RADIO REPORT

FCC 47 CFR Part 15C
ISED Canada RSS-247

Digital transmission systems operating within the 2400 – 2483.5 MHz band

Report Reference No	G0M-1901-8021-TFC247WF-V02
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	DAkkS - Registration number : D-PL-12092-01-03 (ISED) ISED Testing Laboratory site: 3470A-2 DAkkS - Registration number : D-PL-12092-01-04 (FCC) FCC Filed Test Laboratory, Reg.-No.: 96970
Applicant	IAV automotive Engineering Inc.
Address	15620 technology Drive 48168 Northville United States
Test Specification	According to FCC/ISED rules
Standard	47 CFR Part 15C RSS-247, Issue 2, 2017-02 RSS-Gen, Issue 5, Amendment 1, 2019-03
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	Telemetry Equipment
Model(s)	TDBOX2
Additional Model(s)	None
Brand Name(s)	None
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
IC	24891-G0005701
Test Result	**PASSED**

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	2019-02-11

Report:		
Compiled by	Florian Voigt	
Tested by (+ signature) (Responsible for Test)	Florian Voigt supervised by Wilfried Treffke	F. Voigt W. Treffke .....
Approved by (+ signature) (Head of Lab)	Christian Weber	C. Weber .....
Date of Issue	2019-10-15	
Total number of pages	116	

General Remarks:

The test results presented in this report relate only to the object tested.

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.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

Additional Comments:

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2019-08-09	Initial Release	
02	2019-10-15	Antenna information and pictures corrected.	F. Voigt

ABBREVIATIONS AND ACRONYMS

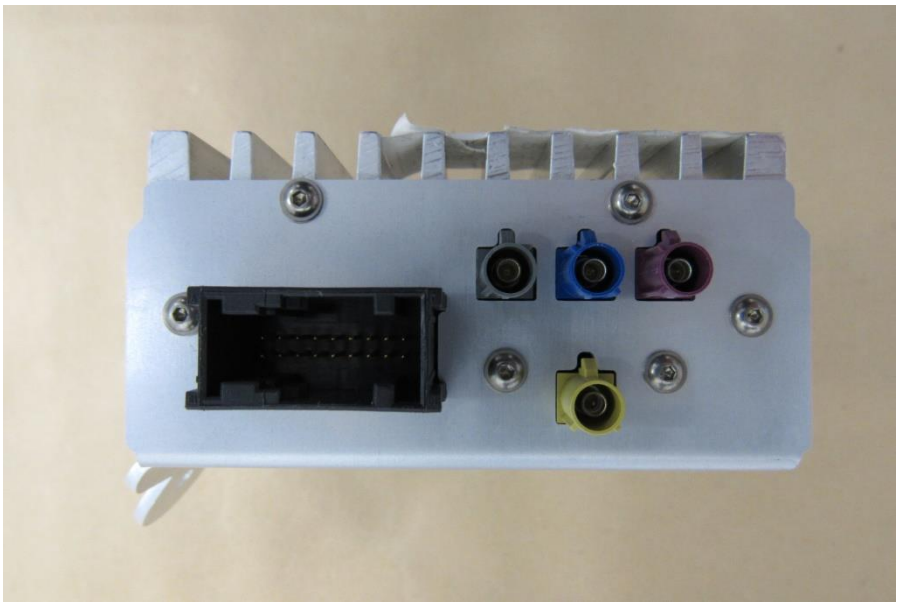
Acronyms	
Acronym	Description
BPSK	Binary Phase Shift Keying
DSSS	Direct Sequence Spread Spectrum
EUT	Equipment Under Test
FCC	Federal Communications Commission
HT	High Throughput
IEEE 802.11	MAC and PHY Layer for WiFi
ISED	Innovation, Science and Economic Development Canada
OFDM	Orthogonal Frequency Division Multiplexing
QAM	Quadrature Amplitude Modulation
QPSK	Quadrature Phase Shift Keying
RBW	Resolution bandwidth
RMS	Root mean square
VBW	Video bandwidth
V_{NOM}	Nominal supply voltage

REPORT INDEX

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	
PMN	TDBOX2	
HVIN	G00057-01	
FVIN	0209	
HMN	None	
FCC-ID	2AS2J-G00057-01	
IC	24891-G0005701	
Equipment type	End Product	
Radio type	Transceiver	
Assigned frequency bands	2400 - 2483.5 MHz	
Radio technology	IEEE 802.11 b/g/n (HT20 + HT40)	
Modulation	BPSK, QPSK, 16-QAM, 32-QAM	
Number of antenna ports	1	
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
	IC	7738A-WB11NDF1
Antenna	Type	External antenna
	Model	5B4.035.510
	Manufacturer	Molex
	Gain	2.2 dBi (by measurement)
Supply Voltage	V_{NOM}	13.8 VDC (external battery)
Operating Temperature	T_{NOM}	25 °C
AC/DC-Adaptor	N/A	
Manufacturer	IAV automotive Engineering Inc. 15620 technology Drive 48168 Northville United States	

1.1 Photos – Equipment External

VIEW (A)


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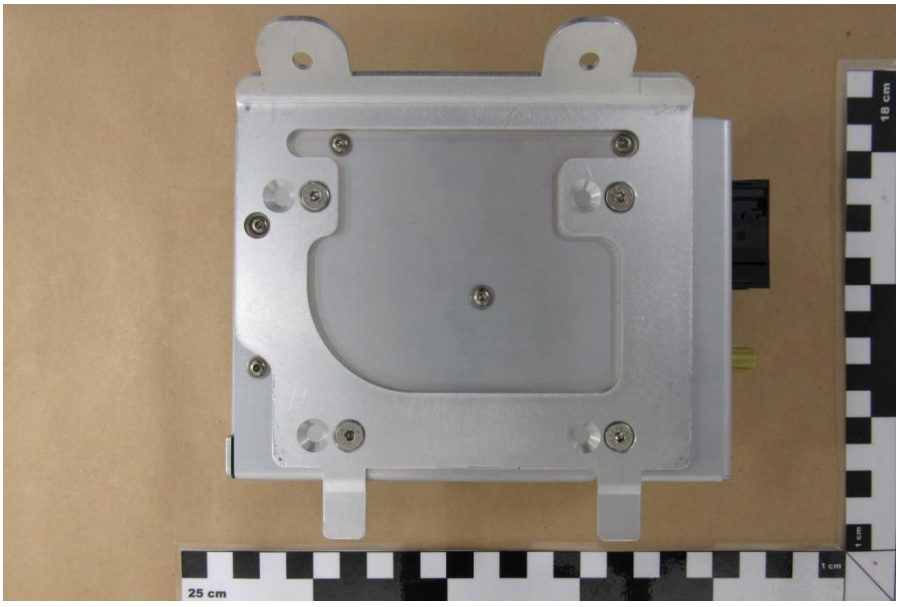

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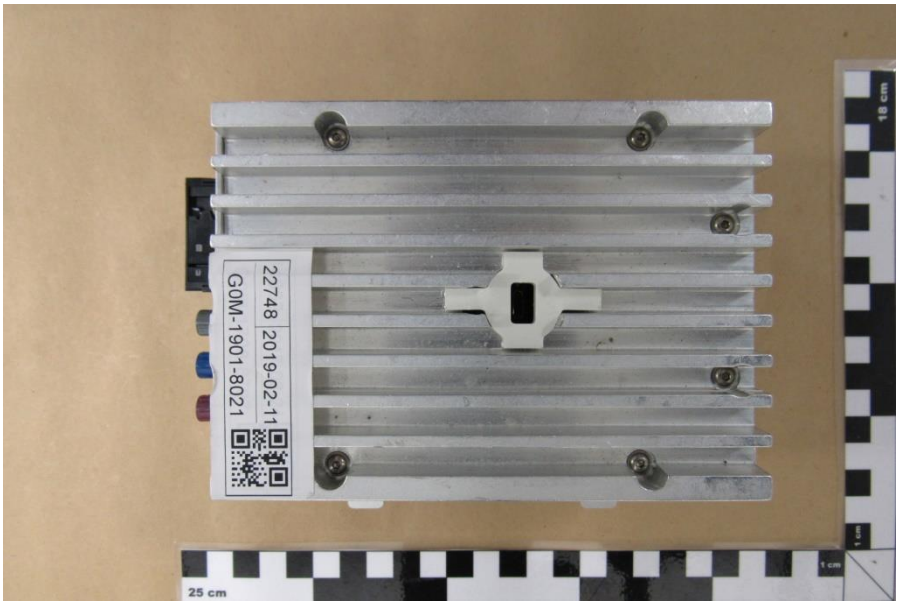


22748 2019-02-11
G0M-1901-8021
25 cm
18 cm

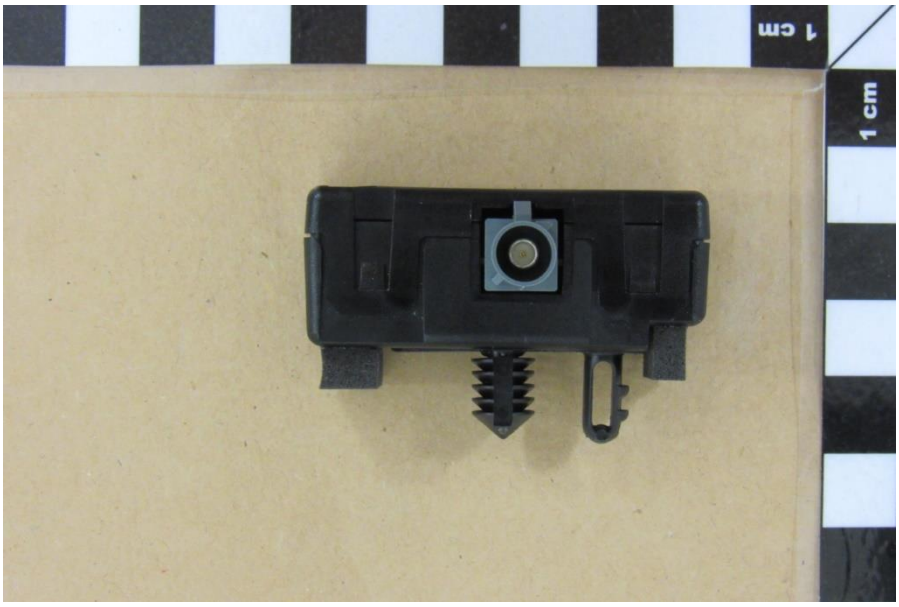
VIEW (D)

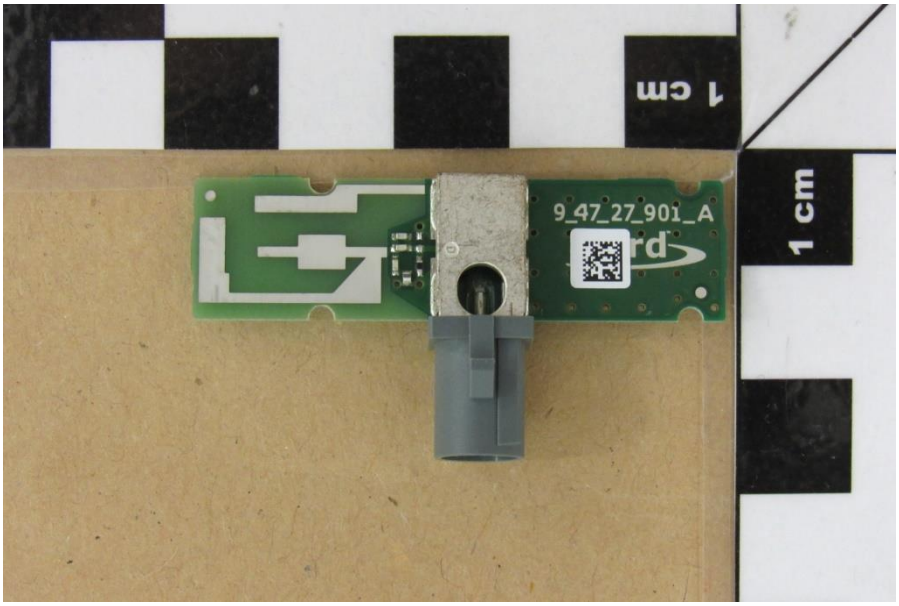

5B4919813A
Lesegeraet Telemetrie
BUGATTI
AAB-W02
12.06.1700400005

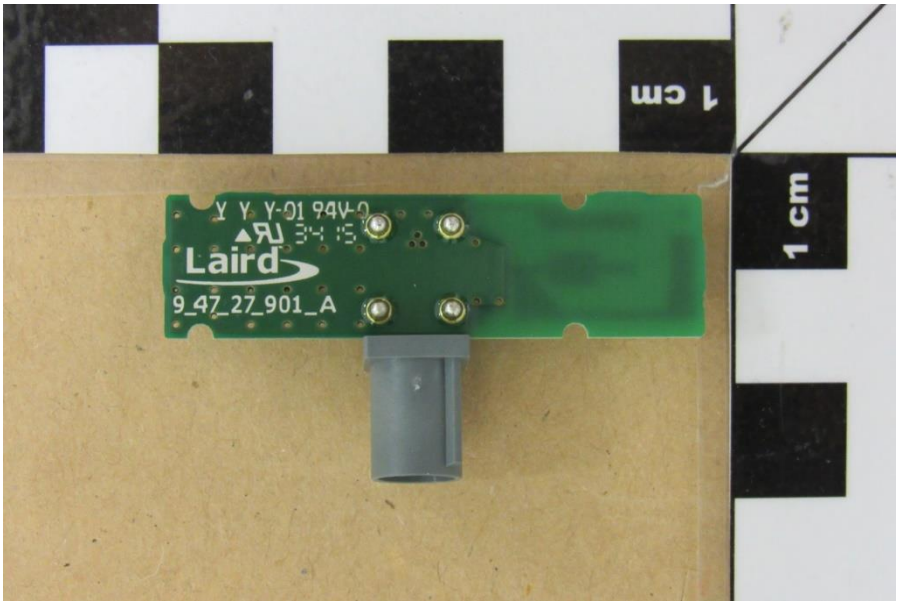
VIEW (E)
 WLAN iav G00057-01- AA-02-01- 00118-02- 0008086846

VIEW (F)
 Device updated with software VR13.5! F:0109 T:0204 5B4919813A 5B4919813A F:X090 T:Y112 HW: 030 BUGATTI IAV 23/17 Made in Germany iav Lesegeraet Telemetrie AAB-W0212.06.1700400005

Wifi antenna 5B4.035.510 top view

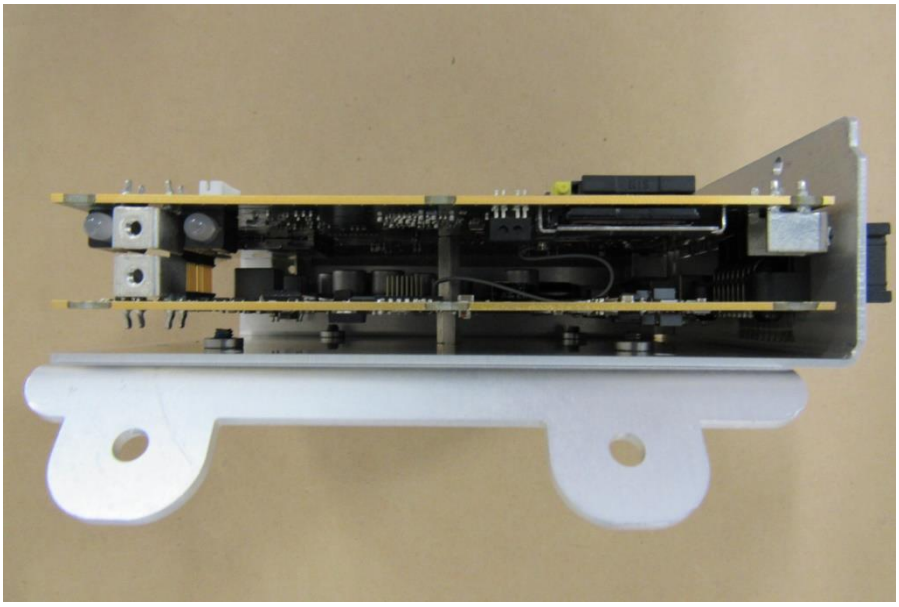

Wifi antenna 5B4.035.510 side view


Wifi antenna 5B4.035.510 PCB top


Wifi antenna 5B4.035.510 PCB bottom


1.2 Photos – Equipment Internal

VIEW (A)


VIEW (B)


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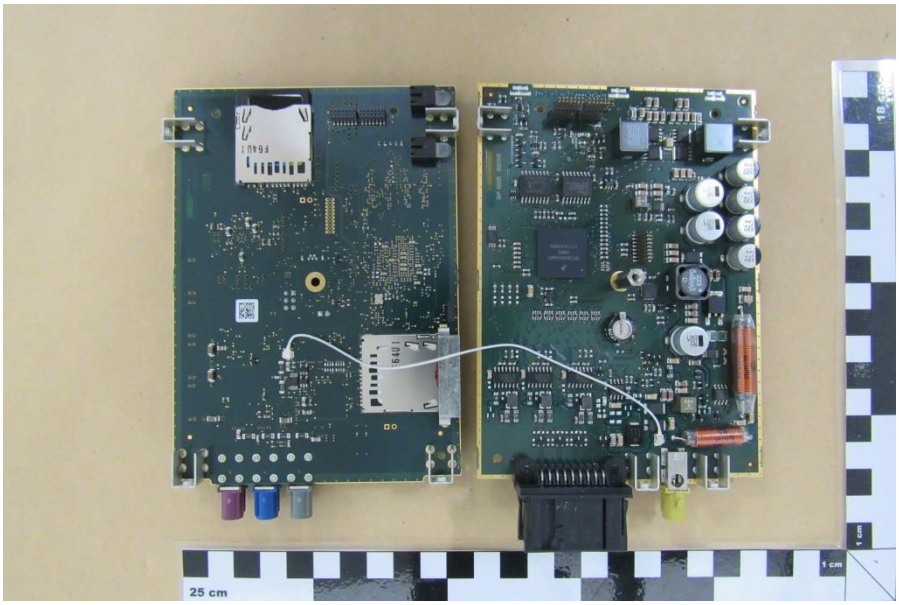

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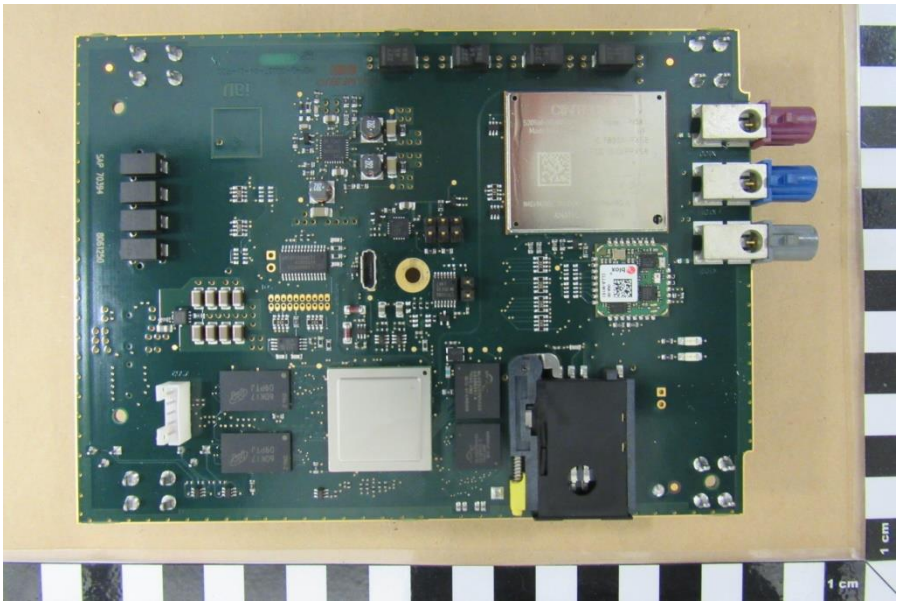

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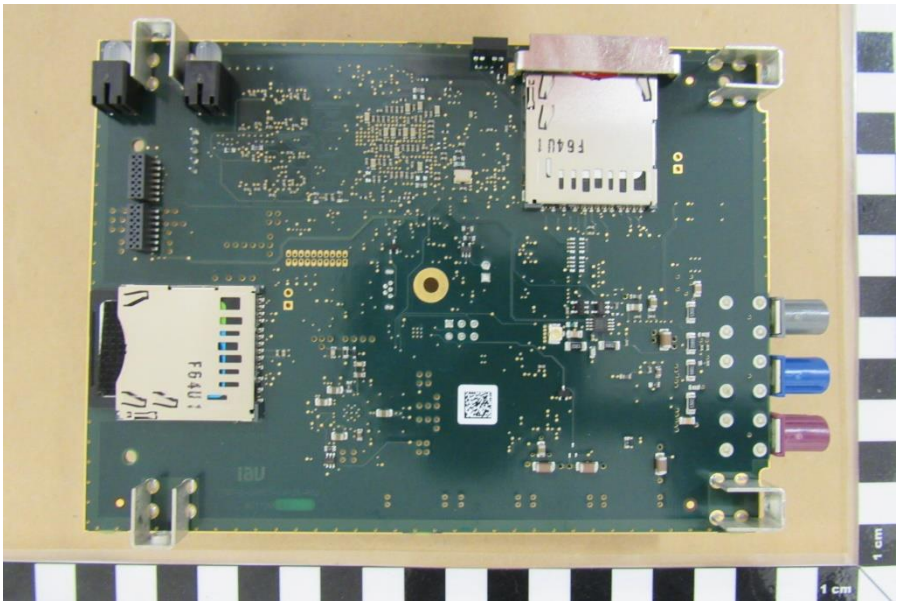

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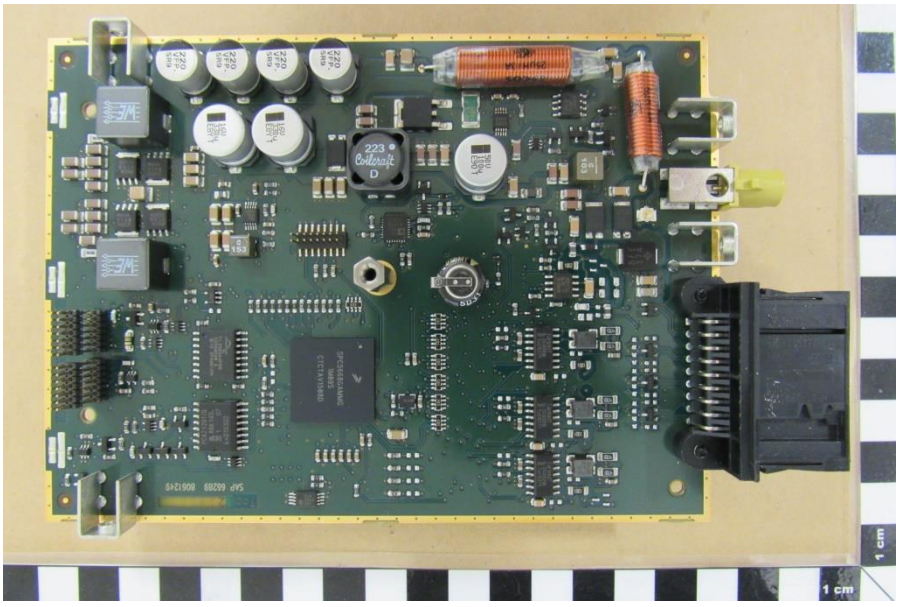


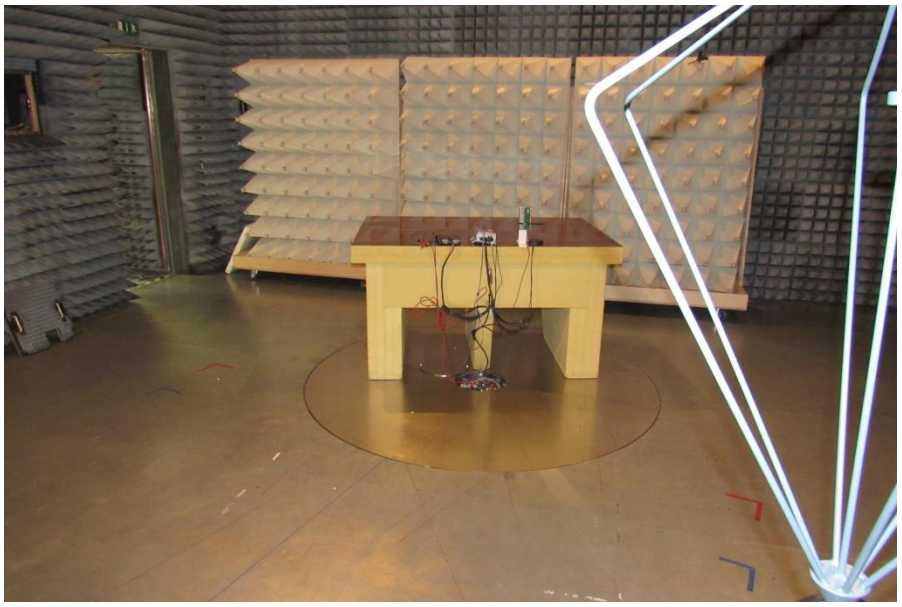
VIEW (H)

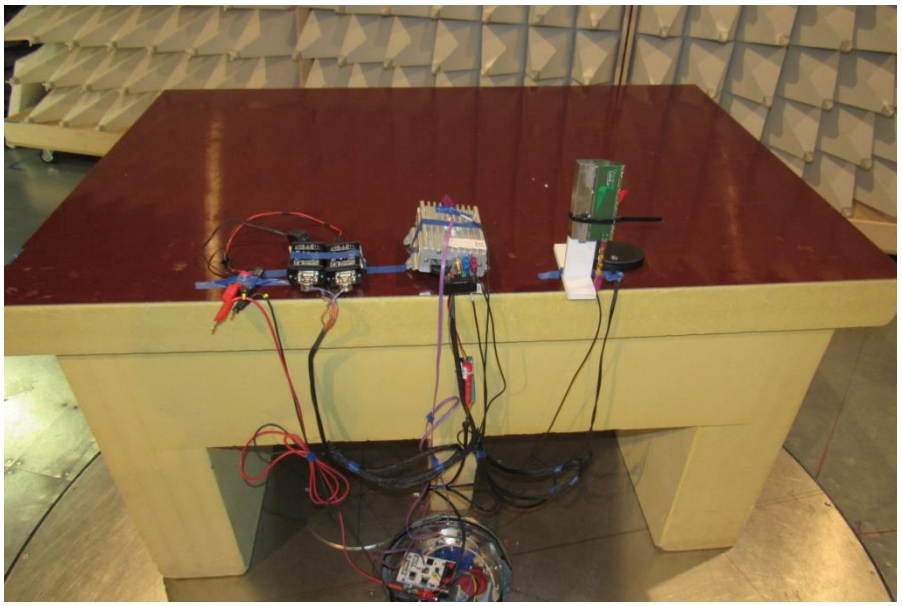

CINTERION
S30960-S2600-A300-1
Made in Germany
Model: PXS8
H9
IC:7830A-PXS8
FCC ID:QIPPXS8
CE 0682
IMEI/MEID: 99000218 496514 1
ANATEL: 1561-11-5015

VIEW (I)


CE 0682
IMEI/MEID: 99000218 496514 1
ANATEL: 1561-11-5015
u-blox
ELLA-W161
00A-00

1.3 Photos – Test Setup

Testsetup view from measurement-antenna


Testsetup close view


1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Notebook	HP Inc. (Hewlett-Packard)	EliteBook 850	Serial No. 5CG44649ML
AE	Power Supply	HP Inc. (Hewlett-Packard)	HP part no. 744481-002 UP/N AO45R00DH	CT: WDWRR0BGC7MJ RB 0B
AE	GSM/UMTS Antenna	Laird	6 58 01	Connected but not used
AE	CAN-Bus media-converter	Peak-System	PCAN-LWL	Connected and powered but not used
AE	GPS-Antenna	Hirschmann Car Communicaion	GPS 1890 LP P/series 920 061-305	Connected but not used
CBL	Power/CAN cable	---	1.80m	Connects EUT to power source and CAN-Bus
CBL	CAN-Powercable	---	2.0m	Powers CAN-Bus media converter
CBL	EUT-Powercable	---	1.0m	Powers EUT
CBL	Antennacable	---	2.0m	Connects GSM/UMTS 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 duty cycle

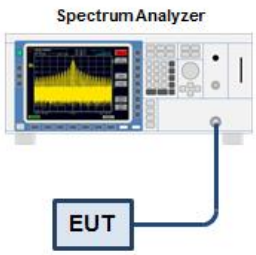
1.5.1 Information

Test Information	
Measurement Method	ANSI C63.10 11.6

1.5.2 Requirements

Requirements	
Duty cycle	Duty cycle correction
≥ 98 %	No correction required
< 98 %	Correction required (10 x Log_{10}(1/DC)

1.5.3 Setup

Test Setup


1.5.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 3	EF00241	2017-07	2019-07

1.5.5 Procedure

Test Procedure
1. EUT set to test mode 2. Span is set to zero span 3. Detector set to peak 4. Sweep time is set long enough to capture at least 5 bursts 5. Envelope peak value of emission spectrum is selected 6. The maximum burst duration T_{ON} is measured using two markers set to the start and the end of the longest burst 7. The minimum idle duration T_{OFF} is measured using two markers set to the start and the end of the shortest idle period 8. The duty cycle is calculated by DC = T_{ON} / (T_{ON} + T_{OFF}) 9. The duty cycle correction is calculated by DC = 10 x Log_{10}(T_{ON} / (T_{ON} + T_{OFF}))

1.5.6 Results

Duty Cycle Results		
Mode	Duty Cycle	Correction Factor [dB]
DSSS	100 %	N/R
OFDM	100 %	N/R
HT20	100 %	N/R
HT40	100 %	N/R

1.6 Test Modes

Mode	Description
DSSS (IEEE 802.11b)	Mode = Transmit Modulation = BPSK Spreading = DSSS Bandwidth = 20 MHz Duty cycle = 100% Power setting = 17 dBm (Softwaresetting) Data rate = 1 Mbps
OFDM (IEEE 802.11g)	Mode = Transmit Modulation = BPSK Spreading = OFDM Bandwidth = 20 MHz Duty cycle = 100% Power setting = 15 dBm (Softwaresetting) Data rate = 6 Mbps
HT20 (IEEE 802.11n)	Mode = Transmit Modulation = BPSK Spreading = OFDM Bandwidth = 20 MHz Duty cycle = 100% Power setting (1 Simultaneous Tx) = 15 dBm Data rate (1 Simultaneous Tx) = 6.5 Mbps MCS (1 Simultaneous Tx) = 0
HT40 (IEEE 802.11n)	Mode = Transmit Modulation = BPSK Spreading = OFDM Bandwidth = 40 MHz Duty cycle = 100% Power setting (1 Simultaneous Tx) = 15 dBm Data rate (1 Simultaneous Tx) = 13 Mbps MCS (1 Simultaneous Tx) = 0
Receive	Mode = Receive
Comment: The above settings were found as worst case during pre-tests.	

1.7 Test Frequencies

Designator	Mode	Channel	Frequency [MHz]
F1	Tx / Rx	1	2412
F2	Tx / Rx	3	2422
F3	Tx / Rx	6	2437
F4	Tx / Rx	9	2452
F5	Tx / Rx	11	2462

1.8 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:

Reading on Analyzer (dBµV) + A.F. (dB/m) = Net field strength (dBµV/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:

Limit (dBµV/m) = 20*log (µV/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

2 Result Summary

FCC 47 CFR Part 15C, ISED RSS-247				
Product Standard Reference	**Requirement**	**Reference Method**	**Result**	**Remarks**
ISED RSS-Gen, Issue 5 (section 6.6)	Occupied Bandwidth	ANSI C63.10-2013	PASS	Informational only
FCC § 15.247(a)(2) ISED RSS-247, Issue 2 (section 5.2)	6 dB Bandwidth	ANSI C63.10-2013	N/T	
FCC § 15.247(b)(1) ISED RSS-247, Issue 2 (section 5.4)	Maximum peak conducted power	ANSI C63.10-2013	N/T	
FCC § 15.247(e) ISED RSS-247, Issue 2 (section 5.2)	Power spectral density	ANSI C63.10-2013	N/T	
FCC § 15.207 ISED RSS-247, Issue 2 (section 3.1)	AC power line conducted emissions	ANSI C63.10-2013	N/R	Not powered (directly or indirectly) via AC-Mains
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Band edge compliance	ANSI C63.10-2013	N/T	
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Conducted spurious emissions	ANSI C63.10-2013	N/T	
FCC § 15.247(d) FCC § 15.209 ISED RSS-Gen, Issue 5 (section 6.13)	Transmitter radiated spurious emissions	ANSI C63.10-2013	PASS	
ISED RSS-247, Issue 2 (section 3.1)	Receiver radiated spurious emissions	ANSI C63.10-2013	PASS	
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 - Occupied bandwidth

3.1.1 Information

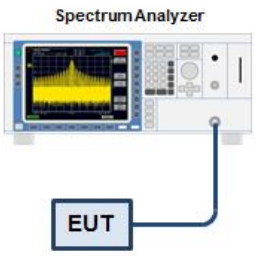
Test Information	
Reference	ISED RSS-Gen, Issue 5 (section 6.6)
Measurement Method	ANSI C63.10 6.9.3
Operator	Florian Voigt
Date	2019-08-02

3.1.2 Limits

Limits
None (Informational only)

3.1.3 Setup

Test Setup



3.1.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	Rohde & Schwarz Vertriebs GmbH	FSW43	EF00896	2019-07	2020-07

3.1.5 Procedure

Test Procedure

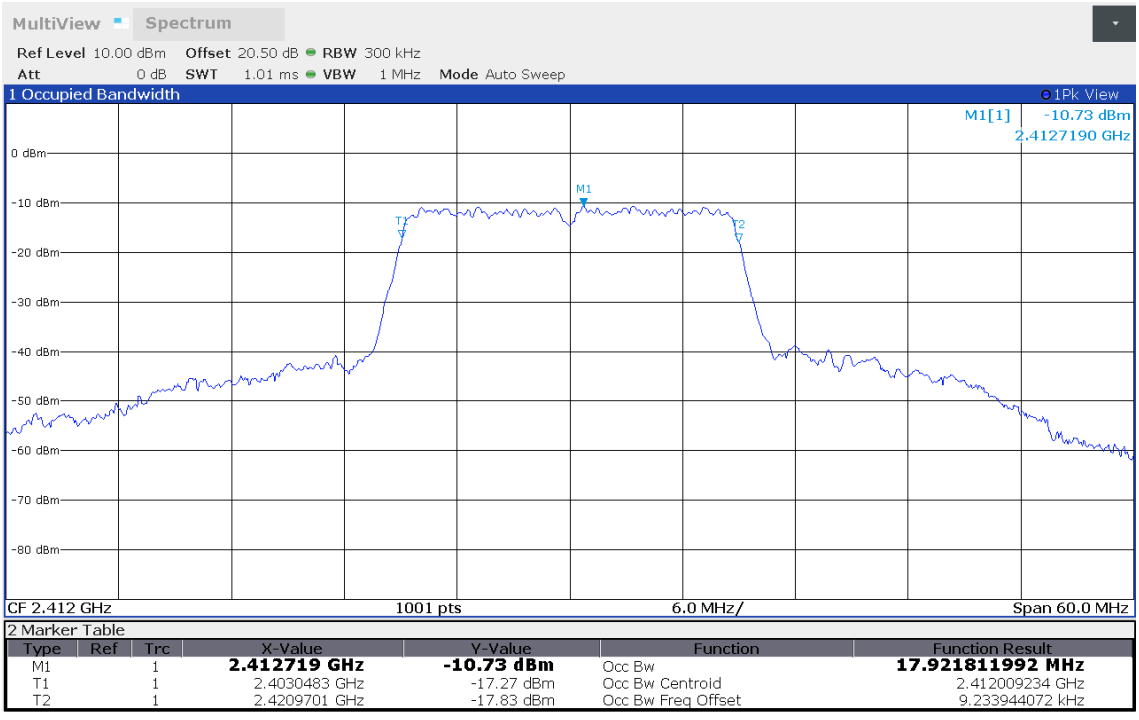
1. EUT transmitter is activated in test mode under normal conditions
2. The spectrum analyzer is set to peak detection and maximum hold with a span twice the emission spectrum
3. The resolution bandwidth is set to the range of 1 % to 5 % of the occupied bandwidth
4. The occupied bandwidth is measured with the build-in analyzer function

3.1.6 Results

Test Results		
Mode	Frequency [MHz]	Bandwidth [MHz]
HT20	2412	17.922
HT20	2437	17.913
HT20	2462	17.930
HT40	2422	36.740
HT40	2437	36.718
HT40	2452	36.706

Occupied Bandwidth

Project Number:	G0M-1901-8021
Applicant:	IAV automotive Engineering Inc.
Model Description:	Telemetry Equipment
Model:	TDBOX2
Test Sample ID:	22748
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11 n HT20, Channel: 1, 2412
Operating Conditions:	Tnom/Vnom
Operator:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-08-02
Occupied Bandwidth [MHz]:	17.922



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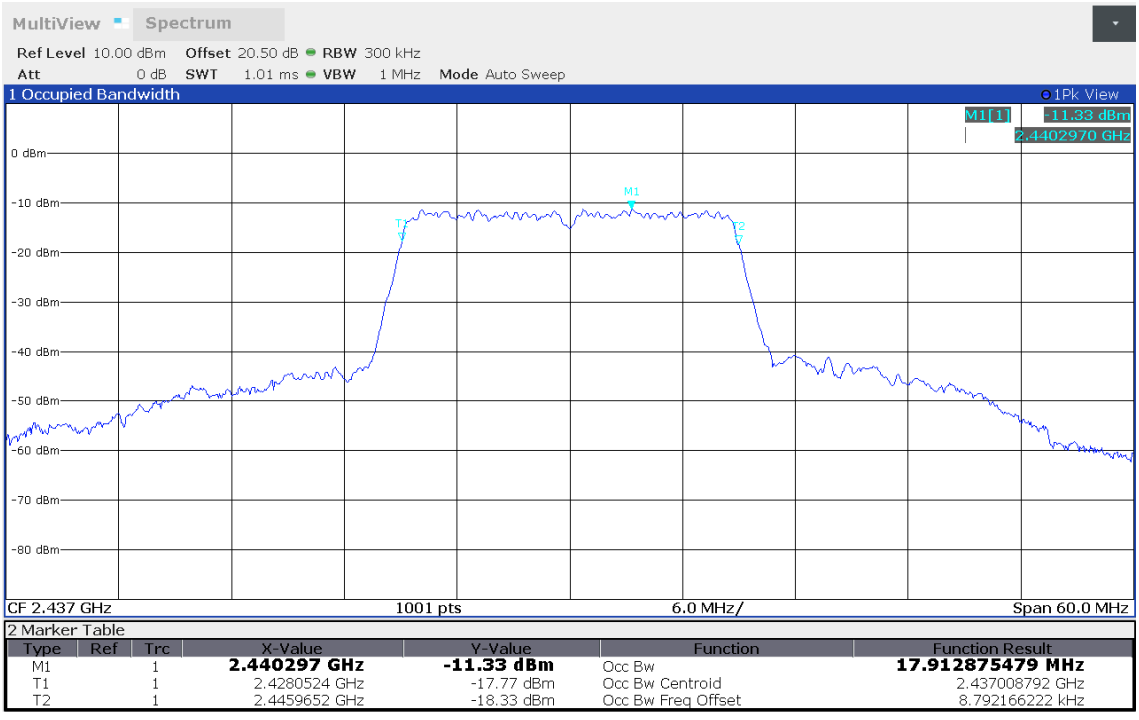
Occupied Bandwidth

Project Number:	G0M-1901-8021
Applicant:	IAV automotive Engineering Inc.
Model Description:	Telemetry Equipment
Model:	TDBOX2
Test Sample ID:	22748
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11 n HT20, Channel: 6, 2437
Operating Conditions:	Tnom/Vnom
Operator:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-08-02
Occupied Bandwidth [MHz]:	17.913



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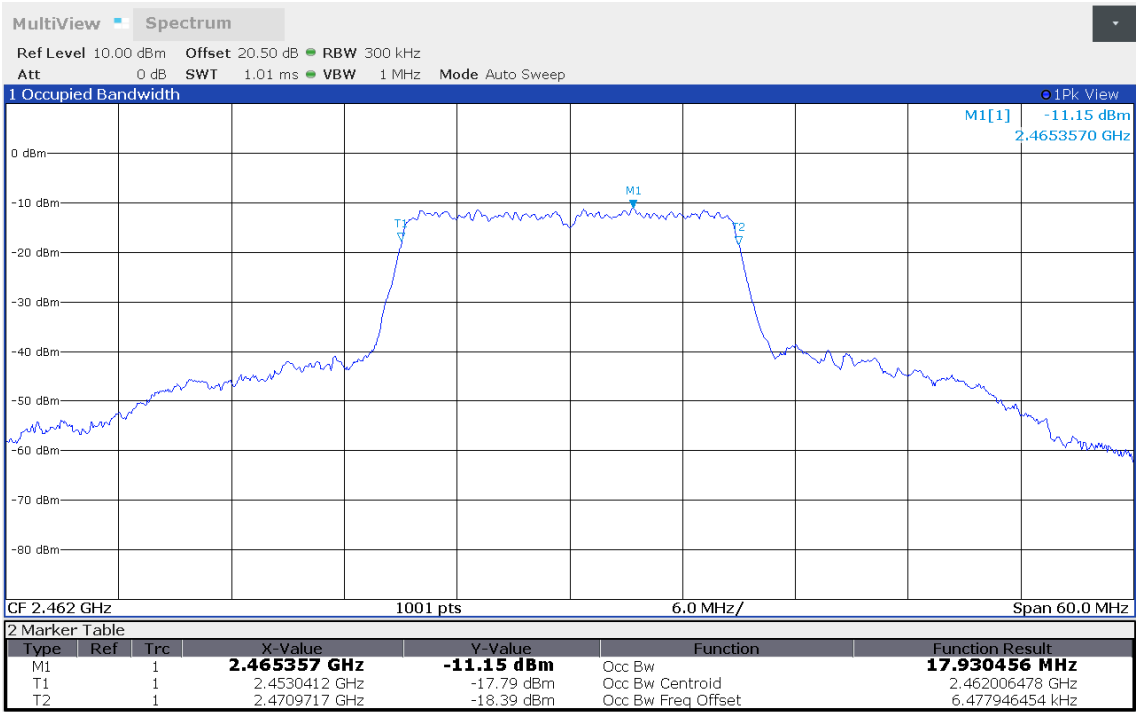
Occupied Bandwidth

Project Number:	G0M-1901-8021
Applicant:	IAV automotive Engineering Inc.
Model Description:	Telemetry Equipment
Model:	TDBOX2
Test Sample ID:	22748
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11 n HT20, Channel: 11, 2462
Operating Conditions:	Tnom/Vnom
Operator:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-08-02
Occupied Bandwidth [MHz]:	17.930



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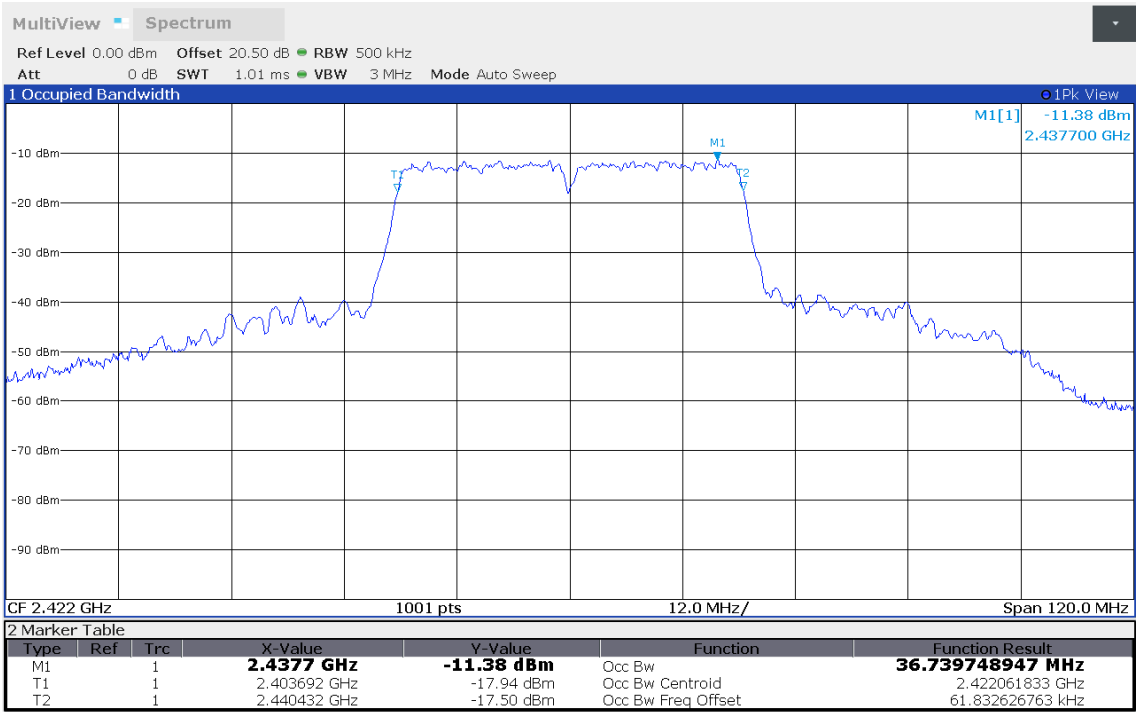
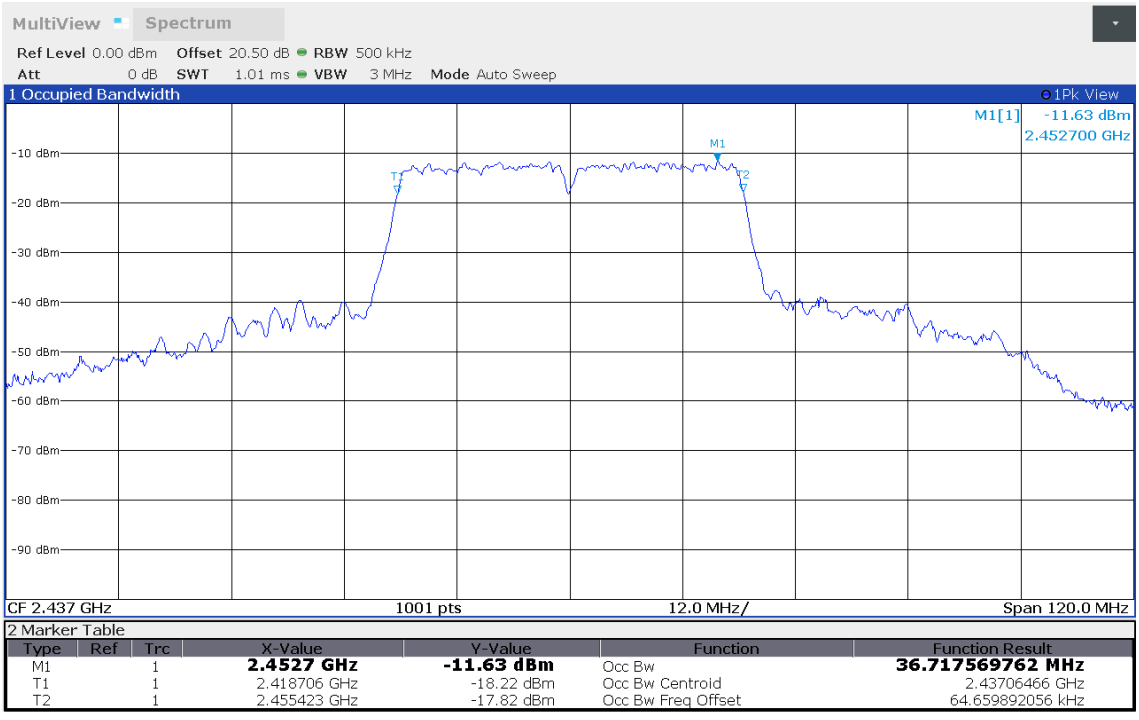
Occupied Bandwidth

Project Number:	G0M-1901-8021
Applicant:	IAV automotive Engineering Inc.
Model Description:	Telemetry Equipment
Model:	TDBOX2
Test Sample ID:	22748
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11 n HT40, Channel: 3, 2422
Operating Conditions:	Tnom/Vnom
Operator:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-08-02
Occupied Bandwidth [MHz]:	36.740



Occupied Bandwidth

Project Number:	G0M-1901-8021
Applicant:	IAV automotive Engineering Inc.
Model Description:	Telemetry Equipment
Model:	TDBOX2
Test Sample ID:	22748
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11 n HT40, Channel: 6, 2437
Operating Conditions:	Tnom/Vnom
Operator:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-08-02
Occupied Bandwidth [MHz]:	36.718



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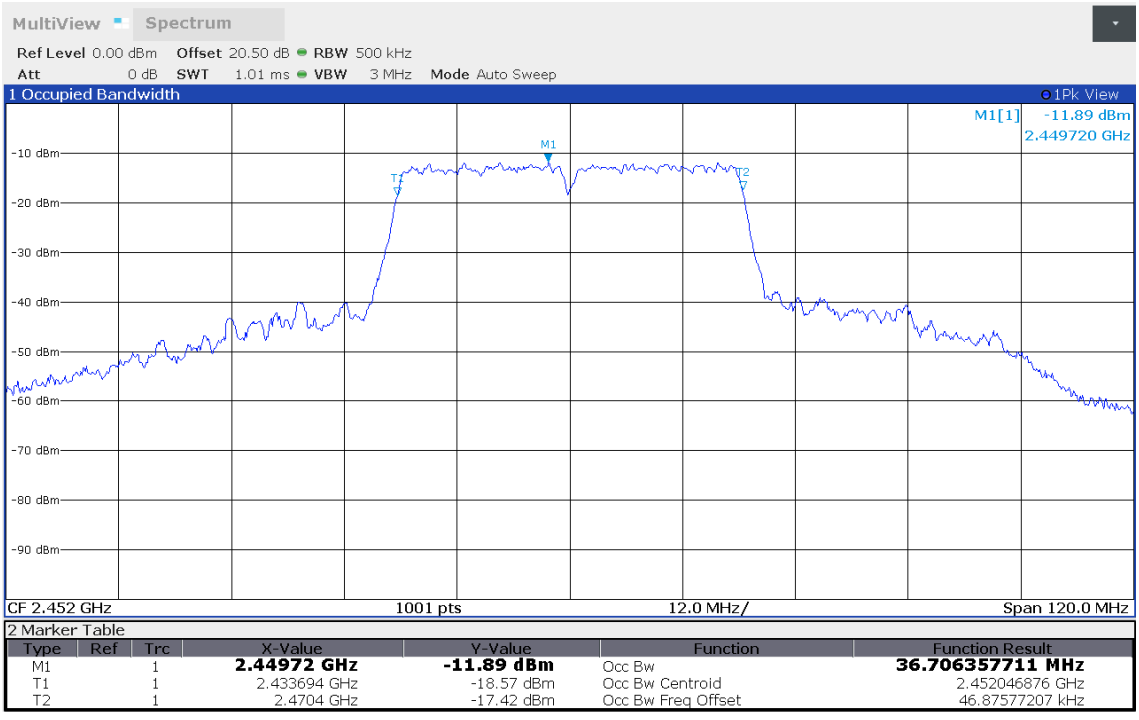
Occupied Bandwidth

Project Number:	G0M-1901-8021
Applicant:	IAV automotive Engineering Inc.
Model Description:	Telemetry Equipment
Model:	TDBOX2
Test Sample ID:	22748
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.11 n HT40, Channel: 9, 2452
Operating Conditions:	Tnom/Vnom
Operator:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-08-02
Occupied Bandwidth [MHz]:	36.706



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3.2 Test Conditions and Results - Transmitter radiated emissions

3.2.1 Information

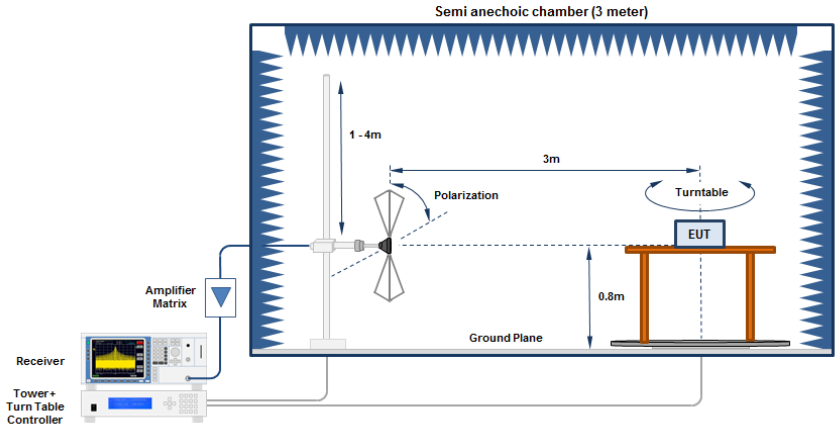
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISED RSS-Gen, Issue 5 (section 6.13)
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12
Operator	Florian Voigt
Date	2019-06-25 - 2019-07-24

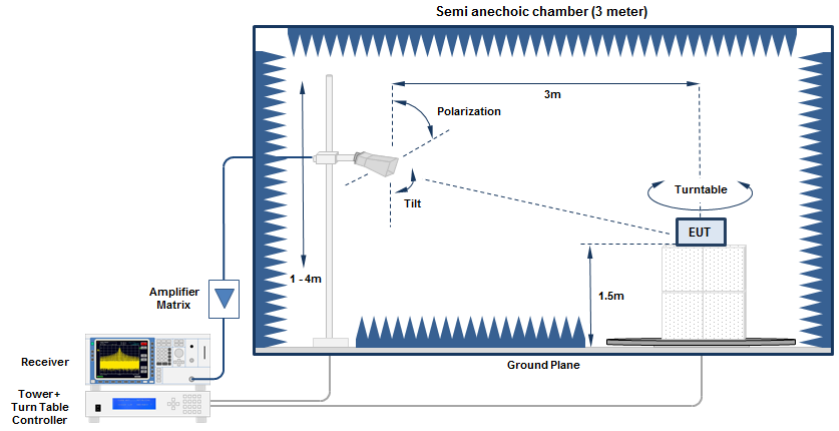
3.2.2 Limits

Limits			
Frequency [MHz]	Detector	Field strength [µV/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

3.2.3 Setup

Test Setup 30 - 1000 MHz



Test Setup > 1 GHz


3.2.4 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
Measurement Receiver	R&S	ESU 26	EF00887	2018-08	2019-08
Antenna	Schwarzbeck	BBHA 9120D	EF01153	2018-09	2019-09
Antenna	Amplifier Research	AT4560	EF01152	2018-10	2019-10

3.2.5 Procedure

Test Procedure 30 - 1000 MHz
1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground
2. EUT set to test mode
3. The receiver is set to peak detection with max hold
4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5. All significant emissions are measured again using the corresponding final detector

Test Procedure > 1 GHz
1. EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground
2. EUT set to test mode
3. The receiver is set to peak detection with max hold
4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5. All significant emissions are measured again using the corresponding final detector

3.2.6 Results

Test Results - DSSS						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2412	73.0449	31.40	pk	ver	40.00	-08.60
2412	115.5449	36.00	pk	ver	43.50	-07.48
2412	243.5897	36.10	pk	ver	46.00	-09.93
2412	1198	41.19	pk	hor	74.00	-32.81
2412	1198	44.46	pk	ver	74.00	-29.54
2412	9648	44.84	pk	ver	95.00	-50.16
2437	74.1346	32.60	pk	ver	40.00	-07.42
2437	108.132	36.20	pk	ver	43.50	-07.36
2437	7304	43.12	pk	hor	74.00	-30.88
2437	7312	43.53	pk	ver	74.00	-30.47
2462	149.9463	36.80	pk	ver	43.50	-06.68
2462	243.5897	32.40	pk	ver	46.00	-13.60
2462	1196	41.32	pk	hor	74.00	-32.68
2462	1196	41.18	pk	ver	74.00	-32.82
2462	1437	41.59	pk	hor	74.00	-32.41
2462	2397	43.57	pk	ver	95.00	-51.43
2462	7384	43.58	pk	ver	74.00	-30.42

Test Results - HT40						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2422	73.1829	33.50	pk	ver	40.00	-06.53
2422	115.8173	36.40	pk	ver	43.50	-07.16
2422	242.3077	34.60	pk	ver	46.00	-11.44
2422	1198	42.11	pk	hor	74.00	-31.89
2422	1200	45.25	pk	ver	74.00	-28.75
2422	7272	42.97	pk	ver	74.00	-31.03
2437	114.8056	32.80	qpk	ver	43.50	-10.71
2437	244.8718	33.00	pk	ver	46.00	-13.04
2437	1199	42.75	pk	hor	74.00	-31.25
2437	1199	42.04	pk	ver	74.00	-31.96
2437	2397	46.40	pk	hor	95.00	-48.60
2437	2397	44.06	pk	ver	95.00	-50.94
2437	2484	45.90	pk	hor	74.00	-28.10
2452	116.3343	33.10	qpk	ver	43.50	-10.38
2452	246.1538	33.50	pk	hor	46.00	-12.49
2452	1196	40.32	pk	ver	74.00	-33.68
2452	1199	42.34	pk	hor	74.00	-31.66
2452	2344	44.75	pk	hor	74.00	-29.25
2452	2397	44.29	pk	ver	95.00	-50.71

3.3 Test Conditions and Results - Receiver radiated emissions

3.3.1 Information

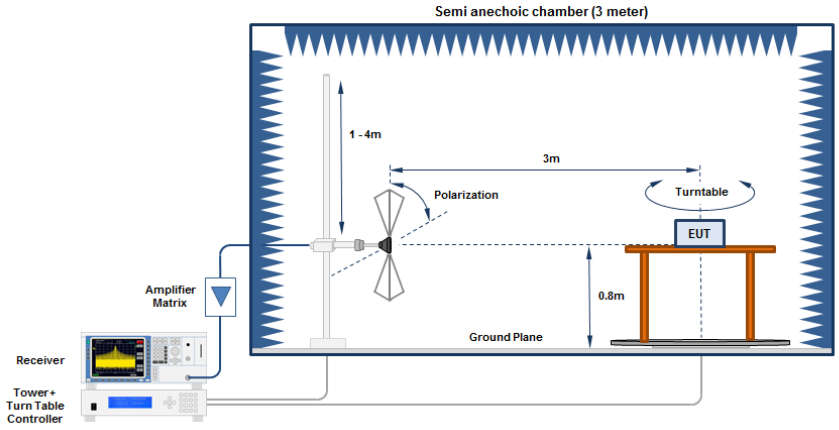
Test Information	
Reference	ISED RSS-247, Issue 2 (section 3.1)
Measurement Method	ANSI C63.10 6.5, 6.6, 11.12
Operator	Abdullah Al Jamal, Florian Voigt
Date	2019-04-01, 2019-07-10
Comment	Antenna ANT-DB1-RAF-RPS used to measure receiver radiated emissions

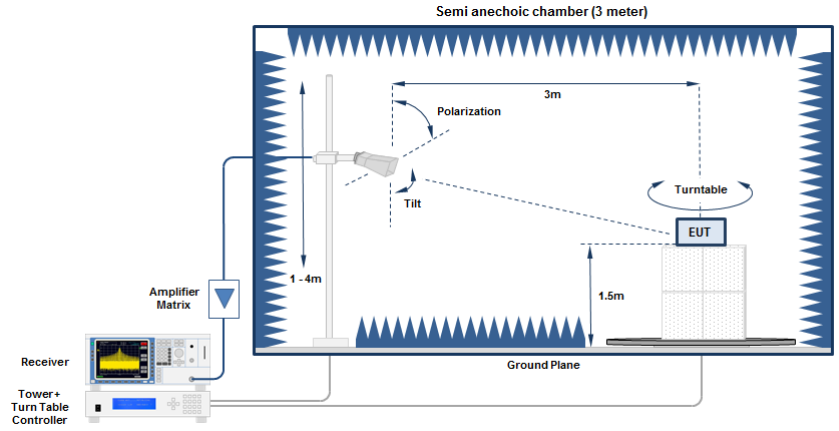
3.3.2 Limits

Limits			
Frequency [MHz]	Detector	Field strength [dBµV/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

3.3.3 Setup

Test Setup 30 - 1000 MHz



Test Setup > 1 GHz


3.3.4 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
Measurement Receiver	R&S	ESU 26	EF00887	2018-08	2019-08
Antenna	Schwarzbeck	BBHA 9120D	EF01153	2018-09	2019-09
Antenna	Amplifier Research	AT4560	EF01152	2018-10	2019-10

3.3.5 Procedure

Test Procedure 30 - 1000 MHz
1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground
2. EUT set to test mode
3. The receiver is set to peak detection with max hold
4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5. All significant emissions are measured again using the corresponding final detector

Test Procedure > 1 GHz
1. EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground
2. EUT set to test mode
3. The receiver is set to peak detection with max hold
4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5. All significant emissions are measured again using the corresponding final detector

3.3.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2437	32.7387	31.70	qpk	ver	40.00	-08.31
2437	115.4521	35.80	qpk	ver	43.50	-07.69
2437	7096	50.57	pk	hor	53.98	-03.41
2437	7096	38.02	avg	hor	53.98	-15.96
2437	7096	50.53	pk	ver	53.98	-03.45
2437	7096	38.02	avg	ver	53.98	-15.96
2437	7768	49.93	pk	ver	53.98	-04.05
2437	7768	39.33	avg	ver	53.98	-14.65
2437	7888	50.25	pk	hor	53.98	-03.73
2437	7888	39.82	avg	hor	53.98	-14.16
2437	14280	47.05	pk	ver	53.98	-06.93
2437	14300	45.94	pk	hor	53.98	-08.04

ANNEX A Transmitter spurious emissions

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	TX; CH1, 1MBit DSSS
Test Date:	2019-07-09
Note:	Antenna horizontal

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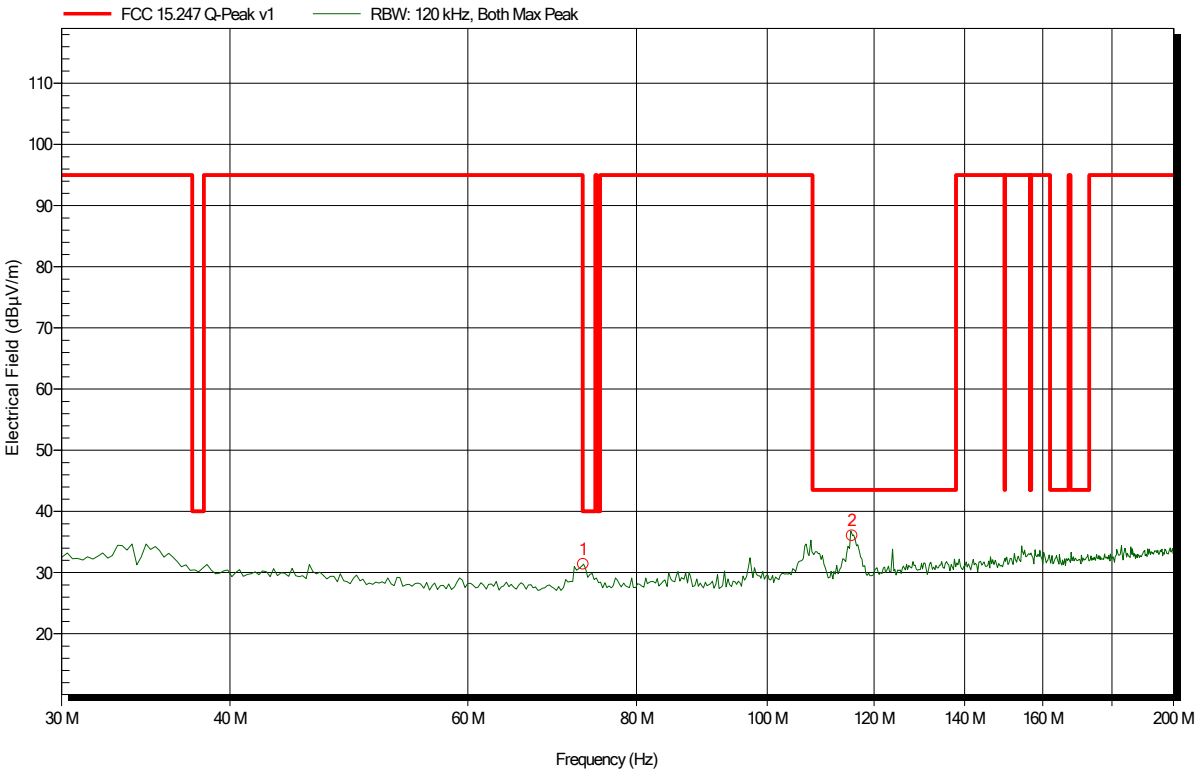

Frequency	Peak	Peak Limit	Peak Difference	Polarization	Status
73.0449 MHz	31.4 dBµV/m	40 dBµV/m	-8.6 dB	Vertical	Pass
115.5449 MHz	36 dBµV/m	43.5 dBµV/m	-7.48 dB	Vertical	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	TX; CH1, 1MBit DSSS
Test Date:	2019-07-03
Note:	Antenna horizontal

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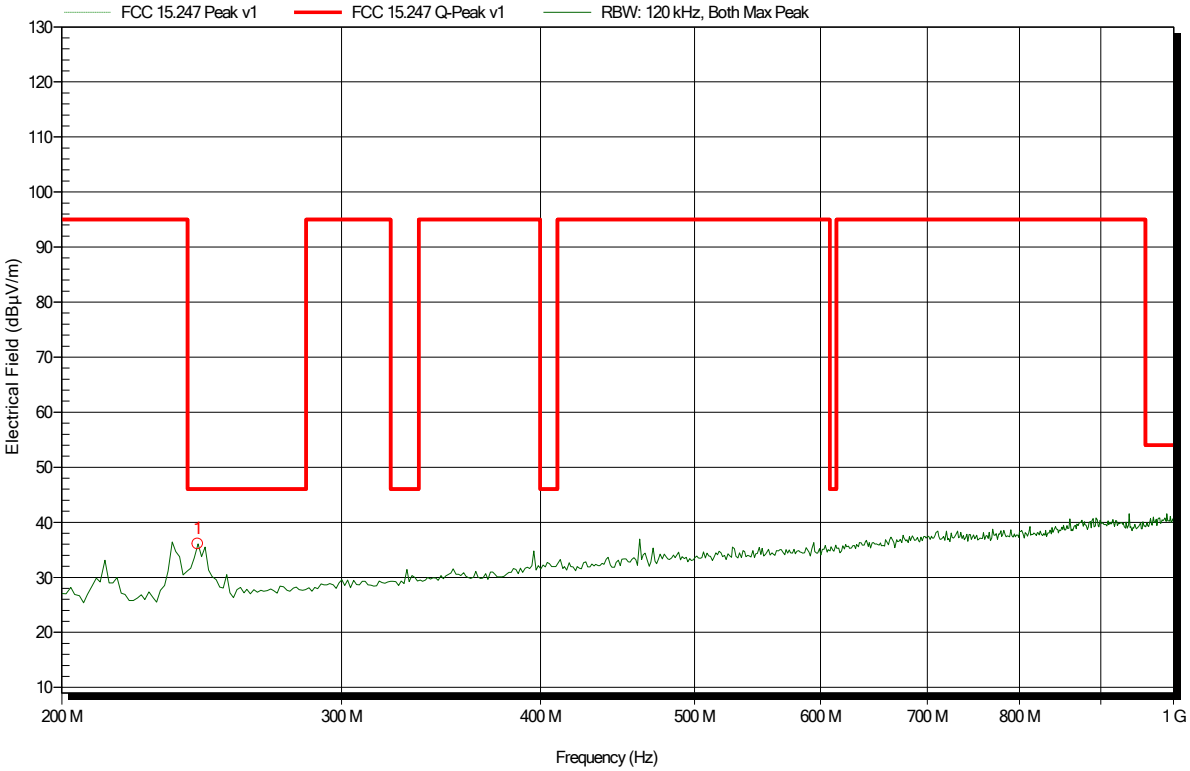

Frequency	Peak	Peak Limit	Peak Difference	Polarization	Status
243.5897 MHz	36.1 dBµV/m	46 dBµV/m	-9.93 dB	Horizontal	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; CH1, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Antenna horizontal

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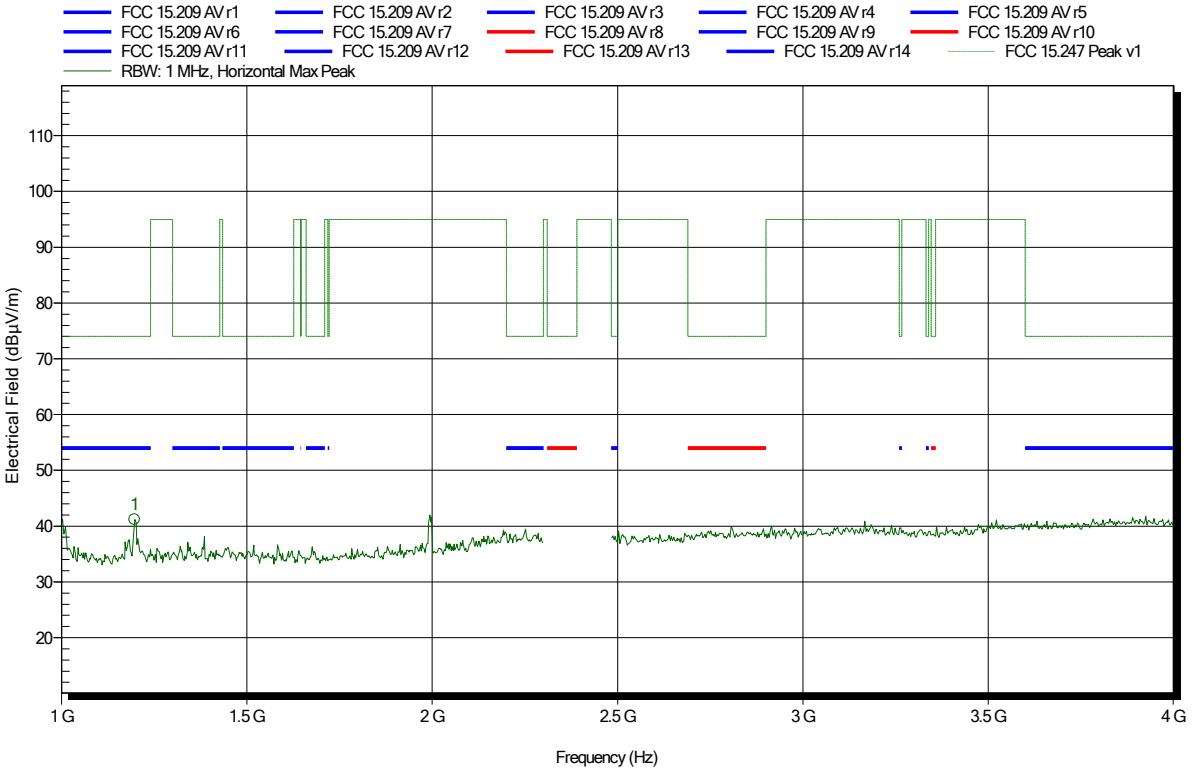

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.198 GHz	41.19 dBµV/m	74 dBµV/m	-32.81 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; CH1, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Antenna horizontal

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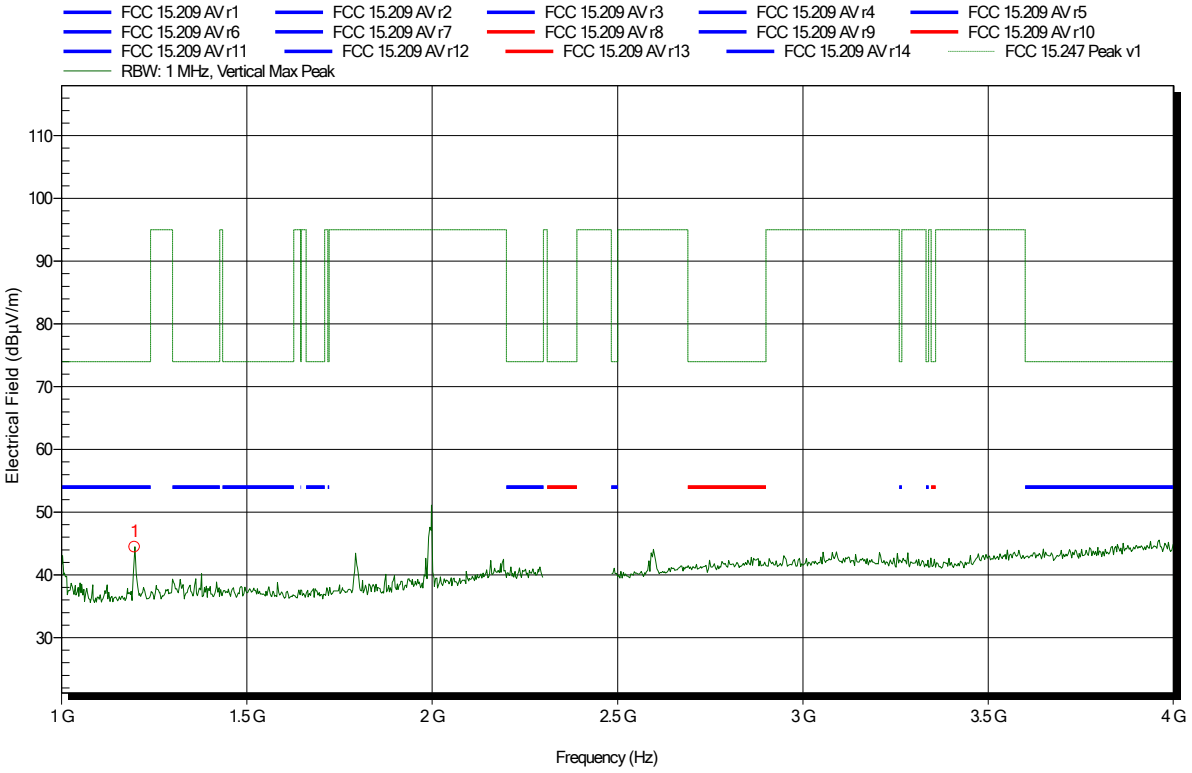

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.198 GHz	44.46 dBµV/m	74 dBµV/m	-29.54 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; CH1, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Band Edge, Lower Channel, Antenna horizontal

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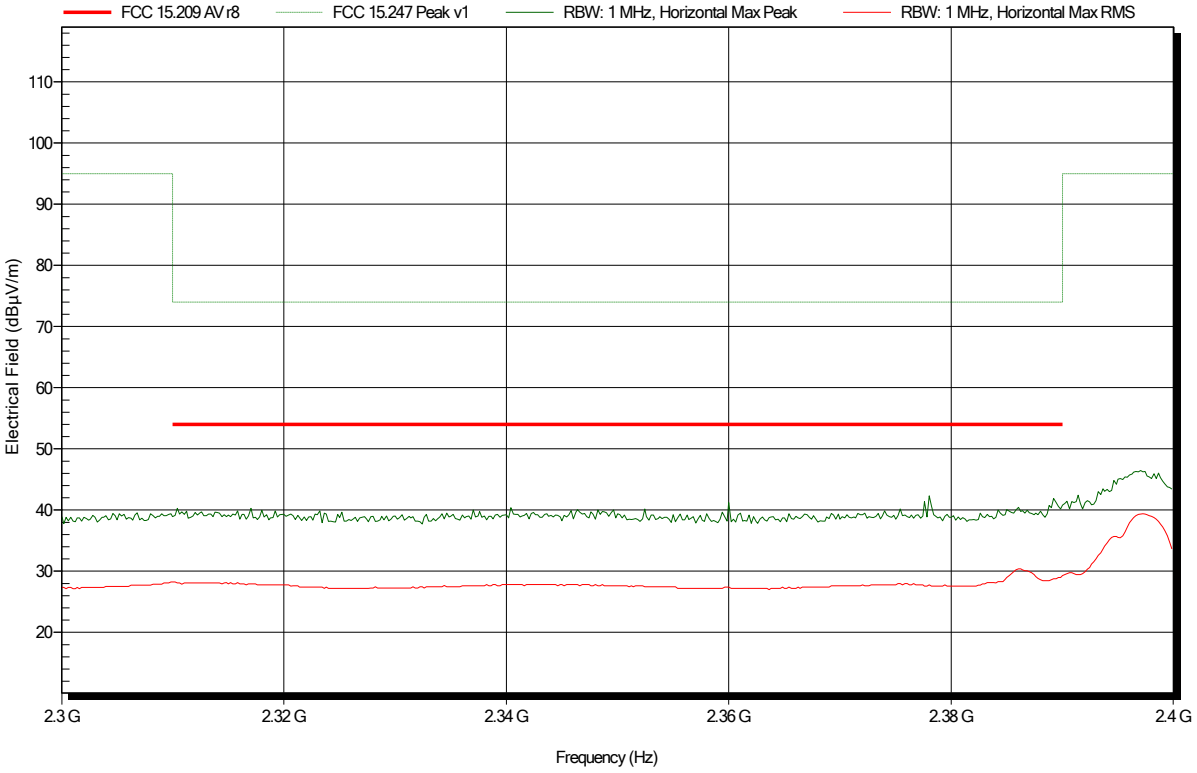

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; CH1, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Band Edge, Lower Channel, Antenna horizontal

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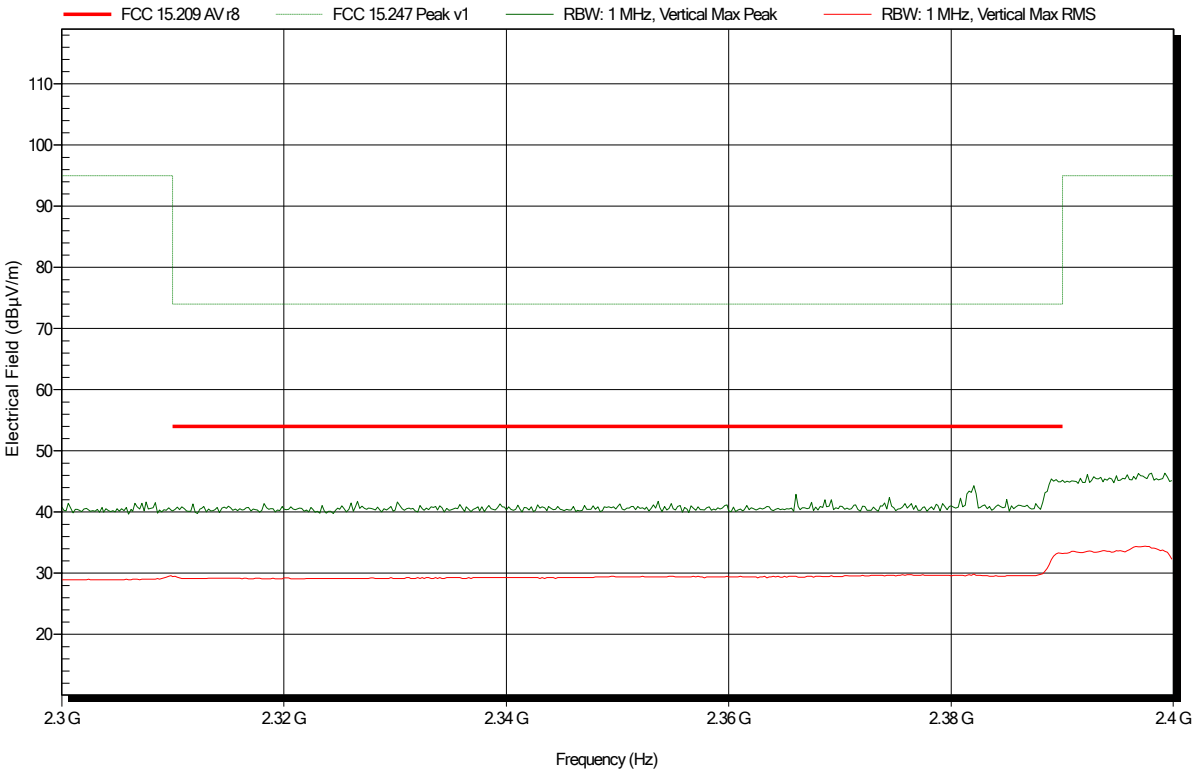

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH1, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Antenna horizontal

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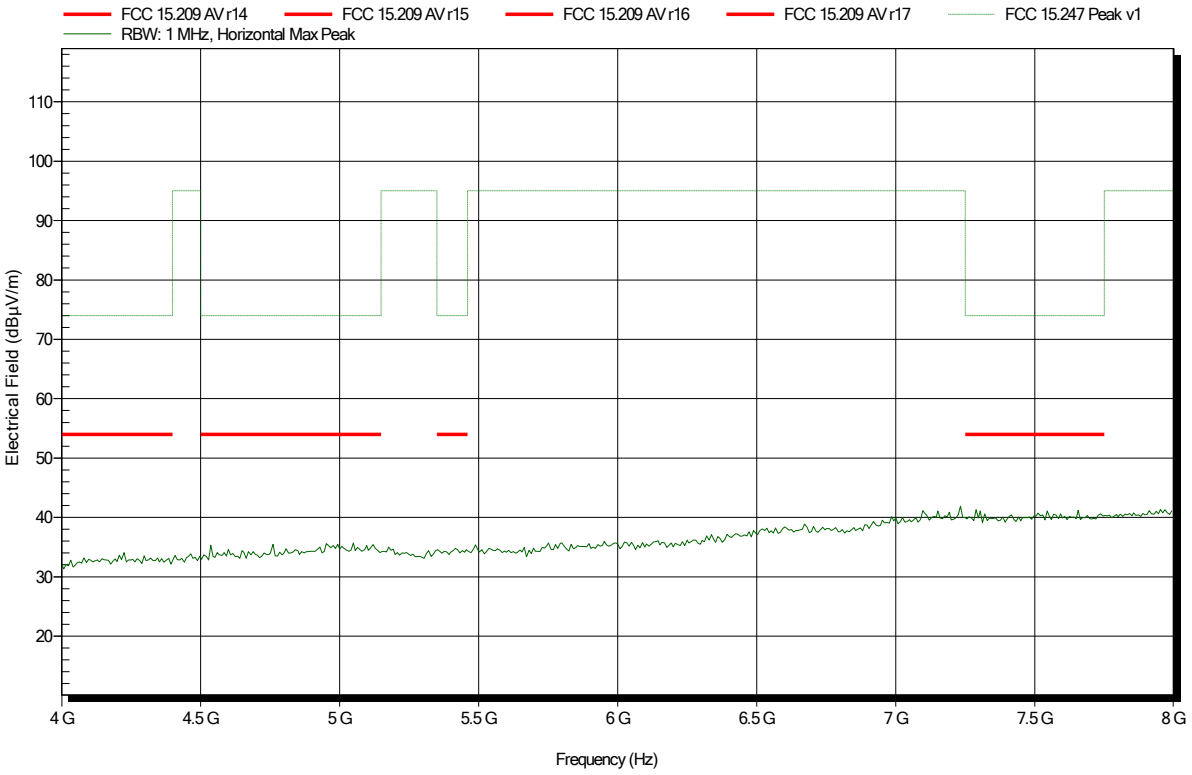

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH1, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Antenna horizontal

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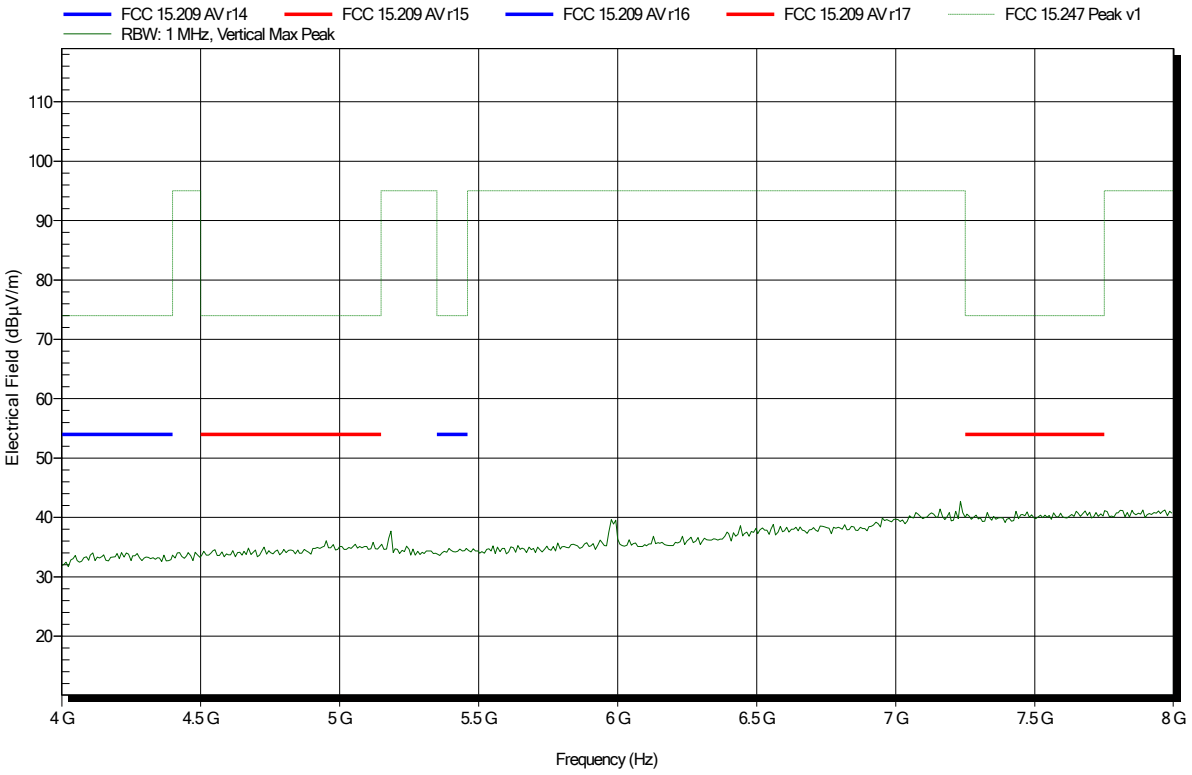

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH1, 1MBit DSSS, Ant. hor.
Test Date:	2019-07-24
Note:	Antenna horizontal

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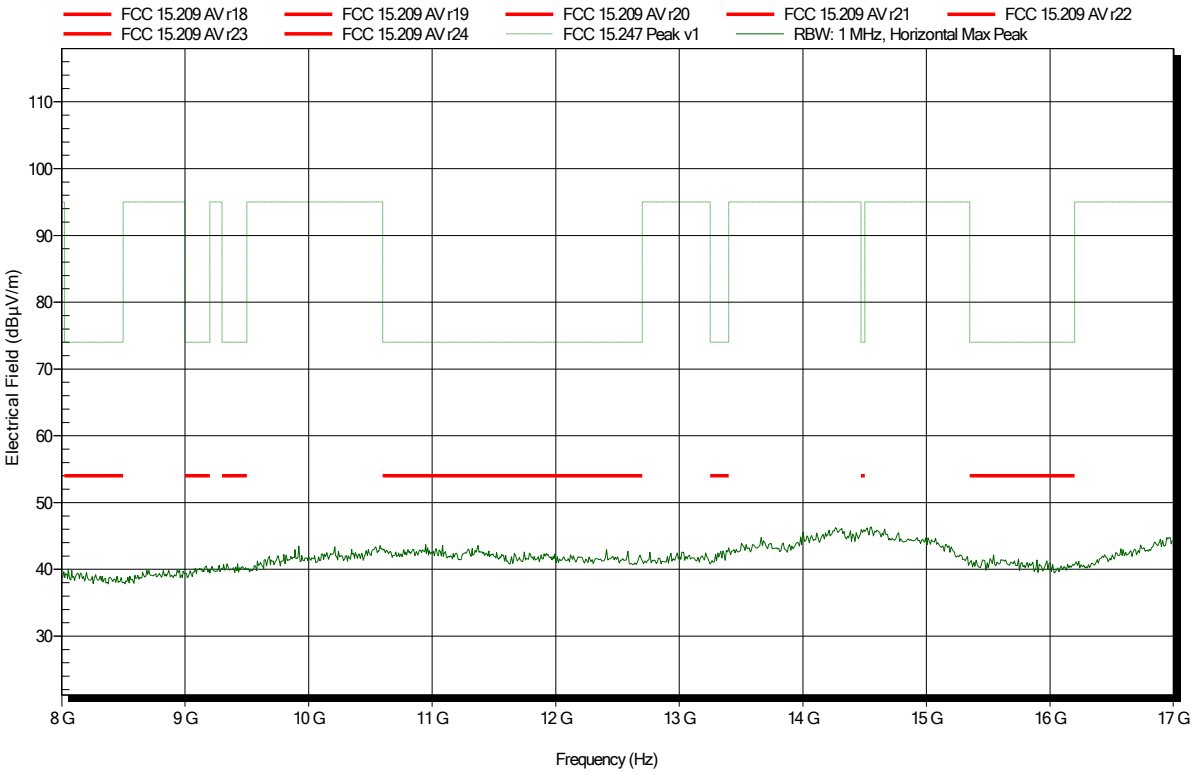

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH1, 1MBit DSSS, Ant. hor.
Test Date:	2019-07-24
Note:	Antenna horizontal

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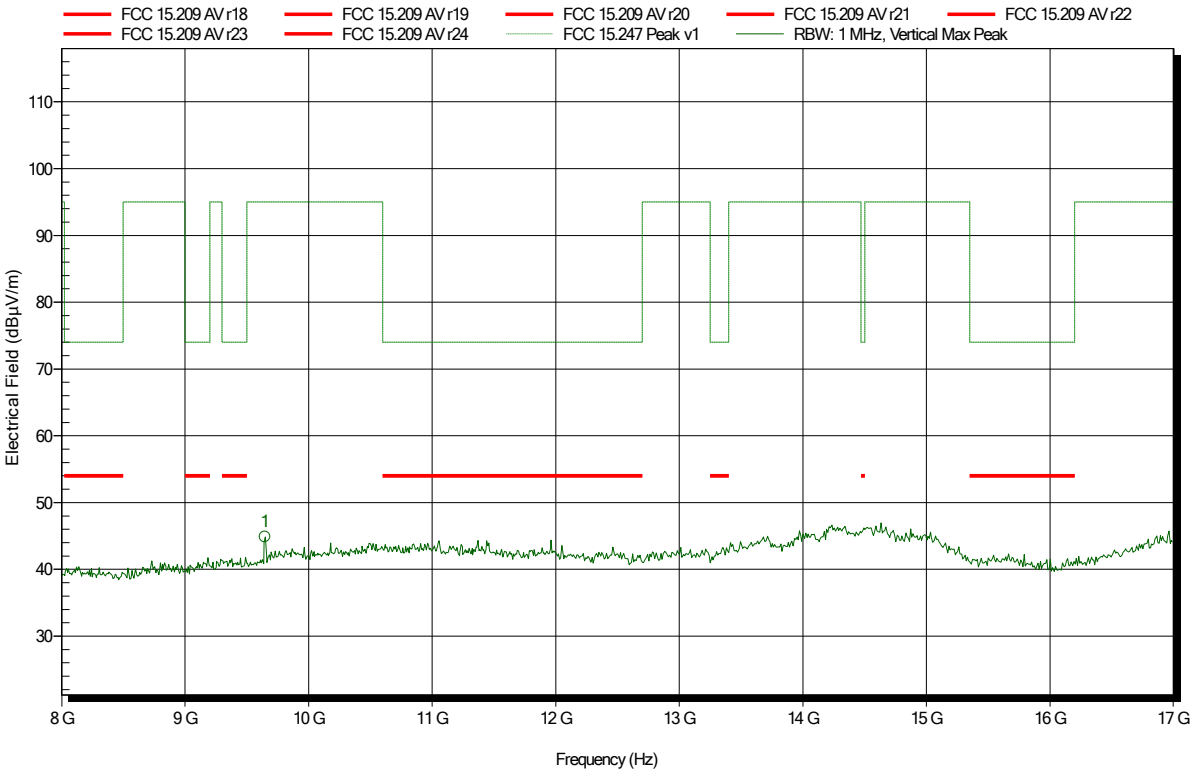

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
9.648 GHz	44.84 dBµV/m	95 dBµV/m	-50.16 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	ATH18G40, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH1, 1MBit DSSS, Ant. hor.
Test Date:	2019-07-24
Note:	Antenna horizontal

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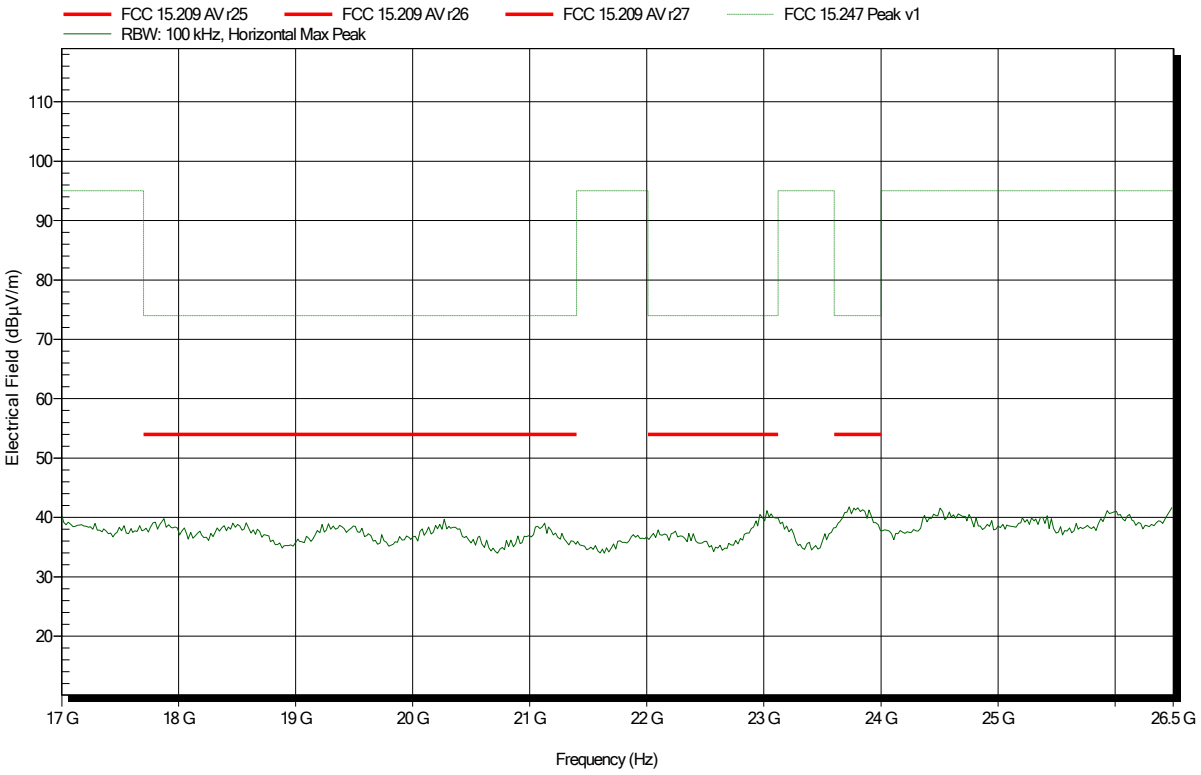

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	ATH18G40, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH1, 1MBit DSSS, Ant. hor.
Test Date:	2019-07-24
Note:	Antenna horizontal

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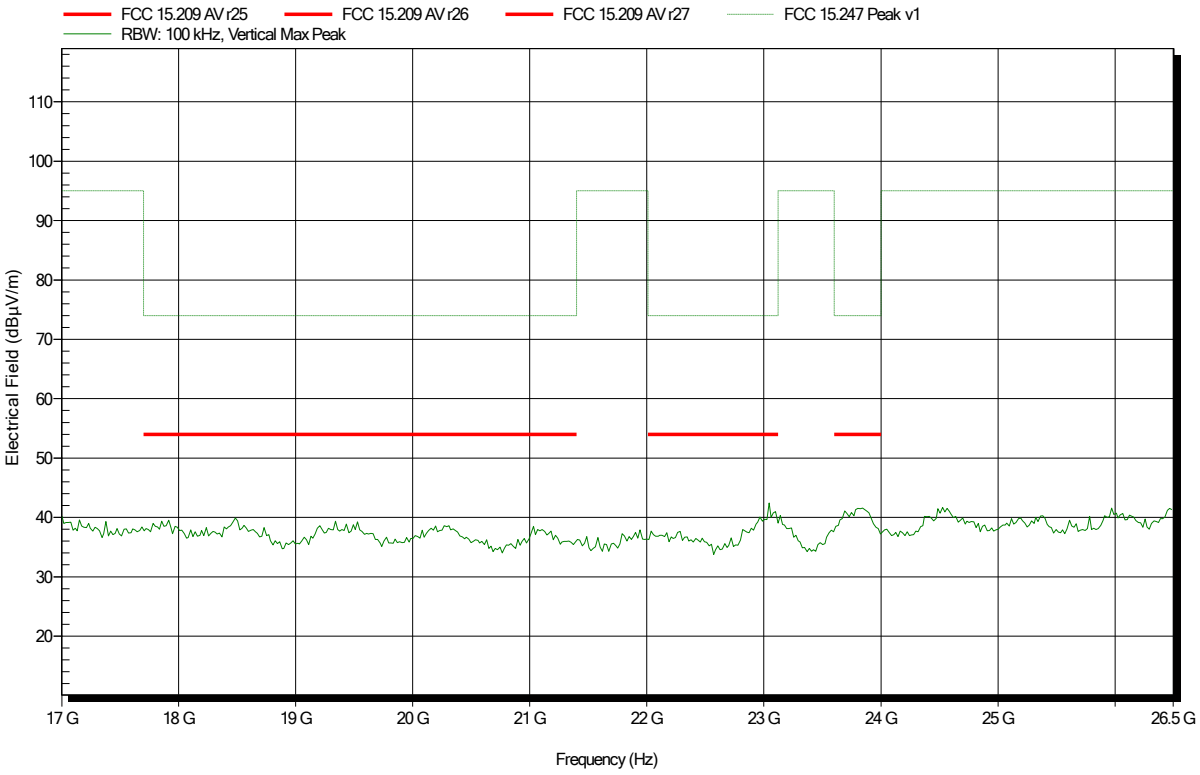

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	TX; CH6, 1MBit DSSS
Test Date:	2019-07-09
Note:	Antenna horizontal

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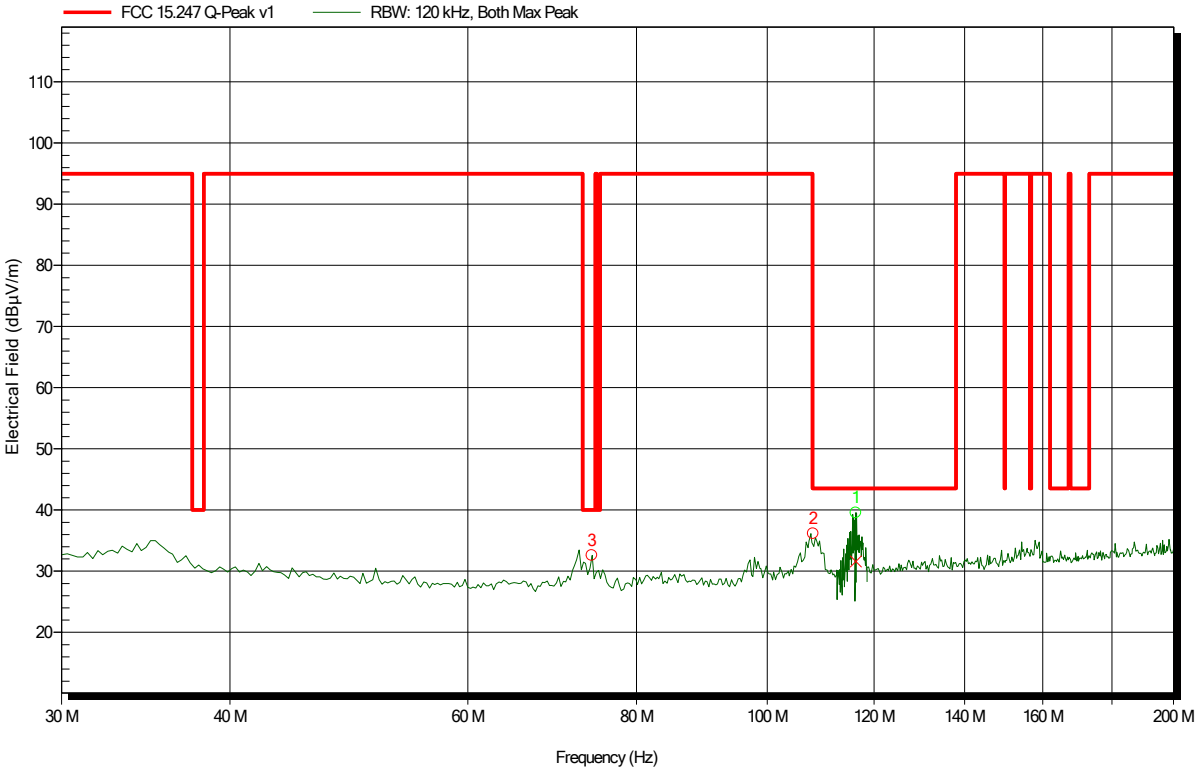

Frequency	Peak	Peak Limit	Peak Difference	Polarization	Status
74.1346 MHz	32.6 dBµV/m	40 dBµV/m	-7.42 dB	Vertical	Pass
108.132 MHz	36.2 dBµV/m	43.5 dBµV/m	-7.36 dB	Vertical	Pass

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Polarization	Quasi-Peak Status
116.3286 MHz	31.6 dBµV/m	43.5 dBµV/m	-11.94 dB	Vertical	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	TX; CH6, 1MBit DSSS
Test Date:	2019-07-01
Note:	Antenna horizontal

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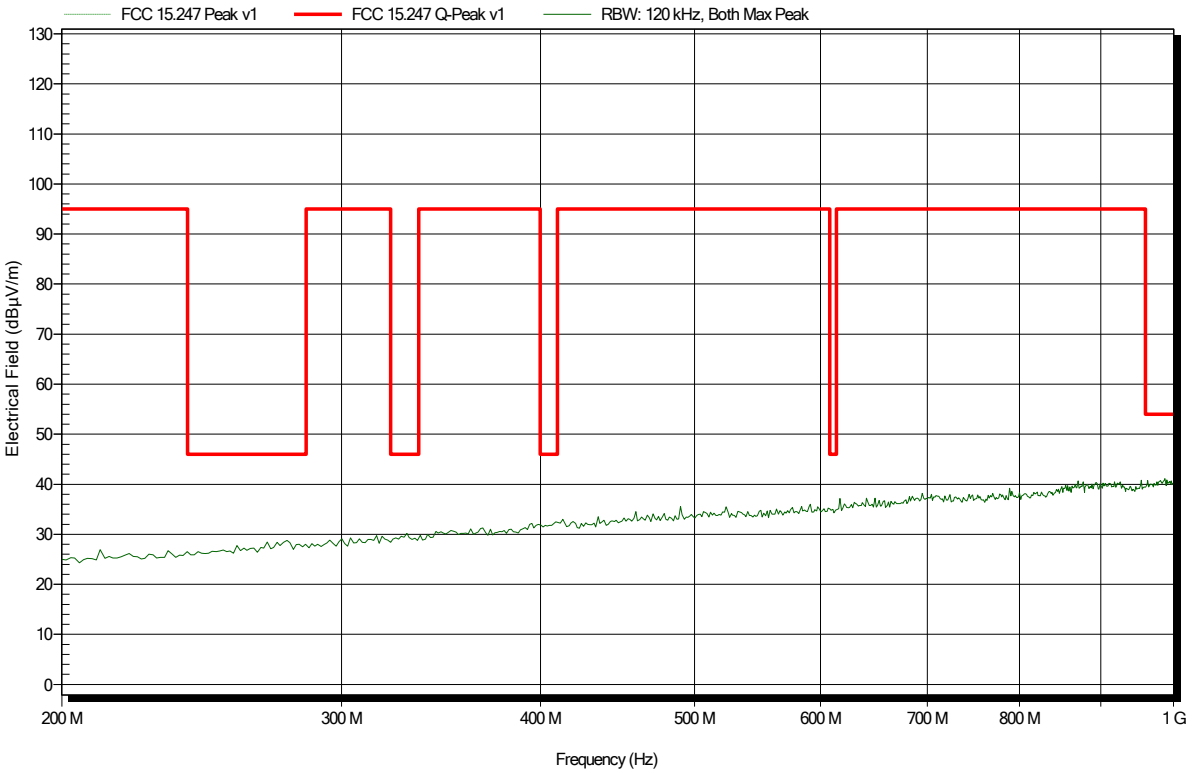

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; CH6, 1Mbit DSSS
Test Date:	2019-06-25
Note:	Antenna horizontal

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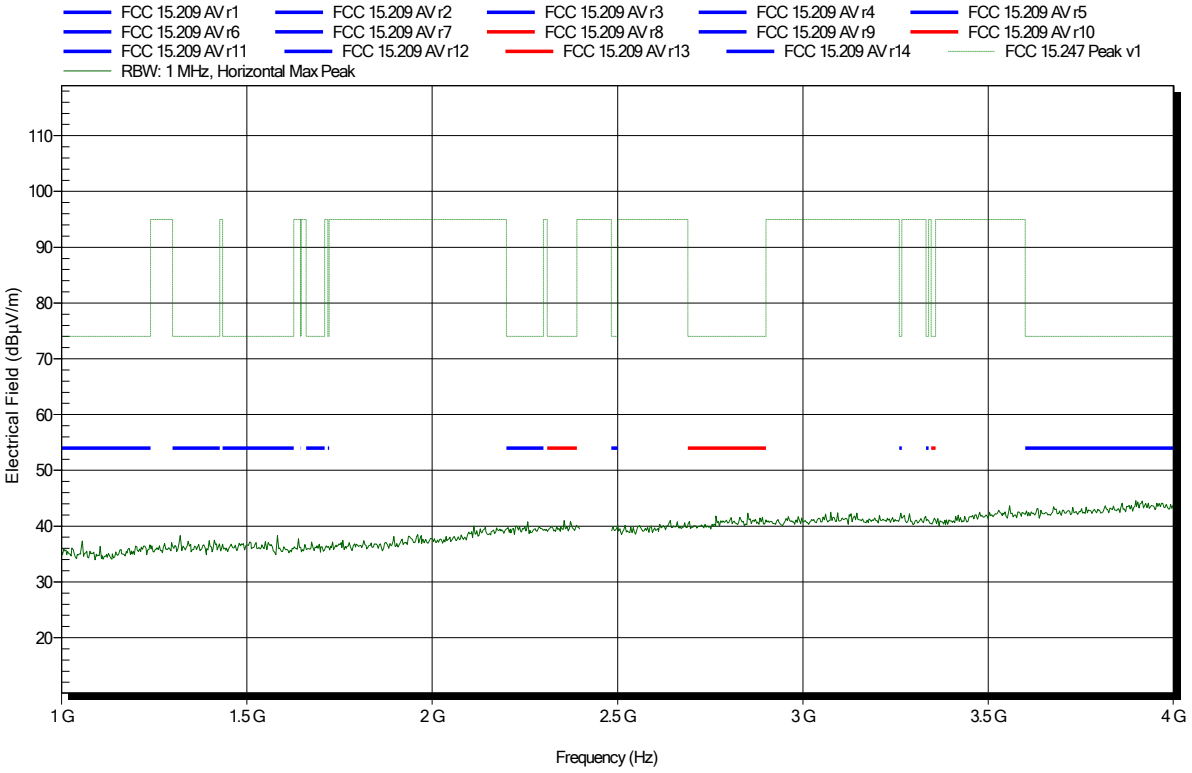

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; CH6, 1Mbit DSSS
Test Date:	2019-06-25
Note:	Antenna horizontal

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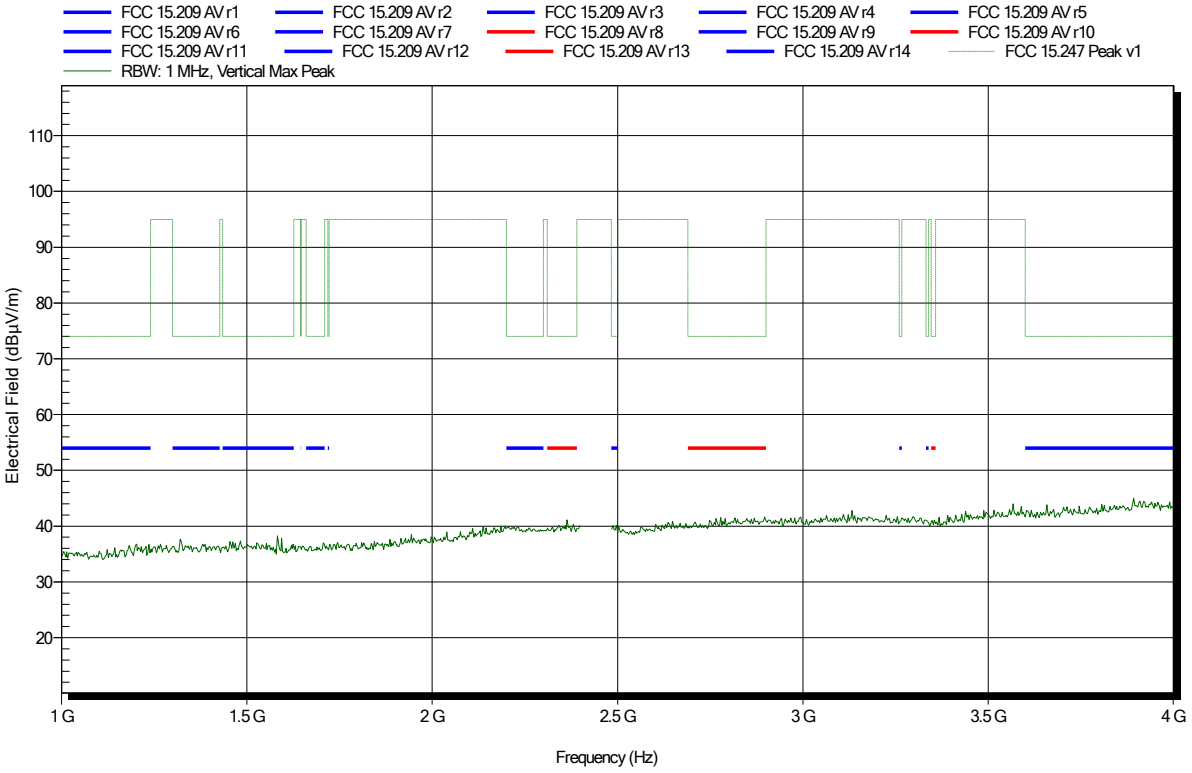

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH6, 1Mbit DSSS
Test Date:	2019-06-25
Note:	Antenna horizontal

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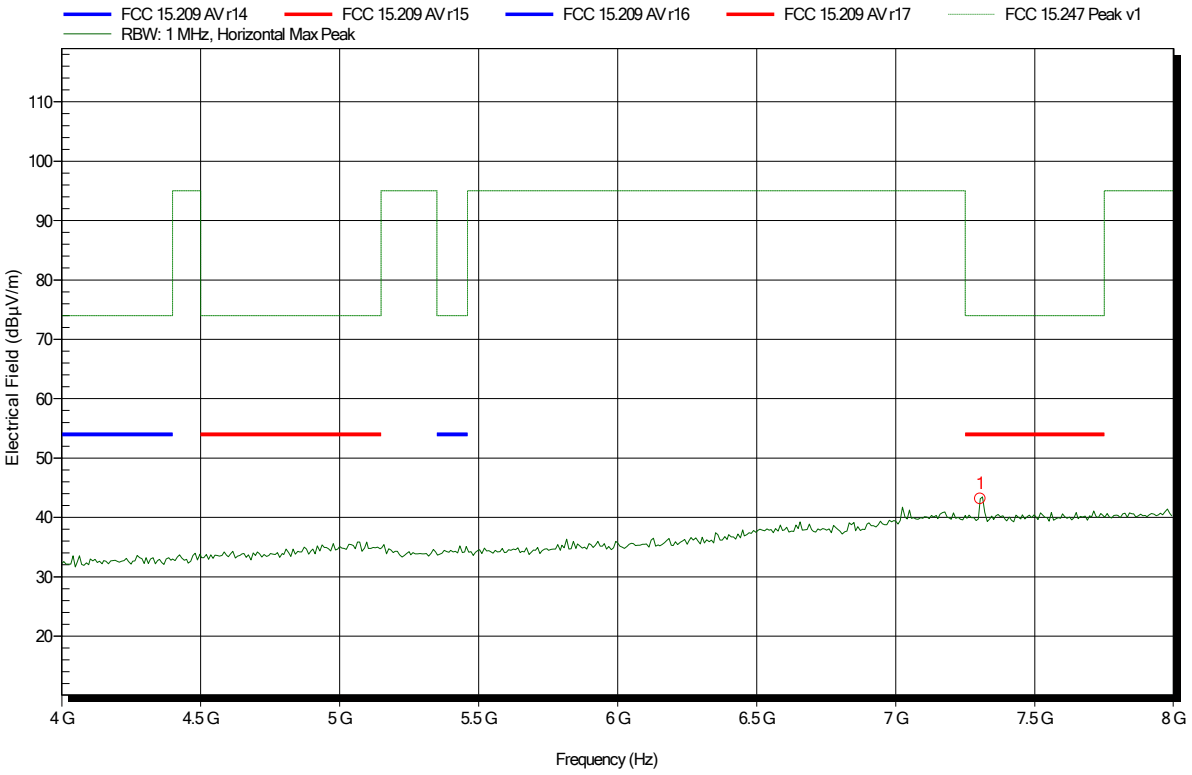

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.304 GHz	43.12 dBµV/m	74 dBµV/m	-30.88 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH6, 1Mbit DSSS
Test Date:	2019-06-25
Note:	Antenna horizontal

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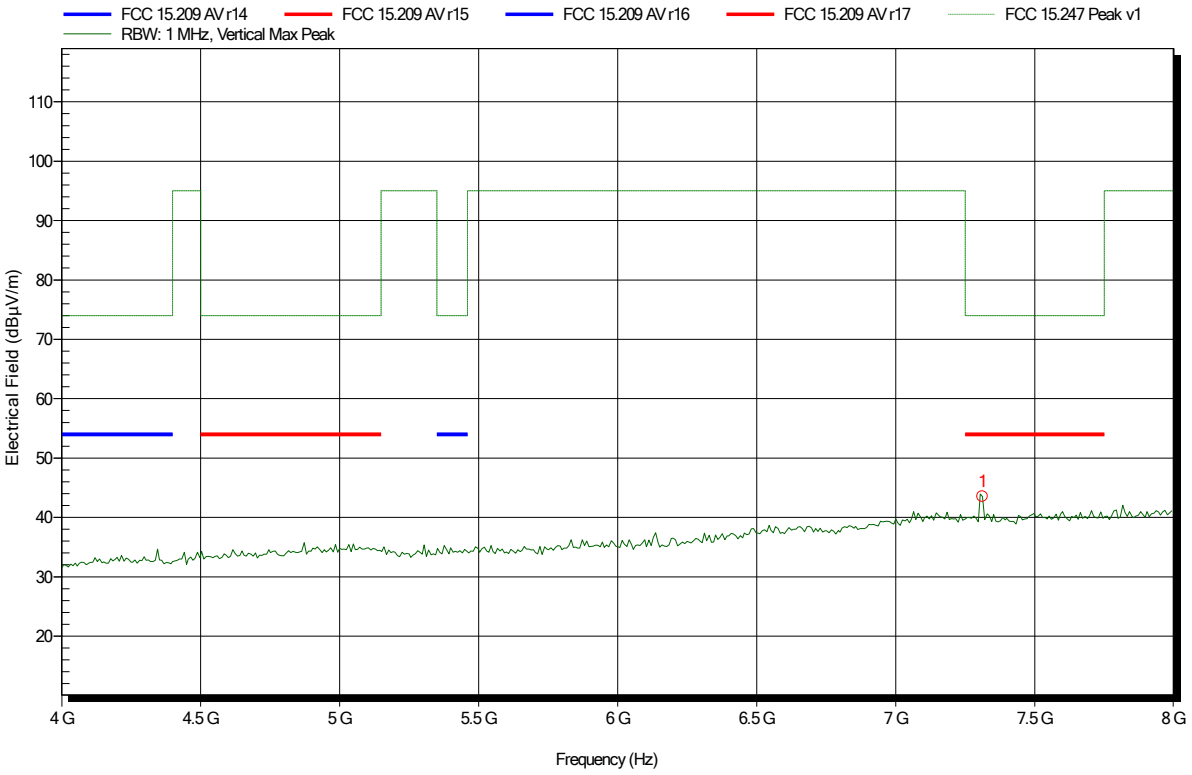

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.312 GHz	43.53 dBµV/m	74 dBµV/m	-30.47 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH6, 1Mbit DSSS
Test Date:	2019-06-25
Note:	Antenna horizontal

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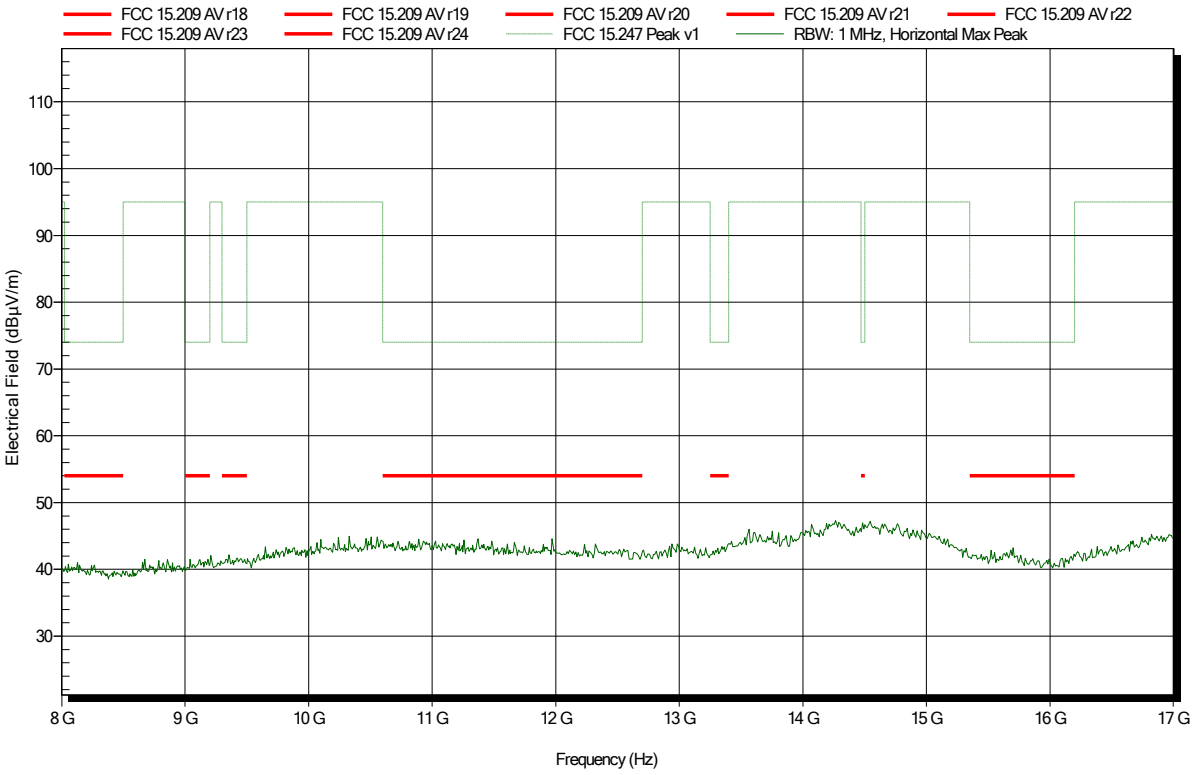

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH6, 1Mbit DSSS
Test Date:	2019-06-25
Note:	Antenna horizontal

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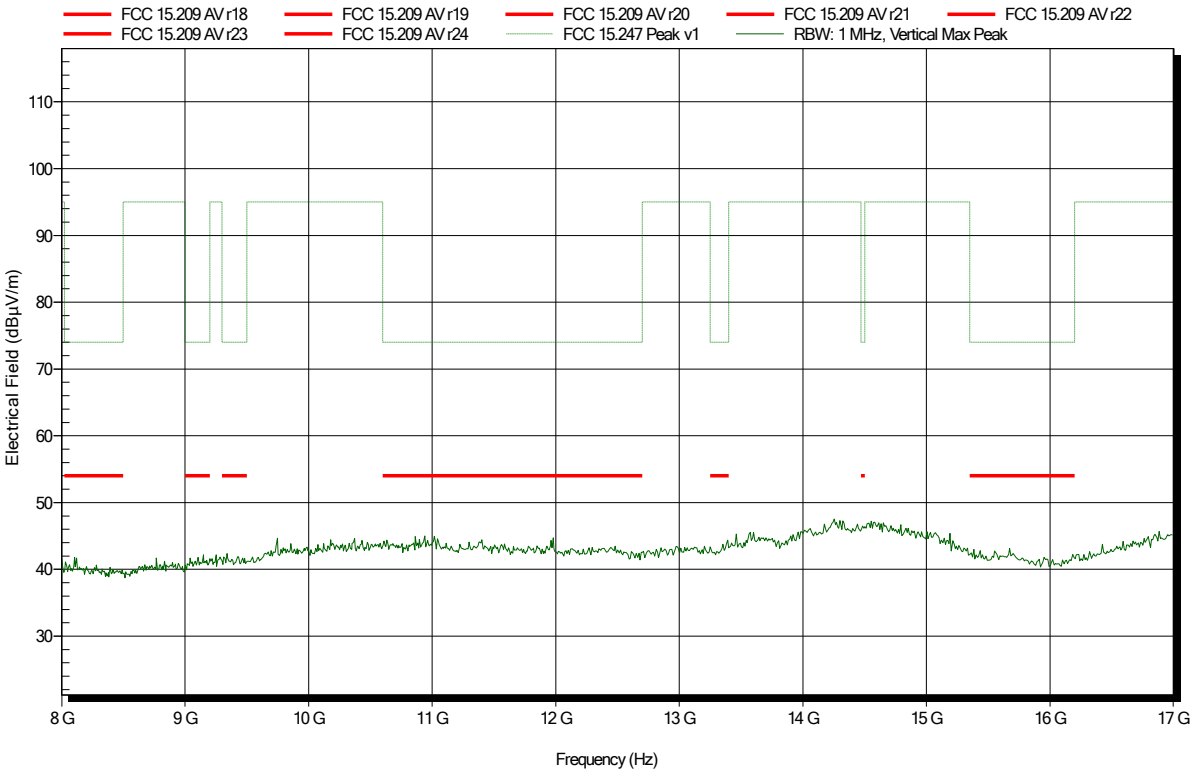

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	ATH18G40, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH6, 1Mbit DSSS
Test Date:	2019-06-25
Note:	Antenna horizontal

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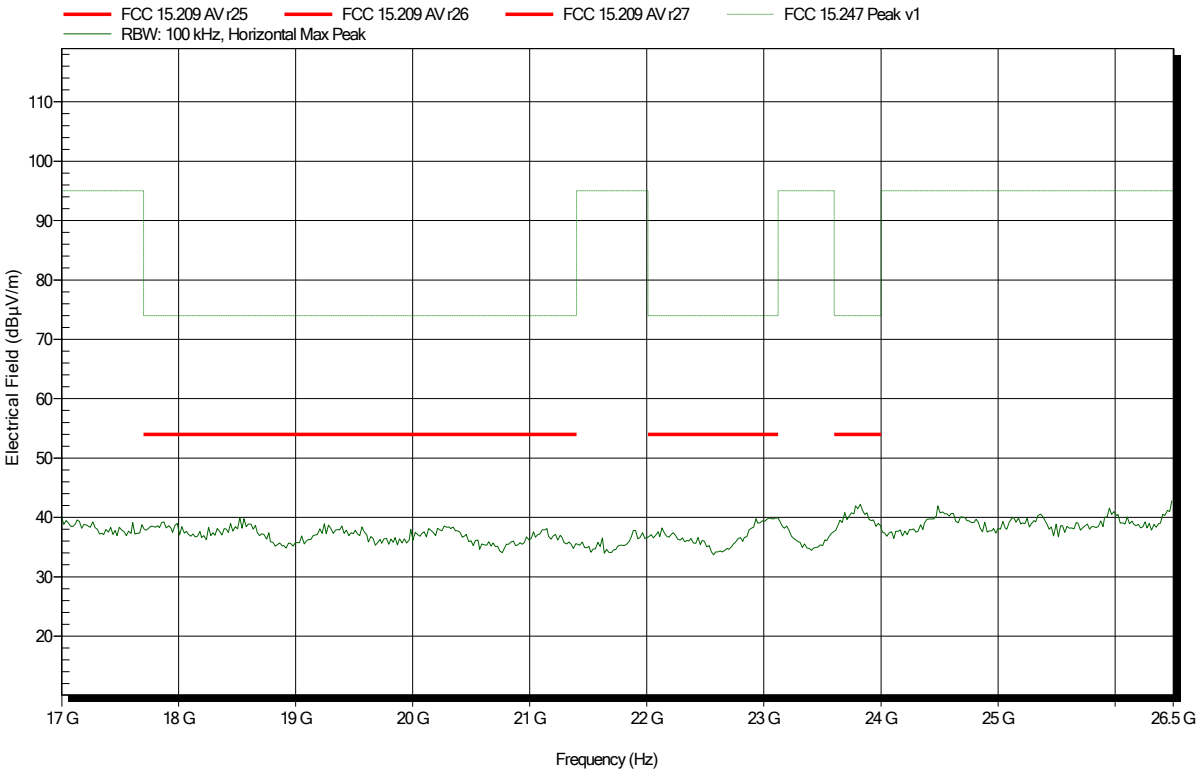

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	ATH18G40, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH6, 1Mbit DSSS
Test Date:	2019-06-25
Note:	Antenna horizontal

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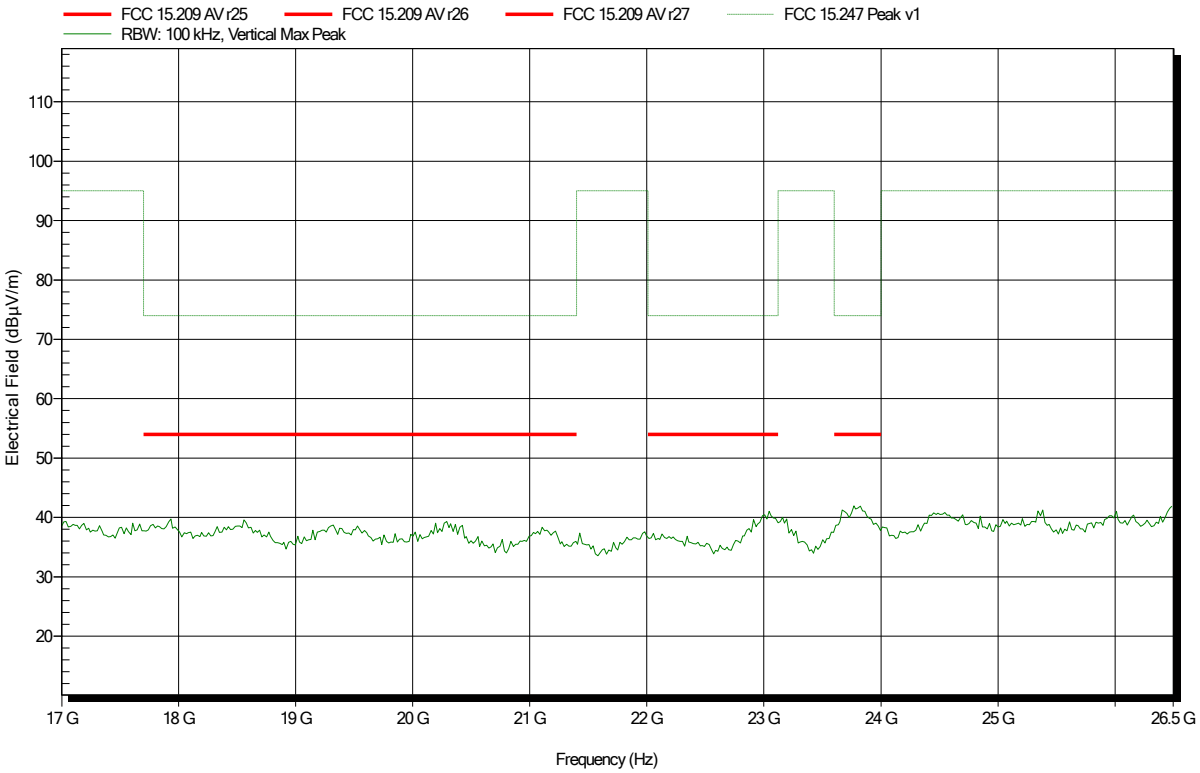

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	TX; CH11, 1MBit DSSS
Test Date:	2019-07-09
Note:	Antenna horizontal

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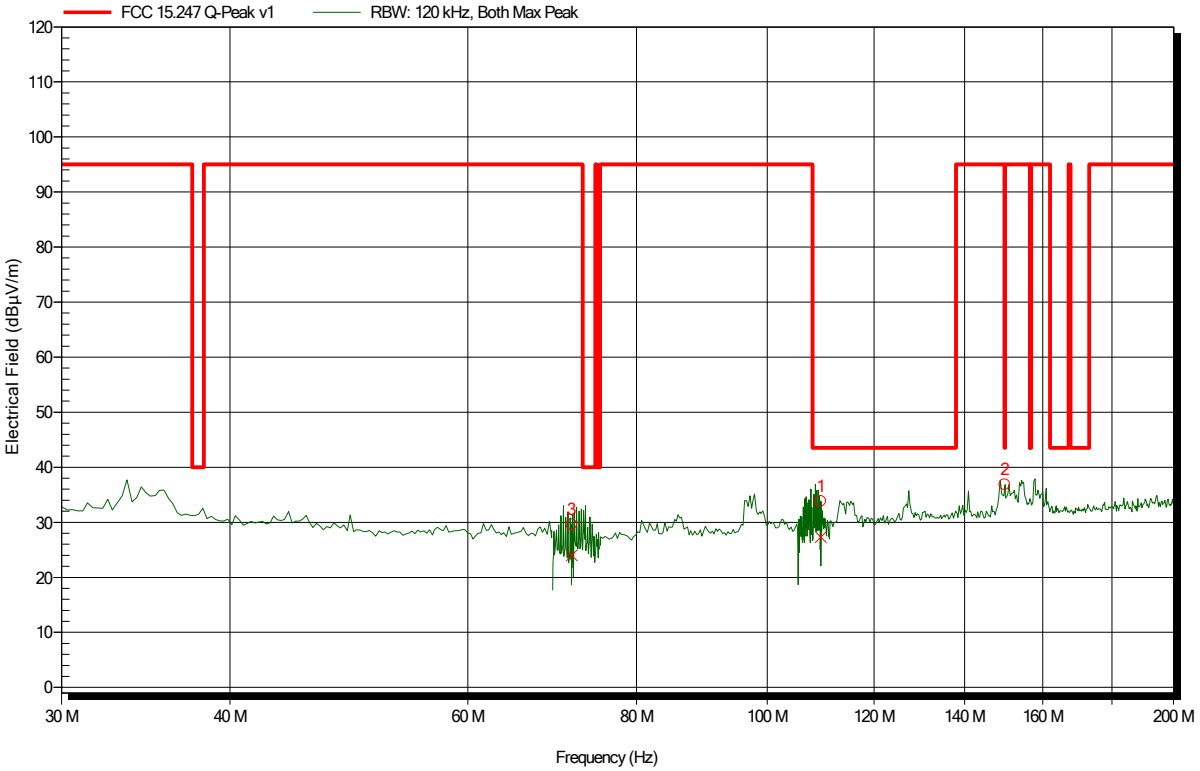

Frequency	Peak	Peak Limit	Peak Difference	Polarization	Status
149.9463 MHz	36.8 dBµV/m	43.5 dBµV/m	-6.68 dB	Vertical	Pass

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Polarization	Quasi-Peak Status
71.642 MHz	24 dBµV/m	95 dBµV/m	-71 dB	Vertical	Pass
109.5539 MHz	27.3 dBµV/m	43.5 dBµV/m	-16.24 dB	Vertical	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	TX; CH11, 1MBit DSSS
Test Date:	2019-07-03
Note:	Antenna horizontal

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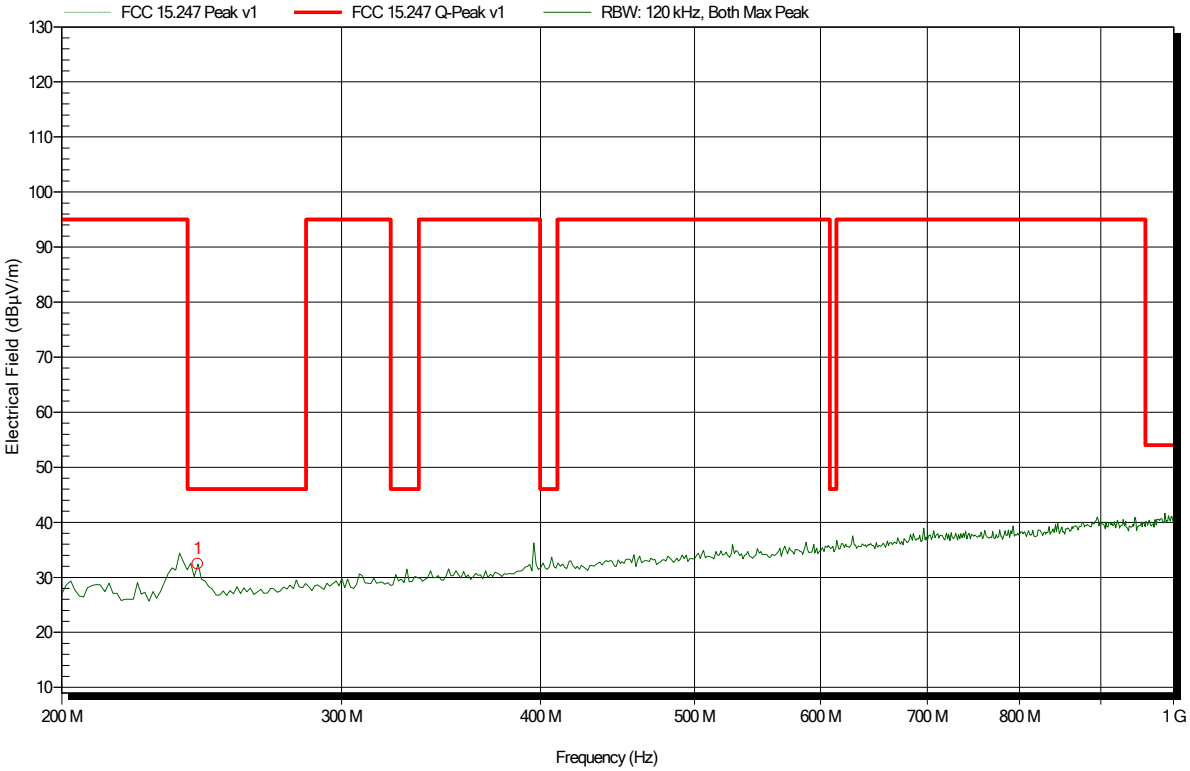

Frequency	Peak	Peak Limit	Peak Difference	Polarization	Status
243.5897 MHz	32.4 dBµV/m	46 dBµV/m	-13.6 dB	Horizontal	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; CH11, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Antenna horizontal

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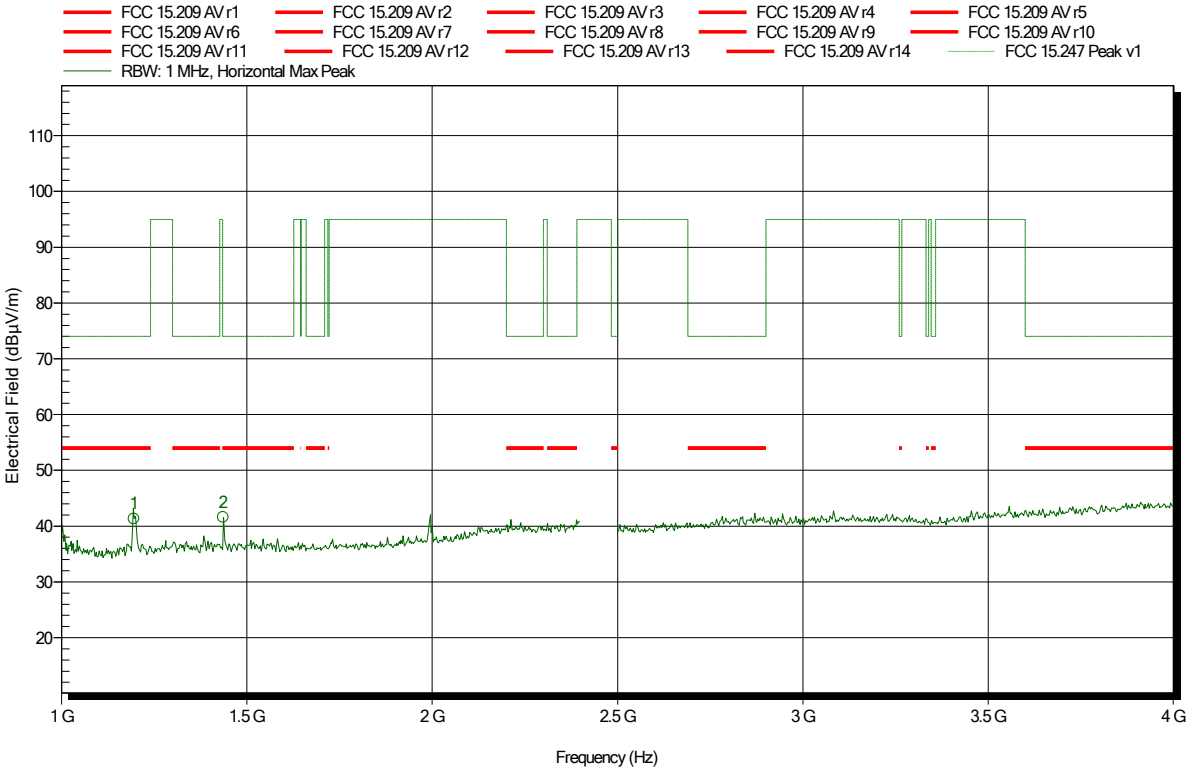

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.196 GHz	41.32 dBµV/m	74 dBµV/m	-32.68 dB	Pass
1.437 GHz	41.59 dBµV/m	74 dBµV/m	-32.41 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; CH11, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Antenna horizontal

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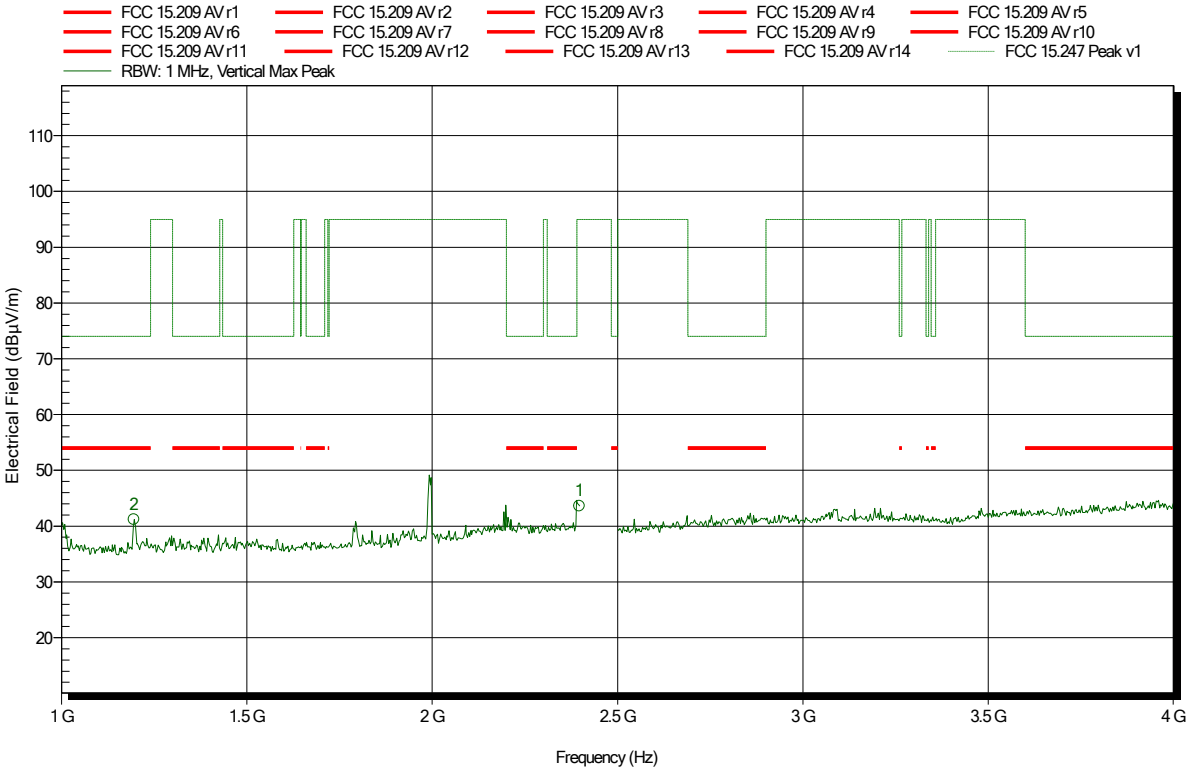

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.196 GHz	41.18 dBµV/m	74 dBµV/m	-32.82 dB	Pass
2.397 GHz	43.57 dBµV/m	95 dBµV/m	-51.43 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; CH11, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Band Edge, Higher Channel, Antenna horizontal

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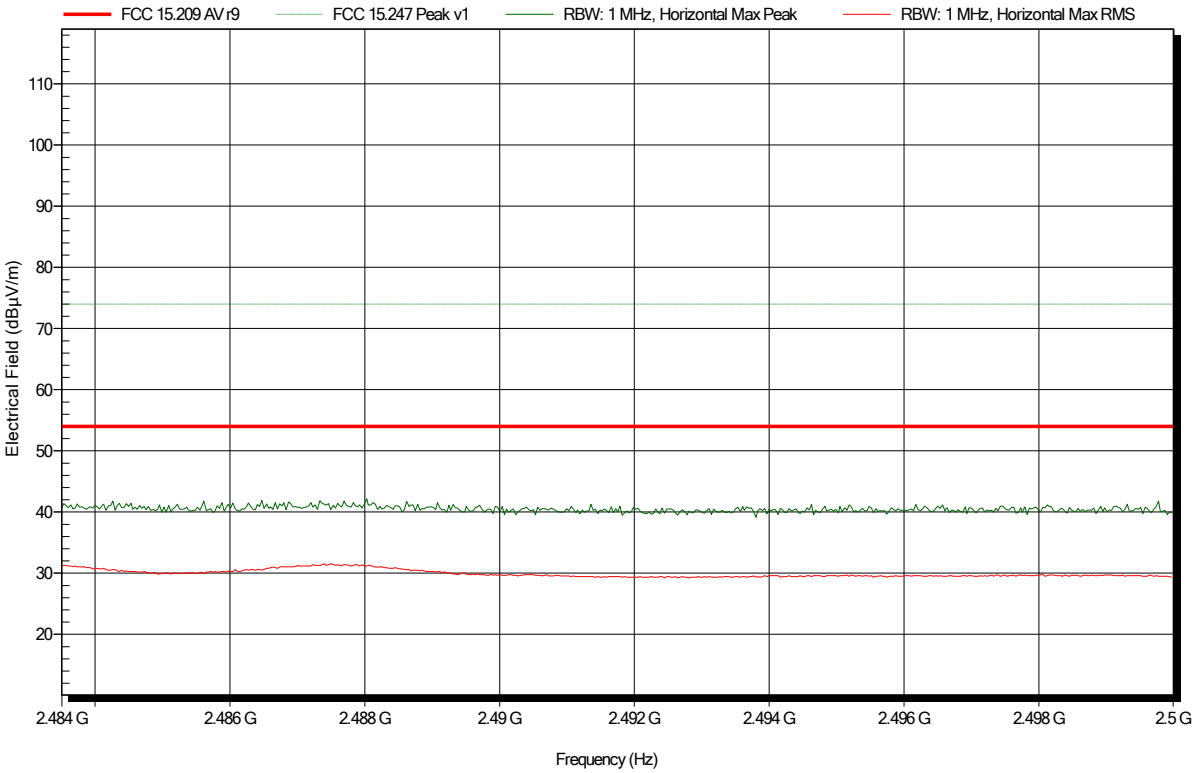

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; CH11, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Band Edge, Higher Channel, Antenna horizontal

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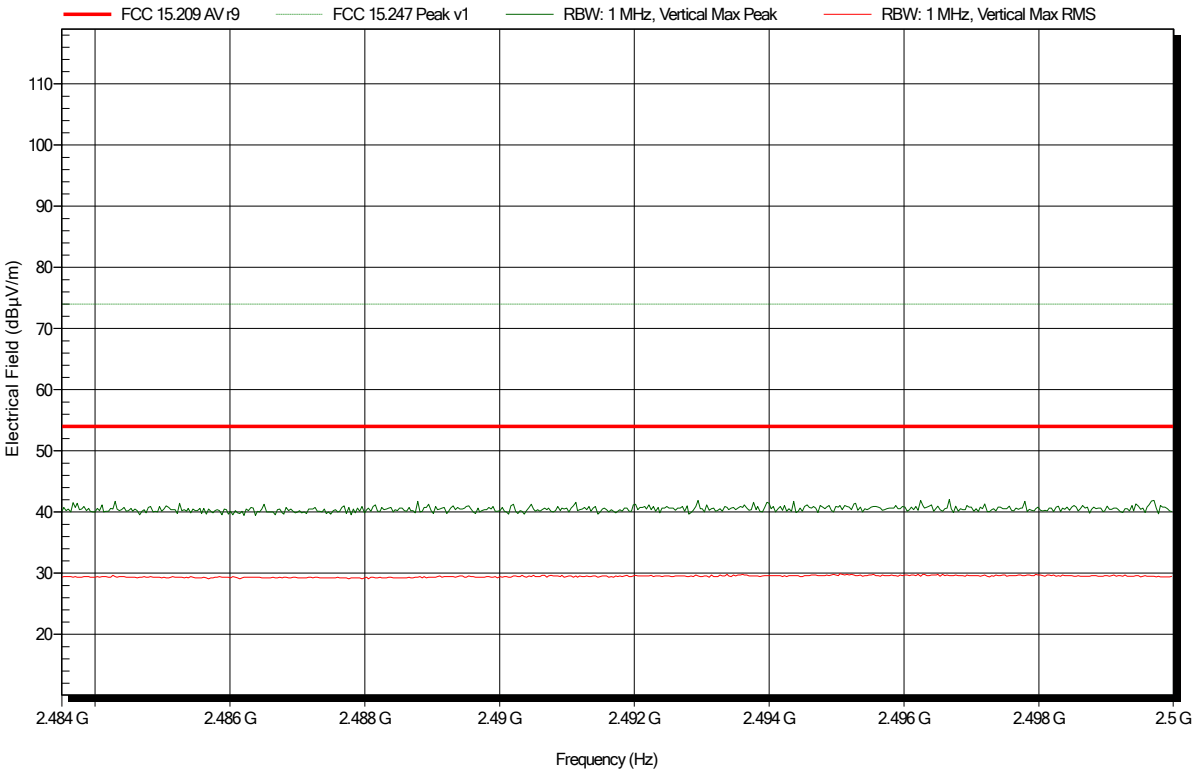

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH11, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Antenna horizontal

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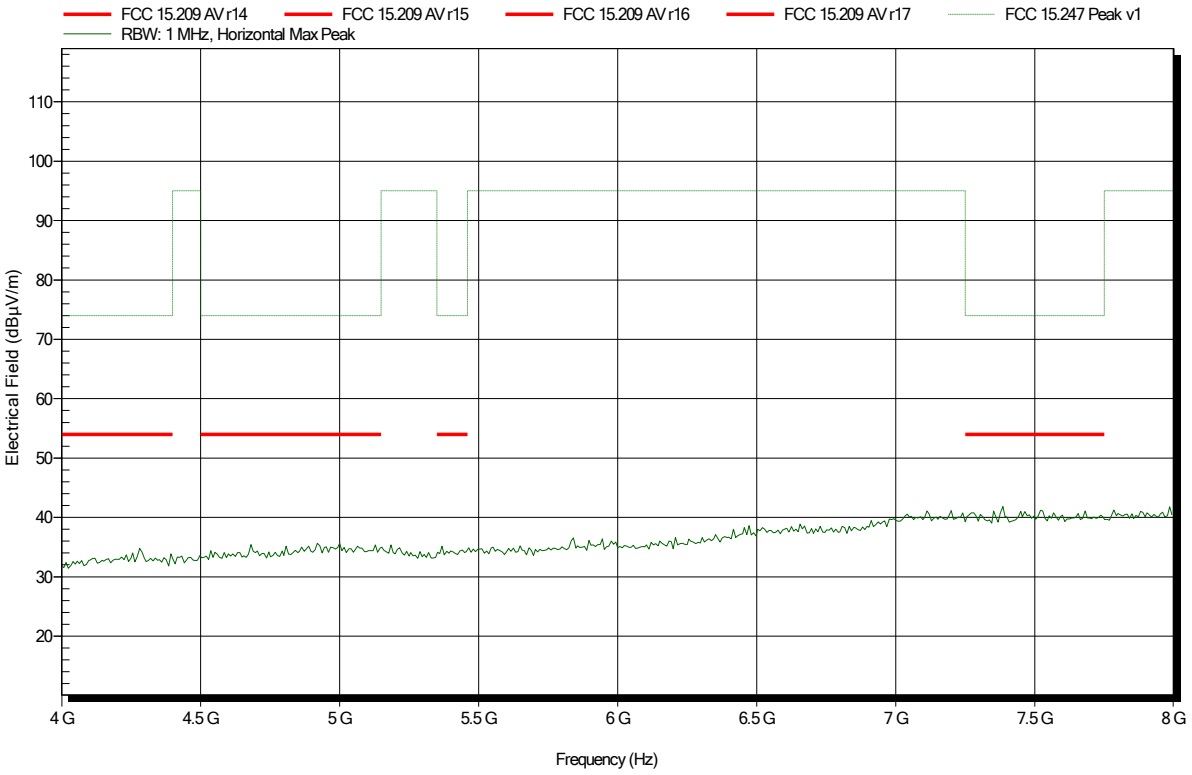

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH11, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Antenna horizontal

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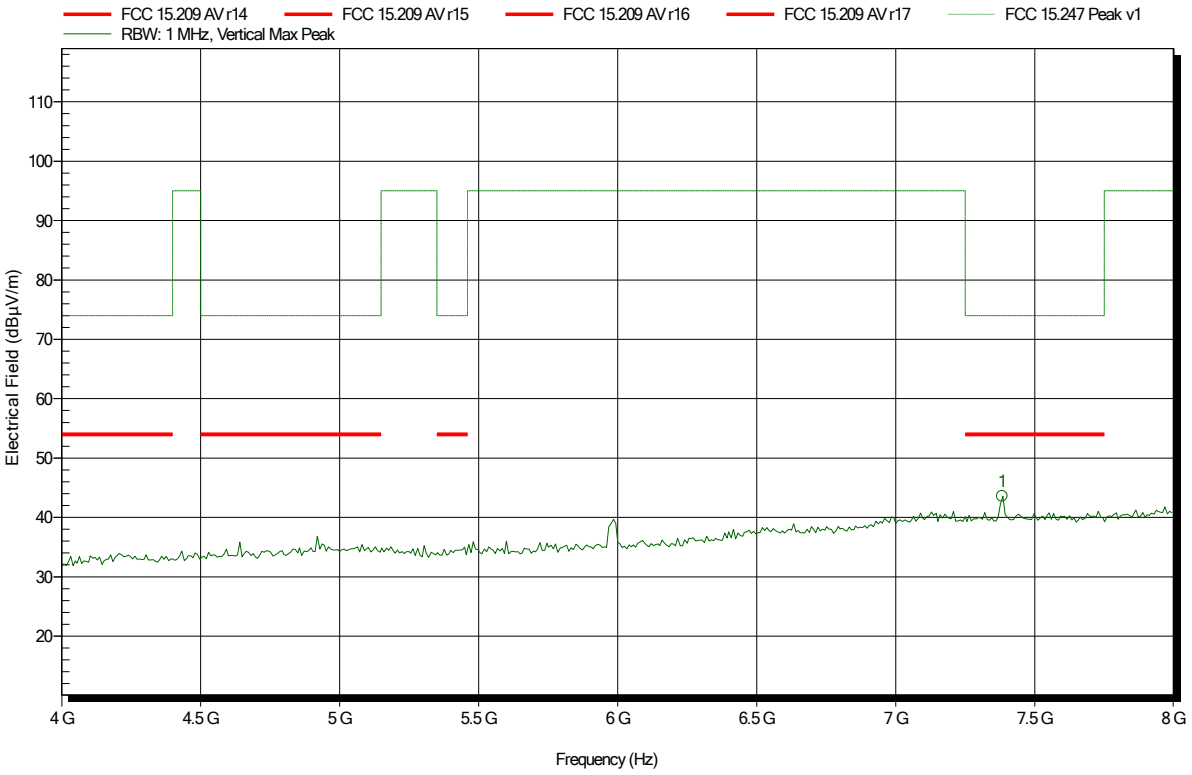

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.384 GHz	43.58 dBµV/m	74 dBµV/m	-30.42 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH11, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Antenna horizontal

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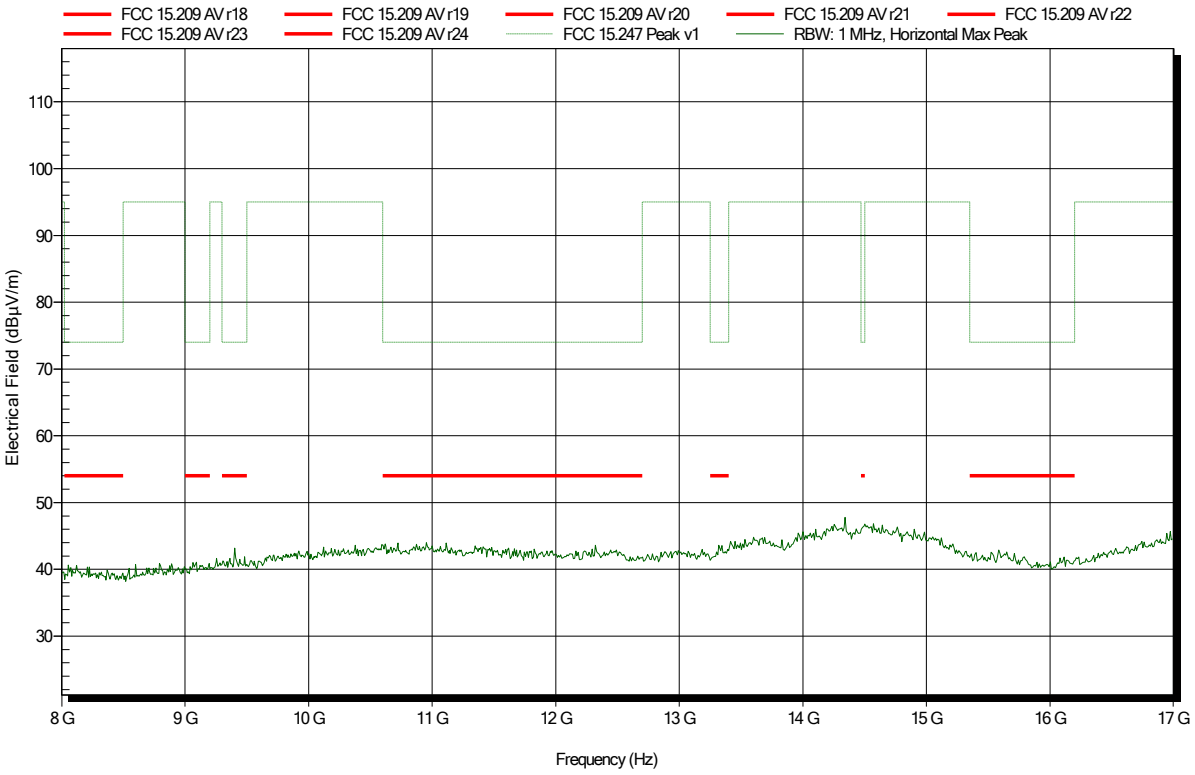

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH11, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Antenna horizontal

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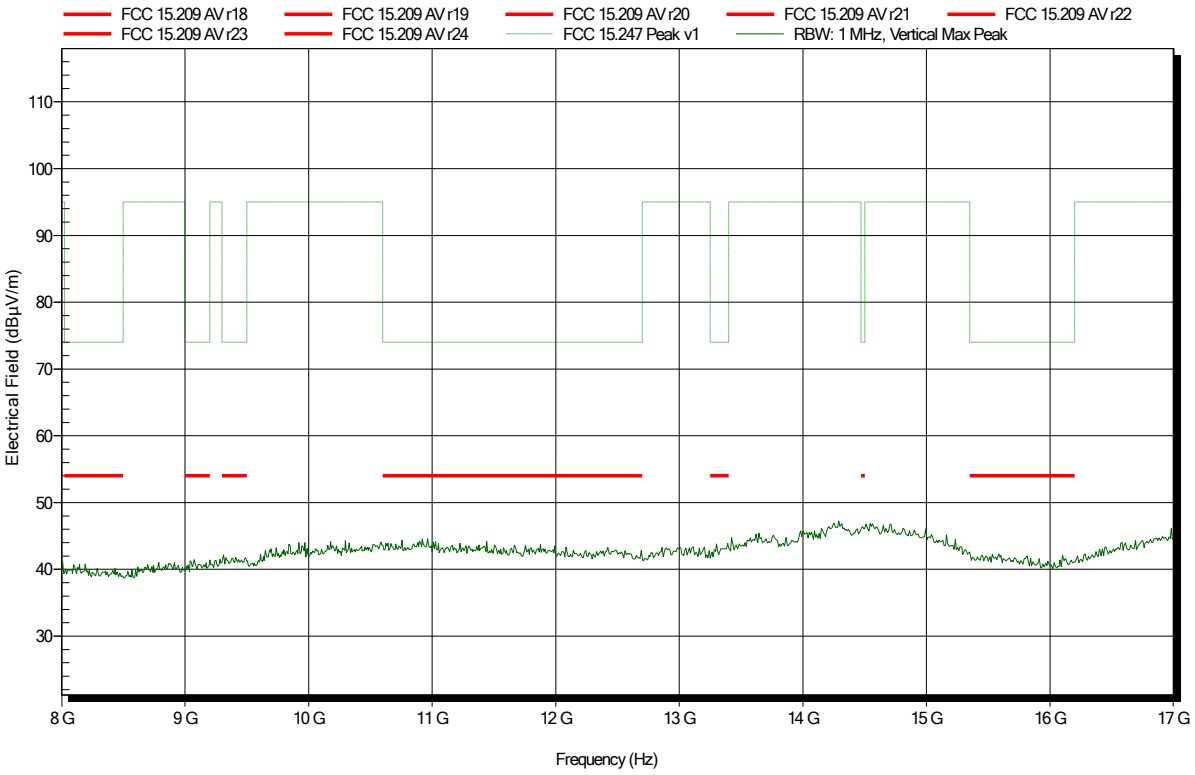

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	ATH18G40, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH11, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Antenna horizontal

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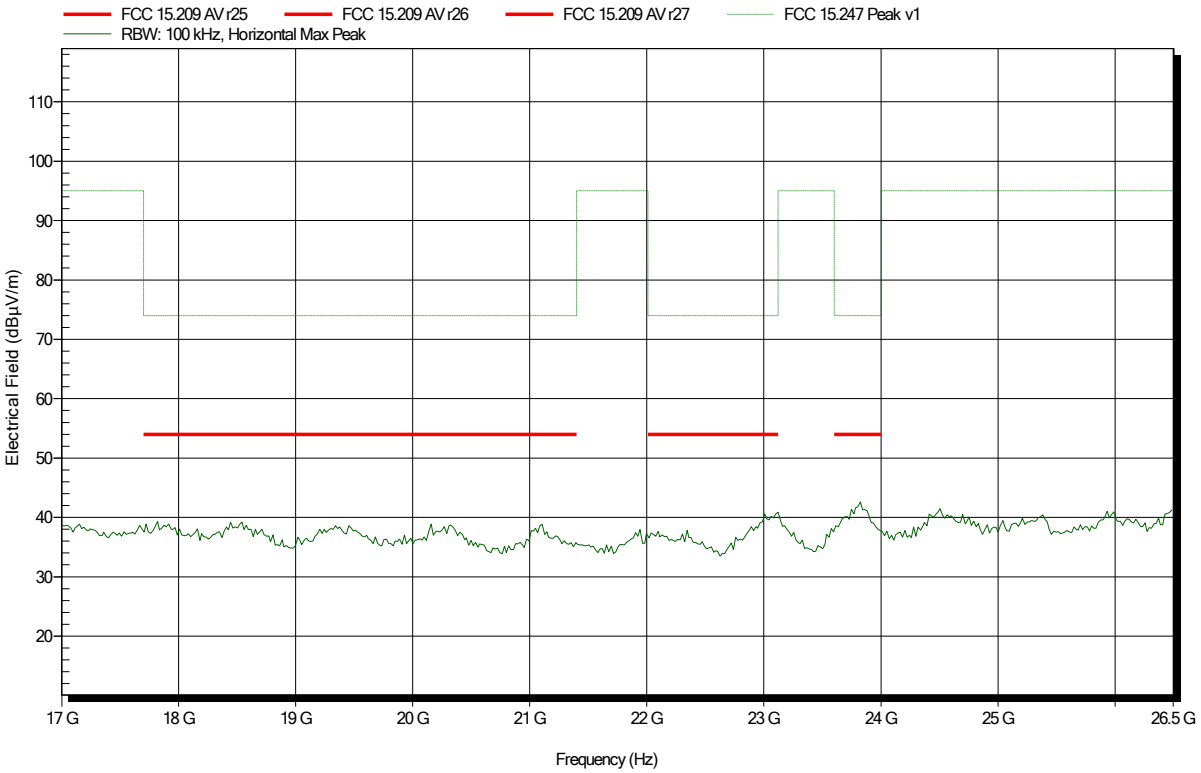

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	ATH18G40, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH11, 1Mbit DSSS
Test Date:	2019-06-26
Note:	Antenna horizontal

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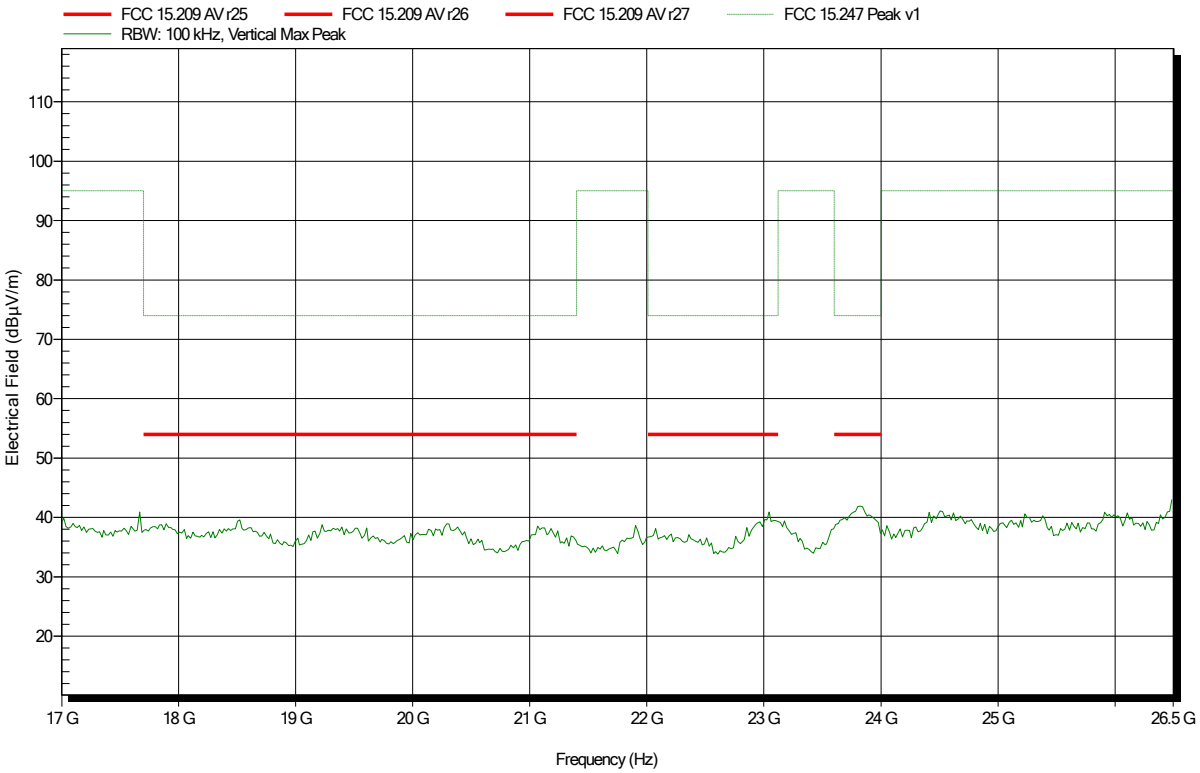

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	TX; CH3, MCS0, OFDM, HT40
Test Date:	2019-07-09
Note:	Antenna horizontal

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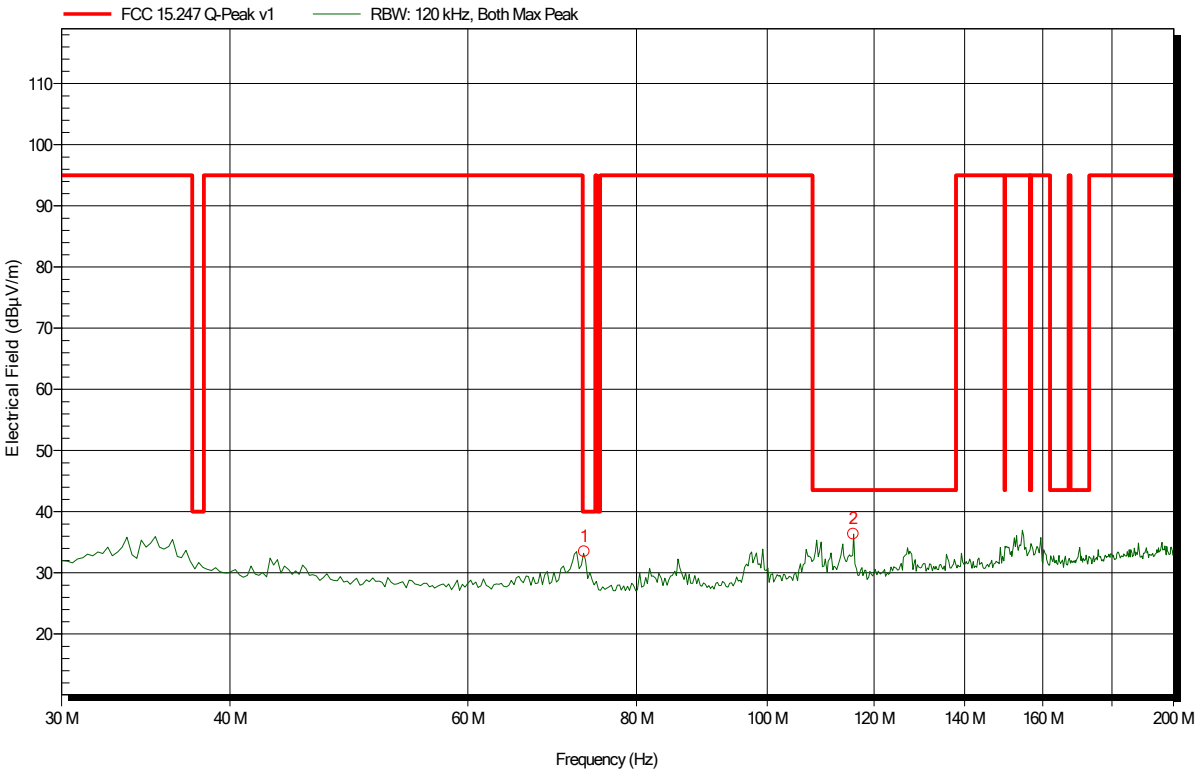

Frequency	Peak	Peak Limit	Peak Difference	Polarization	Status
73.1829 MHz	33.5 dBµV/m	40 dBµV/m	-6.53 dB	Vertical	Pass
115.8173 MHz	36.4 dBµV/m	43.5 dBµV/m	-7.16 dB	Vertical	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	TX; CH3, MCS0, OFDM, HT40
Test Date:	2019-07-03
Note:	Antenna horizontal

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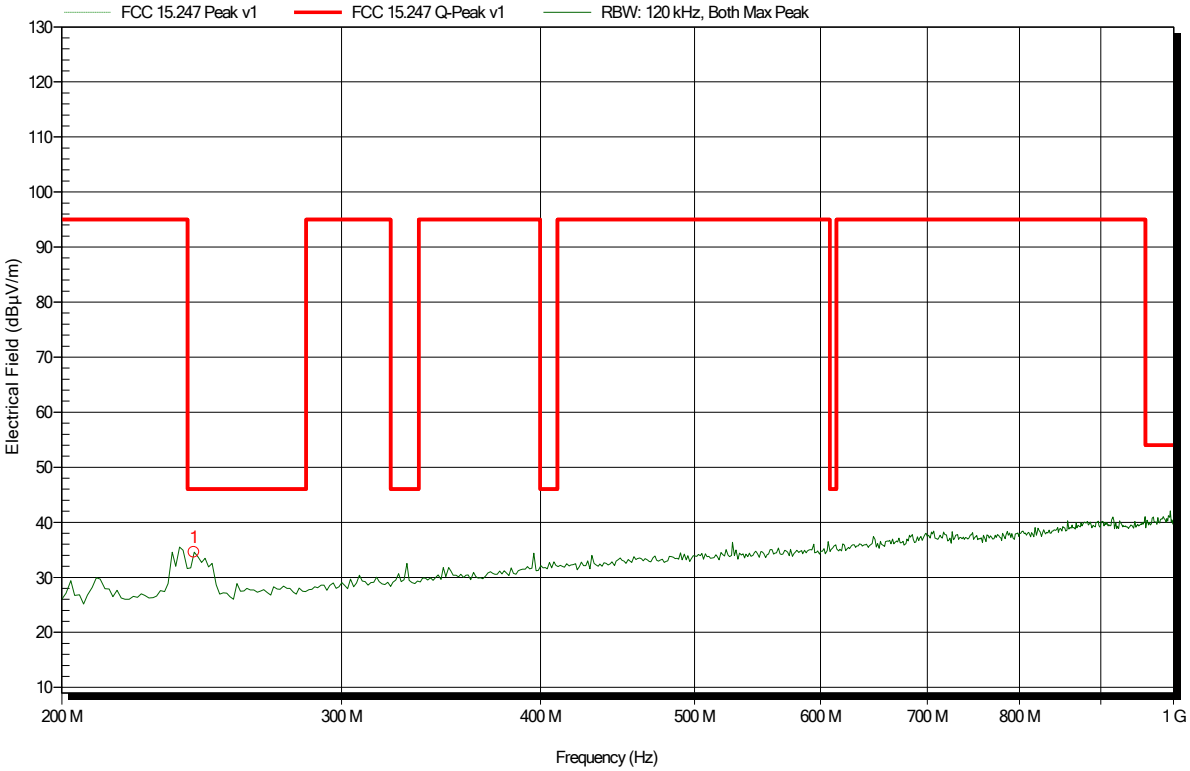

Frequency	Peak	Peak Limit	Peak Difference	Polarization	Status
242.3077 MHz	34.6 dBµV/m	46 dBµV/m	-11.44 dB	Vertical	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; CH3, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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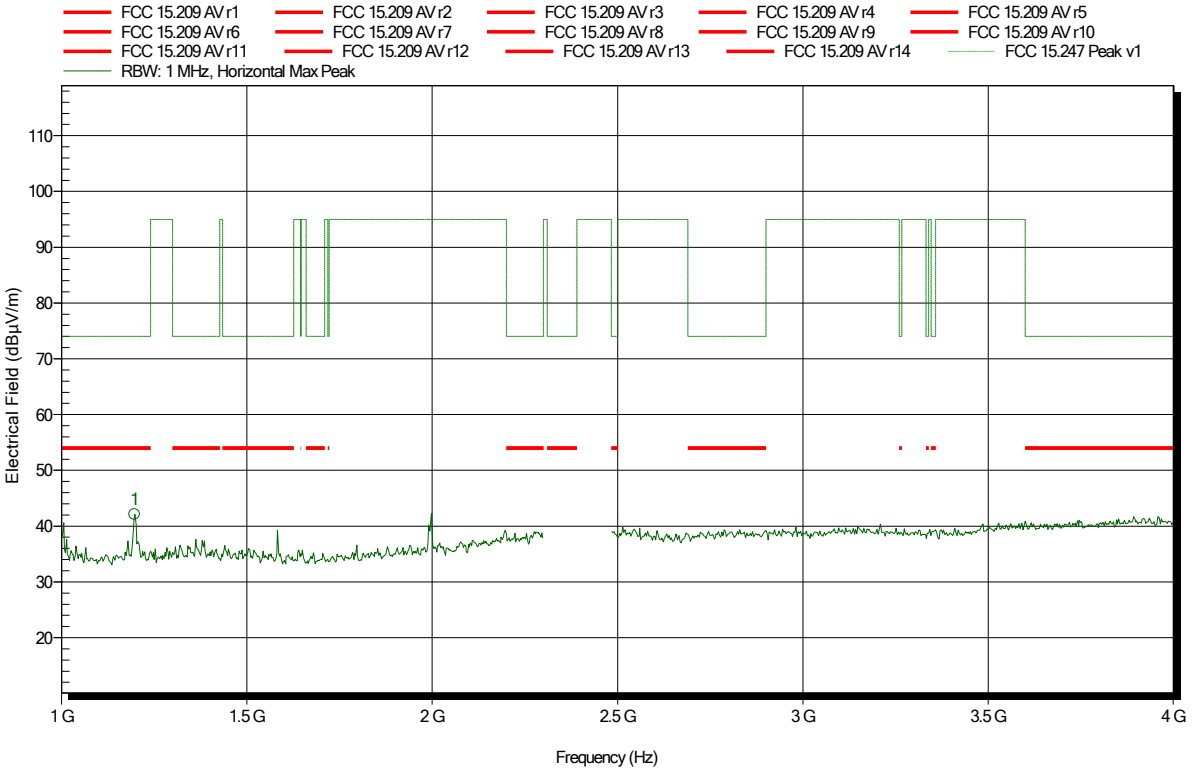

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.198 GHz	42.11 dBµV/m	74 dBµV/m	-31.89 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; CH3, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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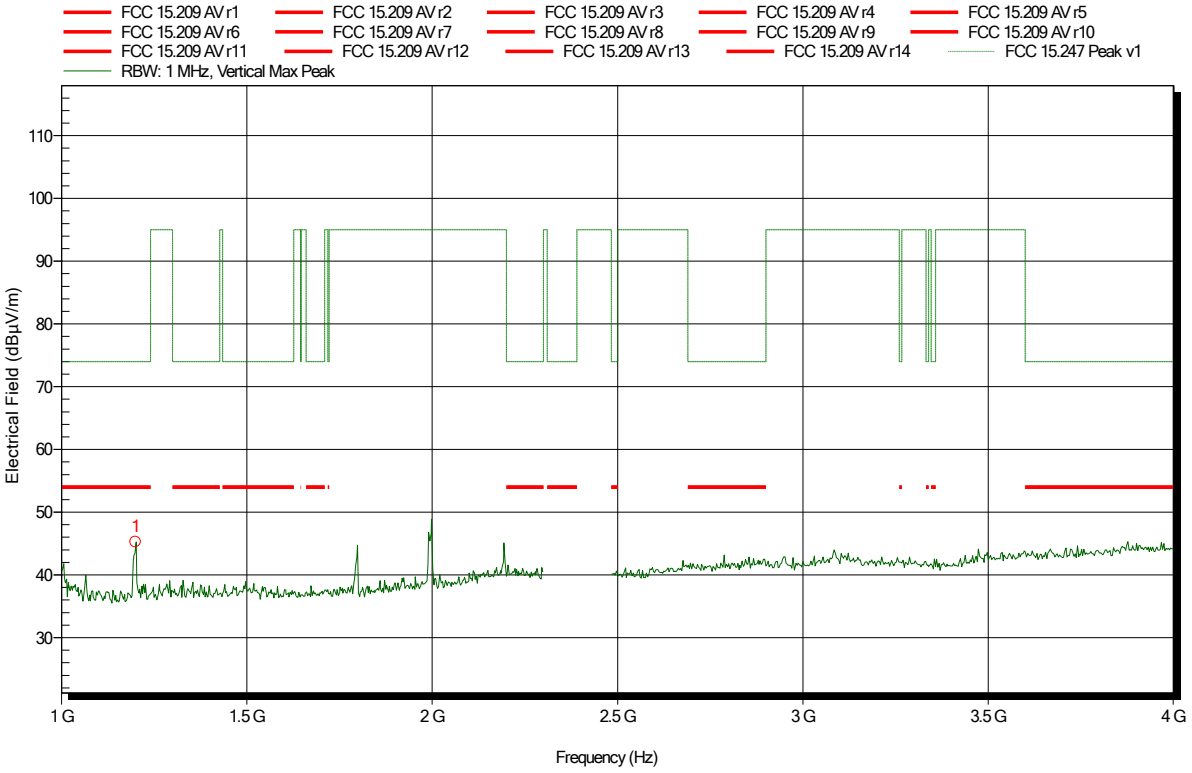

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.2 GHz	45.25 dBµV/m	74 dBµV/m	-28.75 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; CH3, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Band Edge, Lower Channel, Antenna horizontal

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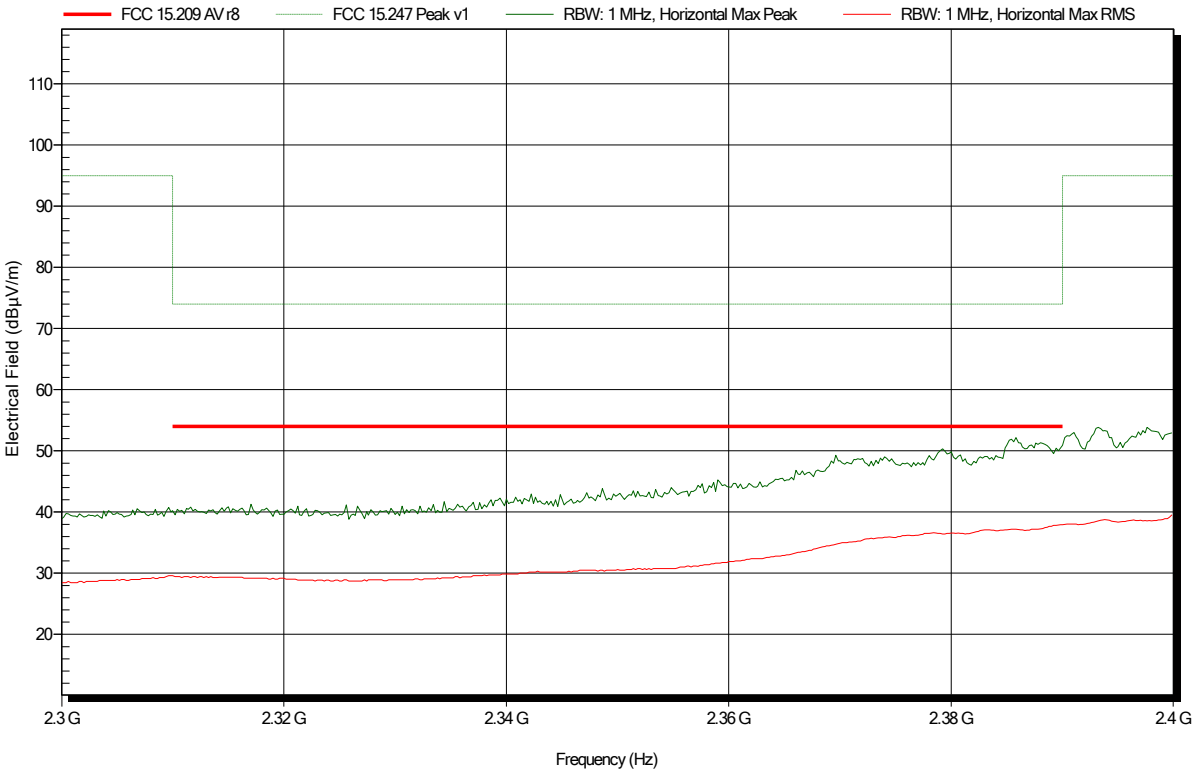

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; CH3, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Band Edge, Lower Channel, Antenna horizontal

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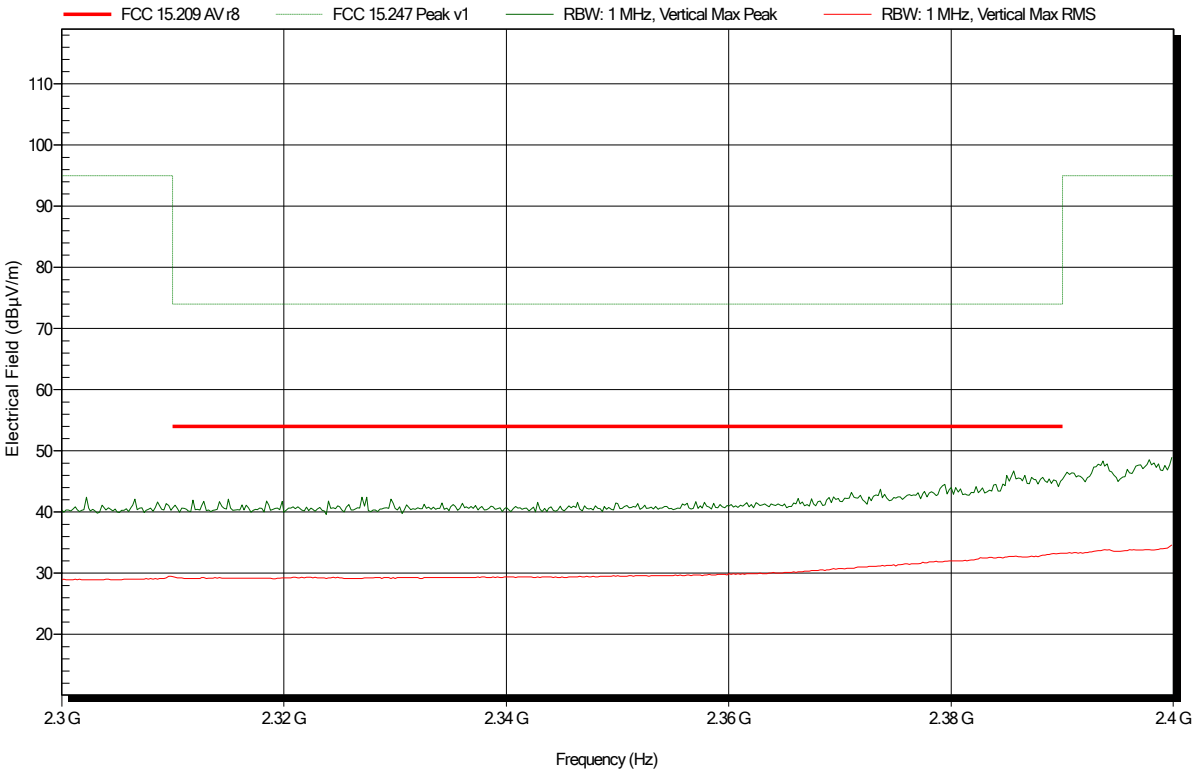

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH3, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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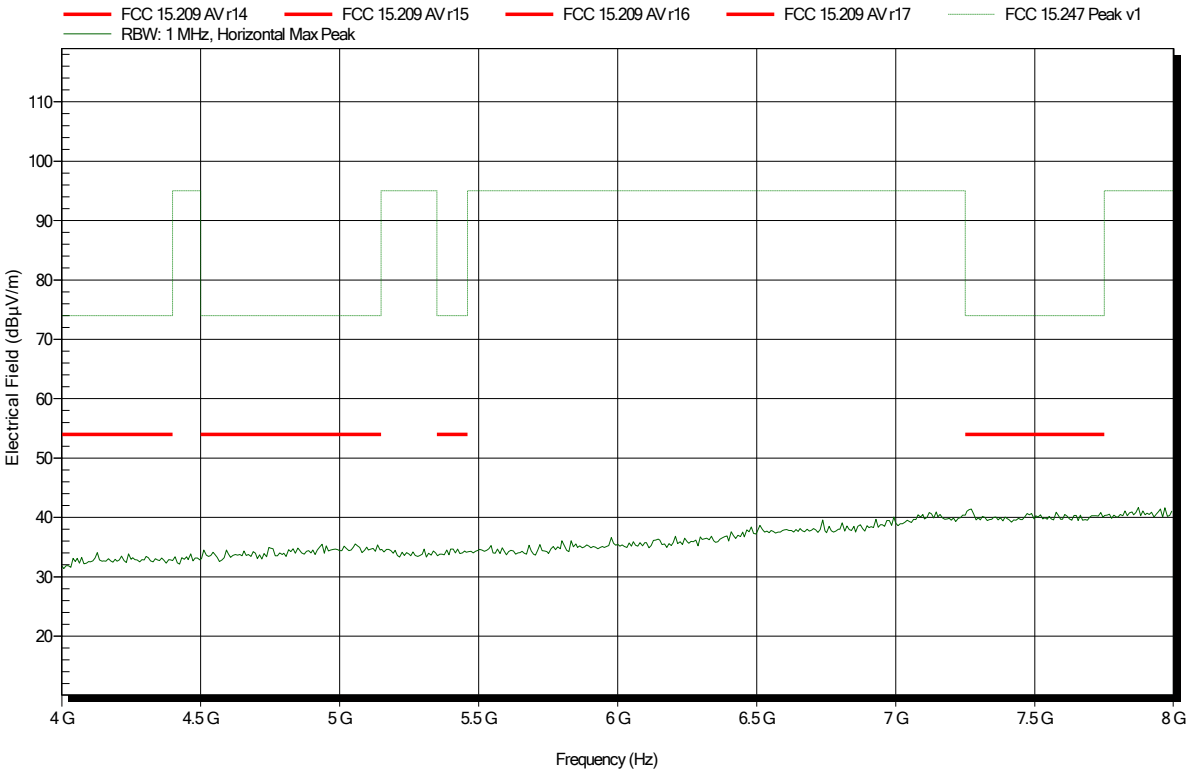

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH3, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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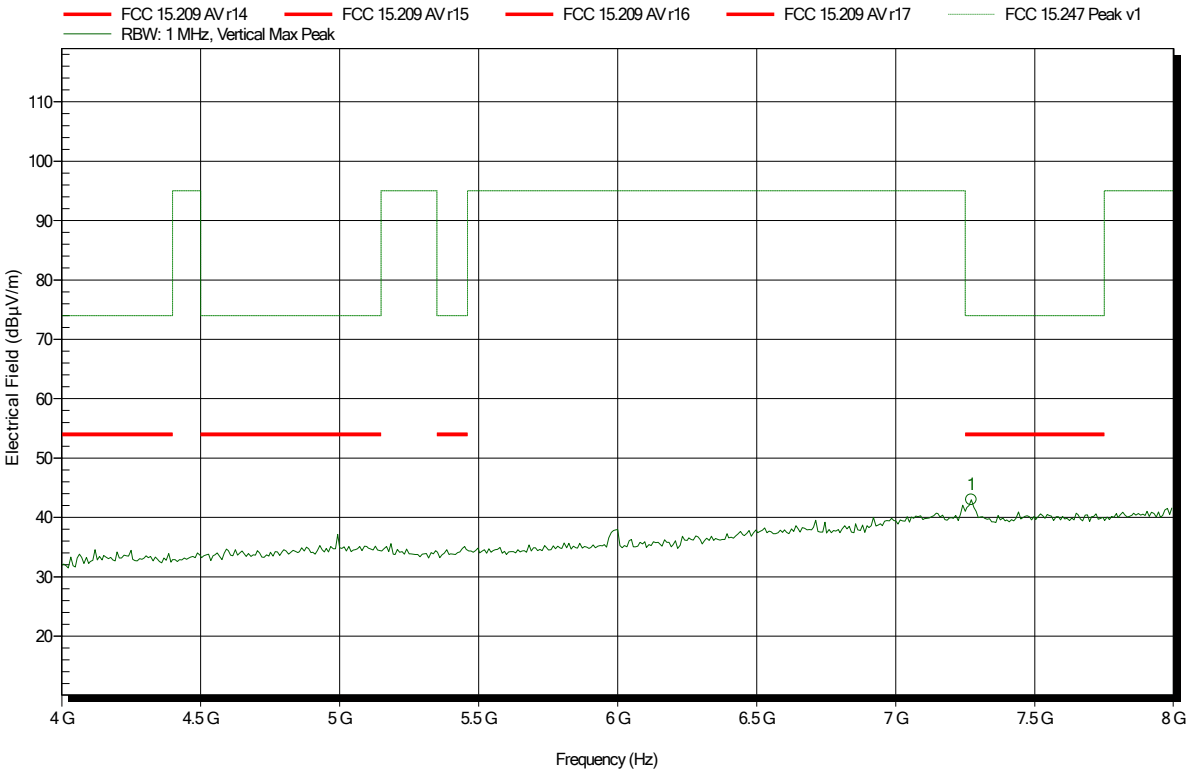

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.272 GHz	42.97 dBµV/m	74 dBµV/m	-31.03 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH3, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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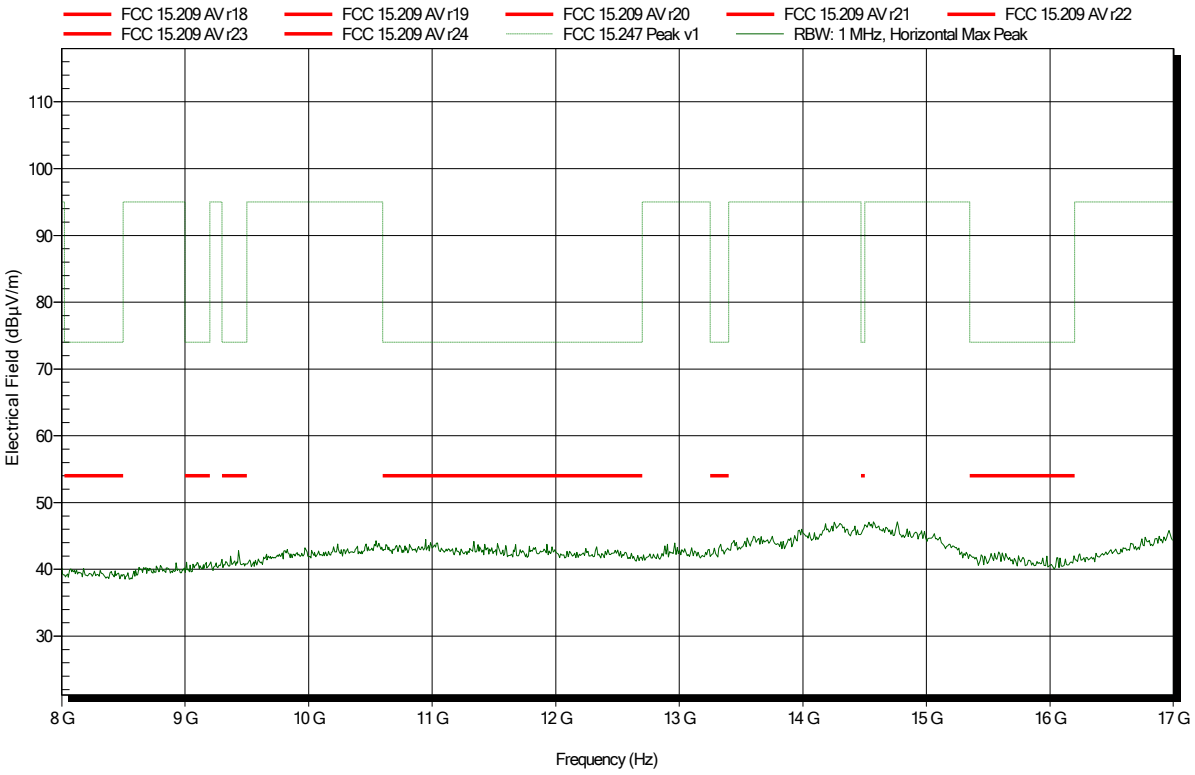

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH3, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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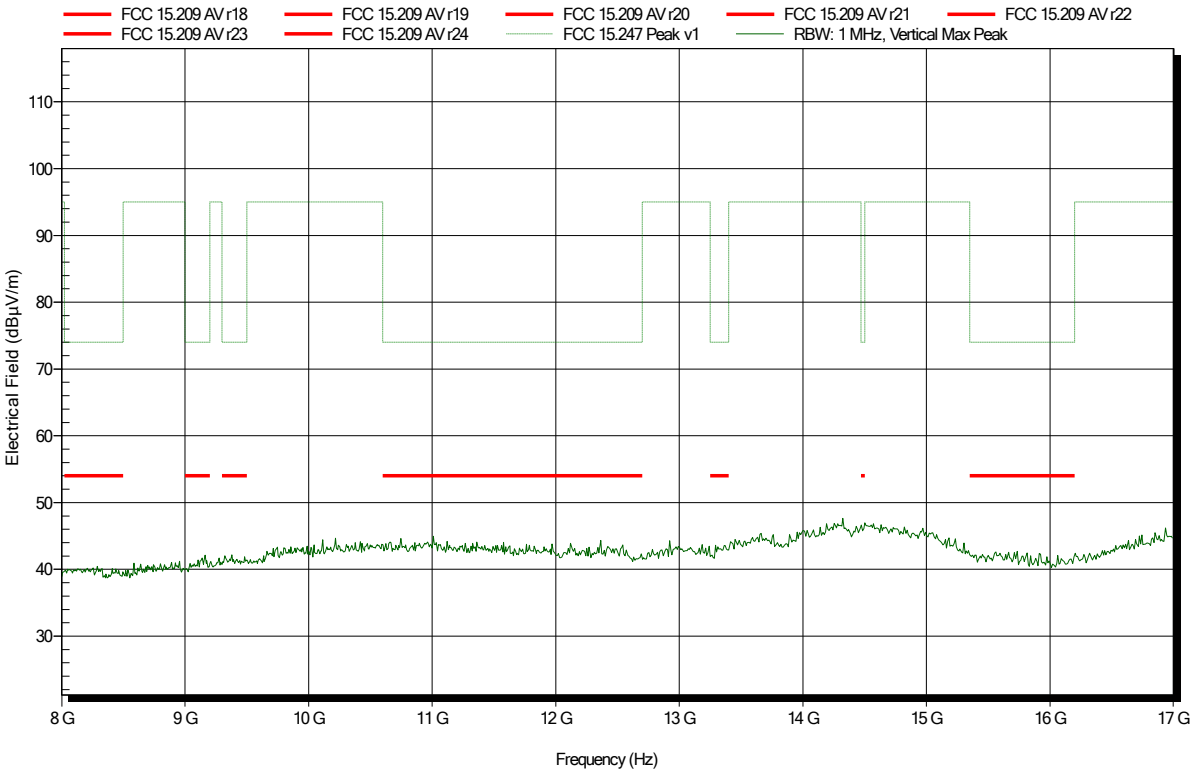

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	ATH18G40, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH3, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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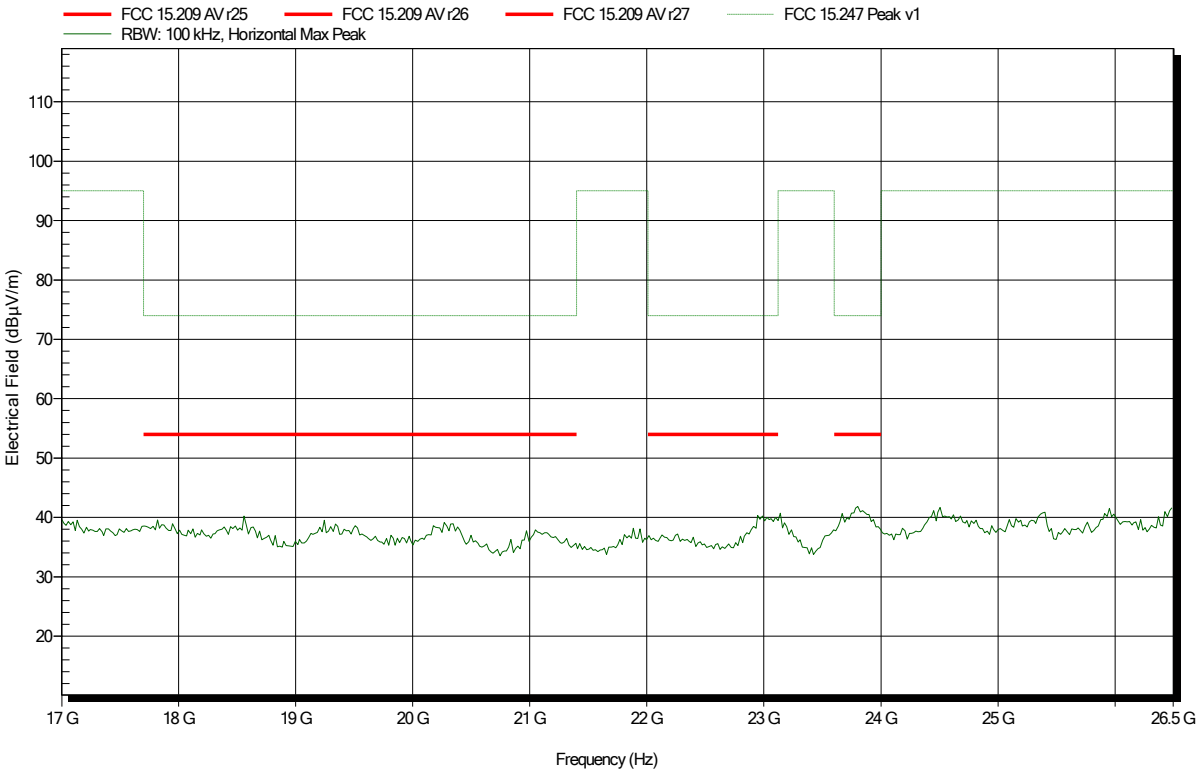

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	ATH18G40, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH3, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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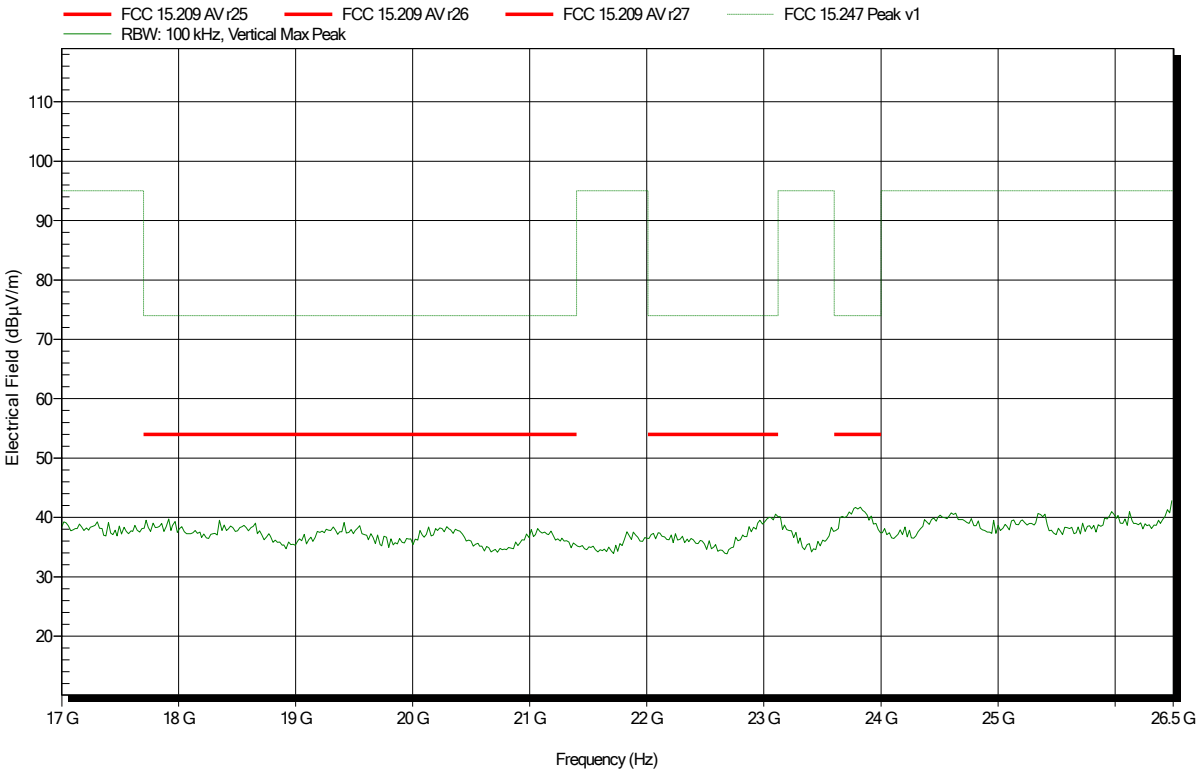

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	TX; CH6, MCS0, OFDM, HT40, Ant. hor.
Test Date:	2019-07-10
Note:	Antenna horizontal

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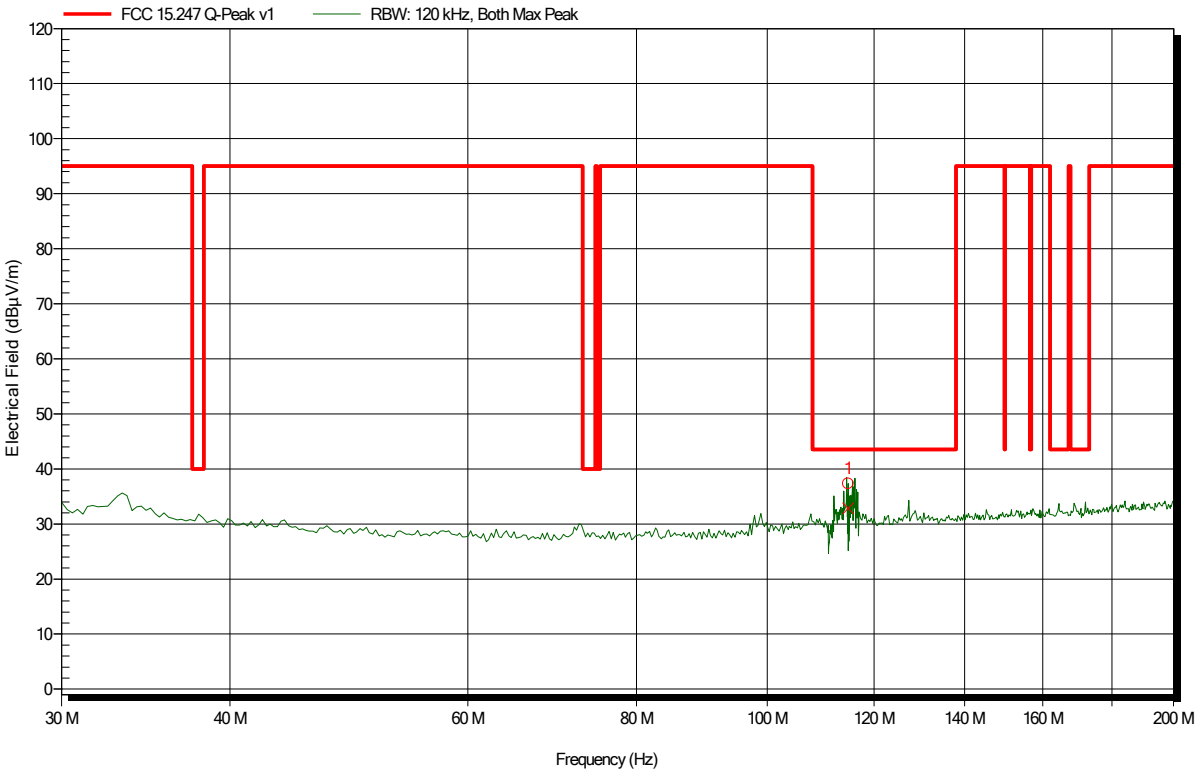

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Polarization	Quasi-Peak Status
114.8056 MHz	32.8 dBµV/m	43.5 dBµV/m	-10.71 dB	Vertical	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	TX; CH6, MCS0, OFDM, HT40
Test Date:	2019-07-03
Note:	Antenna horizontal

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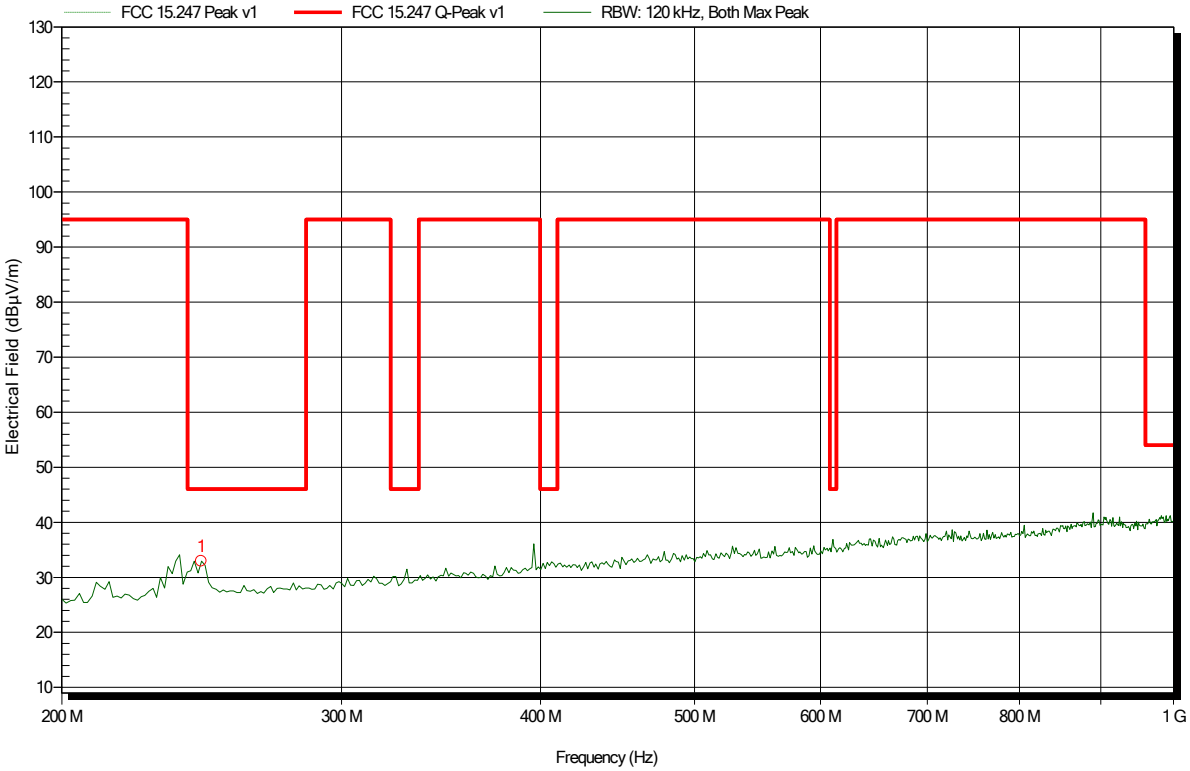

Frequency	Peak	Peak Limit	Peak Difference	Polarization	Status
244.8718 MHz	33 dBµV/m	46 dBµV/m	-13.04 dB	Vertical	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; CH6, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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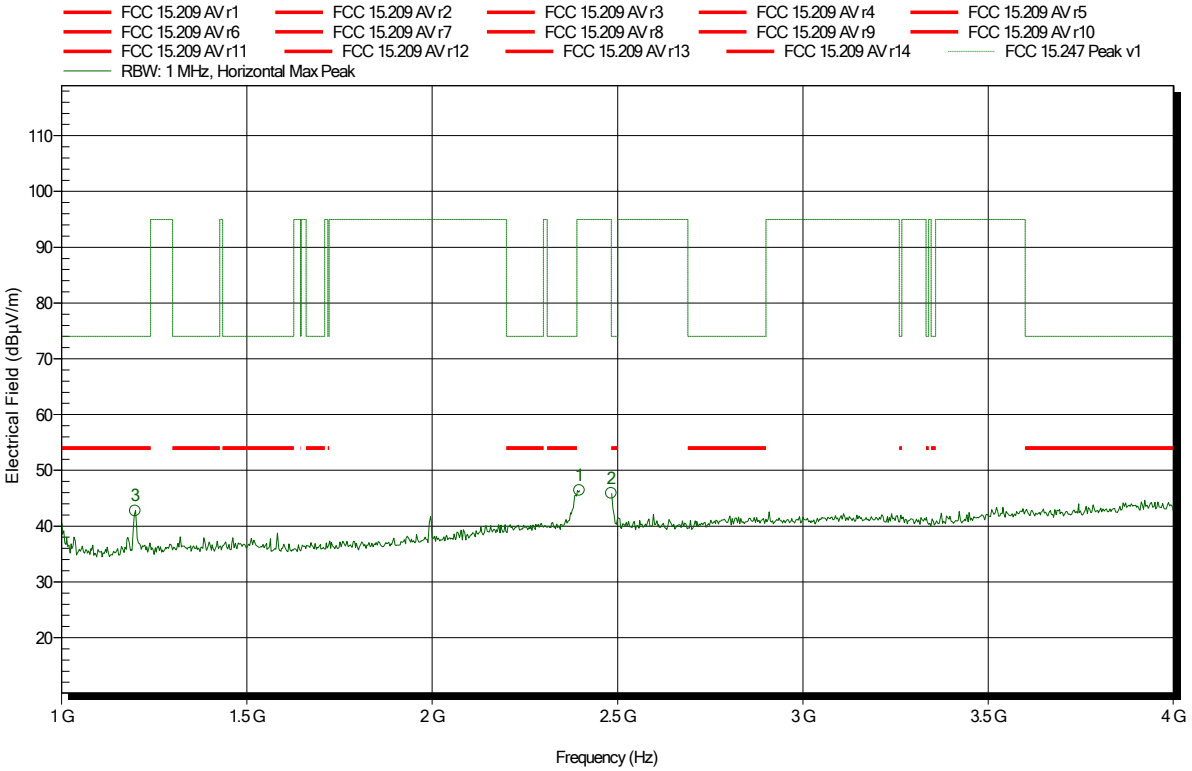

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.199 GHz	42.75 dBµV/m	74 dBµV/m	-31.25 dB	Pass
2.397 GHz	46.4 dBµV/m	95 dBµV/m	-48.6 dB	Pass
2.484 GHz	45.9 dBµV/m	74 dBµV/m	-28.1 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; CH6, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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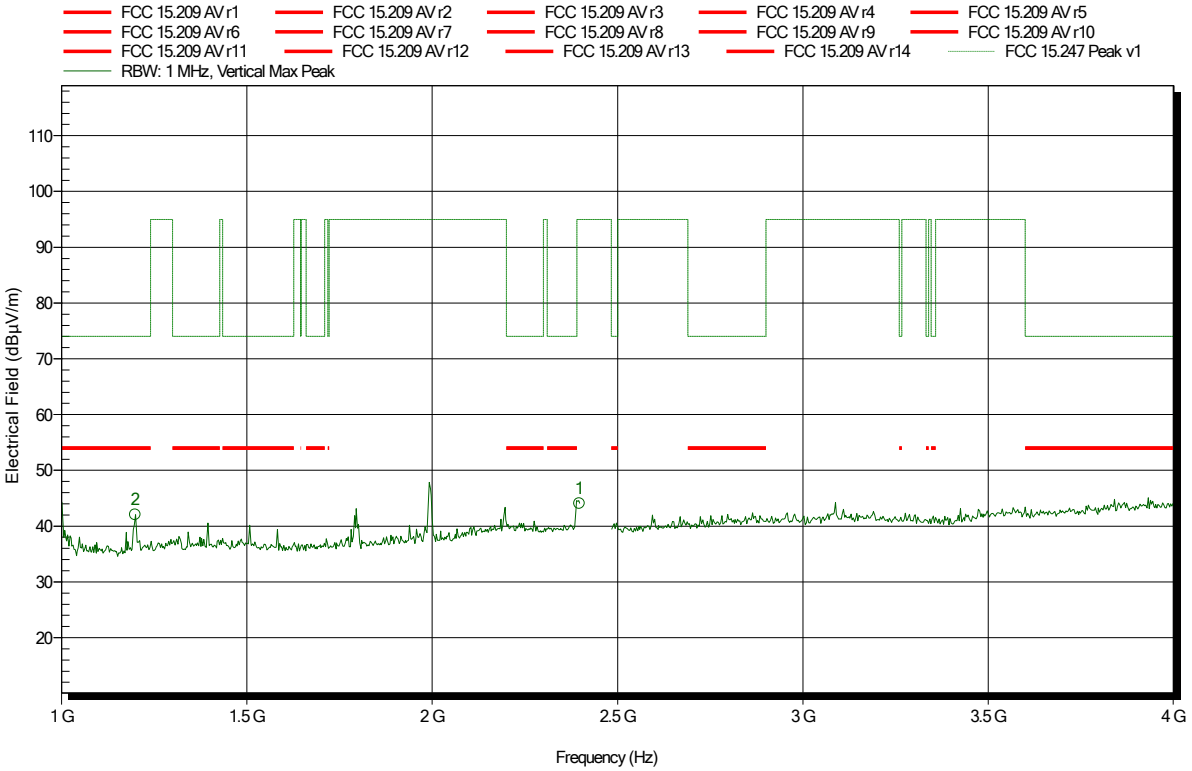

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.199 GHz	42.04 dBµV/m	74 dBµV/m	-31.96 dB	Pass
2.397 GHz	44.06 dBµV/m	95 dBµV/m	-50.94 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH6, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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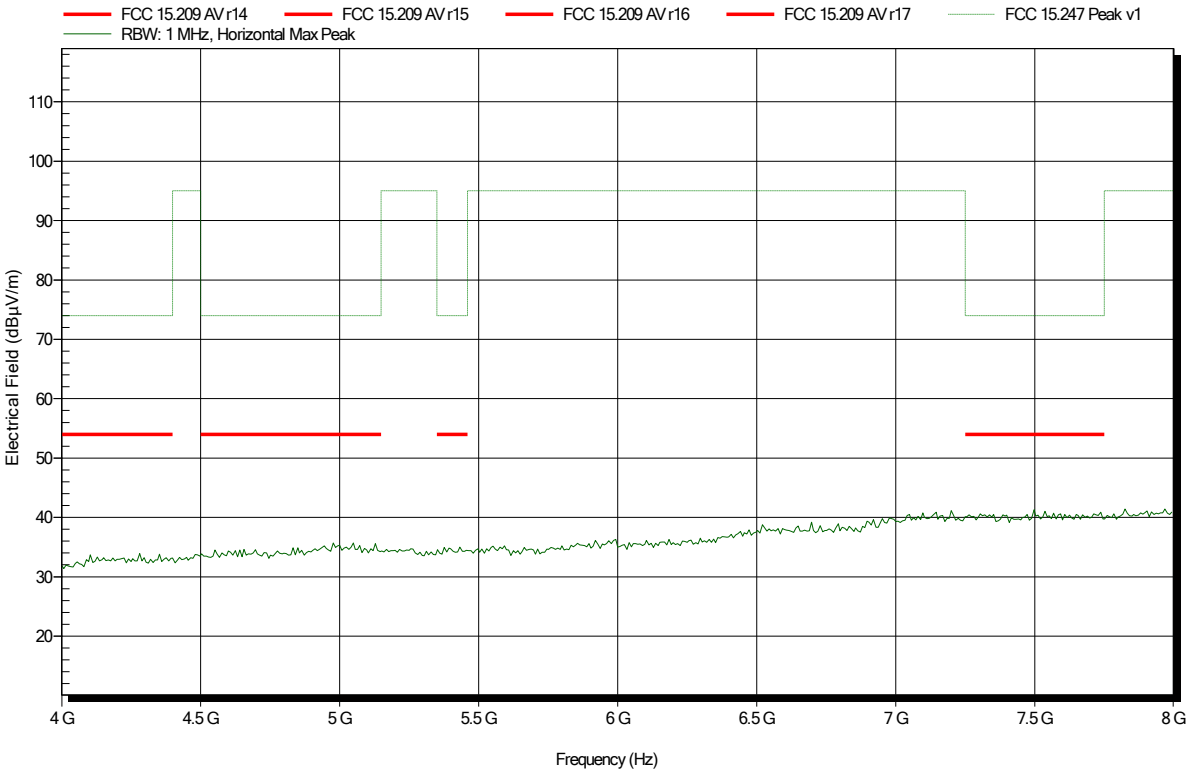

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH6, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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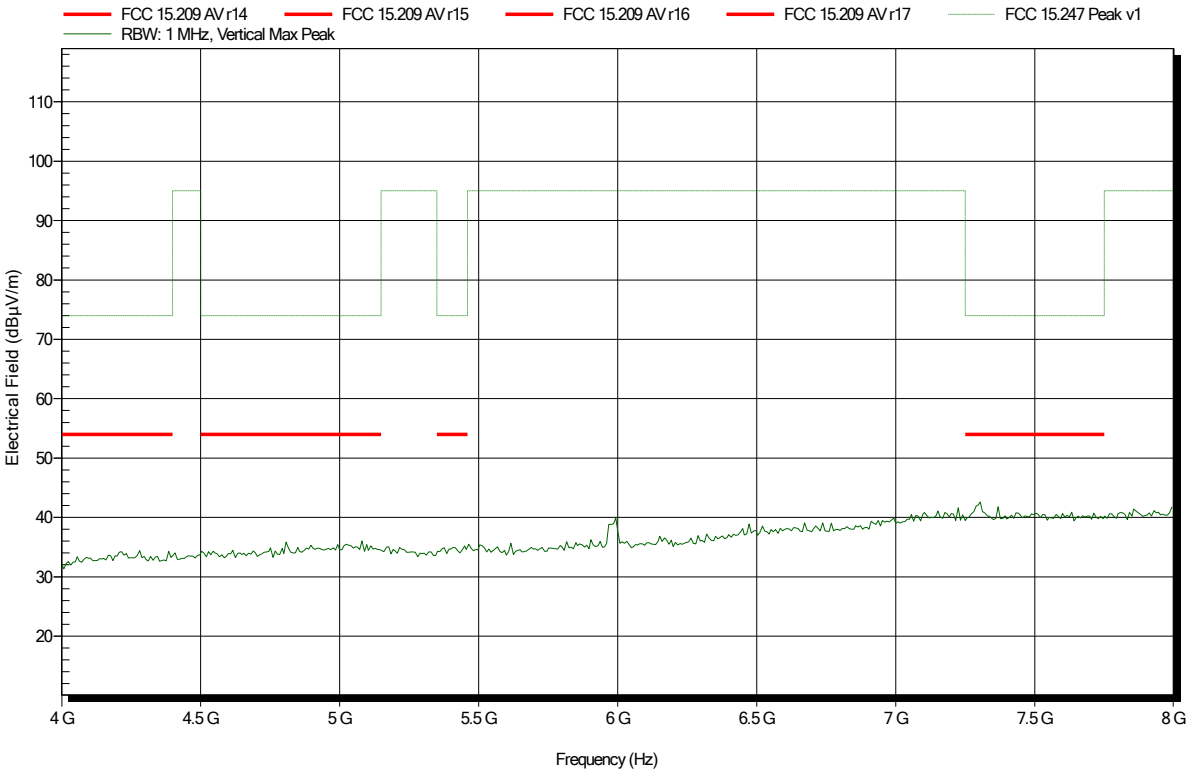

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH6, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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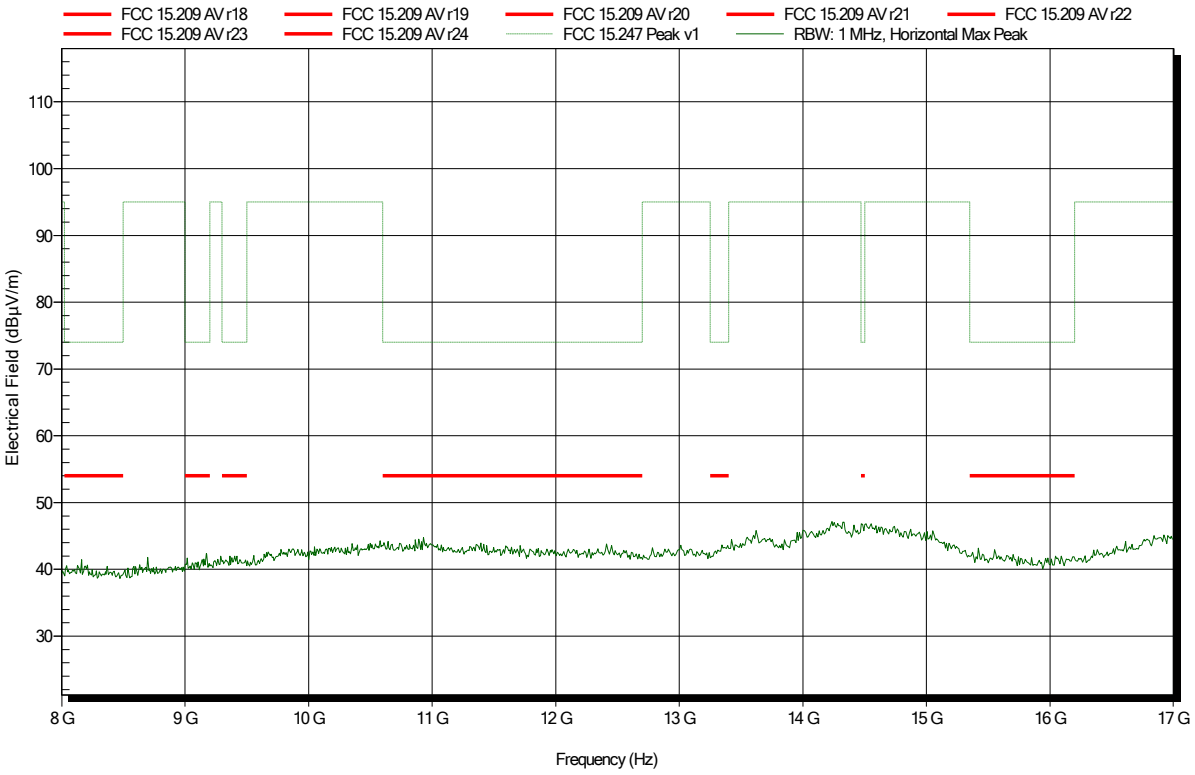

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH6, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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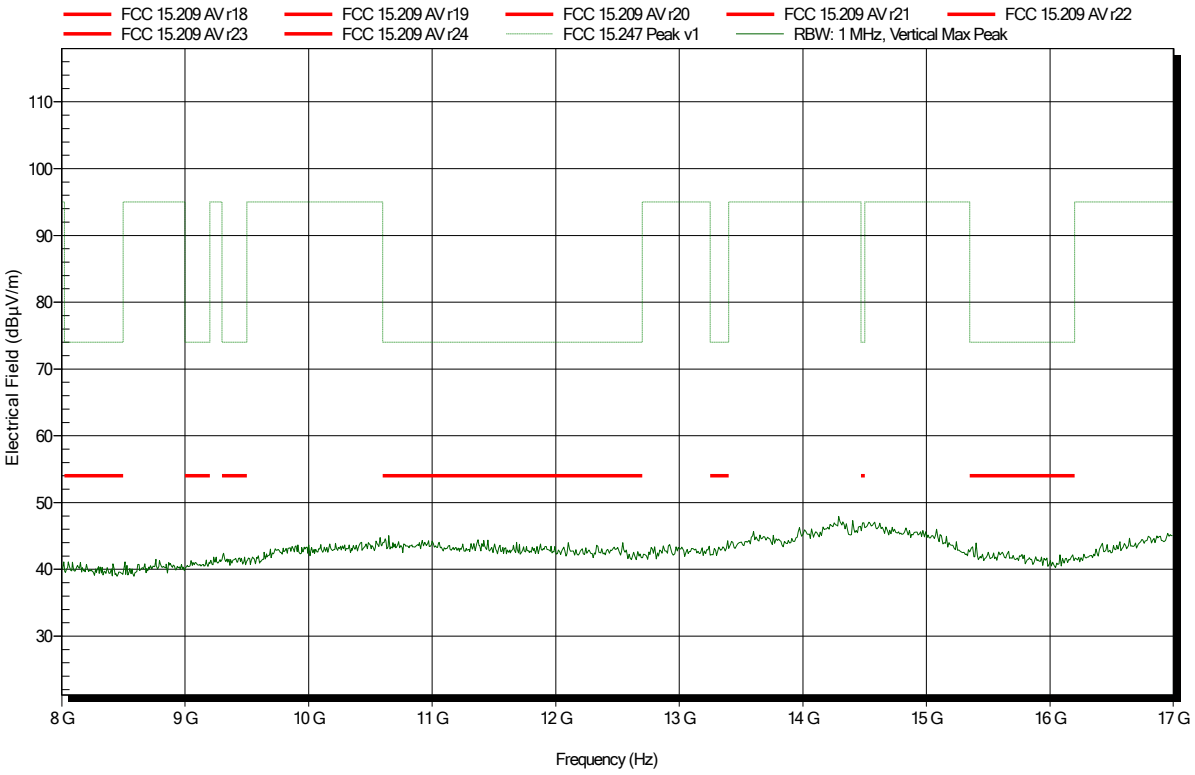

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	ATH18G40, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH6, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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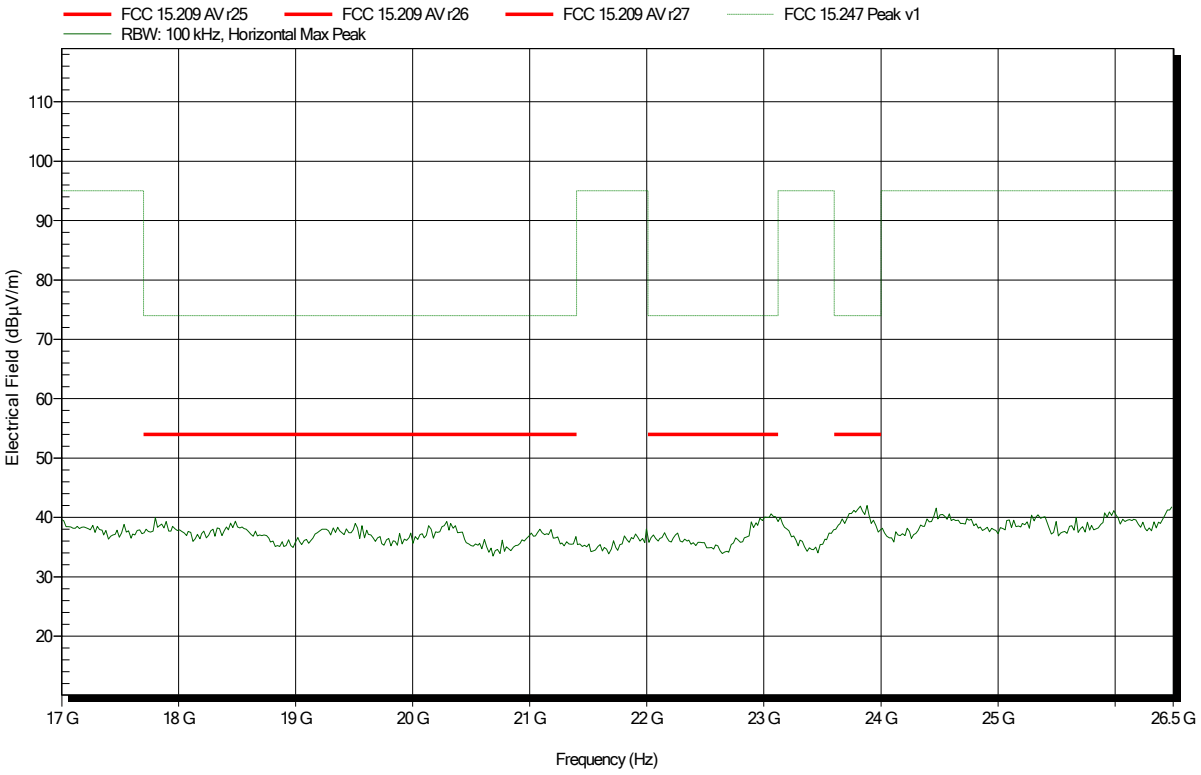

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	ATH18G40, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH6, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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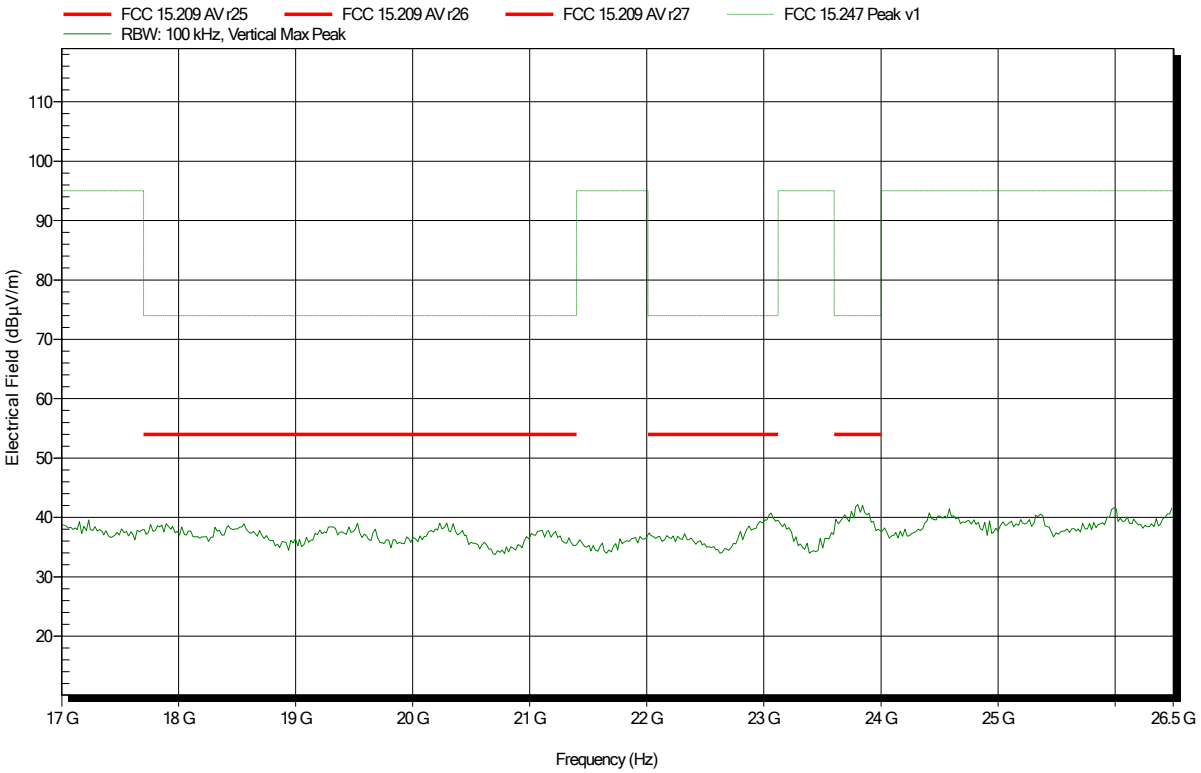

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	TX; CH9, MCS0, OFDM, HT40, Ant. hor.
Test Date:	2019-07-10
Note:	Antenna horizontal

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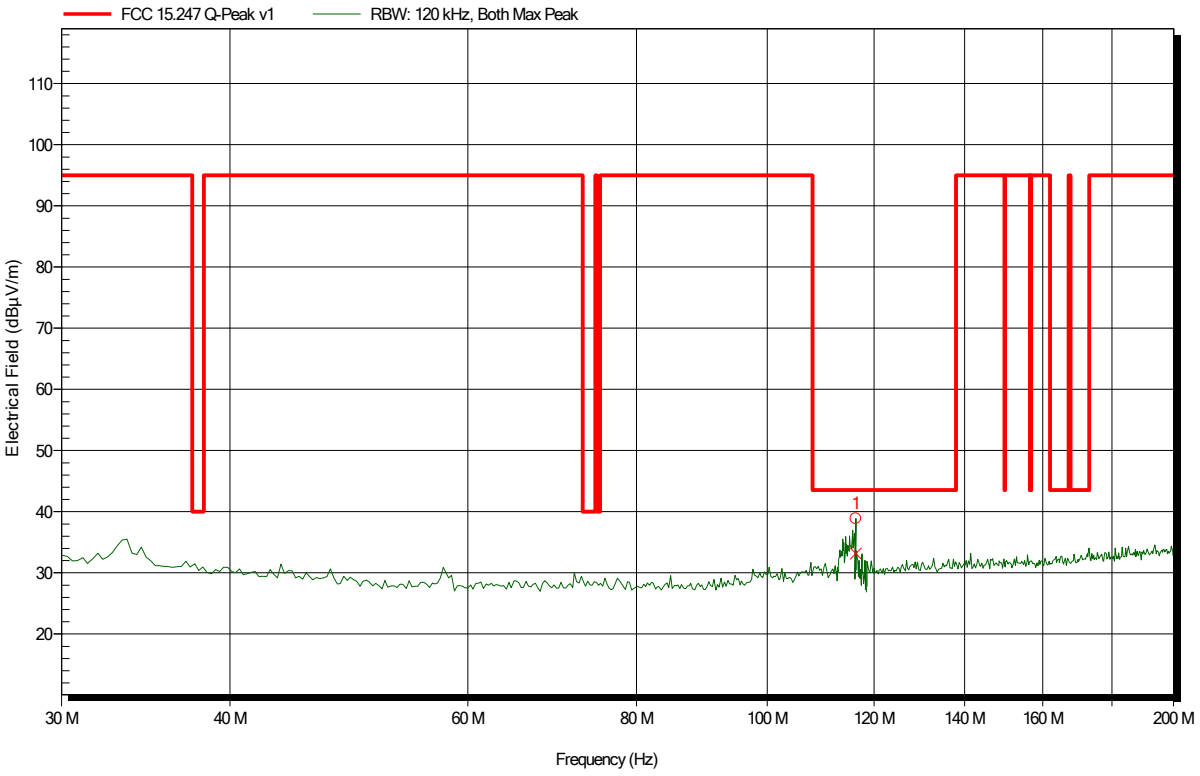

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Polarization	Quasi-Peak Status
116.3343 MHz	33.1 dBµV/m	43.5 dBµV/m	-10.38 dB	Vertical	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	TX; CH9, MCS0, OFDM, HT40
Test Date:	2019-07-03
Note:	Antenna horizontal

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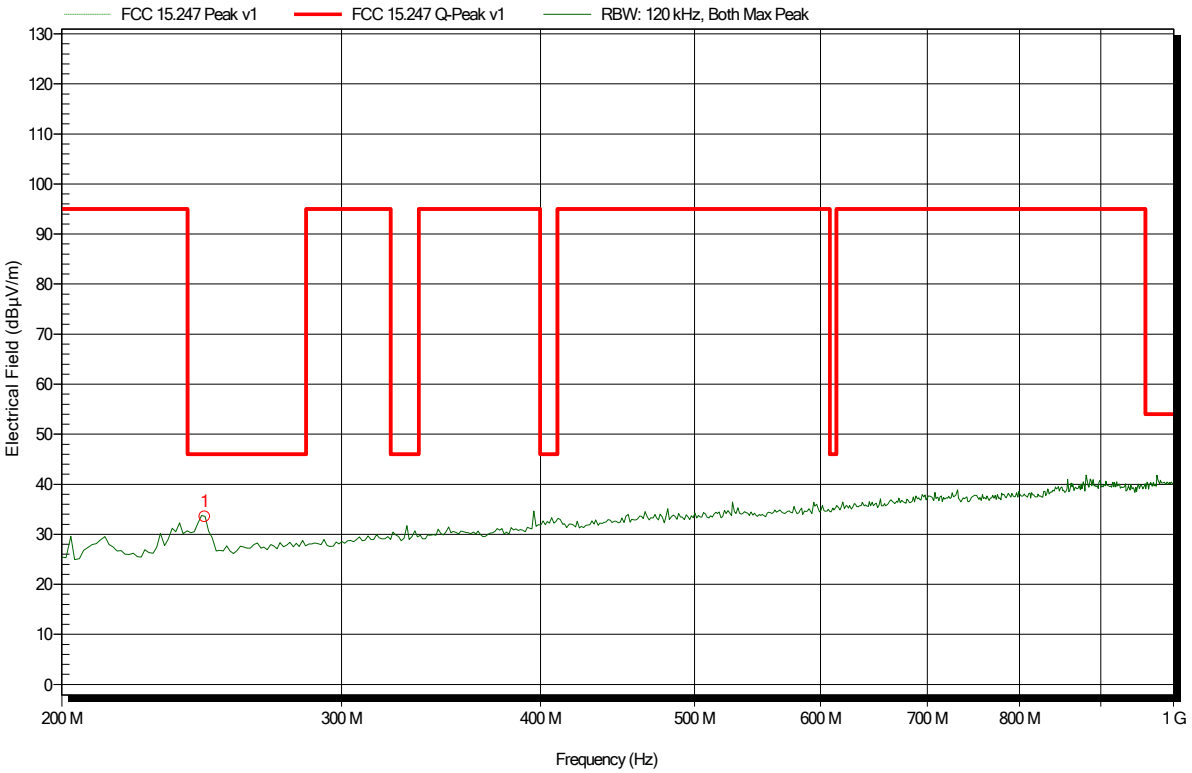

Frequency	Peak	Peak Limit	Peak Difference	Polarization	Status
246.1538 MHz	33.5 dBµV/m	46 dBµV/m	-12.49 dB	Horizontal	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; CH9, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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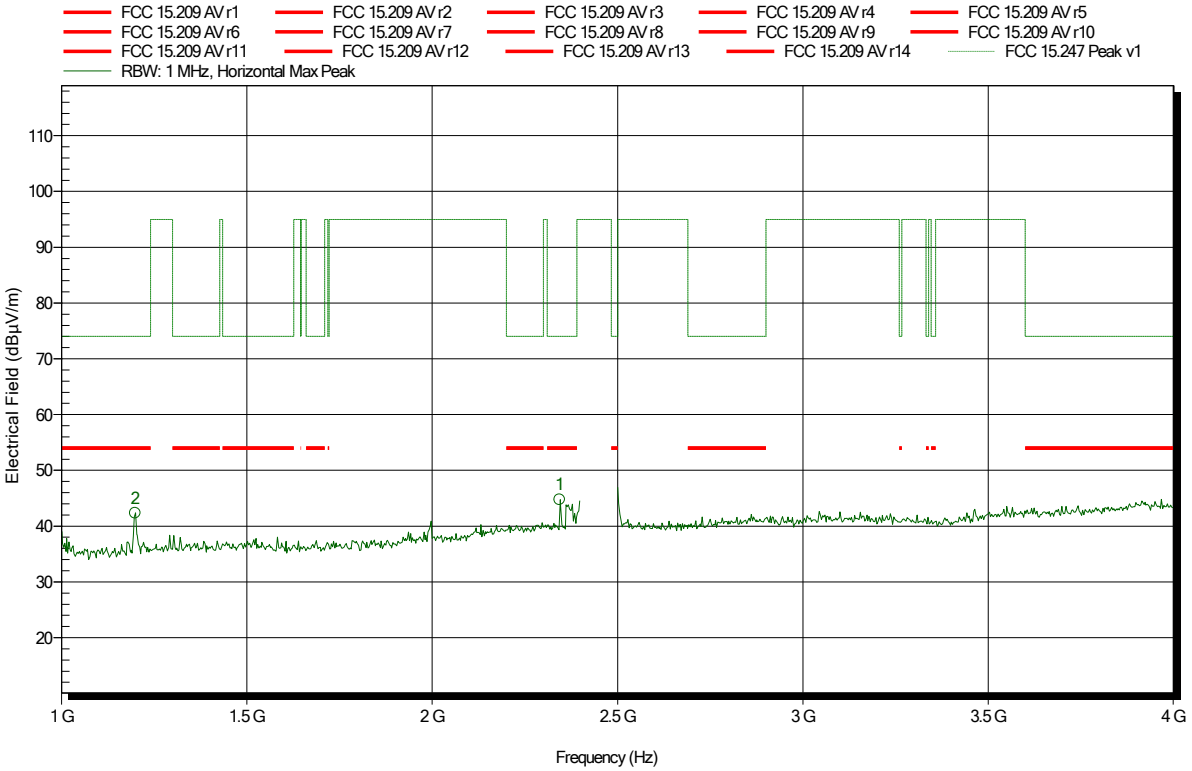

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.199 GHz	42.34 dBµV/m	74 dBµV/m	-31.66 dB	Pass
2.344 GHz	44.75 dBµV/m	74 dBµV/m	-29.25 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; CH9, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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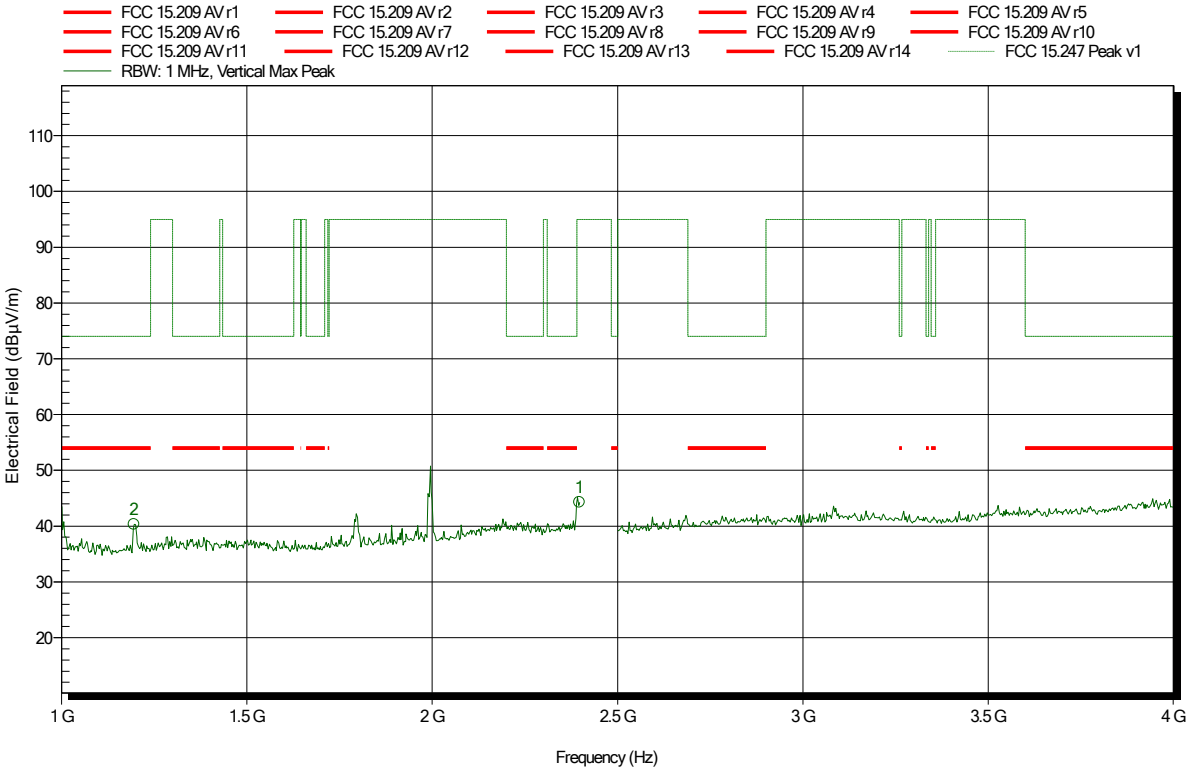

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.196 GHz	40.32 dBµV/m	74 dBµV/m	-33.68 dB	Pass
2.397 GHz	44.29 dBµV/m	95 dBµV/m	-50.71 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; CH9, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Band Edge, Higher Channel, Antenna horizontal

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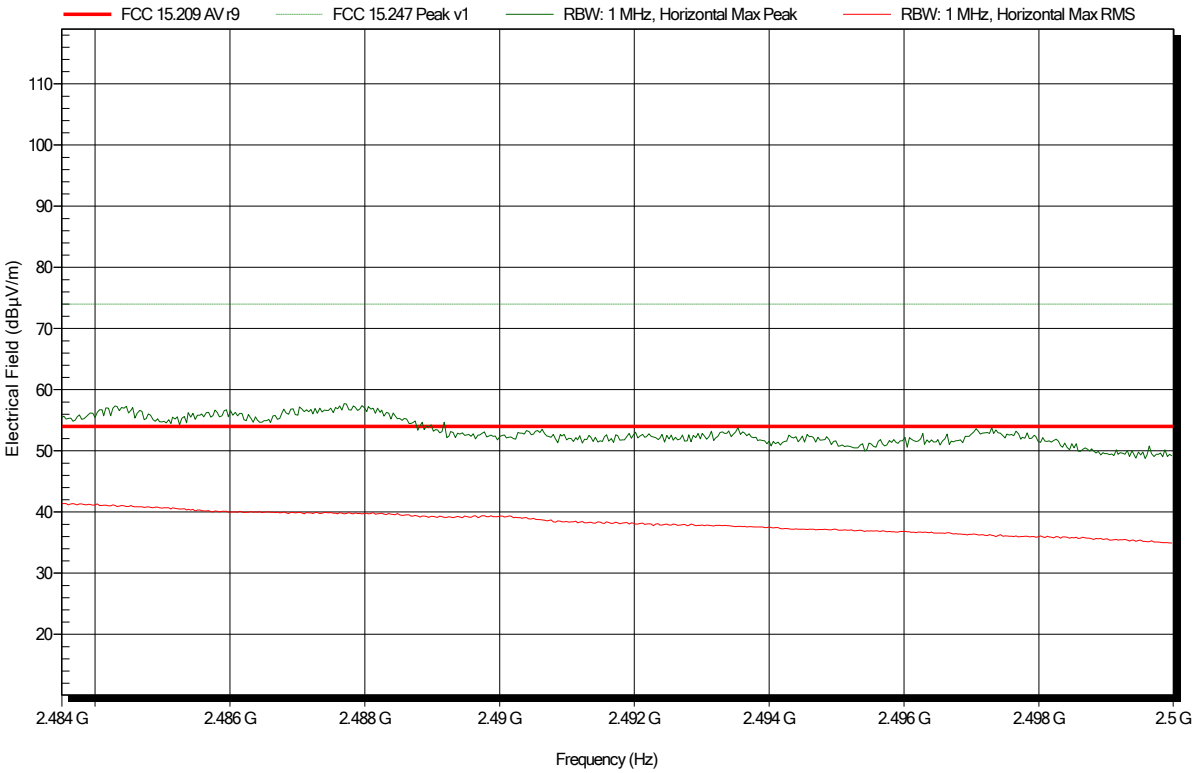

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; CH9, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Band Edge, Higher Channel, Antenna horizontal

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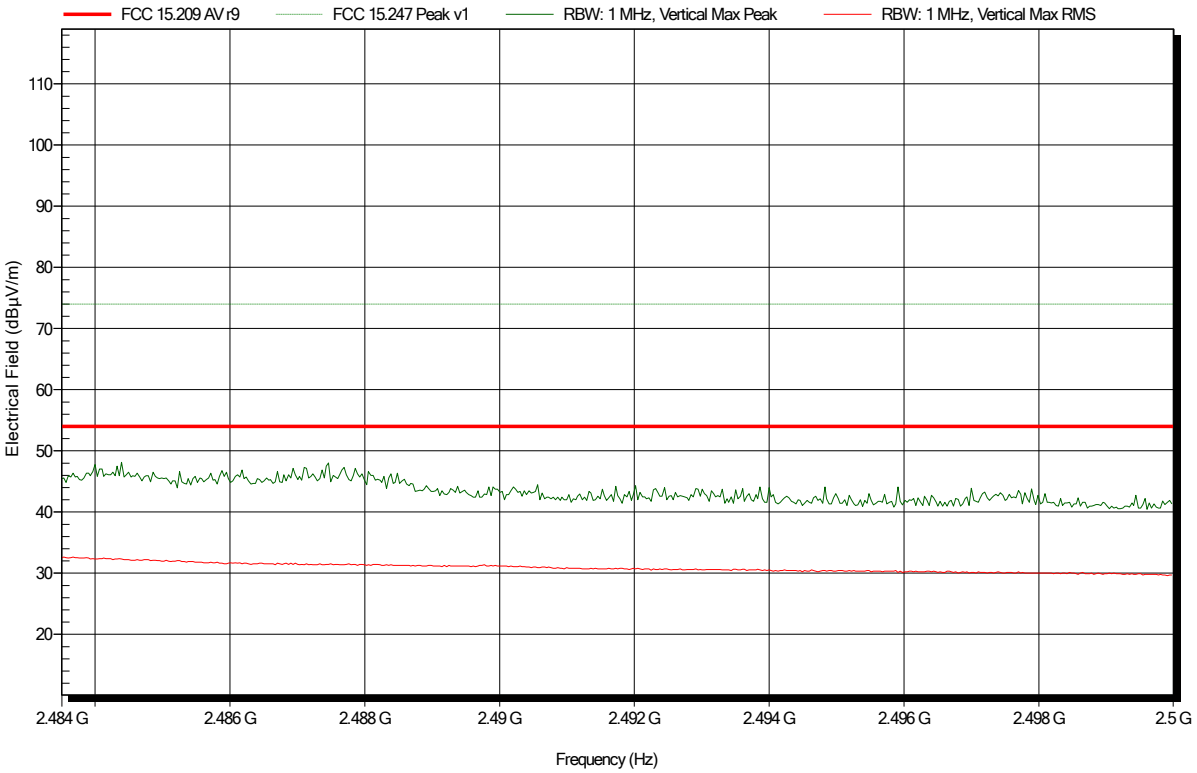

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH9, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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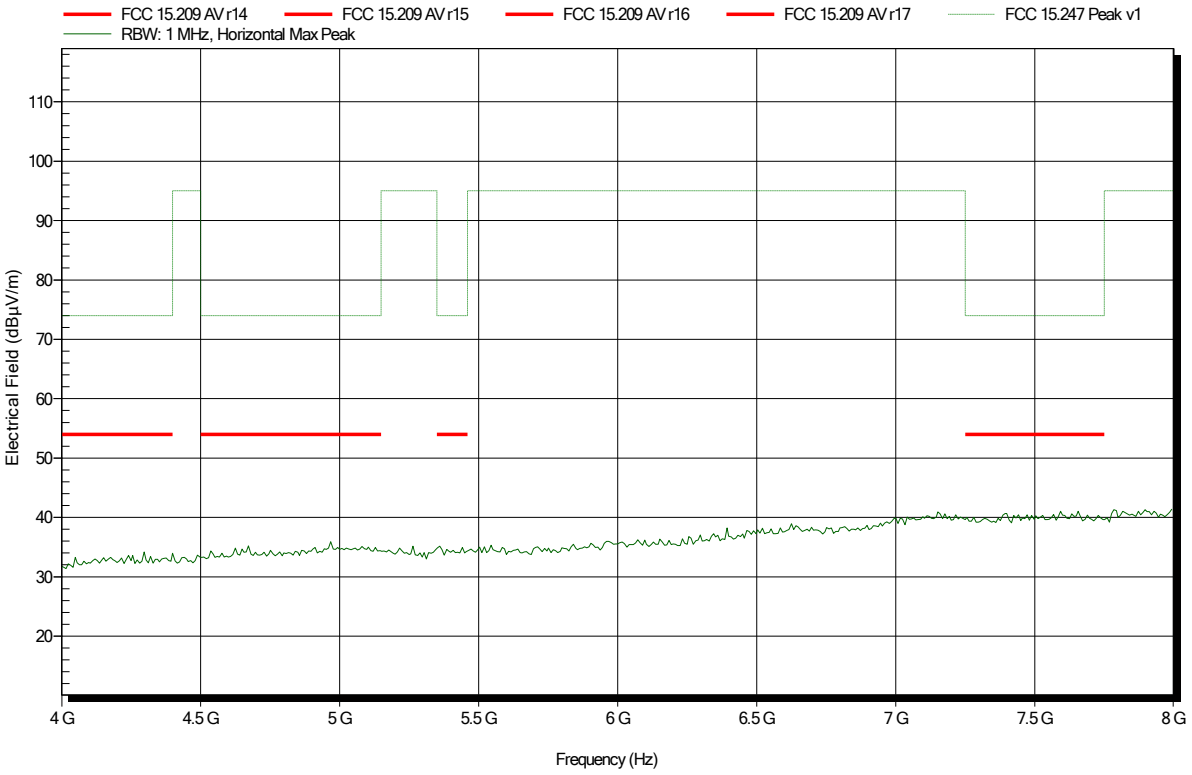

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH9, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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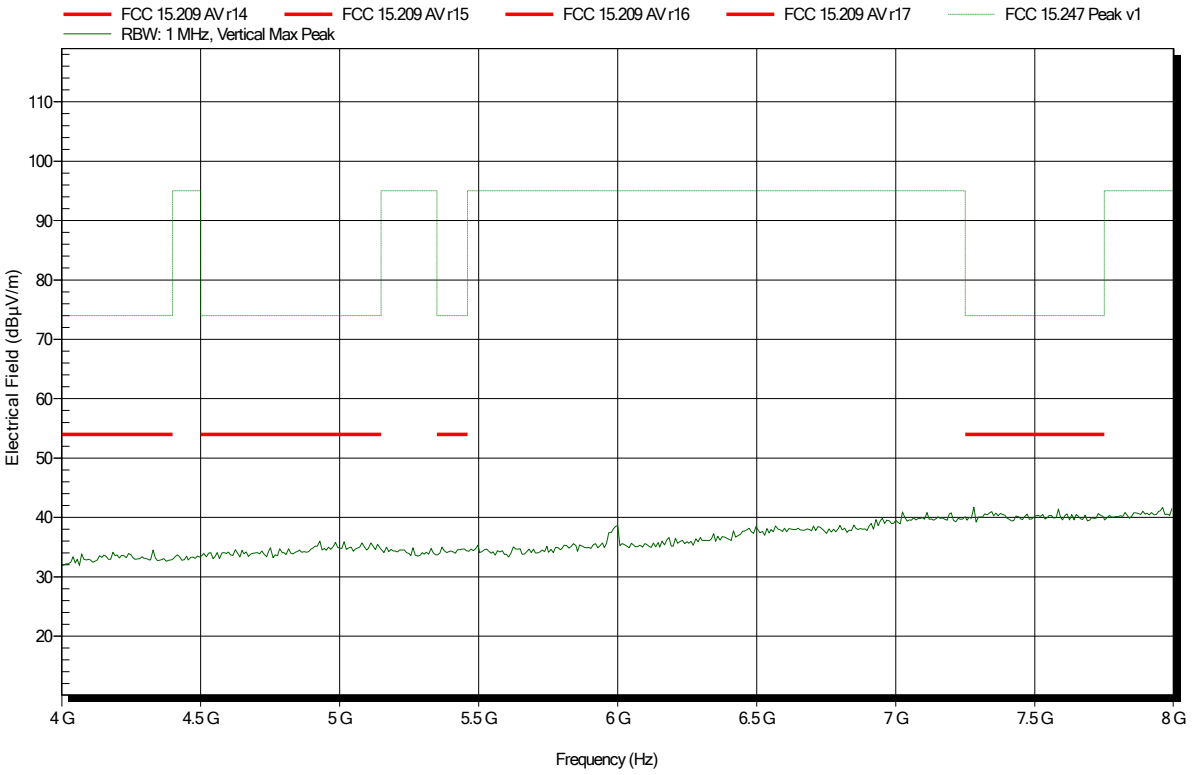

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH9, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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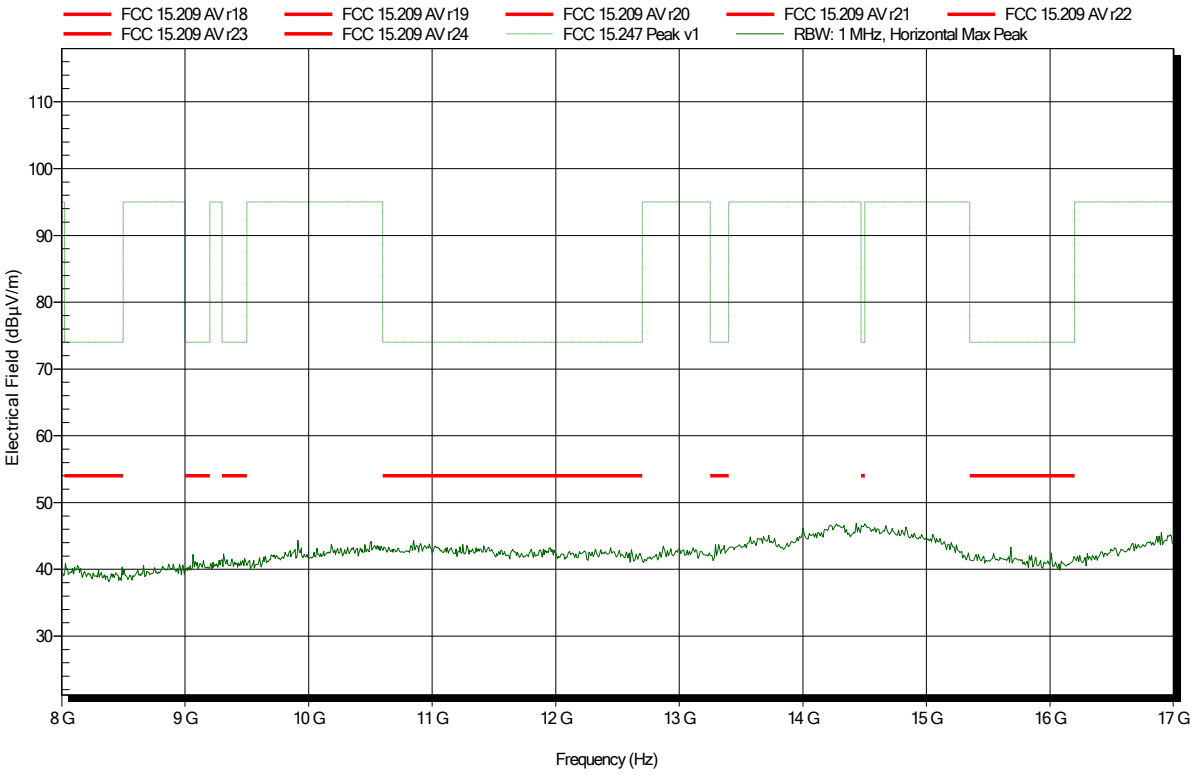

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH9, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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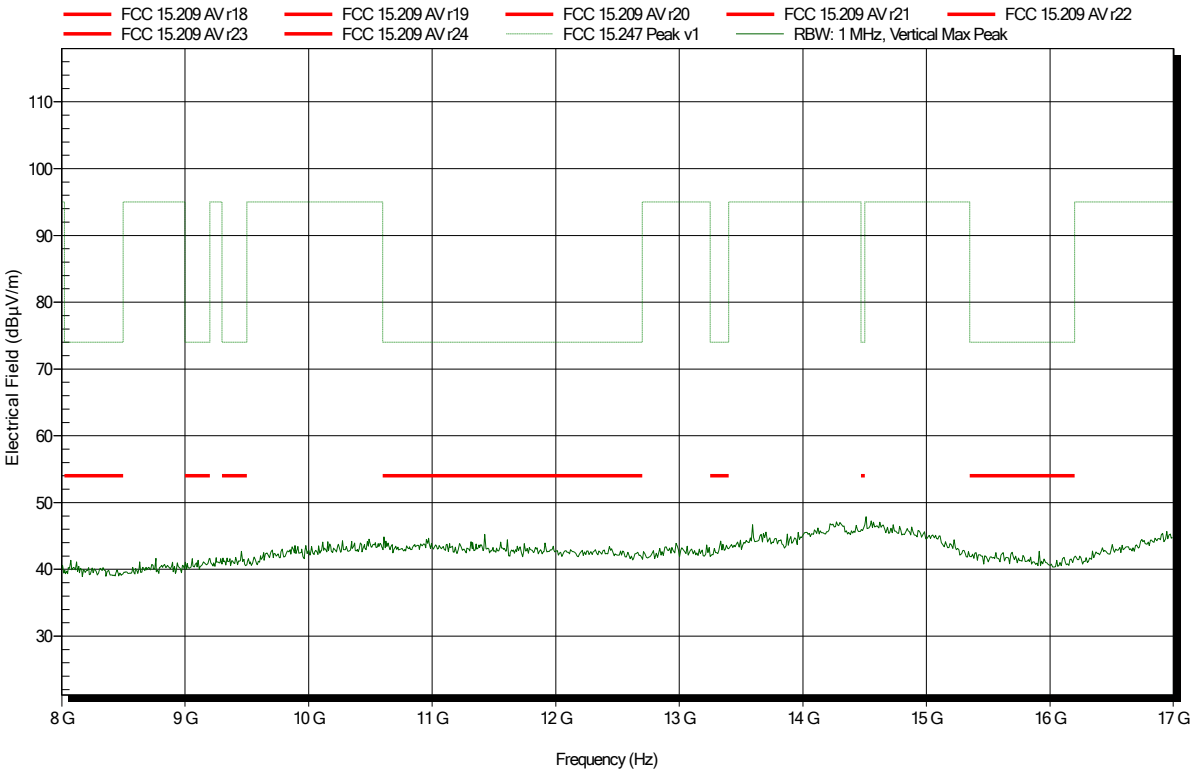

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	ATH18G40, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; CH9, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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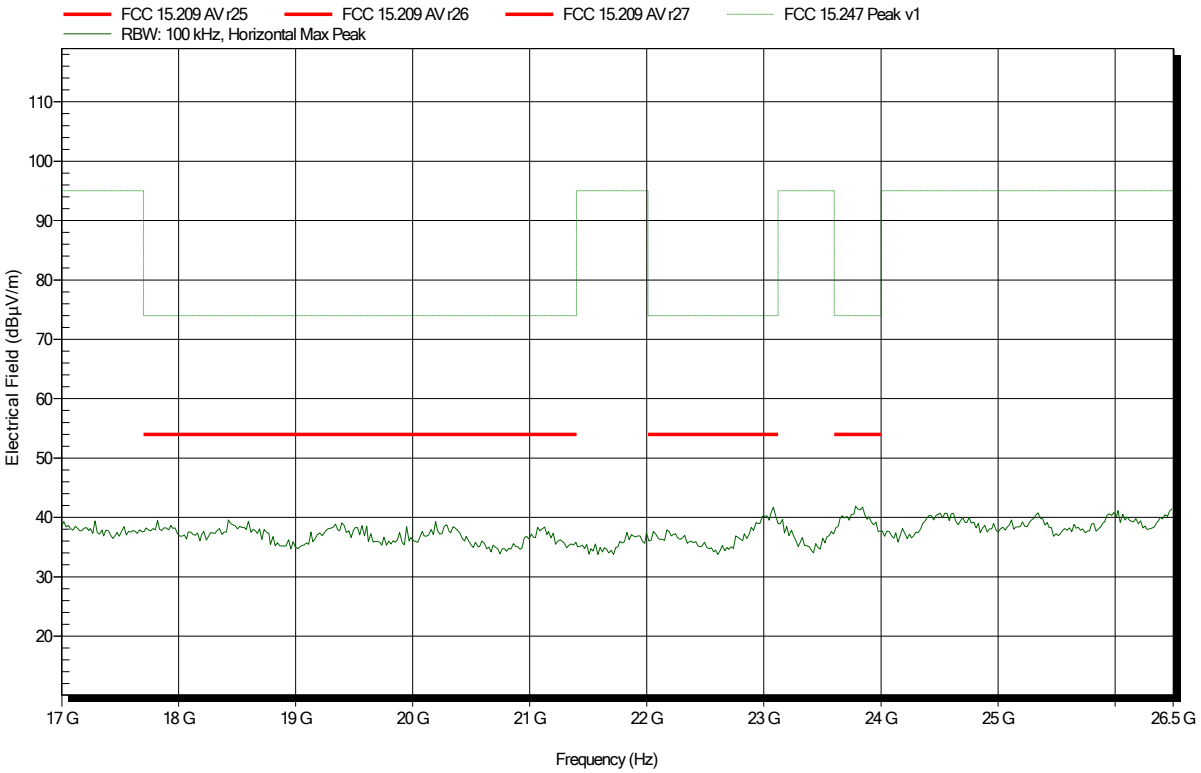

Spurious emissions according to FCC 47 e-CFR §15.247

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: 24°C, Vnom: 13.8 VDC
Antenna:	ATH18G40, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; CH9, MCS0, OFDM, HT40
Test Date:	2019-06-26
Note:	Antenna horizontal

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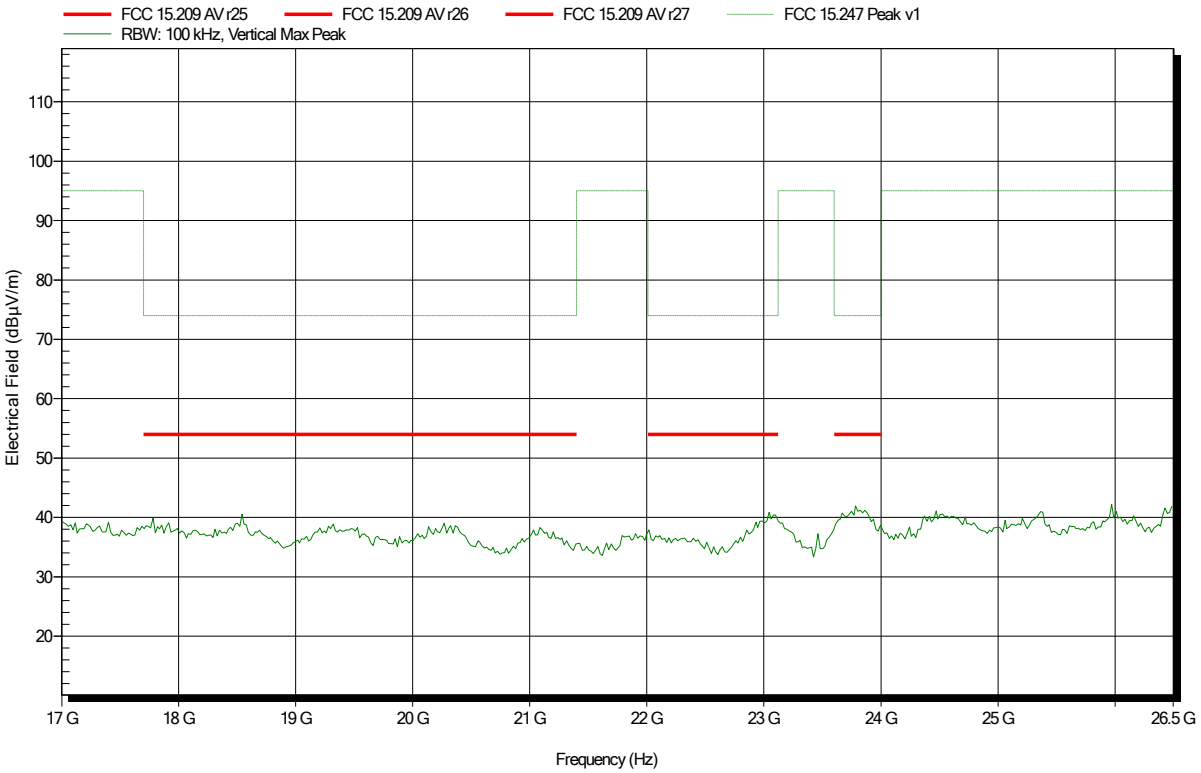

ANNEX B Receiver spurious emissions

Spurious emissions according to ISED RSS-247 Issue 2 (February 2017)

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: 24°C, Vnom: 13.8VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	RX; CH6, Ant. hor.
Test Date:	2019-07-10
Note:	Antenna horizontal

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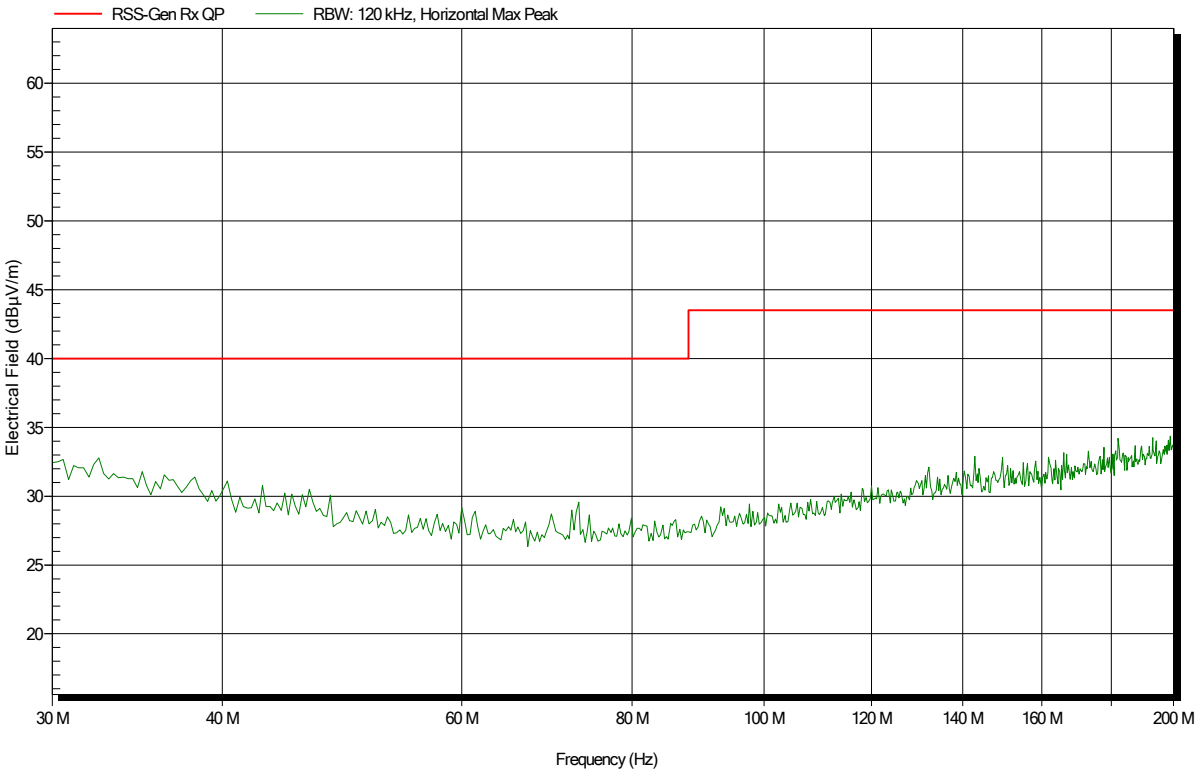

Spurious emissions according to ISED RSS-247 Issue 2 (February 2017)

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: 24°C, Vnom: 13.8V
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	RX; CH6, Ant. hor.
Test Date:	2019-07-10
Note:	Antenna horizontal

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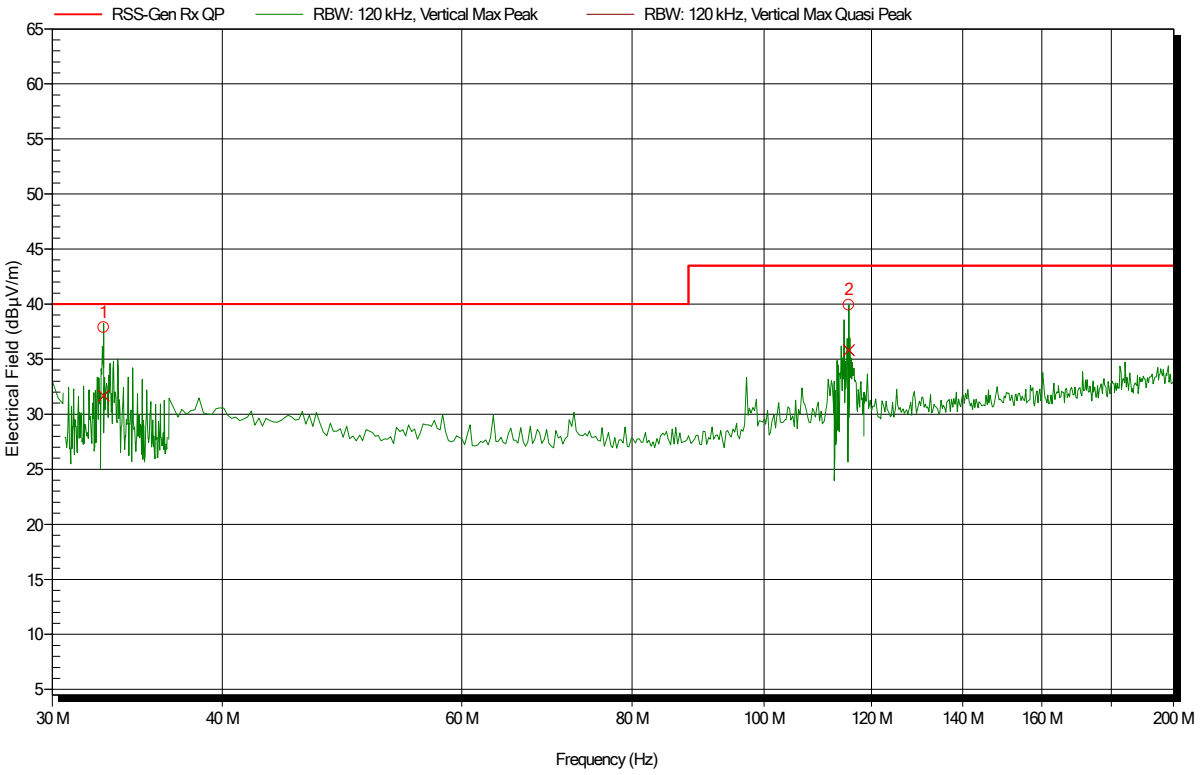

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
32.7387 MHz	31.7 dBµV/m	40 dBµV/m	-8.31 dB	Pass	189 Degree	1 m
115.4521 MHz	35.8 dBµV/m	43.5 dBµV/m	-7.69 dB	Pass	54 Degree	1 m

Spurious emissions according to ISED RSS-247 Issue 2 (February 2017)

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: 24°C, Vnom: 13.8VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	RX; CH6, Ant. hor.
Test Date:	2019-07-23
Note:	Antenna horizontal

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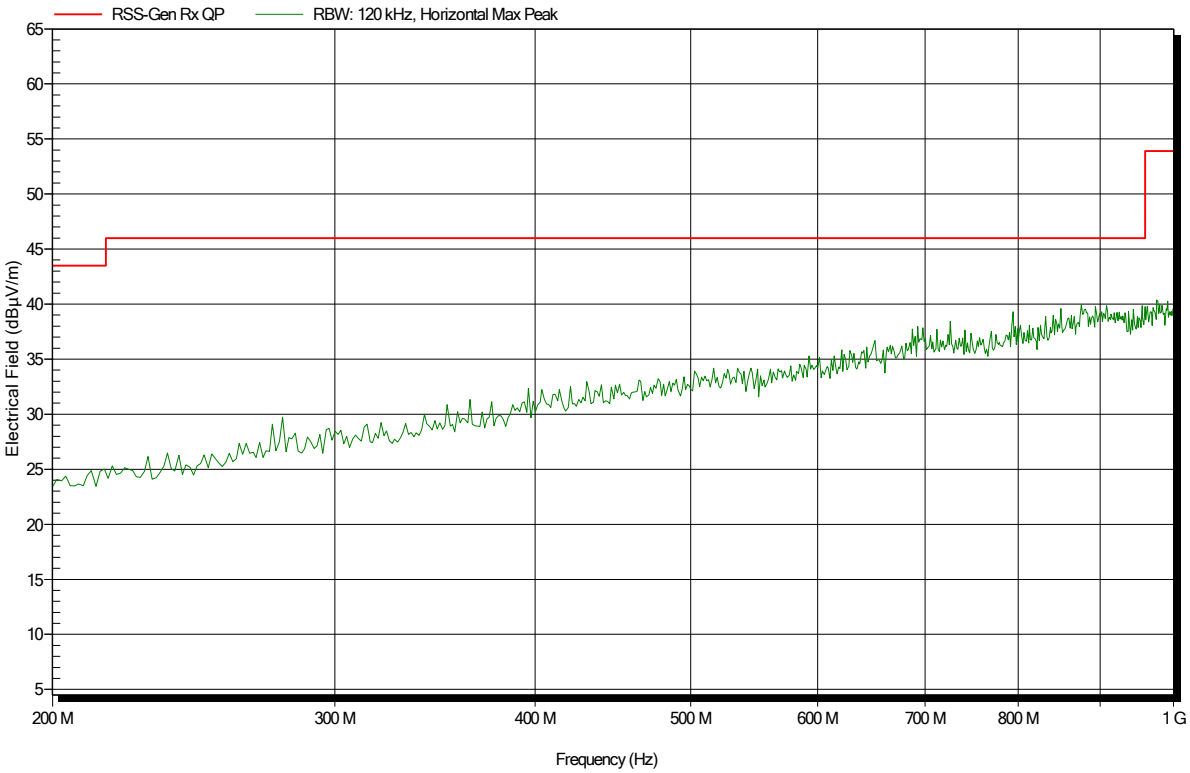

Spurious emissions according to ISED RSS-247 Issue 2 (February 2017)

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: 24°C, Vnom: 13.8VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	RX; CH6, Ant. hor.
Test Date:	2019-07-23
Note:	Antenna horizontal

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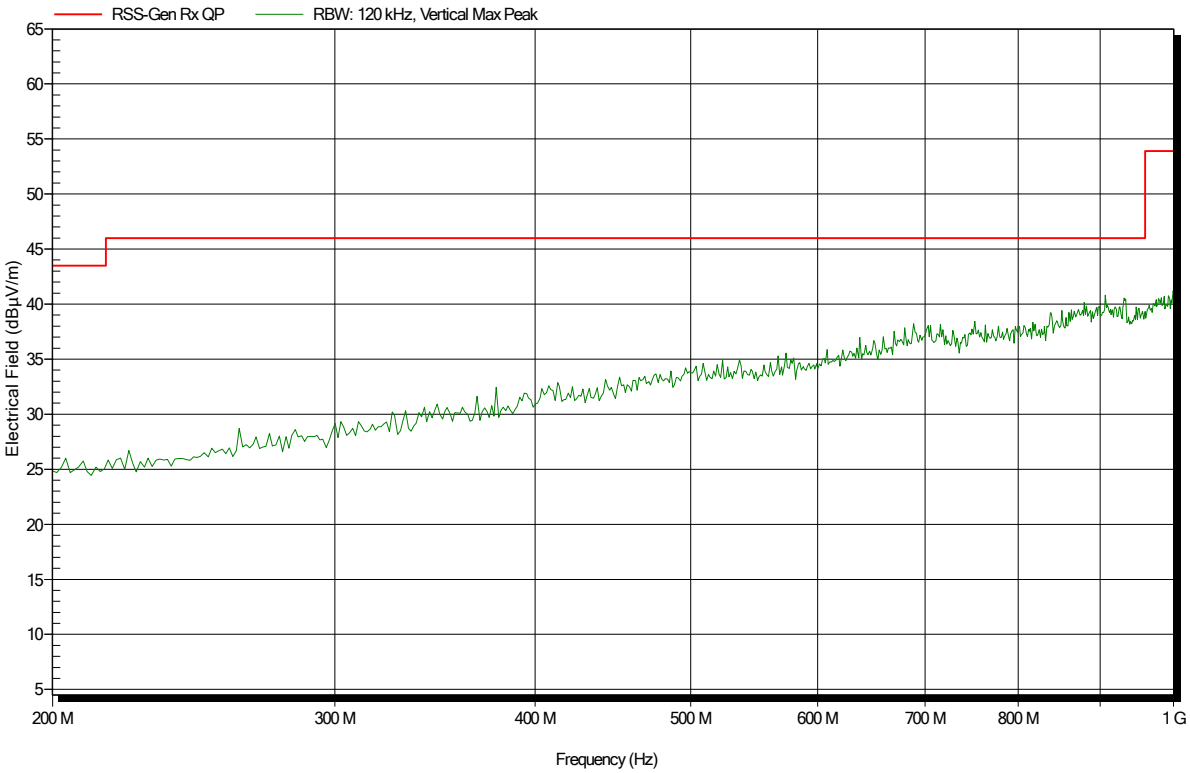
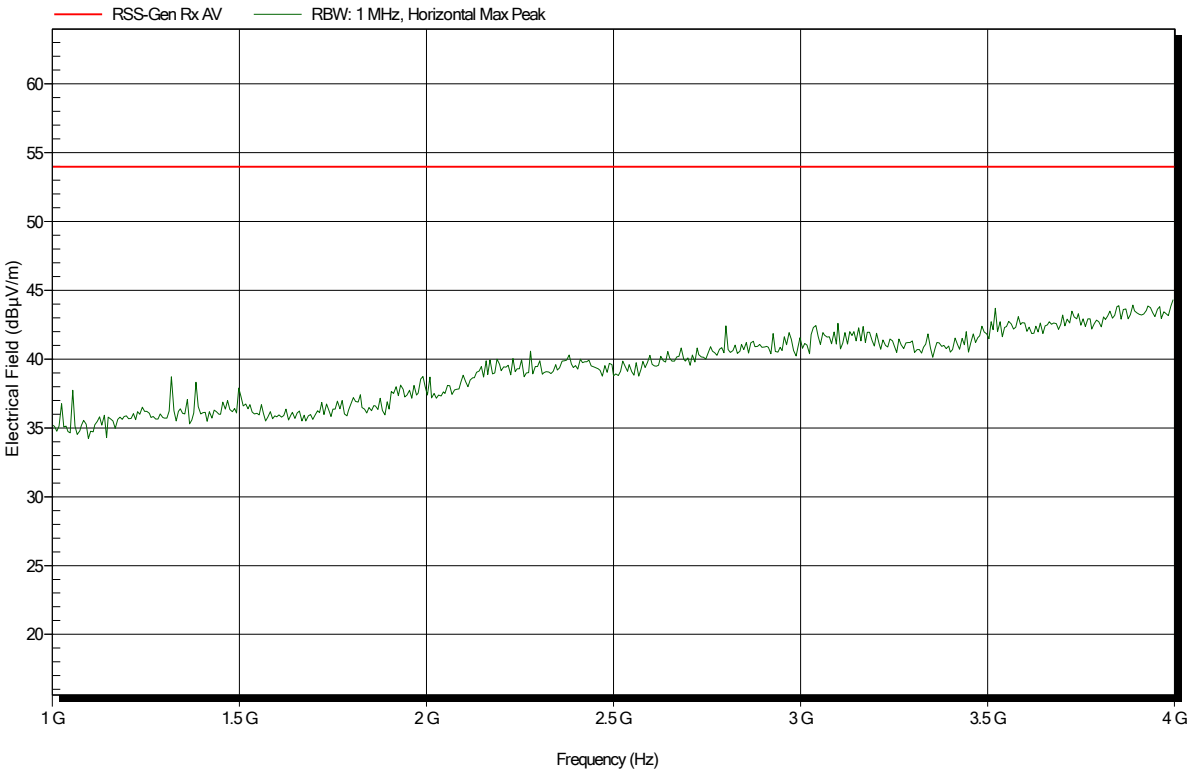


Spurious emissions according to ISED RSS-247 Issue 2 (February 2017)

Project number:	G0M-1901-8021
Applicant:	IAV automotive Engineering Inc.
EUT Name:	Telemetry Equipment
Model:	TDBOX2
Test Site:	Eurofins Product Service GmbH
Operator:	Abdullah Al Jamal
Test Conditions:	Tnom: 23.9°C, Vnom: 13.8 VDC (external battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	RX; CH6
Test Date:	2019-04-01
Note:	

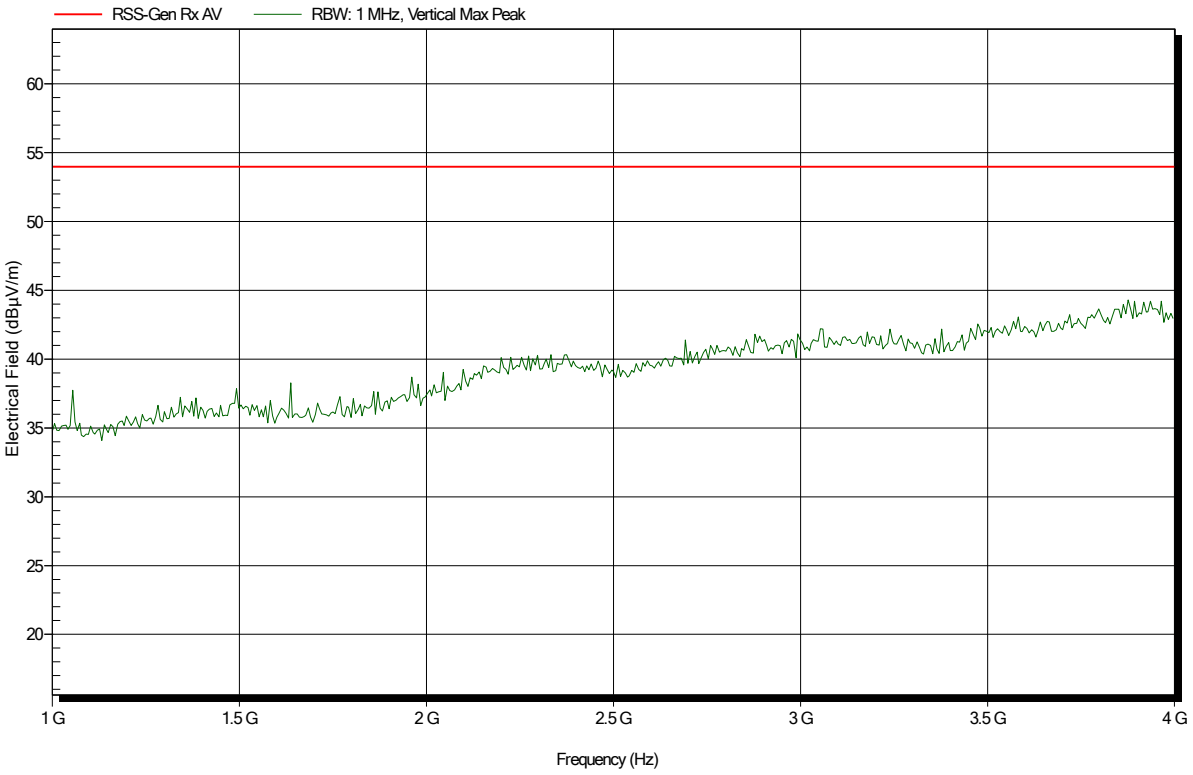
Index 1



Spurious emissions according to ISED RSS-247 Issue 2 (February 2017)

Project number:	G0M-1901-8021
Applicant:	IAV automotive Engineering Inc.
EUT Name:	Telemetry Equipment
Model:	TDBOX2
Test Site:	Eurofins Product Service GmbH
Operator:	Abdullah Al Jamal
Test Conditions:	Tnom: 23.9°C, Vnom: 13.8 VDC (external battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	RX; CH6
Test Date:	2019-04-01
Note:	

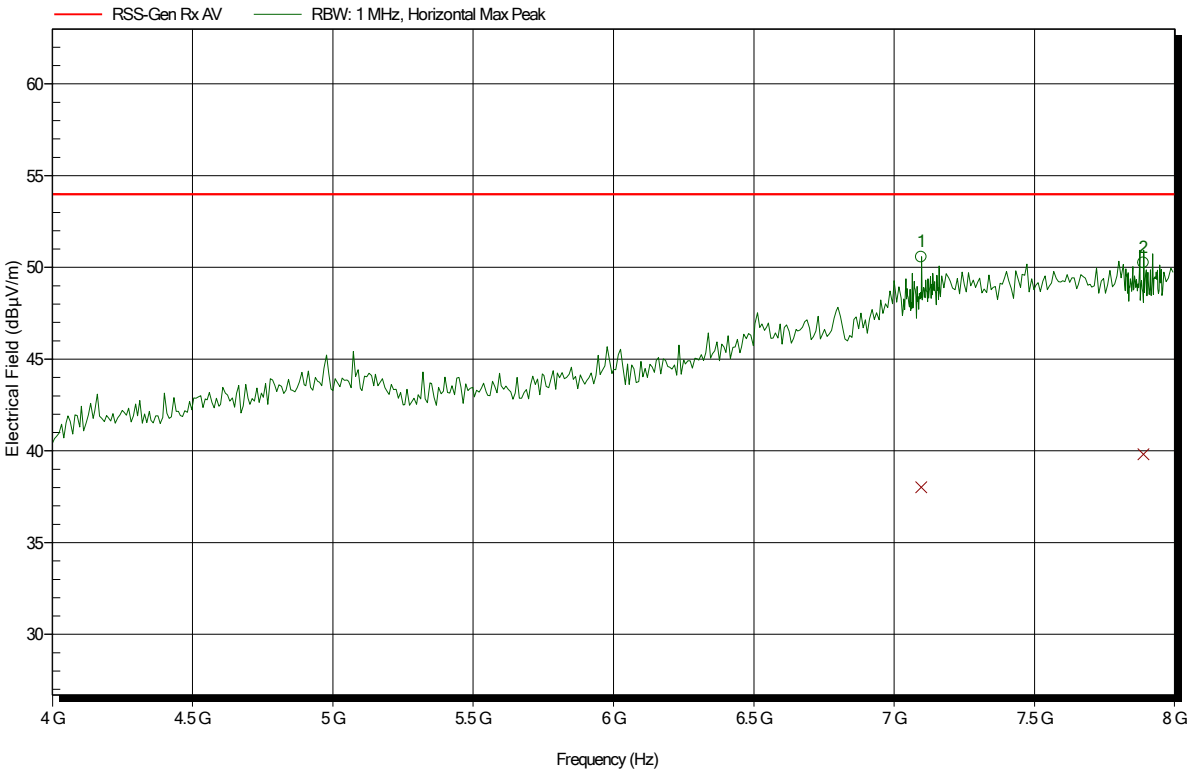
Index 4



Spurious emissions according to ISED RSS-247 Issue 2 (February 2017)

Project number:	G0M-1901-8021
Applicant:	IAV automotive Engineering Inc.
EUT Name:	Telemetry Equipment
Model:	TDBOX2
Test Site:	Eurofins Product Service GmbH
Operator:	Abdullah Al Jamal
Test Conditions:	Tnom: 23.9°C, Vnom: 13.8 VDC (external battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	RX; CH6
Test Date:	2019-04-01
Note:	

Index 2



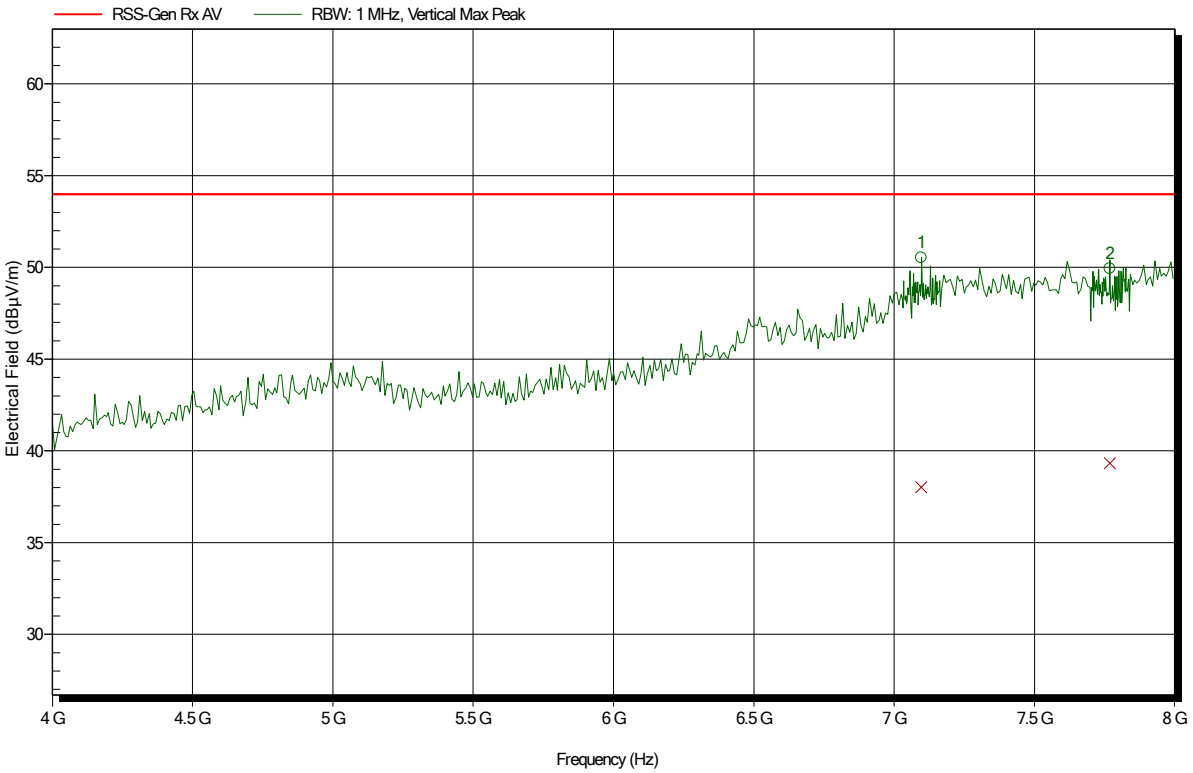
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.096 GHz	50.57 dBµV/m	53.98 dBµV/m	-3.41 dB	Pass
7.888 GHz	50.25 dBµV/m	53.98 dBµV/m	-3.73 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
7.096 GHz	38.02 dBµV/m	53.98 dBµV/m	-15.96 dB	Pass
7.888 GHz	39.82 dBµV/m	53.98 dBµV/m	-14.16 dB	Pass

Spurious emissions according to ISED RSS-247 Issue 2 (February 2017)

Project number:	G0M-1901-8021
Applicant:	IAV automotive Engineering Inc.
EUT Name:	Telemetry Equipment
Model:	TDBOX2
Test Site:	Eurofins Product Service GmbH
Operator:	Abdullah Al Jamal
Test Conditions:	Tnom: 23.9°C, Vnom: 13.8 VDC (external battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	RX; CH6
Test Date:	2019-04-01
Note:	

Index 3



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.096 GHz	50.53 dBµV/m	53.98 dBµV/m	-3.45 dB	Pass
7.768 GHz	49.93 dBµV/m	53.98 dBµV/m	-4.05 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
7.096 GHz	38.02 dBµV/m	53.98 dBµV/m	-15.96 dB	Pass
7.768 GHz	39.33 dBµV/m	53.98 dBµV/m	-14.65 dB	Pass

Spurious emissions according to ISED RSS-247 Issue 2 (February 2017)

Project number:	G0M-1901-8021
Applicant:	IAV automotive Engineering Inc.
EUT Name:	Telemetry Equipment
Model:	TDBOX2
Test Site:	Eurofins Product Service GmbH
Operator:	Abdullah Al Jamal
Test Conditions:	Tnom: 23.9°C, Vnom: 13.8 VDC (external battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	RX; CH6
Test Date:	2019-04-01
Note:	

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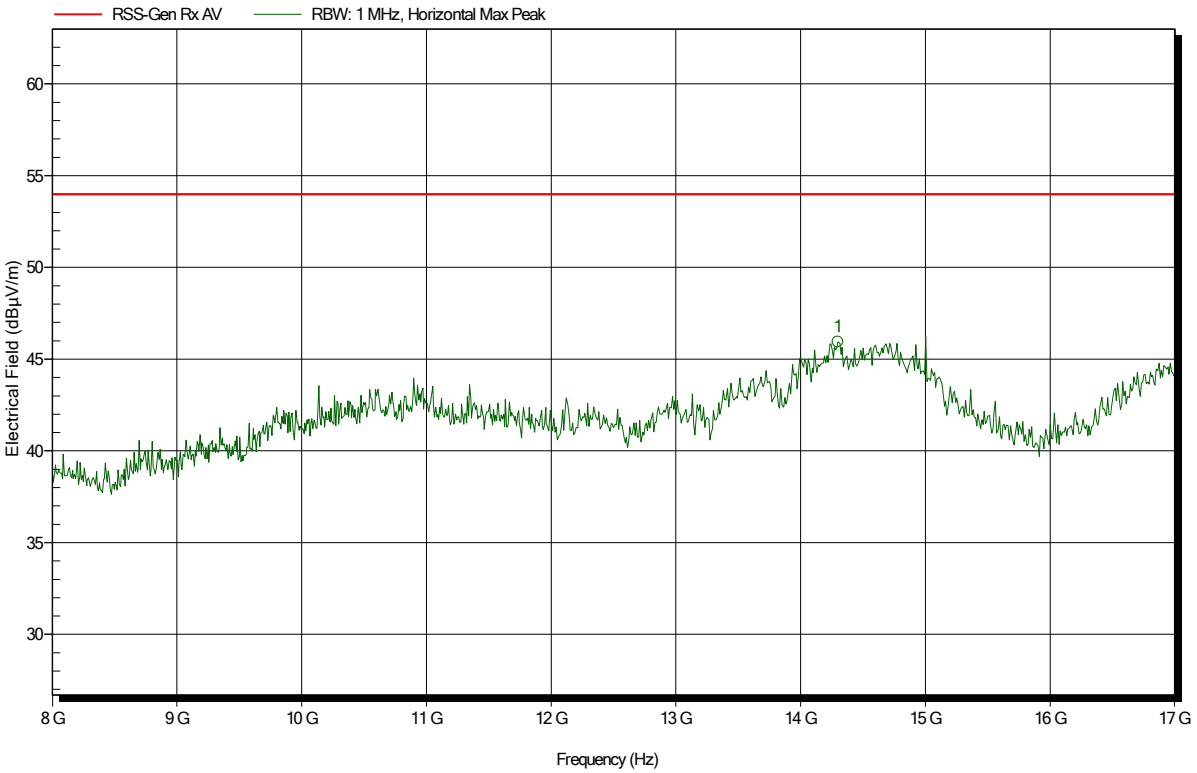
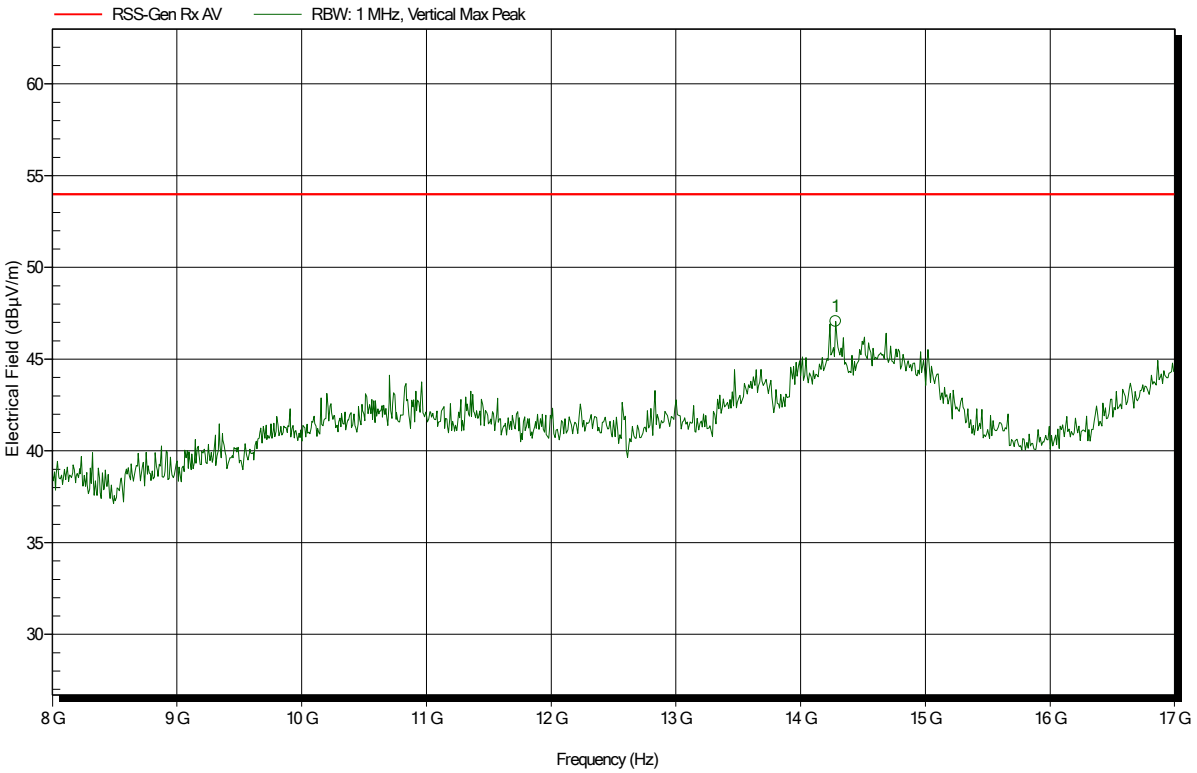


Frequency	Peak	Peak Limit	Peak Difference	Status
14.3 GHz	45.94 dBµV/m	53.98 dBµV/m	-8.04 dB	Pass

Spurious emissions according to ISED RSS-247 Issue 2 (February 2017)

Project number:	G0M-1901-8021
Applicant:	IAV automotive Engineering Inc.
EUT Name:	Telemetry Equipment
Model:	TDBOX2
Test Site:	Eurofins Product Service GmbH
Operator:	Abdullah Al Jamal
Test Conditions:	Tnom: 23.9°C, Vnom: 13.8 VDC (external battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	RX; CH6
Test Date:	2019-04-01
Note:	

Index 6



Frequency	Peak	Peak Limit	Peak Difference	Status
14.28 GHz	47.05 dBµV/m	53.98 dBµV/m	-6.93 dB	Pass