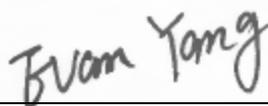


Japan Radio Test Report

Project No. : 2304C095
Equipment : VR Controller
Brand Name : RAZER
Test Model : RZ06-05010R
Series Model : N/A
Applicant : Razer Inc.
Address : 9 Pasteur, Suite 100, Irvine, CA92618, USA
Manufacturer : Razer (Asia-Pacific) Pte.,Ltd.
Address : 1 one-north Crescent, #02-01 Singapore 138538
Factory : RAZER TECHNOLOGY AND DEVELOPMENT (SHENZHEN)CO., LTD
Address : East Wing, 3rd Floor, Block 2, Phase 1 of Vision Shenzhen Business Park Keji South Road, Hi-Tech Industrial Park, Shenzhen 518057, China
Date of Receipt : May 23, 2023
Date of Test : May 24, 2023 ~ Jun. 07, 2023
Issued Date : Jul. 14, 2023
Report Version : R00
Test Sample : Sample No.: DG2023052395
Standard(s) : Ordinance Regulating Radio Equipment General Provisions, Transmitting Equipment, Receiving Equipment, Article 49-20
Test Procedure : Test Method Specified Radio Equipment Article 2 Paragraph 1 of item19

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

Prepared by :



Evan Yang

Approved by :



Ethan Ma

No.3, Jinshagang 1st Road, Dalang, Dongguan, Guangdong, China.

Tel: +86-769-8318-3000 Web: www.newbtl.com Service mail: btl_qa@newbtl.com

Declaration

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

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

The report must not be used by the client to claim product certification, approval, or endorsement by CNAS or any other agency.

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

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

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

Limitation

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

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

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REPORT ISSUED HISTORY

| Report No. | Version | Description | Issued Date | Note |
|---------------------|---------|------------------|---------------|-------|
| BTL-JPAP-1-2304C095 | R00 | Original Report. | Jul. 14, 2023 | Valid |

1. SUMMARY OF TEST RESULTS

| Part | Description of Test | Rule Section | Result |
|------|--|---|--------|
| 3.1 | Frequency Tolerance | Article 5, Table 1 | Pass |
| 3.2 | Occupied Bandwidth (99%) | Article 6, Table 2 | Pass |
| 3.3 | Unwanted Emission Intensity | Article 7, Table 3 | Pass |
| 3.4 | Antenna Power Tolerance | Article 14 | Pass |
| 3.5 | Limitation of Collateral Emission of Receiver | Article 24, Paragraph 2 | Pass |
| 3.6 | Transmission Antenna Gain (EIRP Antenna Power) | Article 49-20, Item 1-e & 1-f | Pass |
| 3.7 | Transmission Radiation Angle Width (3dB Beamwidth) | Article 49-20, Item 1-f | N/A |
| 3.8 | Radio Interference Prevention Capability | Article 9-4, Item 9-C Article 6-2, Item 3 of the Regulation for Enforcement of the Radio Law | Good |
| 3.9 | Construction Protection Confirmation | Article 49-20, Item1-a | Pass |

| | |
|------------------------|---|
| Method of measurement: | MIC Notice No.88 Appendix No.43 |
| Test condition: | Conductive, RF test program provided by the customer was used to control the operating channel as well as the output power level. |

Abbreviations used in this test report are as follows:

| | |
|-------|--|
| NC: | Normal Condition |
| EC: | Extreme Condition |
| EUT: | Equipment Under Test |
| DS: | Direct spreading |
| FH: | Frequency hopping |
| OFDM: | Orthogonal frequency division multiplexing |

1.1. TEST FACILITY

The test facilities used to collect the test data in this report:

TR13/TR15: No.3, Jinshagang 1st Road, Dalang, Dongguan, Guangdong, China.

1.2. MEASUREMENT UNCERTAINTY

| Test Items | Uncertainty | Remark |
|-------------------------------------|---------------------------|--------------------------|
| Frequency Tolerance / 99% Bandwidth | $\pm 6.25 \times 10^{-7}$ | Confidence levels of 95% |
| Antenna Power / TX-RX Emission | $\pm 0.5\text{dB}$ | Confidence levels of 95% |
| Transmission Antenna Gain | $\pm 3.72\text{dB}$ | Confidence levels of 95% |

1.3. TEST ENVIRONMENT CONDITIONS

| Test Item | Temperature | Humidity | Test Voltage | Tested By |
|---|-------------|----------|--------------|-------------|
| Frequency Tolerance | 24~25°C | 50~57% | DC 5V | Willem Li |
| Occupied Bandwidth (99%) | 24~25°C | 50~57% | DC 5V | Willem Li |
| Unwanted Emission Intensity | 24~25°C | 50~57% | DC 5V | Willem Li |
| Antenna Power Tolerance | 23°C | 57% | DC 5V | Complex Qin |
| Limitation of Collateral Emission of Receiver | 24~25°C | 50~57% | DC 5V | Willem Li |

2. GENERAL INFORMATION

2.1. GENERAL DESCRIPTION OF EUT

| | |
|---|---|
| Equipment | VR Controller |
| Brand Name | RAZER |
| Test Model | RZ06-05010R |
| Series Model | N/A |
| Model Difference(s) | N/A |
| Hardware Version | EVT |
| Software Version | V0.00.08.01 |
| Power Source | 1# Supplied from USB port. 2# Supplied from battery. |
| Power Rating | 1# 5V $\overline{\text{---}}$ 1.2A 2# DC 3.7V 1600mAh 5.92Wh |
| Operation Frequency | 2402MHz ~ 2480MHz |
| Data Rate | 2Mbps |
| Modulation Type | GFSK |
| Occupied Bandwidth | 2Mbps: 2.18 MHz |
| Antenna Power (Rated Power) | 2Mbps: 2.70 mW |
| Antenna Power (Max. Conducted Power) | 2Mbps: 2.6002 mW |

Note:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- The system model number is RZ06-0501. this system consists of left controller (Model: RZ06-05010L) and right controller (Model:RZ06-05010R).

3. Channel List:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|---------|-----------------|
| 00 | 2402 | 27 | 2429 | 54 | 2456 |
| 01 | 2403 | 28 | 2430 | 55 | 2457 |
| 02 | 2404 | 29 | 2431 | 56 | 2458 |
| 03 | 2405 | 30 | 2432 | 57 | 2459 |
| 04 | 2406 | 31 | 2433 | 58 | 2460 |
| 05 | 2407 | 32 | 2434 | 59 | 2461 |
| 06 | 2408 | 33 | 2435 | 60 | 2462 |
| 07 | 2409 | 34 | 2436 | 61 | 2463 |
| 08 | 2410 | 35 | 2437 | 62 | 2464 |
| 09 | 2411 | 36 | 2438 | 63 | 2465 |
| 10 | 2412 | 37 | 2439 | 64 | 2466 |
| 11 | 2413 | 38 | 2440 | 65 | 2467 |
| 12 | 2414 | 39 | 2441 | 66 | 2468 |
| 13 | 2415 | 40 | 2442 | 67 | 2469 |
| 14 | 2416 | 41 | 2443 | 68 | 2470 |
| 15 | 2417 | 42 | 2444 | 69 | 2471 |
| 16 | 2418 | 43 | 2445 | 70 | 2472 |
| 17 | 2419 | 44 | 2446 | 71 | 2473 |
| 18 | 2420 | 45 | 2447 | 72 | 2474 |
| 19 | 2421 | 46 | 2448 | 73 | 2475 |
| 20 | 2422 | 47 | 2449 | 74 | 2476 |
| 21 | 2423 | 48 | 2450 | 75 | 2477 |
| 22 | 2424 | 49 | 2451 | 76 | 2478 |
| 23 | 2425 | 50 | 2452 | 77 | 2479 |
| 24 | 2426 | 51 | 2453 | 78 | 2480 |
| 25 | 2427 | 52 | 2454 | | |
| 26 | 2428 | 53 | 2455 | | |

4. Table for Filed Antenna:

| Ant. | Brand | Model Name | Antenna Type | Connector | Gain (dBi) |
|------|--------------|------------|--------------|-----------|------------|
| 1 | INPAQ | N/A | PIFA | N/A | 2.72 |

Note: The antenna gain is provided by the manufacturer.

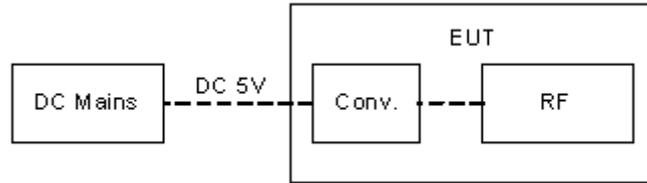
2.2. DESCRIPTION OF TEST MODES

The EUT was tested while in a continuous transmitter / receiver mode.

The EUT was tuned to a low, middle and high channel for all tests. The EUT continuously transmitted a modulated packet with payload, while transmitting the EUT was setup to operate at the intended maximum power output available to the end user. For all test case pre/scans were completed in all modes to determine worst case levels.

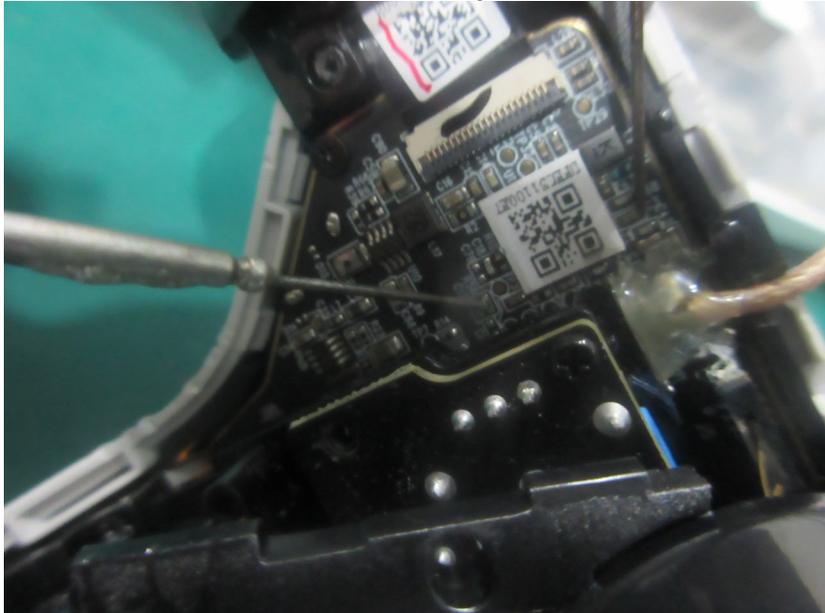
| Test Mode | Description |
|-----------|------------------------|
| Mode 1 | 2Mbps/CH00, CH39, CH78 |

Power Supply Voltage Fluctuation Test



| Voltage Fluctuation Test | Normal Voltage | High Voltage + 10% of Normal Voltage | Low Voltage - 10% of Normal Voltage |
|--------------------------|----------------|--------------------------------------|-------------------------------------|
| Input: DC Power | 5V | 5.5V | 4.5V |
| Output: DC Power | 2.710V | 2.710V | 2.710V |
| Voltage Variation (%) | -- | 0.0 | 0.0 |

Measurement point



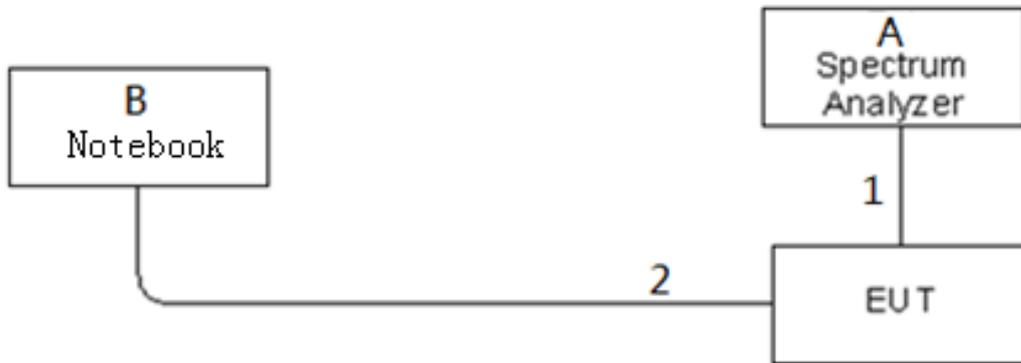
Note:

$$\text{Voltage Variation (\%)} = (\text{Output High Voltage or Low Voltage} - \text{Output Normal Voltage}) / \text{Output Normal Voltage} * 100$$

During the input supply voltage to the EUT from the external power source is varied by +/- 10%, if output voltage had been confirmed that the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than +/- 1%.

Exempt extremely high and low supply voltage condition tests, EUT only operated in normal voltage to test all regulations.

2.3. BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.4. DESCRIPTION OF SUPPORT UNITS

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

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. |
|------|-------------------|-----------|----------------|------------|
| A | Spectrum Analyzer | R&S | FSP40 | 100185 |
| B | Notebook | DELL | N/A | N/A |

| Item | Cable Type | Shielded Type | Ferrite Core | Length |
|------|---------------|---------------|--------------|--------|
| 1 | RF Cable | YES | NO | 0.1m |
| 2 | Control Cable | NO | NO | 1.8m |

2.5. TABLE FOR PARAMETERS OF TEST SOFTWARE SETTING

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level.

| Test Software Version | FCCMTKTest_V1.0.0.0 | | |
|-----------------------|---------------------|------|------|
| Frequency (MHz) | 2402 | 2441 | 2480 |
| 2Mbps | 4 | 4 | 4 |

3. TEST RESULTS

3.1. FREQUENCY TOLERANCE MEASUREMENT

3.1.1. LIMIT

| Item | Limits (See Article 5, Table1 of the Ordinance Regulating Radio Equipment) |
|---------------------|---|
| Frequency Tolerance | -50≤ppm≤50 |

3.1.2. SETTING

The following table is the setting of the spectrum analyzer.

| Spectrum Parameter | Setting |
|--------------------|---------------|
| Span | 200kHz |
| RBW / VBW | 10kHz / 10kHz |
| Detector | Peak |
| Trace | Max Hold |
| Sweep Time | Auto |

3.1.3. TEST PROCEDURES

Test method according to Claus 3 of Annex No.43 of MIC Notification No.88.

1. Frequency accuracy of SA shall be less than 10% of limits tolerance (5ppm).
2. Set spectrum analyzer with condition in section 3.1.2 and tune reference level to observe receiving signal position.
3. Center Frequency: The center frequency of testing for EUT.
4. EUT have transmitted absence of modulation signal and fixed channelize. f is using the mark cursor to mark the peak frequency value · fc is declaring of channel frequency.
Then the frequency error formula is $(f_c - f) / f_c \times 10^6$ ppm and the limit is less than ± 50 ppm.

3.1.4. TEST SETUP LAYOUT



3.1.5. TEST DEVIATION

There is no deviation with the original standard.

3.1.6. EUT OPERATION DURING TEST

The EUT was programmed to be in un-modulation mode.

3.1.7. TEST RESULTS

Please refer to the Appendix A.

3.2. OCCUPIED BANDWIDTH MEASUREMENT

3.2.1. LIMIT

| Item | Limits (See Article 6, Table2 and Article 49-20, Item1-h,i of the Ordinance Regulating Radio Equipment) |
|--------------------|--|
| Occupied Bandwidth | FHSS \leq 83.5MHz; OFDM, DSSS \leq 26MHz; Others \leq 26MHz |

3.2.2. SETTING

The following table is the setting of spectrum analyzer.

| Spectrum Parameter | Setting |
|--------------------|-----------------|
| Span | 2Mbps: 4MHz |
| RBW / VBW | 300kHz / 300kHz |
| Detector | Peak |
| Trace | Max Hold |
| Sweep Time | Auto |

3.2.3. TEST PROCEDURES

Test method according to Clause 4 of Annex No.43 of MIC Notification No.88.

1. Set spectrum analyzer with condition in section 3.2.2 and tune reference level to observe receiving signal position.
2. EUT have transmitted the maximum modulation signal and fixed channelize
(For DSSS or OFDM Device) or continuous maximum power of hopping mode(For FHSS Device).
SA set to 99% of occupied bandwidth to measure occupied bandwidth. The limit is less than 26MHz
(For DSSS or OFDM Device) or 83.5MHz(For FHSS Device).

3.2.4. TEST SETUP LAYOUT



3.2.5. TEST DEVIATION

There is no deviation with the original standard.

3.2.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

3.2.7. TEST RESULTS

Please refer to the Appendix B.

3.3. UNWANTED EMISSION INTENSITY MEASUREMENT

3.3.1. LIMIT

| Item | Limits (See Article 7, Table 3 of the Ordinance Regulating Radio Equipment) |
|--|--|
| TX | $\leq 0.25 \mu\text{W}/100\text{kHz}$ ($30\text{MHz} \leq f \leq 1000\text{MHz}$) |
| Spurious | $\leq 2.5 \mu\text{W}/\text{MHz}$ ($1000\text{MHz} \leq f < 2387\text{MHz}$; $2496.5\text{MHz} < f$) |
| Emission | $\leq 25 \mu\text{W}/\text{MHz}$ ($2387\text{MHz} \leq f < 2400\text{MHz}$) and ($2483.5\text{MHz} < f \leq 2496.5\text{MHz}$) |
| Measurement range: 30MHz~5th harmonics | |

3.3.2. SETTING

The following table is the setting of spectrum analyzer.

| Spectrum Parameter | Setting |
|--------------------|--|
| RBW / VBW | 100kHz / 100kHz (30~1000MHz) 1 MHz / 1 MHz (Above1000MHz) |
| Detector | Peak |
| Trace | Max Hold |
| Sweep Time | Auto |

3.3.3. TEST PROCEDURES

Test method according to Clause 5 of Annex No.43 of MIC Notification No.88.

1. EUT have transmitted the maximum modulation signal and fixed channelize.
2. Set spectrum analyzer with condition in section 3.3.2 and tune reference level to observe receiving signal position.
3. SA adjusted to start frequency 30MHz and stop frequency 1000MHz. Then to mark peak reading value + cable loss shall be less than $0.25\mu\text{W}/100\text{kHz}$.
4. SA adjusted to start frequency 1000MHz and stop frequency 2387MHz. Then to mark peak reading value + cable loss shall be less than $2.5\mu\text{W}/\text{MHz}$.
5. SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than $25\mu\text{W}/\text{MHz}$.
6. SA adjusted to start frequency 2483.5MHz and stop frequency 2496.5MHz. Then to mark peak reading value + cable loss shall be less than $25\mu\text{W}/\text{MHz}$.
7. SA adjusted to start frequency 2496.5MHz and stop frequency 12500MHz. Then to mark peak reading value + cable loss shall be less than $2.5\mu\text{W}/\text{MHz}$.
8. If the Result_Value is over the requirement, take total sum of 1MHz band centered at the spur frequency like time domain power measurement as Result_Value.

3.3.4. TEST SETUP LAYOUT



3.3.5. TEST DEVIATION

There is no deviation with the original standard.

3.3.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

Note:

- ※ 1: Frequency Band 1 (30MHz≤f≤1000MHz)
- ※ 2: Frequency Band 2 (1000MHz≤f<2387MHz)
- ※ 3: Frequency Band 3 (2387MHz≤f<2400MHz)
- ※ 4: Frequency Band 4 (2483.5MHz<f≤2496.5MHz)
- ※ 5: Frequency Band 5 (2496.5MHz<f)

| Band | 1 | 2 | 3 | 4 | 5 |
|----------------|------|------|------|------|------|
| Cable Loss(dB) | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 |

3.3.7 TEST RESULTS

Please refer to the Appendix C.

3.4. ANTENNA POWER TOLERANCE MEASUREMENT

3.4.1. LIMIT

| Item | Limits (See Article 14 and 49-20 Item1-e of the Ordinance Regulating Radio Equipment) |
|-------------------------|--|
| Antenna Power Density | $\leq 3\text{mW/MHz}$ (FHSS 2427~2470.75MHz) $\leq 10\text{mW/MHz}$ (OFDM, DSSS 2400~2483.5MHz) $\leq 10\text{mW}$ (Others 2400~2483.5MHz) |
| Antenna Power Tolerance | $+20\%$, -80% (Base on manufacturer declare antenna power) |

3.4.2. TEST PROCEDURES

Test method according to Clause 6 of Annex No.43 of MIC Notification No.88.

1. Connect the high frequency power meter to the attenuator and measure the total power.
2. Set the antenna power as follows:
 - a. Continuous waves: value in a.
 - b. Burst waves: value in a, and value calculated from the average power within bursts from rates of transmission times.

3.4.3. TEST SETUP LAYOUT



3.4.4. TEST DEVIATION

There is no deviation with the original standard.

3.4.5. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

3.4.6. TEST RESULTS

Please refer to the Appendix D.

3.5. LIMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT

3.5.1. LIMIT

| Item | Limits (See Article 24, Paragraph 2 of the Ordinance Regulating Radio Equipment) |
|--|---|
| RX Spurious Emission | ≤ 4 nW (-54 dBm) ($f < 1$ GHz) |
| | ≤ 20 nW (-47 dBm) ($1\text{GHz} \leq f$) |
| Measurement range: 30MHz~5th harmonics | |

3.5.2. SETTING

The following table is the setting of spectrum analyzer.

| Spectrum Parameter | Setting |
|--------------------|--|
| RBW / VBW | 100kHz / 100kHz (30~1000MHz) 1 MHz / 1 MHz (Above1000MHz) |
| Detector | Peak |
| Trace | Max Hold |
| Sweep Time | Auto |

3.5.3. TEST PROCEDURES

Test method according to Clause 7 of Annex No.43 of MIC Notification No.88.

1. EUT have the continuous reception mode and fixed only one channelize.
2. Set spectrum analyzer with condition in section 3.5.2 and tune reference level to observe receiving signal position.
3. SA set RBW: 100kHz and VBW: 100kHz. Then adjust to start frequency 30MHz and stop frequency 1000MHz. Search to mark peak reading value + cable loss shall be less than 4nW.
4. SA set RBW: 1MHz and VBW: 1MHz. Then adjust to start frequency 1000MHz and stop frequency 12500MHz. Search to mark peak reading value + cable loss shall be less than 20nW.
5. If power level of lower emissions are more than 1/10 of limit (0.4nW for $f < 1$ GHz, 2nW for $f \geq 1$ GHz), all those are to be indicated in the 2nd and 3rd lines. If others are 1/10 or less more of the limit, no necessary to be indicated.

3.5.4. TEST SETUP LAYOUT



3.5.6. TEST DEVIATION

There is no deviation with the original standard.

3.5.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously receiving mode.

Note:

- ※ 6: Frequency Band 6 ($f < 1\text{GHz}$)
- ※ 7: Frequency Band 7 ($1\text{GHz} \leq f$)

| Band | 6 | 7 |
|----------------|-----|-----|
| Cable Loss(dB) | 1.5 | 1.5 |

3.5.7. TEST RESULTS

Please refer to the Appendix E.

3.6. TRANSMISSION ANTENNA GAIN (EIRP ANTENNA POWER) MEASUREMENT

3.6.1. LIMIT

| Item | Limits (See Article 49-20, Item1-f of the Ordinance Regulating Radio Equipment) | |
|-----------------------|--|---|
| EIRP Power Density | <input checked="" type="checkbox"/> | For an Omni-directional antenna: ≤6.91dBm/MHz (FHSS 2427~2470.75MHz) ≤12.14dBm/MHz (OFDM, DSSS 2400~2483.5MHz) (20MHz systems) ≤12.14dBm/MHz (Others 2400~2483.5MHz) |
| | <input type="checkbox"/> | For a directional antenna: ≤16.91dBm/MHz (FHSS 2427~2470.75MHz) ≤22.14dBm/MHz (OFDM, DSSS 2400~2483.5MHz) (20MHz systems) ≤22.14dBm/MHz (Others 2400~2483.5MHz) |

3.6.2. SETTING

The following table is the setting of spectrum analyzer.

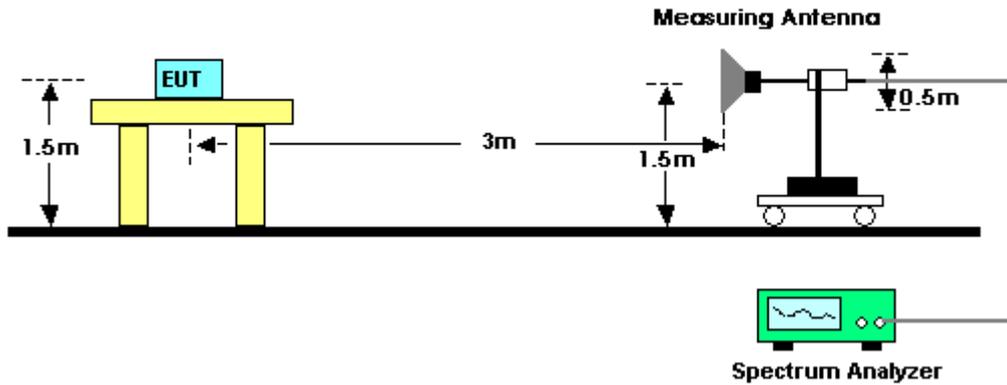
| Spectrum Analyzer | Setting |
|-------------------|---------------|
| Span | 2Mbps: 4MHz |
| RBW | 1MHz |
| VBW | 3MHz |
| Detector | Positive peak |
| Trace | Max Hold |
| Sweep Time | 60s |

3.6.3. TEST PROCEDURES

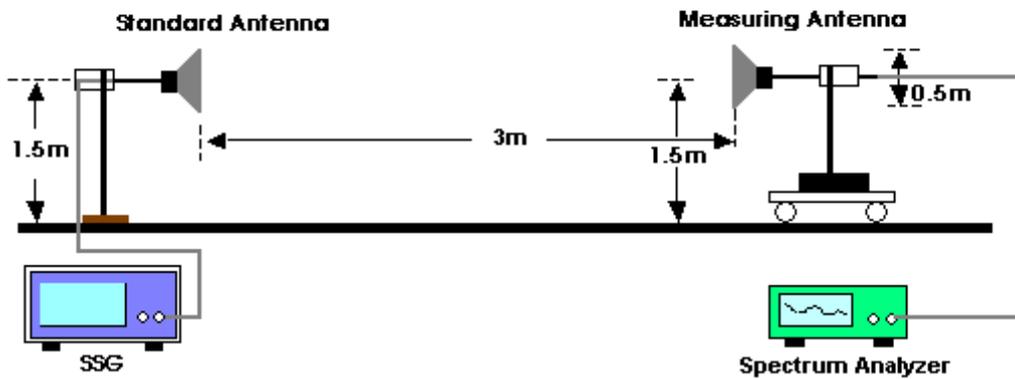
Please refer to 3.4.3 and the EIRP= Power Density+Gain.

3.6.4. TEST SETUP LAYOUT

For EUT radiation measurement



For standard antenna measurement



3.6.5. TEST DEVIATION

There is no deviation with the original standard.

3.6.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

3.6.7. TEST RESULT OF TRANSMISSION ANTENNA GAIN (EIRP ANTENNA POWER)

| | |
|------------------------|---|
| Method of measurement: | See MIC Notice No.88 Appendix No.43 Clause 10 |
| Results: | Please refer to the Appendix D. |

3.7. TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH) MEASUREMENT

3.7.1. LIMIT

| Item | Limits (See Article 49-20, Item1-f of the Ordinance Regulating Radio Equipment) |
|------------------------|--|
| 3dB antenna beam width | 360/A (if A<1; then A=1) A= {EIRP Power [mW]/16.36 for DSSS, OFDM} |

3.7.2. SETTING

The following table is the setting of the spectrum analyzer.

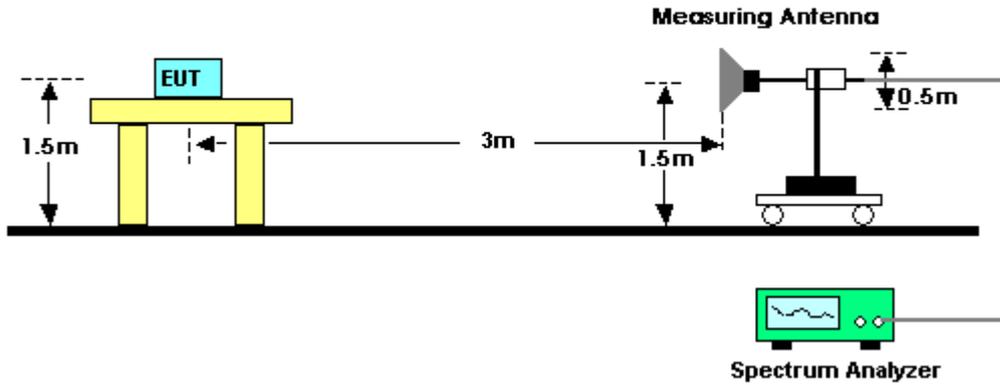
| Spectrum Parameter | Setting |
|--------------------|----------|
| Span | 0MHz |
| RBW | 1MHz |
| VBW | 1kHz |
| Y scale | 5dB |
| Detector | Peak |
| Trace | Max Hold |

3.7.3. TEST PROCEDURES

Test method according to Clause 22 of Annex No.43 of MIC Notification No.88.

1. Set EUT and measuring antenna at the same height and roughly facing each other.
2. Set spectrum analyzer with condition in section 3.7.2 and tune reference level to observe receiving signal position.
3. Rotate directions of the EUT horizontally and vertically to find the maximum receiving power.
4. Move the measuring antenna height up and down within ± 50 cm of EUT height and swing it to find the maximum output of measuring antenna. The output level at the spectrum analyzer is read as "E".
5. Calculate permitted radiation angle in horizontal and vertical using EIRP measured in another test method.
6. Calculate 3dB antenna beam width by the formula below $360/A$ (If $A < 1$; then $A = 1$).
 $A = \{ \text{EIRP Power [mW]} / 16.36 \text{ for DSSS, OFDM} \}$.

3.7.4. TEST SETUP LAYOUT



3.7.5. TEST DEVIATION

There is no deviation with the original standard.

3.7.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

3.7.7. TEST RESULT OF TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH)

| | |
|------------------------|---|
| Method of measurement: | See MIC Notice No.88 Appendix No.43 Clause 22 |
| Results: | N/A |

3.8. RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT

3.8.1. LIMIT

| Item | Limits (See Article 9-4, Item9-C of the Ordinance Regulating Radio Equipment) |
|---------------------|--|
| Identification code | The wireless equipment of the radio station mainly used in the same station automatically sends or receives the identification code. |

3.8.2. MEASURING ID CODE SOFTWARE

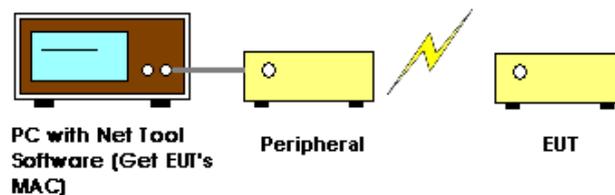
| PC with Net Tool | Setting |
|------------------|----------|
| MAC IP List | MAC Scan |

3.8.3. TEST PROCEDURES

Test method according to Clause 23 of Annex No.43 of MIC Notification No.88.

1. In the case that the EUT has the function of automatically transmitting the identification code:
 - a. Transmit the predetermined identification codes form EUT.
 - b. Check the transmitted identification codes with the demodulator.
2. In the case of receiving the identification code:
 - a. Transmit the predetermined identification codes form the counterpart.
 - b. Check if communication is normal.
 - c. Transmit the signals other than predetermined ID codes form the counterpart.
 - d. Check if the EUT stops the transmission, or if it displays that idnetification codes are different from the predetermined ones.

3.8.4. TEST SETUP LAYOUT



3.8.5. TEST DEVIATION

There is no deviation with the original standard.

3.8.6. EUT OPERATION DURING TEST

The EUT was programmed to be in normal mode.

3.8.7. TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILIT

| | |
|--------------|---------------------------------|
| Test Power: | Normal Voltage |
| Test Mode: | 2Mbps |
| Test Result: | Good (identification code: N/A) |

Note: Our customer explained that his product before factory process has a pairing process, VR Controller built-in with a set of 16-bit ID code, paired with the Dongle will remember one of the ID code.

3.9. CONSTRUCTION PROTECTION CONFIRMATION METHOD

3.9.1. LIMIT

(See Article 49-20, Item1-a of the Ordinance Regulating Radio Equipment)

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily.

3.9.2. CONFIRMATION METHOD

The RF and modulation portions are protected against illegal modification as following method:

| Tick the appropriate box | |
|--------------------------|---|
| | 1. Sealed with special screws. |
| | 2. Plastic chassis is being welded using ultrasonic waves. |
| | 3. Chassis is glued using a special adhesive. |
| | 4. Metal covers are spot-fused. |
| | 5. Cover is specially interlocked. |
| | 6. RF and Modulation components are covered with shielding case and this shielding case is soldered. |
| | 7. Shield case is welded at RF and modulation parts, and ID-ROM is welded using the BGA Method. |
| | 8. Shield case is welded at RF and modulation parts, and ID-ROM is glued at its lead with a special adhesive. |
| | 9. Shield case is welded at RF and modulation parts, and ID-ROM is glued with a non-transparent laminating agent. |
| √ | 10. RF and Modulation parts are mounted on PCB with surface mount technology, and there is no any adjustable part on PCB or adjustable parts are not exposed. |

4. LIST OF MEASURING EQUIPMENTS

| Kind of Equipment | Manufacturer | Model No. | Serial No. | Validity Date | Calibration Agency | Class Information |
|-------------------------------|--------------|------------|------------|---------------|---|-------------------|
| Spectrum Analyzer | R&S | FSP40 | 100185 | Jul. 03, 2023 | CEPREI Calibration and Testing Center | (c) |
| Peak Power Analyzer | Keysight | 8990B | MY51000506 | Jul. 03, 2023 | CEPREI Calibration and Testing Center | (c) |
| Wideband power sensor | Keysight | N1923A | MY58310004 | Jul. 03, 2023 | CEPREI Calibration and Testing Center | (c) |
| *Multi-output DC Power Supply | GW Instek | GPC-3030DN | EK880675 | Jul. 25, 2023 | CEPREI Calibration and Testing Center | (c) |
| MXG Vector Signal Generator | Agilent | N5182A | MY49060447 | Jan. 08, 2024 | CEPREI Calibration and Testing Center | (c) |
| Attenuator | WOKEN | 6SM3502 | VAS1214NL | Jul. 03, 2023 | CEPREI Calibration and Testing Center | (c) |

Remark:

- a. Calibration conducted by the National Institute of Information and Communications Technology (NITC) in Japan (hereinafter referred to as "NITC") or a designated calibration agency under Article 102-18 paragraph (1) in JRL.
- b. Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Act (Act No.51 of 1992).
- c. Calibration conducted in countries except Japan, which shall be equivalent to the calibration Conducted by the NITC or a designation agency under Article 102-18 paragraph (1).
- d. Calibration, etc. conducted by using measuring instruments and other equipment listed in the right column of appended table No.3, which shall have been given any type of calibration, etc. listed above from (a) to (c). From JRL Article 24-2, paragraph 4, item 2.

Note:

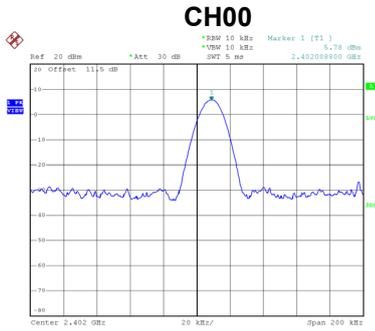
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The calibration interval of the above test instruments is 36 months and the calibrations are traceable to NML/ROC and NIST/USA.

5. EUT TEST PHOTO

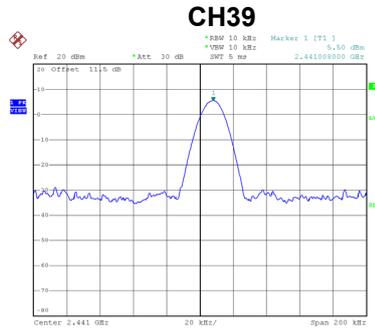
APPENDIX A - FREQUENCY TOLERANCE

Test Mode: TX Mode_2Mbps

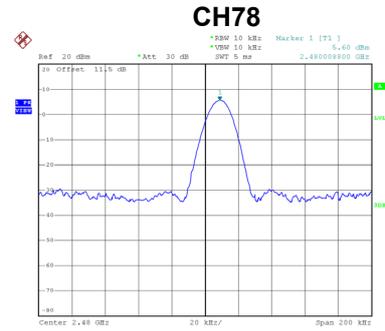
| Test Voltage | Normal Voltage | | | Remarks |
|---------------------------|----------------|-----------|-----------|--------------------------------------|
| Test Frequency (MHz) | 2402 | 2441 | 2480 | Low/Mid/High of test frequency range |
| Measured Frequency (MHz) | 2402.0088 | 2441.0080 | 2480.0088 | - |
| Frequency Tolerance (ppm) | 3.66 | 3.28 | 3.55 | Limit: $-50 \leq \text{ppm} \leq 50$ |



Date: 29.MAY.2023 11:39:17



Date: 6.JUN.2023 09:41:11

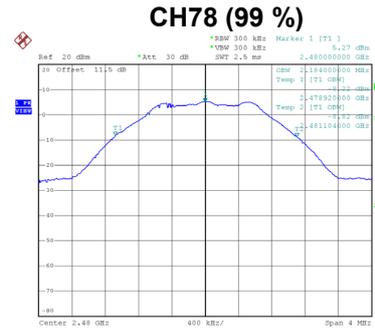
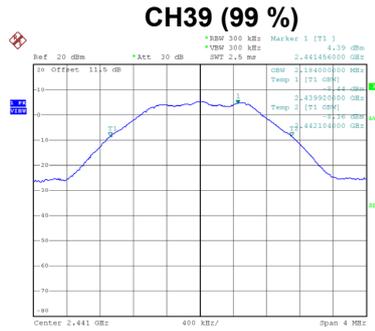
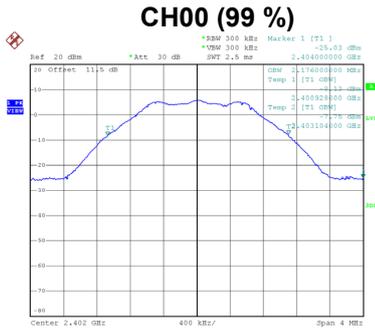


Date: 29.MAY.2023 11:40:54

APPENDIX B - OCCUPIED BANDWIDTH

| | |
|------------|---------------|
| Test Mode: | TX Mode_2Mbps |
|------------|---------------|

| Test Voltage | Normal Voltage | | | Remarks |
|--------------------------|----------------|------|------|--------------------------------------|
| Test Frequency (MHz) | 2402 | 2441 | 2480 | Low/Mid/High of test frequency range |
| Occupied Bandwidth (MHz) | 2.18 | 2.18 | 2.18 | Limit ≤ 26 MHz |

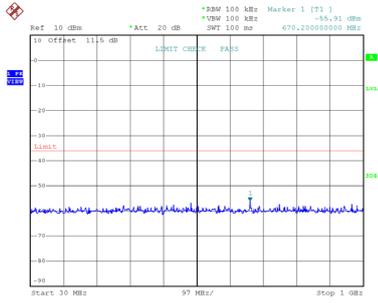


APPENDIX C - UNWANTED EMISSION INTENSITY

| | |
|------------|---------------|
| Test Mode: | TX Mode_2Mbps |
|------------|---------------|

| Test Voltage | | Normal Voltage | | | Remarks | |
|--|-----|----------------|-----------|-----------|--------------------------------------|---|
| Test Frequency | MHz | 2402 | 2441 | 2480 | Low/Mid/High of test frequency range | |
| Unwanted Emission Intensity (Power emission within 1MHz bandwidth) | ※1 | MHz | 670.2000 | 922.4000 | 681.8400 | Limit ≤ 0.25 μW/100kHz (-36 dBm/100kHz) |
| | | μW/100kHz | 0.0026 | 0.0018 | 0.0021 | |
| | ※2 | MHz | 2387.0000 | 2378.6780 | 2273.2660 | Limit ≤ 2.5 μW/MHz (-26 dBm/MHz) |
| | | μW/MHz | 0.0111 | 0.0161 | 0.0124 | |
| | ※3 | MHz | 2400.0000 | 2393.2920 | 2397.8940 | Limit ≤ 25 μW/MHz (-16 dBm/MHz) |
| | | μW/MHz | 12.3027 | 0.0149 | 0.0104 | |
| | ※4 | MHz | 2486.6460 | 2488.8560 | 2483.5000 | Limit ≤ 25 μW/MHz (-16 dBm/MHz) |
| | | μW/MHz | 0.0092 | 0.0184 | 1.1641 | |
| | ※5 | MHz | 3076.7030 | 3636.8990 | 3596.8850 | Limit ≤ 2.5 μW/MHz (-26 dBm/MHz) |
| | | μW/MHz | 0.0386 | 0.0325 | 0.0299 | |

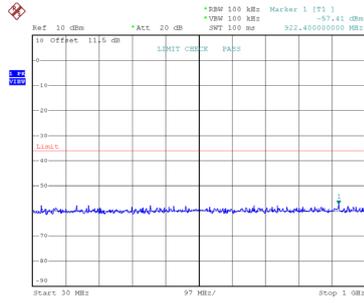
CH00



Date: 29_MAY.2023 11:30:11

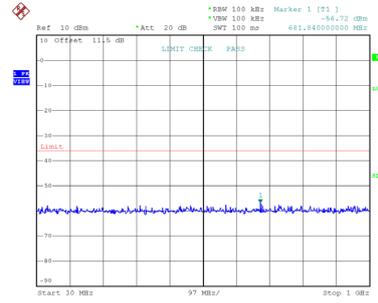
CH39

※1: $30\text{MHz} \leq f \leq 1000\text{MHz}$



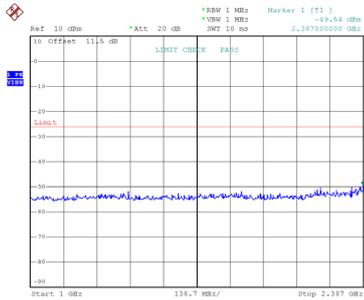
Date: 6_JUN.2023 09:40:10

CH78

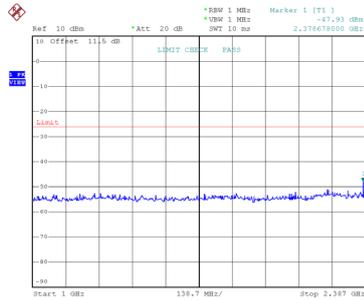


Date: 2_JUN.2023 15:14:19

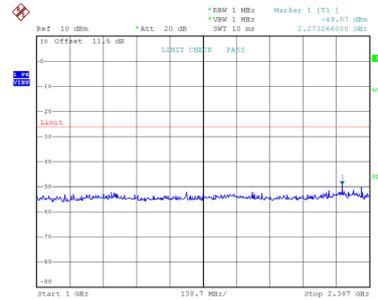
※2: $1000\text{MHz} \leq f < 2387\text{MHz}$



Date: 29_MAY.2023 11:30:22

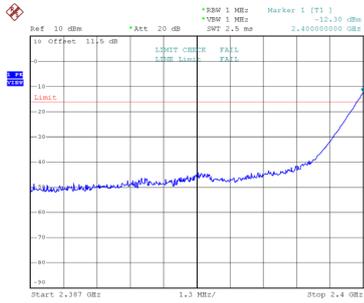


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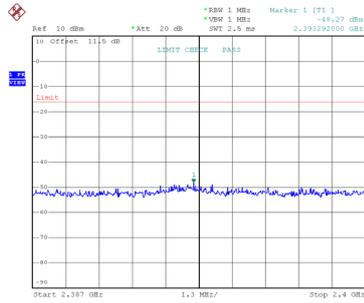


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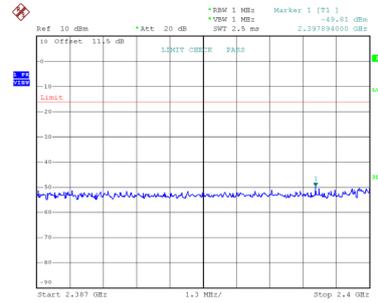
※3: $2387\text{MHz} \leq f < 2400\text{MHz}$



Date: 29_MAY.2023 11:30:33

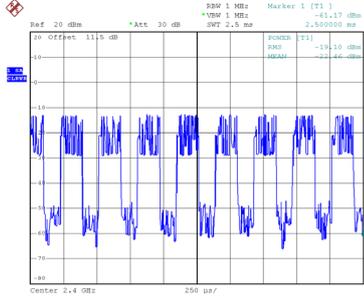


Date: 6_JUN.2023 09:40:33



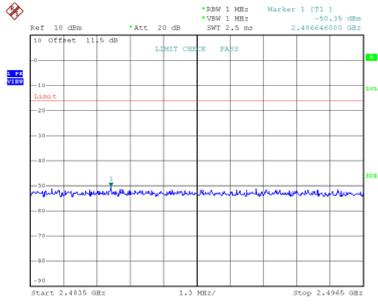
Date: 2_JUN.2023 15:14:40

ZeroSP



Date: 29_MAY.2023 11:30:38

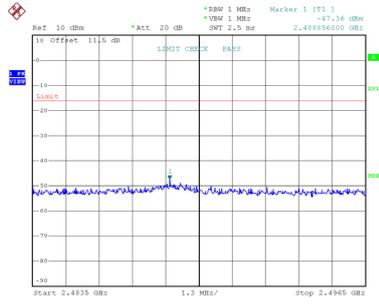
CH00



Date: 29_MAY.2023 11:30:51

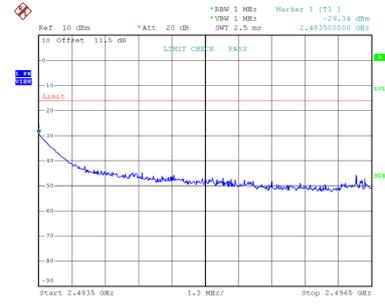
CH39

※4: 2483.5MHz<f≤2496.5MHz



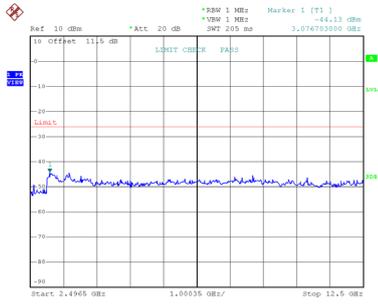
Date: 6_JUN.2023 09:40:43

CH78

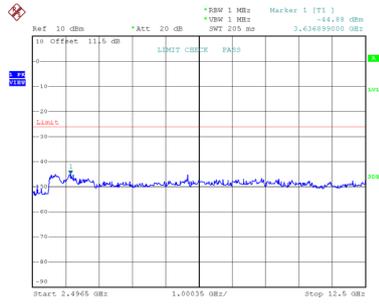


Date: 2_JUN.2023 15:14:50

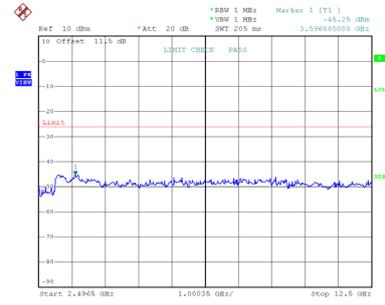
※5: 2496.5MHz<f



Date: 29_MAY.2023 11:31:02



Date: 6_JUN.2023 09:40:54



Date: 2_JUN.2023 15:15:01

APPENDIX D - ANTENNA POWER TOLERANCE AND EIRP ANTENNA POWER

| | |
|------------|---------------|
| Test Mode: | TX Mode_2Mbps |
|------------|---------------|

Normal Voltage

| Test Frequency (MHz) | Conducted RF output power | | Rated RF output power | Conducted RF output power Limit | Antenna Power Tolerance in Limit | |
|-------------------------|---------------------------|--------|--------------------------|------------------------------------|-------------------------------------|---|
| | (dBm) | (mW) | (mW) | (mW) | (+20%, -80%) | |
| 2402 | 4.05 | 2.5410 | 2.70 | 10 | -5.89 | % |
| 2441 | 4.13 | 2.5882 | 2.70 | 10 | -4.14 | % |
| 2480 | 4.15 | 2.6002 | 2.70 | 10 | -3.70 | % |

| Test Frequency (MHz) | Radiated RF output power | Limit |
|-------------------------|-----------------------------|-------|
| | (dBm) | (dBm) |
| 2402 | 6.77 | 12.14 |
| 2441 | 6.85 | 12.14 |
| 2480 | 6.87 | 12.14 |

Note:

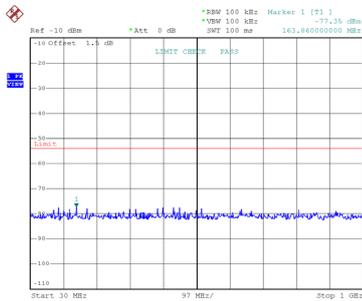
1. Antenna power tolerance = $\{(conducted\ power - rated\ power) / rated\ power\}$
2. Radiated RF output power (EIRP) = conducted RF output power + Max. Antenna gain

APPENDIX E - LIMITATION OF COLLATERAL EMISSION OF RECEIVER

Test Mode: RX Mode_2Mbps

| Test Voltage | | Normal Voltage | | | Remarks | |
|--------------------------|-----|----------------|-----------|-----------|--------------------------------------|----------------------------|
| Test Frequency | MHz | 2402 | 2441 | 2480 | Low/Mid/High of test frequency range | |
| Limitation of Collateral | ※6 | MHz | 163.8600 | 433.5200 | 449.0400 | Limit ≤ 4 nW (-54 dBm) |
| | | nW | 0.0184 | 0.0169 | 0.0174 | |
| Emission of Receiver | ※7 | MHz | 4795.0000 | 3093.0000 | 3162.0000 | Limit ≤ 20 nW (-47 dBm) |
| | | nW | 0.0431 | 0.0365 | 0.0379 | |

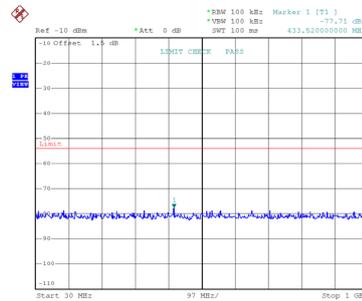
CH00



Date: 29_MAY.2023 11:56:07

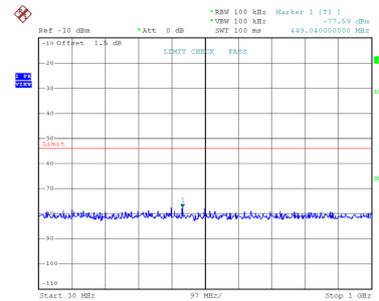
CH39

※6: f<1GHz



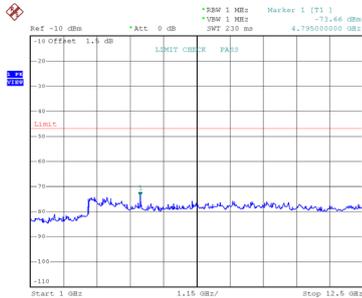
Date: 6_JUN.2023 09:50:25

CH78

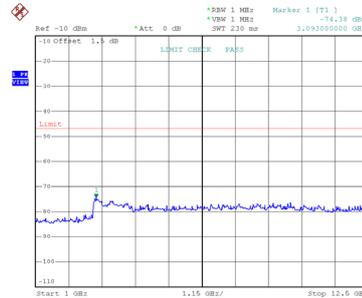


Date: 29_MAY.2023 11:57:17

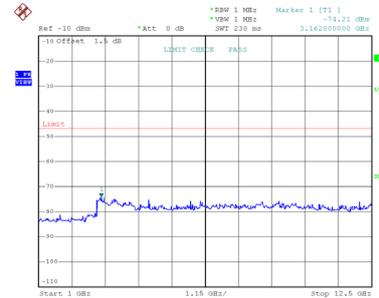
※7: 1GHz≤f



Date: 29_MAY.2023 11:56:19



Date: 6_JUN.2023 09:50:36



Date: 29_MAY.2023 11:57:28

End of Test Report