




<b>RADIO REPORT</b> <b>FCC 47 CFR Part 15C</b> <b>ISED Canada RSS-247</b> <b>Digital transmission systems operating within the 2400.0 MHz - 2483.5 MHz band</b>	
<b>Report Reference No</b>	G0M-2105-9817-TFC247WF-V01
<b>Testing Laboratory</b>	Eurofins Product Service GmbH
<b>Address</b>	Storkower Str. 38c 15526 Reichenwalde Germany
<b>Accreditation</b>	 <p>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</p>
<b>Applicant</b>	Leica Geosystems AG
<b>Address</b>	Heinrich-Wild-Strasse 9435 Heerbrugg SWITZERLAND
<b>Test Specification</b>	47 CFR Part 15C RSS-247, Issue 2, 2017-02 RSS-Gen, Issue 5, Amendment 2, 2021-02
<b>Non-Standard Test Method</b>	None
<b>Equipment under Test (EUT):</b>	
<b>Product Description</b>	KIWI Module
<b>Model(s)</b>	BLK ARC
<b>Additional Model(s)</b>	None
<b>Brand Name(s)</b>	Leica
<b>Hardware Version(s)</b>	3.0
<b>Software Version(s)</b>	2.01
<b>FCC ID</b>	RFD-BLKARC
<b>IC</b>	3177A-BLKARC
<b>Test Result</b>	<b>PASSED</b>

<b>Possible test case verdicts:</b>		
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)	
<b>Testing:</b>		
Test Lab Temperature	20 °C - 30 °C	
Test Lab Humidity	25 % - 55 %	
Date of receipt of test item	2021-10-04	
<b>Report:</b>		
Compiled by	Florian Voigt	
Tested by (+ signature)	Jens Degenhardt	
Supervised by (+ signature) (Responsible for Test)	Florian Voigt	
Approved by (+ signature) (Test Lab Engineer)	Wilfried Treffke	
Date of Issue	2021-12-16	
Total number of pages	52	
<b>General Remarks:</b>		
<p>The test results presented in this report relate only to the object tested.</p> <p>The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p>		
<b>Additional Comments:</b>		

## VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2021-12-16	Initial Release	

**ABBREVIATIONS AND ACRONYMS**

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

**REPORT INDEX**

<b>1</b>	<b>Equipment (Test Item) Under Test.....</b>	<b>6</b>
1.1	Photos – Equipment External.....	7
1.2	Photos – Equipment Internal.....	11
1.3	Support Equipment.....	23
1.4	Test Modes .....	24
1.5	Test Frequencies.....	25
1.6	Sample emission level calculation.....	26
<b>2</b>	<b>Result Summary.....</b>	<b>27</b>
<b>3</b>	<b>Test Conditions and Results.....</b>	<b>28</b>
3.1	Test Conditions and Results - AC powerline conducted emissions.....	28
3.2	Test Conditions and Results - Transmitter radiated emissions .....	32
3.3	Test Conditions and Results - Receiver radiated emissions .....	37
ANNEX A	Transmitter spurious emissions .....	42
ANNEX B	Receiver spurious emissions .....	49

## 1 Equipment (Test Item) Under Test

Description	KIWI Module	
Model	BLK ARC	
Additional Model(s)	None	
Brand Name(s)	Leica	
Serial Number(s)	2050051	
Test Sample Id(s)	37456	
Hardware Version(s)	3.0	
Software Version(s)	2.01	
PMN	BLK ARC	
HVIN	BLK ARC	
FVIN	2.01	
HMN	n/a	
FCC ID	RFD-BLKARC	
IC	3177A-BLKARC	
Equipment type	End Product	
Radio type	Transceiver	
Assigned frequency bands	2400.0 MHz - 2483.5 MHz	
Radio technology	IEEE 802.11 b/g/n (HT20 + HT40)	
Modulation	BPSK, QPSK, 16-QAM, 64-QAM	
Number of antenna ports	2	
Radio Module	Type	WiFi + Bluetooth Module
	Model	QCNFA324
	Manufacturer	Qualcomm Atheros, Inc.
	HW Version	V02
	SW Version	BSP 3.1
	FCC ID	PPD-QCNFA324
	IC	4104A-QCNFA324
Antenna	Type	Integrated antenna
	Model	850201
	Manufacturer	Leica Geosystems AG
	Gain	3.0 dBi (manufacturer declaration)
Supply Voltage	V <sub>NOM</sub>	12 VDC
Operating Temperature	T <sub>NOM</sub>	20 °C
AC/DC-Adaptor	Model	GEV276
	Vendor	Leica Geosystems AG
	Input	90-264 VAC
	Output	15 VDC
Manufacturer	Leica Geosystems AG Heinrich-Wild-Strasse 9435 Heerbrugg SWITZERLAND	

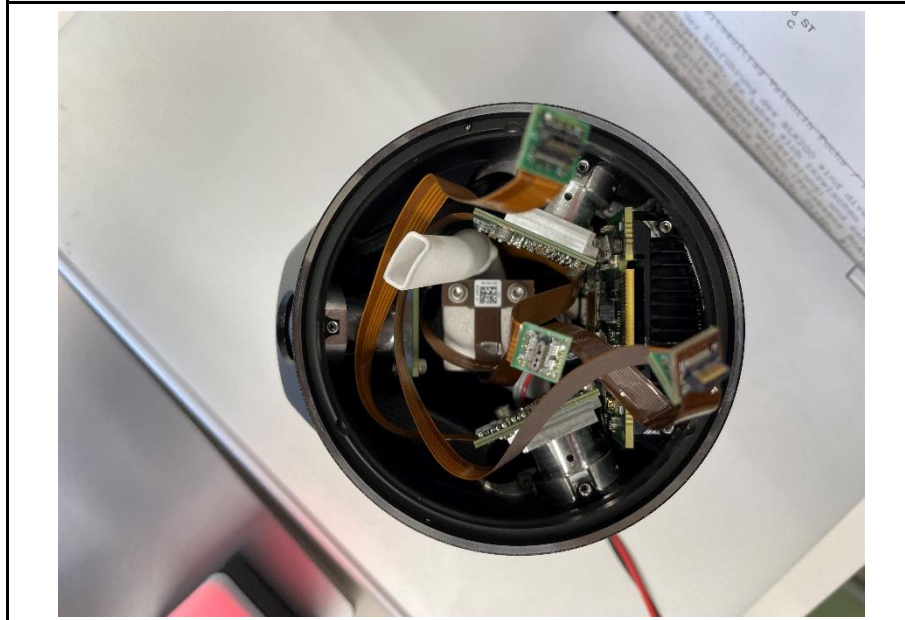
1.1 Photos – Equipment External



EUT Side View



EUT Top view without lid





**EUT BOTTOM SIDE**



**EUT IN PERSPECTIVE I**



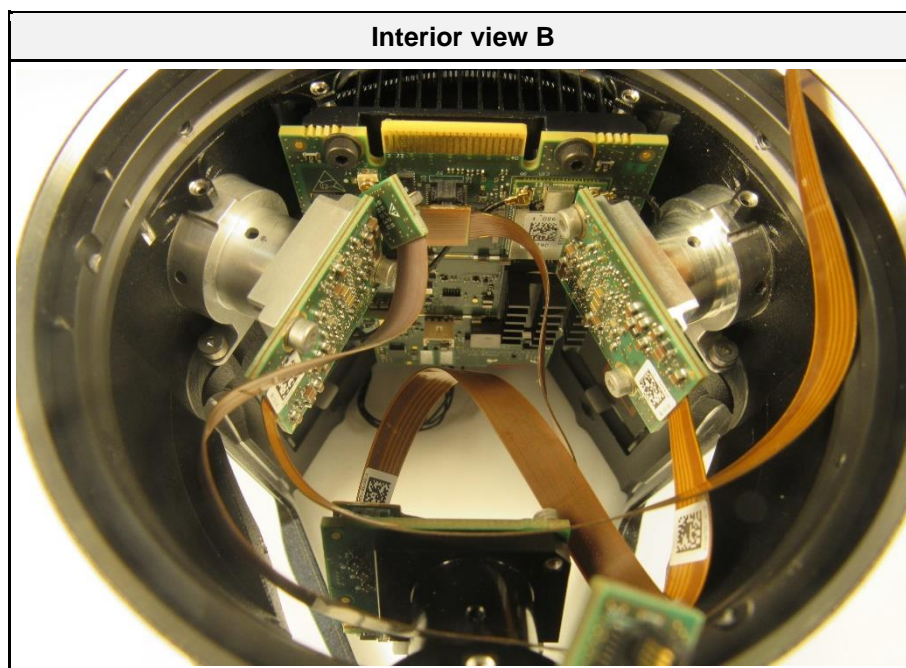
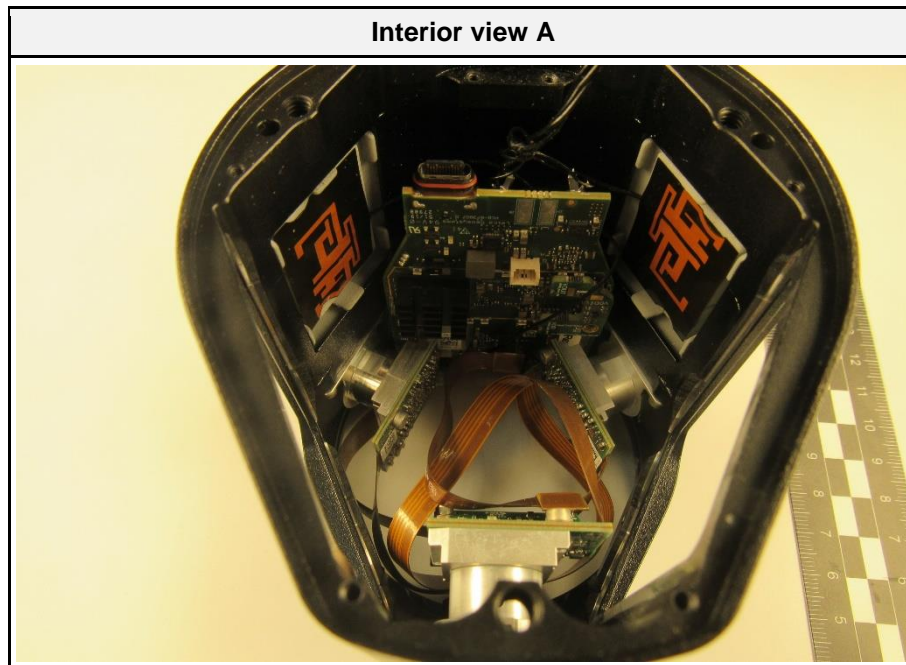
EUT IN PERSPECTIVE II

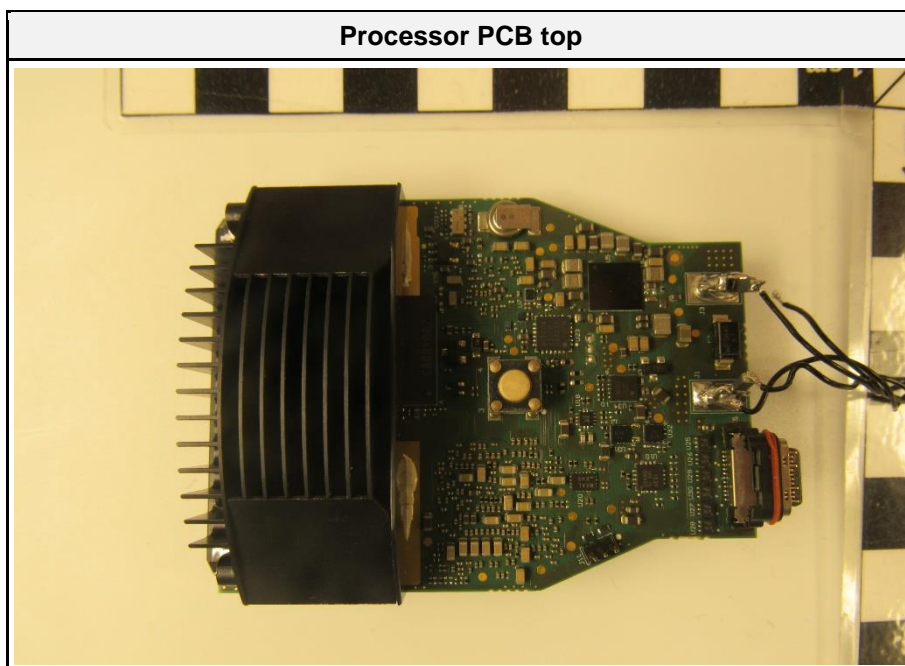
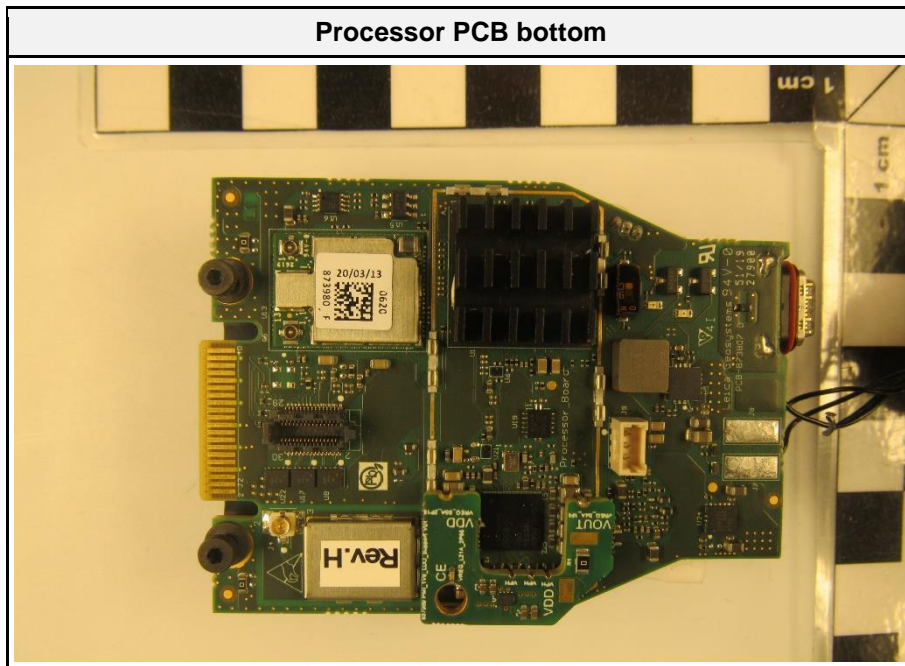


Dedicated AC/DC Adapter

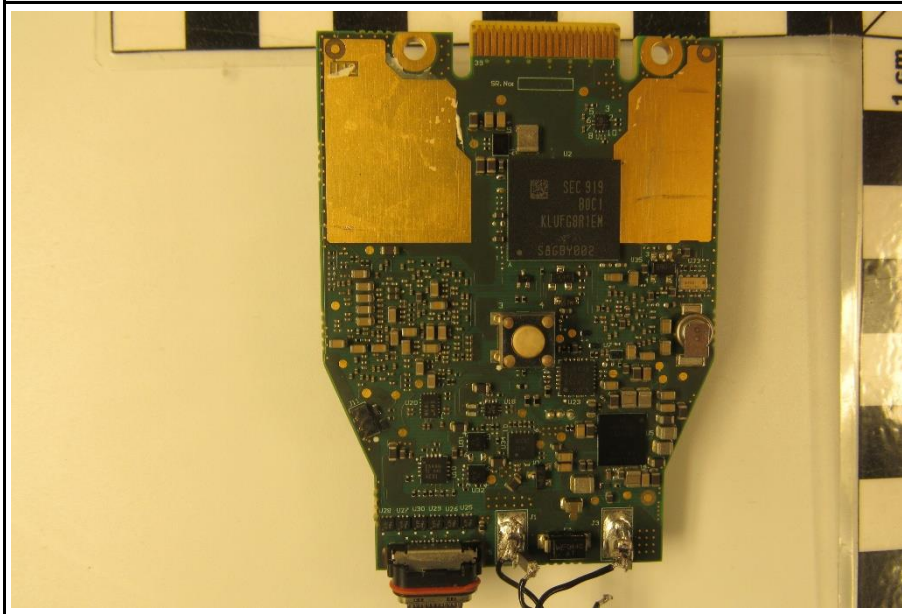


## 1.2 Photos – Equipment Internal

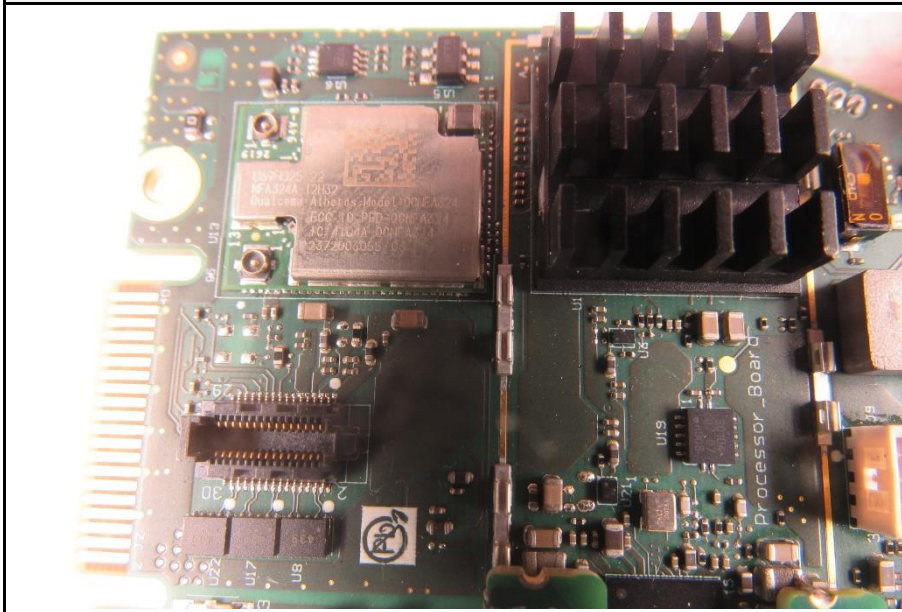




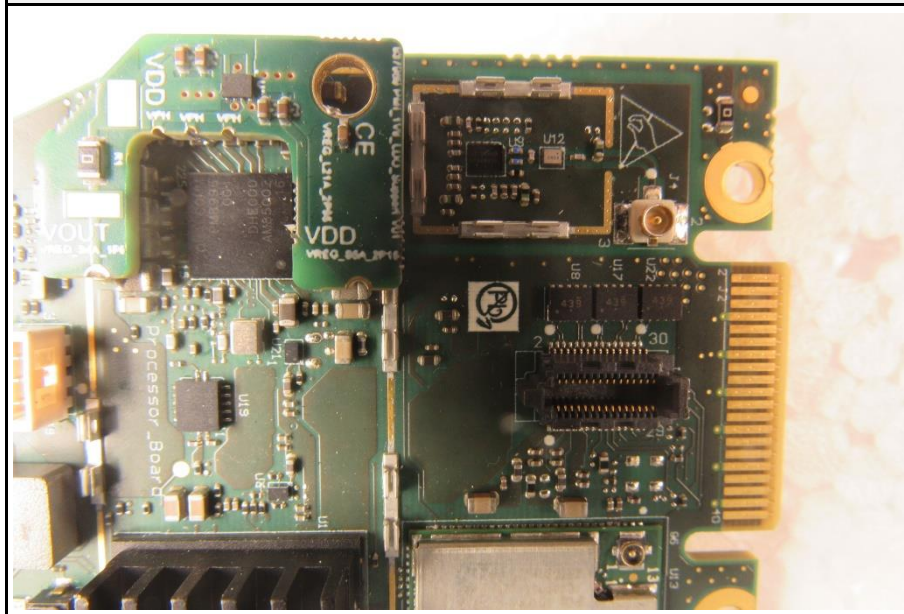
Processor PCB top without heatsink block



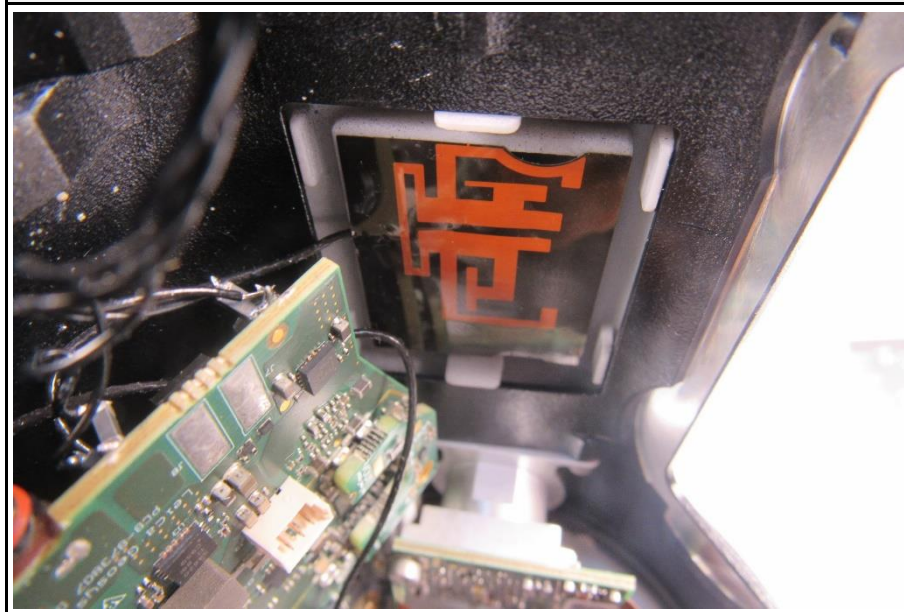
Radio module WLAN and Bluetooth



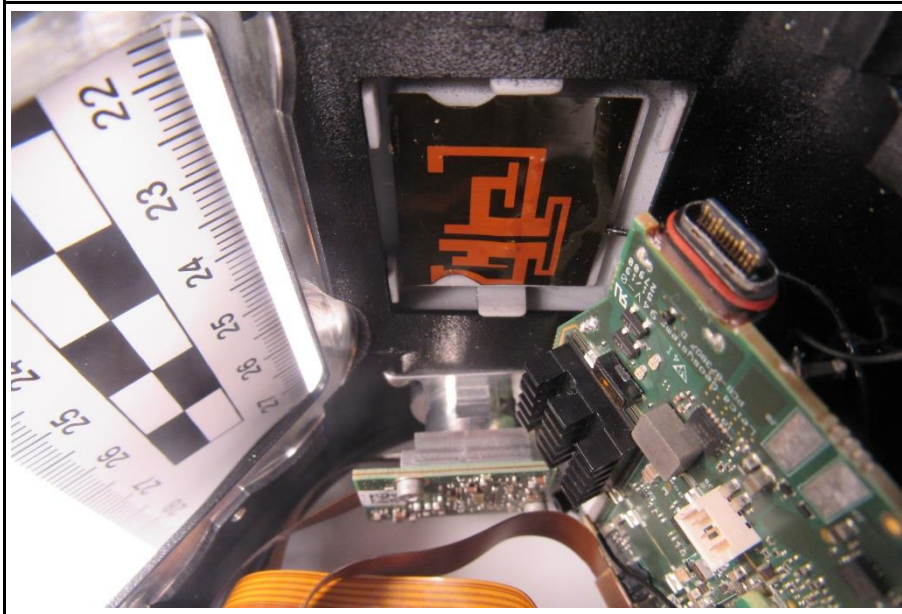
Unknown Radio



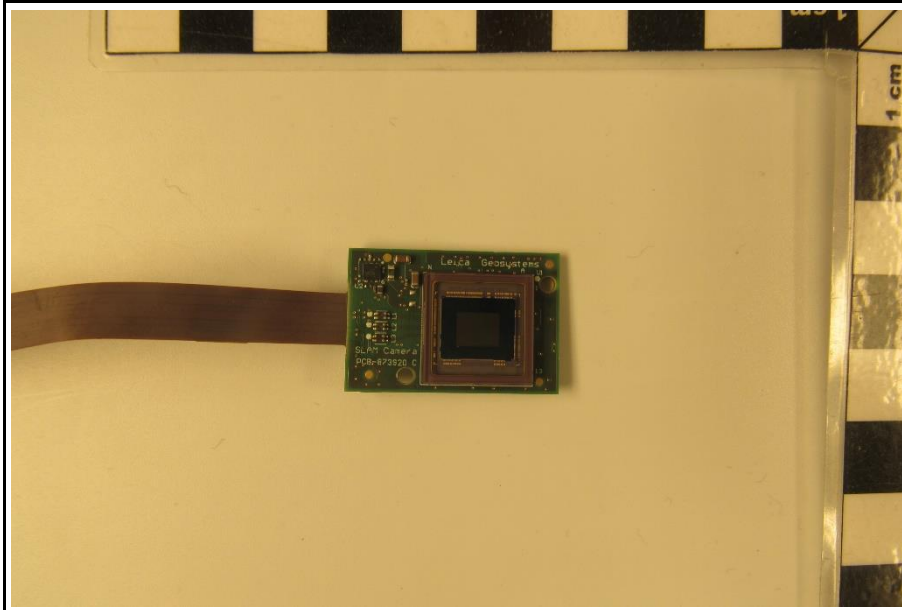
WLAN/BT Antenna 1

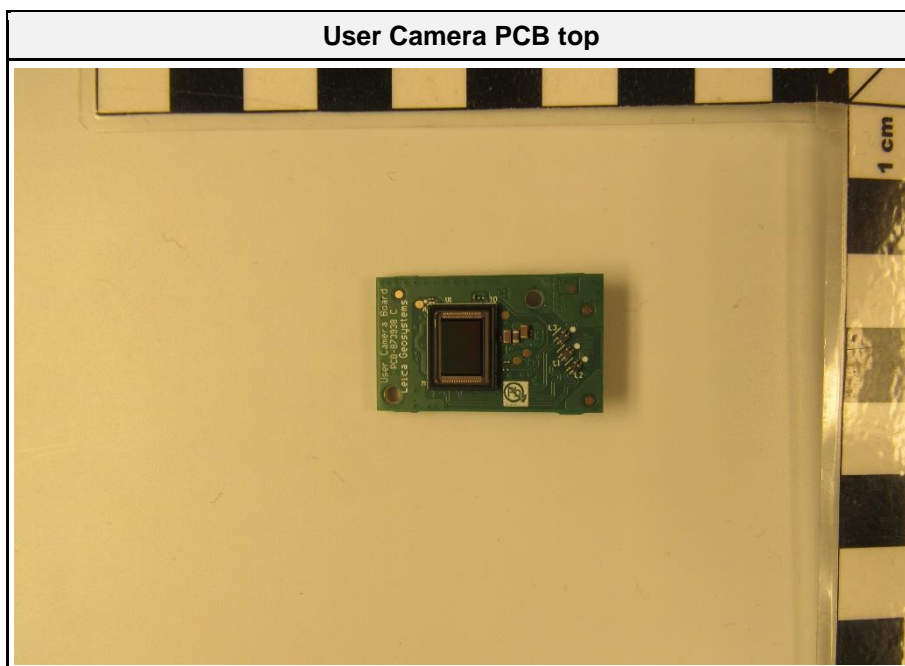
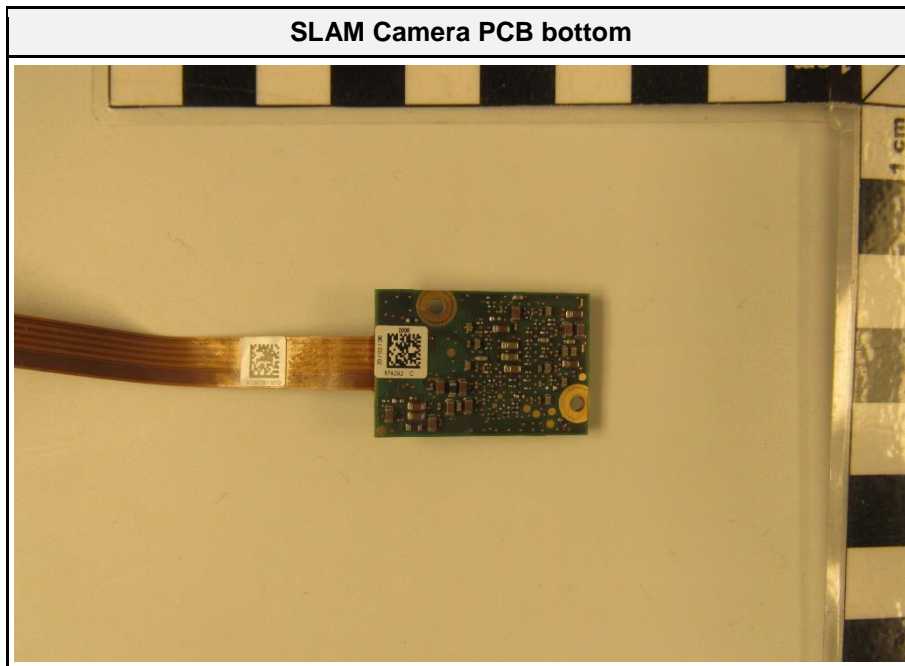


WLAN/BT Antenna 2

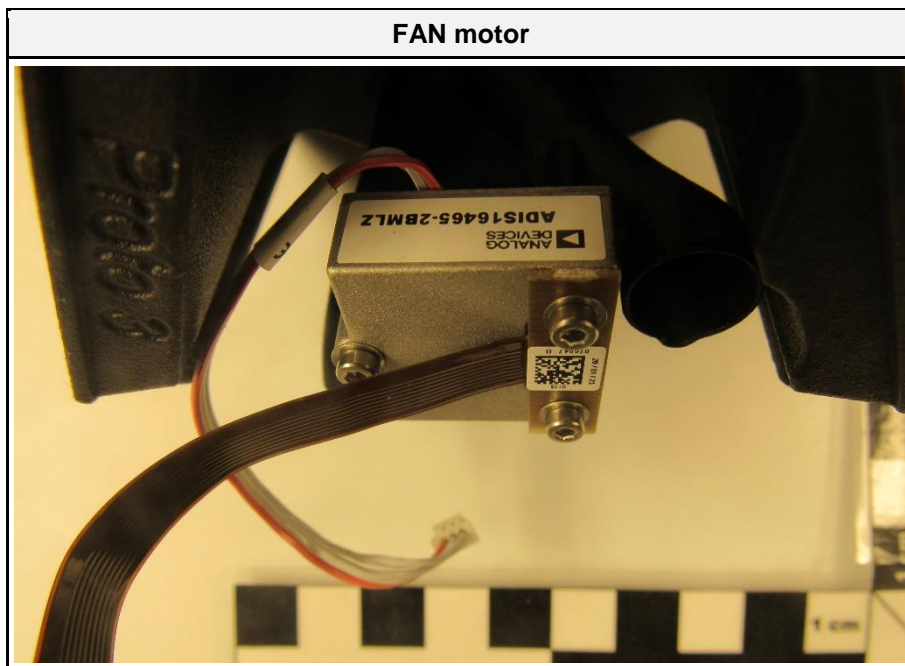
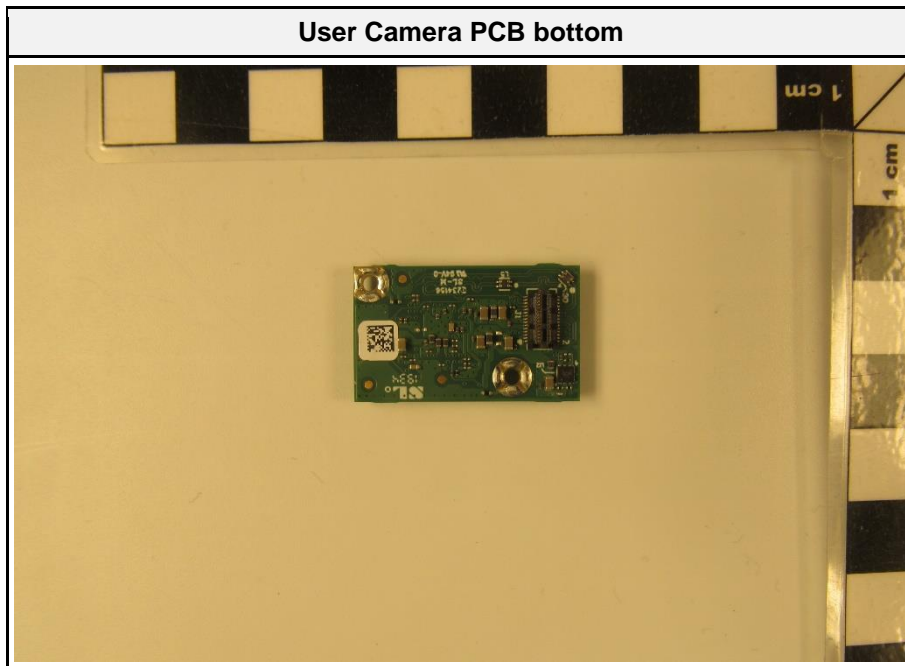


SLAM Camera PCB top





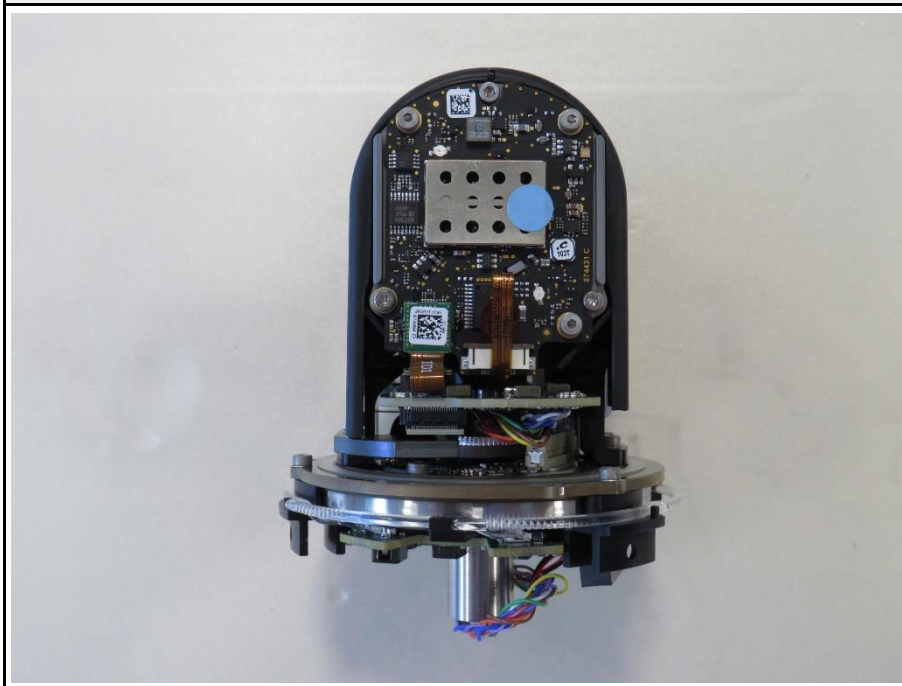




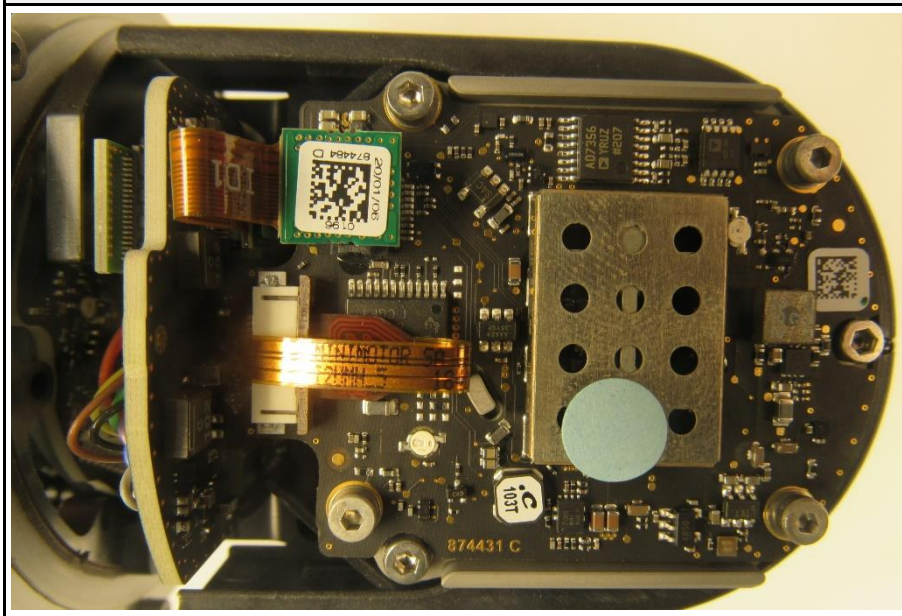
**LASER SCANNER TOP SIDE**



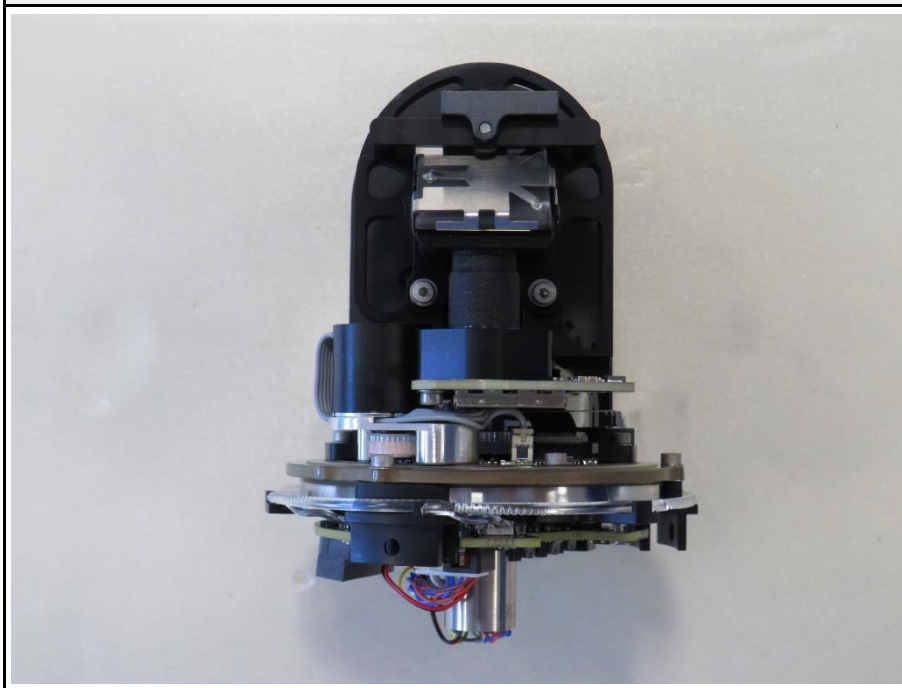
**LASER SCANNER FRONT SIDE**



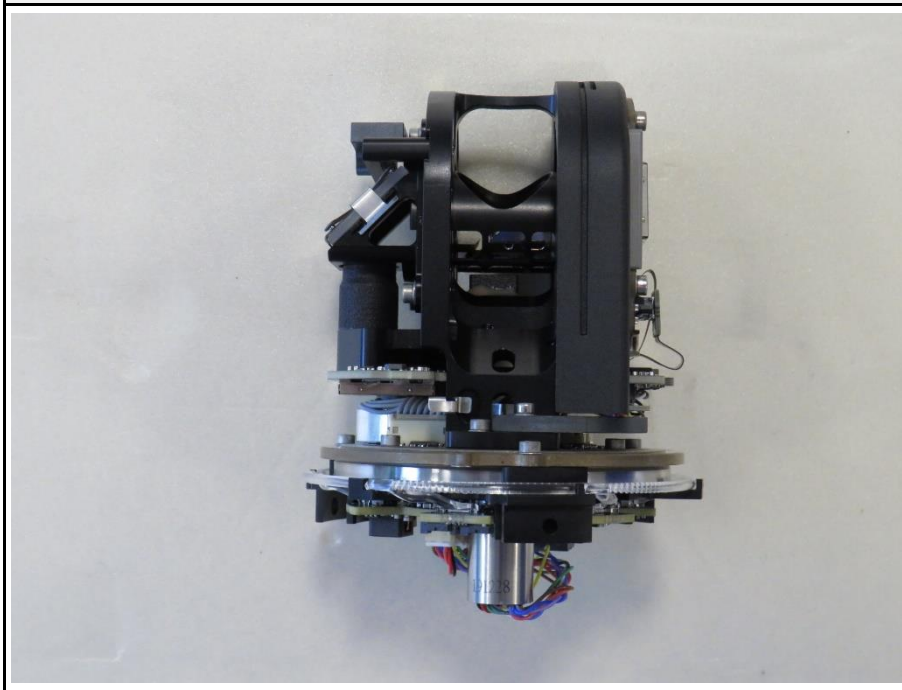
**LASER SCANNER FRONT SIDE PCB**



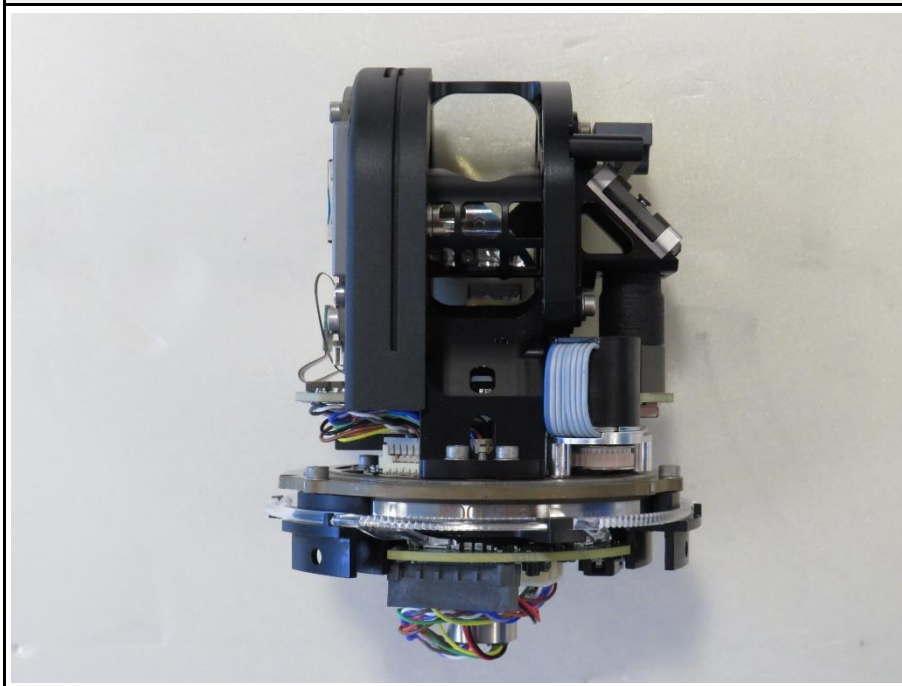
**LASER SCANNER REAR SIDE**

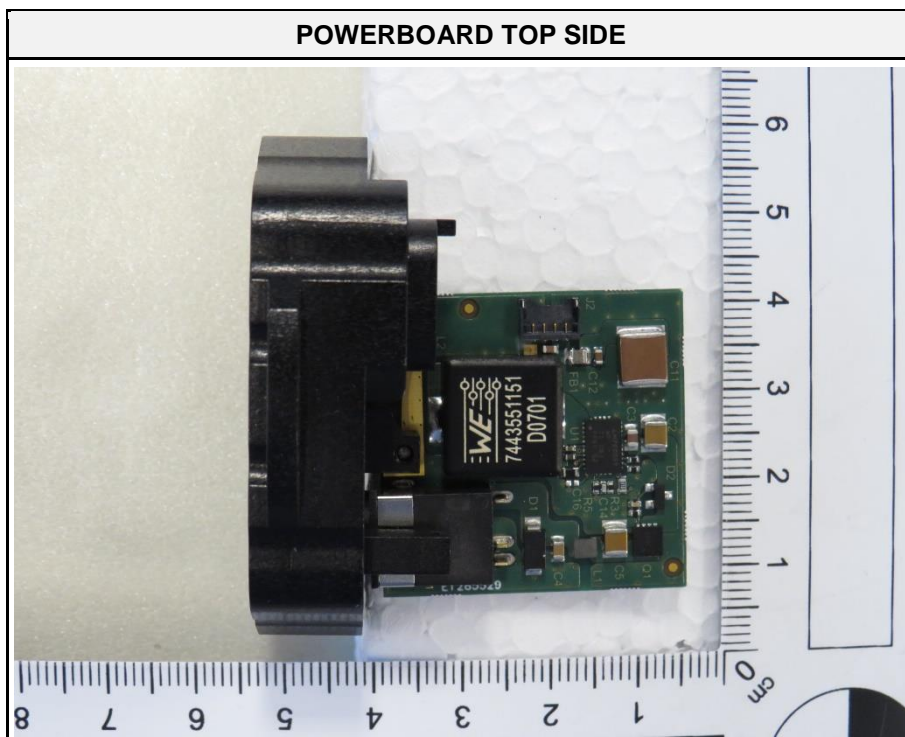
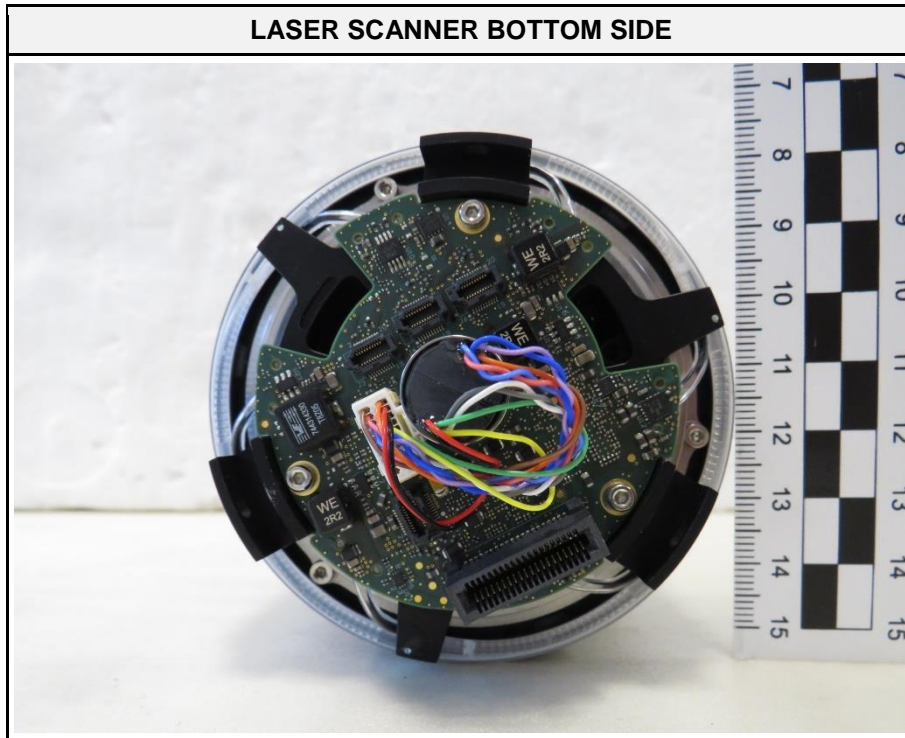


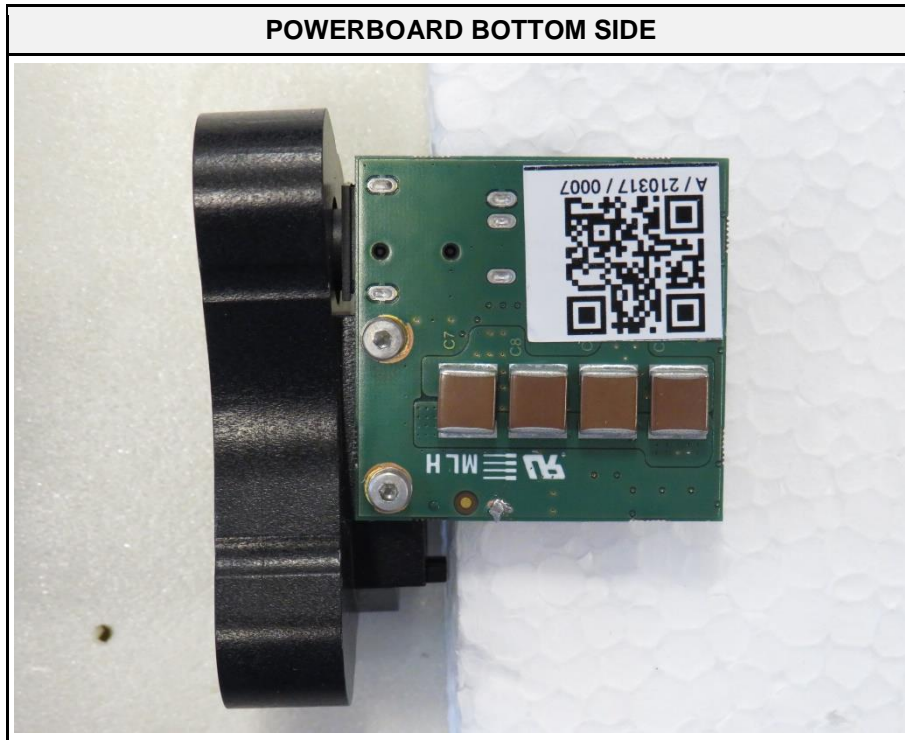
**LASER SCANNER LEFT SIDE**



**LASER SCANNER RIGHT SIDE**







### 1.3 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
SFT	QRCT Tool	Qualcomm	QRCT	Test mode tool
AE	Laptop	ASUS	L210M	
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
SFT	Software			
Comment:				

#### 1.4 Test Modes

Mode	Description
OFDM (IEEE 802.11g)	Mode = Transmit Modulation = OFDM/BPSK Bandwidth = 20 MHz Duty cycle = 95% Power setting = 15 (Software setting) Data rate = 6 Mbps Tx-Chains = 2
Receive	Mode = Receive
Comment: The above settings were found as worst case by evaluation of the original radio module test report. Report No. RF140808E04 issued by Bureau Veritas Consumer Products Services (H.K.) Ltd. on 2014-10-23	



### 1.5 Test Frequencies

Designator	Mode	Channel	Frequency [MHz]
F1	Tx / Rx	6	2437
Comment: The above settings were found as worst case by evaluation of the original radio module test report.			

### 1.6 Sample emission level calculation

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

Reading:

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

A.F.:

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

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

Net:

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

Limit:

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

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

Margin:

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

Example only:

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

## 2 Result Summary

FCC 47 CFR Part 15C, ISED RSS-247				
Product Standard Reference	Requirement	Reference Method	Result	Remarks
ISED RSS-Gen, Issue 5 A2 (section 6.7)	Occupied Bandwidth	ANSI C63.10-2013	N/R	Informational only
FCC § 15.247(a)(2) ISED RSS-247, Issue 2 (section 5.2)	6 dB Bandwidth	ANSI C63.10-2013	N/T	
FCC § 15.247(b) ISED RSS-247, Issue 2 (section 5.4)	Maximum peak conducted power	ANSI C63.10-2013	N/T	
FCC § 15.247(e) ISED RSS-247, Issue 2 (section 5.2)	Power spectral density	ANSI C63.10-2013	N/T	
FCC § 15.207 ISED RSS-247, Issue 2 (section 3.1)	AC power line conducted emissions	ANSI C63.10-2013	PASS	
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Band edge compliance	ANSI C63.10-2013	N/T	
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Conducted spurious emissions	ANSI C63.10-2013	N/T	
FCC § 15.247(d) FCC § 15.209 ISED RSS-Gen, Issue 5 A2 (section 6.13)	Transmitter radiated spurious emissions	ANSI C63.10-2013	PASS	
ISED RSS-247, Issue 2 (section 3.1)	Receiver radiated spurious emissions	ANSI C63.4-2014	PASS	
Comment:				

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

### 3 Test Conditions and Results

#### 3.1 Test Conditions and Results - AC powerline conducted emissions

##### 3.1.1 Information

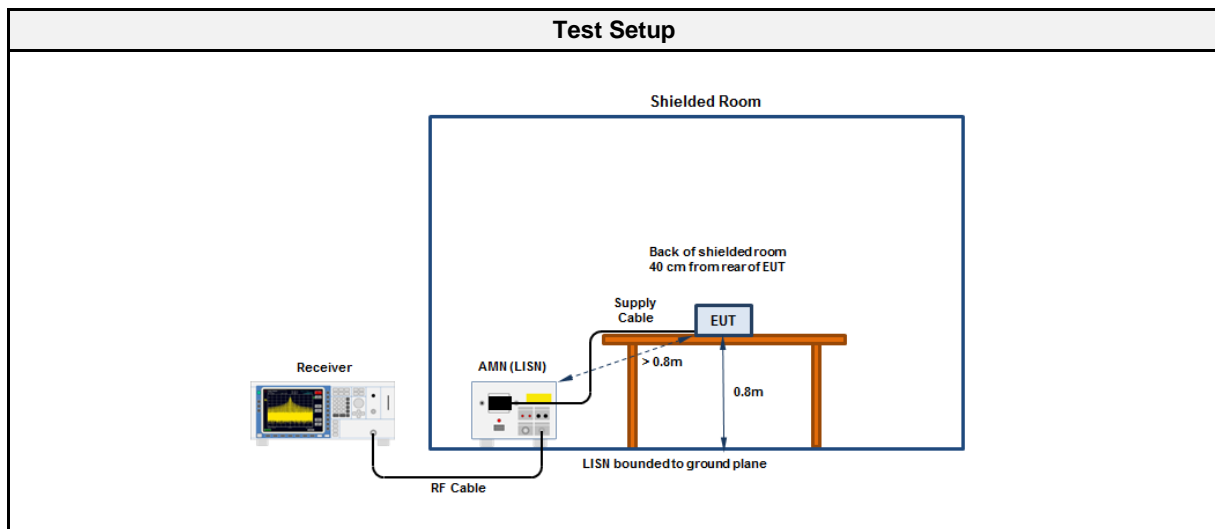
Test Information	
Reference	FCC § 15.207; ISED RSS-247, Issue 2 (section 3.1)
Measurement Method	ANSI C63.10 6.2
Measurement Uncertainty	$\pm 3.82$ dB
Operator	Florian Voigt
Date	2021-12-09

##### 3.1.2 Limits

Limits		
Frequency [MHz]	Quasi-Peak [dB $\mu$ V]	Average [dB $\mu$ V]
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5	56	46
5 - 30	60	50

\* Limit decreases linearly with the logarithm of the frequency

##### 3.1.3 Setup



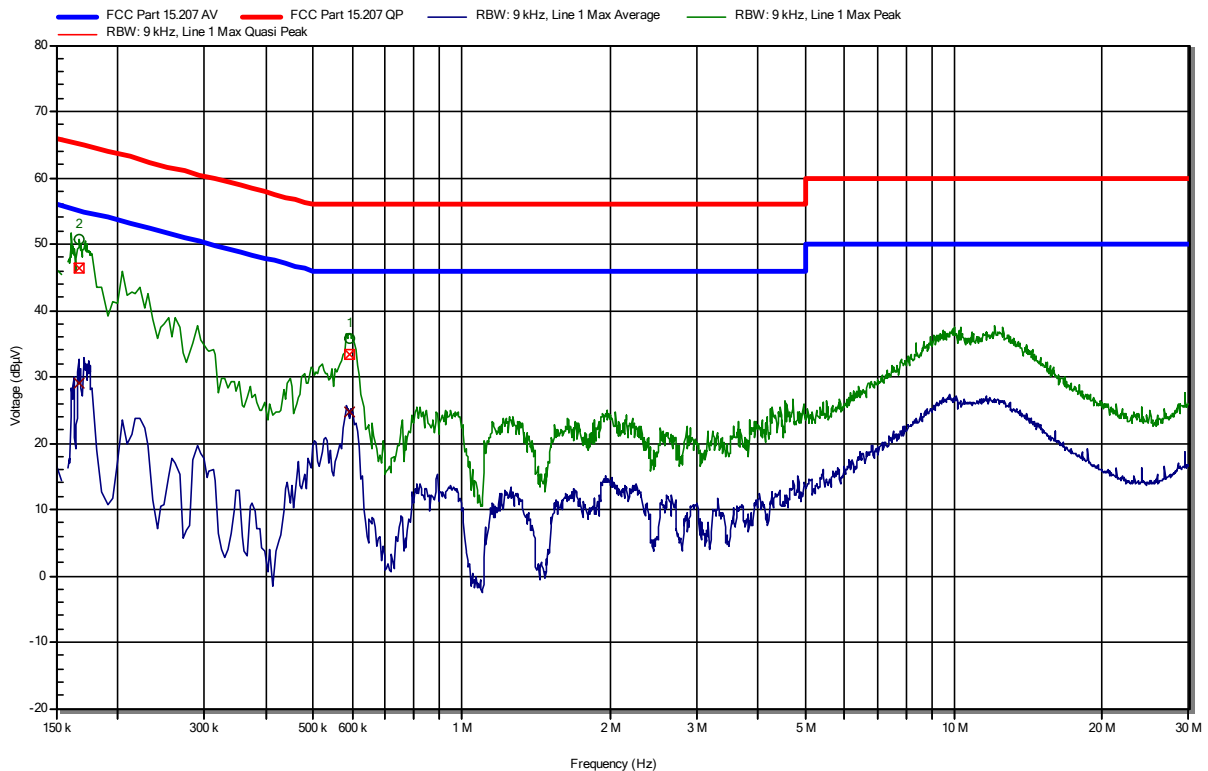
##### 3.1.4 Equipment

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

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Test Receiver	R&S	ESR7	EF00943	2021-08	2022-08
Pulse Limiter	R&S	ESH3-Z2	EF01222	2021-07	2022-07
LISN	Schwarzbeck	NSLK 8127 RC	EF01592	2021-07	2022-07

**Conducted emissions at the mains power port according to FCC 15.247, RSS-247**

Project Number: G0M-2105-9817  
 Applicant: Leica Geosystems AG  
 Model Description: KIWI Module  
 Model: BLK ARC  
 Test Sample ID: 35959  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Voigt  
 Test Date: 2021-12-09  
 Operating Conditions: ambient temperature: 21 °Celsius  
 power input: AC/DC Adapter Leica GEV276  
 LISN: Schwarzbeck NSLK 8127 RC L  
 Operational Mode & EUT Configuration: CH6, f=2437MHz, OFDM, 6Mbps, TxChain01  
 Applied to Port: Mains  
 Note 1:



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	591 kHz	33.44 dBµV	56 dBµV	-22.56 dB	Pass	Line 1
2	167.1 kHz	46.5 dBµV	65.1 dBµV	-18.61 dB	Pass	Line 1

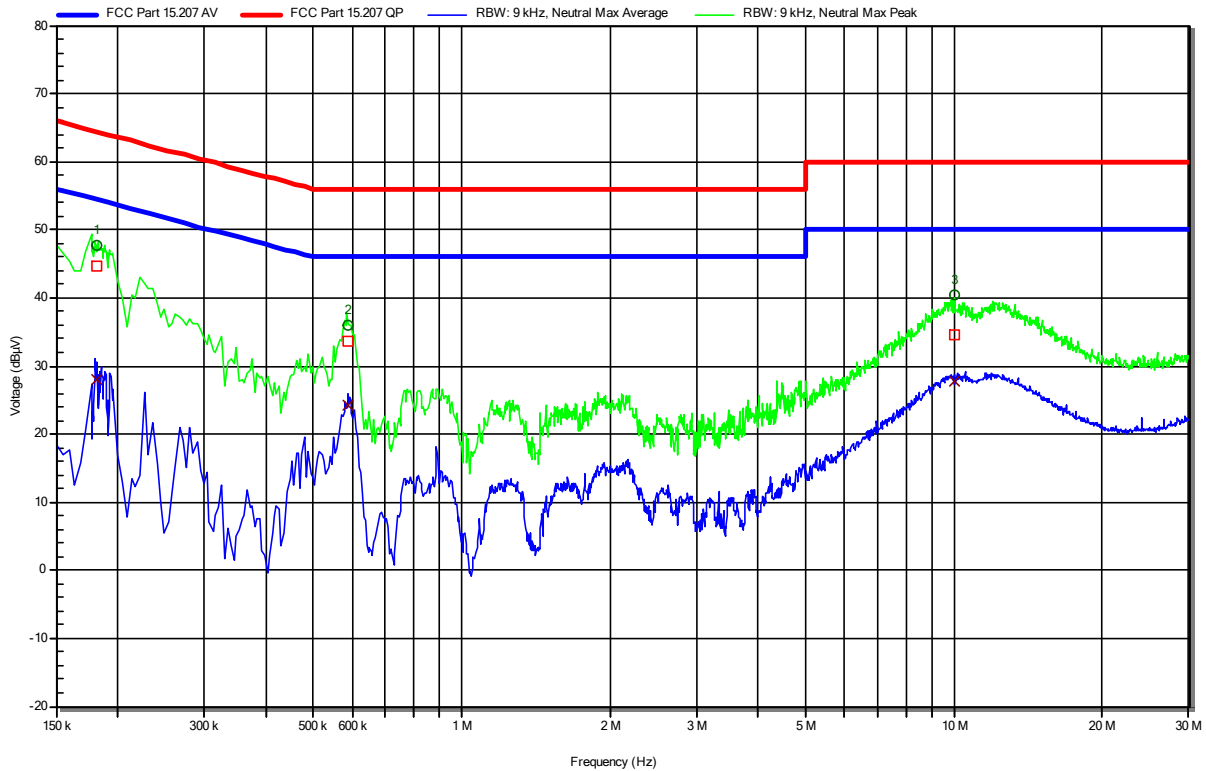
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	591 kHz	24.58 dBµV	46 dBµV	-21.42 dB	Pass	Line 1
2	167.1 kHz	29.15 dBµV	55.1 dBµV	-25.95 dB	Pass	Line 1

**Conducted emissions at the mains power port according to FCC 15.247, RSS-247**

Project Number: G0M-2105-9817  
 Applicant: Leica Geosystems AG  
 Model Description: KIWI Module  
 Model: BLK ARC  
 Test Sample ID: 35959  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Voigt  
 Test Date: 2021-12-09  
 Operating Conditions: ambient temperature: 21 °Celsius  
 power input: AC/DC Adapter Leica GEV276  
 LISN: Schwarzbeck NSLK 8127 RC N  
 Operational Mode & EUT Configuration: CH6, f=2437MHz, OFDM, 6Mbps, TxChain01  
 Applied to Port: Mains  
 Note 1:

Index 56

RadiMation



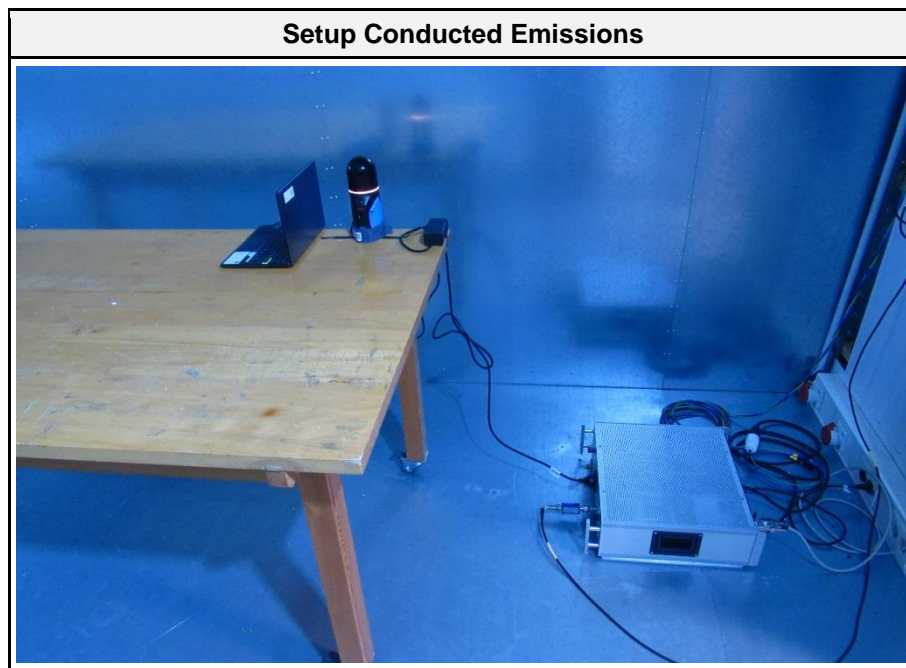
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	181.05 kHz	44.74 dBµV	64.44 dBµV	-19.69 dB	Pass	Neutral
2	586.5 kHz	33.65 dBµV	56 dBµV	-22.35 dB	Pass	Neutral
3	10.041 MHz	34.52 dBµV	60 dBµV	-25.48 dB	Pass	Neutral

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	181.05 kHz	27.94 dBµV	54.44 dBµV	-26.49 dB	Pass	Neutral
2	586.5 kHz	24.15 dBµV	46 dBµV	-21.85 dB	Pass	Neutral
3	10.041 MHz	27.84 dBµV	50 dBµV	-22.16 dB	Pass	Neutral

Test Report No.: G0M-2105-9817-TFC247WF-V01

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

3.1.5 Setup Photos



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

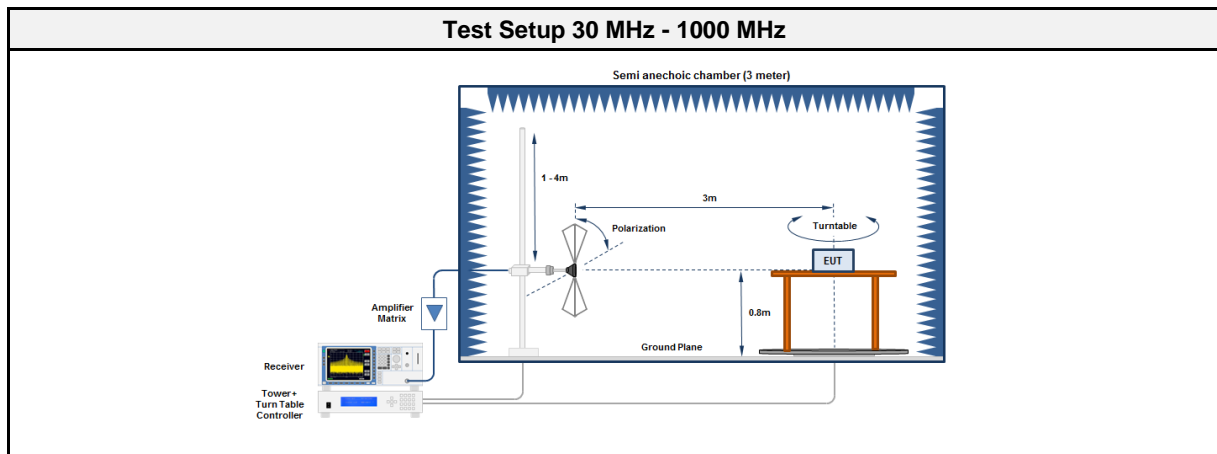
#### 3.2.1 Information

Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISSED RSS-Gen, Issue 5 A2 (section 6.13)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12
Operator	Jens Degenhardt
Date	2021-12-02 + 2021-12-03

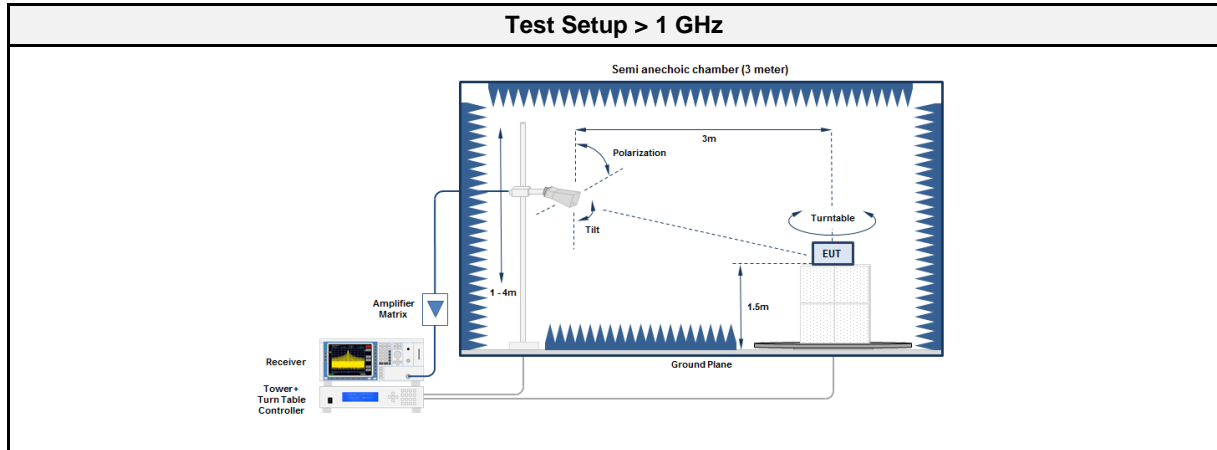
#### 3.2.2 Limits

Limits			
Frequency range [MHz]	Detector	Field strength [ $\mu\text{V}/\text{m}$ ]	Measurement distance [m]
0.009 - 0.09	Average	2400/F[kHz]	300
0.09 - 0.110	Quasi-Peak	2400/F[kHz]	300
0.110 - 0.490	Average	2400/F[kHz]	300
0.490 - 1.705	Quasi-Peak	24000/F[kHz]	30
1.705 - 30.0	Quasi-Peak	30	30
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

#### 3.2.3 Setup







### 3.2.4 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	EF00212	2019-05	2022-05

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic chamber	Frankonia	AC 2	EF01616	2021-09	2022-09
Spectrum analyzer	R&S	FSU43	EF01631	2021-07	2022-07
Horn antenna	Schwarzbeck	BBHA 9120B	EF01678	2021-03	2022-03
Horn Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2022-03
Antenna	Amplifier Research	AT4560	EF00302	2021-06	2023-06

### 3.2.5 Procedure

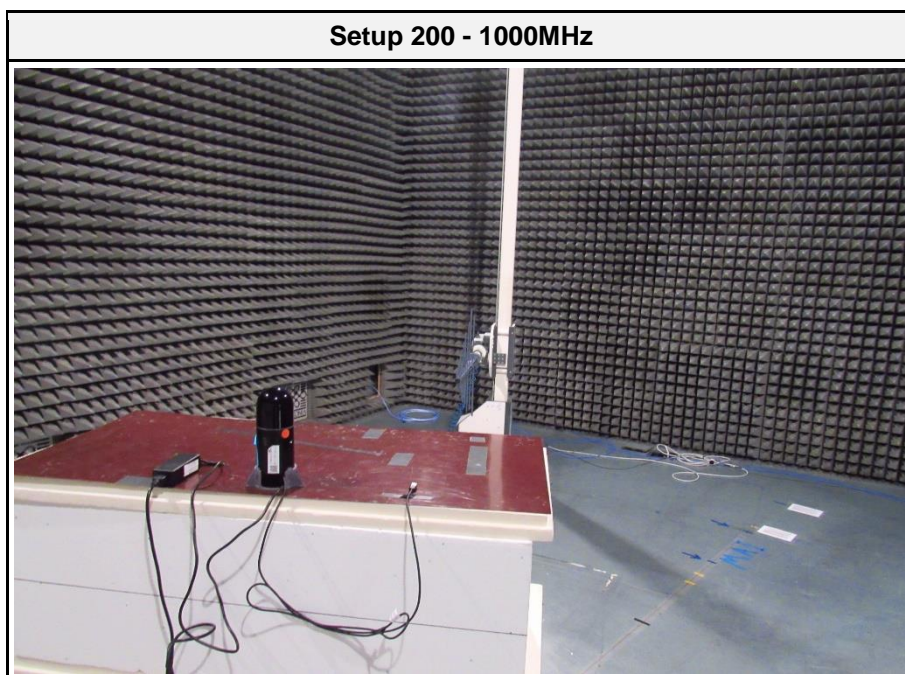
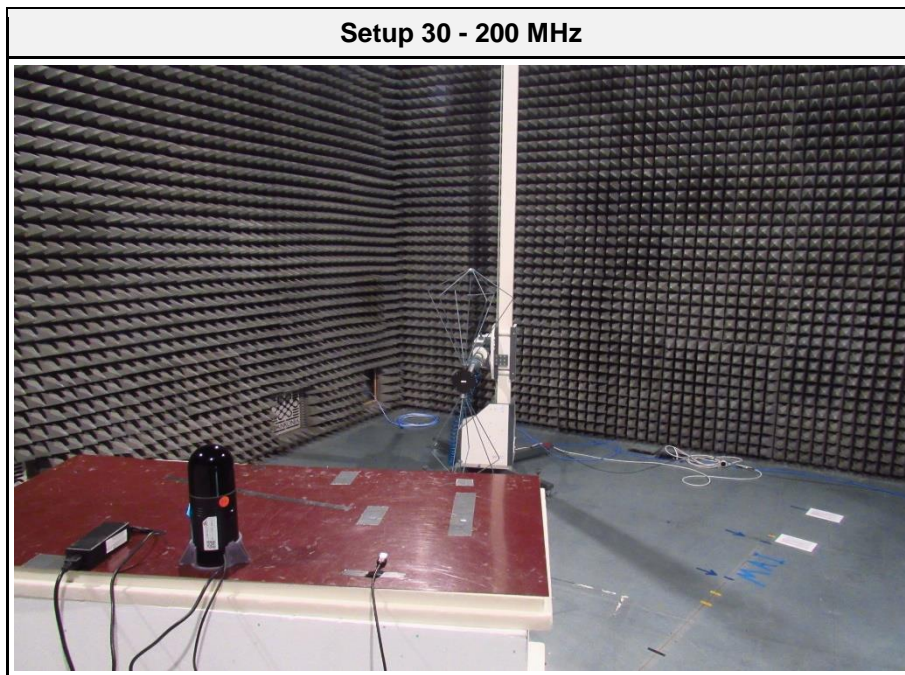
Test Procedure 30 MHz - 1000 MHz
<ol style="list-style-type: none"> <li>1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground</li> <li>2. EUT set to test mode</li> <li>3. The receiver is set to peak detection with max hold</li> <li>4. The EUT is rotated through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

Test Procedure > 1 GHz
<ol style="list-style-type: none"> <li>1. EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground</li> <li>2. EUT set to test mode</li> <li>3. The receiver is set to peak detection with max hold</li> <li>4. The EUT is rotated through 360° and the table with the EUT is tilted between 0° and 150°</li> <li>5. All significant emissions are measured again using the corresponding final detector</li> </ol>

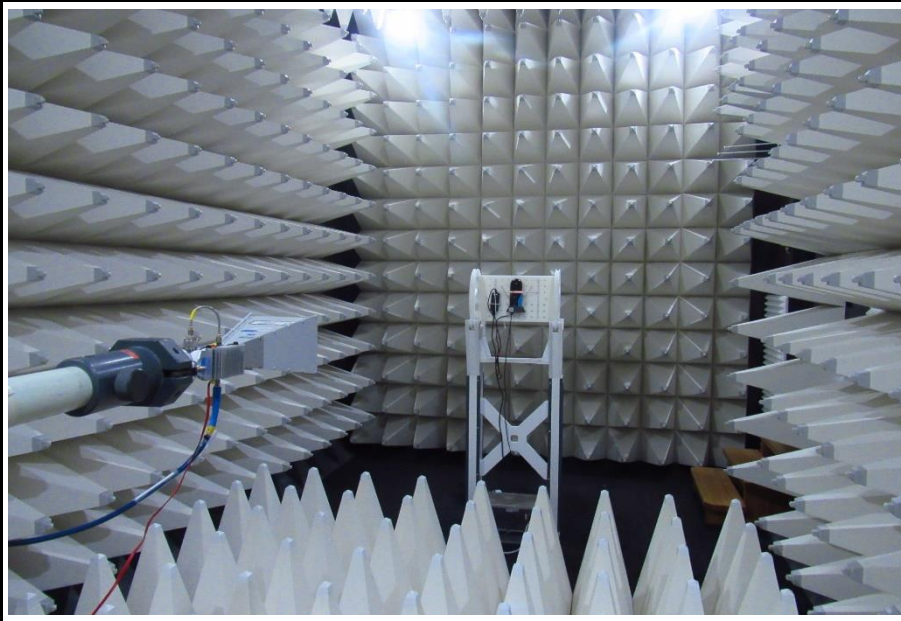
### 3.2.6 Results

Test Results - IEEE802.11g						
Frequency [MHz]	Emission [MHz]	Level [dB $\mu$ V/m]	Detector	Pol.	Limit [dB $\mu$ V/m]	Margin [dB]
2437	109.152	32.60	qpk	ver	43.50	-10.90
2437	330	37.80	qpk	hor	46.00	-08.18
2437	406.26	38.00	qpk	ver	46.00	-08.01
2437	2389.2	43.88	avg	hor	54.00	-10.12
2437	4872.8	50.76	avg	ver	54.00	-03.24
2437	9748	45.01	pk	hor	68.20	-23.19

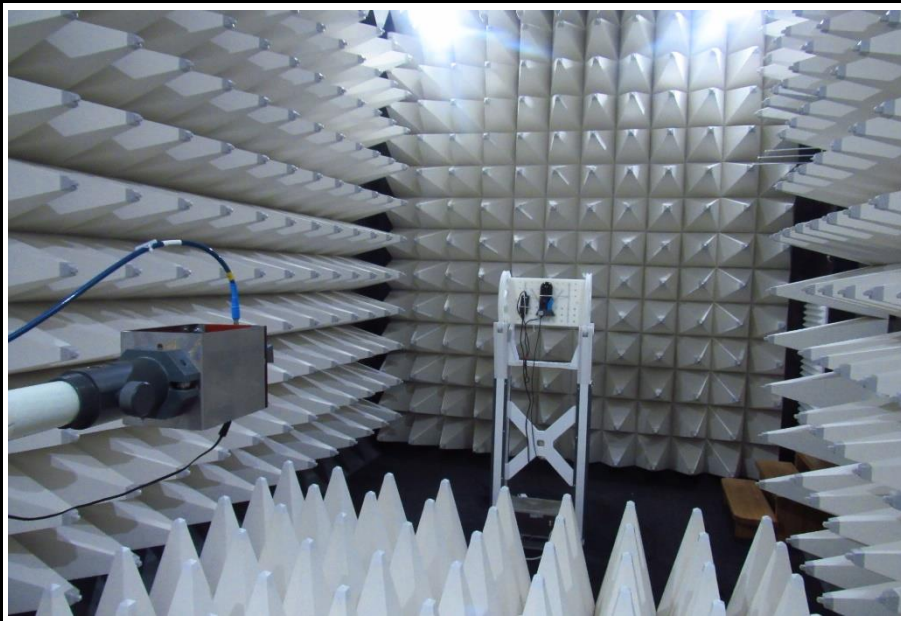
3.2.7 Setup Photos



**Setup 6.5-18 GHz**



**Setup 18-26 GHz**



### 3.3 Test Conditions and Results - Receiver radiated emissions

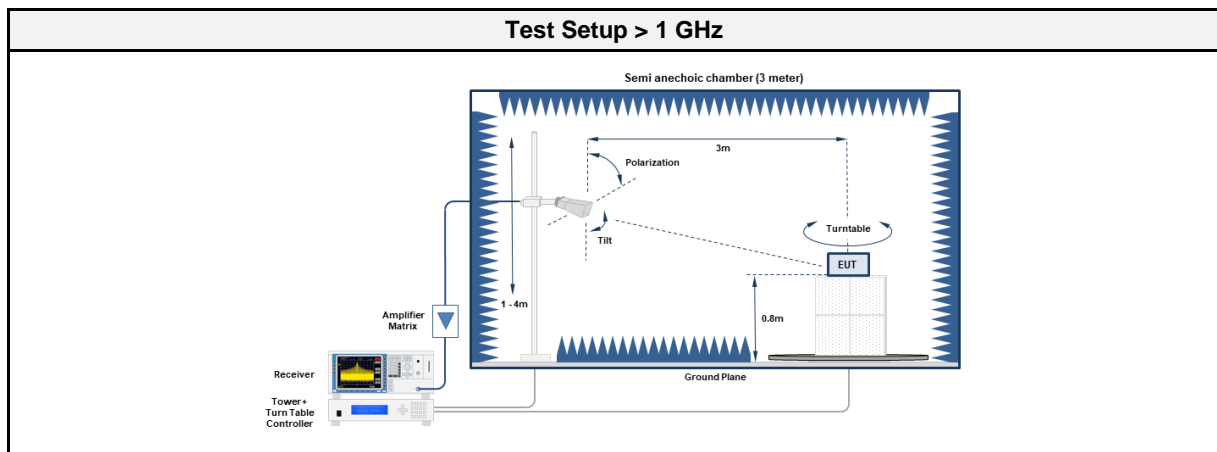
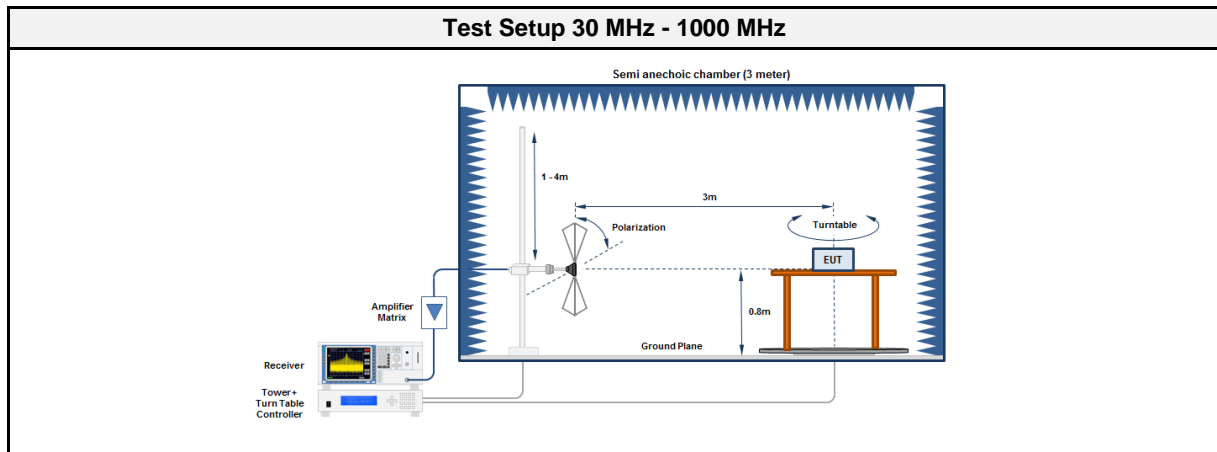
#### 3.3.1 Information

Test Information	
Reference	ISED RSS-247, Issue 2 (section 3.1)
Measurement Uncertainty	$\pm 5.95$ dB
Measurement Method	ANSI C63.4-2014 8.1-8.3
Operator	Jens Degenhardt
Date	2021-12-03 + 2021-12-06

#### 3.3.2 Limits

Limits			
Frequency range [MHz]	Detector	Field strength [ $\mu$ V/m]	Measurement distance [m]
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

#### 3.3.3 Setup



## 3.3.4 Equipment

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

Test Equipment 30 MHz - 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	EF01153	2020-11	2021-11
Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2022-03

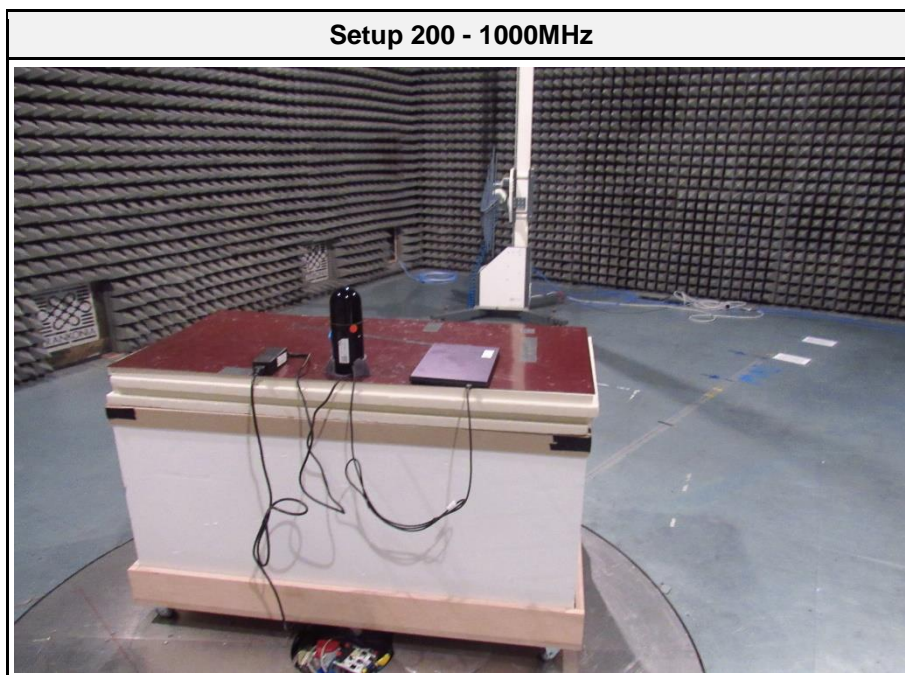
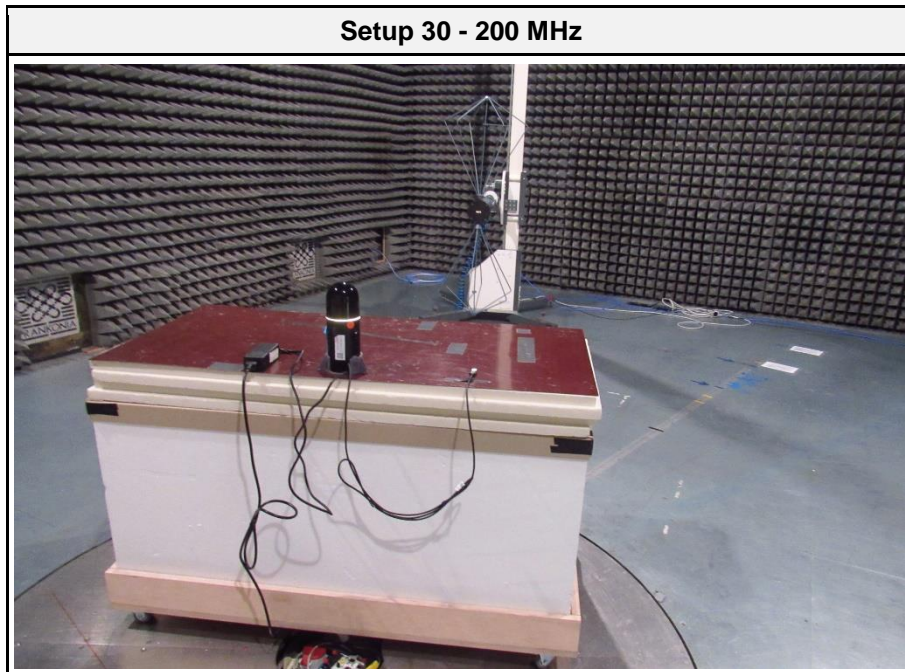
## 3.3.5 Procedure

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

## 3.3.6 Results

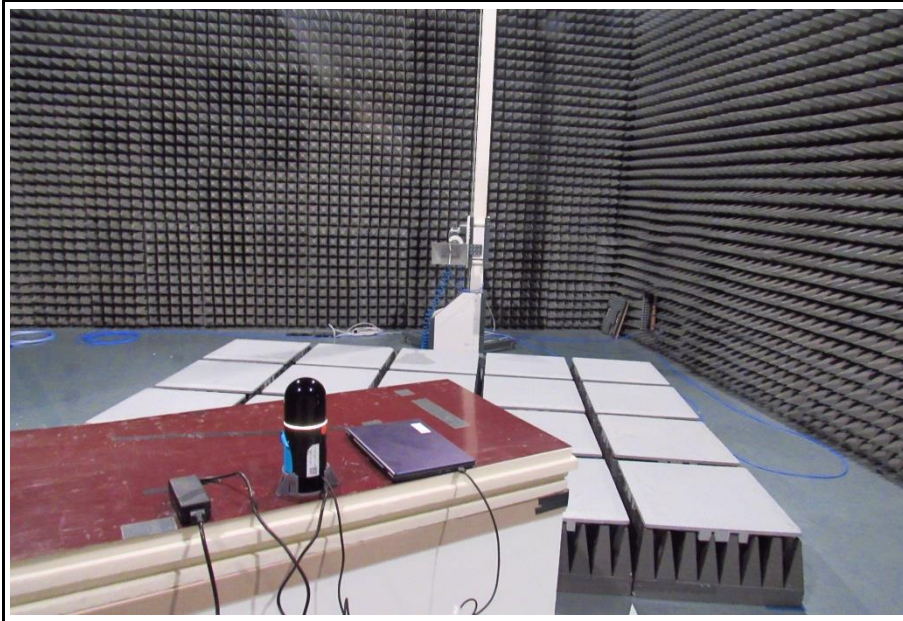
<b>Test Results - IEEE802.11g</b>						
Frequency [MHz]	Emission [MHz]	Level [dB $\mu$ V/m]	Det.	Pol.	Limit [dB $\mu$ V/m]	Margin [dB]
2437	53.545	36.70	qpk	ver	40.00	-03.28
2437	113.3467	30.60	qpk	ver	43.50	-12.88
2437	406.2476	39.30	qpk	hor	46.00	-06.66
2437	468.7503	45.50	qpk	ver	46.00	-00.51
2437	531.252	43.50	qpk	ver	46.00	-02.46

3.3.7 Setup Photos

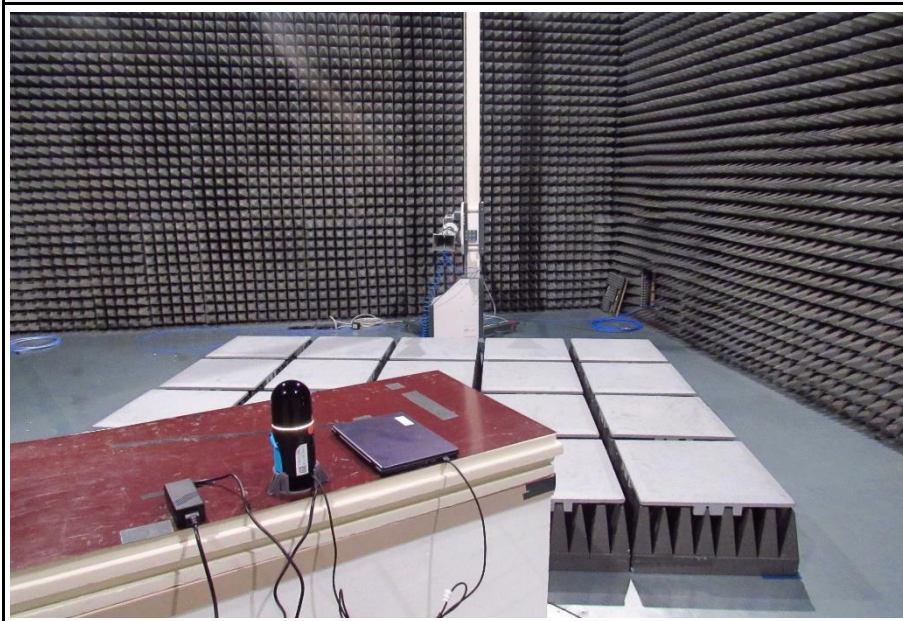




**Setup 1-6.5 GHz**



**Setup 6.5-18 GHz**



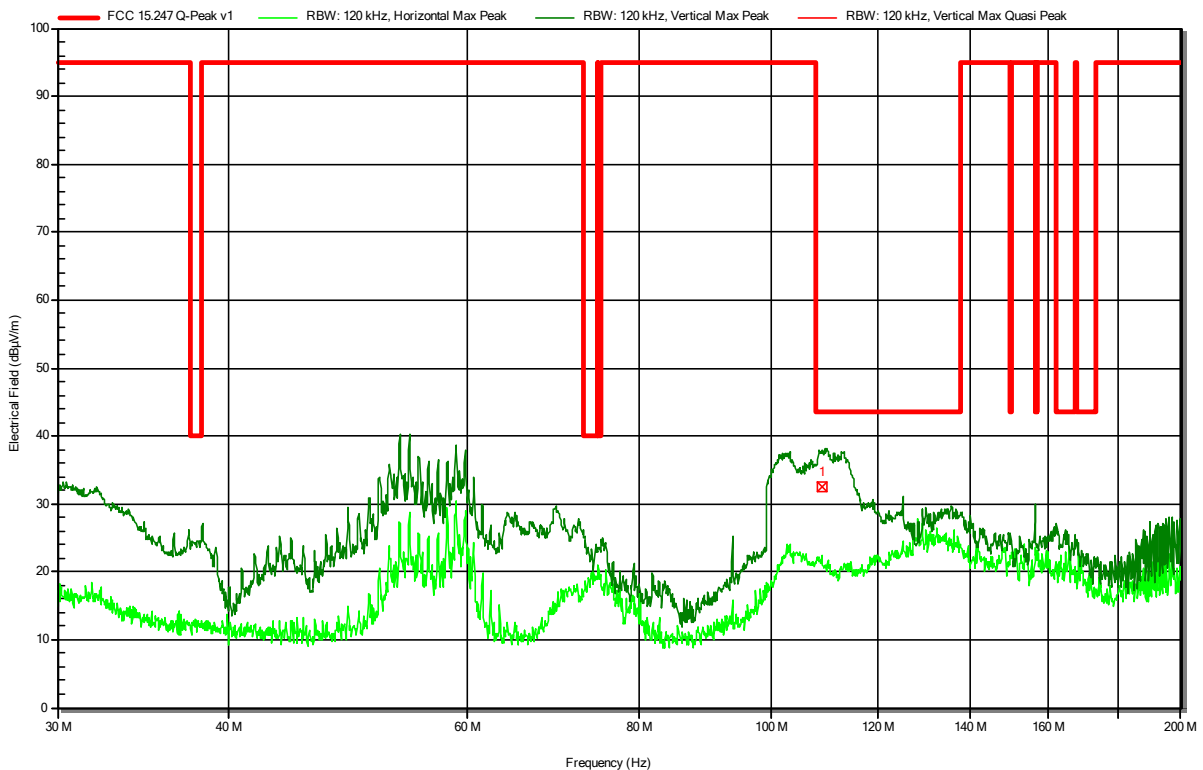
## ANNEX A Transmitter spurious emissions

### Radiated Spurious Emissions according to FCC 15.247, RSS-247

Project Number: G0M-2105-9817  
 Applicant: Leica Geosystems AG  
 Model Description: KIWI Module  
 Model: BLK ARC  
 Test Sample ID: 35959  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Degenhardt  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 21 °Celsius, Vnom: AC/DC Adapter Leica GEV276  
 Antenna: Rohde & Schwarz HK 116  
 Measurement distance: 3 m  
 Mode: Tx; CH6, f=2437MHz, OFDM, 6Mbps, TxChain01  
 Test Date: 2021-12-03  
 Note:

Index 52

**RadiMation**



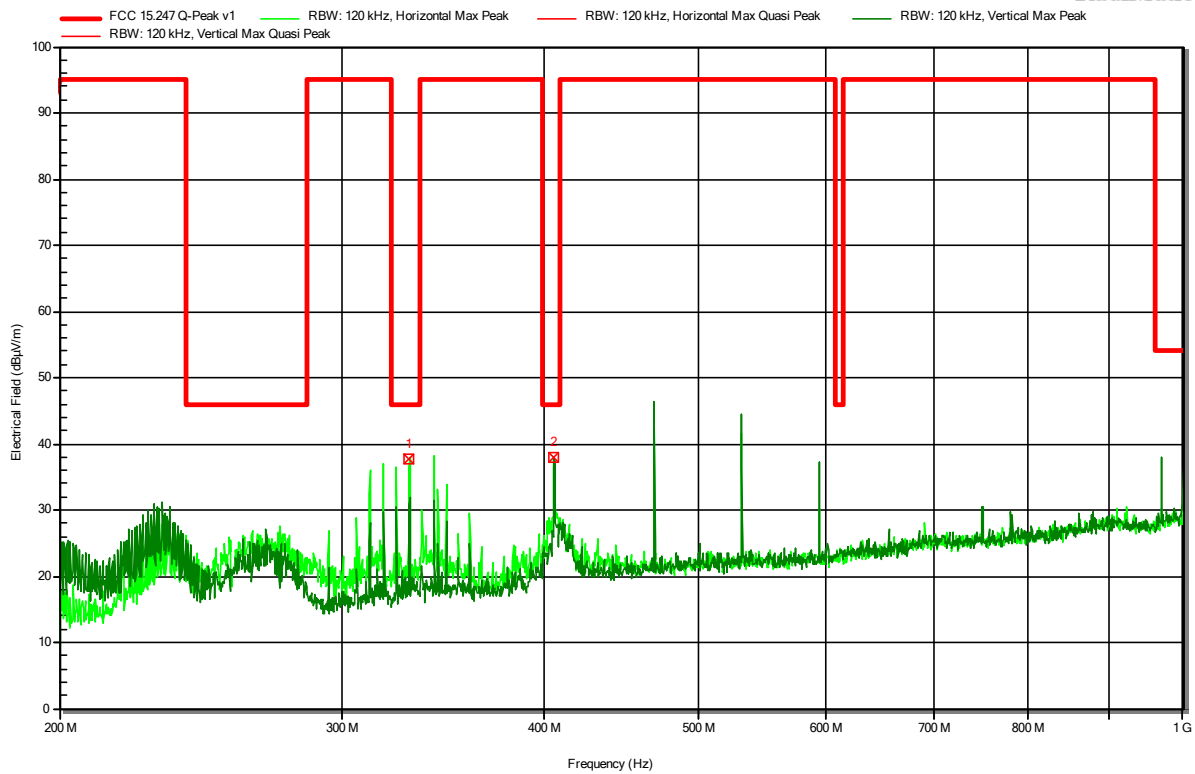
Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
109.152 MHz	32.6 dBµV/m	43.5 dBµV/m	-10.9 dB	Pass	Vertical

**Radiated Spurious Emissions according to FCC 15.247, RSS-247**

Project Number: G0M-2105-9817  
 Applicant: Leica Geosystems AG  
 Model Description: KIWI Module  
 Model: BLK ARC  
 Test Sample ID: 35959  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Degenhardt  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 21 °Celsius, Vnom: AC/DC Adapter Leica GEV276  
 Antenna: Rohde & Schwarz HL 223  
 Measurement distance: 3 m  
 Mode: Tx; CH6, f=2437MHz, OFDM, 6Mbps, TxChain01  
 Test Date: 2021-12-03  
 Note:

Index 53

**RadiMation**



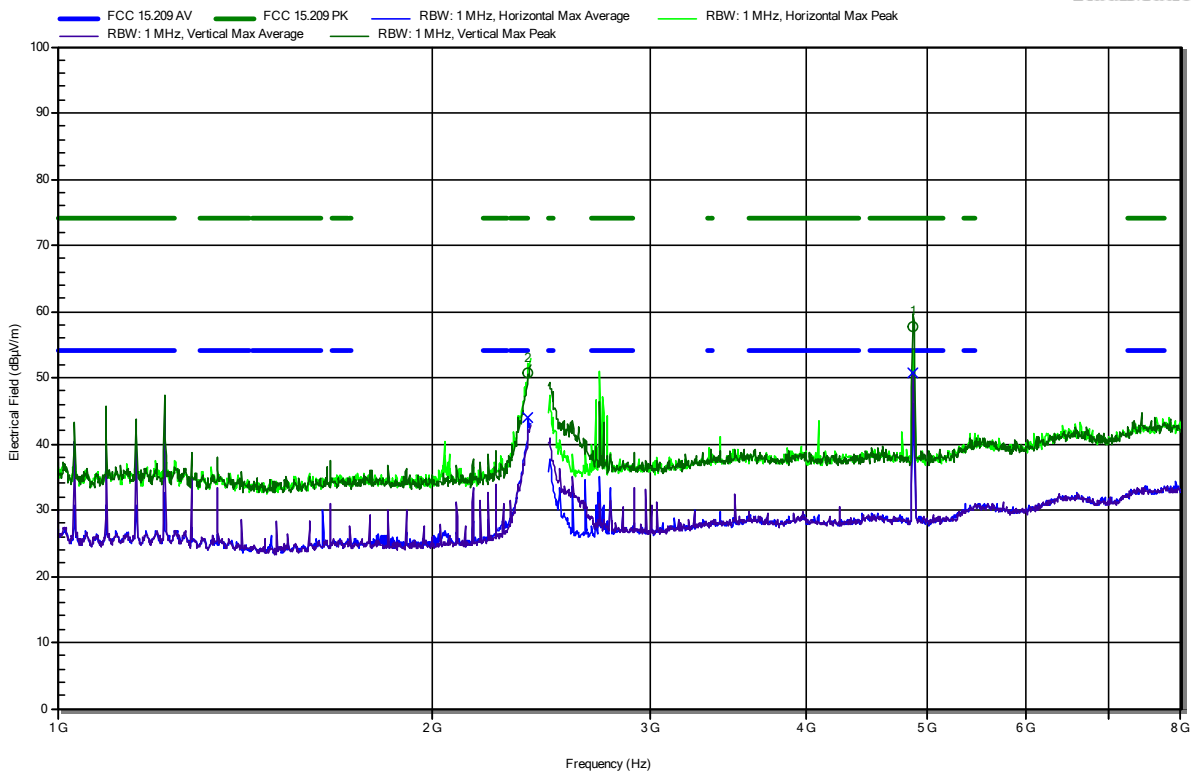
Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
330 MHz	37.8 dBµV/m	46 dBµV/m	-8.18 dB	Pass	Horizontal
406.26 MHz	38 dBµV/m	46 dBµV/m	-8.01 dB	Pass	Vertical

**Radiated Spurious Emissions according to FCC 15.247, RSS-247**

Project Number: G0M-2105-9817  
 Applicant: Leica Geosystems AG  
 Model Description: KIWI Module  
 Model: BLK ARC  
 Test Sample ID: 35959  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Degenhardt  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 21 °Celsius, Vnom: AC/DC Adapter Leica GEV276  
 Antenna: Schwarzbeck BBHA 9120B  
 Measurement distance: 3 m  
 Mode: Tx; CH6, f=2437MHz, OFDM, 6Mbps, TxChain01  
 Test Date: 2021-12-02  
 Note:

Index 49

**RadiMation**



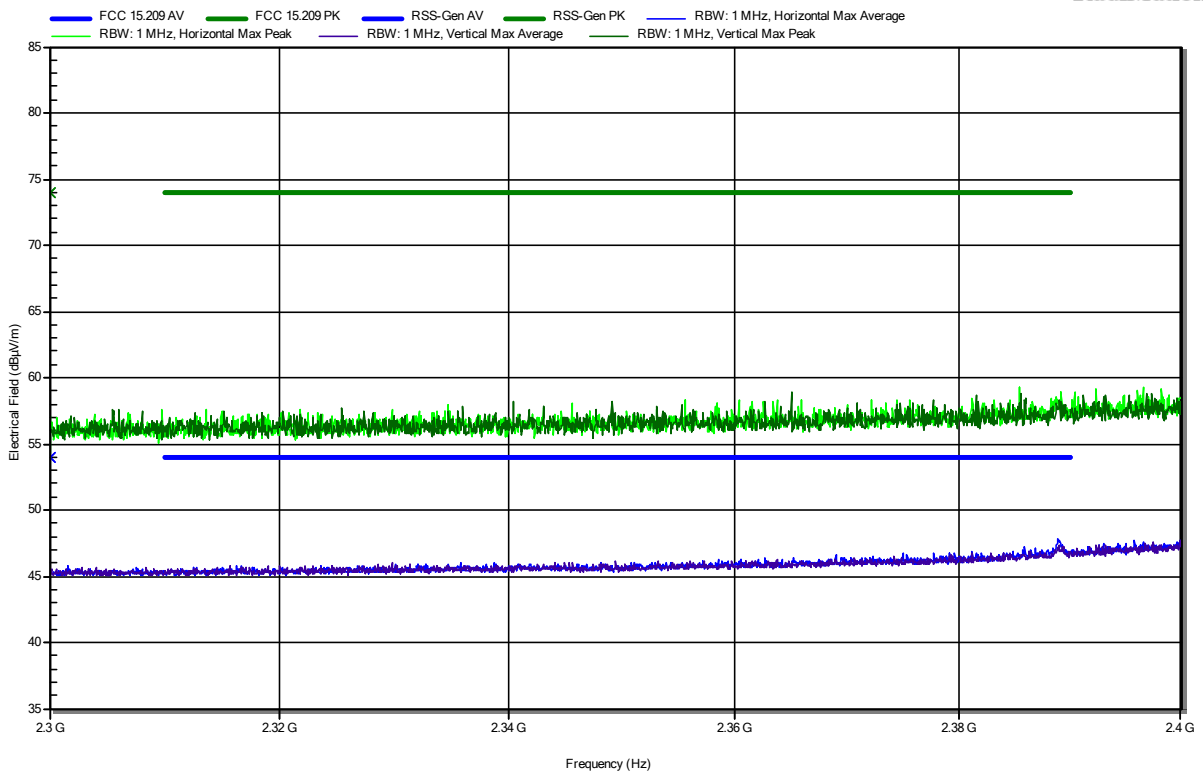
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
2.3892 GHz	43.88 dBµV/m	54 dBµV/m	-10.12 dB	Pass	Horizontal
4.8728 GHz	50.76 dBµV/m	54 dBµV/m	-3.24 dB	Pass	Vertical

### Radiated Spurious Emissions according to FCC 15.247, RSS-247

Project Number: G0M-2105-9817  
 Applicant: Leica Geosystems AG  
 Model Description: KIWI Module  
 Model: BLK ARC  
 Test Sample ID: 35959  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Degenhardt  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 21 °Celsius, Vnom: AC/DC Adapter Leica GEV276  
 Antenna: Schwarzbeck BBHA 9120B  
 Measurement distance: 3 m  
 Mode: Tx; CH6, f=2437MHz, OFDM, 6Mbps, TxChain01  
 Test Date: 2021-12-02  
 Note: lower bandedge

Index 47

**RadiMation**

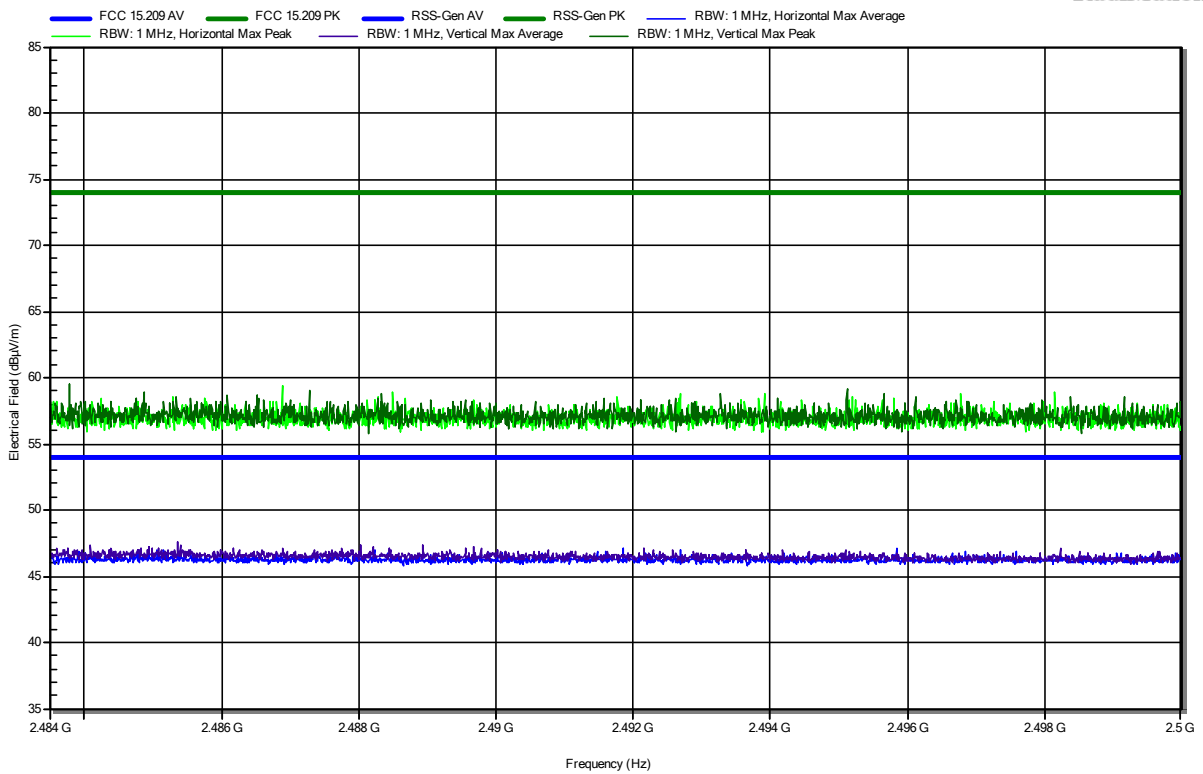


### Radiated Spurious Emissions according to FCC 15.247, RSS-247

Project Number: G0M-2105-9817  
 Applicant: Leica Geosystems AG  
 Model Description: KIWI Module  
 Model: BLK ARC  
 Test Sample ID: 35959  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Degenhardt  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 21 °Celsius, Vnom: AC/DC Adapter Leica GEV276  
 Antenna: Schwarzbeck BBHA 9120B  
 Measurement distance: 3 m  
 Mode: Tx; CH6, f=2437MHz, OFDM, 6Mbps, TxChain01  
 Test Date: 2021-12-02  
 Note: upper bandedge

Index 48

**RadiMation**

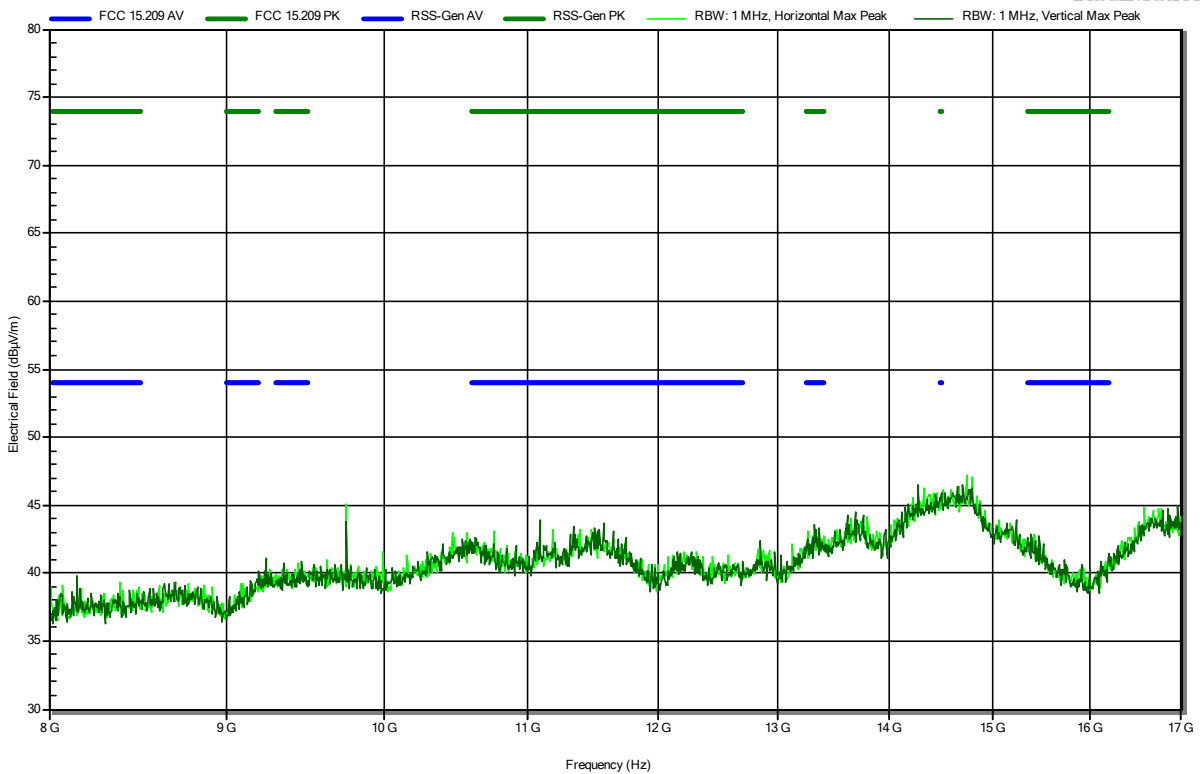


### Radiated Spurious Emissions according to FCC 15.247, RSS-247

Project Number: G0M-2105-9817  
 Applicant: Leica Geosystems AG  
 Model Description: KIWI Module  
 Model: BLK ARC  
 Test Sample ID: 35959  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Degenhardt  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 21 °Celsius, Vnom: AC/DC Adapter Leica GEV276  
 Antenna: Rohde & Schwarz BBHA 9120D  
 Measurement distance: 3 m  
 Mode: Tx; CH6, f=2437MHz, OFDM, 6Mbps, TxChain01  
 Test Date: 2021-12-02  
 Note:

Index 50

**RadiMation**

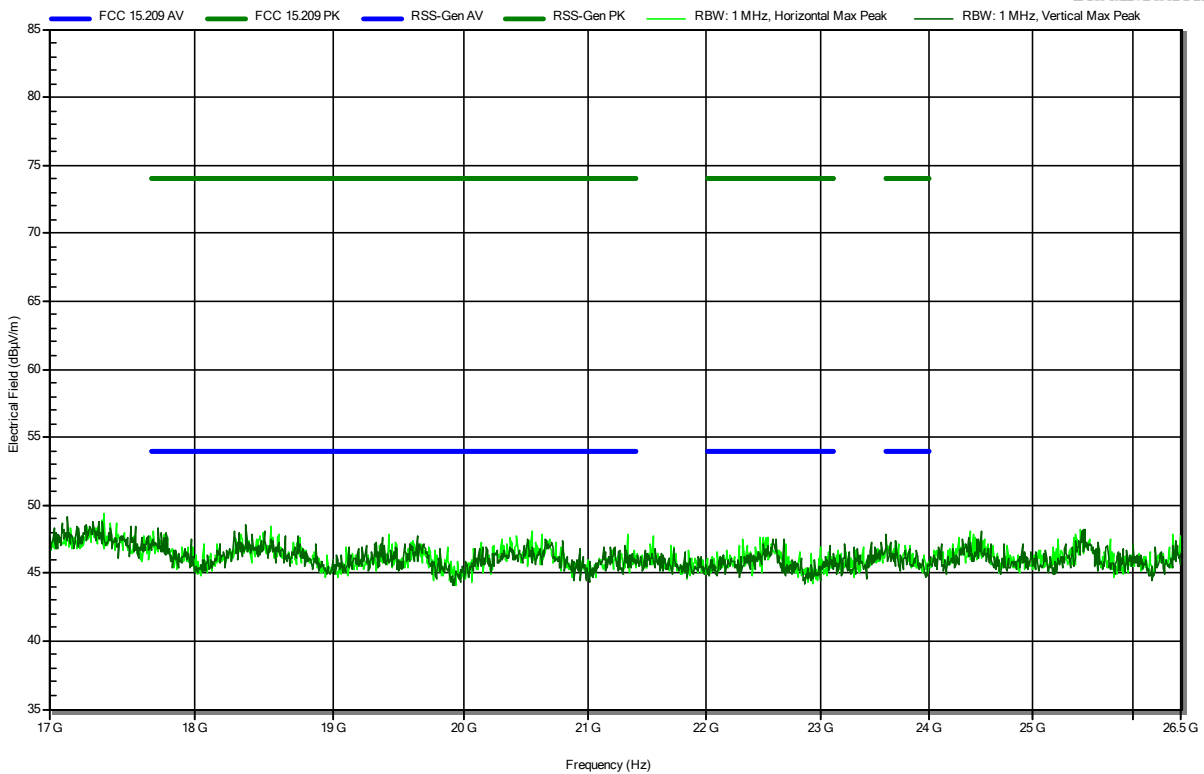


### Radiated Spurious Emissions according to FCC 15.247, RSS-247

Project Number: G0M-2105-9817  
 Applicant: Leica Geosystems AG  
 Model Description: KIWI Module  
 Model: BLK ARC  
 Test Sample ID: 35959  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Degenhardt  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 21 °Celsius, Vnom: AC/DC Adapter Leica GEV276  
 Antenna: Amplifier Research AT4560  
 Measurement distance: 3 m  
 Mode: Tx; CH6, f=2437MHz, OFDM, 6Mbps, TxChain01  
 Test Date: 2021-12-02  
 Note:

Index 51

**RadiMation**





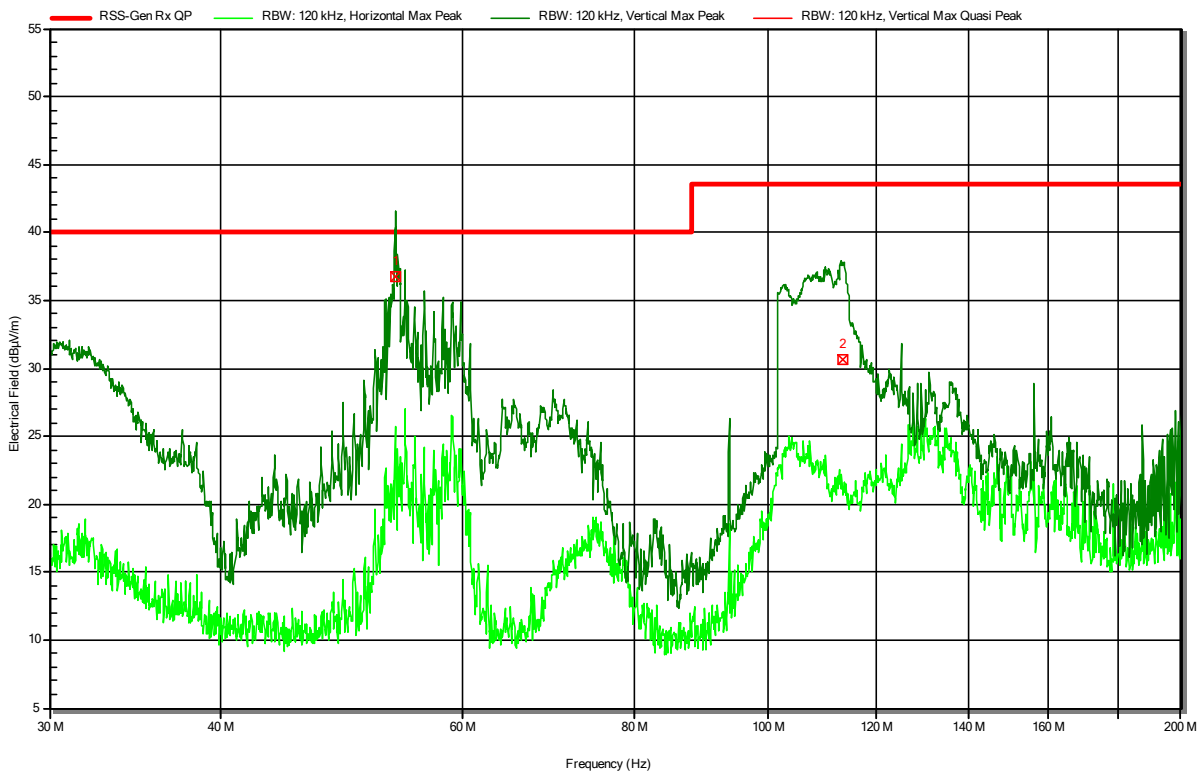
## ANNEX B Receiver spurious emissions

### Radiated Spurious Emissions according to RSS-247 Issue 2

Project Number: G0M-2105-9817  
 Applicant: Leica Geosystems AG  
 Model Description: KIWI Module  
 Model: BLK ARC  
 Test Sample ID: 35959  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Degenhardt  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 24.4 °Celsius, Vnom: AC/DC Adapter Leica GEV276  
 Antenna: Rohde & Schwarz HK 116  
 Measurement distance: 3 m  
 Mode: Rx; CH6, f=2437MHz, continuous receive  
 Test Date: 2021-12-03  
 Note:

Index 53

**RadiMation**



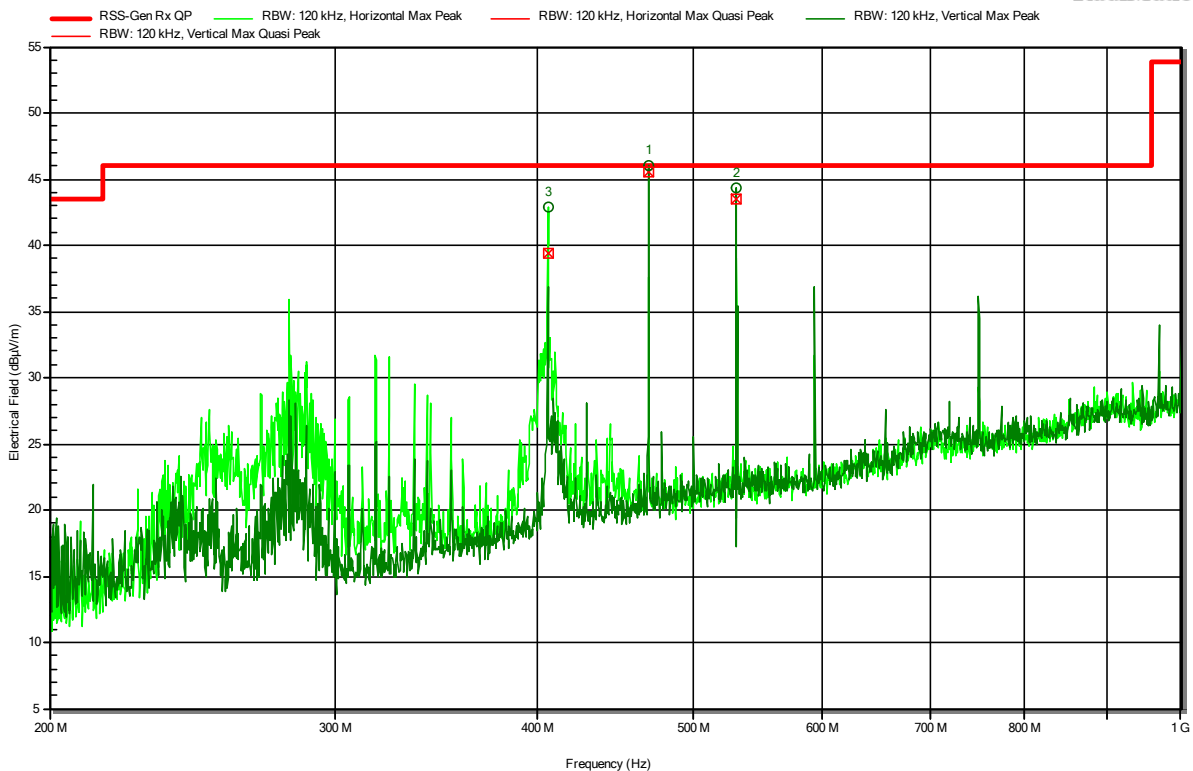
Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
53.545 MHz	36.7 dBµV/m	40 dBµV/m	-3.28 dB	Pass	Vertical
113.3467 MHz	30.6 dBµV/m	43.5 dBµV/m	-12.88 dB	Pass	Vertical

### Radiated Spurious Emissions according to RSS-247 Issue 2

Project Number: G0M-2105-9817  
 Applicant: Leica Geosystems AG  
 Model Description: KIWI Module  
 Model: BLK ARC  
 Test Sample ID: 35959  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Degenhardt  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 24.4 °Celsius, Vnom: AC/DC Adapter Leica GEV276  
 Antenna: Rohde & Schwarz HL 223  
 Measurement distance: 3 m  
 Mode: Rx; CH6, f=2437MHz, continuous receive  
 Test Date: 2021-12-06  
 Note:

Index 57

RadiMation



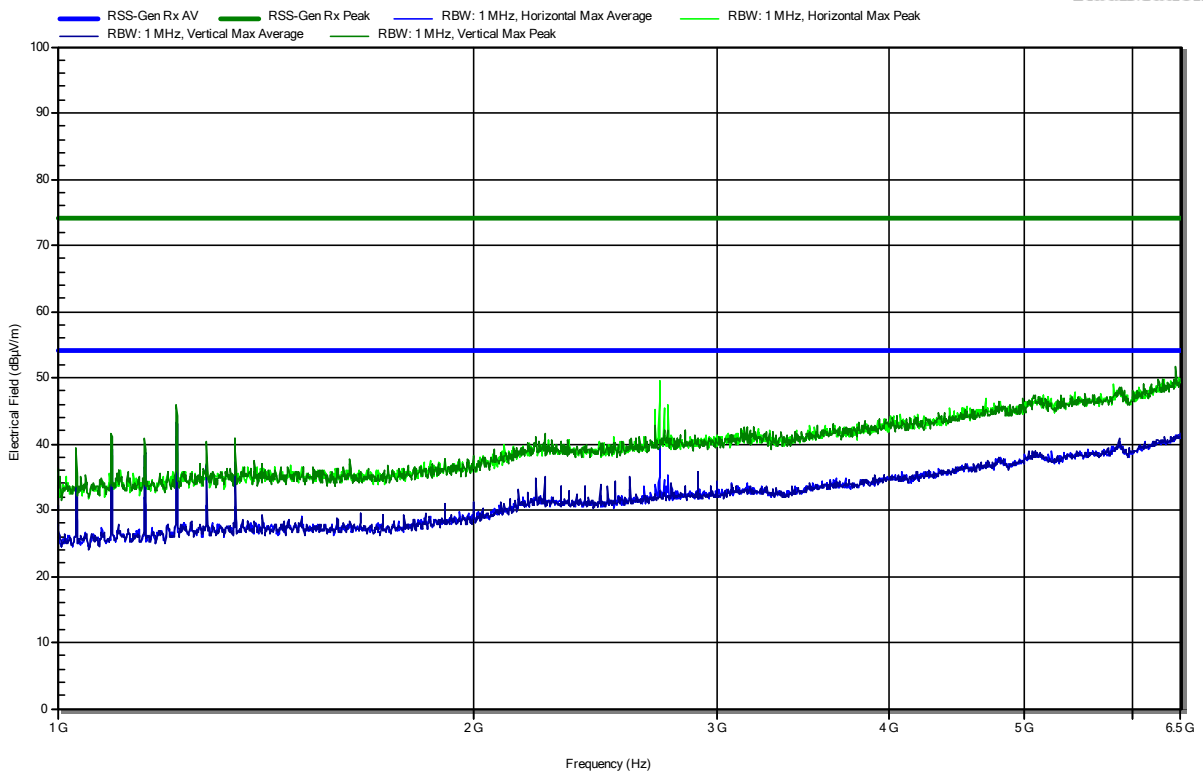
Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
406.2476 MHz	39.3 dBµV/m	46 dBµV/m	-6.66 dB	Pass	Horizontal
468.7503 MHz	45.5 dBµV/m	46 dBµV/m	-0.51 dB	Pass	Vertical
531.252 MHz	43.5 dBµV/m	46 dBµV/m	-2.46 dB	Pass	Vertical

### Radiated Spurious Emissions according to RSS-247 Issue 2

Project Number: G0M-2105-9817  
 Applicant: Leica Geosystems AG  
 Model Description: KIWI Module  
 Model: BLK ARC  
 Test Sample ID: 35959  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Degenhardt  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 24.4 °Celsius, Vnom: AC/DC Adapter Leica GEV276  
 Antenna: Schwarzbeck BBHA 9120D  
 Measurement distance: 3 m  
 Mode: Rx; CH6, f=2437MHz, continuous receive  
 Test Date: 2021-12-03  
 Note:

Index 51

**RadiMation**

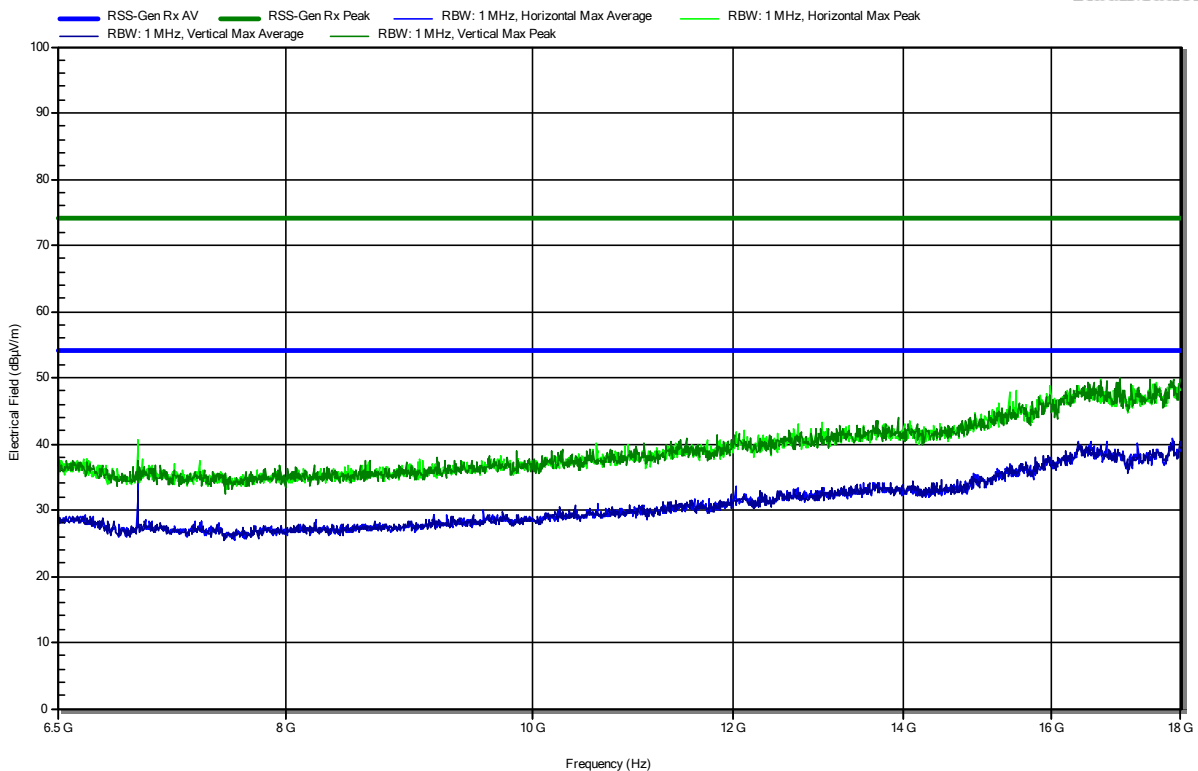


### Radiated Spurious Emissions according to RSS-247 Issue 2

Project Number: G0M-2105-9817  
 Applicant: Leica Geosystems AG  
 Model Description: KIWI Module  
 Model: BLK ARC  
 Test Sample ID: 35959  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Degenhardt  
 Measurement software: RadiMation, version 2020.1.8  
 Test Conditions: Tnom: 24.4 °Celsius, Vnom: AC/DC Adapter Leica GEV276  
 Antenna: Schwarzbeck HWRD 650  
 Measurement distance: 3 m  
 Mode: Rx; CH6, f=2437MHz, continuous receive  
 Test Date: 2021-12-03  
 Note:

Index 52

**RadiMation**



=== End of test report ===