

RADIO REPORT FCC 47 CFR Part 22H, FCC 47 CFR Part 24E, FCC 47 CFR Part 27, FCC 47 CFR Part 90 ISED Canada RSS-132 Issue 3, ISED RSS-133, Issue 6 Amendment 1, ISED Canada RSS-139, Issue 3, ISED Canada RSS-199, Issue 3, ISED Canada RSS-130, Issue 2	
Report Reference No	G0M-2103-9644-TFCMOCORSE-V01
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 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 Michigan 48168 Northville United States
Test Specification	47 CFR Part 22H 47 CFR Part 24E 47 CFR Part 27 47 CFR Part 90 ISED RSS-132, Issue 3: 2013-01 ISED RSS-133, Issue 6+A1: 2018-01 ISED RSS-139, Issue 3: 2015-07 ISED RSS-199, Issue 3: 2016-12 ISED RSS-130, Issue 2: 2019-02
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	ECU Automotive Telemetry Reader
Model(s)	TDBOX2 LTE
Brand Name(s)	None
Hardware Version(s)	032
Software Version(s)	0305
FCC ID	2AS2J-G00057-02
IC	24891-G0005702
Test Result	PASSED

Test Report No.: G0M-2103-9644-TFCMOCORSE-V01

Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

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 °C – 23 °C	
Test Lab Humidity	32 % – 38 %	
Date of receipt of test item	2021-04-15 + 2021-06-03	
Report:		
Compiled by	Florian Voigt	
Tested by (+ signature) (Responsible for Test)	Florian Voigt	
Approved by (+ signature) (Deputy Head of Lab)	Toralf Jahn	
Date of Issue	2021-08-10	
Total number of pages	124	
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:		
Radiated transmitter tests below 1 GHz are tested with a different test sample (35441) than all other tests. Both samples have identical hardware according to a customer declaration.		

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2021-08-10	Initial Release	

ABBREVIATIONS AND ACRONYMS

Acronyms	
Acronym	Description
EUT	Equipment Under Test
FCC	Federal Communications Commission
ISED	Innovation, Science and Economic Development Canada
RBW	Resolution bandwidth
RMS	Root mean square
VBW	Video bandwidth
V _{NOM}	Nominal supply voltage

REPORT INDEX

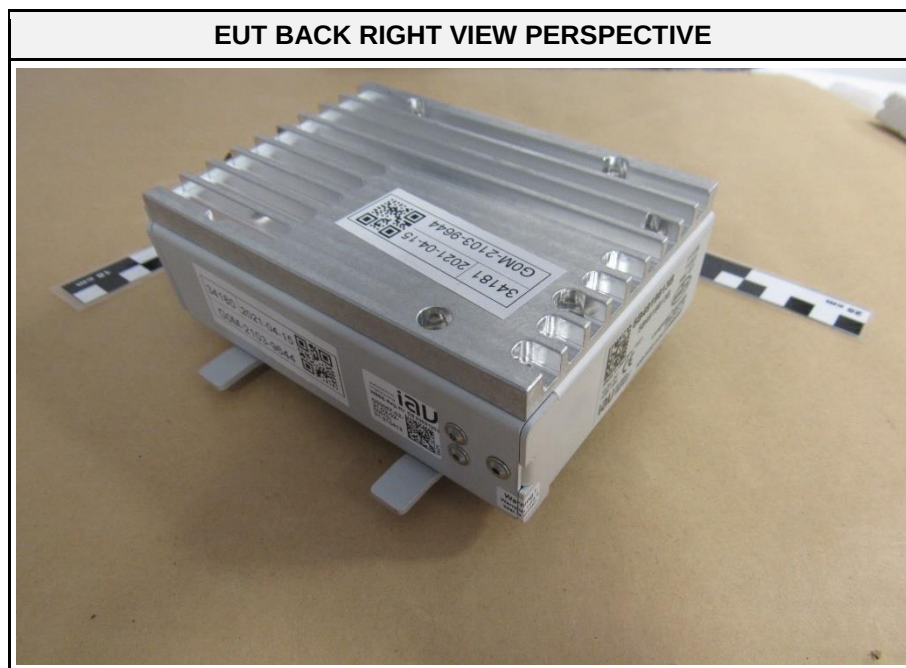
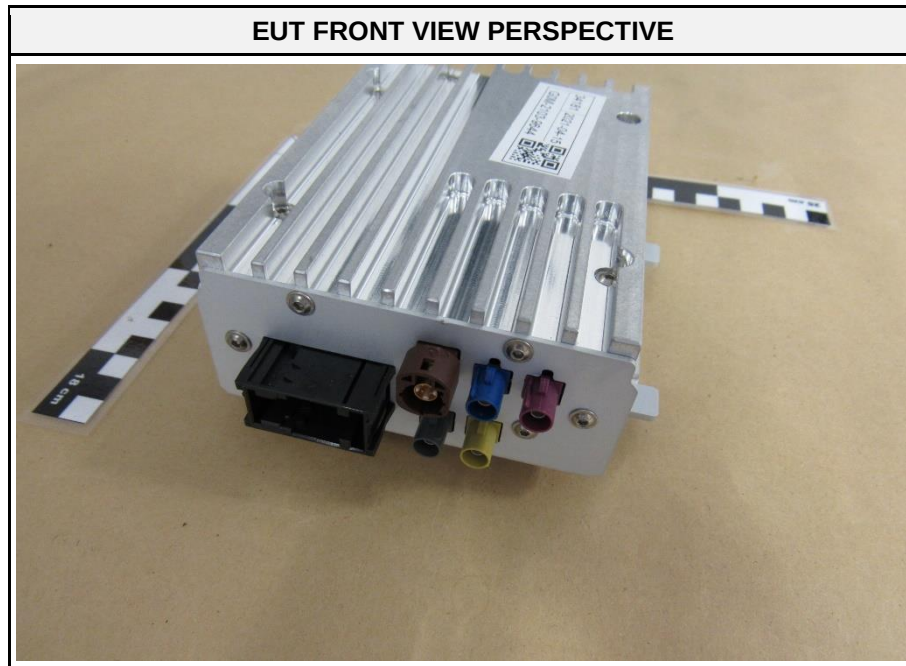
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1 Equipment (Test Item) Under Test

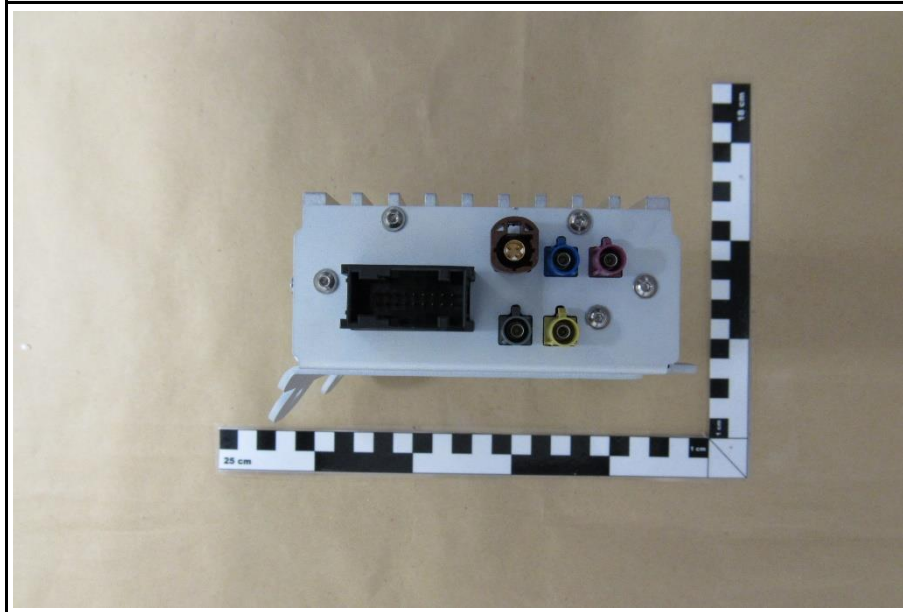
Description	ECU Automotive Telemetry Reader	
Model	TDBOX2 LTE	
Additional Model(s)	None	
Brand Name(s)	None	
Serial Number(s)	AAB-W0213.04.2100680009, AAB-W0217.06.2100400001	
Test Sample Id(s)	34175, 35441	
Hardware Version(s)	032	
Software Version(s)	0305	
PMN	TDBOX2 LTE	
HVIN	G00057-02	
FVIN	0305	
HMN	N/A	
IC	24891-G0005702	
FCC ID	2AS2J-G00057-02	
Equipment type	End Product	
Radio type	Transceiver	
Radio technologies	GSM, UMTS, LTE	
GSM frequency bands	GSM 850 : UL = 824 - 849 MHz DL = 869 – 894 MHz GSM 1900 : disabled	
GSM Modulations	GMSK, 8-PSK	
UMTS frequency bands	UMTS FDDII : UL = 1850 - 1910 MHz, DL = 1930 - 1990 MHz UMTS FDDIV : UL = 1710 - 1755 MHz, DL = 2110 - 2155 MHz UMTS FDDV : UL = 824 - 849 MHz, DL = 869 - 894 MHz	
UMTS Modulations	QPSK, 16-QAM	
LTE frequency bands	LTE FDD2 : UL = 1850 - 1910 MHz, DL = 1930 - 1990 MHz LTE FDD4 : UL = 1710 - 1755 MHz, DL = 2110 - 2155 MHz LTE FDD5 : UL = 824 - 849 MHz, DL = 869 - 894 MHz LTE FDD7 : UL = 2500 - 2570 MHz, DL = 2620 - 2690 MHz LTE FDD12 : UL = 699 - 716 MHz, DL = 729 - 746 MHz LTE FDD13 : UL = 777 - 787 MHz, DL = 746 - 756 MHz LTE FDD25 : UL = 1850 - 1915 MHz, DL = 1930 - 1995 MHz LTE FDD26 : UL = 814 - 849 MHz, DL = 859 - 894 MHz	
LTE Modulations	QPSK, 16-QAM	
Number of modules	1	
Radio Module	Type	LTE Cat.4 Modul with UMTS and GSM support
	Model	EG25-G
	Manufacturer	Quectel
	HW Version	R1.0
	SW Version	FW: EG25GGBR07A08M2G / Appl: 01.003.01.003
	FCC-ID	XMR201903EG25G
	IC	10224A-201903EG25G
Antennas (Main + Diversity)	Type	External antenna
	Model	Bugatti: 5B4.035.500.A Laird Technologies / Molex: 6 58 01
	Manufacturer	Laird Technologies / Molex
	Gain	698-960 MHz: 3.9 dBi 1427-1511 MHz: 2.7 dBi 1710-2170 MHz: 6.9 dBi 2300-2690 MHz: 5.4 dBi

Supply Voltage	V _{NOM}	13.8 VDC
AC/DC-Adaptor	None	
Manufacturer	IAV GmbH Carnotstraße 1 10587 Berlin GERMANY	

1.1 Photos – Equipment External



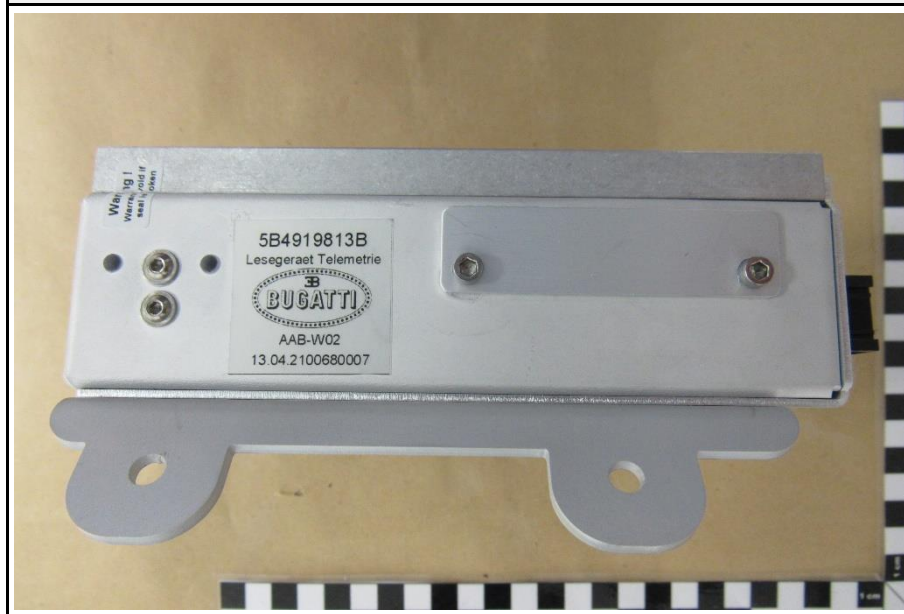
EUT FRONT SIDE VIEW



EUT BACK SIDE VIEW



EUT LEFT SIDE VIEW



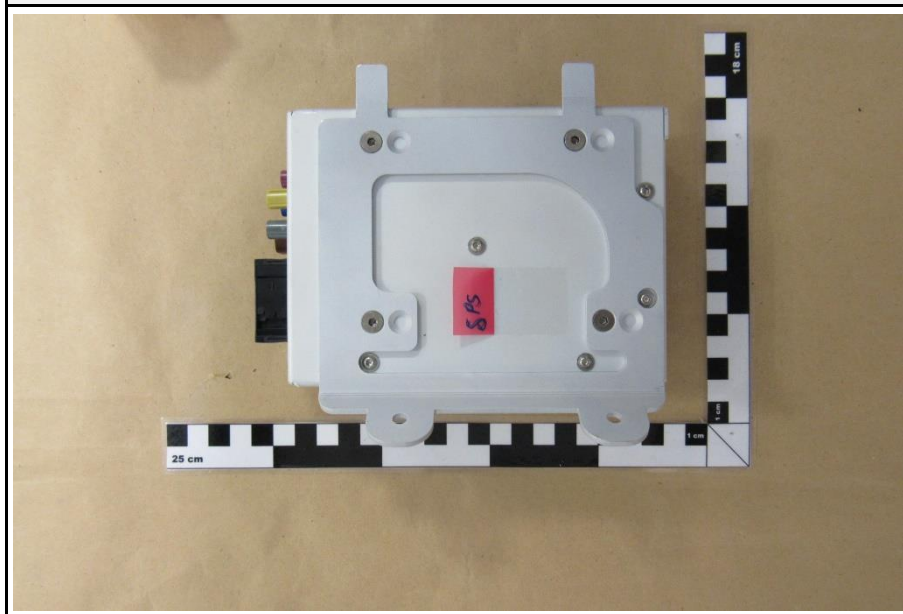
EUT RIGHT SIDE VIEW



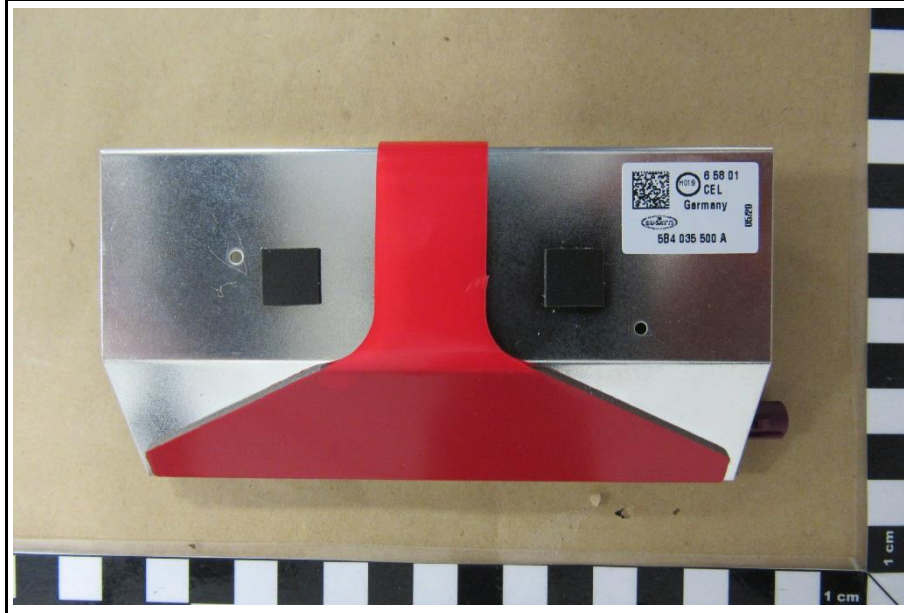
EUT TOP VIEW



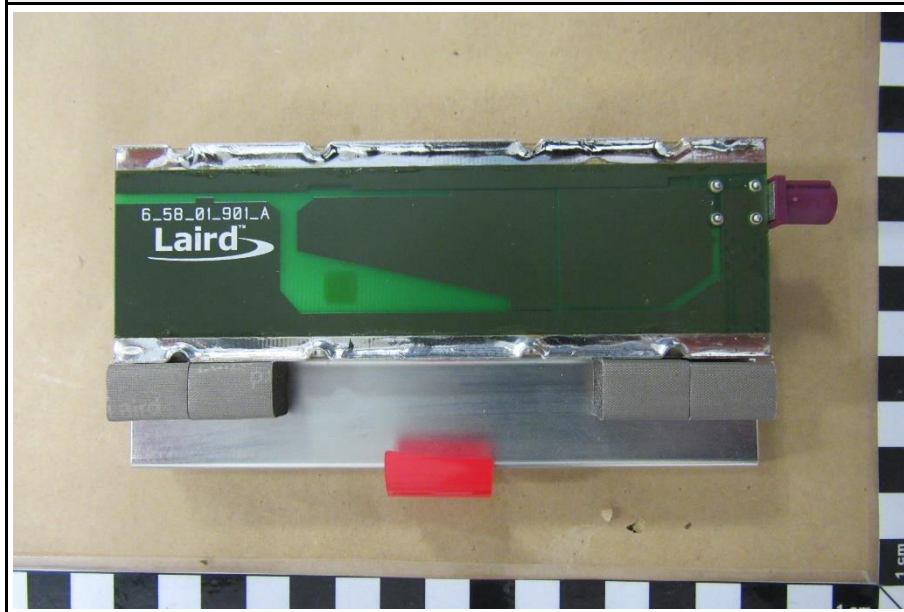
EUT BOTTOM SIDE VIEW



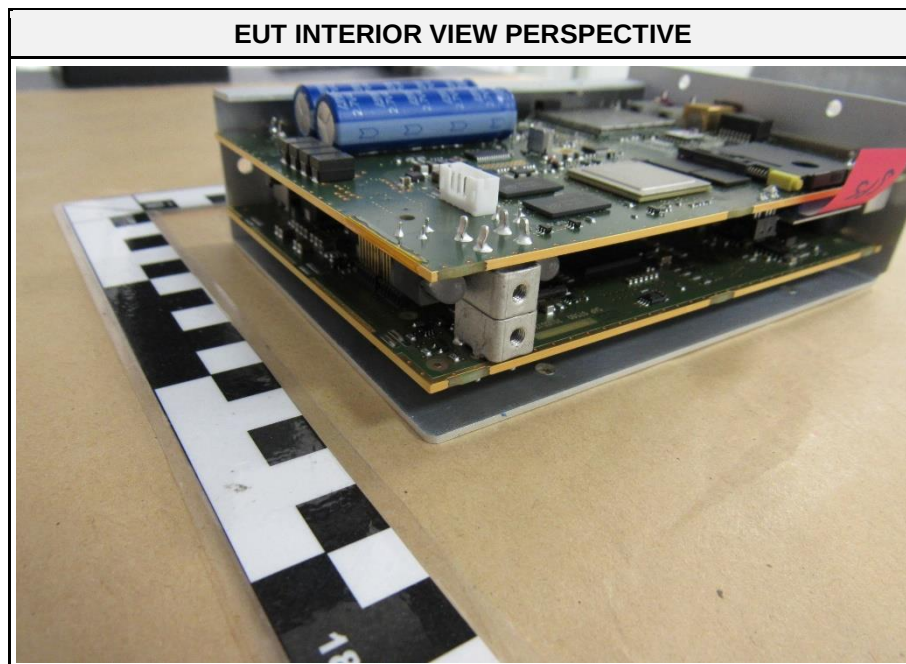
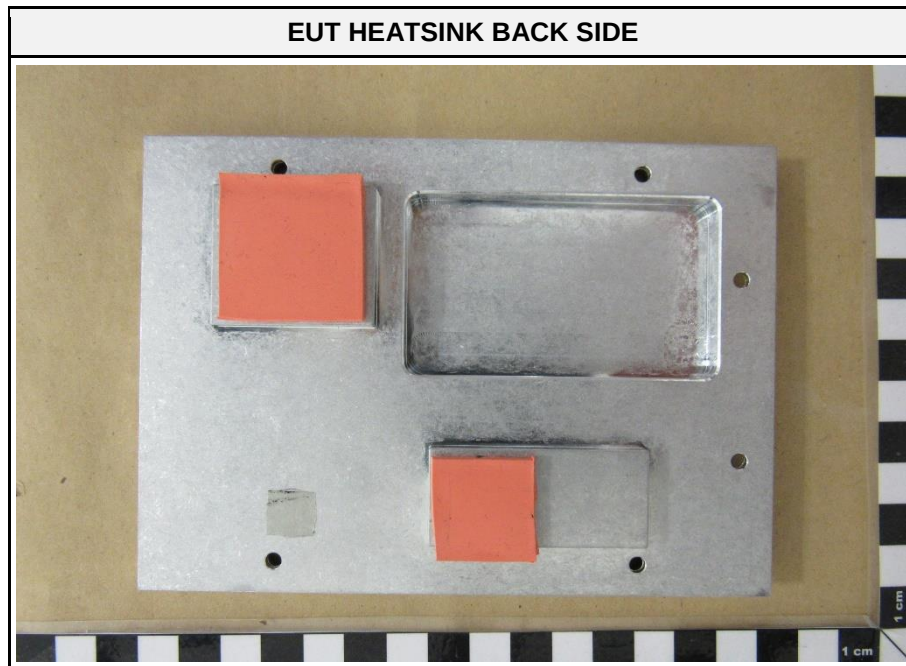
AE: LTE antenna front



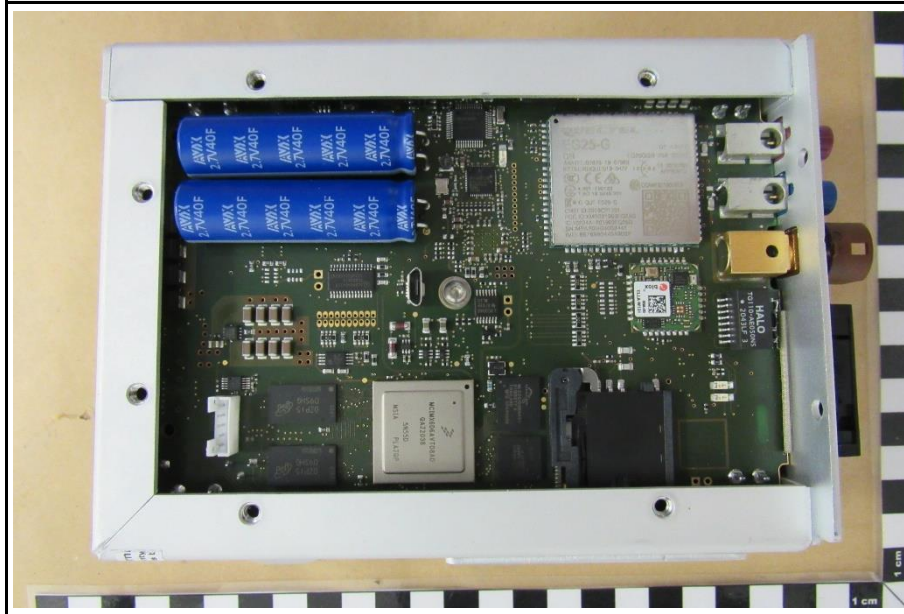
AE: LTE antenna back



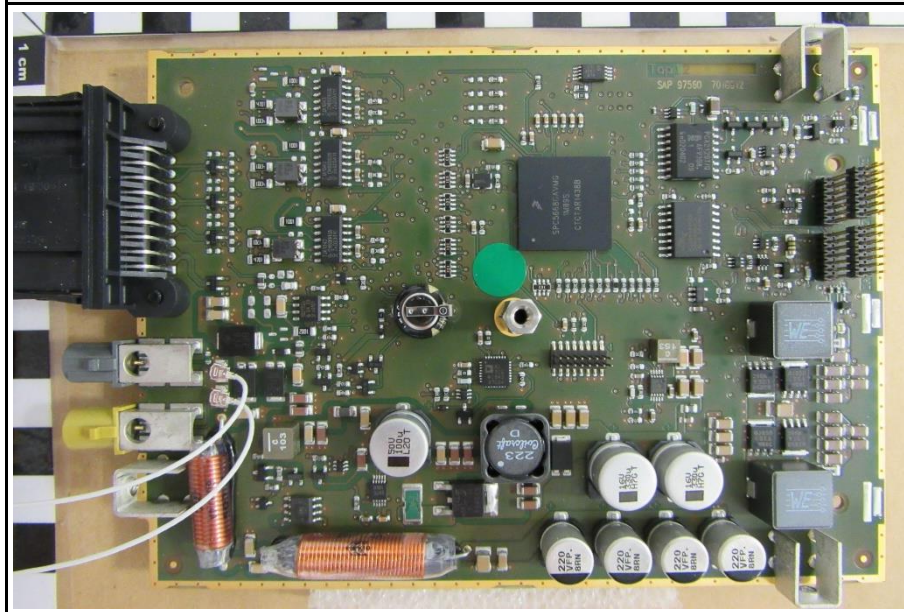
1.2 Photos – Equipment Internal



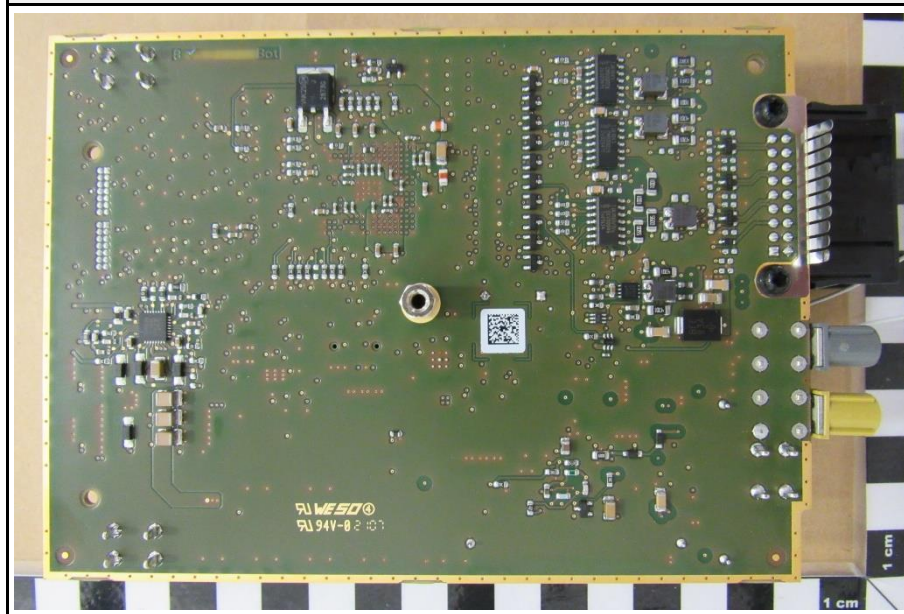
EUT INTERIOR VIEW



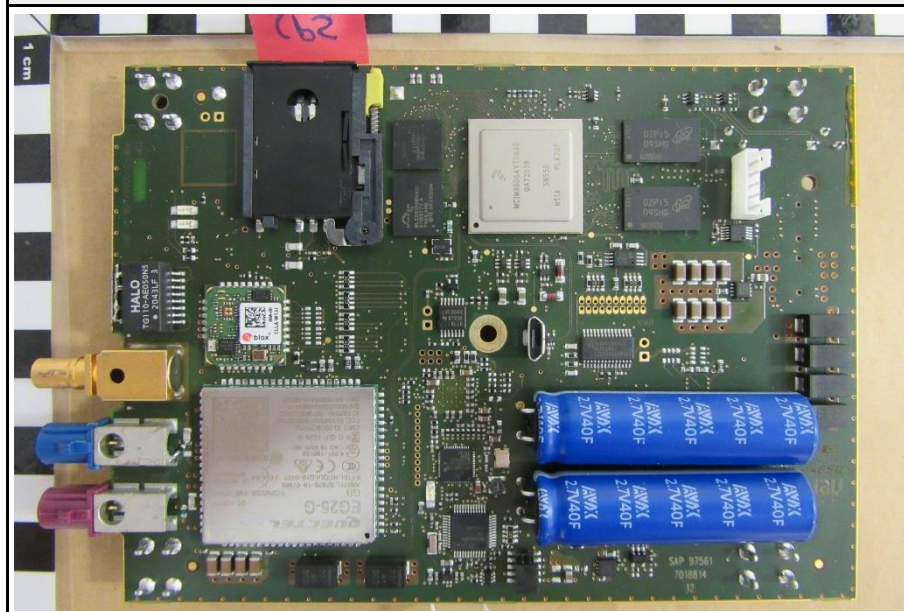
LOWER PCB TOP SIDE



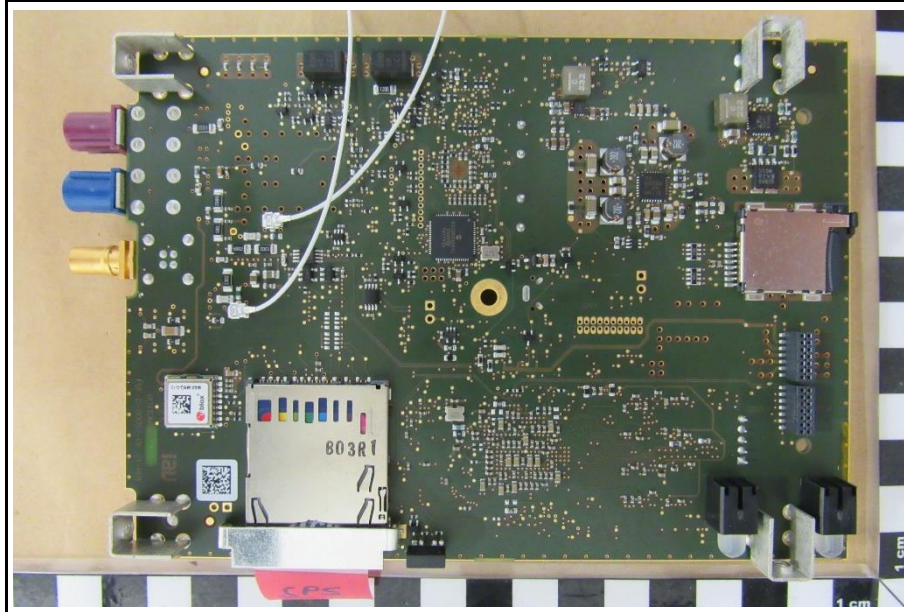
LOWER PCB BOTTOM SIDE



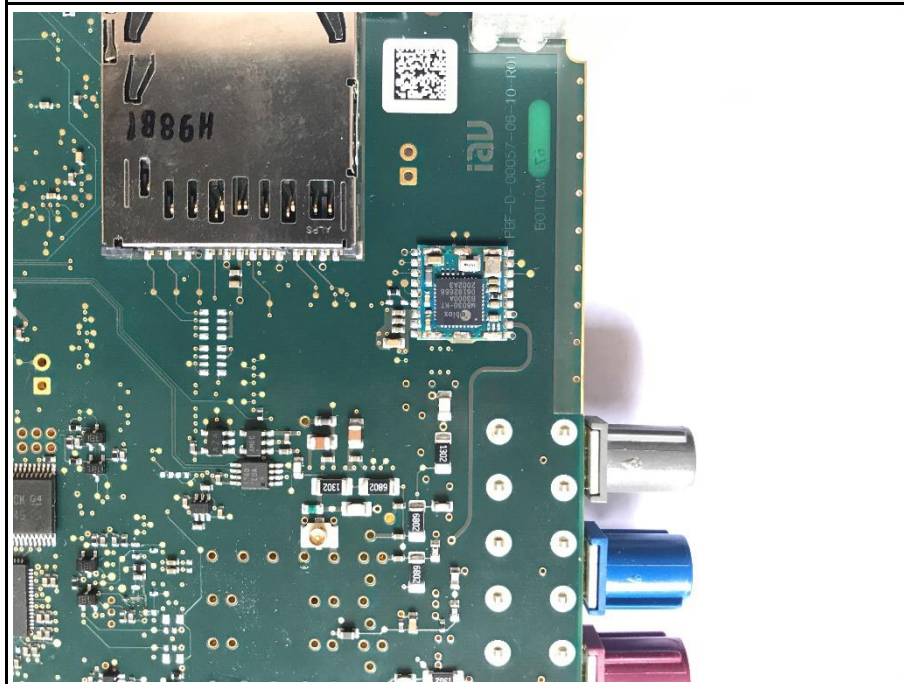
UPPER PCB TOP SIDE



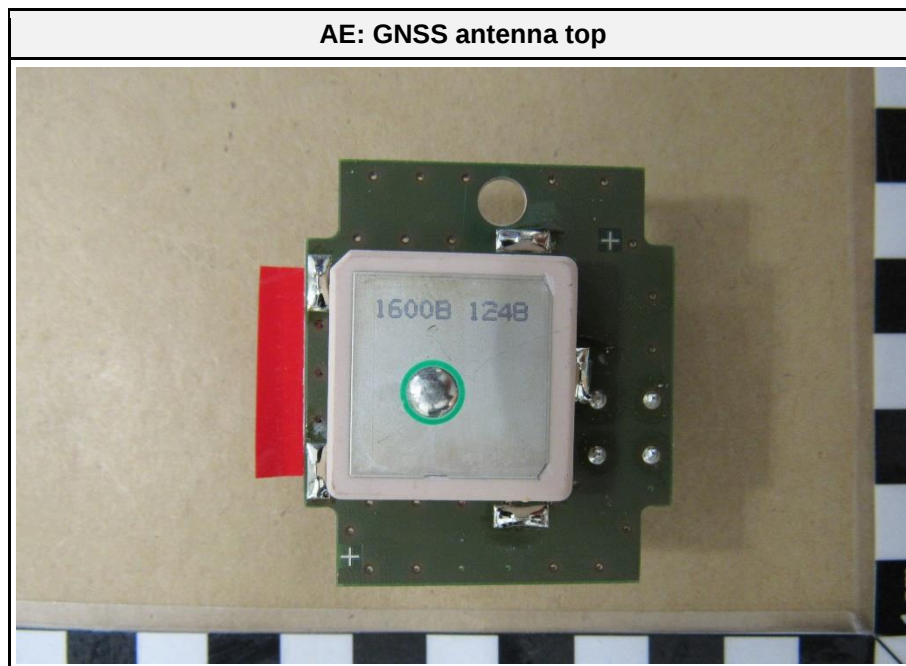
UPPER PCB BOTTOM SIDE



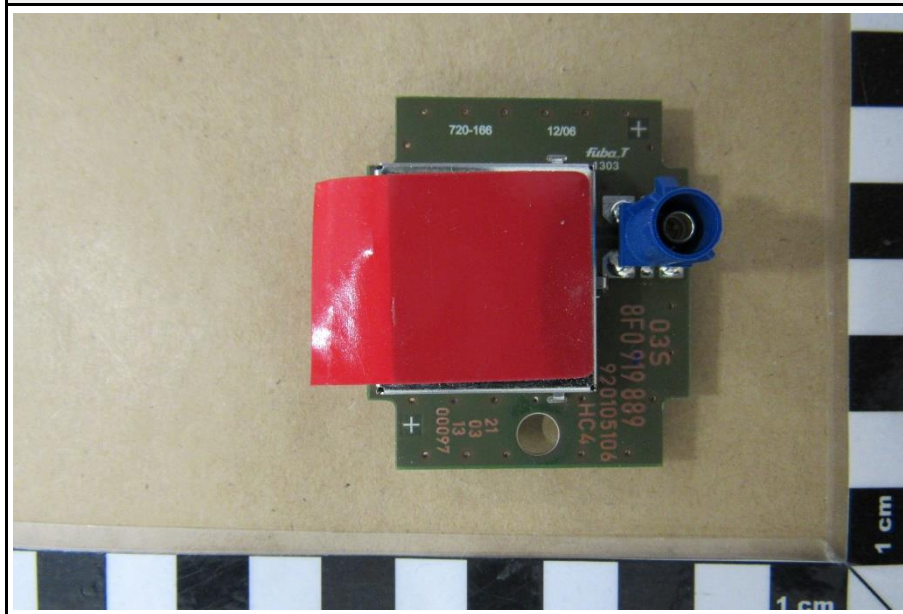
GNSS MODULE PCB TOP VIEW (Customer provided)



1.3 Photos – Ancillary Equipment



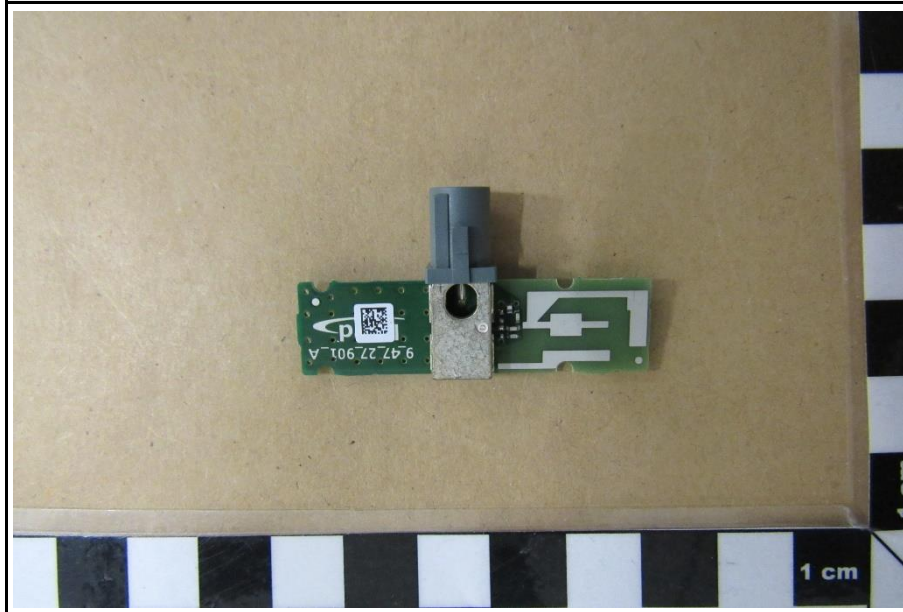
AE: GNSS antenna bottom



AE: WiFi antenna front



AE: WiFi antenna PCB top



AE: Power and CAN cable



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1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
SIM	Communication Tester	R&S	CMW500	Base Station Simulator
SIM	Communication Tester	R&S	CMW290	Base Station Simulator
AE	WiFi Antenna	Molex	9 58 02	
AE	GPS Antenna	Continental	52510720	
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
SFT	Software			
Comment:				

1.5 Test Modes

Mode	Description
GSM850 / GMSK	Channel = 190 Mode = Transmit Power = Maximum Modulation = GMSK Number of time slots = 1 Duty cycle = 12.5 %
GSM850 / 8-PSK	Channel = 190 Mode = Transmit Power = Maximum Modulation = 8-PSK Number of time slots = 1 Duty cycle = 12.5 %
UMTS FDDII / QPSK	Channel = 9262 Mode = RMC TPC = All 1 Modulation = QPSK Duty cycle = 100 %
UMTS FDDIV / QPSK	Channel = 1312 Mode = RMC TPC = All 1 Modulation = QPSK Duty cycle = 100 %
UMTS FDDV / QPSK	Channel = 4132 Mode = RMC TPC = All 1 Modulation = QPSK Duty cycle = 100 %
LTE FDD2 / QPSK	Channel = 18900 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 20 MHz Number of resource blocks = 1 Resource block offset = 49 Duty cycle = 100 %
LTE FDD2 / QAM	Channel = 18700 Mode = RMC TPC = All 1 Modulation = 16-QAM Bandwidth = 20 MHz Number of resource blocks = 1 Resource block offset = 99 Duty cycle = 100 %
LTE FDD2 / PMAx	Channel = 18900 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 20 MHz Number of resource blocks = 1 Resource block offset = 49 Duty cycle = 100 %

LTE FDD4 / QPSK	Channel = 20175 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 20 MHz Number of resource blocks = 1 Resource block offset = 49 Duty cycle = 89 %
LTE FDD4 / QAM	Channel = 20050 Mode = RMC TPC = All 1 Modulation = 16-QAM Bandwidth = 20 MHz Number of resource blocks = 1 Resource block offset = 49 Duty cycle = 100 %
LTE FDD4 / PMAX	Channel = 20175 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 20 MHz Number of resource blocks = 1 Resource block offset = 49 Duty cycle = 89 %
LTE FDD5 / QPSK	Channel = 20525 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 10 MHz Number of resource blocks = 1 Resource block offset = 24 Duty cycle = 100 %
LTE FDD5 / QAM	Channel = 20600 Mode = RMC TPC = All 1 Modulation = 16-QAM Bandwidth = 10 MHz Number of resource blocks = 1 Resource block offset = 0 Duty cycle = 100 %
LTE FDD5 / PMAX	Channel = 20525 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 10 MHz Number of resource blocks = 1 Resource block offset = 24 Duty cycle = 100 %
LTE FDD7 / QPSK	Channel = 21350 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 20 MHz Number of resource blocks = 1 Resource block offset = 49 Duty cycle = 100 %

LTE FDD7 / QAM	Channel = 21100 Mode = RMC TPC = All 1 Modulation = 16-QAM Bandwidth = 20 MHz Number of resource blocks = 1 Resource block offset = 49 Duty cycle = 100 %
LTE FDD7 / PMAX	Channel = 21350 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 20 MHz Number of resource blocks = 1 Resource block offset = 49 Duty cycle = 100 %
LTE FDD12 / QPSK	Channel = 23095 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 10 MHz Number of resource blocks = 1 Resource block offset = 24 Duty cycle = 100 %
LTE FDD12 / QAM	Channel = 23095 Mode = RMC TPC = All 1 Modulation = 16-QAM Bandwidth = 10 MHz Number of resource blocks = 1 Resource block offset = 24 Duty cycle = 100 %
LTE FDD12 / PMAX	Channel = 23095 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 10 MHz Number of resource blocks = 1 Resource block offset = 24 Duty cycle = 100 %
LTE FDD13 / QPSK	Channel = 23230 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 10 MHz Number of resource blocks = 1 Resource block offset = 24 Duty cycle = 100 %
LTE FDD13 / QAM	Channel = 23230 Mode = RMC TPC = All 1 Modulation = 16-QAM Bandwidth = 10 MHz Number of resource blocks = 1 Resource block offset = 24 Duty cycle = 100 %

LTE FDD13 / PMAx	Channel = 23255 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 5 MHz Number of resource blocks = 1 Resource block offset = 12 Duty cycle = 100 %
LTE FDD25 / QPSK	Channel = 26590 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 20 MHz Number of resource blocks = 50 Resource block offset = 0 Duty cycle = 100 %
LTE FDD25 / QAM	Channel = 26365 Mode = RMC TPC = All 1 Modulation = 16-QAM Bandwidth = 20 MHz Number of resource blocks = 1 Resource block offset = 49 Duty cycle = 100 %
LTE FDD25 / PMAx	Channel = 26640 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 10 MHz Number of resource blocks = 1 Resource block offset = 24 Duty cycle = 100 %
LTE FDD26L / QPSK	Channel = 26740 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 10 MHz Number of resource blocks = 1 Resource block offset = 24 Duty cycle = 100 %
LTE FDD26L / QAM	Channel = 26740 Mode = RMC TPC = All 1 Modulation = 16-QAM Bandwidth = 10 MHz Number of resource blocks = 1 Resource block offset = 24 Duty cycle = 100 %
LTE FDD26L / PMAx	Channel = 26740 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 1.4 MHz Number of resource blocks = 3 Resource block offset = 3 Duty cycle = 100 %

LTE FDD26H / QPSK	Channel = 26865 Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 15 MHz Number of resource blocks = 1 Resource block offset = 38 Duty cycle = 100 %
LTE FDD26H / QAM	Channel = 26915 Mode = RMC TPC = All 1 Modulation = 16-QAM Bandwidth = 15 MHz Number of resource blocks = 1 Resource block offset = 38 Duty cycle = 100 %
LTE FDD26H / PMAX	Channel = 26990 Mode = RMC TPC = All 1 Modulation = 16-QAM Bandwidth = 10 MHz Number of resource blocks = 1 Resource block offset = 24 Duty cycle = 100 %
Comment: Above worst case scenarios were found in module grant and associated test report: HR/2019/1001601, 2019/2/28 issued by SGS-CSTC Standards Technical Services Co., Ltd.	

1.6 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:

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

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 = 47.5 dBμV/m	:	47.5 dBμV/m	- 57.0 dBμV/m	= -9.5 dB

2 Result Summary

Test Summary)				
Product Standard Reference	Requirement	Reference Method	Result	Remarks
47 CFR §22.913 47 CFR §24.232 47 CFR §27.50 47 CFR §90.635 ISED RSS-132 §5.4 ISED RSS-133 §6.4 ISED RSS-139 §6.5 ISED RSS-199 §4.4 ISED RSS-130 §4.6	Radiated power	ANSI C63.26 KDB 971168	PASS	
47 CFR §22.917 47 CFR §24.238 47 CFR §27.53 47 CFR §90.691 ISED RSS-132 §5.5 ISED RSS-133 §6.5 ISED RSS-139 §6.6 ISED RSS-199 §4.5 ISED RSS-130 §4.7	Transmitter conducted emissions	ANSI C63.26 KDB 971168	PASS	
47 CFR §22.917 47 CFR §24.238 47 CFR §27.53 47 CFR §90.691 ISED RSS-132 §5.5 ISED RSS-133 §6.5 ISED RSS-139 §6.6 ISED RSS-199 §4.5 ISED RSS-130 §4.7	Transmitter radiated emissions	ANSI C63.26 KDB 971168	PASS	
ISED RSS-132 §3.1 ISED RSS-133 §3.1 ISED RSS-139 §3.1 ISED RSS-199 §3 ISED RSS-130 §3.3 ISED RSS-Gen §7	Receiver radiated emissions	ANSI C63.4	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 - Radiated power

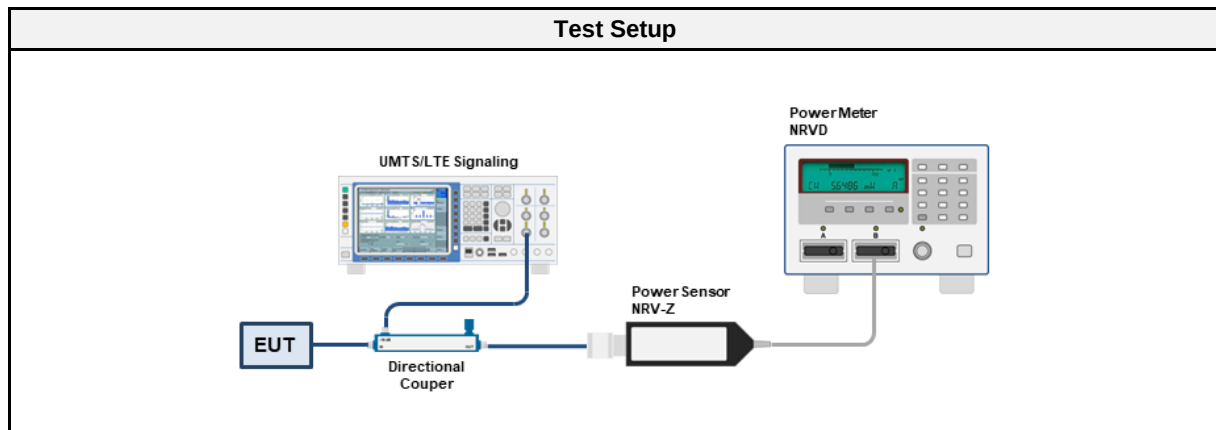
3.1.1 Information

Test Information	
Reference	47 CFR §22.913 47 CFR §24.232 47 CFR §27.50 47 CFR §90.635 ISED RSS-132 §5.4 ISED RSS-133 §6.4 ISED RSS-139 §6.5 ISED RSS-199 §4.4 ISED RSS-130 §4.6
Operator	Florian Voigt
Measurement Uncertainty	± 1.59 dB
Measurement Method	FCC KDB 971168 D01 V03r01 Section 5 ANSI C63.26-2015 5.2.4.2
Date	2021-07-29 + 2021-08-10
Comment: Most results are calculations based on modular approval report, some results are measured	

3.1.2 Limits

Limits - Portable equipment					
Band	Frequency range [MHz]	Power limit [dBm ERP]	Power limit [W ERP]	Power limit [dBm EIRP]	Power limit [W EIRP]
GSM850	824 - 849	38.45	7	40.6	11.5
UMTS FDDII	1850 - 1910	30.85	1.22	33	2
UMTS FDDIV	1710 - 1780	27.85	0.61	30	1
UMTS FDDV	824 - 849	38.45	7	40.6	11.5
LTE FDD2	1850 - 1910	30.85	1.22	33	2
LTE FDD4	1710 - 1780	27.85	0.61	30	1
LTE FDD5	824 - 849	38.45	7	40.6	11.5
LTE FDD7	2500 - 2570	30.85	1.22	33	2
LTE FDD12	699 - 716	34.77	3	36.92	4.92
LTE FDD13	777 - 787	34.77	3	36.92	4.92
LTE FDD25	1850 - 1915	30.85	1.22	33	2
LTE FDD26	814 - 824	50.00	100	52.15	164.05
LTE FDD26	824 - 849	38.45	7	40.6	11.5

3.1.3 Setup



3.1.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Cable	Huber+Suhner	Sucoflex 100	EF00779 CAABQ	2020-12	2021-12
Cable	Gigalane	1536	EF00779 CAAAS	2020-12	2021-12
Attenuator 10dB 18GHz 10W	Radiall GmbH	R416010000	EF01013	2020-08	2021-08
Dual directional coupler	Krytar	1850	EF01539	2021-07	2022-07
Power sensor	R&S	NRV-Z55	EF00070	2019-11	2021-11
Power meter	R&S	NRVD	EF00157	2019-07	2021-07

3.1.5 Procedure

Test Procedure - Calculation	
1.	The highest conducted output power for each radio technology, band, modulation and bandwidth is determined from the modular approval report
2.	The antenna gain for the corresponding transmission frequency is added to the conducted output power
3.	The calculated radiated power is compared to the transmitter output power limit

Test Procedure - Measurement	
1.	The highest conducted output power for each radio technology, band, modulation and bandwidth is determined from the modular approval test report
2.	The basestation simulator is set to the settings corresponding to the maximum output power in the modular approval test report.
3.	Conducted output power is determined with a power averaging powermeter.
4.	The antenna gain for the corresponding transmission frequency is added to the conducted output power
5.	The calculated radiated power is compared to the transmitter output power limit

3.1.6 Results

Test Results - GSM850						
Mode	Power [dBm]	Antenna gain [dBi]	Radiated power [dBm EIRP]	Limit [dBm EIRP]	Margin [dB]	Result
GSM850 / GMSK	32.53	3.9	36.43	40.6	-04.17	PASS
GSM850 / 8-PSK	26.67	3.9	30.57	40.6	-10.03	PASS

Test Results - UMTS FDDII						
Mode	Power [dBm]	Antenna gain [dBi]	Radiated power [dBm EIRP]	Limit [dBm EIRP]	Margin [dB]	Result
UMTS FDDII / QPSK	23.88	6.9	30.78	33	-02.22	PASS

Test Results - UMTS FDDIV						
Mode	Power [dBm]	Antenna gain [dBi]	Radiated power [dBm EIRP]	Limit [dBm EIRP]	Margin [dB]	Result
UMTS FDDIV / QPSK	17.0 *1	6.9	23.9	30	-06.10	PASS

Test Results - UMTS FDDV						
Mode	Power [dBm]	Antenna gain [dBi]	Radiated power [dBm EIRP]	Limit [dBm EIRP]	Margin [dB]	Result
UMTS FDDV / QPSK	23.86	3.9	27.76	40.6	-12.84	PASS

Test Results - LTE FDD2						
Mode	Power [dBm]	Antenna gain [dBi]	Radiated power [dBm EIRP]	Limit [dBm EIRP]	Margin [dB]	Result
LTE FDD2 / PMAX	24.64	6.9	31.54	33	-01.46	PASS
LTE FDD2 / QPSK	24.64	6.9	31.54	33	-01.46	PASS
LTE FDD2 / QAM	21.95	6.9	28.85	33	-04.15	PASS

Test Results - LTE FDD4						
Mode	Power [dBm]	Antenna gain [dBi]	Radiated power [dBm EIRP]	Limit [dBm EIRP]	Margin [dB]	Result
LTE FDD4 / PMAX	16.1 *1*2	6.9	22.5	30	-07.50	PASS
LTE FDD4 / QPSK	16.1 *1*2	6.9	22.5	30	-07.50	PASS
LTE FDD4 / QAM	22.17	6.9	29.07	30	-00.93	PASS

Test Results - LTE FDD5						
Mode	Power [dBm]	Antenna gain [dBi]	Radiated power [dBm EIRP]	Limit [dBm EIRP]	Margin [dB]	Result
LTE FDD5 / PMAX	24.00	3.9	27.90	40.6	-12.70	PASS
LTE FDD5 / QPSK	24.00	3.9	27.90	40.6	-12.70	PASS
LTE FDD5 / QAM	22.17	3.9	26.07	40.6	-14.53	PASS

Test Results - LTE FDD7						
Mode	Power [dBm]	Antenna gain [dBi]	Radiated power [dBm EIRP]	Limit [dBm EIRP]	Margin [dB]	Result
LTE FDD7 / PMAX	23.87	5.4	29.27	33	-03.73	PASS
LTE FDD7 / QPSK	23.87	5.4	29.27	33	-03.73	PASS
LTE FDD7 / QAM	22.02	5.4	27.42	33	-05.58	PASS

Test Results - LTE FDD12						
Mode	Power [dBm]	Antenna gain [dBi]	Radiated power [dBm EIRP]	Limit [dBm EIRP]	Margin [dB]	Result
LTE FDD12 / PMAX	24.30	3.9	28.20	36.92	-08.72	PASS
LTE FDD12 / PMAX	24.30	3.9	28.20	36.92	-08.72	PASS
LTE FDD12 / QAM	22.28	3.9	26.18	36.92	-10.74	PASS

Test Results - LTE FDD13						
Mode	Power [dBm]	Antenna gain [dBi]	Radiated power [dBm EIRP]	Limit [dBm EIRP]	Margin [dB]	Result
LTE FDD13 / PMAX	24.13	3.9	28.03	36.92	-08.89	PASS
LTE FDD13 / QPSK	23.95	3.9	27.85	36.92	-09.07	PASS
LTE FDD13 / QAM	22.34	3.9	26.24	36.92	-10.68	PASS

Test Results - LTE FDD25						
Mode	Power [dBm]	Antenna gain [dBi]	Radiated power [dBm EIRP]	Limit [dBm EIRP]	Margin [dB]	Result
LTE FDD25 / PMAX	24.55	6.9	31.45	33	-01.55	PASS
LTE FDD25 / QPSK	23.87	6.9	30.77	33	-02.23	PASS
LTE FDD25 / QAM	22.37	6.9	29.27	33	-03.73	PASS

Test Results - LTE FDD26 (814 - 824 MHz)						
Mode	Power [dBm]	Antenna gain [dBi]	Radiated power [dBm EIRP]	Limit [dBm EIRP]	Margin [dB]	Result
LTE FDD26L / PMAX	20.0 *1	3.9	23.9	52.15	-28.25	PASS
LTE FDD26L / QPSK	19.9 *1	3.9	23.8	52.15	-28.35	PASS
LTE FDD26L / QAM	18.9 *1	3.9	22.8	52.15	-29.35	PASS

Test Results - LTE FDD26 (824 - 849 MHz)						
Mode	Power [dBm]	Antenna gain [dBi]	Radiated power [dBm EIRP]	Limit [dBm EIRP]	Margin [dB]	Result
LTE FDD26H / PMAX	23.94	3.9	27.84	40.6	-12.76	PASS
LTE FDD26H / QPSK	23.74	3.9	27.64	40.6	-12.96	PASS
LTE FDD26H / QAM	22.24	3.9	26.14	40.6	-14.46	PASS

*1 All this values are determined by additional measurements on this test sample

*2 Duty cycle correction of +0.5dB has been applied to the measurement result. Duty cycle of signal is 89%.

3.2 Test Conditions and Results - Transmitter conducted emissions

3.2.1 Information

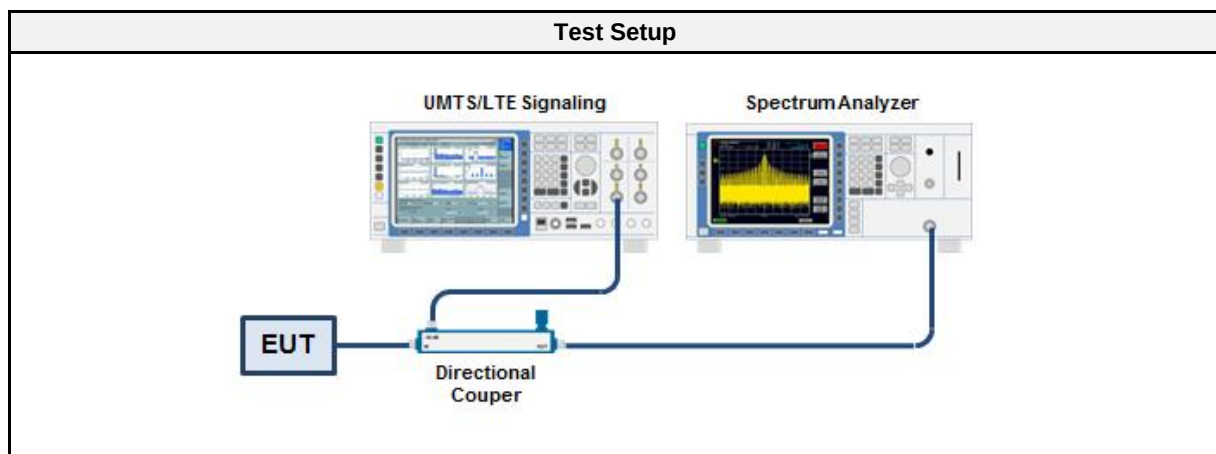
Test Information	
Reference	47 CFR §22.917 47 CFR §24.238 47 CFR §27.53 47 CFR §90.691 ISED RSS-132 §5.5 ISED RSS-133 §6.5 ISED RSS-139 §6.6 ISED RSS-199 §4.5 ISED RSS-130 §4.7
Measurement Method	FCC KDB 971168 D01 Section 6 ANSI C63.26-2015 5.7
Measurement Uncertainty	± 4.62 dB
Operator	Florian Voigt
Date	2021-07-20
Tested modes	GSM850 / GMSK, LTE FDD2 / PMAX, LTE FDD4 / PMAX, LTE FDD7 / PMAX, LTE FDD12 / PMAX, LTE FDD13 / PMAX, LTE FDD26L / PMAX
Comment: The above modes are selected for evaluation because the radio-module is expected to have maximum output power in those modes and those modes are covering non-overlapping bands.	

3.2.2 Limits

Limits FCC			
Band	Bandwidth	Attenuation [dB]	Limit [dBm]
GSM850	100 kHz / 1 MHz	43+Log ₁₀ (P[W])	-13
UMTS FDDII	1 MHz	43+Log ₁₀ (P[W])	-13
UMTS FDDIV	1 MHz	43+Log ₁₀ (P[W])	-13
UMTS FDDV	100 kHz / 1 MHz	43+Log ₁₀ (P[W])	-13
LTE FDD2	1 MHz	43+Log ₁₀ (P[W])	-13
LTE FDD4	1 MHz	43+Log ₁₀ (P[W])	-13
LTE FDD5	100 kHz / 1 MHz	43+Log ₁₀ (P[W])	-13
LTE FDD7	1 MHz	55+Log ₁₀ (P[W])	-25
LTE FDD12	100 kHz	43+Log ₁₀ (P[W])	-13
LTE FDD13	100 kHz	43+Log ₁₀ (P[W])	-13
LTE FDD25	1 MHz	43+Log ₁₀ (P[W])	-13
LTE FDD26	100 kHz / 1 MHz	43+Log ₁₀ (P[W])	-13

Limits ISED			
Band	Bandwidth	Attenuation [dB]	Limit [dBm]
GSM850	100 kHz	$43 + \text{Log}_{10}(P[W])$	-13
UMTS FDDII	1 MHz	$43 + \text{Log}_{10}(P[W])$	-13
UMTS FDDIV	1 MHz	$43 + \text{Log}_{10}(P[W])$	-13
UMTS FDDV	100 kHz	$43 + \text{Log}_{10}(P[W])$	-13
LTE FDD2	1 MHz	$43 + \text{Log}_{10}(P[W])$	-13
LTE FDD4	1 MHz	$43 + \text{Log}_{10}(P[W])$	-13
LTE FDD5	100 kHz	$43 + \text{Log}_{10}(P[W])$	-13
LTE FDD7	1 MHz	$55 + \text{Log}_{10}(P[W])$	-25
LTE FDD12	100 kHz	$43 + \text{Log}_{10}(P[W])$	-13
LTE FDD13	100 kHz	$43 + \text{Log}_{10}(P[W])$	-13
LTE FDD25	1 MHz	$43 + \text{Log}_{10}(P[W])$	-13

3.2.3 Setup



3.2.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01709	2021-02	2022-02
Cable	Huber+Suhner	Sucoflex 100	EF00779 CAABQ	2020-12	2021-12
Attenuator 10dB 18GHz 10W	Radiall GmbH	R416010000	EF01013	2020-08	2021-08
Dual directional coupler	Krytar	1850	EF01539	2021-07	2022-07
High pass filter	---	HP WHK 1050	EF01671	2020-08	2021-08

3.2.5 Procedure

Test Procedure
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

3.2.6 Results

Test Results - GSM850	
Mode	Result
GSM850 / GMSK	PASS
Test Results - LTE FDD2	
Mode	Result
LTE FDD2 / PMAX	PASS
Test Results - LTE FDD4	
Mode	Result
LTE FDD4 / PMAX	PASS
Test Results - LTE FDD7	
Mode	Result
LTE FDD7 / PMAX	PASS
Test Results - LTE FDD12	
Mode	Result
LTE FDD12 / PMAX	PASS
Test Results - LTE FDD13	
Mode	Result
LTE FDD13 / PMAX	PASS
Test Results - LTE FDD26 (814 - 824 MHz)	
Mode	Result
LTE FDD26L / PMAX	PASS

3.3 Test Conditions and Results - Transmitter radiated emissions

3.3.1 Information

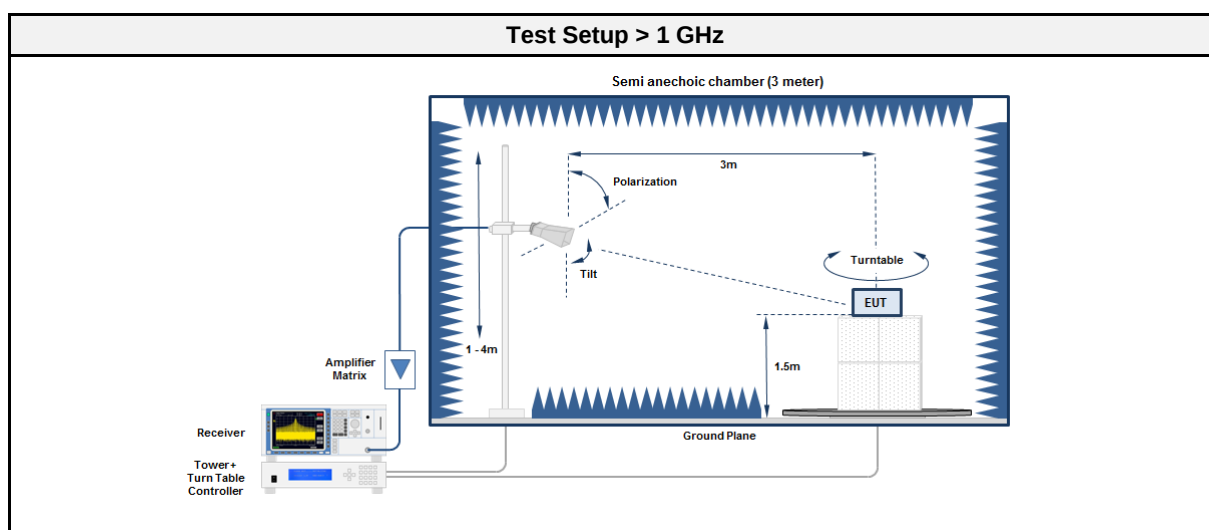
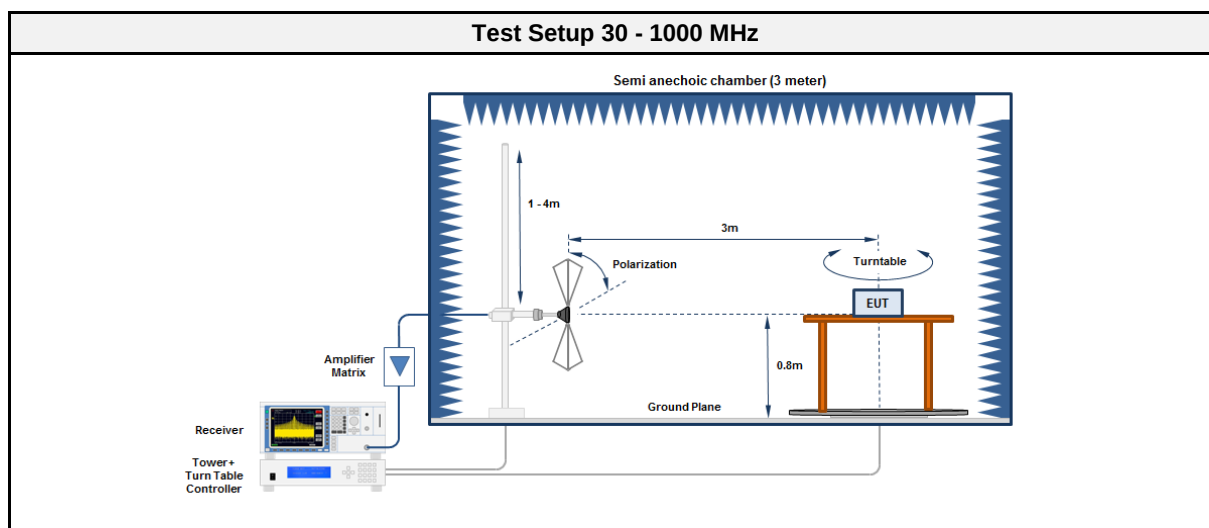
Test Information	
Reference	47 CFR §22.917 47 CFR §24.238 47 CFR §27.53 47 CFR §90.691 ISED RSS-132 §5.5 ISED RSS-133 §6.5 ISED RSS-139 §6.6 ISED RSS-199 §4.5 ISED RSS-130 §4.7
Measurement Method	FCC KDB 971168 D01 Section 7 ANSI C63.26-2015 5.5
Measurement Uncertainty	± 5.95 dB
Operator	Florian Voigt
Date	2021-06-17 - 2021-07-19
Tested modes	GSM850 / GMSK, LTE FDD2 / PMAX, LTE FDD4 / PMAX, LTE FDD7 / PMAX, LTE FDD12 / PMAX, LTE FDD13 / PMAX, LTE FDD26L / PMAX
Comment 1: The above modes are selected for evaluation because the radio-module is expected to have maximum output power in those modes and those modes are covering non-overlapping bands. Comment 2: Measurements above 1 GHz are pre-measurements when level of detected emissions (Average/Peak) is 10 dB or more below the corresponding limit lines. In case the level of detected emissions have less than 10 dB margin to the corresponding limit lines, the EUT is tilted in 30-degree steps between 0 to 150 degree.	

3.3.2 Limits

Limits FCC				
Band	Frequency range [MHz]	Bandwidth	Attenuation [dB]	Limit [dBm EIRP]
GSM850	-	100 kHz / 1 MHz	43+Log ₁₀ (P[W])	-13
UMTS FDDII	-	1 MHz	43+Log ₁₀ (P[W])	-13
UMTS FDDIV	-	1 MHz	43+Log ₁₀ (P[W])	-13
UMTS FDDV	-	100 kHz / 1 MHz	43+Log ₁₀ (P[W])	-13
LTE FDD2	-	1 MHz	43+Log ₁₀ (P[W])	-13
LTE FDD4	-	1 MHz	43+Log ₁₀ (P[W])	-13
LTE FDD5	-	100 kHz / 1 MHz	43+Log ₁₀ (P[W])	-13
LTE FDD7	-	1 MHz	55+Log ₁₀ (P[W])	-25
LTE FDD12	-	100 kHz	43+Log ₁₀ (P[W])	-13
LTE FDD13	-	100 kHz	43+Log ₁₀ (P[W])	-13
LTE FDD13	763-775	6.25 kHz	65+Log ₁₀ (P[W])	-35
LTE FDD13	793-805	6.25 kHz	65+Log ₁₀ (P[W])	-35
LTE FDD13	1559-1610	700 Hz	-	-50
LTE FDD13	1559-1610	1 MHz	-	-40
LTE FDD25	-	1 MHz	43+Log ₁₀ (P[W])	-13
LTE FDD26	-	100 kHz / 1 MHz	43+Log ₁₀ (P[W])	-13

Limits ISED				
Band	Frequency range [MHz]	Bandwidth	Attenuation [dB]	Limit [dBm EIRP]
GSM850	-	100 kHz	$43 + \text{Log}_{10}(P[W])$	-13
UMTS FDDII	-	1 MHz	$43 + \text{Log}_{10}(P[W])$	-13
UMTS FDDIV	-	1 MHz	$43 + \text{Log}_{10}(P[W])$	-13
UMTS FDDV	-	100 kHz	$43 + \text{Log}_{10}(P[W])$	-13
LTE FDD2	-	1 MHz	$43 + \text{Log}_{10}(P[W])$	-13
LTE FDD4	-	1 MHz	$43 + \text{Log}_{10}(P[W])$	-13
LTE FDD5	-	100 kHz	$43 + \text{Log}_{10}(P[W])$	-13
LTE FDD7	-	1 MHz	$55 + \text{Log}_{10}(P[W])$	-25
LTE FDD12	-	100 kHz	$43 + \text{Log}_{10}(P[W])$	-13
LTE FDD13	-	100 kHz	$43 + \text{Log}_{10}(P[W])$	-13
LTE FDD13	763-775	6.25 kHz	$65 + \text{Log}_{10}(P[W])$	-35
LTE FDD13	793-806	6.25 kHz	$65 + \text{Log}_{10}(P[W])$	-35
LTE FDD13	1559-1610	700 Hz	-	-50
LTE FDD13	1559-1610	1 MHz	-	-40
LTE FDD25	-	1 MHz	$43 + \text{Log}_{10}(P[W])$	-13

3.3.3 Setup



3.3.4 Equipment

Test Equipment 30 - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2021-02	2024-02
EMI Test Receiver	R&S	ESR7	EF00943	2020-07	2021-07
Antenna	R&S	HK 116	EF00030	2021-05	2024-05
Antenna	R&S	HL 223	EF00187	2019-05	2022-05

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic chamber	Frankonia	AC 2	EF01616	2021-05	2022-05
Spectrum analyzer	R&S	FSU43	EF01631	2020-07	2021-07
Horn antenna	Schwarzbeck	BBHA 9120B	EF01678	2021-03	2022-03
Horn Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2022-03
40GHz High Gain Antenna	Amplifier Research	AT4560	EF00302	2021-06	2023-06

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 - GSM850					
Mode	Frequency [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]	Result
GSM850 / GMSK	1678	-43.40	-13.00	-30.36	PASS

Test Results - LTE FDD2					
Mode	Frequency [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]	Result
LTE FDD2 / PMAX	5554	-35.20	-13.00	-22.18	PASS

Test Results - LTE FDD4					
Mode	Frequency [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]	Result
LTE FDD4 / PMAX	6929	-48.30	-13.00	-35.29	PASS
LTE FDD4 / PMAX	15592	-41.70	-13.00	-28.72	PASS

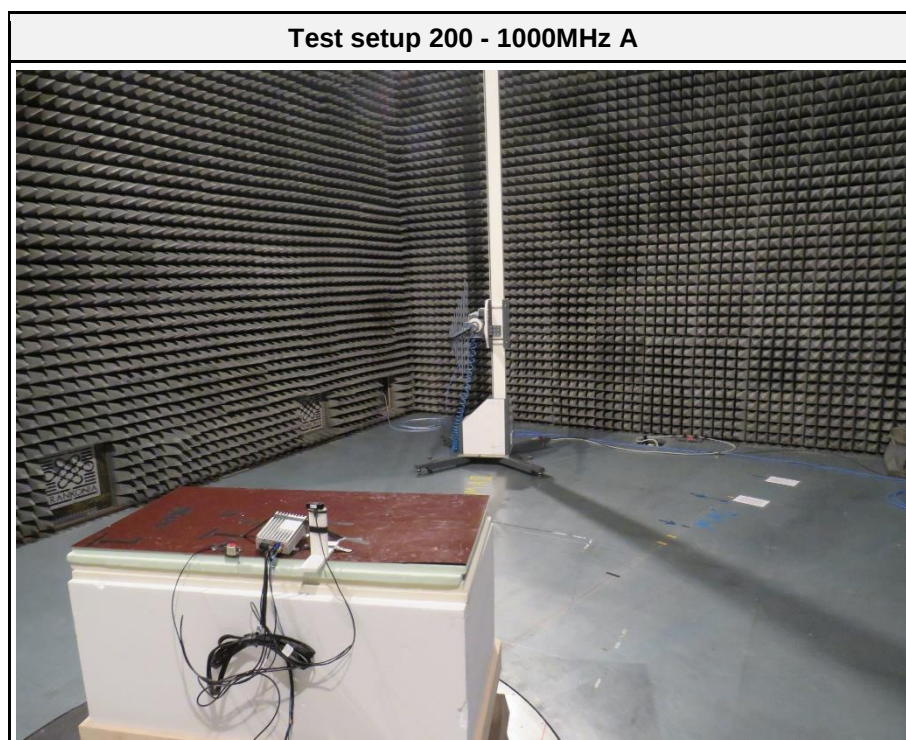
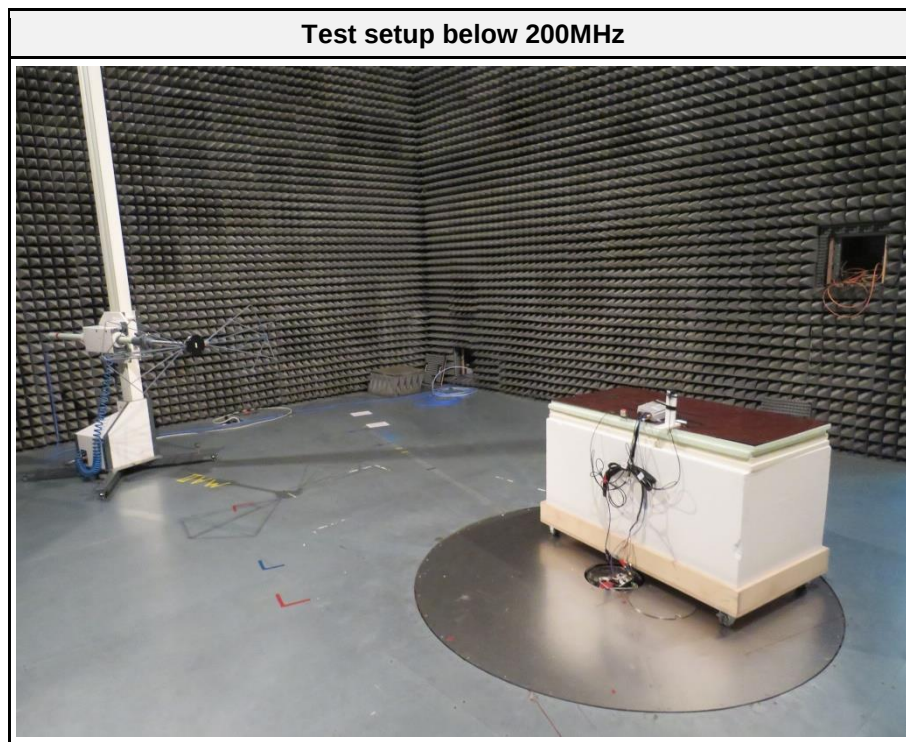
Test Results - LTE FDD7					
Mode	Frequency [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]	Result
LTE FDD7 / PMAX	66.5	-56.90	-25.00	-31.90	PASS
LTE FDD7 / PMAX	10239	-44.30	-25.00	-19.26	PASS

Test Results - LTE FDD12					
Mode	Frequency [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]	Result
LTE FDD12 / PMAX	1418	-45.40	-13.00	-32.43	PASS

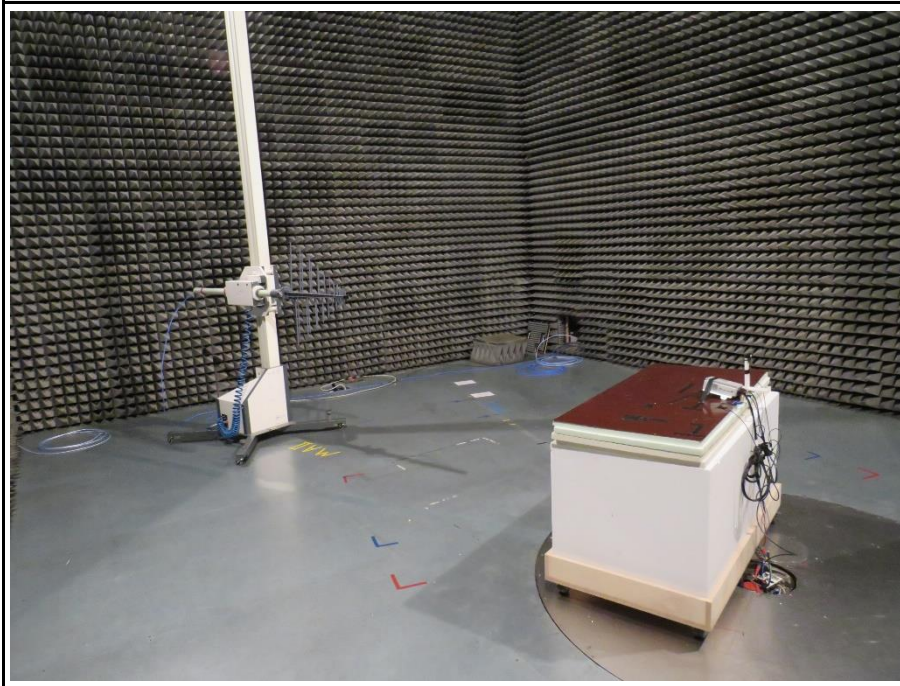
Test Results - LTE FDD13					
Mode	Frequency [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]	Result
LTE FDD13 / PMAX	1569	-52.60	-40.00	-12.59	PASS

Test Results - LTE FDD26 (814 - 824 MHz)					
Mode	Frequency [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]	Result
LTE FDD26L / PMAX	8493	-34.4	-13	-21.45	PASS

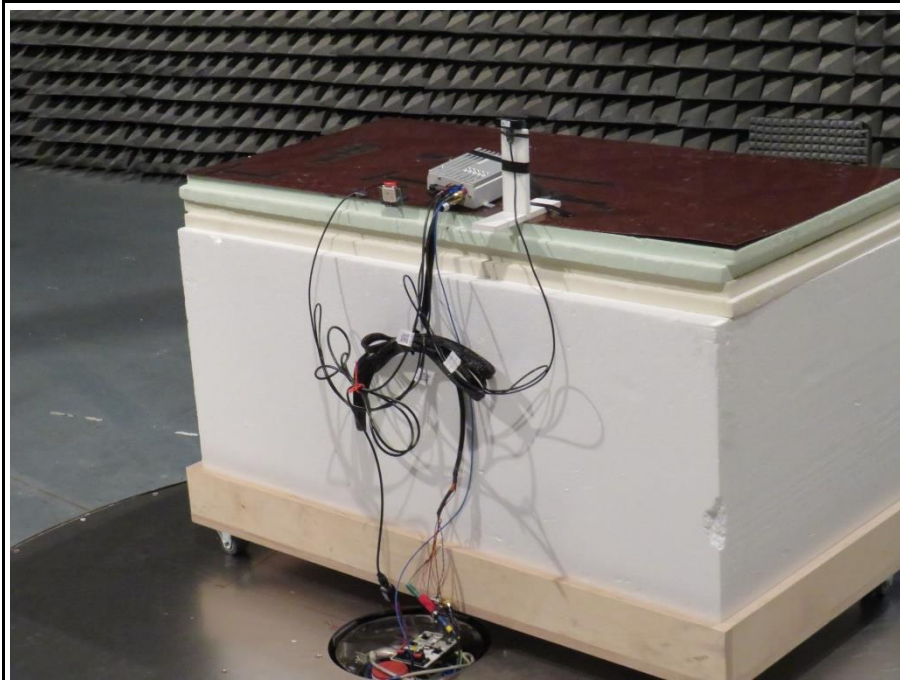
3.3.7 Setup photos



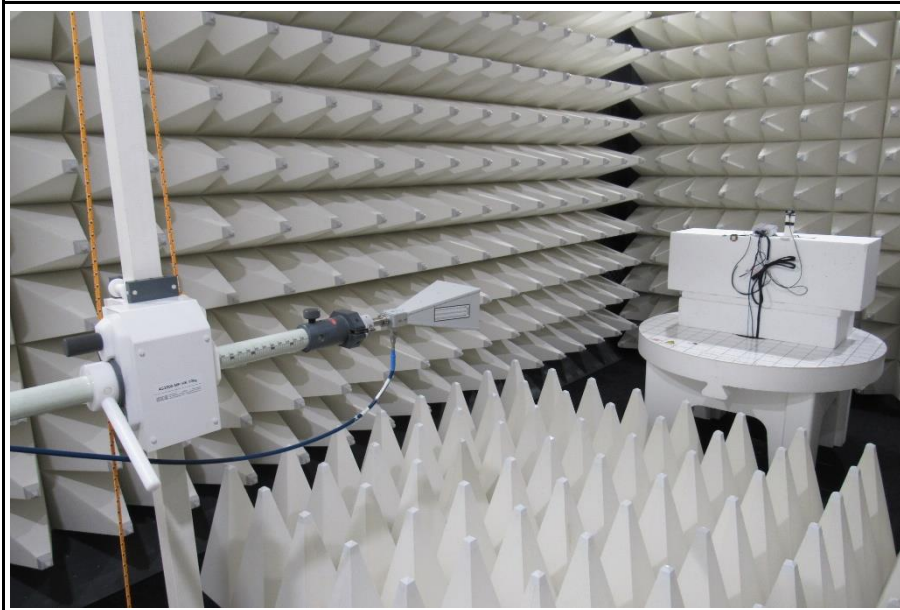
Test setup 200 - 1000MHz B



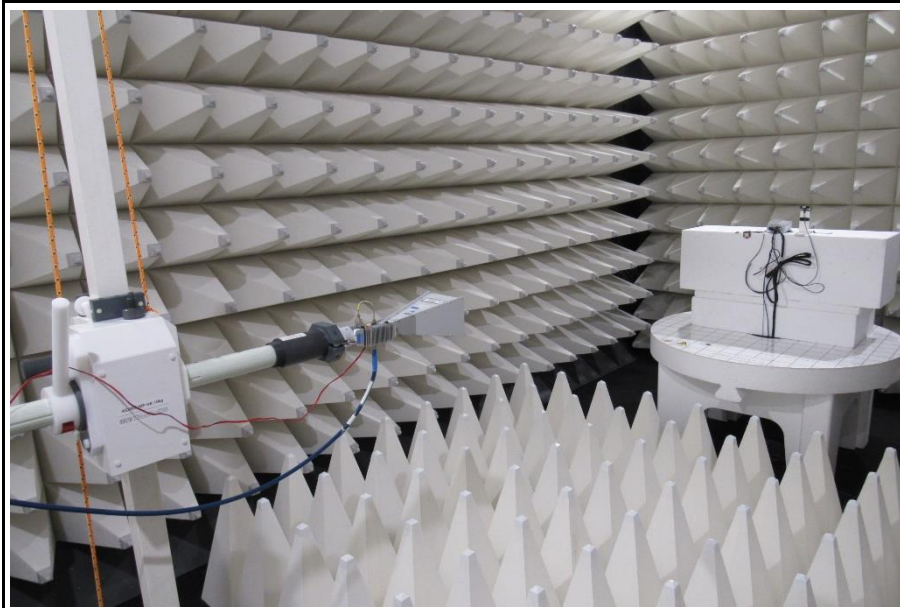
Test setup close view below 1GHz



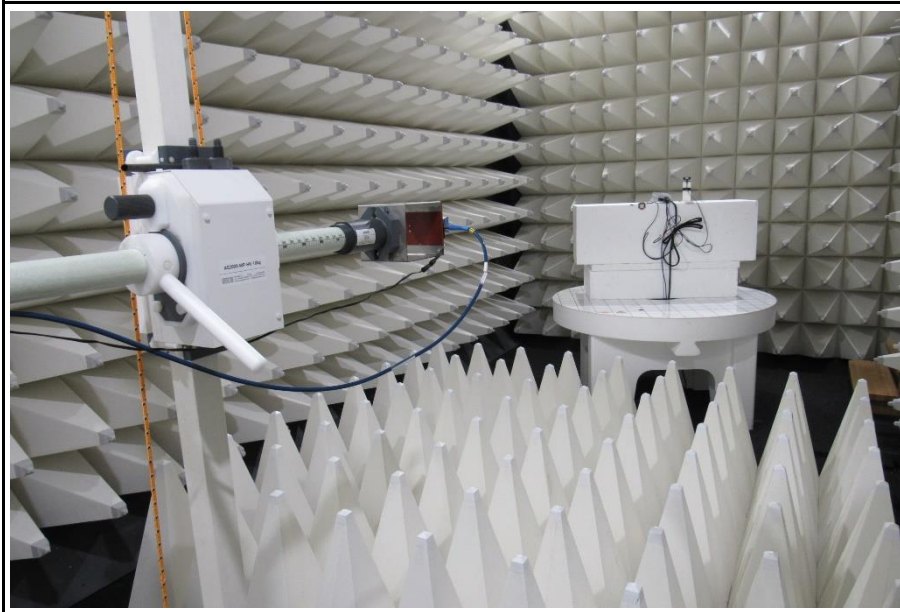
Test setup 1 to 10GHz



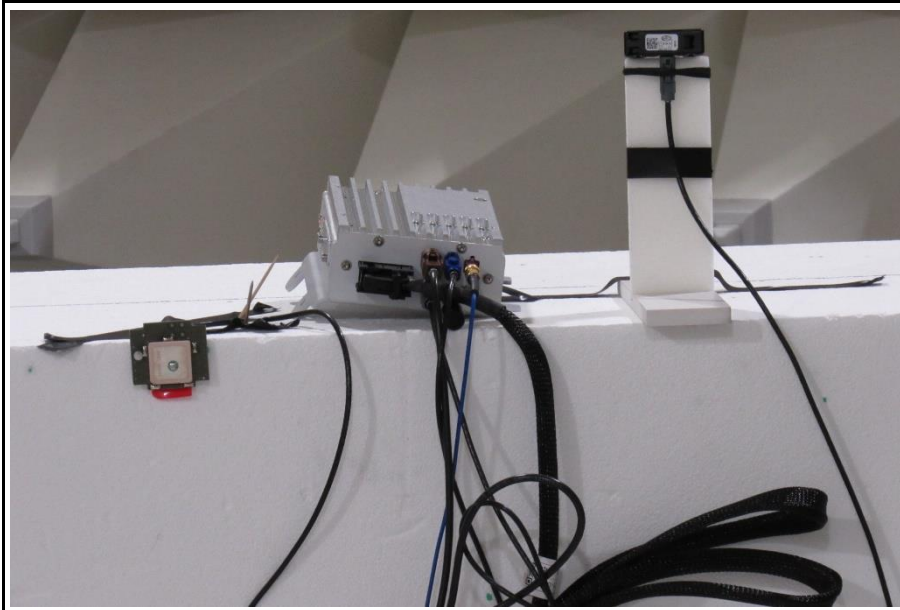
Test setup 6.5 to 18GHz



Test setup above 18GHz



Test setup close view above 1GHz



3.4 Test Conditions and Results - Receiver radiated emissions

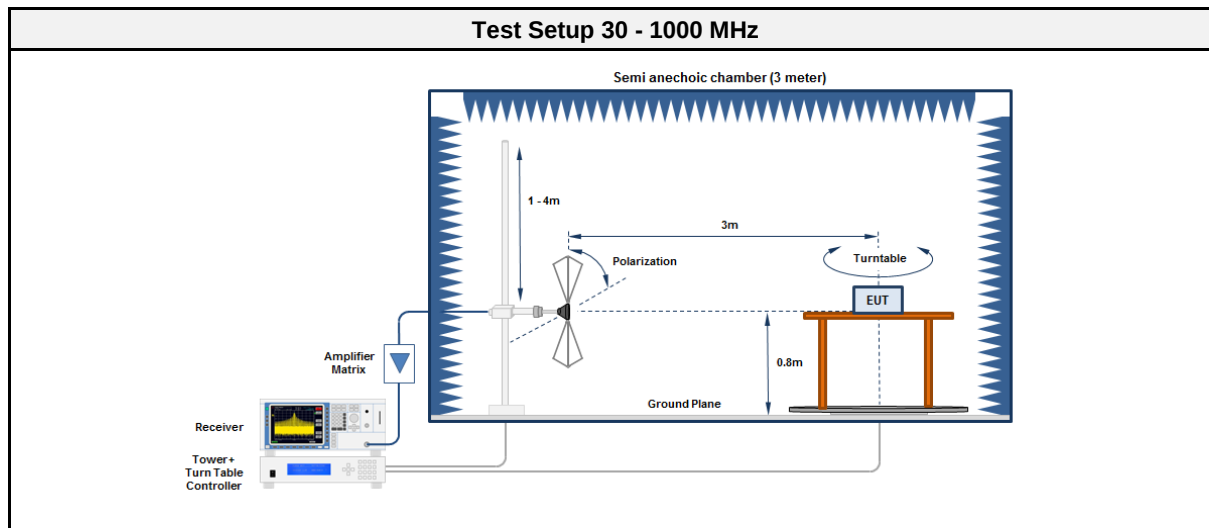
3.4.1 Information

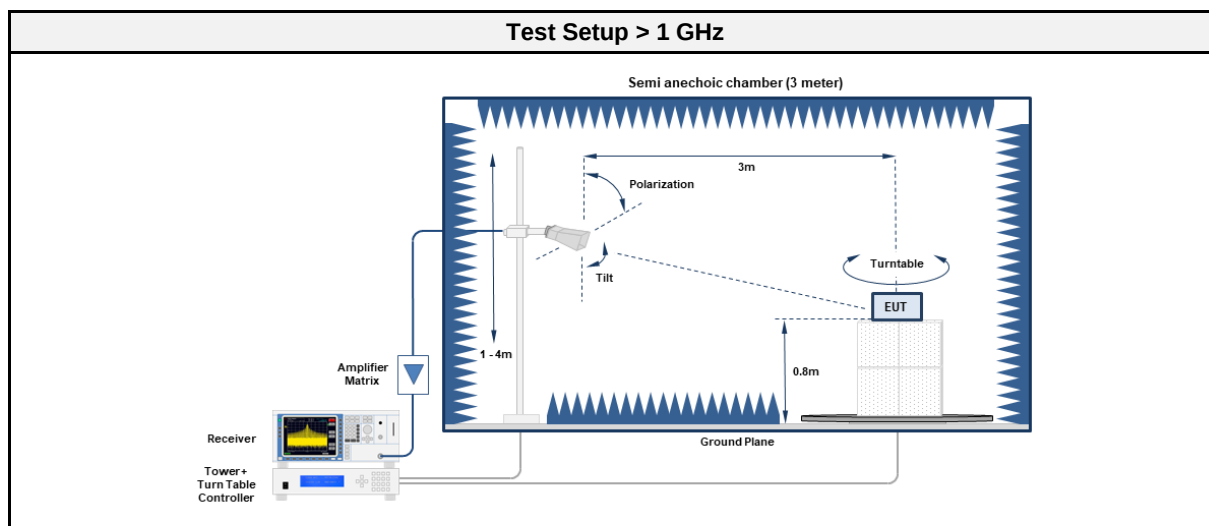
Test Information	
Reference	ISED RSS-132 §3.1 ISED RSS-133 §3.1 ISED RSS-139 §3.1 ISED RSS-199 §3 ISED RSS-130 §3.3 ISED RSS-Gen §7.4
Measurement Method	ANSI C63.4-2014 8.1-8.3
Measurement Uncertainty	± 5.95 dB
Operator	Florian Voigt
Date	2021-07-28

3.4.2 Limits

Limits			
Frequency range [MHz]	Bandwidth	Detector	Limit [dB μ V/m @ 3 m]
30 - 88	100 kHz	Quasi-peak	40
88 - 216	100 kHz	Quasi-peak	43.5
216 - 960	100 kHz	Quasi-peak	46
960 - 1000	100 kHz	Quasi-peak	54
> 1000	1 MHz	Average	54

3.4.3 Setup





3.4.4 Equipment

Test Equipment 30 - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2021-07	2022-07
Anechoic Chamber	Frankonia	AC1	EF00062	2021-02	2024-02
Antenna	R&S	HK 116	EF00030	2021-05	2024-05
Antenna	R&S	HL 223	EF00187	2019-05	2022-05

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2021-02	2024-02
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2021-07	2022-07
Antenna	Schwarzbeck	BBHA 9120D	EF00018	2019-10	2022-10
Horn Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2022-03

3.4.5 Procedure

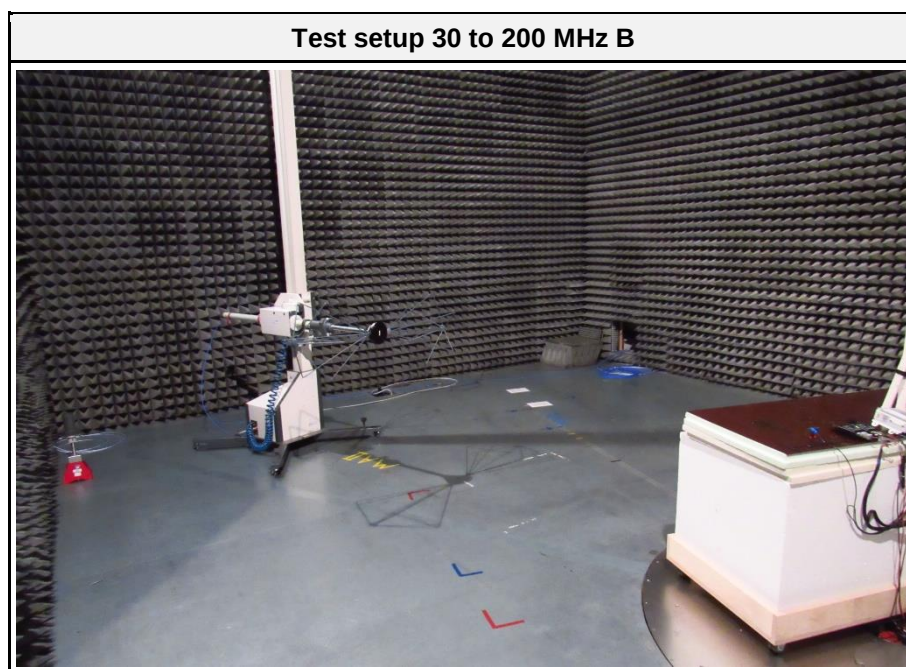
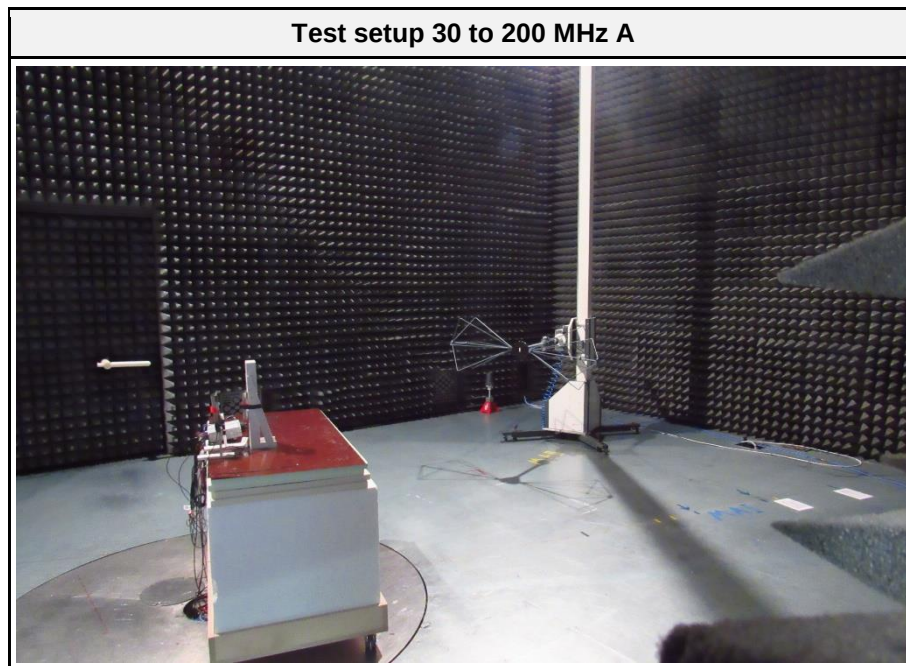
Test Procedure 30 - 1000 MHz
1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground 2. EUT set to test mode 3. The receiver is set to peak detection with max hold 4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m 5. All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

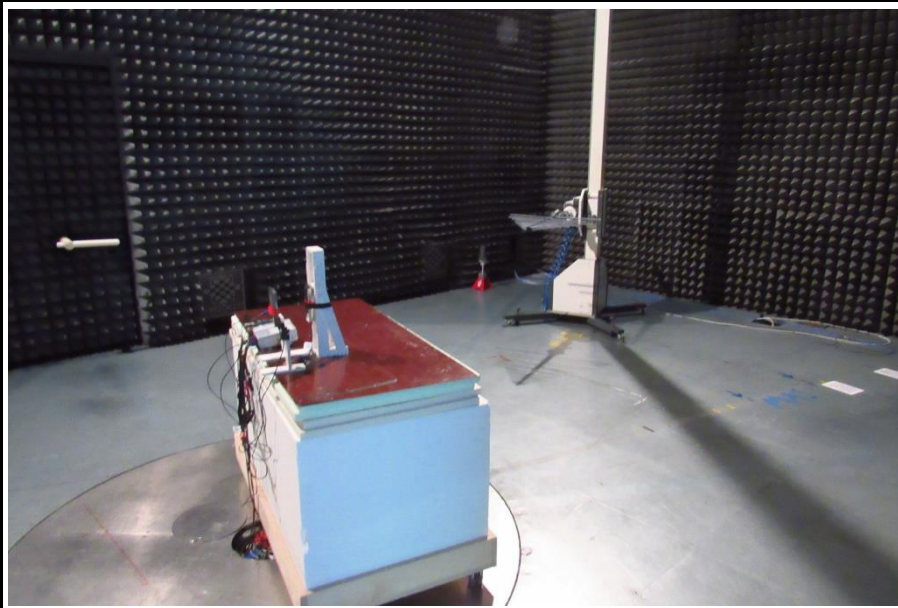
3.4.6 Results

Test Results - LTE FDD4					
Mode	Frequency [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result
Receive Mode	99.0327	21.20	43.50	-22.32	PASS
Receive Mode	109.9085	21.40	43.50	-22.10	PASS

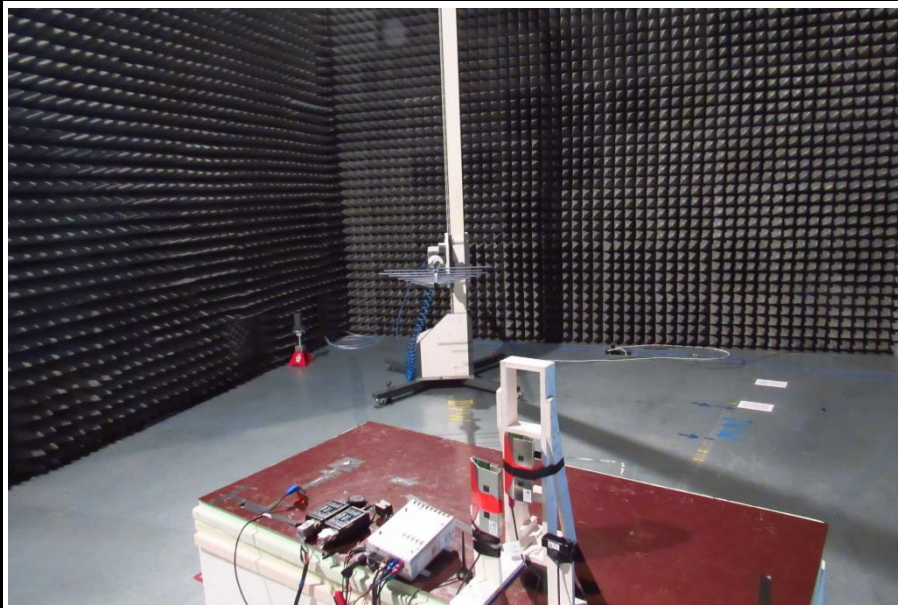
3.4.7 Setup photos



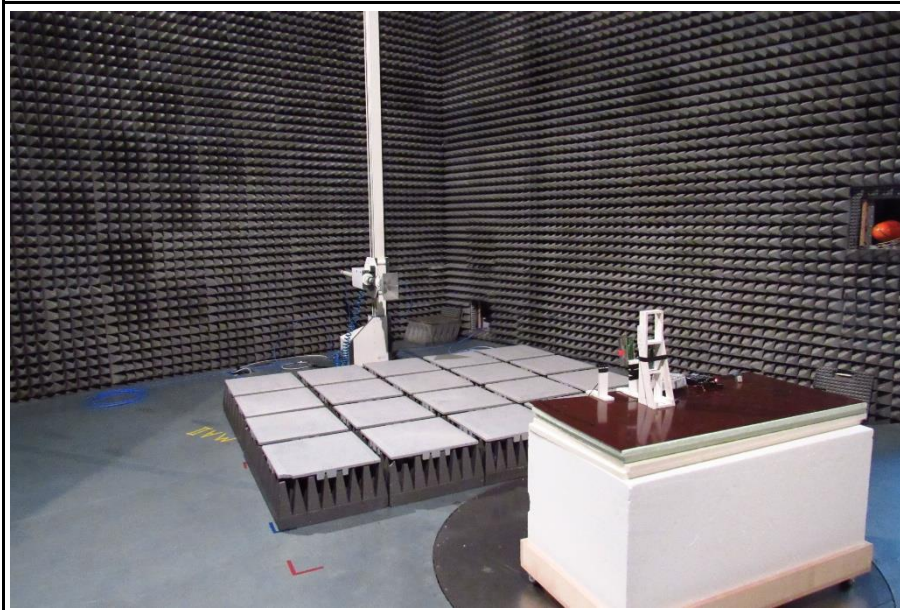
Test setup 200 to 1000 MHz A



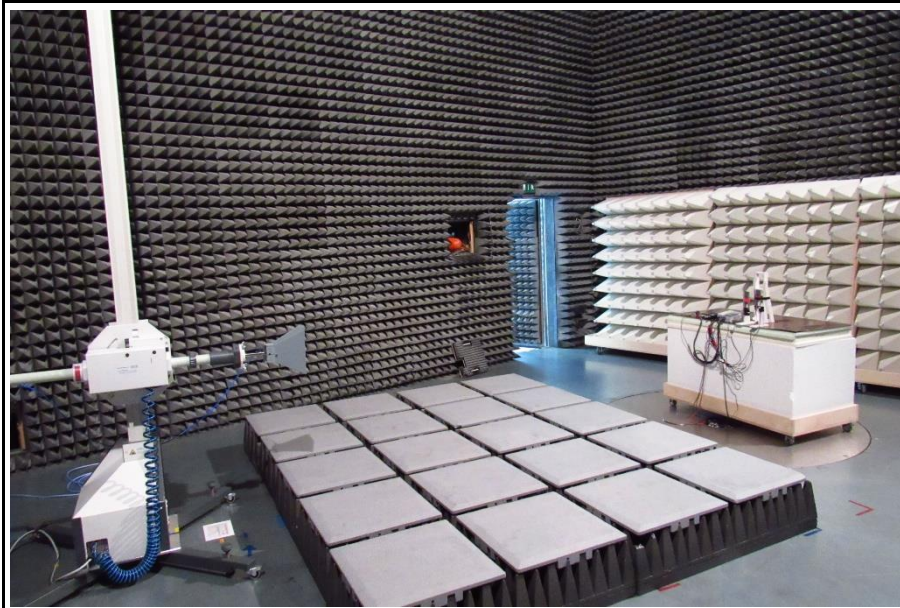
Test setup 200 to 1000 MHz B



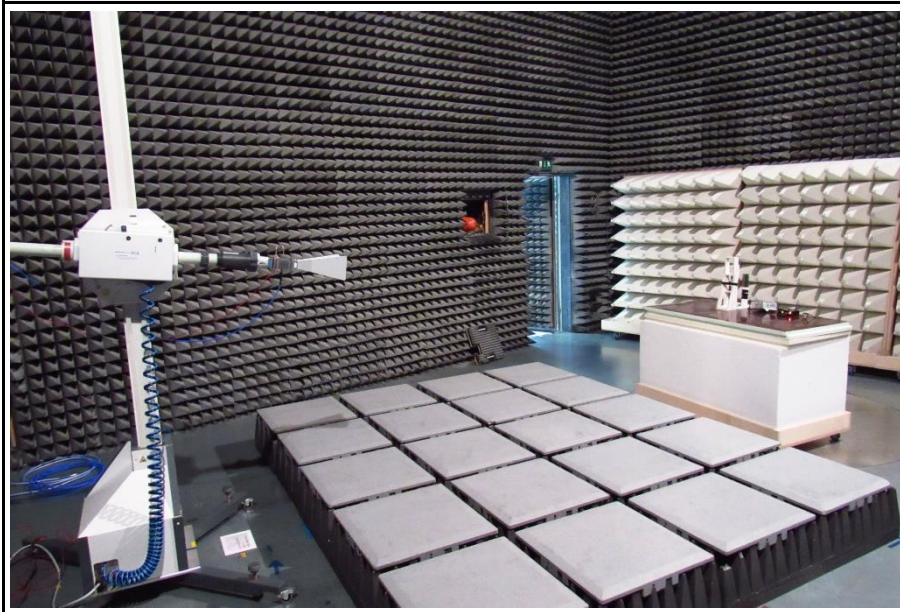
Test setup 1 to 6.5 GHz A



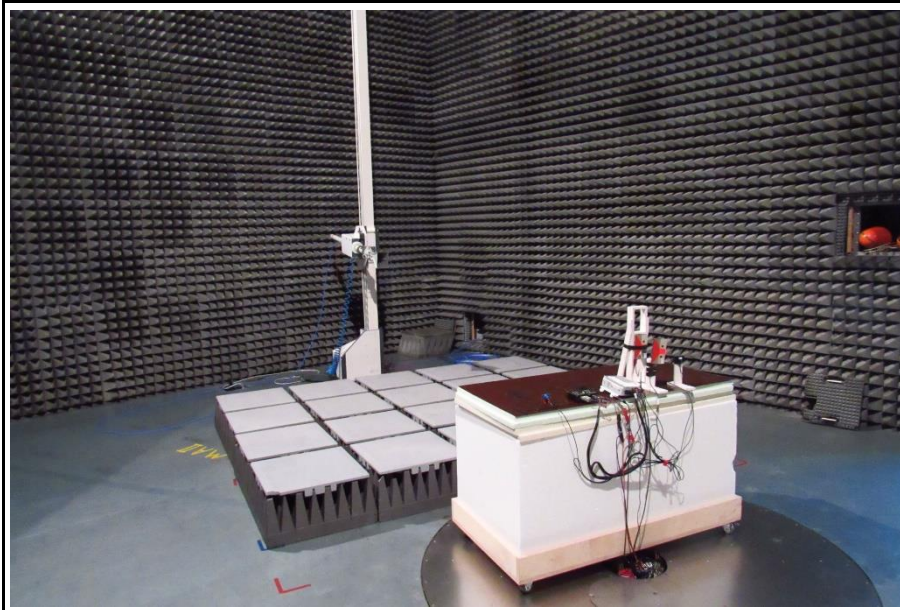
Test setup 1 to 6.5 GHz B



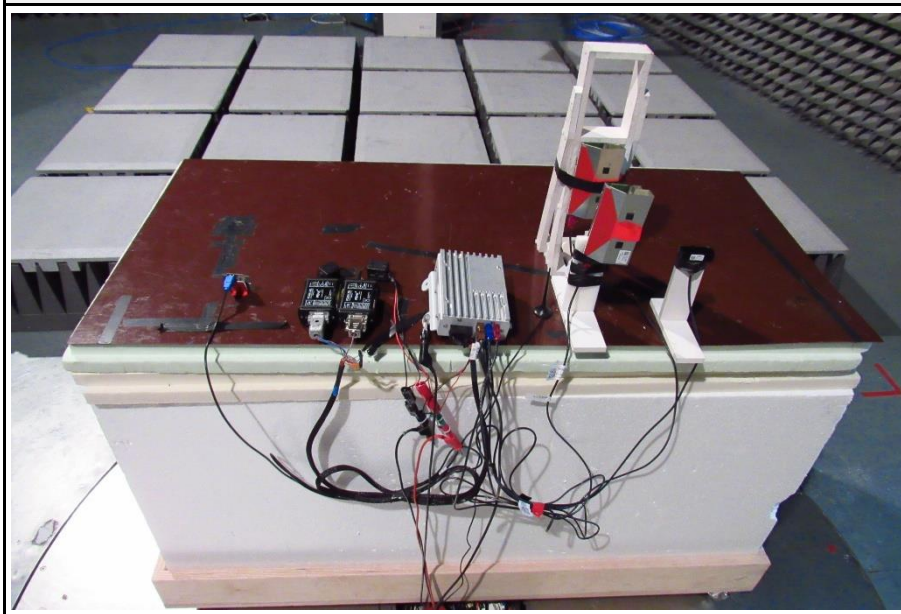
Test setup 6.5 to 18GHz A



Test setup 6.5 to 18GHz B



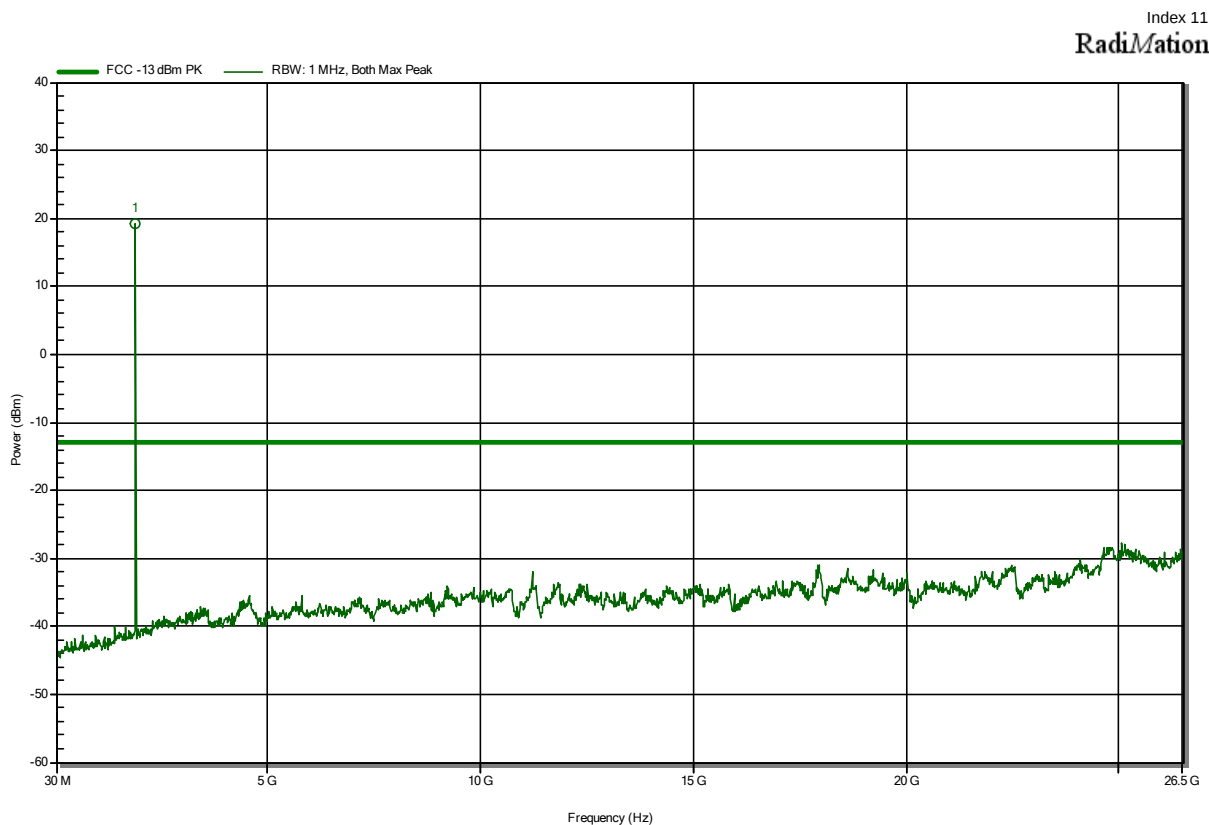
Test setup close view



ANNEX A Transmitter conducted emissions

Conducted Spurious Emissions according to 47 CFR Part 24E; RSS-133, Issue 6+A1

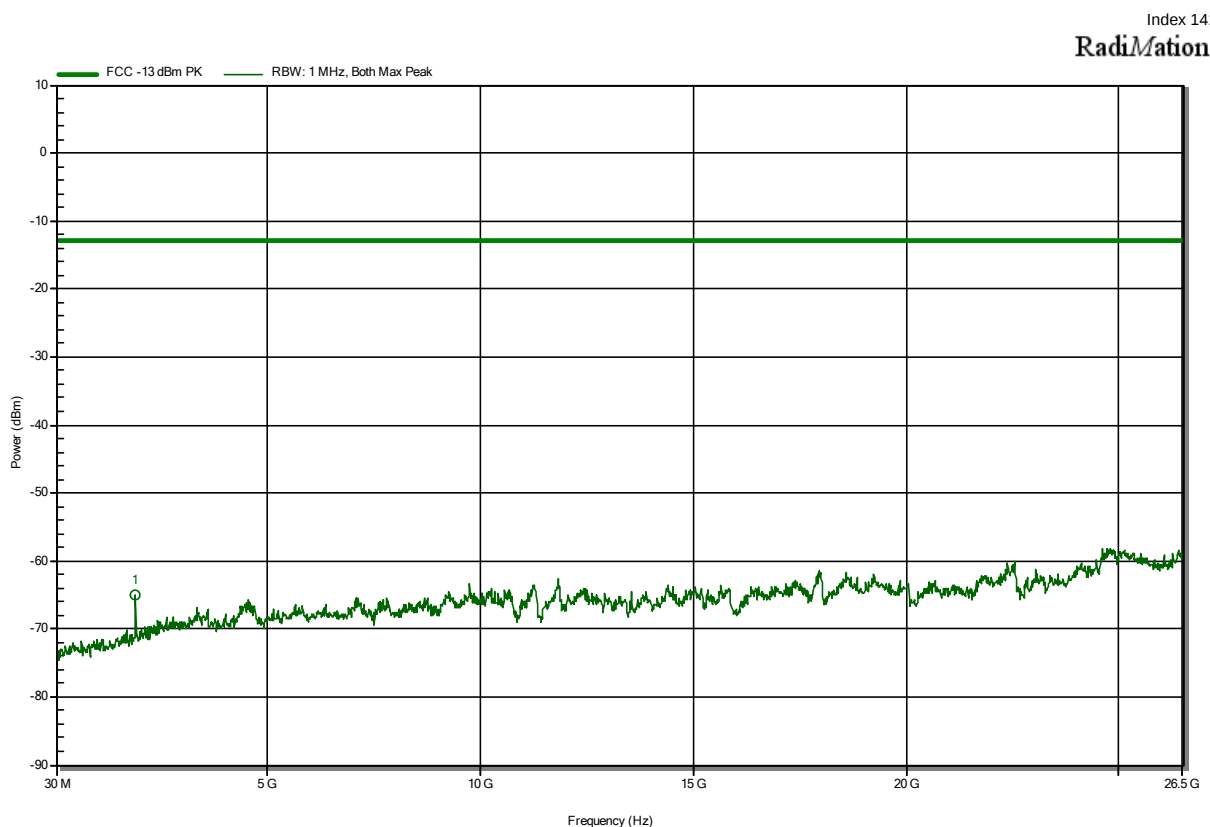
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD2, CH 18900, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Port: Main antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note: Marker1 is uplink



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.879 GHz	19.3 dBm	---	---	uplink

Conducted Spurious Emissions according to 47 CFR Part 24E; RSS-133, Issue 6+A1

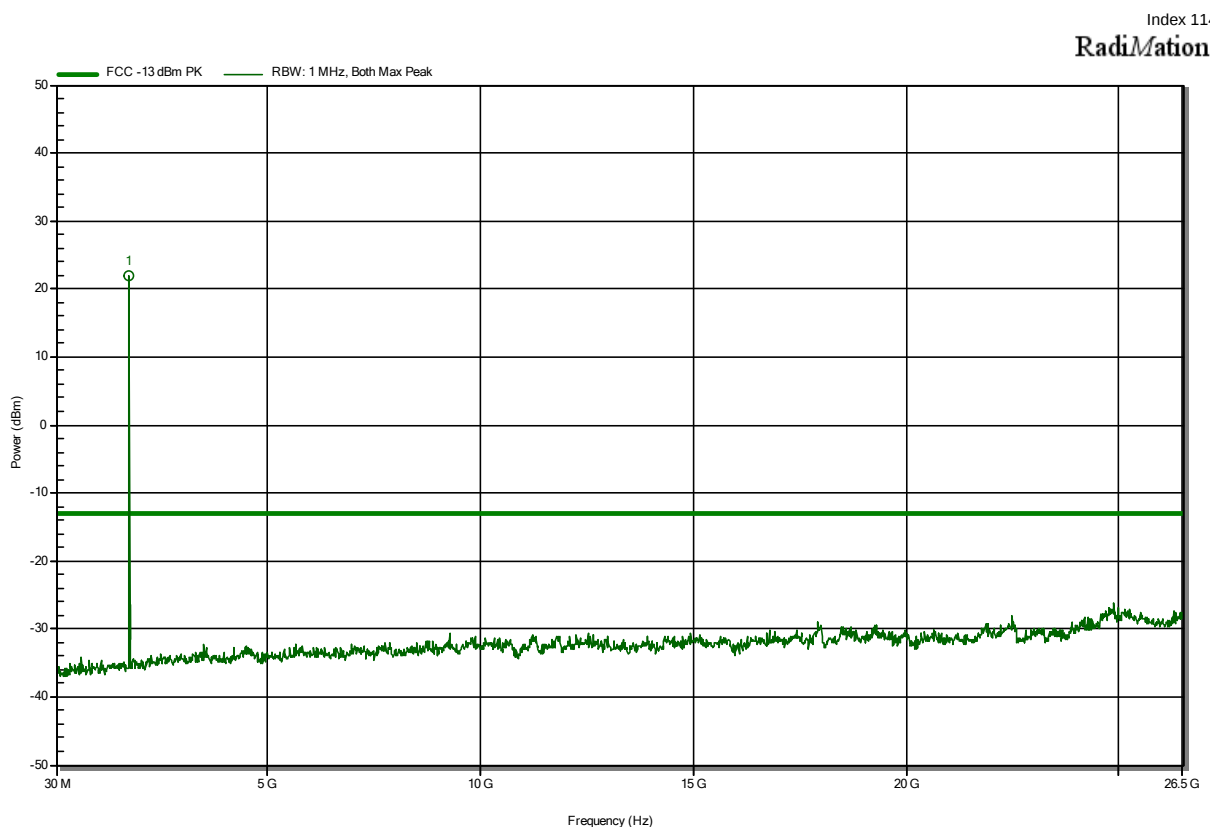
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD2, CH 18900, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Port: Diversity antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.879 GHz	-65.1 dBm	-13 dBm	-52.1 dB	Pass

Conducted Spurious Emissions according to 47 CFR Part 27; RSS-139, Issue 3

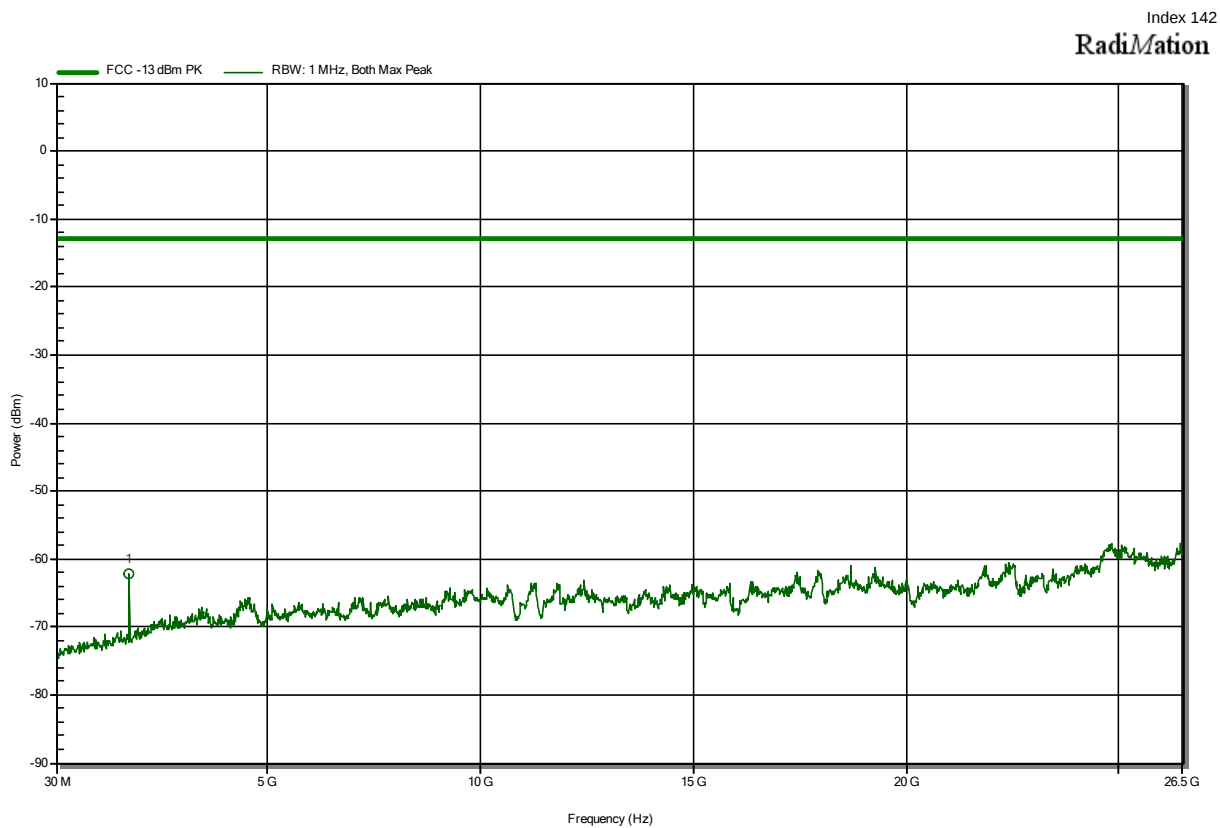
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD4, CH 20175, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Port: Main antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note: Marker1 is uplink



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.732 GHz	21.9 dBm	---	---	uplink

Conducted Spurious Emissions according to 47 CFR Part 27; RSS-139, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD4, CH 20175, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Port: Diversity antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note:



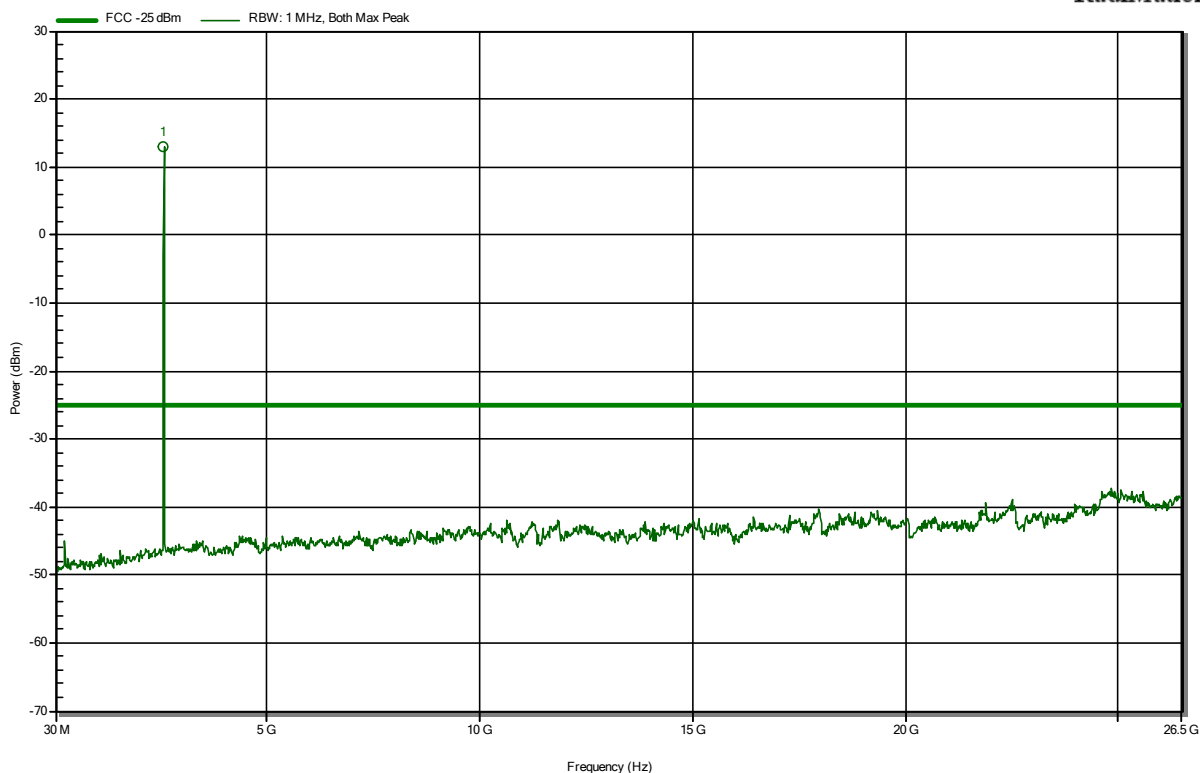
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.732 GHz	-62.2 dBm	-13 dBm	-49.16 dB	Pass

Conducted Spurious Emissions according to 47 CFR Part 27; RSS-199, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD7, CH 21350, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Port: Main antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note: Marker1 is uplink

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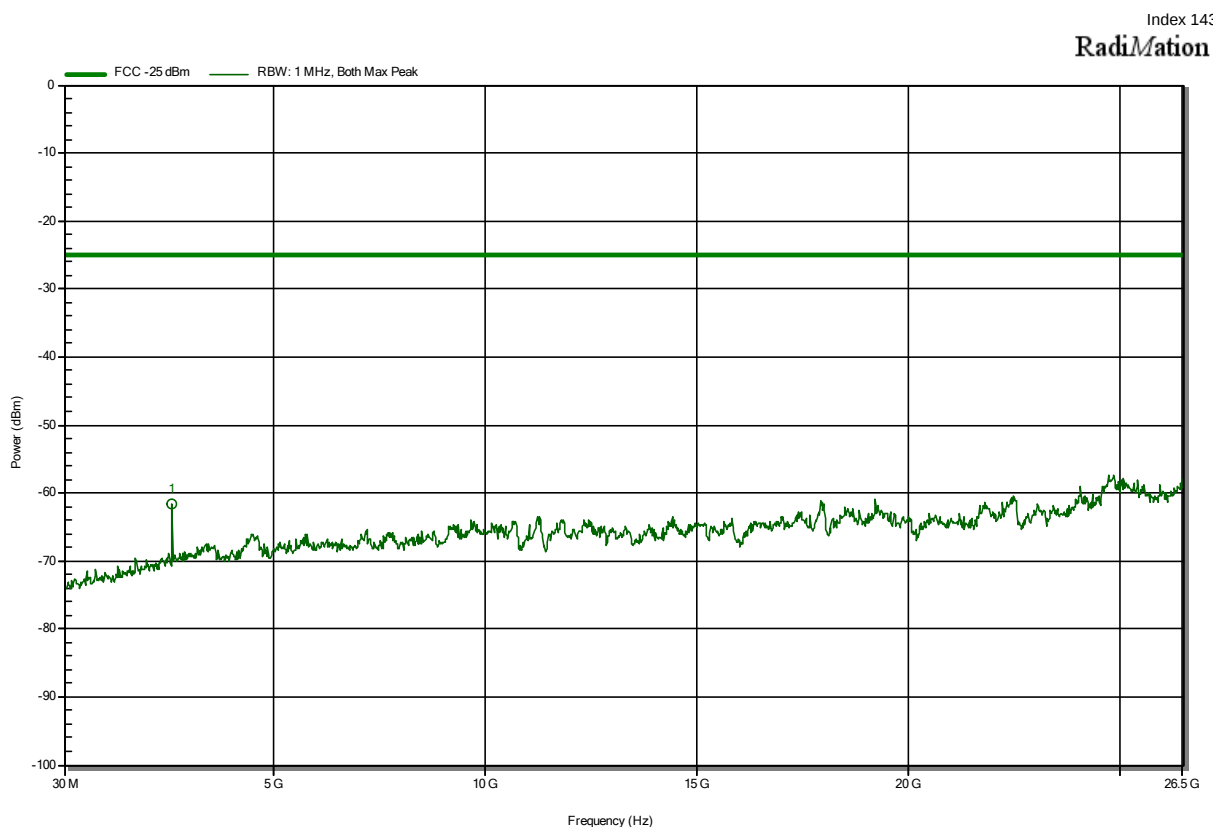
RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.56 GHz	13.1 dBm	---	---	uplink

Conducted Spurious Emissions according to 47 CFR Part 27; RSS-199, Issue 3

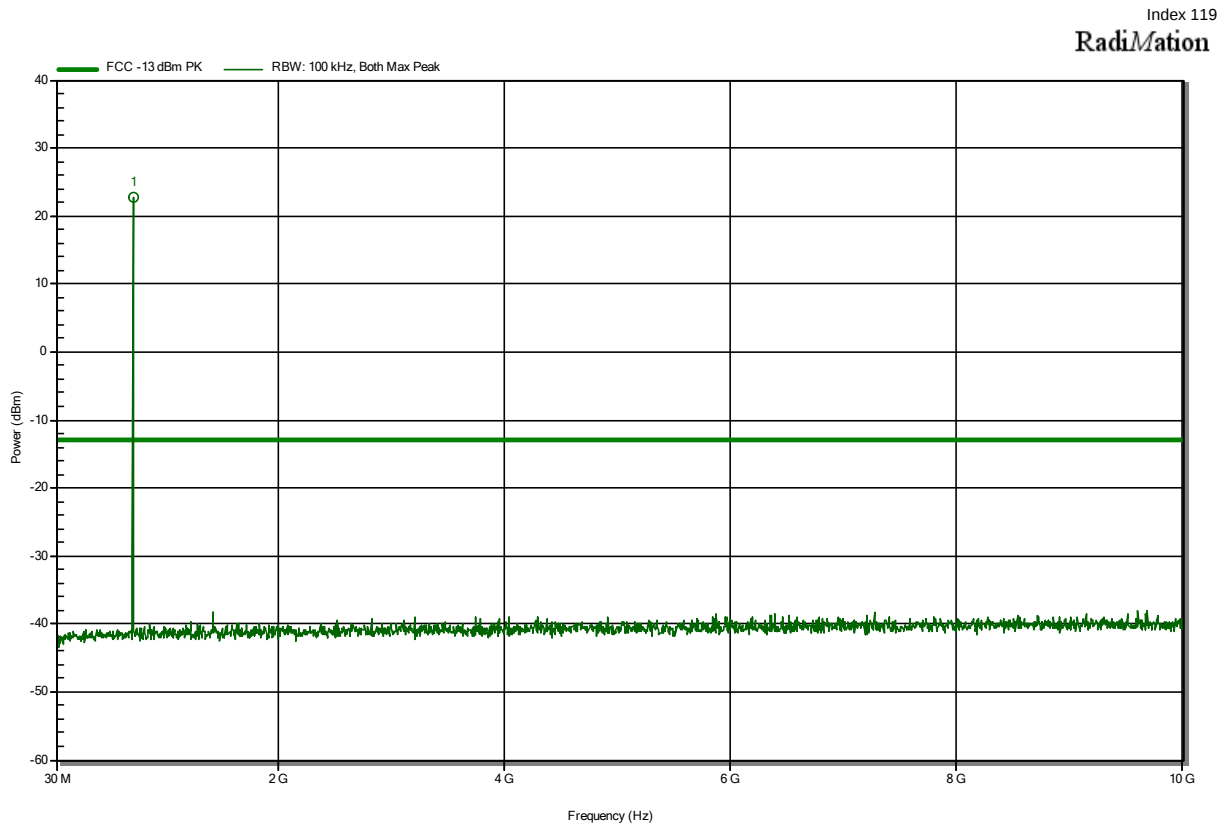
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD7, CH 21350, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Port: Diversity antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.56 GHz	-61.7 dBm	-25 dBm	-36.66 dB	Pass

Conducted Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

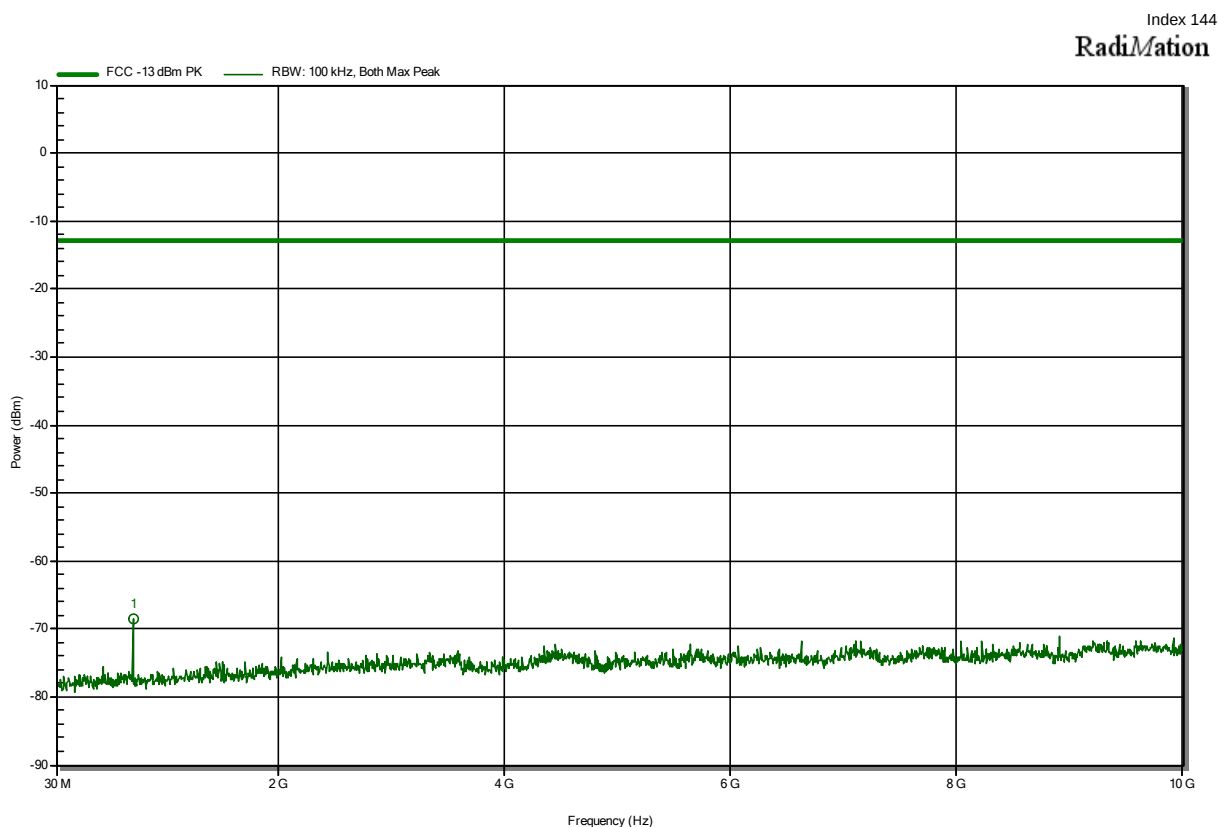
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD12, CH 23095, QPSK, Cell BW 10MHz, 1 RB Start 24, Max power
 Port: Main antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note: Marker1 is uplink



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
707.295 MHz	22.7 dBm	---	---	uplink

Conducted Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

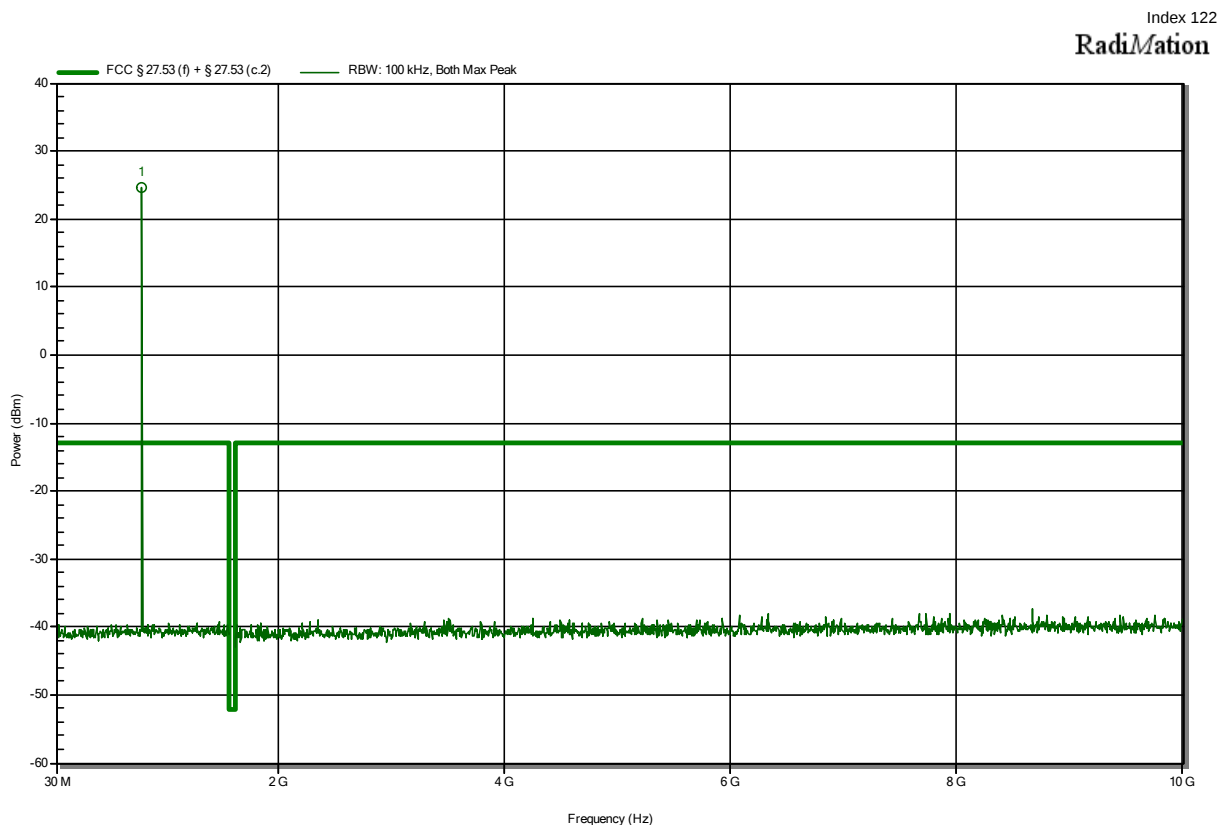
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD12, CH 23095, QPSK, Cell BW 10MHz, 1 RB Start 24, Max power
 Port: Diversity antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
707.295 MHz	-68.5 dBm	-13 dBm	-55.54 dB	Pass

Conducted Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

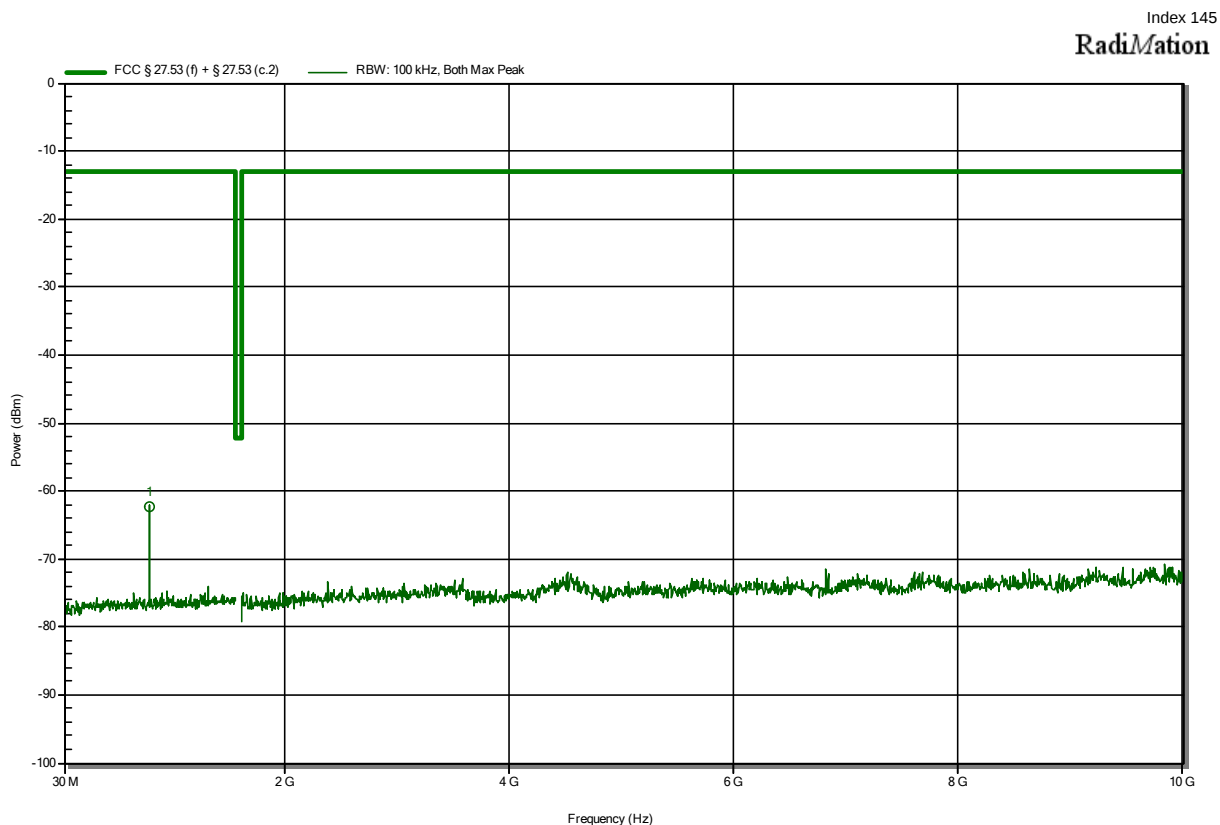
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD13, CH 23255, QPSK, Cell BW 5MHz, 1 RB Start 12, Max power
 Port: Main antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note: Marker1 is uplink



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
784.511 MHz	24.6 dBm	---	---	uplink

Conducted Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

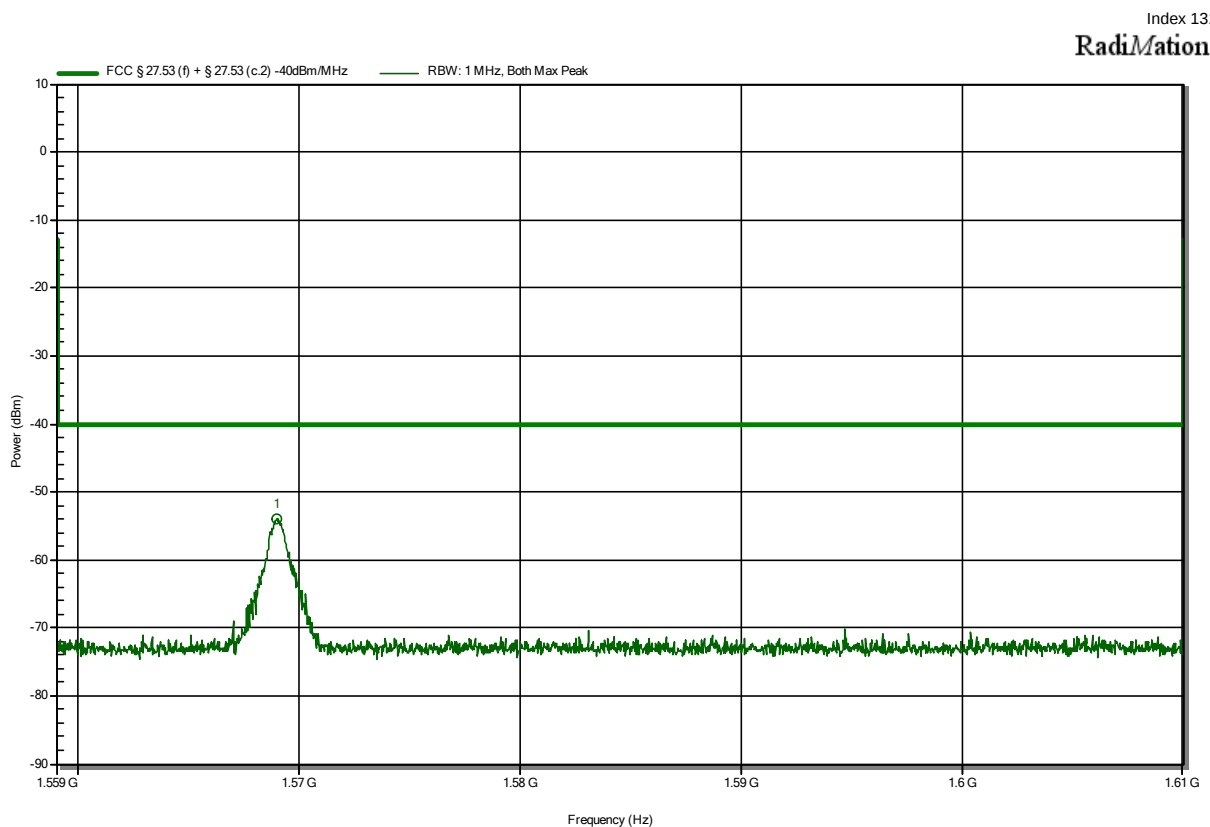
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD13, CH 23255, QPSK, Cell BW 5MHz, 1 RB Start 12, Max power
 Port: Diversity antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
784.511 MHz	-62.4 dBm	-13 dBm	-49.42 dB	Pass

Conducted Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

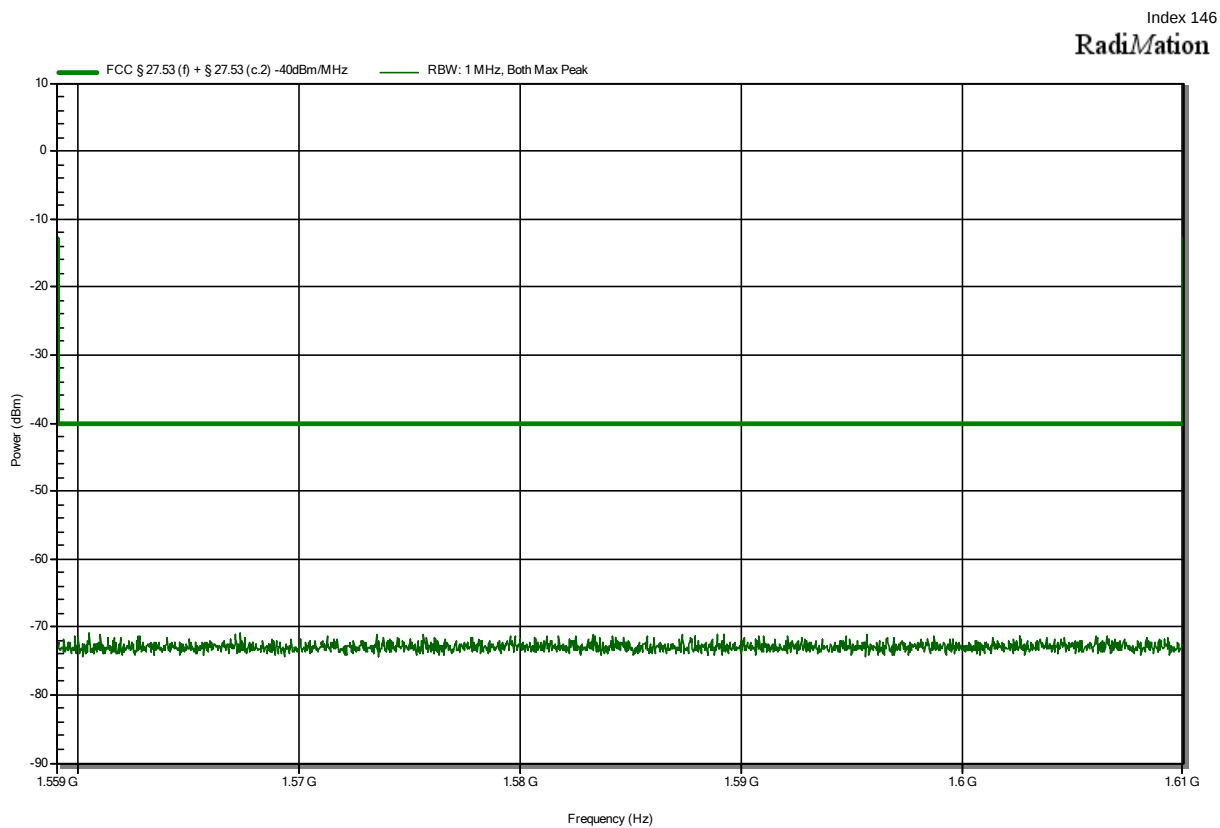
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD13, CH 23255, QPSK, Cell BW 5MHz, 1 RB Start 12, Max power
 Port: Main antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note: 1.05GHz Highpass filter (EF01671)



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.569 GHz	-53.9 dBm	-40 dBm	-13.94 dB	Pass

Conducted Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD13, CH 23255, QPSK, Cell BW 5MHz, 1 RB Start 12, Max power
 Port: Diversity antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note: 1.05GHz Highpass filter (EF01671)

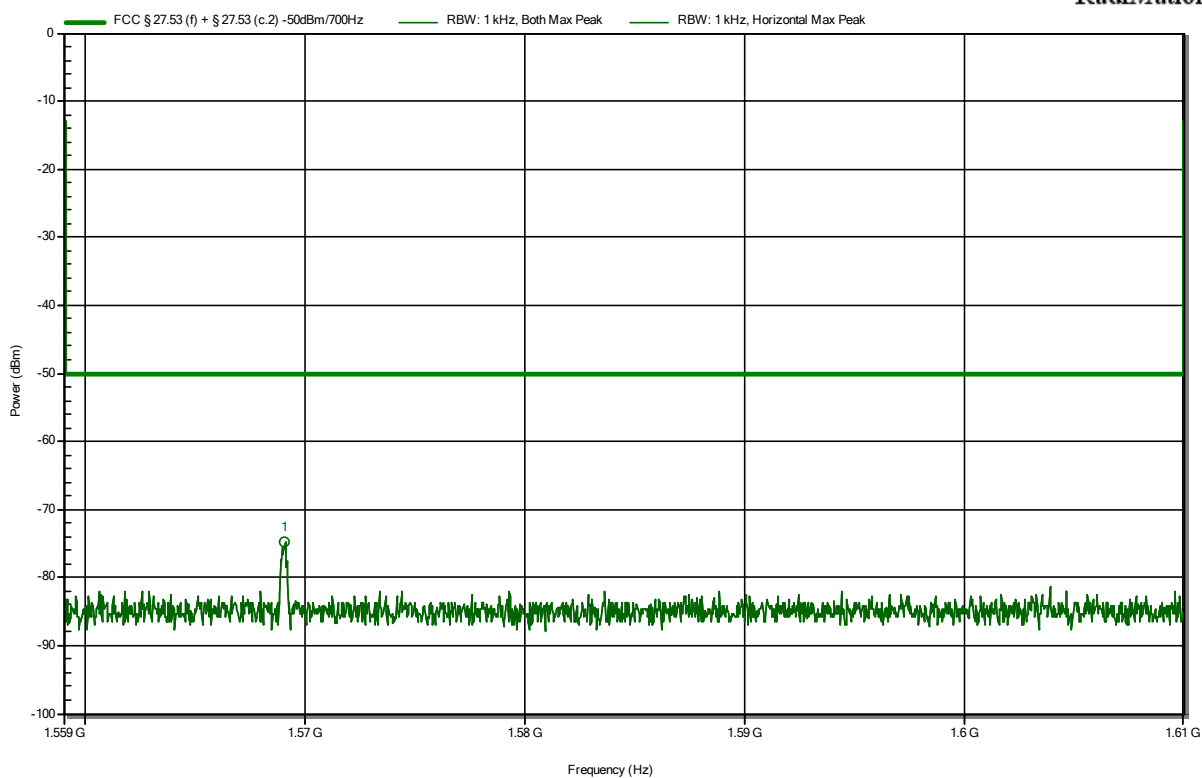


Conducted Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD13, CH 23255, QPSK, Cell BW 5MHz, 1 RB Start 12, Max power
 Port: Main antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note: 1.05GHz Highpass filter (EF01671)

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RadiMation



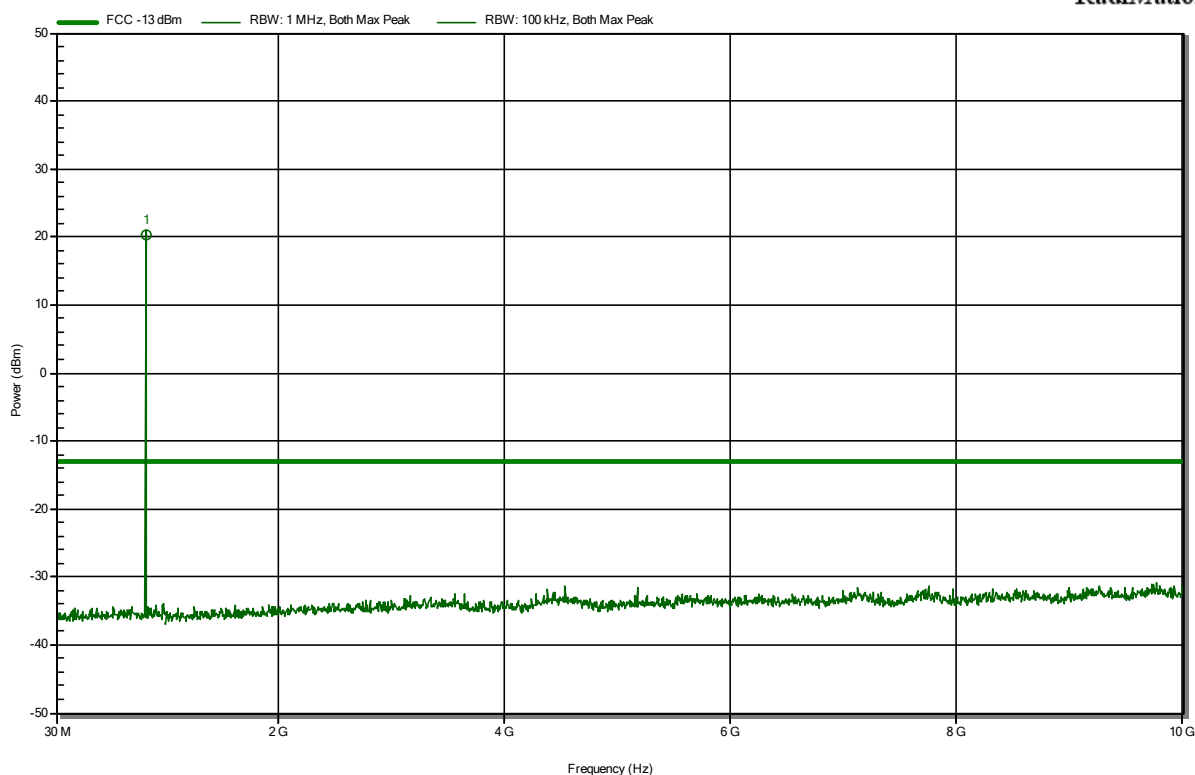
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.569 GHz	-74.9 dBm	-50.0 dBm	-24.86 dB	Pass

Conducted Spurious Emissions according to 47 CFR Part 90S

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD26, CH 26740, QPSK, Cell BW 1.4MHz, 3 RB Start 3, Max power
 Port: Main antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note: Marker1 is uplink

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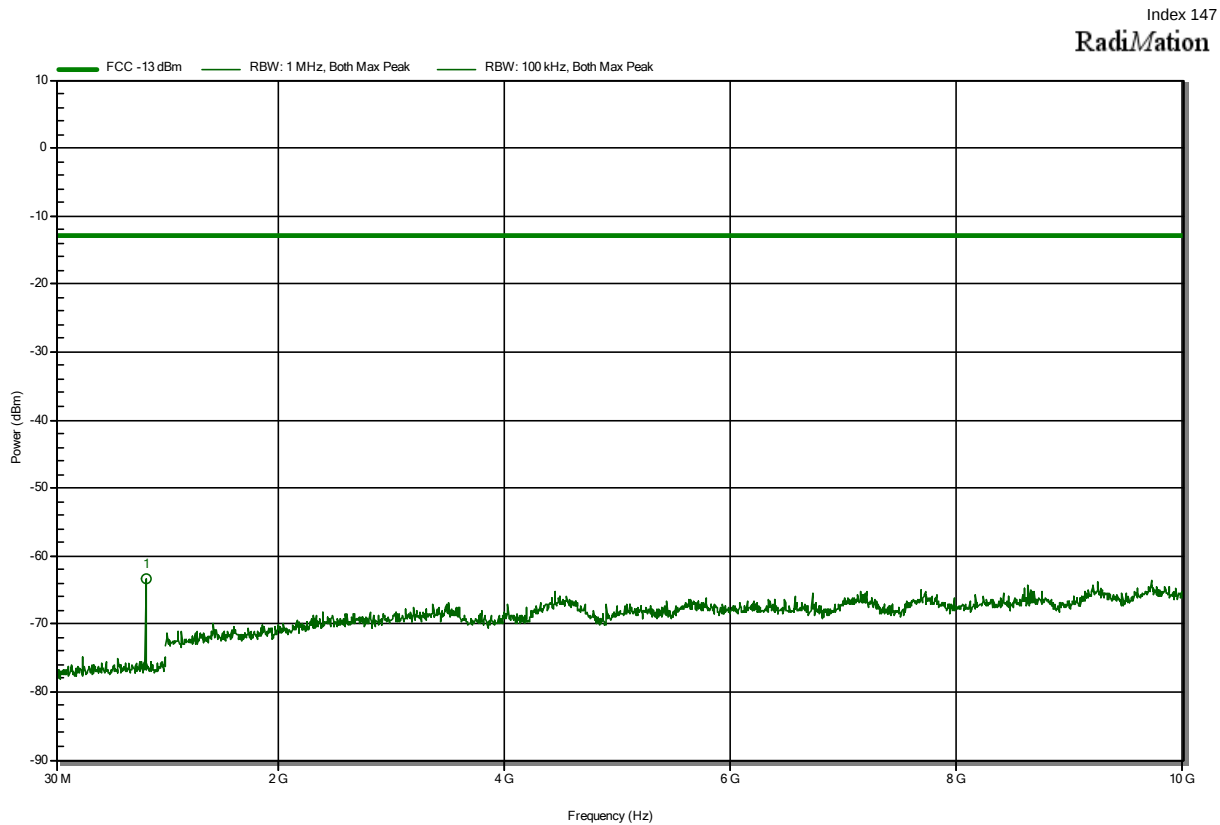
RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
819.418 MHz	20.2 dBm	---	---	uplink

Conducted Spurious Emissions according to 47 CFR Part 90S

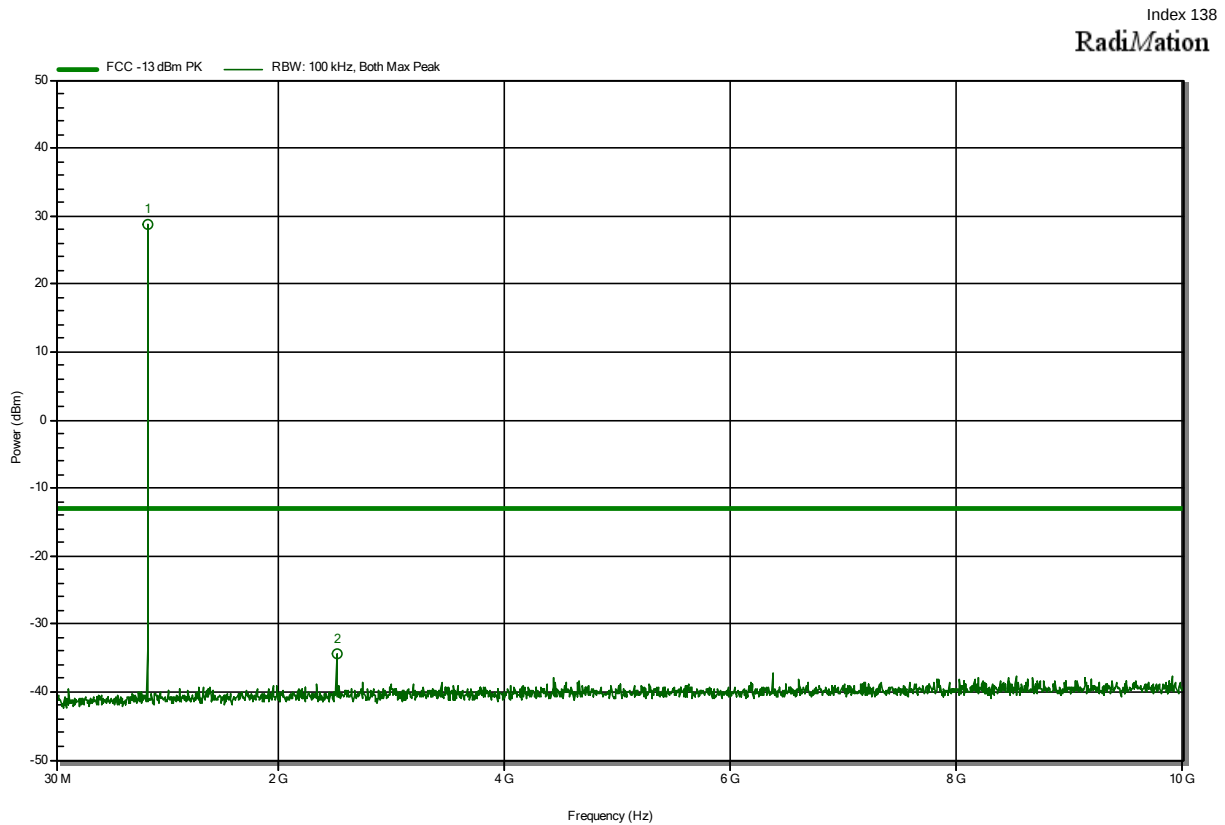
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; FDD26, CH 26740, QPSK, Cell BW 1.4MHz, 3 RB Start 3, Max power
 Port: Diversity antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
819.418 MHz	-63.4 dBm	-13 dBm	-50.44 dB	Pass

Conducted Spurious Emissions according to 47 CFR Part 22H; RSS-132 Issue 3

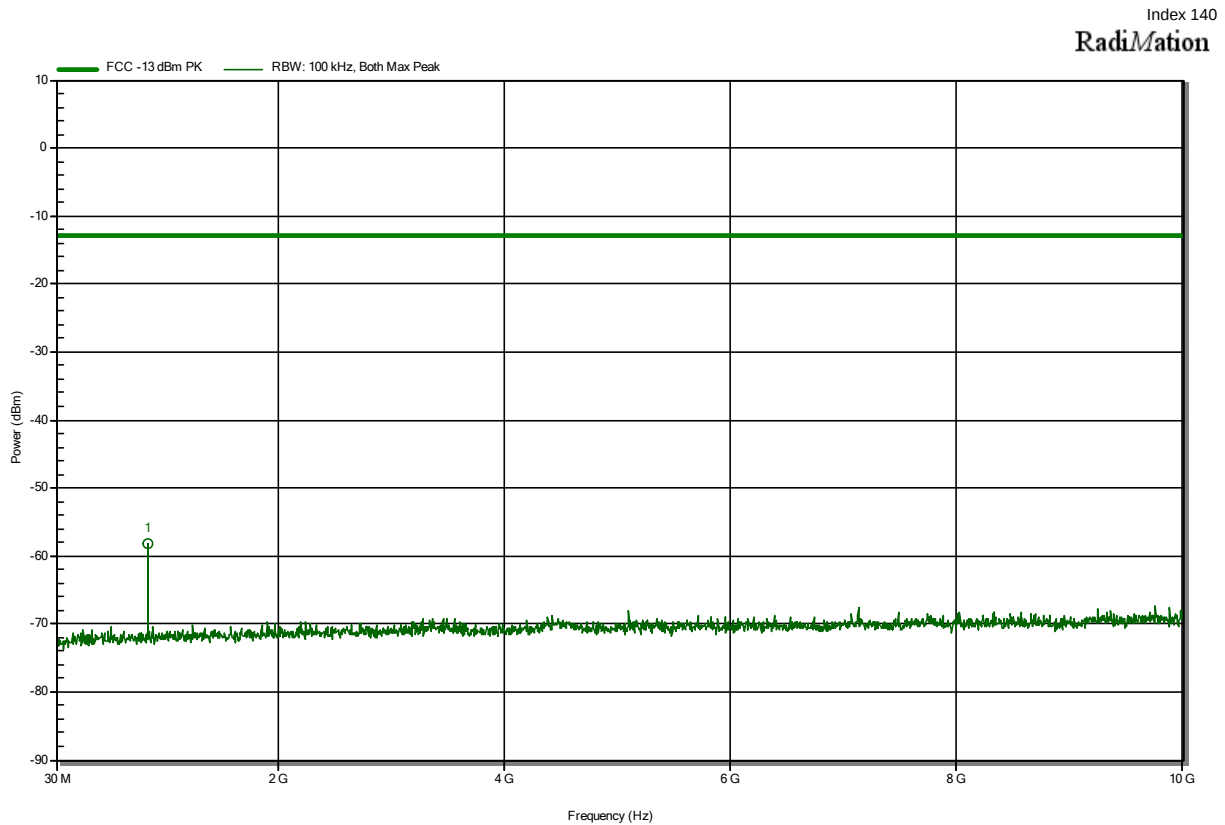
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; GPRS850, CH190, Gamma3, Slot 3
 Port: Main antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note: Marker1 is uplink



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
836.573 MHz	28.7 dBm	---	---	uplink
2.51 GHz	-34.3 dBm	-13 dBm	-21.34 dB	Pass

Conducted Spurious Emissions according to 47 CFR Part 22H; RSS-132 Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Florian Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Mode: Tx; GPRS850, CH190, Gamma3, Slot 3
 Port: Diversity antenna terminal
 Test Date: Tuesday, July 20, 2021
 Note:

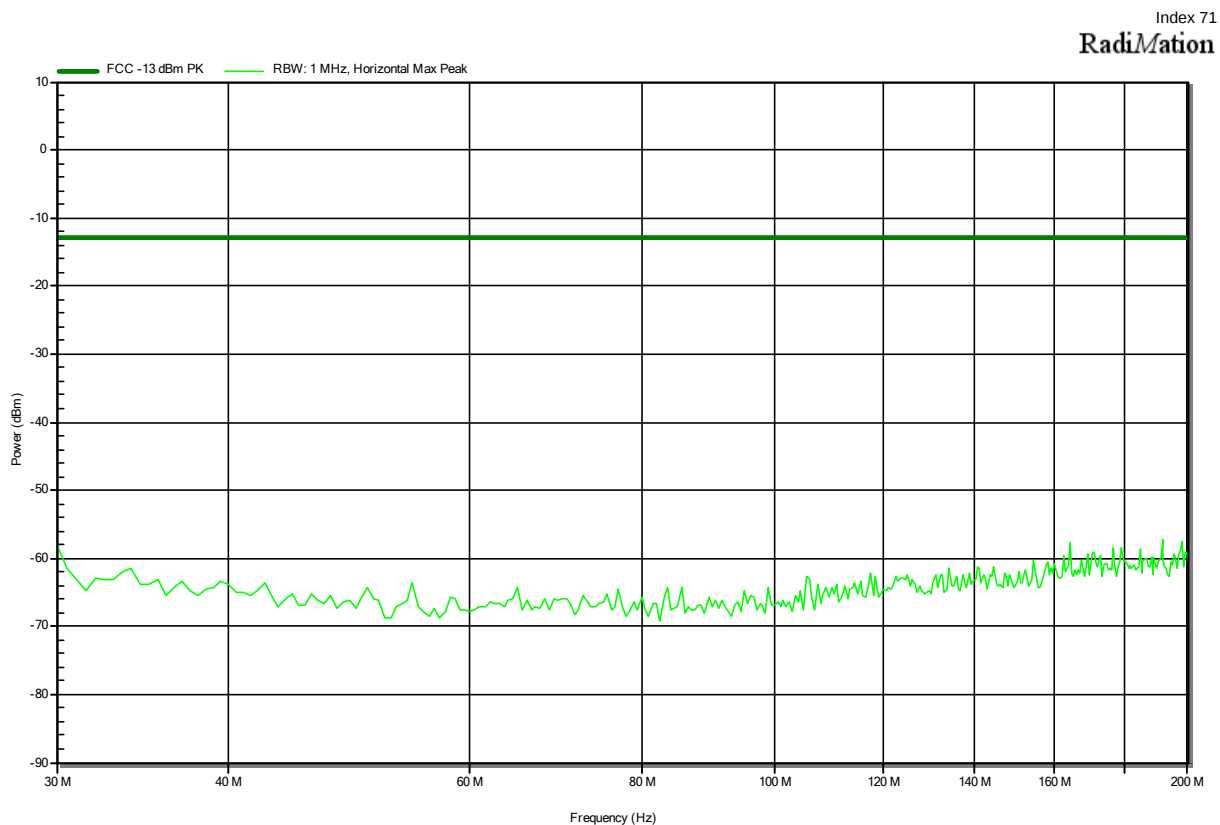


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
836.241 MHz	-58.1 dBm	-13 dBm	-45.08 dB	Pass

ANNEX B Transmitter radiated emissions

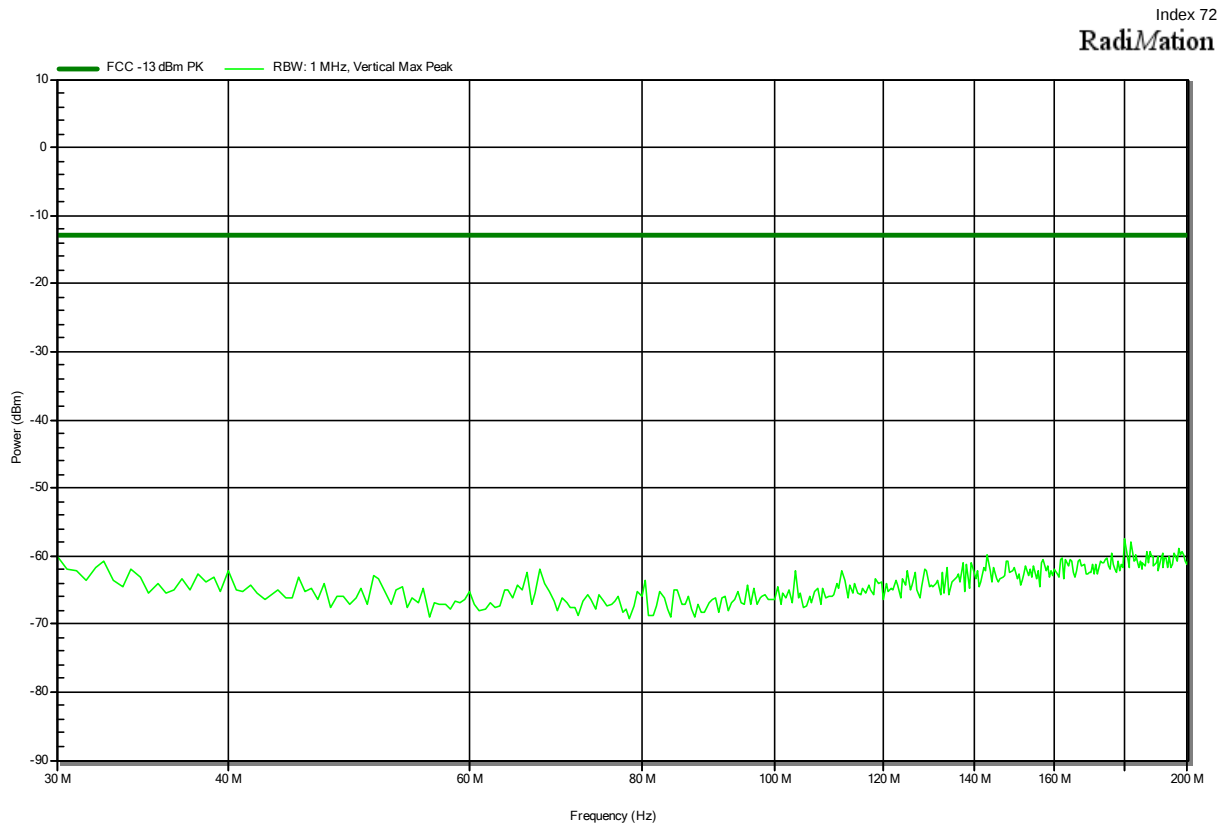
Radiated Spurious Emissions according to 47 CFR Part 24E; RSS-133, Issue 6+A1

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD2, CH 18900, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-16
 Note:



Radiated Spurious Emissions according to 47 CFR Part 24E; RSS-133, Issue 6+A1

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD2, CH 18900, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-16
 Note:

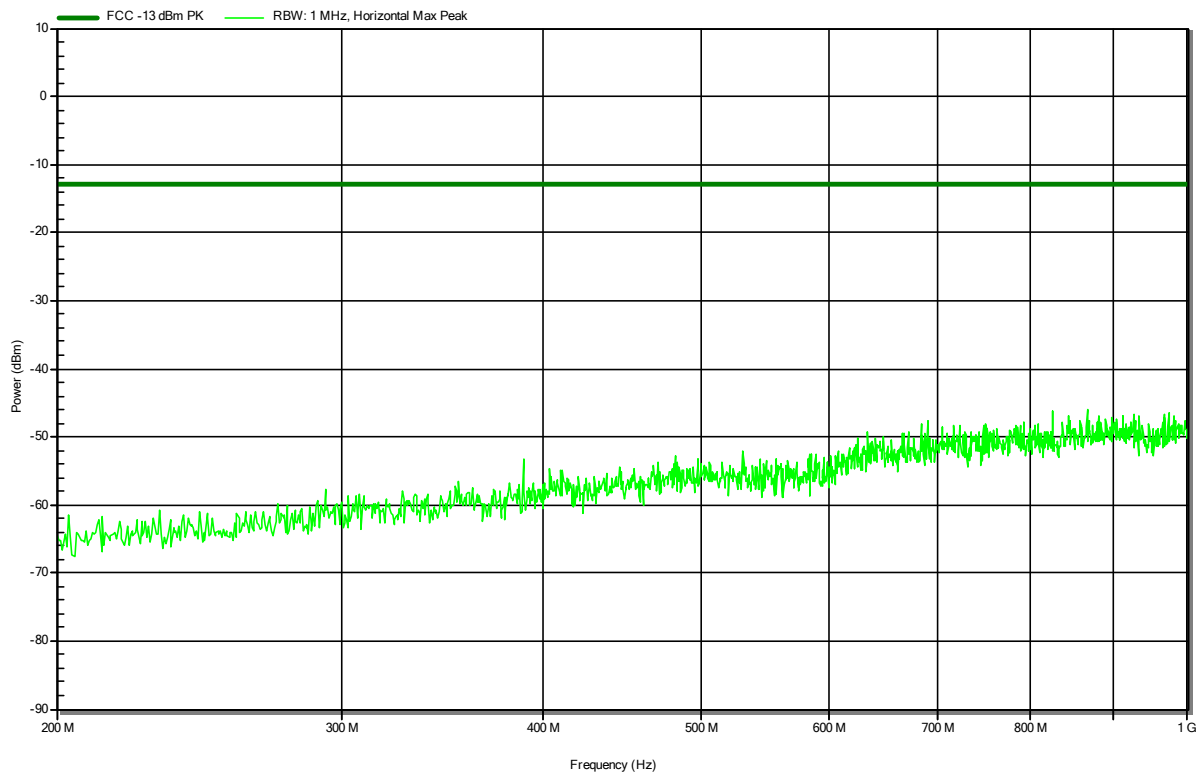


Radiated Spurious Emissions according to 47 CFR Part 24E; RSS-133, Issue 6+A1

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD2, CH 18900, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-16
 Note:

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RadiMation

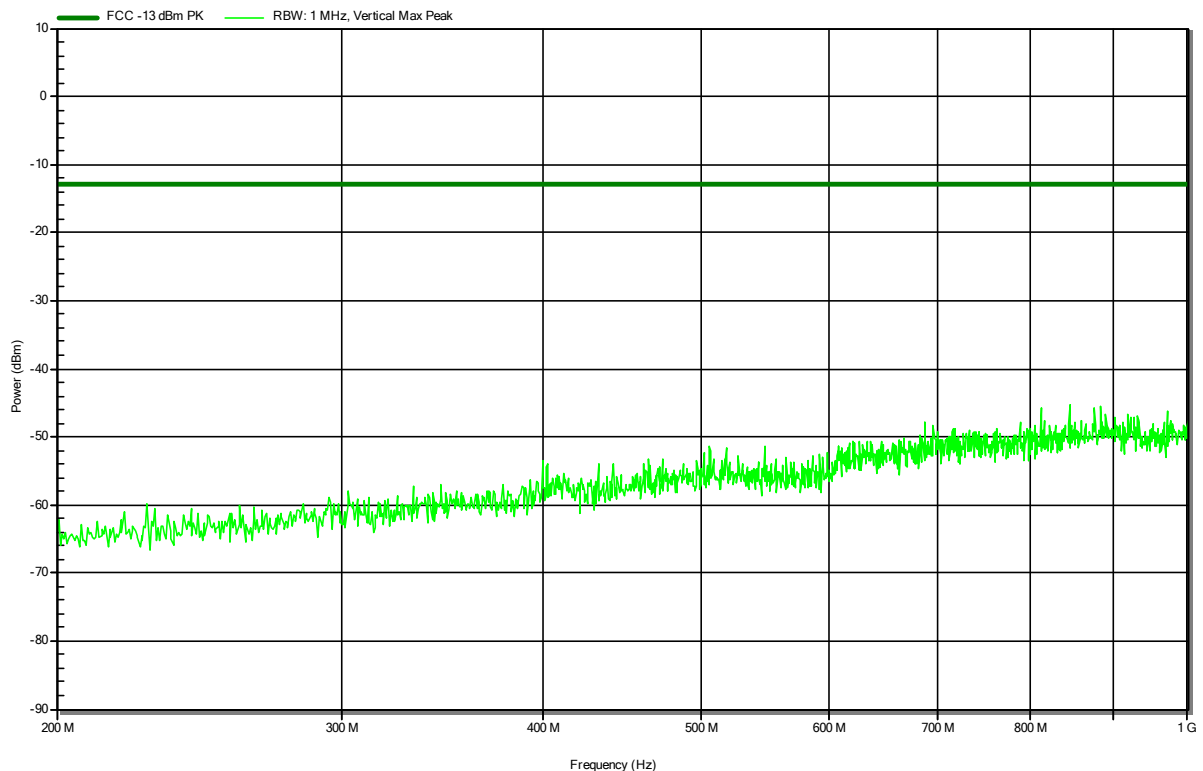


Radiated Spurious Emissions according to 47 CFR Part 24E; RSS-133, Issue 6+A1

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD2, CH 18900, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-16
 Note:

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RadiMation

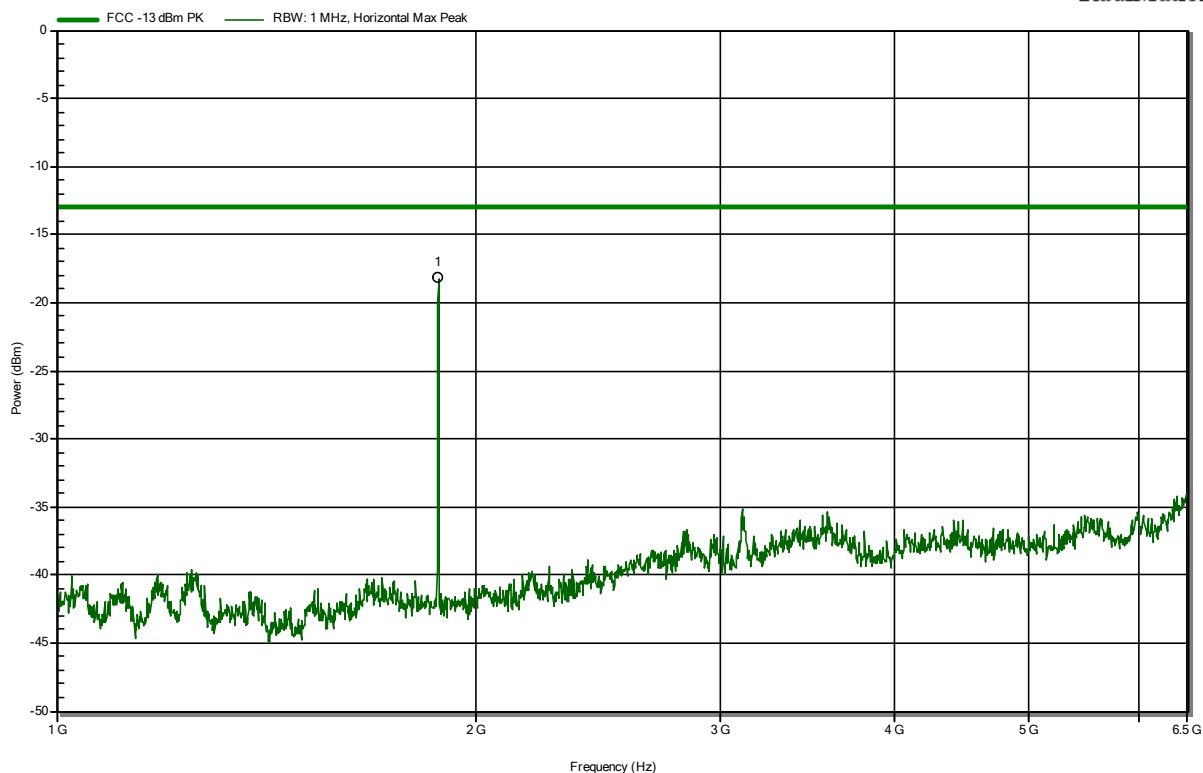


Radiated Spurious Emissions according to 47 CFR Part 24E; RSS-133, Issue 6+A1

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120B, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD2, CH 18900, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note: Marker1 is uplink

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RadiMation



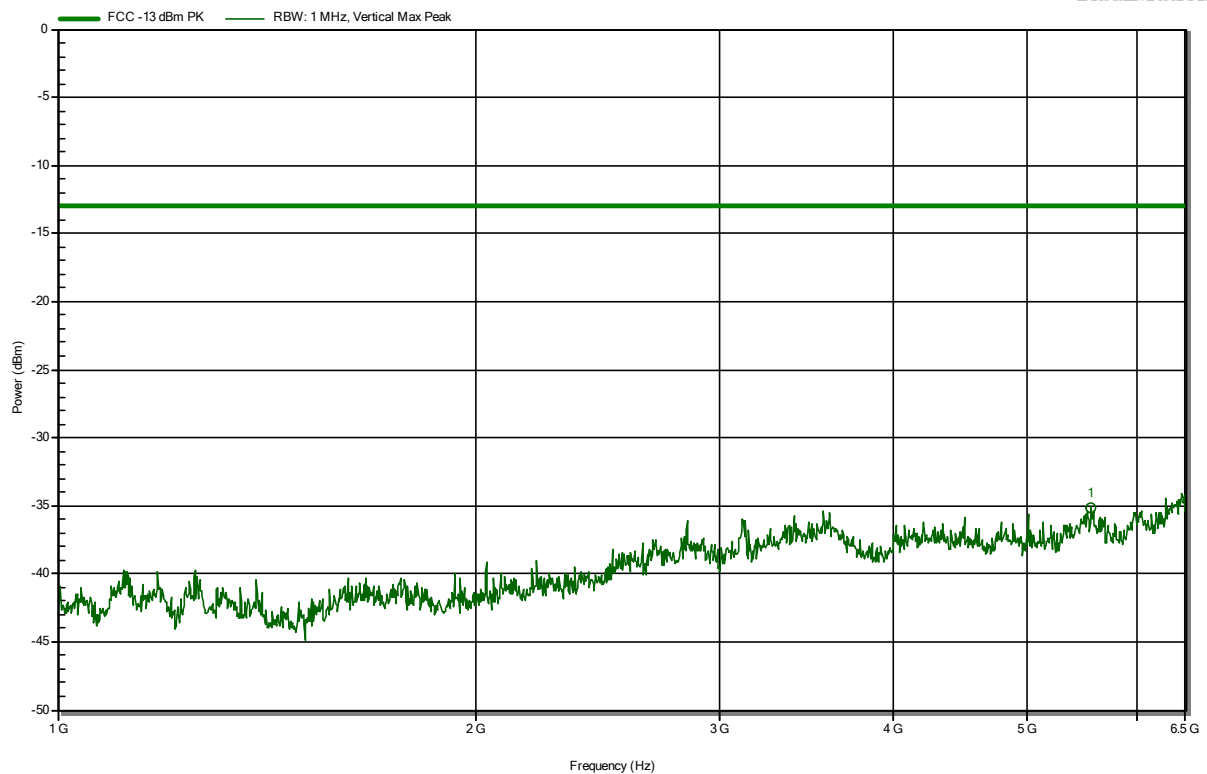
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.88 GHz	---	---	---	uplink

Radiated Spurious Emissions according to 47 CFR Part 24E; RSS-133, Issue 6+A1

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120B, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD2, CH 18900, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note:

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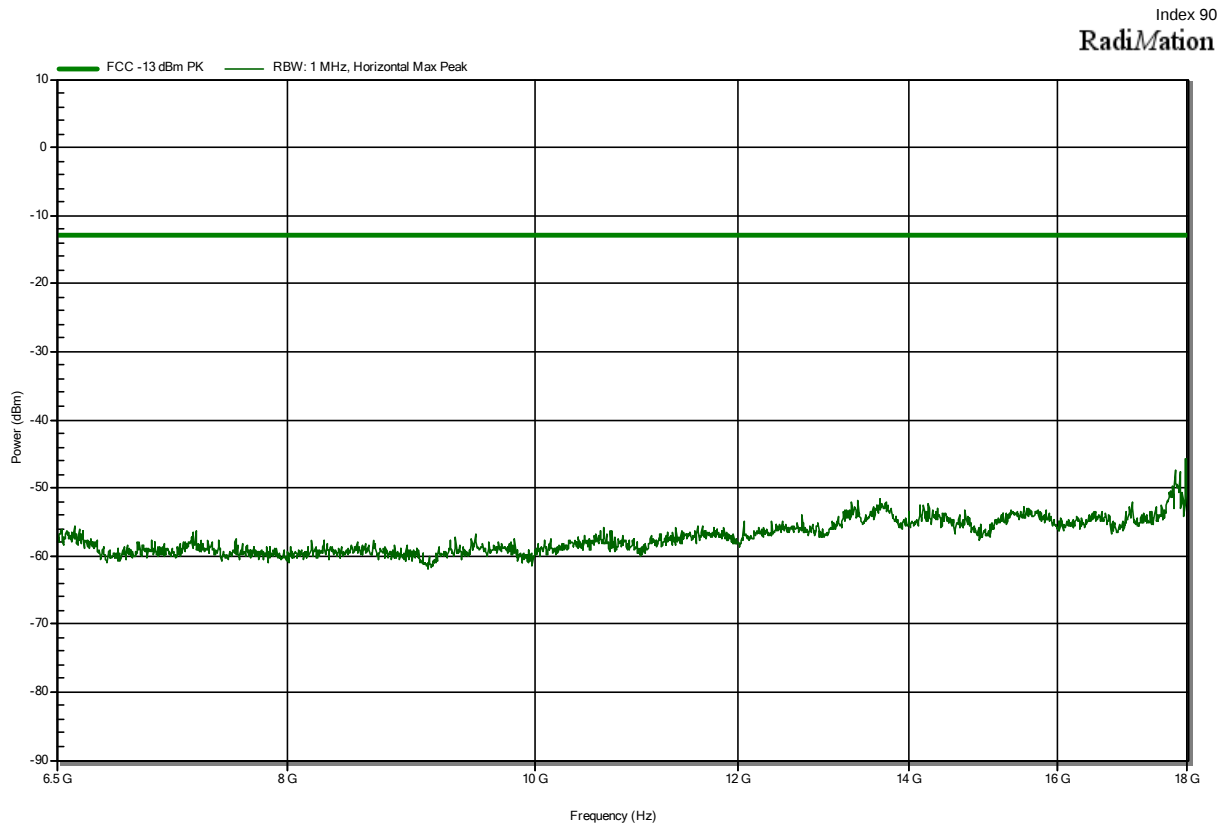
RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
5.554 GHz	-35.2 dBm	-13 dBm	-22.18 dB	Pass

Radiated Spurious Emissions according to 47 CFR Part 24E; RSS-133, Issue 6+A1

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck HWRD 650, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD2, CH 18900, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note:

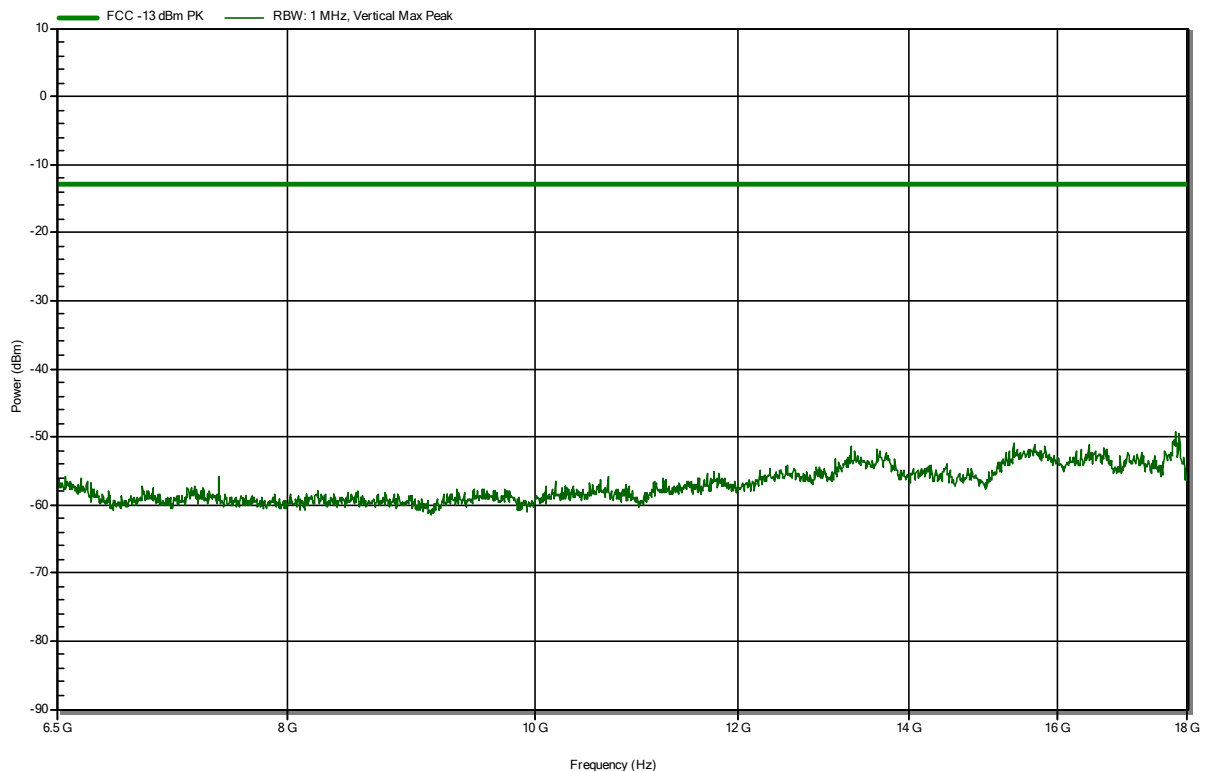


Radiated Spurious Emissions according to 47 CFR Part 24E; RSS-133, Issue 6+A1

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck HWRD 650, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD2, CH 18900, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note:

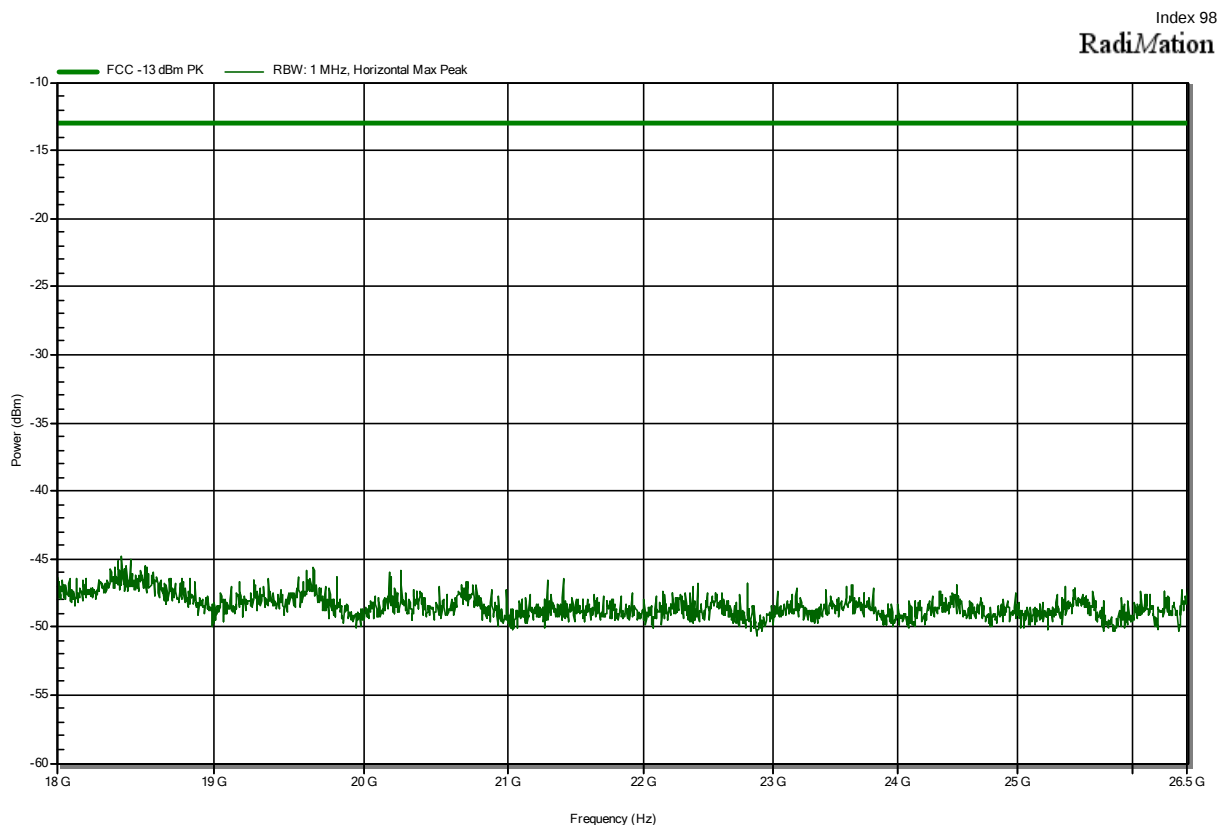
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RadiMation



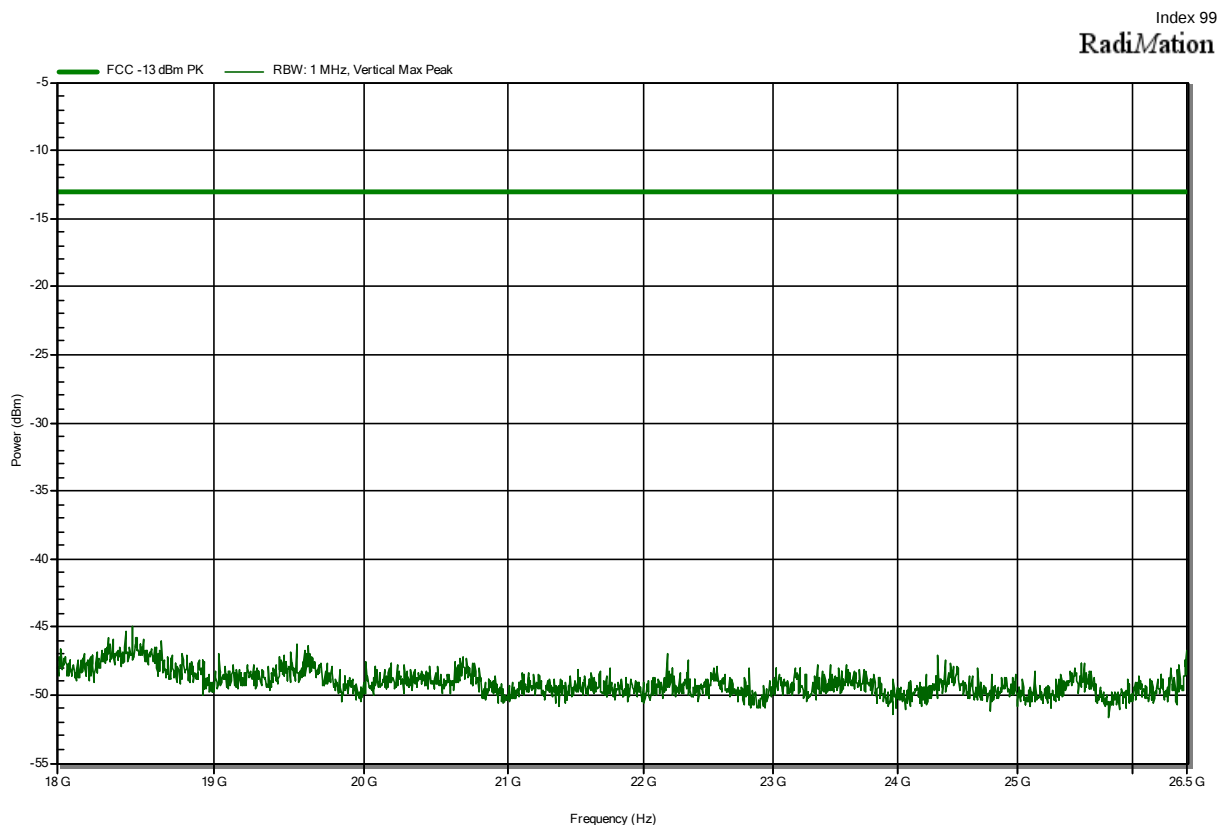
Radiated Spurious Emissions according to 47 CFR Part 24E; RSS-133, Issue 6+A1

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Amplifier Research AT4560, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD2, CH 18900, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note:



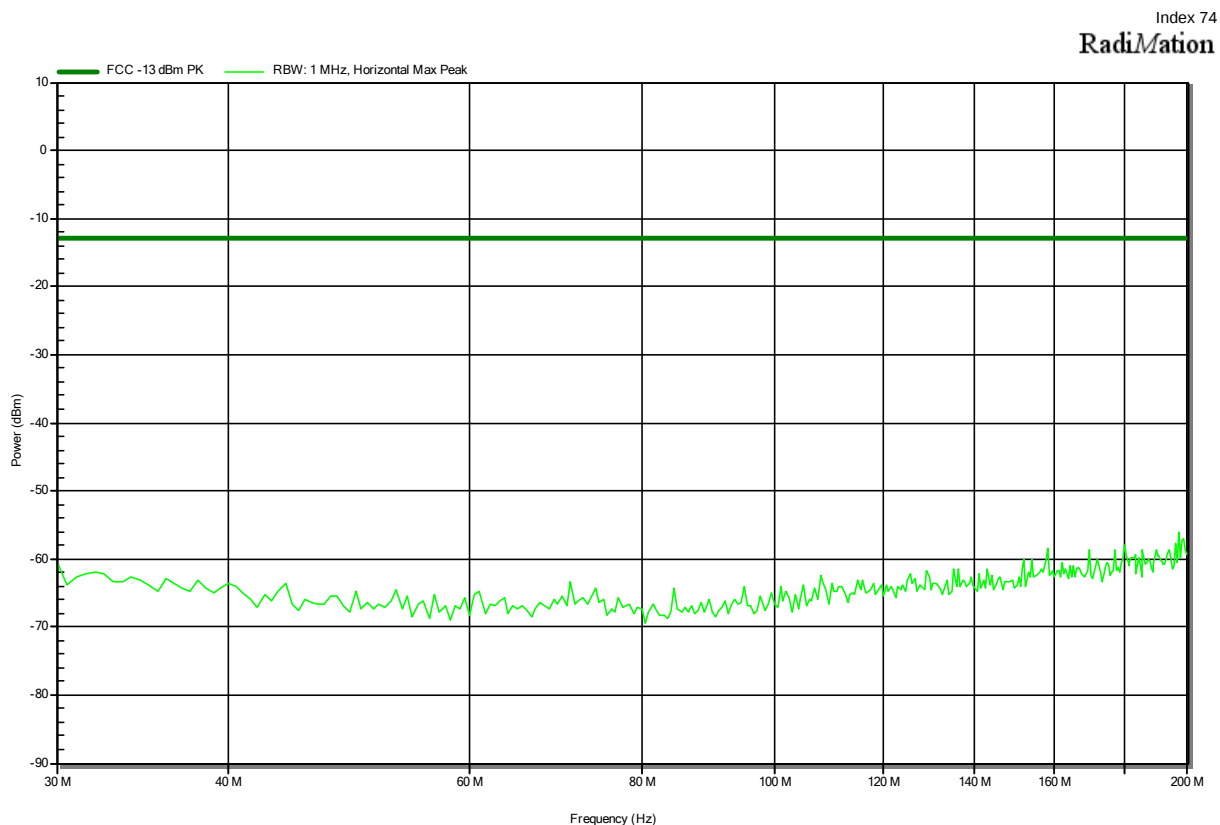
Radiated Spurious Emissions according to 47 CFR Part 24E; RSS-133, Issue 6+A1

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Amplifier Research AT4560, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD2, CH 18900, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note:



Radiated Spurious Emissions according to 47 CFR Part 27; RSS-139, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD4, CH 20175, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-16
 Note:

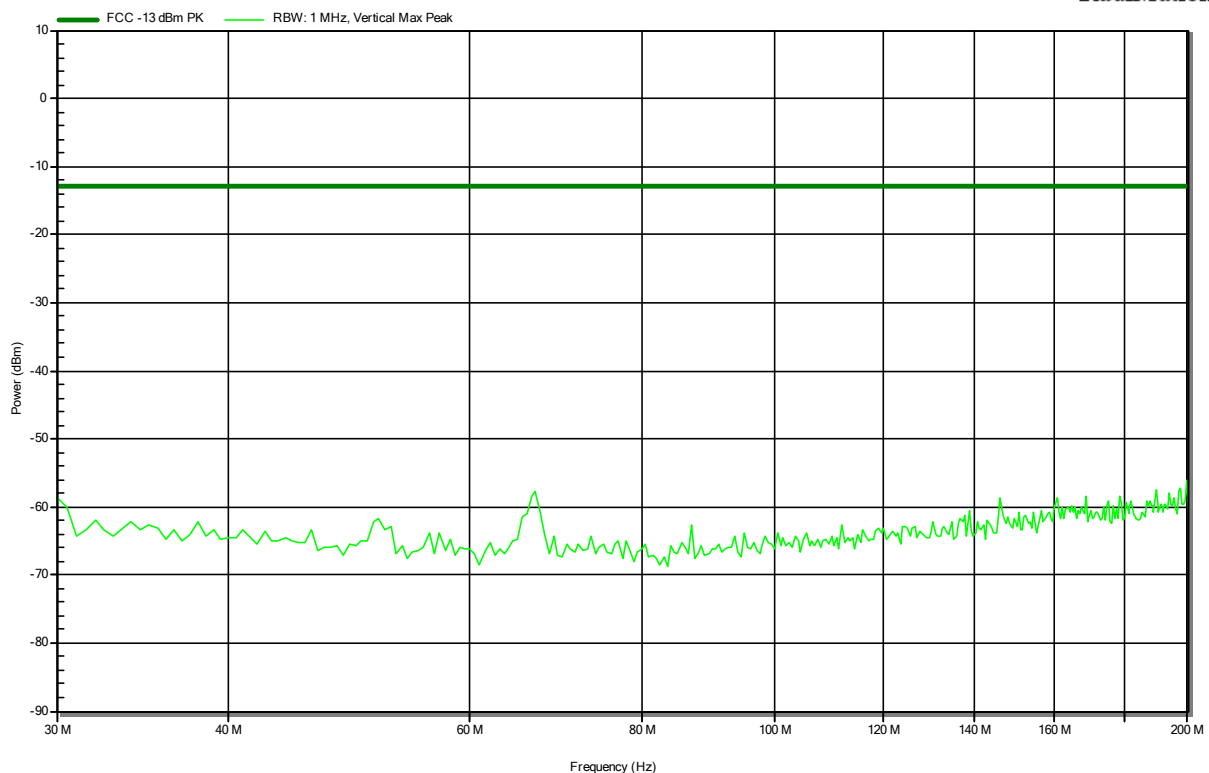


Radiated Spurious Emissions according to 47 CFR Part 27; RSS-139, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD4, CH 20175, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-16
 Note:

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RadiMation

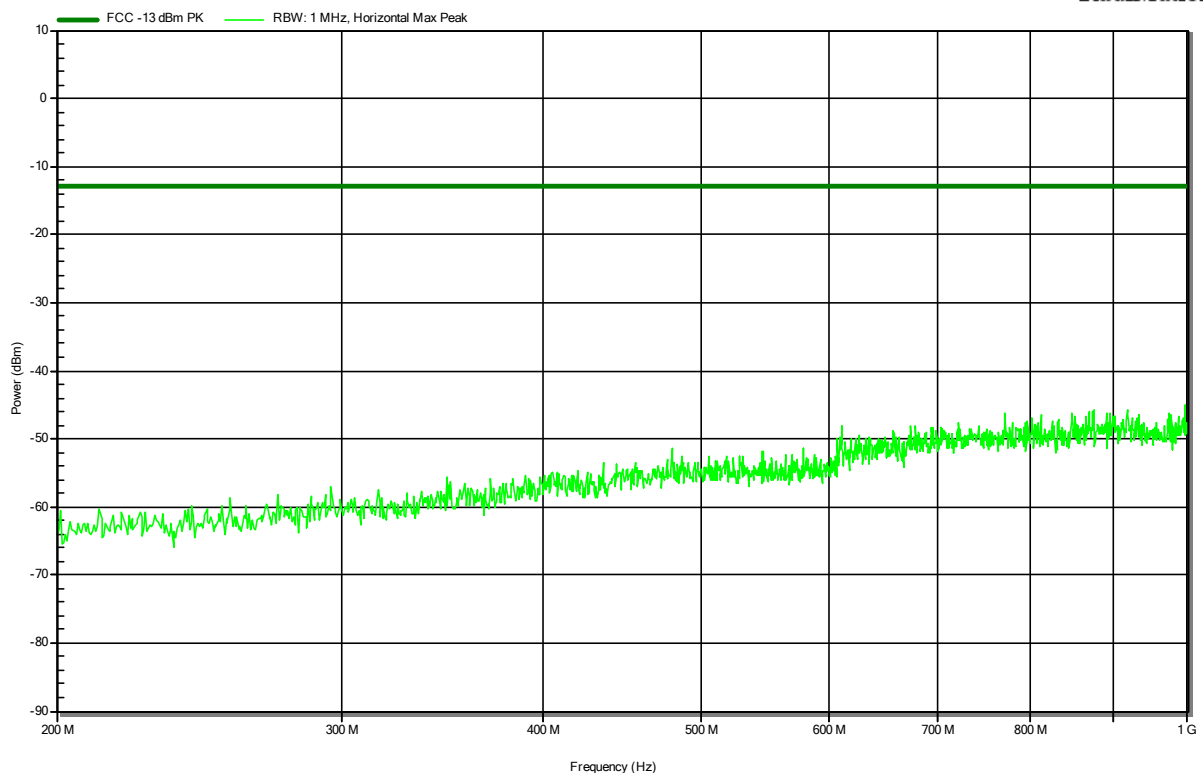


Radiated Spurious Emissions according to 47 CFR Part 27; RSS-139, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD4, CH 20175, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-15
 Note:

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RadiMation

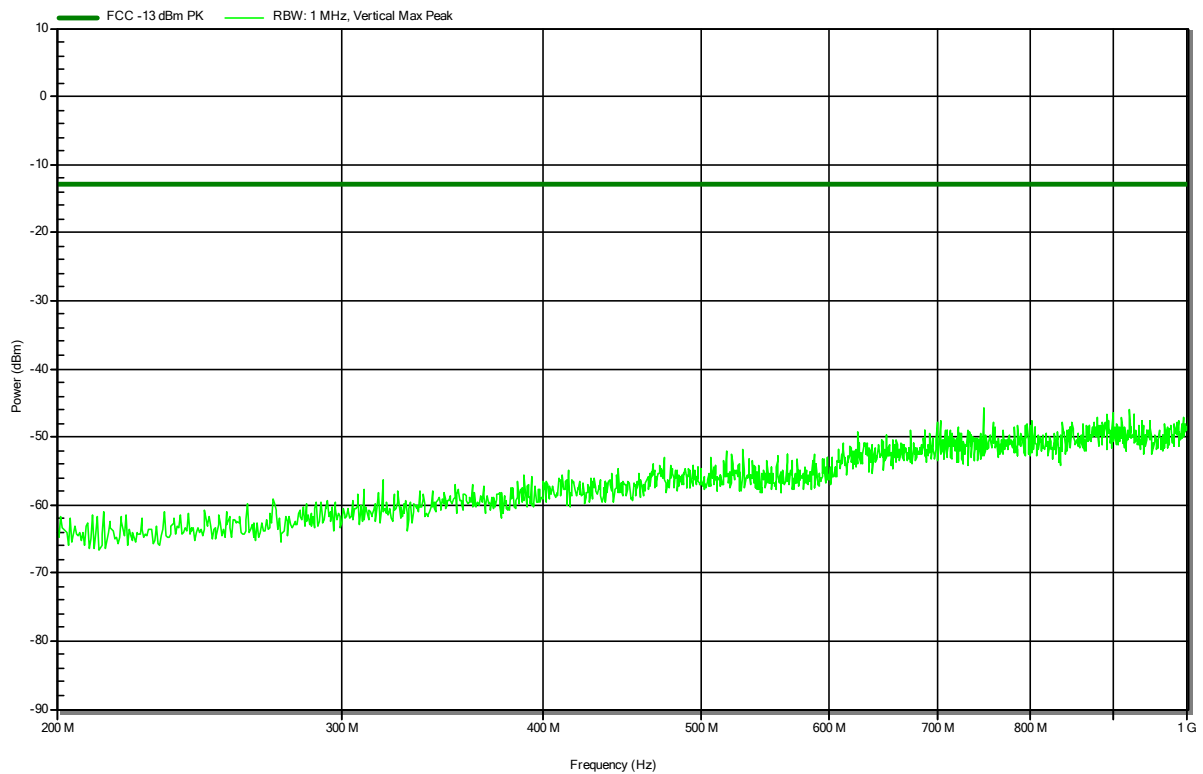


Radiated Spurious Emissions according to 47 CFR Part 27; RSS-139, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD4, CH 20175, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-16
 Note:

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RadiMation

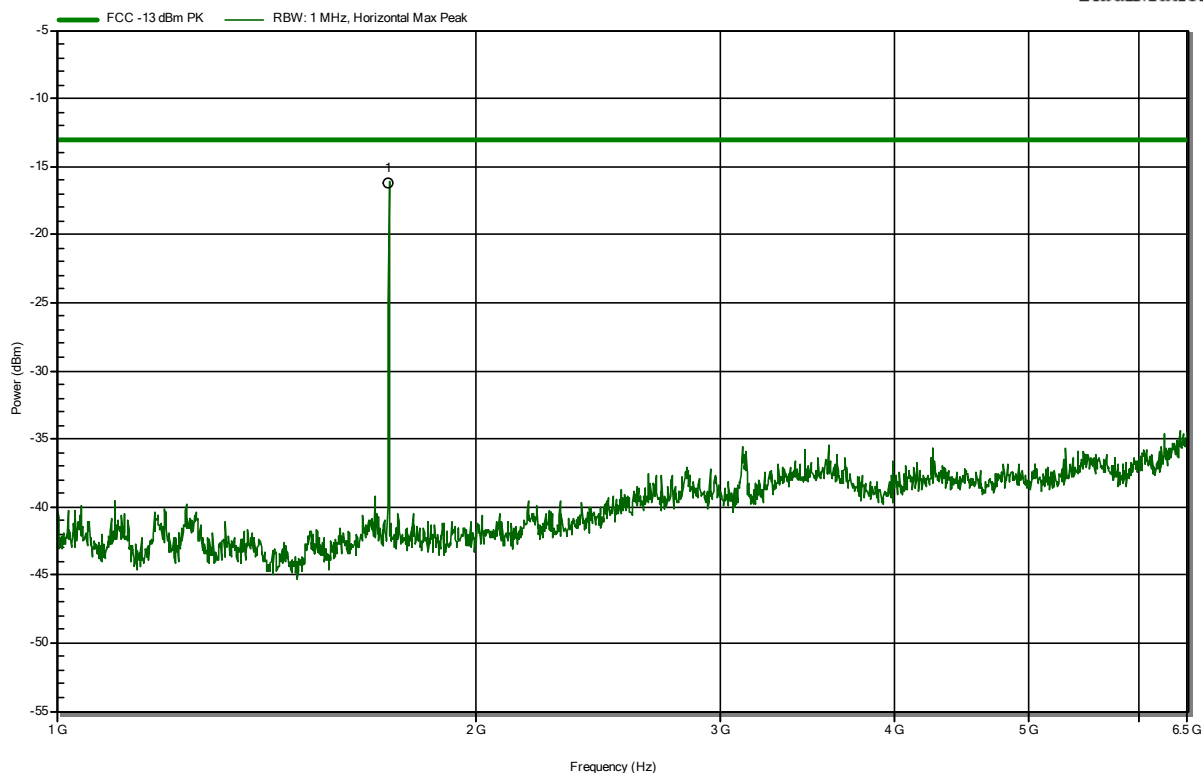


Radiated Spurious Emissions according to 47 CFR Part 27; RSS-139, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120B, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD4, CH 20175, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note: Marker1 is uplink

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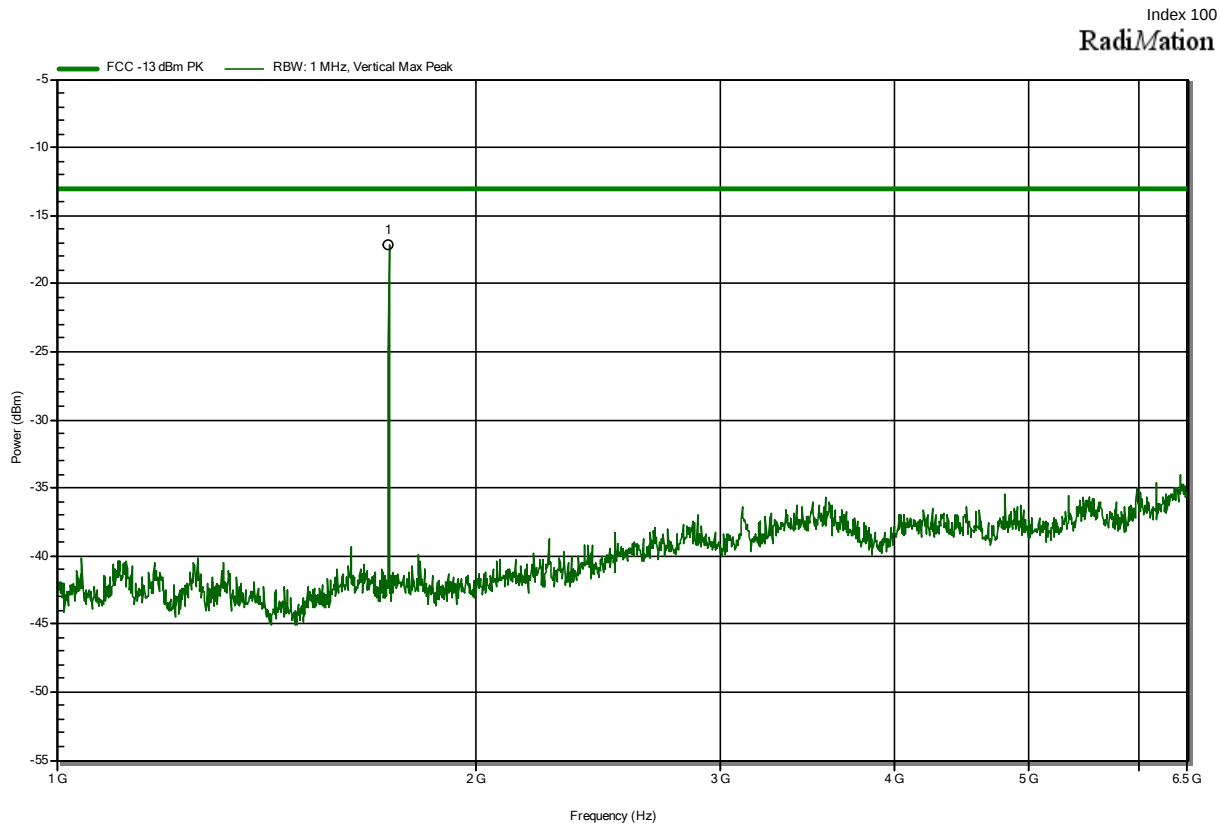
RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.732 GHz	---	---	---	uplink

Radiated Spurious Emissions according to 47 CFR Part 27; RSS-139, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120B, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD4, CH 20175, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note: Marker1 is uplink



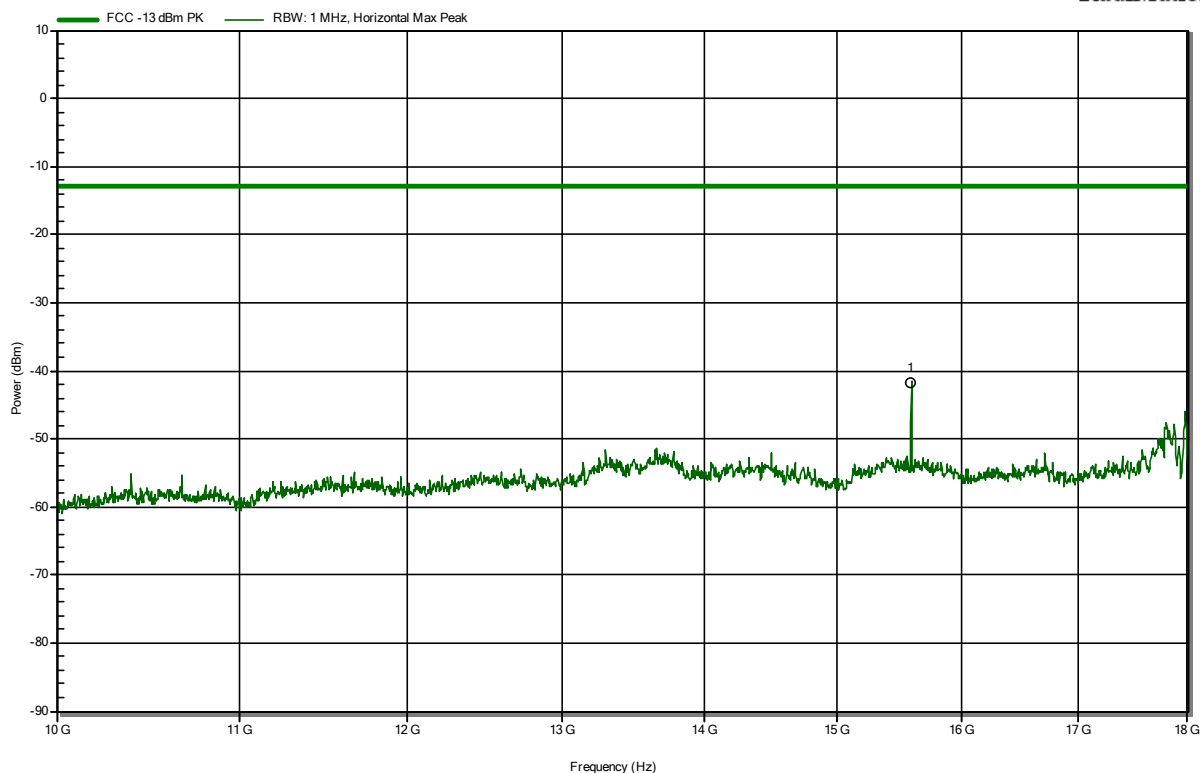
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.732 GHz	---	---	---	uplink

Radiated Spurious Emissions according to 47 CFR Part 27; RSS-139, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck HWRD 650, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD4, CH 20175, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note:

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RadiMation



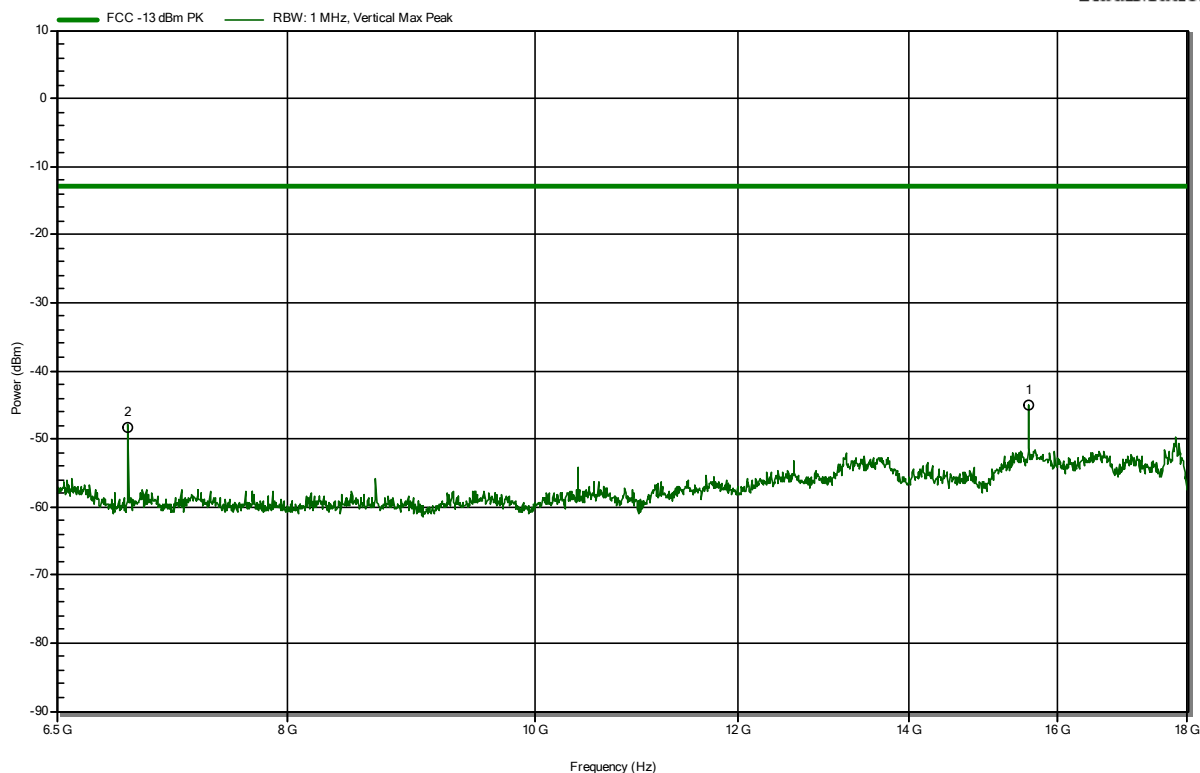
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
15.592 GHz	-41.7 dBm	-13 dBm	-28.72 dB	Pass

Radiated Spurious Emissions according to 47 CFR Part 27; RSS-139, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck HWRD 650, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD4, CH 20175, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note:

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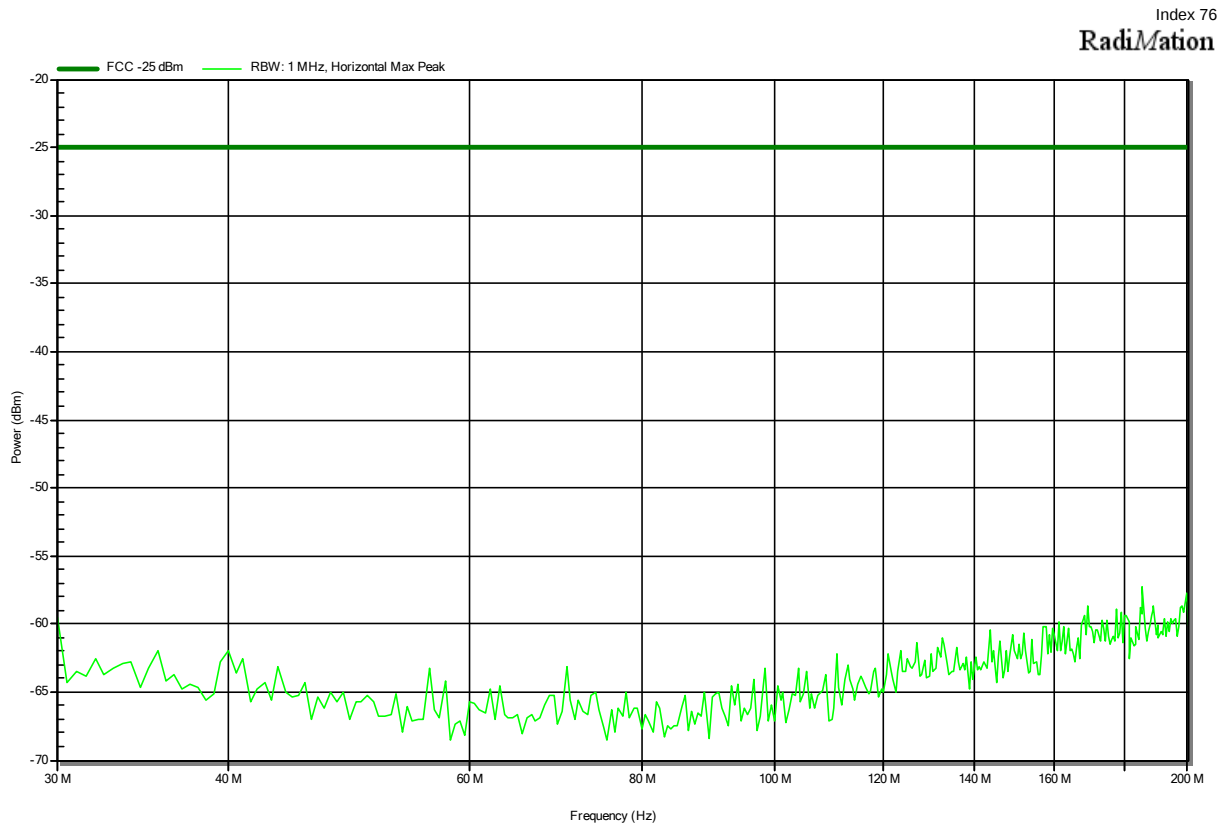
RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
6.929 GHz	-48.3 dBm	-13 dBm	-35.29 dB	Pass
15.592 GHz	-45.1 dBm	-13 dBm	-32.11 dB	Pass

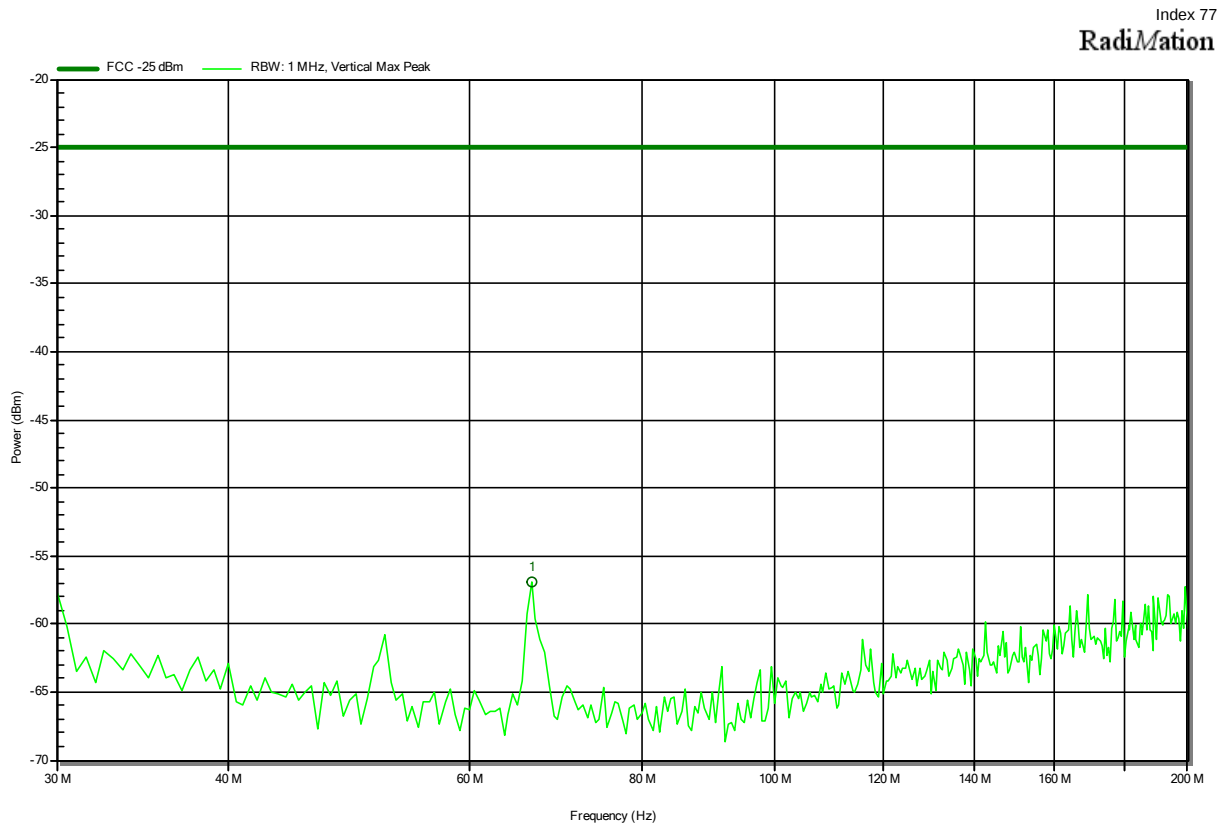
Radiated Spurious Emissions according to 47 CFR Part 27; RSS-199, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD7, CH 21350, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-16
 Note:



Radiated Spurious Emissions according to 47 CFR Part 27; RSS-199, Issue 3

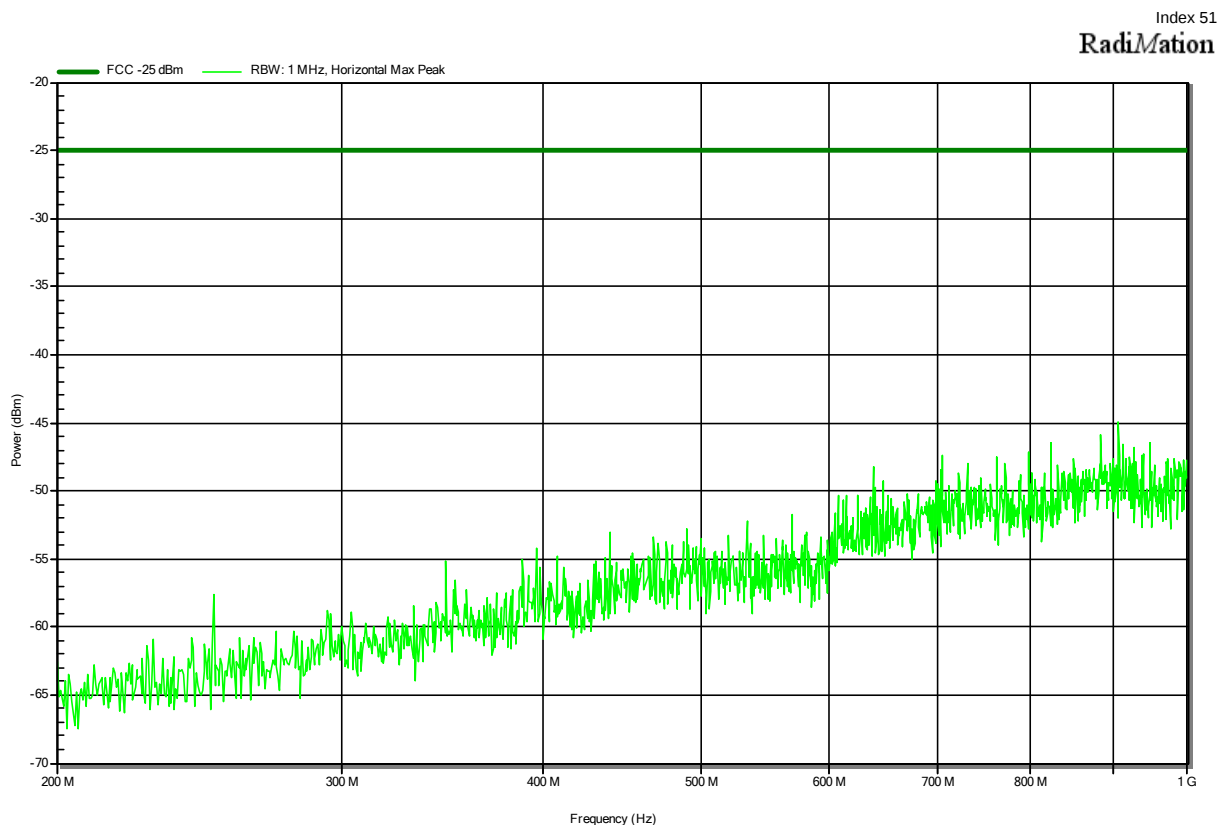
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD7, CH 21350, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-16
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
66.5 MHz	-56.9 dBm	-25 dBm	-31.9 dB	Pass

Radiated Spurious Emissions according to 47 CFR Part 27; RSS-199, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD7, CH 21350, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-15
 Note:

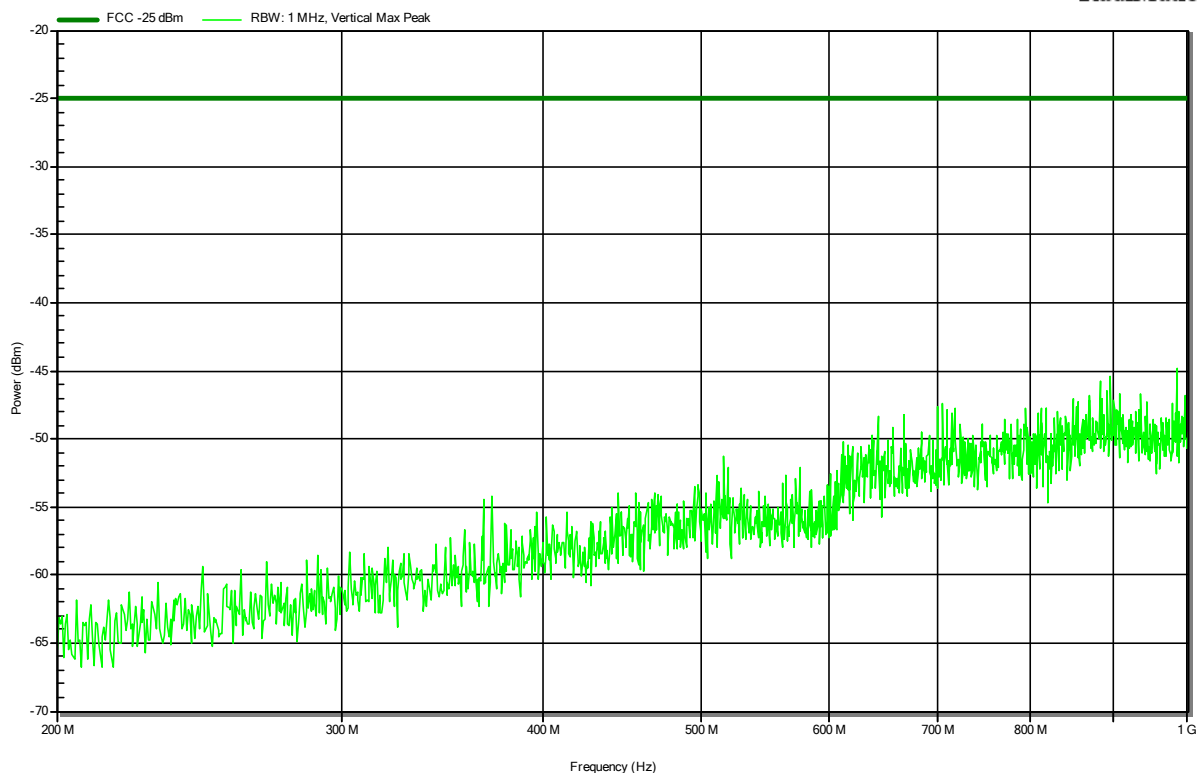


Radiated Spurious Emissions according to 47 CFR Part 27; RSS-199, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD7, CH 21350, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-16
 Note:

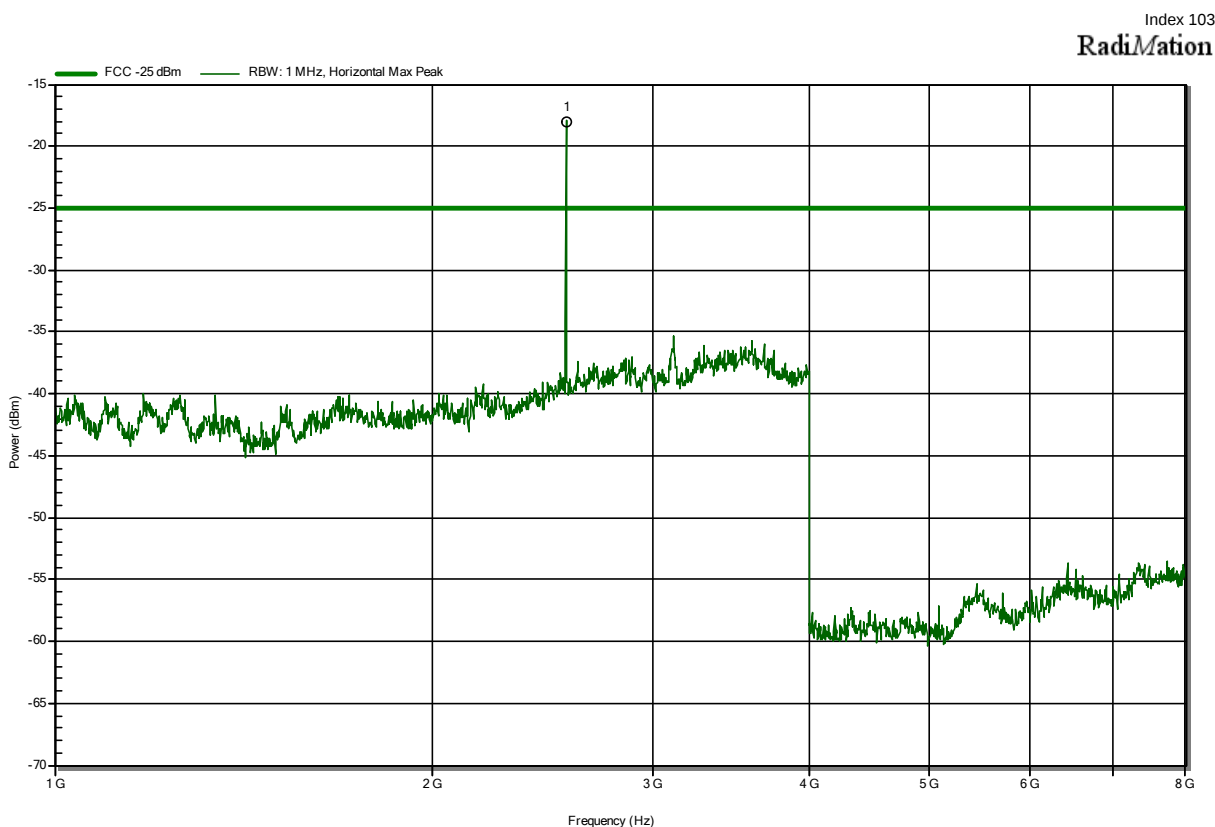
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RadiMation



Radiated Spurious Emissions according to 47 CFR Part 27; RSS-199, Issue 3

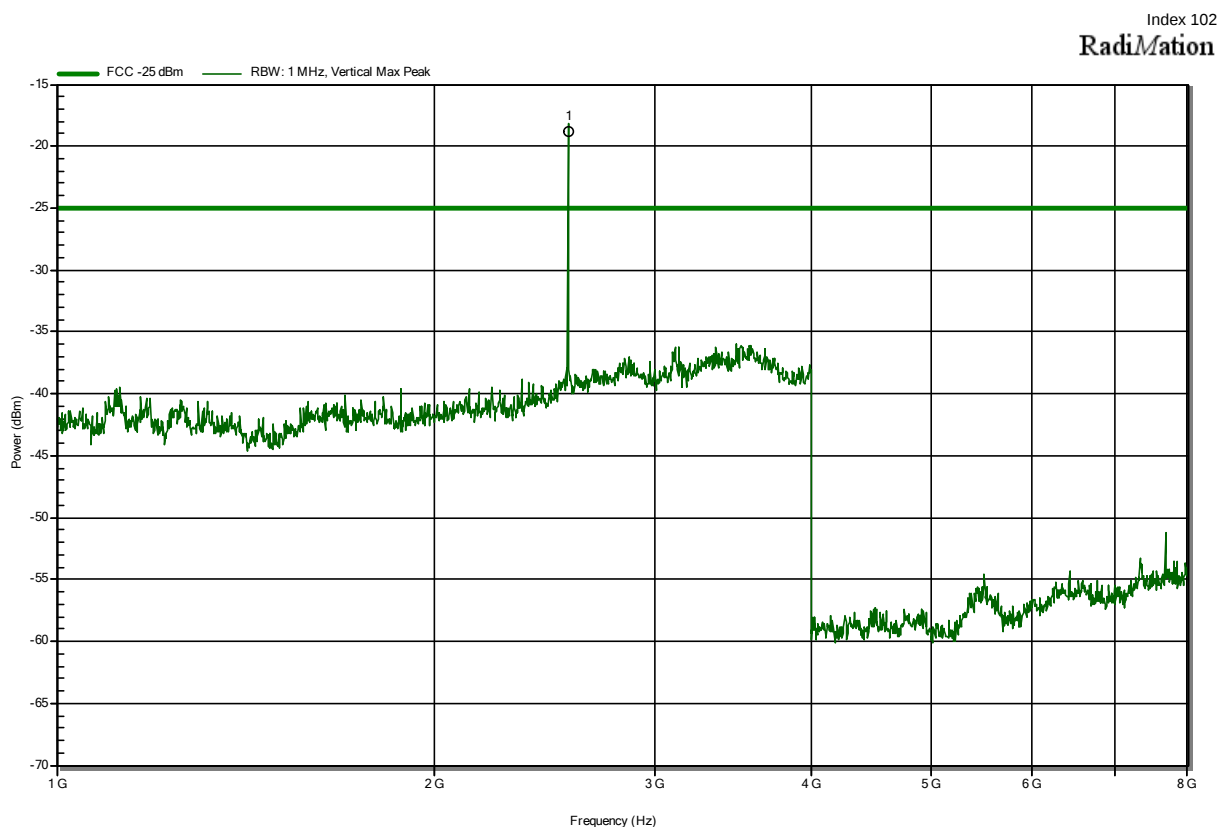
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120B, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD7, CH 21350, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note: Marker1 is uplink



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.56 GHz	---	---	---	uplink

Radiated Spurious Emissions according to 47 CFR Part 27; RSS-199, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120B, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD7, CH 21350, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note: Marker1 is uplink



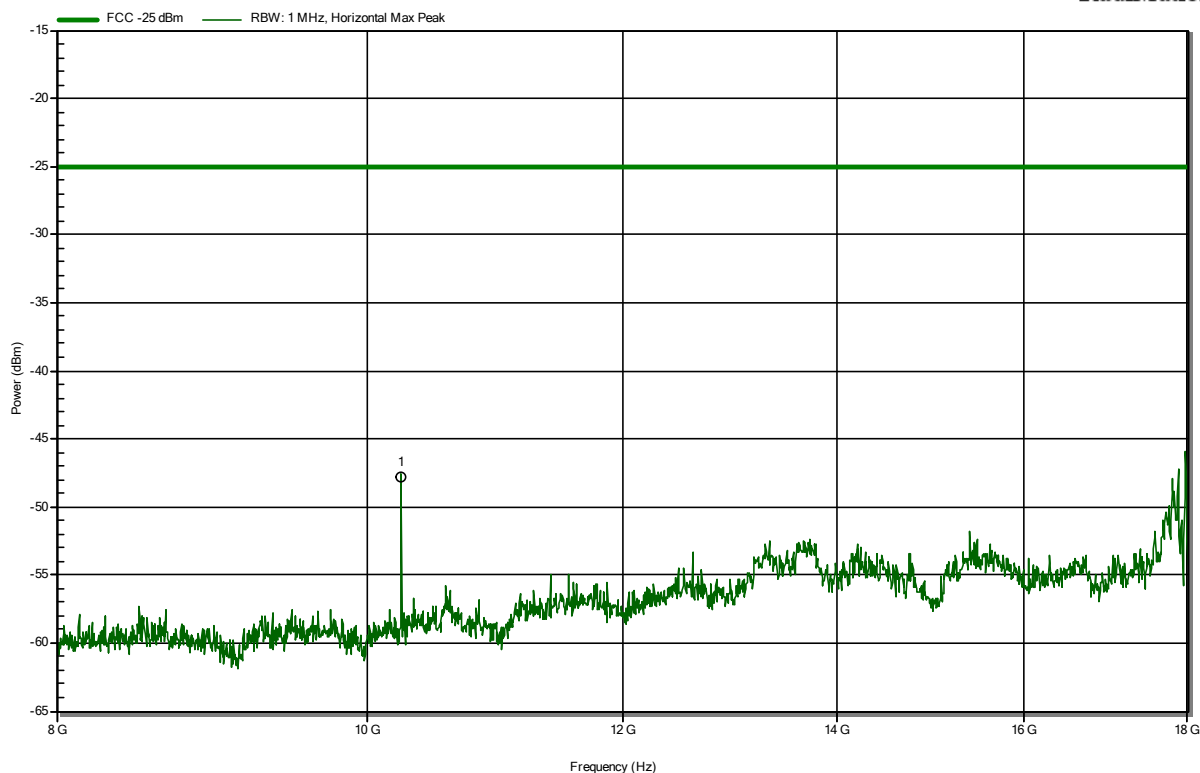
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.56 GHz	---	---	---	uplink

Radiated Spurious Emissions according to 47 CFR Part 27; RSS-199, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck HWRD 650, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD7, CH 21350, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note:

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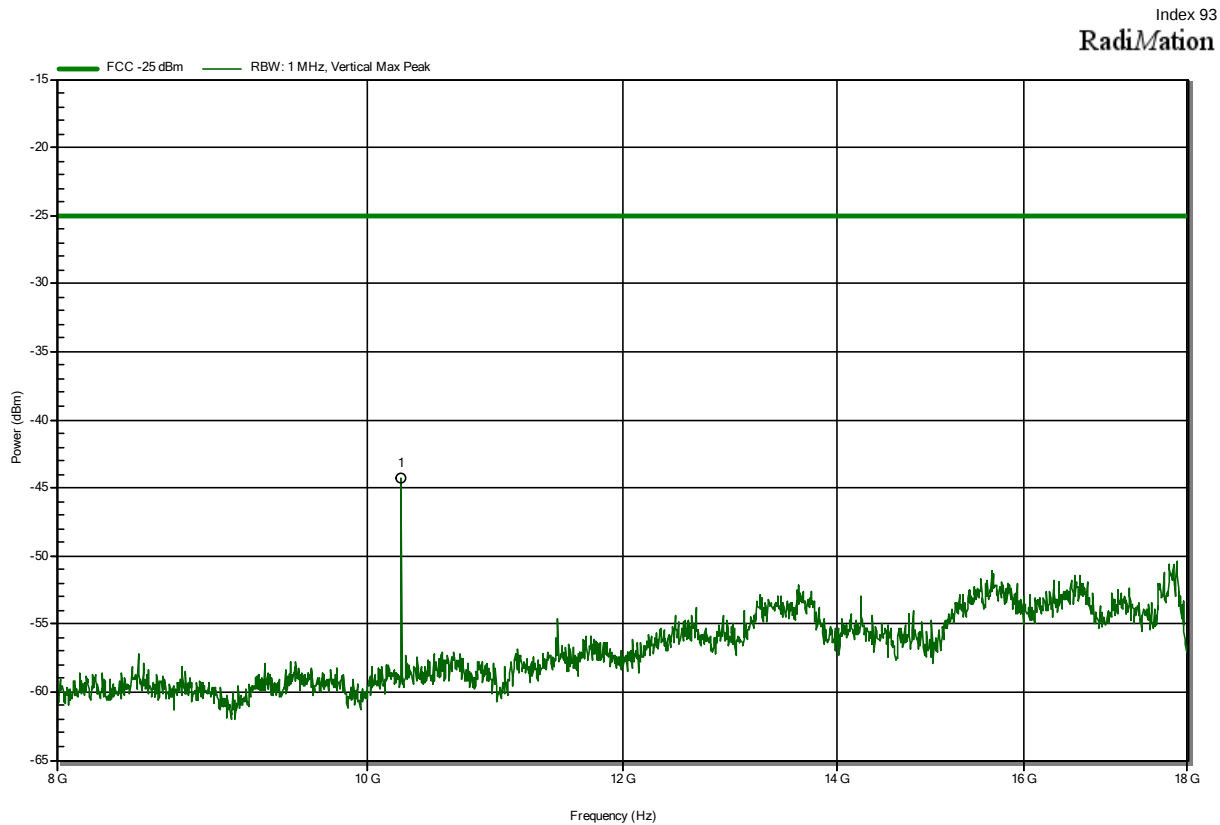
RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
10.24 GHz	-47.7 dBm	-25 dBm	-22.75 dB	Pass

Radiated Spurious Emissions according to 47 CFR Part 27; RSS-199, Issue 3

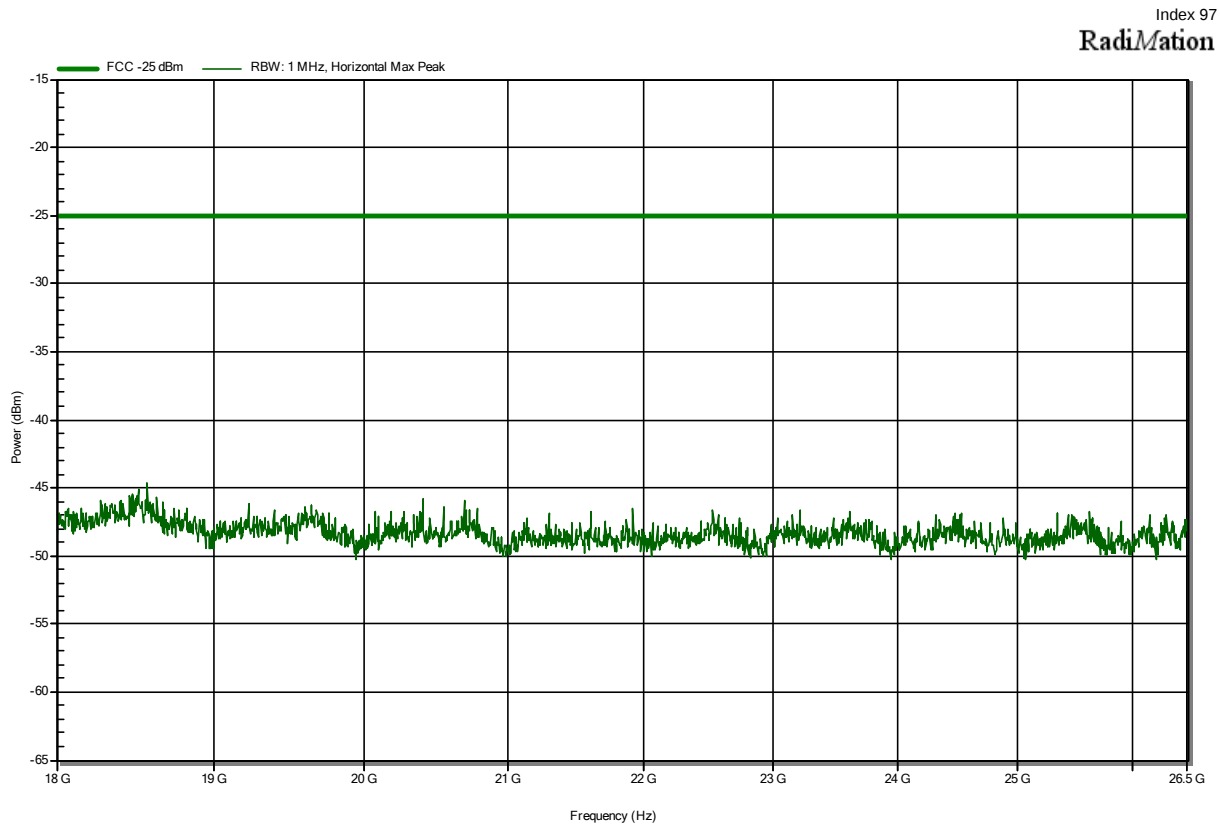
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck HWRD 650, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD7, CH 21350, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
10.239 GHz	-44.3 dBm	-25 dBm	-19.26 dB	Pass

Radiated Spurious Emissions according to 47 CFR Part 27; RSS-199, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Amplifier Research AT4560, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD7, CH 21350, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note:

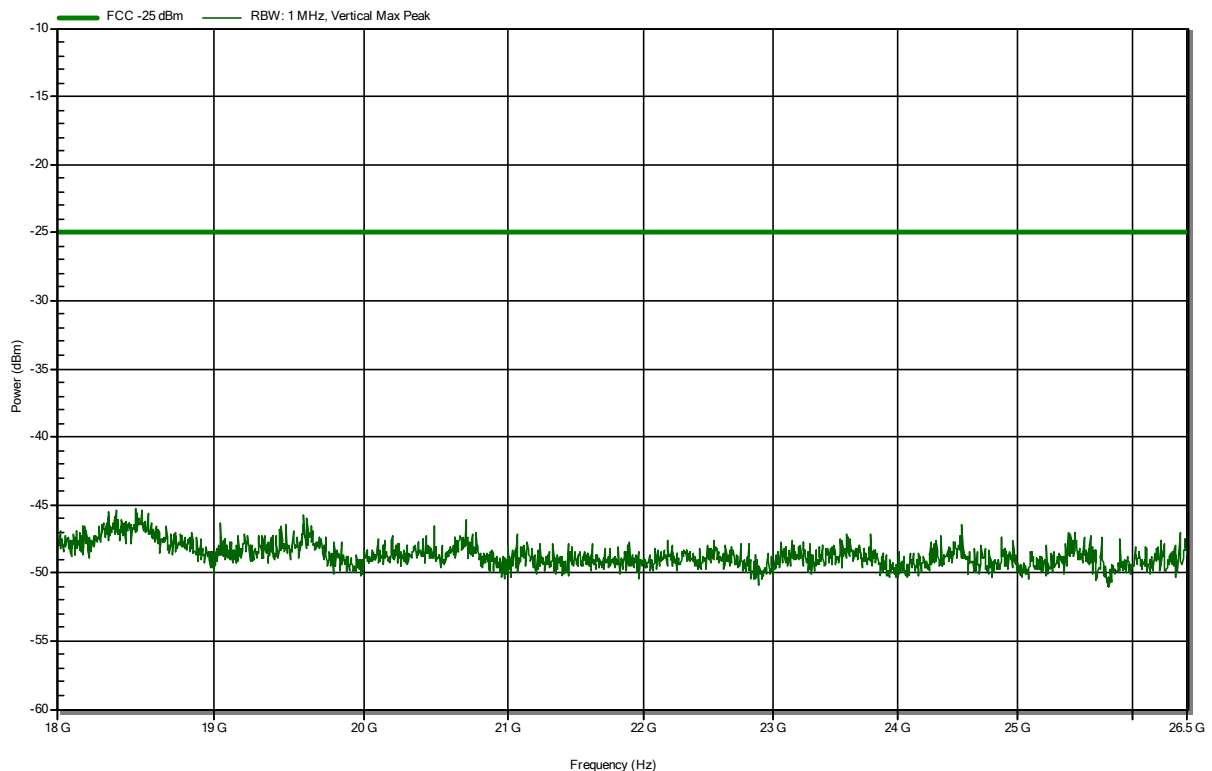


Radiated Spurious Emissions according to 47 CFR Part 27; RSS-199, Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Amplifier Research AT4560, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD7, CH 21350, QPSK, Cell BW 20MHz, 1 RB Start 49, Max power
 Test Date: 2021-07-19
 Note:

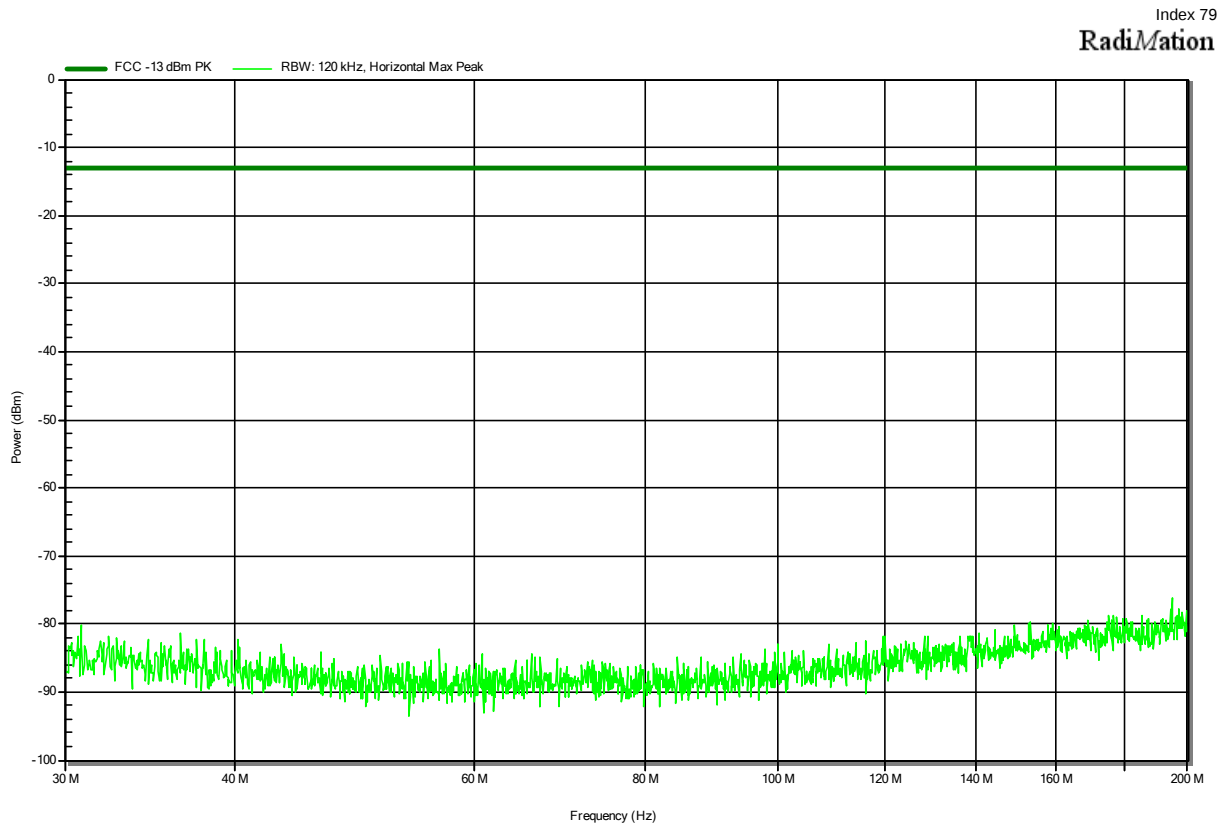
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RadiMation



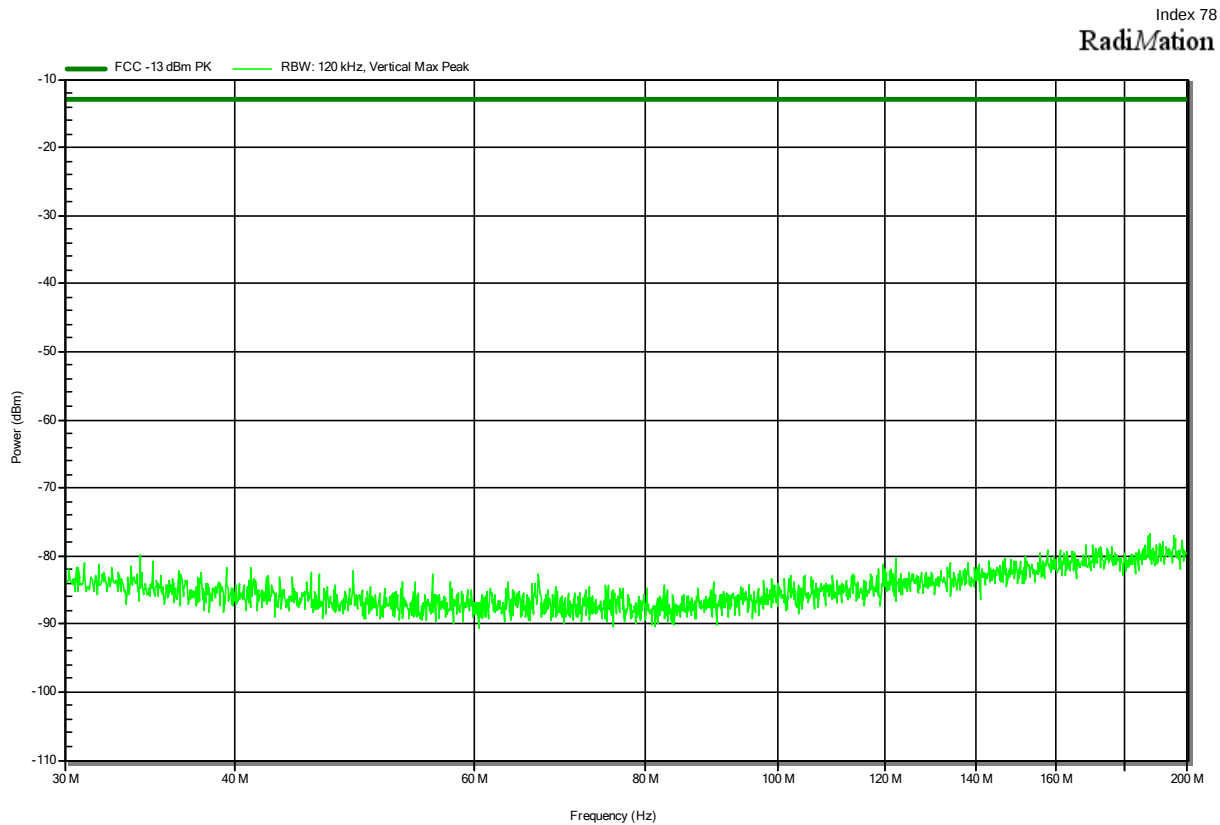
Radiated Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD12, CH 23095, QPSK, Cell BW 10MHz, 1 RB Start 24, Max power
 Test Date: 2021-07-16
 Note:



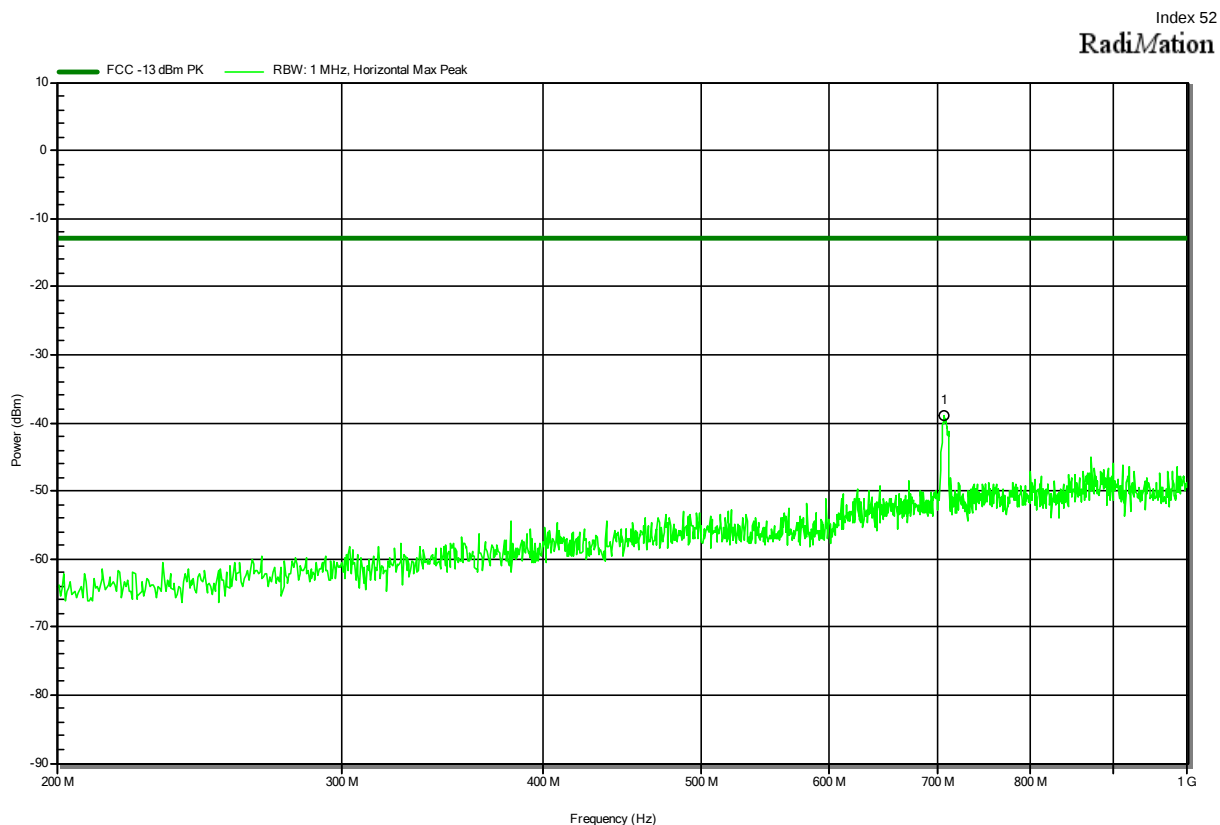
Radiated Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD12, CH 23095, QPSK, Cell BW 10MHz, 1 RB Start 24, Max power
 Test Date: 2021-07-16
 Note:



Radiated Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

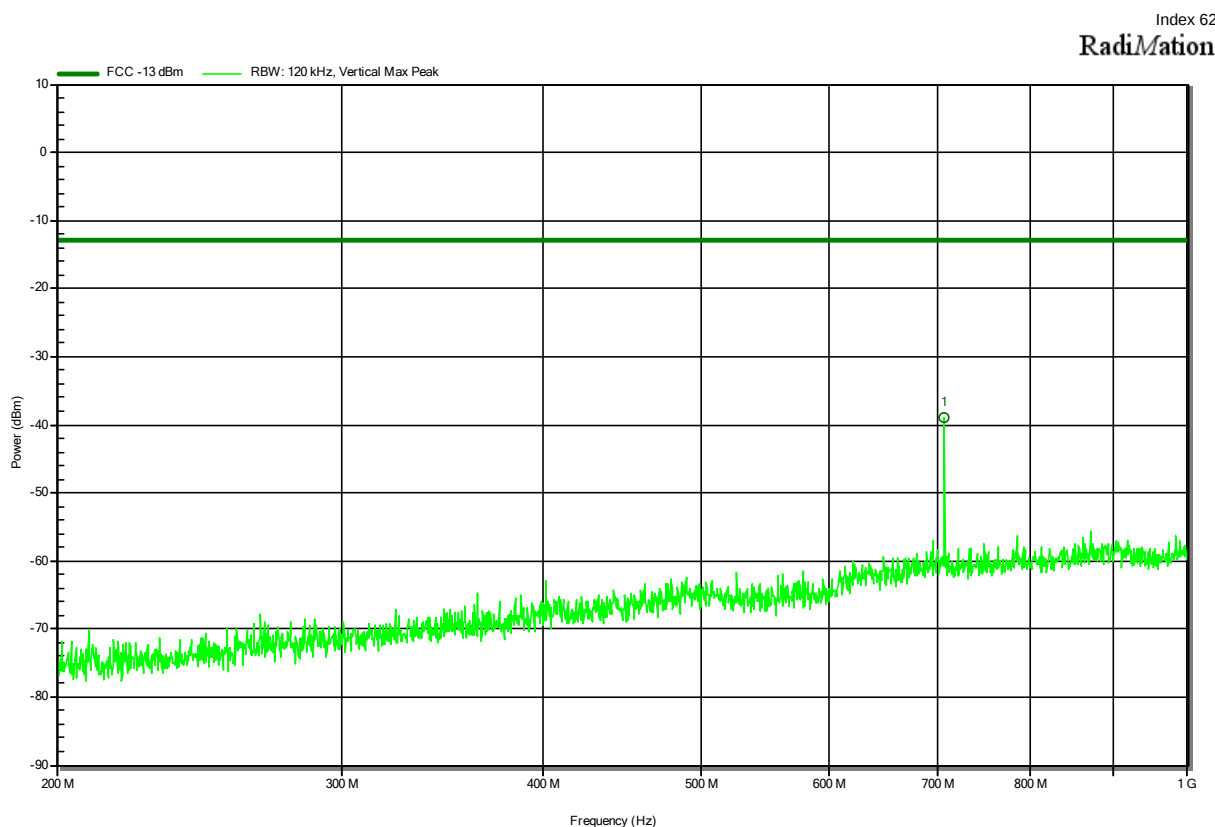
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD12, CH 23095, QPSK, Cell BW 10MHz, 1 RB Start 24, Max power
 Test Date: 2021-07-15
 Note: Marker1 is uplink



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
707.5 MHz	---	---	---	uplink

Radiated Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

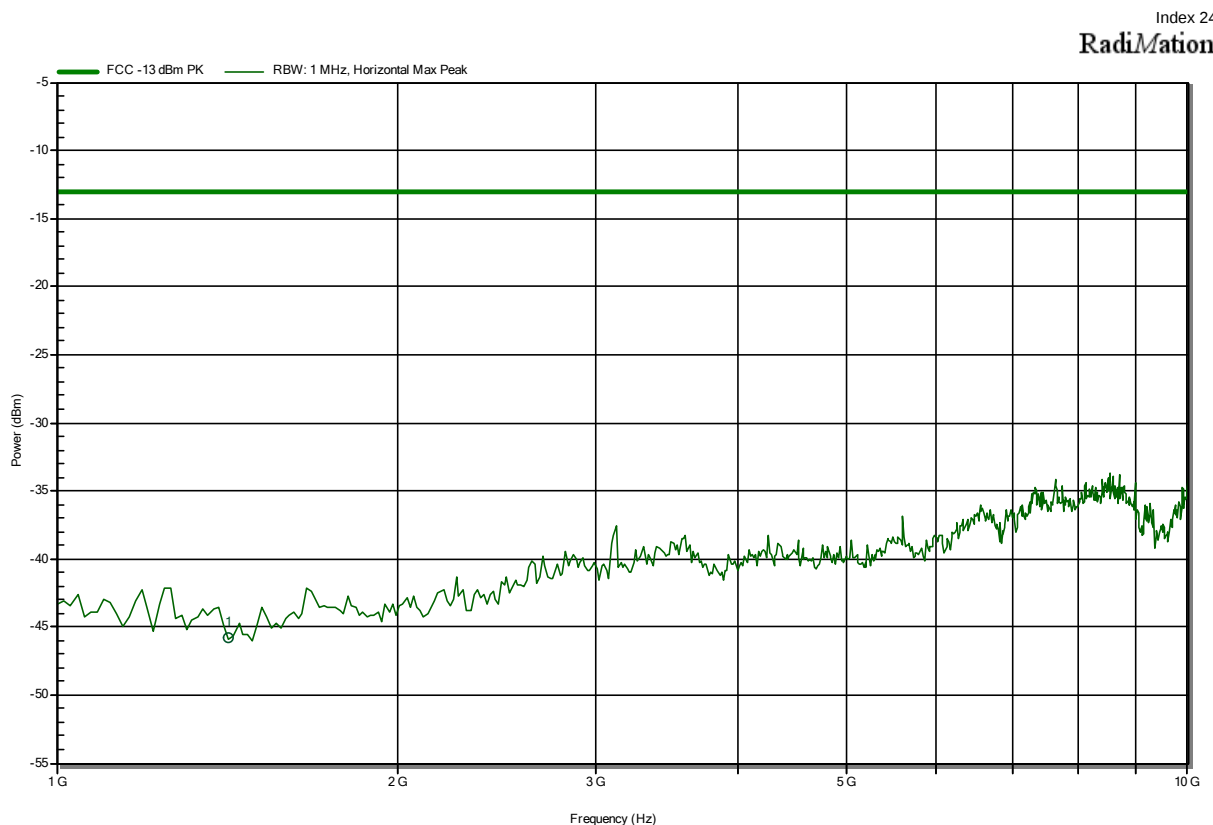
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD12, CH 23095, QPSK, Cell BW 10MHz, 1 RB Start 24, Max power
 Test Date: 2021-07-16
 Note: Marker1 is uplink



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
707.4 MHz	---	---	---	uplink

Radiated Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120B, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD12, CH 23095, QPSK, Cell BW 10MHz, 1 RB Start 24, Max power
 Test Date: 2021-06-17
 Note:



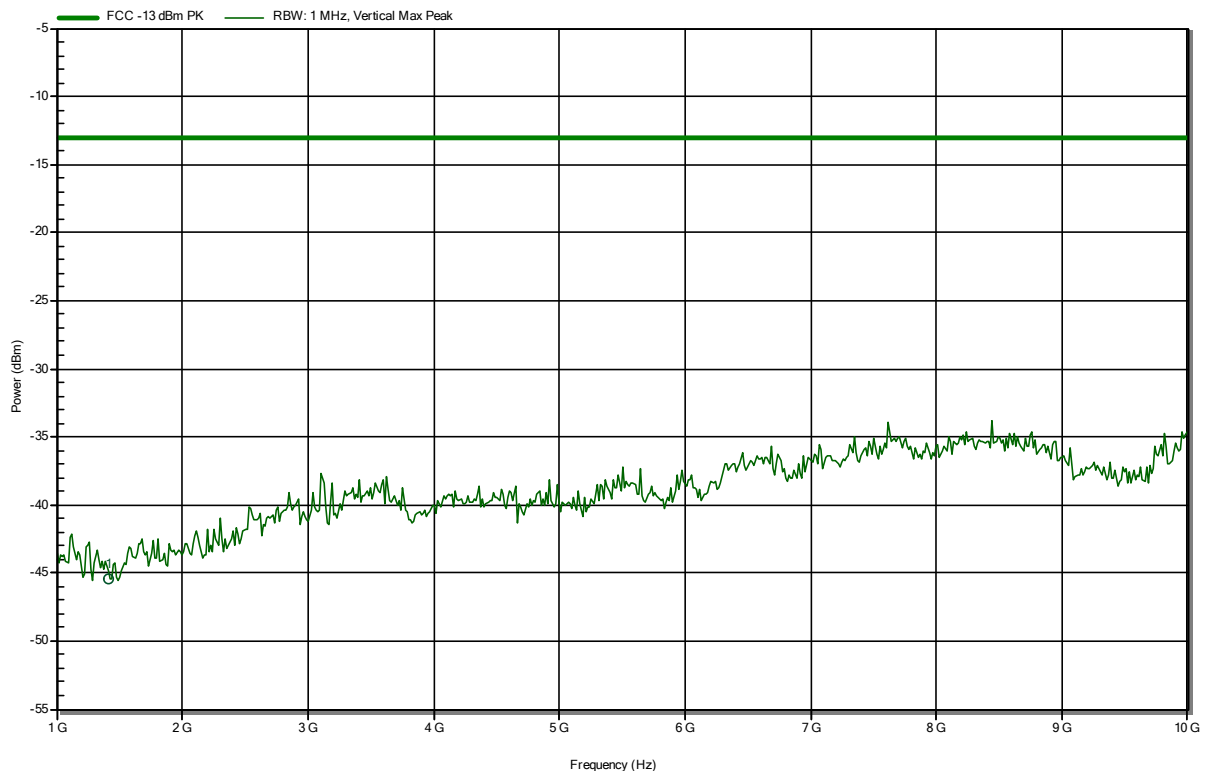
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.418 GHz	-45.8 dBm	-13 dBm	-32.76 dB	Pass

Radiated Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120B, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD12, CH 23095, QPSK, Cell BW 10MHz, 1 RB Start 24, Max power
 Test Date: 2021-06-17
 Note:

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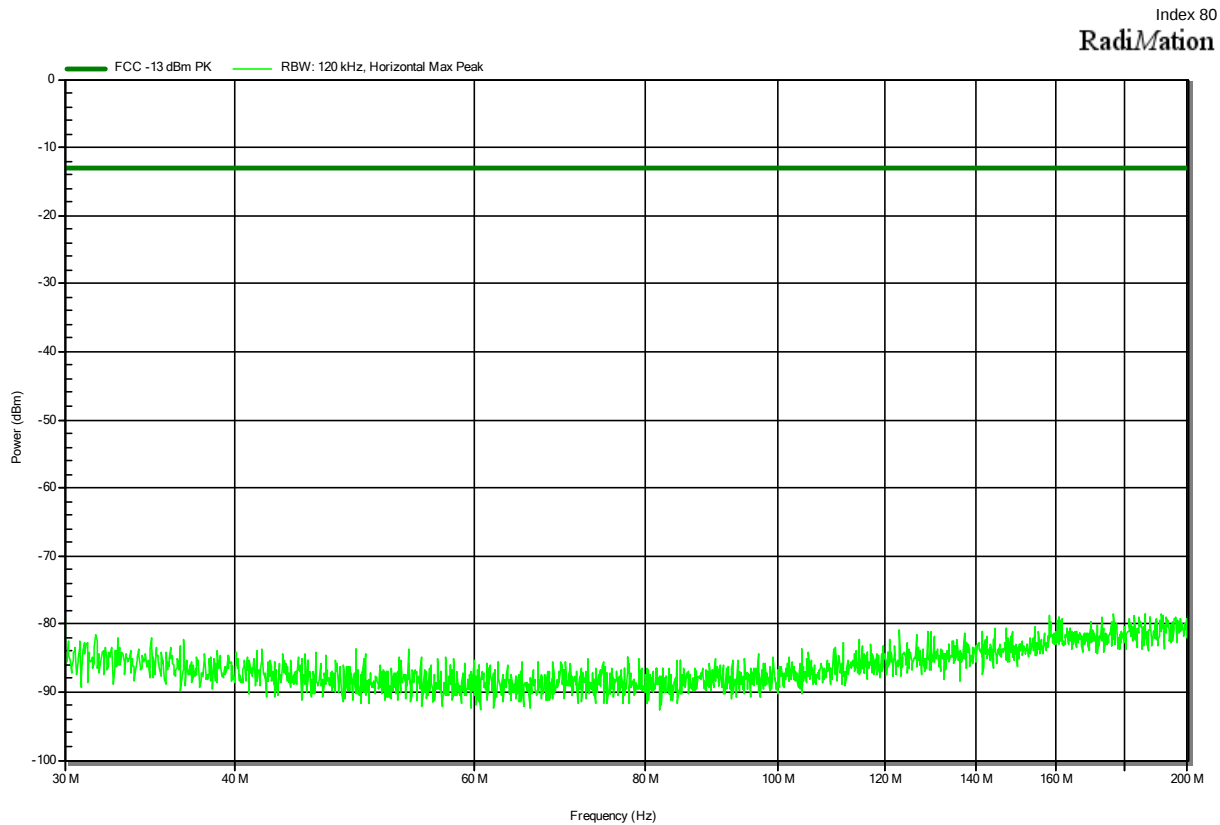
RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.418 GHz	-45.4 dBm	-13 dBm	-32.43 dB	Pass

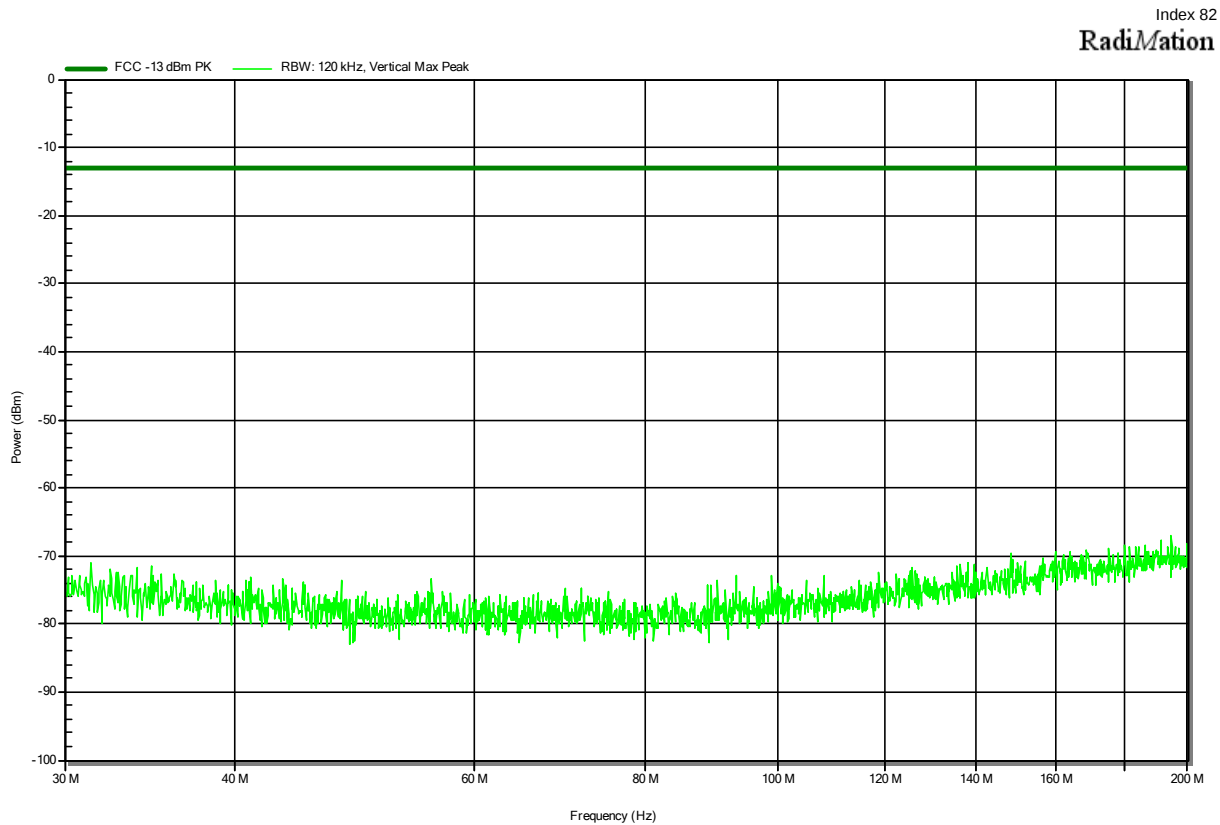
Radiated Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD13, CH 23255, QPSK, Cell BW 5MHz, 1 RB Start 12, Max power
 Test Date: 2021-07-16
 Note:



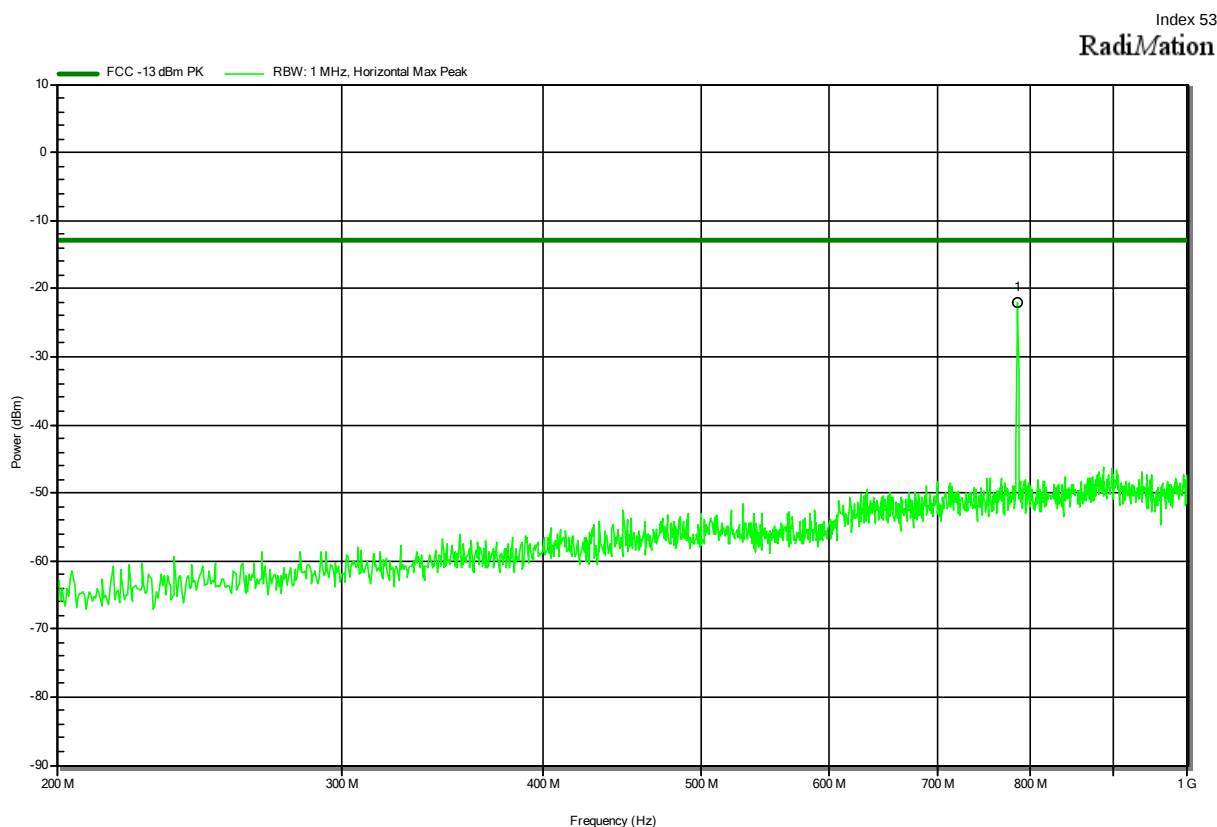
Radiated Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD13, CH 23255, QPSK, Cell BW 5MHz, 1 RB Start 12, Max power
 Test Date: 2021-07-16
 Note:



Radiated Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

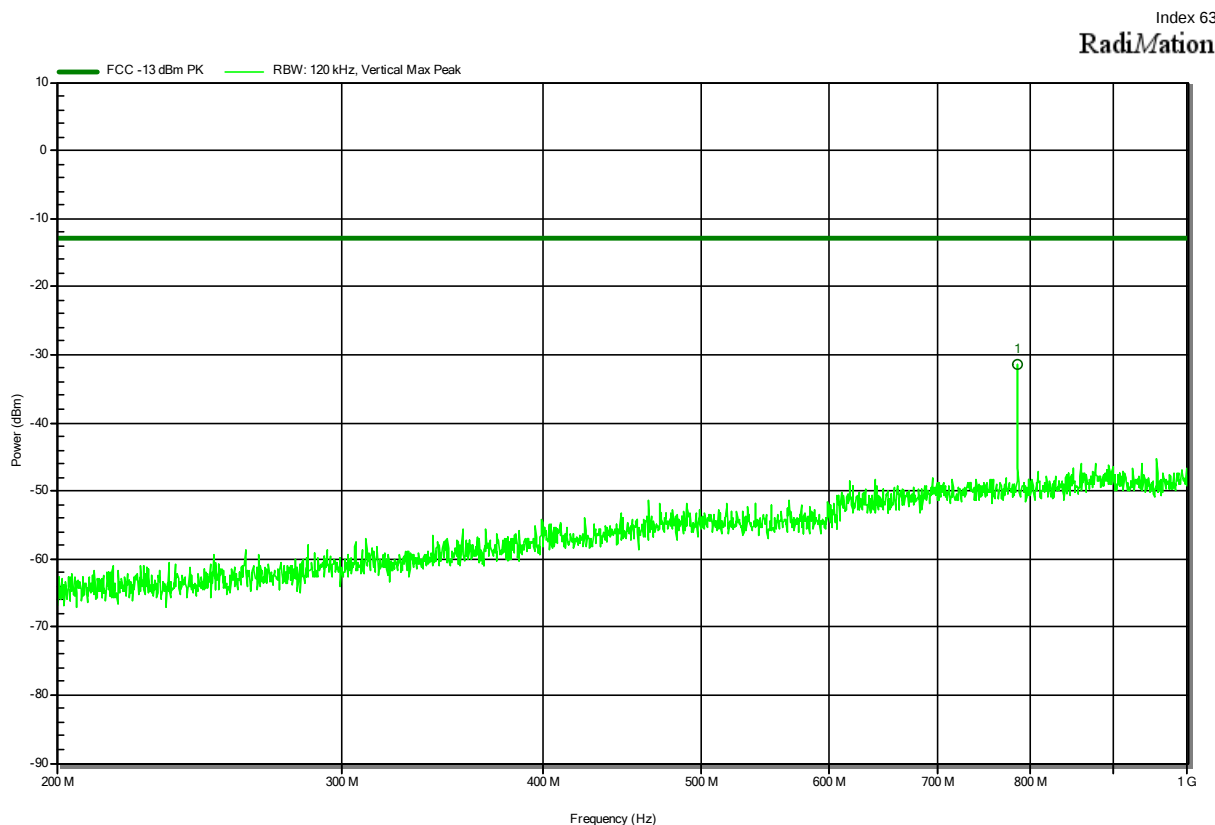
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD13, CH 23255, QPSK, Cell BW 5MHz, 1 RB Start 12, Max power
 Test Date: 2021-07-15
 Note: Marker1 is uplink



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
784.5 MHz	---	---	---	uplink

Radiated Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

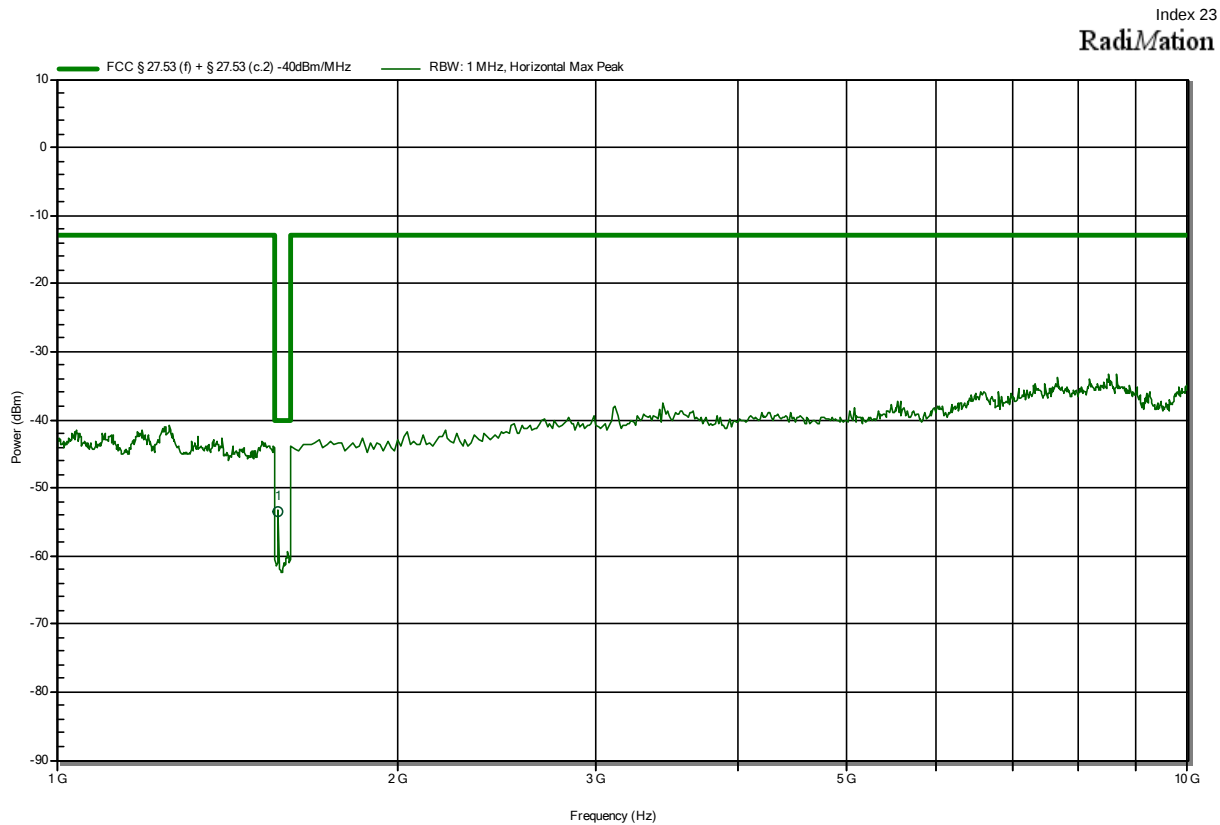
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD13, CH 23255, QPSK, Cell BW 5MHz, 1 RB Start 12, Max power
 Test Date: 2021-07-16
 Note: Marker1 is uplink



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
784.5 MHz	---	---	---	uplink

Radiated Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

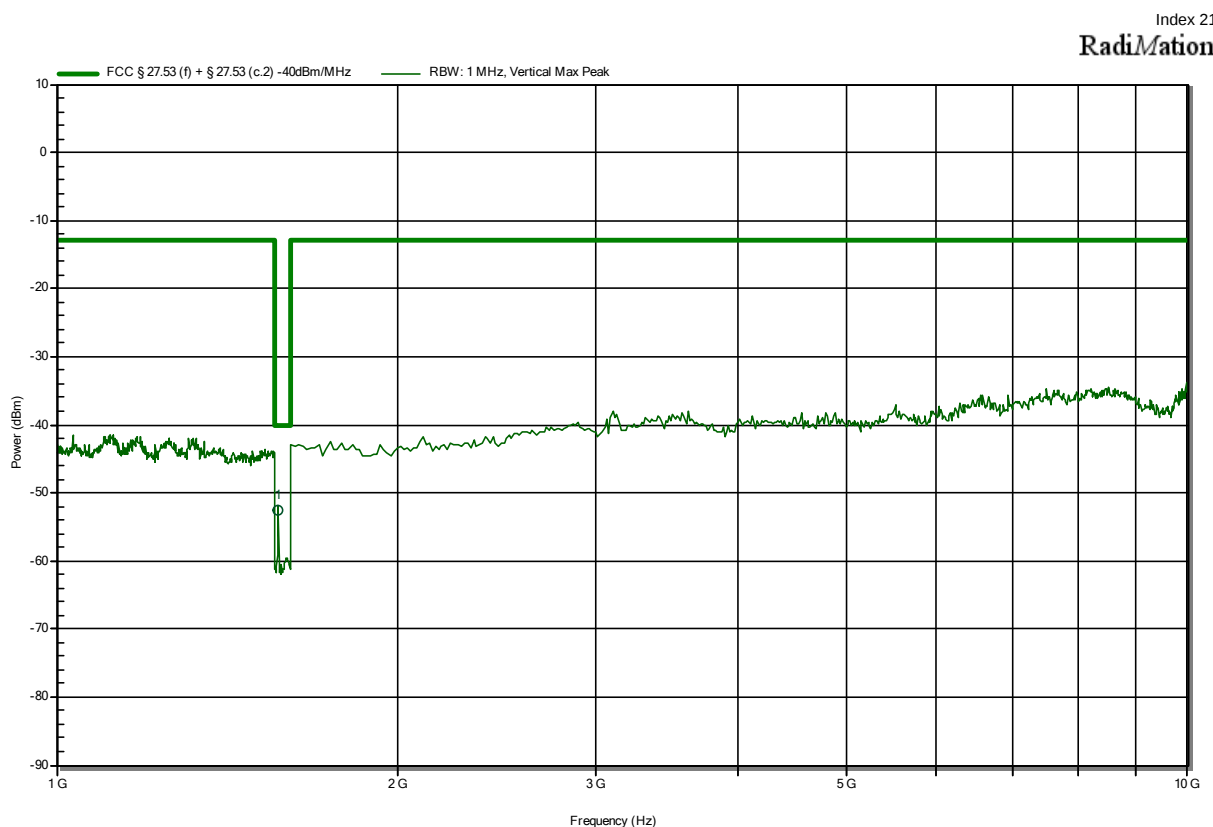
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120B, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD13, CH 23255, QPSK, Cell BW 5MHz, 1 RB Start 12, Max power
 Test Date: 2021-06-17
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.569 GHz	-53.5 dBm	-40 dBm	-13.53 dB	Pass

Radiated Spurious Emissions according to 47 CFR Part 27; RSS-130, Issue 2

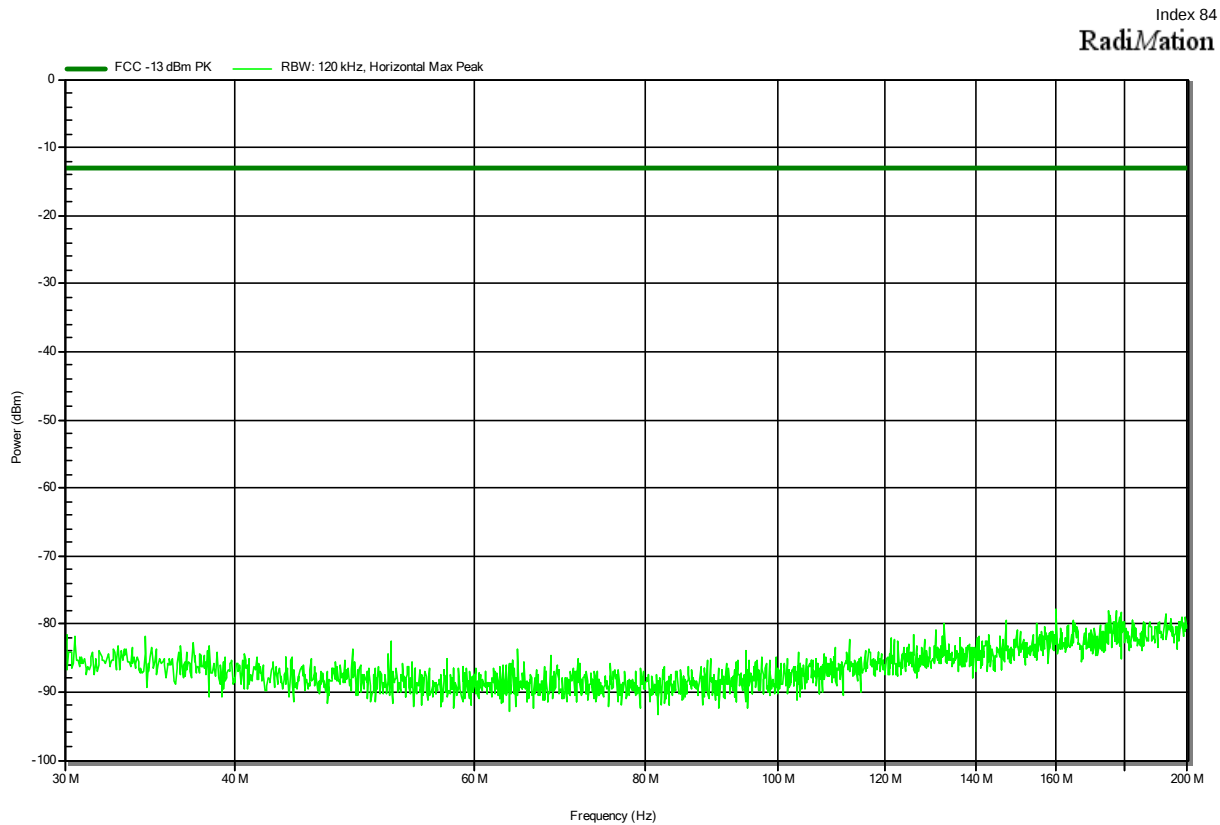
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120B, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD13, CH 23255, QPSK, Cell BW 5MHz, 1 RB Start 12, Max power
 Test Date: 2021-06-17
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.569 GHz	-52.6 dBm	-40 dBm	-12.59 dB	Pass

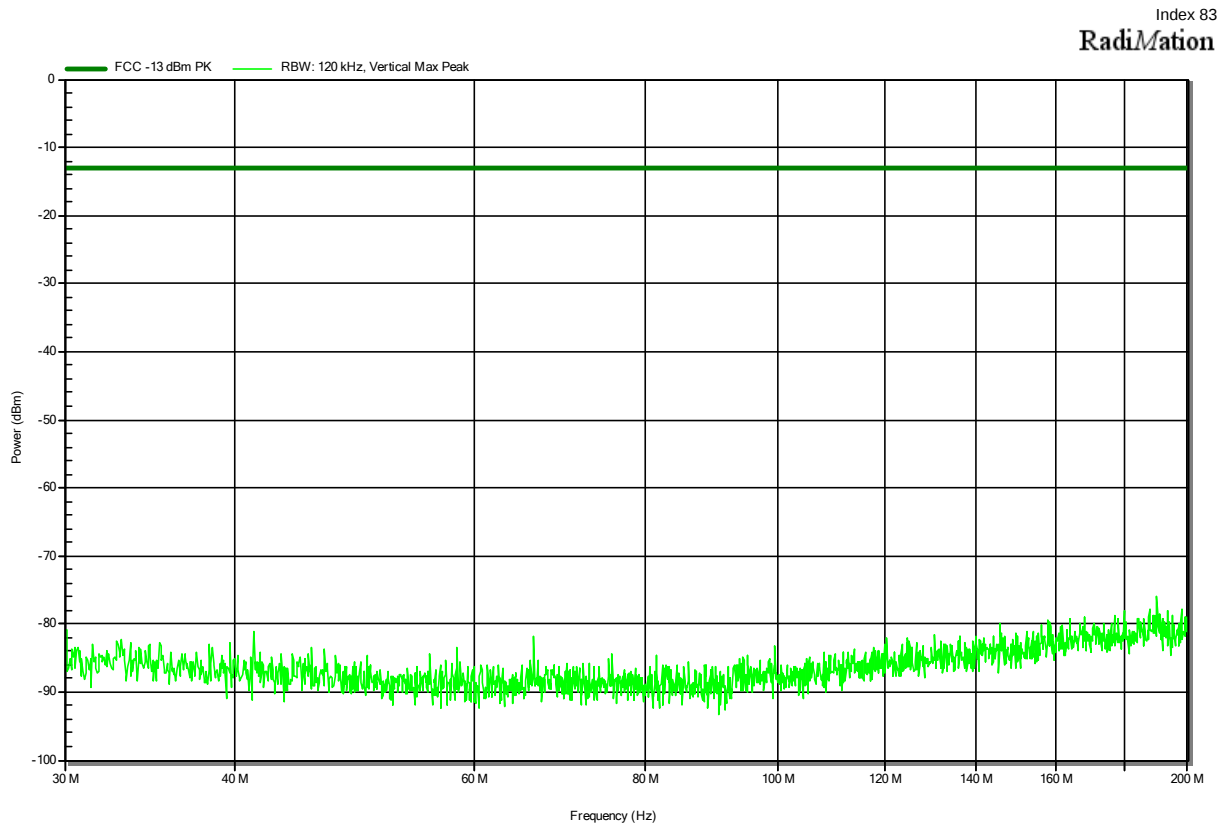
Radiated Spurious Emissions according to 47 CFR Part 90S

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD26, CH 26740, QPSK, Cell BW 1.4MHz, 3 RB Start 3, Max power
 Test Date: 2021-07-16
 Note:



Radiated Spurious Emissions according to 47 CFR Part 90S

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD26, CH 26740, QPSK, Cell BW 1.4MHz, 3 RB Start 3, Max power
 Test Date: 2021-07-16
 Note:

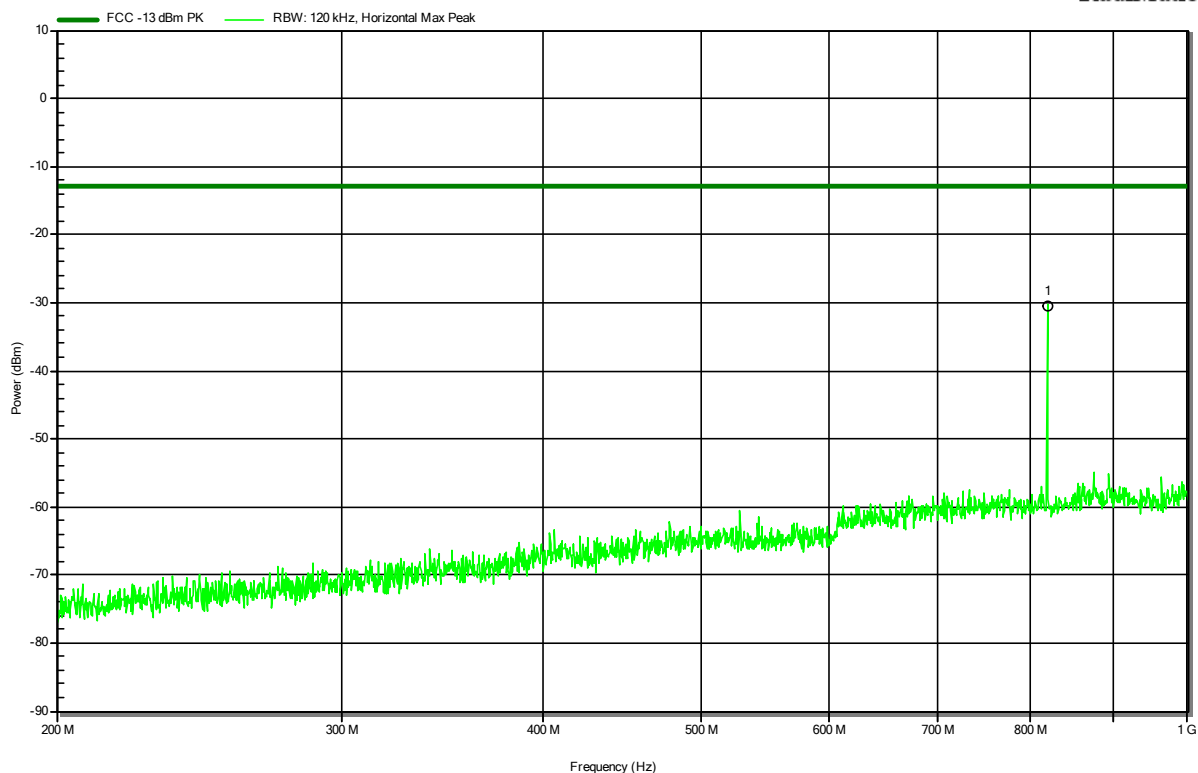


Radiated Spurious Emissions according to 47 CFR Part 90S

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD26, CH 26740, QPSK, Cell BW 1.4MHz, 3 RB Start 3, Max power
 Test Date: 2021-07-15
 Note: Marker1 is uplink

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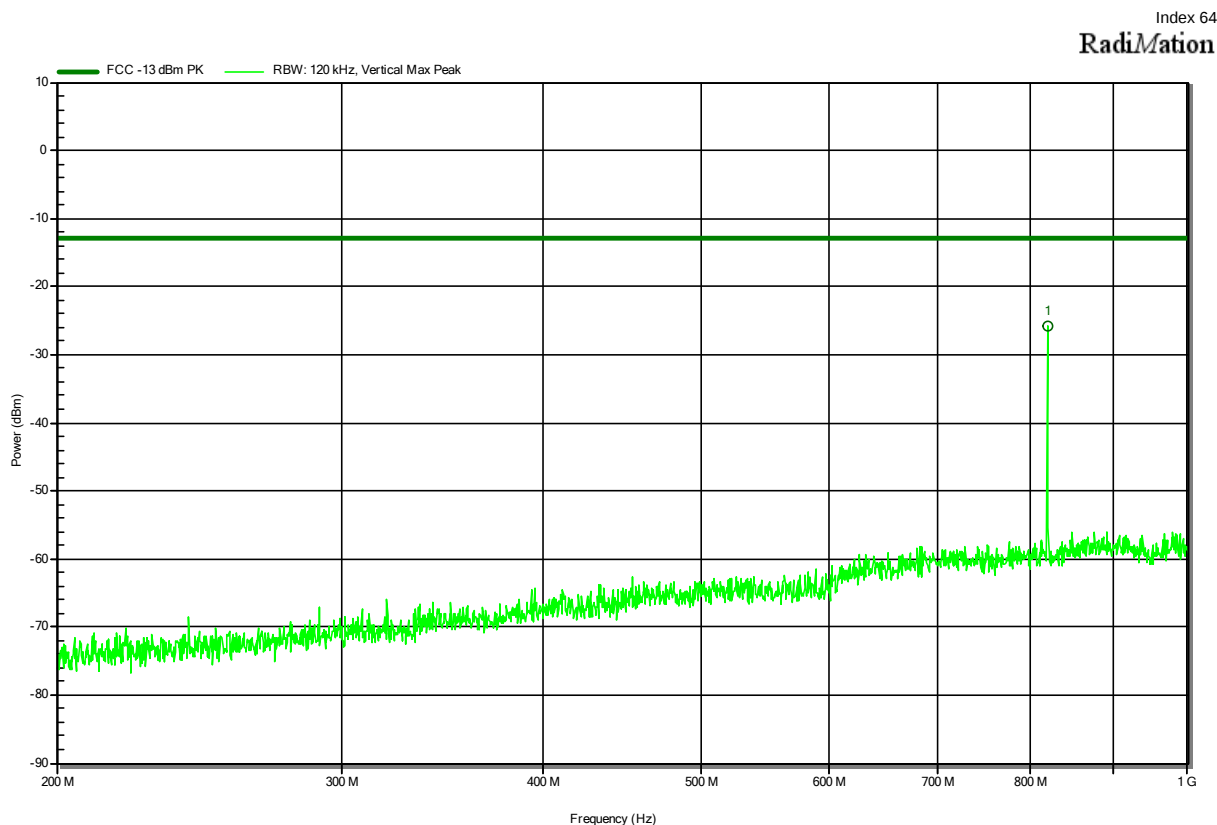
RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
819.3 MHz	---	---	---	uplink

Radiated Spurious Emissions according to 47 CFR Part 90S

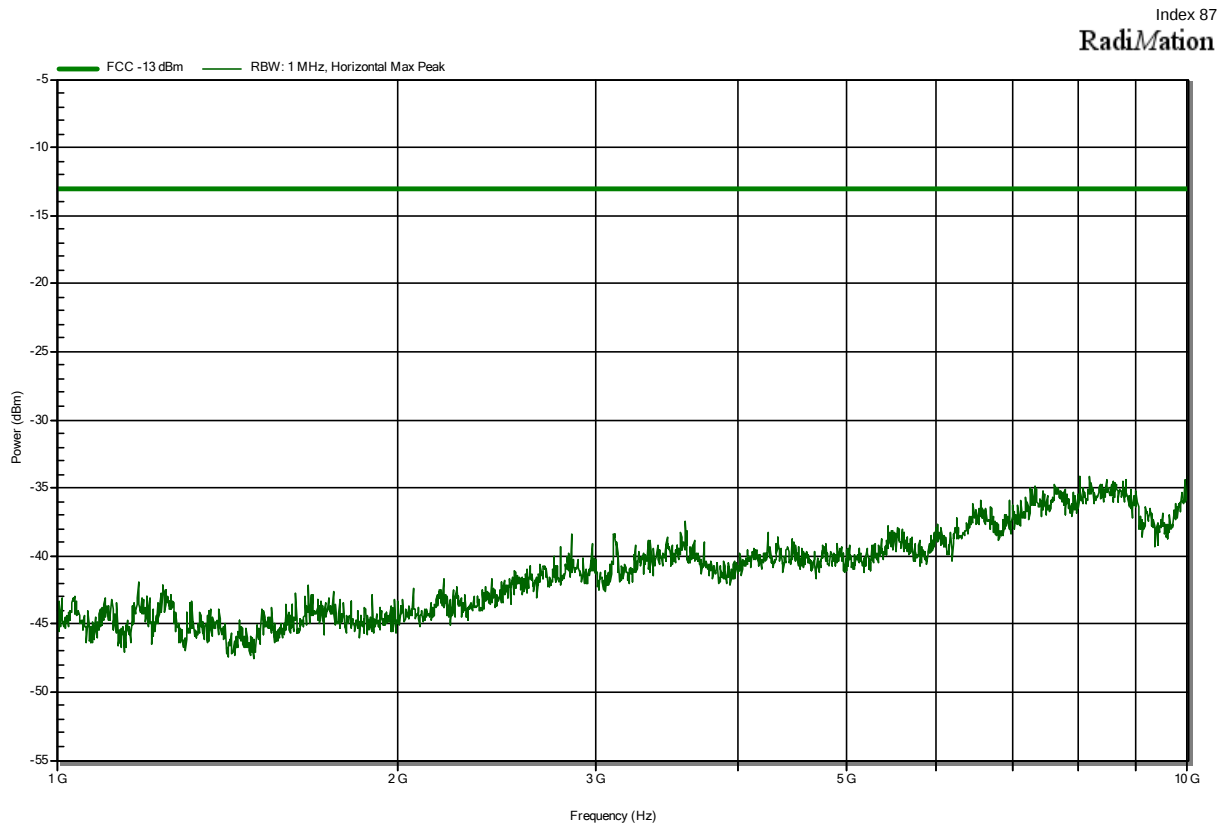
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD26, CH 26740, QPSK, Cell BW 1.4MHz, 3 RB Start 3, Max power
 Test Date: 2021-07-16
 Note: Marker1 is uplink



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
819.3 MHz	---	---	---	uplink

Radiated Spurious Emissions according to 47 CFR Part 90S

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120B, Horizontal
 Measurement distance: 3 m
 Mode: Tx; FDD26, CH 26740, QPSK, Cell BW 1.4MHz, 3 RB Start 3, Max power
 Test Date: 2021-07-19
 Note:

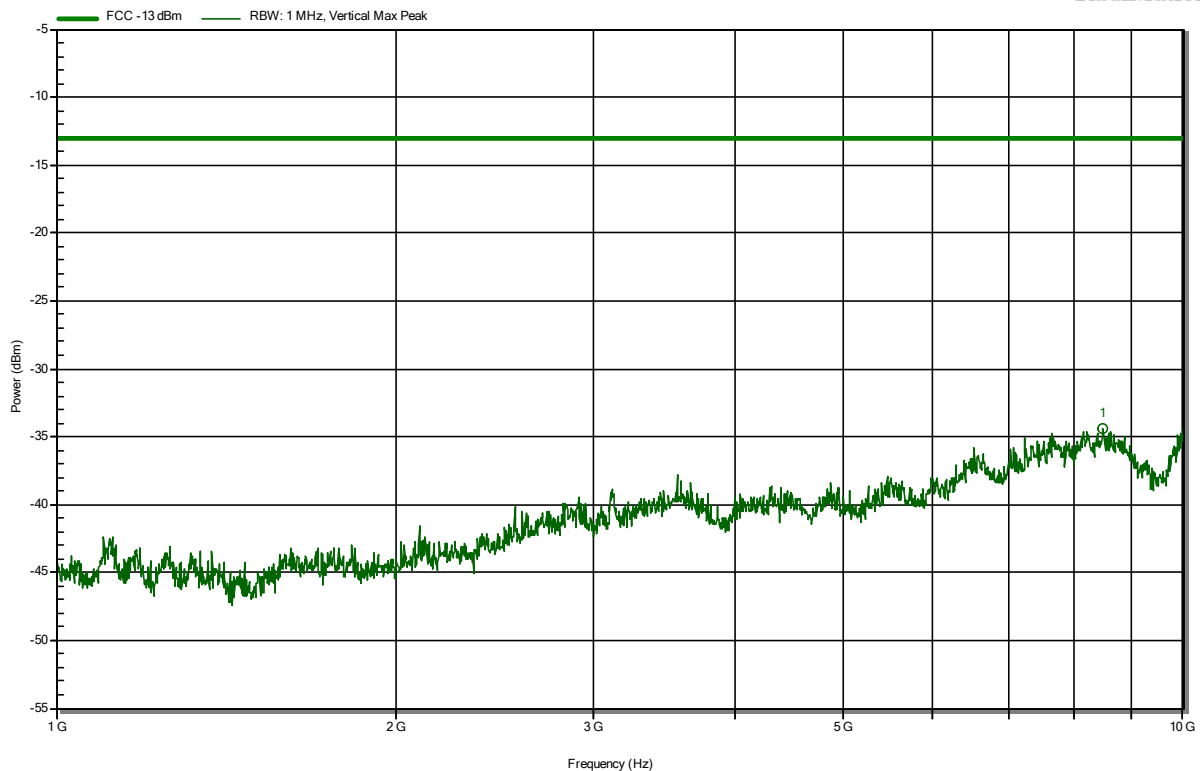


Radiated Spurious Emissions according to 47 CFR Part 90S

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120B, Vertical
 Measurement distance: 3 m
 Mode: Tx; FDD26, CH 26740, QPSK, Cell BW 1.4MHz, 3 RB Start 3, Max power
 Test Date: 2021-07-19
 Note:

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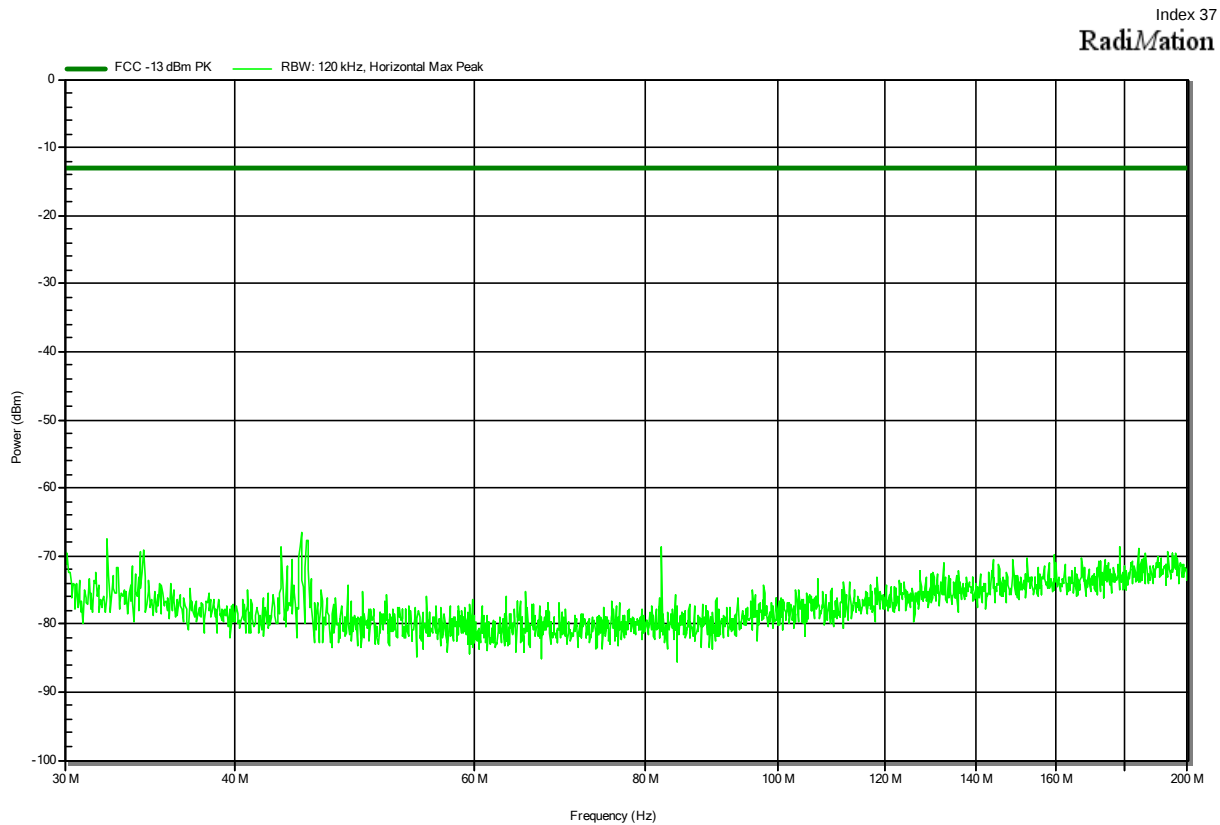
RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
8.493 GHz	-34.4 dBm	-13 dBm	-21.45 dB	Pass

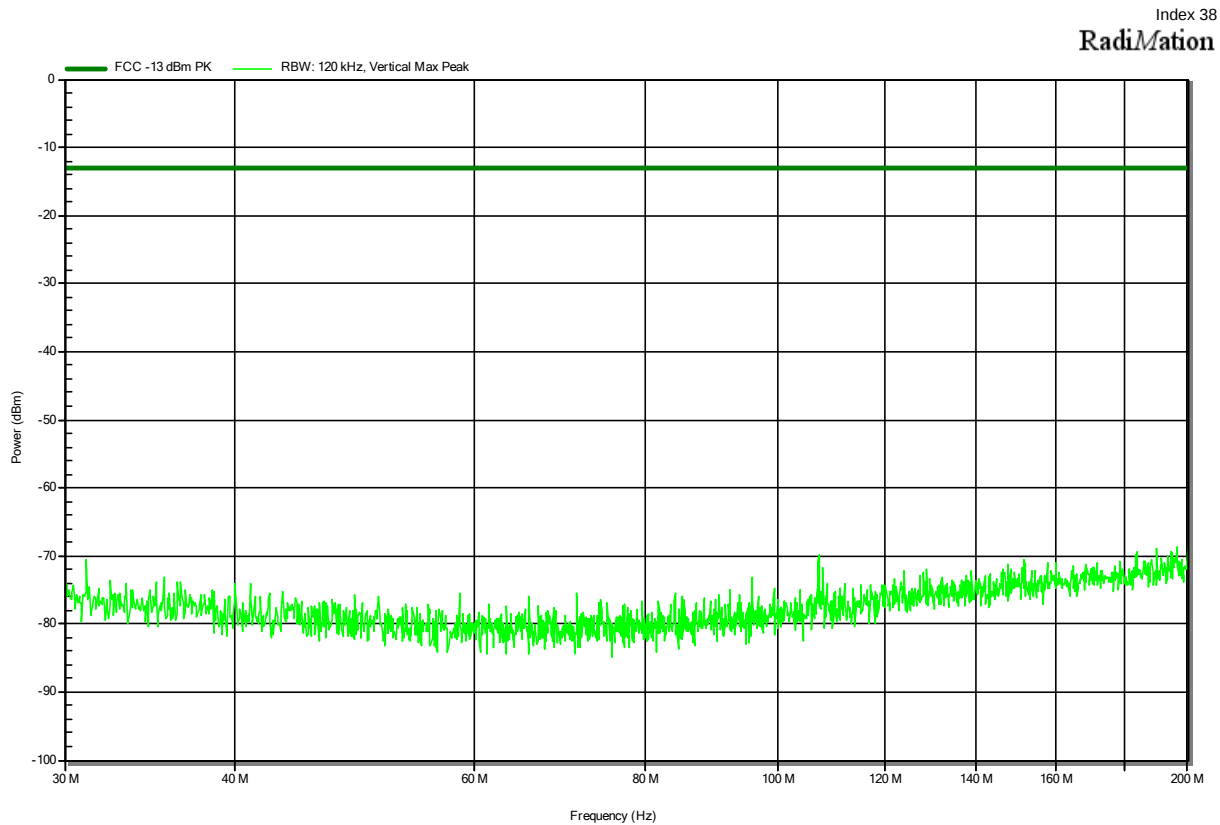
Radiated Spurious Emissions according to 47 CFR Part 22H; RSS-132 Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Engel
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3 m
 Mode: Tx; GPRS850, CH190, Gamma3, Slot 3
 Test Date: 2021-06-21
 Note:



Radiated Spurious Emissions according to 47 CFR Part 22H; RSS-132 Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Engel
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3 m
 Mode: Tx; GPRS850, CH190, Gamma3, Slot 3
 Test Date: 2021-06-21
 Note:

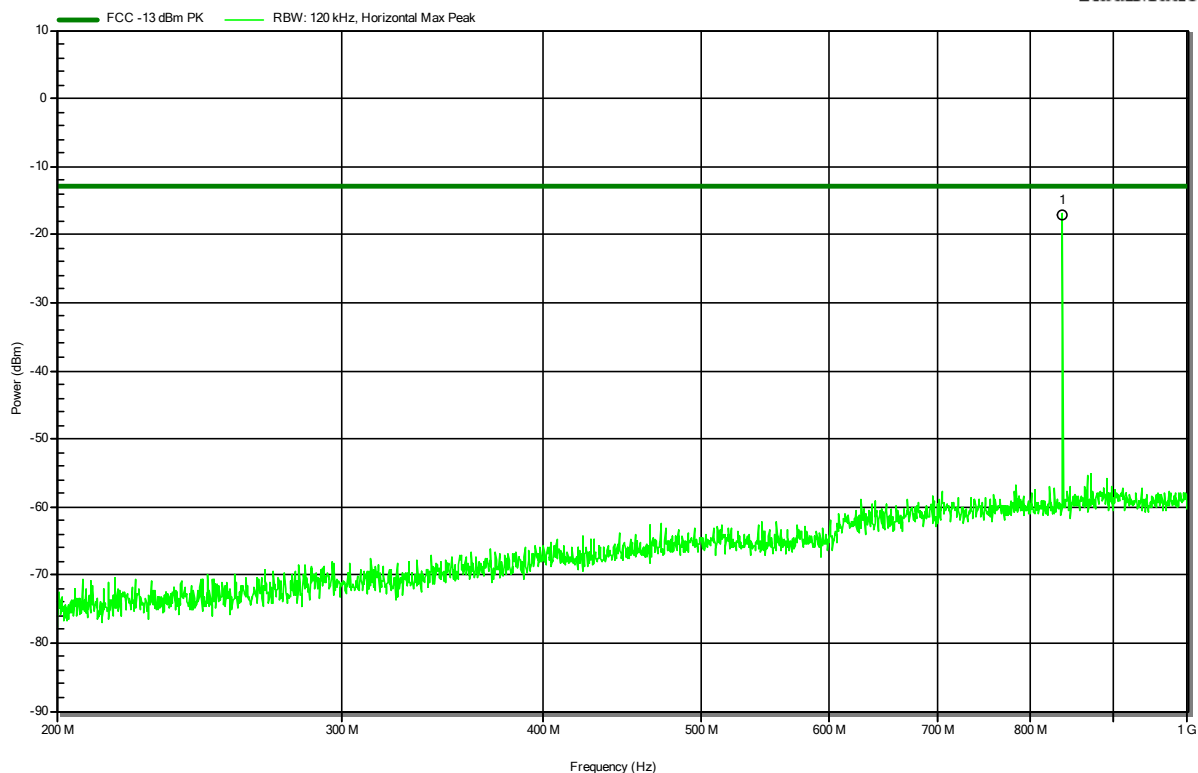


Radiated Spurious Emissions according to 47 CFR Part 22H; RSS-132 Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: Tx; GPRS850, CH190, Gamma3, Slot 3
 Test Date: 2021-07-15
 Note: Marker1 is uplink

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RadiMation

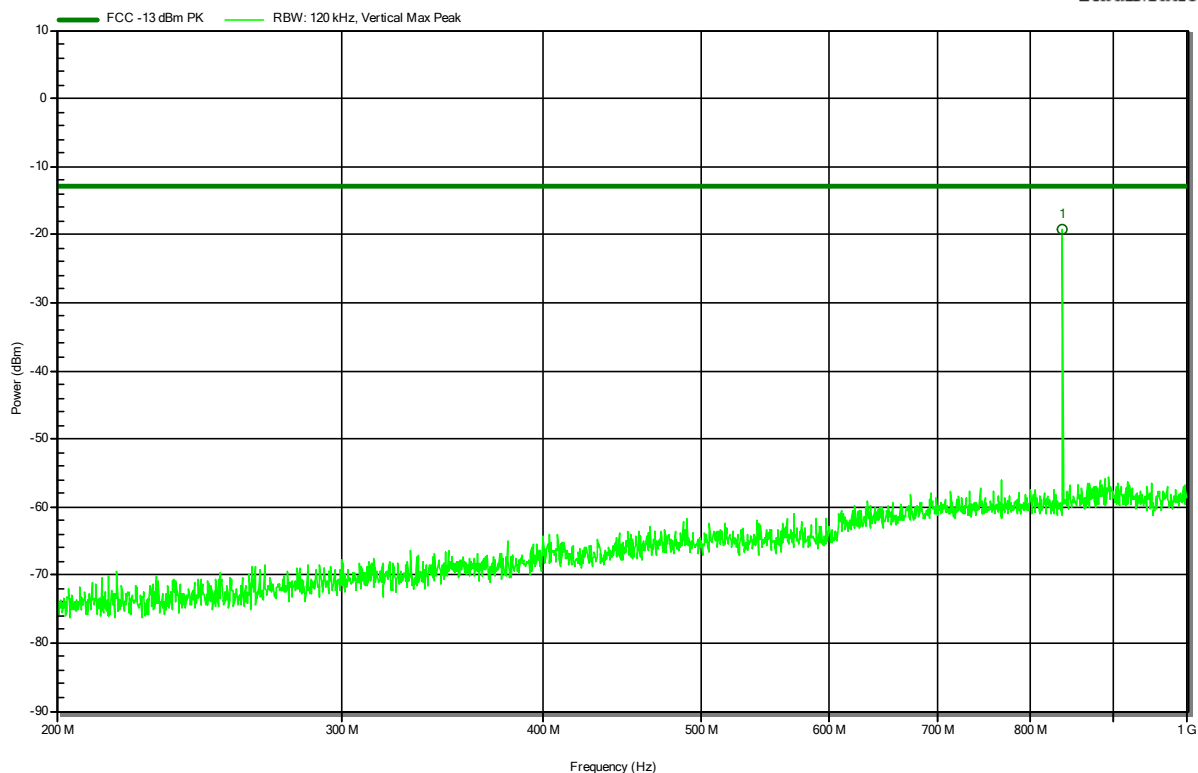


Radiated Spurious Emissions according to 47 CFR Part 22H; RSS-132 Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 35441
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: Tx; GPRS850, CH190, Gamma3, Slot 3
 Test Date: 2021-07-16
 Note: Marker1 is uplink

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RadiMation



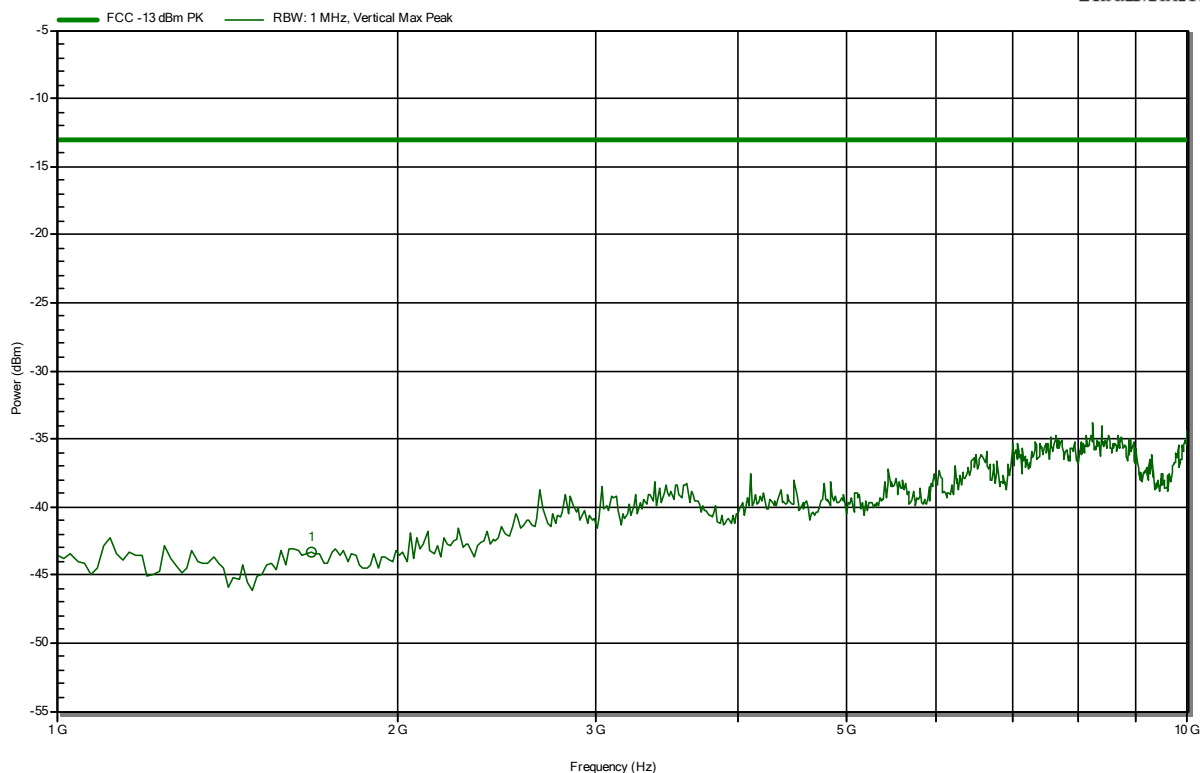
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
836.6 MHz	---	---	---	uplink

Radiated Spurious Emissions according to 47 CFR Part 22H; RSS-132 Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120B, Vertical
 Measurement distance: 3 m
 Mode: Tx; GPRS850, CH190, Gamma3, Slot 3
 Test Date: 2021-06-17
 Note:

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RadiMation



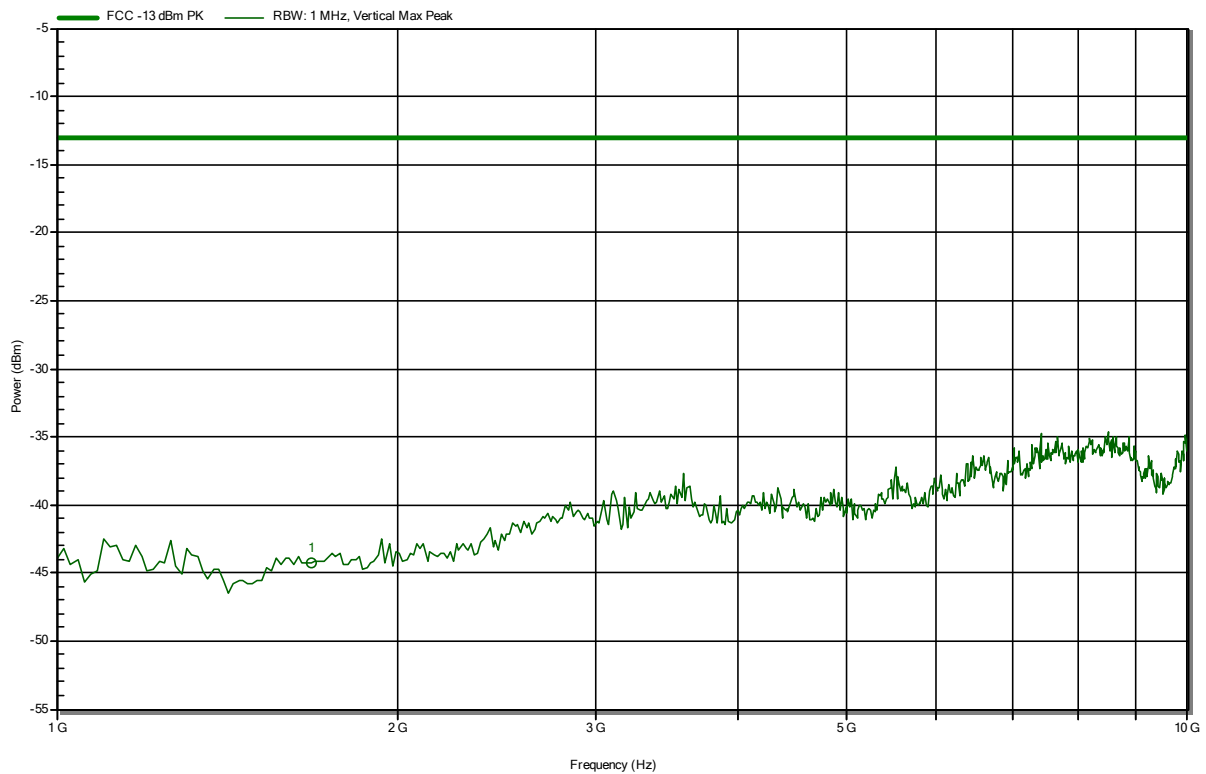
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.678 GHz	-43.4 dBm	-13 dBm	-30.36 dB	Pass

Radiated Spurious Emissions according to 47 CFR Part 22H; RSS-132 Issue 3

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120B, Vertical
 Measurement distance: 3 m
 Mode: Tx; GPRS850, CH190, Gamma3, Slot 3
 Test Date: 2021-06-17
 Note:

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RadiMation

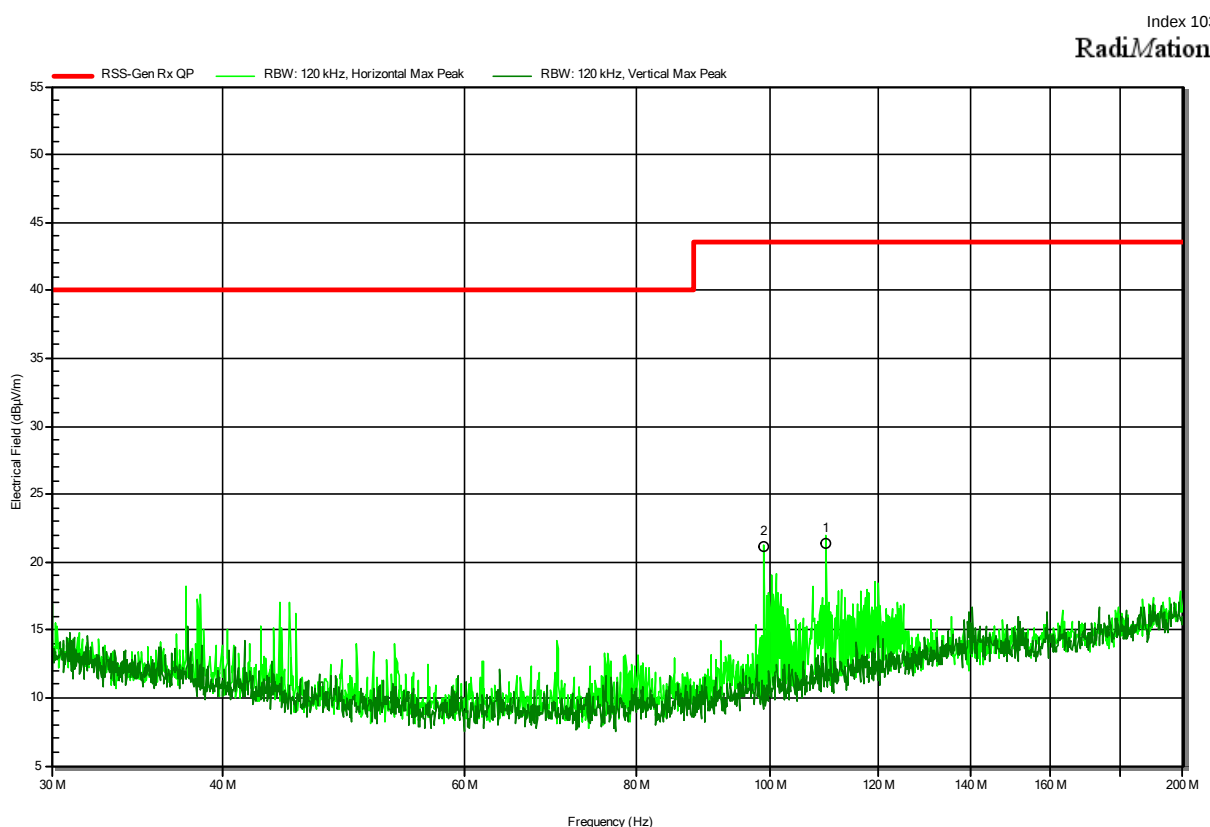


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.678 GHz	-44.3 dBm	-13 dBm	-31.3 dB	Pass

ANNEX C Receiver radiated emissions

Radiated Spurious Emissions according to RSS-Gen Issue 5

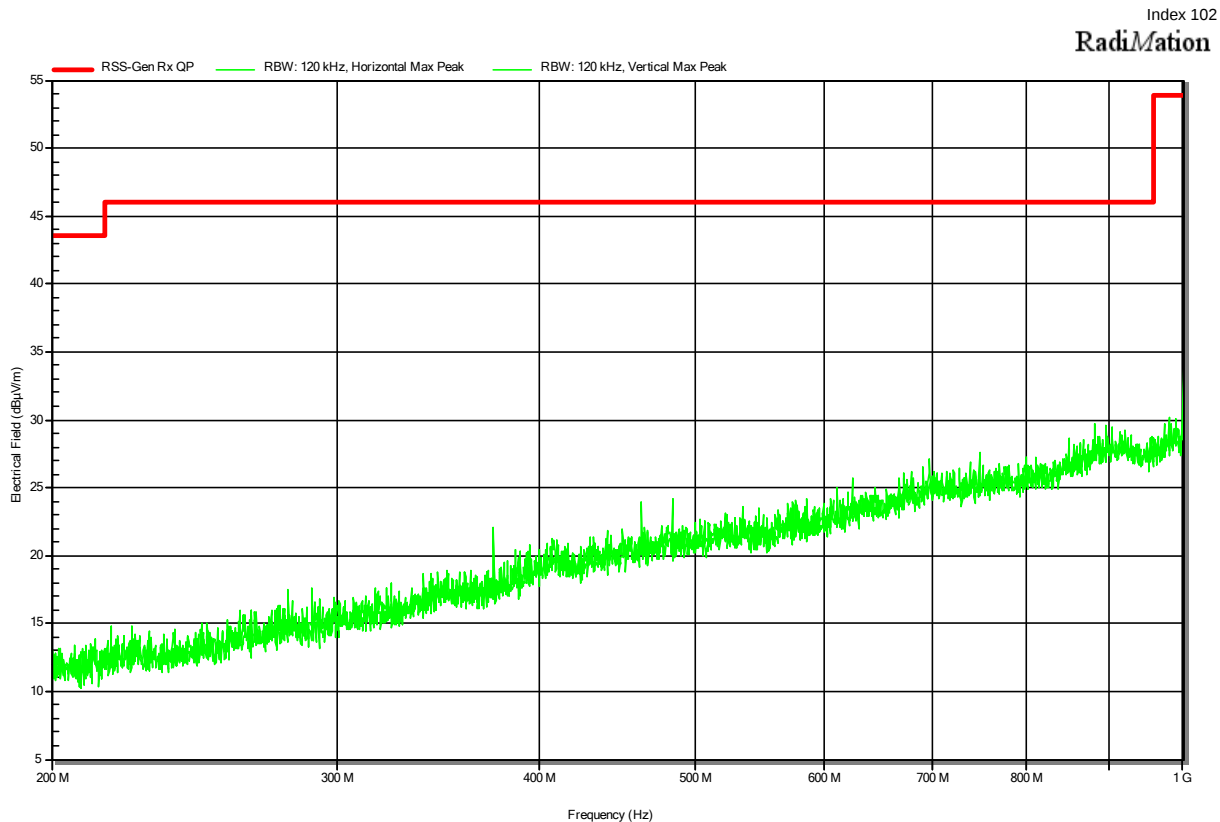
Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HK 116
 Measurement distance: 3 m
 Mode: Rx; FDD4, CH 2175, QPSK, Cell BW 20MHz, 0 RB
 Test Date: 2021-07-28
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
99.0327 MHz	21.2 dBµV/m	43.5 dBµV/m	-22.32 dB	Pass	Horizontal
109.9085 MHz	21.4 dBµV/m	43.5 dBµV/m	-22.1 dB	Pass	Horizontal

Radiated Spurious Emissions according to RSS-Gen Issue 5

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: Rohde & Schwarz HL 223
 Measurement distance: 3 m
 Mode: Rx; FDD4, CH 2175, QPSK, Cell BW 20MHz, 0 RB
 Test Date: 2021-07-28
 Note:

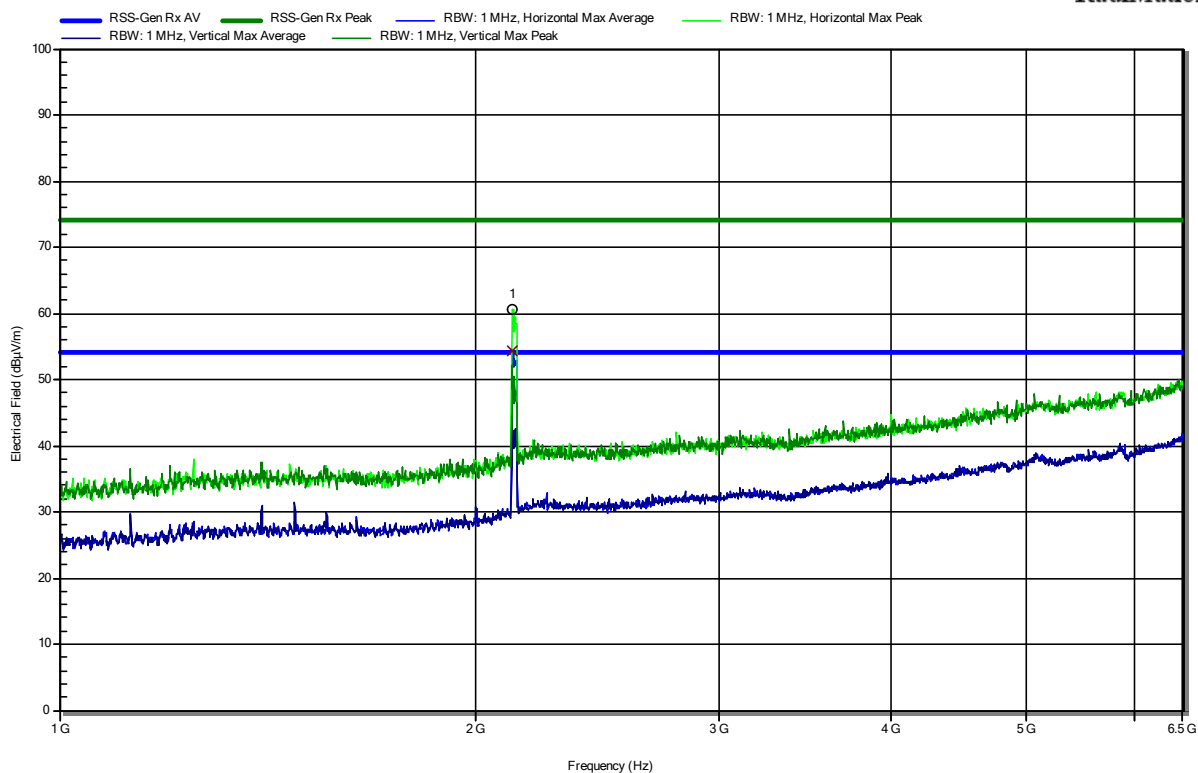


Radiated Spurious Emissions according to RSS-Gen Issue 5

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120D
 Measurement distance: 3 m
 Mode: Rx; FDD4, CH 2175, QPSK, Cell BW 20MHz, 0 RB
 Test Date: 2021-07-28
 Note: Marker1 is downlink

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RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
2.128 GHz	---	---	---	downlink	---

Radiated Spurious Emissions according to RSS-Gen Issue 5

Project Number: G0M-2103-9644
 Applicant: IAV Automotive Engineering Inc.
 Model Description: ECU Automotive Telemetry Reader
 Model: TDBOX2 LTE
 Test Sample ID: 34175
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck Schwarzbeck HWRD 650
 Measurement distance: 3 m
 Mode: Rx; FDD4, CH 2175, QPSK, Cell BW 20MHz, 0 RB
 Test Date: 2021-07-28
 Note:

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RadiMation

