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TEST REPORT

N°: 787285-R1-E **JDE : 130263**

Subject	**Electromagnetic compatibility and Radio spectrum Matters (ERM) tests according to standards: FCC CFR 47 Part 15, Subpart B et C RSS-210 Issue 8**
Issued to	**ACOEM GROUP** 200 Chein des Omeaux 69578 LIMONEST - FRANCE
Apparatus under test	
Product	**Système d'acquisition / Acquisiton System**
Trade mark	**ONEPROD**
Manufacturer	**ACOEM**
Model under test	**CAC1005000 / CAC1006000**
Serial number	**10110**
FCCID	**2AC3Z-CAC1005000**
ICID	**12336A-CAC1005000**
Test date	From September 22nd to 25th , 2014
Test location	Moirans
Test performed by	Jonathan PAUC / Anthony MERLIN
Composition of document	80 pages
Modification of the last version	None
Document issued on	December 20th, 2014

Written by :

Jonathan PAUC

Tests operator

Approved by :

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Technical manager

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SUMMARY

1. TEST PROGRAM

Standard:

- **FCC Part 15, Subpart C 15.247**
- **ANSI C63.4 (2003)**
- **RSS-210 Issue 8 – Dec 2010**
- **RSS-Gen Issue 3 – Dec 2010**

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-210 §A8.5*	**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-210 §A8.5* ***Highest frequency :*** ***(Declaration of provider)***	**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-210 §A8.2*	**At least 500kHz**			☑ **PASS** ☐ **FAIL** ☐ **NA** ☐ **NP**
Maximum Peak Output Power *CFR 47 §*15.247 (b) *RSS-210 §A8.4 (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-210 §A8.5*	**Limit: -20dBc or** **Radiated emissions limits in restricted bands**			☑ **PASS** ☐ **FAIL** ☐ **NA** ☐ **NP**
Power spectral Density *CFR 47 §15.247 (e)* *RSS-210 §A8.2*	**Limit: 8dBm/3kHz**			☑ **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):

CAC1005000 / CAC1006000 **Serial Number: 10110**

Power supply:
During all the tests, EUT is supplied by V_{nom}: 3.7DC
For measurement with different voltage, it will be presented in test method.

Name	Type	Rating	Reference / Sn	Comments
Supply1	☐ AC ☑ DC ☐ Battery	(primary 100-240V 50-60Hz) / 5Vdc	KSA0060500100D5U	/
Supply2	☐ AC ☐ DC ☑ Battery	(3.7Vdc – 2.9Ah)	Lithium Ion Battery	/

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
Supply1	miniUSB Port (Secondary of Switching power supply)	1	☑	☐	☑	/

Auxiliary equipment used during test:

Type	Reference
Laptop	HP Probook 470Gi
Test PCB	Test PCB, CAH1095 Rev.C / P300PCB600C plug on P300PCB605A board
Falcon	10212

Software / Firmware

WLS firmware : v1.08
PDA unitest : v7.0.2.11 (14 decembre 2009)

Equipment information:

Type:	**WIFI**			
Frequency band:	[2400 – 2483.5] MHz			
Sub-band REC7003:	Annex 3 (a)			
Standard:	☑ 802.11 b	☑ 802.11 g	☐ 802.11 n HT20	☐ 802.11 n HT40
Spectrum Modulation:	☑ DSSS		☑ OFDM	
Number of Channel:	11			
Spacing channel:	5MHz			
Channel bandwidth:	☑ 20MHz		☐ 40MHz	
Transmit chains:	☑ 1	☐ 2	☐ 3	☐ 4
	☑ Single antenna	☐ Symmetrical	☐ Asymmetrical	
	Gain 1: 3dBi Peak	Gain 2: dBi	Gain 3: dBi	Gain 4: dBi
Beam forming gain:	☐ Yes: dB		☑ No	
Receiver chains	☑ 1	☐ 2	☐ 3	☐ 4
Type of equipment:	☑ Stand-alone	☐ Plug-in	☐ Combined	
Ad-Hoc mode:	☑ Yes	☐ No		
Duty cycle:	☐ Continuous duty	☐ Intermittent duty	☑ Continuous operation	
Equipment type:	☑ Production model	☐ Prototype		

DATA RATE		
802.11b		
Data Rate (Mbps)	**Modulation Type**	**Modulation Worst Case**
1	DBPSK	☑
2	DQPSK	☐
5.5	DQPSK	☐
11	CCK	☑
802.11g		
Data Rate (Mbps)	**Modulation Type**	**Modulation Worst Case**
6	BPSK	☑
9	BPSK	☐
12	QPSK	☐
18	QPSK	☐
24	16-QAM	☐
36	16-QAM	☐
48	64-QAM	☐
54	64-QAM	☑

DATA RATE								
802.11n HT20 / HT40 (Table 1)								
Available for EUT	MCS Index	Spatial streams	Modulation	Data Rate (Mbps)				Worst Case Modulation
				(GI = 800ns)		(GI = 400ns)		
				20MHz	40MHz	20MHz	40MHz	
☑	0	1	BPSK	6.5	13.5	7.2	15	☑
☑	1	1	QPSK	13	27	14.4	30	☐
☑	2	1	QPSK	19.5	40.5	21.7	45	☐
☑	3	1	16-QAM	26	54	28.9	60	☐
☑	4	1	16-QAM	39	81	43.3	90	☐
☑	5	1	64-QAM	52	108	57.8	120	☐
☑	6	1	64-QAM	58.5	121.5	65	135	☐
☑	7	1	64-QAM	65	135	72.2	150	☑
☐	8	2	BPSK	13	27	14.4	30	☐
☐	9	2	QPSK	26	54	28.9	60	☐
☐	10	2	QPSK	39	81	43.3	90	☐
☐	11	2	16-QAM	52	108	57.8	120	☐
☐	12	2	16-QAM	78	162	86.7	180	☐
☐	13	2	64-QAM	104	216	115.6	240	☐
☐	14	2	64-QAM	117	243	130.3	270	☐
☐	15	2	64-QAM	130	270	144.4	300	☐
☐	16	3	BPSK	19.5	40.5	21.7	45	☐
☐	17	3	QPSK	39	81	43.3	90	☐
☐	18	3	QPSK	58.5	121.5	65	135	☐
☐	19	3	16-QAM	78	162	86.7	180	☐
☐	20	3	16-QAM	117	243	130	270	☐
☐	21	3	64-QAM	156	324	173.3	360	☐
☐	22	3	64-QAM	175.5	364.5	195	405	☐
☐	23	3	64-QAM	195	405	216.7	450	☐
☐	24	4	BPSK	26	54	28.9	60	☐
☐	25	4	QPSK	52	108	57.8	120	☐
☐	26	4	QPSK	78	162	86.7	180	☐
☐	27	4	16-QAM	104	216	115.6	240	☐
☐	28	4	16-QAM	156	324	173.3	360	☐
☐	29	4	64-QAM	208	432	231.1	480	☐
☐	30	4	64-QAM	234	486	260	540	☐
☐	31	4	64-QAM	260	540	288.9	600	☐

2.2. EUT CONFIGURATION

The EUT is set in the following modes during tests with simulator / software PDA unitest : v7.0.2.11 (14 decembre 2009)

- Permanent emission with modulation on a fixed channel in the data rate that produced the highest power
- Permanent reception

Conducted Configuration :

RF board from WLS sensor is set on PCB test board in order to receive specific command from external Laptop

Radiated Configuration :

WLS sensor communicate with Falcon Board

2.3. EQUIPMENT MODIFICATIONS

☑ None ☐ Modification:

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.

3. CONDUCTED EMISSION DATA

3.1. ENVIRONMENTAL CONDITIONS

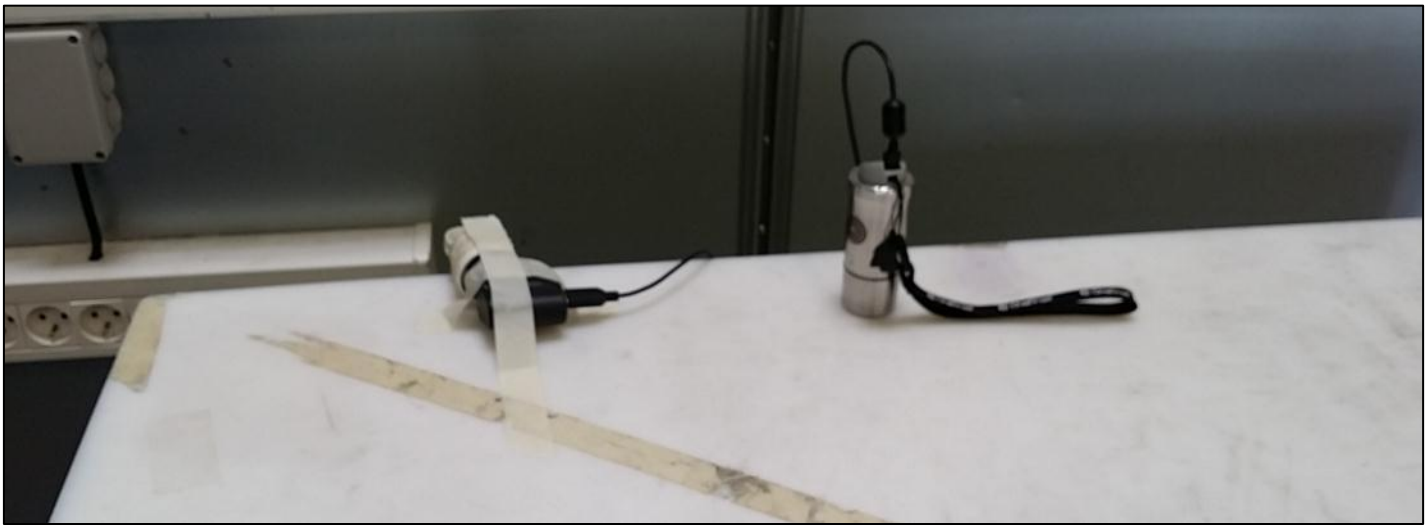
Date of test	September 26th , 2014
Test performed by	Jonathan PAUC
Atmospheric pressure (hPa)	998
Relative humidity (%)	22
Ambient temperature (°C)	45

3.2. TEST SETUP

Mains terminals

The EUT and auxiliaries are set:
☑ 80cm above the ground on the non-conducting table (Table-top equipment)
☐ 10cm above the ground on isolating support (Floor standing equipment)
The distance between the EUT and the LISN is 80cm. The EUT is 40cm away for the vertical ground plane.

The EUT is powered by V_{nom}.
The EUT is powered through a LISN (measure). Auxiliaries are powered by another LISN.



Test setup

3.3. TEST METHOD

The product has been tested according to ANSI C63.4-(2003) and FCC Part 15 subpart B and C. The product has been tested with 120V/60Hz power line voltage and compared to the FCC Part 15 subpart B §15.107 and C §15.207 limits. Measurement bandwidth was 9kHz from 150kHz to 30MHz. 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. The LISN (measure) is 50Ω / 50µH. The Peak data are shown on plots in annex 1. Quasi-Peak and Average measurements are detailed in a table with frequencies and levels measured. Interconnecting cables and equipment's were moved to position that maximized emission. A summary of the worst case emissions found in all test configurations and modes is shown on the following page.
Measurements are performed on the phase (L1) and neutral (N) of power line voltage. Graphs are obtained in PEAK detection. Measures are also performed in Quasi-Peak and Average for any strong signal.
A measurement is also performed with a 50Ω dummy load replacing the transmitter antenna in order to demonstrate that some 13.56MHz may be cross-coupled to AC line connection.

3.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	DUE DATE
Cable	-	-	A5329578	2015-05
Conducted emission comb generator	BARDET	-	A3169049	-
LISN tri-phase ESH2-Z5	RHODE & SCHWARZ	33852.19.53	C2320063	2014-10
Receiver 20Hz – 8GHz	ROHDE & SCHWARZ	ESU8	A2642019	2014-10
Thermo-hygrometer (PM2)	OREGON	BAR916HG-G	B4206011	2015-04
Transient limiter	RHODE & SCHWARZ	ESH3-Z2	A7122204	2014-10

3.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

3.6. TEST RESULTS

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

Measure on L1:	graph **Emc#1**	(see annex 1)
Measure on N:	graph **Emc#2**	(see annex 1)

3.7. CONCLUSION

Conducted emission data measurement performed on the sample of the product CAC1005000 / CAC1006000, SN: 10110, in configuration and description presented in this test report, show levels below the FCC CFR 47 Part 15 and RSS-210 Issue 8 limits.

4. RADIATED EMISSION DATA

4.1. ENVIRONMENTAL CONDITIONS

Date of test : September 24th, 2014
Test performed by : J.PAUC/A.MERLIN
Atmospheric pressure (hPa) : 993
Relative humidity (%) : 52
Ambient temperature (°C) : 21

4.2. 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)
☐ 10cm above the ground on isolating support (Floor standing equipment)
The EUT is powered by V_{nom}.

Test setup on OATS

4.3. TEST METHOD

Pre-characterisation measurement: (30MHz – 26GHz)
A pre-scan of all the setup has been performed in a 3 meters semi-anechoic chamber for frequency from 30MHz to XGHz. 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 26GHz.

Characterization on 10 meters open site from 9kHz to 1GHz:

The product has been tested according to ANSI C63.4 (2003), FCC part 15 subpart C. 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 §15.225 limits in the frequency range 13.553MHz 13.567MHz. 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 26GHz:

The product has been tested at a distance of **3 meters** from the antenna and compared to the FCC part 15 subpart B §15.109 limits and C §15.209 limits. Measurement bandwidth was 1MHz from 1GHz to XGHz.
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
Frequency list has been created with anechoic chamber pre-scan results.

4.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	DUE DATE
Amplifier 1-13GHz	LCIE SUD EST	-	A7102067	2014-09
Antenna Bi-log	CHASE	CBL6111A	C2040051	2016-04
Antenna horn	EMCO	3115	C2042029	2015-09
Cable - Measure	-	-	A5329038	2015-08
Cable Measure	-	-	A5329206	2015-01
Cable Measure	-	-	A5329603	2015-08
Spectrum analyzer	ROHDE & SCHWARZ	FSV 30	A4060050	-
Thermo-hygrometer (C3)	OREGON	BAR206	B4204078	2015-01
Turntable chamber (Cage#3)	ETS Lingren	Model 2165	F2000371	-
Table	LCIE	-	F2000461	-
Turntable controller (Cage#3)	ETS Lingren	Model 2090	F2000444	-
High Pass (4.8-18GHz)	BL Microwave	SH4800-1800	A7484034	2015-03
Band Rejector (2.4GHz/9kHz-6GHz)	BL Microwave	BR2445-200-7CSJ	A7484043	2015-09
Semi-Anechoic chamber #3	SIEPEL	-	D3044017	-

4.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

4.6. TEST RESULTS

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

See graphs for 30MHz-1GHz:

Graph identifier		Polarization	Mode	EUT position	Channel	Comments
Emr#	1	H	TX	Axis XY	Min	See annex 1
Emr#	3	V	TX	Axis XY	Min	See annex 1
Emr#	5	H	TX	Axis Z	Min	See annex 1
Emr#	7	V	TX	Axis Z	Min	See annex 1
Emr#	9	H	TX	Axis XY	Max	See annex 1
Emr#	11	V	TX	Axis XY	Max	See annex 1
Emr#	13	H	TX	Axis Z	Max	See annex 1
Emr#	15	V	TX	Axis Z	Max	See annex 1

4.6.2. Pre-characterization at 3 meters [1GHz-10GHz]

See graphs for 1GHz-10GHz:

Graph identifier		Polarization	Mode	EUT position	Channel	Comments
Emr#	2	H	TX	Axis XY	Min	See annex 1
Emr#	4	V	TX	Axis XY	Min	See annex 1
Emr#	6	H	TX	Axis Z	Min	See annex 1
Emr#	8	V	TX	Axis Z	Min	See annex 1
Emr#	10	H	TX	Axis XY	Max	See annex 1
Emr#	12	V	TX	Axis XY	Max	See annex 1
Emr#	14	H	TX	Axis Z	Max	See annex 1
Emr#	16	V	TX	Axis Z	Max	See annex 1

4.6.3. 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 QPeak (dBµV/m)	Measure QPeak (dBµV/m)	Margin QPeak (dB)	Angle Table (°)	Pol. Ant.	Ht. Ant. (cm)	FC (dB)	Remark
1	200.000	30.0	26.4	**-3.6**	212	V	147	11.1	
2	266.669	37.0	27.5	**-9.5**	206	V	100	15.9	
3	333.320	37.0	31.5	**-5.5**	176	V	100	17.6	
4	400.008	37.0	29.9	**-7.1**	43	V	100	19.7	
5	422.24	37.0	29.3	**-7.7**	155	V	400	20.3	
6	466.678	37.0	30.4	**-6.6**	315	V	385	21.4	
7	511.12	37.0	32.2	**-4.8**	273	H	250	22.4	

4.6.4. Characterization on 3meters anechoic chamber from 1GHz to 10GHz

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.

No	Frequency (MHz)	Limit Peak (dBµV/m)	Measure Peak (dBµV/m)	Margin (Mes-Lim) (dB)	Angle Table (deg)	Pol Ant.	Ht Ant. (cm)	Correc. Factor (dB)	Comments
8	1049,500	74,0	34,8	**-39,2**	120	V	100	-8,3	-
9	1099,920	74,0	33,3	**-40,7**	131	V	100	-7,9	-
10	1150,200	74,0	32,9	**-41,1**	35	V	100	-7,6	-
12	1349,930	74,0	38,2	**-35,8**	100	V	100	-6,3	-
11	1467,210	74,0	46,7	**-27,3**	90	V	100	-5,5	-
2	2376.94	74,0	40,3	**-33,7**	91	V	100	-1,8	-
3	2383.81	74,0	41,4	**-32,6**	102	V	100	-1,8	-
4	2387.66	74,0	43,6	**-30,4**	100	H	100	-1,8	-
5	2487.258	74,0	44,8	**-29,2**	132	V	100	-1,6	-
6	2489.732	74,0	44,4	**-29,6**	141	V	100	-1,6	-
7	2499.0232	74,0	45,7	**-28,3**	162	V	100	-1,6	-
1	4824.235	74,0	54,1	**-19,9**	45	V	100	4,0	-

No	Frequency (MHz)	Limit Average (dBµV/m)	Measure Average (dBµV/m)	Margin (Mes-Lim) (dB)	Angle Table (deg)	Pol Ant.	Ht Ant. (cm)	Correc. Factor (dB)	Comments
8	1049,500	54,0	29,8	**-24,2**	120	V	100	-8,3	-
9	1099,920	54,0	29,2	**-24,8**	131	V	100	-7,9	-
10	1150,200	54,0	29,1	**-24,9**	35	V	100	-7,6	-
12	1349,930	54,0	33,2	**-20,8**	100	V	100	-6,3	-
11	1467,210	54,0	35,5	**-18,5**	90	V	100	-5,5	-
2	2376.94	54,0	37,7	**-16,3**	91	V	100	-1,8	-
3	2383.81	54,0	38,7	**-15,3**	102	V	100	-1,8	-
4	2387.66	54,0	39,4	**-14,6**	100	H	100	-1,8	-
5	2487.258	54,0	40,5	**-13,5**	132	V	100	-1,6	-
6	2489.732	54,0	41,6	**-12,4**	141	V	100	-1,6	-
7	2499.0232	54,0	42,6	**-11,4**	162	V	100	-1,6	-
1	4824.235	54,0	51,3	**-2,7**	45	V	100	4,0	-

Note: Measures have been done at 3m distance.

4.7. CONCLUSION

Radiated emission data measurement performed on the sample of the product CAC1005000 / CAC1006000, SN: 10110, in configuration and description presented in this test report, show levels below the FCC CFR 47 Part 15 and RSS-210 Issue 8 limits.

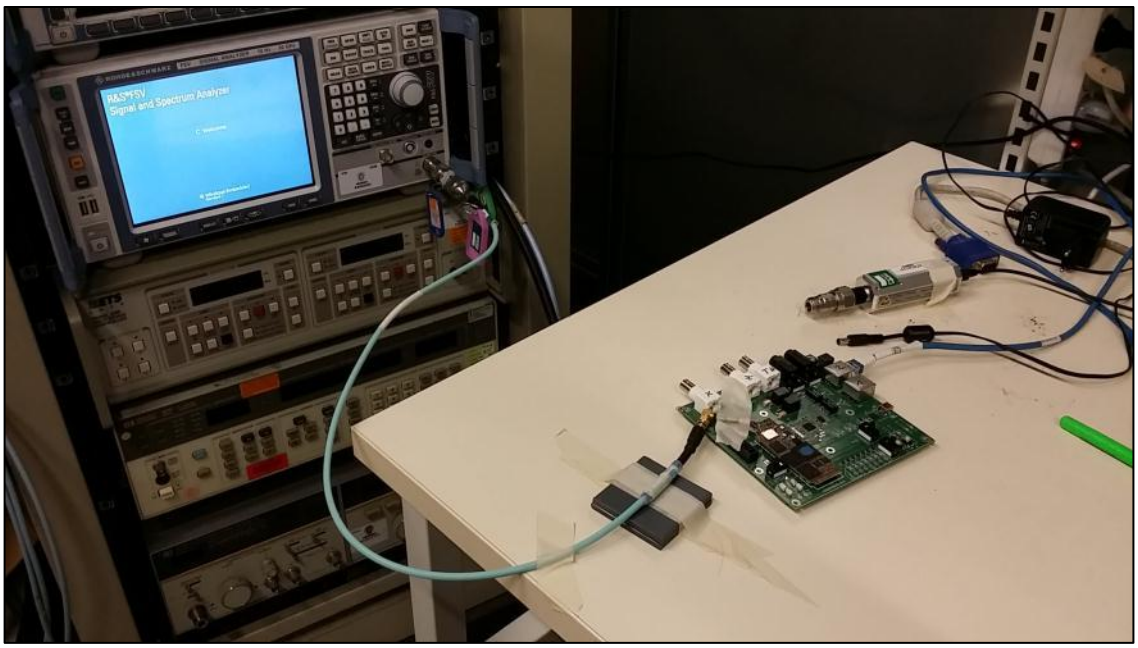
5. BANDWIDTH (15.247)

5.1. TEST CONDITIONS

Date of test	: September 23rd , 2014	: September 24th, 2014
Test performed by	: J.PAUC / A.MERLIN	: J.PAUC / A.MERLIN
Atmospheric pressure (hPa)	: 926	: 934
Relative humidity (%)	: 42	: 52
Ambient temperature (°C)	: 21	: 21

5.2. SETUP

☑ ***Conducted measurement:***
The EUT is turned ON and connected to measurement instrument; 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.
Offset: Attenuator+cable 10.5dB



☐ ***Radiated measurement:***
The EUT is placed in an anechoic chamber; 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, a delta marker is used to measure the frequency difference as the emission bandwidth.

Measurement Procedure:
1. Set resolution bandwidth (RBW) = 100kHz.
2. Set the video bandwidth (VBW) ≥ 3 x RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. Compare the resultant bandwidth with the RBW setting of the analyzer.

5.3. TEST EQUIPMENT LIST

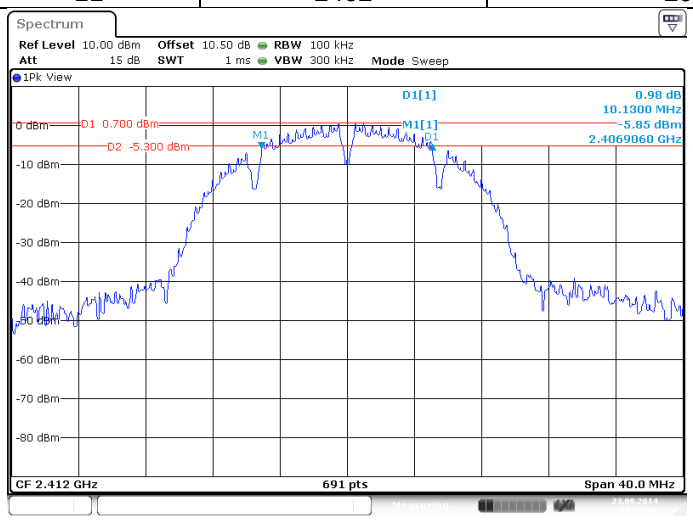
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	DUE DATE
Attenuator 10dB	JFW	-	A7122166	2014-09
Cable Measure	-	-	A5329603	2015-08
hermo-hygrometer (C3)	OREGON	BAR206	B4204078	2015-01
Spectrum analyzer	ROHDE & SCHWARZ	FSV 30	A4060050	2015-07

5.4. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

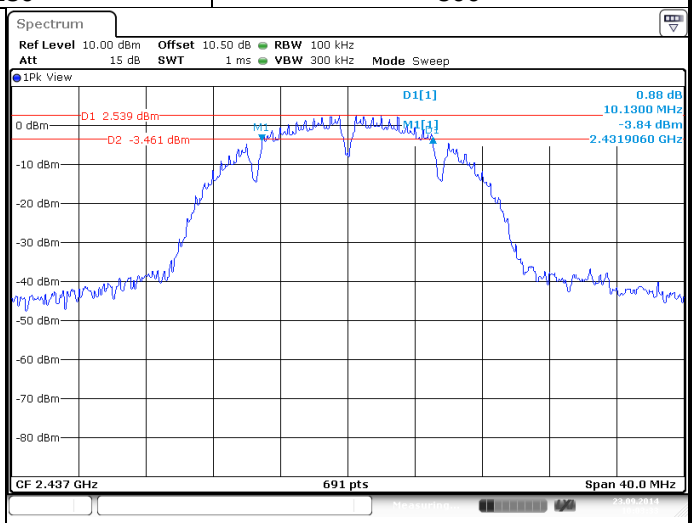
☑ None ☐ Divergence:

5.5. TEST SEQUENCE AND RESULTS

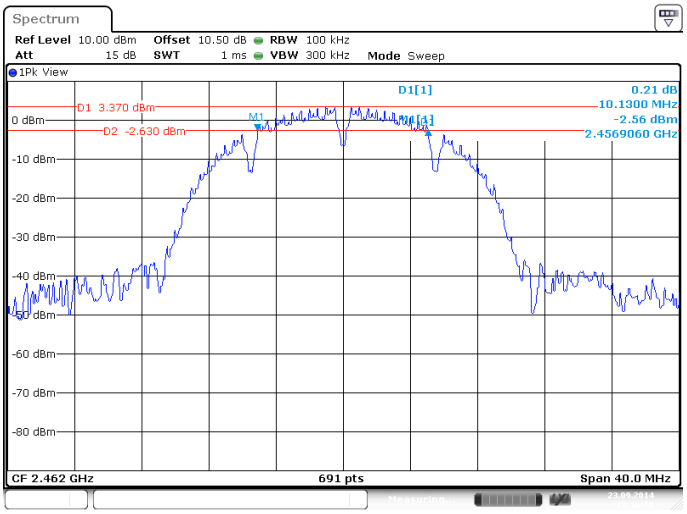
802.11b / DBSK (Data Rate 1MHz)			
Channel	**Channel Frequency (MHz)**	**6dB Bandwidth (MHz)**	**Bandwidth Limit (kHz)**
1	2412	**10.130**	**>500**
6	2437	**10.130**	**>500**
11	2462	**10.130**	**>500**



C1

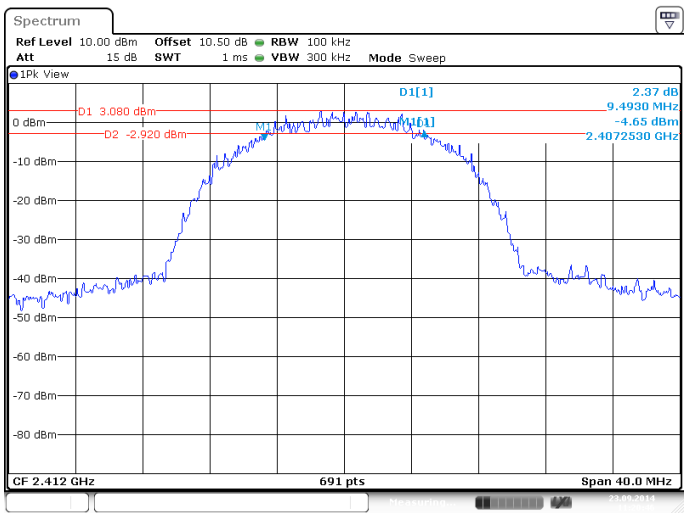


C6



C11

802.11b / CCK (Data Rate 11MHz)			
Channel	**Channel Frequency (MHz)**	**6dB Bandwidth (MHz)**	**Bandwidth Limit (kHz)**
1	2412	**9.493**	**>500**
6	2437	**9.493**	**>500**
11	2462	**9.493**	**>500**



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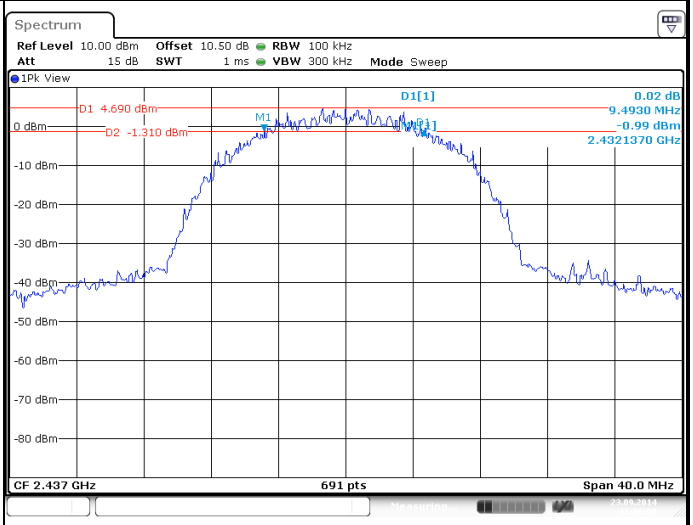

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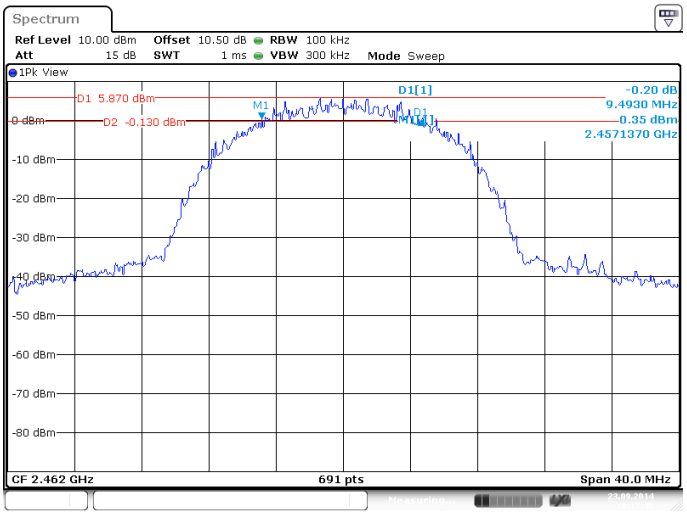
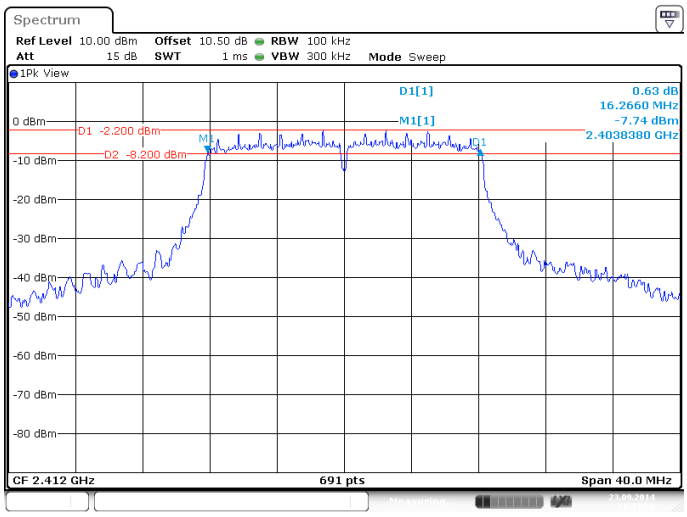


C11

802.11g / BPSK (Data Rate 6MHz)			
Channel	**Channel Frequency (MHz)**	**6dB Bandwidth (MHz)**	**Bandwidth Limit (kHz)**
1	2412	**16.266**	**>500**
6	2437	**16.266**	**>500**
11	2462	**16.266**	**>500**



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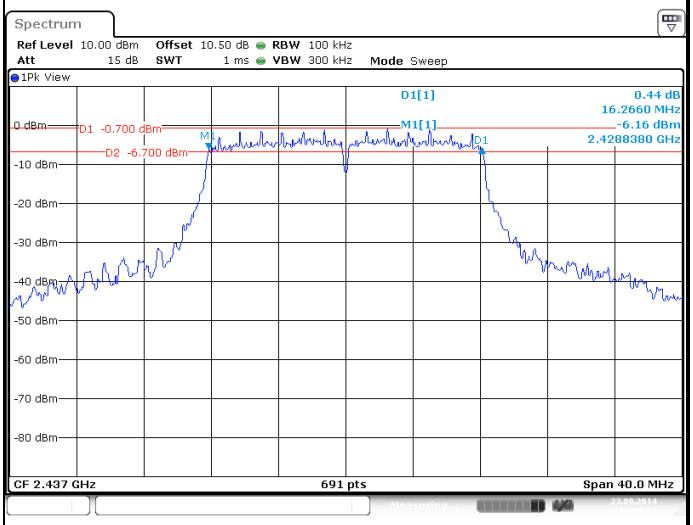

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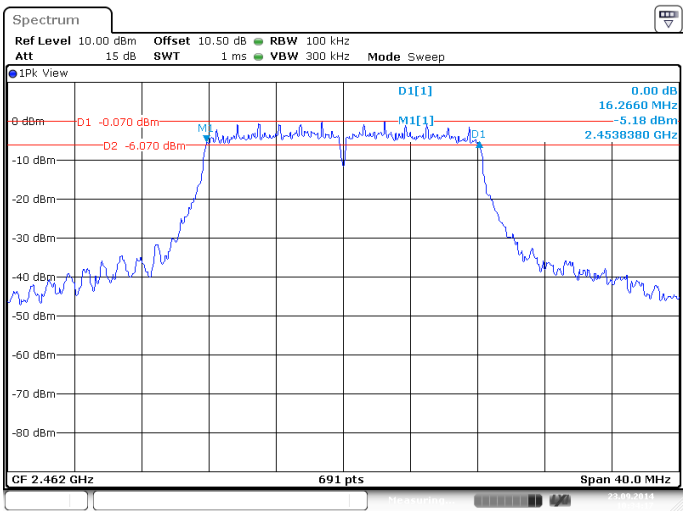
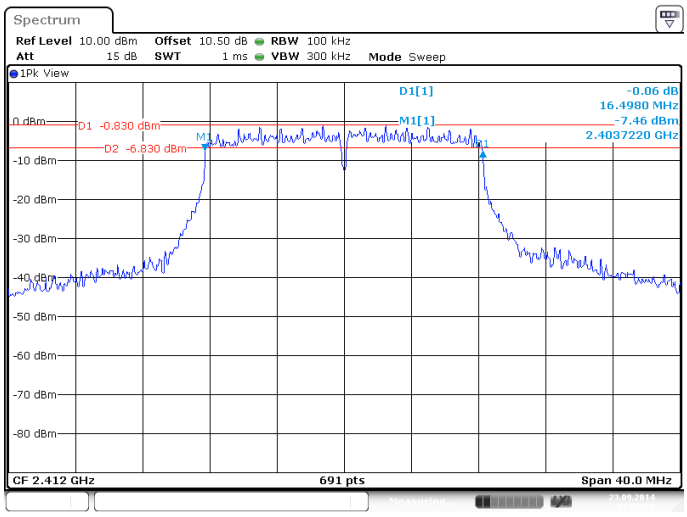
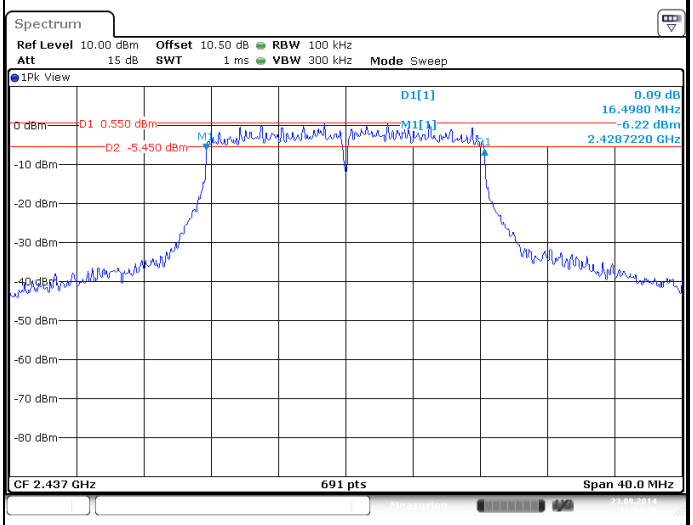


C11

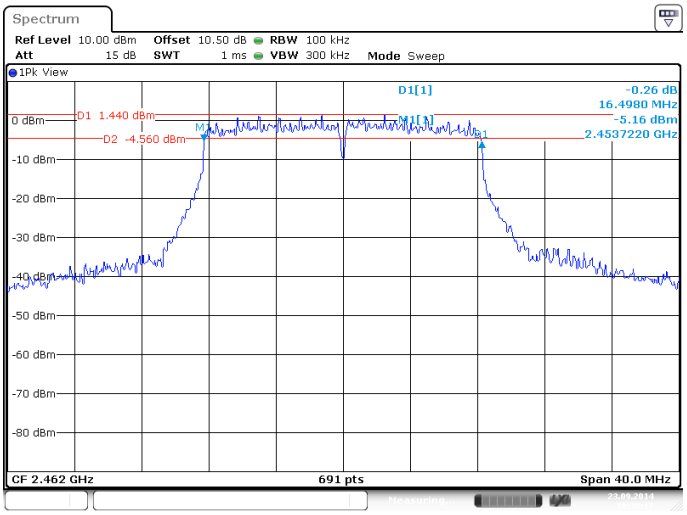
802.11g / 64-QAM (Data Rate 54MHz)			
Channel	**Channel Frequency (MHz)**	**6dB Bandwidth (MHz)**	**Bandwidth Limit (kHz)**
1	2412	**16.498**	**>500**
6	2437	**16.498**	**>500**
11	2462	**16.498**	**>500**



C1

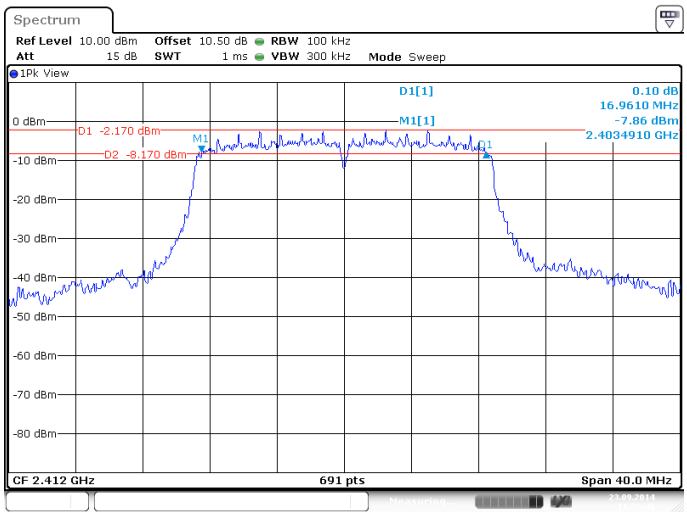


C6



C11

802.11n / BPSK (Data Rate 7.2MHz) GI = 400ns HT20			
Channel	**Channel Frequency (MHz)**	**6dB Bandwidth (MHz)**	**Bandwidth Limit (kHz)**
1	2412	**16.961**	**>500**
6	2437	**16.845**	**>500**
11	2462	**16.903**	**>500**



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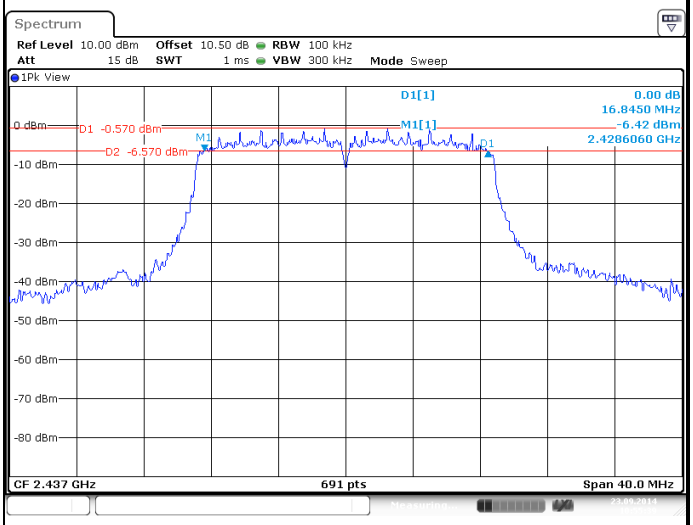

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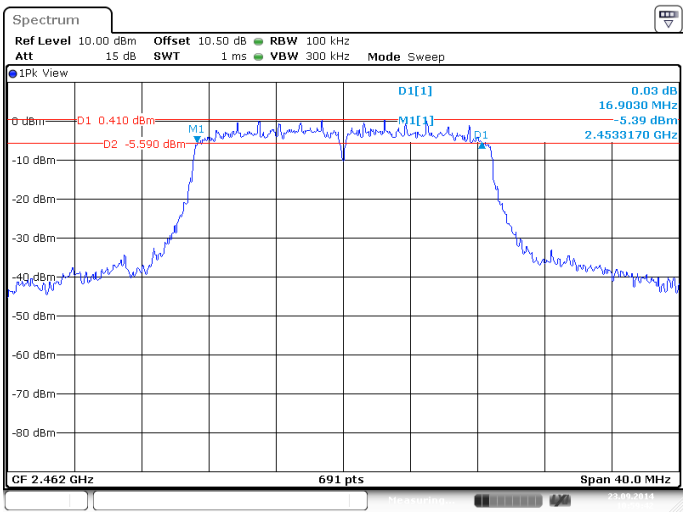
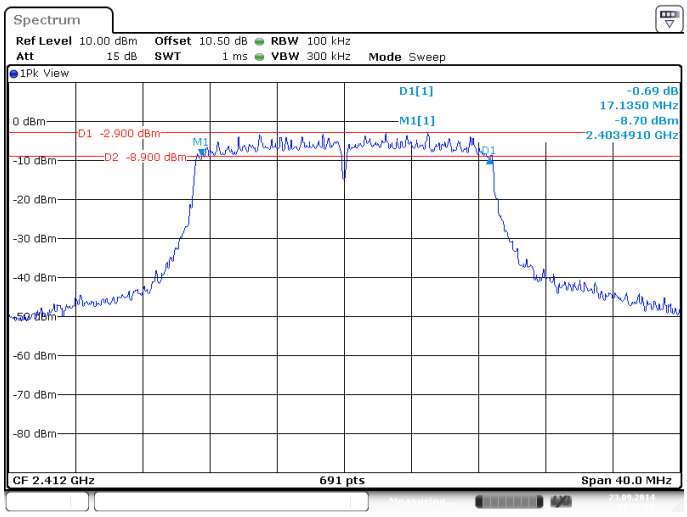
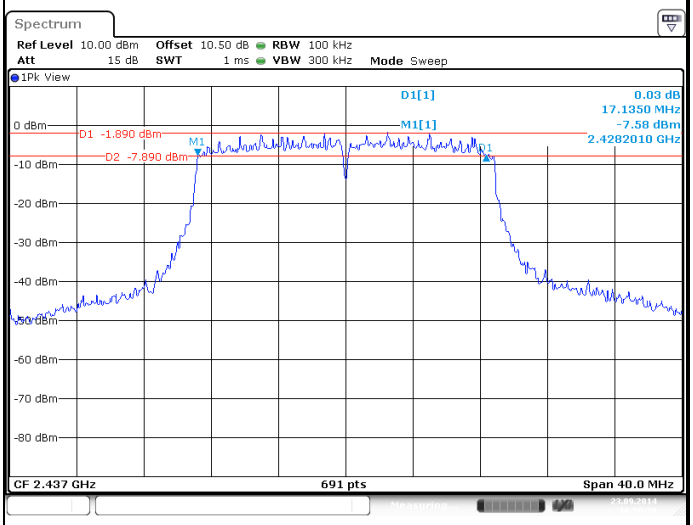


C11

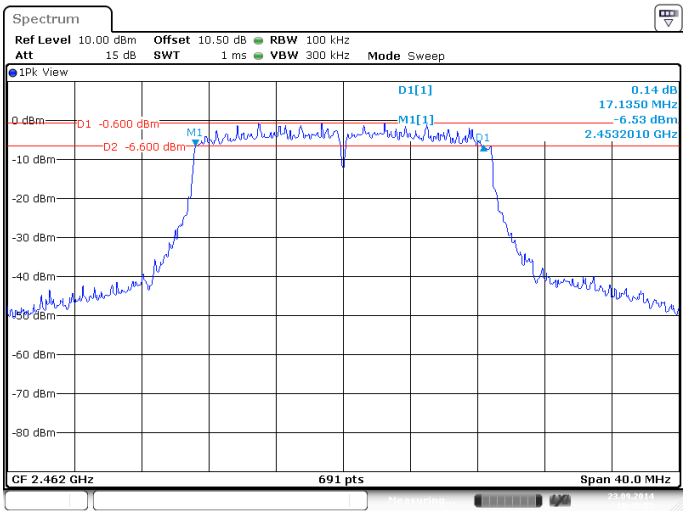
802.11n / BPSK (Data Rate 72.2MHz) GI = 400ns HT20			
Channel	**Channel Frequency (MHz)**	**6dB Bandwidth (MHz)**	**Bandwidth Limit (kHz)**
1	2412	**17.135**	**>500**
6	2437	**17.135**	**>500**
11	2462	**17.135**	**>500**



C1



C6



C11

5.6. CONCLUSION

Bandwidth measurement performed on the sample of the product CAC1005000 / CAC1006000, SN: 10110, in configuration and description presented in this test report, show levels below the FCC CFR 47 Part 15 and RSS-210 Issue 8 limits.

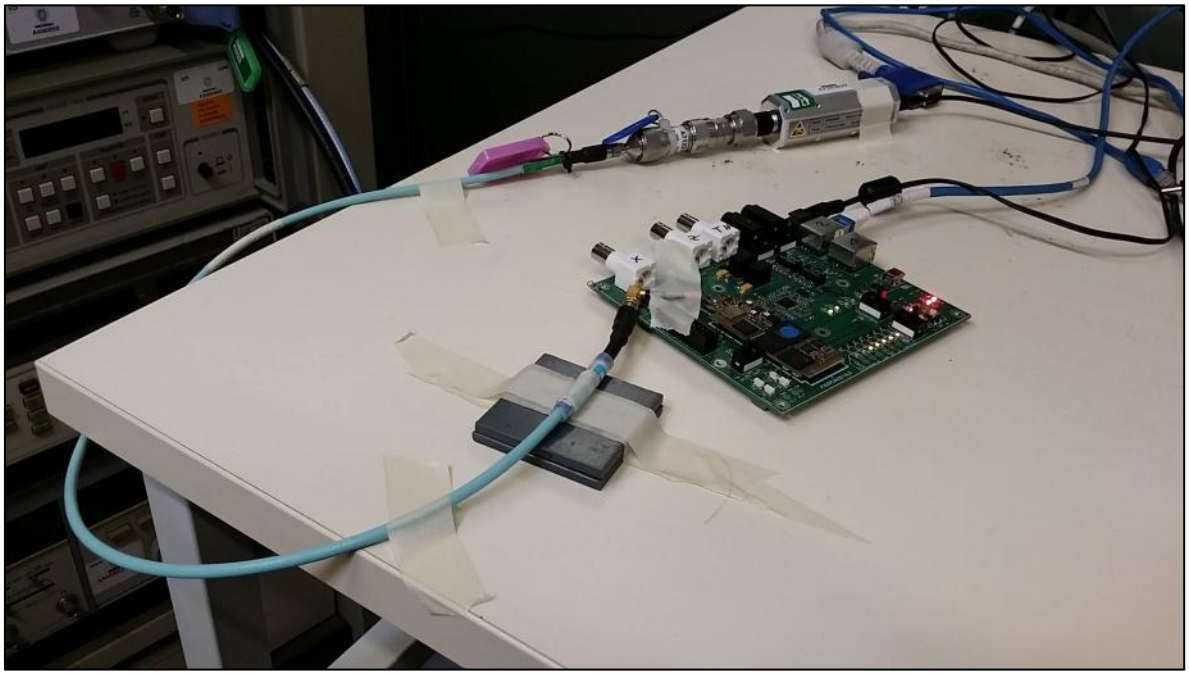
6. MAXIMUM PEAK OUTPUT POWER (15.247)

6.1. TEST CONDITIONS

Date of test	: September 23rd , 2014	:
Test performed by	: J.PAUC / A.MERLIN	:
Atmospheric pressure (hPa)	: 926	:
Relative humidity (%)	: 42	:
Ambient temperature (°C)	: 21	:

6.2. SETUP

☑ ***Conducted measurement:***
The EUT is turned ON and connected to measurement instrument; the center frequency of the spectrum analyzer is set to the fundamental frequency.
Offset: Attenuator+cable 10.5dB



☐ ***Radiated measurement:***
The EUT is placed in an anechoic chamber; the center frequency of the spectrum analyzer is set to the fundamental frequency.
The product has been tested at a distance of 3 meters from the antenna. Continuous linear turntable azimuth search was performed with 360 degrees range. Measurement performed on 3 axis of EUT. A summary of the worst case emissions found in all test configurations and modes is shown on following table. The captured power is measured and recorded; the measurement is repeated until all frequencies required were complete.
To demonstrate compliance with peak output power requirement of section 15.247 (b), the transmitter's peak output power is calculated using the following equation:

$$E = \frac{\sqrt{30PG}}{d}$$

Where:
- E is the measured maximum fundamental field strength in V/m.
- G is the numeric gain of the transmitting antenna with reference to an isotropic radiator.
- d is the distance in meters from which the field strength was measured.
- P is the power in watts for which you are solving:

$$P = \frac{(E\,d)^2}{30\,G}$$

Maximum peak conducted output power

One of the following procedures may be used to determine the maximum peak conducted output power of a DTS EUT.

- ☐ ***RBW ≥ DTS bandwidth***

This procedure shall be used when the measurement instrument has available a resolution bandwidth that is greater than the DTS bandwidth.
a) Set the RBW ≥ DTS bandwidth.
b) Set VBW ≥ 3 x RBW.
c) Set span ≥ 3 x RBW
d) Sweep time = auto couple.
e) Detector = peak.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use peak marker function to determine the peak amplitude level.

- ☑ ***Integrated band power method***

This procedure may be used when the maximum available RBW of the measurement instrument is less than the DTS bandwidth.
a) Set the RBW = 1 MHz.
b) Set the VBW ≥ 3 x RBW
c) Set the span ≥ 1.5 x DTS bandwidth.
d) Detector = peak.
e) Sweep time = auto couple.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges

6.3. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	DUE DATE
Attenuator 10dB	JFW	-	A7122166	2014-09
Cable Measure	-	-	A5329603	2015-08
hermo-hygrometer (C3)	OREGON	BAR206	B4204078	2015-01
Power Probe	DARELL INSTRUMENT	RPR3006W	A1503029	2015-07

6.4. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

6.5. TEST SEQUENCE AND RESULTS

802.11b / DBSK (Data Rate 1MHz)					
Channel	**Channel Frequency (MHz)**	**Peak Output Power Raw (dBm)**	**FC (dB)**	**Peak Output Power (dBm)**	**Power Limit (dBm)**
1	2412	-0.3	**10.5**	10.2	30.0
6	2437	2.3	**10.5**	12.8	30.0
11	2462	3.4	**10.5**	13.9	30.0
802.11b / CCK (Data Rate 11MHz)					
Channel	**Channel Frequency (MHz)**	**Peak Output Power Raw (dBm)**	**FC (dB)**	**Peak Output Power (dBm)**	**Power Limit (dBm)**
1	2412	2.8	**10.5**	13.3	30.0
6	2437	3.4	**10.5**	13.9	30.0
11	2462	4.5	**10.5**	15.0	30.0

802.11g / BPSK (Data Rate 6MHz)					
Channel	**Channel Frequency (MHz)**	**Peak Output Power Raw (dBm)**	**FC (dB)**	**Peak Output Power (dBm)**	**Power Limit (dBm)**
1	2412	-0.1	**10.5**	10.4	30.0
6	2437	0.8	**10.5**	11.3	30.0
11	2462	2.0	**10.5**	12.5	30.0
802.11g / BPSK (Data Rate 54MHz)					
Channel	**Channel Frequency (MHz)**	**Peak Output Power Raw (dBm)**	**FC (dB)**	**Peak Output Power (dBm)**	**Power Limit (dBm)**
1	2412	1.3	**10.5**	11.8	30.0
6	2437	2.3	**10.5**	12.8	30.0
11	2462	3.4	**10.5**	13.9	30.0

802.11n / BPSK (Data Rate 7.2MHz) GI = 400ns HT20					
Channel	**Channel Frequency (MHz)**	**Peak Output Power Raw (dBm)**	**FC (dB)**	**Peak Output Power (dBm)**	**Power Limit (dBm)**
1	2412	-0.2	**10.5**	10.3	30.0
6	2437	1.0	**10.5**	11.5	30.0
11	2462	1.8	**10.5**	12.3	30.0
802.11n / BPSK (Data Rate 72.2MHz) GI = 400ns HT20					
Channel	**Channel Frequency (MHz)**	**Peak Output Power Raw (dBm)**	**FC (dB)**	**Peak Output Power (dBm)**	**Power Limit (dBm)**
1	2412	-1.2	**10.5**	9.3	30.0
6	2437	-0.3	**10.5**	10.2	30.0
11	2462	0.9	**10.5**	9.6	30.0

6.6. CONCLUSION

Maximum Peak Output Power measurement performed on the sample of the product CAC1005000 / CAC1006000, SN: 10110, in configuration and description presented in this test report, show levels below the FCC CFR 47 Part 15 and RSS-210 Issue 8 limits.

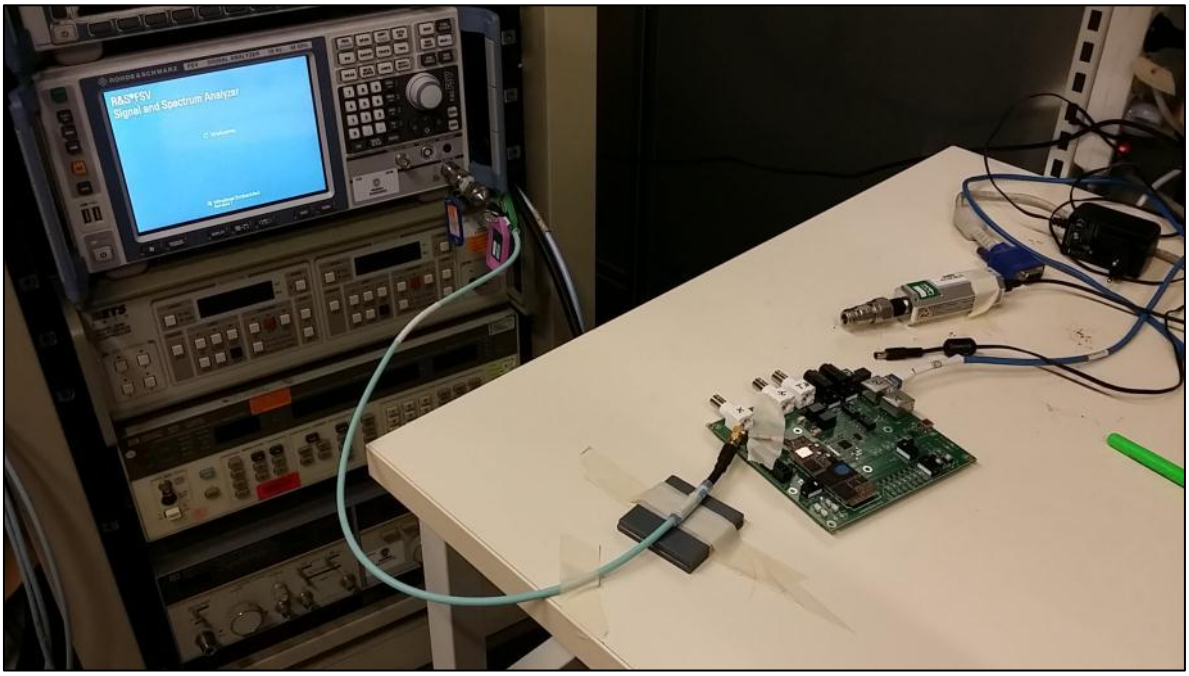
7. POWER SPECTRAL DENSITY (15.247)

7.1. TEST CONDITIONS

Date of test	: September 23rd , 2014
Test performed by	:J.PAUC / A.MERLIN
Atmospheric pressure (hPa)	: 926
Relative humidity (%)	:42
Ambient temperature (°C)	:21

7.2. SETUP

☑ ***Conducted measurement:***
The EUT is turned ON and connected to measurement instrument; the center frequency of the spectrum analyzer is set to the fundamental frequency.
Offset: Attenuator+cable 10.5dB



☐ ***Radiated measurement:***
The EUT is placed in an anechoic chamber; the center frequency of the spectrum analyzer is set to the fundamental frequency.
The product has been tested at a distance of 3 meters from the antenna. Continuous linear turntable azimuth search was performed with 360 degrees range. Measurement performed on 3 axis of EUT. A summary of the worst case emissions found in all test configurations and modes is shown on following table. The captured power is measured and recorded; the measurement is repeated until all frequencies required were complete.
To demonstrate compliance with peak output power requirement of section 15.247 (b), the transmitter's peak output power is calculated using the following equation:

$$E = \frac{\sqrt{30PG}}{d}$$

Where:
- E is the measured maximum fundamental field strength in V/m.
- G is the numeric gain of the transmitting antenna with reference to an isotropic radiator.
- d is the distance in meters from which the field strength was measured.
- P is the power in watts for which you are solving:

$$P = \frac{(Ed)^2}{30G}$$

Measurement Procedure PKPSD:
a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ 3 □ RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

7.3. TEST EQUIPMENT LIST

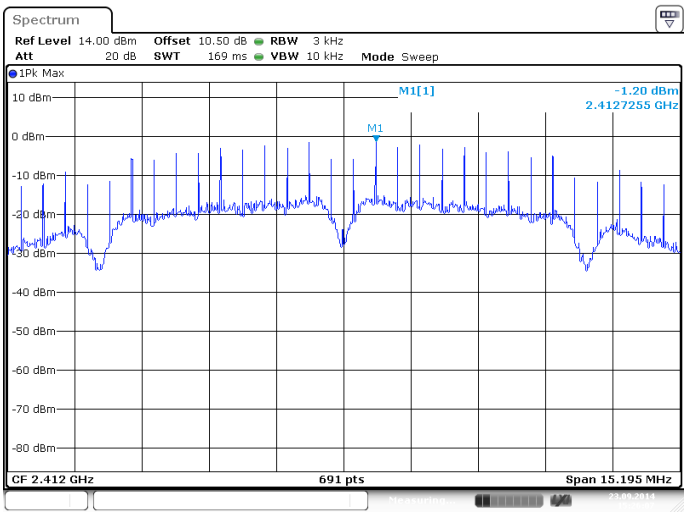
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	DUE DATE
Attenuator 10dB	JFW	-	A7122166	2014-09
Cable Measure	-	-	A5329603	2015-08
hermo-hygrometer (C3)	OREGON	BAR206	B4204078	2015-01
Spectrum analyzer	ROHDE & SCHWARZ	FSV 30	A4060050	2015-07

7.4. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

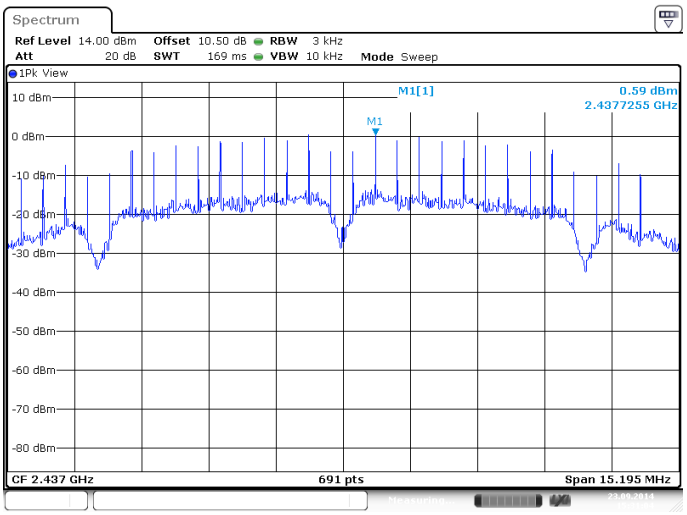
☑ None ☐ Divergence:

7.5. TEST SEQUENCE AND RESULTS

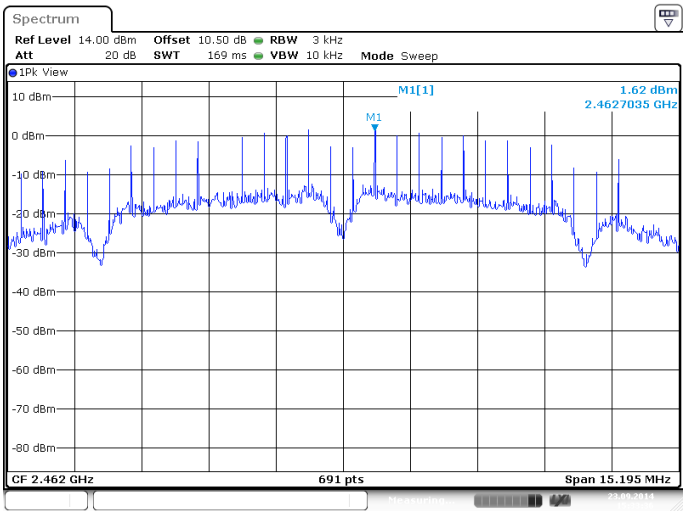
802.11b / CCK (Data Rate 1MHz)			
Channel	**Channel Frequency (MHz)**	**Power Spectral Density (dBm)**	**PSD Limit (dBm)**
1	2412	-1.2	8.0
6	2437	0.6	8.0
11	2462	1.6	8.0



C1

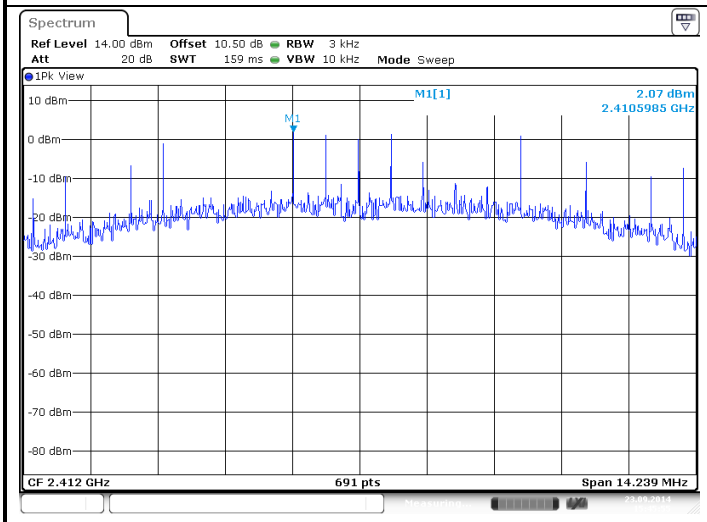


C6

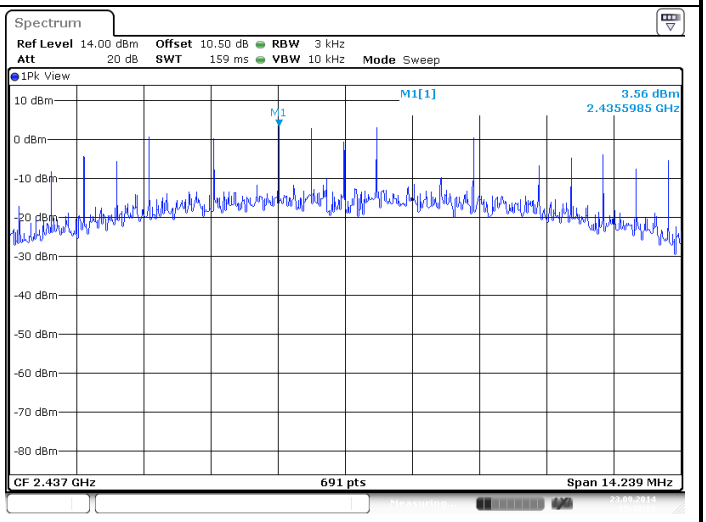


C11

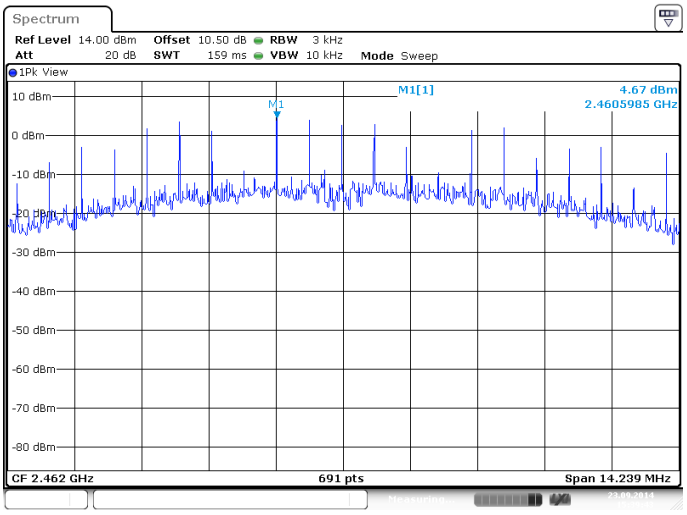
802.11b / DBSK (Data Rate 11MHz)			
Channel	**Channel Frequency (MHz)**	**Power Spectral Density (dBm)**	**PSD Limit (dBm)**
1	2412	2.1	8.0
6	2437	3.6	8.0
11	2462	4.7	8.0



C1

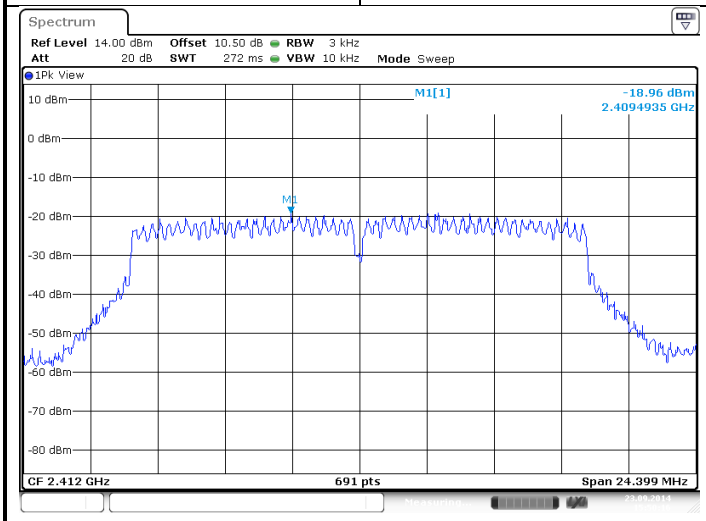


C6

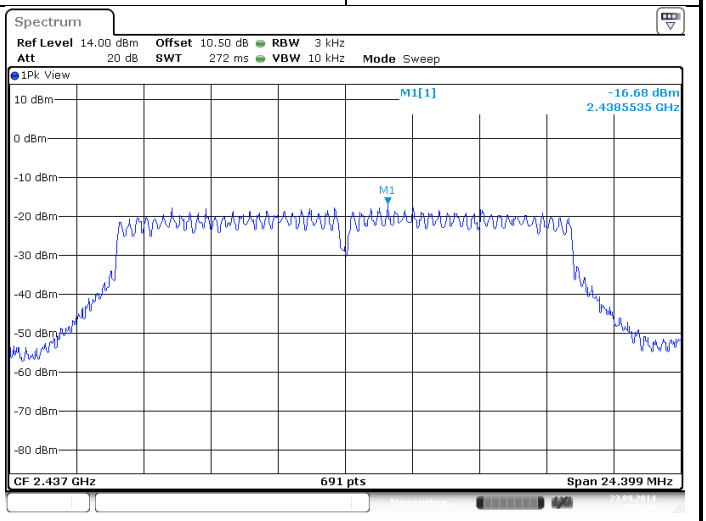


C3

802.11g / BPSK (Data Rate 6MHz)			
Channel	**Channel Frequency (MHz)**	**Power Spectral Density (dBm))**	**PSD Limit (dBm)**
1	2412	-18.9	8.0
6	2437	-16.6	8.0
11	2462	-15.7	8.0



C1



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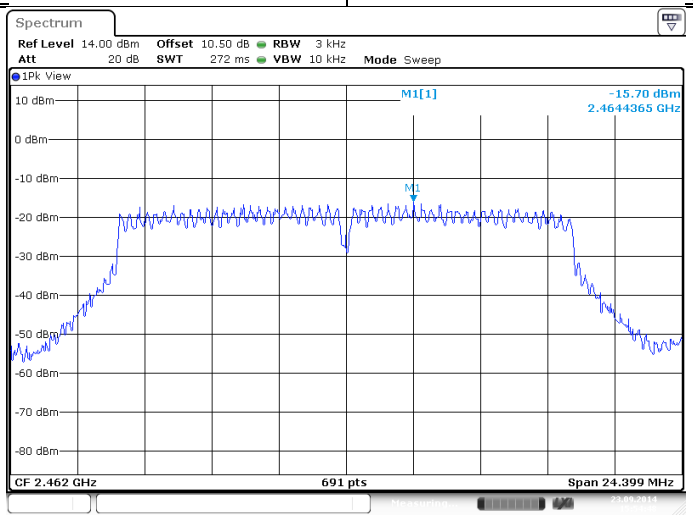
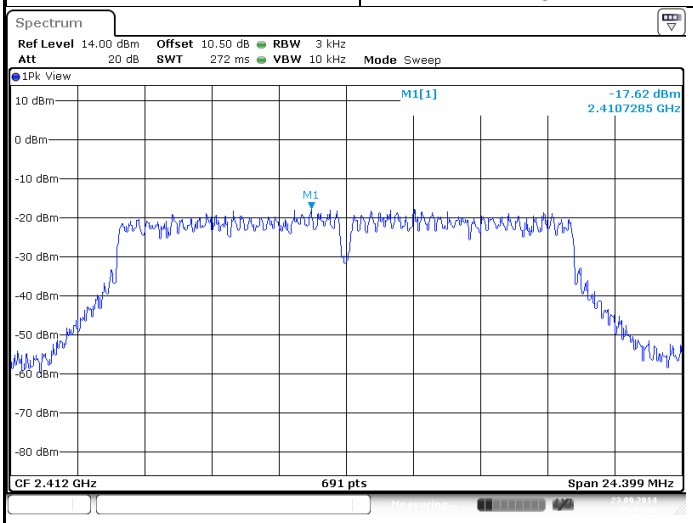
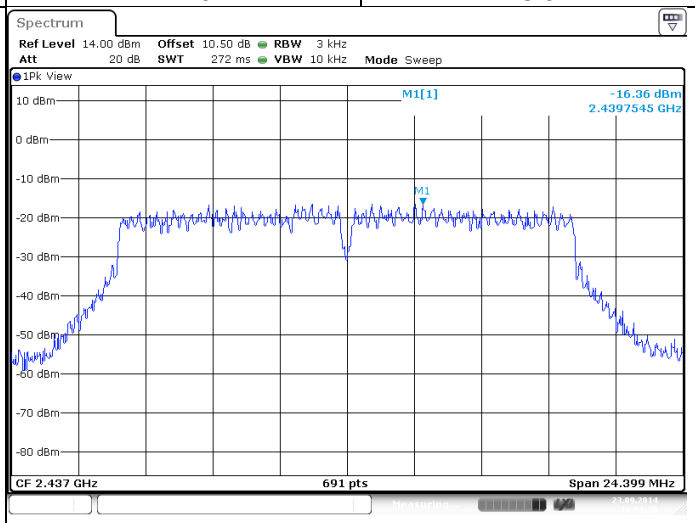


C11

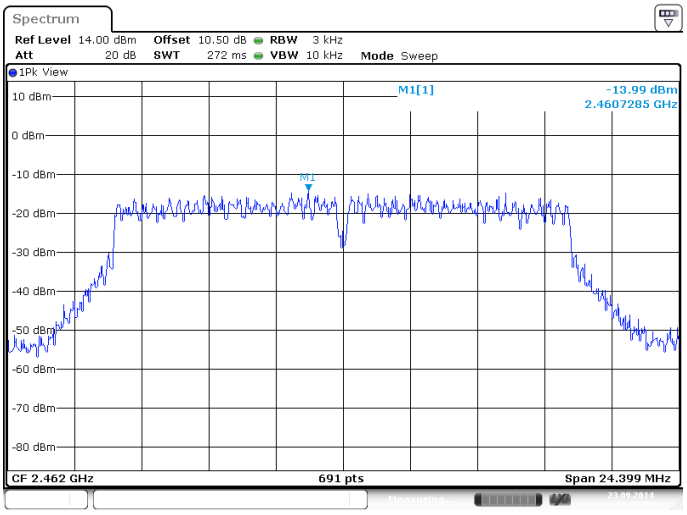
802.11g / BPSK (Data Rate 54MHz)			
Channel	**Channel Frequency (MHz)**	**Power Spectral Density (dBm)**	**PSD Limit (dBm)**
1	2412	-17.6	8.0
6	2437	-16.3	8.0
11	2462	-14.0	8.0



C1

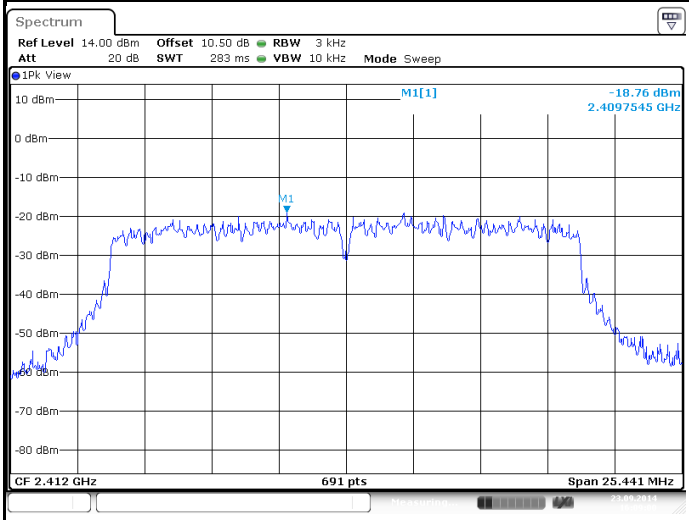


C6

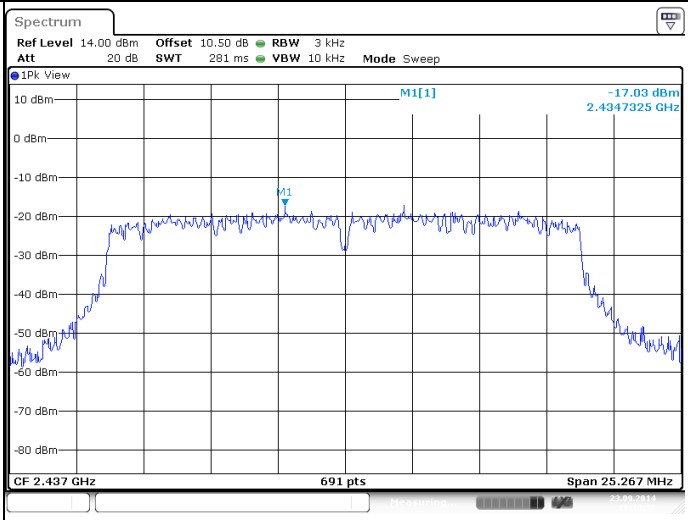


C11

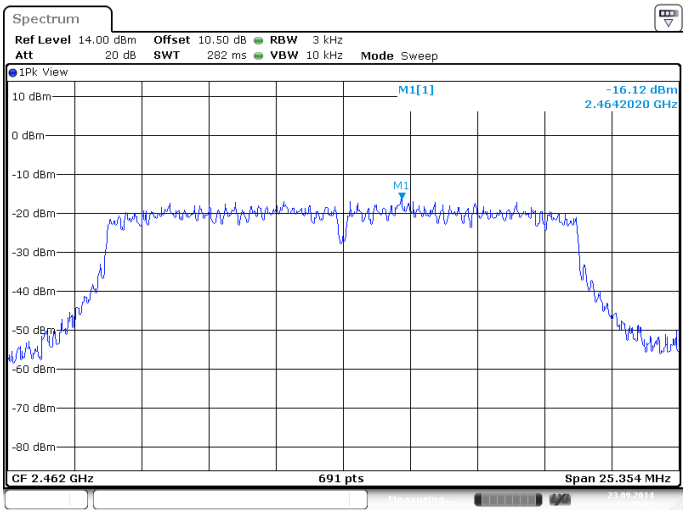
802.11n / BPSK (Data Rate 7.2MHz) GI = 400ns HT20			
Channel	**Channel Frequency (MHz)**	**Power Spectral Density (dBm)**	**Power Limit (dBm)**
1	2412	-18.7	8.0
6	2437	-17.0	8.0
11	2462	-16.1	8.0



C1

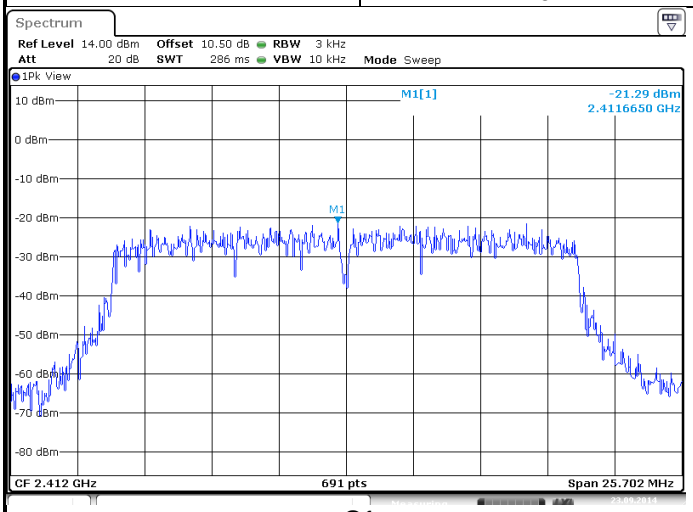


C6

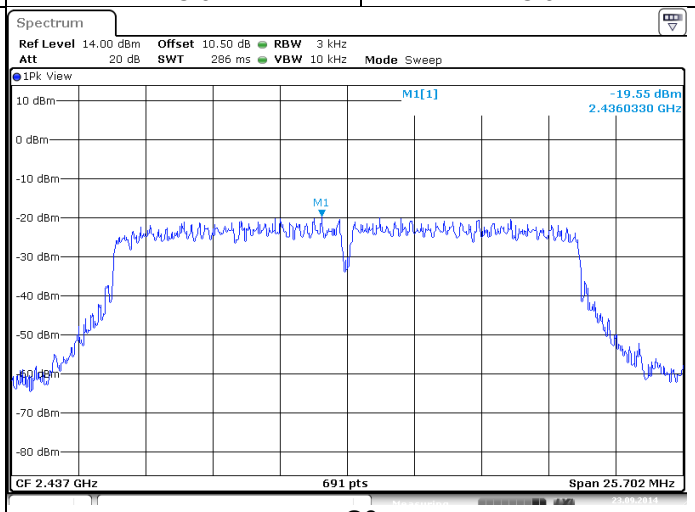


C11

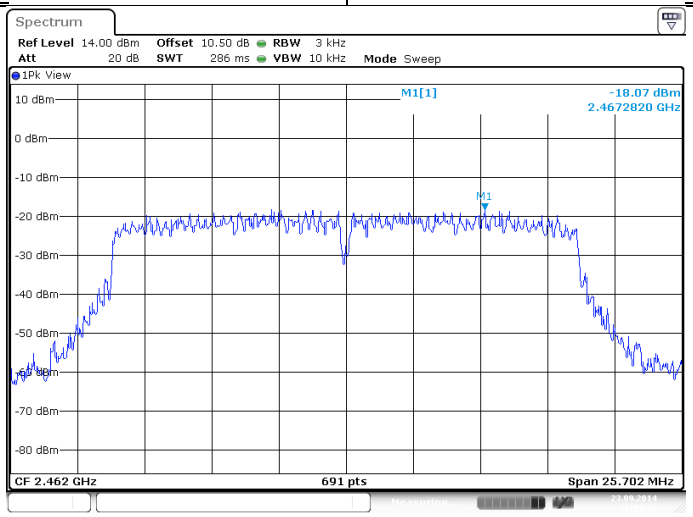
802.11n / BPSK (Data Rate 72.2MHz) GI = 400ns HT20			
Channel	**Channel Frequency (MHz)**	**Power Spectral Density (dBm)**	**Power Limit (dBm)**
1	2412	-21.2	8.0
6	2437	-19.5	8.0
11	2462	-18.0	8.0



C1



C6



C11

7.6. CONCLUSION

Power Spectral Density measurement performed on the sample of the product CAC1005000 / CAC1006000, SN: 10110, in configuration and description presented in this test report, show levels below the FCC CFR 47 Part 15 and RSS-210 Issue 8 limits.

8. BAND EDGE MEASUREMENT (15.247)

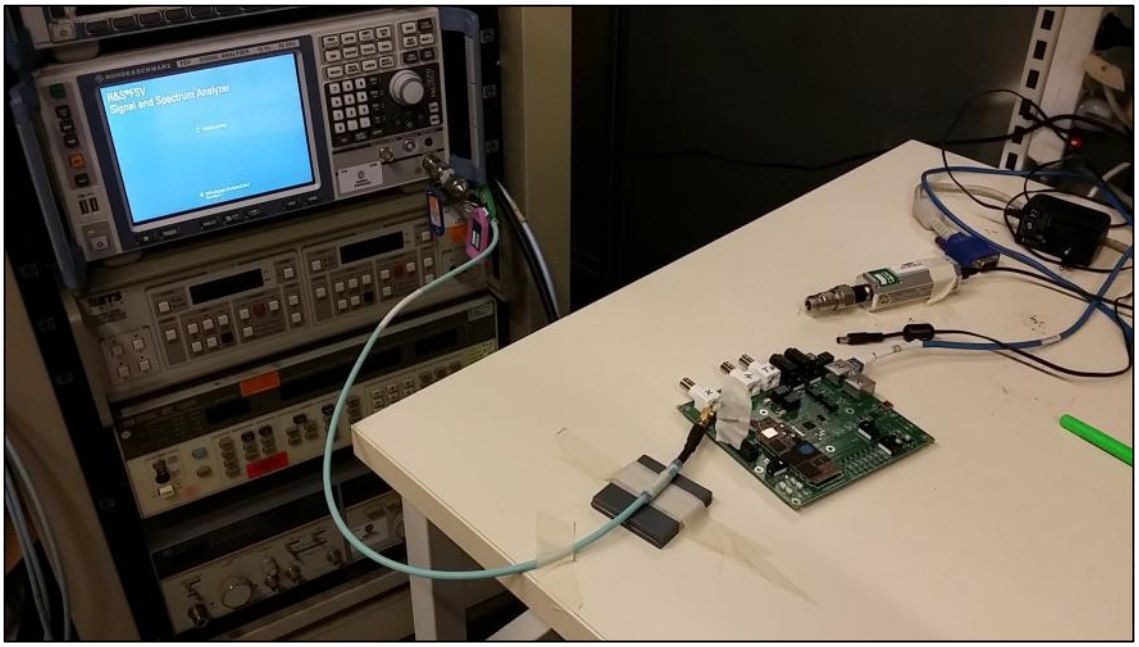
8.1. TEST CONDITIONS

Date of test	: September 23rd , 2014	: September 24th , 2014	:
Test performed by	:J.PAUC / A.MERLIN	:J.PAUC / A.MERLIN	:
Atmospheric pressure (hPa)	: 926		:
Relative humidity (%)	:42		:
Ambient temperature (°C)	:21		:

8.2. LIMIT

RF antenna conducted test:

Set RBW = 100 kHz, Video bandwidth (VBW) > RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the device complies with the use of power option 2 the attenuation under this paragraph shall be 30 dB instead of 20 dB. *For -20dBc limit, lowest power output level is considered, worst case.*



Radiated emission test:

Applies to harmonics/spurs that fall in the restricted bands listed in Section 15.205. The maximum permitted average field strength is listed in Section 15.209. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep: Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation. See results in Radiated emissions section before.

8.3. SETUP

The EUT is placed in an anechoic chamber; levels have been corrected to be in compliant with Peak Output Power measurement. The EUT is turn ON; the graphs of the restrict frequency band are recorded with a display line indicating the highest level and other the 20dB offset below to show compliance with 15.247 (d) and 15.205. The emissions in restricted bands are compared to 15.209 limits.
RBW: 100kHz / VBW: 300kHz

8.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	DUE DATE
Attenuator 10dB	JFW	-	A7122166	2014-09
Cable Measure	-	-	A5329603	2015-08
hermo-hygrometer (C3)	OREGON	BAR206	B4204078	2015-01
Spectrum analyzer	ROHDE & SCHWARZ	FSV 30	A4060050	2015-07

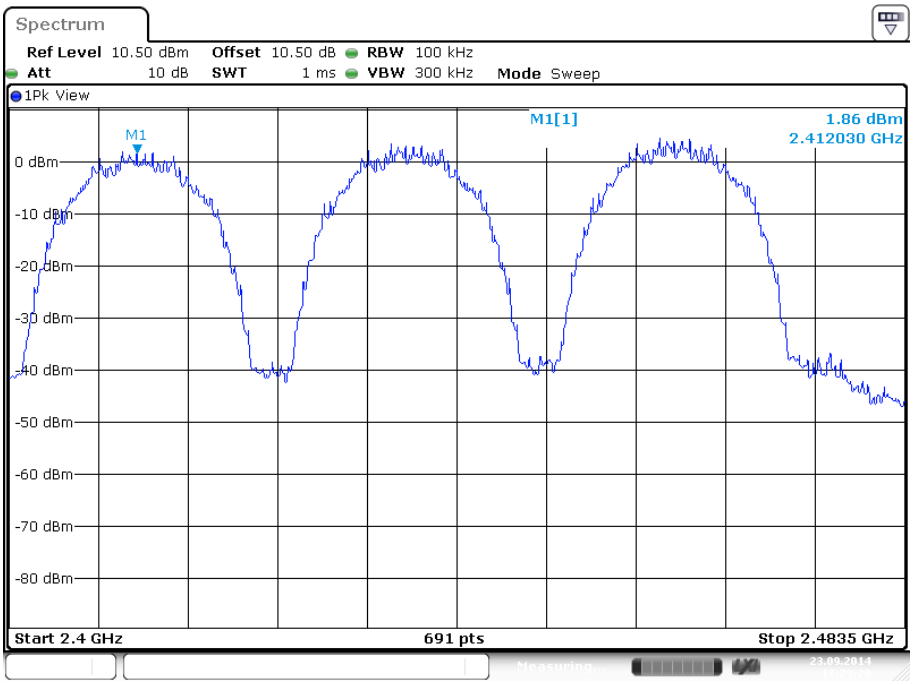
8.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

8.6. TEST SEQUENCE AND RESULTS

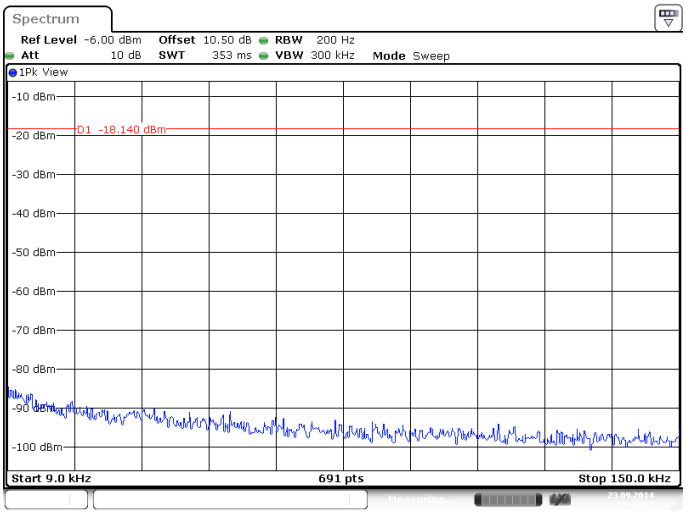
Offset: Attenuator+cable : 10.5dB

GRAPH / MODULATION.

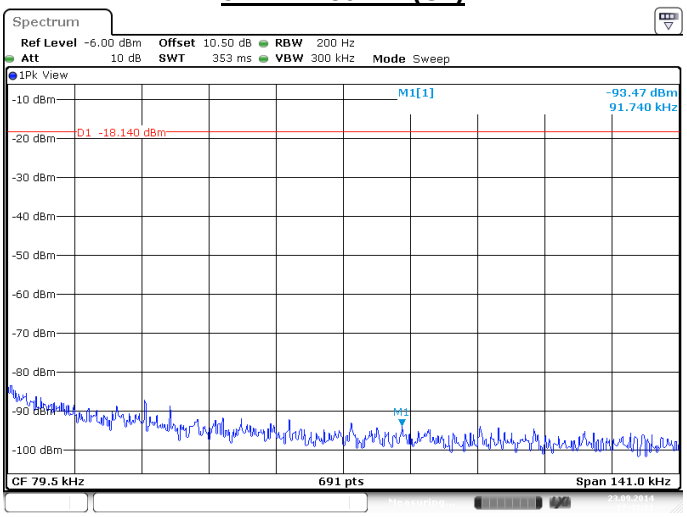


802.11b / DBSK (Data Rate 11MHz) – Worst case (C1/C6/C11)

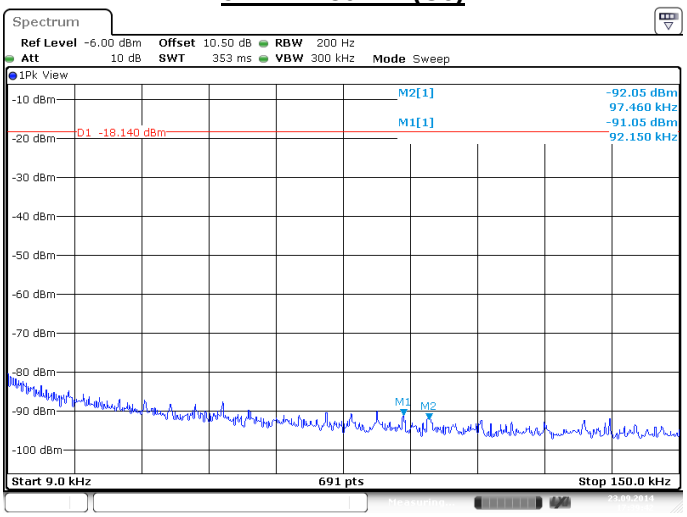
Worst RF power in 100kHz Bandwidth : Canal 1 at 1.86dBm
Spurious Limit : 1.86 – 20 = -18.14dBm



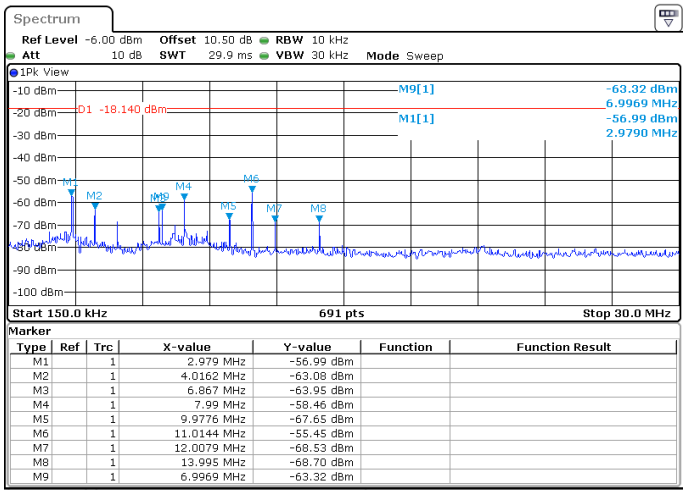
9kHz – 150kHz (C1)



9kHz – 150kHz (C6)



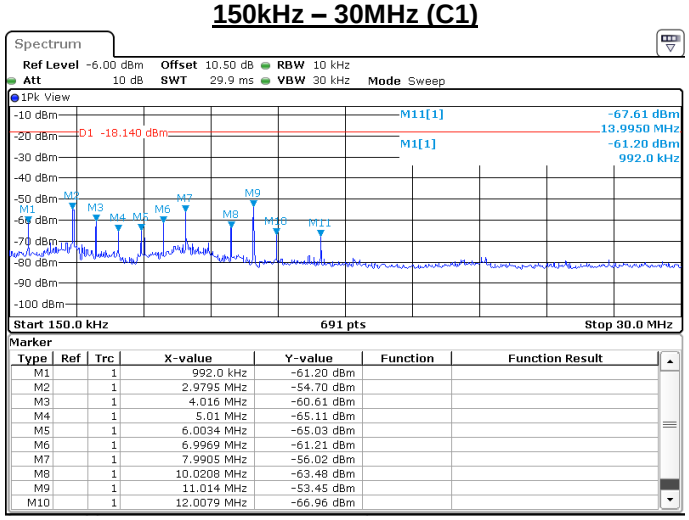
9kHz – 150kHz (C11)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.979 MHz	-56.99 dBm		
M2		1	4.0162 MHz	-63.08 dBm		
M3		1	6.867 MHz	-63.95 dBm		
M4		1	7.99 MHz	-58.46 dBm		
M5		1	9.9776 MHz	-67.65 dBm		
M6		1	11.0144 MHz	-55.45 dBm		
M7		1	12.0079 MHz	-68.53 dBm		
M8		1	13.995 MHz	-68.70 dBm		
M9		1	6.9969 MHz	-63.32 dBm		

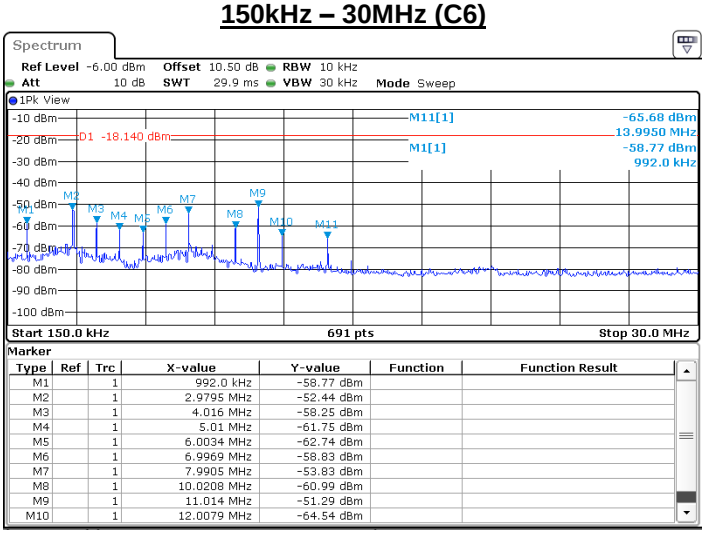
150kHz – 30MHz (C1)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	992.0 kHz	-61.20 dBm		
M2		1	2.9795 MHz	-54.70 dBm		
M3		1	4.016 MHz	-60.61 dBm		
M4		1	5.01 MHz	-65.11 dBm		
M5		1	6.0034 MHz	-65.03 dBm		
M6		1	6.9969 MHz	-61.21 dBm		
M7		1	7.9905 MHz	-56.02 dBm		
M8		1	10.0208 MHz	-63.48 dBm		
M9		1	11.014 MHz	-53.45 dBm		
M10		1	12.0079 MHz	-66.96 dBm		

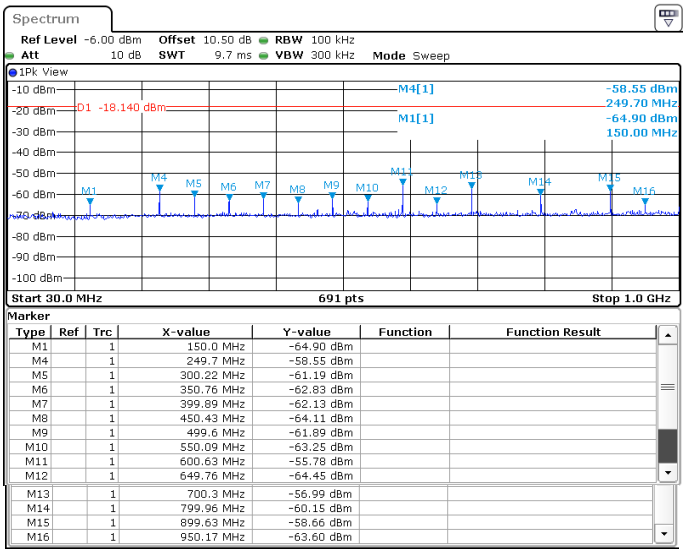
150kHz – 30MHz (C6)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	992.0 kHz	-58.77 dBm		
M2		1	2.9795 MHz	-52.44 dBm		
M3		1	4.016 MHz	-58.25 dBm		
M4		1	5.01 MHz	-61.75 dBm		
M5		1	6.0034 MHz	-62.74 dBm		
M6		1	6.9969 MHz	-58.83 dBm		
M7		1	7.9905 MHz	-53.83 dBm		
M8		1	10.0208 MHz	-60.99 dBm		
M9		1	11.014 MHz	-51.29 dBm		
M10		1	12.0079 MHz	-64.54 dBm		

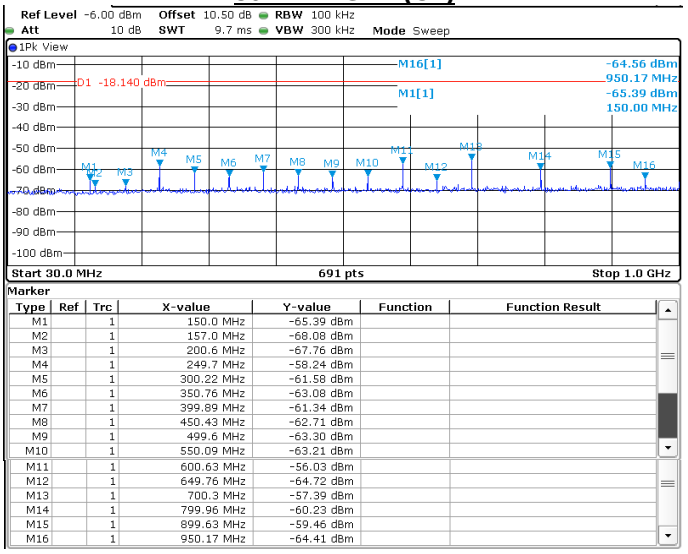
150kHz – 30MHz (C11)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	150.0 MHz	-64.90 dBm		
M4		1	249.7 MHz	-58.55 dBm		
M5		1	300.22 MHz	-61.19 dBm		
M6		1	350.76 MHz	-62.83 dBm		
M7		1	399.89 MHz	-62.13 dBm		
M8		1	450.43 MHz	-64.11 dBm		
M9		1	499.6 MHz	-61.89 dBm		
M10		1	550.09 MHz	-63.25 dBm		
M11		1	600.63 MHz	-55.78 dBm		
M12		1	649.76 MHz	-64.45 dBm		
M13		1	700.3 MHz	-56.99 dBm		
M14		1	799.96 MHz	-60.15 dBm		
M15		1	899.63 MHz	-58.66 dBm		
M16		1	950.17 MHz	-63.60 dBm		

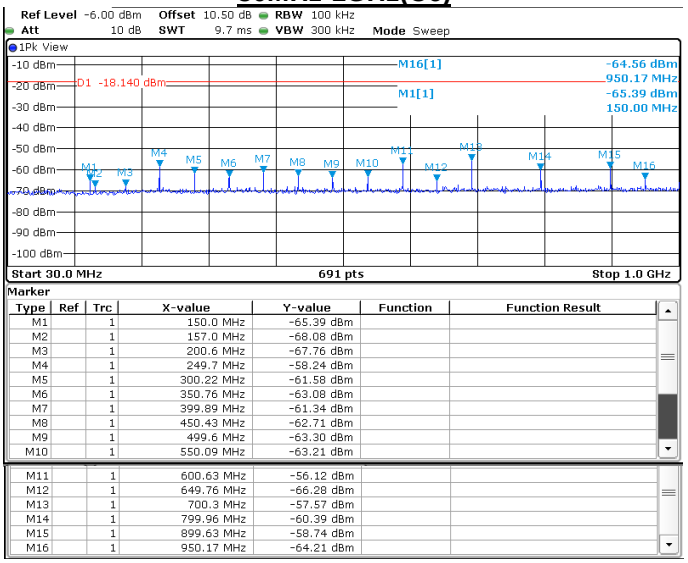
30MHz-1GHz (C1)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	150.0 MHz	-65.39 dBm		
M2		1	157.0 MHz	-68.08 dBm		
M3		1	200.6 MHz	-67.76 dBm		
M4		1	249.7 MHz	-58.24 dBm		
M5		1	300.22 MHz	-61.58 dBm		
M6		1	350.76 MHz	-63.08 dBm		
M7		1	399.89 MHz	-61.34 dBm		
M8		1	450.43 MHz	-62.71 dBm		
M9		1	499.6 MHz	-63.30 dBm		
M10		1	550.09 MHz	-63.21 dBm		
M11		1	600.63 MHz	-56.03 dBm		
M12		1	649.76 MHz	-64.72 dBm		
M13		1	700.3 MHz	-57.39 dBm		
M14		1	799.96 MHz	-60.23 dBm		
M15		1	899.63 MHz	-59.46 dBm		
M16		1	950.17 MHz	-64.41 dBm		

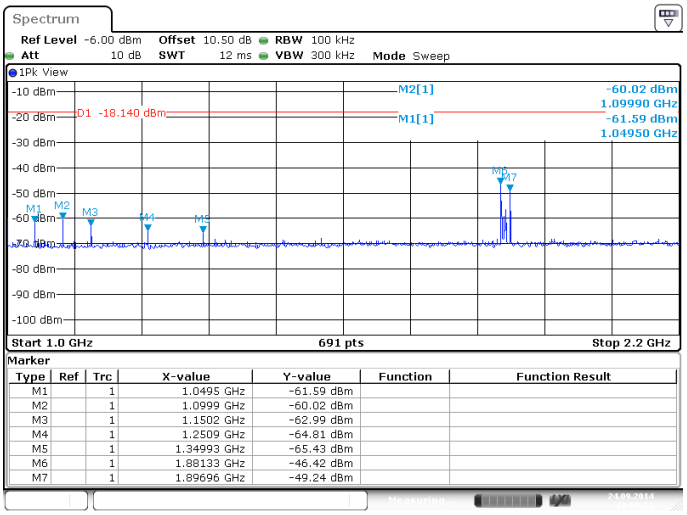
30MHz-1GHz(C6)



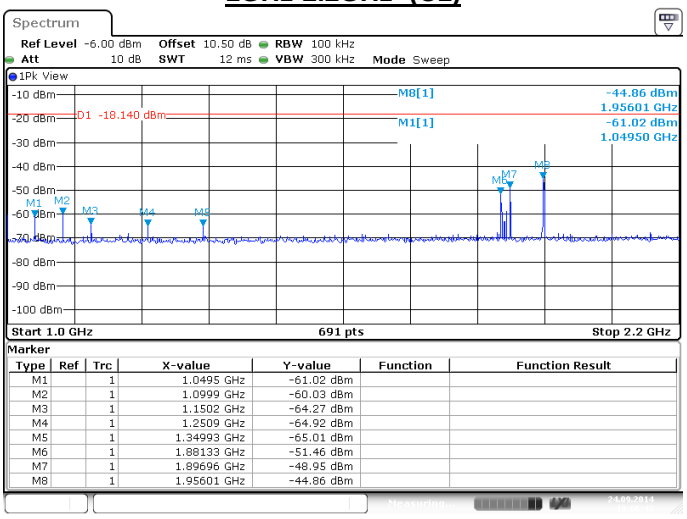
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	150.0 MHz	-65.39 dBm		
M2		1	157.0 MHz	-68.08 dBm		
M3		1	200.6 MHz	-67.76 dBm		
M4		1	249.7 MHz	-58.24 dBm		
M5		1	300.22 MHz	-61.58 dBm		
M6		1	350.76 MHz	-63.08 dBm		
M7		1	399.89 MHz	-61.34 dBm		
M8		1	450.43 MHz	-62.71 dBm		
M9		1	499.6 MHz	-63.30 dBm		
M10		1	550.09 MHz	-63.21 dBm		
M11		1	600.63 MHz	-56.12 dBm		
M12		1	649.76 MHz	-66.28 dBm		
M13		1	700.3 MHz	-57.57 dBm		
M14		1	799.96 MHz	-60.39 dBm		
M15		1	899.63 MHz	-58.74 dBm		
M16		1	950.17 MHz	-64.21 dBm		

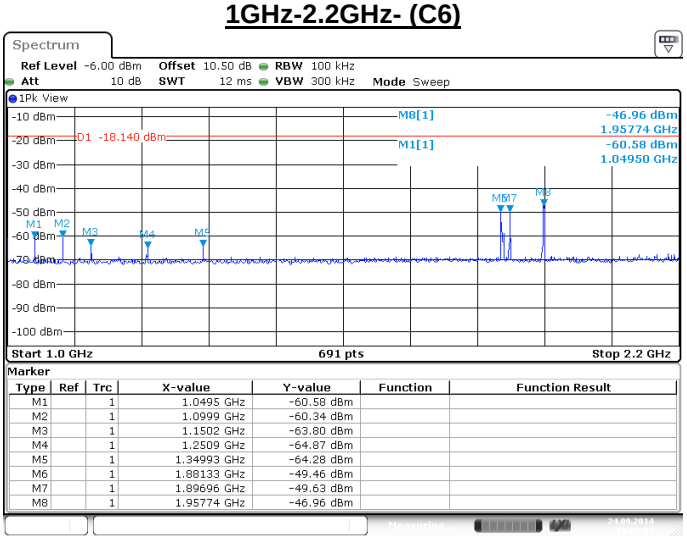
30MHz-1Ghz (C11)



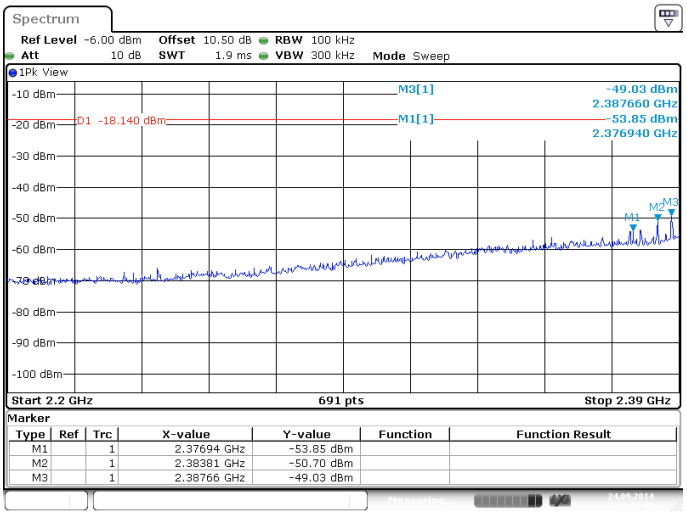
1GHz-2.2GHz- (C1)



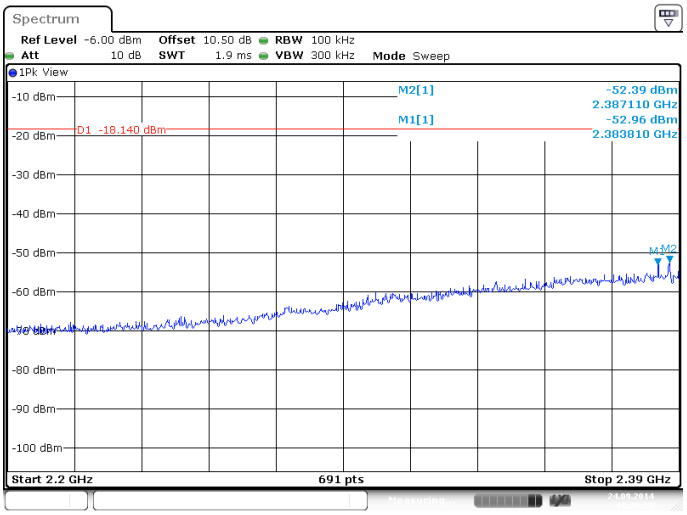
1GHz-2.2GHz- (C6)



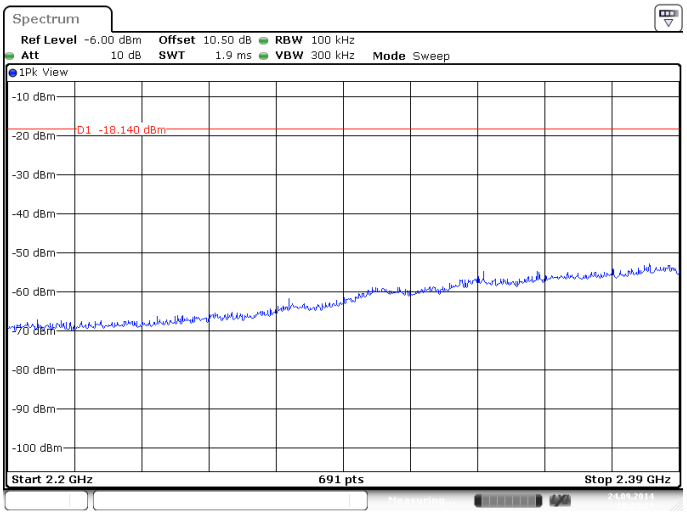
1GHz-2.2GHz- (C11)



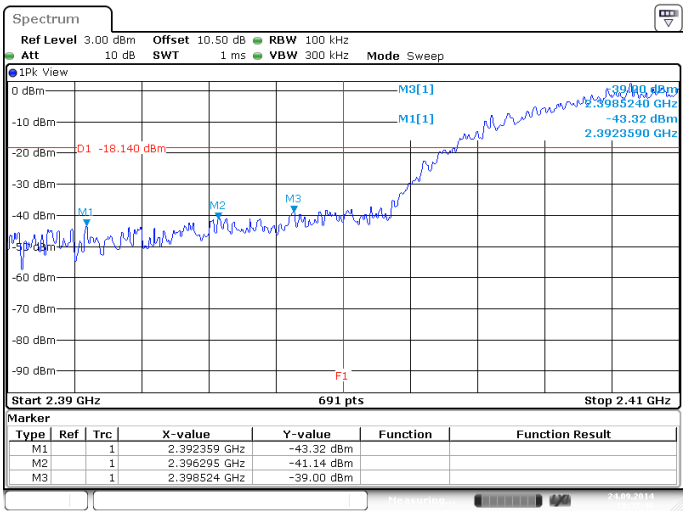
2.2GHz – 2.39GHz- (C1)



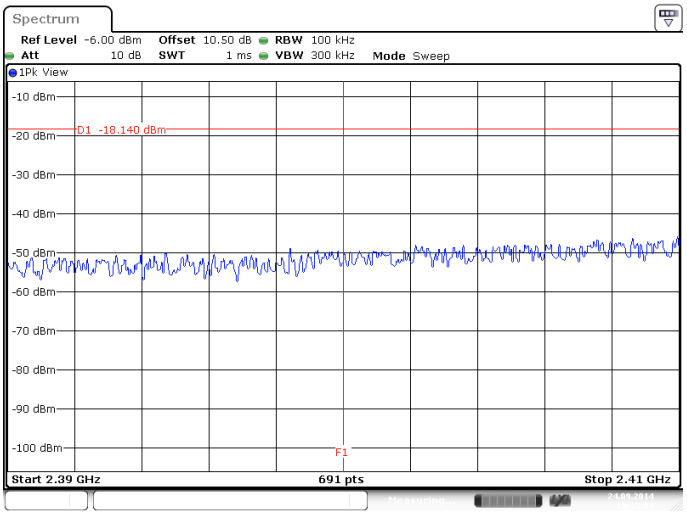
2.2GHz – 2.39GHz- (C6)



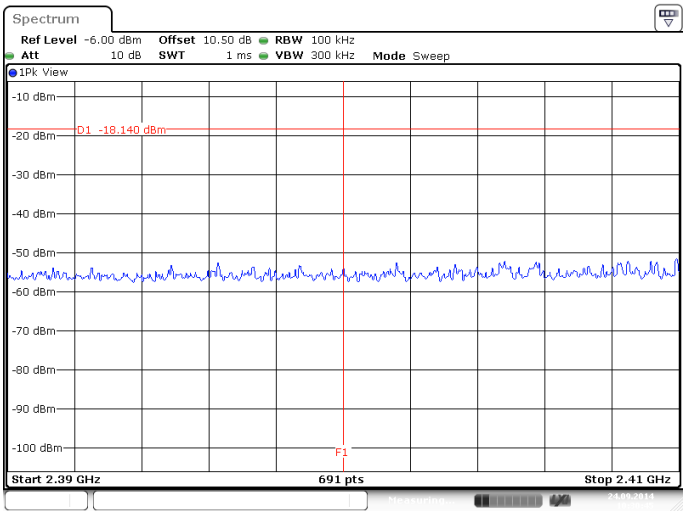
2.2GHz – 2.39GHz- (C11)



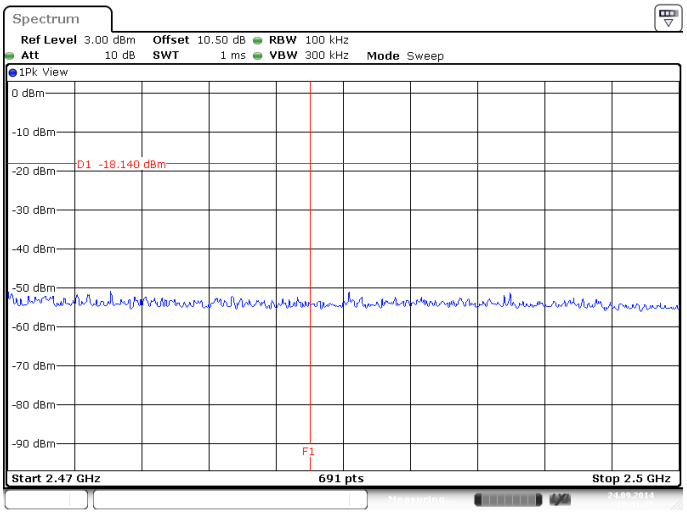
2.39GHz- 2.41GHz (C1



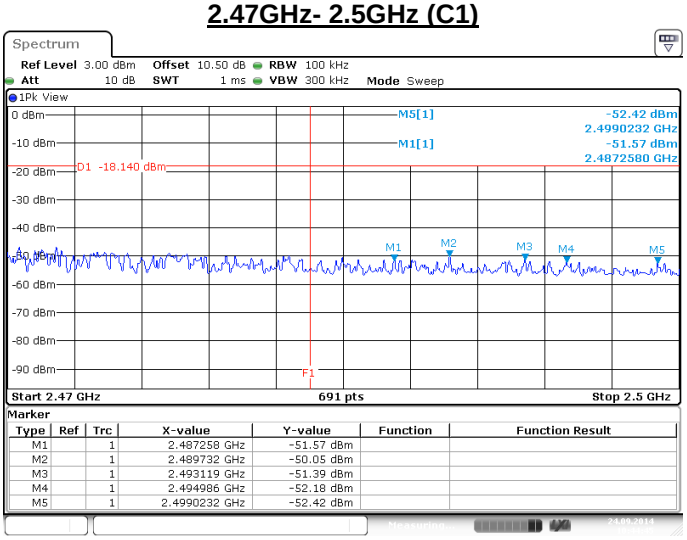
2.39GHz- 2.41GHz (C6)



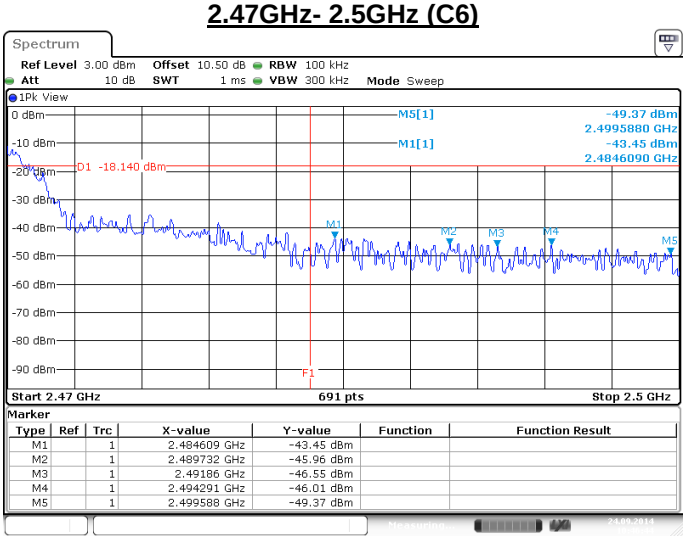
2.39GHz- 2.41GHz (C11)



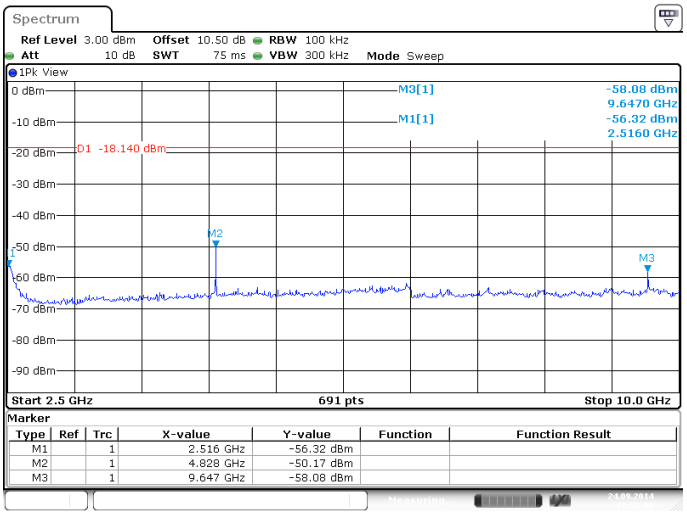
2.47GHz- 2.5GHz (C1)



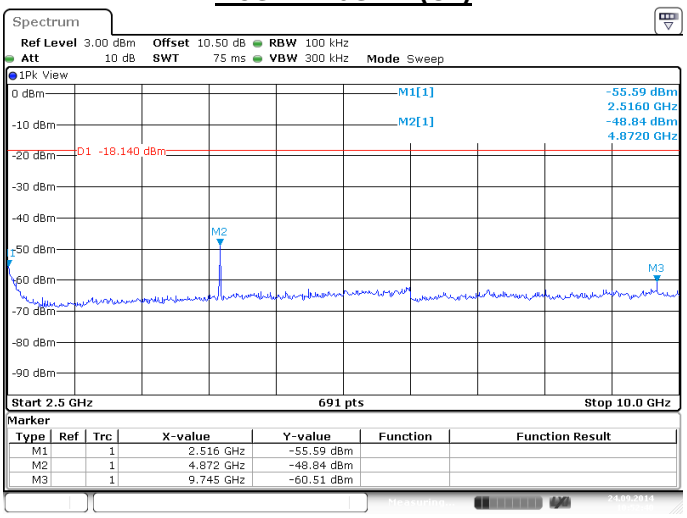
2.47GHz- 2.5GHz (C6)



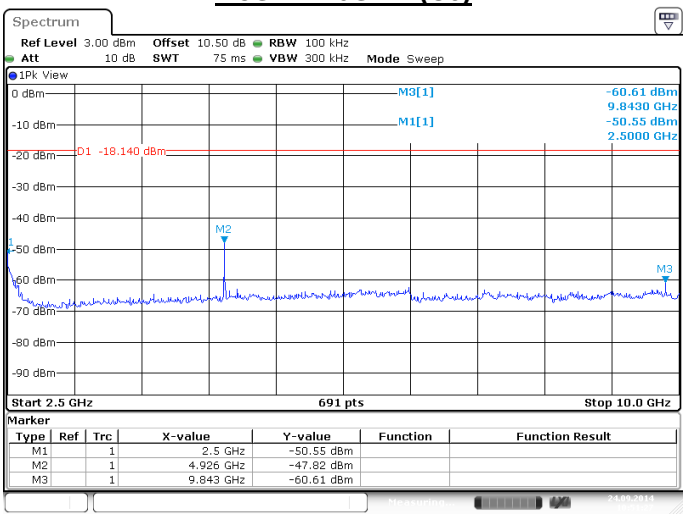
2.47GHz- 2.5GHz (C11)



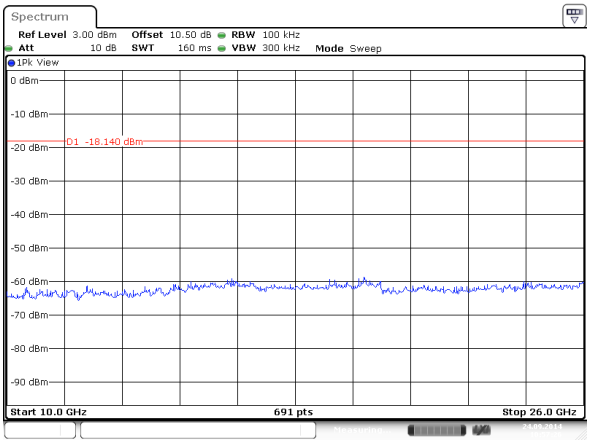
2.5GHz- 10GHz (C1)



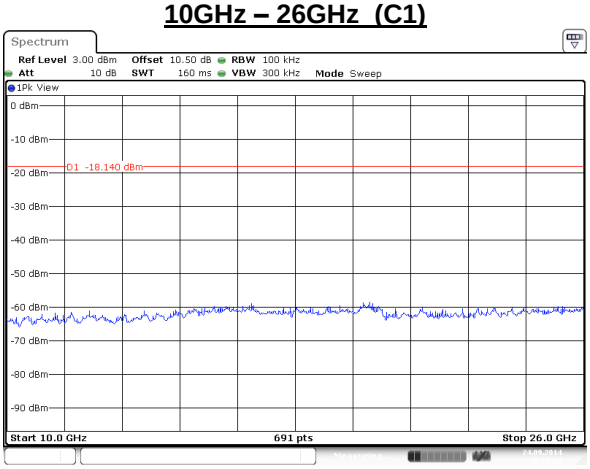
2.5GHz- 10GHz (C6)



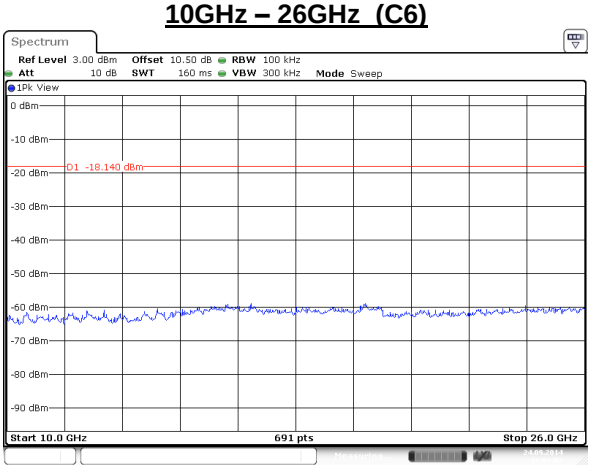
2.5GHz- 10GHz (C11)



10GHz – 26GHz (C1)



10GHz – 26GHz (C6)



10GHz – 26GHz (C11)

8.7. CONCLUSION

Band Edge Measurement performed on the sample of the product CAC1005000 / CAC1006000, SN: 10110, in configuration and description presented in this test report, show levels below the FCC CFR 47 Part 15 and RSS-210 Issue 8 limits.

9. OCCUPIED BANDWIDTH

9.1. TEST CONDITIONS

Date of test : September 23rd , 2014
Test performed by :J.PAUC / A.MERLIN
Atmospheric pressure (hPa) : 926
Relative humidity (%) :42
Ambient temperature (°C) :21

9.2. SETUP

☑ ***Conducted measurement:***
The EUT is turned ON and connected to measurement instrument; 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.
Offset: Attenuator+cable 10.5dB

☐ ***Radiated measurement:***
The EUT is turned ON and connected to measurement instrument; 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.

Measurement Procedure:
1. RBW used should not be lower than 1% of the selected span
2. Set the video bandwidth (VBW) ≥ 3 x RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. OBW 99% function of spectrum analyzer used

9.3. TEST EQUIPMENT LIST

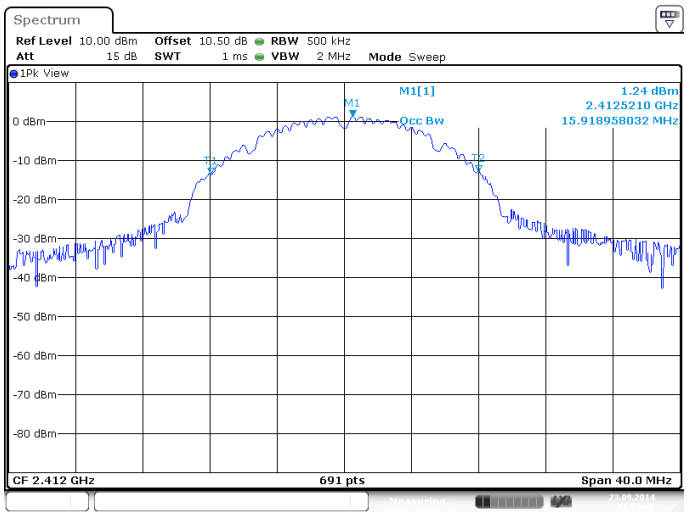
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	DUE DATE
Attenuator 10dB	JFW	-	A7122166	2014-09
Cable Measure	-	-	A5329603	2015-08
hermo-hygrometer (C3)	OREGON	BAR206	B4204078	2015-01
Spectrum analyzer	ROHDE & SCHWARZ	FSV 30	A4060050	2015-07

9.4. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

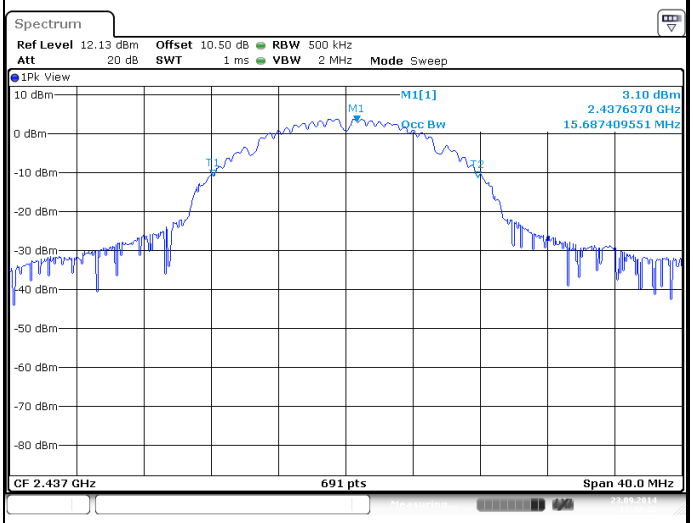
☑ None ☐ Divergence:

9.5. TEST SEQUENCE AND RESULTS

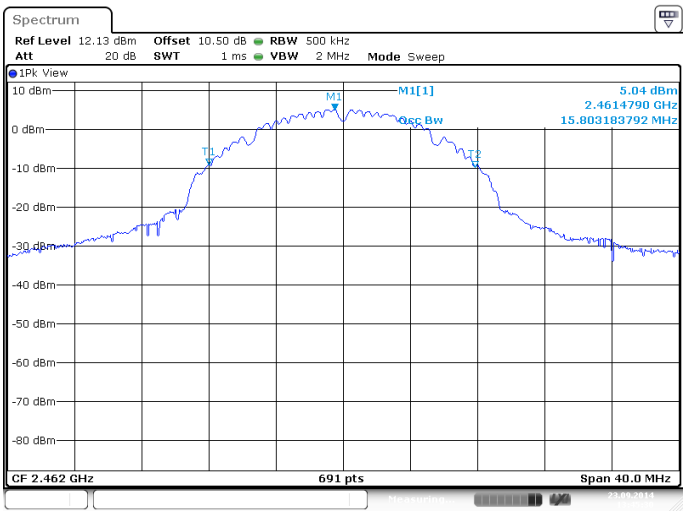
802.11b / DBSK (Data Rate 1MHz)		
Channel	**Channel Frequency (MHz)**	**99% Occupied Bandwidth (MHz)**
1	2412	**15.919**
6	2437	**15.687**
11	2462	**15.803**



C1

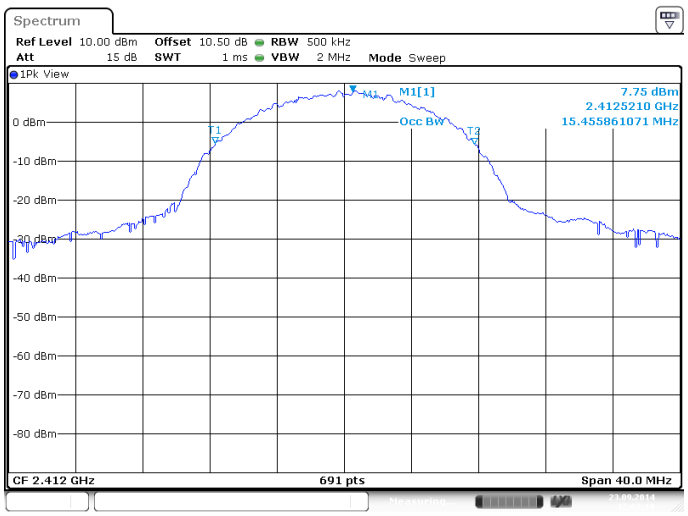


C6

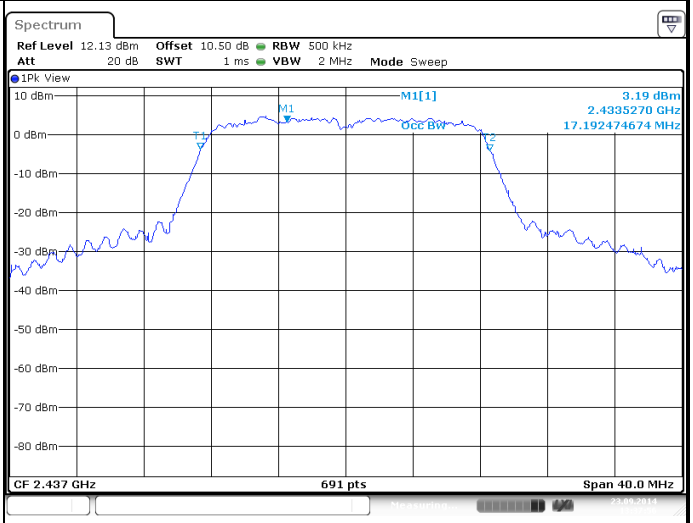


C11

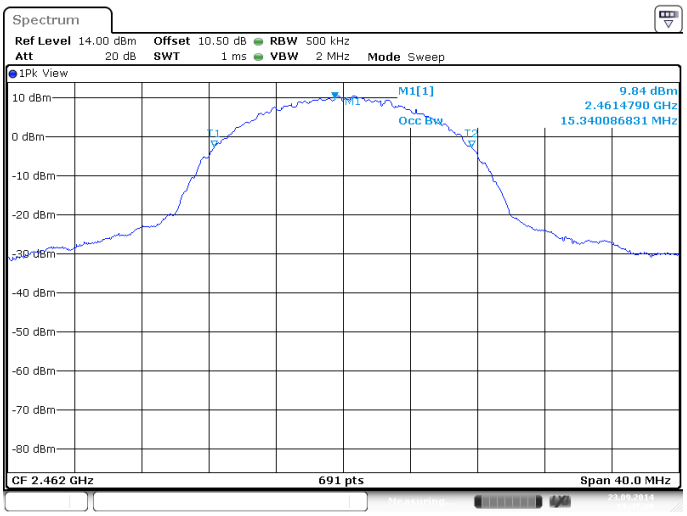
802.11b / CCK (Data Rate 11MHz)		
Channel	**Channel Frequency (MHz)**	**99% Occupied Bandwidth (MHz)**
1	2412	**15.456**
6	2437	**15.398**
11	2462	**15.340**



C1

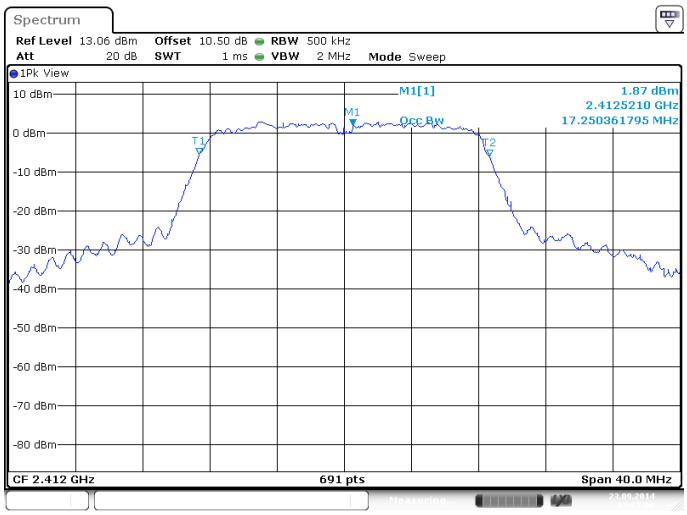


C6

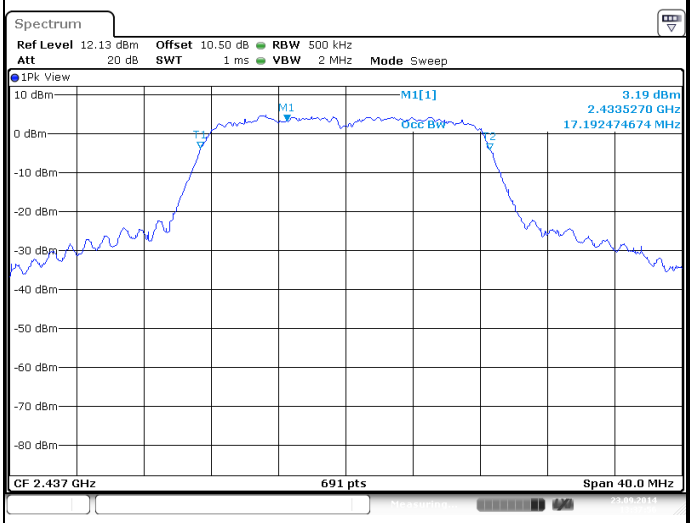


C11

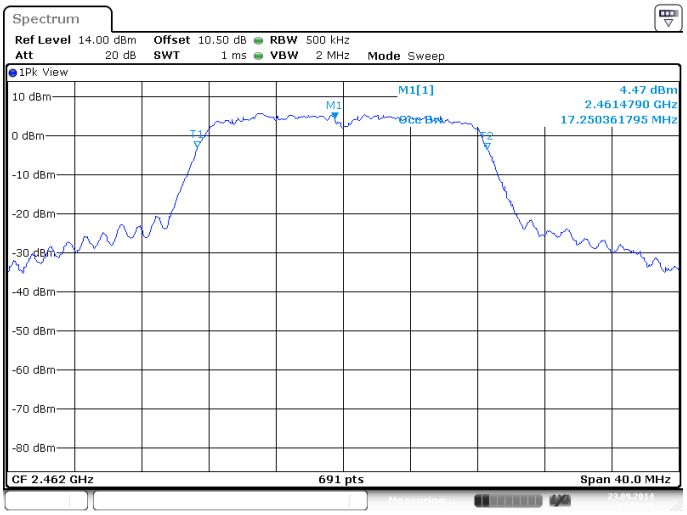
802.11g / BPSK (Data Rate 6MHz)		
Channel	**Channel Frequency (MHz)**	**99% Occupied Bandwidth (MHz)**
1	2412	**17.250**
6	2437	**17.192**
11	2462	**17.250**



C1

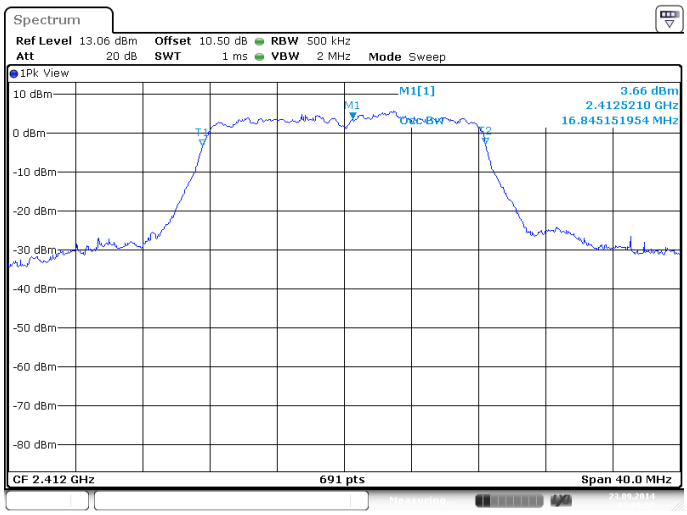


C6

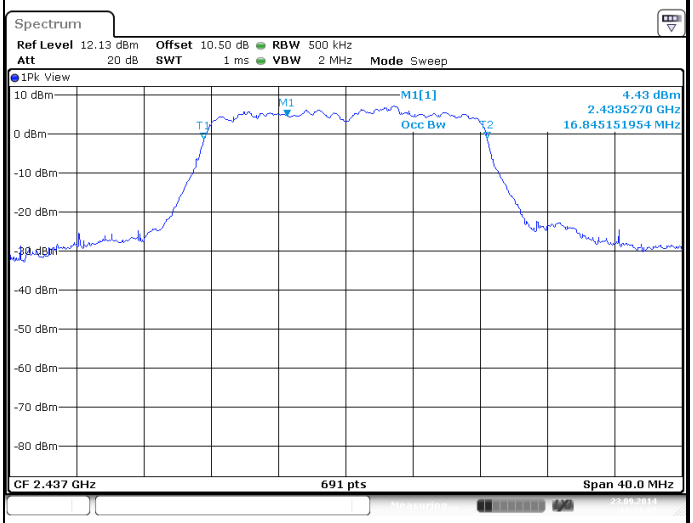


C11

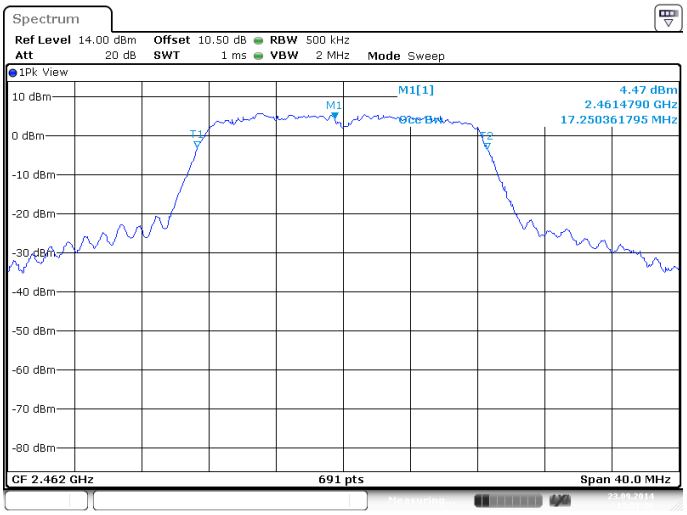
802.11g / 64-QAM (Data Rate 54MHz)		
Channel	**Channel Frequency (MHz)**	**99% Occupied Bandwidth (MHz)**
1	2412	**16.845**
6	2437	**16.845**
11	2462	**16.845**



C1

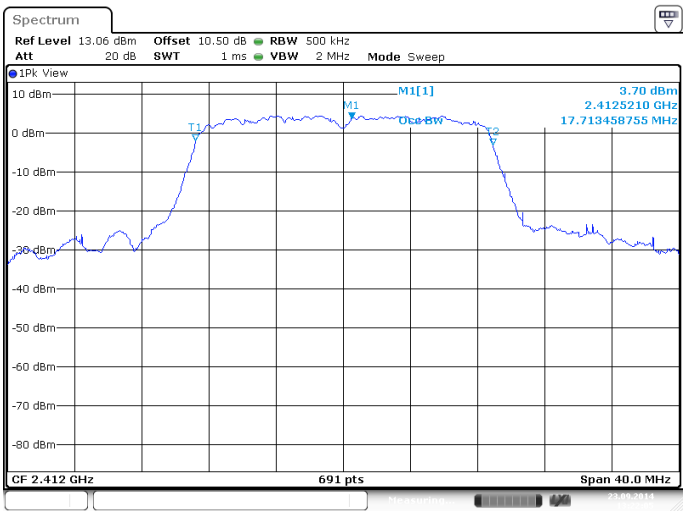


C6

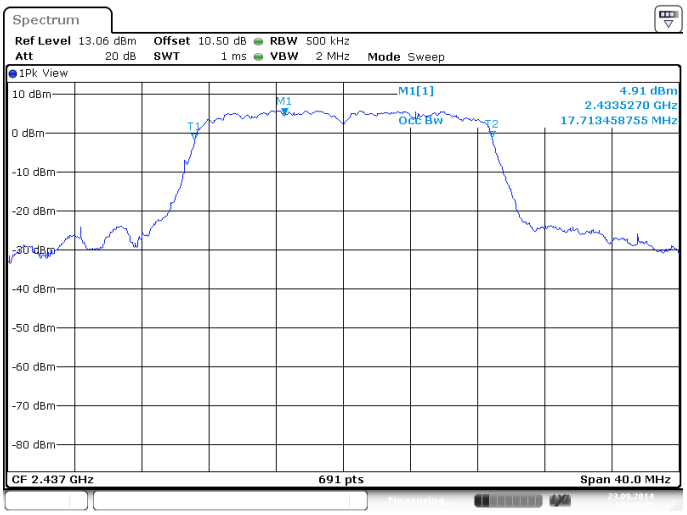


C11

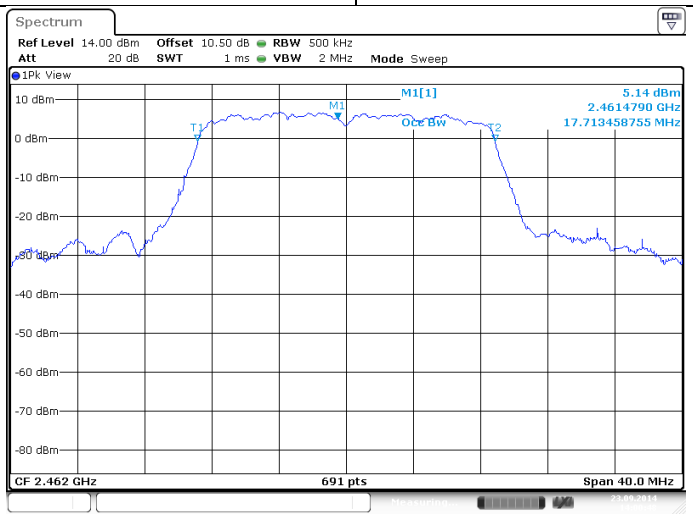
802.11n / BPSK (Data Rate 7.2MHz) GI = 400ns HT20		
Channel	**Channel Frequency (MHz)**	**99% Occupied Bandwidth (MHz)**
1	2412	**17.713**
6	2437	**17.713**
11	2462	**17.713**



C1

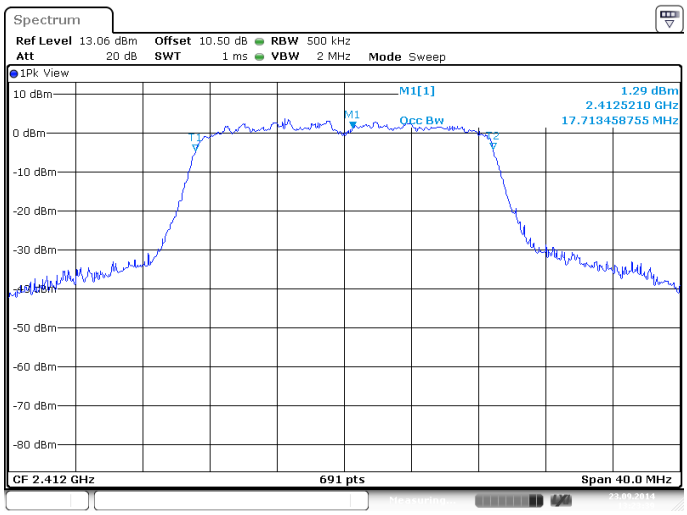


C6

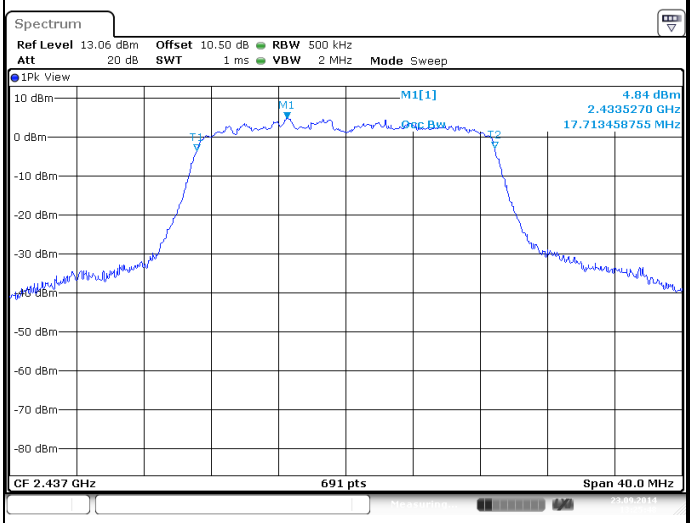


C11

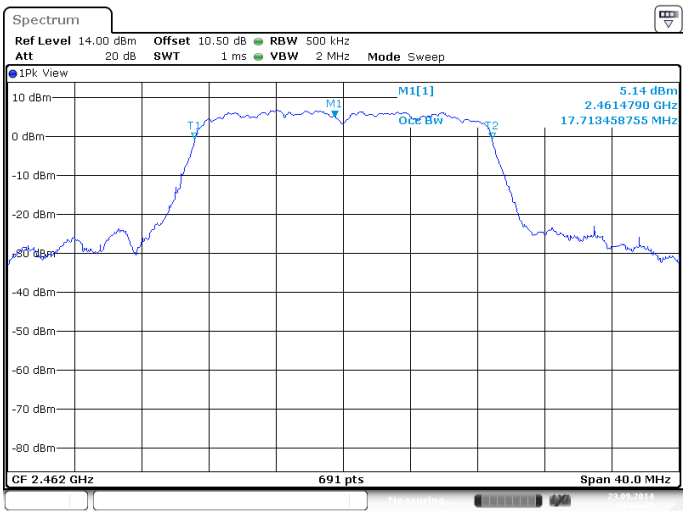
802.11n / BPSK (Data Rate 72.2MHz) GI = 400ns HT20		
Channel	**Channel Frequency (MHz)**	**99% Occupied Bandwidth (MHz)**
1	2412	**17.713**
6	2437	**17.713**
11	2462	**17.713**



C1



C6

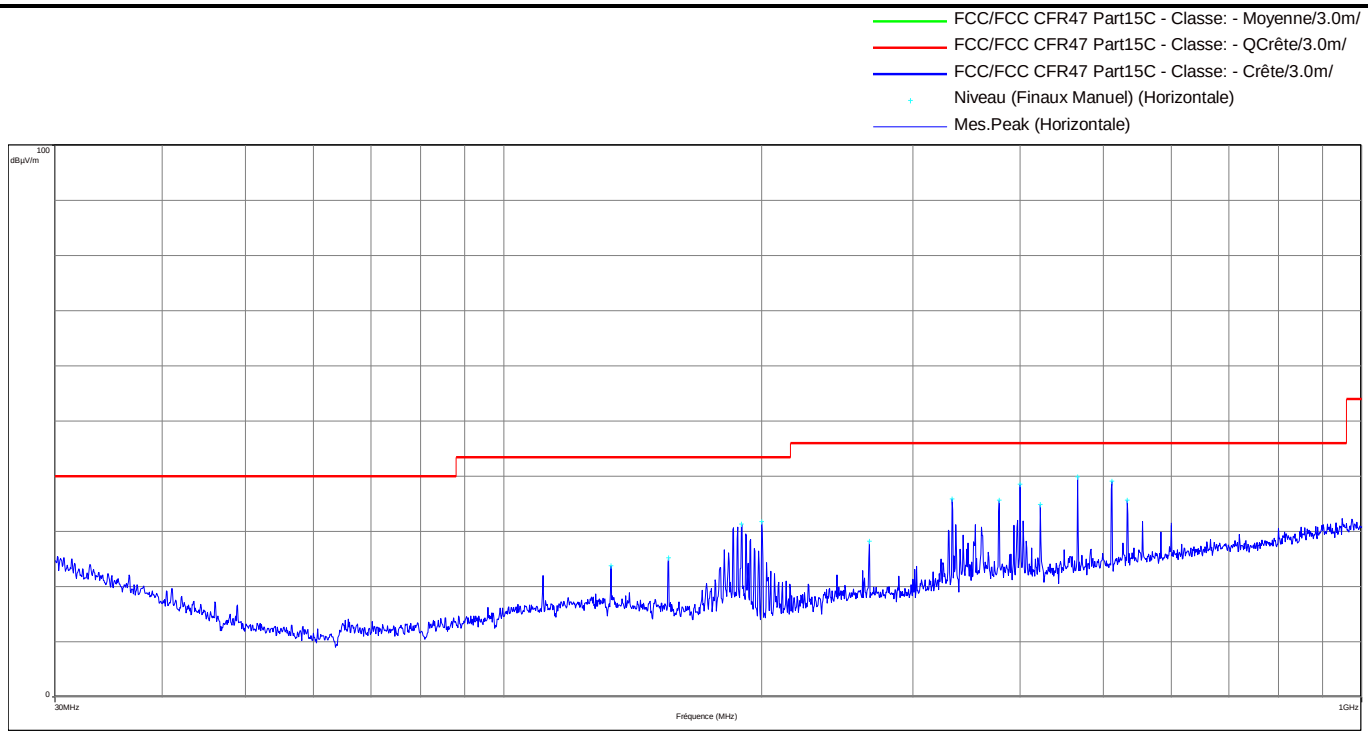


q

C11

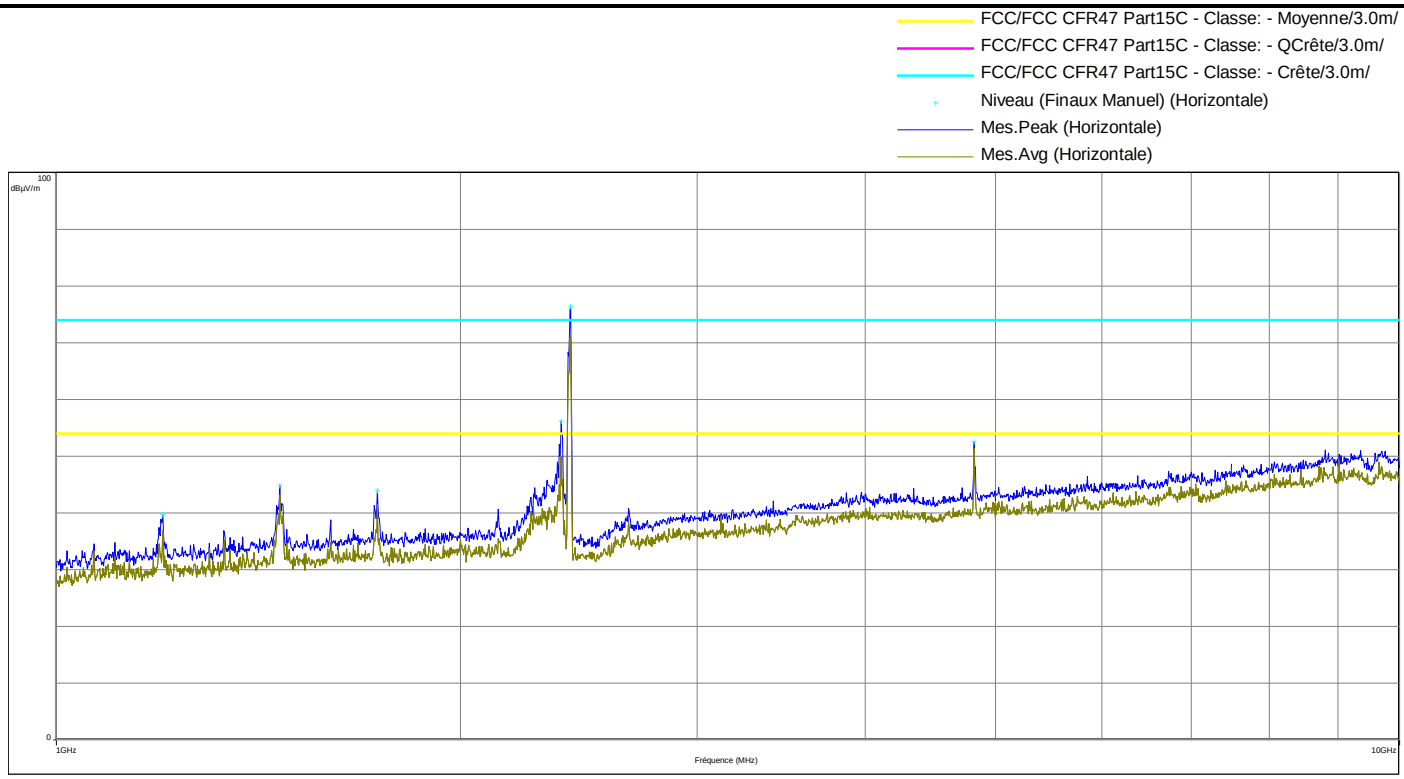
10. ANNEX 1 (GRAPHS)

RADIATED EMISSIONS			
Graph name:	Emr#1	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (H) - FSV - Pos XY - Canal 1	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



Frequency (MHz)	Peak Level (dBµV/m)
133.36	23.73
155.562	25.22
189.443	31.29
200	31.8
266.72	28.22
333.36	35.89
377.76	35.63
400	38.58
422.24	34.85
466.68	39.88
511.16	39.15
533.36	35.67

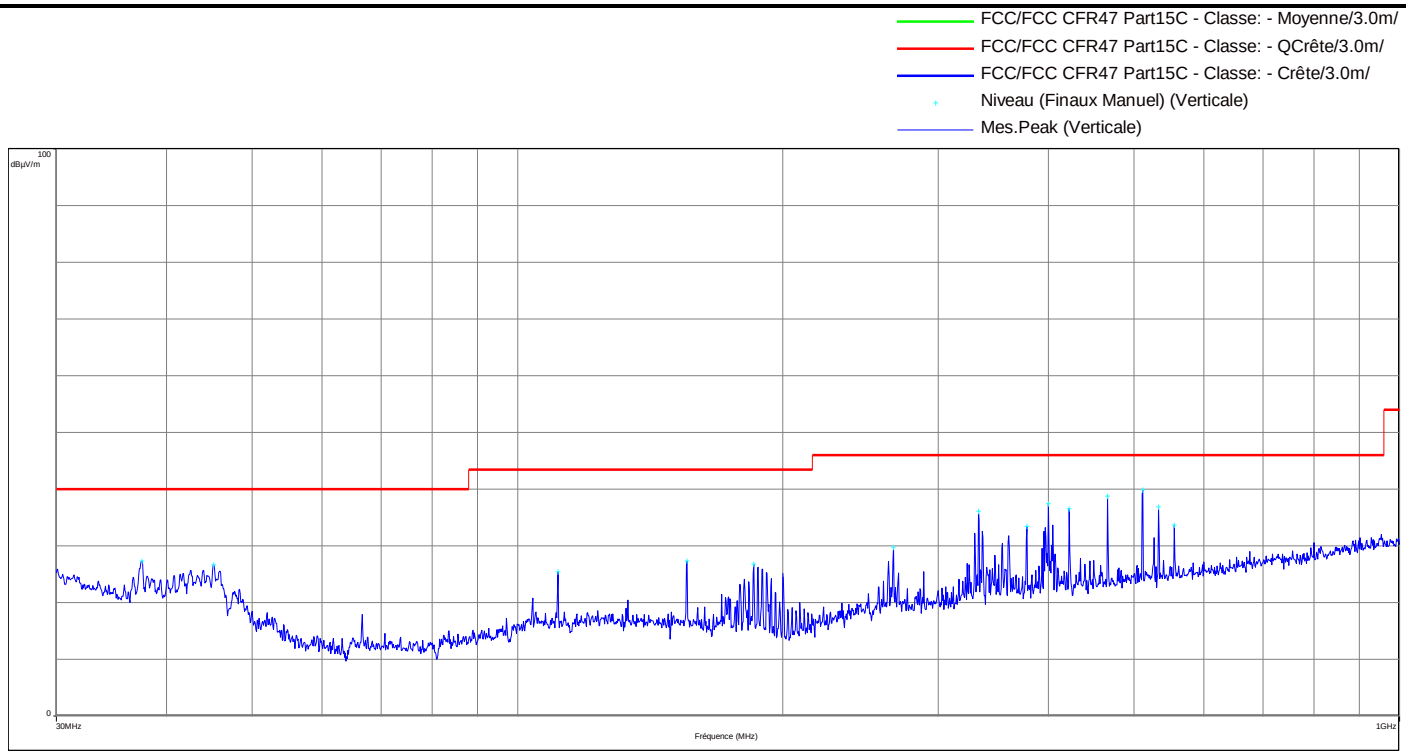
RADIATED EMISSIONS			
Graph name:	Emr#2	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (H) - FSV Pos XY - Canal 1 (1-10GHz)	
Class:			
Frequency range: [1GHz - 10GHz]			
Antenna polarization:	Horizontal	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



Frequency (MHz)	Peak Level (dBµV/m)
1200.25	39.73
1467	44.94
1733.75	44.03
2413.75*	76.45
4824.2	52.53

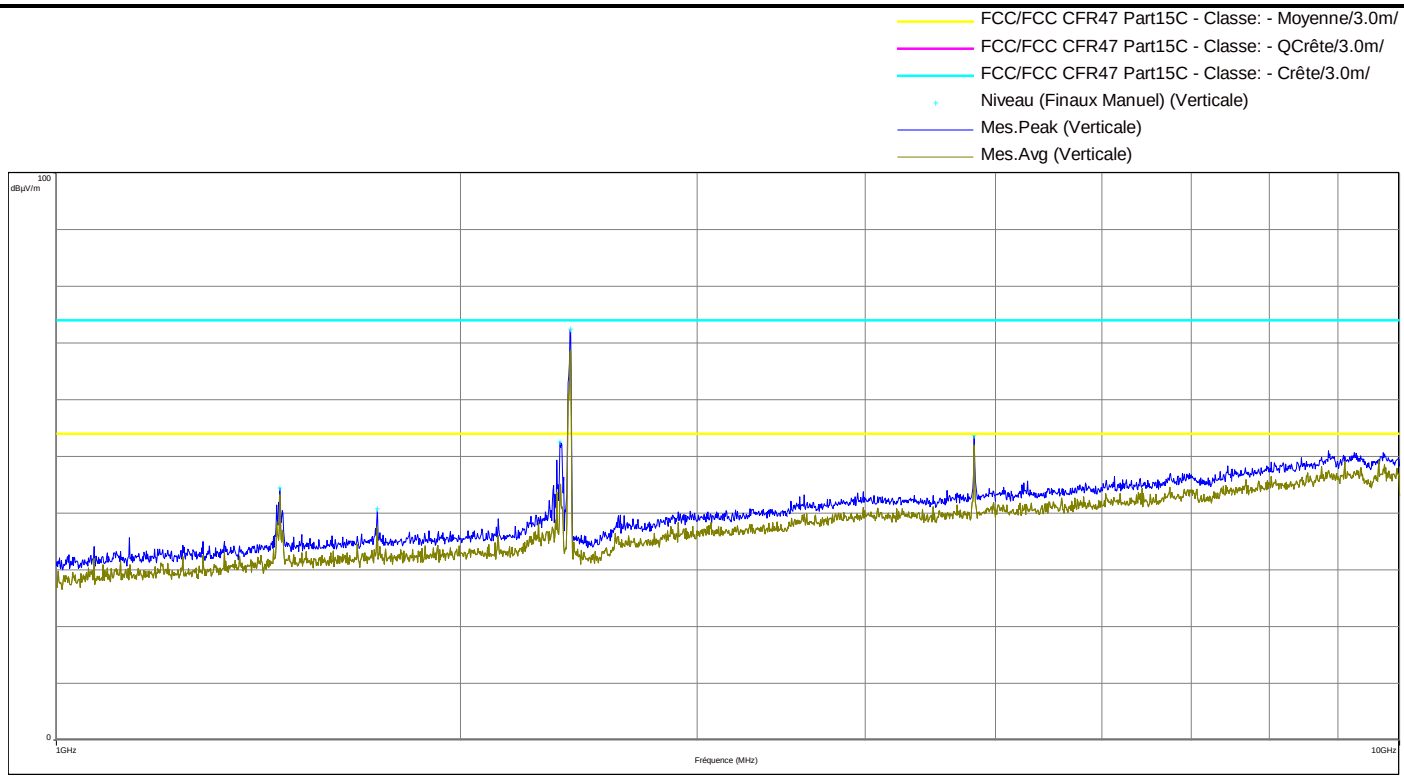
*Carrier frequency

RADIATED EMISSIONS			
Graph name:	Emr#3	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (V) - FSV - Pos XY - Canal 1	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



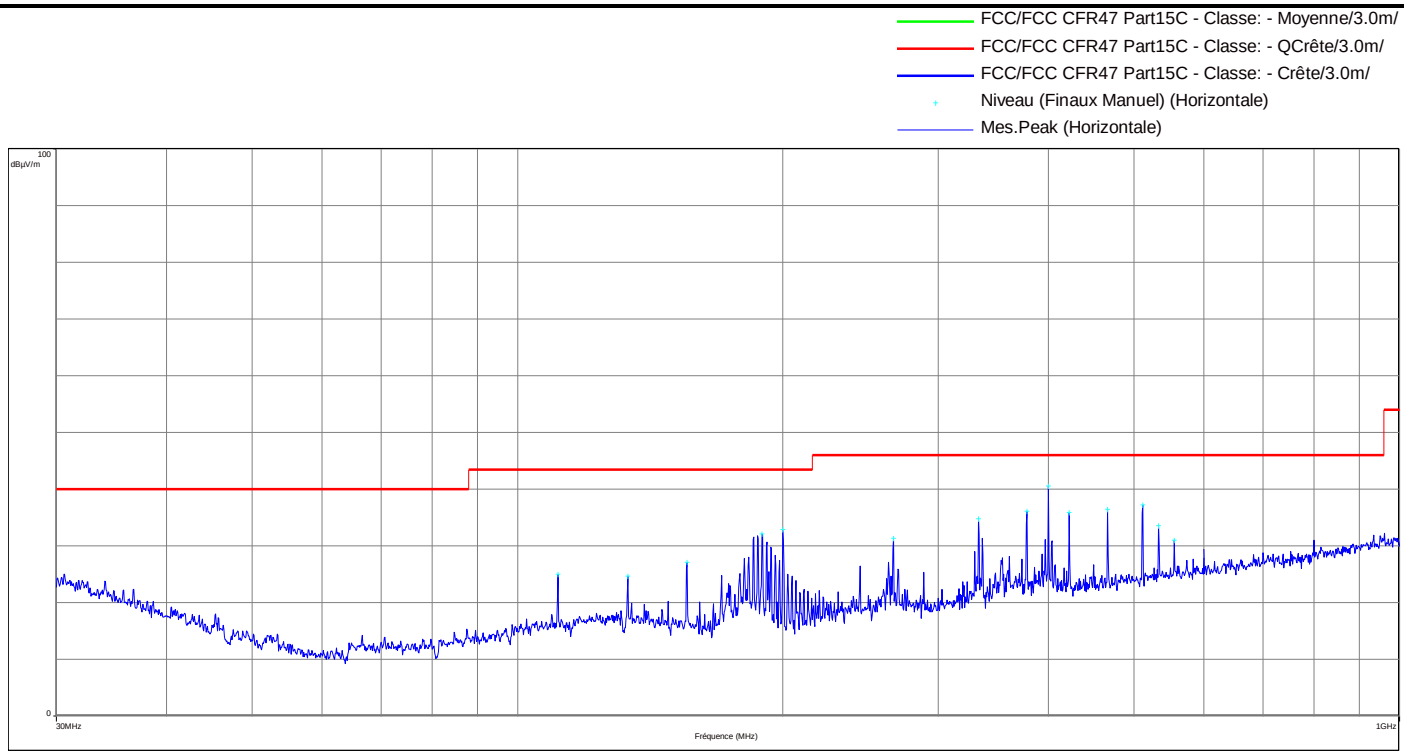
Frequency (MHz)	Peak Level (dBµV/m)
37.497	27.29
45.232	26.72
111.107	25.45
155.562	27.38
185.176	26.81
266.68	29.74
333.36	36.16
377.8	33.39
400	37.4
422.24	36.56
466.68	38.81
511.12	39.94
533.36	36.86
555.6	33.62

RADIATED EMISSIONS			
Graph name:	Emr#4	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (V) - FSV Pos XY- Canal 1 (1-10GHz)	
Class:			
Frequency range: [1GHz - 10GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



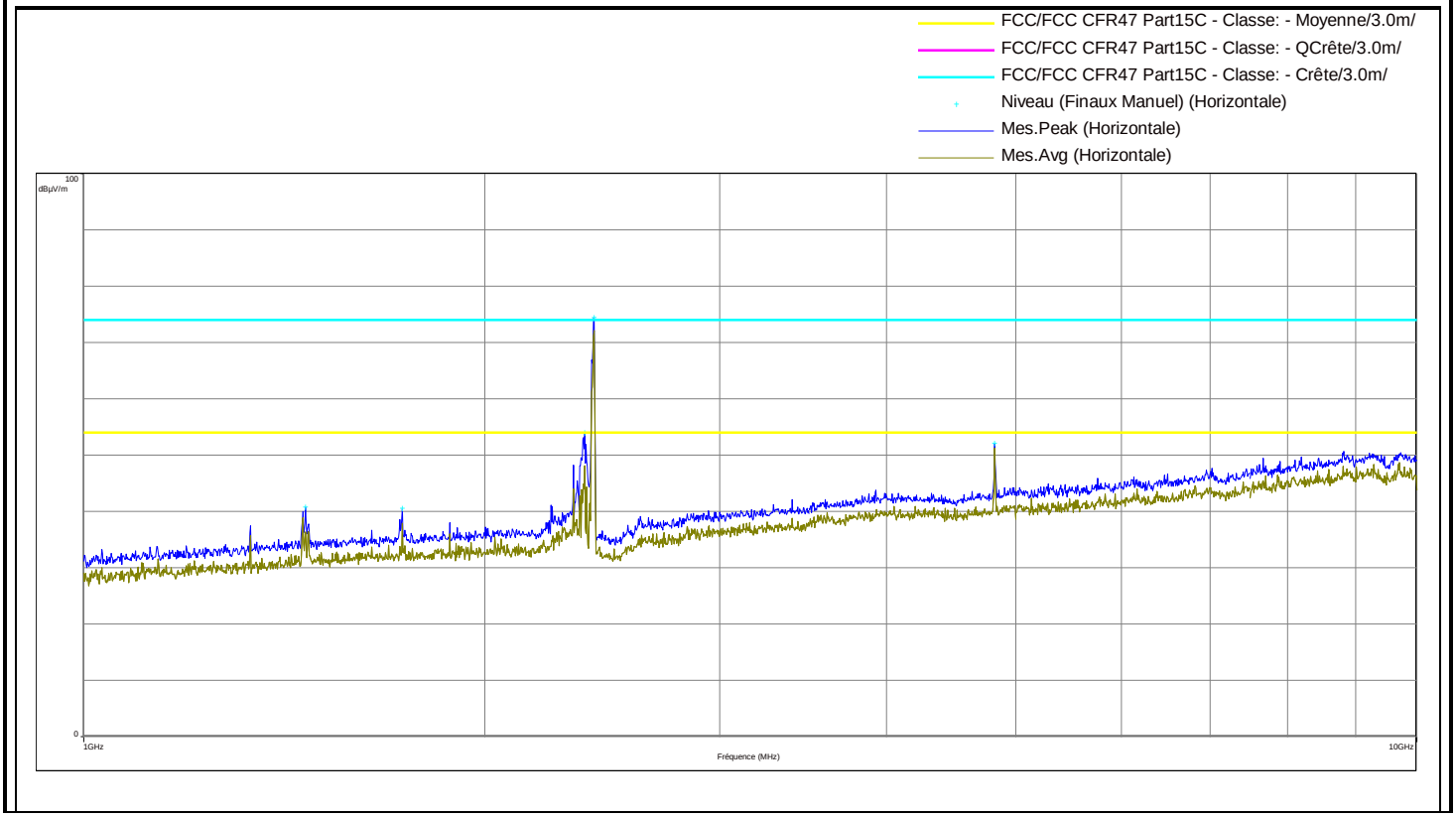
Frequency (MHz)	Peak Level (dBµV/m)
1467	44.39
1733.5	40.82
2369.5	52.6
2413.5*	72.49
4824.2	53.68

RADIATED EMISSIONS			
Graph name:	Emr#5	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (H) - FSV - Pos Z - Canal 1	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



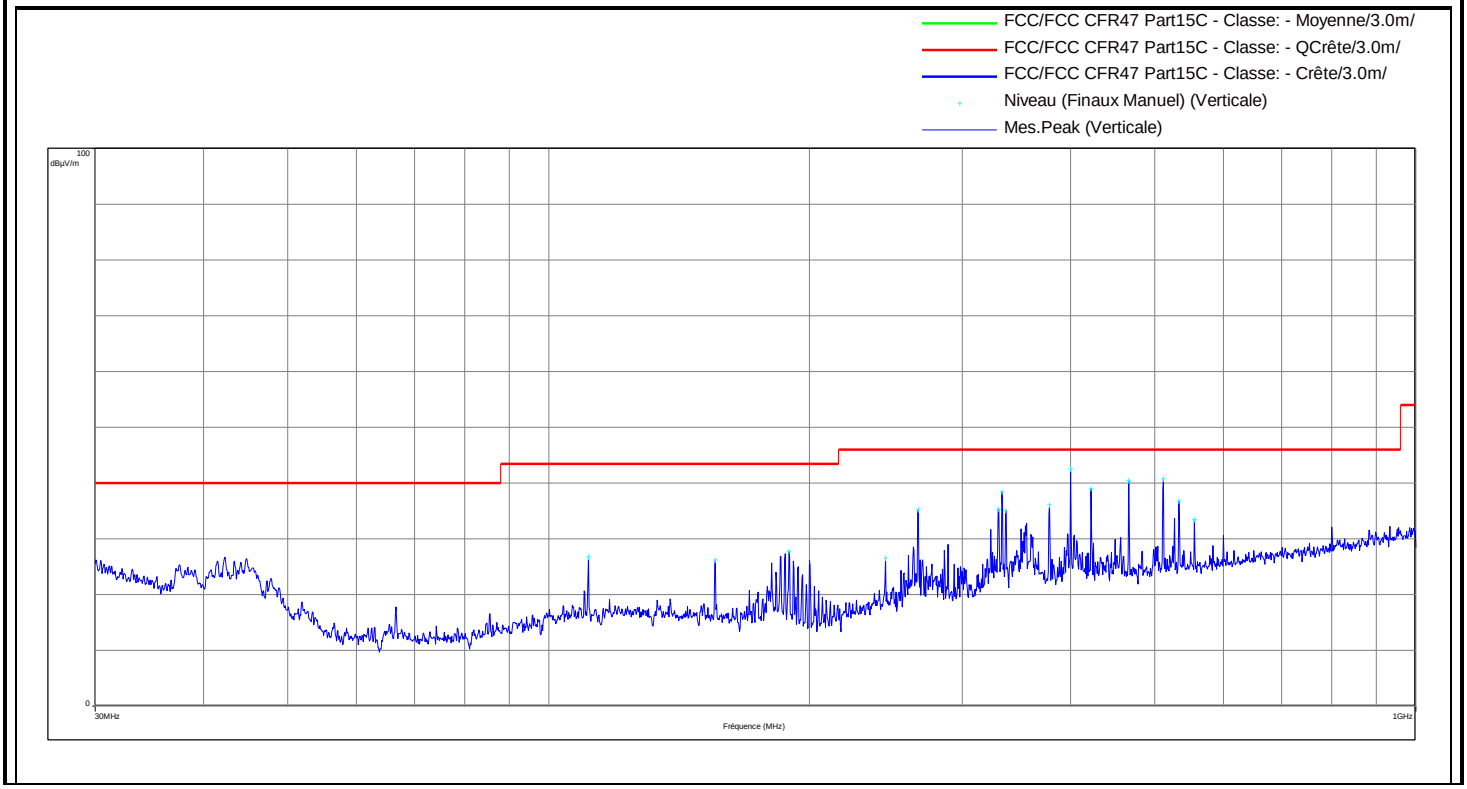
Frequency (MHz)	Peak Level (dBµV/m)
111.107	24.99
133.326	24.66
155.562	27.09
189.358	32.12
200	32.95
266.68	31.3
333.32	34.75
377.8	36.09
400	40.57
422.24	35.84
466.68	36.41
511.12	37.23
533.36	33.59
555.6	30.96

RADIATED EMISSIONS			
Graph name:	Emr#6	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (H) - FSV Pos Z - Canal 1 (1-10GHz)	
Class:			
Frequency range: [1GHz - 10GHz]			
Antenna polarization:	Horizontal	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



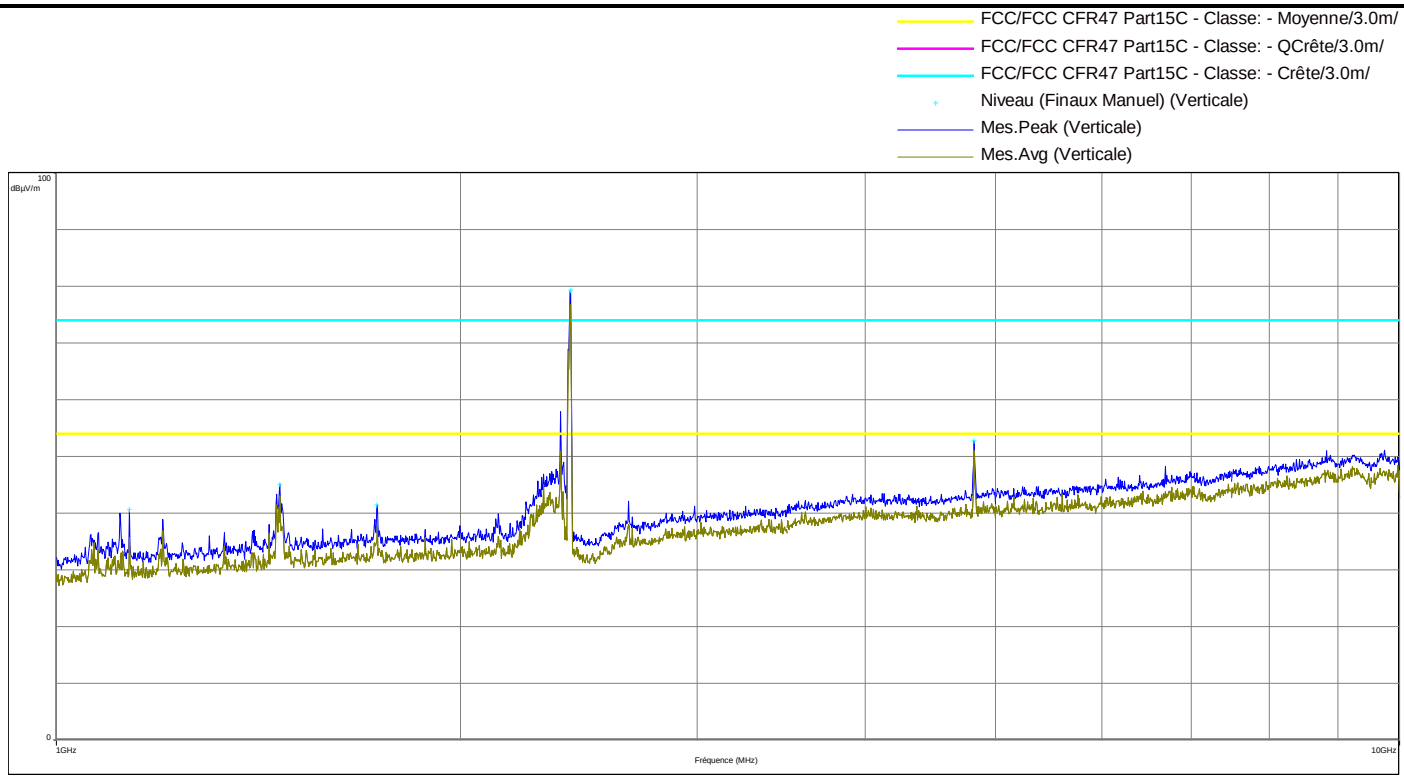
Frequency (MHz)	Peak Level (dBµV/m)
1467	40.81
1733.75	40.56
2376.25	53.96
2413.5	74.46
4824.2	52.09

RADIATED EMISSIONS			
Graph name:	Emr#7	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (V) - FSV - Pos Z - Canal 1	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



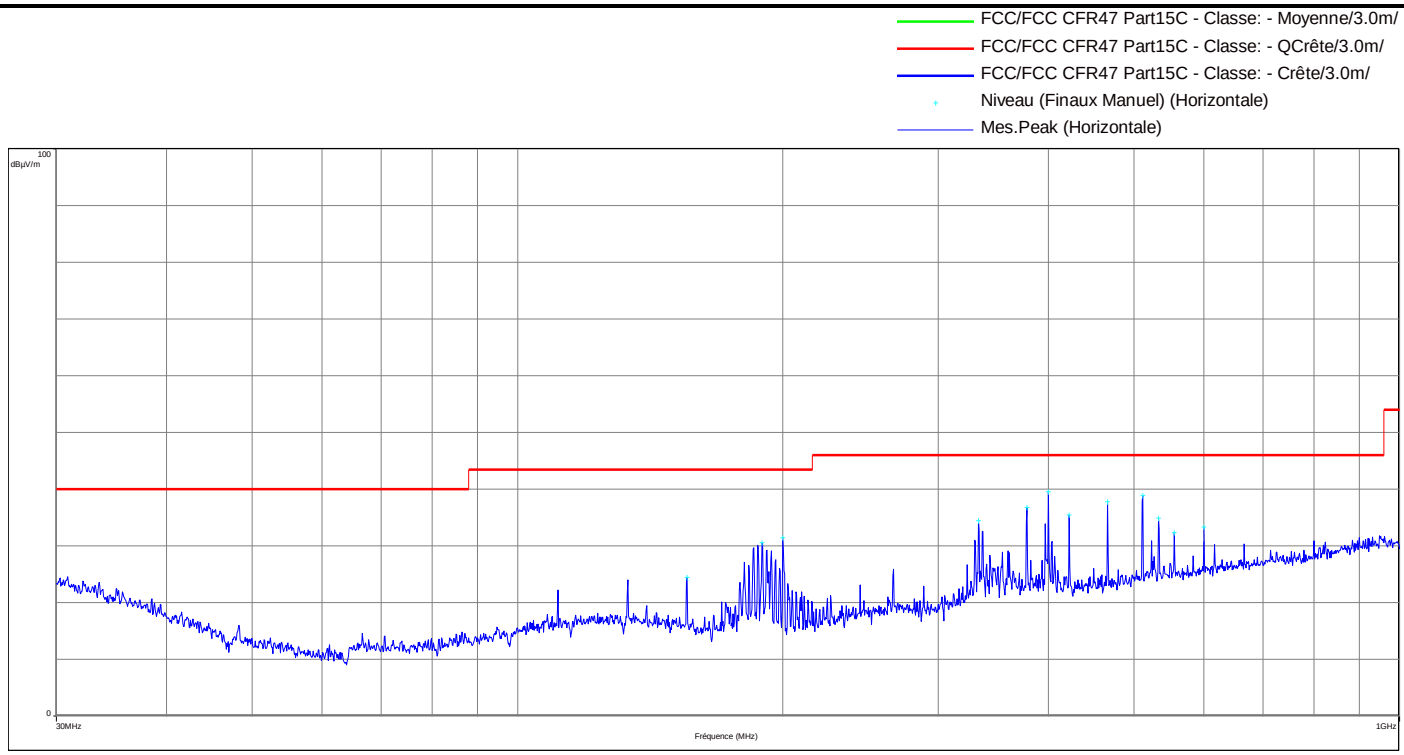
Frequency (MHz)	Peak Level (dBµV/m)
111.124	26.73
155.562	26.23
189.375	27.78
244.44	26.61
266.64	35.24
330.12	35.36
333.32	38.47
336.68	35.14
377.76	36.15
400	42.59
422.24	38.96
466.68	40.39
511.16	40.81
533.36	36.78
555.56	33.48

RADIATED EMISSIONS			
Graph name:	Emr#8	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (V) - FSV Pos Z - Canal 1 (1-10GHz)	
Class:			
Frequency range: [1GHz - 10GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



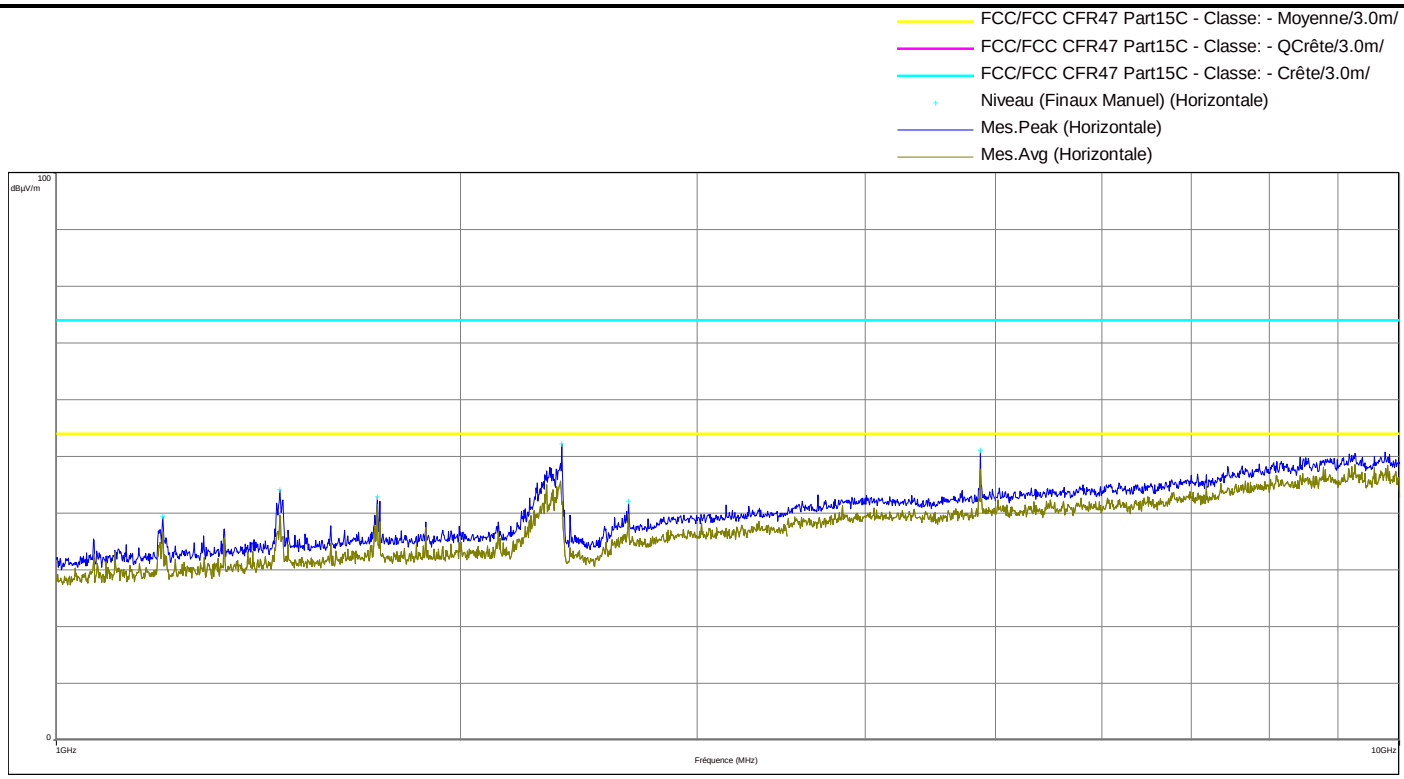
Frequency (MHz)	Peak Level (dBµV/m)
1133.5	40.68
1467.25	45.16
1732.75	41.44
2413.5	79.33
4824.2	52.82

RADIATED EMISSIONS			
Graph name:	Emr#9	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (H) - FSV - Pos XY - Canal 6	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



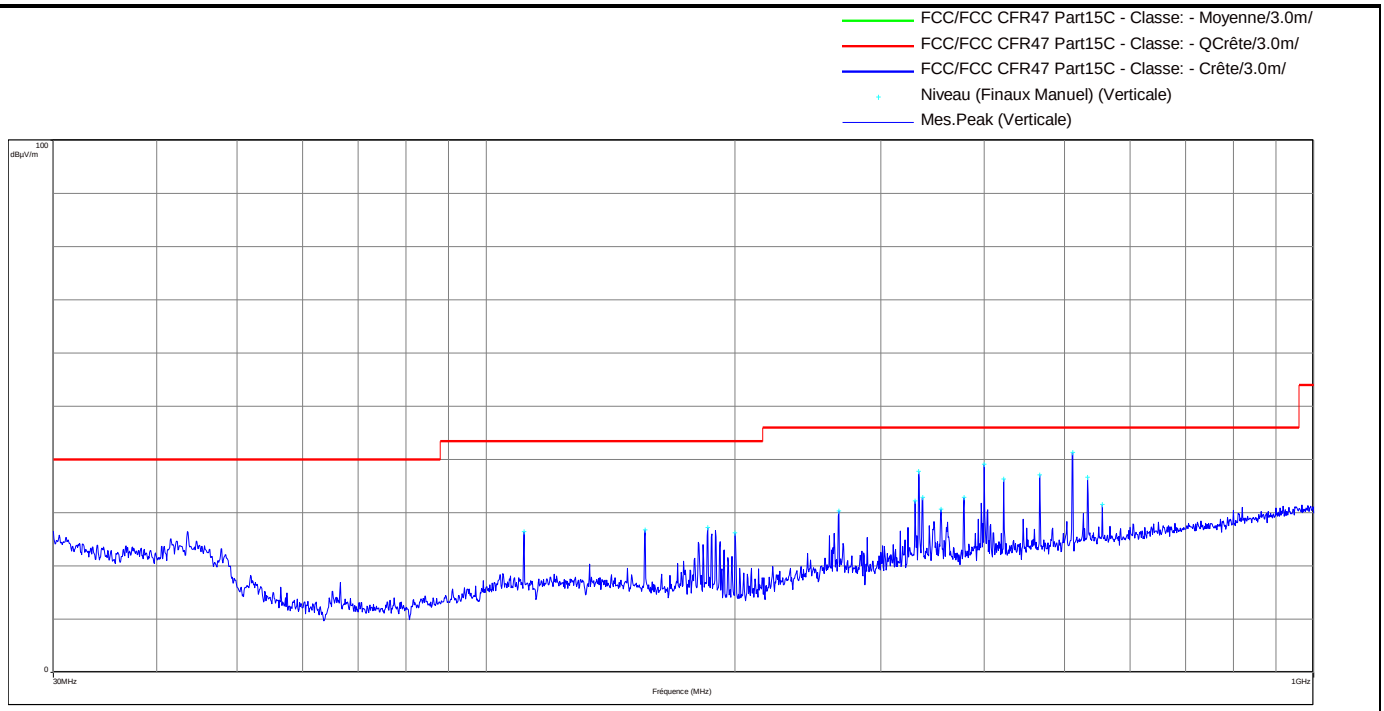
Frequency (MHz)	Peak Level (dBµV/m)
155.562	24.44
189.443	30.56
200	31.47
333.36	34.48
377.8	36.77
400.04	39.56
422.24	35.41
466.68	37.73
511.12	38.86
533.36	34.93
555.6	32.37
600	33.35

RADIATED EMISSIONS			
Graph name:	Emr#10	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (H) - FSV Pos XY - Canal 6 (1-10GHz)	
Class:			
Frequency range: [1GHz - 10GHz]			
Antenna polarization:	Horizontal	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



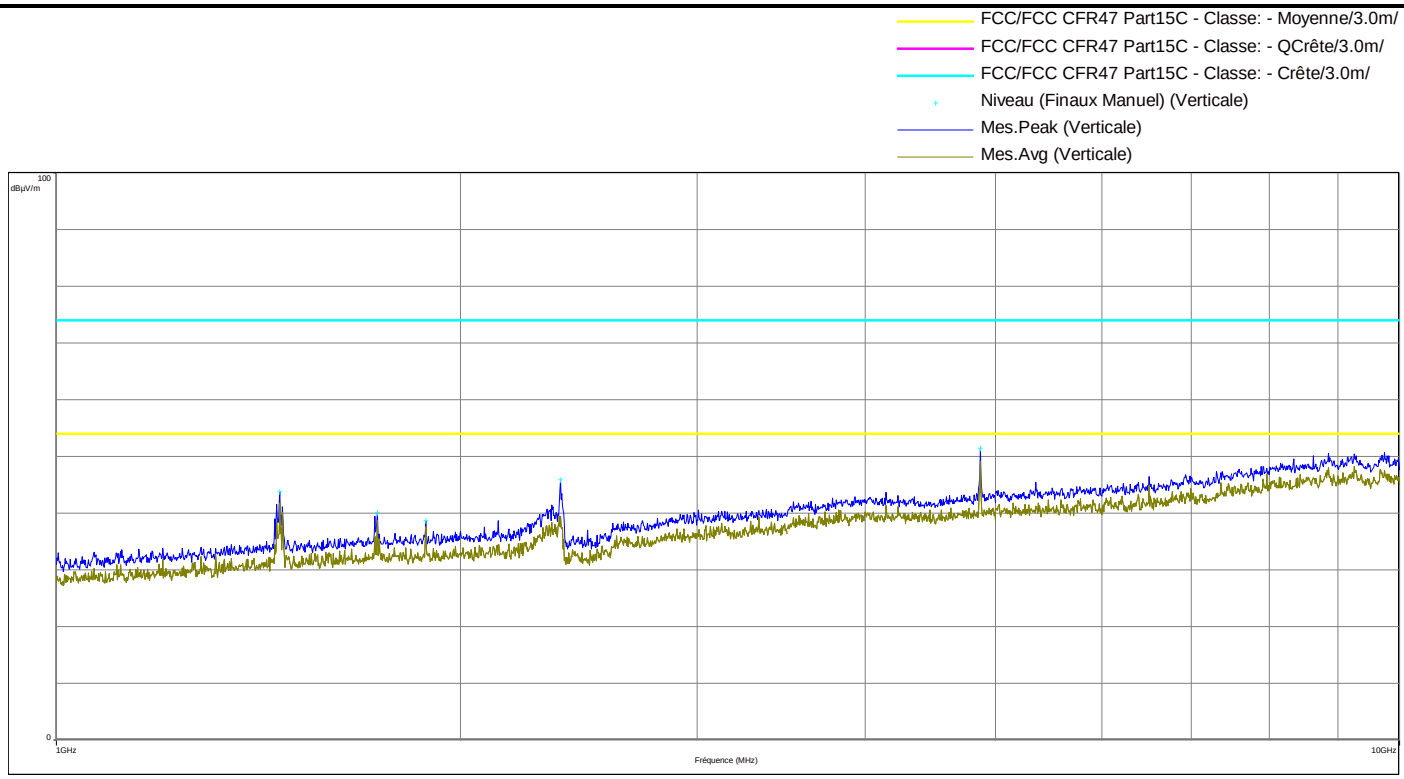
Frequency (MHz)	Peak Level (dBµV/m)
1200.25	39.5
1467.25	44.11
1733.25	42.88
2377.25	52.21
2667.5	42.08
4874.3	51.06

RADIATED EMISSIONS			
Graph name:	Emr#11	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (V) - FSV - Pos XY - Canal 6	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



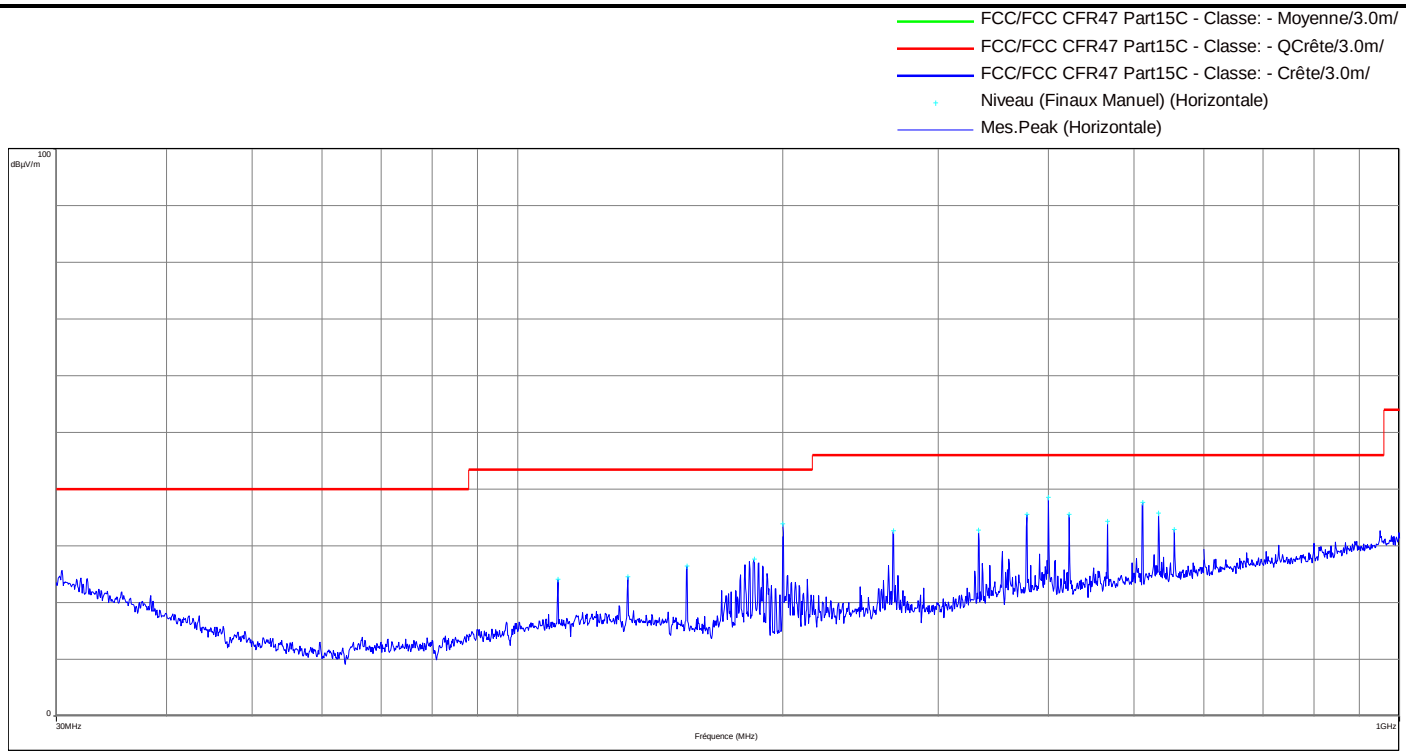
Frequency (MHz)	Peak Level (dBµV/m)
111.124	26.44
155.579	26.79
185.193	27.23
200	26.21
266.64	30.28
329.96	32.19
333.36	37.73
336.72	32.84
354.4	30.69
377.76	32.85
400	39.15
422.24	36.3
466.68	37.1
511.12	41.39
533.36	36.65
555.6	31.57

RADIATED EMISSIONS			
Graph name:	Emr#12	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (V) - FSV Pos XY- Canal 6 (1-10GHz)	
Class:			
Frequency range: [1GHz - 10GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



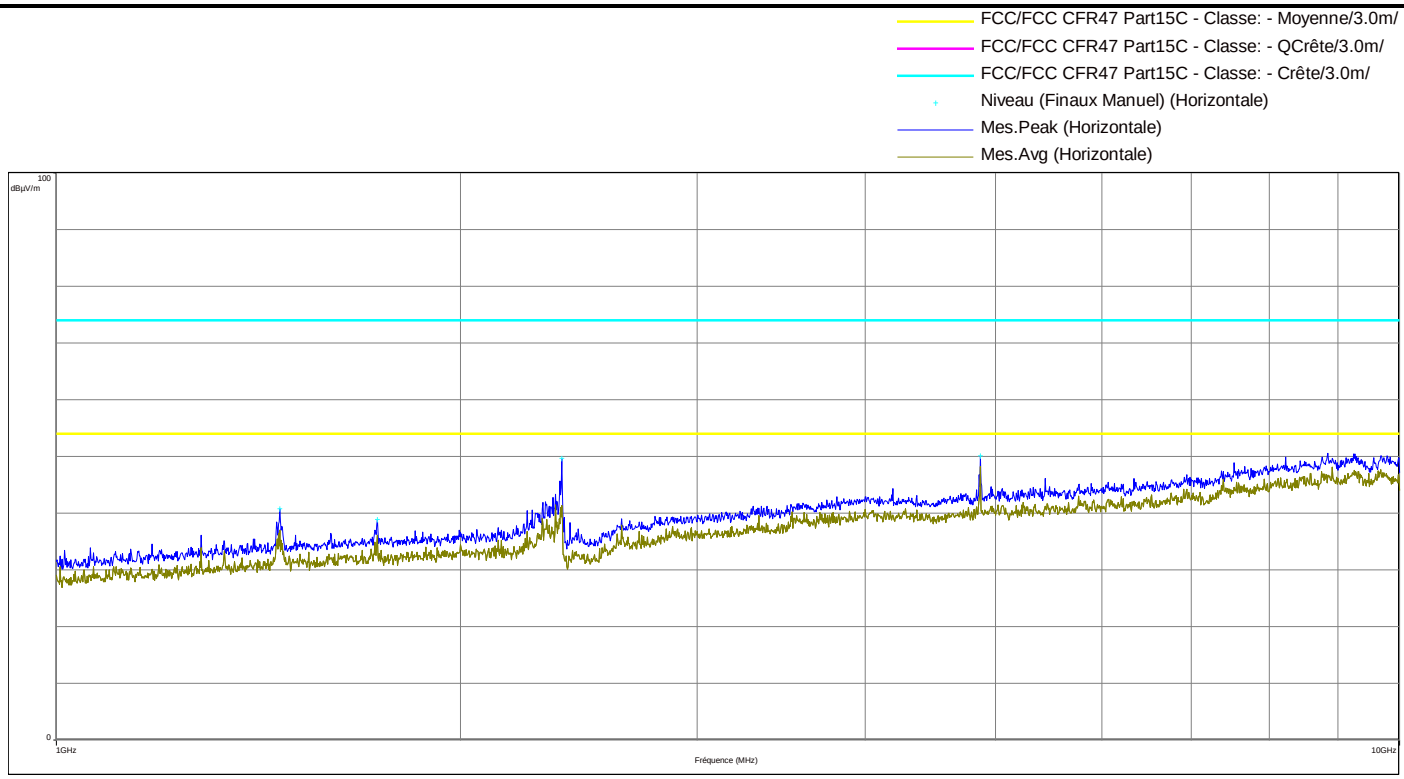
Frequency (MHz)	Peak Level (dBµV/m)
1466.5	43.75
1733.25	40.06
1883.75	38.71
2373	45.93
4874.15	51.49

RADIATED EMISSIONS			
Graph name:	Emr#13	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (H) - FSV - Pos Z - Canal 6	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



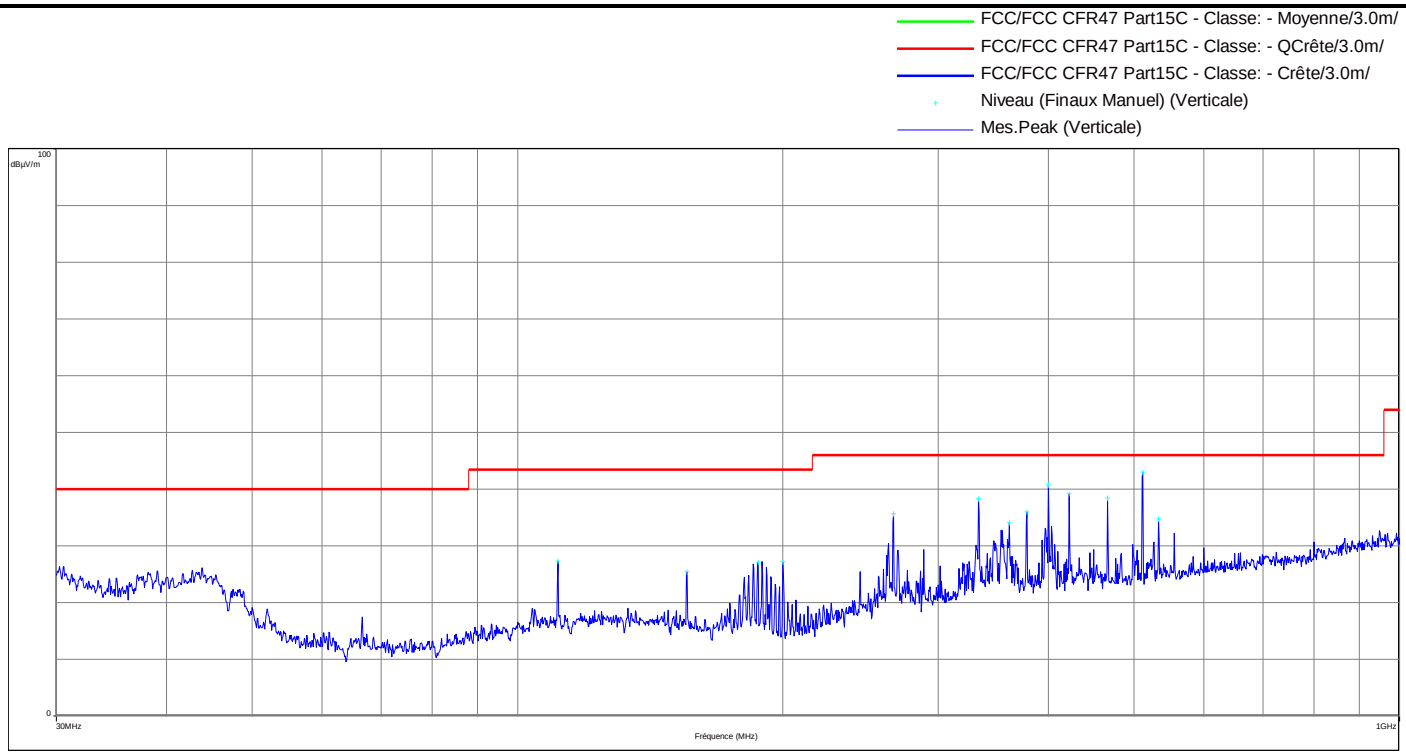
Frequency (MHz)	Peak Level (dBµV/m)
111.107	24.1
133.343	24.54
155.562	26.44
185.465	27.62
200	33.84
266.64	32.64
333.36	32.74
377.8	35.54
400	38.58
422.24	35.58
466.68	34.35
511.12	37.69
533.36	35.75
555.56	32.85

RADIATED EMISSIONS			
Graph name:	Emr#14	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (H) - FSV Pos Z - Canal 6 (1-10GHz)	
Class:			
Frequency range: [1GHz - 10GHz]			
Antenna polarization:	Horizontal	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



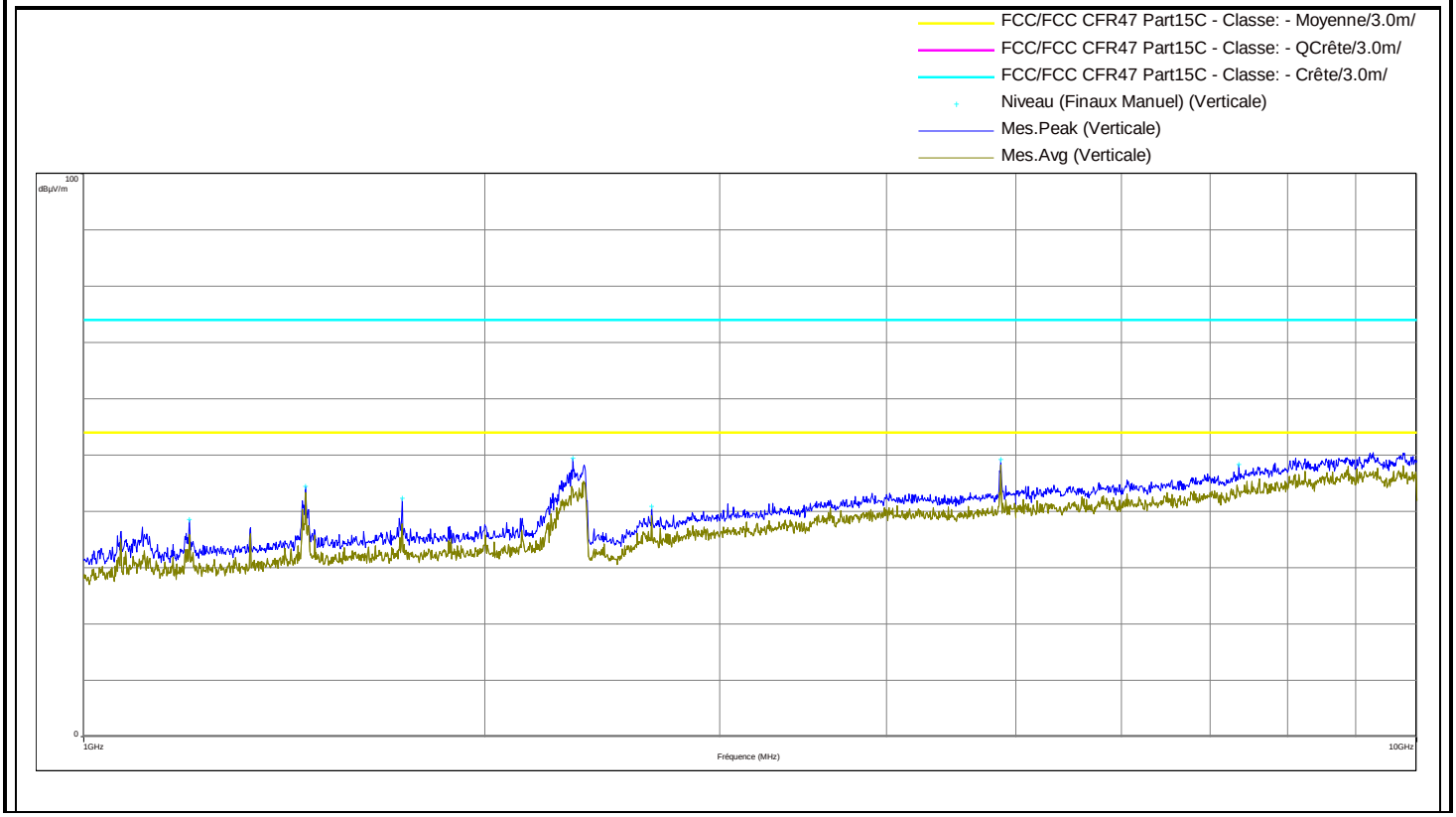
Frequency (MHz)	Peak Level (dBµV/m)
1467	40.82
1734.5	38.94
2378.5	49.64
4874	50.15

RADIATED EMISSIONS			
Graph name:	Emr#15	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (V) - FSV - Pos Z - Canal 6	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



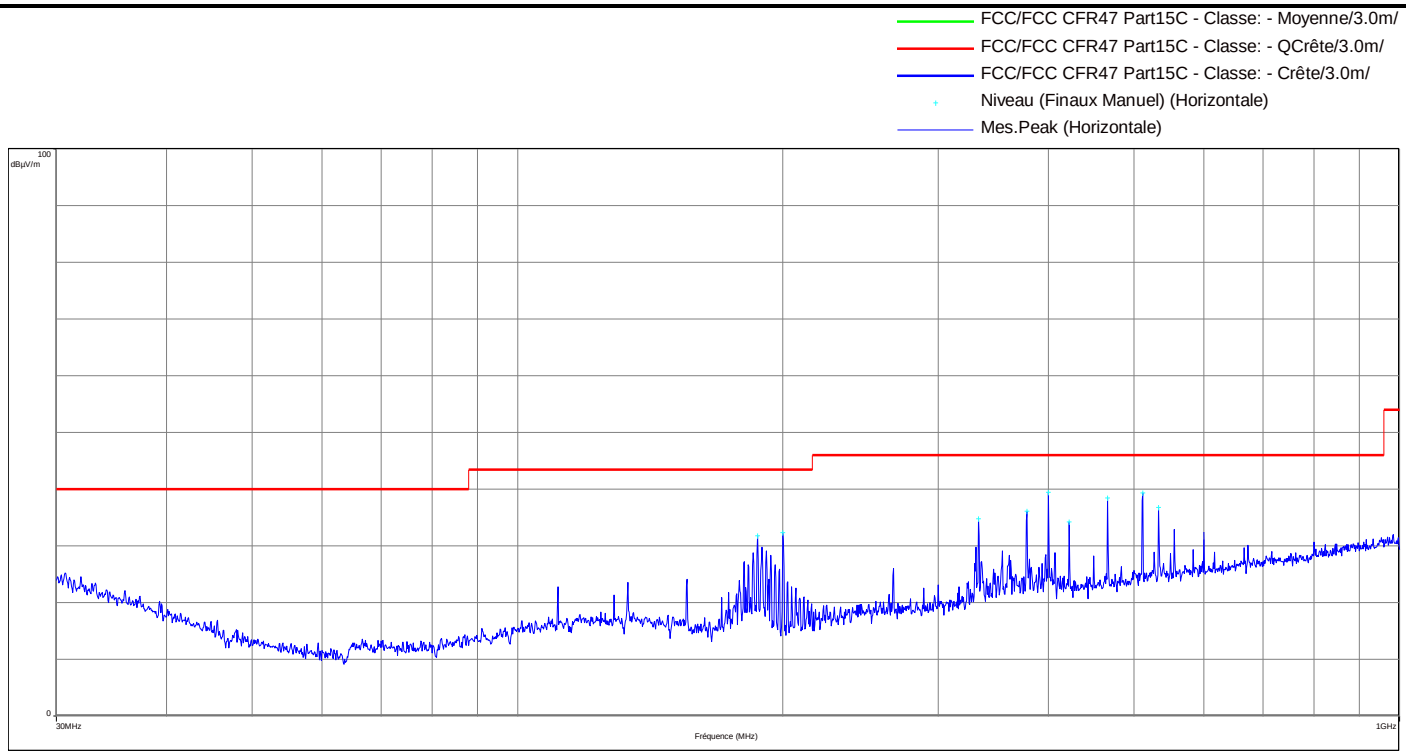
Frequency (MHz)	Peak Level (dBµV/m)
111.107	27.38
155.562	25.48
187.284	27.09
200	27.22
266.64	35.65
333.32	38.31
361.08	34.1
377.8	35.97
400	40.83
422.24	39.27
466.68	38.48
511.12	42.99
533.36	34.82

RADIATED EMISSIONS			
Graph name:	Emr#16	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (V) - FSV Pos Z - Canal 6 (1-10GHz)	
Class:			
Frequency range: [1GHz - 10GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



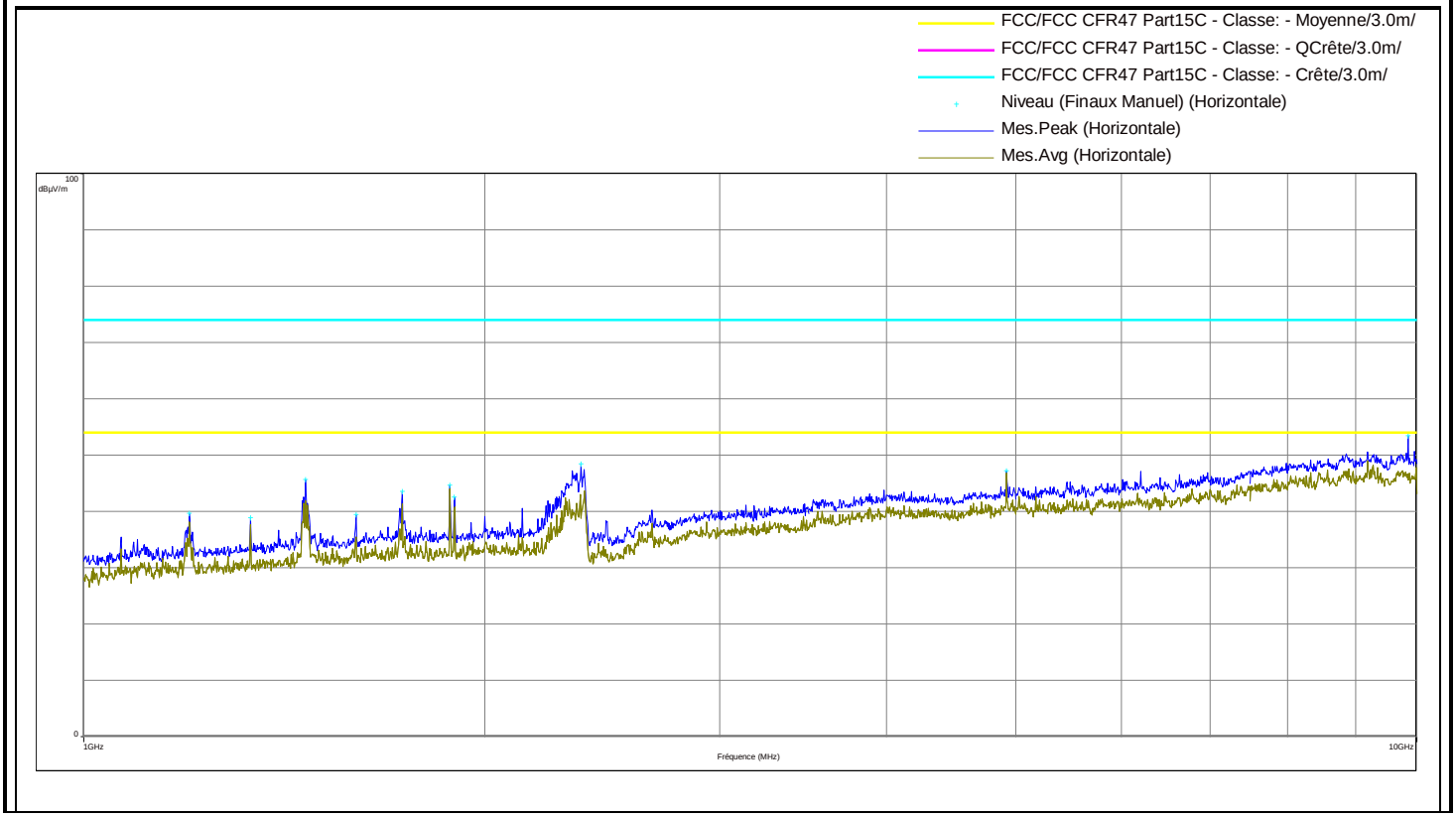
Frequency (MHz)	Peak Level (dBµV/m)
1199.75	38.51
1467	44.45
1733.25	42.33
2326.5	49.5
2667.25	40.88
4874	49.27
7352	48.3

RADIATED EMISSIONS			
Graph name:	Emr#17	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (H) - FSV - Pos XY - Canal 11	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



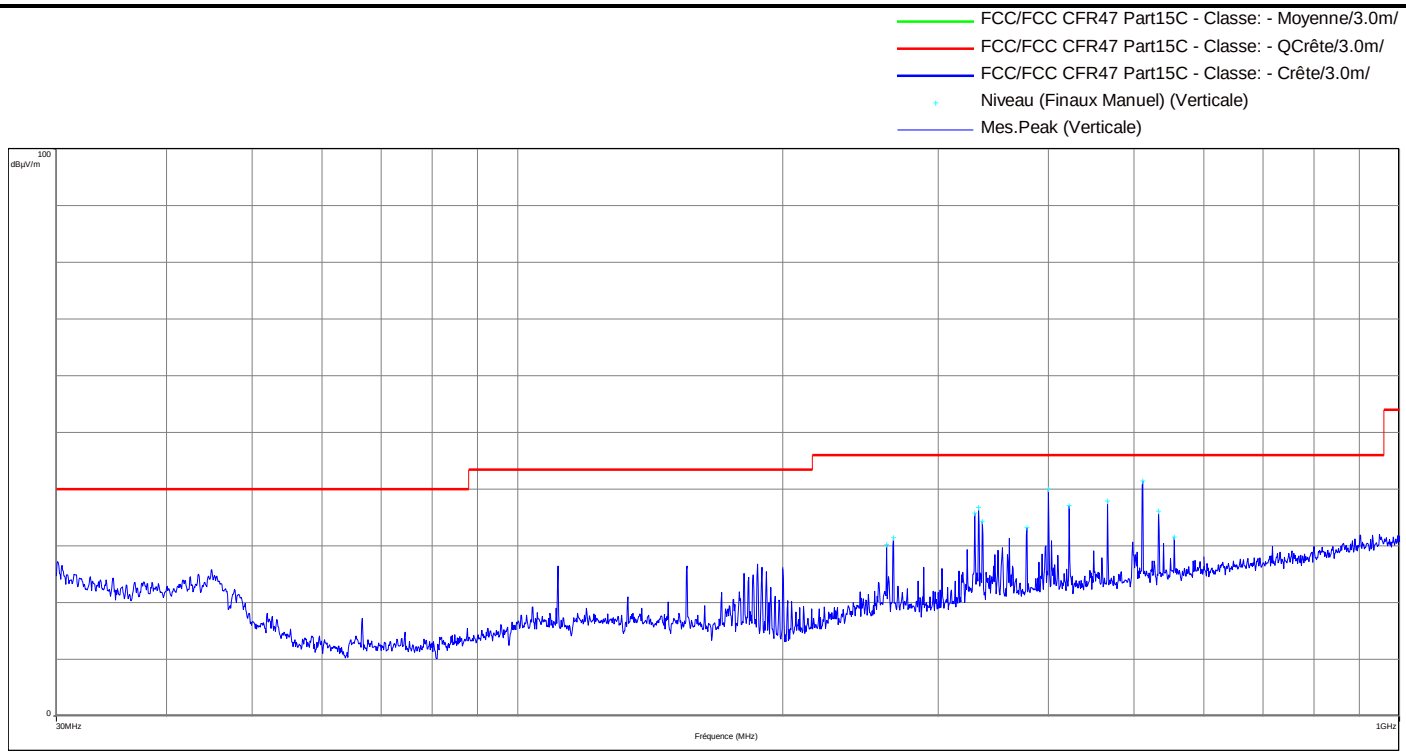
Frequency (MHz)	Peak Level (dBµV/m)
187.029	31.75
200	32.35
333.32	34.75
377.8	36.11
400	39.49
422.24	34.2
466.68	38.42
511.16	39.31
533.36	36.8

RADIATED EMISSIONS			
Graph name:	Emr#18	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (H) - FSV Pos XY - Canal 11 (1-10GHz)	
Class:			
Frequency range: [1GHz - 10GHz]			
Antenna polarization:	Horizontal	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



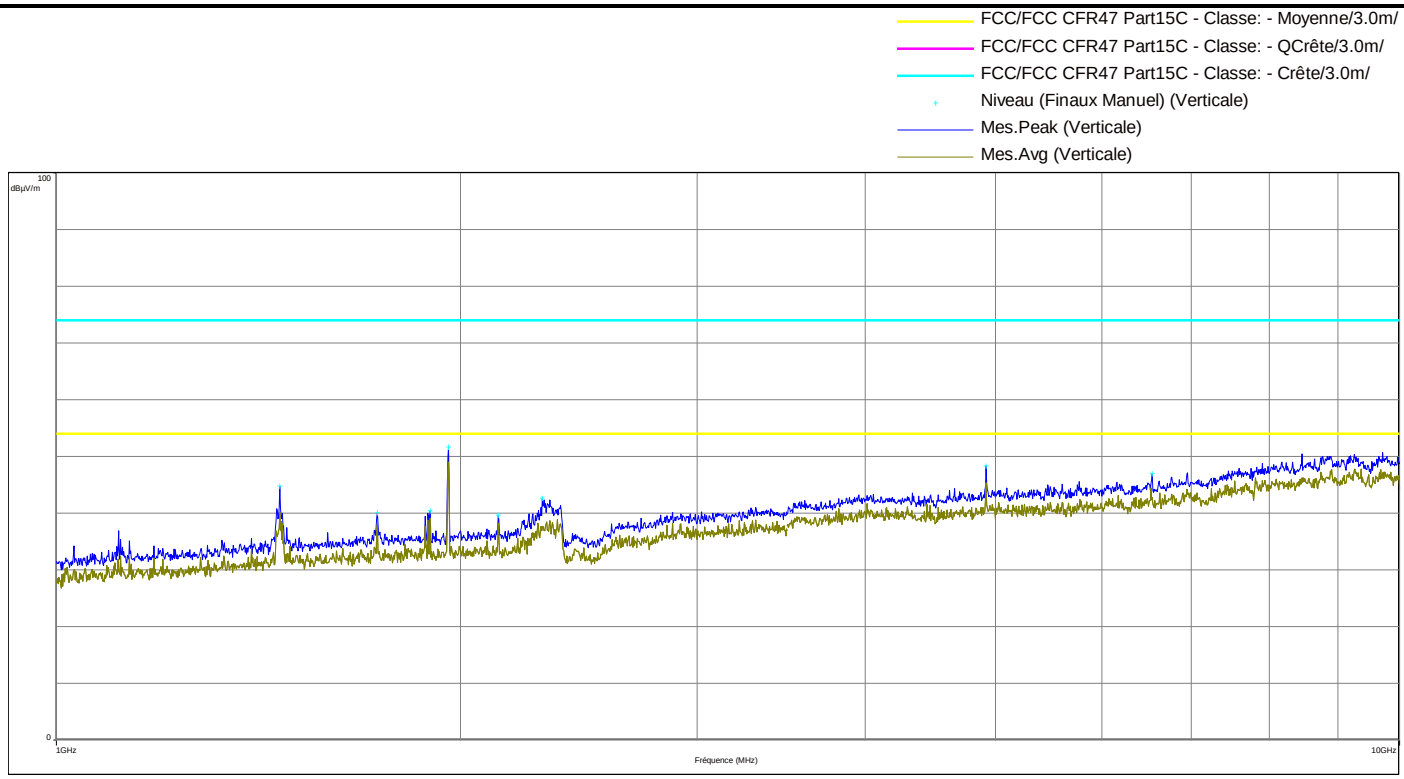
Frequency (MHz)	Peak Level (dBµV/m)
1200	39.67
1333.75	38.89
1467	45.66
1600.25	39.39
1733.5	43.56
1882	44.72
1897	42.58
2360.75	48.42
4924.1	47.17
9848.25	53.5

RADIATED EMISSIONS			
Graph name:	Emr#19	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (V) - FSV - Pos XY - Canal 11	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



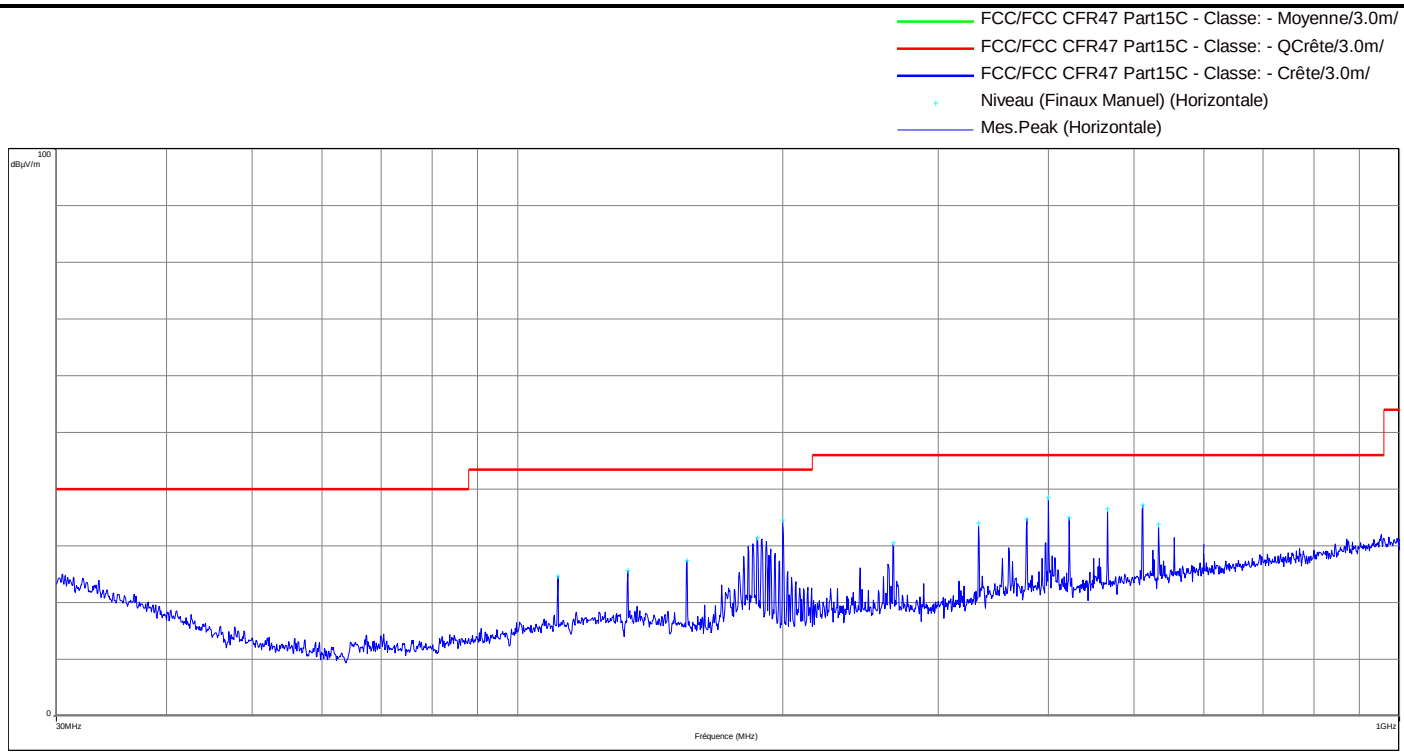
Frequency (MHz)	Peak Level (dBµV/m)
262.08	30.23
266.64	31.5
330	35.77
333.32	36.78
336.64	34.31
377.76	33.24
400	40.05
422.24	37.11
466.68	37.93
511.12	41.47
533.36	36.1
555.6	31.52

RADIATED EMISSIONS			
Graph name:	Emr#20	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (V) - FSV Pos XY - Canal 11 (1-10GHz)	
Class:			
Frequency range: [1GHz - 10GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



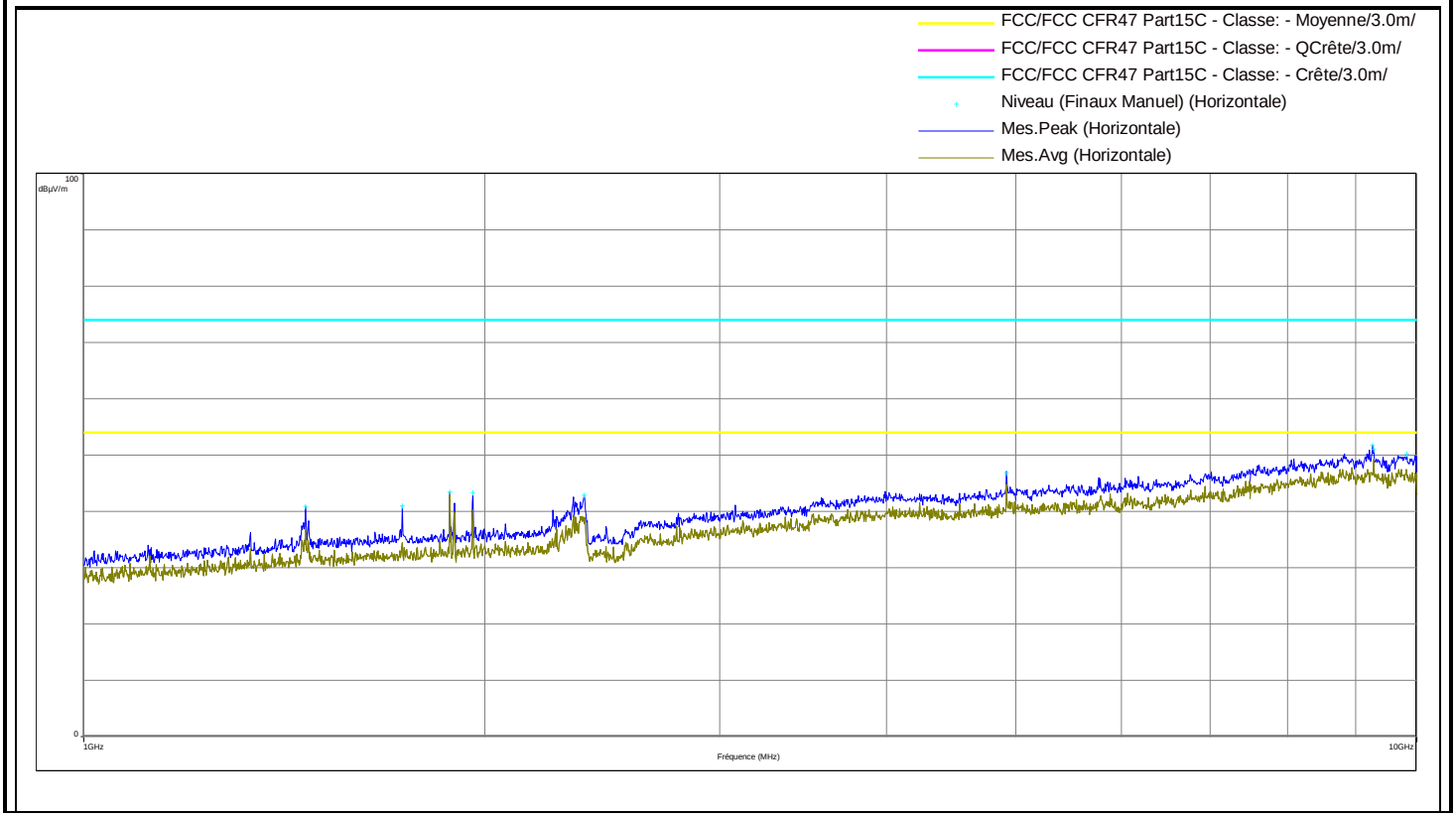
Frequency (MHz)	Peak Level (dBµV/m)
1466.25	44.79
1734.25	40.16
1897.5	40.45
1958.75	51.63
2133.25	39.68
2300.25	42.65
4924.25	48.36
6540.75	46.96

RADIATED EMISSIONS			
Graph name:	Emr#21	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (H) - FSV - Pos Z - Canal 11	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



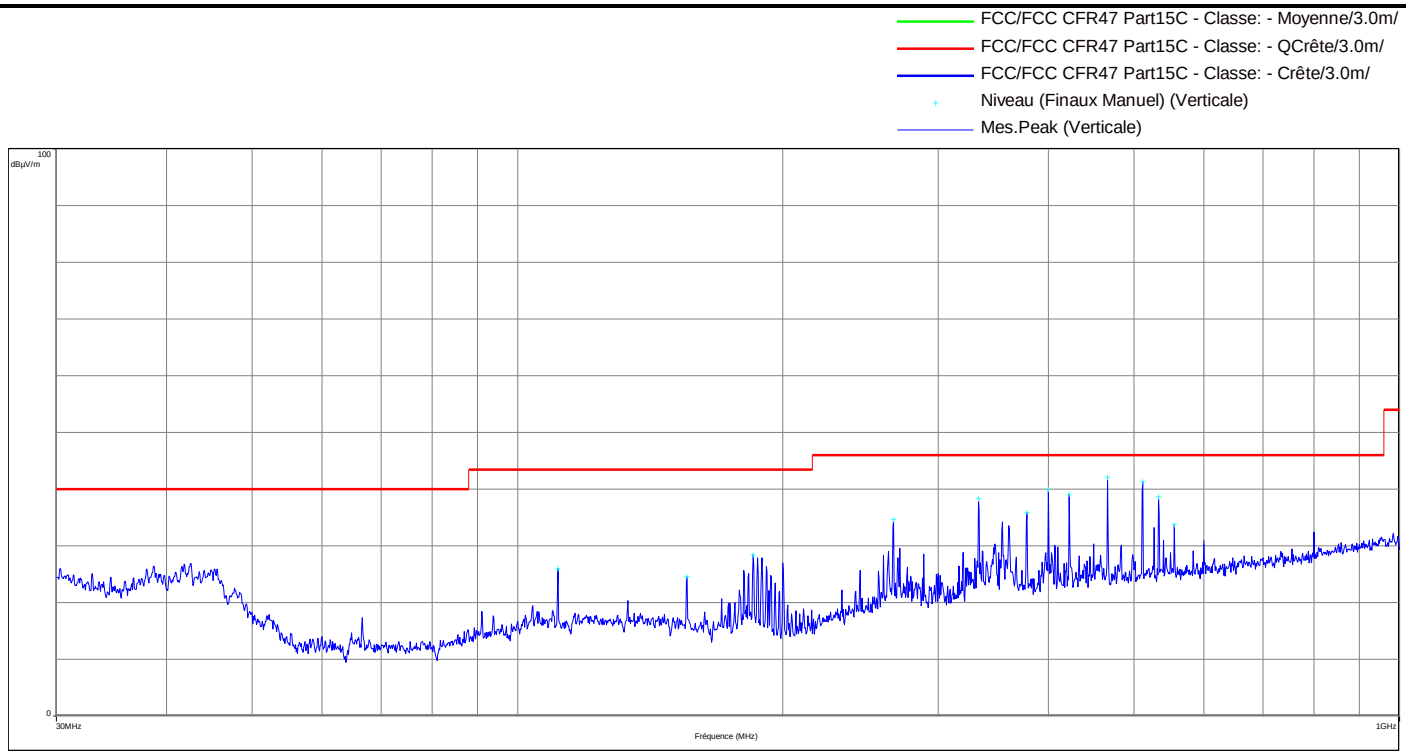
Frequency (MHz)	Peak Level (dBµV/m)
111.107	24.71
133.326	25.62
155.562	27.39
187.012	31.41
200	34.57
266.64	30.51
333.32	33.95
377.8	34.8
400	38.58
422.24	35.03
466.68	36.59
511.12	37.23
533.36	33.75

RADIATED EMISSIONS			
Graph name:	Emr#22	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (H) - FSV Pos Z - Canal 11 (1-10GHz)	
Class:			
Frequency range: [1GHz - 10GHz]			
Antenna polarization:	Horizontal	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



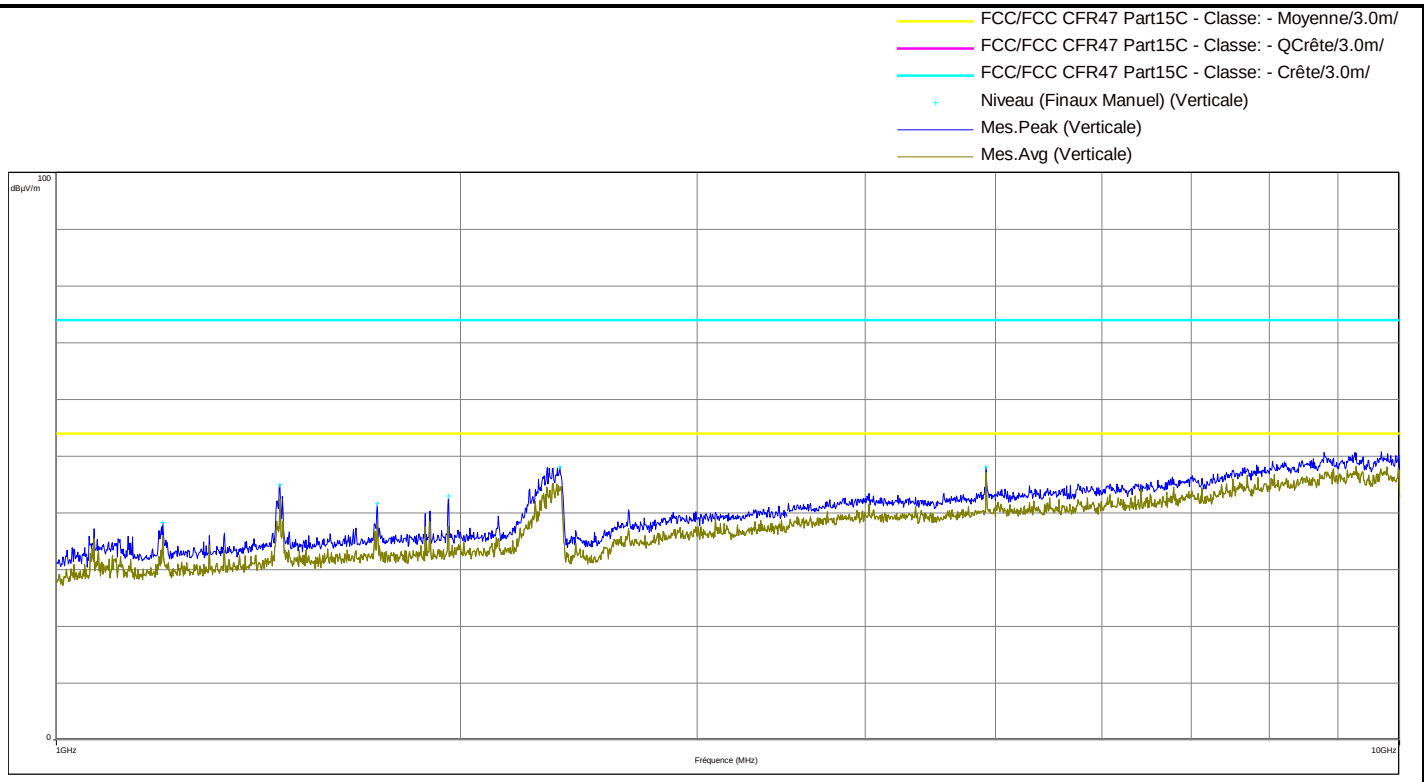
Frequency (MHz)	Peak Level (dBµV/m)
1466.75	40.93
1733.5	40.96
1882	43.5
1959	43.3
2374.5	42.91
4924.25	46.76
9261.5	51.74
9280	51.05
9832.75	50.24

RADIATED EMISSIONS			
Graph name:	Emr#23	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (V) - FSV - Pos Z - Canal 11	
Class:			
Frequency range: [30MHz - 1GHz]			
Antenna polarization:	Vertical	**RBW :**	100kHz
Azimuth:	0° - 360°	**VBW :**	300kHz



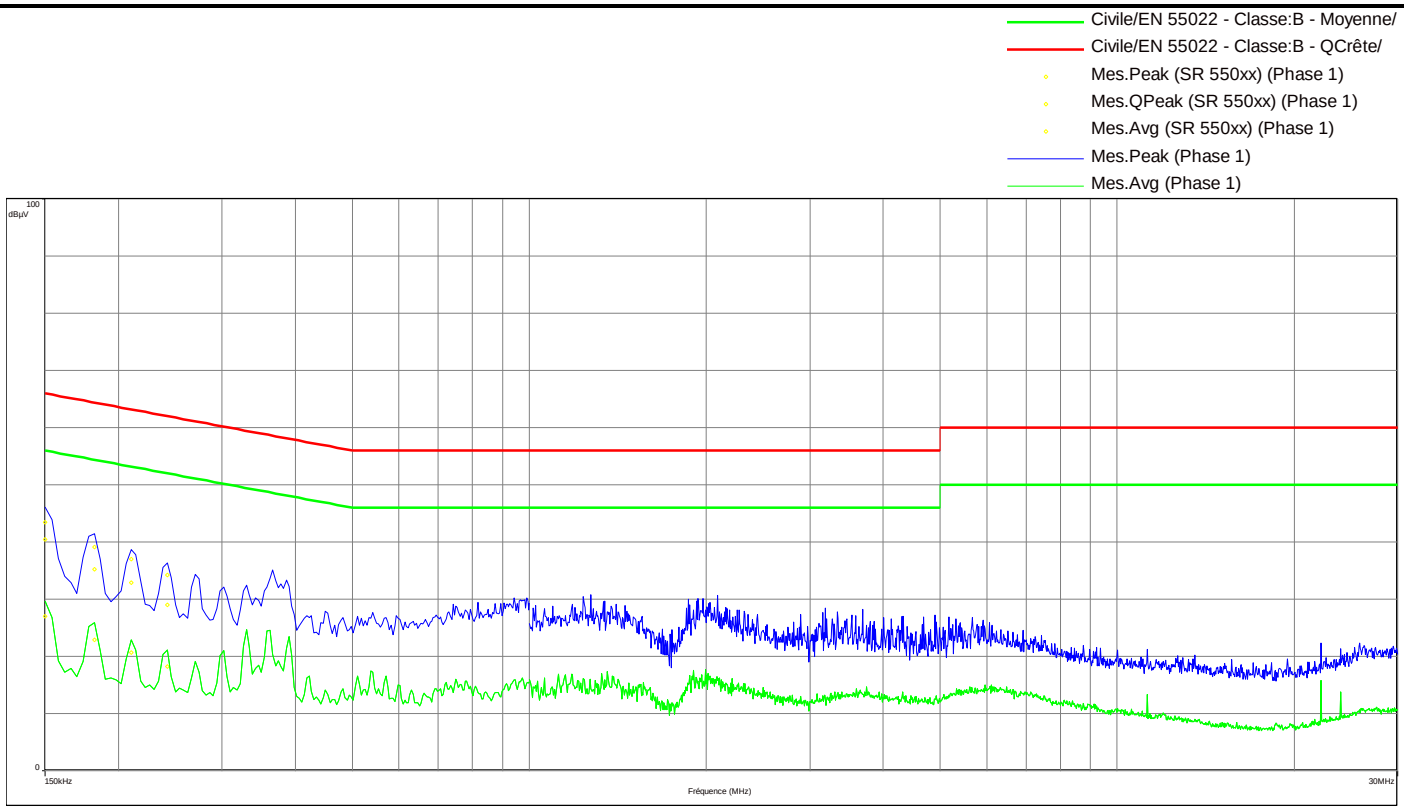
Frequency (MHz)	Peak Level (dBµV/m)
111.107	25.96
155.562	24.57
185.057	28.42
266.68	34.65
333.36	38.3
377.8	35.84
400	40.02
422.24	39.07
466.68	42.08
511.12	41.31
533.36	38.7
555.6	33.77

RADIATED EMISSIONS			
Graph name:	Emr#24	**Test configuration:**	
Limit:	FCC CFR47 Part15C	Pre-mesure - (V) - FSV Pos Z- Canal 11 (1-10GHz)	
Frequency range: [1GHz - 10GHz]			
Antenna polarization:	Vertical	**RBW :**	1MHz
Azimuth:	0° - 360°	**VBW :**	3MHz



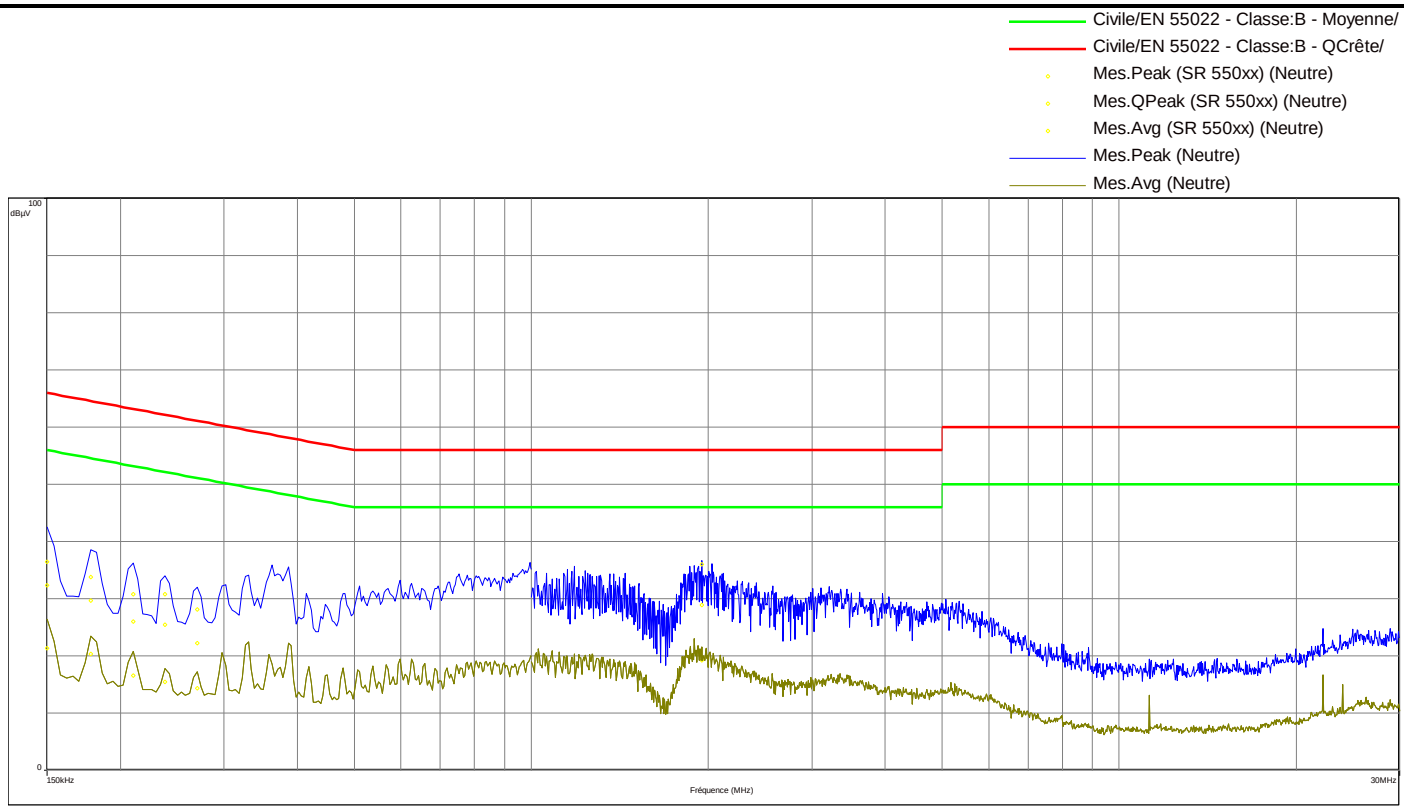
Frequency (MHz)	Peak Level (dBµV/m)
1200.5	38.33
1467.25	44.95
1733.5	41.63
1958.5	42.97
2371.25	48.09
4924.25	48.06

CONDUCTED EMISSIONS			
Graph name:	Emc#1	**Test configuration:**	
Limit:	EN 55022	110V/60Hz Phase WLS (Worst case)	
Class:	B		
Frequency range: [150kHz - 30MHz]			
Voltage / Frequency:	110VAC / 60Hz	**RBW :**	10kHz
Line:	Phase	**VBW :**	30kHz



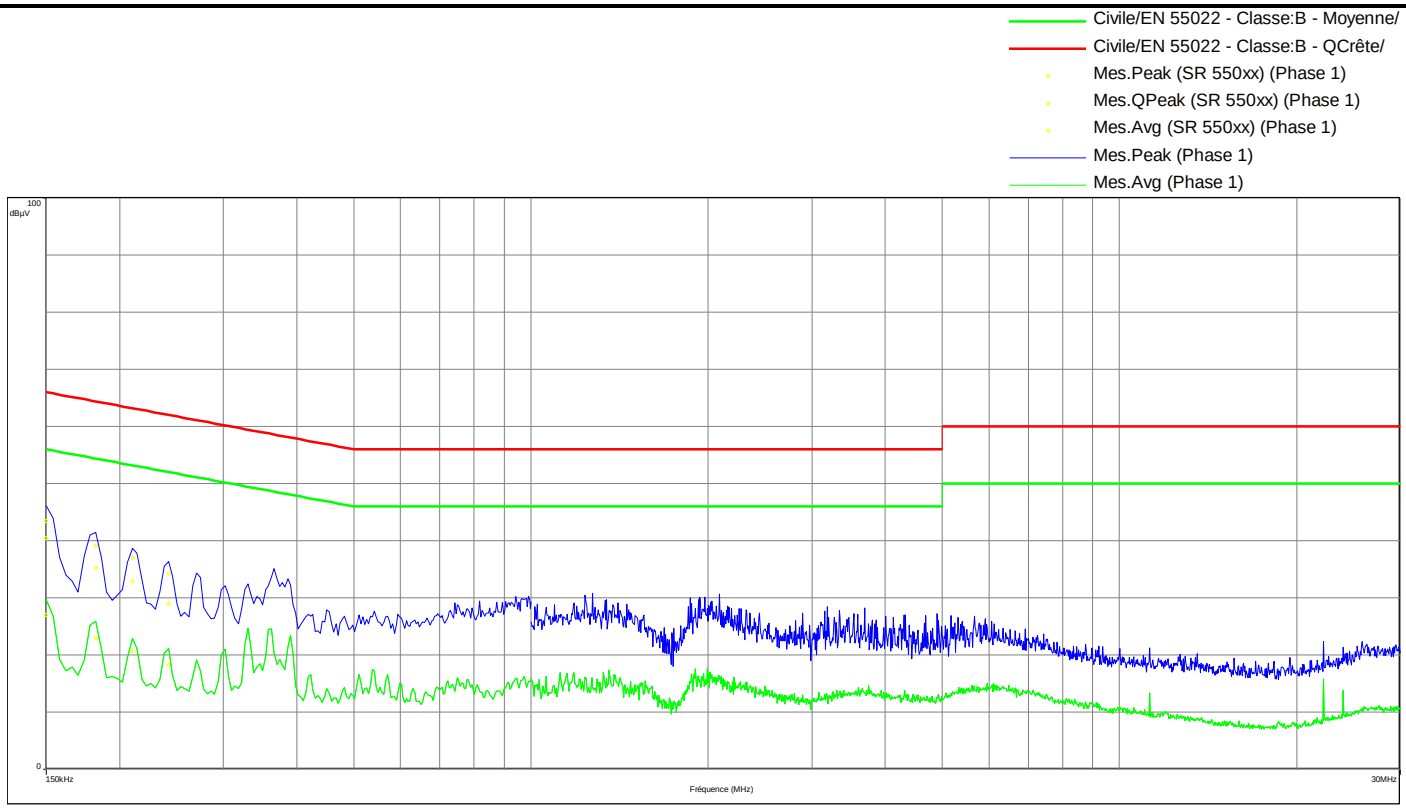
Frequency (MHz)	Mes.Peak (dBµV)	Mes.QPeak (dBµV)	LimQP (dBµV)	Mes.QPeak-LimQP (dB)	Mes.Avg (dBµV)	LimAvg (dBµV)	Mes.Avg-LimAvg (dB)
0.15	43.4	40.49	66	-25.51	27.03	56	-28.97
0.182	39.12	35.19	64.39	-29.21	22.85	54.39	-31.54
0.21	36.99	32.91	63.21	-30.3	20.64	53.21	-32.57
0.242	34.2	29.03	62.03	-32.99	18.27	52.03	-33.76

CONDUCTED EMISSIONS			
Graph name:	Emc#2	**Test configuration:**	
Limit:	EN 55022	110V/60Hz Neutral WLS (Worst case)	
Class:	B		
Frequency range: [150kHz - 30MHz]			
Voltage / Frequency:	110VAC / 60Hz	**RBW :**	10kHz
Line:	Phase	**VBW :**	30kHz



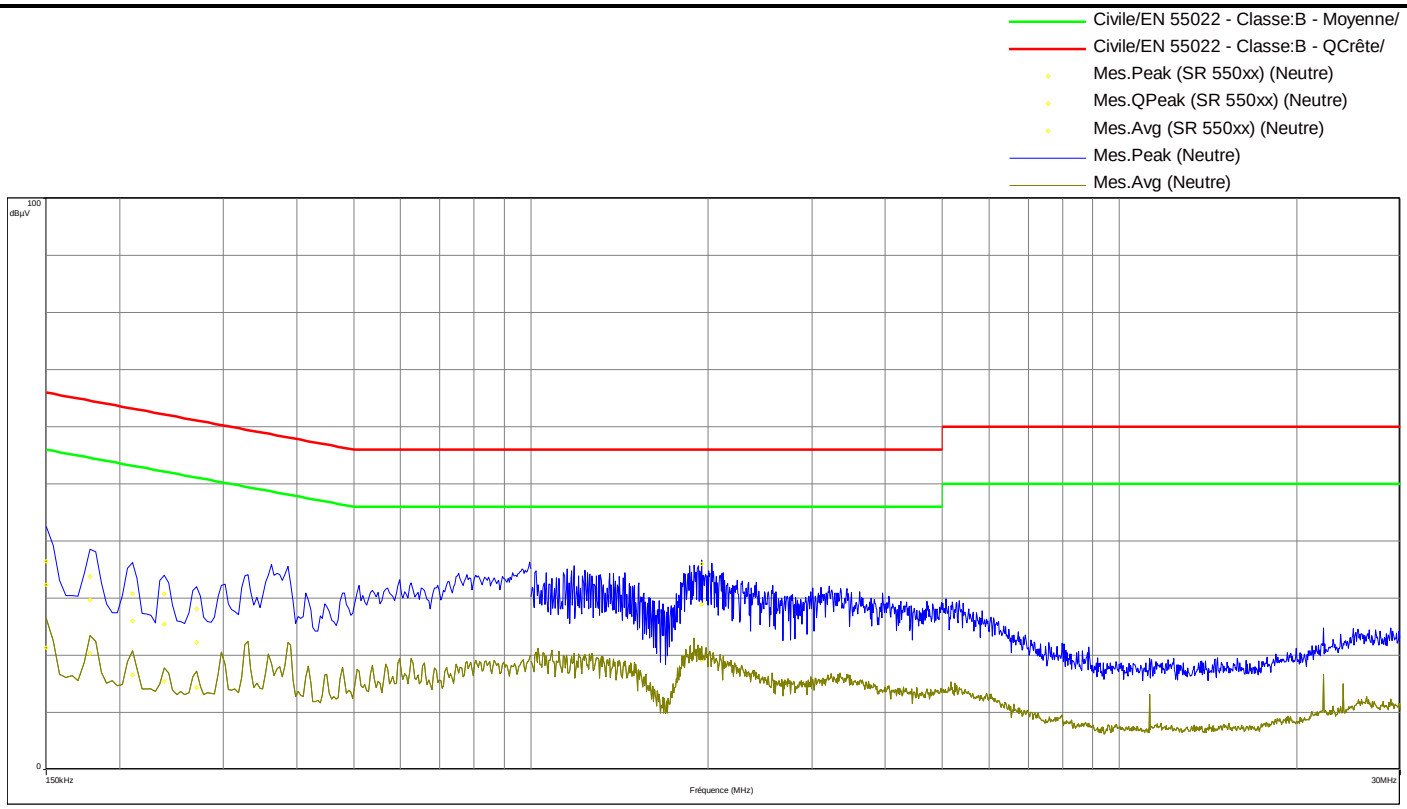
Frequency (MHz)	Mes.Peak (dBµV)	Mes.QPeak (dBµV)	LimQP (dBµV)	Mes.QPeak-LimQP (dB)	Mes.Avg (dBµV)	LimAvg (dBµV)	Mes.Avg-LimAvg (dB)
0.15	36.4	32.33	66	-33.67	21.31	56	-34.69
0.178	33.79	29.64	64.58	-34.93	20.33	54.58	-34.25
0.21	30.78	26.05	63.21	-37.16	16.58	53.21	-36.63
0.238	30.74	25.4	62.17	-36.76	15.4	52.17	-36.77
0.27	28.09	22.23	61.12	-38.89	14.38	51.12	-36.74
1.948	35.97	28.91	56	-27.09	19.24	46	-26.76

CONDUCTED EMISSIONS			
Graph name:	Emc#1	**Test configuration:**	
Limit:	EN 55022	110V/60Hz Phase WLS	
Class:	B		
Frequency range: [150kHz - 30MHz]			
Voltage / Frequency:	110VAC / 60Hz	**RBW :**	10kHz
Line:	Phase	**VBW :**	30kHz



Frequency (MHz)	Mes.Peak (dBµV)	Mes.QPeak (dBµV)	LimQP (dBµV)	Mes.QPeak-LimQP (dB)	Mes.Avg (dBµV)	LimAvg (dBµV)	Mes.Avg-LimAvg (dB)
0.15	43.4	40.49	66	-25.51	27.03	56	-28.97
0.182	39.12	35.19	64.39	-29.21	22.85	54.39	-31.54
0.21	36.99	32.91	63.21	-30.3	20.64	53.21	-32.57
0.242	34.2	29.03	62.03	-32.99	18.27	52.03	-33.76

CONDUCTED EMISSIONS			
Graph name:	Emc#2	**Test configuration:**	
Limit:	EN 55022	110V/60Hz Neutral WLS	
Class:	B		
Frequency range: [150kHz - 30MHz]			
Voltage / Frequency:	110VAC / 60Hz	**RBW :**	10kHz
Line:	Phase	**VBW :**	30kHz



Frequency (MHz)	Mes.Peak (dBµV)	Mes.QPeak (dBµV)	LimQP (dBµV)	Mes.QPeak-LimQP (dB)	Mes.Avg (dBµV)	LimAvg (dBµV)	Mes.Avg-LimAvg (dB)
0.15	36.4	32.33	66	-33.67	21.31	56	-34.69
0.178	33.79	29.64	64.58	-34.93	20.33	54.58	-34.25
0.21	30.78	26.05	63.21	-37.16	16.58	53.21	-36.63
0.238	30.74	25.4	62.17	-36.76	15.4	52.17	-36.77
0.27	28.09	22.23	61.12	-38.89	14.38	51.12	-36.74
1.948	35.97	28.91	56	-27.09	19.24	46	-26.76

11. 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*	3.57 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.*	3.28 dB	A l'étude / Under consid.
Mesure des perturbations discontinues conduites en tension *Measurement of discontinuous conducted disturbances in voltage*	3.47 dB	3.6 dB
Mesure des perturbations conduites en courant *Measurement of conducted disturbances in current*	2.90 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*	5.07 dB	5.2 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.*