TEST REPORT

N°: 171347-762085-B(FILE#1055252) **Version: 02**

Subject	**Electromagnetic compatibility tests according to the standards:** **FCC CFR 47 Part 15, Subpart B** **ANSI C63.4 (2014)** **ICES-003 (2020)** **FCC CFR 47 Part 18**
Issued to	**ETISENSE** 60A Avenue Rockefeller 69008 – LYON FRANCE
Apparatus under test	
Product	**Cardiorespiratory monitoring jacket**
Trade mark	**DECRO**
Manufacturer	**ETISENSE**
Model under test	**EMET-HD EMITTER**
Serial number	**OEG00098**
FCCID	**2A3MD-GC930058**
Conclusion	See Test Program chapter
Test date	February 17, 2021 and February 17, 2021
Test location	LCIE Grenoble
FCC Test site	FR0008
ISED Test site	FR0008 - 6500A
Sample receipt date	February 17, 2021
Composition of document	28 pages
Document issued on	March 2, 2022

Written by :
Hamza GHAFILI
Tests operator

Approved by :
Anthony MERLIN
Technical manager

LABORATOIRE CENTRAL DES INDUSTRIES ELECTRIQUES
LCIE SUD-EST
ZI Centr'Alp
170 Rue de Chatagnon
38430 MOIRANS
Tél 04 76 07 36 36
Fax 04 76 55 98 88

PUBLICATION HISTORY

Version	Date	Author	Modification
01	April 14, 2021	**Hamza GHAFILI**	Creation of the document
02	March 2, 2022	**Hamza GHAFILI**	Adding FCC informations

Each new edition of this test report replaces and cancels the previous edition. The control of the old editions of report is under responsibility of client.

SUMMARY

1. TEST PROGRAM

1.1. FCC PART15B / ICES-003

Standard:

- ✓ **FCC Part 15, Subpart B (Digital Devices)**
- ✓ **ANSI C63.4 (2014)**
- ✓ **ICES-003 (2020)**

Requirements for disturbance emissions – Class B

EMISSION TEST	LIMITS			RESULTS (Comments)
Limits for conducted disturbance 150kHz-30MHz **FCC §15.107**	**Access: AC power**			**PASS**
	Frequency	**Quasi-peak**	**Average**	
	150-500kHz	66 to 56 dBµV	56 to 46 dBµV	
	0.5-5MHz	56 dBµV	46 dBµV	
	5-30MHz	60 dBµV	50 dBµV	
Radiated emissions 30MHz-1GHz **FCC §15.109**	**Access: Enclosure port of ancillary equipment**			**PASS**
	Frequency	**Quasi-peak @10m**		
	30MHz-88MHz	40.0 dBµV/m		
	88MHz-216MHz	43.5 dBµV/m		
	216MHz-960MHz	46.0 dBµV/m		
	Above 960MHz	54.0 dBµV/m		
Radiated emissions 1GHz- 6GHz* **FCC §15.109**	**Access: Enclosure port of ancillary equipment**			**NA**
	Frequency	**Peak @3m**	**Average @3m**	
	1- 6GHz	74.0 dBµV/m	54.0 dBµV/m	

NA: Not Applicable / NP: Not Performed, not requested by the customer (It cannot be taken into account for the declaration of conformity)
[D]: Divergence, the last version is used to make it possible to test the product with the standard which describes the current state of the art and thus to answer as well as possible his environment of final use.
***§15.33:** The highest internal source of a testing device is defined like more the highest frequency generated or used in the testing device or on which the testing device works or agrees.
- If the highest frequency of the internal sources of the testing device is lower than 108 MHz, measurement must be only performed until 1GHz.
- If the highest frequency of the internal sources of the testing device ranges between 108 MHz and 500 MHz, measurement must be only performed until 2GHz.
- If the highest frequency of the internal sources of the testing device ranges between 500 MHz and 1 GHz, measurement must be only performed until 5GHz.

If the highest frequency of the internal sources of the testing device is above 1 GHz, measurement must be only performed until 5 times the highest frequency or 40 GHz, while taking smallest of both.
Special condition for intentional radiator:

- For a composite system comprised of a digital device using a clock frequency of 1 GHz as the highest frequency for the digital logic and an intentional radiator operating at 2.4 GHz, the composite is required to be investigated to the upper frequency of 24 GHz (in this case, 10 times the intentional radiator frequency is the higher frequency).

- For a composite system comprised of a digital device using a clock frequency of 2 GHz as the highest frequency for the digital logic and an intentional radiator operating at 913 MHz, the composite is required to be investigated to the upper frequency of 10 GHz (in this case, 5 times the unintentional radiator clock frequency is the higher frequency).

1.2. FCC PART18 + FCC/OST MP-5

Standard:

- ✓ **FCC Part 18 (ISM)**
- ✓ **FCC/OST MP-5 (1986)**

Requirements for ISM equipement – RF power <500W

EMISSION TEST	LIMITS			RESULTS (Comments)
Limits for conducted disturbance 150kHz-30MHz	**Access: AC power**			**PASS**
	Frequency	**Quasi-peak**	**Average**	
	150-500kHz	66 to 56 dBµV	56 to 46 dBµV	
	0.5-5MHz	56 dBµV	46 dBµV	
	5-30MHz	60 dBµV	50 dBµV	
Radiated emissions 30MHz- 1GHz	**Access: Enclosure port of ancillary equipment**			**PASS**
	Frequency		**Average @10m**	
	ISM frequency		57.5 dBµV/m	
	Non-ISM frequency		53.0 dBµV/m	

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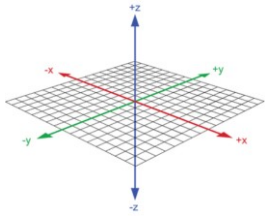
§FCC Part18 §18.309 (a):

Frequency band in which device operates (MHz)	Range of frequency measurements	
	Lowest frequency	Highest frequency
Below 1.705	Lowest frequency generated in the device, but not lower than 9 kHz	30 MHz.
1.705 to 30	Lowest frequency generated in the device, but not lower than 9 kHz	400 MHz.
30 to 500	Lowest frequency generated in the device or 25 MHz, whichever is lower	Tenth harmonic or 1,000 MHz, whichever is higher.
500 to 1,000	Lowest frequency generated in the device or 100 MHz, whichever is lower	Tenth harmonic.
Above 1,000	.....do	Tenth harmonic or highest detectable emission.

2. EQUIPMENT UNDER TEST: CONFIGURATION (DECLARED BY PROVIDER)

2.1. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES)

Equipment under test (EUT):
EMET-HD EMITTER **Serial Number: OEG00098**

Equipment Under Test (EUT)

Power supply:
During all the tests, EUT is supplied by V_{nom}: **3.4 - 5.5 VDC**
For measurement with different voltage, it will be presented in test method.

Name	Type	Rating	Reference / Sn	Comments
Supply	DC and Battery	3.4 - 5.5 VDC	-	-

NC: Not communicated by provider

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
Supply	Micro USB	1m	Yes	Yes	No	-
Access1	Electrode access	<1m	Yes	No	No	-
Access2	Gillet access	<1m	Yes	No	No	-

NC: Not communicated by provider

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
Laptop	Asus	-	ETISENSE Ref : ETI-PR-0004
Data unit central	ACQ-SRV	ACQ-SRV-0021	-
Electrode	DECRO Ag/AgCl ECG PATCHS	0PA000000000006	-
Gillet	DECRO JACKET T2	0E00J000000000306	-

NC: Not communicated by provider

2.2. EUT CONFIGURATION

Hardware information			
Highest internal frequency (PLL, Quartz, Clock, Microprocessor…):	**$F_{Highest}$:**	**76.8**	**MHz**
Firmware (if applicable):	**V. :**	mk-cem-1.0	
Software (if applicable):	**V. :**	lasa-devel-5a085213	
Time necessary for the EUT to be exercised and to respond:	**Dwell:**	**3**	**s**

NC: Not communicated by provider

Test configuration:
The procedure is the same for both emission and immunity tests.

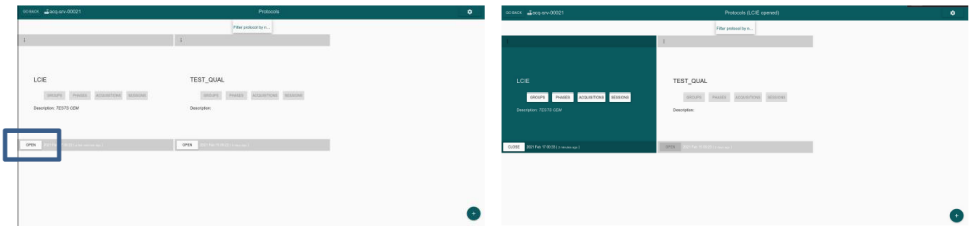
- *Installation of the data acquisition system*
  - *Screw the two antennas to the back of the control unit. The antennas are identical and the order does not matter. The antennas are essential for the performance of the Bluetooth communication.*

  - *Connect the power transformer to the connector provided for this purpose at the back of the central unit (1) and then connect to a 220V power outlet. The central unit should start automatically.*

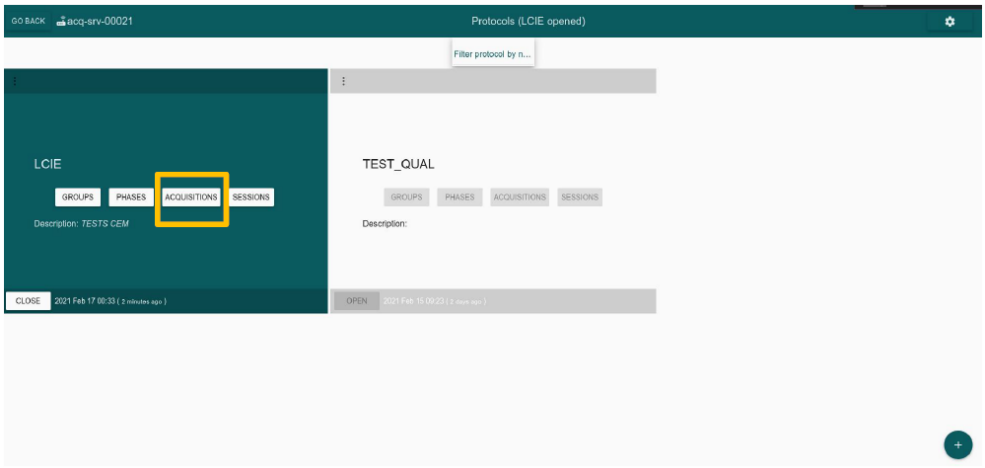
- *Connect the control unit to the laptop ETI-PR-0004 via the ethernet cable*

- *Connect to the software with the web browser*
  - *On the laptop log in with the test user and the test password*
  - *Click on the UI-Etisense shortcut*

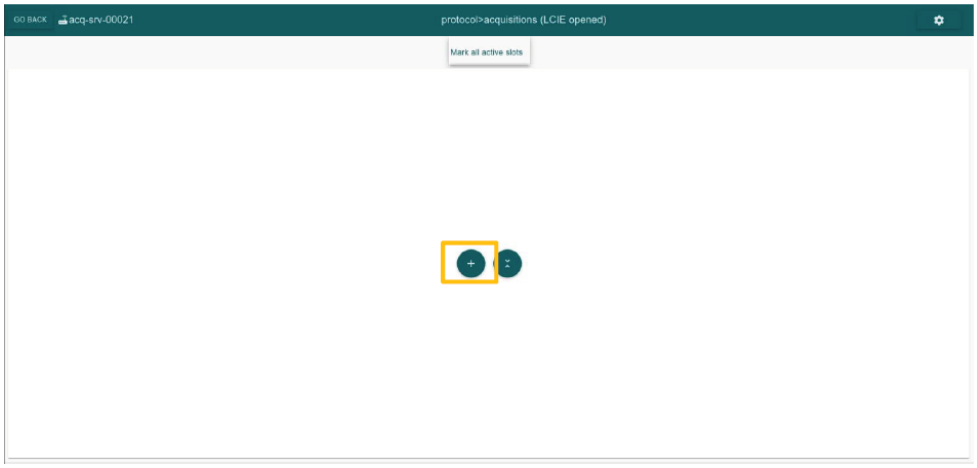
- *Open the LCIE protocol*
  - *Click on the OPEN button below LCIE, it will turn green*



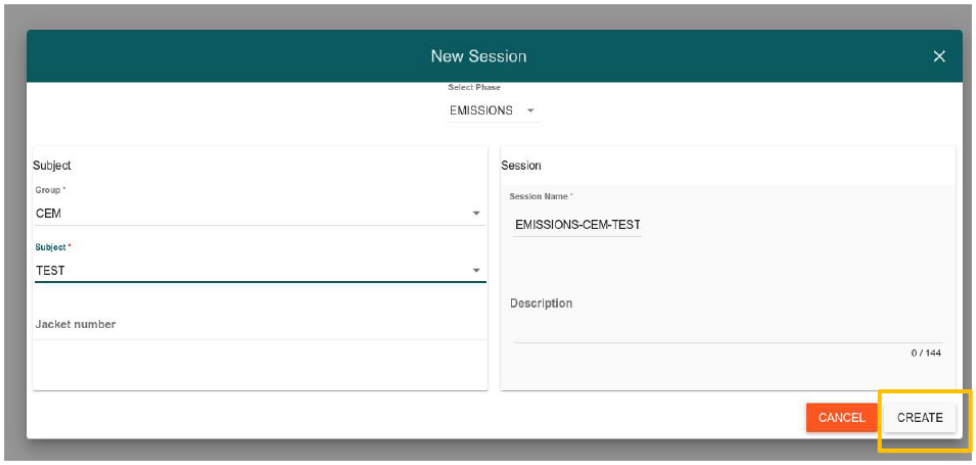
- *Then click on the ACQUISITIONS button*



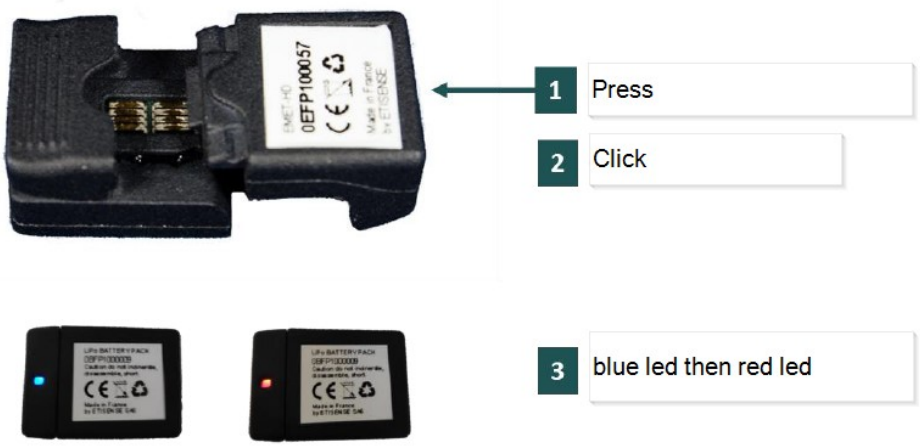
- *Then click on the plus button in the middle of the screen*



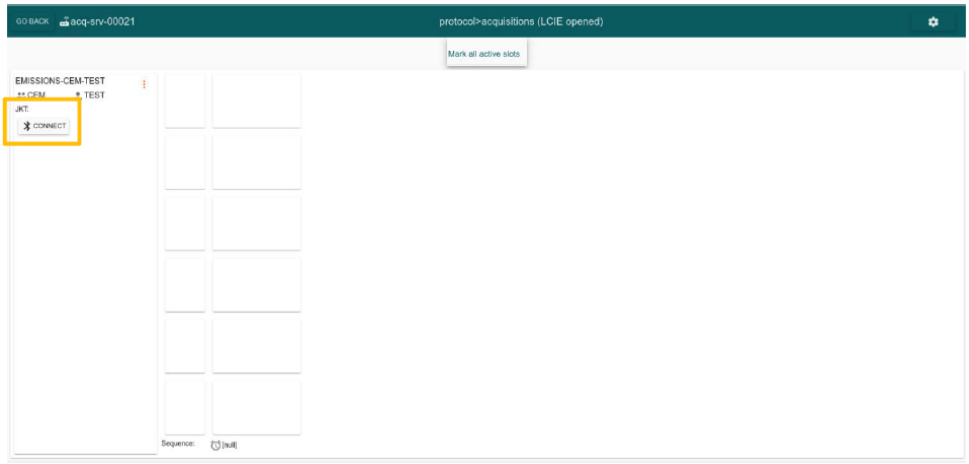
- *Fill in the form that appears by choosing*
  - *For the EMISSONS or IMMUNITES phase.*
  - *For the EMC group*
  - *For the subject TEST*
  - *It is possible to modify the name of the session so that it will be the same as the test to be performed*
  - *Then click on CREATE*



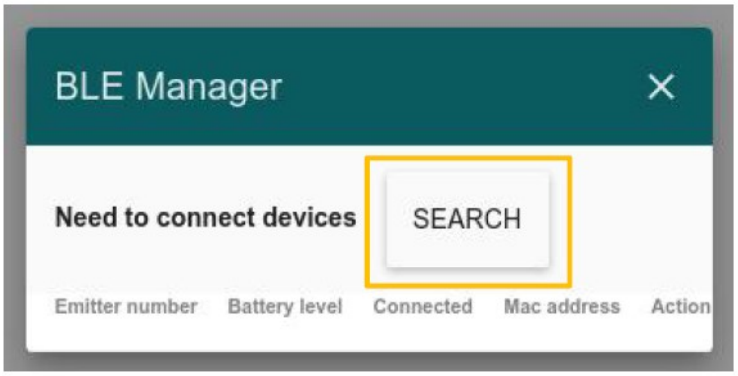
- *Turn on the transmitter*



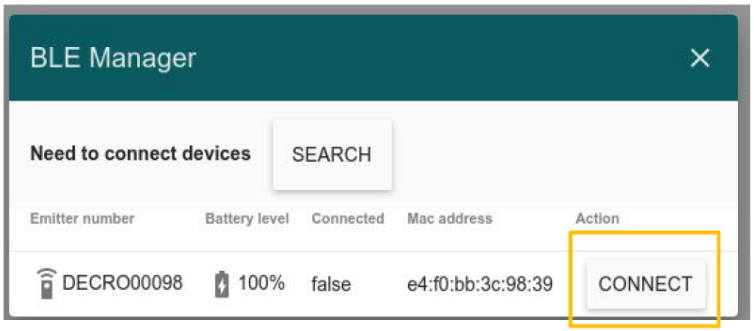
- *Connect the transmitter to the control unit*
  - *Click on the connect button*



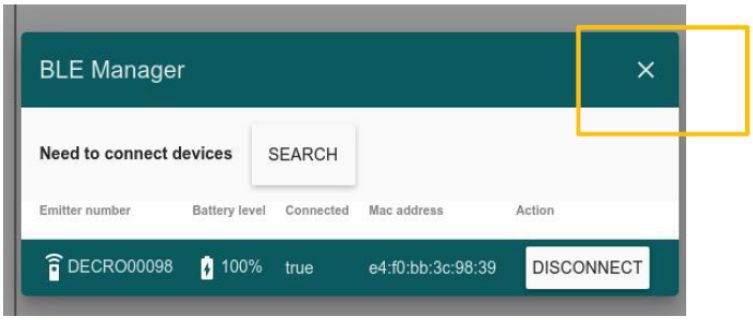
  - *Click on the SEARCH button*



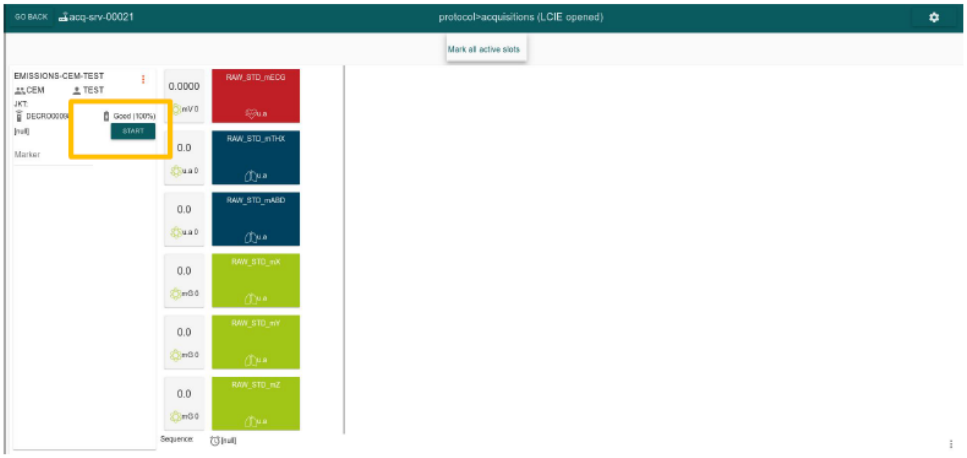
  - *When the transmitter number appears, click on CONNECT*



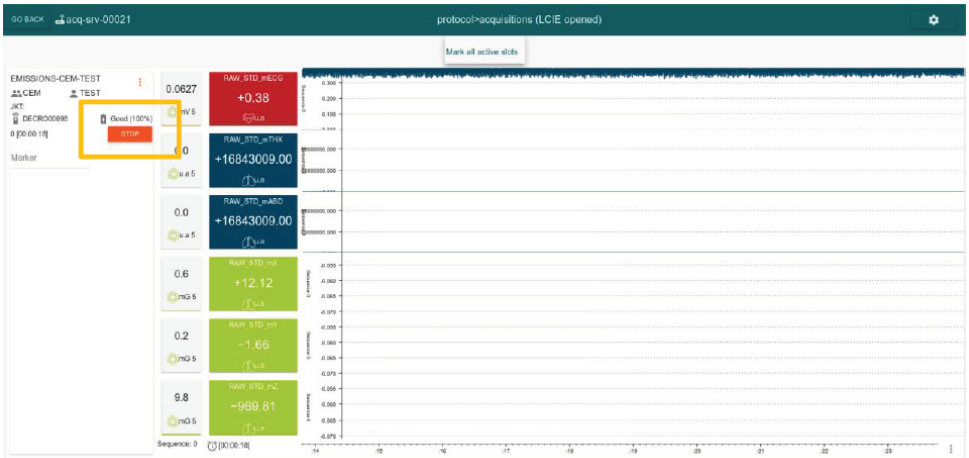
- *The line turns green and you can now close this pop-up by clicking on the cross*



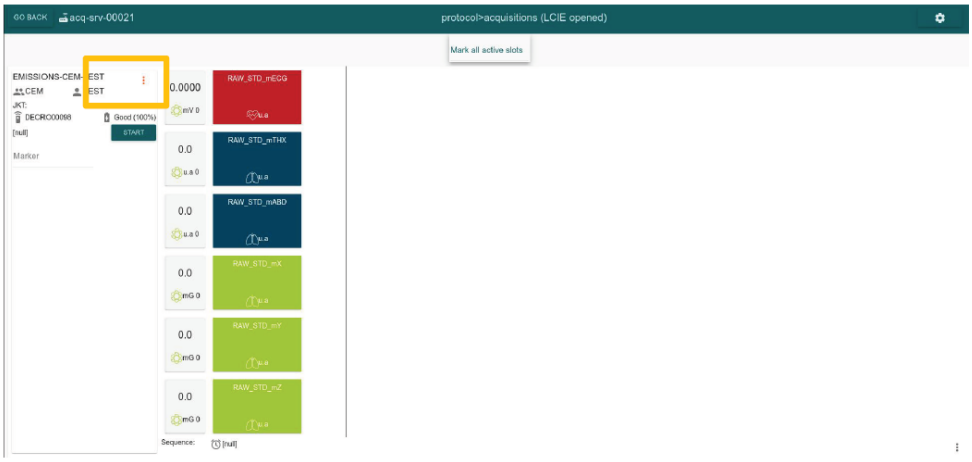
- *Start a test*
  - *Click on the start button to launch a test*



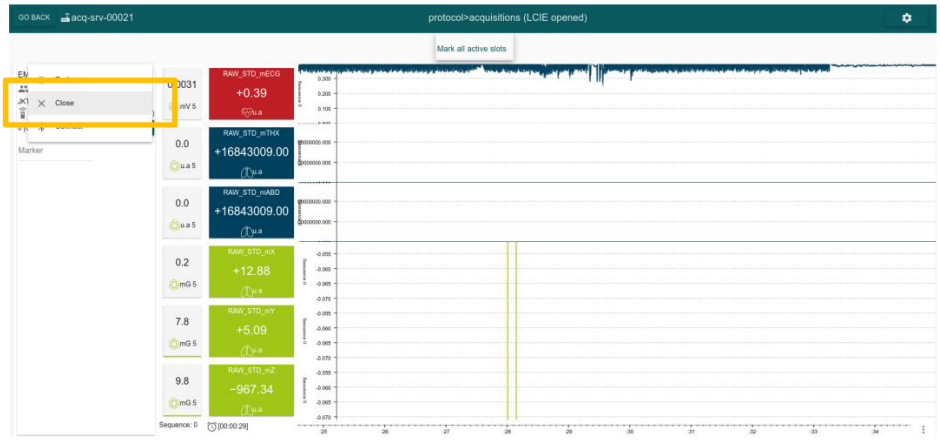
  - *Once the test is finished, click on stop*



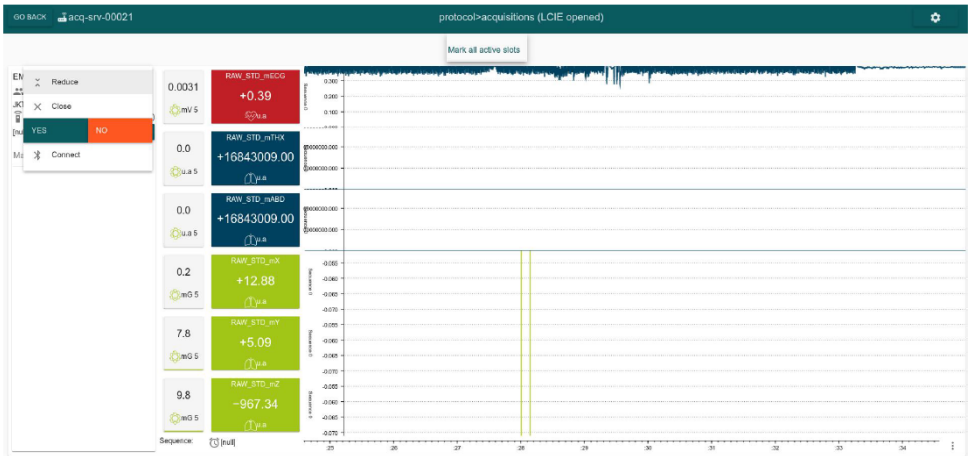
- *Close the registration session*
  - *Click on the 3 red dots*



  - *Click on close*



  - *Click on YES*



Running mode n°1:

- *Apply the test configuration procedure described above.*
- *The battery is inserted into the EUT positioned on the test setup.*
- *The EUT is in charge mode using USB cable and charger*
- *The setup is shown in the image below*

Setup for conducted disturbance emission test

Running mode n°2:

- *Apply the test configuration procedure described above.*
- *The battery is inserted into the EUT positioned on the test setup.*
- *The CN2 connector for the electrodes is connected to a wire looping the input to the output in order to measure a zero V_{ECG} potential difference.*
- *The CN5 connector is connected to the vest.*
- *The setup is shown in the image below*

Setup for radiated disturbance emissions tests

2.3. EQUIPMENT MODIFICATIONS DURING THE TESTS

None

2.4. FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follow:

FS = RA + AF + CF – AG

Where *FS = Field Strength*
RA = Receiver Amplitude
AF = Antenna Factor
CF = Cable Factor
AG = Amplifier Gain

2.5. CALIBRATION DATE

The calibration intervals are extended at 12+1 months. This extended interval is based on the fact that there is sufficient calibration data to statistically establish a trend or based on experience of use of the test equipment to assure good measurement results for a longer period

3. MEASUREMENT OF CONDUCTED EMISSION

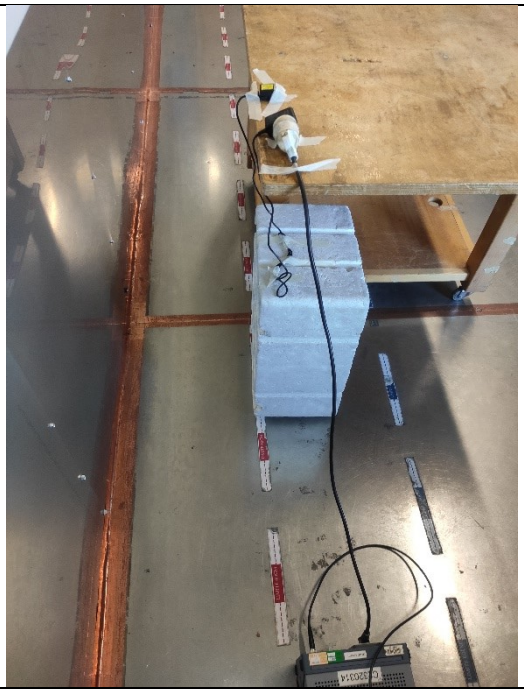
3.1. ENVIRONMENTAL CONDITIONS

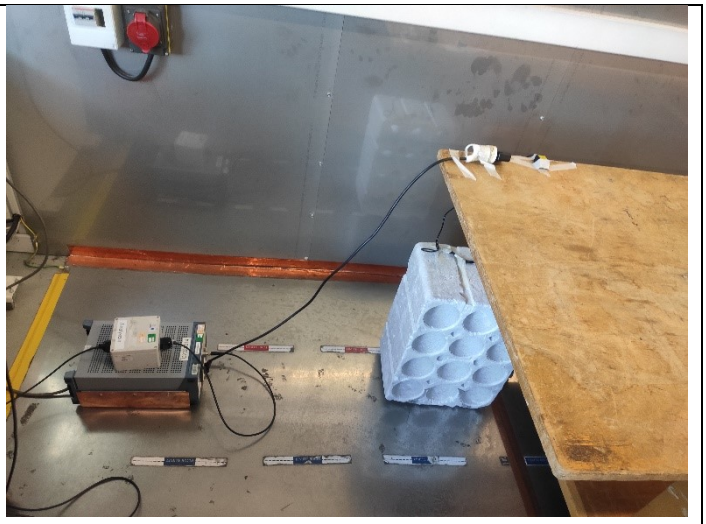
Date of test	:	February 17, 2021
Test performed by	:	Hamza GHAFILI
Atmospheric pressure (hPa)	:	999
Relative humidity (%)	:	37
Ambient temperature (°C)	:	23

3.2. TEST SETUP

Mains terminals

The EUT and auxiliaries are set 80cm above the ground on the non-conducting table (Table-top equipment).
The EUT is powered by V_{nom}.
The EUT is powered through a LISN (measure). Auxiliaries are powered by another LISN.





Test setup

3.3. TEST EQUIPMENT LIST

TEST EQUIPMENT USED					
Description	**Manufacturer**	**Model**	**Identifier**	**Cal_Date**	**Cal_Due**
BAT EMC	NEXIO	v3.19.1.23	L1000115		
Cable + self	_	_	A5329578	02/20	02/21
EMC comb generator	LCIE SUD EST	_	A3169098		
LISN	ROHDE & SCHWARZ	ENV216	C2320291	06/20	06/21
Probe - Current	ROHDE & SCHWARZ	ESH2-Z1	A1290018	02/20	02/21
Receiver 20Hz – 8GHz	ROHDE & SCHWARZ	ESU8	A2642019	11/20	11/22
Transient limiter	ROHDE & SCHWARZ	ESH3-Z2	A7122204	08/20	08/21
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	01/21	01/23

3.4. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

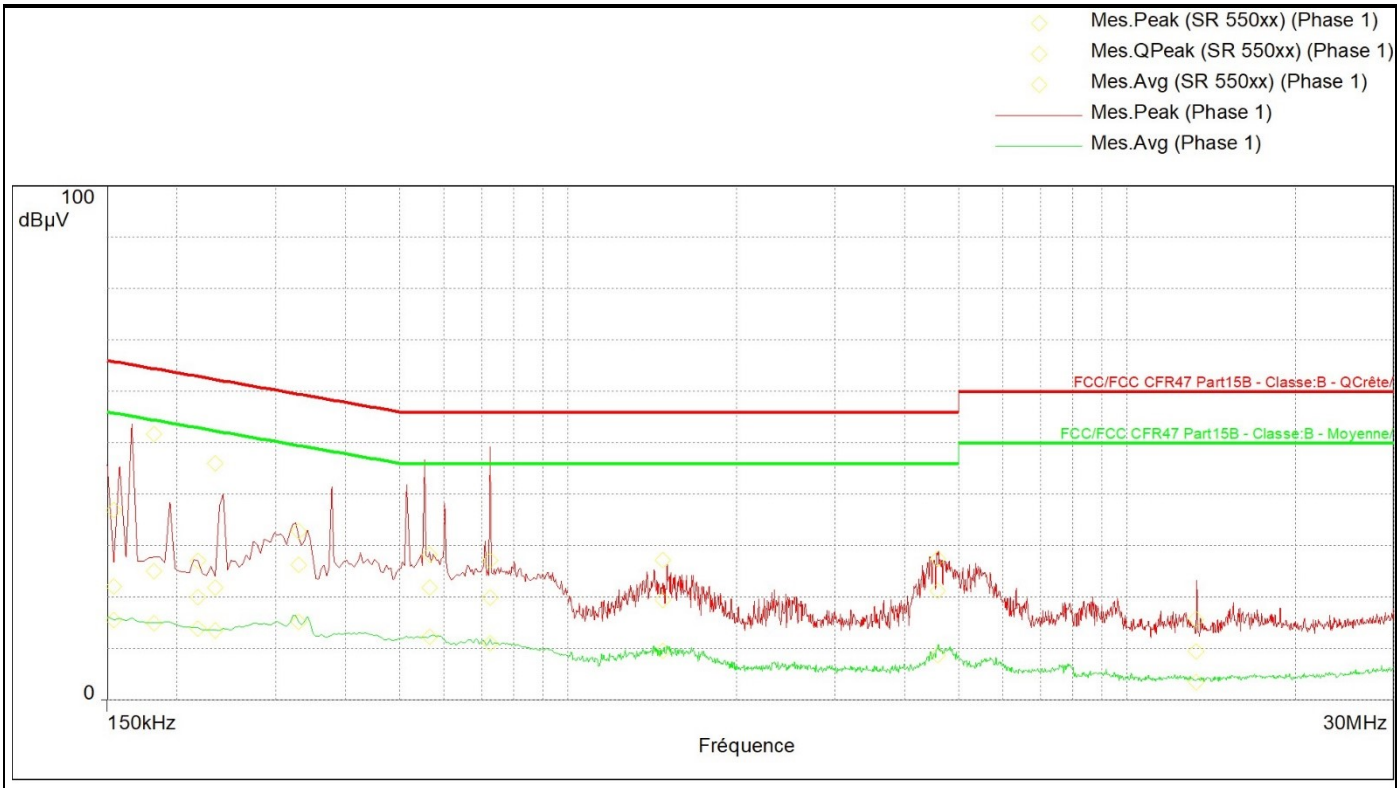
3.5. TEST RESULTS – RUNNING MODE N°1

Mains terminals:

Supply
Measurements are performed on the phase (L1) and neutral (N) of the power line.
Results: (PEAK detection)

Graph identifier		Line	Comments	
Emc#	1	Phase	240VAC/50Hz	See below
Emc#	2	Neutral	240VAC/50Hz	See below
Emc#	3	Phase	120VAC/60Hz	See below
Emc#	4	Neutral	120VAC/60Hz	See below

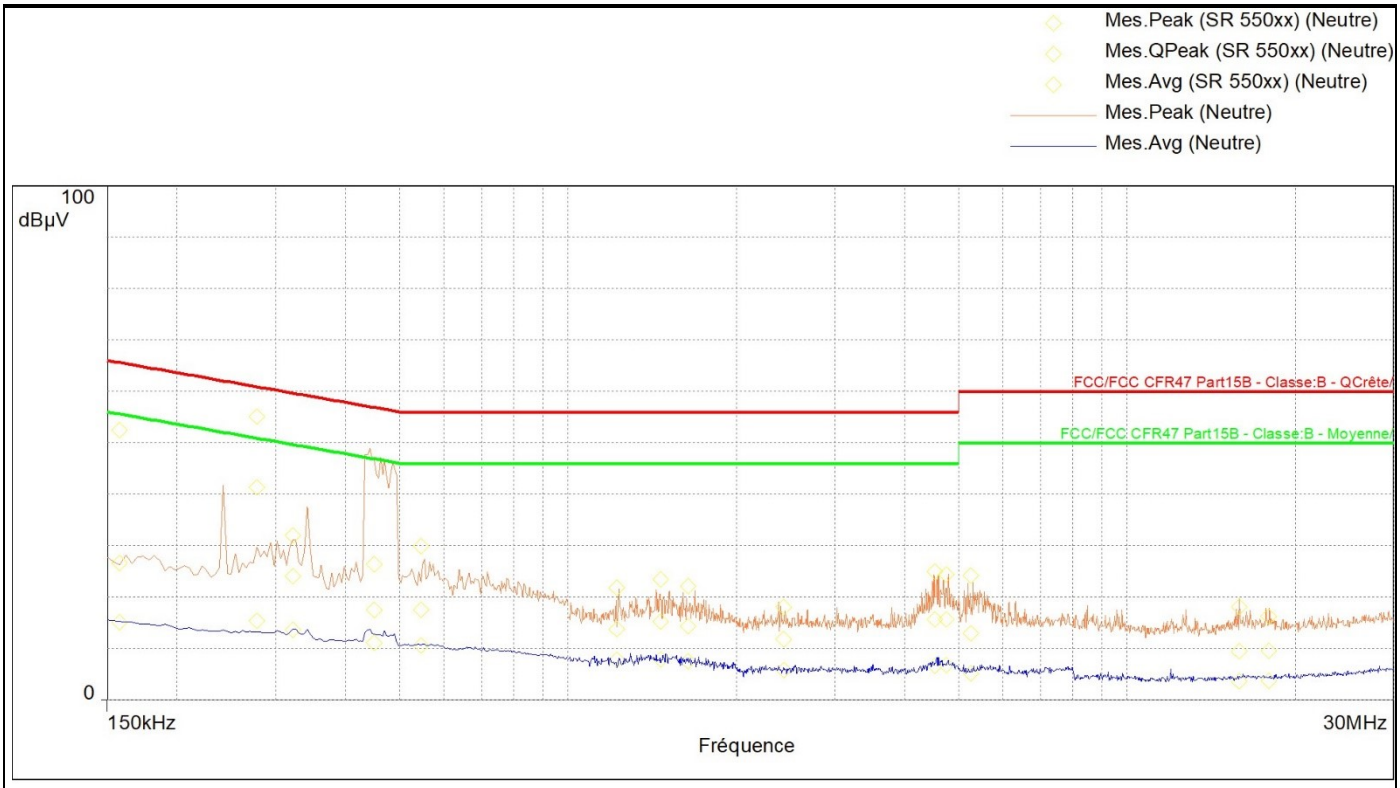
CONDUCTED EMISSIONS			
Graph name:	Emc#1	**Test configuration:**	
Limit:	FCC CFR47 Part15B	/	
Class:	B		
Frequency range: [150kHz - 30MHz]			
Voltage / Frequency:	240VAC / 50Hz	**RBW :**	10kHz
Line:	Phase	**VBW :**	30kHz



Spurious emissions

Frequency (MHz)	Mes.Peak (dBµV)	Mes.QPeak (dBµV)	LimQP (dBµV)	Mes.QPeak-LimQP (dB)	Mes.Avg (dBµV)	LimAvg (dBµV)	Mes.Avg-LimAvg (dB)	Line	Correction (dB)
0.154	37.0	22.1	65.8	-43.7	15.5	55.8	-40.2	Phase 1	9.8
0.182	51.7	25.0	64.4	-39.4	14.9	54.4	-39.5	Phase 1	9.9
0.218	27.0	20.0	62.9	-42.9	13.8	52.9	-39.1	Phase 1	9.8
0.234	46.0	21.8	62.3	-40.5	13.5	52.3	-38.8	Phase 1	9.8
0.330	32.7	26.2	59.4	-33.2	15.2	49.4	-34.3	Phase 1	9.9
0.566	28.2	21.8	56.0	-34.2	12.2	46.0	-33.8	Phase 1	9.9
0.726	27.2	19.9	56.0	-36.1	11.0	46.0	-35.0	Phase 1	9.9
1.480	27.2	19.5	56.0	-36.5	9.6	46.0	-36.4	Phase 1	9.9
4.588	27.4	21.3	56.0	-34.7	8.8	46.0	-37.2	Phase 1	10.1
13.300	15.8	9.5	60.0	-50.5	3.5	50.0	-46.5	Phase 1	10.3

CONDUCTED EMISSIONS			
Graph name:	Emc#2	**Test configuration:**	
Limit:	FCC CFR47 Part15B	/	
Class:	B		
Frequency range: [150kHz - 30MHz]			
Voltage / Frequency:	240VAC / 50Hz	**RBW :**	10kHz
Line:	Neutral	**VBW :**	30kHz

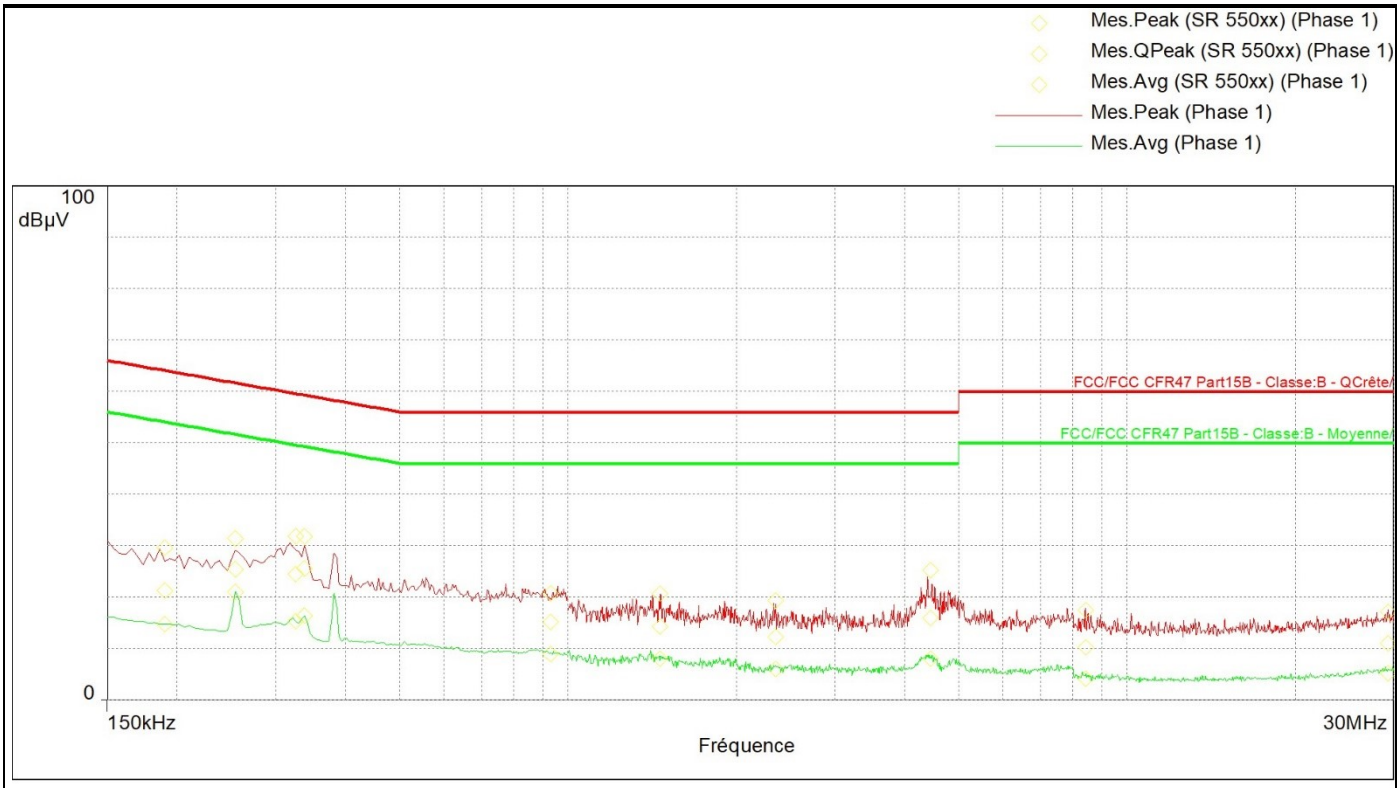


Spurious emissions

Frequency (MHz)	Mes.Peak (dBµV)	Mes.QPeak (dBµV)	LimQP (dBµV)	Mes.QPeak-LimQP (dB)	Mes.Avg (dBµV)	LimAvg (dBµV)	Mes.Avg-LimAvg (dB)	Line	Correction (dB)
0.158	52.6	26.7	65.6	-38.9	15.2	55.6	-40.4	Neutre	9.8
0.278	55.1	41.5	60.9	-19.4	15.4	50.9	-35.5	Neutre	9.8
0.322	31.9	24.1	59.7	-35.6	13.7	49.7	-36.0	Neutre	9.8
0.450	26.4	17.5	56.9	-39.3	11.1	46.9	-35.8	Neutre	9.8
0.546	29.9	17.5	56.0	-38.5	10.6	46.0	-35.4	Neutre	9.9
1.224	21.8	13.8	56.0	-42.2	7.7	46.0	-38.3	Neutre	9.9
1.464	23.5	15.2	56.0	-40.8	8.0	46.0	-38.0	Neutre	9.9
1.640	22.1	14.3	56.0	-41.7	7.5	46.0	-38.5	Neutre	9.9
2.428	18.1	11.8	56.0	-44.2	5.8	46.0	-40.2	Neutre	10.0
4.528	25.0	15.7	56.0	-40.3	6.7	46.0	-39.3	Neutre	10.1
4.752	24.4	15.7	56.0	-40.3	6.8	46.0	-39.2	Neutre	10.1
5.248	24.2	12.9	60.0	-47.1	5.2	50.0	-44.8	Neutre	10.1

Frequency (MHz)	Mes.Peak (dBµV)	Mes.QPeak (dBµV)	LimQP (dBµV)	Mes.QPeak-LimQP (dB)	Mes.Avg (dBµV)	LimAvg (dBµV)	Mes.Avg-LimAvg (dB)	Line	Correction (dB)
15.852	18.0	9.5	60.0	-50.5	3.7	50.0	-46.3	Neutre	10.5
17.900	16.3	9.6	60.0	-50.4	3.8	50.0	-46.2	Neutre	10.6

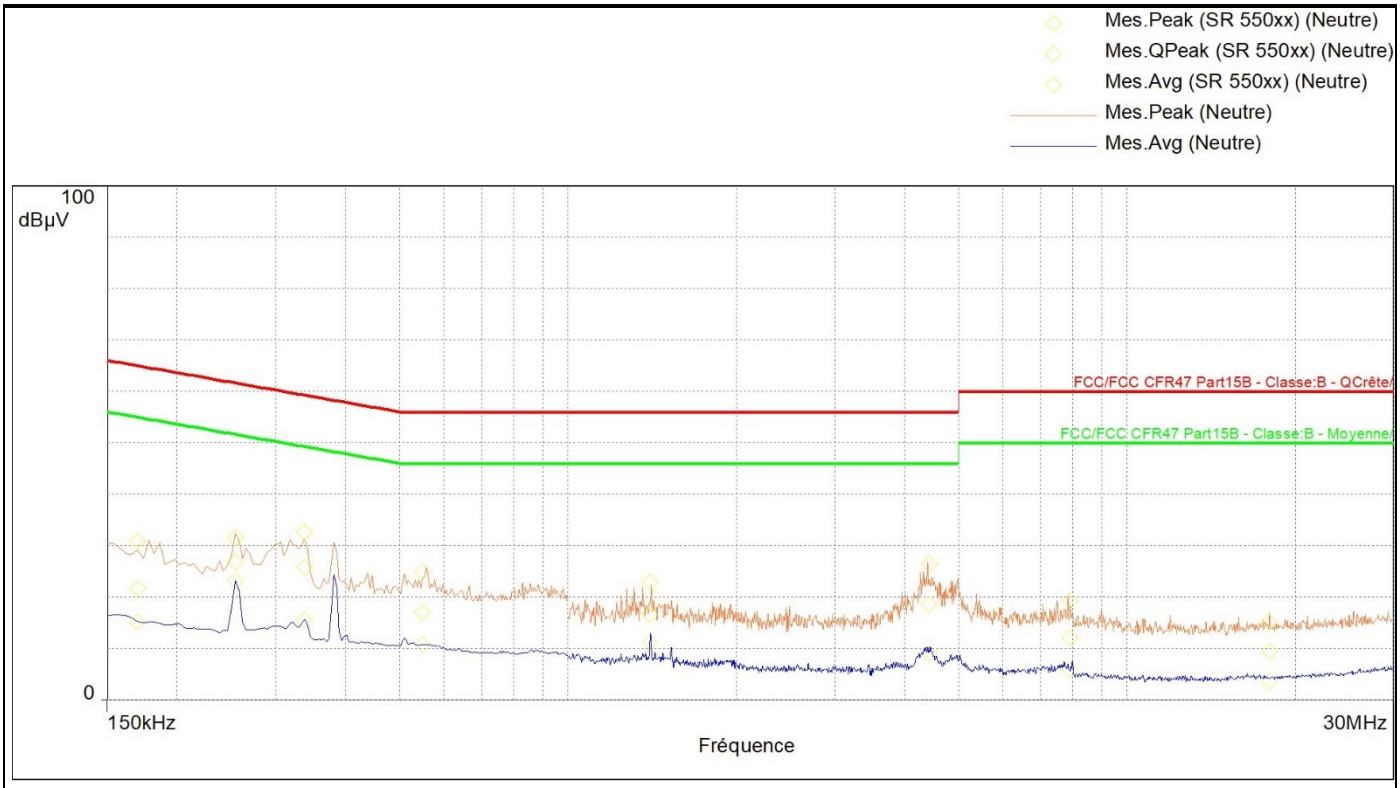
CONDUCTED EMISSIONS			
Graph name:	Emc#3	**Test configuration:**	
Limit:	FCC CFR47 Part15B	/	
Class:	B		
Frequency range: [150kHz - 30MHz]			
Voltage / Frequency:	120VAC / 60Hz	**RBW :**	10kHz
Line:	Phase	**VBW :**	30kHz



Spurious emissions

Frequency (MHz)	Mes.Peak (dBµV)	Mes.QPeak (dBµV)	LimQP (dBµV)	Mes.QPeak-LimQP (dB)	Mes.Avg (dBµV)	LimAvg (dBµV)	Mes.Avg-LimAvg (dB)	Line	Correction (dB)
0.190	29.6	21.2	64.0	-42.8	14.7	54.0	-39.3	Phase 1	9.9
0.254	31.3	25.5	61.6	-36.1	21.0	51.6	-30.6	Phase 1	9.8
0.326	31.8	24.4	59.6	-35.1	15.2	49.6	-34.3	Phase 1	9.9
0.338	31.8	25.6	59.2	-33.6	16.4	49.2	-32.8	Phase 1	9.9
0.930	20.7	15.2	56.0	-40.8	9.0	46.0	-37.0	Phase 1	9.9
1.460	20.7	14.3	56.0	-41.7	8.1	46.0	-37.9	Phase 1	9.9
2.352	19.3	12.2	56.0	-43.8	5.9	46.0	-40.1	Phase 1	10.0
4.444	25.3	15.9	56.0	-40.1	8.0	46.0	-38.0	Phase 1	10.1
8.440	17.6	10.2	60.0	-49.8	4.2	50.0	-45.8	Phase 1	10.2
29.284	17.1	11.0	60.0	-49.0	5.2	50.0	-44.8	Phase 1	10.9

CONDUCTED EMISSIONS			
Graph name:	Emc#4	**Test configuration:**	
Limit:	FCC CFR47 Part15B	/	
Class:	B		
Frequency range: [150kHz - 30MHz]			
Voltage / Frequency:	120VAC / 60Hz	**RBW :**	10kHz
Line:	Neutral	**VBW :**	30kHz



Spurious emissions

Frequency (MHz)	Mes.Peak (dBµV)	Mes.QPeak (dBµV)	LimQP (dBµV)	Mes.QPeak-LimQP (dB)	Mes.Avg (dBµV)	LimAvg (dBµV)	Mes.Avg-LimAvg (dB)	Line	Correction (dB)
0.170	30.8	21.6	65.0	-43.3	15.2	55.0	-39.8	Neutre	9.8
0.254	31.5	26.9	61.6	-34.8	23.2	51.6	-28.5	Neutre	9.8
0.338	32.7	25.9	59.2	-33.3	15.6	49.2	-33.7	Neutre	9.9
0.550	24.9	17.0	56.0	-39.0	10.7	46.0	-35.3	Neutre	9.9
1.400	22.9	16.7	56.0	-39.3	11.3	46.0	-34.7	Neutre	9.9
4.428	26.6	18.6	56.0	-37.4	9.1	46.0	-36.9	Neutre	10.1
7.896	19.3	12.1	60.0	-47.9	5.9	50.0	-44.1	Neutre	10.2
17.988	15.1	9.4	60.0	-50.6	3.6	50.0	-46.4	Neutre	10.6

3.6. CONCLUSION

The sample of the equipment **EMET-HD EMITTER**, Sn : **OEG00098**, tested in the configuration presented in this test report **satisfies** to requirements of the product family standard applied (See §Test Program) for conducted emissions.

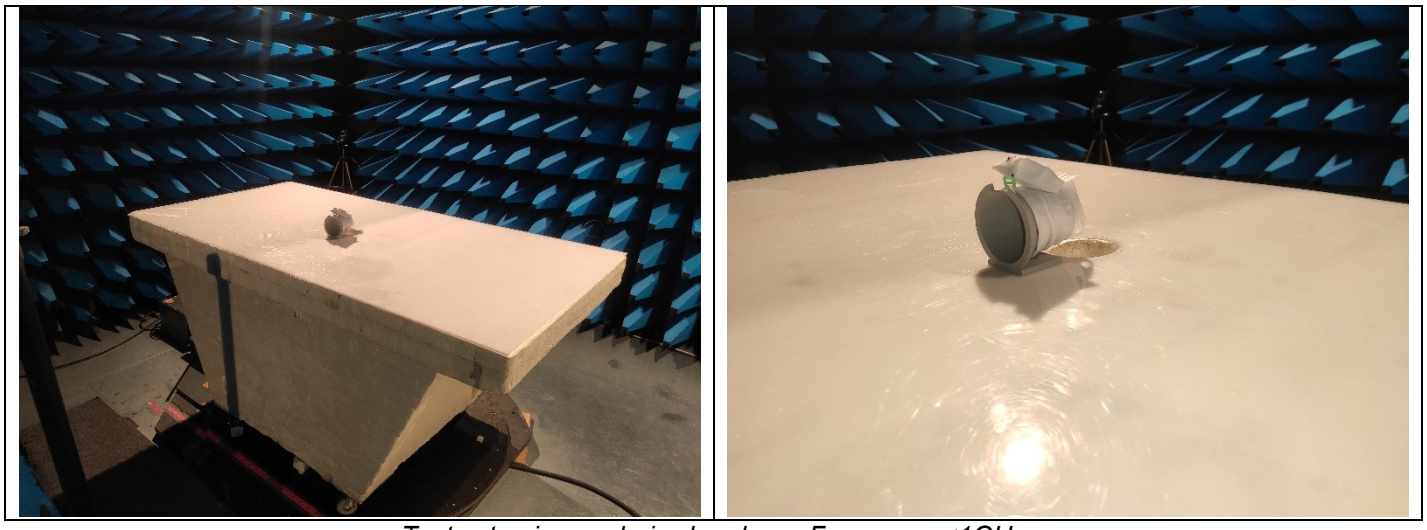
4. MEASUREMENT OF RADIATED EMISSION

4.1. ENVIRONMENTAL CONDITIONS

Date of test	:	February 17, 2021	February 18, 2021
Test performed by	:	Hamza GHAFILI	Hamza GHAFILI
Atmospheric pressure (hPa)	:	999	997
Relative humidity (%)	:	37	31
Ambient temperature (°C)	:	23	21

4.2. TEST SETUP

The EUT and auxiliaries are set 80cm above the ground on the non-conducting table (Table-top equipment).
The EUT is powered by V_{nom}.



Test setup in anechoic chamber – Frequency <1GHz

Test setup on OATS

4.3. TEST METHOD

4.3.1. 30MHz –1GHz

Pre-qualification measurement

A pre-scan of all the setup has been performed in a 3 meters semi-anechoic chamber. Test is performed with antenna centered on EUT in horizontal (H) and vertical (V) polarization, continuous linear turntable azimuth search was performed with 360 degrees range. Measurements are performed on all axis of EUT used in normal configuration. The pre-characterization graphs are obtained in PEAK detection.

Qualification

The installation of EUT is identical than for pre-qualification measurements on an Open Area Test Site with a 10 meters distance between EUT and antenna. In this case, it corrected according to requirements of 15.209.e), M@3m = M@10m+10.5dB. Test is performed in horizontal (H) and vertical (V) polarization and the height antenna is varied from 1m to 4m. Continuous linear turntable azimuth search was performed with 360 degrees range. Measurements are performed on all axis of EUT used in normal configuration. A summary of the worst case emissions found in all test configurations and modes is shown.

4.4. TEST EQUIPMENT LIST

TEST EQUIPMENT USED					
Description	**Manufacturer**	**Model**	**Identifier**	**Cal_Date**	**Cal_Due**
Amplifier 100kHz - 18GHz	LCIE SUD EST	_	A7085027	11/20	11/21
Antenna Bi-Log XWing	TESEQ	CBL6144	C2040146	03/17	03/22
BAT EMC	NEXIO	v3.19.1.23	L1000115		
Cable 0.75m	SUCOFLEX	18GHz	A5329919	11/20	11/21
Cable 2.2m N	SUCOFLEX	SF118A/2x11N/2.2M	A5329990	11/20	11/21
Cable 5m	SUCOFLEX	18GHz	A5329918	11/20	11/21
Diameter 1.2m / Height 2.25m	LCIE	VSWR 1GHz - 18GHz	D3044015_VSWR	06/19	06/22
Radiated emission comb generator	BARDET	_	A3169050		
Receiver 20Hz – 8GHz	ROHDE & SCHWARZ	ESU8	A2642019	11/20	11/22
Semi-Anechoic chamber #2	SIEPEL	_	D3044015	06/19	06/22
Spectrum Analyzer 9kHz - 6GHz	ROHDE & SCHWARZ	FSL6	A4060049	04/20	04/22
Table C2/OATS	LCIE	_	F2000438		
Turntable chamber (Cage#2)	ETS Lingren	Model 2165	F2000404		
Turntable controller (Cage#2)	ETS Lingren	Model 2066	F2000393		
Thermo-hygrometer (C1)	OREGON	WMR 80	B4206013	09/20	09/22
Antenna Bi-log	CHASE	CBL6111A	C2040051	06/19	06/21
Antenna Biconic	EMCO	3104C	C2040175	03/20	03/22
Antenna Mat (OATS)	ETS Lingren	2071-2	F2000392		
BAT EMC	NEXIO	v3.19.1.23	L1000115		
Cable (OATS)	_	1GHz	A5329623	05/20	05/21
CALCUL_FACTEURS	LCIE SUD EST	V4	L2000035		
Emission Cable	MICRO-COAX	1GHz	A5329656	08/20	08/21

TEST EQUIPMENT USED					
Description	**Manufacturer**	**Model**	**Identifier**	**Cal_Date**	**Cal_Due**
Emission Cable	SUCOFLEX	6GHz	A5329061	06/20	06/21
OATS	_	_	F2000409	04/20	04/21
Receiver 20-1000MHz	ROHDE & SCHWARZ	ESVS30	A2642006	03/20	03/22
Table C1/OATS	LCIE	_	F2000445		
Turntable (OATS)	ETS Lingren	Model 2187	F2000403		
Turntable / Mast controller (OATS)	ETS Lingren	Model 2066	F2000372		
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	01/21	01/23

4.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

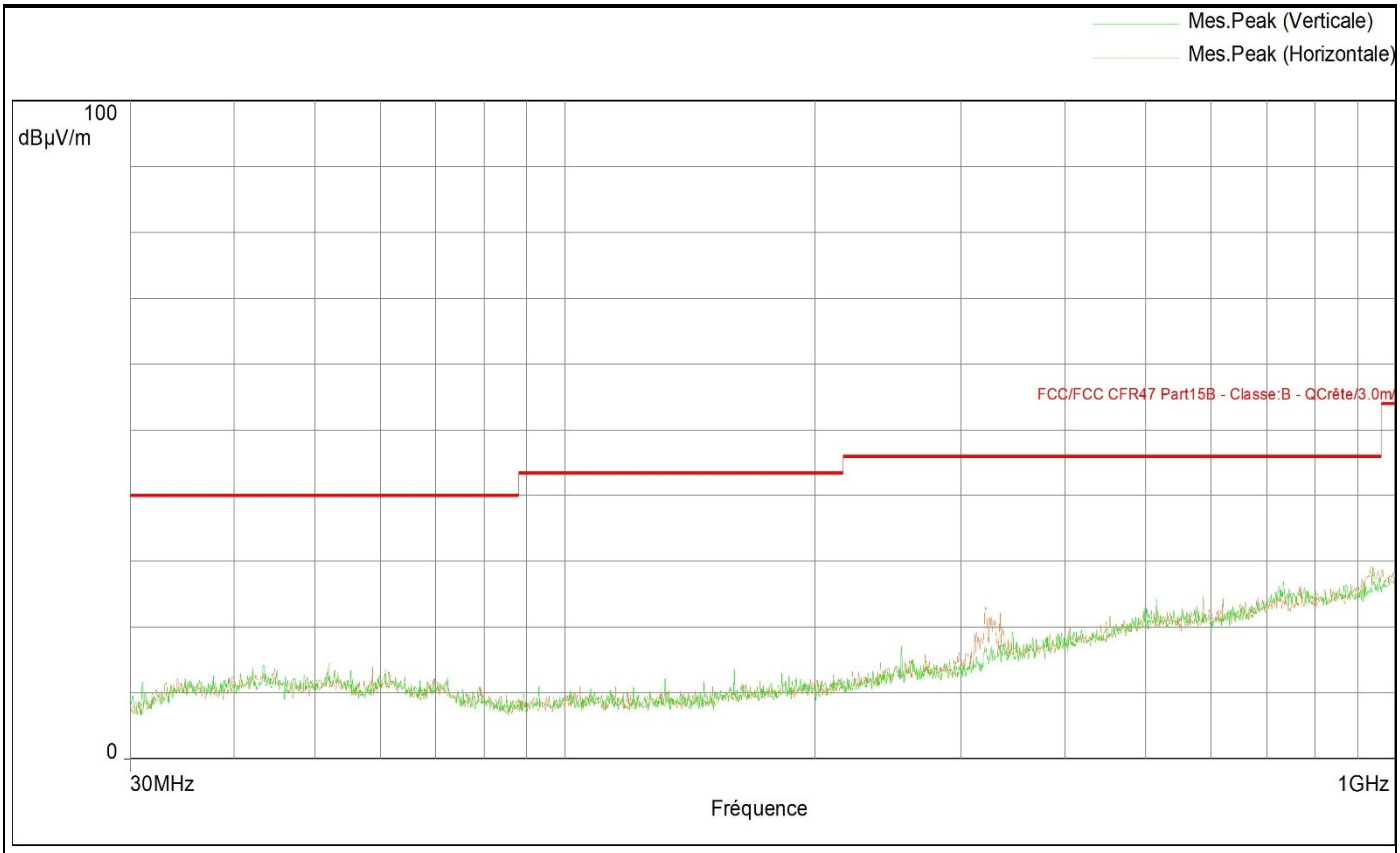
4.6. TEST RESULTS – RUNNING MODE N°2

4.6.1. 30MHz –1GHz

Pre-qualification measurement

Graph identifier	Polarization	EUT position	Comments	
Emr# 1	Vertical+ Horizontal	Axis XY		See below

RADIATED EMISSIONS			
Graph name:	Emr#1	**Test configuration:**	
Limit:	FCC CFR47 Part15B	TEST1_FCC	
Class:	B		
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Horizontal & Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



Spurious emissions

No significative frequency observed

Qualification

The frequency list is created from the results obtained during the pre-qualification.
Measurements are performed using a QUASI-PEAK detection.

Test Frequency (MHz)	Meter Reading dB(µV)	Detector (Pk/QP/Av)	Polarity (V/H)	Azimuth (Degrees)	Antenna Height (cm)	Gain/Loss Factor (dB)	Transducer Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
43,52	13,2	QP	V	360	135	-	12,8	26,0	40,0	**-14,0**
159,99	11,5	QP	V	360	100	-	15,4	26,9	43,5	**-16,6**
253,91	12,3	QP	V	360	100	-	16,5	28,8	46,0	**-17,2**
320	13,0	QP	V	360	100	-	17,6	30,6	46,0	**-15,4**
320	12,3	QP	H	360	100	-	17,6	29,9	46,0	**-16,1**
515,19	11,8	QP	H	360	141	-	23,8	35,6	46,0	**-10,4**
515,19	11,1	QP	V	360	141	-	23,8	34,9	46,0	**-11,1**
Note : No significative frequency observed										

4.7. CONCLUSION

The sample of the equipment **EMET-HD EMITTER**, Sn : **OEG00098**, tested in the configuration presented in this test report **satisfies** to requirements of the product family standard applied (See §Test Program) for radiated emissions.

5. UNCERTAINTIES CHART

Type de mesure / Kind of measurement	Incertitude élargie laboratoire / Wide uncertainty laboratory (k=2) ±x	Incertitude limite du CISPR / CISPR uncertainty limit ±y
Mesure des perturbations conduites en tension sur le réseau d'énergie (monophasé /triphasé) 10kHz-150kHz *Measurement of conducted disturbances in voltage on the power port (single & three phases)10kHz-150kHz*	3.27dB	3.8dB
Mesure des perturbations conduites en tension sur le réseau d'énergie (monophasé /triphasé) 150kHz-30MHz *Measurement of conducted disturbances in voltage on the power port (single & three phases)150kHz-30MHz*	3.29dB	3.4dB
Mesure des perturbations conduites en tension sur le réseau de télécommunication *Measurement of conducted disturbances in voltage on the telecommunication port.*	3.26dB	5dB
Mesure des perturbations discontinues conduites en tension *Measurement of discontinuous conducted disturbances in voltage*	3.33dB	3.4dB
Mesure des perturbations conduites en courant *Measurement of conducted disturbances in current*	2.67dB	2.9dB
Mesure du champ électrique rayonné en cage de Faraday semi-anéchoïque de 30MHz à 1GHz *Measurement of radiated electric field in half-anechoic Faraday room From 30MHz to 1GHz*	5.06dB	5.3dB
Mesure du champ électrique rayonné en cage de Faraday semi-anéchoïque de 1GHz à 6GHz *Measurement of radiated electric field in half-anechoic Faraday room From 1GHz à 6GHz*	5.18dB	5.2dB
Mesure du champ électrique rayonné en cage de Faraday semi-anéchoïque de 6GHz à 18GHz *Measurement of radiated electric field in half-anechoic Faraday room From 6GHz to 18GHz*	5.21dB	5.5dB
Mesure du champ électrique rayonné sur le site en espace libre de Moirans 30MHz – 1GHz. *Measurement of radiated electric field on the Moirans open area test site 30MHz – 1GHz.*	5.2dB	6.3dB
Mesure du champ électrique rayonné IN SITU de 30 à 1000 MHz *IN SITU measurement of radiated electric field from 30 to 1000MHz*	A l'étude / Under consideration	5.2dB
Mesure de la puissance perturbatrice *Measurement of disturbance power*	3.32dB	4.5dB
Mesure des harmoniques de courant *Measurement of current harmonics*	11.11%	/
Mesure du flicker *Flicker measurement*	9.26%	/

Les valeurs d'incertitudes calculées du laboratoire étant inférieures aux valeurs d'incertitudes limites établies par le CISPR, la conformité de l'échantillon est établie directement par les niveaux limites applicables. Ce tableau regroupe l'ensemble des incertitudes maximales pour les essais réalisables dans le laboratoire, qu'ils aient été ou non réalisés dans le cadre du présent rapport / *The uncertainty values calculated by the laboratory are lower than limit uncertainty values defined by the CISPR. The conformity of the sample is directly established by the applicable limits values. This table includes all uncertainties maximum feasible for testing in the laboratory, whether or not made in this report*

Note - L'incertitude de mesure instrumentale est déterminée selon la CISPR 16-4-2. / *The instrumentation measurement uncertainty is determined according to CISPR16-4-2*