**DEKRA Certification, Inc.**
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United States of America

DEKRA

ACCREDITED
Test Lab
Cert 2764.01

FCC LISTED, REGISTRATION NUMBER: 2764.01

ISED LISTED REGISTRATION NUMBER: 23595-1

Test report No:
2501BERM.006

# Test report

## FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-18 Edition) & ICES-003 ISSUE 6 – Update April (2017)

| | |
|---|---|
| Identification of item tested | Display Audio Infotainment Unit 10”TP |
| Trademark | Visteon |
| Model and /or type reference | VW MIB Regio |
| Other identification of the product | FCC ID: NT8-VWMIBREGIO<br>IC: 3043A-VWMIBREGIO<br>HW Version: H04<br>SW Version: 0107 |
| Features | FM, AM, USB, Bluetooth, WLAN, GNSS |
| Manufacturer | VISTEON CORPORATION<br>ONE VILLAGE CENTER DRIVE, VAN BUREN TOWNSHIP, MI, 48111 U.S.A |
| Test method requested, standard | FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-18 Edition)<br>ICES-003 ISSUE 6 – Update April (2017) |
| Summary | IN COMPLIANCE |
| Approved by (name / position & signature) | Domingo Galvez<br>EMC&RF Lab Manager<br>  <br>Digitally signed by Domingo Galvez<br>DN: cn=Domingo Galvez, o=DEKRA Certification Inc., ou=Regulatory Lab, email=dgalvez@dekra.com, c=US<br>Date: 2019.12.09 22:05:19 -05'00' |
| Date of issue | 11-26-2019 |
| Report template No | FDT08_21 |

# Index

# 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.



# 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.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Certification Inc.
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 |
|---|---|---|---|
| Conducted emission | 0,009 - 30 | 2.69 | dB |
| Radiated emission | 30-180 | 3.82 | dB |
| | 180-1000 | 2.61 | dB |
| | 1000-18000 | 2.92 | dB |
| | 18000-40000 | 2.15 | dB |

# Data provided by the client

VW MIB Regio is a Display Audio Infotainment Unit with capacitive 10”TP touch screen with following functionalities: USB 3.1/USB Video, USB Hub, Bluetooth EDR 2.4 GHz, Audio BT streaming music, control and browsing, Wi-Fi hotspot Functionality/Wireless 2.4GHz and 5 GHz band, GNSS receiver-GLONASS, GPS.

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:

| Control Nº | Description | Model | Serial Nº | Date of reception |
|---|---|---|---|---|
| 2501B/06 | Vehicular Radio | 2GM.035.180.A | VWZ7Z2W0130037 | 10/31/2019 |
| 2501B/18 | Harness | - | - | 10/31/2019 |

Following Accessory item was used with Sample S/01 to perform testing

| Control Nº | Description | Model | Serial Nº | Date of reception |
|---|---|---|---|---|
| 2501B/37 | GPS & Am/FM radio antenna | 6C0.035.501.G5FQ | 02S AZWPL | 11/11/2019 |
| 2501B/32 | Fakra USB Cable | - | - | 10/31/2019 |

1. Sample S/01 has undergone following test(s):

   All radiated tests indicated in appendix A.

# Test sample description

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ports…… : | Port name and description | | | Cable | | | |
| | | | | Specified length [m] | Attached during test | Shielded | |
| | AM/FM Antenna Connection: Fakra | | | | ☒ | ☐ | |
| | GPS Antenna Connector: Fakra | | | | ☒ | ☐ | |
| | USB Video Port | | | | ☒ | ☐ | |
| | USB 3.0 | | | | ☒ | ☐ | |
| | Main Connectors | | | | ☒ | ☐ | |
| Supplementary information to the ports…… : | Dual USB HUB Type C | | | | | | |
| Rated power supply .....: | Voltage and Frequency | | Reference poles | | | | |
| | | | L1 | L2 | L3 | N | PE |
| | ☐ | AC: | ☐ | ☐ | ☐ | ☐ | ☐ |
| | ☐ | AC: | ☐ | ☐ | ☐ | ☐ | ☐ |
| | ☐ | DC: | | | | | |
| | ☒ | DC: 13.5 / Wireless 2.4 GHz and 5 GHz band | | | | | |
| Rated Power .....: | Sleep current: 300 µA | | | | | | |
| Clock frequencies .....: | 48 KHZ, 26 MHZ, 25 MHZ, 36.864 MHZ, 16 MHZ | | | | | | |
| Other parameters.....: | Display Screensize: 10.1" (diagonal) FHD,<br>2.14:1, Landscape, Transmissive, Normally<br>black, ADStype | | | | | | |
| Software version .....: | 0107 | | | | | | |
| Hardware version.....: | H04 | | | | | | |
| Dimensions in cm (L x W x D) ....: | 260.31 X 130.72 X 153.15 | | | | | | |
| Mounting position.....: | ☐ | Table top equipment | | | | | |
| | ☐ | Wall/Ceiling mounted equipment | | | | | |
| | ☐ | Floor standing equipment | | | | | |
| | ☐ | Hand-held equipment | | | | | |
| | ☒ | Other: Vehicle / Automotive use | | | | | |
| Modules/parts .....: | Module/parts of test item | | | Type | | Manufacturer | |
| | N/A | | | | | | |

| | | | |
|---|---|---|---|
| Accessories (not part of the test item) .....: | Description | Type | Manufacturer |
| | GPS Antenna | Antenna | - |
| | Harnesses to power up the Radio | Harnesses | - |
| | SMA Connectors | SMA | - |
| | USB Cables | USB | |
| Documents as provided by the applicant.....: | Description | File name | Issue date |
| | PoA | | |
| | Declaration letters | | |
| | Application Forms FDT 30_14 | | |
| | Application forms FRF88_01 FRF91_02 | | |

**Copy of marking plate:**


## Identification of the client

VISTEON CORPORATION
ONE VILLAGE CENTER DRIVE, VAN BUREN TOWNSHIP,
MI, 48111 U.S.A

## Testing period and place

| | |
|---|---|
| **Test Location** | DEKRA Certification, Inc |
| **Date (start)** | 11-13-2019 |
| **Date (finish)** | 11-14-2019 |

## Document history

| Report number | Date | Description |
|---|---|---|
| 2501BERM.006 | 11-26-2019 | First release |

# Environmental conditions

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

| | |
|---|---|
| Temperature | Min. = 15 ºC<br>Max. = 35 ºC |
| Relative humidity | Min. = 30 %<br>Max. = 75 % |
| Air pressure | Min. = 860 mbar<br>Max. = 1060 mbar |

In the semi-anechoic chamber, the following limits were not exceeded during the test.

| | |
|---|---|
| Temperature | Min. = 15 ºC<br>Max. = 35 ºC |
| Relative humidity | Min. = 30 %<br>Max. = 75 % |
| Air pressure | Min. = 860 mbar<br>Max. = 1060 mbar |

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

| | |
|---|---|
| Temperature | Min. = 15 ºC<br>Max. = 35 ºC |
| Relative humidity | Min. = 30 %<br>Max. = 60 % |
| Air pressure | Min. = 860 mbar<br>Max. = 1060 mbar |

# Remarks and comments

The tests have been performed by the technical personnel: Koji Nishimoto and Poojita Bhattu

# Testing verdicts

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

# Summary

| Emission Test | | | |
|---|---|---|---|
| **Report Section** | **Requirement – Test case** | **Verdict** | **Remark** |
| A.1. | Radiated emission electromagnetic field test (30 MHz – 1000 MHz) | P | N/A |
| A.1. | Radiated emission electromagnetic field test (1 GHz – 18 GHz) | P | N/A |
| A.1. | Radiated emission electromagnetic field test (18 GHz – 40 GHz) | P | N/A |
| A.2. | Conducted emission test (150 kHz to 30 MHz) | N/A | Refer 1 |
| Supplementary information and remarks:<br>1) Device is DC powered from a battery | | | |

# List of equipment used during the test

| CONTROL NUMBER | DESCRIPTION | MANUFACTURER | MODEL | LAST CALIBRATION | NEXT CALIBRATION |
|---|---|---|---|---|---|
| 0981 | Preamplifier | BONN ELEKTRONIK | BLMA0118 -2A | 2018/10 | 2020/10 |
| 0982 | Preamplifier | BONN ELEKTRONIK | BLMA1840 -1M | 2018/10 | 2020/10 |
| 1012 | EMI Test Receiver | Rohde & Schwarz | ESR26 | 2018/09 | 2020/09 |
| 1014 | Signal Analyzer | Rohde & Schwarz | FSV40 | 2019/04 | 2021/04 |
| 1056 | Double-ridge Waveguide Horn antenna 10-40 GHz | ETS LINDGREN | 3116C | 2016/12 | 2019/12 |
| 1057 | Double-ridge Waveguide Horn antenna 1-18 GHz | ETS LINDGREN | 3115 | 2017/03 | 2020/03 |
| 1065 | Biconilog Antenna | ETS LINDGREN | 3142E | 2017/03 | 2020/03 |

# **Appendix A:** Test results

# Appendix A Content

# DESCRIPTION OF THE OPERATION MODES

The operation modes described in this paragraph constitute a functionality of the sample under test for itself. Every operation mode takes failure criteria for the immunity test that they were applying to it and a monitoring to guarantee performance of the same ones.

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

| OPERATION MODE* | DESCRIPTION |
|---|---|
| OM#01 | EUT ON. Powered by 13.5 Vdc<br>• Wi-Fi 2.4/5 GHz and BLE in Idle Mode<br>• AM/FM radio and GPS in RX Mode |

*Worst configurations detected

## A.1.RADIATED EMISSION. ELECTROMAGNETIC FIELD MEASURE

| | | |
|---|---|---|
| **LIMITS:** | Reference standard: | FCC CFR 47, Part 15, Subpart B (10-1-18 Edition), Secs. 15.109 & ICES-003 Issue 6 – Update April (2017) |
| | Test standard: | FCC CFR 47, Part 15, Subpart B (10-1-18 Edition), Secs. 15.109 & ICES-003 Issue 6 – Update April (2017); ANSI C63.4 (2014) |

**Limits of interference Class B**

The applied limit for radiated emissions, 3 m distance, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (10-01-18 Edition), Secs. 15.109 & ICES-003 Issue 6 – Update April (2017) in the frequency range 30 MHz to 40 GHz for class B equipment.

| Frequency range (MHz) | QP Limit for 3 m | |
|---|---|---|
| | (μV/m) | (dBμV/m) |
| 30 to 88 | 100 | 40 |
| 88 to 216 | 150 | 43.5 |
| 216 to 960 | 200 | 46 |
| Above 960 | 500 | 54 |

| Frequency range (MHz) | AVG Limit for 3 m | | PK Limit for 3 m (1) |
|---|---|---|---|
| | (μV/m) | (dBμV/m) | (dBμV/m) |
| Above 1000 | 500 | 54 | 74 |

(1) Frequencies above 1 GHz, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test, as per §15.35(b)

**TEST SETUP**

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

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 360º 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.) | |
|---|---|

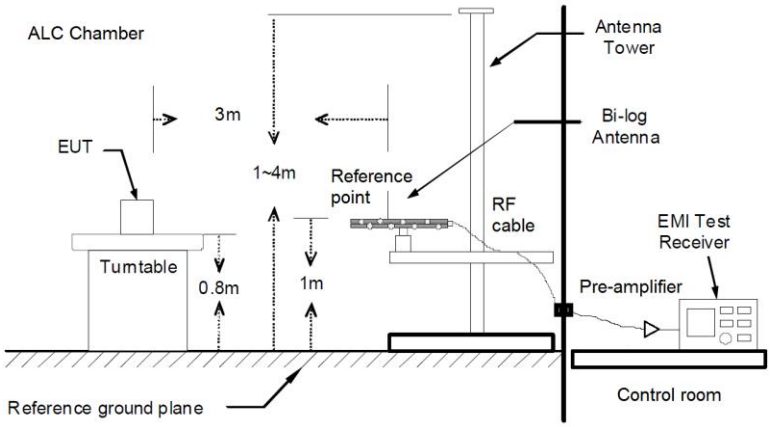



Fig A1: Generic setup for measurements from 30 to 1000MHz

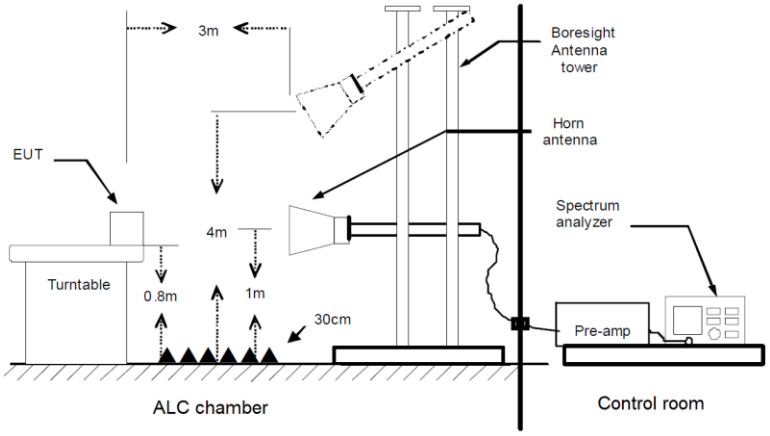



Fig A2: Generic setup for measurements from 1 to 18GHz (Analyzer outside the chamber)

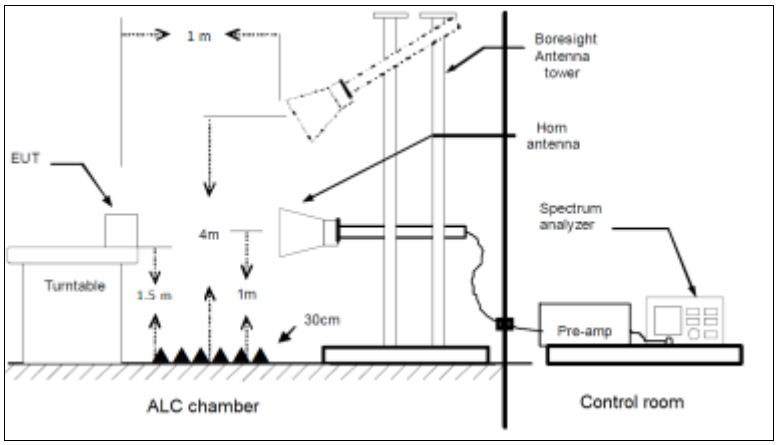


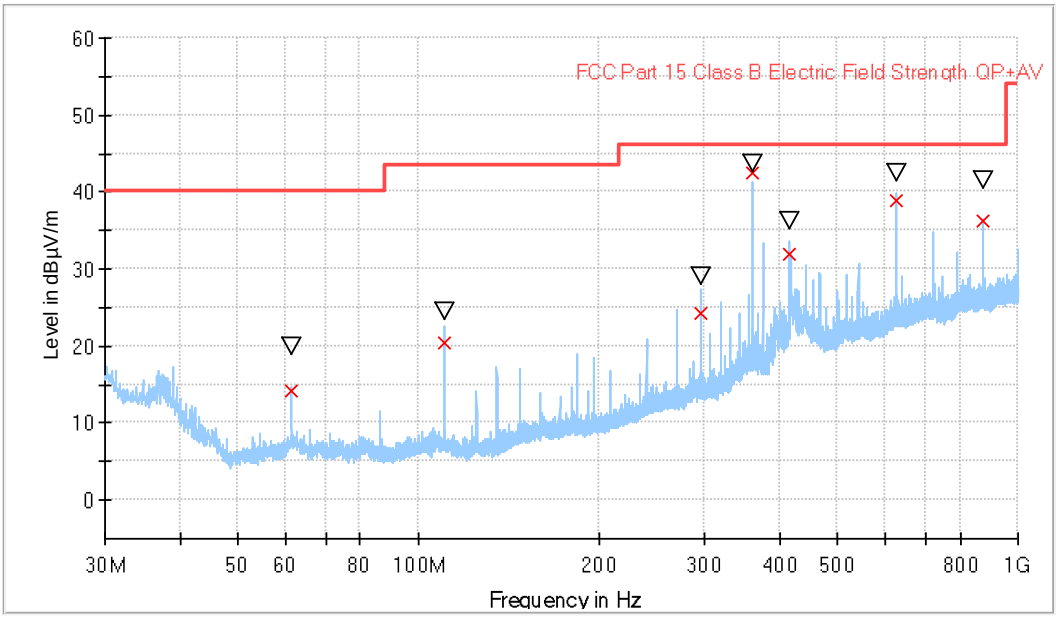

Fig A3: Generic setup for measurements from 18 to 40GHz (Analyzer outside the chamber)

| | |
|---|---|
| **TESTED SAMPLES:** | S/01 |
| **TESTED OPERATION MODES:** | OM#01 |
| **TEST RESULTS:** | **CR**mmnnXX: CR, Radiation Condition; mm: Sample number; nn: Operation mode.,XX: Frequency Range, |

| CRmmnnXX | Description | Result |
|---|---|---|
| CR0101LR | Range: 30 MHz - 1000 MHz Horizontal Polarization | P |
| CR0101LR | Range: 30 MHz - 1000 MHz Vertical Polarization | P |
| CR0101HR1 | Range: 1-18 GHz Horizontal Polarization | P |
| CR0101HR1 | Range: 1-18 GHz Vertical Polarization | P |
| CR0101HR2 | Range: 18-40 GHz Horizontal Polarization | P |
| CR0101HR2 | Range: 18-40 GHz Vertical Polarization | P |

## Radiated Emission. CR0101LR

| | |
|---|---|
| Project: | 02501BERM006 |
| Company: | Visteon Brazil |
| Sample: | S/01 |
| Operation mode: | OM#01 |
| Description: | EUT ON. (Wi-Fi 2.4 GHz, 5 Ghz and BLE in IDLE mode, GPS in RX mode). Power Supply: 13.5 Vdc. |

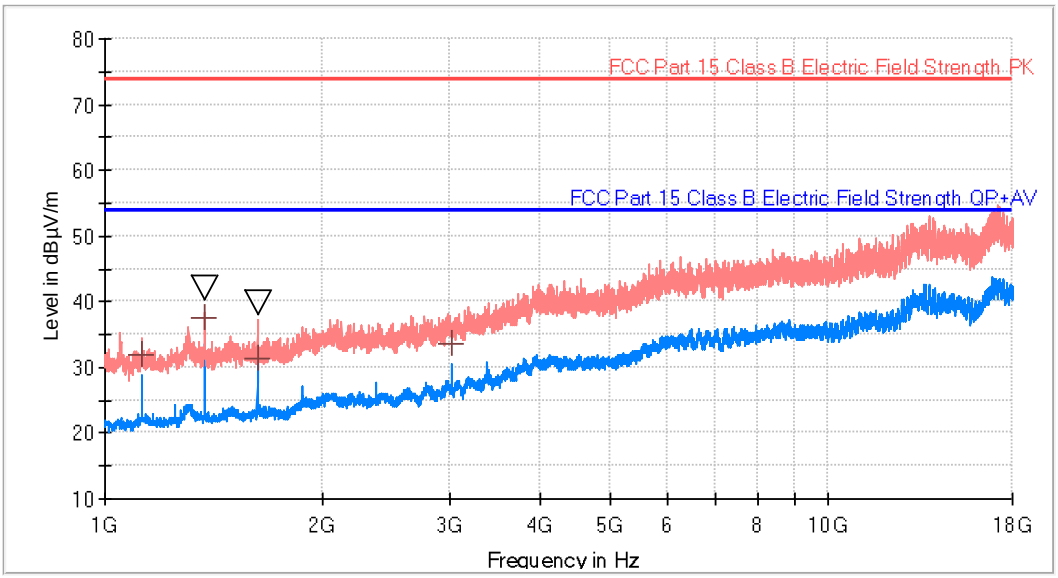



Preview Result 1-PK+
FCC Part 15 Class B Electric Field Strength QP+AV
Final_Result QPK
Final_Result PK+

| Frequency (MHz) | QuasiPeak (dBuV/m) | MaxPeak (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|---|---|---|---|---|---|---|---|
| 61.439340 | --- | 19.91 | --- | --- | 193.0 | V | 27.0 |
| 61.439340 | 14.11 | --- | 40.00 | 25.89 | 193.0 | V | 27.0 |
| 110.599996 | --- | 24.46 | --- | --- | 115.0 | V | -156.0 |
| 110.599996 | 20.51 | --- | 40.00 | 19.49 | 115.0 | V | -156.0 |
| 294.919156 | 24.22 | --- | 47.00 | 22.78 | 122.0 | H | 92.0 |
| 294.919156 | --- | 29.06 | --- | --- | 122.0 | H | 92.0 |
| 361.280877 | 42.46 | --- | 47.00 | 4.54 | 254.0 | H | -41.0 |
| 361.280877 | --- | 43.69 | --- | --- | 254.0 | H | -41.0 |
| 415.999967 | 32.03 | --- | 47.00 | 14.97 | 100.0 | H | 102.0 |
| 415.999967 | --- | 36.25 | --- | --- | 100.0 | H | 102.0 |
| 624.999962 | --- | 42.51 | --- | --- | 118.0 | H | -171.0 |
| 624.999962 | 38.94 | --- | 47.00 | 8.06 | 118.0 | H | -171.0 |
| 874.999746 | 36.22 | --- | 47.00 | 10.78 | 122.0 | V | -27.0 |
| 874.999746 | --- | 41.44 | --- | --- | 122.0 | V | -27.0 |

## Radiated Emission. CR0101HR1

| | |
|---|---|
| Project: | 02501BERM009 |
| Company: | Visteon Brazil |
| Sample: | S/01 |
| Operation mode: | OM#01 |
| Description: | EUT ON. (Wi-Fi 2.4 GHz, 5 GHz and BLE in IDLE mode, GPS in RX mode). Power Supply: 13.5 Vdc. |

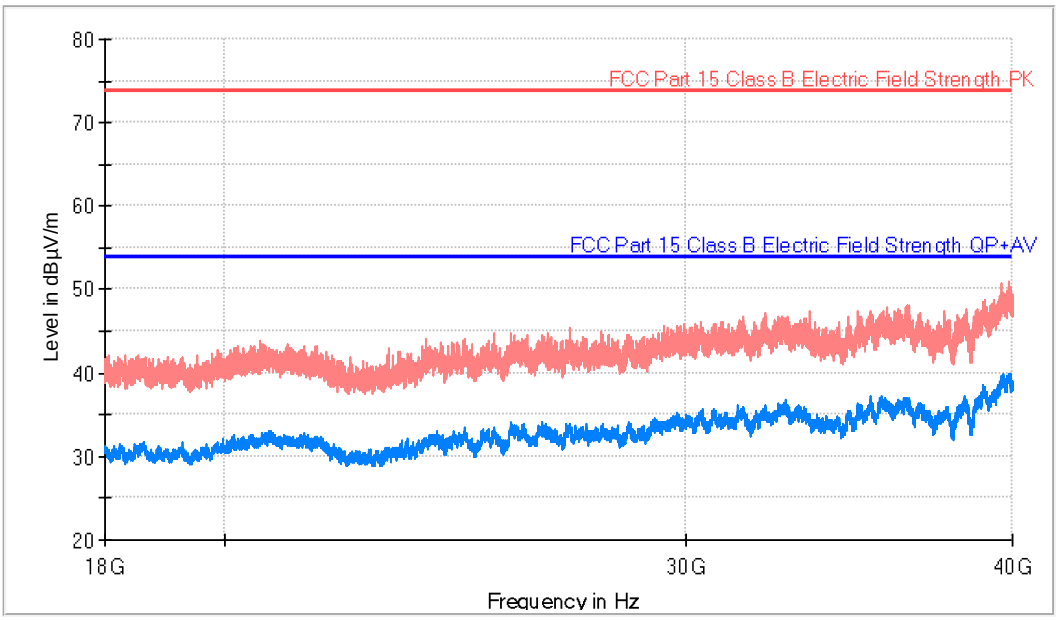



Preview Result 2-AVG
Preview Result 1-PK+
FCC Part 15 Class B Electric Field Strength PK
FCC Part 15 Class B Electric Field Strength QP+AV
Final_Result PK+
Final_Result AVG

| Frequency (MHz) | MaxPeak (dBuV/m) | Average (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|---|---|---|---|---|---|---|---|
| 1125.000000 | --- | 32.03 | 53.90 | 21.87 | 100.0 | H | -118.0 |
| 1375.050000 | 42.12 | --- | 73.90 | 31.78 | 118.0 | V | 9.0 |
| 1375.050000 | --- | 37.61 | 53.90 | 16.29 | 118.0 | V | 10.0 |
| 1624.850000 | 39.85 | --- | 73.90 | 34.05 | 115.0 | H | 43.0 |
| 1625.050000 | --- | 31.34 | 53.90 | 22.56 | 114.0 | H | 80.0 |
| 3011.600000 | --- | 33.70 | 53.90 | 20.20 | 117.0 | H | 55.0 |

## Radiated Emission. CR0101HR2

| | |
|---|---|
| Project: | 02501BERM009 |
| Company: | Visteon Brazil |
| Sample: | S/01 |
| Operation mode: | OM#01 |
| Description: | EUT ON. (Wi-Fi 2.4 GHz, 5 GHz and BLE in IDLE mode, GPS in RX mode). Power Supply: 13.5 Vdc. |




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