

RC-030-GTE-14-105110-1-A

"This report cancels and replaces the test report N° RC-030-GTE-14-105110-1-A Edition 0"

E.M.C Test Report

According to the standard:
FCC 47 CFR PART 15 : 2014 (§15.247)

Equipment under test:
Wireless Conference Access Point
Type CONFIDEA WCAP G3
FCC ID : WM7CONFIDEAWCAPG3

Company:
TELEVIC

FCC accredited: FR0004

DISTRIBUTION: Mr DUMEZ

(Company: TELEVIC)

Number of pages: 44 with 6 annexes

Ed.	Date	Modified pages	Written by		Technical Verification and Quality Approval	
			Name	Visa	Name	Visa
1	17/02/15	1 ; 4	F. LHEUREUX FL		B. Pellerin 	

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TEST CERTIFICATION FOR: FCC Certification

NAME OF THE EQUIPMENT UNDER TEST: Wireless conference access point Type: CONFIDEA WCAP G3

Serial number: 1440077150000C1

Reference / model (P/N): 71.98.0033 V1.01

Software version: ap-1.09.0005.rf-validation.tuf

NAME OF THE MANUFACTURER: TELEVIC

ADDRESS OF THE APPLICANT:

Company: TELEVIC

Address: Leo Bekaertlaan 1
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Person in charge: Mr DUMEZ

DATES OF TESTS: 02/10/2014 to 10/10/2014

TESTS LOCATION: Open area test site in Aunainville (28) - FRANCE

TESTS OPERATOR: F. LHEUREUX

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1. INTRODUCTION

This document presents the results of Electromagnetic Compatibility tests performed on the equipment «**Wireless conference access point type: CONFIDEA WCAP G3**» according to reference documents listed below.

This document presents the results of Electromagnetic Compatibility tests performed on the equipment "Wireless conference access point type :

2. REFERENCE DOCUMENTS

FCC 47 CFR Part 15: 2014

Code of Federal Regulations

Title 47- Telecommunication

Chapter 1- Federal Communication Commission

Part 15- Radio frequency devices

ANSI C63.4: 2003

Methods of Measurement of Radio-Noise Emissions from Low Voltage Electrical and Electronics Equipment in the range of 9 kHz to 40 GHz.

KDB 558074 D01 DTS Meas Guidance V03r02

Guidance for performing compliance measurement on Digital Transmission Systems (DTS) operating under § 15.247

3. PRODUCT DESCRIPTION

Class: B (residential environment)

Utilization: Confidea G3 is a wireless conference system offering conferencing capabilities over a robust wireless link. Depending on the model, these facilities include discussion, voting and/or language distribution. The Confidea access point (WCAP) will in this set-up act as a small central unit, offering all the functionality for a basic discussion application.

Antenna type and gain: external antenna (x3): Not communicated.

Operating frequency range: from 2412 MHz to 2462 MHz

Number of channels: 11 (802.11 g)

Channel spacing: 5 MHz

Modulation: OFDM @ 54 Mbits/sec

Power source: 120 Vac / 60 Hz

Software power setting: The WCAP has a built-in web server that allows you to set/monitor certain parameters characterizing the wireless conference system. (The power is not adjustable, only the channels)

Modification of the equipment during the tests: No.

4. TESTS AND CONCLUSION

The following table summarizes test results of the EUT.

Subpart B of the standard FCC part 15 – Unintentional radiators

Test procedure	Designation of test	Test results				Comments
		Pass	Fail	N.A.	N.P.	
15.107	Measurement of conducted emission on AC mains ports	X				
15.109	Radiated emission limits			X		①

①: The equipment under test always transmits continuously

Subpart C of the standard FCC part 15 – Intentional radiators

Test procedure	Designation of test	Test results				Comments
		Pass	Fail	N.A.	N.P.	
15.205	Restricted bands of operation	X				
15.207	Measurement of conducted emission on AC mains ports	X				
15.209	Radiated emission limits; general requirements	X				
15.215	Additional provisions to the general radiated emission limitations					
	(a) Alternative to general radiated emission limits	X				
	(b) Unwanted emissions outside of § 15.247 frequency bands	X				
	(c) 20 dB bandwidth and band-edge compliance	X				
15.247	Intentional radiated emissions					
	a) frequency hopping and digitally modulated					
	a) (1) hopping mode			X		
	a) (1) (i) frequency hopping in the band 902-928 MHz			X		
	a) (1) (ii) frequency hopping in the band 5725-5850 MHz			X		
	a) (1) (iii) frequency hopping in the band 2400-2483.5 MHz			X		
	a) (2) systems using digital modulation in the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz (6 dB bandwidth)	X				
	b) maximum peak conducted					
	b) (1) frequency hopping in the bands 2400-2483.5 MHz or 5725-5850 MHz			X		
	b) (2) frequency hopping in the band 902-928 MHz			X		
	b) (3) systems using digital modulation in the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz	X				

Test procedure	Designation of test	Test results				Comments
		Pass	Fail	N.A.	N.P.	
	b) (4) maximum peak conducted > 6 dBi					
	b) (4) (i) frequency hopping in the band 2400–2483.5 MHz			X		
	b) (4) (ii) frequency hopping in the band 5725–5850 MHz			X		
	b) (4) (iii) fixed, point-to-point			X		
	c) directional antenna > 6 dBi					
	c) (1) fixed, point-to-point operation					
	c) (1) (i) in the band 2400–2483.5 MHz			X		
	c) (1) (ii) in the band 5725–5850 MHz			X		
	c) (1) (iii) fixed, point-to-point			X		
	c) (2) multiple directional beams in the band 2400–2483.5 MHz					
	c) (2) (i) information			X		
	c) (2) (ii) sum of the power supplied to all antennas			X		
	c) (2) (iii) one antenna for multiple directional beams			X		
	c) (2) (iv) single directional beam			X		
	d) intentional radiator	X				
	e) peak power spectral density	X				
	f) hybrid system			X		
	g) continuous data stream during the test					
	h) to avoid hopping on occupied channels					
	i) RF exposure compliance			X		P < 500 mW

N.A.: Not Applicable

N.P.: Not Performed

Conclusion:

The tested sample " **Wireless conference access point type: CONFIDEA WCAP G3** " submitted to the tests complies with the requirements of the standard:

- FCC 47 CFR PART 15 : 2014

According to the limits specified in this report.

5. CONDUCTED EMISSION

Standard: FCC 47 CFR Part 15 : 2014

Section: 15.107 / 15.207

Test configuration:

Tested cable	Measure with	E.U.T. height
Power supply 120 Vac	L.I.S.N.	80 cm

Frequencies band	Tested cable	Resolution bandwidth	Video bandwidth	Detection mode
150 kHz - 1 MHz	Power supply 120 Vac	10 kHz	30 kHz	Peak
1 MHz - 30 MHz	Power supply 120 Vac	10 kHz	30 kHz	Peak
150 kHz - 30 MHz	Power supply 120 Vac	9 kHz	30 kHz	Average

Test method deviation: No

Test equipment list:

CATEGORY	BRAND	TYPE	N° EMITECH
AC Power supply	Schaffner	NSG 1007-5-400	4637
Cable	-	N-4m	2809
Cable	-	N-2m	2811
Harmonic/flicker Analyzer	Schaffner	CCN 1000-3-75	4348
Limiter	Hewlett Packard	HP11947A	1094
LISN	Rohde & Schwarz	ESH2-Z5	0326
Receiver	Rohde & Schwarz	R&S FSU8	9129
Tests enclosure	Emitech	JD	1804
Wattmeter	Rohde & Schwarz	R&S ESH3	0181

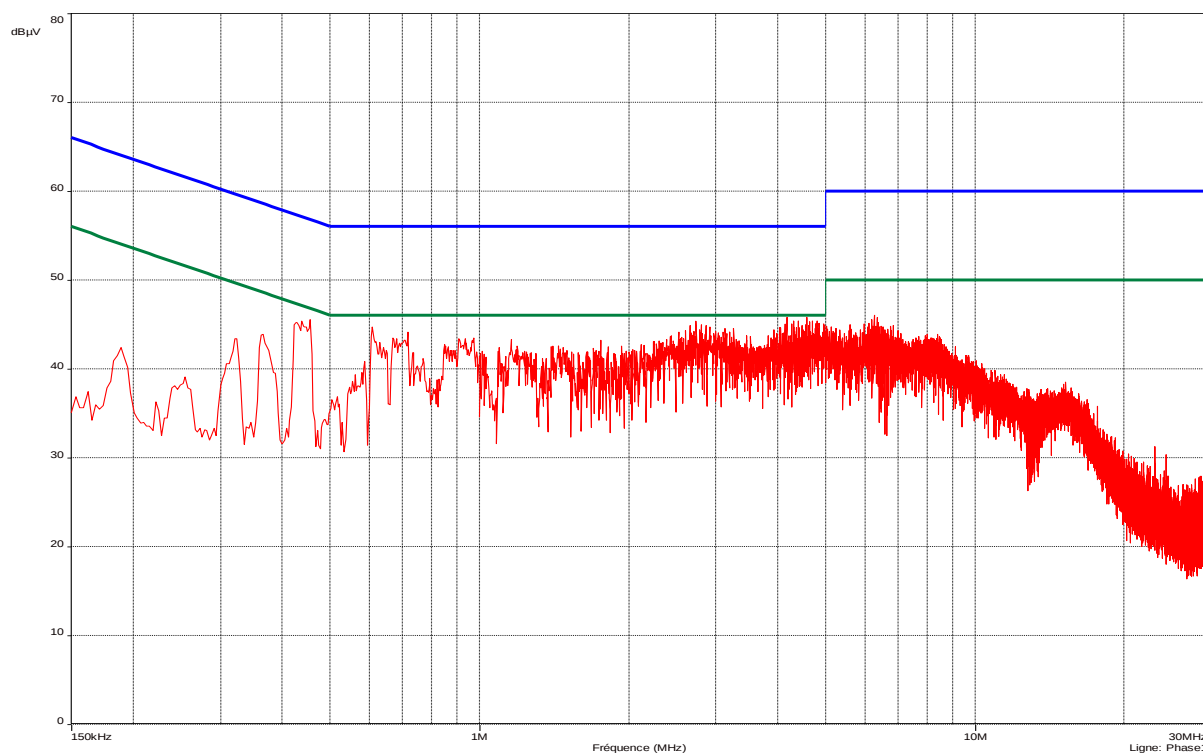
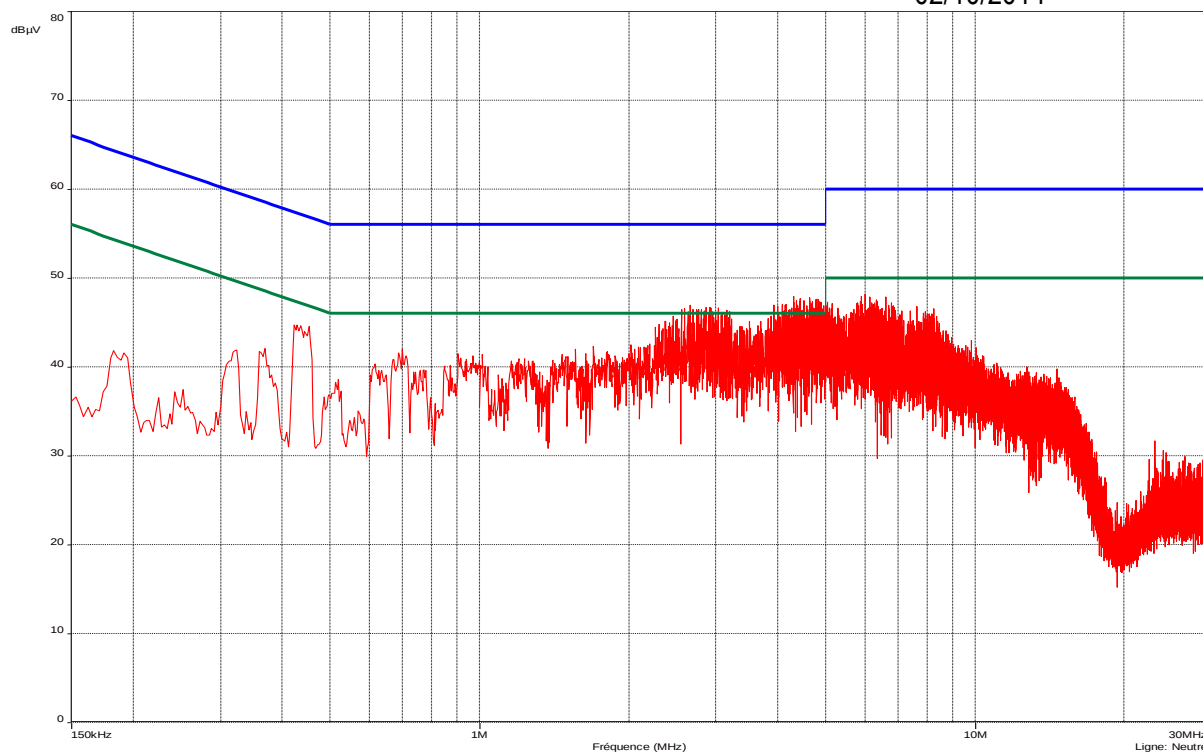
Results:

See curves hereafter. Limits on the curves are average limit (green) and quasi-peak limit (blue).

Curves 1 and 2

Wireless conference access point type: CONFIDEA WCAP G3
 Conducted voltage emission (measurement): Power supply 120 Vac in peak detection

02/10/2014

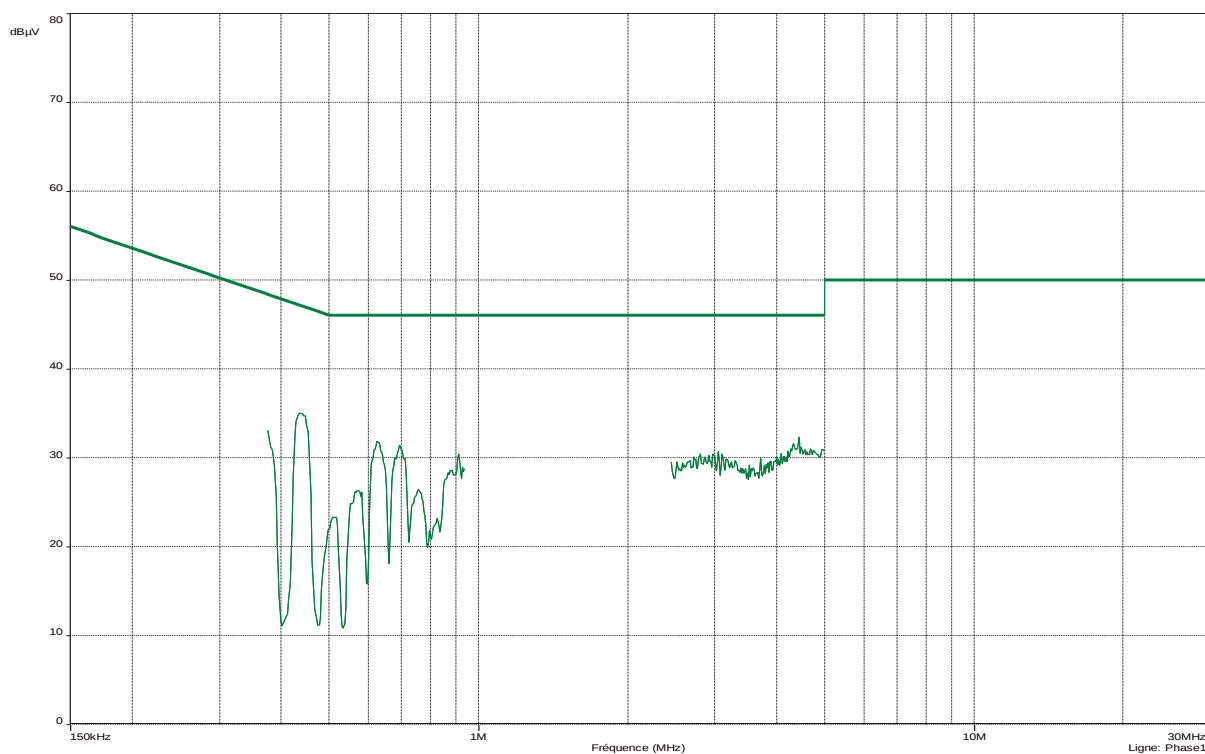
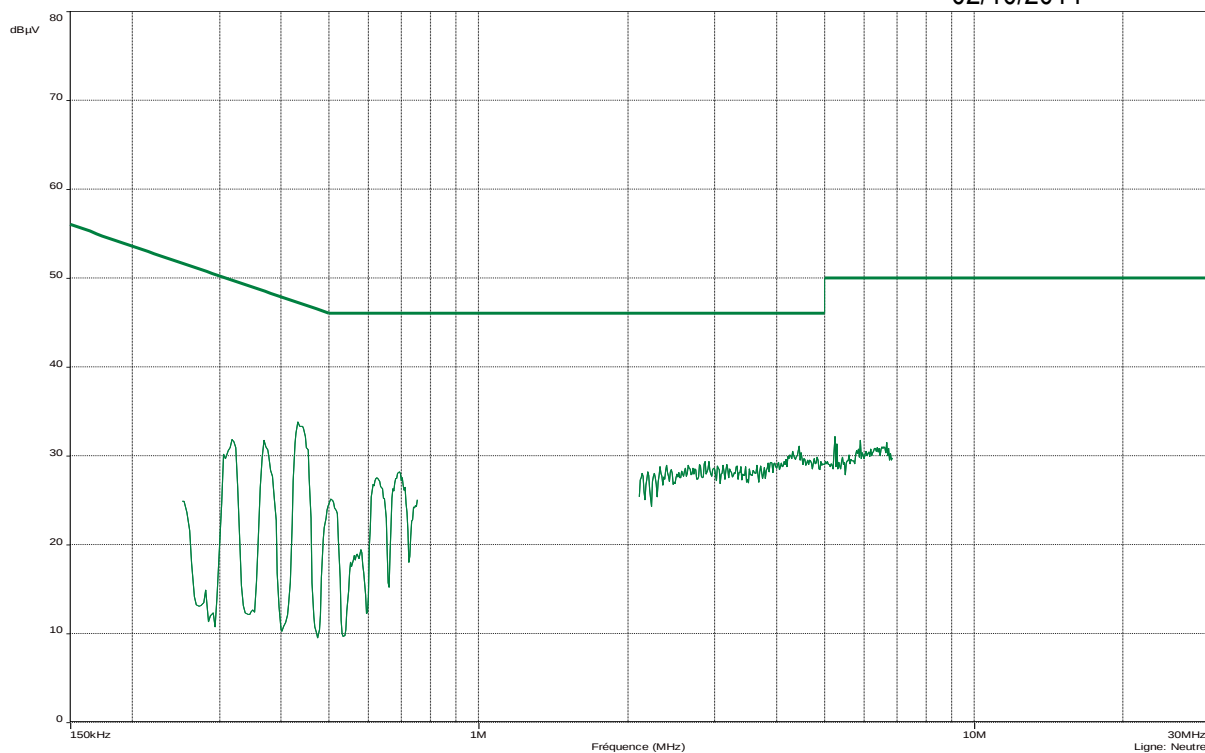


Class: B of the standard

Curves 3 and 4

Wireless conference access point type: CONFIDEA WCAP G3
 Conducted voltage emission (measurement): Power supply 120 Vac in average detection

02/10/2014



Class: B of the standard

6. DIGITAL MODULATION SYSTEMS

Standard: FCC 47 CFR PART 15 : 2014

Section: 15.247 a) (2)

Test configuration:

The system is tested in an open area test site (OATS).

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

The level was maximised in antenna height, azimuth and polarization. The maximum level measured on the spectrum analyser was recorded.

Distance of antenna: 3 meters

Instrumentation test list:

CATEGORY	BRAND	TYPE	N° EMITECH
Antenna	Emco	Cornet 3115	3374
Antenna mast	Maturo	AM 4.0-O	7625
Cable	Micro-Coax	N-13m	8063
Open area test site	Emitech	Aunainville	0187
Power supply AC	SECAS	CF1000 50/60	2102
Receiver	Rohde & Schwarz	R&S FSU8	9129
Turntable	Maturo	MCU	7626

Equipment under test operating condition:

EUT is in continuous transmission mode.

Measure conditions:

Ambient temperature (°C): 15

Relative humidity (%): 69

Resolution bandwidth: 100 kHz

Results:

Power source: 120 Vac / 60 Hz

Frequency	Mode	Results	Comments
2412 MHz	802.11 g	16.49 MHz	See annex n°4
2442 MHz		16.54 MHz	See annex n°4
2462 MHz		16.54 MHz	See annex n°4

Test conclusion: Complies with the requirements of the standard.

7. TRANSMITTER OUTPUT POWER

Standard: FCC 47 CFR PART 15 : 2014

Section: 15.247 b) (3)

Test configuration:

The system is tested in an open area test site (OATS).

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

The level was maximised in antenna height, azimuth and polarization. The maximum level measured on the spectrum analyser was recorded.

Distance of antenna: 3 meters

Instrumentation test list:

CATEGORY	BRAND	TYPE	N° EMITECH
Antenna	Emco	Cornet 3115	3374
Antenna mast	Maturo	AM 4.0-O	7625
Cable	Micro-Coax	N-13m	8063
Open area test site	Emitech	Aunainville	0187
Power supply AC	SECAS	CF1000 50/60	2102
Receiver	Rohde & Schwarz	R&S FSU8	9129
Turntable	Maturo	MCU	7626

Equipment under test operating condition:

EUT is in continuous transmission mode.

Measure conditions:

Ambient temperature (°C): 15

Relative humidity (%): 69

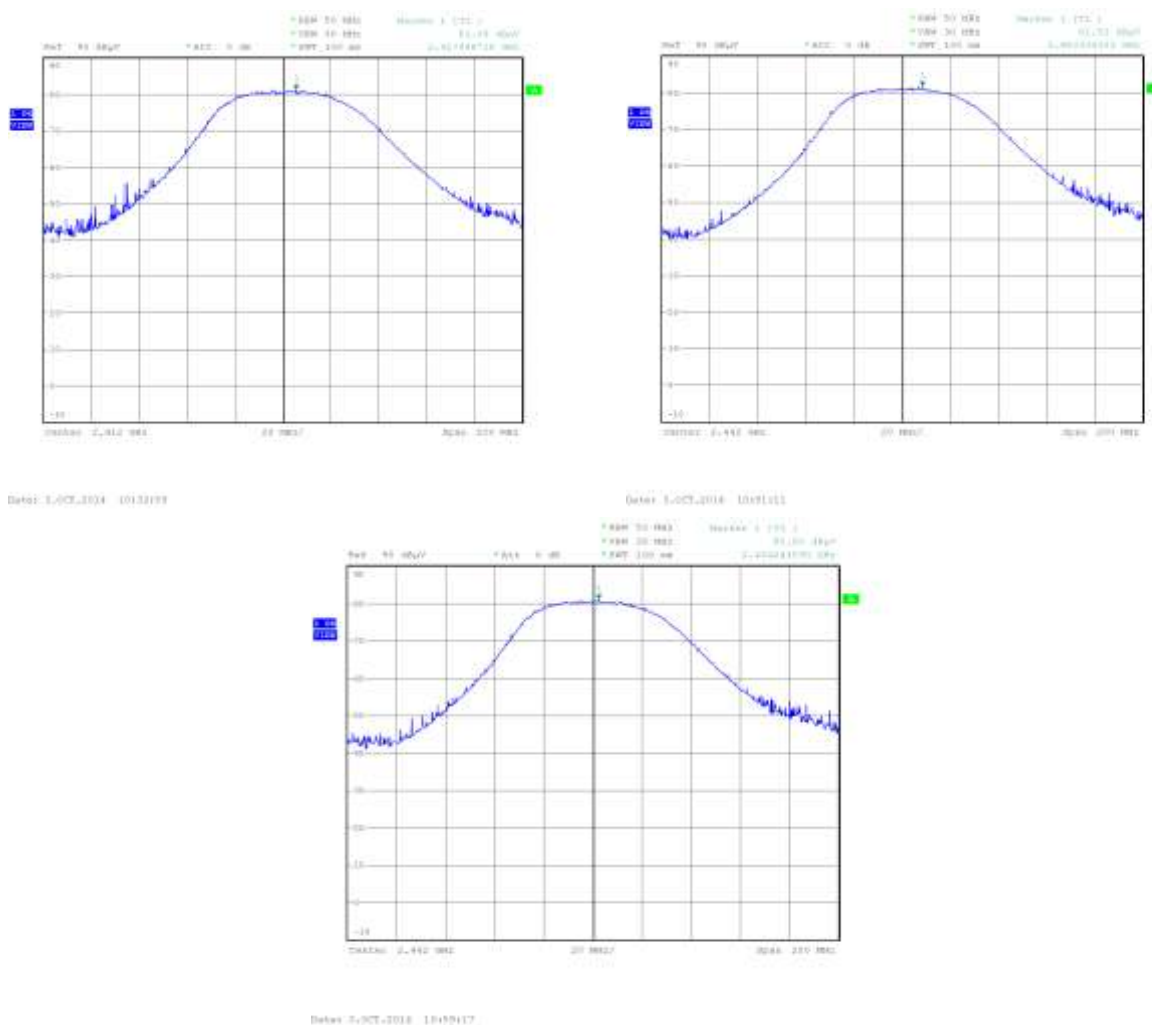
Resolution bandwidth: 50 MHz

Results:

Power source: 120 Vac / 60 Hz

Frequency	Mode	Electro-magnetic field (dBμV/m)	TP* (dBm)	Limit (dBm)
2412 MHz	802.11 g	114.58	19.4	+ 30
2442 MHz		115.22	20.0	+ 30
2462 MHz		114.50	19.3	+ 30

* TP = E (dBμV/m) – 95.2 for d = 3 m



Test conclusion: Complies with the requirements of the standard.

8. PEAK POWER SPECTRAL DENSITY

Standard: FCC 47 CFR PART 15 : 2014

Section: 15.247 e)

Test configuration:

The system is tested in an open area test site (OATS).

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

The level was maximised in antenna height, azimuth and polarization. The maximum level measured on the spectrum analyser was recorded.

Distance of antenna: 3 meters

Instrumentation test list:

CATEGORY	BRAND	TYPE	N° EMITECH
Antenna	Emco	Cornet 3115	3374
Antenna mast	Maturo	AM 4.0-O	7625
Cable	Micro-Coax	N-13m	8063
Open area test site	Emitech	Aunainville	0187
Power supply AC	SECAS	CF1000 50/60	2102
Receiver	Rohde & Schwarz	R&S FSU8	9129
Turntable	Maturo	MCU	7626

Equipment under test operating condition:

EUT is in continuous transmission mode.

Measure conditions:

Ambient temperature (°C): 15

Relative humidity (%): 69

Resolution bandwidth: 3 kHz

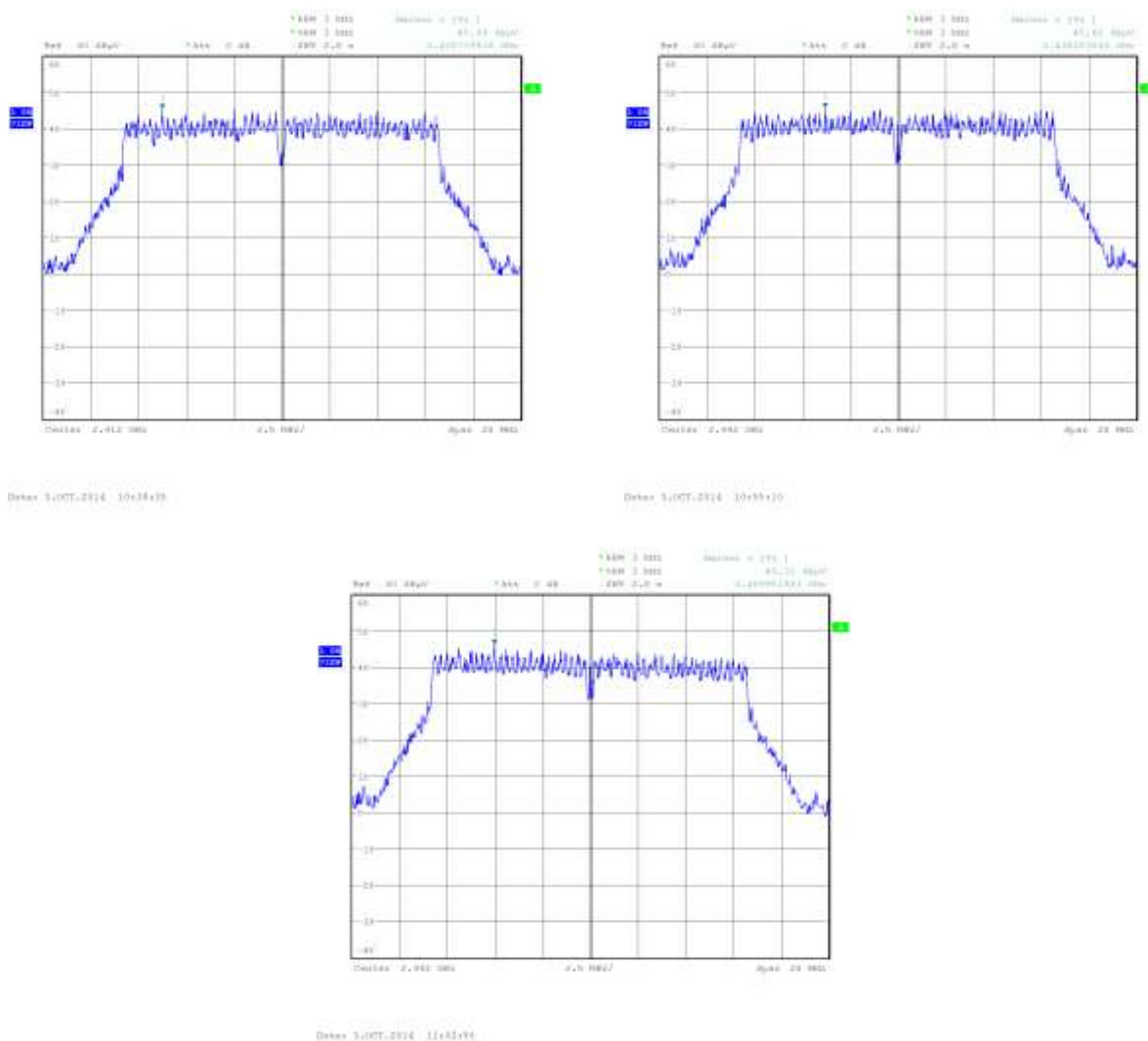
Video bandwidth: 3 kHz

Results:

Power source: 120 Vac / 60 Hz

Frequency	Mode	Electro-magnetic field (dB μ V/m)	PPSD* (dBm)	Limit (dBm)
2412 MHz	802.11 g	78.49	- 16.7	+ 8.0
2442 MHz		79.32	- 15.9	
2462 MHz		80.01	- 15.2	

* PPSP = E (dB μ V/m) – 95.2 for d = 3 m



Test conclusion: Complies with the requirements of the standard.

9. ADDITIONAL PROVISIONS TO THE GENERAL RADIATED EMISSIONS LIMITATION

Standard: FCC 47 CFR PART 15 : 2014

Sections: 15.215 (b) and 15.247 (d)

Instrumentation test list:

CATEGORY	BRAND	TYPE	N° EMITECH
Antenna	Emco	Cornet 3115	3374
Antenna mast	Maturo	AM 4.0-O	7625
Cable	Micro-Coax	N-13m	8063
Open area test site	Emitech	Aunainville	0187
Power supply AC	SECAS	CF1000 50/60	2102
Receiver	Rohde & Schwarz	R&S FSU8	9129
Turntable	Maturo	MCU	7626

Equipment under test arrangement:

The system is tested in an open area test site (OATS).

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

Results:

Ambient temperature (°C): 15

Relative humidity (%): 69

Lower Band Edge: from 2310 MHz to 2390 MHz

Upper Band Edge: from 2483.5 MHz to 2500 MHz

- Mode 802.11 g

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBμV/m)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) *	Calculated Max Out of Band Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)
2413.46	89.03	Average	2388.85	- 49.1	39.9	54.0	14.1
2462.10	92.12	Average	2486.20	- 43.4	48.7	54.0	5.3

* according to step 2 of Marker-Delta Method DA 00-705.

Band-edge curves are given in annex 5.

10. UNINTENTIONAL RADIATED EMISSIONS AND TRANSMITTER UNWANTED EMISSION IN THE BAND 9 KHz – 25 GHz

Standard: FCC 47 CFR PART 15 : 2014

Sections: 15.205; 15.209 and 15.247

Equipment under test arrangement:

The equipment under test (EUT) is placed on a non-conductive test table at 0.8 m above the horizontal metal ground plane.

For maximum meter reading at each frequency, the antenna height is adjusted between 1 m and 4 m above the ground plane. A 360 degrees rotation of the EUT is performed in vertical and horizontal polarization. The frequency azimuth and antenna height are presented in the table on the next pages.

The E.U.T. is blocked in continuous transmission.

Frequencies range: 9 kHz – 30 MHz
30 MHz - 1 GHz
1 GHz – 25 GHz

Detection mode: Quasi-peak for 9 kHz – 30 MHz
Quasi-peak for 30 MHz - 1 GHz
Average for 1 GHz – 25 GHz

Resolution bandwidth: 200 Hz for 9 kHz – 150 kHz
9 kHz for 150 kHz – 30 MHz
120 kHz for 30 MHz - 1 GHz
1 MHz for 1 GHz – 25 GHz

Measurement distance: 30 meters from 9 kHz to 30 MHz
3 meters from 30 MHz to 25 GHz

- Limit for emission radiated outside the frequency band, except the harmonics, shall be attenuated by at least 20 dB below the level of fundamental or the general radiated emission limits.

From 9 kHz to 30 MHz

Frequencies range	Limit ($\mu\text{V/m}$)
9 – 490 kHz	$2400/F$ (F in kHz) *
490 – 1705 kHz	$24000/F$ (F in kHz)
1.705 – 30 MHz	30

* Limits in $\mu\text{V/m}$ can be extrapolated to 30 m using 20 dB / decade.

From 30 MHz to 25 GHz

Frequencies range (MHz)	Limit	
	(dB $\mu\text{V/m}$)	($\mu\text{V/m}$)
30 to 88	40.0	100
88 to 216	43.5	150
216 to 960	46.0	200
Above 960	54.0	500

Instrumentation test list:

CATEGORY	BRAND	TYPE	N° EMITECH
Antenna	Oritel	Cornet CM 42-25	1045
Antenna	Emco	Cornet 3115	3374
Antenna	Chase	Bilog CBL6111	4428
Antenna	Eaton	Cadre Eaton 96009/2	4713
Antenna mast	Maturo	AM 4.0-O	7625
Antenna mast	Maturo	MCU	7626
Cable	Câbles & Connectiques	N-13m	2452
Cable	-	N-2m	2805
Cable	Câbles & Connectiques	N-SMA	2864
Cable	-	N-30m	4359
Cable	-	N-8m	8021
Cable	Micro-Coax	N-13m	8063
Filter	Trilithic	Passe haut	1097
Filter	Micro-tronics	Passe haut	4691
Open area test site	Emitech	Aunainville	0187
Preamplifier	Hewlett Packard	HF	0051
Preamplifier	Mini Circuits	RF	5437
Voltmeter	Rohde & Schwarz	R&S ESVS10	1216
Wattmeter	Agilent Technologies	Agilent E7405A	2205

Results:

Ambient temperature (°C): 15

Relative humidity (%): 69

Power source: 120 Vac / 60 Hz

Frequency 2412 MHz

FREQUENCY (MHz)	Detector	Antenna height (cm)	Azimuth (degree)	Resolution bandwidth (kHz)	Polarization H: Horizontal V: Vertical	Field strength (dBμV/m)	Limits (dBμV/m)	Margin (dB)
42.650	Quasi-peak	100	330	120	V	32.4	40.0	7.6
42.650	Quasi-peak	400	190	120	H	19.9	40.0	20.1
67.000	Quasi-peak	140	110	120	V	29.0	40.0	11.0
67.000	Quasi-peak	230	230	120	H	17.5	40.0	22.5

Frequencies 2442 MHz

FREQUENCY (MHz)	Detector	Antenna height (cm)	Azimuth (degree)	Resolution bandwidth (kHz)	Polarization H: Horizontal V: Vertical	Field strength (dBμV/m)	Limits (dBμV/m)	Margin (dB)
42.650	Quasi-peak	100	330	120	V	32.4	40.0	7.6
42.650	Quasi-peak	400	190	120	H	19.9	40.0	20.1
67.000	Quasi-peak	140	110	120	V	29.0	40.0	11.0
67.000	Quasi-peak	230	230	120	H	17.5	40.0	22.5

Frequency 2462 MHz

FREQUENCY (MHz)	Detector	Antenna height (cm)	Azimuth (degree)	Resolution bandwidth (kHz)	Polarization H: Horizontal V: Vertical	Field strength (dBμV/m)	Limits (dBμV/m)	Margin (dB)
42.650	Quasi-peak	100	330	120	V	32.4	40.0	7.6
42.650	Quasi-peak	400	190	120	H	19.9	40.0	20.1
67.000	Quasi-peak	140	110	120	V	29.0	40.0	11.0
67.000	Quasi-peak	230	230	120	H	17.5	40.0	22.5

No significant frequency has been found other than those given above between 9 kHz to 30 MHz and 1 GHz to 25 GHz.

Test conclusion:

The equipment complies with the requirements of the standard.

« □□□ End of report, 6 annexes to be forwarded □□□ »

ANNEX 1

ANTENNA FACTORS, INSERTION LOSSES AND AMPLIFIER VALUES

BILL OF MATERIAL

The test antenna used for the radiated emission between 9 kHz and 30 MHz is the active loop antenna n°4713. Antenna factors are given in table 1.

The test antenna used for the radiated emission between 30 MHz and 1 GHz is the biclog antenna n°4428. Antenna factors are given in table 2.

The measuring receiver n°1216 used in the frequency range 30 MHz to 1 GHz has an integrated preamplifier.

The spectrum analyzer n°2205 is used in the frequency range 1 GHz to 25 GHz.

The test cable used between 9 kHz and 30 MHz to connect the antennas to the receiver for measurements at a distance of 30 meters has losses given in table 3.

The test cable used between 30 MHz and 1 GHz to connect the antennas to the receiver for measurements at a distance of 3 meters has losses given in table 4.

The test antenna used for the radiated emission between 1 GHz and 18 GHz is the horn antenna n°3374. Factors are given in table 5.

The test antenna used for the radiated emission between 18 GHz and 25 GHz is the horn antenna n°1045. Factors are given in table 6.

The amplifier n°3229 used to connect the spectrum analyzer to the test cable has gain values given in the table 7.

The test cable used between 1 GHz and 26 GHz to connect the horn antenna to the amplifier for measurements at a distance of 3 meters has losses given in table 8.

Frequency (MHz)	Antenna factor (dB/m)	Frequency (MHz)	Antenna factor (dB/m)
0.009	26.3	0.8	9.9
0.01	25.6	1	10.0
0.015	22.8	1.5	10.1
0.02	21.0	2	10.1
0.03	18.7	3	10.0
0.05	15.4	5	10.0
0.08	12.8	8	9.8
0.1	11.8	10	9.7
0.15	10.5	15	9.2
0.2	9.9	20	8.5
0.3	9.7	25	7.4
0.5	9.7	30	5.6

TABLE 1 : ACTIVE LOOP ANTENNA

Frequency (MHz)	Antenna factor (dB/m)	Frequency (MHz)	Antenna factor (dB/m)
30	20.2	180	9.6
35	17.4	200	11.7
40	13.9	250	12.0
45	12.8	300	13.7
50	10.2	400	16.5
60	7.0	500	18.3
70	6.9	600	20.3
80	8.0	700	21.6
90	9.2	800	22.2
100	11.0	900	23.2
120	12.3	1000	23.7
140	11.4	-	-
160	10.9	-	-

TABLE 2 : BILOG ANTENNA

Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)
0.009	0.0	6.000	0.5
0.020	0.0	7.000	0.5
0.050	0.0	8.000	0.5
0.100	0.1	9.000	0.6
0.500	0.1	10.00	0.6
1.000	0.2	15.00	0.8
2.000	0.3	20.00	0.9
3.000	0.3	25.00	1.0
4.000	0.4	30.00	1.1
5.000	0.4	-	-

**TABLE 3 : TEST CABLE FOR 30M MEASUREMENT INTO 9 kHz
AND 30 MHz**

Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)
30	0.7	250	1.8
40	0.7	300	2.1
50	0.9	400	2.3
60	0.9	500	2.5
70	0.9	600	3.0
80	0.9	700	3.4
90	1.1	800	3.6
100	1.1	900	3.9
150	1.4	1000	4.1
200	1.6	-	-

**TABLE 4 : TEST CABLE FOR 3M MEASUREMENT INTO 30 MHz
AND 1 GHz**

Frequency (GHz)	Antenna factor (dB/m)	Frequency (GHz)	Antenna factor (dB/m)
1.0	23.7	10.0	37.6
1.5	25.0	10.5	37.8
2.0	27.5	11.0	38.1
2.5	28.8	11.5	38.3
3.0	29.8	12.0	38.8
3.5	31.2	12.5	38.8
4.0	32.5	13.0	39.4
4.5	32.5	13.5	40.0
5.0	33.5	14.0	40.1
5.5	34.1	14.5	40.6
6.0	34.1	15.0	40.6
6.5	34.4	15.5	39.7
7.0	35.4	16.0	39.3
7.5	36.6	16.5	39.9
8.0	36.6	17.0	41.4
8.5	37.0	17.5	45.1
9.0	37.1	18.0	46.3
9.5	37.2	-	-

TABLE 5 : HORN ANTENNA

Frequency (GHz)	Antenna factor (dB/m)	Frequency (GHz)	Antenna factor (dB/m)
18.0	31.5	22.5	32.7
18.5	31.8	23.0	33.2
19.0	31.9	23.5	33.1
19.5	32.1	24.0	33.2
20.0	32.2	24.5	33.3
20.5	32.4	25.0	33.3
21.0	32.5	25.5	33.2
21.5	32.4	26.0	33.1
22.0	32.4	-	-

TABLE 6 : HORN ANTENNA

Frequency (GHz)	Gain value (dB)	Frequency (GHz)	Gain value (dB)
1.0	33.4	13.0	32.5
1.5	33.7	14.0	31.6
2.0	33.9	15.0	33.0
2.5	34.0	16.0	33.5
3.0	33.9	17.0	33.9
4.0	34.3	18.0	34.3
5.0	35.2	19.0	34.4
6.0	34.7	20.0	32.9
7.0	34.0	21.0	33.2
8.0	33.7	22.0	34.3
9.0	31.8	23.0	34.6
9.5	31.1	24.0	34.4
10.0	30.5	25.0	34.5
10.5	30.7	26.0	32.5
11.0	31.1	-	-
12.0	32.4	-	-

TABLE 7 : AMPLIFIER GAIN VALUE

Frequency (GHz)	Loss (dB)	Frequency (GHz)	Loss (dB)
1.0	3.2	12.0	11.8
1.5	4.0	13.0	12.2
2.0	4.6	14.0	12.4
2.5	5.2	15.0	12.9
3.0	5.7	16.0	13.4
3.5	6.2	17.0	13.9
4.5	7.1	18.0	14.5
5	7.3	19.0	14.7
6	7.9	20.0	15.4
8	9.3	22.0	16.3
10	10.5	24.0	16.9
11.0	11.1	26.0	17.7

TABLE 8: TEST CABLE FOR 3M MEASUREMENT INTO 1 TO 26 GHz

ANNEX 2

EXTERNAL PHOTOGRAPHIES



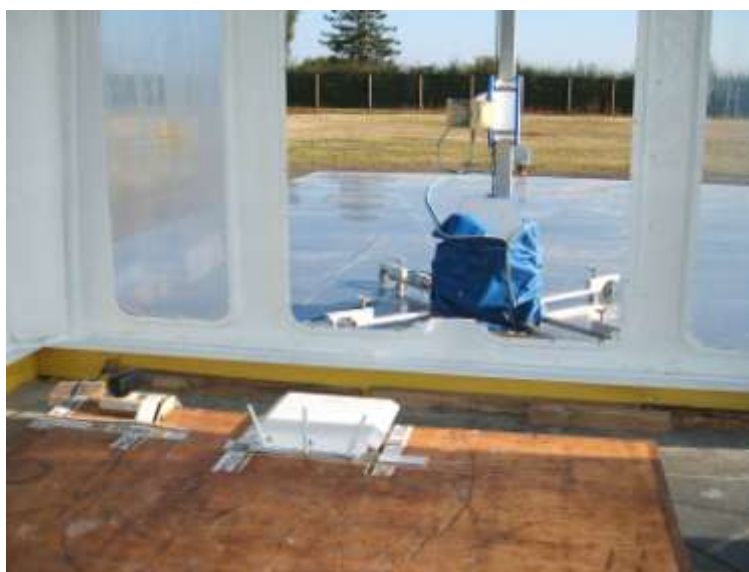


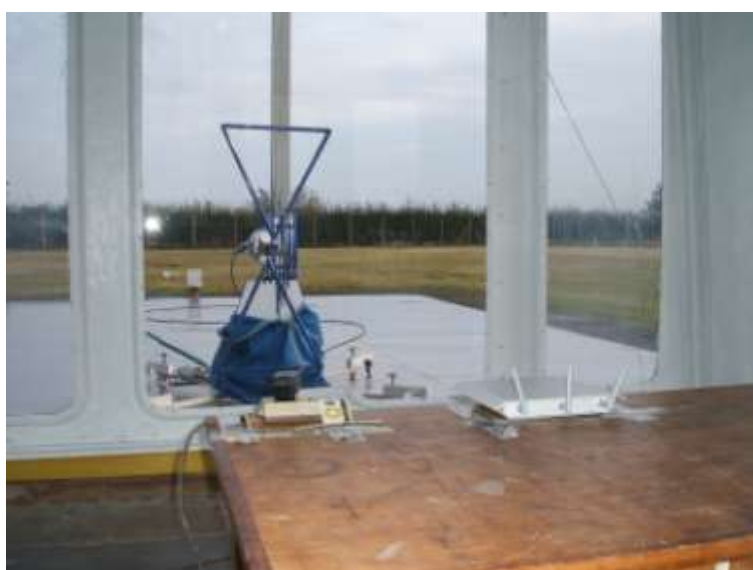




ANNEX 3

TEST SETUP PHOTOGRAPHIES







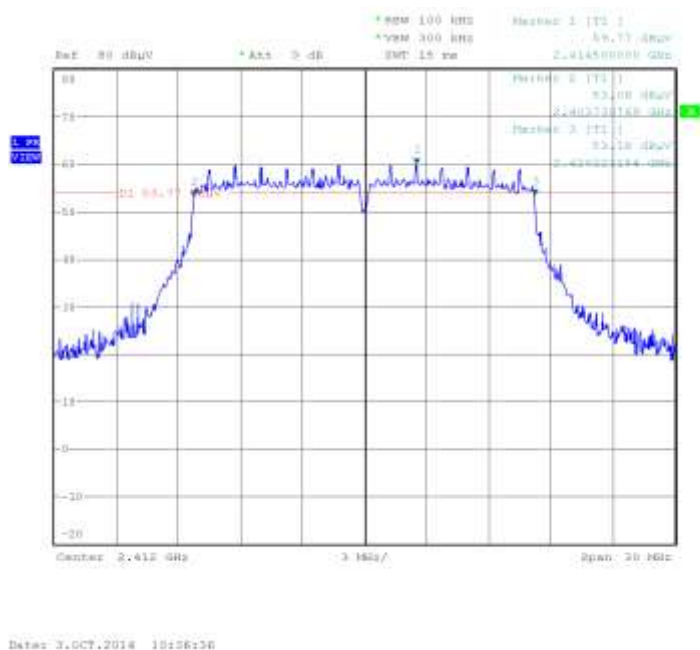




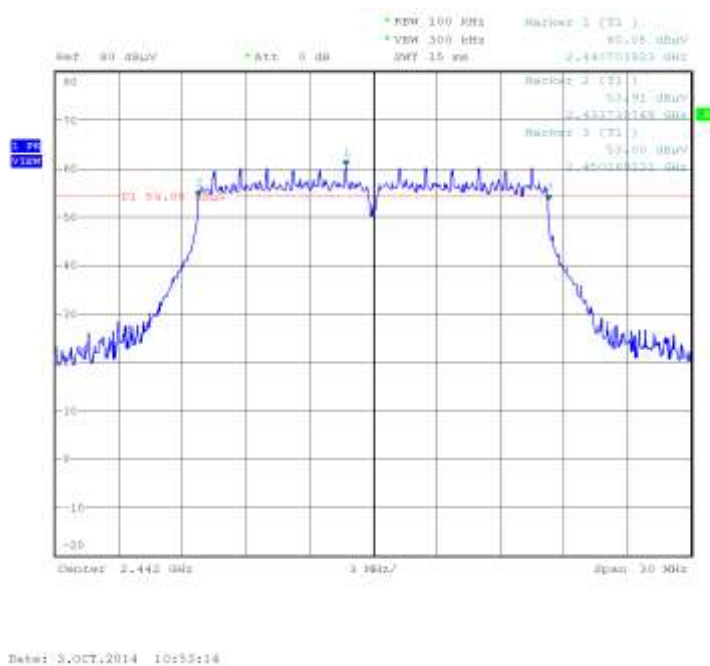
ANNEX 4

6 dB BANDWIDTH

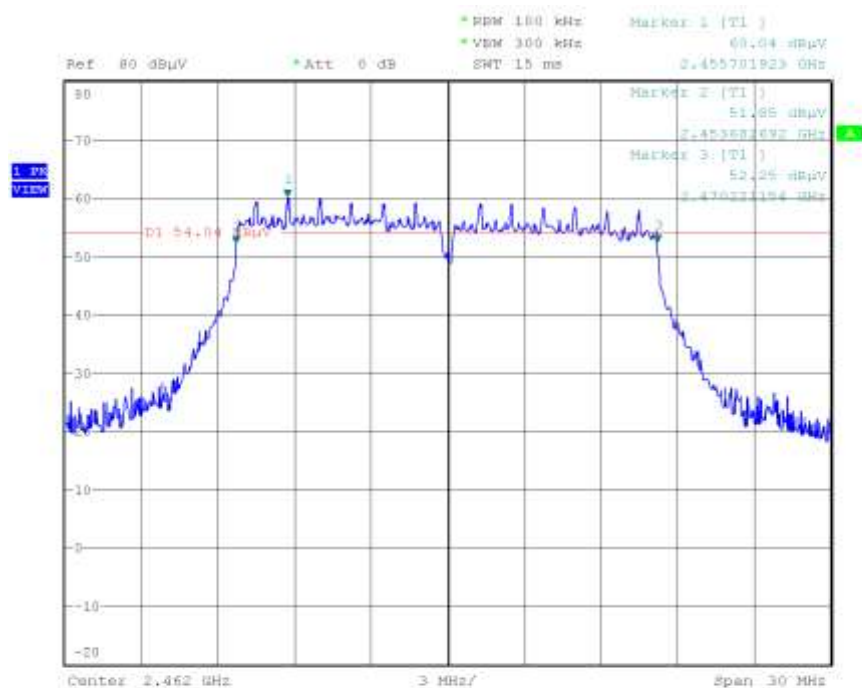
Frequency 2412 MHz



Frequency 2442 MHz



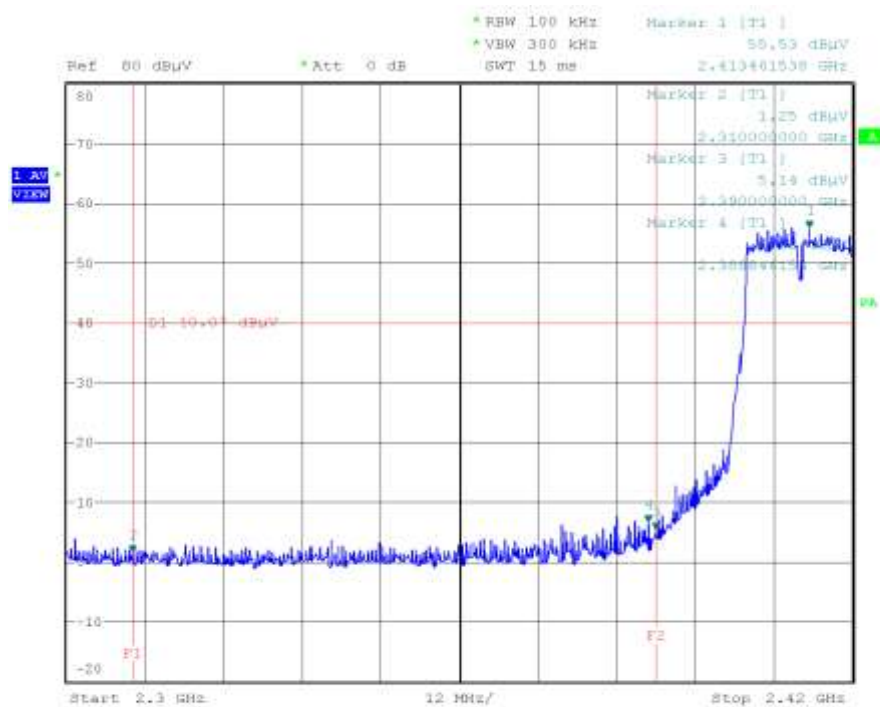
Frequency 2462 MHz



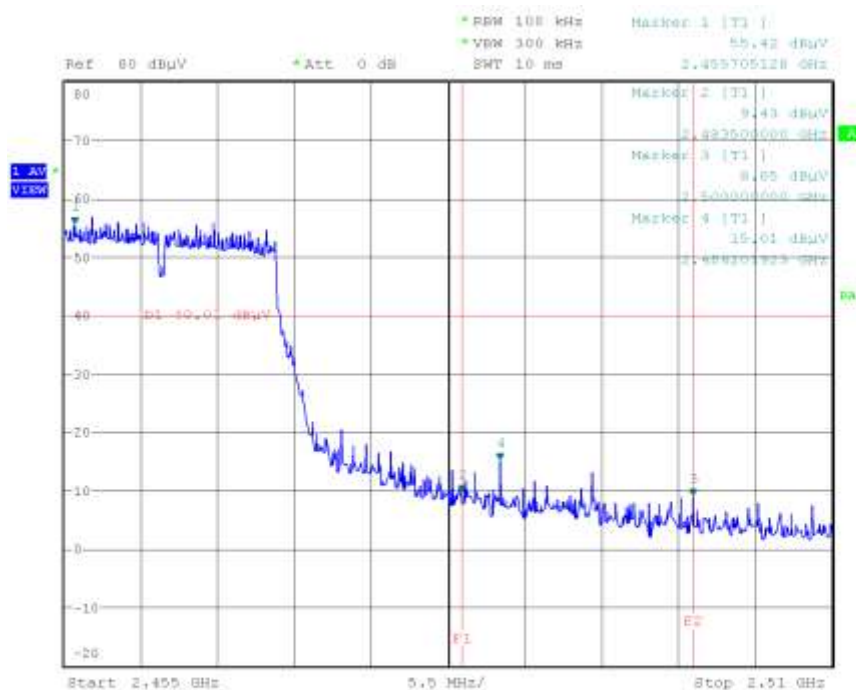
Date: 3.OCT.2014 11:01:17

ANNEX 5

BAND EDGE



Date: 3.OCT.2014 10:46:05



Date: 3.OCT.2014 11:07:04

ANNEX 6

CALIBRATION DATES

N° EMITECH	LAST CALIBRATION	CALIBRATION DUE DATE
1216	23/04/2014	23/04/2016
0187	15/03/2013	15/03/2016
4428	25/02/2014	25/02/2018
2452	24/10/2012	24/10/2014
2805	01/08/2013	01/08/2015
3374	08/02/2012	08/02/2016
2864	06/01/2014	06/01/2016
8063	23/07/2014	23/07/2016
1097	15/03/2013	15/03/2015
1529	15/03/2013	15/03/2015
4691	15/03/2013	15/03/2015
2205	12/06/2013	12/06/2015
4713	11/02/2014	11/02/2016
4359	27/06/2014	27/06/2016
1045	13/12/2010	13/12/2014
0051	09/06/2014	09/06/2015
8021	22/02/2013	22/02/2015