



# **CERTIFICATION TEST REPORT**

**Report Number. :** 12943451-E6V2

**Applicant :** APPLE, INC.  
1 APPLE PARK WAY  
CUPERTINO, CA 95014, U.S.A.

**Model :** A2218

**FCC ID :** BCG-E3308A

**IC :** 579C-E3308A

**EUT Description :** SMARTPHONE

**Test Standard(s) :** FCC CFR47 PART 22H, 24E, 27L AND 90S  
ISED RSS-132 ISSUE 3, RSS-133 ISSUE 6 AND RSS-139 ISSUE 3

**Date Of Issue:**  
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Revision History

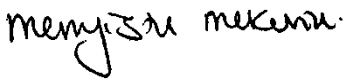
| Rev. | Issue Date | Revisions              | Revised By  |
|------|------------|------------------------|-------------|
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# 1. ATTESTATION OF TEST RESULTS

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Applicant Name and Address                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | APPLE, INC.<br>1 APPLE PARK WAY<br>CUPERTINO, CA 95014, U.S.A.                                           |
| Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | A2218                                                                                                    |
| FCC ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | BCG-E3308A                                                                                               |
| IC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 579C-E3308A                                                                                              |
| EUT Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SMARTPHONE                                                                                               |
| Serial Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | G6TYW00BN39Y (Conducted),G6TYW01EN39M(Radiated).                                                         |
| Date Tested                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | MAY 23, 2019 to JULY 05, 2019                                                                            |
| Applicable Standards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FCC CFR 47 Part 22H, 24E, 27L, AND 90S<br>ISED RSS-132 ISSUE 3, RSS-133 ISSUE 6, AND RSS-139 ISSUE 3     |
| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | COMPLIES                                                                                                 |
| <p>UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.</p> <p>The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.</p> <p>This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of the U.S. government.</p> |                                                                                                          |
| <p>Approved &amp; Released By:</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>Prepared By:</p>  |
| <p>Mengistu Mekuria<br/>Lead Test Engineer<br/>UL Verification Services Inc.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Lieu Nguyen<br/>Test Engineer<br/>UL Verification Services Inc.</p>                                   |

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, Part 22, Part 24, Part 27, and Part 90, FCC KDB 971168 D01 v03r01/ D02 v02r01, KDB 412172 D01 v01r01, ANSI C63.26:2015, IC RSS-132, RSS-133 and RSS-139.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, and 47658 Kato Road, Fremont, California, USA. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

| 47173 Benicia Street                                         | 47266 Benicia Street                              | 47658 Kato Rd.                                     |
|--------------------------------------------------------------|---------------------------------------------------|----------------------------------------------------|
| <input checked="" type="checkbox"/> Chamber A (ISED:2324B-1) | <input type="checkbox"/> Chamber D (ISED:22541-1) | <input type="checkbox"/> Chamber I (ISED: 2324A-5) |
| <input checked="" type="checkbox"/> Chamber B (ISED:2324B-2) | <input type="checkbox"/> Chamber E (ISED:22541-2) | <input type="checkbox"/> Chamber J (ISED: 2324A-6) |
| <input type="checkbox"/> Chamber C (ISED:2324B-3)            | <input type="checkbox"/> Chamber F (ISED:22541-3) | <input type="checkbox"/> Chamber K (ISED: 2324A-1) |
|                                                              | <input type="checkbox"/> Chamber G (ISED:22541-4) | <input type="checkbox"/> Chamber L (ISED: 2324A-3) |
|                                                              | <input type="checkbox"/> Chamber H (ISED:22541-5) |                                                    |

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers above are covered under Industry Canada company address and respective code.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. SAMPLE CALCULATION

#### RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)  
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

#### MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.  
36.5 dBuV + 0 dB + 10.1 dB + 0 dB = 46.6 dBuV

### 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER                                | UNCERTAINTY |
|------------------------------------------|-------------|
| Conducted Disturbance, 9KHz to 0.15 MHz  | 3.84 dB     |
| Conducted Disturbance, 0.15 to 30 MHz    | 3.65 dB     |
| Radiated Disturbance, 9KHz to 30 MHz     | 2.52 dB     |
| Radiated Disturbance, 30 to 1000 MHz     | 4.88 dB     |
| Radiated Disturbance, 1000 to 18000 MHz  | 4.24 dB     |
| Radiated Disturbance, 18000 to 26000 MHz | 4.37 dB     |
| Radiated Disturbance, 26000 to 40000 MHz | 5.17 dB     |
| Occupied Channel Bandwidth               | ±0.39 %     |
| Temperature                              | ±0.9 °C     |
| Supply voltages                          | ±0.45 %     |
| Time                                     | ±0.02 %     |

Uncertainty figures are valid to a confidence level of 95%.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The Apple iPhone is a smartphone with multimedia functions (music, application support, and video), cellular GSM, GPRS, EGPRS, UMTS, LTE, TD-SCDMA, CDMA, IEEE 802.11a/b/g/n/ac/ax, Bluetooth, Ultra-Wide band, GPS and NFC. All models support at least one UICC based SIM. The second SIM, if present, is either UICC based pSIM (physical SIM) or e-SIM (electronic SIM). The device has a built-in inductive charging receiver. The rechargeable battery is also not user accessible.

### 5.2. MAXIMUM OUTPUT POWER

#### ERP/EIRP LIMIT

FCC: §2.1046, §22.913, §24.232, §27.50 and §90.635  
IC: RSS132§5.4; RSS133§6.4 and RSS139§6.5.

#### EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015  
KDB 971168 D01 Section 5.6

$$\text{ERP/EIRP} = \text{PMeas} + \text{GT} - \text{LC}$$

where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);

PMeas = measured transmitter output power or PSD, in dBm or dBW;

GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

EUT includes different power levels for head use configuration and body use configuration and the below tables contain the highest of all configurations average conducted and ERP/EIRP output powers as follows:

## GSM MODES

| RSS 132 850MHz            |            |                           |                    |           |       |       |              |                     |
|---------------------------|------------|---------------------------|--------------------|-----------|-------|-------|--------------|---------------------|
| Frequency range (MHz)     | Modulation | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | EIRP  |       | 99% BW (kHz) | Emission Designator |
|                           |            |                           |                    |           | (dBm) | (W)   |              |                     |
| 824.2-848.8               | GPRS       | 33.2                      | -5.50              | 11.5      | 27.70 | 0.589 | 248.1        | 248KGXW             |
|                           | EGPRS      | 27.7                      |                    |           | 22.20 | 0.166 | 251.2        | 251KG7W             |
| Part 22 850MHz            |            |                           |                    |           |       |       |              |                     |
| Frequency range (MHz)     | Modulation | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | ERP   |       | 99% BW (kHz) | Emission Designator |
|                           |            |                           |                    |           | (dBm) | (W)   |              |                     |
| 824.2-848.8               | GPRS       | 33.2                      | -5.50              | 7.0       | 25.55 | 0.359 | 248.1        | 248KGXW             |
|                           | EGPRS      | 27.7                      |                    |           | 20.05 | 0.101 | 251.2        | 251KG7W             |
| Part 24 / RSS 133 1900MHz |            |                           |                    |           |       |       |              |                     |
| Frequency range (MHz)     | Modulation | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | EIRP  |       | 99% BW (kHz) | Emission Designator |
|                           |            |                           |                    |           | (dBm) | (W)   |              |                     |
| 1850.2-1909.8             | GPRS       | 32.0                      | -1.90              | 2.0       | 30.10 | 1.023 | 238.5        | 239KGXW             |
|                           | EGPRS      | 27.0                      |                    |           | 25.10 | 0.324 | 251.5        | 252KG7W             |

## CDMA MODES

| Part 90 BC10          |               |                           |                    |           |       |       |              |                     |
|-----------------------|---------------|---------------------------|--------------------|-----------|-------|-------|--------------|---------------------|
| Frequency range (MHz) | Modulation    | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | ERP   |       | 99% BW (kHz) | Emission Designator |
|                       |               |                           |                    |           | (dBm) | (W)   |              |                     |
| 817.25-822.75         | 1xRTT         | 25.7                      | -5.50              | 100.0     | 18.05 | 0.064 | 1270.9       | 1M27F9W             |
|                       | 1xEV-DO Rev A | 25.5                      |                    |           | 17.85 | 0.061 | 1265.6       | 1M27F9W             |
| RSS 132 BC0           |               |                           |                    |           |       |       |              |                     |
| Frequency range (MHz) | Modulation    | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | EIRP  |       | 99% BW (kHz) | Emission Designator |
|                       |               |                           |                    |           | (dBm) | (W)   |              |                     |
| 824.7-848.31          | 1xRTT         | 25.7                      | -5.50              | 11.5      | 20.20 | 0.105 | 1279.5       | 1M28F9W             |
|                       | 1xEV-DO Rev A | 25.3                      |                    |           | 19.80 | 0.095 | 1272.5       | 1M27F9W             |
| Part 22 BC0           |               |                           |                    |           |       |       |              |                     |
| Frequency range (MHz) | Modulation    | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | ERP   |       | 99% BW (kHz) | Emission Designator |
|                       |               |                           |                    |           | (dBm) | (W)   |              |                     |
| 824.7-848.31          | 1xRTT         | 25.7                      | -5.50              | 7.0       | 18.05 | 0.064 | 1279.5       | 1M28F9W             |
|                       | 1xEV-DO Rev A | 25.3                      |                    |           | 17.65 | 0.058 | 1272.5       | 1M27F9W             |
| Part 24 / RSS 133 BC1 |               |                           |                    |           |       |       |              |                     |
| Frequency range (MHz) | Modulation    | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | EIRP  |       | 99% BW (kHz) | Emission Designator |
|                       |               |                           |                    |           | (dBm) | (W)   |              |                     |
| 1851.25-1908.75       | 1xRTT         | 25.7                      | -5.40              | 2.0       | 20.30 | 0.107 | 1272.5       | 1M27F9W             |
|                       | 1xEV-DO Rev A | 25.2                      |                    |           | 19.80 | 0.095 | 1265.9       | 1M27F9W             |

**WCDMA MODE**

| RSS 132 Band 5           |            |                           |                    |           |       |       |              |                     |
|--------------------------|------------|---------------------------|--------------------|-----------|-------|-------|--------------|---------------------|
| Frequency range (MHz)    | Modulation | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | EIRP  |       | 99% BW (kHz) | Emission Designator |
|                          |            |                           |                    |           | (dBm) | (W)   |              |                     |
| 826.4-846.6              | REL 99     | 25.7                      | -5.50              | 11.5      | 20.20 | 0.105 | 4071.4       | 4M07F9W             |
|                          | HSDPA      | 25.7                      |                    |           | 20.20 | 0.105 | 4067.7       | 4M07F9W             |
| Part 22 Band 5           |            |                           |                    |           |       |       |              |                     |
| Frequency range (MHz)    | Modulation | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | ERP   |       | 99% BW (kHz) | Emission Designator |
|                          |            |                           |                    |           | (dBm) | (W)   |              |                     |
| 826.4-846.6              | REL 99     | 25.7                      | -5.50              | 7.0       | 18.05 | 0.064 | 4071.4       | 4M07F9W             |
|                          | HSDPA      | 25.7                      |                    |           | 18.05 | 0.064 | 4067.7       | 4M07F9W             |
| Part 24 / RSS 133 Band 2 |            |                           |                    |           |       |       |              |                     |
| Frequency range (MHz)    | Modulation | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | ERP   |       | 99% BW (kHz) | Emission Designator |
|                          |            |                           |                    |           | (dBm) | (W)   |              |                     |
| 1852.4-1907.6            | REL 99     | 25.0                      | -1.90              | 2.0       | 23.10 | 0.204 | 4075.4       | 4M08F9W             |
|                          | HSDPA      | 25.0                      |                    |           | 23.10 | 0.204 | 4077.1       | 4M08F9W             |
| Part 27 / RSS 139 Band 4 |            |                           |                    |           |       |       |              |                     |
| Frequency range (MHz)    | Modulation | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | EIRP  |       | 99% BW (kHz) | Emission Designator |
|                          |            |                           |                    |           | (dBm) | (W)   |              |                     |
| 1712.4-1752.6            | REL 99     | 25.0                      | -2.20              | 1.0       | 22.80 | 0.191 | 4078.2       | 4M08F9W             |
|                          | HSDPA      | 25.0                      |                    |           | 22.80 | 0.191 | 4087.9       | 4M09F9W             |

### 5.3. SOFTWARE AND FIRMWARE

The EUT Firmware installed during testing was version: 19-01.1919.01\_27-0.22.00-27.

### 5.4. MAXIMUM ANTENNA GAIN

| Frequency Range (MHz) | ANT 1 Gain (dBi) | ANT 2 Gain (dBi) | ANT 3 Gain (dBi) | ANT 4 Gain (dBi) |
|-----------------------|------------------|------------------|------------------|------------------|
| 816 - 824             | -5.5             | -6.3             | N/A              | N/A              |
| 824 - 849             | -5.5             | -6.3             | N/A              | N/A              |
| 1850 - 1910           | -5.4             | -3.3             | -1.9             | -2.6             |
| 1710 - 1755           | -4.2             | -2.6             | -2.2             | -5.0             |

### 5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case is EUT on the highest power. Based on average conducted output power measurement investigations, the following modes should be considered as worst-case scenario for all other measurements.

Worst-case modes:

- GSM GPRS
- GSM EGPRS
- CDMA 2000 1xRTT
- CDMA 2000 1xEV-DO REV. A
- WCDMA REL 99
- WCDMA HSDPA

CDMA BC10 band is supported in USA only.

The EUT was investigated in three orthogonal orientations X/Y/Z on antennas 1, 2, 3, and 4. For ANT 1 antenna, it was determined that X (Flatbed) orientation was worst-case orientation for cell bands, and PCS bands; Y (Landscape) orientation was worst-case orientation for AWS bands without AC/DC adapter.

For ANT 2 antenna, it was determined that X (Flatbed) orientation was worst-case orientation for cell bands, and PCS bands; Y (Landscape) orientation was worst-case orientation for AWS bands without AC/DC adapter.

For ANT 3 antenna, it was determined that X (Flatbed) orientation was worst-case orientation for AWS bands; Y (Landscape) orientation was worst-case orientation for PCS bands without AC/DC adapter.

For ANT 4 antenna, it was determined that X (Flatbed) orientation was worst-case orientation for AWS bands, and PCS bands without AC/DC adapter.

Radiated spurious emissions were investigated below 30MHz, 30MHz-1GHz and above 1GHz. There were no emissions found on below 30MHz and 30MHz-1GHz.

For simultaneous transmission of multiple channels in the 2.4GHz/5GH WLAN, UWB, and Cellular bands, tests were conducted for various configurations having the highest power, least separation in frequencies and widest operation bandwidths. No noticeable new emission was found.

## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

| Support Equipment List |              |               |                   |
|------------------------|--------------|---------------|-------------------|
| Description            | Manufacturer | Model         | Serial Number     |
| Laptop AC/DC adapter   | Apple        | 85W MagSafe 2 | C0651730MMMG6P4AL |
| Laptop                 | Apple        | Macbook Pro   | C02PM012G3QD      |
| Laptop                 | Apple        | Macbook Pro   | C02P52HGG085      |

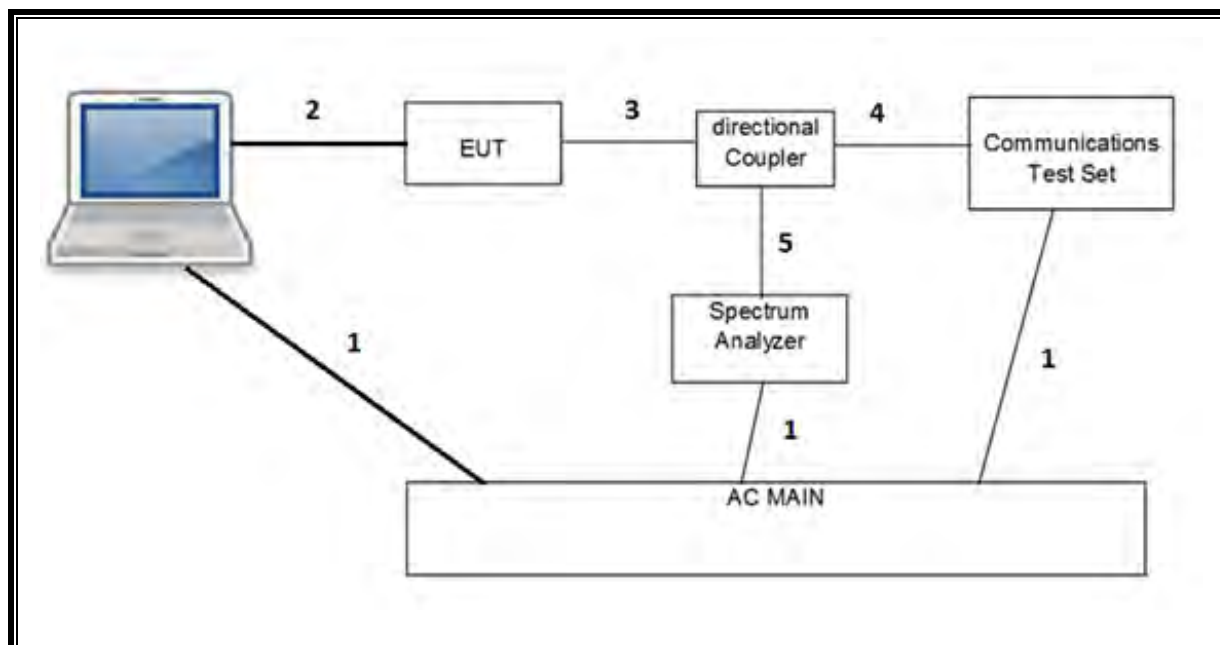
### I/O CABLES (RF Conducted Test)

| I/O Cable List |           |                      |                        |             |                  |         |
|----------------|-----------|----------------------|------------------------|-------------|------------------|---------|
| Cable No       | Port      | # of identical ports | Connector Type         | Cable Type  | Cable Length (m) | Remarks |
| 1              | AC        | 3                    | US 115V                | Un-shielded | 2.0m             | N/A     |
| 2              | USB       | 1                    | DC                     | Un-shielded | 1.0m             | N/A     |
| 3              | RF In/Out | 1                    | EUT                    | Un-shielded | 0.6m             | N/A     |
| 4              | RF In/Out | 1                    | Communication Test Set | Un-shielded | 1.2m             | N/A     |
| 5              | RF In/Out | 1                    | Barrel                 | N/A         | N/A              | N/A     |

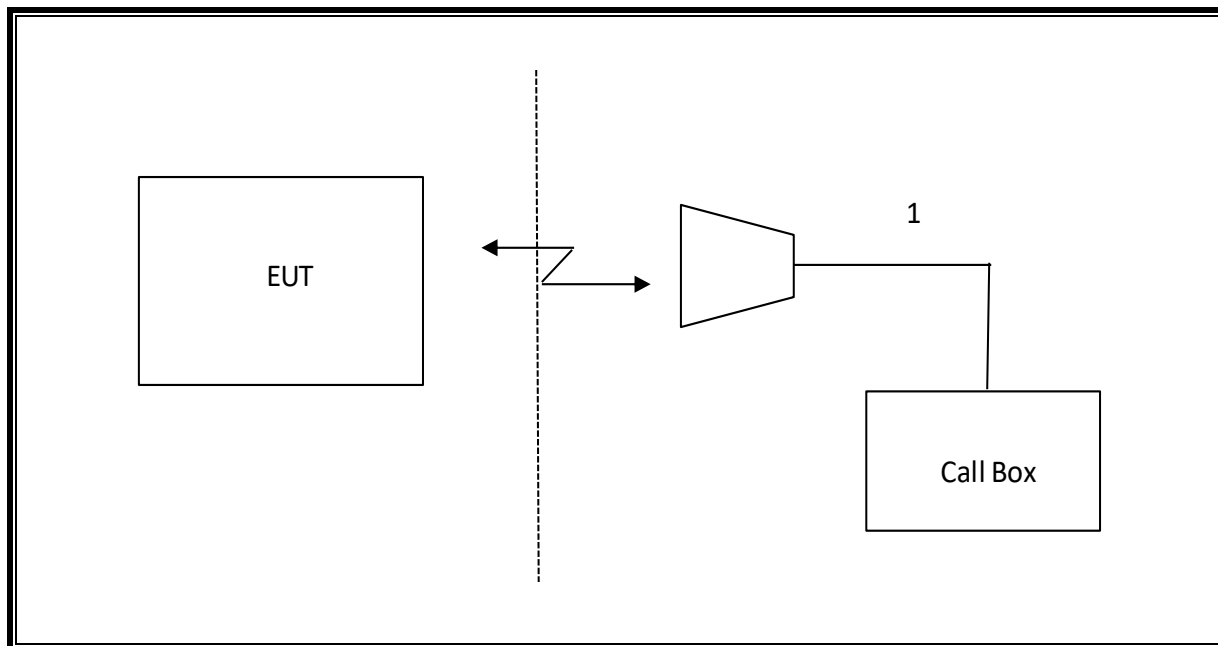
### I/O CABLES (RF Radiated Test)

| I/O Cable List |           |                      |                |             |                  |         |
|----------------|-----------|----------------------|----------------|-------------|------------------|---------|
| Cable No       | Port      | # of identical ports | Connector Type | Cable Type  | Cable Length (m) | Remarks |
| 1              | RF In/Out | 1                    | Antenna        | Un-shielded | 5.0m             | N/A     |

### CONDUCTED SETUP



### RADIATED SETUP



## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| TEST EQUIPMENT LIST                              |                     |                        |                         |            |
|--------------------------------------------------|---------------------|------------------------|-------------------------|------------|
| Description                                      | Manufacturer        | Model                  | Asset                   | Cal Due    |
| Amplifier, 10KHz to 1GHz, 32dB                   | Sonoma              | 310N                   | T15                     | 08/15/2019 |
| Amplifier, 18-26GHz                              | Agilent             | 8449B                  | T404                    | 3/23/2020  |
| Amplifier, 26-40GHz                              | Miteq               | TTA2640                | T1804                   | 3/23/2020  |
| Spectrum Analyzer, PXA 3Hz to 44GHz              | Agilent             | N9030A                 | T905                    | 1/24/2020  |
| Spectrum Analyzer, PXA 3Hz to 44GHz              | Keysight            | N9030A                 | T340                    | 01/22/2020 |
| Spectrum Analyzer, PXA 3Hz to 44GHz              | Keysight            | N9030A                 | T1454                   | 01/23/2020 |
| Spectrum Analyzer, PXA 3Hz to 44GHz              | Keysight            | N9030A                 | T908                    | 01/23/2020 |
| Spectrum Analyzer, PXA 3Hz to 44GHz              | Keysight            | N9030A                 | T339                    | 01/29/2020 |
| Amplifier, 1 to 18GHz                            | MITEQ               | AFS42-00101800-25-S-42 | T931                    | 05/11/2020 |
| Amplifier, 10KHz to 1GHz, 32dB                   | Sonoma              | 310N                   | PRE0180176              | 11/01/2019 |
| Spectrum Analyzer, PSA, 3Hz to 44GHz             | Keysight            | E4446A                 | T177                    | 04/12/2019 |
| Spectrum Analyzer, PSA, 3Hz to 44GHz             | Keysight            | E4446A                 | T123                    | 01/28/2020 |
| Spectrum Analyzer, PSA, 3Hz to 44GHz             | Keysight            | E4440A                 | T198                    | 01/30/2020 |
| Spectrum Analyzer, PSA, 3Hz to 44GHz             | Keysight            | E4440A                 | T99                     | 1/28/2020  |
| Directional Coupler                              | KRYTAR              | 152610                 | T1536                   | 04/27/2019 |
| Directional Coupler                              | KRYTAR              | 152610                 | T1537                   | 04/27/2019 |
| Wireless Communications Test Set, 8960 Series 10 | Agilent             | E5515C                 | T211                    | 05/10/2020 |
| Filter, HPF 3.0GHz                               | Micro-Tronics       | HPM17543               | T487                    | 12/04/2019 |
| Filter, HPF 1.2GHz                               | Micro-Tronics       | WHKX1.2/15G-6ST        | T1182                   | 05/19/2019 |
| Spectrum Analyzer, PXA, 3Hz to 44GHz             | Keysight            | N9030A                 | T459                    | 01/24/2020 |
| Wideband Communication Test Set, Call Box        | R&S GmbH & Co. KG   | CMW500                 | T959                    | 02/16/2020 |
| Wideband Communication Test Set, Call Box        | R&S GmbH & Co. KG   | CMW500                 | T1871                   | 02/18/2020 |
| Wideband Communication Test Set, Call Box        | R&S GmbH & Co. KG   | CMW500                 | T921                    | 02/18/2020 |
| Wideband Communication Test Set, Call Box        | R&S GmbH & Co. KG   | CMW500                 | T376                    | 02/21/2020 |
| Wideband Communication Test Set, Call Box        | R&S GmbH & Co. KG   | CMW500                 | T958                    | 02/20/2020 |
| Chamber, Environmental                           | Cincinnati Sub Zero | ZPHS-8-3.5-SCT/WC      | T754                    | 08/15/2019 |
| Power Meter, P-series single channel             | Keysight            | N1911A                 | T1268                   | 01/31/2020 |
| Power Sensor                                     | Keysight            | N1921A                 | T1228                   | 03/01/2020 |
| Antenna, Horn 1-18GHz                            | ETS Lindgren        | T3117                  | T346                    | 05/14/2020 |
| Antenna, Horn 1-18GHz                            | ETS Lindgren        | 3117                   | T344                    | 05/07/2020 |
| Antenna, Horn 18-26GHz                           | ARA                 | MWH-1826/B             | T447                    | 6/16/2019  |
| Antenna, Horn 26-40GHz                           | ARA                 | MWH-2640/B             | T446                    | 8/9/2019   |
| Antenna, Broadband Hybrid, 30MHz to 2000MHz      | Sunol Sciences      | JB3                    | PRE0181574              | 08/01/2019 |
| Antenna, Broadband Hybrid, 30MHz to 2000MHz      | Sunol Sciences      | JB3                    | PRE0077974              | 05/13/2020 |
| Antenna, Active Loop 9KHz to 30MHz               | EMCO                | 6502                   | T1616                   | 10/18/2019 |
| UL AUTOMATION SOFTWARE                           |                     |                        |                         |            |
| CLT Software                                     | UL                  | UL RF                  | Ver 9.5, April 26, 2016 |            |
| Power Measurement Software                       | UL                  | UL RF                  | Ver 2.2, June 2017      |            |

### NOTES:

- For equipment listed above that had a calibration due during the testing period, its use was paused to allow for calibration.

## 7. RF OUTPUT POWER VERIFICATION

EUT includes different power levels for head use configuration and body use configuration and the below tables contain the highest of all configurations average conducted output powers as follows:

### 7.1. GSM

#### Using CMW500 Communication Test Set

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900

Press **Connection control** to choose the different menus

Press **RESET** > choose all to reset all settings

|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connection | Press <b>Signal Off</b> to turn off the signal and change settings<br>Network Support > GSM+GPRS or GSM+EGPRS<br>Main Service > Packet Data<br>Service selection > Test Mode A – Auto Slot Config. off                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| MS Signal  | Press Slot Config bottom on the right twice to select and change the number of time slots and power setting<br>> Slot configuration      > Uplink/Gamma<br>> 33 dBm for GPRS 850/900<br>> 27 dBm for EGPRS 850/900<br>> 30 dBm for GPRS1800/1900<br>> 26 dBm for EGPRS1800/1900                                                                                                                                                                                                                                                                                                                                                                       |
| BS Signal  | Enter the same channel number for TCH channel (test channel) and BCCH channel<br><br>Frequency Offset >      + 0 Hz<br>Mode >                    BCCH and TCH<br>BCCH Level >           -85 dBm (May need to adjust if link is not stable)<br>BCCH Channel >        choose desire test channel [Enter the same channel number for TCH<br>channel (test channel) and BCCH channel]<br><br>Channel Type >        Off<br>P0>                      4 dB<br>Slot Config >           Unchanged (if already set under MS Signal)<br>TCH >                    choose desired test channel<br>Hopping >              Off<br>Main Timeslot >        3 (Default) |
| Network    | Coding Scheme >       CS 4 (GPRS) and MCS5 (EGPRS)<br>Bit Stream >            2E9-1PSR Bit Pattern                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| AF/RF      | Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Connection | Press <b>Signal On</b> to turn on the signal and change settings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## RESULT

### GSM 850

|     |       |       |            |
|-----|-------|-------|------------|
| ID: | 38806 | Date: | 06/01/2019 |
|-----|-------|-------|------------|

#### GPRS (GMSK) - Coding Scheme: CS1

| Band  | Ch No. | Freq. (MHz) | Conducted Average Power (dBm) |         |        |         |
|-------|--------|-------------|-------------------------------|---------|--------|---------|
|       |        |             | Ant 1                         |         | Ant 2  |         |
|       |        |             | 1 slot                        | 2 slots | 1 slot | 2 slots |
| 850.0 | 128    | 824.2       | 33.2                          | 31.9    | 31.7   | 30.7    |
|       | 190    | 836.6       | 33.2                          | 32.2    | 31.6   | 30.5    |
|       | 251    | 848.8       | 33.1                          | 32.2    | 31.3   | 30.3    |

#### EGPRS (8PSK) - Coding Scheme: MCS5

| Band  | Ch No. | Freq. (MHz) | Conducted Average Power (dBm) |         |        |         |
|-------|--------|-------------|-------------------------------|---------|--------|---------|
|       |        |             | Ant 1                         |         | Ant 2  |         |
|       |        |             | 1 slot                        | 2 slots | 1 slot | 2 slots |
| 850.0 | 128    | 824.2       | 27.7                          | 26.7    | 25.7   | 24.7    |
|       | 190    | 836.6       | 27.6                          | 26.7    | 25.6   | 24.6    |
|       | 251    | 848.8       | 27.6                          | 26.7    | 25.4   | 24.5    |

### GSM 1900

|     |       |       |            |
|-----|-------|-------|------------|
| ID: | 38806 | Date: | 06/01/2019 |
|-----|-------|-------|------------|

#### GPRS (GMSK) - Coding Scheme: CS1

| Band   | Ch No. | Freq. (MHz) | Conducted Average Power (dBm) |         |        |         |        |         |        |         |
|--------|--------|-------------|-------------------------------|---------|--------|---------|--------|---------|--------|---------|
|        |        |             | Ant 1                         |         | Ant 2  |         | Ant 3  |         | Ant 4  |         |
|        |        |             | 1 slot                        | 2 slots | 1 slot | 2 slots | 1 slot | 2 slots | 1 slot | 2 slots |
| 1900.0 | 512    | 1850.2      | 31.7                          | 30.7    | 29.2   | 28.2    | 32.0   | 31.0    | 28.0   | 25.0    |
|        | 661    | 1880.0      | 31.6                          | 30.6    | 29.1   | 28.1    | 31.7   | 30.7    | 27.7   | 24.8    |
|        | 810    | 1909.8      | 31.7                          | 30.7    | 29.1   | 28.1    | 31.7   | 30.8    | 27.8   | 24.9    |

#### EGPRS (8PSK) - Coding Scheme: MCS5

| Band   | Ch No. | Freq. (MHz) | Conducted Average Power (dBm) |         |        |         |        |         |        |         |
|--------|--------|-------------|-------------------------------|---------|--------|---------|--------|---------|--------|---------|
|        |        |             | Ant 1                         |         | Ant 2  |         | Ant 3  |         | Ant 4  |         |
|        |        |             | 1 slot                        | 2 slots | 1 slot | 2 slots | 1 slot | 2 slots | 1 slot | 2 slots |
| 1900.0 | 512    | 1850.2      | 26.6                          | 25.7    | 24.2   | 23.2    | 26.8   | 25.9    | 25.0   | 24.0    |
|        | 661    | 1880.0      | 26.7                          | 25.6    | 24.1   | 23.2    | 26.8   | 25.9    | 24.7   | 23.7    |
|        | 810    | 1909.8      | 26.7                          | 25.6    | 24.0   | 23.2    | 27.0   | 26.0    | 24.9   | 23.9    |

## 7.2. CDMA

Maximum output power is verified on the Low, Middle and High channels according to procedures in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E for 1xRTT, section 3.1.2.3.4 of 3GPP2 C.S0033-0/TIA-866 for Rel. 0 and section 4.3.4 of 3GPP2 C.S0033-A for Rev. A

### 1xRTT/ 1xAdvanced

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

| <u>Application</u>   | <u>Rev, License</u> |
|----------------------|---------------------|
| CDMA2000 Mobile Test | B.15.18, L          |

- Protocol Rev > 6 (IS-2000-0)
- System ID: 18; NID: 65535, Reg. Ch. #: 610 for Cell, 600 for PCS & 450 for AWS
- Radio Config (RC) > RC1 or RC3
- Service Option (SO) Setup > SO55 or SO32
- Traffic Data Rate > Full
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

### 1xEV-DO - Release 0 (REL 0)

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

#### EVDO Release 0 - RTAP

- Call Setup > Shift & Preset
- Call Control:
  - Access Network Info > Cell Parameters > Sector ID > 00000000 : 00000000 : 00000000 : 00000000 > Subnet Mask > 0
  - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Params:
  - Cell Power > -105.5 dBm/1.23 MHz
  - Channel > (Enter channel number)
  - Application Config > Enhanced Test Application Protocol > RTAP
  - RTAP Rate > 153.6 kbps
  - Rvs Power Ctrl > Active bits
  - Protocol Rel > 0 (1xEV-DO)
- Press "Start Data Connection" when "Session Open" appear in "Active Cell"
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

#### EVDO Release 0 - FTAP

- Call Setup > Shift & Preset
- Call Control:
  - Access Network Info > Cell Parameters > Sector ID > 00000000 : 00000000 : 00000000 : 00000000 > Subnet Mask > 0
  - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Params:
  - Cell Power > -105.5 dBm/1.23 MHz
  - Cell Band > (Select US Cellular or US PCS)
  - Channel > (Enter channel number)
  - Application Config > Enhanced Test Application Protocol > FTAP (default)
  - FTAP Rate > 307.2 kbps (2 Slot, QPSK)
  - Rvs Power Ctrl > Active bits
  - Protocol Rel > 0 (1xEV-DO)
- Press "Start Data Connection" when "Session Open" appear in "Active Cell"
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

### **1xEV-DO - Revision A (REV A)**

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

| <u>Application</u>    | <u>Rev, License</u> |
|-----------------------|---------------------|
| 1xEV-DO Terminal Test | A.09.13             |

#### **EVDO Rev. A – RETAP**

- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > RETAP
- R-Data Pkt Size > 4096
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2
  - PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)
- Access Network Info > Cell Parameters
  - Sector ID > 00000000: 00000000: 00000000: 00000000
  - Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
  - ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

#### **EVDO Rev. A - FETAP**

- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > FETAP
- F-Traffic Format > 4 (1024, 2,128) Canonical (307.2k, QPSK)
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2
  - PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)
- Access Network Info > Cell Parameters > Sector ID > 00000000: 00000000: 00000000: 00000000
  - Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
  - ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

#### **CMW500**

### **1x Advanced Setup Procedures used to establish the test signals**

#### **Call box setup procedure**

- Protocol Rev > 6 (IS-2000-0)
- System ID: 331; NID: 65535, Reg. Ch. #.:
- Radio Config (RC) > Fwd11,Rvs8
- Service Option (SO) Setup > SO75 (Loopback)
- Traffic Data Rate > Full
- Rvs Power Ctrl > All Up bits (Maximum TxPout)
- Reverse Power Control Mode: 00-200 to 400 bps
- Smart blanking was disabled.

### **1xEV-DO Rev. B Setup Procedures used to establish the test signals**

#### **Call box setup procedure**

- CMW 500 Signal Generator > 1xEV-DO Taskbar Enable
- CMW 500 1xEV-DO Signaling Configuration Window >
- 1xEV-DO Signaling On Window:
  - Under Access Network Control:
  - Band Class: BC0: US Cellular
  - RF Channel: 31
  - 1xEV-DO Power: -70 dBm
  - Release B
- 1xEV-DO Signaling Configuration Window

Under RF Frequency Band / Channel: Enter Ch. Frequency

- Under Carrier Configuration: RF Frequency  
For Two Carriers: Low Channel (1013)

|             | <u>RF Channel</u> | <u>RF Channel Offset</u> |
|-------------|-------------------|--------------------------|
| Carrier [0] | 31                | 0                        |
| Carrier [1] | 1013              | 982                      |

- Under Carrier Configuration: RF Pilot

|           | <u>Carrier Sector</u> | <u>Active on AN</u> | <u>Assigned to AT</u> |
|-----------|-----------------------|---------------------|-----------------------|
| Pilot [0] | C0/S0                 | ✓                   | ✓                     |
|           | CA/S1                 | ✓                   | ✓                     |

For Three Carriers: Low Channel (1013)

|             | <u>RF Channel</u> | <u>RF Channel Offset</u> |
|-------------|-------------------|--------------------------|
| Carrier [0] | 72                | 0                        |
| Carrier [1] | 31                | -41                      |
| Carrier [2] | 1013              | 941                      |

- Under Carrier Configuration: RF Pilot

|           | <u>Carrier Sector</u> | <u>Active on AN</u> | <u>Assigned to AT</u> |
|-----------|-----------------------|---------------------|-----------------------|
| Pilot [0] | C0/S0                 | ✓                   | ✓                     |
| Pilot [1] | C1/S1                 | ✓                   | ✓                     |
| Pilot [2] | C2/S2                 | ✓                   | ✓                     |

- Rvs Power Ctrl > All Up bits (to get the maximum power)

## RESULT

**CDMA BC10**

| ID:              | 19467         | Date:                               | 6/20/2019             |        |             |                               |       |
|------------------|---------------|-------------------------------------|-----------------------|--------|-------------|-------------------------------|-------|
| Band             | Mode          | Radio Configuration (RC)            | Service Option (SO)   | Ch No. | Freq. (MHz) | Conducted Average Power (dBm) |       |
|                  |               |                                     |                       |        |             | Ant 1                         | Ant 2 |
| BC10<br>(800MHz) | 1xRTT         | RC1                                 | 2 (Loopback)          | 450    | 817.25      | 25.0                          | 24.3  |
|                  |               |                                     |                       | 560    | 820.00      | 25.0                          | 24.4  |
|                  |               |                                     |                       | 670    | 822.75      | 24.9                          | 24.3  |
|                  |               |                                     | 55 (Loopback)         | 450    | 817.25      | 25.0                          | 24.2  |
|                  |               |                                     |                       | 560    | 820.00      | 25.0                          | 24.4  |
|                  |               |                                     |                       | 670    | 822.75      | 24.9                          | 24.4  |
|                  |               | RC2                                 | 9 (Loopback)          | 450    | 817.25      | 25.0                          | 24.3  |
|                  |               |                                     |                       | 560    | 820.00      | 25.7                          | 24.2  |
|                  |               |                                     |                       | 670    | 822.75      | 24.8                          | 24.4  |
|                  |               |                                     | 55 (Loopback)         | 450    | 817.25      | 24.9                          | 24.2  |
|                  |               |                                     |                       | 560    | 820.00      | 25.2                          | 24.3  |
|                  |               |                                     |                       | 670    | 822.75      | 24.9                          | 24.4  |
|                  |               | RC3                                 | 2 (Loopback)          | 450    | 817.25      | 24.9                          | 24.3  |
|                  |               |                                     |                       | 560    | 820.00      | 25.0                          | 24.2  |
|                  |               |                                     |                       | 670    | 822.75      | 24.9                          | 24.5  |
|                  |               |                                     | 55 (Loopback)         | 450    | 817.25      | 25.0                          | 24.2  |
|                  |               |                                     |                       | 560    | 820.00      | 25.0                          | 24.3  |
|                  |               |                                     |                       | 670    | 822.75      | 24.7                          | 24.3  |
|                  |               |                                     | 32 (+ F-SCH)          | 450    | 817.25      | 24.8                          | 24.0  |
|                  |               |                                     |                       | 560    | 820.00      | 24.8                          | 24.0  |
|                  |               |                                     |                       | 670    | 822.75      | 24.6                          | 24.1  |
|                  |               |                                     | 32 (+ SCH)            | 450    | 817.25      | 24.7                          | 24.0  |
|                  |               |                                     |                       | 560    | 820.00      | 24.7                          | 23.9  |
|                  |               |                                     |                       | 670    | 822.75      | 24.6                          | 24.0  |
|                  |               | RC4                                 | 2 (Loopback)          | 450    | 817.25      | 25.0                          | 24.3  |
|                  |               |                                     |                       | 560    | 820.00      | 25.0                          | 24.3  |
|                  |               |                                     |                       | 670    | 822.75      | 24.8                          | 24.4  |
|                  |               |                                     | 55 (Loopback)         | 450    | 817.25      | 25.0                          | 24.2  |
|                  |               |                                     |                       | 560    | 820.00      | 24.9                          | 24.3  |
|                  |               |                                     |                       | 670    | 822.75      | 24.8                          | 24.3  |
|                  |               |                                     | 32 (+ F-SCH)          | 450    | 817.25      | 24.8                          | 24.0  |
|                  |               |                                     |                       | 560    | 820.00      | 24.7                          | 23.9  |
|                  |               |                                     |                       | 670    | 822.75      | 24.6                          | 24.0  |
|                  |               |                                     | 32 (+ SCH)            | 450    | 817.25      | 24.4                          | 23.6  |
|                  |               |                                     |                       | 560    | 820.00      | 24.4                          | 23.7  |
|                  |               |                                     |                       | 670    | 822.75      | 24.3                          | 23.9  |
|                  |               | RC5                                 | 9 (Loopback)          | 450    | 817.25      | 25.2                          | 24.3  |
|                  |               |                                     |                       | 560    | 820.00      | 25.2                          | 24.4  |
|                  |               |                                     |                       | 670    | 822.75      | 24.8                          | 24.4  |
|                  |               |                                     | 55 (Loopback)         | 450    | 817.25      | 25.0                          | 24.4  |
|                  |               |                                     |                       | 560    | 820.00      | 24.9                          | 24.3  |
|                  |               |                                     |                       | 670    | 822.75      | 25.0                          | 24.4  |
|                  | 1xAdvanced    | RC11                                | 2 (Loopback)          | 450    | 817.25      | 25.0                          | 24.1  |
|                  |               |                                     |                       | 560    | 820.00      | 24.8                          | 24.1  |
|                  |               |                                     |                       | 670    | 822.75      | 24.8                          | 24.0  |
|                  |               |                                     | 75 (Loopback)         | 450    | 817.25      | 25.0                          | 24.1  |
|                  |               |                                     |                       | 560    | 820.00      | 24.8                          | 24.1  |
|                  |               |                                     |                       | 670    | 822.75      | 24.8                          | 24.0  |
|                  |               |                                     | 32 (+ F-SCH)          | 450    | 817.25      | 25.0                          | 24.2  |
|                  |               |                                     |                       | 560    | 820.00      | 24.8                          | 24.1  |
|                  |               |                                     |                       | 670    | 822.75      | 24.7                          | 24.0  |
|                  |               |                                     | 32 (+ SCH)            | 450    | 817.25      | 25.0                          | 24.1  |
|                  |               |                                     |                       | 560    | 820.00      | 24.8                          | 24.0  |
|                  |               |                                     |                       | 670    | 822.75      | 24.7                          | 24.1  |
|                  | 1xEVDO Rel. 0 | FTAP Rate: 307.2 kbps(2 slot, QPSK) | RTAP Rate: 153.6 kbps | 450    | 817.25      | 25.5                          | 24.0  |
|                  | 1xEVDO Rev. A | FETAP: 307.2k, QPSK/ ACK            | RETAP: 4096           | 560    | 820.00      | 25.4                          | 23.9  |
|                  |               |                                     |                       | 670    | 822.75      | 25.4                          | 23.9  |
|                  |               |                                     |                       | 450    | 817.25      | 25.4                          | 24.0  |
|                  |               |                                     |                       | 560    | 820.00      | 25.3                          | 23.9  |
|                  |               |                                     |                       | 670    | 822.75      | 25.4                          | 23.8  |

**CDMA BC0**

|            |       |              |           |
|------------|-------|--------------|-----------|
| <b>ID:</b> | 19467 | <b>Date:</b> | 6/20/2019 |
|------------|-------|--------------|-----------|

| Band            | Mode          | Radio Configuration (RC) | Service Option (SO)   | Ch No. | Freq. (MHz) | Conducted Average Power (dBm) |       |
|-----------------|---------------|--------------------------|-----------------------|--------|-------------|-------------------------------|-------|
|                 |               |                          |                       |        |             | Ant 1                         | Ant 2 |
| BC0<br>(850MHz) | 1xRTT         | RC1                      | 2 (Loopback)          | 1013   | 824.70      | 25.4                          | 24.5  |
|                 |               |                          |                       | 384    | 836.52      | 25.6                          | 24.2  |
|                 |               |                          |                       | 777    | 848.31      | 25.4                          | 24.3  |
|                 |               |                          | 55 (Loopback)         | 1013   | 824.70      | 25.7                          | 24.5  |
|                 |               |                          |                       | 384    | 836.52      | 25.5                          | 24.4  |
|                 |               |                          |                       | 777    | 848.31      | 25.5                          | 24.1  |
|                 |               | RC2                      | 9 (Loopback)          | 1013   | 824.70      | 25.4                          | 24.4  |
|                 |               |                          |                       | 384    | 836.52      | 25.7                          | 24.3  |
|                 |               |                          |                       | 777    | 848.31      | 25.6                          | 24.2  |
|                 |               |                          | 55 (Loopback)         | 1013   | 824.70      | 25.4                          | 24.2  |
|                 |               |                          |                       | 384    | 836.52      | 25.7                          | 24.1  |
|                 |               |                          |                       | 777    | 848.31      | 25.6                          | 24.0  |
|                 |               | RC3                      | 2 (Loopback)          | 1013   | 824.70      | 25.7                          | 24.3  |
|                 |               |                          |                       | 384    | 836.52      | 25.5                          | 24.2  |
|                 |               |                          |                       | 777    | 848.31      | 25.6                          | 24.3  |
|                 |               |                          | 55 (Loopback)         | 1013   | 824.70      | 25.7                          | 24.5  |
|                 |               |                          |                       | 384    | 836.52      | 25.6                          | 24.2  |
|                 |               |                          |                       | 777    | 848.31      | 25.3                          | 24.3  |
|                 |               |                          | 32 (+ F-SCH)          | 1013   | 824.70      | 25.1                          | 24.1  |
|                 |               |                          |                       | 384    | 836.52      | 25.1                          | 24.1  |
|                 |               |                          |                       | 777    | 848.31      | 25.0                          | 24.1  |
|                 |               |                          | 32 (+ SCH)            | 1013   | 824.70      | 24.8                          | 23.9  |
|                 |               |                          |                       | 384    | 836.52      | 24.9                          | 23.9  |
|                 |               |                          |                       | 777    | 848.31      | 24.9                          | 23.9  |
|                 |               | RC4                      | 2 (Loopback)          | 1013   | 824.70      | 25.4                          | 24.3  |
|                 |               |                          |                       | 384    | 836.52      | 25.3                          | 24.1  |
|                 |               |                          |                       | 777    | 848.31      | 25.3                          | 24.2  |
|                 |               |                          | 55 (Loopback)         | 1013   | 824.70      | 25.4                          | 24.5  |
|                 |               |                          |                       | 384    | 836.52      | 25.5                          | 24.1  |
|                 |               |                          |                       | 777    | 848.31      | 25.3                          | 24.3  |
|                 |               |                          | 32 (+ F-SCH)          | 1013   | 824.70      | 25.0                          | 24.1  |
|                 |               |                          |                       | 384    | 836.52      | 25.1                          | 24.0  |
|                 |               |                          |                       | 777    | 848.31      | 25.0                          | 24.0  |
|                 |               |                          | 32 (+ SCH)            | 1013   | 824.70      | 24.8                          | 23.8  |
|                 |               |                          |                       | 384    | 836.52      | 24.9                          | 23.7  |
|                 |               |                          |                       | 777    | 848.31      | 24.9                          | 23.8  |
|                 |               | RC5                      | 9 (Loopback)          | 1013   | 824.70      | 25.6                          | 24.5  |
|                 |               |                          |                       | 384    | 836.52      | 25.6                          | 24.2  |
|                 |               |                          |                       | 777    | 848.31      | 25.5                          | 24.3  |
|                 |               |                          | 55 (Loopback)         | 1013   | 824.70      | 25.5                          | 24.4  |
|                 |               |                          |                       | 384    | 836.52      | 25.6                          | 24.3  |
|                 |               |                          |                       | 777    | 848.31      | 25.5                          | 24.4  |
|                 | 1xAdvanced    | RC11                     | 2 (Loopback)          | 1013   | 824.70      | 25.6                          | 24.2  |
|                 |               |                          |                       | 384    | 836.52      | 25.6                          | 24.2  |
|                 |               |                          |                       | 777    | 848.31      | 25.6                          | 24.0  |
|                 |               |                          | 75 (Loopback)         | 1013   | 824.70      | 25.6                          | 24.2  |
|                 |               |                          |                       | 384    | 836.52      | 25.7                          | 24.3  |
|                 |               |                          |                       | 777    | 848.31      | 25.5                          | 24.0  |
|                 |               |                          | 32 (+ F-SCH)          | 1013   | 824.70      | 25.6                          | 24.2  |
|                 |               |                          |                       | 384    | 836.52      | 25.7                          | 24.2  |
|                 |               |                          |                       | 777    | 848.31      | 25.5                          | 24.1  |
|                 |               |                          | 32 (+ SCH)            | 1013   | 824.70      | 25.6                          | 24.2  |
|                 |               |                          |                       | 384    | 836.52      | 25.6                          | 24.2  |
|                 |               |                          |                       | 777    | 848.31      | 25.4                          | 23.9  |
|                 |               | 1xEVDO Rel. 0            | RTAP Rate: 153.6 kbps | 1013   | 824.70      | 25.1                          | 23.9  |
|                 |               |                          |                       | 384    | 836.52      | 25.2                          | 23.8  |
|                 |               |                          |                       | 777    | 848.31      | 25.1                          | 23.9  |
|                 |               |                          |                       | 1013   | 824.70      | 25.2                          | 24.0  |
|                 |               |                          |                       | 384    | 836.52      | 25.3                          | 23.9  |
|                 |               |                          |                       | 777    | 848.31      | 25.2                          | 23.9  |
|                 | 1xEVDO Rev. A | FETAP: 307.2k, QPSK/ ACK | RETAP: 4096           | 1013   | 824.70      | 25.2                          | 24.0  |
|                 |               |                          |                       | 384    | 836.52      | 25.3                          | 23.9  |
|                 |               |                          |                       | 777    | 848.31      | 25.2                          | 23.9  |

**CDMA BC1**

|            |       |              |         |
|------------|-------|--------------|---------|
| <b>ID:</b> | 12491 | <b>Date:</b> | 6/24/19 |
|------------|-------|--------------|---------|

| Band             | Mode          | Radio Configuration (RC)            | Service Option (SO)   | Ch No. | Freq. (MHz) | Conducted Average Power (dBm) |       |
|------------------|---------------|-------------------------------------|-----------------------|--------|-------------|-------------------------------|-------|
|                  |               |                                     |                       |        |             | Ant 1                         | Ant 2 |
| BC1<br>(1900MHz) | 1xRTT         | RC1                                 | 2 (Loopback)          | 25     | 1851.25     | 25.0                          | 21.7  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.0                          | 21.8  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.0                          | 21.9  |
|                  |               |                                     | 55 (Loopback)         | 25     | 1851.25     | 25.0                          | 21.8  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.0                          | 21.8  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.0                          | 21.8  |
|                  |               | RC2                                 | 9 (Loopback)          | 25     | 1851.25     | 24.9                          | 21.6  |
|                  |               |                                     |                       | 600    | 1880.00     | 24.9                          | 21.8  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.0                          | 21.8  |
|                  |               |                                     | 55 (Loopback)         | 25     | 1851.25     | 25.1                          | 21.6  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.1                          | 21.8  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.0                          | 21.8  |
|                  |               | RC3                                 | 2 (Loopback)          | 25     | 1851.25     | 25.0                          | 21.6  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.0                          | 21.8  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.0                          | 21.8  |
|                  |               |                                     | 55 (Loopback)         | 25     | 1851.25     | 25.0                          | 21.6  |
|                  |               |                                     |                       | 600    | 1880.00     | 24.9                          | 21.7  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.1                          | 21.8  |
|                  |               |                                     | 32 (+ F-SCH)          | 25     | 1851.25     | 25.0                          | 21.5  |
|                  |               |                                     |                       | 600    | 1880.00     | 24.9                          | 21.4  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.0                          | 21.3  |
|                  |               |                                     | 32 (+ SCH)            | 25     | 1851.25     | 25.4                          | 21.3  |
|                  |               |                                     |                       | 600    | 1880.00     | 24.7                          | 21.2  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.6                          | 21.1  |
|                  |               | RC4                                 | 2 (Loopback)          | 25     | 1851.25     | 25.0                          | 21.6  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.0                          | 21.8  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.0                          | 21.8  |
|                  |               |                                     | 55 (Loopback)         | 25     | 1851.25     | 25.0                          | 21.7  |
|                  |               |                                     |                       | 600    | 1880.00     | 24.9                          | 21.8  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.0                          | 21.8  |
|                  |               |                                     | 32 (+ F-SCH)          | 25     | 1851.25     | 25.0                          | 21.4  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.0                          | 21.4  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.0                          | 21.3  |
|                  |               |                                     | 32 (+ SCH)            | 25     | 1851.25     | 24.6                          | 21.3  |
|                  |               |                                     |                       | 600    | 1880.00     | 24.8                          | 21.1  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.3                          | 21.1  |
|                  |               | RC5                                 | 9 (Loopback)          | 25     | 1851.25     | 25.0                          | 21.7  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.1                          | 21.8  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.1                          | 21.7  |
|                  |               |                                     | 55 (Loopback)         | 25     | 1851.25     | 25.0                          | 21.7  |
|                  |               |                                     |                       | 600    | 1880.00     | 24.9                          | 21.8  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.0                          | 22.0  |
|                  | 1xAdvanced    | RC11                                | 2 (Loopback)          | 25     | 1851.25     | 25.6                          | 21.6  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.4                          | 21.4  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.6                          | 21.6  |
|                  |               |                                     | 75 (Loopback)         | 25     | 1851.25     | 25.5                          | 21.5  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.4                          | 21.4  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.6                          | 21.6  |
|                  |               |                                     | 32 (+ F-SCH)          | 25     | 1851.25     | 25.6                          | 21.6  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.3                          | 21.5  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.7                          | 21.6  |
|                  |               |                                     | 32 (+ SCH)            | 25     | 1851.25     | 25.6                          | 21.5  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.4                          | 21.3  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.7                          | 21.6  |
|                  | 1xEVDO Rel. 0 | FTAP Rate: 307.2 kbps(2 slot, QPSK) | RTAP Rate: 153.6 kbps | 25     | 1851.25     | 25.2                          | 20.7  |
|                  |               |                                     |                       | 600    | 1880        | 25.1                          | 21.2  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.1                          | 21.1  |
|                  | 1xEVDO Rev. A | FETAP: 307.2k, QPSK/ ACK            | RETAP: 4096           | 25     | 1851.25     | 25.0                          | 21.2  |
|                  |               |                                     |                       | 600    | 1880        | 25.1                          | 21.2  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.0                          | 21.1  |

### 7.3. WCDMA

#### TEST PROCEDURE

The transmitter output was connected to the input terminal of Directional Coupler via calibrated coaxial cable. The output coupling terminal of the Directional Coupler was directly connected to a spectrum analyzer while the output through terminal connected to the communication test set via calibrated coaxial cable.

The output power was measured with the spectrum analyzer at the low, middle and high channel in each band.

- Set the spectrum analyzer span wide enough or greater than the modulated signal BW.
- Set a spectrum analyzer at peak detection mode with VBW  $\geq$  RBW  $\geq$  26dB BW, typically 5MHz.
- Set a marker to point the corresponding peak value.

#### REL 99

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

| Mode                   | Subtest                 | Rel99        |
|------------------------|-------------------------|--------------|
| WCDMA General Settings | Loopback Mode           | Test Mode 2  |
|                        | Rel99 RMC               | 12.2kbps RMC |
|                        | Power Control Algorithm | Algorithm2   |
|                        | $\beta_c/\beta_d$       | 8/15         |

#### HSDPA REL 5

The following 4 Sub-tests were completed according to Release 5 procedures in table C.10.1.4 of 3GPP TS 34.121-1 A summary of these settings are illustrated below:

**Table C.10.1.4:  $\beta$  values for transmitter characteristics tests with HS-DPCCH**

| Sub-test | $\beta_c$         | $\beta_d$         | $\beta_d$<br>(SF) | $\beta_c/\beta_d$ | $\beta_{hs}$<br>(Note 1,<br>Note 2) | CM (dB)<br>(Note 3) | MPR (dB)<br>(Note 3) |
|----------|-------------------|-------------------|-------------------|-------------------|-------------------------------------|---------------------|----------------------|
| 1        | 2/15              | 15/15             | 64                | 2/15              | 4/15                                | 0.0                 | 0.0                  |
| 2        | 12/15<br>(Note 4) | 15/15<br>(Note 4) | 64                | 12/15<br>(Note 4) | 24/15                               | 1.0                 | 0.0                  |
| 3        | 15/15             | 8/15              | 64                | 15/8              | 30/15                               | 1.5                 | 0.5                  |
| 4        | 15/15             | 4/15              | 64                | 15/4              | 30/15                               | 1.5                 | 0.5                  |

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ .

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA,  $\Delta_{ACK}$  and  $\Delta_{NACK} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ , and  $\Delta_{CQI} = 24/15$  with  $\beta_{hs} = 24/15 * \beta_c$ .

Note 3: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{hs}/\beta_c = 24/15$ . For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the  $\beta_c/\beta_d$  ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 11/15$  and  $\beta_d = 15/15$ .

## HSUPA REL 6

The following 5 Sub-tests were completed according to Release 6 procedures in table C.11.1.3 of 3GPP TS 34.121-1. A summary of these settings are illustrated below:

**Table C.11.1.3:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH**

| Sub-test | $\beta_c$      | $\beta_d$      | $\beta_d$ (SF) | $\beta_c/\beta_d$ | $\beta_{HS}$ (Note 1) | $\beta_{ec}$ | $\beta_{ed}$ (Note 4) (Note 5)                 | $\beta_{ed}$ (SF) | $\beta_{ed}$ (Codes) | CM (dB) (Note 2) | MPR (dB) (Note 2) (Note 6) | AG Index (Note 5) | E-TFCI |
|----------|----------------|----------------|----------------|-------------------|-----------------------|--------------|------------------------------------------------|-------------------|----------------------|------------------|----------------------------|-------------------|--------|
| 1        | 11/15 (Note 3) | 15/15 (Note 3) | 64             | 11/15 (Note 3)    | 22/15                 | 209/25       | 1309/225                                       | 4                 | 1                    | 1.0              | 0.0                        | 20                | 75     |
| 2        | 6/15           | 15/15          | 64             | 6/15              | 12/15                 | 12/15        | 94/75                                          | 4                 | 1                    | 3.0              | 2.0                        | 12                | 67     |
| 3        | 15/15          | 9/15           | 64             | 15/9              | 30/15                 | 30/15        | $\beta_{ed1}$ : 47/15<br>$\beta_{ed2}$ : 47/15 | 4                 | 2                    | 2.0              | 1.0                        | 15                | 92     |
| 4        | 2/15           | 15/15          | 64             | 2/15              | 4/15                  | 2/15         | 56/75                                          | 4                 | 1                    | 3.0              | 2.0                        | 17                | 71     |
| 5        | 15/15          | 0              | -              | -                 | 5/15                  | 5/15         | 47/15                                          | 4                 | 1                    | 1.0              | 0.0                        | 12                | 67     |

Note 1: For sub-test 1 to 4,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ . For sub-test 5,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 5/15$  with  $\beta_{hs} = 5/15 * \beta_c$ .

Note 2: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{hs}/\beta_c = 24/15$ . For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the  $\beta_c/\beta_d$  ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 10/15$  and  $\beta_d = 15/15$ .

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

## DUAL CARRIER HSDPA (DC-HSDPA (REL 8, CAT 24))

The following 4 Sub-tests for DC-HSDPA were completed according to Release 8 procedures in table C08.1.12 of 3GPP TS 34.121-1. A summary of subtest settings are illustrated below:

**Table C.8.1.12: Fixed Reference Channel H-Set 12**

| Parameter                                                                                                                                              | Unit      | Value |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------|
| Nominal Avg. Inf. Bit Rate                                                                                                                             | kbps      | 60    |
| Inter-TTI Distance                                                                                                                                     | TTI's     | 1     |
| Number of HARQ Processes                                                                                                                               | Processes | 6     |
| Information Bit Payload ( $N_{INF}$ )                                                                                                                  | Bits      | 120   |
| Number Code Blocks                                                                                                                                     | Blocks    | 1     |
| Binary Channel Bits Per TTI                                                                                                                            | Bits      | 960   |
| Total Available SML's in UE                                                                                                                            | SML's     | 19200 |
| Number of SML's per HARQ Proc.                                                                                                                         | SML's     | 3200  |
| Coding Rate                                                                                                                                            |           | 0.15  |
| Number of Physical Channel Codes                                                                                                                       | Codes     | 1     |
| Modulation                                                                                                                                             |           | QPSK  |
| Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.               |           |       |
| Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used. |           |       |

**WCDMA BAND 5**

|            |       |              |           |
|------------|-------|--------------|-----------|
| <b>ID:</b> | 19467 | <b>Date:</b> | 6/20/2019 |
|------------|-------|--------------|-----------|

| Band                   | Mode     |                | UL Ch No. | Freq. (MHz) | MPR (dB) | Conducted Average |       |
|------------------------|----------|----------------|-----------|-------------|----------|-------------------|-------|
|                        |          |                |           |             |          | Ant 1             | Ant 2 |
| W-CDMA Band 5 (850MHz) | Rel 99   | RMC, 12.2 kbps | 4132      | 826.4       | N/A      | 25.7              | 24.5  |
|                        |          |                | 4183      | 836.6       | N/A      | 25.6              | 24.4  |
|                        |          |                | 4233      | 846.6       | N/A      | 25.7              | 24.4  |
|                        | HSDPA    | Subtest 1      | 4132      | 826.4       | 0        | 25.7              | 24.5  |
|                        |          |                | 4183      | 836.6       | 0        | 25.6              | 24.4  |
|                        |          |                | 4233      | 846.6       | 0        | 25.7              | 24.4  |
|                        |          | Subtest 2      | 4132      | 826.4       | 0        | 25.4              | 24.2  |
|                        |          |                | 4183      | 836.6       | 0        | 25.3              | 24.1  |
|                        |          |                | 4233      | 846.6       | 0        | 25.3              | 24.1  |
|                        |          | Subtest 3      | 4132      | 826.4       | 0.5      | 25.1              | 23.9  |
|                        |          |                | 4183      | 836.6       | 0.5      | 25.0              | 23.8  |
|                        |          |                | 4233      | 846.6       | 0.5      | 25.1              | 23.7  |
|                        |          | Subtest 4      | 4132      | 826.4       | 0.5      | 24.9              | 23.7  |
|                        |          |                | 4183      | 836.6       | 0.5      | 24.8              | 23.6  |
|                        |          |                | 4233      | 846.6       | 0.5      | 24.8              | 23.5  |
|                        | HSUPA    | Subtest 1      | 4132      | 826.4       | 0        | 24.9              | 23.9  |
|                        |          |                | 4183      | 836.6       | 0        | 24.9              | 23.8  |
|                        |          |                | 4233      | 846.6       | 0        | 24.8              | 23.7  |
|                        |          | Subtest 2      | 4132      | 826.4       | 2        | 23.1              | 22.2  |
|                        |          |                | 4183      | 836.6       | 2        | 22.9              | 22.0  |
|                        |          |                | 4233      | 846.6       | 2        | 22.9              | 22.1  |
|                        |          | Subtest 3      | 4132      | 826.4       | 1        | 24.3              | 23.0  |
|                        |          |                | 4183      | 836.6       | 1        | 24.3              | 22.9  |
|                        |          |                | 4233      | 846.6       | 1        | 24.2              | 22.9  |
|                        |          | Subtest 4      | 4132      | 826.4       | 2        | 23.5              | 22.4  |
|                        |          |                | 4183      | 836.6       | 2        | 23.5              | 22.3  |
|                        |          |                | 4233      | 846.6       | 2        | 23.4              | 22.3  |
|                        |          | Subtest 5      | 4132      | 826.4       | 0        | 25.2              | 24.0  |
|                        |          |                | 4183      | 836.6       | 0        | 25.1              | 23.9  |
|                        |          |                | 4233      | 846.6       | 0        | 24.9              | 23.9  |
|                        | DC-HSDPA | Subtest 1      | 4132      | 826.4       | 0        | 25.6              | 24.5  |
|                        |          |                | 4183      | 836.6       | 0        | 25.6              | 24.5  |
|                        |          |                | 4233      | 846.6       | 0        | 25.7              | 24.4  |
|                        |          | Subtest 2      | 4132      | 826.4       | 0        | 25.6              | 24.4  |
|                        |          |                | 4183      | 836.6       | 0        | 25.6              | 24.4  |
|                        |          |                | 4233      | 846.6       | 0        | 25.6              | 24.3  |
|                        |          | Subtest 3      | 4132      | 826.4       | 0.5      | 25.4              | 24.2  |
|                        |          |                | 4183      | 836.6       | 0.5      | 25.3              | 24.1  |
|                        |          |                | 4233      | 846.6       | 0.5      | 25.3              | 24.1  |
|                        |          | Subtest 4      | 4132      | 826.4       | 0.5      | 25.4              | 24.2  |
|                        |          |                | 4183      | 836.6       | 0.5      | 25.4              | 24.1  |
|                        |          |                | 4233      | 846.6       | 0.5      | 25.3              | 24.1  |

**WCDMA BAND 2**

|            |       |              |           |
|------------|-------|--------------|-----------|
| <b>ID:</b> | 19467 | <b>Date:</b> | 6/20/2019 |
|------------|-------|--------------|-----------|

| Band                    | Mode     |                | UL Ch No. | Freq. (MHz) | MPR (dB) | Conducted Average Power (dBm) |       |       |       |
|-------------------------|----------|----------------|-----------|-------------|----------|-------------------------------|-------|-------|-------|
|                         |          |                |           |             |          | Ant 1                         | Ant 2 | Ant 3 | Ant 4 |
| W-CDMA Band 2 (1900MHz) | Rel 99   | RMC, 12.2 kbps | 9262      | 1852.4      | N/A      | 25.5                          | 21.9  | 25.0  | 18.9  |
|                         |          |                | 9400      | 1880.0      | N/A      | 25.5                          | 21.8  | 24.9  | 18.8  |
|                         |          |                | 9538      | 1907.6      | N/A      | 25.6                          | 21.9  | 25.0  | 18.9  |
|                         | HSDPA    | Subtest 1      | 9262      | 1852.4      | 0        | 25.6                          | 21.9  | 25.0  | 18.8  |
|                         |          |                | 9400      | 1880.0      | 0        | 25.6                          | 21.8  | 24.9  | 18.8  |
|                         |          |                | 9538      | 1907.6      | 0        | 25.7                          | 21.9  | 25.0  | 19.0  |
|                         |          | Subtest 2      | 9262      | 1852.4      | 0        | 25.2                          | 21.7  | 24.7  | 18.6  |
|                         |          |                | 9400      | 1880.0      | 0        | 25.2                          | 21.6  | 24.6  | 18.5  |
|                         |          |                | 9538      | 1907.6      | 0        | 25.3                          | 21.6  | 24.7  | 18.6  |
|                         |          | Subtest 3      | 9262      | 1852.4      | 0.5      | 25.0                          | 21.4  | 24.4  | 18.3  |
|                         |          |                | 9400      | 1880.0      | 0.5      | 25.1                          | 21.4  | 24.3  | 18.2  |
|                         |          |                | 9538      | 1907.6      | 0.5      | 25.1                          | 21.3  | 24.4  | 18.4  |
|                         |          | Subtest 4      | 9262      | 1852.4      | 0.5      | 24.8                          | 21.2  | 24.2  | 18.1  |
|                         |          |                | 9400      | 1880.0      | 0.5      | 24.8                          | 21.1  | 24.0  | 18.0  |
|                         |          |                | 9538      | 1907.6      | 0.5      | 24.9                          | 21.1  | 24.2  | 18.1  |
|                         | HSUPA    | Subtest 1      | 9262      | 1852.4      | 0        | 24.8                          | 21.5  | 24.2  | 17.9  |
|                         |          |                | 9400      | 1880.0      | 0        | 24.8                          | 21.5  | 24.1  | 17.8  |
|                         |          |                | 9538      | 1907.6      | 0        | 24.9                          | 21.4  | 24.3  | 18.0  |
|                         |          | Subtest 2      | 9262      | 1852.4      | 2        | 23.2                          | 19.6  | 22.6  | 16.7  |
|                         |          |                | 9400      | 1880.0      | 2        | 23.1                          | 19.6  | 22.5  | 16.5  |
|                         |          |                | 9538      | 1907.6      | 2        | 23.1                          | 19.6  | 22.6  | 16.7  |
|                         |          | Subtest 3      | 9262      | 1852.4      | 1        | 24.1                          | 20.6  | 23.5  | 17.7  |
|                         |          |                | 9400      | 1880.0      | 1        | 24.1                          | 20.6  | 23.4  | 17.5  |
|                         |          |                | 9538      | 1907.6      | 1        | 24.1                          | 20.6  | 23.5  | 17.6  |
|                         |          | Subtest 4      | 9262      | 1852.4      | 2        | 23.4                          | 19.9  | 22.5  | 16.9  |
|                         |          |                | 9400      | 1880.0      | 2        | 23.4                          | 19.9  | 22.4  | 16.8  |
|                         |          |                | 9538      | 1907.6      | 2        | 23.4                          | 19.8  | 22.5  | 16.9  |
|                         |          | Subtest 5      | 9262      | 1852.4      | 0        | 25.0                          | 21.4  | 24.4  | 18.4  |
|                         |          |                | 9400      | 1880.0      | 0        | 24.9                          | 21.3  | 24.3  | 18.2  |
|                         |          |                | 9538      | 1907.6      | 0        | 24.9                          | 21.3  | 24.4  | 18.3  |
|                         | DC-HSDPA | Subtest 1      | 9262      | 1852.4      | 0        | 25.6                          | 22.0  | 25.0  | 19.0  |
|                         |          |                | 9400      | 1880.0      | 0        | 25.6                          | 21.8  | 24.9  | 18.8  |
|                         |          |                | 9538      | 1907.6      | 0        | 25.7                          | 21.9  | 25.0  | 19.0  |
|                         |          | Subtest 2      | 9262      | 1852.4      | 0        | 25.5                          | 21.9  | 25.0  | 18.8  |
|                         |          |                | 9400      | 1880.0      | 0        | 25.6                          | 21.8  | 24.8  | 18.7  |
|                         |          |                | 9538      | 1907.6      | 0        | 25.6                          | 21.9  | 25.0  | 18.9  |
|                         |          | Subtest 3      | 9262      | 1852.4      | 0.5      | 25.3                          | 21.7  | 24.7  | 18.6  |
|                         |          |                | 9400      | 1880.0      | 0.5      | 25.4                          | 21.6  | 24.6  | 18.5  |
|                         |          |                | 9538      | 1907.6      | 0.5      | 25.4                          | 21.6  | 24.8  | 18.6  |
|                         |          | Subtest 4      | 9262      | 1852.4      | 0.5      | 25.3                          | 21.6  | 24.6  | 18.6  |
|                         |          |                | 9400      | 1880.0      | 0.5      | 25.3                          | 21.6  | 24.6  | 18.5  |
|                         |          |                | 9538      | 1907.6      | 0.5      | 25.3                          | 21.6  | 24.7  | 18.6  |

**WCDMA BAND 4**

|            |       |              |           |
|------------|-------|--------------|-----------|
| <b>ID:</b> | 19467 | <b>Date:</b> | 6/20/2019 |
|------------|-------|--------------|-----------|

| Band                    | Mode     |                | UL Ch No. | Freq. (MHz) | MPR (dB) | Conducted Average Power (dBm) |       |       |       |
|-------------------------|----------|----------------|-----------|-------------|----------|-------------------------------|-------|-------|-------|
|                         |          |                |           |             |          | Ant 1                         | Ant 2 | Ant 3 | Ant 4 |
| W-CDMA Band 4 (1700MHz) | Rel 99   | RMC, 12.2 kbps | 1312      | 1712.4      | N/A      | 25.5                          | 21.7  | 25.0  | 21.5  |
|                         |          |                | 1413      | 1732.6      | N/A      | 25.7                          | 22.0  | 24.7  | 21.5  |
|                         |          |                | 1513      | 1752.6      | N/A      | 25.7                          | 22.0  | 24.9  | 21.4  |
|                         | HSDPA    | Subtest 1      | 1312      | 1712.4      | 0        | 25.6                          | 21.6  | 25.0  | 21.5  |
|                         |          |                | 1413      | 1732.6      | 0        | 25.7                          | 22.0  | 24.8  | 21.5  |
|                         |          |                | 1513      | 1752.6      | 0        | 25.7                          | 21.9  | 24.9  | 21.3  |
|                         |          | Subtest 2      | 1312      | 1712.4      | 0        | 25.3                          | 21.3  | 24.7  | 21.2  |
|                         |          |                | 1413      | 1732.6      | 0        | 25.4                          | 21.6  | 24.5  | 21.2  |
|                         |          |                | 1513      | 1752.6      | 0        | 25.5                          | 21.6  | 24.6  | 21.0  |
|                         |          | Subtest 3      | 1312      | 1712.4      | 0.5      | 25.0                          | 21.0  | 24.4  | 20.9  |
|                         |          |                | 1413      | 1732.6      | 0.5      | 25.3                          | 21.4  | 24.2  | 20.9  |
|                         |          |                | 1513      | 1752.6      | 0.5      | 25.3                          | 21.3  | 24.4  | 20.8  |
|                         |          | Subtest 4      | 1312      | 1712.4      | 0.5      | 24.8                          | 20.8  | 24.2  | 20.7  |
|                         |          |                | 1413      | 1732.6      | 0.5      | 24.9                          | 21.1  | 23.9  | 20.7  |
|                         |          |                | 1513      | 1752.6      | 0.5      | 25.0                          | 21.2  | 24.2  | 20.6  |
|                         | HSUPA    | Subtest 1      | 1312      | 1712.4      | 0        | 24.8                          | 21.1  | 24.9  | 21.4  |
|                         |          |                | 1413      | 1732.6      | 0        | 24.9                          | 21.5  | 24.2  | 21.4  |
|                         |          |                | 1513      | 1752.6      | 0        | 24.9                          | 21.5  | 24.4  | 21.2  |
|                         |          | Subtest 2      | 1312      | 1712.4      | 2        | 23.1                          | 19.4  | 22.7  | 19.9  |
|                         |          |                | 1413      | 1732.6      | 2        | 23.3                          | 19.6  | 22.5  | 19.9  |
|                         |          |                | 1513      | 1752.6      | 2        | 23.3                          | 19.6  | 22.7  | 19.7  |
|                         |          | Subtest 3      | 1312      | 1712.4      | 1        | 24.1                          | 20.3  | 23.6  | 20.5  |
|                         |          |                | 1413      | 1732.6      | 1        | 24.2                          | 20.6  | 23.9  | 20.5  |
|                         |          |                | 1513      | 1752.6      | 1        | 24.2                          | 20.6  | 23.8  | 20.3  |
|                         |          | Subtest 4      | 1312      | 1712.4      | 2        | 23.4                          | 19.7  | 22.7  | 20.4  |
|                         |          |                | 1413      | 1732.6      | 2        | 23.6                          | 19.9  | 22.5  | 20.5  |
|                         |          |                | 1513      | 1752.6      | 2        | 23.5                          | 19.9  | 22.6  | 20.1  |
|                         |          | Subtest 5      | 1312      | 1712.4      | 0        | 24.9                          | 21.1  | 24.5  | 21.3  |
|                         |          |                | 1413      | 1732.6      | 0        | 25.1                          | 21.4  | 24.5  | 21.3  |
|                         |          |                | 1513      | 1752.6      | 0        | 25.1                          | 21.3  | 24.5  | 21.1  |
|                         | DC-HSDPA | Subtest 1      | 1312      | 1712.4      | 0        | 25.5                          | 21.6  | 25.0  | 21.5  |
|                         |          |                | 1413      | 1732.6      | 0        | 25.7                          | 21.9  | 24.7  | 21.5  |
|                         |          |                | 1513      | 1752.6      | 0        | 25.7                          | 21.8  | 24.9  | 21.5  |
|                         |          | Subtest 2      | 1312      | 1712.4      | 0        | 25.5                          | 21.6  | 24.9  | 21.4  |
|                         |          |                | 1413      | 1732.6      | 0        | 25.7                          | 21.9  | 24.7  | 21.5  |
|                         |          |                | 1513      | 1752.6      | 0        | 25.7                          | 21.8  | 24.8  | 21.3  |
|                         |          | Subtest 3      | 1312      | 1712.4      | 0.5      | 25.3                          | 21.3  | 24.7  | 21.2  |
|                         |          |                | 1413      | 1732.6      | 0.5      | 25.5                          | 21.7  | 24.4  | 21.2  |
|                         |          |                | 1513      | 1752.6      | 0.5      | 25.5                          | 21.6  | 24.6  | 21.1  |
|                         |          | Subtest 4      | 1312      | 1712.4      | 0.5      | 25.3                          | 21.3  | 24.7  | 21.1  |
|                         |          |                | 1413      | 1732.6      | 0.5      | 25.5                          | 21.7  | 24.4  | 21.2  |
|                         |          |                | 1513      | 1752.6      | 0.5      | 25.5                          | 21.6  | 24.7  | 21.2  |

## 8. CONDUCTED TEST RESULTS

### 8.1. OCCUPIED BANDWIDTH

#### RULE PART(S)

FCC: §2.1049

IC: RSS132; RSS133§2.3; RSS139

#### LIMITS

For reporting purposes only.

#### TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the middle channel in each band. The 99% and -26dB bandwidths was also measured and recorded.

#### RESULTS

There is no limit required and power is the same for low, middle and high channel; therefore, only middle channel was tested.

### GSM

| Band    | Modulation | Channel | f(MHz) | 99% BW (KHz) | -26dB BW (KHz) |
|---------|------------|---------|--------|--------------|----------------|
| 850MHz  | GPRS       | 190     | 836.6  | 248.14       | 320.5          |
|         | EGPRS      |         |        | 251.20       | 320.4          |
| 1900MHz | GPRS       | 661     | 1880.0 | 238.51       | 320.2          |
|         | EGPRS      |         |        | 251.50       | 320.4          |

### CDMA

| Band | Modulation    | Channel | f(MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|------|---------------|---------|--------|--------------|----------------|
| BC10 | 1xRTT         | 560     | 820.0  | 1.2709       | 1.417          |
|      | 1xEV-DO Rev A |         |        | 1.2656       | 1.416          |
| BC0  | 1xRTT         | 384     | 836.5  | 1.2725       | 1.422          |
|      | 1xEV-DO Rev A |         |        | 1.2659       | 1.420          |
| BC1  | 1xRTT         | 600     | 1880.0 | 1.2795       | 1.428          |
|      | 1xEV-DO Rev A |         |        | 1.2725       | 1.421          |

### WCDMA

| Band   | Modulation | Channel | f(MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|--------|------------|---------|--------|--------------|----------------|
| BAND 5 | REL 99     | 4408    | 836.6  | 4.0714       | 4.623          |
|        | HSDPA      |         |        | 4.0677       | 4.611          |
| BAND 2 | REL 99     | 9800    | 1880.0 | 4.0754       | 4.633          |
|        | HSDPA      |         |        | 4.0771       | 4.637          |
| BAND 4 | REL 99     | 1638    | 1732.6 | 4.0782       | 4.641          |
|        | HSDPA      |         |        | 4.0879       | 4.644          |

## 8.1.1. GSM



GSM 850MHz GPRS Middle Channel



GSM 850MHz EGPRS Middle Channel



GSM 1900MHz GPRS Middle Channel

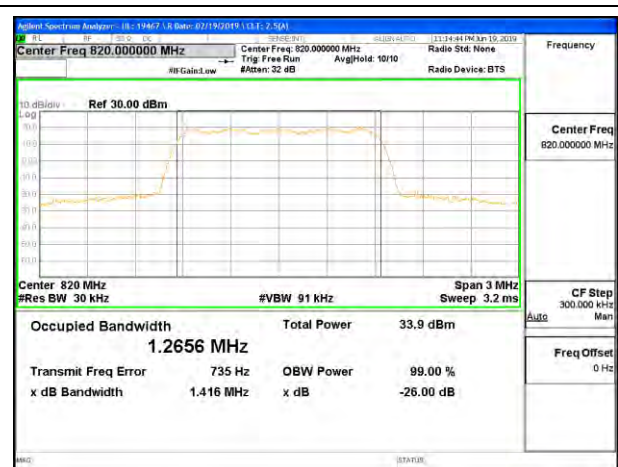


GSM 1900MHz EGPRS Middle Channel

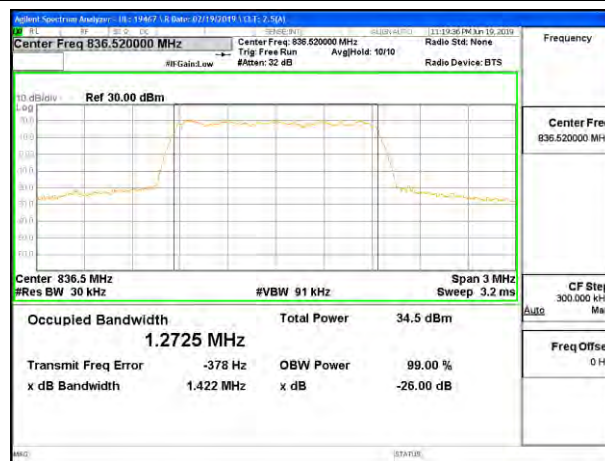
## 8.1.2. CDMA



CDMA BC10 1xRTT Middle Channel



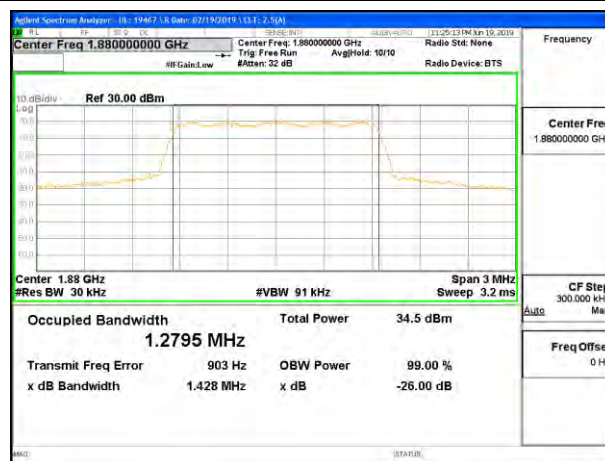
CDMA BC10 1xEV-DO Rev A Middle Channel



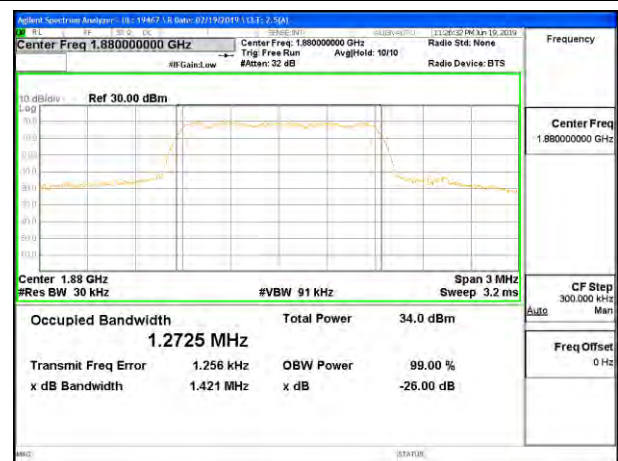
CDMA BC0 1xRTT Middle Channel



CDMA BC0 1xEV-DO Rev A Middle Channel



CDMA BC1 1xRTT Middle Channel



CDMA BC1 1xEV-DO Rev A Middle Channel

### 8.1.3. WCDMA



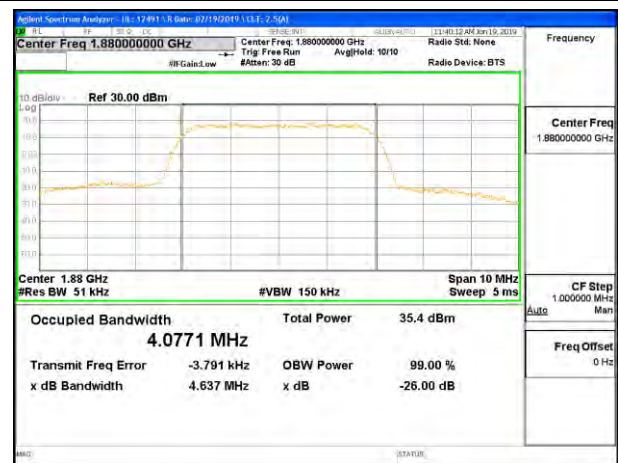
WCDMA Band 5 Rel 99 Middle Channel



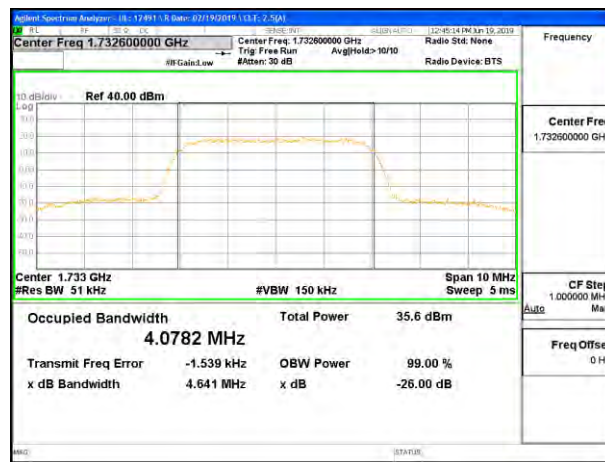
WCDMA Band 5 HSDPA Middle Channel



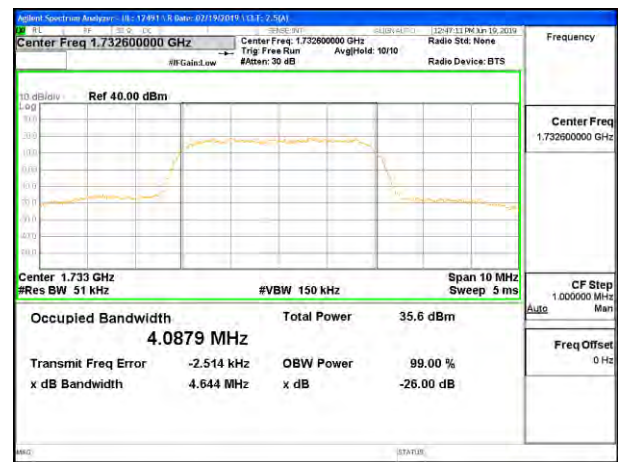
WCDMA Band 2 Rel 99 Middle Channel



WCDMA Band 2 HSDPA Middle Channel



WCDMA Band 4 Rel 99 Middle Channel



WCDMA Band 4 HSDPA Middle Channel

## 8.2. BAND EDGE AND EMISSION MASK

### RULE PART(S)

FCC: §2.1051, §22.917, §24.238, §27.53 and §90.691  
IC: RSS132§5.5; RSS133§6.5 and RSS139§6.6

### LIMITS

FCC: §22.917, §24.238, §27.53 (h)

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.

FCC: §90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \log_{10}(f/6.1)$  decibels or  $50 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

### RSS132§5.5

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

- (i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} p$  (watts).
- (ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} p$  (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

### RSS133§6.5

Equipment shall comply with the limits in (i) and (ii) below.

- (i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} p$  (watts).
- (ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} p$  (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

### RSS139§6.6

- (i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, Footnote 2 which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least  $43 + 10 \log_{10} p$  (watts) dB.
- (ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least  $43 + 10 \log_{10} p$  (watts) dB.

### **TEST PROCEDURE**

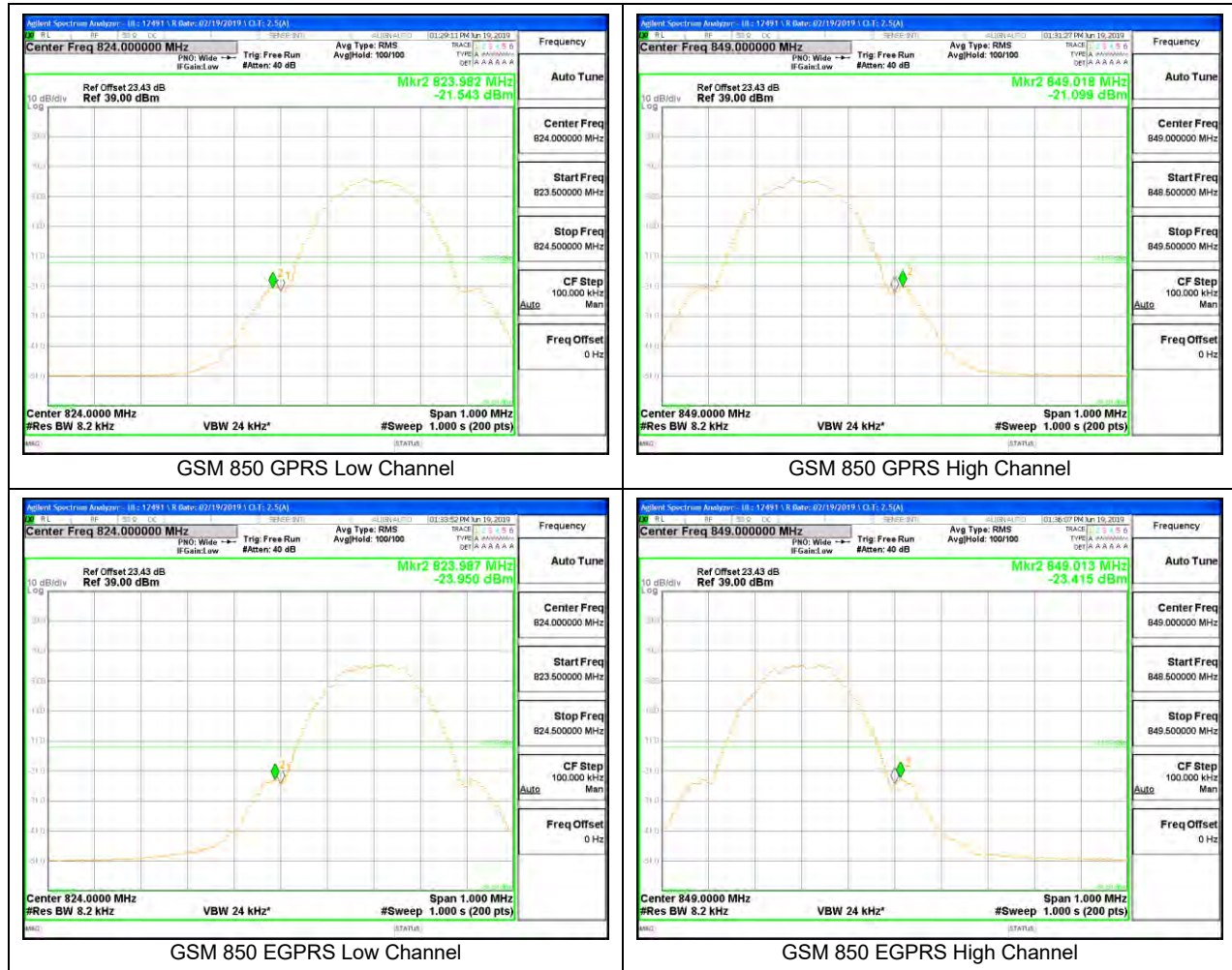
The transmitter output was connected to a R&S CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

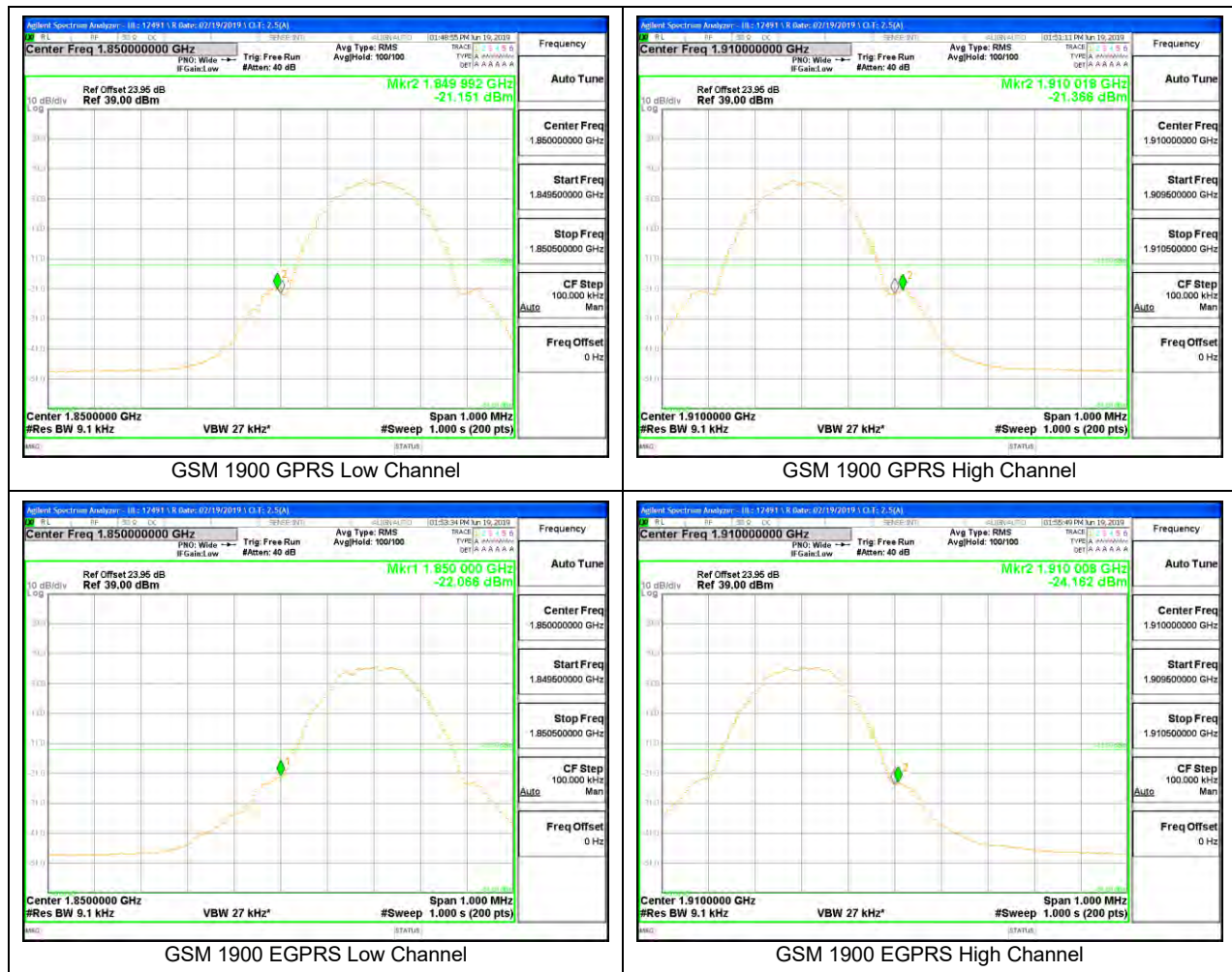
For each band edge measurement:

- Set the spectrum analyzer span to include the block edge frequency.
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

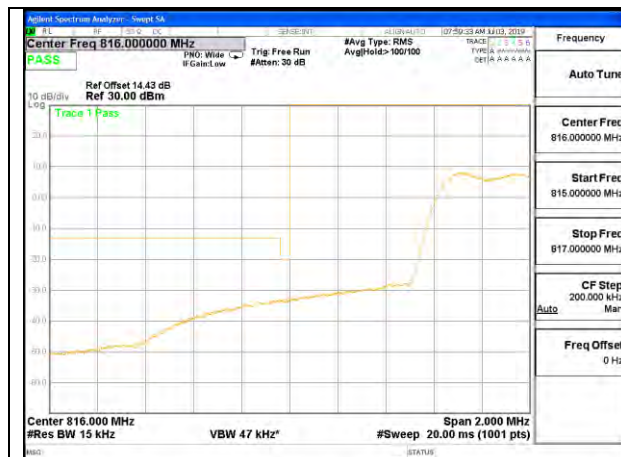
### **RESULTS**

## 8.2.1. GSM





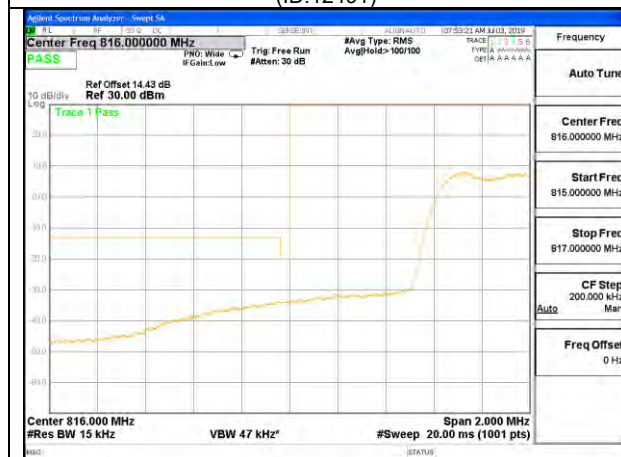
## 8.2.2. CDMA



CDMA BC10 1xRTT Low Channel, RBW=1% of EBW  
(ID:12491)



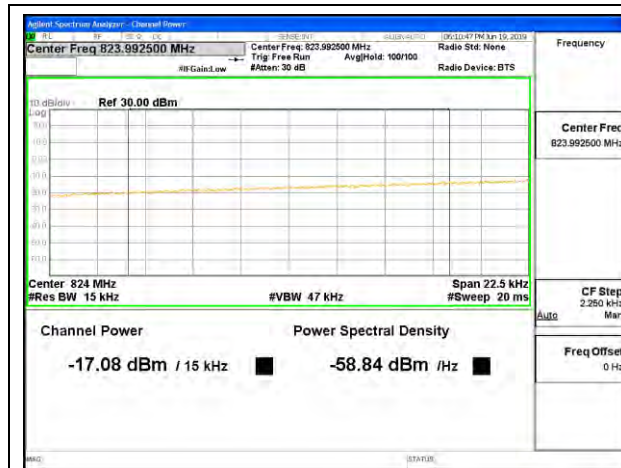
CDMA BC10 1xRTT High Channel, RBW=1% of EBW  
(ID:12491)



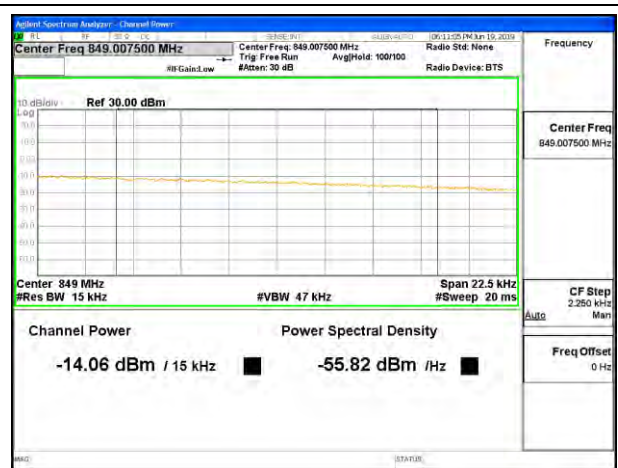
CDMA BC10 1xEV-DO Rev A Low Channel, RBW=1% of EBW  
(ID:12491)



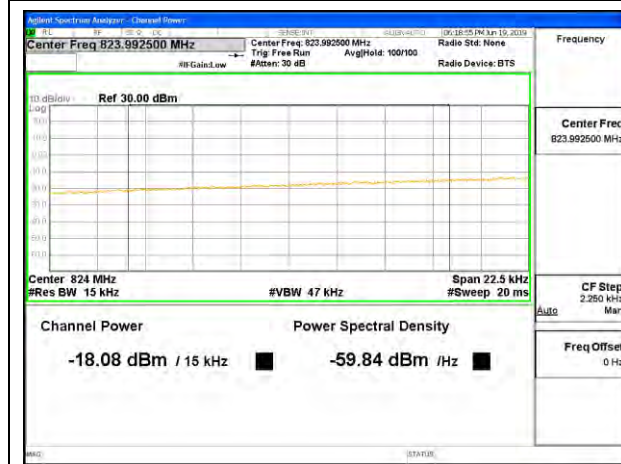
CDMA BC10 1xEV-DO Rev A High Channel, RBW=1% of EBW  
(ID:12491)



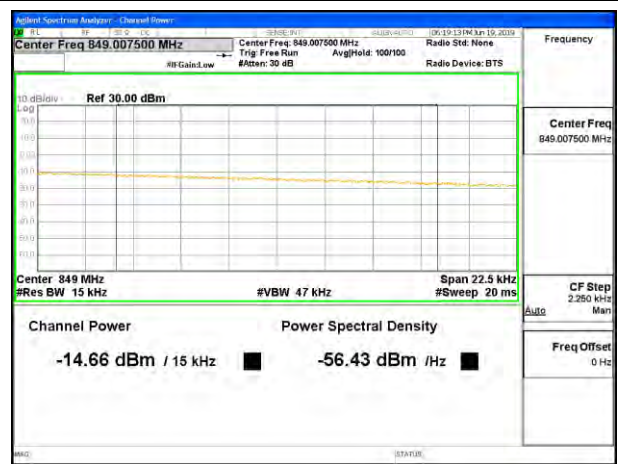
CDMA BC0 1xRTT Low Channel (ID:19467)



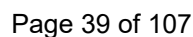
CDMA BC0 1xRTT High Channel (ID:19467)



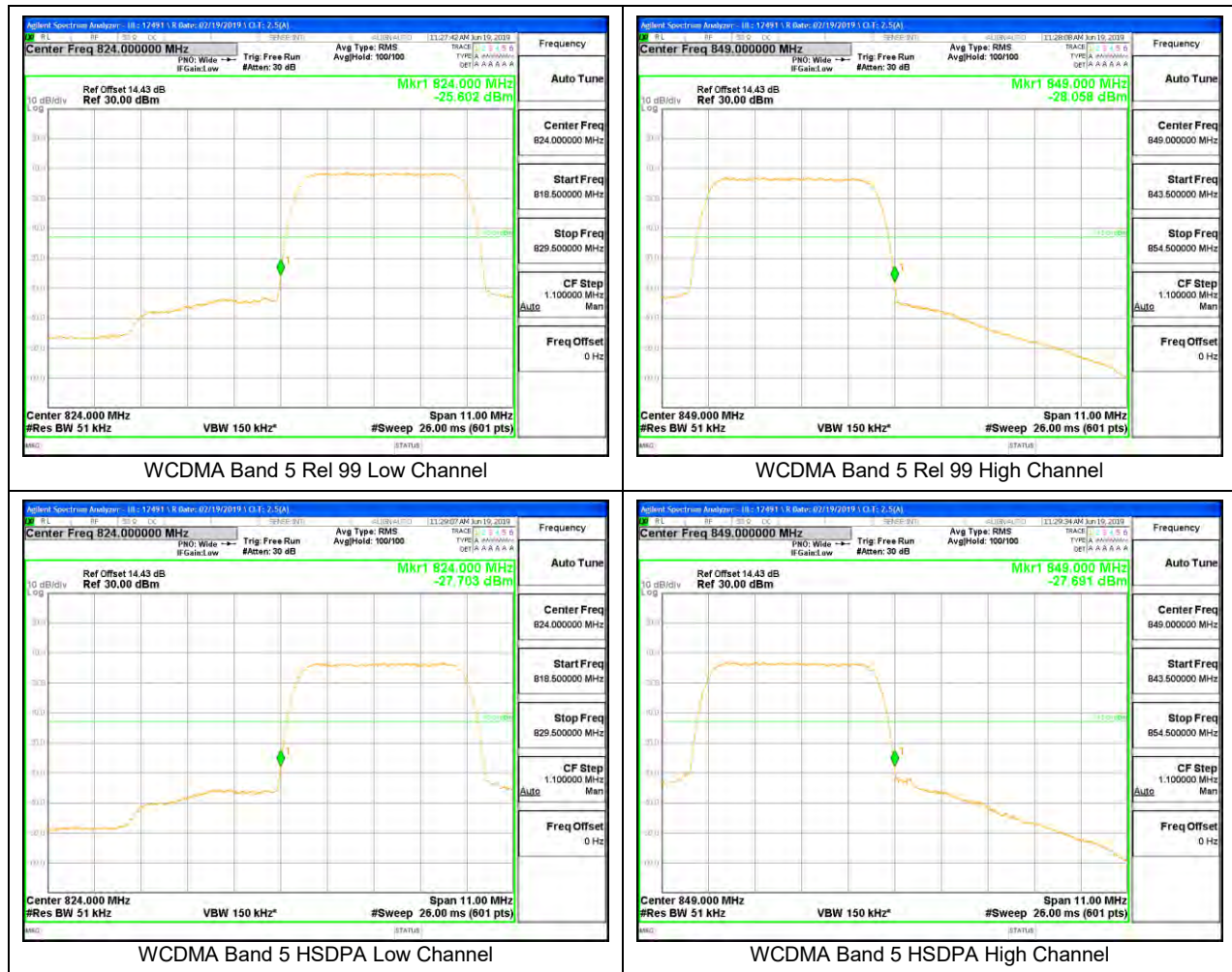
CDMA BC0 1xEV-DO Rev A Low Channel (ID:19467)

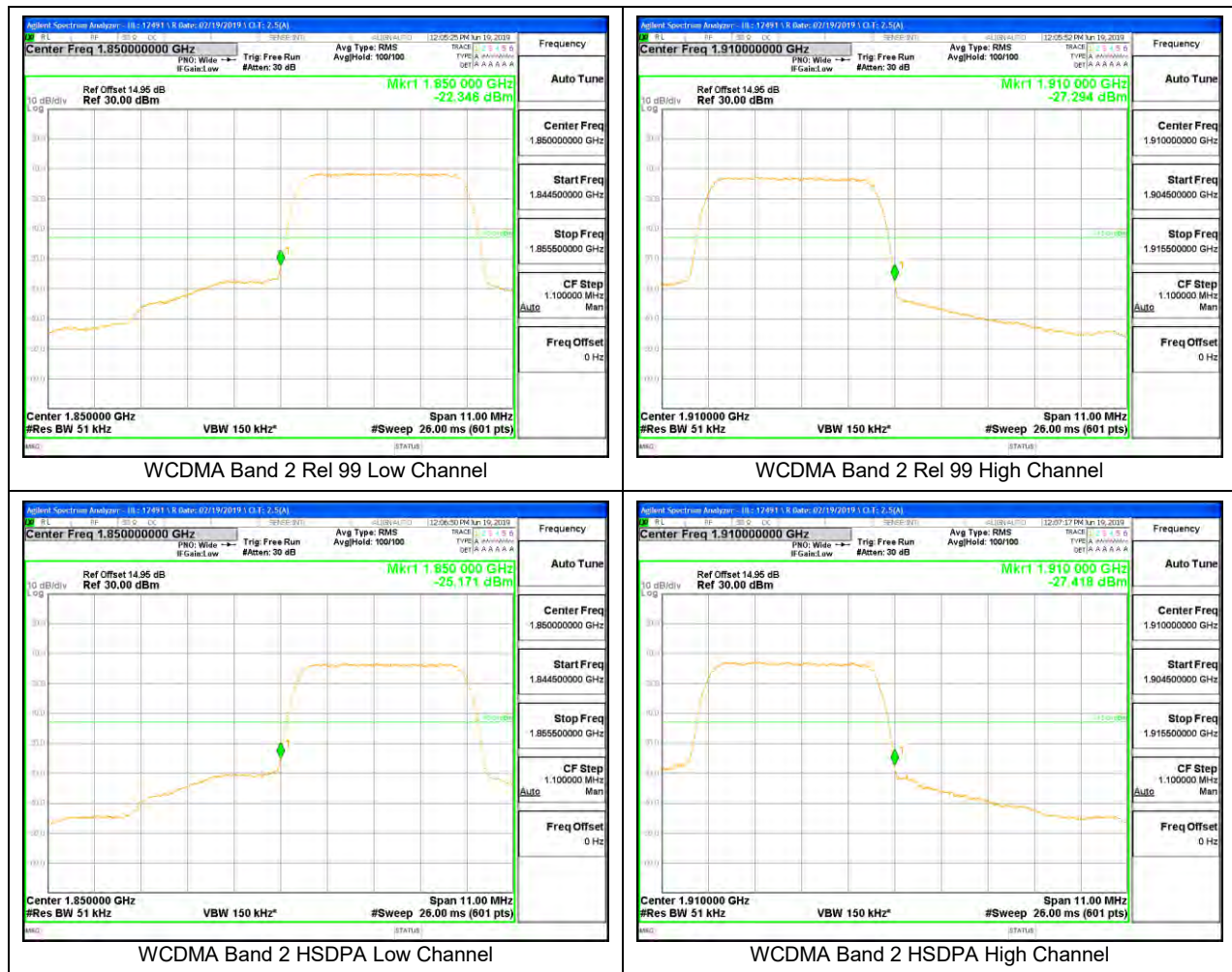


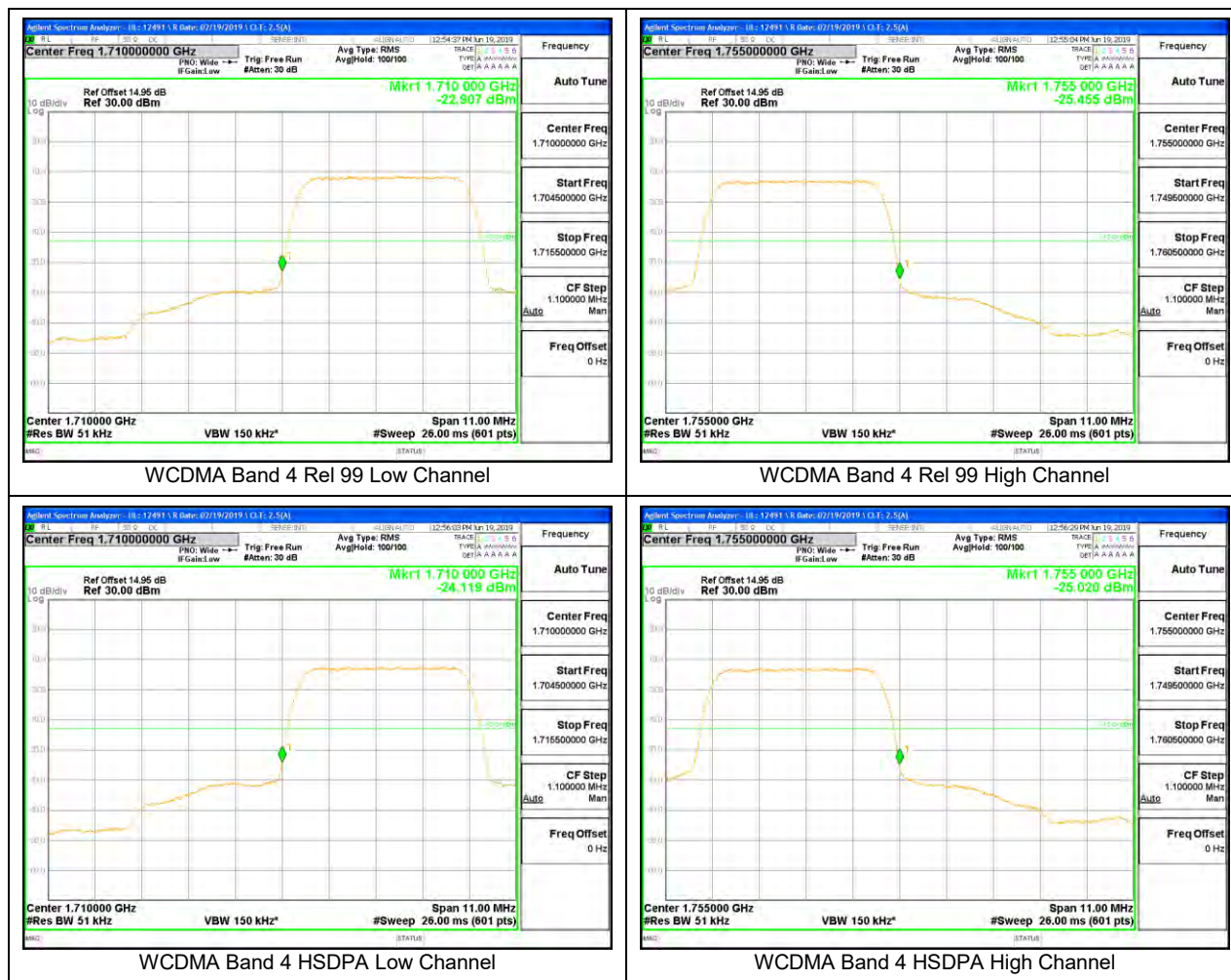
CDMA BC0 1xEV-DO Rev A High Channel (ID:19467)



### 8.2.3. WCDMA







### 8.3. OUT OF BAND EMISSIONS

#### RULE PART(S)

FCC: §2.1051, §22.917, §24.238, §27.53 and §90.691  
IC: RSS132§5.5; RSS133§6.5 and RSS139§6.6

#### LIMITS

FCC: §22.917, §24.238, §27.53 (h), §90.691

The minimum permissible attenuation level of any spurious emissions is  $43 + 10 \log (P)$  dB where transmitting power (P) in Watts.

RSS132§5.5, RSS133§6.5, RSS139§6.6

The minimum permissible attenuation level of any spurious emissions is  $43 + 10 \log (P)$  dB where transmitting power (P) in Watts.

#### TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

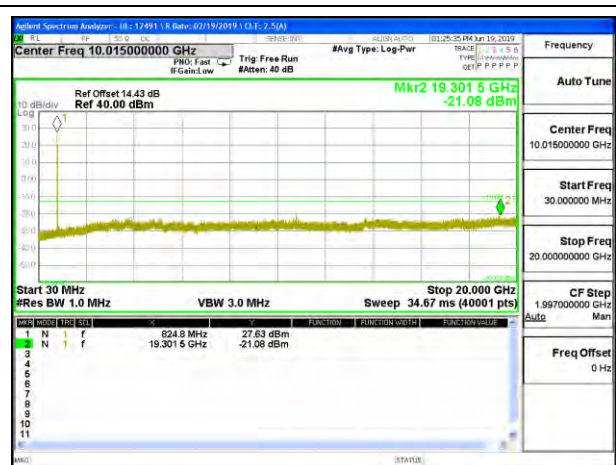
- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.  
(NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

#### RESULTS

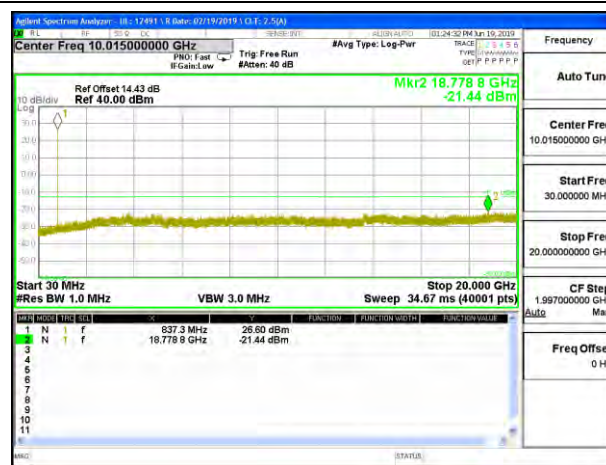
### 8.3.1. GSM



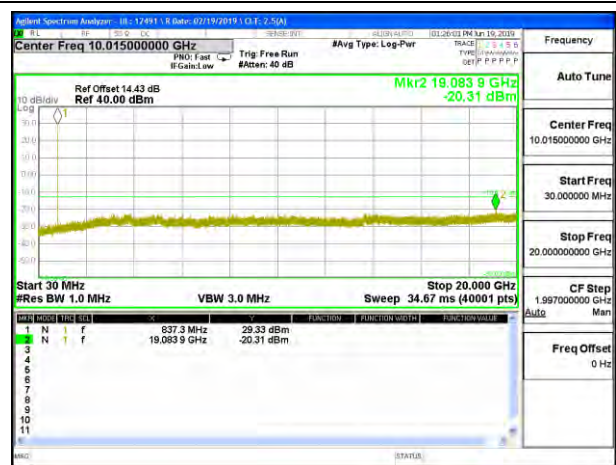
GSM 850MHz GPRS Low Channel



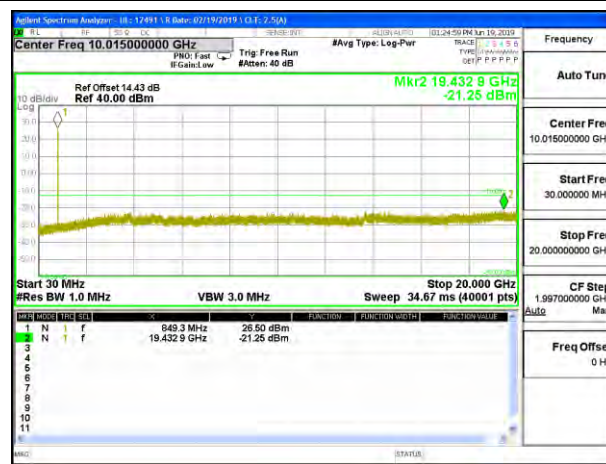
GSM 850MHz EGPRS Low Channel



GSM 850MHz GPRS Middle Channel



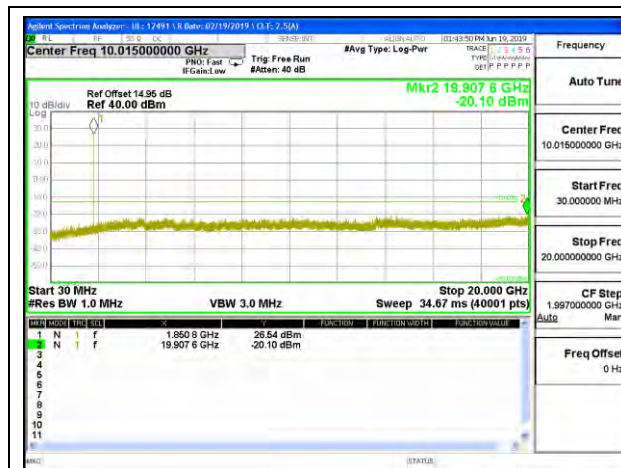
GSM 850MHz EGPRS Middle Channel



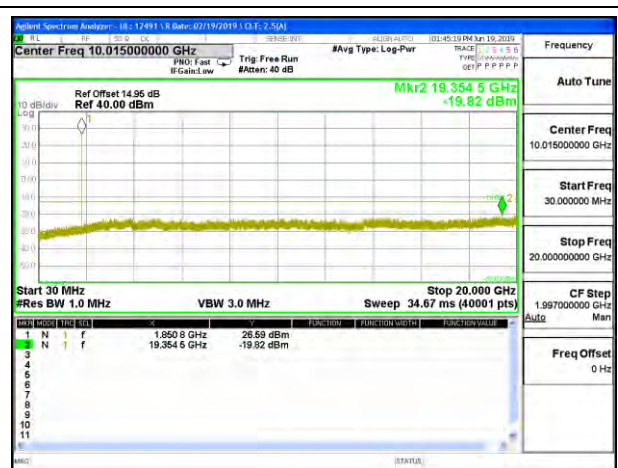
GSM 850MHz GPRS High Channel



GSM 850MHz EGPRS High Channel



GSM 1900MHz GPRS Low Channel



GSM 1900MHz EGPRS Low Channel



GSM 1900MHz GPRS Middle Channel



GSM 1900MHz EGPRS Middle Channel

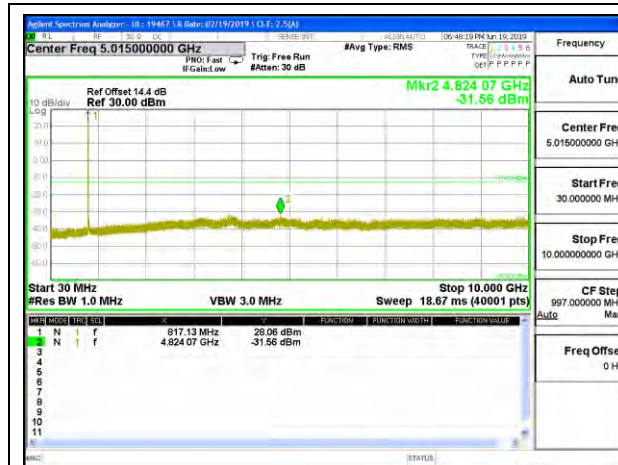


GSM 1900MHz GPRS High Channel

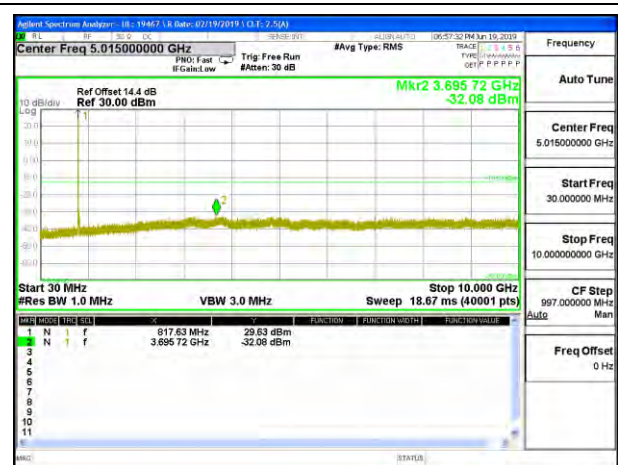


GSM 1900MHz EGPRS High Channel

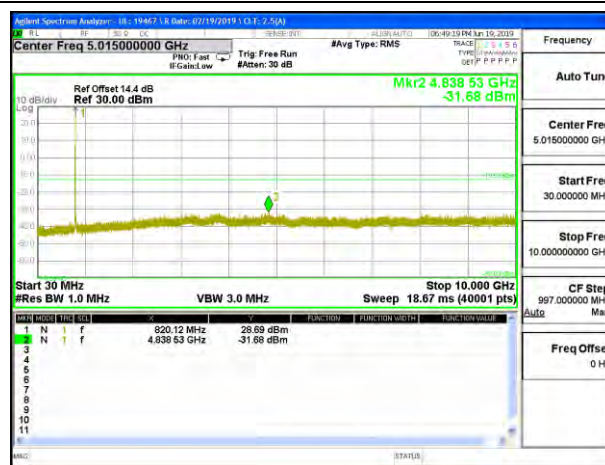
### 8.3.2. CDMA



CDMA BC10 1xRTT Low Channel



CDMA BC10 1xEV-DO Rev A Low Channel



CDMA BC10 1xRTT Middle Channel



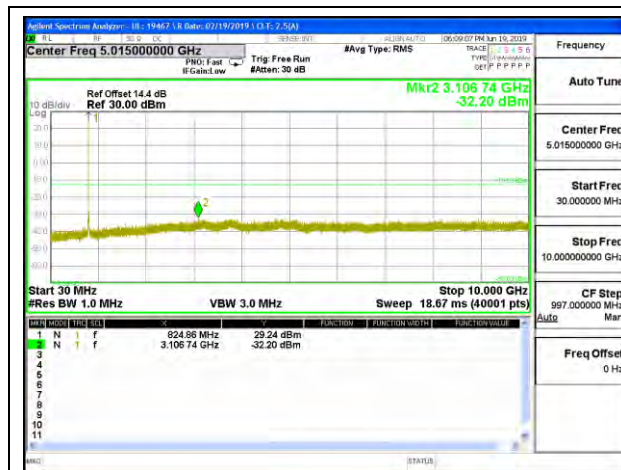
CDMA BC10 1xEV-DO Rev A Middle Channel



CDMA BC10 1xRTT High Channel



CDMA BC10 1xEV-DO Rev A High Channel



CDMA BC0 1xRTT Low Channel



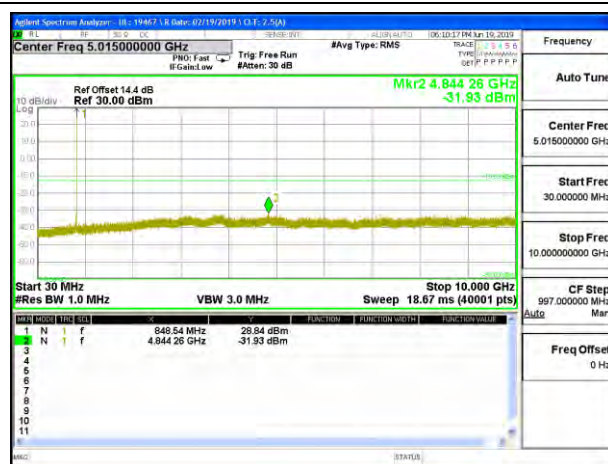
CDMA BC0 1xEV-DO Rev A Low Channel



CDMA BC0 1xRTT Middle Channel



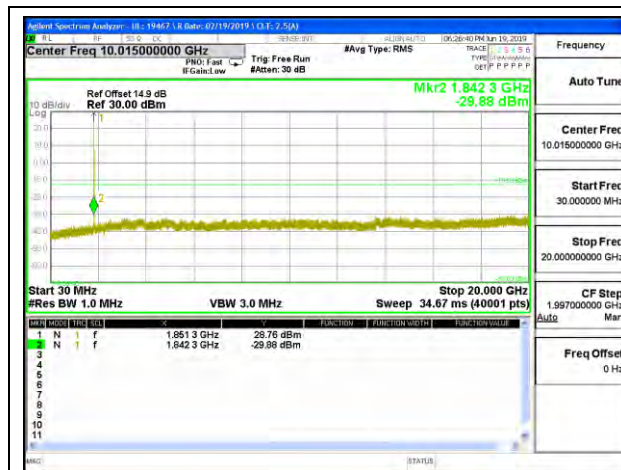
CDMA BC0 1xEV-DO Rev A Middle Channel



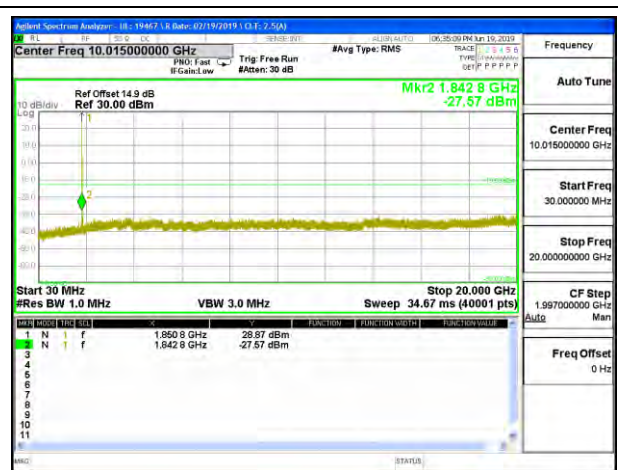
CDMA BC0 1xRTT High Channel



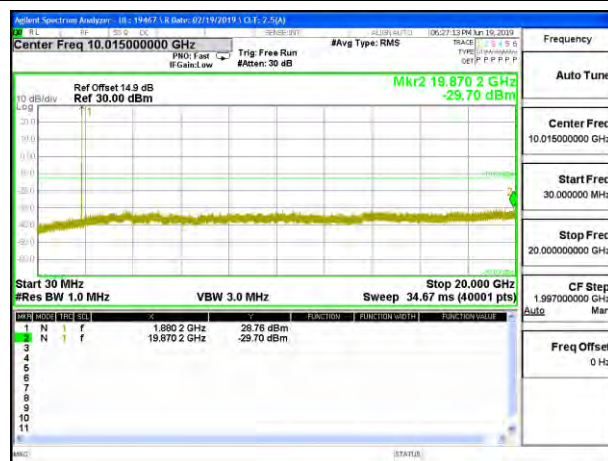
CDMA BC0 1xEV-DO Rev A High Channel



CDMA BC1 1xRTT Low Channel



CDMA BC1 1xEV-DO Rev A Low Channel



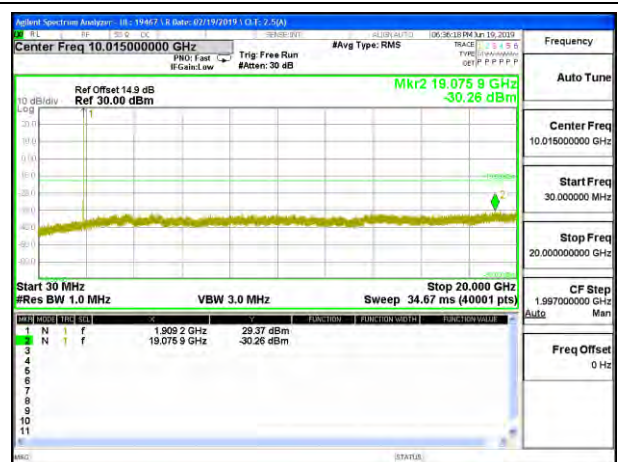
CDMA BC1 1xRTT Middle Channel



CDMA BC1 1xEV-DO Rev A Middle Channel

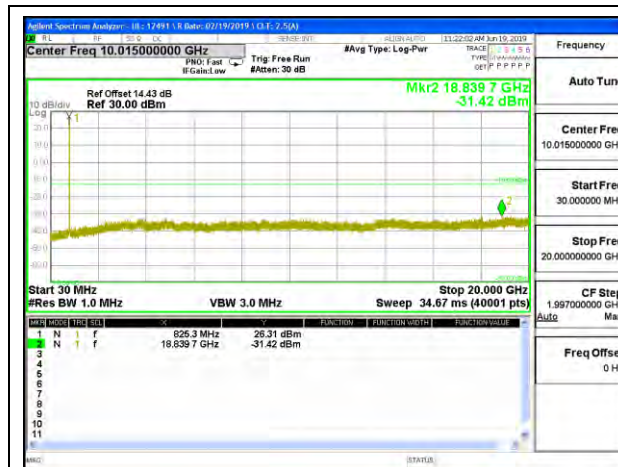


CDMA BC1 1xRTT High Channel

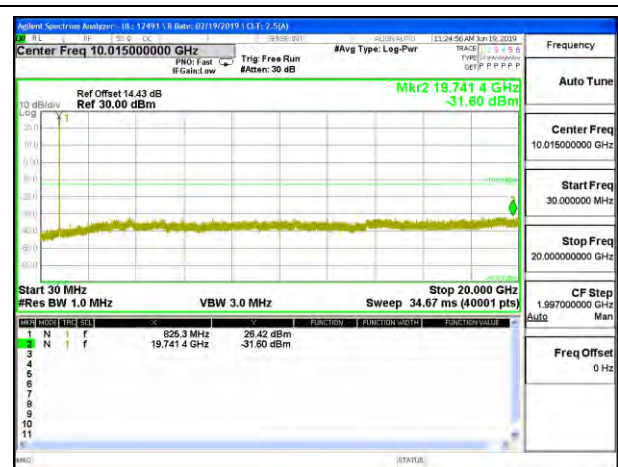


CDMA BC1 1xEV-DO Rev A High Channel

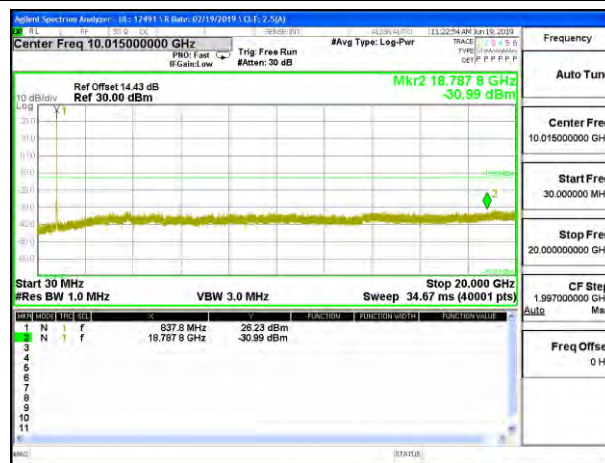
### 8.3.3. WCDMA



WCDMA Band 5 Rel 99 Low Channel



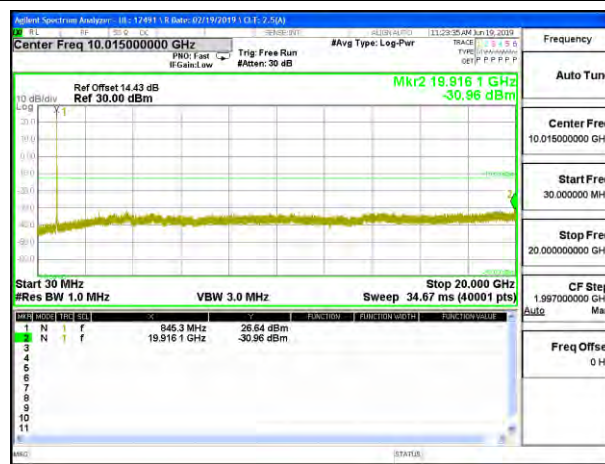
WCDMA Band 5 HSDPA Low Channel



WCDMA Band 5 Rel 99 Middle Channel



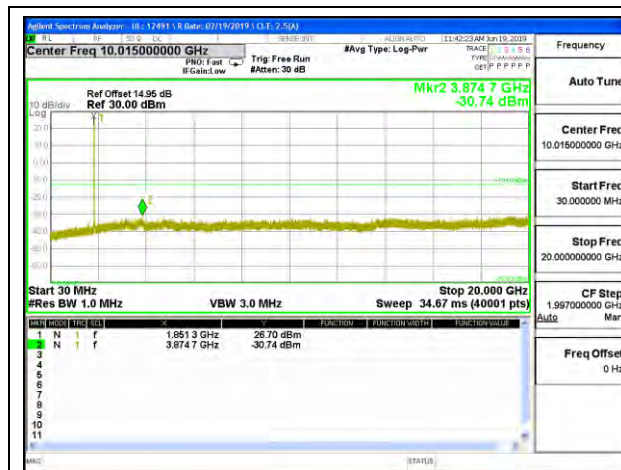
WCDMA Band 5 HSDPA Middle Channel



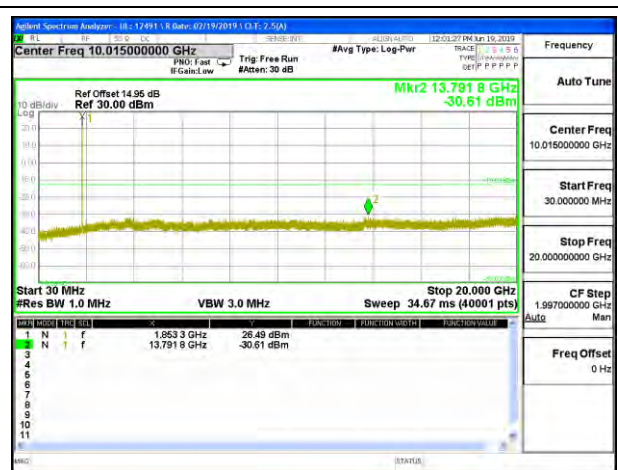
WCDMA Band 5 Rel 99 High Channel



WCDMA Band 5 HSDPA High Channel



WCDMA Band 2 Rel 99 Low Channel



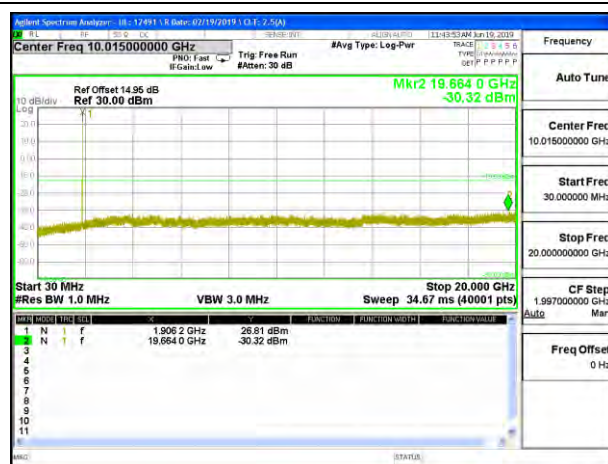
WCDMA Band 2 HSDPA Low Channel



WCDMA Band 2 Rel 99 Middle Channel



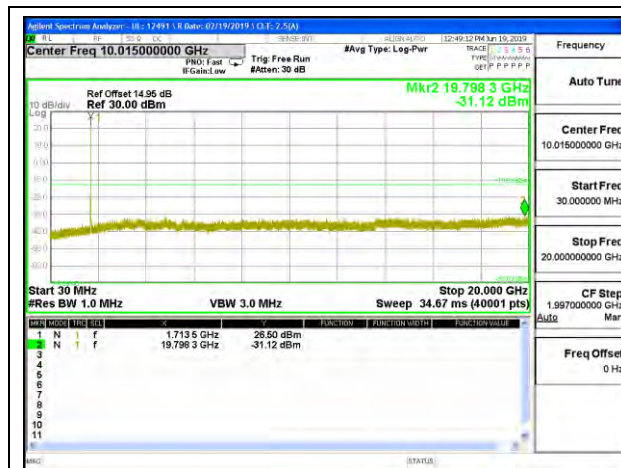
WCDMA Band 2 HSDPA Middle Channel



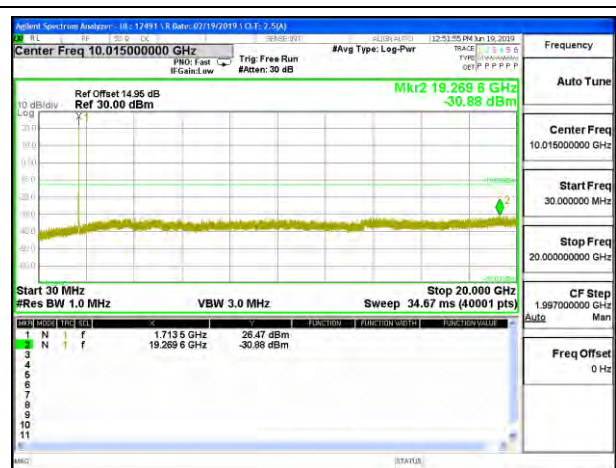
WCDMA Band 2 Rel 99 High Channel



WCDMA Band 2 HSDPA High Channel



WCDMA Band 4 Rel 99 Low Channel



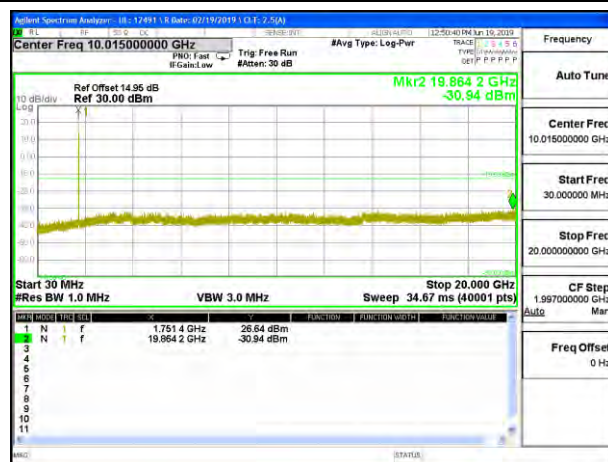
WCDMA Band 4 HSDPA Low Channel



WCDMA Band 4 Rel 99 Middle Channel



WCDMA Band 4 HSDPA Middle Channel



WCDMA Band 4 Rel 99 High Channel



WCDMA Band 4 HSDPA High Channel

## 8.4. FREQUENCY STABILITY

### RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54 and §90.213  
IC: RSS132§5.3; RSS133§6.3 and RSS139§6.4

### LIMITS

FCC §22.355, §90.213

The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  ppm for mobile stations.

FCC §24.235 & §27.54

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

RSS132§5.3

The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  SRSP for mobile stations and  $\pm 1.5$  ppm for base stations.

In lieu of meeting the above stability values, the test report may show that the frequency stability is sufficient to ensure that the occupied bandwidth stays within each of the sub-bands (see Section 5.1) when tested to the temperature and supply voltage variations specified in RSS-Gen.

RSS133§6.3

The carrier frequency shall not depart from the reference frequency, in excess of  $\pm 2.5$  ppm for mobile stations and  $\pm 1.0$  ppm for base stations.

In lieu of meeting the above stability values, the test report may show that the frequency stability is sufficient to ensure that the emission bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

RSS139§6.4

The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

### TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. =  $-30^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- Voltage = (85% - 115%)  
Low voltage, 3.23VDC, Normal, 3.8VDC and High voltage, 4.37VDC.  
End Voltage, 3.2VDC.

#### **Frequency Stability vs Temperature:**

The EUT is placed inside a temperature chamber. The temperature is set to  $20^{\circ}\text{C}$  and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until  $+50^{\circ}\text{C}$  is reached.

#### **Frequency Stability vs Voltage:**

The peak frequency error is recorded (worst-case).

### RESULTS

See the following pages.

### 8.4.1. GSM

|            |       |              |        |
|------------|-------|--------------|--------|
| <b>ID:</b> | 23547 | <b>Date:</b> | 6/5/19 |
|------------|-------|--------------|--------|

#### GPRS 850MHz

| Limit          |           | 824                        | 849                         | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|----------------------------|-----------------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm<br>(MHz) | F high @<br>-13dBm<br>(MHz) |               |                                 |
| Temperature    | Voltage   |                            |                             |               |                                 |
| Normal (20C)   | Normal    | 824.0346                   | 848.9707                    |               |                                 |
| Extreme (50C)  |           | 824.0346                   | 848.9707                    | 13.8          | 0.016                           |
| Extreme (40C)  |           | 824.0346                   | 848.9707                    | 15.1          | 0.018                           |
| Extreme (30C)  |           | 824.0346                   | 848.9707                    | 14.0          | 0.017                           |
| Extreme (10C)  |           | 824.0346                   | 848.9707                    | 10.9          | 0.013                           |
| Extreme (0C)   |           | 824.0346                   | 848.9707                    | 16.7          | 0.020                           |
| Extreme (-10C) |           | 824.0346                   | 848.9707                    | 14.1          | 0.017                           |
| Extreme (-20C) |           | 824.0346                   | 848.9707                    | 12.7          | 0.015                           |
| Extreme (-30C) |           | 824.0346                   | 848.9707                    | 18.8          | 0.022                           |
|                |           |                            |                             |               |                                 |
| 20C            | 15%       | 824.0346                   | 848.9707                    | 14.1          | 0.017                           |
|                | -15%      | 824.0346                   | 848.9707                    | 14.4          | 0.017                           |
|                | End Point | 824.0346                   | 848.9707                    | 10.7          | 0.013                           |

#### GPRS 1900MHz

| Limit          |           | 1850              | 1910               | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|-------------------|--------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm | F high @<br>-13dBm |               |                                 |
| Temperature    | Voltage   | (MHz)             | (MHz)              |               |                                 |
| Normal (20C)   | Normal    | 1850.0431         | 1909.9619          |               |                                 |
| Extreme (50C)  |           | 1850.0431         | 1909.9619          | 4.5           | 0.002                           |
| Extreme (40C)  |           | 1850.0431         | 1909.9619          | 5.4           | 0.003                           |
| Extreme (30C)  |           | 1850.0431         | 1909.9619          | 5.9           | 0.003                           |
| Extreme (10C)  |           | 1850.0431         | 1909.9619          | 6.5           | 0.003                           |
| Extreme (0C)   |           | 1850.0431         | 1909.9619          | 6.2           | 0.003                           |
| Extreme (-10C) |           | 1850.0431         | 1909.9619          | 7.3           | 0.004                           |
| Extreme (-20C) |           | 1850.0431         | 1909.9619          | 7.9           | 0.004                           |
| Extreme (-30C) |           | 1850.0431         | 1909.9619          | 9.2           | 0.005                           |
|                |           |                   |                    |               |                                 |
| 20C            | 15%       | 1850.0431         | 1909.9619          | 6.7           | 0.004                           |
|                | -15%      | 1850.0431         | 1909.9619          | 6.6           | 0.003                           |
|                | End Point | 1850.0431         | 1909.9619          | 6.0           | 0.003                           |

## 8.4.2. CDMA

|            |       |              |        |
|------------|-------|--------------|--------|
| <b>ID:</b> | 23547 | <b>Date:</b> | 6/5/19 |
|------------|-------|--------------|--------|

### CDMA 1xRTT BC10

| Limit          |           | 816               | 824                | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|-------------------|--------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm | F high @<br>-13dBm |               |                                 |
| Temperature    | Voltage   | (MHz)             | (MHz)              |               |                                 |
| Normal (20C)   | Normal    | 816.5709          | 823.4272           |               |                                 |
| Extreme (50C)  |           | 816.5709          | 823.4272           | -1.3          | -0.002                          |
| Extreme (40C)  |           | 816.5709          | 823.4272           | 0.4           | 0.000                           |
| Extreme (30C)  |           | 816.5709          | 823.4272           | -1.2          | -0.001                          |
| Extreme (10C)  |           | 816.5709          | 823.4272           | -1.1          | -0.001                          |
| Extreme (0C)   |           | 816.5709          | 823.4272           | -1.3          | -0.002                          |
| Extreme (-10C) |           | 816.5709          | 823.4272           | -0.8          | -0.001                          |
| Extreme (-20C) |           | 816.5709          | 823.4272           | -1.4          | -0.002                          |
| Extreme (-30C) |           | 816.5709          | 823.4272           | -1.3          | -0.002                          |
|                |           |                   |                    |               |                                 |
| 20C            | 15%       | 816.5709          | 823.4272           | -1.4          | -0.002                          |
|                | -15%      | 816.5709          | 823.4272           | -1.0          | -0.001                          |
|                | End Point | 816.5709          | 823.4272           | 1.5           | 0.002                           |

### CDMA 1xRTT BC0

| Limit          |           | 824               | 849                | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|-------------------|--------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm | F high @<br>-13dBm |               |                                 |
| Temperature    | Voltage   | (MHz)             | (MHz)              |               |                                 |
| Normal (20C)   | Normal    | 824.0203          | 848.9906           |               |                                 |
| Extreme (50C)  |           | 824.0203          | 848.9906           | -1.0          | -0.001                          |
| Extreme (40C)  |           | 824.0203          | 848.9906           | -1.1          | -0.001                          |
| Extreme (30C)  |           | 824.0203          | 848.9906           | -1.5          | -0.002                          |
| Extreme (10C)  |           | 824.0203          | 848.9906           | -1.3          | -0.001                          |
| Extreme (0C)   |           | 824.0203          | 848.9906           | -1.3          | -0.002                          |
| Extreme (-10C) |           | 824.0203          | 848.9906           | -1.1          | -0.001                          |
| Extreme (-20C) |           | 824.0203          | 848.9906           | -0.8          | -0.001                          |
| Extreme (-30C) |           | 824.0203          | 848.9906           | -1.0          | -0.001                          |
|                |           |                   |                    |               |                                 |
| 20C            | 15%       | 824.0203          | 848.9906           | -1.6          | -0.002                          |
|                | -15%      | 824.0203          | 848.9906           | -0.9          | -0.001                          |
|                | End Point | 824.0203          | 848.9906           | -1.3          | -0.001                          |

**CDMA 1xRTT BC1**

| Limit          |           | 1850              | 1910               | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|-------------------|--------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm | F high @<br>-13dBm |               |                                 |
| Temperature    | Voltage   | (MHz)             | (MHz)              |               |                                 |
| Normal (20C)   | Normal    | 1850.5714         | 1909.4331          |               |                                 |
| Extreme (50C)  |           | 1850.5714         | 1909.4331          | -0.7          | 0.000                           |
| Extreme (40C)  |           | 1850.5714         | 1909.4331          | -2.5          | -0.001                          |
| Extreme (30C)  |           | 1850.5714         | 1909.4331          | 1.4           | 0.001                           |
| Extreme (10C)  |           | 1850.5714         | 1909.4331          | -2.7          | -0.001                          |
| Extreme (0C)   |           | 1850.5714         | 1909.4331          | -2.3          | -0.001                          |
| Extreme (-10C) |           | 1850.5714         | 1909.4331          | -2.3          | -0.001                          |
| Extreme (-20C) |           | 1850.5714         | 1909.4331          | -2.1          | -0.001                          |
| Extreme (-30C) |           | 1850.5714         | 1909.4331          | -2.1          | -0.001                          |
|                |           |                   |                    |               |                                 |
| 20C            | 15%       | 1850.5714         | 1909.4331          | -3.2          | -0.002                          |
|                | -15%      | 1850.5714         | 1909.4331          | -2.9          | -0.002                          |
|                | End Point | 1850.5714         | 1909.4331          | -0.4          | 0.000                           |

### 8.4.3. WCDMA

|            |       |              |        |
|------------|-------|--------------|--------|
| <b>ID:</b> | 38602 | <b>Date:</b> | 6/6/19 |
|------------|-------|--------------|--------|

#### UMTS REL99 BAND 5

| Limit          |           | 824                        | 849                         | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|----------------------------|-----------------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm<br>(MHz) | F high @<br>-13dBm<br>(MHz) |               |                                 |
| Temperature    | Voltage   |                            |                             |               |                                 |
| Normal (20C)   | Normal    | 824.1047                   | 848.8920                    |               |                                 |
| Extreme (50C)  |           | 824.1047                   | 848.8920                    | -0.6          | -0.001                          |
| Extreme (40C)  |           | 824.1047                   | 848.8920                    | -0.8          | -0.001                          |
| Extreme (30C)  |           | 824.1047                   | 848.8920                    | 0.5           | 0.001                           |
| Extreme (10C)  |           | 824.1047                   | 848.8920                    | -0.8          | -0.001                          |
| Extreme (0C)   |           | 824.1047                   | 848.8920                    | -1.1          | -0.001                          |
| Extreme (-10C) |           | 824.1047                   | 848.8920                    | -0.9          | -0.001                          |
| Extreme (-20C) |           | 824.1047                   | 848.8920                    | -0.8          | -0.001                          |
| Extreme (-30C) |           | 824.1047                   | 848.8920                    | -1.0          | -0.001                          |
|                |           |                            |                             |               |                                 |
| 20C            | 15%       | 824.1047                   | 848.8920                    | -0.7          | -0.001                          |
|                | -15%      | 824.1047                   | 848.8920                    | -1.1          | -0.001                          |
|                | End Point | 824.1047                   | 848.8920                    | -1.2          | -0.001                          |

#### UMTS REL99 BAND 2

| Limit          |           | 1850              | 1910               | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|-------------------|--------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm | F high @<br>-13dBm |               |                                 |
| Temperature    | Voltage   | (MHz)             | (MHz)              |               |                                 |
| Normal (20C)   | Normal    | 1850.1165         | 1909.8855          |               |                                 |
| Extreme (50C)  |           | 1850.1165         | 1909.8855          | 1.2           | 0.001                           |
| Extreme (40C)  |           | 1850.1165         | 1909.8855          | -1.6          | -0.001                          |
| Extreme (30C)  |           | 1850.1165         | 1909.8855          | -1.3          | -0.001                          |
| Extreme (10C)  |           | 1850.1165         | 1909.8855          | -1.7          | -0.001                          |
| Extreme (0C)   |           | 1850.1165         | 1909.8855          | 1.3           | 0.001                           |
| Extreme (-10C) |           | 1850.1165         | 1909.8855          | 0.7           | 0.000                           |
| Extreme (-20C) |           | 1850.1165         | 1909.8855          | -1.6          | -0.001                          |
| Extreme (-30C) |           | 1850.1165         | 1909.8855          | 1.1           | 0.001                           |
|                |           |                   |                    |               |                                 |
| 20C            | 15%       | 1850.1165         | 1909.8855          | -1.5          | -0.001                          |
|                | -15%      | 1850.1165         | 1909.8855          | -1.2          | -0.001                          |
|                | End Point | 1850.1165         | 1909.8855          | -1.9          | -0.001                          |

**UMTS REL99 BAND 4**

| Limit          |           | 1710              | 1755               | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|-------------------|--------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm | F high @<br>-13dBm |               |                                 |
| Temperature    | Voltage   | (MHz)             | (MHz)              |               |                                 |
| Normal (20C)   | Normal    | 1710.1165         | 1754.8984          |               |                                 |
| Extreme (50C)  |           | 1710.1165         | 1754.8984          | 1.3           | 0.001                           |
| Extreme (40C)  |           | 1710.1165         | 1754.8984          | -2.1          | -0.001                          |
| Extreme (30C)  |           | 1710.1165         | 1754.8984          | -1.8          | -0.001                          |
| Extreme (10C)  |           | 1710.1165         | 1754.8984          | 0.9           | 0.001                           |
| Extreme (0C)   |           | 1710.1165         | 1754.8984          | -1.4          | -0.001                          |
| Extreme (-10C) |           | 1710.1165         | 1754.8984          | -1.2          | -0.001                          |
| Extreme (-20C) |           | 1710.1165         | 1754.8984          | 1.3           | 0.001                           |
| Extreme (-30C) |           | 1710.1165         | 1754.8984          | 1.6           | 0.001                           |
|                |           |                   |                    |               |                                 |
| 20C            | 15%       | 1710.1165         | 1754.8984          | 1.2           | 0.001                           |
|                | -15%      | 1710.1165         | 1754.8984          | -1.3          | -0.001                          |
|                | End Point | 1710.1165         | 1754.8984          | -1.9          | -0.001                          |

## 8.5. PEAK-TO-AVERAGE POWER RATIO

### LIMIT

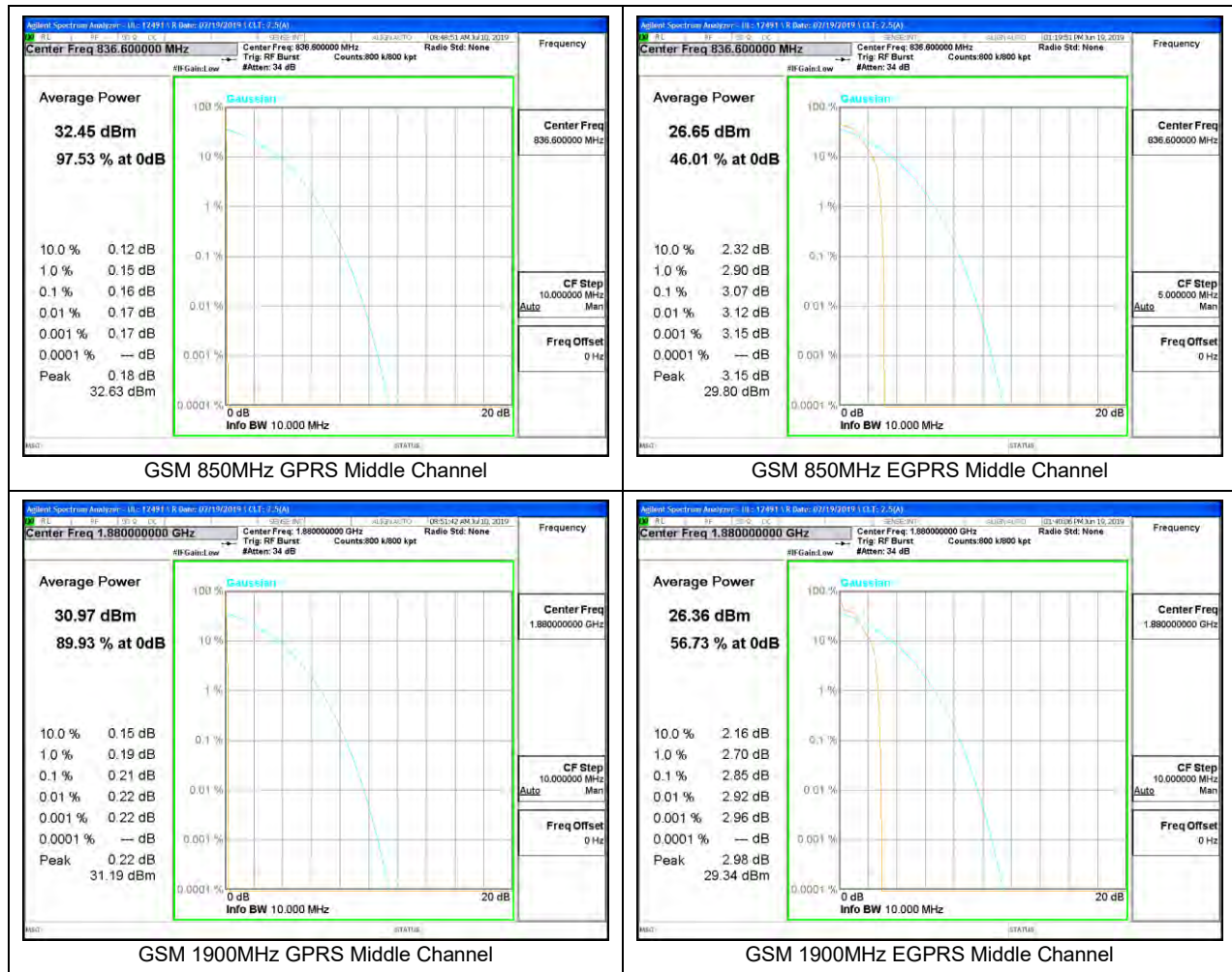
In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

### RESULT

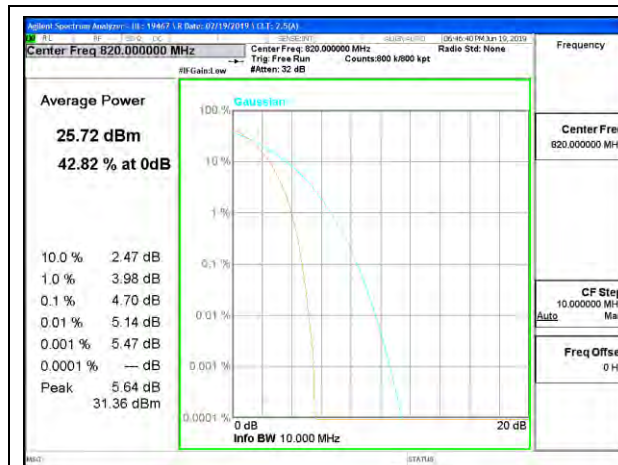
LAT 1 antenna was used to measure as the worst case. The results from all CCDF plots are passed with 13dB peak-to-average power ratio criteria.

|     |       |       |         |
|-----|-------|-------|---------|
| ID: | 12491 | Date: | 6/19/19 |
|-----|-------|-------|---------|

## 8.5.1. GSM



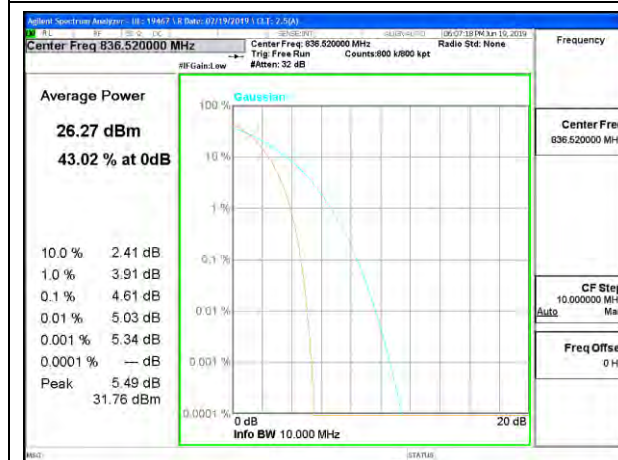
## 8.5.2. CDMA



CDMA BC10 1xRTT Middle Channel



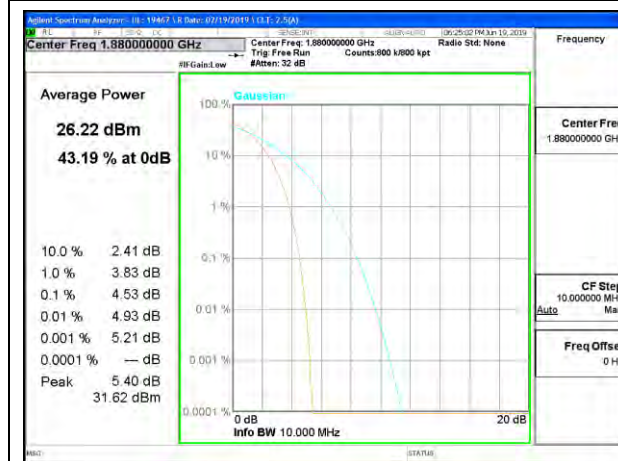
CDMA BC10 1xEV-DO Rev A Middle Channel



CDMA BC0 1xRTT Middle Channel



CDMA BC0 1xEV-DO Rev A Middle Channel

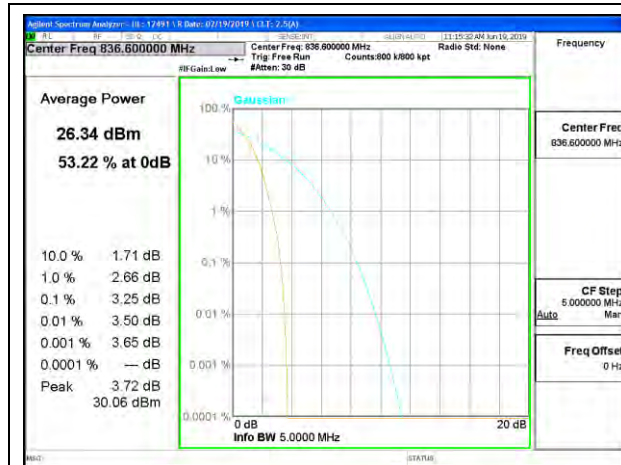


CDMA BC1 1xRTT Middle Channel

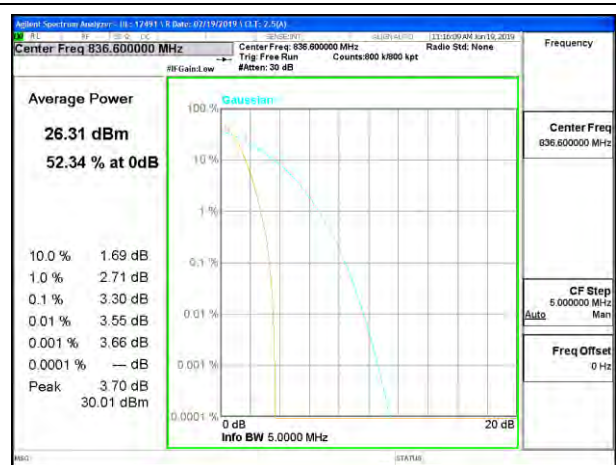


CDMA BC1 1xEV-DO Rev A Middle Channel

### 8.5.3. WCDMA



WCDMA Band 5 Rel 99 Middle Channel



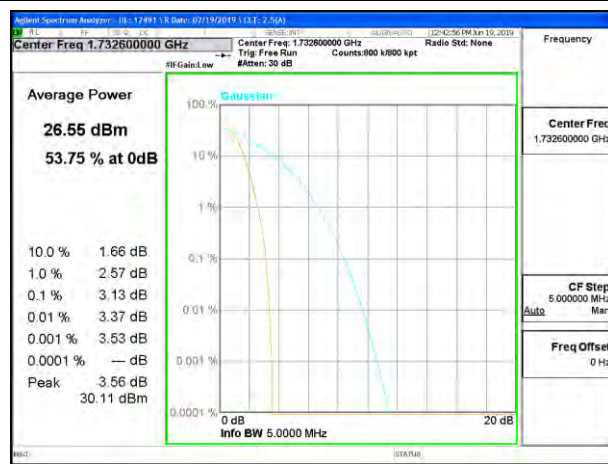
WCDMA Band 5 HSDPA Middle Channel



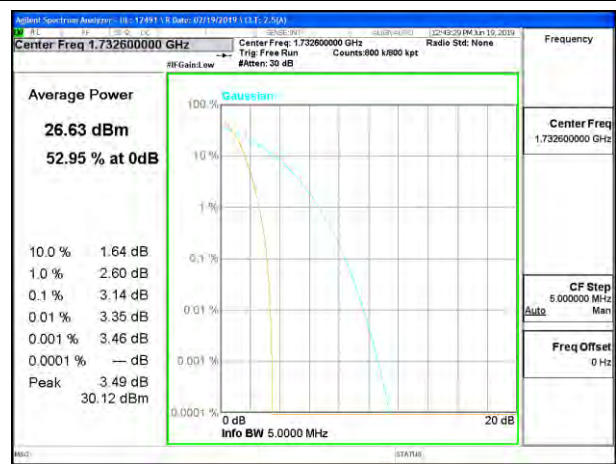
WCDMA Band 2 Rel 99 Middle Channel



WCDMA Band 2 HSDPA Middle Channel



WCDMA Band 4 Rel 99 Middle Channel



WCDMA Band 4 HSDPA Middle Channel

## 9. RADIATED TEST RESULTS

### 9.1. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 1

#### RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53 and §90.691.  
IC: RSS132§5.5; RSS133§6.5 and RSS139§6.6

#### LIMIT

FCC: §22.917(a), §24.238(a), §27.53 (h), §90.691

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.

#### RSS132§5.5

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

- (i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} p$  (watts).
- (ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} p$  (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

#### RSS133§6.5

Equipment shall comply with the limits in (i) and (ii) below.

- (i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} p$  (watts).
- (ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} p$  (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

#### RSS139§6.6

- (i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, Footnote 2 which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least  $43 + 10 \log_{10} p$  (watts) dB.
- (ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least  $43 + 10 \log_{10} p$  (watts) dB.

#### TEST PROCEDURE

KDB 971168 D01

#### RESULTS

## 9.1.1. GSM

### GSM 850MHz

|                |             |
|----------------|-------------|
| Company:       |             |
| Project #:     | 12886634    |
| Date:          | 6/5/2019    |
| Test Engineer: | 12500       |
| Configuration: | EUT only    |
| Mode:          | GSM850 GPRS |
| Chamber #:     | Chamber B   |

| Frequency (GHz)       | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-----------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.2MHz |                     |     |                |              |              |                         |       |             |          |
| 11.892                | -74.05              | Pk  | 38.6           | -21.3        | 8.5          | -48.25                  | -13   | -35.25      | H        |
| 2.569                 | -71.65              | Pk  | 32.3           | -31.4        | 10.2         | -60.55                  | -13   | -47.55      | H        |
| 3.245                 | -73.36              | Pk  | 32.8           | -30.4        | 9.6          | -61.36                  | -13   | -48.36      | V        |
| 5.544                 | -73.02              | Pk  | 34.7           | -28.3        | 8.4          | -58.22                  | -13   | -45.22      | V        |
| 6.601                 | -75.21              | Pk  | 35.5           | -27.5        | 7            | -60.21                  | -13   | -47.21      | H        |
| 10.258                | -76.59              | Pk  | 37.3           | -22.5        | 7.1          | -54.69                  | -13   | -41.69      | V        |
| Mid Channel 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.533                 | -72.9               | Pk  | 32.9           | -30.2        | 9.8          | -60.4                   | -13   | -47.4       | V        |
| 10.688                | -77.47              | Pk  | 37.9           | -22.1        | 8.1          | -53.57                  | -13   | -40.57      | V        |
| 3.01                  | -71.91              | Pk  | 32.8           | -30.8        | 9.6          | -60.31                  | -13   | -47.31      | H        |
| 5.217                 | -70.25              | Pk  | 34.2           | -28.9        | 9.1          | -55.85                  | -13   | -42.85      | V        |
| 7.248                 | -75.41              | Pk  | 35.5           | -26.3        | 7.5          | -58.71                  | -13   | -45.71      | H        |
| 14.529                | -77.58              | Pk  | 39.7           | -20.1        | 11.4         | -46.58                  | -13   | -33.58      | H        |
| High Channel 848.8MHz |                     |     |                |              |              |                         |       |             |          |
| 3.687                 | -71.34              | Pk  | 33.1           | -29.9        | 10           | -58.14                  | -13   | -45.14      | V        |
| 11.12                 | -77.04              | Pk  | 38             | -21.8        | 8.6          | -52.24                  | -13   | -39.24      | V        |
| 3.047                 | -71.87              | Pk  | 32.9           | -30.7        | 10           | -59.67                  | -13   | -46.67      | H        |
| 6.367                 | -74.73              | Pk  | 35.5           | -27.4        | 7            | -59.63                  | -13   | -46.63      | H        |
| 7.954                 | -74.91              | Pk  | 35.8           | -25.7        | 7.5          | -57.31                  | -13   | -44.31      | V        |
| 13.921                | -76.9               | Pk  | 38.7           | -20.8        | 9.9          | -49.1                   | -13   | -36.1       | H        |

Pk - Peak detector

|                |              |
|----------------|--------------|
| Company:       |              |
| Project #:     | 12886634     |
| Date:          | 6/5/2019     |
| Test Engineer: | 12500        |
| Configuration: | EUT Only     |
| Mode:          | GSM850 EGPRS |
| Chamber #:     | Chamber B    |

| Frequency (GHz)       | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-----------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.2MHz |                     |     |                |              |              |                         |       |             |          |
| 3.633                 | -71.17              | Pk  | 32.9           | -29.8        | 9.7          | -58.37                  | -13   | -45.37      | V        |
| 3.034                 | -69.78              | Pk  | 32.9           | -30.5        | 10.9         | -56.48                  | -13   | -43.48      | H        |
| 4.421                 | -70.29              | Pk  | 33.6           | -29.3        | 10.2         | -55.79                  | -13   | -42.79      | H        |
| 5.676                 | -70.79              | Pk  | 34.7           | -28          | 8.5          | -55.59                  | -13   | -42.59      | V        |
| 6.615                 | -71.1               | Pk  | 35.6           | -27.4        | 7.4          | -55.5                   | -13   | -42.5       | V        |
| 15.207                | -75.73              | Pk  | 40.4           | -19.2        | 11.3         | -43.23                  | -13   | -30.23      | H        |
| Mid Channel 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 14.475                | -75.75              | Pk  | 39.7           | -20.3        | 10.9         | -45.45                  | -13   | -32.45      | H        |
| 3.858                 | -71.65              | Pk  | 33.6           | -30.1        | 9.6          | -58.55                  | -13   | -45.55      | V        |
| 10.66                 | -76.57              | Pk  | 38             | -22          | 7.5          | -53.07                  | -13   | -40.07      | V        |
| 3.033                 | -72.14              | Pk  | 32.9           | -30.6        | 10.8         | -59.04                  | -13   | -46.04      | H        |
| 5.55                  | -71.39              | Pk  | 34.7           | -28.3        | 8.6          | -56.39                  | -13   | -43.39      | H        |
| 5.884                 | -73.95              | Pk  | 35.1           | -28.2        | 8            | -59.05                  | -13   | -46.05      | V        |
| High Channel 848.8MHz |                     |     |                |              |              |                         |       |             |          |
| 2.319                 | -70.62              | Pk  | 31.7           | -31.6        | 11           | -59.52                  | -13   | -46.52      | H        |
| 4.838                 | -70.95              | Pk  | 34.3           | -29.4        | 9.5          | -56.55                  | -13   | -43.55      | H        |
| 2.663                 | -70.39              | Pk  | 32.4           | -31.1        | 9.9          | -59.19                  | -13   | -46.19      | V        |
| 3.834                 | -72.34              | Pk  | 33.6           | -29.8        | 9.5          | -59.04                  | -13   | -46.04      | V        |
| 8.905                 | -75.62              | Pk  | 36.1           | -24.3        | 8.5          | -55.32                  | -13   | -42.32      | V        |
| 13.85                 | -75.59              | Pk  | 38.6           | -20.9        | 10           | -47.89                  | -13   | -34.89      | H        |

Pk - Peak detector

**GSM 1900MHz**

|                |              |
|----------------|--------------|
| Company:       |              |
| Project #:     | 12886634     |
| Date:          | 6/5/2019     |
| Test Engineer: | 12500        |
| Configuration: | EUT Only     |
| Mode:          | GSM1900 GPRS |
| Chamber #:     | Chamber B    |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |       |             |          |
| 11.908                  | -76.46              | Pk  | 38.6           | -21.4        | 8.8          | -50.46                  | -13   | -37.46      | H        |
| 3.942                   | -70.39              | Pk  | 33.4           | -30.1        | 10.1         | -56.99                  | -13   | -43.99      | H        |
| 7.329                   | -74.35              | Pk  | 35.6           | -26.1        | 7.4          | -57.45                  | -13   | -44.45      | H        |
| 3.035                   | -71.13              | Pk  | 32.9           | -30.5        | 10.8         | -57.93                  | -13   | -44.93      | H        |
| 6.073                   | -71.61              | Pk  | 35.5           | -28.3        | 8.1          | -56.31                  | -13   | -43.31      | H        |
| 14.552                  | -75.29              | Pk  | 39.8           | -20.1        | 10.5         | -45.09                  | -13   | -32.09      | H        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 14.499                  | -77.33              | Pk  | 39.6           | -20.3        | 11           | -47.03                  | -13   | -34.03      | H        |
| 3.75                    | -71.52              | Pk  | 33.3           | -30.1        | 9.8          | -58.52                  | -13   | -45.52      | V        |
| 8.05                    | -73.09              | Pk  | 35.7           | -25.3        | 7.9          | -54.79                  | -13   | -41.79      | V        |
| 10.93                   | -77.91              | Pk  | 38             | -22          | 8.1          | -53.81                  | -13   | -40.81      | V        |
| 3.035                   | -71.86              | Pk  | 32.9           | -30.5        | 10.9         | -58.56                  | -13   | -45.56      | H        |
| 6.35                    | -74                 | Pk  | 35.5           | -27.4        | 7.3          | -58.6                   | -13   | -45.6       | H        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |       |             |          |
| 3.708                   | -66.57              | Pk  | 33.3           | -29.8        | 11.2         | -51.87                  | -13   | -38.87      | H        |
| 7.435                   | -70.89              | Pk  | 35.8           | -24.5        | 11           | -48.59                  | -13   | -35.59      | H        |
| 3.695                   | -66.32              | Pk  | 33.2           | -29.6        | 11.7         | -51.02                  | -13   | -38.02      | V        |
| 7.386                   | -70.21              | Pk  | 35.7           | -24.6        | 11.1         | -48.01                  | -13   | -35.01      | V        |
| 5.478                   | -67.96              | Pk  | 34.9           | -27.8        | 11.3         | -49.56                  | -13   | -36.56      | V        |
| 5.492                   | -68.94              | Pk  | 34.9           | -27.9        | 10.9         | -51.04                  | -13   | -38.04      | H        |

Pk - Peak detector

|                |               |
|----------------|---------------|
| Company:       |               |
| Project #:     | 12886634      |
| Date:          | 6/6/2019      |
| Test Engineer: | 23567         |
| Configuration: | EUT Only      |
| Mode:          | GSM1900 EGPRS |
| Chamber #:     | Chamber A     |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-----|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |     |             |          |
| 3.699                   | -66.04              | Pk  | 33.2           | -29.6        | 11.2         | -51.24                  | -13 | -38.24      | H        |
| 7.375                   | -70.23              | Pk  | 35.7           | -24.5        | 11           | -48.03                  | -13 | -35.03      | H        |
| 3.688                   | -66.87              | Pk  | 33.2           | -29.8        | 11.8         | -51.67                  | -13 | -38.67      | V        |
| 7.387                   | -71.03              | Pk  | 35.7           | -24.6        | 11           | -48.93                  | -13 | -35.93      | V        |
| 5.485                   | -68.18              | Pk  | 34.9           | -27.9        | 11.2         | -49.98                  | -13 | -36.98      | V        |
| 5.522                   | -67.97              | Pk  | 34.8           | -28.1        | 11           | -50.27                  | -13 | -37.27      | H        |
| Mid Channel, 1880MHz    |                     |     |                |              |              |                         |     |             |          |
| 3.717                   | -65.84              | Pk  | 33.3           | -29.9        | 10.8         | -51.64                  | -13 | -38.64      | H        |
| 7.391                   | -70.82              | Pk  | 35.6           | -24.7        | 10.6         | -49.32                  | -13 | -36.32      | H        |
| 3.716                   | -66.08              | Pk  | 33.3           | -29.9        | 10.9         | -51.78                  | -13 | -38.78      | V        |
| 7.361                   | -70.5               | Pk  | 35.8           | -24.6        | 11.3         | -48.00                  | -13 | -35.00      | V        |
| 5.509                   | -68.71              | Pk  | 34.9           | -28.1        | 11.1         | -50.81                  | -13 | -37.81      | V        |
| 5.523                   | -68.58              | Pk  | 34.8           | -28.1        | 11           | -50.88                  | -13 | -37.88      | H        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |     |             |          |
| 3.699                   | -67.08              | Pk  | 33.2           | -29.6        | 11.2         | -52.28                  | -13 | -39.28      | H        |
| 7.393                   | -71.13              | Pk  | 35.6           | -24.8        | 10.6         | -49.73                  | -13 | -36.73      | H        |
| 3.687                   | -66.74              | Pk  | 33.2           | -29.8        | 11.9         | -51.44                  | -13 | -38.44      | V        |
| 7.404                   | -70.57              | Pk  | 35.7           | -24.7        | 10.7         | -48.87                  | -13 | -35.87      | V        |
| 5.493                   | -68.52              | Pk  | 34.9           | -27.9        | 10.8         | -50.72                  | -13 | -37.72      | H        |
| 5.496                   | -68.55              | Pk  | 34.9           | -27.9        | 11.1         | -50.45                  | -13 | -37.45      | V        |

Pk - Peak detector

## 9.1.2. CDMA

### CDMA BC10

|                |                 |
|----------------|-----------------|
| Company:       |                 |
| Project #:     | 12886634        |
| Date:          | 6/9/2019        |
| Test Engineer: | 39006           |
| Configuration: | EUT Only        |
| Mode:          | CDMA BC10 1xRTT |
| Chamber #:     | Chamber A       |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 817.25MHz |                     |     |                |              |              |                         |       |             |          |
| 1.656                  | -65.97              | Pk  | 28.7           | -32.5        | 12.3         | -57.47                  | -13   | -44.47      | H        |
| 1.711                  | -66.19              | Pk  | 29.2           | -32.3        | 13.1         | -56.19                  | -13   | -43.19      | V        |
| 2.296                  | -66.91              | Pk  | 31.9           | -31.7        | 12           | -54.71                  | -13   | -41.71      | V        |
| 2.301                  | -65.82              | Pk  | 31.9           | -31.6        | 12.4         | -53.12                  | -13   | -40.12      | H        |
| 3.232                  | -66.94              | Pk  | 32.9           | -30.5        | 11.5         | -53.04                  | -13   | -40.04      | H        |
| 3.235                  | -67.51              | Pk  | 32.9           | -30.6        | 11.4         | -53.81                  | -13   | -40.81      | V        |
| Mid Channel 820MHz     |                     |     |                |              |              |                         |       |             |          |
| 1.666                  | -66.19              | Pk  | 28.7           | -32.4        | 11.6         | -58.29                  | -13   | -45.29      | V        |
| 1.675                  | -66.05              | Pk  | 28.9           | -32.4        | 12.3         | -57.25                  | -13   | -44.25      | H        |
| 2.465                  | -65.59              | Pk  | 32.6           | -31.6        | 12           | -52.59                  | -13   | -39.59      | H        |
| 2.47                   | -66.71              | Pk  | 32.6           | -31.5        | 11.3         | -54.31                  | -13   | -41.31      | V        |
| 3.847                  | -66.58              | Pk  | 33.7           | -29.6        | 11.1         | -51.38                  | -13   | -38.38      | H        |
| 3.879                  | -66.7               | Pk  | 33.6           | -29.4        | 11.9         | -50.60                  | -13   | -37.60      | V        |
| High Channel 822.75MHz |                     |     |                |              |              |                         |       |             |          |
| 1.7                    | -67.34              | Pk  | 28.8           | -29.7        | 9.5          | -58.74                  | -13   | -45.74      | H        |
| 1.708                  | -66.98              | Pk  | 29             | -29.8        | 8.5          | -59.28                  | -13   | -46.28      | V        |
| 2.538                  | -67.89              | Pk  | 32.3           | -28.4        | 9.1          | -54.89                  | -13   | -41.89      | V        |
| 2.55                   | -68.17              | Pk  | 32.3           | -28.4        | 9.3          | -54.97                  | -13   | -41.97      | H        |
| 3.374                  | -68.31              | Pk  | 32.7           | -27.1        | 9.6          | -53.11                  | -13   | -40.11      | V        |
| 3.38                   | -68.91              | Pk  | 32.7           | -27.2        | 8.7          | -54.71                  | -13   | -41.71      | H        |

Pk - Peak detector

|                |                       |
|----------------|-----------------------|
| Company:       |                       |
| Project #:     | 12886634              |
| Date:          | 6/9/2019              |
| Test Engineer: | 39006                 |
| Configuration: | EUT Only              |
| Mode:          | CDMA BC10 EV-DO Rev A |
| Chamber #:     | Chamber A             |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 817.25MHz |                     |     |                |              |              |                         |       |             |          |
| 1.681                  | -65.86              | Pk  | 28.9           | -32.4        | 12.1         | -57.26                  | -13   | -44.26      | H        |
| 1.684                  | -66.59              | Pk  | 28.9           | -32.3        | 11.1         | -58.89                  | -13   | -45.89      | V        |
| 2.432                  | -65.84              | Pk  | 32.6           | -31.4        | 11.7         | -52.94                  | -13   | -39.94      | V        |
| 2.46                   | -67.03              | Pk  | 32.5           | -31.6        | 12.4         | -53.73                  | -13   | -40.73      | H        |
| 3.249                  | -67.62              | Pk  | 32.9           | -30.6        | 10.8         | -54.52                  | -13   | -41.52      | V        |
| 3.257                  | -67.42              | Pk  | 32.9           | -30.4        | 10.6         | -54.32                  | -13   | -41.32      | H        |
| Mid Channel 820MHz     |                     |     |                |              |              |                         |       |             |          |
| 1.636                  | -66.14              | Pk  | 28.5           | -32.4        | 11.6         | -58.44                  | -13   | -45.44      | H        |
| 1.641                  | -66.53              | Pk  | 28.6           | -32.3        | 11.5         | -58.73                  | -13   | -45.73      | V        |
| 2.42                   | -66.86              | Pk  | 32.5           | -31.4        | 12           | -53.76                  | -13   | -40.76      | V        |
| 2.446                  | -67.67              | Pk  | 32.5           | -31.5        | 11.8         | -54.87                  | -13   | -41.87      | H        |
| 3.26                   | -67.52              | Pk  | 33             | -30.5        | 10.6         | -54.42                  | -13   | -41.42      | V        |
| 3.27                   | -68.15              | Pk  | 32.9           | -30.5        | 9.9          | -55.85                  | -13   | -42.85      | H        |
| High Channel 822.75MHz |                     |     |                |              |              |                         |       |             |          |
| 1.612                  | -66.74              | Pk  | 28.2           | -32.5        | 11.7         | -59.34                  | -13   | -46.34      | H        |
| 1.622                  | -65.82              | Pk  | 28.4           | -32.5        | 11.2         | -58.72                  | -13   | -45.72      | H        |
| 2.448                  | -66.29              | Pk  | 32.5           | -31.5        | 12           | -53.29                  | -13   | -40.29      | H        |
| 2.452                  | -67.28              | Pk  | 32.5           | -31.5        | 12.4         | -53.88                  | -13   | -40.88      | H        |
| 3.256                  | -67.63              | Pk  | 32.9           | -30.4        | 10.6         | -54.53                  | -13   | -41.53      | H        |
| 3.273                  | -67.75              | Pk  | 32.9           | -30.4        | 10.3         | -54.95                  | -13   | -41.95      | H        |

Pk - Peak detector

**CDMA BC0**

|                |                |
|----------------|----------------|
| Company:       |                |
| Project #:     | 12886634       |
| Date:          | 6/9/2019       |
| Test Engineer: | 39006          |
| Configuration: | EUT Only       |
| Mode:          | CDMA BC0 1xRTT |
| Chamber #:     | Chamber A      |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.7MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.711                  | -66.53              | Pk  | 29.2           | -32.3        | 12           | -57.63                  | -13   | -44.63      | H        |
| 1.719                  | -65.59              | Pk  | 29.4           | -32.4        | 13.8         | -54.79                  | -13   | -41.79      | V        |
| 2.48                   | -66.66              | Pk  | 32.6           | -31.4        | 11.4         | -54.06                  | -13   | -41.06      | H        |
| 2.481                  | -66.7               | Pk  | 32.6           | -31.4        | 11.4         | -54.10                  | -13   | -41.10      | V        |
| 3.63                   | -67.01              | Pk  | 33.2           | -29.6        | 11.1         | -52.31                  | -13   | -39.31      | H        |
| 3.653                  | -66.58              | Pk  | 33.2           | -29.7        | 10.6         | -52.48                  | -13   | -39.48      | V        |
| Mid Channel 836.52MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.603                  | -65.51              | Pk  | 28.1           | -32.4        | 12.2         | -57.61                  | -13   | -44.61      | H        |
| 1.621                  | -65.99              | Pk  | 28.4           | -32.5        | 11           | -59.09                  | -13   | -46.09      | V        |
| 2.339                  | -66.21              | Pk  | 31.8           | -31.6        | 12.6         | -53.41                  | -13   | -40.41      | V        |
| 2.37                   | -66.1               | Pk  | 32.1           | -31.2        | 13.2         | -52.00                  | -13   | -39.00      | H        |
| 3.746                  | -65.94              | Pk  | 33.4           | -29.9        | 11.3         | -51.14                  | -13   | -38.14      | H        |
| 3.748                  | -65.89              | Pk  | 33.5           | -29.8        | 11.6         | -50.59                  | -13   | -37.59      | V        |
| High Channel 848.31MHz |                     |     |                |              |              |                         |       |             |          |
| 1.701                  | -65.42              | Pk  | 29             | -32.1        | 12.3         | -56.22                  | -13   | -43.22      | H        |
| 1.705                  | -66.16              | Pk  | 29.2           | -32.1        | 12.9         | -56.16                  | -13   | -43.16      | V        |
| 2.361                  | -66.44              | Pk  | 32             | -31.5        | 12.4         | -53.54                  | -13   | -40.54      | V        |
| 2.368                  | -67.01              | Pk  | 32.1           | -31.3        | 13.3         | -52.91                  | -13   | -39.91      | H        |
| 3.055                  | -66.72              | Pk  | 33.3           | -30.8        | 12.1         | -52.12                  | -13   | -39.12      | H        |
| 3.066                  | -67.22              | Pk  | 33.5           | -30.8        | 11.7         | -52.82                  | -13   | -39.82      | V        |

Pk - Peak detector

|                |                      |
|----------------|----------------------|
| Company:       |                      |
| Project #:     | 12886634             |
| Date:          | 6/9/2019             |
| Test Engineer: | 39006                |
| Configuration: | EUT Only             |
| Mode:          | CDMA BC0 EV-DO Rev A |
| Chamber #:     | Chamber A            |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.7MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.643                  | -66.57              | Pk  | 28.7           | -32.4        | 12.3         | -57.97                  | -13   | -44.97      | H        |
| 1.649                  | -64.47              | Pk  | 28.7           | -32.3        | 11.2         | -56.87                  | -13   | -43.87      | V        |
| 2.452                  | -67.48              | Pk  | 32.5           | -31.5        | 11.7         | -54.78                  | -13   | -41.78      | V        |
| 2.454                  | -66.93              | Pk  | 32.5           | -31.5        | 12.4         | -53.53                  | -13   | -40.53      | H        |
| 3.235                  | -67.21              | Pk  | 32.9           | -30.6        | 11.4         | -53.51                  | -13   | -40.51      | V        |
| 3.249                  | -68                 | Pk  | 32.9           | -30.6        | 11           | -54.70                  | -13   | -41.70      | H        |
| Mid Channel 836.52MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.644                  | -66.66              | Pk  | 28.7           | -32.4        | 11.5         | -58.86                  | -13   | -45.86      | V        |
| 1.645                  | -66.31              | Pk  | 28.7           | -32.4        | 12.3         | -57.71                  | -13   | -44.71      | H        |
| 2.349                  | -67.12              | Pk  | 31.9           | -31.5        | 12.6         | -54.12                  | -13   | -41.12      | V        |
| 2.365                  | -66.98              | Pk  | 32.1           | -31.4        | 13.2         | -53.08                  | -13   | -40.08      | H        |
| 3.384                  | -68.11              | Pk  | 32.8           | -30.1        | 11.3         | -54.11                  | -13   | -41.11      | V        |
| 3.42                   | -67.73              | Pk  | 32.7           | -30.2        | 11.9         | -53.33                  | -13   | -40.33      | H        |
| High Channel 848.31MHz |                     |     |                |              |              |                         |       |             |          |
| 1.646                  | -66.98              | Pk  | 28.7           | -32.4        | 11.4         | -59.28                  | -13   | -46.28      | V        |
| 1.657                  | -66.12              | Pk  | 28.7           | -32.5        | 12.4         | -57.52                  | -13   | -44.52      | H        |
| 2.473                  | -66.81              | Pk  | 32.6           | -31.5        | 11.8         | -53.91                  | -13   | -40.91      | H        |
| 2.48                   | -67.09              | Pk  | 32.6           | -31.4        | 11.4         | -54.49                  | -13   | -41.49      | V        |
| 3.24                   | -67.06              | Pk  | 32.9           | -30.6        | 11.1         | -53.66                  | -13   | -40.66      | V        |
| 3.249                  | -67.46              | Pk  | 32.9           | -30.6        | 11           | -54.16                  | -13   | -41.16      | H        |

Pk - Peak detector

**CDMA BC1**

|                |                |
|----------------|----------------|
| Company:       |                |
| Project #:     | 12886634       |
| Date:          | 6/9/2019       |
| Test Engineer: | 39006          |
| Configuration: | EUT Only       |
| Mode:          | CDMA BC1 1xRTT |
| Chamber #:     | Chamber A      |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1851.25MHz |                     |     |                |              |              |                         |       |             |          |
| 3.918                   | -67.12              | Pk  | 33.6           | -29.7        | 11.2         | -52.02                  | -13   | -39.02      | V        |
| 3.926                   | -66.23              | Pk  | 33.5           | -29.6        | 11.5         | -50.83                  | -13   | -37.83      | H        |
| 5.88                    | -68.98              | Pk  | 35.2           | -27.1        | 10.7         | -50.18                  | -13   | -37.18      | H        |
| 5.891                   | -68.87              | Pk  | 35.2           | -27          | 11.1         | -49.57                  | -13   | -36.57      | V        |
| 7.502                   | -71.08              | Pk  | 35.7           | -24.5        | 10.7         | -49.18                  | -13   | -36.18      | H        |
| 7.558                   | -70.53              | Pk  | 35.7           | -24.4        | 11.2         | -48.03                  | -13   | -35.03      | V        |
| Mid Channel 1880.00MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.799                   | -67.03              | Pk  | 33.7           | -29.7        | 11.1         | -51.93                  | -13   | -38.93      | H        |
| 3.839                   | -66.59              | Pk  | 33.7           | -29.6        | 11           | -51.49                  | -13   | -38.49      | V        |
| 5.785                   | -69.54              | Pk  | 35             | -27.1        | 10.4         | -51.24                  | -13   | -38.24      | H        |
| 5.813                   | -68.27              | Pk  | 35.1           | -27.2        | 10.9         | -49.47                  | -13   | -36.47      | V        |
| 7.729                   | -70.38              | Pk  | 35.9           | -24.6        | 11           | -48.08                  | -13   | -35.08      | H        |
| 7.787                   | -70.86              | Pk  | 35.8           | -24.4        | 11.4         | -48.06                  | -13   | -35.06      | V        |
| High Channel 1908.75MHz |                     |     |                |              |              |                         |       |             |          |
| 3.799                   | -66.12              | Pk  | 33.7           | -29.7        | 11.3         | -50.82                  | -13   | -37.82      | V        |
| 3.821                   | -66.49              | Pk  | 33.7           | -29.5        | 11.6         | -50.69                  | -13   | -37.69      | H        |
| 5.499                   | -67.91              | Pk  | 34.9           | -27.9        | 11.1         | -49.81                  | -13   | -36.81      | V        |
| 5.522                   | -67.58              | Pk  | 34.8           | -28.1        | 11           | -49.88                  | -13   | -36.88      | H        |
| 8.253                   | -71.02              | Pk  | 35.9           | -23.7        | 11.1         | -47.72                  | -13   | -34.72      | V        |
| 8.254                   | -70.9               | Pk  | 35.9           | -23.7        | 11           | -47.70                  | -13   | -34.70      | H        |

Pk - Peak detector

|                |                      |
|----------------|----------------------|
| Company:       |                      |
| Project #:     | 12886634             |
| Date:          | 6/9/2019             |
| Test Engineer: | 39006                |
| Configuration: | EUT Only             |
| Mode:          | CDMA BC1 EV-DO Rev A |
| Chamber #:     | Chamber A            |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1851.25MHz |                     |     |                |              |              |                         |       |             |          |
| 3.878                   | -66.13              | Pk  | 33.6           | -29.4        | 11.8         | -50.13                  | -13   | -37.13      | H        |
| 3.883                   | -66.52              | Pk  | 33.5           | -29.4        | 11.4         | -51.02                  | -13   | -38.02      | V        |
| 5.572                   | -68.96              | Pk  | 34.9           | -28          | 10.9         | -51.16                  | -13   | -38.16      | V        |
| 5.6                     | -76.87              | Pk  | 34.9           | -28          | 10.5         | -59.47                  | -13   | -46.47      | H        |
| 7.683                   | -69.58              | Pk  | 35.8           | -24.5        | 11.2         | -47.08                  | -13   | -34.08      | H        |
| 7.689                   | -70.54              | Pk  | 35.8           | -24.5        | 11.3         | -47.94                  | -13   | -34.94      | V        |
| Mid Channel 1880.00MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.789                   | -66.61              | Pk  | 33.6           | -29.7        | 11.5         | -51.21                  | -13   | -38.21      | V        |
| 3.814                   | -66.71              | Pk  | 33.7           | -29.4        | 11.4         | -51.01                  | -13   | -38.01      | H        |
| 5.857                   | -68.14              | Pk  | 35.1           | -27          | 10.2         | -49.84                  | -13   | -36.84      | H        |
| 5.889                   | -68.36              | Pk  | 35.3           | -27.1        | 11.1         | -49.06                  | -13   | -36.06      | V        |
| 7.434                   | -71.31              | Pk  | 35.8           | -24.6        | 11.3         | -48.81                  | -13   | -35.81      | V        |
| 7.453                   | -71.23              | Pk  | 35.7           | -24.7        | 10.7         | -49.53                  | -13   | -36.53      | H        |
| High Channel 1908.75MHz |                     |     |                |              |              |                         |       |             |          |
| 3.692                   | -67.15              | Pk  | 33.2           | -29.7        | 11.6         | -52.05                  | -13   | -39.05      | V        |
| 3.694                   | -66.65              | Pk  | 33.2           | -29.7        | 11.3         | -51.85                  | -13   | -38.85      | H        |
| 5.489                   | -68.69              | Pk  | 34.9           | -27.9        | 11.1         | -50.59                  | -13   | -37.59      | V        |
| 5.511                   | -68.82              | Pk  | 34.9           | -28.1        | 10.8         | -51.22                  | -13   | -38.22      | H        |
| 7.382                   | -69.63              | Pk  | 35.8           | -24.5        | 10.9         | -47.43                  | -13   | -34.43      | H        |
| 7.382                   | -70.91              | Pk  | 35.8           | -24.5        | 11.3         | -48.31                  | -13   | -35.31      | V        |

Pk - Peak detector

### 9.1.3. WCDMA

#### WCDMA BAND 5

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12886634            |
| Date:          | 6/11/2019           |
| Test Engineer: | 23567               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 5 Rel 99 |
| Chamber #:     | Chamber A           |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 826.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.648                  | -67.01              | Pk  | 28.7           | -32.4        | 12.2         | -58.51                  | -13   | -45.51      | H        |
| 1.649                  | -66.44              | Pk  | 28.7           | -32.3        | 11.2         | -58.84                  | -13   | -45.84      | V        |
| 2.444                  | -67.39              | Pk  | 32.5           | -31.4        | 11.5         | -54.79                  | -13   | -41.79      | H        |
| 2.449                  | -67.06              | Pk  | 32.5           | -31.5        | 12.1         | -53.96                  | -13   | -40.96      | V        |
| 3.298                  | -67.42              | Pk  | 32.9           | -30.4        | 11.3         | -53.62                  | -13   | -40.62      | V        |
| 3.327                  | -67.91              | Pk  | 32.8           | -30.2        | 10.9         | -54.41                  | -13   | -41.41      | H        |
| Mid Channel, 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.673                  | -66.17              | Pk  | 28.9           | -32.3        | 12.6         | -56.97                  | -13   | -43.97      | H        |
| 3.344                  | -67.86              | Pk  | 32.8           | -30.2        | 10.4         | -54.86                  | -13   | -41.86      | H        |
| 2.529                  | -67.3               | Pk  | 32.6           | -31.4        | 12.2         | -53.90                  | -13   | -40.90      | H        |
| 1.676                  | -65.82              | Pk  | 28.9           | -32.4        | 11           | -58.32                  | -13   | -45.32      | V        |
| 2.516                  | -67.33              | Pk  | 32.6           | -31.4        | 11.6         | -54.53                  | -13   | -41.53      | V        |
| 3.347                  | -66.46              | Pk  | 32.8           | -30.1        | 11           | -52.76                  | -13   | -39.76      | V        |
| High Channel, 846.6MHz |                     |     |                |              |              |                         |       |             |          |
| 1.692                  | -66.53              | Pk  | 28.8           | -32.3        | 12.5         | -57.53                  | -13   | -44.53      | H        |
| 1.695                  | -66.85              | Pk  | 28.8           | -32.3        | 12.6         | -57.75                  | -13   | -44.75      | V        |
| 2.538                  | -67.55              | Pk  | 32.6           | -31.4        | 12           | -54.35                  | -13   | -41.35      | V        |
| 2.57                   | -66.4               | Pk  | 32.5           | -31.2        | 12.5         | -52.60                  | -13   | -39.60      | H        |
| 3.283                  | -67.12              | Pk  | 32.9           | -30.3        | 10.8         | -53.72                  | -13   | -40.72      | V        |
| 3.313                  | -67.77              | Pk  | 32.8           | -30.3        | 11.5         | -53.77                  | -13   | -40.77      | H        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12886634           |
| Date:          | 6/11/2019          |
| Test Engineer: | 23567              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 5 HSDPA |
| Chamber #:     | Chamber A          |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 826.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.652                  | -66.31              | Pk  | 28.7           | -32.4        | 11.2         | -58.81                  | -13   | -45.81      | V        |
| 1.654                  | -65.57              | Pk  | 28.7           | -32.4        | 12.2         | -57.07                  | -13   | -44.07      | H        |
| 2.473                  | -67.05              | Pk  | 32.6           | -31.5        | 11.5         | -54.45                  | -13   | -41.45      | V        |
| 2.479                  | -66.51              | Pk  | 32.6           | -31.4        | 11.5         | -53.81                  | -13   | -40.81      | H        |
| 3.32                   | -67.86              | Pk  | 32.8           | -30.2        | 11.1         | -54.16                  | -13   | -41.16      | H        |
| 3.328                  | -67.36              | Pk  | 32.8           | -30.2        | 11           | -53.76                  | -13   | -40.76      | V        |
| Mid Channel, 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.672                  | -66.08              | Pk  | 28.9           | -32.3        | 12.7         | -56.78                  | -13   | -43.78      | H        |
| 1.675                  | -65.92              | Pk  | 28.9           | -32.4        | 11.2         | -58.22                  | -13   | -45.22      | V        |
| 2.52                   | -67.13              | Pk  | 32.6           | -31.5        | 11.7         | -54.33                  | -13   | -41.33      | H        |
| 2.52                   | -66.99              | Pk  | 32.6           | -31.5        | 11.7         | -54.19                  | -13   | -41.19      | V        |
| 3.336                  | -71.23              | Pk  | 32.8           | -30.1        | 11           | -57.53                  | -13   | -44.53      | V        |
| 3.341                  | -68                 | Pk  | 32.8           | -30.3        | 10.5         | -55.00                  | -13   | -42.00      | H        |
| High Channel, 846.6MHz |                     |     |                |              |              |                         |       |             |          |
| 1.683                  | -66.06              | Pk  | 28.9           | -32.3        | 11.1         | -58.36                  | -13   | -45.36      | V        |
| 1.69                   | -65.87              | Pk  | 28.9           | -32.4        | 12.5         | -56.87                  | -13   | -43.87      | H        |
| 2.54                   | -66.91              | Pk  | 32.6           | -31.4        | 11.9         | -53.81                  | -13   | -40.81      | H        |
| 2.556                  | -68.02              | Pk  | 32.5           | -31.5        | 11.5         | -55.52                  | -13   | -42.52      | V        |
| 3.383                  | -67.74              | Pk  | 32.8           | -30.1        | 11.4         | -53.64                  | -13   | -40.64      | V        |
| 3.398                  | -68.01              | Pk  | 32.7           | -30.1        | 11.2         | -54.21                  | -13   | -41.21      | H        |

Pk - Peak detector

**WCDMA BAND 2**

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12886634            |
| Date:          | 6/8/2019            |
| Test Engineer: | 23567               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 2 Rel 99 |
| Chamber #:     | Chamber A           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.403                   | -68.05              | Pk  | 32.7           | -30.1        | 11.3         | -54.15                  | -13   | -41.15      | V        |
| 3.421                   | -67.76              | Pk  | 32.7           | -30.1        | 12           | -53.16                  | -13   | -40.16      | H        |
| 5.133                   | -67.56              | Pk  | 34.5           | -28.6        | 10.8         | -50.86                  | -13   | -37.86      | V        |
| 5.143                   | -67.09              | Pk  | 34.5           | -28.6        | 10.9         | -50.29                  | -13   | -37.29      | H        |
| 6.81                    | -70.88              | Pk  | 35.8           | -25.5        | 10.6         | -49.98                  | -13   | -36.98      | V        |
| 6.837                   | -69.71              | Pk  | 35.9           | -25.2        | 10.2         | -48.81                  | -13   | -35.81      | H        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.463                   | -66.92              | Pk  | 32.8           | -30.1        | 11.5         | -52.72                  | -13   | -39.72      | V        |
| 3.476                   | -67.66              | Pk  | 32.8           | -30.3        | 11.5         | -53.66                  | -13   | -40.66      | H        |
| 5.193                   | -67.69              | Pk  | 34.6           | -28.5        | 10.6         | -50.99                  | -13   | -37.99      | H        |
| 5.215                   | -68.25              | Pk  | 34.7           | -28.2        | 11.3         | -50.45                  | -13   | -37.45      | V        |
| 6.916                   | -70.59              | Pk  | 35.9           | -25.2        | 10.6         | -49.29                  | -13   | -36.29      | V        |
| 6.933                   | -71.44              | Pk  | 36             | -25.1        | 10.8         | -49.74                  | -13   | -36.74      | H        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.51                    | -68.32              | Pk  | 33.6           | -30.3        | 11.2         | -53.82                  | -13   | -40.82      | H        |
| 3.518                   | -68.3               | Pk  | 33.3           | -30.2        | 11.3         | -53.90                  | -13   | -40.90      | V        |
| 5.253                   | -68.13              | Pk  | 34.8           | -28.2        | 10.9         | -50.63                  | -13   | -37.63      | H        |
| 5.273                   | -68.64              | Pk  | 34.9           | -27.9        | 11.3         | -50.34                  | -13   | -37.34      | V        |
| 7.06                    | -69.88              | Pk  | 36             | -24.9        | 11           | -47.78                  | -13   | -34.78      | V        |
| 7.075                   | -70.52              | Pk  | 36             | -24.7        | 10.8         | -48.42                  | -13   | -35.42      | H        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12886634           |
| Date:          | 6/8/2019           |
| Test Engineer: | 23567              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 2 HSDPA |
| Chamber #:     | Chamber A          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.402                   | -67.76              | Pk  | 32.7           | -30.1        | 11.3         | -53.86                  | -13   | -40.86      | V        |
| 3.427                   | -67.39              | Pk  | 32.8           | -30.1        | 12           | -52.69                  | -13   | -39.69      | H        |
| 5.135                   | -67.93              | Pk  | 34.6           | -28.6        | 10.8         | -51.13                  | -13   | -38.13      | H        |
| 5.136                   | -68.17              | Pk  | 34.6           | -28.6        | 11           | -51.17                  | -13   | -38.17      | V        |
| 6.811                   | -71                 | Pk  | 35.8           | -25.5        | 10.6         | -50.10                  | -13   | -37.10      | V        |
| 6.835                   | -70.88              | Pk  | 35.9           | -25.2        | 10.3         | -49.88                  | -13   | -36.88      | H        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.451                   | -67.85              | Pk  | 32.8           | -30.1        | 11.7         | -53.45                  | -13   | -40.45      | V        |
| 3.467                   | -67.7               | Pk  | 32.8           | -30.2        | 11.2         | -53.90                  | -13   | -40.90      | H        |
| 5.204                   | -68.36              | Pk  | 34.6           | -28.5        | 10.9         | -51.36                  | -13   | -38.36      | H        |
| 5.232                   | -68.31              | Pk  | 34.7           | -28.4        | 11.3         | -50.71                  | -13   | -37.71      | V        |
| 6.883                   | -70.88              | Pk  | 35.8           | -24.9        | 11           | -48.98                  | -13   | -35.98      | V        |
| 6.932                   | -70.05              | Pk  | 36             | -25.1        | 10.7         | -48.45                  | -13   | -35.45      | H        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.491                   | -68.95              | Pk  | 33.1           | -30.2        | 11.8         | -54.25                  | -13   | -41.25      | V        |
| 3.498                   | -67.8               | Pk  | 33.7           | -30.3        | 11.7         | -52.70                  | -13   | -39.70      | H        |
| 5.246                   | -66.98              | Pk  | 34.8           | -28.1        | 11.3         | -48.98                  | -13   | -35.98      | V        |
| 5.266                   | -68.17              | Pk  | 34.9           | -28          | 10.7         | -50.57                  | -13   | -37.57      | H        |
| 7.003                   | -70.03              | Pk  | 35.9           | -25.1        | 11.3         | -47.93                  | -13   | -34.93      | V        |
| 7.006                   | -70.61              | Pk  | 35.9           | -25          | 10.8         | -48.91                  | -13   | -35.91      | H        |

Pk - Peak detector

**WCDMA BAND 4**

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12886634            |
| Date:          | 6/10/2019           |
| Test Engineer: | 23567               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 4 Rel 99 |
| Chamber #:     | Chamber A           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 5.146                   | -68.55              | Pk  | 34.5           | -28.6        | 11.2         | -51.45                  | -13   | -38.45      | V        |
| 3.41                    | -68.71              | Pk  | 32.8           | -30.2        | 11.3         | -54.81                  | -13   | -41.81      | V        |
| 3.422                   | -67.96              | Pk  | 32.7           | -30.1        | 12           | -53.36                  | -13   | -40.36      | H        |
| 3.422                   | -71.07              | Pk  | 32.7           | -30.1        | 12           | -56.47                  | -13   | -43.47      | H        |
| 6.839                   | -70.61              | Pk  | 35.9           | -25.2        | 10.3         | -49.61                  | -13   | -36.61      | H        |
| 6.875                   | -79.09              | Pk  | 35.9           | -24.9        | 11.2         | -56.89                  | -13   | -43.89      | V        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.451                   | -68.89              | Pk  | 32.8           | -30.1        | 11.7         | -54.49                  | -13   | -41.49      | V        |
| 3.462                   | -68.54              | Pk  | 32.8           | -30.1        | 10.9         | -54.94                  | -13   | -41.94      | H        |
| 5.196                   | -68.39              | Pk  | 34.6           | -28.5        | 11           | -51.29                  | -13   | -38.29      | V        |
| 5.202                   | -73.65              | Pk  | 34.6           | -28.5        | 10.8         | -56.75                  | -13   | -43.75      | H        |
| 6.906                   | -71.15              | Pk  | 35.9           | -25.1        | 10.4         | -49.95                  | -13   | -36.95      | V        |
| 6.913                   | -69.8               | Pk  | 36             | -25.2        | 10.2         | -48.80                  | -13   | -35.80      | H        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.505                   | -71.9               | Pk  | 34.2           | -30.3        | 11.6         | -56.4                   | -13   | -43.4       | H        |
| 3.499                   | -72.09              | Pk  | 33.8           | -30.3        | 11.4         | -57.19                  | -13   | -44.19      | V        |
| 5.256                   | -71.51              | Pk  | 34.8           | -28.2        | 10.9         | -54.01                  | -13   | -41.01      | V        |
| 5.262                   | -69.8               | Pk  | 34.8           | -28          | 11.1         | -51.9                   | -13   | -38.9       | H        |
| 7.026                   | -72.88              | Pk  | 36             | -24.9        | 10.7         | -51.08                  | -13   | -38.08      | V        |
| 7.039                   | -72.11              | Pk  | 35.9           | -25.2        | 10.3         | -51.11                  | -13   | -38.11      | H        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12886634           |
| Date:          | 6/10/2019          |
| Test Engineer: | 23567              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 4 HSDPA |
| Chamber #:     | Chamber A          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 5.13                    | -71.54              | Pk  | 34.5           | -28.5        | 10.6         | -54.94                  | -13   | -41.94      | H        |
| 5.112                   | -71.12              | Pk  | 34.4           | -28.4        | 11.1         | -54.02                  | -13   | -41.02      | V        |
| 3.418                   | -72.85              | Pk  | 32.8           | -30.3        | 11.8         | -58.55                  | -13   | -45.55      | V        |
| 3.421                   | -70.67              | Pk  | 32.7           | -30.2        | 12           | -56.17                  | -13   | -43.17      | H        |
| 6.845                   | -73.89              | Pk  | 35.9           | -25.3        | 10.2         | -53.09                  | -13   | -40.09      | H        |
| 6.863                   | -74.51              | Pk  | 35.9           | -25.1        | 10.9         | -52.81                  | -13   | -39.81      | V        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.611                   | -69.41              | Pk  | 33.2           | -29.8        | 11.2         | -54.81                  | -13   | -41.81      | H        |
| 3.47                    | -71.03              | Pk  | 32.8           | -30.3        | 11.3         | -57.23                  | -13   | -44.23      | H        |
| 5.185                   | -70.85              | Pk  | 34.6           | -28.5        | 10.9         | -53.85                  | -13   | -40.85      | H        |
| 5.296                   | -70.75              | Pk  | 34.9           | -27.9        | 11           | -52.75                  | -13   | -39.75      | H        |
| 6.93                    | -74.77              | Pk  | 36             | -25.1        | 10.6         | -53.27                  | -13   | -40.27      | H        |
| 7.02                    | -71.93              | Pk  | 35.9           | -25          | 10.5         | -50.53                  | -13   | -37.53      | H        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.494                   | -70.79              | Pk  | 33.3           | -30.3        | 11.8         | -55.99                  | -13   | -42.99      | V        |
| 3.496                   | -71.92              | Pk  | 33.5           | -30.3        | 11.8         | -56.92                  | -13   | -43.92      | H        |
| 5.233                   | -71.24              | Pk  | 34.7           | -28.4        | 11.3         | -53.64                  | -13   | -40.64      | V        |
| 5.256                   | -71.07              | Pk  | 34.8           | -28.1        | 10.9         | -53.47                  | -13   | -40.47      | H        |
| 6.976                   | -73.62              | Pk  | 36             | -25.2        | 10.5         | -52.32                  | -13   | -39.32      | V        |
| 7.002                   | -73.6               | Pk  | 35.9           | -25.1        | 10.7         | -52.1                   | -13   | -39.1       | H        |

Pk - Peak detector

## 9.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 2

### 9.2.1. GSM

#### GSM 850MHz

|                |             |
|----------------|-------------|
| Company:       |             |
| Project #:     | 12886634    |
| Date:          | 6/7/2019    |
| Test Engineer: | 39006       |
| Configuration: | EUT only    |
| Mode:          | GSM850 GPRS |
| Chamber #:     | Chamber A   |

| Frequency (GHz)       | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-----------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.2MHz |                     |     |                |              |              |                         |       |             |          |
| 1.649                 | -64.18              | Pk  | 28.7           | -32.4        | 12.1         | -55.78                  | -13   | -42.78      | H        |
| 1.726                 | -65.77              | Pk  | 29.4           | -32.2        | 13.2         | -55.37                  | -13   | -42.37      | V        |
| 2.472                 | -66.64              | Pk  | 32.6           | -31.5        | 11.8         | -53.74                  | -13   | -40.74      | H        |
| 2.473                 | -59.1               | Pk  | 32.6           | -31.5        | 11.5         | -46.50                  | -13   | -33.50      | V        |
| 3.423                 | -67.59              | Pk  | 32.7           | -30.1        | 12.1         | -52.89                  | -13   | -39.89      | H        |
| 3.427                 | -67.42              | Pk  | 32.8           | -30.1        | 12.2         | -52.52                  | -13   | -39.52      | V        |
| Mid Channel 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.675                 | -66.29              | Pk  | 28.9           | -32.4        | 11.2         | -58.59                  | -13   | -45.59      | V        |
| 1.679                 | -65.63              | Pk  | 28.9           | -32.4        | 12           | -57.13                  | -13   | -44.13      | H        |
| 2.51                  | -61.26              | Pk  | 32.6           | -31.5        | 11.6         | -48.56                  | -13   | -35.56      | V        |
| 2.514                 | -68.04              | Pk  | 32.6           | -31.5        | 11.5         | -55.44                  | -13   | -42.44      | H        |
| 3.493                 | -68.59              | Pk  | 33.2           | -30.3        | 12           | -53.69                  | -13   | -40.69      | H        |
| 3.497                 | -67.36              | Pk  | 33.6           | -30.3        | 11.6         | -52.46                  | -13   | -39.46      | V        |
| High Channel 848.8MHz |                     |     |                |              |              |                         |       |             |          |
| 1.7                   | -66.01              | Pk  | 28.9           | -32.2        | 12.4         | -56.91                  | -13   | -43.91      | H        |
| 1.735                 | -65.14              | Pk  | 29.7           | -32.3        | 11.9         | -55.84                  | -13   | -42.84      | V        |
| 2.547                 | -62.91              | Pk  | 32.6           | -31.5        | 11.9         | -49.91                  | -13   | -36.91      | V        |
| 2.548                 | -66.9               | Pk  | 32.6           | -31.5        | 12.2         | -53.60                  | -13   | -40.60      | H        |
| 3.709                 | -66.45              | Pk  | 33.3           | -29.7        | 11.2         | -51.65                  | -13   | -38.65      | H        |
| 3.75                  | -65.67              | Pk  | 33.5           | -29.7        | 11.7         | -50.17                  | -13   | -37.17      | V        |

Pk - Peak detector

|                |              |
|----------------|--------------|
| Company:       |              |
| Project #:     | 12886634     |
| Date:          | 6/7/2019     |
| Test Engineer: | 39006        |
| Configuration: | EUT Only     |
| Mode:          | GSM850 EGPRS |
| Chamber #:     | Chamber A    |

| Frequency (GHz)       | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-----------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.2MHz |                     |     |                |              |              |                         |       |             |          |
| 1.773                 | -65.92              | Pk  | 29.9           | -32.2        | 12.5         | -55.72                  | -13   | -42.72      | V        |
| 1.782                 | -66.66              | Pk  | 30.1           | -32.2        | 12           | -56.76                  | -13   | -43.76      | H        |
| 2.473                 | -62.92              | Pk  | 32.6           | -31.5        | 11.8         | -50.02                  | -13   | -37.02      | H        |
| 2.473                 | -67.29              | Pk  | 32.5           | -31.5        | 11.5         | -54.79                  | -13   | -41.79      | V        |
| 3.873                 | -66.7               | Pk  | 33.6           | -29.5        | 12.1         | -50.50                  | -13   | -37.50      | V        |
| 3.89                  | -66.5               | Pk  | 33.5           | -29.3        | 11.3         | -51.00                  | -13   | -38.00      | H        |
| Mid Channel 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.721                 | -66.23              | Pk  | 29.5           | -32.4        | 11.9         | -57.23                  | -13   | -44.23      | H        |
| 1.726                 | -66.17              | Pk  | 29.4           | -32.2        | 13.3         | -55.67                  | -13   | -42.67      | V        |
| 2.748                 | -67.4               | Pk  | 32.4           | -31.3        | 11.7         | -54.60                  | -13   | -41.60      | V        |
| 2.759                 | -67.07              | Pk  | 32.4           | -31          | 12.6         | -53.07                  | -13   | -40.07      | H        |
| 3.756                 | -66.15              | Pk  | 33.5           | -29.7        | 11.2         | -51.15                  | -13   | -38.15      | V        |
| 3.758                 | -66.09              | Pk  | 33.5           | -29.7        | 11.5         | -50.79                  | -13   | -37.79      | H        |
| High Channel 848.8MHz |                     |     |                |              |              |                         |       |             |          |
| 1.719                 | -75.4               | Pk  | 29.5           | -32.4        | 11.8         | -66.50                  | -13   | -53.50      | H        |
| 1.723                 | -66.12              | Pk  | 29.5           | -32.3        | 13.7         | -55.22                  | -13   | -42.22      | V        |
| 2.54                  | -66.21              | Pk  | 32.6           | -31.4        | 11.9         | -53.11                  | -13   | -40.11      | H        |
| 2.546                 | -60.37              | Pk  | 32.6           | -31.5        | 11.9         | -47.37                  | -13   | -34.37      | V        |
| 3.499                 | -68.12              | Pk  | 33.8           | -30.3        | 11.7         | -52.92                  | -13   | -39.92      | H        |
| 3.617                 | -67.1               | Pk  | 33.2           | -29.7        | 11           | -52.60                  | -13   | -39.60      | V        |

Pk - Peak detector

**GSM 1900MHz**

|                |              |
|----------------|--------------|
| Company:       |              |
| Project #:     | 12886634     |
| Date:          | 6/6/2019     |
| Test Engineer: | 23567        |
| Configuration: | EUT Only     |
| Mode:          | GSM1900 GPRS |
| Chamber #:     | Chamber A    |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.691                   | -67.34              | Pk  | 33.2           | -29.7        | 11.6         | -52.24                  | -13   | -39.24      | V        |
| 3.702                   | -66.53              | Pk  | 33.2           | -29.8        | 11.2         | -51.93                  | -13   | -38.93      | H        |
| 5.547                   | -68.09              | Pk  | 34.8           | -28.1        | 10.9         | -50.49                  | -13   | -37.49      | H        |
| 5.55                    | -60.94              | Pk  | 34.8           | -28.1        | 11           | -43.24                  | -13   | -30.24      | V        |
| 7.313                   | -70.57              | Pk  | 35.7           | -24.9        | 11.4         | -48.37                  | -13   | -35.37      | V        |
| 7.359                   | -70.47              | Pk  | 35.7           | -24.6        | 11.2         | -48.17                  | -13   | -35.17      | V        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.699                   | -66.05              | Pk  | 33.2           | -29.6        | 11.2         | -51.25                  | -13   | -38.25      | H        |
| 3.699                   | -66.58              | Pk  | 33.2           | -29.6        | 11.5         | -51.48                  | -13   | -38.48      | V        |
| 5.64                    | -62.53              | Pk  | 34.9           | -28          | 10.7         | -44.93                  | -13   | -31.93      | H        |
| 5.64                    | -65.02              | Pk  | 34.8           | -28          | 10.8         | -47.42                  | -13   | -34.42      | V        |
| 7.37                    | -69.76              | Pk  | 35.7           | -24.7        | 11.5         | -47.26                  | -13   | -34.26      | V        |
| 7.389                   | -69.98              | Pk  | 35.7           | -24.7        | 10.6         | -48.38                  | -13   | -35.38      | H        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |       |             |          |
| 3.681                   | -66.57              | Pk  | 33.2           | -29.9        | 11.7         | -51.57                  | -13   | -38.57      | V        |
| 3.714                   | -65.68              | Pk  | 33.3           | -29.9        | 10.8         | -51.48                  | -13   | -38.48      | H        |
| 5.729                   | -65.44              | Pk  | 34.9           | -27.5        | 10.6         | -47.44                  | -13   | -34.44      | H        |
| 5.729                   | -65.66              | Pk  | 34.8           | -27.5        | 10.6         | -47.76                  | -13   | -34.76      | V        |
| 8.978                   | -70.5               | Pk  | 36.2           | -23.7        | 11.2         | -46.80                  | -13   | -33.80      | H        |
| 8.98                    | -70.09              | Pk  | 36.2           | -23.7        | 11.1         | -46.49                  | -13   | -33.49      | V        |

Pk - Peak detector

|                |               |
|----------------|---------------|
| Company:       |               |
| Project #:     | 12886634      |
| Date:          | 6/6/2019      |
| Test Engineer: | 23567         |
| Configuration: | EUT Only      |
| Mode:          | GSM1900 EGPRS |
| Chamber #:     | Chamber A     |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-----|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |     |             |          |
| 3.841                   | -66.28              | Pk  | 33.7           | -29.6        | 11.1         | -51.08                  | -13 | -38.08      | H        |
| 3.843                   | -65.92              | Pk  | 33.7           | -29.6        | 11.1         | -50.72                  | -13 | -37.72      | V        |
| 5.55                    | -68.35              | Pk  | 34.8           | -28.1        | 11           | -50.65                  | -13 | -37.65      | V        |
| 5.553                   | -68.85              | Pk  | 34.8           | -28          | 10.8         | -51.25                  | -13 | -38.25      | H        |
| 7.413                   | -71.06              | Pk  | 35.7           | -24.7        | 11           | -49.06                  | -13 | -36.06      | V        |
| 7.417                   | -70.28              | Pk  | 35.8           | -24.6        | 10.7         | -48.38                  | -13 | -35.38      | H        |
| Mid Channel, 1880MHz    |                     |     |                |              |              |                         |     |             |          |
| 3.694                   | -66.46              | Pk  | 33.2           | -29.7        | 11.7         | -51.26                  | -13 | -38.26      | V        |
| 3.71                    | -65.66              | Pk  | 33.3           | -29.8        | 11.2         | -50.96                  | -13 | -37.96      | H        |
| 5.55                    | -68.86              | Pk  | 34.8           | -28.1        | 11           | -51.16                  | -13 | -38.16      | V        |
| 5.578                   | -68.43              | Pk  | 34.9           | -28          | 10.7         | -50.83                  | -13 | -37.83      | H        |
| 7.429                   | -70.42              | Pk  | 35.7           | -24.6        | 11.2         | -48.12                  | -13 | -35.12      | V        |
| 7.433                   | -71.13              | Pk  | 35.7           | -24.6        | 10.8         | -49.23                  | -13 | -36.23      | H        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |     |             |          |
| 3.673                   | -66.93              | Pk  | 33.2           | -29.9        | 11.1         | -52.53                  | -13 | -39.53      | V        |
| 3.699                   | -65.99              | Pk  | 33.2           | -29.6        | 11.2         | -51.19                  | -13 | -38.19      | H        |
| 5.522                   | -68.08              | Pk  | 34.8           | -28.1        | 11.4         | -49.98                  | -13 | -36.98      | V        |
| 5.537                   | -68.74              | Pk  | 34.8           | -28.1        | 11.3         | -50.74                  | -13 | -37.74      | H        |
| 7.379                   | -70.7               | Pk  | 35.7           | -24.4        | 10.9         | -48.50                  | -13 | -35.50      | H        |
| 7.384                   | -70.46              | Pk  | 35.8           | -24.5        | 11.2         | -47.96                  | -13 | -34.96      | V        |

Pk - Peak detector

## 9.2.2. CDMA

### CDMA BC10

|                |                 |
|----------------|-----------------|
| Company:       |                 |
| Project #:     | 12886634        |
| Date:          | 6/10/2019       |
| Test Engineer: | 31300           |
| Configuration: | EUT Only        |
| Mode:          | CDMA BC10 1xRTT |
| Chamber #:     | Chamber A       |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 817.25MHz |                     |     |                |              |              |                         |       |             |          |
| 2.701                  | -66.3               | Pk  | 32.4           | -31          | 11.9         | -53.00                  | -13   | -40.00      | H        |
| 3.693                  | -66.04              | Pk  | 33.2           | -29.7        | 11.6         | -50.94                  | -13   | -37.94      | V        |
| 3.862                  | -65.31              | Pk  | 33.6           | -29.5        | 11.7         | -49.51                  | -13   | -36.51      | H        |
| 5.812                  | -67.73              | Pk  | 35.2           | -27.2        | 10.9         | -48.83                  | -13   | -35.83      | V        |
| 7.788                  | -69.47              | Pk  | 35.8           | -24.4        | 11.4         | -46.67                  | -13   | -33.67      | V        |
| 13.631                 | -70.16              | Pk  | 38.7           | -20.7        | 11           | -41.16                  | -13   | -28.16      | H        |
| Mid Channel 820MHz     |                     |     |                |              |              |                         |       |             |          |
| 2.358                  | -66.39              | Pk  | 32             | -31.5        | 13           | -52.89                  | -13   | -39.89      | H        |
| 2.395                  | -66.43              | Pk  | 32.3           | -31.4        | 13.2         | -52.33                  | -13   | -39.33      | V        |
| 3.788                  | -65.76              | Pk  | 33.6           | -29.7        | 11.5         | -50.36                  | -13   | -37.36      | V        |
| 3.821                  | -65.7               | Pk  | 33.7           | -29.4        | 11.5         | -49.90                  | -13   | -36.90      | H        |
| 7.073                  | -69.37              | Pk  | 36             | -24.8        | 11           | -47.17                  | -13   | -34.17      | V        |
| 9.715                  | -70.32              | Pk  | 36.9           | -22.3        | 10.8         | -44.92                  | -13   | -31.92      | H        |
| High Channel 822.75MHz |                     |     |                |              |              |                         |       |             |          |
| 1.502                  | -65.01              | Pk  | 28.2           | -32.5        | 12.4         | -56.91                  | -13   | -43.91      | V        |
| 2.37                   | -66.3               | Pk  | 32.1           | -31.2        | 13.2         | -52.20                  | -13   | -39.20      | H        |
| 4.851                  | -66.64              | Pk  | 34.2           | -28.6        | 11.3         | -49.74                  | -13   | -36.74      | V        |
| 4.857                  | -66.84              | Pk  | 34.2           | -28.6        | 11.4         | -49.84                  | -13   | -36.84      | H        |
| 9.592                  | -70.59              | Pk  | 36.7           | -22.6        | 11           | -45.49                  | -13   | -32.49      | H        |
| 11.561                 | -71.37              | Pk  | 38.2           | -20.9        | 10.9         | -43.17                  | -13   | -30.17      | V        |

Pk - Peak detector

|                |                       |
|----------------|-----------------------|
| Company:       |                       |
| Project #:     | 12886634              |
| Date:          | 6/10/2019             |
| Test Engineer: | 39006                 |
| Configuration: | EUT Only              |
| Mode:          | CDMA BC10 EV-DO Rev A |
| Chamber #:     | Chamber A             |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 817.25MHz |                     |     |                |              |              |                         |       |             |          |
| 1.628                  | -66.54              | Pk  | 28.5           | -32.3        | 11           | -59.34                  | -13   | -46.34      | H        |
| 1.63                   | -66.04              | Pk  | 28.5           | -32.3        | 10.8         | -59.04                  | -13   | -46.04      | V        |
| 2.433                  | -67.02              | Pk  | 32.6           | -31.4        | 11.7         | -54.12                  | -13   | -41.12      | V        |
| 2.445                  | -67.25              | Pk  | 32.5           | -31.5        | 11.7         | -54.55                  | -13   | -41.55      | H        |
| 3.259                  | -67.84              | Pk  | 32.9           | -30.5        | 10.6         | -54.84                  | -13   | -41.84      | V        |
| 3.261                  | -67.18              | Pk  | 33             | -30.5        | 10.5         | -54.18                  | -13   | -41.18      | H        |
| Mid Channel 820MHz     |                     |     |                |              |              |                         |       |             |          |
| 1.64                   | -62.75              | Pk  | 28.6           | -32.3        | 11.5         | -54.95                  | -13   | -41.95      | V        |
| 1.644                  | -66.64              | Pk  | 28.7           | -32.4        | 12.3         | -58.04                  | -13   | -45.04      | H        |
| 2.361                  | -66.77              | Pk  | 32             | -31.5        | 12.4         | -53.87                  | -13   | -40.87      | V        |
| 2.364                  | -66.54              | Pk  | 32             | -31.4        | 13.2         | -52.74                  | -13   | -39.74      | H        |
| 3.422                  | -67.73              | Pk  | 32.7           | -30.1        | 11.9         | -53.23                  | -13   | -40.23      | V        |
| 3.425                  | -67.99              | Pk  | 32.7           | -30.1        | 12.1         | -53.29                  | -13   | -40.29      | H        |
| High Channel 822.75MHz |                     |     |                |              |              |                         |       |             |          |
| 1.629                  | -66.72              | Pk  | 28.5           | -32.3        | 11.1         | -59.42                  | -13   | -46.42      | H        |
| 1.639                  | -66.06              | Pk  | 28.6           | -32.3        | 12           | -57.76                  | -13   | -44.76      | H        |
| 2.432                  | -67.52              | Pk  | 32.6           | -31.4        | 11.2         | -55.12                  | -13   | -42.12      | H        |
| 2.448                  | -67.64              | Pk  | 32.5           | -31.5        | 12           | -54.64                  | -13   | -41.64      | H        |
| 3.253                  | -67.34              | Pk  | 32.9           | -30.4        | 10.7         | -54.14                  | -13   | -41.14      | H        |
| 3.262                  | -67.78              | Pk  | 33             | -30.5        | 10.3         | -54.98                  | -13   | -41.98      | H        |

Pk - Peak detector

**CDMA BC0**

|                |                |
|----------------|----------------|
| Company:       |                |
| Project #:     | 12886634       |
| Date:          | 6/10/2019      |
| Test Engineer: | 31300          |
| Configuration: | EUT Only       |
| Mode:          | CDMA BC0 1xRTT |
| Chamber #:     | Chamber A      |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.7MHz  |                     |     |                |              |              |                         |       |             |          |
| 2.069                  | -66.03              | Pk  | 31.7           | -31.7        | 13           | -53.03                  | -13   | -40.03      | H        |
| 2.819                  | -66.92              | Pk  | 32.5           | -30.8        | 12.2         | -53.02                  | -13   | -40.02      | V        |
| 3.893                  | -66.33              | Pk  | 33.5           | -29.4        | 11.2         | -51.03                  | -13   | -38.03      | V        |
| 4.851                  | -67.42              | Pk  | 34.2           | -28.6        | 11.2         | -50.62                  | -13   | -37.62      | H        |
| 11.645                 | -71.96              | Pk  | 38.3           | -20.8        | 10.4         | -44.06                  | -13   | -31.06      | V        |
| 13.629                 | -70.83              | Pk  | 38.7           | -20.8        | 11.1         | -41.83                  | -13   | -28.83      | H        |
| Mid Channel 836.52MHz  |                     |     |                |              |              |                         |       |             |          |
| 2.378                  | -67.04              | Pk  | 32.2           | -31.3        | 12.7         | -53.44                  | -13   | -40.44      | H        |
| 2.417                  | -66.36              | Pk  | 32.4           | -31.4        | 12           | -53.36                  | -13   | -40.36      | V        |
| 3.806                  | -66.32              | Pk  | 33.7           | -29.4        | 11.3         | -50.72                  | -13   | -37.72      | H        |
| 5.799                  | -68.19              | Pk  | 35.1           | -27.2        | 10.5         | -49.79                  | -13   | -36.79      | V        |
| 10.784                 | -72.07              | Pk  | 37.9           | -20.5        | 10.8         | -43.87                  | -13   | -30.87      | H        |
| 10.913                 | -71.03              | Pk  | 37.9           | -20.6        | 10.8         | -42.93                  | -13   | -29.93      | V        |
| High Channel 848.31MHz |                     |     |                |              |              |                         |       |             |          |
| 2.086                  | -66.07              | Pk  | 31.7           | -31.9        | 12.2         | -54.07                  | -13   | -41.07      | H        |
| 2.544                  | -64.16              | Pk  | 32.6           | -31.5        | 11.7         | -51.36                  | -13   | -38.36      | V        |
| 3.503                  | -66.68              | Pk  | 34.2           | -30.3        | 11.4         | -51.38                  | -13   | -38.38      | V        |
| 4.857                  | -66.65              | Pk  | 34.2           | -28.6        | 11.4         | -49.65                  | -13   | -36.65      | H        |
| 8.054                  | -70.04              | Pk  | 35.9           | -24.1        | 11.3         | -46.94                  | -13   | -33.94      | H        |
| 12.524                 | -72.03              | Pk  | 39.1           | -20.7        | 10.5         | -43.13                  | -13   | -30.13      | V        |

Pk - Peak detector

|                |                      |
|----------------|----------------------|
| Company:       |                      |
| Project #:     | 12886634             |
| Date:          | 6/10/2019            |
| Test Engineer: | 31300                |
| Configuration: | EUT Only             |
| Mode:          | CDMA BC0 EV-DO Rev A |
| Chamber #:     | Chamber A            |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.7MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.636                  | -66.65              | Pk  | 28.5           | -32.4        | 11.3         | -59.25                  | -13   | -46.25      | V        |
| 1.647                  | -66.99              | Pk  | 28.7           | -32.4        | 12.2         | -58.49                  | -13   | -45.49      | H        |
| 2.449                  | -67.49              | Pk  | 32.5           | -31.5        | 12.2         | -54.29                  | -13   | -41.29      | H        |
| 2.456                  | -67.34              | Pk  | 32.5           | -31.5        | 11.5         | -54.84                  | -13   | -41.84      | V        |
| 3.277                  | -67.91              | Pk  | 32.9           | -30.5        | 10.8         | -54.71                  | -13   | -41.71      | V        |
| 3.28                   | -68.08              | Pk  | 32.9           | -30.4        | 10.6         | -54.98                  | -13   | -41.98      | H        |
| Mid Channel 836.52MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.638                  | -66.1               | Pk  | 28.5           | -32.3        | 11.9         | -58.00                  | -13   | -45.00      | H        |
| 1.638                  | -66.31              | Pk  | 28.5           | -32.3        | 11.4         | -58.71                  | -13   | -45.71      | V        |
| 2.444                  | -67.76              | Pk  | 32.5           | -31.4        | 12.1         | -54.56                  | -13   | -41.56      | V        |
| 2.445                  | -66.89              | Pk  | 32.5           | -31.5        | 11.7         | -54.19                  | -13   | -41.19      | H        |
| 3.252                  | -66.79              | Pk  | 32.9           | -30.4        | 10.6         | -53.69                  | -13   | -40.69      | V        |
| 3.273                  | -67.71              | Pk  | 32.9           | -30.4        | 10.3         | -54.91                  | -13   | -41.91      | H        |
| High Channel 848.31MHz |                     |     |                |              |              |                         |       |             |          |
| 1.637                  | -65.98              | Pk  | 28.5           | -32.3        | 11.3         | -58.48                  | -13   | -45.48      | V        |
| 1.638                  | -66.43              | Pk  | 28.5           | -32.3        | 11.9         | -58.33                  | -13   | -45.33      | H        |
| 2.544                  | -59.74              | Pk  | 32.6           | -31.4        | 11.8         | -46.74                  | -13   | -33.74      | H        |
| 2.546                  | -60.59              | Pk  | 32.6           | -31.5        | 11.8         | -47.69                  | -13   | -34.69      | V        |
| 3.264                  | -67.1               | Pk  | 33             | -30.5        | 10.2         | -54.40                  | -13   | -41.40      | V        |
| 3.272                  | -67.19              | Pk  | 32.9           | -30.4        | 10.2         | -54.49                  | -13   | -41.49      | H        |

Pk - Peak detector

**CDMA BC1**

|                |                |
|----------------|----------------|
| Company:       |                |
| Project #:     | 12886634       |
| Date:          | 6/11/2019      |
| Test Engineer: | 39006          |
| Configuration: | EUT Only       |
| Mode:          | CDMA BC1 1xRTT |
| Chamber #:     | Chamber A      |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1851.25MHz |                     |     |                |              |              |                         |       |             |          |
| 3.873                   | -67.3               | Pk  | 33.6           | -29.5        | 12.1         | -51.10                  | -13   | -38.10      | V        |
| 3.889                   | -66.92              | Pk  | 33.5           | -29.3        | 11.3         | -51.42                  | -13   | -38.42      | H        |
| 5.823                   | -68.14              | Pk  | 35.1           | -27.3        | 10.6         | -49.74                  | -13   | -36.74      | H        |
| 5.876                   | -68.65              | Pk  | 35.2           | -27.2        | 11.2         | -49.45                  | -13   | -36.45      | V        |
| 7.7                     | -69.94              | Pk  | 35.8           | -24.6        | 11.4         | -47.34                  | -13   | -34.34      | V        |
| 7.726                   | -70.1               | Pk  | 35.8           | -24.6        | 11           | -47.90                  | -13   | -34.90      | H        |
| Mid Channel 1880.00MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.762                   | -66.44              | Pk  | 33.6           | -29.7        | 11.7         | -50.84                  | -13   | -37.84      | H        |
| 3.882                   | -76.08              | Pk  | 33.5           | -29.4        | 11.5         | -60.48                  | -13   | -47.48      | V        |
| 5.818                   | -68.82              | Pk  | 35             | -27.2        | 10.7         | -50.32                  | -13   | -37.32      | V        |
| 5.825                   | -68.02              | Pk  | 35.1           | -27.3        | 10.6         | -49.62                  | -13   | -36.62      | H        |
| 7.553                   | -70.77              | Pk  | 35.7           | -24.4        | 11.1         | -48.37                  | -13   | -35.37      | V        |
| 7.59                    | -70.1               | Pk  | 35.8           | -24.4        | 10.5         | -48.20                  | -13   | -35.20      | H        |
| High Channel 1908.75MHz |                     |     |                |              |              |                         |       |             |          |
| 3.827                   | -67.18              | Pk  | 33.7           | -29.1        | 11.4         | -51.18                  | -13   | -38.18      | H        |
| 3.835                   | -67.44              | Pk  | 33.7           | -29.5        | 11           | -52.24                  | -13   | -39.24      | V        |
| 5.871                   | -68.92              | Pk  | 35.2           | -27.2        | 11.1         | -49.82                  | -13   | -36.82      | V        |
| 5.871                   | -68.98              | Pk  | 35.2           | -27.2        | 11.2         | -49.78                  | -13   | -36.78      | V        |
| 7.354                   | -71.32              | Pk  | 35.7           | -24.7        | 10.6         | -49.72                  | -13   | -36.72      | H        |
| 7.361                   | -71.01              | Pk  | 35.8           | -24.6        | 11.3         | -48.51                  | -13   | -35.51      | V        |

Pk - Peak detector

|                |                      |
|----------------|----------------------|
| Company:       |                      |
| Project #:     | 12886634             |
| Date:          | 6/11/2019            |
| Test Engineer: | 39006                |
| Configuration: | EUT Only             |
| Mode:          | CDMA BC1 EV-DO Rev A |
| Chamber #:     | Chamber A            |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1851.25MHz |                     |     |                |              |              |                         |       |             |          |
| 3.685                   | -70.22              | Pk  | 33.2           | -29.8        | 12           | -54.82                  | -13   | -41.82      | V        |
| 3.717                   | -69.83              | Pk  | 33.3           | -29.9        | 10.8         | -55.63                  | -13   | -42.63      | H        |
| 5.457                   | -73.96              | Pk  | 35             | -28          | 11           | -55.96                  | -13   | -42.96      | V        |
| 5.502                   | -72.49              | Pk  | 34.9           | -27.9        | 10.6         | -54.89                  | -13   | -41.89      | H        |
| 7.355                   | -73.99              | Pk  | 35.7           | -24.7        | 11.1         | -51.89                  | -13   | -38.89      | V        |
| 7.398                   | -74.92              | Pk  | 35.7           | -24.6        | 10.6         | -53.22                  | -13   | -40.22      | H        |
| Mid Channel 1880.00MHz  |                     |     |                |              |              |                         |       |             |          |
| 2.879                   | -66.72              | Pk  | 32.6           | -30.5        | 12.6         | -52.02                  | -13   | -39.02      | V        |
| 4.293                   | -67.3               | Pk  | 33.6           | -29.1        | 11.7         | -51.10                  | -13   | -38.10      | V        |
| 4.36                    | -66.82              | Pk  | 33.7           | -28.7        | 11.3         | -50.52                  | -13   | -37.52      | H        |
| 6.308                   | -69.45              | Pk  | 35.7           | -26.4        | 10.6         | -49.55                  | -13   | -36.55      | H        |
| 13.623                  | -70.51              | Pk  | 38.6           | -20.8        | 11.3         | -41.41                  | -13   | -28.41      | H        |
| 14.295                  | -70.46              | Pk  | 39             | -20.5        | 11.1         | -40.86                  | -13   | -27.86      | V        |
| High Channel 1908.75MHz |                     |     |                |              |              |                         |       |             |          |
| 2.133                   | -66.42              | Pk  | 31.7           | -31.7        | 13.4         | -53.02                  | -13   | -40.02      | V        |
| 3.061                   | -66.6               | Pk  | 33.4           | -30.6        | 11.8         | -52.00                  | -13   | -39.00      | H        |
| 3.878                   | -65.39              | Pk  | 33.6           | -29.4        | 11.7         | -49.49                  | -13   | -36.49      | H        |
| 3.882                   | -66.12              | Pk  | 33.5           | -29.4        | 11.5         | -50.52                  | -13   | -37.52      | V        |
| 9.769                   | -70.66              | Pk  | 36.9           | -22.5        | 10.6         | -45.66                  | -13   | -32.66      | H        |
| 12.549                  | -72.21              | Pk  | 39.1           | -20.9        | 10.8         | -43.21                  | -13   | -30.21      | V        |

Pk - Peak detector

### 9.2.3. WCDMA

#### WCDMA BAND 5

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12886634            |
| Date:          | 6/8/2019            |
| Test Engineer: | 23567               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 5 Rel 99 |
| Chamber #:     | Chamber A           |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 826.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.654                  | -64.58              | Pk  | 28.7           | -32.4        | 12.2         | -56.08                  | -13   | -43.08      | H        |
| 1.66                   | -66.64              | Pk  | 28.8           | -32.4        | 11.6         | -58.64                  | -13   | -45.64      | V        |
| 2.477                  | -67.02              | Pk  | 32.5           | -31.4        | 11.5         | -54.42                  | -13   | -41.42      | V        |
| 2.483                  | -67.14              | Pk  | 32.6           | -31.5        | 11.1         | -54.94                  | -13   | -41.94      | H        |
| 3.308                  | -68.34              | Pk  | 32.8           | -30.3        | 11.3         | -54.54                  | -13   | -41.54      | H        |
| 3.332                  | -67.89              | Pk  | 32.8           | -30.1        | 10.9         | -54.29                  | -13   | -41.29      | V        |
| Mid Channel, 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.673                  | -66.36              | Pk  | 28.9           | -32.3        | 11.4         | -58.36                  | -13   | -45.36      | V        |
| 1.684                  | -66.16              | Pk  | 28.9           | -32.4        | 12.3         | -57.36                  | -13   | -44.36      | H        |
| 2.498                  | -66.71              | Pk  | 32.6           | -31.5        | 11.9         | -53.71                  | -13   | -40.71      | V        |
| 2.522                  | -67.06              | Pk  | 32.6           | -31.5        | 11.8         | -54.16                  | -13   | -41.16      | H        |
| 3.313                  | -67.23              | Pk  | 32.8           | -30.3        | 11.5         | -53.23                  | -13   | -40.23      | H        |
| 3.348                  | -67.88              | Pk  | 32.8           | -30.1        | 11.1         | -54.08                  | -13   | -41.08      | V        |
| High Channel, 846.6MHz |                     |     |                |              |              |                         |       |             |          |
| 1.641                  | -66.39              | Pk  | 28.6           | -32.3        | 12.2         | -57.89                  | -13   | -44.89      | H        |
| 1.646                  | -66.12              | Pk  | 28.7           | -32.4        | 11.4         | -58.42                  | -13   | -45.42      | V        |
| 2.578                  | -67.51              | Pk  | 32.5           | -31.3        | 12.1         | -54.21                  | -13   | -41.21      | V        |
| 2.579                  | -67.11              | Pk  | 32.5           | -31.3        | 12.5         | -53.41                  | -13   | -40.41      | H        |
| 3.387                  | -67.29              | Pk  | 32.7           | -30.1        | 11.1         | -53.59                  | -13   | -40.59      | H        |
| 3.393                  | -67.44              | Pk  | 32.7           | -30          | 11.1         | -53.64                  | -13   | -40.64      | V        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12886634           |
| Date:          | 6/8/2019           |
| Test Engineer: | 23567              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 5 HSDPA |
| Chamber #:     | Chamber A          |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 826.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.67                   | -66.96              | Pk  | 28.8           | -32.3        | 12.7         | -57.76                  | -13   | -44.76      | H        |
| 1.671                  | -66.14              | Pk  | 28.8           | -32.3        | 11.6         | -58.04                  | -13   | -45.04      | V        |
| 2.51                   | -67                 | Pk  | 32.6           | -31.5        | 11.4         | -54.50                  | -13   | -41.50      | H        |
| 2.528                  | -66.66              | Pk  | 32.6           | -31.4        | 12.2         | -53.26                  | -13   | -40.26      | V        |
| 3.34                   | -67.38              | Pk  | 32.8           | -30.2        | 11           | -53.78                  | -13   | -40.78      | V        |
| 3.377                  | -67.12              | Pk  | 32.8           | -30.1        | 11.4         | -53.02                  | -13   | -40.02      | H        |
| Mid Channel, 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.678                  | -66.64              | Pk  | 28.9           | -32.4        | 12           | -58.14                  | -13   | -45.14      | H        |
| 3.353                  | -68.57              | Pk  | 32.8           | -30.1        | 10.8         | -55.07                  | -13   | -42.07      | H        |
| 1.668                  | -66.73              | Pk  | 28.8           | -32.4        | 11.6         | -58.73                  | -13   | -45.73      | V        |
| 2.547                  | -74.04              | Pk  | 32.6           | -31.5        | 11.9         | -61.04                  | -13   | -48.04      | V        |
| 2.557                  | -67.33              | Pk  | 32.5           | -31.5        | 12           | -54.33                  | -13   | -41.33      | H        |
| 3.31                   | -68.6               | Pk  | 32.8           | -30.3        | 11           | -55.10                  | -13   | -42.10      | V        |
| High Channel, 846.6MHz |                     |     |                |              |              |                         |       |             |          |
| 1.673                  | -66.36              | Pk  | 28.9           | -32.3        | 12.7         | -57.06                  | -13   | -44.06      | H        |
| 1.673                  | -66.62              | Pk  | 28.9           | -32.3        | 11.3         | -58.72                  | -13   | -45.72      | V        |
| 2.555                  | -67.39              | Pk  | 32.5           | -31.5        | 11.7         | -54.69                  | -13   | -41.69      | V        |
| 2.562                  | -66.9               | Pk  | 32.6           | -31.3        | 12.2         | -53.40                  | -13   | -40.40      | H        |
| 3.337                  | -67.89              | Pk  | 32.8           | -30.2        | 10.7         | -54.59                  | -13   | -41.59      | H        |
| 3.355                  | -67.36              | Pk  | 32.8           | -30.1        | 11.6         | -53.06                  | -13   | -40.06      | V        |

Pk - Peak detector

**WCDMA BAND 2**

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12886634            |
| Date:          | 6/9/2019            |
| Test Engineer: | 23567               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 2 Rel 99 |
| Chamber #:     | Chamber A           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.405                   | -67.94              | Pk  | 32.7           | -30.2        | 11.1         | -54.34                  | -13   | -41.34      | H        |
| 3.419                   | -66.93              | Pk  | 32.8           | -30.2        | 11.8         | -52.53                  | -13   | -39.53      | V        |
| 5.142                   | -67.73              | Pk  | 34.5           | -28.6        | 10.9         | -50.93                  | -13   | -37.93      | H        |
| 5.145                   | -67.02              | Pk  | 34.5           | -28.6        | 11.2         | -49.92                  | -13   | -36.92      | V        |
| 6.839                   | -70.09              | Pk  | 35.9           | -25.2        | 10.3         | -49.09                  | -13   | -36.09      | H        |
| 6.861                   | -70.24              | Pk  | 35.9           | -25.2        | 10.8         | -48.74                  | -13   | -35.74      | V        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.46                    | -67.38              | Pk  | 32.8           | -30.2        | 11.4         | -53.38                  | -13   | -40.38      | V        |
| 3.476                   | -67.39              | Pk  | 32.8           | -30.4        | 11.6         | -53.39                  | -13   | -40.39      | H        |
| 5.194                   | -67.94              | Pk  | 34.6           | -28.5        | 10.6         | -51.24                  | -13   | -38.24      | H        |
| 5.2                     | -68.11              | Pk  | 34.6           | -28.5        | 11           | -51.01                  | -13   | -38.01      | V        |
| 6.891                   | -71.14              | Pk  | 35.8           | -24.8        | 10.4         | -49.74                  | -13   | -36.74      | H        |
| 6.933                   | -70.77              | Pk  | 36             | -25.1        | 11.3         | -48.57                  | -13   | -35.57      | V        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.522                   | -68.05              | Pk  | 33.2           | -30.2        | 11.3         | -53.75                  | -13   | -40.75      | V        |
| 3.561                   | -68.22              | Pk  | 33             | -29.9        | 11           | -54.12                  | -13   | -41.12      | H        |
| 5.214                   | -68.35              | Pk  | 34.7           | -28.2        | 11.3         | -50.55                  | -13   | -37.55      | H        |
| 5.224                   | -68.37              | Pk  | 34.7           | -28.1        | 11.2         | -50.57                  | -13   | -37.57      | V        |
| 6.994                   | -70.84              | Pk  | 35.9           | -25.2        | 10.4         | -49.74                  | -13   | -36.74      | H        |
| 7.075                   | -69.05              | Pk  | 36             | -24.7        | 11           | -46.75                  | -13   | -33.75      | V        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12886634           |
| Date:          | 6/9/2019           |
| Test Engineer: | 23567              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 2 HSDPA |
| Chamber #:     | Chamber A          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.762                   | -66.81              | Pk  | 33.6           | -29.7        | 11.7         | -51.21                  | -13   | -38.21      | H        |
| 3.762                   | -66.56              | Pk  | 33.6           | -29.7        | 11.2         | -51.46                  | -13   | -38.46      | V        |
| 5.644                   | -68.9               | Pk  | 34.9           | -28          | 10.8         | -51.20                  | -13   | -38.20      | V        |
| 5.65                    | -68.77              | Pk  | 34.8           | -28          | 10.6         | -51.37                  | -13   | -38.37      | H        |
| 7.45                    | -70.83              | Pk  | 35.7           | -24.6        | 11.2         | -48.53                  | -13   | -35.53      | V        |
| 7.492                   | -71.38              | Pk  | 35.8           | -24.6        | 10.8         | -49.38                  | -13   | -36.38      | H        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.742                   | -67.24              | Pk  | 33.4           | -29.9        | 11.5         | -52.24                  | -13   | -39.24      | V        |
| 3.754                   | -67.27              | Pk  | 33.5           | -29.6        | 11.6         | -51.77                  | -13   | -38.77      | H        |
| 5.584                   | -68.31              | Pk  | 34.9           | -28.1        | 10.8         | -50.71                  | -13   | -37.71      | H        |
| 5.641                   | -67.32              | Pk  | 34.9           | -28          | 10.8         | -49.62                  | -13   | -36.62      | V        |
| 7.575                   | -71.19              | Pk  | 35.7           | -24.4        | 10.6         | -49.29                  | -13   | -36.29      | H        |
| 7.576                   | -70.72              | Pk  | 35.7           | -24.4        | 10.9         | -48.52                  | -13   | -35.52      | V        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.762                   | -66.7               | Pk  | 33.6           | -29.7        | 11.7         | -51.10                  | -13   | -38.10      | H        |
| 7.554                   | -71.48              | Pk  | 35.7           | -24.4        | 10.9         | -49.28                  | -13   | -36.28      | H        |
| 3.764                   | -67.06              | Pk  | 33.6           | -29.7        | 11.2         | -51.96                  | -13   | -38.96      | V        |
| 7.565                   | -70.5               | Pk  | 35.8           | -24.4        | 11.3         | -47.80                  | -13   | -34.80      | V        |
| 5.669                   | -68.63              | Pk  | 34.8           | -27.8        | 10.7         | -50.93                  | -13   | -37.93      | H        |
| 5.692                   | -69.01              | Pk  | 34.8           | -27.8        | 10.5         | -51.51                  | -13   | -38.51      | V        |

Pk - Peak detector

**WCDMA BAND 4**

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12886634            |
| Date:          | 6/12/2019           |
| Test Engineer: | 39006               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 4 Rel 99 |
| Chamber #:     | Chamber A           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.761                   | -67.16              | Pk  | 33.6           | -29.7        | 11.7         | -51.56                  | -13   | -38.56      | H        |
| 3.775                   | -66.31              | Pk  | 33.6           | -29.8        | 11.3         | -51.21                  | -13   | -38.21      | V        |
| 5.639                   | -68.39              | Pk  | 34.8           | -28          | 10.8         | -50.79                  | -13   | -37.79      | V        |
| 5.674                   | -68.98              | Pk  | 34.8           | -27.8        | 10.5         | -51.48                  | -13   | -38.48      | H        |
| 7.505                   | -70.85              | Pk  | 35.7           | -24.5        | 10.7         | -48.95                  | -13   | -35.95      | H        |
| 7.548                   | -70.75              | Pk  | 35.8           | -24.4        | 11           | -48.35                  | -13   | -35.35      | V        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.768                   | -65.92              | Pk  | 33.6           | -29.7        | 11.4         | -50.62                  | -13   | -37.62      | H        |
| 3.79                    | -66.13              | Pk  | 33.6           | -29.7        | 11.5         | -50.73                  | -13   | -37.73      | V        |
| 5.585                   | -67.79              | Pk  | 34.9           | -28.1        | 10.9         | -50.09                  | -13   | -37.09      | V        |
| 5.647                   | -67.54              | Pk  | 34.9           | -28          | 10.5         | -50.14                  | -13   | -37.14      | H        |
| 7.5                     | -71.13              | Pk  | 35.7           | -24.5        | 11.1         | -48.83                  | -13   | -35.83      | V        |
| 7.545                   | -71.04              | Pk  | 35.8           | -24.4        | 10.8         | -48.84                  | -13   | -35.84      | H        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.748                   | -66.6               | Pk  | 33.5           | -29.8        | 11.5         | -51.40                  | -13   | -38.40      | H        |
| 3.758                   | -66.41              | Pk  | 33.5           | -29.7        | 11.1         | -51.51                  | -13   | -38.51      | V        |
| 5.647                   | -68.25              | Pk  | 34.9           | -28          | 10.5         | -50.85                  | -13   | -37.85      | H        |
| 5.713                   | -68.9               | Pk  | 34.9           | -27.6        | 10.7         | -50.90                  | -13   | -37.90      | V        |
| 7.523                   | -71.43              | Pk  | 35.7           | -24.6        | 10.4         | -49.93                  | -13   | -36.93      | H        |
| 7.56                    | -71.05              | Pk  | 35.7           | -24.4        | 11.2         | -48.55                  | -13   | -35.55      | V        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12886634           |
| Date:          | 6/12/2019          |
| Test Engineer: | 39006              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 4 HSDPA |
| Chamber #:     | Chamber A          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.781                   | -66.96              | Pk  | 33.6           | -29.8        | 11.4         | -51.76                  | -13   | -38.76      | V        |
| 3.805                   | -66.96              | Pk  | 33.7           | -29.4        | 11.4         | -51.26                  | -13   | -38.26      | H        |
| 5.846                   | -70.08              | Pk  | 35.1           | -27.4        | 10.8         | -51.58                  | -13   | -38.58      | V        |
| 5.884                   | -76.65              | Pk  | 35.2           | -27.1        | 10.8         | -57.75                  | -13   | -44.75      | H        |
| 7.327                   | -70.28              | Pk  | 35.8           | -24.9        | 10.7         | -48.68                  | -13   | -35.68      | H        |
| 7.359                   | -70.67              | Pk  | 35.7           | -24.6        | 11.2         | -48.37                  | -13   | -35.37      | V        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.787                   | -66.75              | Pk  | 33.6           | -29.7        | 10.9         | -51.95                  | -13   | -38.95      | H        |
| 3.796                   | -67.26              | Pk  | 33.7           | -29.7        | 11.3         | -51.96                  | -13   | -38.96      | V        |
| 5.302                   | -68.47              | Pk  | 34.9           | -27.8        | 11           | -50.37                  | -13   | -37.37      | V        |
| 5.328                   | -69.59              | Pk  | 35             | -28.1        | 11.1         | -51.59                  | -13   | -38.59      | H        |
| 7.325                   | -70.07              | Pk  | 35.8           | -24.8        | 11.3         | -47.77                  | -13   | -34.77      | V        |
| 7.353                   | -70.51              | Pk  | 35.7           | -24.7        | 10.6         | -48.91                  | -13   | -35.91      | H        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.764                   | -66.29              | Pk  | 33.6           | -29.7        | 11.6         | -50.79                  | -13   | -37.79      | H        |
| 3.769                   | -67.22              | Pk  | 33.6           | -29.7        | 11.1         | -52.22                  | -13   | -39.22      | V        |
| 5.851                   | -69.29              | Pk  | 35.1           | -27.2        | 10.8         | -50.59                  | -13   | -37.59      | V        |
| 5.911                   | -69.94              | Pk  | 35.3           | -27          | 10.7         | -50.94                  | -13   | -37.94      | H        |
| 7.596                   | -70.41              | Pk  | 35.7           | -24.4        | 10.5         | -48.61                  | -13   | -35.61      | H        |
| 7.651                   | -71.39              | Pk  | 35.8           | -24.5        | 11           | -49.09                  | -13   | -36.09      | V        |

Pk - Peak detector

### 9.3. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 3

#### 9.3.1. GSM

##### GSM 1900MHz

|                |              |
|----------------|--------------|
| Company:       |              |
| Project #:     | 12886634     |
| Date:          | 6/7/2019     |
| Test Engineer: | 39006        |
| Configuration: | EUT Only     |
| Mode:          | GSM1900 GPRS |
| Chamber #:     | Chamber A    |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.696                   | -66.36              | Pk  | 33.2           | -29.6        | 11.7         | -51.06                  | -13   | -38.06      | V        |
| 3.705                   | -66.85              | Pk  | 33.3           | -29.9        | 11.2         | -52.25                  | -13   | -39.25      | H        |
| 5.556                   | -68.28              | Pk  | 34.8           | -28.1        | 10.9         | -50.68                  | -13   | -37.68      | V        |
| 5.559                   | -68.67              | Pk  | 34.8           | -28.2        | 10.6         | -51.47                  | -13   | -38.47      | H        |
| 7.394                   | -70.87              | Pk  | 35.6           | -24.7        | 10.6         | -49.37                  | -13   | -36.37      | H        |
| 7.402                   | -71.43              | Pk  | 35.7           | -24.7        | 10.8         | -49.63                  | -13   | -36.63      | V        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.747                   | -67.17              | Pk  | 33.5           | -29.8        | 11.5         | -51.97                  | -13   | -38.97      | V        |
| 3.758                   | -66.28              | Pk  | 33.5           | -29.7        | 11.5         | -50.98                  | -13   | -37.98      | H        |
| 5.764                   | -68.96              | Pk  | 35             | -27.5        | 10.4         | -51.06                  | -13   | -38.06      | V        |
| 5.771                   | -69.03              | Pk  | 35             | -27.3        | 10.6         | -50.73                  | -13   | -37.73      | H        |
| 7.701                   | -70.38              | Pk  | 35.8           | -24.6        | 11.3         | -47.88                  | -13   | -34.88      | V        |
| 7.738                   | -70.42              | Pk  | 35.9           | -24.4        | 11.3         | -47.62                  | -13   | -34.62      | H        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |       |             |          |
| 3.82                    | -58.29              | Pk  | 33.7           | -29.5        | 11.6         | -42.49                  | -13   | -29.49      | H        |
| 3.821                   | -74.95              | Pk  | 33.7           | -29.5        | 11.3         | -59.45                  | -13   | -46.45      | V        |
| 5.692                   | -68.87              | Pk  | 34.8           | -27.8        | 10.5         | -51.37                  | -13   | -38.37      | H        |
| 5.706                   | -69.22              | Pk  | 34.8           | -27.6        | 10.7         | -51.32                  | -13   | -38.32      | V        |
| 7.353                   | -69.88              | Pk  | 35.7           | -24.7        | 11           | -47.88                  | -13   | -34.88      | V        |
| 7.363                   | -71.04              | Pk  | 35.7           | -24.5        | 10.8         | -49.04                  | -13   | -36.04      | H        |

Pk - Peak detector

|                |               |
|----------------|---------------|
| Company:       |               |
| Project #:     | 12886634      |
| Date:          | 6/7/2019      |
| Test Engineer: | 39006         |
| Configuration: | EUT Only      |
| Mode:          | GSM1900 EGPRS |
| Chamber #:     | Chamber A     |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-----|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |     |             |          |
| 3.704                   | -66.61              | Pk  | 33.2           | -29.9        | 11.2         | -52.11                  | -13 | -39.11      | H        |
| 3.707                   | -66.36              | Pk  | 33.3           | -29.8        | 11.3         | -51.56                  | -13 | -38.56      | V        |
| 5.661                   | -68.36              | Pk  | 34.8           | -27.8        | 10.9         | -50.46                  | -13 | -37.46      | V        |
| 5.663                   | -68.98              | Pk  | 34.8           | -27.9        | 10.8         | -51.28                  | -13 | -38.28      | H        |
| 7.301                   | -70.31              | Pk  | 35.8           | -24.9        | 10.7         | -48.71                  | -13 | -35.71      | H        |
| 7.352                   | -71.08              | Pk  | 35.7           | -24.7        | 10.9         | -49.18                  | -13 | -36.18      | V        |
| Mid Channel, 1880MHz    |                     |     |                |              |              |                         |     |             |          |
| 3.69                    | -67.23              | Pk  | 33.2           | -29.7        | 11.7         | -52.03                  | -13 | -39.03      | V        |
| 3.734                   | -67.01              | Pk  | 33.4           | -29.9        | 11.4         | -52.11                  | -13 | -39.11      | H        |
| 5.512                   | -68.54              | Pk  | 34.9           | -28.1        | 10.8         | -50.94                  | -13 | -37.94      | H        |
| 5.548                   | -68.72              | Pk  | 34.8           | -28.1        | 11           | -51.02                  | -13 | -38.02      | V        |
| 7.389                   | -70.77              | Pk  | 35.7           | -24.7        | 10.6         | -49.17                  | -13 | -36.17      | H        |
| 7.414                   | -71.18              | Pk  | 35.7           | -24.7        | 11.1         | -49.08                  | -13 | -36.08      | V        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |     |             |          |
| 3.816                   | -66.62              | Pk  | 33.7           | -29.5        | 11.3         | -51.12                  | -13 | -38.12      | V        |
| 3.822                   | -66.31              | Pk  | 33.7           | -29.4        | 11.5         | -50.51                  | -13 | -37.51      | H        |
| 5.642                   | -69.07              | Pk  | 34.9           | -28          | 10.7         | -51.47                  | -13 | -38.47      | H        |
| 5.717                   | -68.98              | Pk  | 35             | -27.5        | 10.6         | -50.88                  | -13 | -37.88      | V        |
| 7.075                   | -69.86              | Pk  | 36             | -24.7        | 10.7         | -47.86                  | -13 | -34.86      | H        |
| 7.08                    | -70.38              | Pk  | 36             | -24.8        | 10.8         | -48.38                  | -13 | -35.38      | V        |

Pk - Peak detector

### 9.3.2. WCDMA

#### WCDMA BAND 2

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12886634            |
| Date:          | 6/12/2019           |
| Test Engineer: | 39006               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 2 Rel 99 |
| Chamber #:     | Chamber A           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.721                   | -66.8               | Pk  | 33.3           | -30          | 11.4         | -52.10                  | -13   | -39.10      | V        |
| 3.739                   | -67.08              | Pk  | 33.4           | -29.9        | 11.5         | -52.08                  | -13   | -39.08      | H        |
| 5.511                   | -68.94              | Pk  | 34.9           | -28.1        | 11.2         | -50.94                  | -13   | -37.94      | V        |
| 5.526                   | -68.54              | Pk  | 34.8           | -28          | 10.9         | -50.84                  | -13   | -37.84      | H        |
| 7.431                   | -70.84              | Pk  | 35.7           | -24.6        | 10.8         | -48.94                  | -13   | -35.94      | H        |
| 7.466                   | -71.52              | Pk  | 35.7           | -24.7        | 10.7         | -49.82                  | -13   | -36.82      | V        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.772                   | -65.91              | Pk  | 33.6           | -29.7        | 11.2         | -50.81                  | -13   | -37.81      | V        |
| 3.798                   | -67.03              | Pk  | 33.7           | -29.7        | 11.1         | -51.93                  | -13   | -38.93      | H        |
| 5.637                   | -68.02              | Pk  | 34.8           | -28.1        | 10.8         | -50.52                  | -13   | -37.52      | H        |
| 5.637                   | -67.49              | Pk  | 34.8           | -28.1        | 10.8         | -49.99                  | -13   | -36.99      | V        |
| 7.527                   | -71.14              | Pk  | 35.7           | -24.6        | 10.6         | -49.44                  | -13   | -36.44      | V        |
| 7.54                    | -71.25              | Pk  | 35.7           | -24.6        | 10.6         | -49.55                  | -13   | -36.55      | H        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.735                   | -67.37              | Pk  | 33.4           | -29.9        | 11.7         | -52.17                  | -13   | -39.17      | V        |
| 3.738                   | -66.95              | Pk  | 33.4           | -29.9        | 11.6         | -51.85                  | -13   | -38.85      | H        |
| 5.865                   | -68.93              | Pk  | 35.2           | -27.2        | 11.2         | -49.73                  | -13   | -36.73      | V        |
| 5.89                    | -68.63              | Pk  | 35.3           | -27.1        | 10.9         | -49.53                  | -13   | -36.53      | H        |
| 8.242                   | -70.24              | Pk  | 35.9           | -23.9        | 11.5         | -46.74                  | -13   | -33.74      | H        |
| 8.243                   | -70.75              | Pk  | 35.9           | -23.9        | 11.4         | -47.35                  | -13   | -34.35      | V        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12886634           |
| Date:          | 6/12/2019          |
| Test Engineer: | 39006              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 2 HSDPA |
| Chamber #:     | Chamber A          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.761                   | -66.95              | Pk  | 33.6           | -29.7        | 11.6         | -51.45                  | -13   | -38.45      | H        |
| 7.483                   | -71.31              | Pk  | 35.6           | -24.5        | 10.7         | -49.51                  | -13   | -36.51      | H        |
| 3.746                   | -67.39              | Pk  | 33.4           | -29.9        | 11.4         | -52.49                  | -13   | -39.49      | V        |
| 7.522                   | -71.22              | Pk  | 35.7           | -24.5        | 10.6         | -49.42                  | -13   | -36.42      | V        |
| 5.605                   | -68.99              | Pk  | 34.9           | -28          | 10.7         | -51.39                  | -13   | -38.39      | V        |
| 5.64                    | -68.39              | Pk  | 34.8           | -28          | 10.7         | -50.89                  | -13   | -37.89      | H        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.758                   | -66.16              | Pk  | 33.5           | -29.7        | 11.5         | -50.86                  | -13   | -37.86      | H        |
| 7.521                   | -71.29              | Pk  | 35.7           | -24.5        | 10.4         | -49.69                  | -13   | -36.69      | H        |
| 3.696                   | -66.84              | Pk  | 33.2           | -29.6        | 11.7         | -51.54                  | -13   | -38.54      | V        |
| 7.511                   | -71.51              | Pk  | 35.8           | -24.5        | 10.9         | -49.31                  | -13   | -36.31      | V        |
| 5.638                   | -68.65              | Pk  | 34.8           | -28.1        | 10.8         | -51.15                  | -13   | -38.15      | V        |
| 5.67                    | -68.66              | Pk  | 34.8           | -27.8        | 10.6         | -51.06                  | -13   | -38.06      | H        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.762                   | -66.62              | Pk  | 33.6           | -29.7        | 11.7         | -51.02                  | -13   | -38.02      | H        |
| 7.533                   | -71.57              | Pk  | 35.8           | -24.5        | 10.5         | -49.77                  | -13   | -36.77      | H        |
| 3.759                   | -66.12              | Pk  | 33.5           | -29.7        | 11.1         | -51.22                  | -13   | -38.22      | V        |
| 7.571                   | -70.65              | Pk  | 35.8           | -24.3        | 11           | -48.15                  | -13   | -35.15      | V        |
| 5.661                   | -69.25              | Pk  | 34.8           | -27.8        | 10.9         | -51.35                  | -13   | -38.35      | V        |
| 5.692                   | -68.26              | Pk  | 34.8           | -27.8        | 10.5         | -50.76                  | -13   | -37.76      | H        |

Pk - Peak detector

**WCDMA BAND 4**

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12886634            |
| Date:          | 6/12/2019           |
| Test Engineer: | 39006               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 4 Rel 99 |
| Chamber #:     | Chamber A           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.712                   | -66.64              | Pk  | 33.3           | -29.8        | 11.1         | -52.04                  | -13   | -39.04      | H        |
| 3.73                    | -66.7               | Pk  | 33.4           | -29.9        | 11.3         | -51.90                  | -13   | -38.90      | V        |
| 5.829                   | -68.49              | Pk  | 35.1           | -27.3        | 10.5         | -50.19                  | -13   | -37.19      | H        |
| 5.832                   | -68.54              | Pk  | 35.1           | -27.2        | 10.9         | -49.74                  | -13   | -36.74      | V        |
| 7.648                   | -70.81              | Pk  | 35.8           | -24.5        | 11.1         | -48.41                  | -13   | -35.41      | V        |
| 7.663                   | -71.19              | Pk  | 35.8           | -24.6        | 10.9         | -49.09                  | -13   | -36.09      | H        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.722                   | -71.84              | Pk  | 33.3           | -30          | 11.3         | -57.24                  | -13   | -44.24      | H        |
| 3.733                   | -66.85              | Pk  | 33.4           | -29.9        | 11.4         | -51.95                  | -13   | -38.95      | V        |
| 5.864                   | -68.63              | Pk  | 35.2           | -27.2        | 11.2         | -49.43                  | -13   | -36.43      | V        |
| 5.896                   | -69.52              | Pk  | 35.2           | -27.1        | 10.8         | -50.62                  | -13   | -37.62      | H        |
| 7.607                   | -70.56              | Pk  | 35.8           | -24.4        | 11.2         | -47.96                  | -13   | -34.96      | V        |
| 7.623                   | -70.64              | Pk  | 35.8           | -24.5        | 10.8         | -48.54                  | -13   | -35.54      | H        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.688                   | -67.62              | Pk  | 33.2           | -29.7        | 11.8         | -52.32                  | -13   | -39.32      | V        |
| 3.704                   | -72.03              | Pk  | 33.3           | -29.9        | 11.2         | -57.43                  | -13   | -44.43      | H        |
| 5.26                    | -66.08              | Pk  | 34.8           | -27.9        | 11           | -48.18                  | -13   | -35.18      | V        |
| 5.298                   | -68.33              | Pk  | 34.9           | -27.8        | 10.9         | -50.33                  | -13   | -37.33      | H        |
| 7.482                   | -71.14              | Pk  | 35.7           | -24.5        | 10.8         | -49.14                  | -13   | -36.14      | V        |
| 7.509                   | -70.93              | Pk  | 35.8           | -24.5        | 10.6         | -49.03                  | -13   | -36.03      | H        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12886634           |
| Date:          | 6/12/2019          |
| Test Engineer: | 39006              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 4 HSDPA |
| Chamber #:     | Chamber A          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.78                    | -66.21              | Pk  | 33.6           | -29.8        | 11           | -51.41                  | -13   | -38.41      | H        |
| 3.782                   | -66.13              | Pk  | 33.6           | -29.8        | 11.4         | -50.93                  | -13   | -37.93      | V        |
| 5.698                   | -68.59              | Pk  | 34.8           | -27.7        | 10.5         | -50.99                  | -13   | -37.99      | V        |
| 5.7                     | -68.39              | Pk  | 34.9           | -27.6        | 10.4         | -50.69                  | -13   | -37.69      | H        |
| 7.548                   | -70.66              | Pk  | 35.8           | -24.4        | 10.8         | -48.46                  | -13   | -35.46      | H        |
| 7.568                   | -70.79              | Pk  | 35.8           | -24.4        | 11.2         | -48.19                  | -13   | -35.19      | V        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.664                   | -67.06              | Pk  | 33.2           | -29.9        | 10.9         | -52.86                  | -13   | -39.86      | H        |
| 3.703                   | -66.75              | Pk  | 33.2           | -29.8        | 11.3         | -52.05                  | -13   | -39.05      | V        |
| 5.085                   | -67.3               | Pk  | 34.4           | -28.7        | 10.8         | -50.80                  | -13   | -37.80      | H        |
| 5.107                   | -67.86              | Pk  | 34.5           | -28.3        | 11.3         | -50.36                  | -13   | -37.36      | V        |
| 7.141                   | -70.19              | Pk  | 36.2           | -25.1        | 10.5         | -48.59                  | -13   | -35.59      | H        |
| 7.251                   | -69.52              | Pk  | 35.9           | -24.9        | 11.3         | -47.22                  | -13   | -34.22      | V        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.691                   | -66.6               | Pk  | 33.2           | -29.7        | 11.4         | -51.70                  | -13   | -38.70      | H        |
| 3.691                   | -67.62              | Pk  | 33.2           | -29.7        | 11.6         | -52.52                  | -13   | -39.52      | V        |
| 5.285                   | -68.54              | Pk  | 34.9           | -27.9        | 11           | -50.54                  | -13   | -37.54      | V        |
| 5.308                   | -69.1               | Pk  | 35             | -28          | 10.8         | -51.30                  | -13   | -38.30      | H        |
| 7.402                   | -70.9               | Pk  | 35.7           | -24.7        | 10.8         | -49.10                  | -13   | -36.10      | V        |
| 7.423                   | -71.11              | Pk  | 35.7           | -24.5        | 10.8         | -49.11                  | -13   | -36.11      | H        |

Pk - Peak detector

## 9.4. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 4

### 9.4.1. GSM

#### GSM 1900MHz

|                |              |
|----------------|--------------|
| Company:       |              |
| Project #:     | 12886634     |
| Date:          | 6/7/2019     |
| Test Engineer: | 12501        |
| Configuration: | EUT Only     |
| Mode:          | GSM1900 GPRS |
| Chamber #:     | Chamber A    |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.7                     | -72.88              | Pk  | 33.2           | -29.7        | 11.2         | -58.18                  | -13   | -45.18      | H        |
| 7.392                   | -70.71              | Pk  | 35.6           | -24.8        | 10.5         | -49.41                  | -13   | -36.41      | H        |
| 3.69                    | -66.68              | Pk  | 33.2           | -29.7        | 11.6         | -51.58                  | -13   | -38.58      | V        |
| 7.405                   | -70.35              | Pk  | 35.7           | -24.7        | 10.7         | -48.65                  | -13   | -35.65      | V        |
| 5.541                   | -69.22              | Pk  | 34.8           | -28.2        | 11.1         | -51.52                  | -13   | -38.52      | H        |
| 5.553                   | -68.76              | Pk  | 34.8           | -28          | 11           | -50.96                  | -13   | -37.96      | V        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.755                   | -65.5               | Pk  | 33.5           | -29.7        | 11.5         | -50.20                  | -13   | -37.20      | H        |
| 7.505                   | -71.36              | Pk  | 35.7           | -24.5        | 10.7         | -49.46                  | -13   | -36.46      | H        |
| 3.748                   | -66.42              | Pk  | 33.5           | -29.8        | 11.6         | -51.12                  | -13   | -38.12      | V        |
| 7.554                   | -70.7               | Pk  | 35.7           | -24.4        | 11.1         | -48.30                  | -13   | -35.30      | V        |
| 5.594                   | -66.96              | Pk  | 34.9           | -28          | 10.9         | -49.16                  | -13   | -36.16      | V        |
| 5.64                    | -67.53              | Pk  | 34.8           | -28          | 10.7         | -50.03                  | -13   | -37.03      | H        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |       |             |          |
| 3.811                   | -66.82              | Pk  | 33.7           | -29.5        | 11.2         | -51.42                  | -13   | -38.42      | H        |
| 7.644                   | -70.62              | Pk  | 35.8           | -24.5        | 10.8         | -48.52                  | -13   | -35.52      | H        |
| 3.799                   | -65.67              | Pk  | 33.7           | -29.7        | 11.3         | -50.37                  | -13   | -37.37      | V        |
| 7.644                   | -70.57              | Pk  | 35.8           | -24.5        | 11.2         | -48.07                  | -13   | -35.07      | V        |
| 5.731                   | -68.54              | Pk  | 34.9           | -27.5        | 10.7         | -50.44                  | -13   | -37.44      | H        |
| 5.745                   | -69.25              | Pk  | 34.9           | -27.3        | 10.4         | -51.25                  | -13   | -38.25      | V        |

Pk - Peak detector

|                |               |
|----------------|---------------|
| Company:       |               |
| Project #:     | 12886634      |
| Date:          | 6/7/2019      |
| Test Engineer: | 12501         |
| Configuration: | EUT Only      |
| Mode:          | GSM1900 EGPRS |
| Chamber #:     | Chamber A     |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-----|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |     |             |          |
| 3.704                   | -66.23              | Pk  | 33.2           | -29.9        | 11.2         | -51.73                  | -13 | -38.73      | H        |
| 7.408                   | -70.87              | Pk  | 35.7           | -24.7        | 10.3         | -49.57                  | -13 | -36.57      | H        |
| 3.687                   | -66.82              | Pk  | 33.2           | -29.8        | 11.9         | -51.52                  | -13 | -38.52      | V        |
| 7.397                   | -71.37              | Pk  | 35.7           | -24.6        | 10.9         | -49.37                  | -13 | -36.37      | V        |
| 5.54                    | -68.94              | Pk  | 34.8           | -28.2        | 11.3         | -51.04                  | -13 | -38.04      | V        |
| 5.553                   | -68.6               | Pk  | 34.8           | -28          | 10.8         | -51.00                  | -13 | -38.00      | H        |
| Mid Channel, 1880MHz    |                     |     |                |              |              |                         |     |             |          |
| 3.752                   | -66.71              | Pk  | 33.5           | -29.6        | 11.7         | -51.11                  | -13 | -38.11      | H        |
| 7.507                   | -70.44              | Pk  | 35.8           | -24.5        | 10.7         | -48.44                  | -13 | -35.44      | H        |
| 3.764                   | -67.18              | Pk  | 33.6           | -29.7        | 11.2         | -52.08                  | -13 | -39.08      | V        |
| 7.562                   | -71.32              | Pk  | 35.7           | -24.4        | 11.3         | -48.72                  | -13 | -35.72      | V        |
| 5.64                    | -67.56              | Pk  | 34.9           | -28          | 10.7         | -49.96                  | -13 | -36.96      | H        |
| 5.653                   | -68.5               | Pk  | 34.8           | -28          | 11.1         | -50.60                  | -13 | -37.60      | V        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |     |             |          |
| 3.82                    | -63.02              | Pk  | 33.7           | -29.5        | 11.6         | -47.22                  | -13 | -34.22      | H        |
| 3.82                    | -58.84              | Pk  | 33.7           | -29.5        | 11.4         | -43.24                  | -13 | -30.24      | V        |
| 5.843                   | -69.34              | Pk  | 35.2           | -27.3        | 10.8         | -50.64                  | -13 | -37.64      | V        |
| 5.86                    | -68.04              | Pk  | 35.2           | -27.1        | 10.5         | -49.44                  | -13 | -36.44      | H        |
| 7.823                   | -71.12              | Pk  | 35.8           | -24.4        | 11           | -48.72                  | -13 | -35.72      | H        |
| 7.844                   | -70.88              | Pk  | 35.9           | -24.4        | 11.2         | -48.18                  | -13 | -35.18      | V        |

Pk - Peak detector

## 9.4.2. WCDMA

### WCDMA BAND 2

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12886634            |
| Date:          | 6/12/2019           |
| Test Engineer: | 39006               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 2 Rel 99 |
| Chamber #:     | Chamber A           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.796                   | -66.67              | Pk  | 33.7           | -29.7        | 11.3         | -51.37                  | -13   | -38.37      | V        |
| 3.798                   | -66.73              | Pk  | 33.7           | -29.7        | 11.1         | -51.63                  | -13   | -38.63      | H        |
| 5.81                    | -68.67              | Pk  | 35.2           | -27.1        | 10.8         | -49.77                  | -13   | -36.77      | H        |
| 5.814                   | -68.75              | Pk  | 35.1           | -27.2        | 10.8         | -50.05                  | -13   | -37.05      | V        |
| 7.456                   | -70.76              | Pk  | 35.8           | -24.7        | 10.8         | -48.86                  | -13   | -35.86      | V        |
| 7.484                   | -71.06              | Pk  | 35.6           | -24.6        | 10.7         | -49.36                  | -13   | -36.36      | H        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.747                   | -67.17              | Pk  | 33.5           | -29.8        | 11.4         | -52.07                  | -13   | -39.07      | H        |
| 3.764                   | -66.8               | Pk  | 33.6           | -29.7        | 11.2         | -51.70                  | -13   | -38.70      | V        |
| 5.655                   | -68.46              | Pk  | 34.8           | -28          | 11.1         | -50.56                  | -13   | -37.56      | V        |
| 5.702                   | -69.07              | Pk  | 34.9           | -27.6        | 10.5         | -51.27                  | -13   | -38.27      | H        |
| 7.599                   | -69.85              | Pk  | 35.7           | -24.4        | 10.9         | -47.65                  | -13   | -34.65      | V        |
| 7.623                   | -70.77              | Pk  | 35.8           | -24.4        | 10.9         | -48.47                  | -13   | -35.47      | H        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.719                   | -67.97              | Pk  | 33.3           | -29.9        | 11           | -53.57                  | -13   | -40.57      | H        |
| 3.733                   | -68.48              | Pk  | 33.4           | -29.9        | 11.4         | -53.58                  | -13   | -40.58      | V        |
| 5.765                   | -70.72              | Pk  | 35             | -27.5        | 10.5         | -52.72                  | -13   | -39.72      | H        |
| 5.789                   | -70.39              | Pk  | 35.1           | -27.2        | 10.2         | -52.29                  | -13   | -39.29      | V        |
| 7.982                   | -71.77              | Pk  | 35.8           | -24.2        | 11.3         | -48.87                  | -13   | -35.87      | H        |
| 7.999                   | -71.67              | Pk  | 35.9           | -24.3        | 11.6         | -48.47                  | -13   | -35.47      | V        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12886634           |
| Date:          | 6/12/2019          |
| Test Engineer: | 39006              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 2 HSDPA |
| Chamber #:     | Chamber A          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.784                   | -66.86              | Pk  | 33.6           | -29.7        | 11.3         | -51.66                  | -13   | -38.66      | V        |
| 3.807                   | -77.98              | Pk  | 33.7           | -29.4        | 11.3         | -62.38                  | -13   | -49.38      | H        |
| 5.86                    | -69.19              | Pk  | 35.2           | -27.1        | 11           | -50.09                  | -13   | -37.09      | V        |
| 7.58                    | -70.58              | Pk  | 35.7           | -24.3        | 10.9         | -48.28                  | -13   | -35.28      | V        |
| 7.588                   | -71.12              | Pk  | 35.8           | -24.4        | 10.5         | -49.22                  | -13   | -36.22      | H        |
| 7.605                   | -70.45              | Pk  | 35.8           | -24.4        | 11.1         | -47.95                  | -13   | -34.95      | V        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.748                   | -66.49              | Pk  | 33.5           | -29.8        | 11.5         | -51.29                  | -13   | -38.29      | H        |
| 3.8                     | -67.58              | Pk  | 33.7           | -29.6        | 11.4         | -52.08                  | -13   | -39.08      | V        |
| 5.111                   | -67.86              | Pk  | 34.4           | -28.4        | 11.1         | -50.76                  | -13   | -37.76      | V        |
| 5.153                   | -67.58              | Pk  | 34.6           | -28.6        | 11.1         | -50.48                  | -13   | -37.48      | H        |
| 7.366                   | -70.67              | Pk  | 35.7           | -24.6        | 11.3         | -48.27                  | -13   | -35.27      | V        |
| 7.399                   | -69.61              | Pk  | 35.7           | -24.6        | 10.6         | -47.91                  | -13   | -34.91      | H        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.809                   | -66.44              | Pk  | 33.7           | -29.4        | 11.2         | -50.94                  | -13   | -37.94      | H        |
| 7.53                    | -71.12              | Pk  | 35.8           | -24.5        | 10.5         | -49.32                  | -13   | -36.32      | H        |
| 3.852                   | -66.56              | Pk  | 33.6           | -29.7        | 11           | -51.66                  | -13   | -38.66      | V        |
| 7.608                   | -71                 | Pk  | 35.8           | -24.4        | 11.2         | -48.4                   | -13   | -35.4       | V        |
| 5.707                   | -68.34              | Pk  | 34.8           | -27.7        | 10.6         | -50.64                  | -13   | -37.64      | H        |
| 5.719                   | -67.22              | Pk  | 35             | -27.5        | 10.6         | -49.12                  | -13   | -36.12      | V        |

Pk - Peak detector

**WCDMA BAND 4**

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12886634            |
| Date:          | 6/12/2019           |
| Test Engineer: | 39006               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 4 Rel 99 |
| Chamber #:     | Chamber A           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.847                   | -66.7               | Pk  | 33.6           | -29.6        | 11.1         | -51.60                  | -13   | -38.60      | H        |
| 3.849                   | -66.31              | Pk  | 33.6           | -29.6        | 10.9         | -51.41                  | -13   | -38.41      | V        |
| 5.264                   | -69.22              | Pk  | 34.9           | -28          | 10.8         | -51.52                  | -13   | -38.52      | H        |
| 5.275                   | -68.76              | Pk  | 34.9           | -27.9        | 11.5         | -50.26                  | -13   | -37.26      | V        |
| 7.383                   | -70.96              | Pk  | 35.8           | -24.5        | 11.3         | -48.36                  | -13   | -35.36      | V        |
| 7.386                   | -70.54              | Pk  | 35.7           | -24.5        | 10.8         | -48.54                  | -13   | -35.54      | H        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.781                   | -66.8               | Pk  | 33.6           | -29.8        | 10.9         | -52.10                  | -13   | -39.10      | H        |
| 3.793                   | -67                 | Pk  | 33.7           | -29.7        | 11.4         | -51.60                  | -13   | -38.60      | V        |
| 5.205                   | -67.69              | Pk  | 34.6           | -28.5        | 11.1         | -50.49                  | -13   | -37.49      | V        |
| 5.208                   | -68.16              | Pk  | 34.6           | -28.5        | 11.1         | -50.96                  | -13   | -37.96      | H        |
| 7.153                   | -69.9               | Pk  | 36             | -25.3        | 10.7         | -48.50                  | -13   | -35.50      | V        |
| 7.199                   | -69.48              | Pk  | 36             | -25          | 10.5         | -47.98                  | -13   | -34.98      | H        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.833                   | -66.75              | Pk  | 33.7           | -29.5        | 11.2         | -51.35                  | -13   | -38.35      | H        |
| 3.849                   | -65.8               | Pk  | 33.6           | -29.7        | 11.2         | -50.70                  | -13   | -37.70      | H        |
| 5.875                   | -68.44              | Pk  | 35.2           | -27.2        | 10.8         | -49.64                  | -13   | -36.64      | H        |
| 5.885                   | -69.35              | Pk  | 35.2           | -27.1        | 10.9         | -50.35                  | -13   | -37.35      | H        |
| 7.588                   | -71.12              | Pk  | 35.8           | -24.4        | 10.5         | -49.22                  | -13   | -36.22      | H        |
| 7.59                    | -70.34              | Pk  | 35.7           | -24.4        | 10.5         | -48.54                  | -13   | -35.54      | H        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12886634           |
| Date:          | 6/12/2019          |
| Test Engineer: | 39006              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 4 HSDPA |
| Chamber #:     | Chamber A          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T346 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.837                   | -66.36              | Pk  | 33.7           | -29.5        | 11           | -51.16                  | -13   | -38.16      | H        |
| 3.84                    | -66.62              | Pk  | 33.7           | -29.6        | 11           | -51.52                  | -13   | -38.52      | V        |
| 5.555                   | -69.65              | Pk  | 34.8           | -28          | 10.9         | -51.95                  | -13   | -38.95      | V        |
| 5.556                   | -68.96              | Pk  | 34.8           | -28.1        | 10.8         | -51.46                  | -13   | -38.46      | H        |
| 7.499                   | -71.09              | Pk  | 35.7           | -24.5        | 11           | -48.89                  | -13   | -35.89      | V        |
| 7.529                   | -71.09              | Pk  | 35.8           | -24.5        | 10.5         | -49.29                  | -13   | -36.29      | H        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.824                   | -67.53              | Pk  | 33.7           | -29.2        | 11.4         | -51.63                  | -13   | -38.63      | H        |
| 3.83                    | -66.86              | Pk  | 33.7           | -29.2        | 11.2         | -51.16                  | -13   | -38.16      | V        |
| 4.982                   | -77.19              | Pk  | 34.3           | -28.4        | 11           | -60.29                  | -13   | -47.29      | H        |
| 5.028                   | -67.97              | Pk  | 34.3           | -28.8        | 10.7         | -51.77                  | -13   | -38.77      | V        |
| 7.087                   | -69.98              | Pk  | 36.1           | -25.2        | 10.6         | -48.48                  | -13   | -35.48      | H        |
| 7.091                   | -70.18              | Pk  | 36.1           | -25.2        | 10.4         | -48.88                  | -13   | -35.88      | V        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.835                   | -67.24              | Pk  | 33.7           | -29.5        | 11.1         | -51.94                  | -13   | -38.94      | H        |
| 3.988                   | -67.62              | Pk  | 33.5           | -29.7        | 11.4         | -52.42                  | -13   | -39.42      | V        |
| 5.654                   | -69.22              | Pk  | 34.8           | -28          | 11.1         | -51.32                  | -13   | -38.32      | V        |
| 5.672                   | -69.64              | Pk  | 34.8           | -27.8        | 10.6         | -52.04                  | -13   | -39.04      | H        |
| 7.526                   | -70.9               | Pk  | 35.7           | -24.6        | 10.4         | -49.40                  | -13   | -36.40      | H        |
| 7.569                   | -70.63              | Pk  | 35.8           | -24.4        | 11.1         | -48.13                  | -13   | -35.13      | V        |

Pk - Peak detector

## 10. SETUP PHOTOS

Please refer to 12943451-EP1V1 for setup photos.

**END OF REPORT**