# RF TEST REPORT

Product Name: Cargo Volume Measurement Camera

Model Name: Z5

FCC ID: 2AM6L-Z5

Issued For : Streamax Technology Co., Ltd.

21-23/F, Building B1, Zhiyuan, No.1001 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong, China

Issued By : Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China

| | |
|---|---|
| Report Number: | LGT25C118RF05 |
| Sample Received Date: | Mar. 20, 2025 |
| Date of Test: | Mar. 20, 2025 ~ Apr. 16, 2025 |
| Date of Issue: | Apr. 16, 2025 |

# TEST REPORT CERTIFICATION

| | |
|---|---|
| **Applicant:** | Streamax Technology Co., Ltd. |
| Address: | 21-23/F, Building B1, Zhiyuan, No.1001 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong, China |
| **Manufacturer:** | Streamax Technology Co., Ltd. |
| Address: | 21-23/F, Building B1, Zhiyuan, No.1001 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong, China |
| Product Name: | Cargo Volume Measurement Camera |
| Trademark: | N/A |
| Model Name: | Z5 |
| Sample Status: | Normal |

| **APPLICABLE STANDARDS** | |
|---|---|
| STANDARD | TEST RESULTS |
| FCC Part 22H and 24E, 27, 90<br>KDB 971168 D01 v03r01, ANSI C63.26(2015) | PASS |

Prepared by:

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Approved by:

Vita Li
Technical Director

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## Revision History

| Rev. | Issue Date | Contents |
|---|---|---|
| 00 | Apr. 16, 2025 | Initial Issue |
| | | |

# 1. TEST FACTORY & MEASUREMENT UNCERTAINTY

## 1.1 TEST FACTORY

| | |
|---|---|
| Company Name: | Shenzhen LGT Test Service Co., Ltd. |
| Address: | Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China |
| Accreditation Certificate: | A2LA Certificate No.: 6727.01 |
| | FCC Registration No.: 746540 |
| | CAB ID: CN0136 |

## 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

| No. | Item | Uncertainty |
|---|---|---|
| 1 | Occupied Channel Bandwidth | ±3.2 % |
| 2 | RF Output Power, Conducted | ±0.71dB |
| 3 | Power Spectral Density, Conducted | ±1.57 dB |
| 4 | Unwanted Emission, Conducted | ±0.63dB |
| 5 | Conducted emission | ±2.80dB |
| 6 | All Emissions, Radiated (0.009-30MHz) | ±2.16dB |
| 7 | All Emissions, Radiated (30MHz-1GHz) | ±4.40dB |
| 8 | All Emissions, Radiated (1GHz-18GHz) | ±5.49dB |
| 9 | Temperature | ±0.5°C |
| 10 | Humidity | ±2% |
| 11 | Duty Cycle | ±2.3% |

Note: The measurement uncertainty is not included in the test result.

# 2. GENERAL INFORMATION

## 2.1 TECHNICAL SPECIFICATIONS AND REGULATIONS

### 2.1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

| | |
|---|---|
| Product Name: | Cargo Volume Measurement Camera |
| Trademark: | N/A |
| Model Name: | Z5 |
| Series Model: | N/A |
| Model Difference: | N/A |
| Frequency Bands: | Band 2/4/5/12/13/14/66/71 |
| SIM Card: | Only one SIM card is supported. |
| Antenna: | External Antenna |
| Rating: | Input: DC 10-36V |
| Extreme Vol. Limits: | 12V to 24V (Nominal 12V) |
| Extreme Temp. Tolerance: | 0℃ to +40℃ |
| Hardware Version: | N/A |
| Software Version: | N/A |

Note: The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report.

2.1.2 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

| Product Specification Subjective To This Standard | |
|---|---|
| Tx Frequency | LTE Band 2:1850~1910MHz<br>LTE Band 4:1710~1755MHz<br>LTE Band 5: 824~849MHz<br>LTE Band 12: 699-716MHz<br>LTE Band 13: 777-787MHz<br>LTE Band 14:788-798MHz<br>LTE Band 66: 1710-1780MHz<br>LTE Band 71: 663-698 MHz |
| Rx Frequency | LTE Band 2: 1930-1990MHz<br>LTE Band 4: 2110-2155MHz<br>LTE Band 5: 869-894MHz<br>LTE Band 12: 729-746MHz<br>LTE Band 13: 746-756MHz<br>LTE Band 14: 758-768MHz<br>LTE Band 66: 2110-2200MHz<br>LTE Band 71: 617-652MHz |
| Bandwidth | LTE Band 2: 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz<br>LTE Band 4: 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz /20MHz<br>LTE Band 5: 1.4MHz / 3MHz / 5MHz / 10MHz<br>LTE Band 12: 1.4MHz / 3MHz / 5MHz / 10MHz<br>LTE Band 13: 5MHz / 10MHz<br>LTE Band 14: 5MHz / 10MHz<br>LTE Band 66: 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz /20MHz<br>LTE Band 71: 5MHz / 10MHz / 15MHz /20MHz |
| Type of Modulation | QPSK/16QAM |

2.1.3 TEST CONFIGURATION OF EQUIPMENT UNDER TEST

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 v03r01 and ANSI C63.26 2015 Power Meas. License Digital Systems with maximum output power. Radiated measurements are performed by rotating the EUT in three different orthogonal test planes tofind the maximum emission.

Remark:

1. The mark ‘v’means that this configuration is chosen for testing
2. The mark ‘-’means that this bandwidth is not supported.
3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated.

| ITEMS | Band | Bandwidth (MHz) | | | | | | Modulation | | RB # | | | Test Channel | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.4 | 3 | 5 | 10 | 15 | 20 | QPSK | 16QAM | 1 | Half | Full | L | M | H |
| Radiated Spurious Emission | 2 | | | | | | v | v | | v | | | v | v | v |
| | 4 | | | | | | v | v | | v | | | v | v | v |
| | 5 | | | | v | | | v | | v | | | v | v | v |
| | 12 | | | | v | | | v | | v | | | v | v | v |
| | 13 | | | | v | | | v | | v | | | v | v | v |
| | 14 | | | | v | | | v | | v | | | v | v | v |
| | 66 | | | | | | v | v | | v | | | v | v | v |
| | 71 | | | | | | v | v | | v | | | v | v | v |

2.1.4 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for filing to comply with the 47 CFR Part 2, 22H, 24(E), 27.

2.1.5 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with eut intended for fcc grant together.

2.1.6 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission’s requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.1.7 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

2.1.8 CONFIGURATION OF EUT SYSTEM

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

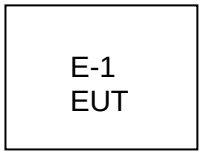



Table 2-1 Equipment Used in EUT System

| Item | Equipment | Model No. | Length | Note |
|---|---|---|---|---|
| N/A | | | | N/A |
| | | | | |
| | | | | |
| | | | | |

Note:

(1) For detachable type I/O cable should be specified the length in cm in『Length』column.

(2) "YES" is means "with core"; "NO" is means "without core".

2.1.9MEASUREMENT INSTRUMENTS

The radiated emission testing was performed according to the procedures of ANSI C63.26 2015 and FCC CFR 47 rules of 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057.

| **Radiated Test equipment** | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal. Date** | **Cal. Until** |
| EMI Test Receiver | R&S | ESU8 | 100372 | 2025.03.06 | 2026.03.05 |
| Active loop Antenna | ETS | 6502 | 00049544 | 2025.03.11 | 2028.03.10 |
| Spectrum Analyzer | Keysight | N9010B | MY60242508 | 2025.03.05 | 2026.03.04 |
| Trilog Broadband Antenna (30M-1G) | SCHWARZBECK | VULB 9168 | 2705 | 2024.05.17 | 2027.05.16 |
| Horn Antenna(1-18G) | SCHWARZBECK | 3115 | 10SL0060 | 2025.03.10 | 2028.03.09 |
| Horn Antenna(18-40G) | SCHWARZBECK | BBHA 9170 | 685 | 2023.10.23 | 2026.10.22 |
| Pre-amplifier(30M-1G) | EMtrace | RP01A | 02019 | 2025.03.06 | 2026.03.05 |
| Pre-amplifier(1-26.5G) | Agilent | 8449B | 3008A4722 | 2025.03.06 | 2026.03.05 |
| Pre-amplifier(18-40G) | SCHWARZBECK | BBV 9721 | 9721-019 | 2024.10.21 | 2025.10.20 |
| Wireless Communications Test Set | R&S | CMW 500 | 137737 | 2025.03.05 | 2026.03.04 |
| Antenna Tower | SAEMC | BK-4AT-BS-D | SK2021093008 | N.A | N.A |
| DC source | Jiuyuan | QJ6010E | N.A | 2025.03.09 | 2026.03.08 |
| Temperature & Humidity | JINGCHUANG | BT-3 | N.A | 2025.03.10 | 2026.03.09 |
| Testing Software | EMC-I_V1.4.0.3_SKET | | | | |

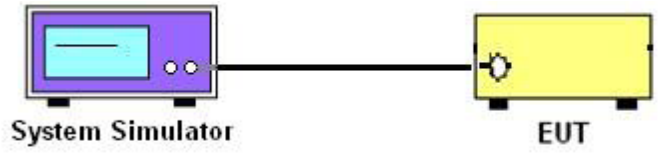
| **Conducted Test equipment** | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal. Date** | **Cal. Until** |
| Signal Analyzer | Keysight | N9010B | MY60242508 | 2025.03.05 | 2026.03.04 |
| Signal Analyzer | Keysight | N9020A | MY52510057 | 2025.03.05 | 2026.03.04 |
| Wireless Communications Test Set | R&S | CMW 500 | 137737 | 2025.03.05 | 2026.03.04 |
| MXG Vector Signal Generator | Keysight | N5182B | MY59100717 | 2025.03.05 | 2026.03.04 |
| RF Automatic Test system | MW | MW200 -RFCB | MW220322LG | 2025.03.06 | 2026.03.05 |
| Temperature & Humidity | JINGCHUANG | BT-3 | N.A | 2025.03.10 | 2026.03.09 |
| Temperature& Humidity test chamber | AISRY | LX-1000L | 171200018 | 2024.08.05 | 2025.08.04 |
| Attenuator | eastsheep | 90db | N.A | 2025.03.06 | 2026.03.05 |
| Digital multimeter | MASTECH | MS8261 | MBGBC83053 | 2025.03.05 | 2026.03.04 |
| DC source | Jiuyuan | QJ6010E | N.A | 2025.03.09 | 2026.03.08 |
| Testing Software | MTS8200_ V2.0.0.0_MW | | | | |

3. CONDUCTED OUTPUT POWER
3.1 DESCRIPTION OF THE CONDUCTED OUTPUT POWER MEASUREMENT

3.1.1 MEASUREMENT METHOD

A system simulator was used to establish communication with the eut. Its parameters were set to force the eut transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.
Configuration follows KDB 971168 D01 v03r01.

3.1.2 TEST SETUP




3.1.3 TEST PROCEDURES

1. The transmitter output port was connected to system simulator.

2. Set EUT at maximum power through the system simulator.

3. Select lowest/middle/highest channels for each band and different modulation.

4. Measure and record the power level from the system simulator.

3.1.4 TEST RESULTS

Note: The module has been certified, the module FCC ID: XMR202008EC25AFXD, the module certificate was granted on August 14, 2022.
In this report, this certified module is same as the original filling. We have tested the new radiation emission.

# 4. RADIATED POWER AND EFFECTIVE ISOTROPIC RADIATED POWER

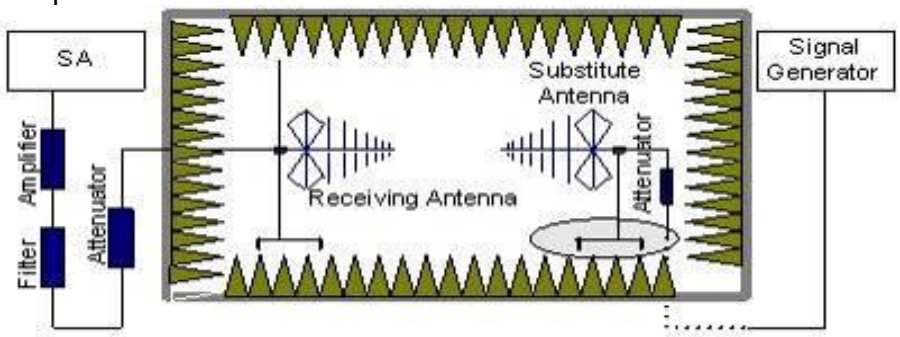
## 4.1 DESCRIPTION OF THE ERP/EIRP MEASUREMENT

### 4.1.1 MEASUREMENT METHOD

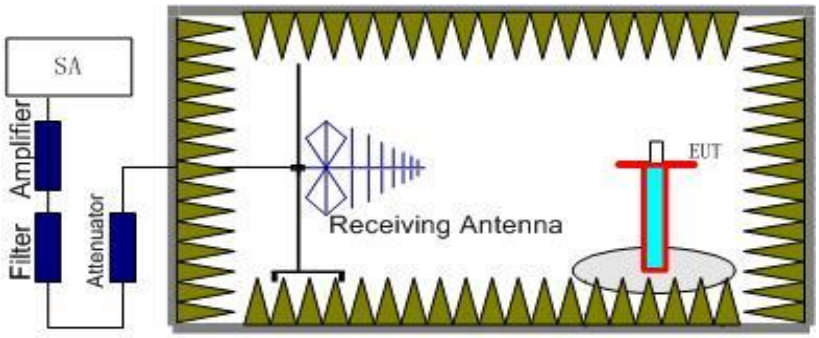
Effective radiated power output measurements by substitution method according to ANSI C63.26 2015, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas.
License Digital Systems. Mobile and portable (hand-held) stations operating are limited to average ERP, Equivalent isotropic radiated power output measurements by substitution method according to ANSI C63.26 2015, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas, Mobile and portable (hand-held) stations operating are limited to average EIRP.

### 4.1.2 TEST SETUP

The procedure of radiated spurious emissions is as follows:
a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, RSE=Rx ( dBuV ) +CL ( dB ) +SA ( dB ) +Gain ( dBi ) -107 ( dBuV to dBm ) The SA is calibrated using following setup.




b) EUT was placed on a 1.5m non-conductive stand at a 3 m test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 m from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic measured with peak detector and 1MHz bandwidth.




Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.
The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the ARpl is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below:
Power=PMea+ARpl

### 4.1.3 TEST PROCEDURES

1. The testing follows FCC KDB 971168 D01v03r01 Section 5.6 and ANSI C63.26 2015 Section 5.2.

2. The EUT was placed on a non-conductive rotating platform 1.5 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with Peak detector.

3. During the measurement, the system simulator parameters were set to force the EUTtransmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 m in both horizontally and vertically polarized orientations.

4. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to ANSI C63.26 2015. The EUT was replaced by dipole antenna (substitution antenna) at same location and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. EIRP=S.G Level+ Gain-Cable loss; ERP=S.G Level+ Gain-Cable loss-2.15.

5. RB Set greater than bandwidth, VB Set spectrum analyzer Maximum support.

### 4.1.4 TEST RESULTS

Note: Test is divided into three directions, X/Y/Z. X pattern for the worst.

Note: The module has been certified, the module FCC ID: XMR202008EC25AFXD, the module certificate was granted on August 14, 2022.

In this report, this certified module is same as the original filling. We have tested the new radiation emission.

# 5. RADIATED SPURIOUS EMISSION

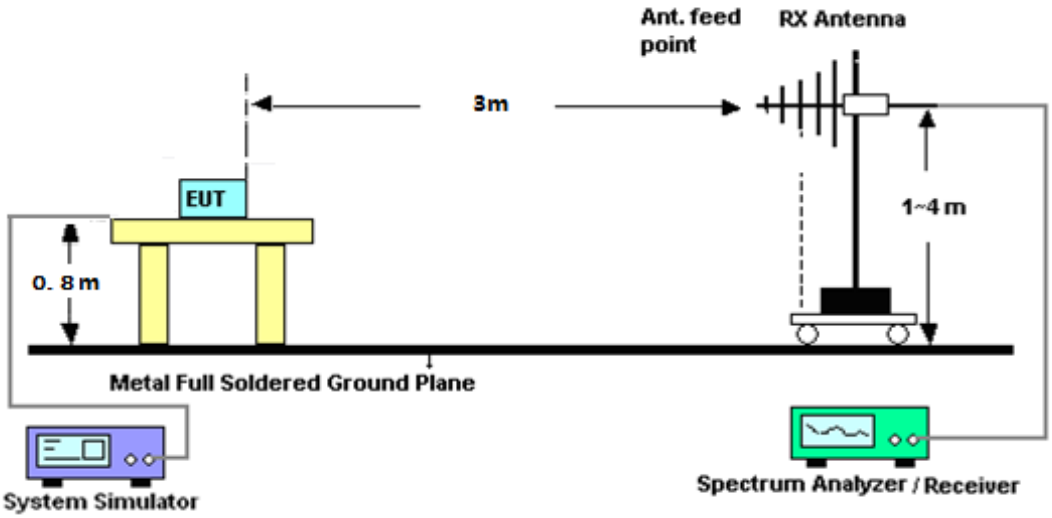
## 5.1 DESCRIPTION OF RADIATED SPURIOUS EMISSION

### 5.1.1 MEASUREMENT METHOD

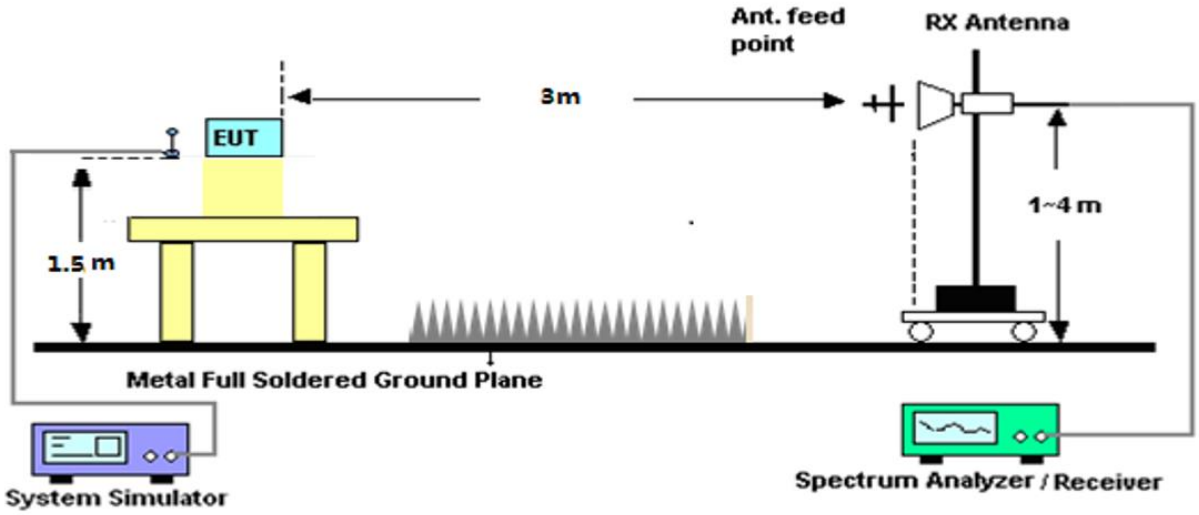
The radiated spurious emission was measured by substitution method according to ANSI C63.26 2015. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.
For Band 7 The power of any emission outside of the authorized operating frequency ranges must attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

### 5.1.2 TEST SETUP

The procedure of radiated spurious emissions is as follows:
a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, RSE=Rx( dBuV )+CL( dB )+SA( dB )+Gain( dBi )-107( dBuV to dBm )The SA is calibrated using following setup.
b) EUT was placed on 1.5 m non-conductive stand at a 3 m test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 m from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic measured with peak detector and 1MHz bandwidth.
Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.
The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the ARpl is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below: Power=PMea+ARpl
For radiated test from 30MHz to 1GHz



For radiated test from above 1GHz




5.1.3 TEST PROCEDURES

1. The testing FCC KDB 971168 D01 Section 7 and ANSI C63.26 2015 Section 5.5.

2. The EUT was placed on a rotatable wooden table with 1.5 meter above ground.

3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.

4. The table was rotated 360 degrees to determine the position of the highest spurious emission.

5. 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

6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, 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. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
= P(W)- [43 + 10log(P)] (dB)
= [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
= -13dBm
.
For Band 7:
The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
= [30 + 10log(P)] (dBm) - [55 + 10log(P)] (dB)
= -25dBm
PMea=S.G Level+ Ant-Cable loss; Margin=PMea-Limit.

5.1.4 TEST RESULTS

Note: Test chart See Appendix II

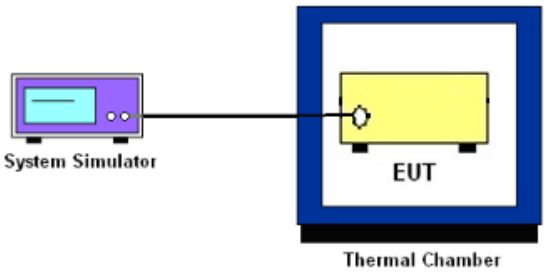
# 6. FREQUENCY STABILITY

## 6.1 DESCRIPTION OF FREQUENCY STABILITY MEASUREMENT

### 6.1.1 MEASUREMENT METHOD

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

### 6.1.2 TEST SETUP




### 6.1.3 TEST PROCEDURES FOR TEMPERATURE VARIATION

1. The EUT was set up in the thermal chamber and connected with the system simulator.

2. 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.
3. 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.

### 6.1.4 TEST PROCEDURES FOR VOLTAGE VARIATION

1. The testing follows FCC KDB 971168 D01v01r03 Section 9.

2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simlator.

3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.

4. The variation in frequency was measured for the worst case.

### 6.1.5 TEST RESULTS

Note: The module has been certified, the module FCC ID: XMR202008EC25AFXD, the module certificate was granted on August 14, 2022.

In this report, this certified module is same as the original filling. We have tested the new radiation emission.

## APPENDIX I- TEST DATA

RADIATED SPURIOUS EMISSION
Note:
(1) Spurious emissions which are attenuated by more than 20dB below the permissible value for frequeny below 1000MHz.
(2) Test is divided into three directions, X/Y/Z. X pattern for the worst.

| LTE Band 2 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest | | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 3720.32 | -23.96 | 7.00 | 12.93 | **-29.89** | -13.00 | -16.89 | H |
| 5580.57 | -26.69 | 8.40 | 17.11 | -35.40 | -13.00 | -22.40 | H |
| 7439.67 | -23.18 | 8.10 | 22.20 | -37.28 | -13.00 | -24.28 | H |
| 3720.32 | -27.04 | 7.00 | 12.93 | -32.97 | -13.00 | -19.97 | V |
| 5580.57 | -25.39 | 8.40 | 17.11 | -34.10 | -13.00 | -21.10 | V |
| 7439.67 | -28.17 | 8.10 | 22.20 | -42.27 | -13.00 | -29.27 | V |
| **LTE Band 2 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle** | | | | | | | |
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 3759.80 | -28.43 | 7.00 | 12.93 | **-34.36** | -13.00 | -21.36 | H |
| 5639.97 | -29.03 | 8.40 | 17.11 | -37.74 | -13.00 | -24.74 | H |
| 7520.04 | -26.95 | 8.10 | 22.20 | -41.05 | -13.00 | -28.05 | H |
| 3759.80 | -29.05 | 7.00 | 12.93 | -34.98 | -13.00 | -21.98 | V |
| 5639.97 | -27.89 | 8.40 | 17.11 | -36.60 | -13.00 | -23.60 | V |
| 7520.04 | -26.12 | 8.10 | 22.20 | -40.22 | -13.00 | -27.22 | V |
| **LTE Band 2 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest** | | | | | | | |
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 3800.00 | -24.45 | 7.00 | 12.93 | **-30.38** | -13.00 | -17.38 | H |
| 5699.97 | -24.76 | 8.40 | 17.11 | -33.47 | -13.00 | -20.47 | H |
| 7600.19 | -25.50 | 8.10 | 22.20 | -39.60 | -13.00 | -26.60 | H |
| 3800.00 | -28.11 | 7.00 | 12.93 | -34.04 | -13.00 | -21.04 | V |
| 5699.97 | -25.01 | 8.40 | 17.11 | -33.72 | -13.00 | -20.72 | V |
| 7600.19 | -24.72 | 8.10 | 22.20 | -38.82 | -13.00 | -25.82 | V |

| LTE Band 4 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest | | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 3440.12 | -24.31 | 7.20 | 12.56 | **-29.67** | -13.00 | -16.67 | H |
| 5160.19 | -29.07 | 8.10 | 16.32 | -37.29 | -13.00 | -24.29 | H |
| 6880.51 | -24.81 | 8.30 | 21.13 | -37.64 | -13.00 | -24.64 | H |
| 3440.12 | -27.94 | 7.20 | 12.56 | -33.30 | -13.00 | -20.30 | V |
| 5160.19 | -27.09 | 8.10 | 16.32 | -35.31 | -13.00 | -22.31 | V |
| 6880.51 | -23.46 | 8.30 | 21.13 | -36.29 | -13.00 | -23.29 | V |
| **LTE Band 4 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle** | | | | | | | |
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 3464.62 | -24.59 | 7.20 | 12.56 | **-29.95** | -13.00 | -16.95 | H |
| 5196.38 | -28.12 | 8.10 | 16.32 | -36.34 | -13.00 | -23.34 | H |
| 6929.82 | -26.97 | 8.30 | 21.13 | -39.80 | -13.00 | -26.80 | H |
| 3464.62 | -25.14 | 7.20 | 12.56 | -30.50 | -13.00 | -17.50 | V |
| 5196.38 | -28.68 | 8.10 | 16.32 | -36.90 | -13.00 | -23.90 | V |
| 6929.82 | -27.82 | 8.30 | 21.13 | -40.65 | -13.00 | -27.65 | V |
| **LTE Band 4 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest** | | | | | | | |
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 3490.33 | -26.75 | 7.20 | 12.56 | **-32.11** | -13.00 | -19.11 | H |
| 5235.19 | -29.10 | 8.10 | 16.32 | -37.32 | -13.00 | -24.32 | H |
| 6979.84 | -25.27 | 8.30 | 21.13 | -38.10 | -13.00 | -25.10 | H |
| 3490.33 | -26.81 | 7.20 | 12.56 | -32.17 | -13.00 | -19.17 | V |
| 5235.19 | -24.91 | 8.10 | 16.32 | -33.13 | -13.00 | -20.13 | V |
| 6979.84 | -23.78 | 8.30 | 21.13 | -36.61 | -13.00 | -23.61 | V |

| LTE Band 5 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest | | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 1657.78 | -26.36 | 7.40 | 9.72 | **-28.68** | -13.00 | -15.68 | H |
| 2486.30 | -26.99 | 8.30 | 10.86 | -29.55 | -13.00 | -16.55 | H |
| 3315.41 | -27.69 | 7.20 | 11.57 | -32.06 | -13.00 | -19.06 | H |
| 1657.78 | -28.25 | 7.40 | 9.72 | -30.57 | -13.00 | -17.57 | V |
| 2486.30 | -27.33 | 8.30 | 10.86 | -29.89 | -13.00 | -16.89 | V |
| 3315.41 | -25.32 | 7.20 | 11.57 | -29.69 | -13.00 | -16.69 | V |
| **LTE Band 5 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle** | | | | | | | |
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 1672.36 | -26.65 | 7.40 | 9.72 | **-28.97** | -13.00 | -15.97 | H |
| 2508.96 | -28.31 | 8.30 | 10.86 | -30.87 | -13.00 | -17.87 | H |
| 3345.10 | -24.66 | 7.20 | 11.57 | -29.03 | -13.00 | -16.03 | H |
| 1672.36 | -30.82 | 7.40 | 9.72 | -33.14 | -13.00 | -20.14 | V |
| 2508.96 | -29.10 | 8.30 | 10.86 | -31.66 | -13.00 | -18.66 | V |
| 3345.10 | -28.05 | 7.20 | 11.57 | -32.42 | -13.00 | -19.42 | V |
| **LTE Band 5 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest** | | | | | | | |
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 1687.44 | -25.88 | 7.40 | 9.72 | **-28.20** | -13.00 | -15.20 | H |
| 2531.30 | -30.20 | 8.30 | 10.86 | -32.76 | -13.00 | -19.76 | H |
| 3375.67 | -24.01 | 7.20 | 11.57 | -28.38 | -13.00 | -15.38 | H |
| 1687.44 | -29.54 | 7.40 | 9.72 | -31.86 | -13.00 | -18.86 | V |
| 2531.30 | -28.10 | 8.30 | 10.86 | -30.66 | -13.00 | -17.66 | V |
| 3375.67 | -24.87 | 7.20 | 11.57 | -29.24 | -13.00 | -16.24 | V |

| LTE Band 12 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest | | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 1407.96 | -26.70 | 6.70 | 9.34 | -29.34 | -13.00 | -16.34 | H |
| 2111.59 | -26.69 | 7.80 | 10.42 | -29.31 | -13.00 | -16.31 | H |
| 2815.90 | -26.80 | 8.00 | 11.12 | -29.92 | -13.00 | -16.92 | H |
| 1407.96 | -26.18 | 6.70 | 9.34 | -28.82 | -13.00 | -15.82 | V |
| 2111.59 | -25.57 | 7.80 | 10.42 | **-28.19** | -13.00 | -15.19 | V |
| 2815.90 | -27.11 | 8.00 | 11.12 | -30.23 | -13.00 | -17.23 | V |
| **LTE Band 12 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle** | | | | | | | |
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 1414.93 | -26.81 | 6.70 | 9.34 | -29.45 | -13.00 | -16.45 | H |
| 2122.45 | -26.65 | 7.80 | 10.42 | -29.27 | -13.00 | -16.27 | H |
| 2829.51 | -23.95 | 8.00 | 11.12 | **-27.07** | -13.00 | -14.07 | H |
| 1414.93 | -28.28 | 6.70 | 9.34 | -30.92 | -13.00 | -17.92 | V |
| 2122.45 | -26.71 | 7.80 | 10.42 | -29.33 | -13.00 | -16.33 | V |
| 2829.51 | -24.69 | 8.00 | 11.12 | -27.81 | -13.00 | -14.81 | V |
| **LTE Band 12 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest** | | | | | | | |
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 1421.82 | -28.00 | 6.70 | 9.34 | -30.64 | -13.00 | -17.64 | H |
| 2132.87 | -27.21 | 7.80 | 10.42 | -29.83 | -13.00 | -16.83 | H |
| 2843.68 | -27.17 | 8.00 | 11.12 | -30.29 | -13.00 | -17.29 | H |
| 1421.82 | -29.85 | 6.70 | 9.34 | -32.49 | -13.00 | -19.49 | V |
| 2132.87 | -25.89 | 7.80 | 10.42 | -28.51 | -13.00 | -15.51 | V |
| 2843.68 | -24.24 | 8.00 | 11.12 | **-27.36** | -13.00 | -14.36 | V |

| LTE Band 13 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle | | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 1563.78 | -46.06 | 7.40 | 9.72 | -48.38 | -40.00 | -8.38 | H |
| 2345.84 | -38.73 | 8.30 | 10.86 | -41.29 | -13.00 | -28.29 | H |
| 3127.74 | -35.95 | 7.70 | 11.57 | **-39.82** | -13.00 | -26.82 | H |
| 1563.78 | -44.15 | 7.40 | 9.72 | -46.47 | -40.00 | -6.47 | V |
| 2345.84 | -38.56 | 8.30 | 10.86 | -41.12 | -13.00 | -28.12 | V |
| 3127.74 | -38.11 | 7.70 | 11.57 | -41.98 | -13.00 | -28.98 | V |

| LTE Band 14 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle | | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 1581.90 | -48.42 | 7.50 | 7.72 | -48.64 | -40.00 | -8.64 | H |
| 2378.85 | -46.89 | 8.60 | 8.86 | -47.15 | -13.00 | -34.15 | H |
| 3171.92 | -46.57 | 9.70 | 10.57 | -47.44 | -13.00 | -34.44 | H |
| 1581.90 | -47.73 | 7.50 | 7.72 | -47.95 | -40.00 | -7.95 | V |
| 2378.85 | -46.78 | 8.60 | 8.86 | -47.04 | -13.00 | -34.04 | V |
| 3171.92 | -45.19 | 9.70 | 10.57 | **-46.06** | -13.00 | -33.06 | V |

| LTE Band 66 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest | | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 3440.19 | -27.10 | 7.20 | 12.56 | **-32.46** | -13.00 | -19.46 | H |
| 5160.13 | -25.68 | 8.10 | 16.32 | -33.90 | -13.00 | -20.90 | H |
| 6880.11 | -25.55 | 8.30 | 21.13 | -38.38 | -13.00 | -25.38 | H |
| 3440.19 | -27.21 | 7.20 | 12.56 | -32.57 | -13.00 | -19.57 | V |
| 5160.13 | -28.09 | 8.10 | 16.32 | -36.31 | -13.00 | -23.31 | V |
| 6880.11 | -25.71 | 8.30 | 21.13 | -38.54 | -13.00 | -25.54 | V |
| **LTE Band 66 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle** | | | | | | | |
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 3490.16 | -24.75 | 7.20 | 12.56 | **-30.11** | -13.00 | -17.11 | H |
| 5235.19 | -27.21 | 8.10 | 16.32 | -35.43 | -13.00 | -22.43 | H |
| 6980.02 | -25.83 | 8.30 | 21.13 | -38.66 | -13.00 | -25.66 | H |
| 3490.16 | -29.03 | 7.20 | 12.56 | -34.39 | -13.00 | -21.39 | V |
| 5235.19 | -24.54 | 8.10 | 16.32 | -32.76 | -13.00 | -19.76 | V |
| 6980.02 | -26.92 | 8.30 | 21.13 | -39.75 | -13.00 | -26.75 | V |
| **LTE Band 66 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest** | | | | | | | |
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 3539.90 | -28.79 | 7.20 | 12.56 | -34.15 | -13.00 | -21.15 | H |
| 5310.27 | -28.86 | 8.10 | 16.32 | -37.08 | -13.00 | -24.08 | H |
| 7080.85 | -24.98 | 8.30 | 21.13 | -37.81 | -13.00 | -24.81 | H |
| 3539.90 | -29.91 | 7.20 | 12.56 | -35.27 | -13.00 | -22.27 | V |
| 5310.27 | -24.48 | 8.10 | 16.32 | **-32.70** | -13.00 | -19.70 | V |
| 7080.85 | -26.01 | 8.30 | 21.13 | -38.84 | -13.00 | -25.84 | V |

| LTE Band 71 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest | | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 1345.81 | -29.94 | 6.50 | 9.34 | -32.78 | -13.00 | -19.78 | H |
| 2019.14 | -30.06 | 7.70 | 10.42 | -32.78 | -13.00 | -19.78 | H |
| 2691.88 | -27.28 | 7.90 | 11.12 | **-30.50** | -13.00 | -17.50 | H |
| 1345.81 | -30.86 | 6.50 | 9.34 | -33.70 | -13.00 | -20.70 | V |
| 2019.14 | -28.46 | 7.70 | 10.42 | -31.18 | -13.00 | -18.18 | V |
| 2691.88 | -28.83 | 7.90 | 11.12 | -32.05 | -13.00 | -19.05 | V |
| **LTE Band 71 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle** | | | | | | | |
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 1360.81 | -29.97 | 6.50 | 9.34 | -32.81 | -13.00 | -19.81 | H |
| 2041.24 | -30.34 | 7.70 | 10.42 | -33.06 | -13.00 | -20.06 | H |
| 2722.07 | -24.82 | 7.90 | 11.12 | **-28.04** | -13.00 | -15.04 | H |
| 1360.81 | -27.70 | 6.50 | 9.34 | -30.54 | -13.00 | -17.54 | V |
| 2041.24 | -30.95 | 7.70 | 10.42 | -33.67 | -13.00 | -20.67 | V |
| 2722.07 | -26.26 | 7.90 | 11.12 | -29.48 | -13.00 | -16.48 | V |
| **LTE Band 71 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest** | | | | | | | |
| Frequency(MHz) | S G.Lev (dBm) | Ant(dBi) | Loss | PMea (dBm) | Limit （dBm） | Margin (dBm) | Polarity |
| 1375.71 | -30.69 | 6.50 | 9.34 | -33.53 | -13.00 | -20.53 | H |
| 2064.00 | -28.67 | 7.70 | 10.42 | -31.39 | -13.00 | -18.39 | H |
| 2751.91 | -25.00 | 7.90 | 11.12 | **-28.22** | -13.00 | -15.22 | H |
| 1375.71 | -30.75 | 6.50 | 9.34 | -33.59 | -13.00 | -20.59 | V |
| 2064.00 | -30.20 | 7.70 | 10.42 | -32.92 | -13.00 | -19.92 | V |
| 2751.91 | -26.58 | 7.90 | 11.12 | -29.80 | -13.00 | -16.80 | V |

## APPENDIX II- PHOTOS OF TEST SETUP

Note: Please see the attached RF_Test Setup photos for FCC ID & IC.

※※※※※END OF THE REPORT※※※※※