

RRA-100-18-102905-2-A

*"This report cancels and replaces the test report N° RRA-100-18-102905-2-A Edition 0"*

## E.M.C Test Report

### According to the standards:

FCC 47 CFR PART 15 : 2017 (§15.247)  
RSS-247 issue 2 : 2017  
RSS-Gen Issue 4 : 2014

### Equipment under test:

Sensor SENSTROKE  
FCC ID : 2AR3427M00001EN

### Company:

REDISON

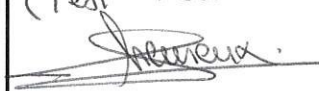
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Distribution: Mr DRON

(Company: REDISON)

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**TEST CERTIFICATION FOR:** : FCC and Canada Certifications

**NAME OF THE EQUIPMENT UNDER TEST** : SENSTROKE

**Serial number** : Prototype

**Reference / model (P/N)** : Not communicated

**Software version** : Not communicated

**NAME OF THE MANUFACTURER** : REDISON

**ADDRESS OF THE APPLICANT** :

**Company** : REDISON

**Address** : 86 rue Paul Bert  
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FRANCE

**Person present during the tests** : -

**Responsible** : Mr DRON

**DATES OF TESTS** : 15/11 and 16/11/2018  
27/11/2018

**TESTS LOCATION** : EMITECH Laboratory at Montigny-le-Bretonneux  
(78) - FRANCE

**TESTS SUPERVISOR** : B. PELLERIN

**TESTS OPERATORS** : A. BERNARD / F. DESTRUELS

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## **1. INTRODUCTION**

This document presents the results of Electromagnetic Compatibility tests performed on the equipment «**SENSTROKE**» according to reference documents listed below.

## **2. REFERENCE DOCUMENTS**

### ***FCC 47 CFR Part 15: 2017***

Code of Federal Regulations. Title 47- Telecommunication  
Chapter 1- Federal Communication Commission  
Part 15- Radio frequency devices

### ***RSS-247 issue 2: 2017***

Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

### ***RSS-Gen Issue 4 : November 2014***

General Requirements and Information for the Certification of Radio Apparatus

### ***ANSI C63.4: 2014***

Methods of Measurement of Radio-Noise Emissions from Low Voltage Electrical and Electronics Equipment in the range of 9 kHz to 40 GHz.

### ***KDB 558074 D01 DTS Meas Guidance V05***

Guidance for performing compliance measurement on Digital Transmission Systems (DTS) operating under § 15.247.

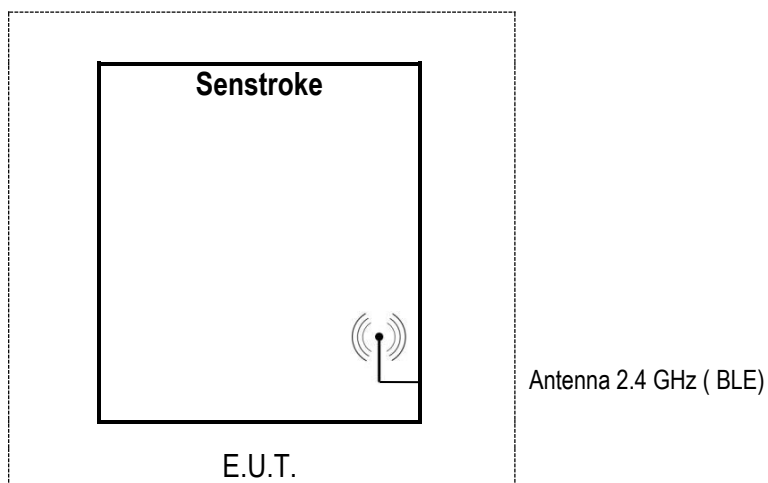
### ***ANSI C63.10 : 2013***

American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

### 3. PRODUCT DESCRIPTION

Class:	B (Residential environment)
Antenna type and gain:	Integral antenna: Not communicated
Operating frequency range:	from 2402 MHz to 2480 MHz
Number of channels:	3
Channel spacing:	2 MHz
Modulation:	-
Power source:	3,7 Vdc (battery)
Software power setting:	-
Modification of the equipment during the tests: No.	

The equipment under test is presented in a plastic housing, intended for use portable in every environment; it is tested in horizontal position and vertical position. That used for all measurements in a vertical position. The equipment under test is recharged via a charging station supplied with 120 Vac / 60 Hz.



USB : No cable during the tests

E.U.T.: Equipment under Test



#### 4. TESTS AND CONCLUSION

The following table summarizes test results of the EUT.

Subpart C of the standard FCC part 15 – Intentional radiators

Test procedure	Designation of test	Test results				Comments
		Pass	Fail	N.A.	N.P.	
15.205	Restricted bands of operation	X				
15.207	Measurement of conducted emission on AC mains ports	X				
15.209	Radiated emission limits; general requirements	X				
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				
	(c) 20 dB bandwidth and band-edge compliance			X		
15.247	Intentional radiated emissions					
	a) frequency hopping and digitally modulated					
	a) (1) hopping mode			X		
	a) (1) (i) frequency hopping in the band 902-928 MHz			X		
	a) (1) (ii) frequency hopping in the band 5725–5850 MHz			X		
	a) (1) (iii) frequency hopping in the band 2400–2483.5 MHz			X		
	a) (2) systems using digital modulation in the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz (6 dB bandwidth)	X				
	b) maximum peak conducted					
	b) (1) frequency hopping in the bands 2400–2483.5 MHz or 5725–5850 MHz			X		
	b) (2) frequency hopping in the band 902-928 MHz			X		

Test procedure	Designation of test	Test results				Comments
		Pass	Fail	N.A.	N.P.	
15.247	b) (3) systems using digital modulation in the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz	X				
	b) (4) maximum peak conducted > 6 dBi			X		
	b) (4) (i) frequency hopping in the band 2400–2483.5 MHz			X		
	b) (4) (ii) frequency hopping in the band 5725–5850 MHz			X		
	b) (4) (iii) fixed, point-to-point			X		
	c) directional antenna > 6 dBi					
	c) (1) fixed, point-to-point operation			X		
	c) (1) (i) in the band 2400–2483.5 MHz			X		
	c) (1) (ii) in the band 5725–5850 MHz			X		
	c) (1) (iii) fixed, point-to-point			X		
	c) (2) multiple directional beams in the band 2400–2483.5 MHz			X		
	c) (2) (i) information			X		
	c) (2) (ii) sum of the power supplied to all antennas			X		
	c) (2) (iii) one antenna for multiple directional beams			X		
	c) (2) (iv) single directional beam			X		
	d) intentional radiator	X				
	e) peak power spectral density	X				
	f) hybrid system			X		
	g) continuous data stream during the test			X		
	h) to avoid hopping on occupied channels			X		
	i) RF exposure compliance			X		P < 500 mW

N.A.: Not Applicable

N.P.: Not Performed

## Standard RSS-247 Issue 2 : 2017

Designation of test	Test results				Comments
	Pass	Fail	N.A.	N.P.	
1. Scope					
3. Certification Requirements					
3.1 RSS-gen compliance			X		See RSS-Gen Issue 4
			X		See RSS-Gen Issue 4
			X		See RSS-Gen Issue 4
			X		See CS-03
			X		See RSS-Gen Issue 4
5.2 Digital Modulation Systems					
(1) -6 dB bandwidth	X				
(2) transmitter power spectral density	X				
5.4 Transmitter Output Power and e.i.r.p. Requirements					
1) 902-928 MHz frequency hopping systems output power / e.i.r.p.			X		
2) 2400-2483.5 MHz frequency hopping systems output power / e.i.r.p.			X		
3) 5725-5850 MHz frequency hopping systems output power / e.i.r.p.			X		
4) Digital modulation systems output power / e.i.r.p.	X				
5) point-to-point systems (2400-2483.5 and 5725-5850 MHz)			X		
6) Multiple directional beams antenna systems (2400-2483.5 MHz)			X		
5.5 Unwanted emission	X				

## Standard RSS-Gen Issue 4 : November 2014

Designation of test	Test results				Comments
	Pass	Fail	N.A.	N.P.	
<b>1. Scope</b>					
<b>2. Purpose and application</b>					
2.1 Certification of Radio Apparatus			X		
2.2 Categories of radio Equipment					Category 1
2.3 Exclusions			X		
2.4 Determination of Interference			X		
<b>3. Normative Reference Publications</b>					
<b>4. application for an Exemption</b>					
<b>5. Receivers</b>					
5.1 Scanner Receivers			X		
5.2 Stand-Alone Receivers Operating in the Band 30-960 MHz (Category II)			X		
5.3 Receivers Exempted From Industry Canada Requirement (Category II)			X		
<b>6. Technical Requirements</b>					
6.1 Test Site Facilities					See ANSI C63.4-2014
6.2 Test report					
6.3 External control			X		
6.4 Near Field Measurement Method Below 30 MHz			X		
6.5 Measurement Distance Above 30 MHz					
6.6 Occupied Bandwidth	X				See RSS 247
6.7 Transmitter Antenna for Licensed Radio Apparatus			X		
6.8 Operating Bands and Selection of Test Frequencies			X		
6.9 CISPR Quasi-peak Detector	X				
6.10 Pulsed Operation			X		
6.11 Transmitter Frequency Stability			X		
6.12 Transmitter Output Power	X				See RSS 247
6.13 Transmitter unwanted Emissions	X				
<b>7. Receiver limit</b>					
<b>8. Licence-Exempt radio Apparatus</b>					
8.1 Measurement Bandwidths and Detector Functions	X				
8.2 Amplifiers			X		
8.3 Transmitter Antenna for Licence-Exempt Radio Apparatus			X		
8.4 User Manual notice for Licence-Exempt Radio Apparatus			X		
8.5 Measurement of Licence-Exempt Devices On-Site (in-situ)			X		
8.6 Operating frequency Range of Device in Master/Slave networks			X		
8.7 Radio Frequency identification (RFID) Devices			X		
8.8 AC Power Line Conducted Emission Limits for licence-Exempt Radio Apparatus	X				
8.9 Transmitter Emission limits for Licence-Exempt Radio Apparatus			X		
8.10 Restricted Frequency bands			X		
8.11 Frequency Stability for Licence-Exempt transmitters			X		

Designation of test	Test results				Comments
	Pass	Fail	N.A.	N.P.	
<b>7. Licence-exempt Radio Apparatus</b>					
7.1 General Informations					
7.1.1 External Amplifiers			X		
7.1.2 Transmitter Antenna			X		
7.1.3 User manual Notice			X		User manual shall include the required statements
7.1.4 Radio Apparatus Containing Digital Circuits			X		See ICES-003
7.1.5 Measurement After Installation			X		
7.1.6 operating Frequency range of Devices in Master/Slave Networks			X		
7.1.7 Home-built Devices			X		
7.1.8 RFID Devices			X		
7.2 Measurement Methods and Standard Specifications					
7.2.1 Measurement Bandwidths and Detector Functions	X				
7.2.2 Emissions Falling Within Restricted Frequency Bands			X		
7.2.3 Devices Employing Pulsed Operation			X		
7.2.4 AC Power Line Conducted Emissions Limits	X				
7.2.5 Transmitter Spurious Emission Limits	X				
7.2.6 Transmitter Frequency Stability			X		
7.2.7 Measurement Distance			X		

Note 1: Single / Split / limited modular transmitter.

The host devices of the certified module(s) shall be properly labeled to identify the module(s) within.

Note 2: Spectrum investigated from 30 MHz or the lowest radio frequency signal generated in the equipment, whichever is lower, without going below 9 kHz to the 10<sup>th</sup> harmonic of the highest fundamental frequency or 40 GHz, whichever is lower (F<10 GHz) or to the 5<sup>th</sup> harmonic of the highest fundamental frequency or 100 GHz, whichever is lower (F≥10 GHz).

Note 3: Spectrum investigated from the lowest frequency internally generated or used in the receiver or 30 MHz, whichever is higher to at least 3 times the highest tune-able or local oscillator frequency, whichever is higher without exceeding 40 GHz.

Note 4: The certificate holder shall be able to demonstrate a quality control process used for production.  
Inspection and testing in accordance with good engineering practices.

Note 5: The device must be properly identified and labeled.

Note 6: Suppliers of radio apparatus shall provide notices and user information in both English and French.

Note 7: The device shall not have any external controls accessible to the user.

Note 8: When transitioning between bands, the equipment shall not actively transmit

## Conclusion:

The tested sample «**SENSTROKE**» submitted to the tests complies with the requirements of the standards:

- FCC 47 CFR PART 15 : 2017
- RSS-247 issue 2: 2017
- RSS-Gen Issue 4 : November 2014

According to the limits specified in this report.

## 5. DIGITAL MODULATION SYSTEMS

**Standards:** FCC 47 CFR PART 15 : 2017  
RSS-247 Issue 2 : 2017

**Sections:** §15.247 a) (2)  
§5.2 a) of RSS-247 issue 2 : 2017  
§6.6 of CNR-Gen issue4 : 2014

### Test configuration:

The system is tested in normalized test site.

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

The level was maximised in antenna height, azimuth and polarization. The maximum level measured on the spectrum analyser was recorded.

**Distance of antenna:** 3 meters

### Instrumentation test list:

Category	Manufacturer	Type	Emitech Nr	Last validity date	Next validity date
Amplifier	Agilent	8449B	14487	04/07/2018	04/07/2019
Antenna	Emco	3115	0941	28/10/2015	28/12/2018
Antenna mast	Maturo	AM 4.0	8411	---	---
Cable	C&C	N-2m	11176	18/04/2018	18/04/2020
Cable	C&C	N-2m	11182	18/04/2018	18/06/2020
Cable	C&C	N-8m	11183	18/04/2018	18/06/2020
Spectrum analyzer	Rohde & Schwarz	FSP40 (V 4.00SP1-V3.0-10-2)	5175	20/09/2018	20/11/2020

### Equipment under test operating condition:

EUT is in continuous transmission mode.

### Measure conditions:

Ambient temperature (°C): 21

Relative humidity (%): 50

Resolution bandwidth: 100 kHz

**Results:**

Power source: 3 Vdc

**6 dB bandwidth**

Frequency	Mode	Results	Comments
2402 MHz	advertising	0.680 MHz	See annex n°4
2426 MHz		0.680 MHz	See annex n°4
2480 MHz		0.704 MHz	See annex n°4

**20 dB bandwidth**

Frequency	Mode	Results	Comments
2402 MHz	advertising	1.236 MHz	See annex n°4
2426 MHz		1.236 MHz	See annex n°4
2480 MHz		1.356 MHz	See annex n°4

**Test conclusion:** Complies with the requirements of the standards.

## 6. TRANSMITTER OUTPUT POWER

**Standards:** FCC 47 CFR PART 15 : 2017  
RSS-247 Issue 2 : 2017

**Sections:** §15.247 b) (3)  
§5.4 of RSS-247 issue 2 : 2017

### Test configuration:

The system is tested in normalized test site.

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

The level was maximised in antenna height, azimuth and polarization. The maximum level measured on the spectrum analyser was recorded.

**Distance of antenna:** 3 meters.

### Instrumentation test list:

Category	Manufacturer	Type	Emitech Nr	Last validity date	Next validity date
Amplifier	Agilent	8449B	14487	04/07/2018	04/07/2019
Antenna	Emco	3115	0941	28/10/2015	28/12/2018
Antenna mast	Maturo	AM 4.0	8411	---	---
Cable	C&C	N-2m	11176	18/04/2018	18/04/2020
Cable	C&C	N-2m	11182	18/04/2018	18/06/2020
Cable	C&C	N-8m	11183	18/04/2018	18/06/2020
Filter	BL Microwave	BP2442-84-7CS	5624	10/05/2017	10/07/2019
Spectrum analyzer	Rohde & Schwarz	FSP40 (V 4.00SP1-V3.0-10-2)	5175	20/09/2018	20/11/2020

### Equipment under test operating condition:

EUT is in continuous transmission mode.

### Measure conditions:

Ambient temperature (°C): 21

Relative humidity (%): 50

Resolution bandwidth: 1 MHz

**Results:**

Power source: 3 Vdc

Frequency	Mode	Electro-magnetic field (dBμV/m)	TP* (dBm)	Limit (dBm)
2402 MHz	Advertising	91.8	- 5.1	+ 30
2426 MHz		93.1	- 3.9	+ 30
2480 MHz		93.5	- 3.5	+ 30

\* TP =  $(E \times d)^2 / (30 \times 1.64)$  for d = 3 m

**Test conclusion:** Complies with the requirements of the standards.

## 7. PEAK POWER SPECTRAL DENSITY

**Standards:** FCC 47 CFR PART 15 : 2017  
RSS-247 Issue 2 : 2017

**Sections:** §15.247 e)  
§5.2 b) of RSS-247 issue 2 : 2017

### Test configuration:

The system is tested in normalized test site.

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

The level was maximised in antenna height, azimuth and polarization. The maximum level measured on the spectrum analyser was recorded.

**Distance of antenna:** 3 meters

### Instrumentation test list:

Category	Manufacturer	Type	Emitech Nr	Last validity date	Next validity date
Amplifier	Agilent	8449B	14487	04/07/2018	04/07/2019
Antenna	Emco	3115	0941	28/10/2015	28/12/2018
Antenna mast	Maturo	AM 4.0	8411	---	---
Cable	C&C	N-2m	11176	18/04/2018	18/04/2020
Cable	C&C	N-2m	11182	18/04/2018	18/06/2020
Cable	C&C	N-8m	11183	18/04/2018	18/06/2020
Filter	BL Microwave	BP2442-84-7CS	5624	10/05/2017	10/07/2019
Spectrum analyzer	Rohde & Schwarz	FSP40 (V 4.00SP1-V3.0-10-2)	5175	20/09/2018	20/11/2020

### Equipment under test operating condition:

EUT is in continuous transmission mode.

### Measure conditions:

Ambient temperature (°C): 21

Relative humidity (%): 50

Resolution bandwidth: 30 kHz

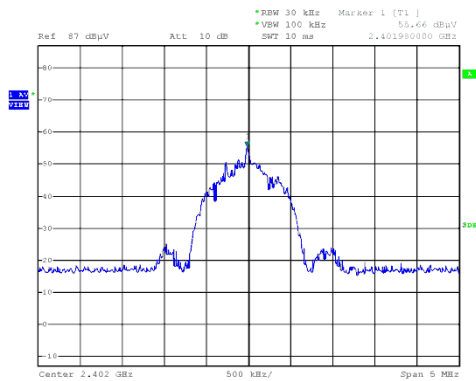
Video bandwidth: 100 kHz

## Results:

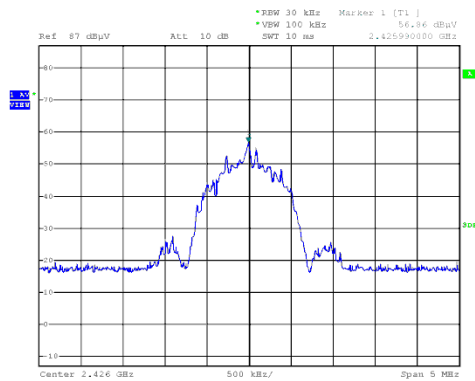
Power source: 3 Vdc

Frequency	Mode	Electro-magnetic field (dBμV/m)	PPSD* (dBm)	Limit (dBm)
2402 MHz	Advertising	90.2	- 7.2	+ 8.0
2426 MHz		91.5	- 5.9	
2480 MHz		91.6	- 5.8	

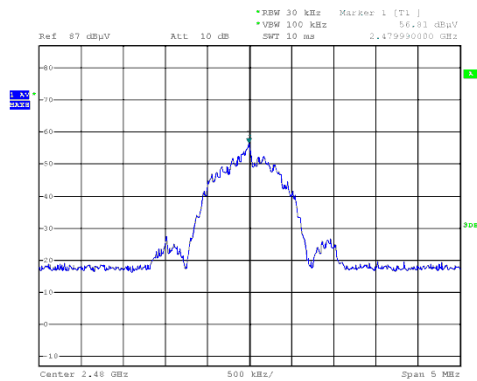
\* PPST =  $(E \times d)^2 / (30 \times 1.64)$  for  $d = 3 \text{ m}$



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Date: 15.NOV.2018 10:42:50



Date: 15.NOV.2018 10:33:47

**Test conclusion:** Complies with the requirements of the standards.

## 8. ADDITIONAL PROVISIONS TO THE GENERAL RADIATED EMISSIONS LIMITATION

**Standard:** FCC 47 CFR PART 15 : 2017

**Sections:** §15.215 (b) and §15.247 (d)  
§5.5 of RSS-247 issue 2 : 2017

### Instrumentation test list:

Category	Manufacturer	Type	Emitech Nr	Last validity date	Next validity date
Amplifier	Agilent	8449B	14487	04/07/2018	04/07/2019
Antenna	Emco	3115	0941	28/10/2015	28/12/2018
Antenna mast	Maturo	AM 4.0	8411	---	---
Cable	C&C	N-2m	11176	18/04/2018	18/04/2020
Cable	C&C	N-2m	11182	18/04/2018	18/06/2020
Cable	C&C	N-8m	11183	18/04/2018	18/06/2020
Spectrum analyzer	Rohde & Schwarz	FSP40 (V 4.00SP1-V3.0-10-2)	5175	20/09/2018	20/11/2020

### Equipment under test arrangement:

The system is tested in normalized test site.

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

The level was maximised in antenna height, azimuth and polarization. The maximum level measured on the spectrum analyser was recorded.

### Results:

Ambient temperature (°C): 21

Relative humidity (%): 50

Lower Band Edge: from 2310 MHz to 2390 MHz

Upper Band Edge: from 2483.5 MHz to 2500 MHz

Polarization of test antenna: Vertical (height = 150 cm) } For 2402 MHz  
Position of equipment: azimuth = 100°

Polarization of test antenna: Vertical (height = 150 cm) } For 2480 MHz  
Position of equipment: azimuth = 100°

- Advertising Mode

Fundamental frequency (MHz)	Field Strength Level of fundamental (dB $\mu$ V/m)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) *	Calculated Max Out of Band Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)
2402.20	91.8	Average	2366.000	45.5	46.3	54.0	7.7
2479.89	93.5	Average	2486.784	45.7	47.8	54.0	6.2

\* According to step 2 of Marker-Delta Method DA 00-705.

Band-edge curves are given in annex 4.

**9. UNINTENTIONAL RADIATED EMISSIONS AND TRANSMITTER UNWANTED EMISSION IN THE BAND 9 kHz – 25 GHz**

**Standards:** FCC 47 CFR PART 15 : 2017  
RSS-Gen Issue 4 : November 2014

**Sections:** §15.205; 15.209 and §15.247  
§6.13 of RSS-Gen

**Equipment under test arrangement:**

The equipment under test (EUT) is placed on a non-conductive test table at 0.8 m above the horizontal metal ground plane.

For maximum meter reading at each frequency, the antenna height is adjusted between 1 m and 4 m above the ground plane. A 360 degrees rotation of the EUT is performed in vertical and horizontal polarization. The frequency azimuth and antenna height are presented in the table on the next pages.

The E.U.T. is blocked in continuous transmission.

**Frequencies range:** 9 kHz – 30 MHz  
30 MHz - 1 GHz  
1 GHz – 25 GHz

**Detections mode:** Quasi-peak for 9 kHz – 30 MHz  
Quasi-peak for 30 MHz - 1 GHz  
Average for 1 GHz – 25 GHz

**Resolutions bandwidth:** 200 Hz for 9 kHz – 150 kHz  
9 kHz for 150 kHz – 30 MHz  
120 kHz for 30 MHz - 1 GHz  
1 MHz for 1 GHz – 25 GHz

**Measurements distance:** 3 meters from 9 kHz to 30 MHz  
3 meters from 30 MHz to 25 GHz

Limit for emission radiated outside the frequency band, except the harmonics, shall be attenuated by at least 20 dB below the level of fundamental or the general radiated emission limits.

### From 9 kHz to 30 MHz

Frequencies range	Limit ( $\mu\text{V/m}$ )
9 – 490 kHz	2400/F (F in kHz) *
490 – 1705 kHz	24000/F (F in kHz) **
1.705 – 30 MHz	30 **

\* Limits in  $\mu\text{V/m}$  can be extrapolated to 3 m using 40 dB / decade.

\*\* Limits in  $\mu\text{V/m}$  can be extrapolated to 3 m using 20 dB / decade.

### From 30 MHz to 25 GHz

Frequencies range (MHz)	Limit (dB $\mu\text{V/m}$ )	Limit ( $\mu\text{V/m}$ )
30 to 88	40.0	100
88 to 216	43.5	150
216 to 960	46.0	200
Above 960	54.0	500

### Instrumentation test list:

Category	Manufacturer	Type	Emitech Nr	Last validity date	Next validity date
Amplifier	Mini-circuit	ZFL-1000LN	0364	28/05/2018	28/07/2019
Amplifier	Agilent	8449B	14487	04/07/2018	04/07/2019
Antenna	Emco	3115	0941	28/10/2015	28/12/2018
Antenna	Oritel	CM 42/25	1045	13/07/2018	13/07/2021
Antenna	Schwarzbeck	UHALP 9108	3106	07/04/2017	07/06/2019
Antenna	Schwarzbeck	VHA 9103	3426	05/07/2017	05/07/2020
Antenna mast	Maturo	AM 4.0	8411	---	---
Cable	C&C	K-2m	11132	23/05/2018	23/05/2020
Cable	C&C	K-2m	11133	23/05/2018	23/05/2020
Cable	C&C	N-2m	11178	04/05/2018	04/07/2020
Cable	C&C	N-2m	11182	18/04/2018	18/06/2020
Cable	C&C	N-8m	11183	18/04/2018	18/06/2020
Spectrum analyzer	Rohde & Schwarz	FSP40 (V 4.00SP1-V3.0-10-2)	5175	20/09/2018	20/11/2020

### Results:

Ambient temperature (°C): 21  
Relative humidity (%): 50  
Power source: 3 Vdc

### BLE in advertising mode - Frequency 2402 MHz

Frequency (MHz)	Height (cm)	Polarization (H or V)	Azimuth (°)	Electro-magnetic field (dBμV/m)	Limit (dBμV/m)	Margin (dB)
32.58	150	V	0	20.0	40.0	20.0
4803.98	150	V	20	33.8	54.0	20.2

H : Horizontal – V : Vertical

### BLE in advertising mode - Frequency 2426 MHz

Frequency (MHz)	Height (cm)	Polarization (H or V)	Azimuth (°)	Electro-magnetic field (dBμV/m)	Limit (dBμV/m)	Margin (dB)
4851.96	150	V	255	53.1	54.0	0.6
32.58	150	V	0	20.0	40.0	20.0

H : Horizontal – V : Vertical

### BLE in advertising mode – Frequency 2480 MHz

Frequency (MHz)	Height (cm)	Polarization (H or V)	Azimuth (°)	Electro-magnetic field (dBμV/m)	Limit (DbμV/m)	Margin (dB)
32.58	150	V	0	20.0	40.0	20.0
4960.28	150	H	165	34.7	54.0	19.3

H : Horizontal – V : Vertical

### BLE in reception mode

No significant frequency has been found other than those given above between 9 kHz to 1GHz and 18 GHz to 25 GHz.

### Test conclusion:

The equipment complies with the requirements of the standards.

## 10. CONDUCTED EMISSION

**Standards:** FCC 47 CFR PART 15: 2017  
RSS-Gen Issue 4 : November 2014

**Test methods:** § 15.207 of FCC 47 CFR PART 15: 2017  
§ 8.8 of RSS-Gen

### Test configuration:

Tested cable	Measure with	E.U.T. height
Power supply 120Vac/60Hz	L.I.S.N	80 cm

Frequency band	Tested cable	Resolution bandwidth	Video bandwidth
150 kHz – 30 MHz	Power supply 120Vac/60Hz	9 kHz	Auto

**Test method deviation:** N/A

### Instrumentation test list:

Category	Manufacturer	Type	Emitech Nr	Last validity date	Next validity date
Cable	/	BNC-0.5m	04312	02/05/2018	02/07/2020
Cable	/	N-2m	06015	09/03/2017	09/05/2019
LISN	Rohde & Schwarz	ESH3-Z5	06602	04/12/2017	04/02/2020
Multimeter	Emitech	Absorbeur courant de gaine	15614	08/06/2018	08/08/2020
Receiver	Rohde & Schwarz	ESH3 (V 335.8017.52)	00825	18/12/2017	18/02/2020
Software	Nexio	BAT EMC v3.18.0.14	00000	---	---
Spectrum analyzer	Rohde & Schwarz	ESR7	12811	06/06/2018	06/08/2019
Surges Suppressor	Hewlett Packard	11947A	01060	14/11/2018	14/01/2021
Test enclosure	Emitech	JD 3P1	14875	---	---

### Results:

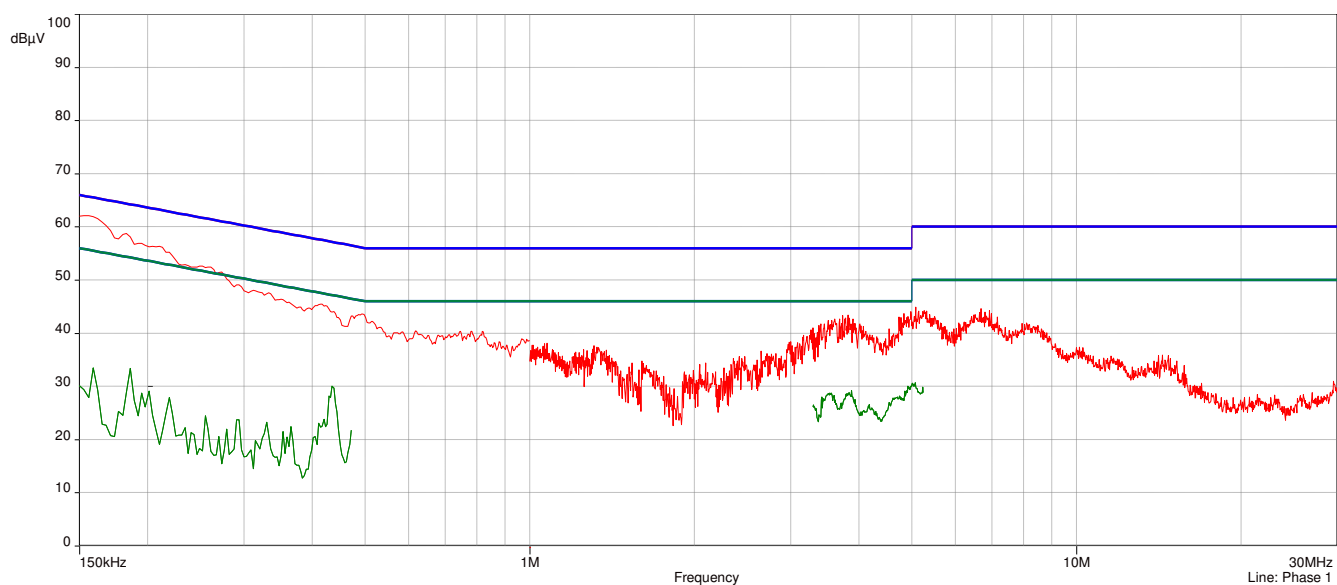
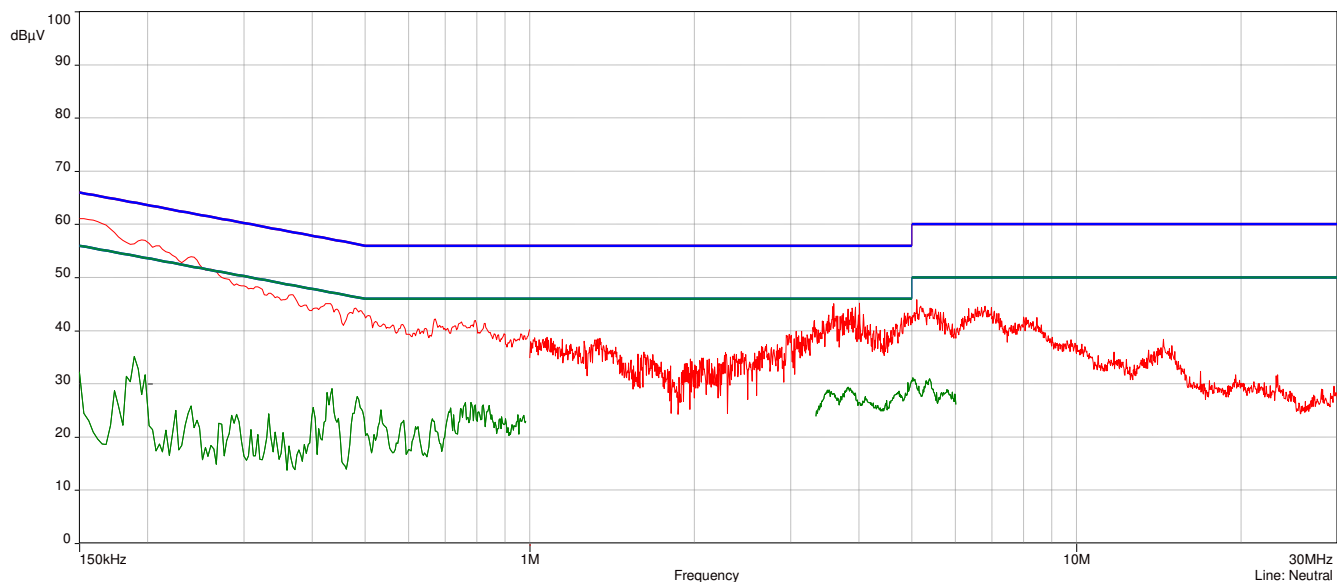
See curves below including detections and limits in peak (red), average (green) and quasi-peak (blue).

**Maximal uncertainty:** 3.38 dB

## Curves 1 and 2

**Conducted emission (measurement):**

Power supply 120Vac/60Hz in peak (red) and average (green) detection



Class: B of the standards

« □□□ End of report, 4 annexes to be forwarded □□□ »

# **ANNEX 1:**

## ***EXTERNAL PHOTOGRAPHS***



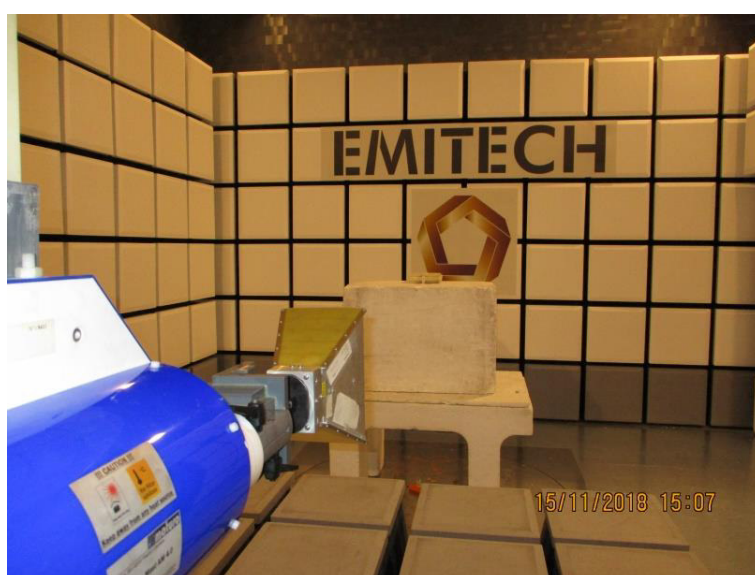
## **ANNEX 2:**

### ***TEST SETUP PHOTOGRAPHS***











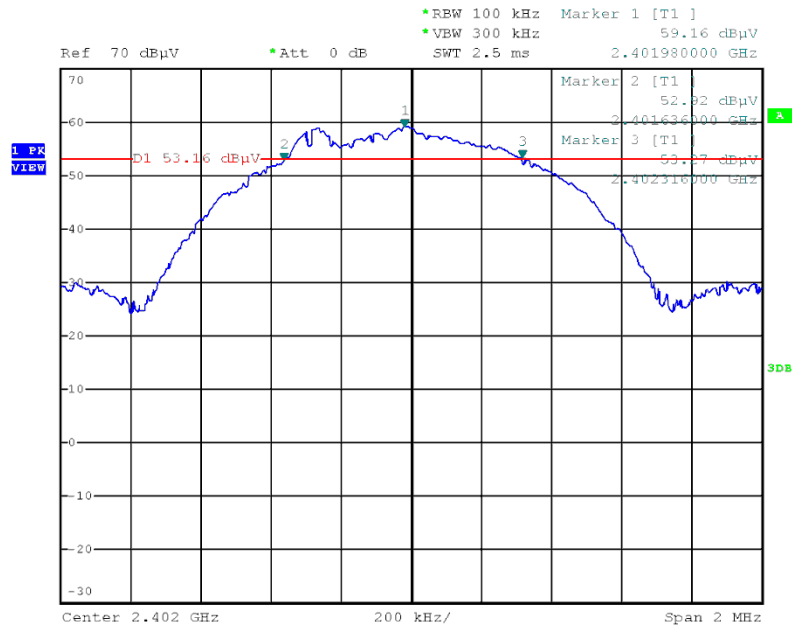


## **ANNEX 3:**

***6 dB BANDWIDTH***  
***20 dB BANDWIDTH***

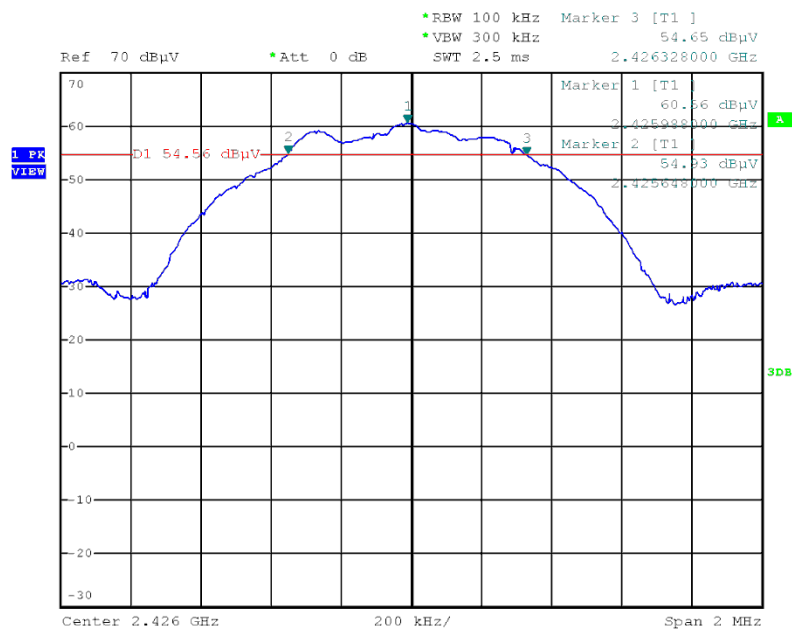
## 6 dB BANDWIDTH

### Frequency 2402 MHz



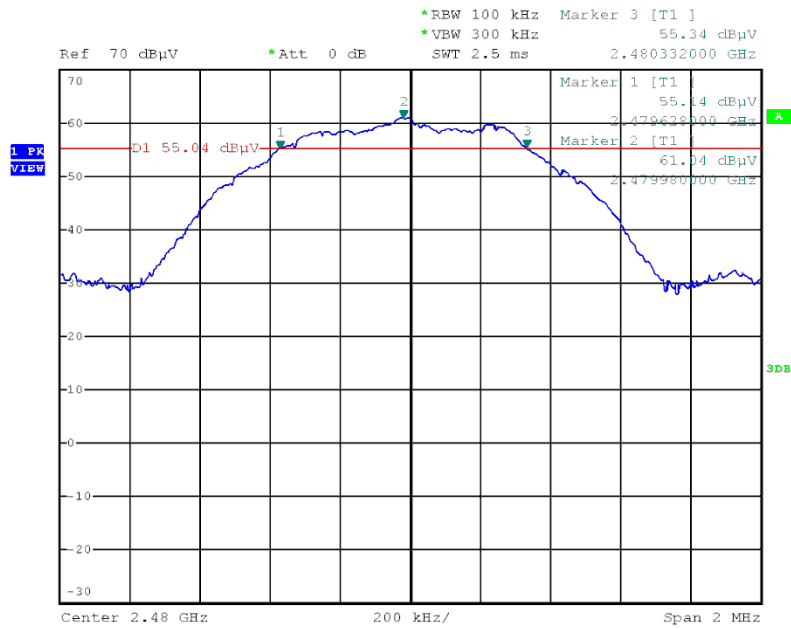
Date: 15.NOV.2018 14:22:57

### Frequency 2426 MHz



Date: 15.NOV.2018 14:30:44

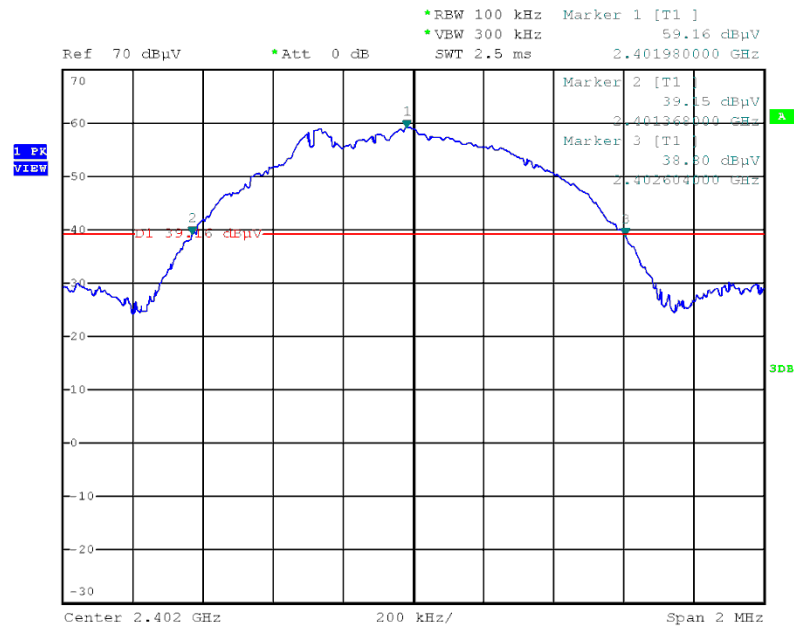
## Frequency 2480 MHz



Date: 15.NOV.2018 14:13:53

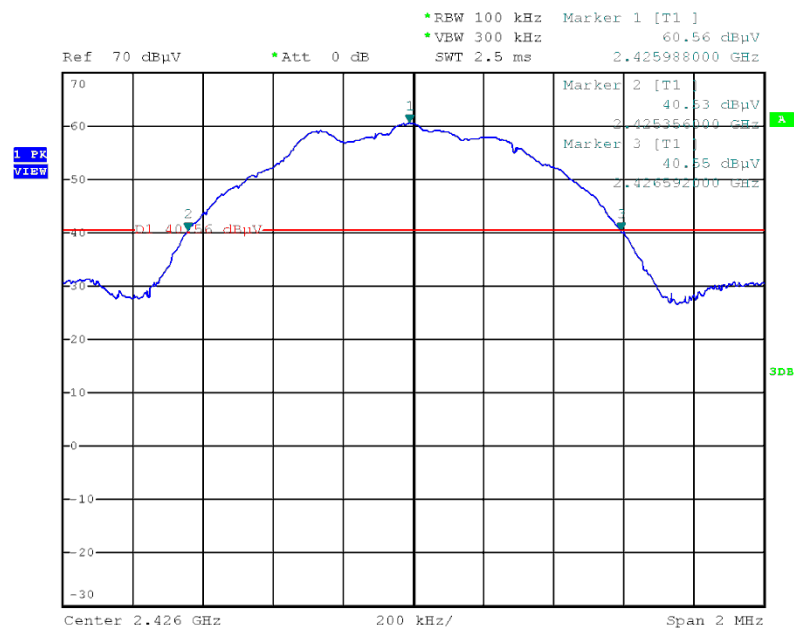
## 20 dB BANDWIDTH

### Frequency 2402 MHz



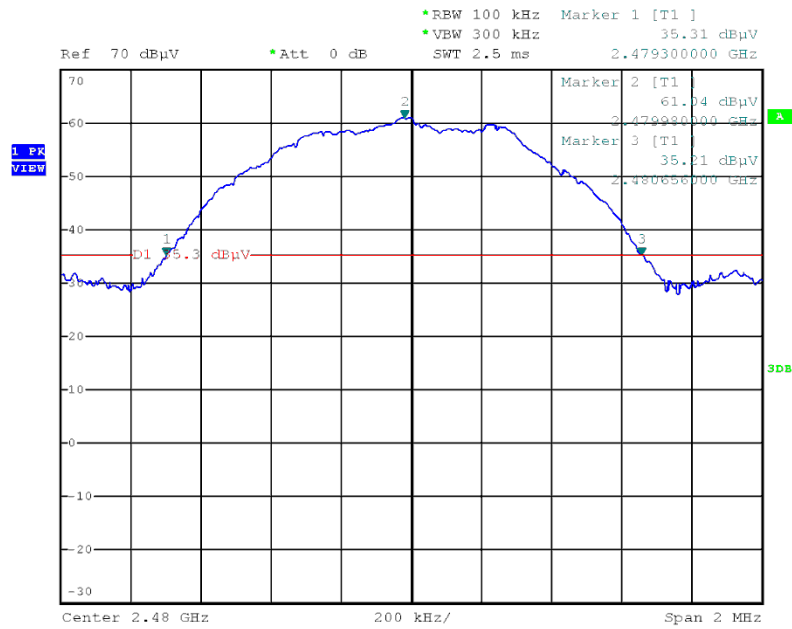
Date: 15.NOV.2018 14:21:24

### Frequency 2426 MHz



Date: 15.NOV.2018 14:31:43

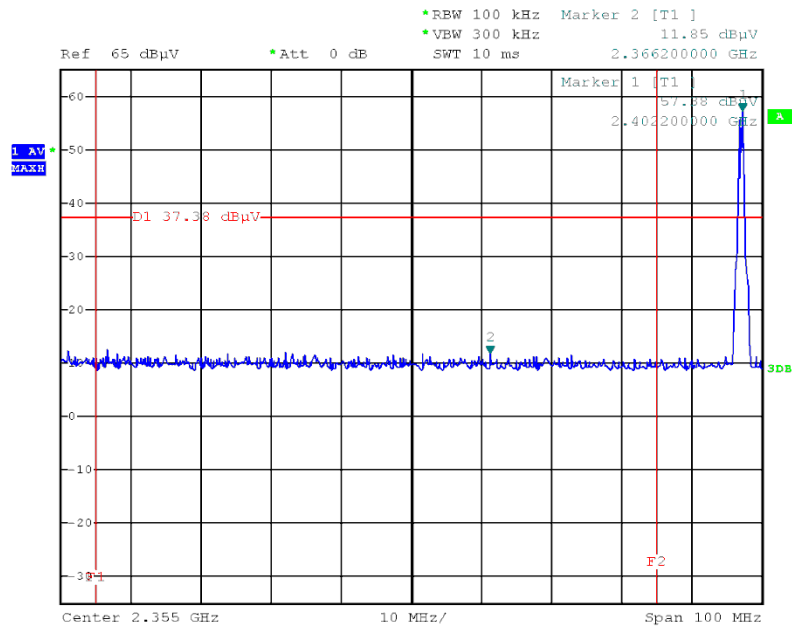
## Frequency 2480 MHz



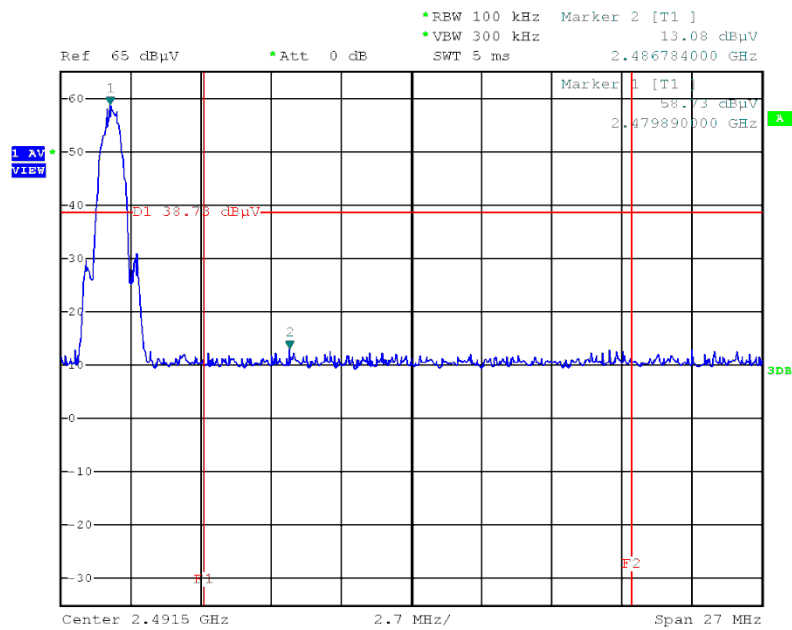
Date: 15.NOV.2018 14:15:47

# **ANNEX 4:**

## ***BAND EDGE***



Date: 15.NOV.2018 11:52:45



Date: 15.NOV.2018 11:59:03