TEST REPORT

N°: 150461-709027-B (FILE#969270) **Version : 02**

Subject	**Electromagnetic compatibility and Radio spectrum Matters (ERM) tests according to standards:** **FCC CFR 47 Part 15, Subpart C** **RSS-247 Issue 2.0**
Issued to	**SCHNEIDER ELECTRIC** 38TEC - Building T11 28 rue Henri Tarzes 38000 – GRENOBLE FRANCE
Apparatus under test	
↳ Product	**Wireless thermal sensor**
↳ Trade mark	**SCHNEIDER ELECTRIC**
↳ Manufacturer	**SCHNEIDER ELECTRIC**
↳ Model under test	**Easergy CL110**
↳ Serial number	**FL2017W31600000** **FL2017W32100002**
↳ FCCID	**2AHP8-130729**
↳ IC	**21245-130729**
Conclusion	See Test Program chapter §1
Test date	September 8, 2017
Test location	MOIRANS
IC Test site	6500A-1
Composition of document	41 pages
Document issued on	October 10, 2017

Written by :
Jonathan PAUC
Tests operator

Approved by :
Anthony MERLIN
Technical manager

LABORATOIRE CENTRAL DES INDUSTRIES ELECTRIQUES
LCIE SUD-EST
170, Rue de Chatagnon
38430 MOIRANS
Tel. 04 76 07 36 36
Fax 04 76 55 90 88

PUBLICATION HISTORY

Version	Date	Author	Modification
01	October 4, 2017	Jonathan PAUC	Creation of the document
02	October 10, 2017	Jonathan PAUC	Modification of naming

SUMMARY

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1. TEST PROGRAM

Standard:

- **FCC Part 15, Subpart C 15.247**
- **ANSI C63.10 (2013)**
- **RSS-247 Issue 2.0**
- **RSS-Gen Issue 4**
- **558074 D01 DTS Measurement Guidance v04**

EMISSION TEST	LIMITS			RESULTS
Limits for conducted disturbance at mains ports 150kHz-30MHz	**Frequency**	**Quasi-peak value (dBµV)**	**Average value (dBµV)**	☐ **PASS** ☐ **FAIL** ☑ **NA** ☐ **NP**
	150-500kHz	66 to 56	56 to 46	
	0.5-5MHz	56	46	
	5-30MHz	60	50	
Radiated emissions 9kHz-30MHz *CFR 47 §15.209 (a)* *CFR 47 §15.247 (d)* *RSS-247 §5.5*	**Measure at 300m** 9kHz-490kHz : 67.6dBµV/m /F(kHz) **Measure at 30m** 490kHz-1.705MHz : 87.6dBµV/m /F(kHz) 1.705MHz-30MHz : 29.5 dBµV/m			☑ **PASS** ☐ **FAIL** ☐ **NA** ☐ **NP**
Radiated emissions 30MHz-25GHz* *CFR 47 §15.209 (a)* *CFR 47 §15.247 (d)* *RSS-247 §5.5*	**Measure at 3m** 30MHz-88MHz : 40 dBµV/m 88MHz-216MHz : 43.5 dBµV/m 216MHz-960MHz : 46.0 dBµV/m Above 960MHz : 54.0 dBµV/m			☑ **PASS** ☐ **FAIL** ☐ **NA** ☐ **NP**
Bandwidth 6dB *CFR 47* §15.247 (a) (2) *RSS-247 §5.2*	**At least 500kHz**			☐ **PASS** ☐ **FAIL** ☐ **NA** ☑ **NP**
Power spectral Density *CFR 47 §15.247 (e)* *RSS-247 §5.2*	**Limit: 8dBm/3kHz**			☐ **PASS** ☐ **FAIL** ☐ **NA** ☑ **NP**
Maximum Peak Output Power *CFR 47 §15.247 (b)* *RSS-247 §5.4*	**Limit: 30dBm** Conducted or Radiated measurement			☐ **PASS** ☐ **FAIL** ☐ **NA** ☑ **NP**
Band Edge Measurement *CFR 47 §15.209 (a)* *CFR 47 §15.247 (d)* *RSS-247 §5.5*	**Limit: -20dBc or** **Radiated emissions limits in restricted bands**			☐ **PASS** ☐ **FAIL** ☐ **NA** ☑ **NP**
Occupied bandwidth *RSS-Gen §4.6.1*	**No limit**			☐ **PASS** ☐ **FAIL** ☐ **NA** ☑ **NP**
Receiver Spurious Emission** *RSS-Gen §4.10*	**See RSS-Gen §4.10**			☐ **PASS** ☐ **FAIL** ☑ **NA** ☐ **NP**

***§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.

2. SYSTEM TEST CONFIGURATION

2.1. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT):

SCHNEIDER ELECTRIC Easergy CL110 **Serial Number: FL2017W31600000**
FL2017W32100002

Equipment Under Test

Power supply:
During all the tests, EUT is supplied by V_{nom}: 3VDC
For measurement with different voltage, it will be presented in test method.

Name	Type	Rating	Reference / Sn	Comments
Supply1	☐ AC ☐ DC ☑ Battery	3Vdc	CR2477/HFN Farnell:1298248 (*)	/

Remark (*) : *The current battery BR2477A/FBN must be replaced by the CR2477 for these tests because it can't be possible to provide the current in continuous mode for these tests*

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
Laptop	LENOVO T460	PC0G-620d	Used to send command to EUT
Zigbee Test Board (USB)	ATMEL ATMEGA256RF2 X Plained	/	Used to send command to EUT

Equipment information:

Type:	☑ **ZIGBEE**		☐ **RF4CE**	
Frequency band:	[2400 – 2483.5] MHz			
Spectrum Modulation:	☑ DSSS			
Number of Channel:	16			
Spacing channel:	5MHz			
Channel bandwidth:	2MHz			
Antenna Type:	☑ Integral	☐ External	☐ Dedicated	
Antenna connector:	☐ Yes	☑ No	☐ Temporary for test	
Transmit chains:	1			
	Single antenna			
	Gain 1: NC			
Beam forming gain:	No			
Receiver chains	1			
Type of equipment:	☑ Stand-alone	☐ Plug-in	☐ Combined	
Ad-Hoc mode:	☐ Yes		☑ No	
Adaptivity mode:	☑ Yes (Load Based)	☐ Off mode	☐ No	
	Clear Channel Assessment Time:		-	
Duty cycle:	☐ Continuous duty	☑ Intermittent duty	☐ 100% duty	
Equipment type:	☑ Production model		☐ Pre-production model	
Operating temperature range:	Tmin:	☐ -20°C	☐ 0°C	☑ -25°C
	Tnom:	20°C		
	Tmax:	☐ 35°C	☐ 55°C	☑ 105°C
Type of power source:	☐ AC power supply	☐ DC power supply	☑ Battery	
Operating voltage range:	Vnom:	☐ 230V/50Hz	☑ 3Vdc	

(4): Description of the alternative performance criteria:
NC: Not communicated by customer

CHANNEL PLAN	
Channel	**Frequency (MHz)**
Cmin: 11	2405
12	2410
13	2415
14	2420
15	2425
16	2430
17	2435
Cmid: 18	2440
19	2445
20	2450
21	2455
22	2460
23	2465
24	2470
25	2475
Cmax: 26	2480

DATA RATE		
Data Rate (Mbps)	**Modulation Type**	**Worst Case Modulation**
0.25	O-QPSK	☑

2.2. EQUIPMENT MODIFICATIONS

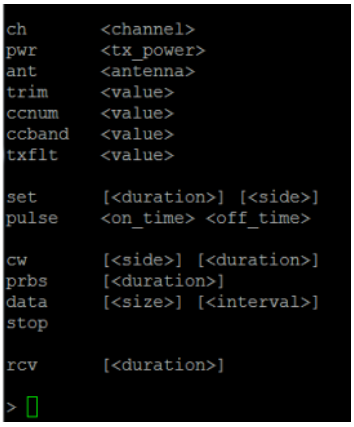
☑ None ☐ Modification:

2.3. EUT CONFIGURATION

TX Mode (Sample **FL2017W31600000**)

The EUT is set in the following modes during tests with simulator / software (*CL110_FCC_1.0.1_ATmega328PB_Rf233.hex*):
- Permanent emission with modulation on a fixed channel in the data rate that produced the highest power (PRBS)
- Permanent reception

All tests are performed at Cmin, Cmid and Cmax



Functionnal mode (Sample :**FL2017W32100002**)

EUT performed data acquisition (Temperature, level of battery) and send trame on Canal 11

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

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.

2.5. 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

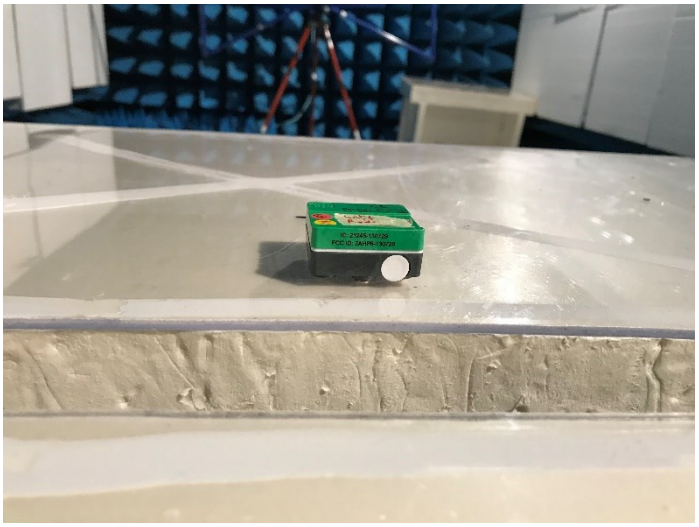
3. RADIATED EMISSION DATA

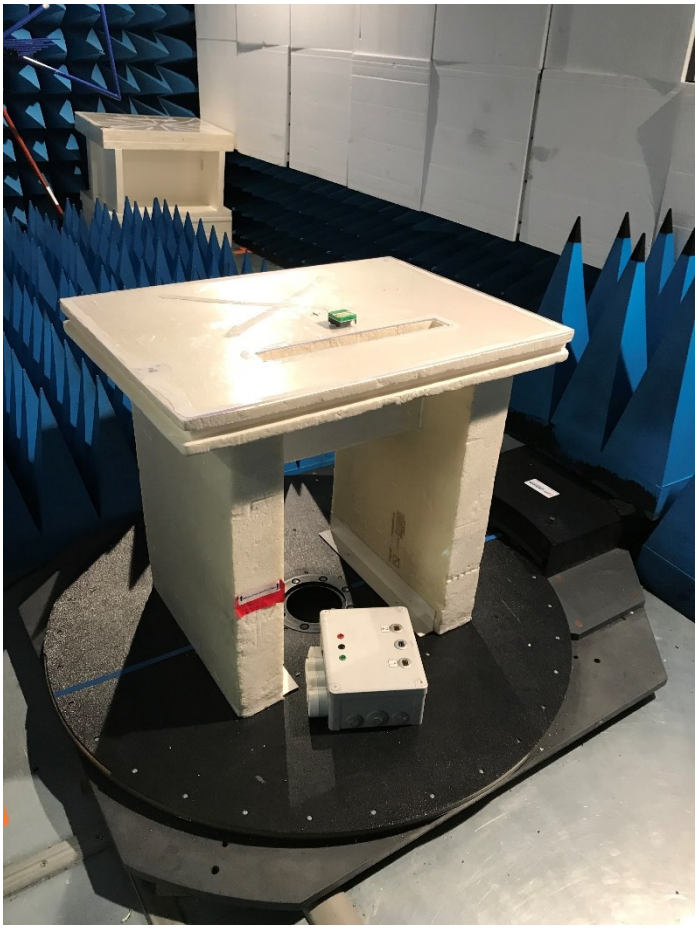
3.1. ENVIRONMENTAL CONDITIONS

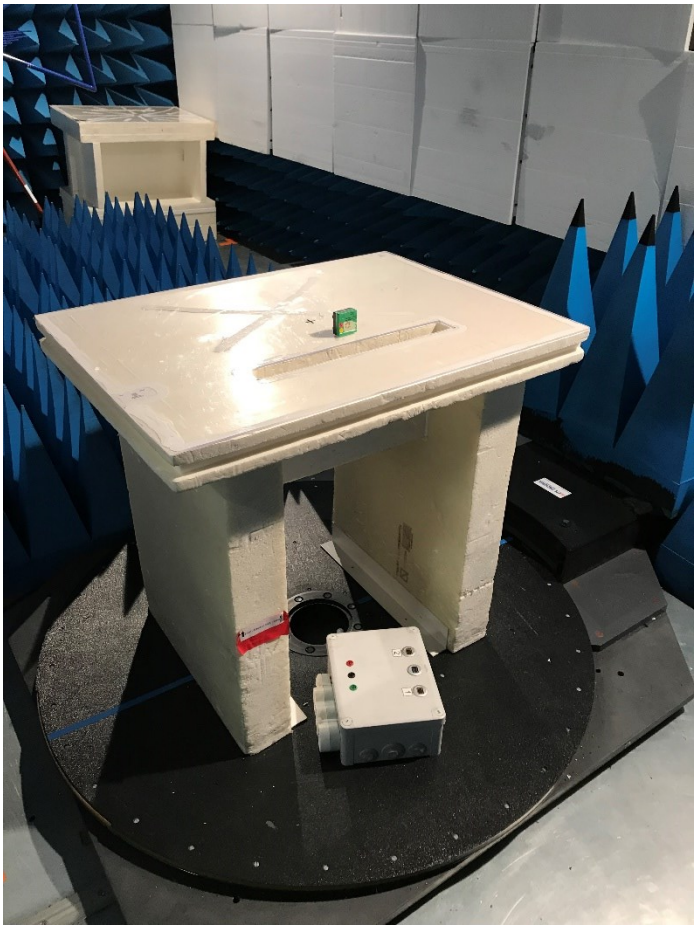
Date of test	:	September 8, 2017
Test performed by	:	Jonathan PAUC
Atmospheric pressure (hPa)	:	978
Relative humidity (%)	:	34
Ambient temperature (°C)	:	21

3.2. TEST SETUP

The installation of EUT is identical for pre-characterization measures in a 3 meters semi- anechoic chamber and for measures on the 10 meters Open site.
The EUT and auxiliaries are set:
☑ 80cm above the ground on the non-conducting table (Table-top equipment) - Below 1GHz
☑ 150cm above the ground on the non-conducting table (Table-top equipment) - Above 1GHz
☐ 10cm above the ground on isolating support (Floor standing equipment)
The EUT is powered by V_{nom}.

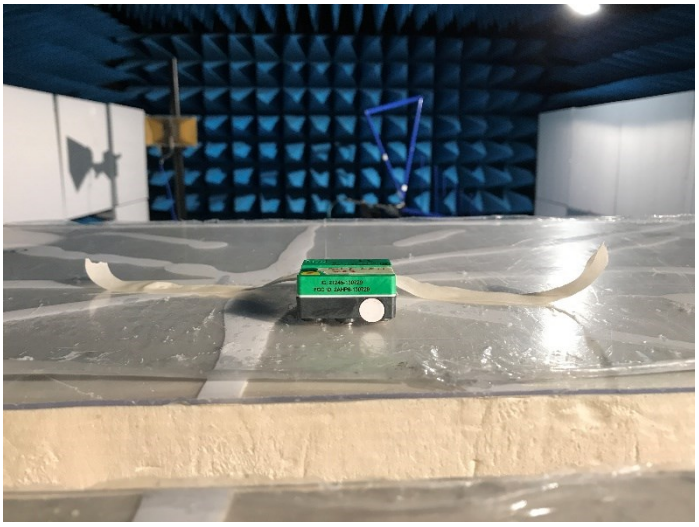


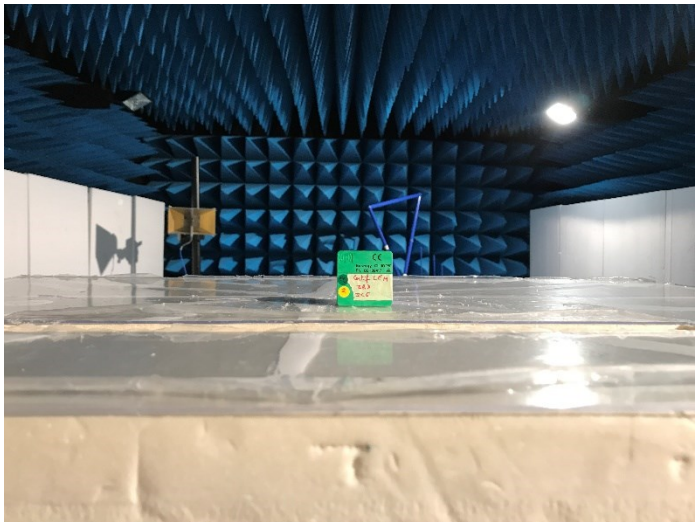


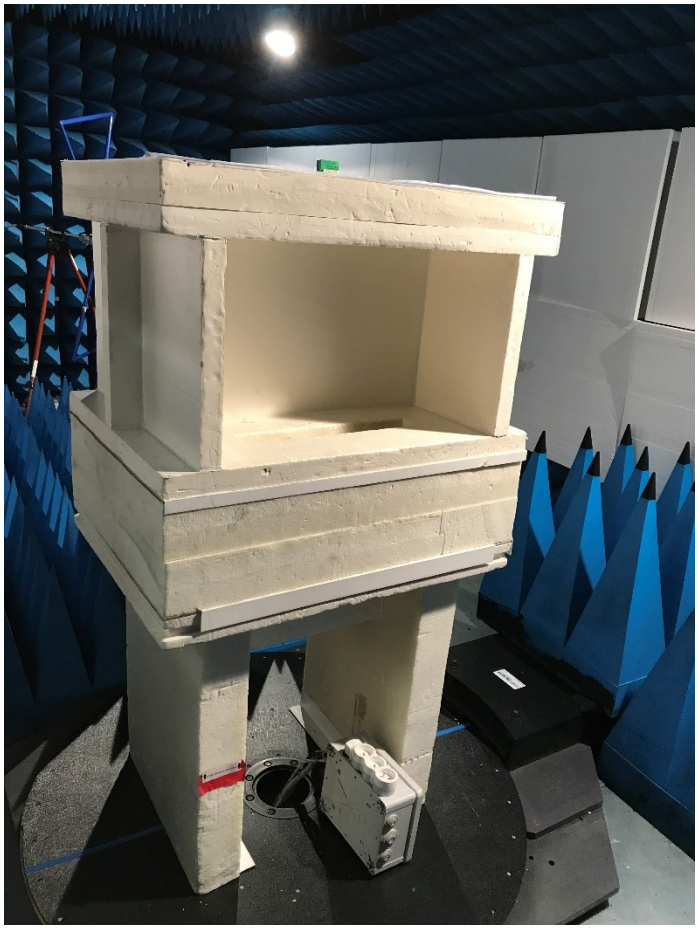


Test setup in anechoic chamber < 1GHz (Axis XY)

Test setup in anechoic chamber < 1GHz (Axis Z)







Test setup in anechoic chamber > 1GHz (Axis XY)

Test setup in anechoic chamber > 1GHz (Axis Z)

3.3. TEST METHOD

The product has been tested according to ANSI C63.10, FCC part 15 subpart C.

Pre-characterisation measurement: (9kHz – 25GHz)
A pre-scan of all the setup has been performed in a 3 meters semi-anechoic chamber for frequency from 30MHz to 25GHz. Test is performed in horizontal (H) and vertical (V) polarization, the loop antenna was rotated during the test to maximize the emission measurement. Continuous linear turntable azimuth search was performed with 360 degrees range. Measurement performed on all axis of EUT used in normal configuration.
The pre-characterization graphs are obtained in PEAK detection and PEAK/AVERAGE from 1GHz to 12.75GHz; from 12.75GHz to 25GHz a manually pre-scan is performed.

Characterization on 10 meters open site from 9kHz to 1GHz:
Radiated Emissions were measured on an open area test site. A description of the facility is on file with the FCC. The product has been tested at a distance of **10 meters** from the antenna and compared to the FCC part 15 subpart C limits. Measurement bandwidth was 9kHz below 30MHz and 120kHz from 30 MHz to 1GHz. Test is performed in horizontal (H) and vertical (V) polarization, the loop antenna was rotated during the test to maximize the emission measurement. The height antenna is varied from 1m to 4m. Continuous linear turntable azimuth search was performed with 360 degrees range. Measurement 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.
Frequency list has been created with anechoic chamber pre-scan results.

Characterization on 3 meters full anechoic chamber from 1GHz to 25GHz:
The product has been tested at a distance of **3 meters** from the antenna and compared to the FCC part 15 subpart C limits. Measurement bandwidth was 1MHz from 1GHz to 25GHz.
Test is performed in horizontal (H) and vertical (V) polarization. Continuous linear turntable azimuth search was performed with 360 degrees range. Measurement 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.The height antenna is
☐ On mast, varied from 1m to 4m
☑ Fixed and centered on the EUT (EUT smaller than the beamwidth of the measurement antenna, ANSI C63.10 §6.6.5)
Frequency list has been created with anechoic chamber pre-scan results.

3.4. TEST EQUIPMENT LIST

ANECHOIC CHAMBER					
DESCRIPTION	**MANUFACTURER**	**MODEL**	**N° LCIE**	**Cal_Date**	**Cal_Due**
Amplifier 9kHz - 40GHz	LCIE SUD EST	_	A7102082	07/17	07/18
Antenna Bi-log	CHASE	CBL6111A	C2040172	06/16	06/18
Antenna horn 18GHz	EMCO	3115	C2042029	08/16	08/17
Cable Measure @3m 18GHz	-	-	A5329038	10/16	10/17
Cable Measure @3m	-	-	A5329206	06/17	06/18
Cable 40GHz 2m coudé			A5329720	05/16	05/17**
Cable 40GHz 2m coudé			A5329721	05/16	05/17**
Semi-Anechoic chamber #3	SIEPEL	-	D3044017	03/16	03/19
Radiated emission comb generator	BARDET	-	A3169050	-	-
HF Radiated emission comb generator	LCIE SUD EST	-	A3169088	-	-
Spectrum analyzer	ROHDE & SCHWARZ	FSV 30	A4060050	08/16	08/17
BAT EMC	NEXIO	v3.9.0.10	L1000115	-	-
Thermo-hygrometer (C3)	OREGON	BAR206	B4204078	10/16	10/17
Thermo-hygrometer (PM2)	KIMO	HQ 210	B4206022	08/16	08/17
Turntable chamber (Cage#3)	ETS Lingren	Model 2165	F2000371	-	-
Table	LCIE	-	F2000461	-	-

** : Under Derogation

3.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

3.6. TEST RESULTS

3.6.1. Pre-characterization at 3 meters [30MHz-1GHz]

See graphs for 30MHz-1GHz:

Graph identifier		Polarization	Mode	EUT position	Channel	Comments
Emr#	1	H & V	TX	Axis XY	Min	See annex 1
Emr#	2	H & V	TX	Axis Z	Min	See annex 1
Emr#	3	H & V	TX	Axis XY	Mid	See annex 1
Emr#	4	H & V	TX	Axis Z	Mid	See annex 1
Emr#	5	H & V	TX	Axis XY	Max	See annex 1
Emr#	6	H & V	TX	Axis Z	Max	See annex 1
Emr#	7	H & V	Functionnal	Axis XY	Min	See annex 1
Emr#	8	H & V	Functionnal	Axis Z	Min	See annex 1

3.6.1. Pre-characterization at 3 meters [1GHz-12.75GHz]

See graphs for 1GHz-12.75GHz:

Graph identifier		Polarization	Mode	EUT position	Channel	Comments
Emr#	9	H	TX	Axis XY	Min	See annex 1
Emr#	10	V	TX	Axis XY	Min	See annex 1
Emr#	11	H	TX	Axis Z	Min	See annex 1
Emr#	12	V	TX	Axis Z	Min	See annex 1
Emr#	13	H	TX	Axis XY	Mid	See annex 1
Emr#	14	V	TX	Axis XY	Mid	See annex 1
Emr#	15	H	TX	Axis Z	Mid	See annex 1
Emr#	16	V	TX	Axis Z	Mid	See annex 1
Emr#	17	H	TX	Axis XY	Max	See annex 1
Emr#	18	V	TX	Axis XY	Max	See annex 1
Emr#	19	H	TX	Axis Z	Max	See annex 1
Emr#	20	V	TX	Axis Z	Max	See annex 1
Emr#	21	H	Functionnal	Axis XY	Min	See annex 1
Emr#	22	V	Functionnal	Axis XY	Min	See annex 1
Emr#	23	H	Functionnal	Axis Z	Min	See annex 1
Emr#	24	V	Functionnal	Axis Z	Min	See annex 1

3.6.2. Characterization on 10 meters open site from 30MHz to 1GHz

Worst case final data result:

Frequency list has been created with semi-anechoic chamber pre-scan results.
Measurements are performed using a QUASI-PEAK detection.

No	Frequency (MHz)	Limit Quasi-Peak (dBµV/m)	Measure Quasi-Peak (dBµV/m)	Margin (Mes-Lim) (dB)	Angle Table (deg)	Pol Ant.	Ht Ant. (cm)	Correc. Factor (dB)	Comments
No significant frequency observed									

Note: Measure have been done at 10m distance and corrected according to requirements of 15.209.e)
(M@3m = M@10m+10.5dB)

3.6.3. Characterization on 3meters anechoic chamber from 1GHz to 25GHz

Worst case final data result:

The frequency list is created from the results obtained during the pre-characterization in anechoic chamber.
Measurements are performed using a PEAK and AVERAGE detection.

Test Frequency (MHz)	Meter Reading dB(µV)	Detector	Polarity (V/H)	Azimuth (Degrees)	Antenna Height (cm)	Transducer Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
2484.009	79.1	Pk	V	341	150.0	-15.2	63.9	74.0	**-10.1**	Z
2485.165	78.9	Pk	V	341	150.0	-15.2	63.7	74.0	**-10.3**	Z
2486.155	74.6	Pk	V	341	150.0	-15.2	59.4	74.0	**-14.6**	Z
2487.015	70.1	Pk	V	341	150.0	-15.2	54.9	74.0	**-19.1**	Z
2488.059	66.6	Pk	V	341	150.0	-15.2	51.4	74.0	**-22.6**	Z
2489.005	63.9	Pk	V	341	150.0	-15.2	48.7	74.0	**-25.3**	Z
2489.993	62.9	Pk	V	341	150.0	-15.2	47.7	74.0	**-26.3**	Z
2491.014	60.8	Pk	V	341	150.0	-15.2	45.6	74.0	**-28.4**	Z
2492.046	61.2	Pk	V	341	150.0	-15.2	46.1	74.0	**-27.9**	Z
2493.037	58.6	Pk	V	341	150.0	-15.2	43.4	74.0	**-30.6**	Z
2493.986	56.9	Pk	V	341	150.0	-15.2	41.7	74.0	**-32.3**	Z
2495.193	55.9	Pk	V	341	150.0	-15.2	40.7	74.0	**-33.3**	Z
2496.006	56.6	Pk	V	341	150.0	-15.2	41.5	74.0	**-32.5**	Z
2497.193	55.1	Pk	V	341	150.0	-15.2	40.0	74.0	**-34.0**	Z
2498.121	53.7	Pk	V	341	150.0	-15.2	38.5	74.0	**-35.5**	Z
2499.081	53.5	Pk	V	341	150.0	-15.2	38.3	74.0	**-35.7**	Z
4809.190	56.9	Pk	V	335	150	-11.1	45.8	74.0	**-28.2**	XY
4879.055	56.5	Pk	V	335	150	-11.0	45.6	74.0	**-28.4**	XY
4961.650	57.3	Pk	V	335	150	-10.8	46.5	74.0	**-27.5**	XY
7216.640	48.9	Pk	V	335	150	-8.2	40.8	74.0	**-33.2**	XY
7322.060	47.6	Pk	V	335	150	-8.1	39.5	74.0	**-34.5**	XY
7441.550	49.3	Pk	V	335	150	-7.9	41.4	74.0	**-32.6**	XY

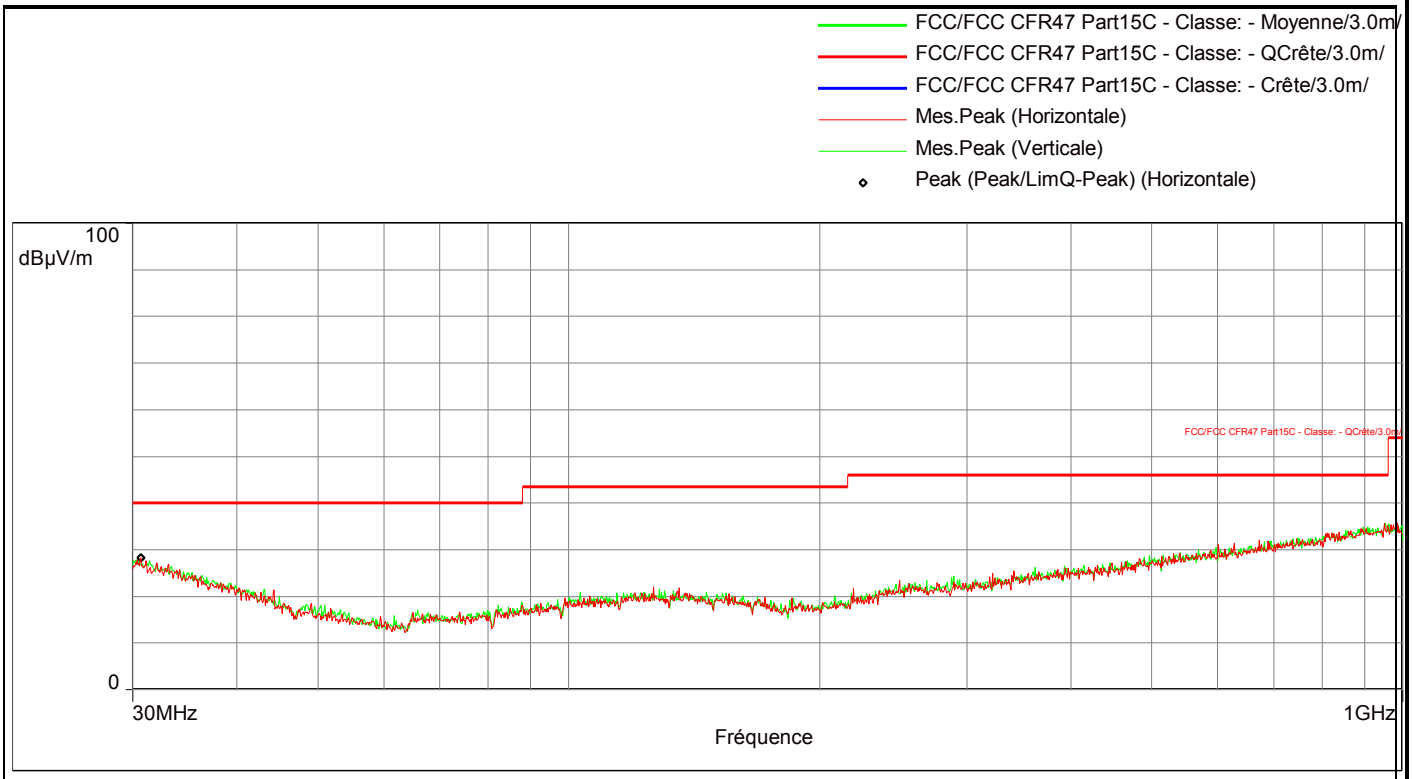
Test Frequency (MHz)	Meter Reading dB(µV)	Detector (Pk/QP/Av)	Polarity (V/H)	Azimuth (Degrees)	Antenna Height (cm)	Transducer Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
2484.009	65.2	Av	V	341	150.0	-15.2	50.0	54.0	**-4.0**	Z
2485.165	63.8	Av	V	341	150.0	-15.2	48.6	54.0	**-5.4**	Z
2486.155	65.5	Av	V	341	150.0	-15.2	50.3	54.0	**-3.7**	Z
2487.015	59.4	Av	V	341	150.0	-15.2	44.2	54.0	**-9.8**	Z
2488.059	56.2	Av	V	341	150.0	-15.2	41.0	54.0	**-13.0**	Z
2489.005	54.1	Av	V	341	150.0	-15.2	38.9	54.0	**-15.1**	Z
2489.993	52.8	Av	V	341	150.0	-15.2	37.6	54.0	**-16.4**	Z
2491.014	50.6	Av	V	341	150.0	-15.2	35.4	54.0	**-18.6**	Z
2492.046	50.4	Av	V	341	150.0	-15.2	35.3	54.0	**-18.7**	Z
2493.037	48.6	Av	V	341	150.0	-15.2	33.4	54.0	**-20.6**	Z
2493.986	46.1	Av	V	341	150.0	-15.2	30.9	54.0	**-23.1**	Z
2495.193	46.0	Av	V	341	150.0	-15.2	30.8	54.0	**-23.2**	Z
2496.006	47.6	Av	V	341	150.0	-15.2	32.5	54.0	**-21.5**	Z
2497.193	44.5	Av	V	341	150.0	-15.2	29.4	54.0	**-24.6**	Z
2498.121	44.2	Av	V	341	150.0	-15.2	29.0	54.0	**-25.0**	Z
2499.081	43.6	Av	V	341	150.0	-15.2	28.4	54.0	**-25.6**	Z
4809.190	46.7	Av	V	335	150	-11.1	35.6	54.0	**-18.4**	XY
4879.055	47.3	Av	V	335	150	-11.0	36.4	54.0	**-17.6**	XY
4961.650	46.8	Av	V	335	150	-10.8	36.0	54.0	**-18.0**	XY
7216.640	38.2	Av	V	335	150	-8.2	30.1	54.0	**-23.9**	XY
7322.060	37.2	Av	V	335	150	-8.1	29.1	54.0	**-24.9**	XY
7441.550	38.4	Av	V	335	150	-7.9	30.5	54.0	**-23.5**	XY

3.7. CONCLUSION

Radiated emission data measurement performed on the sample of the product Easergy CL110, SN: FL2017W31600000 in configuration and description presented in this test report, show levels below the FCC CFR 47 Part 15 and RSS-247 limits.

4. ANNEX 1 (GRAPHS)

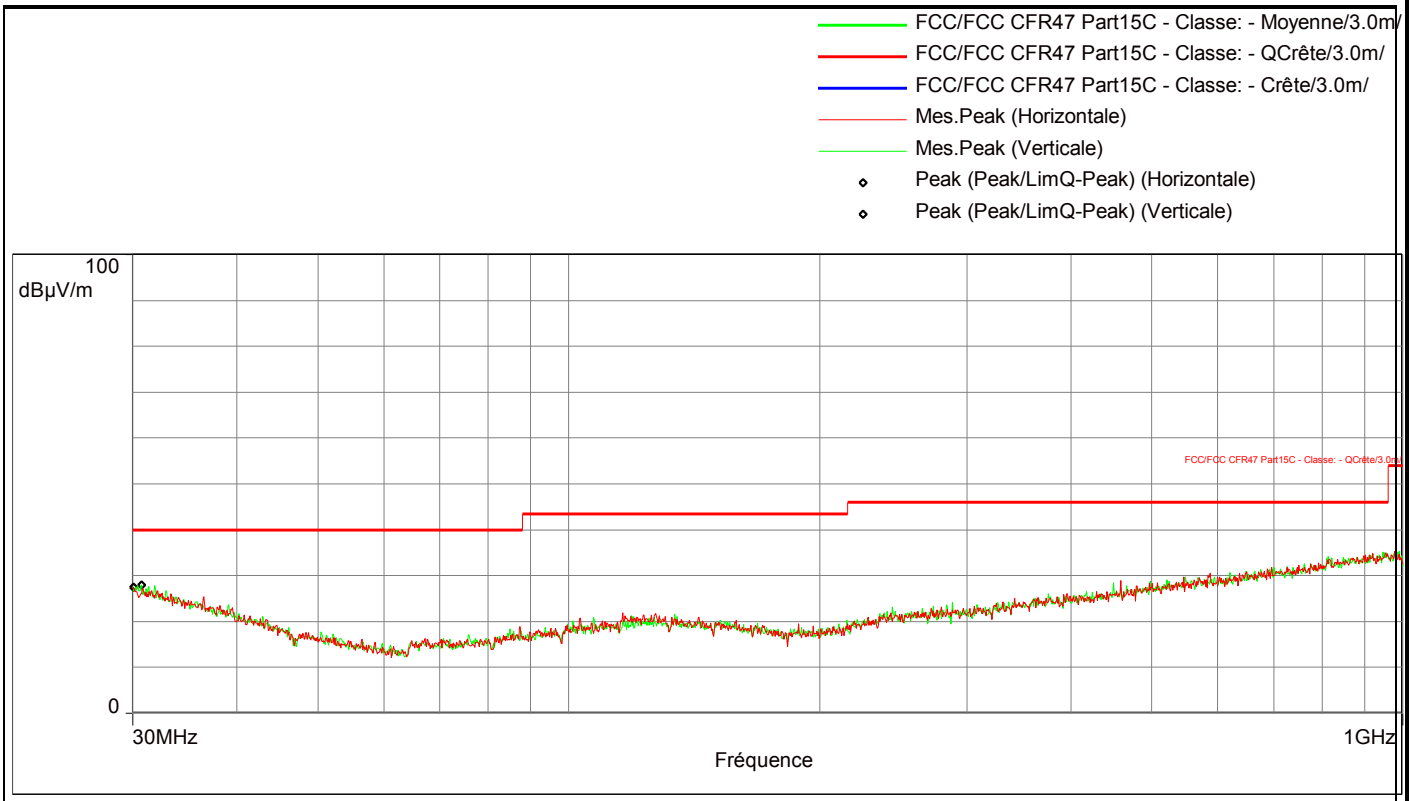
RADIATED EMISSIONS			
Graph name:	Emr#1	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H+V) - CMin - TX mode - Axis XY -	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Horizontal & Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



Spurious emissions

No significative frequency observed

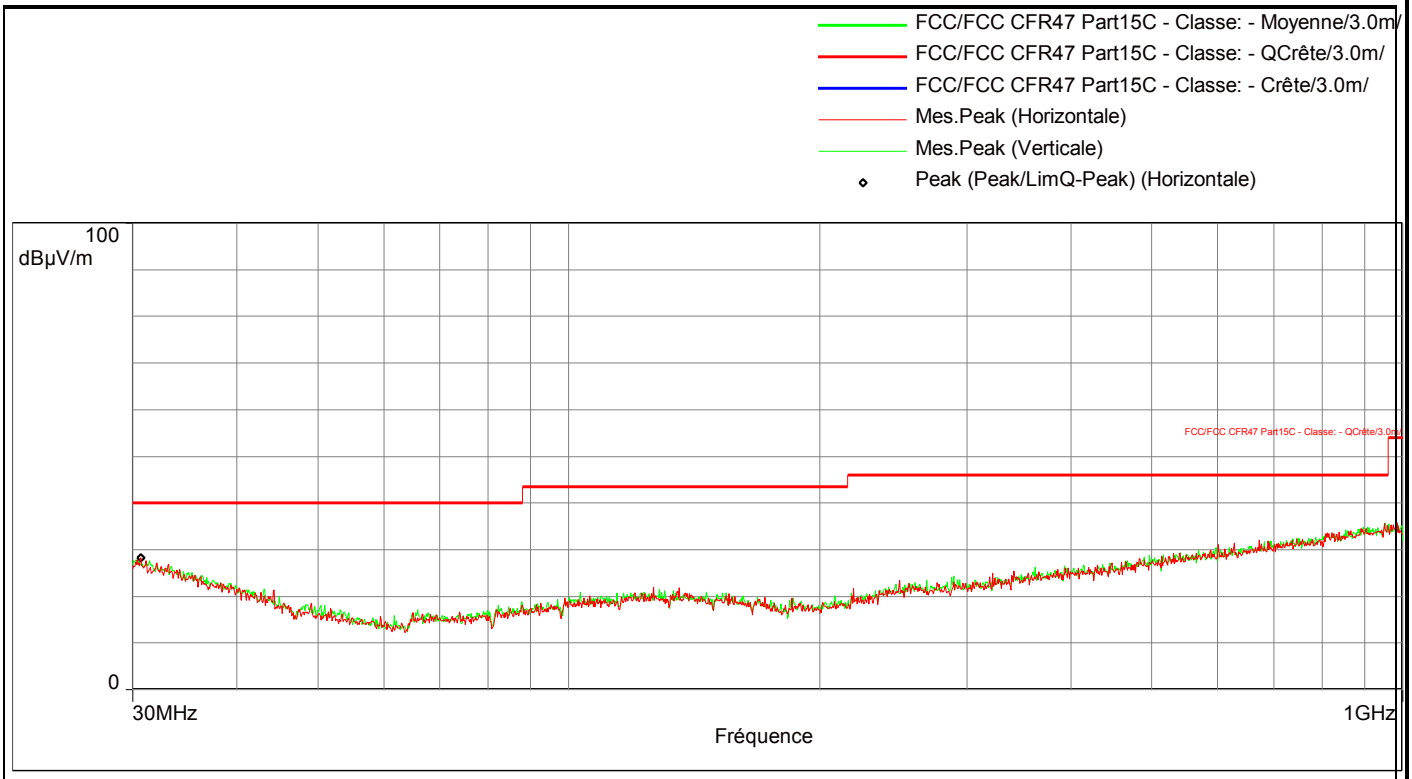
RADIATED EMISSIONS			
Graph name:	Emr#2	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H+V) - CMin - TX mode - Axis Z -	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Horizontal & Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



Spurious emissions

No significative frequency observed

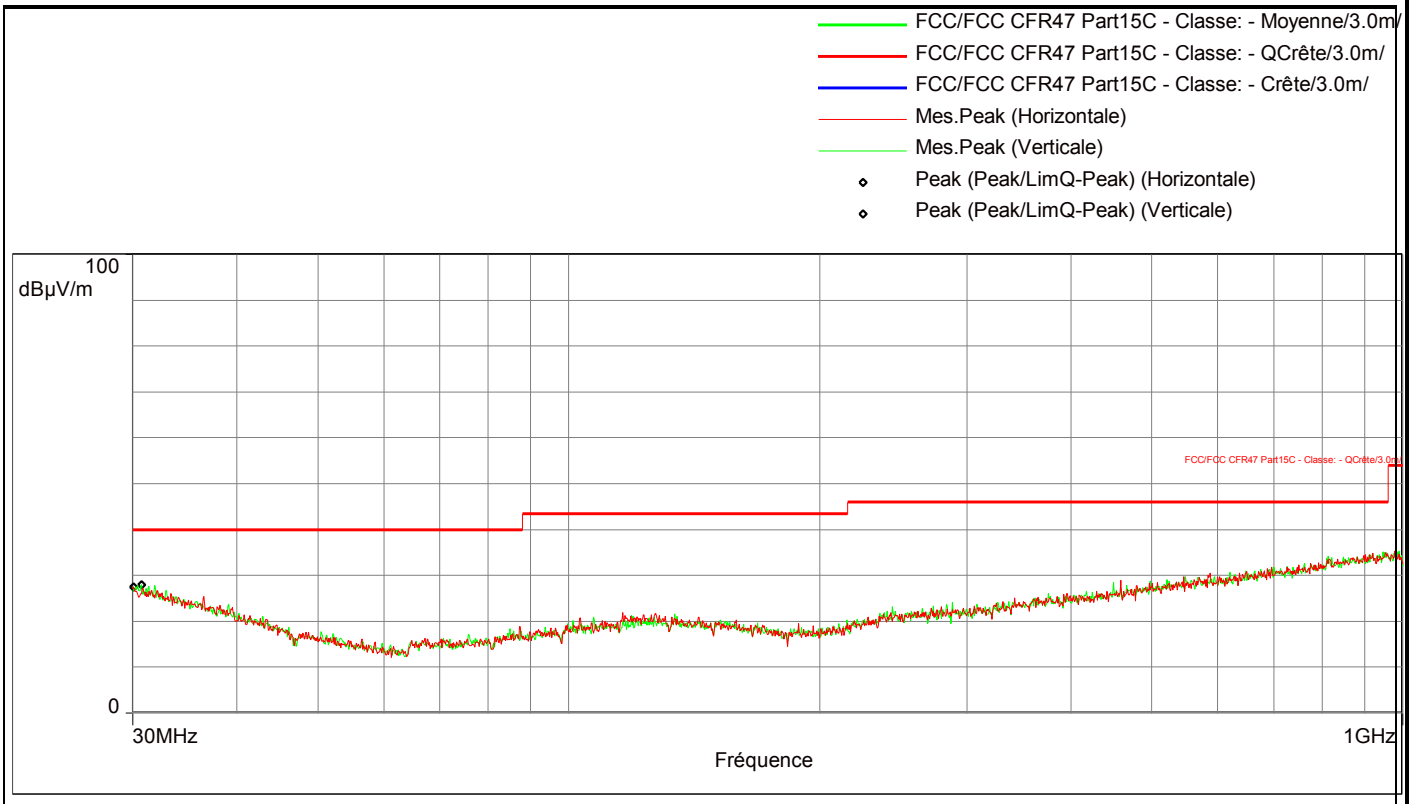
RADIATED EMISSIONS			
Graph name:	Emr#3	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H+V) - CMid - TX mode - Axis XY -	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Horizontal & Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



Spurious emissions

No significative frequency observed

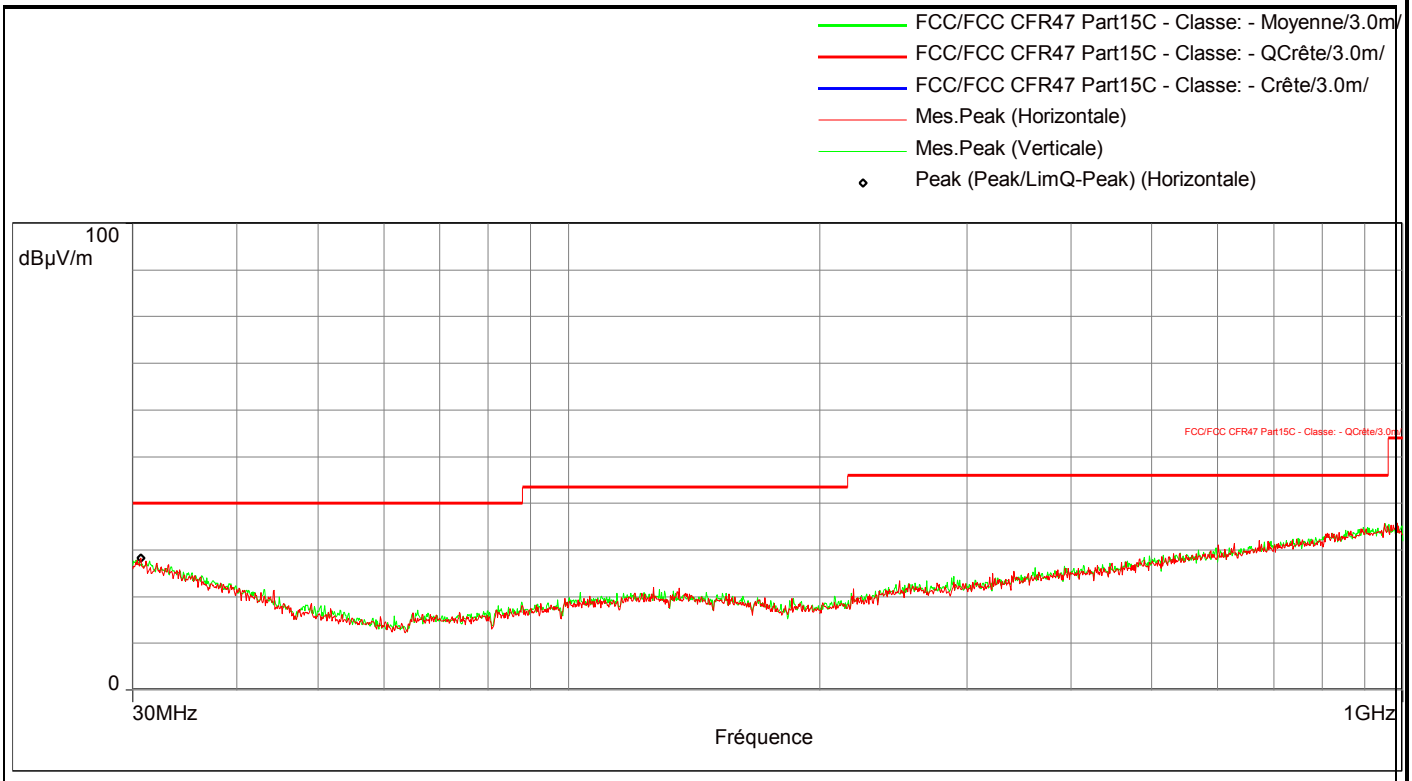
RADIATED EMISSIONS			
Graph name:	Emr#4	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H+V) - CMid - TX mode - Axis Z -	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Horizontal & Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



Spurious emissions

No significative frequency observed

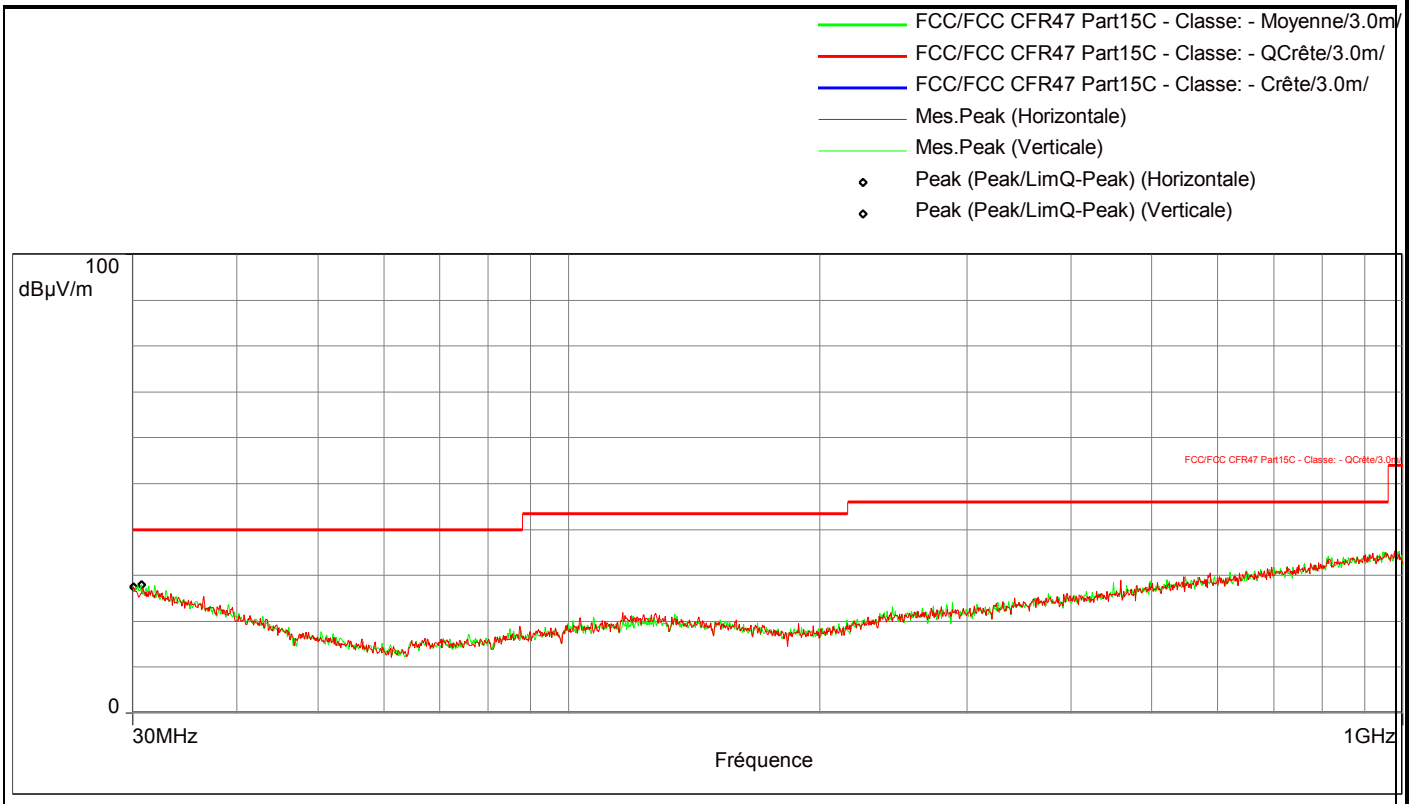
RADIATED EMISSIONS			
Graph name:	Emr#5	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H+V) - CMax - TX mode - Axis XY -	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Horizontal & Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



Spurious emissions

No significative frequency observed

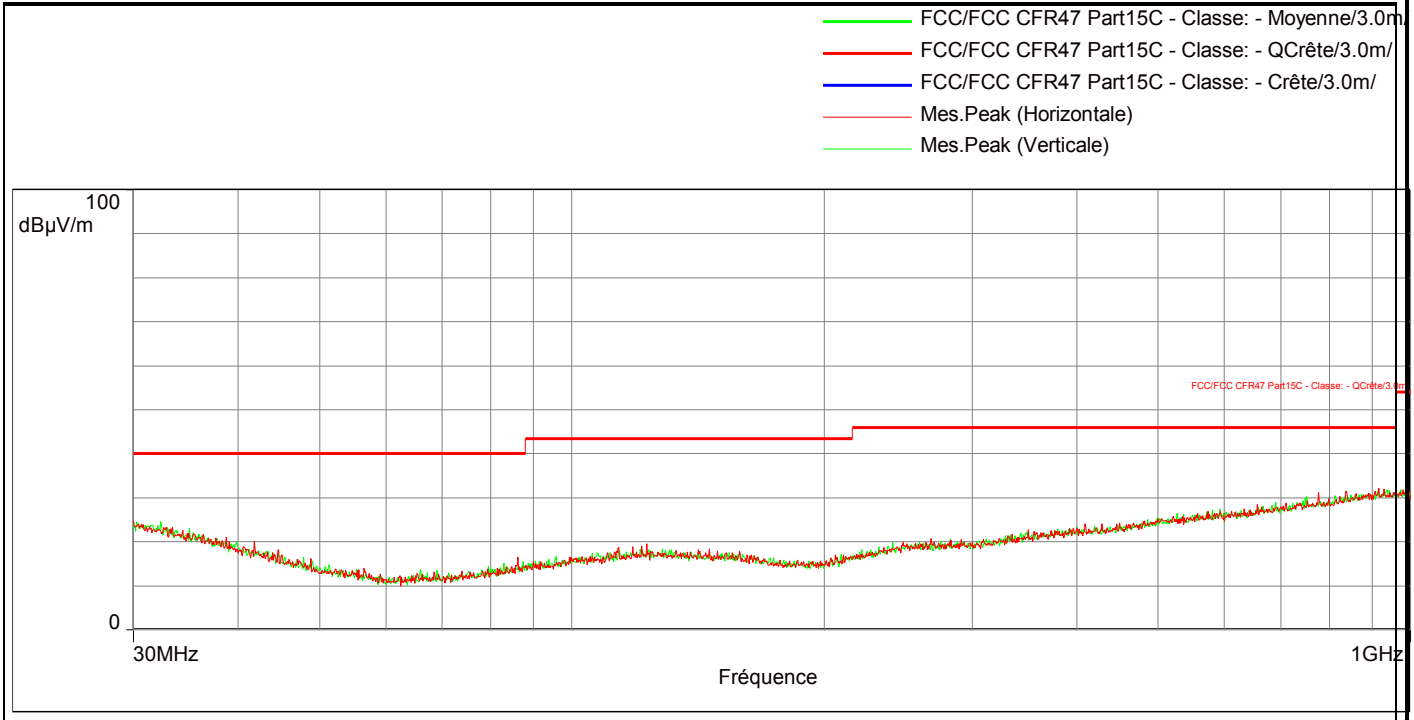
RADIATED EMISSIONS			
Graph name:	Emr#6	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H+V) - CMax - TX mode - Axis Z -	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Horizontal & Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



Spurious emissions

No significative frequency observed

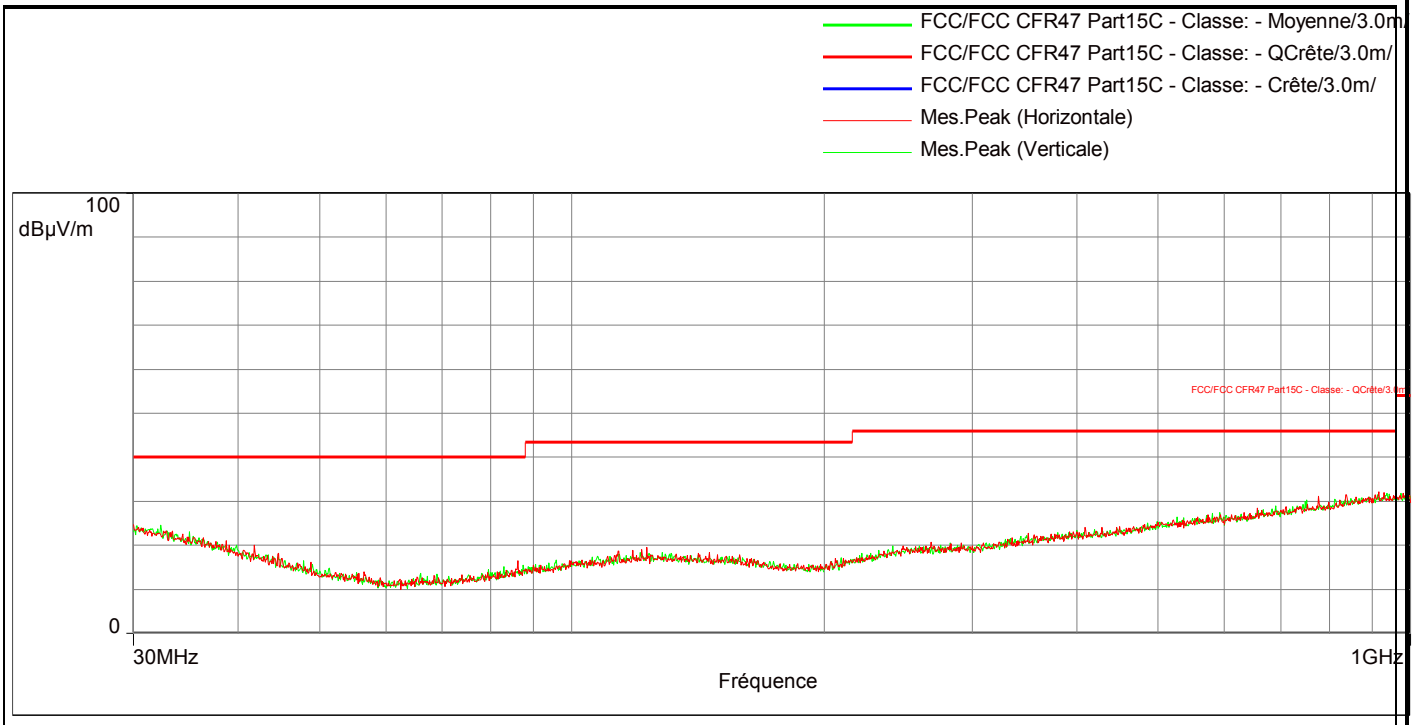
RADIATED EMISSIONS			
Graph name:	Emr#7	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H+V) – Functionnal Mode – Axis XY <1GHz	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Horizontal & Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



Spurious emissions

No significative frequency observed

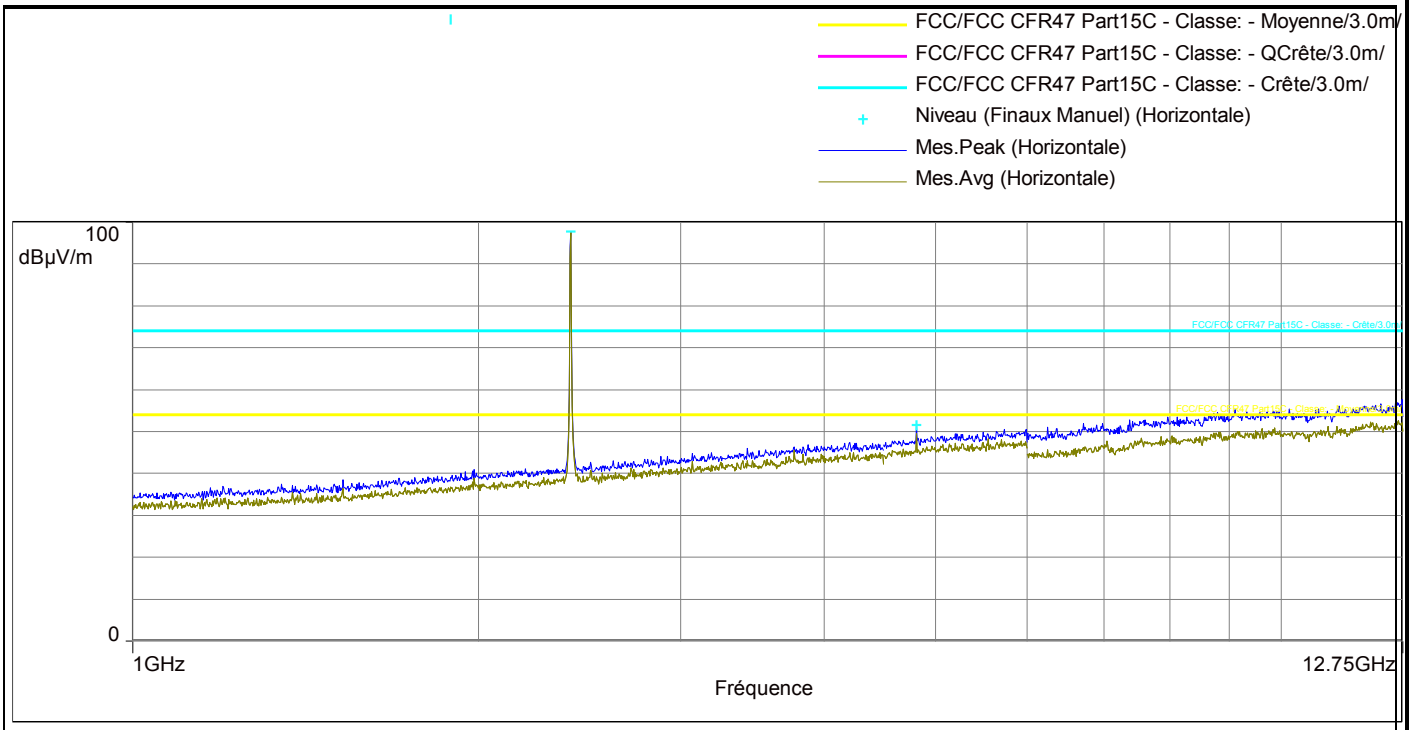
RADIATED EMISSIONS			
Graph name:	Emr#8	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H+V) – Functionnal Mode – Axis Z <1GHz	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Horizontal & Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



Spurious emissions

No significative frequency observed

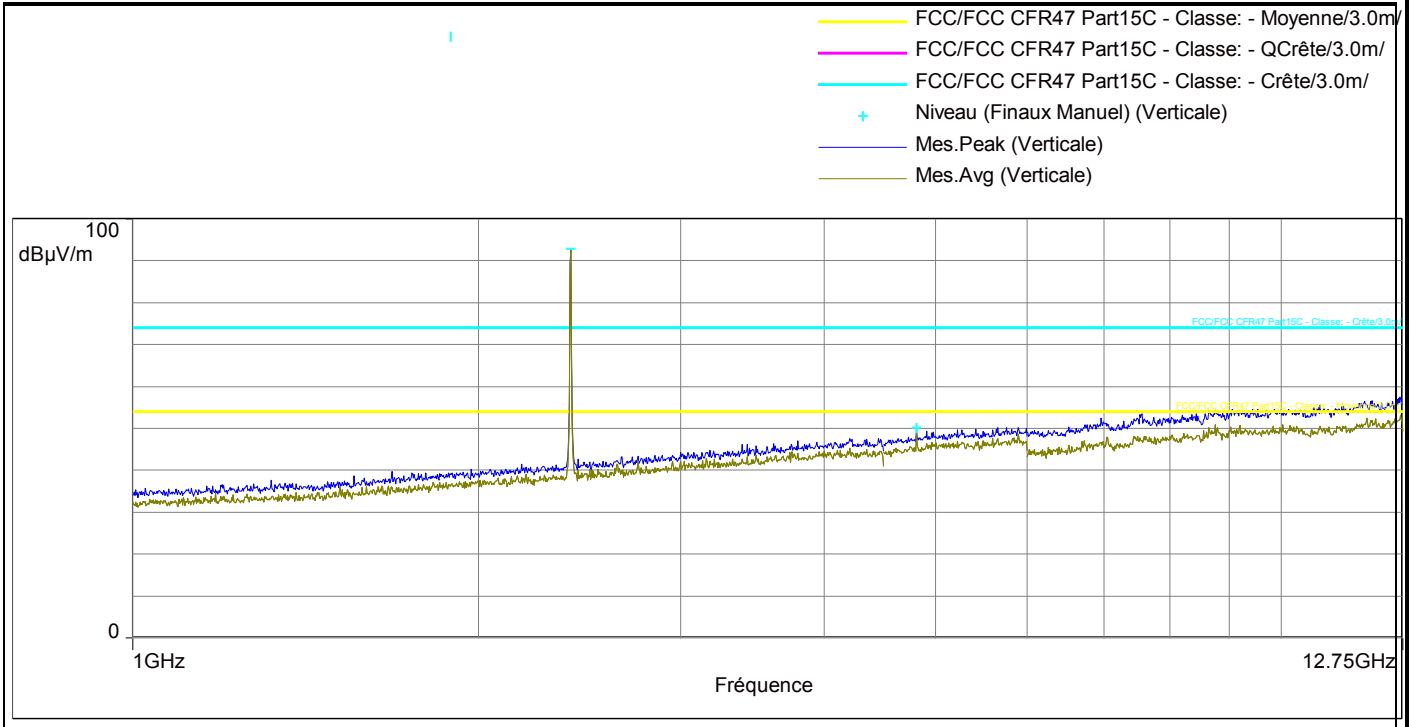
RADIATED EMISSIONS			
Graph name:	Emr#9	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H) - Cmin - TX mode >1GHz - Axis XY -	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Horizontal	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2405.741	97.8	Horizontal
4809.331	51.5	Horizontal

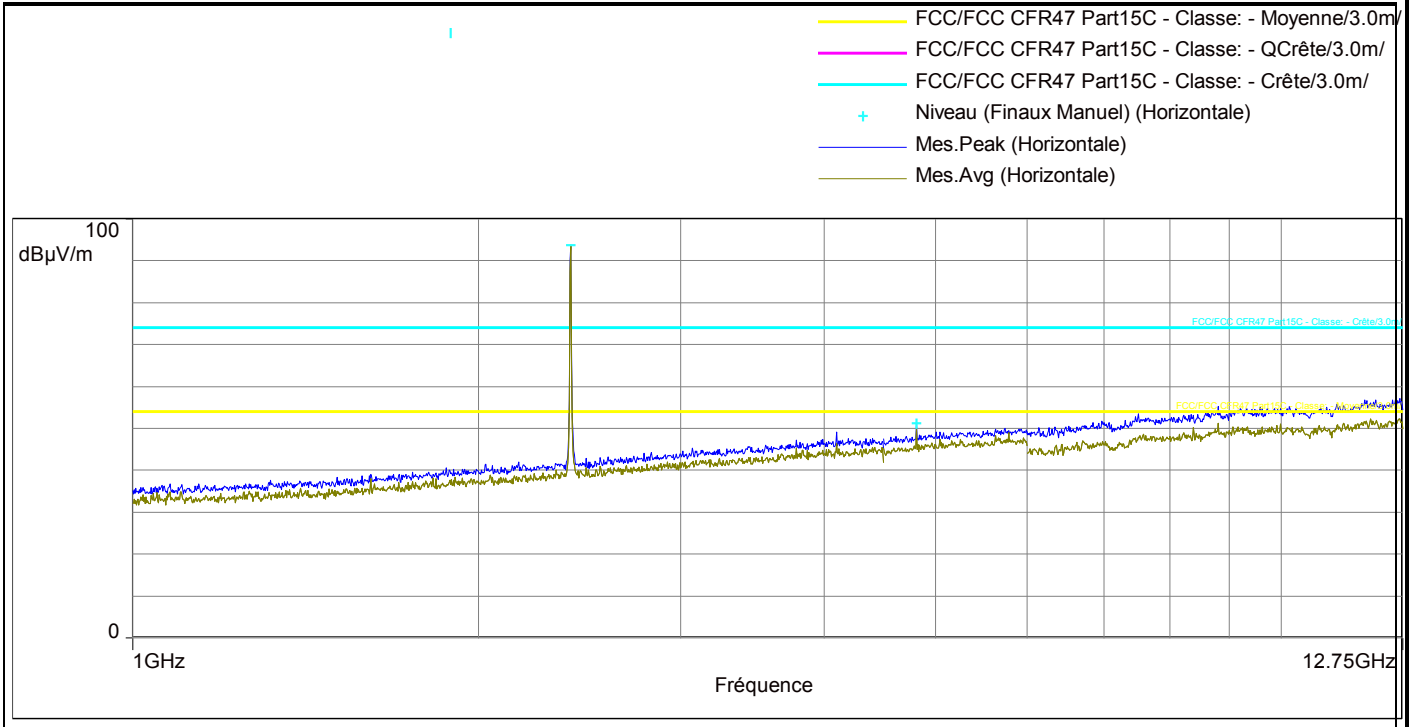
RADIATED EMISSIONS			
Graph name:	Emr#10	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(V) - Cmin - TX mode >1GHz - Axis XY -	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2405.741	92.8	Vertical
4811.281	50.2	Vertical

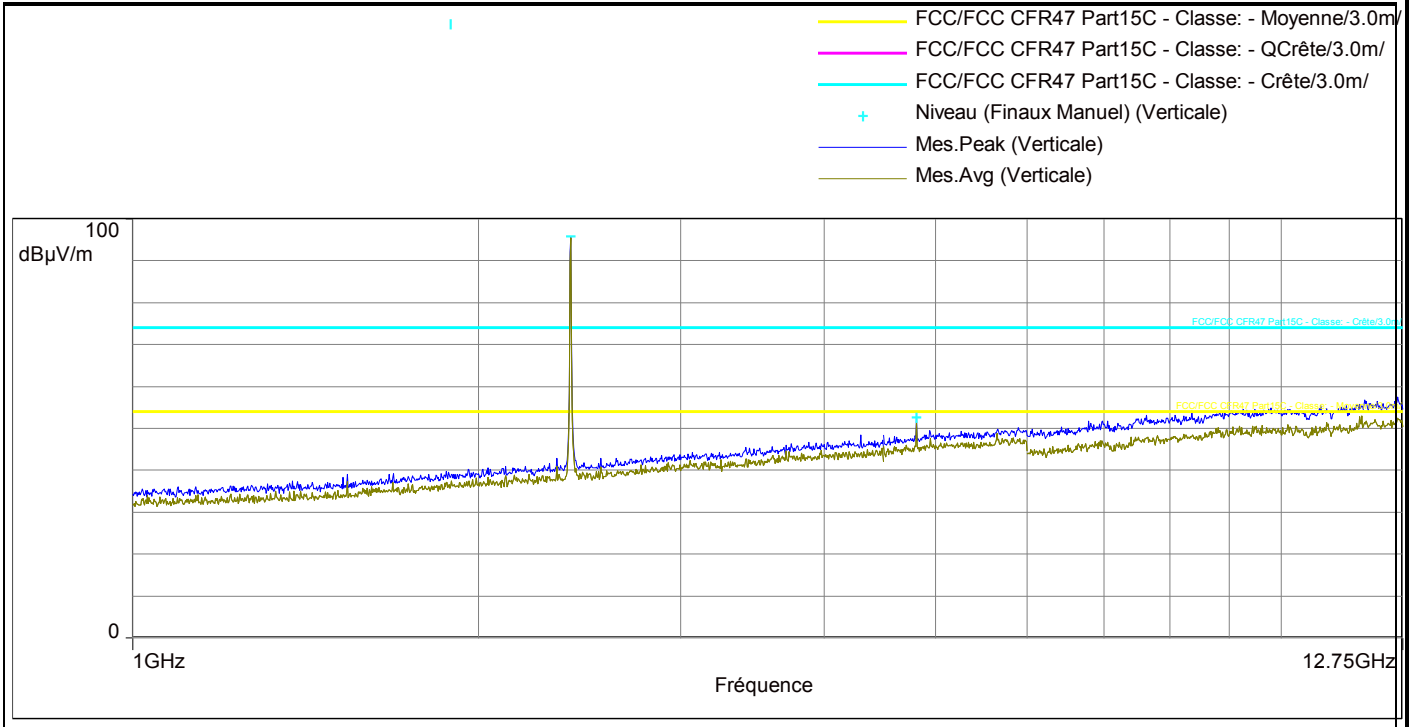
RADIATED EMISSIONS			
Graph name:	Emr#11	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H) - Cmin - TX mode >1GHz - Axis Z -	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Horizontal	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2405.741	93.8	Horizontal
4810.831	51.2	Horizontal

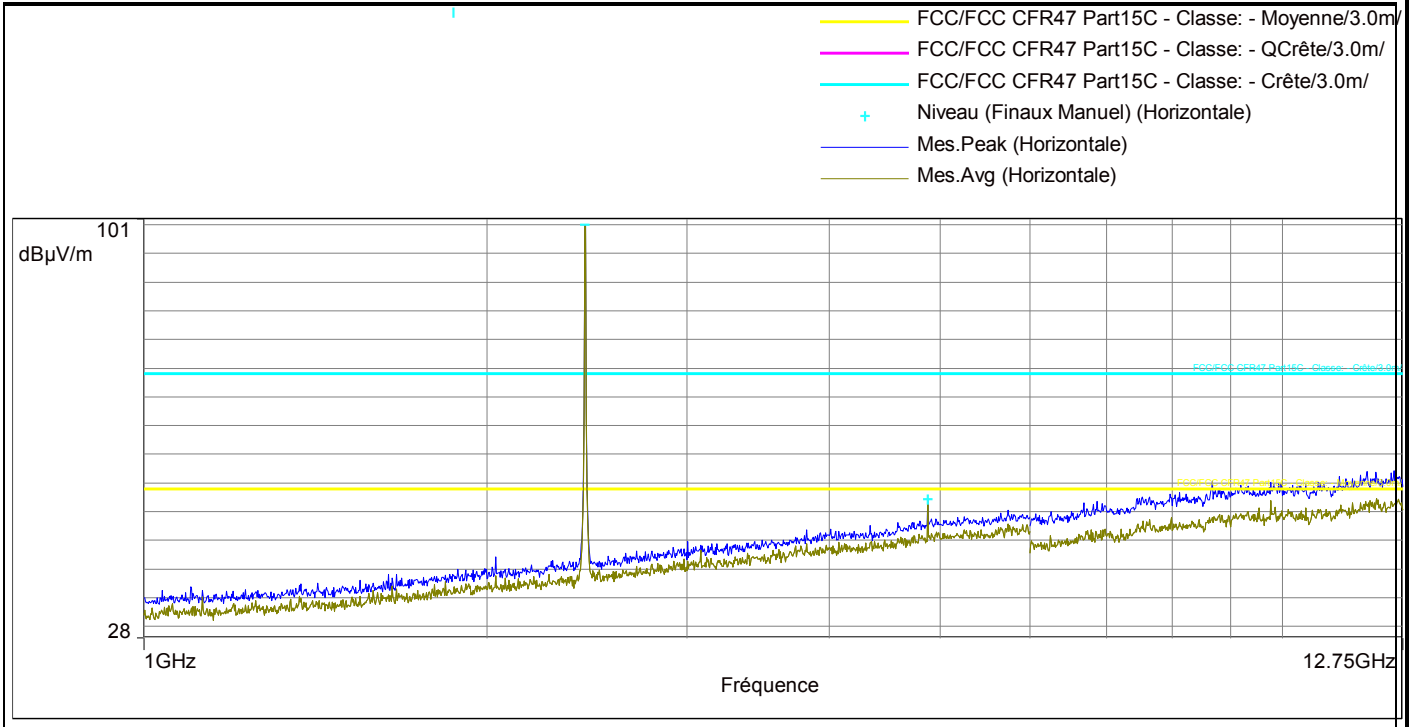
RADIATED EMISSIONS			
Graph name:	Emr#12	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(V) - Cmin - TX mode >1GHz - Axis Z -	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2404.690	95.8	Vertical
4810.981	52.6	Vertical

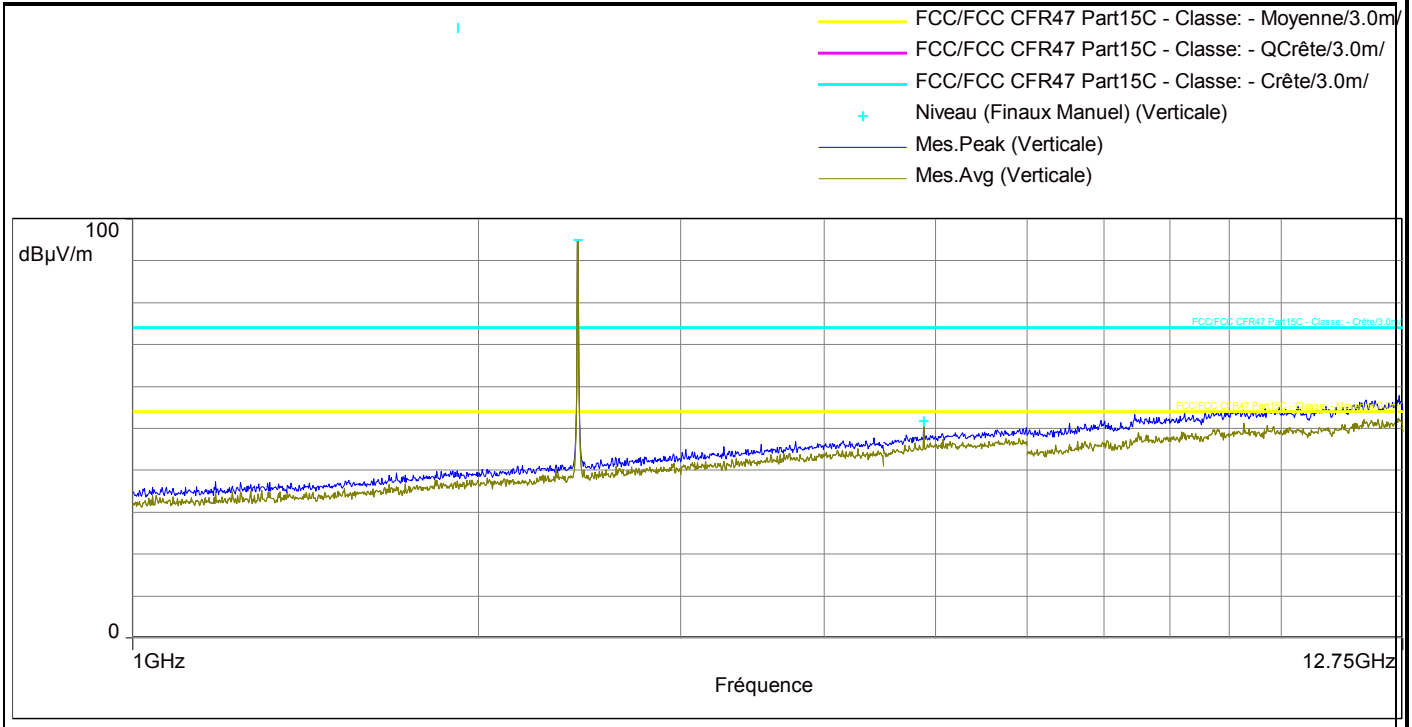
RADIATED EMISSIONS			
Graph name:	Emr#13	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H) - Cmid - TX mode >1GHz - Axis XY -	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Horizontal	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2439.694	100.0	Horizontal
4879.388	52.2	Horizontal

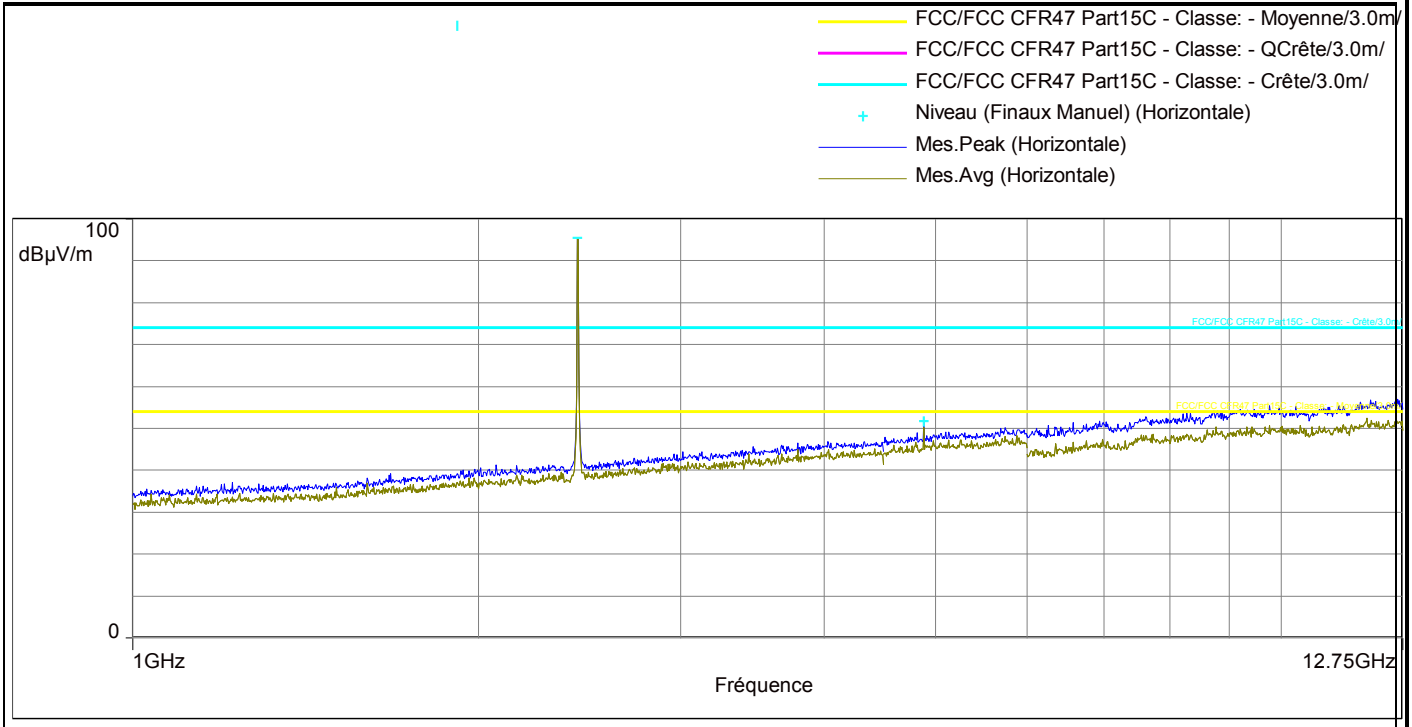
RADIATED EMISSIONS			
Graph name:	Emr#14	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(V) - Cmid - TX mode >1GHz - Axis XY -	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2440.744	95.0	Vertical
4879.238	51.8	Vertical

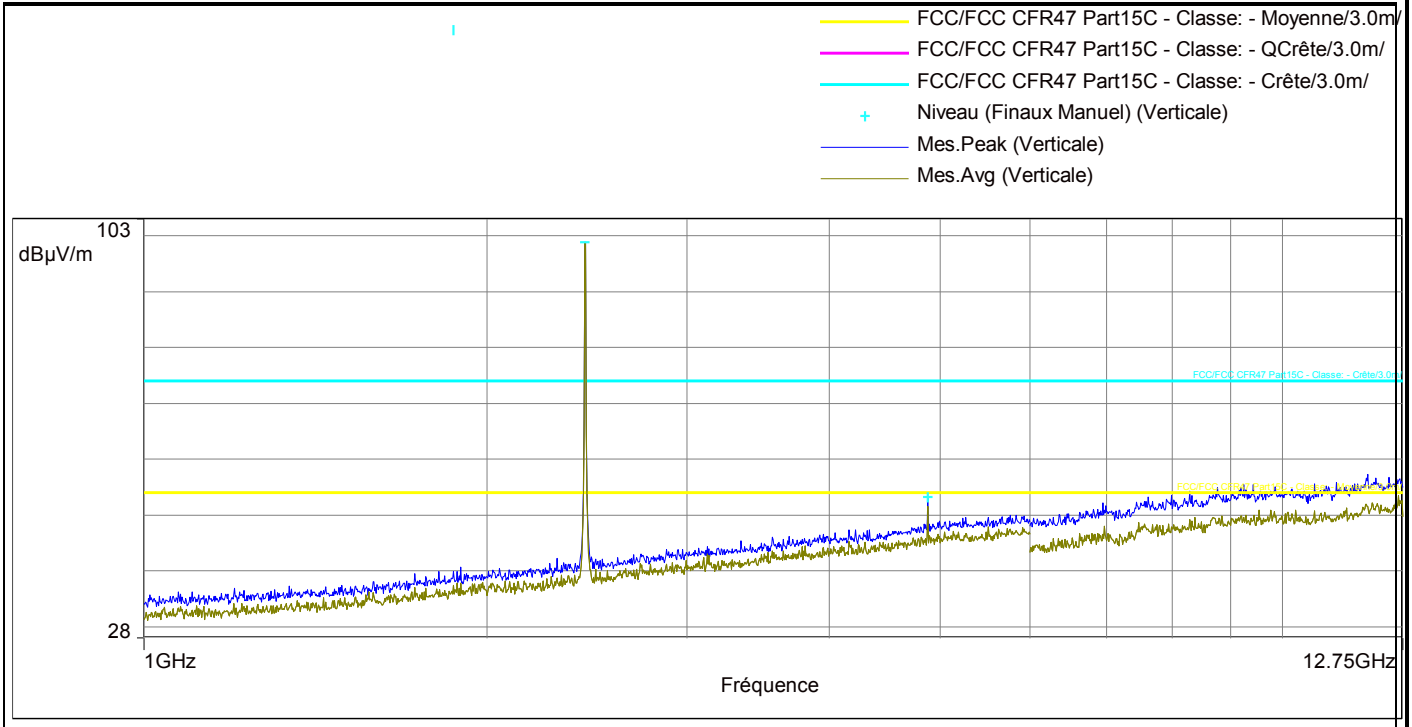
RADIATED EMISSIONS			
Graph name:	Emr#15	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H) - Cmid - TX mode >1GHz - Axis Z -	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Horizontal	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2439.694	95.4	Horizontal
4880.888	51.7	Horizontal

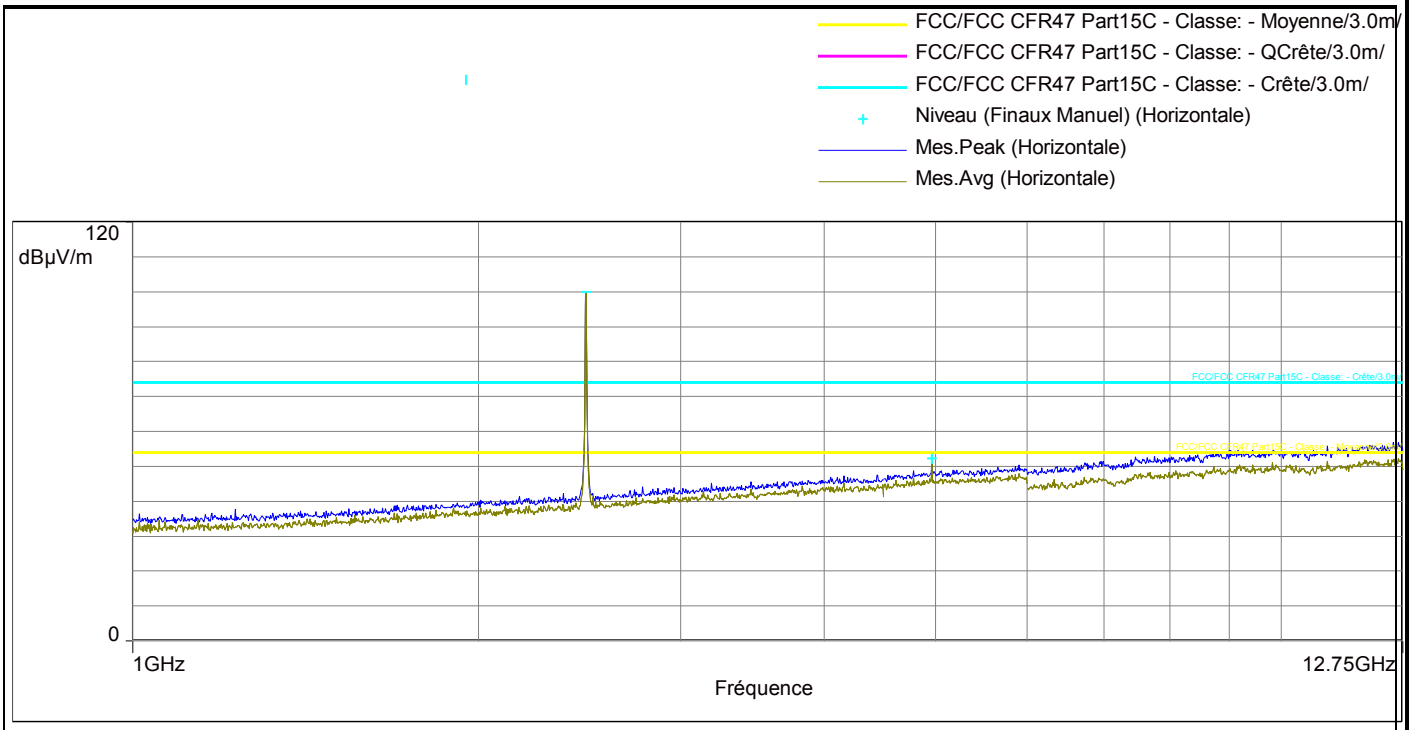
RADIATED EMISSIONS			
Graph name:	Emr#16	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(V) - Cmid - TX mode >1GHz - Axis Z -	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2439.694	98.9	Vertical
4881.338	53.2	Vertical

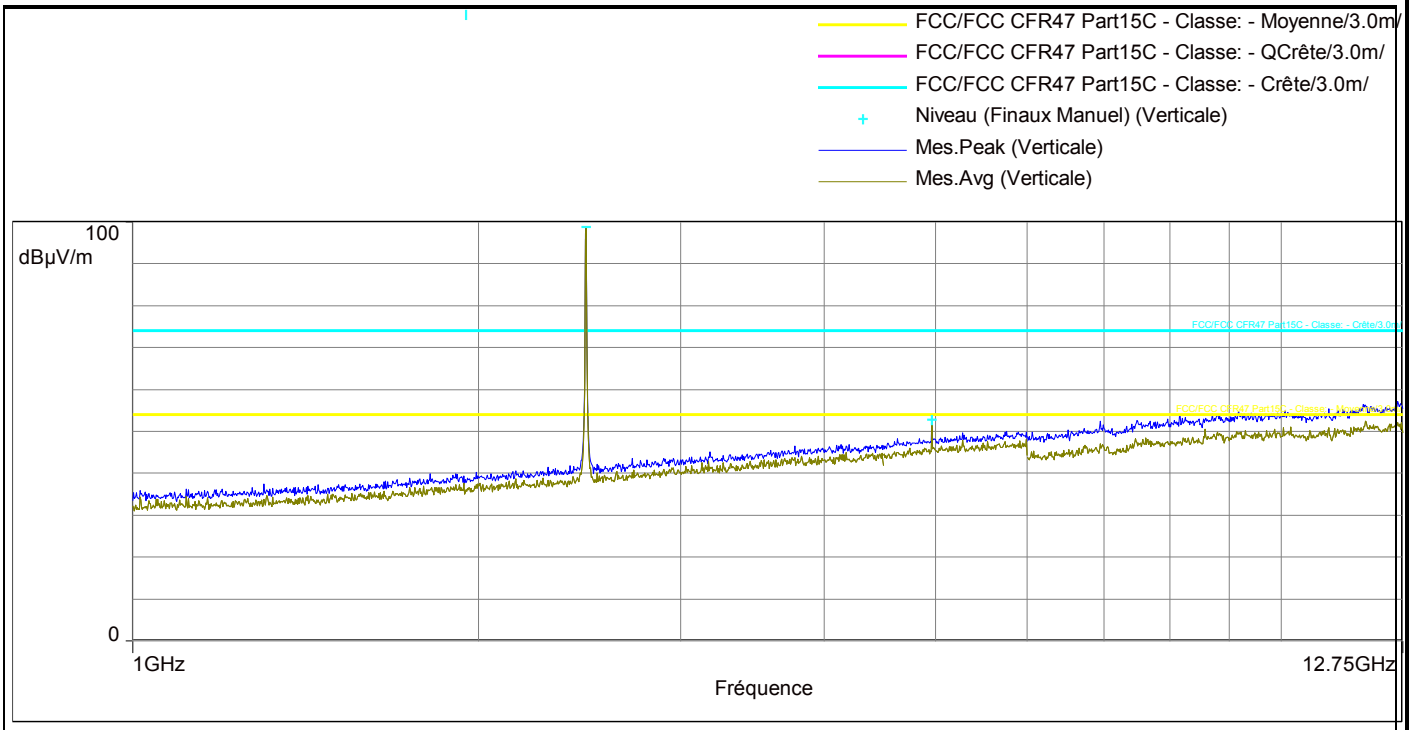
RADIATED EMISSIONS			
Graph name:	Emr#17	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H) - Cmax - TX mode >1GHz - Axis XY -	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Horizontal	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2479.948	100.0	Horizontal
4961.296	52.3	Horizontal

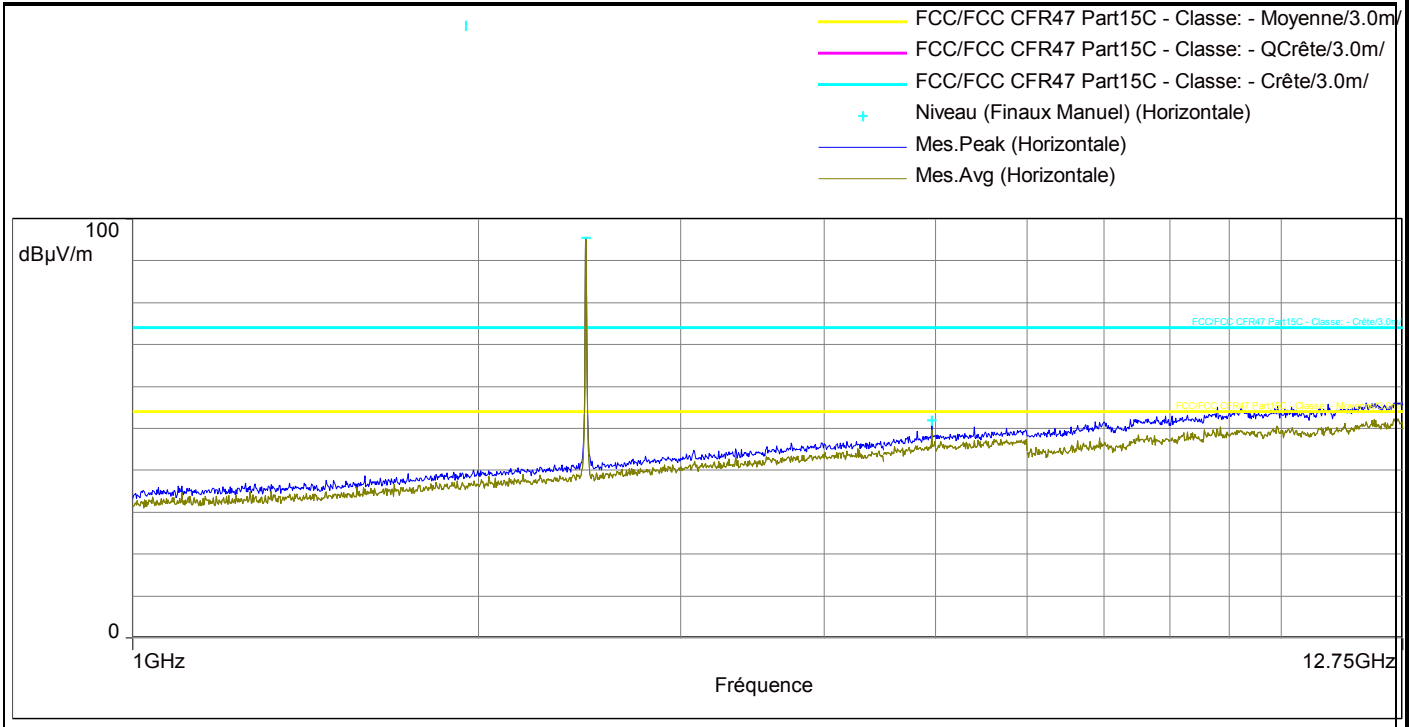
RADIATED EMISSIONS			
Graph name:	Emr#18	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(V) - Cmax - TX mode >1GHz - Axis XY -	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2479.598	98.8	Vertical
4959.196	52.8	Vertical

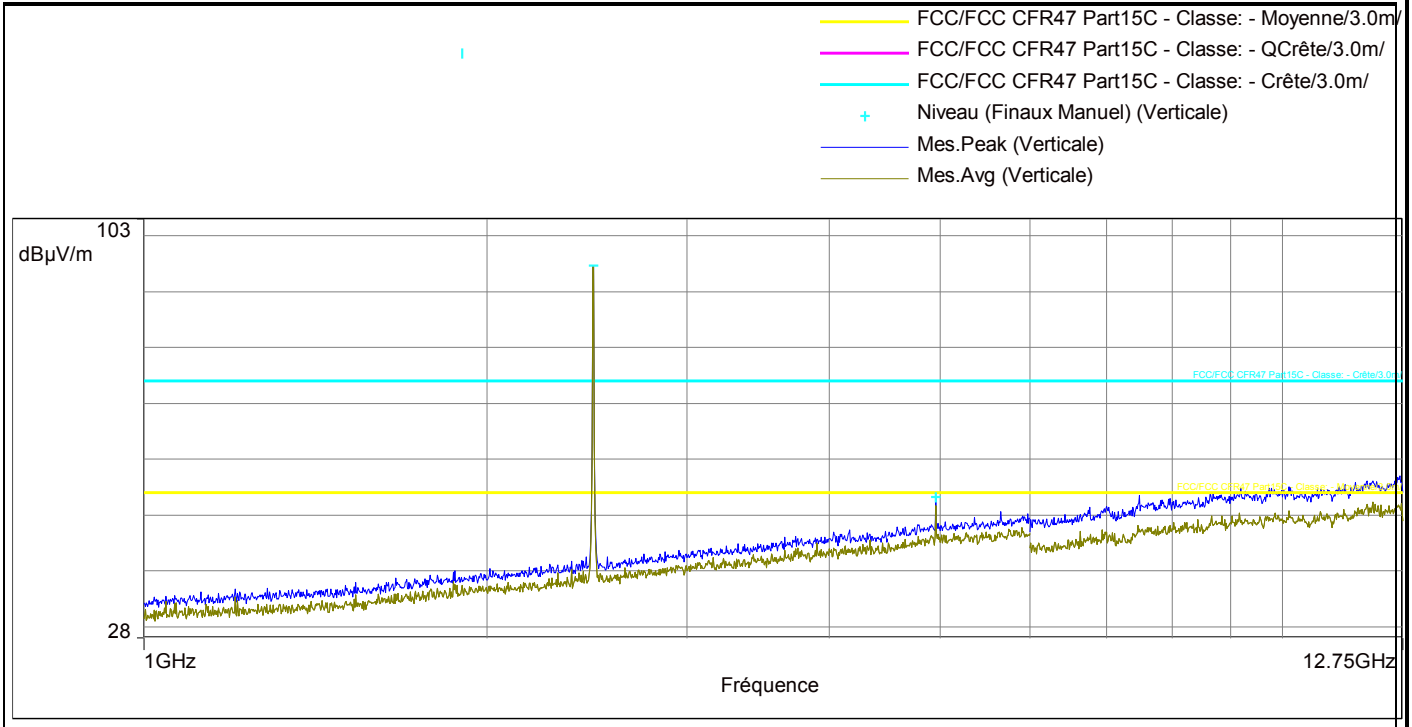
RADIATED EMISSIONS			
Graph name:	Emr#19	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H) - Cmax - TX mode >1GHz - Axis Z -	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Horizontal	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2479.598	95.5	Horizontal
4961.146	51.9	Horizontal

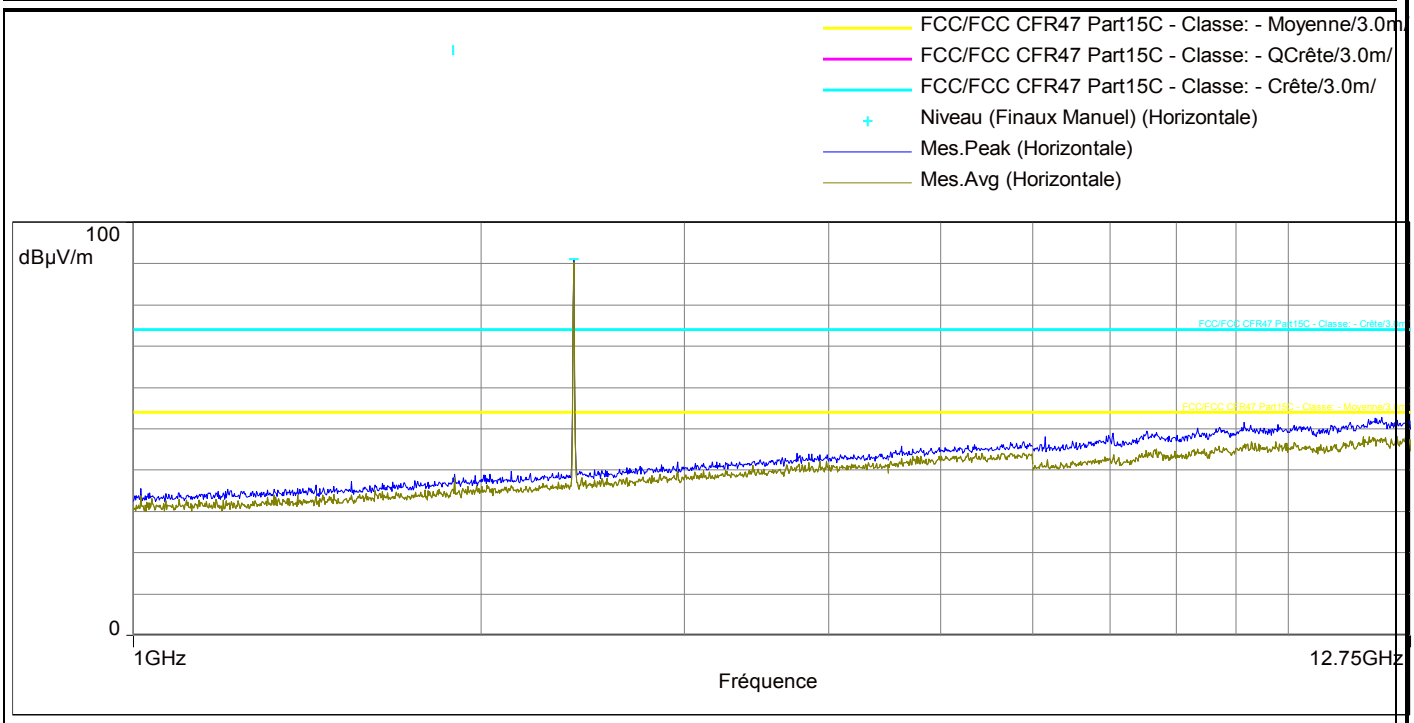
RADIATED EMISSIONS			
Graph name:	Emr#20	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(V) - Cmax - TX mode >1GHz - Axis Z -	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2480.648	94.7	Vertical
4961.296	53.2	Vertical

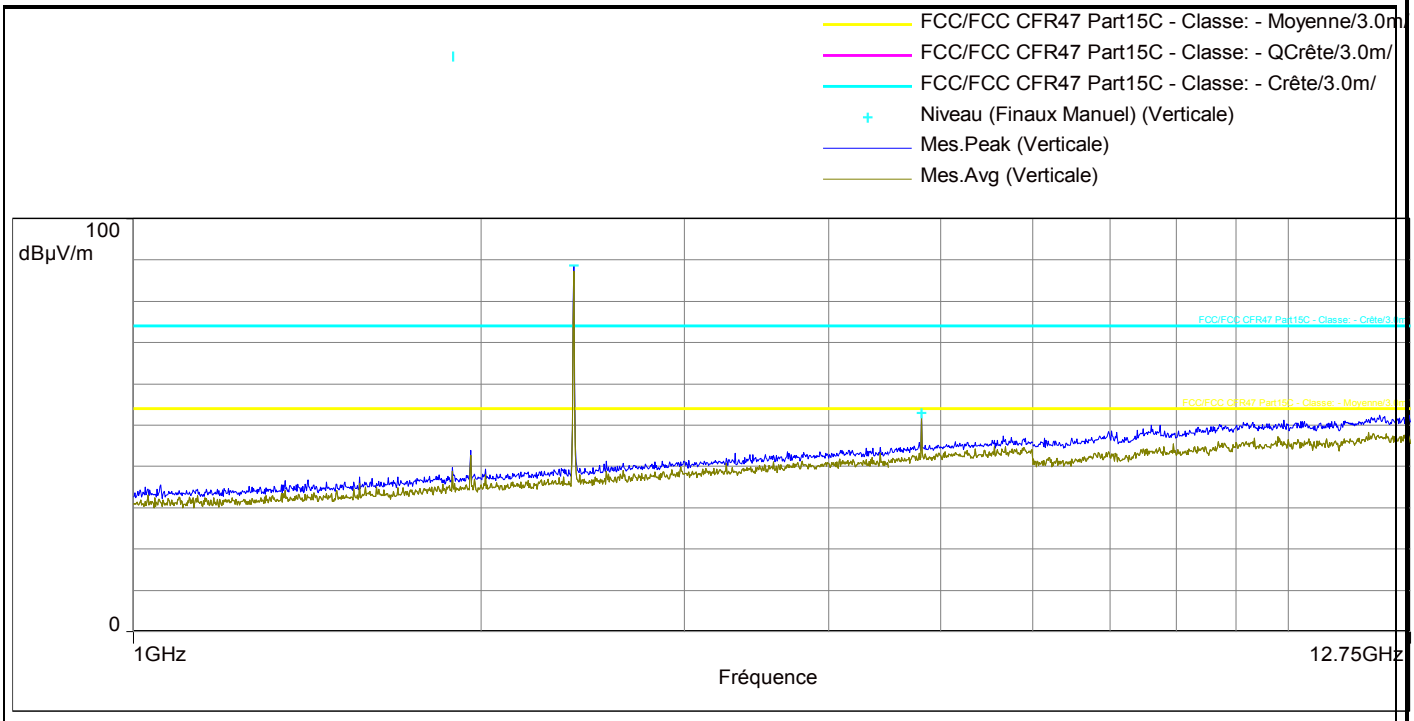
RADIATED EMISSIONS			
Graph name:	Emr#21	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H) - Functional mode >1GHz - Axis XY	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2405.740	91.2	Horizontal

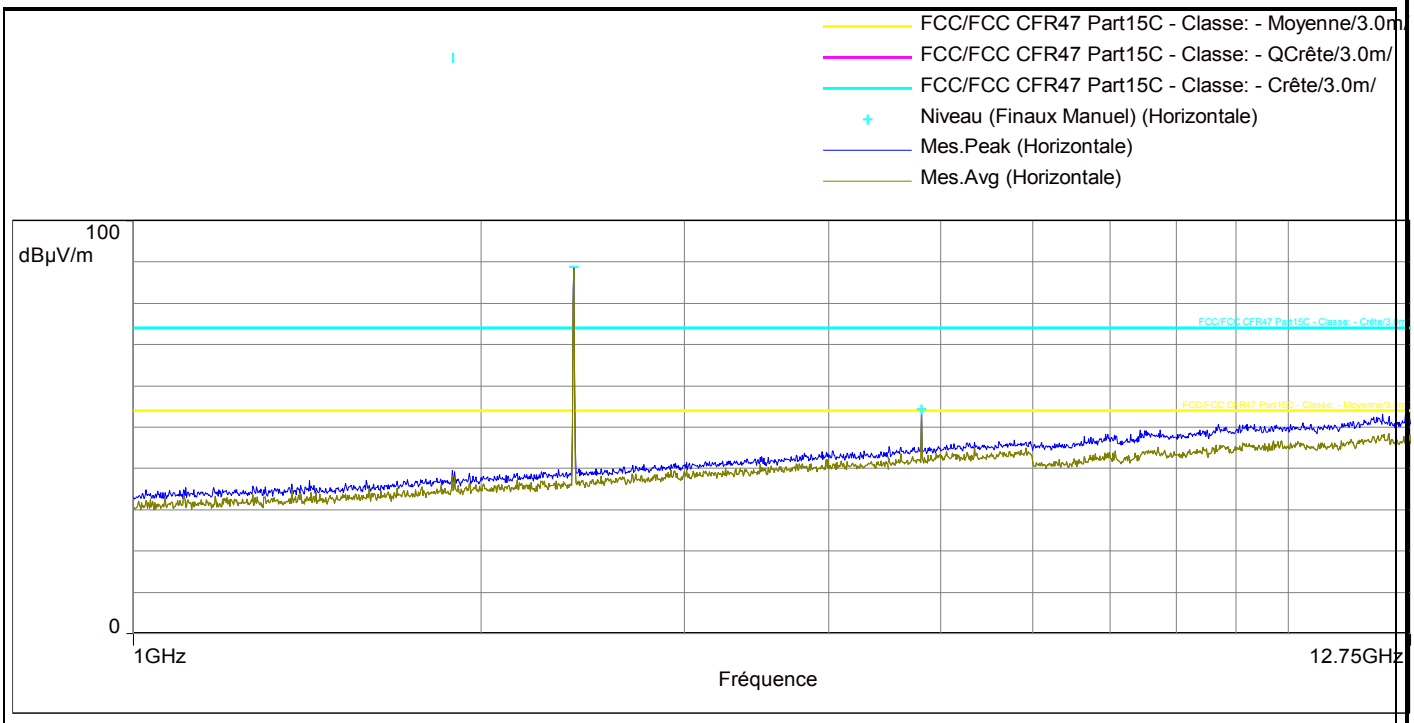
RADIATED EMISSIONS			
Graph name:	Emr#22	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(V) - Functional mode >1GHz - Axis XY	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2405.739	87.8	Vertical
4809.329	52.9	Vertical

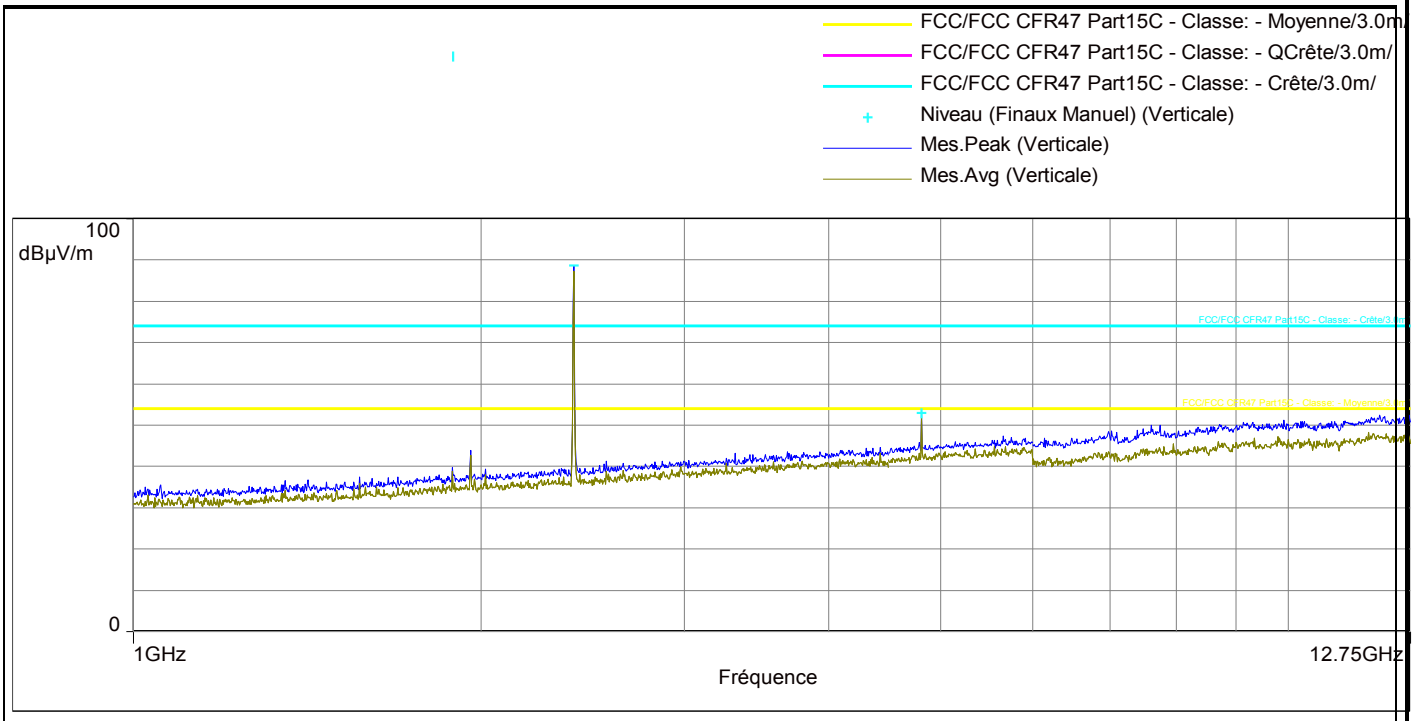
RADIATED EMISSIONS			
Graph name:	Emr#23	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(H) - Functional mode >1GHz - Axis Z	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2405.742	89.3	Horizontal
4809.331	54.9	Horizontal

RADIATED EMISSIONS			
Graph name:	Emr#24	**Test configuration:**	
Limit:	FCC CFR47 Part15C	(V) - Functional mode >1GHz - Axis Z	
Class:			
Frequency range: [1GHz - 12.75GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Spurious emissions

Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2405.756	88.9	Vertical
4809.334	52.4	Vertical

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 *Measurement of conducted disturbances in voltage on the power port*	3.51 dB	3.6 dB
Mesure des perturbations conduites en tension sur le réseau de télécommunication *Measurement of conducted disturbances in voltage on the telecommunication port.*	3.26 dB	A l'étude / Under consid.
Mesure des perturbations discontinues conduites en tension *Measurement of discontinuous conducted disturbances in voltage*	3.45 dB	3.6 dB
Mesure des perturbations conduites en courant *Measurement of conducted disturbances in current*	3.09 dB	A l'étude / Under consid.
Mesure du champ électrique rayonné sur le site en espace libre de Moirans *Measurement of radiated electric field on the Moirans open area test site*	5.20 dB	6.3 dB

Les valeurs d'incertitudes calculées du laboratoire étant inférieures aux valeurs d'incertitudes limites établies par la norme, la conformité de l'échantillon est établie directement par les niveaux limites applicables. / *The uncertainty values calculated by the laboratory are lower than limit uncertainty values defined by the standard. The conformity of the sample is directly established by the applicable limits values.*