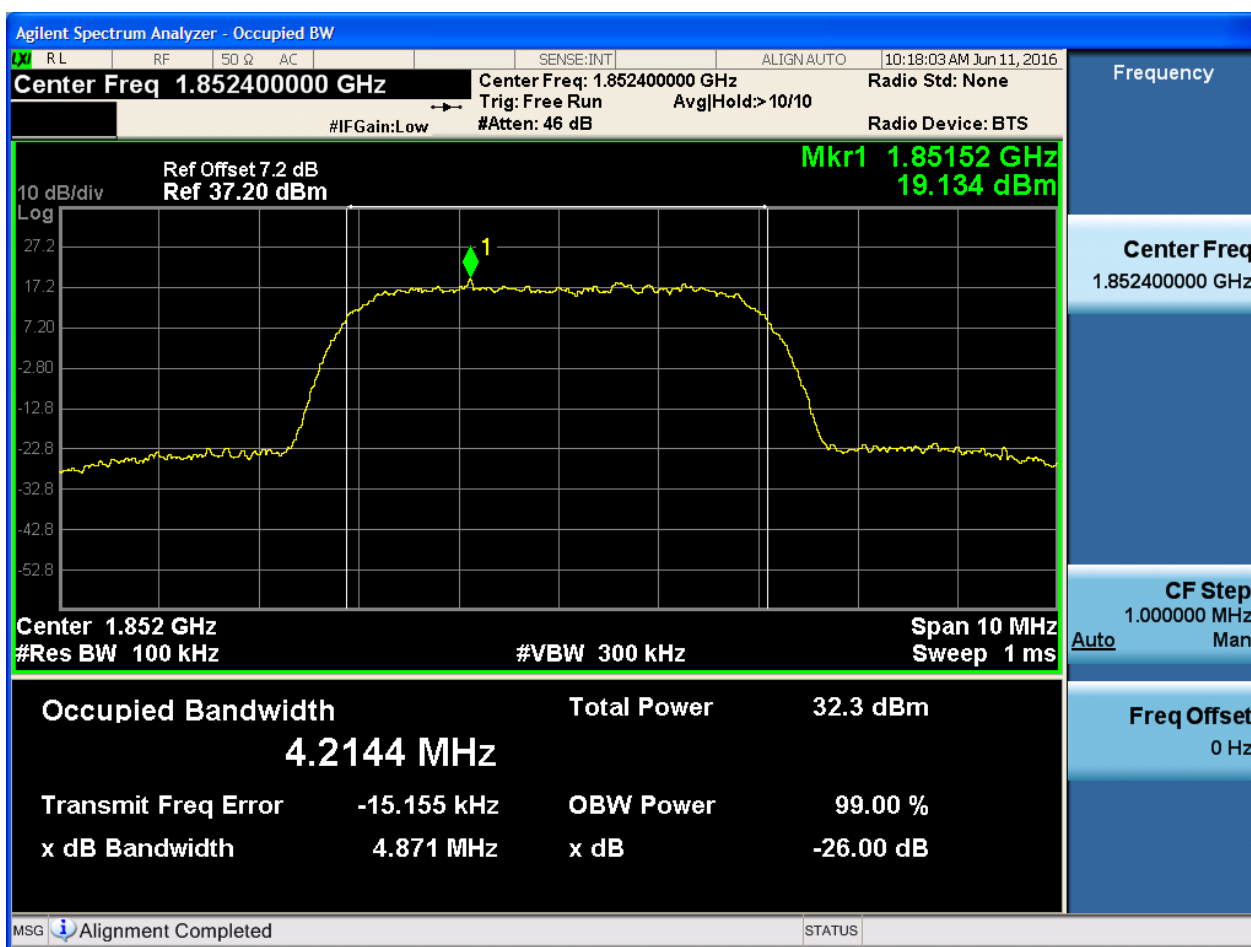
## Part II - Test Plots

### 4.1 For UMTS

#### 4.1.1 Test Band = WCDMA1900

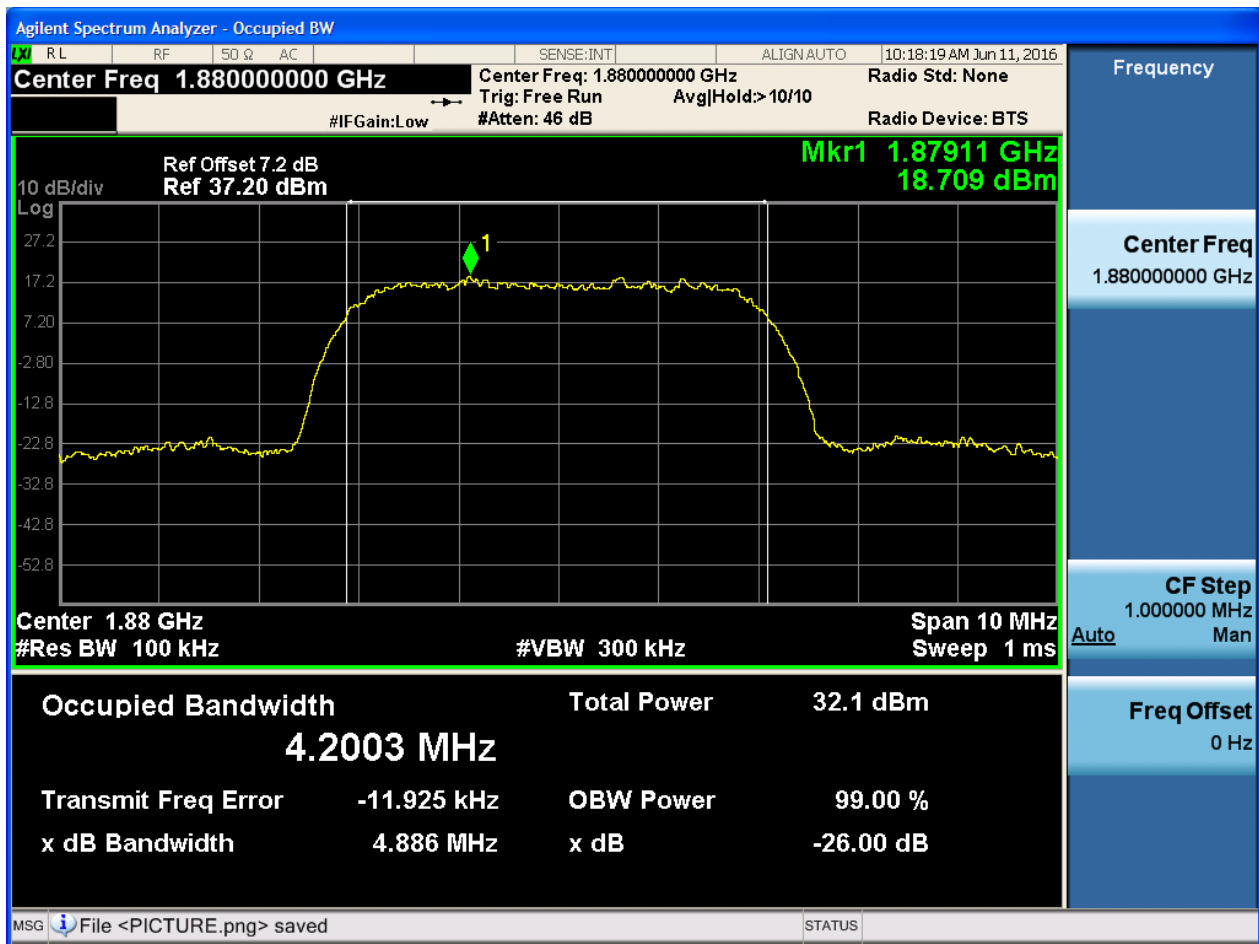
##### 4.1.1.1 Test Mode = UMTS/TM1

##### 4.1.1.1.1 Test Channel = LCH



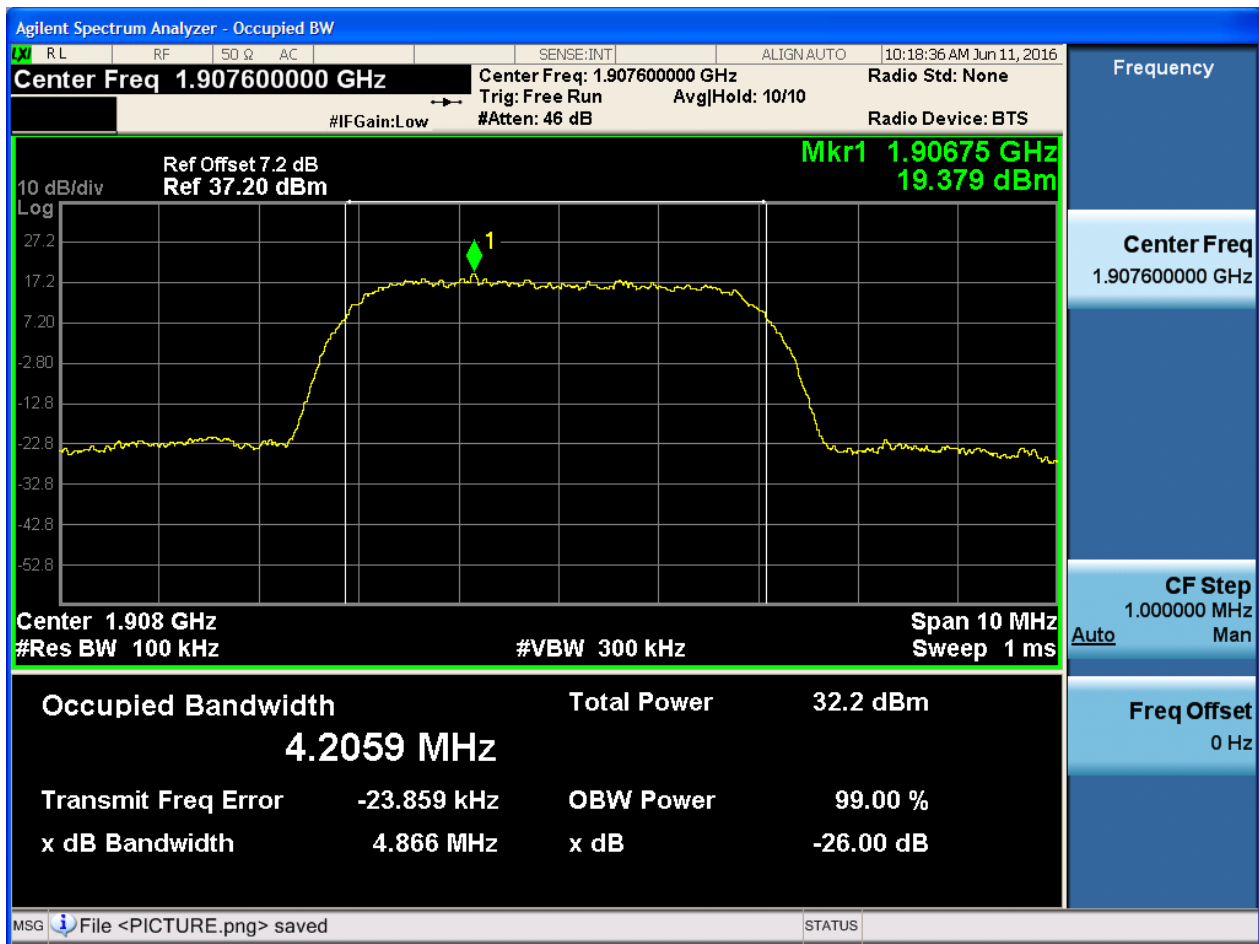


## 4.1.1.1.2 Test Channel = MCH





## 4.1.1.1.3 Test Channel = HCH





## 5Appendix\_E: Band Edges Compliance

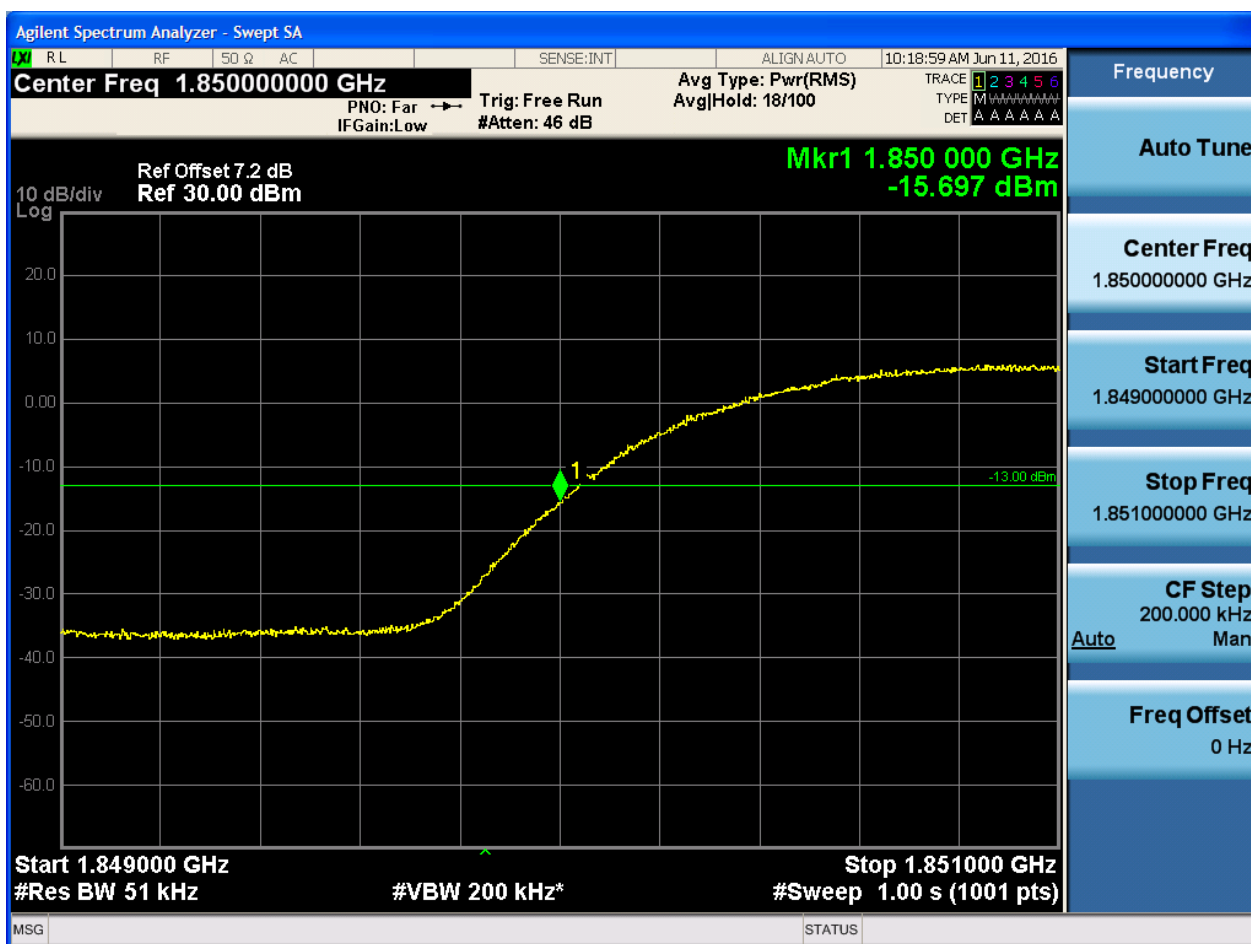
## Part I - Test Plots

### 5.1 For UMTS

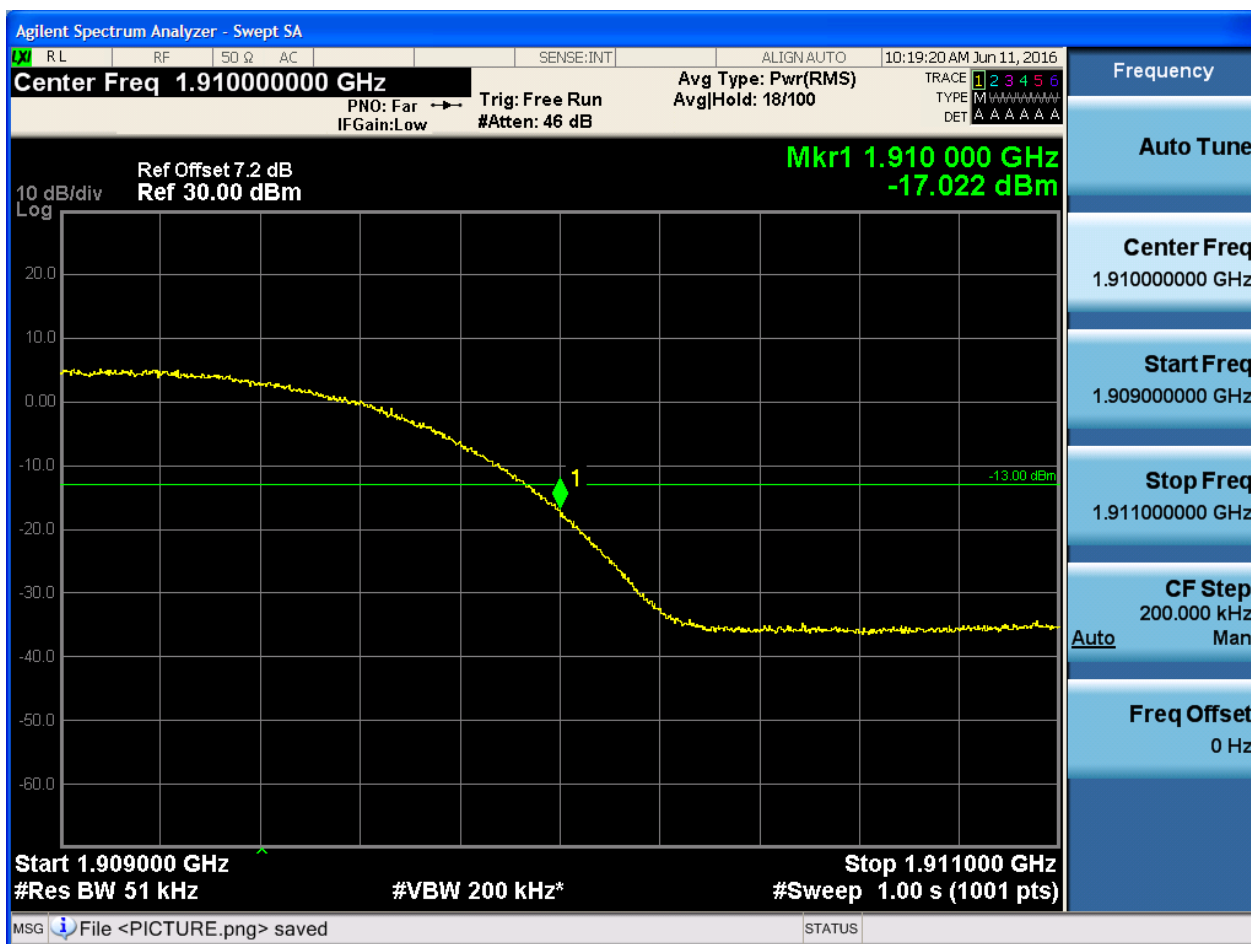
### 5.1.1 Test Band = WCDMA1900

#### 5.1.1.1 Test Mode = UMTS/TM1

#### 5.1.1.1.1 Test Channel = LCH



#### 5.1.1.1.2 Test Channel = HCH



## 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.

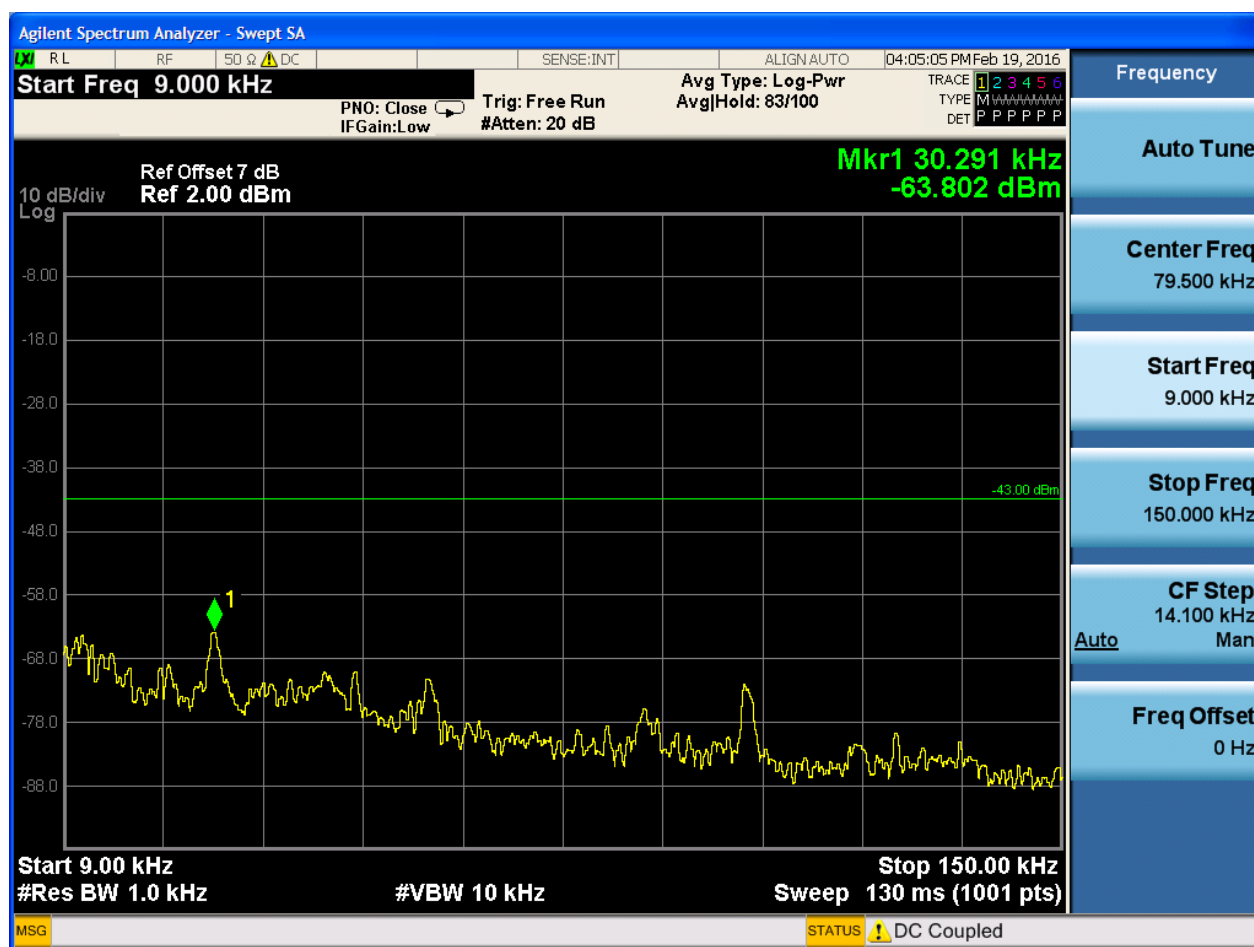
### Part I - Test Plots

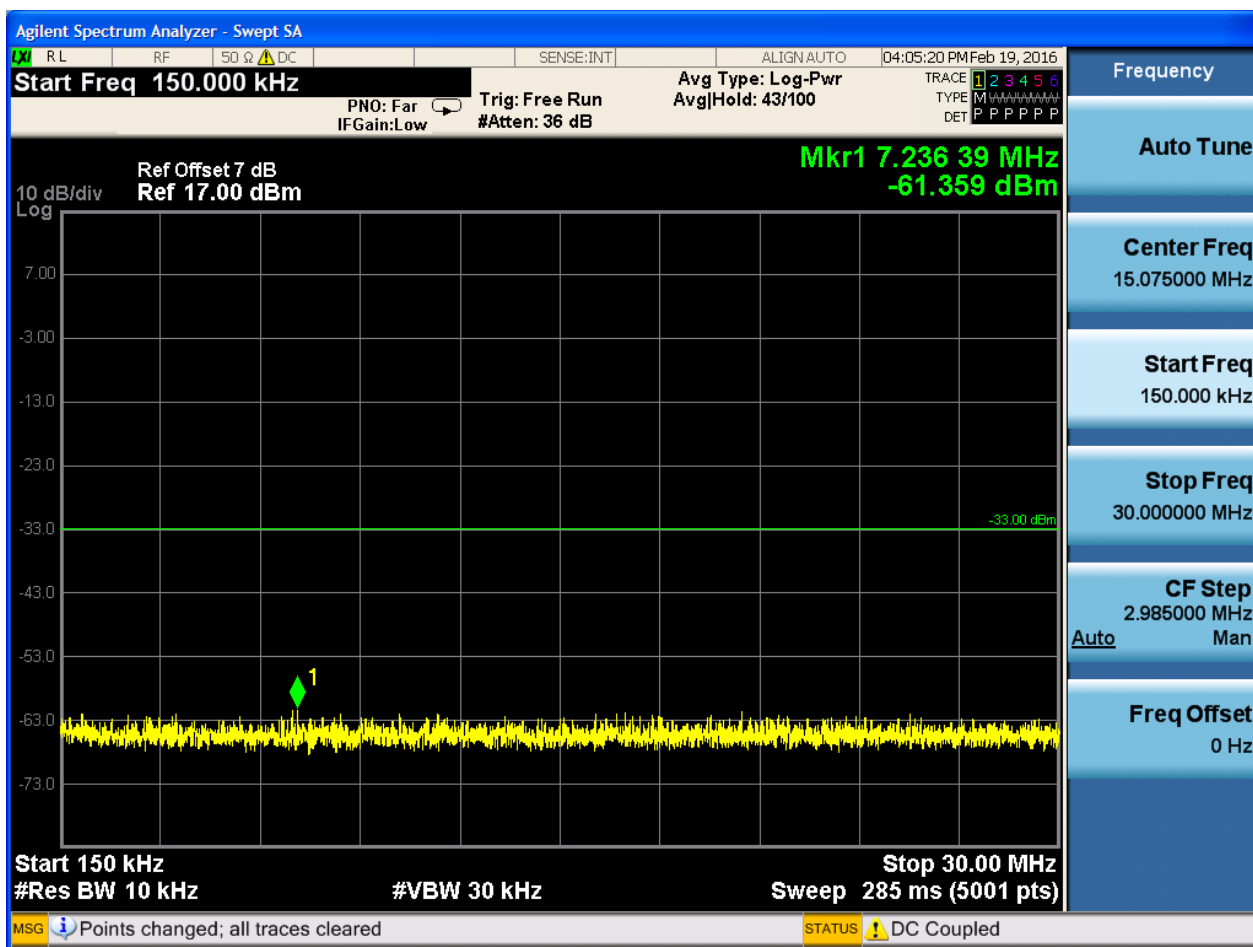
#### 6.1 For UMTS

##### 6.1.1 Test Band = WCDMA1900

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

##### 6.1.1.1.1 Test Channel = LCH

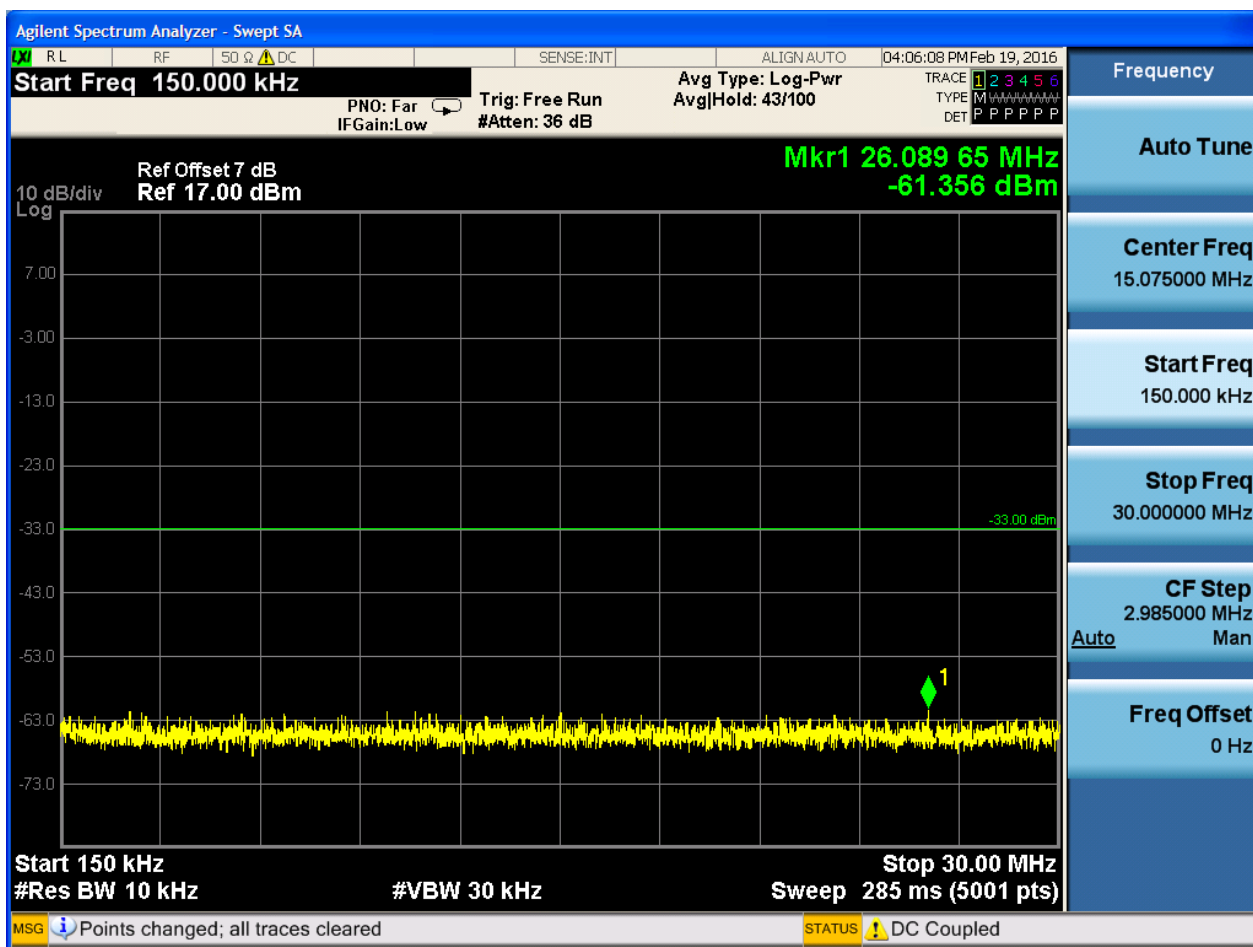


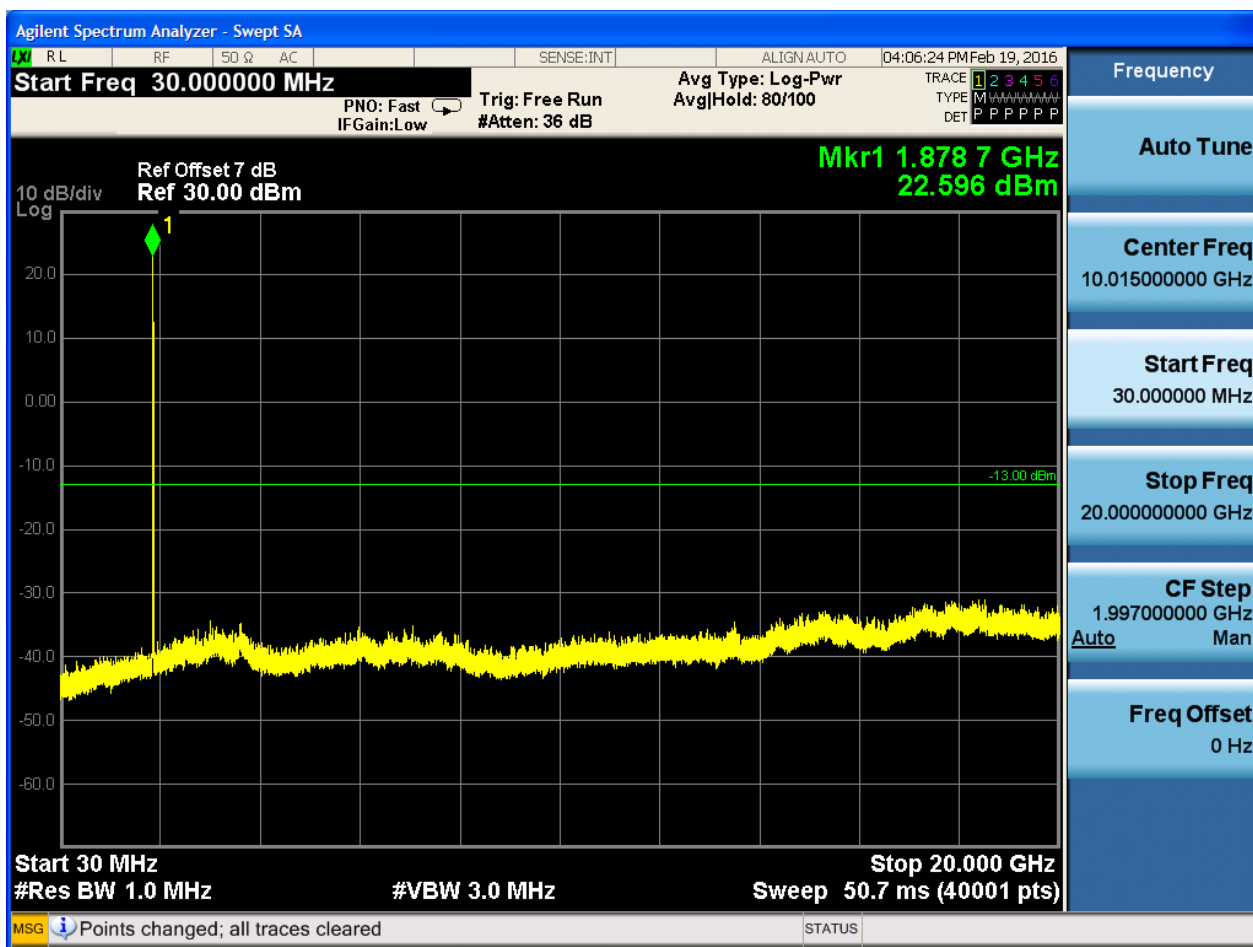




### 6.1.1.1.2 Test Channel = MCH

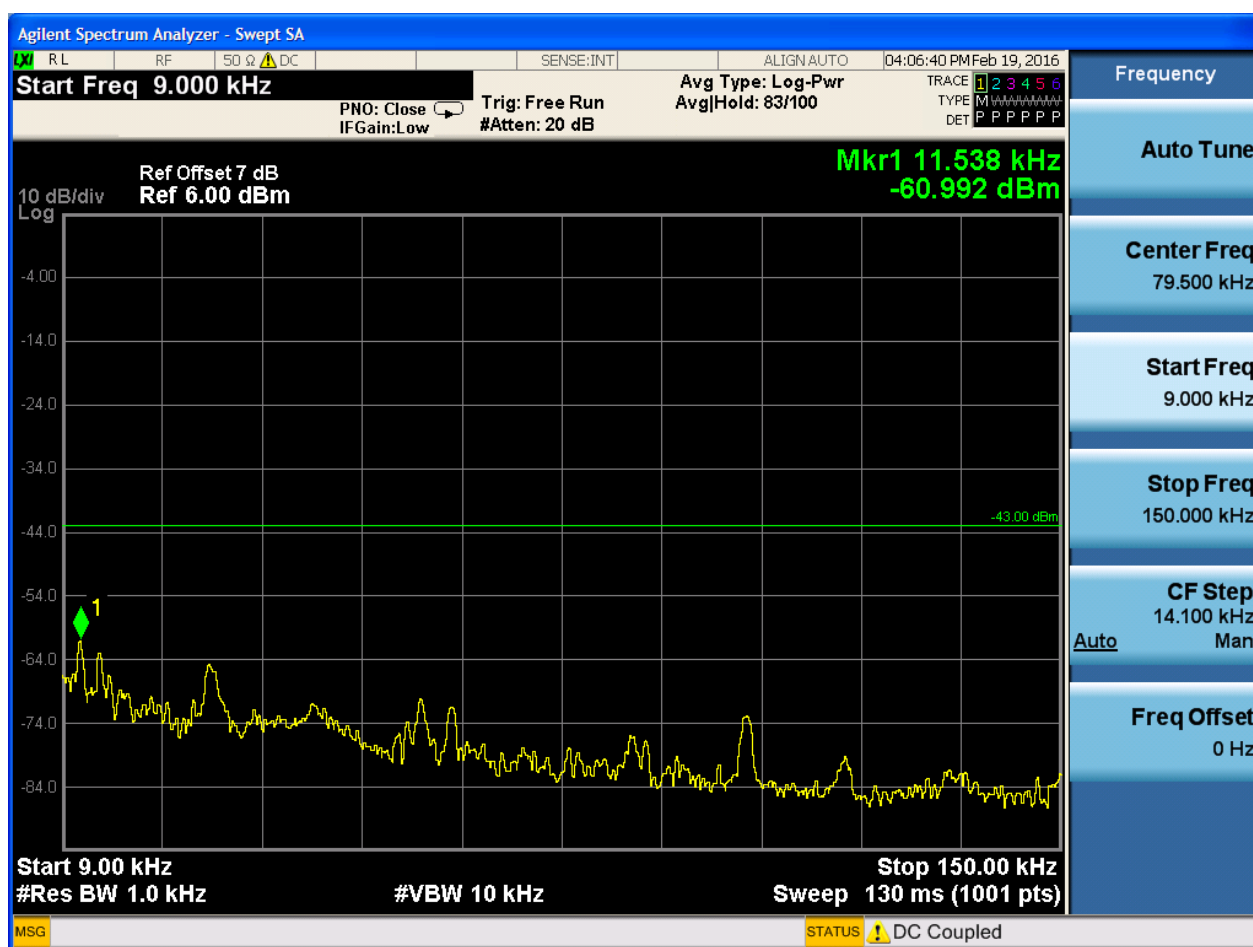


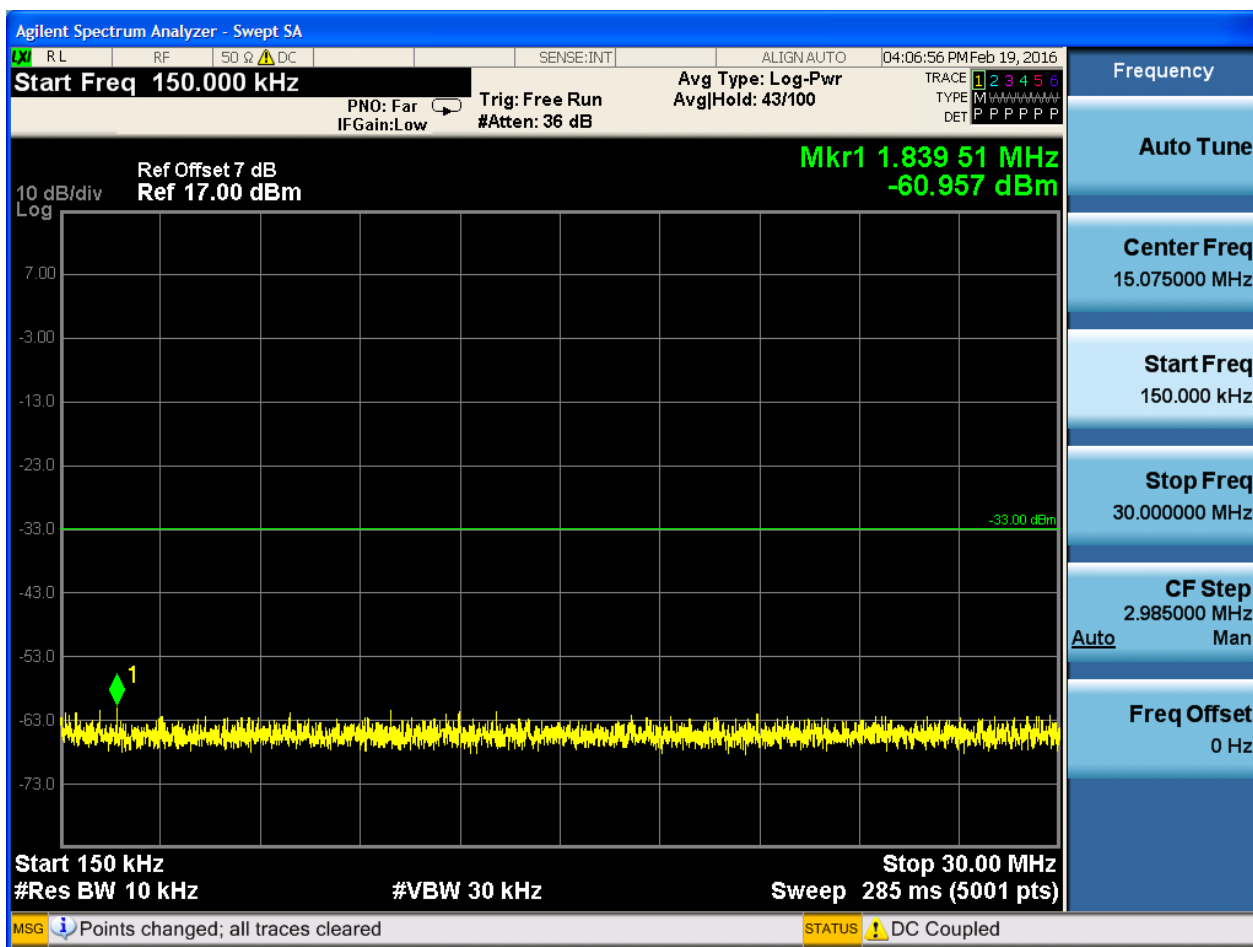


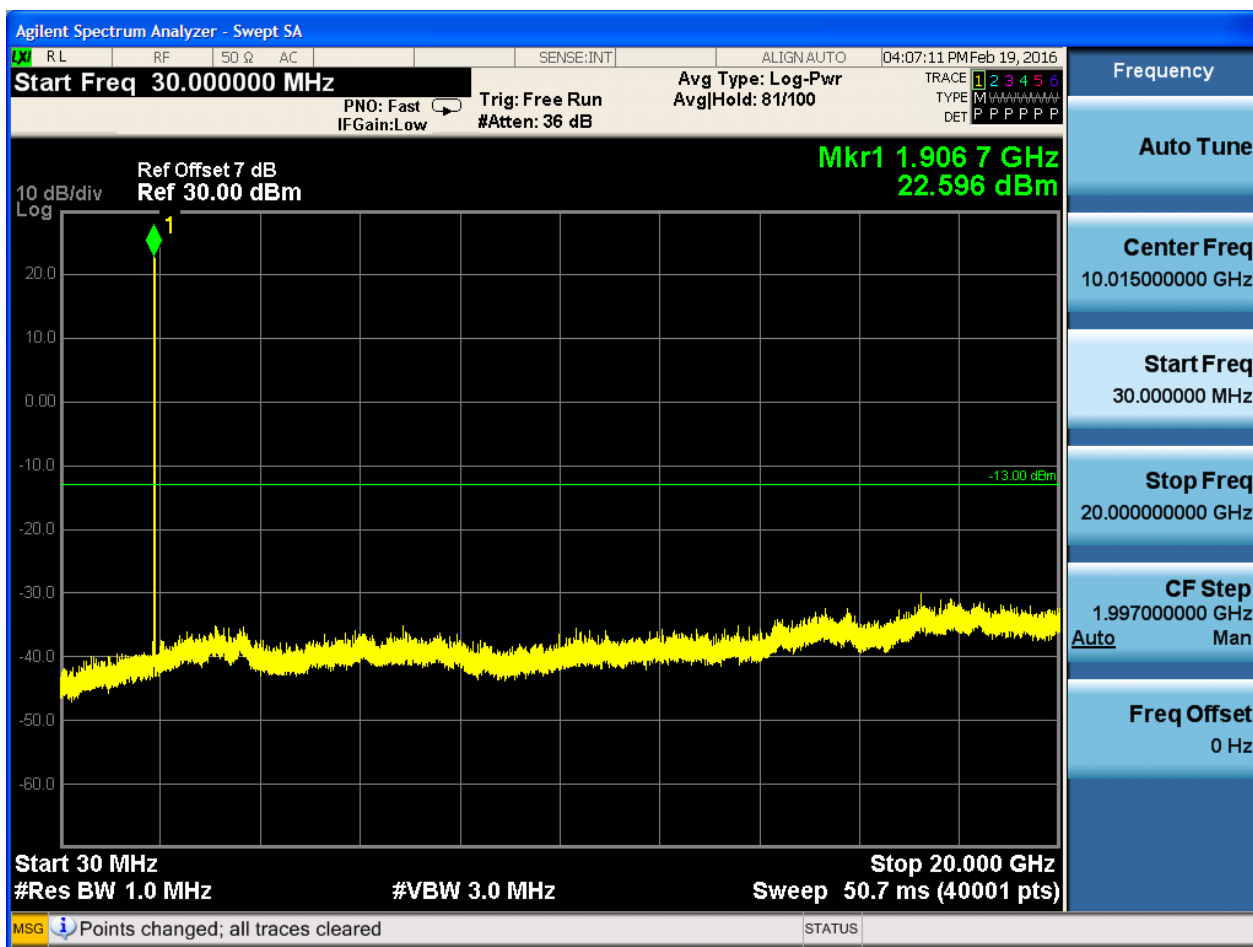




#### 6.1.1.1.3 Test Channel = HCH







## 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

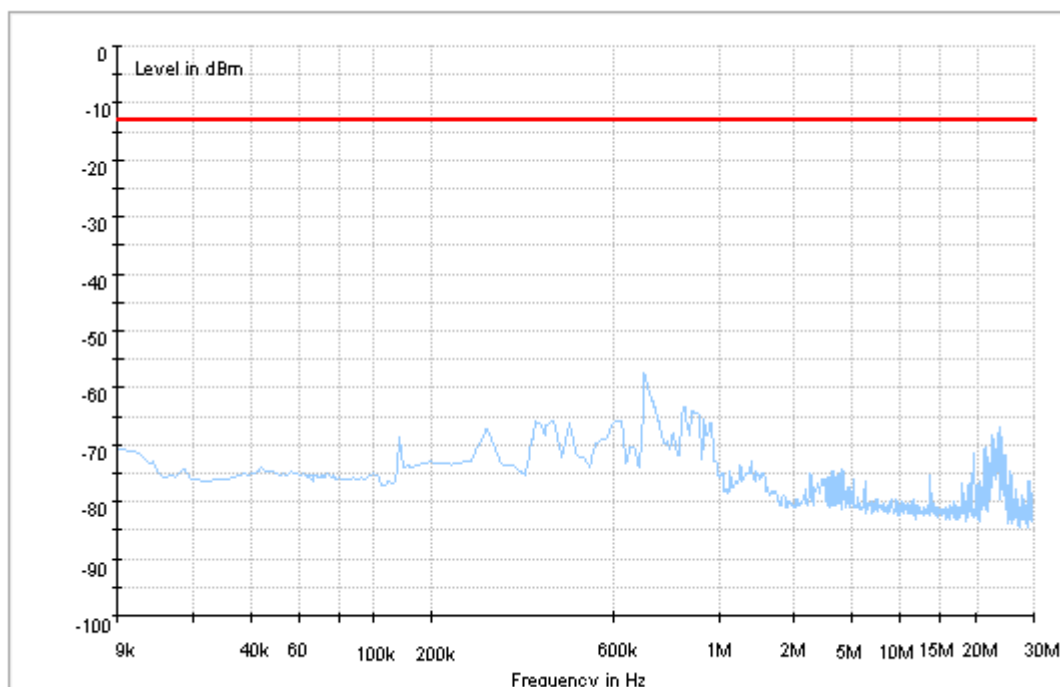
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

### Part I - Test Plots

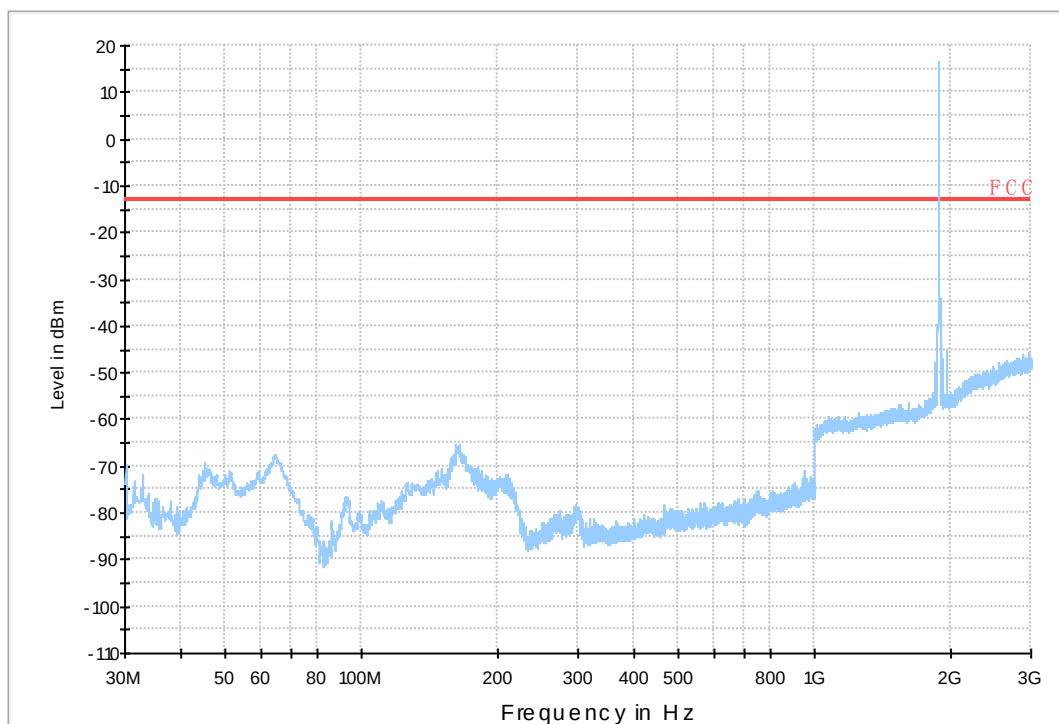
#### 7.1 For UMTS

##### 7.1.1 Test Band = WCDMA1900

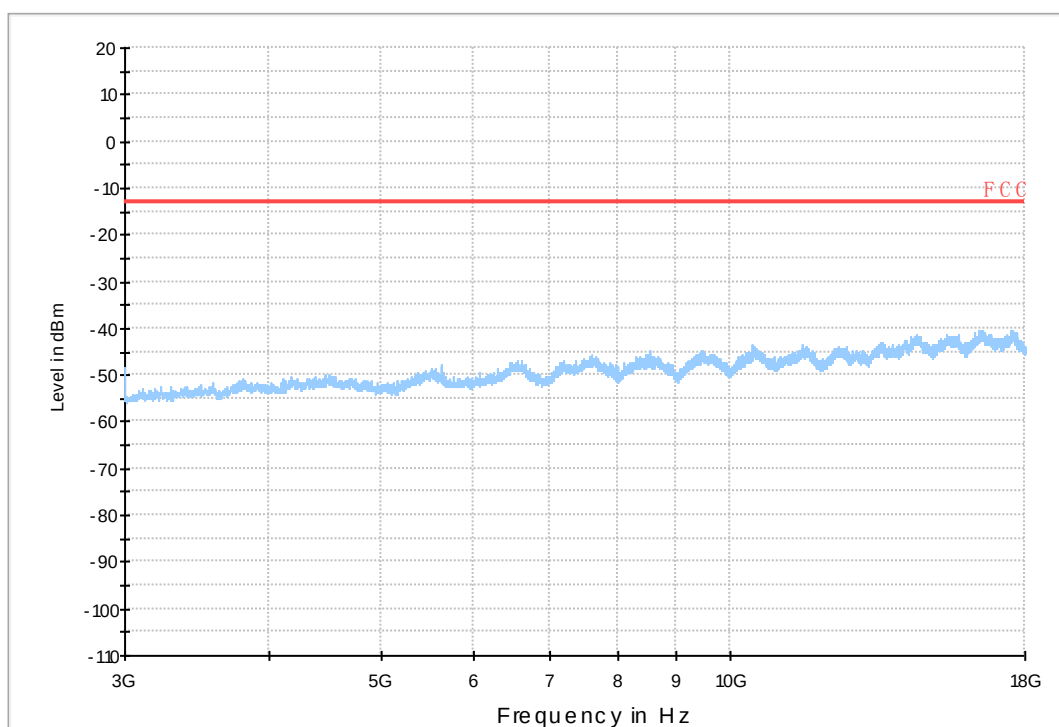
##### 7.1.1.1 Test Mode = UMTS/TM1

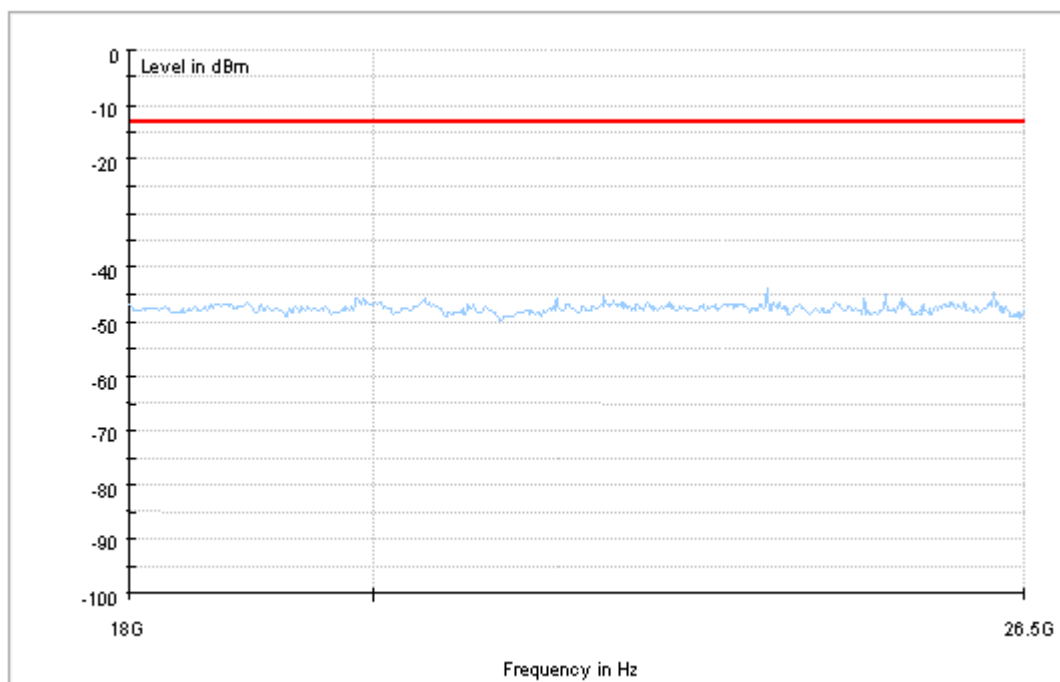


Copy of FCC PART24 W CDMA1900\_L



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         | -8.91            | -0.00481              | PASS    |
|           |           |              |            | VN         | -2.14            | -0.00116              | PASS    |
|           |           |              |            | VH         | 1.43             | 0.00077               | PASS    |
|           |           | MCH          | TN         | VL         | -4.17            | -0.00222              | PASS    |
|           |           |              |            | VN         | -5.87            | -0.00312              | PASS    |
|           |           |              |            | VH         | 4.70             | 0.0025                | PASS    |
|           |           | HCH          | TN         | VL         | -5.42            | -0.00284              | PASS    |
|           |           |              |            | VN         | -3.63            | -0.0019               | PASS    |
|           |           |              |            | VH         | 4.17             | 0.00219               | 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        | -7.32            | -0.00395              | PASS    |
|           |           |              |            | -20        | 1.77             | 0.00096               | PASS    |
|           |           |              |            | -10        | -0.14            | -0.00008              | PASS    |
|           |           |              |            | 0          | -2.90            | -0.00157              | PASS    |
|           |           |              |            | 10         | 3.91             | 0.00211               | PASS    |
|           |           |              |            | 20         | -1.79            | -0.00097              | PASS    |
|           |           |              |            | 30         | 0.85             | 0.00046               | PASS    |
|           |           |              |            | 40         | -2.55            | -0.00138              | PASS    |
|           |           |              |            | 50         | 2.38             | 0.00128               | PASS    |
|           |           | MCH          | VN         | -30        | -11.57           | -0.00615              | PASS    |
|           |           |              |            | -20        | 0.37             | 0.0002                | PASS    |
|           |           |              |            | -10        | 1.60             | 0.00085               | PASS    |
|           |           |              |            | 0          | 1.27             | 0.00068               | PASS    |
|           |           |              |            | 10         | 1.24             | 0.00066               | PASS    |
|           |           |              |            | 20         | -4.26            | -0.00227              | PASS    |
|           |           |              |            | 30         | 0.26             | 0.00014               | PASS    |
|           |           |              |            | 40         | -3.59            | -0.00191              | PASS    |
|           |           |              |            | 50         | 1.48             | 0.00079               | PASS    |



| Test Band | Test Mode | Test Channel | Test Volt. | Test Temp. | Freq. Error [Hz] | Freq. vs. rated [ppm] | Verdict |
|-----------|-----------|--------------|------------|------------|------------------|-----------------------|---------|
|           |           | HCH          | VN         | -30        | -9.58            | -0.00502              | PASS    |
|           |           |              |            | -20        | -1.04            | -0.00055              | PASS    |
|           |           |              |            | -10        | 2.72             | 0.00143               | PASS    |
|           |           |              |            | 0          | 0.29             | 0.00015               | PASS    |
|           |           |              |            | 10         | -1.72            | -0.0009               | PASS    |
|           |           |              |            | 20         | 3.86             | 0.00202               | PASS    |
|           |           |              |            | 30         | 1.86             | 0.00098               | PASS    |
|           |           |              |            | 40         | -1.36            | -0.00071              | PASS    |
|           |           |              |            | 50         | 0.75             | 0.00039               | PASS    |

END