



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 [dBm] | Limit [dBm] | Verdict |
|-----------|-----------|--------------|-----------------------|------------|-------------|---------|
| WCDMA850 | UMTS/TM1 | LCH | 24.21 | 20.26 | 38.5 | PASS |
| | | MCH | 24.37 | 20.42 | 38.5 | PASS |
| | | HCH | 24.36 | 20.41 | 38.5 | PASS |
| Test Band | Test Mode | Test Channel | Conducted Power [dBm] | EIRP [dBm] | Limit [dBm] | Verdict |
| WCDMA1900 | UMTS/TM1 | LCH | 23.52 | 21.32 | 33 | PASS |
| | | MCH | 23.44 | 21.24 | 33 | PASS |
| | | HCH | 23.44 | 21.24 | 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:

$$\text{SET Span} = 1.5 * \text{OBW}$$

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 |
|-----------|-----------|--------------|--------------|------------|---------|
| WCDMA1900 | UMTS/TM1 | LCH | 3.23 | 13 | PASS |
| | | MCH | 3.32 | 13 | PASS |
| | | HCH | 3.26 | 13 | PASS |
| WCDMA850 | UMTS/TM1 | LCH | 3.25 | 13 | PASS |
| | | MCH | 3.22 | 13 | PASS |
| | | HCH | 3.25 | 13 | PASS |

3Appendix_C: Modulation Characteristics

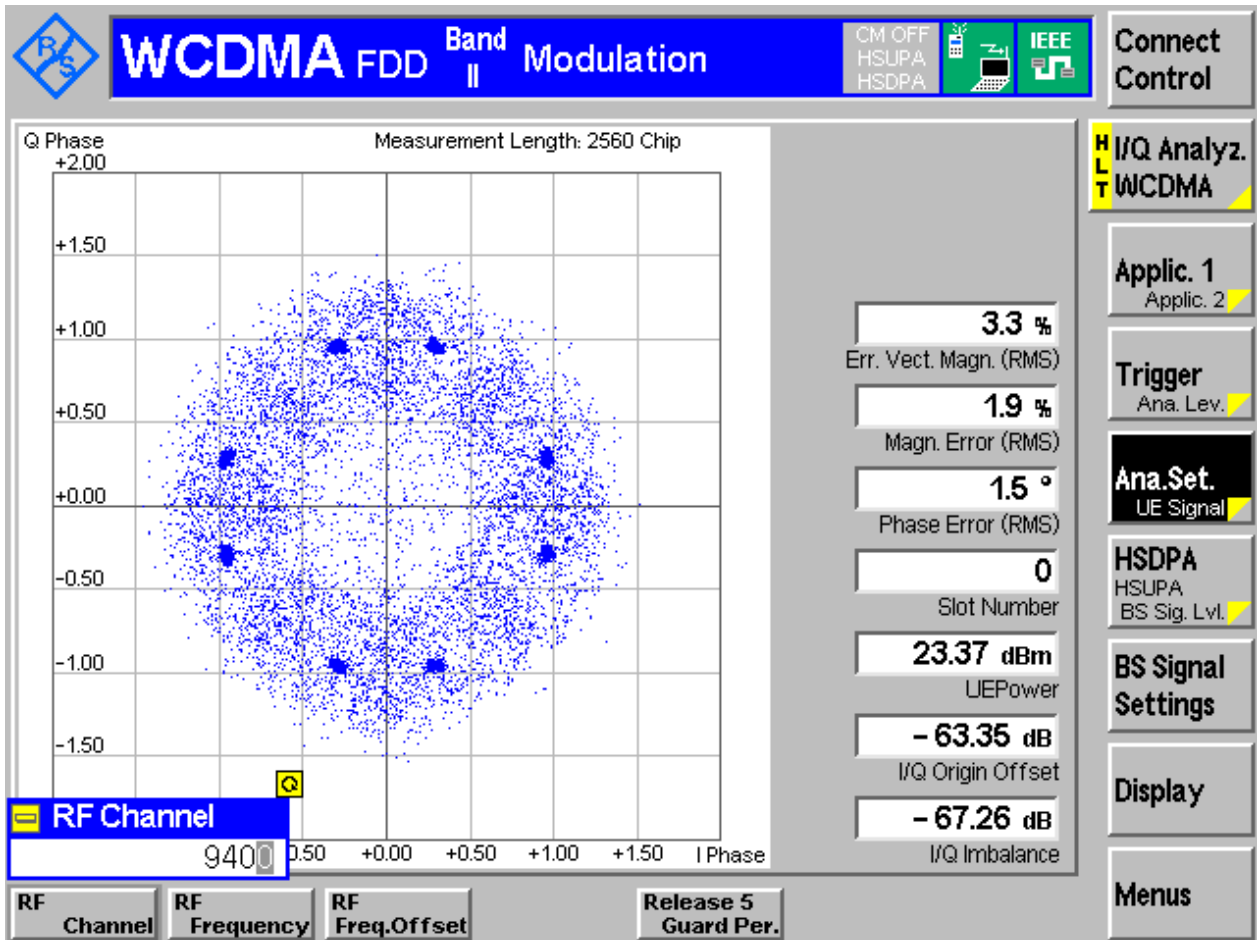
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA1900

3.1.1.1 Test Mode = UMTS/TM1

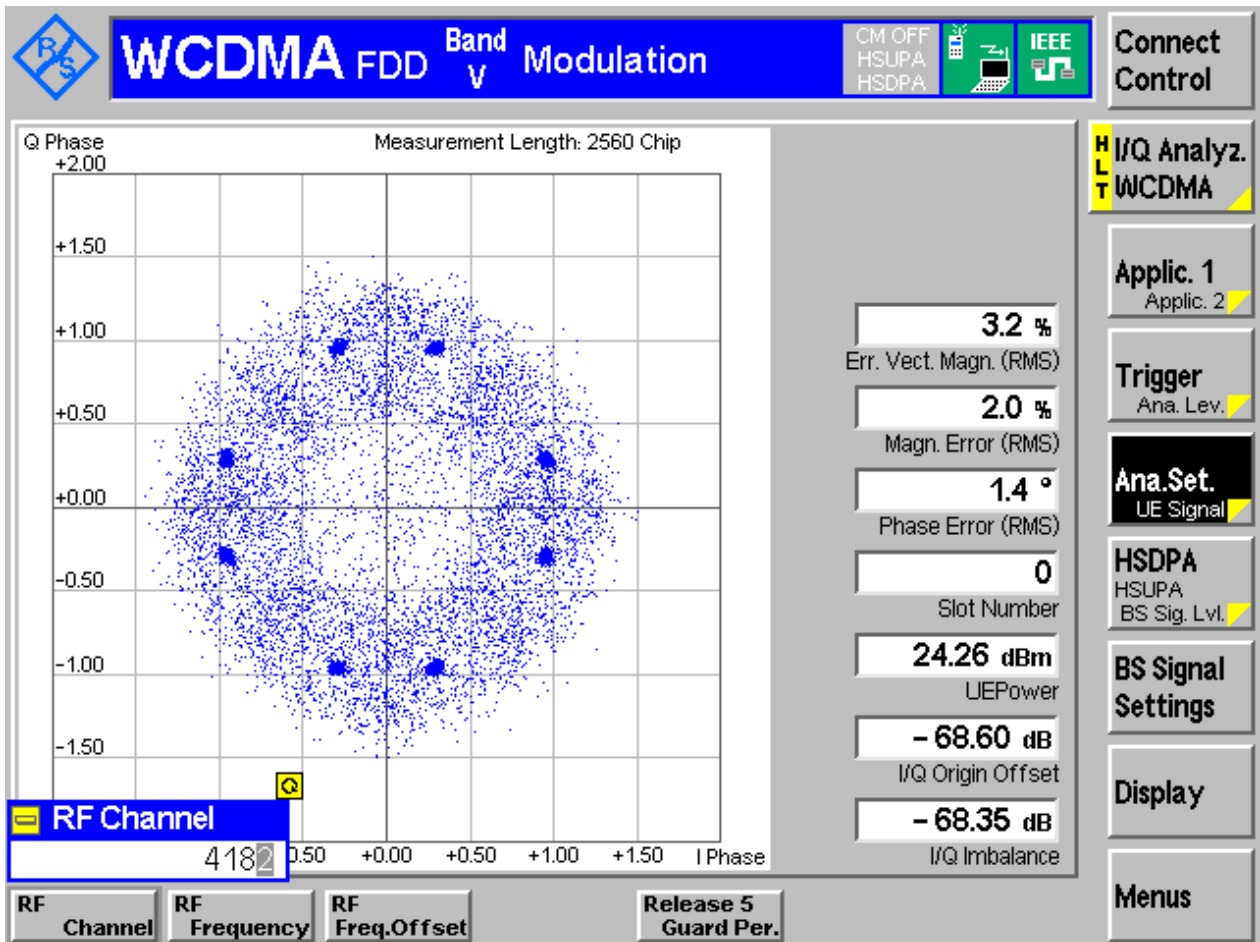
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA850

3.1.2.1 Test Mode = UMTS/TM1

3.1.2.1.1 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 | 4.13 | 4.72 | Pass |
| | | MCH | 4.13 | 4.70 | Pass |
| | | HCH | 4.12 | 4.70 | Pass |
| WCDMA1900 | UMTS/TM1 | LCH | 4.13 | 4.71 | Pass |
| | | MCH | 4.14 | 4.70 | Pass |
| | | HCH | 4.13 | 4.71 | Pass |

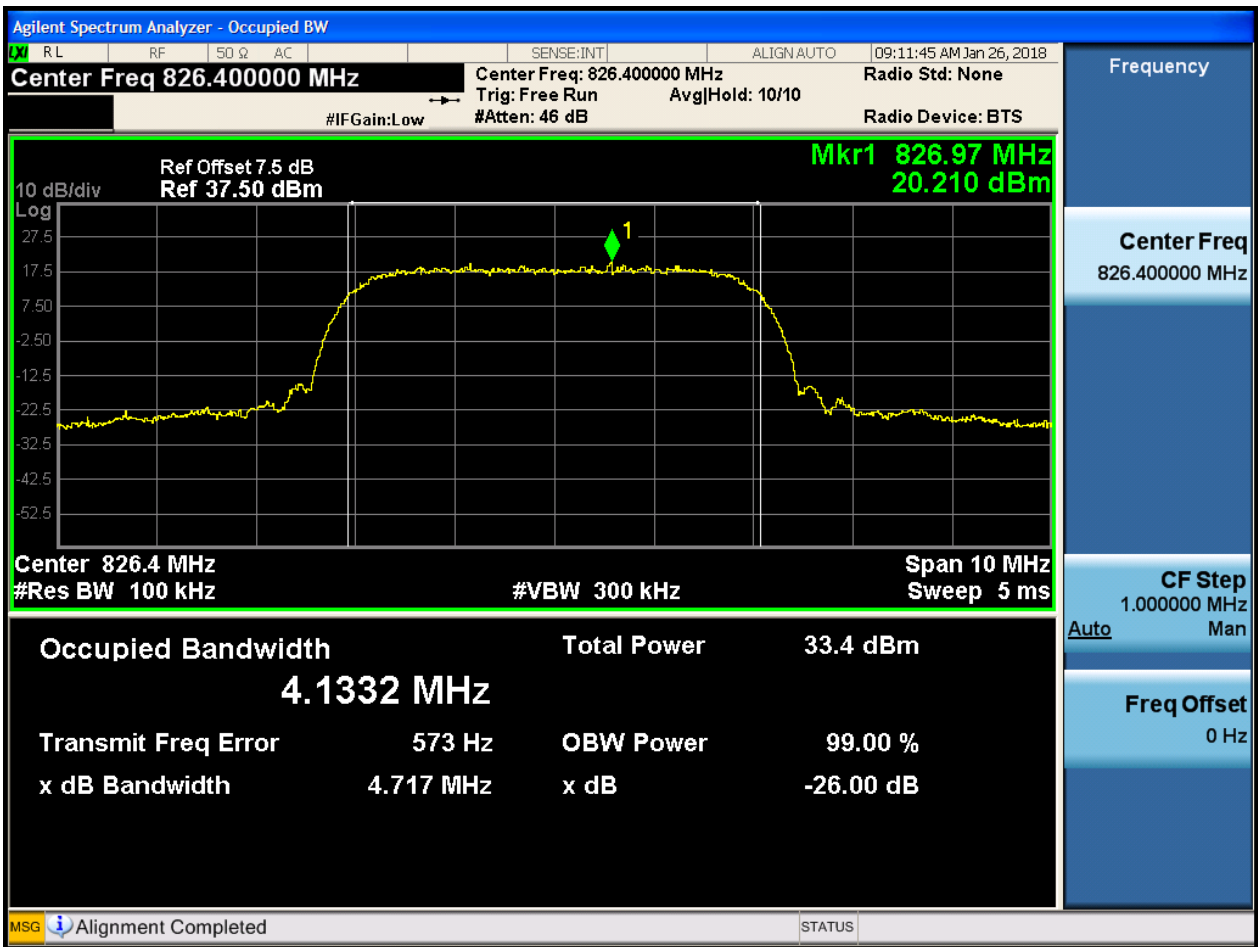
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

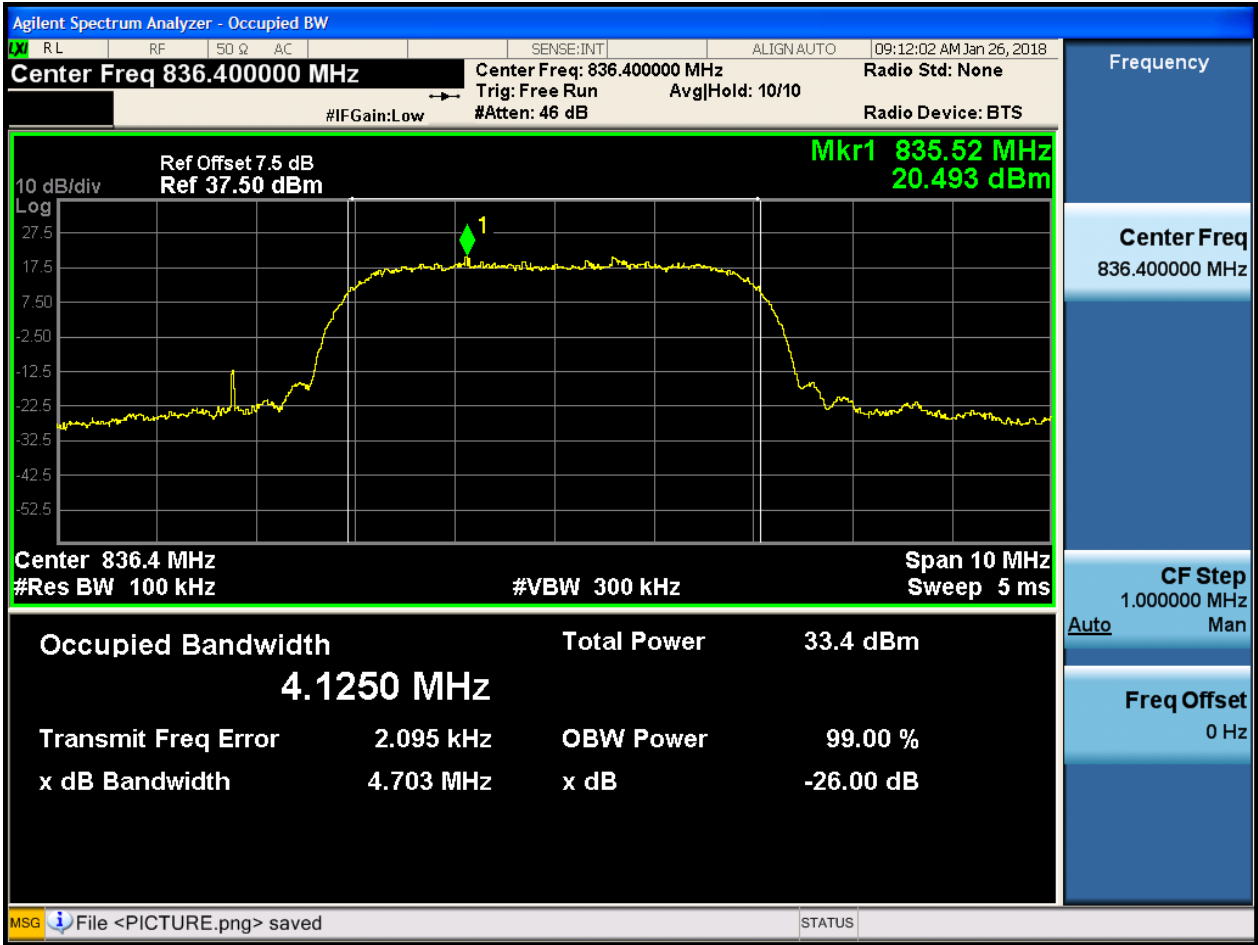
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



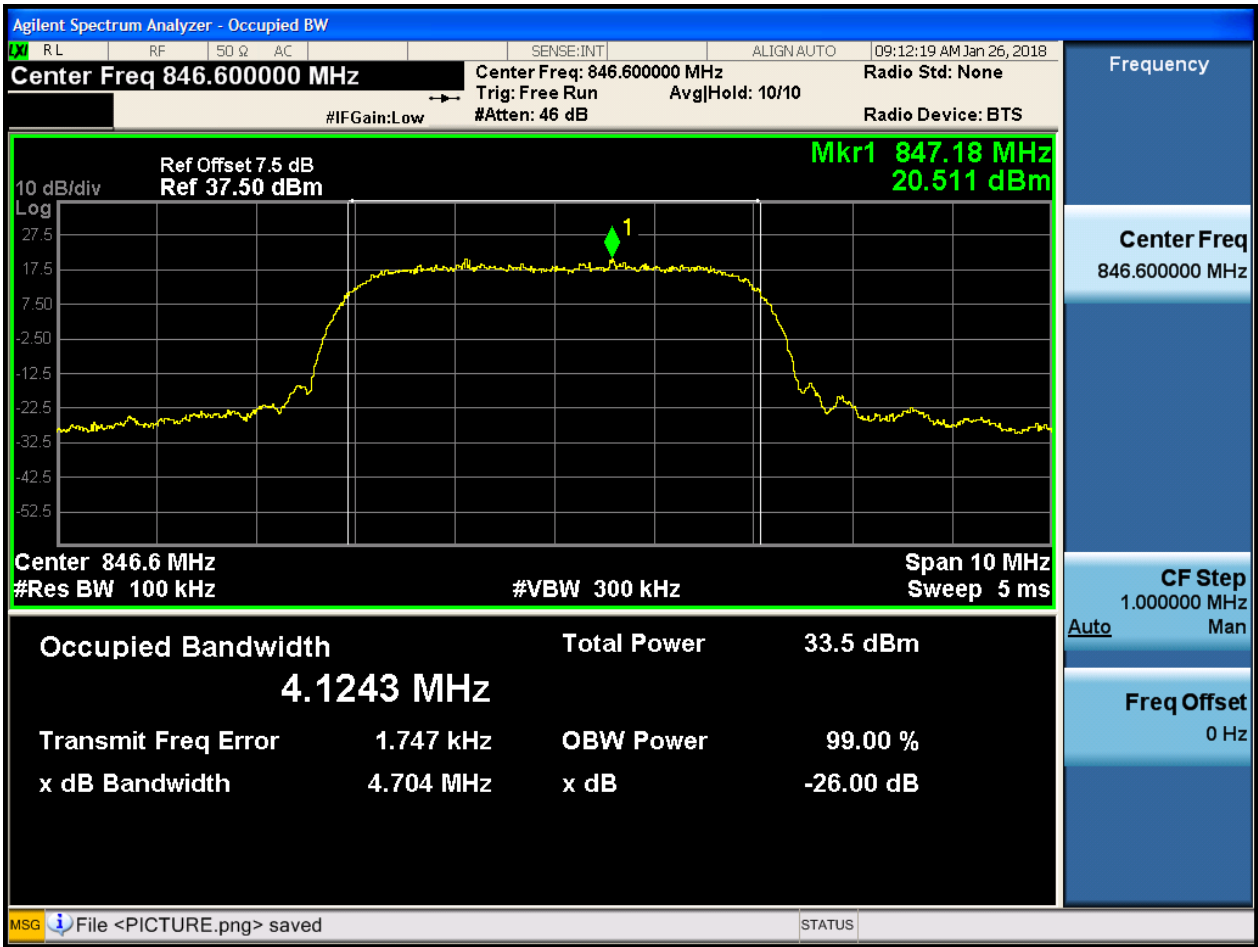


4.1.1.1.2 Test Channel = MCH





4.1.1.1.3 Test Channel = HCH

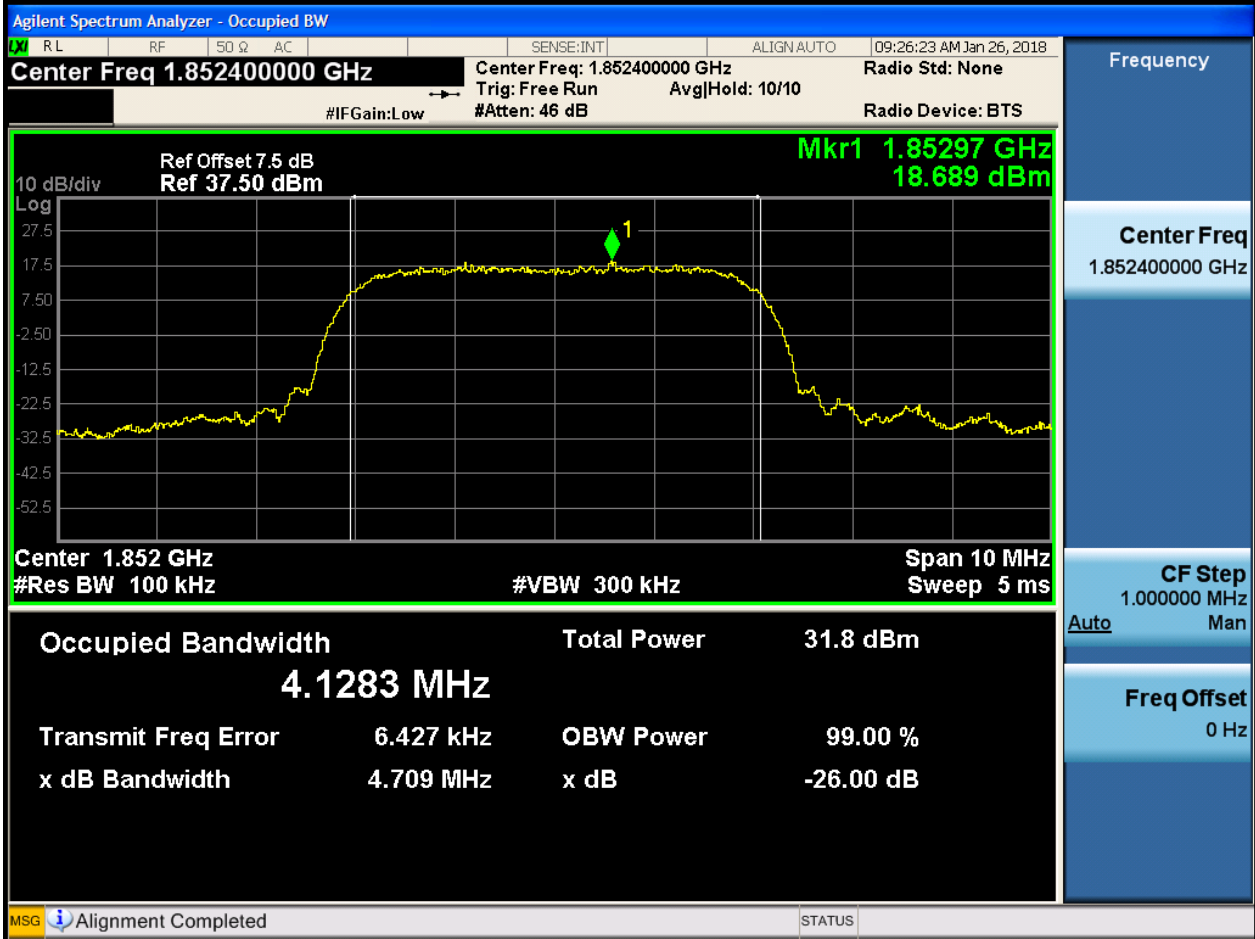




4.1.2 Test Band = WCDMA1900

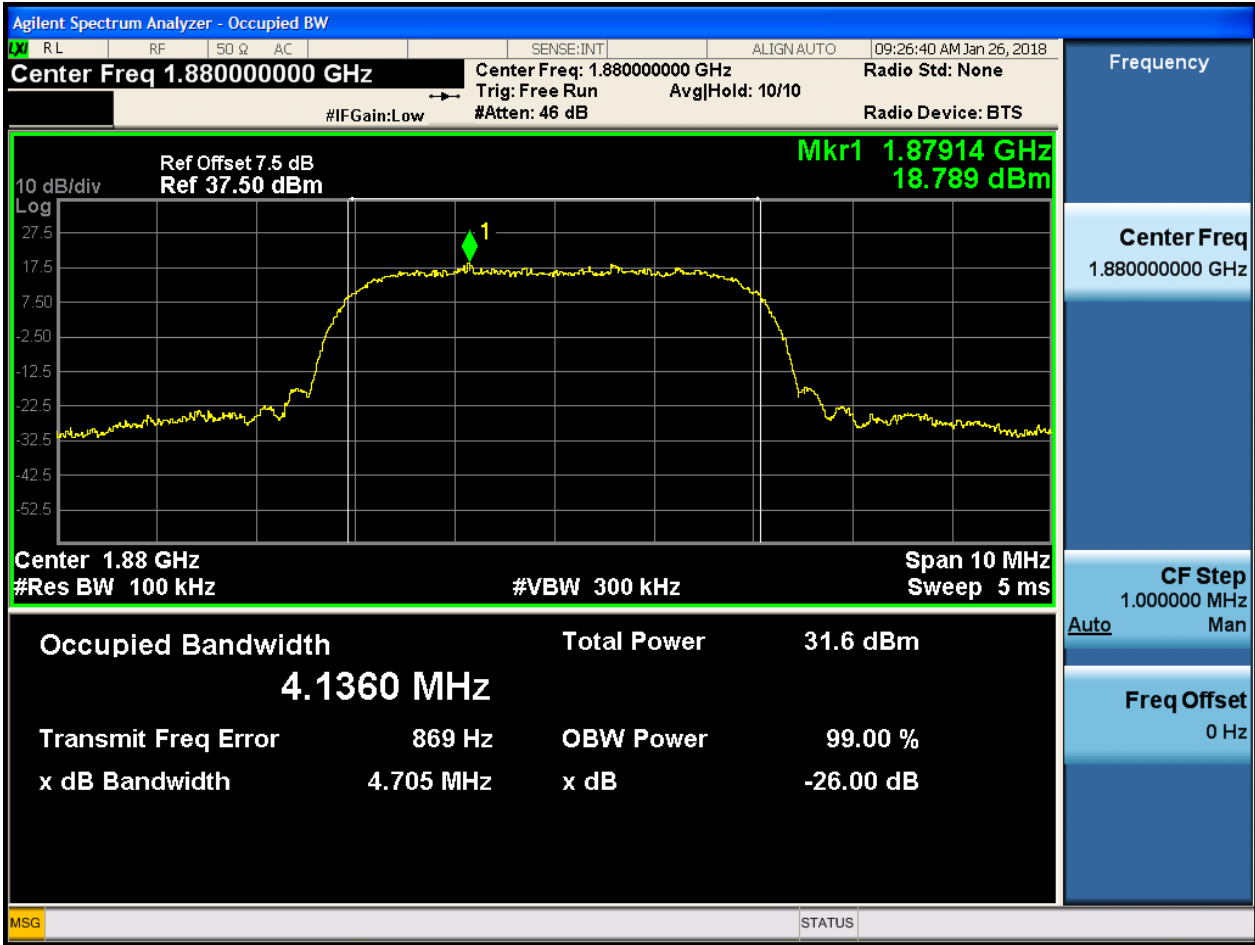
4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH



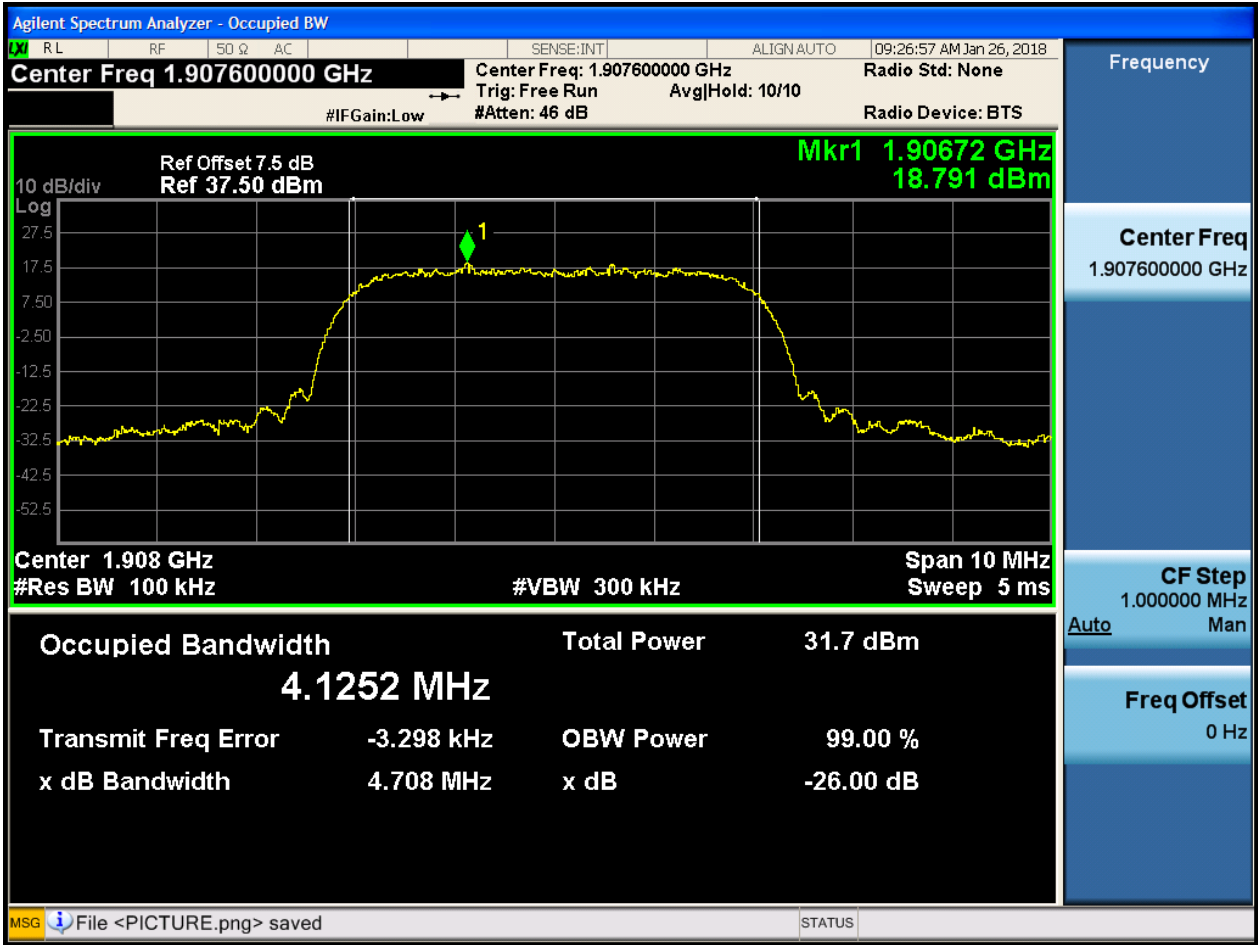


4.1.2.1.2 Test Channel = MCH





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 = 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





5.1.2 Test Band = WCDMA1900

5.1.2.1 Test Mode = UMTS/TM1

5.1.2.1.1 Test Channel = LCH



5.1.2.1.2 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.

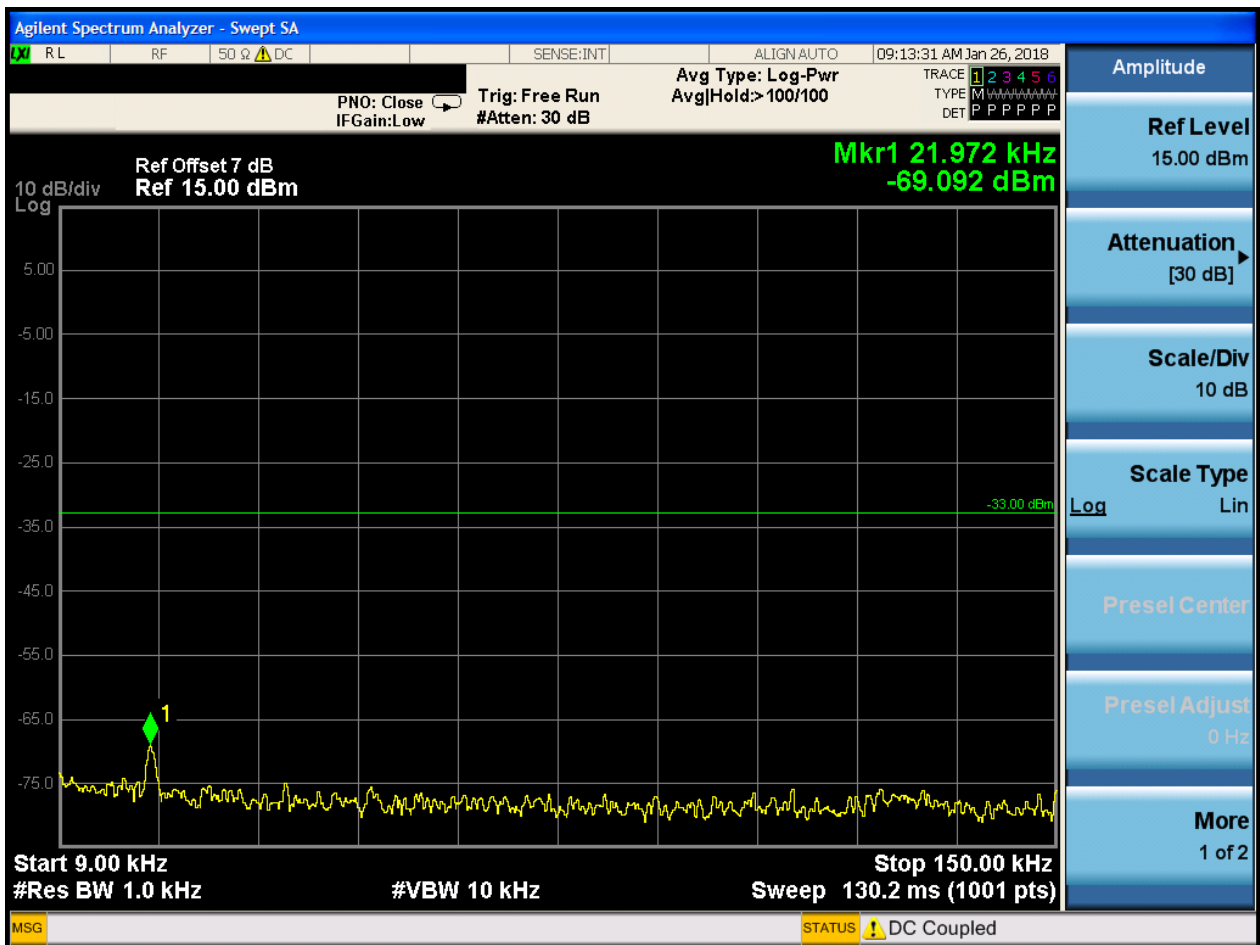
Part I - Test Plots

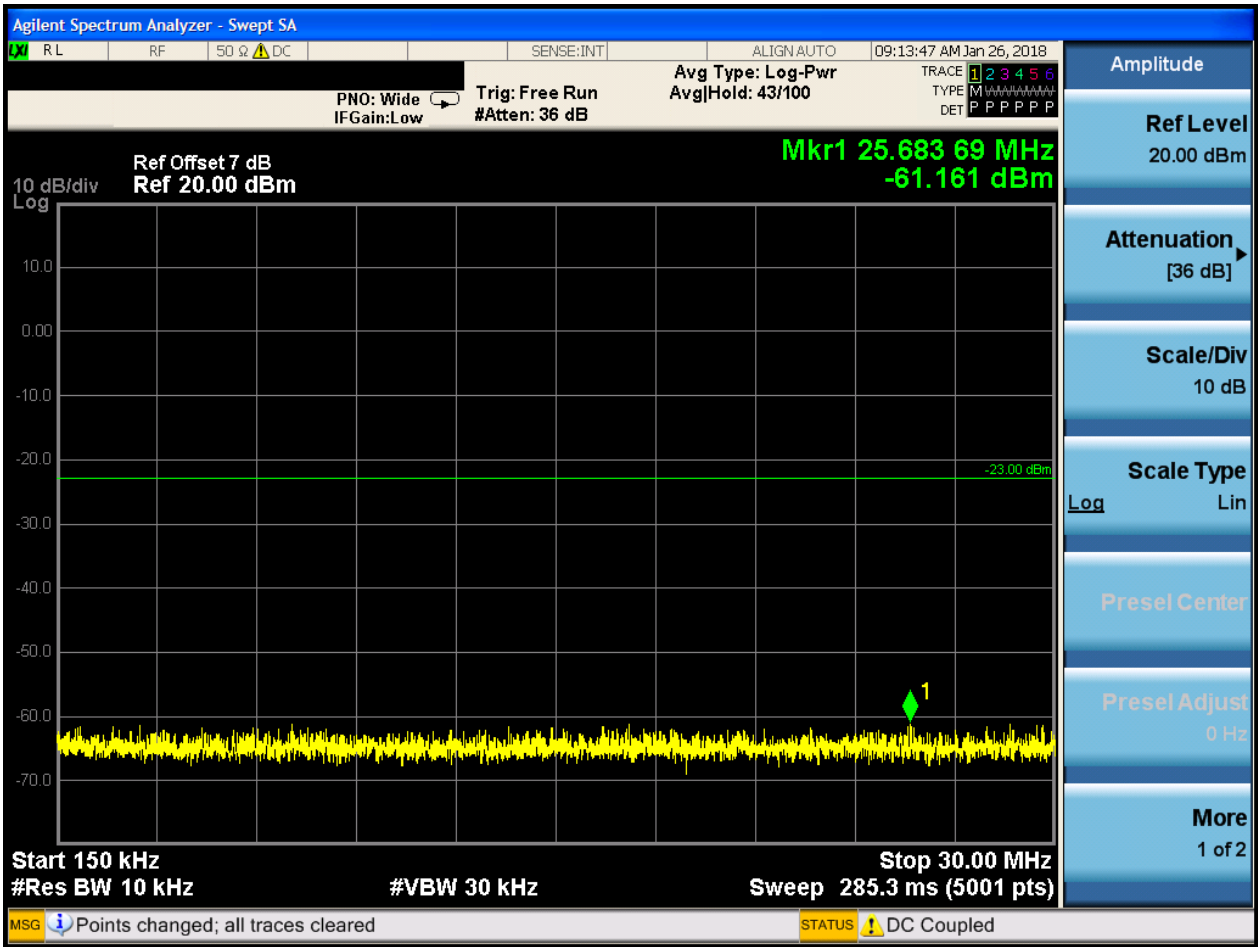
6.1 For UMTS

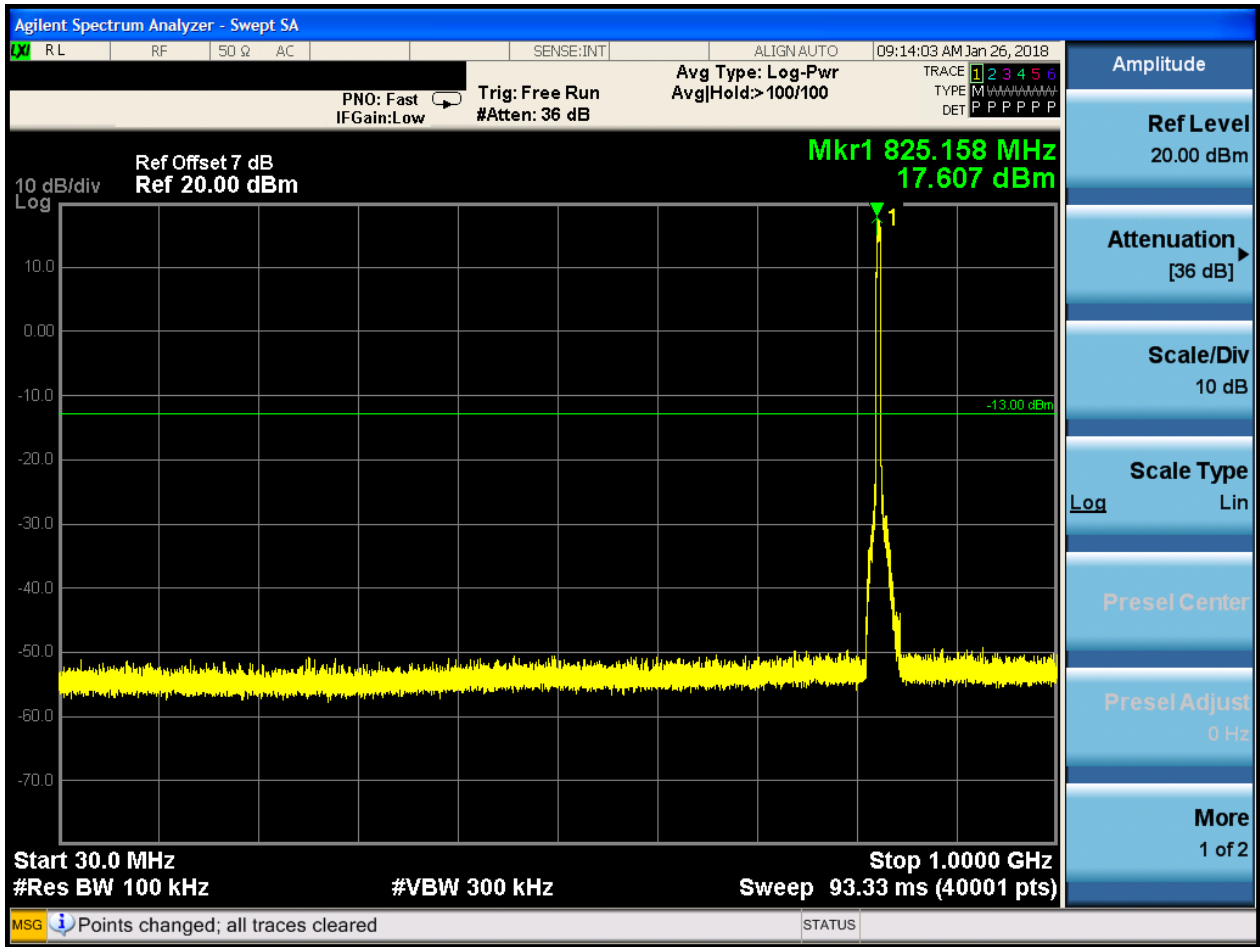
6.1.1 Test Band = WCDMA850

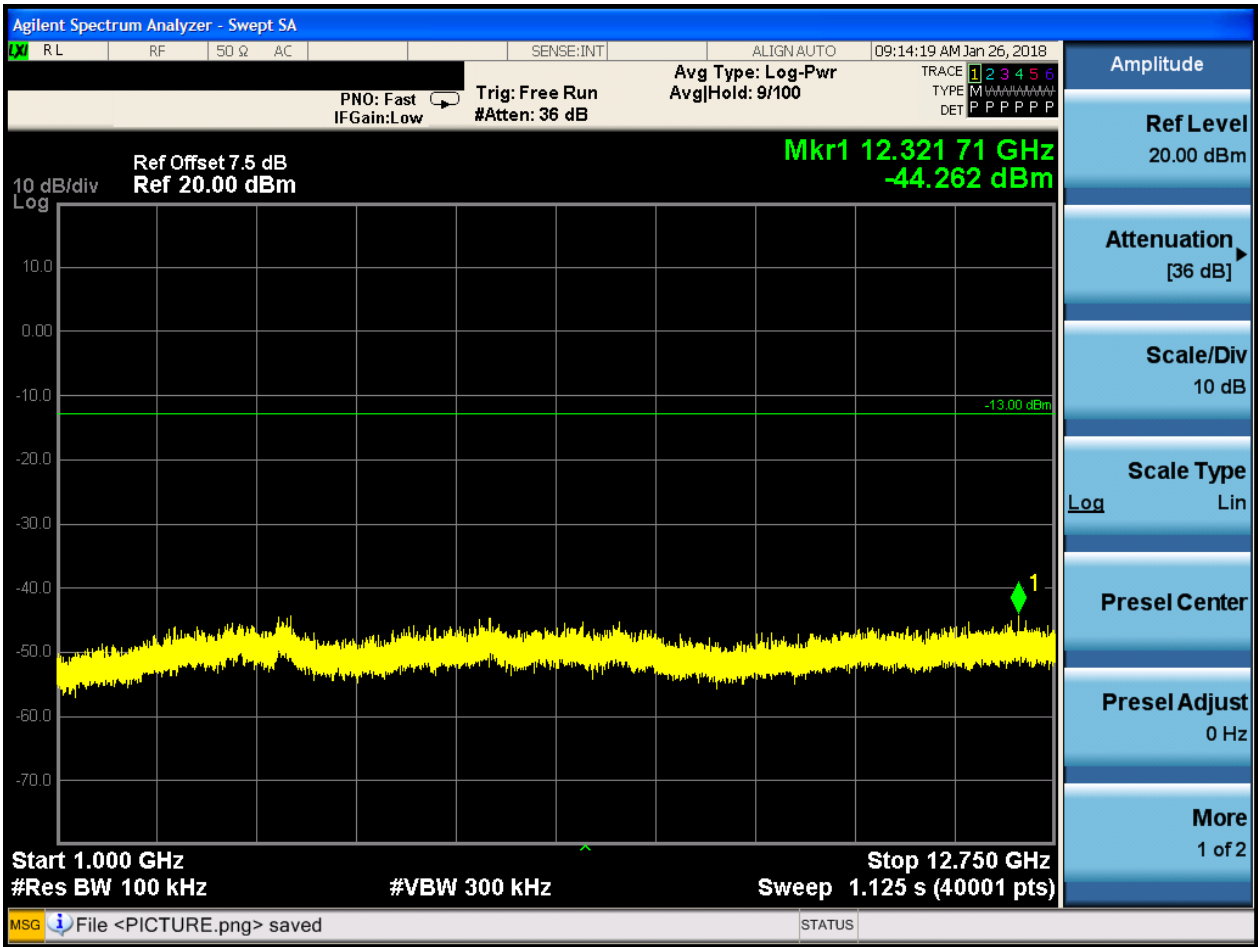
6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH

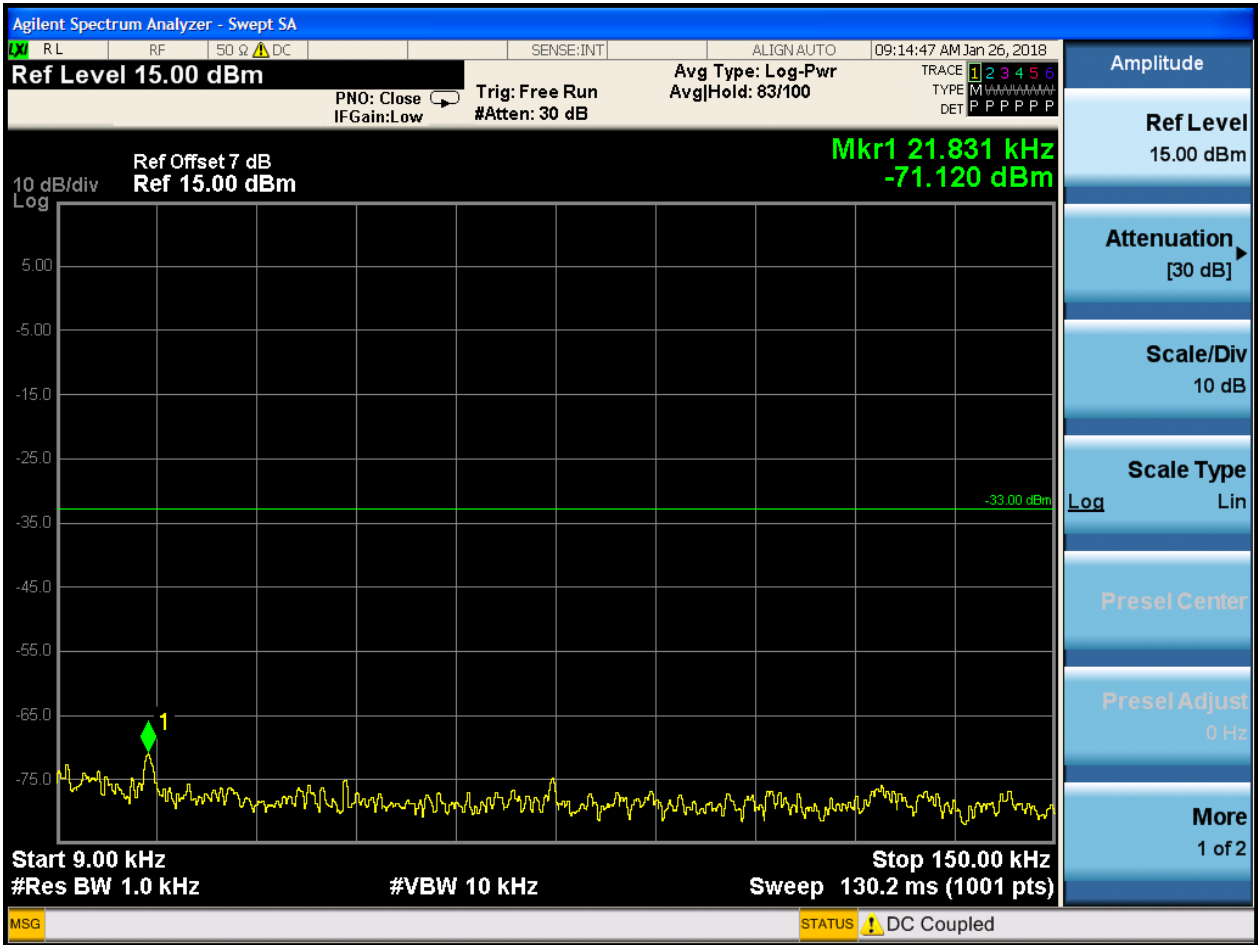




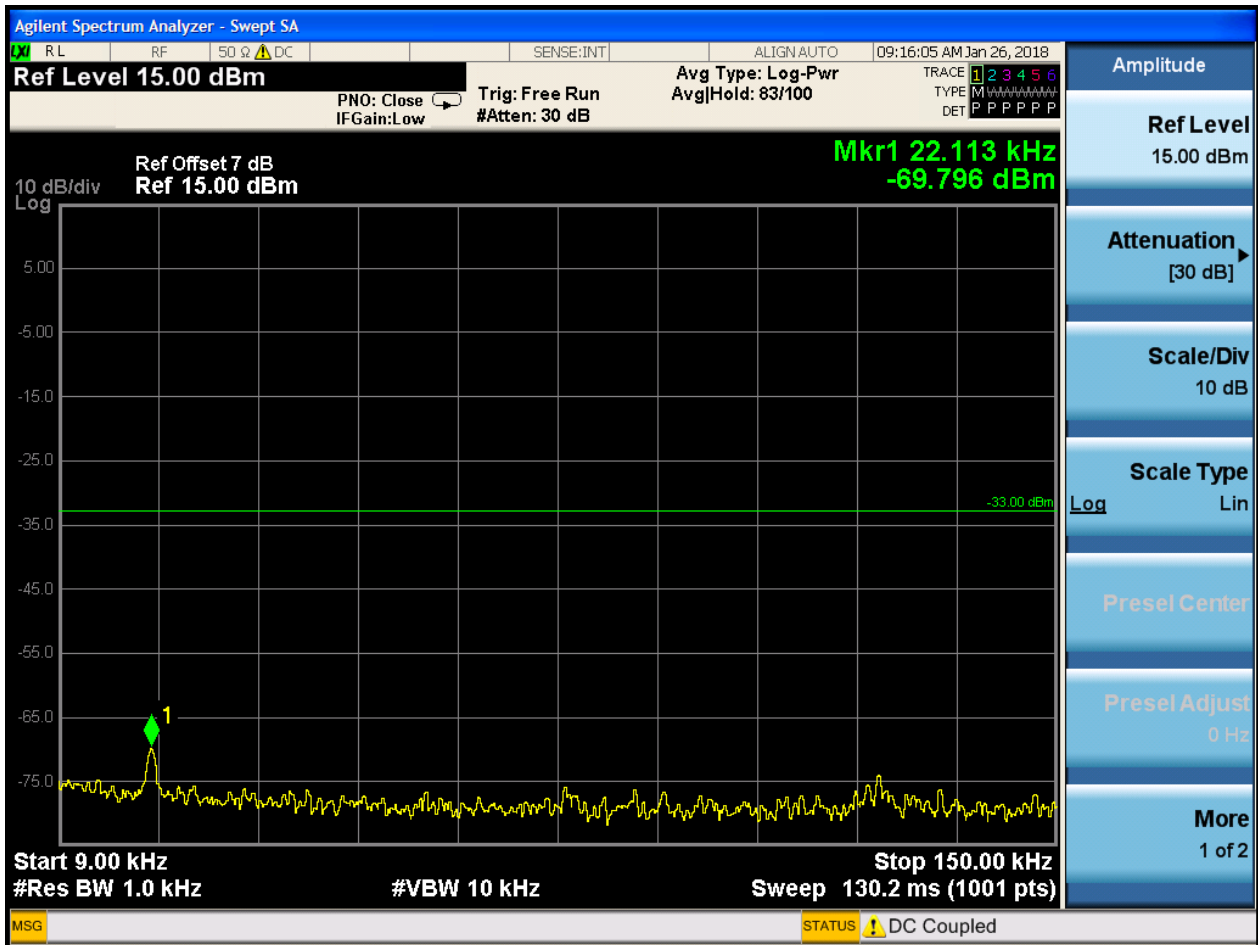


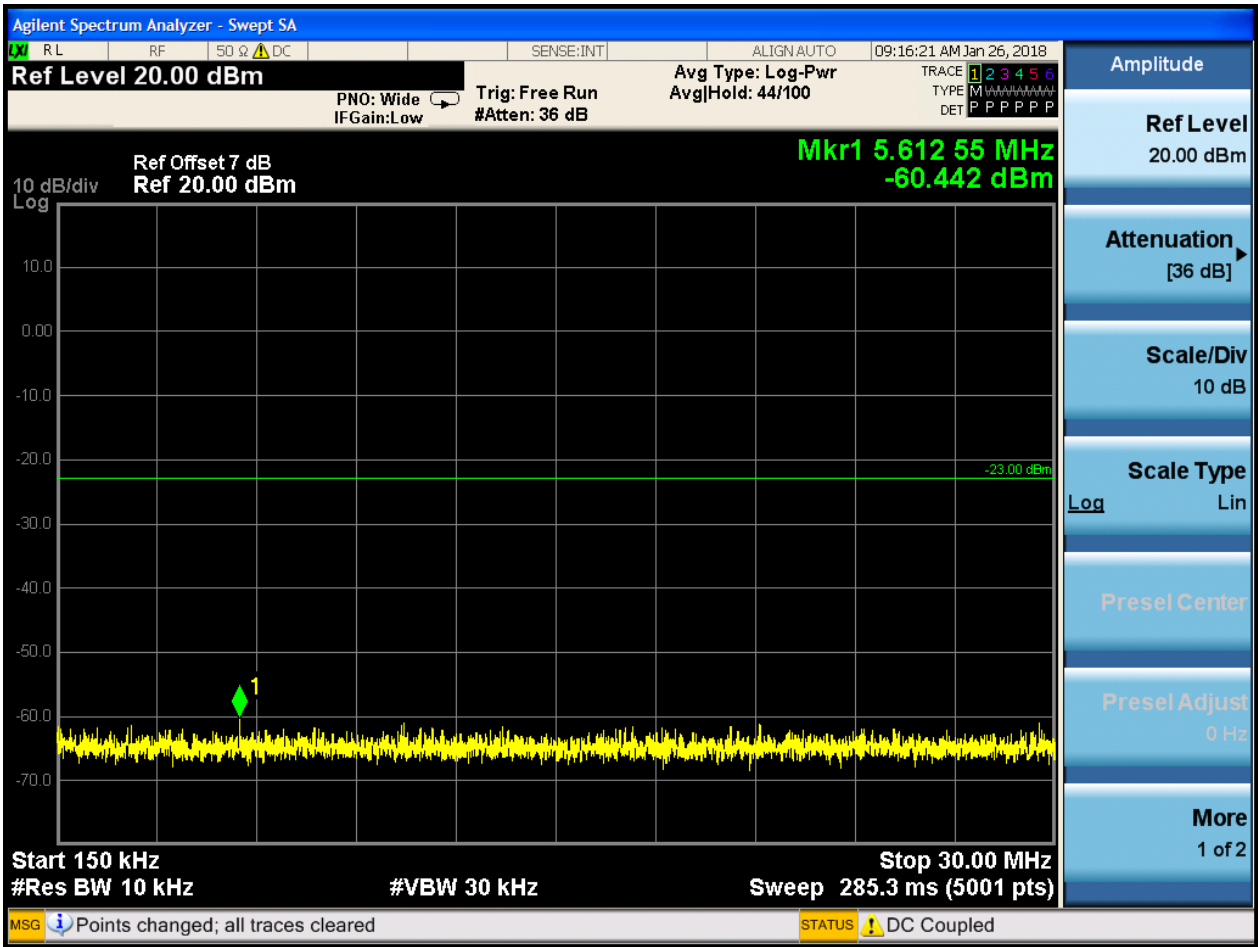


6.1.1.1.2 Test Channel = MCH



6.1.1.1.3 Test Channel = HCH



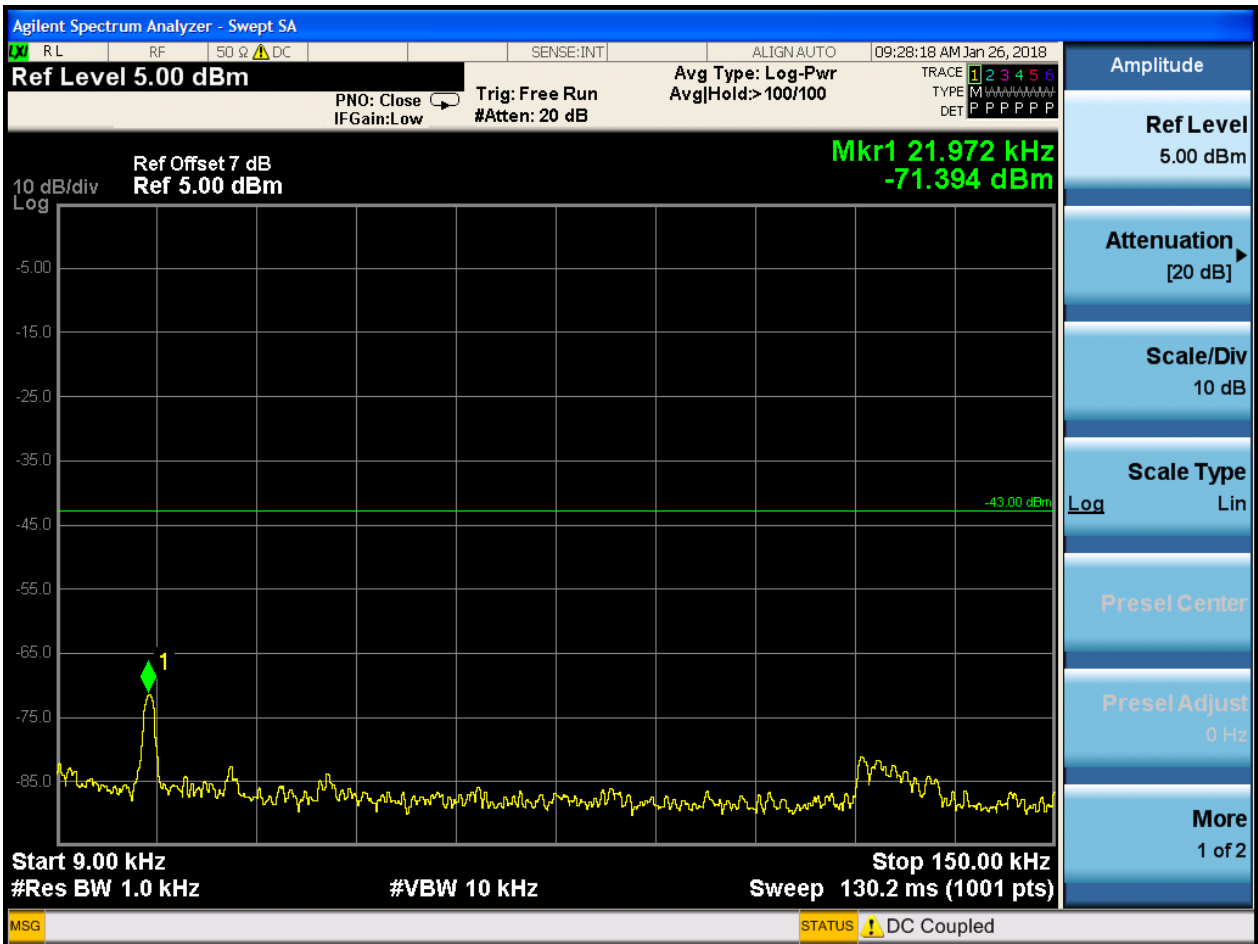


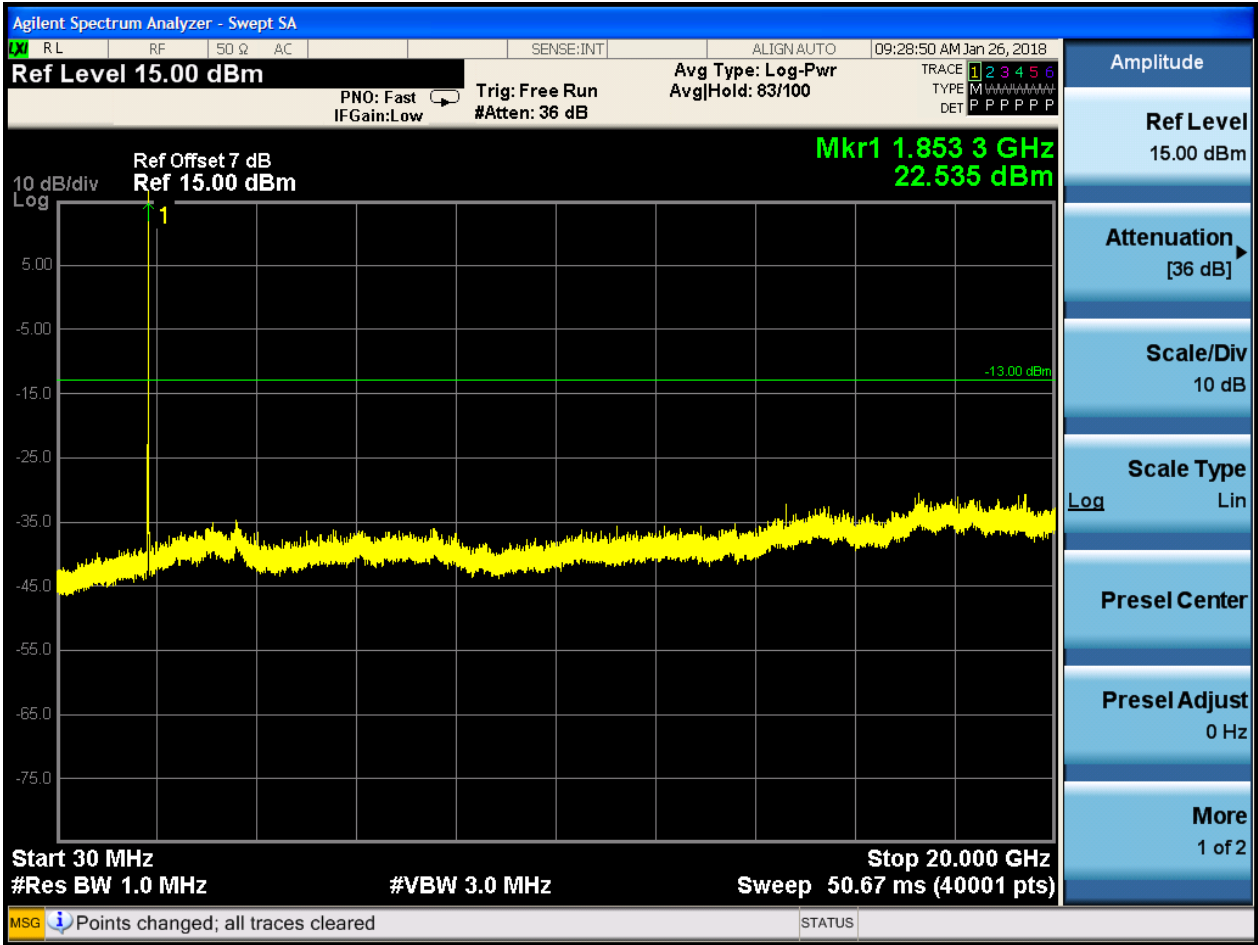


6.1.2 Test Band = WCDMA1900

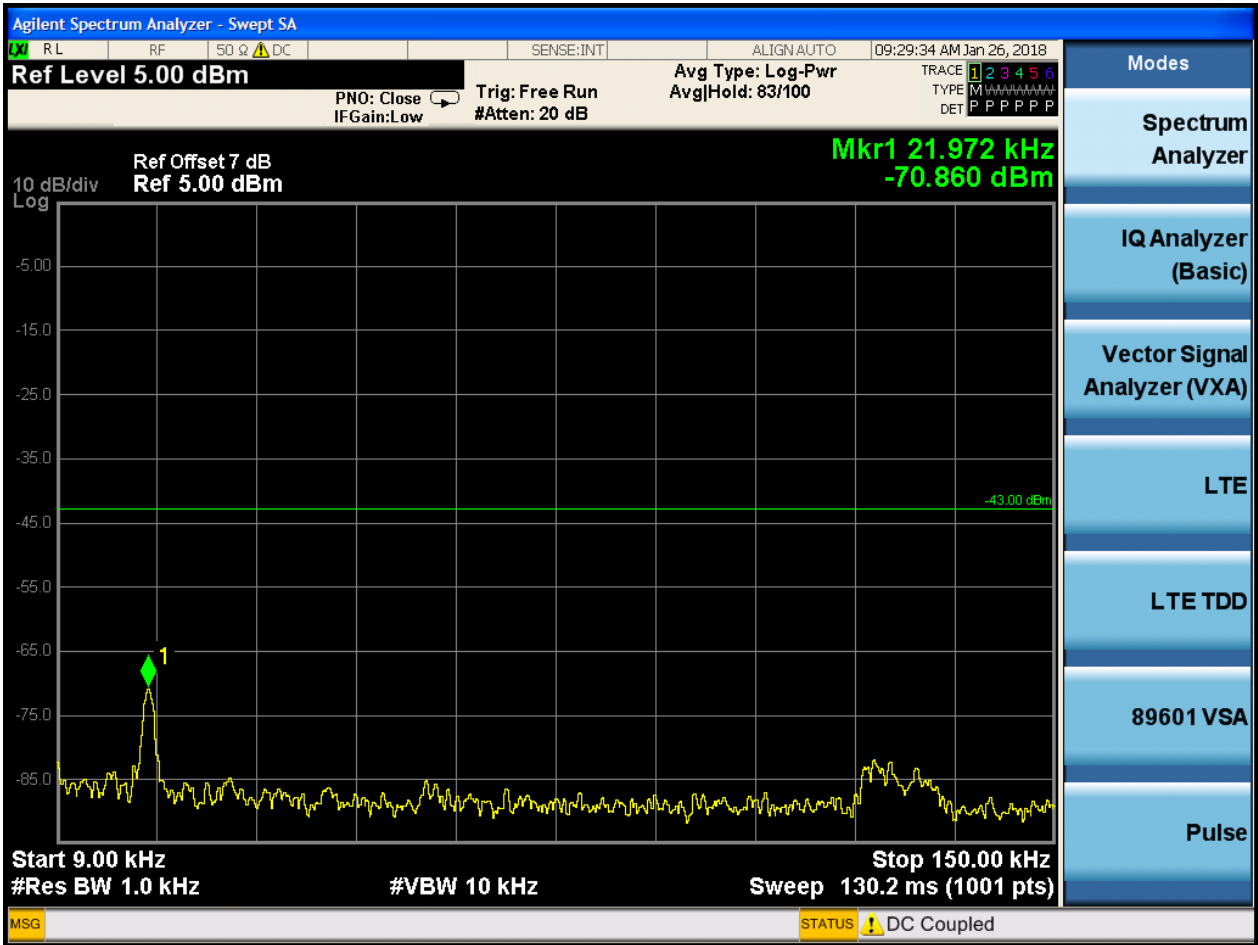
6.1.2.1 Test Mode = UMTS/TM1

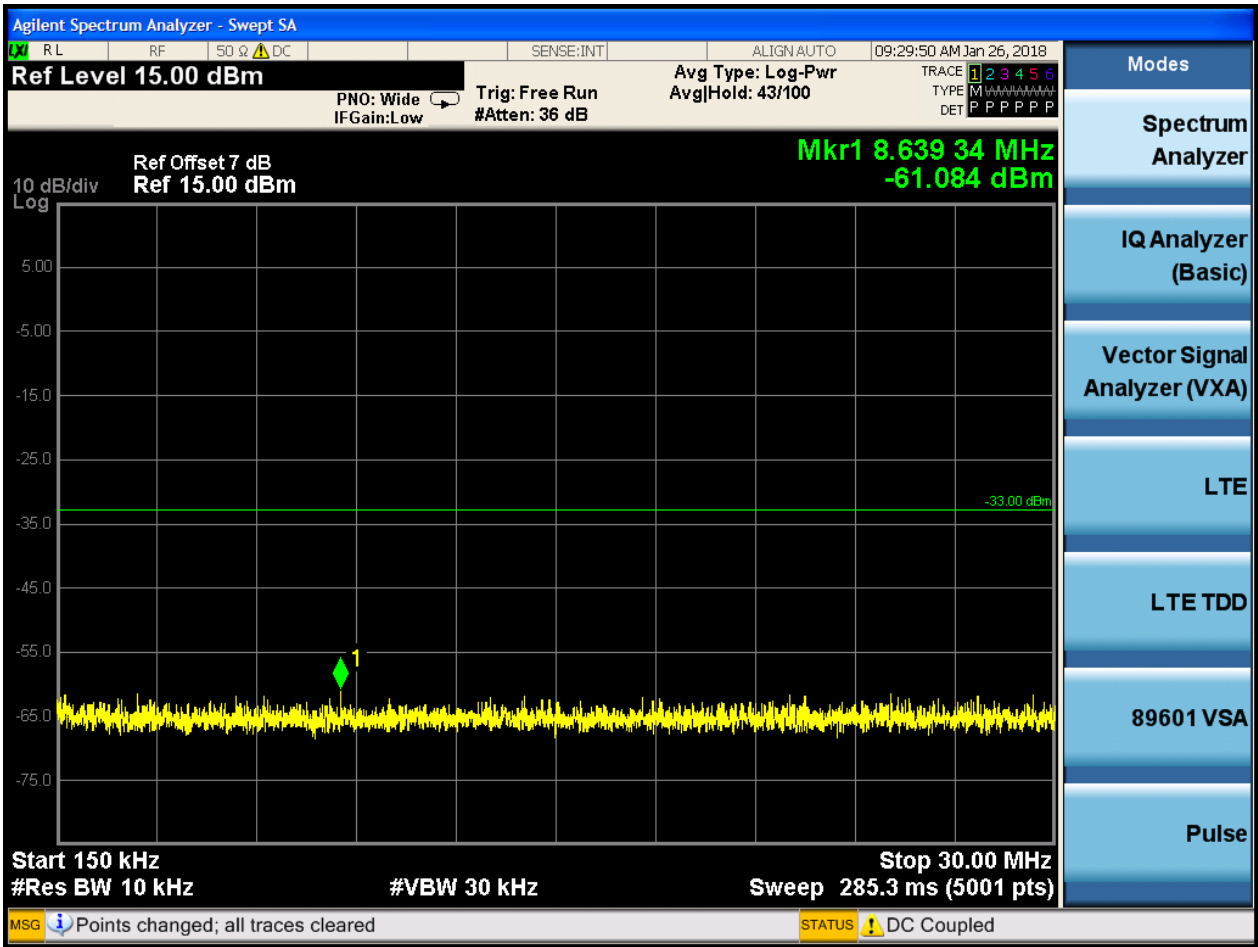
6.1.2.1.1 Test Channel = LCH

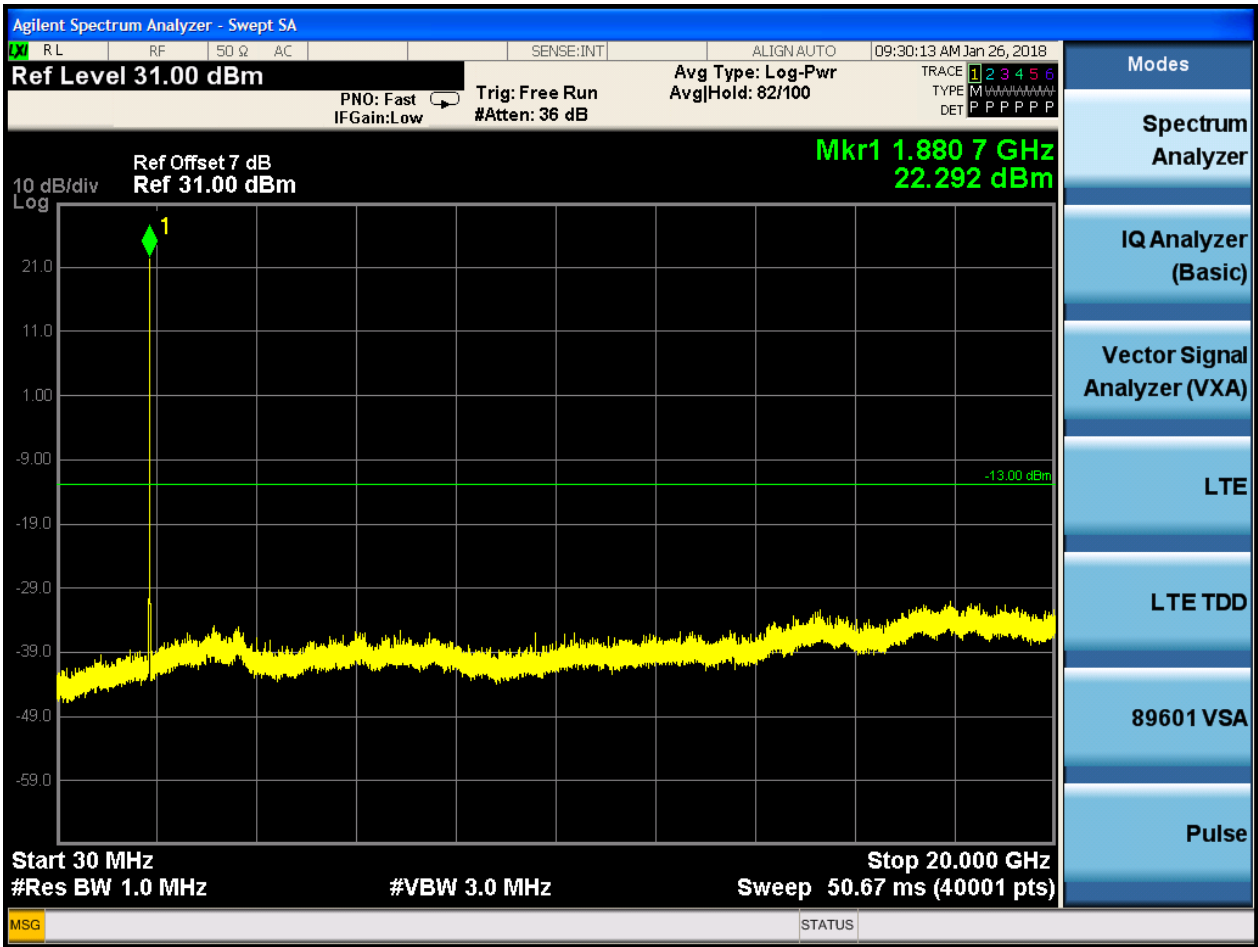




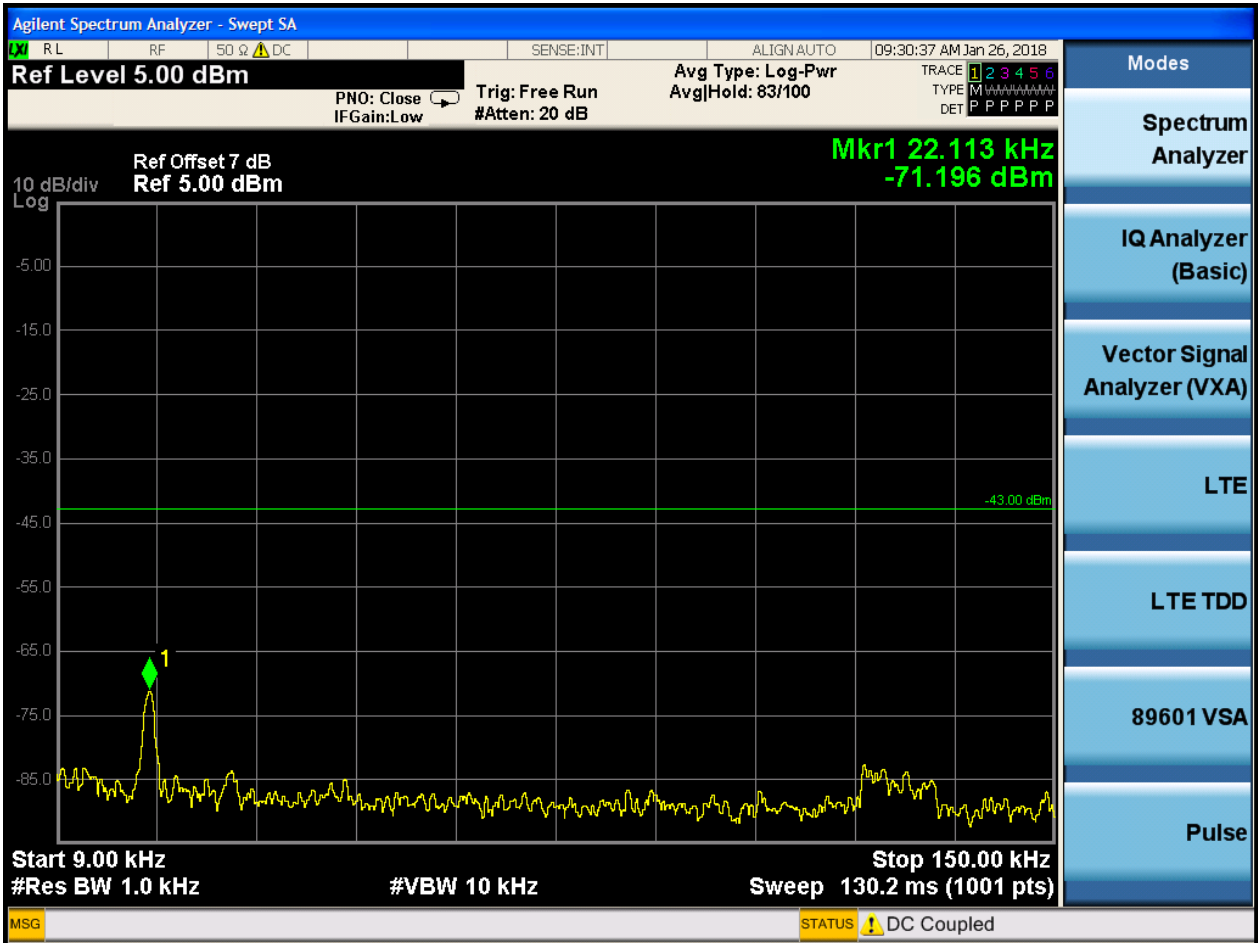
6.1.2.1.2 Test Channel = MCH

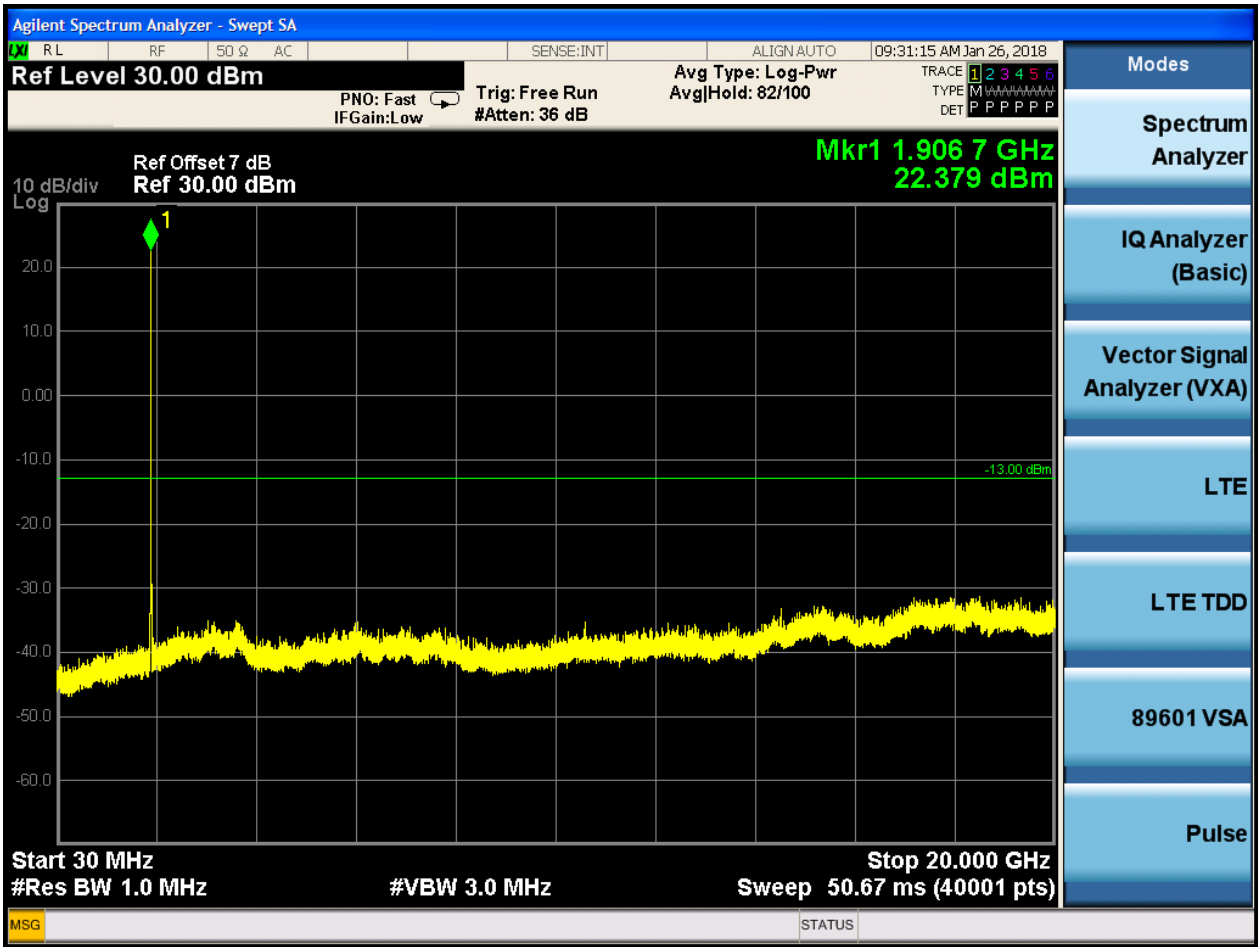






6.1.2.1.3 Test Channel = HCH





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

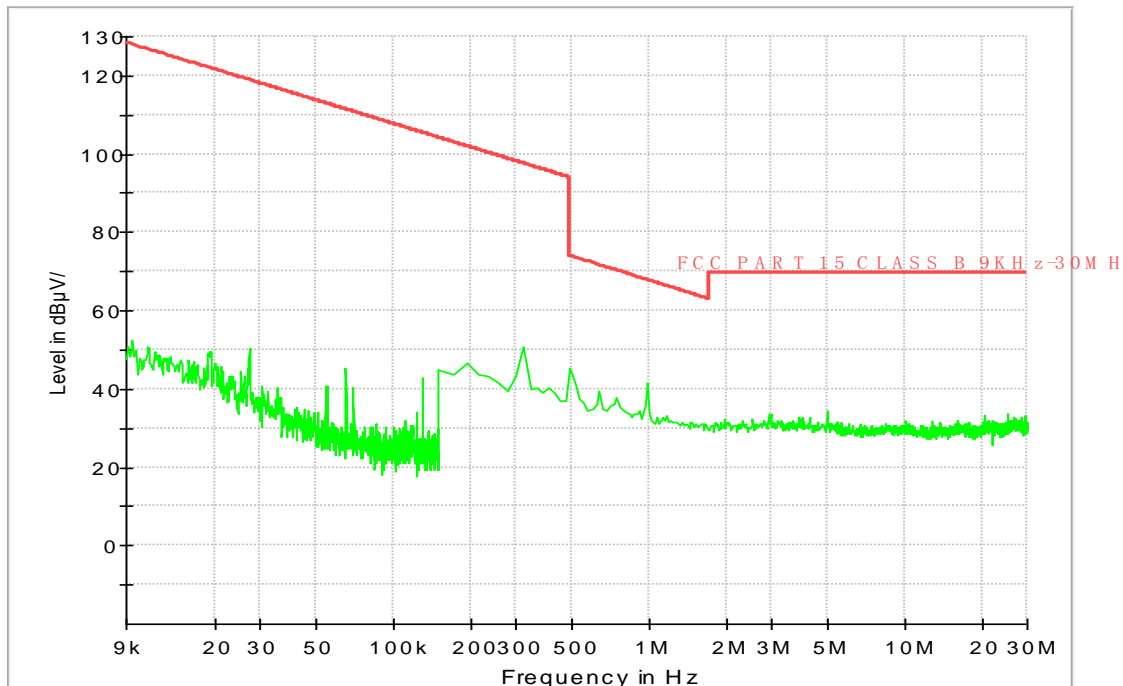
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

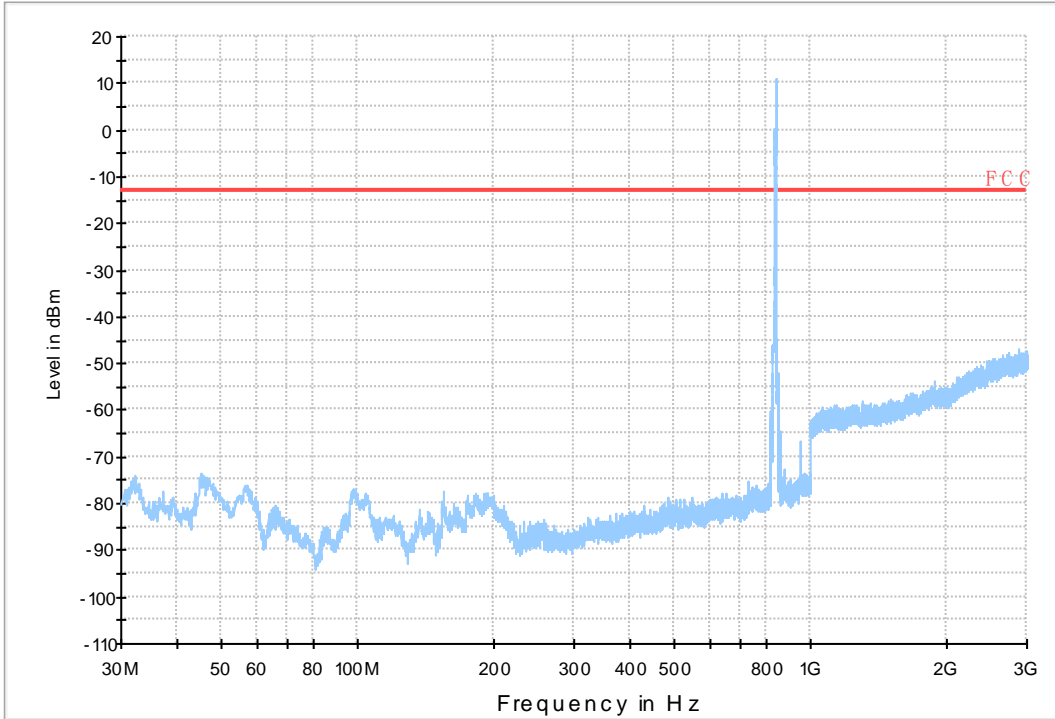
7.1 For UMTS

7.1.1 Test Band = WCDMA850

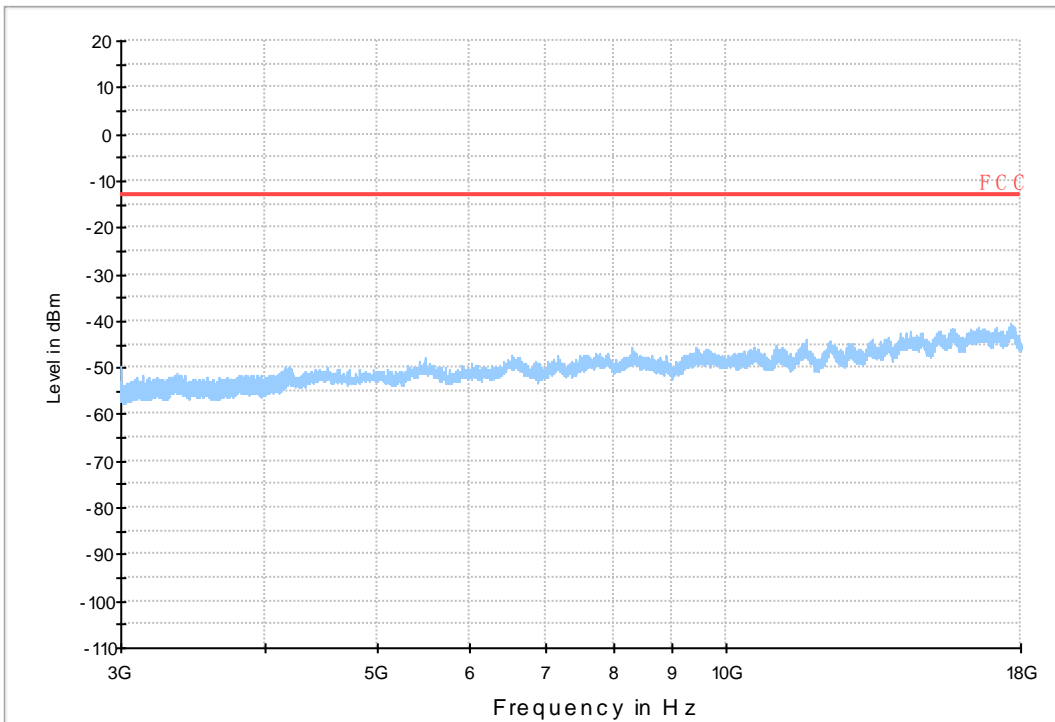
7.1.1.1 Test Mode = UMTS/TM1



Copy of FCC PART22 W CDMA850_L

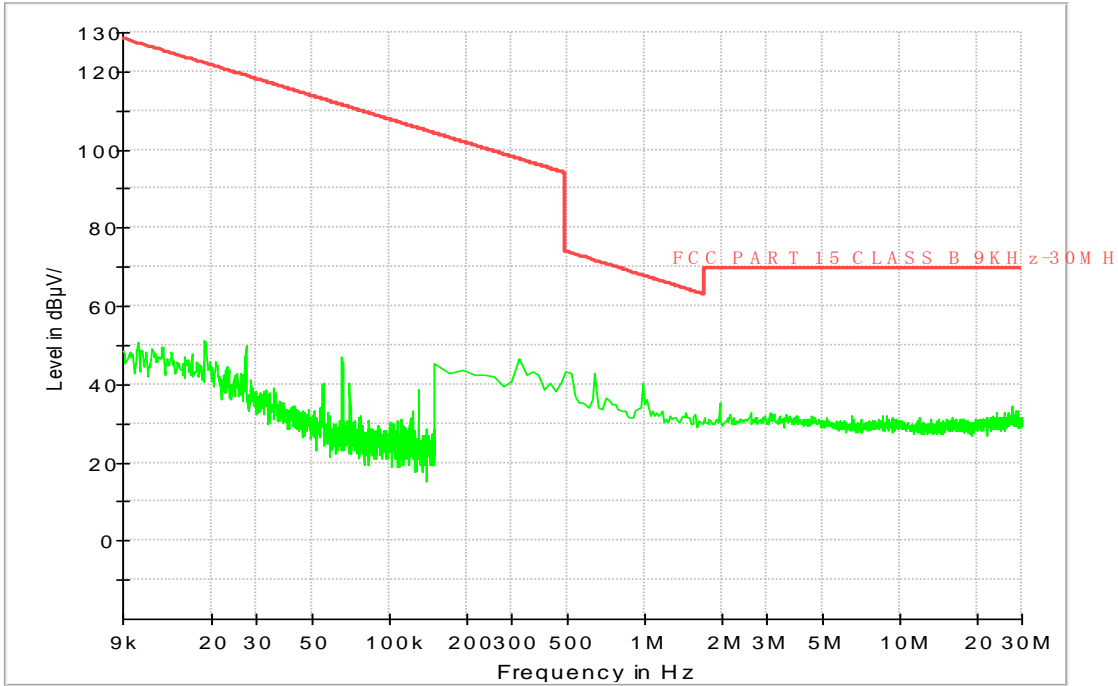


Copy of FCC PART22 W CDMA850_H

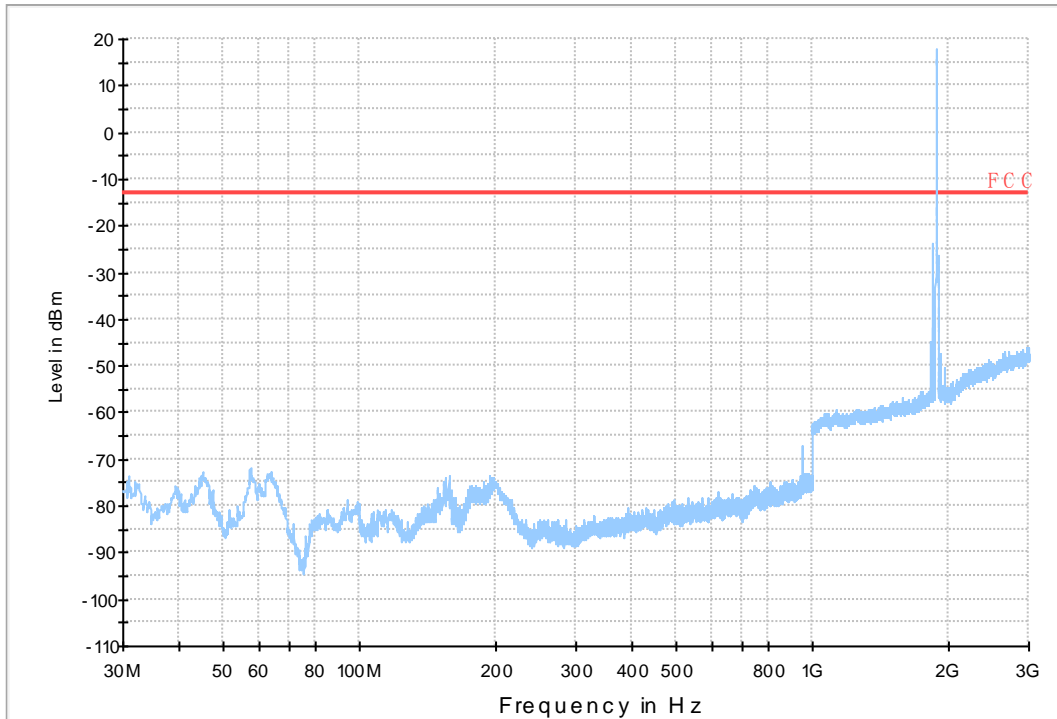


7.1.2 Test Band = WCDMA1900

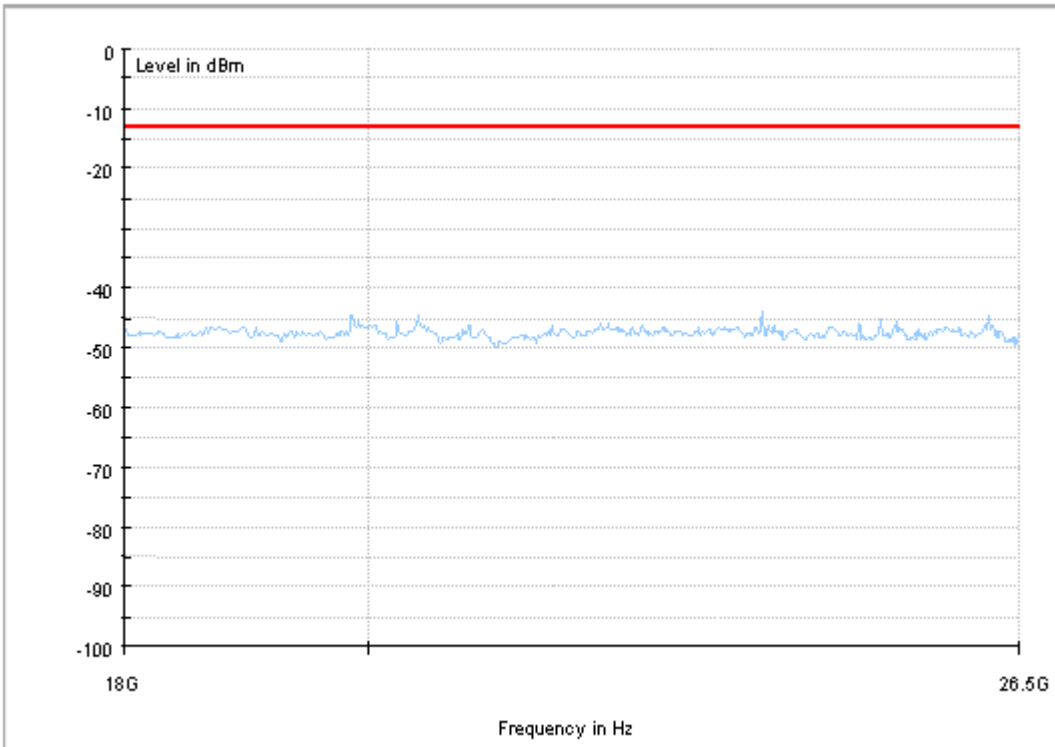
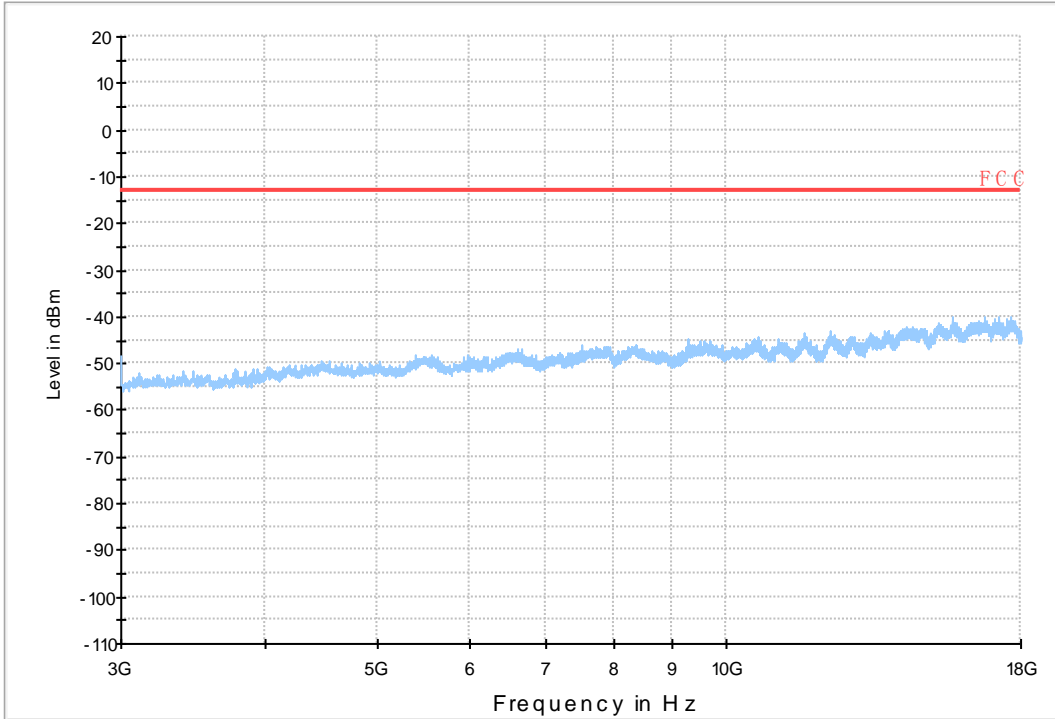
7.1.2.1 Test Mode = UMTS/TM1



Copy of FCC PART24 W CDMA1900_L



Copy of FCC PART 24 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 |
|-----------|-----------|--------------|------------|------------|------------------|-----------------------|---------|
| WCDMA850 | UMTS/TM1 | LCH | TN | VL | 0.24 | 0.00029 | PASS |
| | | | | VN | 0.58 | 0.0007 | PASS |
| | | | | VH | 2.09 | 0.00253 | PASS |
| | | MCH | TN | VL | 0.84 | 0.001 | PASS |
| | | | | VN | -3.25 | -0.00389 | PASS |
| | | | | VH | -3.05 | -0.00365 | PASS |
| | | HCH | TN | VL | -0.14 | -0.00017 | PASS |
| | | | | VN | -1.31 | -0.00155 | PASS |
| | | | | VH | 0.63 | 0.00074 | PASS |
| WCDMA1900 | UMTS/TM1 | LCH | TN | VL | -0.38 | -0.00021 | PASS |
| | | | | VN | 2.44 | 0.00132 | PASS |
| | | | | VH | 1.74 | 0.00094 | PASS |
| | | MCH | TN | VL | -3.10 | -0.00165 | PASS |
| | | | | VN | -0.02 | -0.00001 | PASS |
| | | | | VH | -0.96 | -0.00051 | PASS |
| | | HCH | TN | VL | -4.78 | -0.00251 | PASS |
| | | | | VN | -6.48 | -0.0034 | PASS |
| | | | | VH | -2.91 | -0.00153 | 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 | 0.17 | 0.00021 | PASS |
| | | | | -20 | -1.68 | -0.00203 | PASS |
| | | | | -10 | 1.25 | 0.00151 | PASS |
| | | | | 0 | 3.28 | 0.00397 | PASS |
| | | | | 10 | 1.16 | 0.0014 | PASS |
| | | | | 20 | 0.96 | 0.00116 | PASS |
| | | | | 30 | 0.58 | 0.0007 | PASS |



| Test Band | Test Mode | Test Channel | Test Volt. | Test Temp. | Freq. Error [Hz] | Freq. vs. rated [ppm] | Verdict |
|-----------|-----------|--------------|------------|------------|------------------|-----------------------|---------|
| | | | | 40 | 1.40 | 0.00169 | PASS |
| | | | | 50 | -2.06 | -0.00249 | PASS |
| | | MCH | VN | -30 | -1.40 | -0.00167 | PASS |
| | | | | -20 | -2.52 | -0.00301 | PASS |
| | | | | -10 | -0.38 | -0.00045 | PASS |
| | | | | 0 | -1.05 | -0.00126 | PASS |
| | | | | 10 | 0.75 | 0.0009 | PASS |
| | | | | 20 | -1.85 | -0.00221 | PASS |
| | | | | 30 | 1.65 | 0.00197 | PASS |
| | | | | 40 | -0.05 | -0.00006 | PASS |
| | | | | 50 | 1.14 | 0.00136 | PASS |
| | | | | HCH | VN | -30 | -7.10 |
| | | -20 | -1.50 | | | -0.00177 | PASS |
| | | -10 | -5.66 | | | -0.00669 | PASS |
| | | 0 | -1.86 | | | -0.0022 | PASS |
| | | 10 | -1.85 | | | -0.00219 | PASS |
| | | 20 | -1.36 | | | -0.00161 | PASS |
| | | 30 | -1.40 | | | -0.00165 | PASS |
| | | 40 | -3.69 | | | -0.00436 | PASS |
| | | 50 | 0.06 | 0.00007 | PASS | | |
| WCDMA1900 | UMTS/TM1 | LCH | VN | -30 | 1.07 | 0.00058 | PASS |
| | | | | -20 | 1.24 | 0.00067 | PASS |
| | | | | -10 | 4.56 | 0.00246 | PASS |
| | | | | 0 | 3.07 | 0.00166 | PASS |
| | | | | 10 | 1.21 | 0.00065 | PASS |
| | | | | 20 | 2.38 | 0.00128 | PASS |
| | | | | 30 | 1.63 | 0.00088 | PASS |
| | | | | 40 | 0.81 | 0.00044 | PASS |
| | | | | 50 | 3.98 | 0.00215 | PASS |
| | | MCH | VN | -30 | -3.40 | -0.00181 | PASS |
| | | | | -20 | 0.20 | 0.00011 | PASS |
| | | | | -10 | 0.05 | 0.00003 | PASS |
| | | | | 0 | 0.08 | 0.00004 | PASS |
| | | | | 10 | -3.30 | -0.00176 | PASS |
| | | | | 20 | 0.29 | 0.00015 | PASS |
| | | | | 30 | -2.33 | -0.00124 | PASS |
| | | | | 40 | -1.83 | -0.00097 | PASS |
| | | 50 | -3.19 | -0.0017 | PASS | | |
| | | HCH | VN | -30 | -4.14 | -0.00217 | PASS |
| | | | | -20 | -8.82 | -0.00462 | PASS |



| Test Band | Test Mode | Test Channel | Test Volt. | Test Temp. | Freq. Error [Hz] | Freq. vs. rated [ppm] | Verdict |
|-----------|-----------|--------------|------------|------------|------------------|-----------------------|---------|
| | | | | -10 | -7.29 | -0.00382 | PASS |
| | | | | 0 | -6.67 | -0.0035 | PASS |
| | | | | 10 | -4.09 | -0.00214 | PASS |
| | | | | 20 | -5.80 | -0.00304 | PASS |
| | | | | 30 | -3.97 | -0.00208 | PASS |
| | | | | 40 | -1.68 | -0.00088 | PASS |
| | | | | 50 | -6.73 | -0.00353 | PASS |

END