

FCC Radio Test Report

FCC ID: 2AAGE-B48

This report concerns: Original Grant

| Project No. | : | 2201H015 |
|-----------------|---|---|
| Equipment | : | LTE Module |
| Brand Name | : | Vantron |
| Test Model | : | VT-MOD-CELL-B48 |
| Series Model | : | N/A |
| Applicant | : | Chengdu Vantron Technology Co., Ltd. |
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| Manufacturer | : | Chengdu Vantron Technology Co., Ltd. |
| Address | : | No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China 610045 |
| Date of Receipt | : | Jan. 07, 2022 |
| Date of Test | : | Jan. 10, 2022~ Jan. 26, 2022 |
| Issued Date | : | Mar. 17, 2022 |
| Report Version | : | R01 |
| Test Sample | : | Engineering Sample No.: SH2022010745 for EUT SH2022010745-4 for adapter |
| Standard(s) | : | 47 CFR Part 2&Part 96 ANSI/TIA-603-E ANSI C63.26-2015 FCC KDB 971168 D01 Power Meas License Digital Systems v03r01 FCC KDB 940660 D01 Part 96 CBRS Eqpt v03 |

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

47 CFR Part 2 and FCC KDB 940660 D01 Part 96 CBRS Eqpt v03 are not authorized within the scope of A2LA.

Maker Qi

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Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

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BTL's laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and is not use in determining the Pass/Fail results.



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REPORT ISSUED HISTORY

| Report No. | Version | Description | Issued Date | Note |
|---------------------|---------|---|---------------|---------|
| BTL-FCCP-1-2201H015 | R00 | Original Issue. | Feb. 15, 2022 | Invalid |
| BTL-FCCP-1-2201H015 | R01 | Revised report to address TCB's comments. | Mar. 17, 2022 | Valid |



1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

| | FCC Part 96 & Part 2 | | | | | | |
|---------------------|--|----------|--------|--|--|--|--|
| Standard(s) Section | Test Item | Judgment | Remark | | | | |
| 96.41(b) | Equivalent Isotropic Radiated | PASS | | | | | |
| 2.1046 | Conducted Output Power | PASS | | | | | |
| 2.1049 | Occupied Bandwidth | PASS | | | | | |
| 2.1051& 96.41(e) | Conducted Spurious Emissions | PASS | | | | | |
| 2.1053 & 96.41(e) | Radiated Spurious Emissions | PASS | | | | | |
| 2.1051 & 96.41(e) | Band Edge Measurements&ACLR | PASS | | | | | |
| 2.1055 | Frequency Stability for Temperature & Voltage | PASS | | | | | |
| 96.41(g) | Peak To Average Ratio | PASS | | | | | |

Note:

(1)" N/A" denotes test is not applicable to this device.



1.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 29, Jintang Road, Tangzhen Industry Park, Pudong New Area, Shanghai 201210, China. BTL's Test Firm Registration Number for FCC: 476765 BTL's Designation Number for FCC: CN1241

1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)) The BTL measurement uncertainty as below table:

A. Radiated emissions test:

| Test Site | Method | Measurement Frequency Range | Ant. H / V | U, (dB) |
|-----------|--------|-----------------------------|---------------|---------|
| | | 9 KHz~30 MHz | - | 2.16 |
| | | 30 MHz~200 MHz | V | 4.04 |
| | CISPR | 30 MHz~200 MHz | Н | 2.90 |
| | | 200 MHz~1,000 MHz | | 3.76 |
| SH-CB02 | | 200 MHz~1,000 MHz | Н | 3.82 |
| | | 1GHz ~ 6GHz | - | 4.56 |
| | | 6GHz ~ 18GHz | - | 4.14 |
| | | 18 ~ 26.5 GHz | - | 3.48 |
| | | 26.5 ~ 40 GHz | - | 3.64 |

B. Conducted test:

| Parameter | U |
|-----------------------------|----------|
| Output Power | ±0.95 dB |
| Occupied Channel Bandwidth | ±3.8 % |
| Conducted Spurious Emission | ±2.71 dB |
| Temperature | ±0.08 °C |
| Humidity | ±1.5 % |
| Supply voltages | ±0.3 % |

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3TEST ENVIRONMENT CONDITIONS

| Test Item | Temperature | Humidity | Test Voltage | Tested By |
|------------------------------|-------------|--------------|--------------|------------|
| Output Power & EIRP | 20°C | 40% | AC 120V/60Hz | Danny Dang |
| Occupied Bandwidth | 20°C | 40% | AC 120V/60Hz | Danny Dang |
| Conducted Spurious Emissions | 20°C | 40% | AC 120V/60Hz | Danny Dang |
| Radiated Spurious Emissions | 24°C | 58% | AC 120V/60Hz | Forest Li |
| Band Edge | 20°C | 40% | AC 120V/60Hz | Danny Dang |
| Peak to Average Ratio | 20°C | 40% | AC 120V/60Hz | Danny Dang |
| Frequency Stability | Nor | mal and Extr | eme | Danny Dang |



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

| Equipment | LTE Module | | | | | |
|---------------------|---|----------------------|----------------|-------|--|--|
| Brand Name | Vantron | | | | | |
| Test Model | VT-MOD-CELL- | 348 | | | | |
| Series Model | N/A | | | | | |
| Model Difference(s) | N/A | | | | | |
| Hardware Version | V1.1 | | | | | |
| Software Version | V100R001.F000 | 0-03 | | | | |
| Power Source | DC voltage supplied from AC/DC adapter. | | | | | |
| Fower Source | Brand/ Model: Xinspower/ A241-0503000U | | | | | |
| Power Rating | I/P: 100-240V~5 | 0/60Hz 0.8A O/P: 5.0 | 0V3000mA | | | |
| Modulation Type | LTE | UL: QPSK,16QAM,64QAM | | | | |
| Modulation Type | | | DL: QPSK,16QAM | | | |
| | LTE | Channel Bandwidth | QPSK | 16QAM | | |
| | | (MHz) | (dBm) | (dBm) | | |
| Max. EIRP | | 5 | 22.40 | 22.48 | | |
| | Band 48 | 10 | 22.34 | 22.26 | | |
| | Dallu 40 | 15 | 22.42 | 22.36 | | |
| | | 20 | 22.72 | 22.86 | | |

Note:

- 1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- 2. The Channel List:

| | LTE Band 48 | | | | | | |
|----------------------|--------------------|--------|--------------------------------|--|--|--|--|
| Test Frequency ID | Bandwidth (MHz) | EARFCN | Frequency (UL and DL) (MHz) | | | | |
| | 5 | 55265 | 3552.5 | | | | |
| Low Dongo | 10 | 55290 | 3555.0 | | | | |
| Low Range | 15 | 55315 | 3557.5 | | | | |
| | 20 | 55340 | 3560.0 | | | | |
| Mid Range | 5/10/15/20 | 55990 | 3625.0 | | | | |
| | 5 | 56715 | 3697.5 | | | | |
| High Dongo | 10 | 56690 | 3695.0 | | | | |
| High Range | 15 | 56665 | 3692.5 | | | | |
| | 20 | 56640 | 3690.0 | | | | |

3. Table for Filed Antenna:

| Ant. | Brand | Model Name | Antenna Type | Connector | Gain (dBi) | Note |
|-------|---------|------------|---------------|-----------|------------|----------|
| Ant.0 | N/A | N/A | Internal PIFA | N/A | 1 | LTE Band |
| Ant.0 | N/A N/A | Antenna | IN/A | I | 48 | |

Note: The antenna gain is provided by the manufacturer.

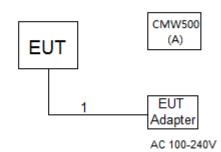
2.2 DESCRIPTION OF TEST MODES AND TEST CONDITION

Following mode(s) was (were) found to be the worst case(s) and selected for the final test:

| | LTE BAND 48 MODE | | | | | | | |
|--|----------------------|---------------------|----------------------|-------------|----------------|--|--|--|
| Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode | | | |
| | 55265 to 56715 | 55265, 55990, 56715 | 5MHz | QPSK, 16QAM | 1RB/12RB/25RB | | | |
| Output Power | 55290 to 56690 | 55290, 55990, 56690 | 10MHz | QPSK, 16QAM | 1RB/25RB/50RB | | | |
| & EIRP | 55315 to 56665 | 55315, 55990, 56665 | 15MHz | QPSK, 16QAM | 1RB/36RB/75RB | | | |
| | 55340 to 56640 | 55340, 55990, 56640 | 20MHz | QPSK, 16QAM | 1RB/50RB/100RB | | | |
| | 55265 to 56715 | 55265, 55990, 56715 | 5MHz | QPSK, 16QAM | 25RB | | | |
| Occupied | 55290 to 56690 | 55290, 55990, 56690 | 10MHz | QPSK, 16QAM | 50RB | | | |
| Bandwidth | 55315 to 56665 | 55315, 55990, 56665 | 15MHz | QPSK, 16QAM | 75RB | | | |
| | 55340 to 56640 | 55340, 55990, 56640 | 20MHz | QPSK, 16QAM | 100RB | | | |
| Conducted Spurious Emissions | 55290 to 56690 | 55990 | 20MHz | QPSK | 1RB | | | |
| Radiated Spurious Emissions | 55340 to 56640 | 55990 | 20MHz | QPSK | 1RB | | | |
| | 55265 to 56715 | 55265, 55990, 56715 | 5MHz | QPSK | 1RB/24RB/25RB | | | |
| Band Edge& | 55290 to 56690 | 55290, 55990, 56690 | 10MHz | QPSK | 1RB/49RB/50RB | | | |
| ACLR | 55315 to 56665 | 55315, 55990, 56665 | 15MHz | QPSK | 1RB/74RB/75RB | | | |
| | 55340 to 56640 | 55340, 55990, 56640 | 20MHz | QPSK | 1RB/99RB/100RB | | | |
| | 55265 to 56715 | 55265, 55990, 56715 | 5MHz | QPSK, 16QAM | 1RB | | | |
| Peak To | 55290 to 56690 | 55290, 55990, 56690 | 10MHz | QPSK, 16QAM | 1RB | | | |
| Average Ratio | 55315 to 56665 | 55315, 55990, 56665 | 15MHz | QPSK, 16QAM | 1RB | | | |
| | 55340 to 56640 | 55340, 55990, 56640 | 20MHz | QPSK, 16QAM | 1RB | | | |
| Frequency Stability for Temperature & Voltage | 55340 to 56640 | 55340, 56640 | 20MHz | QPSK | 1RB | | | |



2.3 BLOCK DIGRAM SHOWING THECONFIGURATION OF SYSTEM TESTED



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2.4 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.

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. |
|------|-----------|-----------|----------------|------------|
| А | CMW500 | N/A | N/A | 129246 |

| Item | Cable Type | Shielded Type | Ferrite Core | Length |
|------|------------|---------------|--------------|--------|
| 1 | DC | N/A | N/A | 1m |



3. TEST RESULT

3.1 OUTPUT POWER & EIRP MEASUREMENT

3.1.1 LIMIT

EIRP for CBRS equipment as below table:

| Device | Maximum EIRP (dBm/10 MHz) |
|-----------------|------------------------------|
| End User Device | 23 |
| Category A CBSD | 30 |
| Category B CBSD | 47 |

3.1.2 TEST PROCEDURE

The testing follows ANSI C63.26-2015 Section 5.2.4.4.2

Conducted Output Power:

The EUT can operate with a constant duty cycle.

a) Set span to $2 \times to 3 \times the OBW$.

b) Set RBW = 1% to 5% of the OBW.

c) Set VBW \geq 3 × RBW.

d) Set number of measurement points in sweep $\ge 2 \times \text{span} / \text{RBW}$.

e) Sweep time:

1) Set = auto-couple, or

2) Set \geq [10 × (number of points in sweep) × (transmission symbol period)] for single sweep (automation-compatible) measurement.

f) Detector = power averaging (rms).

g) Set sweep trigger to "free run."

h) Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

i) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function with band/channel limits set equal to the OBW band edges. If the instrument does not have a band or channel power function, sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

j) Add 10 log (1/duty cycle) to the measured power level to compute the average power during continuous transmission. For example, add $[10 \log (1/0.25)] = 6 \text{ dB}$ if the duty cycle is a constant 25%.

EIRP Power:

The testing follows ANSI C63.26-2015 Section 5.2.5.5 According to KDB 412172 D01 Power Approach,

EIRP = PT + GT - LC, where

PT = transmitter output power in dBm

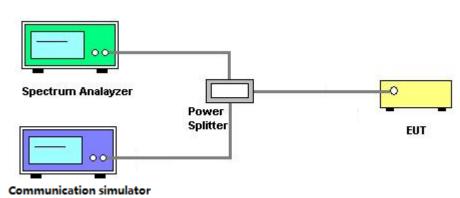
GT = gain of the transmitting antenna in dBi

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



3.1.3 TESTSETUP LAYOUT

Conducted Power Measurement



3.1.4 TEST DEVIATION

No deviation

3.1.5 TEST RESULTS

Please refer to the APPENDIX A.



3.2 OCCUPIED BANDWIDTH MEASUREMENT

3.2.1 TEST PROCEDURE

The testing follows ANSI C63.26-2015 Section 5.4.3 (26dB) and Section 5.4.4 (99OB)

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.

2. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.

3. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.

4. Set the detection mode to peak, and the trace mode to max hold.

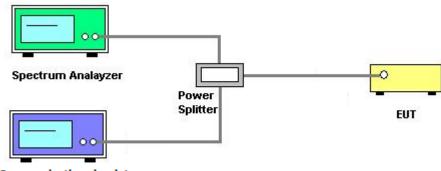
5. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value)

6. Determine the "-26 dB down amplitude" as equal to (Reference Value - X).

7. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the "–X dB down amplitude" determined in step 6. If a marker is below this "-X dB down amplitude" value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.

8. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.2.2 TEST SETUP LAYOUT



Communication simulator

3.2.3 TEST DEVIATION

No deviation

3.2.4 TEST RESULTS

Please refer to the APPENDIX B.



3.3 CONDUCTED EMISSIONS MEASUREMENT

3.3.1 LIMIT

The conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz. Between 3530 MHz and 3720 MHz is the band edge range.

3.3.2 TEST PROCEDURE

The testing follows ANSI C63.26-2015 Section 5.7

- 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.

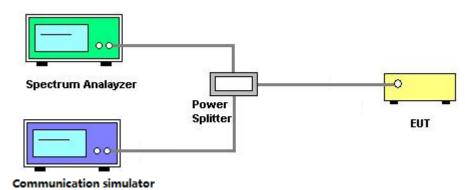
The path loss was compensated to the results for each measurement.

- 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.
- 6. Set spectrum analyzer with RMS detector.
- 7. Taking the record of maximum spurious emission.

8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

9. The limit line is -40dBm/MHz.

3.3.3 TESTSETUP LAYOUT



3.3.4 TESTDEVIATION

No deviation

3.3.5 TEST RESULTS

Please refer to the APPENDIX C.



3.4 RADIATED EMISSIONS MEASUREMENT

3.4.1 LIMIT

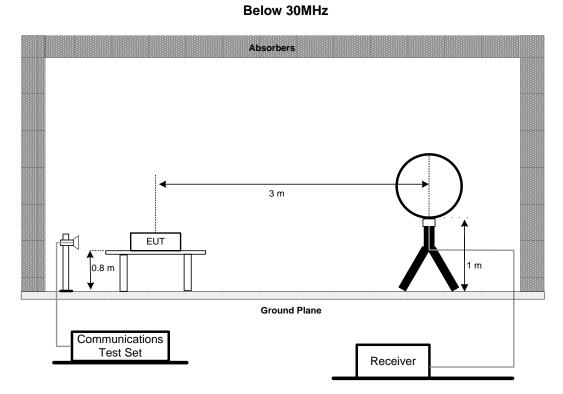
The power of any emission outside of the authorized operating frequency ranges shall not exceed -40dBm/MHz.

3.4.2 TEST PROCEDURES

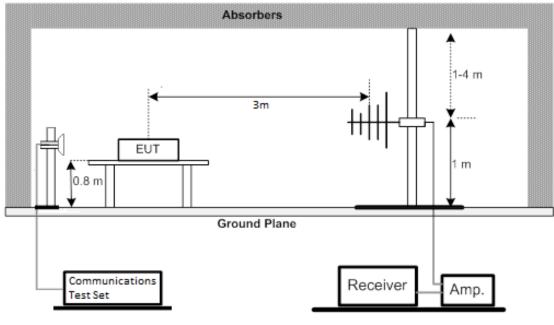
- Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- 2. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step a. Record the power level of S.G
- 3. EIRP = Output power level of S.G TX cable loss + Antenna gain of substitution horn.
- 4. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power 2.15dBi.
- 5. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.



3.4.3TEST SETUP LAYOUT

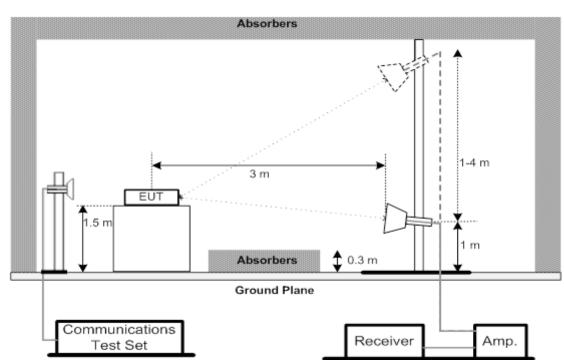


30MHz to 1000MHz





Above 1GHz



3.4.4 TESTDEVIATION

No deviation

3.4.5 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the APPENDIX D.

3.4.6 TEST RESULTS (30MHZ TO 1000MHZ) Please refer to the APPENDIX E.

3.4.7 TEST RESULTS (ABOVE 1000MHZ)

Please refer to the APPENDIX F.

3.5 BAND EDGE MEASUREMENT

3.5.1 LIMIT

For channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13dBm/MHz within 0 to B megahertz (where B is the bandwidth in the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge.

Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

Notwithstanding the emission limits in this paragraph, the Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB.

3.5.2 TEST PROCEDURES

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

- 1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
- 2. The band edges of low and high channels for the highest RF powers were measured.
- 3. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
- 4. Beyond the 1 MHz band from the band edge, RBW=1MHz was used

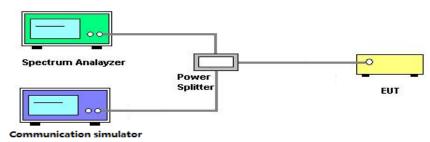
5. Set spectrum analyzer with RMS detector.

6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band. For Adjacent Channel Leakage Ratio (ACLR) measurement,

 The Adjacent Channel Leakage Ratio (ACLR) is the ratio of the average power in the assigned aggregated channel bandwidth to the average power over the equivalent adjacent channel bandwidth.
The option ACLR of spectrum analyzer is used and measures the ACLR ratio by setting equivalent channel bandwidth.

9. The measured ACLR ratio shall be at least 30 dB.

3.5.3 TESTSETUP LAYOUT



3.5.4 TESTDEVIATION

No deviation

3.5.5 TEST RESULTS

Please refer to the APPENDIX G.



3.6 FREQUENCY STABILITY MEASUREMENT

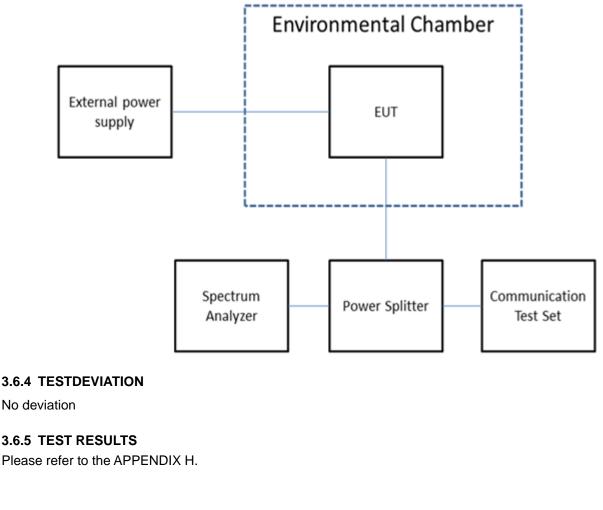
3.6.1 LIMIT

Limit is not defined in part 96 standard. BTL uses the following restrictions: The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

3.6.2 TEST PROCEDURES

The testing follows ANSI C63.26-2015 Section 5.6.

- 1. A reference point shall be established at the applicable unwanted emissions limit using a RBW equal to the RBW required by the unwantedemissions specification of the applicable regulatory standard. These reference points measuredusing the lowest and highest channel of operation shall be identified as f L and f H respectively. The worst-case frequency offset determined in the above methods shall be added or subtracted from the values of f L and f H and the resulting frequencies must remain within the band.
- 2. The EUT was set up in the thermal chamber and connected with the system simulator.
- 3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
- 4. With power OFF, the temperature was raised in 10°C step up to 50°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.



3.6.3 TESTSETUP LAYOUT



3.7 PEAK TO AVERAGE RATIO MEASUREMENT

3.7.1 LIMIT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

3.7.2 TEST PROCEDURES

The testing follows ANSI C63.26-2015 Section 5.2.6.

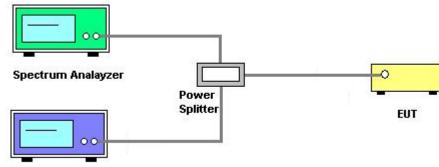
1. The EUT was connected to spectrum and system simulator via a power divider.

2. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.

3. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

4. Record the deviation as Peak to Average Ratio

3.7.3 TEST SETUP LAYOUT



Communication simulator

3.7.4 TEST DEVIATION

No deviation

3.7.5 TEST RESULTS

Please refer to the APPENDIX I.



4. LIST OF MEASUREMENT EQUIPMENTS

| | Radiated Emission Measurement(9K-30M) | | | | | | | | | | |
|------|---------------------------------------|--------------|--------------------------|------------|---------------------|--|--|--|--|--|--|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until | | | | | | |
| 1 | Loop Antenna | EMCI | EMCI LPA600 | 275 | May. 20, 2022 | | | | | | |
| 2 | MXE EMI Receiver | Keysight | N9038A | MY56400088 | Mar. 21, 2022 | | | | | | |
| 3 | Measurement Software | Farad | EZ-EMC Ver.NB-03A1-01 | N/A | N/A | | | | | | |
| 4 | Wideband Radio Communication Test | R&S | CMW500 | 129246 | Aug. 23, 2022 | | | | | | |

| | Radiated Emission Measurement(30M-1G) | | | | | | | | | | |
|------|---------------------------------------|--------------|--------------------------|------------|---------------------|--|--|--|--|--|--|
| Item | Kind of Equipment | Manufacturer | Туре No. | Serial No. | Calibrated until | | | | | | |
| 1 | TRILOG Broadband Antenna | Schwarzbeck | VULB 9160 | 9160-3233 | Mar. 26, 2022 | | | | | | |
| 2 | Pre-Amplifier | emci | EMC9135 | 980401 | Mar. 20, 2022 | | | | | | |
| 3 | MXE EMI Receiver | Keysight | N9038A | MY56400088 | Mar. 21, 2022 | | | | | | |
| 4 | Test Cable | emci | EMC104-SM-SM-7000 | 181020 | Apr. 11, 2022 | | | | | | |
| 5 | Test Cable | emci | EMC104-SM-SM-2500 | 170618 | Apr. 11, 2022 | | | | | | |
| 6 | Test Cable | emci | EMC104-SM-SM-800 | 170647 | Apr. 11, 2022 | | | | | | |
| 7 | Measurement Software | Farad | EZ-EMC Ver.NB-03A1-01 | N/A | N/A | | | | | | |
| 8 | Wideband Radio Communication Test | R&S | CMW500 | 129246 | Aug. 23, 2022 | | | | | | |



| | Radiated Emission Measurement(1G-18G) | | | | | | | | | | |
|------|--|--------------|--------------------------|------------|---------------------|--|--|--|--|--|--|
| Item | Kind of Equipment | Manufacturer | Manufacturer Type No. | | Calibrated until | | | | | | |
| 1 | Double Ridged Broadband Horn Antenna | Schwarzbeck | BBHA 9120D | 9120D-1817 | Mar. 26, 2022 | | | | | | |
| 2 | Pre-Amplifier | emci | EMC051845SE | 980725 | Aug. 23, 2022 | | | | | | |
| 3 | EXA Spectrum Analyzer | Keysight | N9010A | MY56480579 | Mar. 21, 2022 | | | | | | |
| 4 | Test Cable | emci | EMC104-SM-SM-7000 | 181020 | Apr. 11, 2022 | | | | | | |
| 5 | Test Cable | emci | EMC104-SM-SM-2500 | 170618 | Apr. 11, 2022 | | | | | | |
| 6 | Test Cable | emci | EMC104-SM-SM-800 | 170647 | Apr. 11, 2022 | | | | | | |
| 7 | Double-Ridged Waveguide Horn Antenna | ETS-Lindgren | 3116C | 00203919 | May 19, 2022 | | | | | | |
| 8 | Pre-Amplifier | emci | EMC184045B | 980265 | Apr. 11, 2022 | | | | | | |
| 9 | Test Cable | emci | EMC102-SM-SM-800 | 170335 | Apr. 11, 2022 | | | | | | |
| 10 | Test Cable | emci | EMC102-KM-KM-2500 | 170627 | Apr. 11, 2022 | | | | | | |
| 11 | Measurement Software | Farad | EZ-EMC Ver.NB-03A1-01 | N/A | N/A | | | | | | |
| 12 | Wideband Radio Communication Test | R&S | CMW500 | 129246 | Aug. 23, 2022 | | | | | | |

| | Conducted Emission & Band Edge & Occupied Bandwidth Measurement | | | | | | | | | | |
|------|---|--------------|-------------|------------|------------------|--|--|--|--|--|--|
| ltem | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until | | | | | | |
| 1 | Wideband Radio Communication Test | R&S | CMW500 | 129246 | Aug. 23, 2022 | | | | | | |
| 2 | EXA Spectrum Analyzer | Keysight | N9010A | MY56480579 | Mar. 21, 2022 | | | | | | |
| 3 | Power Divider | JUK | PD-2SF-2060 | N/A | N/A | | | | | | |

Remark: "N/A" denotes no model name, serial no. or calibration specified. Except * item, all calibration period of equipment list is one year.

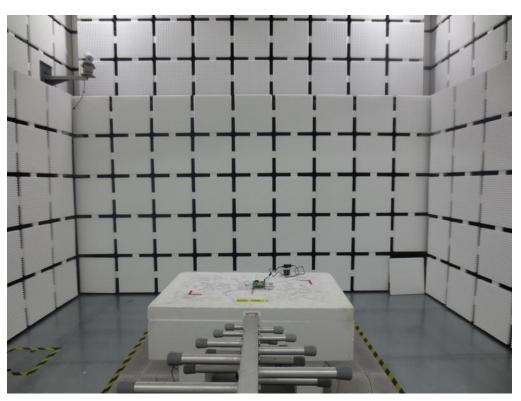
"*" calibration period of equipment list is three year.

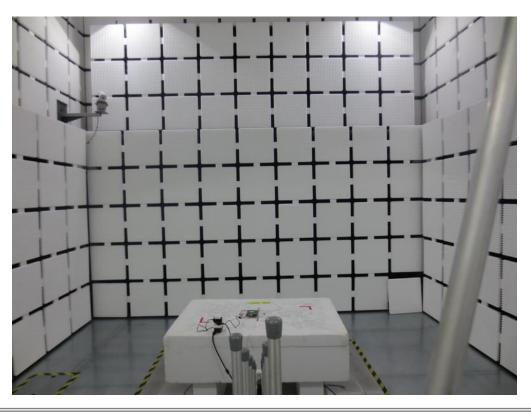


5. EUT TEST PHOTO

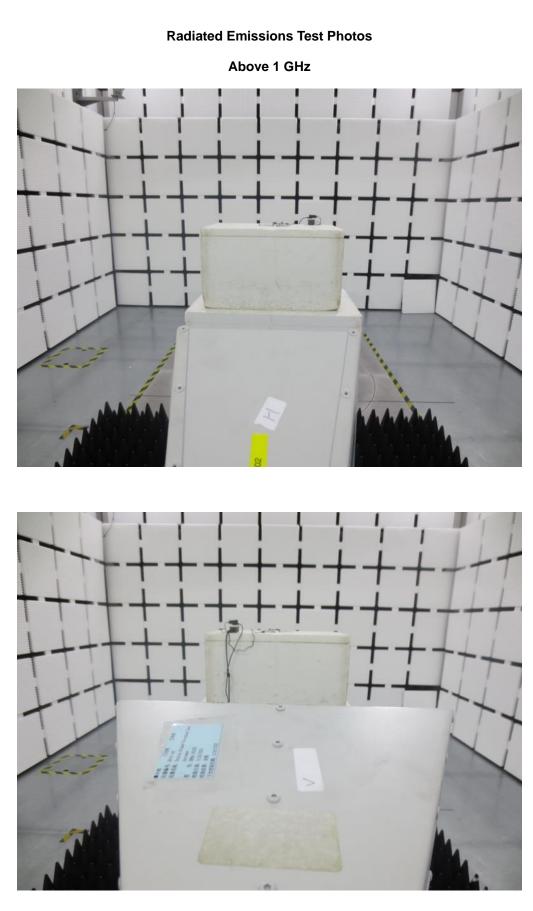
Radiated Emissions Test Photos

30 MHz to 1 GHz



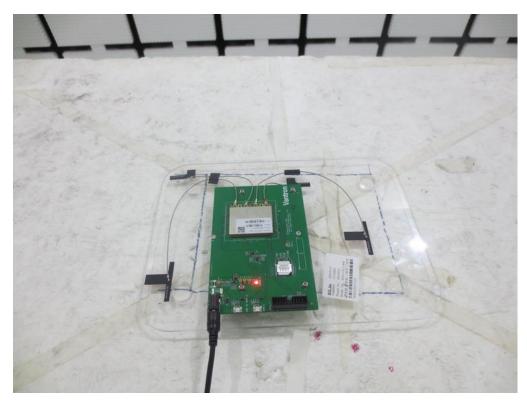


BIL





close-up test photo





APPENDIX A - OUTPUT POWER & EIRP



Output Power (dBm):

| LTE Band / | | חח | | Low CH | Mid CH | High CH |
|------------|------------|------|--------------|-----------|-----------|-----------|
| BW | Modulation | RB | RB Offset | 55265CH | 55990CH | 56715CH |
| | | Size | Olisei | 3552.5MHz | 3625.5MHz | 3697.5MHz |
| | | 1 | 0 | 19.46 | 20.10 | 21.13 |
| | | 1 | 12 | 19.41 | 20.26 | 21.12 |
| | | 1 | 24 | 19.43 | 20.14 | 21.08 |
| | QPSK | 12 | 0 | 19.67 | 20.41 | 21.40 |
| | | 12 | 7 | 19.48 | 20.18 | 21.15 |
| | | 12 | 13 | 19.50 | 20.17 | 21.11 |
| 5M | | 25 | 0 | 19.49 | 20.18 | 21.13 |
| SIM | | 1 | 0 | 19.70 | 20.49 | 21.47 |
| | | 1 | 12 | 19.63 | 20.66 | 21.48 |
| | | 1 | 24 | 19.66 | 20.53 | 21.44 |
| | 16QAM | 12 | 0 | 19.76 | 20.51 | 21.43 |
| | | 12 | 7 | 19.57 | 20.29 | 21.19 |
| | | 12 | 13 | 19.58 | 20.28 | 21.17 |
| | | 25 | 0 | 19.52 | 20.21 | 21.20 |

| | | חח | | Low CH | Mid CH | High CH |
|---------------|------------|------------|--------------|---------|-----------|---------|
| LTE Band / BW | Modulation | RB Size | RB Offset | 55290CH | 55990CH | 56690CH |
| | | SIZE | Oliset | 3555MHz | 3625.5MHz | 3695MHz |
| | | 1 | 0 | 19.56 | 20.23 | 21.34 |
| | | 1 | 25 | 19.52 | 20.28 | 21.26 |
| | | 1 | 49 | 19.62 | 20.45 | 21.25 |
| | QPSK | 25 | 0 | 19.37 | 20.19 | 21.07 |
| | | 25 | 12 | 19.46 | 20.08 | 21.19 |
| | | 25 | 25 | 19.28 | 20.20 | 21.05 |
| 10M | | 49 | 0 | 19.24 | 20.06 | 21.05 |
| TOM | | 1 | 0 | 19.40 | 20.37 | 21.19 |
| | | 1 | 25 | 19.49 | 20.32 | 21.14 |
| | | 1 | 49 | 19.59 | 20.38 | 21.13 |
| | 16QAM | 25 | 0 | 19.39 | 20.09 | 21.11 |
| | | 25 | 12 | 19.46 | 20.16 | 21.26 |
| | | 25 | 25 | 19.48 | 20.10 | 21.08 |
| | | 49 | 0 | 19.42 | 20.09 | 21.06 |



| | | | | Low CH | Mid CH | High CH |
|---------------|------------|------|--------|-----------|-----------|-----------|
| LTE Band / BW | Modulation | RB | RB | 55315CH | 55990CH | 56665CH |
| | | Size | Offset | 3557.5MHz | 3625.5MHz | 3692.5MHz |
| | | 1 | 0 | 19.86 | 20.27 | 21.42 |
| | | 1 | 37 | 19.53 | 20.25 | 21.15 |
| | | 1 | 74 | 19.82 | 20.62 | 21.37 |
| | QPSK | 36 | 0 | 19.39 | 20.02 | 20.98 |
| | | 36 | 20 | 19.27 | 20.20 | 20.95 |
| | | 36 | 39 | 19.48 | 20.11 | 20.86 |
| 15M | | 75 | 0 | 19.43 | 20.09 | 20.94 |
| INICI | | 1 | 0 | 20.01 | 20.30 | 21.36 |
| | | 1 | 37 | 19.74 | 20.32 | 20.98 |
| | | 1 | 74 | 20.21 | 20.71 | 21.20 |
| | 16QAM | 36 | 0 | 19.41 | 19.98 | 20.01 |
| | | 36 | 20 | 19.52 | 20.02 | 20.00 |
| | | 36 | 39 | 19.51 | 20.05 | 19.95 |
| | | 75 | 0 | 19.48 | 20.04 | 20.03 |
| | | r | 1 | | 1 | 1 |
| | | RB | RB | Low CH | Mid CH | High CH |
| LTE Band / BW | Modulation | Size | Offset | 55340CH | 55990CH | 56640CH |
| | | 0.20 | | 3560MHz | 3625.5MHz | 3690MHz |
| | | 1 | 0 | 20.05 | 20.69 | 21.72 |
| | | 1 | 49 | 19.86 | 20.58 | 21.43 |
| | | 1 | 99 | 20.52 | 20.71 | 21.52 |
| | QPSK | 50 | 0 | 19.86 | 20.34 | 21.42 |
| | | 50 | 24 | 19.87 | 20.42 | 21.30 |
| | | 50 | 50 | 20.02 | 20.53 | 21.31 |
| 20M | | 99 | 0 | 19.89 | 20.47 | 21.37 |
| 20101 | | 1 | 0 | 20.09 | 20.37 | 21.86 |
| | | 1 | 49 | 19.81 | 20.21 | 21.34 |
| | | 1 | 99 | 20.38 | 20.64 | 21.54 |
| | 16QAM | 50 | 0 | 19.76 | 20.29 | 21.42 |
| | | 50 | 24 | 19.77 | 20.34 | 21.41 |
| | | 50 | 50 | 19.89 | 20.41 | 21.30 |
| | | 99 | 0 | 19.81 | 20.36 | 21.33 |



EIRP Power (dBm):

| LTE Band / | | пр | ПП | Low CH | Mid CH | High CH |
|------------|------------|------------|--------------|-----------|-----------|-----------|
| BW | Modulation | RB Size | RB Offset | 55265CH | 55990CH | 56715CH |
| | | SIZE | Oliset | 3552.5MHz | 3625.5MHz | 3697.5MHz |
| | | 1 | 0 | 20.46 | 21.10 | 22.13 |
| | | 1 | 12 | 20.41 | 21.26 | 22.12 |
| | | 1 | 24 | 20.43 | 21.14 | 22.08 |
| | QPSK | 12 | 0 | 20.67 | 21.41 | 22.40 |
| | | 12 | 7 | 20.48 | 21.18 | 22.15 |
| | | 12 | 13 | 20.50 | 21.17 | 22.11 |
| 5M | | 25 | 0 | 20.49 | 21.18 | 22.13 |
| 5101 | | 1 | 0 | 20.70 | 21.49 | 22.47 |
| | | 1 | 12 | 20.63 | 21.66 | 22.48 |
| | | 1 | 24 | 20.66 | 21.53 | 22.44 |
| | 16QAM | 12 | 0 | 20.76 | 21.51 | 22.43 |
| | | 12 | 7 | 20.57 | 21.29 | 22.19 |
| | | 12 | 13 | 20.58 | 21.28 | 22.17 |
| | | 25 | 0 | 20.52 | 21.21 | 22.20 |
| | | | | | | |

| | | | | Low CH | Mid CH | High CH |
|---------------|------------|-------|---------|---------|-----------|---------|
| LTE Band / BW | Modulation | RB RB | 55290CH | 55990CH | 56690CH | |
| | | Size | Offset | 3555MHz | 3625.5MHz | 3695MHz |
| | | 1 | 0 | 20.56 | 21.23 | 22.34 |
| | | 1 | 25 | 20.52 | 21.28 | 22.26 |
| | | 1 | 49 | 20.62 | 21.45 | 22.25 |
| | QPSK | 25 | 0 | 20.37 | 21.19 | 22.07 |
| | | 25 | 12 | 20.46 | 21.08 | 22.19 |
| | | 25 | 25 | 20.28 | 21.20 | 22.05 |
| 10M | | 49 | 0 | 20.24 | 21.06 | 22.05 |
| TOM | | 1 | 0 | 20.40 | 21.37 | 22.19 |
| | | 1 | 25 | 20.49 | 21.32 | 22.14 |
| | | 1 | 49 | 20.59 | 21.38 | 22.13 |
| | 16QAM | 25 | 0 | 20.39 | 21.09 | 22.11 |
| | | 25 | 12 | 20.46 | 21.16 | 22.26 |
| | | 25 | 25 | 20.48 | 21.10 | 22.08 |
| | | 49 | 0 | 20.42 | 21.09 | 22.06 |



| | | | | Low CH | Mid CH | High CH |
|---------------|------------|------|--------|-----------|-----------|-----------|
| LTE Band / BW | Modulation | RB | RB | 55315CH | 55990CH | 56665CH |
| | | Size | Offset | 3557.5MHz | 3625.5MHz | 3692.5MHz |
| | | 1 | 0 | 20.86 | 21.27 | 22.42 |
| | | 1 | 37 | 20.53 | 21.25 | 22.15 |
| | | 1 | 74 | 20.82 | 21.62 | 22.37 |
| | QPSK | 36 | 0 | 20.39 | 21.02 | 21.98 |
| | | 36 | 20 | 20.27 | 21.20 | 21.95 |
| | | 36 | 39 | 20.48 | 21.11 | 21.86 |
| 15M | | 75 | 0 | 20.43 | 21.09 | 21.94 |
| IVICI | | 1 | 0 | 21.01 | 21.30 | 22.36 |
| | | 1 | 37 | 20.74 | 21.32 | 21.98 |
| | | 1 | 74 | 21.21 | 21.71 | 22.20 |
| | 16QAM | 36 | 0 | 20.41 | 20.98 | 21.01 |
| | | 36 | 20 | 20.52 | 21.02 | 21.00 |
| | | 36 | 39 | 20.51 | 21.05 | 20.95 |
| | | 75 | 0 | 20.48 | 21.04 | 21.03 |
| | 1 | | 1 | 1 | ſ | 1 |
| | | RB | RB | Low CH | Mid CH | High CH |
| LTE Band / BW | Modulation | Size | Offset | 55340CH | 55990CH | 56640CH |
| | | | | 3560MHz | 3625.5MHz | 3690MHz |
| | | 1 | 0 | 21.05 | 21.69 | 22.72 |
| | | 1 | 49 | 20.86 | 21.58 | 22.43 |
| | | 1 | 99 | 21.52 | 21.71 | 22.52 |
| | QPSK | 50 | 0 | 20.86 | 21.34 | 22.42 |
| | | 50 | 24 | 20.87 | 21.42 | 22.30 |
| | | 50 | 50 | 21.02 | 21.53 | 22.31 |
| 20M | | 99 | 0 | 20.89 | 21.47 | 22.37 |
| ZUIVI | | 1 | 0 | 21.09 | 21.37 | 22.86 |
| | | 1 | 49 | 20.81 | 21.21 | 22.34 |
| | | 1 | 99 | 21.38 | 21.64 | 22.54 |
| | 16QAM | 50 | 0 | 20.76 | 21.29 | 22.42 |
| | | 50 | 24 | 20.77 | 21.34 | 22.41 |
| | | 50 | 50 | 20.89 | 21.41 | 22.30 |
| | | 99 | 0 | 20.81 | 21.36 | 22.33 |

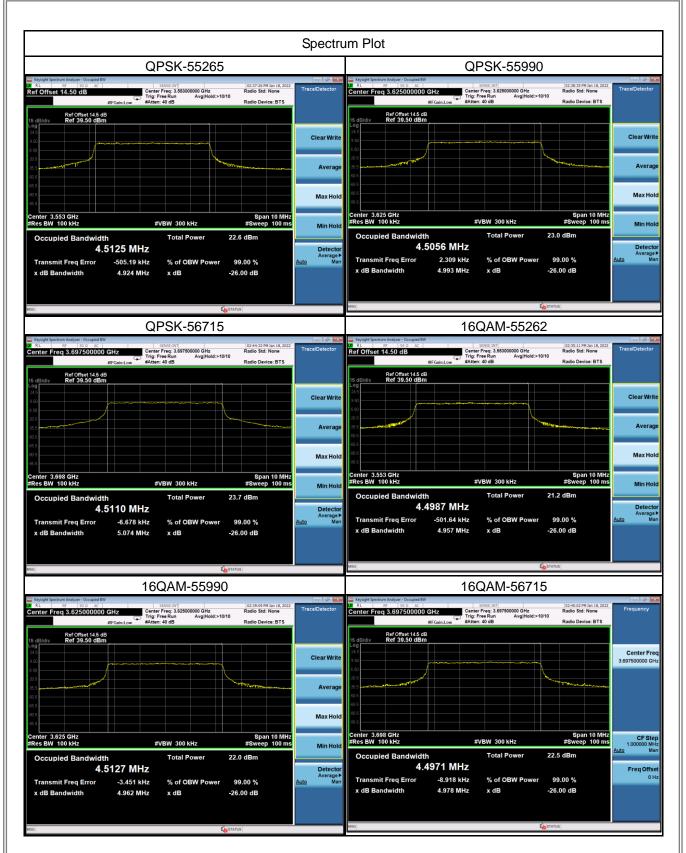


APPENDIX B - OCCUPIED BANDWIDTH



| | LTE Band 48_5 M | | | | | | |
|---------|--------------------|---------------------------------|---------|--------------------|---------------------------------|--|--|
| | QPS | SK | | 160 | QAM | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | |
| 55265 | 3552.5 | 4.5125 | 55265 | 3552.5 | 4.4987 | | |
| 55990 | 3625.5 | 4.5056 | 55990 | 3625.5 | 4.5127 | | |
| 56715 | 3697.5 | 4.5110 | 56715 | 3697.5 | 4.4971 | | |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | |
| 55265 | 3552.5 | 4.924 | 55265 | 3552.5 | 4.957 | | |
| 55990 | 3625.5 | 4.993 | 55990 | 3625.5 | 4.962 | | |
| 56715 | 3697.5 | 5.074 | 56715 | 3697.5 | 4.978 | | |







| LTE Band 48_10M | | | | | | |
|-----------------|--------------------|---------------------------------|---------|--------------------|---------------------------------|--|
| | QPS | SK | | 160 | QAM | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | |
| 55290 | 3555 | 8.9872 | 55290 | 3555 | 8.9815 | |
| 55990 | 3625.5 | 9.0032 | 55990 | 3625.5 | 8.9854 | |
| 56690 | 3695 | 8.9875 | 56690 | 3695 | 8.9958 | |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | |
| 55290 | 3555 | 9.596 | 55290 | 3555 | 9.552 | |
| 55990 | 3625.5 | 9.602 | 55990 | 3625.5 | 9.535 | |
| 56690 | 3695 | 9.687 | 56690 | 3695 | 9.568 | |







| | LTE Band 48_15M | | | | | | |
|---------|--------------------|---------------------------------|---------|--------------------|---------------------------------|--|--|
| | QPS | SK | | 160 | QAM | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | |
| 55315 | 3557.5 | 13.4960 | 55315 | 3557.5 | 13.4720 | | |
| 55990 | 3625.5 | 13.4730 | 55990 | 3625.5 | 13.4890 | | |
| 56665 | 3692.5 | 13.4830 | 56665 | 3692.5 | 13.4830 | | |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | |
| 55315 | 3557.5 | 14.370 | 55315 | 3557.5 | 14.270 | | |
| 55990 | 3625.5 | 14.230 | 55990 | 3625.5 | 14.280 | | |
| 56665 | 3692.5 | 14.300 | 56665 | 3692.5 | 14.300 | | |



| | | Spectru | Im Plot |
|--|---|-------------------------------------|--|
| | QPSK-19975 | | QPSK-20175 |
| Keysight Spectrum Analyzer - Occupied BW RL RF 50 Ω AC BW 910.00 kHz | SENSE-INT (3:03:06 PM Jan 18, 2022 Center Freg: 3.557500000 GHz Radio Std: None | BW | Expertise Spectrum Analyzer: Concept BW Struct. DVT [03:19:37 PV] 3m 18, 2022. Center Frag 3.6225000000 GHz Center Frag 3.6225000000 GHz TraceIDetector |
| | Trig: Free Run Avg Hold:>10/10 #Atten: 40 dB Radio Device: BTS | Res BW 300.00 kHz | #FGain:Low #Atten: 40 dB Radio Device: BTS |
| Ref Offset 14.5 dB 15 dB/div Ref 39.50 dBm -og | | Auto <u>Man</u> Video BW | Ref Offset 14.5 dB 15 dB/div Ref 39.50 dBm Log 2 v c |
| 9.50 | | 910.00 kHz Auto <u>Man</u> | 5 sol |
| 20.5 | | | Average |
| 50.5 | | | |
| 96.5 | | | 80.5 Max Hol |
| Center 3.558 GHz #Res BW 300 kHz | Span 30 MHz #VBW 910 kHz #Sweep 100 ms | Filter Type | Center 3.625 GHz Span 30 MHz #Res BW 300 kHz #VBW 910 kHz #Sweep 100 ms Min Hol |
| Occupied Bandwidth | Total Power 21.7 dBm | Gaussian | Occupied Bandwidth Total Power 21.9 dBm 13.473 MHz Detector |
| 13.4 Transmit Freq Error | 96 MHz 3.683 kHz % of OBW Power 99.00 % | | 13.473 MHZ Transmit Freq Error 1.355 kHz % of OBW Power 99.00 % |
| x dB Bandwidth | 14.37 MHz x dB -26.00 dB | | x dB Bandwidth 14.23 MHz x dB -26.00 dB |
| | | | |
| 15G | | | |
| Keysight Spectrum Analyzer - Occupied BW | QPSK-20375 | | 16QAM-19975 |
| RL RF 500 AC Center Freq 3.692500000 GH | Trig: Free Run Avg Hold:>10/10 | Frequency | B BF S0 0 AC SNSE DIT I030324 Min 18,2022 VBW 910.00 kHz Center Freg: 3.65700000 GHz Radio Std: None Trace/Detector Trig: Free Run Avg/Hold>-1010 Avdie Std: None Trace/Detector |
| Ref Offset 14.5 dB 15 dB/div Ref 39.50 dBm | iain:Low #Atten: 40 dB Radio Device: BTS | | #FGeint.cw #Atten: 40 dB Radio Device: BTS Ref Offset 14.5 dB 15 dB/dty Ref 99.50 dBm |
| | | Center Freq | Log Clear Write |
| 5.50 | | 3.692500000 GHz | |
| 36.5 | | | Average Averag |
| 86.5 | | | 65 Max Ho |
| | | | |
| Center 3.693 GHz #Res BW 300 kHz | Span 30 MHz #VBW 910 kHz #Sweep 100 ms | CF Step 3.000000 MHz Auto Man | Center 3.558 GHz Span 30 MHz #Res BW 300 kHz #VBW 910 kHz #Sweep 100 ms Min Hot |
| Occupied Bandwidth 13.4 | Total Power 22.8 dBm 83 MHz | Freq Offset | Occupied Bandwidth Total Power 20.2 dBm 13.472 MHz Detector |
| Transmit Freq Error | 2.845 kHz % of OBW Power 99.00 % | 0 Hz | Transmit Freq Error 2.435 kHz % of OBW Power 99.00 % Auro Marco x dB Bandwidth 14.27 MHz x dB -26.00 dB -2 |
| x dB Bandwidth | 14.30 MHz x dB -26.00 dB | | |
| 100 | K otatus | | NSG Costanus |
| | 16QAM-20175 | | |
| Keysight Spectrum Analyzer - Occupied BW | SENSE:INT 03:18:22 PM Jan 18, 2022 | | Keysight Spectrum Analyzer - Occupied BW R L RF 50 Ω AC SENSE:1NT 03:22:03 PM Jan 18, 2022 |
| Center Freq 3.625000000 GH #F0 | Z Center Freq: 3.62500000 GHz Radio Std: None Trig: Free Run Avg Hold:>10/10 Radio Device: BTS | Frequency | Center Freq 3.692500000 GHz Center Freq 3.69250000 GHz Radio Std: None Frequency #FGaint.cov #Frequency #Education Control Radio Device: BTS |
| Ref Offset 14.5 dB 15 dB/div Ref 39.50 dBm | | | Ref Offset 14.5 dB 16 dB/div Ref 39.50 dBm Log |
| 24.5 | | Center Freq 3.625000000 GHz | 28.5 Center Fre 930 3.692500000 GF |
| 5.50 | | | |
| 35.5 | | | |
| 80.5 | | | |
| ©SS Center 3.625 GHz #Res BW 300 kHz | Span 30 MHz | CF Step | Center 3.693 GHz Res BW 300 kHz #VBW 910 kHz #Sweep 100 ms 3.00000 Mi |
| Res BW 300 kHz | #VBW 910 kHz #Sweep 100 ms Total Power 20.9 dBm | 3.000000 MHz Auto Man | #Res BW 300 kHz #VBW 910 kHz #Sweep 100 ms 3 COOS M 3 COOS M 3 COOS M 3 COOS M 4 Lto 4 COOS M 4 Lto 4 COOS M 4 Lto 4 COOS M 4 Lto 4 COOS M 4 CO |
| | 89 MHz | FreqOffset | 13.483 MHz Freq Offs |
| Transmit Freq Error x dB Bandwidth | 6.495 kHz % of OBW Power 99.00 % 14.28 MHz x dB -26.00 dB | 0 Hz | Transmit Freq Error 2.847 kHz % of OBW Power 99.00 % x dB Bandwidth 14.30 MHz x dB -26.00 dB |
| | | | |
| | | | |



| | LTE Band 48_20M | | | | | | |
|---------|--------------------|---------------------------------|---------|--------------------|---------------------------------|--|--|
| | QPS | SK | | 160 | QAM | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | |
| 55340 | 3560 | 17.9830 | 55340 | 3560 | 17.9420 | | |
| 55990 | 3625.5 | 17.9540 | 55990 | 3625.5 | 17.9610 | | |
| 56640 | 3690 | 17.9530 | 56640 | 3690 | 17.9510 | | |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | |
| 55340 | 3560 | 18.990 | 55340 | 3560 | 18.940 | | |
| 55990 | 3625.5 | 18.970 | 55990 | 3625.5 | 18.950 | | |
| 56640 | 3690 | 18.970 | 56640 | 3690 | 18.960 | | |



| | Spectr | um Plot |
|---|--|---|
| QPSK-55340 | | QPSK-55990 |
| yelet Server - Occupet BW ■ 8F - 50 0 AC NT 12000 MHz #EFGeint_ow Ref Offset 14.5 dB B/div Ref 39.50 dBm | • BW | Kongel Spectra Andyrer Conceptel RW Sense Field Center Freq 3.5900000000 GHz Genter Freq 3.590000000 GHz Genter Freq 3.59000000 GHz Genter Freq 3.590000000 GHz Genter Freq 3.5900000000 GHz Genter Freq 3.59000000000000 GHz Genter Freq 3.5900000000000000 GHz Genter Freq 3.5900000000000000 GHz Genter Freq 3.59000000000000000000000000000000000000 |
| | 1.2000 MHz Auto Man | 8 0 Clear Writ 5 0 Averag 6 0 Averag |
| ter 3.56 GHz Span 40 s BW 390 kHz #VBW 1.2 MHz #Sweep 10 | | AND HONE AND HE |
| Occupied Bandwidth Total Power 22.2 dBm 17.983 MHz ransmit Freq Error 6.168 kHz % of OBW Power 99.00 % dB Bandwidth 18.99 MHz x dB -26.00 dB | Gaussian | Press Bit 190 kHz #VBW 1.2 MHz #Sweep 100 ms Occupied Bandwidth Total Power 22.4 dBm 17.954 MHz Detect Transmit Freq Error 2.122 kHz % of OBW Power 99.00 % x dB Bandwidth 18.97 MHz x dB -26.00 dB |
| K STATUS | | MSG Costanus |
| QPSK-56640 | | 16QAM-55340 |
| Vigit Service Strots INT (82) </td <td>e</td> <td>Compart Spectrum Andyrer: Compart BW Compart Spectrum Andyrer: Compart BW</td> | e | Compart Spectrum Andyrer: Compart BW |
| | Clear Write Average Max Hold | Log 245 255 205 255 255 255 255 255 255 255 25 |
| ter 3.625 GHz Span 40 ss BW 390 kHz #VBW 1.2 MHz #Sweep 10 | MHz | 005 Max Ho 005 Span 40 MHz #Res EW 390 kHz #VEW 1.2 MHz #Res EW 390 kHz Max Ho |
| Decupied Bandwidth Total Power 22.1 dBm 17.953 MHz ransmit Freq Error 2.857 kHz % of OBW Power 99.00 % dB Bandwidth 18.97 MHz x dB -26.00 dB | Detector Average ► <u>Auto</u> Man | Occupied Bandwidth Total Power 20.8 dBm 17.942 MHz Power 20.0 dB Transmit Freq Error 990 Hz % of OBW Power 99.00 % x dB Bandwidth 18.94 MHz x dB -26.00 dB |
| | | 16QAM-56640 |
| 16QAM-55990 | e | IDQAIVI-DOO4U |
| Bidly Ref 39.50 dBm | Clear Write | 16 dB/dl/w Ref 29.50 dBm |
| ter 3.59 GHz Span 40 | | 60.5 75.5 60.5 100 Center 3.625 GHz Span 40 MHz |
| es BW 390 kHz #VBW 1.2 MHz #Sweep 10 Docupied Bandwidth Total Power 21.3 dBm 17.961 MHz | 0 ms Min Hold | #Res BW 390 kHz #VBW 1.2 MHz #Sweep 100 ms Occupied Bandwidth Total Power 21.0 dBm 17.951 MHz Detect |
| ransmit Freq Error 2.722 kHz % of OBW Power 99.00 % dB Bandwidth 18.95 MHz x dB -26.00 dB | Average≯ <u>Auto</u> Man | Transmit Freq Error 1.692 kHz % of OBW Power 99.00 % x dB Bandwidth 18.96 MHz x dB -26.00 dB |



APPENDIX C - CONDUCTED EMISSIONS



| | LTE Band 48 | _20M(QPSK) | |
|---|--|--|--|
| Channel | Channel Frequency(MHz) | | Frequency(MHz) |
| 55340 | 30-3530 | 55340 | 3530-3540 |
| Atter 13.51950000000 GHz Pito Fau Pito Pito Pito Pito Pito Pito Pito Pito | Avg Type: Log-Por AvgType: Log-Por AvgTy | Bit Office State of the state | Avg Type: Loge-Park Avg |
| Channel | Frequency(MHz) | UAready in Single, press Restart to initiate a new sweep or sequence of the second sec | |
| 55340 | 3710-3720 | 55340 | 3720-40G- |
| Nymethical degree Structure | Avg Type: Log-Pwr Avg1ydd: 100100 Tree Descore to 19.5 x 52 Xyg1ydd: 100 | Comparison Advances and a series as a series as a series and a se | Avg Type: Log-Pwr Avg/Hold: 100100 Trice Mkr1 3,741 8 GHz 40,586 dBm Clear Wr Clear Wr Clear Wr Mkr1 8,741 8 GHz Clear Wr Trace Aver Max H |



| | LTE Band 48_2 | 20M(16QAM) | |
|--|--|--|---|
| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
| 55340 | 30-3530 | 55340 | 3530-3540 |
| Bright Steam Anders - Start Start Stor France Stor France Trig: Free Run IF: Galandow Marker 1 3.51500000000000000000000000000000000000 | Arg Type: top Per A Search Arg Type: top Per A Search Mkr1 3.516 0 GHz -40.206 dBm Peak Criteria Peak Search Continuous Peak Search Continuous Peak Search Continuous Peak Search Continuous Peak Search Min Search Min Search Stop 3.500 CHz Stop 3.500 CHz | Complete Sector Andres Complete | Avg Type: Log-Per Avg Typ |
| Channel | Frequency(MHz) | www.↓JFile <picture.png> saved Channel</picture.png> | Frequency(MHz) |
| 55340 | 3710-3720 | 55340 | 3720-40G- |
| Registerin Augus: See 0.6 Stor. D.6 Stor. D.6 Stor. D.6 PR00: Fait - W Trig: Free Run Batter: 40 dB Stor. D.6 Trig: Free Run Batter: 40 dB 10 Ref. Ormat 45 dB Stor. D.6 Stor. D.6 Stor. D.6 4:0 Stor. D.6 Stor. D.6 Stor. D.6 Stor. D.6 4:0 Stor. D.6 Stor. D.6 Stor. D.6 Stor. D.6 4:0 Stor. D.6 Stor. D.6 Stor. D.6 Stor. D.6 4:0 Stor. D.6 Stor. D.6 Stor. D.6 Stor. D.6 4:0 Stor. D.6 Stor. D.6 Stor. D.6 Stor. D.6 4:0 Stor. D.6 Stor. D.6 Stor. D.6 Stor. D.6 4:0 Stor. D.6 Stor. D.6 Stor. D.6 Stor. D.6 4:0 Stor. D.6 Stor. D.6 Stor. D.6 Stor. D.6 4:0 Stor. D.6 Stor. D.6 Stor. D.6 Stor. D.6 4:0 Stor. D.6 Stor. D.6 Stor. D.6 Stor. D.6 4:0 Stor. D.6 Stor. D.6 S | Arg Type: Log-Wr Argilide: 100100 Mkr1 3.717 588 GHz Mkr1 3.717 588 GHz Clear Write Mkr3 3.717 588 GHz Clear Write Mkr3 3.717 588 GHz Mkr1 | Ref Offset 4.5 dB Trig: Free Run IFGaintow Trig: Fre | Avg Type: Leg. Bwr Avg Type: Leg. Bwr Avg Type: Leg. Bwr Type: Leg. Bwr Mkr1 3,805 3 GHz Clear W Clear |



| | LTE Band 48_ | _20M(QPSK) | |
|---|--|---|---|
| Channel Frequency(MHz) | | Channel | Frequency(MHz) |
| 55990 | 30-3530 | 55990 | 3530-3540 |
| Registering Advancer-bengt Advancer-benge Advancer-bengt Advancer-bengt Advancer-bengt Advancer-bengt A | Image: second | Compared Section Audigore Serget A. | الالالال الله الله الله |
| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
| 55990 | 3710-3720 | 55990 | 3720-40G- |
| Completing Section Analyse - Section AL w 300 DC PRIC: Fact - Trig: Free Run Strock and PRIC: Fact - Trig: Free Run Strock and PRIC: Fact - Trig: Free Run Strock and | Ang Type: Log Port of the Unit is tary Ang Type: Log Port | Reprint Section Advisor Senset 33 Corr Set 0 | Min Hole |



| | LTE Band 48_ | 20M(16QAM) | |
|--|--|---|--|
| Channel | Channel Frequency(MHz) | | Frequency(MHz) |
| 55990 | 30-3530 | 55990 | 3530-3540 |
| Reprint Ref Stat | Idid add partin 16.202 Peak Search Arigi Tyre: Loop Pyr Arigi Hale: 100100 Next Peak Search Mikr1 3.516 0 GHz -40.732 dBm Next Peak Search Next Pk Left Next Pk Left Next Pk Left Next Pk Left Next Pk Left Next Pk Left Next Pk Left Marker Delta Stop 3.530 GHz MkrCF Stop 3.530 GHz More | Compared Section Advices - Section Action 2016 Ac | Avg Type: Log-Par Sweep Control Avg Type: Log-Par Type: Log-Par Mkr1 3.554 374 GHz Sweep Time -39.087 dBm Julo Mkr1 3.554 374 GHz Julo -39.087 dBm Julo -100 dBm Julo |
| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
| 55990 | 3710-3720 | 55990 | 3720-40G- |
| Replication Angles - Surg 34 Store 54 S | Ang Type: Log-PW Avg Ty | By a factor of the second state at the seco | Arg Type: Log-PW Arg Ty |