



FCC LISTED, REGISTRATION
NUMBER: 2764.01

ISED LISTED REGISTRATION
NUMBER: 23595-1

Test report No:
3967ERM.014

Test report

FCC Rules and Regulations CFR 47, Part 15, Subpart B (2018) & ICES-003 Issue 7 (October 2020)

| | |
|---|--|
| (*) Identification of item tested | Infotainment Head Unit |
| (*) Trademark | Garmin |
| (*) Model and /or type reference | IDC23 High 8155 |
| Other identification of the product | FCC ID: IPH-03911 IC: 1792A-03911 HVIN: B03911 HW version: B03911 |
| (*) Features | Bluetooth classic; BLE; Wi-Fi 2.4GHz; Wi-Fi 5GHz; GNSS |
| Manufacturer | GARMIN INTERNATIONAL, INC. 1200 E. 151st Street, Olathe, Kansas 66062, USA |
| Test method requested, standard | FCC Rules and Regulations CFR 47, Part 15, Subpart B (2018) ICES-003 Issue 7 (October 2020) |
| Summary | IN COMPLIANCE |
| Approved by (name / position & signature) | Domingo Galvez EMC&RF Lab Manager |
| Date of issue | 07-28-2023 |
| Report template No | FDT08_23 (*) "Data provided by the client" |

Index

| | |
|--|----|
| ACRONYMS | 3 |
| COMPETENCES AND GUARANTEES | 3 |
| GENERAL CONDITIONS | 3 |
| UNCERTAINTY | 3 |
| DATA PROVIDED BY THE CLIENT | 4 |
| USAGE OF SAMPLES | 4 |
| TEST SAMPLE DESCRIPTION | 6 |
| IDENTIFICATION OF THE CLIENT | 7 |
| TESTING PERIOD AND PLACE | 7 |
| DOCUMENT HISTORY | 7 |
| ENVIRONMENTAL CONDITIONS | 8 |
| REMARKS AND COMMENTS | 8 |
| TESTING VERDICTS | 8 |
| SUMMARY | 9 |
| LIST OF EQUIPMENT USED DURING THE TEST | 10 |
| APPENDIX A: TEST RESULTS | 11 |

Acronyms

| Acronym ID | Acronym Description |
|------------|---------------------|
| Code | EMC Test Code |
| Freq Rng | Frequency Range |
| MP | Measurement Point |
| OM | Operation Mode |
| S/ | Sample |
| V | Verdict |

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.

DEKRA Certification Inc. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

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

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

Uncertainty

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

| | Frequency (MHz) | U (k=2) | Units |
|-------------------|-----------------|---------|-------|
| Radiated emission | 30 - 1000 | 5.94 | dB |
| | 1000-18000 | 5.89 | 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 an Infotainment Head Unit. The main functionalities are the following: Navigation, USB, voice recognition and several interfaces to the vehicle and Bluetooth / WLAN. The Head-unit provides different interfaces like: AR-CAM input, Video-out APIX3 (for the connection of an external Display), 3 USB interfaces.

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 undergoing test have been selected by: The client.

Sample S/01 is composed of the following elements, accessories and auxiliary equipment:

| Id | Control Number | Description | Manufacturer / Model | Serial N° | Date of Reception | Application |
|------|----------------|---|--|-----------------|-------------------|-------------------|
| S/01 | 1206 | Transceiver | Messtechnik / optoCAN-FD | | - | Auxiliary Element |
| S/01 | 1206.01 | ST/ST Multimode Patch cord 20m 62,5/125µm | - | - | - | Auxiliary Element |
| S/01 | 1207 | Transceiver | Messtechnik / optoCAN-FD | - | - | Auxiliary Element |
| S/01 | 3428/08 | Ethernet Cable (1.8m) | NA / 5E | - | 06/01/22 | Accessory |
| S/01 | 3428/09 | Ethernet Cable (1.6m) | NA / 5E | - | 06/01/22 | Accessory |
| S/01 | 3428/10 | USB-3.0 to Gigabit Ethernet Adapter | Trendnet / TU3-ETG | RA9AU31003569 | 06/01/22 | Accessory |
| S/01 | 3428/11 | USB-3.0 to Gigabit Ethernet Adapter | Trendnet / TU3-ETG | RA0EU32000337 | 06/01/22 | Accessory |
| S/01 | 3428/32 | BMW Antenna-DA Fakra 5G-GNSS | Molex | 6520 8705915-04 | 06/01/22 | Accessory |
| S/01 | 3428/33 | Fakra to Fakra Cable | - | - | 06/01/22 | Accessory |
| S/01 | 3428/34 | AR-CAM Shied Box | Garmin | - | 06/01/22 | Accessory |
| S/01 | 3428/35 | Fakra to Fakra Cable | - | - | 06/01/22 | Accessory |
| S/01 | 3428/36 | Fakra Z to BNC Pigtail Cable coaxial | - | - | 06/01/22 | Accessory |
| S/01 | 3428/37 | CAN/LIN Interface | Remus / VN1630A | 007113-042714 | 06/01/22 | Accessory |
| S/01 | 3428/39 | CAN Connector (DB9) - Cable | - | - | 06/01/22 | Accessory |
| S/01 | 3428/40 | WLAN/Bluetooth Antena with Fakra SF connector | MD Elektronik / λ/4 coax cable antenna BMW 9.289.029.3 | - | 06/01/22 | Accessory |
| S/01 | 3428/42 | USB to Fakra cable | - | - | 06/01/22 | Accessory |
| S/01 | 3428/43 | USB to Fakra cable | - | - | 06/01/22 | Accessory |
| S/01 | 3428/45 | USB device 32GB | Samnsung / MUF-32BE | | 06/01/22 | Accessory |
| S/01 | 3428/46 | USB device 32GB | Samnsung / MUF-32BE | | 06/01/22 | Accessory |

| Id | Control Number | Description | Manufacturer / Model | Serial N° | Date of Reception | Application |
|------|----------------|---|-----------------------------------|---------------|-------------------|--------------------|
| S/01 | 3428/48 | FSMA to FSMA Cable for 1G base-T | - | - | 06/01/22 | Accessory |
| S/01 | 3428/59 | Laptop 1 | DELL / Latitude 7490 | 8129802566 | 06/01/22 | Accessory |
| S/01 | 3428/60 | Laptop 2 | DELL / Latitude 7490 | 42700169594 | 06/01/22 | Accessory |
| S/01 | 3582/05 | DCS Camera Load | Garmin | - | 02/08/22 | Accessory |
| S/01 | 3582/09 | DCS Cable | Garmin | - | 02/08/22 | Accessory |
| S/01 | 3967/04 | Infotainment Head Unit | Garmin / IDC23 High 8155 | GPN0100286554 | 05/30/23 | Element Under Test |
| S/01 | 3967/05 | Transceiver | Messtechnik / optoLAN-Gb | 21-023262 | 06/09/23 | Accessory |
| S/01 | 3967/06 | Transceiver | Messtechnik / optoLAN-Gb 88Q2112 | 21-023071 | 06/09/23 | Accessory |
| S/01 | 3967/09 | Transceiver | Messtechnik / optoLAN-Gb BCM89811 | 20-022952 | 06/09/23 | Accessory |
| S/01 | 3967/10 | Transceiver | Messtechnik / optoLAN-100-MAX | 21-023300 | 06/09/23 | Accessory |
| S/01 | 3967/17 | ST/ST Multimode Patch cord 20m 62,5/125µm | - | - | 06/09/23 | Accessory |
| S/01 | 3967/18 | ST/ST Multimode Patch cord 20m 62,5/125µm | - | - | 06/09/23 | Accessory |
| S/01 | 3967/27 | DFE test box | Garmin | - | 06/09/23 | Accessory |
| S/01 | 3967/28 | HUD test box | Garmin | - | 06/09/23 | Accessory |
| S/01 | 3967/29 | CID test box | Garmin | - | 06/09/23 | Accessory |
| S/01 | 3967/30 | Load cable (black/red) | Garmin | - | 06/09/23 | Accessory |
| S/01 | 3967/31 | HUD cable | Garmin | - | 06/09/23 | Accessory |
| S/01 | 3967/32 | DFE cable | Garmin | - | 06/09/23 | Accessory |
| S/01 | 3967/33 | CID cable | Garmin | - | 06/09/23 | Accessory |
| S/01 | 3967/38 | Transceiver | Messtechnik / optoCAN-FD | 20-022784 | 07/05/23 | Accessory |
| S/01 | 3967/39 | Transceiver | Messtechnik / optoCAN-FD | 20-022803 | 07/05/23 | Accessory |
| S/01 | 3967/42 | CAN Connector (DB9) - Cable | - | - | 07/05/23 | Accessory |
| S/01 | 3967/43 | Harness | Garmin | - | 07/05/23 | Element Under Test |
| S/01 | 3967/44 | PCAN-USB Adapter | Phytools / PEAK-System Technik | | 07/05/23 | Accessory |
| S/01 | 3967/45 | ST/ST Multimode Patch cord 20m 62,5/125µm | - | - | 07/05/23 | Accessory |
| S/01 | 3967/47 | Intel NUC Mini PC | Intel / NUC10FNK | G6FN145000Z6 | 07/05/23 | Accessory |

Notes referenced to samples during the project:

| Id | Type | Note |
|------|------------|---|
| S/01 | Commercial | Sample S/01 was used for all test(s) 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 length [m] | Attached during test | Shielded | Coupled to patient | |
| | BT/Wi-Fi Antenna | | 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | USB 1/2 | | 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Power | | 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | CID | | 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | AR-Cam | | 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | 100 Base T1 | | 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | 1G Base T1 | | 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | GPS | | 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | DCS | | 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | HUD | | 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | DFE | | 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Supplementary information to the ports..... : | No Data Provided | | | | | | |
| Rated power supply : | Voltage and Frequency | | Reference poles | | | | |
| | | | L1 | L2 | L3 | N | PE |
| | <input type="checkbox"/> | AC: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <input type="checkbox"/> | AC: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <input checked="" type="checkbox"/> | DC: : 8 - 16 Vdc | | | | | |
| <input type="checkbox"/> | DC: | | | | | | |
| Rated Power..... : | No Data Provided | | | | | | |
| Clock frequencies..... : | No Data Provided | | | | | | |
| Other parameters..... : | No Data Provided | | | | | | |
| Software version..... : | No Data Provided | | | | | | |
| Hardware version..... : | B03911 | | | | | | |
| Dimensions in cm (W x H x D)..... : | No Data Provided | | | | | | |
| Mounting position..... : | <input type="checkbox"/> | Table top equipment | | | | | |
| | <input type="checkbox"/> | Wall/Ceiling mounted equipment | | | | | |
| | <input type="checkbox"/> | Floor standing equipment | | | | | |
| | <input type="checkbox"/> | Hand-held equipment | | | | | |
| | <input checked="" type="checkbox"/> | Other: Automotive | | | | | |
| Modules/parts..... : | Module/parts of test item | Type | | | Manufacturer | | |
| | No Data Provided | | | | | | |
| | | | | | | | |
| Accessories (not part of the test item)..... : | Description | Type | | | Manufacturer | | |
| | No Data Provided | | | | | | |
| | | | | | | | |

| Documents as provided by the applicant | Description | File name | Issue date |
|--|----------------------------|---|-----------------|
| : | Declaration Equipment Data | FDT30_18 Declaration Equipment Data_IDC23 High 8155 | August 03, 2023 |

Copy of marking plate:

Identification of the client

Garmin International, Inc.
1200 E. 151st Street,
Olathe, Kansas 66062,
USA

Testing period and place

| | |
|----------------------|--------------------------|
| Test Location | DEKRA Certification Inc. |
| Date (start) | 2023-06-27 |
| Date (finish) | 2023-06-30 |

Document history

| Report number | Date | Description |
|---------------|------------|---------------|
| 3967ERM.014 | 08-25-2023 | 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

1. The tests have been performed by the technical personnel: Qi Zhang, Yuri Barone, Koji Nishimoto, and Victor Albrecht.
2. The external connections are:
 - BT/WLAN – antenna connection (3 antennas, 1 pin unused)
 - USB2/3 – for USB 2.0 connections
 - Main – power and CAN
 - CID – APIX2 and APIX3 display link (HDCP2.3)
 - AR-CAM – camera
 - 100BASE-T1 (OABR) – ethernet
 - 1GBASE-T1 – 1Gbit ethernet
 - GNSS – GNSS antenna connection
 - DCS – driver camera system
 - DFE – design front end (instrument panel displays)
 - HUD – head up display

Testing verdicts

| | |
|----------------|-----|
| Fail | F |
| Inconclusive | I |
| Not applicable | N/A |
| Not measured | N/M |
| Pass | P |
| Partial Passed | P* |

Summary

| Test Specification | Requirement – Test case | Verdict | Remark |
|--|--|---------|----------|
| FCC CFR 47, Part 15, Subpart B(2018) & ICES-003 Issue 7 (October 2020) | Continuous conducted emission on Power leads - Unintentional radiators | N/A | (1), (2) |
| | Radiated emission electromagnetic field – Unintentional radiators | P | - |
| <p><u>Supplementary information and remarks:</u></p> <p>(1) According with the requirements of FCC Rules and Regulations, title 47, Chapter I, Subchapter A, Part 15, Subpart B, §15.107 Conducted limits, (d) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provision for, the use of battery chargers which permit operating while charging, AC adaptors or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.</p> <p>(2) Exemptions from the scope of ICES-003, clause 1.5.1 ICES-003 does not apply to the following types of equipment (a) ITE or digital apparatus factory-installed in vehicles, boats or devices equipped with internal combustion engines, traction batteries or both (subject to ICES-002). ITE or digital apparatus not factory-installed in vehicles, boats or devices equipped with internal combustion engines, traction batteries or both do not qualify for this exemption.</p> | | | |

List of equipment used during the test

FCC 47 CFR Part 15B

Test Equipments for RE

| Control Num | Equipment | Manufacturer | Serial | Model | Next calibration |
|-------------|--|-----------------|--------------|---------------|------------------|
| 1012 | ESR26 Emi Test Receiver | Rohde & Schwarz | 101478 | ESR26 | 2025-03-10 |
| 1014 | FSV40 Signal Analyzer 40GHz | Rohde & Schwarz | 101626 | FSV40 | 2024-08-01 |
| 1056 | 3116C Double-Ridged Waveguide Horn Antenna (18-40GHz) | ETS Lindgren | 213179 | 3116C | 2026-02-23 |
| 1058 | 3115 Double-Ridged Waveguide Horn Antenna (750 MHz-18 GHz) | ETS Lindgren | 211373 | 3115 | 2026-06-26 |
| 1064 | 3142E Biconilog Antenna | ETS Lindgren | 208600 | 3142E | 2024-12-12 |
| 1108 | Ethernet SNMP Thermometer | HW Group | 60038026954 | HWg-STE Plain | 2024-10-18 |
| 1111 | Ethernet SNMP Thermometer | HW Group | 60038026577 | HWg-STE Plain | 2024-10-18 |
| 1179 | Semi-Anechoic Chamber | Frankonia | --- | SAC 3plus 'L' | --- |
| 1314 | Wireless measurement soft. EMC 32 | Rohde & Schwarz | 10400T102236 | --- | --- |
| 1461 | Low Noise Preamplifier (1-18GHz) | Bonn Elektronik | 2213857B | BLMA0118-4A | 2024-06-01 |
| 1462 | Low Noise Preamplifier (18-40GHz) | Bonn Elektronik | 2213857C | BLMA1840-4G | 2024-06-01 |

Appendix A: Test results

Appendix A content

| | |
|---|----|
| DESCRIPTION OF THE OPERATION MODES | 13 |
| TEST STANDARDS VERSION APPLIED | 13 |
| TEST CONDITIONS | 13 |
| TEST CASES DETAILS | 15 |
| FCC 47 CFR PART 15B | 15 |
| Radiated emission electromagnetic field – Unintentional radiators | 15 |

Description of the operation modes

The operation modes described in this paragraph constitute a functionality of the sample under test for itself.

The operation modes used by the samples to which the present report refers, are shown in the following table:

| Id | Description |
|-------|--|
| OM/01 | DUT ON. BT, Wi-Fi, and USB in Stand-by mode. GPS in RX mode. Ethernet carrying some traffic. Display, HUD, AR-CAM, and DCS Camera Loaded. Power supply 12 Vdc. |

Test standards version applied

The product standards and test standards applied for each test cases are shown in the following table:

| Product Test Standard | Test standard | Requirement – Test case |
|---|-------------------|--|
| FCC CFR 47, Part 15, Subpart B (2018) & ICES-003 Issue 7 (October 2020) | ANSI C63.4 (2014) | Continuous conducted emission on Power leads - Unintentional radiators |
| | ANSI C63.4 (2014) | Radiated emission electromagnetic field - Unintentional radiators |

Test Conditions

RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 3 m for the frequency range 30-1000 MHz (Bilog antenna) and 1-18 GHz (Double ridge horn antenna) and at a distance of 1m for the frequency range 18-40 GHz (18-40 GHz Double ridge horn antenna).

For radiated emissions in the range 18-40 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.

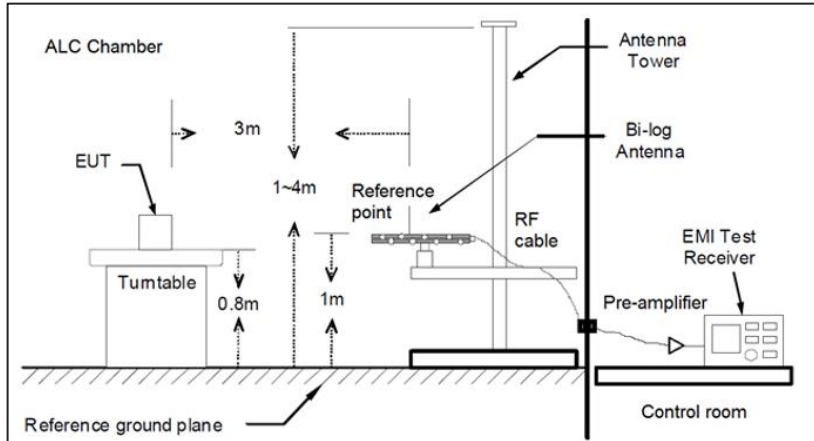


Fig A1: Generic setup for measurements from 30 to 1000 MHz

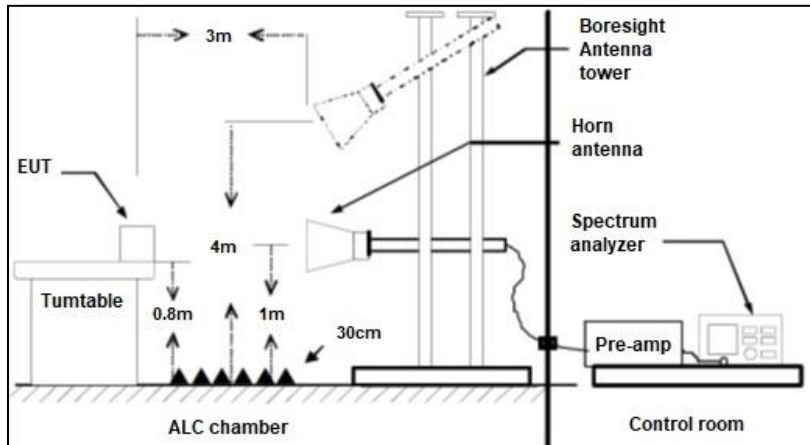


Fig A2: Generic setup for measurements from 1 to 18 GHz

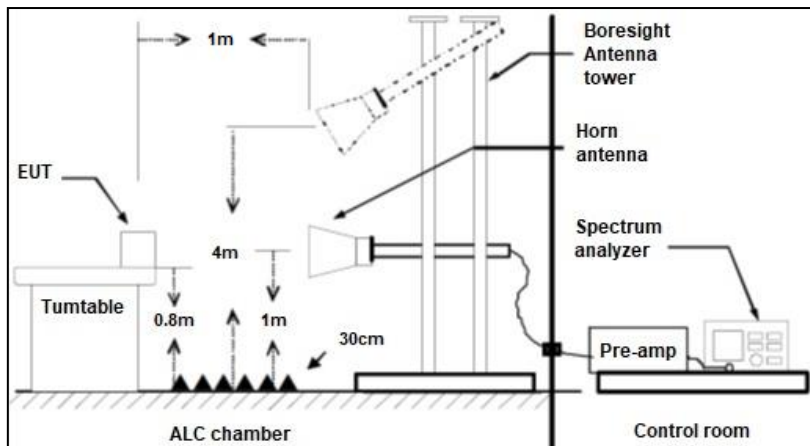


Fig A3: Generic setup for measurements from 18 to 40 GHz

Test Cases Details

FCC 47 CFR Part 15B

Radiated emission electromagnetic field – Unintentional radiators

Limits

Limits of interference Class B

The applied limit for radiated emissions, according to the requirements of:

- **FCC Rules and Regulations 47 CFR Part 15, Subpart B, Secs. 15.109 (a):** [54 FR 17714, Apr. 25, 1989, as amended at 56 FR 373, Jan. 4, 1991; 58 FR 51249, Oct. 1, 1993; 66 FR 19098, Apr. 13, 2001; 67 FR 48993, July 29, 2002; 69 FR 2849, Jan. 21, 2004; 80 FR 33447, June 12, 2015].
- **ICES-003 Issue 7, Secs 3.2.2, table 2 & 4 (October 2020).**

| Frequency range (MHz) | FCC Part 15B | | ICES-003 Issue 7 | | FCC Part 15B & ICES-003 Issue 7 | |
|-----------------------|------------------|----------------|------------------|----------------|---------------------------------|-------------------|
| | QP Limit for 3 m | | QP Limit for 3 m | | PK Limit for 3 m | AVG Limit for 3 m |
| | (μ V/m) | (dB μ V/m) | (μ V/m) | (dB μ V/m) | (dB μ V/m) | (dB μ V/m) |
| 30 to 88 | 100 | 40 | 100 | 40 | --- | --- |
| 88 to 216 | 150 | 43.5 | 150 | 43.5 | --- | --- |
| 216 to 230 | 200 | 46 | 200 | 46 | --- | --- |
| 230 to 960 | 200 | 46 | 224 | 47 | | |
| 960 to 1000 | 500 | 54 | 500 | 54 | --- | --- |
| Above 1000 | --- | --- | --- | --- | 74 | 54 |

Limits according to FCC Part 15B, are equal or more stringent than those of ICES-003 Issue 7.

Code: REmmnnRR

- RE: Radiated Emission,
 - mm: Sample number,
 - nn: Operation mode,
 - RR: Frequency range
- Low Range = LR: [30, 1000];
High Range = HR1: [1000, 18000]
HR2: [18000, 40000]

Results

| S/ | OM | Code | Freq Rng (MHz) | V |
|----|-------|-----------|----------------|---|
| 01 | OM/01 | RE0101LR | [30, 1000] | P |
| 01 | OM/01 | RE0101HR1 | [1000, 18000] | P |
| 01 | OM/01 | RE0101HR2 | [18000, 40000] | P |

Verdict

Pass

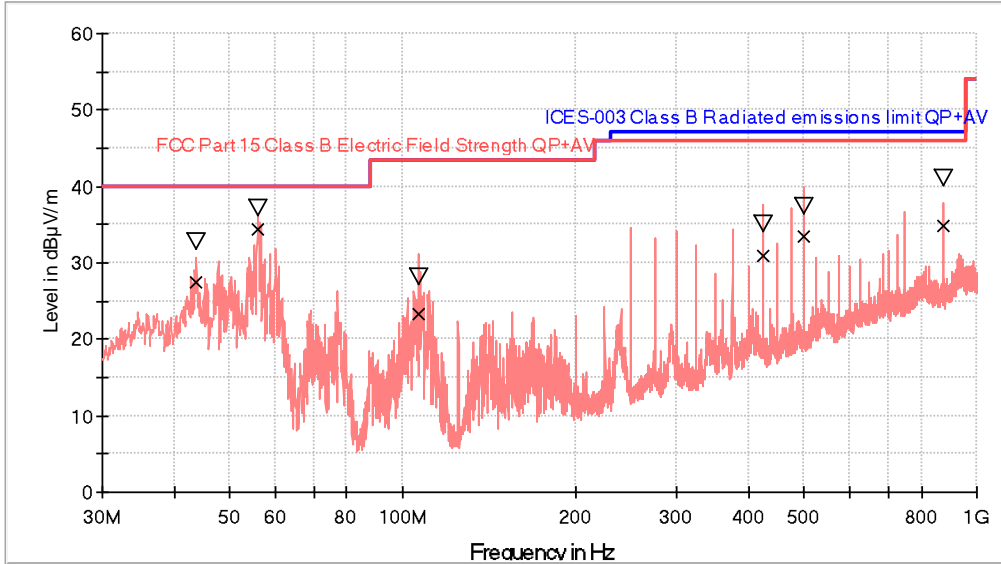
Attachments

EMC Test Code = RE0101LR Frequency Range MHz = [30, 1000]

Sample ID: S/01

Operation Mode: OM/01. DUT ON. BT, Wi-Fi, and USB in Stand-by mode. GPS in RX mode. Ethernet carrying some traffic. Display, HUD, AR-CAM, and DCS Camera Loaded. Power supply 12 Vdc.

Images:



- ICES-003 Class B Radiated emissions limit QP+AV
- Preview Result 1-PK+
- FCC Part 15 Class B Electric Field Strength QP+AV
- x FinaL_Result QPK
- ∇ FinaL_Result PK+

Tables:

| Frequency (MHz) | QuasiPeak (dBµV/m) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Pol |
|-----------------|--------------------|------------------|----------------|-------------|-----|
| 43.774841 | 27.51 | 32.76 | 40.00 | 12.49 | V |
| 55.996118 | 34.44 | 37.13 | 40.00 | 5.56 | V |
| 106.677541 | 23.33 | 28.25 | 43.50 | 20.17 | V |
| 425.032215 | 30.82 | 35.14 | 47.00 | 16.18 | V |
| 500.013462 | 33.38 | 37.44 | 47.00 | 13.62 | V |
| 875.014854 | 34.86 | 40.98 | 47.00 | 12.14 | H |

Spectrum Analyzer Parameters

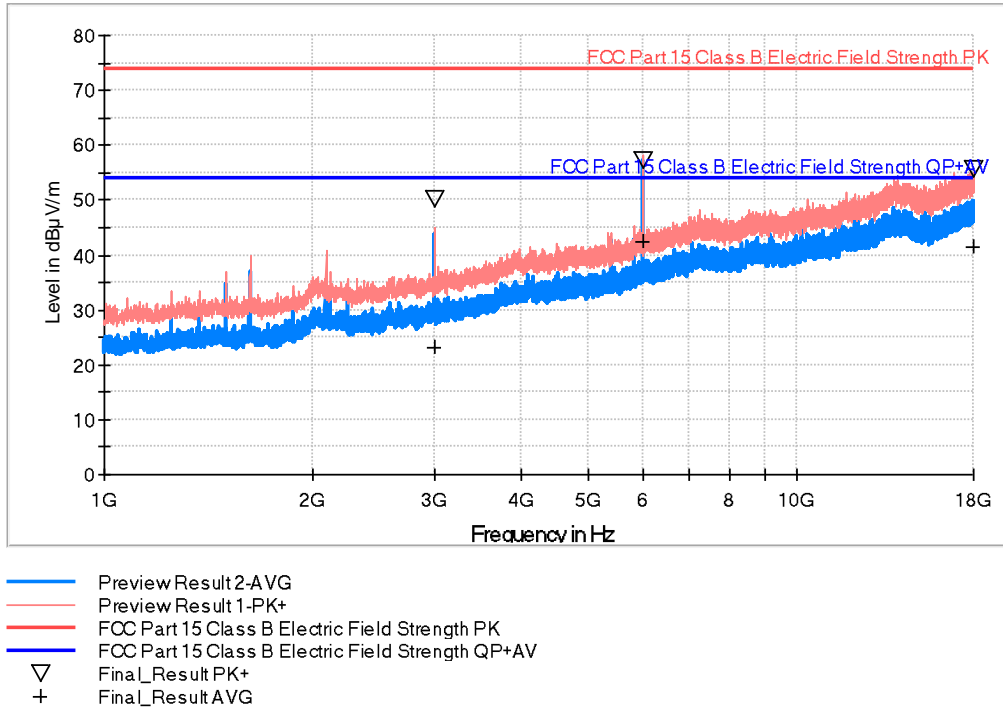
| Subrange | Step Size | Detectors | Bandwidth | Sweep Time |
|----------------|-----------|-----------|-----------|------------|
| 30 MHz - 1 GHz | 48.5 kHz | PK+ | 100 kHz | 1 s |

EMC Test Code = RE0101HR1 Frequency Range MHz = [1000, 18000]

Sample ID: S/01

Operation Mode: OM/01. DUT ON. BT, Wi-Fi, and USB in Stand-by mode. GPS in RX mode. Ethernet carrying some traffic. Display, HUD, AR-CAM, and DCS Camera Loaded. Power supply 12 Vdc.

Images:



Tables:

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV) | Limit PK+ (dBµV/m) | Margin PK+ (dB) | Pol |
|-----------------|------------------|--------------|--------------------|-----------------|-----|
| 3000.220000 | 50.10 | 73.90 | 73.9 | 23.80 | V |
| 6000.100000 | 57.34 | 73.90 | 73.9 | 16.56 | H |
| 17982.900000 | 55.58 | 73.90 | 73.9 | 18.32 | H |

| Frequency (MHz) | Average (dBµV/m) | Limit (dBµV) | Limit AVG (dBµV/m) | Margin AVG (dB) | Pol |
|-----------------|------------------|--------------|--------------------|-----------------|-----|
| 2995.000000 | 22.98 | 53.90 | 53.9 | 30.92 | V |
| 6000.500000 | 42.31 | 53.90 | 53.9 | 11.59 | H |
| 17973.000000 | 41.44 | 53.90 | 53.9 | 12.46 | V |

Spectrum Analyzer Parameters

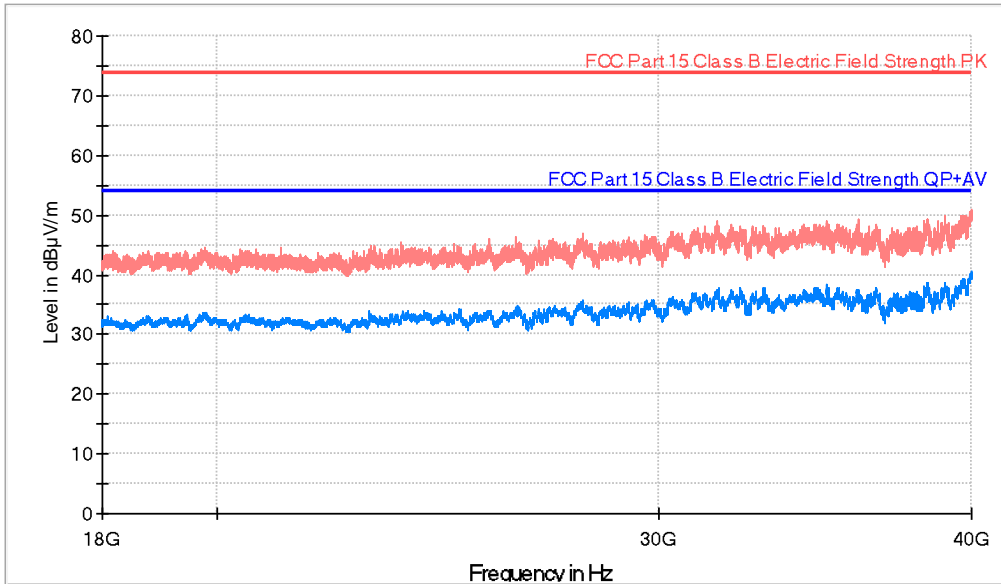
| Subrange | Step Size | Detectors | Bandwidth | Sweep Time |
|----------------|-----------|-----------|-----------|------------|
| 1 GHz - 18 GHz | 500 kHz | PK+ ; AVG | 1 MHz | 1 s |

EMC Test Code = RE0101HR2 Frequency Range MHz = [18000, 40000]

Sample ID: S/01

Operation Mode: OM/01. DUT ON. BT, Wi-Fi, and USB in Stand-by mode. GPS in RX mode. Ethernet carrying some traffic. Display, HUD, AR-CAM, and DCS Camera Loaded. Power supply 12 Vdc.

Images:



- AVG_MAXH
- PK+_MAXH
- FCC Part 15 Class B Electric Field Strength PK
- FCC Part 15 Class B Electric Field Strength QP+AV

Tables:

| Frequency (MHz) | PK+_MAXH (dBµV/m) | Pol | Margin - PK+ (dB) | Limit - PK+ (dBµV/m) |
|-----------------|-------------------|-----|-------------------|----------------------|
| 31676.300000 | 49.0 | V | 24.9 | 73.9 |

| Frequency (MHz) | AVG_MAXH (dBµV/m) | Pol | Margin - AVG (dB) | Limit - AVG (dBµV/m) |
|-----------------|-------------------|-----|-------------------|----------------------|
| 31711.500000 | 37.8 | V | 16.1 | 53.9 |

Spectrum Analyzer Parameters

| Subrange | Step Size | Detectors | Bandwidth | Sweep Time |
|-----------------|-----------|-----------|-----------|------------|
| 18 GHz - 40 GHz | 1.1 MHz | PK+ ; AVG | 1 MHz | 1 s |