RR051-19-103123-1-A Ed. 0

Certification Radio test report

According to the standard:

CFR 47 FCC PART 15

Equipment under test:

UWSR+ REACH

FCC ID: WMQ-30017

Company:

ALLFLEX USA, Inc

Distribution: Mr LANGOUET (**Company:** ALLFLEX USA, Inc)

Number of pages: 45 with 8 appendixes

Ed.	Date	Modified Page(s)	Technical Verification and Quality Approval Name and Function	Visa
0	23-Oct-17	Creation	M. DUMESNIL, Radio Technical Manager	

Duplication of this document is only permitted for an integral photographic facsimile. It includes the number of pages referenced here above.
This document is the result of testing a specimen or a sample of the product submitted. It does not imply an assessment of the conformity of the whole manufactured products of the tested sample.

DESIGNATION OF PRODUCT:	**UWSR+ Reach**
Serial number (S/N):	C11009975
Reference / model (P/N):	UWSR+ Reach
Software version:	1.15.00
MANUFACTURER:	ALLFLEX USA, Inc

COMPANY SUBMITTING THE PRODUCT:

Company:	ALLFLEX USA, Inc
Address:	2805 East 14th Street P.O. Box 612266 75261-2266 Dallas Texas USA
Responsible:	Mr LANGOUET
DATE(S) OF TEST:	From 9-Oct-17 to 11-Oct-17
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

CONTENTS

1. INTRODUCTION

This report presents the results of radio test carried out on the following radio equipment: **UWSR+ Reach**, in accordance with normative reference.

The device under test integrates a RFID radio part and a Bluetooth module already certified (FCCID: X3ZBTMOD4).
This module was certified as limited modular approval because this module does not possess a shield.
That's why all tests were realized to certify this function directly with the product. For exigence protocol use see original certification.

The E.U.T is supplied by 7.2Vdc batteries.
This report concerns only Bluetooth radio part.

2. PRODUCT DESCRIPTION

Class:	B
Utilization:	Handheld control terminals
Antenna type and gain:	Integral antenna, 2.1 dBi
Operating frequency range:	From 2402 MHz to 2480 MHz
Frequency tested:	2402 MHz (low channel) 2440 MHz (central channel) 2480 MHz (high channel)
Number of channels:	79
Channel spacing:	1MHz
Power source:	AC / DC Adapter 120Vac/60Hz – 5Vdc 7.2 Vdc Ni-MH batteries

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 (2019)	Radio Frequency Devices
ANSI C63.10	2013 Procedures for ComplianceTesting of Unlicensed Wireless Devices.
558074 D01 DTS v05 r02	Guidance for compliance measurements on digital transmission system, frequency hopping spread spectrum system, and hybrid system devices operating under section 15.247 of the FCC rules.
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 MHz

5. TEST EQUIPMENT CALIBRATION DATES

Equipment	Model	Type	Last verification	Next verification	Validity
0000	BAT-EMC V3.6.0.32	Software	/	/	/
4088	R&S FSP40	Spectrum Analyzer	29/10/2015	2	29/10/2017
5625	BL Microwave BP2442-84-7CS	Band pass filter	04/03/2016	2	04/03/2018
6609	Hewlett Packard HPM11630	High Pass Filter	20/06/2016	2	20/06/2018
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	04/11/2015	2	04/11/2017
7566	Testo 608-Hi	Meteo station	15/02/2016	2	15/02/2018
8704	LUCIX Corp S180265L3201 LNA	Low-noise amplifier	02/05/2017	1	02/05/2018
8750	La Crosse Technology WS-9232	Meteo station	23/09/2016	2	23/09/2018
8786	ETS Lindgren 3160-09	Antenna	16/05/2016	3	16/05/2019
8896	ACQUISYS GPS8	Satellite synchronized frequency standard	/	/	/
10317	Fluke 177	Multimeter	24/10/2015	2	24/10/2017
10739	LUCIX Corp S005180M3201	Low-noise amplifier	29/03/2017	1	29/03/2018
10759	SIDT Cage 3	Anechoic chamber	/	/	/
10771	EMCO 3117	Antenna	23/11/2016	3	23/11/2019
12590	LUCIX Corp S005180M3201	Low-noise amplifier	22/08/2017	1	22/08/2018
/	Software	GPIB SHOT	/	/	/

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				*Note 5*
	(a) (2) Digital modulation techniques			X		
	(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: The applicant declares that the equipment does not emit during charge of batteries.

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 system hops to channel frequencies from a pseudo randomly ordered list of hopping frequencies. Each frequency is used equally on the average by the transmitter, and separated by a minimum of 20 dB bandwidth of the hopping channel (see appendix 3 and 8).

The frequency hopping system uses 79 channels (see appendix 8).

The maximum timing by channel is 333 µs (see appendix 7).

During 79 channels × 0.4 s = 31.6 s, any channel is used at maximum 140 times (see appendix 7), then 140 x 333 µs = 46.620 ms, thus the average time of occupancy on any channel is less than 400 ms within a period of 0.4 seconds multiplied by the number of hopping channels employed, in normal operating mode.

Number of channels	Observation period (0.4s * Nbr of channel) (s)	Maximal Duration of each burst (µs)	Number of burst repetition during observation period	average time of occupancy on any channel (s)	Limits (s)
79	31.6	333	140	0.046620	0.4

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

RF EXPOSURE:

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

Maximum measured power = 95.1 dBµV/m = 0.599mW at 2480 MHz
with $P = (E \times d)^2 / (30 \times Gp)$ *with d = 3 m and Gp = 1.62*

The test separation distance declared is 5 mm

The product must respect the exclusion limit for 10-g extremity SAR.
*[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] * [√f(GHz)] ≤ 7.5*

According this formula:
*Min. test separation distance, mm ≥ [(max. power of channel, including tune-up tolerance, mW) * √f(GHz)] / 7.5*
Min. test separation distance, mm ≥ [0.971(mW) *√(2.48)] / 7.5
Min. test separation distance, mm ≥ 0.126 mm (with a minimum value of 5 mm)

The minimum distance between the user and the antenna is greater than 5 mm.

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 0.2 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	± 0.75dB
Radiated emission valid to 26 GHz F < 62.5 MHz: 62.5 MHz < F < 1 GHz: 1 GHz < F < 26 GHz:	 ± 5.14 dB ± 5.13 dB ± 5.16 dB
AC Power Lines conducted emissions	± 3.38 dB
Temperature	± 1 °C
Humidity	± 5 %

8. ADDITIONAL PROVISIONS TO THE GENERAL RADIATED EMISSION LIMITATIONS

Temperature (°C) : 23.2 **Humidity (%HR):** 47 **Date :** October 11, 2017
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.

Power source :
We used for power source the internal batteries of the equipment and we noted:
Voltage at the beginning of test (Vdc): 7.37
Voltage at the end of test (Vdc): 7.28
Percentage of voltage drop during the test (%): 1.22

Results:

Lower Band Edge: From 2400 MHz to 2402 MHz
Upper Band Edge: From 2483.5 MHz to 2485.5 MHz

Sample N° 1 with hopping mode off

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)
2402	87.5	Peak	2399.97	-44.40	43.1	75.1	32
2480	95.1	Peak	2483.61	-40.01	55.09	74	18.91
2480	95.1	Average	2483.65	-66.21	28.89	54	25.11

(1) Marker-Delta method

Sample N° 1 with hopping mode on

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)
2402	87.5	Peak	2399.96	-44.17	43.33	75.1	31.77
2480	95.1	Peak	2483.58	-38.52	56.58	74	17.42
2480	95.1	Average	2483.57	-57.23	37.87	54	16.13

(1) Marker-Delta method

20 dB bandwidth curves are given in appendix 3; band-edge curves are given in appendix 5.

Test conclusion:

RESPECTED STANDARD

9. MAXIMUM PEAK CONDUCTED OUTPUT POWER

Temperature (°C) : 25 **Humidity (%HR):** 62 **Date :** October 9, 2017
Technician : S. LOUIS

Standard: FCC Part 15

Test procedure: paragraph 15.247 (b)
Method of paragraph 7.8.5 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 in anechoic chamber above 1 GHz.

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.

Distance of antenna: 3 meters (in anechoic room)

Antenna height: 1.50 meter (in anechoic room)

Antenna polarization: vertical and horizontal (only the highest level is recorded)

The measurement of the electro-magnetic field is realized, with a resolution bandwidth adjusted at 1MHz and video bandwidth at 3MHz.

Finally the radiated electro-magnetic field is converted in dBm with the following formula:
EIRP(dBm) = E (dBµV/m) + 20log(D) - 104.8; where D is the measurement distance in meters and antenna Gain = 2.1 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.
Test is performed with internal antenna and repeated with external antenna.
The powerful case is reported below.

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

Voltage at the beginning of test (Vdc):	7.36
Voltage at the end of test (Vdc):	7.21
Percentage of voltage drop during the test (%):	2.03

Results:

Sample N° 1 Low Channel (F = 2402 MHz)

	Electro-magnetic field (dBµV/m):	Maximum Peak conducted output power		Limit
		(dBm)	(mW)	(W)
Nominal supply voltage:	87.5	-9.83	0.104	1

Polarization of test antenna: horizontal (height: 150 cm)
Position of equipment: Position 2 with external antenna (azimuth: 0 degree)

Sample N° 1 Central Channel (F = 2440 MHz)

	Electro-magnetic field (dBµV/m):	Maximum Peak conducted output power		Limit
		(dBm)	(mW)	(W)
Nominal supply voltage:	90	-7.33	0.185	1

Polarization of test antenna: horizontal (height: 150 cm)
Position of equipment: Position 2 with internal antenna (azimuth: 0 degrees)

Sample N° 1 High Channel (F = 2480 MHz)

	Electro-magnetic field (dBµV/m):	Maximum Peak conducted output power		Limit
		(dBm)	(mW)	(W)
Nominal supply voltage:	95.1	-2.23	0.599	1

Polarization of test antenna: horizontal (height: 150 cm)
Position of equipment: Position 2 with internal antenna (azimuth: 0 degree)

Maximum Peak conducted output power:
EIRP(dBm) = E (dBµV/m) + 20log(D) - 104.8; where D is the measurement distance in meters and antenna Gain = 2.1 dBi.

Test conclusion:

RESPECTED STANDARD

10. INTENTIONAL RADIATOR

Temperature (°C) : 24 **Humidity (%HR):** 50 **Date :** October 9, 2017
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 7.8 of ANSI C63.10
Emissions in restricted frequency bands method of paragraph 5.9 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, 1.50 m from a ground plane.

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

Frequency range: From 9 kHz to 25GHz (10th harmonic of the highest fundamental frequency 2480MHz).

Detection mode: Quasi-peak (F < 1 GHz) Peak / Average (F > 1 GHz)

Bandwidth: 200Hz (9 kHz < F < 150kHz)
9 kHz (150 kHz < F < 30MHz)
120 kHz (30 MHz < F < 1 GHz)
100 kHz / 1 MHz (F > 1 GHz)

Distance of antenna: 3 meters (in anechoic room)

Antenna height: 1.50 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.
Test is performed with internal antenna and repeated with external antenna.
The worst critical configuration is reported here after.

Power source:

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

Voltage at the beginning of test (Vdc):	7.56
Voltage at the end of test (Vdc):	7.27
Percentage of voltage drop during the test (%):	3.83

Results:

Sample N° 1 Low Channel (F = 2402 MHz)

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	Position	Internal / External Antenna	RBW (kHz)	Polarization H: Horizontal V: Vertical	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m) or (dBm)	Margin (dB)
4804	P	150	1	External	1000	H	45.9 (1)	74	28.1
7206	P	150	2	Internal	100	H	63	75.1	12.1

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

(1) The peak level is lower than the average limit (54 dBµV/m).

Sample N° 1 Central Channel (F = 2440 MHz)

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	Position	Internal / External Antenna	RBW (kHz)	Polarization H: Horizontal V: Vertical	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m) or (dBm)	Margin (dB)
4880	P	150	1	Internal	1000	V	46.5 (1)	74	27.5
7320	P	150	2	Internal	1000	H	60.6	74	13.4
7320	Av	150	2	Internal	1000	H	52.3	54	1.7

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

(1) The peak level is lower than the average limit (54 dBµV/m).

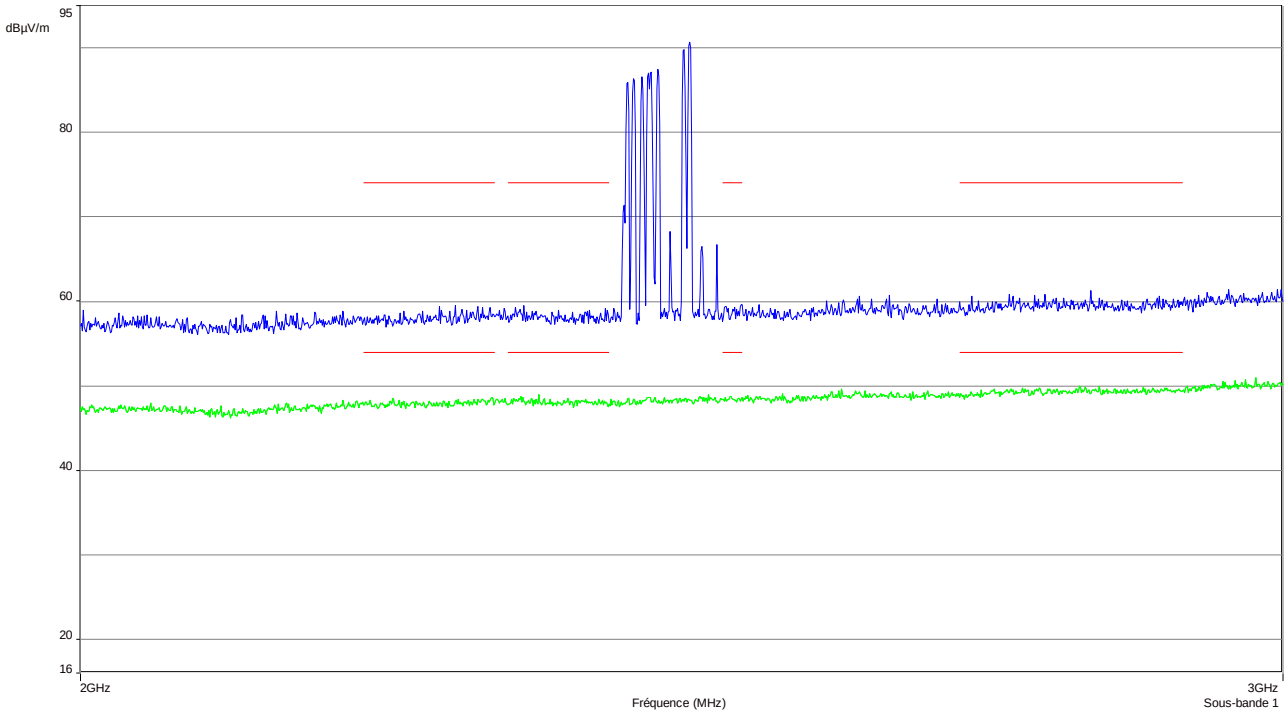
Sample N° 1 High Channel (F = 2480 MHz)

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	Position	Internal / External Antenna	RBW (kHz)	Polarization H: Horizontal V: Vertical	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m) or (dBm)	Margin (dB)
4960	P	150	1	Internal	1000	V	45.9 (1)	74	28.1
7440	P	150	1	External	1000	V	66.4	74	7.6
7440	Av	150	1	External	1000	V	51.4	54	2.6

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

(1) The peak level is lower than the average limit (54 dBµV/m).

Band edge worst case measurement (band 2.GHz to 3GHz)



Blue curve = peak measurement
Green curve = average measurement

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 95.1 dBµV/m on High channel.
So the applicable limit is 75.1 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

□□□ End of report, 10 appendixes to be forwarded □□□

APPENDIX 1: Test equipment list

Additional provisions to the general radiated emission limitations

TYPE	MANUFACTURER	EMITECH NUMBER
Full anechoic chamber	EMITECH	10759
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer FSP40	Rohde & Schwarz	4088
Band pass filter BP2442-84-7CS	BL Microwave	5625
Antenna 3117	ETS-Lindgren	10771
Multimeter 177	Fluke	10317
Software	GPIB SHOT	/

Maximum peak conducted output power

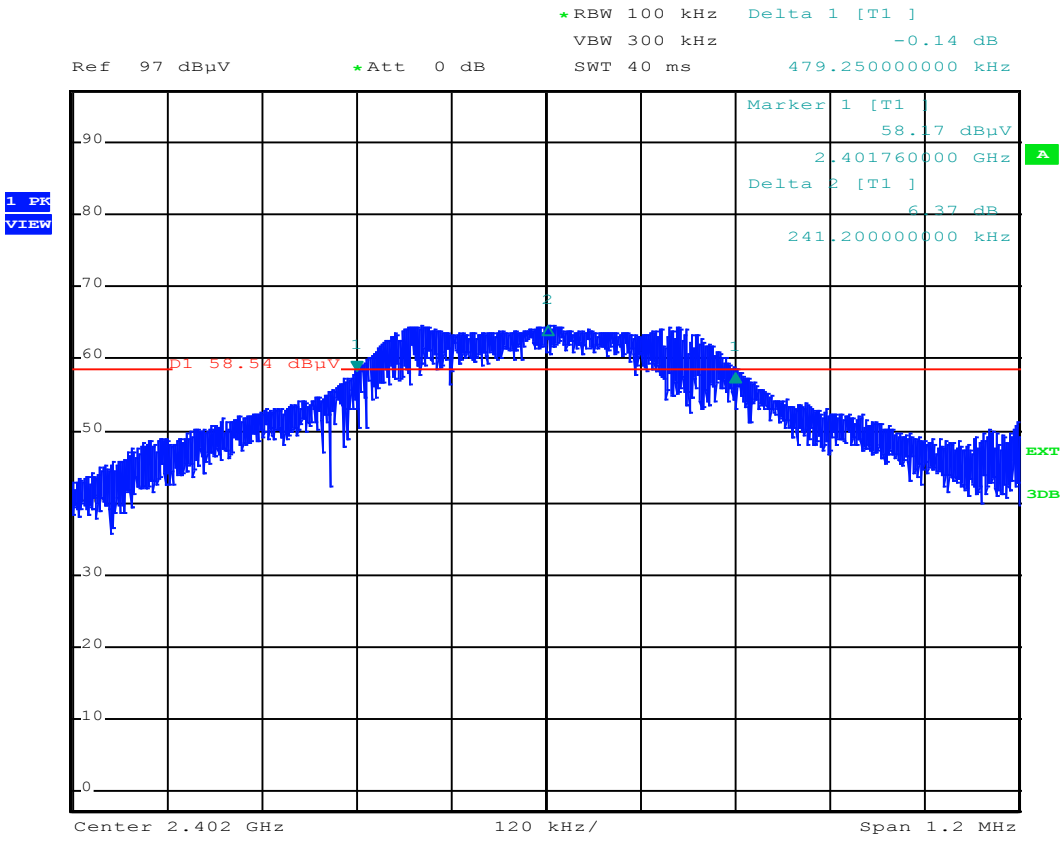
TYPE	MANUFACTURER	EMITECH NUMBER
Full anechoic chamber	EMITECH	10759
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer FSP40	Rohde & Schwarz	4088
Band pass filter BP2442-84-7CS	BL Microwave	5625
Antenna 3117	ETS-Lindgren	10771
Low-noise amplifier S005180M3201	LUCIX Corp.	12590
Multimeter 177	Fluke	10317
Meteo station 608-H1	TESTO	7566
Software	BAT-EMC V3.6.0.32	0000

Intentional radiator

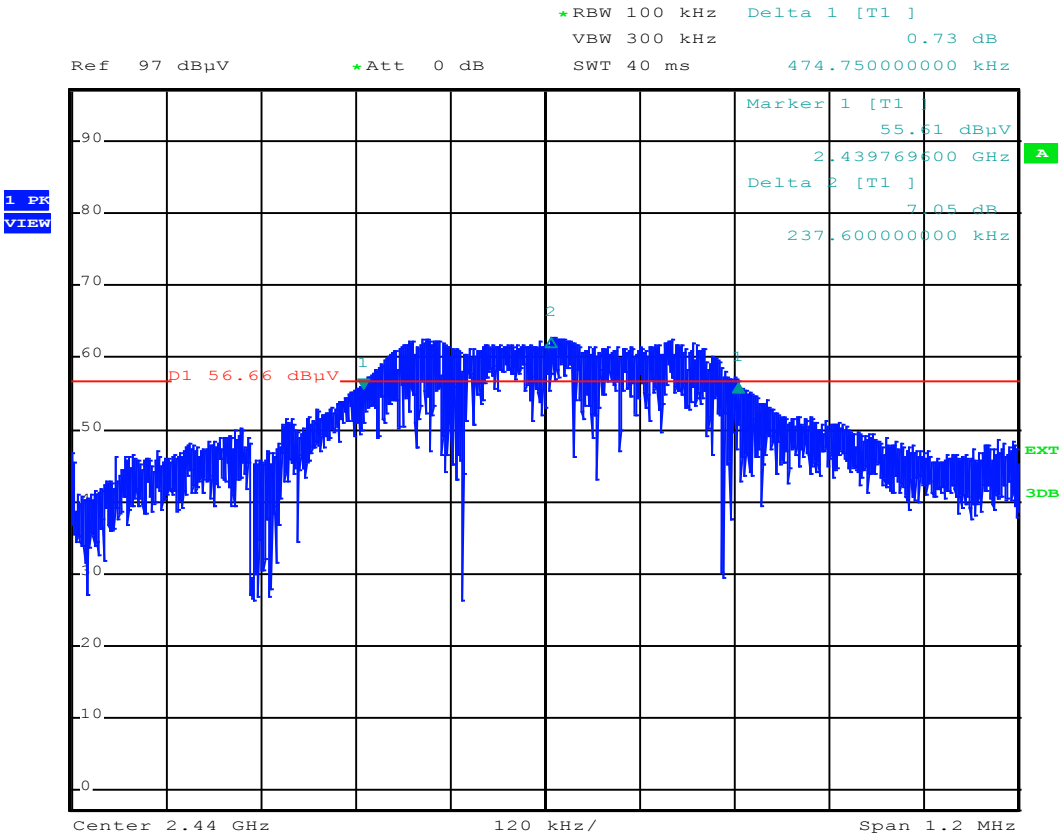
TYPE	MANUFACTURER	EMITECH NUMBER
Full anechoic chamber	EMITECH	10759
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer FSP40	Rohde & Schwarz	4088
Biconical antenna 3110	Emco	7240
Log periodic antenna HL223	Rohde & Schwarz	7190
Antenna 3117	ETS-Lindgren	10771
Antenna 3160-09	ETS Lindgren	8786
Low-noise amplifier S005180M3201	LUCIX Corp.	10739
Low-noise amplifier S180265L3201	LUCIX Corp.	8704
High pass filter HPM11630	Hewlett Packard	6609
Reject band filter BRM50702	Microtronics	7299
Multimeter 177	Fluke	10317
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC V3.6.0.32	0000

APPENDIX 2: 6 dB bandwidth

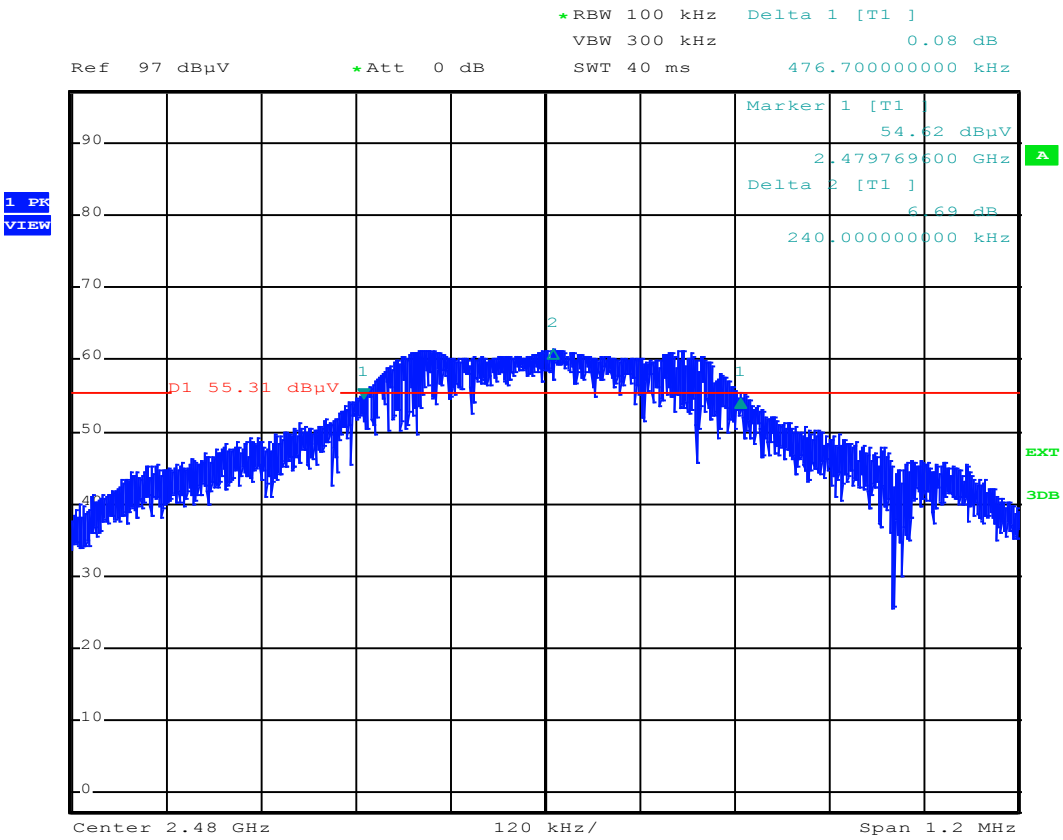
Low Channel



Central Channel

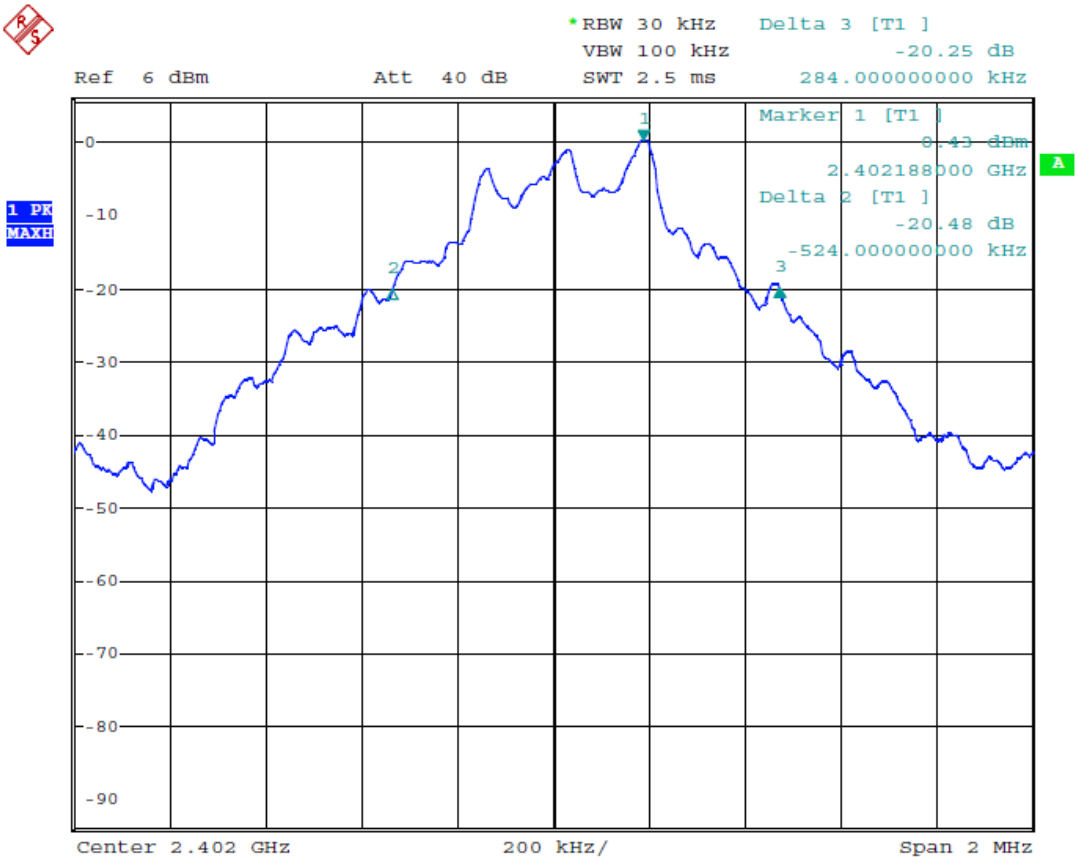


High channel

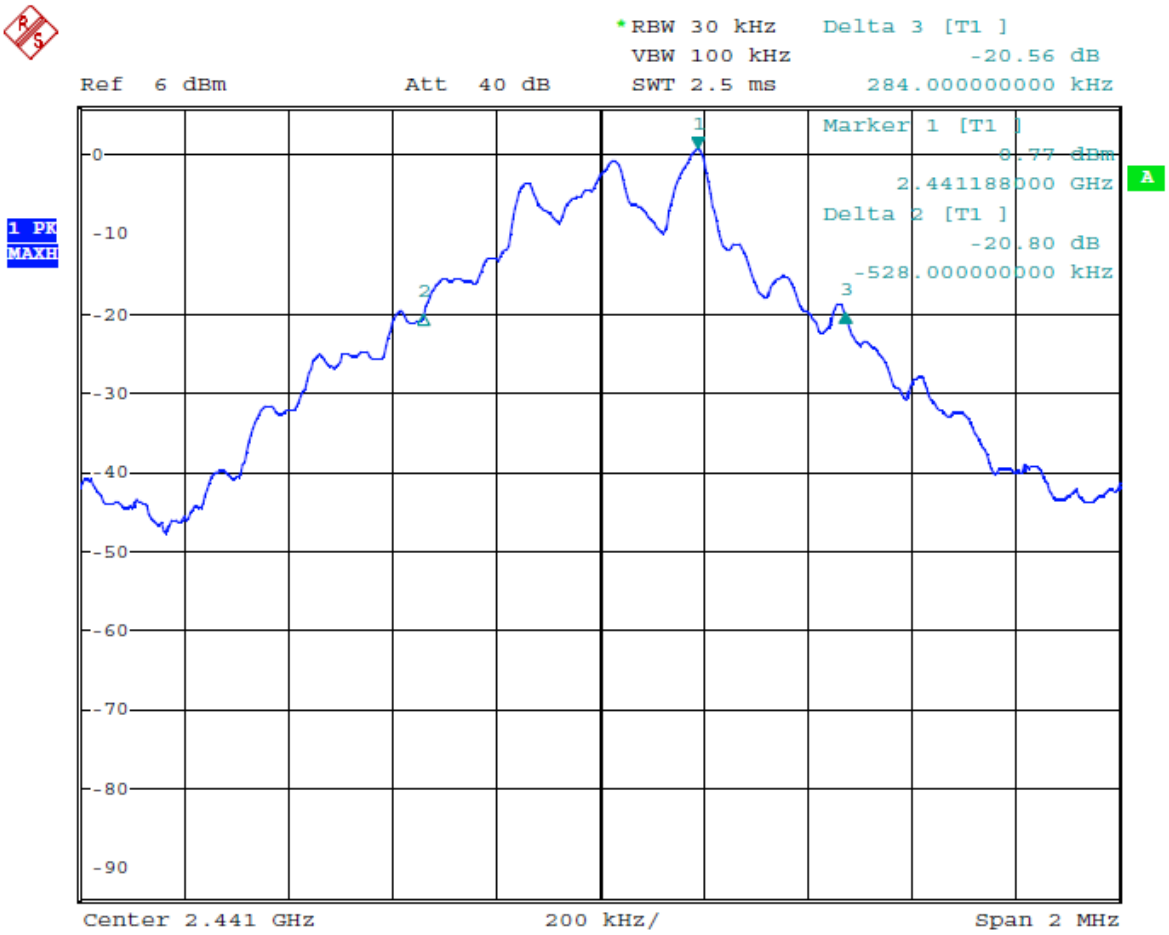


APPENDIX 3: 20 dB bandwidth

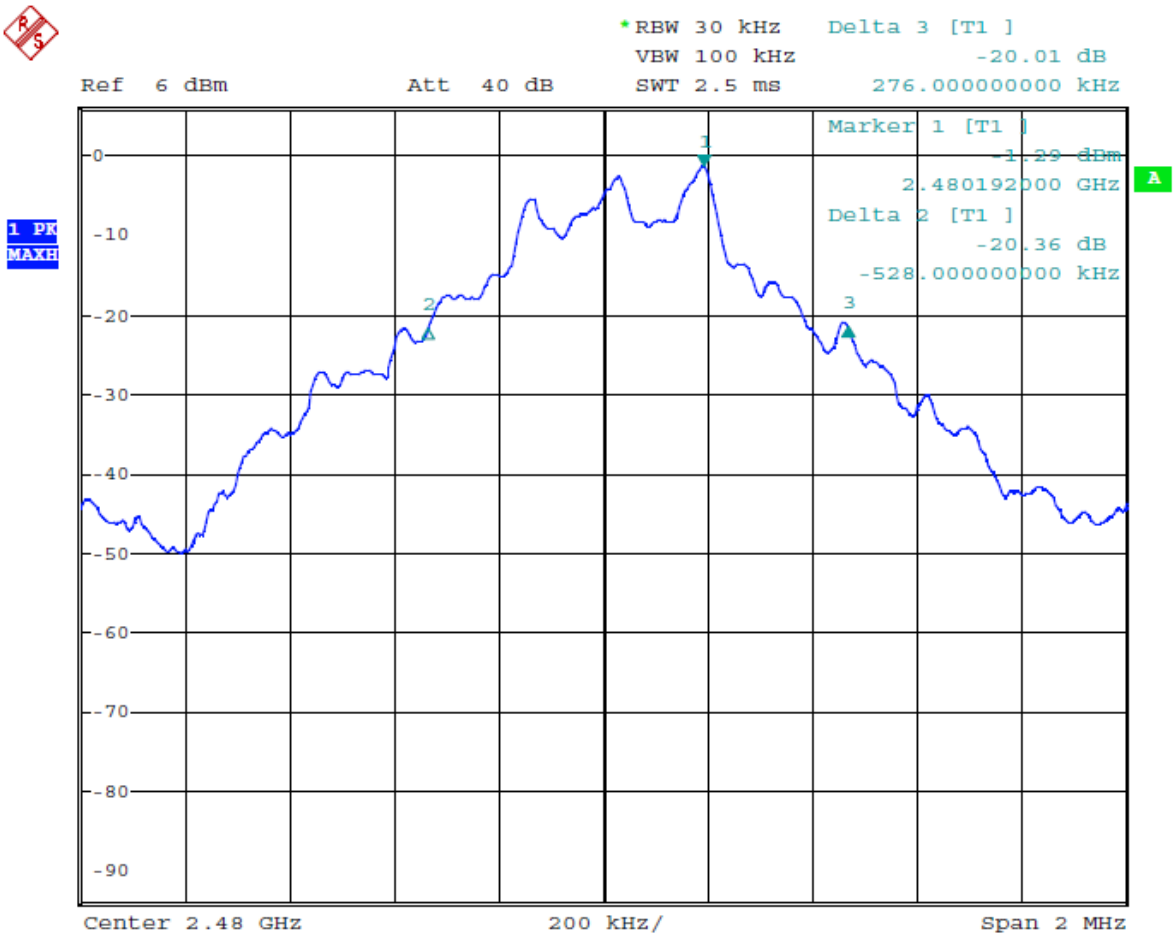
Low channel



Central channel

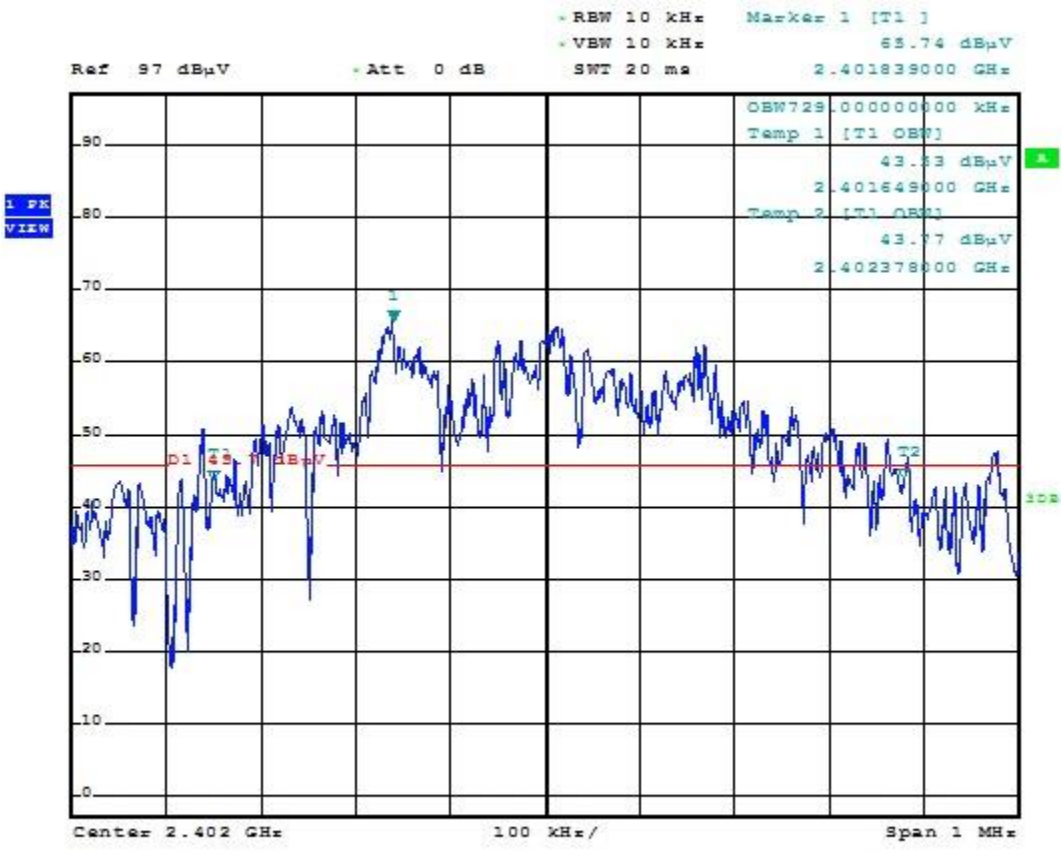


High channel

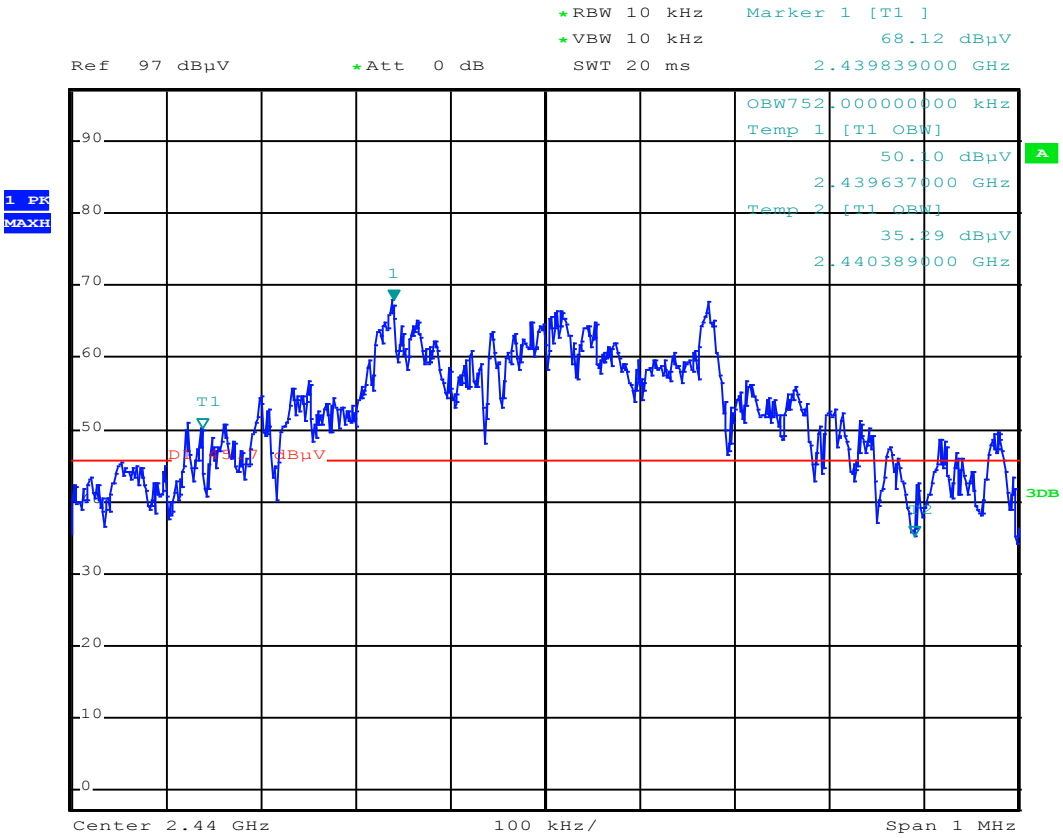


APPENDIX 4: 99% bandwidth

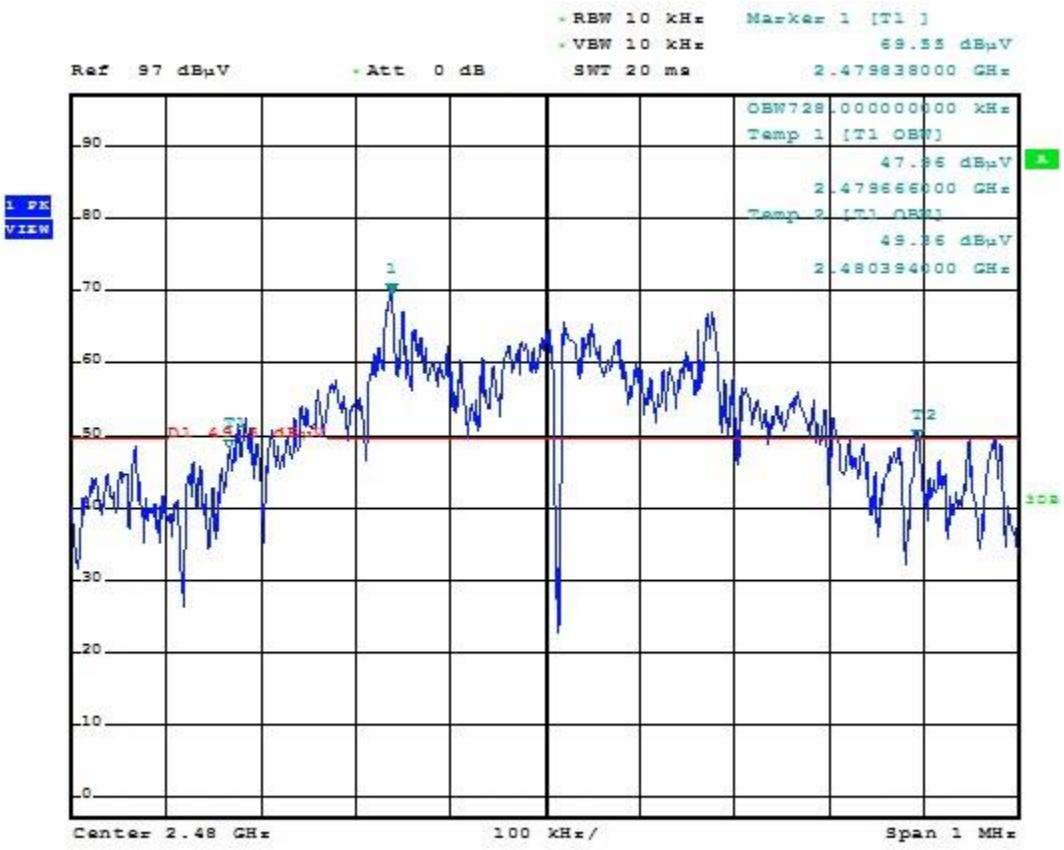
Low Channel



Central Channel

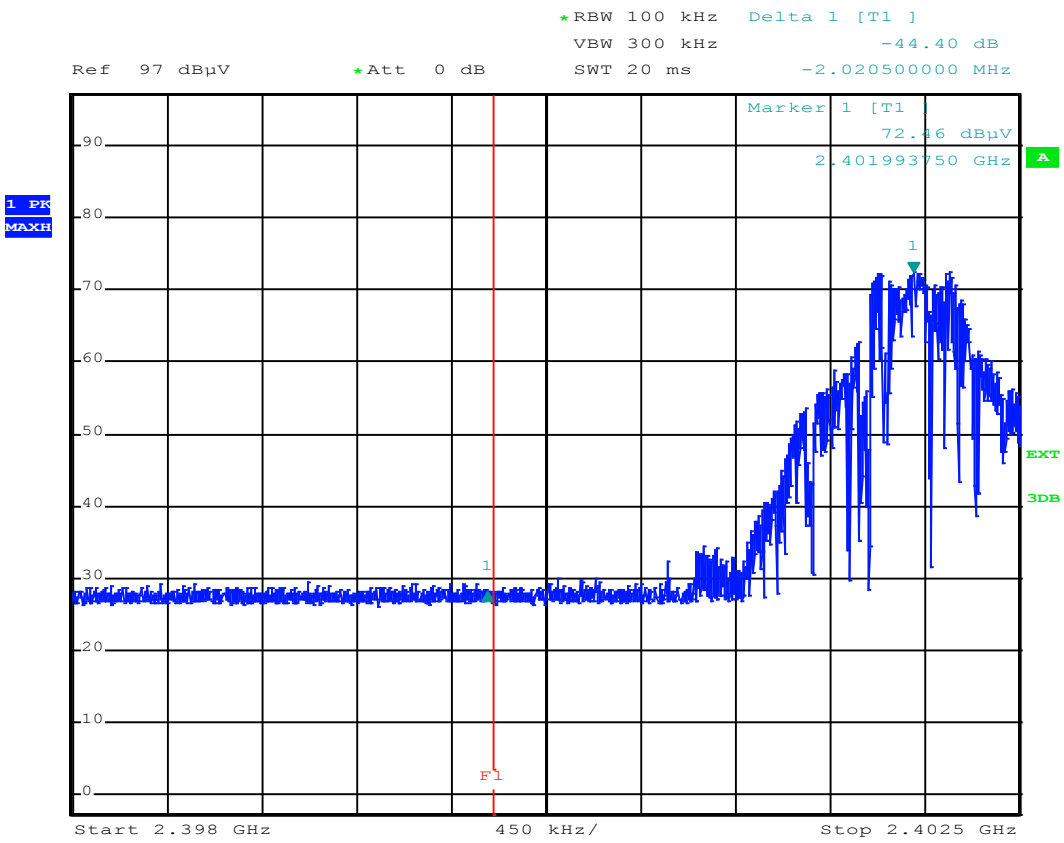


High Channel

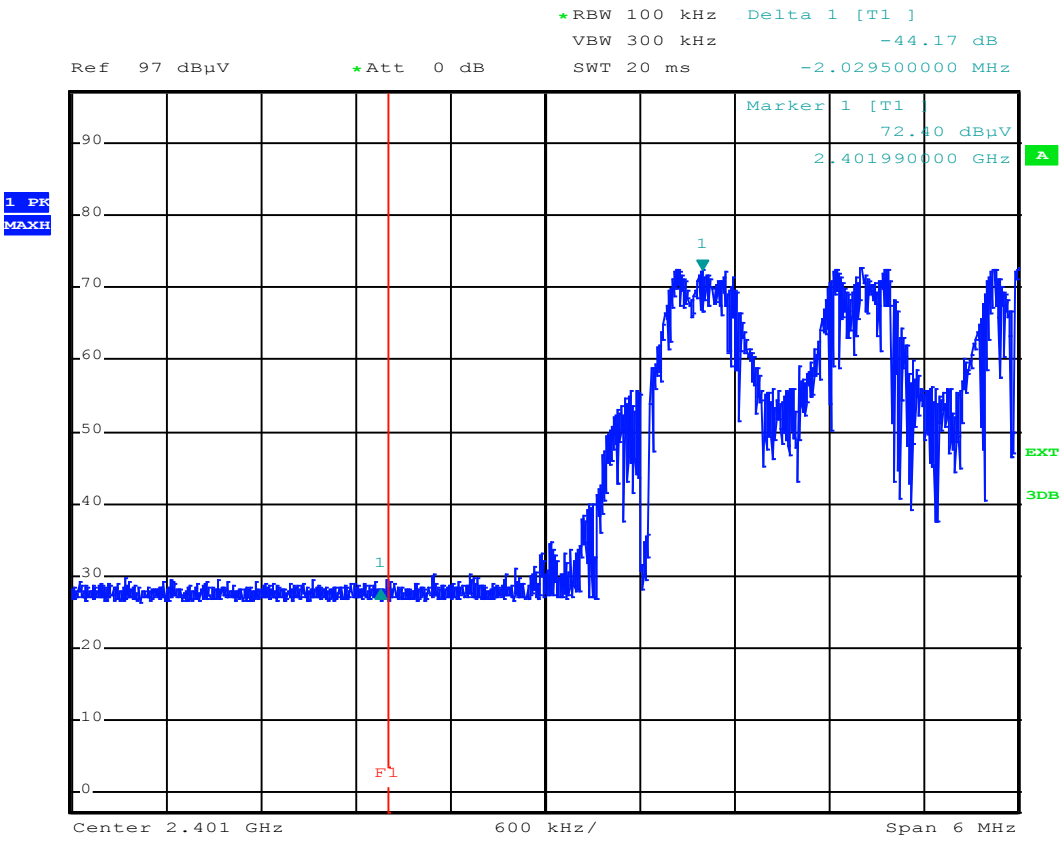


APPENDIX 5: Band edge

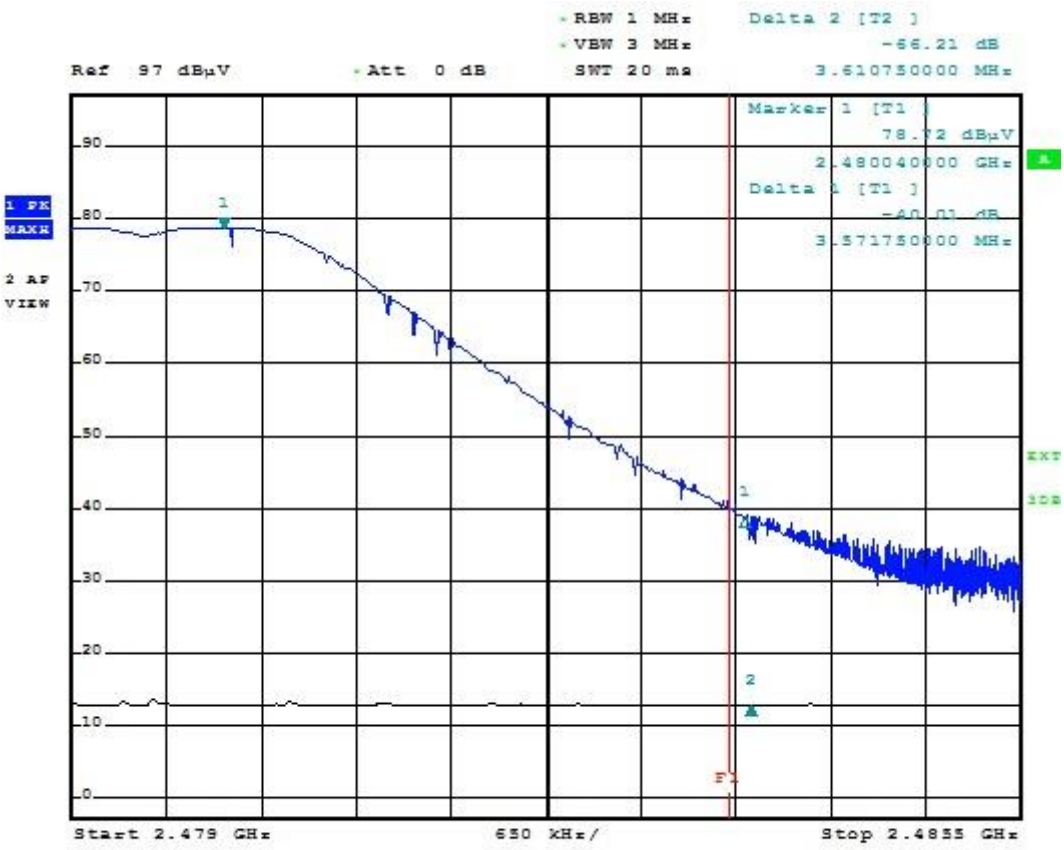
Low channel with hopping mode off



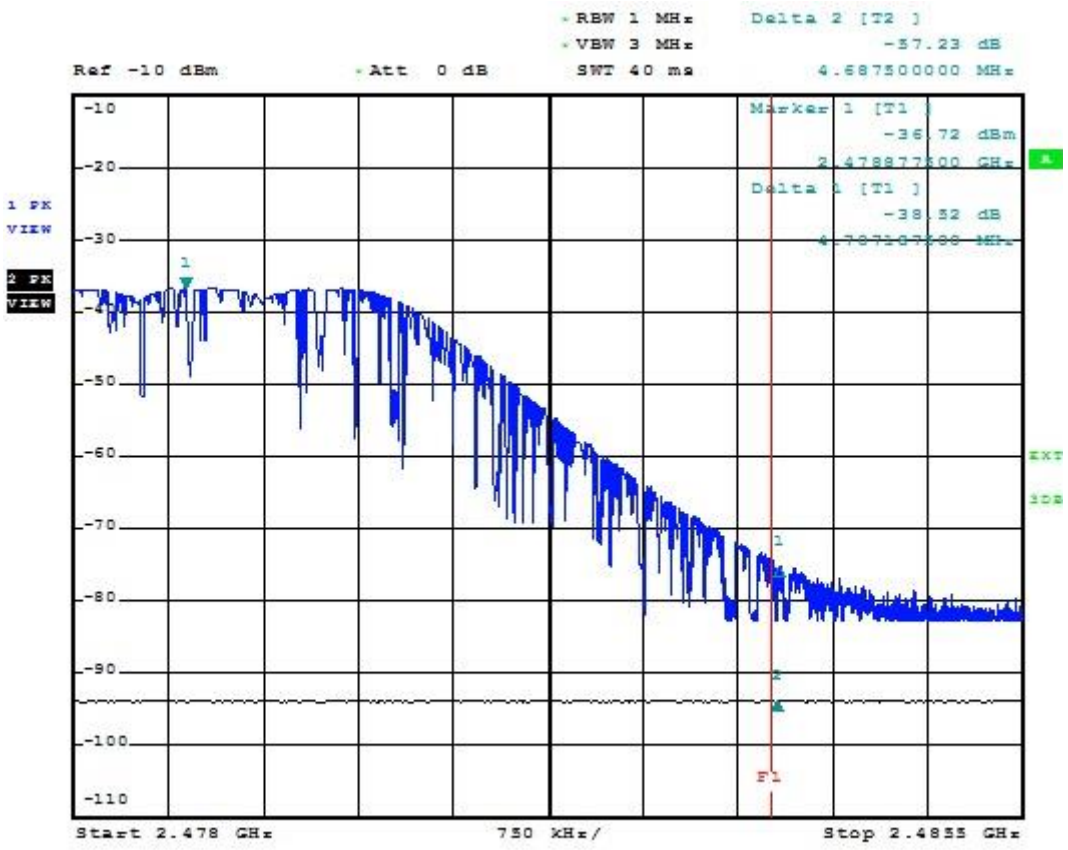
Low channel with hopping mode on



High channel with hopping mode off

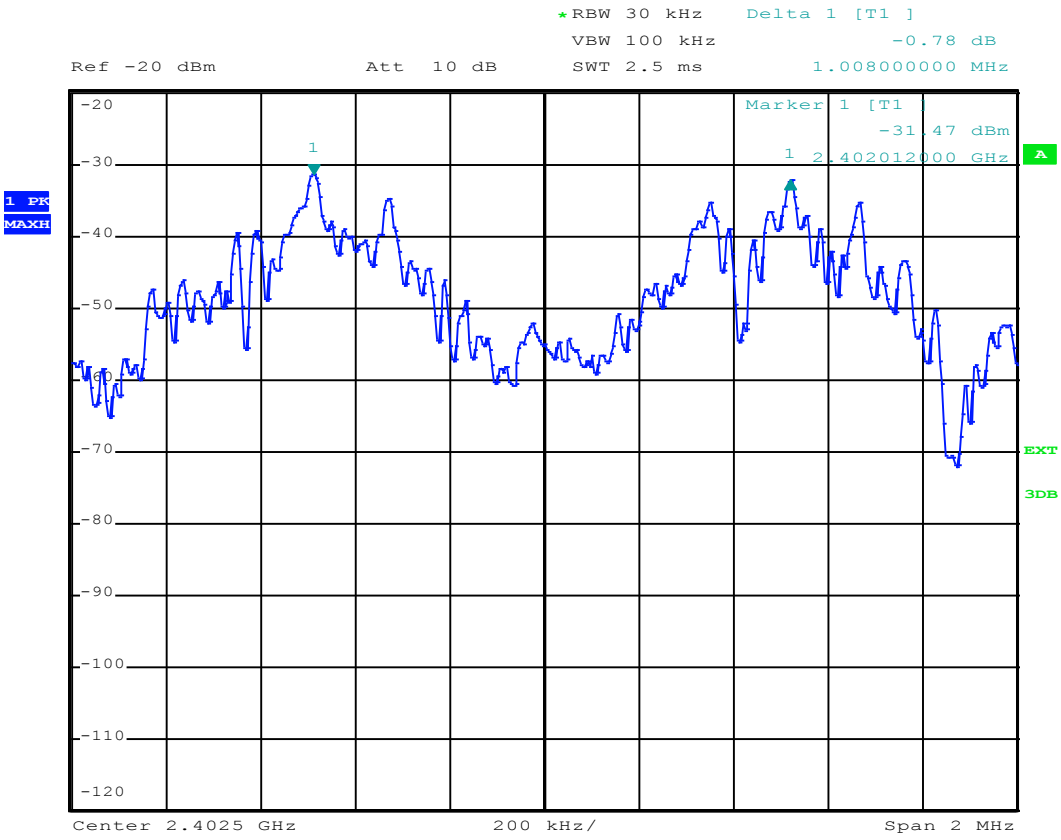


High channel with hopping mode on

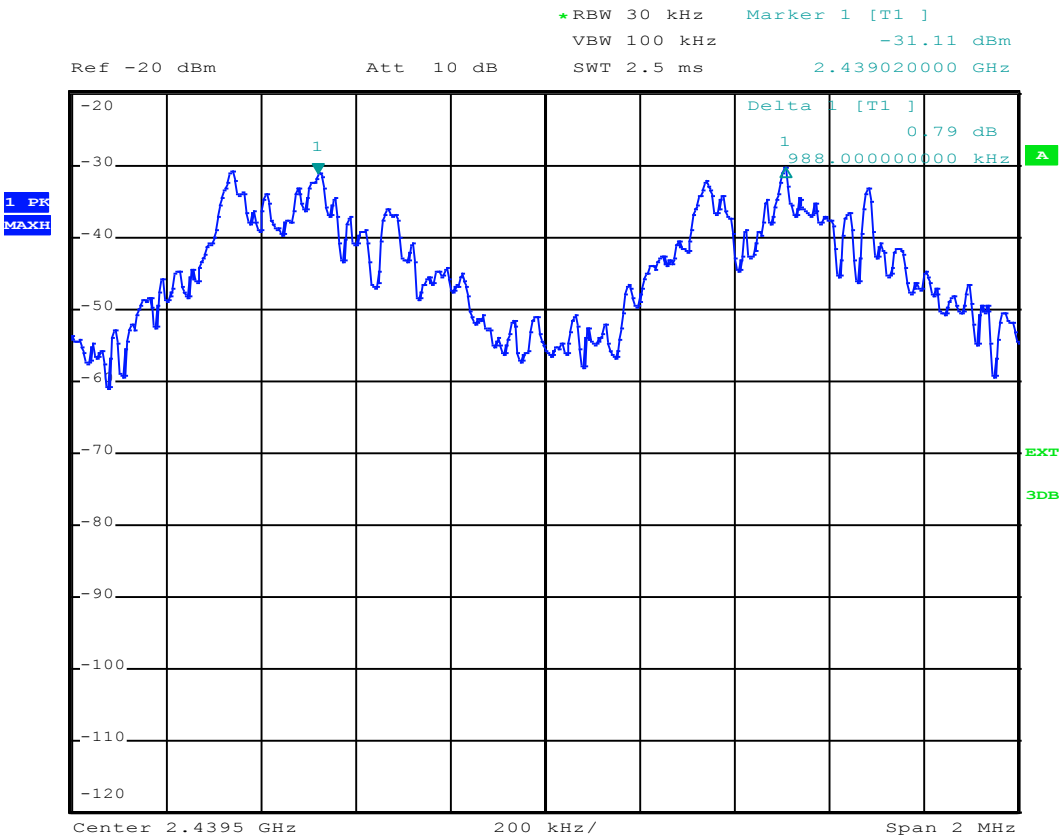


APPENDIX 6: Channel spacing

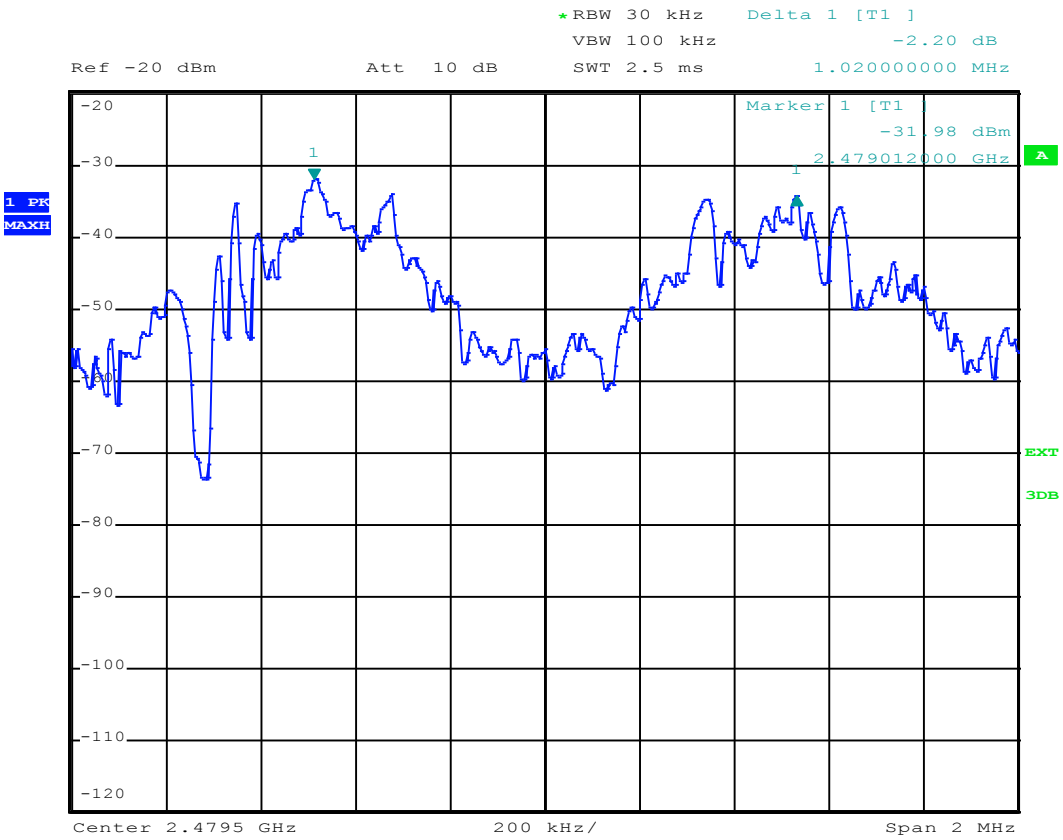
Low Channel



Central Channel

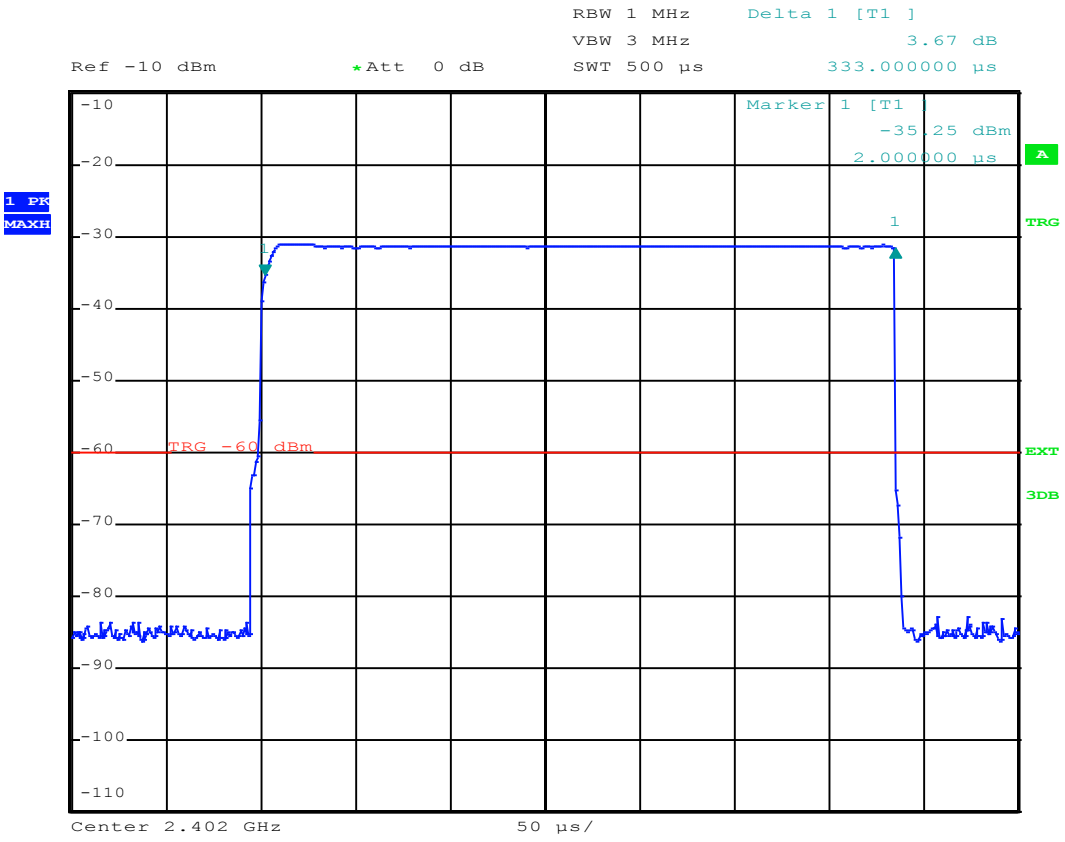


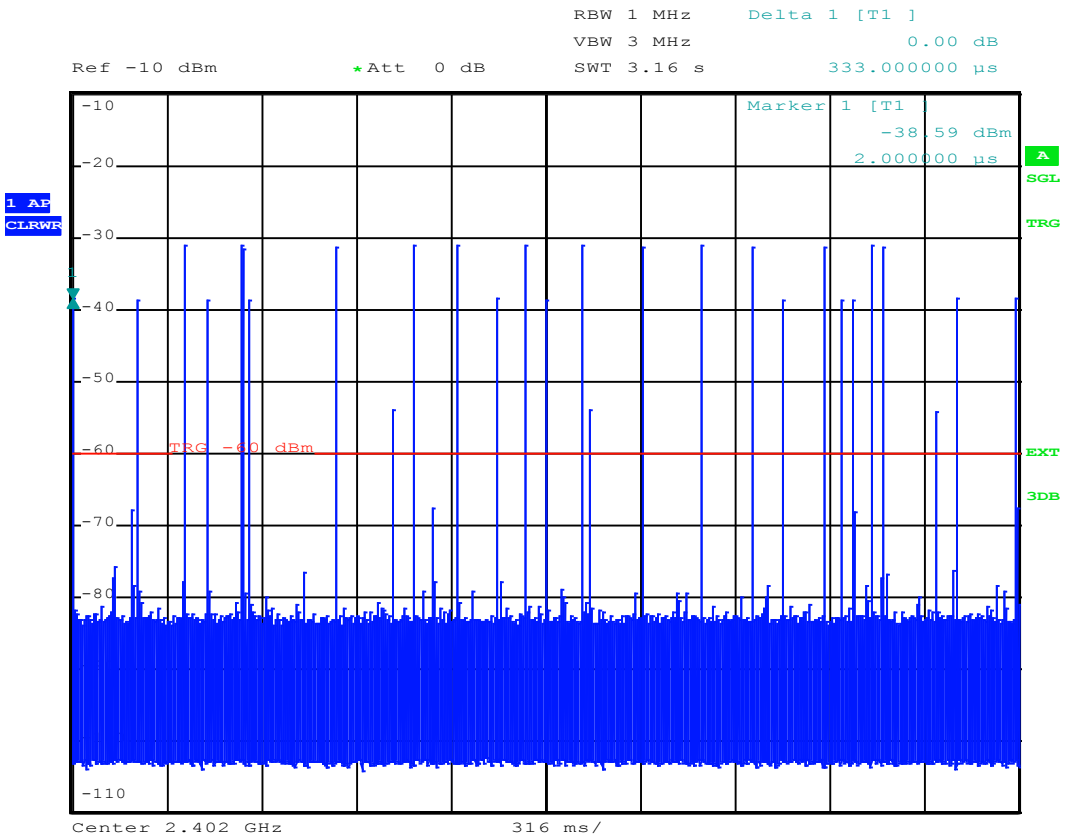
High Channel



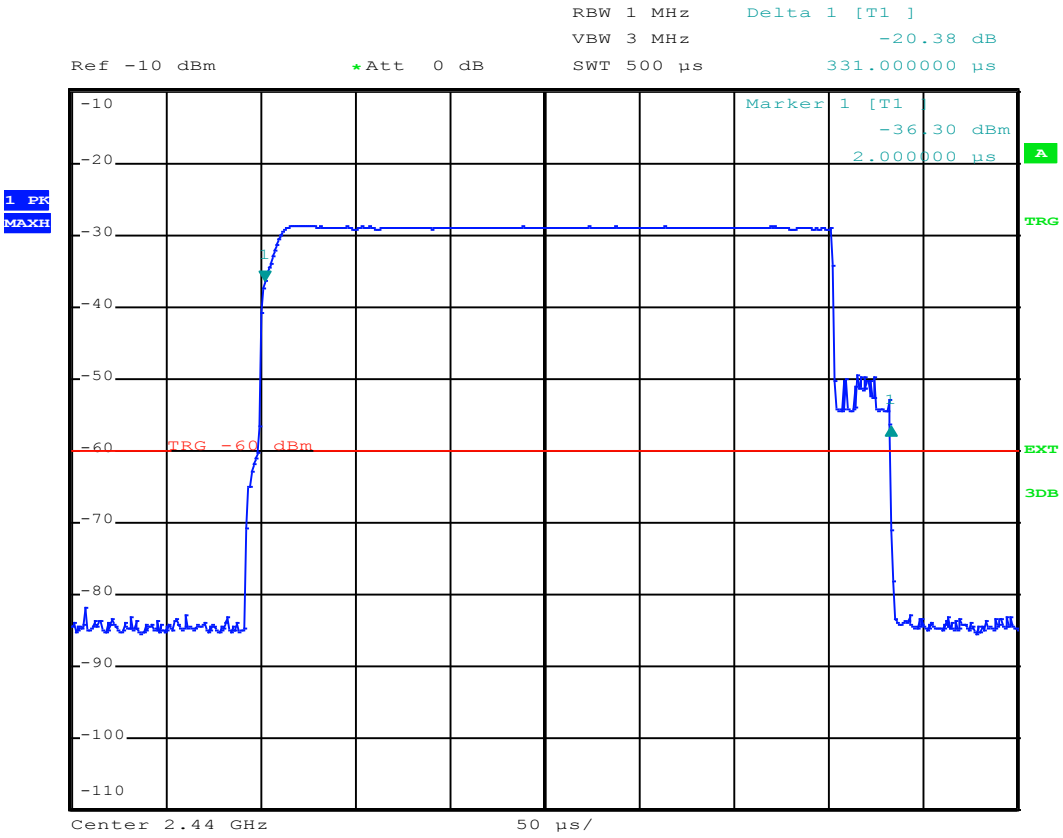
APPENDIX 7: Time of occupancy on any frequency

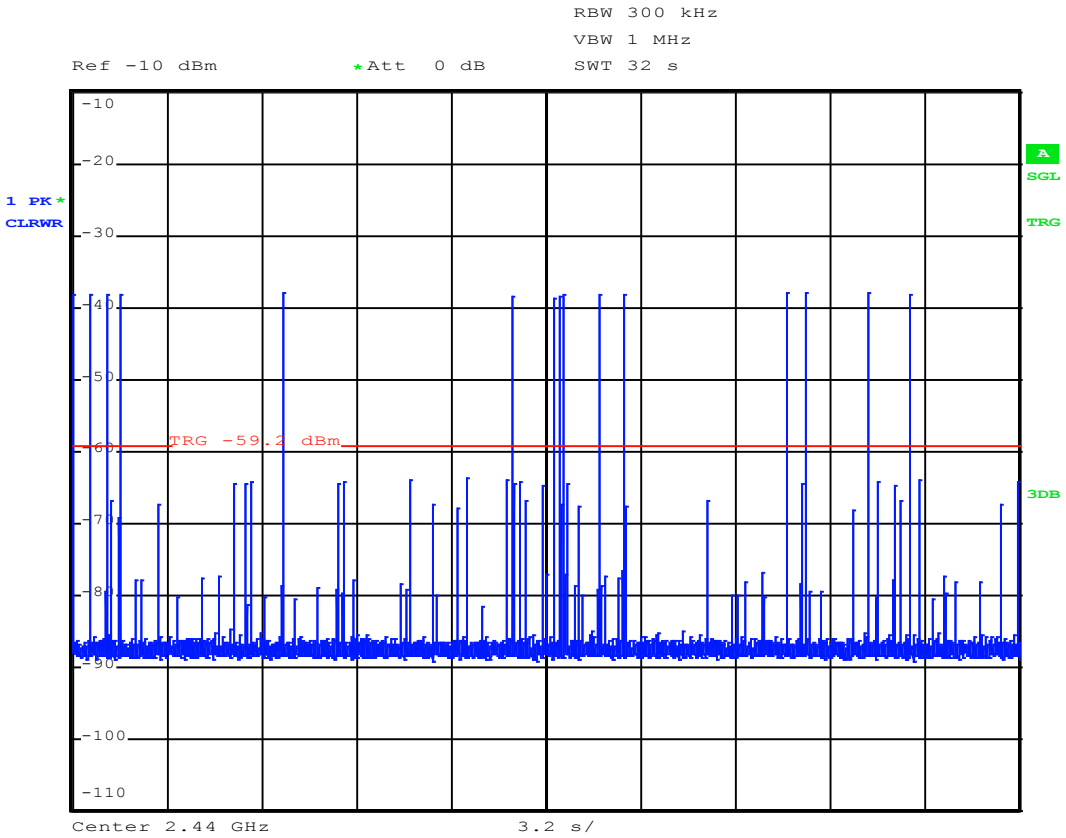
Low Channel



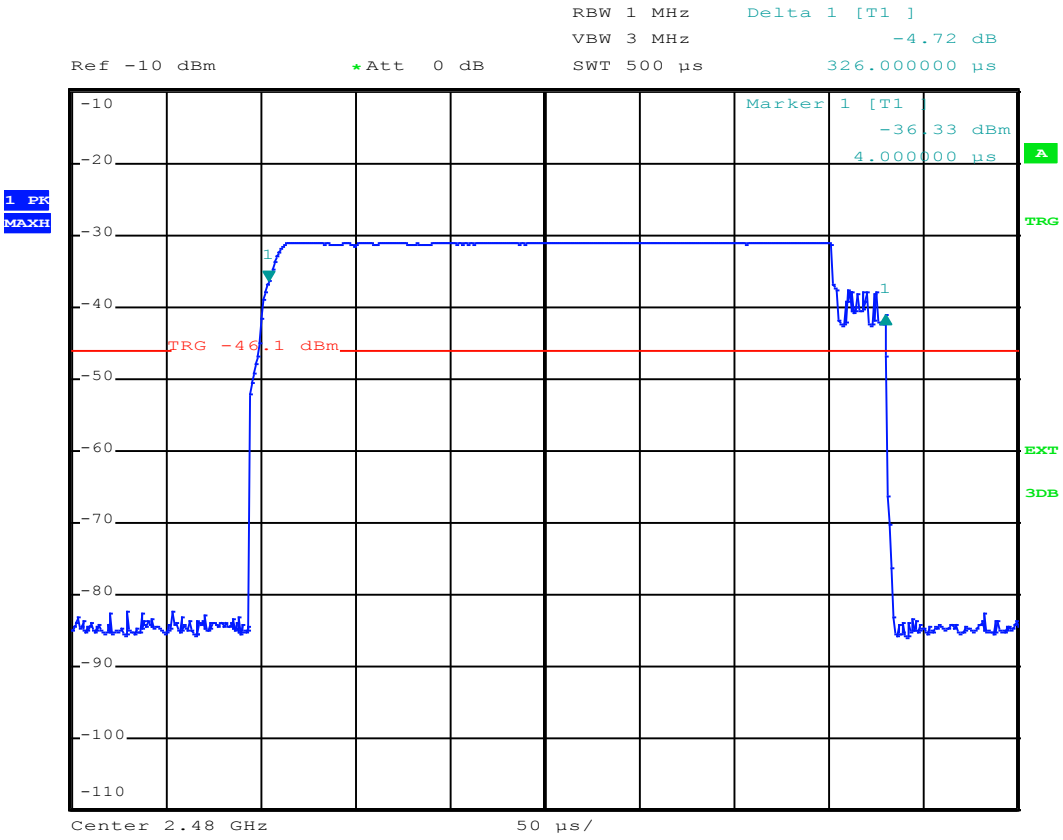

RBW 1 MHz
VBW 3 MHz
SWT 3.16 s
Delta 1 [T1]
0.00 dB
333.000000 µs
Ref -10 dBm
Att 0 dB
Marker 1 [T1]
-38.59 dBm
2.000000 µs
1 AP
CLRWR
A
SGL
TRG
EXT
3DB
TRG -60 dBm
-10
-20
-30
-40
-50
-60
-70
-80
-110
Center 2.402 GHz
316 ms/

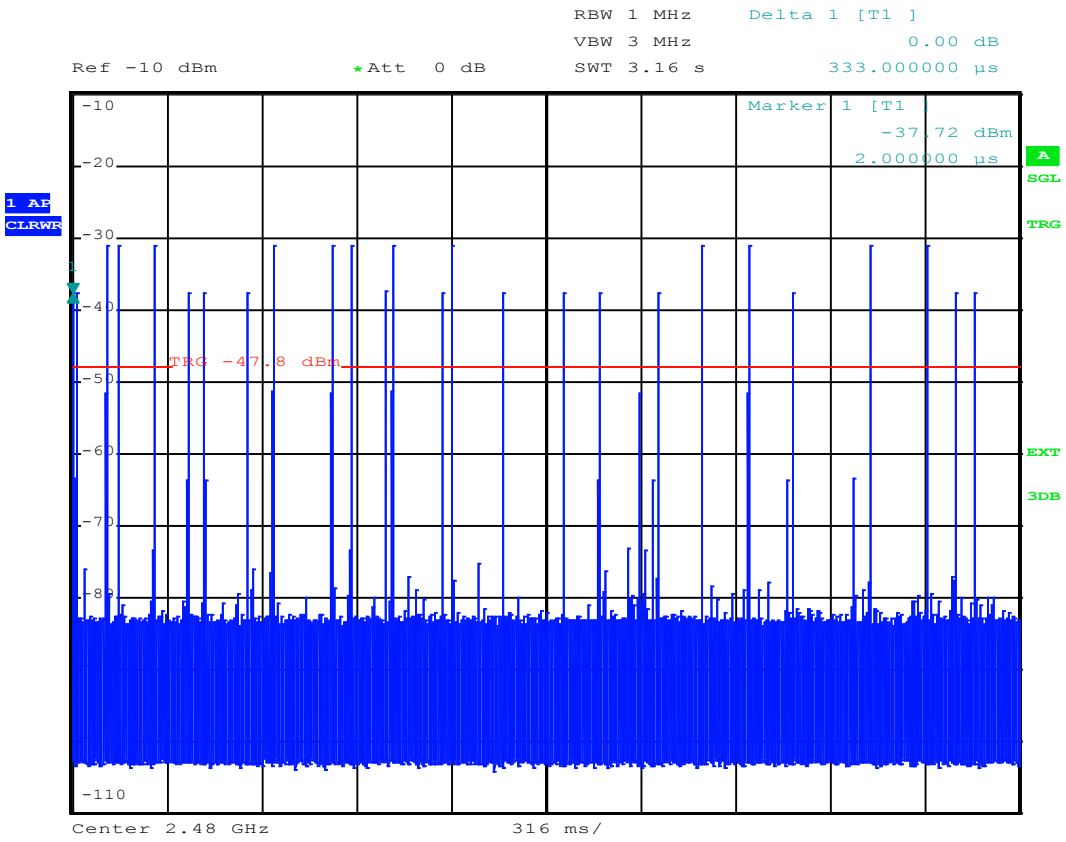
Central Channel



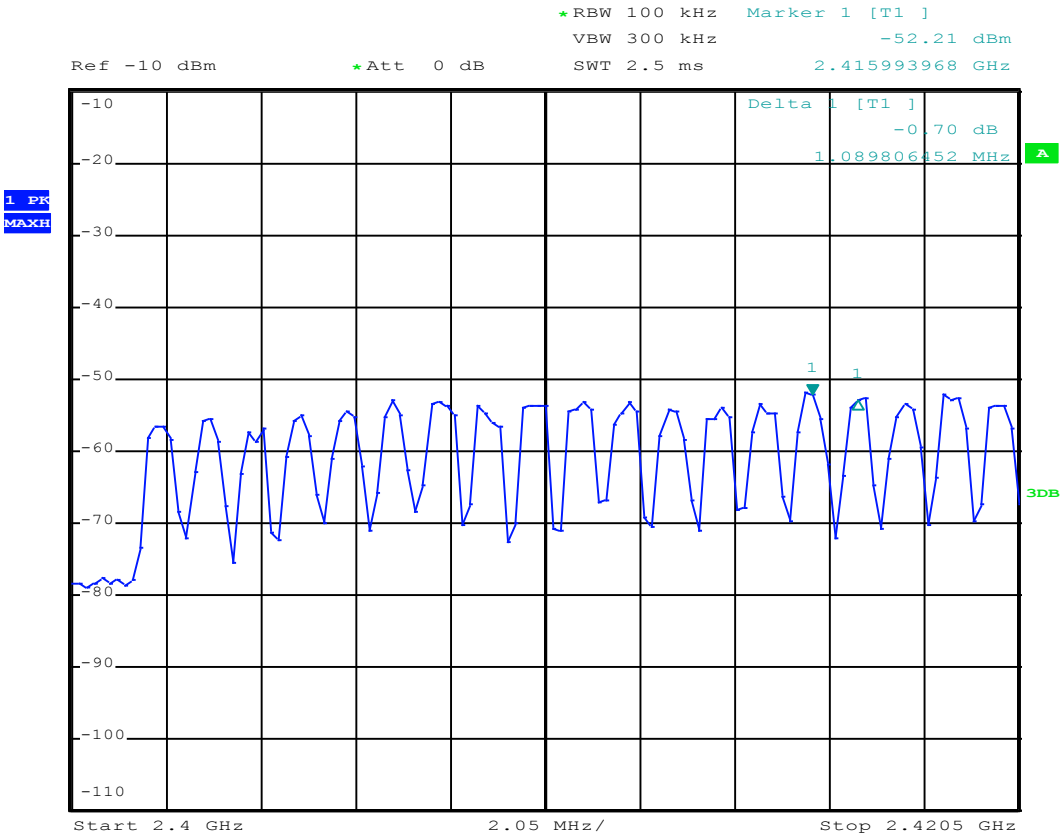

RBW 300 kHz
VBW 1 MHz
Ref -10 dBm
*Att 0 dB
SWT 32 s
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
1 PK*
CLRWR
TRG -59.2 dBm
A
SGL
TRG
3DB
Center 2.44 GHz
3.2 s/

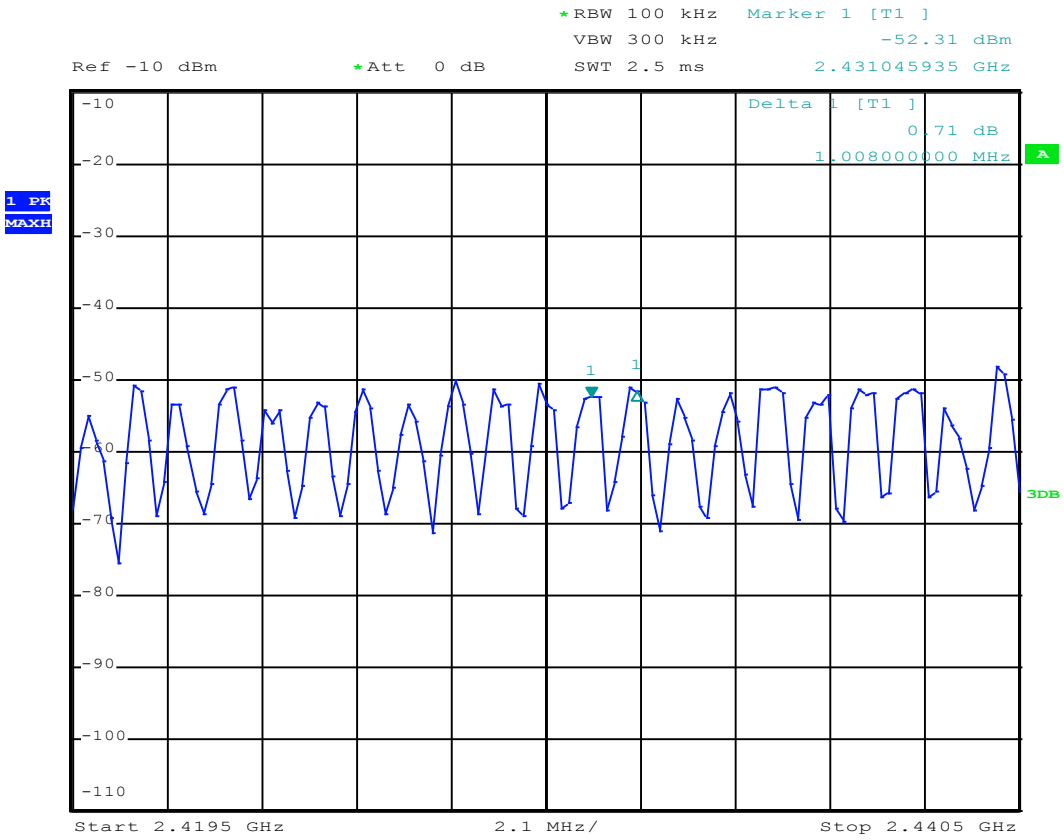
High Channel

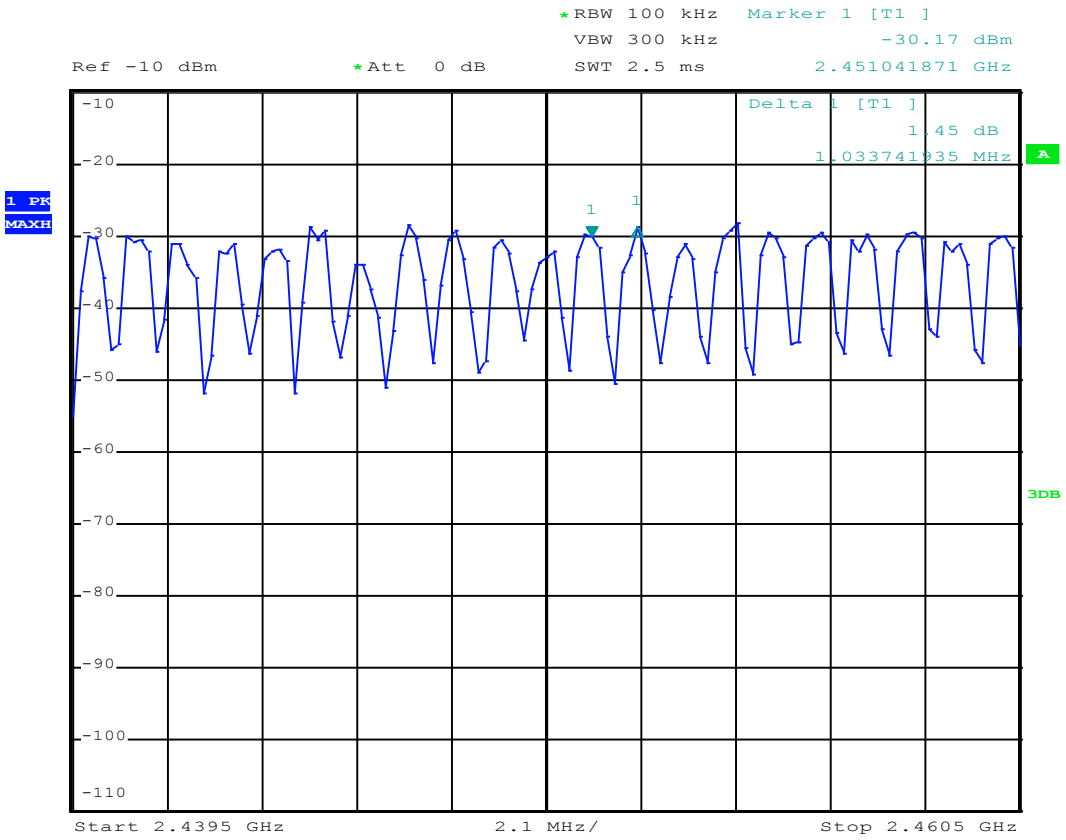


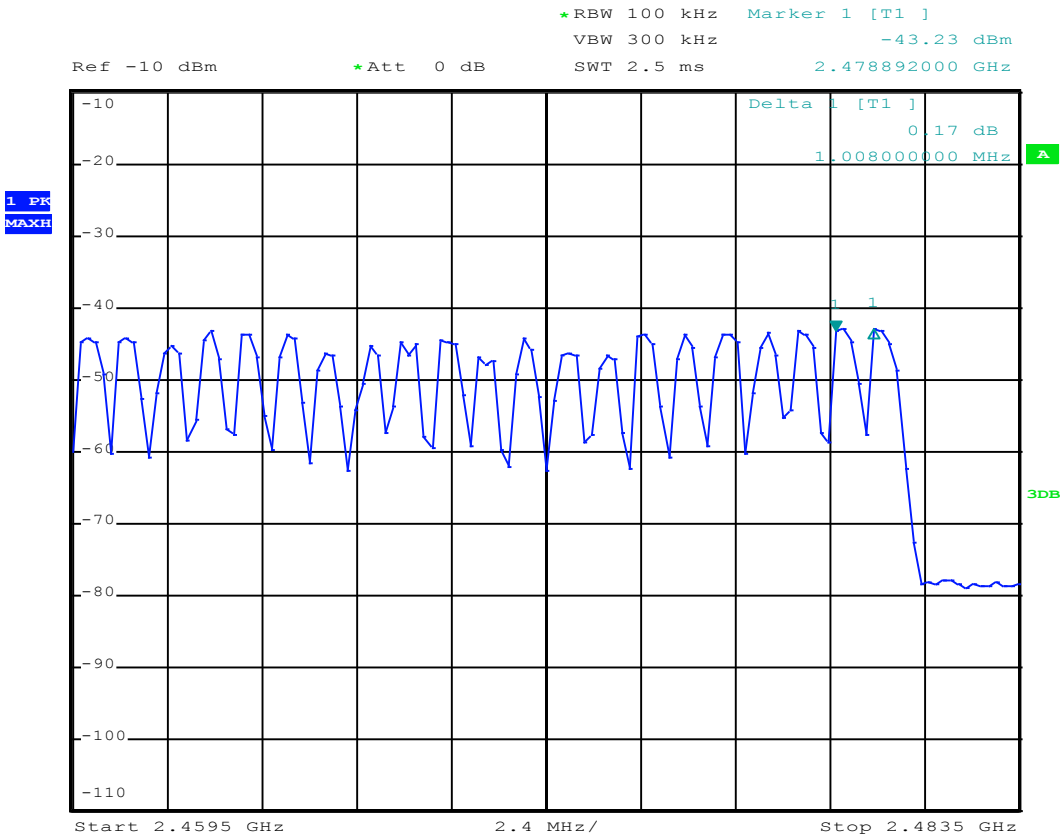

RBW 1 MHz
VBW 3 MHz
SWT 3.16 s
Delta 1 [T1]
0.00 dB
333.000000 µs
Ref -10 dBm
Att 0 dB
Marker 1 [T1]
-37.72 dBm
2.000000 µs
A
SGL
TRG
EXT
3DB
1 AP
CLRWR
-10
-20
-30
-40
-50
-60
-70
-80
-110
TRG -47.8 dBm
Center 2.48 GHz
316 ms/

APPENDIX 8: Number of hopping channels




*RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
Marker 1 [T1]
-52.31 dBm
2.431045935 GHz
Ref -10 dBm
*Att 0 dB
Delta 1 [T1]
0.71 dB
1.008000000 MHz
1 PK
MAXH
A
3DB
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
Start 2.4195 GHz
2.1 MHz/
Stop 2.4405 GHz


*RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
Marker 1 [T1]
-30.17 dBm
2.451041871 GHz
Ref -10 dBm
*Att 0 dB
Delta 1 [T1]
1.45 dB
1.033741935 MHz
1 PK
MAXH
A
3DB
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
Start 2.4395 GHz
2.1 MHz/
Stop 2.4605 GHz


*RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
Marker 1 [T1]
-43.23 dBm
2.478892000 GHz
Ref -10 dBm
*Att 0 dB
Delta 1 [T1]
0.17 dB
1.008000000 MHz
1 PK
MAXH
A
3DB
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
Start 2.4595 GHz
2.4 MHz/
Stop 2.4835 GHz