



FCC RADIO TEST REPORT

FCC ID : XMR2021EM05G2
Equipment : LTE Module
Brand Name : Quectel Wireless Solutions Co., Ltd.
Model Name : EM05-G
Applicant : Quectel Wireless Solutions Co., Ltd.
Building 5, Shanghai Business Park Phase III (Area B), No.1016
Tianlin Road, Minhang District, Shanghai, China, 20023
Manufacturer : LCFC (HeFei) Electronics Technology Co., Ltd.
No. 3188-1, Yungu Road (Hefei Export Processing Zone), Hefei
Economics & Technology Development Area, Anhui, CHINA
Standard : FCC 47 CFR Part 2, and 90(S)

Equipment: Quectel EM05-G tested inside of Lenovo Notebook Computer.

The product was received on Nov. 10, 2022 and testing was performed from Dec. 23, 2022 to Dec. 30, 2022. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory

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History of this test report

| Report No. | Version | Description | Issue Date |
|------------|---------|-------------------------|---------------|
| FG2N1103D | 01 | Initial issue of report | Jan. 04, 2023 |
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Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items | Result (PASS/FAIL) | Remark |
|---------------|--------------------|---|--------------------|--|
| 3.2 | §2.1046 §90.635 | Conducted Output Power and Effective Radiated Power | Pass | - |
| - | - | Peak-to-Average Ratio | - | See Note |
| - | §2.1049 §90.209 | Occupied Bandwidth and 26dB Bandwidth | - | See Note |
| - | §2.1051 §90.691 | Emission masks – In-band emissions | - | See Note |
| - | §2.1051 §90.691 | Emission masks – Out of band emissions | - | See Note |
| - | §2.1055 §90.213 | Frequency Stability for Temperature & Voltage | - | See Note |
| 3.3 | §2.1053 §90.691 | Field Strength of Spurious Radiation | Pass | 34.98 dB under the limit at 2444.000 MHz |

Note:

- For host device, Radiated Spurious Emission is verified and complies with the Radiated Spurious Emission limit in this test report.
- For host device, the Conducted Output Power is no difference after compared to module (Model: EM05-G)

Declaration of Conformity:

- The test results (PASS/FAIL) with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
- The measurement uncertainty please refer to report "Uncertainty of Evaluation".

Comments and Explanations:

The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sheng Kuo

Report Producer: Ruby Zou

1 General Description

1.1 Feature of Equipment Under Test

| Product Feature | |
|---------------------------------|--------------------------------------|
| Equipment | LTE Module |
| Brand Name | Quectel Wireless Solutions Co., Ltd. |
| Model Name | EM05-G |
| FCC ID | XMR2021EM05G2 |
| Sample 1 | EUT with Host 1 |
| Sample 2 | EUT with Host 2 |
| EUT supports Radios application | WCDMA/HSPA/LTE/GNSS |
| EUT Stage | Production Unit |

Remark:

1. The above EUT's information was declared by manufacturer.
2. Equipment: Quectel EM05-G tested inside of Lenovo Notebook Computer.

The product was installed into Notebook Computer (Brand Name: Lenovo, Model Name: TP00135D) during test, and the host information was recorded in the following table.

| Host Information | |
|------------------|---|
| Host 1 | Host with AMPHENOL TAIWAN CORPORATION Antenna |
| Host 2 | Host with Speed Antenna |

| WWAN Antenna Information for Host | | | | |
|-----------------------------------|--------------|-----------------------------|-----------------|--------------------|
| Main Antenna | Manufacturer | AMPHENOL TAIWAN CORPORATION | Peak gain (dBi) | LTE Band 26: -1.18 |
| | Part number | DC33001VU00 | Type | PIFA |
| | Manufacturer | Speed | Peak gain (dBi) | LTE Band 26: -1.18 |
| | Part number | DC33001VW00 | Type | PIFA |

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

1.2 Product Specification of Equipment Under Test

| Product Specification is subject to this standard | |
|---|--------------------------------------|
| Tx Frequency | 814.7 ~ 823.3 MHz |
| Rx Frequency | 859.7 ~ 868.3 MHz |
| Bandwidth | 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz |
| Maximum Output Power to Antenna | 23.68 dBm |
| Type of Modulation | QPSK / 16QAM |

1.3 Modification of EUT

No modifications made to the EUT during the testing.

1.4 Testing Site

| | |
|------------------------------|--|
| Test Site | Sporton International Inc. EMC & Wireless Communications Laboratory |
| Test Site Location | No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333 |
| Test Site No. | Sporton Site No. |
| | TH03-HY (TAF Code: 1190) |
| Test Engineer | Cotty Hsu |
| Temperature (°C) | 22.2~23.1 |
| Relative Humidity (%) | 51~56 |
| Remark | The Conducted test item subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory |

| | |
|------------------------------|--|
| Test Site | Sporton International Inc. Wensan Laboratory |
| Test Site Location | No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010 |
| Test Site No. | Sporton Site No. |
| | 03CH16-HY |
| Test Engineer | Andy Yang, Gary Guo and Steven Wu |
| Temperature (°C) | 18~26 |
| Relative Humidity (%) | 50~65 |

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW3786

1.5 Applied Standards

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

- ♦ FCC 47 CFR Part 2, 90
- ♦ ANSI / TIA-603-E
- ♦ ANSI C63.26-2015
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01
- ♦ Interim Guidance for Equipment Authorization of Devices with Channel Bandwidths Combined Across Two Contiguous Service Rule Allocations OET/Lab/EACB, June 6, 2013

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

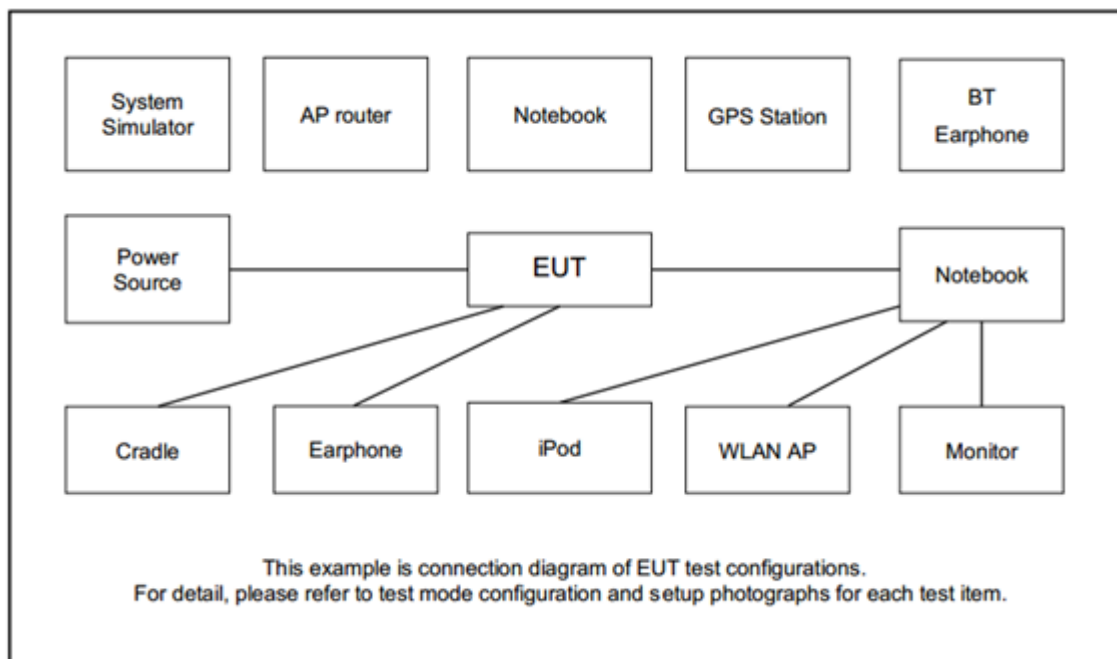
2.1 Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level.

Frequency range investigated for radiated emission is 30 MHz to 9000 MHz.

| Conducted Test Cases | Band | Bandwidth (MHz) | | | | | | Modulation | | RB # | | | Test Channel | | |
|----------------------------|--|-----------------|---|---|----|----|----|------------|-------|------------|------|------|--------------|---|---|
| | | 1.4 | 3 | 5 | 10 | 15 | 20 | QPSK | 16QAM | 1 | Half | Full | L | M | H |
| Max. Output Power | 26 | v | v | v | v | v | - | v | v | v | v | v | v | v | v |
| E.R.P. | 26 | v | v | v | v | v | - | v | v | Max. Power | | | | | |
| Radiated Spurious Emission | 26 | | | v | v | v | - | v | | v | | | v | v | v |
| Remark | <ol style="list-style-type: none"> The mark "v" means that this configuration is chosen for testing The mark "-" means that this bandwidth is not supported. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. All the radiated test cases were performed with Battery 1 and Sample 1. | | | | | | | | | | | | | | |

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

| Item | Equipment | Brand Name | Model No. | FCC ID | Data Cable | Power Cord |
|------|------------------|------------|-----------------|--------|------------|-------------------|
| 1. | Earphone | Lenove | TS300-01MS21-8S | N/A | N/A | Shielded, 1.2m |
| 2. | System Simulator | Anritsu | MT8821C | N/A | N/A | Unshielded, 1.8 m |

2.4 Frequency List of Low/Middle/High Channels

| LTE Band 26 Channel and Frequency List | | | | |
|--|------------------------|--------|--------|---------|
| BW [MHz] | Channel/Frequency(MHz) | Lowest | Middle | Highest |
| 15 | Channel | 26765 | - | - |
| | Frequency | 821.5 | - | - |
| 10 | Channel | - | 26740 | - |
| | Frequency | - | 819 | - |
| 5 | Channel | 26715 | 26740 | 26765 |
| | Frequency | 816.5 | 819 | 821.5 |
| 3 | Channel | 26705 | 26740 | 26775 |
| | Frequency | 815.5 | 819 | 822.5 |
| 1.4 | Channel | 26697 | 26740 | 26783 |
| | Frequency | 814.7 | 819 | 823.3 |

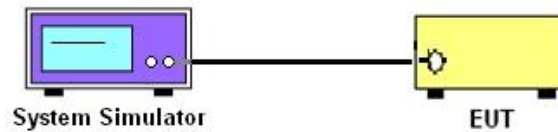
3 Conducted Test Items

3.1 Measuring Instruments

See list of measuring instruments of this test report.

3.1.1 Test Setup

3.1.2 Conducted Output Power



3.1.3 Test Result of Conducted Test

Please refer to Appendix A.

3.2 Conducted Output Power Measurement and ERP Measurement

3.2.1 Description of the Conducted Output Power Measurement and ERP Measurement

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

The output power of mobile transmitters must not exceed 100 Watts for LTE Band 26.

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

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

3.2.2 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.

3.3 Field Strength of Spurious Radiation Measurement

3.3.1 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.

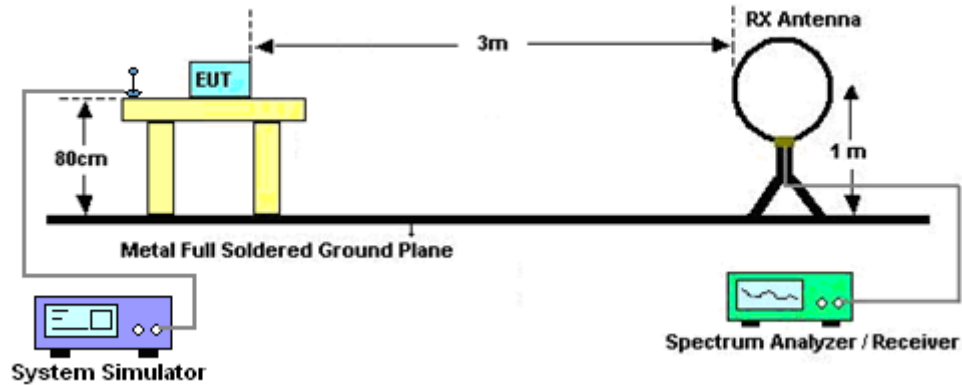
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log_{10}(P[\text{Watts}])$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.3.2 Test Procedures

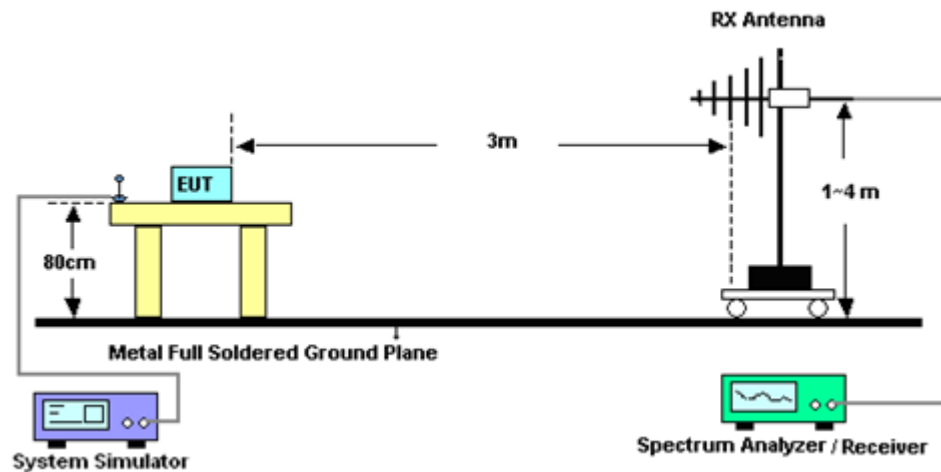
1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position 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. For testing below 1GHz, make the measurement with the spectrum analyzer's RBW = 100 kHz, VBW = 3MHz, Sweep = 500ms, Taking the record of maximum spurious emission.
6. For testing above 1GHz, make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, Sweep = 500ms, Taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. $\text{EIRP (dBm)} = \text{S.G. Power} - \text{Tx Cable Loss} + \text{Tx Antenna Gain}$
12. $\text{ERP (dBm)} = \text{EIRP} - 2.15$
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from $43 + 10 \log(P)$ dB below the transmitter power P(Watts)

3.3.3 Test Setup

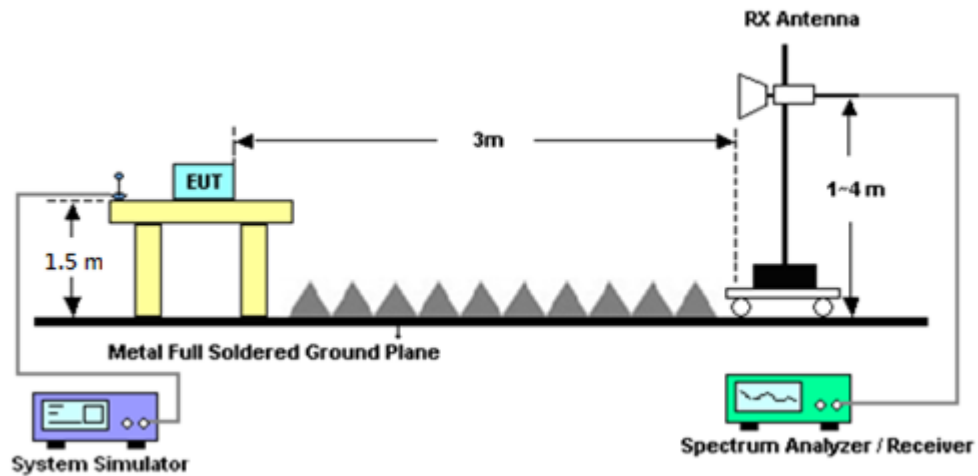
For radiated test below 30MHz



For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



3.3.4 Test Result of Field Strength of Spurious Radiated

Please refer to Appendix B.

Note:

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.



4 List of Measuring Equipment

| Instrument | Brand Name | Model No. | Serial No. | Characteristics | Calibration Date | Test Date | Due Date | Remark |
|------------------------------|-------------------|--|--------------------|-------------------------------------|------------------|---------------------------------|---------------|--------------------------|
| Loop Antenna | Rohde & Schwarz | HFH2-Z2 | 100488 | 9 kHz~30 MHz | Sep. 20, 2022 | Dec. 23, 2022~ Dec. 30, 2022 | Sep. 19, 2023 | Radiation (03CH16-HY) |
| Spectrum Analyzer | Keysight | N9010A | MY54200486 | 10Hz~44GHz | Oct. 07, 2022 | Dec. 23, 2022~ Dec. 30, 2022 | Oct. 06, 2023 | Radiation (03CH16-HY) |
| Signal Generator | Agilent | MG3694C | 163401 | 0.1Hz~40GHz | Feb. 13, 2022 | Dec. 23, 2022~ Dec. 30, 2022 | Feb. 12, 2023 | Radiation (03CH16-HY) |
| Bilog Antenna | TESEQ | CBL 6111D & 00800N1D01N-06 | 41912 & 05 | 30MHz to 1GHz | Feb. 06, 2022 | Dec. 23, 2022~ Dec. 30, 2022 | Feb. 05, 2023 | Radiation (03CH16-HY) |
| Bilog Antenna | TESEQ | CBL 6111D & 00802N1D01N-06 | 47020 & 06 | 30MHz to 1GHz | Oct. 08, 2022 | Dec. 23, 2022~ Dec. 30, 2022 | Oct. 07, 2023 | Radiation (03CH16-HY) |
| Horn Antenna | SCHWARZB ECK | BBHA 9120 D | 9120D-02114 | 1G~18GHz | Aug. 09, 2022 | Dec. 23, 2022~ Dec. 30, 2022 | Aug. 08, 2023 | Radiation (03CH16-HY) |
| Horn Antenna | SCHWARZB ECK | BBHA 9120 D | 9120D-1522 | 1G~18GHz | Mar. 10, 2022 | Dec. 23, 2022~ Dec. 30, 2022 | Mar. 09, 2023 | Radiation (03CH16-HY) |
| Amplifier | SONOMA | 310N | 371607 | 9kHz~1G | Jul. 04, 2022 | Dec. 23, 2022~ Dec. 30, 2022 | Jul. 03, 2023 | Radiation (03CH16-HY) |
| Preamplifier | EMEC | EM1G18G | 060812 | 1-18GHz | Dec. 27, 2021 | Dec. 23, 2022~ Dec. 25, 2022 | Dec. 26, 2022 | Radiation (03CH16-HY) |
| Preamplifier | EMEC | EM1G18G | 060812 | 1-18GHz | Dec. 26, 2022 | Dec. 26, 2022~ Dec. 30, 2022 | Dec. 25, 2023 | Radiation (03CH16-HY) |
| Preamplifier | Keysight | 83017A | MY53270264 | 1GHz~26.5GHz | Dec. 09, 2022 | Dec. 23, 2022~ Dec. 30, 2022 | Dec. 08, 2023 | Radiation (03CH16-HY) |
| EMI Test Receiver | Keysight | N9038A | MY57290111 | 3Hz~26.5GHz | Dec. 15, 2022 | Dec. 23, 2022~ Dec. 30, 2022 | Dec. 14, 2023 | Radiation (03CH16-HY) |
| RF Cable | HUBER + SUHNER | SUCOFLEX 104 | 805935/4 | N/A | Aug. 09, 2022 | Dec. 23, 2022~ Dec. 30, 2022 | Aug. 08, 2023 | Radiation (03CH16-HY) |
| RF Cable | HUBER + SUHNER | SUCOFLEX 104 | 802434/4 | N/A | Aug. 09, 2022 | Dec. 23, 2022~ Dec. 30, 2022 | Aug. 08, 2023 | Radiation (03CH16-HY) |
| RF Cable | HUBER + SUHNER | SUCOFLEX 102 | EC-A5-300-5 757 | N/A | Aug. 09, 2022 | Dec. 23, 2022~ Dec. 30, 2022 | Aug. 08, 2023 | Radiation (03CH16-HY) |
| Software | Audix | E3 6.2009-8-24 | RK-001136 | N/A | N/A | Dec. 23, 2022~ Dec. 30, 2022 | N/A | Radiation (03CH16-HY) |
| Controller | ChainTek | 3000-1 | N/A | Control Turn table & Ant Mast | N/A | Dec. 23, 2022~ Dec. 30, 2022 | N/A | Radiation (03CH16-HY) |
| Antenna Mast | ChainTek | MBS-520-1 | N/A | 1m~4m | N/A | Dec. 23, 2022~ Dec. 30, 2022 | N/A | Radiation (03CH16-HY) |
| Turn Table | ChainTek | T-200-S-1 | N/A | 0~360 Degree | N/A | Dec. 23, 2022~ Dec. 30, 2022 | N/A | Radiation (03CH16-HY) |
| Radio Communication Analyzer | Anritsu | MT8821C | 6262025353 | LTE FDD/TDD LTE-2CC DLCA/ULCA | Oct. 13, 2022 | Dec. 26, 2022 | Oct. 12, 2023 | Conducted (TH03-HY) |
| Coupler | Warison | 20dB 25W SMA Directional Coupler | #B | 1-18GHz | Jan. 07, 2022 | Dec. 26, 2022 | Jan. 06, 2023 | Conducted (TH03-HY) |

5 Uncertainty of Evaluation

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

| | |
|---|---------|
| Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$) | 2.98 dB |
|---|---------|

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

| | |
|---|---------|
| Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$) | 3.54 dB |
|---|---------|



Appendix A. Test Results of Conducted Test

Conducted Output Power (Average power & ERP)

| LTE Band 26 Maximum Average Power [dBm] (GT - LC = -1.18 dB) | | | | | | | | |
|--|--------------|-----------|--------|--------|--------|---------|-----------|---------|
| BW [MHz] | RB Size | RB Offset | Mod | Lowest | Middle | Highest | ERP (dBm) | ERP (W) |
| 15 | 1 | 0 | QPSK | 23.64 | - | - | 20.34 | 0.1081 |
| 15 | 1 | 37 | | 23.67 | - | - | | |
| 15 | 1 | 74 | | 23.66 | - | - | | |
| 15 | 36 | 0 | | 22.99 | - | - | | |
| 15 | 36 | 20 | | 23.00 | - | - | | |
| 15 | 36 | 39 | | 22.98 | - | - | | |
| 15 | 75 | 0 | | 22.95 | - | - | | |
| 15 | 1 | 0 | 16-QAM | 22.60 | - | - | 19.43 | 0.0877 |
| 15 | 1 | 37 | | 22.76 | - | - | | |
| 15 | 1 | 74 | | 22.73 | - | - | | |
| 15 | 36 | 0 | | 22.00 | - | - | | |
| 15 | 36 | 20 | | 22.02 | - | - | | |
| 15 | 36 | 39 | | 21.95 | - | - | | |
| 15 | 75 | 0 | | 21.97 | - | - | | |
| Limit | Power < 100W | | | Result | | | Pass | |

| LTE Band 26 Maximum Average Power [dBm] (GT - LC = -1.18 dB) | | | | | | | | |
|--|--------------|-----------|--------|--------|--------|---------|-----------|---------|
| BW [MHz] | RB Size | RB Offset | Mod | Lowest | Middle | Highest | ERP (dBm) | ERP (W) |
| 10 | 1 | 0 | QPSK | - | 23.60 | - | 20.35 | 0.1084 |
| 10 | 1 | 25 | | - | 23.68 | - | | |
| 10 | 1 | 49 | | - | 23.64 | - | | |
| 10 | 25 | 0 | | - | 22.96 | - | | |
| 10 | 25 | 12 | | - | 23.08 | - | | |
| 10 | 25 | 25 | | - | 23.08 | - | | |
| 10 | 50 | 0 | | - | 23.04 | - | | |
| 10 | 1 | 0 | 16-QAM | - | 22.64 | - | 19.57 | 0.0906 |
| 10 | 1 | 25 | | - | 22.90 | - | | |
| 10 | 1 | 49 | | - | 22.87 | - | | |
| 10 | 25 | 0 | | - | 22.05 | - | | |
| 10 | 25 | 12 | | - | 22.13 | - | | |
| 10 | 25 | 25 | | - | 22.24 | - | | |
| 10 | 50 | 0 | | - | 22.14 | - | | |
| Limit | Power < 100W | | | Result | | | Pass | |



| LTE Band 26 Maximum Average Power [dBm] (GT - LC = -1.18 dB) | | | | | | | | |
|--|--------------|-----------|--------|--------|--------|---------|-----------|---------|
| BW [MHz] | RB Size | RB Offset | Mod | Lowest | Middle | Highest | ERP (dBm) | ERP (W) |
| 5 | 1 | 0 | QPSK | 23.55 | 23.61 | 23.61 | 20.33 | 0.1079 |
| 5 | 1 | 12 | | 23.60 | 23.62 | 23.66 | | |
| 5 | 1 | 24 | | 23.65 | 23.64 | 23.66 | | |
| 5 | 12 | 0 | | 22.95 | 23.03 | 23.08 | | |
| 5 | 12 | 7 | | 22.95 | 23.12 | 23.07 | | |
| 5 | 12 | 13 | | 22.96 | 23.11 | 22.82 | | |
| 5 | 25 | 0 | | 22.92 | 23.03 | 22.95 | | |
| 5 | 1 | 0 | 16-QAM | 22.94 | 22.66 | 22.91 | 19.61 | 0.0914 |
| 5 | 1 | 12 | | 22.69 | 22.83 | 22.81 | | |
| 5 | 1 | 24 | | 22.71 | 22.79 | 22.56 | | |
| 5 | 12 | 0 | | 21.94 | 22.02 | 22.11 | | |
| 5 | 12 | 7 | | 21.92 | 22.13 | 22.18 | | |
| 5 | 12 | 13 | | 21.88 | 22.20 | 21.82 | | |
| 5 | 25 | 0 | | 21.87 | 22.12 | 21.95 | | |
| Limit | Power < 100W | | | Result | | | Pass | |

| LTE Band 26 Maximum Average Power [dBm] (GT - LC = -1.18 dB) | | | | | | | | |
|--|--------------|-----------|--------|--------|--------|---------|-----------|---------|
| BW [MHz] | RB Size | RB Offset | Mod | Lowest | Middle | Highest | ERP (dBm) | ERP (W) |
| 3 | 1 | 0 | QPSK | 23.61 | 23.65 | 23.67 | 20.34 | 0.1081 |
| 3 | 1 | 8 | | 23.66 | 23.60 | 23.60 | | |
| 3 | 1 | 14 | | 23.56 | 23.66 | 23.63 | | |
| 3 | 8 | 0 | | 22.98 | 22.97 | 23.00 | | |
| 3 | 8 | 4 | | 22.97 | 23.13 | 23.13 | | |
| 3 | 8 | 7 | | 22.91 | 23.04 | 22.91 | | |
| 3 | 15 | 0 | | 22.86 | 23.02 | 22.97 | | |
| 3 | 1 | 0 | 16-QAM | 22.54 | 22.62 | 22.86 | 19.55 | 0.0902 |
| 3 | 1 | 8 | | 22.76 | 22.88 | 22.85 | | |
| 3 | 1 | 14 | | 22.67 | 22.88 | 22.61 | | |
| 3 | 8 | 0 | | 21.94 | 22.02 | 22.19 | | |
| 3 | 8 | 4 | | 21.99 | 22.15 | 22.10 | | |
| 3 | 8 | 7 | | 21.93 | 22.18 | 21.79 | | |
| 3 | 15 | 0 | | 21.94 | 22.11 | 22.05 | | |
| Limit | Power < 100W | | | Result | | | Pass | |



FCC RADIO TEST REPORT

Report No. : FG2N1103D

| LTE Band 26 Maximum Average Power [dBm] (GT - LC = -1.18 dB) | | | | | | | | |
|--|--------------|-----------|--------|--------|--------|---------|-----------|---------|
| BW [MHz] | RB Size | RB Offset | Mod | Lowest | Middle | Highest | ERP (dBm) | ERP (W) |
| 1.4 | 1 | 0 | QPSK | 23.58 | 23.65 | 23.62 | 20.35 | 0.1084 |
| 1.4 | 1 | 3 | | 23.67 | 23.63 | 23.59 | | |
| 1.4 | 1 | 5 | | 23.63 | 23.66 | 23.62 | | |
| 1.4 | 3 | 0 | | 23.58 | 23.63 | 23.64 | | |
| 1.4 | 3 | 1 | | 23.61 | 23.68 | 23.63 | | |
| 1.4 | 3 | 3 | | 23.61 | 23.68 | 23.58 | | |
| 1.4 | 6 | 0 | | 22.86 | 23.04 | 23.00 | | |
| 1.4 | 1 | 0 | 16-QAM | 22.53 | 22.62 | 22.95 | 20.33 | 0.1079 |
| 1.4 | 1 | 3 | | 22.72 | 22.87 | 22.81 | | |
| 1.4 | 1 | 5 | | 22.64 | 22.83 | 22.60 | | |
| 1.4 | 3 | 0 | | 23.60 | 23.65 | 23.64 | | |
| 1.4 | 3 | 1 | | 23.60 | 23.63 | 23.65 | | |
| 1.4 | 3 | 3 | | 23.66 | 23.61 | 23.61 | | |
| 1.4 | 6 | 0 | | 21.93 | 22.06 | 21.99 | | |
| Limit | Power < 100W | | | Result | | | Pass | |



Appendix B. Test Results of Radiated Test

LTE Band 26

| LTE Band 26 / 5MHz / QPSK | | | | | | | | | |
|---------------------------|----------------------|----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|
| Channel | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Over Limit (dB) | SPA Reading (dBm) | S.G. Power (dBm) | TX Cable loss (dB) | TX Antenna Gain (dBi) | Polarization (H/V) |
| Lowest | 1628 | -50.11 | -13 | -37.11 | -65.22 | -53.46 | 3.86 | 9.37 | H |
| | 2443 | -50.23 | -13 | -37.23 | -69.29 | -53.76 | 4.77 | 10.46 | H |
| | 3257 | -52.19 | -13 | -39.19 | -74.18 | -56.46 | 5.52 | 11.94 | H |
| | | | | | | | | | H |
| | | | | | | | | | H |
| | | | | | | | | | H |
| | 1628 | -54.13 | -13 | -41.13 | -69.1 | -57.48 | 3.86 | 9.37 | V |
| | 2443 | -53.62 | -13 | -40.62 | -72.57 | -57.15 | 4.77 | 10.46 | V |
| | 3257 | -53.02 | -13 | -40.02 | -71.9 | -57.29 | 5.52 | 11.94 | V |
| | | | | | | | | | V |
| | | | | | | | | | V |
| | | | | | | | | | V |
| Middle | 1633 | -51.71 | -13 | -38.71 | -66.84 | -55.09 | 3.86 | 9.40 | H |
| | 2450 | -51.28 | -13 | -38.28 | -70.31 | -54.85 | 4.78 | 10.50 | H |
| | 3267 | -50.63 | -13 | -37.63 | -72.59 | -54.96 | 5.53 | 12.00 | H |
| | | | | | | | | | H |
| | | | | | | | | | H |
| | | | | | | | | | H |
| | 1633 | -55.84 | -13 | -42.84 | -70.83 | -59.22 | 3.86 | 9.40 | V |
| | 2450 | -52.54 | -13 | -39.54 | -71.47 | -56.11 | 4.78 | 10.50 | V |
| | 3267 | -52.86 | -13 | -39.86 | -74.72 | -57.19 | 5.53 | 12.00 | V |
| | | | | | | | | | V |
| | | | | | | | | | V |
| | | | | | | | | | V |



| | | | | | | | | | |
|---------|------|--------|-----|--------|--------|--------|------|-------|---|
| Highest | 1638 | -50.01 | -13 | -37.01 | -65.16 | -53.42 | 3.87 | 9.43 | H |
| | 2458 | -50.57 | -13 | -37.57 | -69.57 | -54.15 | 4.78 | 10.52 | H |
| | 3277 | -51.17 | -13 | -38.17 | -73.11 | -55.55 | 5.53 | 12.06 | H |
| | | | | | | | | | H |
| | | | | | | | | | H |
| | | | | | | | | | H |
| | 1638 | -53.09 | -13 | -40.09 | -68.11 | -56.50 | 3.87 | 9.43 | V |
| | 2458 | -53.45 | -13 | -40.45 | -72.38 | -57.03 | 4.78 | 10.52 | V |
| | 3277 | -53.20 | -13 | -40.20 | -75.04 | -57.58 | 5.53 | 12.06 | V |
| | | | | | | | | | V |
| | | | | | | | | | V |
| | | | | | | | | | V |

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



| LTE Band 26 / 10MHz / QPSK | | | | | | | | | |
|----------------------------|----------------------|----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|
| Channel | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Over Limit (dB) | SPA Reading (dBm) | S.G. Power (dBm) | TX Cable loss (dB) | TX Antenna Gain (dBi) | Polarization (H/V) |
| Middle | 1629 | -48.89 | -13 | -35.89 | -64.01 | -52.25 | 3.86 | 9.37 | H |
| | 2443 | -50.44 | -13 | -37.44 | -69.51 | -53.98 | 4.77 | 10.46 | H |
| | 3258 | -51.50 | -13 | -38.50 | -73.49 | -55.78 | 5.52 | 11.95 | H |
| | | | | | | | | | H |
| | | | | | | | | | H |
| | | | | | | | | | H |
| | | | | | | | | | H |
| | 1629 | -53.88 | -13 | -40.88 | -68.98 | -57.24 | 3.86 | 9.37 | V |
| | 2443 | -51.85 | -13 | -38.85 | -70.81 | -55.39 | 4.77 | 10.46 | V |
| | 3258 | -53.14 | -13 | -40.14 | -75.02 | -57.42 | 5.52 | 11.95 | V |
| | | | | | | | | | V |
| | | | | | | | | | V |
| | | | | | | | | | V |
| | | | | | | | | | V |

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



| LTE Band 26 / 15MHz / QPSK | | | | | | | | | |
|----------------------------|----------------------|----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|
| Channel | Frequency (MHz) | ERP (dBm) | Limit (dBm) | Over Limit (dB) | SPA Reading (dBm) | S.G. Power (dBm) | TX Cable loss (dB) | TX Antenna Gain (dBi) | Polarization (H/V) |
| Lowest | 1629 | -50.20 | -13 | -37.20 | -65.3 | -53.56 | 3.86 | 9.37 | H |
| | 2444 | -47.98 | -13 | -34.98 | -67.04 | -51.52 | 4.77 | 10.46 | H |
| | 3259 | -50.89 | -13 | -37.89 | -73.09 | -55.18 | 5.52 | 11.95 | H |
| | | | | | | | | | H |
| | | | | | | | | | H |
| | | | | | | | | | H |
| | | | | | | | | | H |
| | 1629 | -55.13 | -13 | -42.13 | -70.32 | -58.49 | 3.86 | 9.37 | V |
| | 2444 | -52.13 | -13 | -39.13 | -71.08 | -55.67 | 4.77 | 10.46 | V |
| | 3259 | -52.86 | -13 | -39.86 | -74.79 | -57.15 | 5.52 | 11.95 | V |
| | | | | | | | | | V |
| | | | | | | | | | V |
| | | | | | | | | | V |
| | | | | | | | | | V |

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