RADIO REPORT

FCC 47 CFR Part 15C
ISED Canada RSS-210

Digital transmission systems operating within the 2400 – 2483.5 MHz band

Report Reference No	G0M-2011-9488-TFC249BL-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	Leica Geosystems AG
Address	Heinrich-Wild-Strasse 9435 Heerbrugg SWITZERLAND
Test Specification	47 CFR Part 15C RSS-210, Issue 10, 2020-04
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	UAV 3D measurement device
Model(s)	BLK2FLY
Additional Model(s)	None
Brand Name(s)	Leica Geosystems AG
Hardware Version(s)	Rev. D
Software Version(s)	0.13.0
FCC ID	RFD-BLK2FLY
IC	3177A-BLK2FLY
Test Result	**PASSED**

Possible test case verdicts:		
Required by standard but not tested	N/T	
Not required by standard	N/R	
Not applicable to EUT	N/A	
Test object does meet the requirement	P(PASS)	
Test object does not meet the requirement	F(FAIL)	
Testing:		
Test Lab Temperature	20 - 23 °C	
Test Lab Humidity	32 – 38 %	
Date of receipt of test item	2021-08-17	
Report:		
Compiled by	Florian Voigt	
Tested by (+ signature) (Responsible for Test)	Florian Voigt	F. Voigt .....
Tested by (+ signature) (Responsible for Test)	Toralf Jahn	T. J .....
Approved by (+ signature) (Test Lab Engineer)	Wilfried Treffke	W. Treff .....
Date of Issue	2022-01-20	
Total number of pages	78	
General Remarks:		
The test results presented in this report relate only to the object tested. **The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.** This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.		
Additional Comments:		

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2022-01-20	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

1 Equipment (Test Item) Under Test

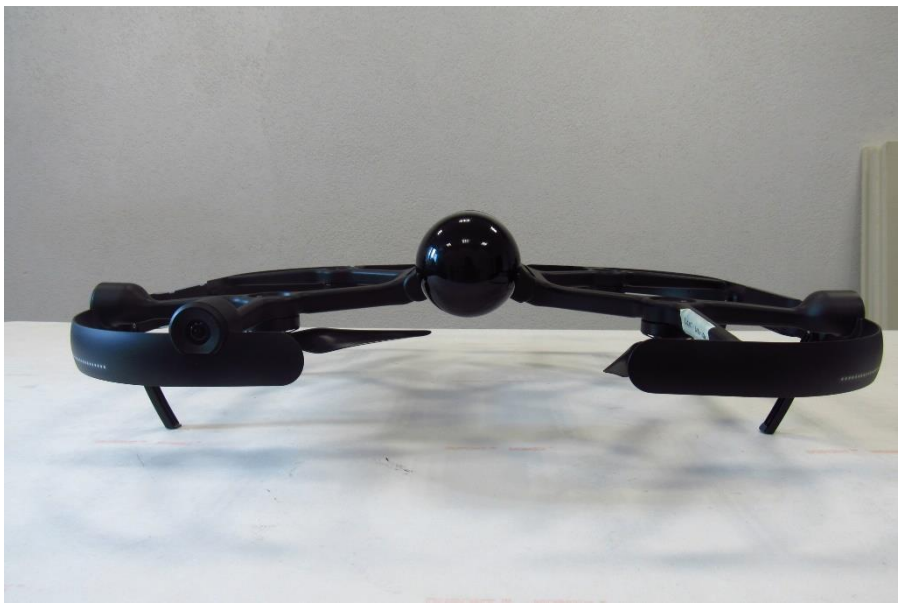
Description	UAV 3D measurement device	
Model	BLK2FLY	
Additional Model(s)	None	
Brand Name(s)	Leica Geosystems AG	
Serial Number(s)	3000102	
Test Sample Id(s)	35554	
Hardware Version(s)	Rev. D	
Software Version(s)	0.13.0	
PMN	BLK2FLY	
HVIN	938405	
FVIN	N/A	
HMN	N/A	
FCC ID	RFD-BLK2FLY	
IC	3177A-BLK2FLY	
Equipment type	End Product	
Radio type	Transceiver	
Assigned frequency bands	2400 - 2483.5 MHz	
Radio technology	Bluetooth LE 5.0	
Modulation	GFSK	
Supported datarates	1 MBit/s, 2 MBit/s	
LE Coded Phy	No	
Number of antenna ports	1	
Antenna	Type	External antenna
	Model	SZ1784V
	Manufacturer	Pulse
	Gain	3.5 dBi
Supply Voltage (Battery)	V_{NOM}	14.8 VDC
Supply Voltage (USB port)	V_{NOM}	5.0 VDC
Operating Temperature	T_{NOM}	25 °C
AC/DC-Adaptor	None	
Manufacturer	Leica Geosystems AG Heinrich-Wild-Strasse 9435 Heerbrugg SWITZERLAND	

1.1 Photos – Equipment External

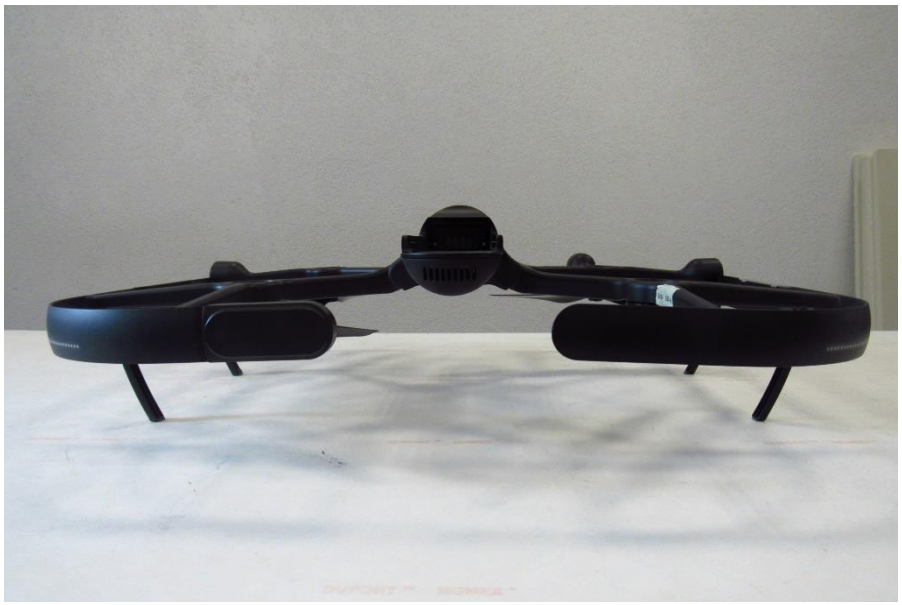
01 Top View


02 Bottom View


03 Front View

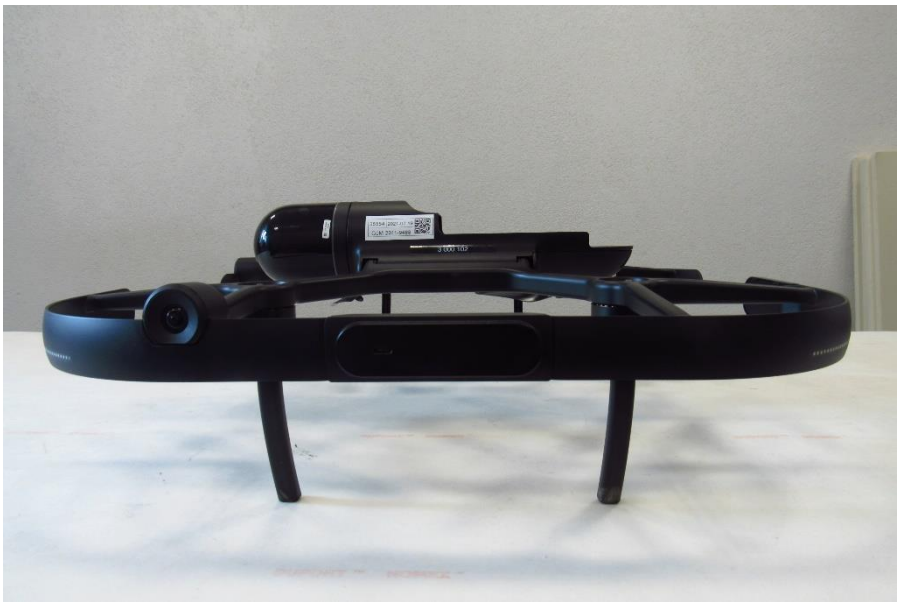


04 Rear View

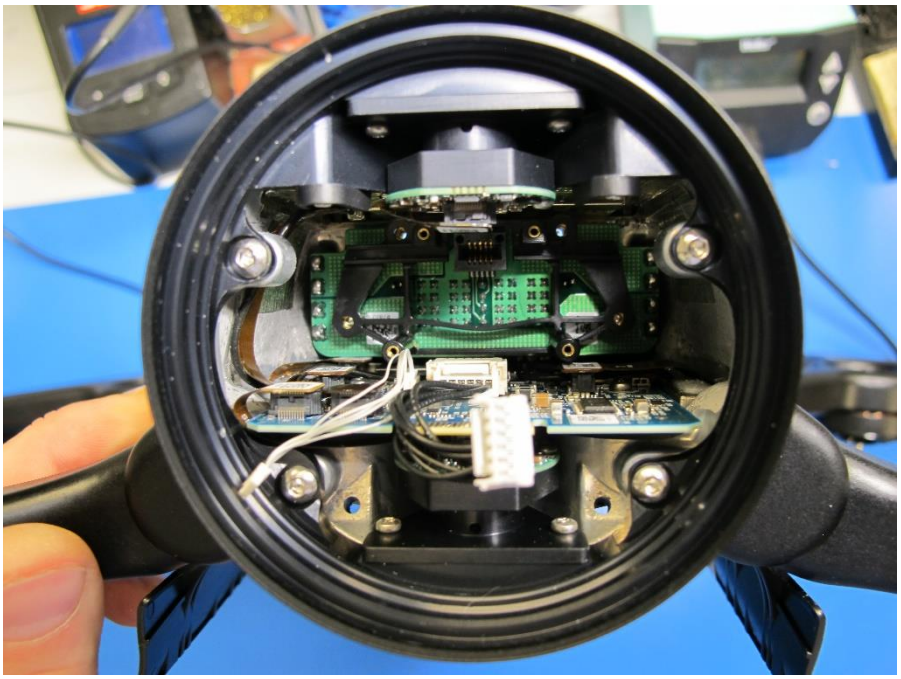


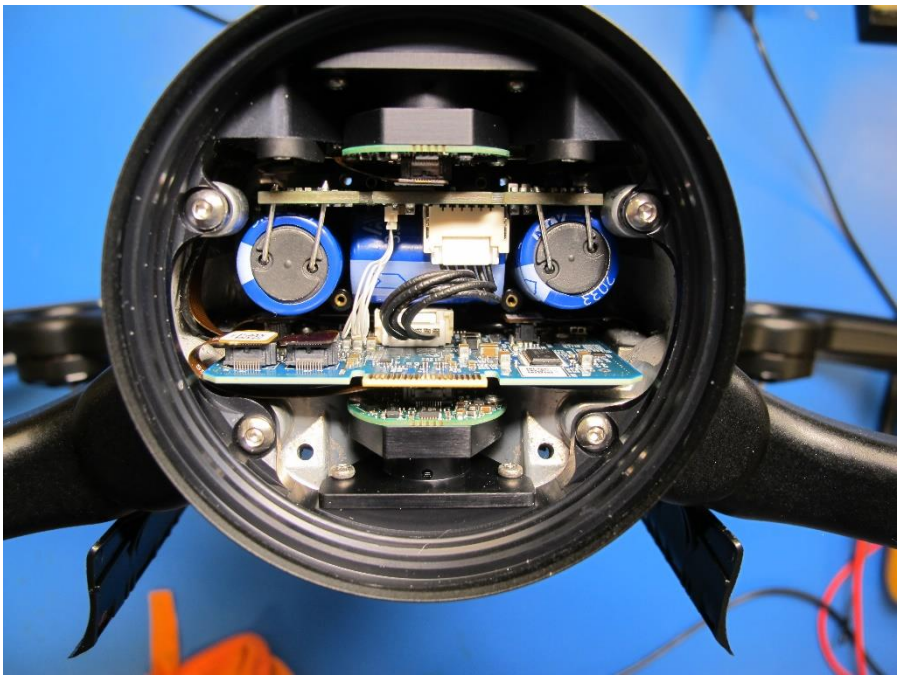
05 Right View

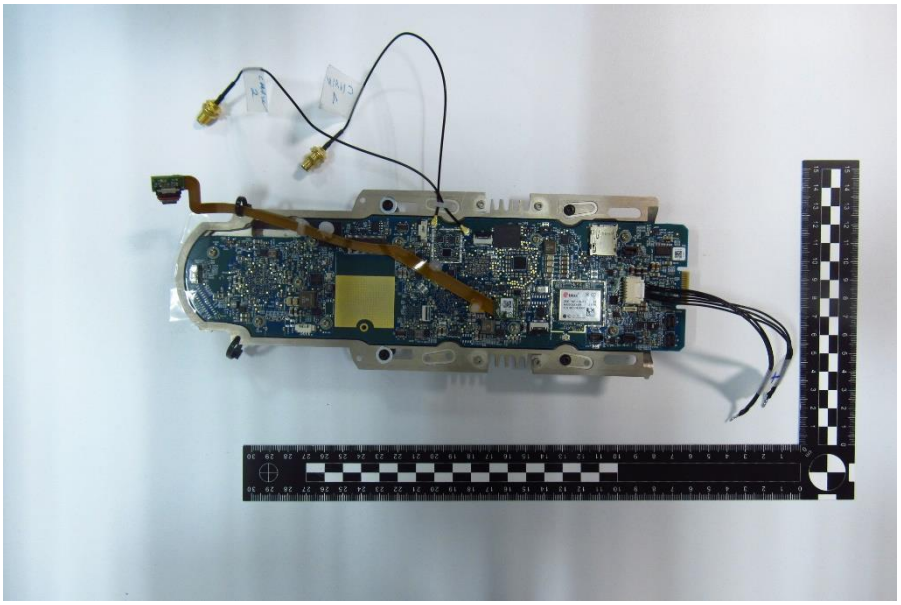
06 Left View

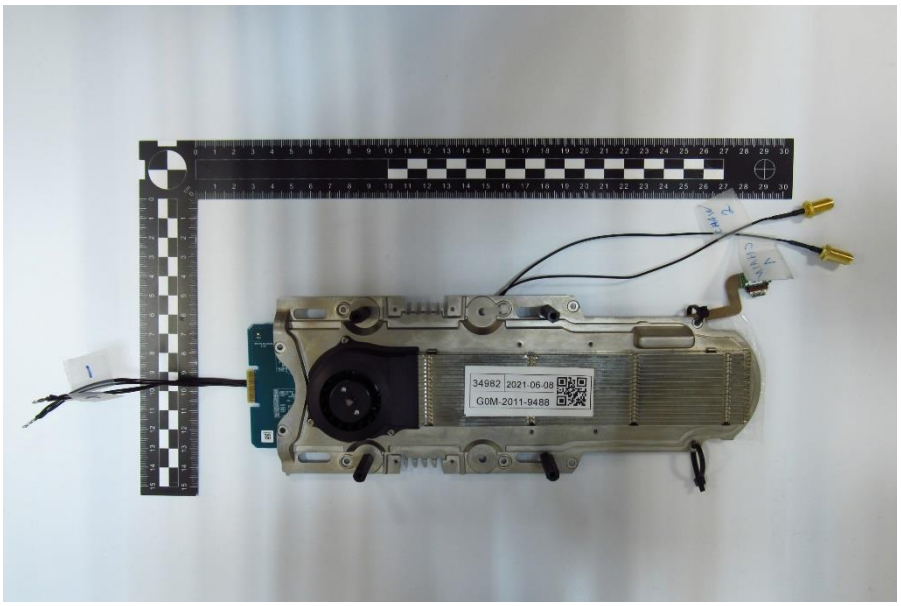


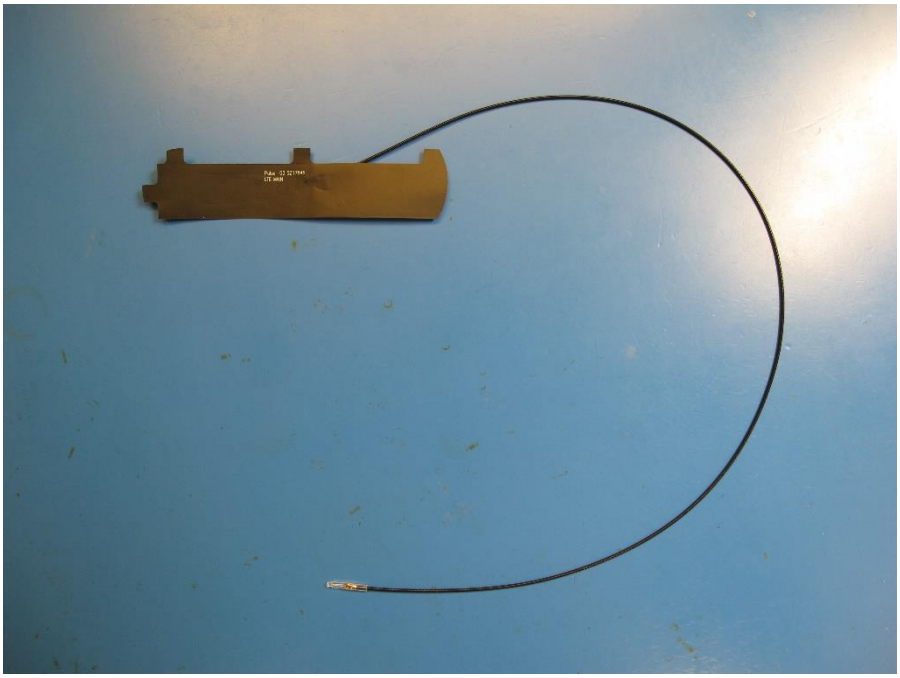
1.2 Photos – Equipment Internal

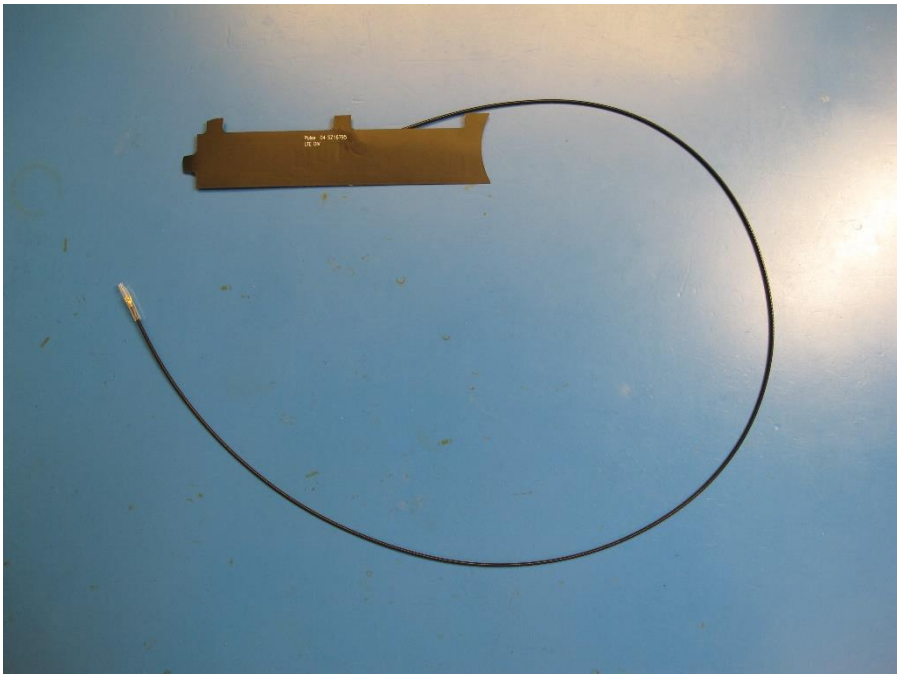
Mainbody-Front_excl_Supercap-Board

Note: Photo provided by customer

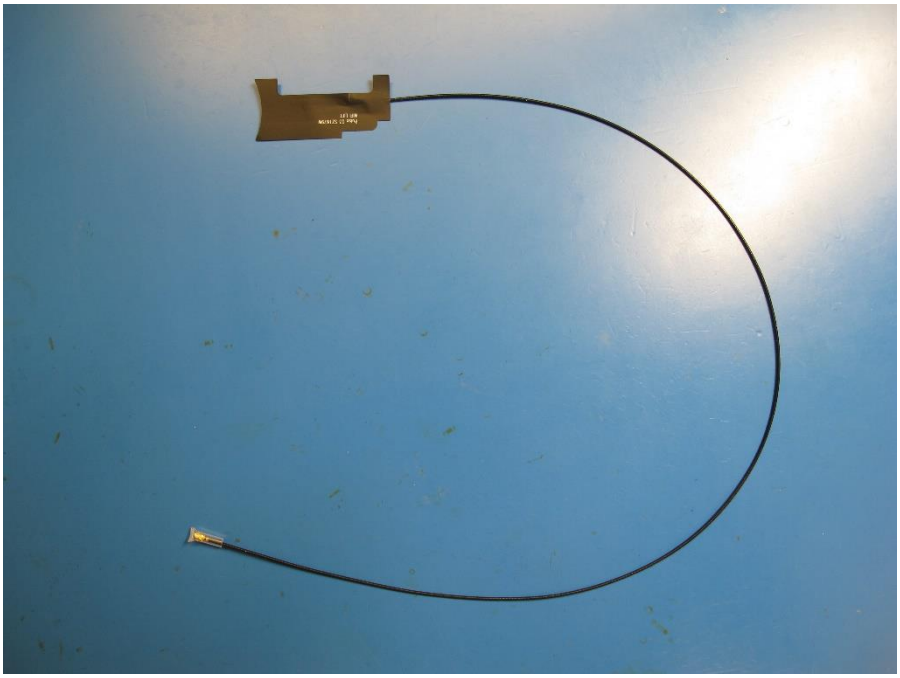
Mainbody-Front_incl_Supercap-Board

Note: Photo provided by customer

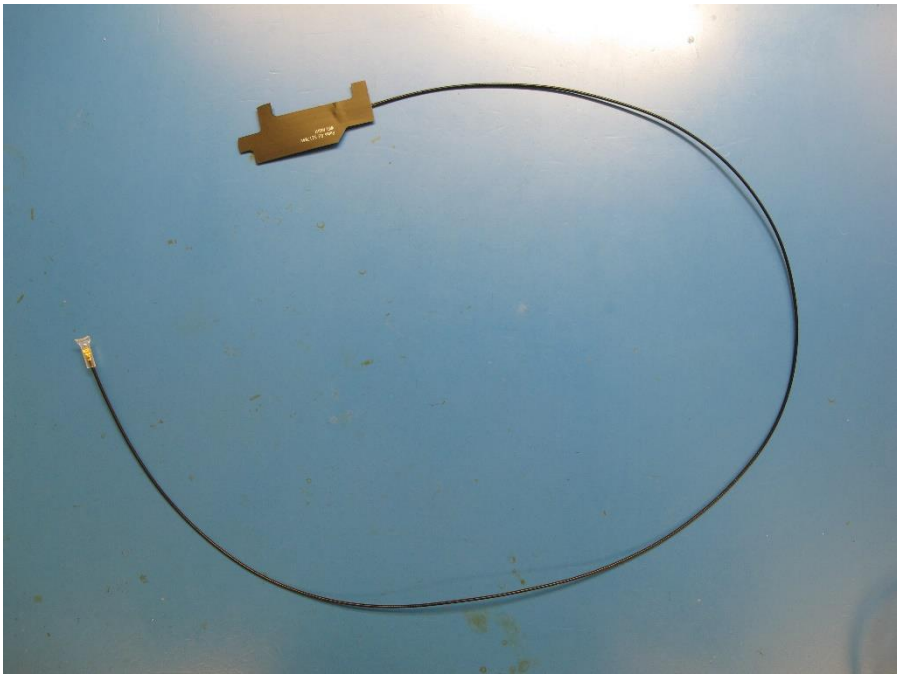
07 Conducted WLAN Sample1


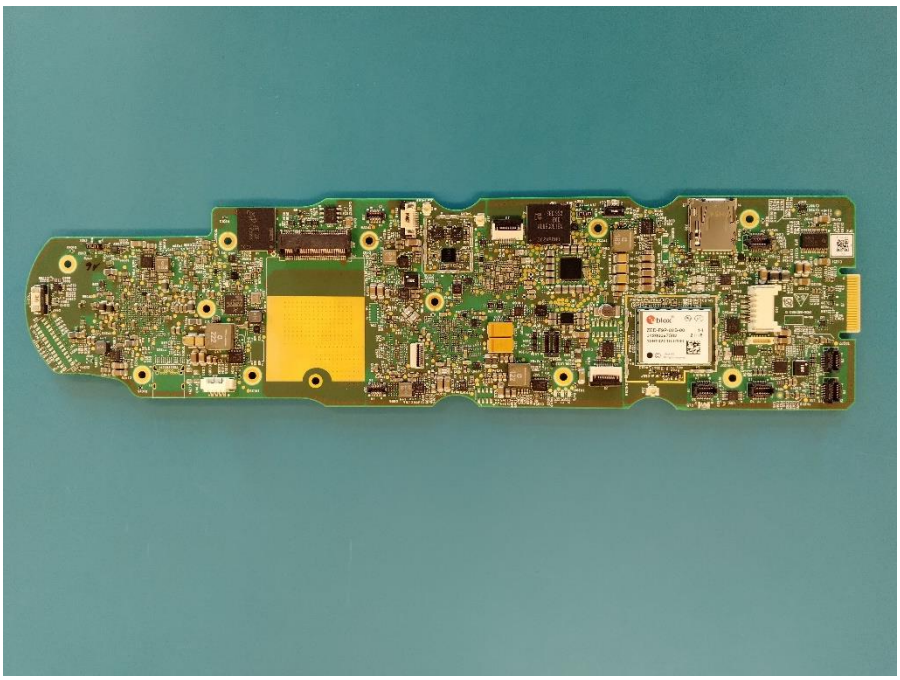
08 Conducted WLAN Sample2


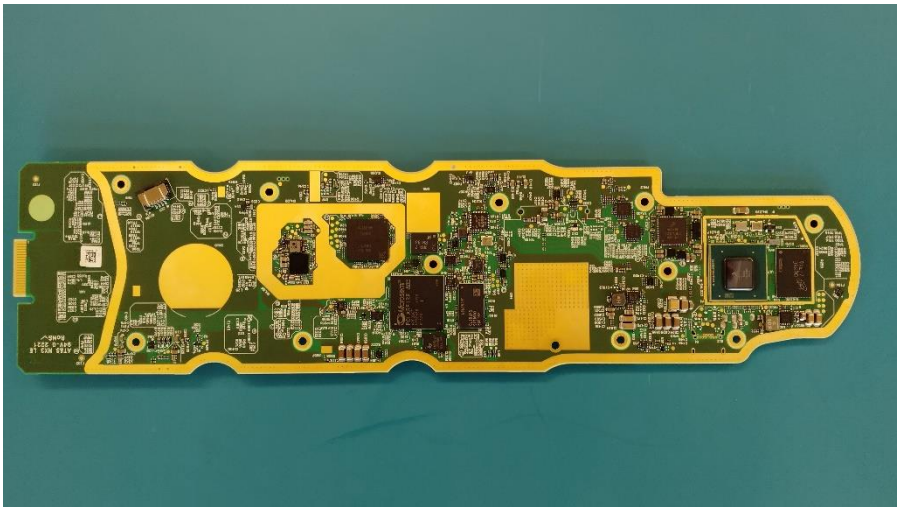
890108_LTE-Main_OVERVIEW

Note: Photo provided by customer

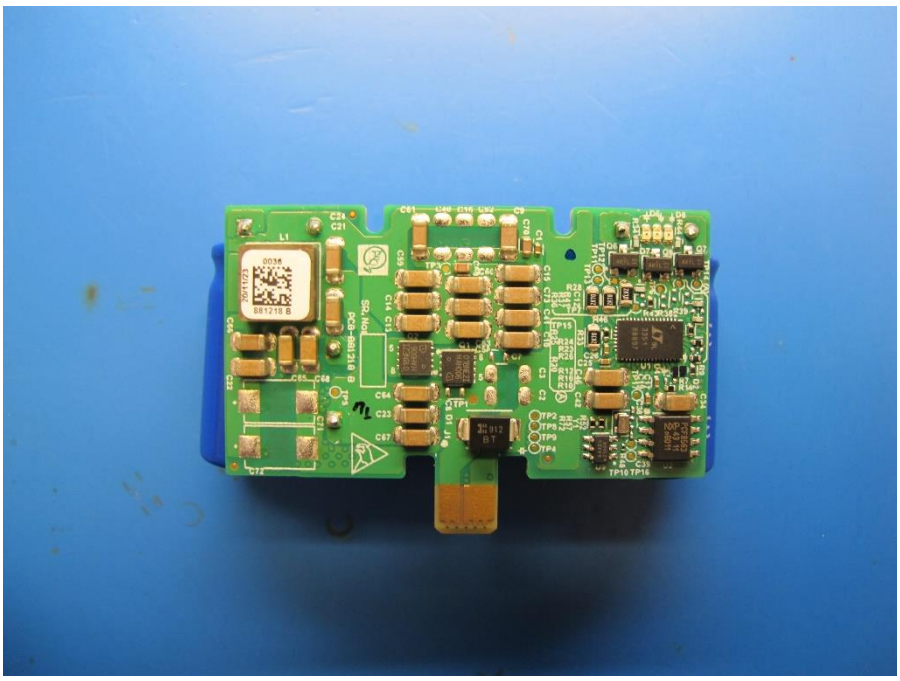
891349_LTE-Div_OVERVIEW

Note: Photo provided by customer

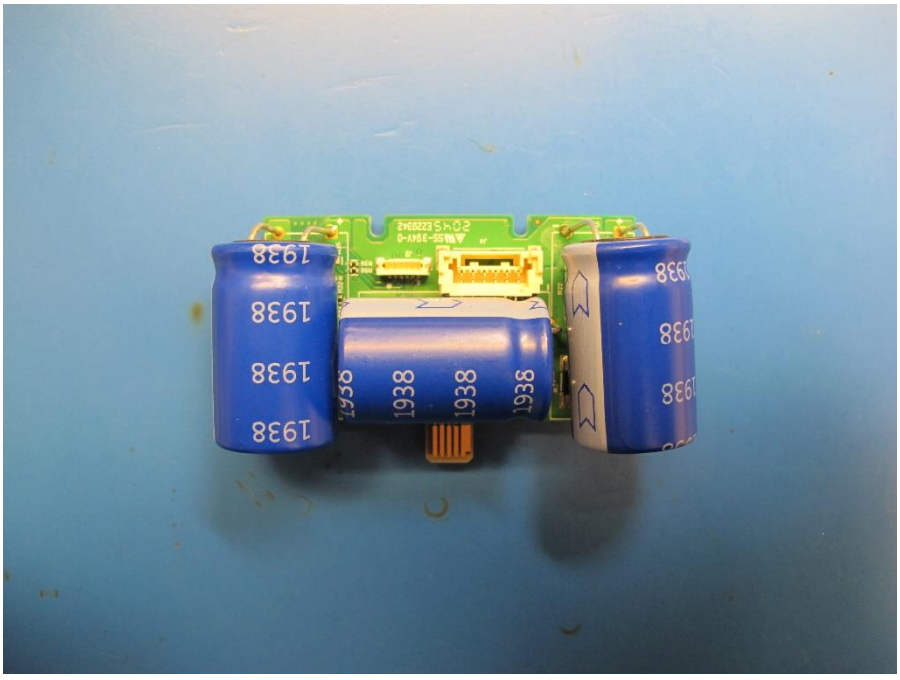
896802_Wifi-Left_OVERVIEW

Note: Photo provided by customer

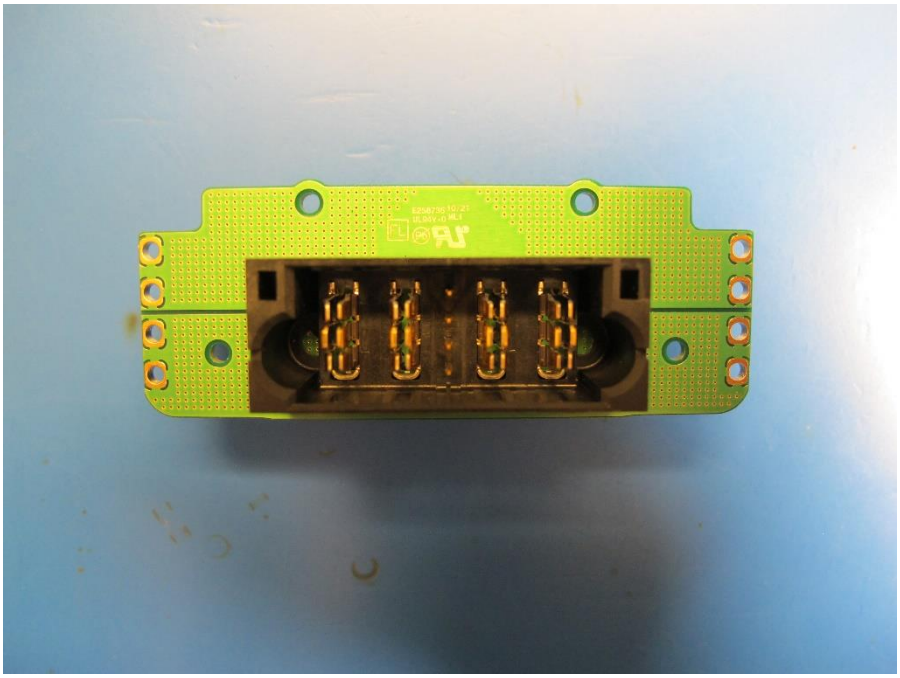
896802_Wifi-Right_OVERVIEW

Note: Photo provided by customer

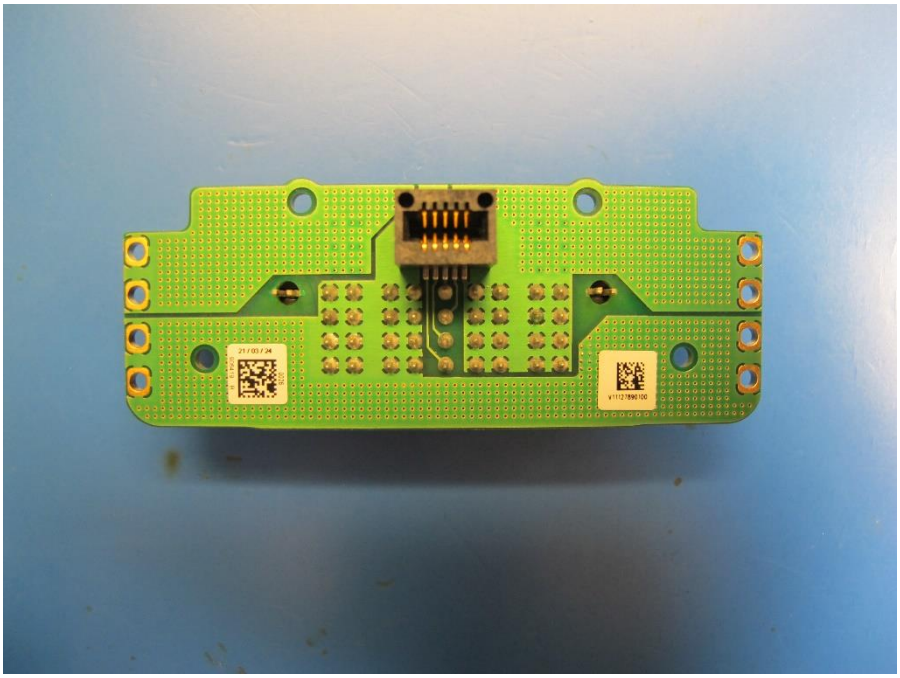
892583_mainboard_top

Note: Photo provided by customer

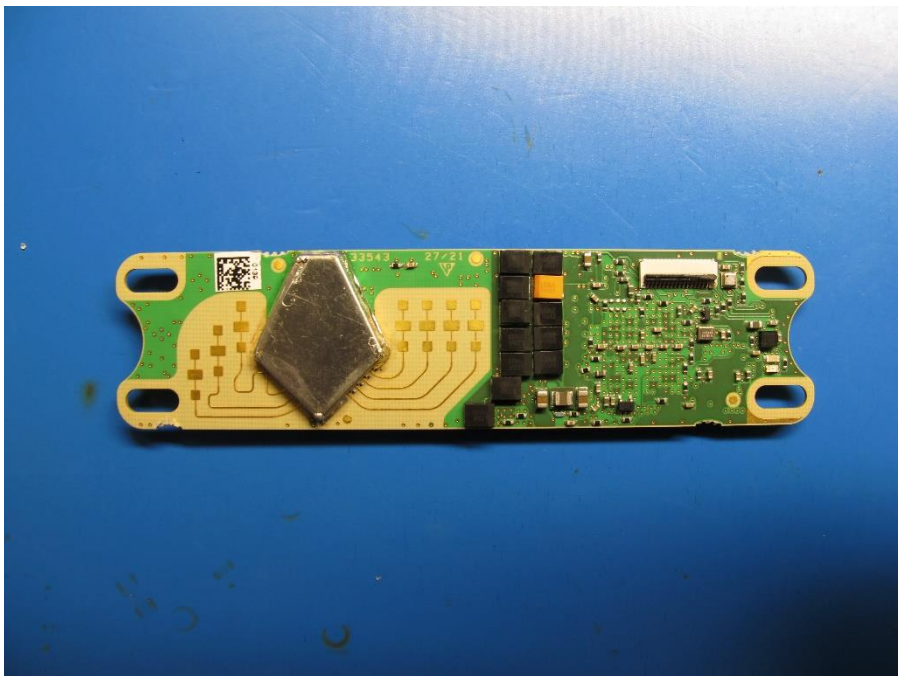
892583_mainboard_bottom

Note: Photo provided by customer

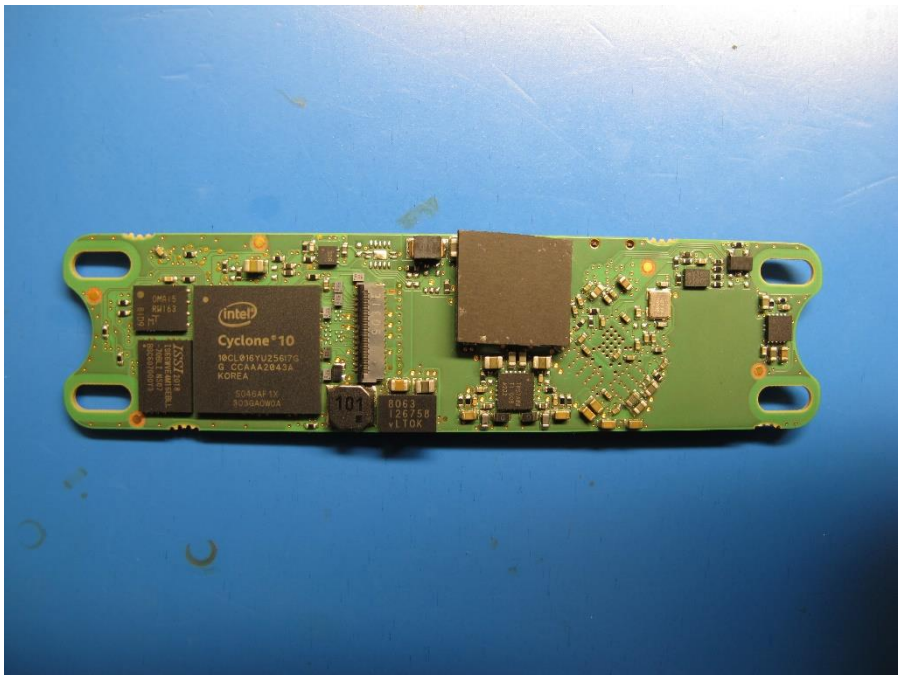
881218_Supercap-Board-TOP

Note: Photo provided by customer

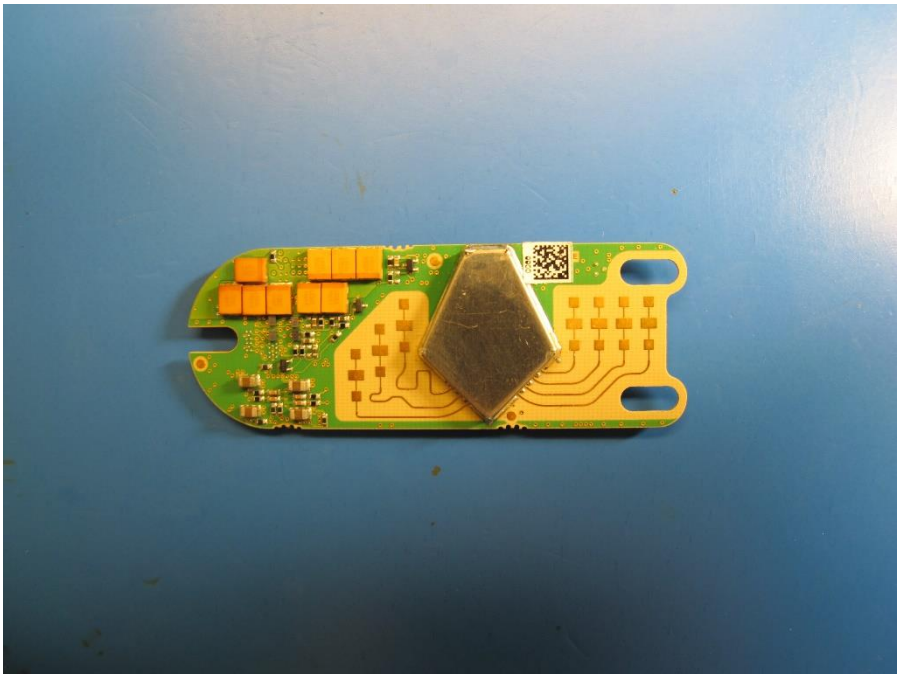
881218_Suppercap-Board-BOTTOM

Note: Photo provided by customer

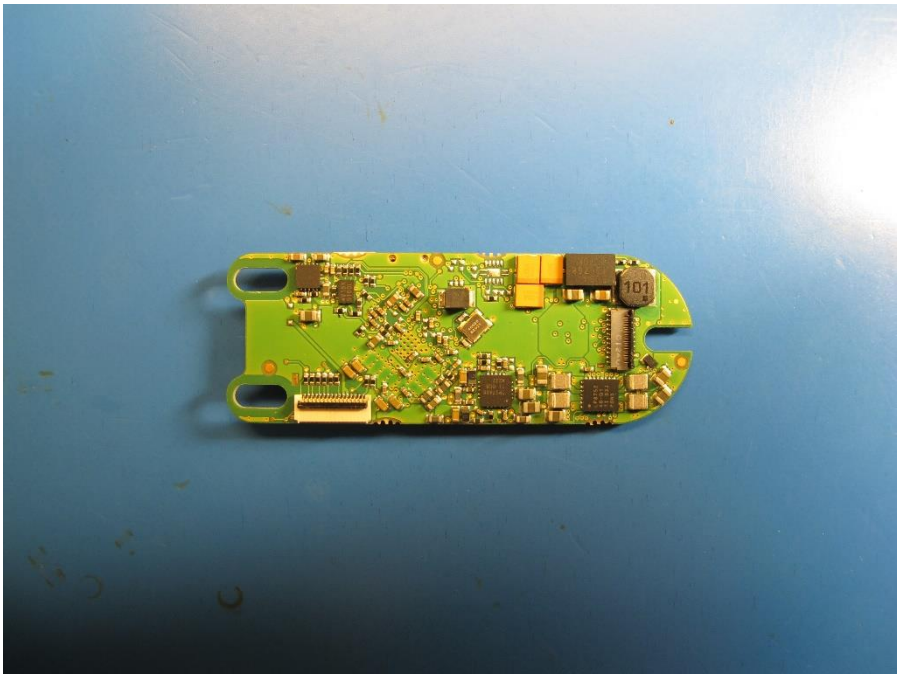
906419_Battery-Connector-Board_TOP

Note: Photo provided by customer

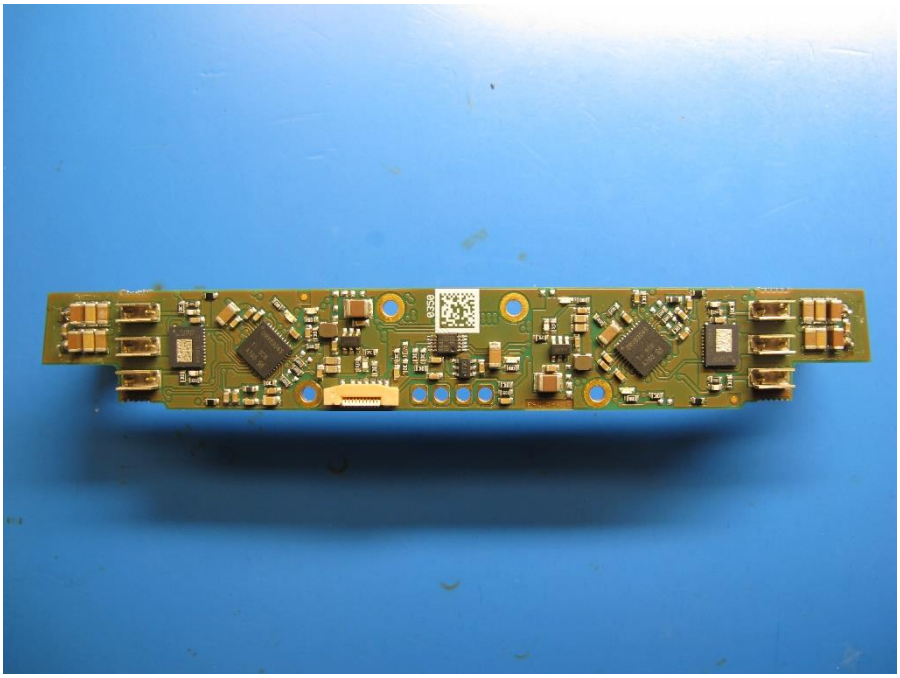
906419_Battery-Connector-Board_BOTTOM

Note: Photo provided by customer

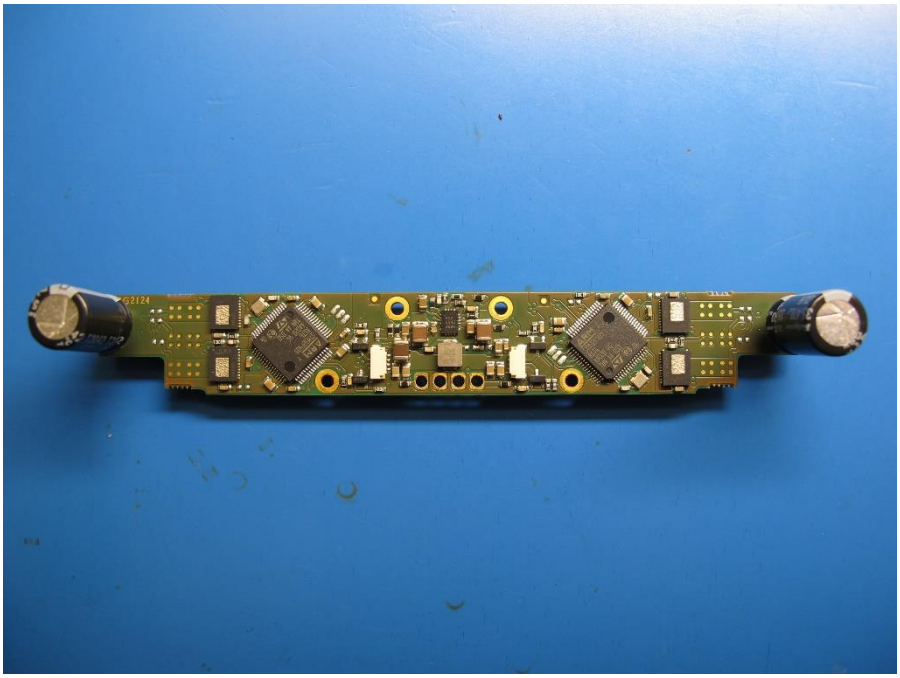
880880_Master_Radar-Board_TOP

Note: Photo provided by customer

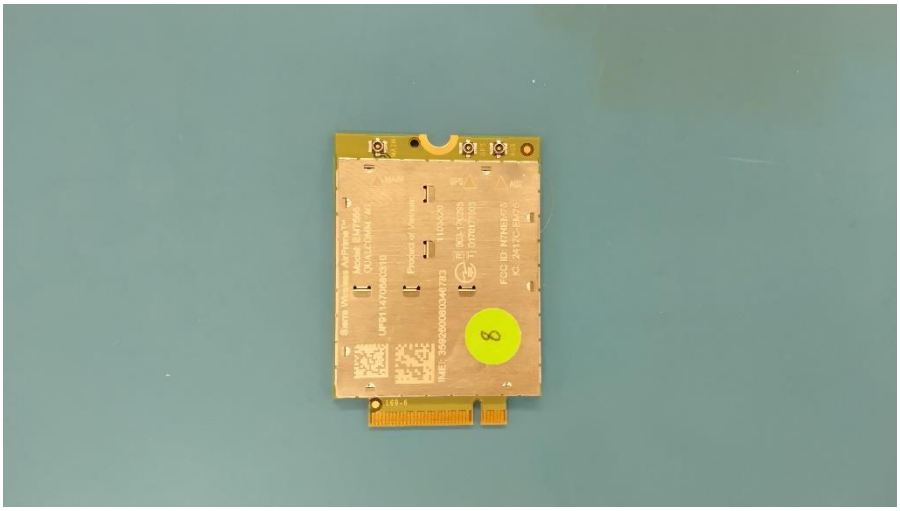
880880_Master_Radar-Board_BOTTOM

Note: Photo provided by customer

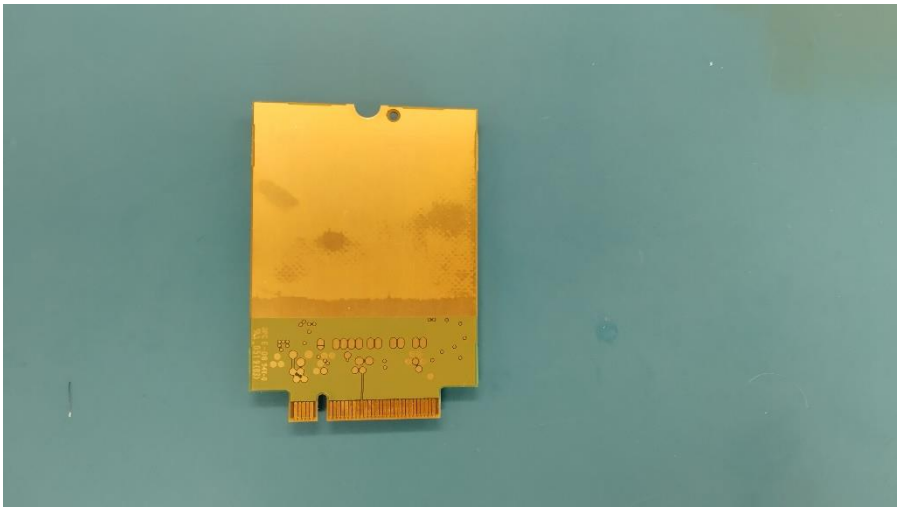
880870_Slave_Radar-Board_TOP

Note: Photo provided by customer

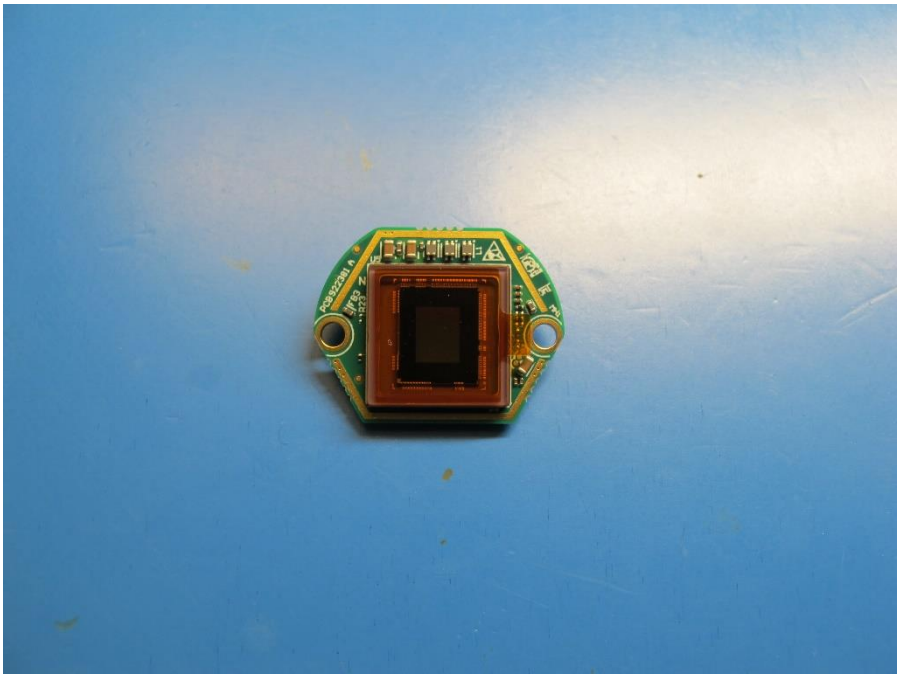
880870_Slave_Radar-Board_BOTTOM

Note: Photo provided by customer

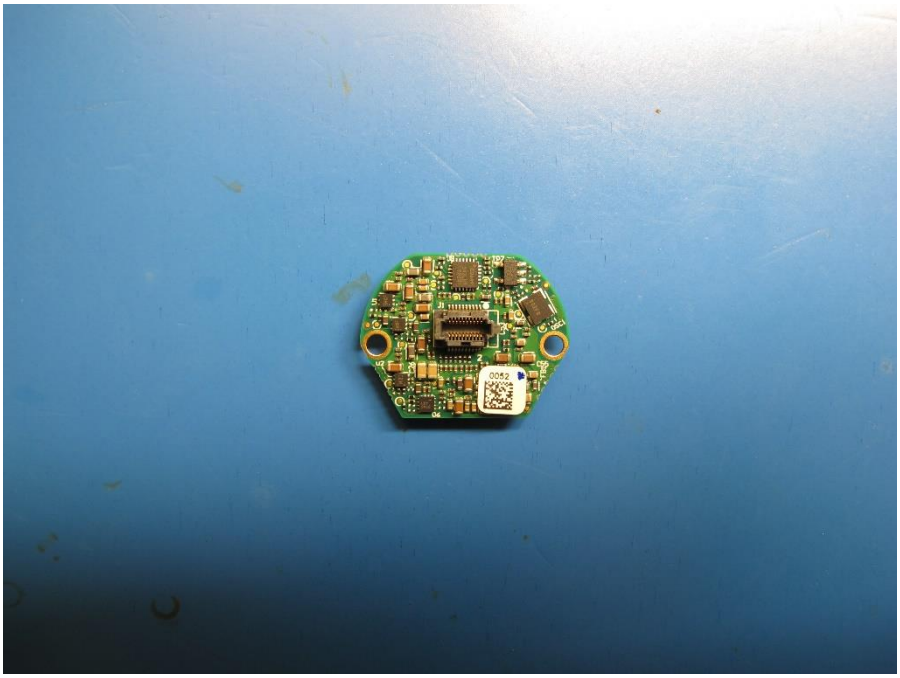
891019_ESC-Board_TOP

Note: Photo provided by customer

891019_ESC-Board_BOTTOM

Note: Photo provided by customer

897756_LTE_top

Note: Photo provided by customer

897756_LTE_bottom

Note: Photo provided by customer

922381_Camera-Board_Portrait_TOP

Note: Photo provided by customer

922381_Camera-Board_Portrait_BOTTOM

Note: Photo provided by customer

1.3 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Laptop	Lenovo	T440	
AE	Laptop power supply	Lite-On Technology	ADLX45NLC3A	
AE	AC & DC Power Source	Chroma ATE Inc.	61604	Power supply for EUT
SFT	Test software	Qualcomm	QRCT 4.0	To enabeling test modes
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
SFT	Software			
Comment:				

1.4 Test Modes

Mode	Description
1Mbit*	Mode = Transmit LE 1M PHY Modulation = GFSK Spreading = None Duty cycle = 89% Payload length = 193 Power level = 0x07 (software setting)
2Mbit	Mode = Transmit LE 2M PHY Modulation = GFSK Spreading = None Duty cycle = 84% Payload length = 239 Power level = 0 x07 (software setting)
Receive	Mode = Received
Comment: *worst case	

1.5 Test Frequencies

Designator	Mode	Channel	Frequency [MHz]
F1	Tx / Rx	0	2402
F2	Tx / Rx	19	2440
F3	Tx / Rx	39	2480

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:

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

Net:

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

Limit:

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

Limit (dBµV/m) = 20*log (µV/m)

Margin:

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

Example only:

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

2 Result Summary

FCC 47 CFR Part 15C, ISED RSS-210				
Product Standard Reference	**Requirement**	**Reference Method**	**Result**	**Remarks**
ISED RSS-Gen 6.6 Issue 5 A2	Occupied Bandwidth	ANSI C63.10-2013	N/R	Information only
FCC 15.35(c)	Duty Cycle	ANSI C63.10-2013	N/R	Information only
FCC 15.249(a),(c),(e) ISED RSS-210 B.10(a)	Fundamental field strength emissions	ANSI C63.10-2013	PASS	
FCC 15.249(a),(c),(d),(e) ISED RSS-210 B.10(b)	Emission radiated outside the specified frequency band	ANSI C63.10-2013	PASS	
ISED RSS-210 5 ISED RSS-Gen 7.1	Receiver radiated spurious emissions	ANSI C63.10-2013	PASS	
FCC 15.207 ISED RSS-210 5 ISED RSS-Gen 7.2	AC power line conducted emissions	ANSI C63.10-2013	N/R	No direct or indirect connection to AC mains during Bluetooth Low Energy operation
Comment:				

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

3 Test Conditions and Results

3.1 Test Conditions and Results - Occupied bandwidth

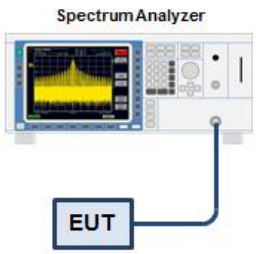
3.1.1 Information

Test Information	
Reference	ISED RSS-210 5 / ISED RSS-Gen 6.7
Measurement Method	ANSI C63.10 6.9.3
Operator	Toralf Jahn
Date	2021-08-17

3.1.2 Limits

Limits
None (Informational only)

3.1.3 Setup

Test Setup


3.1.4 Equipment

Test Equipment					
Spectrum Analyzer	R&S	FSW 43	EF00896	2021-07	2022-07

3.1.5 Procedure

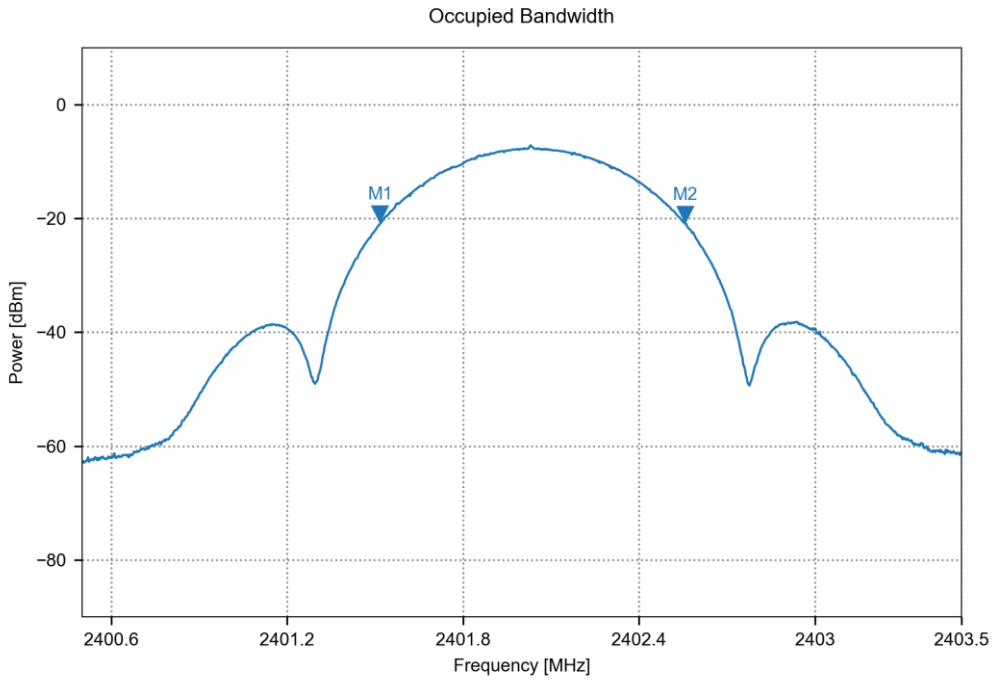
Test Procedure
1. EUT transmitter is activated in test mode under normal conditions 2. The spectrum analyzer is set to peak detection and maximum hold with a span twice the emission spectrum 3. The resolution bandwidth is set to 1 % of the bandwidth 4. The occupied bandwidth is measured with the build-in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

3.1.6 Results

Test Results					
Mode	Channel [MHz]	Bandwidth [MHz]	Limit [MHz]	Margin [MHz]	Band check
1Mbit	2402	1.041	N/A	N/A	PASS
1Mbit	2480	1.044	N/A	N/A	PASS
2Mbit	2402	2.058	N/A	N/A	PASS
2Mbit	2480	2.064	N/A	N/A	PASS

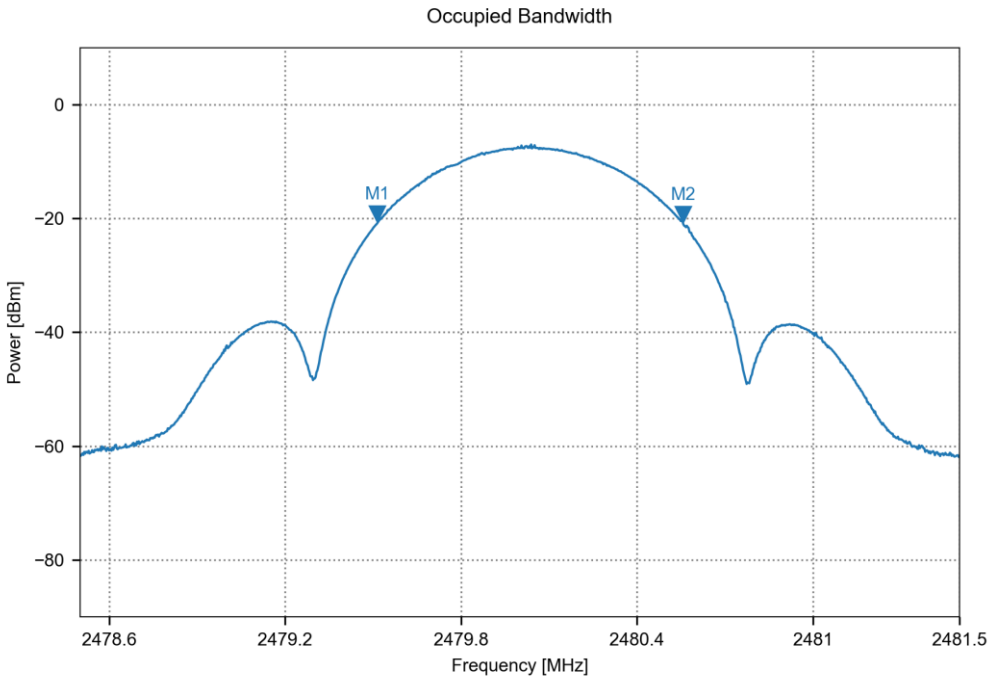
Occupied Bandwidth

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	34982
Operational Mode:	Bluetooth LE 1 Mbps, GFSK, Channel: 2402.0 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Toralf Jahn
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-08-17
Lower Frequency (M1) [MHz]:	2401.517
Upper Frequency (M2) [MHz]:	2402.558
Occupied Bandwidth [MHz]:	1.041



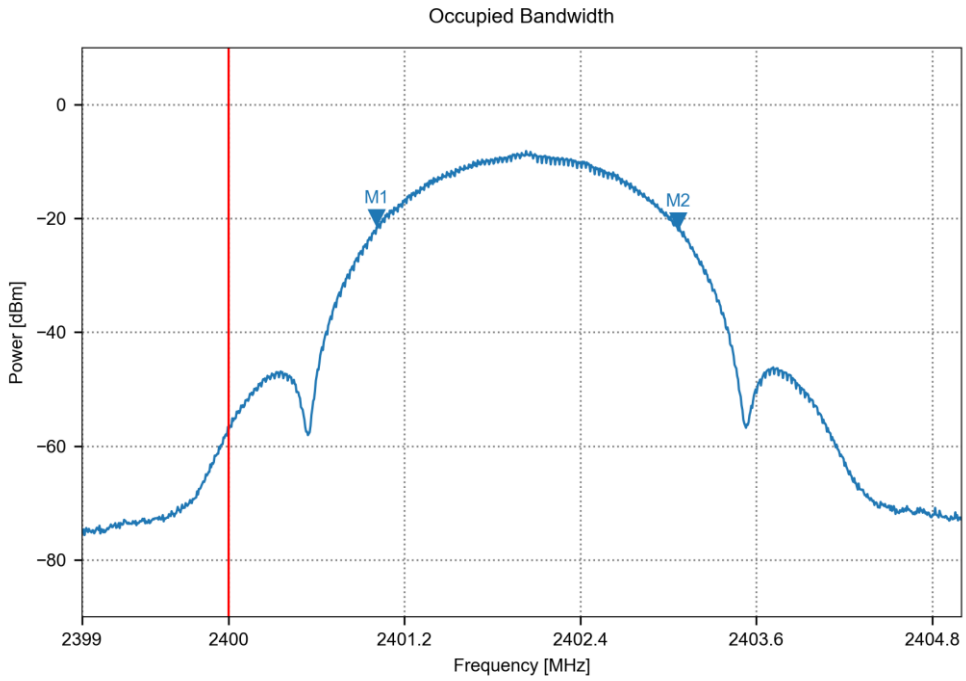
Occupied Bandwidth

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	34982
Operational Mode:	Bluetooth LE 1 Mbps, GFSK, Channel: 2480.0 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Toralf Jahn
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-08-17
Lower Frequency (M1) [MHz]:	2479.514
Upper Frequency (M2) [MHz]:	2480.558
Occupied Bandwidth [MHz]:	1.044



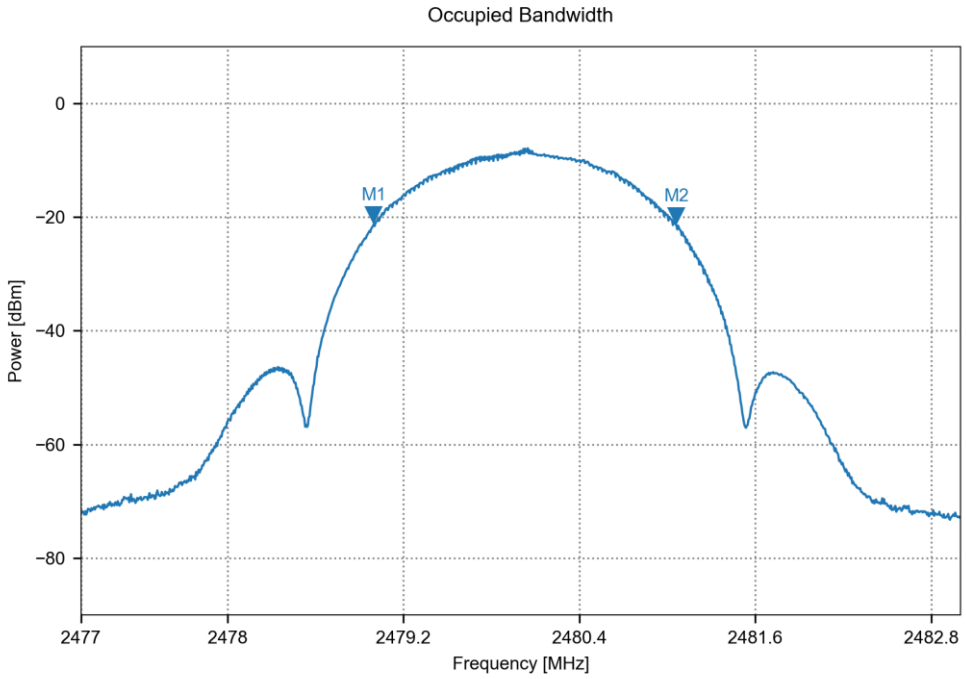
Occupied Bandwidth

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	34982
Operational Mode:	Bluetooth LE 2 Mbps, GFSK, Channel: 2402.0 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Toralf Jahn
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-08-17
Lower Frequency (M1) [MHz]:	2401.010
Upper Frequency (M2) [MHz]:	2403.068
Occupied Bandwidth [MHz]:	2.058



Occupied Bandwidth

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	34982
Operational Mode:	Bluetooth LE 2 Mbps, GFSK, Channel: 2480.0 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Toralf Jahn
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-08-17
Lower Frequency (M1) [MHz]:	2478.998
Upper Frequency (M2) [MHz]:	2481.062
Occupied Bandwidth [MHz]:	2.064



3.2 Test Conditions and Results - Fundamental field strength emissions

3.2.1 Information

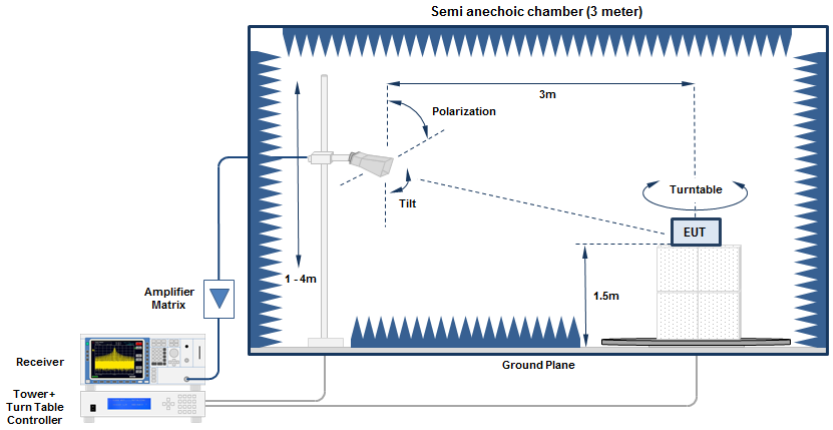
Test Information	
Reference	FCC 15.249(a),(c),(e) / ISED RSS-210 B.10(a)
Measurement Method	ANSI C63.10
Operator	Toralf Jahn
Date	2021-09-25

3.2.2 Limits

Limits				
Operating Frequency range [MHz]	Detector	Limit [mV/m]	Limit [dBµV/m]	Limit Distance [m]
2400 - 2483.5	Average	50	94	3

3.2.3 Setup

Test Setup > 1 GHz



3.2.4 Equipment

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

3.2.5 Procedure

Test Procedure

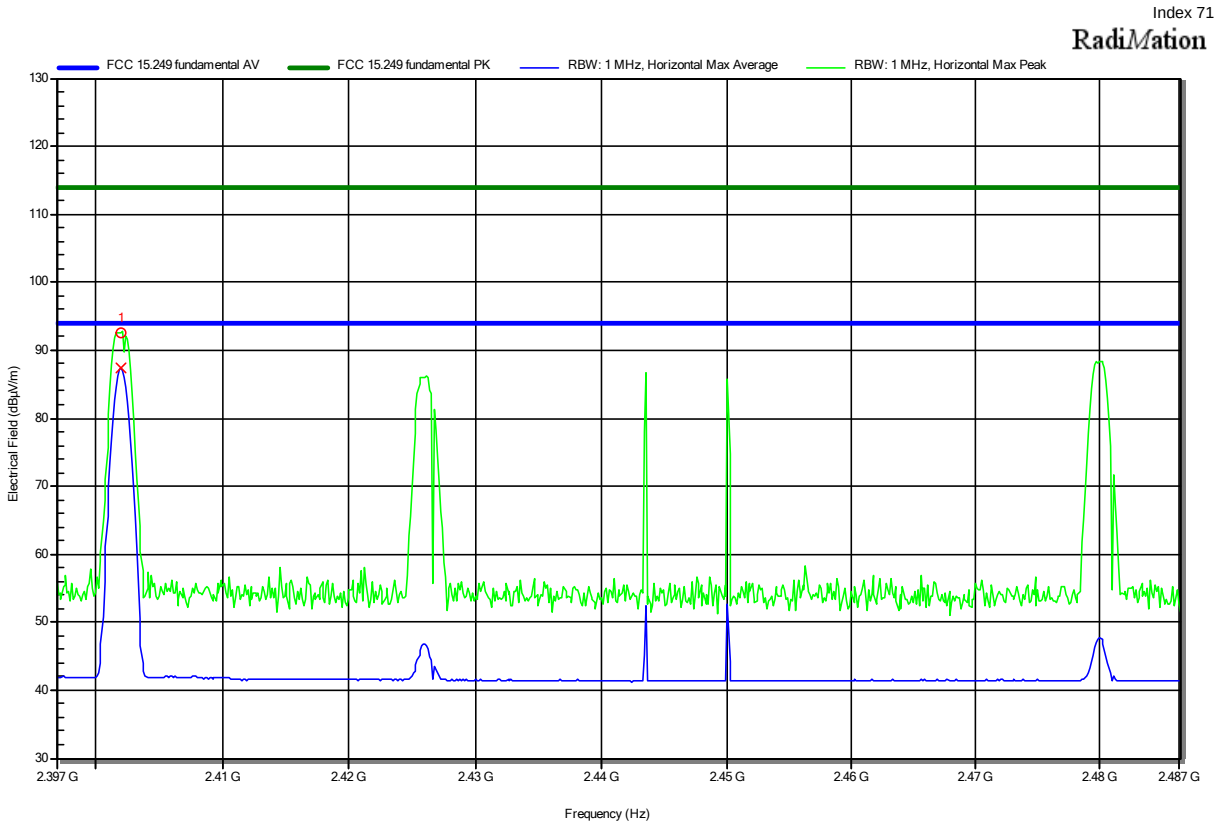
1. EUT set to test mode (Communication tester is used if needed)
2. Span it set according to measurement range
3. Below 1 GHz the resolution bandwidth is set according to CISPR 16 to 120 kHz with peak/quasi-peak detector.
4. Above 1 GHz the resolution bandwidth is set to 1 MHz with peak/average detector. Pulsed emissions are averaged over 100 ms with duty cycle correction.
5. Markers are set to maximum emission levels

3.2.6 Results

Test Results						
Mode	Emission [MHz]	Level [dBµV/m]	Detector	Pol.	Limit [dBµV/m]	Margin [dB]
1 Mbit	2402	92.52	pk	hor	114.00	-21.48 dB
1 Mbit	2402	87.36	avg	hor	94.00	-6.64 dB
1 Mbit	2402	94.07	pk	ver	114.00	-19.93 dB
1 Mbit	2402	87.93	avg	ver	94.00	-6.07 dB
1 Mbit	2440	91.61	pk	hor	114.00	-22.39 dB
1 Mbit	2440	89.33	avg	hor	94.00	-4.67 dB
1 Mbit	2440	90.34	pk	ver	114.00	-23.66 dB
1 Mbit	2440	88.08	avg	ver	94.00	-5.92 dB
1 Mbit	2480	97.19	pk	hor	114.00	-16.81 dB
1 Mbit	2480	89.64	avg	hor	94.00	-4.36 dB
1 Mbit	2480	93.50	pk	ver	114.00	-20.5 dB
1 Mbit	2480	86.27	avg	ver	94.00	-7.73 dB

Radiated carrier according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2402 MHz
Test Date:	2021-09-25
Note:	

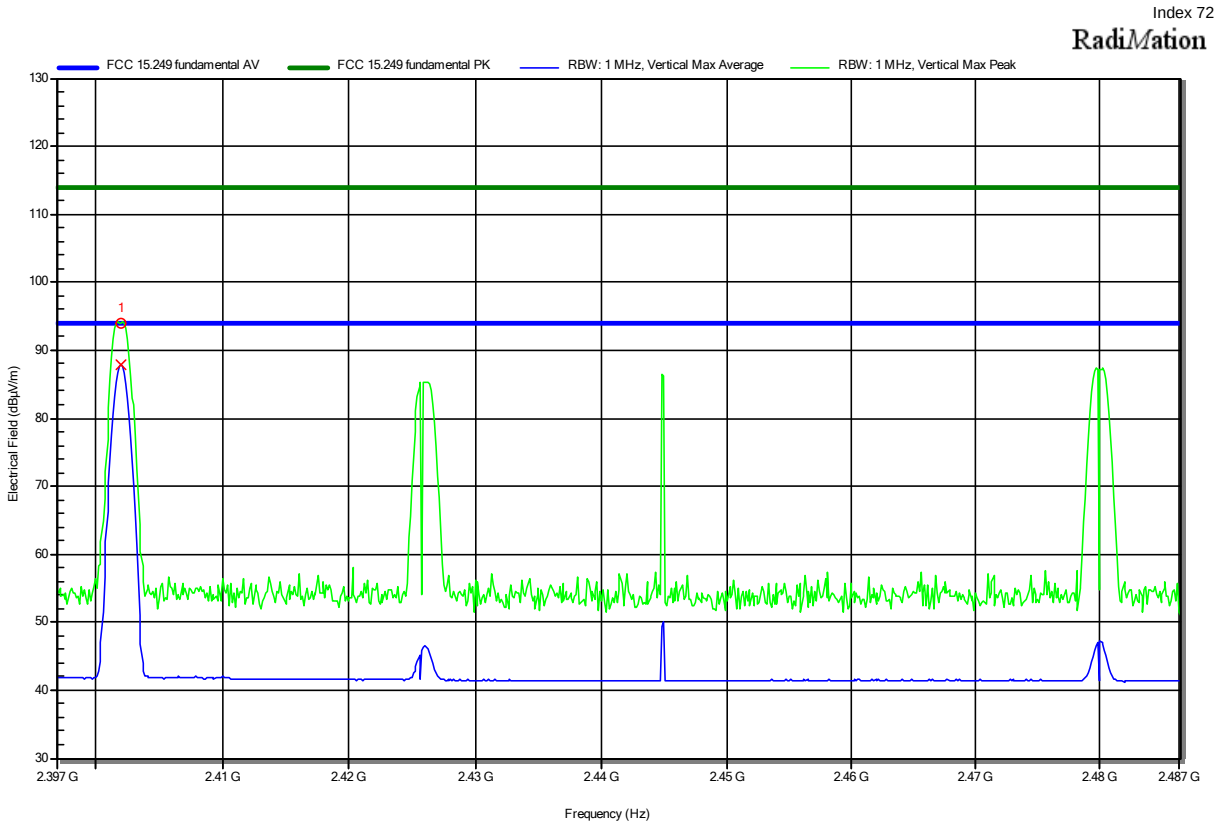


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.402 GHz	92.52 dBµV/m	114 dBµV/m	-21.48 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
2.402 GHz	87.36 dBµV/m	94 dBµV/m	-6.64 dB	Pass

Radiated carrier according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2402 MHz
Test Date:	2021-09-25
Note:	

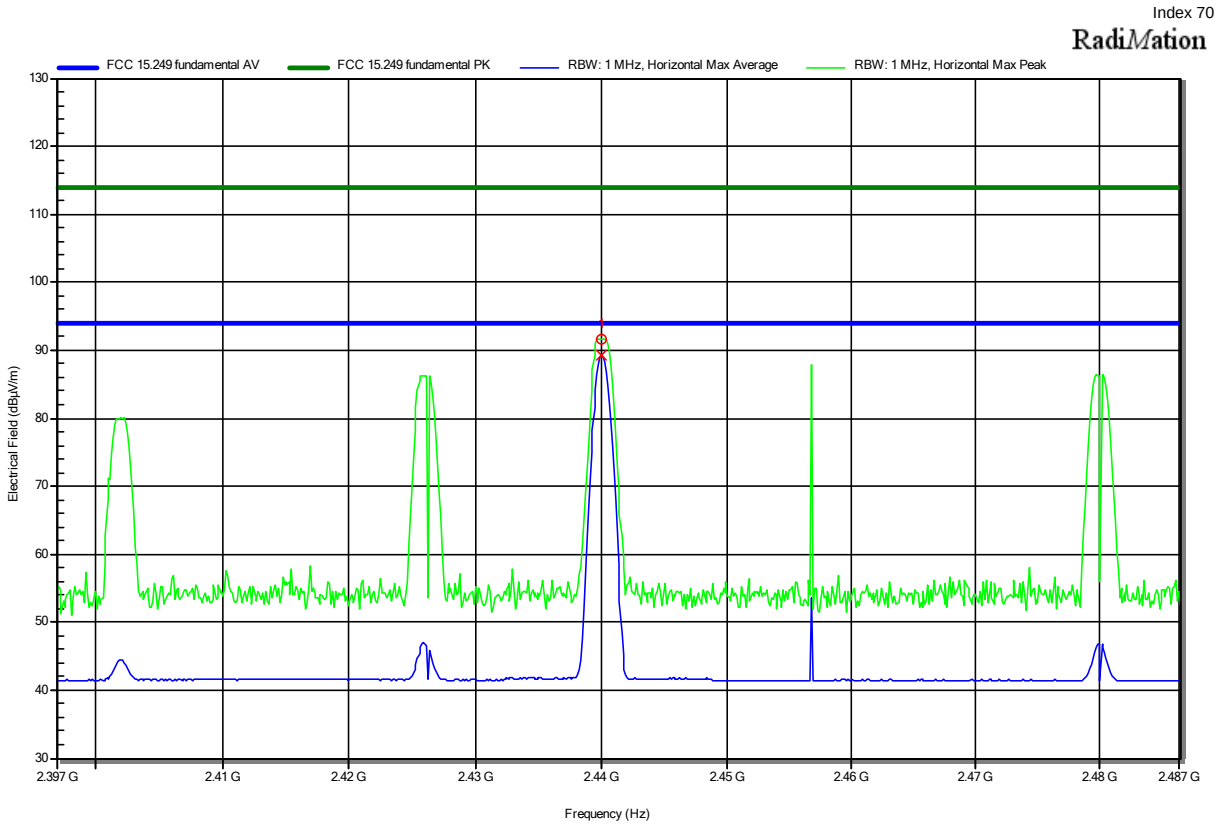


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.402 GHz	94.07 dBµV/m	114 dBµV/m	-19.93 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
2.402 GHz	87.93 dBµV/m	94 dBµV/m	-6.07 dB	Pass

Radiated carrier according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2440 MHz
Test Date:	2021-09-25
Note:	

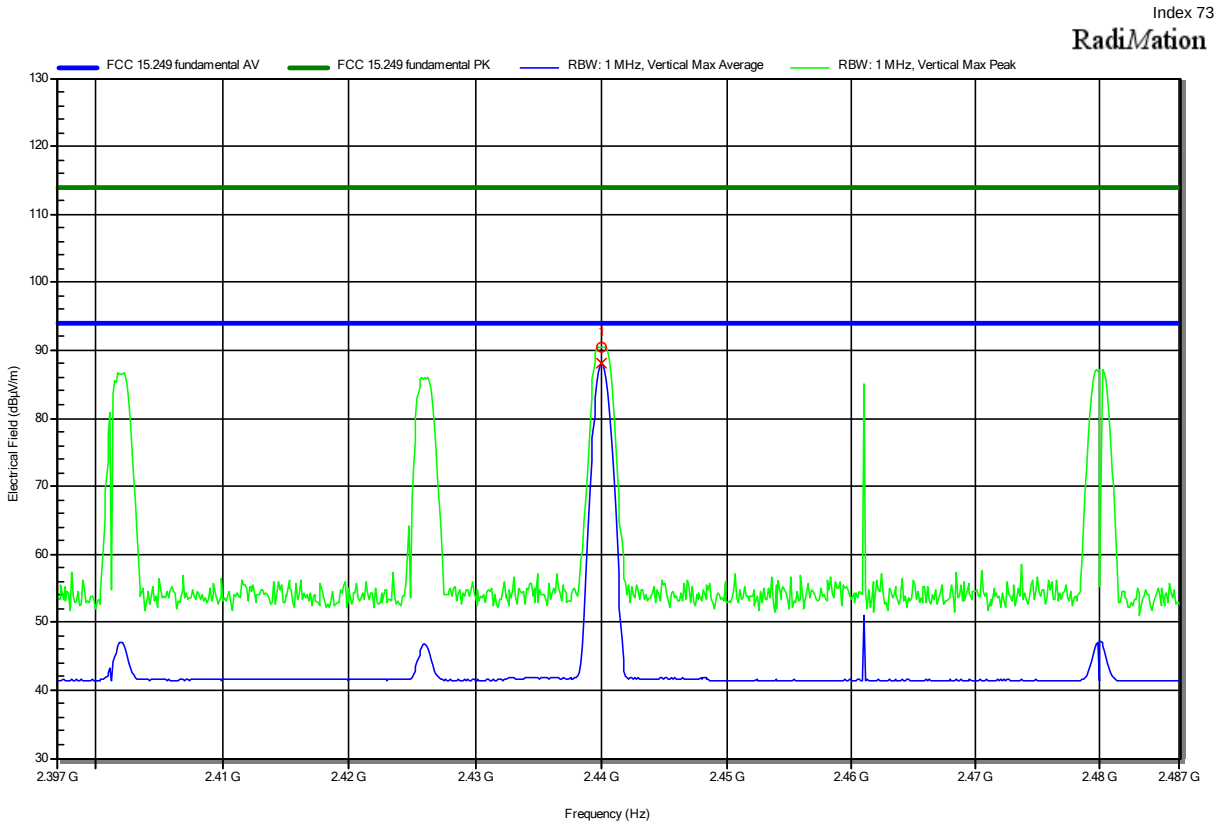


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.44 GHz	91.61 dBµV/m	114 dBµV/m	-22.39 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
2.44 GHz	89.33 dBµV/m	94 dBµV/m	-4.67 dB	Pass

Radiated carrier according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2440 MHz
Test Date:	2021-09-25
Note:	

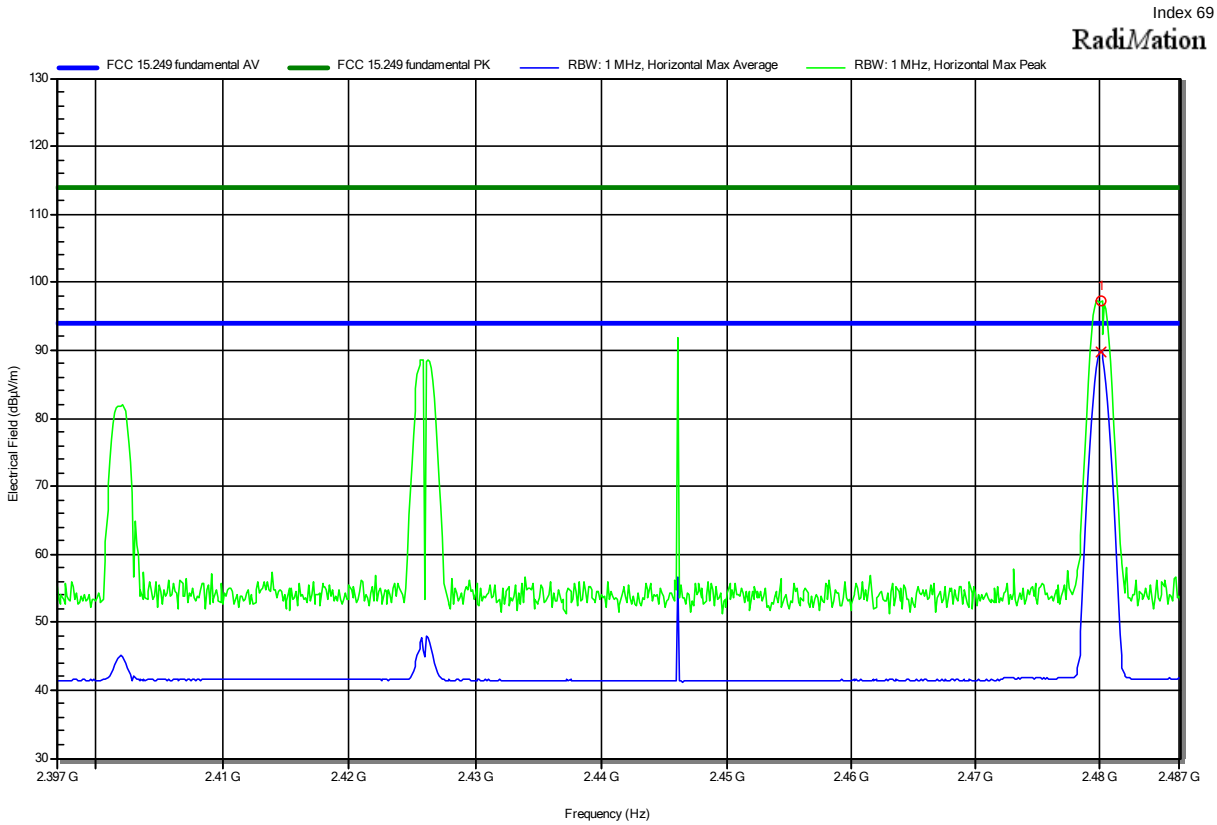


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.44 GHz	90.34 dBµV/m	114 dBµV/m	-23.66 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
2.44 GHz	88.08 dBµV/m	94 dBµV/m	-5.92 dB	Pass

Radiated carrier according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2480 MHz
Test Date:	2021-09-25
Note:	

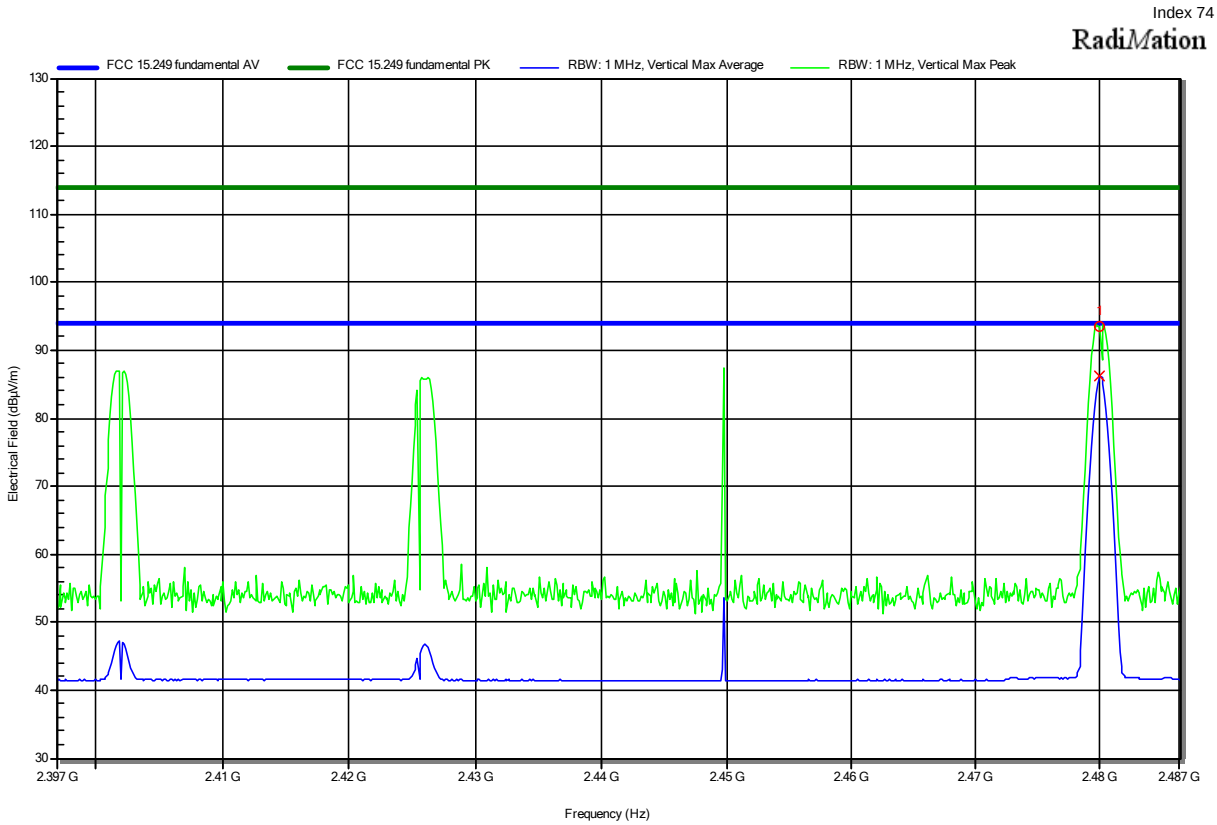


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.48 GHz	97.19 dBµV/m	114 dBµV/m	-16.81 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
2.48 GHz	89.64 dBµV/m	94 dBµV/m	-4.36 dB	Pass

Radiated carrier according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2480 MHz
Test Date:	2021-09-25
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.48 GHz	93.5 dBµV/m	114 dBµV/m	-20.5 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
2.48 GHz	86.27 dBµV/m	94 dBµV/m	-7.73 dB	Pass

3.3 Test Conditions and Results - Emissions radiated outside the specified frequency band

3.3.1 Information

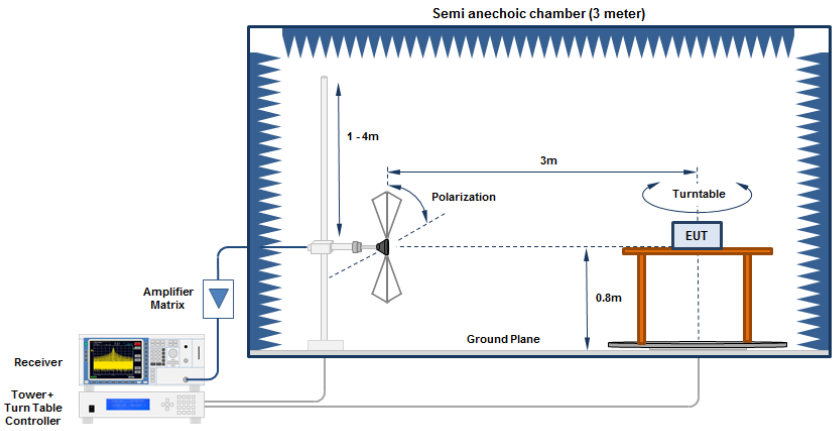
Test Information	
Reference	FCC 47 CFR 15.249 / ISED RSS-210 B.10(b)
Measurement Method	ANSI C63.10
Operator	Florian Voigt
Date	2021-10-12

3.3.2 Limits

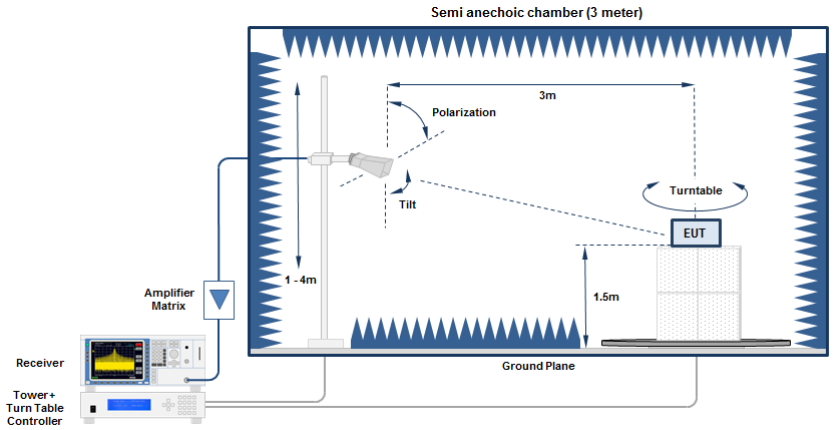
Limits - Harmonics				
The field strength of harmonic emissions, measured at 3 m, shall not exceed 500 µV/m (54 dBµV/m).				
Limits - General				
Frequency range [MHz]	Detector	Limit [µV/m]	Limit [dBµV/m]	Limit Distance [m]
30 - 88	Quasi-Peak	100	40	3
88 - 216	Quasi-Peak	150	43.5	3
216 - 960	Quasi-Peak	200	46	3
960 - 1000	Quasi-Peak	500	54	3
> 1000	Average	500	54	3
For frequencies above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. Except the higher order harmonics, emission radiated outside the specified frequency band shall be attenuated by at least 50 dB below the level of the fundamental or to the general field strength limits listed in 15.209 / RSS-Gen, whichever is less stringent.				

3.3.3 Setup

Test Setup 30 - 1000 MHz



Test Setup > 1 GHz



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
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2021-07	2022-07
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	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
Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2022-03
Antenna	Amplifier Research	AT4560	EF00302	2021-06	2023-06

3.3.5 Procedure

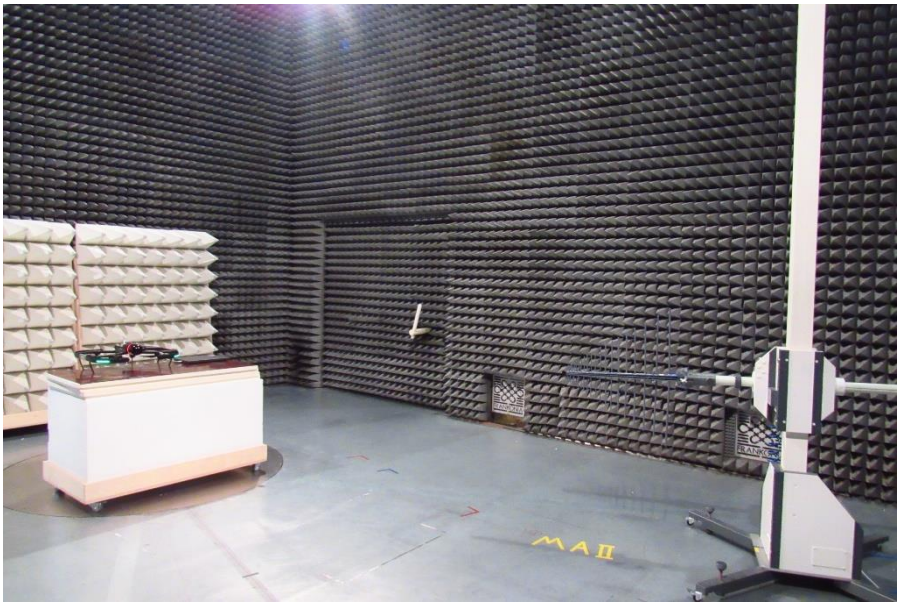
Test Procedure
1. EUT set to test mode 2. Span it set according to measurement range 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 withpeak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz 4. Markers are set to maximum emission levels

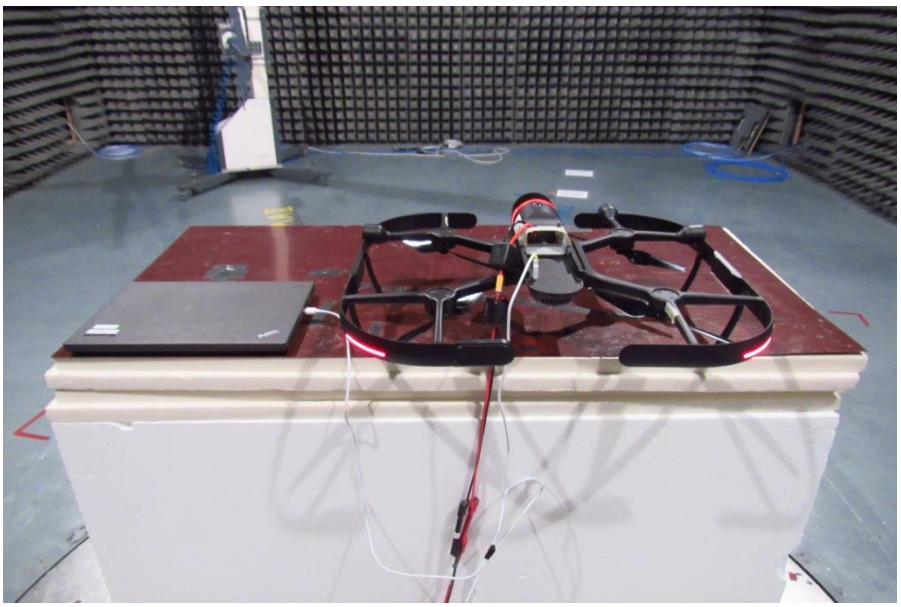
3.3.6 Results

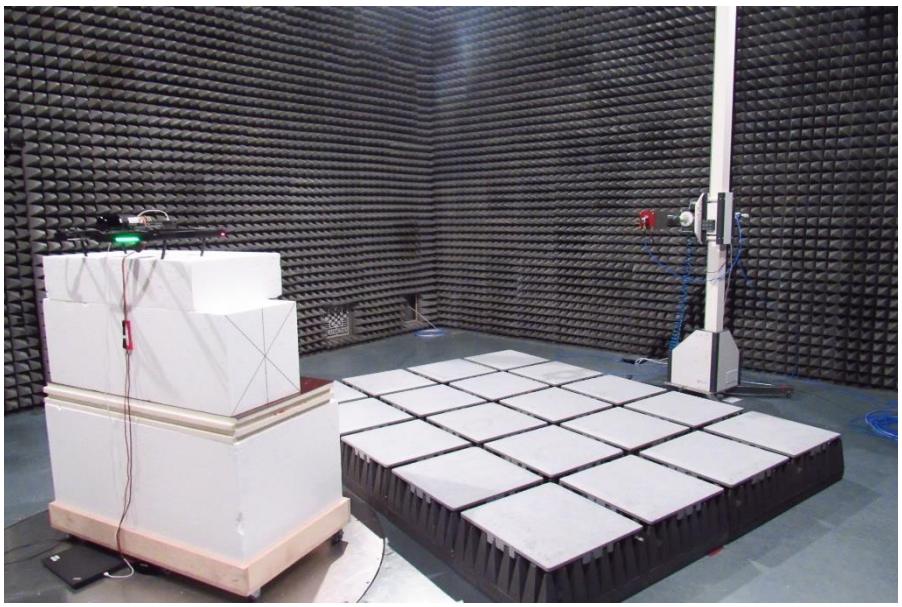
Test Results

Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2402	99.589	29.41	pk	ver	43.50	-14.09
2402	123.555	35.18	pk	hor	43.50	-08.32
2402	148.516	33.95	pk	hor	43.50	-09.55
2402	253.938	35.28	qpk	hor	44.00	-08.72
2402	336.033	32.62	qpk	hor	44.00	-11.38
2402	1594	36.97	avg	ver	54.00	-17.03
2402	1991	36.41	avg	ver	54.00	-17.59
2402	2400	53.71	pk	hor	74.00	-20.29
2402	2400	51.30	pk	ver	74.00	-22.70
2402	2400	33.18	avg	hor	54.00	-20.82
2402	2400	31.69	avg	ver	54.00	-22.31
2402	2502	43.12	avg	ver	54.00	-10.88
2402	2540	41.36	avg	ver	54.00	-12.64
2402	2586	39.62	avg	ver	54.00	-14.38
2402	9607	42.11	avg	ver	54.00	-11.89
2440	32.473	25.14	pk	ver	40.00	-14.86
2440	113.925	22.16	qpk	hor	43.50	-21.34
2440	121.358	21.64	qpk	hor	43.50	-21.86
2440	124.992	32.41	pk	ver	43.50	-11.09
2440	148.494	35.17	qpk	hor	43.50	-08.33
2440	168.032	31.69	pk	hor	43.50	-11.81
2440	249.588	35.34	qpk	hor	45.00	-09.66
2440	335.969	34.28	qpk	hor	45.00	-10.72
2440	1595	35.31	avg	ver	54.00	-18.69
2440	1996	38.03	avg	ver	54.00	-15.97
2440	2546	37.48	avg	hor	54.00	-16.52
2440	9760	32.60	avg	ver	54.00	-21.40
2480	32.533	23.92	pk	ver	40.00	-16.08
2480	102.53	28.21	pk	ver	43.50	-15.29
2480	117.082	21.28	qpk	hor	43.50	-22.22
2480	123.215	22.44	qpk	hor	43.50	-21.06
2480	124.996	31.45	pk	ver	43.50	-12.05
2480	148.507	33.50	pk	hor	43.50	-10.00
2480	251.19	35.88	qpk	hor	45.00	-09.12
2480	1596	37.08	avg	ver	54.00	-16.92
2480	1994	34.95	avg	ver	54.00	-19.05
2480	2522	41.08	avg	ver	54.00	-12.92
2480	9919	43.33	avg	ver	54.00	-10.67

3.3.7 Setup photos

Below 1 GHz


Below 1 GHz


Above 1 GHz


3.4 Test Conditions and Results - Receiver radiated emissions

3.4.1 Information

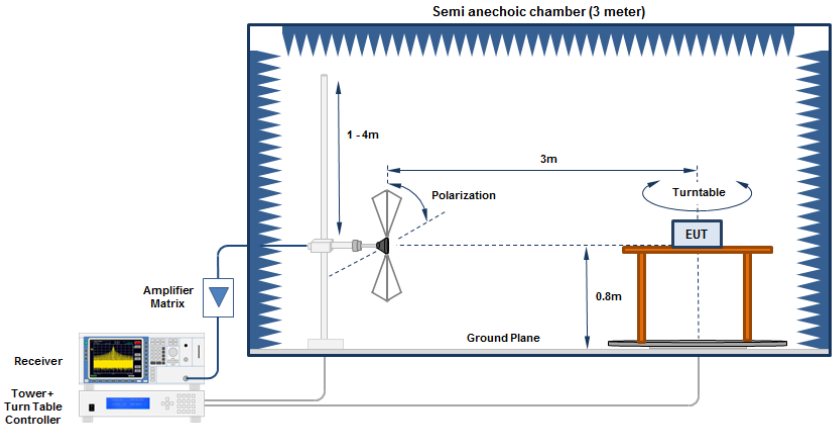
Test Information	
Reference	FCC 47 CFR 15.249 / ISED RSS-210 5 / ISED RSS-Gen 7.3
Measurement Method	ANSI C63.10
Operator	Florian Voigt
Date	2021-10-07

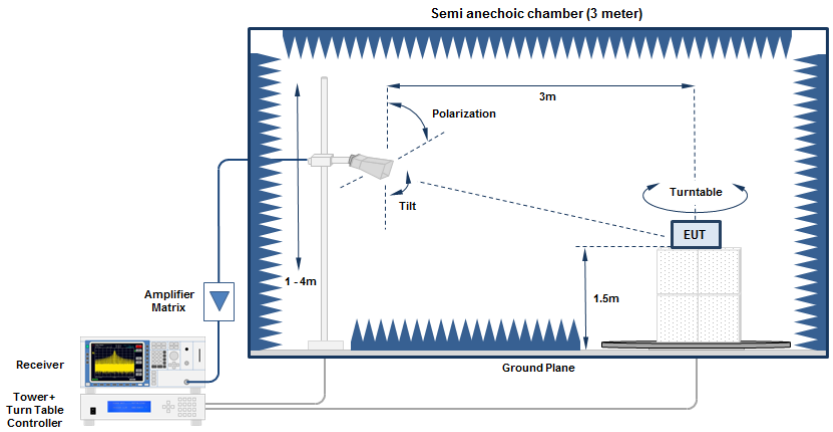
3.4.2 Limits

Limits				
Frequency [MHz]	Detector	Limit [µV/m]	Limit [dBµV/m]	Limit Distance [m]
30 - 88	Quasi-Peak	100	40	3
88 - 216	Quasi-Peak	150	43.5	3
216 - 960	Quasi-Peak	200	46	3
960 - 1000	Quasi-Peak	500	54	3
>1000	Average	500	54	3

3.4.3 Setup

Test Setup 30 - 1000 MHz



Test Setup > 1 GHz


3.4.4 Equipment

Test Equipment 30 - 1000 MHz					
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	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
Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2022-03

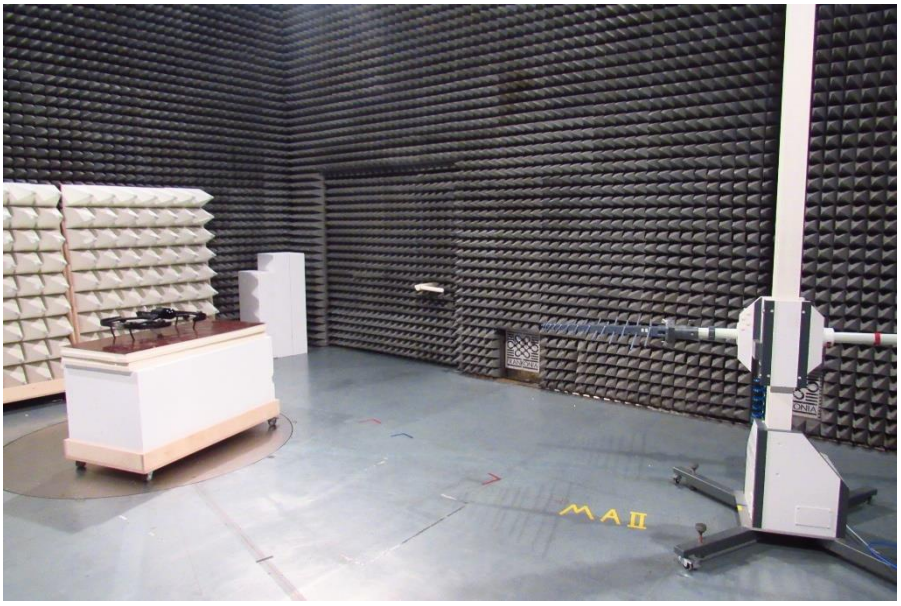
3.4.5 Procedure

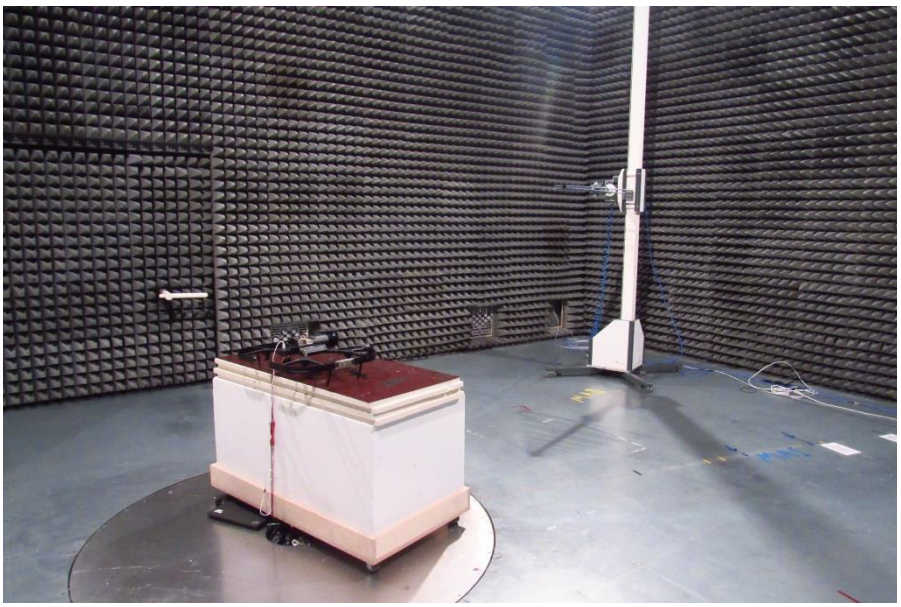
Test Procedure
1. EUT set to receive mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peakdetector and RBW of 1 MHz with peak/average detector is used above 1 GHz 4. Markers are set to peak emission levels

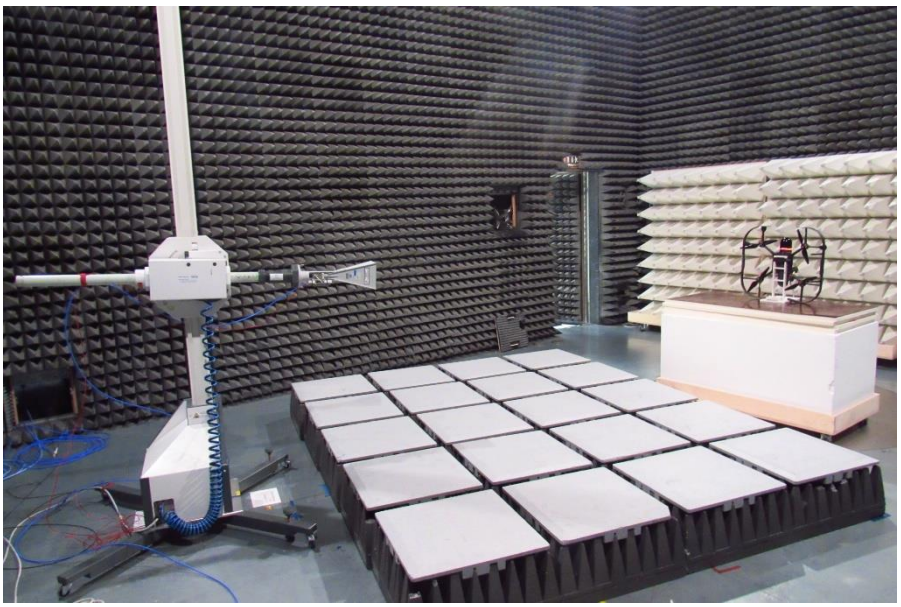
3.4.6 Results

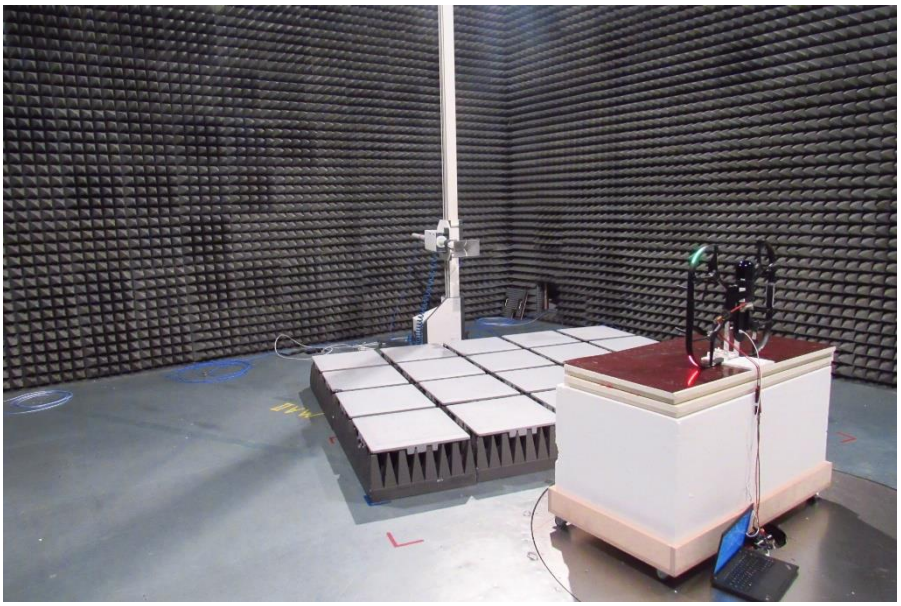
Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2440	248.3548	35.70	qpk	ver	46.00	-10.30
2440	300.0007	38.90	qpk	ver	46.00	-07.06
2440	900.0054	40.50	qpk	ver	46.00	-05.46
2440	14400	52.66	pk	ver	53.98	-01.32
2440	14400	47.58	avg	ver	53.98	-06.40
2440	14400	44.77	pk	ver	53.98	-09.21
2440	14400	47.58	avg	ver	53.98	-06.40
2440 MHz, EUT vertical	115.8117	21.80	qpk	ver	43.50	-21.72
2440 MHz, EUT vertical	125.5442	23.80	qpk	ver	43.50	-19.70
2440 MHz, EUT vertical	132.527	23.10	qpk	ver	43.50	-20.38
2440 MHz, EUT vertical	300	34.30	pk	ver	46.00	-11.67
2440 MHz, EUT vertical	900	36.00	pk	ver	46.00	-10.04
2440 MHz, EUT vertical	1100	40.45	pk	ver	53.98	-13.53
2440 MHz, EUT vertical	1100	36.83	avg	ver	53.98	-17.15
2440 MHz, EUT vertical	1200	41.37	pk	ver	53.98	-12.61
2440 MHz, EUT vertical	1200	36.50	avg	ver	53.98	-17.48
2440 MHz, EUT vertical	1300	44.56	pk	ver	53.98	-09.42
2440 MHz, EUT vertical	1300	40.82	avg	ver	53.98	-13.16
2440 MHz, EUT vertical	1500	45.60	pk	ver	53.98	-08.38
2440 MHz, EUT vertical	1500	41.08	avg	ver	53.98	-12.90
2440 MHz, EUT vertical	1995	51.48	pk	ver	53.98	-02.50
2440 MHz, EUT vertical	1995	43.61	avg	ver	53.98	-10.37
2440 MHz, EUT vertical	14400	54.83	pk	ver	53.98	00.85
2440 MHz, EUT vertical	14400	49.43	avg	ver	53.98	-04.55
2440 MHz, EUT vertical	14400	42.62	pk	ver	53.98	-11.36
2440 MHz, EUT vertical	14400	49.43	avg	ver	53.98	-04.55

3.4.7 Setup photos

Below 1 GHz EUT horizontal


Below 1 GHz EUT horizontal


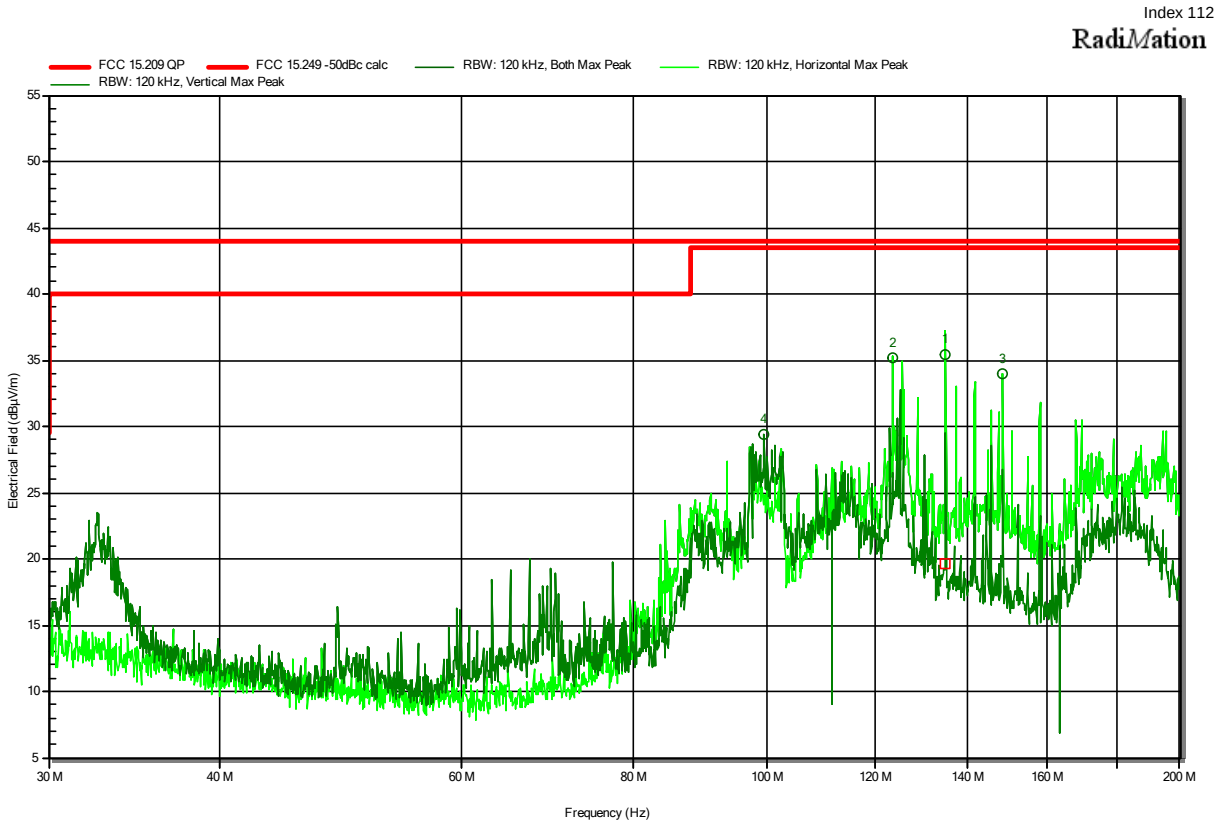
Above 1 GHz EUT vertical


Above 1 GHz EUT vertical


ANNEX A Transmitter spurious emissions

Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2402 MHz
Test Date:	2021-10-12
Note:	

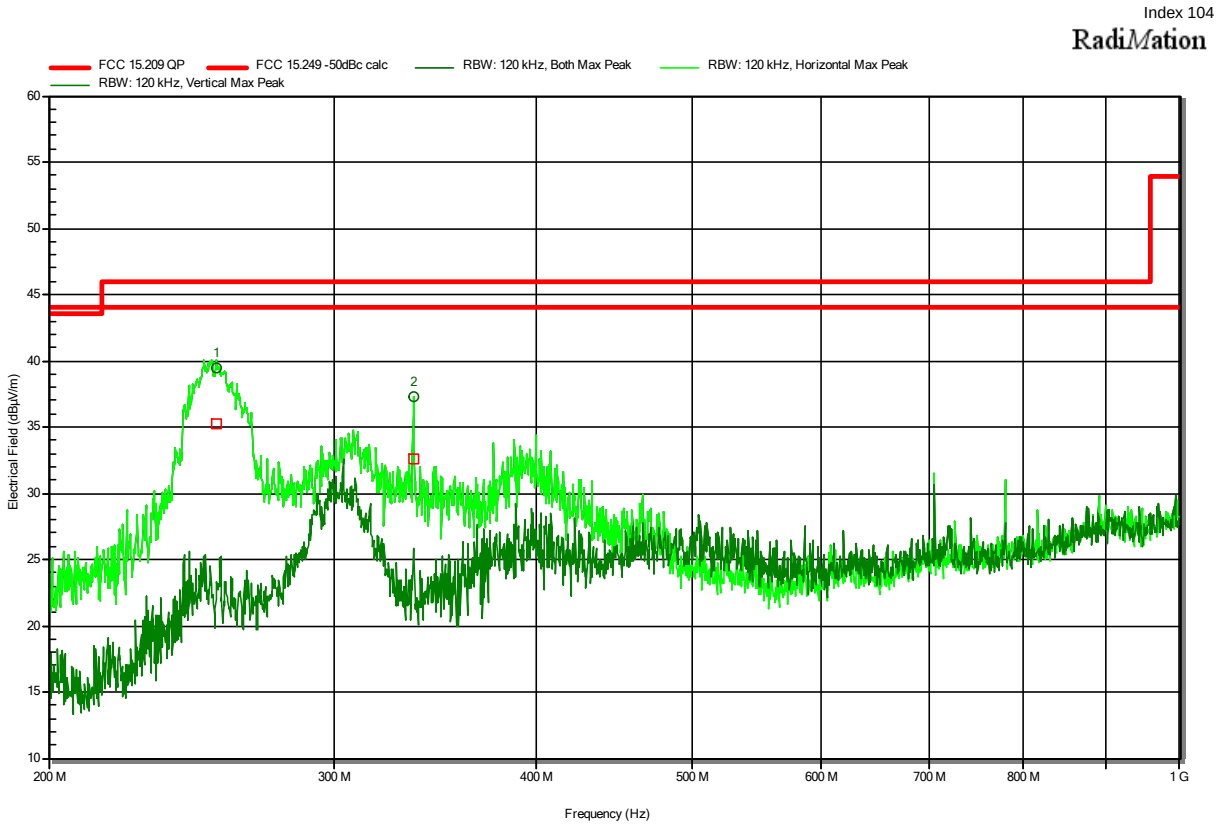


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
99.589 MHz	29.41 dBµV/m	43.5 dBµV/m	-14.09 dB	Pass	Vertical
123.555 MHz	35.18 dBµV/m	43.5 dBµV/m	-8.32 dB	Pass	Horizontal
148.516 MHz	33.95 dBµV/m	43.5 dBµV/m	-9.55 dB	Pass	Horizontal

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
134.971 MHz	19.59 dBµV/m	43.5 dBµV/m	-23.91 dB	Pass	Horizontal

Radiated Spurious Emissions according to FCC 15.249

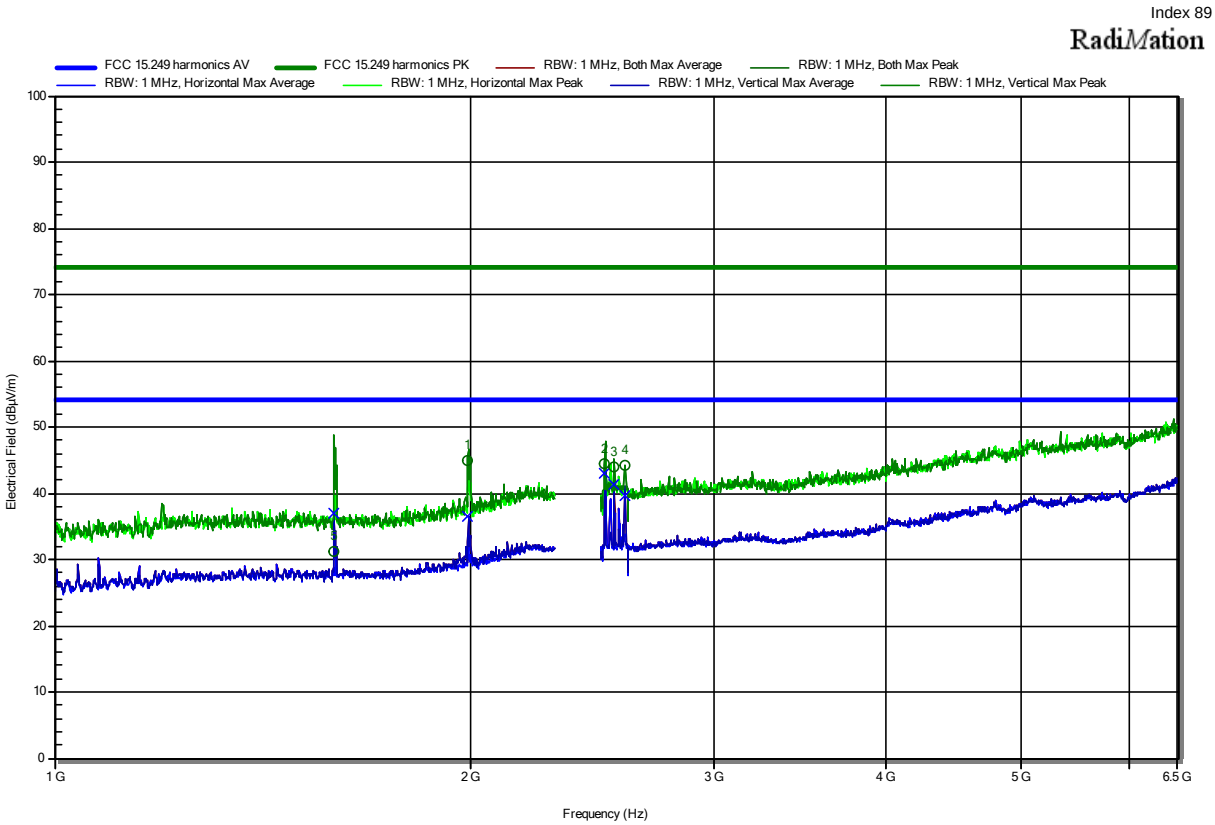
Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2402 MHz
Test Date:	2021-10-12
Note:	



Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
253.938 MHz	35.28 dBµV/m	44 dBµV/m	-8.72 dB	Pass	Horizontal
336.033 MHz	32.62 dBµV/m	44 dBµV/m	-11.38 dB	Pass	Horizontal

Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2402 MHz
Test Date:	2021-10-06
Note:	



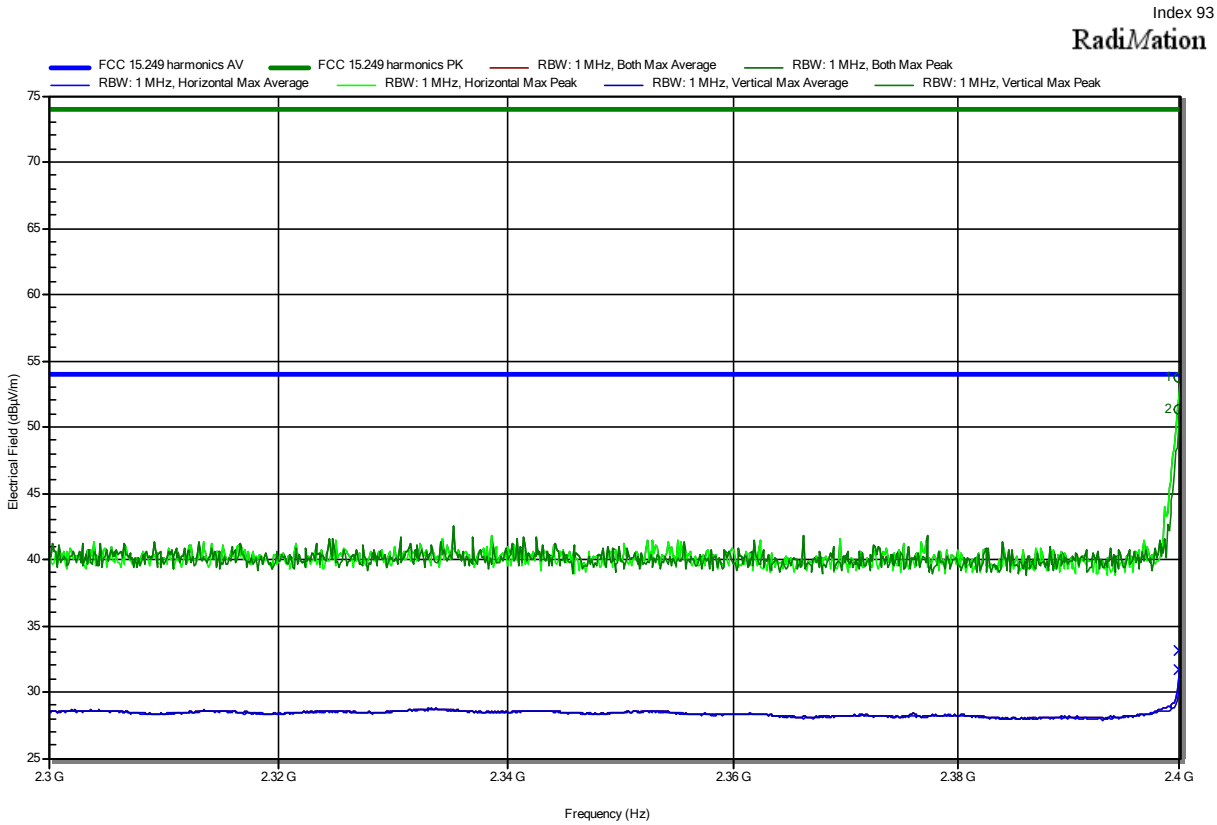
Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
1.594 GHz	31.11 dBµV/m	74 dBµV/m	-42.89 dB	Pass	Vertical
1.991 GHz	44.96 dBµV/m	74 dBµV/m	-29.04 dB	Pass	Vertical
2.502 GHz	44.49 dBµV/m	74 dBµV/m	-29.51 dB	Pass	Vertical
2.54 GHz	43.94 dBµV/m	74 dBµV/m	-30.06 dB	Pass	Vertical
2.586 GHz	44.24 dBµV/m	74 dBµV/m	-29.76 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
1.594 GHz	36.97 dBµV/m	54 dBµV/m	-17.03 dB	Pass	Vertical
1.991 GHz	36.41 dBµV/m	54 dBµV/m	-17.59 dB	Pass	Vertical

2.502 GHz	43.12 dBµV/m	54 dBµV/m	-10.88 dB	Pass	Vertical
2.54 GHz	41.36 dBµV/m	54 dBµV/m	-12.64 dB	Pass	Vertical
2.586 GHz	39.62 dBµV/m	54 dBµV/m	-14.38 dB	Pass	Vertical

Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2402 MHz
Test Date:	2021-10-06
Note:	

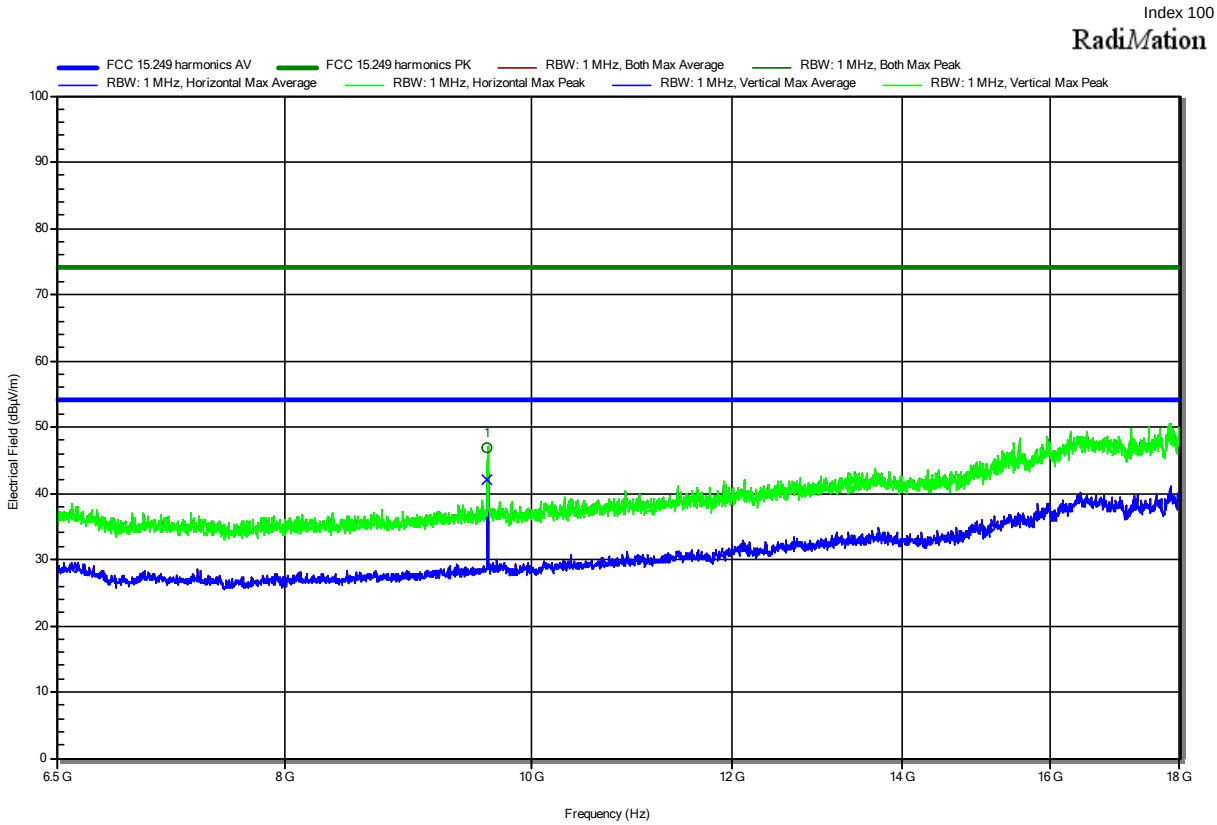


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
2.4 GHz	53.71 dBµV/m	74 dBµV/m	-20.29 dB	Pass	Horizontal
2.4 GHz	51.3 dBµV/m	74 dBµV/m	-22.7 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
2.4 GHz	33.18 dBµV/m	54 dBµV/m	-20.82 dB	Pass	Horizontal
2.4 GHz	31.69 dBµV/m	54 dBµV/m	-22.31 dB	Pass	Vertical

Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2402 MHz
Test Date:	2021-10-06
Note:	

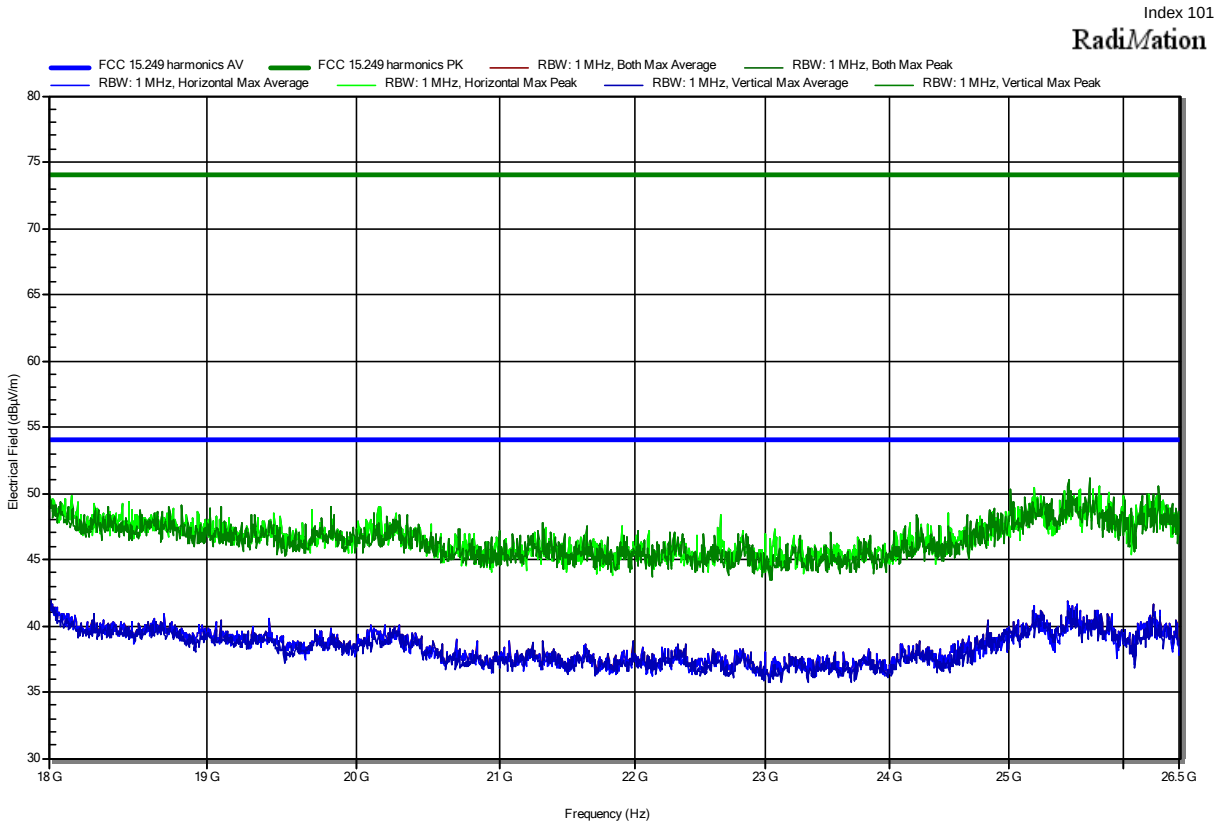


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
9.607 GHz	46.9 dBµV/m	74 dBµV/m	-27.1 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
9.607 GHz	42.11 dBµV/m	54 dBµV/m	-11.89 dB	Pass	Vertical

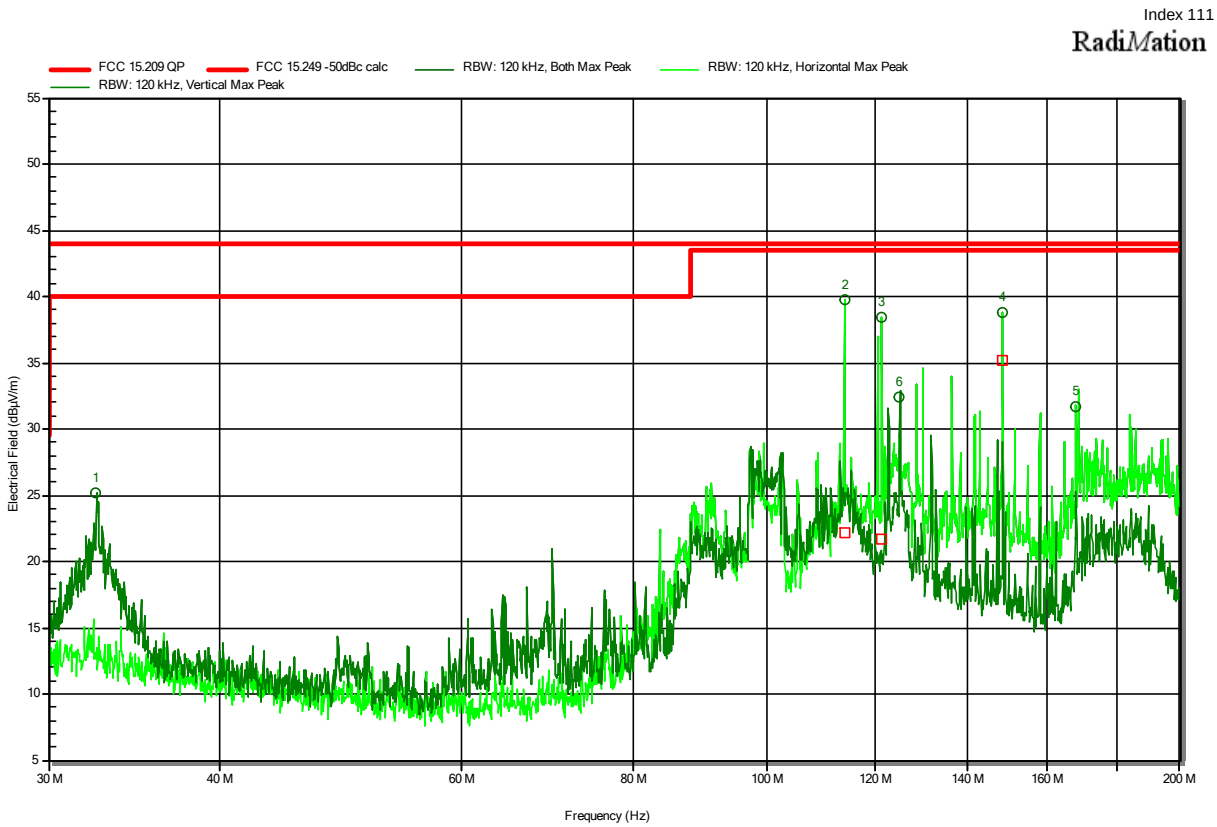
Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	AT4560
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2402 MHz
Test Date:	2021-10-06
Note:	



Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2440 MHz
Test Date:	2021-10-12
Note:	

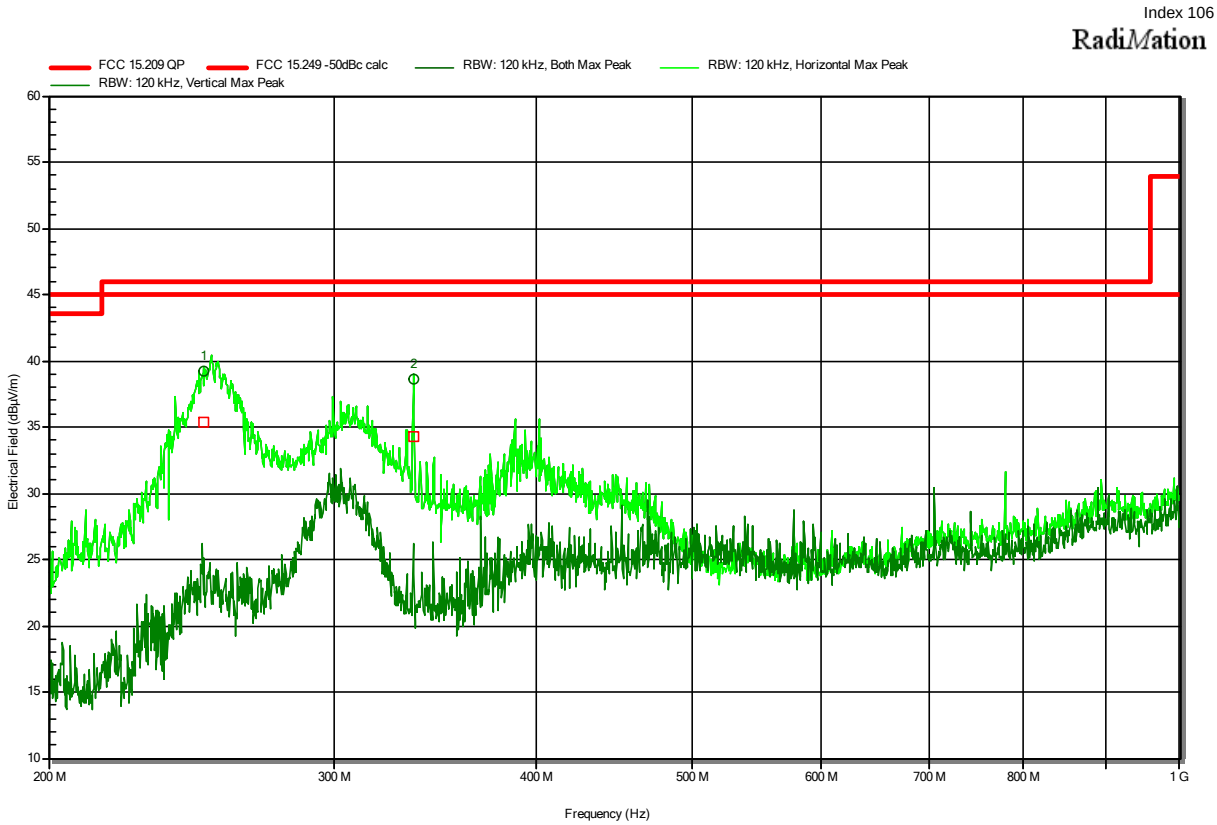


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
32.473 MHz	25.14 dBµV/m	40 dBµV/m	-14.86 dB	Pass	Vertical
124.992 MHz	32.41 dBµV/m	43.5 dBµV/m	-11.09 dB	Pass	Vertical
168.032 MHz	31.69 dBµV/m	43.5 dBµV/m	-11.81 dB	Pass	Horizontal

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
113.925 MHz	22.16 dBµV/m	43.5 dBµV/m	-21.34 dB	Pass	Horizontal
121.358 MHz	21.64 dBµV/m	43.5 dBµV/m	-21.86 dB	Pass	Horizontal
148.494 MHz	35.17 dBµV/m	43.5 dBµV/m	-8.33 dB	Pass	Horizontal

Radiated Spurious Emissions according to FCC 15.249

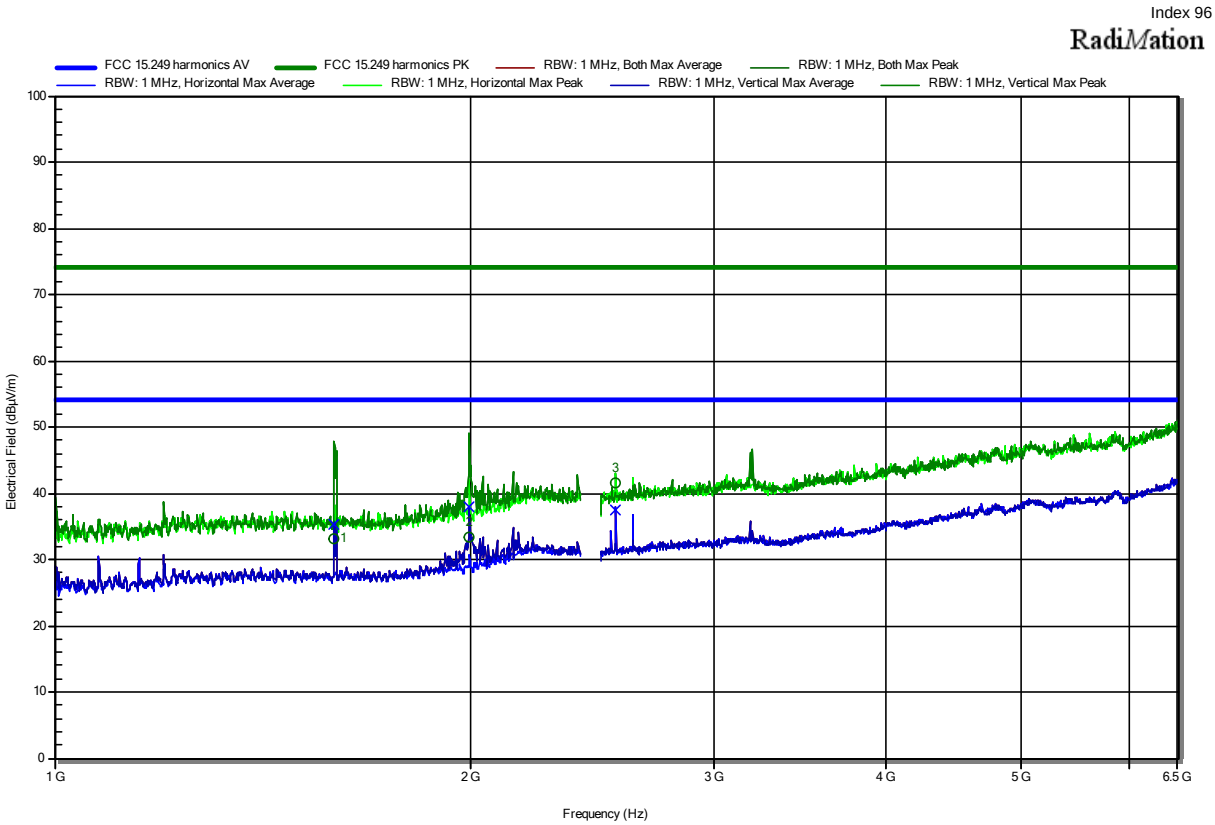
Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2440 MHz
Test Date:	2021-10-12
Note:	



Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
249.588 MHz	35.34 dBµV/m	45 dBµV/m	-9.66 dB	Pass	Horizontal
335.969 MHz	34.28 dBµV/m	45 dBµV/m	-10.72 dB	Pass	Horizontal

Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2440 MHz
Test Date:	2021-10-06
Note:	

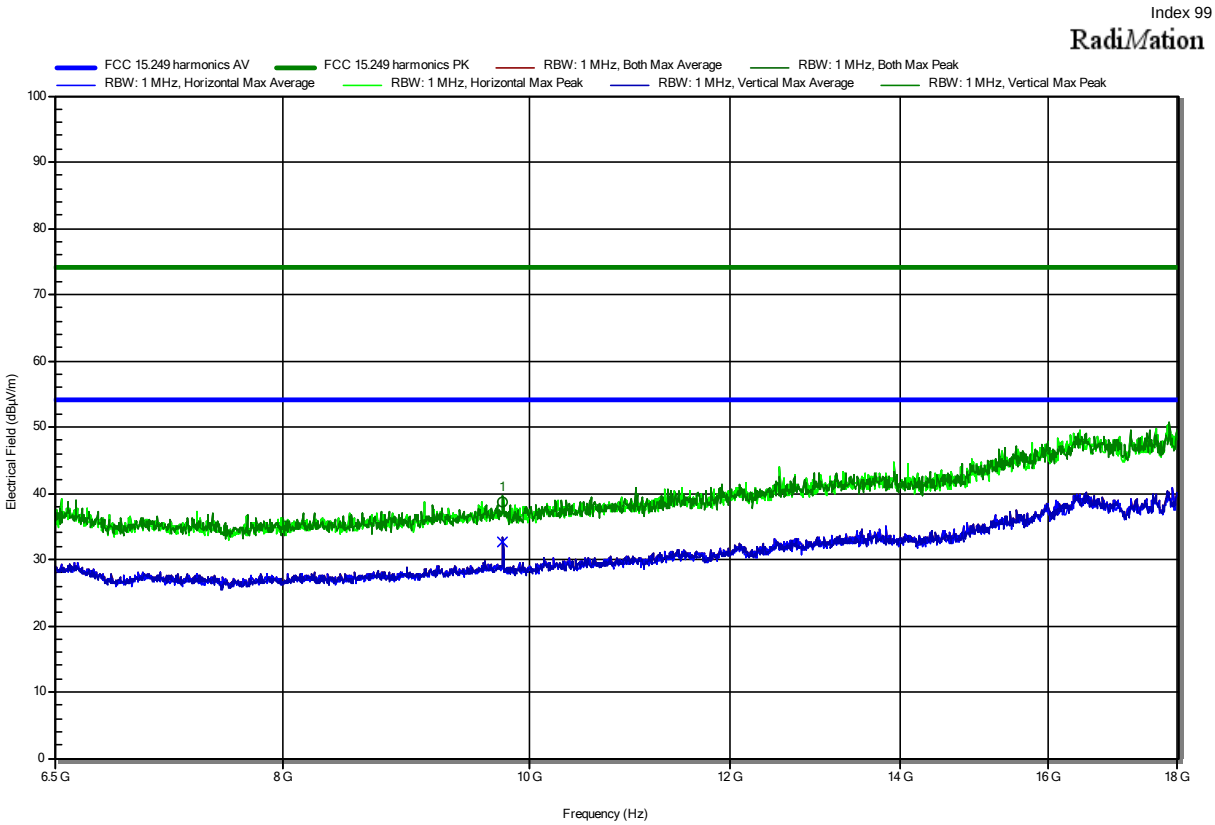


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
1.595 GHz	33.22 dBµV/m	74 dBµV/m	-40.78 dB	Pass	Vertical
1.996 GHz	33.42 dBµV/m	74 dBµV/m	-40.58 dB	Pass	Vertical
2.546 GHz	41.63 dBµV/m	74 dBµV/m	-32.37 dB	Pass	Horizontal

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
1.595 GHz	35.31 dBµV/m	54 dBµV/m	-18.69 dB	Pass	Vertical
1.996 GHz	38.03 dBµV/m	54 dBµV/m	-15.97 dB	Pass	Vertical
2.546 GHz	37.48 dBµV/m	54 dBµV/m	-16.52 dB	Pass	Horizontal

Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2440 MHz
Test Date:	2021-10-06
Note:	

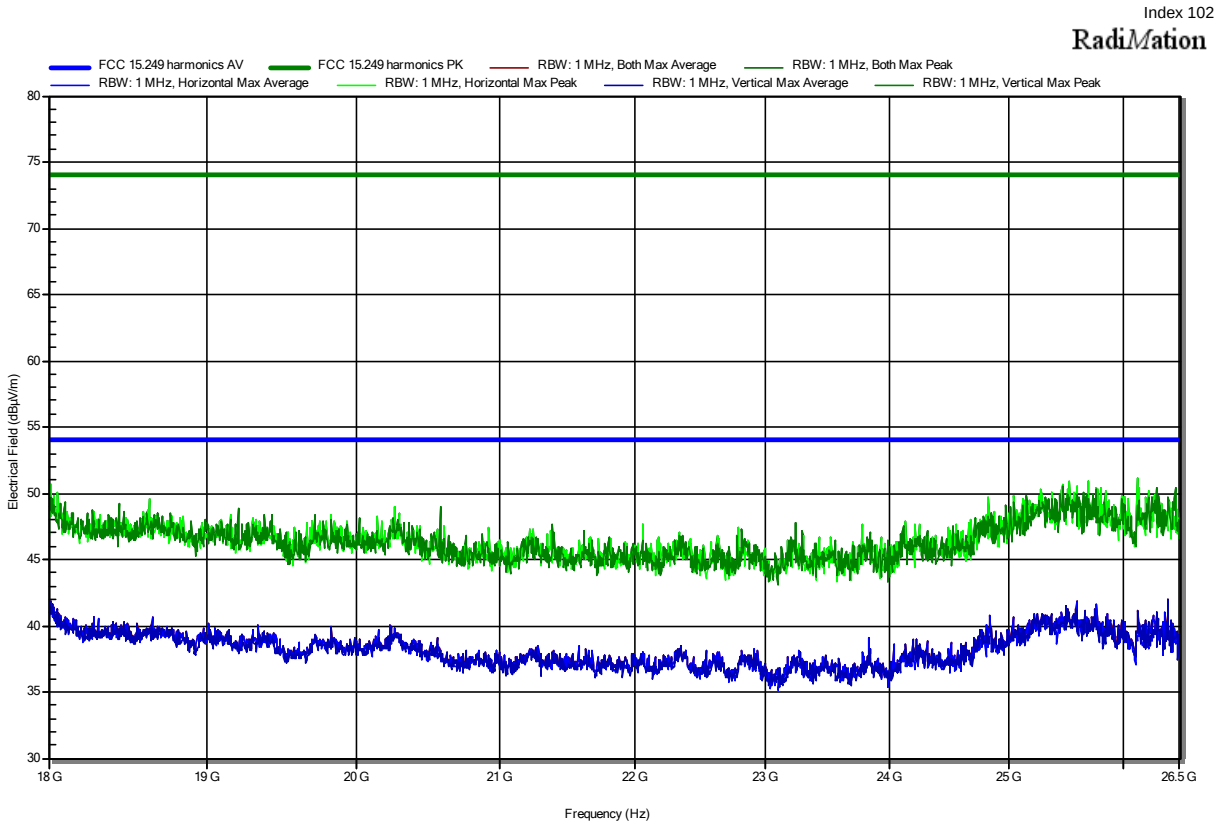


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
9.76 GHz	38.79 dBµV/m	74 dBµV/m	-35.21 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
9.76 GHz	32.6 dBµV/m	54 dBµV/m	-21.4 dB	Pass	Vertical

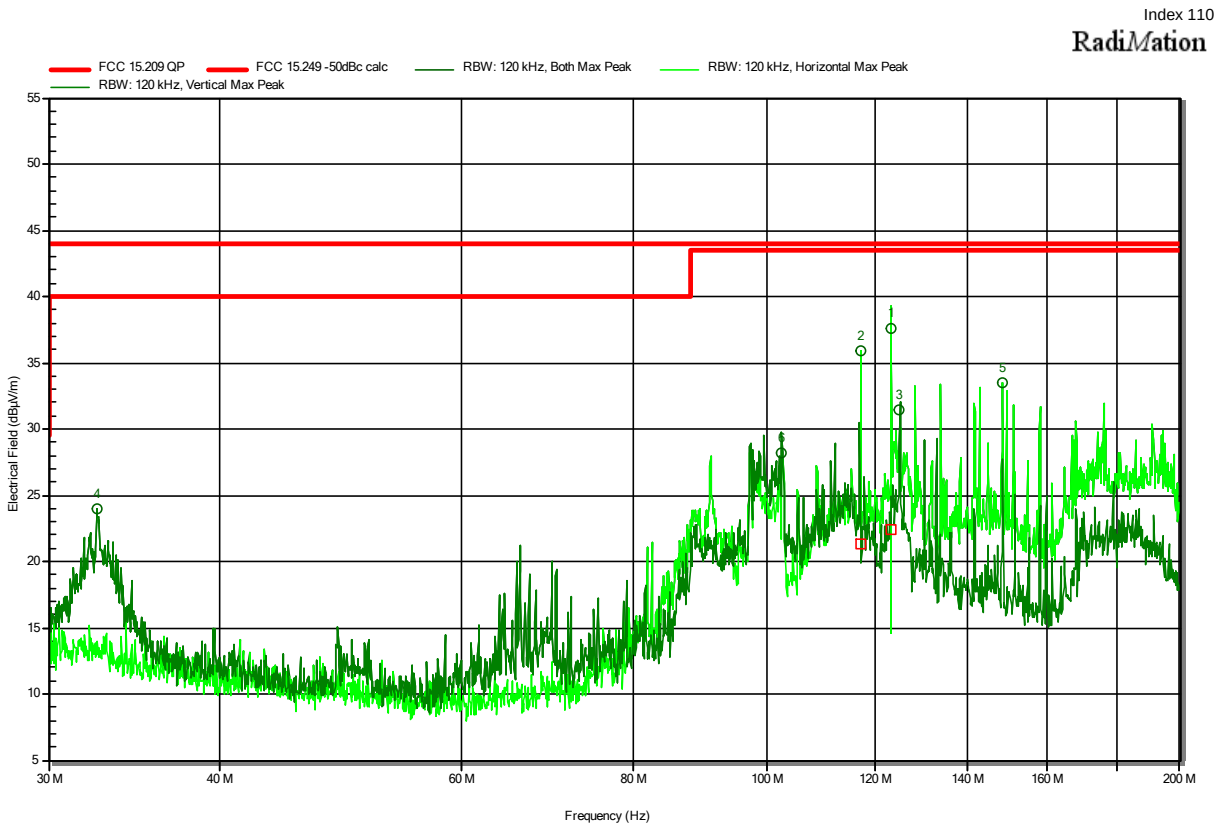
Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	AT4560
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2440 MHz
Test Date:	2021-10-06
Note:	



Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2480 MHz
Test Date:	2021-10-12
Note:	

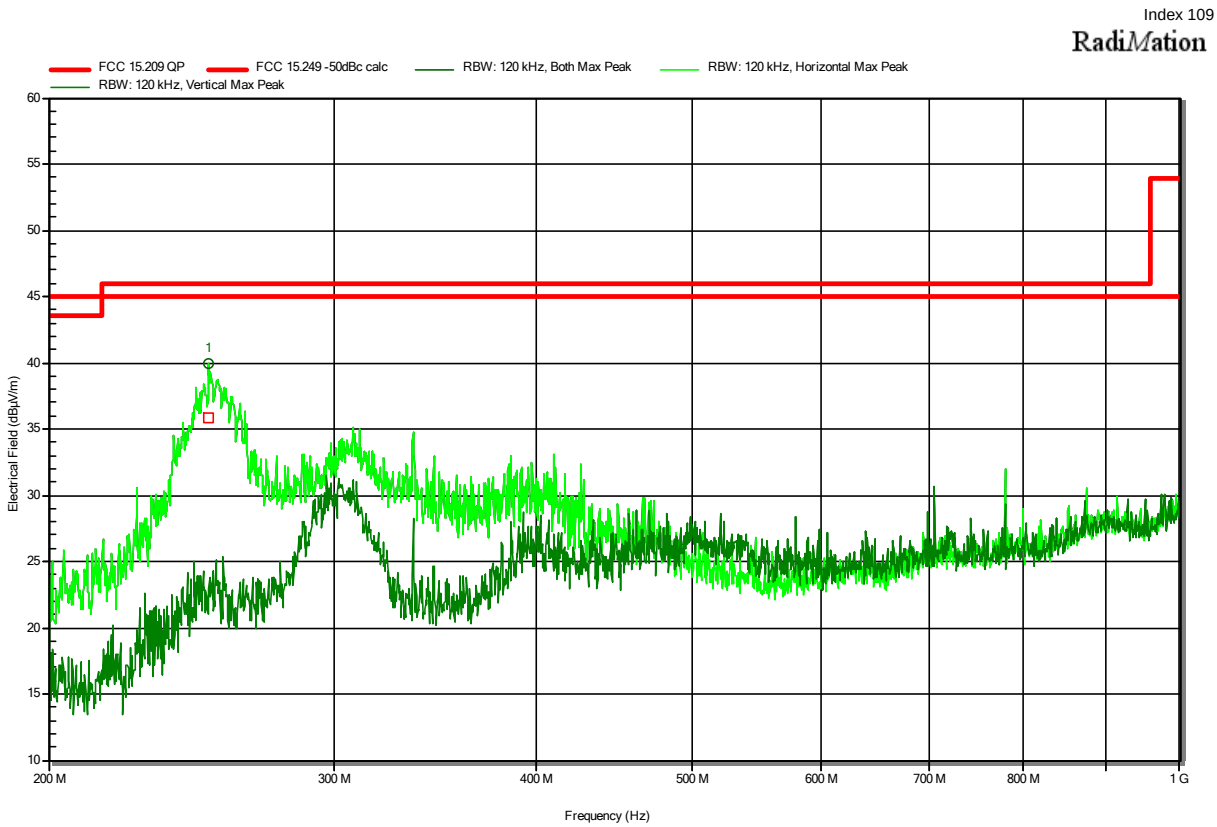


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
32.533 MHz	23.92 dBµV/m	40 dBµV/m	-16.08 dB	Pass	Vertical
102.53 MHz	28.21 dBµV/m	43.5 dBµV/m	-15.29 dB	Pass	Vertical
124.996 MHz	31.45 dBµV/m	43.5 dBµV/m	-12.05 dB	Pass	Vertical
148.507 MHz	33.5 dBµV/m	43.5 dBµV/m	-10 dB	Pass	Horizontal

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
117.082 MHz	21.28 dBµV/m	43.5 dBµV/m	-22.22 dB	Pass	Horizontal
123.215 MHz	22.44 dBµV/m	43.5 dBµV/m	-21.06 dB	Pass	Horizontal

Radiated Spurious Emissions according to FCC 15.249

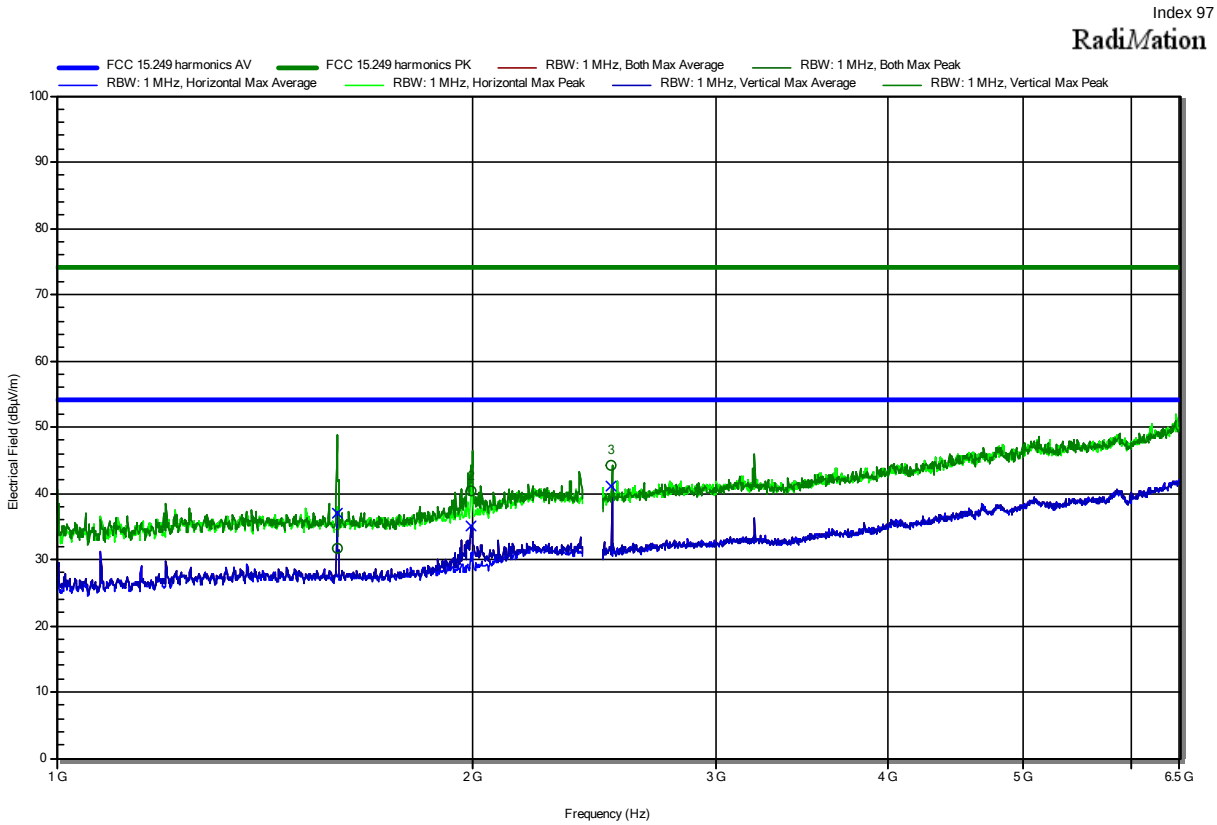
Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2480 MHz
Test Date:	2021-10-12
Note:	



Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
251.19 MHz	35.88 dBµV/m	45 dBµV/m	-9.12 dB	Pass	Horizontal

Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2480 MHz
Test Date:	2021-10-06
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
1.596 GHz	31.66 dBµV/m	74 dBµV/m	-42.34 dB	Pass	Vertical
1.994 GHz	40.32 dBµV/m	74 dBµV/m	-33.68 dB	Pass	Vertical
2.522 GHz	44.12 dBµV/m	74 dBµV/m	-29.88 dB	Pass	Vertical

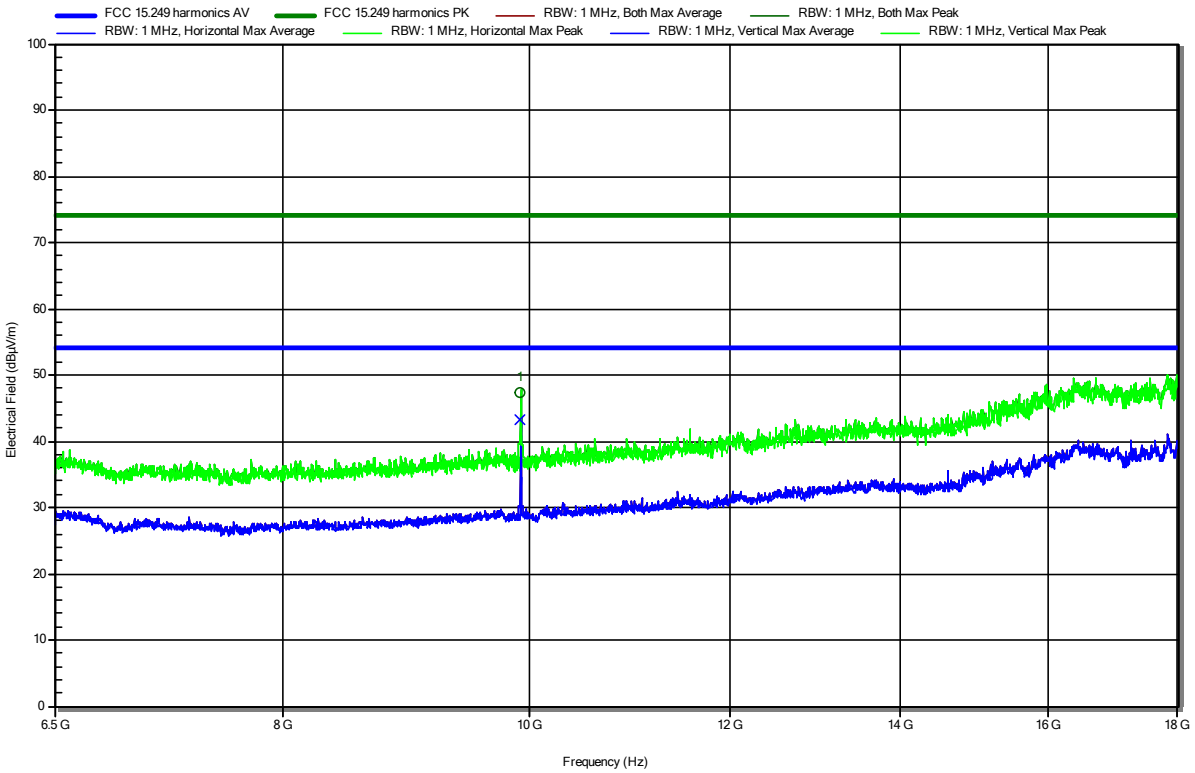
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
1.596 GHz	37.08 dBµV/m	54 dBµV/m	-16.92 dB	Pass	Vertical
1.994 GHz	34.95 dBµV/m	54 dBµV/m	-19.05 dB	Pass	Vertical
2.522 GHz	41.08 dBµV/m	54 dBµV/m	-12.92 dB	Pass	Vertical

Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2480 MHz
Test Date:	2021-10-06
Note:	

Index 98

RadiMation

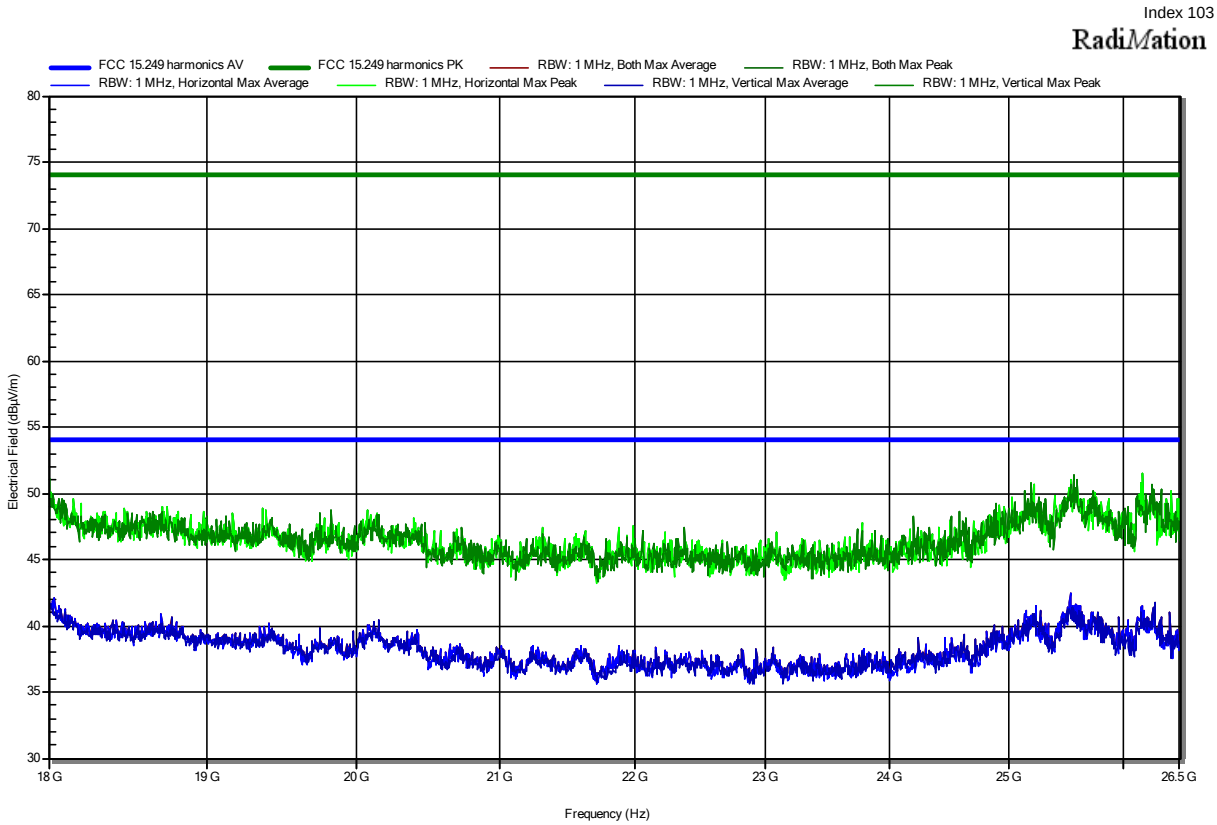


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
9.919 GHz	47.42 dBµV/m	74 dBµV/m	-26.58 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
9.919 GHz	43.33 dBµV/m	54 dBµV/m	-10.67 dB	Pass	Vertical

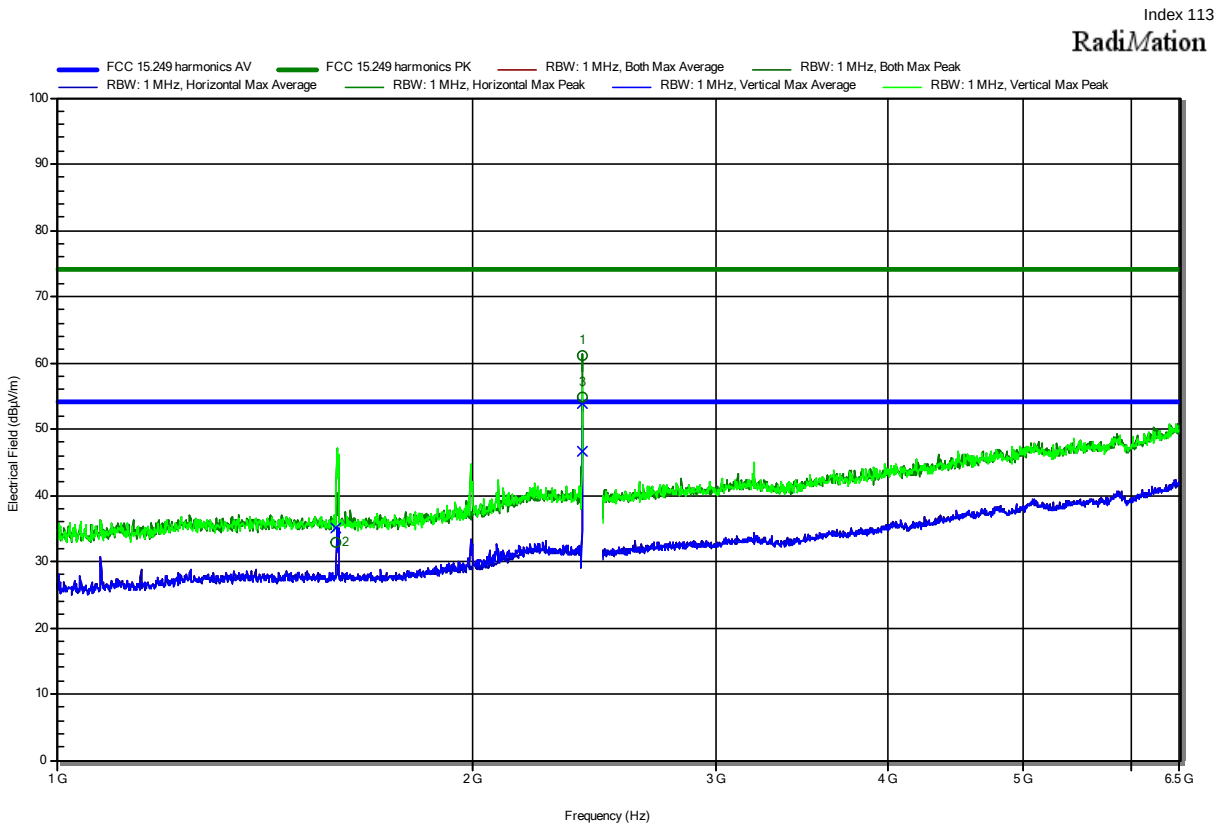
Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	AT4560
Measurement distance:	3 m
Mode:	Tx; BT LE; 1 Mbit 193 Byte; Power Setting 0x07; 2480 MHz
Test Date:	2021-10-06
Note:	



Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BT LE; 2 Mbit 239 Byte; Power Setting 0x07; 2402 MHz
Test Date:	2021-10-12
Note:	

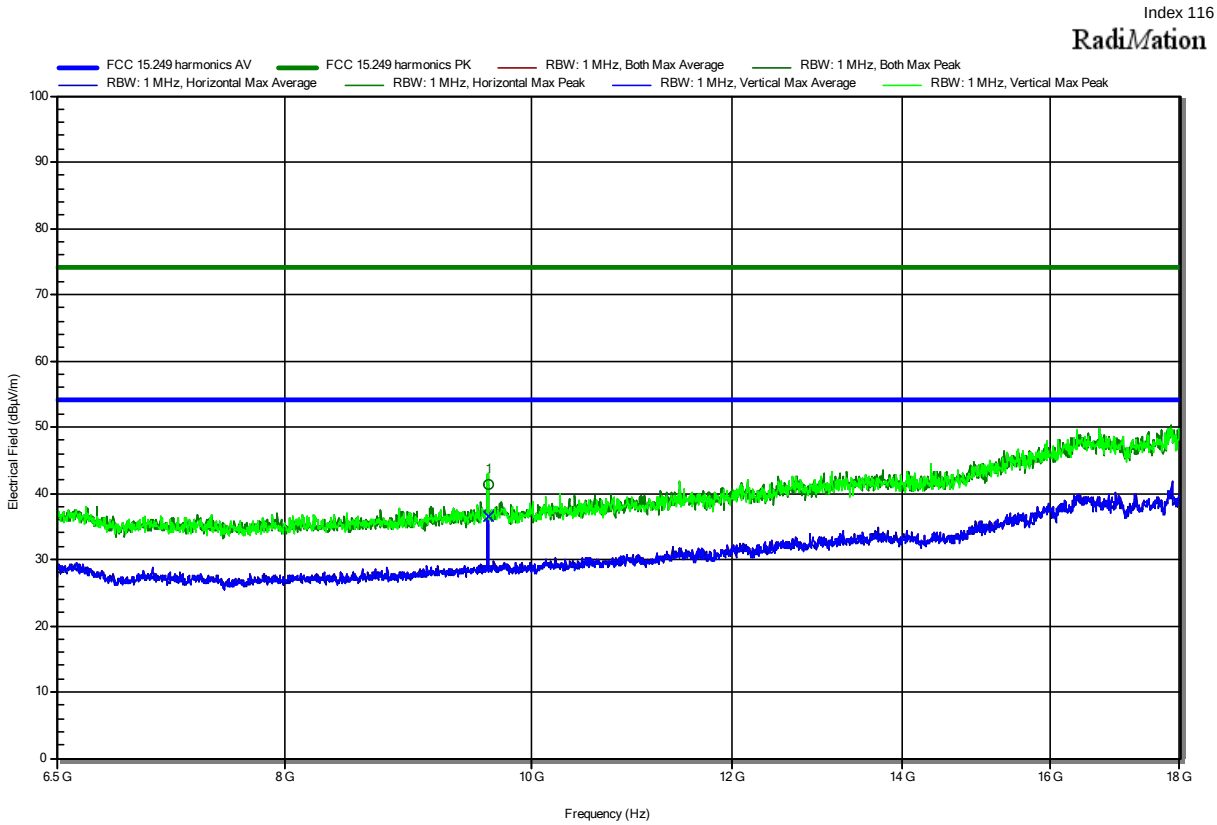


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
1.594 GHz	32.98 dBµV/m	74 dBµV/m	-41.02 dB	Pass	Vertical
2.4 GHz	54.86 dBµV/m	74 dBµV/m	-19.14 dB	Pass	Vertical
2.4 GHz	61.18 dBµV/m	74 dBµV/m	-12.82 dB	Pass	Horizontal

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
1.594 GHz	35.03 dBµV/m	54 dBµV/m	-18.97 dB	Pass	Vertical
2.4 GHz	46.7 dBµV/m	54 dBµV/m	-7.3 dB	Pass	Vertical
2.4 GHz	53.77 dBµV/m	54 dBµV/m	-0.23 dB	Pass	Horizontal

Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BT LE; 2 Mbit 239 Byte; Power Setting 0x07; 2402 MHz
Test Date:	2021-10-12
Note:	

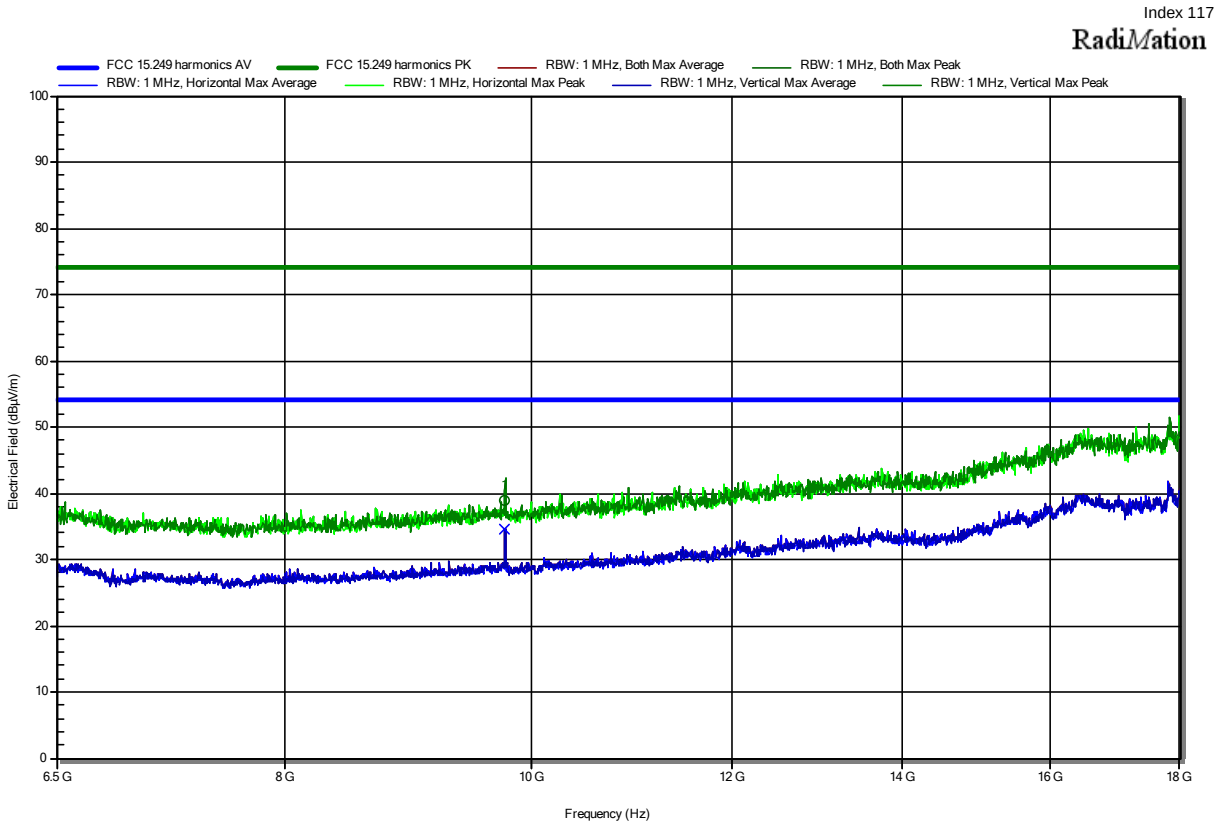


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
9.61 GHz	41.41 dBµV/m	74 dBµV/m	-32.59 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
9.61 GHz	36.56 dBµV/m	54 dBµV/m	-17.44 dB	Pass	Vertical

Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BT LE; 2 Mbit 239 Byte; Power Setting 0x07; 2440 MHz
Test Date:	2021-10-12
Note:	

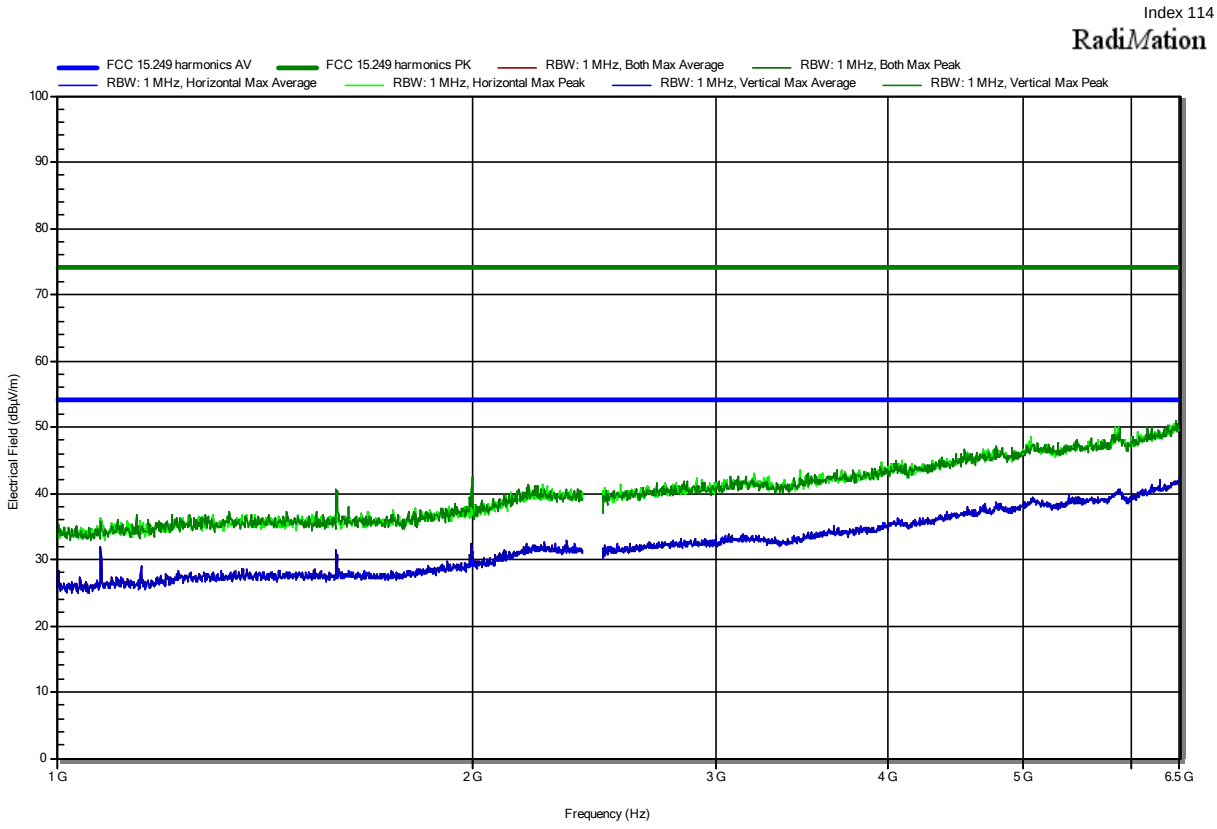


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
9.758 GHz	39 dBµV/m	74 dBµV/m	-35 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
9.758 GHz	34.54 dBµV/m	54 dBµV/m	-19.46 dB	Pass	Vertical

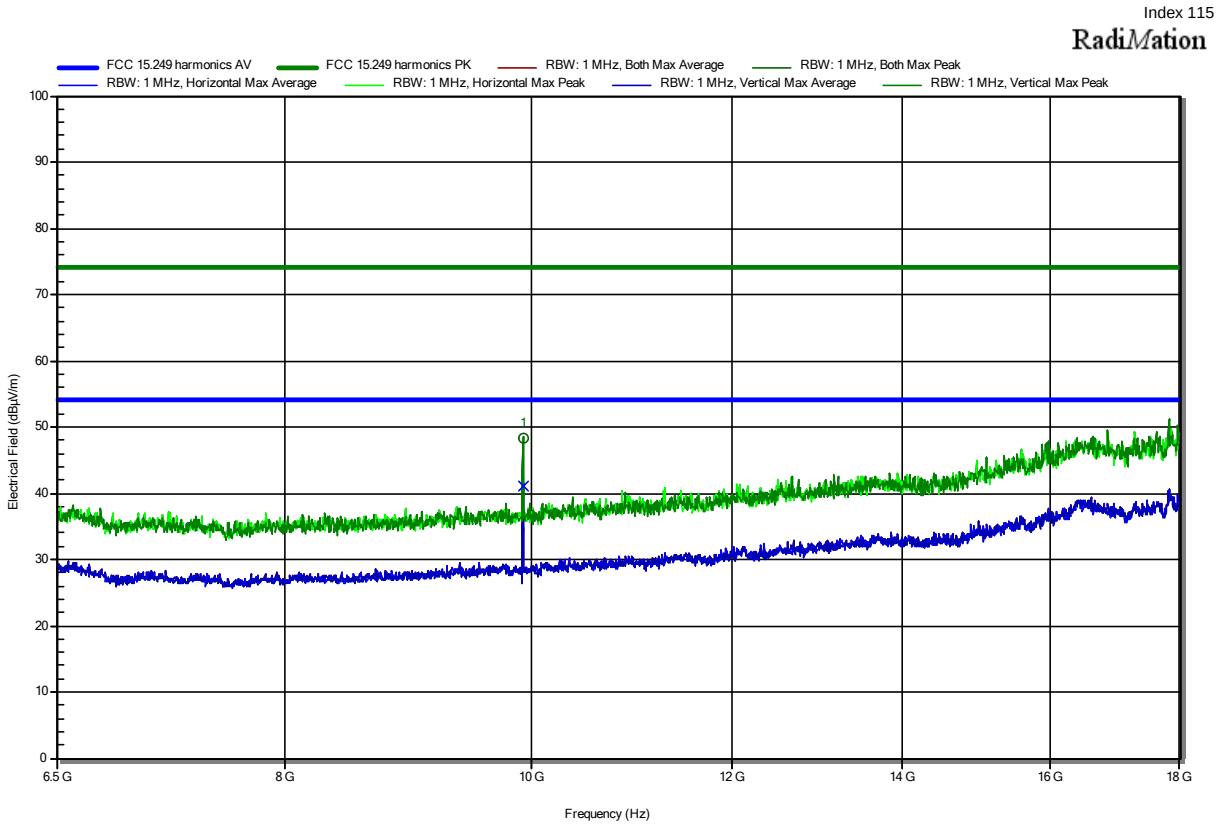
Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BT LE; 2 Mbit 239 Byte; Power Setting 0x07; 2480 MHz
Test Date:	2021-10-12
Note:	



Radiated Spurious Emissions according to FCC 15.249

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BT LE; 2 Mbit 239 Byte; Power Setting 0x07; 2480 MHz
Test Date:	2021-10-12
Note:	



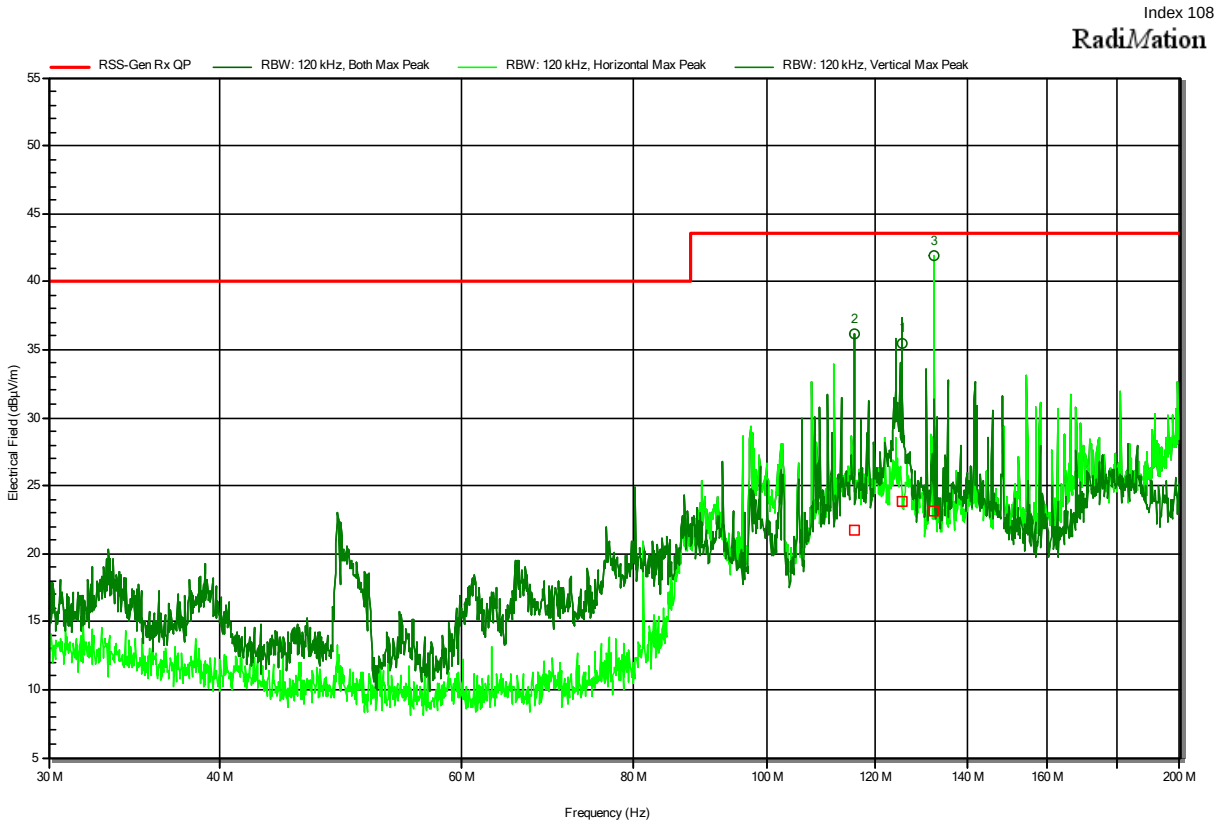
Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
9.922 GHz	48.42 dBµV/m	74 dBµV/m	-25.58 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
9.922 GHz	40.97 dBµV/m	54 dBµV/m	-13.03 dB	Pass	Vertical

ANNEX B Receiver spurious emissions

Radiated Spurious Emissions according to ISED RSS-Gen

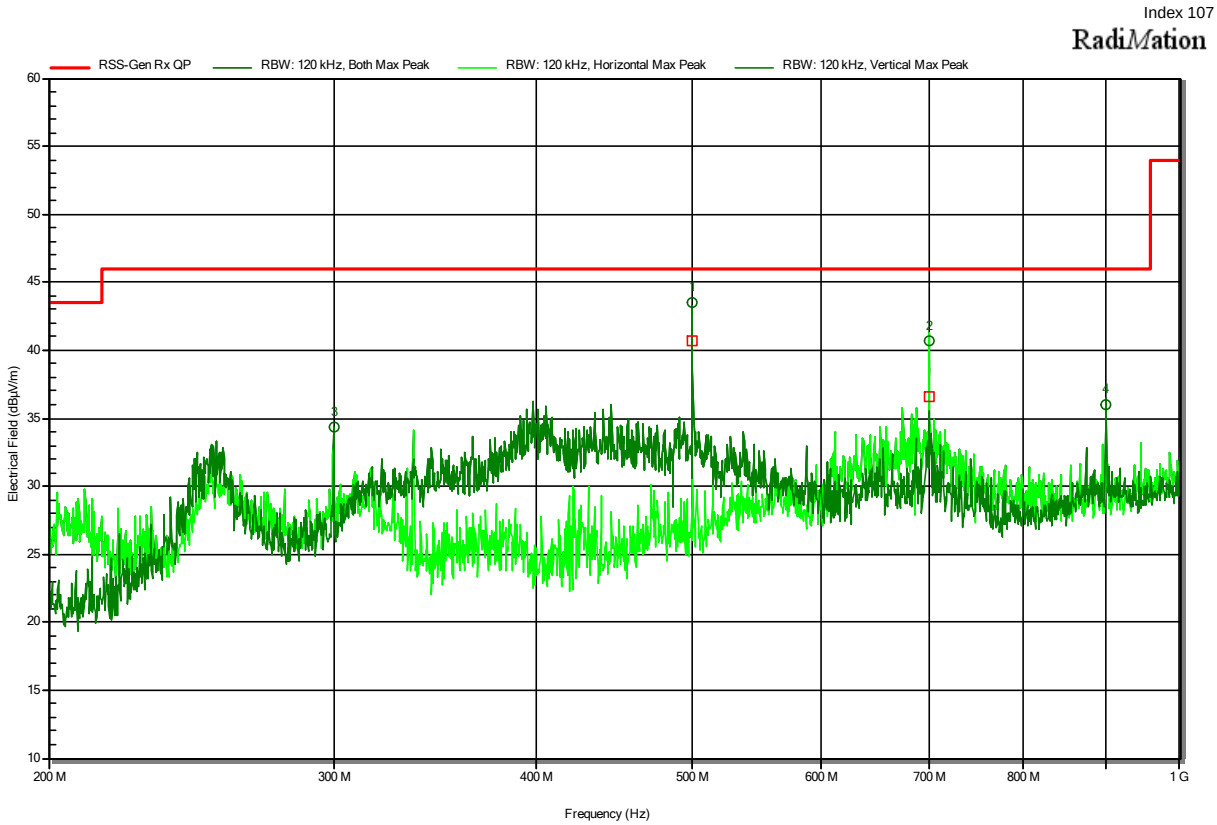
Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Rx; BT LE; 2440 MHz, EUT vertical
Test Date:	2021-10-07
Note:	



Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
115.8117 MHz	21.8 dBµV/m	43.5 dBµV/m	-21.72 dB	Pass	Vertical
125.5442 MHz	23.8 dBµV/m	43.5 dBµV/m	-19.7 dB	Pass	Vertical
132.527 MHz	23.1 dBµV/m	43.5 dBµV/m	-20.38 dB	Pass	Horizontal

Radiated Spurious Emissions according to ISED RSS-Gen

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Rx; BT LE; 2440 MHz, EUT vertical
Test Date:	2021-10-07
Note:	

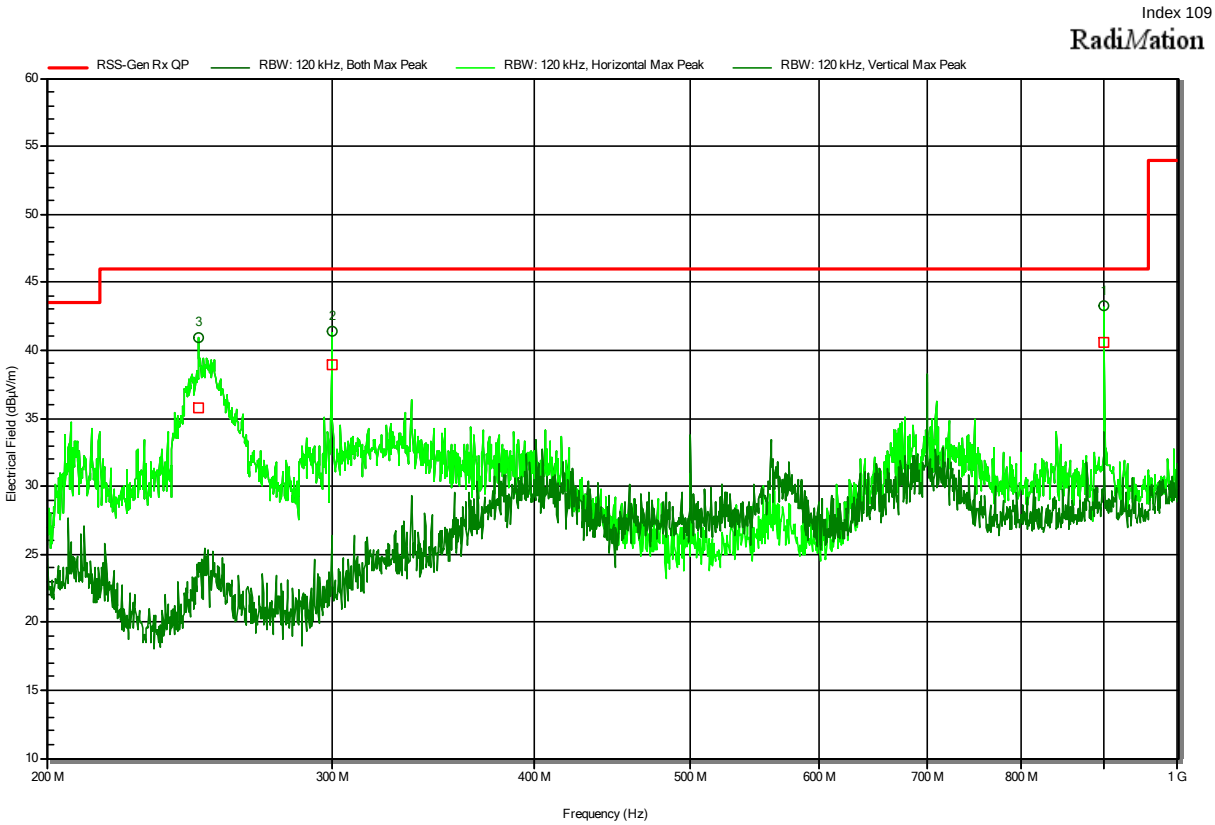


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
300 MHz	34.3 dBµV/m	46 dBµV/m	-11.67 dB	Pass	Vertical
900 MHz	36 dBµV/m	46 dBµV/m	-10.04 dB	Pass	Vertical

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
499.9973 MHz	40.6 dBµV/m	46 dBµV/m	-5.35 dB	Pass	Vertical
700.019 MHz	36.6 dBµV/m	46 dBµV/m	-9.44 dB	Pass	Horizontal

Radiated Spurious Emissions according to ISED RSS-Gen

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Rx; BT LE; 2440 MHz
Test Date:	2021-10-07
Note:	



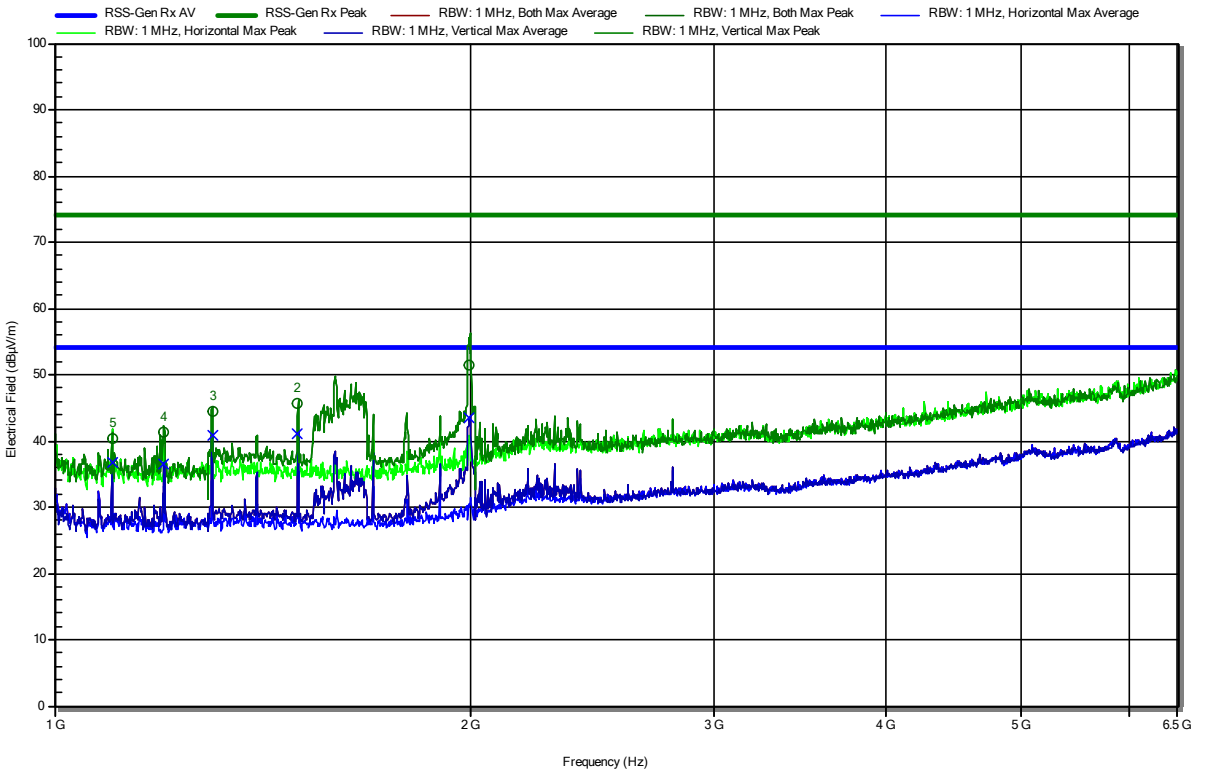
Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
248.3548 MHz	35.7 dBµV/m	46 dBµV/m	-10.3 dB	Pass	Horizontal
300.0007 MHz	38.9 dBµV/m	46 dBµV/m	-7.06 dB	Pass	Horizontal
900.0054 MHz	40.5 dBµV/m	46 dBµV/m	-5.46 dB	Pass	Horizontal

Radiated Spurious Emissions according to ISED RSS-Gen

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Rx; BT LE; 2440 MHz, EUT vertical
Test Date:	2021-10-07
Note:	

Index 106

RadiMation

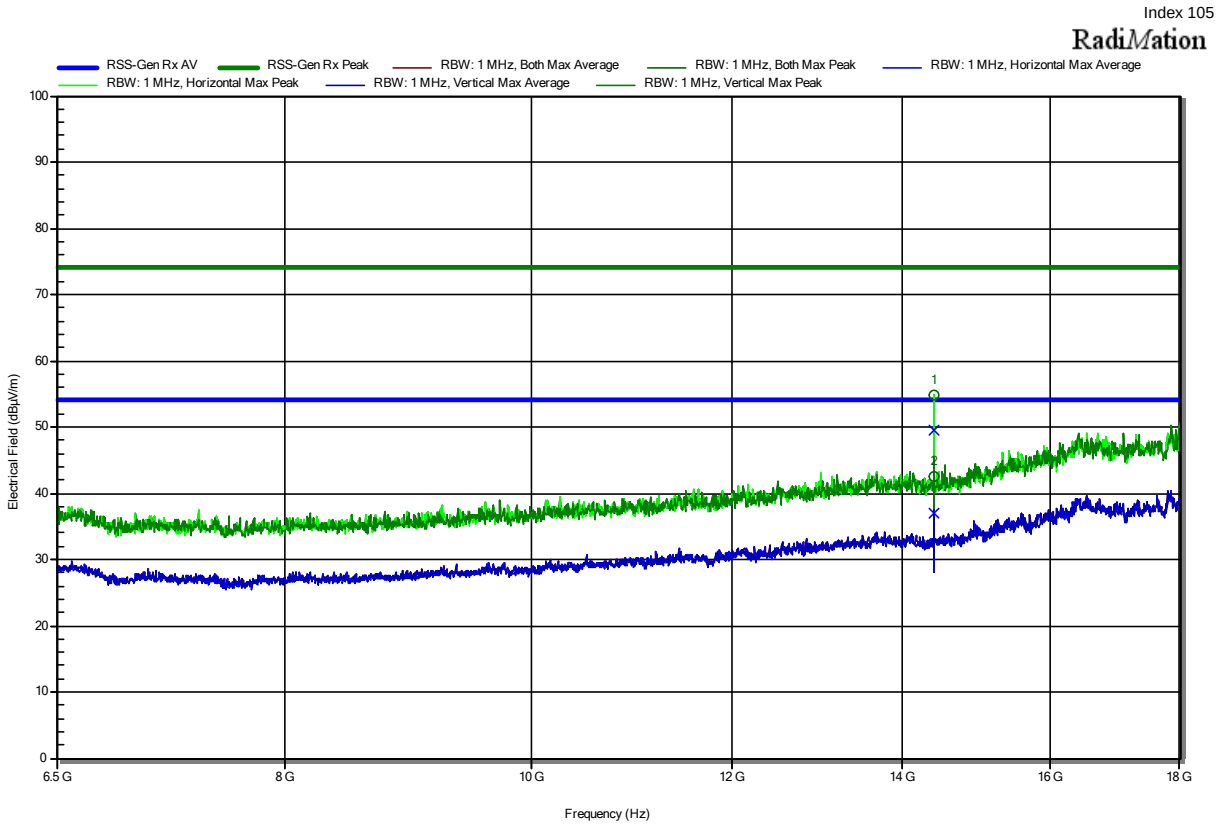


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
1.1 GHz	40.45 dBµV/m	53.98 dBµV/m	-13.53 dB	Pass	Vertical
1.2 GHz	41.37 dBµV/m	53.98 dBµV/m	-12.61 dB	Pass	Vertical
1.3 GHz	44.56 dBµV/m	53.98 dBµV/m	-9.42 dB	Pass	Vertical
1.5 GHz	45.6 dBµV/m	53.98 dBµV/m	-8.38 dB	Pass	Vertical
1.995 GHz	51.48 dBµV/m	53.98 dBµV/m	-2.5 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
1.1 GHz	36.83 dBµV/m	53.98 dBµV/m	-17.15 dB	Pass	Vertical
1.2 GHz	36.5 dBµV/m	53.98 dBµV/m	-17.48 dB	Pass	Vertical
1.3 GHz	40.82 dBµV/m	53.98 dBµV/m	-13.16 dB	Pass	Vertical
1.5 GHz	41.08 dBµV/m	53.98 dBµV/m	-12.9 dB	Pass	Vertical
1.995 GHz	43.61 dBµV/m	53.98 dBµV/m	-10.37 dB	Pass	Vertical

Radiated Spurious Emissions according to ISED RSS-Gen

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Rx; BT LE; 2440 MHz, EUT vertical
Test Date:	2021-10-07
Note:	

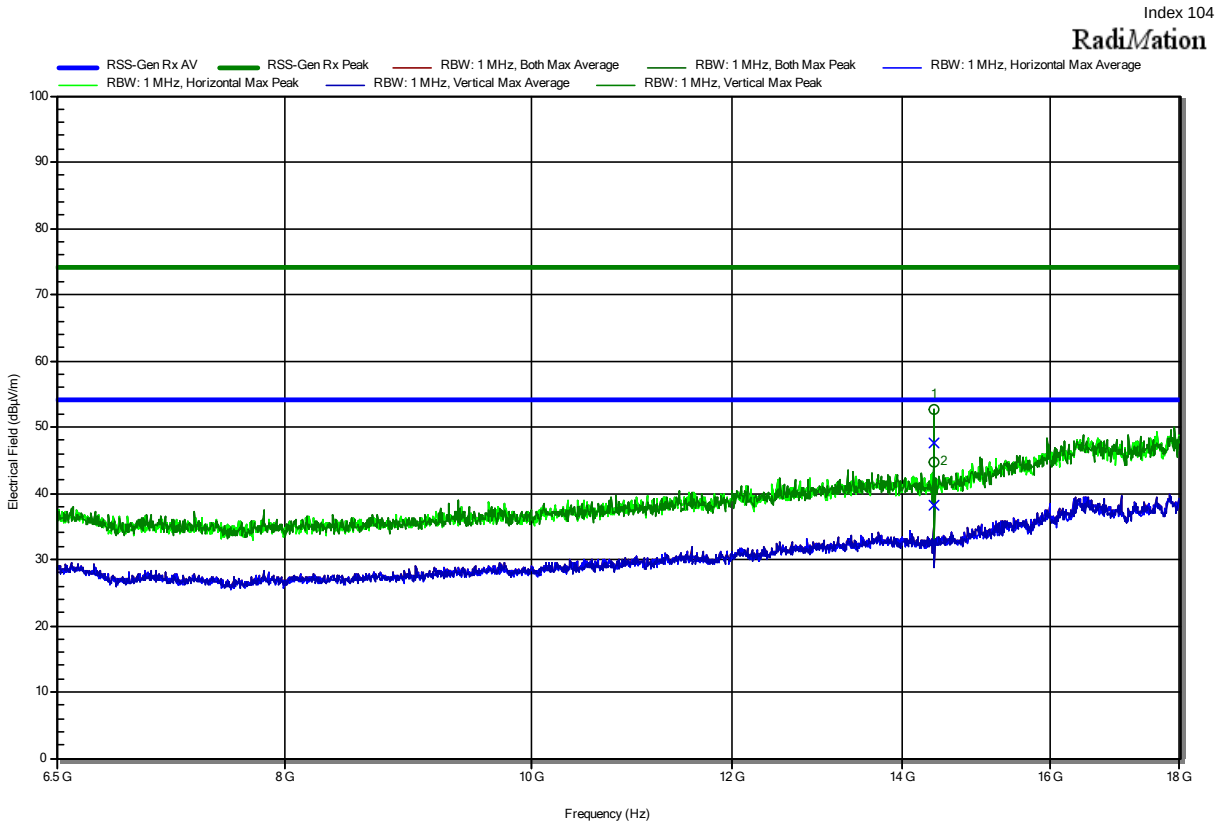


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
14.4 GHz	54.83 dBµV/m	53.98 dBµV/m	0.85 dB	Fail	Horizontal
14.4 GHz	42.62 dBµV/m	53.98 dBµV/m	-11.36 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
14.4 GHz	49.43 dBµV/m	53.98 dBµV/m	-4.55 dB	Pass	Horizontal
14.4 GHz	36.88 dBµV/m	53.98 dBµV/m	-17.1 dB	Pass	Vertical

Radiated Spurious Emissions according to ISED RSS-Gen

Project Number:	G0M-2011-9488
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	35709
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 14.8 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Rx; BT LE; 2440 MHz
Test Date:	2021-10-07
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
14.4 GHz	52.66 dBµV/m	53.98 dBµV/m	-1.32 dB	Pass	Vertical
14.4 GHz	44.77 dBµV/m	53.98 dBµV/m	-9.21 dB	Pass	Horizontal

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
14.4 GHz	47.58 dBµV/m	53.98 dBµV/m	-6.4 dB	Pass	Vertical
14.4 GHz	38.3 dBµV/m	53.98 dBµV/m	-15.68 dB	Pass	Horizontal

=== End of test report ===