

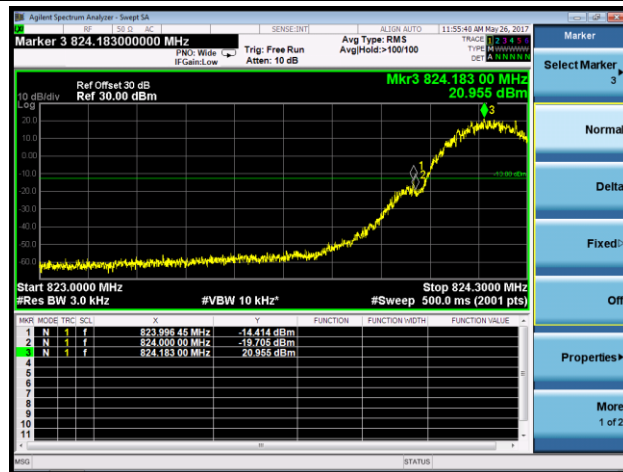
### 7.3.5. Test Result

|               |                 |                   |            |
|---------------|-----------------|-------------------|------------|
| Product       | Mobile Computer | Temperature       | 25°C       |
| Test Engineer | Polly Zong      | Relative Humidity | 52%        |
| Test Site     | TR3             | Test Date         | 2017/05/23 |

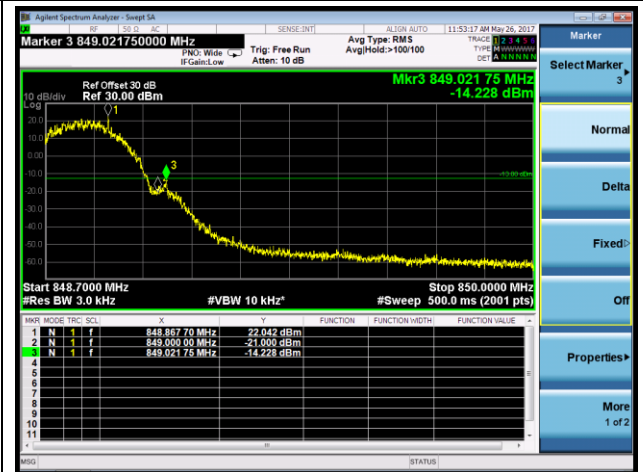
| Mode          | Channel No. | Frequency (MHz) | Modulation | Test Result |
|---------------|-------------|-----------------|------------|-------------|
| GSM850        | 128         | 824.20          | GMSK       | Pass        |
| GSM850        | 189         | 836.40          | GMSK       | Pass        |
| GSM850        | 251         | 848.80          | GMSK       | Pass        |
| PCS1900       | 512         | 1850.20         | GMSK       | Pass        |
| PCS1900       | 661         | 1880.00         | GMSK       | Pass        |
| PCS1900       | 810         | 1909.80         | GMSK       | Pass        |
| EDGE850       | 128         | 824.20          | 8PSK       | Pass        |
| EDGE850       | 189         | 836.40          | 8PSK       | Pass        |
| EDGE850       | 251         | 848.80          | 8PSK       | Pass        |
| EDGE1900      | 512         | 1850.20         | 8PSK       | Pass        |
| EDGE1900      | 661         | 1880.00         | 8PSK       | Pass        |
| EDGE1900      | 810         | 1909.80         | 8PSK       | Pass        |
| WCDMA Band II | 9262        | 1852.4          | QPSK       | Pass        |
| WCDMA Band II | 9400        | 1880.0          | QPSK       | Pass        |
| WCDMA Band II | 9538        | 1907.6          | QPSK       | Pass        |
| WCDMA Band V  | 4132        | 826.40          | QPSK       | Pass        |
| WCDMA Band V  | 4182        | 836.40          | QPSK       | Pass        |
| WCDMA Band V  | 4233        | 846.60          | QPSK       | Pass        |

## GSM850 Band Edge

### Channel 128 (824.20MHz)

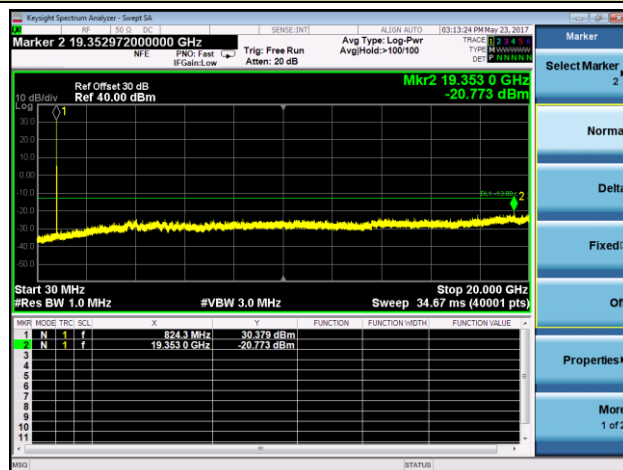


### Channel 251 (848.80MHz)

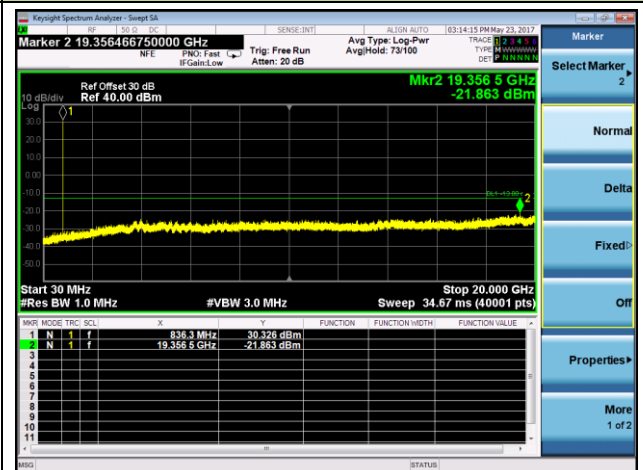


## GSM850 Conducted Spurious Emission

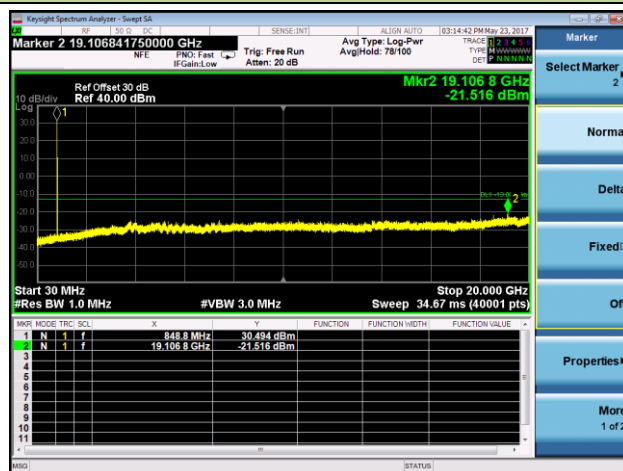
### Channel 128 (824.20MHz)



### Channel 189 (836.40MHz)

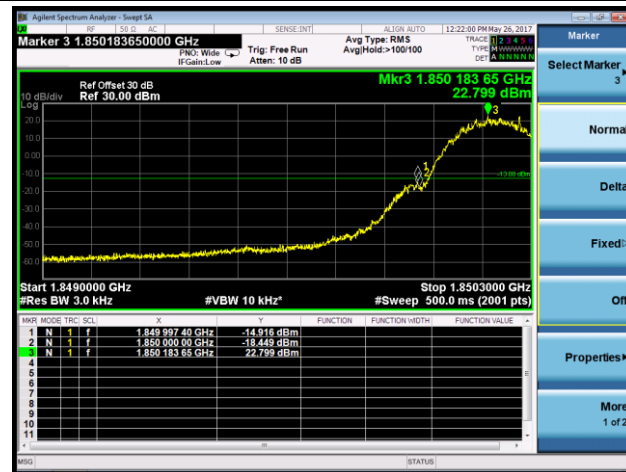


### Channel 251 (848.80MHz)

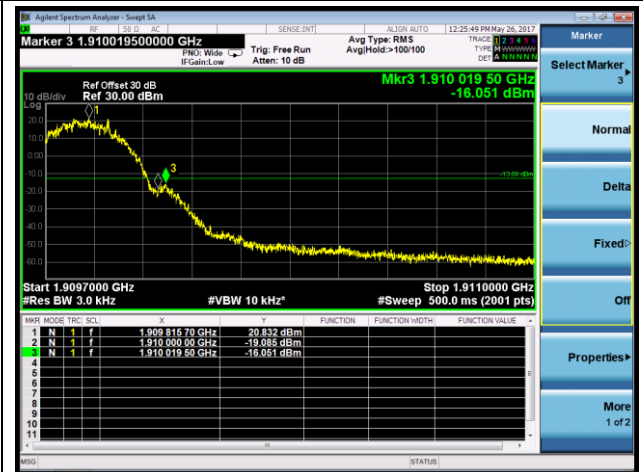


### PCS1900 Band Edge

#### Channel 512 (1850.20MHz)

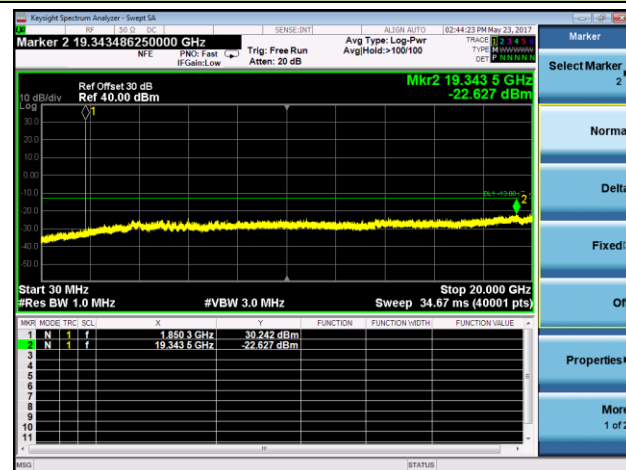


#### Channel 810 (1909.80MHz)

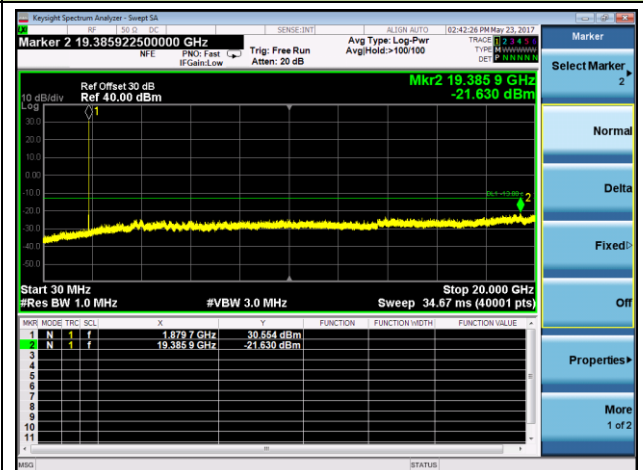


### PCS1900 Conducted Spurious Emission

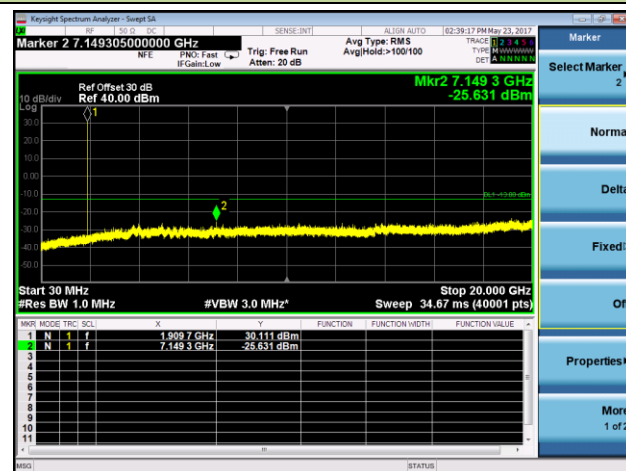
#### Channel 512 (1850.20MHz)



#### Channel 661 (1880.00MHz)

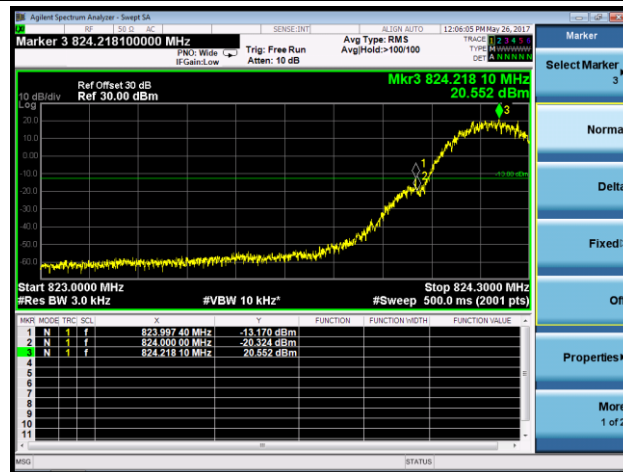


#### Channel 810 (1909.80MHz)

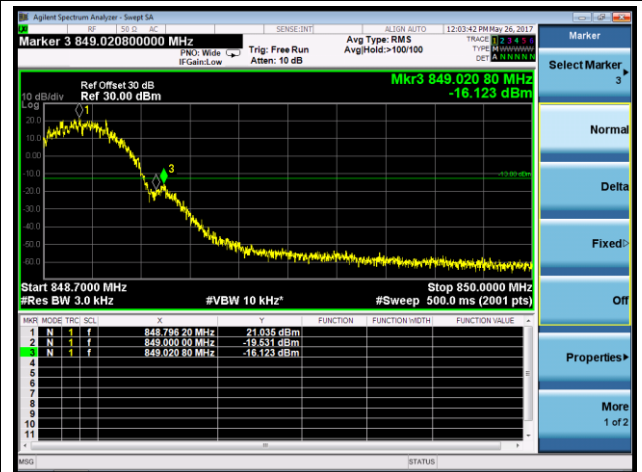


## EDGE850 Band Edge

### Channel 128 (824.20MHz)

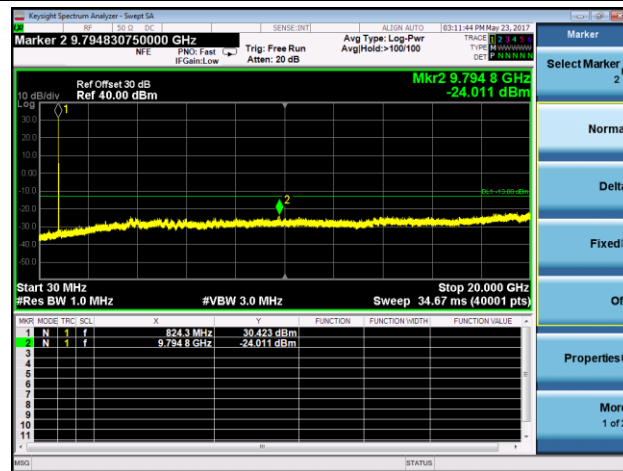


### Channel 251 (848.80MHz)

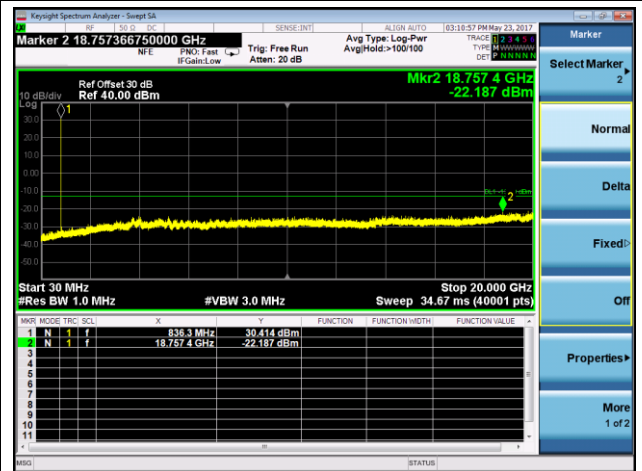


## EDGE850 Conducted Spurious Emission

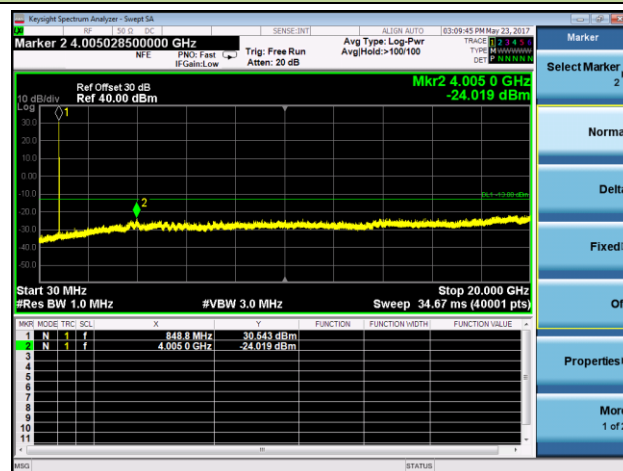
### Channel 128 (824.20MHz)



### Channel 189 (836.40MHz)

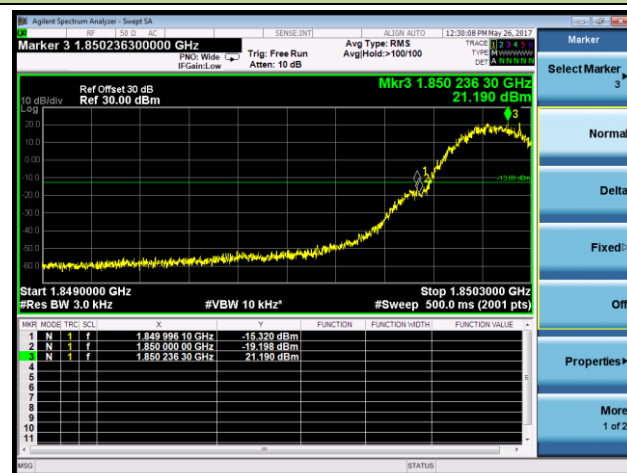


### Channel 251 (848.80MHz)

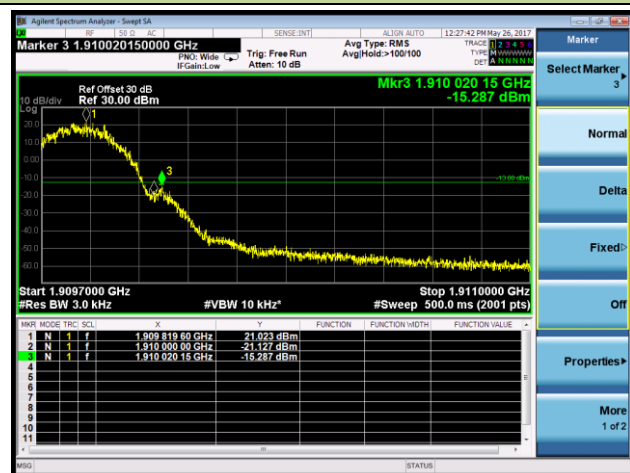


## EDGE1900 Band Edge

### Channel 512 (1850.20MHz)

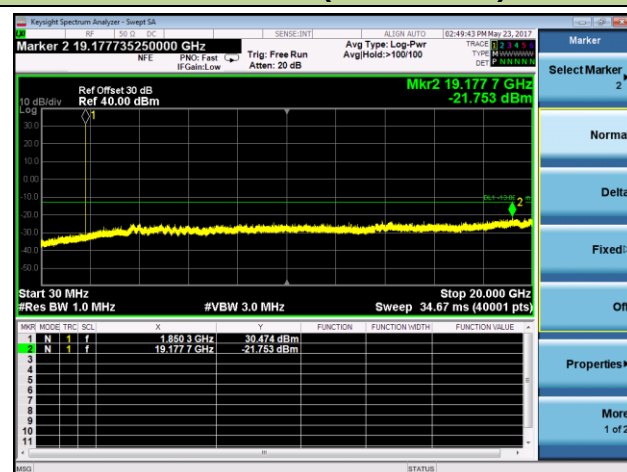


### Channel 810 (1909.80MHz)

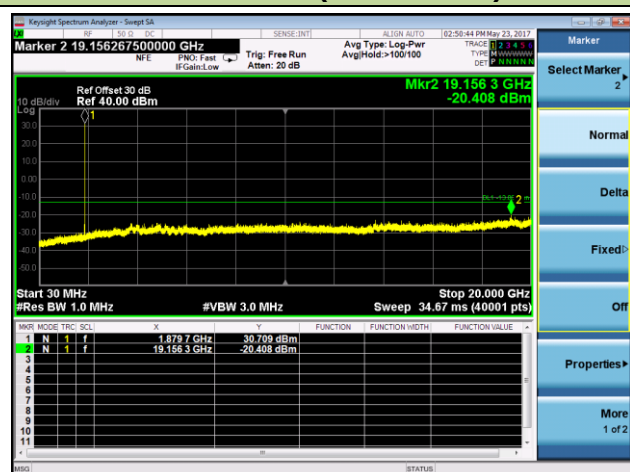


## EDGE1900 Conducted Spurious Emission

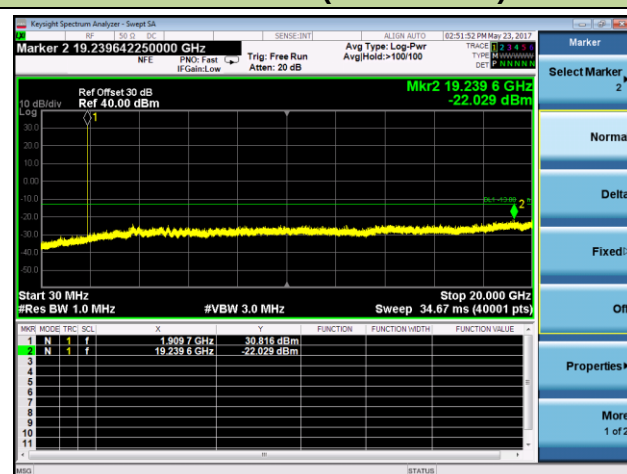
### Channel 512 (1850.20MHz)



### Channel 661 (1880.00MHz)



### Channel 810 (1909.80MHz)



### WCDMA Band II Band Edge

#### Channel 9262 (1852.4MHz)

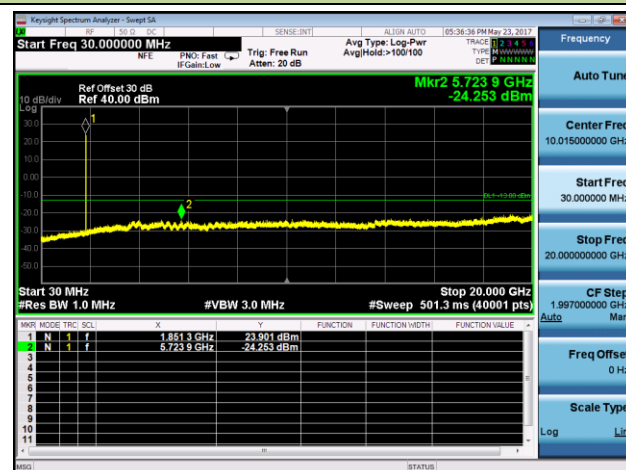


#### Channel 9538 (1907.6MHz)

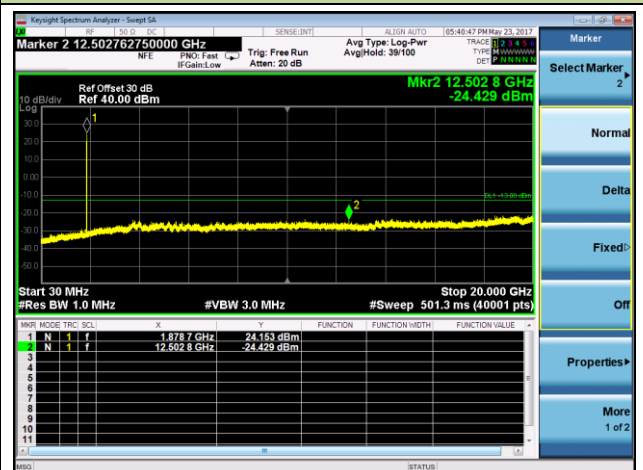


### WCDMA Band II Conducted Spurious Emission

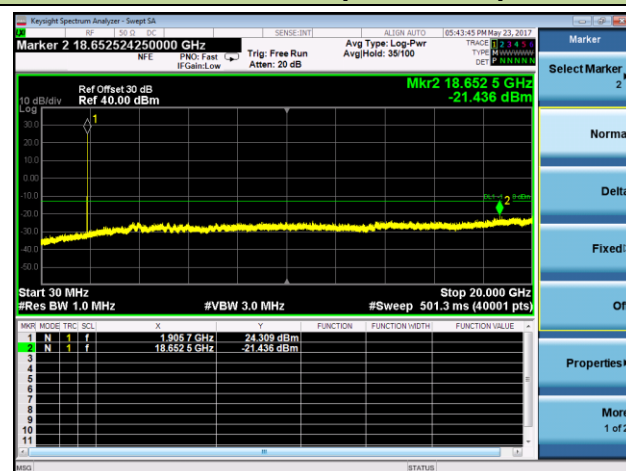
#### Channel 9262 (1852.4MHz)



#### Channel 9400 (1880.0MHz)



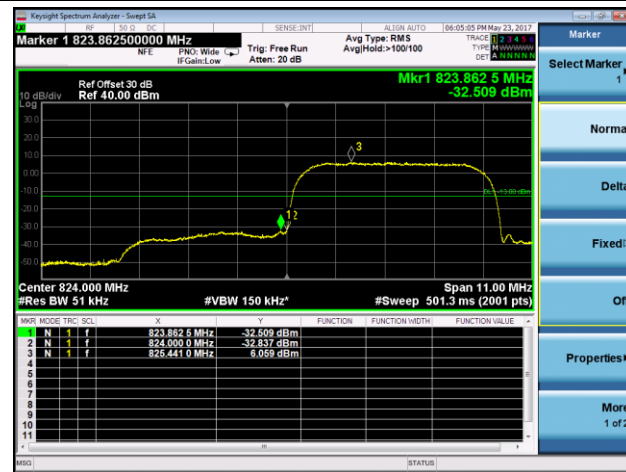
#### Channel 9538 (1907.6MHz)



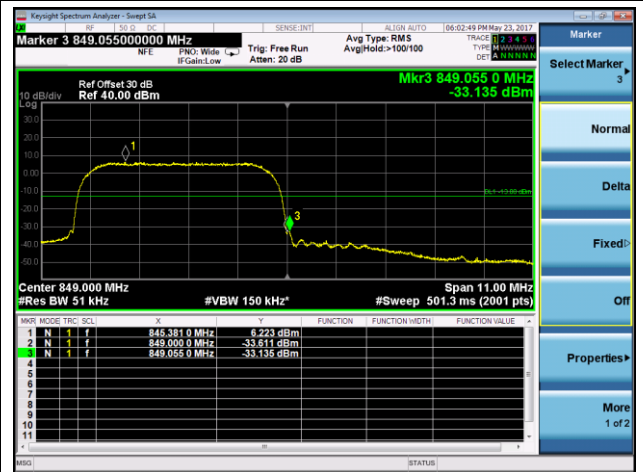


### WCDMA Band V Band Edge

#### Channel 4132 (826.4MHz)

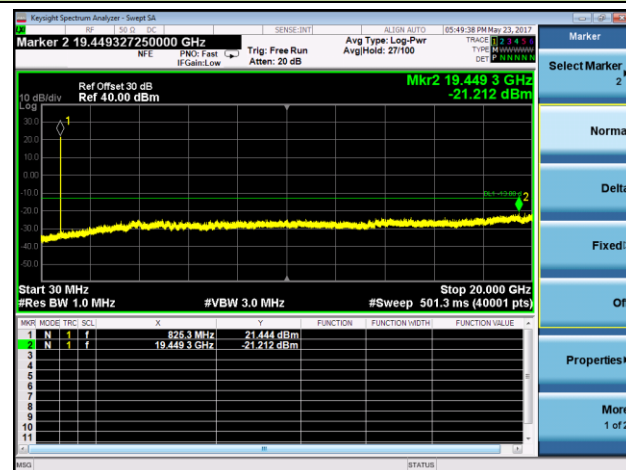


#### Channel 4233 (846.6MHz)

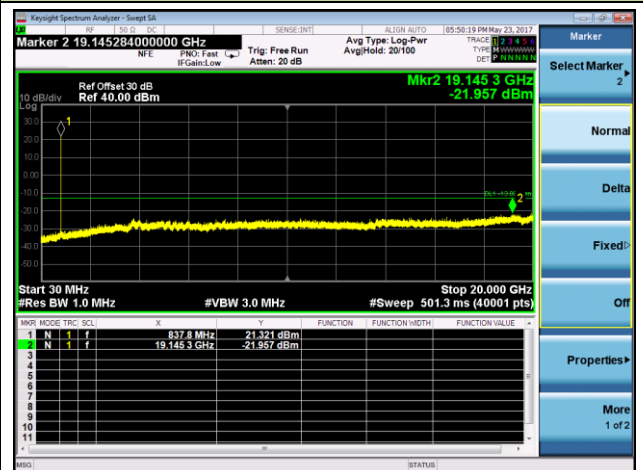


### WCDMA Band V Conducted Spurious Emission

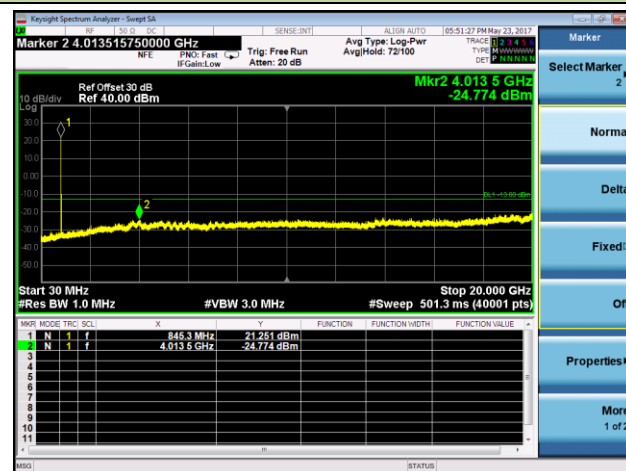
#### Channel 4132 (826.4MHz)



#### Channel 4182 (836.4MHz)



#### Channel 4233 (846.6MHz)



## **7.4. Conducted & Radiated Power and Radiated Spurious Emissions**

### **7.4.1. Test Limit**

#### **Radiated Power**

For FCC Part 22.913(a)(2):

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

For FCC Part 24.232(b):

The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 2 Watts.

#### **Radiated Spurious Emissions**

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10\log(P)$  dB.

### **7.4.2. Test Procedure Used**

KDB 971168 D01v02r02 - Section 7.0 & ANSI/TIA-603-D-2010

### **7.4.3. Test Setting**

1. The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
2. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
3. The output of the test antenna shall be connected to the measuring receiver.
4. The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
5. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
6. The transmitter shall then be rotated through  $360^\circ$  in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
7. The test antenna shall be raised and lowered again through the specified range of height

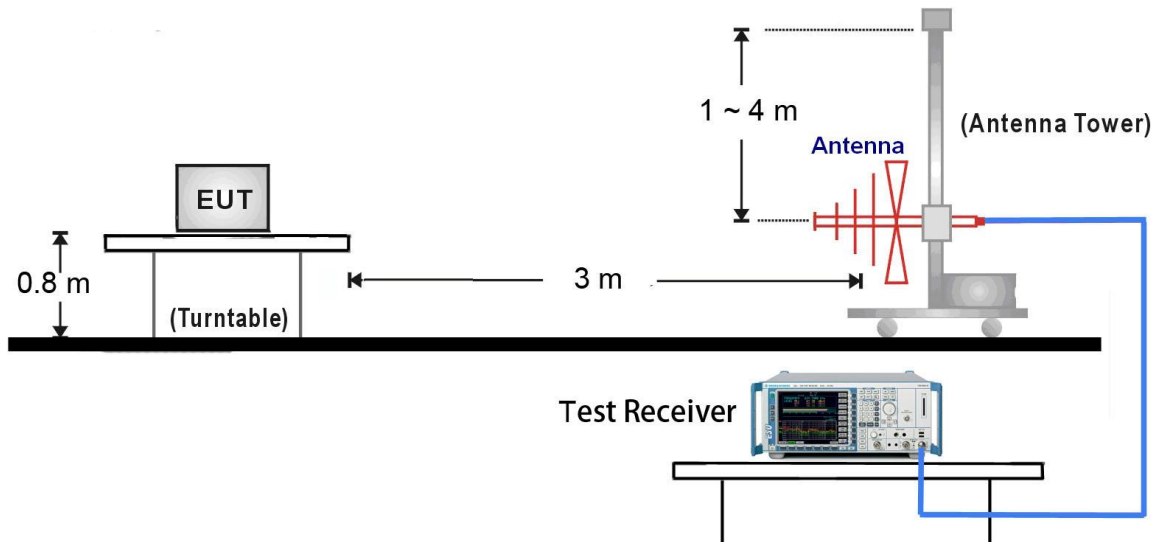


until a maximum signal level is detected by the measuring receiver.

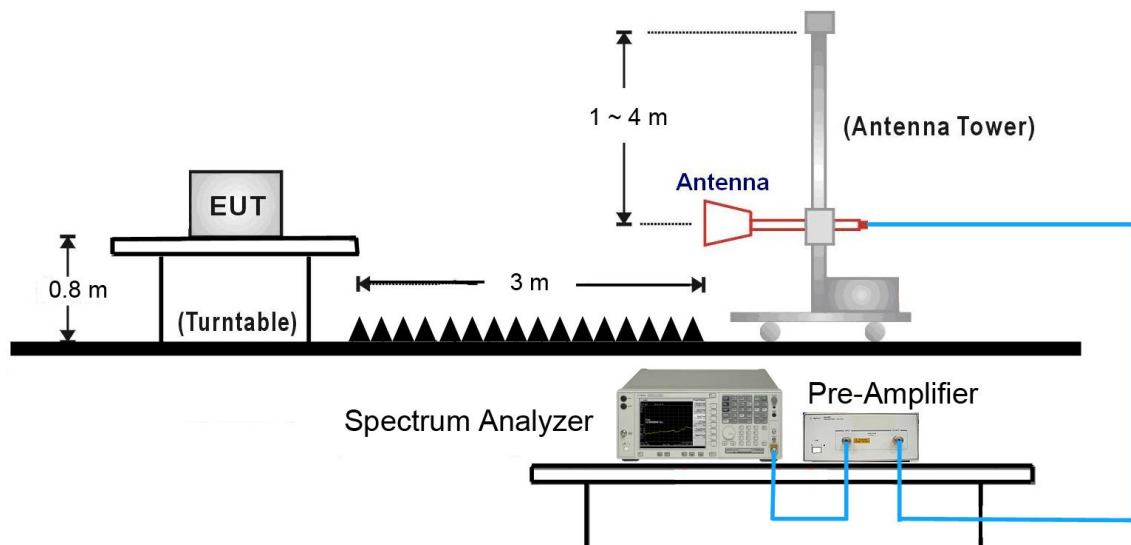
8. The maximum signal level detected by the measuring receiver shall be noted.
9. The transmitter shall be replaced by a substitution antenna.
10. The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
11. The substitution antenna shall be connected to a calibrated signal generator.
12. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
13. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
14. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
15. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
16. The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
17. Test site anechoic chamber refer to ANSI C63.4: 2009.

#### 7.4.4. Test Setup

##### 30MHz ~ 1GHz Test Setup:



##### 1GHz ~ 20GHz Test Setup:



#### 7.4.5. Test Result

|               |                 |                   |            |
|---------------|-----------------|-------------------|------------|
| Product       | Mobile Computer | Temperature       | 25°C       |
| Test Engineer | Polly Zong      | Relative Humidity | 54%        |
| Test Site     | TR3             | Test Date         | 2017/05/20 |

| Mode             | Frequency (MHz) | Avg. Burst Power (dBm) | Duty Cycle Factor (dB) | Frame Power (dBm) | Radiated Power (dBm) |
|------------------|-----------------|------------------------|------------------------|-------------------|----------------------|
| GSM850           | 824.2           | 32.53                  | -9.00                  | 23.53             | 34.24                |
|                  | 836.4           | 32.50                  | -9.00                  | 23.50             | 34.40                |
|                  | 848.8           | 32.51                  | -9.00                  | 23.51             | 34.39                |
| GPRS850 (1 Slot) | 824.2           | 32.54                  | -9.00                  | 23.54             | 34.26                |
|                  | 836.4           | 32.53                  | -9.00                  | 23.53             | 34.44                |
|                  | 848.8           | 32.50                  | -9.00                  | 23.50             | 34.38                |
| GPRS850 (2 Slot) | 824.2           | 30.69                  | -6.00                  | 24.69             | 32.38                |
|                  | 836.4           | 30.38                  | -6.00                  | 24.38             | 32.29                |
|                  | 848.8           | 30.40                  | -6.00                  | 24.40             | 32.27                |
| GPRS850 (3 Slot) | 824.2           | 28.20                  | -4.25                  | 23.95             | 29.93                |
|                  | 836.4           | 28.24                  | -4.25                  | 23.99             | 30.16                |
|                  | 848.8           | 28.16                  | -4.25                  | 23.91             | 30.02                |
| GPRS850 (4 Slot) | 824.2           | 27.12                  | -3.00                  | 24.12             | 28.83                |
|                  | 836.4           | 27.07                  | -3.00                  | 24.07             | 28.99                |
|                  | 848.8           | 27.02                  | -3.00                  | 24.02             | 28.88                |
| EDGE850 (1 Slot) | 824.2           | 26.94                  | -9.00                  | 17.94             | 28.64                |
|                  | 836.4           | 26.92                  | -9.00                  | 17.92             | 28.82                |
|                  | 848.8           | 26.88                  | -9.00                  | 17.88             | 28.76                |
| EDGE850 (2 Slot) | 824.2           | 26.84                  | -6.00                  | 20.84             | 28.54                |
|                  | 836.4           | 26.77                  | -6.00                  | 20.77             | 28.68                |
|                  | 848.8           | 26.73                  | -6.00                  | 20.73             | 28.61                |
| EDGE850 (3 Slot) | 824.2           | 26.68                  | -4.25                  | 22.43             | 28.39                |
|                  | 836.4           | 23.61                  | -4.25                  | 19.36             | 25.51                |
|                  | 848.8           | 26.52                  | -4.25                  | 22.27             | 28.40                |
| EDGE850 (4 Slot) | 824.2           | 24.58                  | -3.00                  | 21.58             | 26.30                |
|                  | 836.4           | 24.50                  | -3.00                  | 21.50             | 26.42                |
|                  | 848.8           | 24.42                  | -3.00                  | 21.42             | 26.28                |

| Mode              | Frequency (MHz) | Avg. Burst Power (dBm) | Duty Cycle Factor (dB) | Frame Power (dBm) | Radiated Power (dBm) |
|-------------------|-----------------|------------------------|------------------------|-------------------|----------------------|
| PCS1900           | 1850.2          | 29.51                  | -9.00                  | 20.51             | 30.02                |
|                   | 1880.0          | 29.49                  | -9.00                  | 20.49             | 30.10                |
|                   | 1909.8          | 29.47                  | -9.00                  | 20.47             | 29.99                |
| GPRS1900 (1 Slot) | 1850.2          | 29.54                  | -9.00                  | 20.54             | 30.03                |
|                   | 1880.0          | 29.41                  | -9.00                  | 20.41             | 30.01                |
|                   | 1909.8          | 29.28                  | -9.00                  | 20.28             | 29.80                |
| GPRS1900 (2 Slot) | 1850.2          | 27.08                  | -6.00                  | 21.08             | 27.58                |
|                   | 1880.0          | 26.97                  | -6.00                  | 20.97             | 27.57                |
|                   | 1909.8          | 26.93                  | -6.00                  | 20.93             | 27.45                |
| GPRS1900 (3 Slot) | 1850.2          | 25.05                  | -4.25                  | 20.80             | 25.55                |
|                   | 1880.0          | 25.03                  | -4.25                  | 20.78             | 25.63                |
|                   | 1909.8          | 24.96                  | -4.25                  | 20.71             | 25.48                |
| GPRS1900 (4 Slot) | 1850.2          | 23.86                  | -3.00                  | 20.86             | 24.36                |
|                   | 1880.0          | 23.67                  | -3.00                  | 20.67             | 24.27                |
|                   | 1909.8          | 23.48                  | -3.00                  | 20.48             | 24.00                |
| EDGE1900 (1 Slot) | 1850.2          | 25.28                  | -9.00                  | 16.28             | 25.78                |
|                   | 1880.0          | 25.26                  | -9.00                  | 16.26             | 25.86                |
|                   | 1909.8          | 25.51                  | -9.00                  | 16.51             | 26.03                |
| EDGE1900 (2 Slot) | 1850.2          | 25.17                  | -6.00                  | 19.17             | 25.67                |
|                   | 1880.0          | 25.13                  | -6.00                  | 19.13             | 25.73                |
|                   | 1909.8          | 25.36                  | -6.00                  | 19.36             | 25.88                |
| EDGE1900 (3 Slot) | 1850.2          | 25.06                  | -4.25                  | 20.81             | 25.56                |
|                   | 1880.0          | 25.02                  | -4.25                  | 20.77             | 25.62                |
|                   | 1909.8          | 24.93                  | -4.25                  | 20.68             | 25.45                |
| EDGE1900 (4 Slot) | 1850.2          | 23.83                  | -3.00                  | 20.83             | 24.33                |
|                   | 1880.0          | 23.67                  | -3.00                  | 20.67             | 24.27                |
|                   | 1909.8          | 24.13                  | -3.00                  | 21.13             | 24.65                |

Note1: Frame Power (dBm) = Avg. Burst Power (dBm) + Duty Cycle Factor (dB)

Note2: Radiated Power (dBm) = Avg. Burst Power (dBm) + Antenna Gain (dBi) - Cable Loss (dB)

| Mode       | 3GPP Subtest | Conducted Power (dBm) |       |       | MPR | Radiated Power (dBm) |       |       |
|------------|--------------|-----------------------|-------|-------|-----|----------------------|-------|-------|
|            |              | Band II Channel       |       |       |     | Band II Channel      |       |       |
|            |              | 9262                  | 9400  | 9538  |     | 9262                 | 9400  | 9538  |
| WCDMA R99  | 1            | 23.56                 | 23.63 | 23.53 | N/A | 24.07                | 24.22 | 24.06 |
| Rel5 HSDPA | 1            | 21.56                 | 22.04 | 21.14 | 0   | 22.06                | 22.66 | 21.68 |
|            | 2            | 21.42                 | 21.64 | 21.19 | 0   | 21.91                | 22.25 | 21.71 |
|            | 3            | 21.10                 | 21.14 | 21.58 | 0.5 | 21.61                | 21.75 | 22.10 |
|            | 4            | 21.69                 | 21.67 | 21.75 | 0.5 | 22.21                | 22.28 | 22.29 |
| Rel6 HSUPA | 1            | 21.75                 | 21.54 | 21.43 | 0.0 | 22.25                | 22.15 | 21.95 |
|            | 2            | 21.53                 | 21.35 | 21.26 | 2.0 | 22.05                | 21.95 | 21.78 |
|            | 3            | 21.15                 | 21.09 | 21.08 | 1.0 | 21.66                | 21.70 | 21.61 |
|            | 4            | 21.02                 | 20.97 | 20.96 | 2.0 | 21.53                | 21.59 | 21.48 |
|            | 5            | 20.87                 | 20.86 | 20.75 | 0.0 | 21.38                | 21.47 | 21.27 |

| Mode       | 3GPP Subtest | Conducted Power (dBm) |       |       | MPR | Radiated Power (dBm) |       |       |
|------------|--------------|-----------------------|-------|-------|-----|----------------------|-------|-------|
|            |              | Band V Channel        |       |       |     | Band V Channel       |       |       |
|            |              | 4132                  | 4182  | 4233  |     | 4132                 | 4182  | 4233  |
| WCDMA R99  | 1            | 22.18                 | 22.25 | 22.21 | N/A | 20.47                | 20.32 | 20.34 |
| Rel5 HSDPA | 1            | 22.20                 | 22.18 | 22.23 | 0   | 20.48                | 20.28 | 20.35 |
|            | 2            | 21.92                 | 21.95 | 21.97 | 0   | 20.22                | 20.04 | 20.09 |
|            | 3            | 21.75                 | 21.70 | 21.73 | 0.5 | 20.04                | 19.80 | 19.86 |
|            | 4            | 21.58                 | 21.43 | 21.53 | 0.5 | 19.85                | 19.53 | 19.65 |
| Rel6 HSUPA | 1            | 22.26                 | 22.24 | 22.21 | 0.0 | 20.55                | 20.32 | 20.36 |
|            | 2            | 21.95                 | 21.97 | 21.93 | 2.0 | 20.24                | 20.07 | 20.05 |
|            | 3            | 21.73                 | 21.70 | 21.75 | 1.0 | 20.01                | 19.80 | 19.89 |
|            | 4            | 21.49                 | 21.52 | 21.47 | 2.0 | 19.78                | 19.63 | 19.59 |
|            | 5            | 21.18                 | 21.25 | 21.29 | 0.0 | 19.47                | 19.35 | 19.42 |

NOTES:

1. Radiated Power (dBm) = Conducted Power (dBm) + Antenna Gain (dBi) - Cable Loss (dB)
2. This device was tested under all configurations and the highest power is reported in GSM mode.

This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA, HSUPA and GSM/GPRS/EDGE capabilities. For WCDMA and HSPA transmission, all configurations were investigated and the worst case UMTS emissions were found in RMC WCDMA mode at 12.2kbps rate.

3. This unit was tested with its standard adapter.
4. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The “H” positioning is defined with the EUT lying flat on the test surface, the “H2” positioning is defined with the EUT standing up on its side, and the “V” positioning is defined with the EUT standing upright. The worst case test configuration was found in the EUT in the H positioning. The data reported in the table above was measured in this test setup.

### Radiated Spurious Emission

GSM850

| Frequency<br>(MHz)             | Ant. Pol.<br>(H/V) | SG Reading<br>(dBm) | Cable Loss<br>(dB) | Substitute<br>Antenna<br>Gain (dBd) | ERP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|--------------------------------|--------------------|---------------------|--------------------|-------------------------------------|--------------|----------------|----------------|
| Low Channel 128 (824.20MHz)    |                    |                     |                    |                                     |              |                |                |
| 1648.40                        | V                  | -72.79              | 0.66               | 9.77                                | -63.68       | -13.00         | -50.68         |
| 2472.60                        | V                  | -73.05              | 0.81               | 10.49                               | -63.37       | -13.00         | -50.37         |
| 1648.40                        | H                  | -73.60              | 0.66               | 9.77                                | -64.49       | -13.00         | -51.49         |
| 2472.60                        | H                  | -72.90              | 0.81               | 10.49                               | -63.22       | -13.00         | -50.22         |
| Middle Channel 189 (836.40MHz) |                    |                     |                    |                                     |              |                |                |
| 1672.80                        | V                  | -74.35              | 0.67               | 9.94                                | -65.08       | -13.00         | -52.08         |
| 2509.20                        | V                  | -71.56              | 0.82               | 10.61                               | -61.77       | -13.00         | -48.77         |
| 1672.80                        | H                  | -73.90              | 0.67               | 9.94                                | -64.63       | -13.00         | -51.63         |
| 2509.20                        | H                  | -71.52              | 0.82               | 10.61                               | -61.73       | -13.00         | -48.73         |
| High Channel 251 (848.80MHz)   |                    |                     |                    |                                     |              |                |                |
| 1697.60                        | V                  | -73.57              | 0.67               | 10.11                               | -64.13       | -13.00         | -51.13         |
| 2546.40                        | V                  | -72.49              | 0.83               | 10.68                               | -62.64       | -13.00         | -49.64         |
| 1697.60                        | H                  | -73.53              | 0.67               | 10.11                               | -64.09       | -13.00         | -51.09         |
| 2546.40                        | H                  | -71.96              | 0.83               | 10.68                               | -62.11       | -13.00         | -49.11         |

Note:

1. Spurious emissions within 30-1000MHz were found more than 20dB below limit line.
2.  $ERP\ (dBm) = SG\ Reading\ (dBm) - Cable\ Loss\ (dB) + Substitute\ Antenna\ Gain\ (dBd)$



## PCS1900

| Frequency (MHz)                 | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Substitute Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
|---------------------------------|-----------------|------------------|-----------------|-------------------------------|------------|-------------|-------------|
| Low Channel 512 (1850.20MHz)    |                 |                  |                 |                               |            |             |             |
| 3700.40                         | V               | -70.70           | 1.02            | 12.69                         | -59.03     | -13.00      | -46.03      |
| 5550.60                         | V               | -70.15           | 1.25            | 13.15                         | -58.25     | -13.00      | -45.25      |
| 3700.40                         | H               | -70.77           | 1.02            | 12.69                         | -59.10     | -13.00      | -46.10      |
| 5550.60                         | H               | -68.94           | 1.25            | 13.15                         | -57.04     | -13.00      | -44.04      |
| Middle Channel 661 (1880.00MHz) |                 |                  |                 |                               |            |             |             |
| 3760.00                         | V               | -71.06           | 1.01            | 12.73                         | -59.34     | -13.00      | -46.34      |
| 5640.00                         | V               | -69.39           | 1.26            | 13.14                         | -57.51     | -13.00      | -44.51      |
| 3760.00                         | H               | -71.43           | 1.01            | 12.73                         | -59.71     | -13.00      | -46.71      |
| 5640.00                         | H               | -69.79           | 1.26            | 13.14                         | -57.91     | -13.00      | -44.91      |
| High Channel 810 (1909.80MHz)   |                 |                  |                 |                               |            |             |             |
| 3819.60                         | V               | -70.73           | 1.02            | 12.73                         | -59.02     | -13.00      | -46.02      |
| 5729.40                         | V               | -69.26           | 1.27            | 13.11                         | -57.42     | -13.00      | -44.42      |
| 3819.60                         | H               | -70.73           | 1.02            | 12.73                         | -59.02     | -13.00      | -46.02      |
| 5729.40                         | H               | -69.58           | 1.27            | 13.11                         | -57.74     | -13.00      | -44.74      |

## Note:

1. Spurious emissions within 30-1000MHz were found more than 20dB below limit line.
2.  $EIRP (dBm) = SG \text{ Reading (dBm)} - Cable \text{ Loss (dB)} + Substitute \text{ Antenna Gain (dBi)}$

## EDGE850

| Frequency (MHz)                | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Substitute Antenna Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) |
|--------------------------------|-----------------|------------------|-----------------|-------------------------------|-----------|-------------|-------------|
| Low Channel 128 (824.20MHz)    |                 |                  |                 |                               |           |             |             |
| 1648.40                        | V               | -72.37           | 0.66            | 9.77                          | -63.26    | -13.00      | -50.26      |
| 2472.60                        | V               | -73.10           | 0.81            | 10.49                         | -63.42    | -13.00      | -50.42      |
| 1648.40                        | H               | -73.27           | 0.66            | 9.77                          | -64.16    | -13.00      | -51.16      |
| 2472.60                        | H               | -73.10           | 0.81            | 10.49                         | -63.42    | -13.00      | -50.42      |
| Middle Channel 189 (836.40MHz) |                 |                  |                 |                               |           |             |             |
| 1672.80                        | V               | -74.39           | 0.67            | 9.94                          | -65.12    | -13.00      | -52.12      |
| 2509.20                        | V               | -71.15           | 0.82            | 10.61                         | -61.36    | -13.00      | -48.36      |
| 1672.80                        | H               | -73.80           | 0.67            | 9.94                          | -64.53    | -13.00      | -51.53      |
| 2509.20                        | H               | -71.32           | 0.82            | 10.61                         | -61.53    | -13.00      | -48.53      |
| High Channel 251 (848.80MHz)   |                 |                  |                 |                               |           |             |             |
| 1697.60                        | V               | -73.53           | 0.67            | 10.11                         | -64.09    | -13.00      | -51.09      |
| 2546.40                        | V               | -72.40           | 0.83            | 10.68                         | -62.55    | -13.00      | -49.55      |
| 1697.60                        | H               | -73.56           | 0.67            | 10.11                         | -64.12    | -13.00      | -51.12      |
| 2546.40                        | H               | -71.97           | 0.83            | 10.68                         | -62.12    | -13.00      | -49.12      |

## Note:

1. Spurious emissions within 30-1000MHz were found more than 20dB below limit line.
2.  $ERP\ (dBm) = SG\ Reading\ (dBm) - Cable\ Loss\ (dB) + Substitute\ Antenna\ Gain\ (dBd)$

## EDGE1900

| Frequency (MHz)                 | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Substitute Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
|---------------------------------|-----------------|------------------|-----------------|-------------------------------|------------|-------------|-------------|
| Low Channel 512 (1850.20MHz)    |                 |                  |                 |                               |            |             |             |
| 3700.40                         | V               | -71.01           | 1.02            | 12.69                         | -59.34     | -13.00      | -46.34      |
| 5550.60                         | V               | -70.44           | 1.25            | 13.15                         | -58.54     | -13.00      | -45.54      |
| 3700.40                         | H               | -71.31           | 1.02            | 12.69                         | -59.64     | -13.00      | -46.64      |
| 5550.60                         | H               | -69.02           | 1.25            | 13.15                         | -57.12     | -13.00      | -44.12      |
| Middle Channel 661 (1880.00MHz) |                 |                  |                 |                               |            |             |             |
| 3760.00                         | V               | -71.16           | 1.01            | 12.73                         | -59.44     | -13.00      | -46.44      |
| 5640.00                         | V               | -69.44           | 1.26            | 13.14                         | -57.56     | -13.00      | -44.56      |
| 3760.00                         | H               | -71.10           | 1.01            | 12.73                         | -59.38     | -13.00      | -46.38      |
| 5640.00                         | H               | -69.72           | 1.26            | 13.14                         | -57.84     | -13.00      | -44.84      |
| High Channel 810 (1909.80MHz)   |                 |                  |                 |                               |            |             |             |
| 3819.60                         | V               | -70.88           | 1.02            | 12.73                         | -59.17     | -13.00      | -46.17      |
| 5729.40                         | V               | -69.23           | 1.27            | 13.11                         | -57.39     | -13.00      | -44.39      |
| 3819.60                         | H               | -71.68           | 1.02            | 12.73                         | -59.97     | -13.00      | -46.97      |
| 5729.40                         | H               | -69.37           | 1.27            | 13.11                         | -57.53     | -13.00      | -44.53      |

## Note:

1. Spurious emissions within 30-1000MHz were found more than 20dB below limit line.
2.  $EIRP (dBm) = SG \text{ Reading } (dBm) - Cable \text{ Loss } (dB) + Substitute \text{ Antenna Gain } (dBi)$

## WCDMA Band II

| Frequency (MHz)                 | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Substitute Antenna Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) |
|---------------------------------|-----------------|------------------|-----------------|-------------------------------|-----------|-------------|-------------|
| Low Channel 9262 (1852.4MHz)    |                 |                  |                 |                               |           |             |             |
| 3703.00                         | V               | -66.81           | 1.02            | 12.69                         | -55.14    | -13.00      | -42.14      |
| 5556.00                         | V               | -55.18           | 1.25            | 13.15                         | -43.28    | -13.00      | -30.28      |
| 3703.00                         | H               | -62.49           | 1.02            | 12.69                         | -50.82    | -13.00      | -37.82      |
| 5556.00                         | H               | -54.76           | 1.25            | 13.15                         | -42.86    | -13.00      | -29.86      |
| Middle Channel 9400 (1880.0MHz) |                 |                  |                 |                               |           |             |             |
| 3762.50                         | V               | -68.37           | 1.02            | 12.73                         | -56.66    | -13.00      | -43.66      |
| 5641.00                         | V               | -61.40           | 1.26            | 13.14                         | -49.52    | -13.00      | -36.52      |
| 3762.50                         | H               | -65.61           | 1.02            | 12.73                         | -53.90    | -13.00      | -40.90      |
| 5641.00                         | H               | -63.12           | 1.26            | 13.14                         | -51.24    | -13.00      | -38.24      |
| High Channel 9538 (1907.6MHz)   |                 |                  |                 |                               |           |             |             |
| 3813.50                         | V               | -69.92           | 1.02            | 12.74                         | -58.20    | -13.00      | -45.20      |
| 5717.50                         | V               | -64.83           | 1.27            | 13.11                         | -52.99    | -13.00      | -39.99      |
| 3813.50                         | H               | -66.44           | 1.02            | 12.74                         | -54.72    | -13.00      | -41.72      |
| 5717.50                         | H               | -64.62           | 1.27            | 13.11                         | -52.78    | -13.00      | -39.78      |

## Note:

1. Spurious emissions within 30-1000MHz were found more than 20dB below limit line.
2.  $ERP\ (dBm) = SG\ Reading\ (dBm) - Cable\ Loss\ (dB) + Substitute\ Antenna\ Gain\ (dBd)$

## WCDMA Band V

| Frequency (MHz)                 | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Substitute Antenna Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) |
|---------------------------------|-----------------|------------------|-----------------|-------------------------------|-----------|-------------|-------------|
| Low Channel 4132 (826.40MHz)    |                 |                  |                 |                               |           |             |             |
| 1652.80                         | V               | -72.88           | 0.66            | 9.80                          | -63.74    | -13.00      | -50.74      |
| 2479.20                         | V               | -73.05           | 0.82            | 10.52                         | -63.35    | -13.00      | -50.35      |
| 1652.80                         | H               | -72.65           | 0.66            | 9.80                          | -63.51    | -13.00      | -50.51      |
| 2479.20                         | H               | -72.41           | 0.82            | 10.52                         | -62.71    | -13.00      | -49.71      |
| Middle Channel 4182 (836.40MHz) |                 |                  |                 |                               |           |             |             |
| 1672.80                         | V               | -73.41           | 0.67            | 9.94                          | -64.14    | -13.00      | -51.14      |
| 2509.20                         | V               | -71.93           | 0.82            | 10.61                         | -62.14    | -13.00      | -49.14      |
| 1672.80                         | H               | -73.74           | 0.67            | 9.94                          | -64.47    | -13.00      | -51.47      |
| 2509.20                         | H               | -72.91           | 0.82            | 10.61                         | -63.12    | -13.00      | -50.12      |
| High Channel 4233 (846.60MHz)   |                 |                  |                 |                               |           |             |             |
| 1692.80                         | V               | -72.30           | 0.67            | 10.08                         | -62.89    | -13.00      | -49.89      |
| 2539.20                         | V               | -71.76           | 0.82            | 10.67                         | -61.91    | -13.00      | -48.91      |
| 1692.80                         | H               | -72.94           | 0.67            | 10.08                         | -63.53    | -13.00      | -50.53      |
| 2539.20                         | H               | -72.70           | 0.82            | 10.67                         | -62.85    | -13.00      | -49.85      |

## Note:

1. Spurious emissions within 30-1000MHz were found more than 20dB below limit line.
2.  $ERP\ (dBm) = SG\ Reading\ (dBm) - Cable\ Loss\ (dB) + Substitute\ Antenna\ Gain\ (dBd)$

## 7.5. Peak-Average Ratio

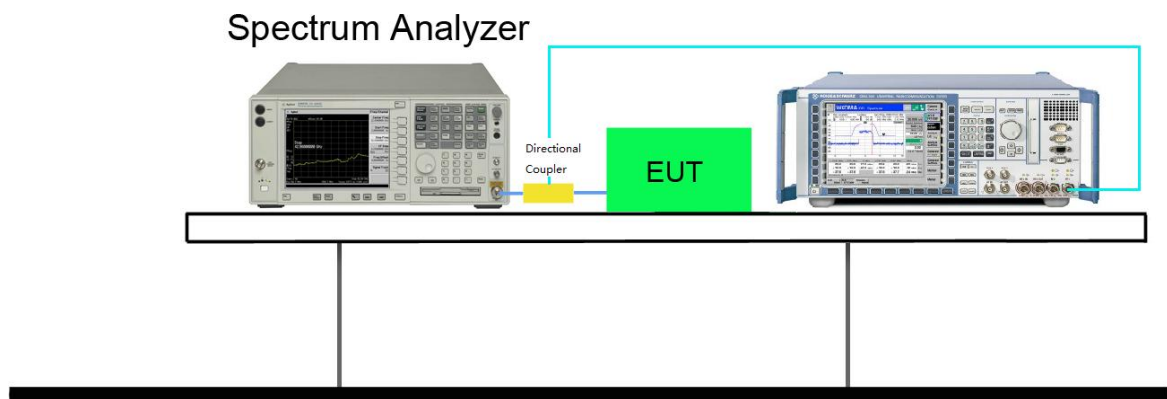
### 7.5.1. Test Limit

The transmitter's peak-to-average power ratio (PAPR) shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

### 7.5.2. Test Procedure

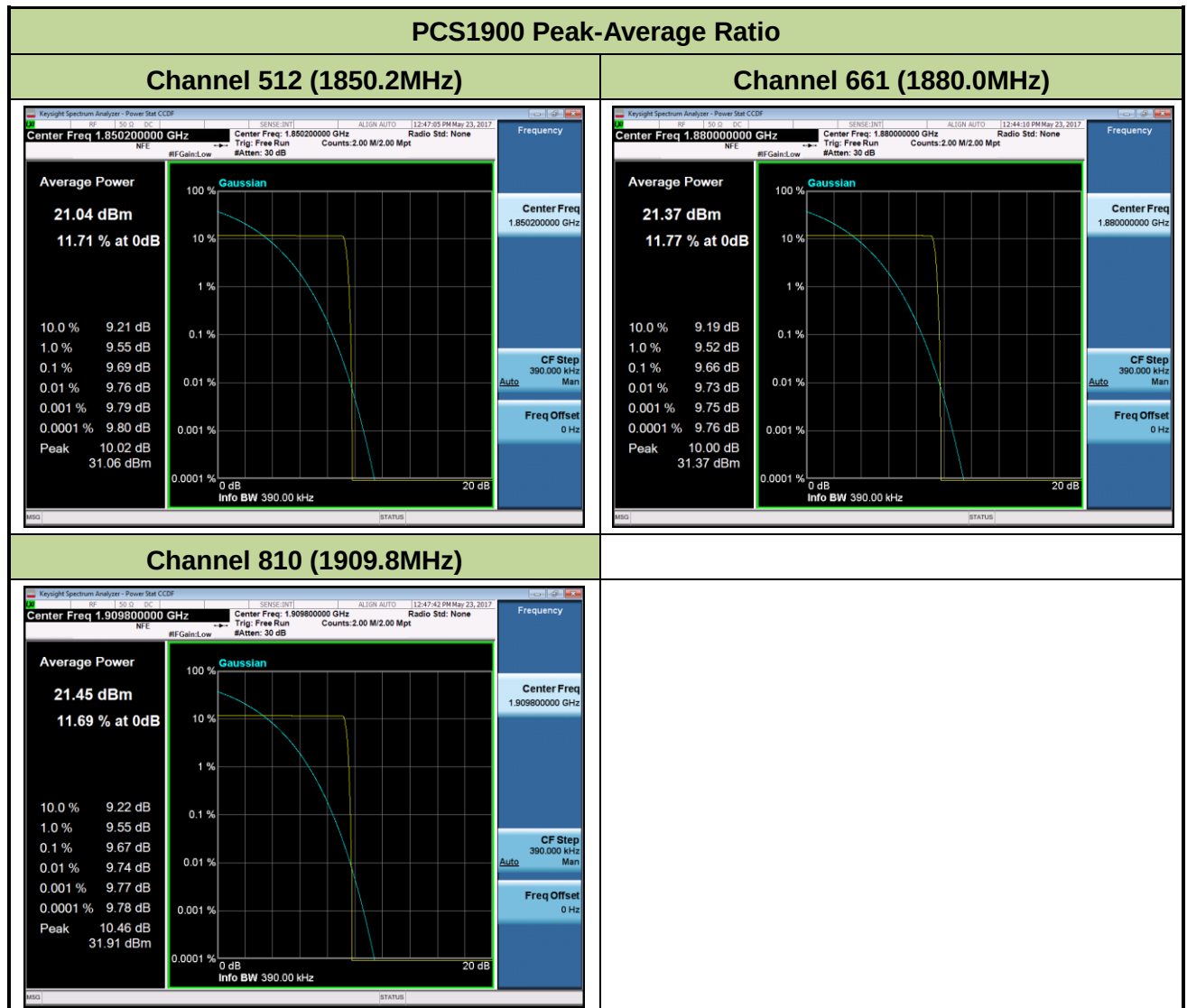
KDB 971168 D01v02r02 - Section 5.7 & ANSI/TIA-603-D-2010

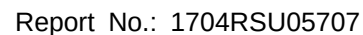
### 7.5.3. Test Setup



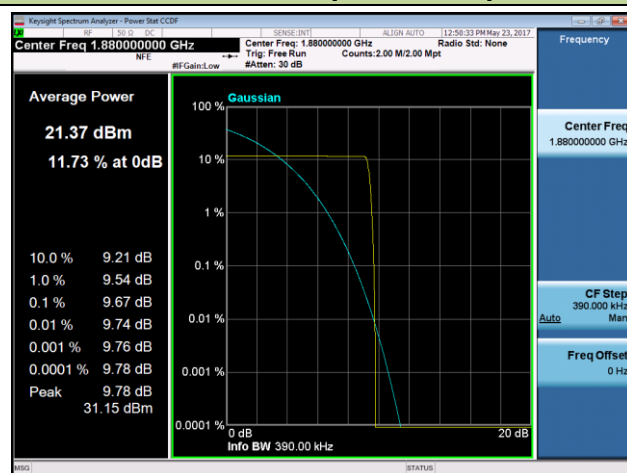
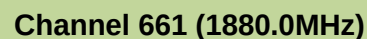
### 7.5.4. Test Result

|               |                 |                   |            |
|---------------|-----------------|-------------------|------------|
| Product       | Mobile Computer | Temperature       | 25°C       |
| Test Engineer | Polly Zong      | Relative Humidity | 52%        |
| Test Site     | TR3             | Test Date         | 2017/05/23 |





## Channel 512 (1850.2MHz)



KeySight Spectrum Analyzer - Power Stat CCDF

SENSE INT1 ALIEN AUTO 13:49:30 PM May 23, 2017

Center Freq 1.909800000 GHz Center Freq: 1.909800000 GHz Radio Std: None

RF: Free Run Counts: 2.00 M/2.00 Mpt

#F: Gain: Low SAtten: 30 dB

Frequency

Center Freq  
1.909800000 GHz

CF Step  
390.000 kHz  
Auto Man

Freq Offset  
0 Hz

Average Power

21.51 dBm

11.66 % at 0dB

10.0 % 9.23 dB

1.0 % 9.55 dB

0.1 % 9.67 dB

0.01 % 9.73 dB

0.001 % 9.76 dB

0.0001 % 9.77 dB

Peak 9.87 dBm

31.38 dBm

Gaussian

100 %

10 %

1 %

0.1 %

0.01 %

0.001 %

0.0001 %

0 dB

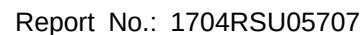
Info BW 390.00 kHz

20 dB

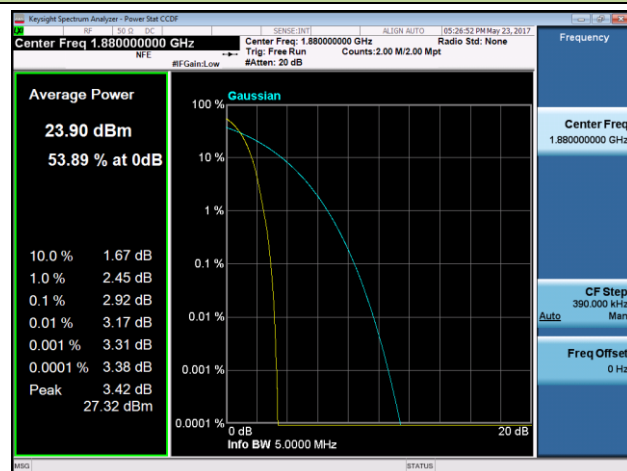
MMIO

STATUS





## Channel 9262 (1852.4MHz)



Center Freq 1.907600000 GHz

Average Power

23.92 dBm

53.90 % at 0dB

10.0 % 1.66 dB

1.0 % 2.43 dB

0.1 % 2.88 dB

0.01 % 3.13 dB

0.001 % 3.27 dB

0.0001 % 3.35 dB

Peak 3.44 dBm

27.36 dBm

100 %

10 %

1 %

0.1 %

0.01 %

0.001 %

0.0001 %

0 dB

20 dB

Info BW 5.0000 MHz

Frequency

Center Freq 1.907600000 GHz

CF Step 390.000 kHz

Auto

Freq Offset 0 Hz

STATUS

## 7.6. Frequency Stability Under Temperature & Voltage Variations

### 7.6.1. Test Limit

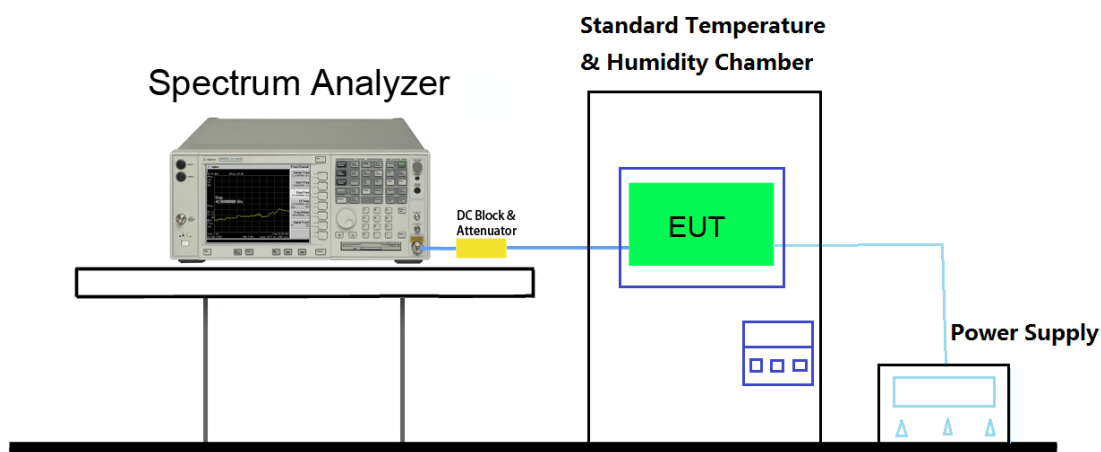
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

|       |                 |
|-------|-----------------|
| Limit | $< \pm 2.5$ ppm |
|-------|-----------------|

### 7.6.2. Test Procedure

KDB 971168 D01v02r02 - Section 9.0 & ANSI/TIA-603-D-2010

### 7.6.3. Test Setup



#### 7.6.4. Test Result

|               |                 |                     |                        |
|---------------|-----------------|---------------------|------------------------|
| Product       | Mobile Computer | Temperature         | 25°C                   |
| Test Engineer | Polly Zong      | Relative Humidity   | 52%                    |
| Test Site     | TR3             | Test Date           | 2017/05/23             |
| Test Mode     | GSM850          | Operating Frequency | 836.4MHz (Channel 189) |

| Voltage (%)  | Power (V <sub>DC</sub> ) | TEMP (%) | Frequency (Hz) | Freq. Dev. (Hz) | Deviation (%) | Limit (%) | Result |
|--------------|--------------------------|----------|----------------|-----------------|---------------|-----------|--------|
| 100%         | 3.7                      | +20(Ref) | 836,400,000    | 76              | 0.000009      | ±0.00025  | Pass   |
| 100%         |                          | -30      | 836,400,000    | 99              | 0.000012      | ±0.00025  | Pass   |
| 100%         |                          | -20      | 836,400,000    | 124             | 0.000015      | ±0.00025  | Pass   |
| 100%         |                          | -10      | 836,400,000    | 117             | 0.000014      | ±0.00025  | Pass   |
| 100%         |                          | 0        | 836,400,000    | 63              | 0.000008      | ±0.00025  | Pass   |
| 100%         |                          | +10      | 836,400,000    | 17              | 0.000002      | ±0.00025  | Pass   |
| 100%         |                          | +20      | 836,400,000    | -22             | -0.000003     | ±0.00025  | Pass   |
| 100%         |                          | +30      | 836,400,000    | -15             | -0.000002     | ±0.00025  | Pass   |
| 100%         |                          | +40      | 836,400,000    | -35             | -0.000004     | ±0.00025  | Pass   |
| 100%         |                          | +50      | 836,400,000    | -61             | -0.000007     | ±0.00025  | Pass   |
| 115%         | 4.2                      | +20      | 836,400,000    | -25             | -0.000003     | ±0.00025  | Pass   |
| BAT.ENDPOINT | 3.6                      | +20      | 836,400,000    | -28             | -0.000003     | ±0.00025  | Pass   |

|               |                 |                     |                         |
|---------------|-----------------|---------------------|-------------------------|
| Product       | Mobile Computer | Temperature         | 25°C                    |
| Test Engineer | Polly Zong      | Relative Humidity   | 52%                     |
| Test Site     | TR3             | Test Date           | 2017/05/23              |
| Test Mode     | PCS1900         | Operating Frequency | 1880.0MHz (Channel 661) |

| Voltage (%)  | Power (V <sub>DC</sub> ) | TEMP (%) | Frequency (Hz) | Freq. Dev. (Hz) | Deviation (%) | Limit (%) | Result |
|--------------|--------------------------|----------|----------------|-----------------|---------------|-----------|--------|
| 100%         | 3.7                      | +20(Ref) | 1880,000,000   | 87              | 0.000005      | ±0.00025  | Pass   |
| 100%         |                          | -30      | 1880,000,000   | 90              | 0.000005      | ±0.00025  | Pass   |
| 100%         |                          | -20      | 1880,000,000   | 78              | 0.000004      | ±0.00025  | Pass   |
| 100%         |                          | -10      | 1880,000,000   | 43              | 0.000002      | ±0.00025  | Pass   |
| 100%         |                          | 0        | 1880,000,000   | 69              | 0.000004      | ±0.00025  | Pass   |
| 100%         |                          | +10      | 1880,000,000   | -44             | -0.000002     | ±0.00025  | Pass   |
| 100%         |                          | +20      | 1880,000,000   | 13              | 0.000001      | ±0.00025  | Pass   |
| 100%         |                          | +30      | 1880,000,000   | 88              | 0.000005      | ±0.00025  | Pass   |
| 100%         |                          | +40      | 1880,000,000   | 24              | 0.000001      | ±0.00025  | Pass   |
| 100%         |                          | +50      | 1880,000,000   | 27              | 0.000001      | ±0.00025  | Pass   |
| 115%         | 4.2                      | +20      | 1880,000,000   | 89              | 0.000005      | ±0.00025  | Pass   |
| BAT.ENDPOINT | 3.6                      | +20      | 1880,000,000   | 57              | 0.000003      | ±0.00025  | Pass   |

|               |                 |                     |                        |
|---------------|-----------------|---------------------|------------------------|
| Product       | Mobile Computer | Temperature         | 25°C                   |
| Test Engineer | Polly Zong      | Relative Humidity   | 52%                    |
| Test Site     | TR3             | Test Date           | 2017/05/23             |
| Test Mode     | EDGE850         | Operating Frequency | 836.4MHz (Channel 189) |

| Voltage (%)  | Power (V <sub>DC</sub> ) | TEMP (%) | Frequency (Hz) | Freq. Dev. (Hz) | Deviation (%) | Limit (%) | Result |
|--------------|--------------------------|----------|----------------|-----------------|---------------|-----------|--------|
| 100%         | 3.7                      | +20(Ref) | 836,400,000    | 87              | 0.000010      | ±0.00025  | Pass   |
| 100%         |                          | -30      | 836,400,000    | 23              | 0.000003      | ±0.00025  | Pass   |
| 100%         |                          | -20      | 836,400,000    | 81              | 0.000010      | ±0.00025  | Pass   |
| 100%         |                          | -10      | 836,400,000    | 47              | 0.000006      | ±0.00025  | Pass   |
| 100%         |                          | 0        | 836,400,000    | 110             | 0.000013      | ±0.00025  | Pass   |
| 100%         |                          | +10      | 836,400,000    | -31             | -0.000004     | ±0.00025  | Pass   |
| 100%         |                          | +20      | 836,400,000    | -90             | -0.000011     | ±0.00025  | Pass   |
| 100%         |                          | +30      | 836,400,000    | -39             | -0.000005     | ±0.00025  | Pass   |
| 100%         |                          | +40      | 836,400,000    | -41             | -0.000005     | ±0.00025  | Pass   |
| 100%         |                          | +50      | 836,400,000    | -105            | -0.000013     | ±0.00025  | Pass   |
| 115%         | 4.2                      | +20      | 836,400,000    | -21             | -0.000003     | ±0.00025  | Pass   |
| BAT.ENDPOINT | 3.6                      | +20      | 836,400,000    | -38             | -0.000005     | ±0.00025  | Pass   |

|               |                 |                     |                         |
|---------------|-----------------|---------------------|-------------------------|
| Product       | Mobile Computer | Temperature         | 25°C                    |
| Test Engineer | Polly Zong      | Relative Humidity   | 52%                     |
| Test Site     | TR3             | Test Date           | 2017/05/23              |
| Test Mode     | EDGE1900        | Operating Frequency | 1880.0MHz (Channel 661) |

| Voltage (%)  | Power (V <sub>DC</sub> ) | TEMP (%) | Frequency (Hz) | Freq. Dev. (Hz) | Deviation (%) | Limit (%) | Result |
|--------------|--------------------------|----------|----------------|-----------------|---------------|-----------|--------|
| 100%         | 3.7                      | +20(Ref) | 1880,000,000   | 87              | 0.000005      | ±0.00025  | Pass   |
| 100%         |                          | -30      | 1880,000,000   | 95              | 0.000005      | ±0.00025  | Pass   |
| 100%         |                          | -20      | 1880,000,000   | -29             | -0.000002     | ±0.00025  | Pass   |
| 100%         |                          | -10      | 1880,000,000   | -26             | -0.000001     | ±0.00025  | Pass   |
| 100%         |                          | 0        | 1880,000,000   | -22             | -0.000001     | ±0.00025  | Pass   |
| 100%         |                          | +10      | 1880,000,000   | 38              | 0.000002      | ±0.00025  | Pass   |
| 100%         |                          | +20      | 1880,000,000   | 123             | 0.000007      | ±0.00025  | Pass   |
| 100%         |                          | +30      | 1880,000,000   | 87              | 0.000005      | ±0.00025  | Pass   |
| 100%         |                          | +40      | 1880,000,000   | -57             | -0.000003     | ±0.00025  | Pass   |
| 100%         |                          | +50      | 1880,000,000   | 102             | 0.000005      | ±0.00025  | Pass   |
| 115%         | 4.2                      | +20      | 1880,000,000   | 96              | 0.000005      | ±0.00025  | Pass   |
| BAT.ENDPOINT | 3.6                      | +20      | 1880,000,000   | 49              | 0.000003      | ±0.00025  | Pass   |

|               |                 |                     |                          |
|---------------|-----------------|---------------------|--------------------------|
| Product       | Mobile Computer | Temperature         | 25°C                     |
| Test Engineer | Polly Zong      | Relative Humidity   | 52%                      |
| Test Site     | TR3             | Test Date           | 2017/05/23               |
| Test Mode     | WCDMA Band II   | Operating Frequency | 1880.0MHz (Channel 9400) |

| Voltage (%)  | Power (V <sub>DC</sub> ) | TEMP (%) | Frequency (Hz) | Freq. Dev. (Hz) | Deviation (%) | Limit (%) | Result |
|--------------|--------------------------|----------|----------------|-----------------|---------------|-----------|--------|
| 100%         | 3.7                      | +20(Ref) | 1880,000,000   | 87              | 0.000005      | ±0.00025  | Pass   |
| 100%         |                          | -30      | 1880,000,000   | 62              | 0.000003      | ±0.00025  | Pass   |
| 100%         |                          | -20      | 1880,000,000   | 60              | 0.000003      | ±0.00025  | Pass   |
| 100%         |                          | -10      | 1880,000,000   | -82             | -0.000004     | ±0.00025  | Pass   |
| 100%         |                          | 0        | 1880,000,000   | -86             | -0.000005     | ±0.00025  | Pass   |
| 100%         |                          | +10      | 1880,000,000   | -79             | -0.000004     | ±0.00025  | Pass   |
| 100%         |                          | +20      | 1880,000,000   | -56             | -0.000003     | ±0.00025  | Pass   |
| 100%         |                          | +30      | 1880,000,000   | -72             | -0.000004     | ±0.00025  | Pass   |
| 100%         |                          | +40      | 1880,000,000   | -59             | -0.000003     | ±0.00025  | Pass   |
| 100%         |                          | +50      | 1880,000,000   | 49              | 0.000003      | ±0.00025  | Pass   |
| 115%         | 4.2                      | +20      | 1880,000,000   | 49              | 0.000003      | ±0.00025  | Pass   |
| BAT.ENDPOINT | 3.6                      | +20      | 1880,000,000   | -14             | -0.000001     | ±0.00025  | Pass   |

|               |                 |                     |                         |
|---------------|-----------------|---------------------|-------------------------|
| Product       | Mobile Computer | Temperature         | 25°C                    |
| Test Engineer | Polly Zong      | Relative Humidity   | 52%                     |
| Test Site     | TR3             | Test Date           | 2017/05/23              |
| Test Mode     | WCDMA Band V    | Operating Frequency | 836.4MHz (Channel 4182) |

| Voltage (%)  | Power (V <sub>DC</sub> ) | TEMP (%) | Frequency (Hz) | Freq. Dev. (Hz) | Deviation (%) | Limit (%) | Result |
|--------------|--------------------------|----------|----------------|-----------------|---------------|-----------|--------|
| 100%         | 3.7                      | +20(Ref) | 836,400,000    | 87              | 0.000010      | ±0.00025  | Pass   |
| 100%         |                          | -30      | 836,400,000    | -48             | -0.000006     | ±0.00025  | Pass   |
| 100%         |                          | -20      | 836,400,000    | -30             | -0.000004     | ±0.00025  | Pass   |
| 100%         |                          | -10      | 836,400,000    | -65             | -0.000008     | ±0.00025  | Pass   |
| 100%         |                          | 0        | 836,400,000    | 28              | 0.000003      | ±0.00025  | Pass   |
| 100%         |                          | +10      | 836,400,000    | 16              | 0.000002      | ±0.00025  | Pass   |
| 100%         |                          | +20      | 836,400,000    | 102             | 0.000012      | ±0.00025  | Pass   |
| 100%         |                          | +30      | 836,400,000    | 70              | 0.000008      | ±0.00025  | Pass   |
| 100%         |                          | +40      | 836,400,000    | 46              | 0.000005      | ±0.00025  | Pass   |
| 100%         |                          | +50      | 836,400,000    | 64              | 0.000008      | ±0.00025  | Pass   |
| 115%         | 4.2                      | +20      | 836,400,000    | 64              | 0.000008      | ±0.00025  | Pass   |
| BAT.ENDPOINT | 3.6                      | +20      | 836,400,000    | 43              | 0.000005      | ±0.00025  | Pass   |



## 8. CONCLUSION

The data collected relate only the item(s) tested and show that the **Mobile Computer FCC ID: HD5-EDA50211** compliance with all the requirements of Parts 2, 22, 24 of the FCC Rules.

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The End