EMC TEST REPORT

FCC Title 47 CFR Part 15B, ISED ICES-003 Issue 7

Report Reference No	G0M-2206-1525-EF0115B-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	A2LA - Registration number: 1983.01 (ISED) ISED wireless device testing laboratory: CN 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 Standard(s)	Title 47 CFR Part 15 Subpart B ISED ICES-003 Issue 7 ANSI C63.4:2014+A1:2017
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)	1.2.4
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
required by standard but not appl. to test object	N/A
test object does meet the requirement	P(PASS)
test object does not meet the requirement	F(FAIL)

Testing:		
Date of receipt of test item	2022-07-08	
Report:		
Compiled by	Stefan Dose	
Tested by (+ signature) (Responsible for Test)	Stefan Dose	.....
Approved by (+ signature) (Test Technician)	Andreas Pflug	.....
Date of Issue	2022-09-23	
Total number of pages	77	

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:

ABBREVIATIONS AND ACRONYMS

Acronyms	
Acronym	Description
EUT	Equipment Under Test
FCC	Federal Communications Commission
ISED	Innovation, Science and Economic Development Canada
T_{NOM}	Nominal operating temperature
V_{NOM}	Nominal supply voltage

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2022-09-23	Initial Release	-

REPORT INDEX

1 Equipment (Test Item) Under Test

Description	UAV 3D measurement device		
Intendend use	The Leica BLK2FLY is an autonomous flying laser scanner with advanced obstacle avoidance for easy reality capture from the sky. The BLK2FLY includes WLAN and LTE communication channels to the tablet for nearly unlimited communication range during flight.		
Model	BLK2FLY		
Additional Model(s)	None		
Brand Name(s)	Leica Geosystems AG		
Number of tested samples	1		
Sample Identification	EUT #	Sample-ID	Serial Number(s)
	EUT 1	40493	3000128
Hardware Version(s)	Rev. D		
Software Version(s)	1.2.4		
EUT Dimensions [cm]	60 x 60 x 18		
FCC-ID	RFD-BLK2FLY		
IC	3177A-BLK2FLY		
Class	Class B		
Equipment type	Table top		
Highest internal frequency [MHz]	63900		
Radio Module I	Type	IEEE 802.11 b, g, n / a, ac, n module	
	Model	WCN3990	
	Manufacturer	Qualcomm	
	Hardware Version(s)	00M	
	Software Version(s)	MPSS.AT.4.0.c2-01333-SDM845_GEN_PACK-1	
	FCC-ID	unspecified	
	IC	unspecified	
Radio Module II	Type	Bluetooth Low Energy module	
	Model	WCN3990	
	Manufacturer	Qualcomm	
	Hardware Version(s)	00M	
	Software Version(s)	MPSS.AT.4.0.c2-01333-SDM845_GEN_PACK-1	
	FCC-ID	unspecified	
	IC	unspecified	
Radio Module III	Type	GNSS module	
	Model	ZED-F9P	
	Manufacturer	U-blox	
	Hardware Version(s)	02B	
	Software Version(s)	HPG 1.13	
	FCC-ID	unspecified	
	IC	unspecified	

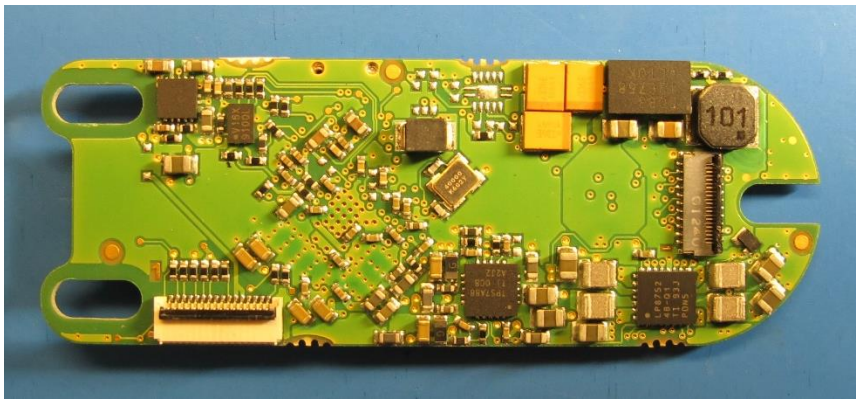
Radio Module IV	Type	Mobile communication module
	Model	AirPrime EM7565
	Manufacturer	Sierra Wireless
	Hardware Version(s)	OPC E-08, 0118(03)
	Software Version(s)	SWI9X50C_01.14.02.00, 12
	FCC-ID	N7NEM75
	IC	2417C-EM75
Radio Module V	Type	Obstacle avoidance radar module
	Model	IWR6843AQGABLR
	Manufacturer	Texas Instruments
	Hardware Version(s)	Master: V-ACRSP-HEX-00-DF0 Slave: V-ACR-HEX-00-AE0
	Software Version(s)	MCU: V-ACR_APP-HEX-0699 IWR: V-ACR_IWR-HEX-0502
	FCC-ID	unspecified
	IC	unspecified
Supply Voltage	V_{NOM}	14.8 VDC (rechargeable Li-Ion battery)
AC/DC-Adaptor	None	
Manufacturer	Leica Geosystems AG Heinrich-Wild-Strasse 9435 Heerbrugg SWITZERLAND	

1.1 Equipment Ports

Name	Type	Attributes		Comment
USB C	I/O	Count: Direction: Max. cable length [m]: Shielded: Service only:	1 IO 1.5m Yes No	-not tested- used for configuration of EUT
Description:				
AC	AC mains power input/output port			
DC	DC power input/output port			
BAT	DC power input port connected to external battery			
IO	Input/Output port			
TP	Telecommunication port			
NE	Non-electrical port			

1.2 Equipment Photos – Internal (provided by customer)

The numbers in the picture description are internal SAP number (from customer) of the individual boards.

880870_Slave_Radar-Board_BOTTOM


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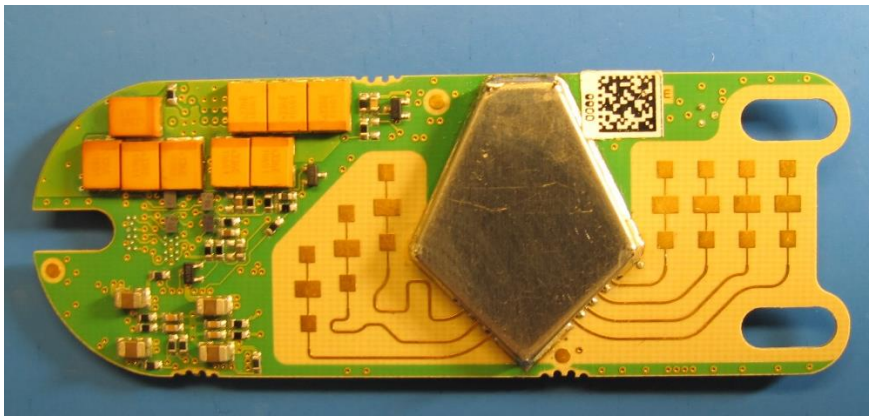

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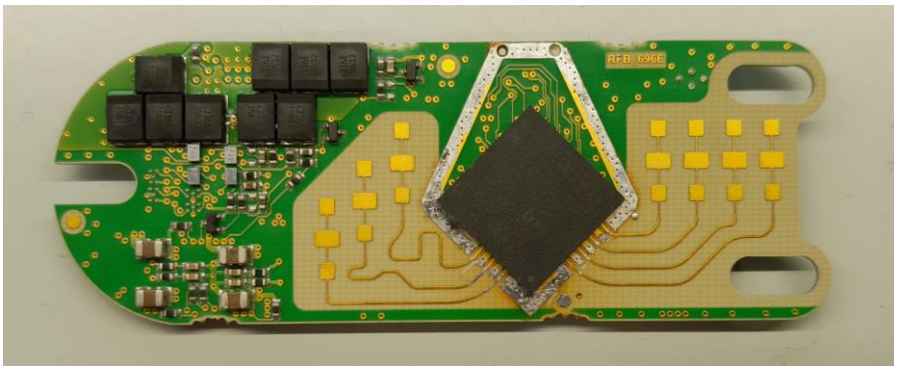
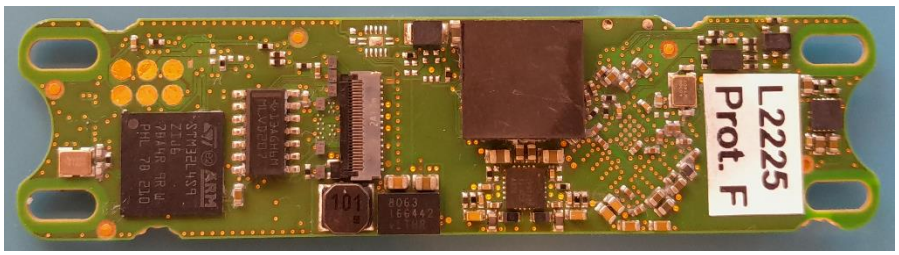


880880_Master_Radar-Board_BOTTOM


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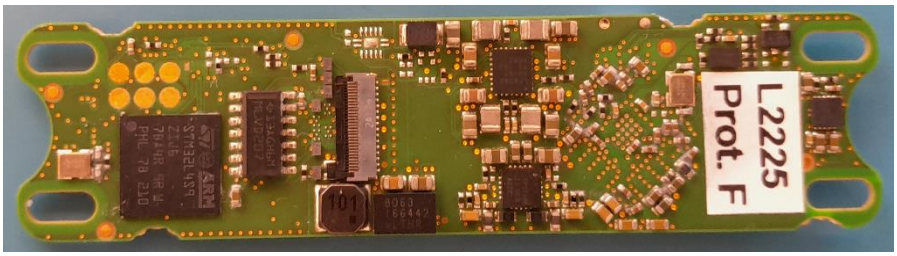

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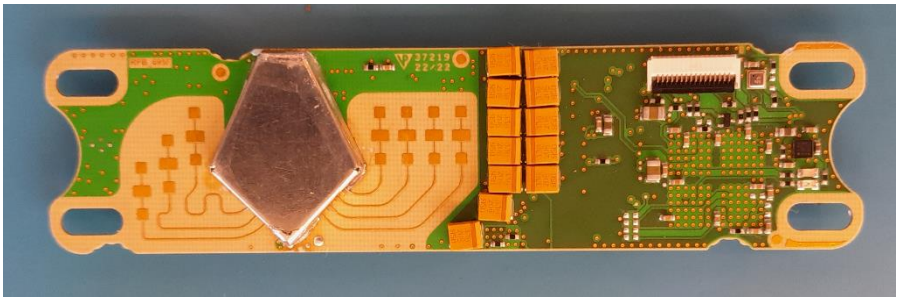
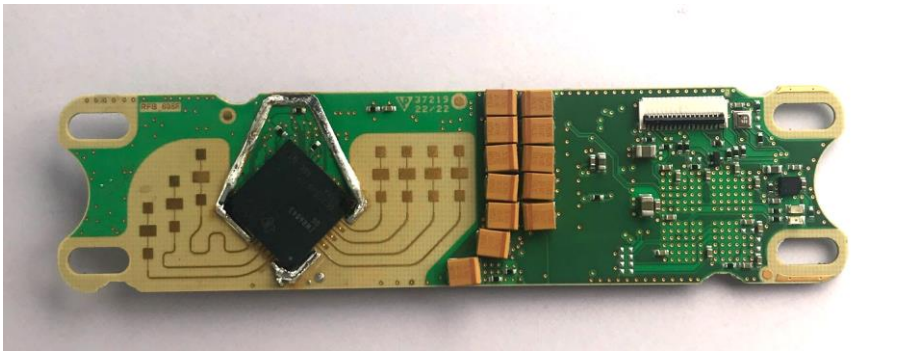
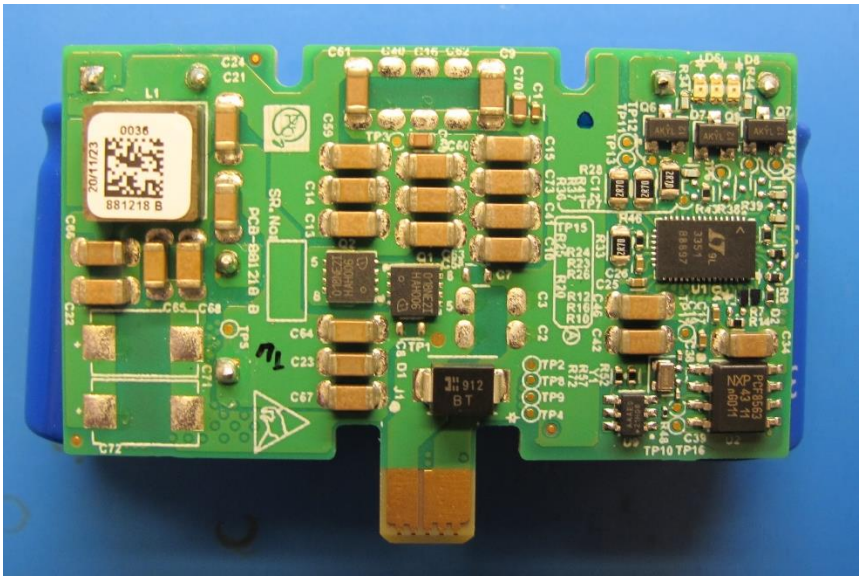


880880_Master_Radar-Board_TOP without shielding


881218_Supercap-Board-TOP


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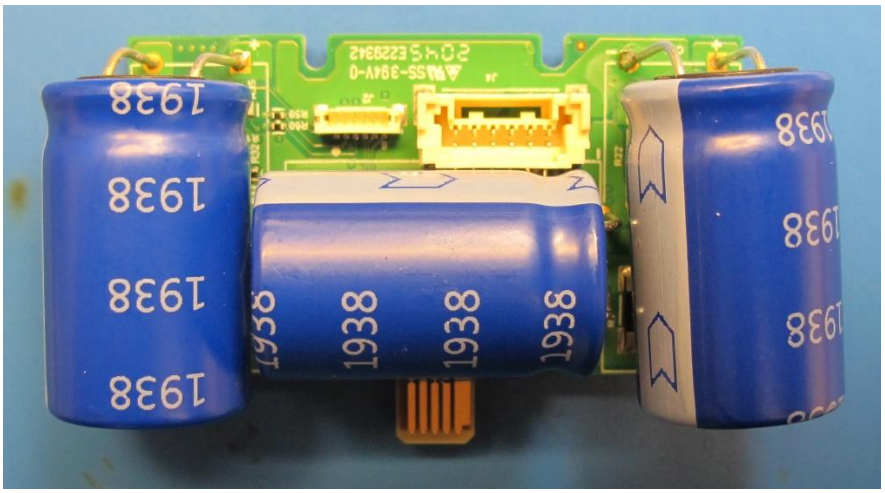

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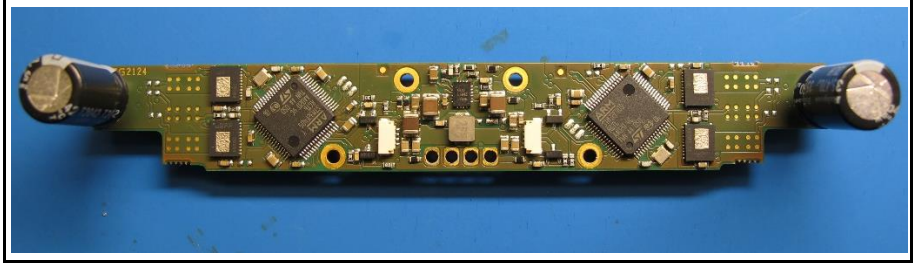
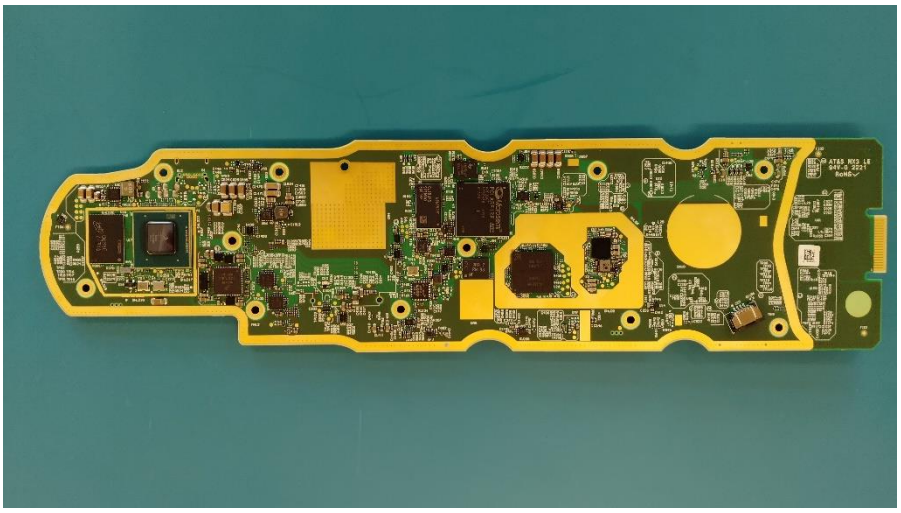


891019_ESC-Board_TOP


892583_mainboard_bottom


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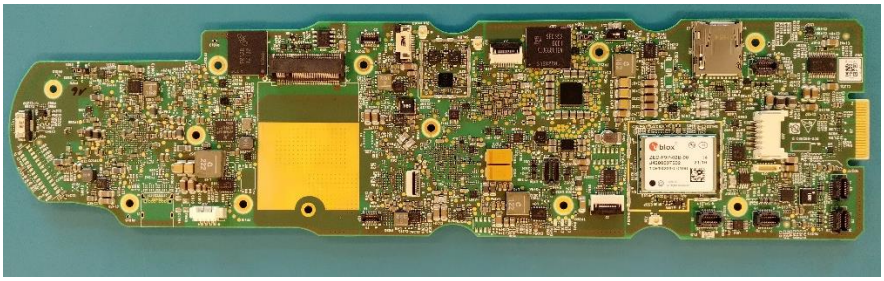

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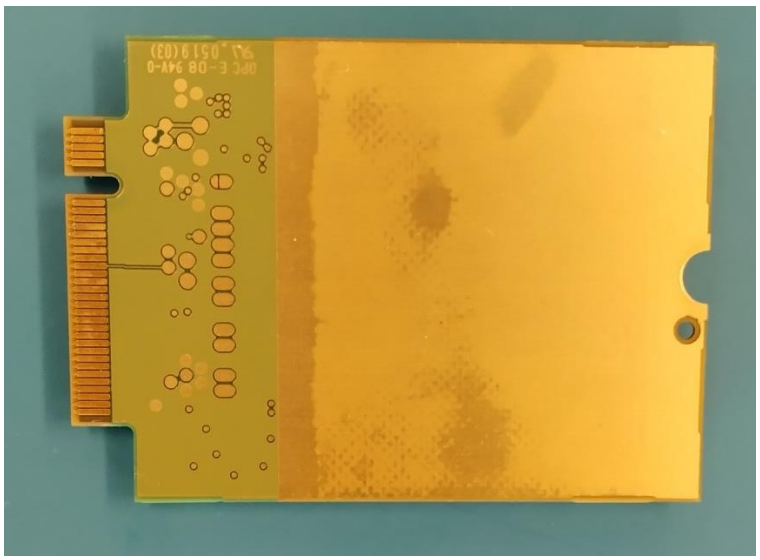

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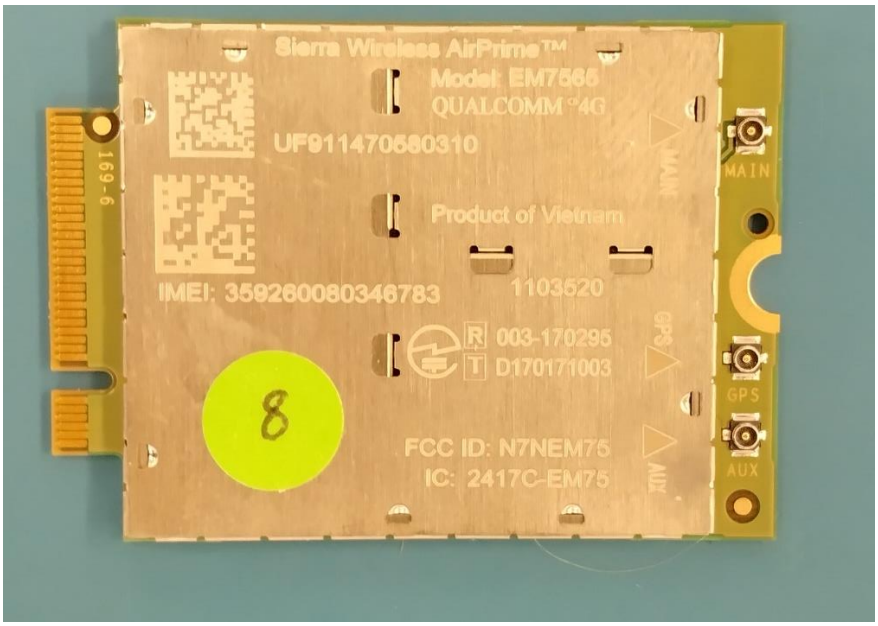

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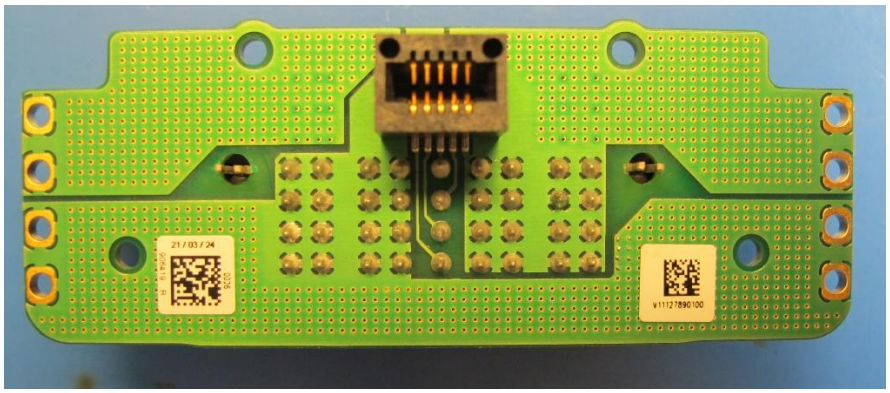
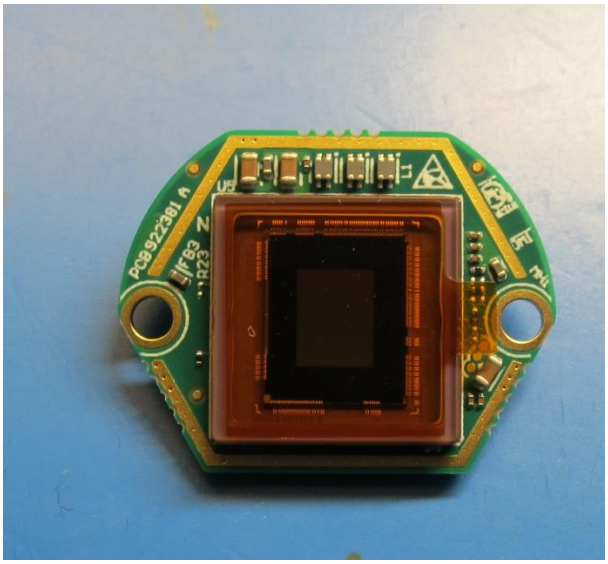


906419_Battery-Connector-Board_TOP


922381_Camera-Board_Portrait_BOTTOM


922381_Camera-Board_Portrait_TOP


1.3 Equipment Photos - External

EUT TOP


EUT BOTTOM


EUT FRONT

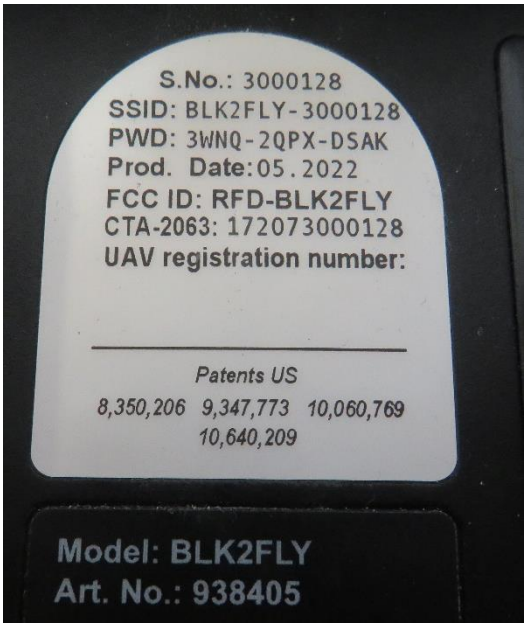

EUT BACK


EUT RIGHT


EUT LEFT


EUT WITHOUT BATTERY

EUT LABEL



1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Laptop	lenovo	ThinkPad T420s	provided by customer
AE	WLAN-USB	Netgear	A6100	provided by customer
AE	rechargeable Li-Ion battery	Leica	GEB374	provided by customer
CBL	USB-C to USB-A cable	-	-	provided by Eurofins
SIM	Universal Radio Communication Tester	R&S	CMW290	EF01367
SW	batch-script	Leica	„oriole_emc_demo_application.bat“	provided by customer
SW	batch-script	Leica	„stream_lidar_scan_status.bat“	provided by customer
SW	batch-script	Leica	„get_cam_live-stream_status.bat“	provided by customer
SW	batch-script	Leica	„ping_Oriole_wifi.bat“	provided by customer
SW	batch-script	Leica	„get_motor_rpm.bat“	provided by customer
SW	batch-script	Leica	„get_gnss_stats.bat“	provided by customer
SW	batch-script	Leica	„activate_5g_wlan.bat“	provided by customer
SW	batch-script	Leica	„activate_2_4g_wlan.bat“	provided by customer
SW	Smartphone-App (nRF Connect for Mobile)	Nordic Semiconductor ASA	v4.24.3	provided by Eurofins
AE	Smartphone	Samsung	S4	provided by Eurofins
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
MON	Monitoring Equipment			
CBL	Connecting Cable			
SW	Software			
Comment:				

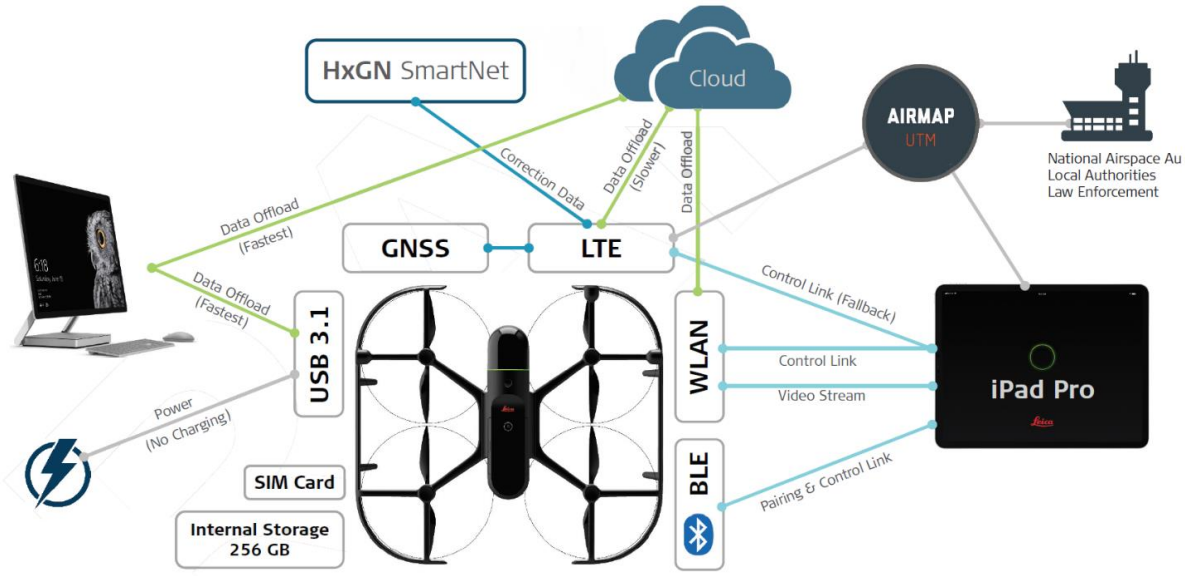
1.5 Operational Modes

Mode #	Description
1	Mobile communication connection to radio communication tester. UMTS FDD IV uplink Ch.: 1312: 1712.4MHz; downlink Ch.: 1537: 2112.4 MHz TPC: Pattern type “All 1” WLAN (2.4GHz) connection to Laptop. RADAR and LIDAR “ON” All 4 Motors operate with ca. 1500rpm GNSS receive local position Bluetooth LE active
2	Mobile communication connection to radio communication tester. LTE FDD 12 uplink Ch.: 23095: 707.5MHz; downlink Ch.: 5095: 737.5 MHz TX Power Control: Active TPC Setup “Max Power” WLAN (2.4GHz) connection to Laptop. RADAR and LIDAR “ON” All 4 Motors operate with ca. 1500rpm GNSS receive local position Bluetooth LE active
3	Mobile communication connection to radio communication tester. UMTS FDD IV uplink Ch.: 1312: 1712.4MHz; downlink Ch.: 1537: 2112.4 MHz TPC: Pattern type “All 1” WLAN (5GHz) connection to Laptop. RADAR and LIDAR “ON” All 4 Motors operate with ca. 1500rpm GNSS receive local position Bluetooth LE active
4	Mobile communication connection to radio communication tester. LTE FDD 12 uplink Ch.: 23095: 707.5MHz; downlink Ch.: 5095: 737.5 MHz TX Power Control: Active TPC Setup “Max Power” WLAN (5GHz) connection to Laptop. RADAR and LIDAR “ON” All 4 Motors operate with ca. 1500rpm GNSS receive local position Bluetooth LE active
Comment: The decision of the UMTS/LTE frequency bands to be tested was made by the customer, see corresponding project G0M-2011-9488. The above operating modes were the worst case scenario.	

1.6 EUT Configuration

Configuration #	Description
1	EUT assembled with rechargeable Li-Ion battery: 14.8V DC. Operational modes on EUT are activated by WLAN connection from laptop to EUT. Setting the WLAN frequency band (2.4GHz or 5GHz) is done via a direct USB-connection between notebook and EUT. After successful connection the corresponding batch-script („activate_5g_wlan.bat“ or „activate_2_4g_wlan.bat“) is executed on the notebook. The software-script “oriole_emc_demo_application.bat” activates the following settings: • LIDAR: ON (without recording any data) • RADAR: ON • MOTORS: ON Other batch-scripts activate the visualisation of: • LIDAR data (stream_lidar_scan_status.bat) • camera RGB data (get_cam_live-stream_status.bat) • WLAN ping (ping_Oriole_wifi.bat) • speed of each small motor (get_motor_rpm.bat) • the number of visible satellites (get_gnss_stats.bat) With the help of a smartphone and an android-app (nRF Connect), the Bluetooth LE connection is monitored.
Comment:	

Features



1.7 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 analyser in dBµV. Any external preamplifiers used are taken into account through internal analyser 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 analyser. 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 Analyser (dBµV) + A.F. (dB/m) = Net field strength (dBµV/m)

Net:

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

Limit:

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

Limit (dBµV/m) = 20*log (µV/m)

Margin:

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

Example only:

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

2 Result Summary

Title 47 CFR Part 15B, ISED ICES-003 Issue 7				
Reference	**Requirement**	**Reference Method**	**Result**	**Remarks**
Emission				
FCC 15.109 ICES-003, 3.2.2	Radiated emissions	ANSI C63.4:2014 +A1:2017	PASS	-
FCC 15.107 ICES-003, 3.2.1	AC power line conducted emissions	ANSI C63.4:2014 +A1:2017	N/T	-
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

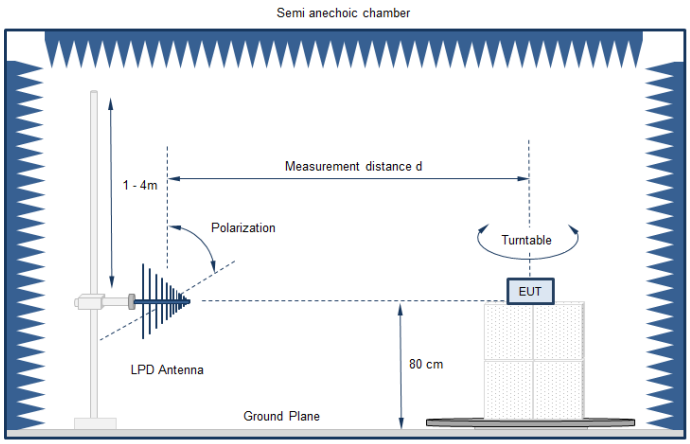
2.1 Test Conditions and Results - Radiated emissions acc. to ANSI C63.4

2.1.1 Information

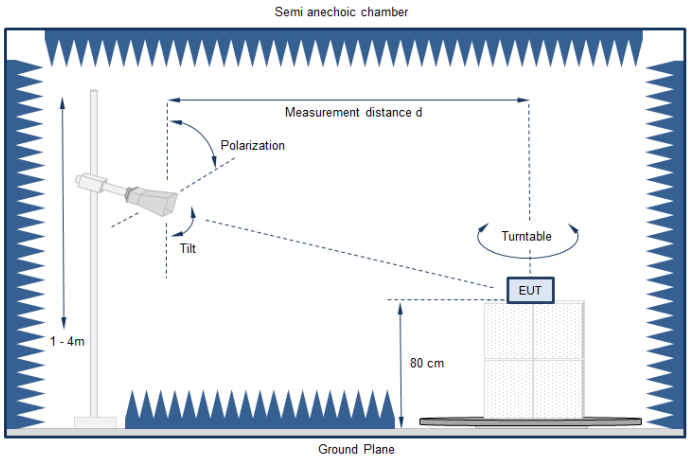
Test Information	
Reference	FCC 15.109, ICES-003, 3.2.2
Reference method	ANSI C63.4:2014+A1:2017 Section 8
Equipment class	Class B
Equipment type	Table top
Highest internal frequency [MHz]	63900
Measurement range	30 MHz to 40000 MHz
Temperature [°C]	21 ±5
Humidity [%]	50 ±15
Operator	Stefan Dose
Date	2022-07-12 – 2022-07-15

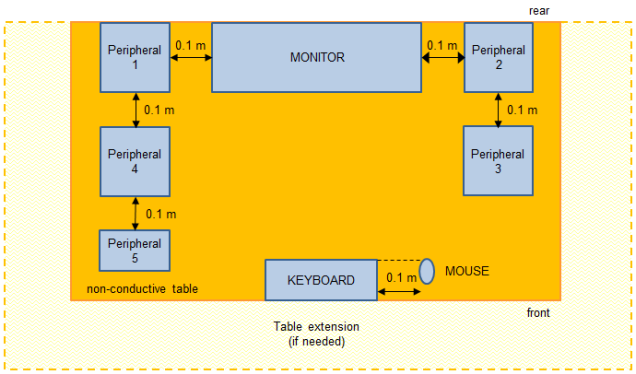
2.1.2 Setup

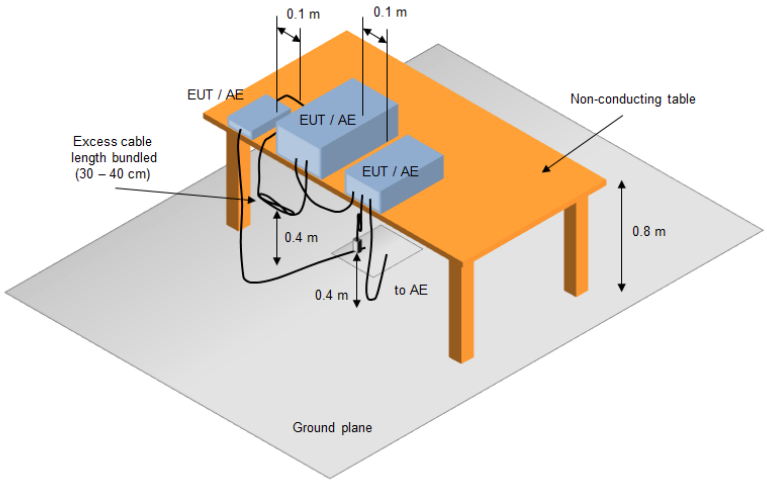
Measurement up to 1 GHz



Measurement above 1 GHz



Equipment placement - Table top


Test Setup


2.1.3 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	Radimation	2020.1.8

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic chamber (NSA)	Frankonia	AC1	EF00062	2021-02	2024-02
Anechoic chamber (SVSWR)	Frankonia	AC 1	EF01011	2022-06	2025-06
EMI Test Receiver	Keysight	N9038A-526/WXP	EF01070	2021-07	2022-07
Spectrum analyser	Rohde & Schwarz Vertriebs GmbH	FSW43	EF00896	2021-07	2022-07
Biconical Antenna	R&S	HK 116	EF00030	2021-05	2024-05
LPD Antenna	R&S	HL 223	EF00187	2022-06	2025-06
Horn Antenna	Schwarzbeck	BBHA9120D	EF00018	2019-10	2022-10
40GHz High Gain Antenna	Amplifier Research	AT4560	EF00302	2021-06	2023-06
40GHz Standard Gain Horn Antenna with Amplifier	Flann Microwave Ltd	22240-25 Amp. CBL26402075	EF00301	2019-12	2022-12
Notch filter	Wainwright Instruments GmbH	WRCT 24000/2497-80-20SS	EF00098	verification	verification
Climatic Sensor	Embedded Data Systems, LLC.	2800100000254 17E	EF01054	2022-04	2023-04

2.1.4 Procedure

Exploratory measurement
1. The EUT was placed on a non-conductive table at a height of 0.8m. 2. The EUT and support equipment, if needed, were set up to simulate typical usage. 3. Cables, of type and length specified by the manufacturer, were connected to at least one port of each type and were terminated by a device or simulating load of actual usage. 4. The antenna was placed at a distance of 3 or 10 m. 5. The received signal was monitored at the measurement receiver. 6. This procedure has to be performed in both antenna polarizations, horizontal and vertical. 7. The arrangement of the equipment with the maximum emission level is shown on the setup picture at item 2.1.2

Final measurement
1. The EUT was placed on a 0.8 m non-conductive table at a 3 m distance from the receive antenna. The antenna output was connected to the measurement receiver. 2. A biconical antenna was used for the frequency range 30 – 200 MHz, a logarithmic periodical antenna was used for the frequency range from 200 – 1000 MHz. Above one 1 GHz a Double Ridged Broadband Horn antenna was used. The antenna was placed on an adjustable height antenna mast. 3. The EUT and cable arrangement were based on the exploratory measurement results. 4. Emissions were maximized at each frequency by rotating the EUT and adjusting the receive antenna height and polarization. The maximum values were recorded. 5. The test data of the worst-case conditions were recorded and shown on the next pages.

2.1.5 Limits

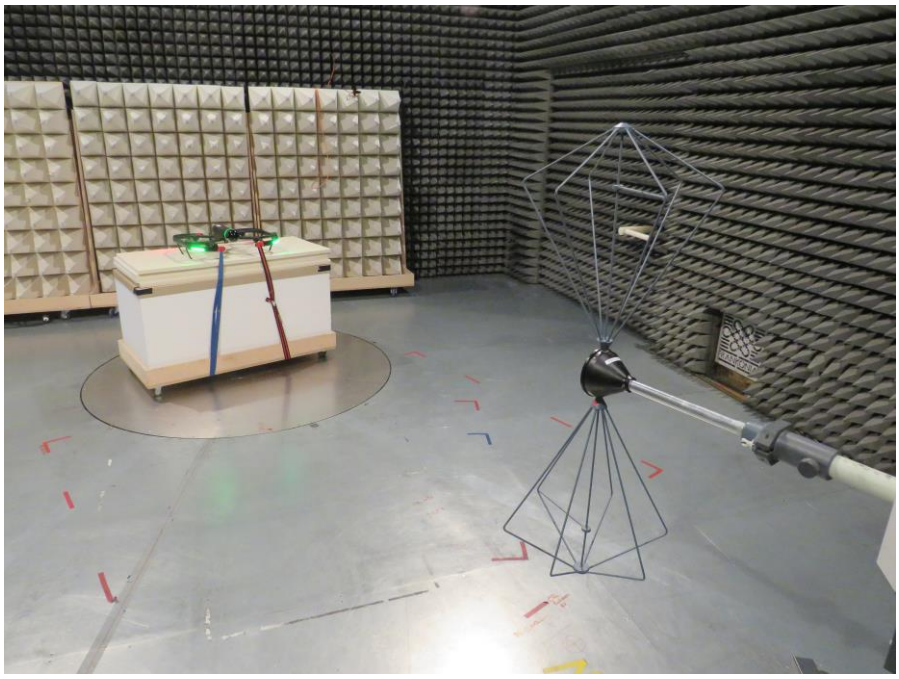
Class B @ 3 m		
Frequency [MHz]	Detector	Limit [dBµV/m]
30 - 88	Quasi-peak	40
88 - 216	Quasi-peak	43.5
216 - 960	Quasi-peak	46
960 - 1000	Quasi-peak	54
> 1000	Peak Average	74 54

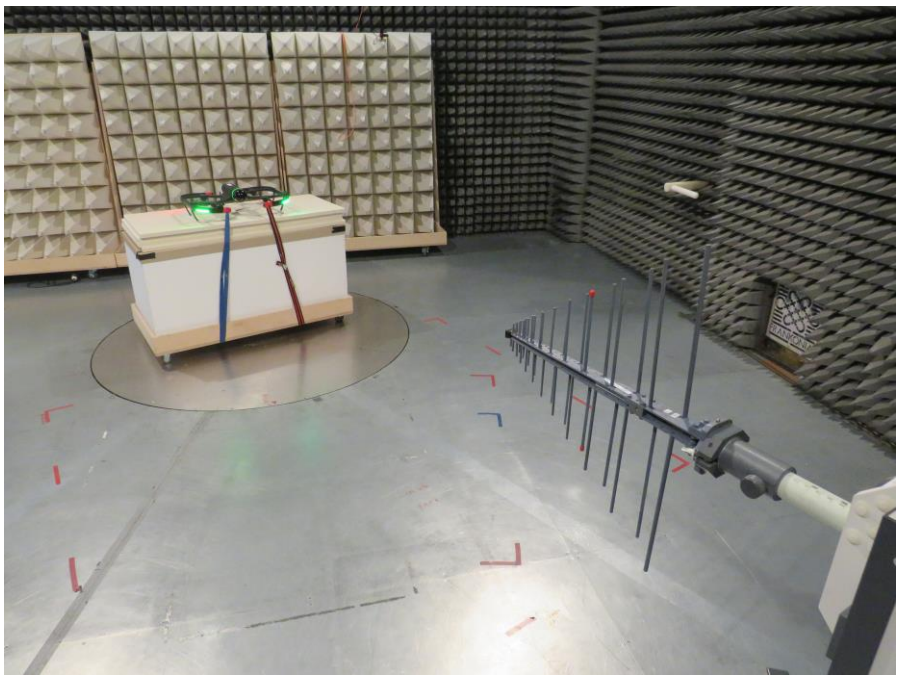
2.1.6 Results

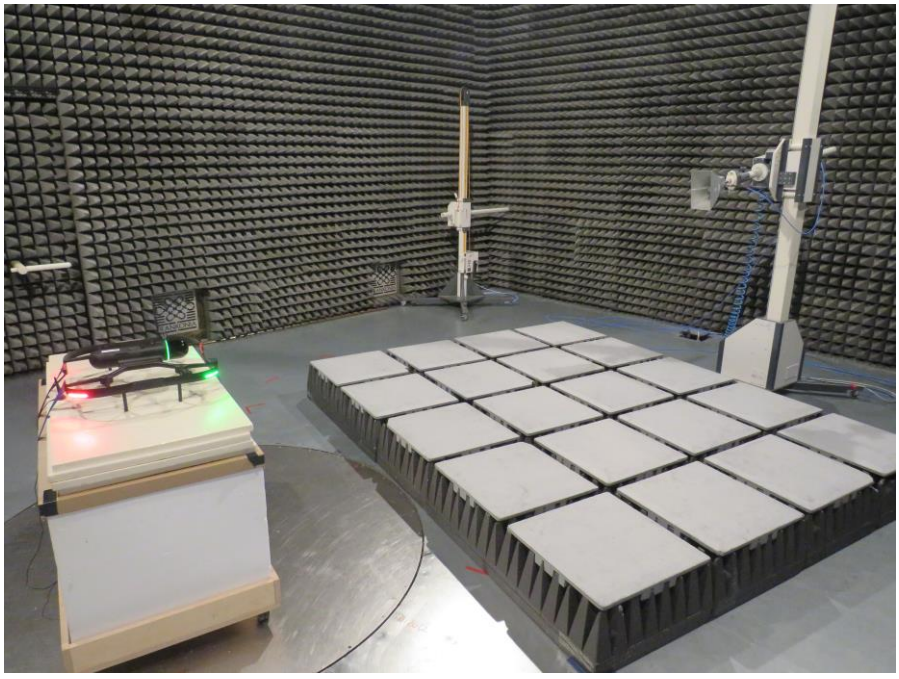
Test Results			
Operational mode	EUT Configuration	Verdict	Remark
1	1	PASS	-
2	1	PASS	-
3	1	PASS	-
4	1	PASS	-
Comment:			

2.1.7 Setup Photos

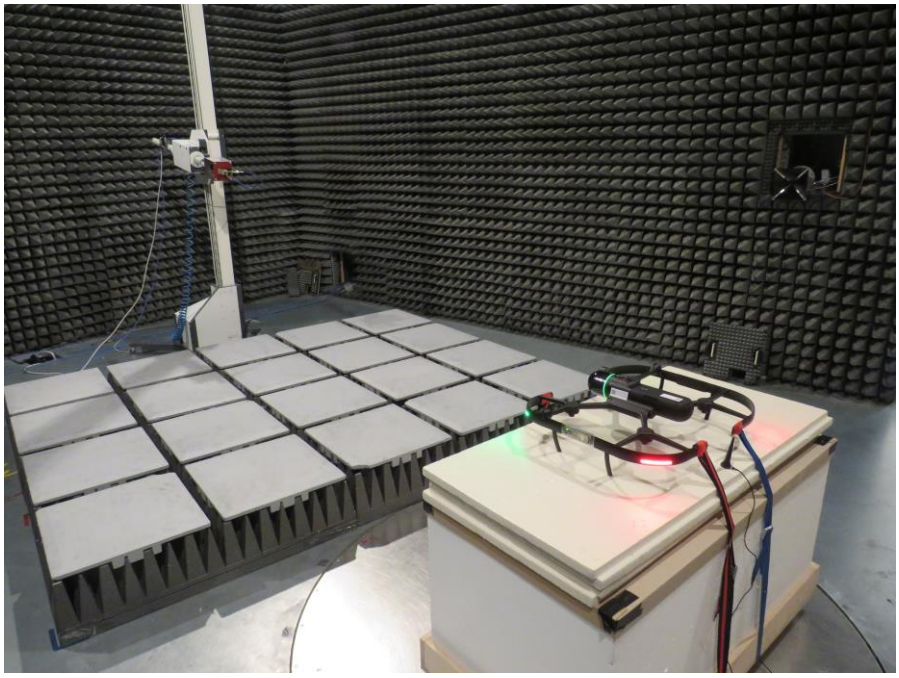
Test setup EUT


Test setup 30-200MHz


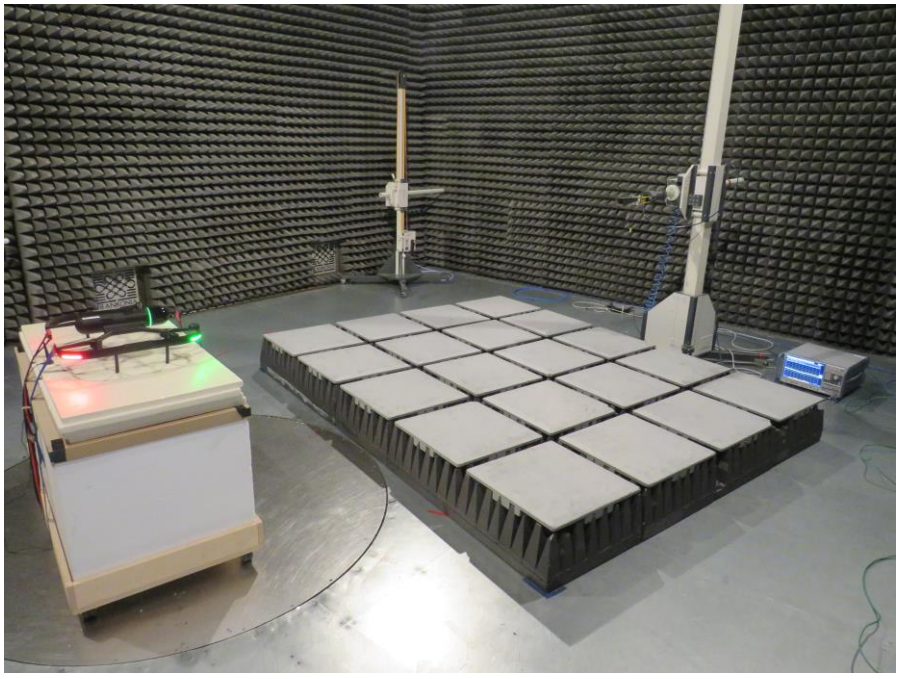
Test setup 200-1000MHz


Test setup 1-17GHz


Test setup 17-26.5GHz



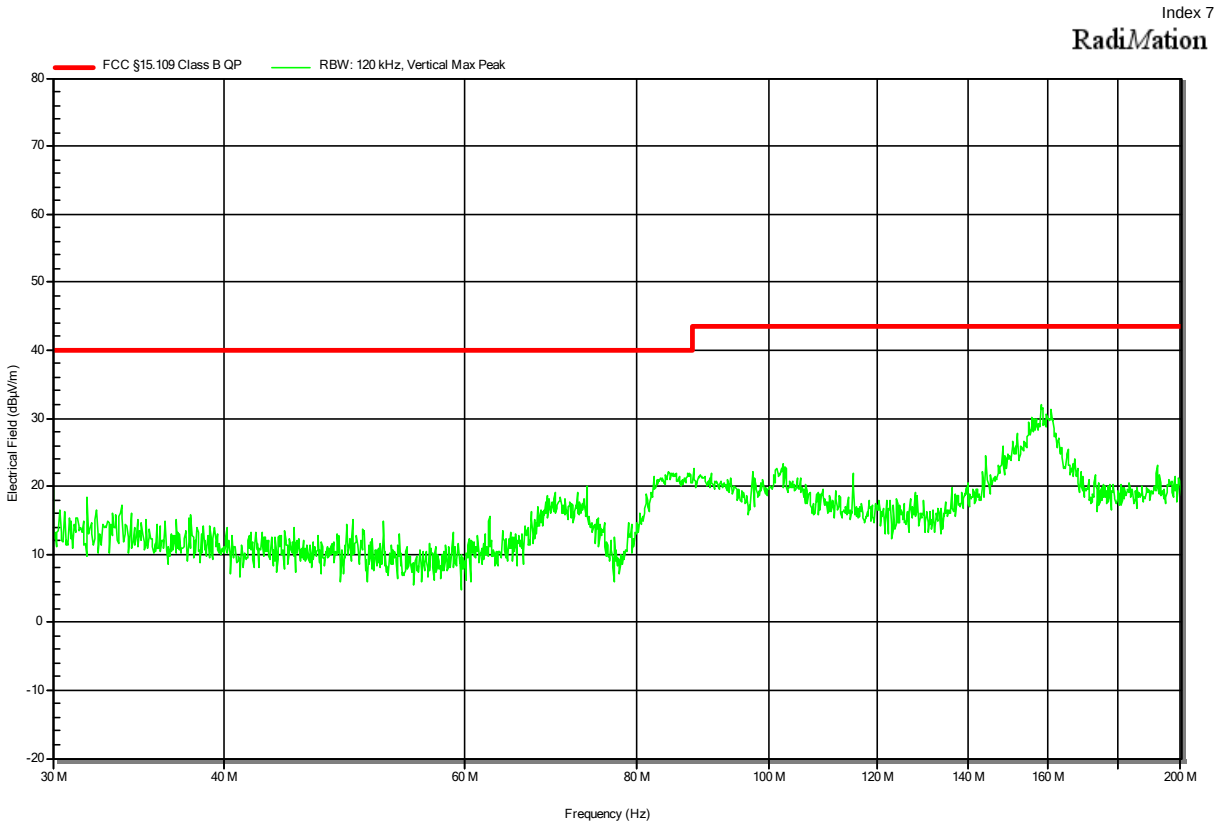
Test setup 26.5-40GHz



2.1.8 Records for Operation Mode 1

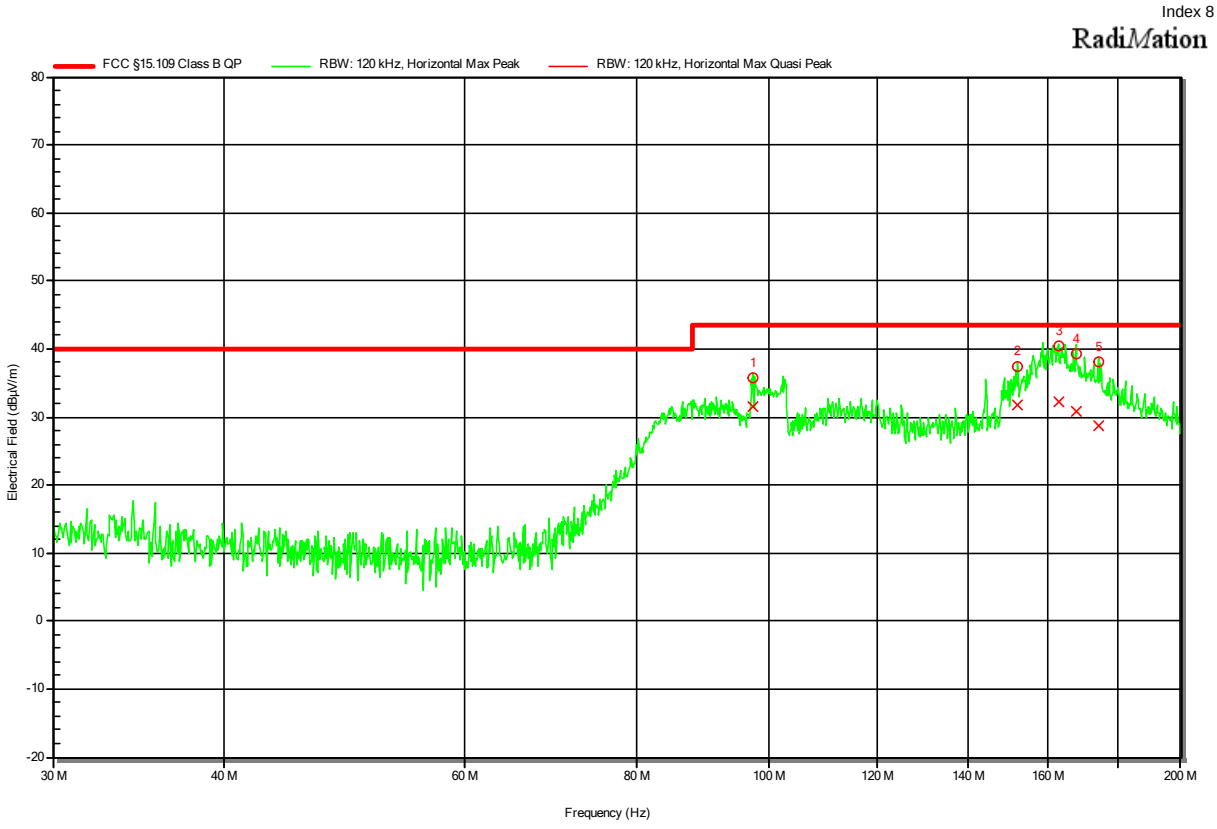
Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement Distance:	3m
Operational Mode:	1
EUT Configuration:	1
Note 1:	angle 180°, height 2m



Radiated emissions according to FCC part 15B

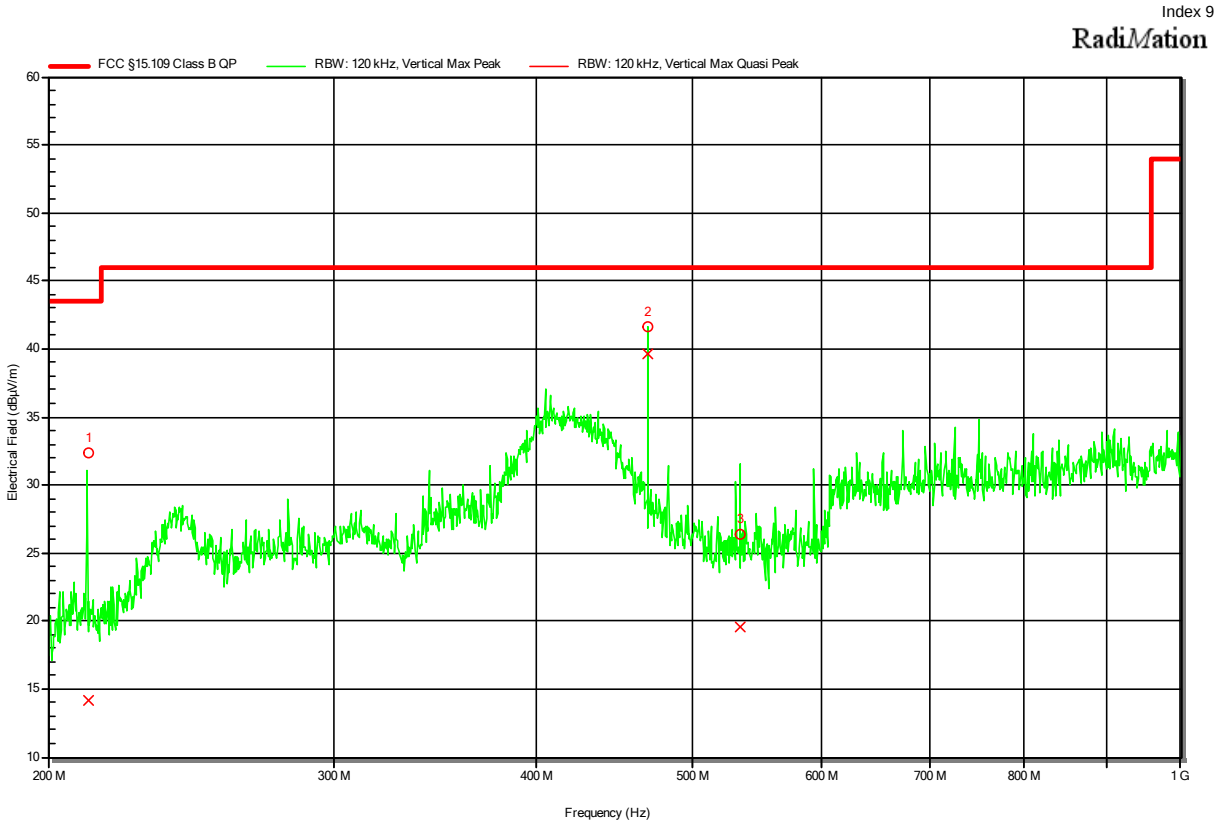
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement Distance:	3m
Operational Mode:	1
EUT Configuration:	1
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	97.274 MHz	31.56 dBµV/m	43.52 dBµV/m	-11.96 dB	Pass	180 degrees	2 m
2	151.964 MHz	31.8 dBµV/m	43.52 dBµV/m	-11.73 dB	Pass	180 degrees	2 m
3	162.802 MHz	32.34 dBµV/m	43.52 dBµV/m	-11.18 dB	Pass	180 degrees	2 m
4	167.716 MHz	30.84 dBµV/m	43.52 dBµV/m	-12.68 dB	Pass	180 degrees	2 m
5	174.077 MHz	28.75 dBµV/m	43.52 dBµV/m	-14.77 dB	Pass	180 degrees	2 m

Radiated emissions according to FCC part 15B

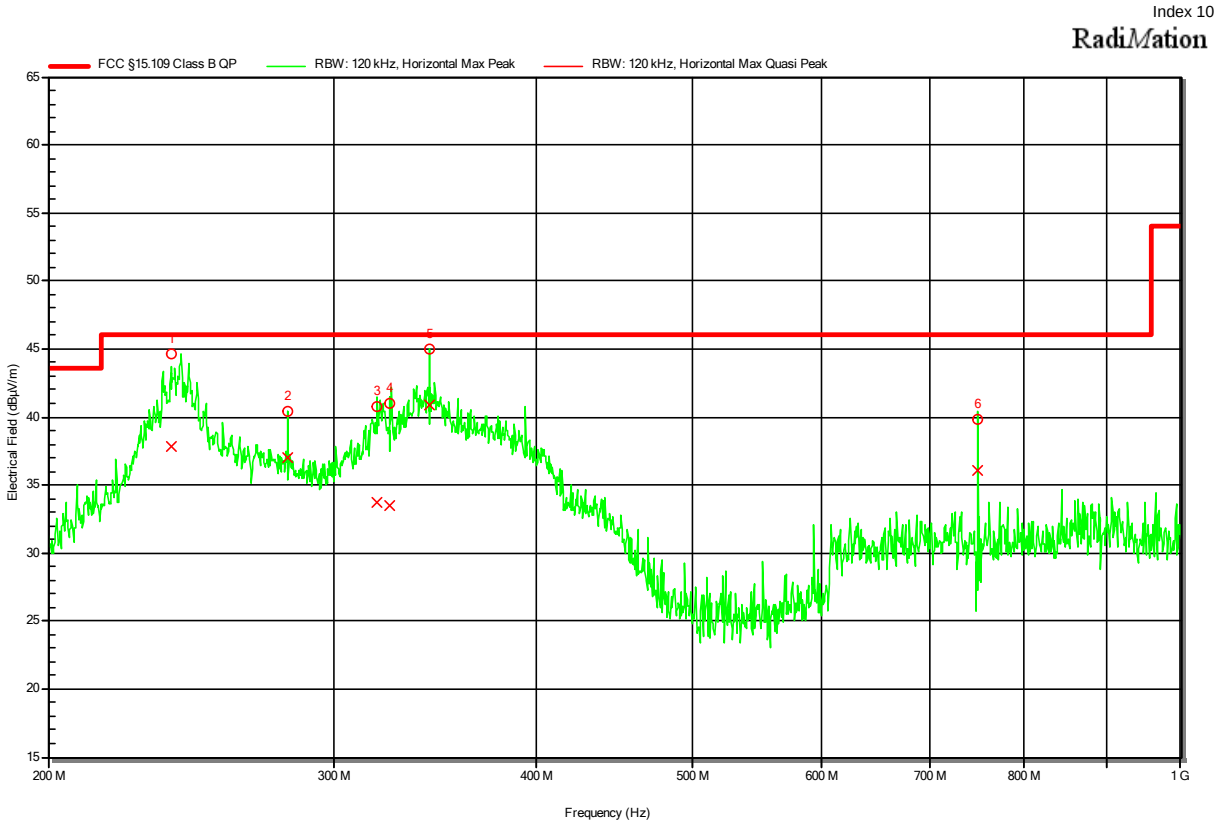
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement Distance:	3m
Operational Mode:	1
EUT Configuration:	1
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	211.88 MHz	14.17 dBµV/m	43.52 dBµV/m	-29.35 dB	Pass	180 degrees	2 m
2	468.753 MHz	39.59 dBµV/m	46.02 dBµV/m	-6.43 dB	Pass	180 degrees	2 m
3	534.862 MHz	19.57 dBµV/m	46.02 dBµV/m	-26.45 dB	Pass	180 degrees	2 m

Radiated emissions according to FCC part 15B

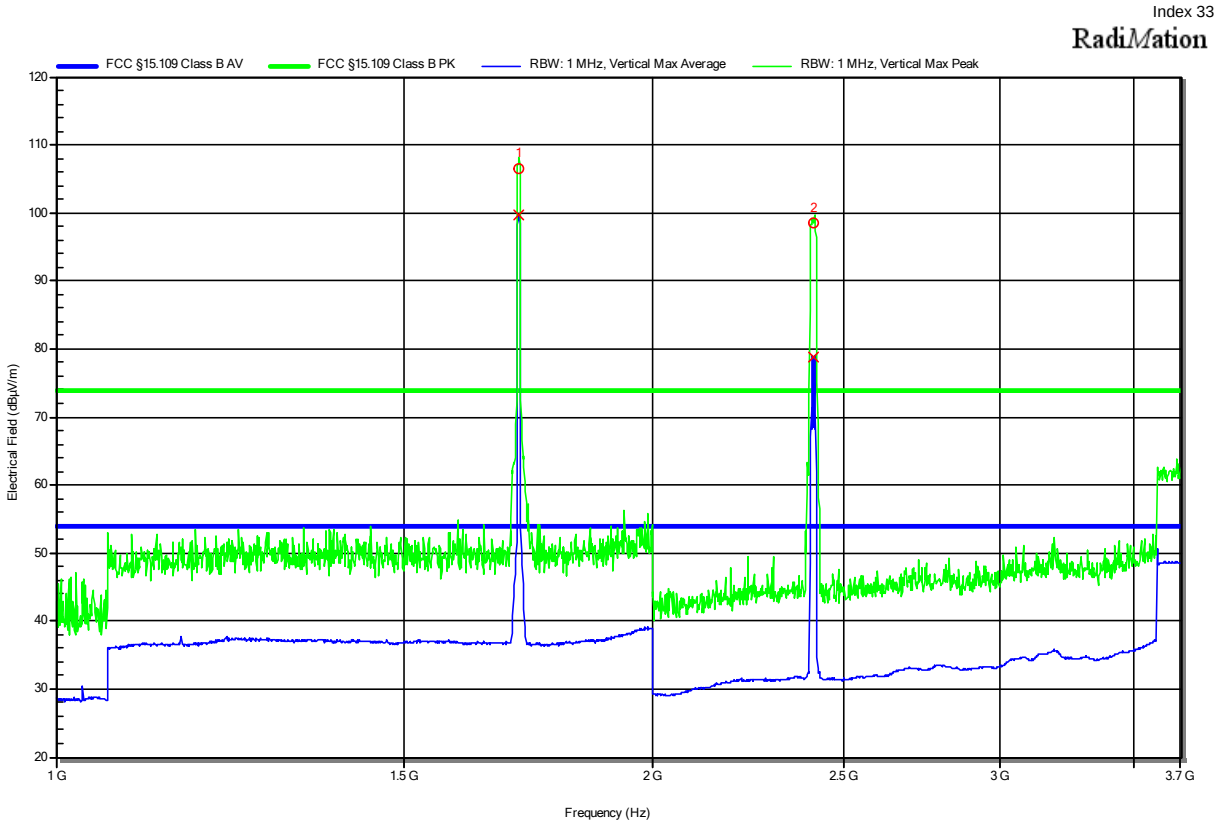
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 22 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement Distance:	3m
Operational Mode:	1
EUT Configuration:	1
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	238.341 MHz	37.87 dBµV/m	46.02 dBµV/m	-8.15 dB	Pass	60 degrees	1 m
2	281.242 MHz	36.97 dBµV/m	46.02 dBµV/m	-9.06 dB	Pass	60 degrees	1 m
3	319.163 MHz	33.69 dBµV/m	46.02 dBµV/m	-12.33 dB	Pass	60 degrees	1 m
4	325.103 MHz	33.43 dBµV/m	46.02 dBµV/m	-12.59 dB	Pass	60 degrees	1 m
5	343.734 MHz	40.9 dBµV/m	46.02 dBµV/m	-5.13 dB	Pass	60 degrees	1 m
6	749.974 MHz	36.06 dBµV/m	46.02 dBµV/m	-9.96 dB	Pass	60 degrees	1 m

Radiated emissions according to FCC part 15B

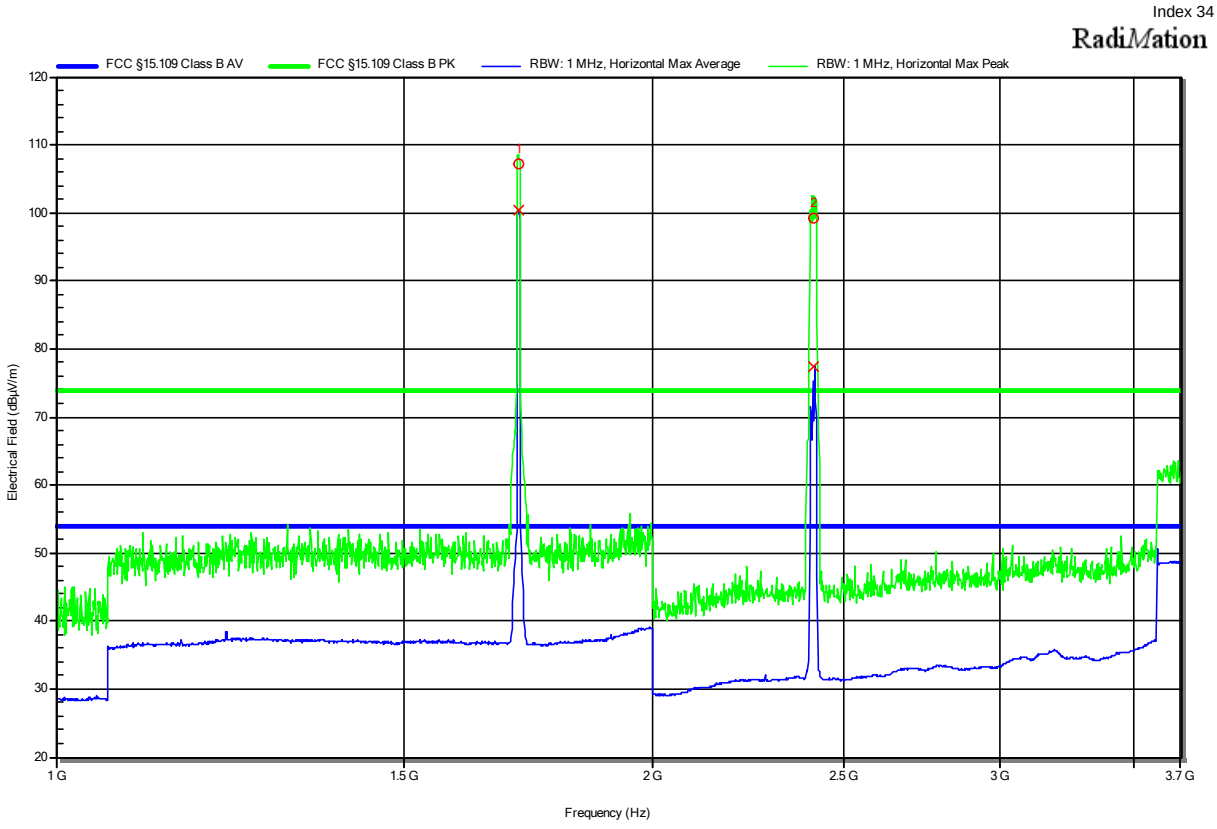
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-13
Operating Conditions:	ambient temperature: 23 °Celsius power input: 14.8VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement Distance:	3m
Operational Mode:	1
EUT Configuration:	1
Note 1:	



Peak Number	Frequency		Angle	Height
1	1.713 GHz	UMTS carrier uplink	0 degrees	1 m
2	2.413 GHz	UMTS carrier downlink	0 degrees	1 m

Radiated emissions according to FCC part 15B

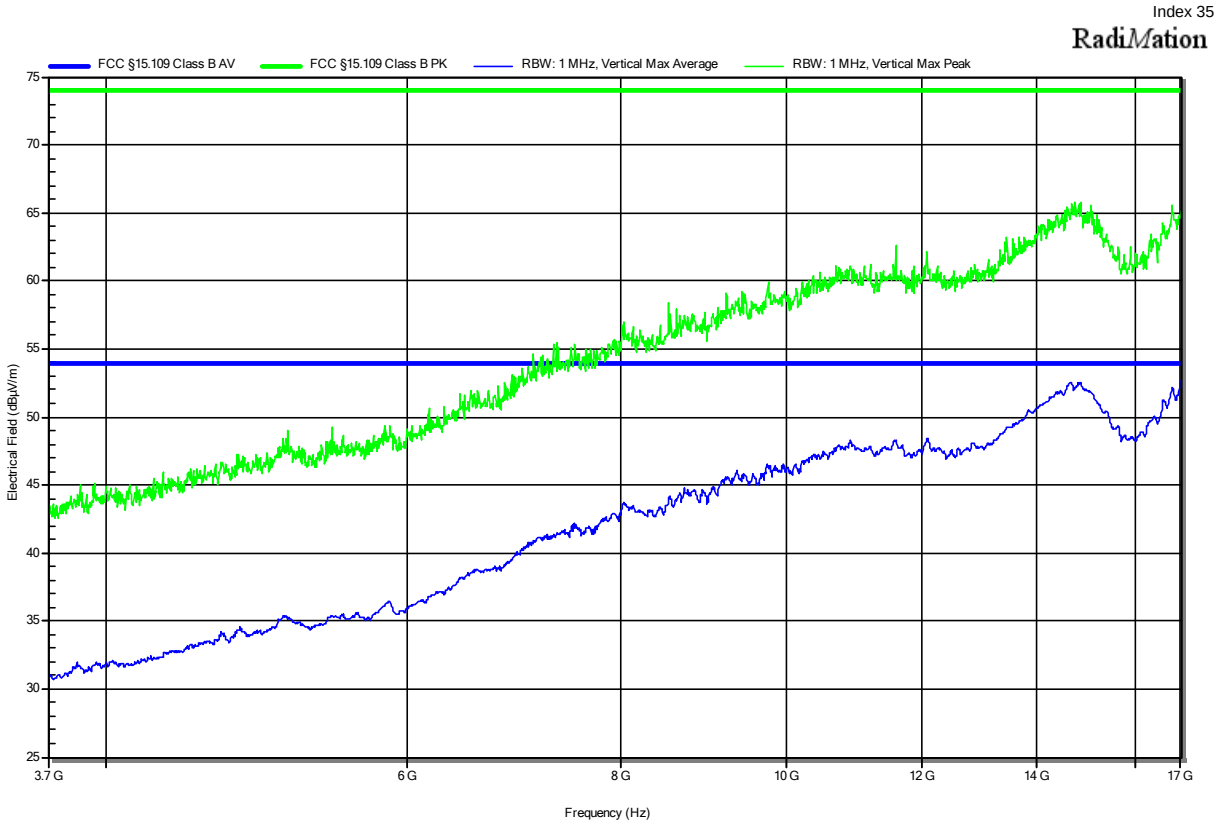
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-13
Operating Conditions:	ambient temperature: 23 °Celsius power input: 14.8VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement Distance:	3m
Operational Mode:	1
EUT Configuration:	1
Note 1:	



Peak Number	Frequency		Angle	Height
1	1.713 GHz	UMTS carrier uplink	0 degrees	1 m
2	2.415 GHz	UMTS carrier downlink	0 degrees	1 m

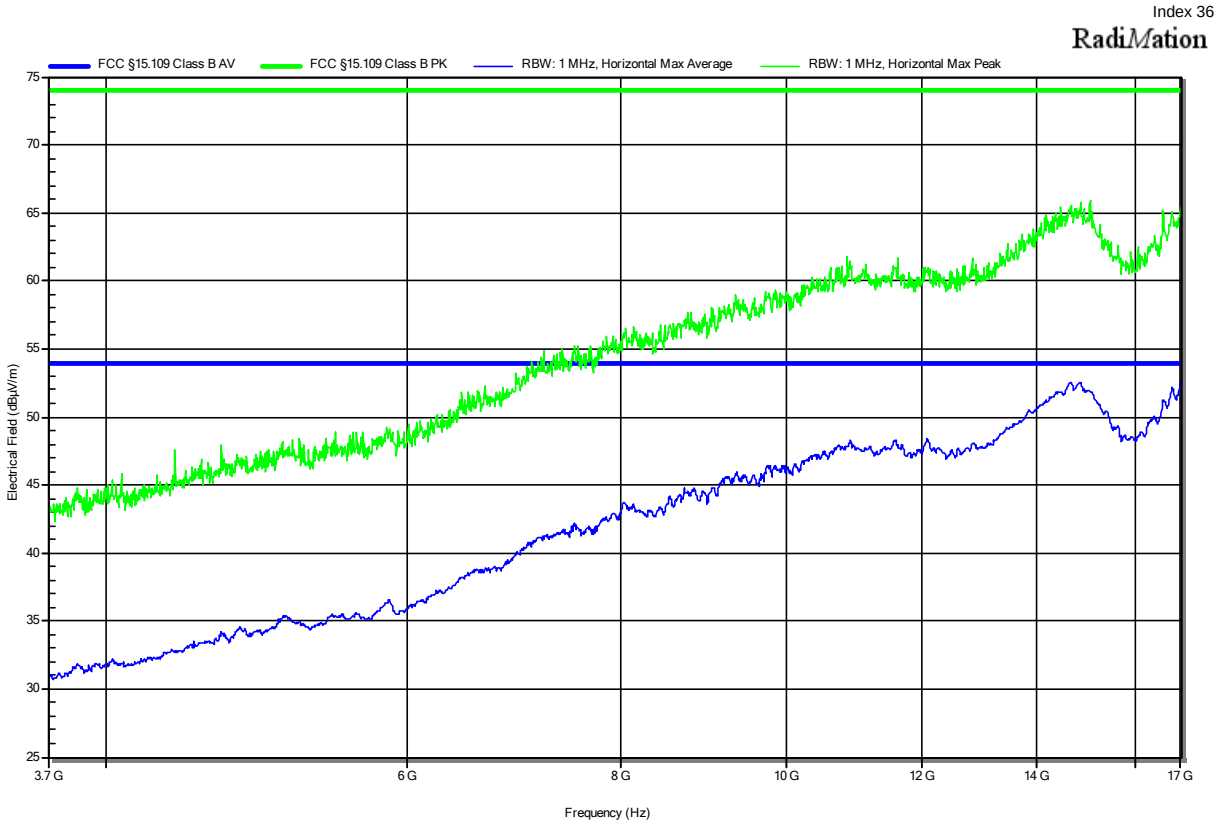
Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-13
Operating Conditions:	ambient temperature: 23 °Celsius power input: 14.8VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement Distance:	3m
Operational Mode:	1
EUT Configuration:	1
Note 1:	angle 0°, height 1m



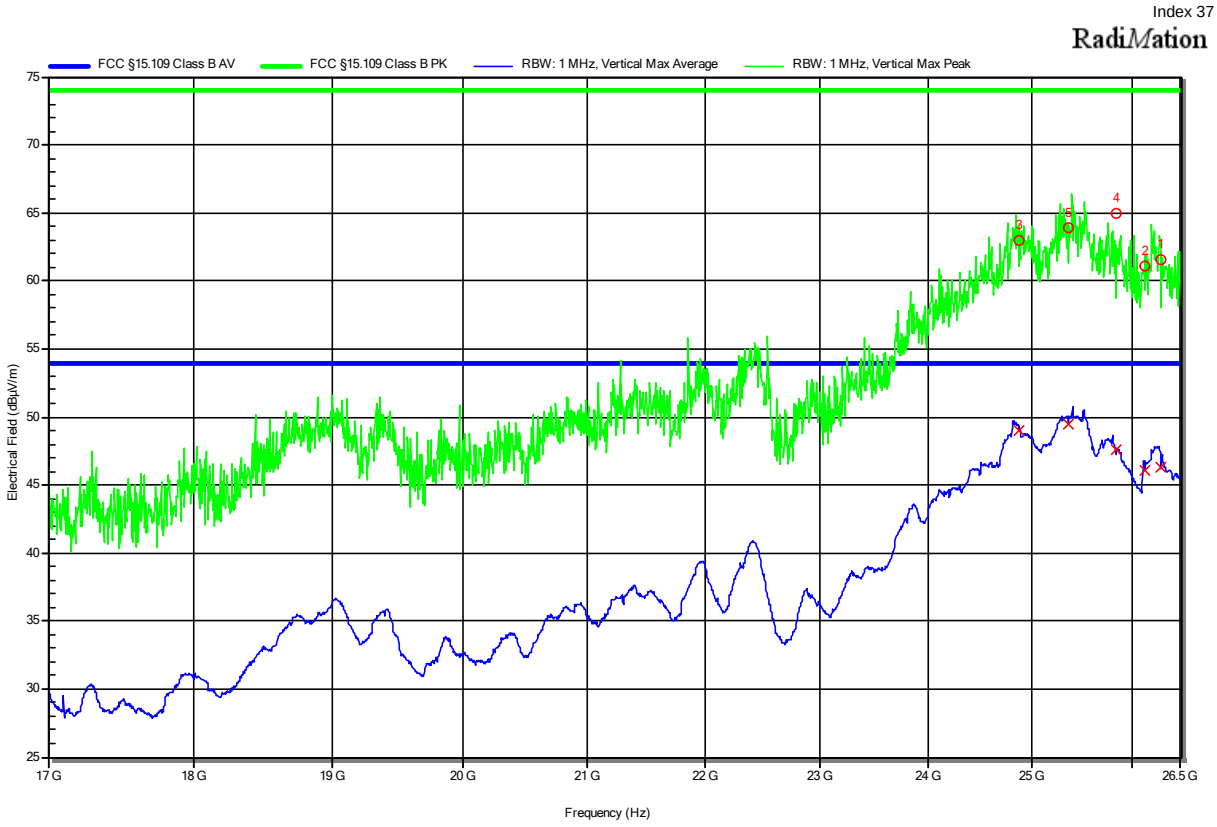
Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-13
Operating Conditions:	ambient temperature: 23 °Celsius power input: 14.8VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement Distance:	3m
Operational Mode:	1
EUT Configuration:	1
Note 1:	angle 0°, height 1m



Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-14
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Amplifier Research AT4560, Vertical
Measurement Distance:	3m
Operational Mode:	1
EUT Configuration:	1
Note 1:	

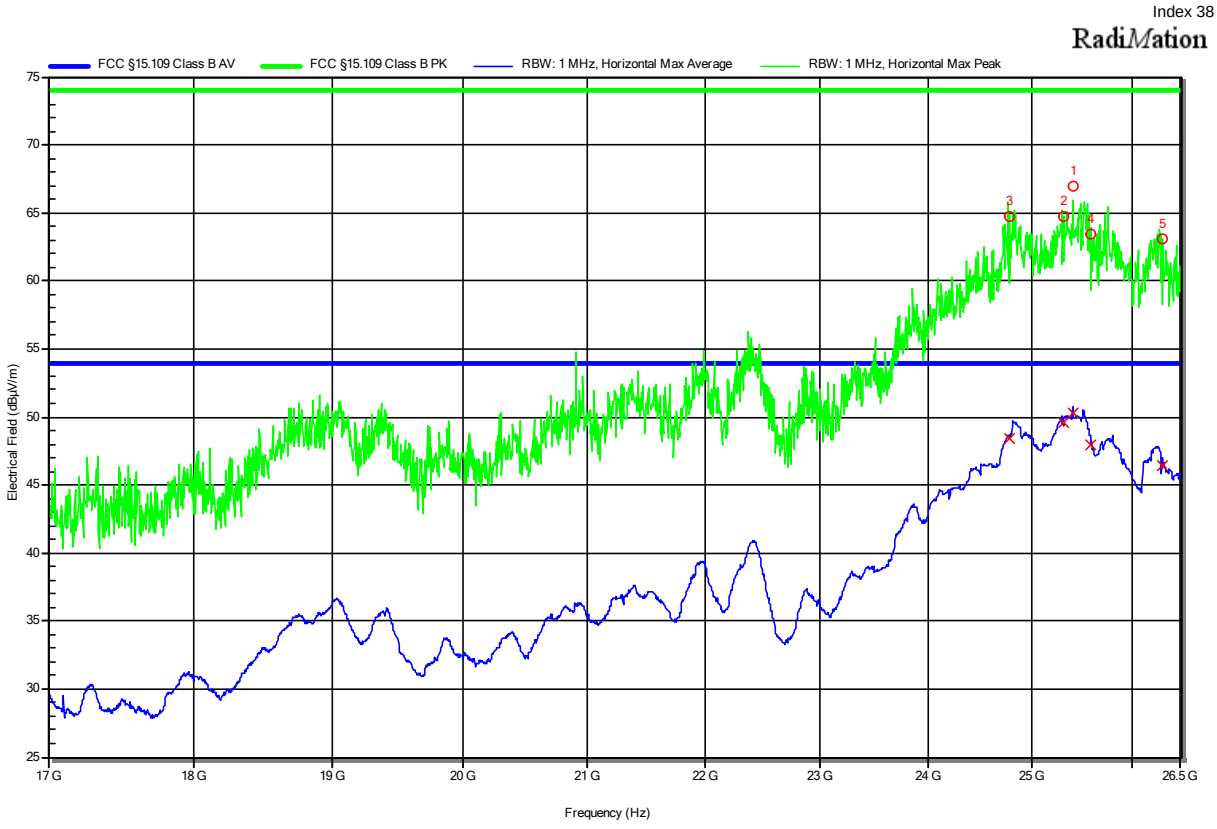


Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	26.291 GHz	61.59 dBµV/m	73.98 dBµV/m	-12.39 dB	Pass	0 degrees	1 m
2	26.127 GHz	61.04 dBµV/m	73.98 dBµV/m	-12.94 dB	Pass	0 degrees	1 m
3	24.872 GHz	62.95 dBµV/m	73.98 dBµV/m	-11.03 dB	Pass	0 degrees	1 m
4	25.832 GHz	64.92 dBµV/m	73.98 dBµV/m	-9.06 dB	Pass	0 degrees	1 m
5	25.359 GHz	63.92 dBµV/m	73.98 dBµV/m	-10.06 dB	Pass	0 degrees	1 m

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	26.291 GHz	46.3 dBµV/m	53.98 dBµV/m	-7.68 dB	Pass	0 degrees	1 m
2	26.127 GHz	46.11 dBµV/m	53.98 dBµV/m	-7.87 dB	Pass	0 degrees	1 m
3	24.872 GHz	48.99 dBµV/m	53.98 dBµV/m	-4.99 dB	Pass	0 degrees	1 m
4	25.832 GHz	47.6 dBµV/m	53.98 dBµV/m	-6.38 dB	Pass	0 degrees	1 m
5	25.359 GHz	49.53 dBµV/m	53.98 dBµV/m	-4.45 dB	Pass	0 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-14
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Amplifier Research AT4560, Horizontal
Measurement Distance:	3m
Operational Mode:	1
EUT Configuration:	1
Note 1:	



Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	25.403 GHz	66.96 dBµV/m	73.98 dBµV/m	-7.02 dB	Pass	0 degrees	1 m
2	25.304 GHz	64.76 dBµV/m	73.98 dBµV/m	-9.22 dB	Pass	0 degrees	1 m
3	24.773 GHz	64.7 dBµV/m	73.98 dBµV/m	-9.28 dB	Pass	0 degrees	1 m
4	25.577 GHz	63.45 dBµV/m	73.98 dBµV/m	-10.53 dB	Pass	0 degrees	1 m
5	26.303 GHz	63.12 dBµV/m	73.98 dBµV/m	-10.86 dB	Pass	0 degrees	1 m

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	25.403 GHz	50.3 dBµV/m	53.98 dBµV/m	-3.68 dB	Pass	0 degrees	1 m
2	25.304 GHz	49.54 dBµV/m	53.98 dBµV/m	-4.44 dB	Pass	0 degrees	1 m
3	24.773 GHz	48.44 dBµV/m	53.98 dBµV/m	-5.54 dB	Pass	0 degrees	1 m
4	25.577 GHz	47.92 dBµV/m	53.98 dBµV/m	-6.06 dB	Pass	0 degrees	1 m
5	26.303 GHz	46.39 dBµV/m	53.98 dBµV/m	-7.59 dB	Pass	0 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-15
Operating Conditions:	ambient temperature: 19 °Celsius power input: 14.8VDC
Antenna:	Horn Antenna 22240-25, Vertical
Measurement Distance:	3m
Operational Mode:	1
EUT Configuration:	1
Note 1:	angle 0°, height 1m

Index 45

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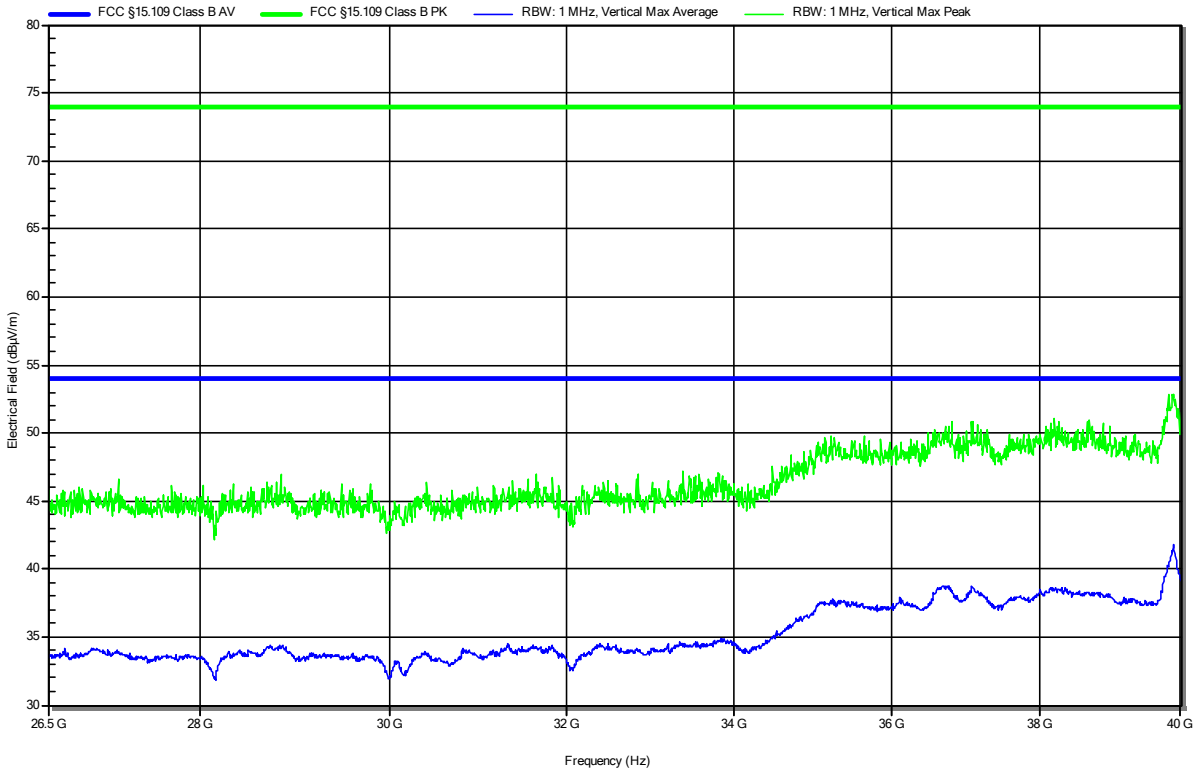
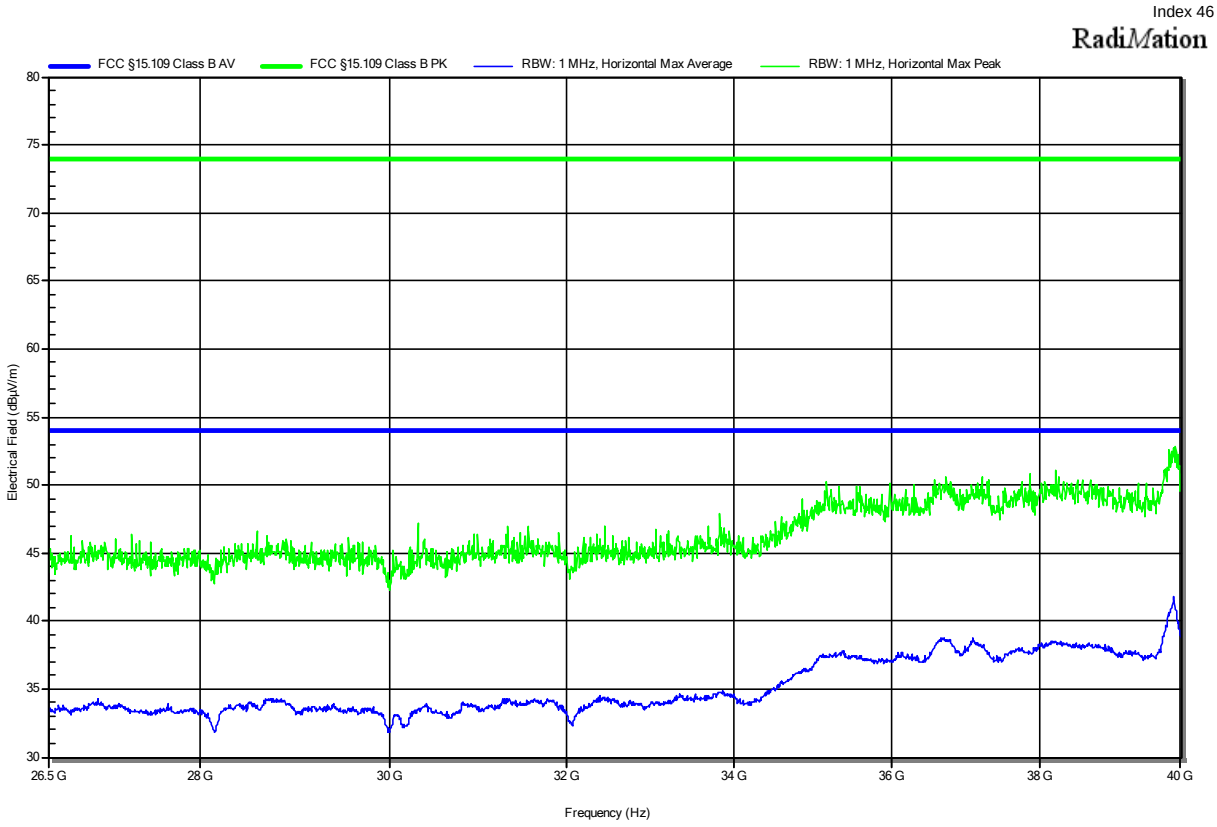


Radiated emissions according to FCC part 15B

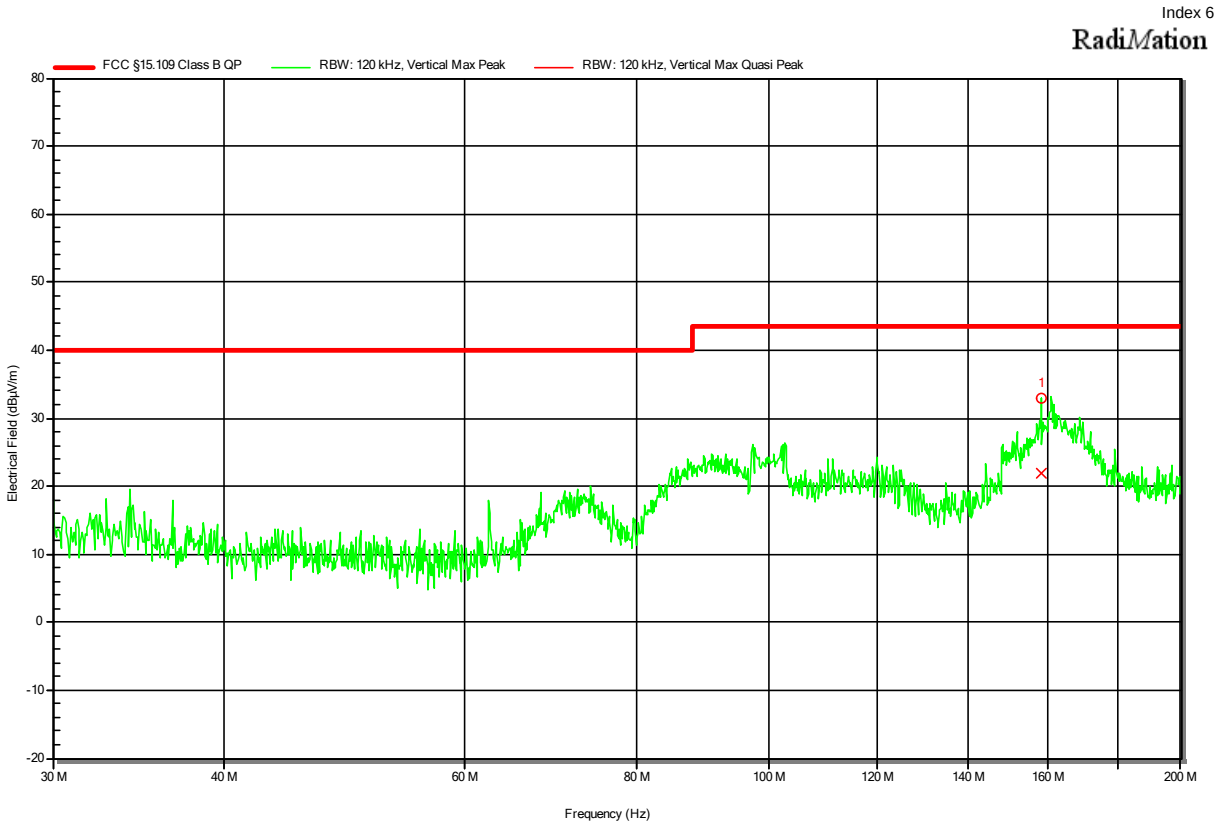
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-15
Operating Conditions:	ambient temperature: 19 °Celsius power input: 14.8VDC
Antenna:	Horn Antenna 22240-25, Horizontal
Measurement Distance:	3m
Operational Mode:	1
EUT Configuration:	1
Note 1:	angle 0°, height 1m



2.1.9 Records for Operation Mode 2

Radiated emissions according to FCC part 15B

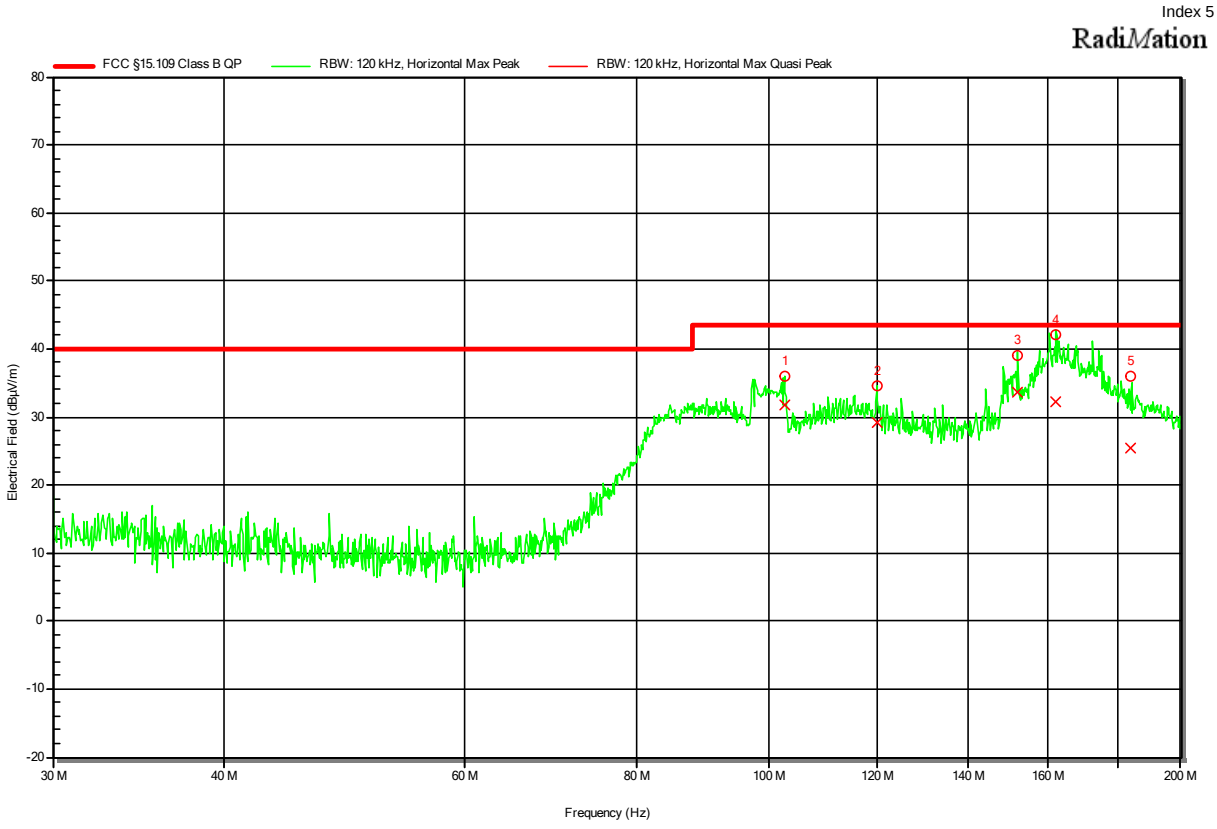
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement Distance:	3m
Operational Mode:	2
EUT Configuration:	1
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	158.277 MHz	21.87 dBµV/m	43.52 dBµV/m	-21.66 dB	Pass	120 degrees	1.7 m

Radiated emissions according to FCC part 15B

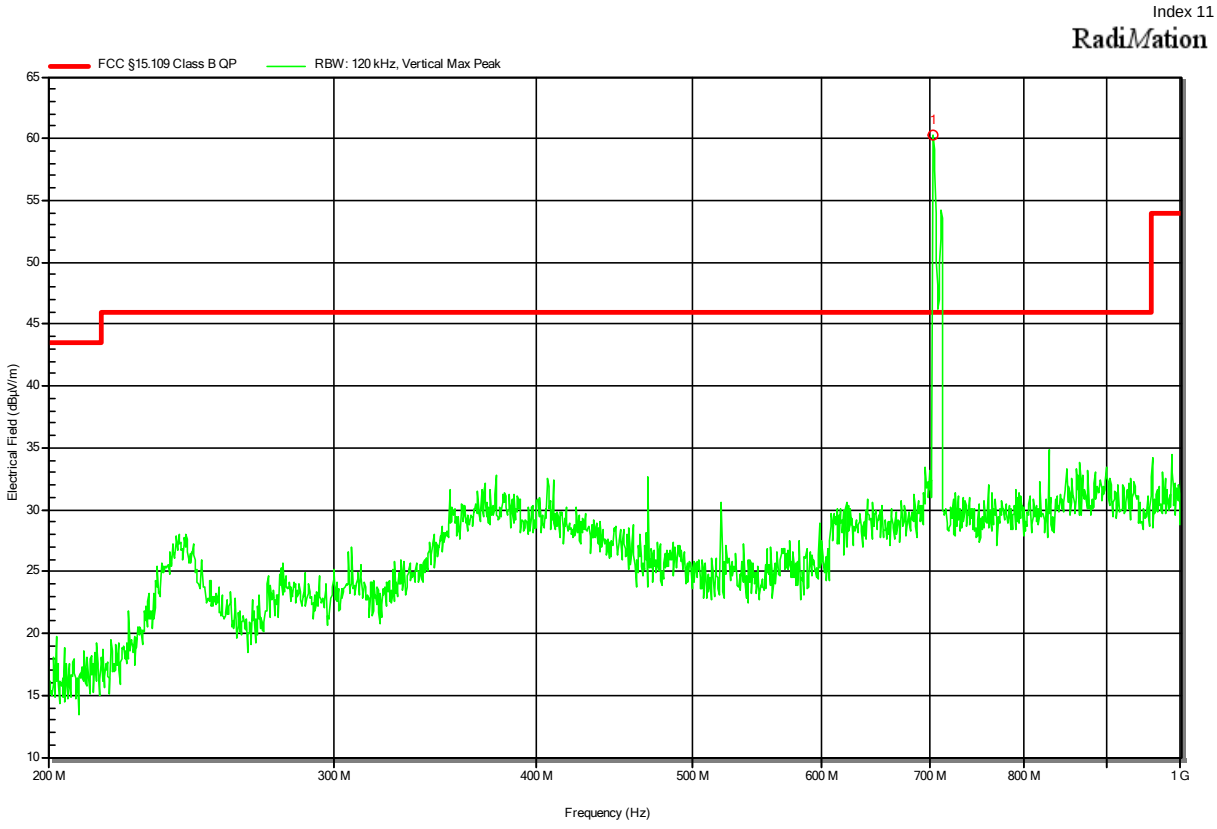
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement Distance:	3m
Operational Mode:	2
EUT Configuration:	1
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	102.711 MHz	31.77 dBµV/m	43.52 dBµV/m	-11.75 dB	Pass	180 degrees	2 m
2	120.005 MHz	29.24 dBµV/m	43.52 dBµV/m	-14.28 dB	Pass	180 degrees	2 m
3	151.97 MHz	33.71 dBµV/m	43.52 dBµV/m	-9.81 dB	Pass	180 degrees	2 m
4	162.232 MHz	32.21 dBµV/m	43.52 dBµV/m	-11.31 dB	Pass	180 degrees	2 m
5	183.978 MHz	25.48 dBµV/m	43.52 dBµV/m	-18.04 dB	Pass	180 degrees	2 m

Radiated emissions according to FCC part 15B

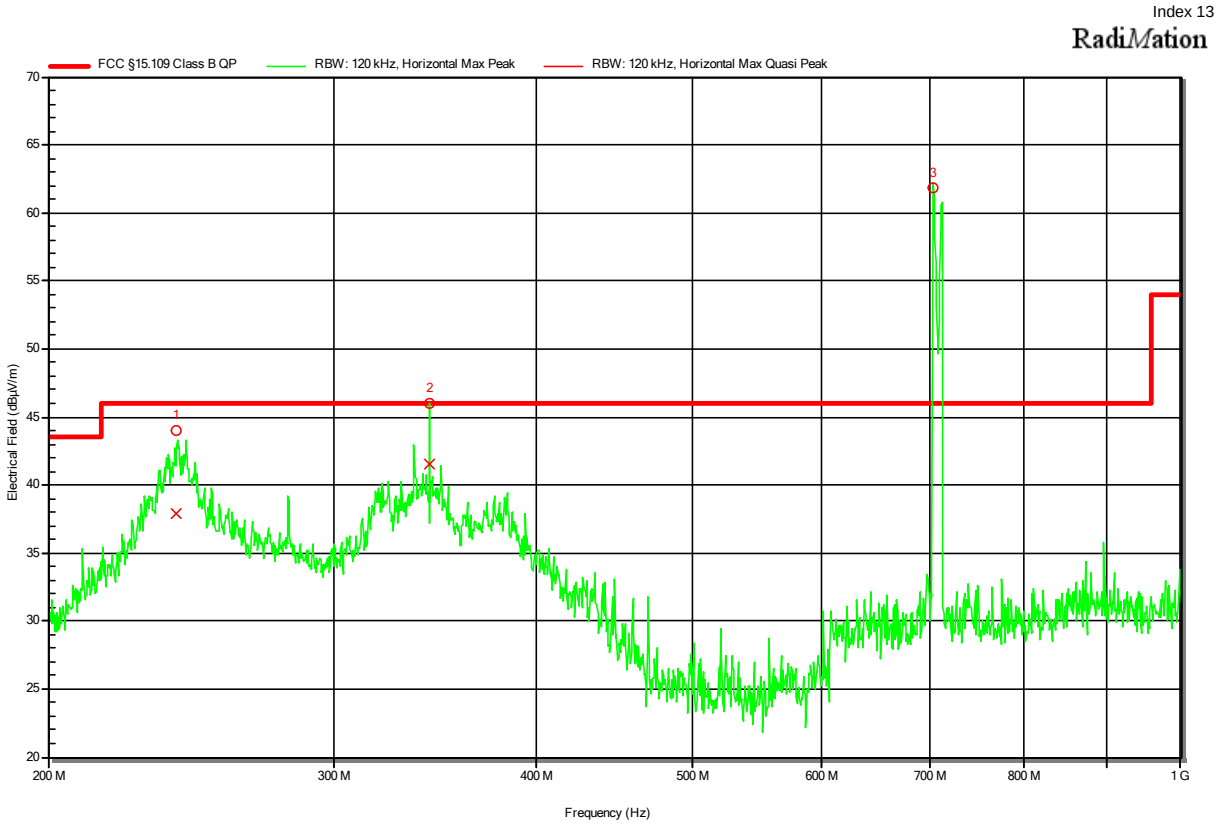
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 23 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement Distance:	3m
Operational Mode:	2
EUT Configuration:	1
Note 1:	angle 90°, height 1m



Peak Number	Frequency	
1	703.353 MHz	LTE carrier

Radiated emissions according to FCC part 15B

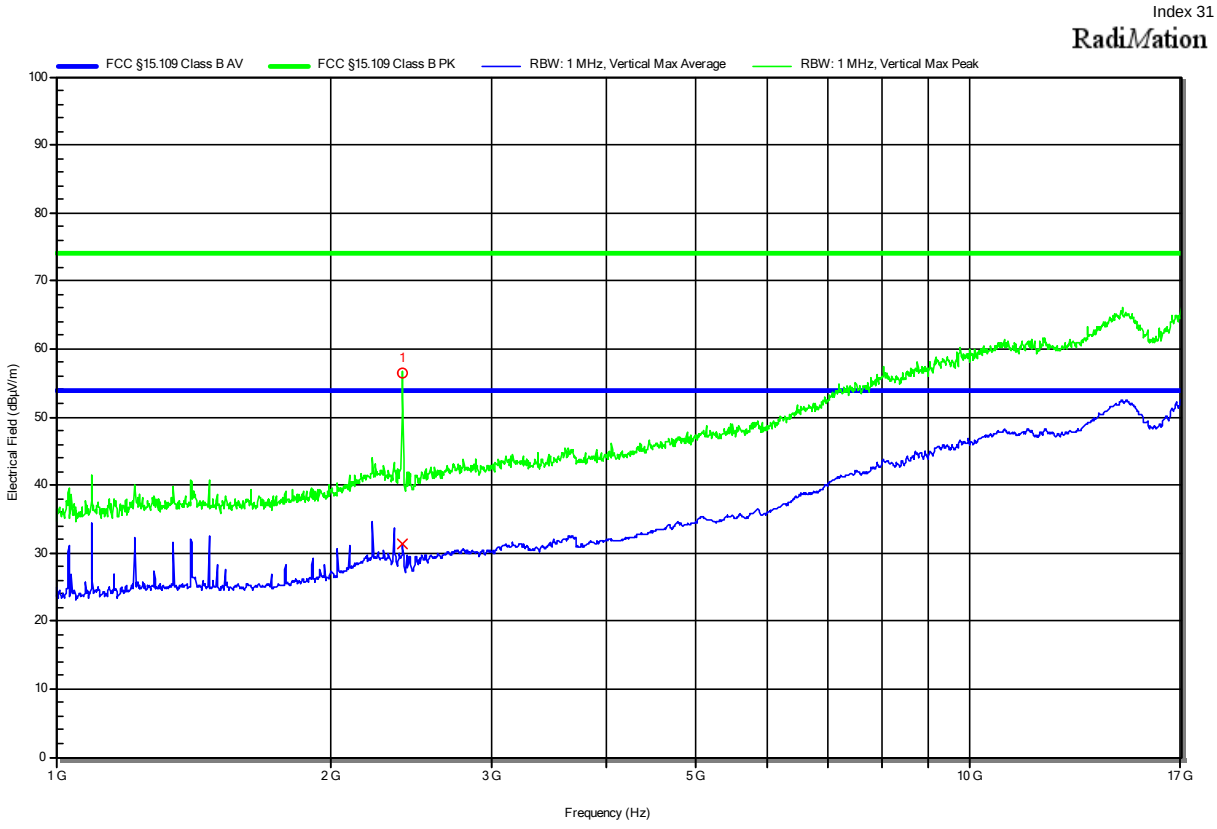
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 23 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement Distance:	3m
Operational Mode:	2
EUT Configuration:	1
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	240.201 MHz	37.85 dBµV/m	46.02 dBµV/m	-8.17 dB	Pass	70 degrees	1 m
2	343.752 MHz	41.52 dBµV/m	46.02 dBµV/m	-4.5 dB	Pass	70 degrees	1 m
3	703.353 MHz	LTE carrier				70 degrees	1 m

Radiated emissions according to FCC part 15B

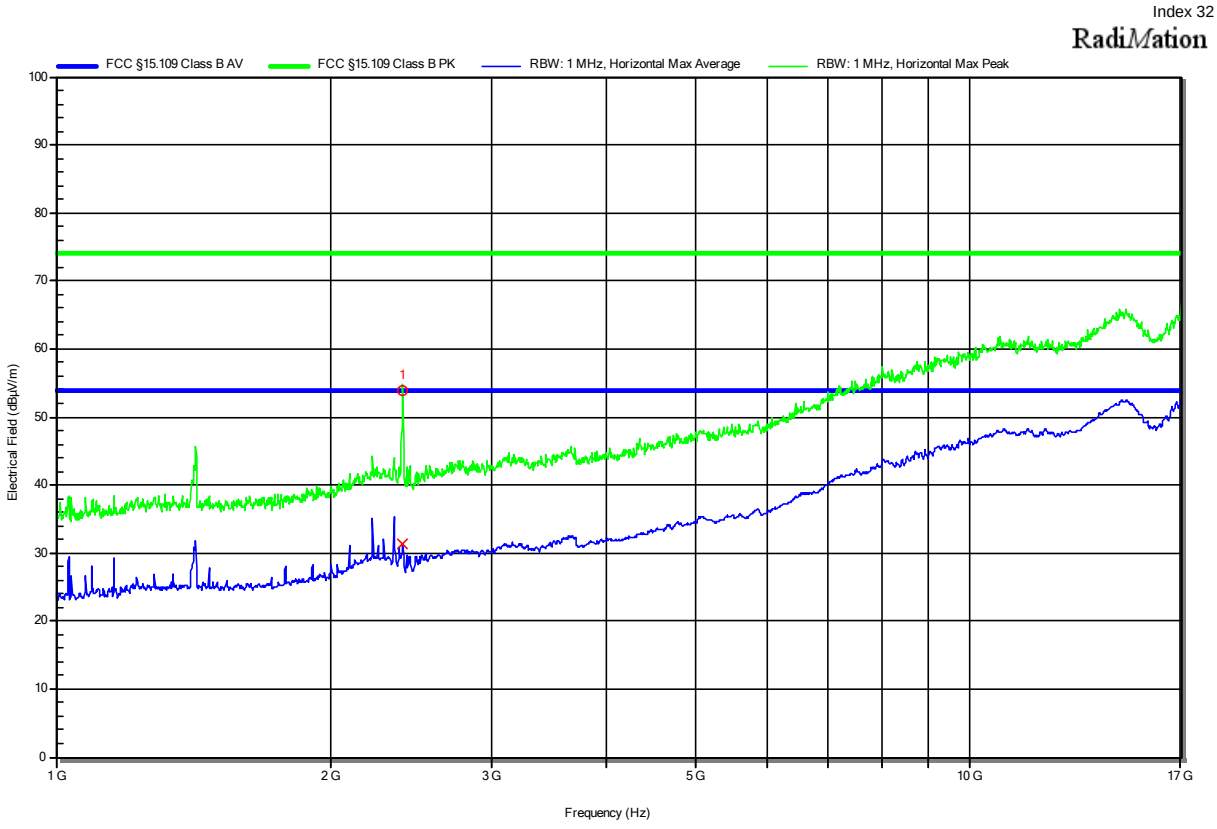
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-13
Operating Conditions:	ambient temperature: 23 °Celsius power input: 14.8VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement Distance:	3m
Operational Mode:	2
EUT Configuration:	1
Note 1:	Notchfilter for 2.4GHz used



Peak Number	Frequency		Angle	Height
1	2.392 GHz	WLAN carrier	0 degrees	1 m

Radiated emissions according to FCC part 15B

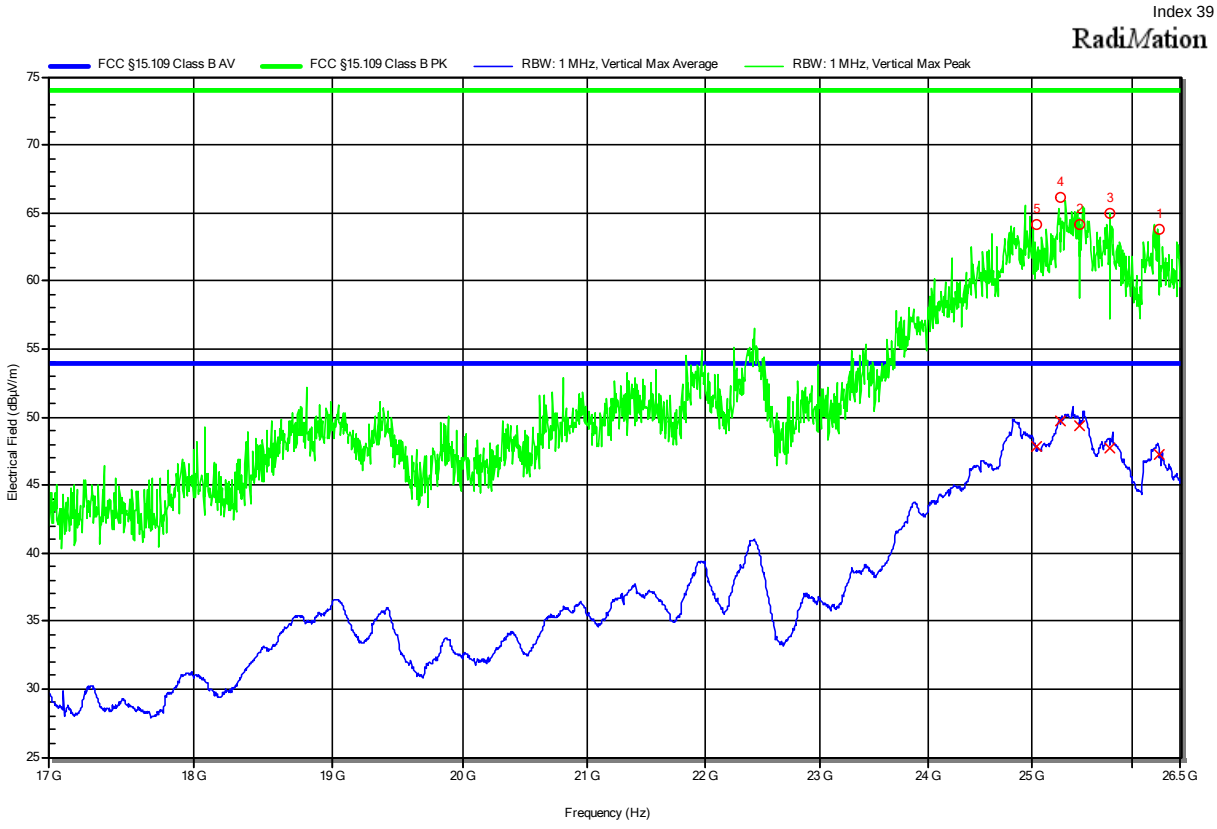
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-13
Operating Conditions:	ambient temperature: 23 °Celsius power input: 14.8VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement Distance:	3m
Operational Mode:	2
EUT Configuration:	1
Note 1:	Notchfilter for 2.4GHz used



Peak Number	Frequency		Angle	Height
1	2.394 GHz	WLAN carrier	0 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-14
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Amplifier Research AT4560, Vertical
Measurement Distance:	3m
Operational Mode:	2
EUT Configuration:	1
Note 1:	

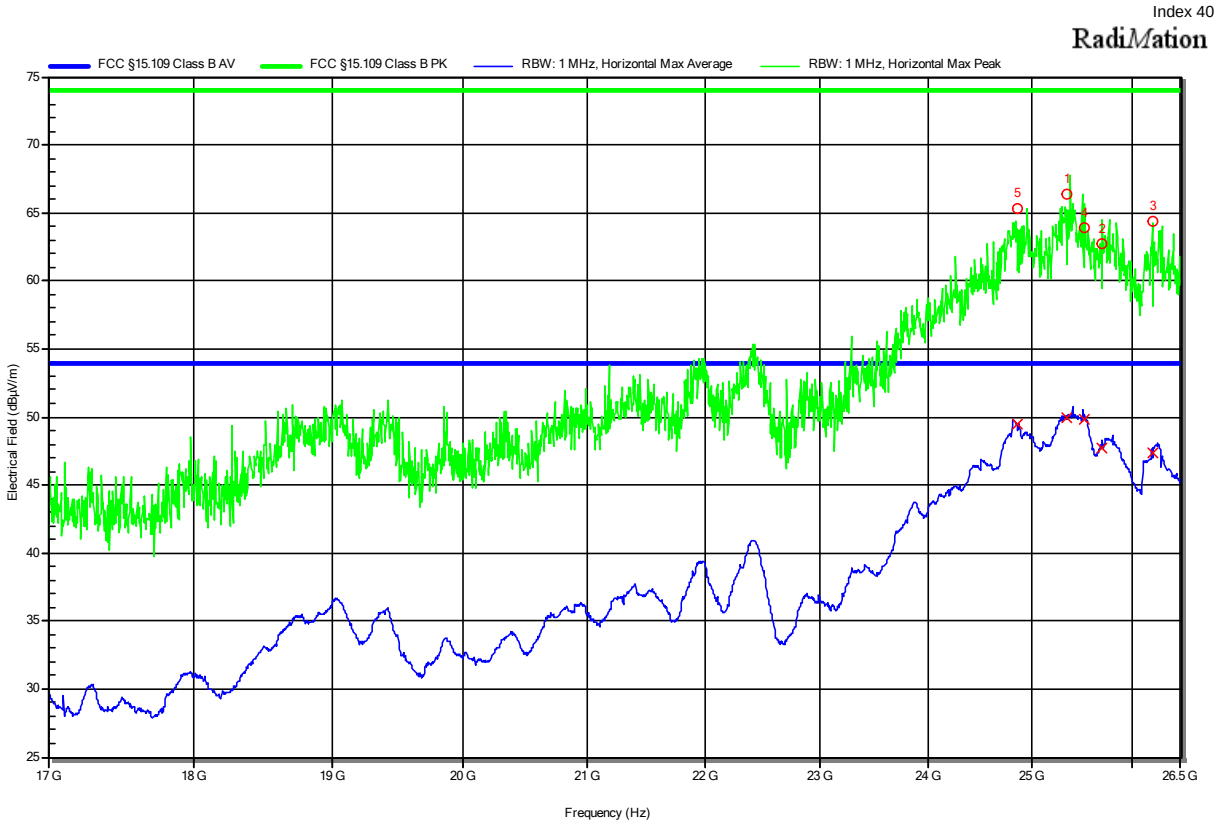


Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	26.284 GHz	63.76 dBµV/m	73.98 dBµV/m	-10.22 dB	Pass	0 degrees	1 m
2	25.472 GHz	64.15 dBµV/m	73.98 dBµV/m	-9.83 dB	Pass	0 degrees	1 m
3	25.773 GHz	64.96 dBµV/m	73.98 dBµV/m	-9.02 dB	Pass	0 degrees	1 m
4	25.277 GHz	66.12 dBµV/m	73.98 dBµV/m	-7.86 dB	Pass	0 degrees	1 m
5	25.041 GHz	64.09 dBµV/m	73.98 dBµV/m	-9.89 dB	Pass	0 degrees	1 m

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	26.284 GHz	47.28 dBµV/m	53.98 dBµV/m	-6.7 dB	Pass	0 degrees	1 m
2	25.472 GHz	49.4 dBµV/m	53.98 dBµV/m	-4.58 dB	Pass	0 degrees	1 m
3	25.773 GHz	47.72 dBµV/m	53.98 dBµV/m	-6.26 dB	Pass	0 degrees	1 m
4	25.277 GHz	49.75 dBµV/m	53.98 dBµV/m	-4.23 dB	Pass	0 degrees	1 m
5	25.041 GHz	47.81 dBµV/m	53.98 dBµV/m	-6.17 dB	Pass	0 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-14
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Amplifier Research AT4560, Horizontal
Measurement Distance:	3m
Operational Mode:	2
EUT Configuration:	1
Note 1:	

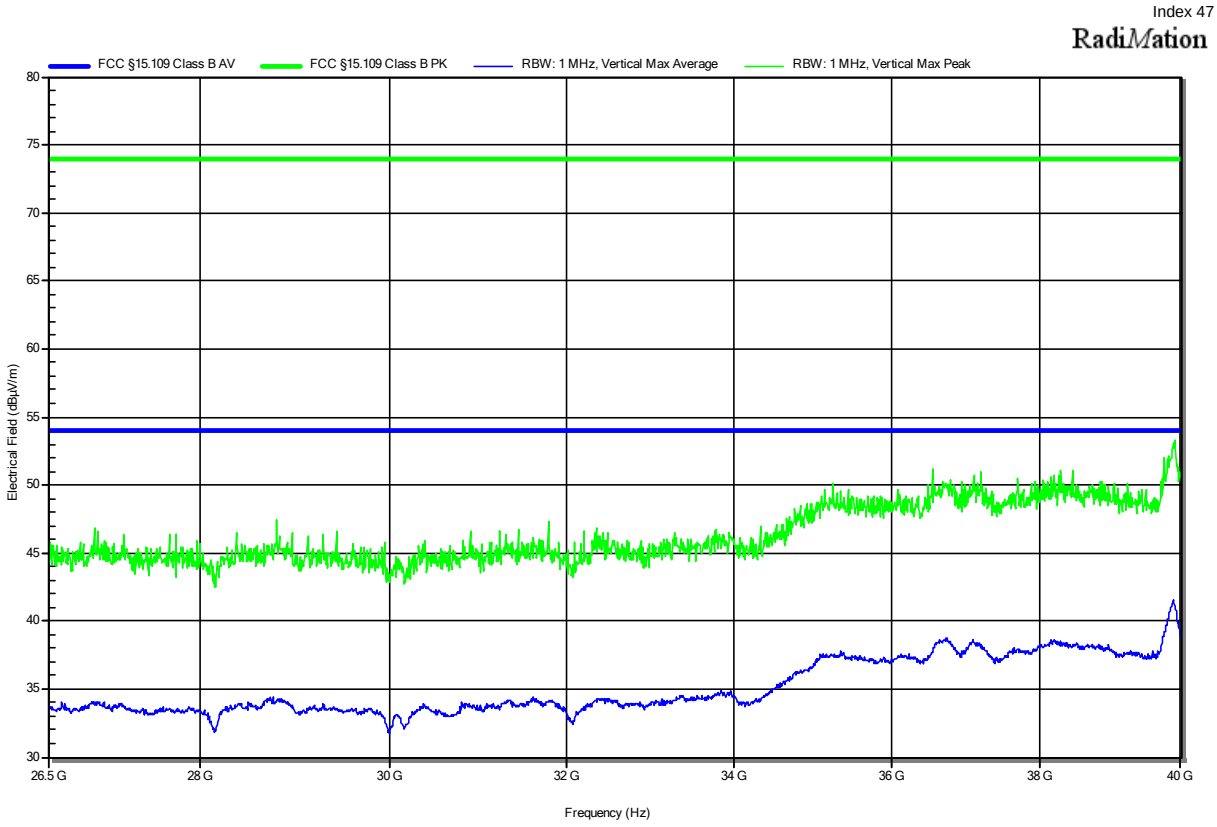


Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	25.339 GHz	66.4 dBµV/m	73.98 dBµV/m	-7.58 dB	Pass	0 degrees	1 m
2	25.69 GHz	62.7 dBµV/m	73.98 dBµV/m	-11.28 dB	Pass	0 degrees	1 m
3	26.214 GHz	64.33 dBµV/m	73.98 dBµV/m	-9.65 dB	Pass	0 degrees	1 m
4	25.512 GHz	63.95 dBµV/m	73.98 dBµV/m	-10.03 dB	Pass	0 degrees	1 m
5	24.864 GHz	65.34 dBµV/m	73.98 dBµV/m	-8.64 dB	Pass	0 degrees	1 m

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	25.339 GHz	49.97 dBµV/m	53.98 dBµV/m	-4.01 dB	Pass	0 degrees	1 m
2	25.69 GHz	47.67 dBµV/m	53.98 dBµV/m	-6.31 dB	Pass	0 degrees	1 m
3	26.214 GHz	47.38 dBµV/m	53.98 dBµV/m	-6.6 dB	Pass	0 degrees	1 m
4	25.512 GHz	49.81 dBµV/m	53.98 dBµV/m	-4.17 dB	Pass	0 degrees	1 m
5	24.864 GHz	49.48 dBµV/m	53.98 dBµV/m	-4.5 dB	Pass	0 degrees	1 m

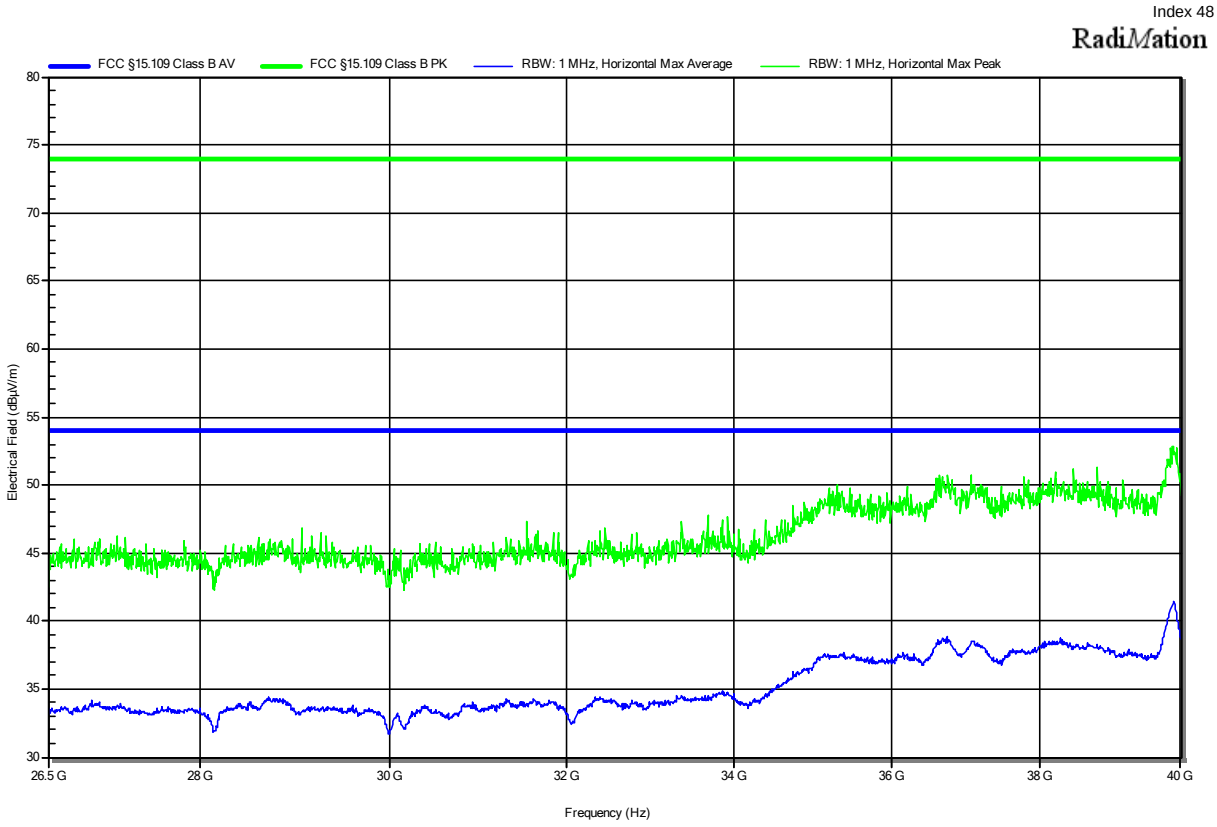
Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-15
Operating Conditions:	ambient temperature: 19 °Celsius power input: 14.8VDC
Antenna:	Horn Antenna 22240-25, Vertical
Measurement Distance:	3m
Operational Mode:	2
EUT Configuration:	1
Note 1:	angle 0°, height 1m



Radiated emissions according to FCC part 15B

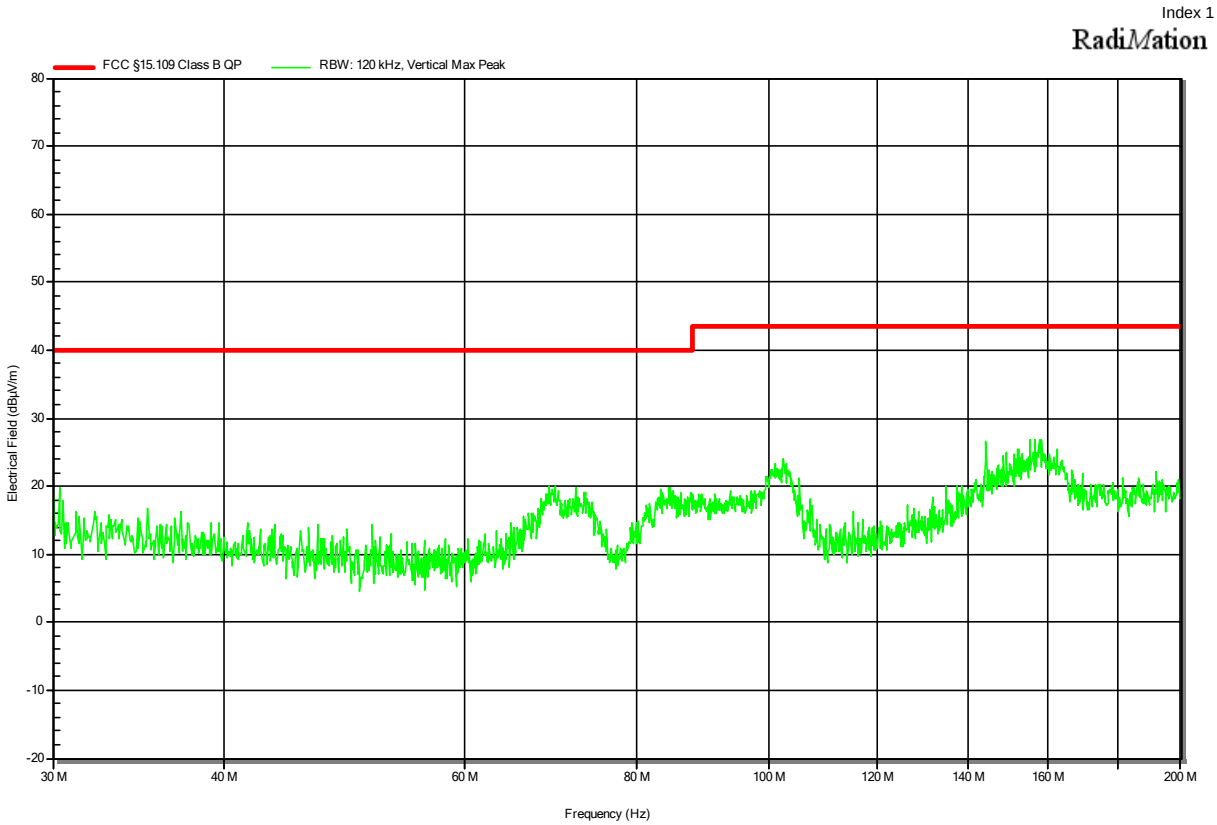
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-15
Operating Conditions:	ambient temperature: 19 °Celsius power input: 14.8VDC
Antenna:	Horn Antenna 22240-25, Horizontal
Measurement Distance:	3m
Operational Mode:	2
EUT Configuration:	1
Note 1:	angle 0°, height 1m



2.1.10 Records for Operation Mode 3

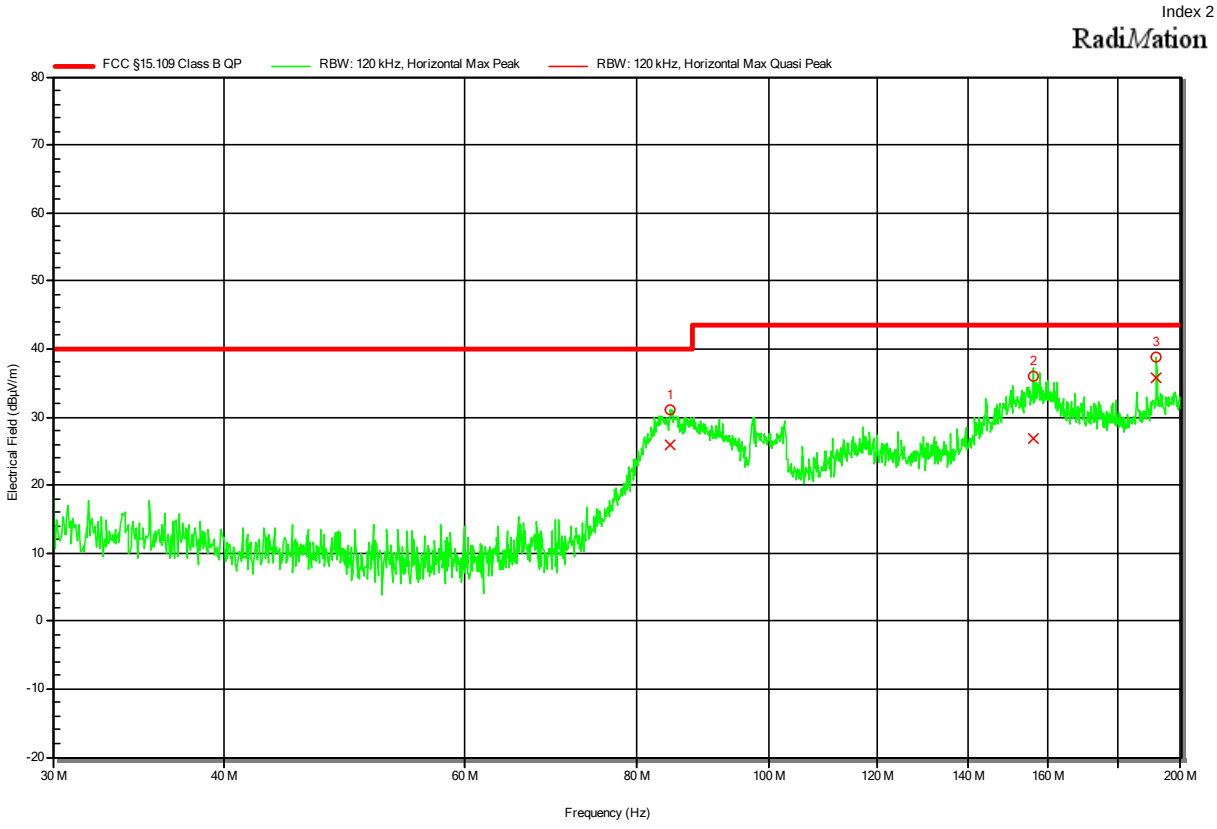
Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 19 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement Distance:	3m
Operational Mode:	3
EUT Configuration:	1
Note 1:	angle 45°, height 1m



Radiated emissions according to FCC part 15B

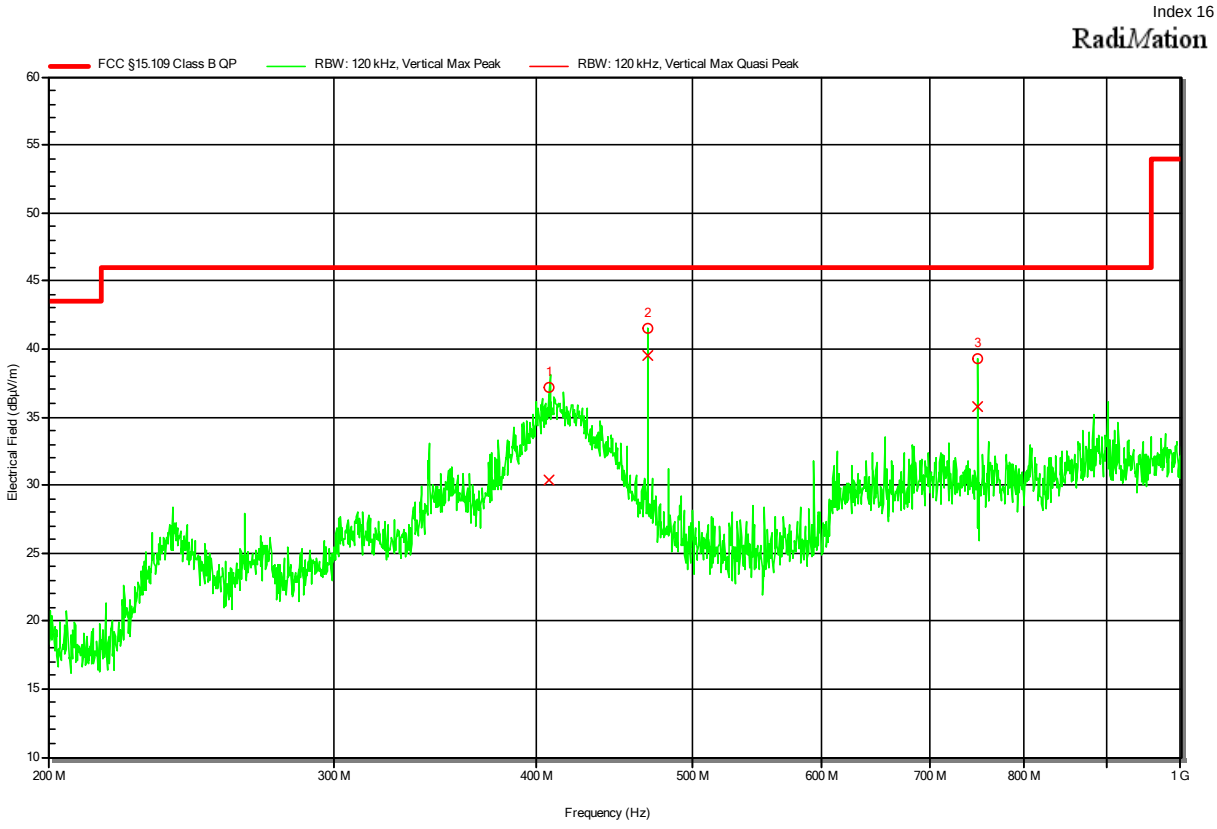
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 19 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement Distance:	3m
Operational Mode:	3
EUT Configuration:	1
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	84.846 MHz	25.98 dBµV/m	40 dBµV/m	-14.02 dB	Pass	35 degrees	1 m
2	155.901 MHz	26.89 dBµV/m	43.52 dBµV/m	-16.64 dB	Pass	35 degrees	1 m
3	192.007 MHz	35.81 dBµV/m	43.52 dBµV/m	-7.72 dB	Pass	35 degrees	1 m

Radiated emissions according to FCC part 15B

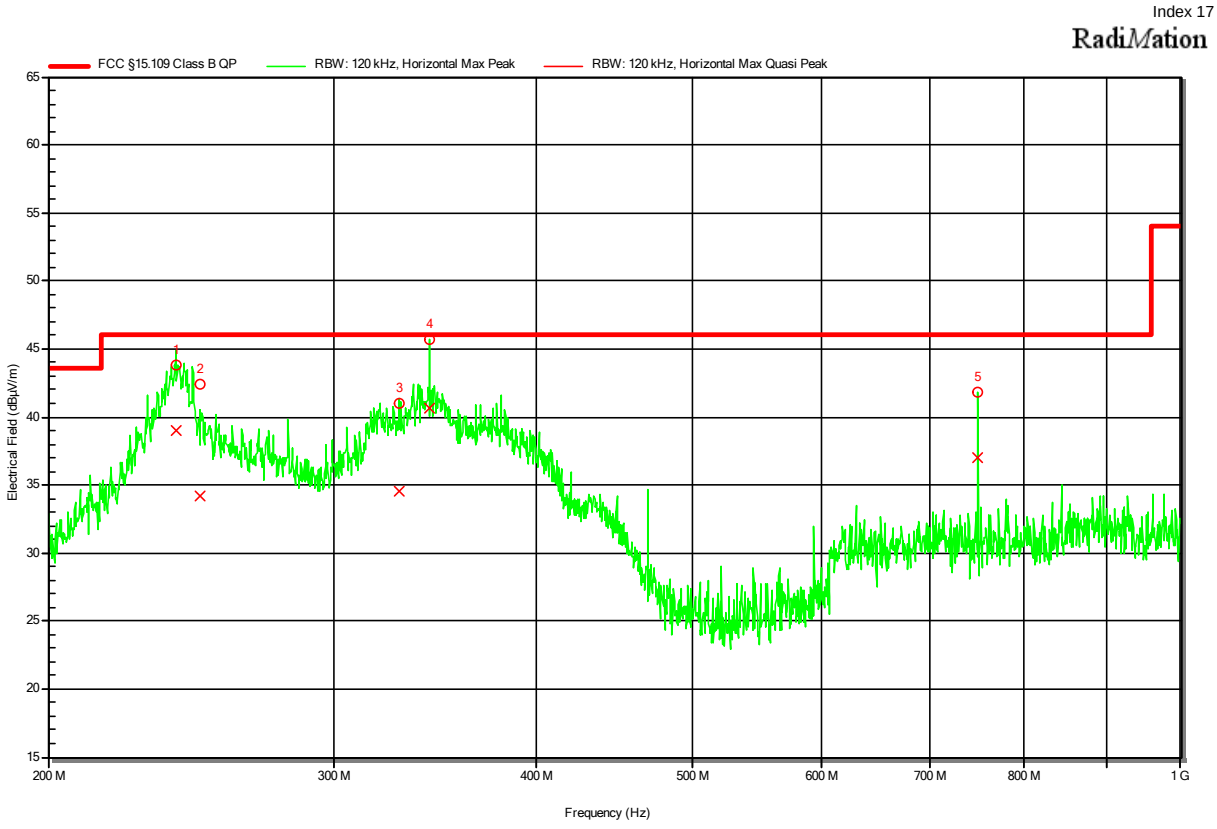
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement Distance:	3m
Operational Mode:	3
EUT Configuration:	1
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	407.965 MHz	30.35 dBµV/m	46.02 dBµV/m	-15.67 dB	Pass	180 degrees	2.1 m
2	468.759 MHz	39.46 dBµV/m	46.02 dBµV/m	-6.56 dB	Pass	180 degrees	2.1 m
3	749.998 MHz	35.77 dBµV/m	46.02 dBµV/m	-10.26 dB	Pass	180 degrees	2.1 m

Radiated emissions according to FCC part 15B

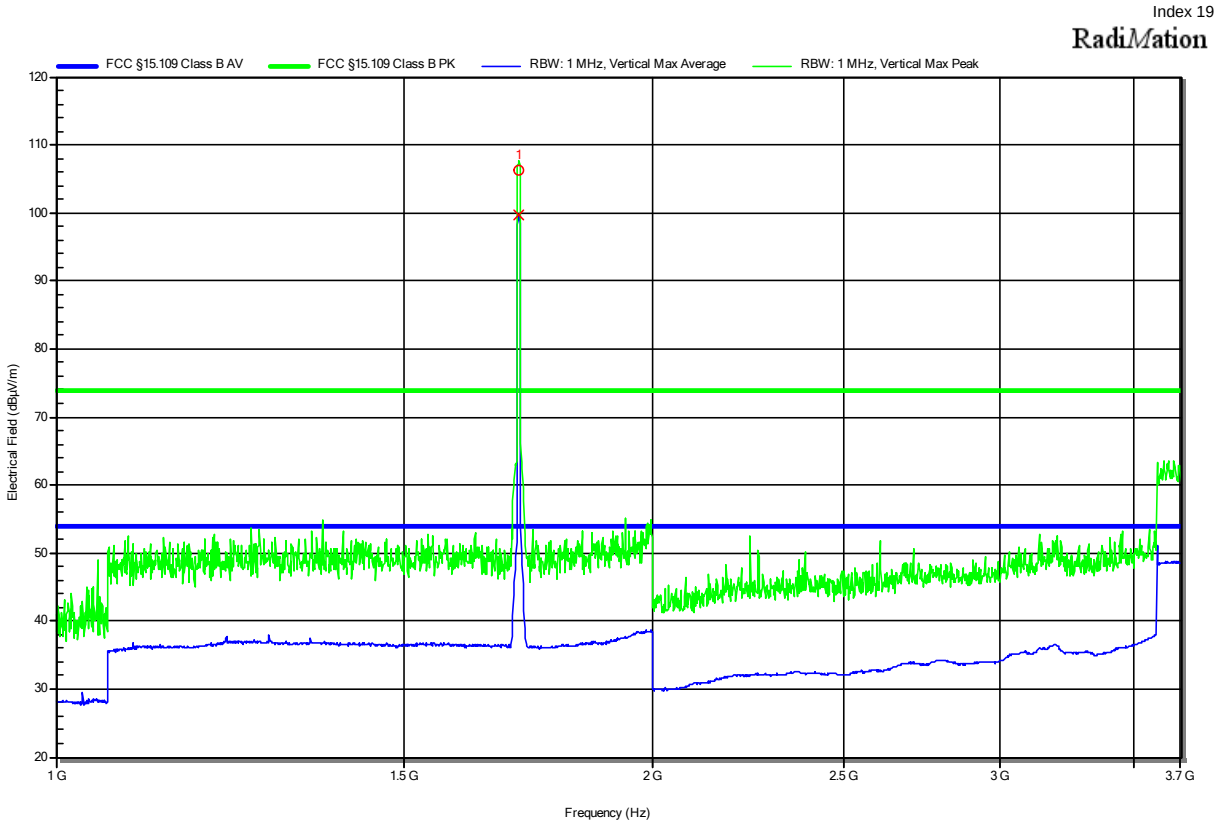
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 22 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement Distance:	3m
Operational Mode:	3
EUT Configuration:	1
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	239.721 MHz	39.04 dBµV/m	46.02 dBµV/m	-6.98 dB	Pass	60 degrees	1 m
2	248.541 MHz	34.16 dBµV/m	46.02 dBµV/m	-11.86 dB	Pass	60 degrees	1 m
3	329.543 MHz	34.58 dBµV/m	46.02 dBµV/m	-11.44 dB	Pass	60 degrees	1 m
4	343.776 MHz	40.7 dBµV/m	46.02 dBµV/m	-5.32 dB	Pass	60 degrees	1 m
5	750.01 MHz	37.06 dBµV/m	46.02 dBµV/m	-8.96 dB	Pass	60 degrees	1 m

Radiated emissions according to FCC part 15B

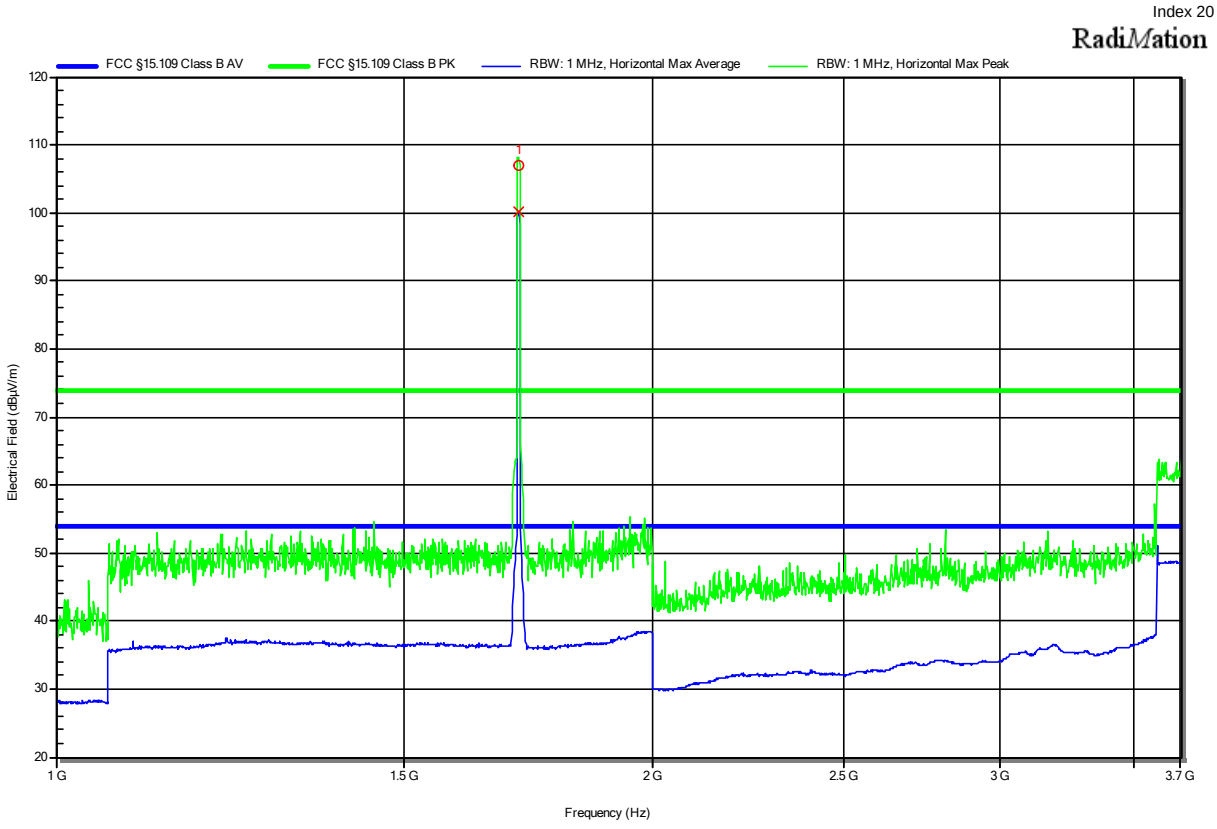
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-13
Operating Conditions:	ambient temperature: 20 °Celsius power input: 14.8VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement Distance:	3m
Operational Mode:	3
EUT Configuration:	1
Note 1:	



Peak Number	Frequency		Angle	Height
1	1.713 GHz	UMTS carrier	0 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-13
Operating Conditions:	ambient temperature: 20 °Celsius power input: 14.8VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement Distance:	3m
Operational Mode:	3
EUT Configuration:	1
Note 1:	



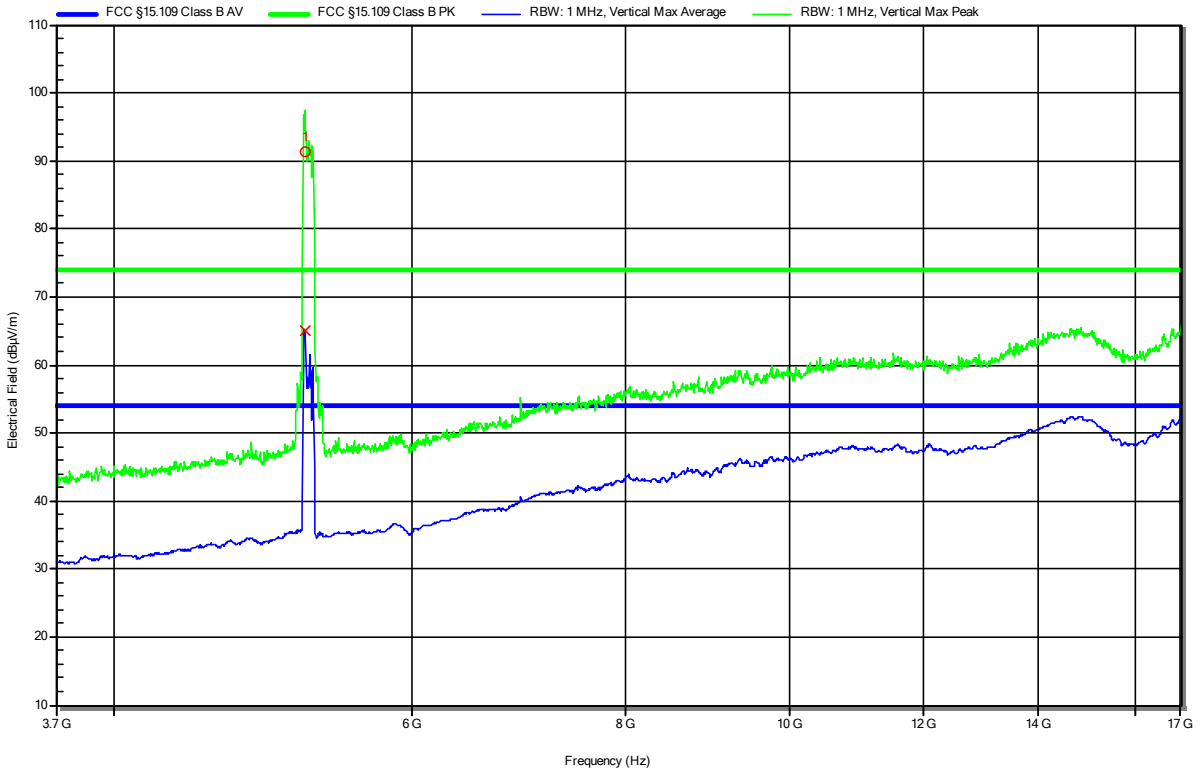
Peak Number	Frequency		Angle	Height
1	1.713 GHz	UMTS carrier	0 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-13
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement Distance:	3m
Operational Mode:	3
EUT Configuration:	1
Note 1:	

Index 21

RadiMation



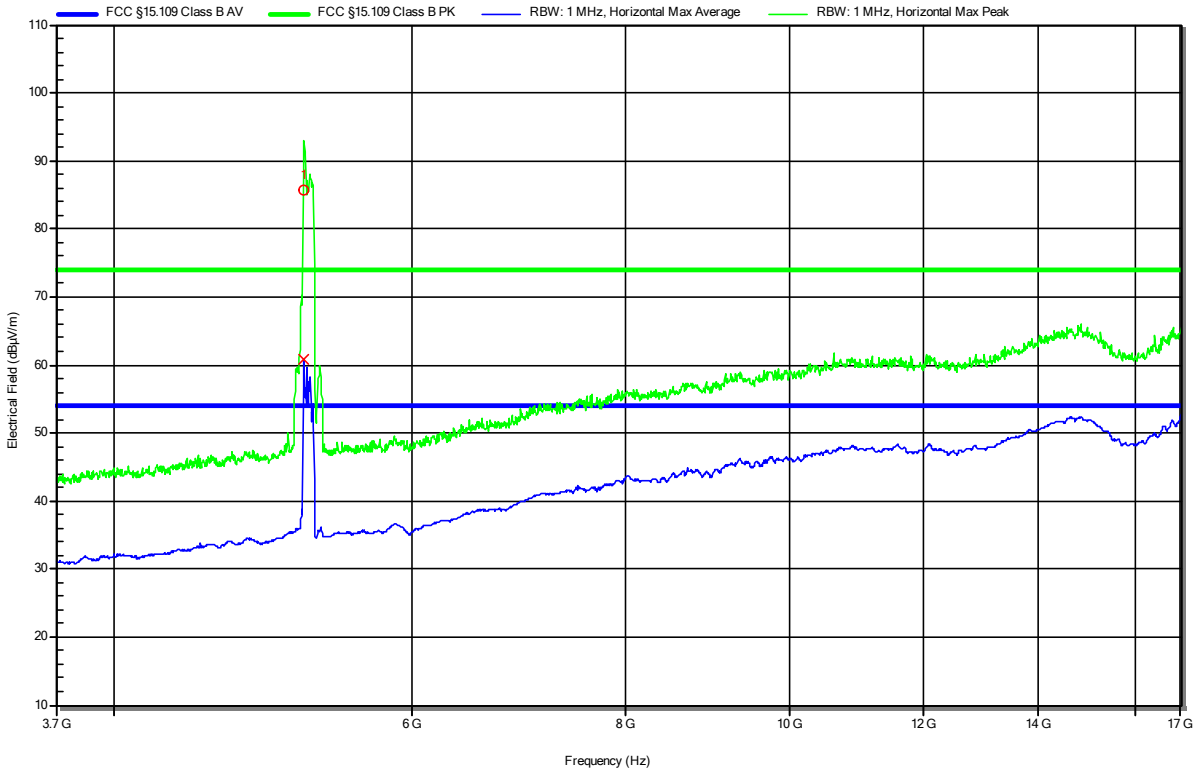
Peak Number	Frequency		Angle	Height
1	5.183 GHz	WLAN carrier	0 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-13
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement Distance:	3m
Operational Mode:	3
EUT Configuration:	1
Note 1:	

Index 22

RadiMation



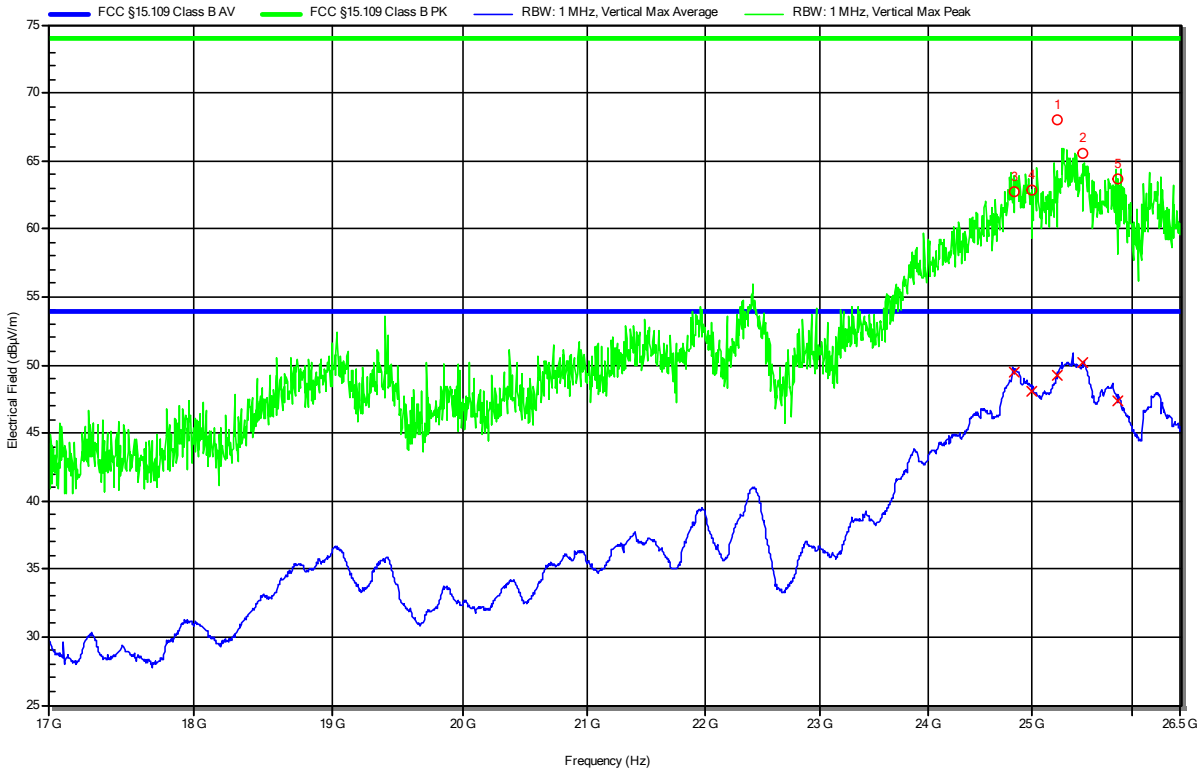
Peak Number	Frequency		Angle	Height
1	5.182 GHz	WLAN carrier	0 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-14
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Amplifier Research AT4560, Vertical
Measurement Distance:	3m
Operational Mode:	3
EUT Configuration:	1
Note 1:	

Index 41

RadiMation

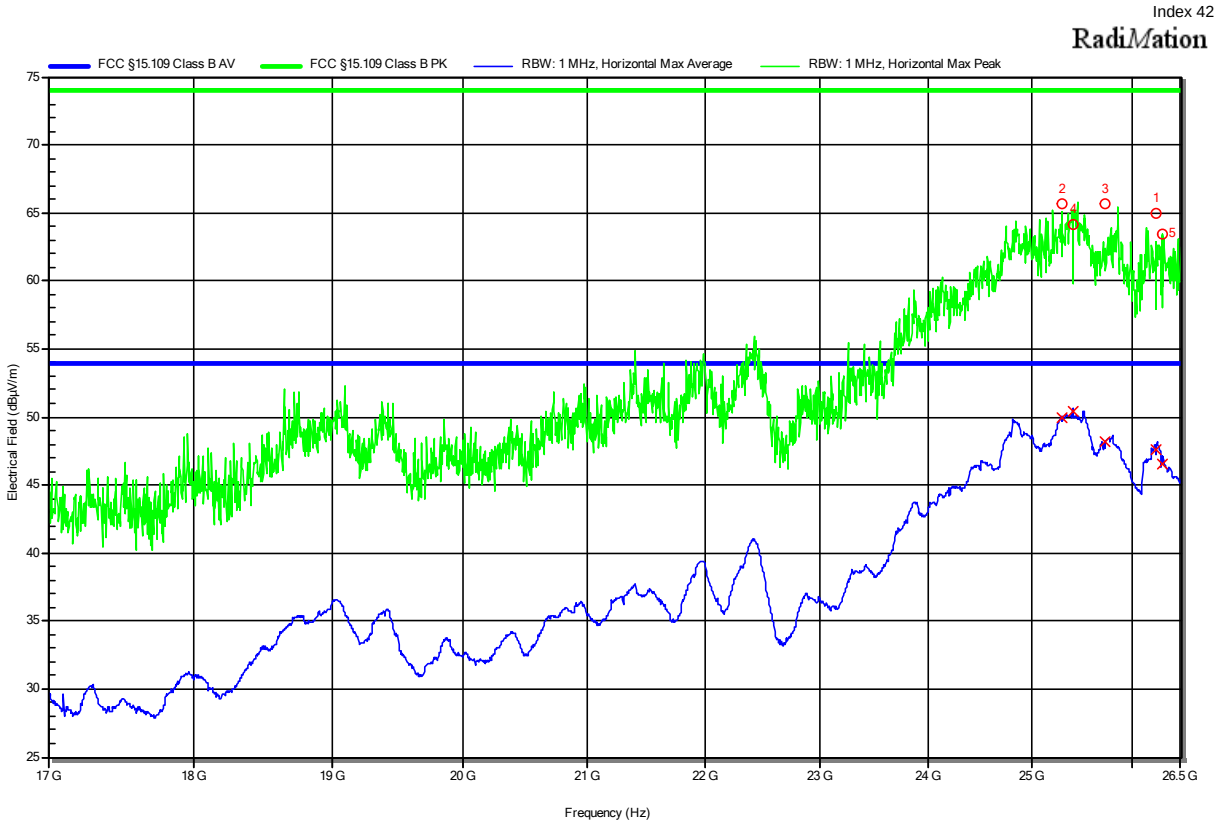


Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	25.253 GHz	68.05 dBµV/m	73.98 dBµV/m	-5.93 dB	Pass	0 degrees	1 m
2	25.507 GHz	65.53 dBµV/m	73.98 dBµV/m	-8.44 dB	Pass	0 degrees	1 m
3	24.819 GHz	62.74 dBµV/m	73.98 dBµV/m	-11.23 dB	Pass	0 degrees	1 m
4	24.995 GHz	62.79 dBµV/m	73.98 dBµV/m	-11.18 dB	Pass	0 degrees	1 m
5	25.848 GHz	63.71 dBµV/m	73.98 dBµV/m	-10.27 dB	Pass	0 degrees	1 m

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	25.253 GHz	49.29 dBµV/m	53.98 dBµV/m	-4.69 dB	Pass	0 degrees	1 m
2	25.507 GHz	50.2 dBµV/m	53.98 dBµV/m	-3.77 dB	Pass	0 degrees	1 m
3	24.819 GHz	49.41 dBµV/m	53.98 dBµV/m	-4.56 dB	Pass	0 degrees	1 m
4	24.995 GHz	48.05 dBµV/m	53.98 dBµV/m	-5.92 dB	Pass	0 degrees	1 m
5	25.848 GHz	47.3 dBµV/m	53.98 dBµV/m	-6.68 dB	Pass	0 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-14
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Amplifier Research AT4560, Horizontal
Measurement Distance:	3m
Operational Mode:	3
EUT Configuration:	1
Note 1:	

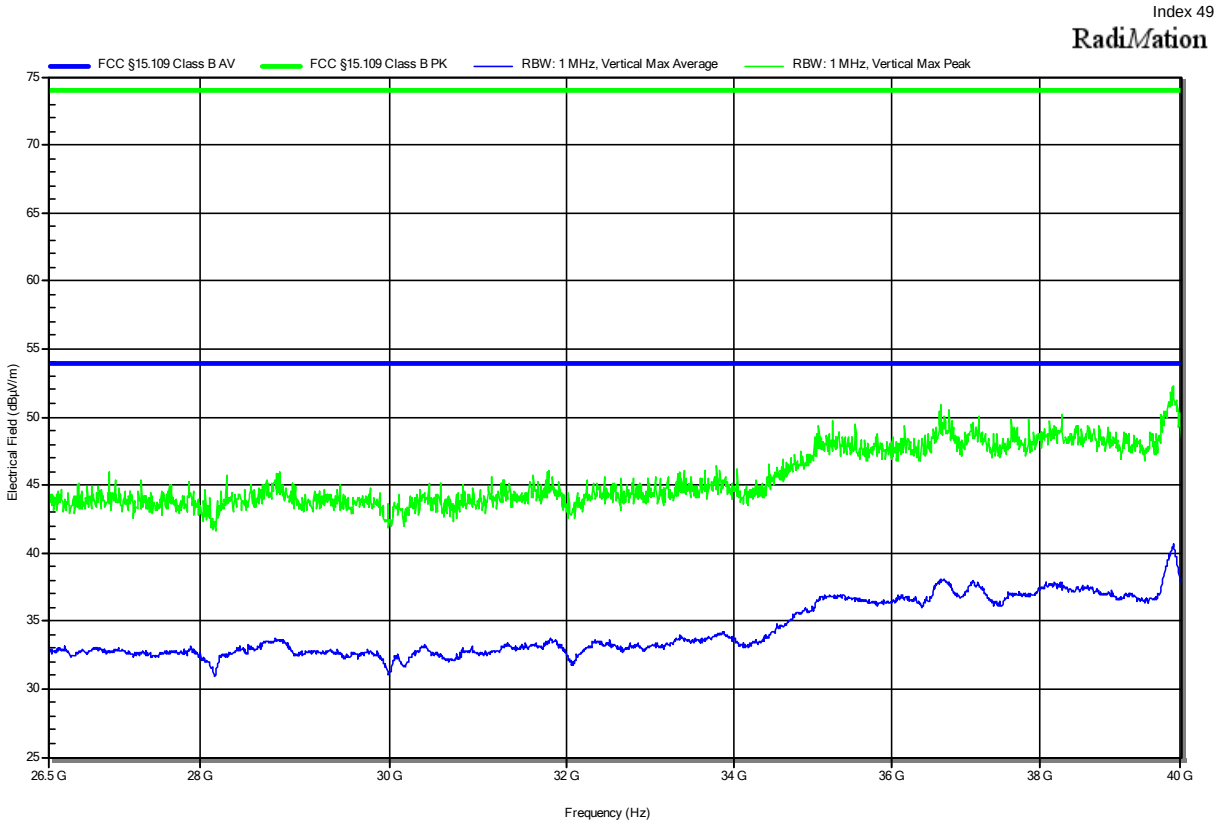


Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	26.245 GHz	64.99 dBµV/m	73.98 dBµV/m	-8.99 dB	Pass	0 degrees	1 m
2	25.295 GHz	65.64 dBµV/m	73.98 dBµV/m	-8.34 dB	Pass	0 degrees	1 m
3	25.731 GHz	65.64 dBµV/m	73.98 dBµV/m	-8.34 dB	Pass	0 degrees	1 m
4	25.401 GHz	64.12 dBµV/m	73.98 dBµV/m	-9.86 dB	Pass	0 degrees	1 m
5	26.305 GHz	63.4 dBµV/m	73.98 dBµV/m	-10.58 dB	Pass	0 degrees	1 m

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	26.245 GHz	47.6 dBµV/m	53.98 dBµV/m	-6.38 dB	Pass	0 degrees	1 m
2	25.295 GHz	50 dBµV/m	53.98 dBµV/m	-3.98 dB	Pass	0 degrees	1 m
3	25.731 GHz	48.17 dBµV/m	53.98 dBµV/m	-5.81 dB	Pass	0 degrees	1 m
4	25.401 GHz	50.38 dBµV/m	53.98 dBµV/m	-3.6 dB	Pass	0 degrees	1 m
5	26.305 GHz	46.53 dBµV/m	53.98 dBµV/m	-7.45 dB	Pass	0 degrees	1 m

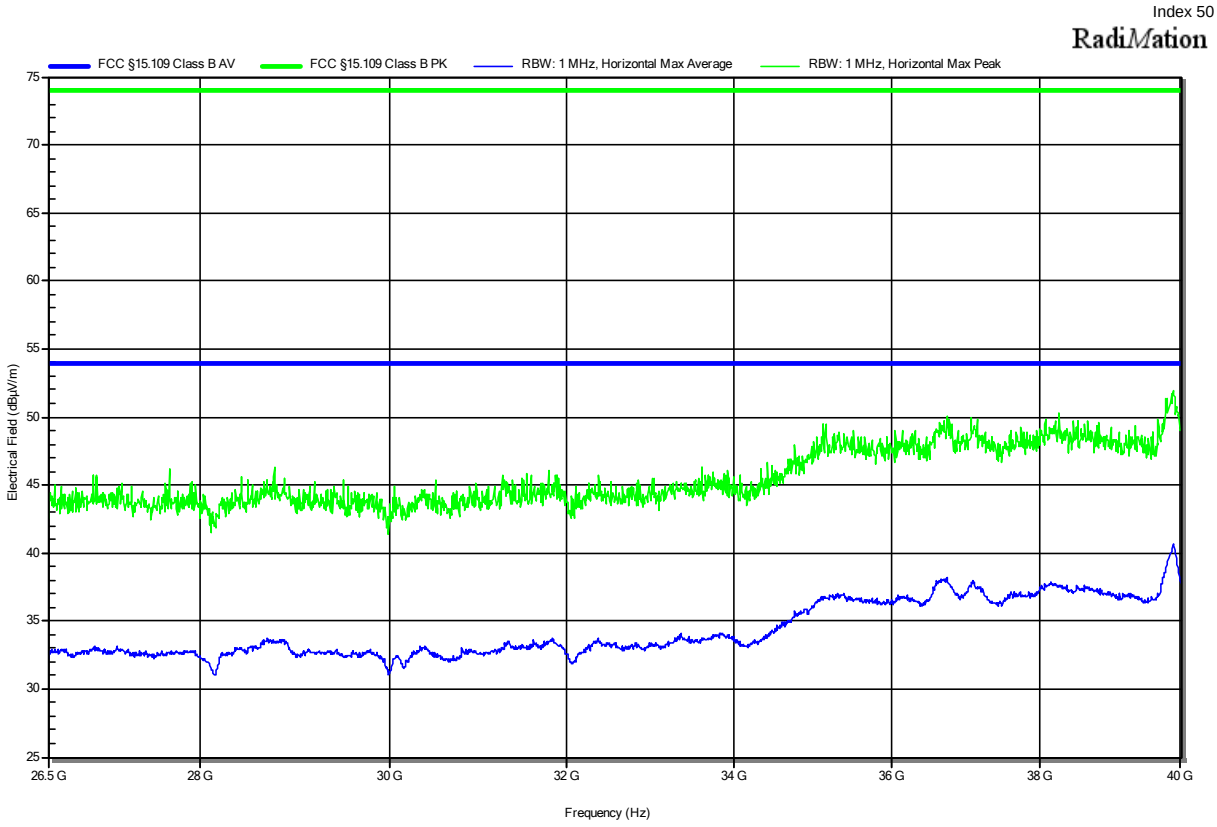
Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-15
Operating Conditions:	ambient temperature: 18 °Celsius power input: 14.8VDC
Antenna:	Horn Antenna 22240-25, Vertical
Measurement Distance:	3m
Operational Mode:	3
EUT Configuration:	1
Note 1:	angle 0°, height 1m



Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-15
Operating Conditions:	ambient temperature: 18 °Celsius power input: 14.8VDC
Antenna:	Horn Antenna 22240-25, Horizontal
Measurement Distance:	3m
Operational Mode:	3
EUT Configuration:	1
Note 1:	angle 0°, height 1m



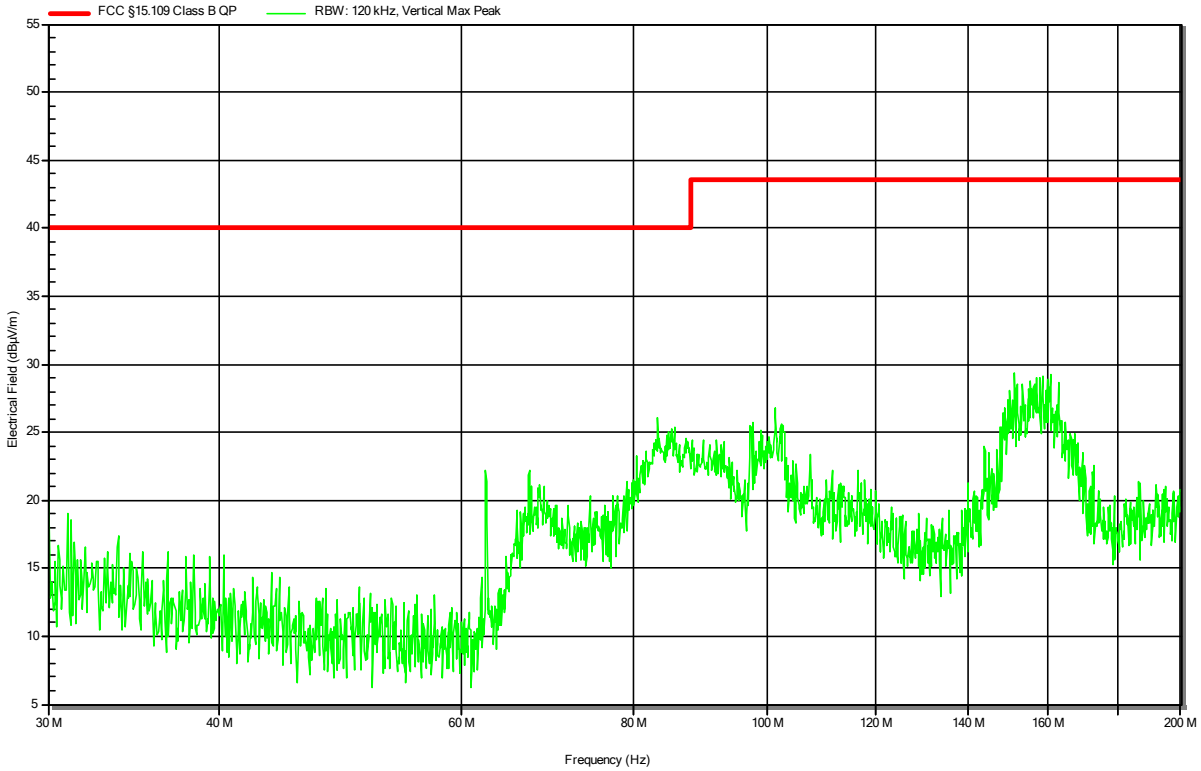
2.1.11 Records for Operation Mode 4

Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 19 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement Distance:	3m
Operational Mode:	4
EUT Configuration:	1
Note 1:	angle 180°, height 2m

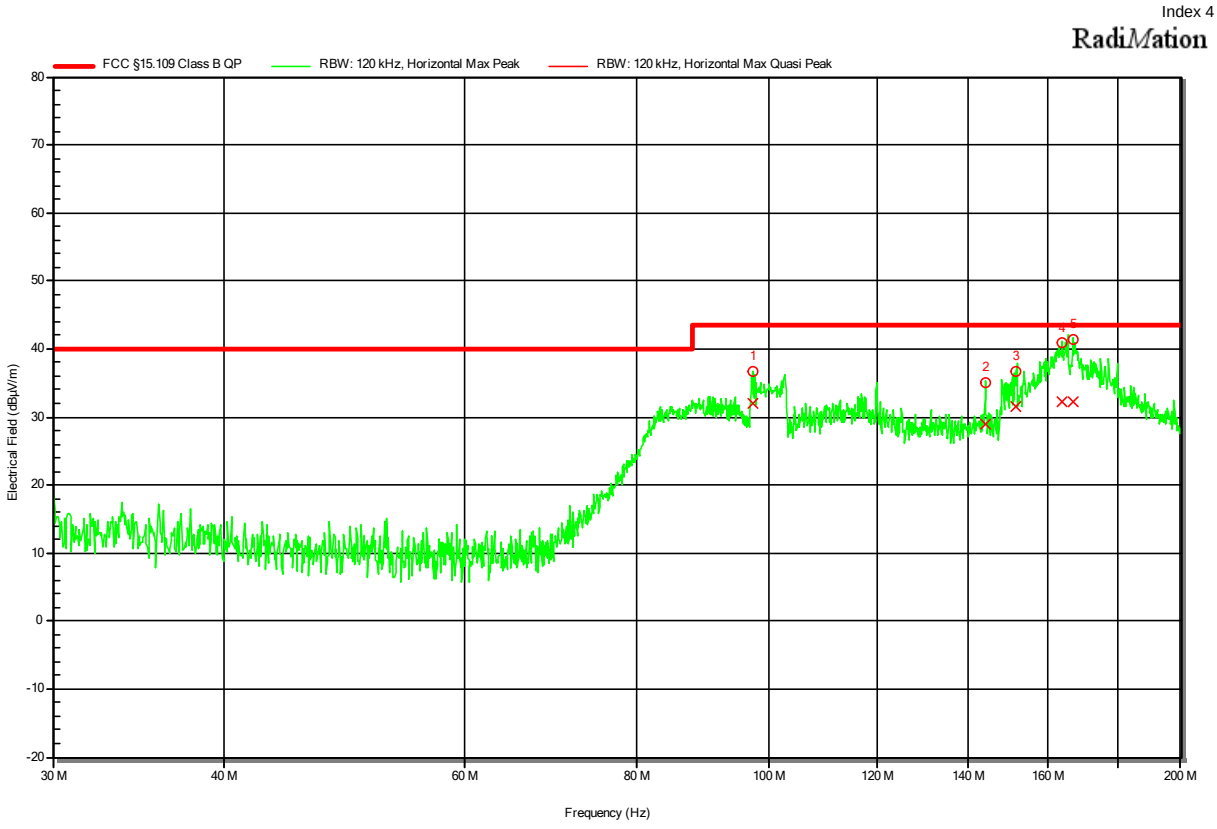
Index 3

RadiMation



Radiated emissions according to FCC part 15B

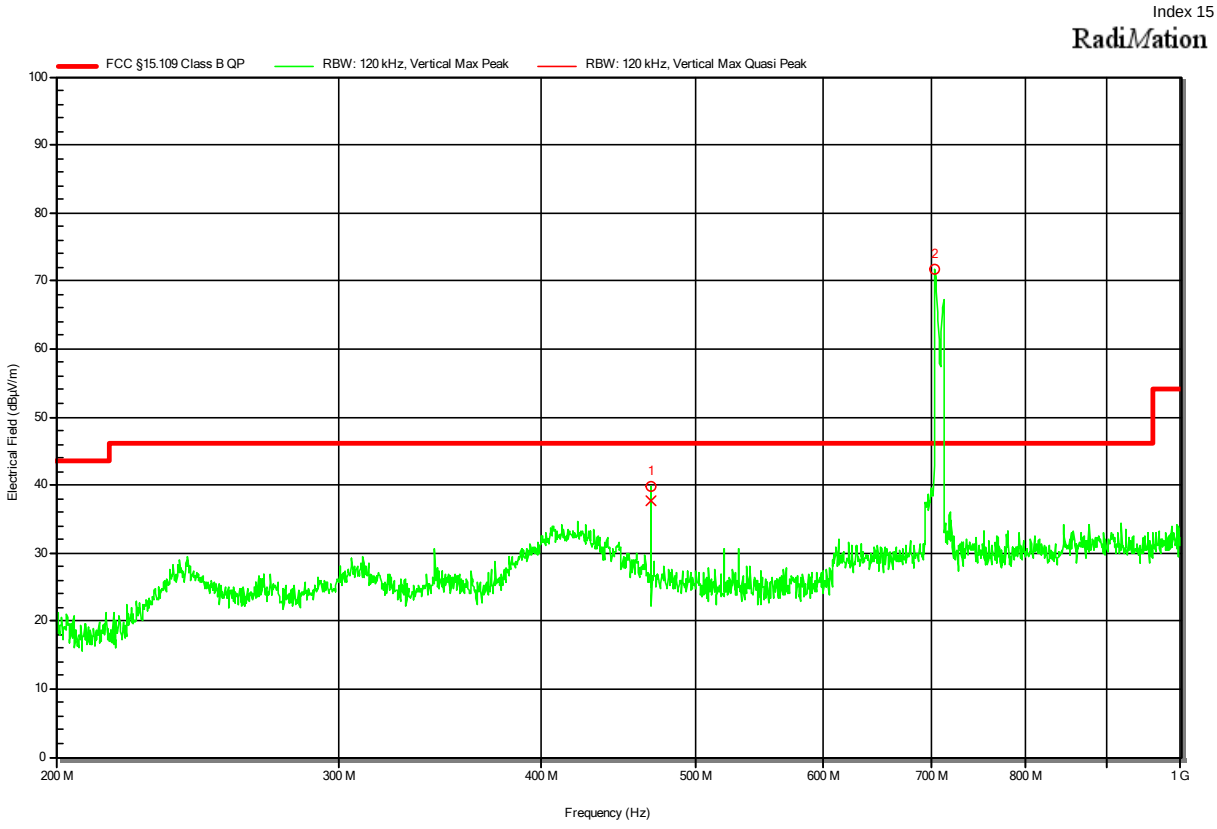
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 20 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement Distance:	3m
Operational Mode:	4
EUT Configuration:	1
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	97.292 MHz	31.92 dBµV/m	43.52 dBµV/m	-11.6 dB	Pass	180 degrees	2 m
2	143.983 MHz	29.01 dBµV/m	43.52 dBµV/m	-14.51 dB	Pass	180 degrees	2 m
3	151.694 MHz	31.5 dBµV/m	43.52 dBµV/m	-12.02 dB	Pass	180 degrees	2 m
4	163.882 MHz	32.34 dBµV/m	43.52 dBµV/m	-11.18 dB	Pass	180 degrees	2 m
5	167.026 MHz	32.28 dBµV/m	43.52 dBµV/m	-11.24 dB	Pass	180 degrees	2 m

Radiated emissions according to FCC part 15B

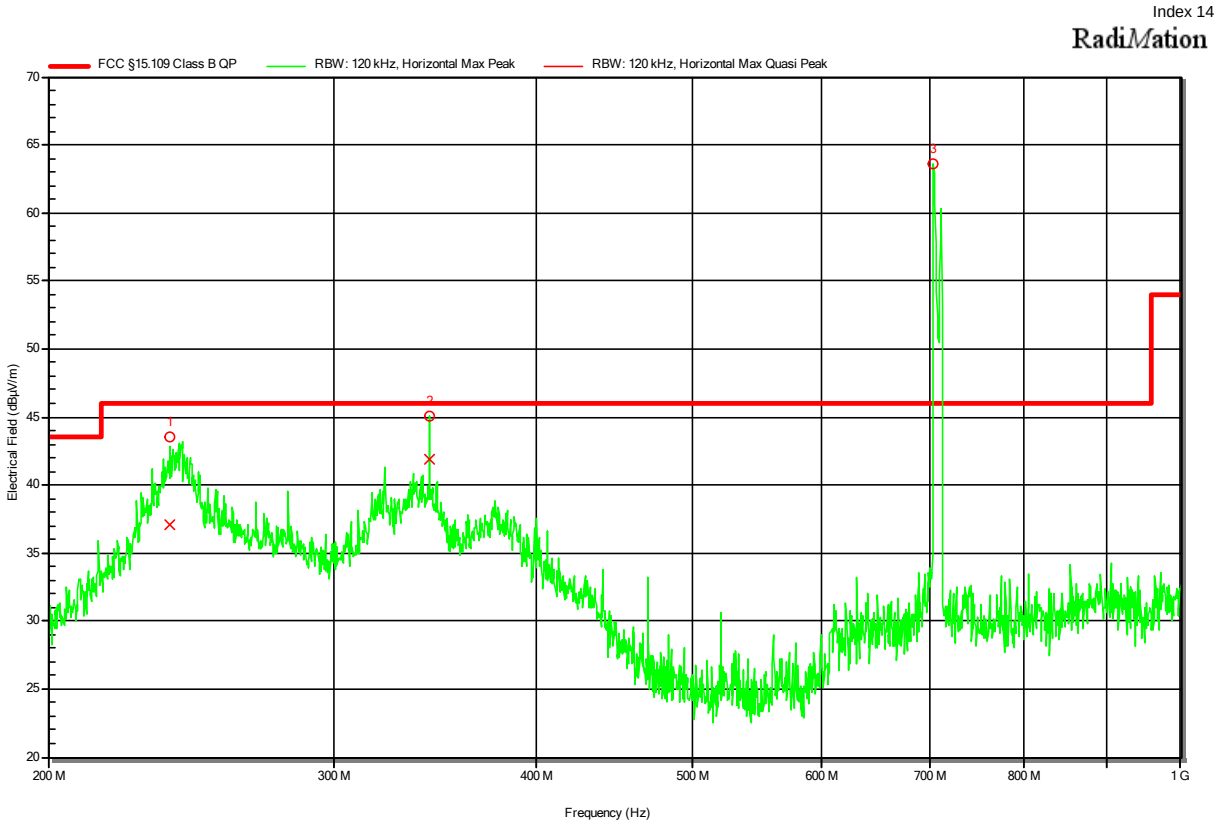
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 22 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement Distance:	3m
Operational Mode:	4
EUT Configuration:	1
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	468.741 MHz	37.66 dBµV/m	46.02 dBµV/m	-8.36 dB	Pass	180 degrees	1.9 m
2	703.353 MHz	LTE carrier				180 degrees	1.9 m

Radiated emissions according to FCC part 15B

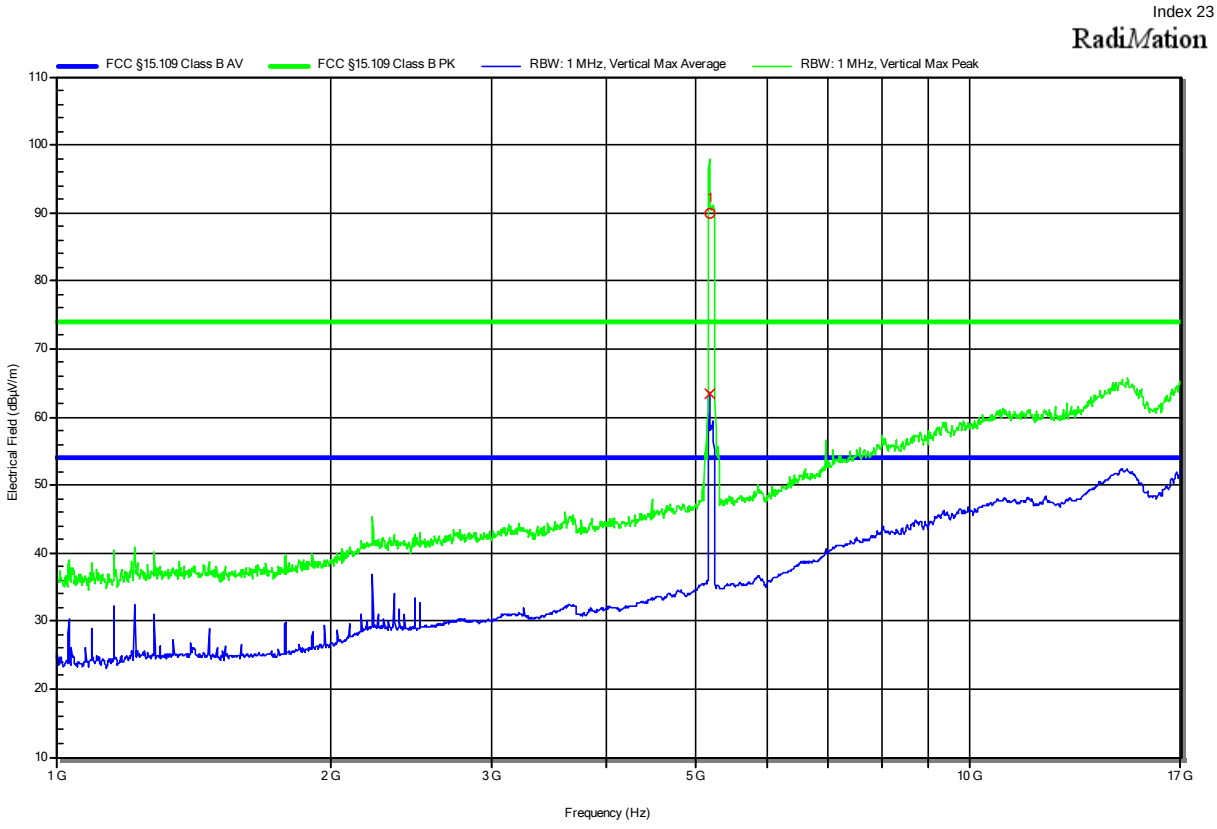
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-12
Operating Conditions:	ambient temperature: 22 °Celsius power input: 14.8VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement Distance:	3m
Operational Mode:	4
EUT Configuration:	1
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	237.801 MHz	37.13 dBµV/m	46.02 dBµV/m	-8.89 dB	Pass	75 degrees	1 m
2	343.746 MHz	41.95 dBµV/m	46.02 dBµV/m	-4.07 dB	Pass	75 degrees	1 m
3	703.353 MHz	LTE carrier				75 degrees	1 m

Radiated emissions according to FCC part 15B

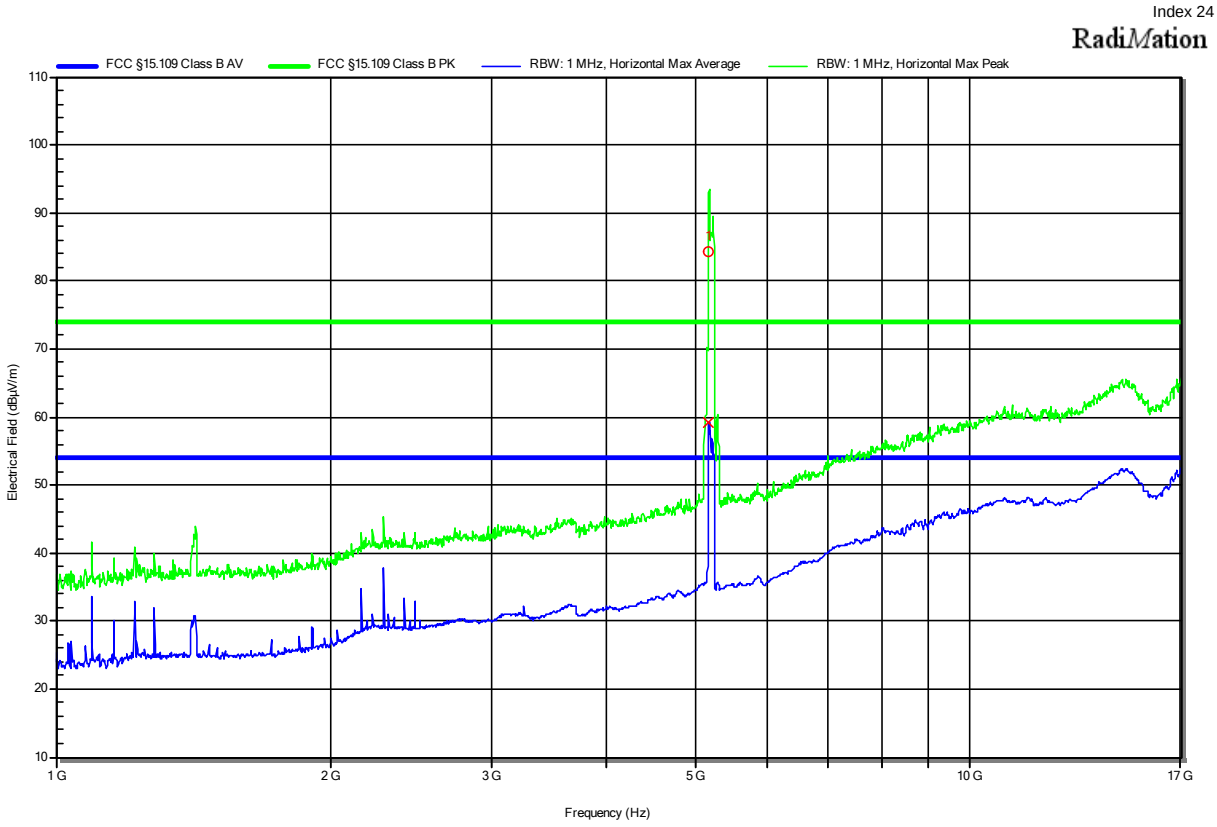
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-13
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement Distance:	3m
Operational Mode:	4
EUT Configuration:	1
Note 1:	



Peak Number	Frequency		Angle	Height
1	5.188 GHz	WLAN carrier	0 degrees	1 m

Radiated emissions according to FCC part 15B

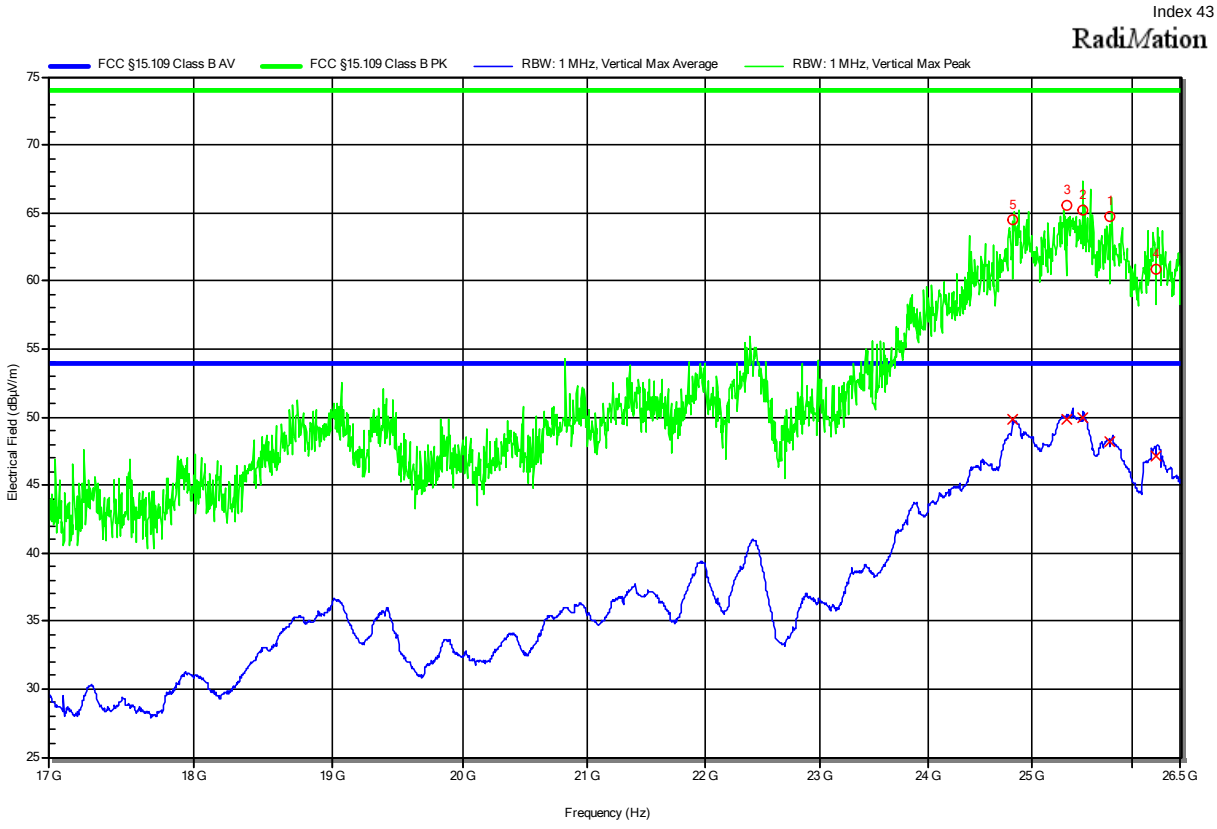
Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-13
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement Distance:	3m
Operational Mode:	4
EUT Configuration:	1
Note 1:	



Peak Number	Frequency		Angle	Height
1	5.178 GHz	WLAN carrier	0 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-14
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Amplifier Research AT4560, Vertical
Measurement Distance:	3m
Operational Mode:	4
EUT Configuration:	1
Note 1:	

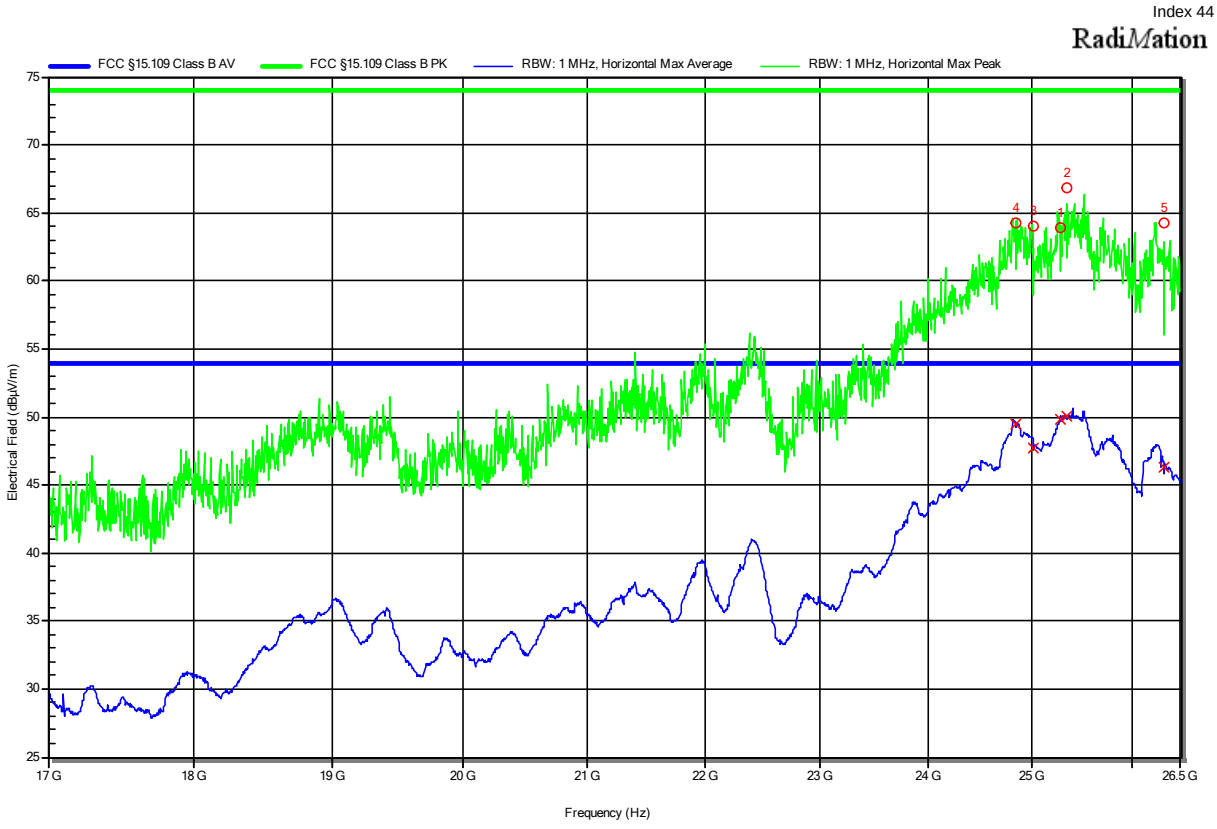


Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	25.777 GHz	64.77 dBµV/m	73.98 dBµV/m	-9.21 dB	Pass	0 degrees	1 m
2	25.505 GHz	65.23 dBµV/m	73.98 dBµV/m	-8.75 dB	Pass	0 degrees	1 m
3	25.337 GHz	65.52 dBµV/m	73.98 dBµV/m	-8.46 dB	Pass	0 degrees	1 m
4	26.239 GHz	60.83 dBµV/m	73.98 dBµV/m	-13.15 dB	Pass	0 degrees	1 m
5	24.808 GHz	64.44 dBµV/m	73.98 dBµV/m	-9.54 dB	Pass	0 degrees	1 m

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	25.777 GHz	48.23 dBµV/m	53.98 dBµV/m	-5.75 dB	Pass	0 degrees	1 m
2	25.505 GHz	50 dBµV/m	53.98 dBµV/m	-3.98 dB	Pass	0 degrees	1 m
3	25.337 GHz	49.81 dBµV/m	53.98 dBµV/m	-4.17 dB	Pass	0 degrees	1 m
4	26.239 GHz	47.08 dBµV/m	53.98 dBµV/m	-6.9 dB	Pass	0 degrees	1 m
5	24.808 GHz	49.78 dBµV/m	53.98 dBµV/m	-4.2 dB	Pass	0 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-14
Operating Conditions:	ambient temperature: 21 °Celsius power input: 14.8VDC
Antenna:	Amplifier Research AT4560, Horizontal
Measurement Distance:	3m
Operational Mode:	4
EUT Configuration:	1
Note 1:	

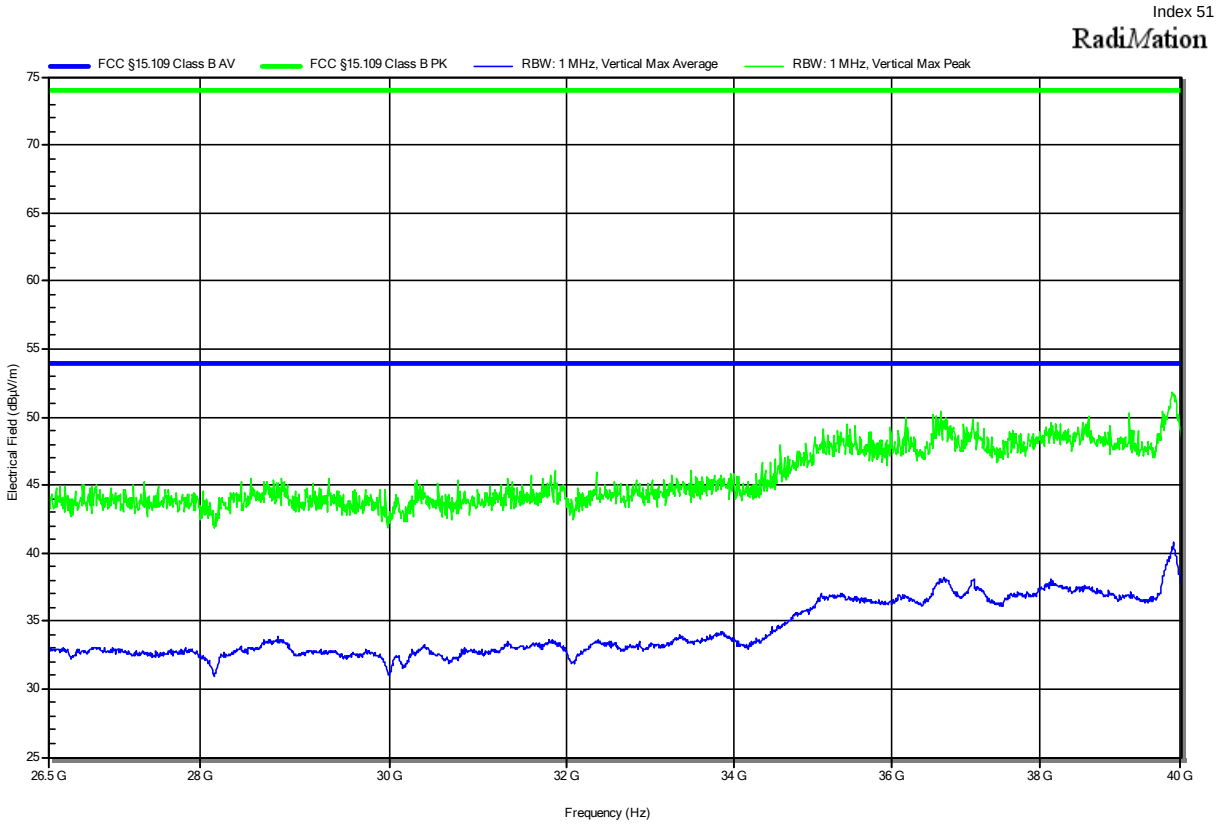


Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	25.287 GHz	63.91 dBµV/m	73.98 dBµV/m	-10.07 dB	Pass	0 degrees	1 m
2	25.35 GHz	66.8 dBµV/m	73.98 dBµV/m	-7.18 dB	Pass	0 degrees	1 m
3	25.019 GHz	64.06 dBµV/m	73.98 dBµV/m	-9.92 dB	Pass	0 degrees	1 m
4	24.839 GHz	64.24 dBµV/m	73.98 dBµV/m	-9.74 dB	Pass	0 degrees	1 m
5	26.327 GHz	64.3 dBµV/m	73.98 dBµV/m	-9.68 dB	Pass	0 degrees	1 m

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	25.287 GHz	49.8 dBµV/m	53.98 dBµV/m	-4.18 dB	Pass	0 degrees	1 m
2	25.35 GHz	50.07 dBµV/m	53.98 dBµV/m	-3.91 dB	Pass	0 degrees	1 m
3	25.019 GHz	47.73 dBµV/m	53.98 dBµV/m	-6.25 dB	Pass	0 degrees	1 m
4	24.839 GHz	49.52 dBµV/m	53.98 dBµV/m	-4.46 dB	Pass	0 degrees	1 m
5	26.327 GHz	46.36 dBµV/m	53.98 dBµV/m	-7.62 dB	Pass	0 degrees	1 m

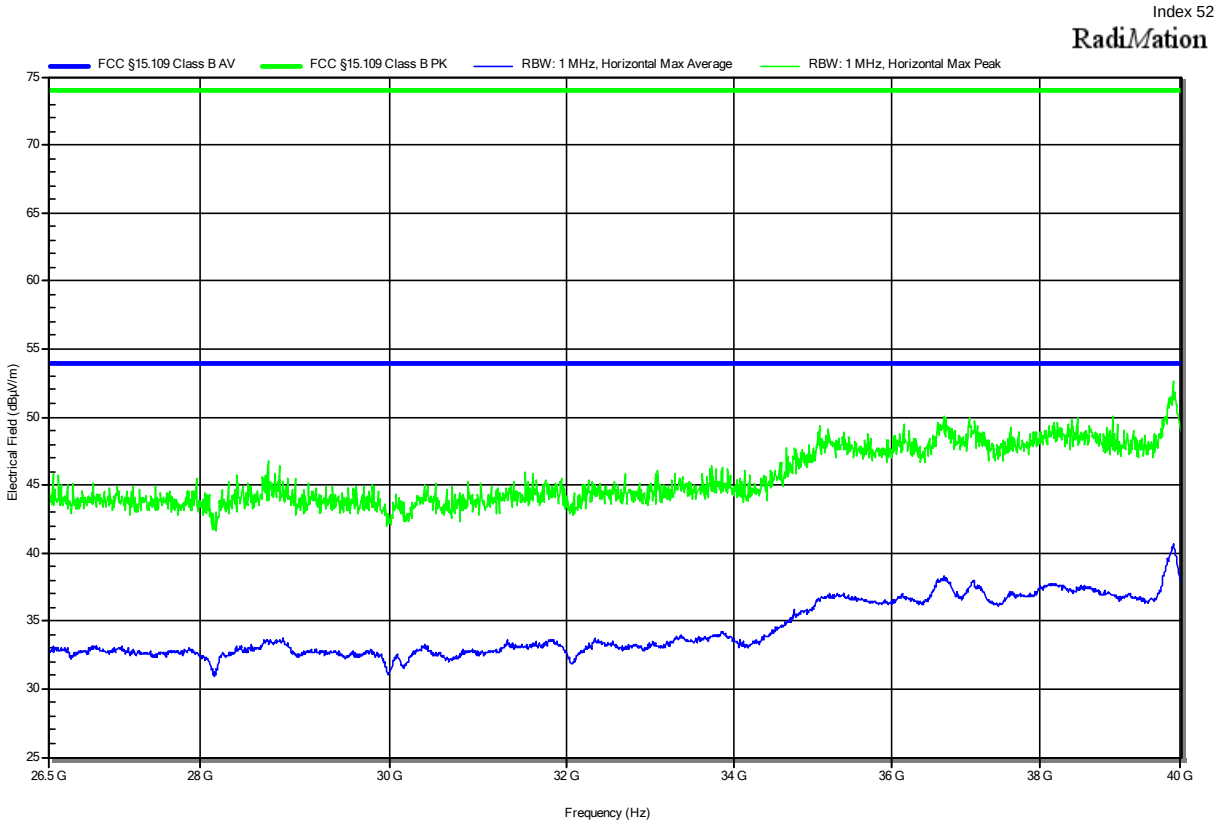
Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-15
Operating Conditions:	ambient temperature: 19 °Celsius power input: 14.8VDC
Antenna:	Horn Antenna 22240-25, Vertical
Measurement Distance:	3m
Operational Mode:	4
EUT Configuration:	1
Note 1:	angle 0°, height 1m



Radiated emissions according to FCC part 15B

Project Number:	G0M-2206-1525
Applicant:	Leica Geosystems AG
Model Description:	UAV 3D measurement device
Model:	BLK2FLY
Test Sample ID:	40493
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Dose
Test Date:	2022-07-15
Operating Conditions:	ambient temperature: 19 °Celsius power input: 14.8VDC
Antenna:	Horn Antenna 22240-25, Horizontal
Measurement Distance:	3m
Operational Mode:	4
EUT Configuration:	1
Note 1:	angle 0°, height 1m



3 Measurement Uncertainty

All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2.

Test Name	Measurement Uncertainty
Radiated Emission	30MHz to 200MHz @ 3m, 5.1dB 200MHz to 1GHz @ 3m, 5.3dB >1GHz to 18GHz @3m, 5.95dB