

# FCC RF Test Report

APPLICANT : Honeywell International Inc.  
EQUIPMENT : DOLPHIN CT40  
BRAND NAME : Honeywell  
MODEL NAME : CT40-L1N  
FCC ID : HD5-CT40L1N  
STANDARD : FCC 47 CFR Part 2, and 90(S)  
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on May 04, 2018 and testing was completed on Oct. 31, 2018. We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI/TIA-603-E and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (Kunshan) Inc., the test report shall not be reproduced except in full.



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Approved by: James Huang / Manager

**Sporton International (Kunshan) Inc.**  
**No. 1098, Pengxi North Road, Kunshan Economic Development Zone,**  
**Jiangsu Province 215335, China**

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[illegible]

## SUMMARY OF TEST RESULT

| Report Section | FCC Rule           | Description                                      | Limit                                  | Result | Remark                                     |
|----------------|--------------------|--------------------------------------------------|----------------------------------------|--------|--------------------------------------------|
| 3.1            | §2.1046            | Conducted Output Power                           | Reporting only                         | PASS   | -                                          |
| 3.2            | §2.1049<br>§90.209 | 99% Occupied Bandwidth<br>and 26dB Bandwidth     | Reporting only                         | PASS   | -                                          |
| 3.3            | §2.1051<br>§90.691 | Emission masks –<br>In-band emissions            | $< 50 + 10 \log_{10}(P[\text{Watts}])$ | PASS   | -                                          |
| 3.4            | §2.1051<br>§90.691 | Emission masks –<br>Out of band emissions        | $< 43 + 10 \log_{10}(P[\text{Watts}])$ | PASS   | -                                          |
| 3.5            | §2.1053<br>§90.691 | Field Strength of Spurious<br>Radiation          | $< 43 + 10 \log_{10}(P[\text{Watts}])$ | PASS   | Under limit<br>33.35 dB at<br>1640.000 MHz |
| 3.6            | §2.1055<br>§90.213 | Frequency Stability for<br>Temperature & Voltage | $< 2.5 \text{ ppm}$                    | PASS   | -                                          |



# 1 General Description

## 1.1. Applicant

Honeywell International Inc.  
Honeywell Safety and Productivity Solutions  
9680 Old Bailes Rd. Fort Mill, SC 29707 United States

## 1.2. Manufacturer

Honeywell International Inc.  
Honeywell Safety and Productivity Solutions  
9680 Old Bailes Rd. Fort Mill, SC 29707 United States

## 1.3. Feature of Equipment Under Test

| Product Feature & Specification |                                                                                                                                                                                                                                   |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment                       | DOLPHIN CT40                                                                                                                                                                                                                      |
| Brand Name                      | Honeywell                                                                                                                                                                                                                         |
| Model Name                      | CT40-L1N                                                                                                                                                                                                                          |
| FCC ID                          | HD5-CT40L1N                                                                                                                                                                                                                       |
| EUT supports Radios application | CDMA/EV-DO/GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/ HSPA+(16QAM uplink is not supported)/LTE/NFC<br>WLAN 2.4GHz 802.11b/g/n HT20/<br>WLAN 5GHz 802.11a/n HT20/HT40/<br>WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/<br>Bluetooth BR/ EDR / LE |
| IMEI Code                       | Conducted: 990011960007085<br>Radiation: 990011960005766                                                                                                                                                                          |
| HW Version                      | V1.0                                                                                                                                                                                                                              |
| SW Version                      | OS.01.010-HON.01.102                                                                                                                                                                                                              |
| EUT Stage                       | Identical Prototype                                                                                                                                                                                                               |

**Note:** There are two samples under test, the difference is scanner that from different suppliers, According to the difference, sample 1 is assessed to perform full test.

## 1.4. Product Specification of Equipment Under Test

| Product Specification subjective to this standard |                                                       |
|---------------------------------------------------|-------------------------------------------------------|
| <b>Tx Frequency</b>                               | CDMA2000 BC10 : 817.9 MHz ~ 823.1 MHz                 |
| <b>Rx Frequency</b>                               | CDMA2000 BC10 : 862.9 MHz ~ 868.1 MHz                 |
| <b>Maximum Output Power to Antenna</b>            | CDMA2000 BC10 : 23.83 dBm                             |
| <b>Antenna Type</b>                               | IFA Antenna                                           |
| <b>Type of Modulation</b>                         | CDMA2000 1xRTT : QPSK<br>CDMA2000 1xEV-DO : QPSK/8PSK |

## 1.5. Modification of EUT

No modifications are made to the EUT during all test items.

## 1.6. Maximum Frequency Tolerance, Emission Designator and Conducted Power

| FCC Rule | System                 | Type of Modulation | Frequency Tolerance (ppm) | Emission Designator | Maximum Conducted power(W) |
|----------|------------------------|--------------------|---------------------------|---------------------|----------------------------|
| Part 90S | CDMA2000 BC10<br>1xRTT | QPSK               | 0.0280 ppm                | 1M27F9W             | 0.2415                     |

## 1.7. Testing Site

Sporton International (Kunshan) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600155-0).

|                           |                                                                                                                                                     |                            |                                       |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------|
| <b>Test Site</b>          | Sporton International (Kunshan) Inc.                                                                                                                |                            |                                       |
| <b>Test Site Location</b> | No. 1098, Pengxi North Road, Kunshan Economic Development Zone,<br>Jiangsu Province 215335, China<br>TEL : 86-512-57900158<br>FAX : 86-512-57900958 |                            |                                       |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                                                             | <b>FCC designation No.</b> | <b>FCC Test Firm Registration No.</b> |
|                           | TH01-KS                                                                                                                                             | CN5013                     | 630927                                |

|                           |                                                                                                                                                  |                            |                                       |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------|
| <b>Test Site</b>          | Sporton International (Kunshan) Inc.                                                                                                             |                            |                                       |
| <b>Test Site Location</b> | No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu<br>Province 215335 China<br>TEL : +86-512-57900158<br>FAX : +86-512-57900958 |                            |                                       |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                                                          | <b>FCC designation No.</b> | <b>FCC Test Firm Registration No.</b> |
|                           | 03CH02-KS                                                                                                                                        | CN5013                     | 630927                                |

## 1.8. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC 47 CFR Part 2, 90(S)
- ♦ ANSI/TIA-603-E
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01

### Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

## 2 Test Configuration of Equipment Under Test

### 2.1 Test Mode

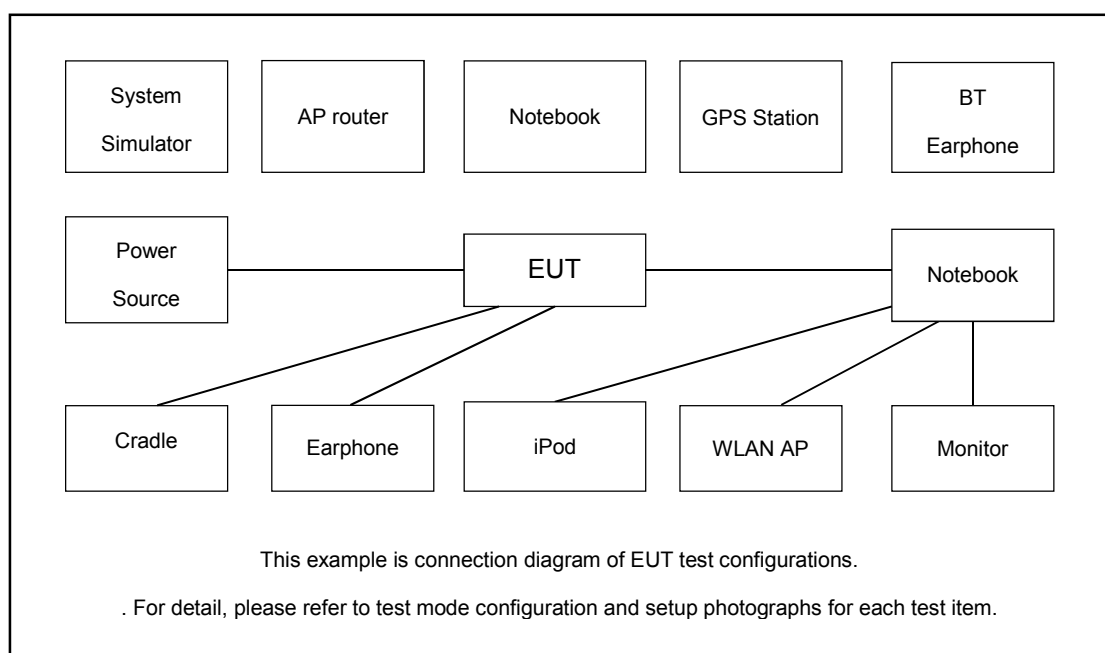
During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Frequency range investigated for radiated emission: 30MHz to 10<sup>th</sup> harmonic.

| Test Modes    |              |               |
|---------------|--------------|---------------|
| Band          | Radiated TCs | Conducted TCs |
| CDMA2000 BC10 | ■ 1xRTT Link | ■ 1xRTT Link  |

**Note:** The maximum RF output power levels are RC1 SO55 mode for CDMA2000 BC10 on QPSK Link; only these modes were used for all tests.

### 2.2 Connection Diagram of Test System





## 2.3 Support Unit used in test configuration and system

| Item | Equipment        | Trade Name | Model No. | FCC ID | Data Cable | Power Cord        |
|------|------------------|------------|-----------|--------|------------|-------------------|
| 1.   | System Simulator | R&S        | CMU 200   | N/A    | N/A        | Unshielded, 1.8 m |
| 2.   | DC Power Supply  | GW INSTEK  | GPS-3030D | N/A    | N/A        | Unshielded, 1.8 m |

## 2.4 Measurement Results Explanation Example

### For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

*Offset = RF cable loss + attenuator factor.*

The following shows an offset computation example with RF cable loss 4.3 dB and a 10dB attenuator.

Example :

*Offset(dB) = RF cable loss(dB) + attenuator factor(dB).*

*= 4.3 + 10 = 14.3 (dB)*

## 2.5 Frequency List of Low/Middle/High Channels

| Frequency List  |                        |        |        |         |
|-----------------|------------------------|--------|--------|---------|
| Band            | Channel/Frequency(MHz) | Lowest | Middle | Highest |
| CDMA200<br>BC10 | Channel                | 476    | 580    | 684     |
|                 | Frequency              | 817.9  | 820.5  | 823.1   |

### 3 Test Result

#### 3.1 Conducted Output Power Measurement

##### 3.1.1 Description of the Conducted Output Power Measurement

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals shall be reported.

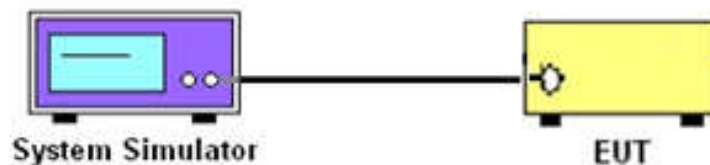
##### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

##### 3.1.3 Test Procedures

1. The transmitter output port was connected to base station.
2. Set EUT at maximum power through base station.
3. Select lowest, middle, and highest channels for each band and different modulation.

##### 3.1.4 Test Setup



##### 3.1.5 Test Result of Conducted Output Power

Please refer to Appendix A.

## 3.2 99% Occupied Bandwidth and 26dB Bandwidth Measurement

### 3.2.1 Description of (Occupied) Bandwidth Limitations Measurement

The 99% occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

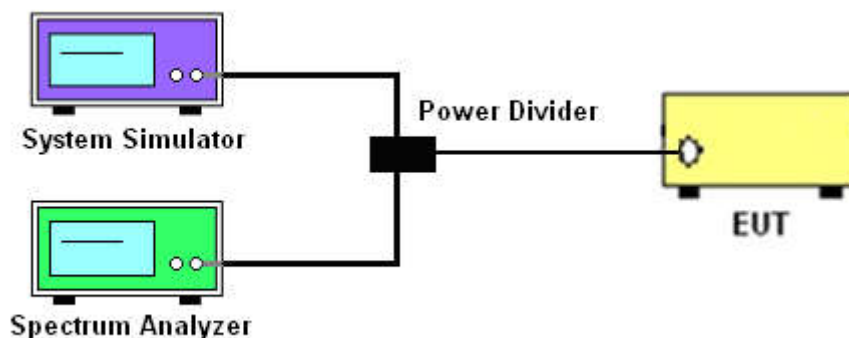
### 3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.2.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers were measured.

### 3.2.4 Test Setup



### 3.2.5 Test Result of 99% Occupied Bandwidth and 26dB Bandwidth

Please refer to Appendix A.

### 3.3 Emissions Mask Measurement

#### 3.3.1 Description of Emissions Mask Measurement

Equipment used in this licensed to EA or non-EA systems shall comply with the emission mask provisions of FCC Part 90.691.(a):

(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.

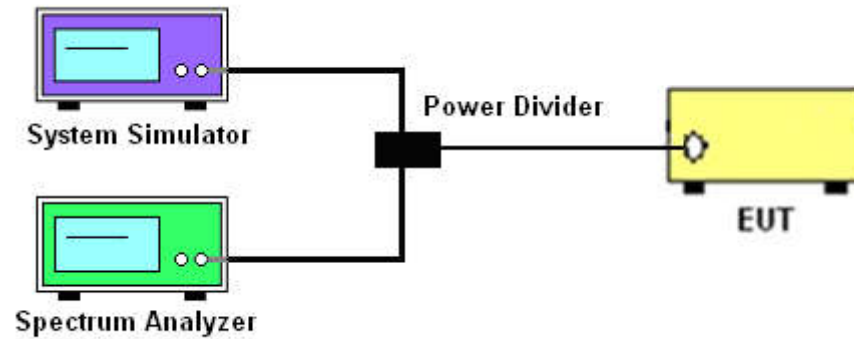
#### 3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

#### 3.3.3 Test Procedures

1. The EUT was connected to spectrum analyzer and base station via power divider.
2. The emissions mask of low and high channels for the highest RF powers were measured.
3. The RBW was set 1% of 99% Occupied Bandwidth, and VBW was set 3 times of RBW.
4. The final test results were shown below plots with a correction offset factor including cable loss, insertion loss of power divider.

### 3.3.4 Test Setup



### 3.3.5 Test Result (Plots) of Conducted Emissions Mask

Please refer to Appendix A.

### 3.4 Emissions Mask – Out Of Band Emissions Measurement

#### 3.4.1 Description of Conducted Emissions Out of band emissions measurement

The power of any emission FCC Part 90.691 (a)(2) on any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth at least  $43 + 10 \log (P)$  dB. It is measured by means of a calibrated spectrum analyzer and scanned from 30MHz up to a frequency including its 10<sup>th</sup> harmonic.

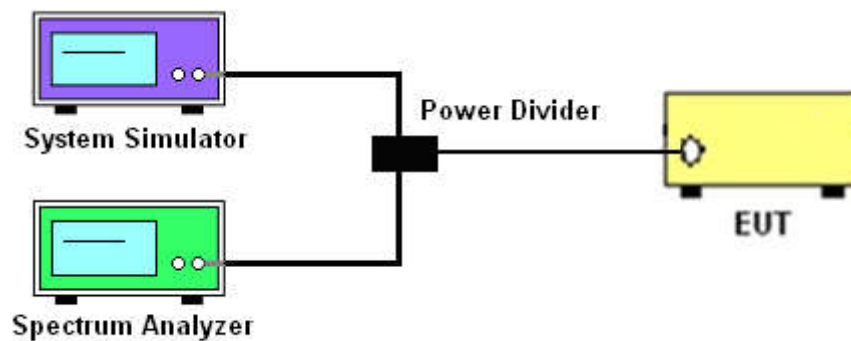
#### 3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

#### 3.4.3 Test Procedures

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The middle channel for the highest RF power within the transmitting frequency was measured.
4. The conducted spurious emission for the whole frequency range was taken.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. The limit line is derived from  $43 + 10\log(P)$ dB below the transmitter power P(Watts)  
 $= P(W) - [43 + 10\log(P)]$  (dB)  
 $= [30 + 10\log(P)]$  (dBm) -  $[43 + 10\log(P)]$  (dB)  
 $= -13$ dBm.

### 3.4.4 Test Setup



### 3.4.5 Test Result (Plots) of Conducted Emission

Please refer to Appendix A.

### 3.5 Field Strength of Spurious Radiation Measurement

#### 3.5.1 Description of Field Strength of Spurious Radiated Measurement

The radiated spurious emission was measured by substitution method according to ANSI/TIA-603-E. The power of any emission FCC Part 90.691 on any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth at least  $43 + 10 \log (P)$  dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

#### 3.5.2 Measuring Instruments

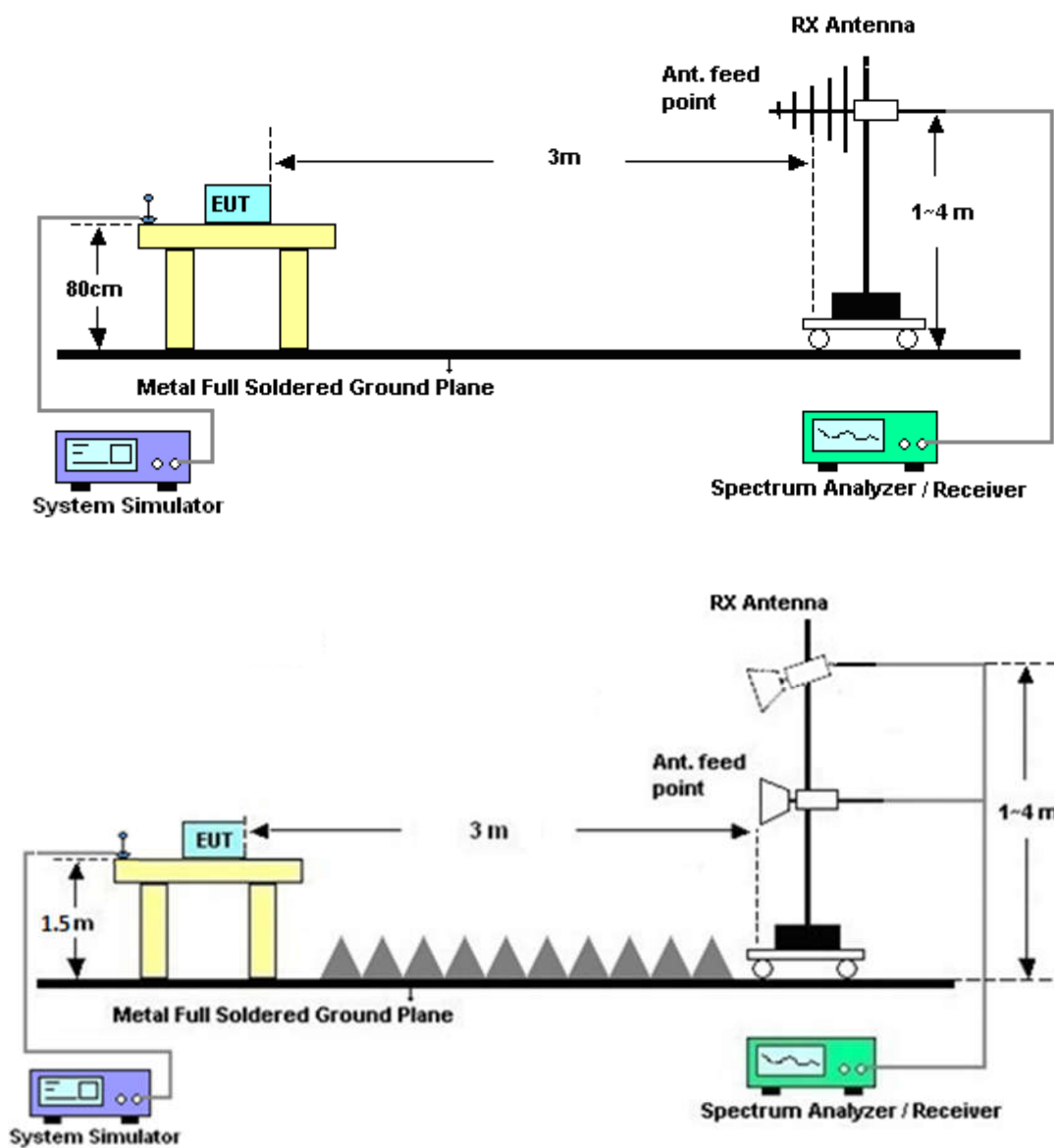
The measuring equipment is listed in the section 4 of this test report.

#### 3.5.3 Test Procedures

1. The EUT was placed on a rotatable wooden table 0.8 meters for frequency below 1GHz and 1.5 meter for frequency above 1GHz above the ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, Sweep = 500ms, Taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10.  $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
11.  $ERP \text{ (dBm)} = EIRP - 2.15$
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
13. The limit line is derived from  $43 + 10\log(P)$  dB below the transmitter power  $P$ (Watts)  
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$   
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$   
 $= -13\text{dBm}.$



### 3.5.4 Test Setup



### 3.5.5 Test Result of Field Strength of Spurious Radiated

Please refer to Appendix B.

### **3.6 Frequency Stability Measurement**

#### **3.6.1 Description of Frequency Stability Measurement**

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5\text{ppm}$ ) of the center frequency according to FCC Part 90.213.

#### **3.6.2 Measuring Instruments**

The measuring equipment is listed in the section 4 of this test report.

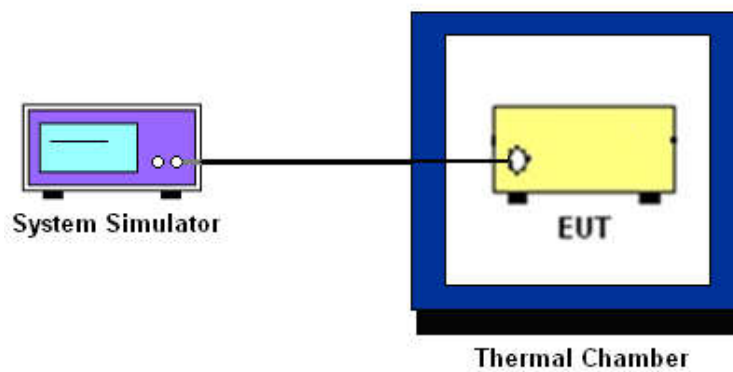
#### **3.6.3 Test Procedures for Temperature Variation**

1. The EUT was set up in the thermal chamber and connected with the base station.
2. With power OFF, the temperature was decreased to  $-30^{\circ}\text{C}$  and the EUT was stabilized for three hours. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in  $10^{\circ}\text{C}$  step up to  $50^{\circ}\text{C}$ . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

#### **3.6.4 Test Procedures for Voltage Variation**

1. The EUT was placed in a temperature chamber at  $20\pm 5^{\circ}\text{C}$  and connected with the system simulator.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment.
3. For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.
4. The variation in frequency was measured for the worst case.

### 3.6.5 Test Setup



### 3.6.6 Test Result of Temperature Variation

Please refer to Appendix A.

## 4 List of Measuring Equipment

| Instrument                | Manufacturer | Model No.                      | Serial No.   | Characteristics         | Calibration Date | Test Date                       | Due Date      | Remark                |
|---------------------------|--------------|--------------------------------|--------------|-------------------------|------------------|---------------------------------|---------------|-----------------------|
| Spectrum Analyzer         | R&S          | FSV30                          | 101338       | 10Hz~30GHz              | Apr. 19, 2018    | Oct. 30, 2018~<br>Oct. 31, 2018 | Apr. 18, 2019 | Conducted (TH01-KS)   |
| Thermal Chamber           | Hongzhan     | LP-150U                        | H2014011440  | -40~+150°C<br>20%~95%RH | Jun. 27, 2018    | Oct. 30, 2018~<br>Oct. 31, 2018 | Jun. 26, 2019 | Conducted (TH01-KS)   |
| EXA Spectrum Analyzer     | Keysight     | N9010A                         | MY55150208   | 10Hz-44G,MAX<br>30dB    | Apr. 17, 2018    | Jun. 17, 2018                   | Apr. 16, 2019 | Radiation (03CH02-KS) |
| Bilog Antenna             | TeseQ        | CBL6112D                       | 23182        | 30MHz-2GHz              | Jan. 29, 2018    | Jun. 17, 2018                   | Jan. 28, 2019 | Radiation (03CH02-KS) |
| Double Ridge Horn Antenna | ETS-Lindgren | 3117                           | 75957        | 1GHz~18GHz              | Oct. 21, 2017    | Jun. 17, 2018                   | Oct. 20, 2018 | Radiation (03CH02-KS) |
| Amplifier                 | Burgeon      | BPA-530                        | 102220       | 0.01MHz~1GHz            | Dec. 16, 2017    | Jun. 17, 2018                   | Dec. 15, 2018 | Radiation (03CH02-KS) |
| high gain Amplifier       | MITEQ        | AMF-7D-00<br>101800-30-1<br>dB | 2025788      | 100MHz-18GHz            | Apr. 17, 2018    | Jun. 17, 2018                   | Apr. 16, 2019 | Radiation (03CH02-KS) |
| Amplifier                 | Agilent      | 8449B                          | 3008A02384   | 1-26.5GHz Gain<br>30dB  | Oct. 12, 2017    | Jun. 17, 2018                   | Oct. 11, 2018 | Radiation (03CH02-KS) |
| AC Power Source           | Chroma       | 61601                          | 616010002473 | N/A                     | NCR              | Jun. 17, 2018                   | NCR           | Radiation (03CH02-KS) |
| Turn Table                | MF           | MF7802                         | N/A          | 0~360 degree            | NCR              | Jun. 17, 2018                   | NCR           | Radiation (03CH02-KS) |
| Antenna Mast              | MF           | MF7802                         | N/A          | 1 m~4 m                 | NCR              | Jun. 17, 2018                   | NCR           | Radiation (03CH02-KS) |

NCR: No Calibration Required

## 5 Uncertainty of Evaluation

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

|                                                                         |        |
|-------------------------------------------------------------------------|--------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 3.3 dB |
|-------------------------------------------------------------------------|--------|

### Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

|                                                                         |        |
|-------------------------------------------------------------------------|--------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 2.8 dB |
|-------------------------------------------------------------------------|--------|

## Appendix A. Test Results of Conducted Test

### Conducted Output Power (Average power)

| Conducted Power (*Unit: dBm) |               |       |       |
|------------------------------|---------------|-------|-------|
| Band                         | CDMA2000 BC10 |       |       |
| Channel                      | 476           | 580   | 684   |
| Frequency                    | 817.9         | 820.5 | 823.1 |
| 1xRTT RC1 SO55               | 23.75         | 23.83 | 23.70 |
| 1xRTT RC3 SO55               | 23.73         | 23.81 | 23.68 |
| 1xRTT RC3 SO32(+ F-SCH)      | 23.70         | 23.79 | 23.65 |
| 1xRTT RC3 SO32 (+SCH)        | 23.68         | 23.77 | 23.64 |
| 1xEVDO RTAP 153.6Kbps        | 23.68         | 23.76 | 23.63 |
| 1xEVDO RETAP 4096Bits        | 23.65         | 23.75 | 23.60 |

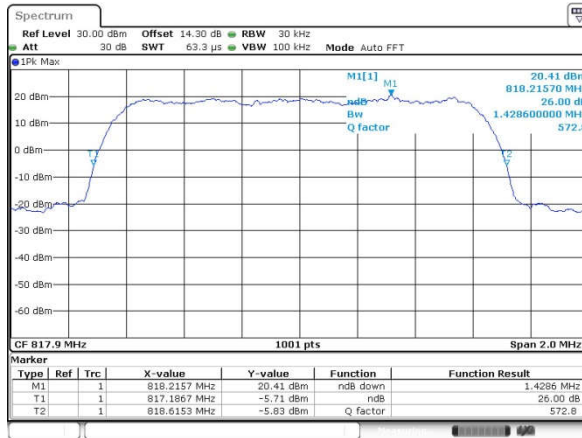


**26dB Bandwidth**

| Mode       | CDMA BC10(MHz) |
|------------|----------------|
| Mod.       | 1xRTT          |
| Lowest CH  | 1.429          |
| Middle CH  | 1.429          |
| Highest CH | 1.431          |

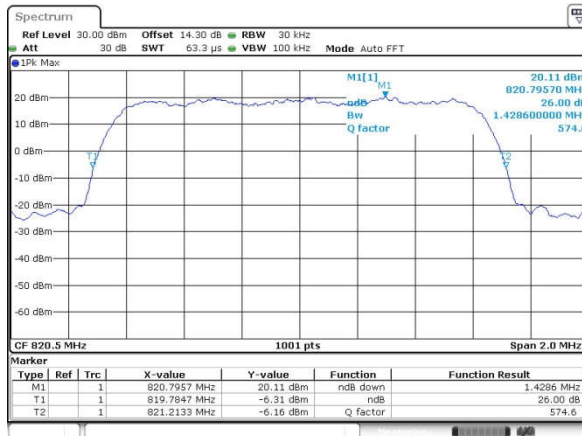
**CDMA BC10 (1xRTT)**

**Lowest Channel**



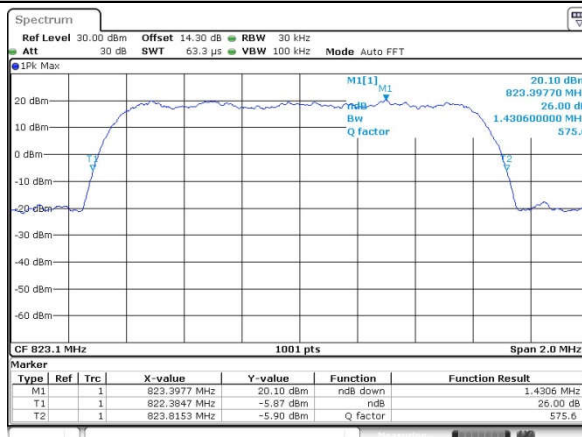
Date: 31 OCT.2018 10:28:45

**Middle Channel**



Date: 31 OCT.2018 10:29:35

**Highest Channel**



Date: 31 OCT.2018 10:30:11





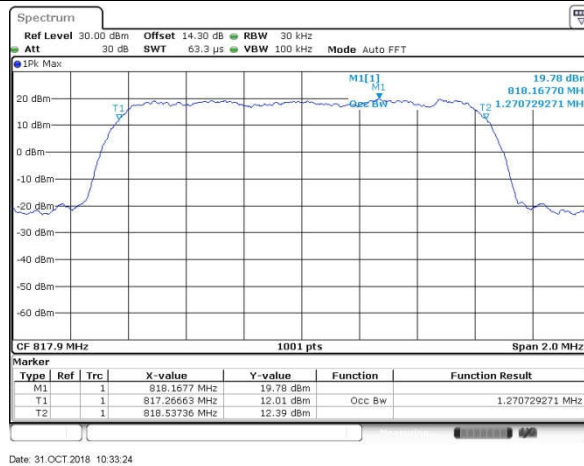
## Occupied Bandwidth

| Mode       | CDMA BC10(MHz) |
|------------|----------------|
| Mod.       | 1xRTT          |
| Lowest CH  | 1.27           |
| Middle CH  | 1.27           |
| Highest CH | 1.27           |

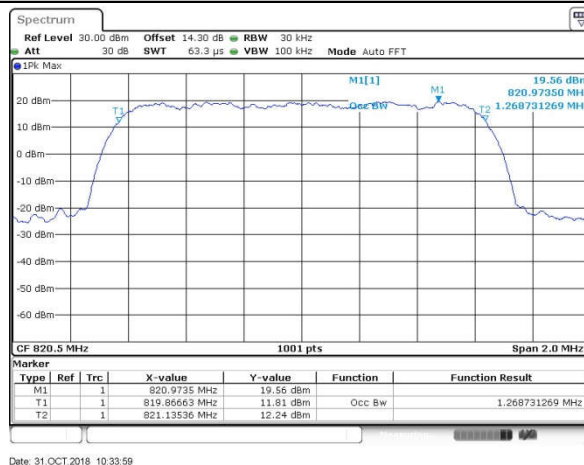


CDMA BC10 (1xRTT)

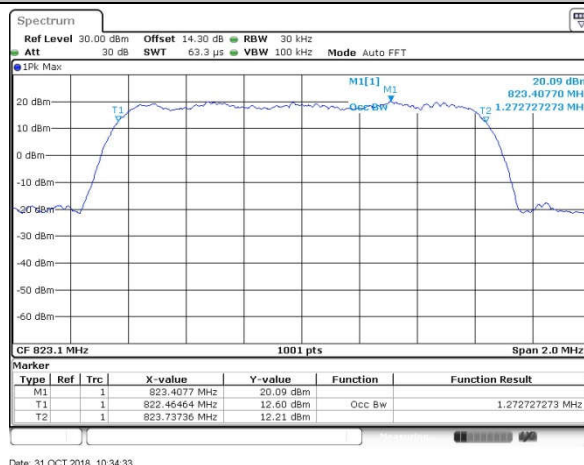
Lowest Channel

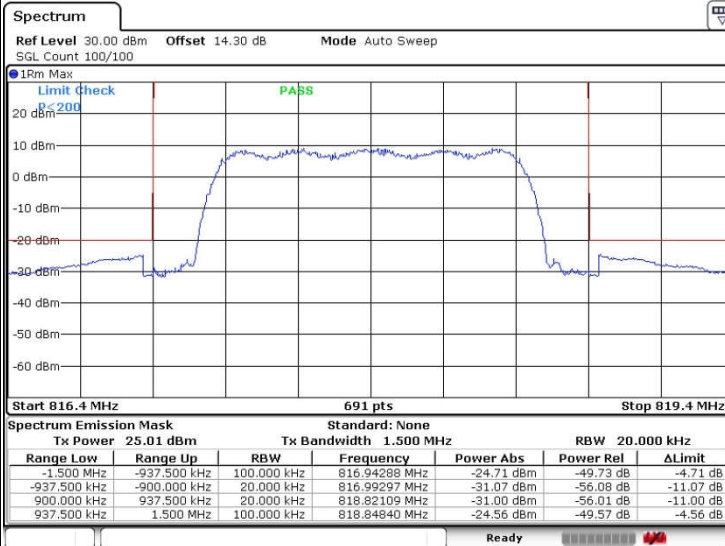


Middle Channel

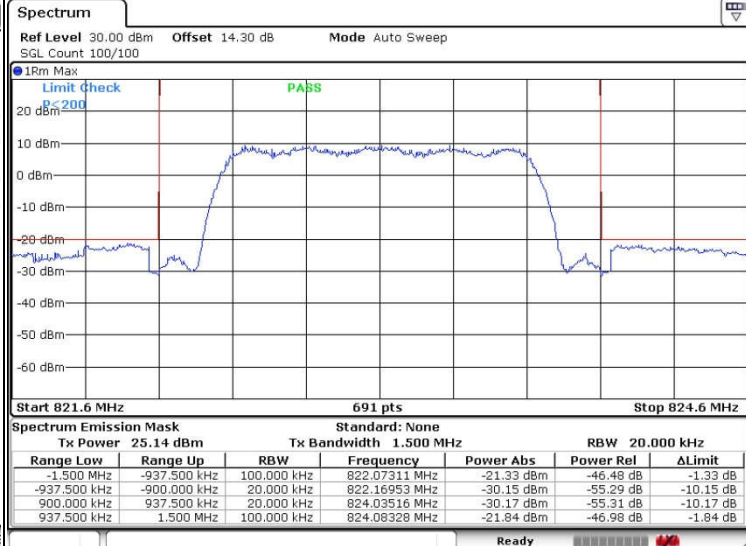


Highest Channel



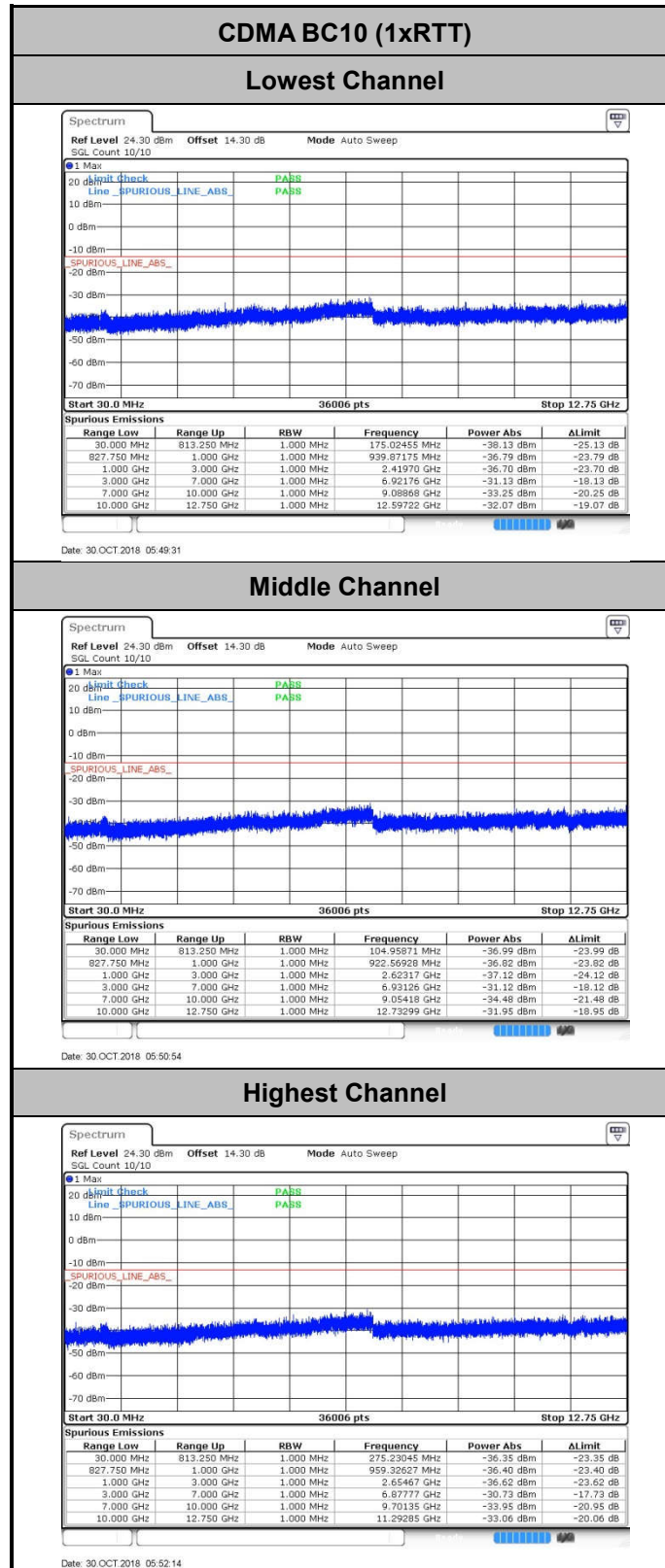
**Conducted Band Edge****CDMA BC10 (1xRTT)****Lowest Band Edge**

Date: 30.OCT.2018 05:35:18

**Highest Band Edge**

Date: 30.OCT.2018 05:38:47

# Conducted Spurious Emission



## Frequency Stability

| Test Conditions  | Middle Channel    | CDMA BC10<br>(1xRTT) | Limit<br>2.5ppm |
|------------------|-------------------|----------------------|-----------------|
| Temperature (°C) | Voltage (Volt)    | Deviation (ppm)      | Result          |
| 50               | Normal Voltage    | 0.0183               | PASS            |
| 40               | Normal Voltage    | 0.0073               |                 |
| 30               | Normal Voltage    | 0.0280               |                 |
| 20(Ref.)         | Normal Voltage    | 0.0000               |                 |
| 10               | Normal Voltage    | 0.0024               |                 |
| 0                | Normal Voltage    | 0.0049               |                 |
| -10              | Normal Voltage    | 0.0061               |                 |
| -20              | Normal Voltage    | 0.0171               |                 |
| -30              | Normal Voltage    | 0.0085               |                 |
| 20               | Maximum Voltage   | 0.0232               |                 |
| 20               | Normal Voltage    | 0.0000               |                 |
| 20               | Battery End Point | 0.37                 |                 |

**Note:** Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.5V. ; Maximum Voltage =4.3V

## Appendix B. Test Results of Radiated Test

| CDMA BC10 (1xRTT) |                      |                |                  |                         |                          |                            |                              |                       |
|-------------------|----------------------|----------------|------------------|-------------------------|--------------------------|----------------------------|------------------------------|-----------------------|
| Channel           | Frequency<br>( MHz ) | ERP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>( dBi) | Polarization<br>(H/V) |
| Lowest            | 1636                 | -46.52         | -13              | -33.52                  | -47.89                   | 2.28                       | 5.80                         | H                     |
|                   | 2454                 | -55.45         | -13              | -42.45                  | -57.36                   | 2.84                       | 6.90                         | H                     |
|                   | 3270                 | -59.17         | -13              | -46.17                  | -61.23                   | 3.29                       | 7.50                         | H                     |
|                   | 1636                 | -52.43         | -13              | -39.43                  | -53.80                   | 2.28                       | 5.80                         | V                     |
|                   | 2453.7               | -59.35         | -13              | -46.35                  | -61.26                   | 2.84                       | 6.90                         | V                     |
|                   | 3270                 | -59.30         | -13              | -46.30                  | -61.36                   | 3.29                       | 7.50                         | V                     |
| Middle            | 1640                 | -46.35         | -13              | -33.35                  | -47.72                   | 2.28                       | 5.80                         | H                     |
|                   | 2462                 | -55.78         | -13              | -42.78                  | -57.69                   | 2.84                       | 6.90                         | H                     |
|                   | 3282                 | -59.58         | -13              | -46.58                  | -61.64                   | 3.29                       | 7.50                         | H                     |
|                   | 1640                 | -52.76         | -13              | -39.76                  | -54.13                   | 2.28                       | 5.80                         | V                     |
|                   | 2524                 | -58.39         | -13              | -45.39                  | -60.30                   | 2.84                       | 6.90                         | V                     |
|                   | 3282                 | -59.31         | -13              | -46.31                  | -61.37                   | 3.29                       | 7.50                         | V                     |
| Highest           | 1646                 | -47.52         | -13              | -34.52                  | -48.89                   | 2.28                       | 5.80                         | H                     |
|                   | 2470                 | -56.55         | -13              | -43.55                  | -58.46                   | 2.84                       | 6.90                         | H                     |
|                   | 3291                 | -59.85         | -13              | -46.85                  | -61.91                   | 3.29                       | 7.50                         | H                     |
|                   | 1646                 | -53.97         | -13              | -40.97                  | -55.34                   | 2.28                       | 5.80                         | V                     |
|                   | 2469                 | -59.64         | -13              | -46.64                  | -61.55                   | 2.84                       | 6.90                         | V                     |
|                   | 3291                 | -59.90         | -13              | -46.90                  | -61.96                   | 3.29                       | 7.50                         | V                     |

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.