

FCC RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C

Class II Permissive Change

| | |
|--------------------------|---|
| Test Standard | FCC Part 15.231+ IC RSS-210 Issue 10 |
| FCC ID | KR5GEN1 |
| IC | 7812D-GEN1 |
| Product name | Radio Frequency Transmitter SBRT |
| Model No. | GEN1 |
| Trade name | Continental |
| Operation Freq. | TX: 433.66MHz & 433.92MHz, RX: 125KHz |
| Test Result | Pass |
| Statements of Conformity | Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty. |

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.

The test Report of full or partial shall not copy. Without written approval of SGS Compliance Certification Services Inc. (Wugu Laboratory)

Approved by:



Shawn Wu
Supervisor

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

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Revision History

| Rev. | Issue Date | Revisions | Effect Page | Revised By |
|------|------------------|---------------------------------|-------------|--------------|
| 00 | October 26, 2022 | Initial Issue Note.(01) | ALL | Allison Chen |
| 01 | October 28, 2022 | See the following Note Rev.(01) | P.11-13 | Allison Chen |

Note. (01)

1. Applicant modifies new matching components and applicant information.

As per requested to verified radiated emission test data.

Other test data is referenced from cross authorization(s) measurement results in the original test report (TMWK2108000552KR) under issue date November 30, 2021) are fully leveraged in this test report.

Rev. (01)

1. Modify standard in section 3.3.

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Report No.: TMWK2209003699KR

1. GENERAL INFORMATION

1.1 EUT INFORMATION

| | |
|---------------------|--|
| Applicant | Continental Automotive Technologies GmbH Siemensstrasse 12, Regensburg ,93055 Germany |
| Manufacturer | Continental Automotive Technologies GmbH Siemensstrasse 12, Regensburg ,93055 Germany |
| Factory | Continental Aguascalientes, Mexico Carretera Panamericana Sur Km 114 + 354, int. 9 Parque Industrial FINSA CP 20393 Aguascalientes , Mexico |
| Equipment | Radio Frequency Transmitter SBRT |
| Model Name | GEN1 |
| Model Discrepancy | N/A |
| Received Date | September 14, 2022 |
| Date of Test | September 26, 2022 |
| Periodic operation | <input checked="" type="checkbox"/> (1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released. <input type="checkbox"/> (2) A transmitter activated automatically shall cease transmission within 5 seconds after activation <input type="checkbox"/> (3) Periodic transmissions at regular predetermined intervals are not permitted. <input type="checkbox"/> (4) Periodic transmissions (lower field strength): each transmission is not greater than 1 sec and the silent period between transmissions is at least 30 times the duration of the transmission but in no case less than 10 sec. |
| Power Operation | Power from Battery: CR2450X x1 (Lithium: 3V) |
| Operation Frequency | TX: 433.66MHz & 433.92MHz RX: 125KHz |
| H/W Version | AF |
| S/W Version | 0403 |

Remark:

1. For more details, please refer to the User's manual of the EUT.

1.2 EUT CHANNEL INFORMATION

| | |
|-----------------|---|
| Frequency Range | TX: 433.66MHz & 433.92MHz RX: 125KHz |
| Modulation Type | FSK |

Remark:

Refer as ANSI 63.10:2013 clause 5.6.1 Table 4 for test channels

| Number of frequencies to be tested | | |
|---|-----------------------|--|
| Frequency range in which device operates | Number of frequencies | Location in frequency range of operation |
| <input checked="" type="checkbox"/> 1 MHz or less | 1 | Middle |
| <input type="checkbox"/> 1 MHz to 10 MHz | 2 | 1 near top and 1 near bottom |
| <input type="checkbox"/> More than 10 MHz | 3 | 1 near top, 1 near middle, and 1 near bottom |

1.3 ANTENNA INFORMATION

| | |
|-------------------|--|
| Antenna Type | TX: Bult-in loop antenna RX: Coil Antenna |
| Antenna Gain | TX: -12.87 dBi RX: 0 dBi |
| Antenna Connector | N/A |

Remark:

1. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

1.4 MEASUREMENT UNCERTAINTY

| PARAMETER | UNCERTAINTY |
|---------------------------------|--------------|
| AC Powerline Conducted Emission | ± 2.1183 |
| Channel Bandwidth | ± 2.1863 |
| Radiated Emission_9kHz-30MHz | ± 3.814 |
| Radiated Emission_30MHz-200MHz | ± 4.272 |
| Radiated Emission_200MHz-1GHz | ± 4.619 |
| Radiated Emission_1GHz-6GHz | ± 5.522 |

Remark:

- 1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan.

No. 12, Ln. 116, Wugong 3rd Rd., Wugu Dist., New Taipei City, Taiwan.

CABID: TW1309

| Test site | Test Engineer | Remark |
|--------------------|---------------|---|
| AC Conduction Room | - | Not applicable, because EUT doesn't connect to AC Main Source direct. |
| Radiation | Tony Chao | - |

Remark: The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

1.6 INSTRUMENT CALIBRATION

| 3M 966A Chamber Test Site | | | | | |
|---------------------------|-------------------|-----------|--------------------|------------|------------|
| Equipment | Manufacturer | Model | S/N | Cal Date | Cal Due |
| Bi-Log Antenna | Sunol Sciences | JB3 | A030105 | 2022-08-03 | 2023-08-02 |
| Spectrum Analyzer | Agilent | E4446A | MY46180323 | 2021-12-06 | 2022-12-05 |
| Thermo-Hygro Meter | WISEWIND | 1206 | D07 | 2021-12-28 | 2022-12-27 |
| Loop Antenna | COM-POWER | AL-130 | 121051 | 2022-04-13 | 2023-04-12 |
| Preamplifier | EMEC | EM330 | 060609 | 2022-02-23 | 2023-02-22 |
| Preamplifier | HP | 8449B | 3008A00965 | 2021-12-24 | 2022-12-23 |
| Cable | Huber+Suhner | 104PEA | 20995+11112+182330 | 2022-02-23 | 2023-02-22 |
| Coaxial Cable | EMCI | EMC105 | 190914+33953 | 2022-06-15 | 2023-06-14 |
| Horn Antenna | ETC | MCTD 1209 | DRH13M02003 | 2022-01-25 | 2023-01-24 |
| Turn Table | CCS | CC-T-1F | N/A | N.C.R | N.C.R |
| Controller | CCS | CC-C-1F | N/A | N.C.R | N.C.R |
| Antenna Tower | CCS | CC-A-1F | N/A | N.C.R | N.C.R |
| Software | e3 6.11-20180419c | | | | |

Remark:

1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.

1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

There are no accessories and support equipment be used during the test.

| EUT Accessories Equipment | | | | | |
|---------------------------|-----------|-------|-------|------------|--------|
| No. | Equipment | Brand | Model | Series No. | FCC ID |
| | N/A | | | | |

| Support Equipment | | | | | |
|-------------------|-----------|-------|-------|------------|--------|
| No. | Equipment | Brand | Model | Series No. | FCC ID |
| | N/A | | | | |

1.8 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC 15.231, IC RSS-210, IC RSS-Gen Rules.

2. TEST SUMMARY

| FCC Standard Sec. | IC Standard Sec. | Chapter | Test Item | Result |
|-------------------|------------------|---------|----------------------------------|----------------|
| 15.207 | RSS-GEN Sec. 8.8 | 4.1 | AC Power-line Conducted Emission | Not applicable |
| 15.231(c) | RSS-210 A.1.3 | - | Emission Bandwidth | N/A |
| 15.231(b) | RSS-210 A.1.2 | - | Fundamental Emission | N/A |
| 15.209(b) | RSS-GEN Sec. 8.9 | 4.2 | Transmitter Radiated Emission | Pass |
| 15.231(a)(1) | RSS-210 A.1.2 | - | Operation Restriction | N/A |
| 15.203 | RSS-GEN Sec. 6.8 | 4.3 | Antenna Requirement | Pass |

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3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

| | |
|----------------|--------------------------------------|
| Operation mode | TX: 433.66 & 433.92MHz RX: 125kHz |
|----------------|--------------------------------------|

3.2 THE WORST MODE OF MEASUREMENT

| Radiated Emission Measurement Above 1G | |
|--|---|
| Test Condition | Radiated Emission Above 1G |
| Power supply Mode | Mode 1: EUT power by Battery |
| Worst Mode | <input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4 |
| Worst Position | <input type="checkbox"/> Placed in fixed position. <input checked="" type="checkbox"/> Placed in fixed position at X-Plane (E2-Plane) <input type="checkbox"/> Placed in fixed position at Y-Plane (E1-Plane) <input type="checkbox"/> Placed in fixed position at Z-Plane (H-Plane) |

| Radiated Emission Measurement Below 1G | |
|--|--|
| Test Condition | Radiated Emission Below 1G |
| Power supply Mode | Mode 1: EUT power by Battery |
| Worst Mode | <input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4 |

Remark:

1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(X-Plane) were recorded in this report

3.3 FCC PART 15.205 & RSS GEN SECTION 8.10 RESTRICTED BANDS OF OPERATIONS

According to FCC 15.205,

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz | MHz | MHz | GHz |
|----------------------------|---------------------|-----------------|------------------|
| 0.090 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| ¹ 0.495 - 0.505 | 16.69475 - 16.69525 | 608 - 614 | 5.35 - 5.46 |
| 2.1735 - 2.1905 | 16.80425 - 16.80475 | 960 - 1240 | 7.25 - 7.75 |
| 4.125 - 4.128 | 25.5 - 25.67 | 1300 - 1427 | 8.025 - 8.5 |
| 4.17725 - 4.17775 | 37.5 - 38.25 | 1435 - 1626.5 | 9.0 - 9.2 |
| 4.20725 - 4.20775 | 73 - 74.6 | 1645.5 - 1646.5 | 9.3 - 9.5 |
| 6.215 - 6.218 | 74.8 - 75.2 | 1660 - 1710 | 10.6 - 12.7 |
| 6.26775 - 6.26825 | 108 - 121.94 | 1718.8 - 1722.2 | 13.25 - 13.4 |
| 6.31175 - 6.31225 | 123 - 138 | 2200 - 2300 | 14.47 - 14.5 |
| 8.291 - 8.294 | 149.9 - 150.05 | 2310 - 2390 | 15.35 - 16.2 |
| 8.362 - 8.366 | 156.52475 - | 2483.5 - 2500 | 17.7 - 21.4 |
| 8.37625 - 8.38675 | 156.52525 | 2655 - 2900 | 22.01 - 23.12 |
| 8.41425 - 8.41475 | 156.7 - 156.9 | 3260 - 3267 | 23.6 - 24.0 |
| 12.29 - 12.293 | 162.0125 - 167.17 | 3332 - 3339 | 31.2 - 31.8 |
| 12.51975 - 12.52025 | 167.72 - 173.2 | 3345.8 - 3358 | 36.43 - 36.5 |
| 12.57675 - 12.57725 | 240 - 285 | 3600 - 4400 | (²) |
| 13.36 - 13.41 | 322 - 335.4 | | |

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

According to RSS-GEN section 8.10 Restricted bands of operation,

Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:

- (a) The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287, Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD).
- (b) Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.
- (c) Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.

| Table 7 – Restricted frequency bands ^{Note 1} | | |
|--|-----------------------|---------------|
| MHz | MHz | GHz |
| 0.090 - 0.110 | 149.9 - 150.05 | 9.0 - 9.2 |
| 0.495 - 0.505 | 156.52475 - 156.52525 | 9.3 - 9.5 |
| 2.1735 - 2.1905 | 156.7 - 156.9 | 10.6 - 12.7 |
| 3.020 - 3.026 | 162.0125 - 167.17 | 13.25 - 13.4 |
| 4.125 - 4.128 | 167.72 - 173.2 | 14.47 - 14.5 |
| 4.17725 - 4.17775 | 240 – 285 | 15.35 - 16.2 |
| 4.20725 - 4.20775 | 322 - 335.4 | 17.7 - 21.4 |
| 5.677 - 5.683 | 399.9 - 410 | 22.01 - 23.12 |
| 6.215 - 6.218 | 608 - 614 | 23.6 - 24.0 |
| 6.26775 - 6.26825 | 960 - 1427 | 31.2 - 31.8 |
| 6.31175 - 6.31225 | 1435 - 1626.5 | 36.43 - 36.5 |
| 8.291 - 8.294 | 1645.5 - 1646.5 | Above 38.6 |
| 8.362 - 8.366 | 1660 - 1710 | |
| 8.37625 - 8.38675 | 1718.8 - 1722.2 | |
| 8.41425 - 8.41475 | 2200 - 2300 | |
| 12.29 - 12.293 | 2310 - 2390 | |
| 12.51975 - 12.52025 | 2483.5 - 2500 | |
| 12.57675 - 12.57725 | 2655 - 2900 | |
| 13.36 - 13.41 | 3260 – 3267 | |
| 16.42 - 16.423 | 3332 - 3339 | |
| 16.69475 - 16.69525 | 3345.8 - 3358 | |
| 16.80425 - 16.80475 | 3500 - 4400 | |
| 25.5 - 25.67 | 4500 - 5150 | |
| 37.5 - 38.25 | 5350 - 5460 | |
| 73 - 74.6 | 7250 - 7750 | |
| 74.8 - 75.2 | 8025 – 8500 | |
| 108 – 138 | | |

Note 1: Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

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4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

According to §15.207(a), RSS-Gen Sec.8.8,

| Frequency Range (MHz) | Limits(dB μ V) | |
|-----------------------|--------------------|-----------|
| | Quasi-peak | Average |
| 0.15 to 0.50 | 66 to 56* | 56 to 46* |
| 0.50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |

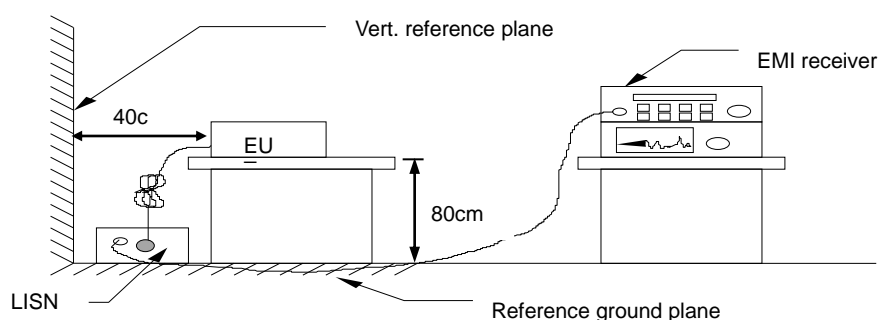
* Decreases with the logarithm of the frequency.

4.1.2 Test Procedure

Test method Refer as ANSI 63.10:2013 clause 6.2,

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete

4.1.3 Test Setup



4.1.4 Test Result

Not applicable, because EUT doesn't connect to AC Main Source direct.

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4.2 RADIATION UNWANTED EMISSION

4.2.1 Test Limit

According to §15.231(b) and §15.209, §15.205

Unwanted emissions limit follow the table or the FCC Part 15.209, whichever limit permits higher field strength.

According to §15.231(b)

| Fundamental frequency (MHz) | Field strength of fundamental (microvolts/meter) | Field strength of fundamental (microvolts/meter) |
|-----------------------------|--|--|
| 40.66-40.70 | 2,250 | 225 |
| 70-130 | 1,250 | 125 |
| 130-174 | ¹ 1,250 to 3,750 | ¹ 125 to 375 |
| 174-260 | 3,750 | 375 |
| 260-470 | ¹ 3,750 to 12,500 | ¹ 375 to 1,250 |
| Above 470 | 12,500 | 1,250 |

¹Linear interpolations.

According to RSS-210 A1.2 and RSS-GEN Sec. 8.9

Unwanted emissions shall comply with the general field strength limits specified in RSS-Gen or 10 times below the fundamental emissions field strength limit in table as below, whichever is less stringent.

According to RSS-210 A.1.4(d)

| Fundamental frequency (MHz) | Field strength of Spurious emission (uv/m) at 3m | Field strength of Spurious emission (dBuv/m) at 3m |
|-----------------------------|--|--|
| 40.66-40.70 | 225 | 47 |
| 70-130 | 125 | 41.9 |
| *130-174 | *125-375 | 41.9-51.5 |
| 174-260 | 375 | 51.5 |
| *260-470 | *375-1250 | 51.5-61.9 |
| Above 470 | 1250 | 61.9 |

¹Linear interpolations.

Below 30MHz

| Frequency (MHz) | Field Strength | | | | |
|-----------------|---------------------|-----------------------|------------------------------|-----------------------|------------------------------|
| | ($\mu\text{V/m}$) | (dB $\mu\text{V/m}$) | Measurement Distance (meter) | (dB $\mu\text{V/m}$) | Measurement Distance (meter) |
| 0.009 - 0.490 | 2400/F(kHz) | 48.52 – 13.80 | 300 | 128.52–104.84 | 3 |
| 0.490 - 1.705 | 24000/F(kHz) | 33.80 – 22.97 | 30 | 73.80– 62.97 | 3 |
| 1.705 – 30.0 | 30 | 29.54 | 30 | 69.54 | 3 |

Above 30MHz

| Frequency (MHz) | Field Strength | | Measurement Distance (meter) |
|-----------------|---------------------|-----------------------|------------------------------|
| | ($\mu\text{V/m}$) | (dB $\mu\text{V/m}$) | |
| 30-88 | 100 | 40.0 | 3 |
| 88-216 | 150 | 43.5 | 3 |
| 216-960 | 200 | 46.0 | 3 |
| Above 960 | 500 | 54.0 | 3 |

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4.2.2 Test Procedure

Test method Refer as ANSI 63.10:2013

| | |
|---|---|
| <input checked="" type="checkbox"/> Unwanted Emission | <input checked="" type="checkbox"/> clause 4.1.4.2.2: Measurement Peak value. <input type="checkbox"/> clause 4.1.4.2.3: Duty cycle \geq 100%. <input checked="" type="checkbox"/> clause 4.1.4.2.4: Measurement Average value. |
|---|---|

| | |
|---|--|
| <input checked="" type="checkbox"/> Radiated Emission | <input checked="" type="checkbox"/> clause 6.4: below 30 MHz and test distance is 3m. <input checked="" type="checkbox"/> clause 6.5: below 30 MHz -1 GHz and test distance is 3m. <input checked="" type="checkbox"/> clause 6.6: Above 30 MHz and test distance is 3m. |
|---|--|

1. The EUT is placed on a turntable, which is 0.8m for test below 1GHz and 1.5m for test above 1GHz, above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

Below 1GHz:

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz:

(a)PEAK: RBW=1MHz / VBW=3MHz / Sweep=AUTO

(b)AVERAGE: RBW=1MHz,

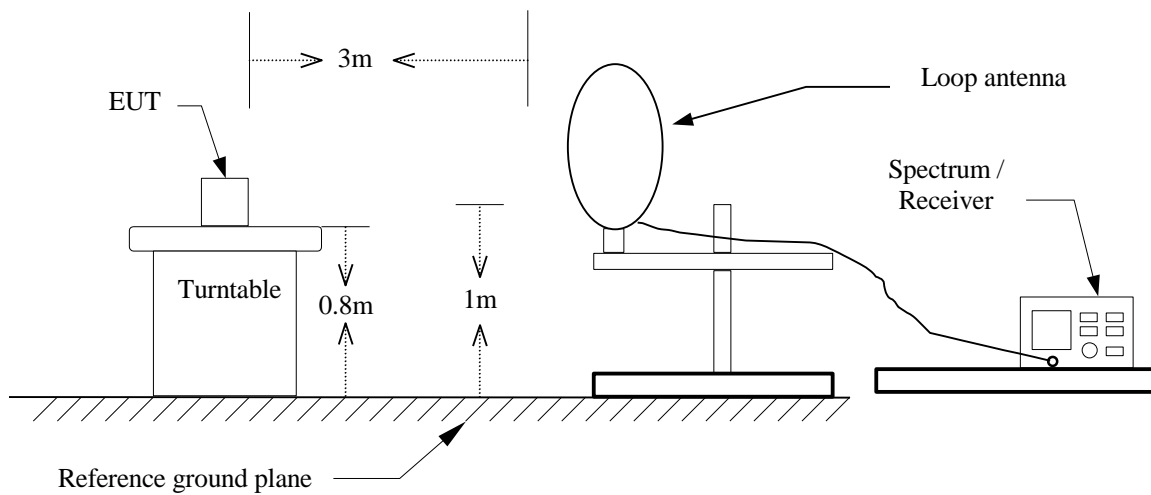
7. Repeat above procedures until the measurements for all frequencies are complete.

Remark.

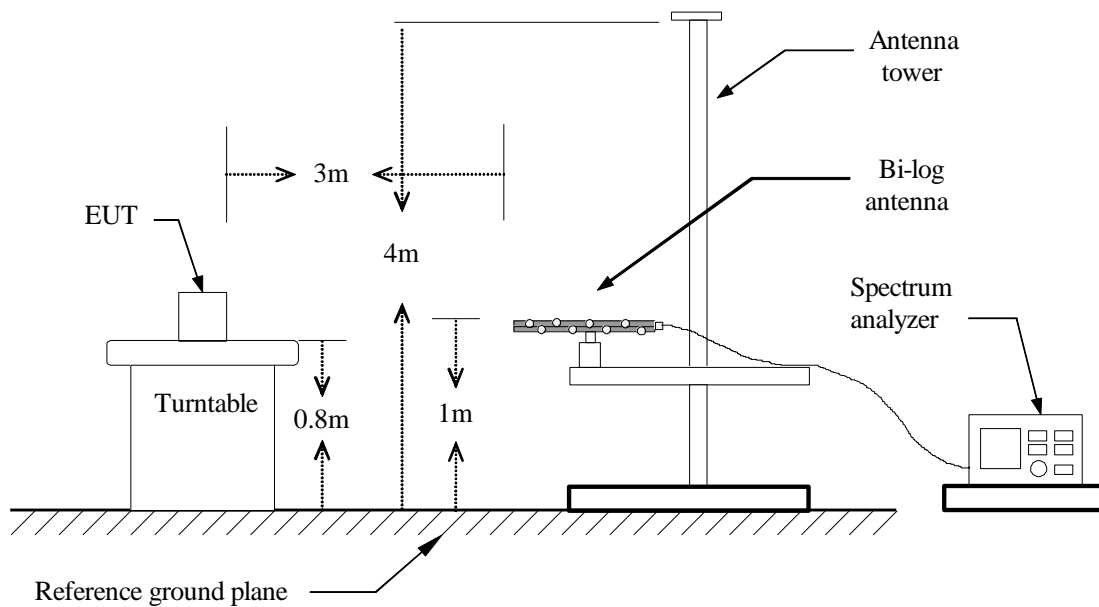
1. Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.
2. No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

4.2.3 Test Setup

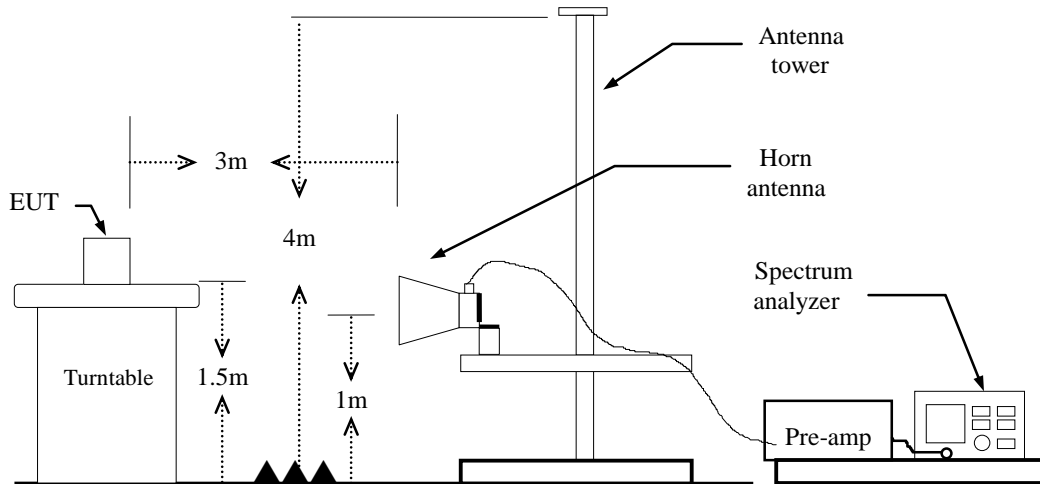
9kHz ~ 30MHz



30MHz ~ 1 GHz



Above 1 GHz



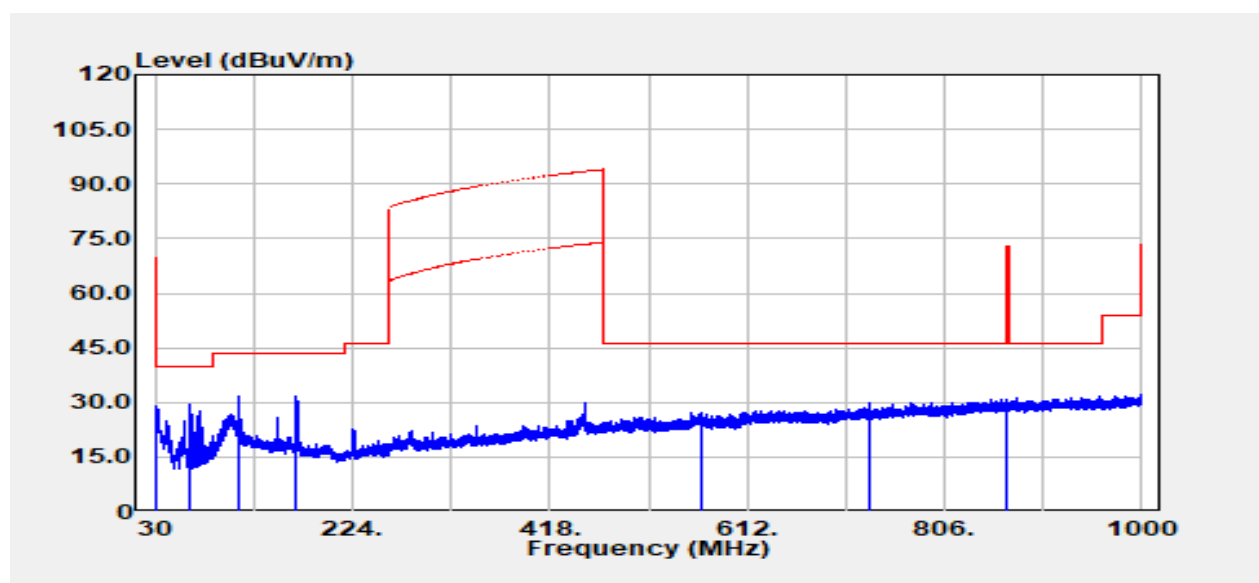
4.2.4 Test Result

Pass.

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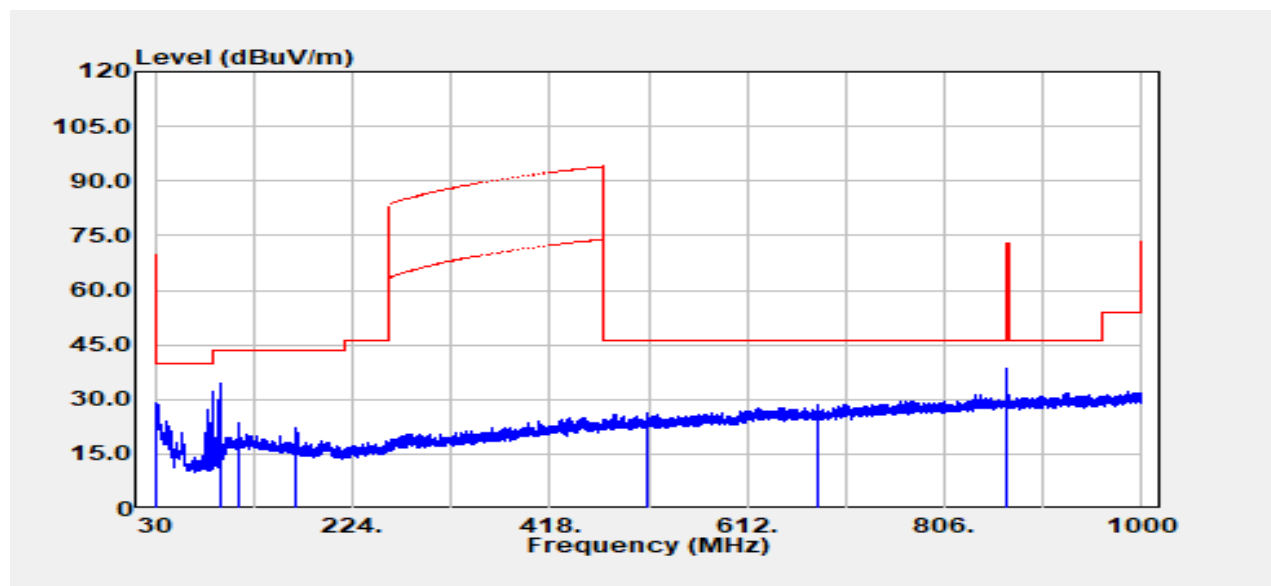
Below 1GHz

| | | | |
|------------|--------------|---------------|--------------------|
| Test Mode: | TX-433.66MHz | Temp/Hum | 23.7(°C)/ 63%RH |
| Test Item | Below 1GHz | Test Date | September 26, 2022 |
| Polarize | Vertical | Test Engineer | Tony Chao |
| Detector | Peak | | |



| Frequency (MHz) | Detector Mode (PK/QP/AV) | Spectrum Reading Level (dBuV) | Factor (dB) | Actual FS (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|--------------------------|-------------------------------|-------------|--------------------|----------------|-------------|
| 31.819 | Peak | 32.61 | -3.76 | 28.85 | 40.00 | -11.15 |
| 63.223 | Peak | 45.50 | -16.02 | 29.48 | 40.00 | -10.52 |
| 113.178 | Peak | 41.71 | -10.14 | 31.57 | 43.50 | -11.93 |
| 167.498 | Peak | 42.92 | -11.18 | 31.74 | 43.50 | -11.76 |
| 566.653 | Peak | 29.83 | -2.49 | 27.35 | 46.00 | -18.65 |
| 733.371 | Peak | 29.74 | 0.24 | 29.98 | 46.00 | -16.02 |
| 867.320 | Peak | 28.93 | 2.16 | 31.09 | 72.86 | -41.77 |

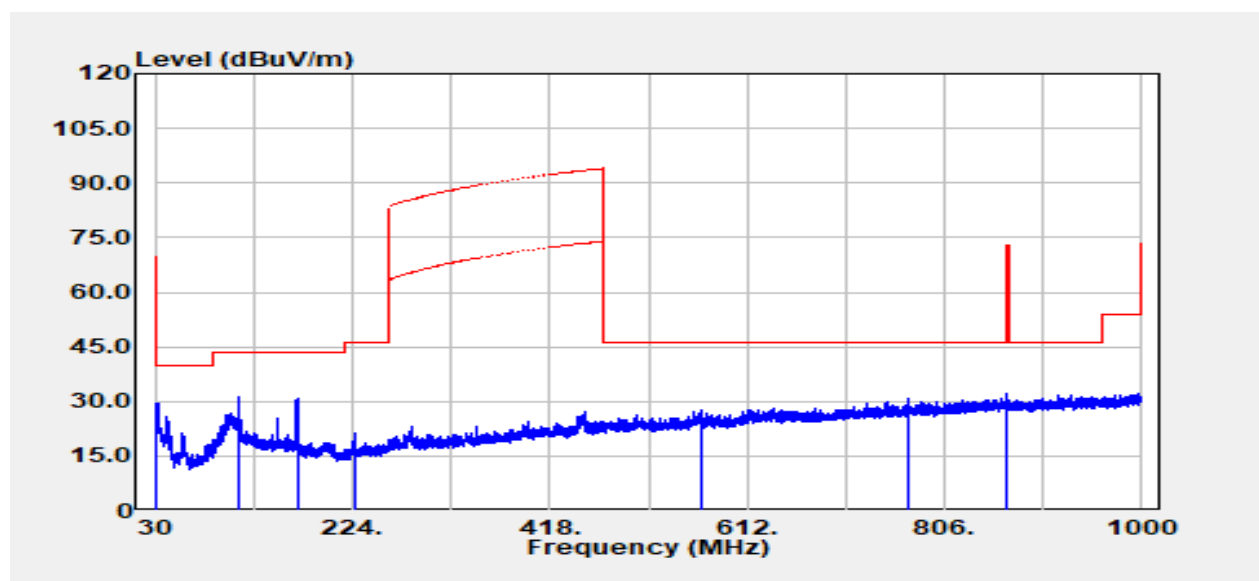
| | | | |
|------------|--------------|---------------|--------------------|
| Test Mode: | TX-433.66MHz | Temp/Hum | 23.7(°C)/ 63%RH |
| Test Item | Below 1GHz | Test Date | September 26, 2022 |
| Polarize | Horizontal | Test Engineer | Tony Chao |
| Detector | Peak | | |



| Frequency (MHz) | Detector Mode (PK/QP/AV) | Spectrum Reading Level (dBuV) | Factor (dB) | Actual FS (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|--------------------------|-------------------------------|-------------|--------------------|----------------|-------------|
| 32.183 | Peak | 32.69 | -3.89 | 28.80 | 40.00 | -11.20 |
| 93.414 | Peak | 49.15 | -14.85 | 34.30 | 43.50 | -9.20 |
| 113.178 | Peak | 33.68 | -10.14 | 23.54 | 43.50 | -19.96 |
| 167.376 | Peak | 33.15 | -11.18 | 21.97 | 43.50 | -21.53 |
| 512.696 | Peak | 29.99 | -3.68 | 26.31 | 46.00 | -19.69 |
| 682.689 | Peak | 29.41 | -0.80 | 28.60 | 46.00 | -17.40 |
| 867.320 | Peak | 36.14 | 2.16 | 38.31 | 72.86 | -34.55 |

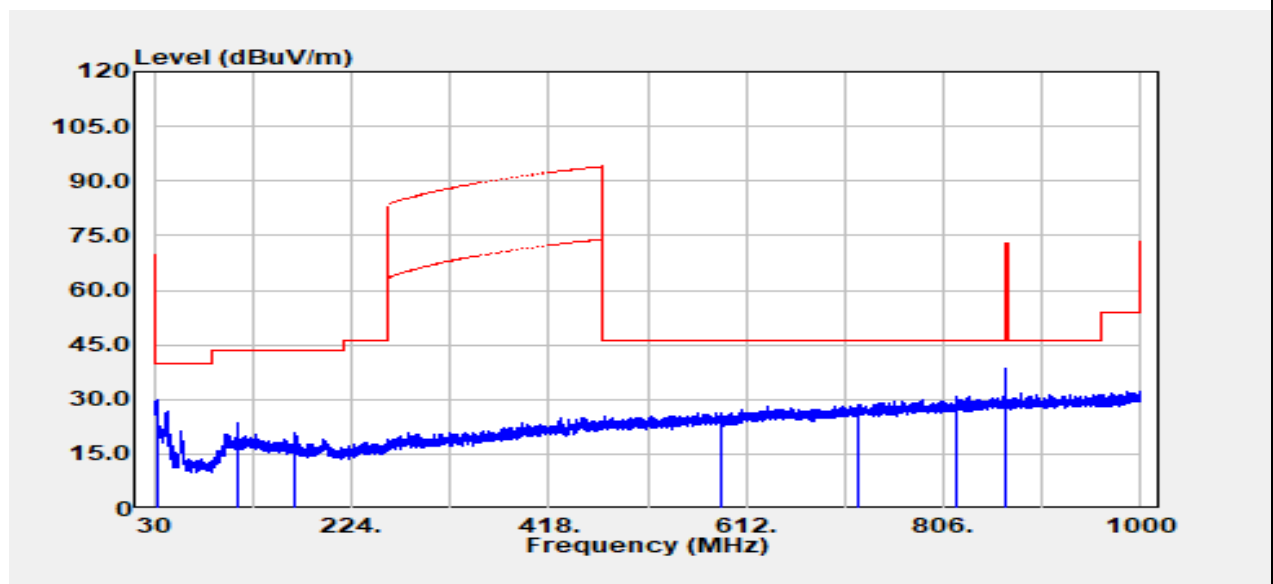
Report No.: TMWK2209003699KR

| | | | |
|------------|--------------|---------------|--------------------|
| Test Mode: | TX-433.92MHz | Temp/Hum | 23.7(°C)/ 63%RH |
| Test Item | Below 1GHz | Test Date | September 26, 2022 |
| Polarize | Vertical | Test Engineer | Tony Chao |
| Detector | Peak | | |



| Frequency (MHz) | Detector Mode (PK/QP/AV) | Spectrum Reading Level (dBuV) | Factor (dB) | Actual FS (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|--------------------------|-------------------------------|-------------|--------------------|----------------|-------------|
| 32.183 | Peak | 33.20 | -3.89 | 29.31 | 40.00 | -10.69 |
| 113.178 | Peak | 41.23 | -10.14 | 31.09 | 43.50 | -12.41 |
| 169.923 | Peak | 42.07 | -11.38 | 30.69 | 43.50 | -12.81 |
| 225.698 | Peak | 33.19 | -11.86 | 21.33 | 46.00 | -24.67 |
| 566.168 | Peak | 30.08 | -2.50 | 27.58 | 46.00 | -18.42 |
| 770.716 | Peak | 29.82 | 0.79 | 30.61 | 46.00 | -15.39 |
| 867.840 | Peak | 29.83 | 2.15 | 31.99 | 72.87 | -40.88 |

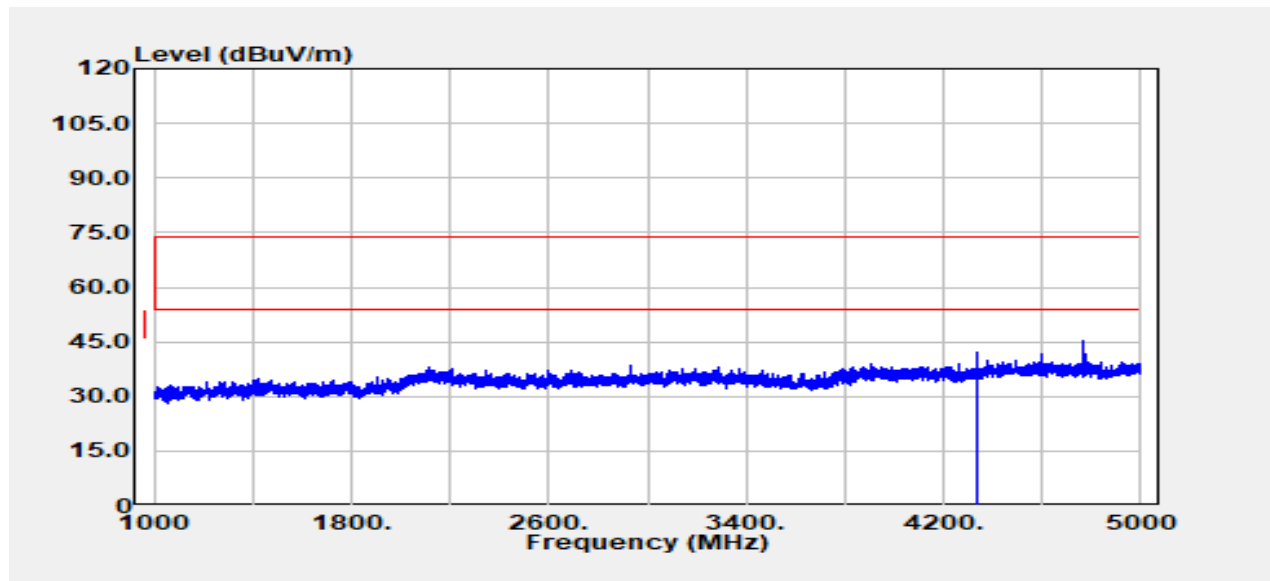
| | | | |
|------------|--------------|---------------|--------------------|
| Test Mode: | TX-433.92MHz | Temp/Hum | 23.7(°C)/ 63%RH |
| Test Item | Below 1GHz | Test Date | September 26, 2022 |
| Polarize | Horizontal | Test Engineer | Tony Chao |
| Detector | Peak | | |



| Frequency (MHz) | Detector Mode (PK/QP/AV) | Spectrum Reading Level (dBuV) | Factor (dB) | Actual FS (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|--------------------------|-------------------------------|-------------|--------------------|----------------|-------------|
| 32.425 | Peak | 34.04 | -4.11 | 29.94 | 40.00 | -10.06 |
| 113.178 | Peak | 33.83 | -10.14 | 23.69 | 43.50 | -19.81 |
| 167.376 | Peak | 32.16 | -11.18 | 20.98 | 43.50 | -22.52 |
| 587.508 | Peak | 29.02 | -2.60 | 26.42 | 46.00 | -19.58 |
| 721.004 | Peak | 28.59 | -0.05 | 28.55 | 46.00 | -17.45 |
| 817.883 | Peak | 29.24 | 1.47 | 30.71 | 46.00 | -15.29 |
| 867.840 | Peak | 36.53 | 2.15 | 38.68 | 72.87 | -34.19 |

Above 1GHz

| | | | |
|------------|--------------|---------------|--------------------|
| Test Mode: | TX-433.66MHz | Temp/Hum | 23.7(°C)/ 63%RH |
| Test Item | Above 1GHz | Test Date | September 26, 2022 |
| Polarize | Vertical | Test Engineer | Tony Chao |
| Detector | Peak | | |

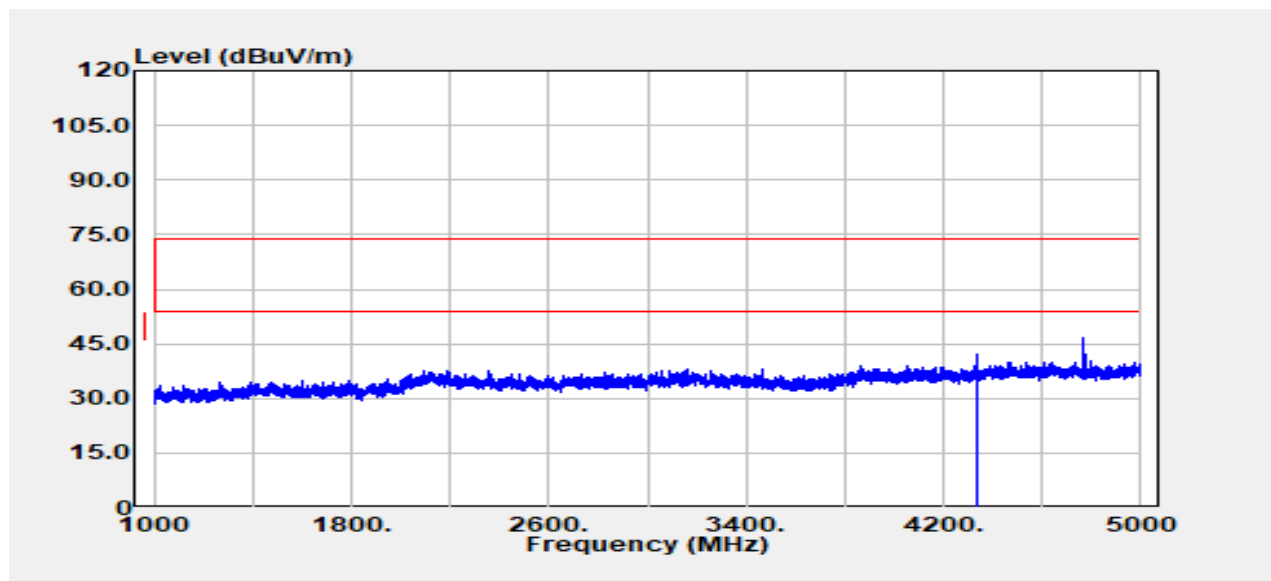


| Frequency (MHz) | Detector Mode (PK/QP/AV) | Spectrum Reading Level (dBuV) | Factor (dB) | Actual FS (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|--------------------------|-------------------------------|-------------|--------------------|----------------|-------------|
| 4336.600 | Peak | 37.68 | 4.66 | 42.34 | 74.00 | -31.66 |
| 4336.600 | Average | - | -20.09 | 22.25 | 54.00 | -31.75 |
| N/A | | | | | | |
| | | | | | | |
| | | | | | | |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

| | | | |
|------------|--------------|---------------|--------------------|
| Test Mode: | TX-433.66MHz | Temp/Hum | 23.7(°C)/ 63%RH |
| Test Item | Above 1GHz | Test Date | September 26, 2022 |
| Polarize | Horizontal | Test Engineer | Tony Chao |
| Detector | Peak | | |

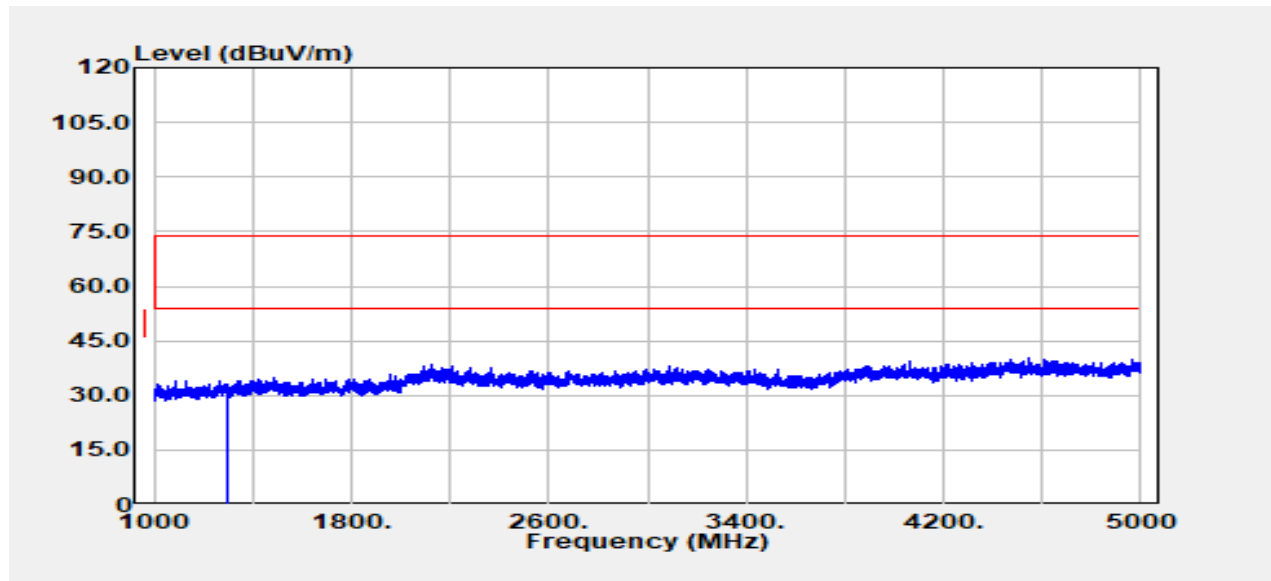


| Frequency (MHz) | Detector Mode (PK/QP/AV) | Spectrum Reading Level (dBUV) | Factor (dB) | Actual FS (dBUV/m) | Limit (dBUV/m) | Margin (dB) |
|-----------------|--------------------------|-------------------------------|-------------|--------------------|----------------|-------------|
| 4336.600 | Peak | 37.50 | 4.66 | 42.16 | 74.00 | -31.84 |
| 4336.600 | Average | - | -20.09 | 22.07 | 54.00 | -31.93 |
| N/A | | | | | | |
| | | | | | | |
| | | | | | | |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

| | | | |
|------------|--------------|---------------|--------------------|
| Test Mode: | TX-433.92MHz | Temp/Hum | 23.7(°C)/ 63%RH |
| Test Item | Above 1GHz | Test Date | September 26, 2022 |
| Polarize | Vertical | Test Engineer | Tony Chao |
| Detector | Peak | | |



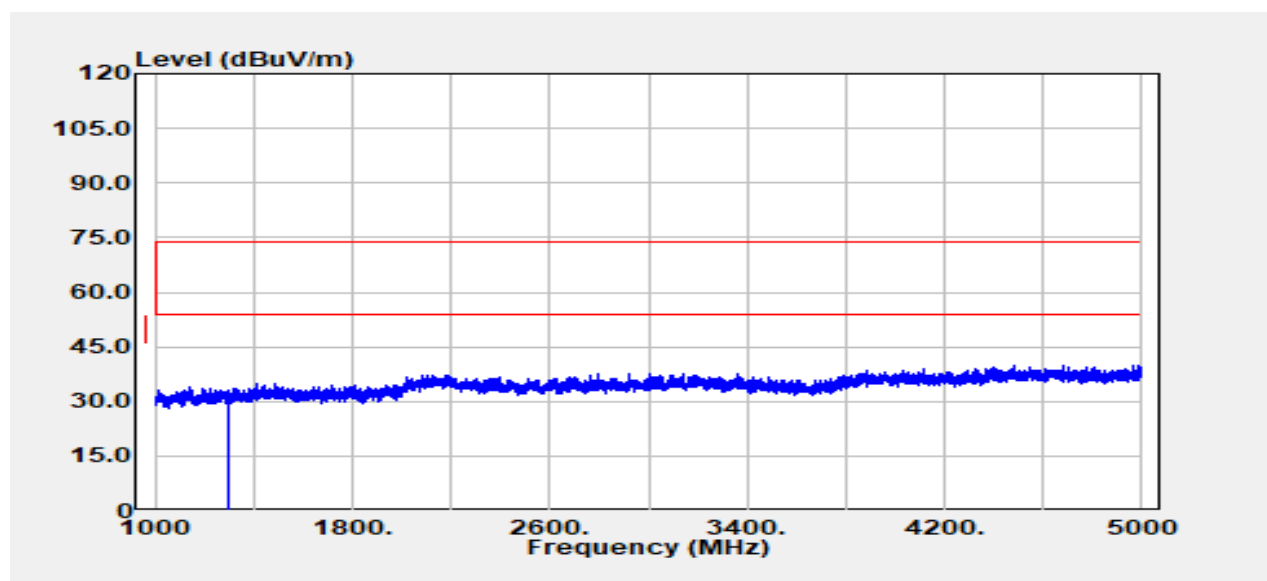
| Frequency (MHz) | Detector Mode (PK/QP/AV) | Spectrum Reading Level (dBUV) | Factor (dB) | Actual FS (dBUV/m) | Limit (dBUV/m) | Margin (dB) |
|-----------------|--------------------------|-------------------------------|-------------|--------------------|----------------|-------------|
| 1301.760 | Peak | 39.32 | -6.32 | 33.00 | 74.00 | -41.00 |
| 1301.760 | Average | - | -18.13 | 14.87 | 54.00 | -39.13 |
| N/A | | | | | | |
| | | | | | | |
| | | | | | | |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Report No.: TMWK2209003699KR

| | | | |
|------------|--------------|---------------|--------------------|
| Test Mode: | TX-433.92MHz | Temp/Hum | 23.7(°C)/ 63%RH |
| Test Item | Above 1GHz | Test Date | September 26, 2022 |
| Polarize | Horizontal | Test Engineer | Tony Chao |
| Detector | Peak | | |



| Frequency (MHz) | Detector Mode (PK/QP/AV) | Spectrum Reading Level (dBuV) | Factor (dB) | Actual FS (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|--------------------------|-------------------------------|-------------|--------------------|----------------|-------------|
| 1301.760 | Peak | 39.63 | -6.32 | 33.31 | 74.00 | -40.69 |
| 1301.760 | Average | - | -18.13 | 15.18 | 54.00 | -38.82 |
| N/A | | | | | | |
| | | | | | | |
| | | | | | | |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Report No.: TMWK2209003699KR

4.3 ANTENNA REQUIREMENT

§ 15.203 Antenna requirement.

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

| | |
|---------------------|--|
| Antenna Type | TX: Bult-in loop antenna RX: Coil Antenna |
| Antenna Gain | TX: -12.87 dBi RX: 0 dBi |

Remark:

1.The antenna(s) of the EUT are permanently attached and there are no provisions for connection to an external antenna. So the EUT complies with the requirements of §15.203 and RSS-Gen 6.8.

- End of Test Report -