Accréditation
N°1-0312
Scope available on
www.cofrac.fr

Template : September 25th, 2024

TEST REPORT

N°: **21022989-796789-B** Version: **01**

Subject	**Electromagnetic compatibility tests according to the standards: FCC CFR 47 Part 15.225 & ANSI C63.10 RSS 210 Issue 11 & RSS-Gen Issue 5.2**
Issued to	**IDEMIA PUBLIC SECURITY FRANCE 2, place Samuel De Champlain 92140 - COURBEVOIE**
Apparatus under test	
Product	**MorphoWave XP2**
Trade mark	**IDEMIA**
Manufacturer	**IDEMIA PUBLIC SECURITY FRANCE**
Family range	**MorphoWave XP2 is an access control device with biometric and RF function**
Model under test	**MPH-AC010A**
Serial number	**2448SXP20000078**
FCCID	**ZBW-MPHAC010A**
IC	**11472A-MPHAC010A**
Conclusion	See Test Program chapter
Test date	February 14, 2025 **to** February 27, 2025
Test location	LCIE Ecuelles
FCC Test site	FR0010 - 166175 (FAR)
ISED Test site	6230B (FAR)
Sample receipt date	February 11, 2025
Composition of document	53 pages
Document issued on	April 03, 2025

Written by :		**Approved by :**	
Julien Palard		**Julien Boutaud**	
Tests operator		Technical manager	

Reproduction of this document is only authorized in its complete form. Any partial reproduction or any insertion of results in an accompanying text with a view to their distribution must receive prior and formal agreement from LCIE. This document results from tests carried out on a specimen, sample or test piece. It does not prejudge the conformity of all the products manufactured to the object tested. Unless otherwise indicated or rule specified by the test method, the decision of conformity does not take into account measurement uncertainty. It in no way prejudges a certification decision. The accreditation of the COFRAC Testing Section attests to the technical competence of the laboratories for the tests covered by the accreditation only. If certain tests mentioned in this report were carried out outside the framework of COFRAC accreditation, they are identified by the symbol ⚐.

PUBLICATION HISTORY

Version	Date	Author	Modification
01	April 03, 2025	Julien Palard	Creation of the document

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 4
2. EQUIPMENT UNDER TEST: CONFIGURATION (DECLARED BY PROVIDER) 5
3. OCCUPIED BANDWIDTH 10
4. 20DB EMISSION BANDWIDTH 14
5. FREQUENCY TOLERANCE 18
6. AC POWER LINE CONDUCTED EMISSIONS 23
7. FIELD STRENGTH OUTSIDE OF THE BANDS 13.110-14.010 MHZ 35
8. FIELD STRENGTH WITHIN THE BAND 13.110-14.010MHZ 46
9. UNCERTAINTIES CHART 53

1. TEST PROGRAM

References

- **47 CFR Part 15.225 (2022)**
- **RSS 210 Issue 11**
- **RSS Gen Issue 5.2**
- **ANSI C63.10 (2013)**

Radio requirement:

Clause - Test Description	Test result - Comments
Occupied Bandwidth	**PASS**
20dB Bandwidth	**NA**
AC Power Line Conducted Emission	**PASS**
Frequency Tolerance	**PASS**
Field strength within the band [13.110-14.010] MHz	**PASS**
Field strength outside of the bands [13.110-14.010] MHz	**PASS**
Receiver Radiated Emissions	**PASS(3)**
This table is a summary of test report, see conclusion of each clause of this test report for detail.	

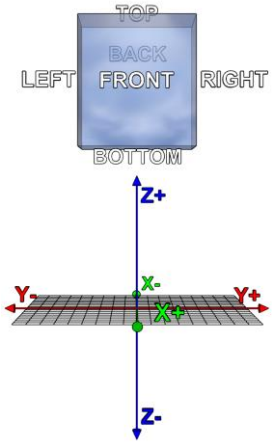
(1): Limited program
(2): EUT not directly or indirectly connected to the AC Power Public Network
(3): Testing covered the receive mode, and receiver spurious emissions are considered to be the same as transmitter.
PASS: EUT complies with standard's requirement
FAIL: EUT does not comply with standard's requirement
NA: Not Applicable
NP: Test Not Performed

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

2.1. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT):

Model under test:	**MPH-AC010A**
Serial Number:	**2448SXP20000078**



Dimensions:	14cm x 16cm x 25cm (Length x Width x Height)
Type:	Table-Top

Power supply:

Name	Type	Rating	Reference / Sn	Comments
Supply1	Power Supply - FRIWO	100-240V~ 50/60Hz	PHIHONG reference POE29U-1AT(PL)	Not sold with the product
Supply2	POE Injector - PHIHONG	Input:100-240V~50-60Hz	FRIWO model : FW7362/12	Not sold with the product

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
POE	PHIHONG reference POE29U-1AT(PL)	2	☐	☑	☑	100-240V~ 50/60Hz
AC/DC Power supply	FRIWO model : FW7362/12	1.8	☐	☐	☑	Input:100-240V~50-60Hz Output: 12Vdc 2.5A
DC Power supply	12Vdc	1.8	☐	☐	☑	-
Ethernet	RJ45	10	☐	☑	☑	Between POE and EUT when powered through POE or Between EUT and Laptop when powered through DC power supply.

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
LapTop	LENOVO L490	-	Not under test / just to send ping command
Tag	HID Tag testing		

Equipment information (declaration of provider):

Type:	**RFID**		
Frequency band:	[13.553 to 13.567] MHz		
Number of Channel:	1		
Antenna Type:	Internal		
Transmit chains:	1		
Receiver chains	1		
Operating temperature range:	T_{min}:	☑ -20°C for FCC	☑ -30°C* for IC
	T_{nom}:	20°C	
	T_{max}:	☐ 50°C	☑ 55°C*
Operating voltage:		DC Mode	POE Mode
	V_{min}:	9 VDC	42.5 VDC
	V_{nom}:	12 VDC	48 VDC
	V_{max}:	27.6 VDC	57 VDC

**Ask from provider*

Antenna Characteristic			
Antenna assembly	Gain (dBi)	Frequency Band (MHz)	Impedance(Ω)
NC	NC	NC	NC

Hardware information			
Highest internal frequency (PLL, Quartz, Clock, Microprocessor…):	**$F_{Highest}$:**	**13.56**	**MHz**
Firmware (if applicable):	**V:**	3.0.0.A16	
Software (if applicable):	**V:**	NC	

NC: Not communicated by provider

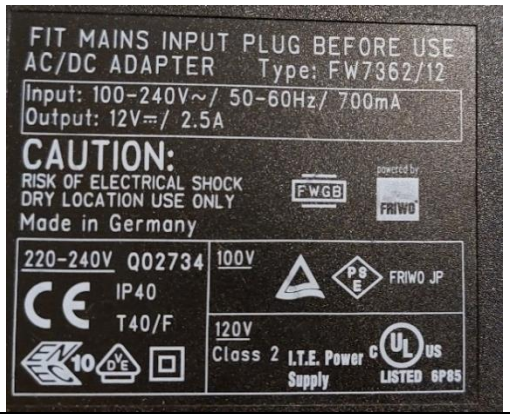
2.2. RUNNING MODE

Test mode	Description of test mode
Test mode 1	Permanent emission with modulation on a fixed channel in the data rate that produced the highest power. Tests are performed with "TAG".
Test mode 2	Permanent reception

Test	Running mode
Occupied Bandwidth	Test mode 1
Frequency Tolerance	Test mode 1
AC Power Line Conducted Emission	Test mode 1
Field strength within the band 13.110-14.010MHz	Test mode 1
Field strength outside of the bands 13.110-14.010 MHz	Test mode 1
Receiver Radiated Emissions	Test mode 2 (1)

(1) The test can't be performed because the transmitter and receiver are operating at the same frequency and the transmitter cannot be switched off as the carrier is used as receiver injection signal

2.3. EQUIPMENT LABELLING

Label


2.4. EQUIPMENT MODIFICATIONS DURING THE TESTS

None

2.5. 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

Example:
Assume a receiver reading of 52.5dBµV is obtained. The antenna factor of 7.4 and a cable factor of 1.1 are added. The amplifier gain of 29dB is subtracted, giving a field strength of 32 dBµV/m.
FS = 52.5 + 7.4 + 1.1 – 29 = 32 dBµV/m
The 32 dBµV/m value can be mathematically converted to its corresponding level in µV/m.
Level in µV/m = Common Antilogarithm [(32dBµV/m)/20] = 39.8 µV/m.

2.6. TEST DISTANCE EXTRAPOLATION – FCC/ISED

The field strength is extrapolated to the new measurement distance using formula from FCC Part15.31 (f) and §6.5-6.6 RSS-GEN:

Below 30MHz,

$$FS_{\text{limit}} = FS_{\max} - 40\log\left(\frac{d_{\text{limit}}}{d_{\text{measure}}}\right)$$

Above 30MHz,

$$FS_{\text{limit}} = FS_{\max} - 20\log\left(\frac{d_{\text{limit}}}{d_{\text{measure}}}\right)$$

Where:
FS_{limit} is the calculation of field strength at the limit distance, expressed in dBµV/m
FS_{max} is the measured field strength, expressed in dBµV/m
$d_{measure}$ is the distance of the measurement point from the EUT
d_{limit} is the reference limit distance

2.7. CALIBRATION DATE

The calibration intervals are extended at 12+2 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. OCCUPIED BANDWIDTH

3.1. TEST CONDITIONS

Date of test	:	February 25, 2025
Test performed by	:	Julien Palard
Atmospheric pressure (hPa)	:	-
Relative humidity (%)	:	35
Ambient temperature (°C)	:	22

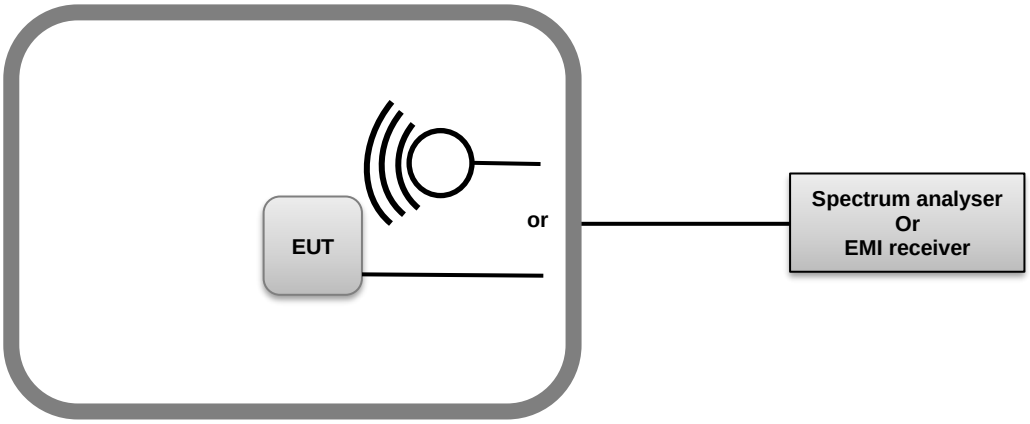
3.2. TEST SETUP

The Equipment Under Test is installed in a climatic chamber.
Measurement is performed with a spectrum analyzer in radiated method**.**

The EUT is turned ON, the center frequency of the spectrum analyzer is set to the fundamental frequency. The captured power is measured and recorded; the measurement is repeated until all frequencies required were complete.

Test Procedure:
☑ RSS-Gen Issue 5.2 § 6.7

- RBW used in the range of 1% to 5% of the anticipated emission bandwidth
- Set the video bandwidth (VBW) ≥ 3 x RBW.
- Detector = Peak.
- Trace mode = Max Hold.
- Sweep = Auto couple.
- Allow the trace to stabilize.
- OBW 99% function of spectrum analyzer used



Test setup of Occupied Bandwidth

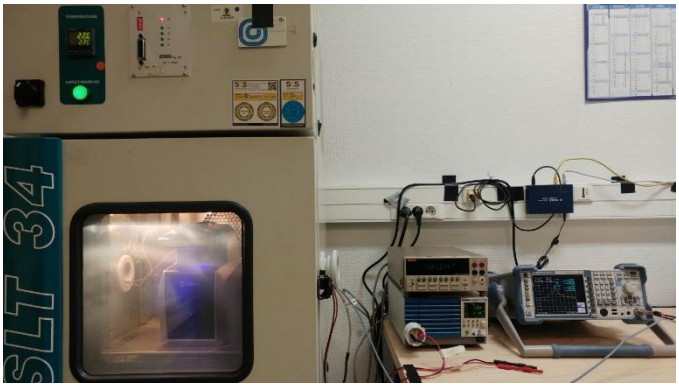


Photo of Occupied bandwidth

3.3. LIMIT

None

3.4. TEST EQUIPMENT LIST

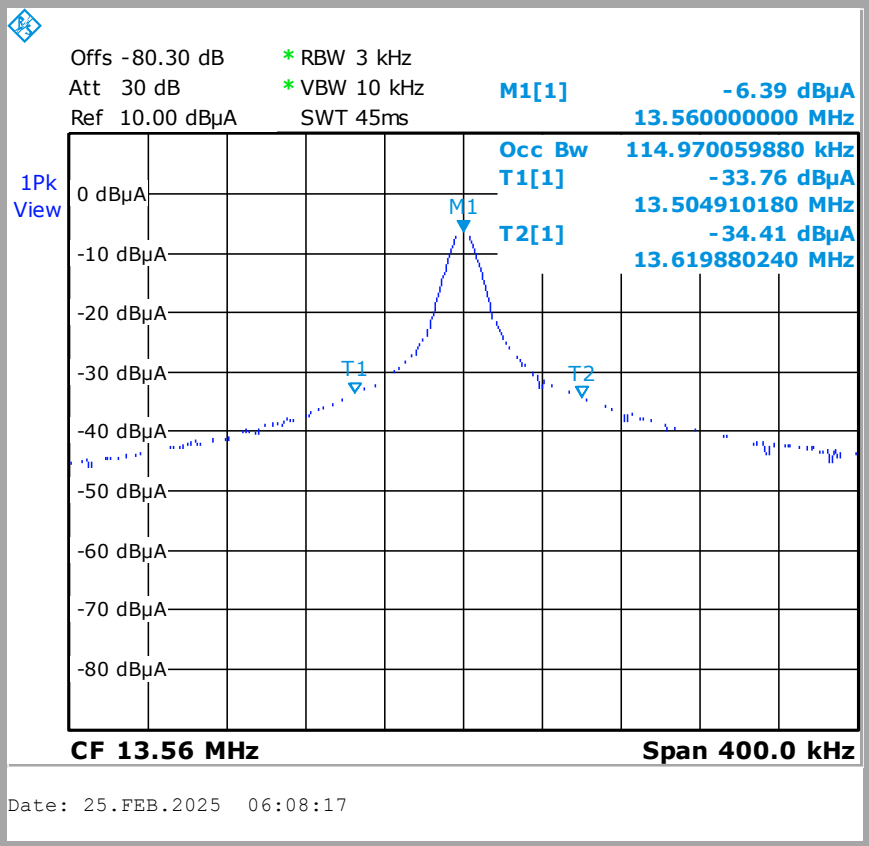
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Climatic chamber	SECASI	SLT34	D1024029	Calibrated with Thermometer	
Thermometer	FLUKE	FLUKE52	B4043164	2024/01	2026/01
Thermocouple Voie 1	FLUKE	Type K	B4043164/1	2024/01	2026/01
Thermocouple Voie 2	FLUKE	Type K	B4043164/2	2024/01	2026/01
EMI receiver	ROHDE & SCHWARZ	FSL6	A4060032	2022/10	2025/10
13,56MHz Test fixture Antenna	-	-	A5329422	Calibrated with EMI receiver	
Power supply	KIKUSUI	PCR500M	A7040079	Calibrated with Multimeter	
Multimeter	KEITHLEY	2000	A1241084	2023/05	2025/05
Thermo-hygrometer	OREGON	-	B4204075	2024/05	2026/05

3.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

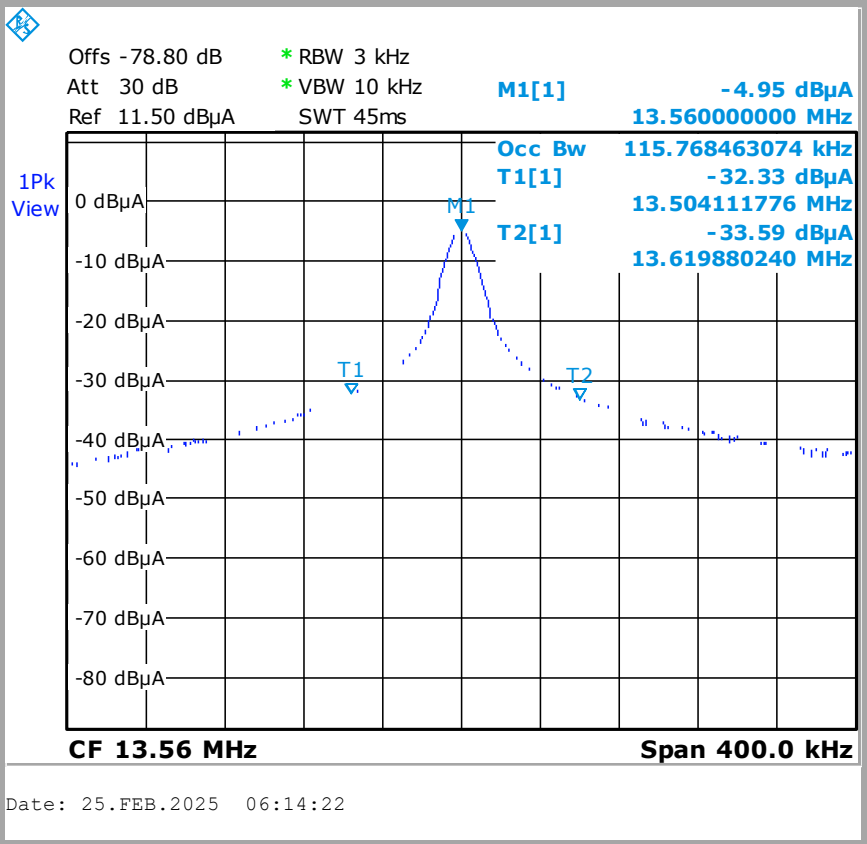
3.6. RESULTS

DC Mode	
Occupied Bandwidth	
13.56MHz	



Frequency(MHz)	Occupied Bandwidth (KHz)
13.56MHz	114.97

POE Mode
Occupied Bandwidth
13.56MHz



Frequency(MHz)	Occupied Bandwidth (KHz)
13.56MHz	115.76

3.7. CONCLUSION

Occupied Channel Bandwidth measurement performed on the sample of the product **MPH-AC010A**, Sn: **2448SXP20000078**, in configuration and description presented in this test report, show levels **compliant** to the **RSS-GEN** limits.

4. 20dB Emission Bandwidth

4.1. TEST CONDITIONS

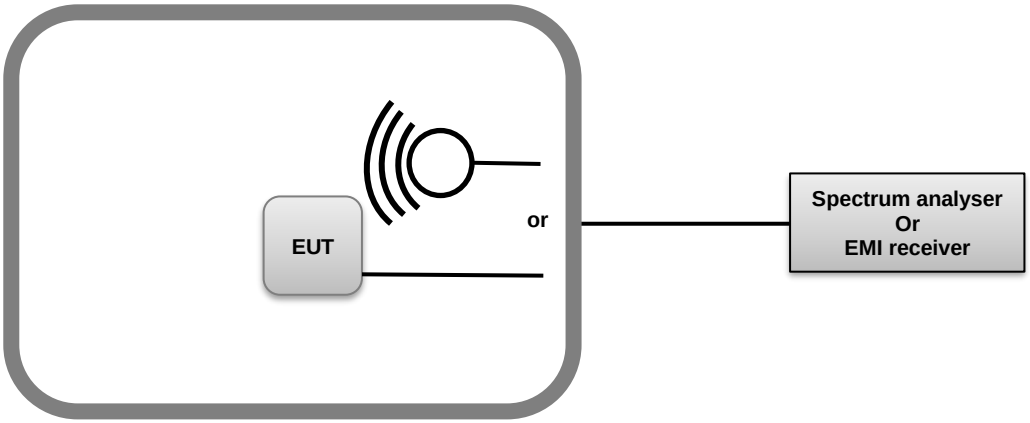
Date of test	:	February 25, 2025
Test performed by	:	Julien Palard
Atmospheric pressure (hPa)	:	-
Relative humidity (%)	:	35
Ambient temperature (°C)	:	22

4.2. TEST SETUP

The Equipment Under Test is installed in a climatic chamber.
Measurement is performed with a spectrum analyzer in radiated method.

Test Procedure:
☑ ANSI C63.10 § 6.9.2:

The EUT is turn ON; levels have been corrected to be in compliant with the Peak Output Power measured; and using the MaxHold function, the frequency separation of two frequencies that were attenuated 20dB from the Peak Output Power level. A delta marker is used to measure the frequency difference as the emission bandwidth.



Test setup of 20dB emission bandwidth

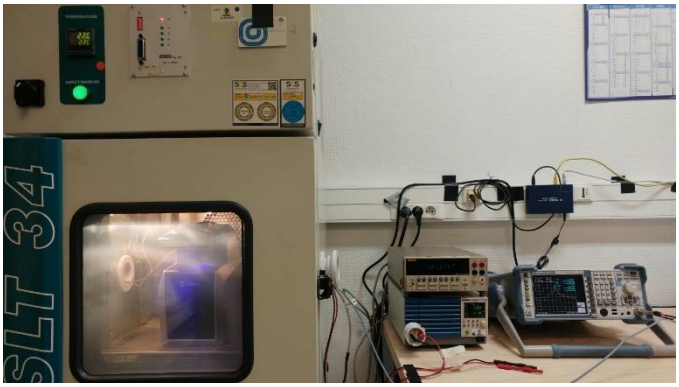


Photo of 20dB emission bandwidth

4.3. LIMIT

No Limit

4.4. TEST EQUIPMENT LIST

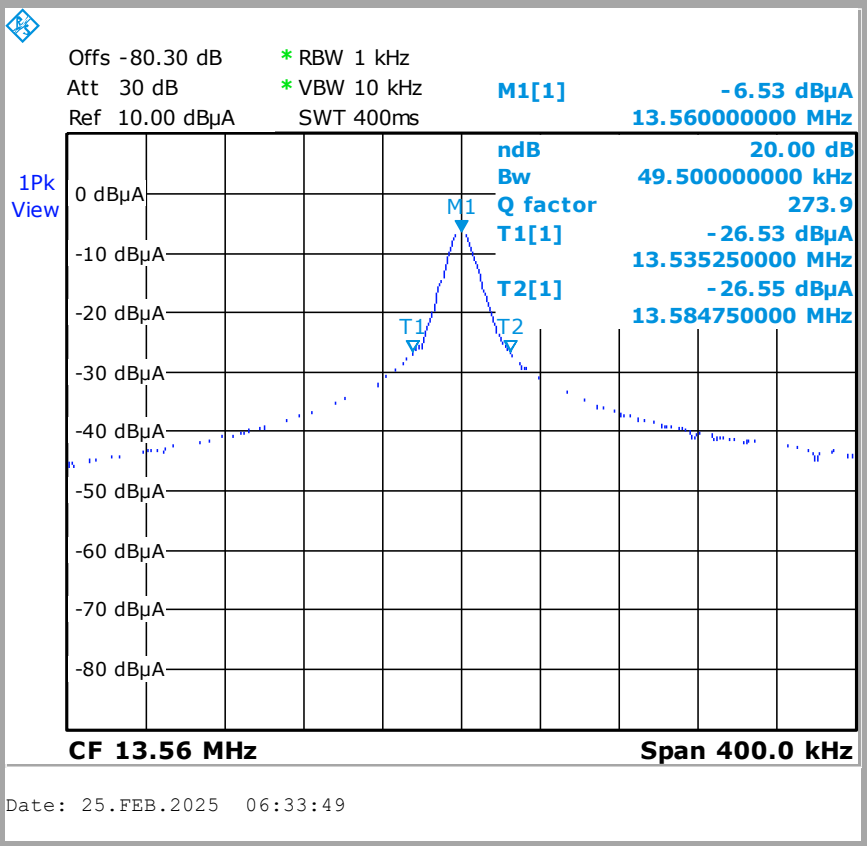
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Climatic chamber	SECASI	SLT34	D1024029	Calibrated with Thermometer	
Thermometer	FLUKE	FLUKE52	B4043164	2024/01	2026/01
Thermocouple Voie 1	FLUKE	Type K	B4043164/1	2024/01	2026/01
Thermocouple Voie 2	FLUKE	Type K	B4043164/2	2024/01	2026/01
EMI receiver	ROHDE & SCHWARZ	FSL6	A4060032	2022/10	2025/10
13,56MHz Test fixture Antenna	-	-	A5329422	Calibrated with EMI receiver	
Power supply	KIKUSUI	PCR500M	A7040079	Calibrated with Multimeter	
Multimeter	KEITHLEY	2000	A1241084	2023/05	2025/05
Thermo-hygrometer	OREGON	-	B4204075	2024/05	2026/05

4.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

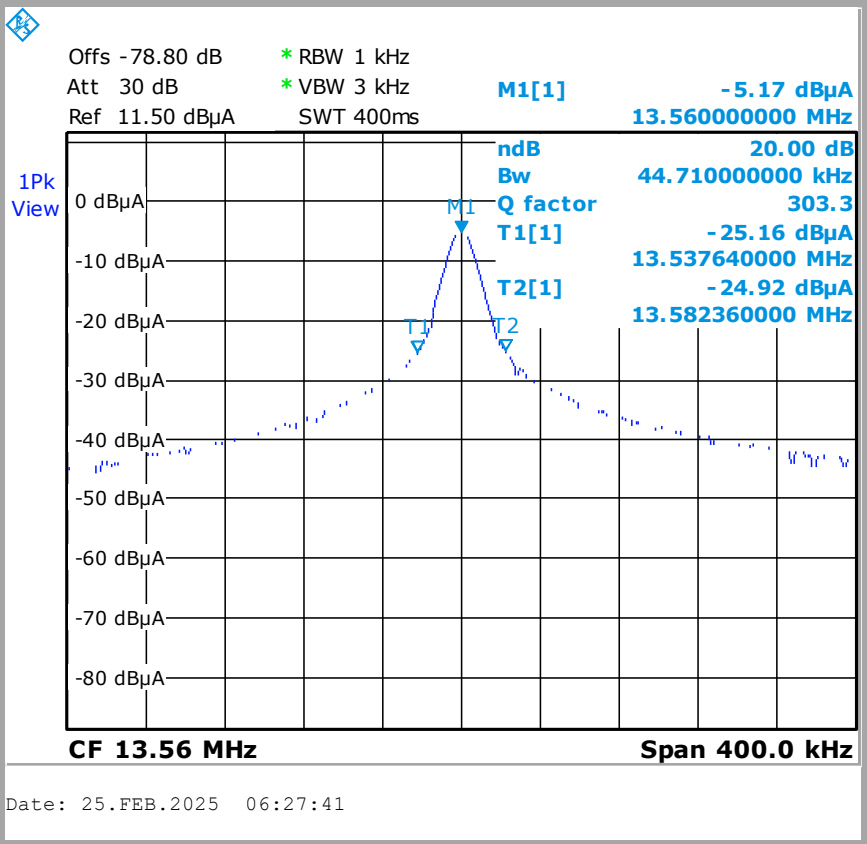
4.6. RESULTS

DC Mode	
Occupied Bandwidth	
13.56MHz	



Frequency(MHz)	20 dB Bandwidth (kHz)
13.56MHz	49.50

POE Mode
Occupied Bandwidth
13.56MHz



Frequency(MHz)	20 dB Bandwidth (kHz)
13.56MHz	44.71

4.7. CONCLUSION

20dB Emission Bandwidth measurement performed on the sample of the product **MPH-AC010A**, Sn: **2448SXP20000078**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.225 & RSS 210** limits.

5. FREQUENCY TOLERANCE

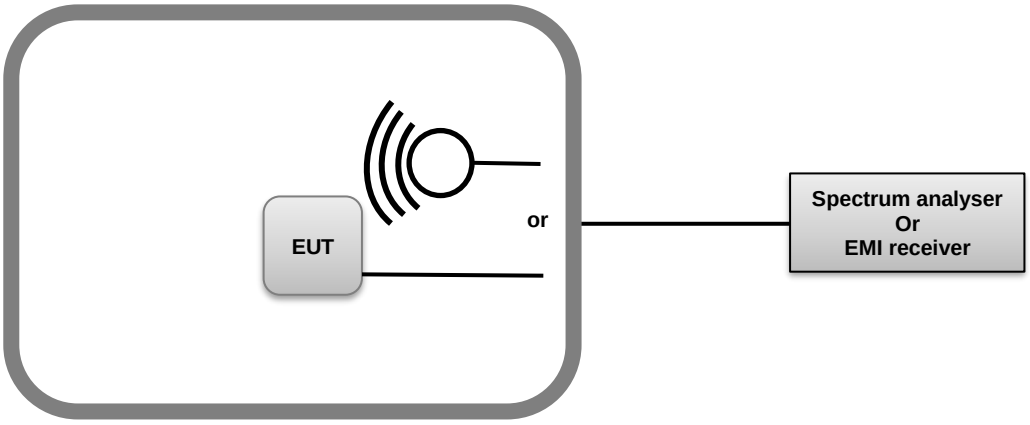
5.1. TEST CONDITIONS

Date of test	:	February 25, 2025 & February 25, 2025
Test performed by	:	Julien Palard
Atmospheric pressure (hPa)	:	-
Relative humidity (%)	:	35
Ambient temperature (°C)	:	22

5.2. TEST SETUP

The Equipment Under Test is installed **in a climatic chamber.**
Measurement is performed with a spectrum analyzer in **radiated method.**

Test Procedure:
☑ ANSI C63.10 § 6.8



Test setup of frequency tolerance

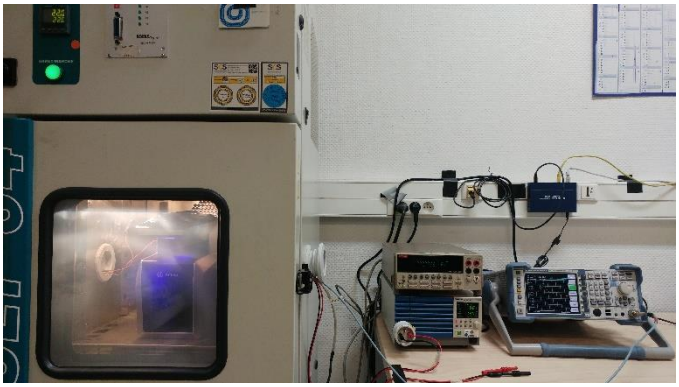


Photo of frequency tolerance in normal test condition

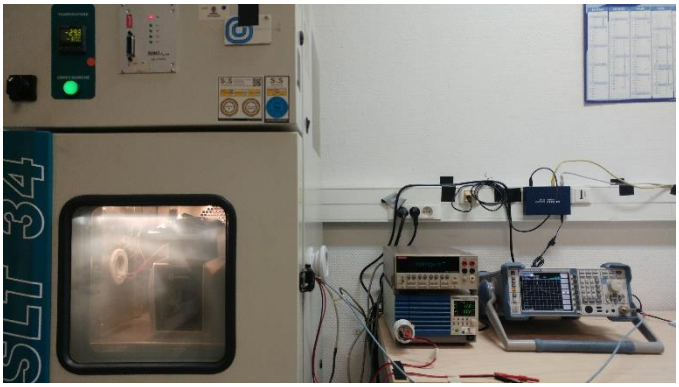


Photo of frequency tolerance in extreme test condition

5.3. LIMIT

±0.01% (± 100ppm)

5.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Climatic chamber	SECASI	SLT34	D1024029	Calibrated with Thermometer	
Thermometer	FLUKE	FLUKE52	B4043164	2024/01	2026/01
Thermocouple Voie 1	FLUKE	Type K	B4043164/1	2024/01	2026/01
Thermocouple Voie 2	FLUKE	Type K	B4043164/2	2024/01	2026/01
EMI receiver	ROHDE & SCHWARZ	FSL6	A4060032	2022/10	2025/10
13,56MHz Test fixture Antenna	-	-	A5329422	Calibrated with EMI receiver	
Power supply	KIKUSUI	PCR500M	A7040079	Calibrated with Multimeter	
Multimeter	KEITHLEY	2000	A1241084	2023/05	2025/05
Thermo-hygrometer	OREGON	-	B4204075	2024/05	2026/05

5.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

5.6. RESULTS

Frequency (MHz)	13,56	DC Mode								
EUT ACTIVATION	Start up									
Voltage	Vnom									
Temperature	-30	-20	-10	0	10	20	30	40	50	55
Frequency (MHz)	13,5597725	13,5597924	13,5598283	13,5598363	13,5598164	13,5597924	13,5597645	13,5597405	13,5597166	13,5597126
Frequency Drift (%)	-0,0017	-0,0015	-0,0013	-0,0012	-0,0014	-0,0015	-0,0017	-0,0019	-0,0021	-0,0021
EUT ACTIVATION	2min									
Voltage	Vnom									
Temperature	-30	-20	-10	0	10	20	30	40	50	55
Frequency (MHz)	13,5597764	13,5598004	13,5598363	13,5598363	13,5598164	13,5597924	13,5597565	13,5597365	13,5597166	13,5597126
Frequency Drift (%)	-0,0016	-0,0015	-0,0012	-0,0012	-0,0014	-0,0015	-0,0018	-0,0019	-0,0021	-0,0021
EUT ACTIVATION	5min									
Voltage	Vnom									
Temperature	-30	-20	-10	0	10	20	30	40	50	55
Frequency (MHz)	13,5597764	13,5598044	13,5598363	13,5598363	13,5598124	13,5597924	13,5597565	13,5597365	13,5597146	13,5597116
Frequency Drift (%)	-0,0016	-0,0014	-0,0012	-0,0012	-0,0014	-0,0015	-0,0018	-0,0019	-0,0021	-0,0021
EUT ACTIVATION	10min									
Voltage	Vnom									
Temperature	-30	-20	-10	0	10	20	30	40	50	55
Frequency (MHz)	13,5597804	13,5598084	13,5598363	13,5598363	13,5598124	13,5597924	13,5597565	13,5597325	13,5597135	13,5597116
Frequency Drift (%)	-0,0016	-0,0014	-0,0012	-0,0012	-0,0014	-0,0015	-0,0018	-0,0020	-0,0021	-0,0021

Temperature	Tnom		
Voltage	Vmin	Vnom	Vmax
Frequency (MHz)	13,559768500	13,559772500	13,559772500
Frequency Drift (%)	-0,0017	-0,0017	-0,0017

Frequency (MHz)	13,56	POE Mode								
EUT ACTIVATION	Start up									
Voltage	Vnom									
Temperature	-30	-20	-10	0	10	20	30	40	50	55
Frequency (MHz)	13,5597725	13,5598044	13,5598363	13,5598363	13,5598204	13,5597924	13,5597685	13,5597325	13,5597166	13,5597126
Frequency Drift (%)	-0,0017	-0,0014	-0,0012	-0,0012	-0,0013	-0,0015	-0,0017	-0,0020	-0,0021	-0,0021
EUT ACTIVATION	2min									
Voltage	Vnom									
Temperature	-30	-20	-10	0	10	20	30	40	50	55
Frequency (MHz)	13,5597764	13,5598124	13,5598363	13,5598363	13,5598204	13,5597924	13,5597645	13,5597325	13,5597166	13,5597115
Frequency Drift (%)	-0,0016	-0,0014	-0,0012	-0,0012	-0,0013	-0,0015	-0,0017	-0,0020	-0,0021	-0,0021
EUT ACTIVATION	5min									
Voltage	Vnom									
Temperature	-30	-20	-10	0	10	20	30	40	50	55
Frequency (MHz)	13,5597804	13,5598124	13,5598363	13,5598363	13,5598204	13,5597884	13,5597605	13,5597325	13,5597126	13,5597115
Frequency Drift (%)	-0,0016	-0,0014	-0,0012	-0,0012	-0,0013	-0,0016	-0,0018	-0,0020	-0,0021	-0,0021
EUT ACTIVATION	10min									
Voltage	Vnom									
Temperature	-30	-20	-10	0	10	20	30	40	50	55
Frequency (MHz)	13,5597764	13,5598164	13,5598403	13,5598363	13,5598204	13,5597884	13,5597605	13,5597325	13,5597116	13,5597106
Frequency Drift (%)	-0,0016	-0,0014	-0,0012	-0,0012	-0,0013	-0,0016	-0,0018	-0,0020	-0,0021	-0,0021

Temperature	Tnom		
Voltage	Vmin	Vnom	Vmax
Frequency (MHz)	13,559772500	13,559772500	13,559772500
Frequency Drift (%)	-0,0017	-0,0017	-0,0017

5.7. CONCLUSION

Frequency tolerance measurement performed on the sample of the product **MPH-AC010A**, Sn: **2448SXP20000078**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.225 & RSS 210** limits.

6. AC POWER LINE CONDUCTED EMISSIONS

6.1. TEST CONDITIONS

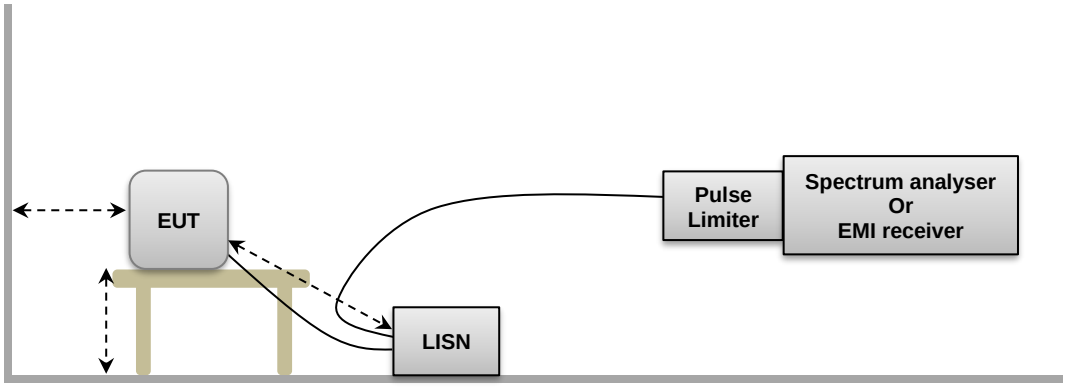
Date of test	:	October 14, 2024
Test performed by	:	Laurent Deneux
Atmospheric pressure (hPa)	:	-
Relative humidity (%)	:	43
Ambient temperature (°C)	:	23

6.2. TEST SETUP

Test procedure:
☑ ANSI C63.10 & FCC Part 15 subpart C

The EUT and auxiliaries are set 80cm above the ground on the non-conducting table (Table-top equipment) at 80cm from the LISN, the cable has been shorted to 1meter length. The distance between the EUT and the vertical ground plane is 40cm. Measurement is made with a receiver in peak mode. This was followed by a Quasi-Peak, i.e. CISPR measurement for any strong signal. If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary. Interconnecting cables and equipment's were moved to position that maximized emission. The EUT is powered like specified in following table, through a LISN (measure); auxiliaries are powered by another LISN.

Type	Measurement performed:	
☑ AC / ☑ DC (Auxiliary used)	☑ 120VAC/60Hz	☑ 240VAC/50Hz
☐ USB (Laptop auxiliary)	☐ 120VAC/60Hz (Laptop auxiliary)	☐ 240VAC/50Hz (Laptop auxiliary)



Test setup of AC Power Line Conducted Emissions

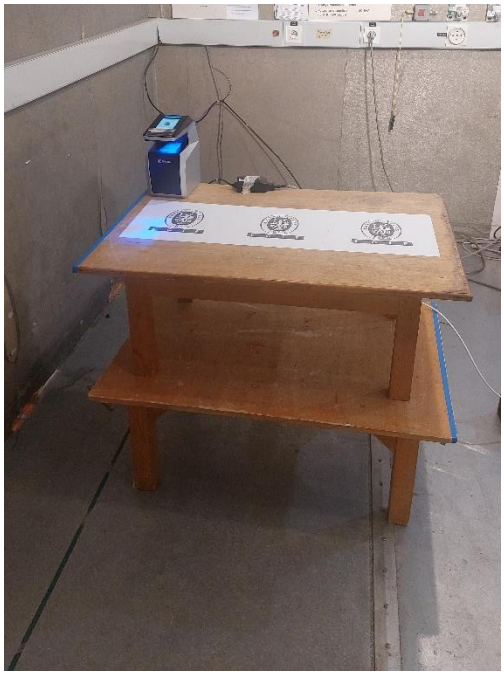


Photo of AC Power Line Conducted Emissions

6.3. LIMIT

Frequency range	Level	Detector
0,15kHz to 0,5MHz	66dBµV to 56µV*	QPeak
	56dBµV to 46µV*	Average
0,5MHz to 5MHz	56dBµV	QPeak
	46dBµV	Average
5MHz to 30MHz	60BµV	QPeak
	50dBµV	Average

*Decreases with the logarithm of the frequency

6.4. TEST EQUIPMENT LIST

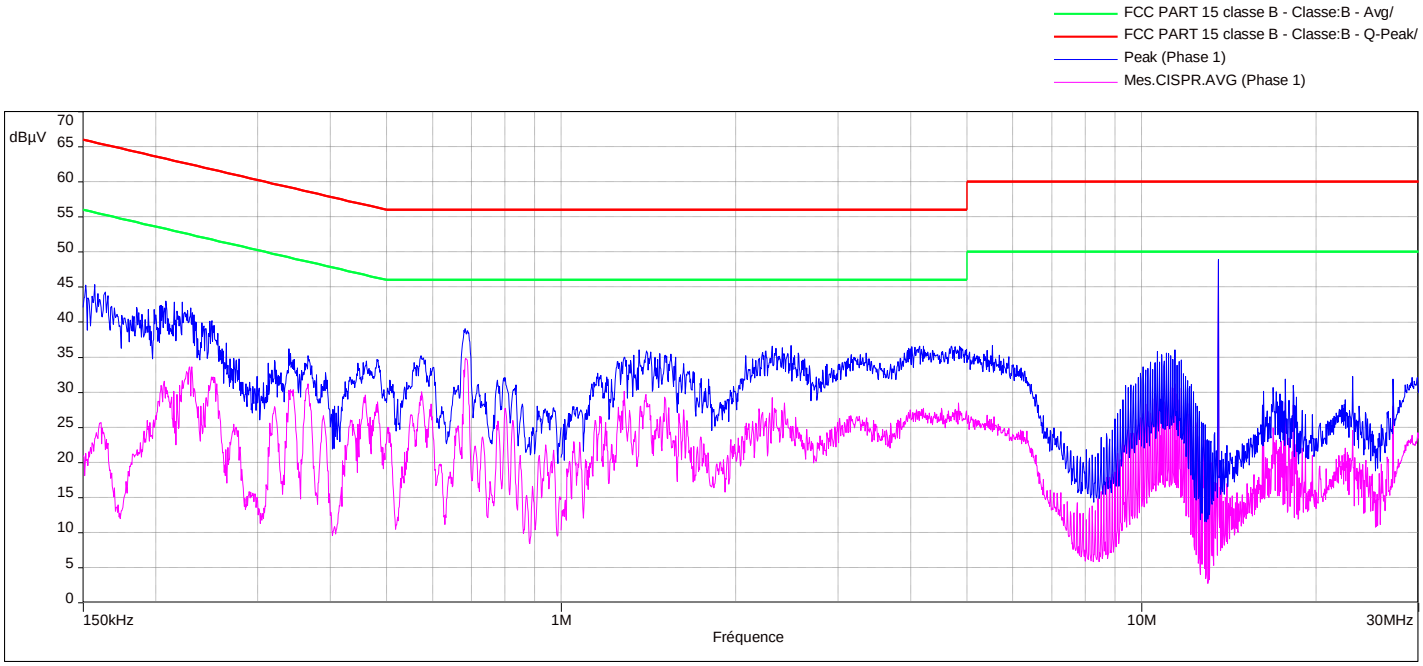
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Receiver	ROHDE & SCHWARZ	ESU	A2642018	2023/03	2025/03
Limiter	ROHDE & SCHWARZ	ESH3-Z2	A2649008	2024/08	2025/08
Network V / V ISLN	ROHDE & SCHWARZ	ESH2-Z5	C2322002	2025/01	2026/01
Cable	LCIE	-	A5329589	2023/11	2025/11
Cable	-	-	A5329417	2024/11	2025/11
Power supply	DANA	DSC5000	A7044076	-	-
Software V3.21.0.9	NEXIO	BAT-EMC	-	-	-

6.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

6.6. TEST RESULTS

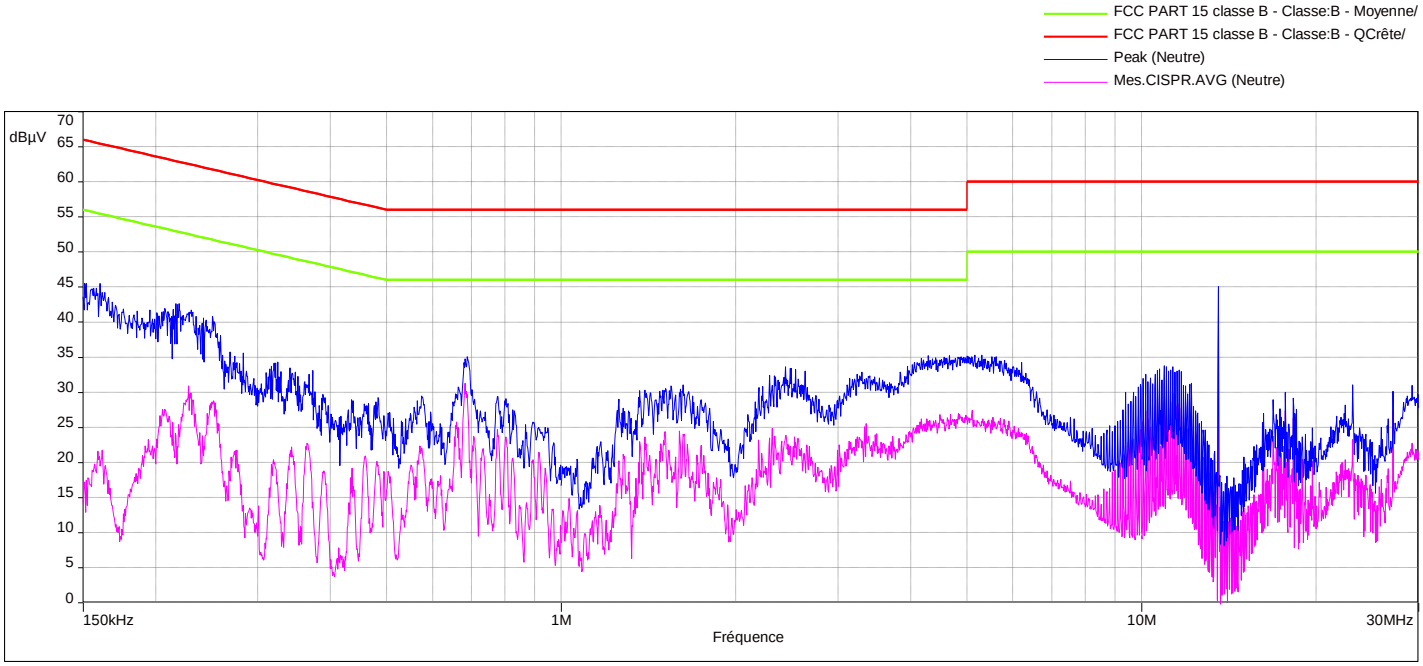
Diagram N°1
Mode DC
Phase 240V/50Hz



Fréquences: 150kHz-30MHz(Mode :lin, Pas :5kHz)
Réglages :RBW :9kHz, VBW :Auto, Durée balayage : 20ms/pts, Atténuation :auto, Nombre de balayage :1, Préamp :On , LN preamp : Off, Préselecteur : On

Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin peak/Quasi Peak (dB)	Average Level (dBµV)	Average Limit (dBµV)	Margin Avg/Avg (dB)
0,227	43	-	62,6	19,6	31,2	52,6	21,4
0,683	38,5	-	56	17,5	34,5	46	11,5
1,4	35,4	-	56	20,6	29,6	46	16,4
11,42	34,8	-	60	25,2	31,2	50	18,8
13,56	48,8	-	60	11,2	48,6	50	1,4

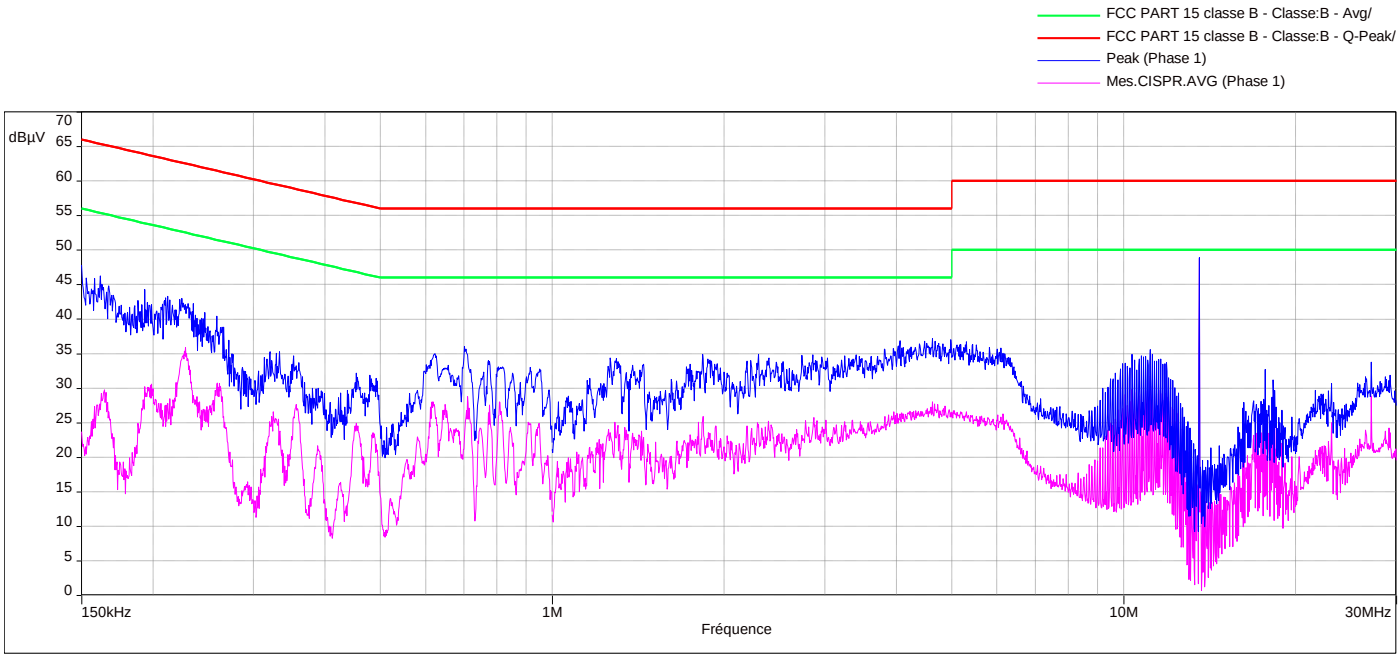
Diagram N°2
Mode DC
Neutral 240V/50Hz



Fréquences: 150kHz-30MHz(Mode :lin, Pas :5kHz)
Réglages :RBW :9kHz, VBW :Auto, Durée balayage : 20ms/pts, Atténuation :auto, Nombre de balayage :1, Préamp :On , LN preamp : Off, Préselecteur : On

Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin peak/Quasi Peak (dB)	Average Level (dBµV)	Average Limit (dBµV)	Margin Avg/Avg (dB)
0,227	41,3	-	62,6	21,3	30,9	52,6	21,7
0,682	34,5	-	56	21,5	31,3	46	14,7
5	35	-	56	21	26,75	46	19,25
11,32	33,2	-	60	26,8	29,8	50	20,2
13,56	45	-	60	15	44,6	50	5,4

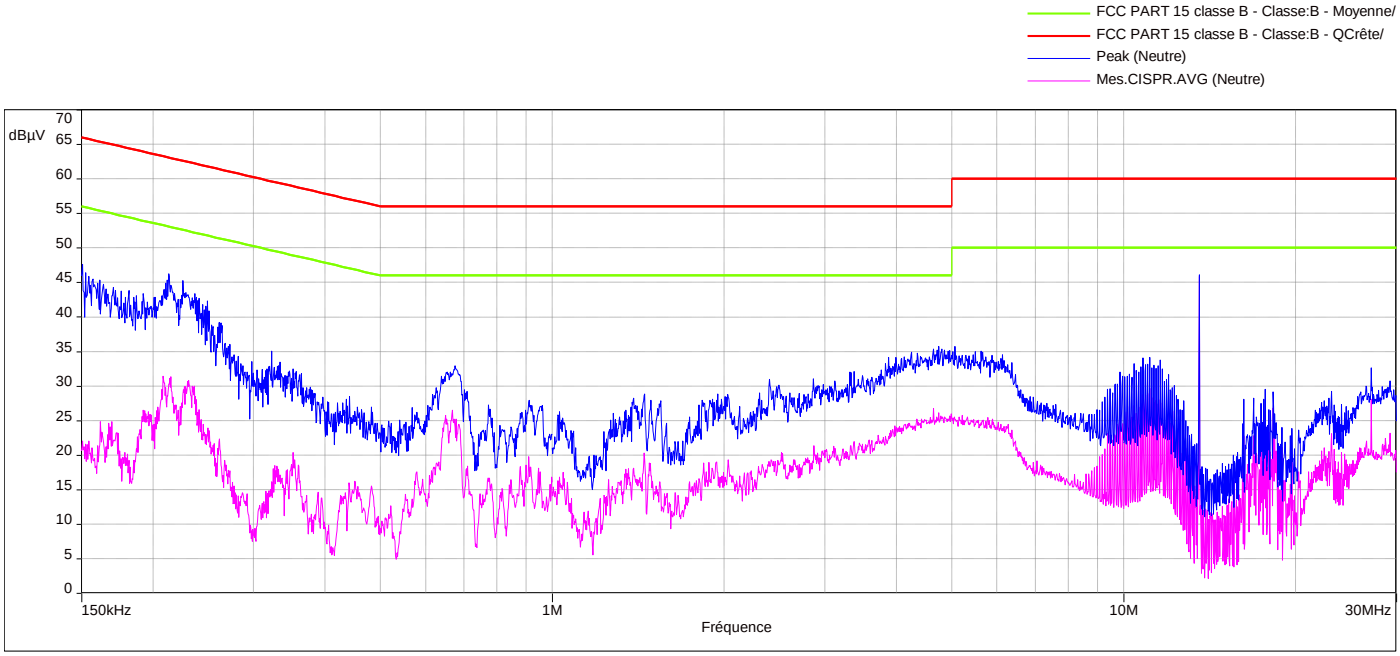
Diagram N°3
Mode DC
Phase 120/60Hz



Fréquences: 150kHz-30MHz(Mode :lin, Pas :5kHz)
Réglages :RBW :9kHz, VBW :Auto, Durée balayage : 20ms/pts, Atténuation :auto, Nombre de balayage :1, Préamp :On , LN preamp : Off, Préselecteur : On

Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin peak/Quasi Peak (dB)	Average Level (dBµV)	Average Limit (dBµV)	Margin Avg/Avg (dB)
0,227	42	-	62,6	20,6	34,7	52,6	17,9
0,71	34,8	-	56	21,2	28,8	46	17,2
15,56	48,9	-	60	11,1	48,8	50	1,2
17,69	31,5	-	60	28,5	27,8	50	22,2
27,12	33,8	-	60	26,2	27,9	50	22,1

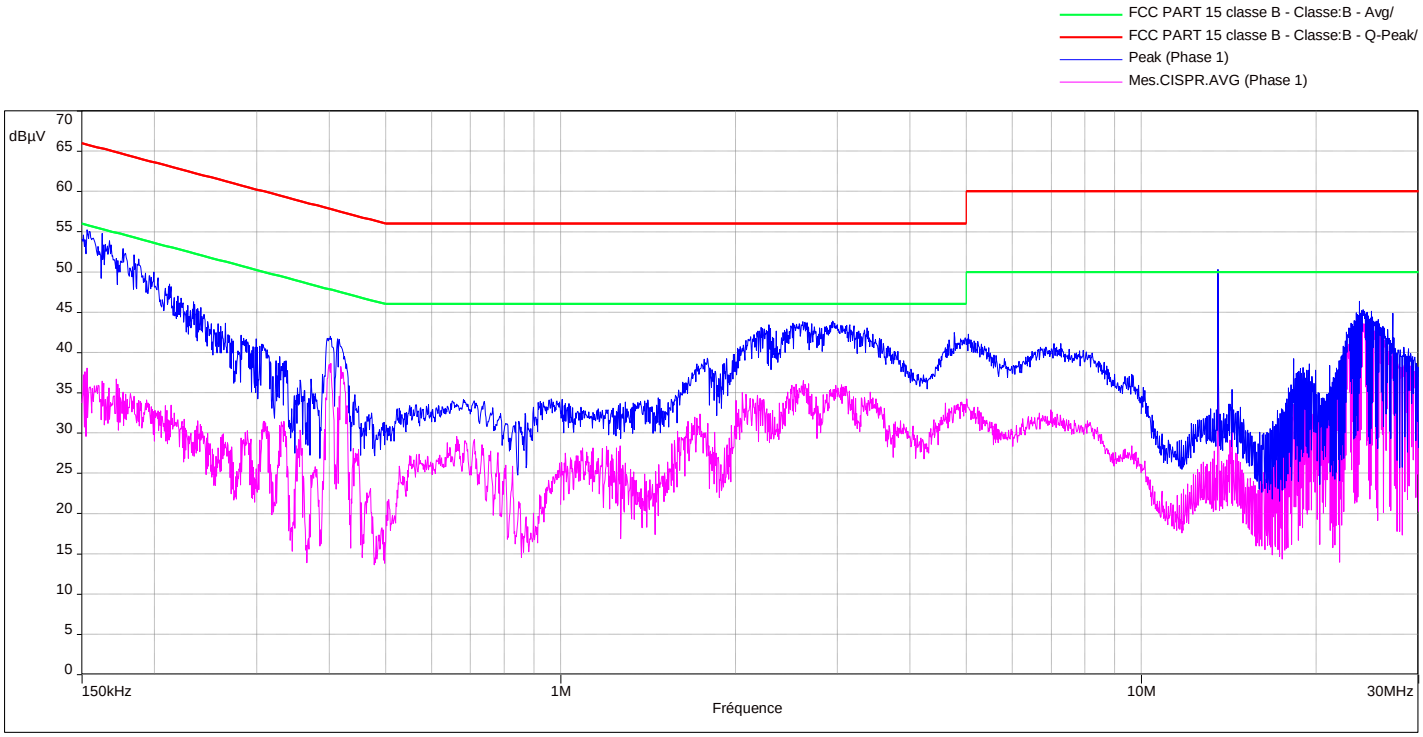
Diagram N°4
Mode DC
Neutral 120/60Hz



Fréquences: 150kHz-30MHz(Mode :lin, Pas :5kHz)
Réglages :RBW :9kHz, VBW :Auto, Durée balayage : 20ms/pts, Atténuation :auto, Nombre de balayage :1, Préamp :On , LN preamp : Off, Préselecteur : On

Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin peak/Quasi Peak (dB)	Average Level (dBµV)	Average Limit (dBµV)	Margin Avg/Avg (dB)
0,213	46,2	-	63	16,8	30,3	53	22,7
0,668	31,6	-	56	24,4	26,5	46	19,5
4,72	35,2	-	56	20,8	24,8	46	21,2
11,1	34,1	-	60	25,9	29,7	50	20,3
13,56	46	-	60	14	45,8	50	4,2

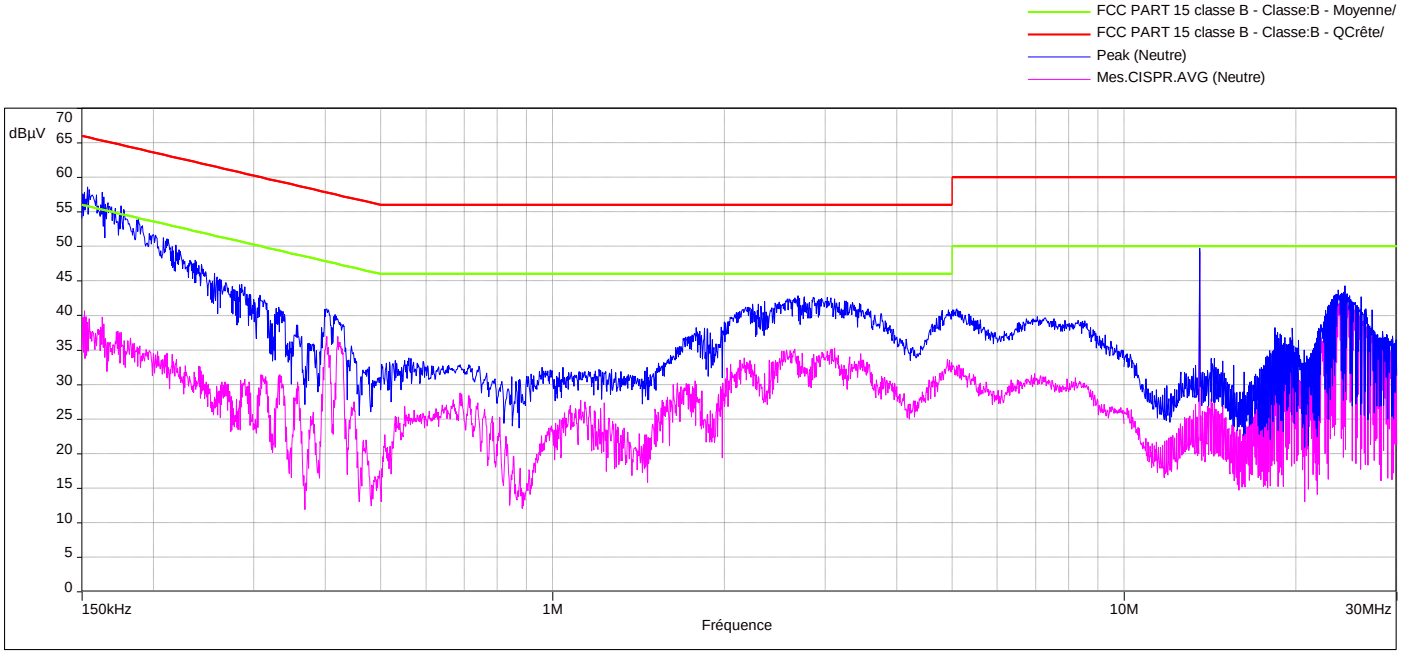
Diagram N°5
Mode POE
Phase 240V/50Hz



Fréquences: 150kHz-30MHz(Mode :lin, Pas :5kHz)
Réglages :RBW :9kHz, VBW :Auto, Durée balayage : 20ms/pts, Atténuation :auto, Nombre de balyage :1, Préamp :On , LN preamp : Off, Préselecteur : On

Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin peak/Quasi Peak (dB)	Average Level (dBµV)	Average Limit (dBµV)	Margin Avg/Avg (dB)
0,15	54	-	66	12	37,7	56	18,3
0,4	41,8	-	56	14,2	38,2	46	7,8
2,62	42,8	-	56	13,2	36,5	46	9,5
13,56	50,3	-	60	9,7	49,5	50	0,5
23,73	46,35	-	60	13,65	42,6	50	7,4

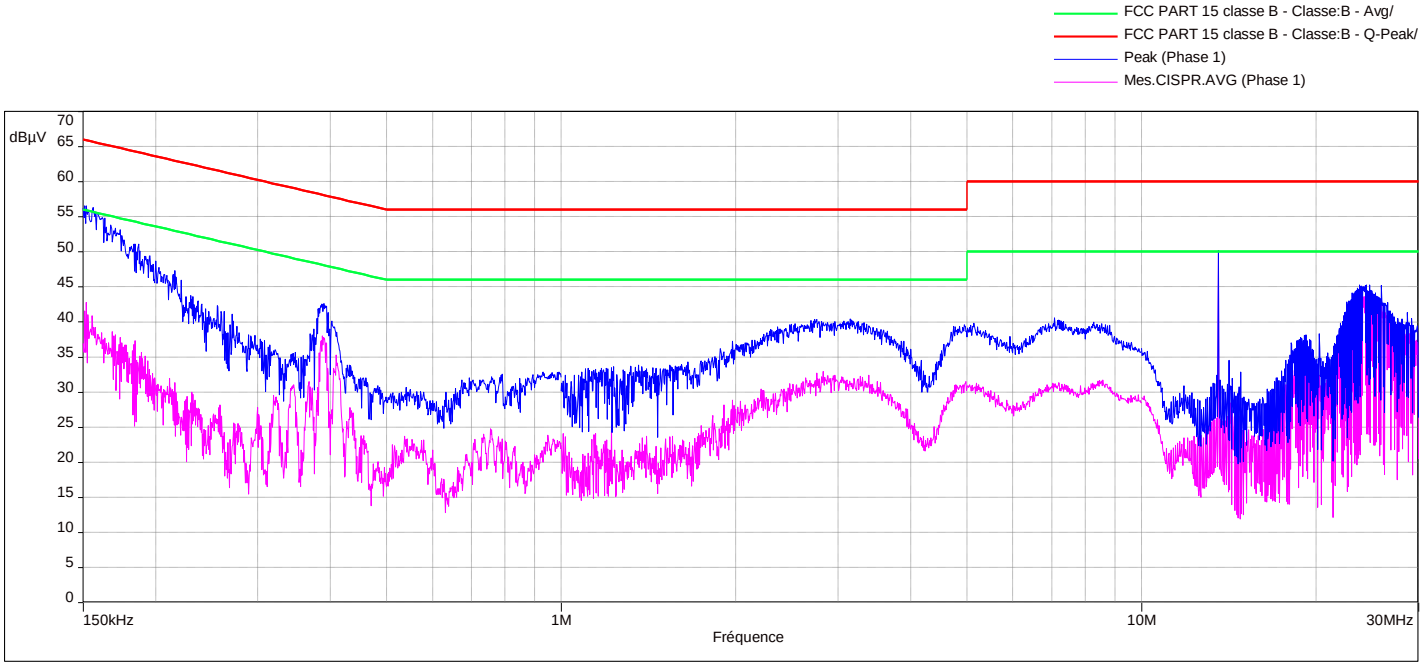
Diagram N°6
Mode POE
Neutral 240V/50Hz



Fréquences: 150kHz-30MHz(Mode :lin, Pas :5kHz)
Réglages :RBW :9kHz, VBW :Auto, Durée balayage : 20ms/pts, Atténuation :auto, Nombre de balayage :1, Préamp :On , LN preamp : Off, Préselecteur : On

Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin peak/Quasi Peak (dB)	Average Level (dBµV)	Average Limit (dBµV)	Margin Avg/Avg (dB)
0,15	57,6	-	57,8	0,2	39,7	47,8	8,1
0,403	41	-	56	15	36,9	46	9,1
3,07	42,5	-	56	13,5	35	46	11
13,56	49,7	-	60	10,3	49,2	50	0,8
24,35	44,2	-	60	15,8	41,6	50	8,4

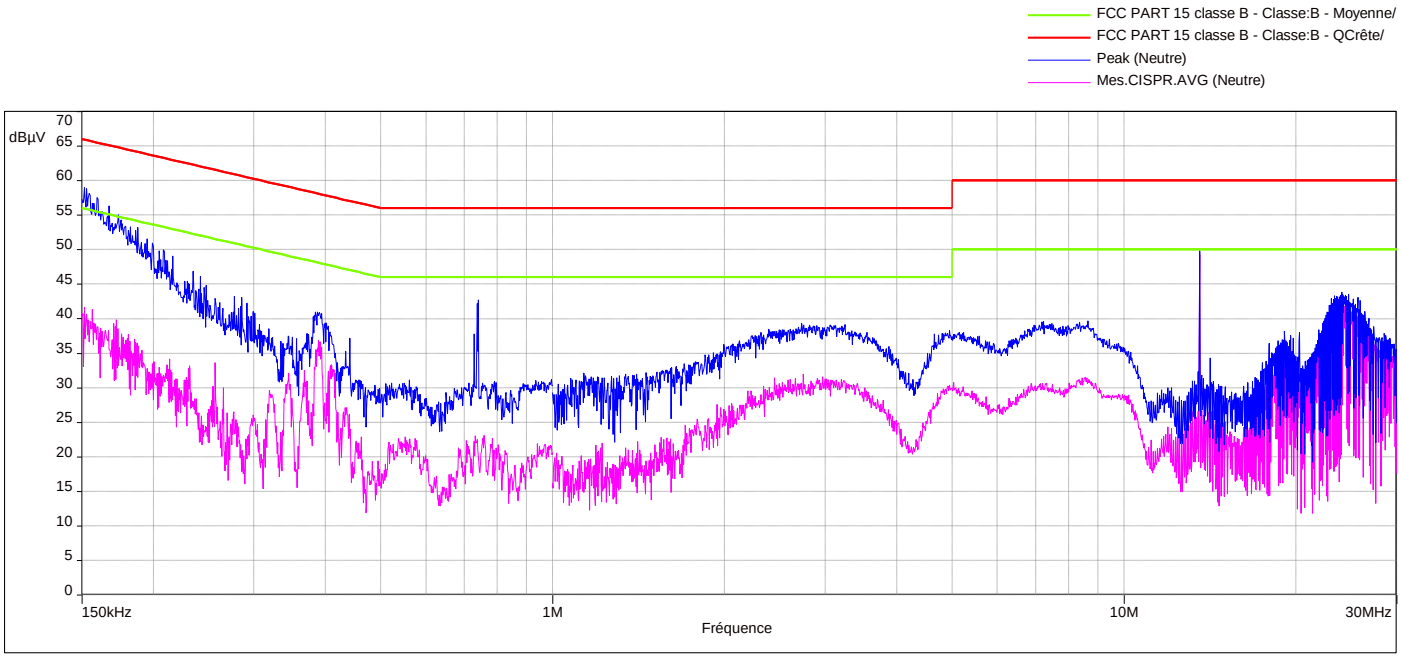
Diagram N°7
Mode POE
Phase 120/60Hz



Fréquences: 150kHz-30MHz(Mode :lin, Pas :5kHz)
Réglages :RBW :9kHz, VBW :Auto, Durée balayage : 20ms/pts, Atténuation :auto, Nombre de balayage :1, Préamp :On , LN preamp : Off, Préselecteur : On

Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin peak/Quasi Peak (dB)	Average Level (dBµV)	Average Limit (dBµV)	Margin Avg/Avg (dB)
0,15	56,2	-	66	9,8	36,9	56	19,1
0,388	42,2	-	58	15,8	38	48	10
2,94	39,8	-	56	16,2	32,3	46	13,7
13,56	50,16	-	60	9,84	49,7	50	0,3
24,42	45,27	-	60	14,73	43,63	50	6,37

Diagram N°8
Mode POE
Neutral 120/60Hz



Fréquences: 150kHz-30MHz(Mode :lin, Pas :5kHz)
Réglages :RBW :9kHz, VBW :Auto, Durée balayage : 20ms/pts, Atténuation :auto, Nombre de balayage :1, Préamp :On , LN preamp : Off, Préselecteur : On

Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin peak/Quasi Peak (dB)	Average Level (dBµV)	Average Limit (dBµV)	Margin Avg/Avg (dB)
0,15	57,3	-	66	8,7	40,3	56	15,7
0,388	40,5	-	58	17,5	36,8	48	11,2
2,9	38,28	-	56	17,72	31,32	46	14,68
13,56	49,8	-	60	10,2	49,3	50	0,7
25,69	42,8	-	60	17,2	39,8	50	10,2

6.7. CONCLUSION

AC Power Line Conducted Emission measurement performed on the sample of the product **MPH-AC010A**, Sn: **2448SXP20000078**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.225 & RSS Gen** limits.

7. FIELD STRENGTH OUTSIDE OF THE BANDS 13.110-14.010 MHZ

7.1. TEST CONDITIONS

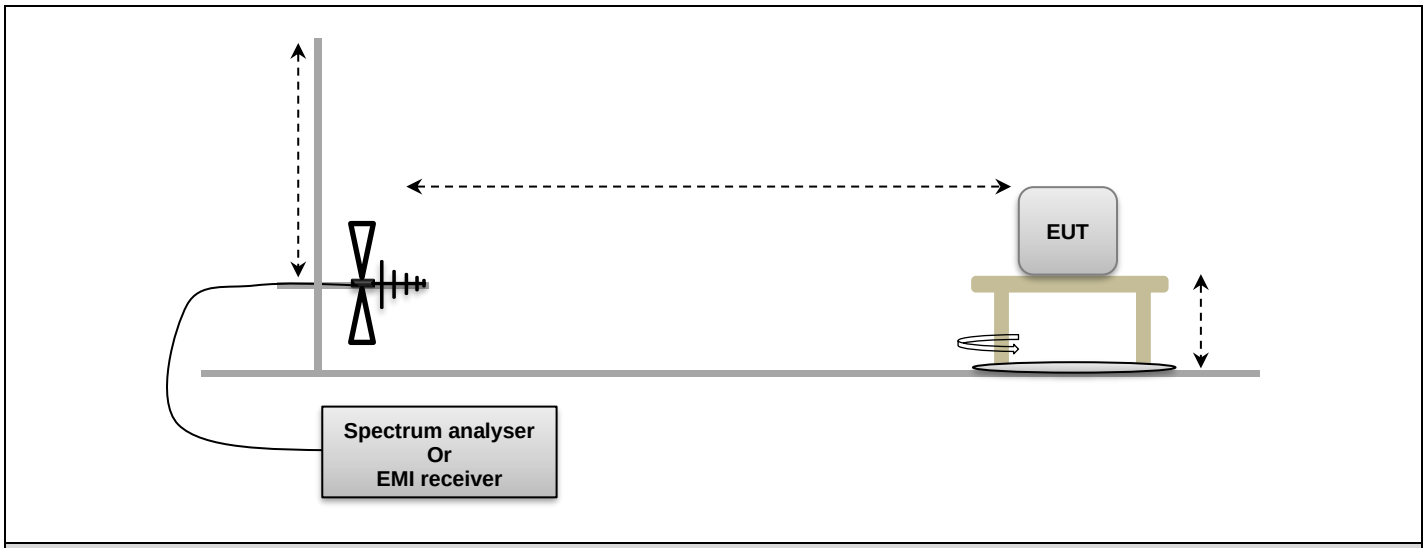
Date of test : February 17, 2025
Test performed by : Laurent Deneux
Atmospheric pressure (hPa) : -
Relative humidity (%) : 45
Ambient temperature (°C) : 10

7.2. TEST SETUP

Test procedure:
☑ ANSI C63.10 & FCC Part 15 subpart C

Following frequency ranges, test setup parameters are different and specified in this table:

Frequency range:	**Below 30MHz**	**From 30MHz to 1GHz**	Horizontal And Vertical
Antenna Polarization:	Parallel, Perpendicular And Ground parallel	Horizontal And Vertical	HorizontalAnd Vertical
Antenna Height:	1m	Varied from 1m to 4m	Centered on EUT (§6.6.5 ANSI C63-10)
Antenna Type:	Loop	Bi-Log	Horn
RBW Filter:	200Hz below 150kHz 9kHz above 150kHz	120kHz	1MHz
Maximization:	Turntable rotation of 360 degrees range		Turntable rotation of 360 degrees range
EUT height:	0.8m		1.5m
Pre-Characterization site:	Open Aera Test Site	Open Aera Test Site	Open Aera Test Site
Qualification site:	Open Aera Test Site	Open Aera Test Site	Open Aera Test Site
Distance EUT - Antenna:	3m	10m	3m



Test setup of Field strength outside the band 13.110-14.010MHz

Same setup is used in semi anechoic chamber during pre-characterization, with a distance of 3m between EUT and antenna.

Photo of Field strength outside the band 13.110-14.010MHz

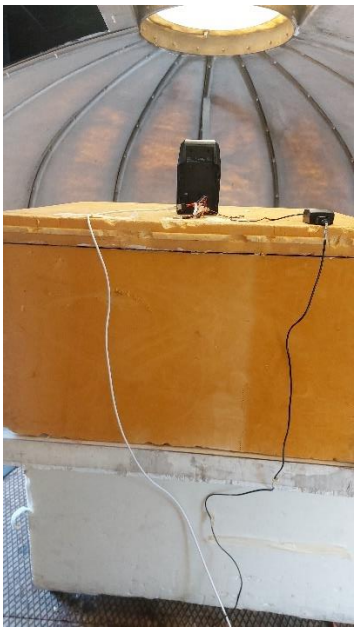


Photo of Field strength outside the band 13.110-14.010MHz

7.3. LIMIT

Measure at 300m		
Frequency range	**Level**	**Detector**
9kHz-490kHz	67.6dBµV/m /F(kHz)	QPeak
Measure at 30m		
Frequency range	**Level**	**Detector**
490kHz-1.705MHz	87.6dBµV/m /F(kHz)	QPeak
1.705MHz-30MHz	29.5dBµV/m	QPeak
Measure at 10m		
Frequency range	**Level**	**Detector**
30MHz to 88MHz	29.5dBµV/m	QPeak
88MHz to 216MHz	33dBµV/m	QPeak
216MHz to 960MHz	35.5BµV/m	QPeak
960MHz to 1000MHz	43.5dBµV/m	QPeak
Above 1000MHz	63.5dBµV/m	Peak
	43.5dBµV/m	Average
Measure at 3m		
Frequency range	**Level**	**Detector**
30MHz to 88MHz	40dBµV/m	QPeak
88MHz to 216MHz	43.5dBµV/m	QPeak
216MHz to 960MHz	46BµV/m	QPeak
960MHz to 1000MHz	54dBµV/m	QPeak
Above 1000MHz	74dBµV/m	Peak
	54dBµV/m	Average

7.4. TEST EQUIPMENT LIST

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
OATS	-	-	F2000400	2024/03	2025/03
Receiver	ROHDE & SCHWARZ	ESU	A2642018	2023/03	2025/03
Preamplifier	BONN	BLNA 3018-8F305	A7080053	2023/11	2025/11
Antenna bilog	Schwarzbeck	VULB9160	C2040150	2023/09	2025/09
Horn antenna	ETS	3115	C2042016	2023/09	2025/09
Cable	-	-	A5329449	2024/11	2025/11
Cable	-	-	A5330051	2024/12	2025/12
Cable			A5329368	2024/02	2025/02
Antenne bico	Schwarzbeck	VHBB9124 + BBA 9106	C2040295	2023/02	2025/02
Cable			A5330084	2024/11	2025/11
Cable			A5330052	2024/12	2025/12
Cable			A5330053	2024/12	2025/12
Cable	-	-	A5329418	2024/12	2025/12
Loop antenna	R&S	HFH2-Z2	C2040269	2025/01	2027/01
Software V3.21.0.9	NEXIO	BAT-EMC	-	-	-

7.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

7.6. RESULTS

7.6.1. 9kHz to 30MHz

Mode POE

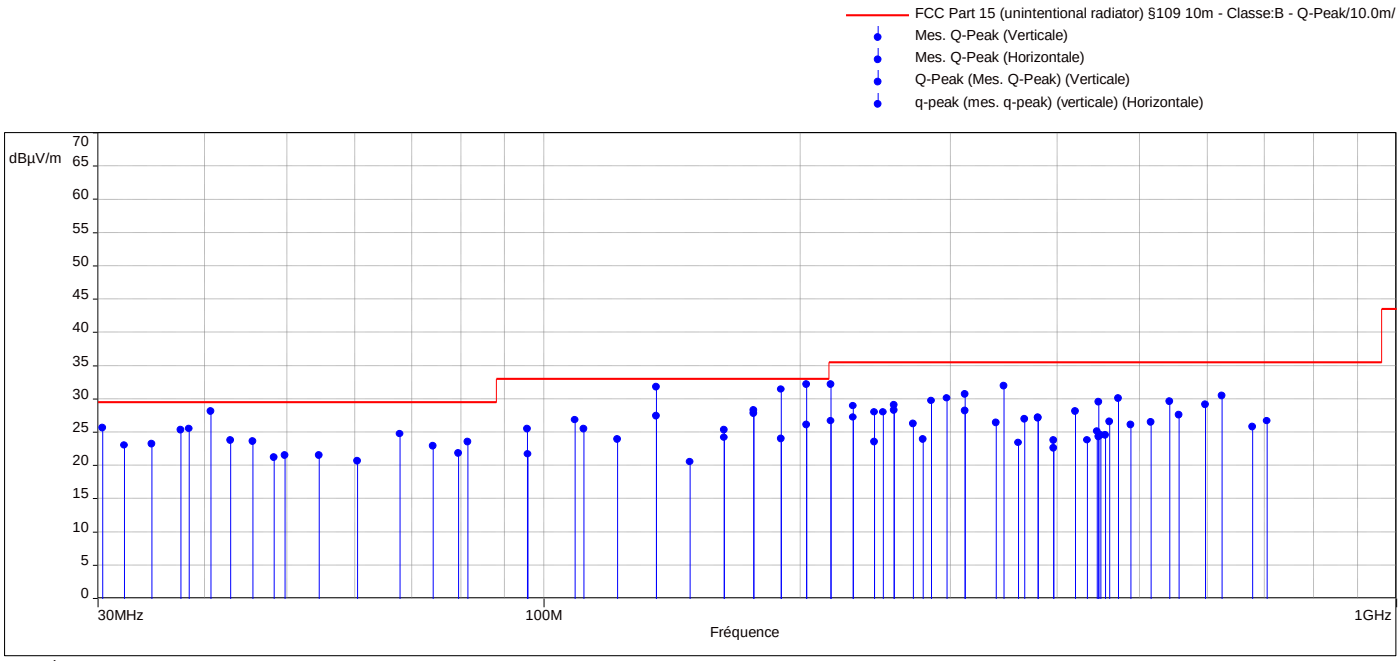
9kHz to 30MHz					
Polarization	**Frequency (MHz)**	**Peak Level (dBµV/m)**	**QPeak Level (dBµV/m)**	**Limit (dBµV/m)**	**Margin QPeak (dBµV/m)**
Parallel	0,2935	-	39,62	98,25	58,63
Parallel	0,3915	-	36,09	95,75	59,66
Parallel	0,4865	-	36,87	93,86	56,99
Parallel	0,5805	-	35,56	72,33	36,77
Parallel	0,685	-	29,32	70,9	41,58
Parallel	0,7765	-	31,62	69,81	38,19
Parallel	0,871	-	28,51	68,82	40,31
Parallel	0,9655	-	30,05	67,93	37,88
Parallel	1,066	-	28,3	67,07	38,77
Parallel	1,161	-	26,88	66,34	39,46
Parallel	1,267	-	25,17	65,58	40,41
Parallel	1,3585	-	27,36	64,97	37,61
Parallel	1,4595	-	27,46	64,34	36,88
Parallel	27,12	-	28,61	69.5	40,89
Perpendicular	1,068	-	26,94	67,05	40,11
Perpendicular	1,162	-	29,95	66,32	36,37
Perpendicular	1,258		29,3	65,63	36,33
Perpendicular	1,358		26,12	64,97	38,85
Perpendicular	1,456		25,52	64,37	38,85
Perpendicular	27,12		35,91	69,5	33,59
Ground parallel	27.11	-	26.13	69.5	43.37
Ground parallel	0,4865		36,56	93,86	57,3
Ground parallel	0,5805		41,61	72,33	30,72
Ground parallel	0,685		28,24	70,9	42,66
Ground parallel	0,7765		28,49	69,81	41,32
Ground parallel	0,871		28,14	68,82	40,68
Ground parallel	0,9655		29,94	67,93	37,99
Ground parallel	1,066		26,09	67,07	40,98
Ground parallel	1,16		26,92	66,34	39,42
Ground parallel	1,266		25,13	65,58	40,45
Ground parallel	1,358		24,82	64,97	40,15
Ground parallel	1,46		26,51	64,34	37,83
Ground parallel	1,55		30,65	63,83	33,18
Ground parallel	1,648		30,96	63,29	32,33
Ground parallel	1,74		33,44	69,5	36,06
Ground parallel	1,846		39,63	69,5	29,87
Ground parallel	1,94		30,15	69,5	39,35
Ground parallel	2,428		31,07	69,5	38,43
Ground parallel	2,516		31,18	69,5	38,32
Ground parallel	27,12		31,97	69,5	37,53

Mode DC

9kHz to 30MHz					
Polarization	**Frequency (MHz)**	**Peak Level (dBµV/m)**	**QPeak Level (dBµV/m)**	**Limit (dBµV/m)**	**Margin QPeak (dBµV/m)**
Parallel	0,484	-	34,96	93,91	58,95
Parallel	0,575	-	35,28	72,41	37,13
Parallel	0,68	-	30,81	70,96	40,15
Parallel	0,772	-	33,17	69,86	36,69
Parallel	0,875	-	28,89	68,78	39,89
Parallel	0,9715	-	33,34	67,87	34,53
Parallel	27,12	-	27,85	**69,5**	41,65
Perpendicular	0,2905	-	35,81	98,34	62,53
Perpendicular	0,3895	-	32,83	95,79	62,96
Perpendicular	0,4845	-	30,54	93,9	63,36
Perpendicular	0,582	-	32,68	72,31	39,63
Perpendicular	0,678	-	28,52	70,99	42,47
Perpendicular	0,7735	-	29,34	69,85	40,51
Perpendicular	0,8725	-	27,15	68,8	41,65
Perpendicular	0,9675	-	27,86	67,91	40,05
Perpendicular	1,068	-	25,91	67,05	41,14
Perpendicular	1,16	-	30,45	66,34	35,89
Perpendicular	1,26	-	26,08	65,62	39,54
Perpendicular	1,356	-	25,5	64,98	39,48
Perpendicular	27,12	-	31,45	69,5	38,05
Ground parallel	0,4845	-	39,48	93,9	54,42
Ground parallel	0,582	-	36,69	72,31	35,62
Ground parallel	0,678	-	35,36	70,99	35,63
Ground parallel	0,7735	-	36,51	69,85	33,34
Ground parallel	0,8725	-	31,42	68,8	37,38
Ground parallel	0,9675	-	33,47	67,91	34,44
Ground parallel	1,068	-	**27,76**	**67,05**	39,29
Ground parallel	1,16	-	31,95	66,34	34,39
Ground parallel	**1,26**	-	27,86	65,62	37,76
Ground parallel	1,356	-	28,09	64,98	36,89
Ground parallel	1,46		26,93	64,34	37,41
Ground parallel	1,554	-	25,06	63,8	38,74
Ground parallel	1,646	-	26,18	63,31	37,13
Ground parallel	1,84	-	25,31	69,5	44,19
Ground parallel	2,042	-	24,47	69,5	45,03
Ground parallel	2,326	-	24,86	69,5	44,64
Ground parallel	2,426	--	24,4	69,5	45,1
Ground parallel	2,634	-	24,72	69,5	44,78
Ground parallel	27,119519	-	34	69,5	35,5

7.6.2. 30MHz to 1GHz

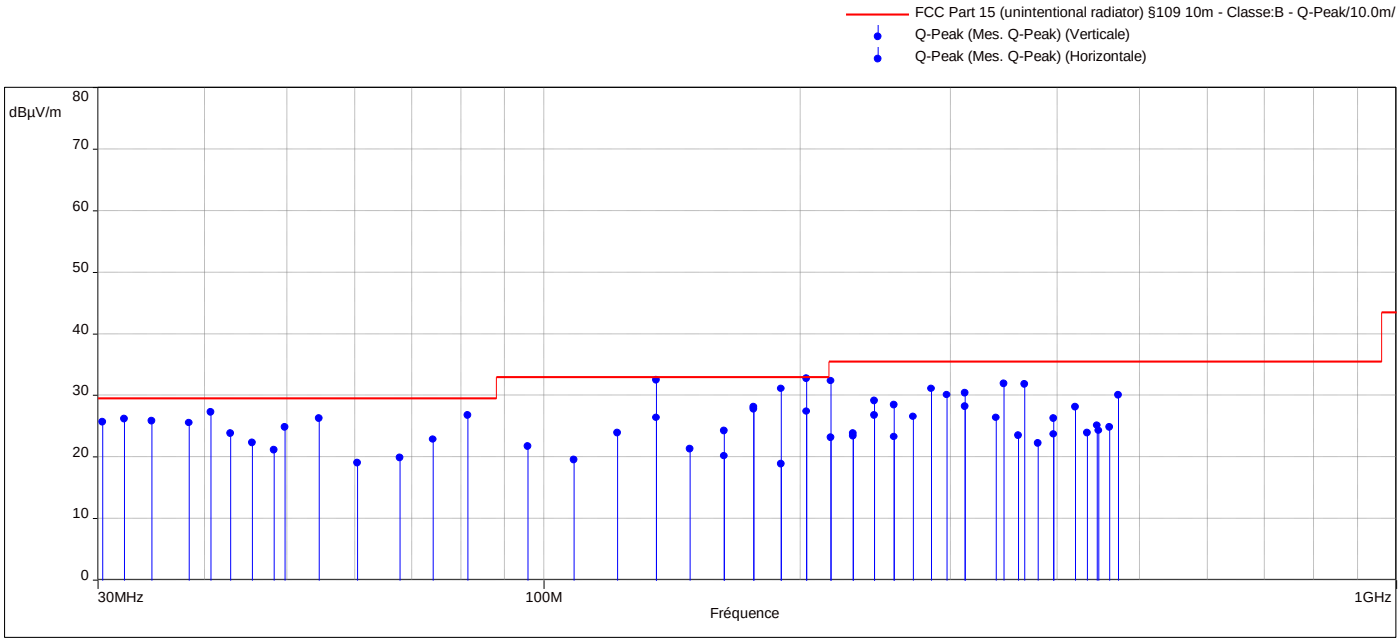
Mode POE



Fréquences: 30 MHz - 1 GHz (Mode: Lin, Pas: 100 kHz)
Réglages: RBW: 120kHz, VBW: Auto, Durée balayage : 50 ms/Pts, Atténuation : Auto, Nombre de Balayages : 1, Preamp : On: 10 dB, LN Preamp : Off, Preselecteur: On

Polarity	Frequency (MHz)	level (dBµV/m)	limit FCC class B	Margin/ Fcc Part class B
Vertical	40,683	28,09	29,5	1,41
Vertical	135,5	31,8	33	1,2
Vertical	176,3	28,24	33	4,76
Vertical	189,83	31,44	33	1,56
Vertical	203,4	32,14	33	0,86
Vertical	217	32,14	35,5	3,36
Vertical	230,5	29	35,5	6,5
Vertical	284,75	29,77	35,5	5,73
Vertical	311,9	30,67	35,5	4,83
Vertical	623,8	30,42	35,5	5,08
Horizontal	135,6	27,43	33	5,57
Horizontal	176,3	27,8	33	5,2
Horizontal	297	30,1	35,5	5,4
Horizontal	447,48	29,49	35,5	6,01
Horizontal	542,2	29,57	35,5	5,93
Horizontal	596,64	29,1	35,5	6,4

Mode DC



Fréquences: 30 MHz - 1 GHz (Mode: Lin, Pas: 100 kHz)
Réglages: RBW: 120kHz, VBW: Auto, Durée balayage : 50 ms/Pts, Atténuation : Auto, Nombre de Balayages : 1, Preamp : On: 10 dB, LN Preamp : Off, Preselecteur: On

Polarity	Frequency (MHz)	level (dBµV/m)	limit FCC class B	Margin/ Fcc Part class B
Vertical	32,2	26,19	29,5	3,31
Vertical	40,7	27,29	29,5	2,21
Vertical	54,5	26,27	29,5	3,23
Vertical	135,54	32,5	33	0,5
Vertical	176,27	28,07	33	4,93
Vertical	189,83	31,12	33	1,88
Vertical	203,39	32,74	33	0,26
Vertical	216,95	32,39	35,5	3,11
Vertical	244,07	29,12	35,5	6,38
Vertical	311,87	30,38	35,5	5,12
Vertical	366,2	31,84	35,5	3,66
Horizontal	203,4	27,47	33	5,53
Horizontal	297	30,09	35,5	5,41
Horizontal	346,5	31,9	35,5	3,6
Horizontal	471,6	30,07	35,5	5,43

7.7. CONCLUSION

Field strength outside of the bands 13.110-14.010 MHz measurement performed on the sample of the product **MPH-AC010A**, Sn: **2448SXP20000078**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.225 & RSS-Gen** limits.

8. FIELD STRENGTH WITHIN THE BAND 13.110-14.010MHZ

8.1. TEST CONDITIONS

Date of test	:	February 17, 2025
Test performed by	:	Laurent Deneux
Atmospheric pressure (hPa)	:	-
Relative humidity (%)	:	41
Ambient temperature (°C)	:	20

8.2. TEST SETUP

The Equipment Under Test is installed **on an Open Area Test Site..**
Measurement is performed with a spectrum analyzer in **radiated method.**

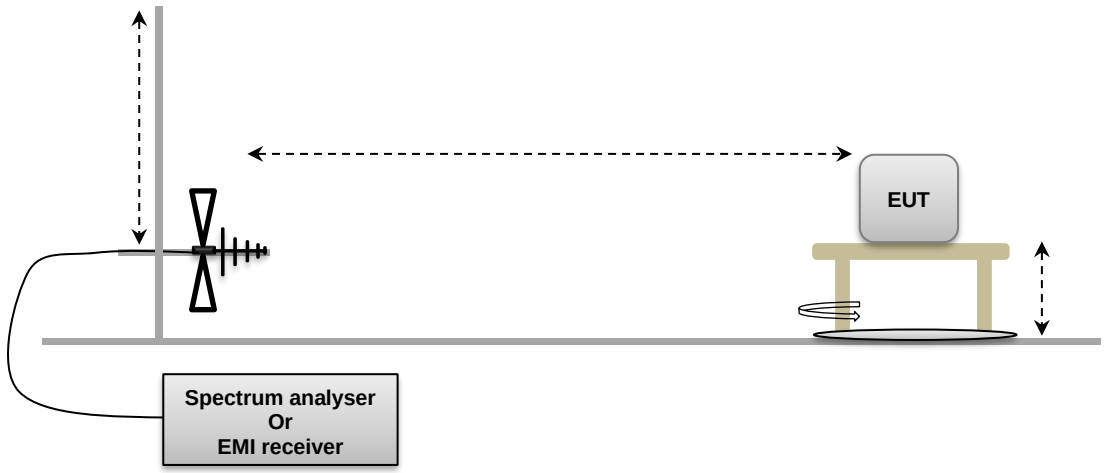
Test Procedure:
☑ ANSI C63.10

The EUT is placed **on an open area test site**. Distance between measuring antenna and the EUT is **10m**. Test is performed in parallel, perpendicular, and ground parallel axis with a loop antenna below 30MHz. Measurement bandwidth was 9kHz between 150kHz & 30MHz. The level has been maximized by the turntable rotation of 360 degrees range on all axis of EUT used in normal configuration. Antenna height search was performed from 1 to 4m. The EUT is place at **0.8m**.

Ambient temperature: 20 °C
Relative humidity: 41 %
Note: It is impracticable to carry out tests under normal condition as specified in standard.

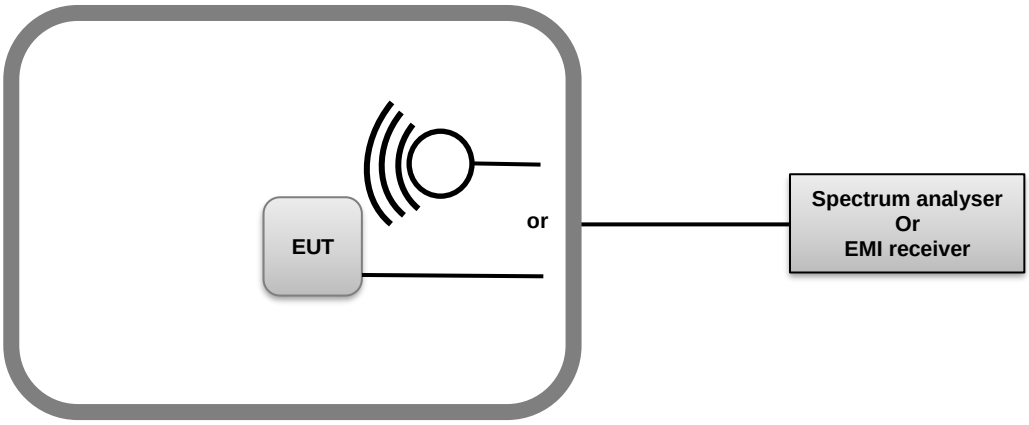
When measurement with test fixture is used, the power level calibration of the spectrum analyzer shall then be related to the power level or field strength measured with temperature during OATS measure taking in consideration in climatic chamber. The calculation will be used to calculate the absolute level of the sideband power.

Frequency band 13.110-14.010MHz
Following plots show radiated emission level in the frequency band 13.110-14.010MHz with a RBW of 9kHz and a quasi-peak detector. The graphs are obtained with a measuring receiver.



Test setup of Field strength within the band 13.110-14.010MHz in OATS

Photo of Field strength within the band 13.110-14.010MHz in OATS



Test setup of Field strength within the band 13.110-14.010MHz in Climatic Chamber

Photo of Field strength within the band 13.110-14.010MHz in Climatic Chamber

8.3. LIMIT

Frequency (MHz)	Field strength (µV/m) @30m	Field strength (dBµV/m) @30m	Field strength (dBµV/m) @3m
13.553-13.567	15 848	84.0	124.0
13.410-13.553 13.567-13.710	334.0	50.5	90.5
13.110-13.410 13.710-14.010	106.0	40.5	80.5
Below 13.110MHz Above 14.010MHz	30.0	29.5	69.5

8.4. TEST EQUIPMENT LIST

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
OATS	-	-	F2000400	2024/03	2025/03
Receiver	ROHDE & SCHWARZ	ESU	A2642018	2023/03	2025/03
Cable	-	-	A5329418	2024/12	2025/12
Loop antenna	R&S	HFH2-Z2	C2040269	2025/01	2027/01
Cable			A5330084	2024/11	2025/11
Software V3.21.0.9	NEXIO	BAT-EMC	-	-	-

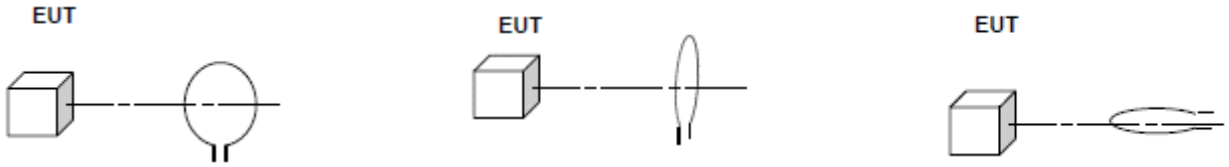
8.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

8.6. RESULTS

8.6.1. Results on OATS test conditions:

Frequency (MHz)	QPeak Limit (dBµV/m) @ 30m	QPeak (dBµV/m) @ 30m	Margin (Mes-Lim) (dB)	Angle Table (deg)	Pol Ant.	Ht Ant. (cm)	Correc. Factor (dB)	Comments
13.56								



Parallel Axis (0°) **Perpendicular Axis (90°)** **Ground Parallel Axis (180°)**

Note: Measure have been done at 10m distance and corrected according to requirements of 15.209.e) (M@30m = M@10m-19.1dB)

8.6.2. Results under Normal condition

Mode POE

Parallel Axis			
Frequency (MHz)	**Peak Level (dBµV/m) (3m)**	**QPeak Level (dBµV/m) (3m)**	**Limit (dBµV/m) (3m)**
Below 13.110	-	30.8	69.5
13.110 to 13.410	-	34.1	80.5
13.410 to 13.553	-	39.8	90.5
13.553 to 13.567	-	55	124.0
13.567 to 13.710	-	38.7	90.5
13.710 to 14.010	-	33.2	80.5
Above 14.010	-	30.4	69.5

Ground Parallel Axis			
Frequency (MHz)	**Peak Level (dBµV/m) (3m)**	**QPeak Level (dBµV/m) (3m)**	**Limit (dBµV/m) (3m)**
Below 13.110	-	31.8	69.5
13.110 to 13.410	-	35.4	80.5
13.410 to 13.553	-	39.1	90.5
13.553 to 13.567	-	62.3	124.0
13.567 to 13.710	-	42.5	90.5
13.710 to 14.010	-	36.8	80.5
Above 14.010	-	31.4	69.5

Perpendicular Axis			
Frequency (MHz)	**Peak Level (dBµV/m) (3m)**	**QPeak Level (dBµV/m) (3m)**	**Limit (dBµV/m) (3m)**
Below 13.110	-	31.5	69.5
13.110 to 13.410	-	38.7	80.5
13.410 to 13.553	-	41.5	90.5
13.553 to 13.567	-	59.7	124
13.567 to 13.710	-	40.2	90.5
13.710 to 14.010	-	33.8	80.5
Above 14.010	-	32.5	69.5

Mode DC

Parallel Axis			
Frequency (MHz)	**Peak Level (dBµV/m) (3m)**	**QPeak Level (dBµV/m) (3m)**	**Limit (dBµV/m) (3m)**
Below 13.110	-	30.2	69.5
13.110 to 13.410	-	33.5	80.5
13.410 to 13.553	-	36.8	90.5
13.553 to 13.567	-	56.8	124.0
13.567 to 13.710	-	39.9	90.5
13.710 to 14.010	-	34.5	80.5
Above 14.010	-	32.2	69.5

Ground Parallel Axis			
Frequency (MHz)	**Peak Level (dBµV/m) (3m)**	**QPeak Level (dBµV/m) (3m)**	**Limit (dBµV/m) (3m)**
Below 13.110	-	32.5	69.5
13.110 to 13.410	-	36.5	80.5
13.410 to 13.553	-	39.8	90.5
13.553 to 13.567	-	63	124.0
13.567 to 13.710	-	45.3	90.5
13.710 to 14.010	-	35.4	80.5
Above 14.010	-	32.4	69.5

Perpendicular Axis			
Frequency (MHz)	**Peak Level (dBµV/m) (3m)**	**QPeak Level (dBµV/m) (3m)**	**Limit (dBµV/m) (3m)**
Below 13.110	-	30.5	69.5
13.110 to 13.410	-	33.6	80.5
13.410 to 13.553	-	39.7	90.5
13.553 to 13.567	-	58.9	124
13.567 to 13.710	-	38.4	90.5
13.710 to 14.010	-	35.4	80.5
Above 14.010	-	32.1	69.5

8.7. CONCLUSION

Field strength within the band 13.110-14.010MHz measurement performed on the sample of the product **MPH-AC010A**, Sn: **2448SXP20000078**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.225 & RSS 210** limits.

9. UNCERTAINTIES CHART

Kind of measurement	*Wide uncertainty laboratory*
Occupied Channel Bandwidth	±2.8 %
Humidity	±3.2 %
Power Spectral Density, Conducted	±1.7 dB
Radio frequency	±0.3 ppm
RF power, conducted	±1.2 dB
RF power, radiated (Full anechoic chamber above 1GHz)	±3.7 dB
RF power, radiated (Semi anechoic chamber & open test site)	±5.6 dB
Spurious emission, conducted	±2.3 dB
Spurious emission, radiated (Full anechoic chamber above 1GHz)	±3.8 dB
Spurious emission, radiated (Semi anechoic chamber & open test site)	±5.7 dB
Temperature	±01.2°C
Time	±2.3 %
Voltage	±1.7 %

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 limit values. This table includes all uncertainties maximum feasible for testing in the laboratory, whether or not made in this report.