

RR051-19-100273-1-A Ed. 0

Certification Radio test report

**According to the standard:
CFR 47 FCC PART 15**

**Equipment under test:
ROBOT**


FCC ID: 2AUYIMNS1T

**Company:
MOVE'N SEE**

Distribution: Mr CARPENTIER

(Company: MOVE'N SEE)

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DESIGNATION OF PRODUCT: ROBOT

Serial number (S/N): 01926038

Reference / model (P/N): PIXIO

Software version: RF Software

MANUFACTURER: MOVE'N SEE

COMPANY SUBMITTING THE PRODUCT:

Company: MOVE'N SEE

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Responsible: Mr CARPENTIER

Person(s) present during the tests: Mr CARPENTIER (first day)

DATES OF TEST: From 31-Jul-19 to 9-Aug-19

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: T. LEDRESSEUR

VISA:



WRITTEN BY: T. LEDRESSEUR

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1. INTRODUCTION

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

The device under test integrates a BLE module already certified (FCC ID: T9JRN4020) and a Wide band function.

This test report concern only the measure realized on wide band for certification procedure

See test report N°RR051-19-100273-2-A Ed. 0 for verification and collocation measure.

2. PRODUCT DESCRIPTION

Class:	B
Utilization:	Residential use
Antenna type and gain:	3 dBi / Internal and "omni-directional" PCB antennas
Operating frequency band:	From 5925 MHz to 7250MHz
Number of channels:	1
Channel spacing:	Not concerned
Center frequency:	6489.6 MHz
Modulation:	BPM-BPSK
Power source:	Internal battery, 3.7 Vdc
Operational temperature range:	0 to 40 °C

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.

The product is declared not functional in charge.

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 (2019)	Radio Frequency Devices
ANSI C63.10	2013 Procedures for Compliance Testing of Unlicensed Wireless Devices.
447498 D01 General RF Exposure Guidance v06	RF Exposure procedures and equipment authorization policies for mobile and portable equipment
OET BULLETIN 65	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields

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 215: Additional provisions to the general radiated emission limitations
- Paragraph 250: Operation of wideband systems within the band 5925-7250 MHz

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	17/04/2019	1	16/04/2020
4353	ATM WR28	Antenna	24/07/2019	3	23/07/2022
4354	ALC ALS2640-30-10	Low-noise amplifier	21/03/2019	1	20/03/2020
6606	Microtronics LPM 15601	Low Pass Filter	09/08/2017	2	09/08/2019
6607	Microtronics HPM 15600	High Pass Filter	09/08/2017	2	09/08/2019
6609	Hewlett Packard HPM11630	High Pass Filter	09/08/2018	2	08/08/2020
6884	Suhner 1.5m	Cable	29/03/2018	2	28/03/2020
8511	HP 8447D	Low-noise amplifier	14/03/2019	1	13/03/2020
8526	Schwarzbeck VHBB 9124	Biconical antenna	16/08/2018	3	15/08/2021
8534	EMCO 3115	Antenna	15/07/2019	3	14/07/2022
8535	EMCO 3115	Antenna	10/02/2017	3	10/02/2020
8543	Schwarzbeck UHALP 9108A	Log periodic antenna	16/08/2018	3	15/08/2021
8548	Midwest Microwave 10dB	Attenuator	05/04/2018	2	04/04/2020
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	23/09/2020
8775	Fontaine FTN 2515B	Power source	/	/	/
8786	ETS Lindgren 3160-09	Antenna	24/07/2019	3	23/07/2022
8896	ACQUISYS GPS8	Satellite synchronized frequency standard	/	/	/
8974	STORM MICROWAVE k-20cm	cable	19/11/2017	2	19/11/2019
8975	STORM MICROWAVE k-20cm	cable	19/11/2017	2	19/11/2019
10751	CLIMATS EXCAL 7714-HA	Climatic chamber	06/11/2018	1	06/11/2019
12911	Huber + Suhner N-2m	cable	29/03/2018	2	28/03/2020
14716	GMH 3710	Precision Termometer	20/11/2018	1	20/11/2019
14736	MATURO	Turntable and mat controller MCU	/	/	/
14830	R&S FSW43	Spectrum Analyzer	28/12/2018	1	28/12/2019
14831	Fluke 177	Multimeter	12/01/2018	2	12/01/2020
15666	R&S FSV40	Spectrum Analyzer	19/07/2018	2	18/07/2020
15812	COMP-POWER PAM-118A	Low-noise amplifier 18GHz	12/11/2018	1	12/11/2019
15882	SUCOFLEX	cable N 5m	27/11/2018	2	26/11/2020
16109	C&C HPF180400	High pass filter	25/03/2019	2	24/03/2021

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		
FCC Part 15.209	RADIATED EMISSION LIMITS; general requirements	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 §15.250 frequency band	X				Note 2
	(c) 20 dB bandwidth and band-edge compliance	X				
FCC Part 15.250	OPERATION OF WIDEBANDSYSTEMS WITHIN THE BAND 5925-7250 MHz					
	(a) (b) -10 dB bandwidth	X				
	(c) Technical requirements for WB systems	X				Note 3
	(d) Emissions from a transmitter					
	(1) Radiated emissions above 960 MHz	X				
	(2) GPS emissions	X				
	(3) Peak radiated emissions requirements	X				
	(4) Radiated emissions at or below 960 MHz	X				Note 4
	(5) Emissions from digital circuitry	X				
	(e) Measurement procedures					
	(1) Emissions at and below 960 MHz	X				
	(2) Peak emission	X				
	(3) Frequency hopping, stepped frequency or similar modulation types	X				
	(4) -10 dB bandwidth	X				
	(5) Alternative measurement procedures	X				
FCC OET Bulletin 65 and FCC part 1.1307	RF EXPOSURE	X				

NAP: Not Applicable

NAs: Not Asked

Note 1: Integral antenna.

Note 2: See FCC part 15.209. Unwanted emissions levels are all below the fundamental emission field strength level.

Note 3: Operation on board an aircraft or a satellite is prohibited. Devices operating under this section may not be employed for the operation of toys. Except for operation onboard a ship or a terrestrial transportation vehicle, the use of a fixed outdoor infrastructure is prohibited. A fixed infrastructure includes antennas mounted on outdoor structures, e.g., antennas mounted on the outside of a building or on a telephone pole..

Note 4: See 15.209.

7. RF EXPOSURE**Wide BAND in standalone****RF Exposure for devices that operate above 6 GHz**

Maximum measured EIRP = -3.62 dBm = 0.4345 mW

In accordance with Bulletin 65 and CF 47 part 2.1093:

$$\text{PSD} = \text{EIRP} / (4 * \pi * R^2)$$

$$\Rightarrow 0.4345 / (4 * \pi * (20 \text{ cm})^2) = 0.0000864 \text{ mW/cm}^2 \text{ (limit = 1 mW/cm}^2\text{)}$$

The equipment fulfils the requirements on power density for general population/uncontrolled exposure and therefore fulfils the requirements of 47 CFR §1.1310.

Also the analysis is realized for simultaneous transmission with the BLE.

$$\text{MPE ratio(Wide band)} = \frac{\text{PSD}}{\text{PSD lim}} = 0.0000864$$

Calculus for BLE in standalone

The results are extracted from the certification test report of the module (N°14U17191-1)

Maximum measured power = 8.44 dBm at 2480 MHz

With a gain at -0.23 dBi

EIRP = 8.21 dBm = 6.622 mW

In accordance with KDB 447498 D01 General RF Exposure Guidance v06:

PSD= $EIRP / (4 * \pi * R^2)$

$$\Rightarrow 6.622 / (4 * \pi * (20 \text{ cm})^2) = 0.00132 \text{ W/m}^2 \text{ (limit=1 mW/cm}^2\text{)}$$

The MPE ratio is then calculated for the simultaneous transmission.

The equipment fulfils the requirements on power density for general population/uncontrolled exposure and therefore fulfils the requirements of 47 CFR §1.1310.

$$\text{MPE ratio(BLE)} = \frac{\text{PSD}}{\text{PSD lim}} = 0.00132$$

Calculus for simultaneous transmission

Only the worst critical case for the WAN module is taken into account for this analysis

$$\sum \text{ of MPE ratio} = \text{MPE ratio(Wide band)} + \text{MPE ratio(BLE)} = 0.0000864 + 0.00132 = 0.0014064 \leq 1.0$$

The product meet the requirement for Simultaneous transmission MPE test exclusion from §7.2 of KDB 447498

8. 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 40 GHz F < 62.5 MHz:	$\pm 5.14\text{ dB}$
62.5 MHz < F < 1 GHz:	$\pm 5.13\text{ dB}$
1 GHz < F < 40 GHz:	$\pm 5.16\text{ dB}$
AC Power Lines conducted emissions	$\pm 3.38\text{ dB}$
Temperature	$\pm 1\text{ }^\circ\text{C}$
Humidity	$\pm 5\%$

9. -10 DB BANDWIDTH**Temperature (°C) :** 26**Humidity (%HR):** 43**Date :** August 6, 2019 and
August 7, 2019**Technician :** T. LEDRESSEUR**Standard:** FCC Part 15**Test procedure:** paragraph 15.250 (a) (b)**Test set up:**

The measure is realized in near field with the system in a climatic chamber

First a measure of the frequency stability is realized following method describe in paragraph 6.8 of ANSI C63.10 for the variation of the temperature.

In addition a measure of the 10 dB bandwidth is realized at each temperature and for variation of power supply.

The 10 dB bandwidth measure is realized with an analyser and peak detector. The resolution bandwidth is adjusted at 1 MHz and video bandwidth at 3 MHz.

Equipment under test operating condition:

The equipment under test is blocked in continuous unmodulated or modulated transmission mode.

The measure is realized between 0 to 40°C.

We used for power source an external power supply

Results:
Sample N° 1
Frequency stability

Temperature (°C)	Measure at startup	Measure at 2 min	Measure at 5 min	Measure at 10 min
	Frequency measured (GHz)	Frequency measured (GHz)	Frequency measured (GHz)	Frequency measured (GHz)
40	6.4896815	6.4896815	6.489684	6.489686
30	6.4896826	6.48968225	6.489681	6.489681
25	6.4896885	6.4896835	6.489682	6.4896815
20	6.4896955	6.489688	6.489684	6.48968325
10	6.4896525	6.48969625	6.4896925	6.4896905
0	6.48965375	6.4897025	6.48970	6.489698

10 dB bandwidth
Results for temperature variation

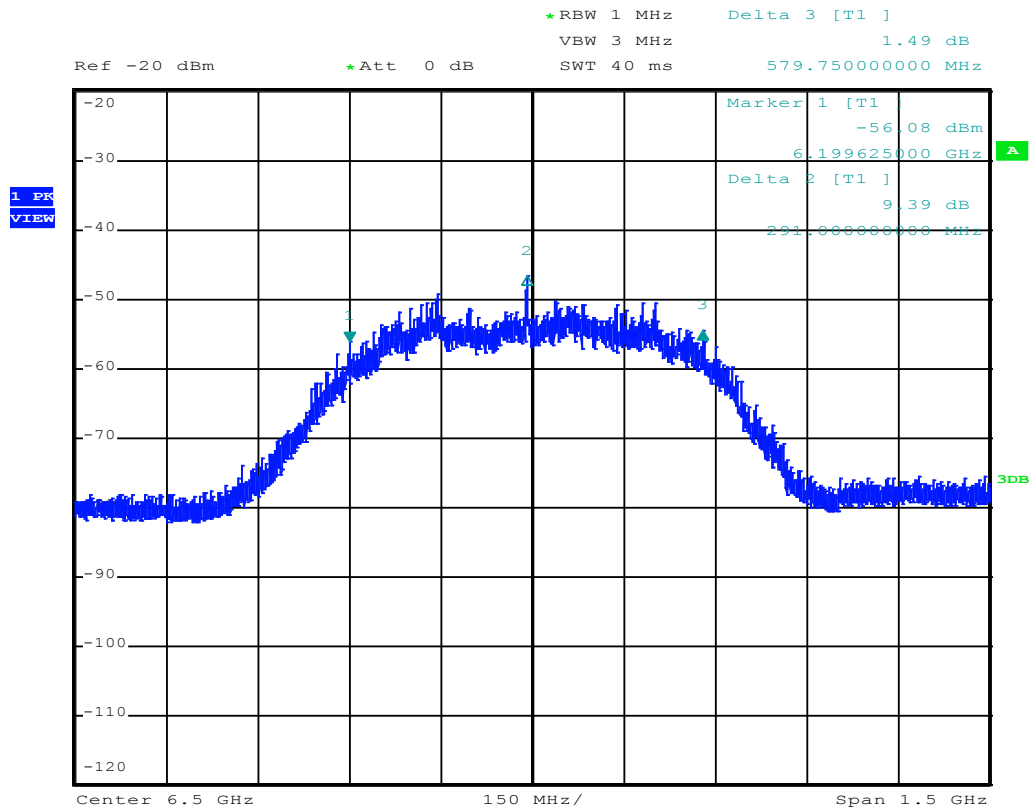
Temperature (°C)	Low frequency measured (GHz)	High frequency measured (GHz)
40	6.1998125	6.7795625
30	6.2	6.77975
25	6.2	6.7791875
20	6.199625	6.779375
10	6.2001875	6.800375
0	6.2001875	6.8
Limit (MHz)	5.925	7.250

Results for power supply variation

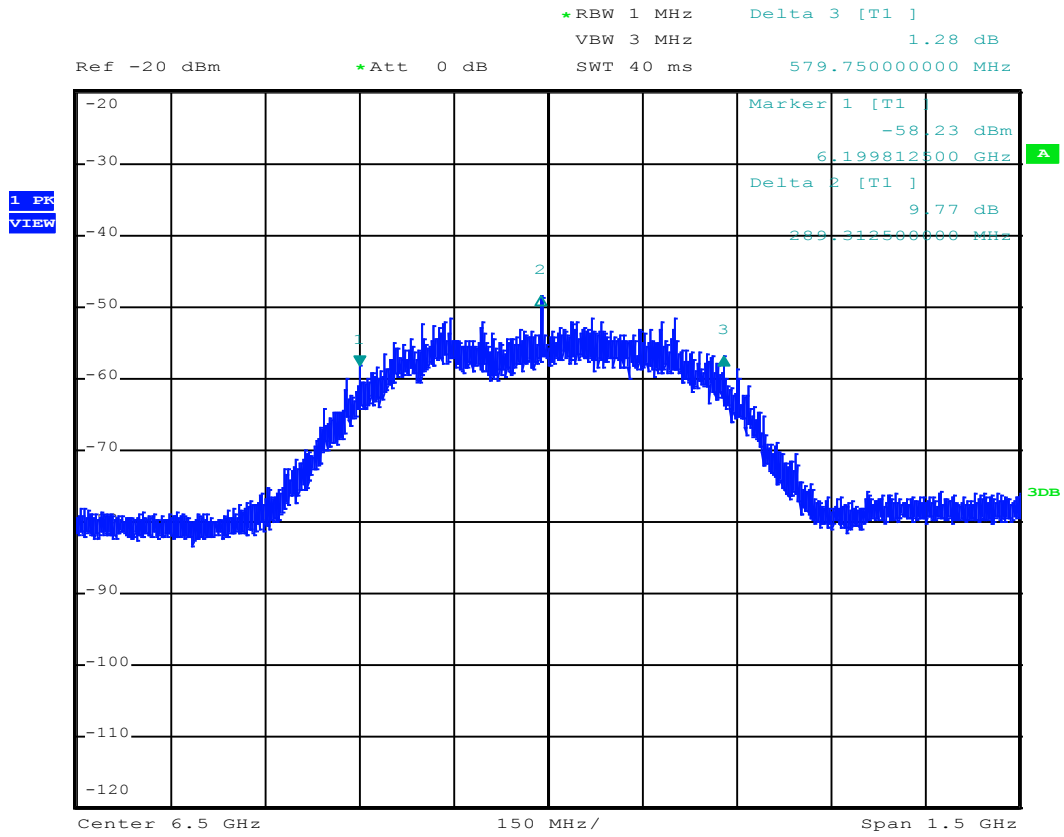
Realized at +20 °C

Power supply (Vdc)	Low frequency measured (GHz)	High frequency measured (GHz)
3.45	6.2408	6.799175
4.25	6.229175	6.779675
Limit (MHz)	5.925	7.250

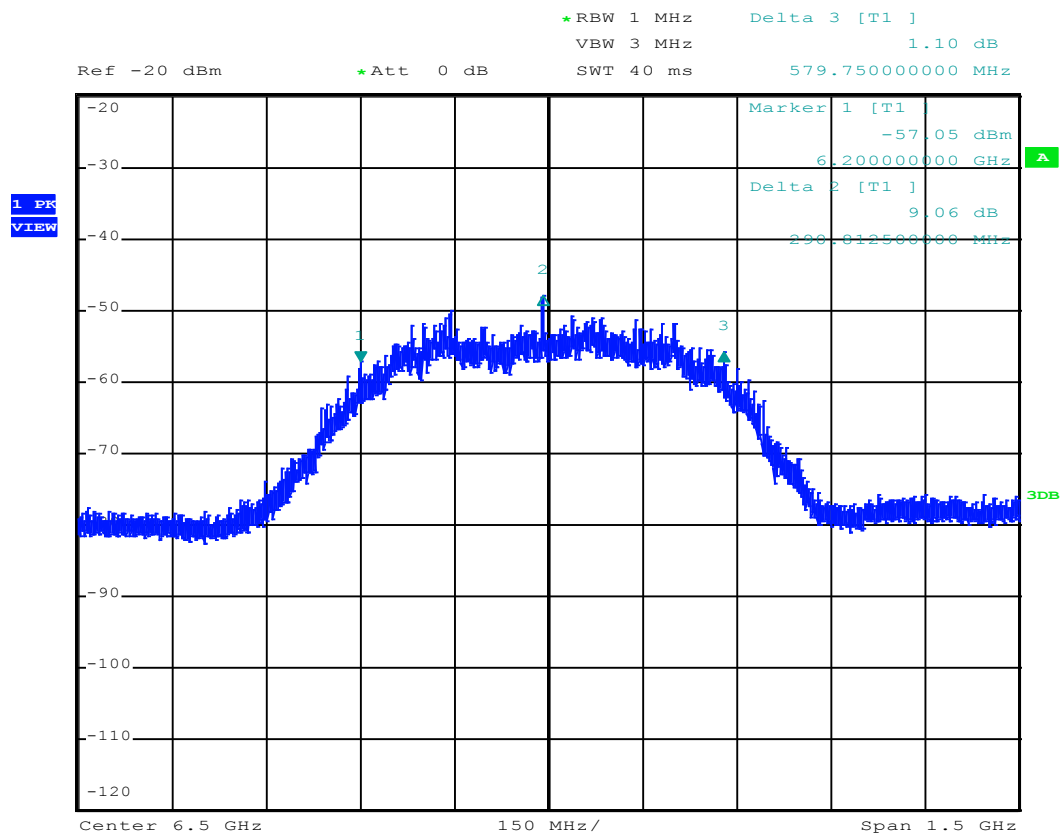
Normal condition: curve at 20°C / 3.7Vdc



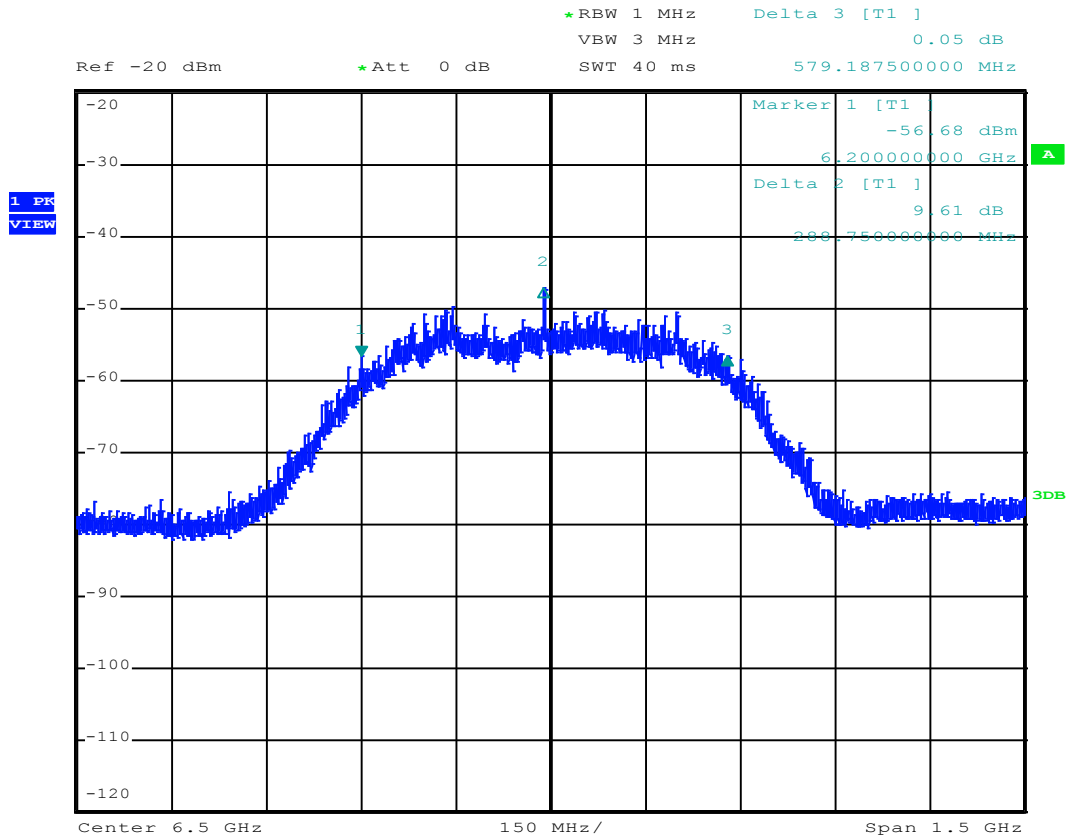
Curve at 40°C / 3.7Vdc



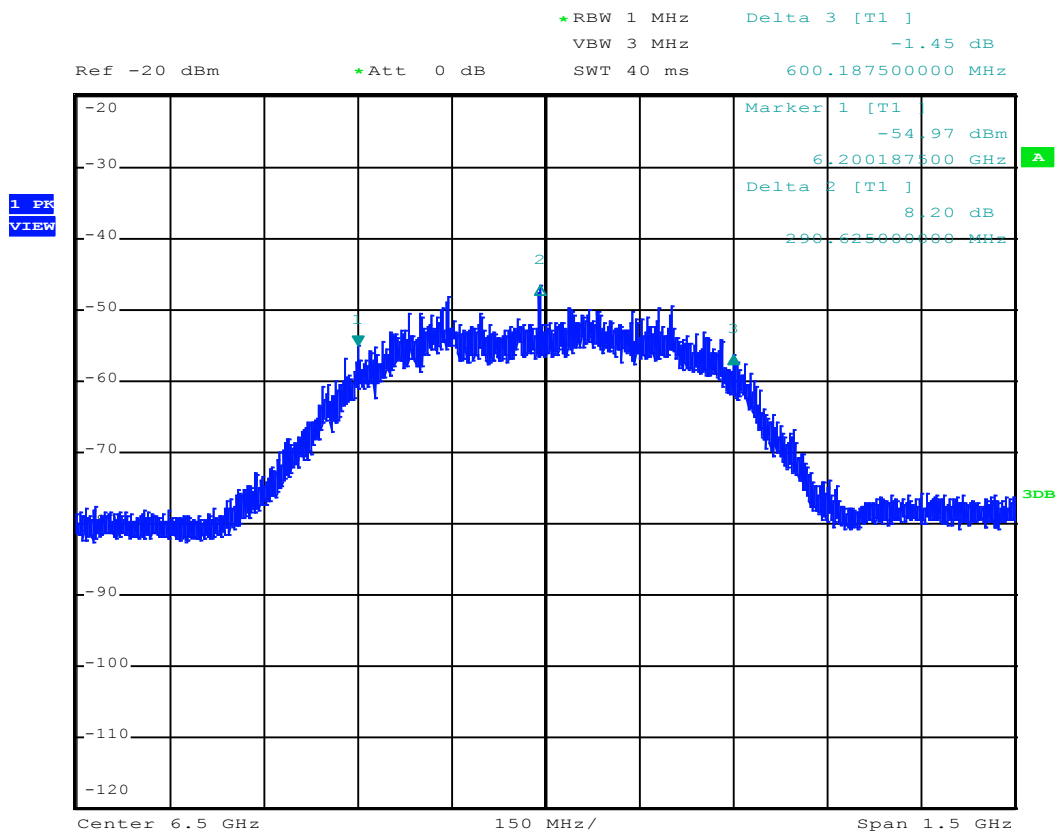
Curve at 30°C / 3.7Vdc



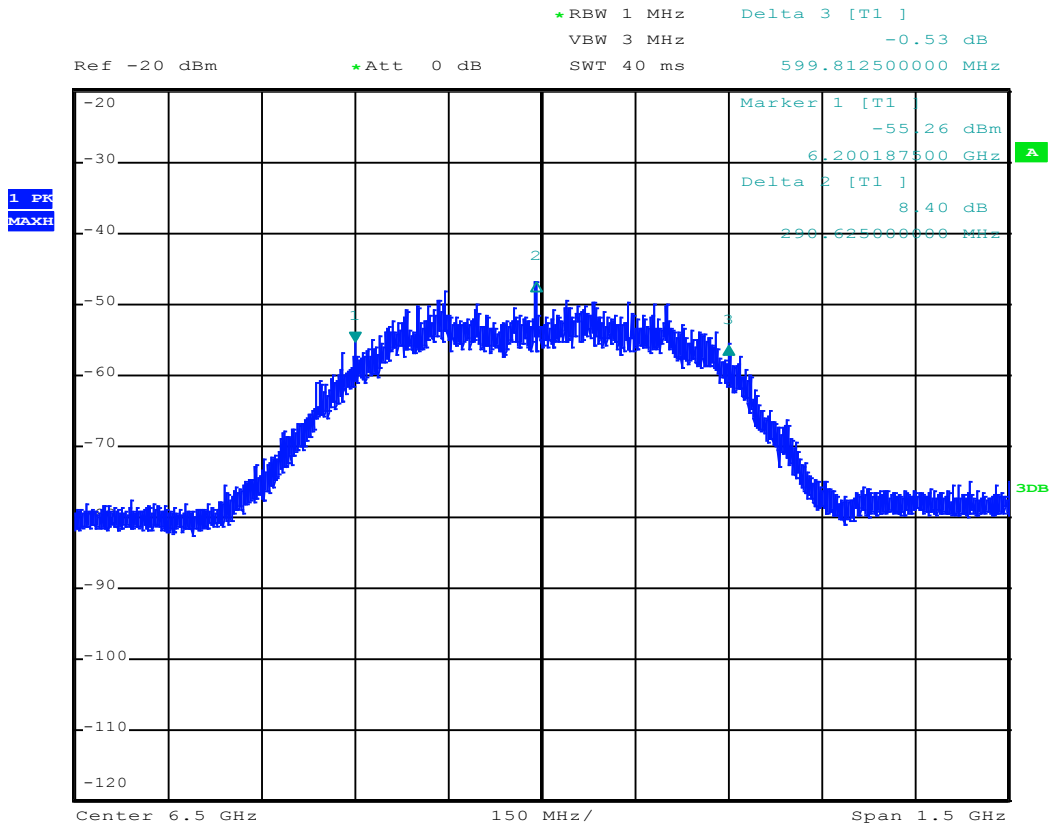
Curve at 25°C / 3.7Vdc



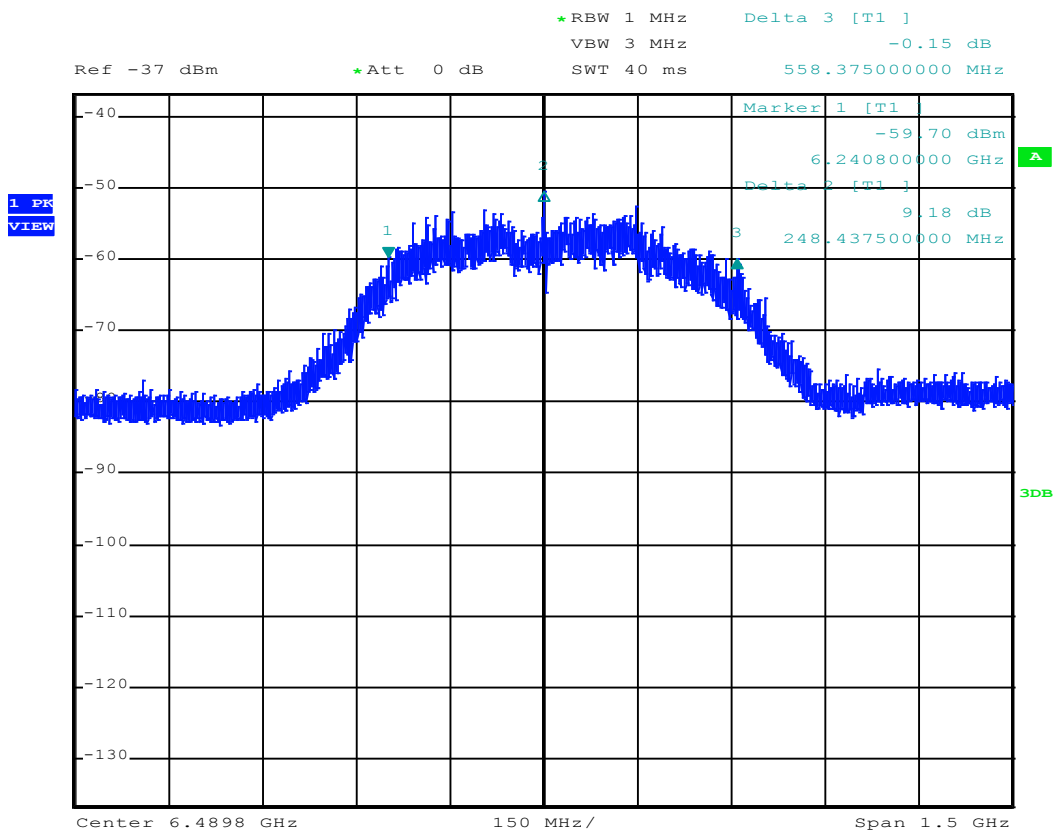
Curve at 10°C / 3.7Vdc



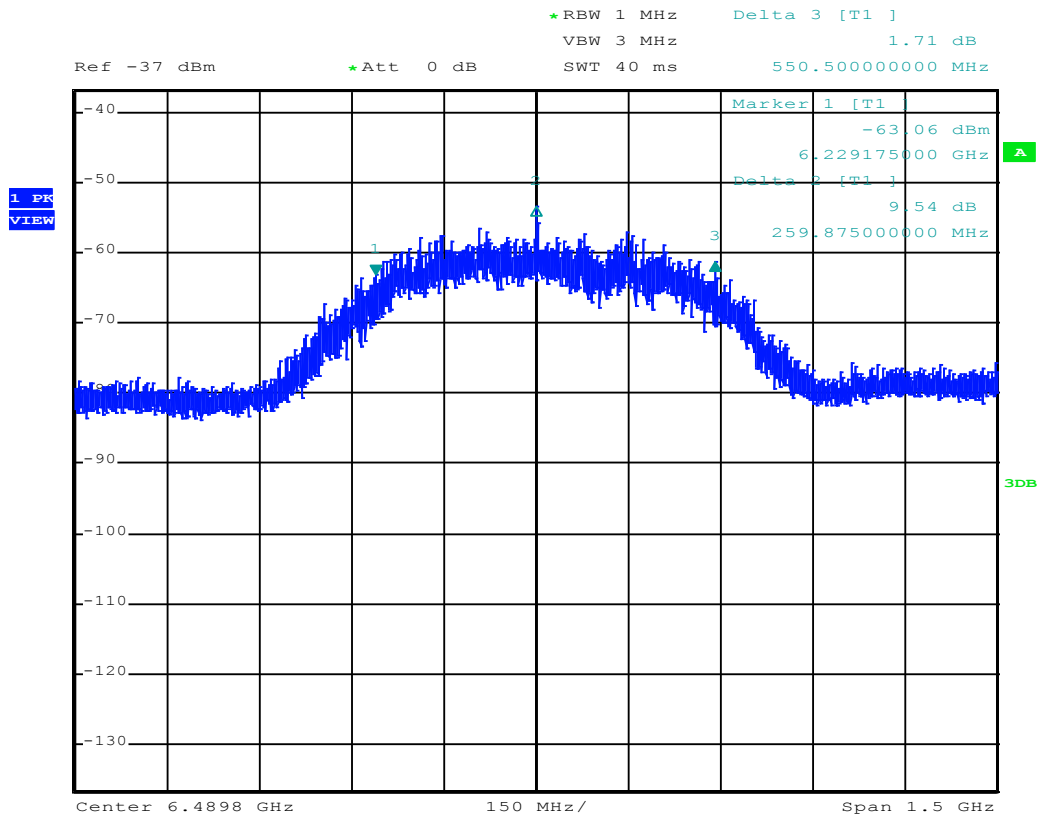
Curve at 0°C / 3.7Vdc



Curve at 20°C / 4.25 Vdc



Curve at 20°C / 3.45 Vdc



Test conclusion:

RESPECTED STANDARD

10. RADIATED EMISSIONS ABOVE 960 MHZ**Temperature (°C) :** 24 to 28**Humidity (%HR):** 40 to 46**Date :** August 5, 2019 to
August 8, 2019**Technician :** T. LEDRESSEUR**Standard:** FCC Part 15**Test procedure:** paragraph 15.250 (d) (1)**Test set up:**

First an exploratory radiated measurement was performed. During this phase the product is oriented in normal positions

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.

Frequency range: From 960 MHz to 40 GHz**Detection mode:** RMS**Bandwidth:** 1 MHz**Distance of antenna:** 3 meter for RMS power
1 meter below 10 GHz
60 cm between 10 GHz to 18 GHz
40 cm between 18 GHz to 26 GHz
20 cm between 26 GHz to 40 GHz**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.

We used for power source the fully charged internal battery

According to paragraphs 9.4 and 9.5 of ANSI C63.10 all the results are reported to field strength at 3 meter.
The following formulas are used.

$$E_{\text{SpecLimit}} = E_{\text{Meas}} + 20 \log \left(\frac{d_{\text{Meas}}}{d_{\text{SpecLimit}}} \right)$$

$$\text{EIRP} = E_{\text{Meas}} + 20 \log (d_{\text{Meas}}) - 104.7$$

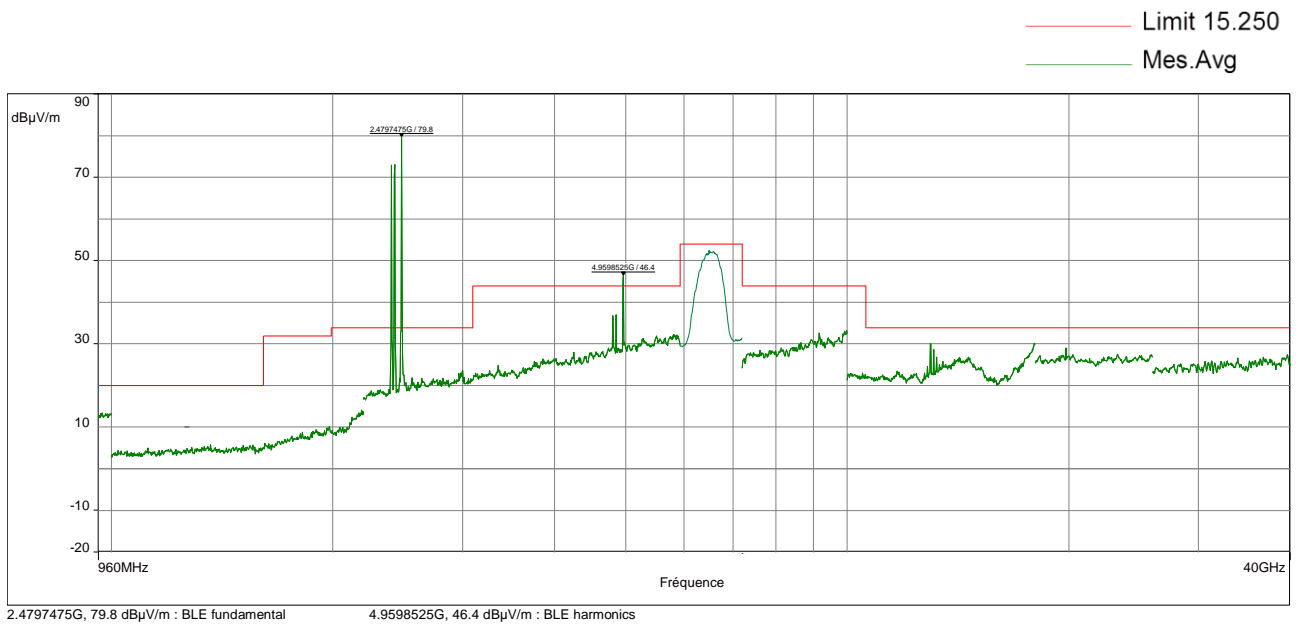
Results:

Sample N° 1

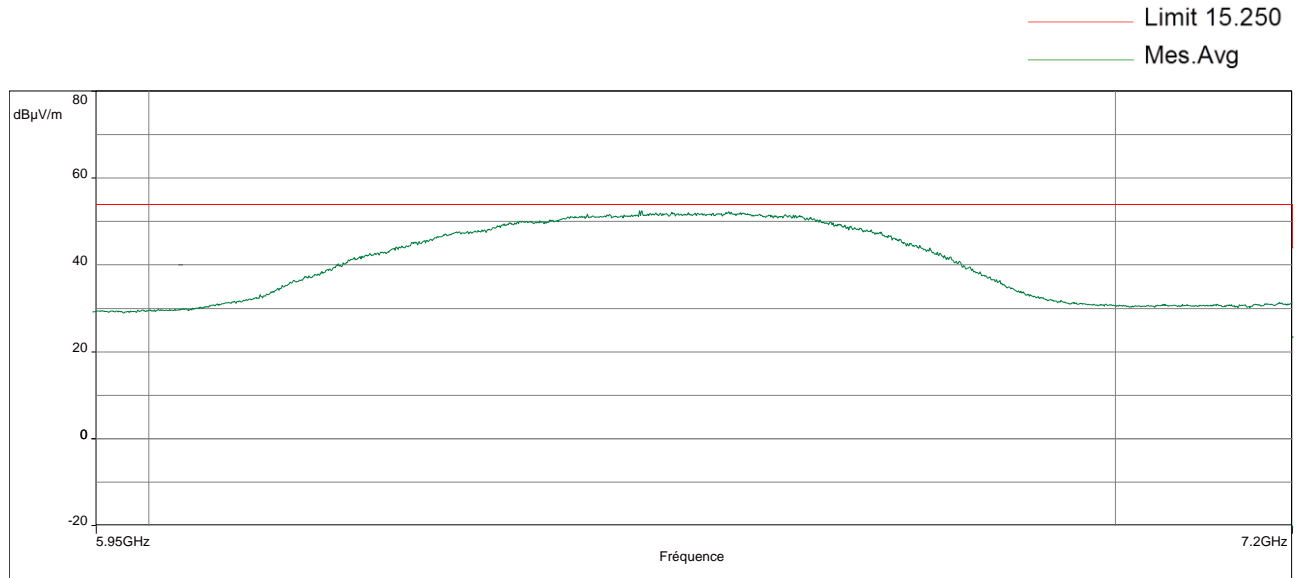
Frequencies (MHz)	Antenna height (cm)	RBW (kHz)	Polarization H: Horizontal V: Vertical	Field strength Computed at 3 m (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)
6490	150	1000	H	52.47	53.86	1.39
12980.8	150	1000	H	30.09	33.86	3.77
13104.8	150	1000	H	28.67	33.86	5.19
13229.6	150	1000	H	26.85	33.86	7.01
19828	150	1000	H	31.54	33.86	2.32

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

Worst critical results



RMS POWER IN 1 MHz



Applicable limits:

According to

Frequency in MHz	EIRP in dBm	Field strength in dBµV/m at 3 meters
960-1610	-75.3	19.86
1610-1990	-63.3	31.86
1990-3100	-61.3	33.86
3100-5925	-51.3	43.86
5925-7250	-41.3	53.86
7250-10600	-51.3	43.86
Above 10600	-61.3	33.86

Test conclusion:

RESPECTED STANDARD

11. GPS EMISSIONS**Temperature (°C) :** 24 to 28**Humidity (%HR):** 40 to 46**Date :** August 5, 2019 to
August 8, 2019**Technician :** T. LEDRESSEUR**Standard:** FCC Part 15**Test procedure:** paragraph 15.250 (d) (2)**Test set up:**

First an exploratory radiated measurement was performed. During this phase the product is oriented in normal positions

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.

Frequency range: From 1164 MHz to 1240 MHz and 1559 MHz to 1610 MHz**Detection mode:** RMS**Bandwidth:** 1 kHz.**Distance of antenna:** 1 meter**Antenna height:** 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.
The BLE is also active during these measures.

We used for power source the fully charged internal battery

According to paragraphs 9.4 and 9.5 of ANSI C63.10 all the results are reported to field strength at 3 meter.
The following formulas are used.

$$E_{\text{SpecLimit}} = E_{\text{Meas}} + 20 \log \left(\frac{d_{\text{Meas}}}{d_{\text{SpecLimit}}} \right)$$

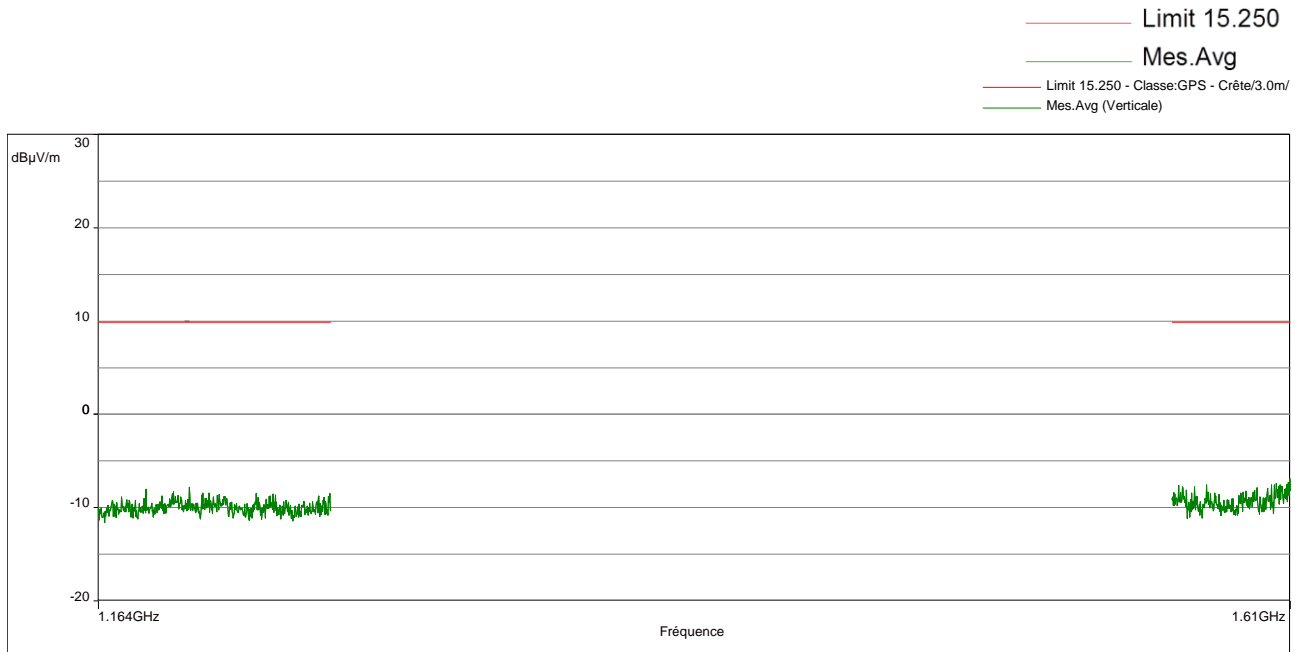
$$\text{EIRP} = E_{\text{Meas}} + 20 \log (d_{\text{Meas}}) - 104.7$$

Results:

Sample N° 1

Not any spurious has been detected.

Worst critical results



Applicable limits:

Frequency in MHz	EIRP in dBm	Field strength in dBµV/m at 3 meters
1164-1240	-85.3	9.86
1559-1610	-85.3	9.86

Test conclusion:

RESPECTED STANDARD

12. PEAK RADIATED EMISSIONS REQUIREMENTS

Temperature (°C) : 25

Humidity (%HR): 43

Date : August 5, 2019

Technician : T. LEDRESSEUR

Standard: FCC Part 15**Test procedure:** paragraph 15.250 (d) (3)**Test set up:**

First an exploratory radiated measurement was performed. During this phase the product is oriented in two positions.

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

The measure is realized in anechoic chamber above 1 GHz.

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.

Detection mode: Peak**Resolution bandwidth:** 50 MHz.**Video bandwidth:** 50 MHz.**Distance of antenna:** 3 meters**Antenna height:** 1.5 meter (in anechoic room)**Antenna polarization:** vertical and horizontal (only the highest level is recorded)

The measure of the electromagnetic field is realized with an analyser.

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

$$EIRP = E_{Meas} + 20 \log(d_{Meas}) - 104.7$$

Equipment under test operating condition:

The equipment under test is blocked in continuous modulated transmission mode

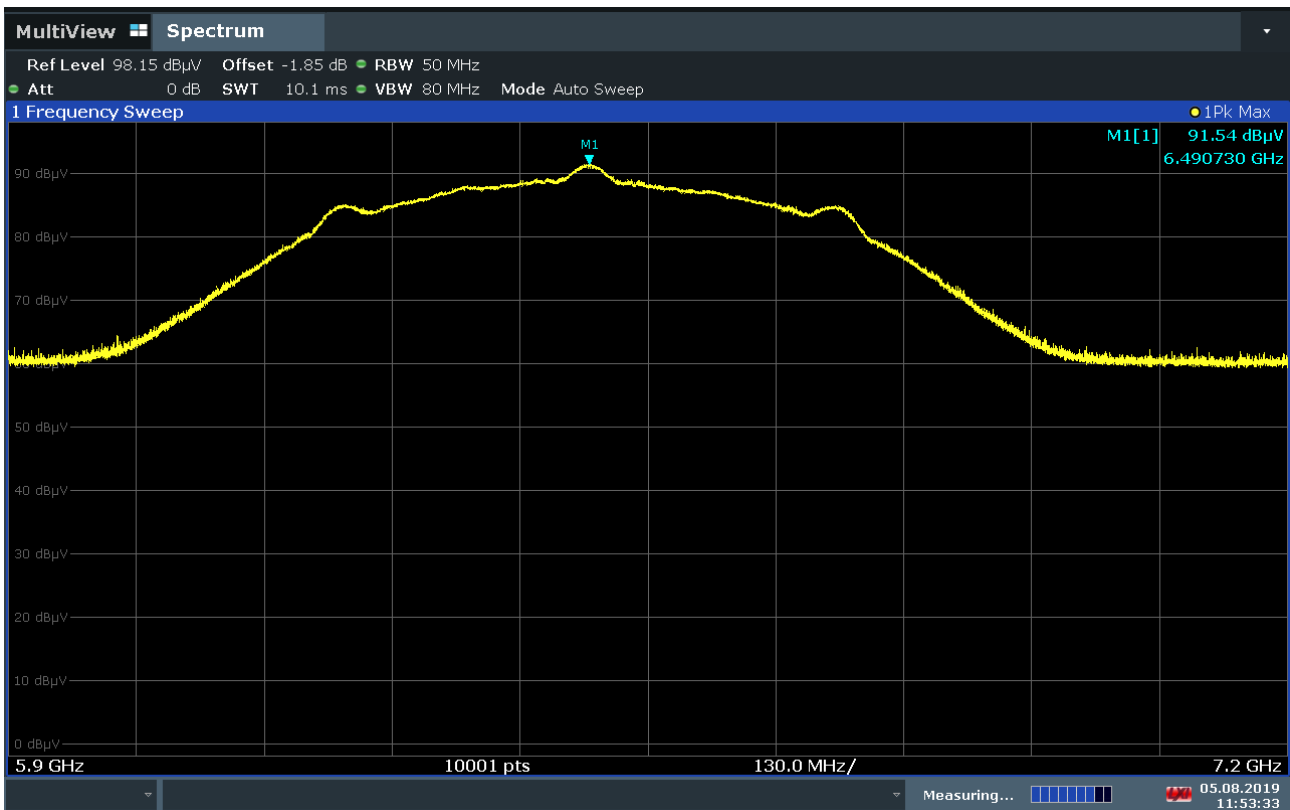
We used for power source the fully charged internal battery

Results:

Sample N° 1

	Peak e.i.r.p. level (dBm / 50 MHz)	Limit (dBm / 50 MHz)
Nominal supply voltage:	-3.62	0 (1)

(1) The limit is $20 \log (RBW/50)$ where RBW is the resolution bandwidth in megahertz that is employed by the measurement instrument



Test conclusion:

RESPECTED STANDARD

13. RADIATED EMISSIONS AT OR BELOW 960 MHZ**Temperature (°C) :** 24 to 28**Humidity (%HR):** 40 to 46**Date :** August 5, 2019 to
August 8, 2019**Technician :** T. LEDRESSEUR**Standard:** FCC Part 15**Test procedure:** paragraph 15.250 (d) (4)**Test set up:**

First an exploratory radiated measurement was performed. this phase the product is oriented in two position.

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

A pre measure is first realized in anechoic chamber and then is realized on open area test site.

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.

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

Frequency range: From 9 kHz to 960 MHz.**Detection mode:** Quasi-peak ($F < 1$ GHz)

Except for the frequency bands 9-90 kHz, 110-490 kHz. Radiated emission limits in these three bands are based on measurements employing an average detector

Bandwidth: 200Hz ($9 \text{ kHz} < F < 150\text{kHz}$)
9 kHz ($150 \text{ kHz} < F < 30\text{MHz}$)
120 kHz ($30 \text{ MHz} < F < 960 \text{ MHz}$)**Distance of antenna:** 10 meters (in open area test site)**Antenna height:** 1 to 4 meters (in open area test site)**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.

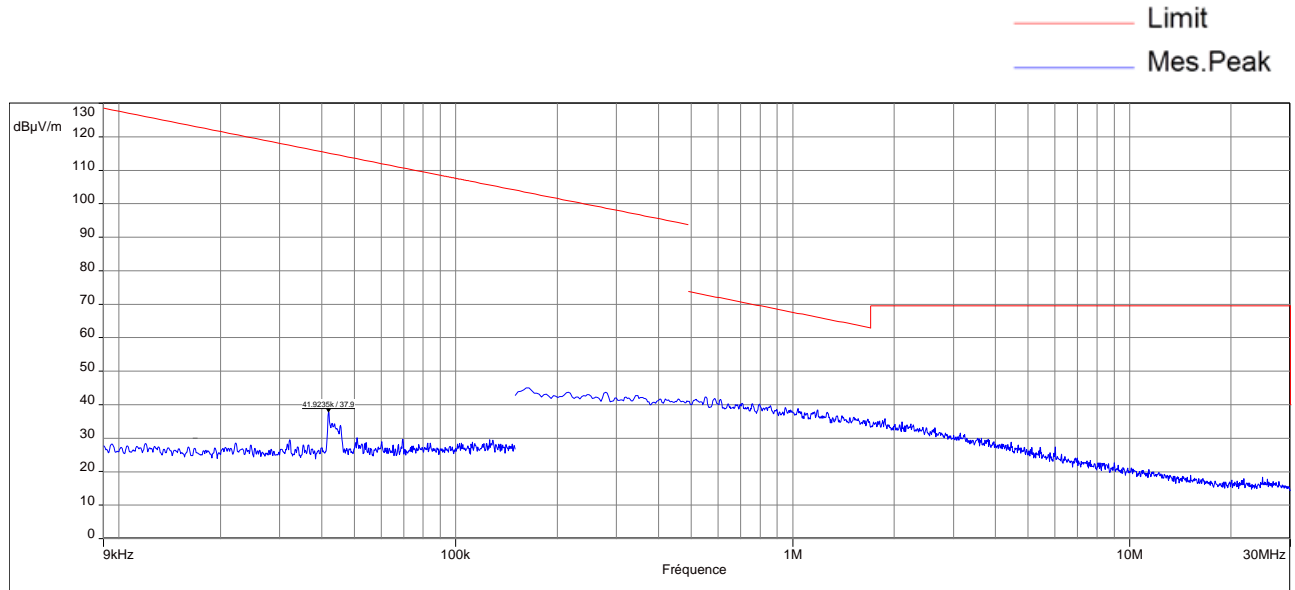
We used for power source the fully charged internal battery

Results:

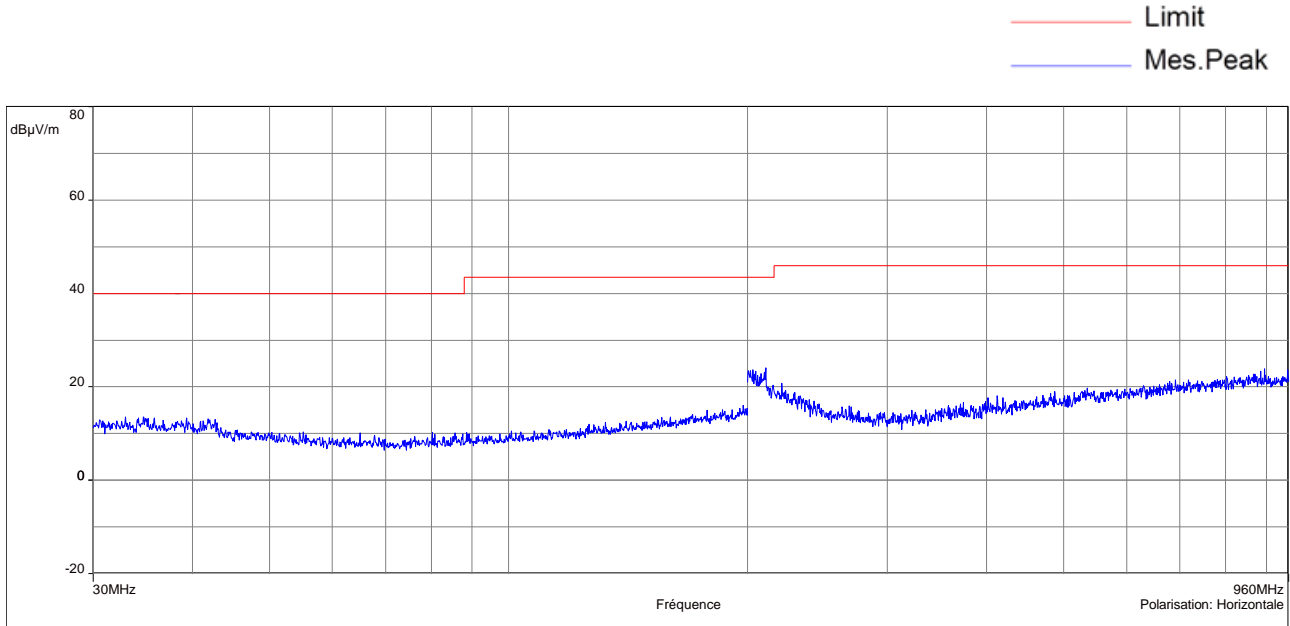
Sample N° 1

Not any spurious has been detected.

Worst critical results



41.9235k, 37.9 dBµV/m : ambient



Applicable limits: for $9 \text{ kHz} \leq F \leq 490 \text{ kHz}$: $2400/F(\text{kHz})$ at 300 meters
 for $490 \text{ kHz} < F \leq 1.705 \text{ MHz}$: $24000/F(\text{kHz})$ at 30 meters
 for $1.705 \text{ MHz} < F \leq 30 \text{ MHz}$: 29.5 dBµV/m at 30 meters
 for $30 \text{ MHz} < F \leq 88 \text{ MHz}$: 40 dBµV/m at 3 meters
 for $88 \text{ MHz} < F \leq 216 \text{ MHz}$: 43.5 dBµV/m at 3 meters
 for $216 \text{ MHz} < F \leq 960 \text{ MHz}$: 46 dBµV/m at 3 meters

Test conclusion:

RESPECTED STANDARD

□□□ End of report, 1 appendix to be forwarded □□□

APPENDIX 1: Test equipment list

-10 dB bandwidth

TYPE	MANUFACTURER	EMITECH NUMBER
Climatic chamber EXCAL 7714-HA	CLIMATS	10751
Precision thermometer GMH 3710	GHM Greisinger	14716
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer FSV40	Rohde & Schwarz	15666
Antenna 3115	EMCO	8534
N-1.5M Cable	Huber + Suhner	6884
Power source FTN 2515B	Fontaine	8775
Multimeter 177	Fluke	14831
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC V3.6.0.32	0000

Radiated emissions above 960 MHz

TYPE	MANUFACTURER	EMITECH NUMBER
Anechoic Chamber	EMITECH	8593
Turntable controller MCU	MATURO	14736
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer FSV40	Rohde & Schwarz	15666
Log periodic antenna UHALP 9108A	Schwarzbeck	8543
Antenna 3115	EMCO	8535
Antenna 3160-09	ETS Lindgren	8786
Antenna WR28	ATM	4353
Low-noise amplifier 8447D	Hewlett Packard	8511
Low-noise amplifier PAM-118A	COM-POWER	15812
Low-noise amplifier S180265L3201	LUCIX Corp.	8704
Low-noise amplifier ALS2640-30-10	ALC	4354
N-1.5M Cable	Huber + Suhner	6884
N-2M Cable	Huber + Suhner	12911
N-5M Cable	SUCOFLEX	15882
Cable k-20cm	STORM MICROWAE	8974
Cable k-20cm	STORM MICROWAE	8975
High pass filter HPF180400	C&C	16109
High Pass Filter LPM15600	Microtronics	6607
Low Pass Filter LPM15601	Microtronics	6606
Multimeter 177	Fluke	14831
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC V3.6.0.32	0000

GPS emissions

TYPE	MANUFACTURER	EMITECH NUMBER
Anechoic Chamber	EMITECH	8593
Turntable controller MCU	MATURO	14736
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer FSV40	Rohde & Schwarz	15666
Antenna 3115	EMCO	8535
Low-noise amplifier PAM-118A	COM-POWER	15812
N-1.5M Cable	Huber + Suhner	6884
N-2M Cable	Huber + Suhner	12911
N-5M Cable	SUCOFLEX	15882
Low Pass Filter LPM15601	Microtronics	6606
Multimeter 177	Fluke	14831
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC V3.6.0.32	0000

Peak radiated emissions requirements

TYPE	MANUFACTURER	EMITECH NUMBER
Anechoic Chamber	EMITECH	8593
Turntable controller MCU	MATURO	14736
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer FSW43	Rohde & Schwarz	14830
Antenna 3115	EMCO	8535
Low-noise amplifier PAM-118A	COM-POWER	15812
Attenuator 10dB	Midwest Microwave	8548
N-1.5M Cable	Huber + Suhner	6884
N-2M Cable	Huber + Suhner	12911
N-5M Cable	SUCOFLEX	15882
Multimeter 177	Fluke	14831
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC V3.6.0.32	0000

Radiated emissions at or below 960 MHz

TYPE	MANUFACTURER	EMITECH NUMBER
Anechoic Chamber	EMITECH	8593
Turntable controller MCU	MATURO	14736
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer FSV40	Rohde & Schwarz	15666
Loop antenna 6502	EMCO	1406
Biconical antenna VHBB 9124	Schwarzbeck	8526
Log periodic antenna UHALP 9108A	Schwarzbeck	8543
Low-noise amplifier 8447D	Hewlett Packard	8511
N-1.5M Cable	Huber + Suhner	6884
N-2M Cable	Huber + Suhner	12911
N-5M Cable	SUCOFLEX	15882
High pass filter HPM11630	Hewlett Packard	6609
Multimeter 177	Fluke	14831
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC V3.6.0.32	0000