Test report issued under the responsibility of:
EMITECH ILE DE FRANCE Laboratory
MRA US-EU Designation Number: FR0004
IC Assigned Code: 4379A

RADIO TEST REPORT

FCC 47 CFR PART 15 : 2023 (§15.247)
RSS-247_Issue 2 : 2017
RSS-Gen_Issue 5 : 2018 / AMD1: 2019 / AMD2: 2021

Company .....:	**DAVEY BICKFORD**
Address.....:	Le Moulin Gaspard Chemin de la Pyrotechnie 89550 HERY France

Test item description. .....:	***EDGE BLASTING MACHINE***
Trade Mark. .....:	*DaveyTronic Edge*
Manufacturer. .....:	*Davey Bickford SAS*
Model/Type reference.....:	*Not communicated*
Ratings.....:	*Not communicated*

Testing Laboratory .....:	**EMITECH ILE DE France Laboratory**
Address.....:	30-32, avenue des 3 Peuples 78180 MONTIGNY LE BRETONNEUX FRANCE

Report Reference No.....:	**RRA-EMIESS23E175DAV-01A v0**
Test procedure. .....:	FCC and CANADA marking
Diffusion.....:	Mr LO
Applicant's name. .....:	DAVEY BICKFORD
Date of issue.....:	24/11/2023
Total number of pages.....:	64
Revision. .....:	v0
Modified pages. .....:	Creation
Compiled by.....:	F. LHEUREUX (Tests technician)
Technical verification. .....:	PELLERIN Bruno Assistant to the EMC and Radio Laboratory Manager
Quality approval.....:	PELLERIN Bruno Assistant to the EMC and Radio Laboratory Manager

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REPORT INDEX:

REVISION HISTORY:

Revision	Date	Modified pages	Modifications
v0	24/11/2023	/	Creation

1. GENERAL INFORMATIONS

This document submits the results of Radio tests performed on the equipment (denominated hereafter E.U.T.: equipment under test) according to documents listed in §2 of this test report.

TESTING PROCEDURE AND TESTING LOCATION:

Testing Laboratory	**EMITECH ILE DE France Laboratory**
Address	30-32, avenue des 3 Peuples 78180 MONTIGNY LE BRETONNEUX FRANCE
Test procedure.	FCC and CANADA marking
Tested by	F. LHEUREUX / L. CHEVALIER
Test supervisor	B. PELLERIN
Date of receipt of test item	02/11/2023
Dates of performance of tests	From the 02/11/2023 to 17/11/2023

APPLICANT'S GENERAL INFORMATIONS:

Company name	***DAVEY BICKFORD***
Company address.	*Le Moulin Gaspard* *Chemin de la Pyrotechnie* *89550 HERY France*
Person present during the tests.	Mr LELANDAIS
Responsible.	Mr LO

GENERAL REMARKS:

The test results presented in this report relate only to the object tested.
The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.
Throughout this report the decimal separator is point.

POSSIBLE TEST CASE VERDICTS:

Test case does not apply to the test object.	N/A
Test case not performed	N/P
Test object does meet the requirement.	P (Pass)
Test object does not meet the requirement.	F (Fail)
Test object was not subjected to all tests.	I (Inconclusive)

DEFINITIONS AND ABBREVIATIONS:

E.U.T.	Equipement under test	AE	Auxiliary / Associated equipment
RBW	Resolution bandwidth	VBW	Video bandwidth
OATS	Open area test site	FAR	Full anechoic room
RF	Radio frequency	NTR	Nothing to report

2. REFERENCE DOCUMENTS

NORMATIVE REFERENCES:
The following referenced documents are necessary for the application of the present test report. ***FCC 47 CFR Part 15 : 2023*** Code of federal regulations Title 47- Telecommunication Chapter 1- Federal Communication Commission Part 15- Radio frequency devices Subpart B- Unintentional Radiators Limits and methods of measurement of radio disturbance Characteristic of information technology equipment. ***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 5 : 2018 / AMD1: 2019 / AMD2: 2021*** 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 r02*** 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.
INFORMATIVE REFERENCE:
/

3. EQUIPMENT TECHNICAL DESCRIPTION

3.1. Test Conditions

Test item description.	:	*EDGE BLASTING MACHINE*
Model/Type reference.	:	*Not communicated*
Trade Mark.	:	*DaveyTronic Edge*
Serial number (S/N).	:	*0001W41/23*
Part number (P/N).	:	*62504 / BM00A*
Software version.	:	*V.0.2.11*
Firmware version.	:	*V.0.2.11*
Fcc ID	:	*2AUQC-EDGEBM*
N°IC	:	*25586-EDGEBM*
Type of sample.	:	*Prototype*
Functions.	:	*It is the device that sends the firing commands to the Edge module through the EDGE DBD.*
Manufacturer name.	:	*Davey Bickford SAS*
Address.	:	*Chemin de la Pyrotechnie* *Le Moulin Gaspard* *89550 HERY France*

General product information:

N/A

3.2. EUT Overview

3.3. EUT Marking Plate

3.4. Electronic board

No photograph

3.5. EUT Mechanical and Electrical Design

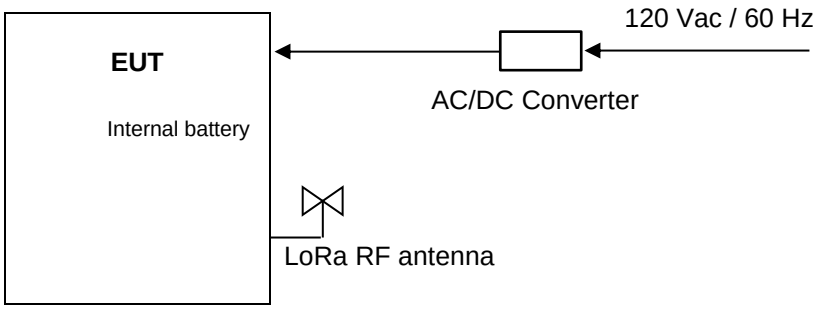
Power supply. ..... : *19 Vdc*
Power supply range. ..... : *Not communicated*
Power type. ..... : *Single phase (for power supply)*
DC (for Edge Blasting Machine)
Power (W). ..... : *64.6*
Nominal current (A). ..... : *3.4*
Dimensions (L x W x H) (mm). ..... : *250 x 175 x 60*
Weight (kg). ..... : *1.4*
Temperature range (°C). ..... : *-30 to +60*
Ground bounding strap. ..... : *No*

Comments: -

3.6. Auxiliary equipment

No auxiliary equipment

3.7. EUT Input/Output ports



PORT	NAME	TYPE	LENGHT	CABLE TYPE	COMMENTS
0	Main frame	N/E	-	-	-
1	LoRa RF antenna	RF	-	-	External antenna
2	Power supply 120 Vac / 60 Hz	AC/DC	<3m	Unshielded	①

AC/DC : AC/DC Converter port
I/O.....: Input or Output port
N/E .....: Non Electrical port
AC .....: Alternative current port
TP .....: Telecommunication port
DC .....: Direct current port
RF.....: Radio frequency port

① : When loading the product, the radio part is non-functional.

3.8. EUT Radio Specifications

a) GENERAL INFORMATIONS

According to manufacturer's declarations :

EUT type..... : *Transceiver*
Technology ..... : *SRD (LoRa technology)*
Environmental profile..... : *Heavy industry*
Temperature range..... : *Low extremes conditions: -30°C*
High extremes conditions: +60°C
Antenna type ..... : *Dedicated*
Antenna Gain..... : *+5 dBi*

Comments:

- The "LoRa" radio module is used as a hybrid system.
- The radio part is non-functional during the tests conducted emission.

b) TRANSMITTER PARAMITTERS (TX)

Frequency bands..... : *915 - 928 MHz*
RF Power..... : *+14 dBm*
Number of channels / Separation..... : *8 / 125 kHz*
Modulation type ..... : *LoRa*
Duty cycle ..... : *Not communicated*
Frequency plan..... : *915.062 MHz*
915.437 MHz
915.812 MHz
916.187 MHz
918.062 MHz
918.437 MHz
918.812 MHz
919.187 MHz
Tested frequency..... : *Lowest channel : 915.062 MHz*
Middle channel : 918.062 MHz
Highest channel : 919.187 MHz

c) RECEIVER PARAMETERS (RX)

Frequency bands..... : *915 - 928 MHz*
Category/Class ..... : *Not communicated*
Bandwidth..... : *125 kHz*

4. RESULT SUMMARY

Subpart B of the standard FCC part 15 – Unintentional radiators

TEST DESIGNATION	TEST PROCEDURE	VERDICT	COMMENTS
Measurement of conducted emission on AC mains ports			
- Power supply 120 Vac / 60 Hz	**15.107**	**PASS**	
Radiated emission limits	**15.109**	**PASS**	

Subpart C of the standard FCC part 15 – Intentional radiators

TEST DESIGNATION	TEST PROCEDURE	VERDICT	COMMENTS
Restriction bands of operation	**15.205**	**PASS**	
Measurement of conducted emission on AC mains ports	**15.207**	**N/A**	
Radiated emission limits; general requirements	**15.209**	**PASS**	
Additionalprovision to the general radiated emission limitations	**15.215**	**-**	
-(a) Alternative to general radiated emission limits		**N/A**	
-(b) Unwanted emissions outside of § 15.247 frequency bands	**-**	**N/A**	
-(c) 20 dB bandwidth and band-edge compliance		**PASS**	
Intentional radiated emissions	**15.247**	**-**	
- a) frequency hopping and digitally modulated	**-**	**N/A**	
- a) (1) hopping mode	**-**	**N/A**	
- a) (1) (i) frequency hopping in the band 902-928 MHz	**-**	**PASS**	
- a) (1) (ii) frequency hopping in the band 5725–5850 MHz	**-**	**N/A**	
- a) (1) (iii) frequency hopping in the band 2400–2483.5 MHz	**-**	**N/A**	
- a) (2) systems using digital modulation in the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz (6 dB bandwith)	**-**	**N/A**	
- b) maximum peak conducted	**-**	**-**	
- b) (1) frequency hopping in the bands 2400–2483.5 MHz or 5725–5850 MHz	**-**	**N/A**	
- b) (2) frequency hopping in the band 902-928 MHz	**-**	**N/A**	
- b) (3) systems using digital modulation in the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz	**-**	**PASS**	
- b) (4) maximum peak conducted > 6 dBi	**-**	**N/A**	
- b) (4) (i) frequency hopping in the band 2400–2483.5 MHz	**-**	**N/A**	
- b) (4) (ii) frequency hopping in the band 5725–5850 MHz	**-**	**N/A**	
- b) (4) (iii) fixed, point-to-point	**-**	**N/A**	
- c) directional antenna > 6 dBi	**-**	**N/A**	
- c) (1) fixed, point-to-point operation	**-**	**N/A**	

TEST DESIGNATION	TEST PROCEDURE	VERDICT	COMMENTS
- c) (1) (i) in the band 2400–2483.5 MHz	-	N/A	
- c) (1) (ii) in the band 5725–5850 MHz	-	N/A	
- c) (1) (iii) fixed, point-to-point	-	N/A	
- c) (2) multiple directional beams in the band 2400–2483.5 MHz	-	N/A	
- c) (2) (i) information	-	N/A	
- c) (2) (ii) sum of the power supplied to all antennas	-	N/A	
- c) (2) (iii) one antenna for multiple directional beams	-	N/A	
- c) (2) (iv) single directional beam	-	N/A	
- d) intentional radiator	-	PASS	
- e) peak power spectral density	-	PASS	
- f) hybrid system	-	PASS	
- g) continuous data stream during the test	-	N/A	
- h) to avoid hopping on occupied channels	-	N/A	
- i) RF exposure compliance	-	N/A	P < 500 mW

Standard RSS-247 Issue 2 : 2017

TEST DESIGNATION	TEST PROCEDURE	VERDICT	COMMENTS
3. Certification Requirements	-	-	
- 3.1 RSS-gen compliance	-	N/A	
5.2 Digital Modulation Systems	-	-	
- (1) -6 dB bandwidth	-	N/A	
- (2) transmitter power spectral density	-	PASS	
5.4 Transmitter Output Power and e.i.r.p. Requirement	-	-	
- 1) 902-928 MHz frequency hopping systems output power / e.i.r.p.	-	N/A	
- 2) 2400-2483.5 MHz frequency hopping systems output power / e.i.r.p	-	N/A	
- 3) 5725-5850 MHz frequency hopping systems output power / e.i.r.p.	-	N/A	
- 4) Digital modulation systems output power / e.i.r.p.	-	PASS	
- 5) point-to-point systems (2400-2483.5 and 5725-5850 MHz)	-	N/A	
- 6) Multiple directional beams antenna systems (2400-2483.5 MHz)	-	N/A	
5.5 Unwanted emission	-	PASS	

Standard RSS-Gen Issue 5 : 2018 / AMD1: 2019 / AMD2: 2021

TEST DESIGNATION	TEST PROCEDURE	VERDICT	COMMENTS
6 Technical Requirements	-		
- 6.7 Occupied Bandwidth	-	**PASS**	
- 6.9 CISPR Quasi-peak detector	-	**PASS**	
- 6.12 Transmitter Output Power	-	**PASS**	
- 6.13 Transmitter unwanted emissions	-	**PASS**	
7.2 Measurement Methods and Standard Specifications	-	-	
- 7.2.1 Measurement Bandwidths and Detector Functions	-	**N/A**	
- 7.2.2 Emissions Falling Within Restricted Frequency Bands	-	**N/A**	
- 7.2.3 Devices Employing Pulsed Operation	-	**N/A**	
- 7.2.4 AC Power Line Conducted Emissions Limits	-	**PASS**	
- 7.2.5 Transmitter Spurious Emission Limits	-	**N/A**	
- 7.2.6 Transmitter Frequency Stability	-	**N/A**	
- 7.2.7 Measurement Distance	-	**N/A**	
8.Licence-Exempt radio Apparatus	-	-	
- 8.8 AC Power Line Conducted Emission Limits for licence-Exempt Radio Apparatus	-	**N/A**	

Sample subject to the test **complies** with the requirements of the reference document listed in §2 of this test report and, where applicable, with deviations specified in this document.

To declare, or not, the compliance with the specifications, it was not explicitly taken account of uncertainty associated with the results.

Modifications : No

5. MEASUREMENT UNCERTAINTY

PARAMETER	MAXIMAL EMITECH UNCERTAINTY	MINIMAL STANDARD UNCERTAINTY
Radio frequency	± 1 x 10^{-7}	±1 x 10^{-7}
RF power, conducted		
RF power	± 0.8dB	± 1 dB
RF power (EN 300328 / EN 301893)	± 1.3dB	± 1.5 dB
Power spectral density	± 2.3dB	± 3 dB
Occuped bandwidth		
RF power	± 3.8 %	± 5 %
RF power (EN 300328 / EN 301893)	± 3.8 %	± 5 %
Maximum frequency deviation		
300 Hz < audio frequency < 6 kHz	± 1.2 %	± 5 %
6 kHz < audio frequency < 25 kHz	± 1.2 %	± 3 dB
Adjacent channel power	± 1.6 dB	± 3 dB
Sensibility of receiver (conducted)	± 2.0 dB	± 3 dB
Blocking	± 4.0 dB	± 4 dB
Transitoire		
Amplitude	± 8.5 %	± 20 %
At the frequency	± 166 Hz	± 250 Hz
Conducted emission (spurious)		
f ≤ 1 GHz	± 0.8 dB	± 3 dB
1 GHz - 12.75 GHz	± 1.6 dB	
Radiated emission (PAR / PIRE / RNE)		
f ≤ 62.5 MHz	± 5.1 dB	± 6 dB
62.5 MHz - 1 GHz	± 5.1 dB	± 6 dB
1 GHz - 18 GHz	± 5.2 dB	± 6 dB
18 GHz – 26 GHz	± 5.1 dB	± 6 dB
26 GHz – 40 GHz	± 5.4 dB	± 6 dB
RF power (EN 300328 / EN 301893)	± 5.3 dB	± 6 dB
PIRE and power spectral density with diode	± 5.4 dB	± 6 dB
Radiated emission (magnetic field)		
9kHz – 30MHz	± 3 dB	± 6 dB
RF level for a given BER	± 0.8 dB	± 1.5 dB
Supply voltages	± 3 %	± 3 %
Temperature	± 1 °C	± 1°C
Humidity	± 5 %	± 5 %
Time / Duty cycle	± 4.4 %	± 5 %
Adaptivity	± 2.9 dB	/
Radiated emission (electric field for FCC standard)		
9kHz – 30MHz	± 2.7 dB	/
30MHz – 1GHz	± 5.0 dB	/
1GHz – 18GHz	± 5.6 dB	/
18GHz – 26GHz	± 5.7 dB	/
26GHz – 40GHz	± 5.7 dB	/

For the calcul of expanded uncertainty, the confidence interval is 95 % (k=2).

6. TEST CONDITIONS AND RESULTS

6.1. Measurement of conducted emission on AC mains ports

Reference standard:	FCC 47 CFR PART 15 : 2023 RSS-Gen Issue 5 : 2018 / AMD1: 2019 / AMD2: 2021
Test method:	§15.107 of FCC 47 CFR PART 15 : 2023 § 7.2.4 of RSS-Gen Issue 5 : 2018 / AMD1: 2019 / AMD2: 2021
General test setup: E.U.T. is set on an insulating support at 80 cm above the ground reference plane. All power was connected to the system through Artificial Mains Network (AMN). The AMN is placed at 40 cm from the boundary of the EUT and bonded to a ground reference plane. All tested telecommunications lines (if applicable) were connected to an Asymmetric Artificial Network (AAN) and conducted voltage measurements on telecommunications lines were made at the output of the AAN. Where an AAN was not appropriate or available, measurements were made using a Capacitive Voltage Probe and/or a Current probe.	

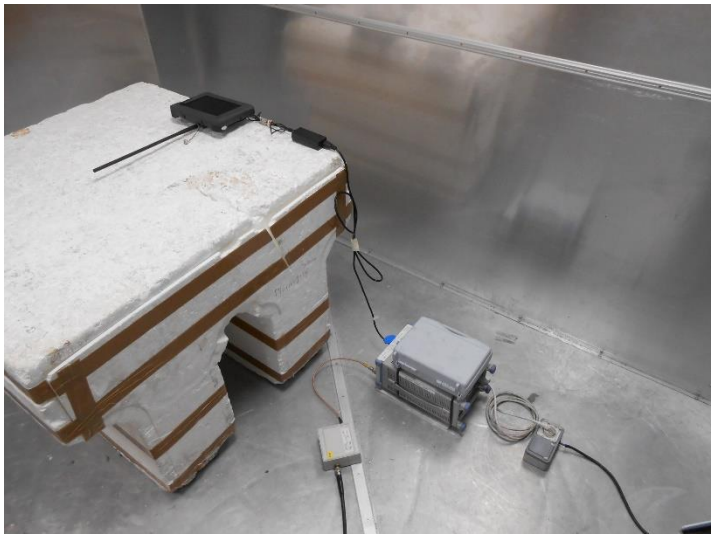
TESTED CABLE	PARAMETER	SEVERITY	VERDICT
Power supply 120 Vac / 60 Hz	150kHz-30MHz	Class A	-
Power supply 120 Vac / 60 Hz (Average value)	150kHz-30MHz	Class A	**PASS**

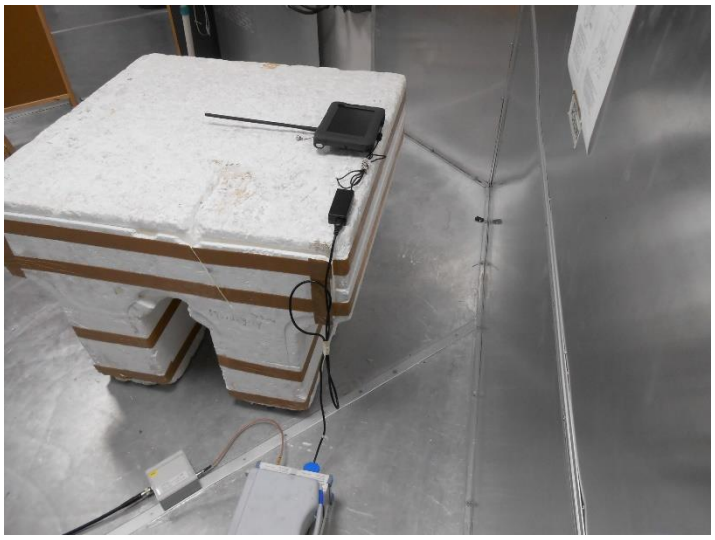
LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	15 to 35 °C	22°C
Relative Humidity	30 to 60 %	45 %
Atmospheric pressure	N/A	N/A
Test method deviation: No.		
Supplementary information: The radio part is non-functional during the charging.		

TEST EQUIPMENT USED					
Order Nr	**Category**	**Manufacturer**	**Type**	**Last validity date**	**Next validity date**
16503	Cable	C&C	BNC-0.5m	25/02/2022	25/04/2024
11514	Cable	Micro-Coax	N-2m	20/06/2022	20/08/2024
09492	Cable	Emitech	Absorbeur courant de gaine	09/02/2023	09/04/2025
14565	LISN	Rohde & Schwarz	ENV216	01/06/2023	01/08/2025
10067	PE coil	Emitech	CISPR 16-2-1 : 2008		
02102	Power supply	Secas	CF1000 50/60		
06089	Receiver	Rohde & Schwarz	ESIB26	15/11/2022	15/01/2025
00000	Software	Nexio	BAT EMC		
14875	Test enclosure	Emitech	HC1		

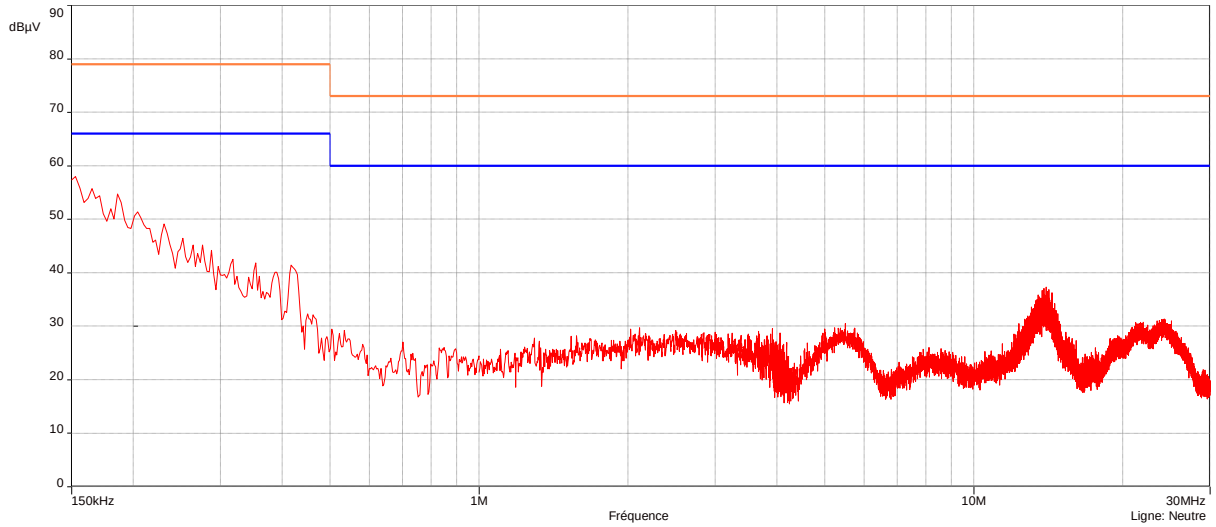
BAT-EMC software version: V3.18.0.26
Blank cells = Permanent validity

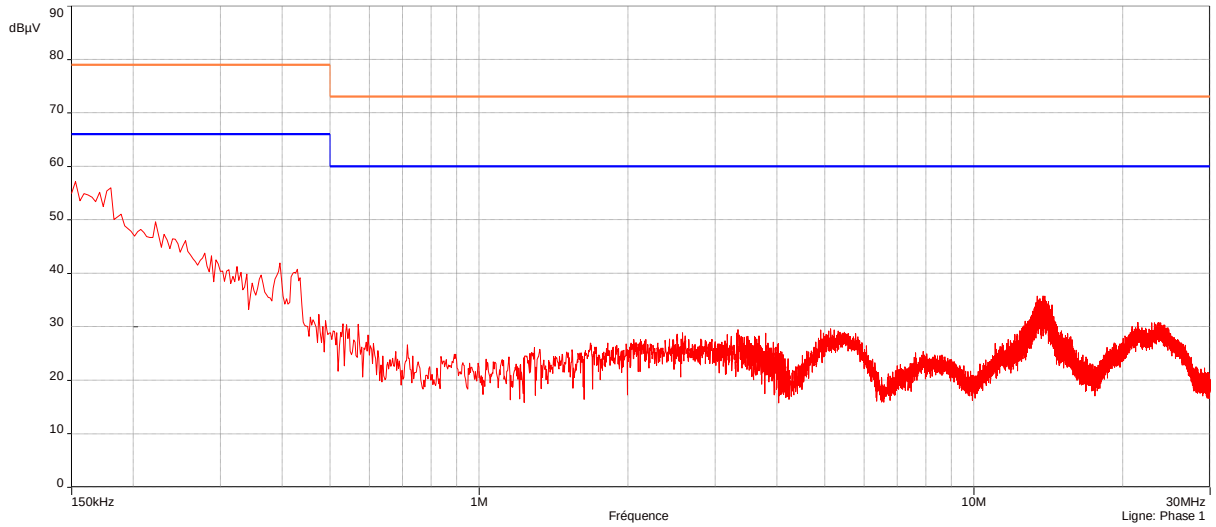
TEST SETUP PHOTOS - POWER SUPPLY 120 VAC / 60 HZ





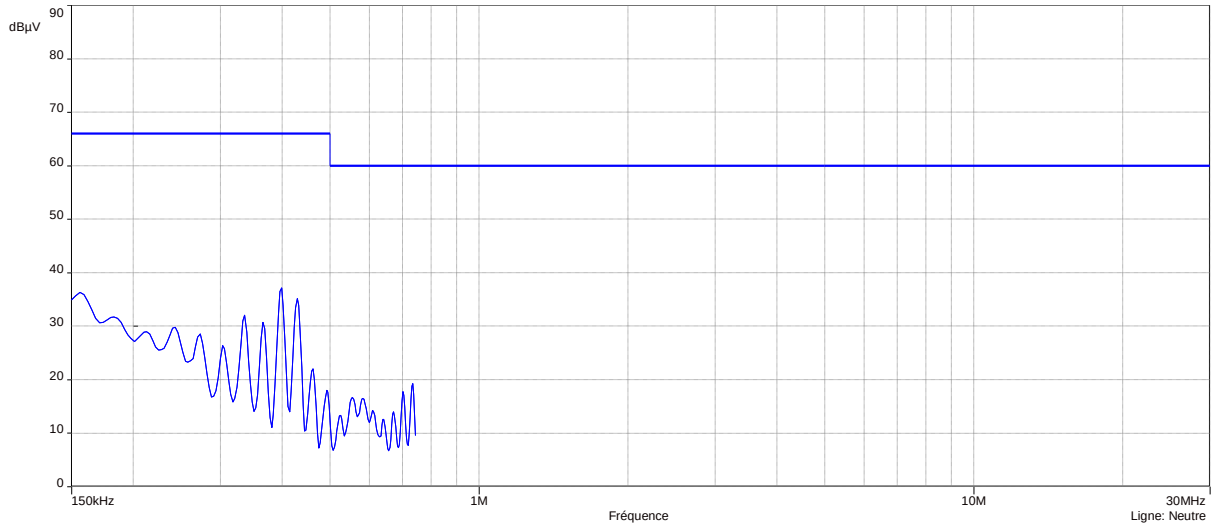
CONDUCTED EMISSION (MEASUREMENT) - GRAPH	
POWER SUPPLY 120 VAC / 60 HZ	
E.U.T. mode: In charging	Red: Peak detection
	Orange: Quasi-Peak limit
	Blue: Average value limit

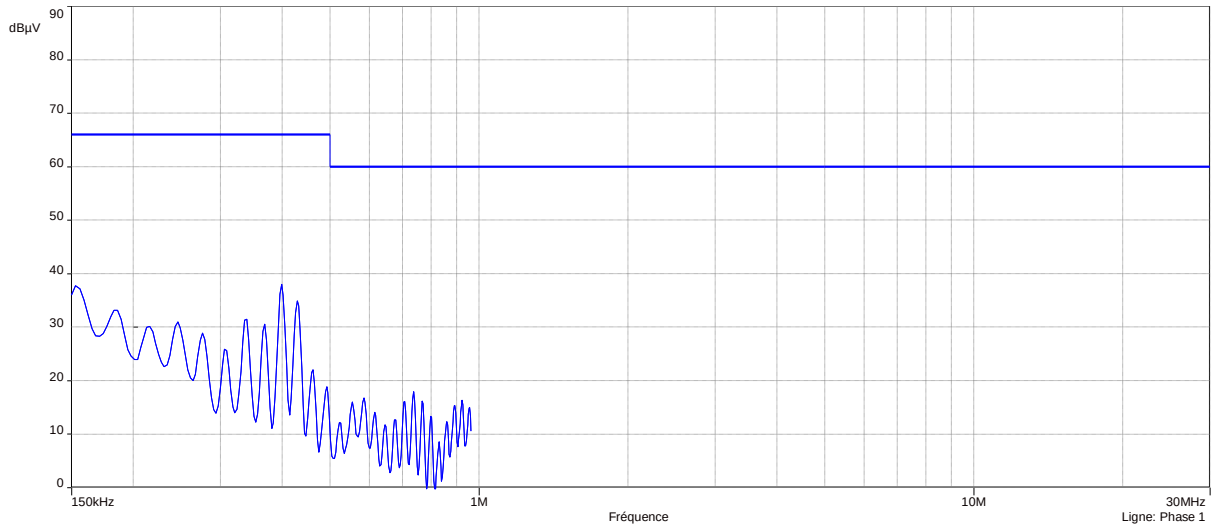




POSITION	FREQUENCIES	RBW	VBW	DETECTOR
Neutral	150kHz-1MHz	10kHz	30kHz	Peak
Neutral	1MHz-30MHz	10kHz	30kHz	Peak
Phase 1	150kHz-1MHz	10kHz	30kHz	Peak
Phase 1	1MHz-30MHz	10kHz	30kHz	Peak
Measure with:	A.M.N.			
Comments:	-			
EUT modification: No				

CONDUCTED EMISSION (MEASUREMENT) - GRAPH	
POWER SUPPLY 120 VAC / 60 HZ (AVERAGE VALUE)	
E.U.T. mode: In charging	Red: -
	Orange: -
	Blue: Average value detection / limit





POSITION	FREQUENCIES	RBW	VBW	DETECTOR
Neutral	150kHz-30MHz	9kHz	Auto	Average
Phase 1	150kHz-30MHz	9kHz	Auto	Average
Measure with:	A.M.N.			
Comments:	-			
EUT modification: No				

6.2. 20 dB bandwidth and 99% bandwidth

Reference standard:	FCC 47 CFR PART 15 : 2023 RSS-Gen Issue 5 : 2018 / AMD1: 2019 / AMD2: 2021
Test method:	§ 15.247 (a) (1) (i) of FCC 47 CFR PART 15 : 2023 § 6.7 of RSS-Gen Issue 5 : 2018 / AMD1: 2019 / AMD2: 2021

General test setup: E.U.T. is set on an insulating support at 80 cm above the ground reference plane.

Measurement are done on a normalized test site by the substitution method.

The test antenna is oriented in the two polarizations (vertical and horizontal), and the product is rotated at 360° in the horizontal plane (See photo(s) for initial position of the EUT(0°)). If applicable the test antenna was raised and lowered through the specified range of height until a maximum signal level is detected.

For portable equipements a research of maximum level is done on the 3 axes. Only the highest levels are recorded.

LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	10 to 40 °C	22°C
Relative Humidity	10 to 90 %	45 %
Atmospheric pressure	N/A	N/A
Test method deviation: No		
Supplementary information: -		

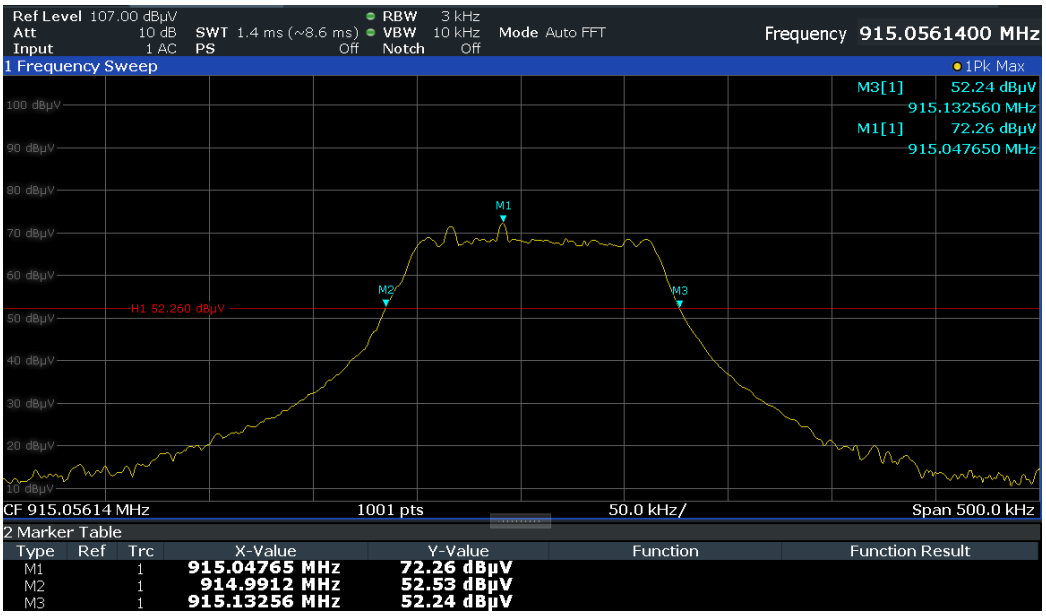
TEST EQUIPMENT USED

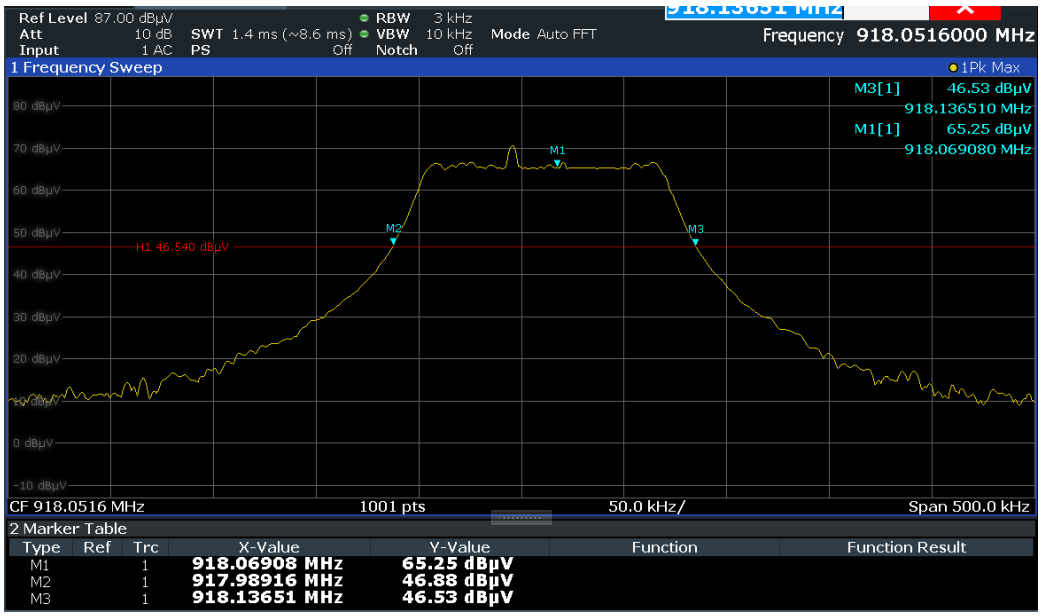
Order Nr	Category	Manufacturer	Type	Last validity date	Next validity date
00294	Antenna	Rohde & Schwarz	HL223	05/05/2023	05/07/2026
11184	Cable	C&C	N-5M	22/06/2023	22/08/2024
17269	Cable	Huber + Suhner	N-6M	29/08/2022	29/10/2024
06089	Receiver	Rohde & Schwarz	ESIB26	15/11/2022	15/01/2025
14622	Shielded enclosure	Comtest	SAC 3M	27/04/2022	27/06/2025

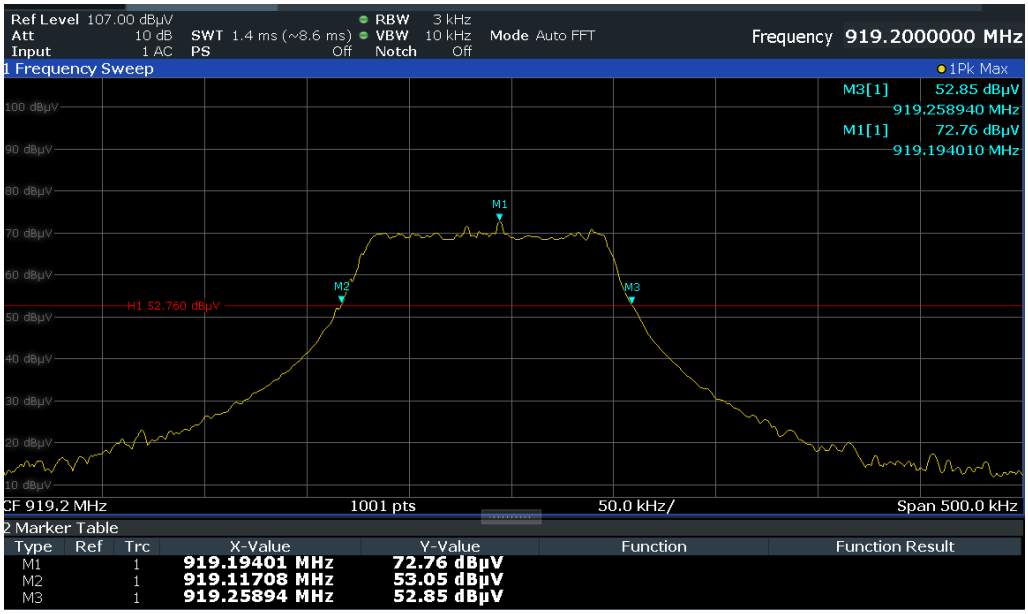
Blank cells = Permanent validity

20 dB Bandwidth

Frequency	Results (kHz)	Limit (kHz)
915.062 MHz	141.36	500
918.062 MHz	147.35	500
919.187 MHz	141.86	500

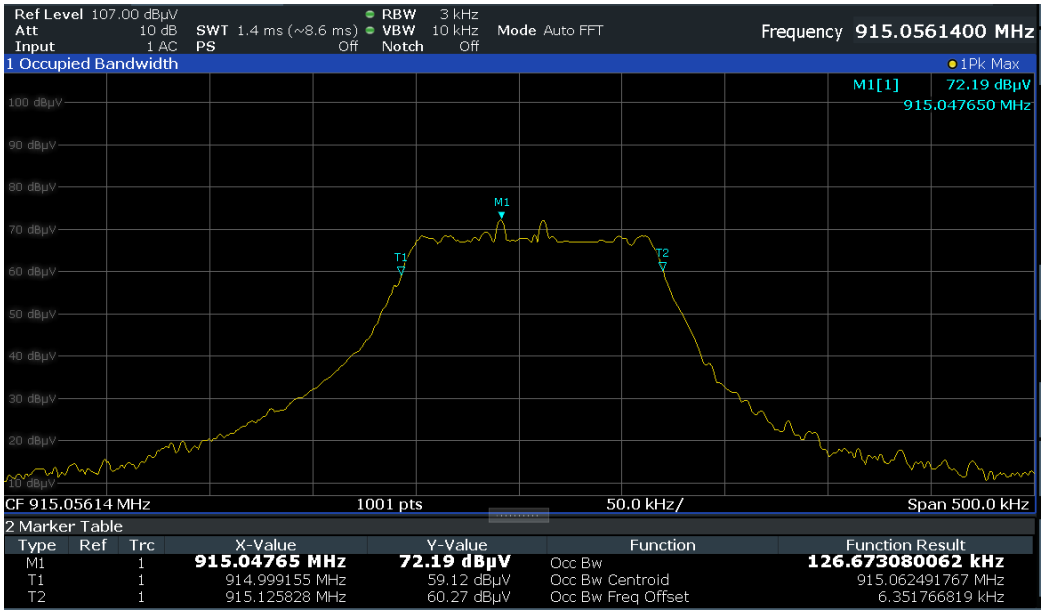


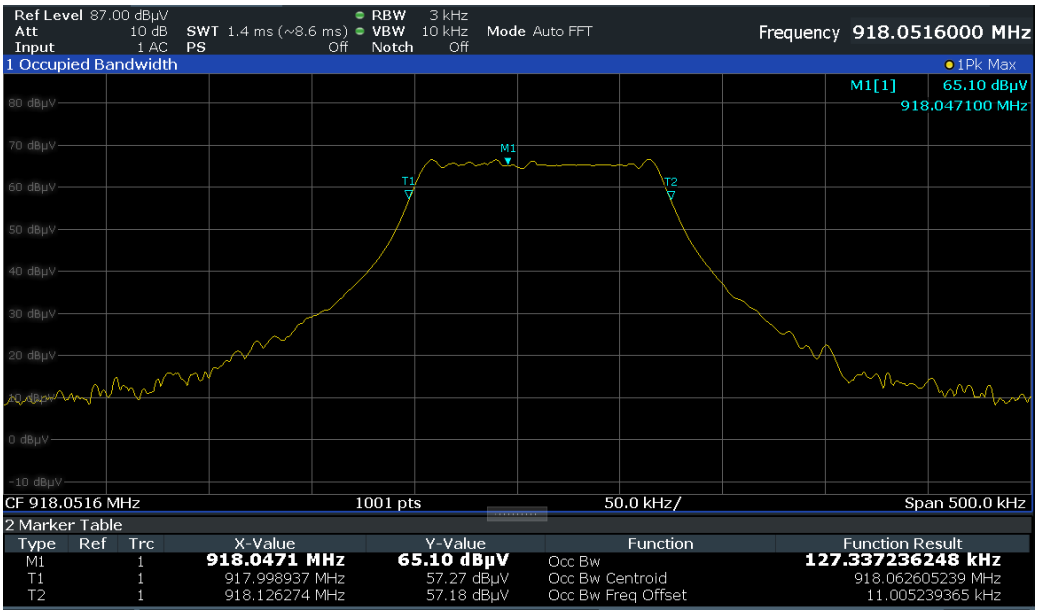


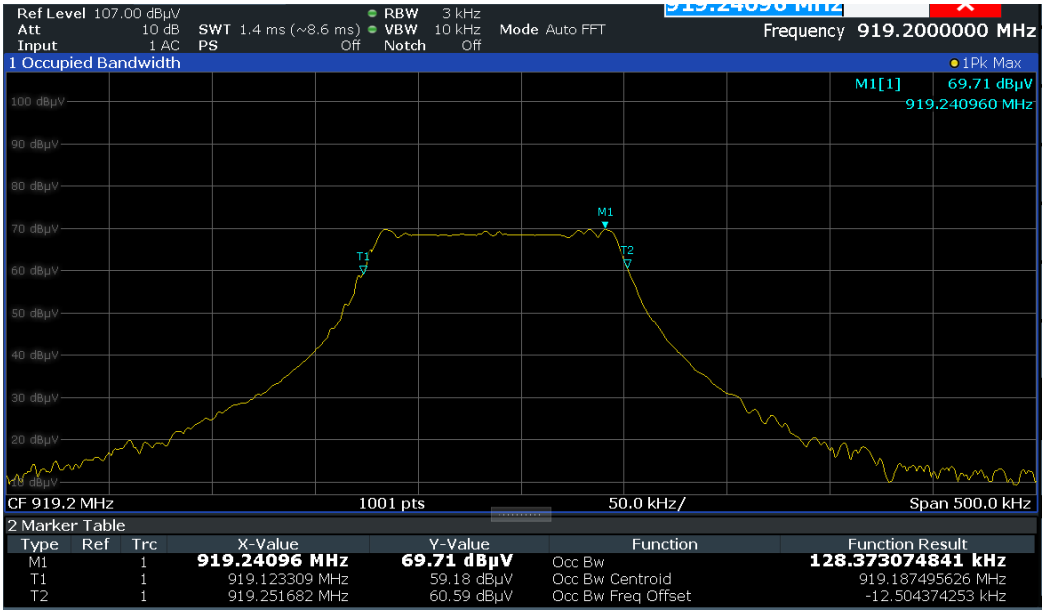


99% Bandwidth

Frequency	Results (kHz)
915.062 MHz	126.67
918.062 MHz	127.34
919.187 MHz	128.37




Ref Level 87.00 dBµV
Att 10 dB
Input 1 AC
SWT 1.4 ms (~8.6 ms)
RBW 3 kHz
VBW 10 kHz
Mode Auto FFT
PS Off
Notch Off
Frequency 918.0516000 MHz
1 Occupied Bandwidth
1Pk Max
M1[1] 65.10 dBµV
918.047100 MHz
CF 918.0516 MHz
1001 pts
50.0 kHz/
Span 500.0 kHz
2 Marker Table
Type Ref Trc X-Value Y-Value Function Function Result
M1 1 918.0471 MHz 65.10 dBµV Occ Bw 127.337236248 kHz
T1 1 917.998937 MHz 57.27 dBµV Occ Bw Centroid 918.062605239 MHz
T2 1 918.126274 MHz 57.18 dBµV Occ Bw Freq Offset 11.005239365 kHz


Ref Level 107.00 dBµV
Att 10 dB
Input 1 AC
SWT 1.4 ms (~8.6 ms)
RBW 3 kHz
VBW 10 kHz
Mode Auto FFT
PS Off
Notch Off
Frequency 919.2000000 MHz
1 Occupied Bandwidth
1Pk Max
M1[1] 69.71 dBµV
919.240960 MHz
CF 919.2 MHz
1001 pts
50.0 kHz/
Span 500.0 kHz
2 Marker Table
Type Ref Trc X-Value Y-Value Function Function Result
M1 1 919.24096 MHz 69.71 dBµV Occ Bw 128.373074841 kHz
T1 1 919.123309 MHz 59.18 dBµV Occ Bw Centroid 919.187495626 MHz
T2 1 919.251682 MHz 60.59 dBµV Occ Bw Freq Offset -12.504374253 kHz

6.3. Carrier Frequency Separation

Reference standard:	FCC 47 CFR PART 15 : 2023 RSS-247 Issue 2 : 2017
Test method:	§ 15.247 a) (1) of FCC 47 CFR PART 15 : 2023 § 5.1 a) of RSS-247 Issue 2 : 2017

General test setup: E.U.T. is set on an insulating support at 80 cm above the ground reference plane.

Measurement are done on a normalized test site.

The test antenna is oriented in the two polarizations (vertical and horizontal), and the product is rotated at 360° in the horizontal plane (See photo(s) for initial position of the EUT(0°)). If applicable the test antenna was raised and lowered through the specified range of height until a maximum signal level is detected.

For portable equipements a research of maximum level is done on the 3 axes. Only the highest levels are recorded.

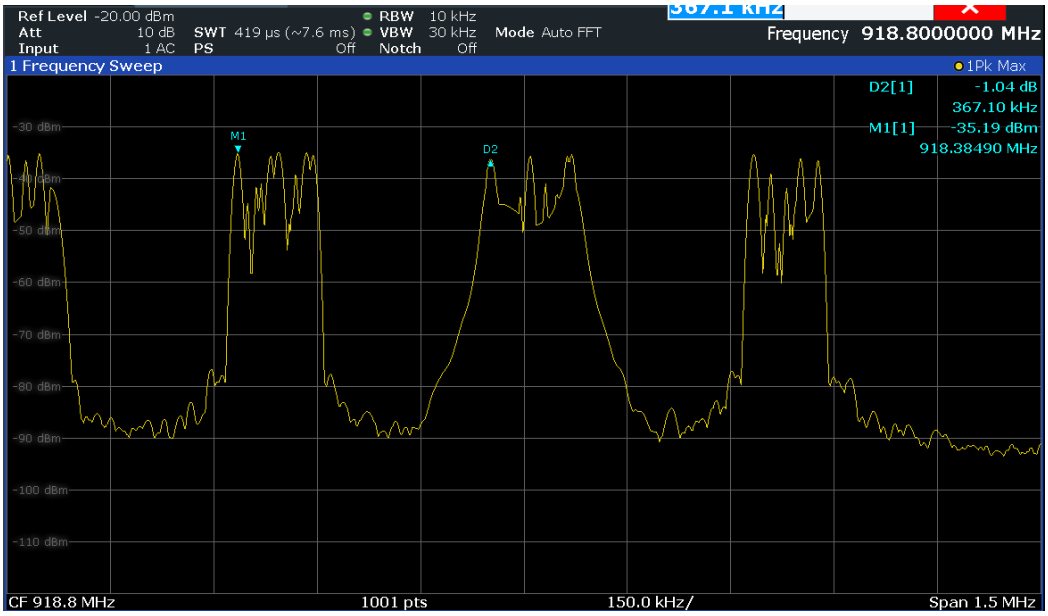
LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	10 to 40 °C	22°C
Relative Humidity	10 to 90 %	45 %
Atmospheric pressure	N/A	N/A
Test method deviation: No		
Supplementary information: -		

TEST EQUIPMENT USED

Order Nr	Category	Manufacturer	Type	Last validity date	Next validity date
00294	Antenna	Rohde & Schwarz	HL223	05/05/2023	05/07/2026
11184	Cable	C&C	N-5M	22/06/2023	22/08/2024
17269	Cable	Huber + Suhner	N-6M	29/08/2022	29/10/2024
06089	Receiver	Rohde & Schwarz	ESIB26	15/11/2022	15/01/2025
14622	Shielded enclosure	Comtest	SAC 3M	27/04/2022	27/06/2025

Blank cells = Permanent validity

Channel separation Results (kHz)	Limit (kHz)
367.1	> 25



6.4. Number of Hopping Channel

Reference standard:	FCC 47 CFR PART 15 : 2023 RSS-247 Issue 2 : 2017
Test method:	§ 15.247 f) of FCC 47 CFR PART 15 : 2023 § 5.1 c) of RSS-247 Issue 2 : 2017
General test setup: E.U.T. is set on an insulating support at 80 cm above the ground reference plane. Measurement are done on a normalized test site. The test antenna is oriented in the two polarizations (vertical and horizontal), and the product is rotated at 360° in the horizontal plane (See photo(s) for initial position of the EUT(0°)). If applicable the test antenna was raised and lowered through the specified range of height until a maximum signal level is detected. For portable equipements a research of maximum level is done on the 3 axes. Only the highest levels are recorded.	

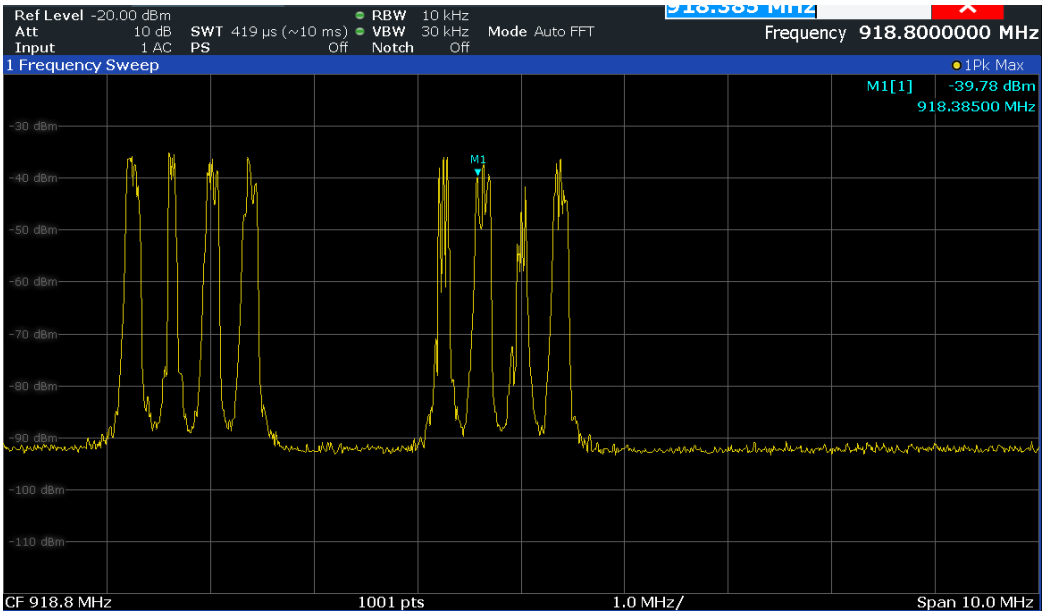
LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	10 to 40 °C	22°C
Relative Humidity	10 to 90 %	45 %
Atmospheric pressure	N/A	N/A
Test method deviation: No		
Supplementary information: -		

TEST EQUIPMENT USED

Order Nr	Category	Manufacturer	Type	Last validity date	Next validity date
00294	Antenna	Rohde & Schwarz	HL223	05/05/2023	05/07/2026
11184	Cable	C&C	N-5M	22/06/2023	22/08/2024
17269	Cable	Huber + Suhner	N-6M	29/08/2022	29/10/2024
06089	Receiver	Rohde & Schwarz	ESIB26	15/11/2022	15/01/2025
14622	Shielded enclosure	Comtest	SAC 3M	27/04/2022	27/06/2025

Blank cells = Permanent validity

Number of hopping channels Results	Limit
8	-



6.5. Dwell Time

Reference standard:	FCC 47 CFR PART 15 : 2023 RSS-247 Issue 2 : 2017
Test method:	§ 15.247 a) (1) (i) of FCC 47 CFR PART 15 : 2023 § 5.1 c) of RSS-247 Issue 2 : 2017

General test setup: E.U.T. is set on an insulating support at 80 cm above the ground reference plane.

Measurement are done on a normalized test site.

The test antenna is oriented in the two polarizations (vertical and horizontal), and the product is rotated at 360° in the horizontal plane (See photo(s) for initial position of the EUT(0°)). If applicable the test antenna was raised and lowered through the specified range of height until a maximum signal level is detected.

For portable equipements a research of maximum level is done on the 3 axes. Only the highest levels are recorded.

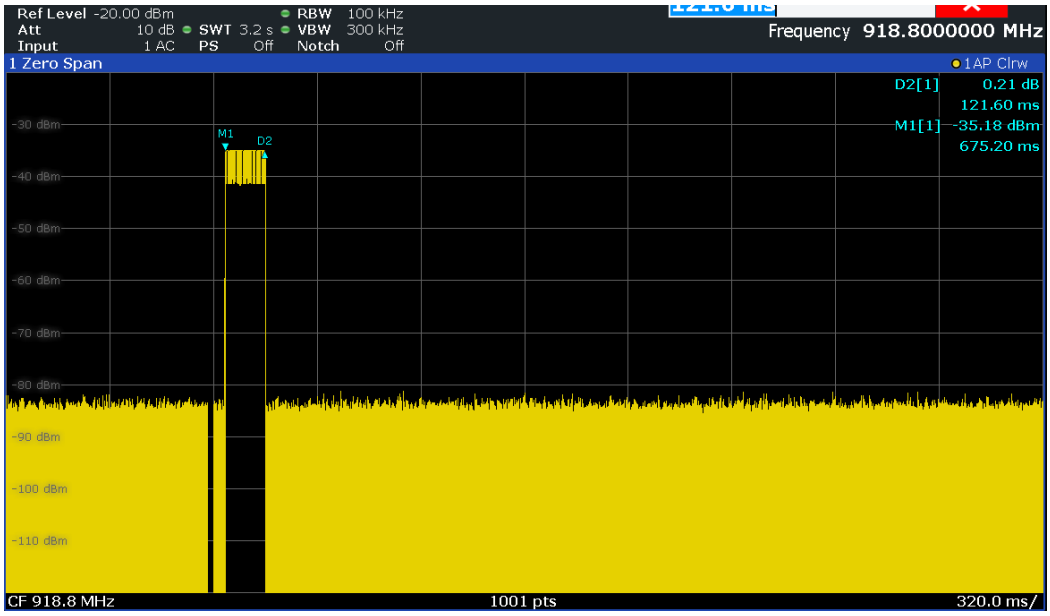
LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	10 to 40 °C	22°C
Relative Humidity	10 to 90 %	45 %
Atmospheric pressure	N/A	N/A
Test method deviation: No		
Supplementary information: -		

TEST EQUIPMENT USED

Order Nr	Category	Manufacturer	Type	Last validity date	Next validity date
00294	Antenna	ROHDE & SCHWARZ	HL223	05/05/2023	05/07/2026
11184	Cable	C&C	N-5M	22/06/2023	22/08/2024
17269	Cable	HUBER + SUHNER	N-6M	29/08/2022	29/10/2024
06089	Receiver	ROHDE & SCHWARZ	ESIB26	15/11/2022	15/01/2025
14622	Shielded enclosure	COMTEST	SAC 3M	27/04/2022	27/06/2025

Blank cells = Permanent validity

Dwell time Results (ms)	Pulse's on time (ms)	Total hops	Limit (ms)
121.6	121.6	1	< 400



6.6. Transmitter output power

Reference standard:	FCC 47 CFR PART 15 : 2023 RSS-247 Issue 2 : 2017
Test method:	§ 15.247 b) (3) of FCC 47 CFR PART 15 : 2023 § 5.4 of RSS-247 Issue 2 : 2017
General test setup: E.U.T. is set on an insulating support at 80 cm above the ground reference plane. Measurement are done on a normalized test site by the substitution method. The test antenna is oriented in the two polarizations (vertical and horizontal), and the product is rotated at 360° in the horizontal plane (See photo(s) for initial position of the EUT(0°)). If applicable the test antenna was raised and lowered through the specified range of height until a maximum signal level is detected. For portable equipements a research of maximum level is done on the 3 axes. Only the highest levels are recorded.	

LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	10 to 40 °C	22°C
Relative Humidity	10 to 90 %	45 %
Atmospheric pressure	N/A	N/A
Test method deviation: No		
Supplementary information: -		

TEST EQUIPMENT USED

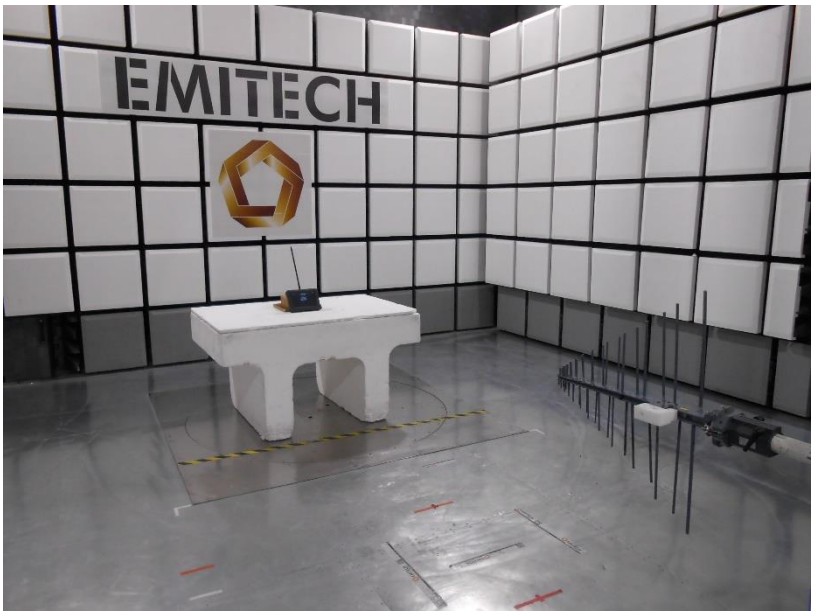
Order Nr	Category	Manufacturer	Type	Last validity date	Next validity date
00294	Antenna	ROHDE & SCHWARZ	HL223	05/05/2023	05/07/2026
11184	Cable	C&C	N-5M	22/06/2023	22/08/2024
17269	Cable	HUBER + SUHNER	N-6M	29/08/2022	29/10/2024
06089	Receiver	ROHDE & SCHWARZ	ESIB26	15/11/2022	15/01/2025
14622	Shielded enclosure	COMTEST	SAC 3M	27/04/2022	27/06/2025

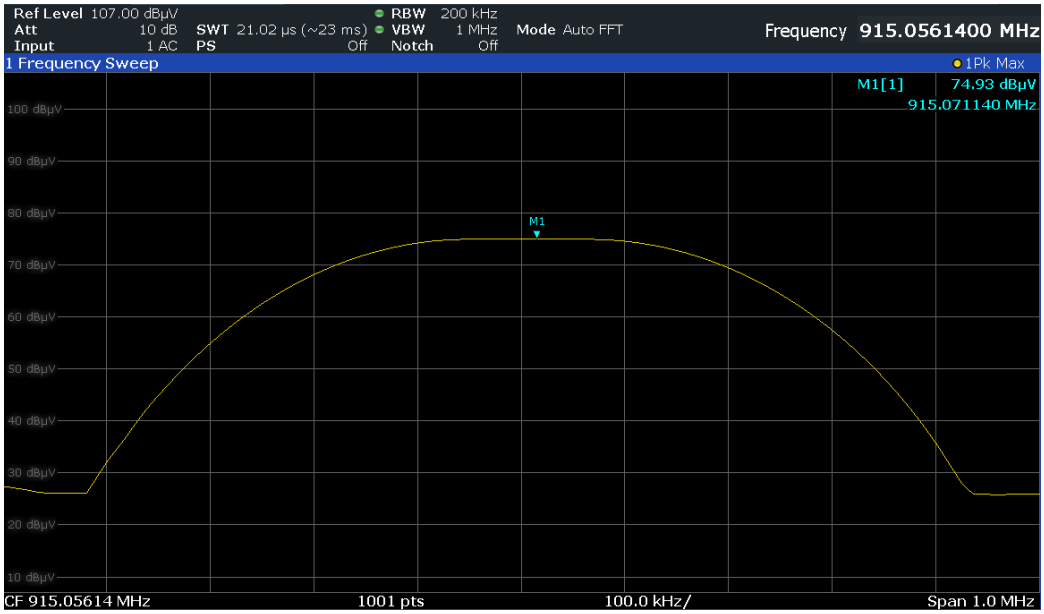
Blank cells = Permanent validity

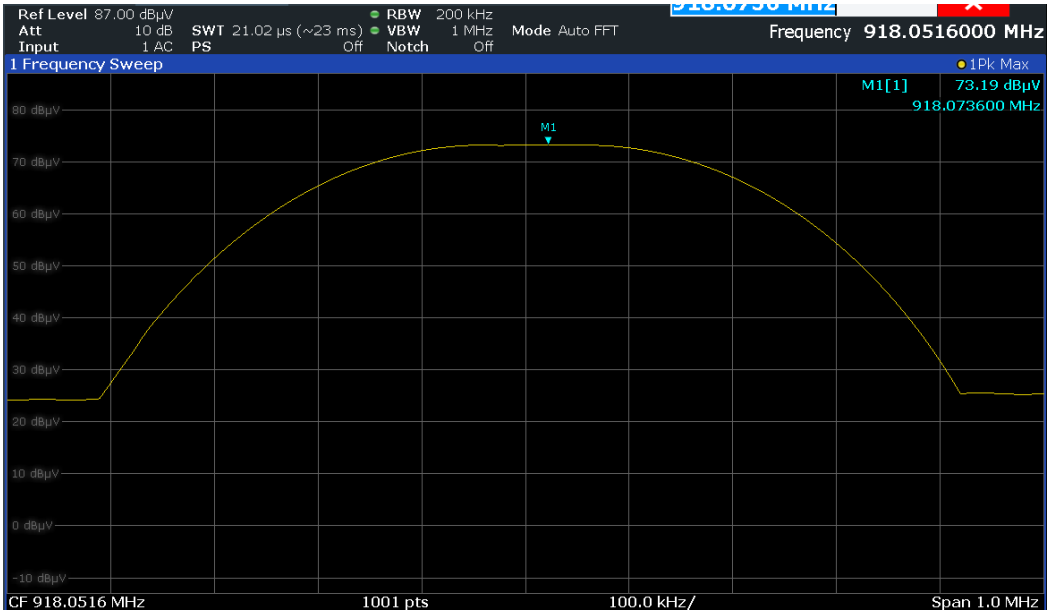
Frequency	Electro-magnetic field (dBµV/m)	TP* (dBm)	Limit (dBm)
915.062 MHz	102.52	+ 5.1	+ 30.0
918.062 MHz	100.72	+ 3.3	+ 30.0
919.187 MHz	104.07	+ 6.7	+ 30.0

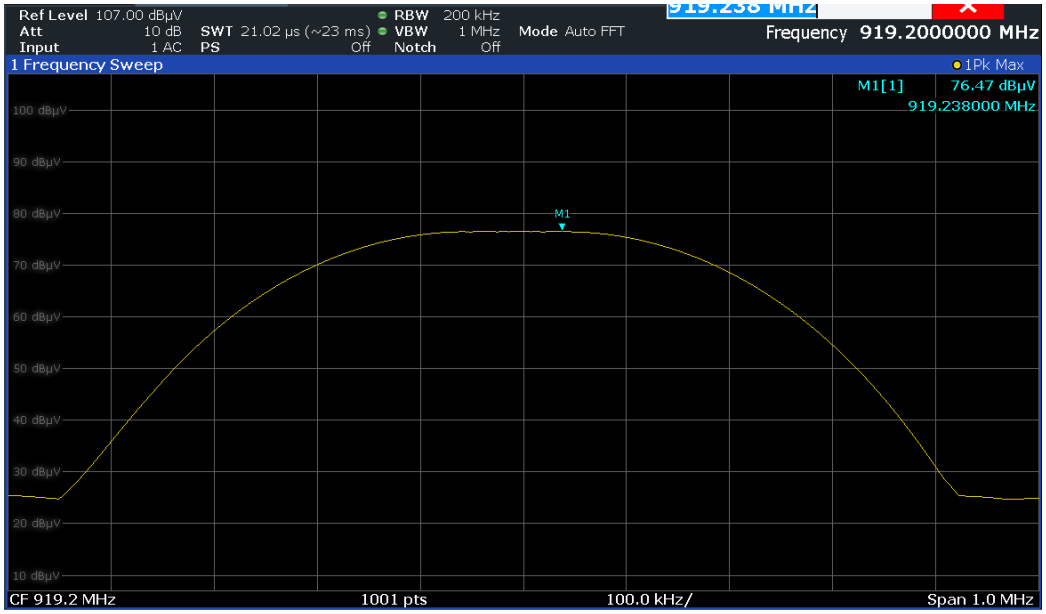
* TP = $(E \times d)^2 / (30 \times 1.64)$ for d = 3 m

E.U.T. position:




Ref Level 107.00 dBµV
Att 10 dB
Input 1 AC
SWT 21.02 µs (~23 ms)
PS Off
RBW 200 kHz
VBW 1 MHz
Notch Off
Mode Auto FFT
Frequency 915.0561400 MHz
1 Frequency Sweep
1Pk Max
M1[1] 74.93 dBµV
915.071140 MHz
100 dBµV
90 dBµV
80 dBµV
70 dBµV
60 dBµV
50 dBµV
40 dBµV
30 dBµV
20 dBµV
10 dBµV
M1
CF 915.05614 MHz
1001 pts
100.0 kHz/
Span 1.0 MHz


Ref Level 87.00 dBµV
Att 10 dB
Input 1 AC
SWT 21.02 µs (~23 ms)
PS Off
RBW 200 kHz
VBW 1 MHz
Notch Off
Mode Auto FFT
Frequency 918.0516000 MHz
1 Frequency Sweep
1Pk Max
M1[1] 73.19 dBµV
918.073600 MHz
80 dBµV
70 dBµV
60 dBµV
50 dBµV
40 dBµV
30 dBµV
20 dBµV
10 dBµV
0 dBµV
-10 dBµV
M1
CF 918.0516 MHz
1001 pts
100.0 kHz/
Span 1.0 MHz


Ref Level 107.00 dBµV
Att 10 dB
Input 1 AC
SWT 21.02 µs (~23 ms)
PS Off
RBW 200 kHz
VBW 1 MHz
Notch Off
Mode Auto FFT
Frequency 919.2000000 MHz
1 Frequency Sweep
1Pk Max
M1[1] 76.47 dBµV
919.238000 MHz
100 dBµV
90 dBµV
80 dBµV
70 dBµV
60 dBµV
50 dBµV
40 dBµV
30 dBµV
20 dBµV
10 dBµV
M1
CF 919.2 MHz
1001 pts
100.0 kHz/
Span 1.0 MHz

6.7. Peak power spectral density

Reference standard:	FCC 47 CFR PART 15 : 2023 RSS-247 Issue 2 : 2017
Test method:	§ 15.247 f) of FCC 47 CFR PART 15 : 2023 § 5.2 b) of RSS-247 Issue 2 : 2017
General test setup: E.U.T. is set on an insulating support at 80 cm above the ground reference plane. Measurement are done on a normalized test site by the substitution method. The test antenna is oriented in the two polarizations (vertical and horizontal), and the product is rotated at 360° in the horizontal plane (See photo(s) for initial position of the EUT(0°)). If applicable the test antenna was raised and lowered through the specified range of height until a maximum signal level is detected. For portable equipements a research of maximum level is done on the 3 axes. Only the highest levels are recorded.	

LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	10 to 40 °C	22°C
Relative Humidity	10 to 90 %	45 %
Atmospheric pressure	N/A	N/A
Test method deviation: No		
Supplementary information: -		

TEST EQUIPMENT USED

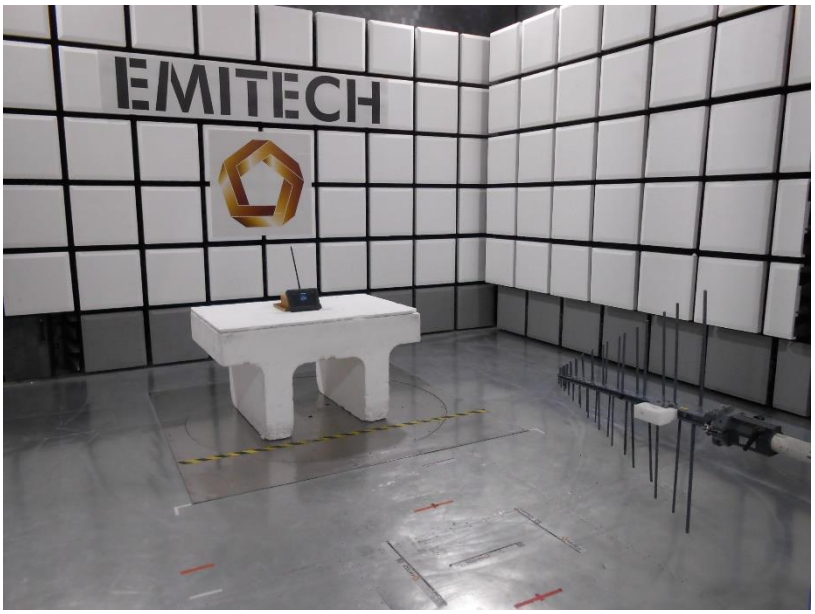
Order Nr	Category	Manufacturer	Type	Last validity date	Next validity date
00294	Antenna	Rohde & Schwarz	HL223	05/05/2023	05/07/2026
11184	Cable	C&C	N-5M	22/06/2023	22/08/2024
17269	Cable	Huber + Suhner	N-6M	29/08/2022	29/10/2024
06089	Receiver	Rohde & Schwarz	ESIB26	15/11/2022	15/01/2025
14622	Shielded enclosure	Comtest	SAC 3M	27/04/2022	27/06/2025

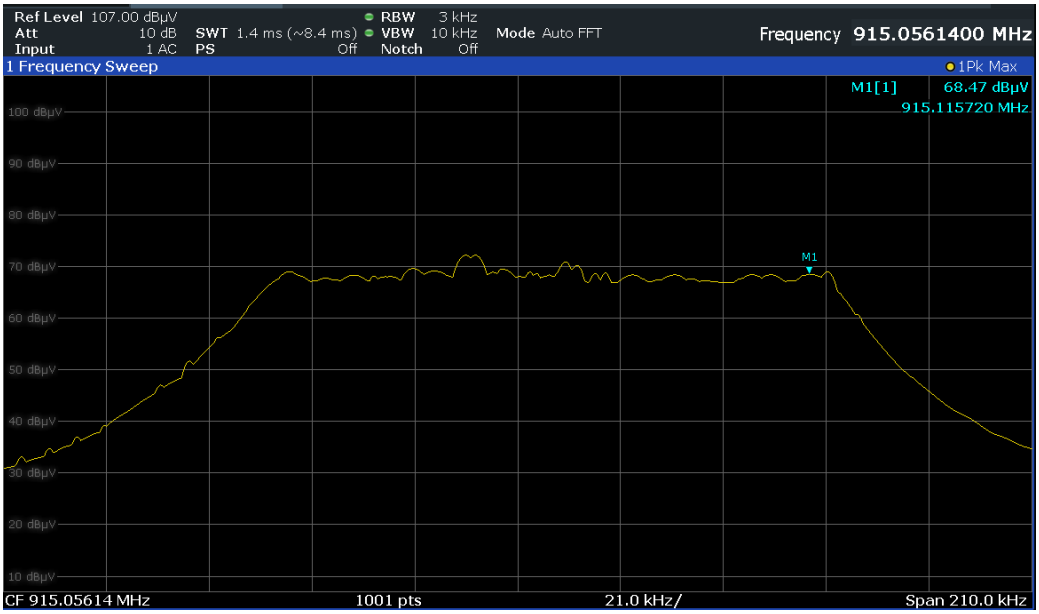
Blank cells = Permanent validity

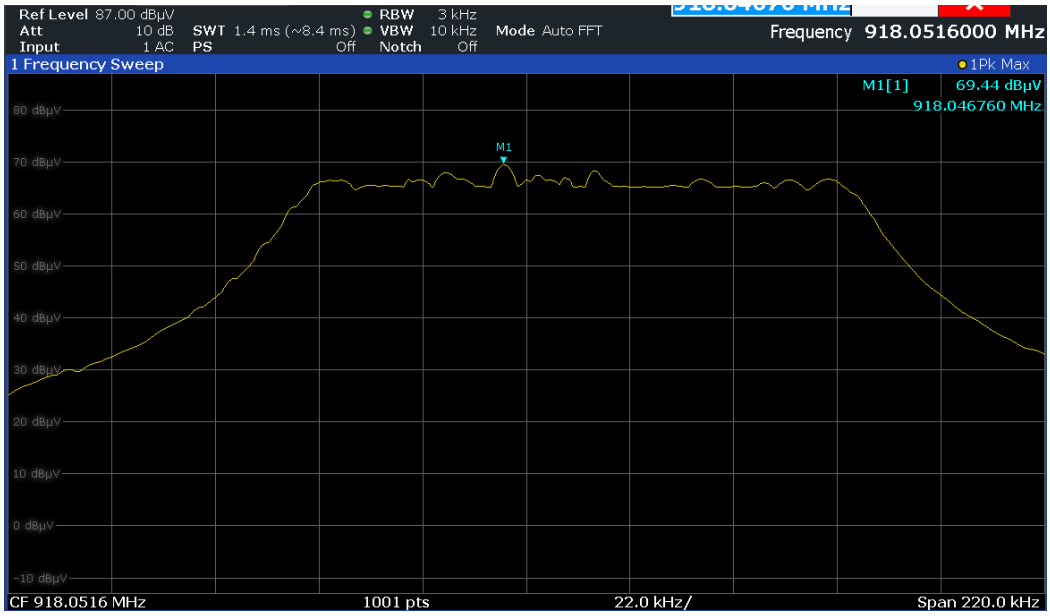
Frequency	Electro-magnetic field (dBµV/m)	TP* (dBm)	Limit (dBm)
915.062 MHz	96.06	- 1.3	+ 8.0
918.062 MHz	97.05	- 0.3	+ 8.0
919.187 MHz	98.63	+ 1.3	+ 8.0

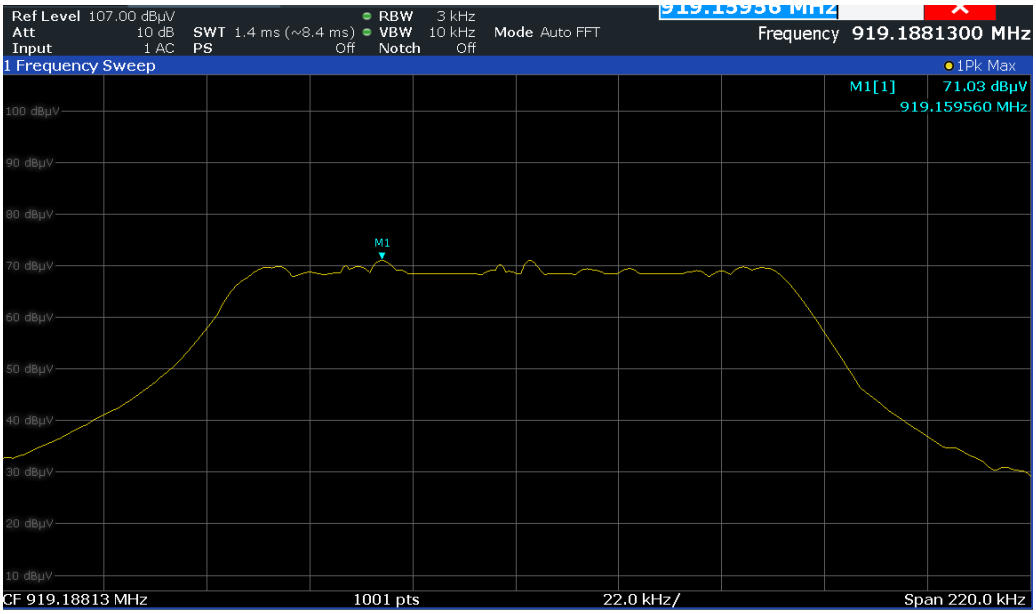
* TP = $(E \times d)^2 / (30 \times 1.64)$ for d = 3 m

E.U.T. position:




Ref Level 107.00 dBµV
Att 10 dB
Input 1 AC
SWT 1.4 ms (~8.4 ms)
RBW 3 kHz
VBW 10 kHz
PS Off
Notch Off
Mode Auto FFT
Frequency 915.0561400 MHz
1 Frequency Sweep
1Pk Max
M1[1] 68.47 dBµV
915.115720 MHz
100 dBµV
90 dBµV
80 dBµV
70 dBµV
60 dBµV
50 dBµV
40 dBµV
30 dBµV
20 dBµV
10 dBµV
M1
CF 915.05614 MHz
1001 pts
21.0 kHz/
Span 210.0 kHz


Ref Level 87.00 dBµV
Att 10 dB
Input 1 AC
SWT 1.4 ms (~8.4 ms)
RBW 3 kHz
VBW 10 kHz
PS Off
Notch Off
Mode Auto FFT
Frequency 918.0516000 MHz
1 Frequency Sweep
1Pk Max
M1[1] 69.44 dBµV
918.046760 MHz
80 dBµV
70 dBµV
60 dBµV
50 dBµV
40 dBµV
30 dBµV
20 dBµV
10 dBµV
0 dBµV
-10 dBµV
M1
CF 918.0516 MHz
1001 pts
22.0 kHz/
Span 220.0 kHz


Ref Level 107.00 dBµV
Att 10 dB
Input 1 AC
SWT 1.4 ms (~8.4 ms)
RBW 3 kHz
VBW 10 kHz
PS Off
Notch Off
Mode Auto FFT
Frequency 919.1881300 MHz
1 Frequency Sweep
1Pk Max
M1[1] 71.03 dBµV
919.159560 MHz
100 dBµV
90 dBµV
80 dBµV
70 dBµV
60 dBµV
50 dBµV
40 dBµV
30 dBµV
20 dBµV
10 dBµV
M1
CF 919.18813 MHz
1001 pts
22.0 kHz/
Span 220.0 kHz

6.8. Additional provisions to the general radiated emissions limitation

Reference standard:	FCC 47 CFR PART 15 : 2023 RSS-247 Issue 2 : 2017
Test method:	§ 15.215 b) and § 15.247 d) of FCC 47 CFR PART 15 : 2023 § 5.5 of RSS-247 Issue 2 : 2017
General test setup: E.U.T. is set on an insulating support at 80 cm above the ground reference plane. Measurement are done on a normalized test site by the substitution method. The test antenna is oriented in the two polarizations (vertical and horizontal), and the product is rotated at 360° in the horizontal plane (See photo(s) for initial position of the EUT(0°)). If applicable the test antenna was raised and lowered through the specified range of height until a maximum signal level is detected. For portable equipements a research of maximum level is done on the 3 axes. Only the highest levels are recorded.	

LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	10 to 40 °C	22°C
Relative Humidity	10 to 90 %	45 %
Atmospheric pressure	N/A	N/A
Test method deviation: No		
Supplementary information: -		

TEST EQUIPMENT USED

Order Nr	Category	Manufacturer	Type	Last validity date	Next validity date
00294	Antenna	Rohde & Schwarz	HL223	05/05/2023	05/07/2026
11184	Cable	C&C	N-5M	22/06/2023	22/08/2024
17269	Cable	Huber + Suhner	N-6M	29/08/2022	29/10/2024
06089	Receiver	Rohde & Schwarz	ESIB26	15/11/2022	15/01/2025
14622	Shielded enclosure	Comtest	SAC 3M	27/04/2022	27/06/2025

Blank cells = Permanent validity

Band Edge measurement :

Polarization of test antenna: Vertical (height = 100 cm)
Position of equipment: azimuth = 80° } For 915.62 MHz

Polarization of test antenna: Vertical (height = 100 cm)
Position of equipment: azimuth = 80° } For 918.062 MHz

Polarization of test antenna: Vertical (height = 100 cm)
Position of equipment: azimuth = 80° } For 919.187 MHz

Frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Calculated Max Out of Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
915.062	102.52	Peak	①	-	54.0	-
918.062	100.72	Peak	①	-		-
919.187	104.07	Peak	①	-		-

① : No frequencies were observed above the measurement noise.

6.9. Unintentional radiated emissions and transmitter unwanted emission in the band 9 kHz – 10 GHz

Reference standard:	FCC 47 CFR PART 15 : 2023 RSS-Gen_Issue 5 : 2018 / AMD1: 2019 / AMD2: 2021
Test method:	§ 15.205; § 15.209 and § 15.247 of FCC 47 CFR PART 15 : 2023 § 6.13 of RSS-Gen_Issue 5 : 2018 / AMD1: 2019 / AMD2: 2021
General test setup: E.U.T. is set on an insulating support at 0.8 m (<1GHz) and 1.5 m (>1GHz) above the ground reference plane. For maximum meter reading at each frequency, the antenna height is adjusted between 1 m and 4 m above the ground plane for 9 kHz - 10 GHz. A 360 degrees rotation of the EUT is performed in vertical and horizontal polarization.	

TESTED CONFIGURATION	PARAMETER	VERDICT
Maxhold 360° - Tx 915.062 MHz	9kHz-30MHz	**PASS**
Maxhold 360° - Tx 918.062 MHz	9kHz-30MHz	**PASS**
Maxhold 360° - Tx 919.187 MHz	9kHz-30MHz	**PASS**
Maxhold 360° - Tx 915.062 MHz	30MHz-1GHz	**PASS**
Maxhold 360° - Tx 918.062 MHz	30MHz-1GHz	**PASS**
Maxhold 360° - Tx 919.187 MHz	30MHz-1GHz	**PASS**
Maxhold 360° - Tx 915.062 MHz	1GHz-10GHz	**PASS**
Maxhold 360° - Tx 918.062 MHz	1GHz-10GHz	**PASS**
Maxhold 360° - Tx 919.187 MHz	1GHz-10GHz	**PASS**

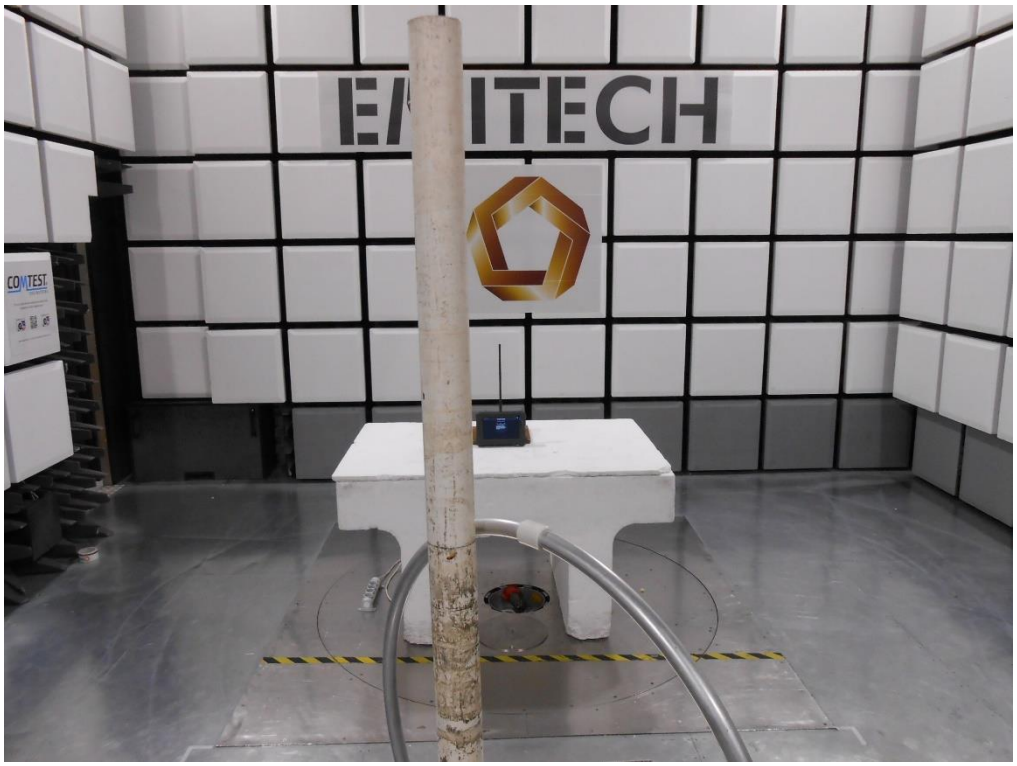
LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	10 to 40 °C	23°C
Relative Humidity	10 to 90 %	37%
Atmospheric pressure	N/A	N/A
Test method deviation: No		
Supplementary information: -		

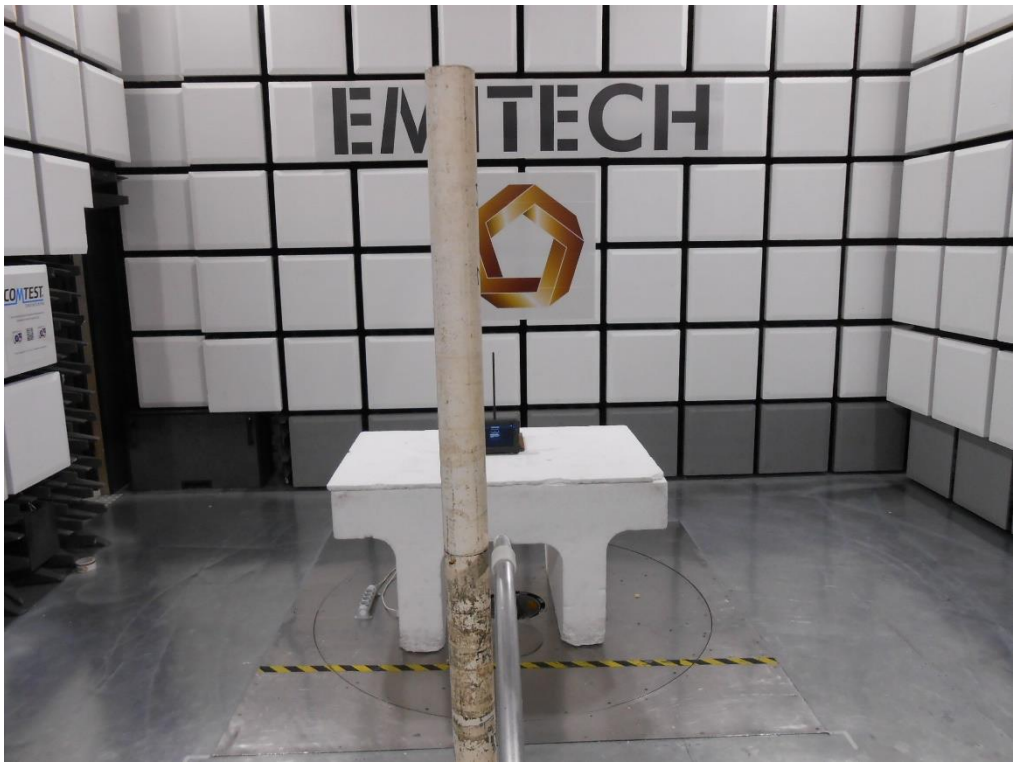
TEST EQUIPMENT USED					
CATEGORY	**BRAND**	**TYPE**	**IDENTIFIER**	**CAL. DATE**	**CAL. DUE**
Amplifier	Mini-Circuit	ZFL-1000LN	00364	15/02/2023	15/04/2024
Amplifier	Agilent	8449B	14487	12/09/2023	12/11/2024
Antenna	Rohde & Schwarz	HL223	00294	05/05/2023	05/07/2026
Antenna	Rohde & Schwarz	HK116	00293	30/09/2021	30/11/2024
Antenna	Eaton	96009/2	04713	22/02/2023	22/04/2025
Antenna	Emco	3115	00941	01/03/2022	01/05/2025
Cable	C&C	N-5M	11184	22/06/2023	22/08/2024
Cable	C&C	N-4M	14226	26/06/2023	26/08/2024
Cable	Câbles Et Connectiques	N-2M	02451	29/08/2022	29/10/2024
Cable	Huber + Suhner	N-6M	17269	29/08/2022	29/10/2024
Filter	Trilithic	6HC1300-2.5-KK	01097	13/06/2022	13/08/2025
Receiver	Rohde & Schwarz	ESIB26	06089	15/11/2022	15/01/2025
Receiver	Rohde & Schwarz	ESW44	17058	15/06/2023	15/08/2024
Shielded enclosure	Comtest	SAC 3M	14622	27/04/2022	27/06/2025
Software	Nexio	BAT EMC	00000		

BAT-EMC software version: V3.18.0.26
Blank cells = Permanent validity

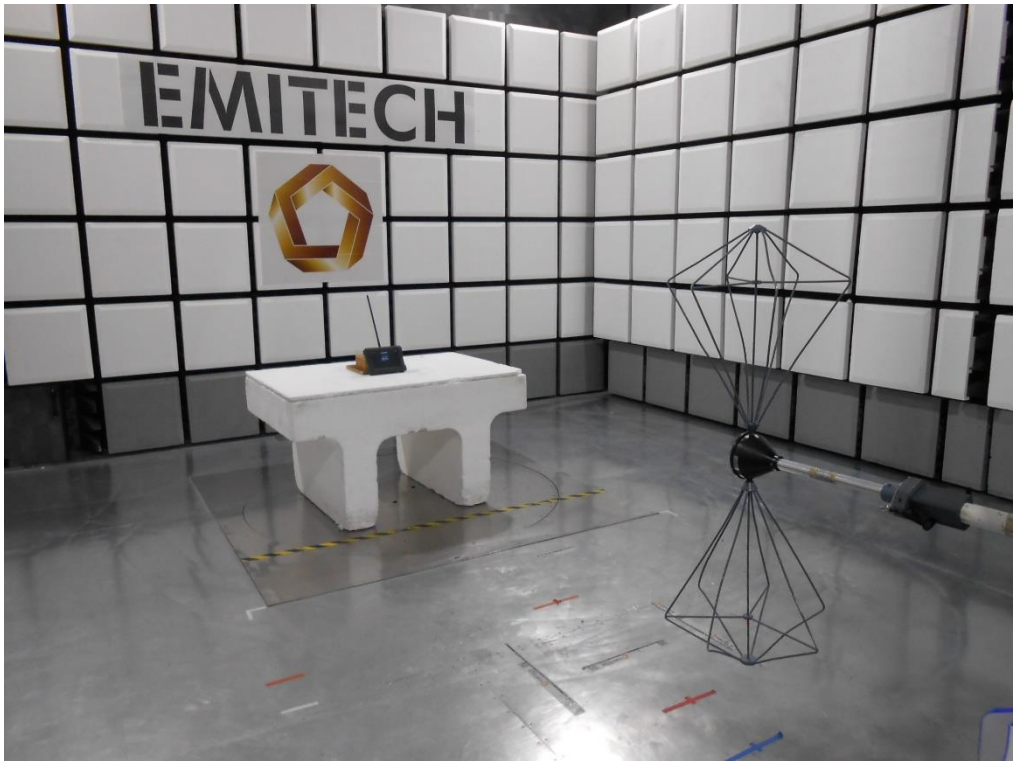
TEST SETUP PHOTOS
9 KHZ – 30 MHZ

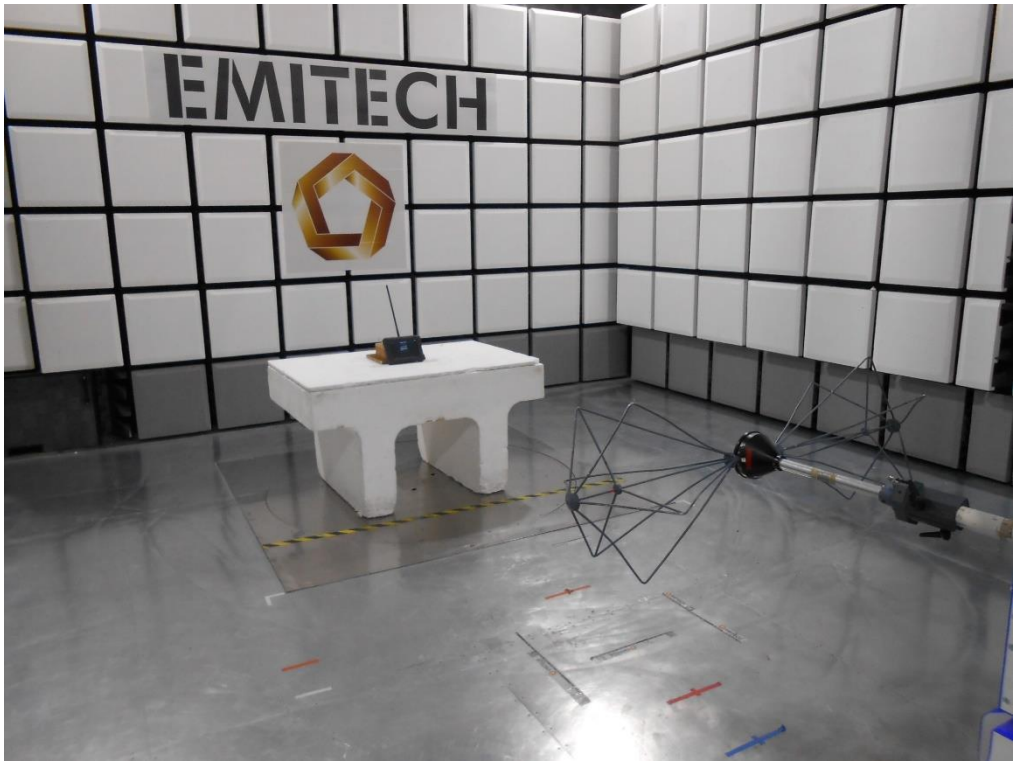
TEST SETUP PHOTOS
9 KHZ – 30 MHZ



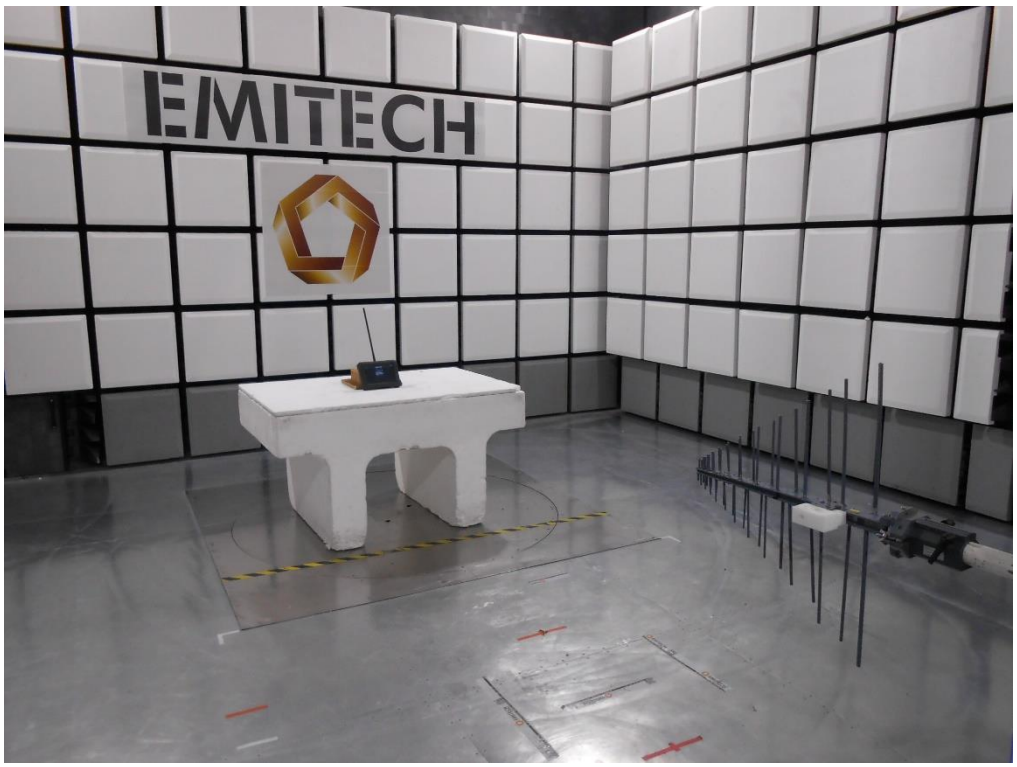


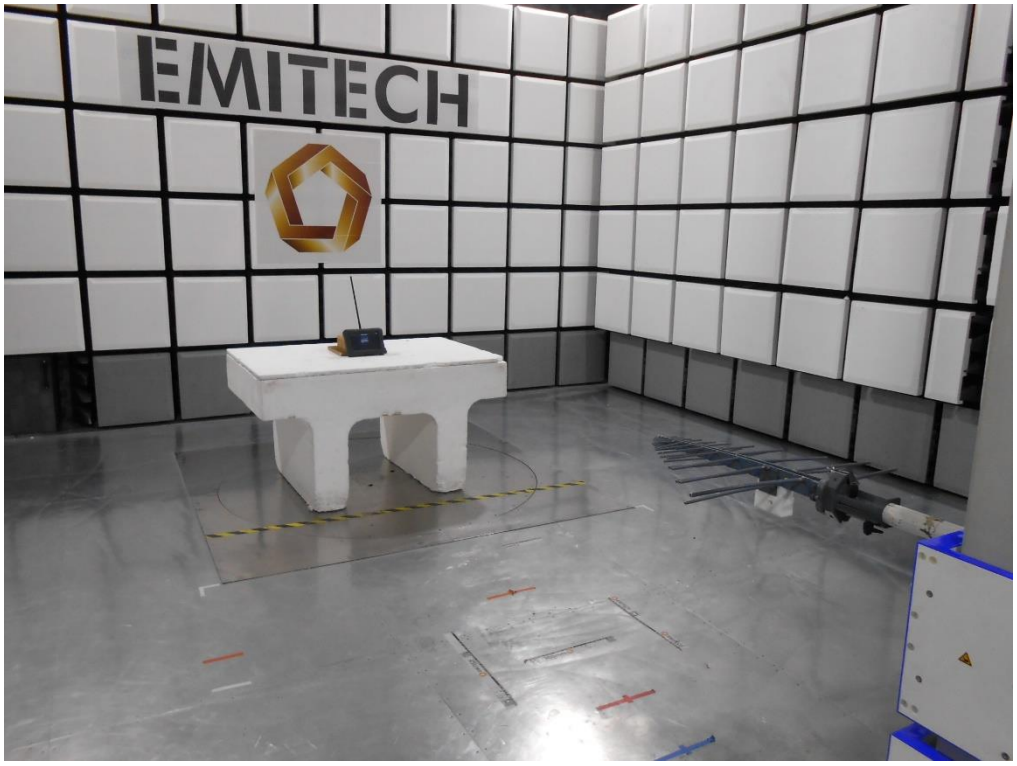
TEST SETUP PHOTOS
30 MHz – 1 GHz



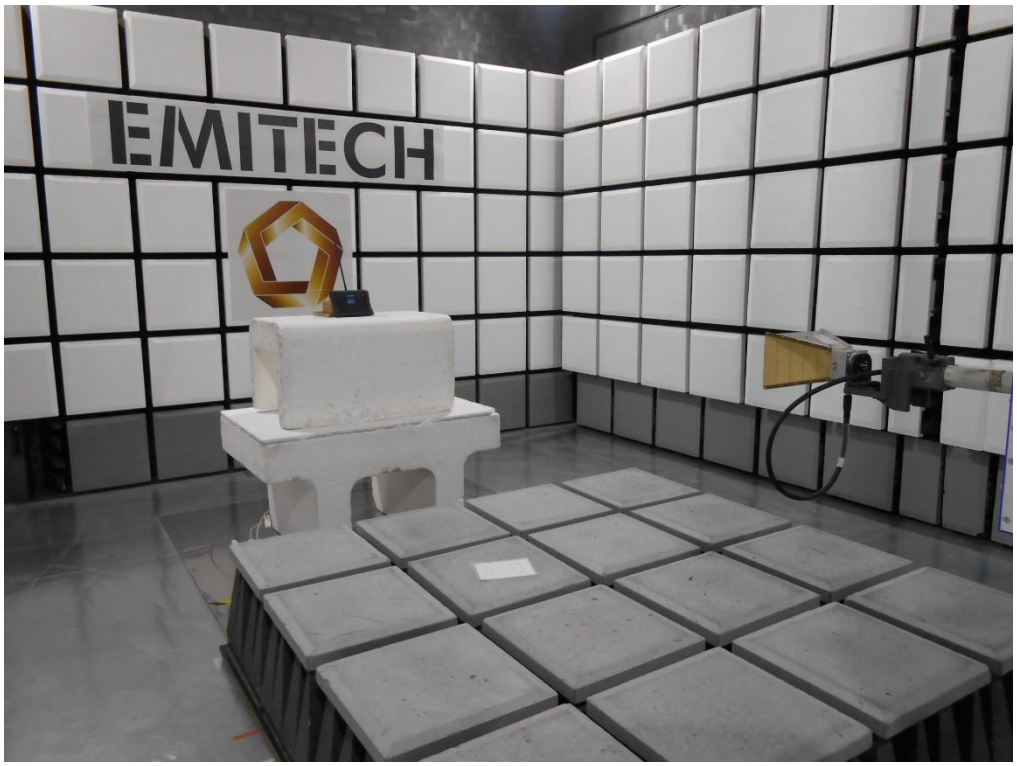


TEST SETUP PHOTOS
30 MHz – 1 GHz

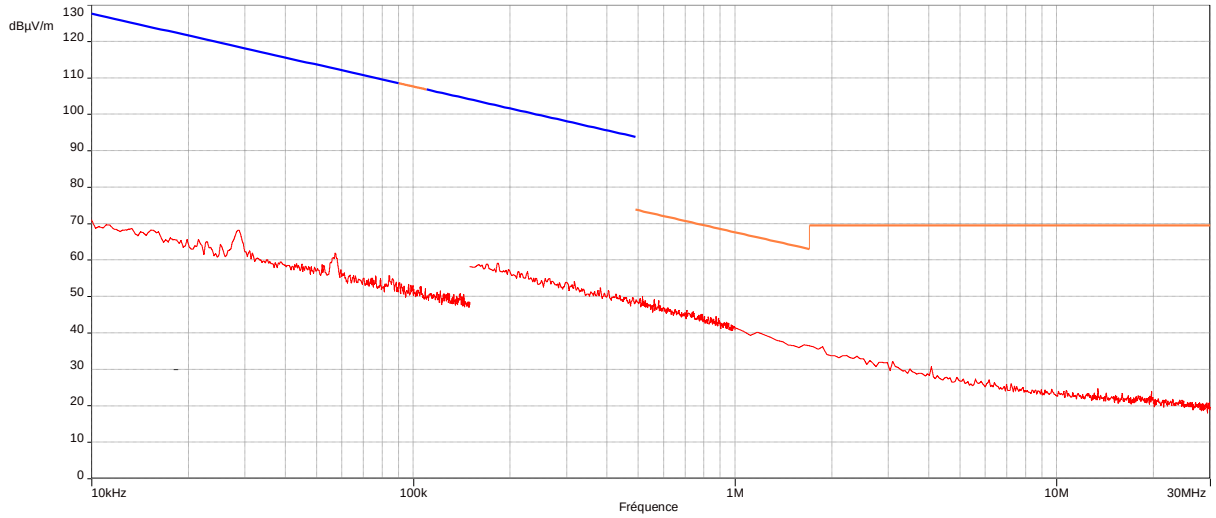




TEST SETUP PHOTOS
1 GHz – 10 GHz



UNINTENTIONAL RADIATED EMISSIONS AND TRANSMITTER UNWANTED EMISSION - GRAPH	
MAXHOLD 360° - PARALLEL ANTENNA	
EUT mode: Tx 915.062 MHz	Red: Peak detection
	Orange: Quasi-Peak limit
	Blue: Average value limit

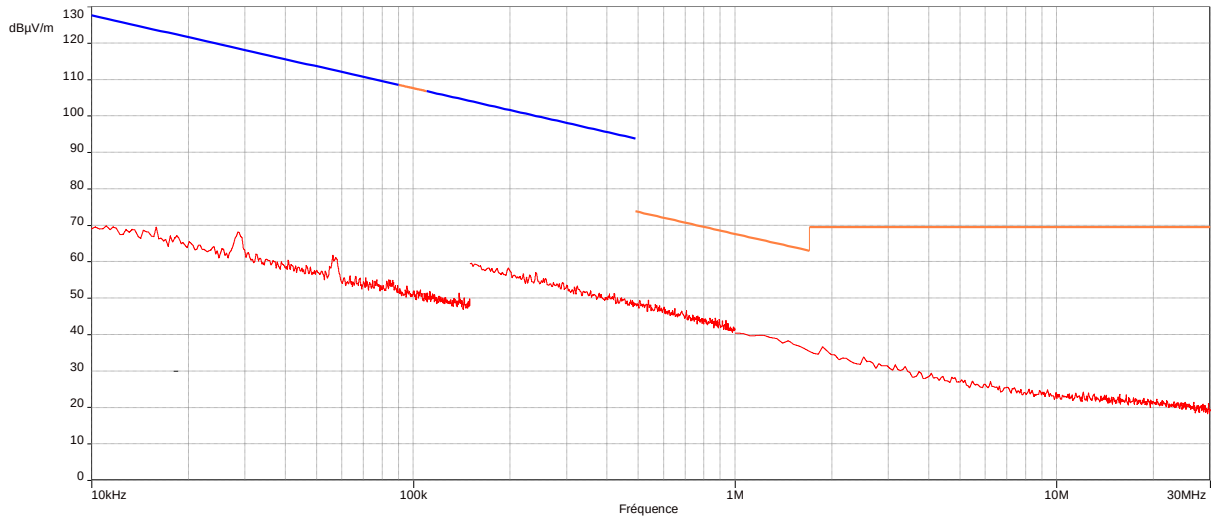


FREQUENCIES	RBW	VBW	DETECTOR
9kHz-150kHz	1kHz	3kHz	Peak
150kHz-1MHz	10kHz	30kHz	Peak
1MHz-30MHz	10kHz	30kHz	Peak

Configuration:	-
Comments:	On the 3 orientations of the measuring antenna, the same levels are observed. Only the “Parallel Antenna” curve is drawn.

EUT modification: -

UNINTENTIONAL RADIATED EMISSIONS AND TRANSMITTER UNWANTED EMISSION - GRAPH	
MAXHOLD 360° - PARALLEL ANTENNA	
EUT mode: Tx 918.062 MHz	Red: Peak detection
	Orange: Quasi-Peak limit
	Blue: Average value limit

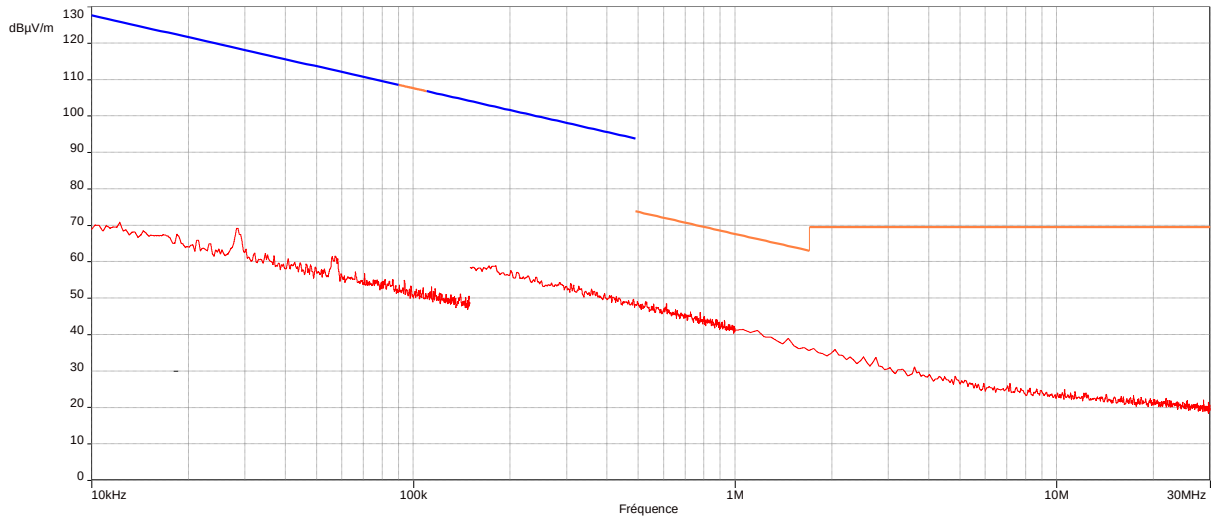


FREQUENCIES	RBW	VBW	DETECTOR
9kHz-150kHz	1kHz	3kHz	Peak
150kHz-1MHz	10kHz	30kHz	Peak
1MHz-30MHz	10kHz	30kHz	Peak

Configuration:	-
Comments:	On the 3 orientations of the measuring antenna, the same levels are observed. Only the “Parallel Antenna” curve is drawn.

EUT modification: -

UNINTENTIONAL RADIATED EMISSIONS AND TRANSMITTER UNWANTED EMISSION - GRAPH	
MAXHOLD 360° - PARALLEL ANTENNA	
EUT mode: Tx 919.187 MHz	Red: Peak detection
	Orange: Quasi-Peak limit
	Blue: Average value limit

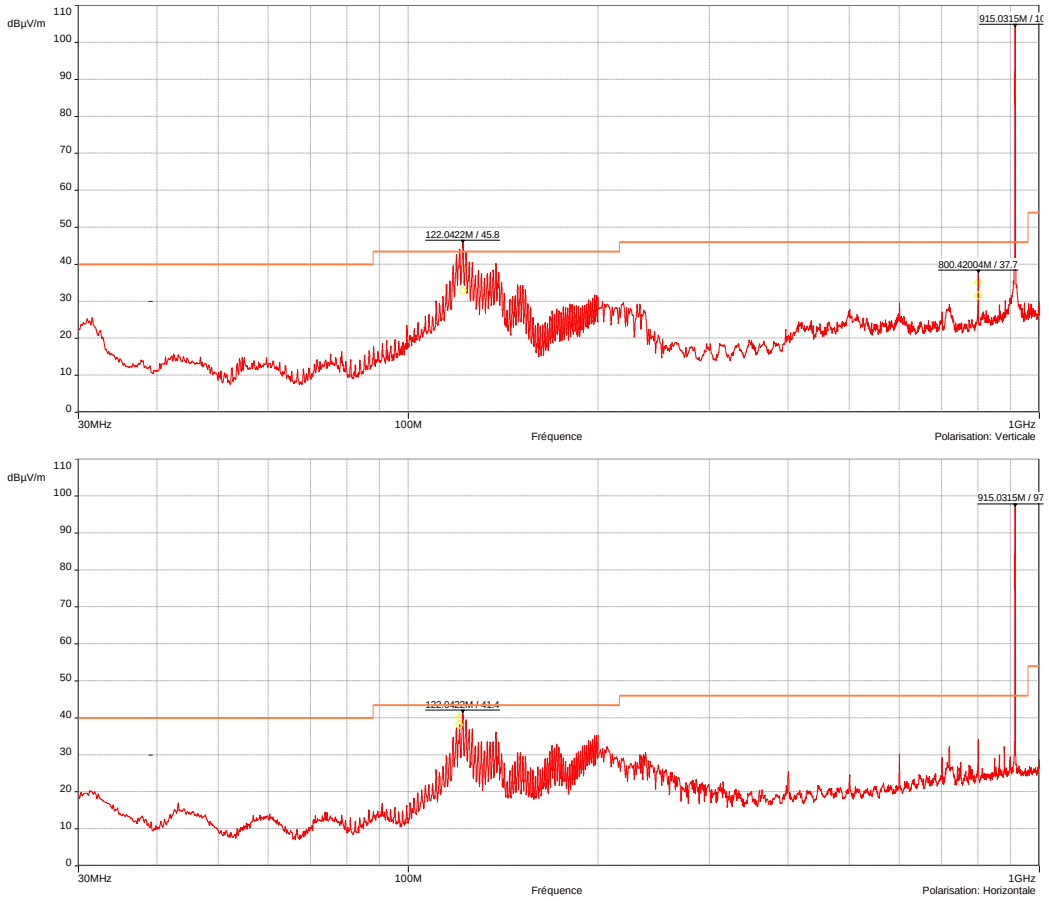


FREQUENCIES	RBW	VBW	DETECTOR
9kHz-150kHz	1kHz	3kHz	Peak
150kHz-1MHz	10kHz	30kHz	Peak
1MHz-30MHz	10kHz	30kHz	Peak

Configuration:	-
Comments:	On the 3 orientations of the measuring antenna, the same levels are observed. Only the “Parallel Antenna” curve is drawn.

EUT modification: -

UNINTENTIONAL RADIATED EMISSIONS AND TRANSMITTER UNWANTED EMISSION - GRAPH	
MAXHOLD 360°	
EUT mode: Tx 915.062 MHz	Red: Peak detection
	Orange: Quasi-Peak limit
	Blue: -



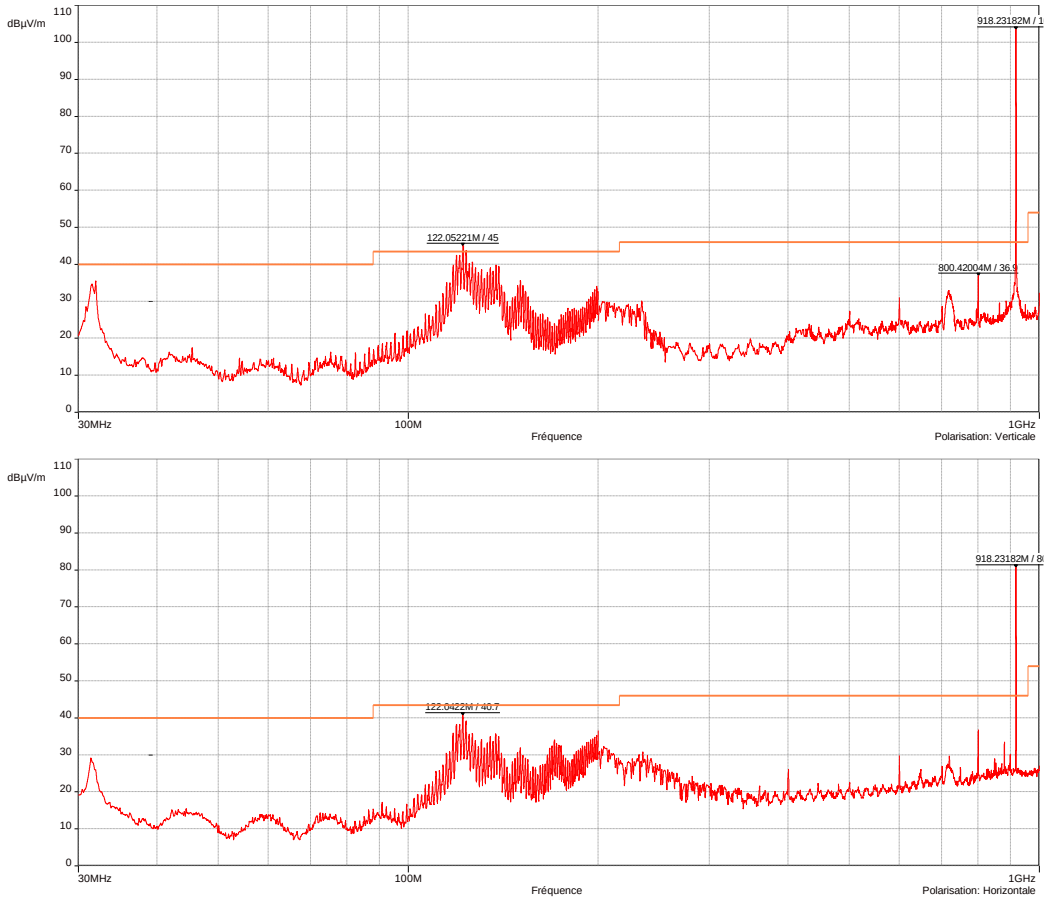
FREQUENCIES	RBW	VBW	DETECTOR
30MHz-100MHz	100kHz	300kHz	Peak
100MHz-200MHz	100kHz	300kHz	Peak
200MHz-600MHz	100kHz	300kHz	Peak
600MHz-1GHz	100kHz	300kHz	Peak

Configuration:	-
Comments:	The peak frequency at 915 MHz is the carrier frequency.
EUT modification: -	

Frequency (GHz)	Height (cm)	Polarization (H or V)	Azimuth (°)	Electro-magnetic field (dBµV/m)	Limit (dBµV/m)	Margin (dB)
120.269	100	H	270	38.2	43.5	5.3
121.902	100	V	180	32.9	43.5	10.6
800.020	250	V	300	31.6	46.0	14.4

H : Horizontal – V : Vertical

UNINTENTIONAL RADIATED EMISSIONS AND TRANSMITTER UNWANTED EMISSION - GRAPH	
MAXHOLD 360°	
EUT mode: Tx 918.062 MHz	Red: Peak detection
	Orange: Quasi-Peak limit
	Blue: -



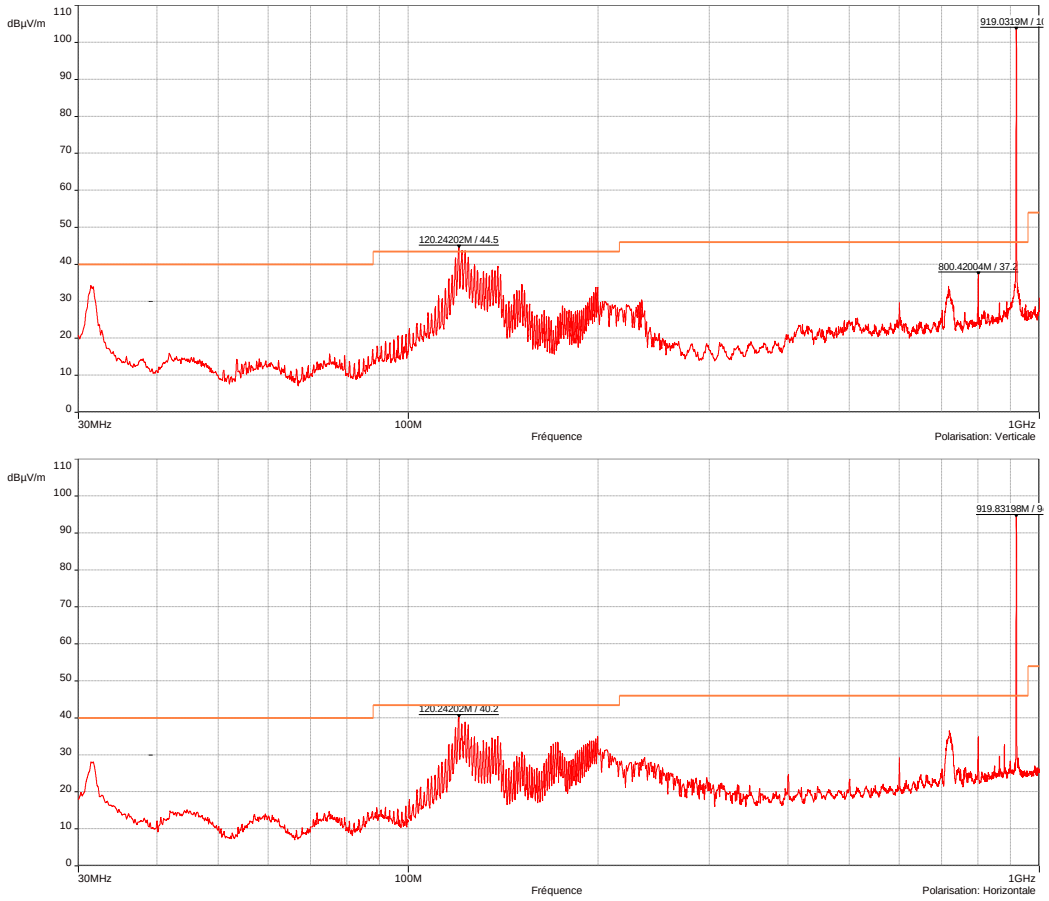
FREQUENCIES	RBW	VBW	DETECTOR
30MHz-100MHz	100kHz	300kHz	Peak
100MHz-200MHz	100kHz	300kHz	Peak
200MHz-600MHz	100kHz	300kHz	Peak
600MHz-1GHz	100kHz	300kHz	Peak

Configuration:	-
Comments:	The peak frequency at 918 MHz is the carrier frequency.
EUT modification: -	

Frequency (GHz)	Height (cm)	Polarization (H or V)	Azimuth (°)	Electro-magnetic field (dBµV/m)	Limit (dBµV/m)	Margin (dB)
120.269	100	H	270	38.2	43.5	5.3
121.902	100	V	180	32.9	43.5	10.6
800.020	250	V	300	31.6	46.0	14.4

H : Horizontal – V : Vertical

UNINTENTIONAL RADIATED EMISSIONS AND TRANSMITTER UNWANTED EMISSION - GRAPH	
MAXHOLD 360°	
EUT mode: Tx 919.187 MHz	Red: Peak detection
	Orange: Quasi-Peak limit
	Blue: -



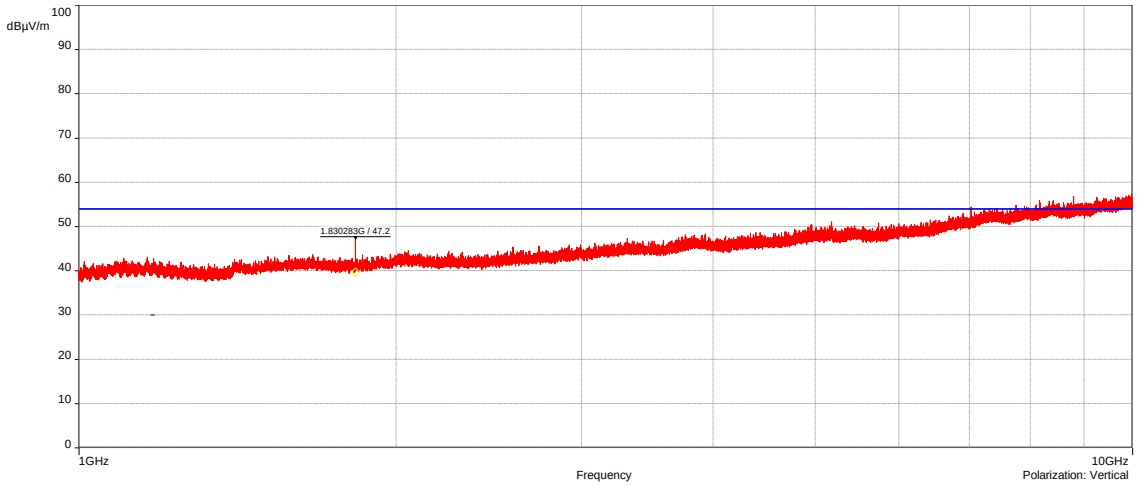
FREQUENCIES	RBW	VBW	DETECTOR
30MHz-100MHz	100kHz	300kHz	Peak
100MHz-200MHz	100kHz	300kHz	Peak
200MHz-600MHz	100kHz	300kHz	Peak
600MHz-1GHz	100kHz	300kHz	Peak

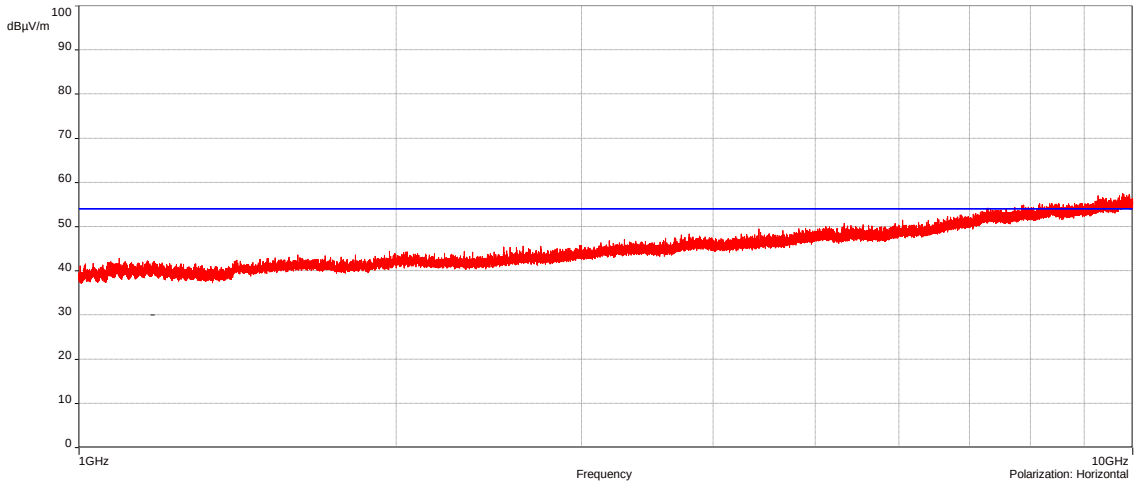
Configuration:	-
Comments:	The peak frequency at 919 MHz is the carrier frequency.
EUT modification: -	

Frequency (GHz)	Height (cm)	Polarization (H or V)	Azimuth (°)	Electro-magnetic field (dBµV/m)	Limit (dBµV/m)	Margin (dB)
120.269	100	H	270	38.2	43.5	5.3
121.902	100	V	180	32.9	43.5	10.6
800.020	250	V	300	31.6	46.0	14.4

H : Horizontal – V : Vertical

UNINTENTIONAL RADIATED EMISSIONS AND TRANSMITTER UNWANTED EMISSION - GRAPH	
MAXHOLD 360°	
EUT mode: Tx 915.062 MHz	Red: Peak detection / Limit
	Orange: -
	Blue: Average value limit





FREQUENCIES	RBW	VBW	DETECTOR
1GHz-1.4GHz	1MHz	3MHz	Peak
1.4GHz-6GHz	1MHz	3MHz	Peak
6GHz-10GHz	1MHz	3MHz	Peak

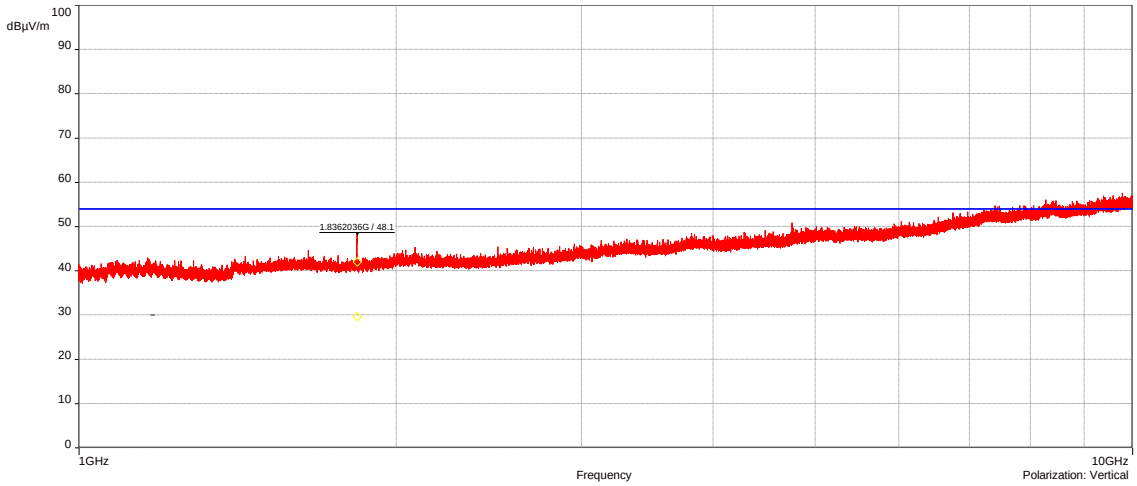
Configuration:	-
Comments:	A manual measurement was carried out in the 6 to 10 GHz to confirm that there is no frequency linked to the product.

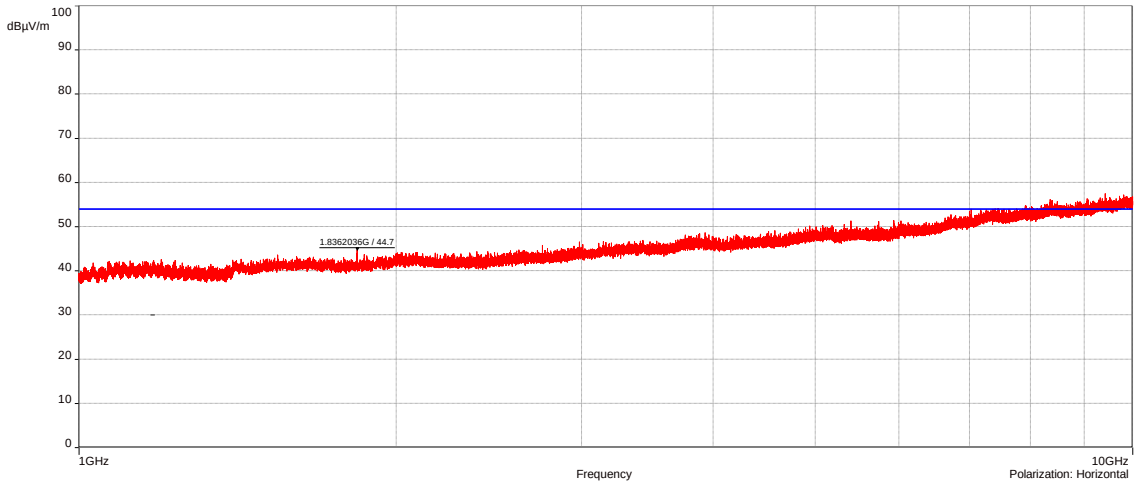
EUT modification: -

Frequency (GHz)	Height (cm)	Polarization (H or V)	Azimuth (°)	Electro-magnetic field (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1830.00	150	V	140	39.7	54.0	14.3

H : Horizontal – V : Vertical

UNINTENTIONAL RADIATED EMISSIONS AND TRANSMITTER UNWANTED EMISSION - GRAPH	
MAXHOLD 360°	
EUT mode: Tx 918.062 MHz	Red: Peak detection / Limit
	Orange: -
	Blue: Average value limit





FREQUENCIES	RBW	VBW	DETECTOR
1GHz-1.4GHz	1MHz	3MHz	Peak
1.4GHz-6GHz	1MHz	3MHz	Peak
6GHz-10GHz	1MHz	3MHz	Peak

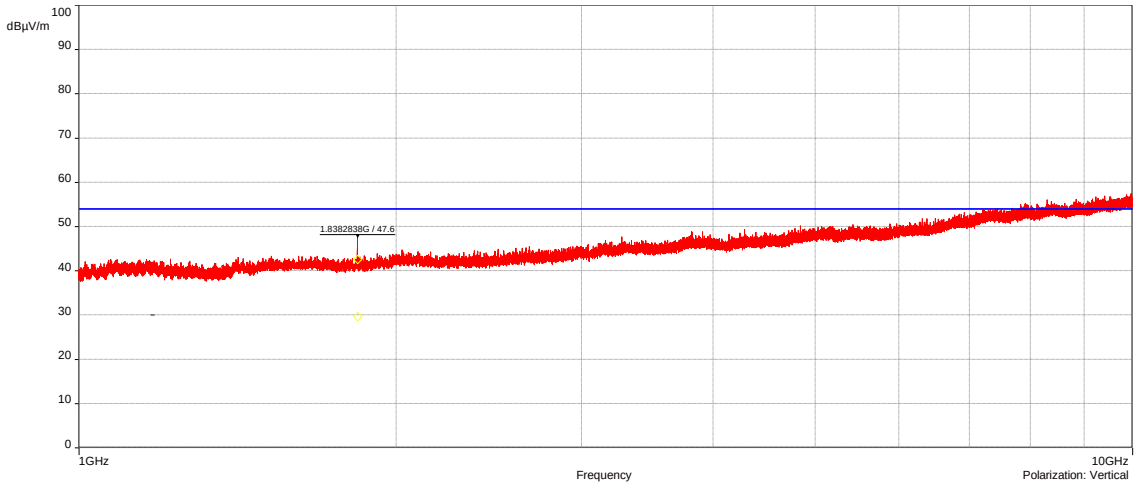
Configuration:	-
Comments:	A manual measurement was carried out in the 6 to 10 GHz to confirm that there is no frequency linked to the product.

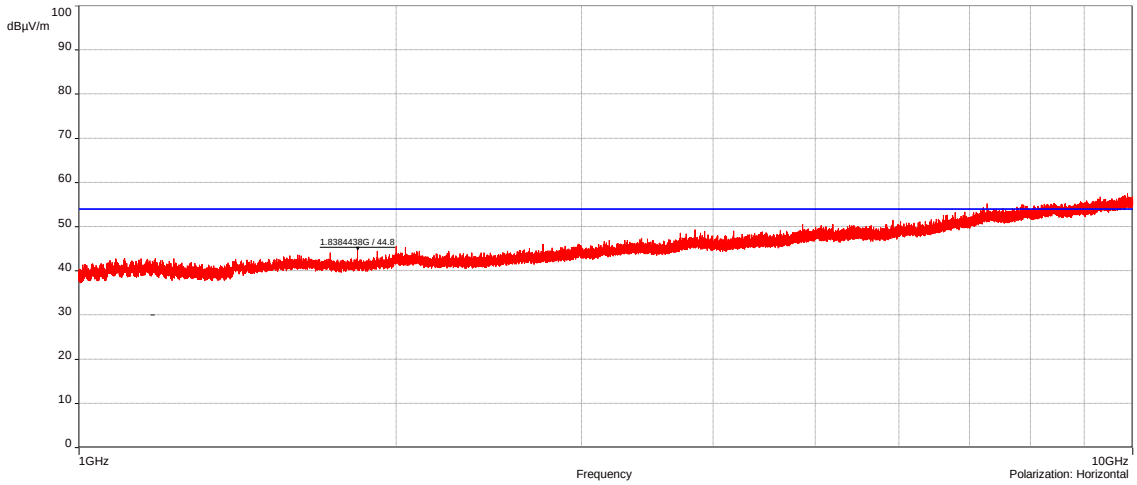
EUT modification: -

Frequency (GHz)	Height (cm)	Polarization (H or V)	Azimuth (°)	Electro-magnetic field (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1836.15	150	V	140	29.6	54.0	24.4

H : Horizontal – V : Vertical

UNINTENTIONAL RADIATED EMISSIONS AND TRANSMITTER UNWANTED EMISSION - GRAPH	
MAXHOLD 360°	
EUT mode: Tx 919.187 MHz	Red: Peak detection / Limit
	Orange: -
	Blue: Average value limit





FREQUENCIES	RBW	VBW	DETECTOR
1GHz-1.4GHz	1MHz	3MHz	Peak
1.4GHz-6GHz	1MHz	3MHz	Peak
6GHz-10GHz	1MHz	3MHz	Peak

Configuration:	-
Comments:	A manual measurement was carried out in the 6 to 10 GHz to confirm that there is no frequency linked to the product.

EUT modification: -

Frequency (GHz)	Height (cm)	Polarization (H or V)	Azimuth (°)	Electro-magnetic field (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1838.37	150	V	230	29.6	54.0	24.4

H : Horizontal – V : Vertical

6.10. Unintentional radiated emissions in the band 30 MHz – 5 GHz

Reference standard:	FCC 47 CFR PART 15 : 2023 RSS-Gen_Issue 5 : 2018 / AMD1: 2019 / AMD2: 2021
Test method:	§ 15.109 of FCC 47 CFR PART 15 : 2023 § 6.13 of RSS-Gen_Issue 5 : 2018 / AMD1: 2019 / AMD2: 2021
General test setup: E.U.T. is set on an insulating support at 0.8 m (<1GHz) and 1.5 m (>1GHz) above the ground reference plane. For maximum meter reading at each frequency, the antenna height is adjusted between 1 m and 4 m above the ground plane for 30 MHz - 5 GHz. A 360 degrees rotation of the EUT is performed in vertical and horizontal polarization.	

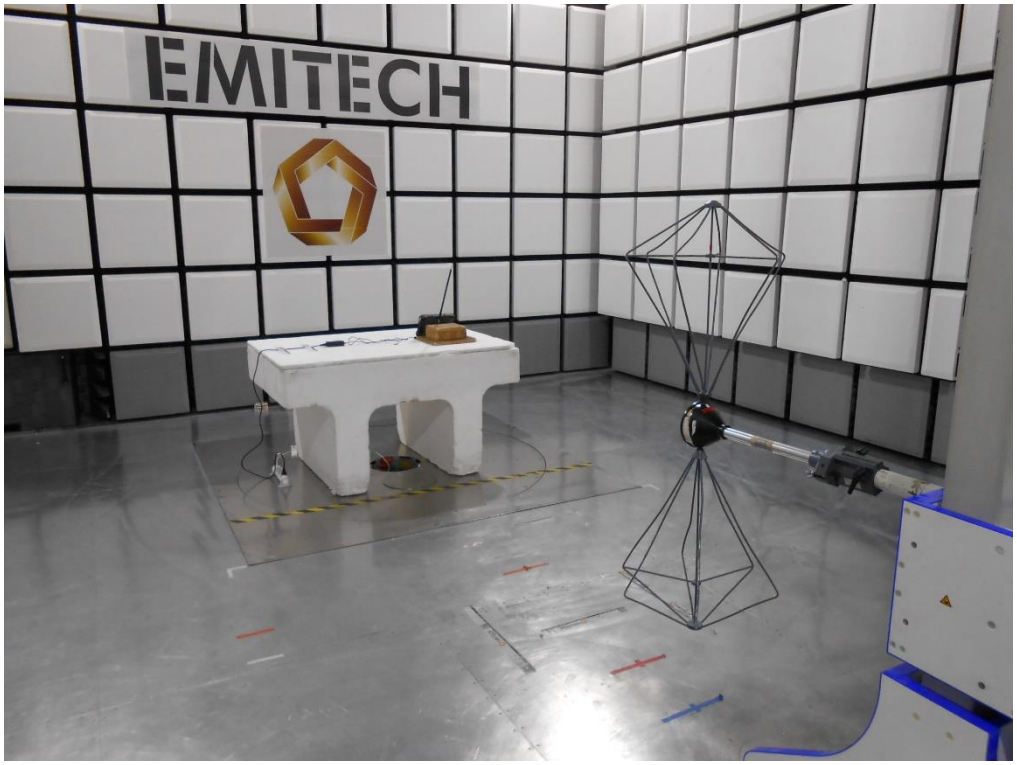
TESTED CONFIGURATION	PARAMETER	VERDICT
Maxhold 360° - Radio OFF	30MHz-1GHz	**PASS**
Maxhold 360° - RADIO OFF	1GHz-5GHz	**PASS**

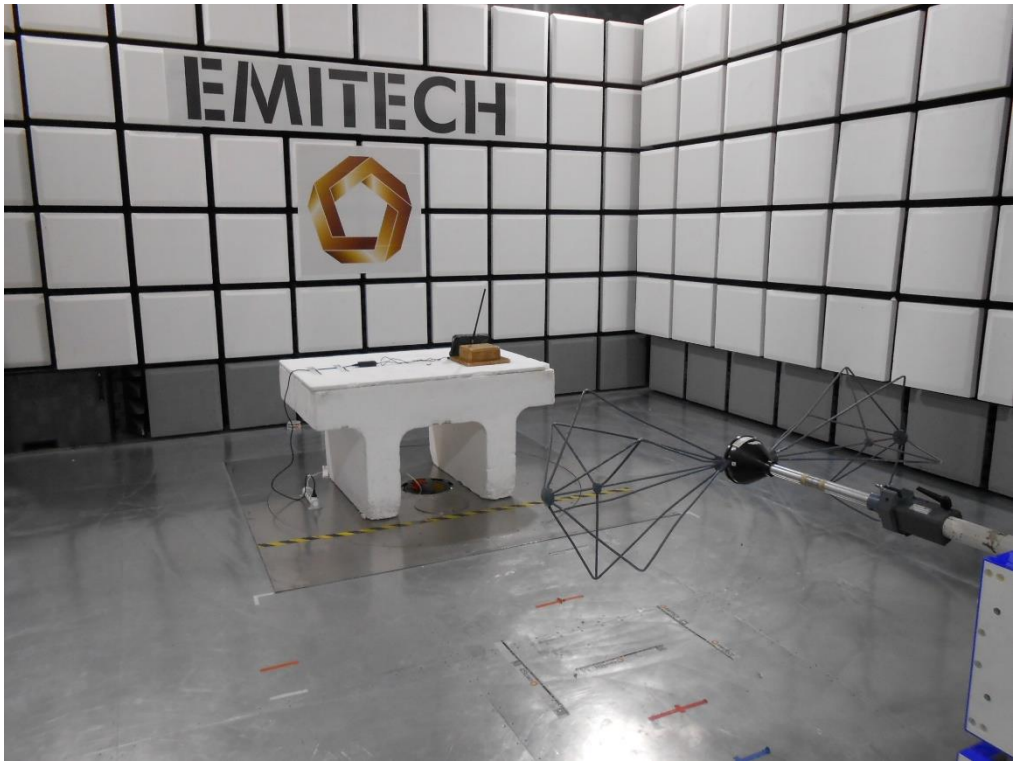
LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	10 to 40 °C	23°C
Relative Humidity	10 to 90 %	37 %
Atmospheric pressure	N/A	N/A
Test method deviation: No		
Supplementary information: The radio part is non-functional during the charging.		

TEST EQUIPMENT USED					
CATEGORY	**BRAND**	**TYPE**	**IDENTIFIER**	**CAL. DATE**	**CAL. DUE**
Amplifier	Mini-Circuit	ZFL-1000LN	00364	15/02/2023	15/04/2024
Amplifier	Agilent	8449B	14487	12/09/2023	12/11/2024
Antenna	Rohde & Schwarz	HL223	00294	05/05/2023	05/07/2026
Antenna	Rohde & Schwarz	HK116	00293	30/09/2021	30/11/2024
Antenna	Emco	3115	00941	01/03/2022	01/05/2025
Cable	C&C	N-5M	11184	22/06/2023	22/08/2024
Cable	C&C	N-4M	14226	26/06/2023	26/08/2024
Cable	Câbles et connectiques	N-2M	02451	29/08/2022	29/10/2024
Cable	Huber + Suhner	N-6M	17269	29/08/2022	29/10/2024
Receiver	Rohde & Schwarz	ESIB26	06089	15/11/2022	15/01/2025
Receiver	Rohde & Schwarz	ESW44	17058	15/06/2023	15/08/2024
Shielded enclosure	Comtest	SAC 3M	14622	27/04/2022	27/06/2025
Software	Nexio	BAT EMC	00000		

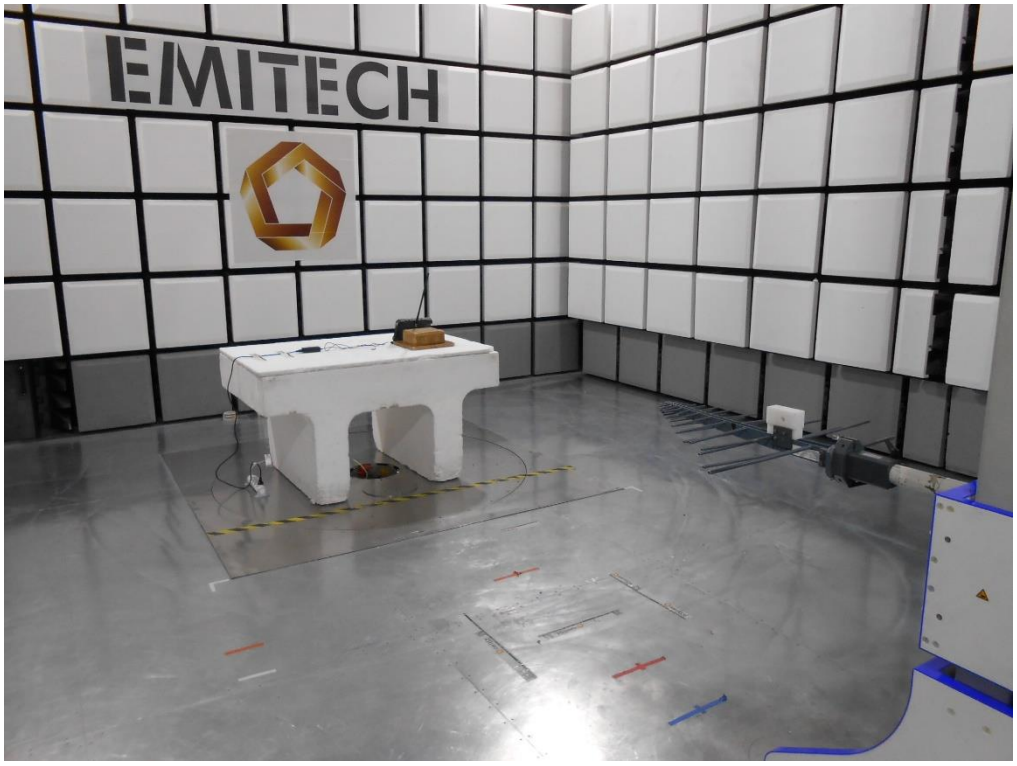
BAT-EMC software version: V3.18.0.26
Blank cells = Permanent validity

TEST SETUP PHOTOS
30 MHz – 1 GHz

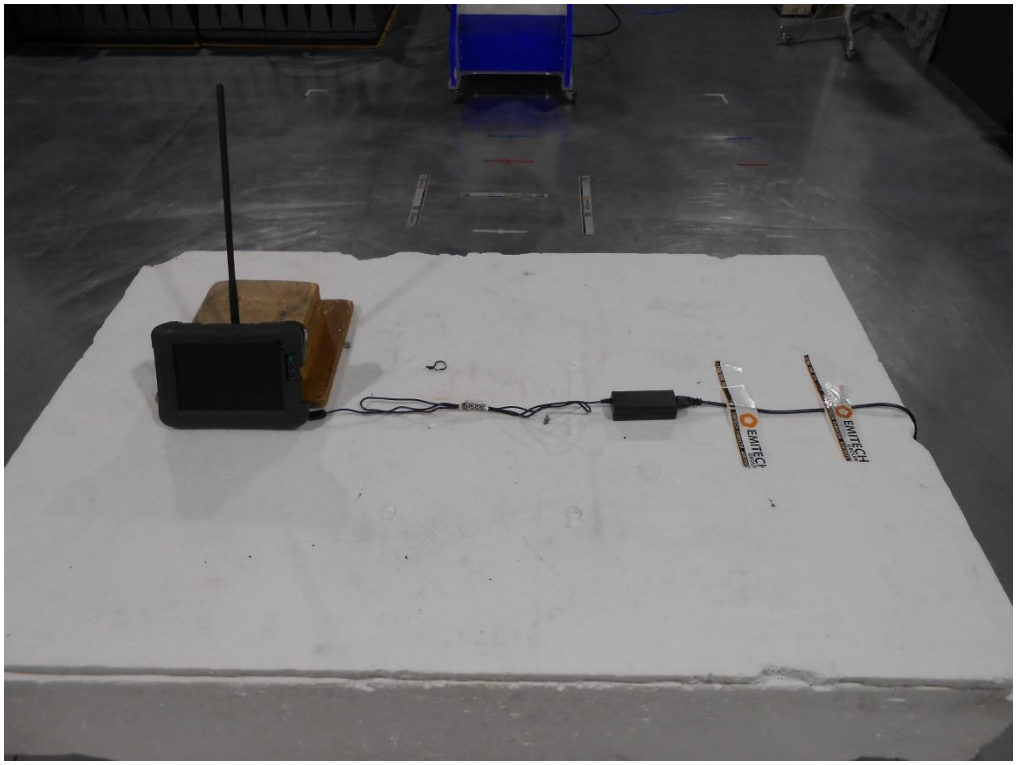




TEST SETUP PHOTOS
30 MHz – 1 GHz

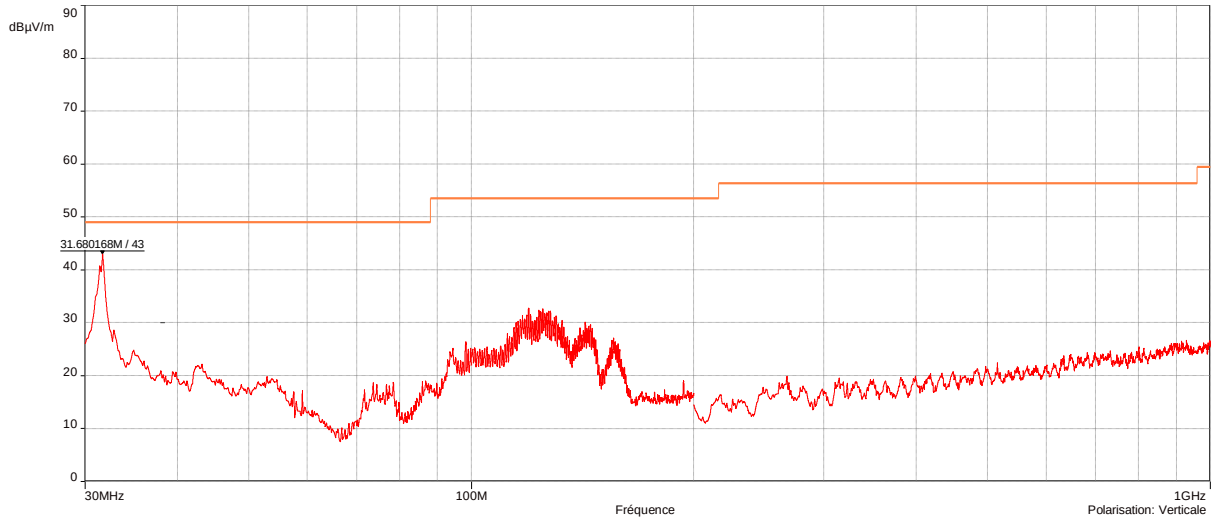


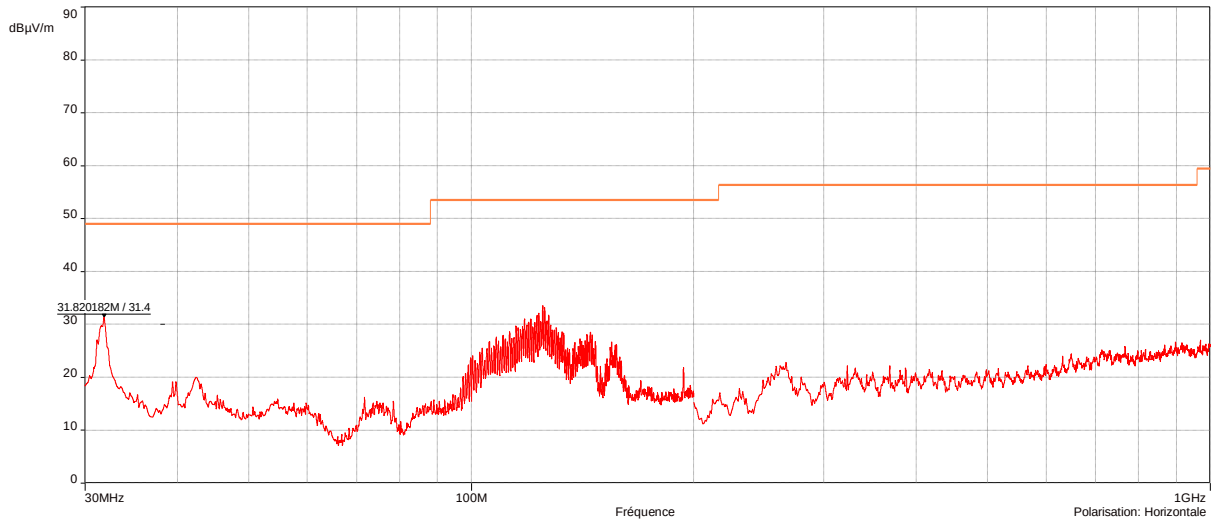
TEST SETUP PHOTOS
30 MHz – 1 GHz



TEST SETUP PHOTOS
1 GHz – 5 GHz

UNINTENTIONAL RADIATED EMISSIONS - GRAPH	
MAXHOLD 360°	
EUT mode: Radio OFF	Red: Peak detection
	Orange: Quasi-Peak limit
	Blue: -



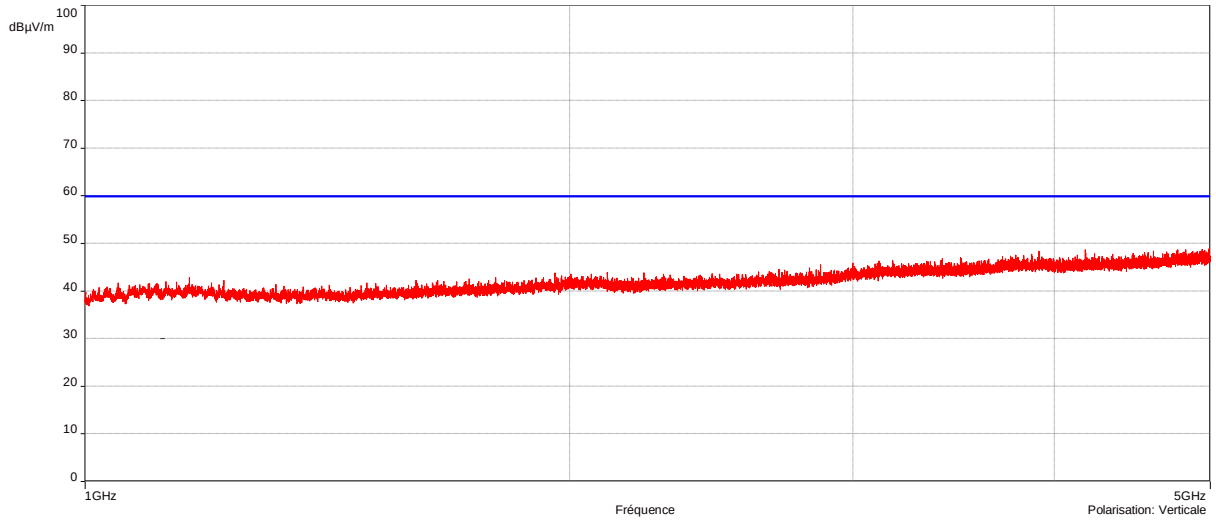


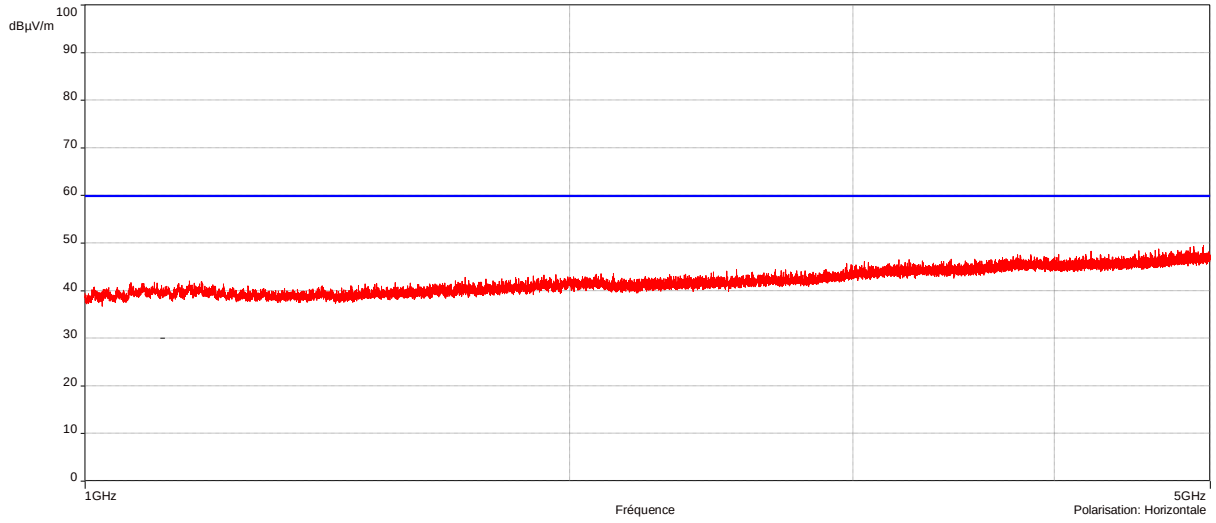
FREQUENCIES	RBW	VBW	DETECTOR
30MHz-100MHz	100kHz	300kHz	Peak
100MHz-200MHz	100kHz	300kHz	Peak
200MHz-600MHz	100kHz	300kHz	Peak
600MHz-1GHz	100kHz	300kHz	Peak

Configuration:	-
Comments:	The peak frequency at 31.8 MHz is outside the measurement.

EUT modification: -

UNINTENTIONAL RADIATED EMISSIONS - GRAPH	
MAXHOLD 360°	
EUT mode: Radio OFF	Red: Peak detection
	Orange: -
	Blue: Average value limit





FREQUENCIES	RBW	VBW	DETECTOR
1GHz-2.5GHz	1MHz	3MHz	Peak
2.5GHz-5GHz	1MHz	3MHz	Peak

Configuration:	-
Comments:	-

EUT modification: -

No significant frequencies were found above the measurement noise between 1 GHz and 5 GHz.

End of test report