

## FCC Test Report (Co-Located)

**Report No.:** RF171129D05-1

**FCC ID:** P27TP202134134

**Test Model:** INTTP202134134

**Received Date:** Nov. 29, 2017

**Test Date:** Dec. 27, 2017

**Issued Date:** Jan. 11, 2018

**Applicant:** Sercomm Corp.

**Address:** 8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C. (NanKang Software Park)

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)

FCC Registration /  
Designation Number: 198487 / TW2021



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### Release Control Record

| Issue No.     | Description       | Date Issued   |
|---------------|-------------------|---------------|
| RF171129D05-1 | Original release. | Jan. 11, 2018 |

## 1 Certificate of Conformity

**Product:** Verizon LTE

**Brand:** Verizon

**Test Model:** INTTP202134134

**Sample Status:** Engineering sample

**Applicant:** Sercomm Corp.

**Test Date:** Dec. 27, 2017

**Standard:** FCC Part 27, Subpart C

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :**

*Annie Chang*

**Date:** Jan. 11, 2018

Annie Chang / Senior Specialist

**Approved by :**

*Rex Lai*

**Date:** Jan. 11, 2018

Rex Lai / Associate Technical Manager

## 2 Summary of Test Results

| FCC Part 27, FCC Part 2         |                                            |        |                                                                                     |
|---------------------------------|--------------------------------------------|--------|-------------------------------------------------------------------------------------|
| FCC Clause                      | Test Item                                  | Result | Remarks                                                                             |
| 2.1053<br>2.1051<br>27.53(h)(c) | Radiated Emissions & Band Edge Measurement | PASS   | Meet the requirement of limit.<br>Minimum passing margin is -24.42dB at 2253.33MHz. |

### 2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| Measurement                    | Frequency       | Expanded Uncertainty (k=2) ( $\pm$ ) |
|--------------------------------|-----------------|--------------------------------------|
| Radiated Emissions up to 1 GHz | 30MHz ~ 1000MHz | 5.54 dB                              |
| Radiated Emissions above 1 GHz | 1GHz ~ 40GHz    | 5.48 dB                              |

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

|                     |                    |                                 |                       |
|---------------------|--------------------|---------------------------------|-----------------------|
| Product             | Verizon LTE        |                                 |                       |
| Brand               | Verizon            |                                 |                       |
| Test Model          | INTTP202134134     |                                 |                       |
| Status of EUT       | Engineering sample |                                 |                       |
| Power Supply Rating | 12Vdc (adapter)    |                                 |                       |
| Modulation Type     | QPSK, 16QAM, 64QAM |                                 |                       |
| Operating Frequency | LTE Band 4         | Channel Bandwidth 10MHz         | 2115.0MHz ~ 2150.0MHz |
|                     |                    | Channel Bandwidth 20MHz         | 2120.0MHz ~ 2145.0MHz |
|                     | LTE Band 13        | Channel Bandwidth 10MHz         | 751MHz                |
| Max. EIRP Power     | LTE Band 4         | Channel Bandwidth 10MHz         | 254.683mW (24.06dBm)  |
|                     |                    | Channel Bandwidth 20MHz         | 205.116mW (23.12dBm)  |
| Max. ERP Power      | LTE Band 13        | Channel Bandwidth 10MHz         | 136.773mW (21.36dBm)  |
| Antenna Type        | LTE Band 4         | Dipole antenna with 1.7dBi gain |                       |
|                     | LTE Band 13        | Dipole antenna with 1.2dBi gain |                       |
| Antenna Connector   | SMA                |                                 |                       |
| Accessory Device    | Adapter            |                                 |                       |
| Data Cable Supplied | N/A                |                                 |                       |

Note:

1. The EUT uses following adapter.

|              |                                            |
|--------------|--------------------------------------------|
| Adapter      |                                            |
| Brand        | PHIHONG                                    |
| Model        | PSA120U-120L6                              |
| Input Power  | 100-240Vac, 1.6A, 50-60Hz                  |
| Output Power | 12Vdc, 9A                                  |
| Power cord   | Non-shielded AC 3 Pin (1.8m)               |
|              | Non-shielded DC (1m) with one ferrite core |

2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

### 3.2 Test Mode Applicability and Tested Channel Detail

| EUT CONFIGURE MODE | APPLICABLE TO |       |    | DESCRIPTION                                                   |
|--------------------|---------------|-------|----|---------------------------------------------------------------|
|                    | RE $\geq$ 1G  | RE<1G | CE |                                                               |
| A                  | √             | √     | √  | CPU1+CPU2: LTE Band 4 (CBW: 10MHz) + LTE Band 13 (CBW: 10MHz) |
| B                  | √             | √     | √  | CPU1+CPU2: LTE Band 4 (CBW: 20MHz) + LTE Band 13 (CBW: 10MHz) |

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz

**RE<1G**: Radiated Emission below 1GHz

**CE**: Conducted Emission

#### Radiated Emission Test (Above 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

| EUT CONFIGURE MODE | MODE                                               |
|--------------------|----------------------------------------------------|
| A                  | LTE Band 4 (CBW: 10MHz) + LTE Band 13 (CBW: 10MHz) |
| B                  | LTE Band 4 (CBW: 20MHz) + LTE Band 13 (CBW: 10MHz) |

#### Radiated Emission Test (Below 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

| EUT CONFIGURE MODE | MODE                                               |
|--------------------|----------------------------------------------------|
| A                  | LTE Band 4 (CBW: 10MHz) + LTE Band 13 (CBW: 10MHz) |
| B                  | LTE Band 4 (CBW: 20MHz) + LTE Band 13 (CBW: 10MHz) |

#### Conducted Emission

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

| EUT CONFIGURE MODE | MODE                                               |
|--------------------|----------------------------------------------------|
| A                  | LTE Band 4 (CBW: 10MHz) + LTE Band 13 (CBW: 10MHz) |
| B                  | LTE Band 4 (CBW: 20MHz) + LTE Band 13 (CBW: 10MHz) |

#### Test Condition:

| APPLICABLE TO | ENVIRONMENTAL CONDITIONS | INPUT POWER  | TESTED BY |
|---------------|--------------------------|--------------|-----------|
| RE $\geq$ 1G  | 20deg. C, 76%RH          | 120Vac, 60Hz | Ian Chang |
| RE<1G         | 20deg. C, 76%RH          | 120Vac, 60Hz | Ian Chang |
| CE            | 20deg. C, 76%RH          | 120Vac, 60Hz | Saxon Lee |

### 3.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

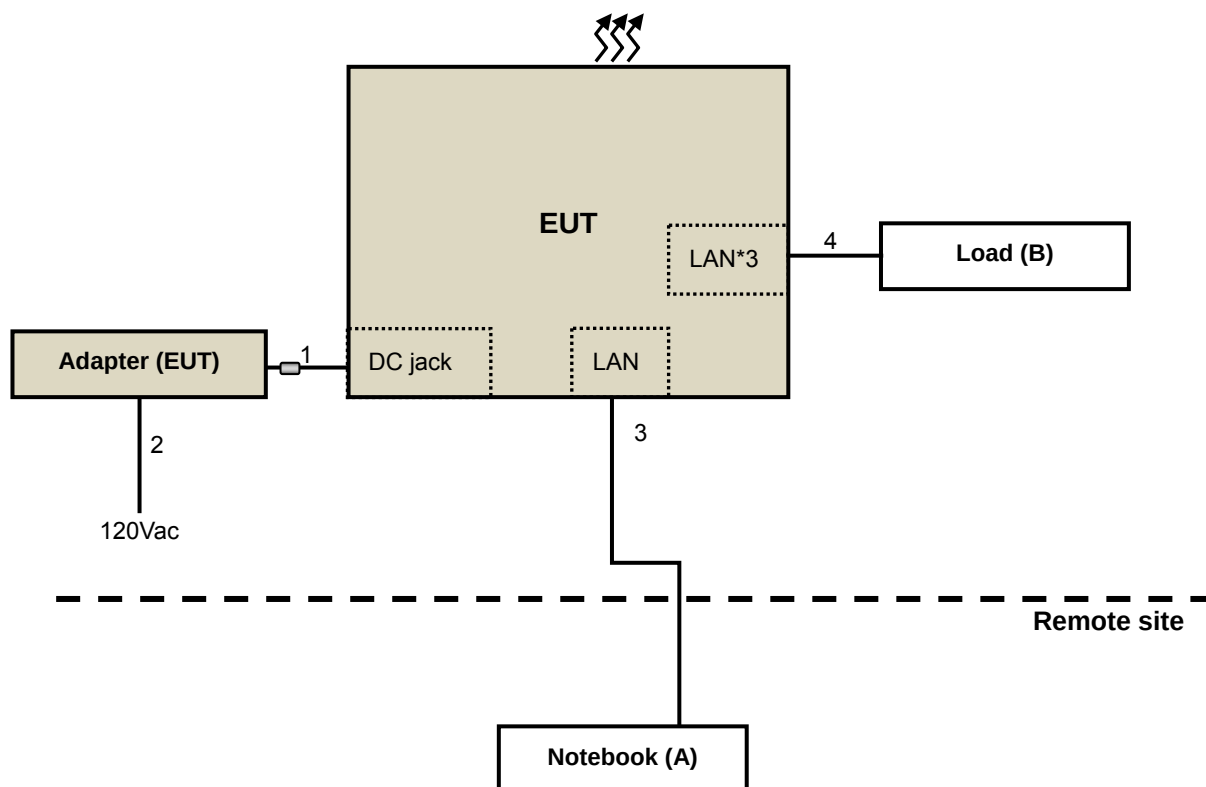
| ID | Product     | Brand | Model No. | Serial No. | FCC ID           | Remarks         |
|----|-------------|-------|-----------|------------|------------------|-----------------|
| A. | Notebook PC | DELL  | E6530     | 9331GV1    | FCC DoC Approved | Provided by Lab |
| B. | Load        | N/A   | N/A       | N/A        | N/A              | Provided by Lab |

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as communication partners to transfer data.

| ID | Descriptions  | Qty. | Length (m) | Shielding (Yes/No) | Cores (Qty.) | Remarks            |
|----|---------------|------|------------|--------------------|--------------|--------------------|
| 1. | DC cable      | 1    | 1          | N                  | 1            | Supplied by client |
| 2. | AC power cord | 1    | 1.8        | N                  | 0            | Supplied by client |
| 3. | LAN cable     | 1    | 10         | N                  | 0            | Provided by Lab    |
| 4. | LAN cable     | 3    | 0.5        | N                  | 0            | Provided by Lab    |

#### 3.3.1 Configuration of System under Test





### **3.4 General Description of Applied Standard**

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

#### **FCC Part 27, Subpart C**

All test items have been performed and recorded as per the above standards.

## 4 Test Types and Results

### 4.1 Radiated Emission and Bandedge Measurement

#### 4.1.1 Limits of Radiated Emission and Bandedge Measurement

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. The emission limit equal to  $-13\text{dBm}$ .

#### 4.1.2 Test Instruments

| DESCRIPTION & MANUFACTURER                 | MODEL NO.            | SERIAL NO.     | CALIBRATED DATE | CALIBRATED UNTIL |
|--------------------------------------------|----------------------|----------------|-----------------|------------------|
| HP Preamplifier                            | 8447D                | 2432A03504     | Feb. 21, 2017   | Feb. 20, 2018    |
| HP Preamplifier                            | 8449B                | 3008A01201     | Feb. 22, 2017   | Feb. 21, 2018    |
| MITEQ Preamplifier                         | AMF-6F-260400-33-8P  | 892164         | Feb. 21, 2017   | Feb. 20, 2018    |
| Agilent TEST RECEIVER                      | N9038A               | MY51210129     | Feb. 8, 2017    | Feb. 7, 2018     |
| Schwarzbeck Antenna                        | VULB 9168            | 139            | Nov. 29, 2017   | Nov. 28, 2018    |
| Schwarzbeck Antenna                        | VHBA 9123            | 480            | May 19, 2017    | May 18, 2019     |
| Schwarzbeck Horn Antenna                   | BBHA-9170            | 212            | Dec. 1, 2017    | Nov. 30, 2018    |
| Schwarzbeck Horn Antenna                   | BBHA 9120-D1         | D130           | Dec. 1, 2017    | Nov. 30, 2018    |
| ADT. Turn Table                            | TT100                | 0306           | NA              | NA               |
| ADT. Tower                                 | AT100                | 0306           | NA              | NA               |
| Software                                   | Radiated_V7.6.15.9.5 | NA             | NA              | NA               |
| SUHNER RF cable<br>With 4dB PAD            | SF104                | CABLE-CH6      | Aug. 14, 2017   | Aug. 13, 2018    |
| SUHNER RF cable<br>With 3dB PAD            | SF102                | Cable-CH8-3.6m | Aug. 14, 2017   | Aug. 13, 2018    |
| KEYSIGHT MIMO<br>Powermeasurement Test set | U2021XA              | U2021XA-001    | May 31, 2017    | May 30, 2018     |
| KEYSIGHT<br>Spectrum Analyzer              | N9030A               | MY54490260     | Jul. 26, 2017   | Jul. 25, 2018    |
| Loop Antenna EMCI                          | LPA600               | 270            | Aug. 11, 2017   | Aug. 10, 2019    |
| EMCO Horn Antenna                          | 3115                 | 00028257       | Nov. 30, 2017   | Nov. 29, 2018    |
| Highpass filter<br>Wainwright Instruments  | WHK 3.1/18G-10SS     | SN 8           | NA              | NA               |
| ROHDE & SCHWARZ<br>Spectrum Analyzer       | FSV40                | 101042         | Sep. 29, 2017   | Sep. 28, 2018    |
| Anritsu Power Sensor                       | MA2411B              | 0738404        | Apr. 24, 2017   | Apr. 23, 2018    |
| Anritsu Power Meter                        | ML2495A              | 0842014        | Apr. 24, 2017   | Apr. 23, 2018    |

- NOTE:**
1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
  2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
  3. The test was performed in Chamber No. 6.
  4. The Industry Canada Reference No. IC 7450E-6.

#### 4.1.3 Test Procedure

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

**Note:**

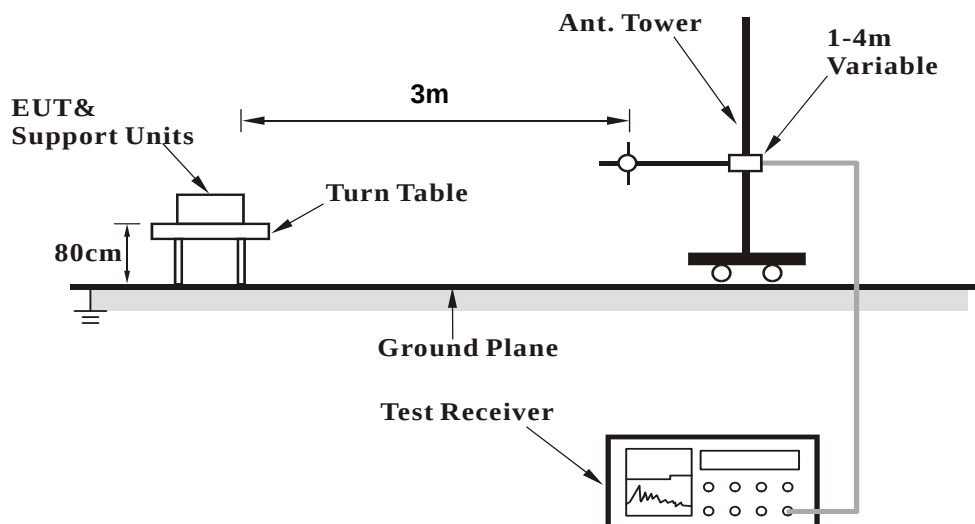
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.4 Deviation from Test Standard

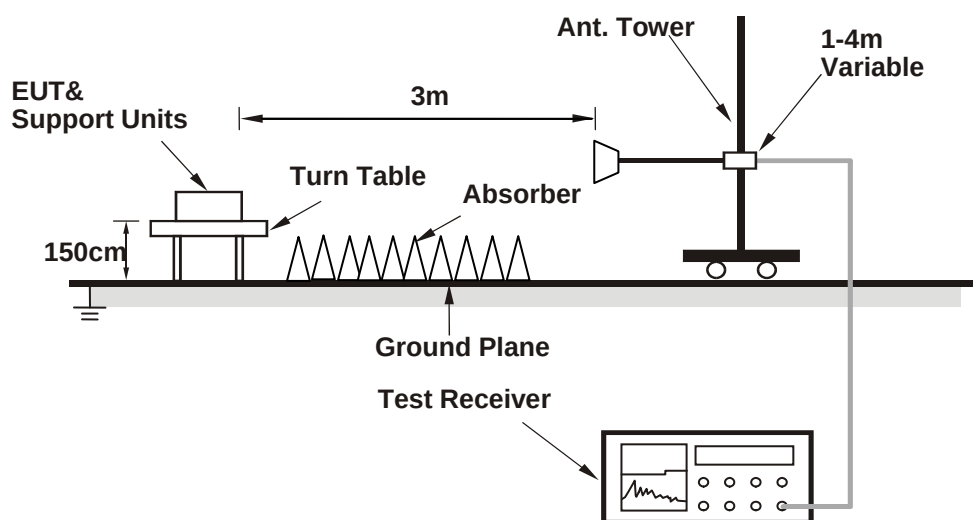
No deviation.

#### 4.1.5 Test Setup

##### <Frequency Range below 1GHz>



##### <Frequency Range above 1GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.1.6 EUT Operating Condition

- Placed the EUT on the testing table.
- Prepared notebook to act as communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.

#### 4.1.7 Test Results (Mode A)

##### ABOVE 1GHz DATA

##### LTE Band 4 (CBW: 10MHz) + LTE Band 13 (CBW: 10MHz)

|                        |              |                          |           |
|------------------------|--------------|--------------------------|-----------|
| <b>FREQUENCY RANGE</b> | 1GHz ~ 25GHz | <b>DETECTOR FUNCTION</b> | Peak (PK) |
|------------------------|--------------|--------------------------|-----------|

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 2252.87     | -53.59        | -64.41                | 13.02                  | -51.39    | -13.00      | -38.39      |
| 2                                                   | 4230.94     | -55.26        | -70.72                | 19.88                  | -50.84    | -13.00      | -37.84      |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 2253.08     | -41.46        | -51.78                | 13.02                  | -38.76    | -13.00      | -25.76      |
| 2                                                   | 4230.61     | -43.51        | -58.40                | 19.88                  | -38.52    | -13.00      | -25.52      |

##### BELOW 1GHz DATA

##### LTE Band 4 (CBW: 10MHz) + LTE Band 13 (CBW: 10MHz)

|                        |              |                          |                 |
|------------------------|--------------|--------------------------|-----------------|
| <b>FREQUENCY RANGE</b> | 30MHz ~ 1GHz | <b>DETECTOR FUNCTION</b> | Quasi-Peak (QP) |
|------------------------|--------------|--------------------------|-----------------|

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 175.01      | -63.57        | -97.16                | 30.18                  | -66.98    | -13.00      | -53.98      |
| 2                                                   | 325.00      | -57.72        | -91.60                | 31.03                  | -60.57    | -13.00      | -47.57      |
| 3                                                   | 374.96      | -63.25        | -96.80                | 31.24                  | -65.56    | -13.00      | -52.56      |
| 4                                                   | 425.03      | -62.59        | -95.59                | 31.44                  | -64.15    | -13.00      | -51.15      |
| 5                                                   | 499.96      | -57.91        | -89.68                | 31.71                  | -57.97    | -13.00      | -44.97      |
| 6                                                   | 904.46      | -61.81        | -88.04                | 32.93                  | -55.11    | -13.00      | -42.11      |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 175.01      | -69.74        | -103.67               | 30.18                  | -73.49    | -13.00      | -60.49      |
| 2                                                   | 349.98      | -63.30        | -96.78                | 31.13                  | -65.65    | -13.00      | -52.65      |
| 3                                                   | 499.96      | -56.28        | -88.69                | 31.71                  | -56.98    | -13.00      | -43.98      |
| 4                                                   | 624.97      | -70.68        | -101.12               | 32.12                  | -69.00    | -13.00      | -56.00      |
| 5                                                   | 746.59      | -66.27        | -95.77                | 32.51                  | -63.26    | -13.00      | -50.26      |
| 6                                                   | 1000.00     | -69.64        | -95.62                | 33.18                  | -62.44    | -13.00      | -49.44      |

#### 4.1.8 Test Results (Mode B)

##### ABOVE 1GHz DATA

##### LTE Band 4 (CBW: 20MHz) + LTE Band 13 (CBW: 10MHz)

|                        |              |                          |           |
|------------------------|--------------|--------------------------|-----------|
| <b>FREQUENCY RANGE</b> | 1GHz ~ 25GHz | <b>DETECTOR FUNCTION</b> | Peak (PK) |
|------------------------|--------------|--------------------------|-----------|

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 2253.59     | -55.37        | -66.19                | 13.02                  | -53.17    | -13.00      | -40.17      |
| 2                                                   | 4240.68     | -54.96        | -70.53                | 19.99                  | -50.54    | -13.00      | -37.54      |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 2253.33     | -40.12        | -50.44                | 13.02                  | -37.42    | -13.00      | -24.42      |
| 2                                                   | 4240.80     | -43.65        | -58.62                | 19.99                  | -38.63    | -13.00      | -25.63      |

##### BELOW 1GHz DATA

##### LTE Band 4 (CBW: 20MHz) + LTE Band 13 (CBW: 10MHz)

|                        |              |                          |                 |
|------------------------|--------------|--------------------------|-----------------|
| <b>FREQUENCY RANGE</b> | 30MHz ~ 1GHz | <b>DETECTOR FUNCTION</b> | Quasi-Peak (QP) |
|------------------------|--------------|--------------------------|-----------------|

| Antenna Polarity & Test Distance: Horizontal at 3 M |             |               |                       |                        |           |             |             |
|-----------------------------------------------------|-------------|---------------|-----------------------|------------------------|-----------|-------------|-------------|
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 175.01      | -64.45        | -98.04                | 30.18                  | -67.86    | -13.00      | -54.86      |
| 2                                                   | 325.00      | -57.68        | -91.56                | 31.03                  | -60.53    | -13.00      | -47.53      |
| 3                                                   | 425.03      | -62.91        | -95.91                | 31.44                  | -64.47    | -13.00      | -51.47      |
| 4                                                   | 499.96      | -56.75        | -88.52                | 31.71                  | -56.81    | -13.00      | -43.81      |
| 5                                                   | 729.98      | -67.11        | -95.79                | 32.46                  | -63.33    | -13.00      | -50.33      |
| 6                                                   | 874.99      | -74.34        | -101.30               | 32.85                  | -68.45    | -13.00      | -55.45      |
| Antenna Polarity & Test Distance: Vertical at 3 M   |             |               |                       |                        |           |             |             |
| No.                                                 | Freq. (MHz) | Reading (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | ERP (dBm) | Limit (dBm) | Margin (dB) |
| 1                                                   | 175.01      | -59.40        | -93.33                | 30.18                  | -63.15    | -13.00      | -50.15      |
| 2                                                   | 374.96      | -61.42        | -94.71                | 31.24                  | -63.47    | -13.00      | -50.47      |
| 3                                                   | 474.99      | -62.26        | -94.96                | 31.61                  | -63.35    | -13.00      | -50.35      |
| 4                                                   | 499.96      | -56.62        | -89.03                | 31.71                  | -57.32    | -13.00      | -44.32      |
| 5                                                   | 624.97      | -72.28        | -102.72               | 32.12                  | -70.60    | -13.00      | -57.60      |
| 6                                                   | 999.51      | -73.83        | -99.82                | 33.18                  | -66.64    | -13.00      | -53.64      |

## 4.2 Conducted Spurious Emissions

### 4.2.1 Limits of Conducted Spurious Emissions Measurement

For LTE Band 4

According to FCC 27.53(h) for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10} (P)$  dB.

For LTE Band 13

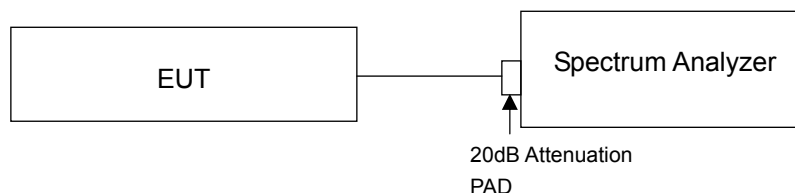
According to FCC 27.53(c) (2) for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB.

Part 27.53 (f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to  $-70$  dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and  $-80$  dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

Note:

1. The results for each of the transmit chains shall be individually compared with the limits after these limits have been added by  $10 \times \log (N)$  (number of active transmit chains).
2. The other emission levels were very low against the limit in the band 1559-1610

### 4.2.2 Test Setup

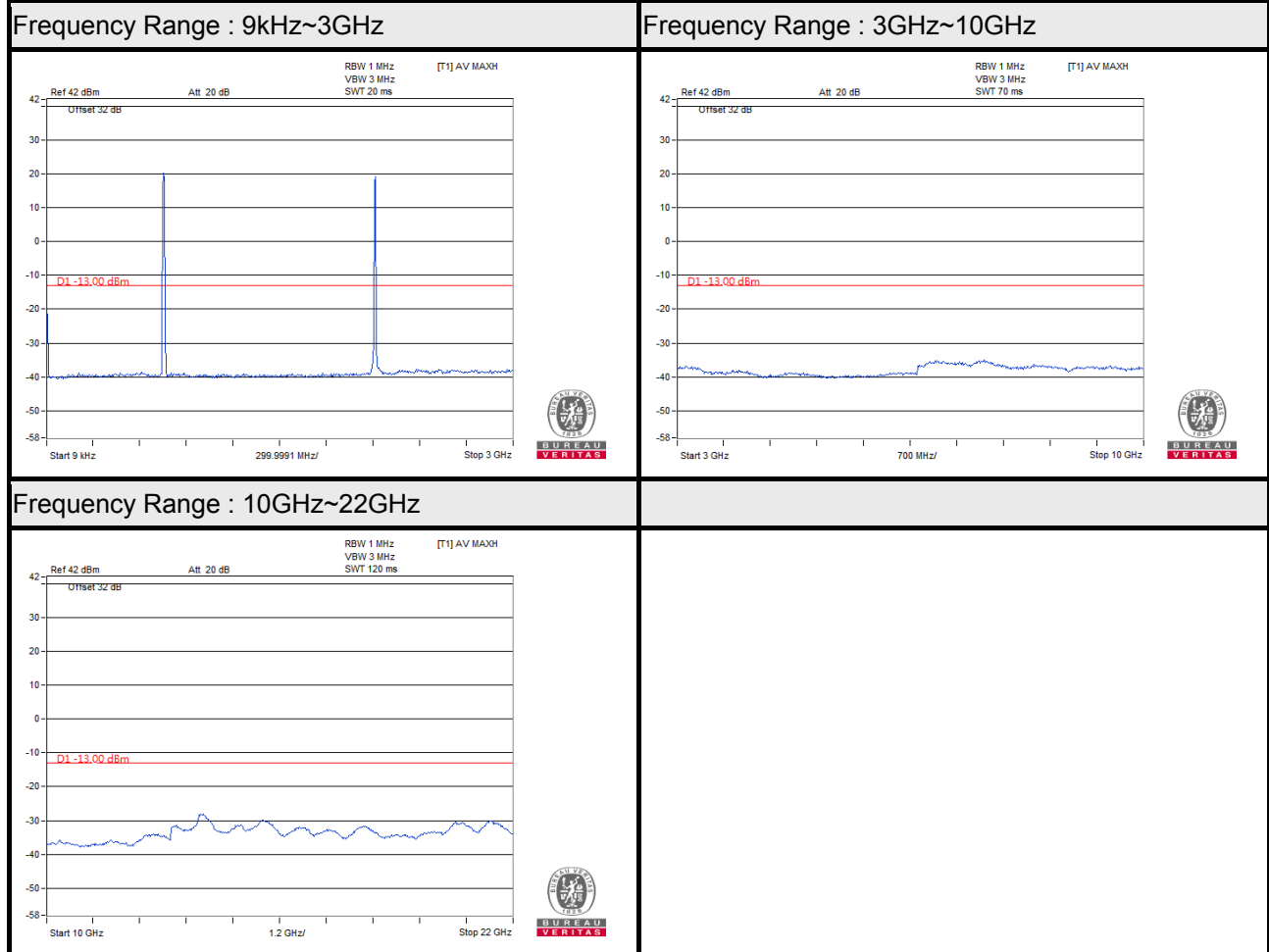


### 4.2.3 Test Procedure

- a. All measurements were done at 3 channels: low, middle and high operational frequency range.
- b. When the spectrum scanned from 9kHz to 20GHz for LTE Band 4 and 9kHz to 9GHz for LTE Band 13 & 17, it shall be connected to the 20dB pad attenuated the carried frequency. The spectrum set RB = 1MHz, VB = 3MHz.

#### 4.2.4 Test Results (Mode A)

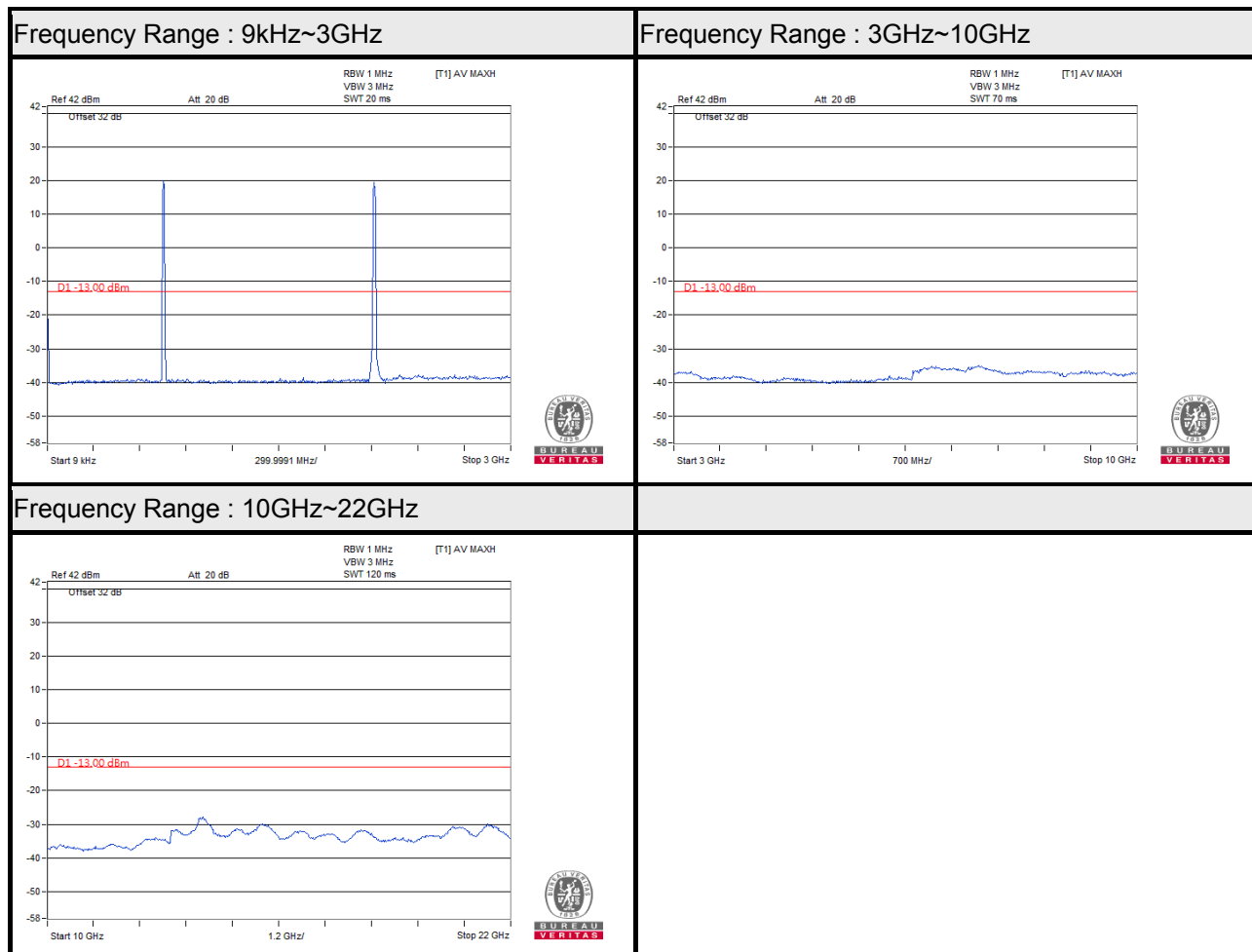
##### LTE Band 4 (CBW: 10MHz) + LTE Band 13 (CBW: 10MHz)





## 4.2.5 Test Results (Mode B)

### LTE Band 4 (CBW: 20MHz) + LTE Band 13 (CBW: 10MHz)



## 5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

## Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

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The address and road map of all our labs can be found in our web site also.

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