



FCC LISTED, REGISTRATION
 NUMBER: 2764.01

ISED LISTED REGISTRATION
 NUMBER: 23595-1

Test report No:
 4241ERM.004

Partial Test report

USA FCC Part 15.247, 15.209, 15.207
 CANADA RSS-247, RSS-Gen

Radio Frequency Devices. Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and
 5725 - 5850 MHz

Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and License-
 Exempt Local Area Network (LE-LAN) Devices.

| | |
|---|---|
| (*) Identification of item tested | Battery Radiofrequency Module |
| (*) Trademark | Visteon |
| (*) Model and /or type reference tested | BRFM |
| Other identification of the product | FCC ID: NT8-BRFM IC: 3043A-BRFM |
| (*) Features | Wireless Battery Management |
| Manufacturer | Visteon Corporation One Village Center Drive, Van Buren Township, MI 48111, USA. |
| Test method requested, standard | USA FCC Part 15.247, 10-1-20 Edition: Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz USA FCC Part 15.209, 10-1-20 Edition: Radiated emission limits; general requirements CANADA RSS-247 Issue 2 (February 2017). CANADA RSS-Gen Issue 5 (March 2019). 558074 D01 15.247 Meas. Guidance v05r02 (April 2019): Guidance for Compliance Measurements on Digital Transmission Systems, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating Under section §15.247 of the FCC Rules ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices. |
| Summary | See Appendix A |
| Approved by (name / position & signature) | Domingo Galvez EMC&RF Lab Manager |
| Date of issue | 12-11-2023 |
| Report template No | FDT08_23 (*) "Data provided by the client" |

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Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

DEKRA Certification Inc. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Certification at the time of performance of the test.

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The results presented in this Test Report apply only to the particular item under test established in this document.

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General conditions

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Uncertainty

Uncertainty (factor k=2) was calculated according to the DEKRA Certification internal document PODT000.

| Test case | Frequency (MHz) | U(k=2) | Units |
|----------------------------|-----------------|--------|-------|
| RF Power and PSD | 2402-2483 | 0.88 | dB |
| Radiated Spurious Emission | 30-180 | 4.27 | dB |
| | 180-1000 | 3.14 | dB |
| | 1000-18000 | 3.30 | dB |
| | 18000-40000 | 3.49 | dB |

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").
2. The sample consists of a Module intended to aggregate individual cell voltages and module temperatures from the HV battery in addition to pack voltage and current and communicate them to the VICM3.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples used for test have been selected by: The client.

Sample S/01 is composed of the following elements:

| Id | Control Number | Description | Model | Serial N° | Date of Reception | Application |
|------|----------------|--------------------------------|--------------------|-----------------|-------------------|--------------------|
| S/01 | 4241/27 | BRFM Conducted | BRFM | 112330000063510 | 11/10/2023 | Element Under Test |
| S/01 | 4241/35 | GM BRM test Board | Cheetah | - | 11/10/2023 | Accessory |
| S/01 | 4241/36 | isoSPI 2 Wire Serial Interface | Demo Circuit 1941D | - | 11/10/2023 | Accessory |

Sample S/01 was used for the following test(s): All Conducted tests indicated in appendix A.

Sample S/02 is composed of the following elements and accessories:

| Id | Control Number | Description | Model | Serial N° | Date of Reception | Application |
|------|----------------|--------------------------------|--------------------|-----------------|-------------------|--------------------|
| S/02 | 4241/02 | BRFM Radiated | BRFM | 112330000063514 | 11/10/2023 | Element Under Test |
| S/02 | 4241/35 | GM BRM test Board | Cheetah | - | 11/10/2023 | Accessory |
| S/02 | 4241/36 | isoSPI 2 Wire Serial Interface | Demo Circuit 1941D | - | 11/10/2023 | Accessory |

Sample S/02 was used for the following test(s): All Radiated tests indicated in appendix A.

Test sample description

Test Sample description (compulsory information for EMC and RF testing services).

| | | | | | | | |
|---|-------------------------------|--|--------------------------|----------------------|--------------|-----------------------------------|-----|
| Ports..... : | Port name and description | | Cable | | | | |
| | | | Specified max length [m] | Attached during test | Shielded | Coupled to patient ⁽³⁾ | |
| | Main connector/harness | 60 cm | [] | [] | [] | | |
| | | | [] | [] | [] | | |
| | | | [] | [] | [] | | |
| | | | [] | [] | [] | | |
| | | | [] | [] | [] | | |
| Supplementary information to the ports..... : | ..... |  |  |  |  |  |  |
| Rated power supply : | Voltage and Frequency | | Reference poles | | | | |
| | | | L1 | L2 | L3 | N | PE |
| | [] | AC: | [] | [] | [] | [] | [] |
| | [] | AC: | [] | [] | [] | [] | [] |
| | [X] | DC: 5.4 V | | | | | |
| [] | DC: | | | | | | |
| Rated Power : | Current in normal mode: 0,5 A | | | | | | |
| Clock frequencies : | 40 MHz | | | | | | |
| Other parameters..... : | ..... |  |  |  |  |  |  |
| Software version : | SWE101-28371-000R09 | | | | | | |
| Hardware version..... : | VPPAMU-14B115-FD | | | | | | |
| Dimensions in cm (W x H x D) ..... : | ..... |  |  |  |  |  |  |
| Mounting position..... : | [] | Table top equipment | | | | | |
| | [] | Wall/Ceiling mounted equipment | | | | | |
| | [] | Floor standing equipment | | | | | |
| | [] | Hand-held equipment | | | | | |
| | [X] | Other: Integrated in-side electric vehicle battery pack. | | | | | |
| Modules/parts : | Module/parts of test item | | | Type | Manufacturer | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Accessories (not part of the test item) : | Description | Type | Manufacturer |
|--|----------------------------|-----------|--------------|
| | Harness | ..... | ..... |
| | Main connector | ..... | ..... |
| | Cheetah | ..... | ..... |
| | Test Board | ..... | ..... |
| | | | |
| Documents as provided by the applicant..... : | Description | File name | Issue date |
| | Declaration Equipment Data | ..... | 11/22/2023 |
| | | | |
| | | | |
| | | | |

⁽³⁾ Only for Medical Equipment

Identification of the client

VISTEON CORPORATION
 One Village Center Drive.
 Van Buren Township, MI. 48111,
 USA.

Testing period and place

| | |
|----------------------|--------------------------|
| Test Location | DEKRA Certification Inc. |
| Date (start) | 11-15-2023 |
| Date (finish) | 11-16-2023 |

Document history

| Report number | Date | Description |
|---------------|------------|---------------|
| 4241ERM.004 | 12-11-2023 | First release |

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

| | |
|--------------------------|-----------------------------------|
| Temperature | Min. = 15 °C Max. = 35 °C |
| Relative humidity | Min. = 30 % Max. = 75 % |
| Air pressure | Min. = 860mbar Max. = 1060mbar |

In the semianechoic chamber, the following limits were not exceeded during the test.

| | |
|--------------------------|-----------------------------------|
| Temperature | Min. = 15 °C Max. = 35 °C |
| Relative humidity | Min. = 30 % Max. = 75 % |
| Air pressure | Min. = 860mbar Max. = 1060mbar |

In the chamber for conducted measurements, the following limits were not exceeded during the test:

| | |
|--------------------------|-----------------------------------|
| Temperature | Min. = 15 °C Max. = 35 °C |
| Relative humidity | Min. = 30 % Max. = 75 % |
| Air pressure | Min. = 860mbar Max. = 1060mbar |

Remarks and comments

The tests have been performed by the technical personnel: Ivy Yousuf Moutushi, Yuqi Wang, Juliana Cherry, Koji Nishimoto, and Victor Albrecht.

Testing verdicts

| | |
|------------------|-----|
| Not applicable : | N/A |
| Pass : | P |
| Fail : | F |
| Not measured : | N/M |

Summary

| FCC PART 15 PARAGRAPH (Proprietary protocol) | | | | | |
|--|------------------|-----------------|--|---------|---------|
| Section | FCC Spec Clause | RSS Spec Clause | Test Description | Verdict | Remark |
| - | § 2.1049 | RSS-GEN 6.7 | 99% Occupied Bandwidth | N/M | Refer 1 |
| - | §15.247 (a) (2) | RSS-247 5.2 (a) | 6dB Bandwidth | N/M | Refer 1 |
| A.1 | § 15.247 (b) (3) | RSS-247 5.4 (d) | Maximum Peak Output Power and antenna gain | P | N/A |
| - | § 15.247 (d) | RSS-247 5.5 | Band-edge conducted emissions compliance (Transmitter) | N/M | Refer 1 |
| - | § 15.247 (e) | RSS-247 5.2 (b) | Power Spectral Density | N/M | Refer 1 |
| - | §15.247 (d) | RSS-247 5.5 | Emission limitations Conducted (Transmitter) | N/A | Refer 2 |
| A.2 | §15.247 (d) | RSS-247 5.5 | Emission limitations Radiated (Transmitter) | P | N/A |

Supplementary information and remarks:

- Only partial testing has been requested by the client.
- The DUT has an integral antenna.

List of equipment used during the test

Conducted Measurements

| CONTROL NUMBER | DESCRIPTION | MANUFACTURER | MODEL | LAST CALIBRATION | NEXT CALIBRATION |
|----------------|---|-----------------|---------------|------------------|------------------|
| 1038 | TS8997 Test System | Rohde & Schwarz | TS8997 | N/A | N/A |
| 1107 | Ethernet SNMP Thermometer | HW Group | HWg-STE Plain | 2022/08 | 2024/08 |
| 1313 | Wireless Measurement Software R&S WMS32 | Rohde & Schwarz | N/A | N/A | N/A |

Radiated Measurements

| CONTROL NUMBER | DESCRIPTION | MANUFACTURER | MODEL | LAST CALIBRATION | NEXT CALIBRATION |
|----------------|---|-----------------|----------------|------------------|------------------|
| 1012 | EMI Test Receiver | Rohde & Schwarz | ESR 26 | 2023-01-18 | 2025-01-18 |
| 1014 | Spectrum analyzer | Rohde & Schwarz | FSV40 | 2022-08-01 | 2024-08-01 |
| 1056 | Double-ridge Waveguide Horn antenna 18-40 GHz | ETS Lindgren | 3116C | 2023-02-23 | 2026-02-23 |
| 1057 | Double-ridge Waveguide Horn antenna 1-18 GHz | ETS Lindgren | 3115 | 2023-07-18 | 2026-07-18 |
| 1064 | Biconical Log antenna | ETS Lindgren | 3142E | 2021-12-13 | 2024-12-13 |
| 1108 | Ethernet SNMP Thermometer- CR Room | HW Group | HWg-STE Plain | 2022-10-18 | 2024-10-18 |
| 1111 | Ethernet SNMP Thermometer | HW Group | HWg-STE Plain | 2022-10-18 | 2024-10-18 |
| 1179 | Semi Anechoic Absorber Lined Chamber | Frankonia | SAC 3 plus "L" | N/A | N/A |
| 1314 | Wireless Measurement Software R&S EMC32 | Rohde & Schwarz | N/A | N/A | N/A |
| 1461 | Low noise Preamplifier (1-18 GHz) | Bonn Elektronik | BLMA0118-4A | 2022-06-01 | 2024-06-01 |

Appendix A: Test results (Proprietary Protocol)

Appendix A Content

| | |
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PRODUCT INFORMATION

The following information is provided by the client

| Information | Description |
|-----------------------------|-----------------------------|
| Modulation | GFSK |
| Adaptive | Non-adaptive equipment |
| Operation mode | |
| - Operating Frequency Range | 2405 – 2480 MHz |
| - Nominal Channel Bandwidth | 2 MHz |
| - RF Output Power | 10 dBm |
| Antenna type | Integrated chip antenna |
| Antenna gain | +2.6 dBi |
| Nominal Voltage | |
| - Supply Voltage | 5.4 V nominal |
| - Type of power source | DC Power supply |
| Equipment type | Wireless Battery Management |

DESCRIPTION OF TEST CONDITIONS

| TEST CONDITIONS | DESCRIPTION |
|---------------------------|--|
| <p>TC/01 (Port 1)</p> | <p><u>Power supply (V):</u> $V_{\text{nominal}} = 5.4 \text{ V dc}$</p> <p>Bandwidth: 2 MHz</p> <p><u>Test Frequencies for Conducted/ Radiated tests:</u> Lowest channel: 2405 MHz Middle channel: 2445 MHz Highest channel: 2480 MHz</p> |
| <p>TC/02 (Port 2)</p> | <p><u>Power supply (V):</u> $V_{\text{nominal}} = 5.4 \text{ V dc}$</p> <p>Bandwidth: 2 MHz</p> <p><u>Test Frequencies for Conducted/ Radiated tests:</u> Lowest channel: 2405 MHz Middle channel: 2445 MHz Highest channel: 2480 MHz</p> |

Below is the comparison table between previous test results (test report 3751ERM.002A1_RF_FCC_Proprietary) and test results with the new sample for port 1 shown in this test report:

| Frequency (MHz) | Maximum Conducted Power (dBm) | | Delta |
|-----------------|---|---------------------------|-------|
| | 3751 BRFM-2p C2PC (test report 3751ERM.002A1) | 4241E BRFM Sensor removal | |
| 2405 | 11.2 | 9.7 | -1.5 |
| 2445 | 10.5 | 10.3 | -0.2 |
| 2480 | 10.4 | 9.7 | -0.7 |

See below the comparison table between previous test results (test report 3751ERM.002A1_RF_FCC_Proprietary) and test results with the new sample for port 2 shown in this test report:

| Frequency (MHz) | Maximum Conducted Power (dBm) | | Delta |
|-----------------|---|---------------------------|-------|
| | 3751 BRFM-2p C2PC (test report 3751ERM.002A1) | 4241E BRFM Sensor removal | |
| 2405 | 10.6 | 9.6 | -1.0 |
| 2445 | 10.2 | 10.4 | 0.2 |
| 2480 | 10.4 | 10.8 | 0.4 |

See below the comparison table between previous test results (test report 3751ERM.002A1_RF_FCC_Proprietary) and test results with the new sample for Radiated shown in this test report:

| Modulation | Frequency (MHz) | Maximum Radiated Power (dBm) | | Delta |
|------------|-----------------|---|------------|-------|
| | | 3751 BRFM-2p C2PC (test report 3751ERM.002A1) | 4241E BRFM | |
| GFSK | 2405 | 106.2 | 106.5 | 0.3 |
| GFSK | 2445 | 107.2 | 107.8 | 0.6 |
| GFSK | 2480 | 106.3 | 107.3 | 1.0 |

TEST A.1: MAXIMUM PEAK OUTPUT POWER AND ANTENNA GAIN

| | | |
|----------------|-------------------|--|
| LIMITS: | Product standard: | Part 15 Subpart C §15.247 and RSS-247 |
| | Test standard: | Part 15 Subpart C §15.247(b)(3) and RSS-247 5.4(d) |

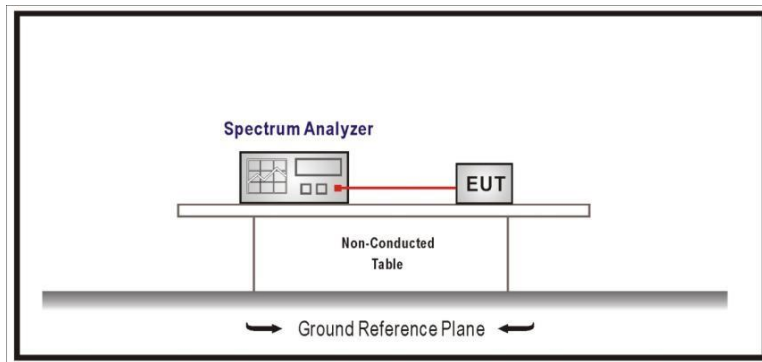
LIMITS

§15.247(b)(3) and RSS-247 5.4(d): For systems using digital modulation in the 2400-2483.5 MHz band: 1 watt (30 dBm).

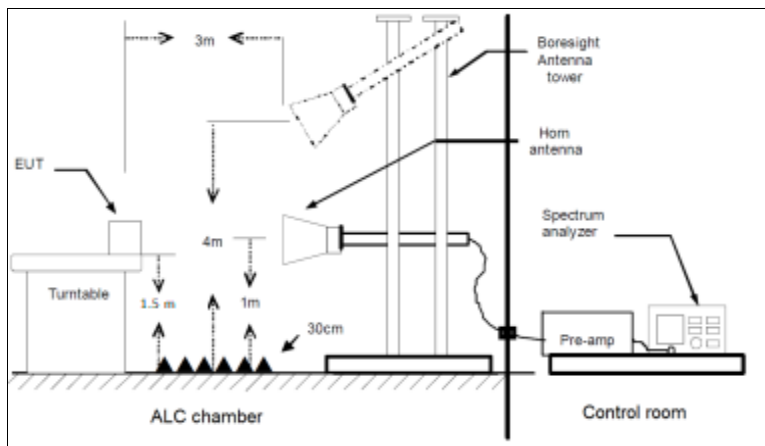
RSS-247 5.4(d): The e.i.r.p. shall not exceed 4 W (36 dBm)

TEST SETUP

Conducted measurements setup



Radiated measurements setup



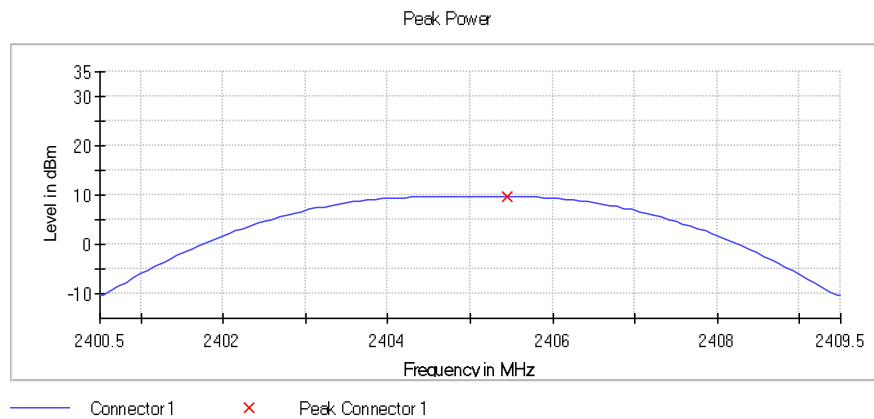
| CONDUCTED TESTING | |
|--------------------------|-------|
| TESTED SAMPLES: | S/01 |
| TESTED CONDITIONS MODES: | TC/01 |
| TEST RESULTS: | PASS |

Maximum declared antenna gain: +2.6 dBi

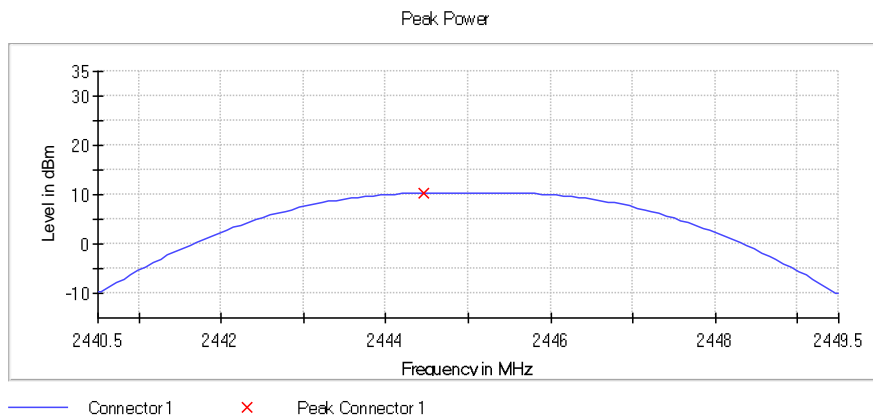
| | Lowest frequency 2405 MHz | Middle frequency 2445 MHz | Highest frequency 2480 MHz |
|-------------------------------|------------------------------|------------------------------|-------------------------------|
| Maximum conducted power (dBm) | 9.7 | 10.3 | 9.7 |
| Maximum EIRP power (dBm) | 12.3 | 12.9 | 12.3 |

The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power limit is not required to be reduced from the stated values.

Lowest Channel

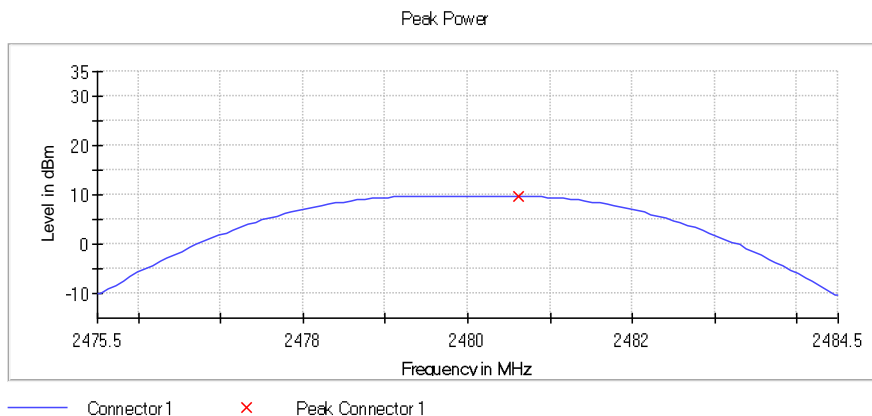


Middle Channel



TEST RESULTS (Cont.): CONDUCTED PEAK POWER

Highest Channel



Measurement

| Setting | Instrument Value | Instrument Value | Instrument Value |
|-----------------------|------------------|------------------|------------------|
| Start Frequency | 2.40050 GHz | 2.44050 GHz | 2.47550 GHz |
| Stop Frequency | 2.40950 GHz | 2.44950 GHz | 2.48450 GHz |
| Span | 9.000 MHz | 9.000 MHz | 9.000 MHz |
| RBW | 3.000 MHz | 3.000 MHz | 3.000 MHz |
| VBW | 10.000 MHz | 10.000 MHz | 10.000 MHz |
| Sweep Points | 101 | 101 | 101 |
| Sweep time | 1.000 ms | 1.000 ms | 1.000 ms |
| Reference Level | 20.000 dBm | 20.000 dBm | 20.000 dBm |
| Attenuation | 30.000 dB | 30.000 dB | 30.000 dB |
| Detector | MaxPeak | MaxPeak | MaxPeak |
| Sweep Count | 100 | 100 | 100 |
| Filter | 3 dB | 3 dB | 3 dB |
| Trace Mode | Max Hold | Max Hold | Max Hold |
| Sweep type | Sweep | Sweep | Sweep |
| Preamp | off | off | off |
| Stable mode | Trace | Trace | Trace |
| Stable value | 0.50 dB | 0.50 dB | 0.50 dB |
| Run | 4 / max. 150 | 4 / max. 150 | 4 / max. 150 |
| Stable | 3 / 3 | 3 / 3 | 3 / 3 |
| Max Stable Difference | 0.06 dB | 0.05 dB | 0.03 dB |

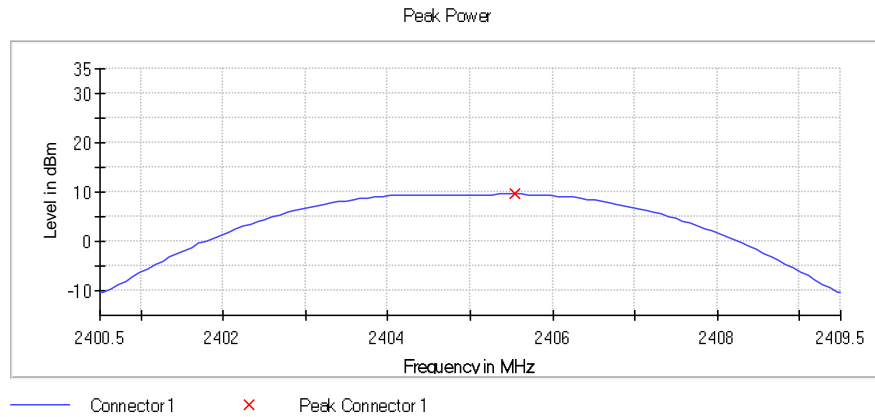
| | |
|---------------------------------|-------|
| TESTED SAMPLES: | S/01 |
| TESTED CONDITIONS MODES: | TC/02 |
| TEST RESULTS: | PASS |

Maximum declared antenna gain: +2.6 dBi

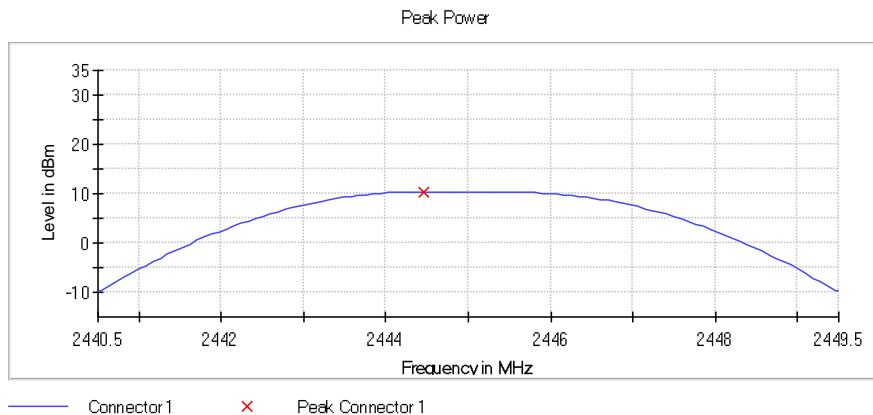
| | Lowest frequency 2405 MHz | Middle frequency 2445 MHz | Highest frequency 2480 MHz |
|-------------------------------|------------------------------|------------------------------|-------------------------------|
| Maximum conducted power (dBm) | 9.6 | 10.4 | 10.8 |
| Maximum EIRP power (dBm) | 12.2 | 13.0 | 13.4 |

The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power limit is not required to be reduced from the stated values.

Lowest Channel

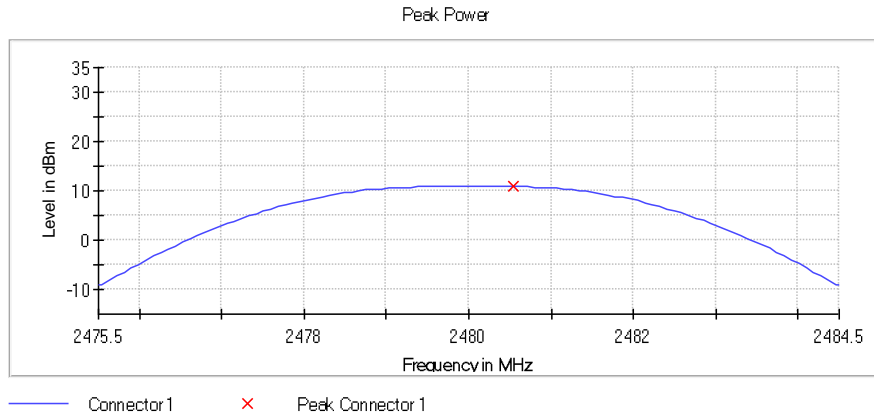


Middle Channel



TEST RESULTS (Cont.): CONDUCTED PEAK POWER

Highest Channel



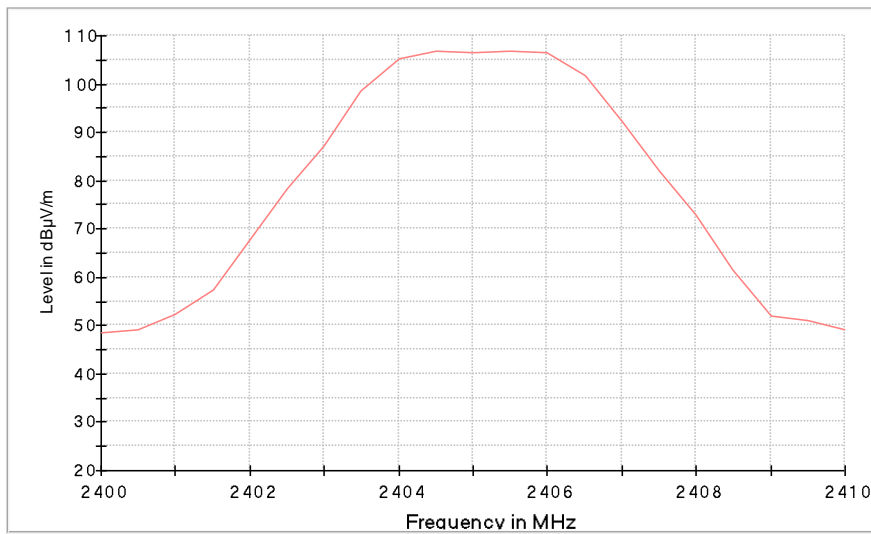
Measurement

| Setting | Instrument Value | Instrument Value | Instrument Value |
|-----------------------|------------------|------------------|------------------|
| Start Frequency | 2.40050 GHz | 2.44050 GHz | 2.47550 GHz |
| Stop Frequency | 2.40950 GHz | 2.44950 GHz | 2.48450 GHz |
| Span | 9.000 MHz | 9.000 MHz | 9.000 MHz |
| RBW | 3.000 MHz | 3.000 MHz | 3.000 MHz |
| VBW | 10.000 MHz | 10.000 MHz | 10.000 MHz |
| Sweep Points | 101 | 101 | 101 |
| Sweep time | 1.000 ms | 1.000 ms | 1.000 ms |
| Reference Level | 20.000 dBm | 20.000 dBm | 20.000 dBm |
| Attenuation | 30.000 dB | 30.000 dB | 30.000 dB |
| Detector | MaxPeak | MaxPeak | MaxPeak |
| Sweep Count | 100 | 100 | 100 |
| Filter | 3 dB | 3 dB | 3 dB |
| Trace Mode | Max Hold | Max Hold | Max Hold |
| Sweep type | Sweep | Sweep | Sweep |
| Preamp | off | off | off |
| Stable mode | Trace | Trace | Trace |
| Stable value | 0.50 dB | 0.50 dB | 0.50 dB |
| Run | 4 / max. 150 | 4 / max. 150 | 4 / max. 150 |
| Stable | 3 / 3 | 3 / 3 | 3 / 3 |
| Max Stable Difference | 0.01 dB | 0.04 dB | 0.02 dB |

| RADIATED TESTING | |
|------------------------|-------|
| TESTED SAMPLE: | S/02 |
| TESTED CONDITION MODE: | TC/01 |
| TEST RESULT: | PASS |

The following test results were based on the worst DUT orientation X.

Lowest channel

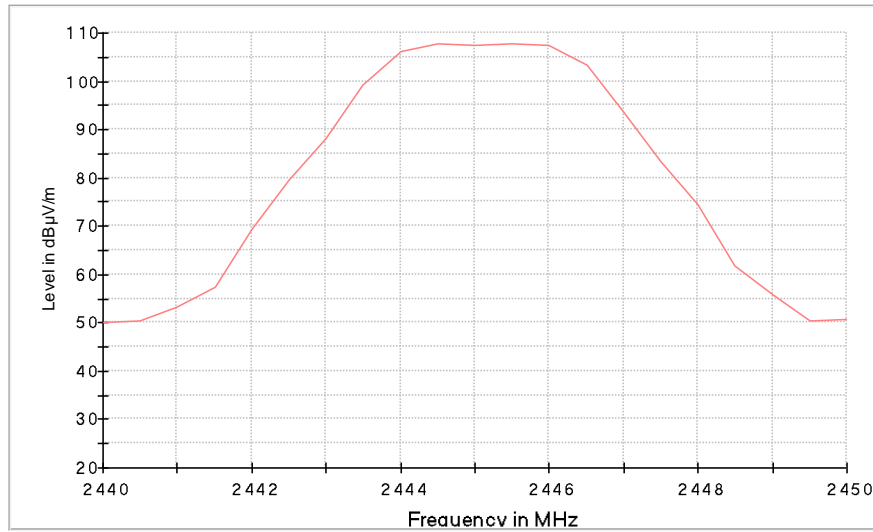


— PK+_MAXH
— TX limits to Spurious Emission FCC15.247 (1-26G) Restricted Bands AVG Limit
- - - TX limits to Spurious Emission FCC15.247 Restricted Bands PK Limit

| Frequency (MHz) | PK+_MAXH (dBµV/m) | PK+_MAXH (dBm) | Pol |
|-----------------|-------------------|----------------|-----|
| 2405.500000 | 106.5 | 11.3 | H |

TEST RESULTS (Cont.):

Middle channel

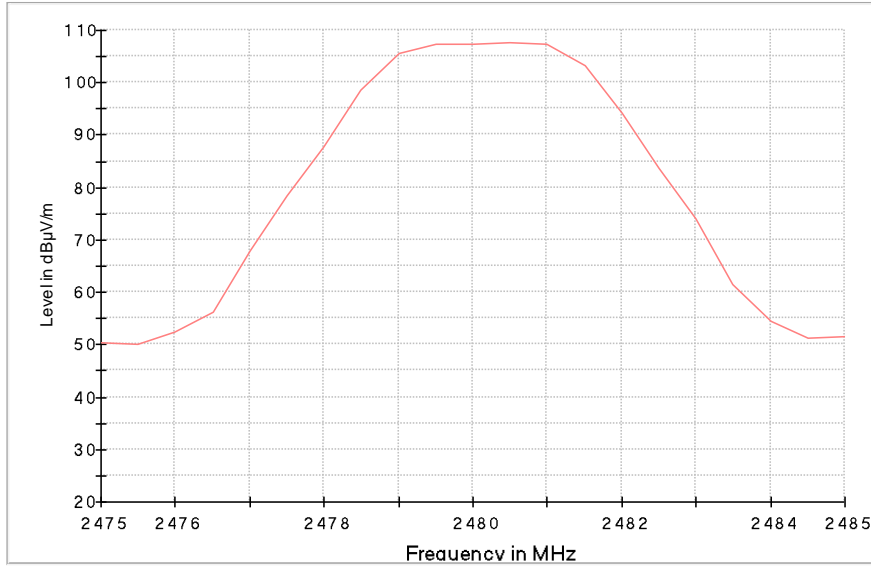


— PK+_MAXH
— TX limits to Spurious Emission FCC15.247 (1-26G) Restricted Bands AVG Limit
- - - TX limits to Spurious Emission FCC15.247 Restricted Bands PK Limit

| Frequency (MHz) | PK+_MAXH (dBµV/m) | PK+_MAXH (dBm) | Pol |
|-----------------|-------------------|----------------|-----|
| 2444.500000 | 107.8 | 12.6 | H |

TEST RESULTS (Cont.):

Highest channel



— PK+_MAXH

| Frequency (MHz) | PK+_MAXH (dBµV/m) | PK+_MAXH (dBm) | Pol |
|-----------------|-------------------|----------------|-----|
| 2480.000000 | 107.3 | 12.1 | H |

TEST A.2: EMISSION LIMITATIONS RADIATED (TRANSMITTER)

| | | |
|----------------|-------------------|--|
| LIMITS: | Product standard: | Part 15 Subpart C §15.247 and RSS-247 |
| | Test standard: | Part 15 Subpart C §15.247 (d) and RSS-Gen 8.9 and 8.10 |

LIMITS

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c) / RSS-Gen):

| Frequency Range (MHz) | Field strength (µV/m) | Field strength (dBµV/m) | Measurement distance (m) |
|-----------------------|-----------------------|-------------------------|--------------------------|
| 0.009-0.490 | 2400/F(kHz) | - | 300 |
| 0.490-1.705 | 24000/F(kHz) | - | 30 |
| 1.705 - 30.0 | 30 | - | 30 |
| 30 - 88 | 100 | 40 | 3 |
| 88 - 216 | 150 | 43.5 | 3 |
| 216 - 960 | 200 | 46 | 3 |
| 960 - 25000 | 500 | 54 | 3 |

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

TEST SETUP

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is located at 3 m for the frequency range 30-1000 MHz (Bilog antenna) and 1-18 GHz (Double ridge horn antenna), and 1m for the frequency range 18 GHz- 26 GHz (Double ridge horn antenna).

For radiated emissions in the range 18 - 26 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

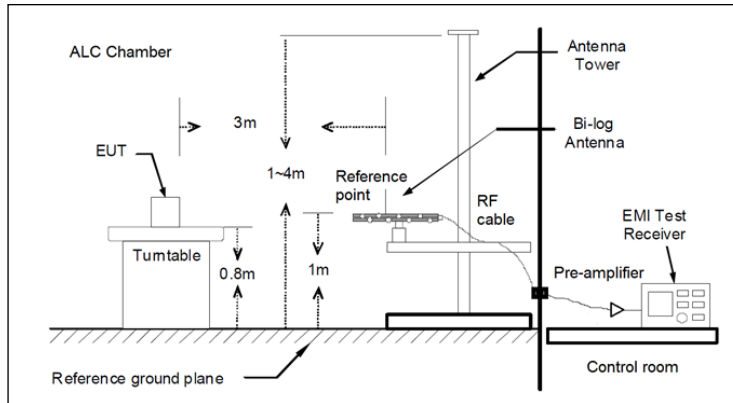
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

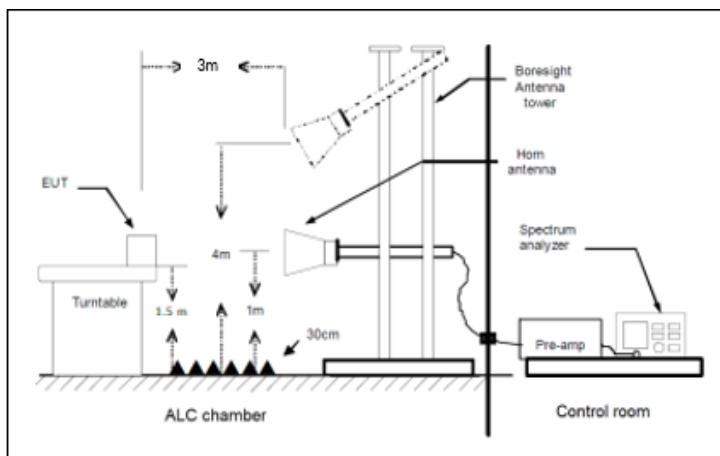
The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

TEST SETUP (CONT.)

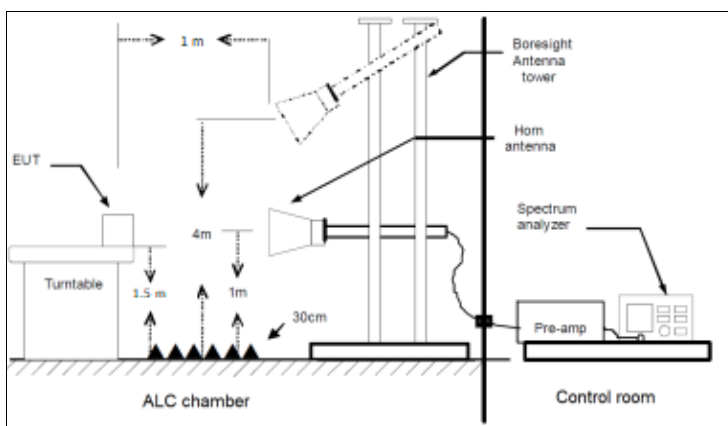
Radiated measurements Setup $f < 1$ GHz



Radiated measurements setup $f > 1-18$ GHz



Radiated measurements setup $f > 18$ GHz

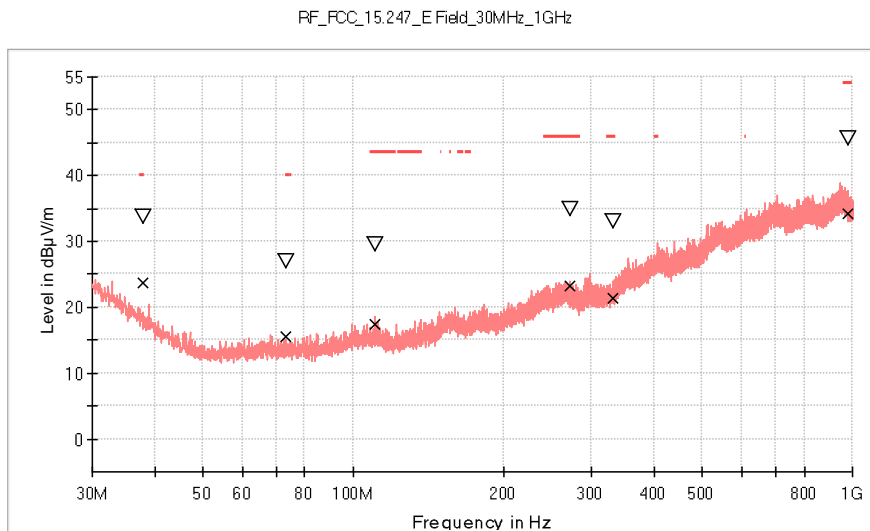


| | |
|-------------------------------|-------|
| TESTED SAMPLE: | S/02 |
| TESTED CONDITION MODE: | TC/01 |
| TEST RESULT: | Pass |

Frequency range 30 MHz – 1000 MHz

The level of spurious emissions was measured as their effective radiated power when radiated by cabinet and antenna.

The spurious emissions below 1 GHz do not depend on the operating channel selected in the EUT.



- PK+ MAXH
- - - TX limits to Spurious Emission FCC15.247 (30MHz to 1GHz) Restricted Bands QPK Limit
- ▽ MaxPeak-PK+ (Single)
- × QuasiPeak-QPK (Single)

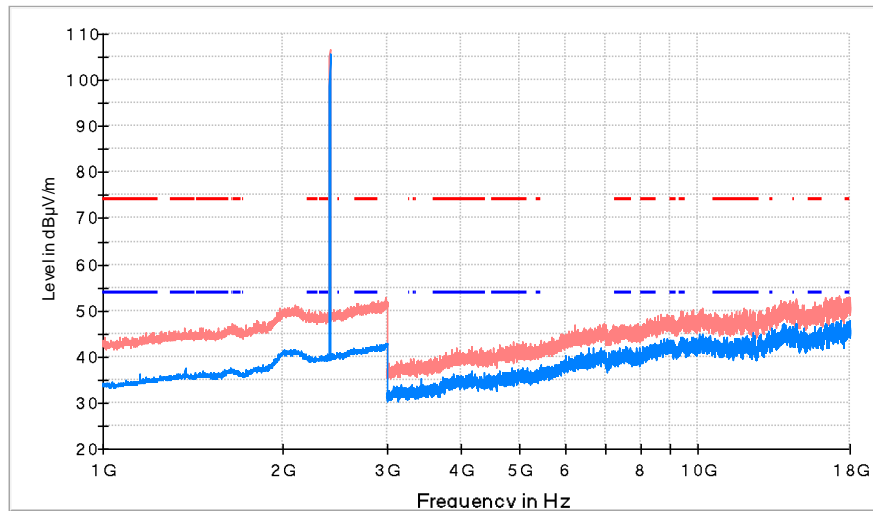
| Frequency (MHz) | MaxPeak (dBµV/m) | QuasiPeak (dBµV/m) | Pol | Margin - QPK (dB) | Limit - QPK (dBµV/m) |
|-----------------|------------------|--------------------|-----|-------------------|----------------------|
| 38.002500 | 33.7 | 23.6 | V | 16.4 | 40.0 |
| 73.262000 | 27.1 | 15.6 | V | 24.4 | 40.0 |
| 110.558500 | 29.5 | 17.5 | H | 26.0 | 43.5 |
| 271.045000 | 34.9 | 23.3 | H | 22.7 | 46.0 |
| 331.039500 | 33.0 | 21.3 | V | 24.7 | 46.0 |
| 976.089500 | 45.8 | 34.2 | V | 19.8 | 54.0 |

TEST RESULTS (Cont.): **1-18 GHz (Lowest Channel)**

Frequency range 1 GHz – 26 GHz

The results in the next tables show the maximum measured levels in the 1-18 GHz range (including the restricted bands 2.31-2.51 GHz) and 18-26 GHz (see next plots).

Lowest Channel

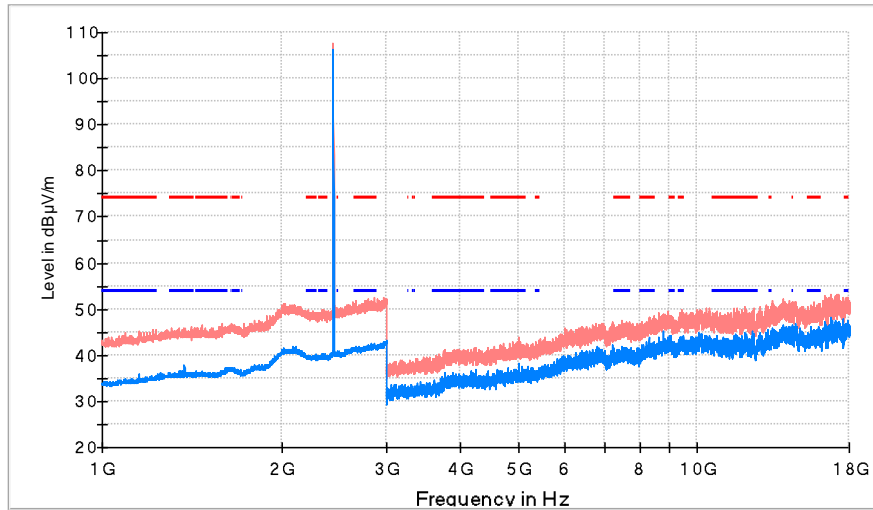


- PK+_MAXH
- TX limits to Spurious Emission FCC15.247 (1-26G) Restricted Bands AVG Limit
- TX limits to Spurious Emission FCC15.247 Restricted Bands PK Limit
- RMS_MAXH

| Frequency (MHz) | PK+_MAXH (dBµV/m) | RMS_MAXH (dBµV/m) | Pol | Margin - RMS (dB) | Limit - RMS (dBµV/m) | Comment |
|-----------------|-------------------|-------------------|-----|-------------------|----------------------|-------------|
| 1375.000000 | 45.1 | 37.5 | V | 16.5 | 54.0 | |
| 2405.000000 | 106.5 | 105.6 | H | --- | --- | Fundamental |
| 11419.000000 | 46.9 | 43.1 | H | 10.9 | 54.0 | |

TEST RESULTS (Cont.): **1-18 GHz (Middle Channel)**

Middle Channel

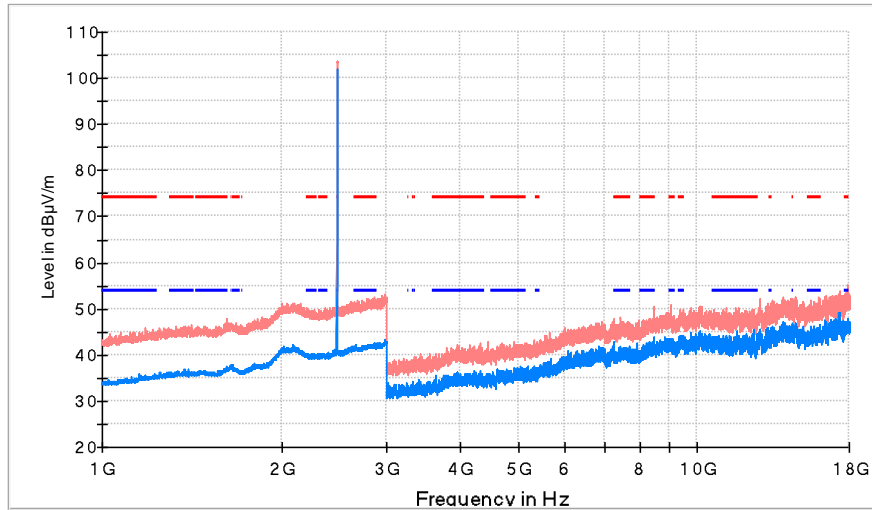


- PK+_MAXH
- TX limits to Spurious Emission FCC15.247 (1-26G) Restricted Bands AVG Limit
- - - TX limits to Spurious Emission FCC15.247 Restricted Bands PK Limit
- RMS_MAXH

| Frequency (MHz) | PK+_MAXH (dBµV/m) | RMS_MAXH (dBµV/m) | Pol | Margin - RMS (dB) | Limit - RMS (dBµV/m) | Comment |
|-----------------|-------------------|-------------------|-----|-------------------|----------------------|-------------|
| 1374.500000 | 45.6 | 38.0 | V | 16.0 | 54.0 | |
| 2445.500000 | 107.8 | 106.3 | H | --- | --- | Fundamental |
| 8283.500000 | 46.3 | 43.8 | V | 10.2 | 54.0 | |

TEST RESULTS (Cont.): **1-18 GHz (Highest Channel)**

Highest Channel

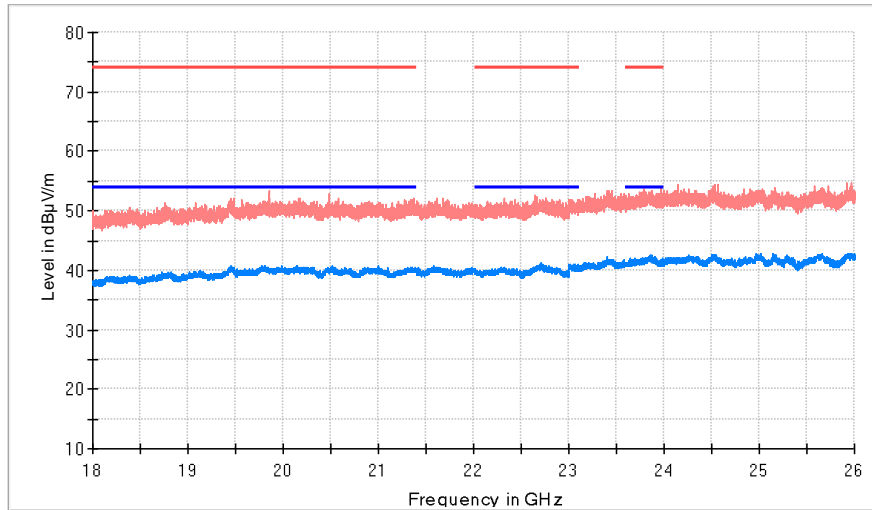


- PK+_MAXH
- TX limits to Spurious Emission FCC15.247 (1-26G) Restricted Bands AVG Limit
- TX limits to Spurious Emission FCC15.247 Restricted Bands PK Limit
- RMS_MAXH

| Frequency (MHz) | PK+_MAXH (dBµV/m) | RMS_MAXH (dBµV/m) | Pol | Margin - RMS (dB) | Limit - RMS (dBµV/m) | Comment |
|-----------------|-------------------|-------------------|-----|-------------------|----------------------|-------------|
| 1375.500000 | 45.3 | 37.4 | V | 16.6 | 54.0 | |
| 2480.000000 | 107.3 | 106.0 | H | --- | --- | Fundamental |
| 3982.000000 | 40.3 | 36.3 | H | 17.7 | 54.0 | |

TEST RESULTS (Cont.): **18 – 26 GHz**

Lowest Channel

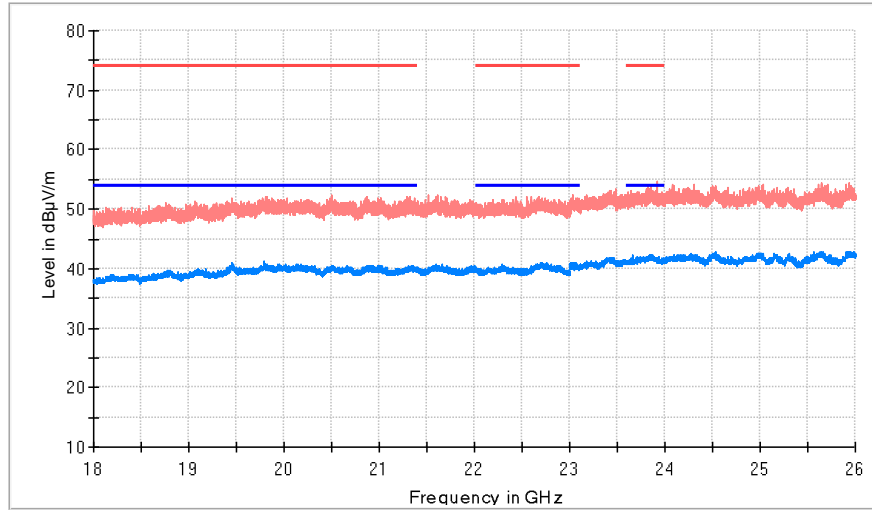


- AVG_MAXH
- PK+_MAXH
- TX limits to Spurious Emission FCC15.247 Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit

| Frequency (MHz) | PK+_MAXH (dBµV/m) | AVG_MAXH (dBµV/m) | Pol | Margin - AVG (dB) | Limit - AVG (dBµV/m) |
|-----------------|-------------------|-------------------|-----|-------------------|----------------------|
| 19847.000000 | 53.3 | 39.8 | V | 14.2 | 54.0 |
| 22653.500000 | 52.3 | 40.5 | V | 13.5 | 54.0 |
| 23970.500000 | 53.8 | 41.2 | H | 12.8 | 54.0 |

TEST RESULTS (Cont.): **18 – 26 GHz**

Middle Channel

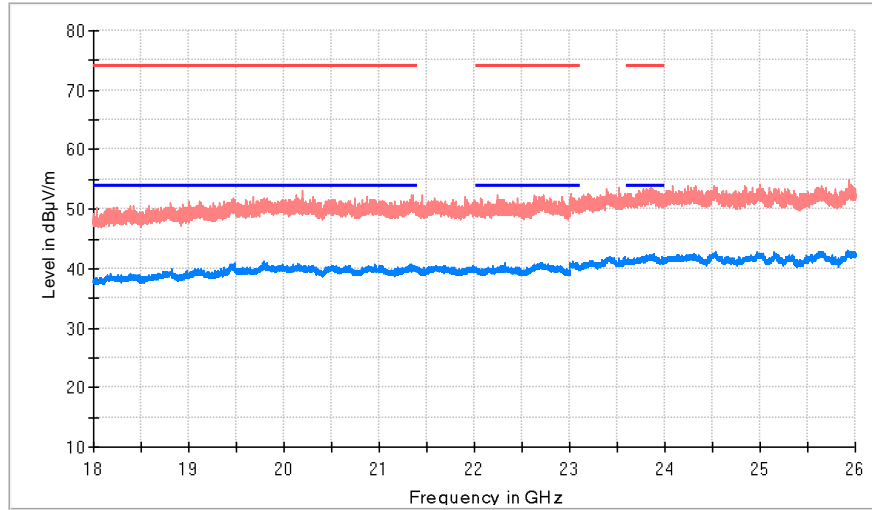


- AVG_MAXH
- PK+_MAXH
- TX limits to Spurious Emission FCC15.247 Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit

| Frequency (MHz) | PK+_MAXH (dBµV/m) | AVG_MAXH (dBµV/m) | Pol | Margin - AVG (dB) | Limit - AVG (dBµV/m) |
|-----------------|-------------------|-------------------|-----|-------------------|----------------------|
| 19791.500000 | 51.2 | 41.2 | H | 12.8 | 54.0 |
| 22602.000000 | 52.1 | 39.8 | V | 14.2 | 54.0 |
| 23919.000000 | 54.6 | 41.2 | H | 12.8 | 54.0 |

TEST RESULTS (Cont.): **18 – 26 GHz**

Highest Channel

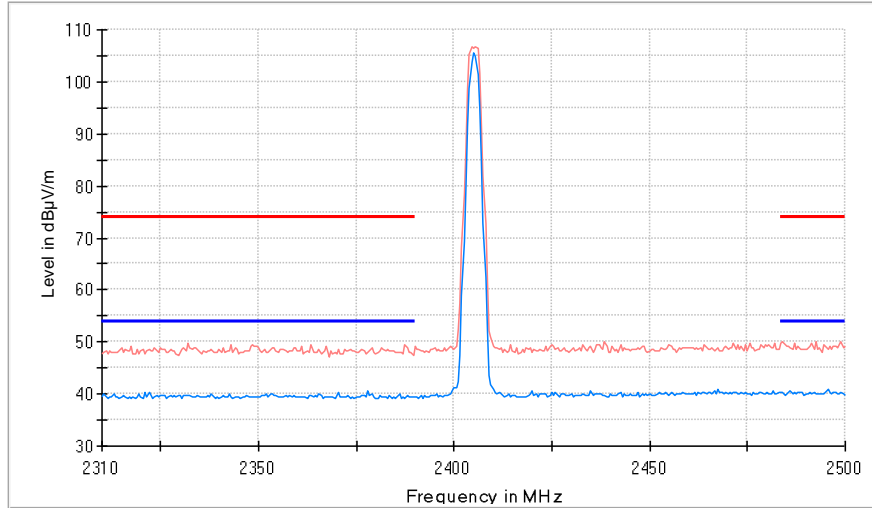


- AVG_MAXH
- PK+_MAXH
- TX limits to Spurious Emission FCC15.247 Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit

| Frequency (MHz) | PK+_MAXH (dBµV/m) | AVG_MAXH (dBµV/m) | Pol | Margin - AVG (dB) | Limit - AVG (dBµV/m) |
|-----------------|-------------------|-------------------|-----|-------------------|----------------------|
| 19794.500000 | 50.2 | 41.2 | V | 12.8 | 54.0 |
| 23032.500000 | 50.3 | 41.2 | H | 12.8 | 54.0 |
| 23883.500000 | 52.5 | 42.5 | V | 11.5 | 54.0 |

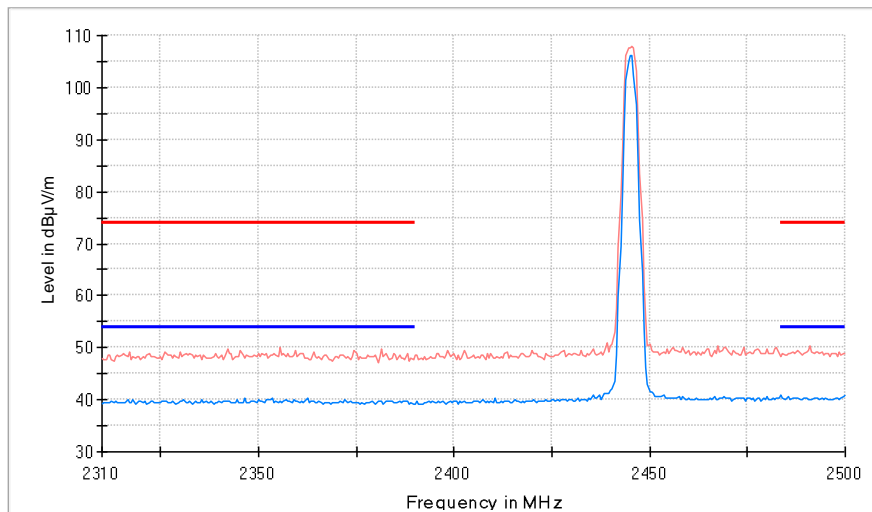
TEST RESULTS (Cont.): **Restricted Bands (2.31 GHz – 2.5 GHz)**

Lowest Channel



- PK+_MAXH
- TX limits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
- TX limits to Spurious Emission FCC15.247 Restricted Bands PK Limit
- RMS_MAXH

Middle Channel

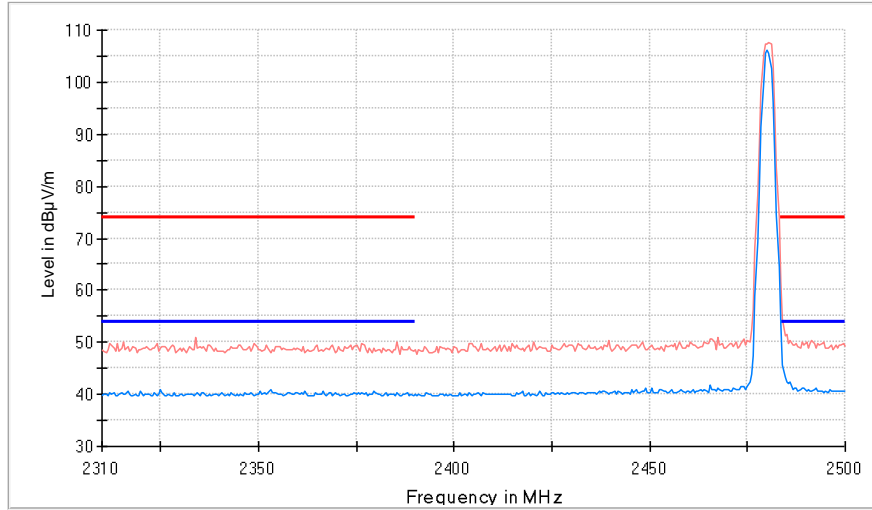


- PK+_MAXH
- TX limits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
- TX limits to Spurious Emission FCC15.247 Restricted Bands PK Limit
- RMS_MAXH

TEST RESULTS (Cont.):

Restricted Bands (2.31 GHz – 2.5 GHz)

Highest Channel



- PK+_MAXH
- TX limits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
- TX limits to Spurious Emission FCC15.247 Restricted Bands PK Limit
- RMS_MAXH