

Certification Radio test report

According to the standard:
CFR 47 FCC PART 15

Equipment under test:
ORX REMOTE CONTROL

FCC ID: XFJRCO

Company:
XPLOER

Distribution: Mrs MONNIER

(Company: XPLOER)

Number of pages: 39 with 6 annexes

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DESIGNATION OF PRODUCT: ORX REMOTE CONTROL

Serial number (S/N): PROTO

Reference / model (P/N): XPRCO

Software version: 1.0

MANUFACTURER: XPLOER

COMPANY SUBMITTING THE PRODUCT:

Company: XPLOER

Address: 40, CHEMIN DU MOULIN
31320 MERVILLA
FRANCE

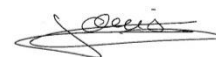
Responsible: Mrs MONNIER

DATES OF TEST: From 17-Dec-18 to 20-Dec-18

TESTING LOCATION: EMITECH ANGERS laboratory at JUIGNE SUR LOIRE (49) FRANCE
FCC Accredited under US-EU MRA Designation Number: FR0009
Test Firm Registration Number: 873677

TESTED BY: S. LOUIS

VISA:



WRITTEN BY: S. LOUIS

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1. INTRODUCTION

This report presents the results of radio test carried out on the following radio equipment: **ORX Remote control**, in accordance with normative reference.

The applicant declares that E.U.T is not operational in charging mode.

The device under test integrates a 2.4GHz proprietary radio chip.

2. PRODUCT DESCRIPTION

Class:	B
Utilization:	Remote Control
Antenna type and gain:	2.15 dBi / integral antenna
Operating frequency range:	From 2400 MHz to 2483.5 MHz
Number of channels:	37
Channel spacing:	2 MHz
Modulation:	2.4GHz Proprietary Radio Protocol
Power source:	3.7Vdc Lithium Battery

Power level, frequency range and channels characteristics are not user adjustable.
The details pictures of the product and the circuit boards are joined with this file.

3. NORMATIVE REFERENCE

The standards and testing methods related throughout this report are those listed below.
They are applied on the whole test report even though the extensions (version, date and amendment) are not repeated.

CFR 47 FCC Part 15 (2018)	Radio Frequency Devices
ANSI C63.10	2013 Procedures for Compliance Testing of Unlicensed Wireless Devices.
558074 D01 DTS v05	Guidance for Performing Compliance on Digital Transmission Systems Operating under §15.247
447498 D01 General RF Exposure Guidance v06	RF Exposure procedures and equipment authorization policies for mobile and portable equipment

4. TEST METHODOLOGY

Radio performance tests procedures given in CFR 47 part 15:

Subpart C – Intentional Radiators

Paragraph 203: Antenna requirement

Paragraph 205: Restricted bands of operation

Paragraph 207: Conducted limits

Paragraph 209: Radiated emission limits; general requirements

Paragraph 212: Modular transmitter

Paragraph 215: Additional provisions to the general radiated emission limitations

Paragraph 247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850

5. TEST EQUIPMENT CALIBRATION DATES

Emitech Number	Model	Type	Last calibration	Calibration interval (years)	Next calibration due
0	BAT-EMC V3.17.0.25	Software	/	/	/
1406	EMCO 6502	Loop antenna	13/04/2017	2	13/04/2019
4087	Filtek LP03/1000-7GH	Low Pass Filter	29/03/2018	2	29/03/2020
4088	R&S FSP40	Spectrum Analyzer	21/02/2018	2	21/02/2020
5625	BL Microwave BP2442-84-7CS	Band pass filter	29/03/2018	2	29/03/2020
6884	Suhner 1.5m	Cable	29/03/2018	2	29/03/2020
7190	R&S HL223	Antenna	15/03/2016	3	15/03/2019
7240	Emco 3110	Biconical antenna	15/03/2016	3	15/03/2019
7299	Microtronics BRM50702	Reject band filter	13/11/2017	2	13/11/2019
7566	Testo 608-H1	Meteo station	24/09/2018	2	24/09/2020
8511	HP 8447D	Low-noise amplifier	01/02/2018	1	01/02/2019
8526	Schwarzbeck VHBB 9124	Biconical antenna	16/08/2018	3	16/08/2021
8535	EMCO 3115	Antenna	10/02/2017	3	10/02/2020
8543	Schwarzbeck UHALP 9108A	Log periodic antenna	16/08/2018	3	16/08/2021
8593	SIDT Cage 2	Anechoic chamber	/	/	/
8704	LUCIX Corp S180265L3201 LNA	Low-noise amplifier	09/08/2018	1	09/08/2019
8750	La Crosse Technology WS-9232	Meteo station	24/09/2018	2	24/09/2020
8786	ETS Lindgren 3160-09	Antenna	16/05/2016	3	16/05/2019

Emitech Number	Model	Type	Last calibration	Calibration interval (years)	Next calibration due
8893	Emitech	Outside room Hors cage	/	/	/
8896	ACQUISYS GPS8	Satellite synchronized frequency standard	/	/	/
8958	1060C	turntable	/	/	/
8974	STORM MICROWAE k-20cm	cable	19/11/2017	2	19/11/2019
9398	N-1.5m	cable	29/03/2018	2	29/03/2020
10694	C&C SMA-2m	cable	21/12/2016	2	21/12/2018
10730	Mini-circuit ZFL-1000LN	Low-noise amplifier	12/02/2018	1	12/02/2019
10739	LUCIX Corp S005180M3201	Low-noise amplifier	29/03/2018	1	29/03/2019
10759	SIDT Cage 3	Anechoic chamber	/	/	/
10771	EMCO 3117	Antenna	23/11/2016	3	23/11/2019
10789	MATURO	Turntable and mat controller NCD	/	/	/
12911	Huber + Suhner N-2m	cable	29/03/2018	2	29/03/2020
12912	Huber + Suhner N-5m	cable	29/03/2018	2	29/03/2020
14302	SUCOFLEX N-1m	cable	14/12/2018	2	14/12/2020
14303	SUCOFLEX N-2m	cable	14/12/2018	2	14/12/2020
14304	SUCOFLEX N-2.5m	cable	14/12/2018	2	14/12/2020
14305	SUCOFLEX N-4m	cable	14/12/2018	2	14/12/2020
14831	Fluke 177	Multimeter	20/07/2018	2	20/07/2020
15812	COM-POWER PAM-118A	Low-noise amplifier 18GHz	12/11/2018	1	12/11/2019
15882	SUCOFLEX N-5m	cable	27/11/2018	2	27/11/2020
/	Software	GPB Shot V2.4	/	/	/

6. TESTS RESULTS SUMMARY

Test procedure	Description of test	Respected criteria?				Comment
		Yes	No	NAP	NAs	
FCC Part 15.203	ANTENNA REQUIREMENT	X				Note 1
FCC Part 15.205	RESTRICTED BANDS OF OPERATION	X				
FCC Part 15.207	CONDUCTED LIMITS			X		Note 2
FCC Part 15.209	RADIATED EMISSION LIMITS; general requirements	X				Note 3
FCC Part 15.212	MODULAR TRANSMITTERS			X		
FCC part 15.215	ADDITIONAL PROVISIONS TO THE GENERAL RADIATED EMISSION LIMITATIONS					
	(a) Alternative to general radiated emission limits	X				
	(b) Unwanted emissions outside of §15.247 frequency bands	X				Note 4
	(c) 20 dB bandwidth and band-edge compliance	X				
FCC Part 15.247	OPERATION WITHIN THE BANDS 902-928 MHZ, 2400-2483.5 MHz and 5725-5850 MHz					
	(a) (1) Hopping systems			X		
	(a) (2) Digital modulation techniques	X				Note 5
	(b) Maximum peak output power	X				Note 6
	(c) Operation with directional antenna gains > 6 dBi			X		
	(d) Intentional radiator	X				
	(e) Peak power spectral density	X				
	(f) Hybrid system			X		
	(g) Frequency hopping requirements			X		
	(h) Frequency hopping intelligence			X		
	(i) RF exposure compliance	X				

NAP: Not Applicable

NAs: Not Asked

Note 1: Integral antenna without standard connector.

Note 2: Radio is not operational in charging mode

Note 3: See FCC part 15.247 (d).

Note 4: See FCC part 15.209. Unwanted emissions levels are all below the fundamental emission field strength level.

Note 5: The minimum 6 dB bandwidth of the equipment is 508 kHz (see appendix 4).

Note 6: Conducted measurement is not possible (integral antenna), so we used the radiated method in anechoic room and added the antenna gain.

RF EXPOSURE:

In accordance with KDB 447498 D01 General RF Exposure Guidance v06, Paragraph 4.3.1.

Maximum measured power = 94.7 dB μ V/m = 0.000540 W at 2404 MHz

with $P = (E \times d)^2 / (30 \times G_p)$ with $d = 3 \text{ m}$ and $G_p = 1.64$

The test separation distance declared is 5 mm

The product must respect the exclusion limit for 10-g extremity SAR.

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [\sqrt{f(\text{GHz})}] \leq 7.5$

According this formula:

$\text{Min. test separation distance, mm} \geq [(\text{max. power of channel, including tune-up tolerance, mW}) * \sqrt{f(\text{GHz})}] / 7.5$

$\text{Min. test separation distance, mm} \geq [0.54(\text{mW}) * \sqrt{(2.404)}] / 7.5$

$\text{Min. test separation distance, mm} \geq \mathbf{0.11 \text{ mm}}$ (with a minimum value of 5 mm)

The minimum distance between the user and the antenna is greater than 5 mm (see photos in appendix 1).

The equipment fulfils the requirements on maximum conducted or equivalent isotropically radiated power (e.i.r.p) for general population/uncontrolled exposure and therefore fulfils the requirements of 47 CFR §1.1310 at the distance greater than 5 mm between the user and the antenna.

7. MEASUREMENT UNCERTAINTY

To declare, or not, the compliance with the specifications, it was not explicitly taken into account of uncertainty associated with the result(s)

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for normal distribution corresponds to a coverage probability of approximately 95%.

Parameter	Emitech Uncertainty
RF power, conducted	$\pm 0.75\text{dB}$
Radiated emission valid to 26 GHz	
F < 62.5 MHz:	$\pm 5.14\text{ dB}$
62.5 MHz < F < 1 GHz:	$\pm 5.13\text{ dB}$
1 GHz < F < 26 GHz:	$\pm 5.16\text{ dB}$
AC Power Lines conducted emissions	$\pm 3.38\text{ dB}$
Temperature	$\pm 1\text{ }^{\circ}\text{C}$
Humidity	$\pm 5\%$

8. ADDITIONAL PROVISIONS TO THE GENERAL RADIATED EMISSION LIMITATIONS**Temperature (°C) :** 21.7**Humidity (%HR):** 41**Date :** December 19, 2018**Technician :** S. LOUIS**Standard:** FCC Part 15**Test procedure:** Paragraph 15.215**Test set up:**

Test realized in near field. All field strength measurements are correlated with the radiated maximum peak output power

Test operating condition of the equipment:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate.

We used for power source the internal battery of the equipment and we noted:

Voltage at the beginning of test (Vdc): 4.02

Voltage at the end of test (Vdc): 3.90

Percentage of voltage drop during the test (%): 2.98

Results:

Lower Band Edge: From 2398 MHz to 2400 MHz

Upper Band Edge: From 2483.5 MHz to 2485.5 MHz

Sample N° 1

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBμV/m)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2404	94.7	Peak	2398.20	37.4	57.3	74.6	17.3
2476	93.5	Peak	2484.06	38.0	55.5	74	18.5
2476	93.5	Average	2484.06	49.1	44.4	54	9.6

(1) Marker-Delta method

Band-edge curves are given in appendix 6.

Test conclusion:

RESPECTED STANDARD

9. MAXIMUM PEAK CONDUCTED OUTPUT POWER**Temperature (°C) :** 22.8**Humidity (%HR):** 38**Date :** December 18, 2018**Technician :** S. LOUIS**Standard:** FCC Part 15**Test procedure:** paragraph 15.247 (b)

RBW≥DTS bandwidth method of paragraph 11.9.1.1 of ANSI C63.10

Test set up:

First an exploratory radiated measurement was performed.

During this phase the product is oriented in three orthogonal planes.

Then the final measurement is realized with the product on the most critical orientation.

The system is tested in anechoic chamber, the EUT is placed on a rotating table, 1.50 m from a ground plane.

Zero degree azimuths correspond to the front of the device under test.

See photos in appendix 2.

Distance of antenna: 3 meters (in anechoic room)**Antenna height:** 1.5 meter (in anechoic room)**Antenna polarization:** vertical and horizontal (only the highest level is recorded)

The measurement of the radiated electro-magnetic field is realized with an analyser and peak detector. The resolution bandwidth is adjusted at 1 MHz and video bandwidth at 3 MHz. (11.9.1.1 of ANSI C63.10).

Finally the radiated electro-magnetic field is converted in dBm with the following formula:

$$EIRP(dBm) = E (dB\mu V/m) + 20\log(D) - 104.8; \text{ where } D \text{ is the measurement distance in meters and antenna Gain} = 2.15 \text{ dBi.}$$
Equipment under test operating condition:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate.

We used for power source the internal battery of the equipment and we noted:

Voltage at the beginning of test (Vdc): 3.93

Voltage at the end of test (Vdc): 3.83

Percentage of voltage drop during the test (%): 2.54

Results:

Sample N° 1 Channel 1 (F = 2404 MHz)

	Electro-magnetic field (dBμV/m):	Maximum Peak conducted output power (1)		Limit (W)
		(dBm)	(W)	
Nominal supply voltage:	94.7	-2.68	0.00054	1

Polarization of test antenna: horizontal (height: 150 cm)

Position of equipment: 2 (azimuth: 337 degrees)

Sample N° 1 Channel 19 (F = 2440 MHz)

	Electro-magnetic field (dBμV/m):	Maximum Peak conducted output power (1)		Limit (W)
		(dBm)	(W)	
Nominal supply voltage:	94.5	-2.88	0.00053	1

Polarization of test antenna: horizontal (height: 150 cm)

Position of equipment: 2 (azimuth: 343 degrees)

Sample N° 1 Channel 38 (F = 2476 MHz)

	Electro-magnetic field (dBμV/m):	Maximum Peak conducted output power (1)		Limit (W)
		(dBm)	(W)	
Nominal supply voltage:	93.5	-3.88	0.00041	1

Polarization of test antenna: horizontal (height: 150 cm)

Position of equipment: 2 (azimuth: 339 degrees)

Maximum Peak conducted output power:

$EIRP(dBm) = E (dBμV/m) + 20\log(D) - 104.8$; where D is the measurement distance in meters and antenna Gain = 2.15 dBi.

Test conclusion:

RESPECTED STANDARD

10. INTENTIONAL RADIATOR**Temperature (°C) :** 22**Humidity (%HR):** 37**Date :** December 17, 2018**Technician :** S. LOUIS**Standard:** FCC Part 15**Test procedure:** paragraph 15.205, paragraph 15.209, paragraph 15.247 (d)

Emissions in non-restricted frequency bands method of paragraph 11.11 of ANSI C63.10

Emissions in restricted frequency bands method of paragraph 11.12 of ANSI C63.10

Test set up:

First an exploratory radiated measurement was performed.

During this phase the product is oriented in three orthogonal planes.

Then the final measurement is realized with the product on the most critical orientation.

The measure is realized on open area test site under 1 GHz and in anechoic chamber above 1 GHz.

When the system is tested in an open area test site (OATS), the EUT is placed on a rotating table, 0.8m from a ground plane.

When the system is tested in anechoic chamber, the EUT is placed on a rotating table, 1.5 m from a ground plane.

Zero degree azimuths correspond to the front of the device under test.

See photos in appendix 2.

Frequency range: From 9 kHz to 26 GHz - 10th harmonic of the highest fundamental frequency (2476 MHz)**Detection mode:** Quasi-peak ($F < 1$ GHz)Peak / Average ($F > 1$ GHz)**Bandwidth:** 200Hz ($9 \text{ kHz} < F < 150\text{kHz}$)
9 kHz ($150 \text{ kHz} < F < 30\text{MHz}$)
120 kHz ($30 \text{ MHz} < F < 1 \text{ GHz}$)
100 kHz / 1 MHz ($F > 1 \text{ GHz}$)**Distance of antenna:** 10 meters (in open area test site) / 3 meters (in anechoic room)**Antenna height:** 1 to 4 meters (in open area test site) / 1.5 meter (in anechoic room)**Antenna polarization:** vertical and horizontal (only the highest level is recorded)

Equipment under test operating condition:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate.

We used for power source the internal battery of the equipment and we noted:

Voltage at the beginning of test (Vdc): 3.95

Voltage at the end of test (Vdc): 3.88

Percentage of voltage drop during the test (%): 3.03

Results:

Sample N° 1 Channel 1 (F = 2404 MHz)

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Position	Polarization H: Horizontal V: Vertical	Field strength Measured at 3 m (dB μ V/m)	Limits (dB μ V/m) or (dBm)	Margin (dB)
4808 (1)	P	150	1000	1	V	54.9	74	19.1
4808 (1)	Av	150	1000	1	V	52.3	54	1.7
7212	P	150	100	3	H	48.2	74.6	26.4
9616	P	150	100	3	H	51.8	71.1	22.8

P= Peak, QP=Quasi-peak, Av=Average

(1) Restricted bands of operation in 15.205

Sample N° 1 Channel 19 (F = 2440 MHz)

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Position	Polarization H: Horizontal V: Vertical	Field strength Measured at 3 m (dB μ V/m)	Limits (dB μ V/m) or (dBm)	Margin (dB)
4880 (1)	P	150	1000	2	H	56.5	74	17.5
4880 (1)	Av	150	1000	2	H	53.9	54	0.1
9760	P	150	100	3	V	52.2	74.6	22.4

P= Peak, QP=Quasi-peak, Av=Average

(1) Restricted bands of operation in 15.205

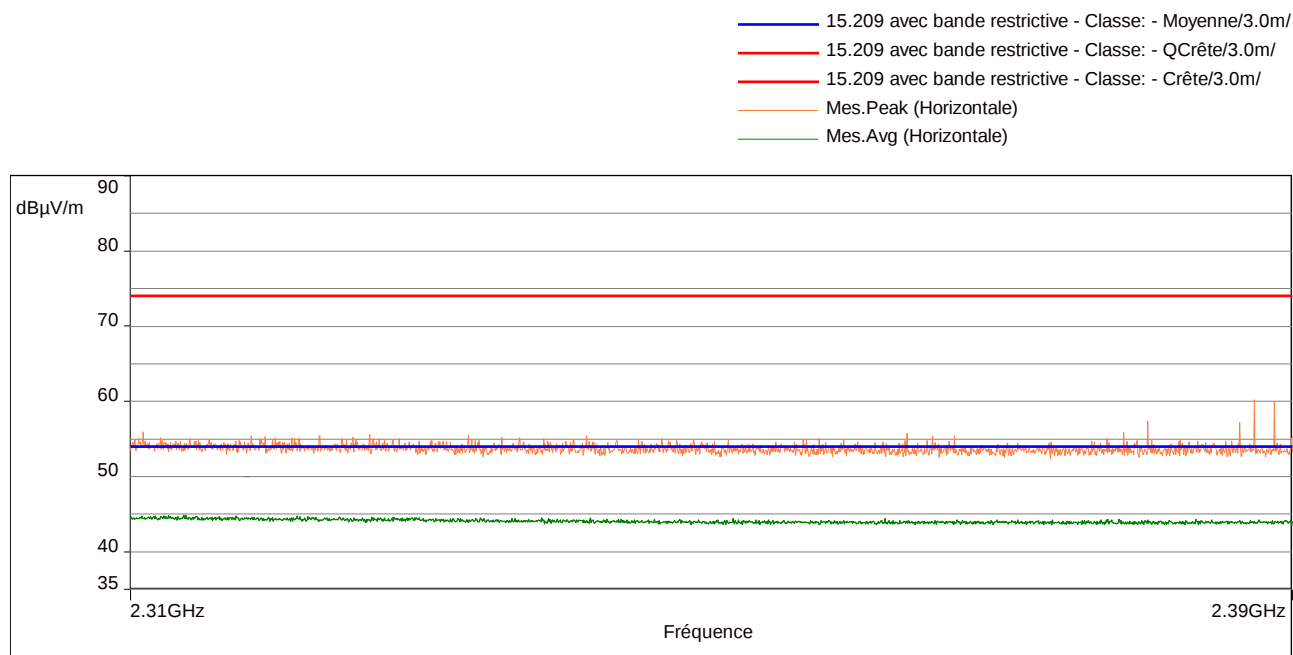
Sample N° 1 Channel 38 (F = 2476 MHz)

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Position	Polarization H: Horizontal V: Vertical	Field strength Measured at 3 m (dB μ V/m)	Limits (dB μ V/m) or (dBm)	Margin (dB)
4952 (1)	P	150	1000	2	H	56.5	74	17.5
4952 (1)	Av	150	1000	2	H	53.9	54	0.1
9904	P	150	100	3	V	51.2	74.6	23.4

P= Peak, QP=Quasi-peak, Av=Average

(1) Restricted bands of operation in 15.205

Band edge worst case measurement (band 2.31GHz to 2.39GHz)



Applicable limits: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

The highest level recorded in a 100 kHz bandwidth is 94.6 dBμV/m on High channel.

So the applicable limit is 74.6 dBμV/m.

In addition, radiated emissions which fall in the restricted band, as defined in section 15.205 (a), must also comply with the radiated emission limits specified in section 15.209 (a) (see section 15.205 (c)).

Test conclusion:

RESPECTED STANDARD

11. MAXIMUM PEAK CONDUCTED POWER DENSITY**Temperature (°C) :** 22.8**Humidity (%HR):** 38**Date :** December 18, 2018**Technician :** S. LOUIS**Standard:** FCC Part 15**Test procedure:** paragraph 15.247 (e)

PKPSD (Peak PSD) method of paragraph 11.10.2 of ANSI C63.10

Test set up:

First an exploratory radiated measurement was performed.

During this phase the product is oriented in three orthogonal planes.

Then the final measurement is realized with the product on the most critical orientation.

The system is tested in anechoic chamber, the EUT is placed on a rotating table, 1.50 m from a ground plane.

Zero degree azimuths correspond to the front of the device under test.

See photos in appendix 2.

Distance of antenna: 3 meters (in anechoic room)**Antenna height:** 1.5 meter (in anechoic room)**Antenna polarization:** vertical and horizontal (only the highest level is recorded)

The measurement of the radiated electro-magnetic field is realized with an analyser.

Span: 1MHz

Resolution bandwidth: 3kHz

Video bandwidth: 10kHz

Detector: Peak

Number of points: Auto

Sweep time: Auto

Trace mode: Max hold

Then the peak marker function is used.

Finally the radiated electro-magnetic field is converted in dBm with the following formula:

$EIRP(dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance in meters and antenna Gain = 2.15 dBi.

Equipment under test operating condition:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate.

We used for power source the internal battery of the equipment and we noted:

Voltage at the beginning of test (Vdc): 3.93

Voltage at the end of test (Vdc): 3.83

Percentage of voltage drop during the test (%): 2.54

Results:

Sample N° 1 Channel 1 (F = 2404 MHz)

	Electro-magnetic field (dBμV/m):	Maximum Peak conducted power density(1) (dBm / 3 kHz)	Limit (dBm / 3 kHz)
Nominal supply voltage	88.5	-8.88	8

Polarization of test antenna: horizontal (height: 150 cm)

Position of equipment: 2 (azimuth: 337 degrees)

Sample N° 1 Channel 1 (F = 2440 MHz)

	Electro-magnetic field (dBμV/m):	Maximum Peak conducted power density(1) (dBm / 3 kHz)	Limit (dBm / 3 kHz)
Nominal supply voltage	88.4	-8.98	8

Polarization of test antenna: horizontal (height: 150 cm)

Position of equipment: 2 (azimuth: 343 degrees)

Sample N° 1 Channel 1 (F = 2476 MHz)

	Electro-magnetic field (dBμV/m):	Maximum Peak conducted power density(1) (dBm / 3 kHz)	Limit (dBm / 3 kHz)
Nominal supply voltage	87.5	-9.88	8

Polarization of test antenna: horizontal (height: 150 cm)

Position of equipment: 2 (azimuth: 339 degrees)

Maximum Peak conducted power density:

EIRP (dBm / 3 kHz) = E (dBμV/m / 3 kHz) + 20 log (D) - 104.8; where D is the measurement distance in meters and antenna Gain = 2.15 dBi (declared by the applicant)

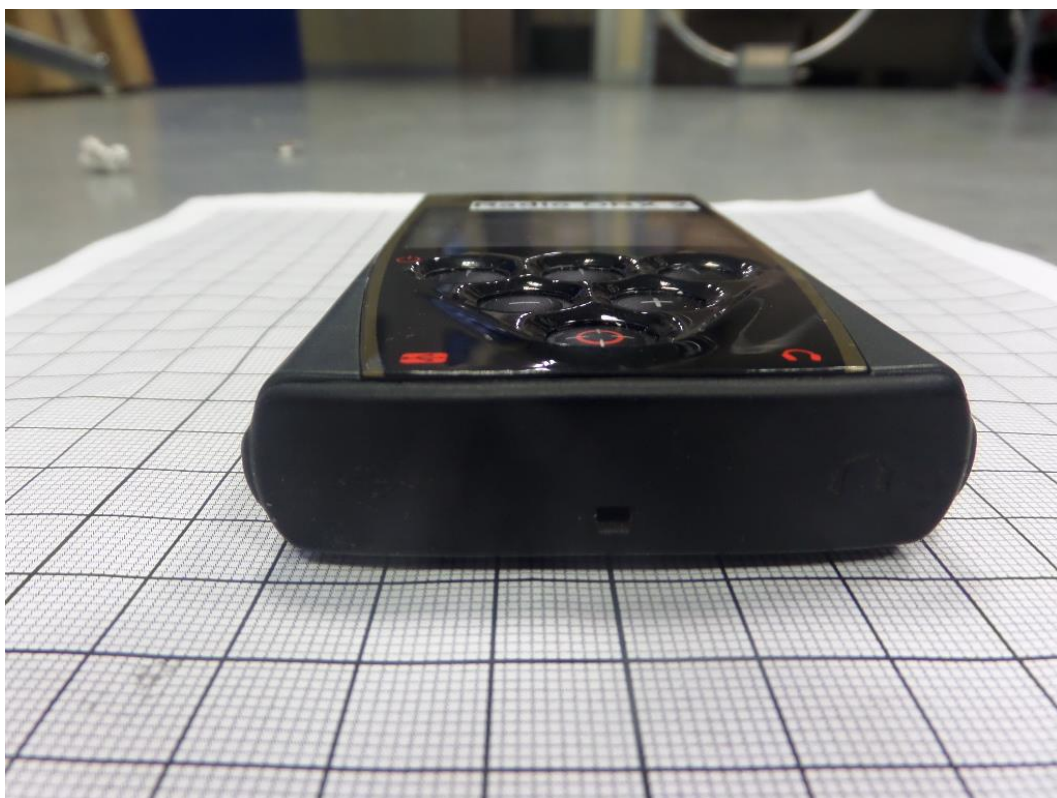
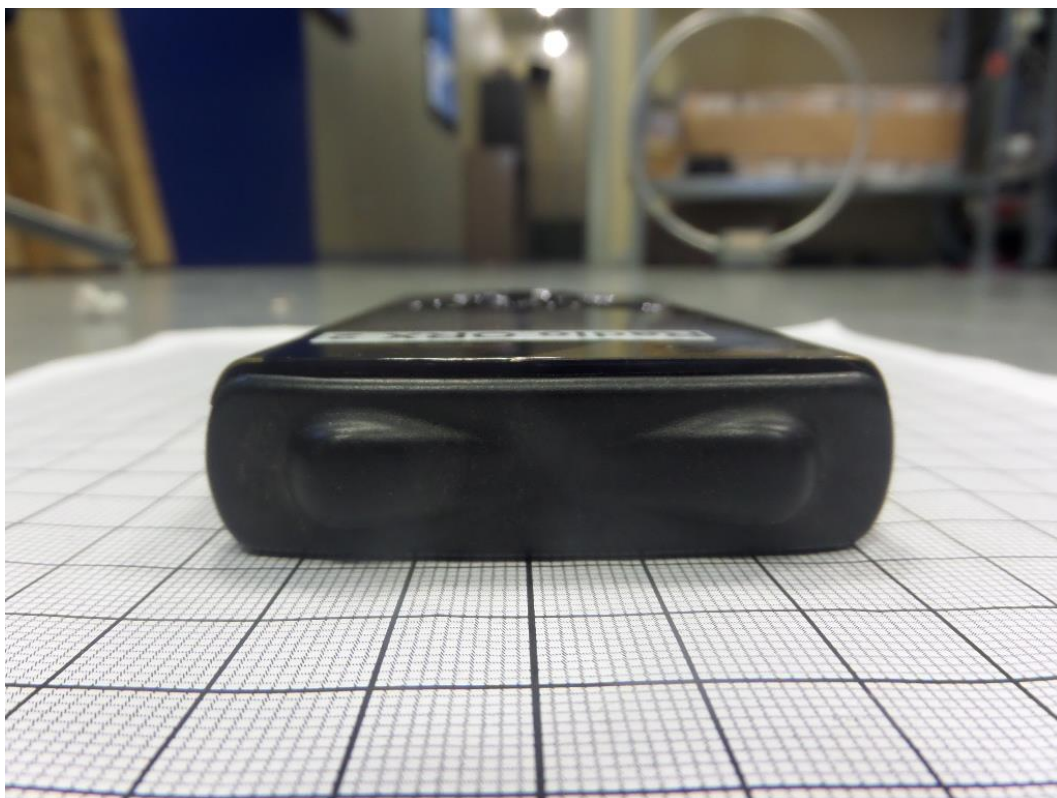
Test conclusion:

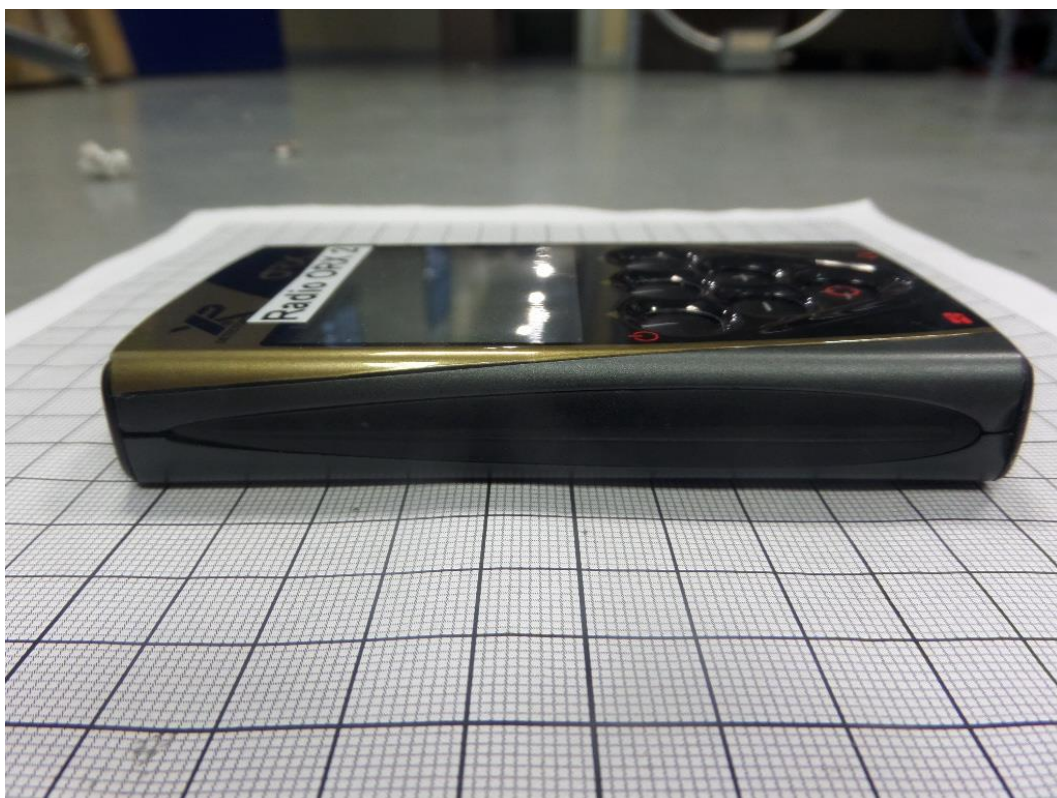
RESPECTED STANDARD

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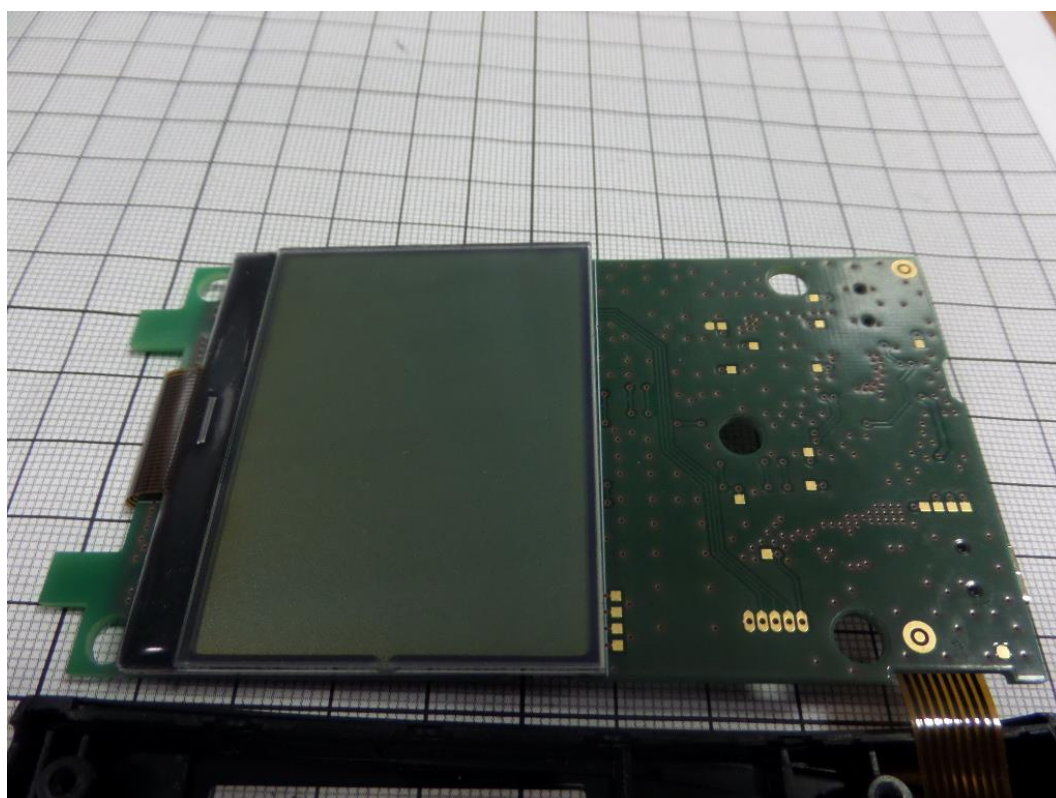
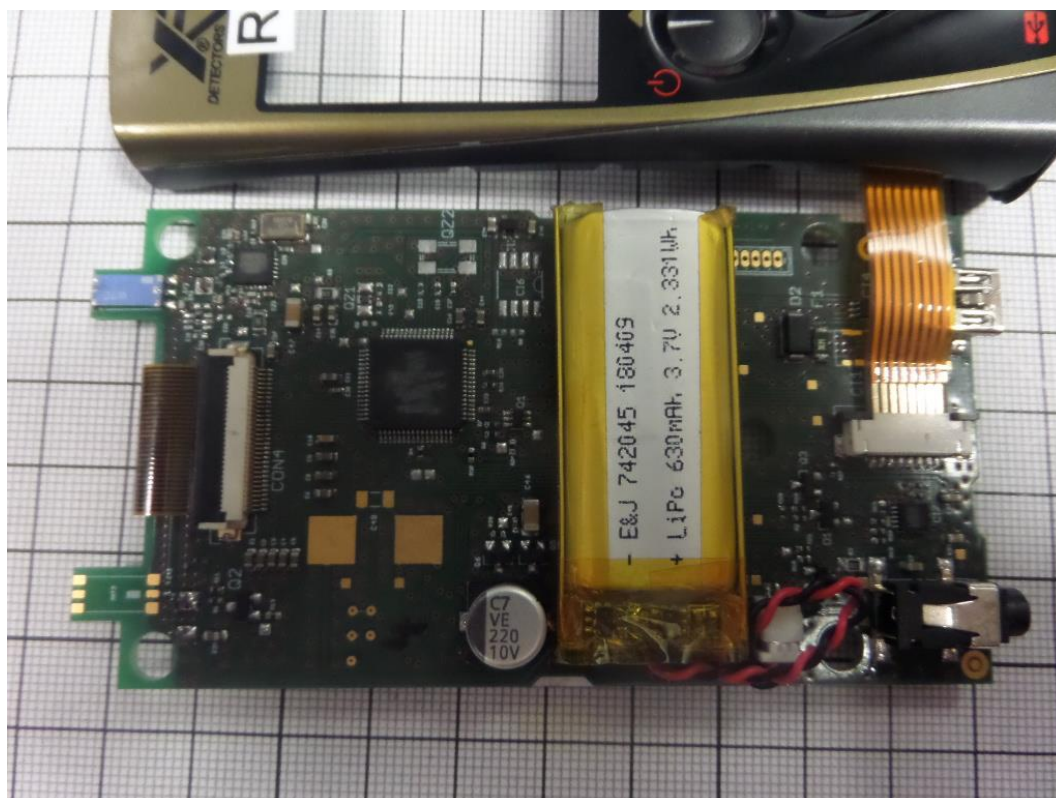
APPENDIX 1: Photos of the equipment under test







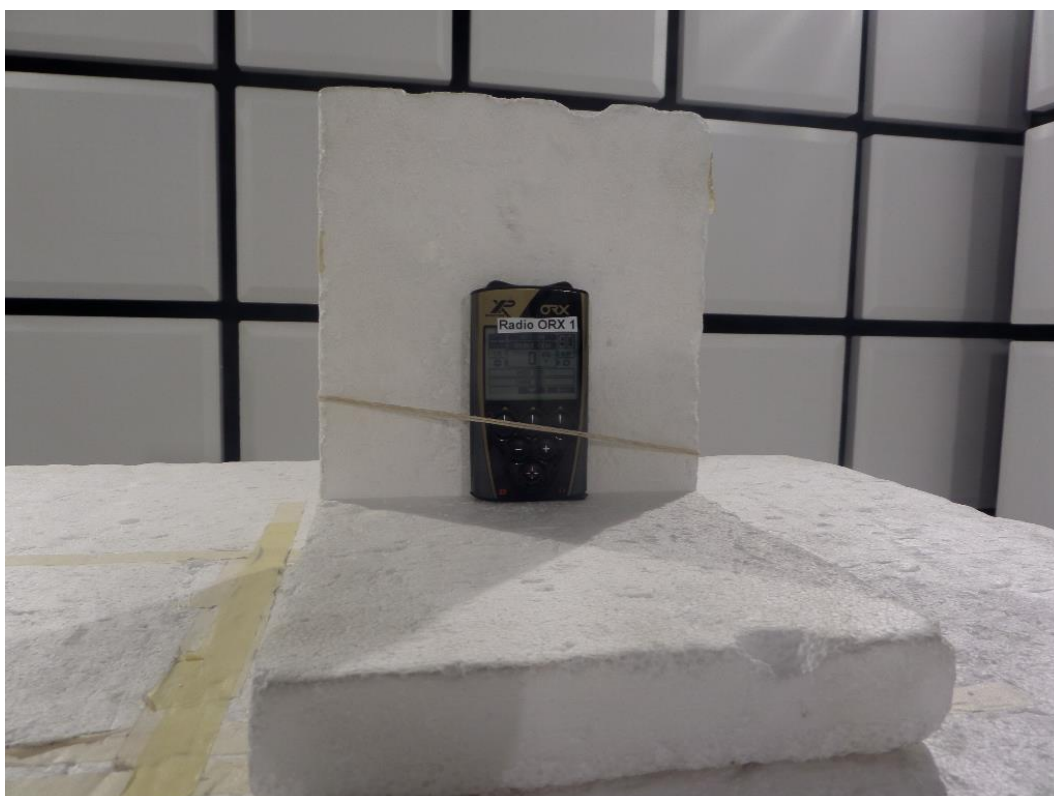
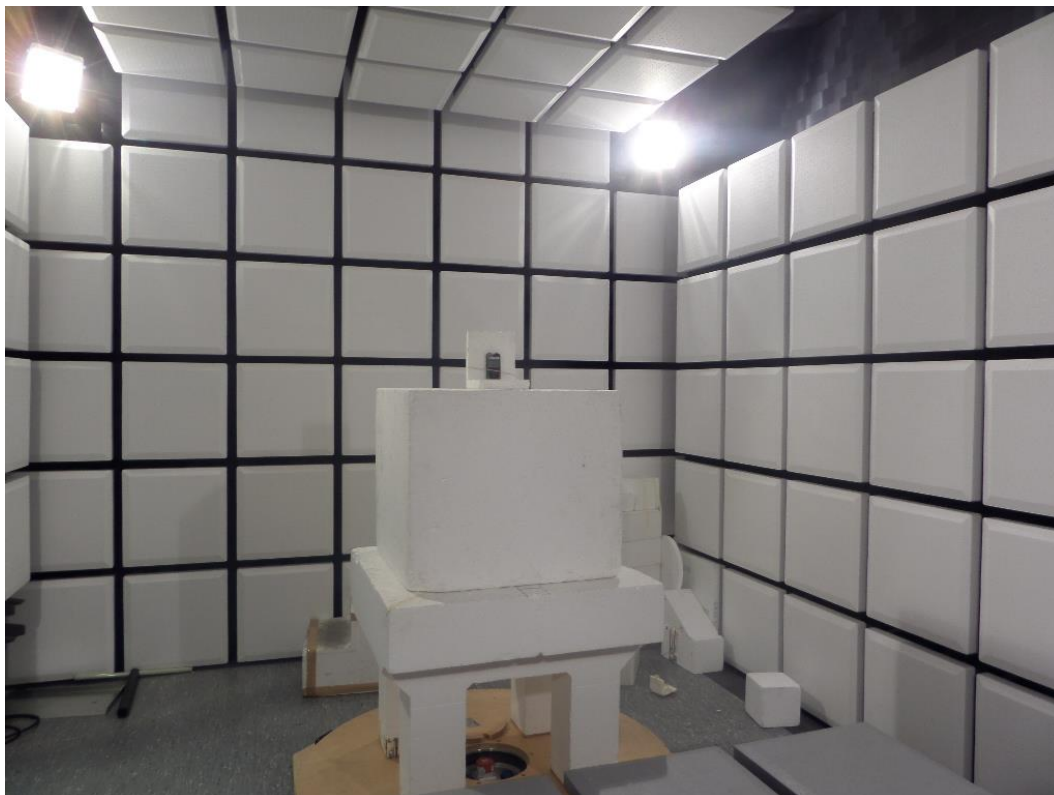






APPENDIX 2: Test set up

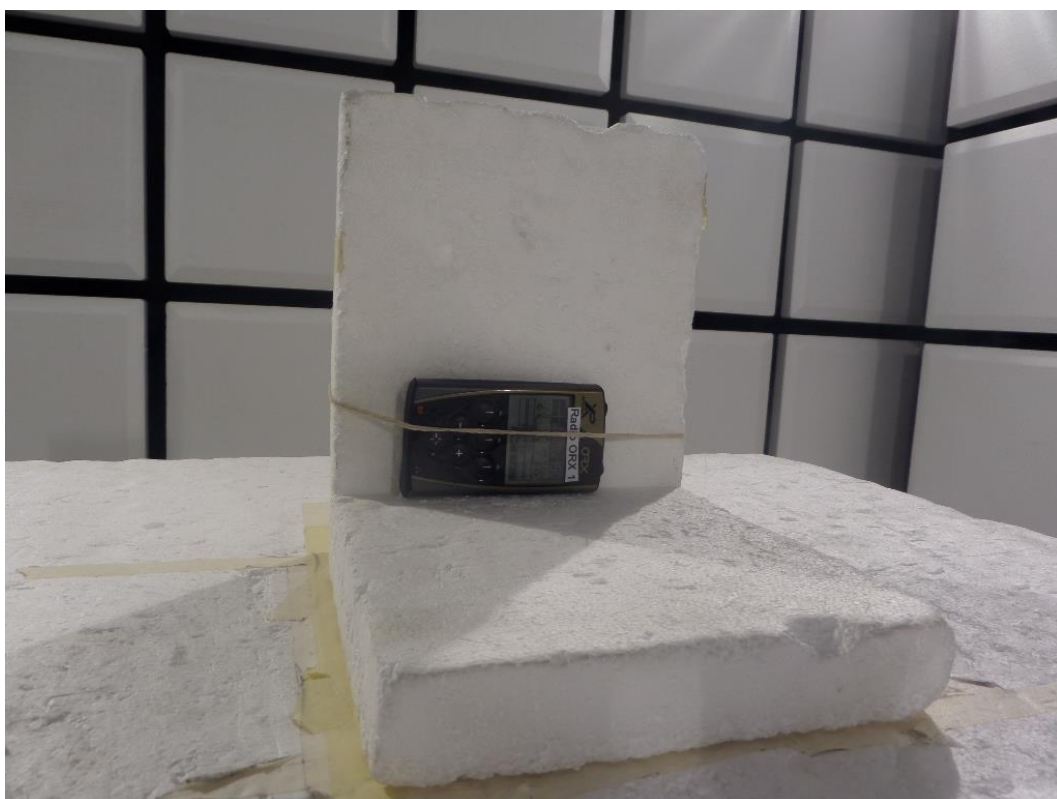
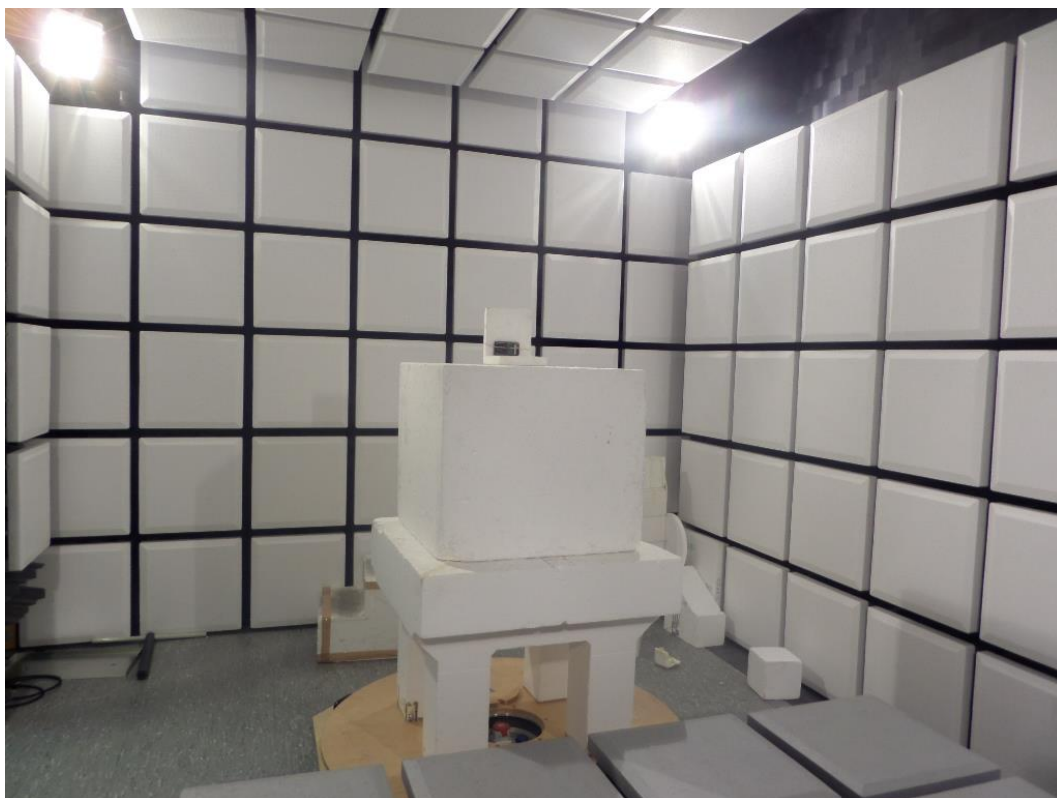
Position 1



Position 2



Position 3



APPENDIX 3: Test equipment list

Additional provisions to the general radiated emission limitations

TYPE	MANUFACTURER	EMITECH NUMBER
Outside room Hors cage	Emitech	8893
Anechoic Chamber	EMITECH	8593
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer FSP40	Rohde & Schwarz	4088
Antenna 3115	EMCO	8535
Cable N-2m	Huber + Suhner	12911
Cable N-5m	SUCOFLEX	15882
Multimeter 177	Fluke	14831
Meteo station WS-9232	La Crosse Technology	8750
Software	GPIBSHOT V2.4	-

Maximum peak conducted output power

TYPE	MANUFACTURER	EMITECH NUMBER
Anechoic Chamber	EMITECH	8593
Turntable controller 1060C	EMCO	8958
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer FSP40	Rohde & Schwarz	4088
Band pass filter BP2442-84-7CS	BL Microwave	5625
Antenna 3115	EMCO	8535
Cable N-2m	Huber + Suhner	12911
Cable N-5m	SUCOFLEX	15882
Multimeter 177	Fluke	14831
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC V3.17.0.25	0000

Intentional radiator

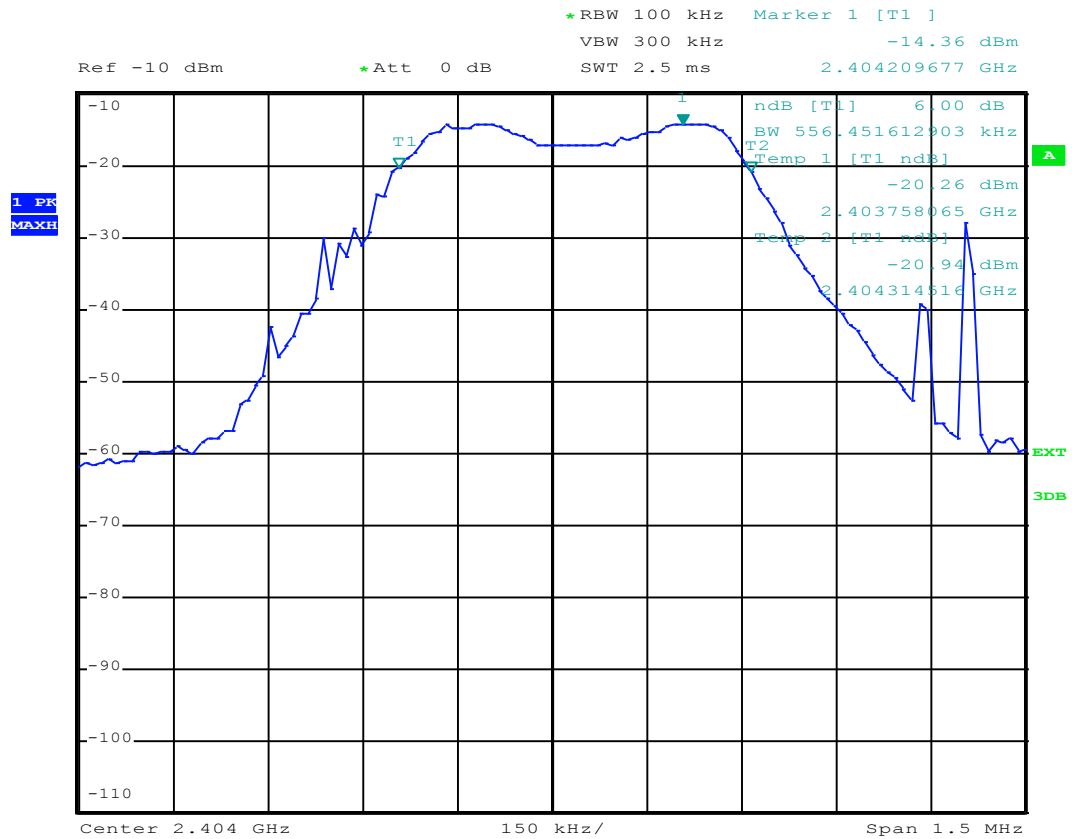
TYPE	MANUFACTURER	EMITECH NUMBER
Anechoic Chamber	EMITECH	8593
Turntable controller 1060C	EMCO	8958
Full anechoic chamber	EMITECH	10759
Turntable and mat controller NCD	MATURO	10789
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer FSP40	Rohde & Schwarz	4088
Loop antenna 6502	EMCO	1406
Biconical antenna 3110	Emco	7240
Biconical antenna VHBB 9124	Schwarzbeck	8526
Log periodic antenna HL223	Rohde & Schwarz	7190
Log periodic antenna UHALP 9108A	Schwarzbeck	8543
Antenna 3115	EMCO	8535
Antenna 3117	ETS-Lindgren	10771
Antenna 3160-09	ETS Lindgren	8786
Low-noise amplifier ZFL-1000LN	Mini-circuit	10730
Low-noise amplifier 8447D	Hewlett Packard	8511
Low-noise amplifier S005180M3201	LUCIX Corp.	10739
Low-noise amplifier PAM-118A	Com-Power	15812
Low-noise amplifier S180265L3201	LUCIX Corp.	8704
Low pass filter LP03/1000-7GH	Filtek	4087
Reject band filter BRM50702	Microtronics	7299
Cable N-2m	Huber + Suhner	12911
Cable N-5m	Huber + Suhner	12912
Cable N-1.5m	Suhner	6884
Cable k-20cm	STORM MICROWAE	8974
Cable N-1.5m	-	9398
Cable K-2m	C&C	10694
Cable N-1m	SUCOFLEX	14302
Cable N-2m	SUCOFLEX	14303
Cable N-2.5m	SUCOFLEX	14304
Cable N-4m	SUCOFLEX	14305
Multimeter 177	Fluke	14476
Meteo station 608-H1	Testo	7566
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC V3.17.0.25	0000

Maximum Peak conducted power density

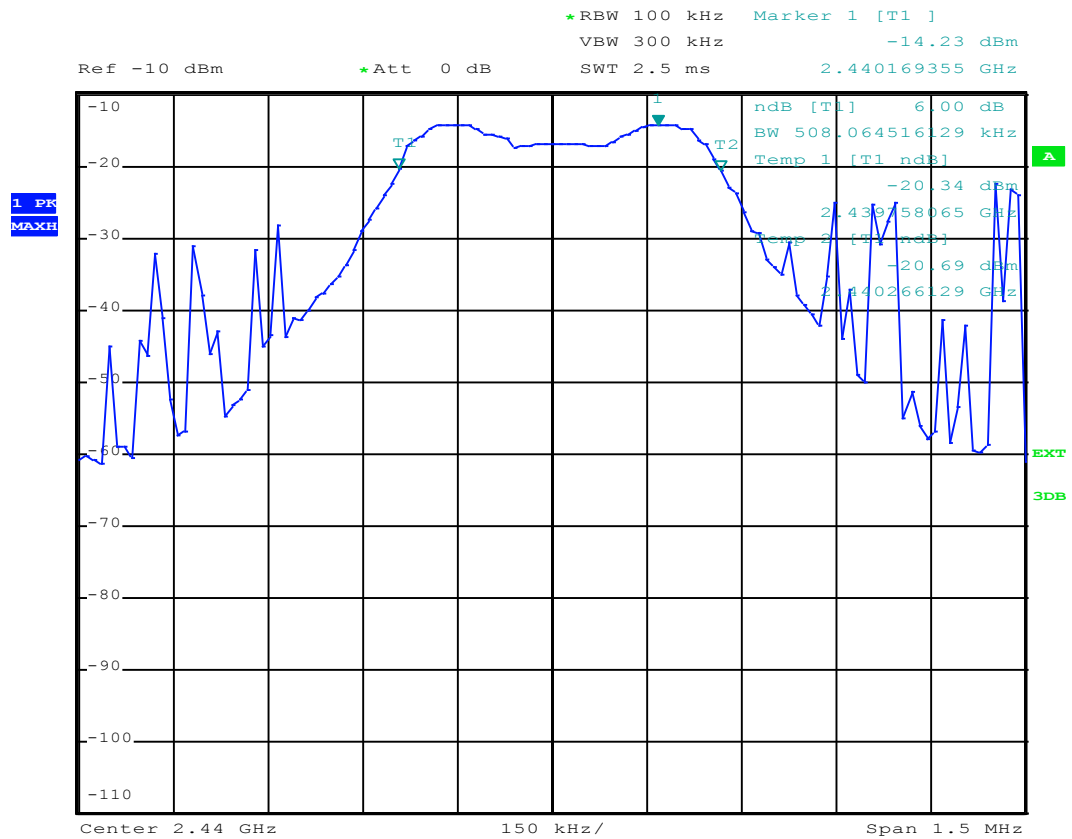
TYPE	MANUFACTURER	EMITECH NUMBER
Anechoic Chamber	EMITECH	8593
Turntable controller 1060C	EMCO	8958
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer FSP40	Rohde & Schwarz	4088
Band pass filter BP2442-84-7CS	BL Microwave	5625
Antenna 3115	EMCO	8535
Cable N-2m	Huber + Suhner	12911
Cable N-5m	SUCOFLEX	15882
Multimeter 177	Fluke	14831
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC V3.17.0.25	0000

APPENDIX 4: 6 dB bandwidth

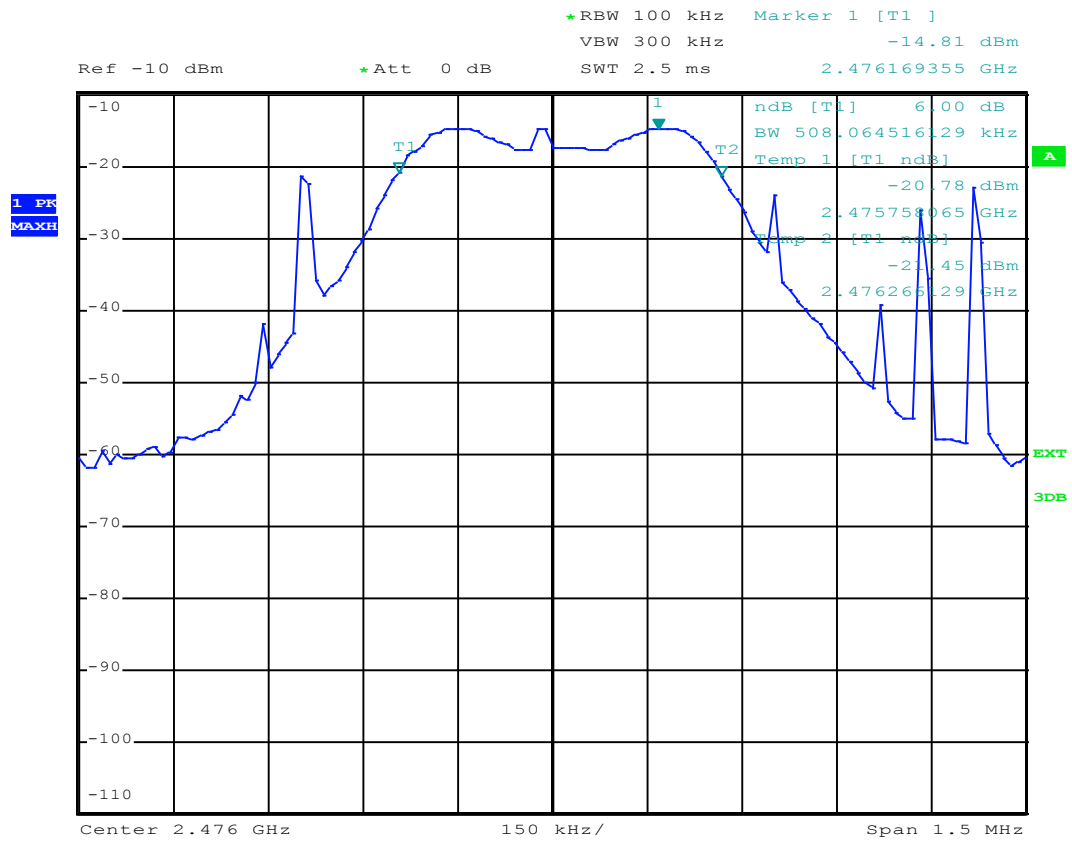
Low Channel



Central Channel

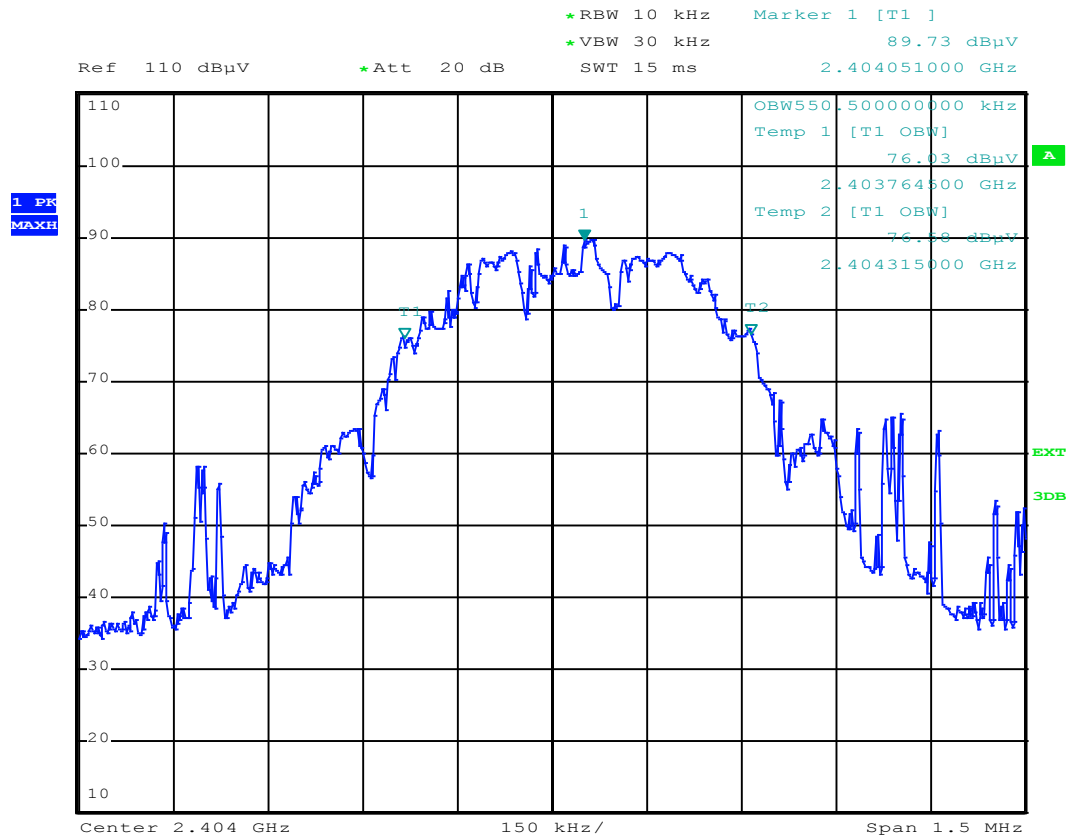


High Channel

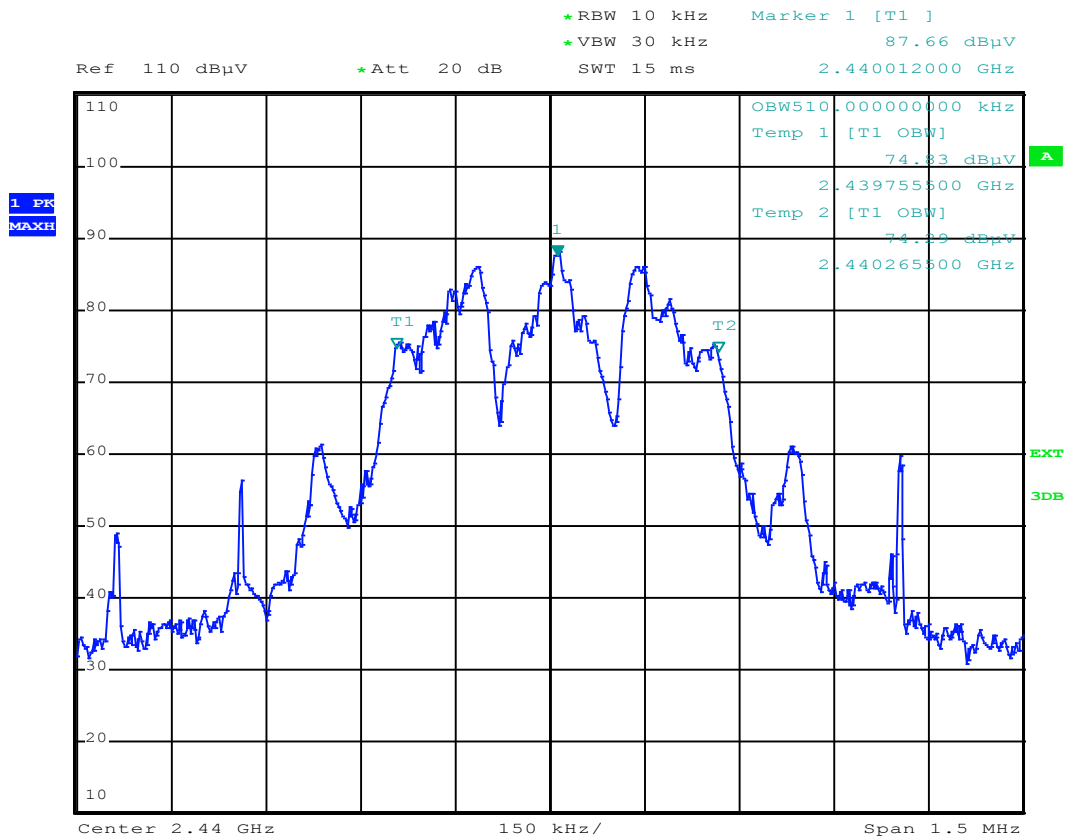


APPENDIX 5: 99% bandwidth

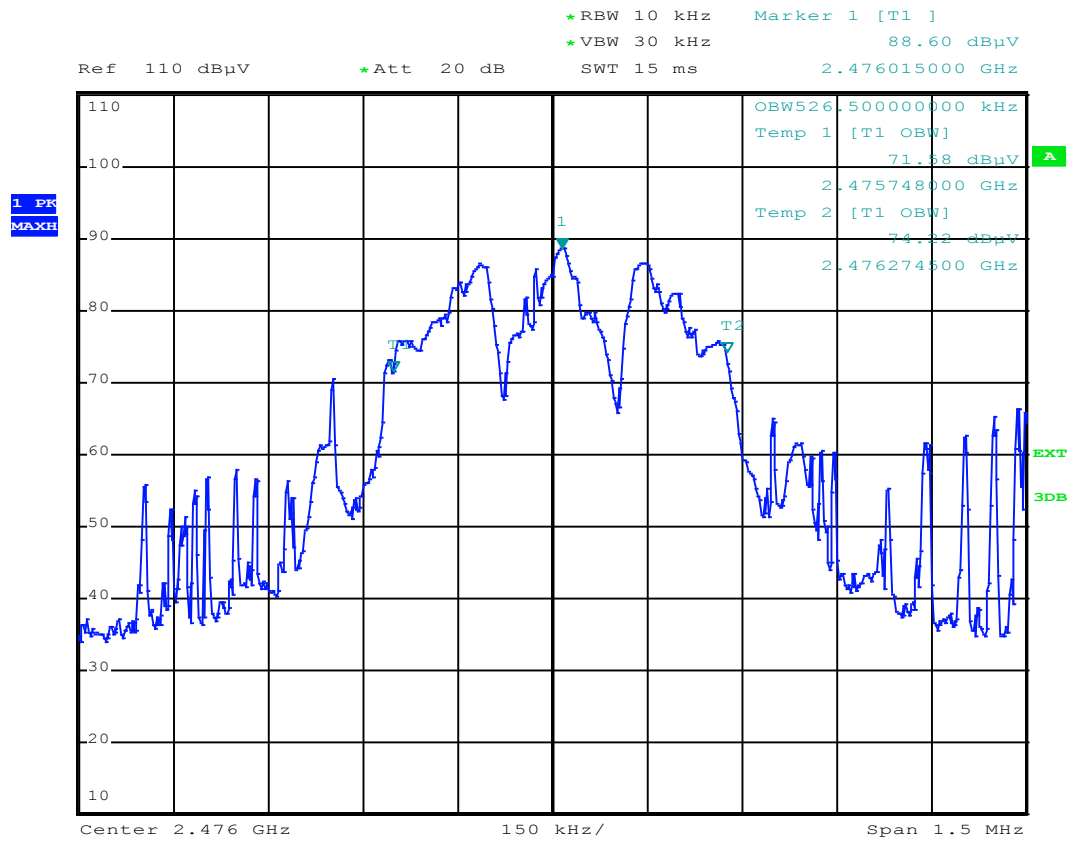
Low Channel



Central Channel

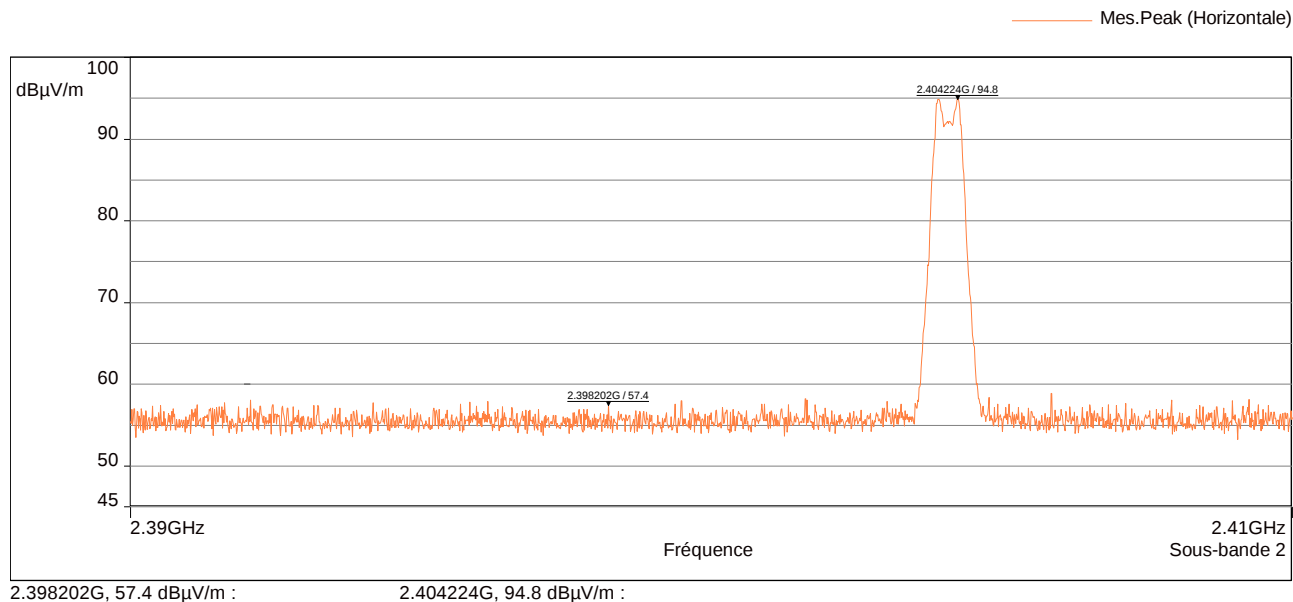


High Channel



APPENDIX 6: Band edge

Low Channel: Band edge worst case measurement



High Channel: Band edge worst case measurement

