



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
 ♦ Trade mark
 ♦ Manufacturer
 Wireless thermal sensor
 SCHNEIDER ELECTRIC
 SCHNEIDER ELECTRIC

♦ Model under test
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 ORATOIRE CENTRAL DES

Technical manager 1 384 to Morrison 384 to Mor

This document shall not be reproduced, except in full, without the written approval of the LCIE. This document contains results related only to the items tested. It does not imply the conformity of the whole production to the items tested. Unless otherwise specified, the decision of conformity takes into account the uncertainty of measurement. This document doesn't anticipate any certification decision.

LCIE

Laboratoire Central des Industries Electriques Une société de Bureau Veritas ZI Centr'alp 170 rue de Chatagnon 38430 Moirans FRANCE Tél: +33 4 76 07 36 36 contact@lcie.fr www.lcie.fr



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					
1.	TEST PROGRAM	4				
2.	SYSTEM TEST CONFIGURATION	5				
3.	RADIATED EMISSION DATA	9				
4.	ANNEX 1 (GRAPHS)	17				
5	LINICEDTAINTIES CHADT	41				



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				
	Frequency	Quasi-peak value (dBµV)	Average value (dBµV)	□ PASS		
Limits for conducted disturbance at mains ports	150-500kHz	66 to 56	56 to 46	□ FAIL		
150kHz-30MHz	0.5-5MHz	56	46	✓ NA □ NP		
	5-30MHz	60	50			
Radiated emissions 9kHz-30MHz CFR 47 §15.209 (a) CFR 47 §15.247 (d) RSS-247 §5.5	9kHz-490kHz : 67. Measure at 30m 490kHz-1.705MHz	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				
Radiated emissions 30MHz-25GHz* CFR 47 §15.209 (a) CFR 47 §15.247 (d) RSS-247 §5.5	88MHz-216MHz : 4 216MHz-960MHz					
Bandwidth 6dB CFR 47 §15.247 (a) (2) RSS-247 §5.2	At least 500kHz	At least 500kHz				
Power spectral Density CFR 47 §15.247 (e) RSS-247 §5.2	Limit: 8dBm/3kHz	Limit: 8dBm/3kHz				
Maximum Peak Output Power CFR 47 §15.247 (b) RSS-247 §5.4	Limit: 30dBm Conducted or Rad	Limit: 30dBm Conducted or Radiated measurement				
Band Edge Measurement CFR 47 §15.209 (a) CFR 47 §15.247 (d) RSS-247 §5.5	Limit: -20dBc or Radiated emissio	Limit: -20dBc or Radiated emissions limits in restricted bands				
Occupied bandwidth RSS-Gen §4.6.1	No limit	No limit				
Receiver Spurious Emission** RSS-Gen §4.10	See RSS-Gen §4.	See RSS-Gen §4.10				

^{*§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 5 GHz.

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 (*)	1

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:

Туре	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

TEST REPORT Version : **02**



Equipment information:

<u> Equipment imormation.</u>							
Type:	☑ ZIGBEE □ RF4CE					4CE	
Frequency band:	[2400 – 2483.5] MHz						
Spectrum Modulation:			☑ D	SSS			
Number of Channel:			1	6			
Spacing channel:			5M	Hz			
Channel bandwidth:			2M	Hz			
Antenna Type:			□ Ext	ernal		□ Dedicated	
Antenna connector:	☐ Yes		☑	No		emporary for test	
			1				
Transmit chains:	Single antenna						
	Gain 1: NC						
Beam forming gain:			N	0			
Receiver chains			1				
Type of equipment:)	□ Pli	ug-in		☐ Combined	
Ad-Hoc mode:		Yes			☑ ١	Vo	
Adaptivity mode:	✓ Yes (Load Based)		☐ Off mode		□ No		
Adaptivity mode.	Clear Channel Assessment Time: -					-	
Duty cycle:	☐ Continuous du	uty	☑ Intermi	ttent duty		☐ 100% duty	
Equipment type:		tion mo	odel 🗆 Pr		e-production model		
	Tmin:		□ -20°C □ 0°C		C		
Operating temperature range:	Tnom:			20°C	20°C		
	Tmax:		□ 35°C	□ 55°0)	☑ 105°C	
Type of power source:	☐ AC power supp	oly	☐ DC pow	er supply		☑ Battery	
Operating voltage range:	Vnom:		☐ 230V/50Hz				

^{(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

```
ch <channel>
pwr <tx_power>
ant <antenna>
trim <value>
ccnum <value>
ccband <value>
txflt <value>

set [<duration>] [<side>]
pulse <on_time> <off_time>

cw [<side>] [<duration>]
prbs [<duration>]
data [<size>] [<interval>]
stop

rcv [<duration>]
> [
```

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 $52.5dB\mu V$ 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 $dB\mu V/m$.

 $FS = 52.5 + 7.4 + 1.1 - 29 = 32 \, dB\mu V/m$

The 32 dB μ V/m value can be mathematically converted to its corresponding level in μ V/m.

Level in μ V/m = Common Antilogarithm [(32dB μ V/m)/20] = 39.8 μ V/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

TEST REPORT Version: **02**



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:

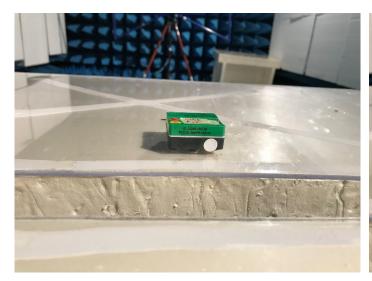
☑ 80cm above the ground on the non-conducting table (Table-top equipment) - Below 1GHz

☑ 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}.







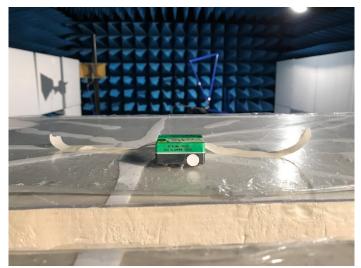


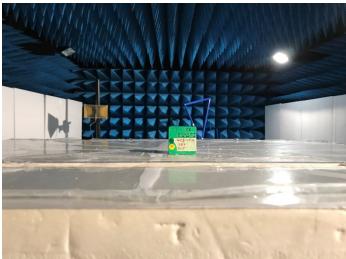


Test setup in anechoic chamber < 1GHz (Axis XY)

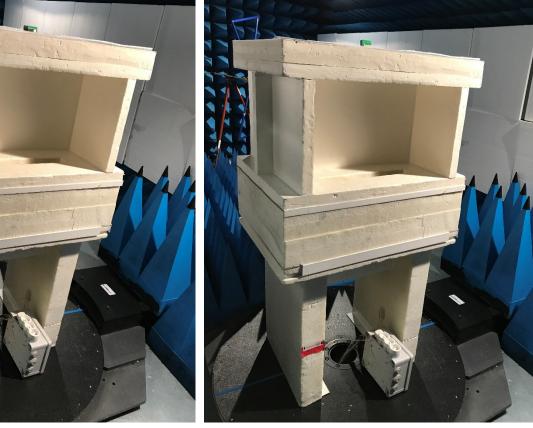
Test setup in anechoic chamber < 1GHz (Axis Z)











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.

TEST REPORT Version: 02



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	1	-		
Spectrum analyzer	ROHDE & SCHWARZ	FSV 30	A4060050	08/16	08/17		
BAT EMC	NEXIO	v3.9.0.10	L1000115	ı	-		
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 id	entifier	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

TEST REPORT Version : **02**



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

See graphs for 1GHz-12.75GHz:

Graph id		Polarization	Mode	EUT position	Channel	Comments
Emr#	9	Н	TX	Axis XY	Min	See annex 1
Emr#	10	V	TX	Axis XY	Min	See annex 1
Emr#	11	Н	TX	Axis Z	Min	See annex 1
Emr#	12	V	TX	Axis Z	Min	See annex 1
Emr#	13	Н	TX	Axis XY	Mid	See annex 1
Emr#	14	V	TX	Axis XY	Mid	See annex 1
Emr#	15	Н	TX	Axis Z	Mid	See annex 1
Emr#	16	V	TX	Axis Z	Mid	See annex 1
Emr#	17	Н	TX	Axis XY	Max	See annex 1
Emr#	18	V	TX	Axis XY	Max	See annex 1
Emr#	19	Н	TX	Axis Z	Max	See annex 1
Emr#	20	V	TX	Axis Z	Max	See annex 1
Emr#	21	Н	Functionnal	Axis XY	Min	See annex 1
Emr#	22	V	Functionnal	Axis XY	Min	See annex 1
Emr#	23	Н	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 significa	nt frequency ob	served				

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

TEST REPORT Version: 02



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



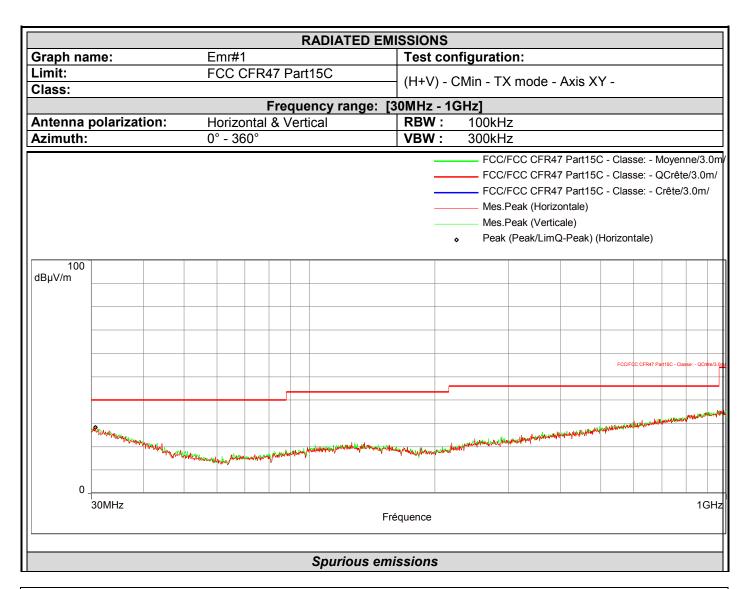
Test Frequency (MHz)	Meter Reading dB(µV)	Detector (Pk/QP/Av)	Polarity (V/H)	Azimuth (Degrees)	Antenna Height (cm)	Transducer Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
2484.009	65.2	Av	V	341	150.0	-15.2	50.0	54.0	-4.0	Z
2485.165	63.8	Av	V	341	150.0	-15.2	48.6	54.0	-5.4	Z
2486.155	65.5	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)





						RADIAT	ED EM	SSIONS	S							
Graph na	me:		Emi					Test c	onfig	juratio	on:					
Limit:			FCC	CFR4	47 Par	t15C		(H+\/)	- CM	in ₋ TX	mode	- Axis Z	_			
Class:								, ,			THOUE	ANIO Z				
						ency rai	nge: [3									
Antenna		ion:		izontal	& Ver	tical		RBW:		100kH						
Azimuth:			0° -	360°				VBW :	3	300kH		47 Part150				
								<u>-</u> -		FCC/IMes.FMes.FPeak	FCC CFR Peak (Hori Peak (Vert (Peak/Lim		C - Clas Horizon	se: - C		
100 dBµV/m																
													FOOIE	GC CFR47 Par	AFC Clares	0044
													Tear	oc or iver r a	TIC - Classe.	- QCIETE
	Bulmupamahanak										المعمدان	ماينار المهينييين	harmont	. Prophysical Principal Pr	والمراجعة والمعارضة والمعارضة	agis (macillating
	. Headelfood	the state of the same	hadermakerhaden	and the state of t	Amany de la company	photostal to served	Mythansaymunt	-whiteway the depart	udging-palmaginish	i Marina ing ilaya ing in	Montenan					
0 .	30MHz															1GI
							Fré	quence								
						Spurio										



						R	ADIATED E	MISSION	IS							
Graph na	me:			mr#3				Test	con	figurati	on:					
Limit:			F	CC CF	R47 F	Part	15C	(H+\/	١	Mid T	X mode	Avie Y	V			
Class:								, ,			X IIIOUE	- 7/19 /	. 1 -			
							ncy range:									
Antenna		tion:			tal & \	/ert	ical	RBW		100kF						
Azimuth:			0°	- 360	0			VBW	:	300kF	łz					
								• • •	•	FCC FCC Mes.	/FCC CFR /FCC CFR /FCC CFR .Peak (Hori .Peak (Vert c (Peak/Lin	47 Part15 47 Part15 zontale) icale)	C - Clas C - Clas	se: - C se: - C	Crête/	3.0m/
100 dBµV/m																
													FCC/F	OC CFR47 Pa	rt15C - Classe	.: - QCrête/3.0
																\blacksquare
																-
	Ringham										ماديد ر	المراد ال	i jerjerkirenteret	فلطبت والتهام	Married Reports of the	Maria Massall
	- Androwed	Market Marcin	Whitemando	No Albertan	Approve / Kapan	/ المعتمد المعتمد	and all places and the places and	get the company to have	podovojkani	esperial period carely	North-College (Control					
0	1															
	30MHz							Fréquence								1GHz
							Spurious e	missions	:							



							R	ADIATED E	<u>MISSION</u>	<u> </u>							
Graph nar	me:		E	mr#4					Test	confi	gurat	ion:					
Limit:			F	CC C	FR4	ŀ7 P	art	15C	(H+\/) - CI	/lid _ T	X mode	_ Δvie	7 -			
Class:									, i			X 11100C	, - /\\\\\\				
		-						ncy range:				-					
Antenna p	olarizati	ion:		orizo		& V	ert	cal	RBW		100kF						
Azimuth:			0	° - 36	0°				VBW	:	300kF	/FCC CF					
										 	FCC Mes Mes	c/FCC CFI c/FCC CFI .Peak (Ho .Peak (Ve k (Peak/Li k (Peak/Li	R47 Part1 orizontale) erticale) imQ-Peak	5C - Cla	sse: - C		
100 dBµV/m																	
-														FCC	FCC CFR47 Pa	irt15C - Classi	e: - QCrête/3
																	_
	Bertalyana											a tile M	وأساره والمناور والماري	hapanellakurikan dini pira	(Leptophophophophop	المعلمة	الإناها والمنابعة
-	Berlinderproperturbally	Markeyen	whole who have the	dfor Marked	nambana	يعلمانسيس	print/	to free for the property of the constrainty	beentamphicum ppideoda	populati pir planit	(d) apopulaçõe)	obthorhad					
0 _																	
;	30MHz							I	- réquence								1GH
								Spurious er									



						RA	ADIATE	ED EM	ISSION	IS								
Graph na	me:		En	nr#5					Test	con	figurati	on:						
Limit:			FC	CC CF	R47 Pa	art1	5C		/U±\/	٠ .	May T	X mode	Avic \	/ /				
Class:									,	•		A IIIOUE	- AXIS /	Λ1 -				
								ige: [30MHz									
Antenna	•	ion:		orizont		ertic	al		RBW		100kH							_
Azimuth:			0°	- 360°)				VBW	:	300kF	Z						_
										•	FCC. Mes. Mes.	/FCC CFR /FCC CFR Peak (Hori Peak (Vert : (Peak/Lim	47 Part15 zontale) icale)	C - Clas	sse: - C			/
100 dBµV/m																		_
														FCC/F	OC CFR47 Pa	rt15C - Class	se: - QCrête	3
	Rhitakingayayaya						11				Marchaella	longinessilforphylonion (dos-in	and the state of t	adropostolosopost	الماستساما	general september of	naghrides. Philes	-
0	Pating and the same	The state of the s	Waticsmounder	proposition and the	Andrew An	ghaired/letizely	AND CONTRACTOR OF THE PARTY OF	the particular of the control of the	handre by the son	poderajbesi	Mars 1							_
	30MHz							Fr	équence			1			-	-	1GI	1
						9	Spurio	us em	issions	S								

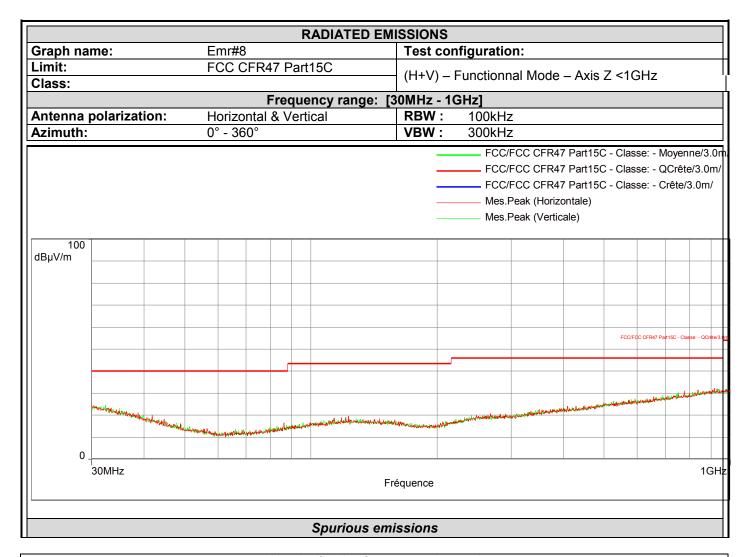


							R	ADIATED EM	ISSION	IS							
Graph na	me:		Er	mr#6					Test	confi	gurati	on:					
Limit: Class:			F(CC C	FR4	7 P	art	15C	(H+V)) - CN	1ax - T	X mode	e - Axis	Z -			
Oluss.					F	rec	ше	ency range: [3	OMHz	- 1GF	 						
Antenna	polarizat	ion:	H	orizo					RBW		<u>-</u> 100k⊦						
Azimuth:				- 36		<u>~ • • • • • • • • • • • • • • • • • • •</u>	011	1041	VBW		300kH						
									-	• •	FCC. FCC. Mes. Mes. Peak	/FCC CFF /FCC CFF /FCC CFF Peak (Hoi Peak (Ver ((Peak/Lir	R47 Part19 R47 Part19 rizontale) ticale) mQ-Peak)	5C - Clas 5C - Clas (Horizo)	sse: - (sse: - (ntale)	Crête	/3.0m
100 dBμV/m	Reduction when the contract	AMAGE						and the company of the contract of the contrac		- Alberty-Market	di norman faggi f	moreography	in a plan on in the late of th		CC CFR47 Pi		e: - QCrete/
0 .			homewhole	Mars Marilland	rapadeng	papeter-traster	roway.		and accounting a food of	WW.							
	30MHz							Fré	equence								1GH
								Spurious emi	ssions	i							

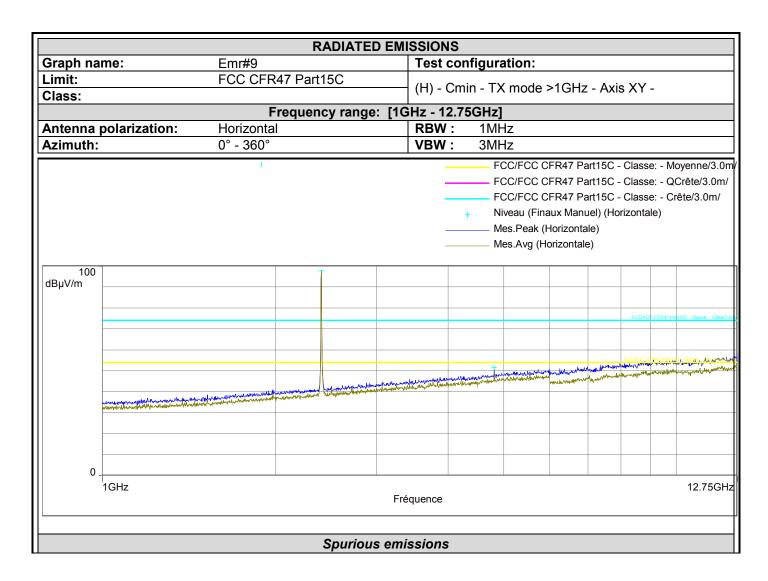


							R	ADIATED EM	ISSION	IS							
Graph na	me:		E	mr#7					Test	configurat	ion:						
Limit:			F	CC C	FR4	7 P	art′	15C	(H±\/) – Functior	nal Mode	Avie	YV ~	1GH-	,		
Class:											iiiai ivioue	; – AXIS	ΛI \	10112	_		
								ncy range: [3									
Antenna _I	polarizati	ion:		orizoı		& V	erti	cal	RBW								
Azimuth:			0°	° - 36	0°				VBW	: 300kH	l z						
										FC0	C/FCC CFR4	7 Part150	C - Clas	se: - N	1oyen	ne/3.	0n
										FC0	C/FCC CFR4	7 Part150	C - Clas	se: - C	Crête	/3.0	n/
											C/FCC CFR4		C - Clas	se: - C	crête/3	3.0m	'
											s.Peak (Horiz						
										Mes	s.Peak (Verti	cale)					
100																	
dBµV/m																	
													FCC/F	C CFR47 Pa	rt15C - Clas	se: - QCri	te/3.0
													ļ	أناسه المعالمية	سلسليسييه	مسدرالس	بتالا
	hansalogassadasadasadas									1	make any company to the second	and the state of t	and the second second	Strikeles.			
		wheretherenated	athropoly the same		المستمالين	سلمس	وميابليها	mandely of his house of the his house of the same	Aceptanical	A A Householder & State of the							
0 _	20141.1-																
	30MHz							Fr	équence							10	H
									- 1								
								Spurious em	issions	3							



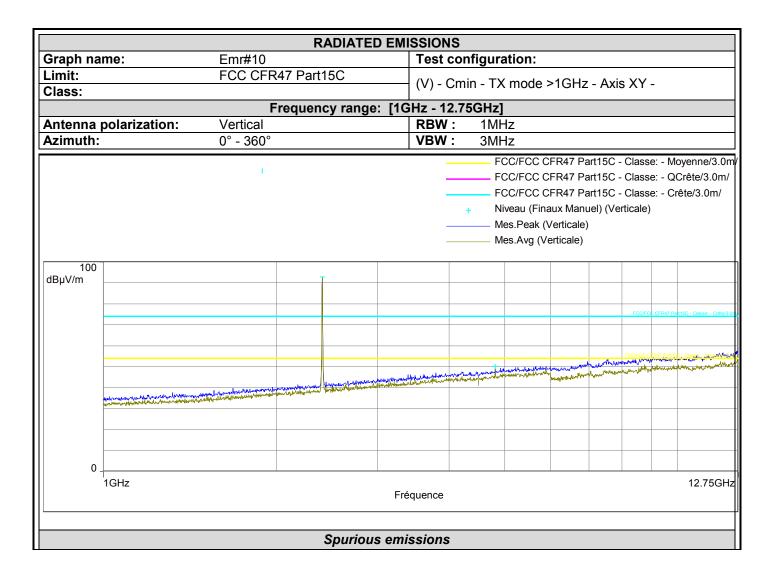






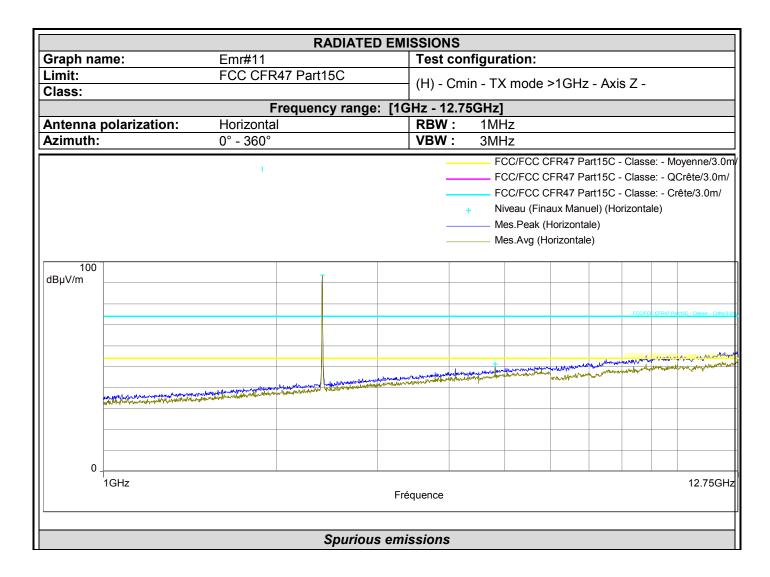
Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2405.741	97.8	Horizontal
4809.331	51.5	Horizontal





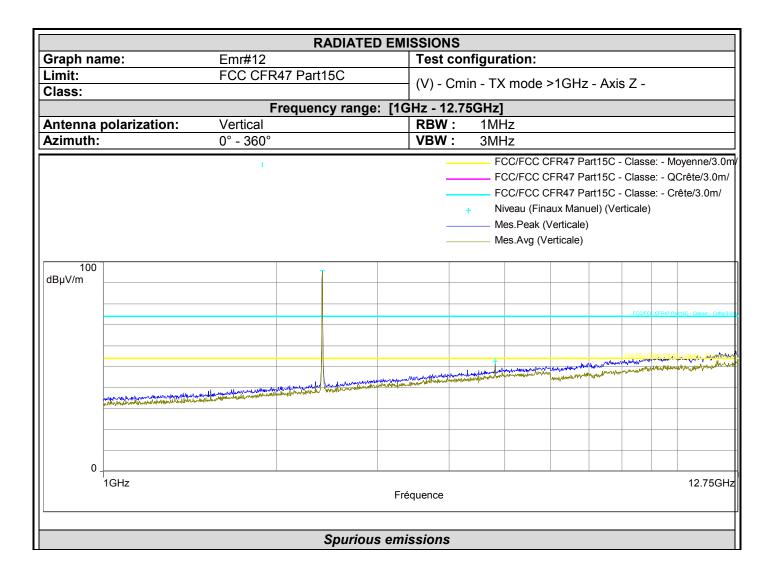
Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2405.741	92.8	Vertical
4811.281	50.2	Vertical





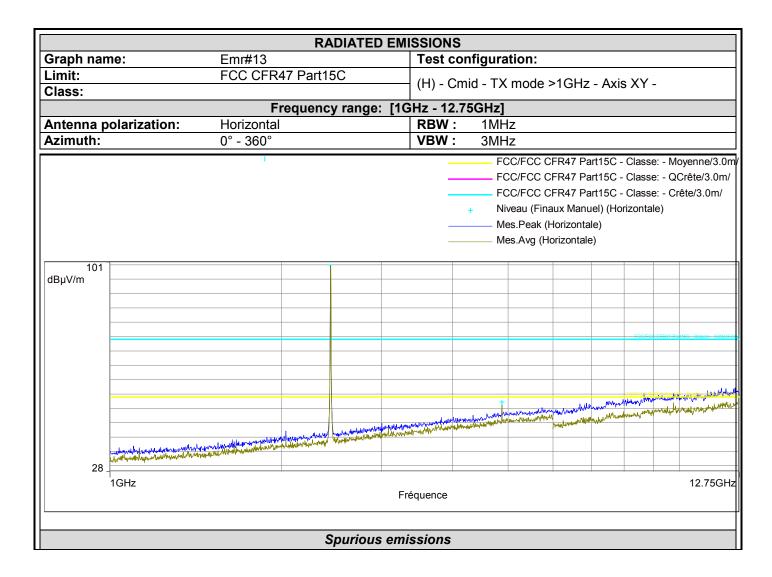
Frequency (MHz)	Peak Level (dBμV/m)	Polarization
2405.741	93.8	Horizontal
4810.831	51.2	Horizontal





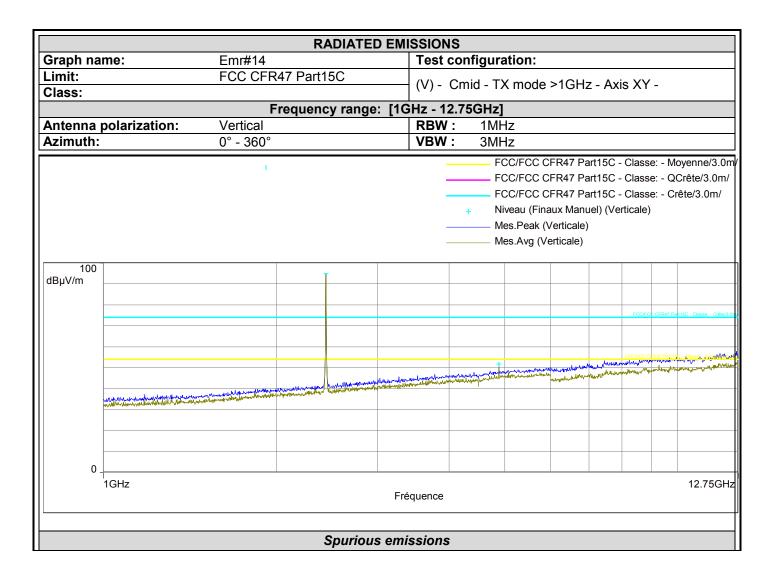
Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2404.690	95.8	Vertical
4810.981	52.6	Vertical





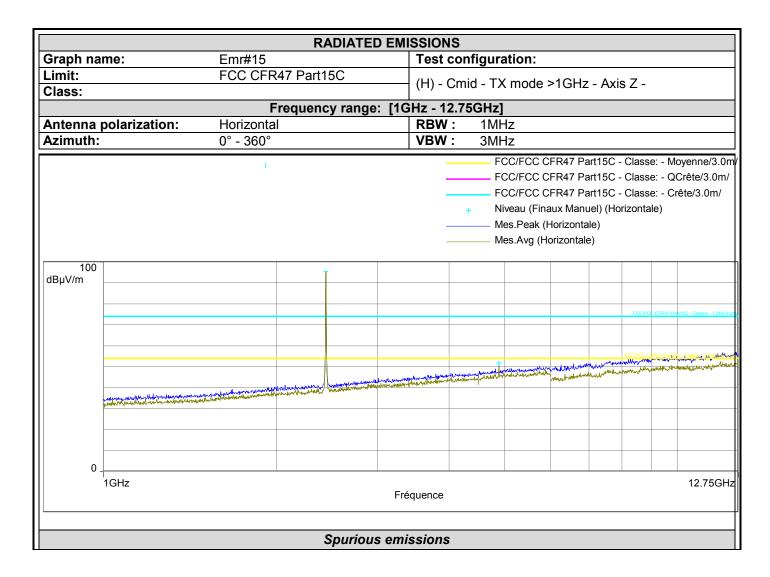
Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2439.694	100.0	Horizontal
4879.388	52.2	Horizontal





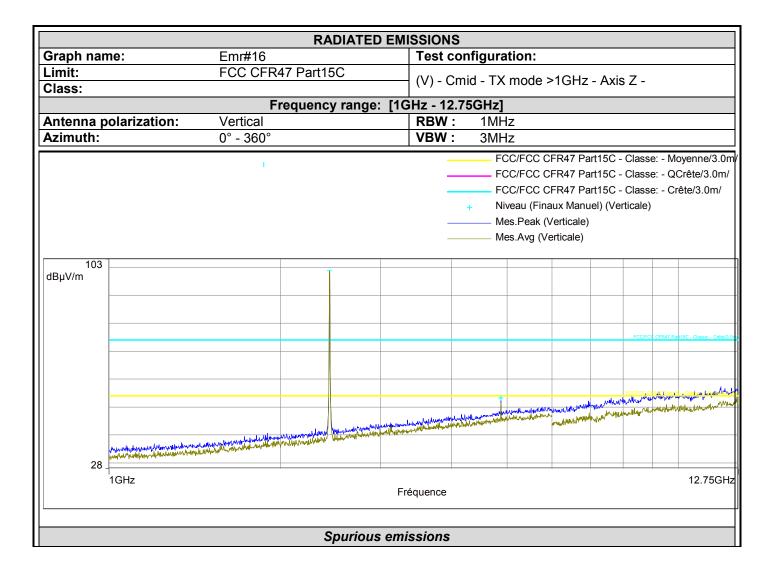
Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2440.744	95.0	Vertical
4879.238	51.8	Vertical





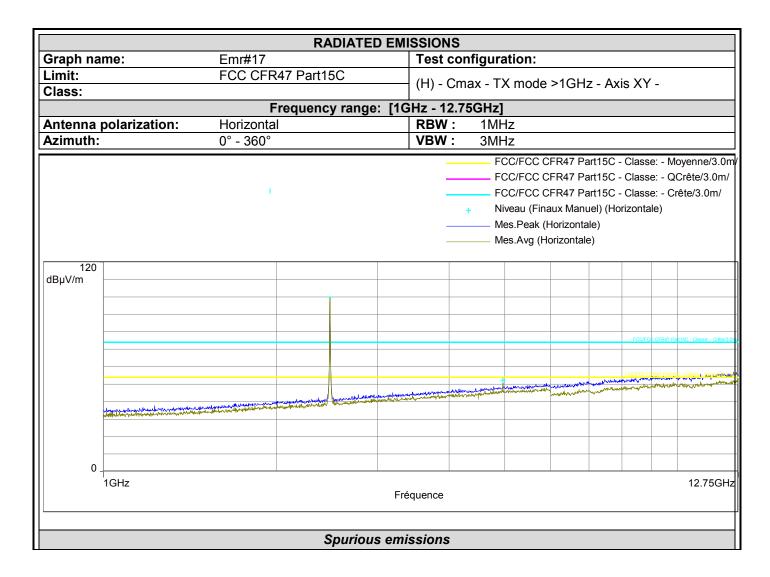
Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2439.694	95.4	Horizontal
4880.888	51.7	Horizontal





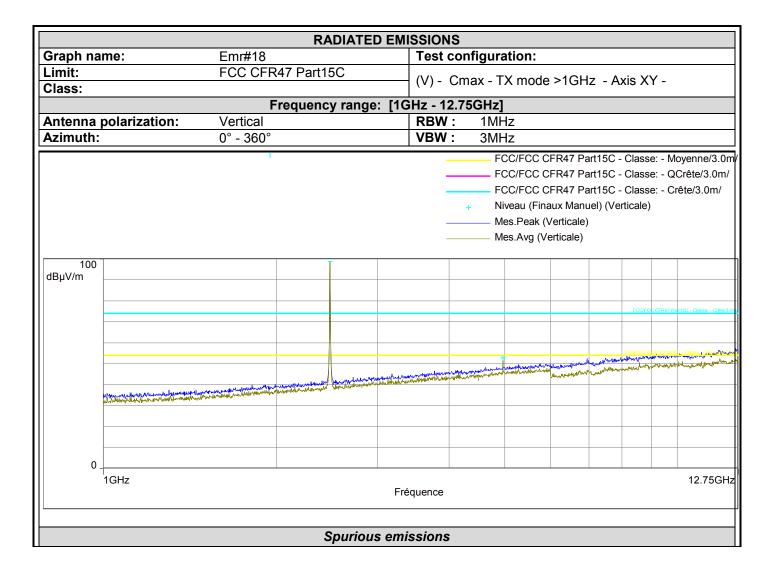
Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2439.694	98.9	Vertical
4881.338	53.2	Vertical





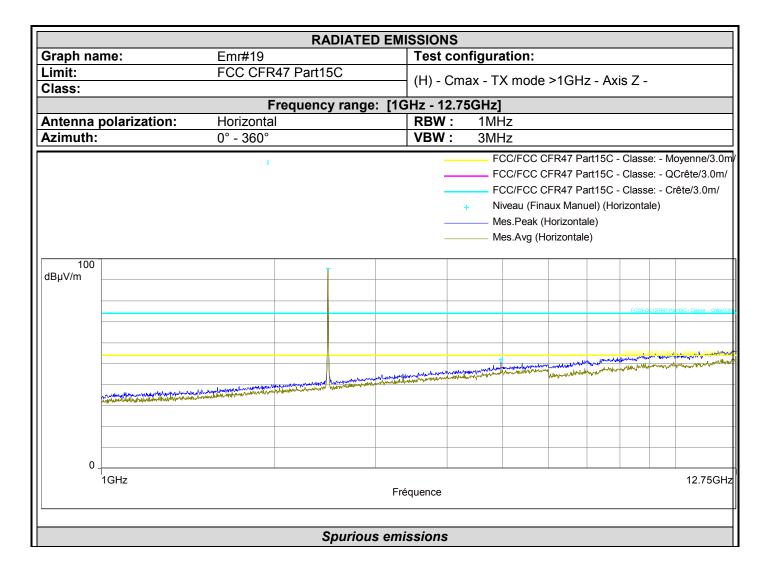
Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2479.948	100.0	Horizontal
4961.296	52.3	Horizontal





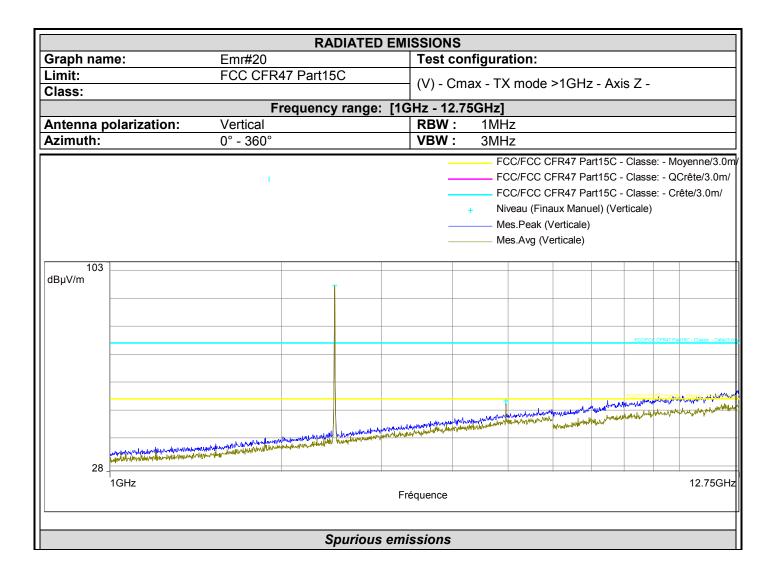
Fre	quency (MHz)	Peak Level (dBµV/m)	Polarization
	2479.598	98.8	Vertical
	4959.196	52.8	Vertical





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





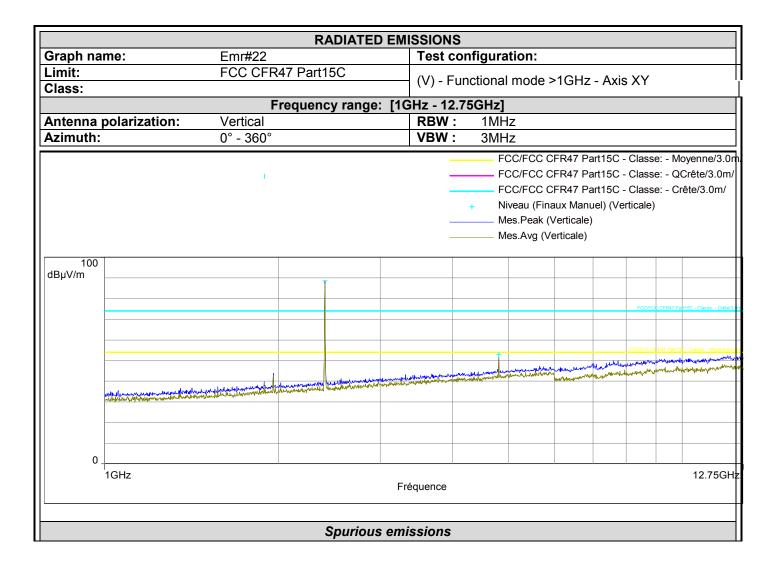
Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2480.648	94.7	Vertical
4961.296	53.2	Vertical



RADIATED EMISSIONS								
Graph nai	me: Emr#:	21	Test	onfiguration:				
Limit:	FCC (CFR47 Part15C	/LI) E	unctional mod	0 >1CHz A	vic VV		
Class:			(11) - 1	unctional mode	e > IGHZ - A	XIS /\ I		
		Frequency rang	e: [1GHz - 12	2.75GHz]				
	polarization: Vertic		RBW					
Azimuth:	0° - 30	60°	VBW	: 3MHz				
			-	FCC/FCC	CFR47 Part15	C - Class	se: - M	loyenne/3.0n
		T.	-		C CFR47 Part15			
			-		C CFR47 Part15			rête/3.0m/
					inaux Manuel) (Horizont	ale)	
			_		k (Horizontale)			
			-	——— Mes.Avg	(Horizontale)			
100								
dBµV/m		T						
						FCC/F	CC CFR47 P	at15C - Classe: - Crête/3.0
						FCC/FCC	OFR47 Part1	5C - Classe: - Movenne/3.0
					ware alexander would have the	Manager Magazin	طبهوريد العام	wante of the second
		The second secon	and the state of t	harmon ha	war and a second and a second	(plant water of the	A LANGE WAY	Antonia ()
		white the state of	7					
0 _								
	1GHz		Fréquence					12.75GH:
		Spurio	us emissions					

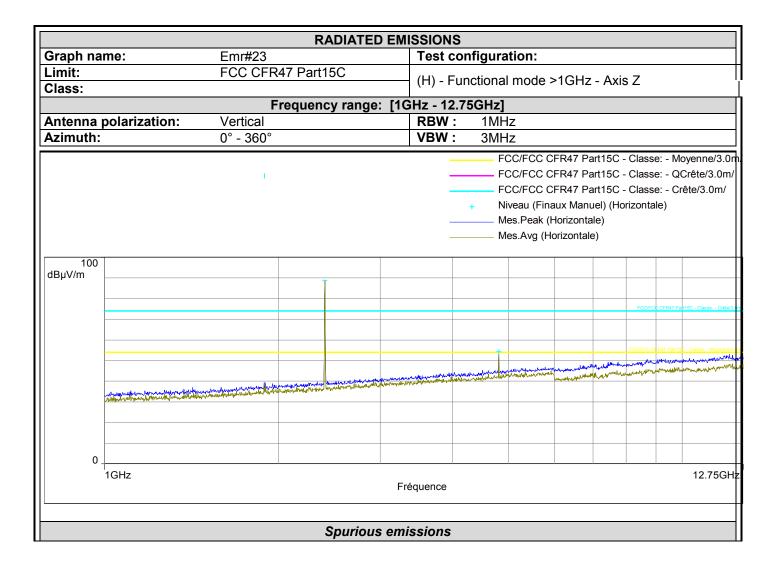
Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2405.740	91.2	Horizontal





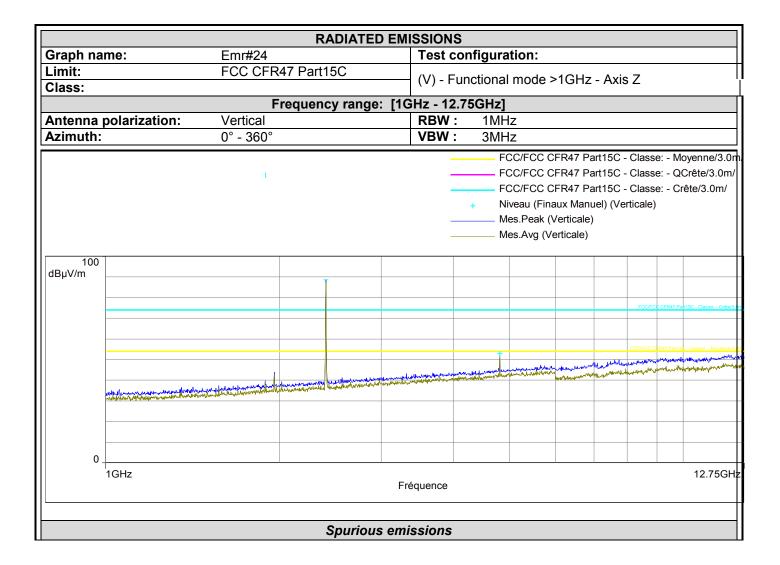
Frequency (MHz)	Peak Level (dBµV/m)	Polarization
2405.739	87.8	Vertical
4809.329	52.9	Vertical





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





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.

TEST REPORT Version: 02