

| <b>RADIO REPORT</b><br><b>FCC 47 CFR Part 15E</b><br><b>Unlicensed National Information Infrastructure Devices in the 5 GHz Bands</b> |   |
|---|---|
| <b>Report Reference No</b>  | G0M-1901-8021-TFC407WF-V01  |
| <b>Testing Laboratory</b>   | Eurofins Product Service GmbH   |
| <b>Address</b>  | Storkower Str. 38c<br>15526 Reichenwalde<br>Germany   |
| <b>Accreditation</b>  | <br>DAkkS - Registration number : D-PL-12092-01-04<br>FCC Filed Test Laboratory, Reg.-No.: 96970 |
| <b>Applicant</b>  | IAV automotive Engineering Inc.   |
| <b>Address</b>  | 15620 technology Drive<br>48168 Northville<br>United States   |
| <b>Test Specification</b>   | According to FCC rules  |
| <b>Standard</b>   | 47 CFR Part 15E   |
| <b>Non-Standard Test Method</b>   | None  |
| <b>Equipment under Test (EUT):</b>  |   |
| <b>Product Description</b>  | Telemetry Equipment   |
| <b>Model(s)</b>   | TDBOX2  |
| <b>Additional Model(s)</b>  | None  |
| <b>Brand Name(s)</b>  | None  |
| <b>Hardware Version(s)</b>  | IAV-G-00057-01-AA-V02-R01_CI01 and IAV-G-00057-01-AA-V02-R02_CI03   |
| <b>Software Version(s)</b>  | Frontend 0109 / Telemetrie 0211   |
| <b>FCC-ID</b>   | 2AS2J-G00057-01   |
| <b>Test Result</b>  | <b>PASSED</b>   |

| Possible test case verdicts:   |  |                                      |
|--|--|--------------------------------------|
| required by standard but not tested  | N/T  |                                      |
| not required by standard   | N/R  |                                      |
| not applicable to EUT  | N/A  |                                      |
| test object does meet the requirement  | P(PASS)  |                                      |
| test object does not meet the requirement  | F(FAIL)  |                                      |
| Testing:   |  |                                      |
| Test Lab Temperature   | 20 - 23 °C   |                                      |
| Test Lab Humidity  | 32 – 38 %  |                                      |
| Date of receipt of test item   | 2019-05-23   |                                      |
| Report:  |  |                                      |
| Compiled by  | Florian Voigt                                      |                                      |
| Tested by (+ signature)<br>(Responsible for Test)  | Florian Voigt<br>supervised by<br>Wilfried Treffke | <i>F. Voigt</i><br><i>W. Treffke</i> |
| Approved by (+ signature)<br>(Head of Lab)   | Toralf Jahn  | <i>T. Jahn</i>                       |
| Date of Issue  | 2019-08-05   |                                      |
| Total number of pages  | 71   |                                      |
| General Remarks:   |  |                                      |
| <p>The test results presented in this report relate only to the object tested.</p> <p>The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p> |  |                                      |
| Additional Comments:   |  |                                      |
|  |  |                                      |

## VERSION HISTORY

| Version History |            |                 |            |
|-----------------|------------|-----------------|------------|
| Version         | Issue Date | Remarks         | Revised By |
| 01              | 2019-08-05 | Initial Release |            |

**ABBREVIATIONS AND ACRONYMS**

| Acronyms    |  |
|-------------|--|
| Acronym     | Description                                |
| BPSK        | Binary Phase Shift Keying                  |
| EIRP        | Equivalent Isotropic Radiated Power        |
| EUT         | Equipment Under Test                       |
| FCC         | Federal Communications Commission          |
| HT          | High Throughput                            |
| IEEE 802.11 | MAC and PHY Layer for WiFi                 |
| OFDM        | Orthogonal Frequency Division Multiplexing |
| QAM         | Quadrature Amplitude Modulation            |
| QPSK        | Quadrature Phase Shift Keying              |
| RBW         | Resolution bandwidth                       |
| RMS         | Root mean square                           |
| TPC         | Transmit Power Control                     |
| VBW         | Video bandwidth                            |
| VHT         | Very High Throughput                       |

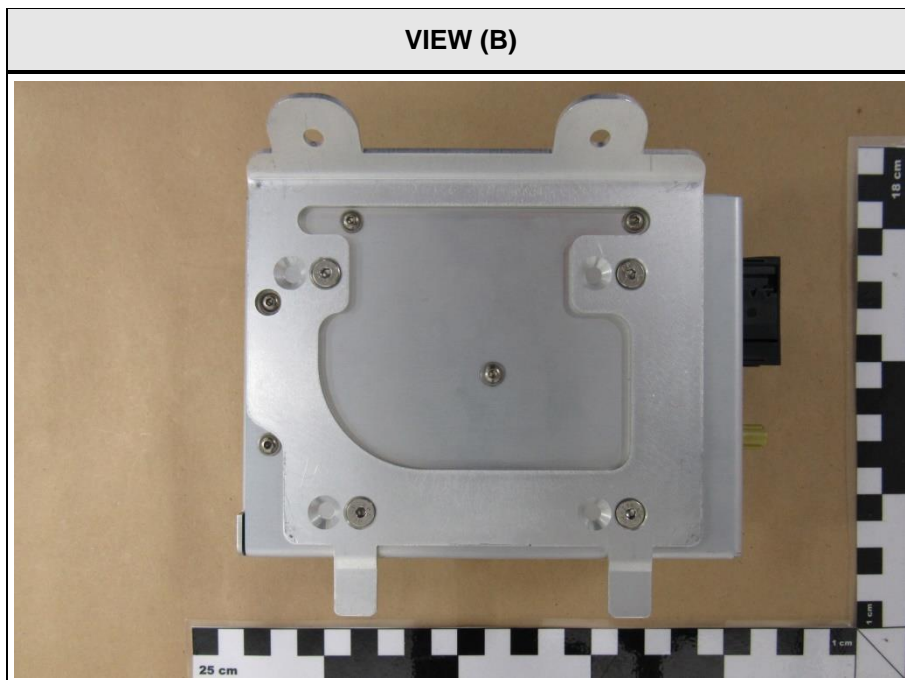
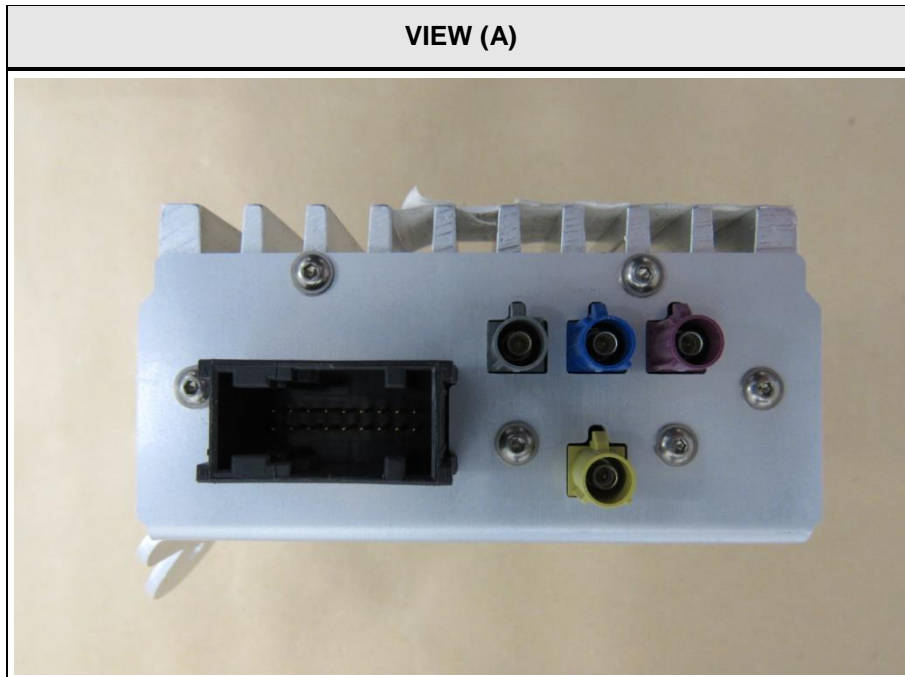
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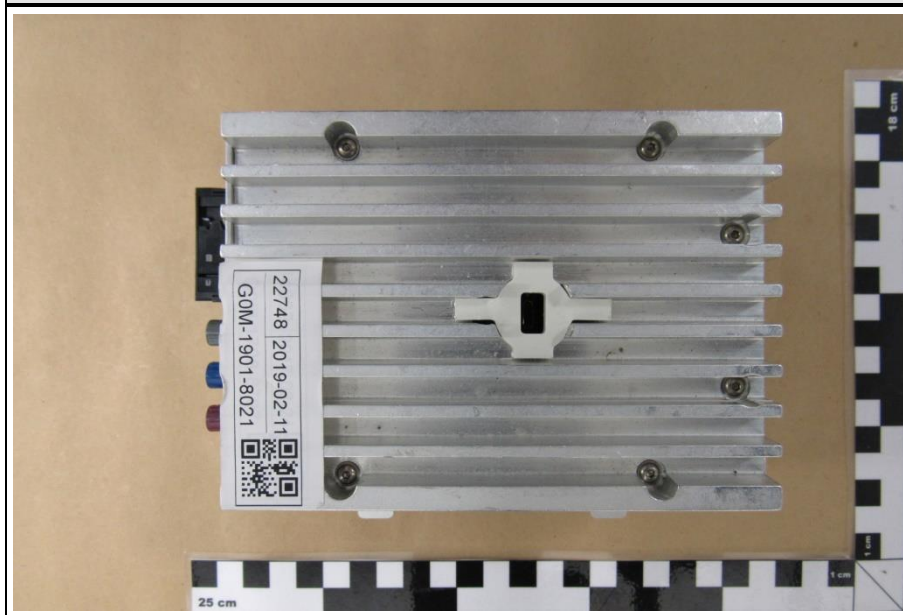
## 1 Equipment (Test Item) Under Test

|                          |  |                             |
|--------------------------|--|-----------------------------|
| Description              | Telemetry Equipment  |                             |
| Model                    | TDBOX2   |                             |
| Additional Model(s)      | None   |                             |
| Brand Name(s)            | None   |                             |
| Serial Number(s)         | 1700400005   |                             |
| Hardware Version(s)      | IAV-G-00057-01-AA-V02-R01_CI01 and IAV-G-00057-01-AA-V02-R02_CI03                              |                             |
| Software Version(s)      | Frontend 0109 / Telemetrie 0211  |                             |
| FCC-ID                   | 2AS2J-G00057-01  |                             |
| Equipment type           | End Product  |                             |
| Device type              | Client   |                             |
| Radio type               | Transceiver  |                             |
| Assigned frequency bands | 5150 - 5250 MHz<br>5250 - 5350 MHz   |                             |
| Radio technology         | IEEE 802.11a<br>IEEE 802.11n (HT20)<br>IEEE 802.11n (HT40)                                     |                             |
| Modulation               | BPSK, QPSK, 16-QAM, 64-QAM   |                             |
| Number of antenna ports  | 1  |                             |
| Transmit power control   | Yes  |                             |
| Radio Module             | Type   | IEEE 802.11 radio module    |
|                          | Model  | ELLA-W161-A                 |
|                          | Manufacturer   | uBlox                       |
|                          | HW Version   | 03                          |
|                          | SW Version   | 14.68.35.p46                |
|                          | FCC-ID   | PV7-WIBEAR11N-DF1           |
| Antenna                  | Type   | External antenna            |
|                          | Model  | 5B4.035.510                 |
|                          | Manufacturer   | Molex                       |
|                          | Gain   | 4.22 dBi (by measurement)   |
| Supply Voltage           | $V_{NOM}$  | 13.8 VDC (external battery) |
| Operating Temperature    | $T_{NOM}$  | 25 °C                       |
| Battery supply           | Yes  |                             |
| AC/DC-Adaptor            | N/A  |                             |
| Manufacturer             | IAV automotive Engineering Inc.<br>15620 technology Drive<br>48168 Northville<br>United States |                             |

1.1 Photos – Equipment External



VIEW (C)



VIEW (D)



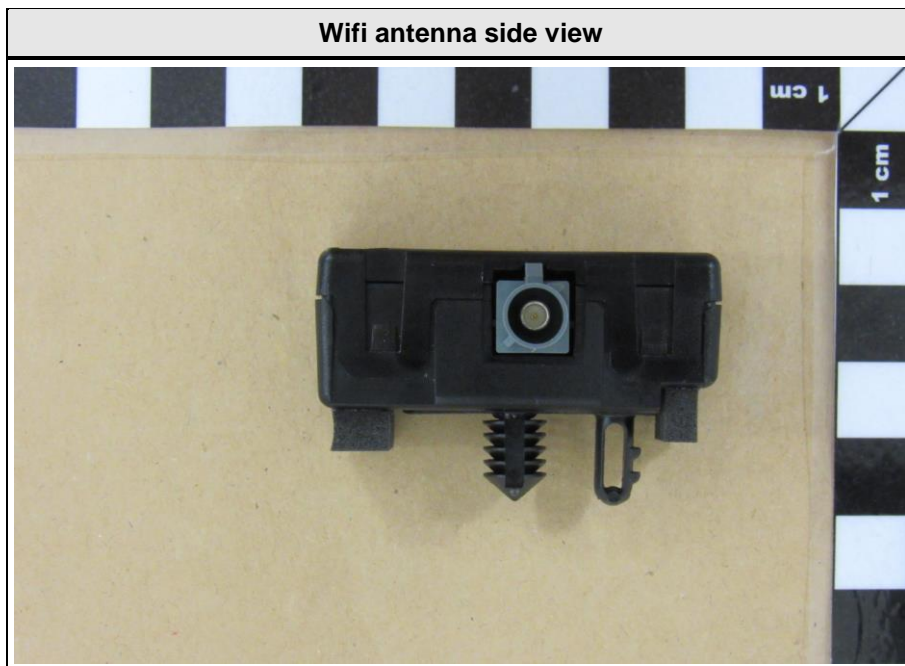
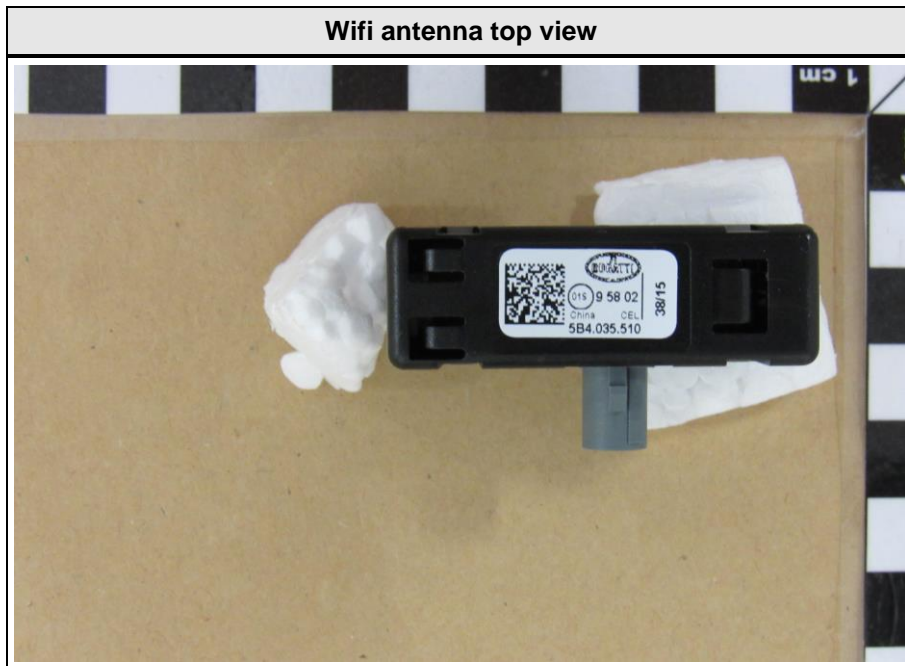


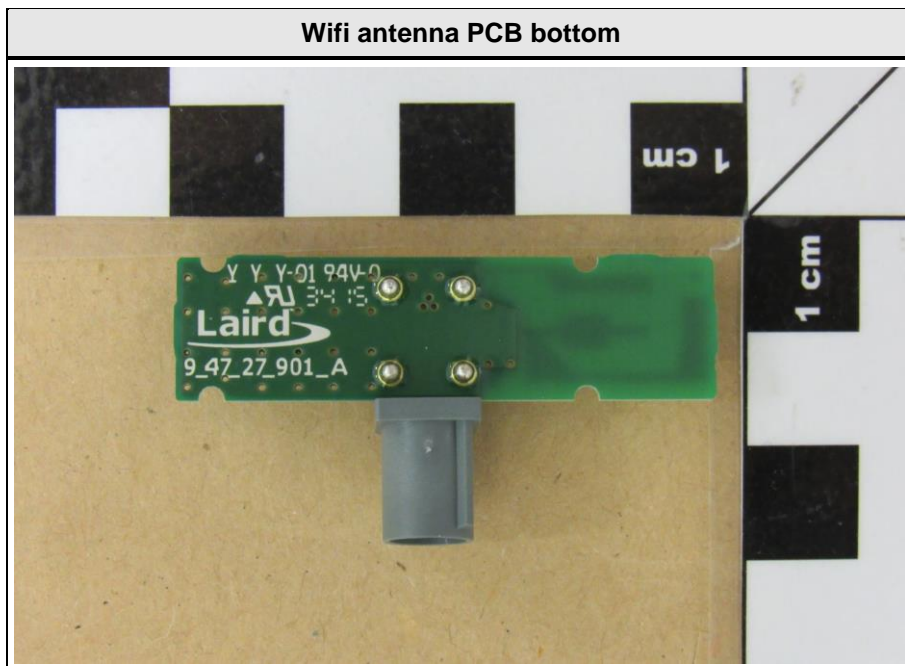
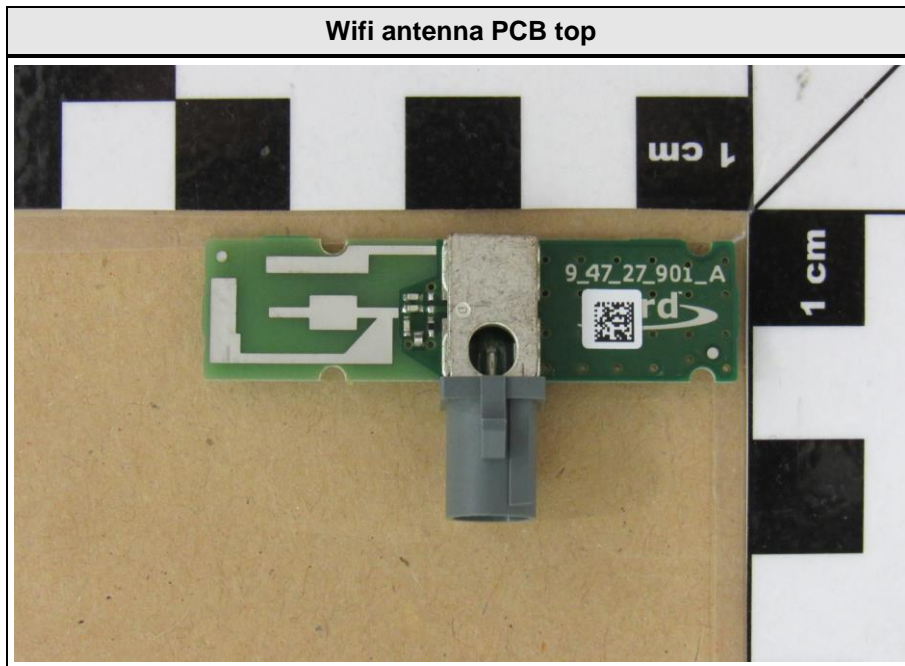
VIEW (E)



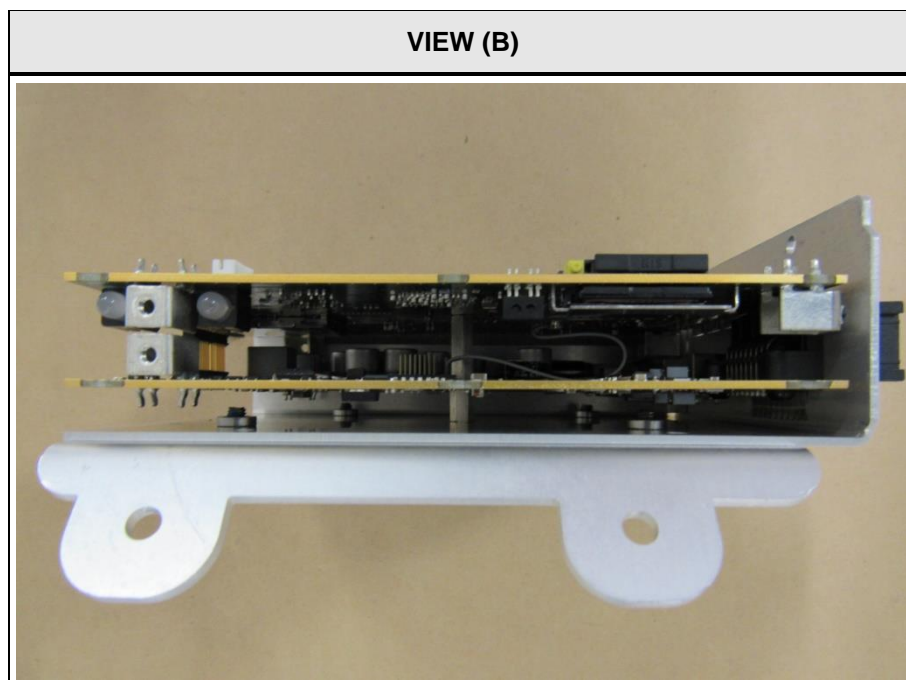
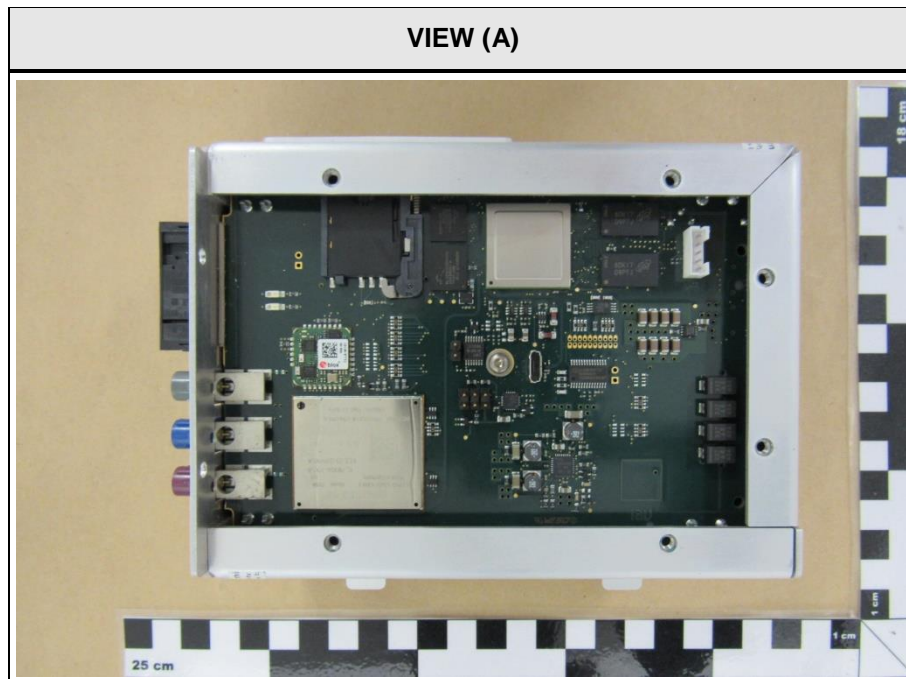
VIEW (F)





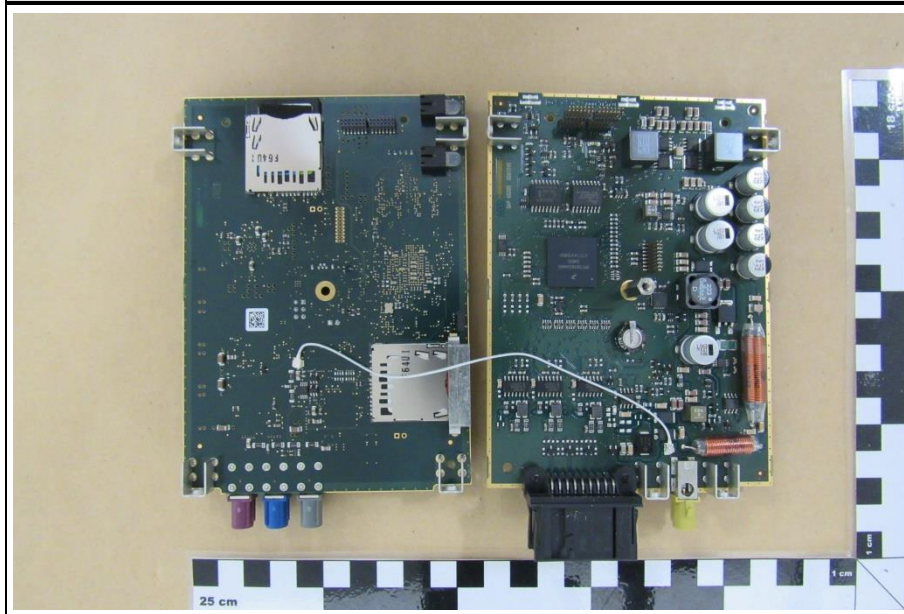


1.2 Photos – Equipment Internal

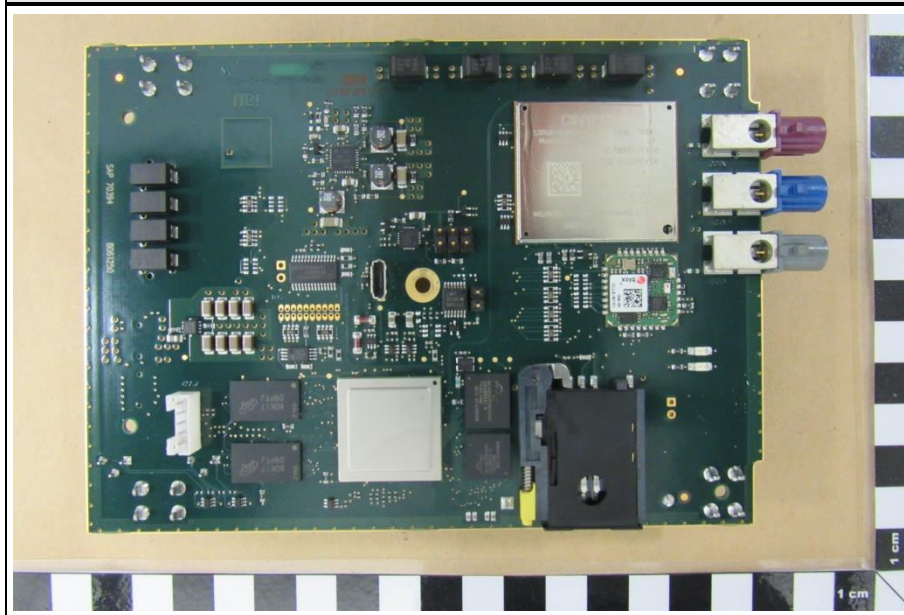




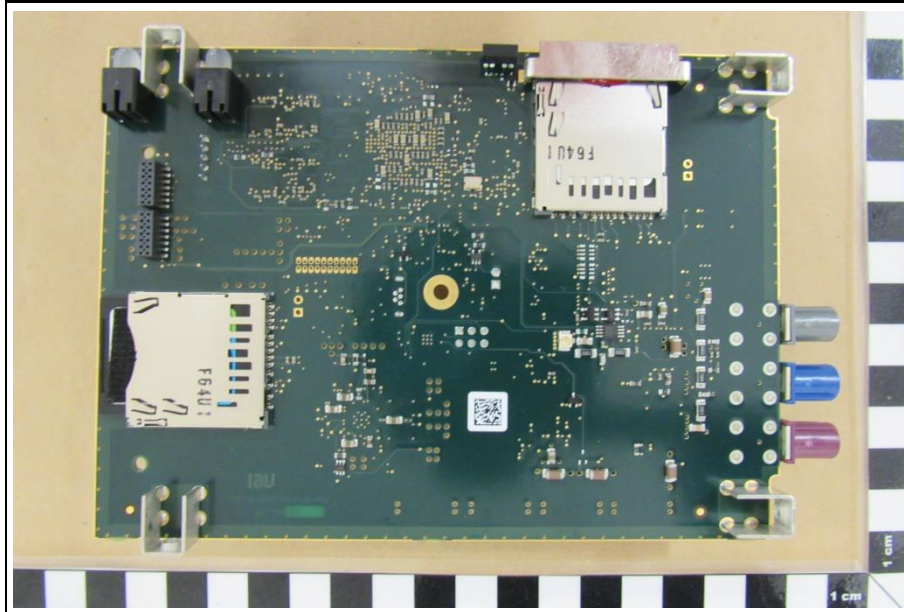
VIEW (C)



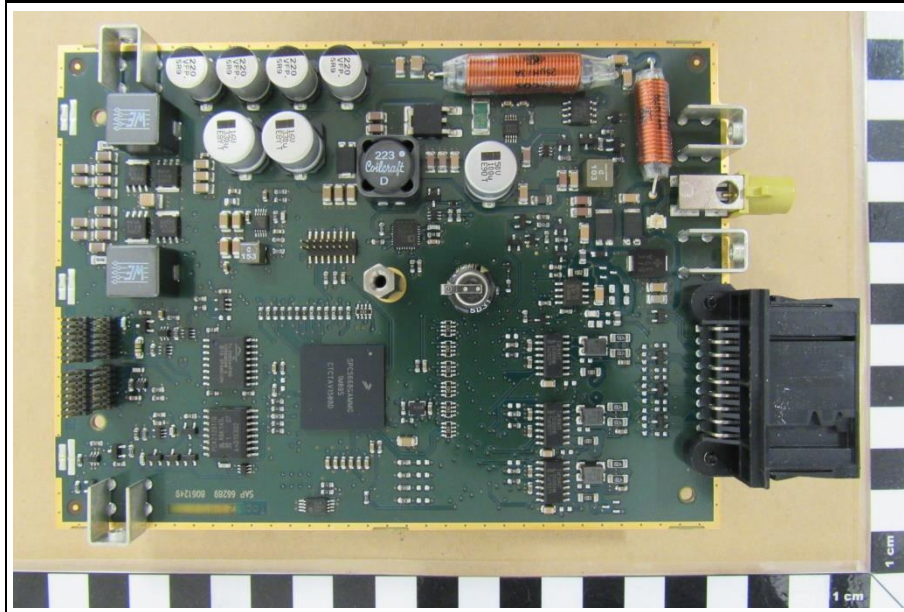
VIEW (E)



VIEW (F)



VIEW (G)





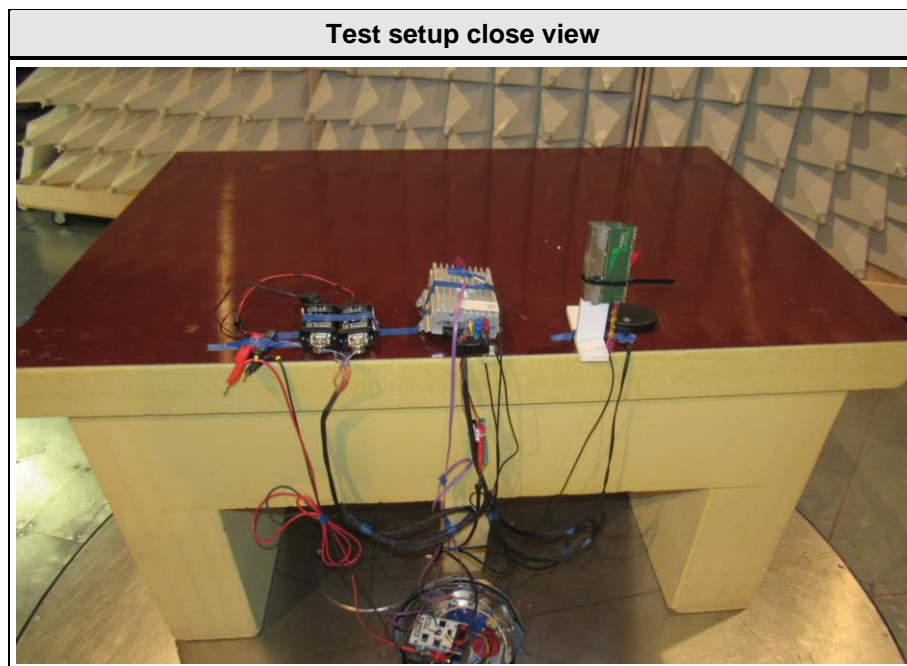
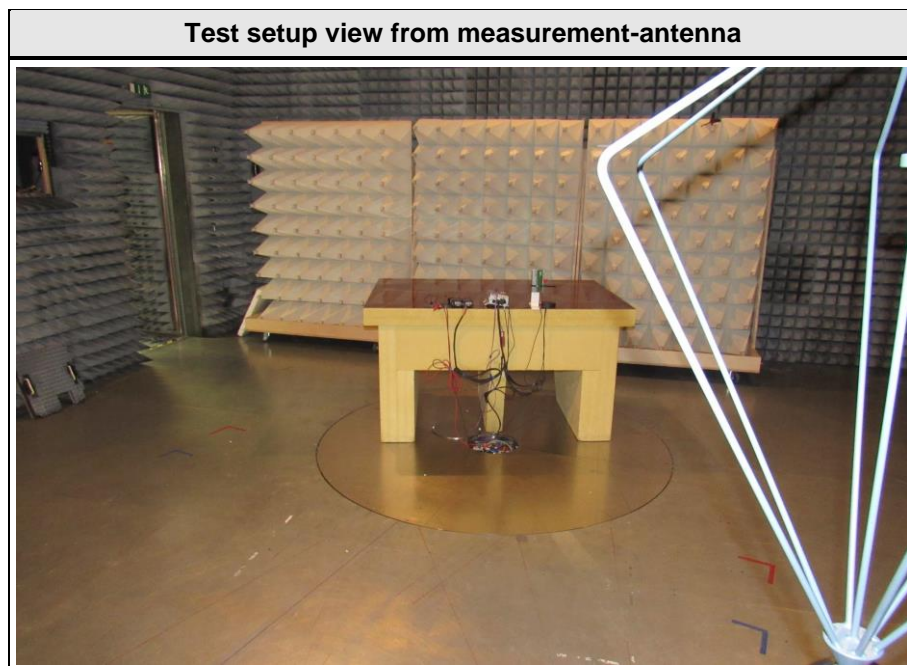
VIEW (H)



VIEW (I)



### 1.3 Photos – Test Setup





**1.4 Support Equipment**

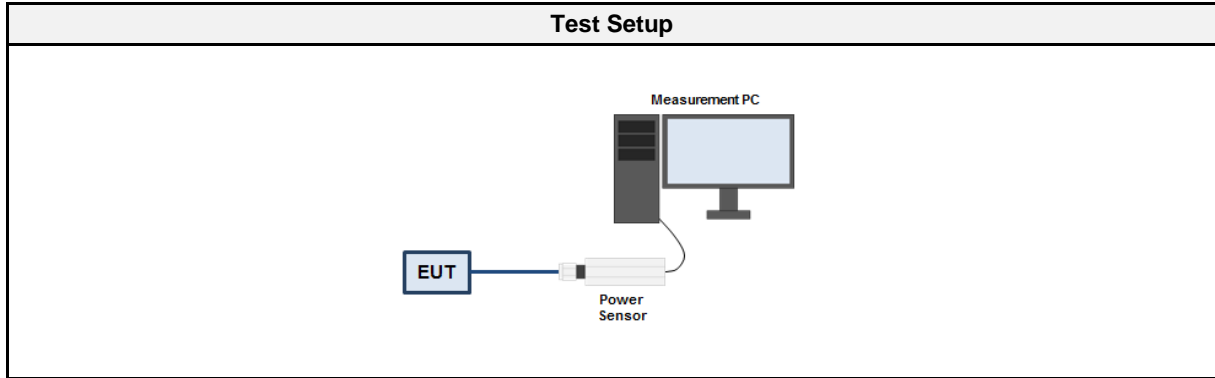
| Product Type   | Device                      | Manufacturer                   | Model                                       | Comment  |
|--|-----------------------------|--------------------------------|---|--|
| AE   | Notebook                    | HP Inc.<br>(Hewlett-Packard)   | EliteBook 850                               | Serial No.<br>5CG44649ML                       |
| AE   | Power Supply                | HP Inc.<br>(Hewlett-Packard)   | HP part no.<br>744481-002<br>UP/N AO45R00DH | CT:<br>WDWRR0BGC7MJ<br>RB 0B                   |
| AE   | GSM/UMTS<br>Antenna         | Laird                          | 6 58 01                                     | Connected but not<br>used                      |
| AE   | CAN-Bus media-<br>converter | Peak-System                    | PCAN-LWL                                    | Connected and<br>powered but not<br>used       |
| AE   | GPS-Antenna                 | Hirschmann Car<br>Communicaion | GPS 1890 LP<br>P/series 920 061-<br>305     | Connected but not<br>used                      |
| CBL  | Power/CAN cable             | ---                            | 1.80m                                       | Connects EUT to<br>power source and<br>CAN-Bus |
| CBL  | CAN-Powercable              | ---                            | 2.0m  | Powers CAN-Bus<br>media converter              |
| CBL  | EUT-Powercable              | ---                            | 1.0m  | Powers EUT                                     |
| CBL  | Antennacable                | ---                            | 2.0m  | Connects<br>GSM/UMTS<br>antenna to EUT         |
| Description:   |                             |                                |   |  |
| AE   | Auxiliary Equipment         |                                |   |  |
| SIM  | Simulator                   |                                |   |  |
| CBL  | Connecting Cable            |                                |   |  |
| SFT  | Software                    |                                |   |  |
| Comment: The Equipment Under Test used an operating system with a test firmware. The driver for IEEE 802.11 was running in a manufacturing mode. |                             |                                |   |  |

## 1.5 Test mode data rate evaluation

### 1.5.1 Information

| Test Information   |              |
|--------------------|--------------|
| Measurement Method | KDB 789033 E |

### 1.5.2 Setup



### 1.5.3 Equipment

| Test Equipment |              |          |            |           |          |
|----------------|--------------|----------|------------|-----------|----------|
| Description    | Manufacturer | Model    | Identifier | Cal. Date | Cal. Due |
| Power Sensor   | ETS-Lindgren | 7002-006 | EF00934    | 2018-07   | 2019-07  |

### 1.5.4 Procedure

| Test Procedure   |
|--|
| <ol style="list-style-type: none"> <li>1. EUT set to test mode on the first supported channel for each modulation and data rate</li> <li>2. The conducted power is measured with a wide band power sensor</li> <li>3. The power is measured for all data rates/modulations supported by the EUT</li> <li>4. The data rate with the highest output power for each technology is selected for test mode</li> </ol> |

## 1.5.5 Results

| OFDM - 5180 MHz    |             |         |         |         |         |         |         |
|--------------------|-------------|---------|---------|---------|---------|---------|---------|
| Output power [dBm] |             |         |         |         |         |         |         |
| 6 Mbps             | 9 Mbps      | 12 Mbps | 18 Mbps | 24 Mbps | 36 Mbps | 48 Mbps | 54 Mbps |
| <b>13.4</b>        | <b>13.4</b> | 13.2    | 12.4    | 13.3    | 13.3    | 13.3    | 13.2    |

| HT20 - 5180 MHz    |             |             |       |       |       |       |       |
|--------------------|-------------|-------------|-------|-------|-------|-------|-------|
| Output power [dBm] |             |             |       |       |       |       |       |
| MCS 0              | MCS 1       | MCS 2       | MCS 3 | MCS 4 | MCS 5 | MCS 6 | MCS 7 |
| <b>13.3</b>        | <b>13.3</b> | <b>13.3</b> | 13.2  | 13.2  | 13.2  | 13.2  | 13.2  |

| HT40 - 5190 MHz    |             |             |       |             |             |             |       |
|--------------------|-------------|-------------|-------|-------------|-------------|-------------|-------|
| Output power [dBm] |             |             |       |             |             |             |       |
| MCS 0              | MCS 1       | MCS 2       | MCS 3 | MCS 4       | MCS 5       | MCS 6       | MCS 7 |
| 12.9               | <b>13.3</b> | <b>13.3</b> | 13.2  | <b>13.3</b> | <b>13.3</b> | <b>13.3</b> | 13.2  |

## 1.6 Test mode duty cycle evaluation

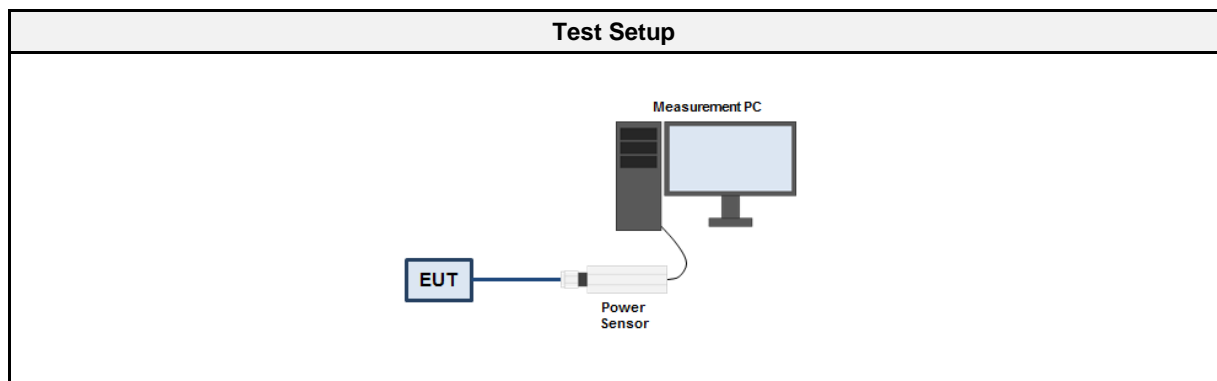
### 1.6.1 Information

| Test Information   |                  |
|--------------------|------------------|
| Measurement Method | ANSI C63.10 12.2 |

### 1.6.2 Requirements

| Requirements |   |
|--------------|---|
| Duty cycle   | Duty cycle correction                               |
| ≥ 98 %       | No correction required                              |
| < 98 %       | Correction required ( $10 \times \log_{10}(1/DC)$ ) |

### 1.6.3 Setup



### 1.6.4 Equipment

| Test Equipment |              |          |            |           |          |
|----------------|--------------|----------|------------|-----------|----------|
| Description    | Manufacturer | Model    | Identifier | Cal. Date | Cal. Due |
| Power Sensor   | ETS-Lindgren | 7002-006 | EF00934    | 2018-07   | 2019-07  |

### 1.6.5 Procedure

| Test Procedure   |
|--|
| <ol style="list-style-type: none"> <li>1. EUT set to test mode</li> <li>2. Sweep time is set long enough to capture at least 5 bursts</li> <li>3. The maximum burst duration <math>T_{ON}</math> is measured</li> <li>4. The minimum idle duration <math>T_{OFF}</math> is measured</li> <li>5. The duty cycle is calculated by <math>DC = T_{ON} / (T_{ON} + T_{OFF})</math></li> <li>6. The duty cycle correction is calculated by <math>DC = 10 \times \log_{10}(T_{ON} / (T_{ON} + T_{OFF}))</math></li> </ol> |

## 1.6.6 Results

| Duty Cycle Results     |               |           |            |                        |
|------------------------|---------------|-----------|------------|------------------------|
| Mode                   | Channel [MHz] | Data rate | Duty Cycle | Correction Factor [dB] |
| OFDM<br>(IEEE 802.11a) | 5180          | 6 Mbps    | 100        | N/R                    |
| HT20<br>(IEEE 802.11n) | 5180          | MCS 0     | 100        | N/R                    |
| HT40<br>(IEEE 802.11n) | 5190          | MCS 1     | 100        | N/R                    |

## 1.7 Test Modes

| Mode   | Description   |
|--|---|
| OFDM<br>(IEEE 802.11a)   | Mode = Transmit<br>Modulation = BPSK<br>Spreading = OFDM<br>Bandwidth = 20 MHz<br>Duty cycle = 100%<br>Power setting = 15dBm (Software setting)<br>Data rate = 6 Mbps   |
| HT40<br>(IEEE 802.11n)   | Mode = Transmit<br>Modulation = QPSK<br>Spreading = OFDM<br>Bandwidth = 40 MHz<br>Duty cycle = 100%<br>Power setting (1 Simultaneous Tx) = 15dBm (Software setting)<br>Data rate (1 Simultaneous Tx) = 27 Mbps<br>MCS (1 Simultaneous Tx) = 1 |
| Comment: The above settings were found as worst case during pre-tests. |   |

## 1.8 Test Frequencies

| Designator | Mode | Channel | Frequency [MHz] |
|------------|------|---------|-----------------|
| F1         | Tx   | 36      | 5180            |
| F2         | Tx   | 48      | 5240            |
| F3         | Tx   | 64      | 5320            |
| F4         | Tx   | 36+40   | 5190            |
| F5         | Tx   | 44+48   | 5230            |
| F6         | Tx   | 60+64   | 5310            |

### 1.9 Sample emission level calculation

The following is a description of terms and a sample calculation, as appears in the radiated emissions data table. The numbers used in the calculation are for example only. There is no direct correlation to the specific data taken for the product described in this document:

Reading:

This is the reading obtained on the spectrum analyzer in dBµV. Any external preamplifiers used are taken into account through internal analyzer settings.

A.F.:

This is the antenna factor for the receiving antenna. It is a conversion factor, which converts electric fields strengths to voltages, which can be measured directly on the spectrum analyzer. It is treated as a loss in dB. Cable losses have been included with the A.F. to simplify the calculations. The antenna factor is used in calculations as follows:

$$\text{Reading on Analyzer (dB}\mu\text{V)} + \text{A.F. (dB/m)} = \text{Net field strength (dB}\mu\text{V/m)}$$

Net:

This is the net field strength measurement (as shown above).

Limit:

This is the FCC Class B radiated emission limit (in units of dBµV/m). The FCC limits are given in units of µV/m. The following formula is used to convert the units of µV/m to dBµV/m:

$$\text{Limit (dB}\mu\text{V/m)} = 20 \cdot \log(\mu\text{V/m})$$

Margin:

This is the margin of compliance below the FCC limit. The units are given in dB. A negative margin indicates the emission was below the limit. A positive margin indicates that the emission exceeds the limit.

Example only:

|                      |   |               |   |                           |   |           |
|----------------------|---|---------------|---|---------------------------|---|-----------|
| Reading + AF         | = | Net Reading   | : | Net reading - FCC limit   | = | Margin    |
| +21.5 dBµV + 26 dB/m |   | = 47.5 dBµV/m |   | 47.5 dBµV/m - 57.0 dBµV/m |   | = -9.5 dB |



### 1.10 Normative References

| References  |                       |
|-------------|-----------------------|
| Designator  | Reference             |
| KDB 789033  | KDB 789033 D02 v02r01 |
| ANSI C63.10 | ANSI C63.10:2013      |

## 2 Result Summary

| FCC 47 CFR Part 15E            |                                   |                  |        |  |
|--------------------------------|-----------------------------------|------------------|--------|--|
| Product Standard Reference     | Requirement                       | Reference Method | Result | Remarks  |
| FCC 15.407(e)                  | 6 dB bandwidth                    | KDB 789033 C.2   | N/R    | Only required in 5725-5850 MHz band.   |
| FCC 15.407(a)(2),(a)(5),(h)(2) | 26 dB bandwidth                   | KDB 789033 C.1   | N/T    | No limit. Basis for other measurements.  |
| FCC 15.407(a)                  | Maximum output power              | KDB 789033 E     | N/T    |  |
| FCC 15.407(a)                  | Transmit power control            | KDB 789033 E     | N/R    | Required in 5250-5350 and 5470-5725 MHz bands. Not required for EIRP < 500 mW. |
| FCC 15.407(a)                  | Power spectral density            | KDB 789033 F     | N/T    |  |
| FCC 15.407(g)                  | Frequency stability               | ANSI C63.10 6.8  | N/T    |  |
| FCC 15.207                     | AC power line conducted emissions | ANSI C63.10 6.2  | N/R    | Not powered (directly or indirectly) via AC-Mains                              |
| FCC 15.407(b)                  | Transmitter radiated emissions    | KDB 789033 G     | PASS   |  |
| FCC 15.407(a)                  | Radiation pattern                 | KDB 789033 H     | N/T    | 5150-5250 MHz band only with EIRP > 21 dBm                                     |
| Comment:                       |                                   |                  |        |  |

| Possible Test Case Verdicts |  |
|-----------------------------|--|
| PASS                        | Test object does meet the requirements       |
| FAIL                        | Test object does not meet the requirements   |
| N/T                         | Required by standard but not tested          |
| N/R                         | Not required by standard for the test object |

### 3 Test Conditions and Results

#### 3.1 Test Conditions and Results - Transmitter radiated emissions

##### 3.1.1 Information

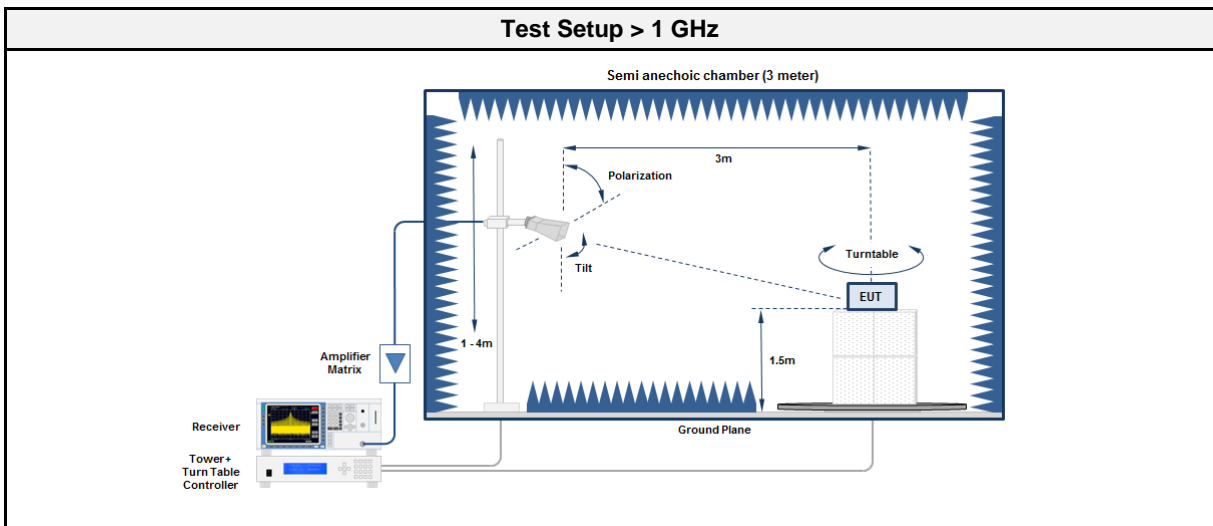
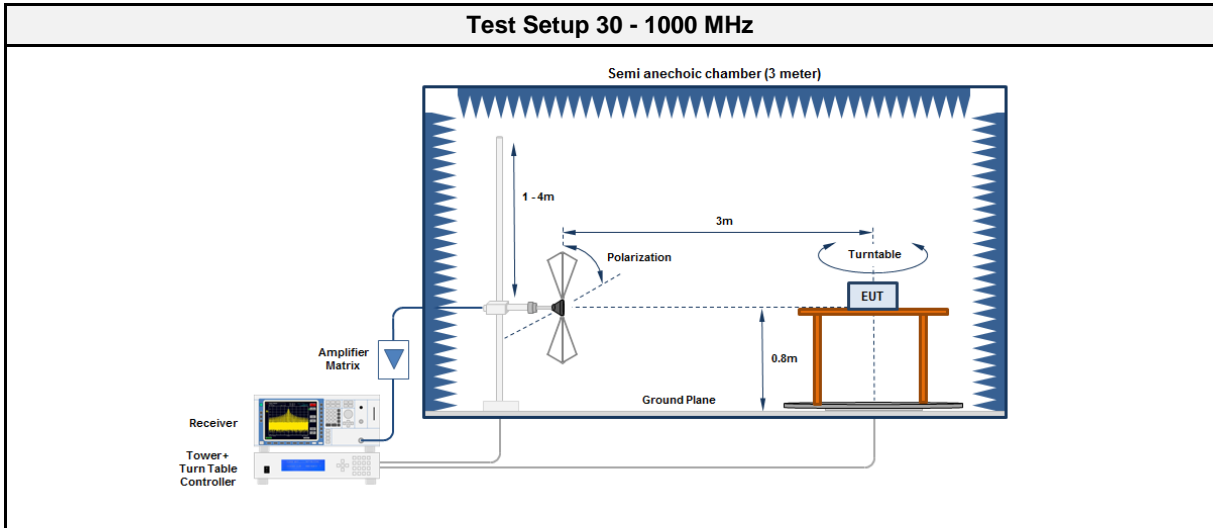
| Test Information   |                         |
|--------------------|-------------------------|
| Reference          | FCC 15.407(b)           |
| Measurement Method | KDB 789033 G            |
| Operator           | Florian Voigt           |
| Date               | 2019-06-27 - 2019-07-08 |

##### 3.1.2 Limits

| Limits - Restricted frequency bands and below 1 GHz |            |   |                          |
|---|------------|---|--------------------------|
| Frequency [MHz]                                     | Detector   | Field strength [ $\mu\text{V}/\text{m}$ ] | Measurement distance [m] |
| 30 - 88   | Quasi-Peak | 100                                       | 3                        |
| 88 - 216  | Quasi-Peak | 150                                       | 3                        |
| 216 - 960   | Quasi-Peak | 200                                       | 3                        |
| 960 - 1000  | Quasi-Peak | 500                                       | 3                        |
| >1000   | Average    | 500                                       | 3                        |

| Limits - Outside restricted frequency bands above 1 GHz |   |   |                          |
|---|---|---|--------------------------|
| Frequency band [MHz]                                    | Power limit [dBm EIRP]                                      | Field strength limit [dB $\mu\text{V}/\text{m}$ ] | Measurement distance [m] |
| 5150 - 5250   | -27 dBm/MHz   | 68.2  | 3                        |
| 5250 - 5350   | -27 dBm/MHz   | 68.2  | 3                        |
| 5470 - 5725   | -27 dBm/MHz   | 68.2  | 3                        |
| 5725 - 5850   | -27 dBm/MHz @ $\pm 75$ MHz from band edge                   | 68.2  | 3                        |
| 5725 - 5850   | 10 to -27 dBm/MHz @ $\pm 25$ to $\pm 75$ MHz from band edge | 105.2 to 68.2                                     | 3                        |
| 5725 - 5850   | 15.6 to 10 dBm/MHz @ $\pm 5$ to $\pm 25$ MHz from band edge | 110.8 to 105.2                                    | 3                        |
| 5725 - 5850   | 27 to 15.6 dBm/MHz @ $\pm 0$ to $\pm 5$ MHz from band edge  | 122.2 to 110.8                                    | 3                        |

3.1.3 Setup



## 3.1.4 Equipment

| Test Software |                  |            |          |
|---------------|------------------|------------|----------|
| Description   | Manufacturer     | Name       | Version  |
| EMC Software  | DARE Instruments | RadiMation | 2015.2.4 |

| Test Equipment 30 - 1000 MHz |              |        |            |           |          |
|------------------------------|--------------|--------|------------|-----------|----------|
| Description                  | Manufacturer | Model  | Identifier | Cal. Date | Cal. Due |
| Anechoic Chamber             | Frankonia    | AC1    | EF00062    | 2018-07   | 2021-07  |
| Spectrum Analyzer            | R&S          | FSU 3  | EF00241    | 2017-07   | 2019-07  |
| Antenna                      | R&S          | HK 116 | EF00030    | 2019-04   | 2022-04  |
| Antenna                      | R&S          | HL 223 | EF00212    | 2019-05   | 2020-05  |

| Test Equipment > 1 GHz |                     |                           |            |           |          |
|------------------------|---------------------|---------------------------|------------|-----------|----------|
| Description            | Manufacturer        | Model                     | Identifier | Cal. Date | Cal. Due |
| Anechoic Chamber       | Frankonia           | AC1                       | EF00062    | 2018-07   | 2021-07  |
| Spectrum Analyzer      | R&S                 | FSIQ26                    | EF00242    | 2018-07   | 2019-07  |
| Spectrum analyzer      | R&S                 | FSW43                     | EF00896    | 2018-07   | 2019-07  |
| Antenna                | Schwarzbeck         | BBHA 9120D                | EF01153    | 2018-09   | 2019-09  |
| Horn antenna           | Amplifier Research  | ATH18G40 (18-40GHz)       | EF01152    | 2018-10   | 2019-10  |
| Antenna                | Flann Microwave Ltd | 22240-25 Amp. CBL26402075 | EF00301    | 2016-11   | 2019-11  |

## 3.1.5 Procedure

| <b>Test Procedure 30 - 1000 MHz</b>  |
|--|
| <ol style="list-style-type: none"><li>1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground</li><li>2. EUT set to test mode</li><li>3. The receiver is set to peak detection with max hold</li><li>4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m</li><li>5. All significant emissions are measured again using the corresponding final detector</li></ol> |

| <b>Test Procedure &gt; 1 GHz</b>   |
|--|
| <ol style="list-style-type: none"><li>1. EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground</li><li>2. EUT set to test mode</li><li>3. The receiver is set to peak detection with max hold</li><li>4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m</li><li>5. All significant emissions are measured again using the corresponding final detector</li></ol> |

## 3.1.6 Results

| Test Results - Channel 36 / 5180 MHz - OFDM |                      |      |      |                      |             |
|---|----------------------|------|------|----------------------|-------------|
| Emission [MHz]                              | Level [dB $\mu$ V/m] | Det. | Pol. | Limit [dB $\mu$ V/m] | Margin [dB] |
| 108.0749                                    | 35.60                | pk   | ver  | 43.50                | -07.96      |
| 244.8718                                    | 35.10                | pk   | ver  | 46.00                | -10.92      |
| 396.1538                                    | 36.00                | pk   | hor  | 68.20                | -32.22      |
| 1198  | 45.31                | pk   | ver  | 54.00                | -08.69      |
| 1582  | 39.40                | pk   | ver  | 54.00                | -14.60      |

| Test Results - Channel 48 / 5240 MHz - OFDM |                      |      |      |                      |             |
|---|----------------------|------|------|----------------------|-------------|
| Emission [MHz]                              | Level [dB $\mu$ V/m] | Det. | Pol. | Limit [dB $\mu$ V/m] | Margin [dB] |
| 240.1306                                    | 39.40                | pk   | ver  | 46.00                | -06.57      |
| 329.4872                                    | 34.10                | pk   | hor  | 46.00                | -11.93      |
| 1192  | 44.03                | pk   | ver  | 54.00                | -09.97      |
| 1204  | 41.19                | pk   | hor  | 54.00                | -12.81      |
| 1576  | 42.52                | pk   | ver  | 54.00                | -11.48      |

| Test Results - Channel 64 / 5320 MHz - OFDM |                      |      |      |                      |             |
|---|----------------------|------|------|----------------------|-------------|
| Emission [MHz]                              | Level [dB $\mu$ V/m] | Det. | Pol. | Limit [dB $\mu$ V/m] | Margin [dB] |
| 246.1538                                    | 32.30                | pk   | ver  | 46.00                | -13.73      |
| 396.1538                                    | 36.20                | pk   | hor  | 68.20                | -31.96      |
| 1192  | 44.40                | pk   | ver  | 54.00                | -09.60      |

| Test Results - Channel 36+40 / 5190 MHz - HT40 |                      |      |      |                      |             |
|--|----------------------|------|------|----------------------|-------------|
| Emission [MHz]                                 | Level [dB $\mu$ V/m] | Det. | Pol. | Limit [dB $\mu$ V/m] | Margin [dB] |
| 108.4615                                       | 33.40                | pk   | ver  | 43.50                | -10.12      |
| 240.1306                                       | 37.20                | pk   | hor  | 46.00                | -08.80      |
| 329.4872                                       | 36.40                | pk   | hor  | 46.00                | -09.65      |

| Test Results - Channel 44+48 / 5230 MHz - HT40 |                      |      |      |                      |             |
|--|----------------------|------|------|----------------------|-------------|
| Emission [MHz]                                 | Level [dB $\mu$ V/m] | Det. | Pol. | Limit [dB $\mu$ V/m] | Margin [dB] |
| 108.734  | 34.60                | pk   | ver  | 43.50                | -08.87      |
| 240.1306                                       | 35.40                | pk   | hor  | 46.00                | -10.60      |
| 329.4872                                       | 35.80                | pk   | hor  | 46.00                | -10.18      |
| 1192   | 45.51                | pk   | ver  | 54.00                | -08.49      |
| 1198   | 44.51                | pk   | hor  | 54.00                | -09.49      |

| Test Results - Channel 60+64 / 5310 MHz - HT40 |                      |      |      |                      |             |
|--|----------------------|------|------|----------------------|-------------|
| Emission [MHz]                                 | Level [dB $\mu$ V/m] | Det. | Pol. | Limit [dB $\mu$ V/m] | Margin [dB] |
| 240.3953                                       | 39.20                | pk   | ver  | 46.00                | -06.84      |
| 329.4872                                       | 35.80                | pk   | hor  | 46.00                | -10.25      |
| 1192   | 46.09                | pk   | hor  | 54.00                | -07.91      |
| 1996   | 47.73                | pk   | hor  | 68.20                | -20.47      |
| 2350   | 42.84                | pk   | ver  | 54.00                | -11.16      |

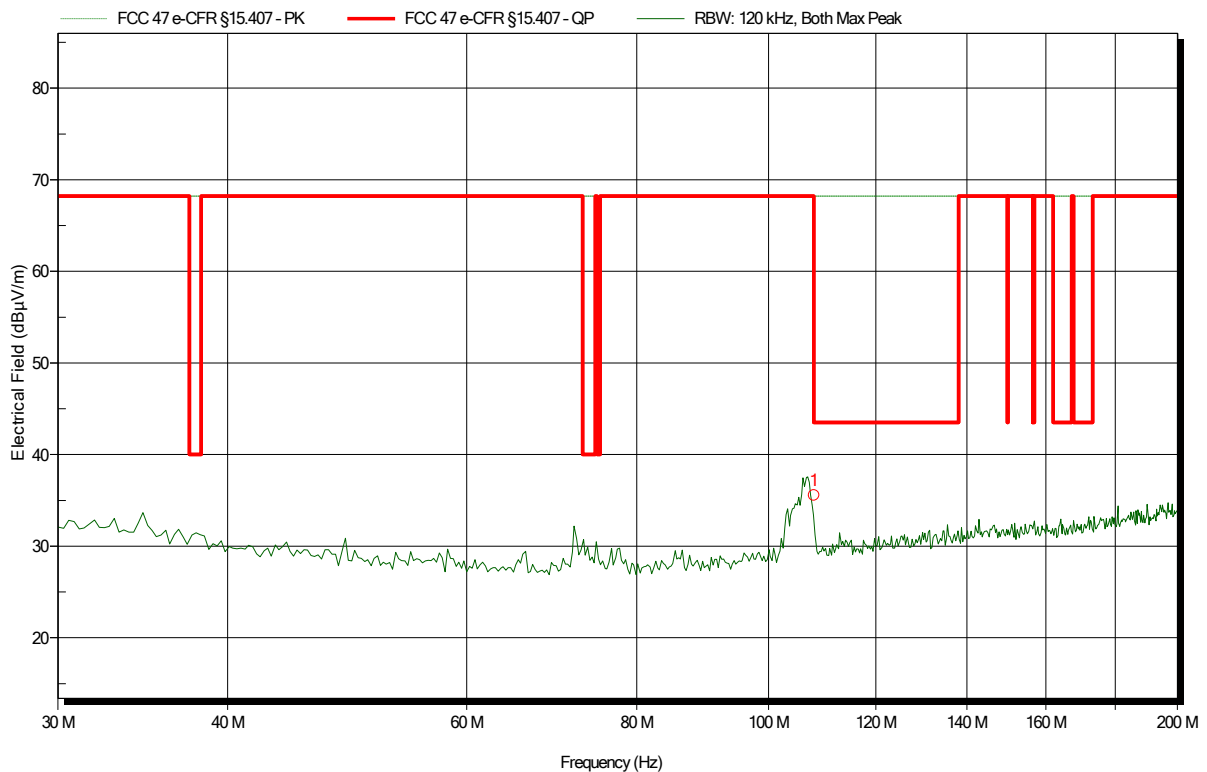
## ANNEX A Transmitter spurious emissions

### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Voigt  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Rohde & Schwarz HK 116  
 Measurement distance: 3 m  
 Mode: TX; CH36, 6MBit, OFDM  
 Test Date: 2019-07-08  
 Note: Antenna vertical

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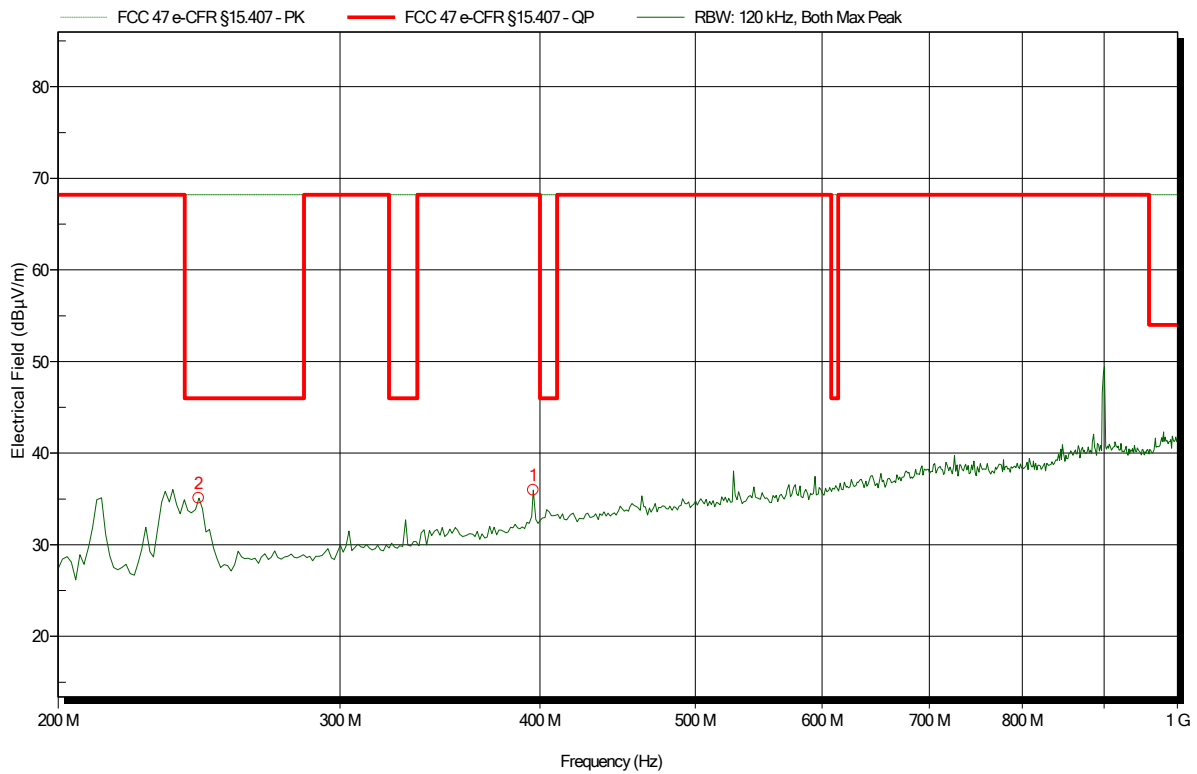
| Frequency    | Peak        | Peak Limit  | Peak Difference | Polarization | Status |
|--------------|-------------|-------------|-----------------|--------------|--------|
| 108.0749 MHz | 35.6 dBµV/m | 43.5 dBµV/m | -7.96 dB        | Vertical     | Pass   |



**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021  
 Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Voigt  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Rohde & Schwarz HL 223  
 Measurement distance: 3 m  
 Mode: TX; CH36, 6MBit, OFDM  
 Test Date: 2019-07-03  
 Note: Antenna vertical

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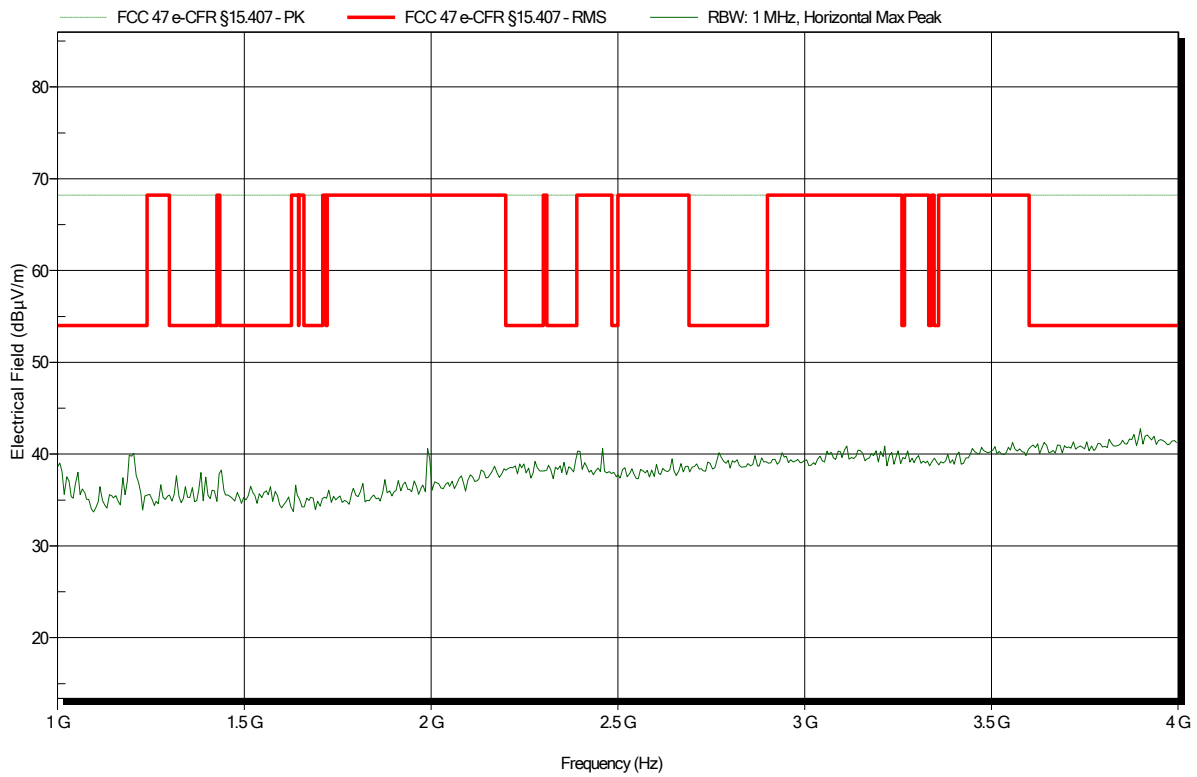
| Frequency    | Peak        | Peak Limit  | Peak Difference | Polarization | Status |
|--------------|-------------|-------------|-----------------|--------------|--------|
| 244.8718 MHz | 35.1 dBµV/m | 46 dBµV/m   | -10.92 dB       | Vertical     | Pass   |
| 396.1538 MHz | 36 dBµV/m   | 68.2 dBµV/m | -32.22 dB       | Horizontal   | Pass   |

### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; CH36, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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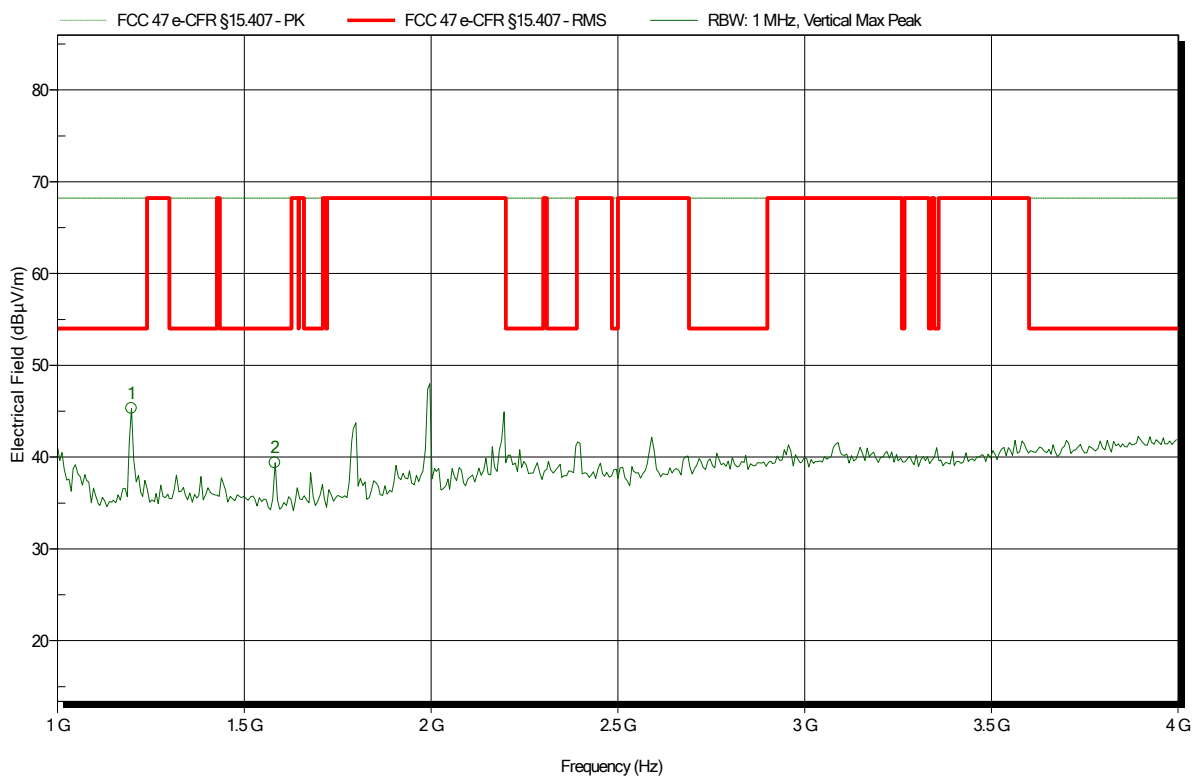


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; CH36, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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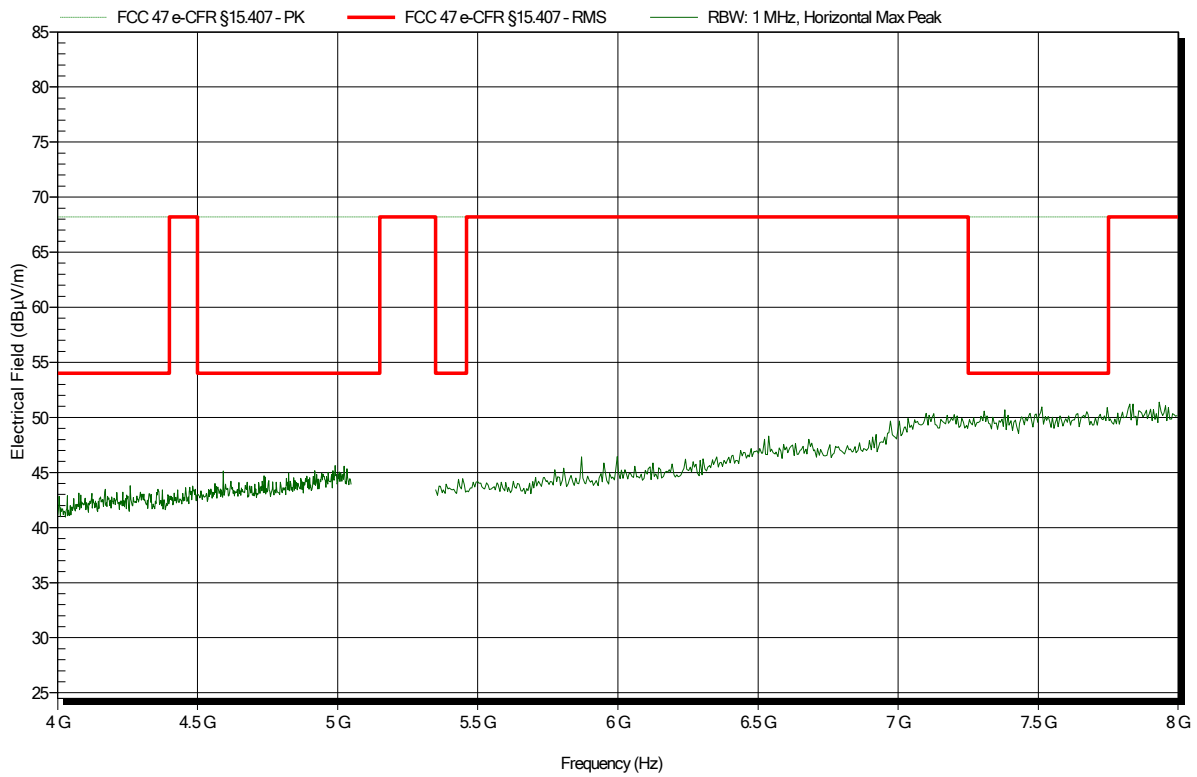
| Frequency | Peak         | Peak Limit | Peak Difference | Peak Status |
|-----------|--------------|------------|-----------------|-------------|
| 1.198 GHz | 45.31 dBµV/m | 54 dBµV/m  | -8.69 dB        | Pass        |
| 1.582 GHz | 39.4 dBµV/m  | 54 dBµV/m  | -14.6 dB        | Pass        |

**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; CH36, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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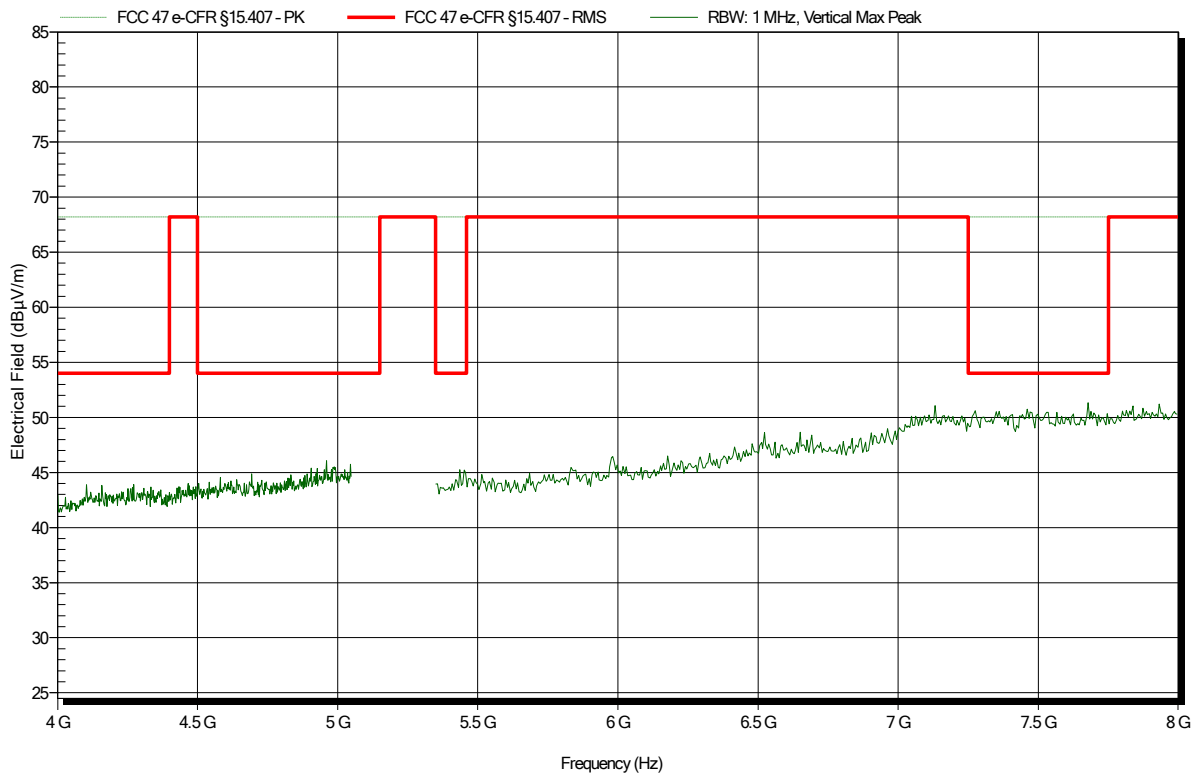


**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; CH36, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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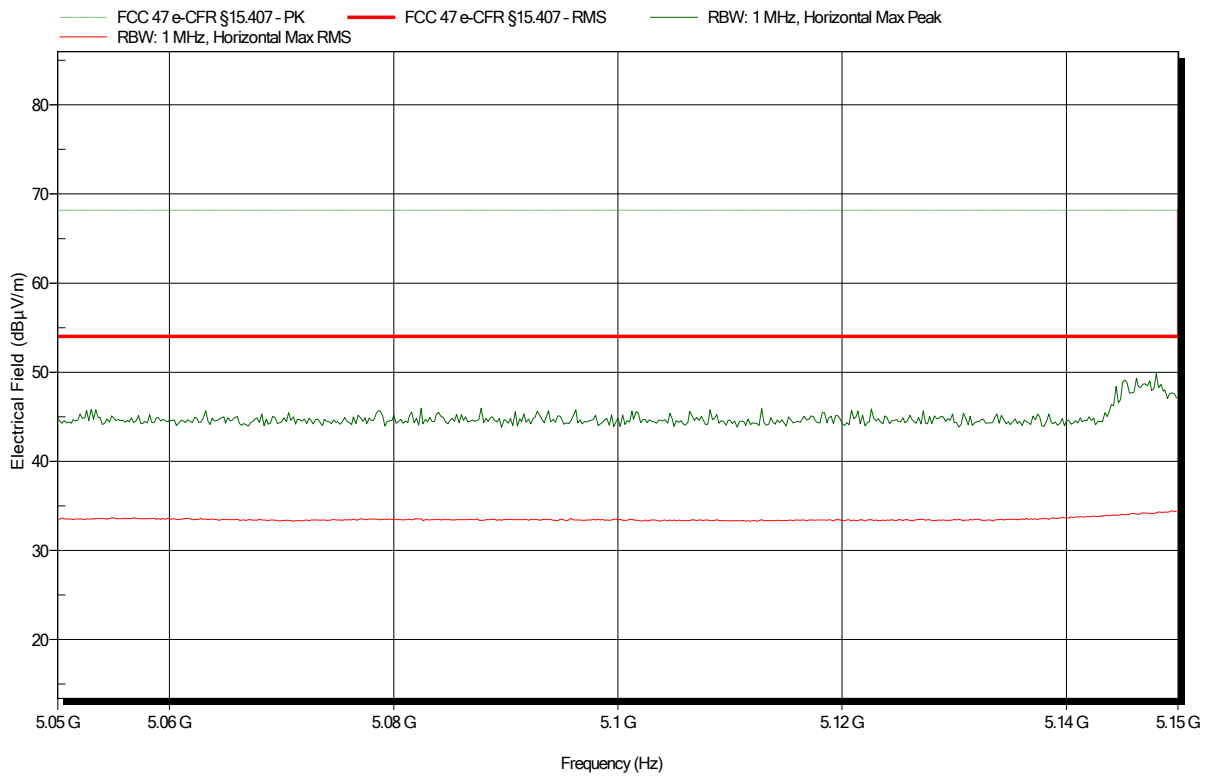


**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; CH36, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical lower band-edge

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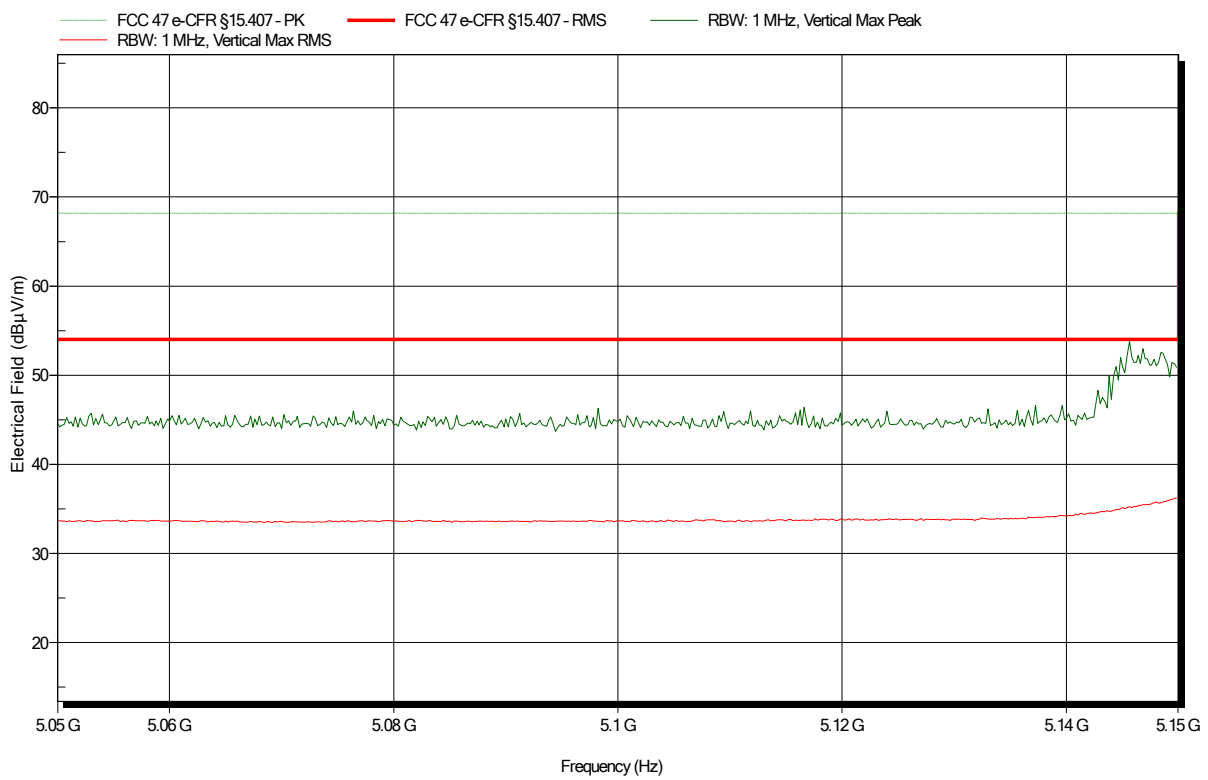


**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; CH36, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical lower band-edge

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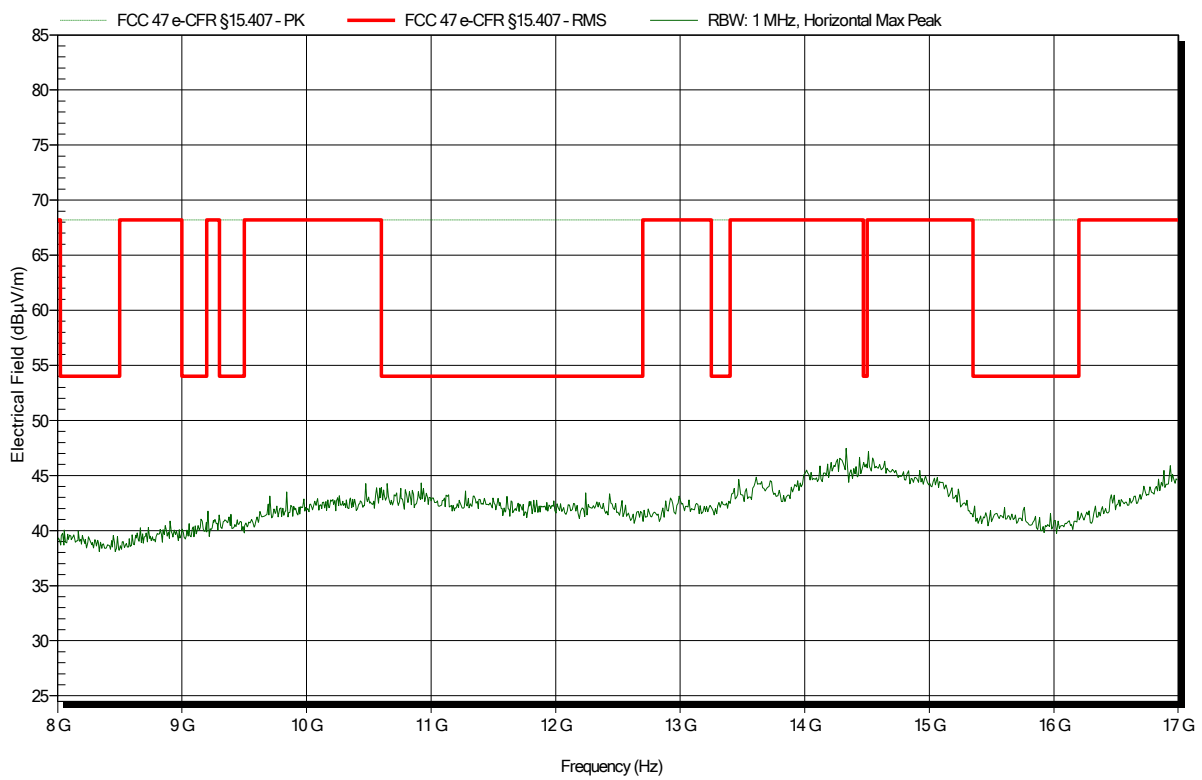


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH36, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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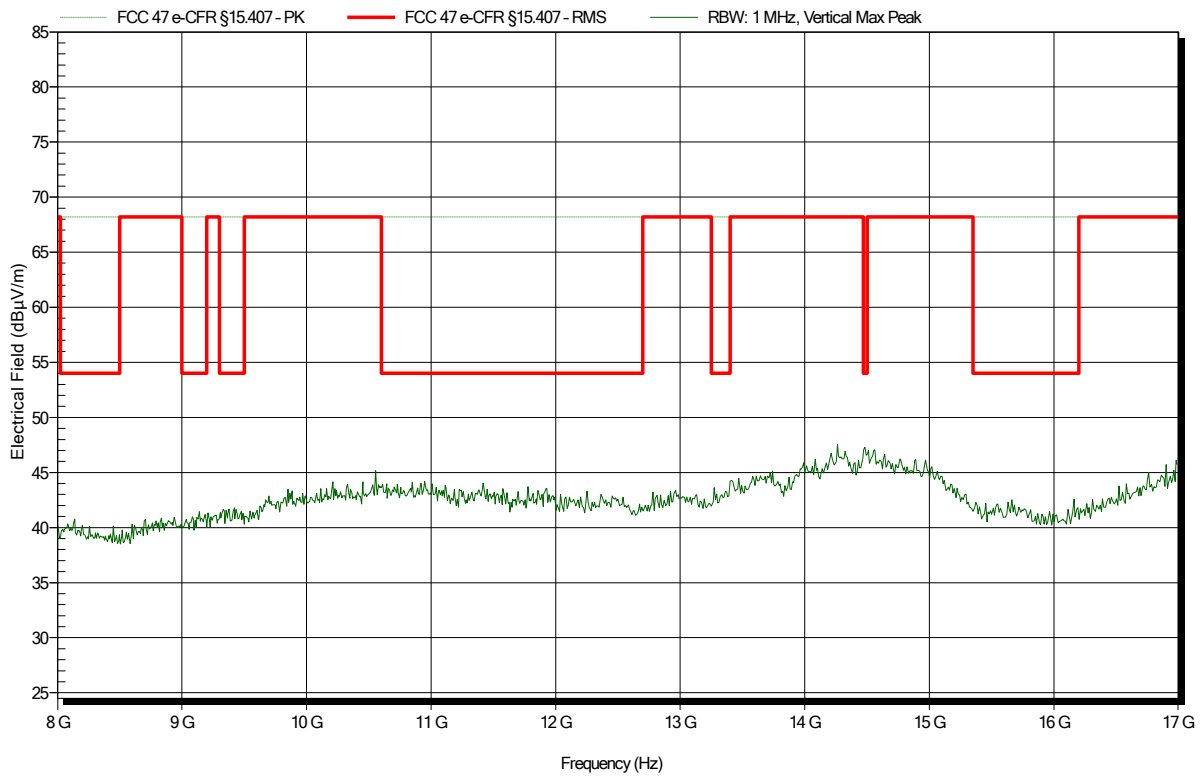


**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH36, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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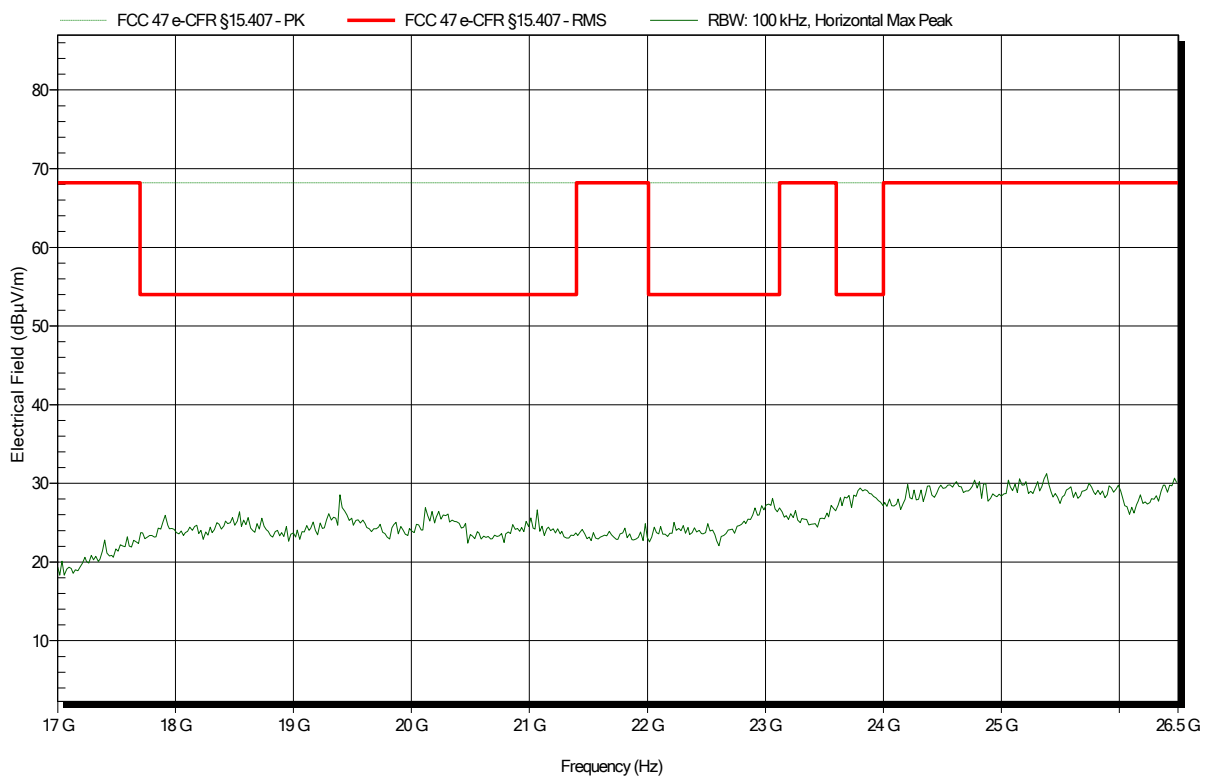


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: ATH18G40, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH36, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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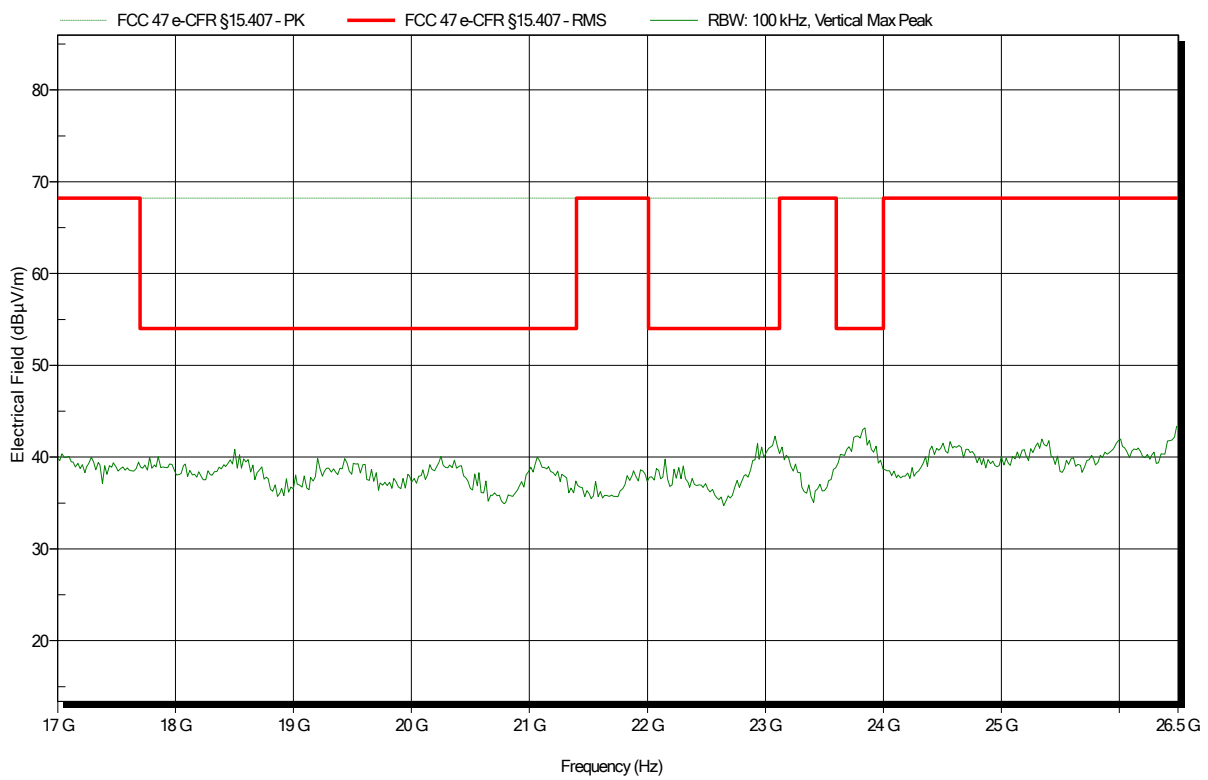


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: ATH18G40, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH36, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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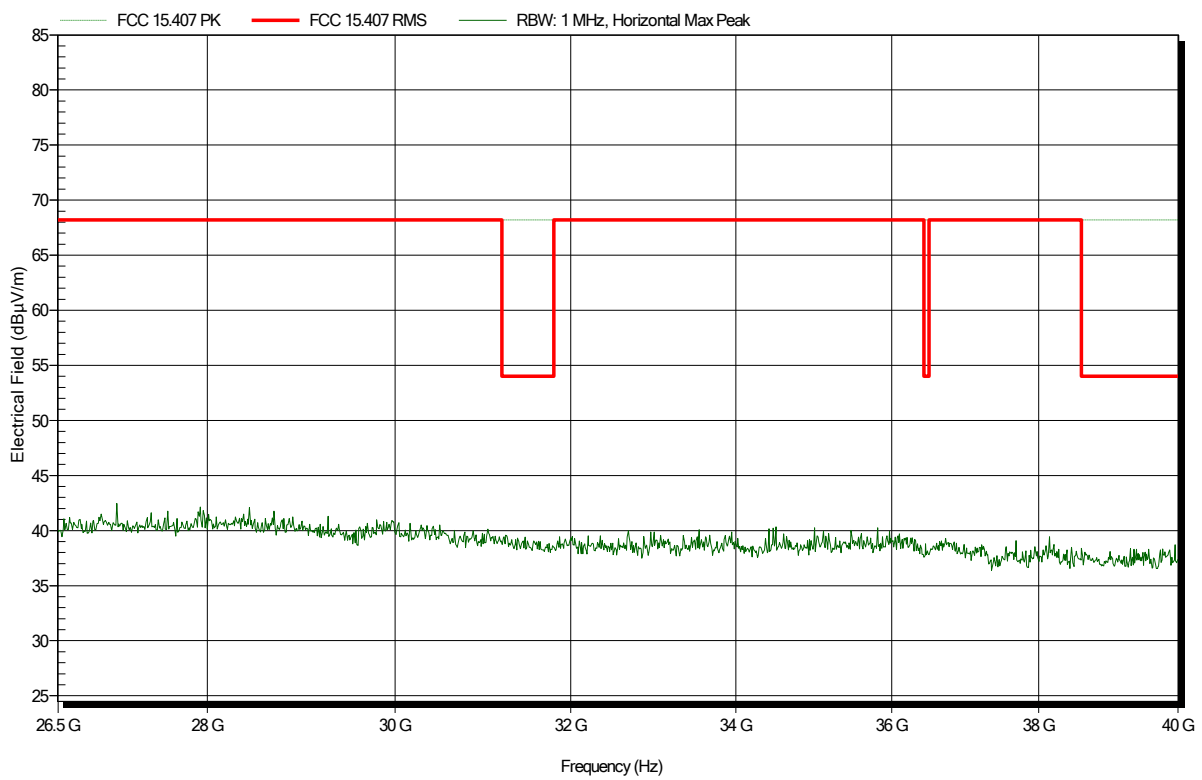


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt(supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Flann Microwave Ltd 22240-25+CBL26402075, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH36, 6MBit, OFDM  
 Test Date: 2019-07-01  
 Note: Antenna vertical

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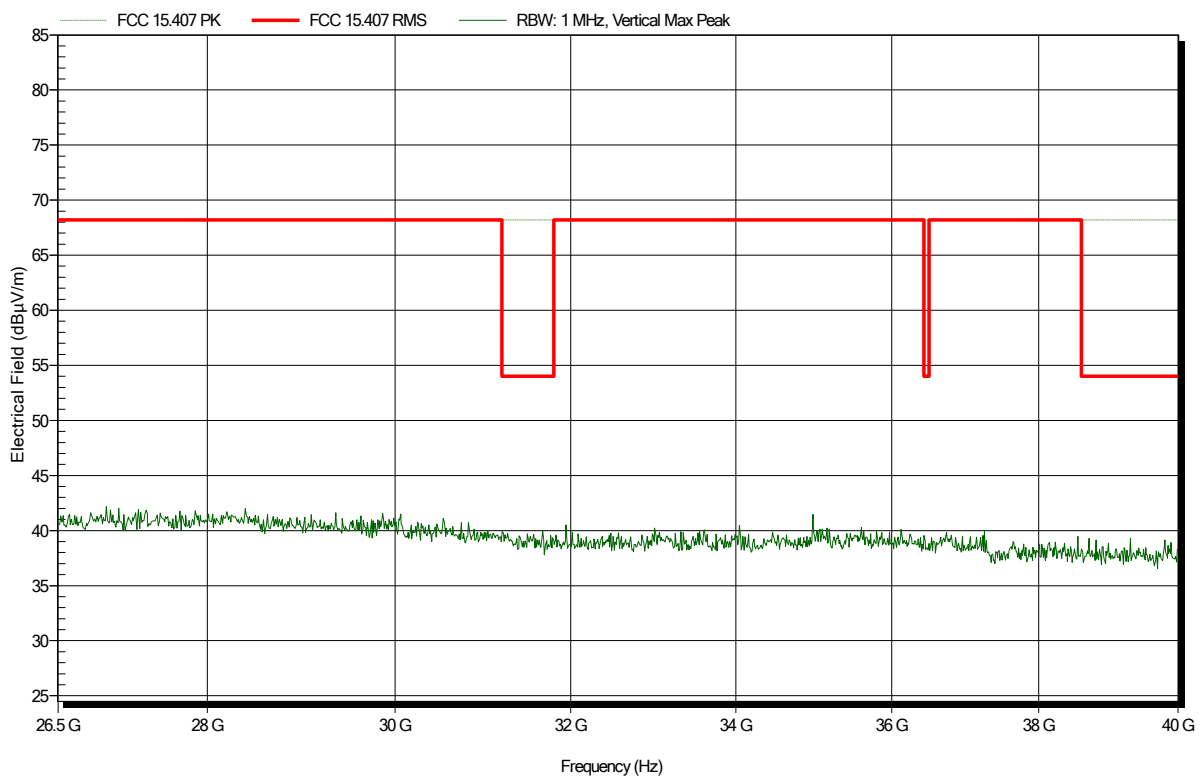


**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Wilfried Treffke  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Flann Microwave Ltd 22240-25+CBL26402075, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH36, 6MBit, OFDM  
 Test Date: 2019-07-01  
 Note: Antenna vertical

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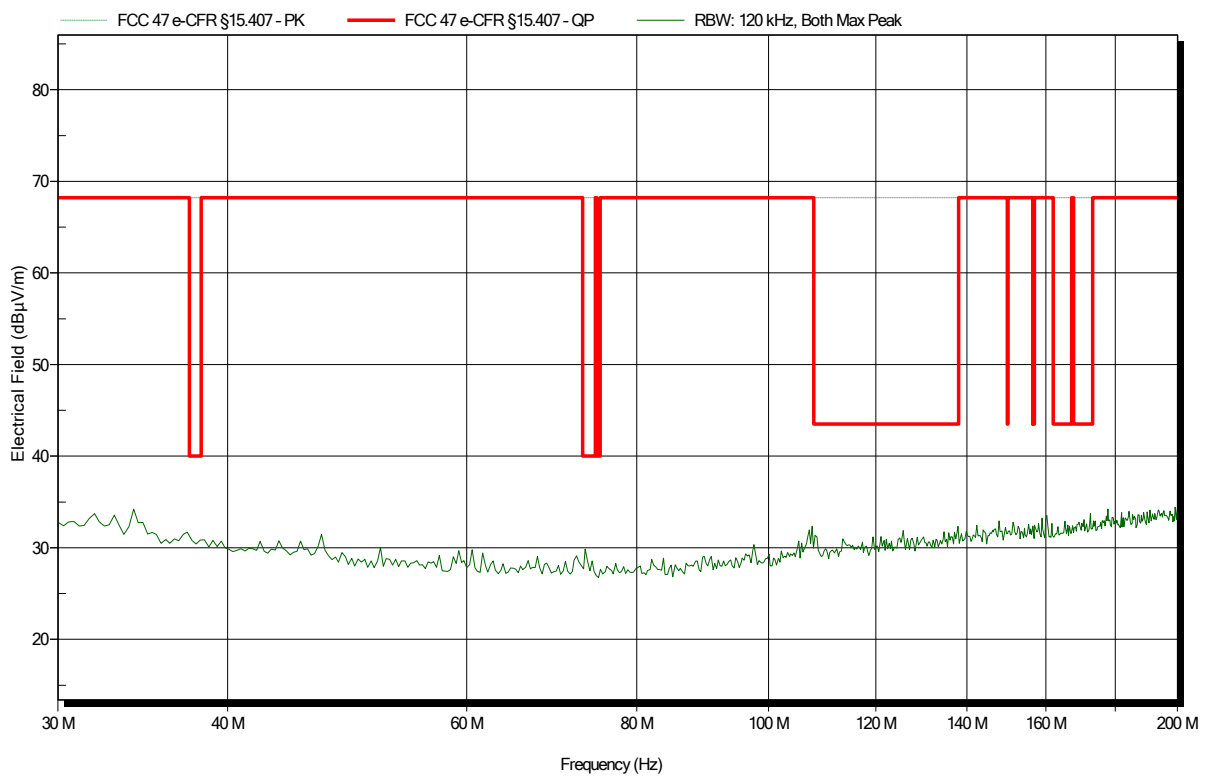


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Voigt  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Rohde & Schwarz HK 116  
 Measurement distance: 3 m  
 Mode: TX; CH48, 6MBit, OFDM  
 Test Date: 2019-07-08  
 Note: Antenna vertical

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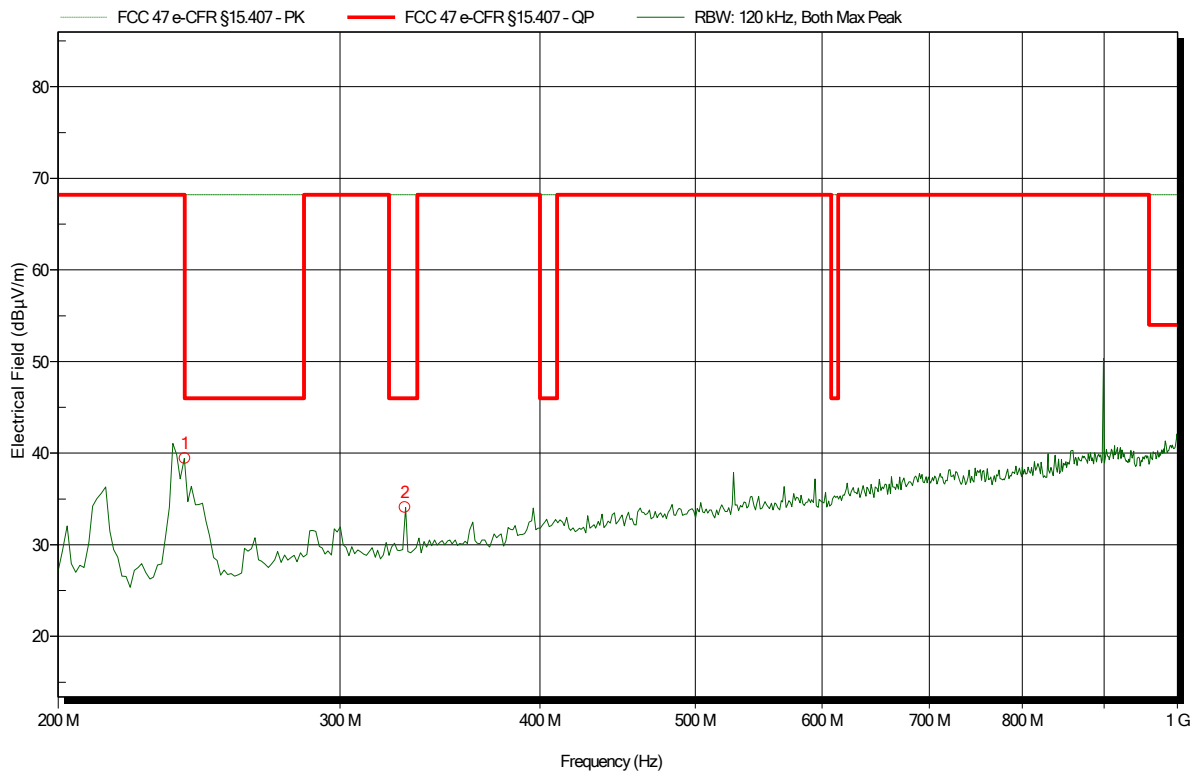


**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Voigt  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Rohde & Schwarz HL 223  
 Measurement distance: 3 m  
 Mode: TX; CH48, 6MBit, OFDM  
 Test Date: 2019-07-03  
 Note: Antenna vertical

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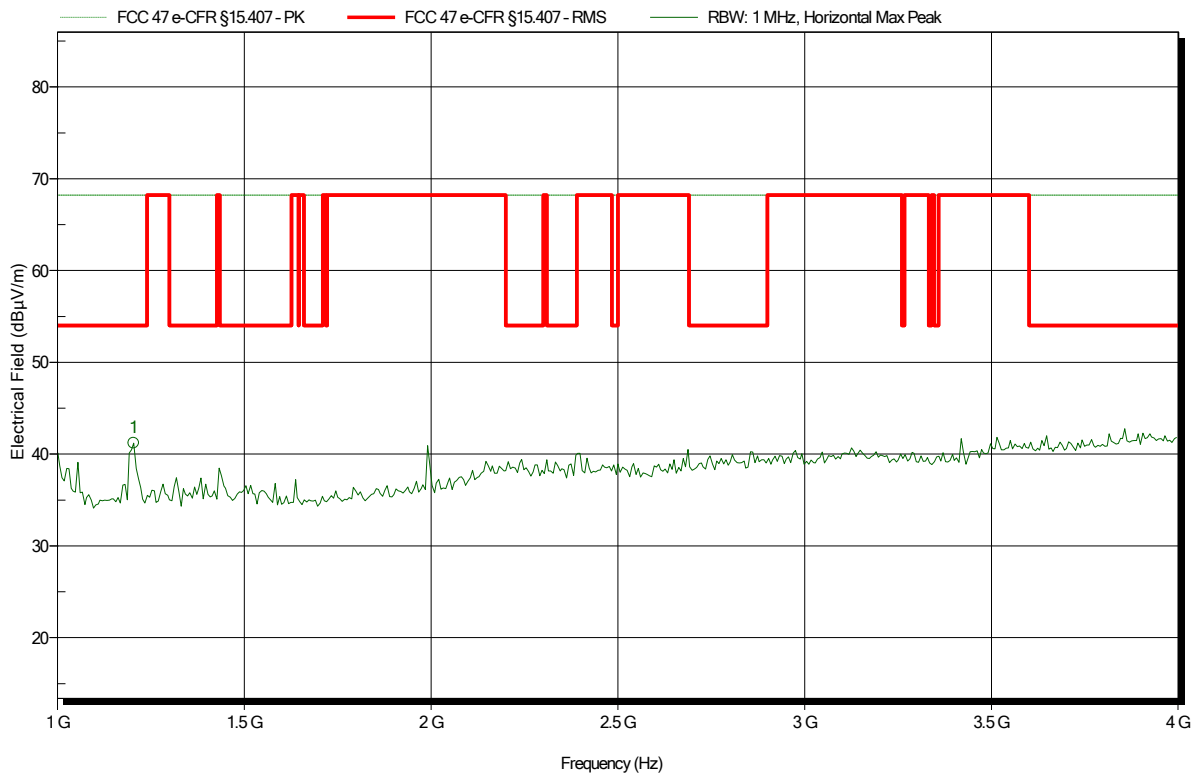
| Frequency    | Peak        | Peak Limit | Peak Difference | Polarization | Status |
|--------------|-------------|------------|-----------------|--------------|--------|
| 240.1306 MHz | 39.4 dBµV/m | 46 dBµV/m  | -6.57 dB        | Vertical     | Pass   |
| 329.4872 MHz | 34.1 dBµV/m | 46 dBµV/m  | -11.93 dB       | Horizontal   | Pass   |

**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; CH48, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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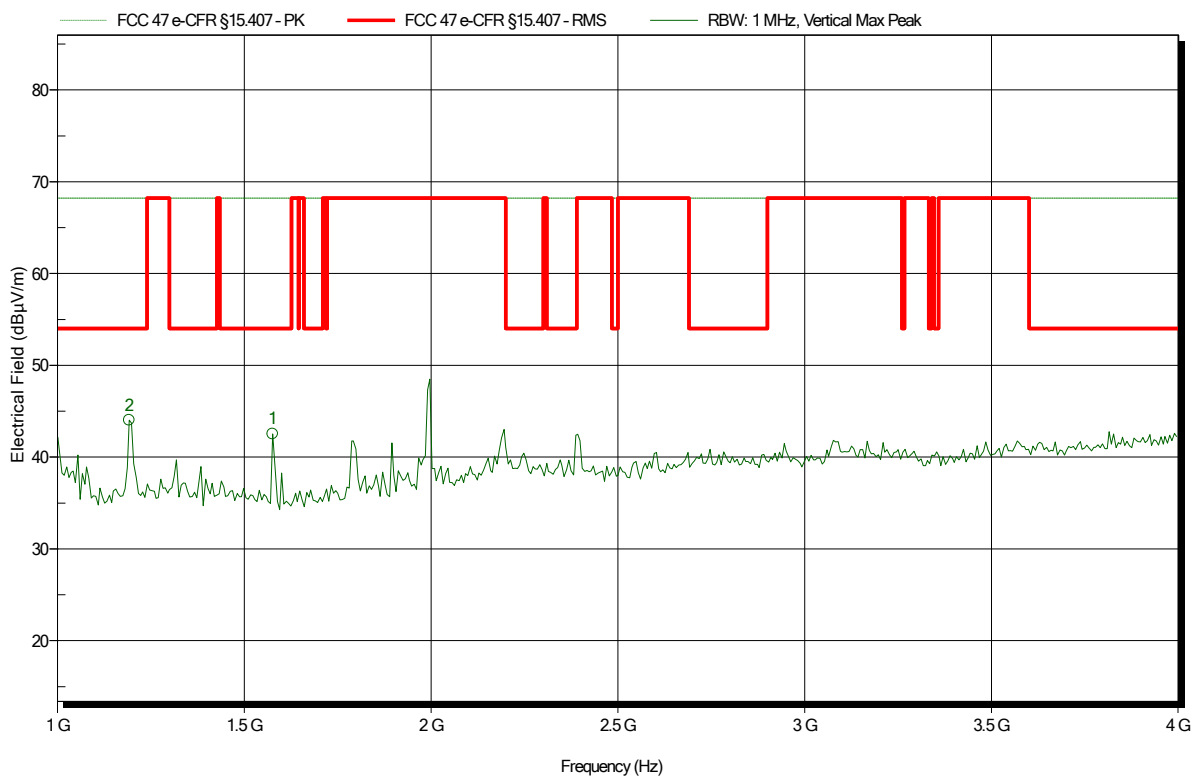
| Frequency | Peak         | Peak Limit | Peak Difference | Peak Status |
|-----------|--------------|------------|-----------------|-------------|
| 1.204 GHz | 41.19 dBµV/m | 54 dBµV/m  | -12.81 dB       | Pass        |

### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; CH48, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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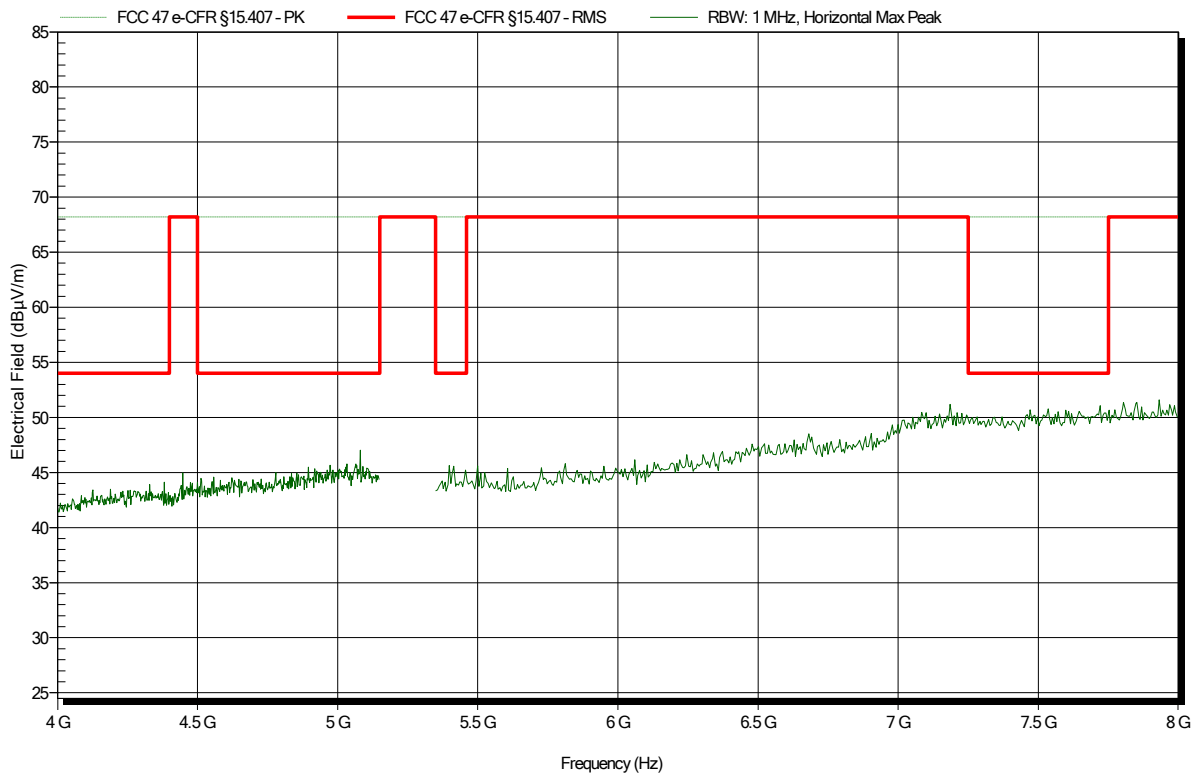
| Frequency | Peak         | Peak Limit | Peak Difference | Peak Status |
|-----------|--------------|------------|-----------------|-------------|
| 1.192 GHz | 44.03 dBµV/m | 54 dBµV/m  | -9.97 dB        | Pass        |
| 1.576 GHz | 42.52 dBµV/m | 54 dBµV/m  | -11.48 dB       | Pass        |

### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; CH48, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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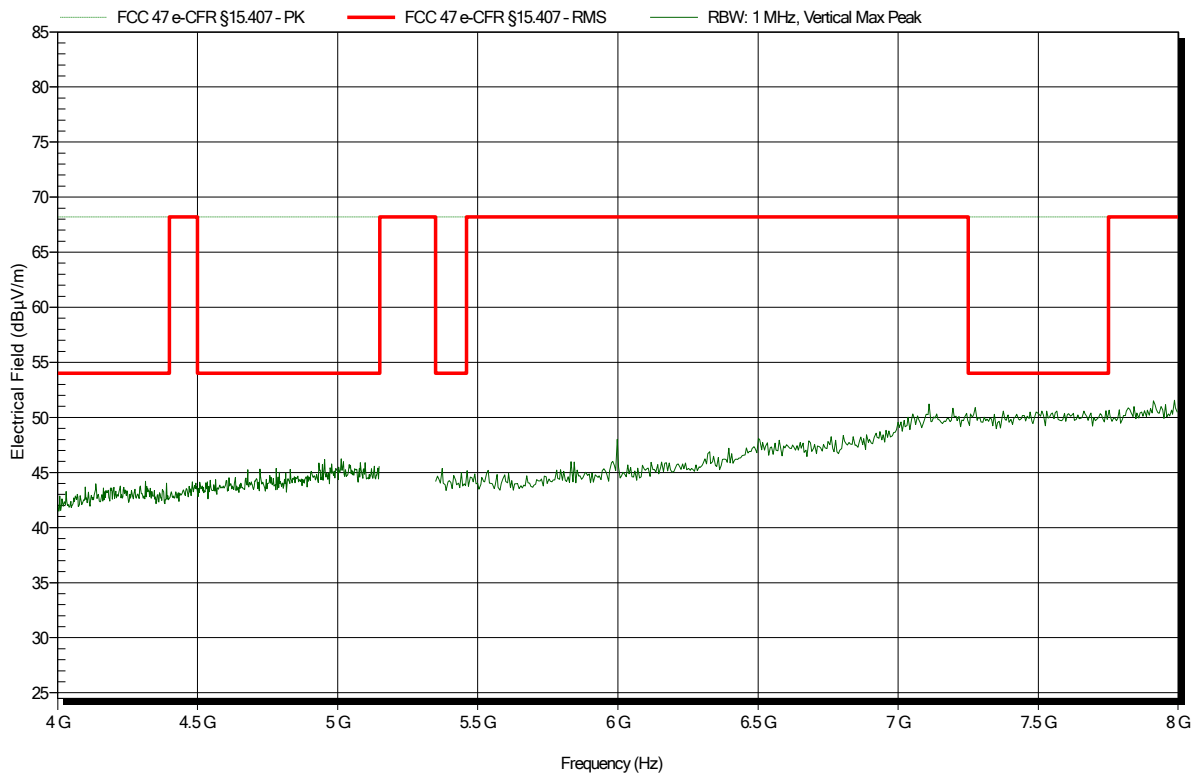


**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; CH48, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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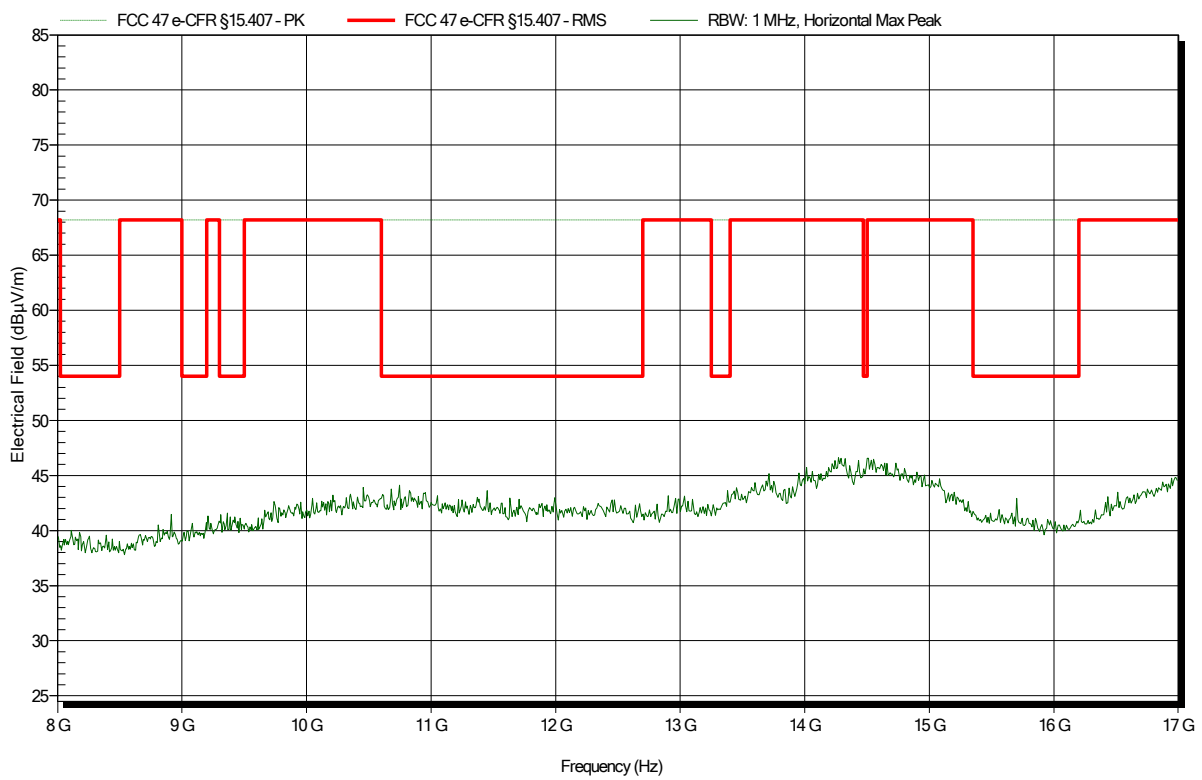


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH48, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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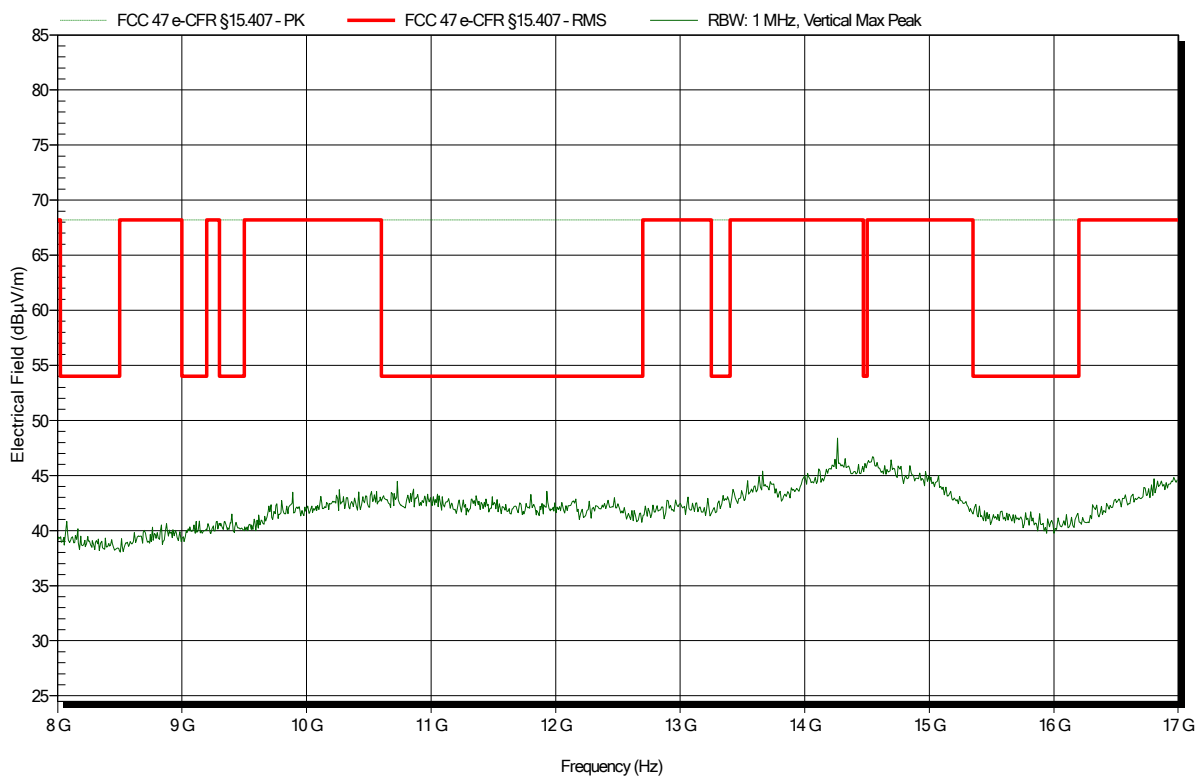


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH48, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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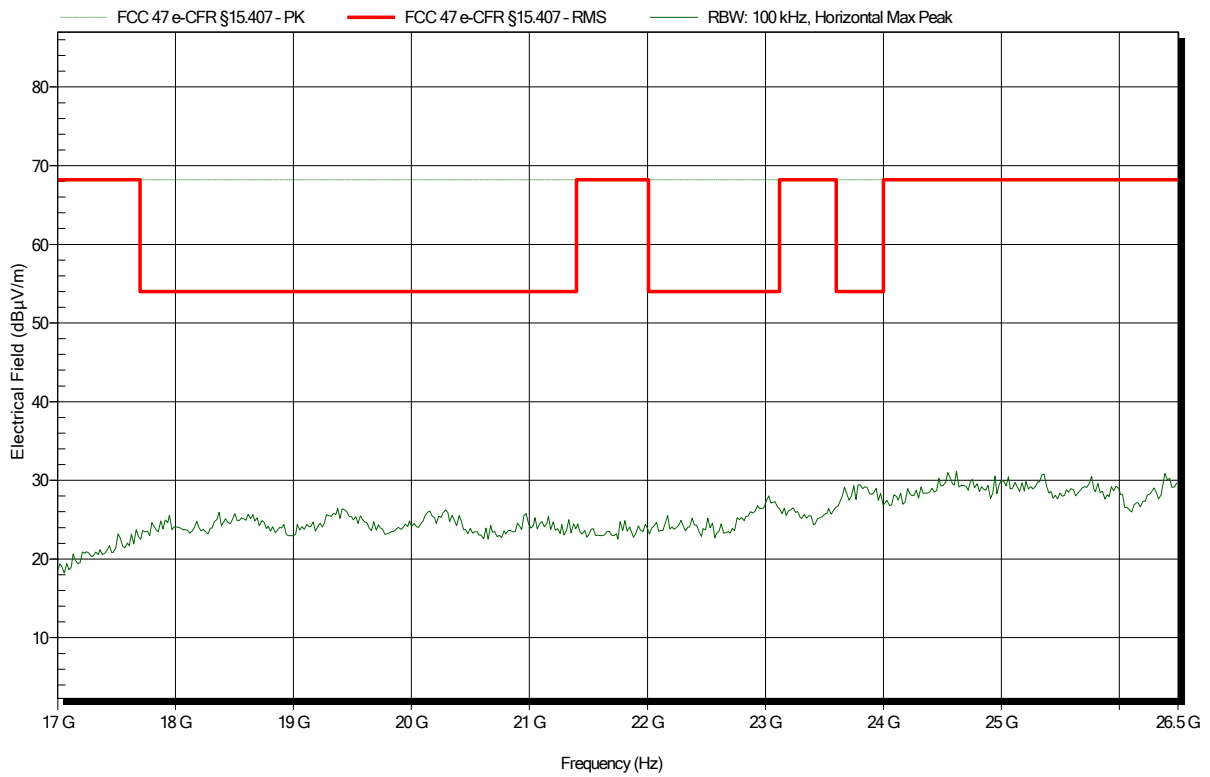


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: ATH18G40, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH48, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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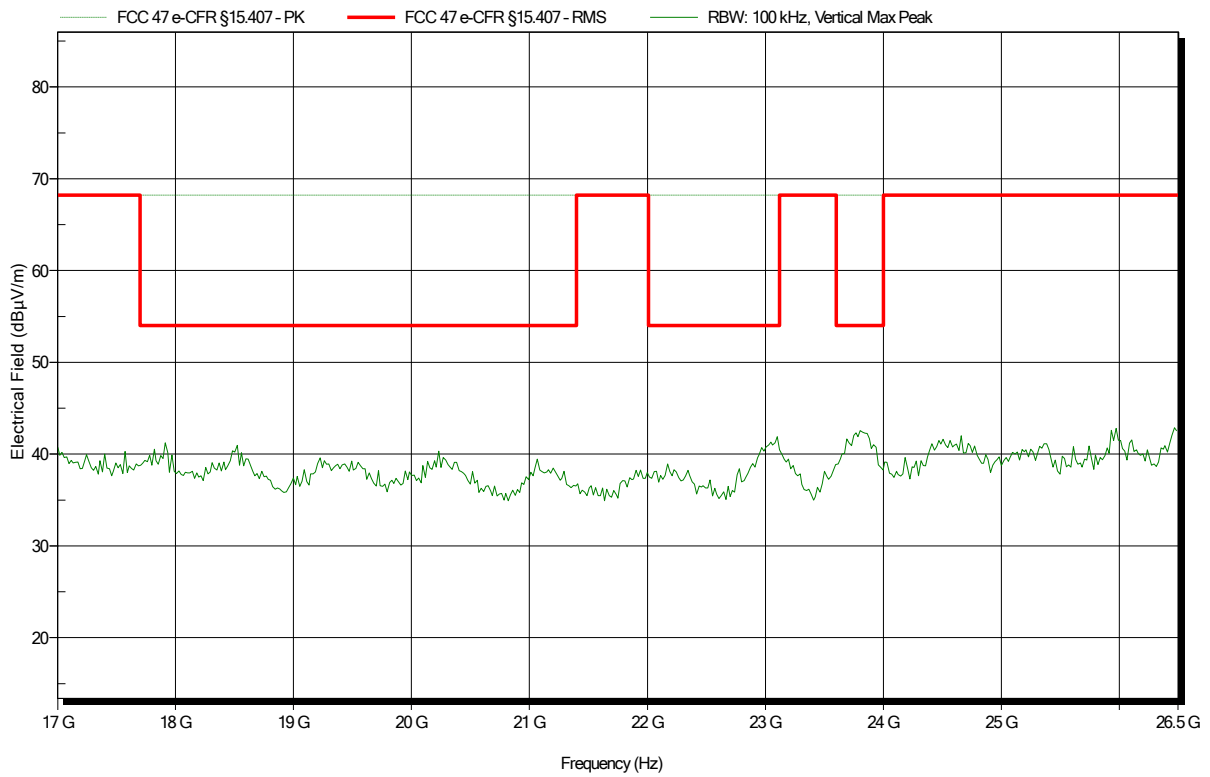


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: ATH18G40, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH48, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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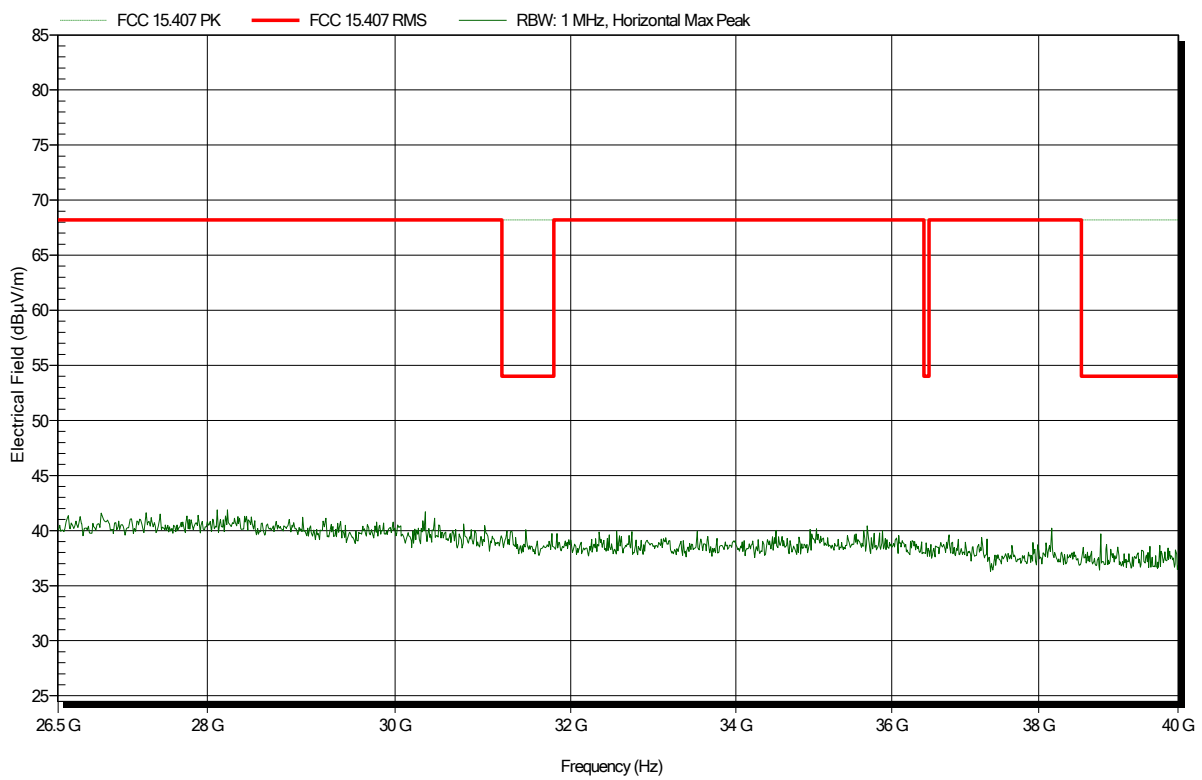


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt(supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Flann Microwave Ltd 22240-25+CBL26402075, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH48, 6MBit, OFDM  
 Test Date: 2019-07-01  
 Note: Antenna vertical

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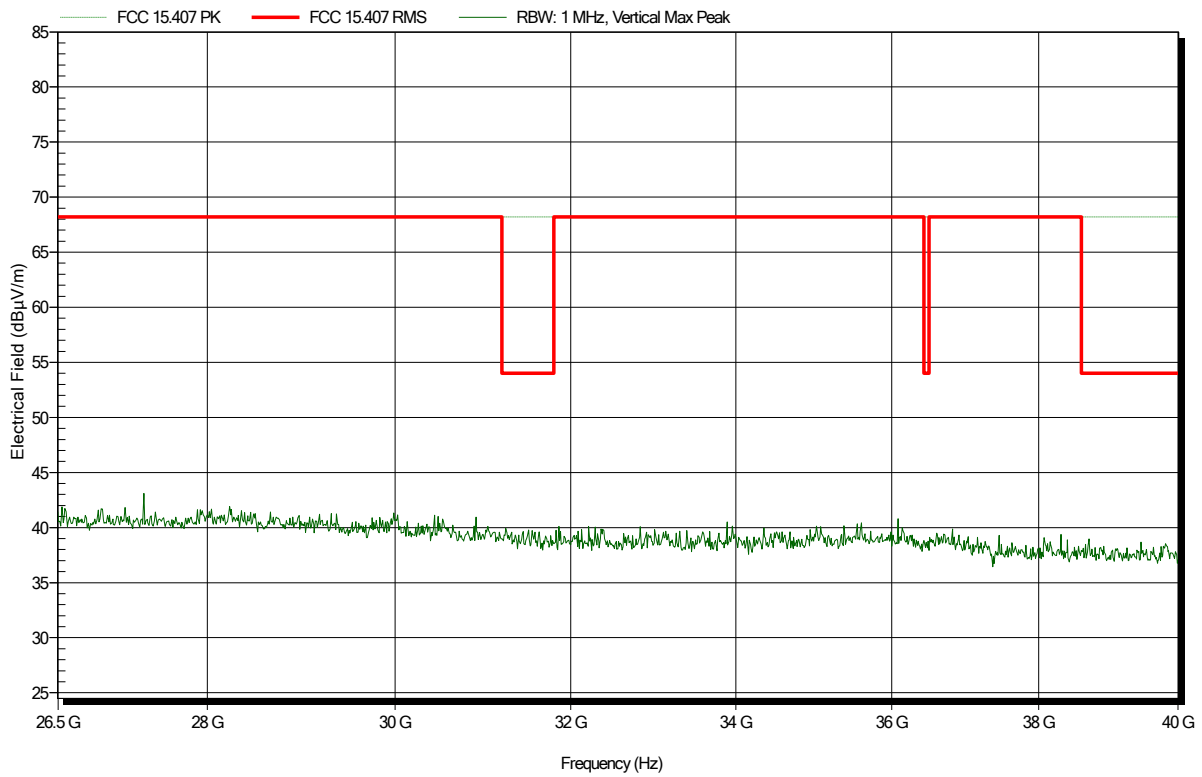


**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt(supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Flann Microwave Ltd 22240-25+CBL26402075, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH48, 6MBit, OFDM  
 Test Date: 2019-07-01  
 Note: Antenna vertical

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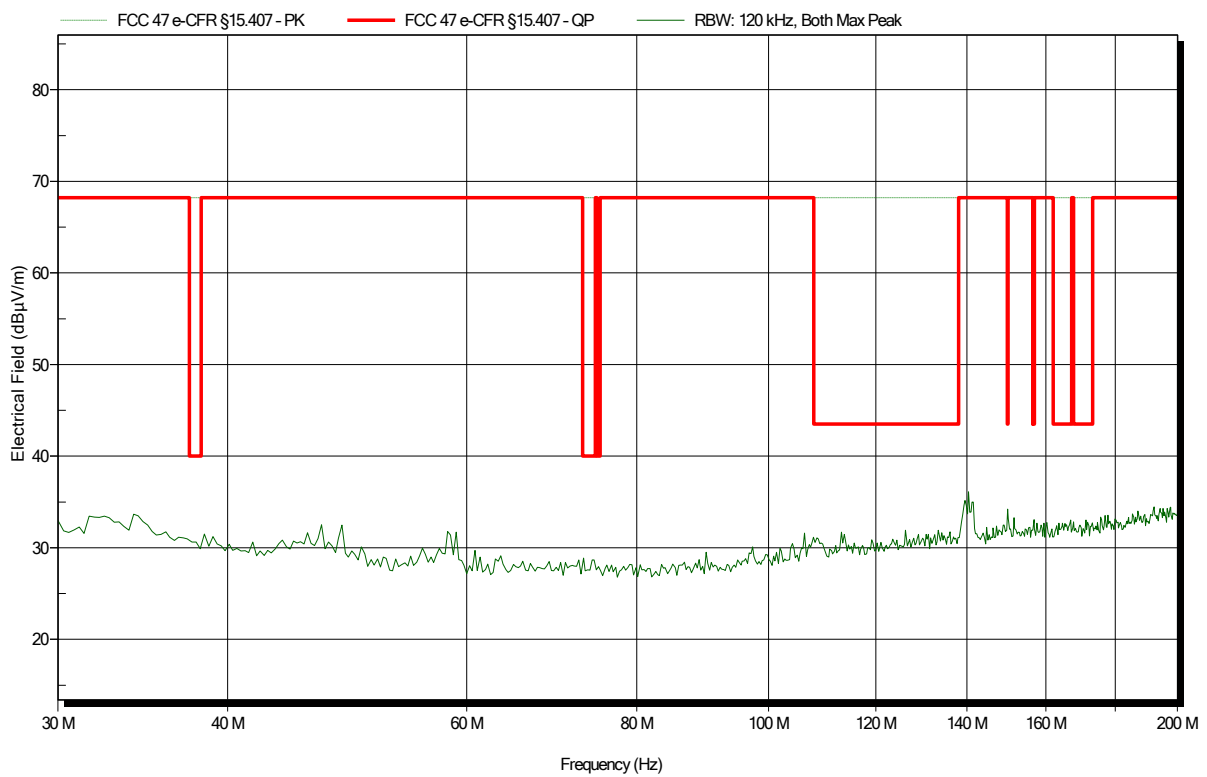


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Voigt  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Rohde & Schwarz HK 116  
 Measurement distance: 3 m  
 Mode: TX; CH64, 6MBit, OFDM  
 Test Date: 2019-07-08  
 Note: Antenna vertical

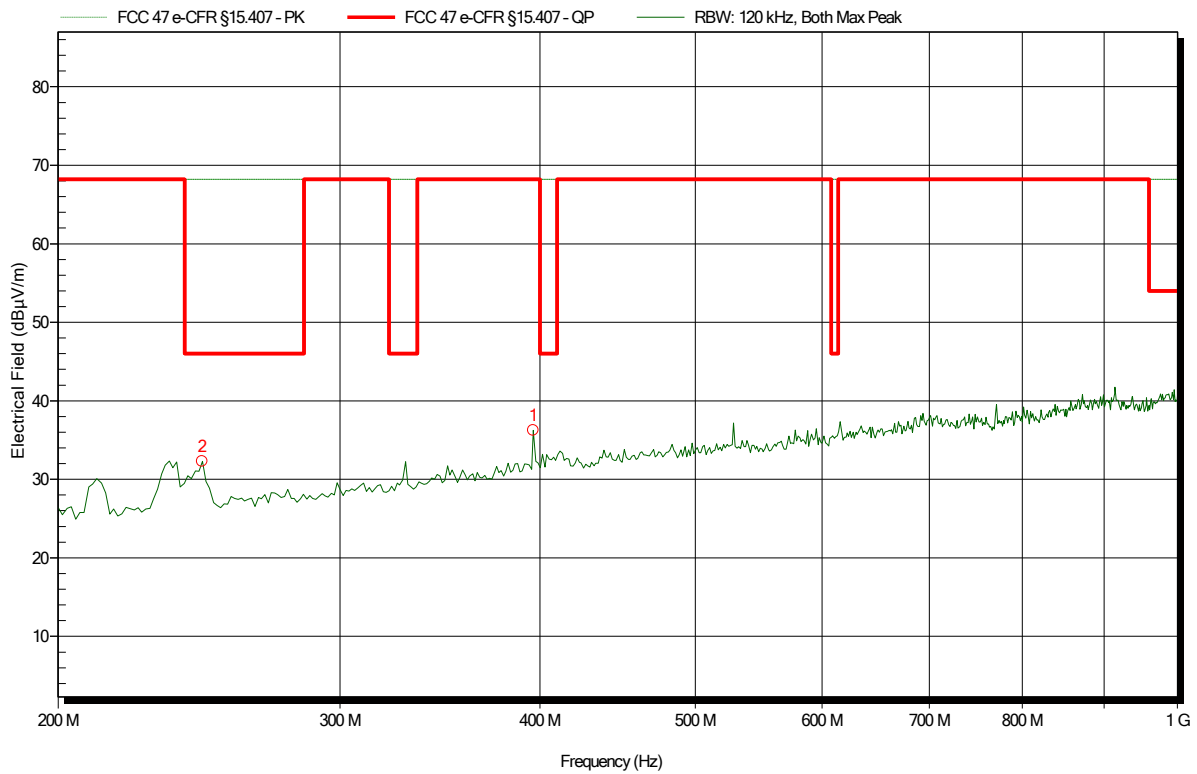
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**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021  
 Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Voigt  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Rohde & Schwarz HL 223  
 Measurement distance: 3 m  
 Mode: TX; CH64, 6MBit, OFDM  
 Test Date: 2019-07-03  
 Note: Antenna vertical

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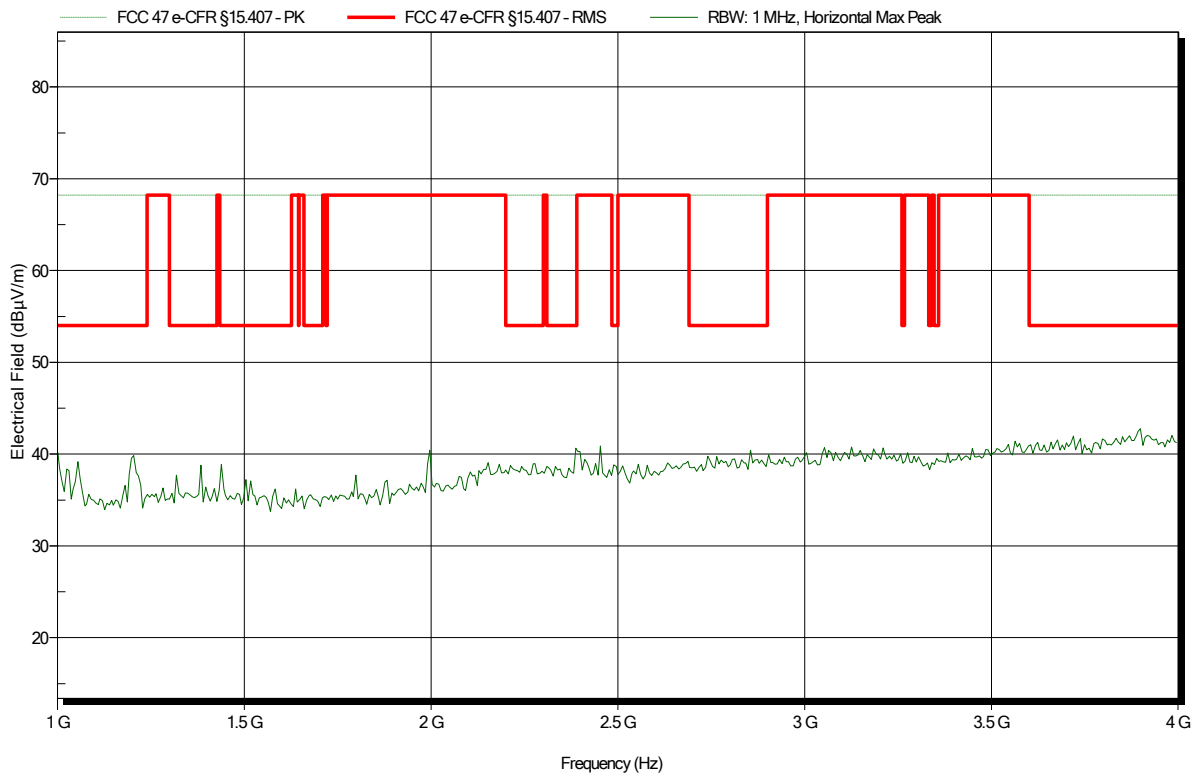
| Frequency    | Peak        | Peak Limit  | Peak Difference | Polarization | Status |
|--------------|-------------|-------------|-----------------|--------------|--------|
| 246.1538 MHz | 32.3 dBµV/m | 46 dBµV/m   | -13.73 dB       | Vertical     | Pass   |
| 396.1538 MHz | 36.2 dBµV/m | 68.2 dBµV/m | -31.96 dB       | Horizontal   | Pass   |

### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; CH64, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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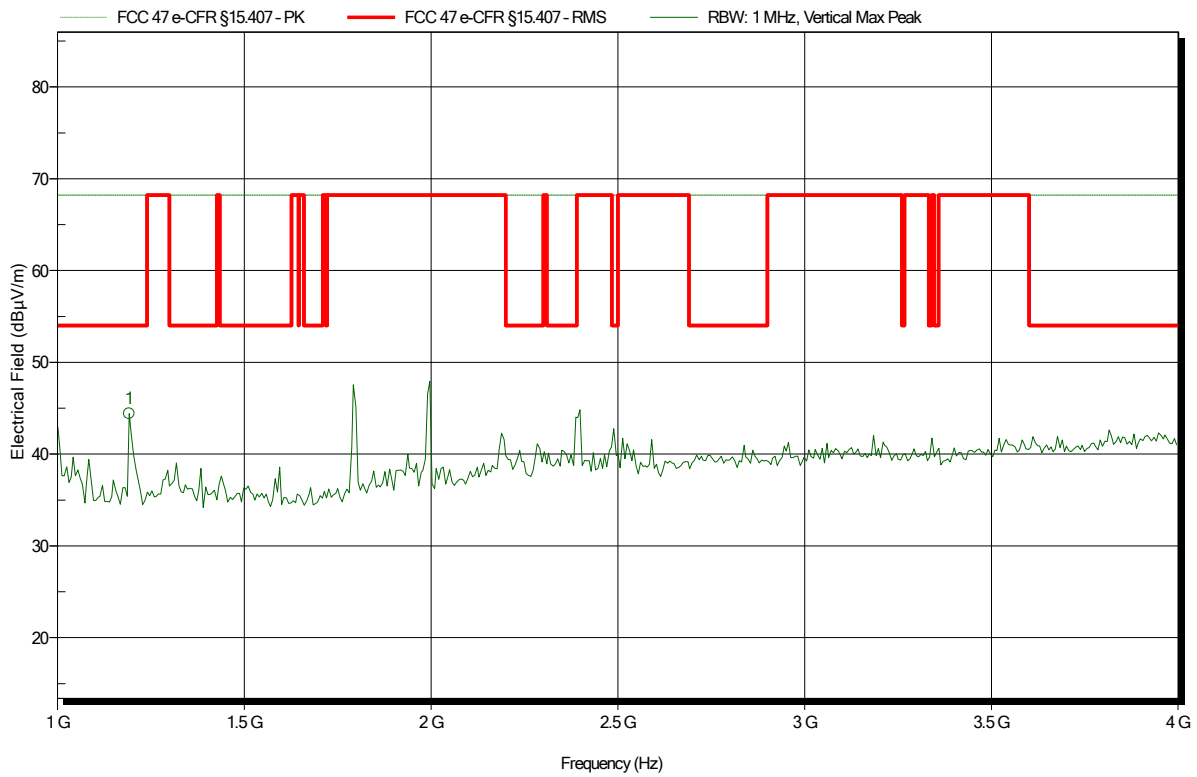


**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; CH64, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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| Frequency | Peak        | Peak Limit | Peak Difference | Peak Status |
|-----------|-------------|------------|-----------------|-------------|
| 1.192 GHz | 44.4 dBµV/m | 54 dBµV/m  | -9.6 dB         | Pass        |

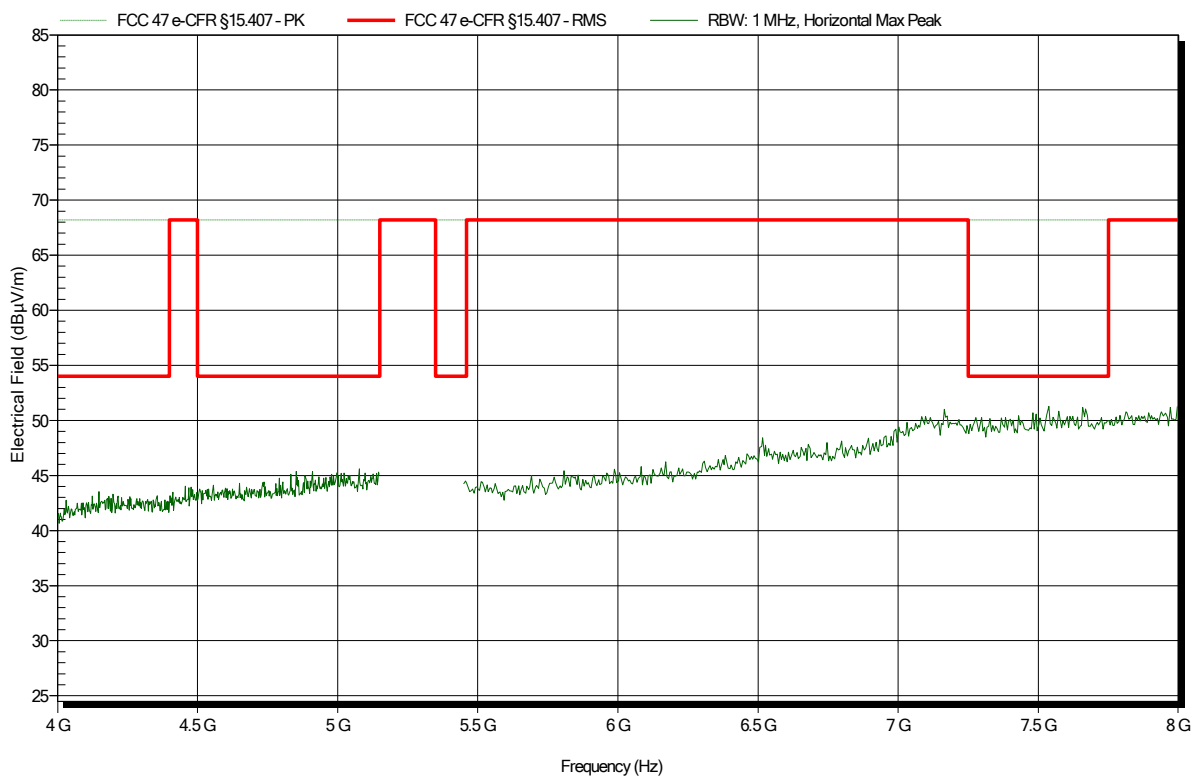


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; CH64, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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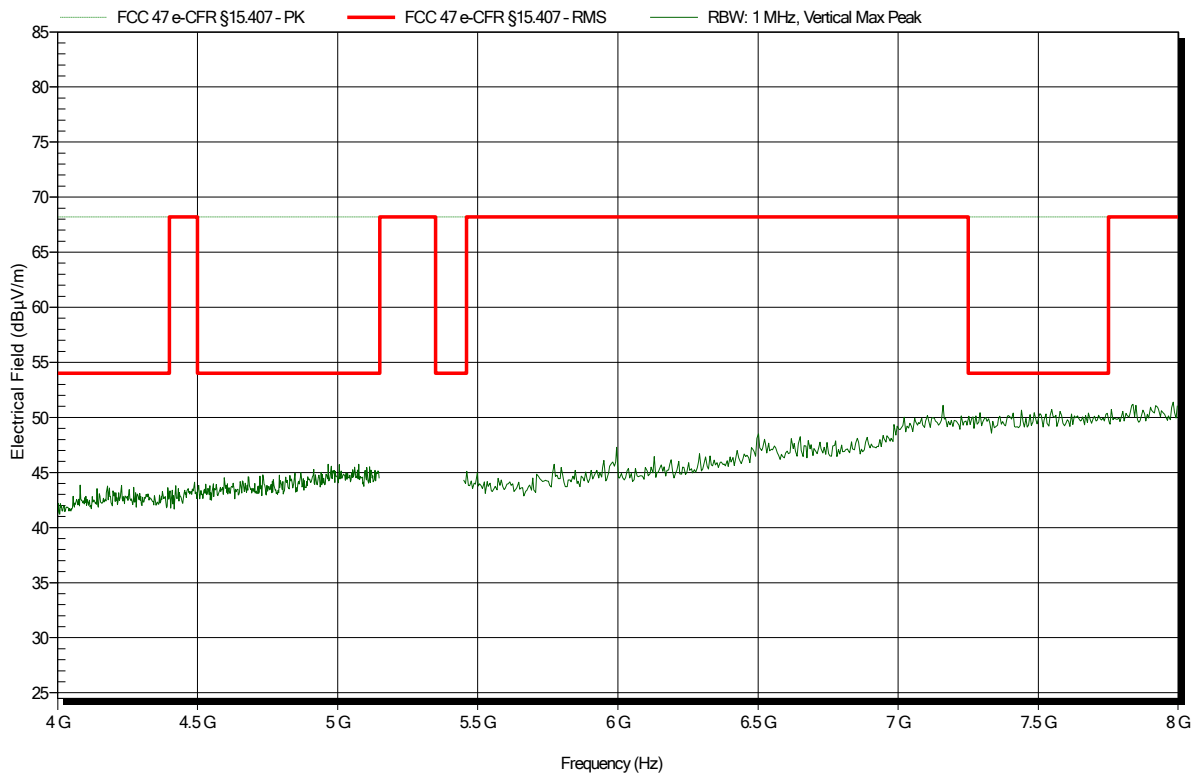


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; CH64, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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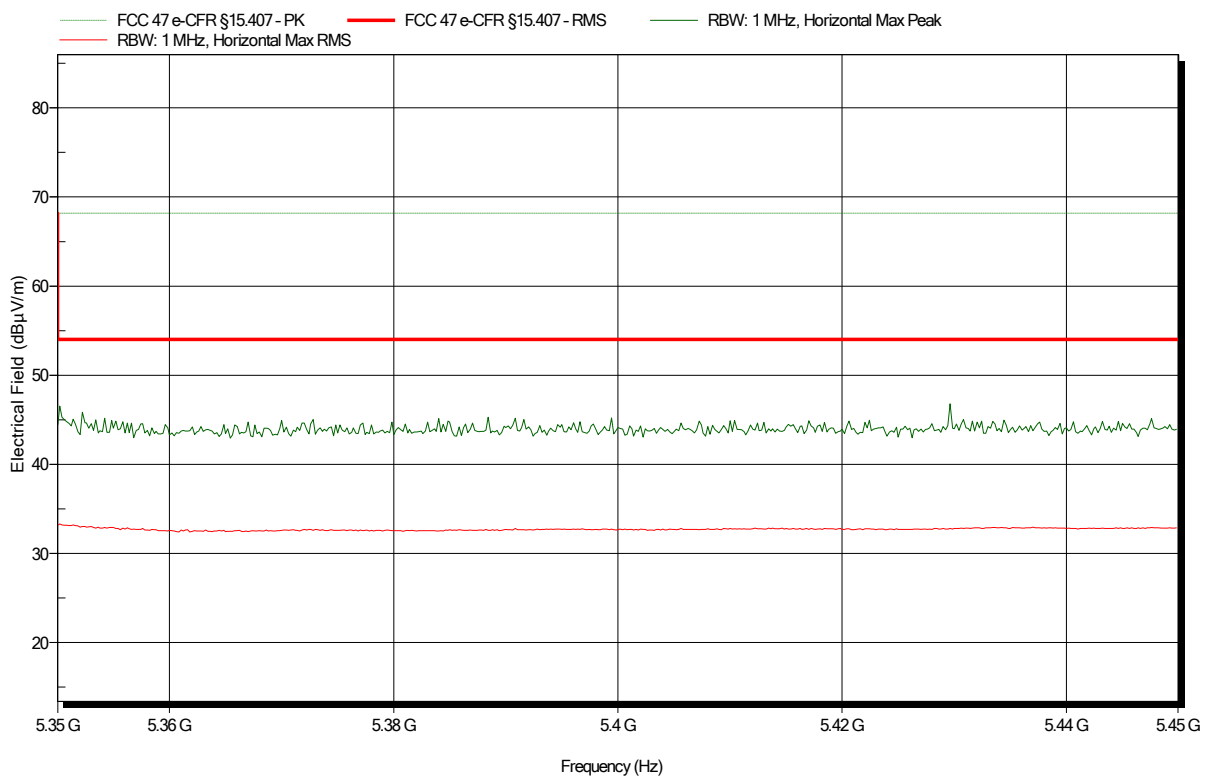


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; CH64, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna verticalupper band-edge

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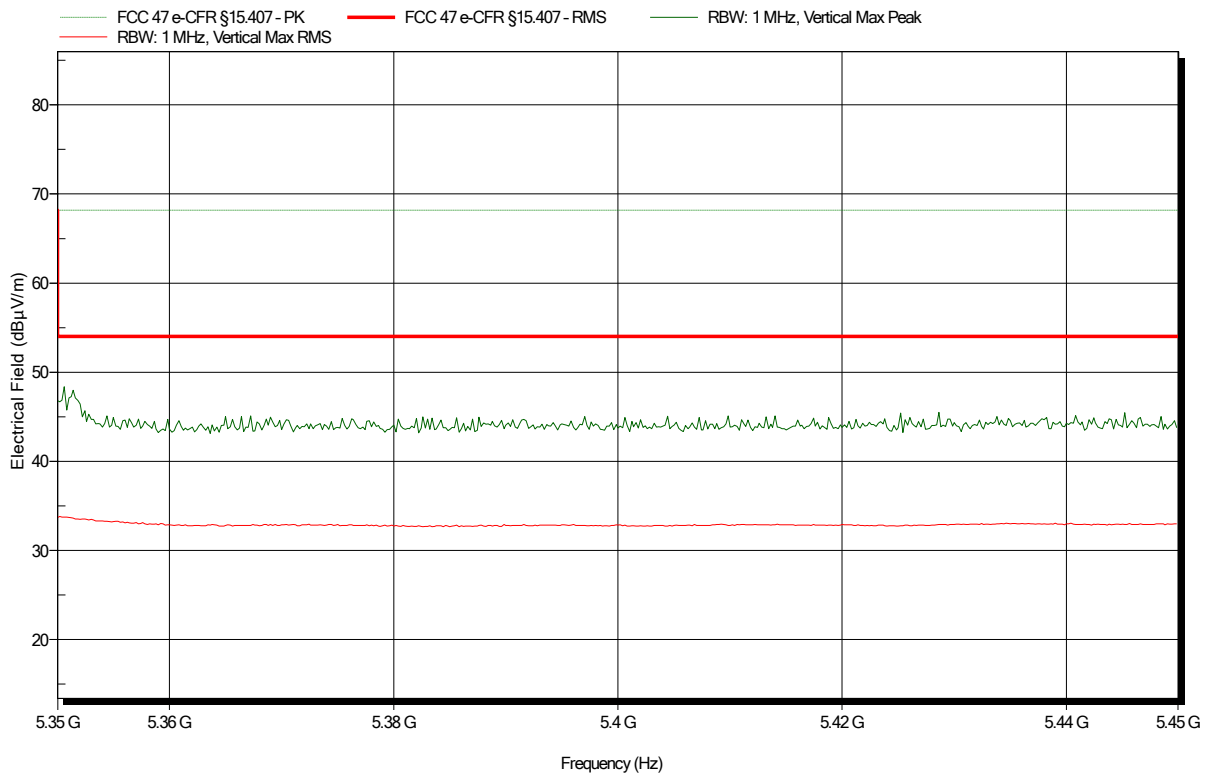


**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; CH64, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna verticalupper band-edge

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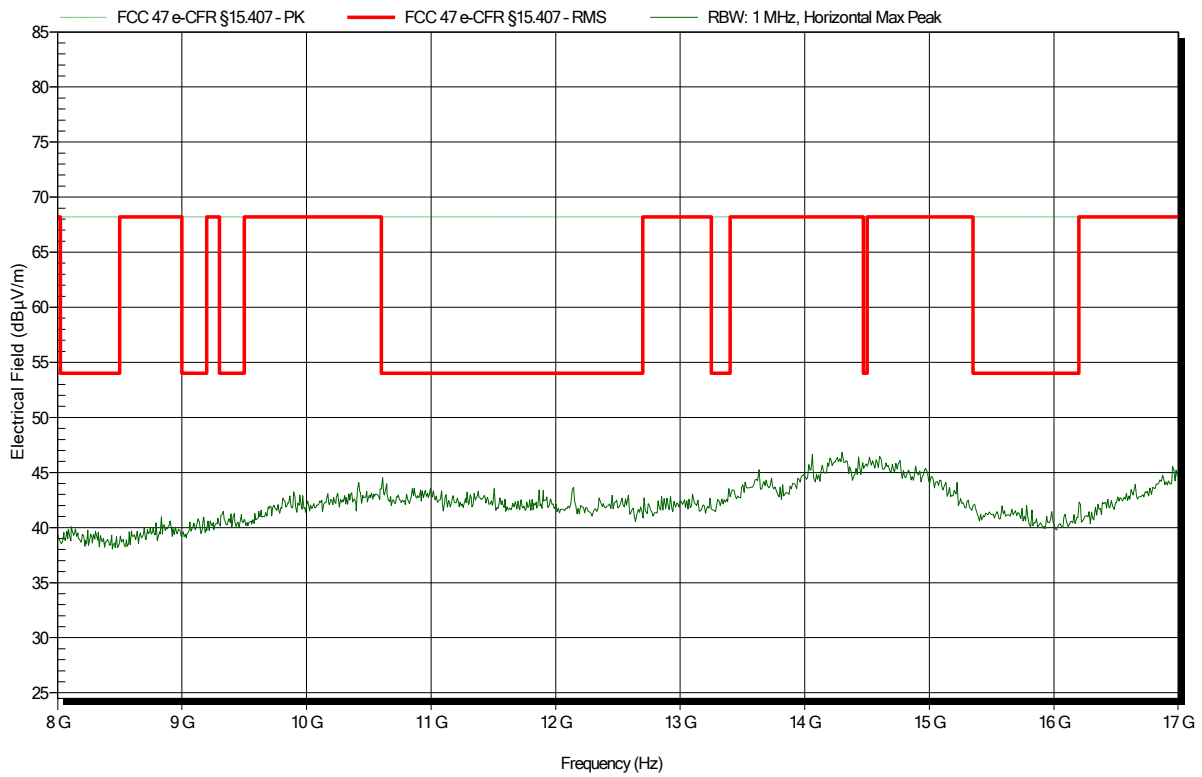


**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH64, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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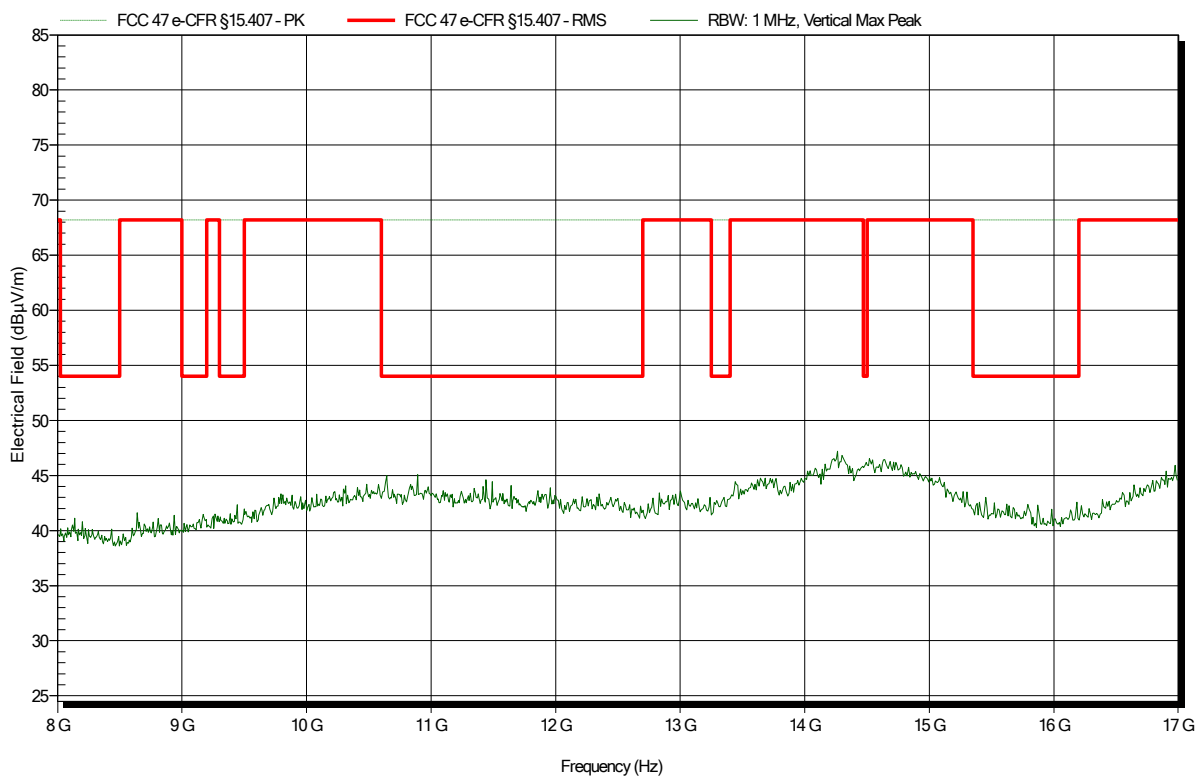


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH64, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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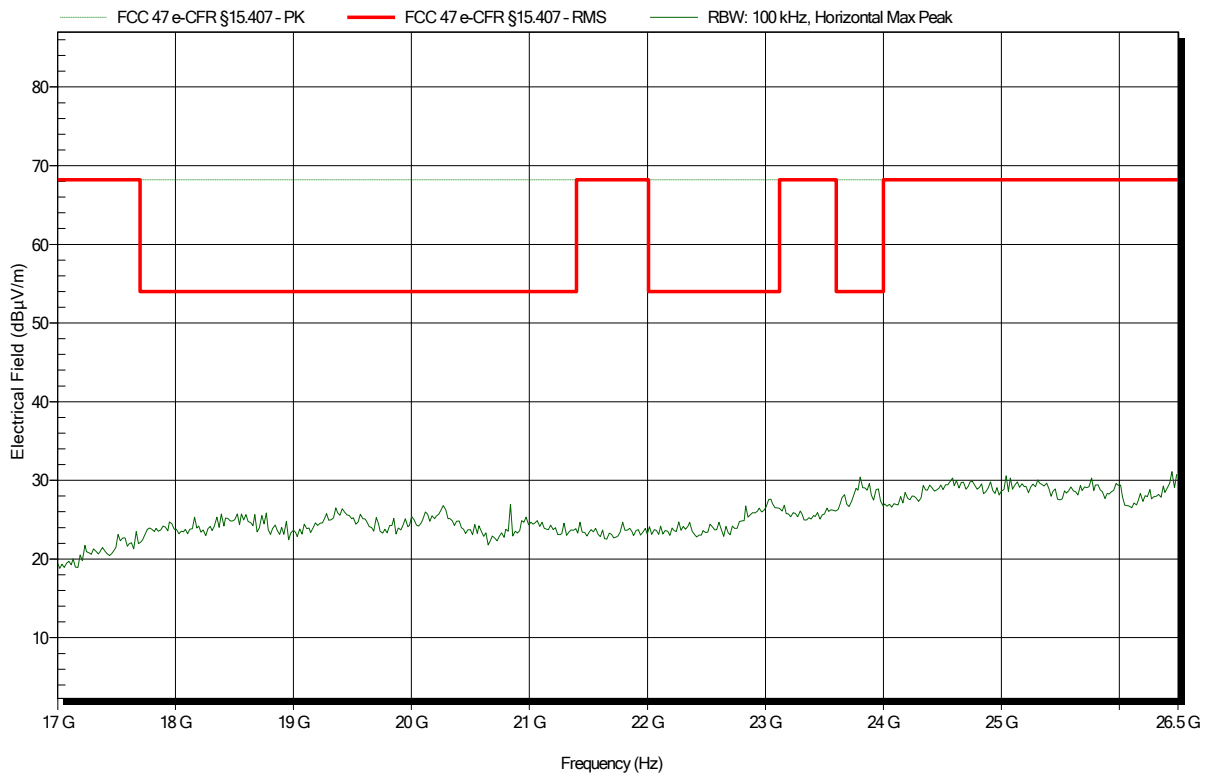


**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: ATH18G40, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH64, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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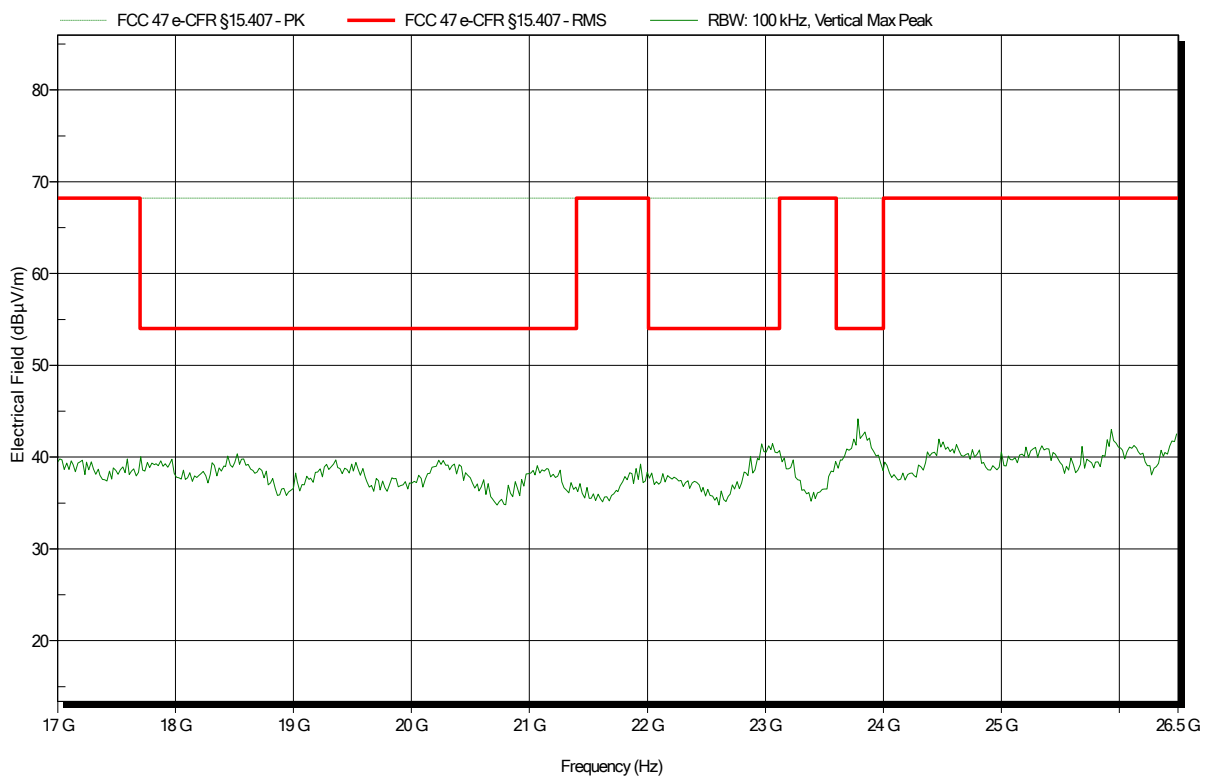


### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt (supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: ATH18G40, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH64, 6MBit, OFDM  
 Test Date: 2019-06-27  
 Note: Antenna vertical

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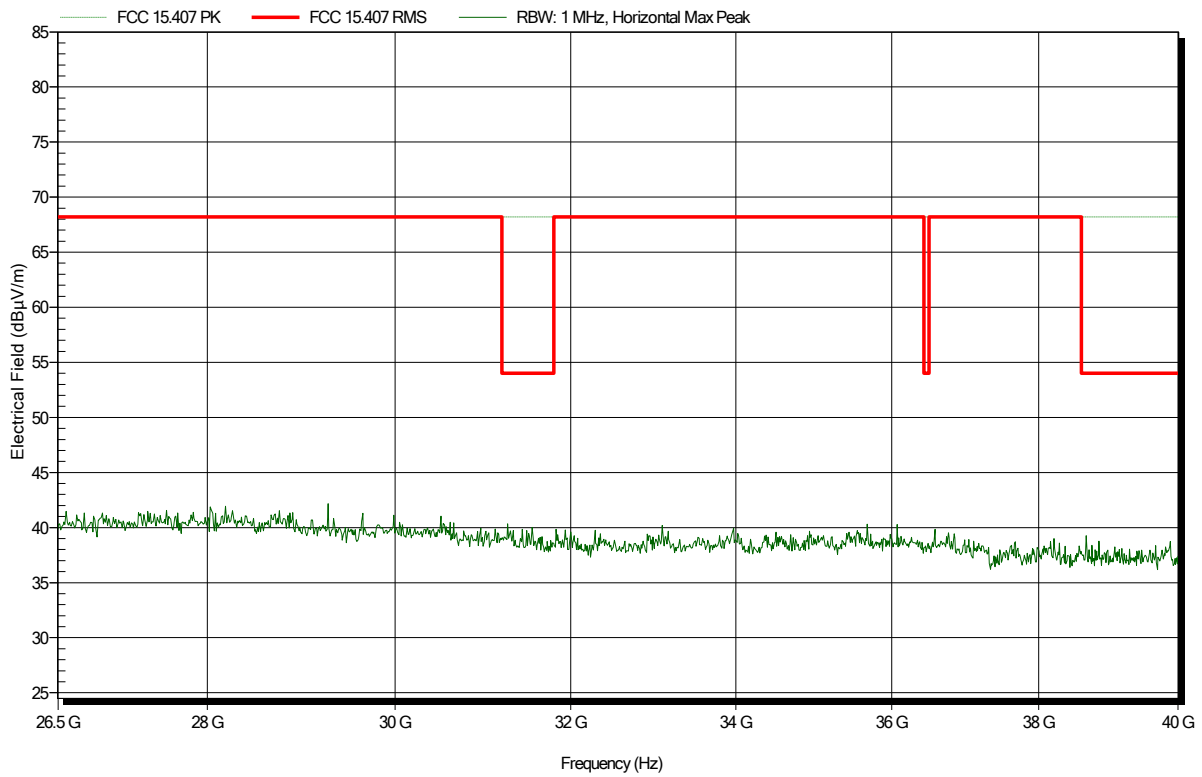


**Spurious emissions according to FCC 15.407**

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt(supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Flann Microwave Ltd 22240-25+CBL26402075, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH64, 6MBit, OFDM  
 Test Date: 2019-07-01  
 Note: Antenna vertical

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### Spurious emissions according to FCC 15.407

Project number: G0M-1901-8021

Applicant: IAV automotive Engineering Inc.  
 EUT Name: Telemetry Equipment  
 Model: TDBOX2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Florian Voigt(supervised)  
 Test Conditions: Tnom: 23.9°C, Vnom: 13.8VDC  
 Antenna: Flann Microwave Ltd 22240-25+CBL26402075, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; CH64, 6MBit, OFDM  
 Test Date: 2019-07-01  
 Note: Antenna vertical

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