RR051-18-101516-1-A Ed. 2

This report cancels and replaces test report RR051-18-101516-1-A Ed. 1

Certification Radio test report

According to the standard:
CFR 47 FCC PART 15

Equipment under test:

ANAFI

FCC ID: 2AG6IANAFI

Company:

PARROT DRONES SAS

Distribution: Mr KANSO **(Company:** PARROT DRONES SAS**)**

Number of pages: 198 with 4 appendixes

Ed.	Date	Modified Page(s)	Technical Verification and Quality Approval Name and Function	Visa
2	13-Jul-18	See vertical lines	T. LEDRESSEUR, Radio Technician	p/o

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This document is the result of testing a specimen or a sample of the product submitted. It does not imply an assessment of the conformity of the whole manufactured products of the tested sample.

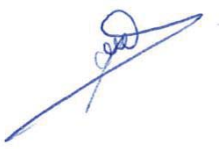
S51 RTY 000 INT 00004 [01]

DESIGNATION OF PRODUCT:	**ANAFI**
Serial number (S/N):	PS728000P38D000282 (conducted sample) PS728000P38D000388 (radiated sample)
Reference / model (P/N):	ANAFI
Software version:	0.8.4
MANUFACTURER:	PARROT DRONES SAS

COMPANY SUBMITTING THE PRODUCT:

Company:	PARROT DRONE SAS
Address:	174 QUAI DE JEMMAPES 75010 - PARIS FRANCE
Responsible:	Mr KANSO
***Person(s) present during the tests*:**	Mr KANSO (first day)
DATES OF TEST:	From 18-Apr-18 to 28-May-18
TESTING LOCATION:	EMITECH ANGERS laboratory at JUIGNE SUR LOIRE (49) FRANCE FCC Accredited under US-EU MRA Designation Number: FR0009 Test Firm Registration Number: 873677
TESTED BY:	M. DUMESNIL
WRITTEN BY:	M. DUMESNIL

VISA:



CONTENTS

1. INTRODUCTION

This report presents the results of radio test carried out on the following radio equipment: **ANAFI**, in accordance with normative reference.

The product integrates a WLAN radio part.
See test report RR051-18-101516-2-A for test on U-NII bands and RR051-18-101516-3-A for test on non-radio part.

2. PRODUCT DESCRIPTION

Class:	B
Utilization:	Residential
Antenna type and gain:	(0.98 dBi) 4 integral identical antennas: Front Left, Front Right, Back Left, Back Right For mode b the product will not emit simultaneously on the two chains, and for g and n the product emit on the two chains simultaneously among: Front Left + Front Right Back Left + Back Right Front Left + Back Left Front Right + Back Right
Directionnal gain:	For power measurements: 0.98 dBi For PSD measurements: 3.98 dBi
Operating frequency range:	From 2412 MHz to 2462 MHz
Number of channels:	11
Channel spacing:	5 MHz
Channel bandwidth:	10 MHz and 20 MHz
Power setting	21 dBm
Modulation:	DBPSK OFDM: BPSK OFDM: 64-QAM
Mode tested:	802.11b 802.11g 802.11n

Data rate tested:	For 802.11b: 1Mbit/s For 802.11g: 6Mbit/s For 802.11n: MCS0
Channel tested:	Channel 1: 2412 MHz Channel 6: 2437 MHz Channel 11: 2462 MHz
Double radio function:	No. The product can't emit simultaneously in bands 2.4GHz and 5GHz or on different channels.
Correlated signal:	For mode g/n/a the signals are considered as correlated, the mode cyclic delay diversity (CDD) is used. (IEEE 802.11) The product is not using spatial multiplexing or intentional beamforming.
Power source:	7.6Vdc by internal battery During the charge of the battery the product is not functional.

Power level, frequency range and channels characteristics are not user adjustable.
The details pictures of the product and the circuit boards are joined with this file.

3. NORMATIVE REFERENCE

The standards and testing methods related throughout this report are those listed below.
They are applied on the whole test report even though the extensions (version, date and amendment) are not repeated.

CFR 47 FCC Part 15 (2018)	Radio Frequency Devices
ANSI C63.10	2013 Procedures for ComplianceTesting of Unlicensed Wireless Devices.
558074 D01 DTS v04	Guidance for Performing Compliance on Digital Transmission Systems Operating under §15.247
662911 D01 Multiple Transmitter Output V02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band
447498 D01 General RF Exposure Guidance v06	RF Exposure procedures and equipment authorization policies for mobile and portable equipment

4. TEST METHODOLOGY

Radio performance tests procedures given in CFR 47 part 15:

Subpart C – Intentional Radiators

Paragraph 203: Antenna requirement
Paragraph 205: Restricted bands of operation
Paragraph 207: Conducted limits
Paragraph 209: Radiated emission limits; general requirements
Paragraph 212: Modular transmitter
Paragraph 215: Additional provisions to the general radiated emission limitations
Paragraph 247: Operation within the bands 902-928 MHZ, 2400-2483.5 MHz and 5725-5850 MHz

5. TEST EQUIPMENT CALIBRATION DATES

Emitech Number	Model	Type	Last calibration	Calibration interval (years)	Next calibration due
0000	BAT-EMC V3.16.0.64	Software	/	/	/
3314	Inmet 10dB 26AH-10	Attenuator	07/03/2017	2	07/03/2019
4088	R&S FSP40	Spectrum Analyzer	21/02/2018	2	21/02/2020
7124	A.H. Systems SAS-572	Antenna	21/03/2015	3	21/07/2018 (1)
7190	R&S HL223	Antenna	15/03/2016	3	15/03/2019
7240	Emco 3110	Biconical antenna	15/03/2016	3	15/03/2019
7298	Microtronics BRM50702	Reject band filter	29/03/2018	2	29/03/2020
7299	Microtronics BRM50702	Reject band filter	13/11/2017	2	13/11/2019
7566	Testo 608-H1	Meteo station	15/02/2016	2	15/06/2018 (1)
8528	Schwarzbeck VHA 9103	Biconical antenna	15/03/2016	3	15/03/2019
8534	EMCO 3115	Antenna	16/03/2016	3	16/03/2019
8549	Midwest Microwave 20dB	Attenuator	09/06/2016	2	09/06/2018
8704	LUCIX Corp S180265L3201 LNA	Low-noise amplifier	02/05/2017	1	02/09/2018 (1)
8707	R&S ESI7	Test receiver	13/02/2018	1	13/02/2019
8732	Emitech	OATS	11/10/2016	3	11/10/2019

Emitech Number	Model	Type	Last calibration	Calibration interval (years)	Next calibration due
8750	La Crosse Technology WS-9232	Meteo station	23/09/2016	2	23/09/2018
8783	EMCO 3147	Log periodic antenna	15/03/2016	3	15/03/2019
8855	EMITECH	Turntable and mat controller	/	/	/
8896	ACQUISYS GPS8	Satellite synchronized frequency standard	/	/	/
8974	STORM MICROWAE k-20cm	cable	19/11/2017	2	19/11/2019
9398	N-1.5m	cable	29/03/2018	2	29/03/2020
10730	Mini-circuit ZFL-1000LN	Low-noise amplifier	12/02/2018	1	12/02/2019
10759	SIDT Cage 3	Anechoic chamber	/	/	/
10771	EMCO 3117	Antenna	23/11/2016	3	23/11/2019
10789	MATURO	Turntable and mat controller NCD	/	/	/
10811	R&S EMC 32	Software	/	/	/
10812	R&S 0SP120	Switch	12/12/2017	1	12/12/2018
12590	LUCIX Corp S005180M3201	Low-noise amplifier	22/08/2017	1	22/08/2018
12917	SUCOFLEX K-2m	cable	11/04/2018	2	11/04/2020
14302	SUCOFLEX N-1m	cable	28/11/2016	2	28/11/2018
14303	SUCOFLEX N-2m	cable	28/11/2016	2	28/11/2018
14304	SUCOFLEX N-2.5m	cable	28/11/2016	2	28/11/2018
14305	SUCOFLEX N-4m	cable	28/11/2016	2	28/11/2018
14539	R&S FSL18	Spectrum Analyzer	07/08/2017	1	07/08/2018

(1).See derogation reference EQS DER 000 S51 00087

6. TESTS RESULTS SUMMARY

Test procedure	Description of test	Respected criteria?				Comment
		Yes	No	NAp	NAs	
FCC Part 15.203	ANTENNA REQUIREMENT	X				*Note 1*
FCC Part 15.205	RESTRICTED BANDS OF OPERATION	X				
FCC Part 15.207	CONDUCTED LIMITS			X		
FCC Part 15.209	RADIATED EMISSION LIMITS; general requirements	X				*Note 2*
FCC Part 15.212	MODULAR TRANSMITTERS			X		
FCC part 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				*Note 3*
	(c) 20 dB bandwidth and band-edge compliance	X				
FCC Part 15.247	OPERATION WITHIN THE BANDS 902-928 MHZ, 2400-2483.5 MHz and 5725-5850 MHz					
	(a) (1) Hopping systems			X		
	(a) (2) Digital modulation techniques	X				*Note 4*
	(b) Maximum peak output power	X				
	(c) Operation with directional antenna gains > 6 dBi			X		
	(d) Intentional radiator	X				
	(e) Peak power spectral density	X				
	(f) Hybrid system			X		
	(g) Frequency hopping requirements			X		
	(h) Frequency hopping intelligence			X		
	(i) RF exposure compliance	X				

NAp: Not Applicable NAs: Not Asked

Note 1: Integral antenna without standard connector.

Note 2: See FCC part 15.247 (d).

Note 3: See FCC part 15.209. Unwanted emissions levels are all below the fundamental emission field strength level.

Note 4: The minimum 6 dB bandwidth of the equipment is 4035 kHz (see appendix 4).

7. RF EXPOSURE:

MPE

Maximum measured power = 0.2844 W at 2412 MHz (802.11g mode – BW 20 MHz)

With antenna gain = 0.98 dBi

In accordance with KDB 447498 D01 General RF Exposure Guidance v06:

PSD= $EIRP/(4*\pi*R^{2)}$

⇨ $284.4/(4*\pi*(20\ cm)^2)$= ***0.0565 mW/cm² (limit = 1 mW/cm²)***

The equipment fulfils the requirements on power density for general population/uncontrolled exposure and therefore fulfils the requirements of 47 CFR §1.1310.

8. MEASUREMENT UNCERTAINTY

To declare, or not, the compliance with the specifications, it was not explicitly taken into account of uncertainty associated with the result(s)

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for normal distribution corresponds to a coverage probability of approximately 95%.

Parameter	Emitech Uncertainty
RF power, conducted	± 0.75dB
Radiated emission valid to 26 GHz F < 62.5 MHz: 62.5 MHz < F < 1 GHz: 1 GHz < F < 26 GHz:	 ± 5.14 dB ± 5.13 dB ± 5.16 dB
AC Power Lines conducted emissions	± 3.38 dB
Temperature	± 1 °C
Humidity	± 5 %

9. ADDITIONAL PROVISIONS TO THE GENERAL RADIATED EMISSION LIMITATIONS

Temperature (°C) : 23.2-23.4 **Humidity (%HR):** 36-38 **Date :** May 3, 2018 and May 4, 2018

Technician : M.DUMESNIL

Standard: FCC Part 15

Test procedure: Paragraph 15.215

Test set up:

The measure is realized in conducted mode with an analyser.

Then the measure is adjusted with the antenna gain.

For 802.11g and 802.11n modes, duty cycle factor for average measurement is then added. (Correction= 10 log (1/X) = 0.29 dB max)

The measure is repeated on each output port of the EUT and for mode 802.11g and 802.11n, 6 dB is added to the result to simulate the transmission on two outputs.

Test operating condition of the equipment:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate (see §2).

We used for power source the internal fully charged battery

Results:

Sample N° 1 Mode 802.11b – bandwidth 10 MHz – Front Left

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	106.775	100	Peak	2399.5	58.861	47.914	76.775	28.861
2462	114.969	1000	Peak	2483.92	71.041	43.928 (2)	74	30.072
2462	114.969	1000	Average	2483.92	79.299	35.67	54	18.33

Sample N° 1 Mode 802.11b – bandwidth 10 MHz – Front Right

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	107.775	100	Peak	2399.68	60.04	47.735	77.775	30.04
2462	114.268	1000	Peak	2483.92	71.622	42.646 (2)	74	31.354
2462	114.268	1000	Average	2483.92	78.834	35.434	54	18.566

Sample N° 1 Mode 802.11b – bandwidth 10 MHz – Back Left

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	106.932	100	Peak	2398.78	60.059	46.873	76.932	30.059
2462	114.214	1000	Peak	2484.28	70.922	43.292 (2)	74	30.708
2462	114.214	1000	Average	2484.28	78.732	35.482	54	18.518

Sample N° 1 Mode 802.11b – bandwidth 10 MHz – Back Right

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	107.286	100	Peak	2399.32	59.59	47.696	77.286	29.59
2462	114.915	1000	Peak	2484.28	69.492	45.423 (2)	74	28.577
2462	114.915	1000	Average	2484.28	79.123	35.792	54	18.208

(1) Marker-Delta method
(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Mode 802.11b – bandwidth 20 MHz – Front Left

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	106.816	100	Peak	2399.86	56.844	49.972	76.816	26..844
2462	111.716	1000	Peak	2484.1	67.36	44.356 (2)	74	29.644
2462	111.716	1000	Average	2484.1	75.883	35.833	54	18.167

Sample N° 1 Mode 802.11b – bandwidth 20 MHz – Front Right

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	106.672	100	Peak	2399.86	58.526	48.146	76.672	28.526
2462	111.08	1000	Peak	2484.1	68.168	42.912 (2)	74	31.088
2462	111.08	1000	Average	2484.1	75.671	35.409	54	18.591

Sample N° 1 Mode 802.11b – bandwidth 20 MHz – Back Left

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	106.838	100	Peak	2399.68	58.287	48.551	76.838	28.287
2462	111.473	1000	Peak	2484.46	68.392	43.081 (2)	74	30.919
2462	111.473	1000	Average	2484.46	75.913	35.56	54	18.44

Sample N° 1 Mode 802.11b – bandwidth 20 MHz – Back Right

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	106.315	100	Peak	2398.06	57.703	48.612	76.315	27.703
2462	111.667	1000	Peak	2483.56	67.976	43.691 (2)	74	30.309
2462	111.667	1000	Average	2483.56	75.837	35.83	54	18.17

(1) Marker-Delta method
(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Mode 802.11g – bandwidth 10 MHz – Front Left

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	111.888	100	Peak	2398.42	53.978	57.91	81.888	23.978
2462	122.513	1000	Peak	2483.56	71.989	50.524 (2)	74	23.476
2462	122.513	1000	Average	2483.56	79.524	42.989	54	11.011

Sample N° 1 Mode 802.11g – bandwidth 10 MHz – Front Right

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	109.703	100	Peak	2399.32	53.486	56.217	79.703	23.486
2462	121.682	1000	Peak	2484.1	71.114	50.568 (2)	74	23.432
2462	121.682	1000	Average	2484.1	79.971	41.711	54	12.289

Sample N° 1 Mode 802.11g – bandwidth 10 MHz – Back Left

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	109.722	100	Peak	2398.24	54.649	55.073	79.722	24.649
2462	121.684	1000	Peak	2484.1	71.457	50.227 (2)	74	23.773
2462	121.684	1000	Average	2484.1	79.762	41.922	54	12.078

Sample N° 1 Mode 802.11g – bandwidth 10 MHz – Back Right

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	110.982	100	Peak	2398.24	59.983	50.999	80.982	29.983
2462	122.719	1000	Peak	2483.56	72.543	50.176 (2)	74	23.824
2462	122.719	1000	Average	2483.56	80.689	42.030	54	11.97

(1) Marker-Delta method
(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Mode 802.11g – bandwidth 20 MHz – Front Left

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	110.437	100	Peak	2399.68	39.084	71.353	81.417	10.064
2462	119.535	1000	Peak	2483.56	54.661	64.874	74	9.126
2462	119.535	1000	Average	2483.56	66.416	53.119	54	0.881

Sample N° 1 Mode 802.11g – bandwidth 20 MHz – Front Right

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	108.865	100	Peak	2399.86	38.061	70.804	78.865	8.061
2462	118.527	1000	Peak	2483.56	57.789	60.738	74	13.262
2462	118.527	1000	Average	2483.56	70.952	47.575	54	6.425

Sample N° 1 Mode 802.11g – bandwidth 20 MHz – Back Left

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	109.730	100	Peak	2399.86	38.259	71.471	79.730	8.259
2462	119.021	1000	Peak	2483.56	61.695	57.326	74	16.674
2462	119.021	1000	Average	2483.56	70.067	48.954	54	5.046

Sample N° 1 Mode 802.11g – bandwidth 20 MHz – Back Right

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	110.384	100	Peak	2399.68	37.439	72.945	80.384	7.439
2462	118.542	1000	Peak	2483.56	57.309	61.233	74	12.767
2462	118.542	1000	Average	2483.56	67.753	50.789	54	3.211

(1) Marker-Delta method

Sample N° 1 Mode 802.11n – bandwidth 10 MHz – Front Left

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	112.224	100	Peak	2399.14	55.757	56.467	82.224	25.757
2462	121.629	1000	Peak	2484.1	70.19	51.439 (2)	74	22.561
2462	121.629	1000	Average	2484.1	78.956	42.673	54	11.327

Sample N° 1 Mode 802.11n – bandwidth 10 MHz – Front Right

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	109.018	100	Peak	2398.24	53.211	55.807	79.018	23.211
2462	120.885	1000	Peak	2484.46	69.395	51.490 (2)	74	22.51
2462	120.885	1000	Average	2484.46	79.219	41.666	54	12.334

Sample N° 1 Mode 802.11n – bandwidth 10 MHz – Back Left

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	109.492	100	Peak	2399.86	52.877	56.615	79.492	22.877
2462	120.751	1000	Peak	2483.92	70.004	50.747 (2)	74	23.253
2462	120.751	1000	Average	2483.92	78.883	41.868	54	12.132

Sample N° 1 Mode 802.11n – bandwidth 10 MHz – Back Right

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	110.470	100	Peak	2399.5	53.272	57.198	80.470	23.272
2462	120.906	1000	Peak	2484.1	68.59	52.316 (2)	74	21.684
2462	120.906	1000	Average	2484.1	78.828	42.078	54	11.922

(1) Marker-Delta method
(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Mode 802.11n – bandwidth 20 MHz – Front Left

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	109.405	100	Peak	2399.86	38.353	71.052	79.405	8.353
2462	118.858	1000	Peak	2483.56	53.874	64.984	74	9.016
2462	118.858	1000	Average	2483.56	64.951	53.907	54	0.093

Sample N° 1 Mode 802.11n – bandwidth 20 MHz – Front Right

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	107.450	100	Peak	2399.86	36.397	71.053	77.450	6.397
2462	118.201	1000	Peak	2483.56	61.693	56.508	74	17.492
2462	118.201	1000	Average	2483.56	70.246	47.955	54	6.045

Sample N° 1 Mode 802.11n – bandwidth 20 MHz – Back Left

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	109.755	100	Peak	2399.5	38.529	71.226	79.755	8.529
2462	118.398	1000	Peak	2483.56	60.413	57.985	74	16.015
2462	118.398	1000	Average	2483.56	68.84	49.558	54	4.442

Sample N° 1 Mode 802.11n – bandwidth 20 MHz – Back Right

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	RBW (kHz)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	106.895	100	Peak	2399.5	36.467	70.428	76.895	6.467
2462	118.954	1000	Peak	2483.56	56.407	62.547	74	11.453
2462	118.954	1000	Average	2483.56	67.007	51.947	54	2.053

(2) The peak level is lower than the average limit (54 dBµV/m)

Test conclusion:

RESPECTED STANDARD

10. MAXIMUM CONDUCTED (AVERAGE) OUTPUT POWER

Temperature (°C) : 25.6-26 **Humidity (%HR):** 40-58 **Date :** April 17, 2018 and May 28, 2018

Technician : M. DUMESNIL

Standard: FCC Part 15

Test procedure: paragraph 15.247 (b)

AVGPM-G method (using a gated RF average-reading power meter) of paragraph 9.2.3.2 of KDB 558074

Test set up:

The measure is realized in conducted mode with a calibrated gated RF average reading power meter.

The power sensor was used on each output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level. Then the results were summed in linear power unit.

Equipment under test operating condition:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate (see §2).

We used for power source the internal fully charged battery

Results:

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11b – Bandwidth 10 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	
20.6	20.6	20.7	20.7	0.115	0.115	0.117	0.117	1

(1) For 4 antennas with 0.95 dBi

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11b – Bandwidth 10 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	
20.5	20.5	20.5	20.5	0.112	0.112	0.112	0.112	1

(1) For 4 antennas with 0.95 dBi

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11b – Bandwidth 10 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	
20.6	20.7	20.7	20.6	0.115	0.117	0.117	0.115	1

(1) For 4 antennas with 0.95 dBi

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11b – Bandwidth 20 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	
21.5	21.5	21.5	21.5	0.141	0.141	0.141	0.141	1

(1) For 4 antennas with 0.95 dBi

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11b – Bandwidth 20 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	
21.3	21.4	21.4	21.3	0.135	0.138	0.138	0.135	1

(1) For 4 antennas with 0.95 dBi

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11b – Bandwidth 20 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	
21.3	21.4	21.5	21.3	0.135	0.138	0.141	0.135	1

(1) For 4 antennas with 0.95 dBi

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11g – Bandwidth 10 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Total Maximum conducted power (W) (2)	Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
20.3	20.3	20.5	20.2	0.107	0.107	0.112	0.105	0.219	1

(1) For 4 antennas with 0.95 dBi

(2) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11g – Bandwidth 10 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Total Maximum conducted power (W) (2)	Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
19.9	20.1	20.0	20.0	0.098	0.102	0.100	0.100	0.202	1

(1) For 4 antennas with 0.95 dBi

(2) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11g – Bandwidth 10 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Total Maximum conducted power (W) (2)	Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
20.0	20.1	19.9	19.9	0.100	0.102	0.098	0.098	0.202	1

(1) For 4 antennas with 0.95 dBi

(2) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11g – Bandwidth 20 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Total Maximum conducted power (W) (2)	Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
20.4	20.6	20.5	20.5	0.110	0.115	0.112	0.112	0.227	1

(1) For 4 antennas with 0.95 dBi

(2) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11g – Bandwidth 20 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Total Maximum conducted power (W) (2)	Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
20.2	20.4	20.2	20.2	0.105	0.110	0.105	0.105	0.214	1

(1) For 4 antennas with 0.95 dBi

(2) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11g – Bandwidth 20 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Total Maximum conducted power (W) (2)	Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
20.3	20.3	20.1	20.2	0.107	0.107	0.102	0.105	0.214	1

(1) For 4 antennas with 0.95 dBi

(2) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11n – Bandwidth 10 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Total Maximum conducted power (W) (2)	Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
20.0	20.2	20.0	20.1	0.100	0.105	0.100	0.102	0.207	1

(1) For 4 antennas with 0.95 dBi

(2) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11n – Bandwidth 10 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Total Maximum conducted power (W) (2)	Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
19.9	20.0	19.8	19.9	0.098	0.100	0.096	0.098	0.198	1

(1) For 4 antennas with 0.95 dBi

(2) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11n – Bandwidth 10 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Total Maximum conducted power (W) (2)	Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
19.9	20.0	19.8	19.8	0.098	0.100	0.096	0.096	0.198	1

(1) For 4 antennas with 0.95 dBi

(2) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11n – Bandwidth 20 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Total Maximum conducted power (W) (2)	Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
20.2	20.4	20.2	20.3	0.105	0.110	0.105	0.107	0.217	1

(1) For 4 antennas with 0.95 dBi

(2) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11n – Bandwidth 20 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Total Maximum conducted power (W) (2)	Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
20.1	20.2	20.0	20.1	0.102	0.105	0.100	0.102	0.207	1

(1) For 4 antennas with 0.95 dBi

(2) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11n – Bandwidth 20 MHz

Maximum conducted output power (dBm):				Maximum conducted output power (W):				Total Maximum conducted power (W) (2)	Limit (W) (1)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
20.1	20.2	20.0	20.0	0.102	0.105	0.100	0.100	0.207	1

(1) For 4 antennas with 0.95 dBi

(2) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Test conclusion:

RESPECTED STANDARD

11. INTENTIONAL RADIATOR

Temperature (°C) : 23.2-25.6 **Humidity (%HR):** 29.4-43.3 **Date :** From April 1, 2018 to May 22, 2018

Technician : M. DUMESNIL

Standard: FCC Part 15

Test procedure: paragraph 15.205, paragraph 15.209, paragraph 15.247 (d)

Emissions in non-restricted frequency bands method of paragraph 11 of KDB 558074
Emissions in restricted frequency bands method of paragraph 12 of KDB 558074
Average measure are realized with the method 12.2.5.1 for 802.11b mode
Average measure are realized with the method 12.2.5.2 for 802.11g and 802.11n modes

Test set up:

The product is oriented in this normal position.

The measure is realized on open area test site under 1 GHz and in anechoic chamber above 1 GHz.

When the system is tested in an open area test site (OATS), the EUT is placed on a rotating table, 0.8m from a ground plane.

When the system is tested in anechoic chamber, the EUT is placed on a rotating table, 1.5 m from a ground plane.

Zero degree azimuths correspond to the front of the device under test.

Frequency range: From 9 kHz to 10th harmonic of the highest fundamental frequency (25 GHz)

Detection mode: Quasi-peak (F < 1 GHz) Peak / Average (F > 1 GHz)

Bandwidth: 200Hz (9 kHz < F < 150kHz)
9 kHz (150 kHz < F < 30MHz)
120 kHz (30 MHz < F < 1 GHz)
100 kHz / 1 MHz (F > 1 GHz)

Distance of antenna: 10 m below 1 GHz
3 m between 1 GHz and 13 GHz
1 m between 13 GHz and 18 GHz
0.4 m between 18 GHz and 25 GHz

Antenna height: 1 to 4 meters (in open area test site) / 1.5 meter (in anechoic room)

Antenna polarization: vertical and horizontal (only the highest level is recorded)

Equipment under test operating condition:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate (see §2).

We used for power source the internal fully charged battery

For 802.11g and 802.11n modes, duty cycle factor for average measurement is then added. (Correction= 10 log (1/X) = 0.29 dB max)

This factor is already included on the results (tables and graphs)

For detailed results at ±2 MHz of the edge of the band see §8.

Applicable limits: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

In addition, radiated emissions which fall in the restricted band, as defined in section 15.205 (a), must also comply with the radiated emission limits specified in section 15.209 (a) (see section 15.205 (c)).

Results:

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11b – All bandwidth and chains configuration

Frequencies (MHz)	Detector P QP Av	RBW (kHz)	Polarization H: Horizontal V: Vertical	Field strength Measured at 10 m (dBµV/m)	Field strength Measured or computed at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
504	P	100	H	24.4	34.9	46	11.1
600	P	100	H	20.7	31.2	46	14.8
673.8	P	100	V	33.1	43.6	46	2.4
696	P	100	H	20.0	30.5	46	15.5
792	P	100	H	20.4	30.9	46	15.1
840	P	100	H	22.7	33.2	46	12.8
888	P	100	V	25.0	35.5	46	10.5
912	P	100	V	20.9	31.4	46	14.6
936	P	100	V	22.0	32.5	46	13.5
4824 (1)	P	1000	V	/	46.2 (2)	74	27.8
9648	P	100	V	/	48.2	77.78	29.58

P= Peak, QP=Quasi-peak, Av=Average
(1) Restricted bands of operation in 15.205
(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11b – All bandwidth and chains configuration

Frequencies (MHz)	Detector P QP Av	RBW (kHz)	Polarization H: Horizontal V: Vertical	Field strength Measured at 10 m (dBµV/m)	Field strength Measured or computed at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
504	P	100	H	24.4	34.9	46	11.1
600	P	100	H	20.7	31.2	46	14.8
673.8	P	100	V	33.1	43.6	46	2.4
696	P	100	H	20.0	30.5	46	15.5
792	P	100	H	20.4	30.9	46	15.1
840	P	100	H	22.7	33.2	46	12.8
888	P	100	V	25.0	35.5	46	10.5
912	P	100	V	20.9	31.4	46	14.6
936	P	100	V	22.0	32.5	46	13.5
4874 (1)	P	1000	V	/	47.1 (2)	74	26.9
7311 (1)	P	1000	V	/	45.4 (2)	74	28.6
9748	P	100	V	/	49.9	77.91	28.01

P= Peak, QP=Quasi-peak, Av=Average
(1) Restricted bands of operation in 15.205
(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11b – All bandwidth and chains configuration

Frequencies (MHz)	Detector P QP Av	RBW (kHz)	Polarization H: Horizontal V: Vertical	Field strength Measured at 10 m (dBµV/m)	Field strength Measured or computed at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
504	P	100	H	24.4	34.9	46	11.1
600	P	100	H	20.7	31.2	46	14.8
673.8	P	100	V	33.1	43.6	46	2.4
696	P	100	H	20.0	30.5	46	15.5
792	P	100	H	20.4	30.9	46	15.1
840	P	100	H	22.7	33.2	46	12.8
888	P	100	V	25.0	35.5	46	10.5
912	P	100	V	20.9	31.4	46	14.6
936	P	100	V	22.0	32.5	46	13.5
4924 (1)	P	1000	V	/	51.5 (2)	74	22.5
7386 (1)	P	1000	V	/	45 (2)	74	29
9848	P	100	V	/	47.9	77.79	29.89

P= Peak, QP=Quasi-peak, Av=Average
(1) Restricted bands of operation in 15.205
(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11g – All bandwidth and chains configuration

Frequencies (MHz)	Detector P QP Av	RBW (kHz)	Polarization H: Horizontal V: Vertical	Field strength Measured at 10 m (dBµV/m)	Field strength Measured or computed at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
504	P	100	H	24.3	34.8	46	11.2
552	P	100	V	16.3	26.8	46	19.2
600	P	100	H	20.5	31	46	15
674.2	P	100	V	22.6	33.1	46	12.9
705.4	P	100	V	18.4	28.9	46	17.1
744	P	100	V	18.4	28.9	46	17.1
792	P	100	V	21.0	31.5	46	14.5
840	P	100	V	23.7	34.2	46	11.8
888	P	100	V	24.5	35	46	11
912	P	100	V	21.7	32.2	46	13.8
936	P	100	V	22.3	32.8	46	13.2
960	P	100	V	22.2	32.7	54	21.3
984	P	100	V	22.7	33.2	54	20.8
4824 (1)	P	1000	V	/	46.5 (2)	74	27.5
7236	P	100	V	/	47.1	81.89	34.79
9648	P	100	V	/	49	81.89	32.89

P= Peak, QP=Quasi-peak, Av=Average
(1) Restricted bands of operation in 15.205
(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11g – All bandwidth and chains configuration

Frequencies (MHz)	Detector P QP Av	RBW (kHz)	Polarization H: Horizontal V: Vertical	Field strength Measured at 10 m (dBµV/m)	Field strength Measured or computed at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
504	P	100	H	24.3	34.8	46	11.2
552	P	100	V	16.3	26.8	46	19.2
600	P	100	H	20.5	31	46	15
674.2	P	100	V	22.6	33.1	46	12.9
705.4	P	100	V	18.4	28.9	46	17.1
744	P	100	V	18.4	28.9	46	17.1
792	P	100	V	21.0	31.5	46	14.5
840	P	100	V	23.7	34.2	46	11.8
888	P	100	V	24.5	35	46	11
912	P	100	V	21.7	32.2	46	13.8
936	P	100	V	22.3	32.8	46	13.2
960	P	100	V	22.2	32.7	54	21.3
984	P	100	V	22.7	33.2	54	20.8
4874 (1)	P	1000	V	/	47.7 (2)	74	26.3
9748	P	100	V	/	48	81.52	33.52

P= Peak, QP=Quasi-peak, Av=Average
(1) Restricted bands of operation in 15.205
(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11g – All bandwidth and chains configuration

Frequencies (MHz)	Detector P QP Av	RBW (kHz)	Polarization H: Horizontal V: Vertical	Field strength Measured at 10 m (dBµV/m)	Field strength Measured or computed at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
504	P	100	H	24.3	34.8	46	11.2
552	P	100	V	16.3	26.8	46	19.2
600	P	100	H	20.5	31	46	15
674.2	P	100	V	22.6	33.1	46	12.9
705.4	P	100	V	18.4	28.9	46	17.1
744	P	100	V	18.4	28.9	46	17.1
792	P	100	V	21.0	31.5	46	14.5
840	P	100	V	23.7	34.2	46	11.8
888	P	100	V	24.5	35	46	11
912	P	100	V	21.7	32.2	46	13.8
936	P	100	V	22.3	32.8	46	13.2
960	P	100	V	22.2	32.7	54	21.3
984	P	100	V	22.7	33.2	54	20.8
4924 (1)	P	1000	V	/	51.6 (2)	74	22.4
7386 (1)	P	1000	V	/	45 (2)	74	29

P= Peak, QP=Quasi-peak, Av=Average
(1) Restricted bands of operation in 15.205
(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11n – All bandwidth and chains configuration

Frequencies (MHz)	Detector P QP Av	RBW (kHz)	Polarization H: Horizontal V: Vertical	Field strength Measured at 10 m (dBµV/m)	Field strength Measured or computed at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
504	P	100	H	22.2	32.7	46	13.3
600	P	100	H	19.0	29.5	46	16.5
674.7	P	100	V	22.6	33.1	46	12.9
696	P	100	H	18.4	28.9	46	17.1
792	P	100	V	20.4	30.9	46	15.1
840	P	100	H	21.3	31.8	46	14.2
888	P	100	V	23.9	34.4	46	11.6
936	P	100	V	22.3	32.8	46	13.2
984	P	100	V	23.0	33.5	54	20.5
4824 (1)	P	1000	V	/	47.1 (2)	74	26.9
7236	P	100	V	/	47.2	82.22	35.02
9648	P	100	V	/	48.9	82.22	33.32

P= Peak, QP=Quasi-peak, Av=Average
(1) Restricted bands of operation in 15.205
(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11n – All bandwidth and chains configuration

Frequencies (MHz)	Detector P QP Av	RBW (kHz)	Polarization H: Horizontal V: Vertical	Field strength Measured at 10 m (dBµV/m)	Field strength Measured or computed at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
504	P	100	H	22.2	32.7	46	13.3
600	P	100	H	19.0	29.5	46	16.5
674.7	P	100	V	22.6	33.1	46	12.9
696	P	100	H	18.4	28.9	46	17.1
792	P	100	V	20.4	30.9	46	15.1
840	P	100	H	21.3	31.8	46	14.2
888	P	100	V	23.9	34.4	46	11.6
936	P	100	V	22.3	32.8	46	13.2
984	P	100	V	23.0	33.5	54	20.5
4874 (1)	P	1000	V	/	48 (2)	74	26
9748	P	100	V	/	47.4	80.58	33.18

P= Peak, QP=Quasi-peak, Av=Average
(1) Restricted bands of operation in 15.205
(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11n – All bandwidth and chains configuration

Frequencies (MHz)	Detector P QP Av	RBW (kHz)	Polarization H: Horizontal V: Vertical	Field strength Measured at 10 m (dBµV/m)	Field strength Measured or computed at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
504	P	100	H	22.2	32.7	46	13.3
600	P	100	H	19.0	29.5	46	16.5
674.7	P	100	V	22.6	33.1	46	12.9
696	P	100	H	18.4	28.9	46	17.1
792	P	100	V	20.4	30.9	46	15.1
840	P	100	H	21.3	31.8	46	14.2
888	P	100	V	23.9	34.4	46	11.6
936	P	100	V	22.3	32.8	46	13.2
984	P	100	V	23.0	33.5	54	20.5
4924 (1)	P	1000	V	/	51.4 (2)	74	22.6
7386 (1)	P	1000	V	/	45.9 (2)	74	28.1

P= Peak, QP=Quasi-peak, Av=Average

(1) Restricted bands of operation in 15.205

(2) The peak level is lower than the average limit (54 dBµV/m)

Band edge worst case measurement on worst critical positions in conducted mode.

The measure is repeated on each output port of the EUT, antenna gain and duty cycle correction factor are included.

LEGEND:

- Results obtained with 1 MHz and 100 kHz RBW
- Blue curve represent measure with a peak detector
- Pink curve represent measure with an average detector.
- Green line is the peak limit.
- Blue line is the average limit.
- Vertical red lines are the limits of the band.

For mode 802.11g and 802.11n, the worst case average levels are added in table below to simulate the transmission on two outputs.

Worst case average levels:

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11g – Bandwidth 20 MHz

Maximum measured e.i.r.p. level (dBµV/m) (1):				Total Maximum measured e.i.r.p. level power (dBµV/m) (2)	Limit (dBµV/m)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
48.88	43.13	43.30	45.49	49.94	54

(1) For 4 antennas with 0.95 dBi

(2) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11g – Bandwidth 20 MHz

Maximum measured e.i.r.p. level (dBµV/m) (1):				Total Maximum measured e.i.r.p. level power (dBµV/m) (2)	Limit (dBµV/m)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
47.12	41.58	42.95	44.79	48.53	54

(1) For 4 antennas with 0.95 dBi

(2) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11n – Bandwidth 20 MHz

Maximum measured e.i.r.p. level (dBµV/m) (1):				Total Maximum measured e.i.r.p. level power (dBµV/m) (2)	Limit (dBµV/m)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
47.92	46.37	42.80	42.43	50.22	54

(3) For 4 antennas with 0.95 dBi

(4) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

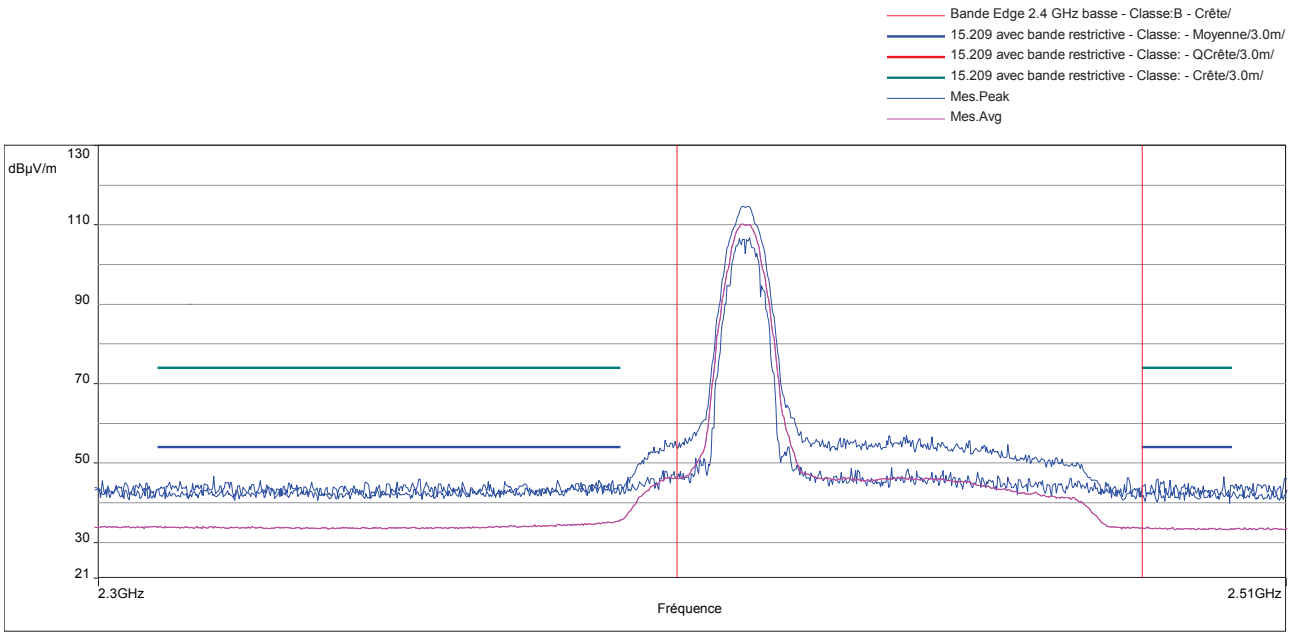
Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11n – Bandwidth 20 MHz

Maximum measured e.i.r.p. level (dBµV/m) (1):				Total Maximum measured e.i.r.p. level power (dBµV/m) (2)	Limit (dBµV/m)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
47.91	41.96	43.56	45.95	49.27	54

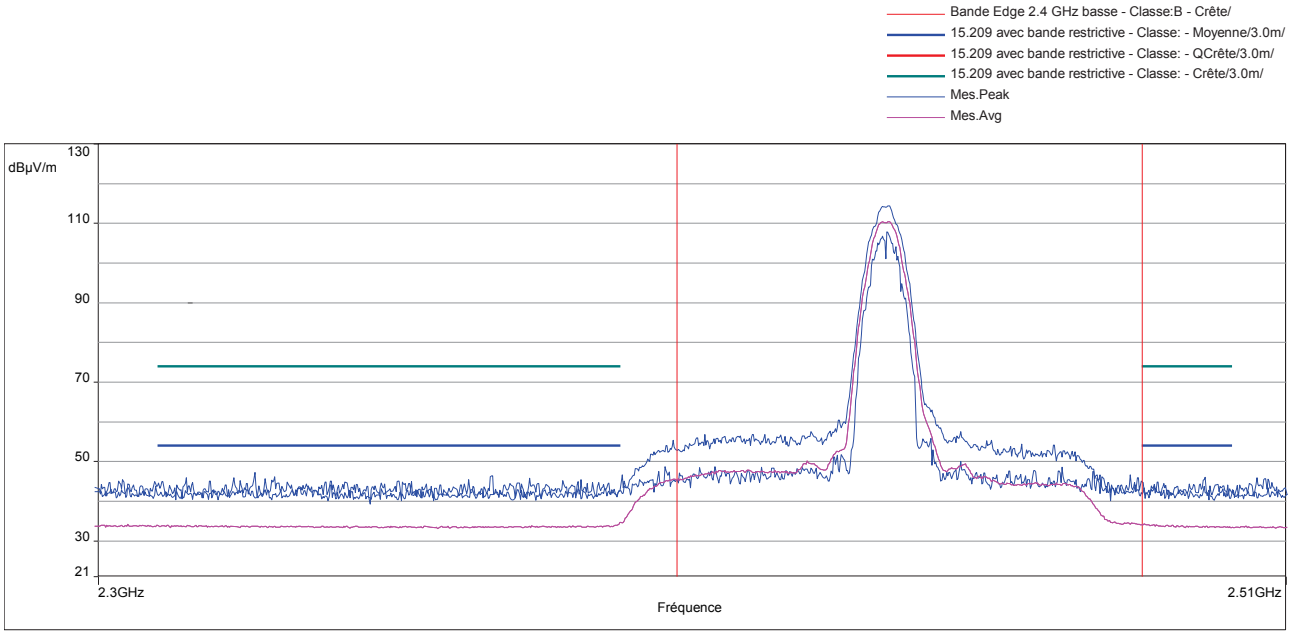
(3) For 4 antennas with 0.95 dBi

(4) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

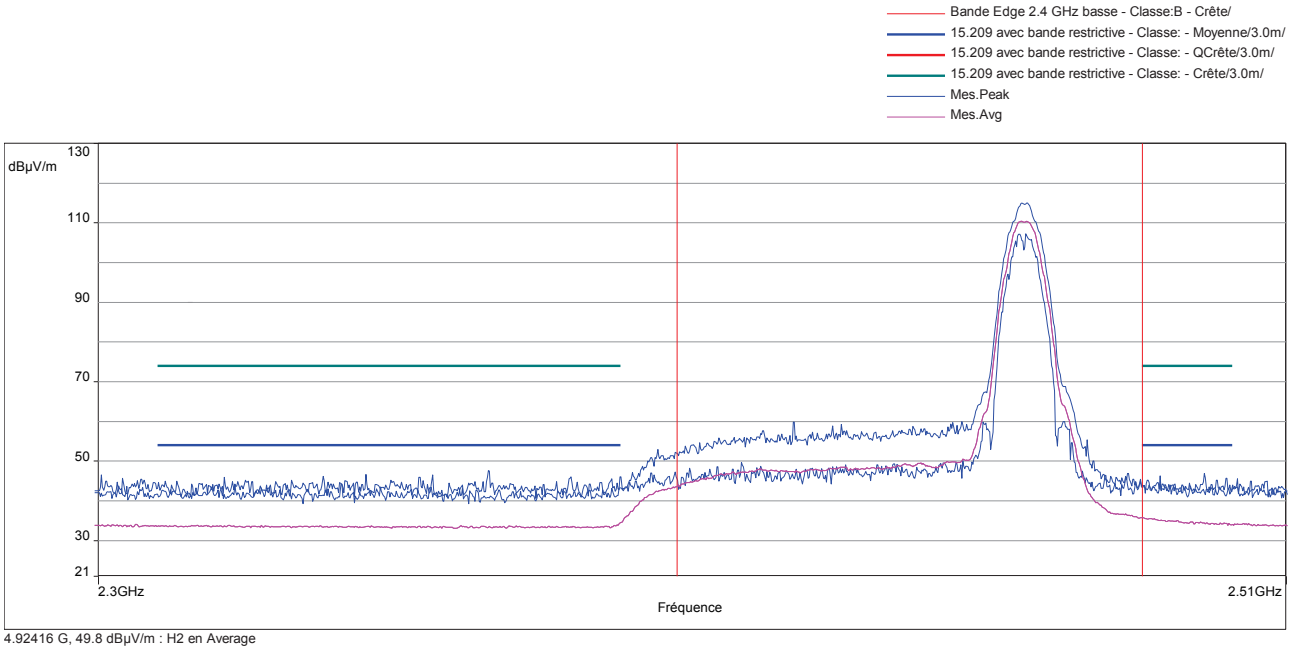
Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11b – bandwidth 10 MHz – Front Left



Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11b – bandwidth 10 MHz – Front Left

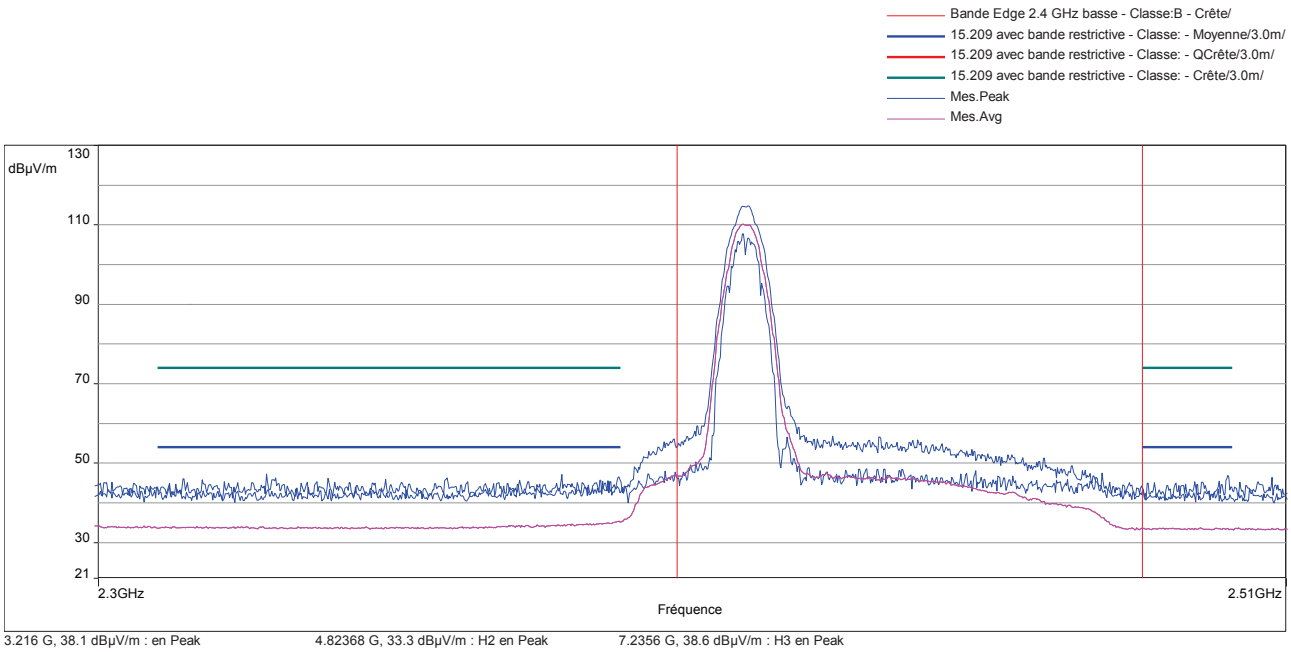


Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11b – bandwidth 10 MHz – Front Left



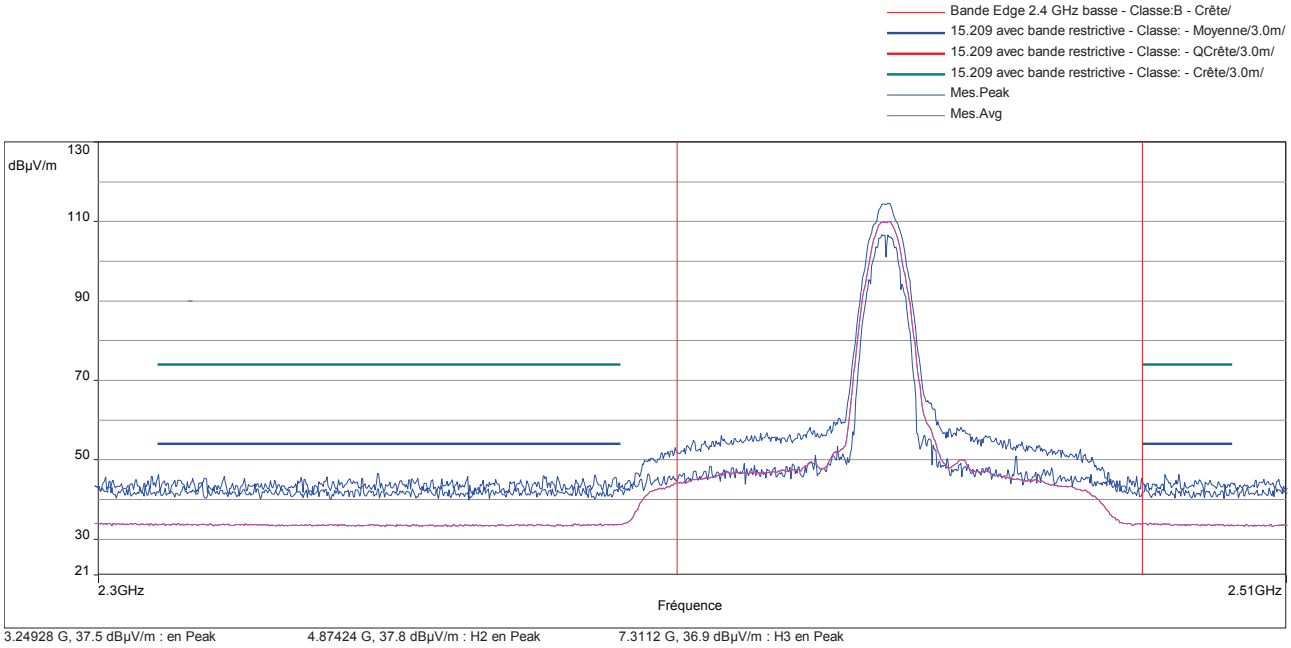
4.92416 G, 49.8 dBµV/m : H2 en Average

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11b – bandwidth 10 MHz – Front Right



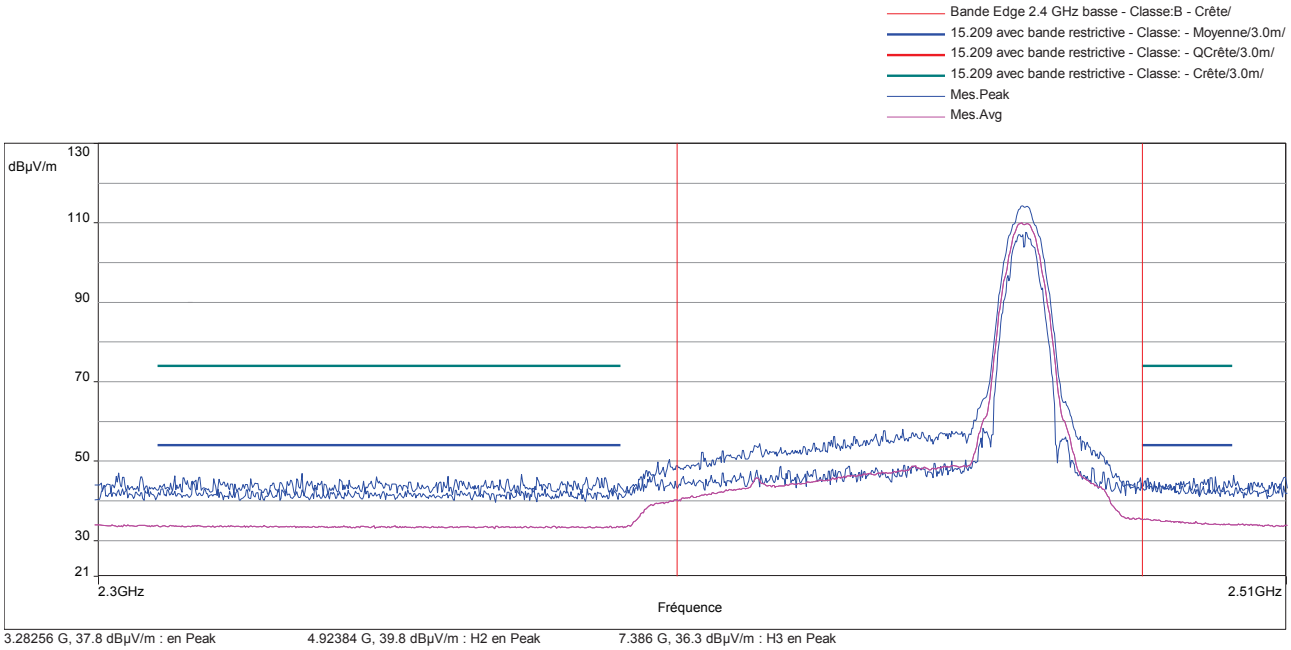
3.216 G, 38.1 dBµV/m : en Peak 4.82368 G, 33.3 dBµV/m : H2 en Peak 7.2356 G, 38.6 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11b – bandwidth 10 MHz – Front Right



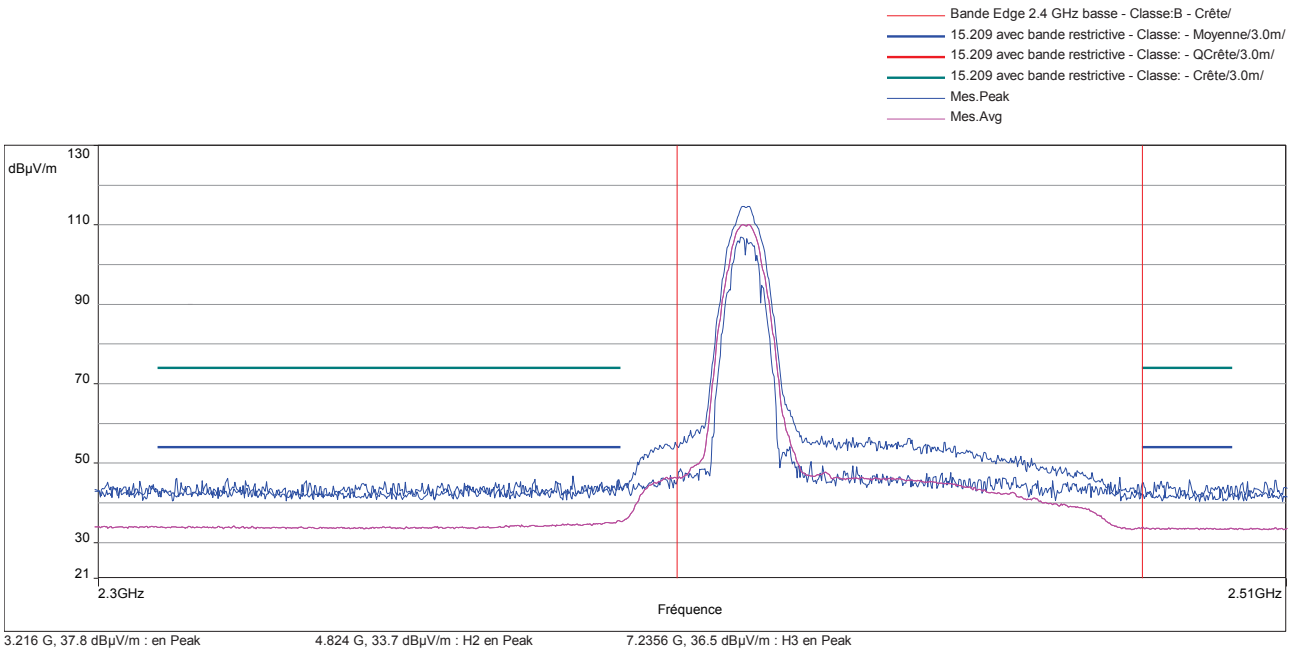
3.24928 G, 37.5 dBµV/m : en Peak 4.87424 G, 37.8 dBµV/m : H2 en Peak 7.3112 G, 36.9 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11b bandwidth 10 MHz – Front Right



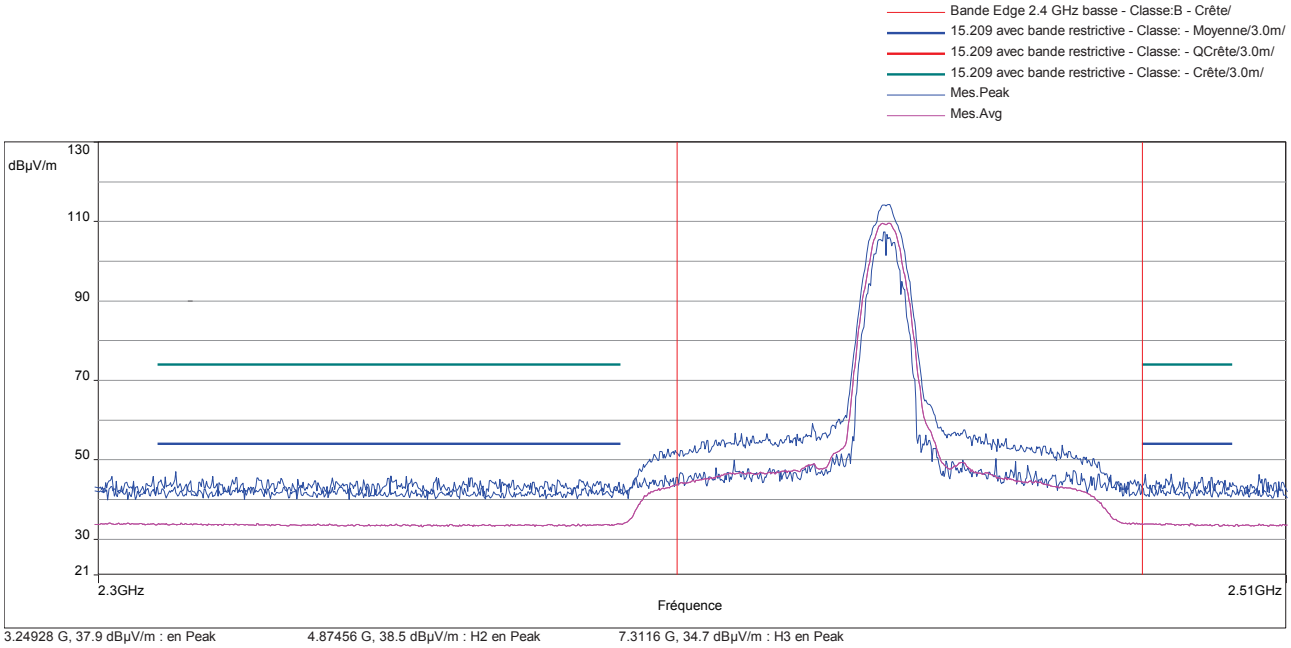
3.28256 G, 37.8 dBµV/m : en Peak 4.92384 G, 39.8 dBµV/m : H2 en Peak 7.386 G, 36.3 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11b – bandwidth 10 MHz – Back Left



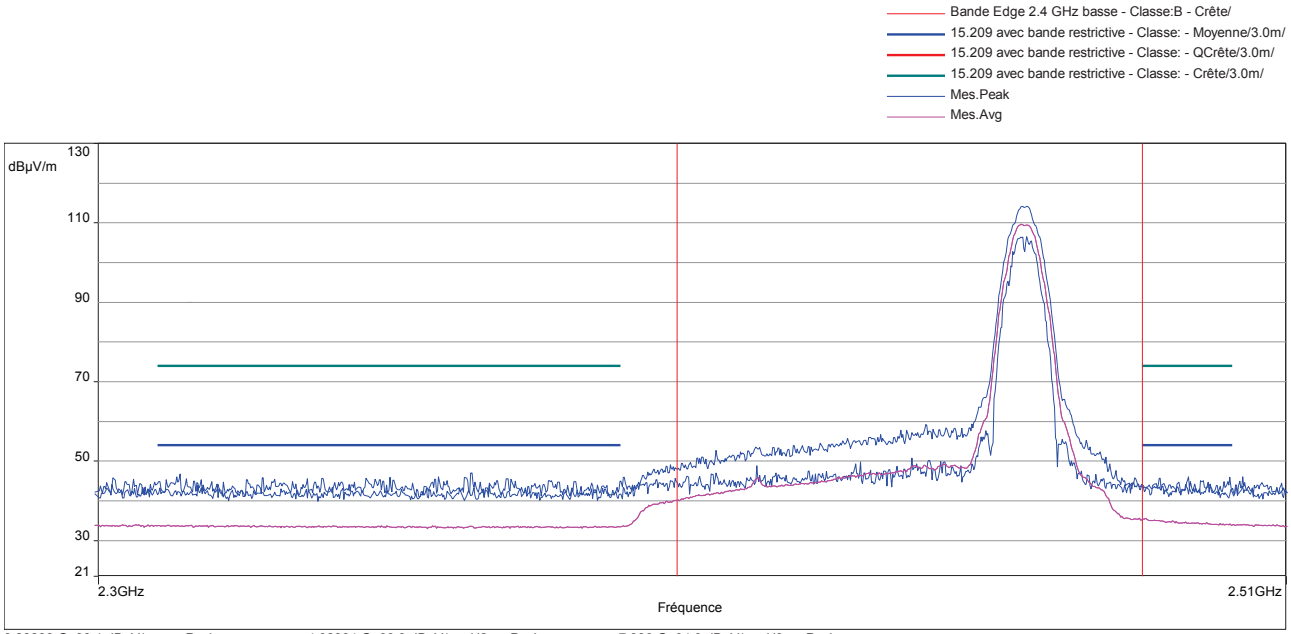
3.216 G, 37.8 dBµV/m : en Peak 4.824 G, 33.7 dBµV/m : H2 en Peak 7.2356 G, 36.5 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11b – bandwidth 10 MHz – Back Left



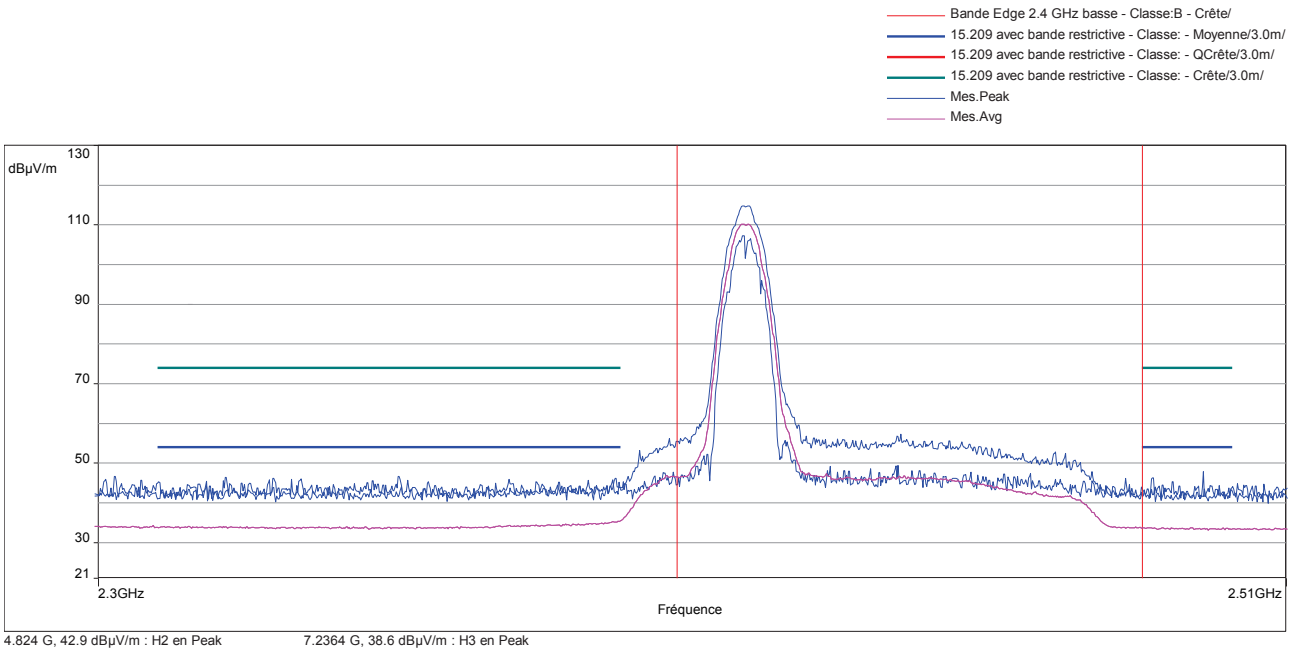
3.24928 G, 37.9 dBµV/m : en Peak 4.87456 G, 38.5 dBµV/m : H2 en Peak 7.3116 G, 34.7 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11b bandwidth 10 MHz – Back Left



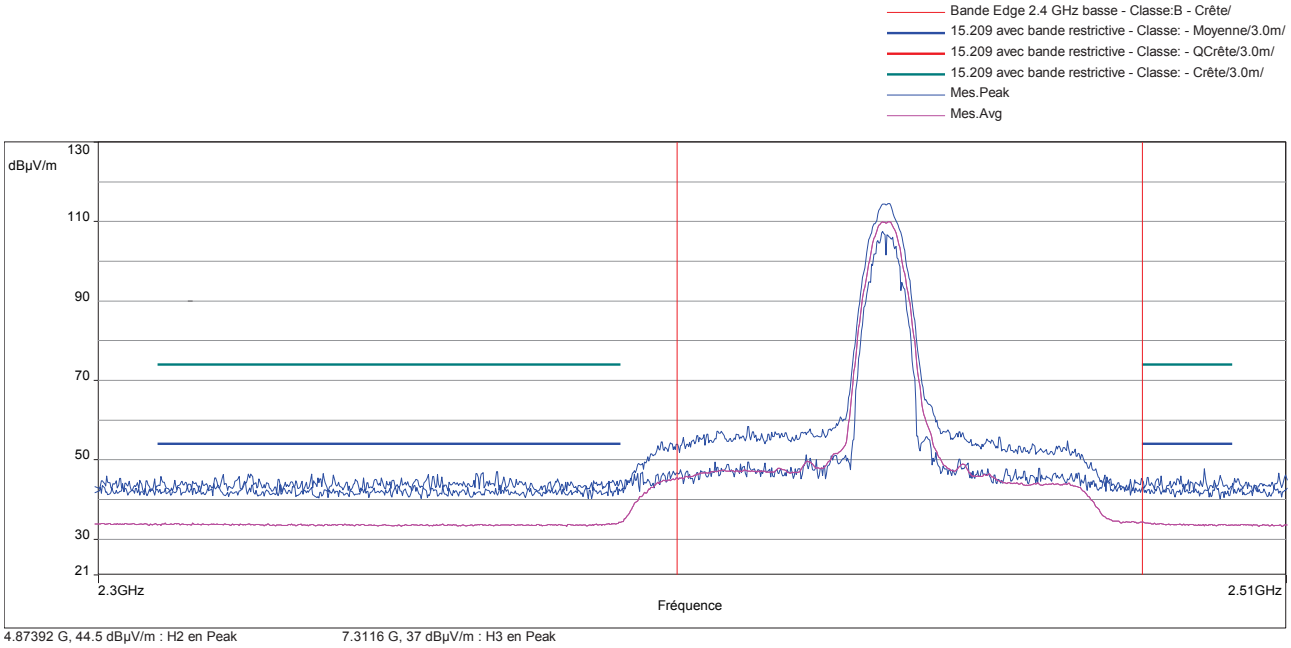
3.28288 G, 38.1 dBµV/m : en Peak 4.92384 G, 39.3 dBµV/m : H2 en Peak 7.386 G, 34.9 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11b – bandwidth 10 MHz – Back Right



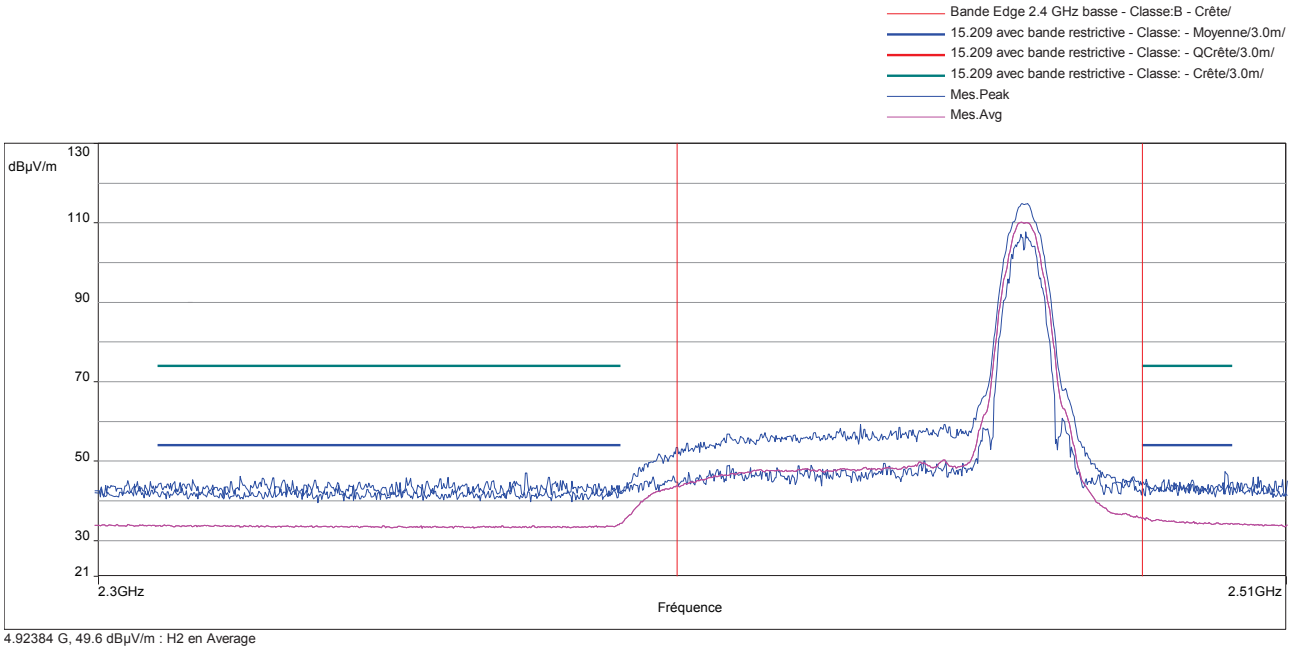
4.824 G, 42.9 dBµV/m : H2 en Peak 7.2364 G, 38.6 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11b – bandwidth 10 MHz – Back Right



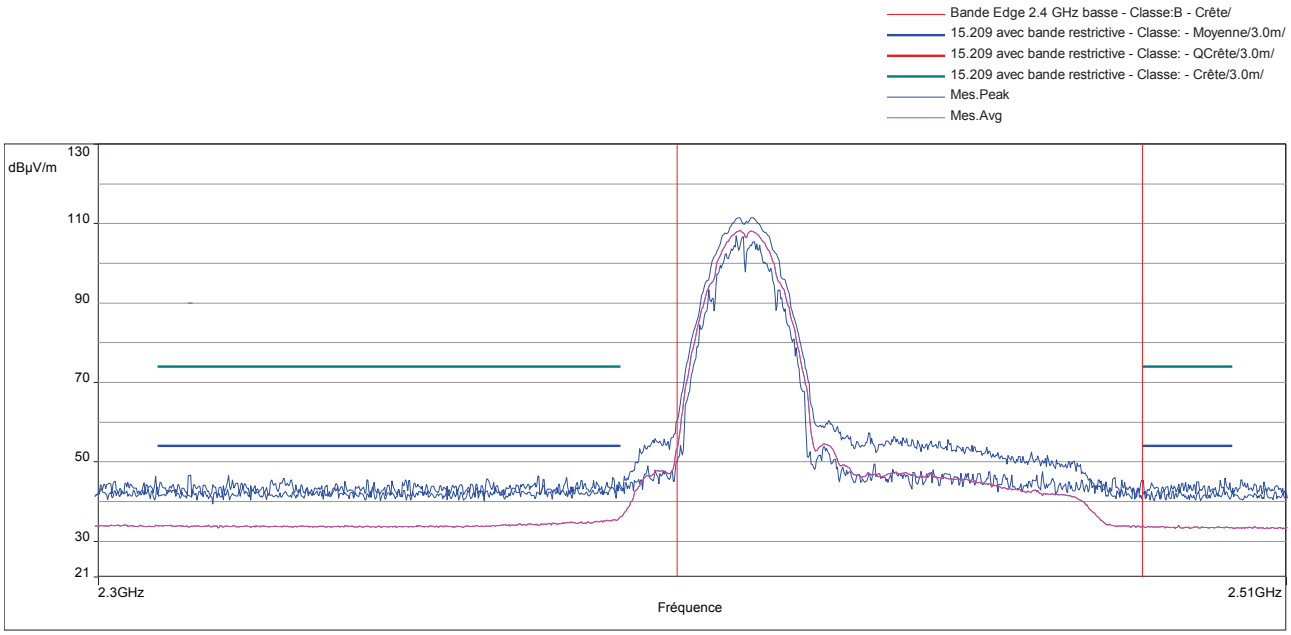
4.87392 G, 44.5 dBµV/m : H2 en Peak 7.3116 G, 37 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11b bandwidth 10 MHz – Back Right

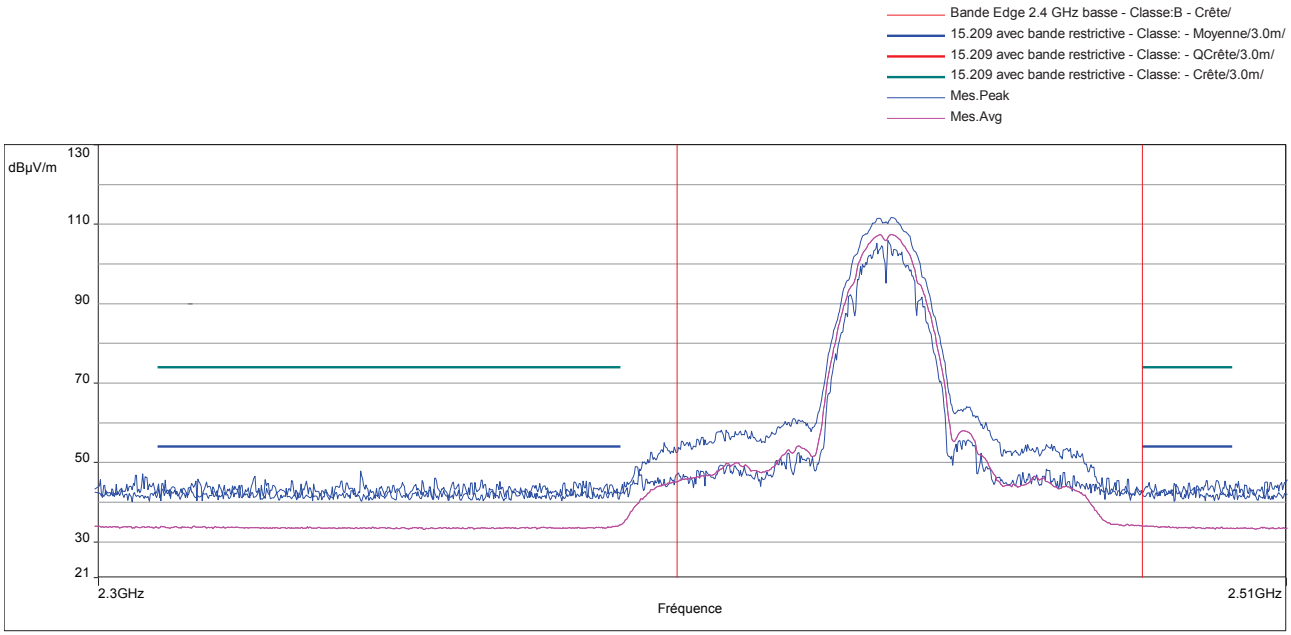


4.92384 G, 49.6 dBµV/m : H2 en Average

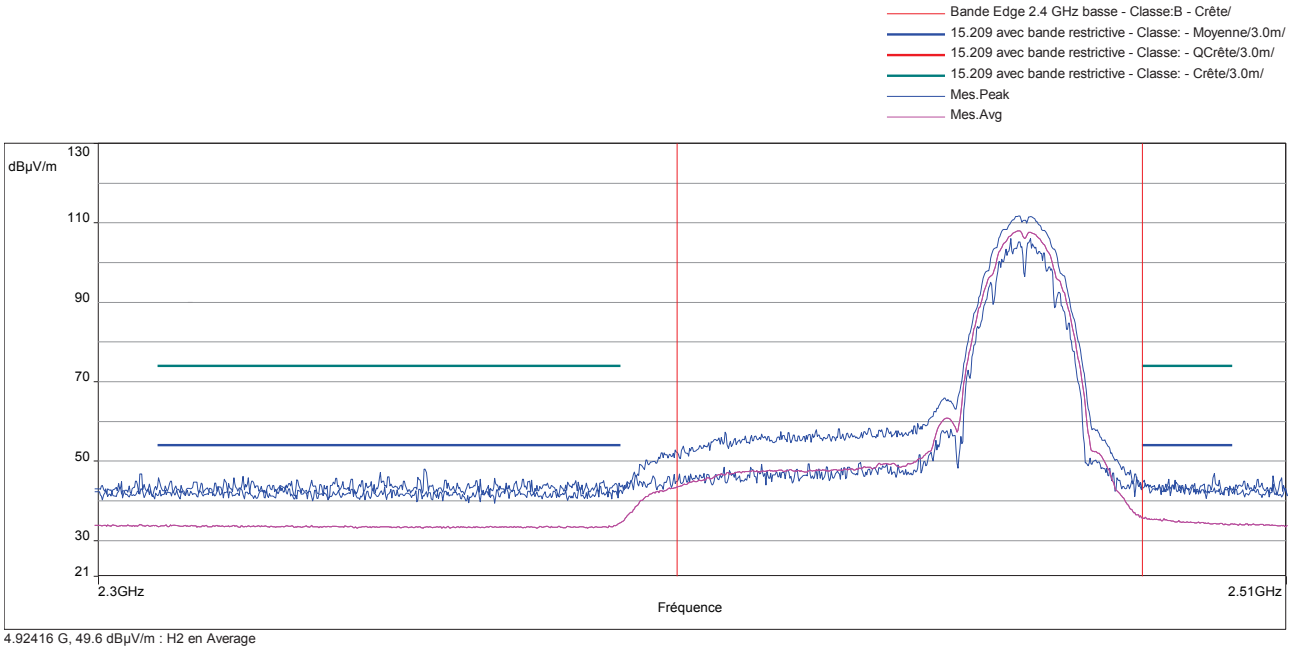
Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11b – bandwidth 20 MHz – Front Left



Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11b – bandwidth 20 MHz – Front Left

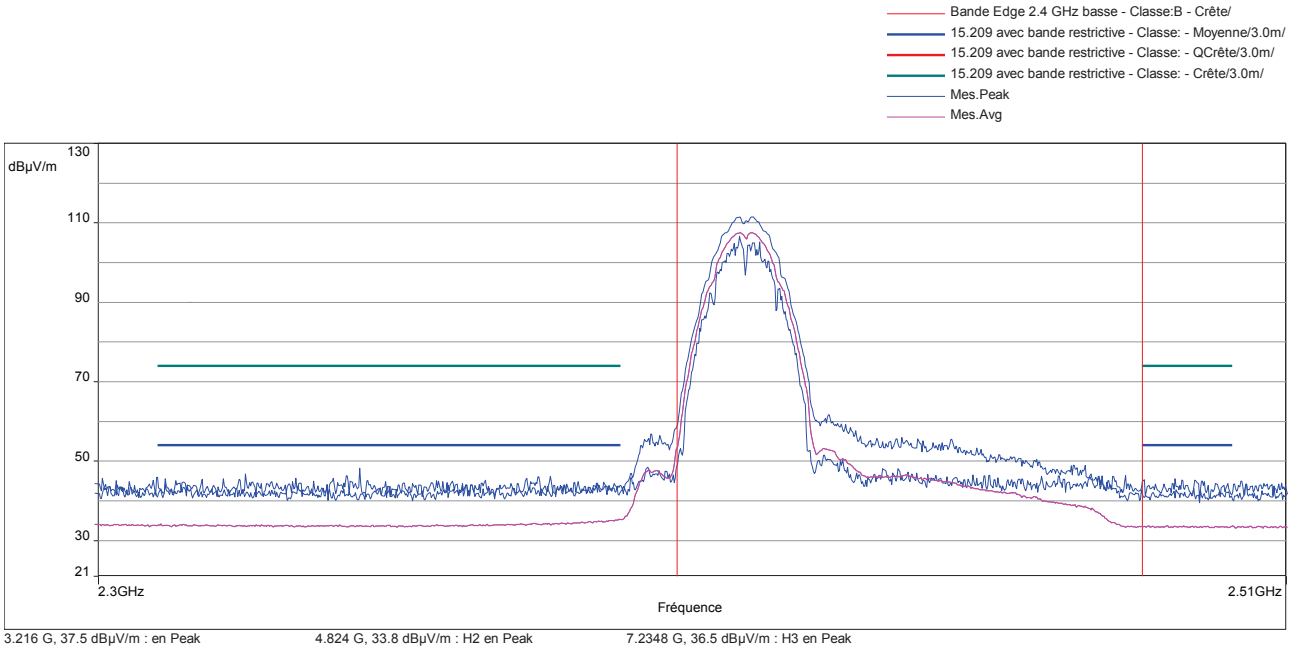


Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11.xb bandwidth 20 MHz – Front Left



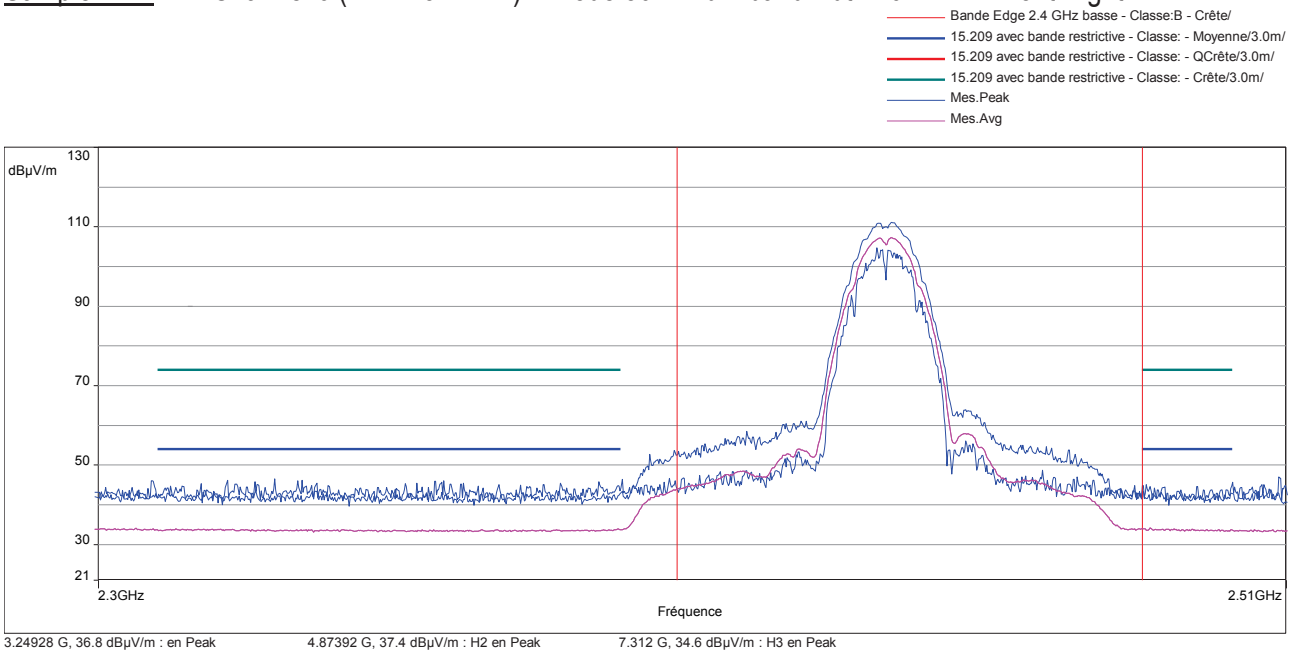
4.92416 G, 49.6 dBµV/m : H2 en Average

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11b – bandwidth 20 MHz – Front Right



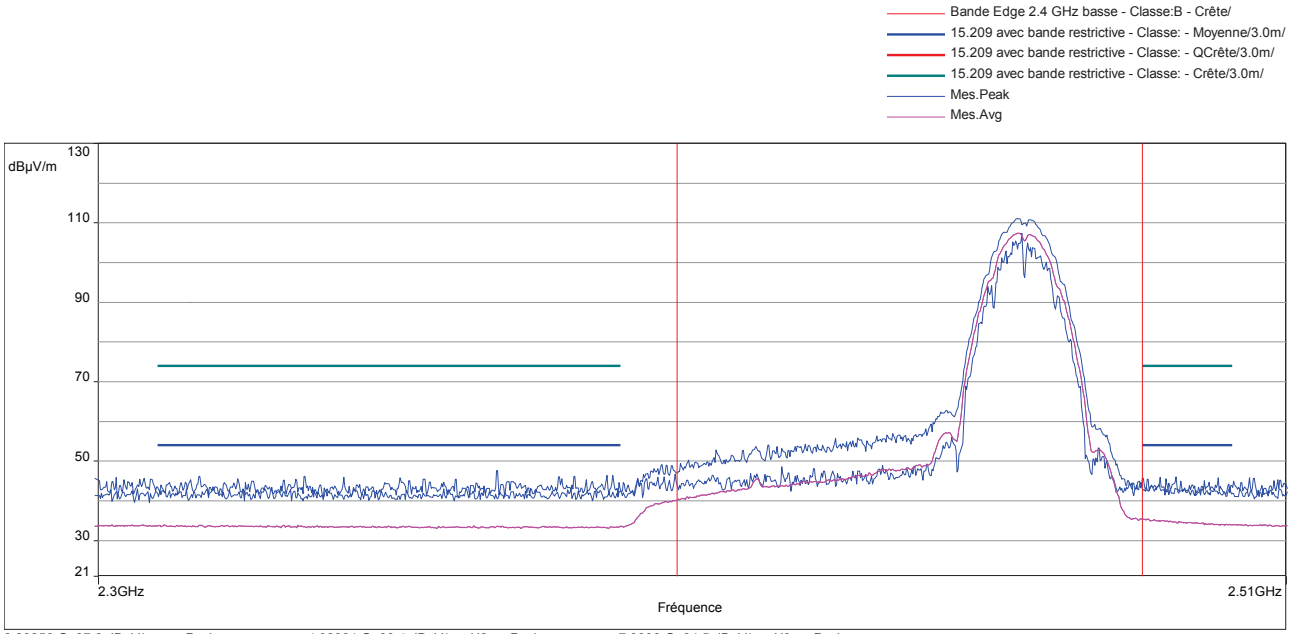
3.216 G, 37.5 dBµV/m : en Peak 4.824 G, 33.8 dBµV/m : H2 en Peak 7.2348 G, 36.5 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11b – bandwidth 20 MHz – Front Right



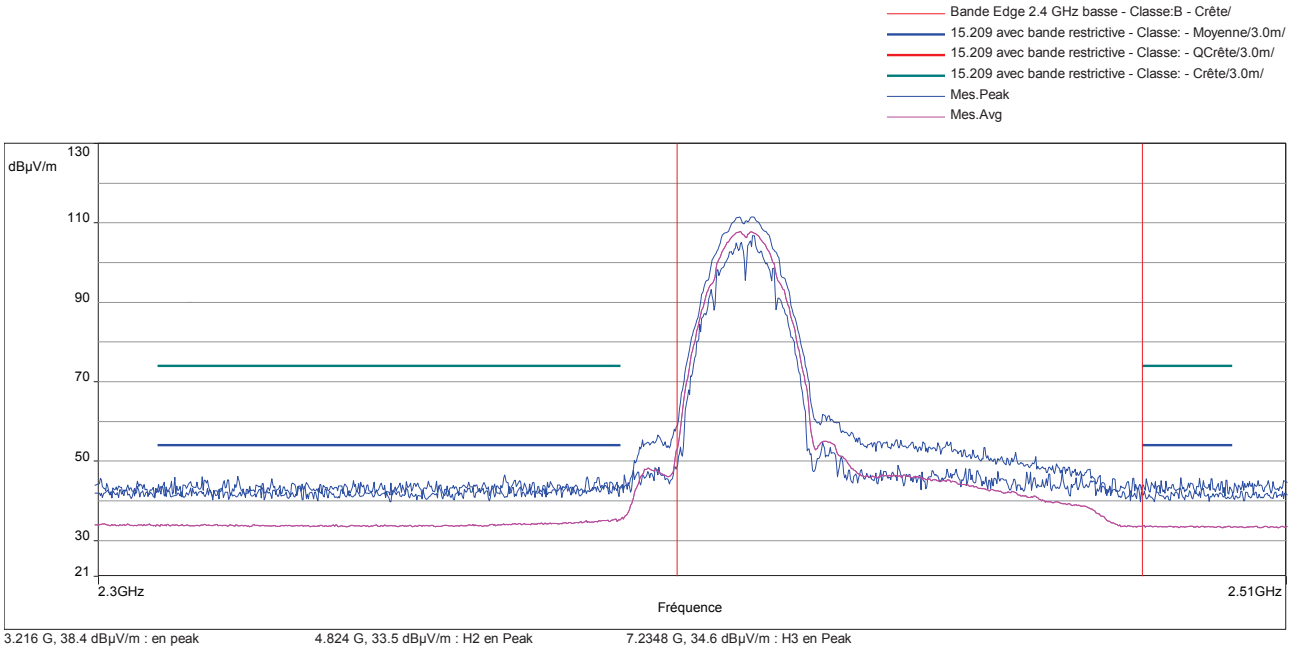
3.24928 G, 36.8 dBµV/m : en Peak 4.87392 G, 37.4 dBµV/m : H2 en Peak 7.312 G, 34.6 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11b bandwidth 20 MHz – Front Right



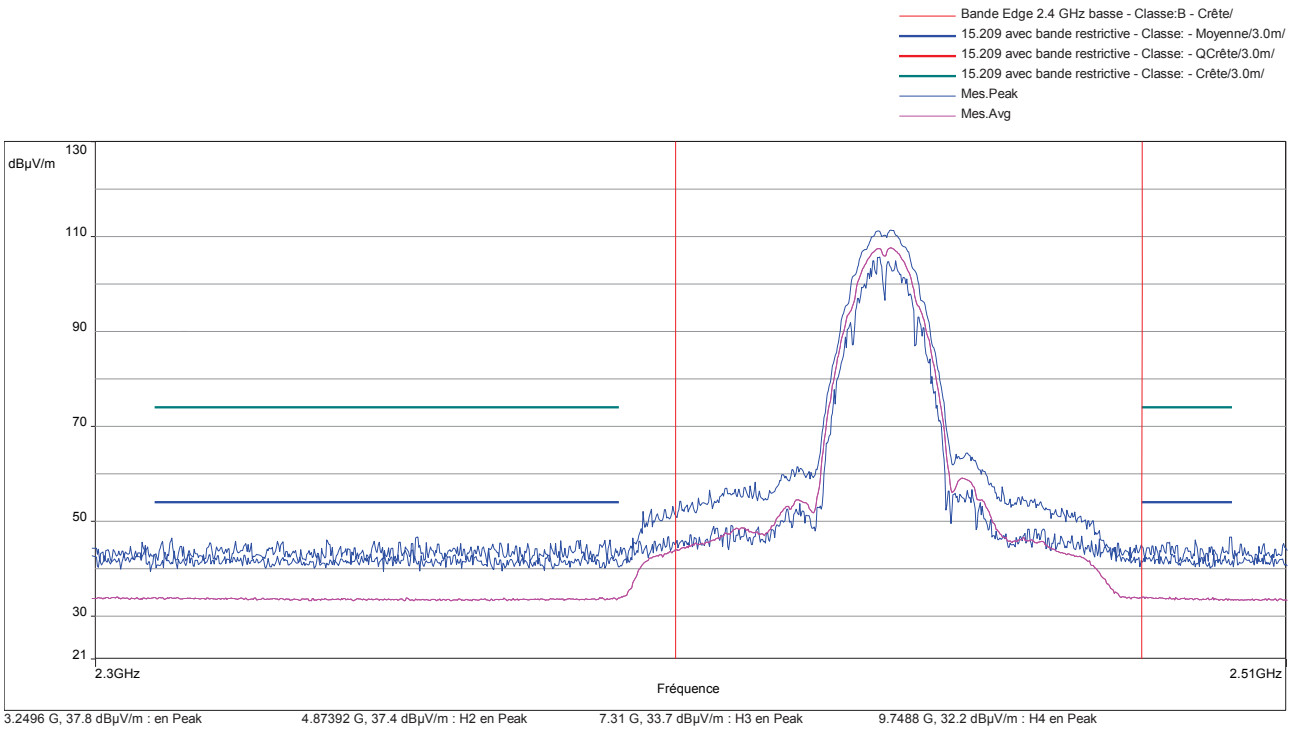
3.28256 G, 37.2 dBµV/m : en Peak 4.92384 G, 39.4 dBµV/m : H2 en Peak 7.3836 G, 34.5 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11b – bandwidth 20 MHz – Back Left



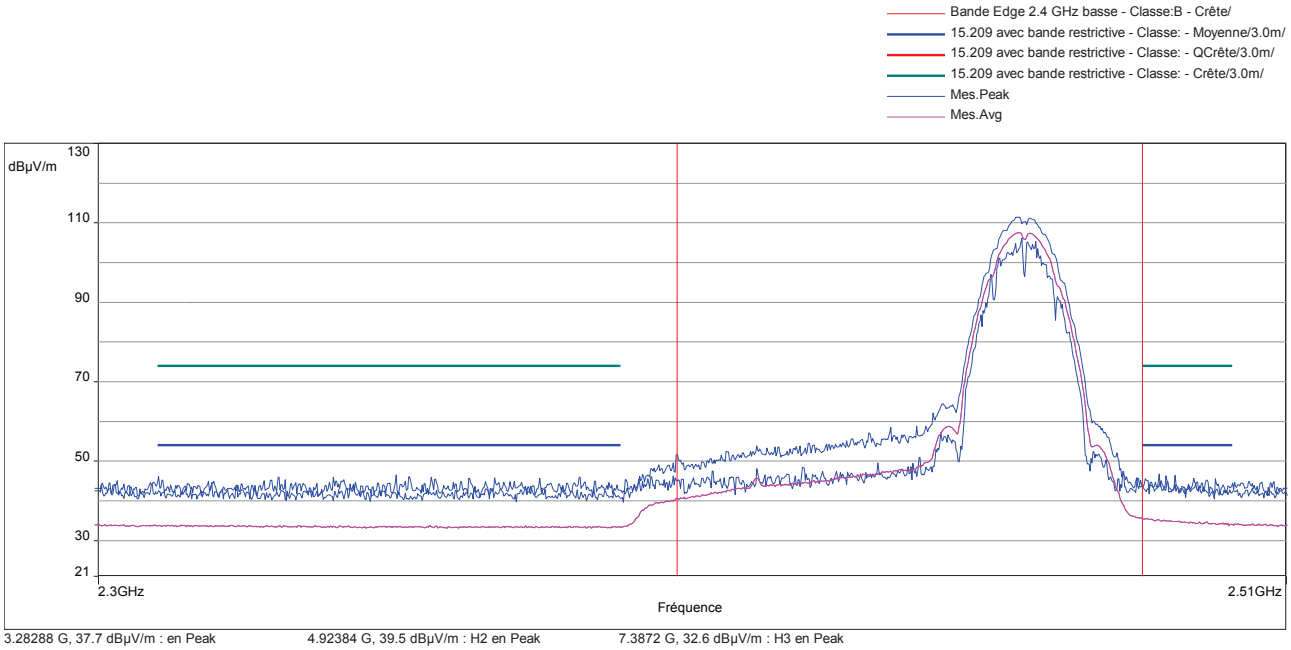
3.216 G, 38.4 dBµV/m : en peak 4.824 G, 33.5 dBµV/m : H2 en Peak 7.2348 G, 34.6 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11b – bandwidth 20 MHz – Back Left



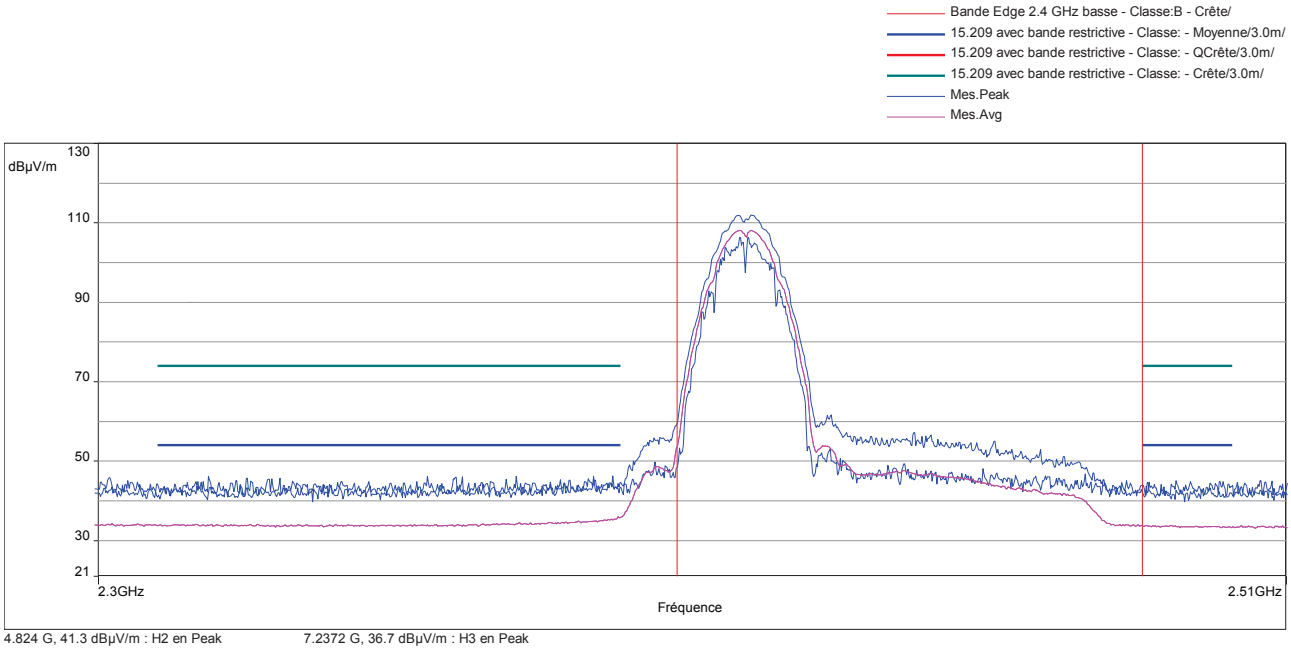
3.2496 G, 37.8 dBµV/m : en Peak 4.87392 G, 37.4 dBµV/m : H2 en Peak 7.31 G, 33.7 dBµV/m : H3 en Peak 9.7488 G, 32.2 dBµV/m : H4 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11b bandwidth 20 MHz – Back Left



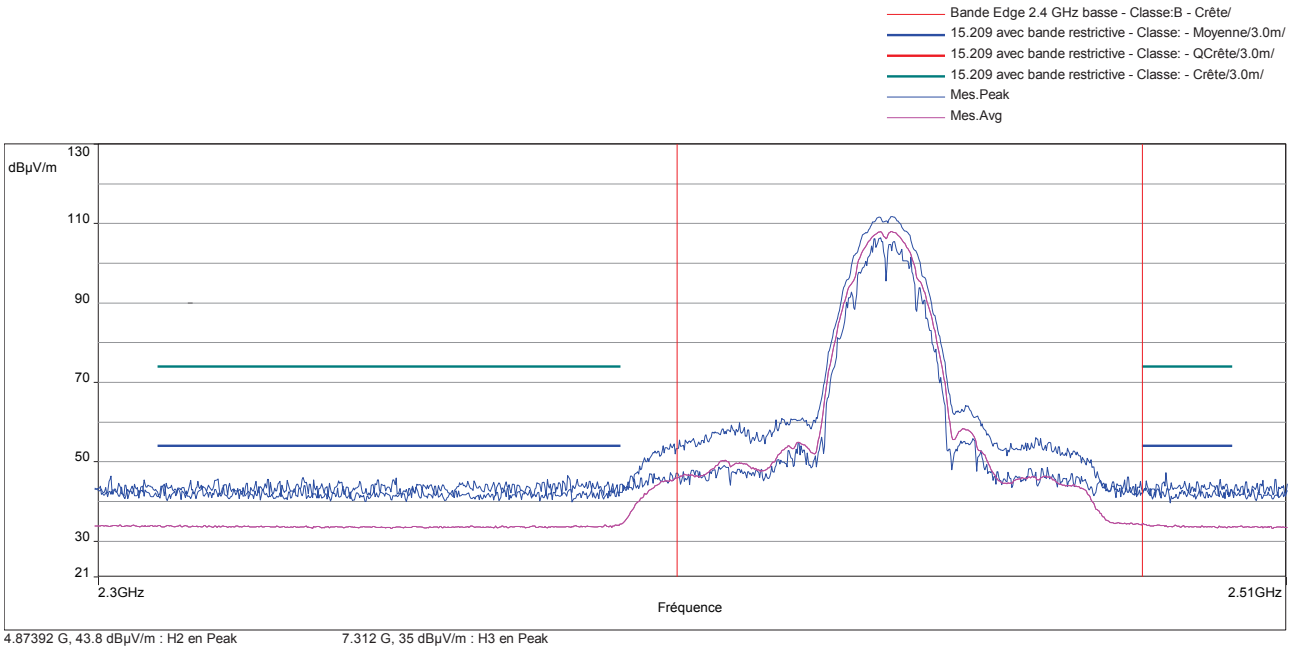
3.28288 G, 37.7 dBµV/m : en Peak 4.92384 G, 39.5 dBµV/m : H2 en Peak 7.3872 G, 32.6 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11b – bandwidth 20 MHz – Back Right



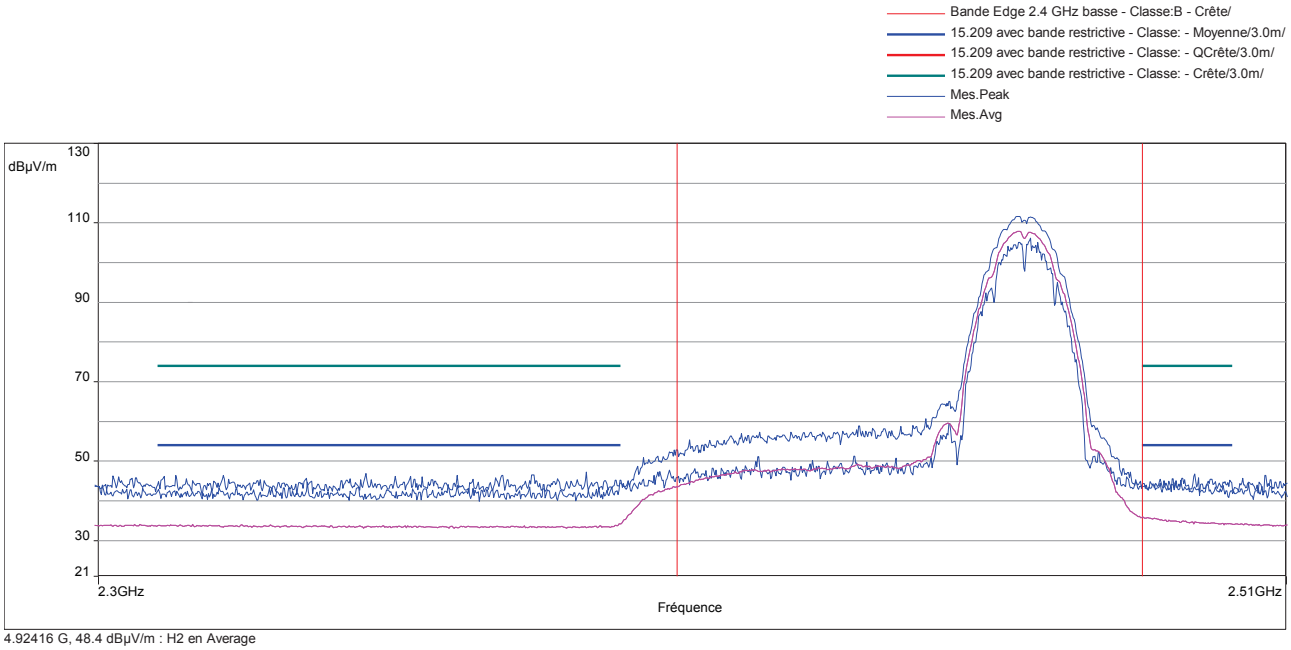
4.824 G, 41.3 dBµV/m : H2 en Peak 7.2372 G, 36.7 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11b – bandwidth 20 MHz – Back Right



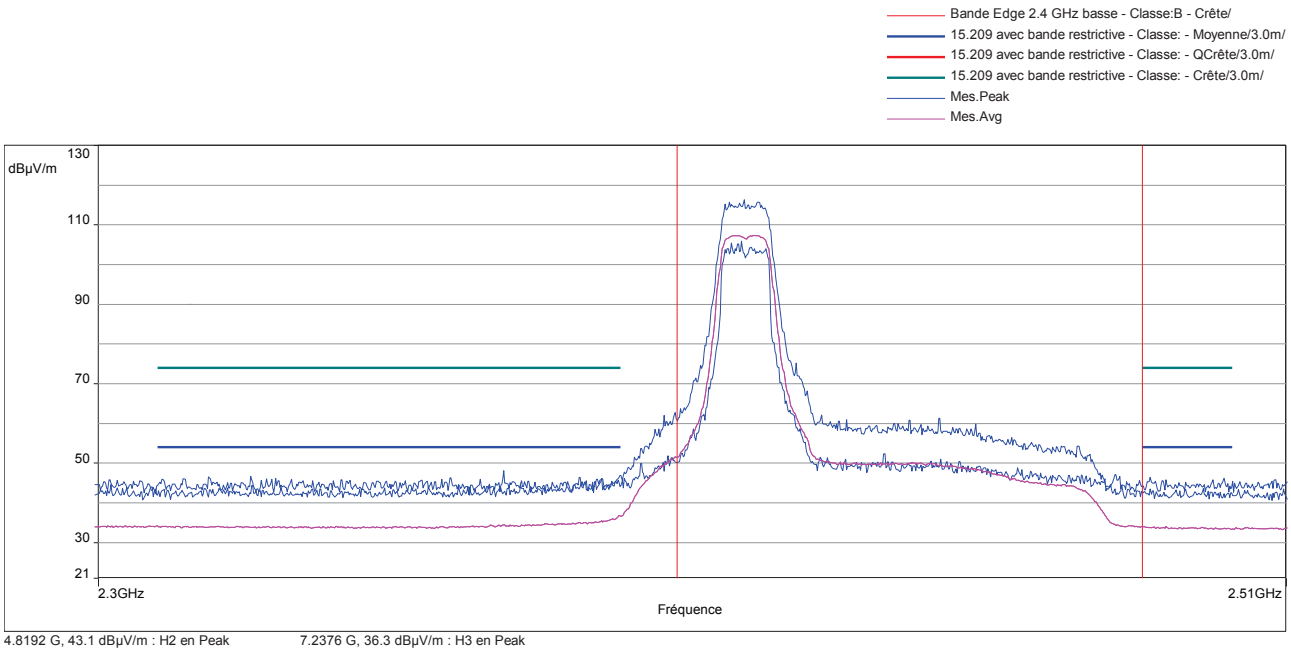
4.87392 G, 43.8 dBµV/m : H2 en Peak 7.312 G, 35 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11b bandwidth 20 MHz – Back Right



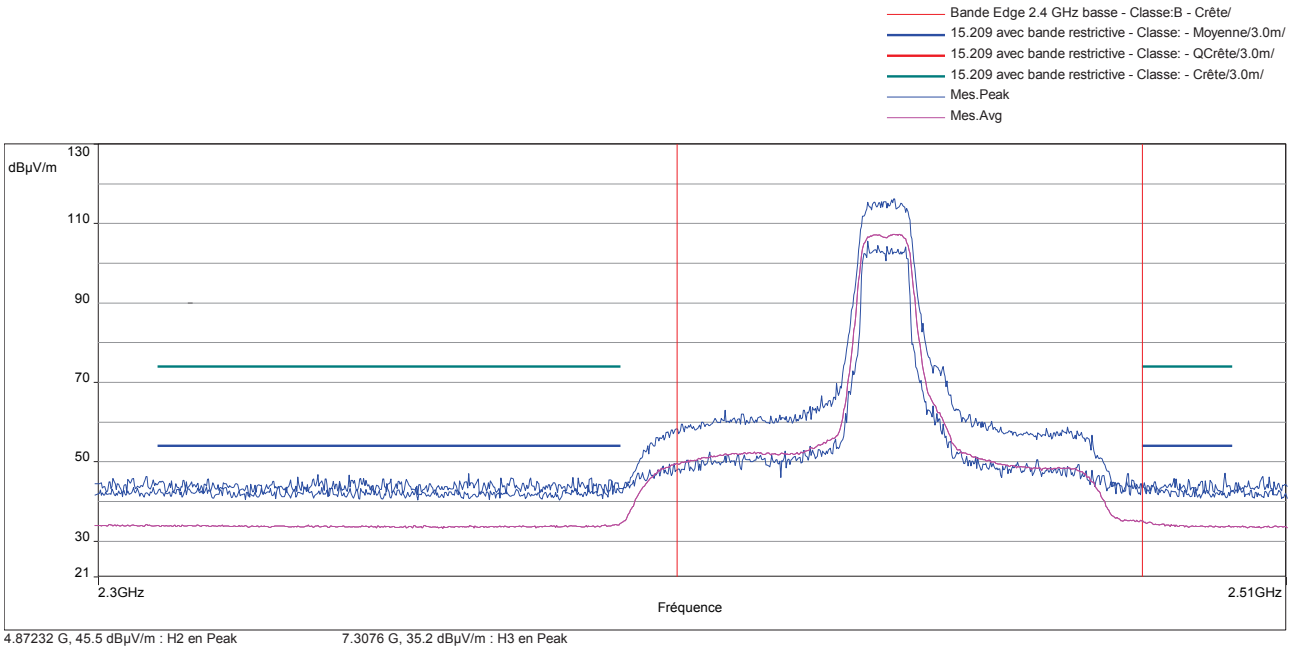
4.92416 G, 48.4 dBµV/m : H2 en Average

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11g – bandwidth 10 MHz – Front Left



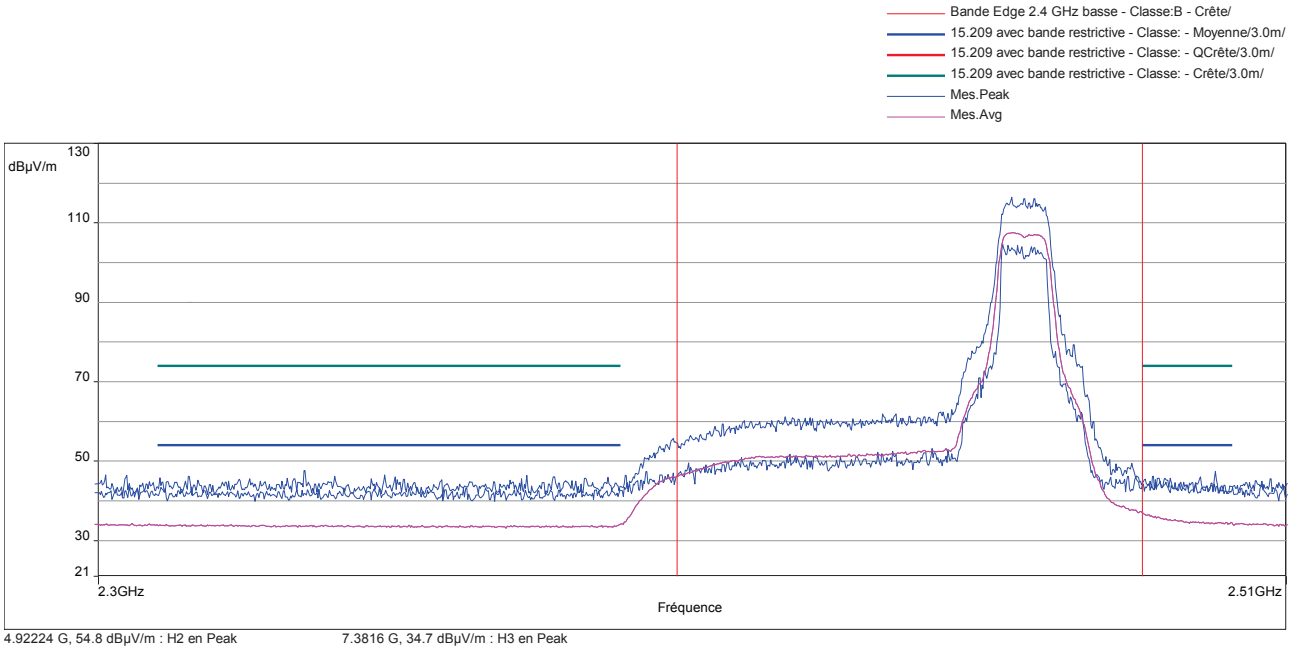
4.8192 G, 43.1 dBµV/m : H2 en Peak 7.2376 G, 36.3 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11g – bandwidth 10 MHz – Front Left



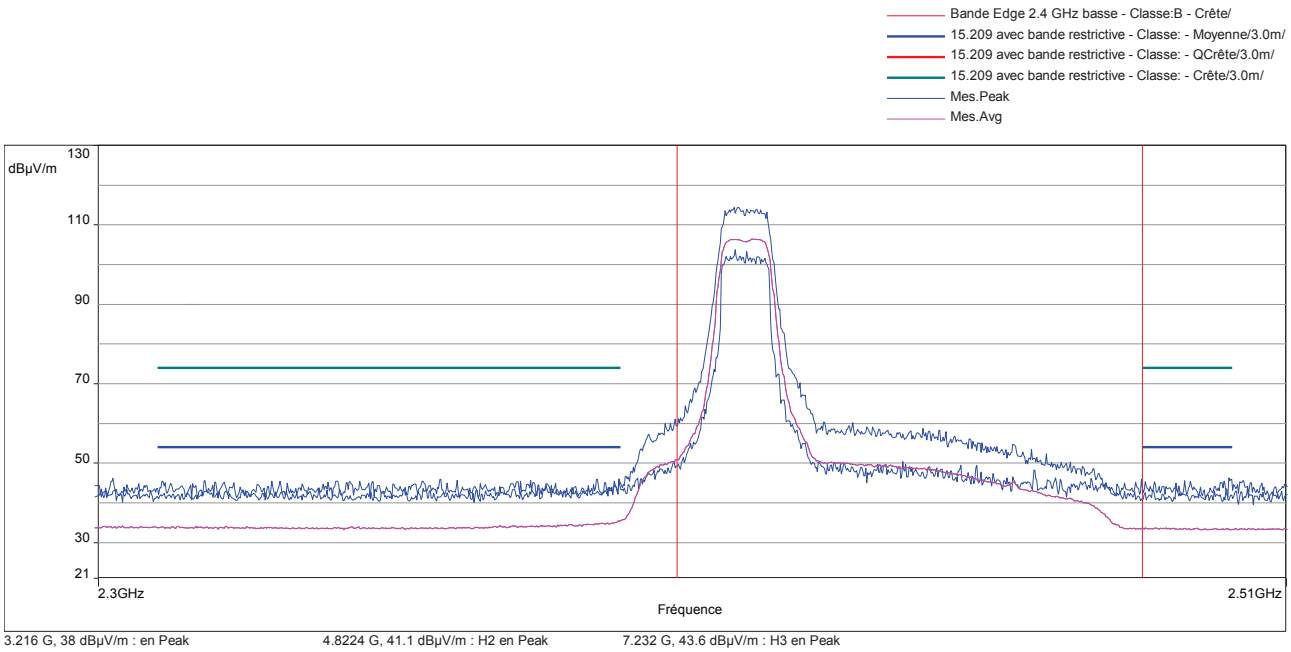
4.87232 G, 45.5 dBµV/m : H2 en Peak 7.3076 G, 35.2 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11g bandwidth 10 MHz – Front Left



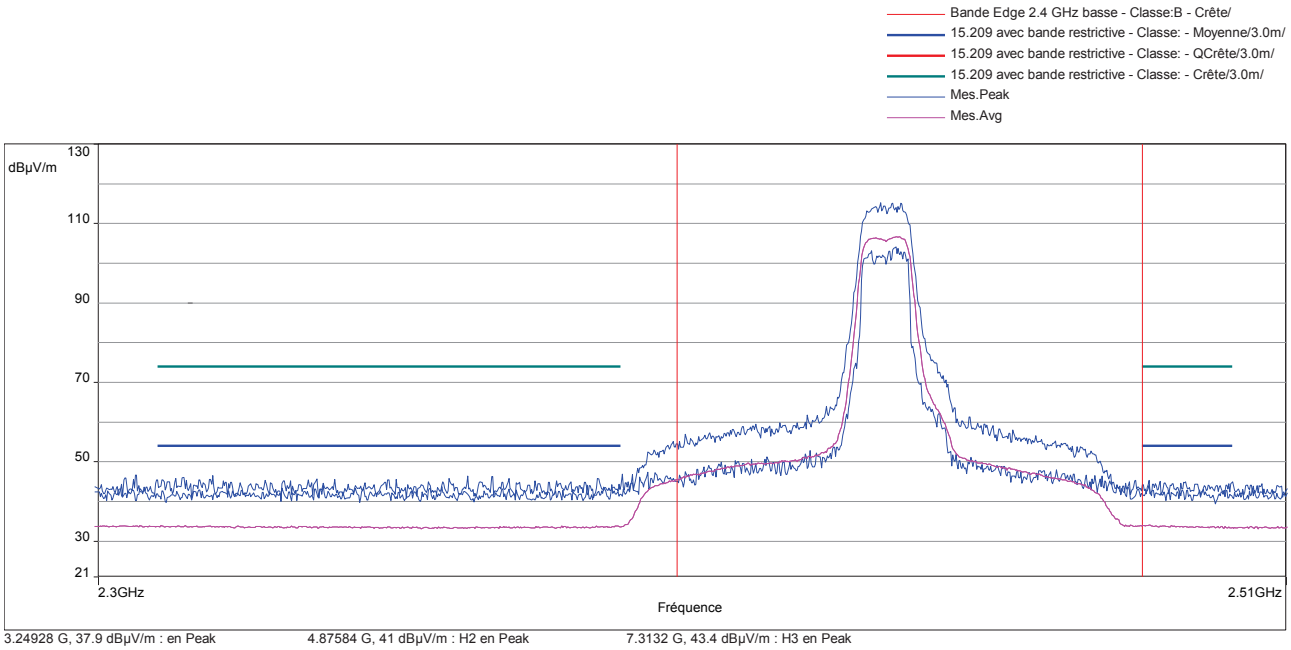
4.92224 G, 54.8 dBµV/m : H2 en Peak 7.3816 G, 34.7 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11g – bandwidth 10 MHz – Front Right



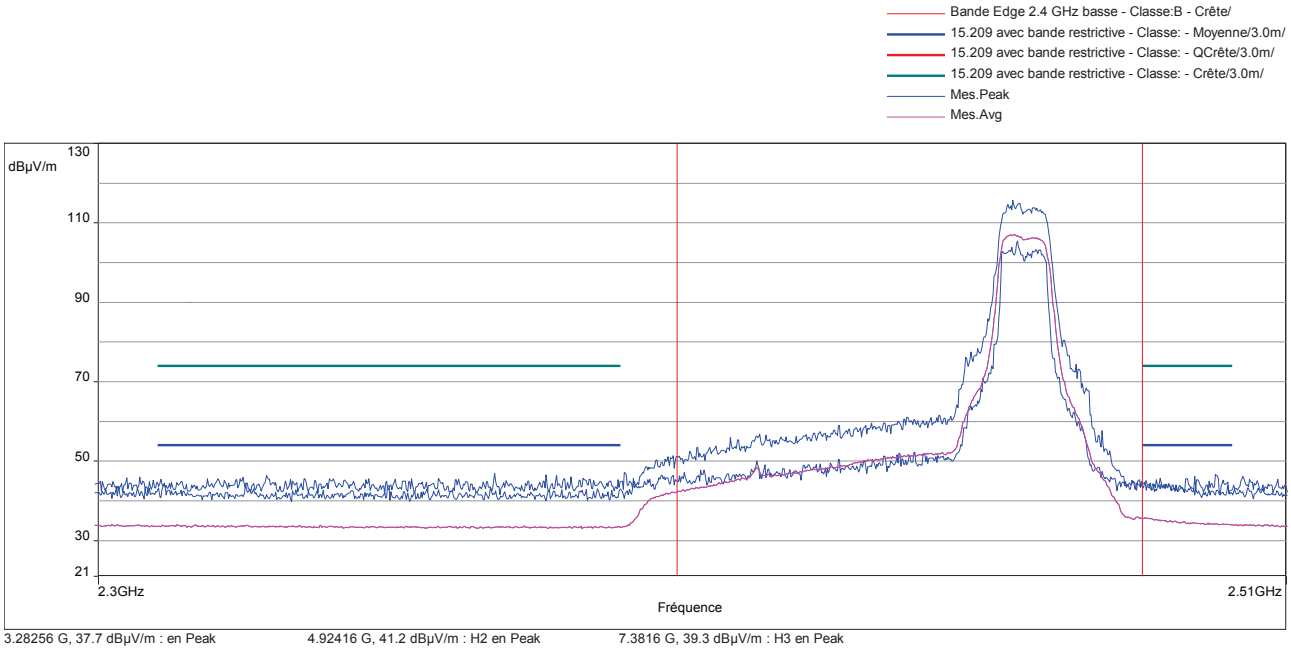
3.216 G, 38 dBµV/m : en Peak 4.8224 G, 41.1 dBµV/m : H2 en Peak 7.232 G, 43.6 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11g – bandwidth 10 MHz – Front Right



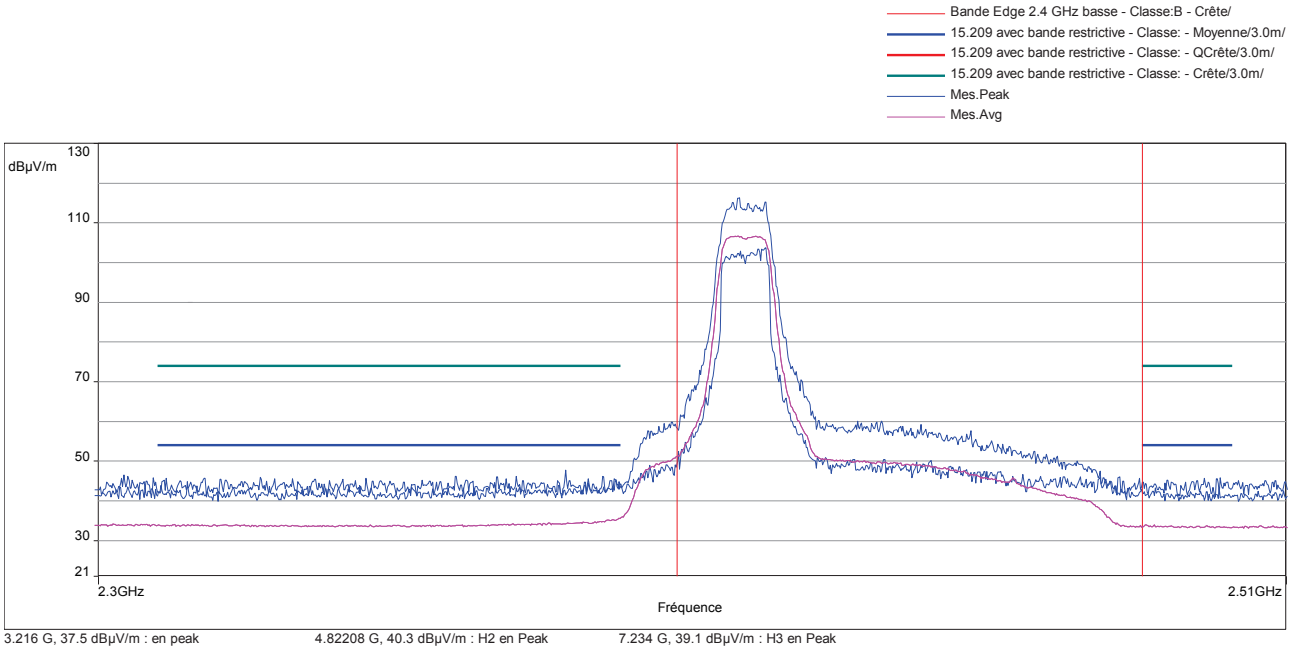
3.24928 G, 37.9 dBµV/m : en Peak 4.87584 G, 41 dBµV/m : H2 en Peak 7.3132 G, 43.4 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11g bandwidth 10 MHz – Front Right



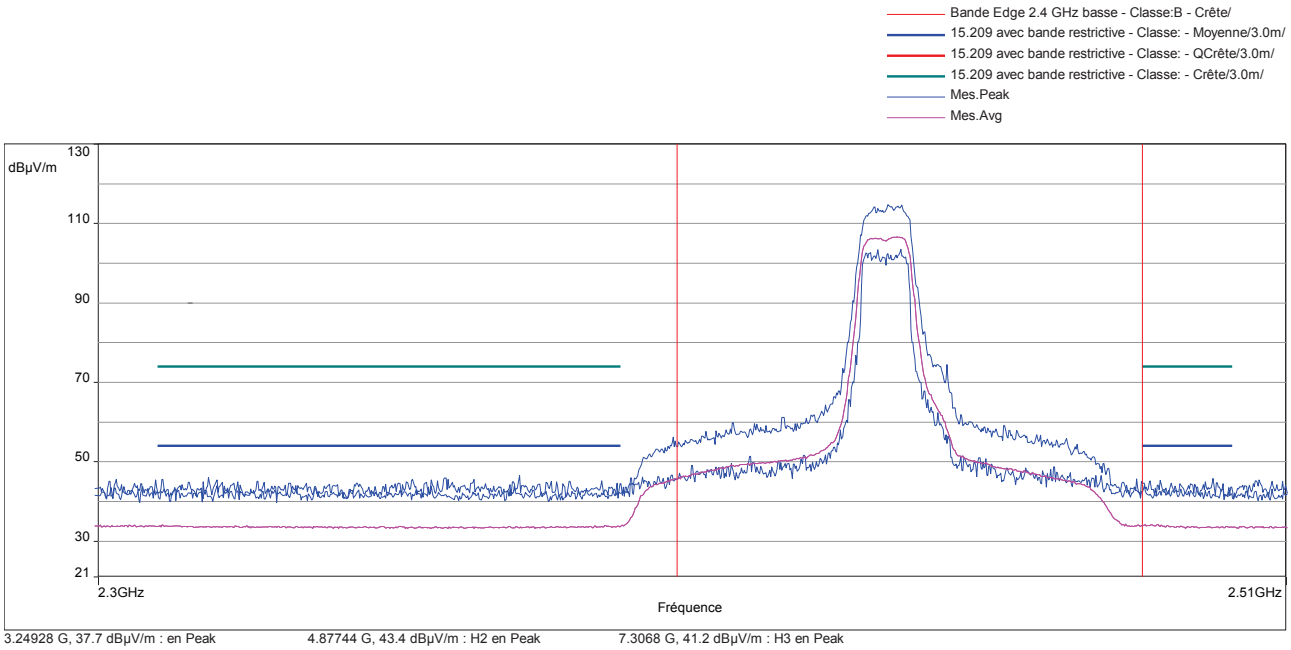
3.28256 G, 37.7 dBµV/m : en Peak 4.92416 G, 41.2 dBµV/m : H2 en Peak 7.3816 G, 39.3 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11g – bandwidth 10 MHz – Back Left



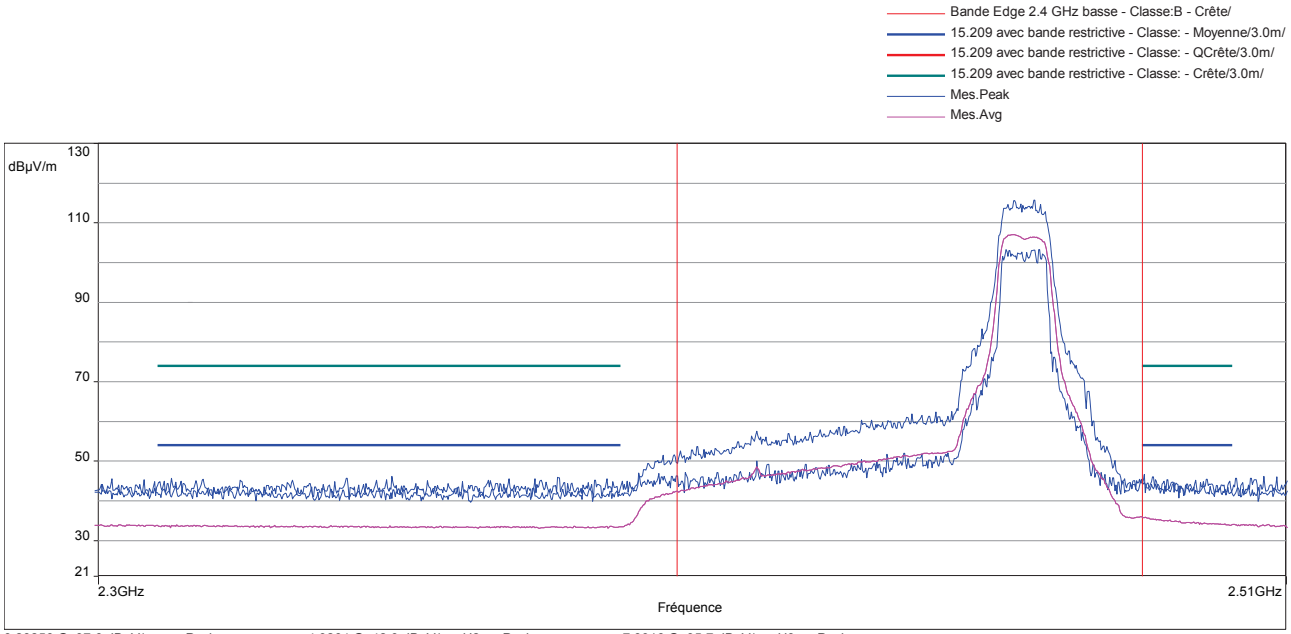
3.216 G, 37.5 dBµV/m : en peak 4.82208 G, 40.3 dBµV/m : H2 en Peak 7.234 G, 39.1 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11g – bandwidth 10 MHz – Back Left



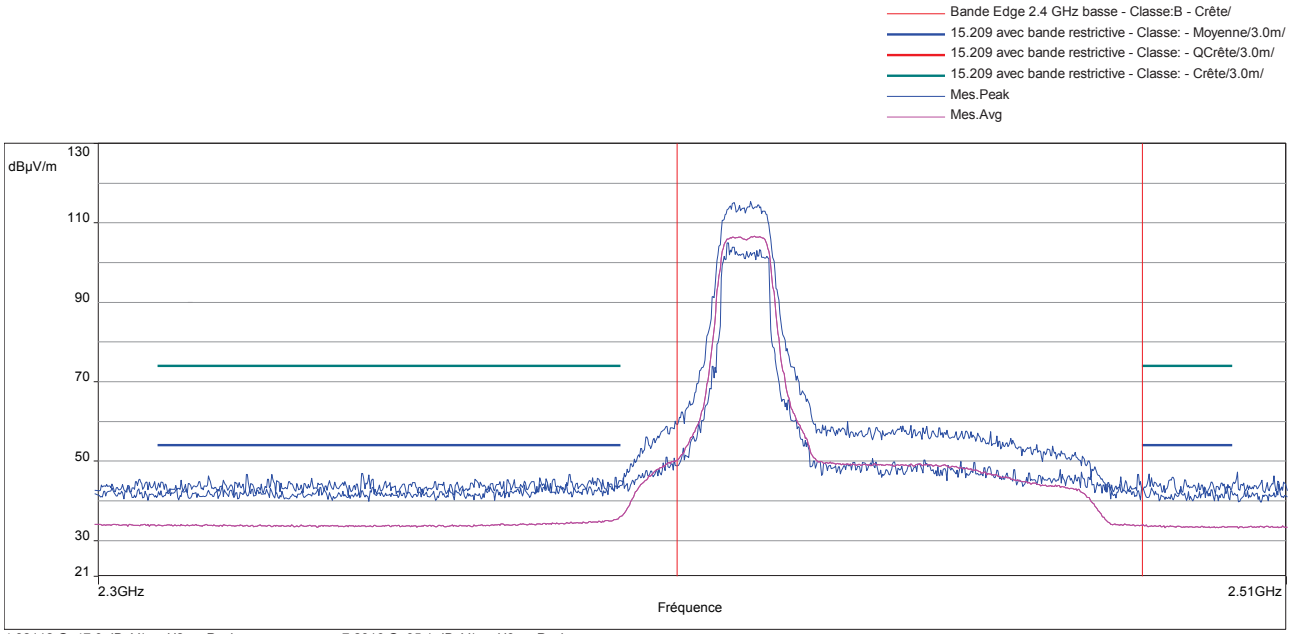
3.24928 G, 37.7 dBµV/m : en Peak 4.87744 G, 43.4 dBµV/m : H2 en Peak 7.3068 G, 41.2 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11g bandwidth 10 MHz – Back Left



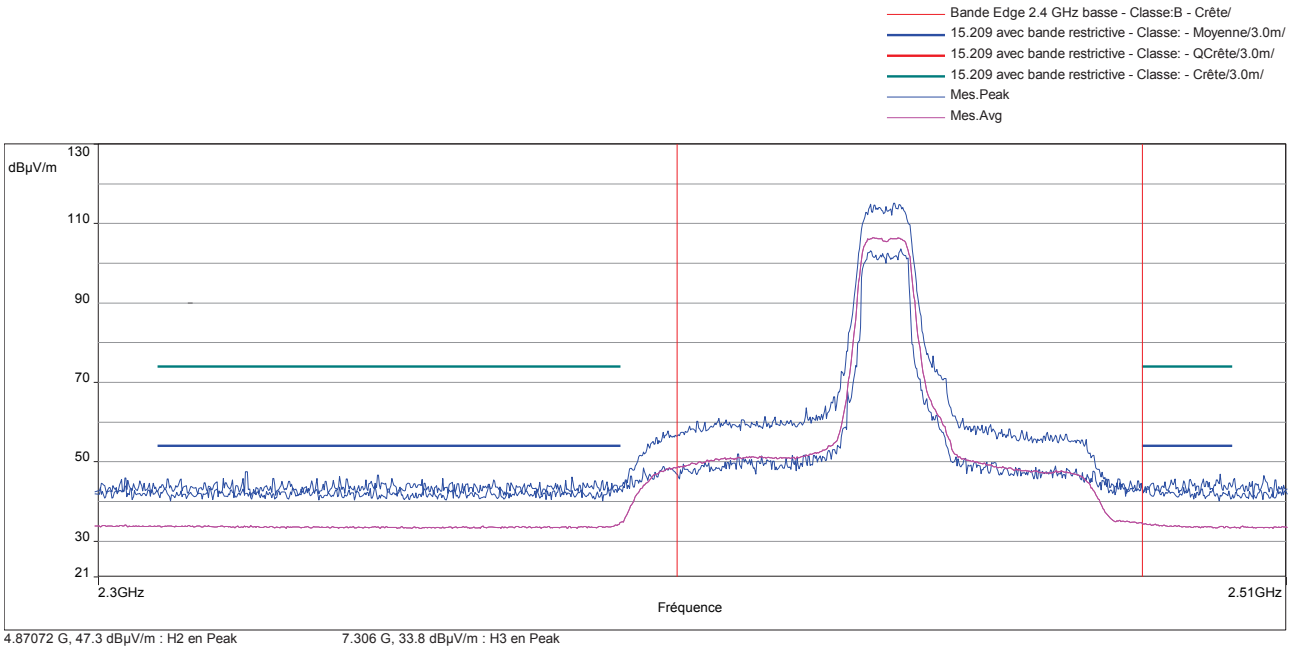
3.28256 G, 37.6 dBµV/m : en Peak 4.9264 G, 42.3 dBµV/m : H2 en Peak 7.3916 G, 35.7 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11g – bandwidth 10 MHz – Back Right



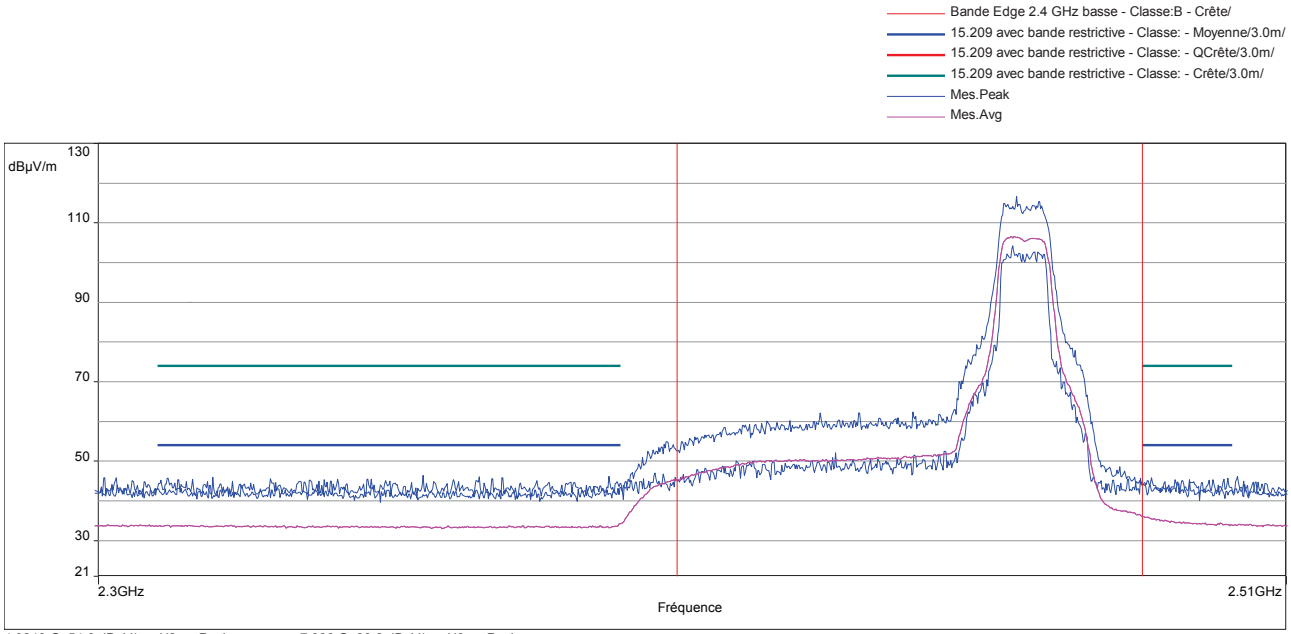
4.82112 G, 47.9 dBµV/m : H2 en Peak 7.2316 G, 35.1 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11g – bandwidth 10 MHz – Back Right



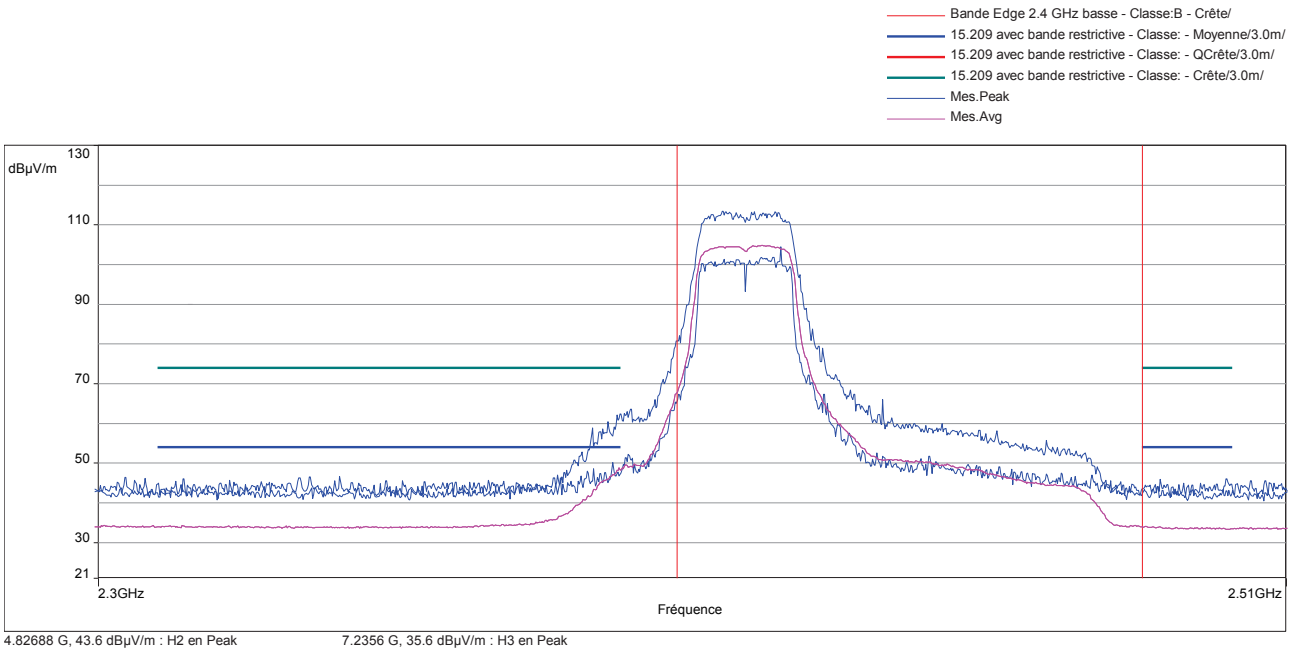
4.87072 G, 47.3 dBµV/m : H2 en Peak 7.306 G, 33.8 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11g bandwidth 10 MHz – Back Right



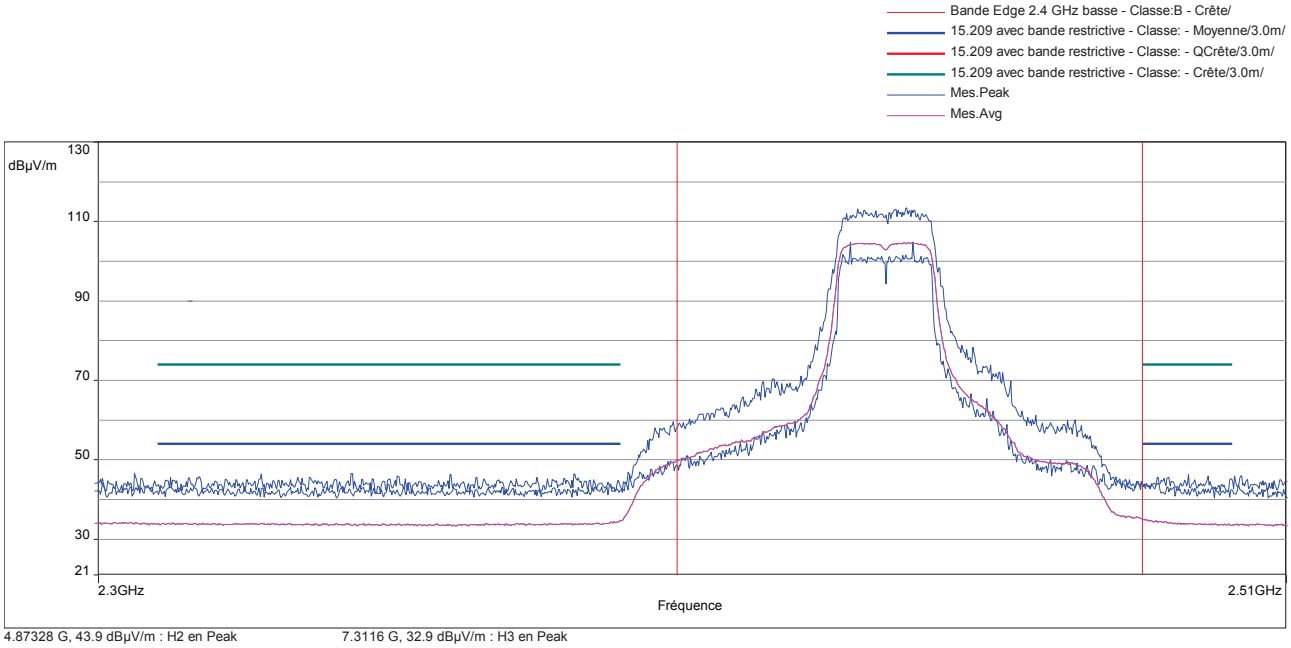
4.9248 G, 54.8 dBµV/m : H2 en Peak 7.386 G, 33.2 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11g – bandwidth 20 MHz – Front Left



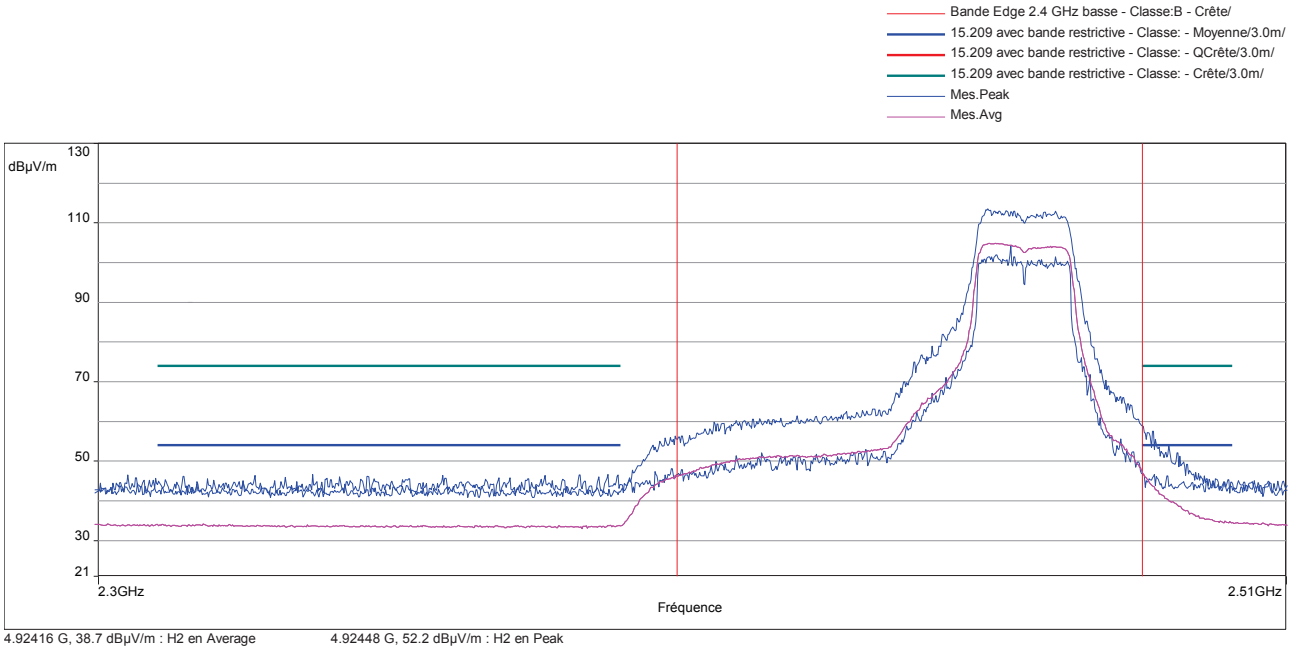
4.82688 G, 43.6 dBµV/m : H2 en Peak 7.2356 G, 35.6 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11g – bandwidth 20 MHz – Front Left



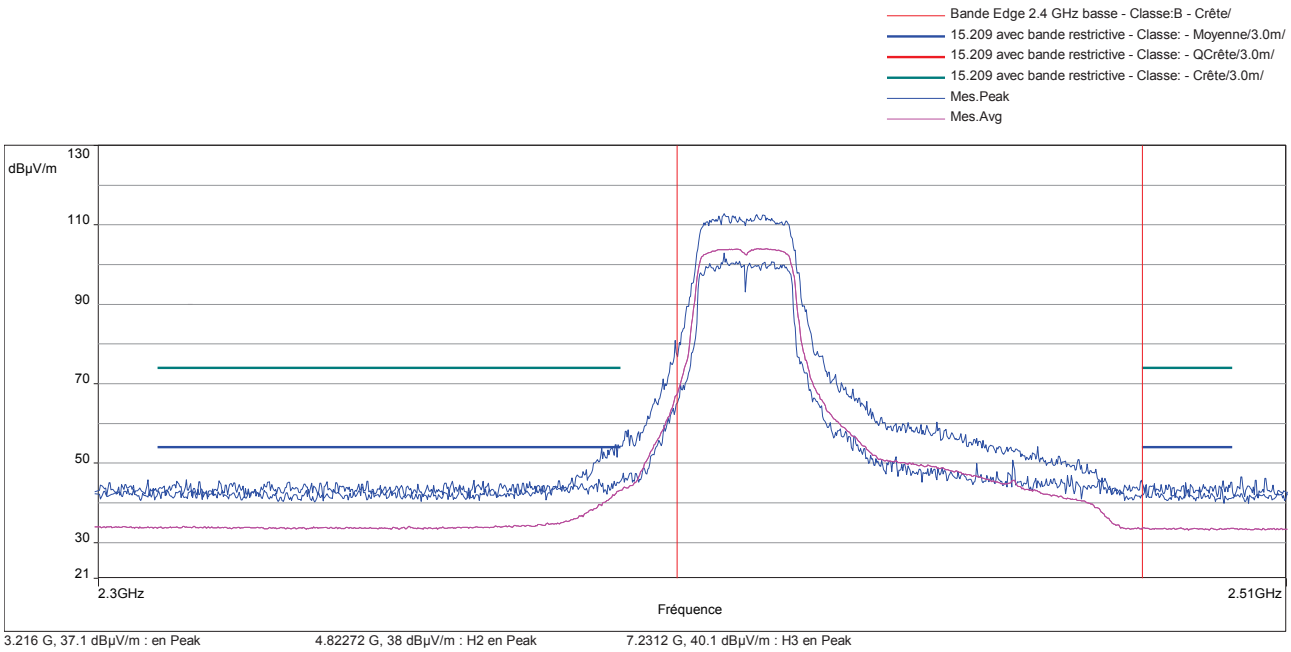
4.87328 G, 43.9 dBµV/m : H2 en Peak 7.3116 G, 32.9 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11g bandwidth 20 MHz – Front Left



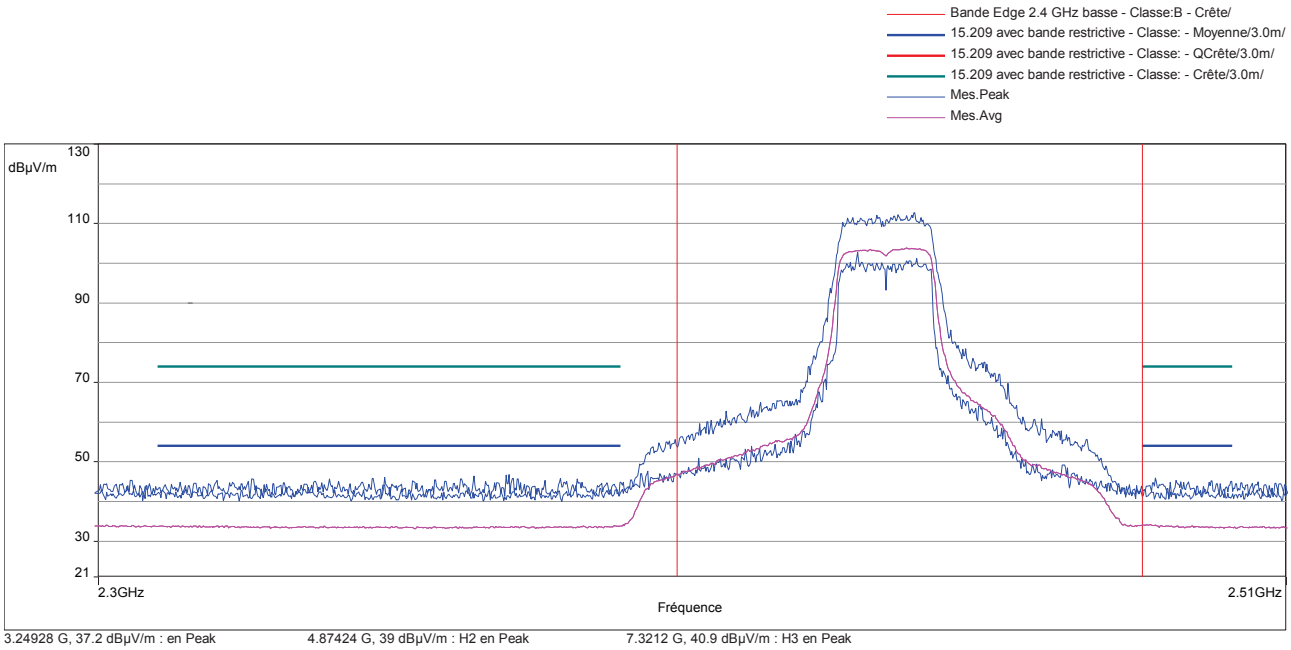
4.92416 G, 38.7 dBµV/m : H2 en Average 4.92448 G, 52.2 dBµV/m : H2 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11g – bandwidth 20 MHz – Front Right



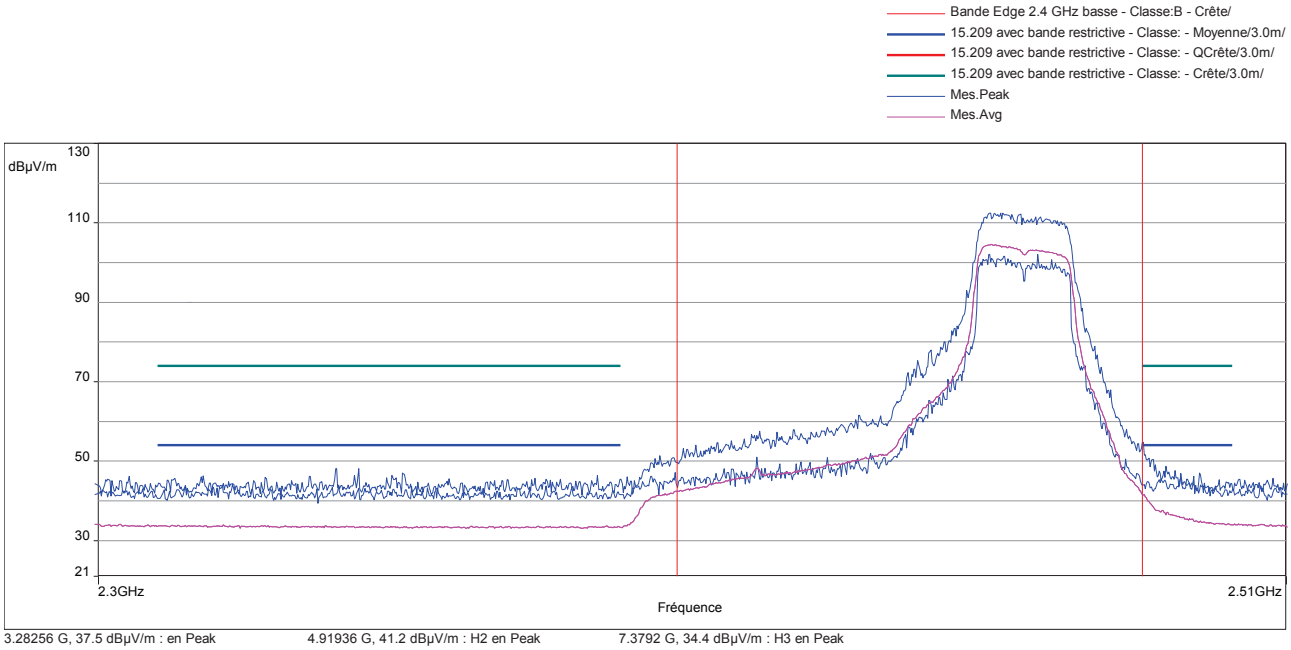
3.216 G, 37.1 dBµV/m : en Peak 4.82272 G, 38 dBµV/m : H2 en Peak 7.2312 G, 40.1 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11g – bandwidth 20 MHz – Front Right



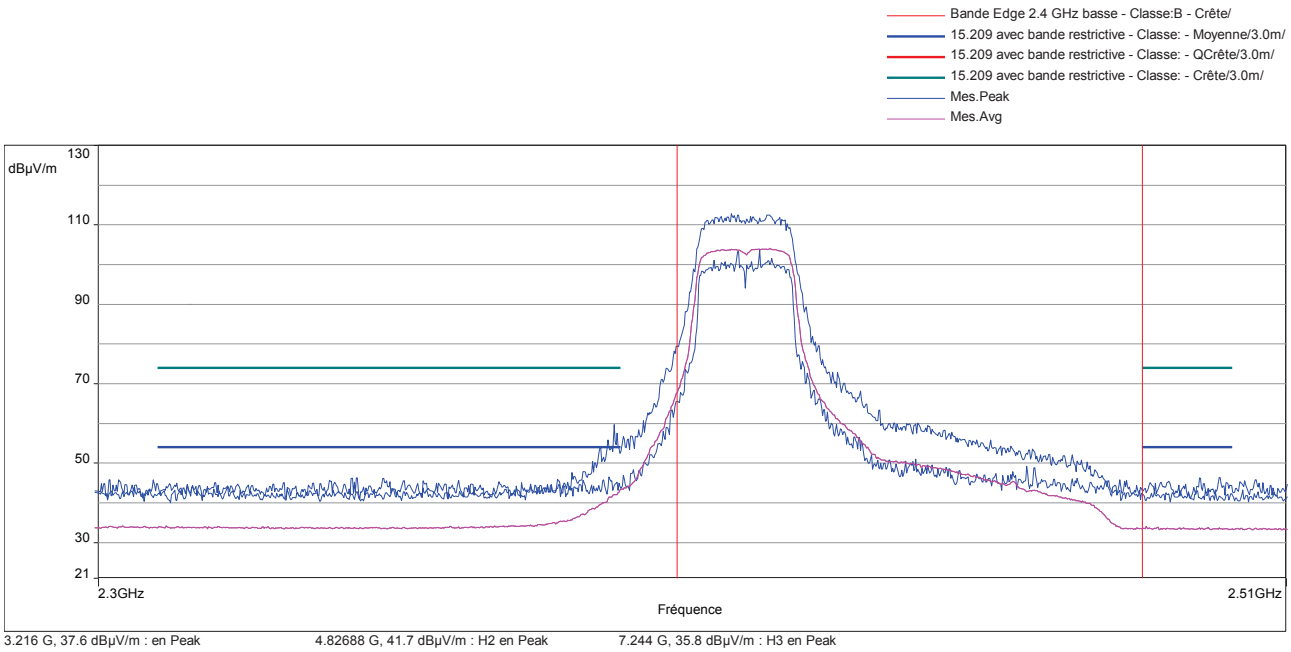
3.24928 G, 37.2 dBµV/m : en Peak 4.87424 G, 39 dBµV/m : H2 en Peak 7.3212 G, 40.9 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11g bandwidth 20 MHz – Front Right



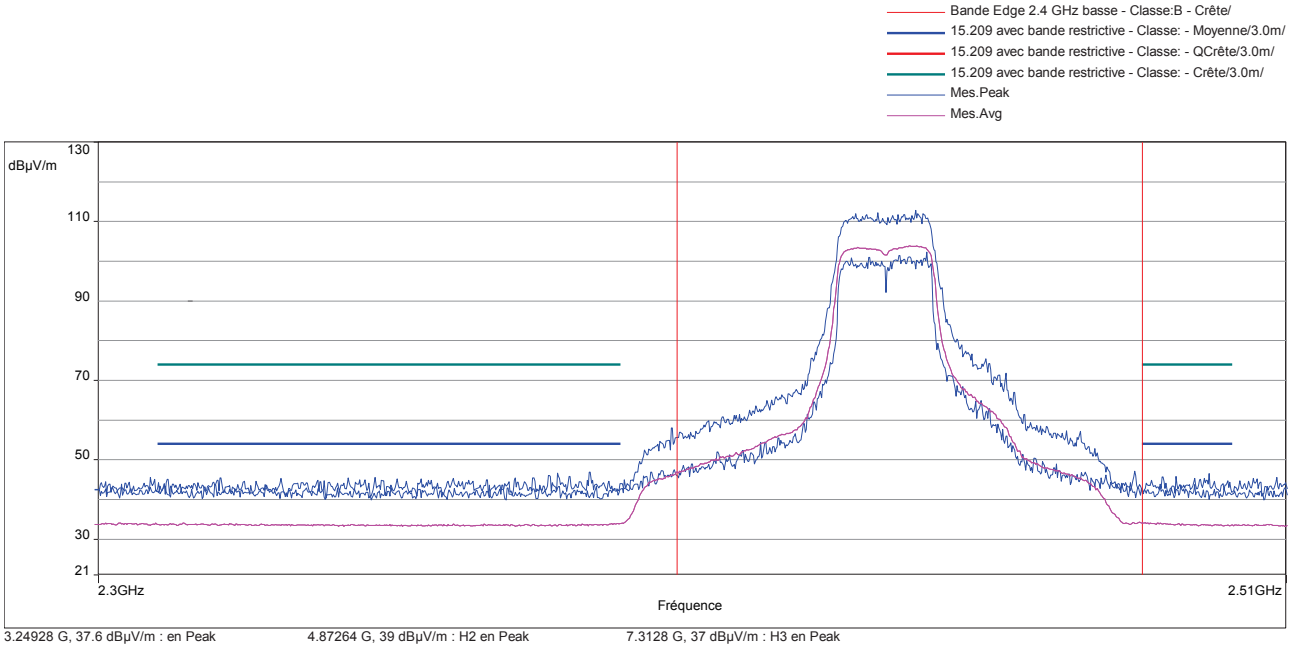
3.28256 G, 37.5 dBµV/m : en Peak 4.91936 G, 41.2 dBµV/m : H2 en Peak 7.3792 G, 34.4 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11g – bandwidth 20 MHz – Back Left



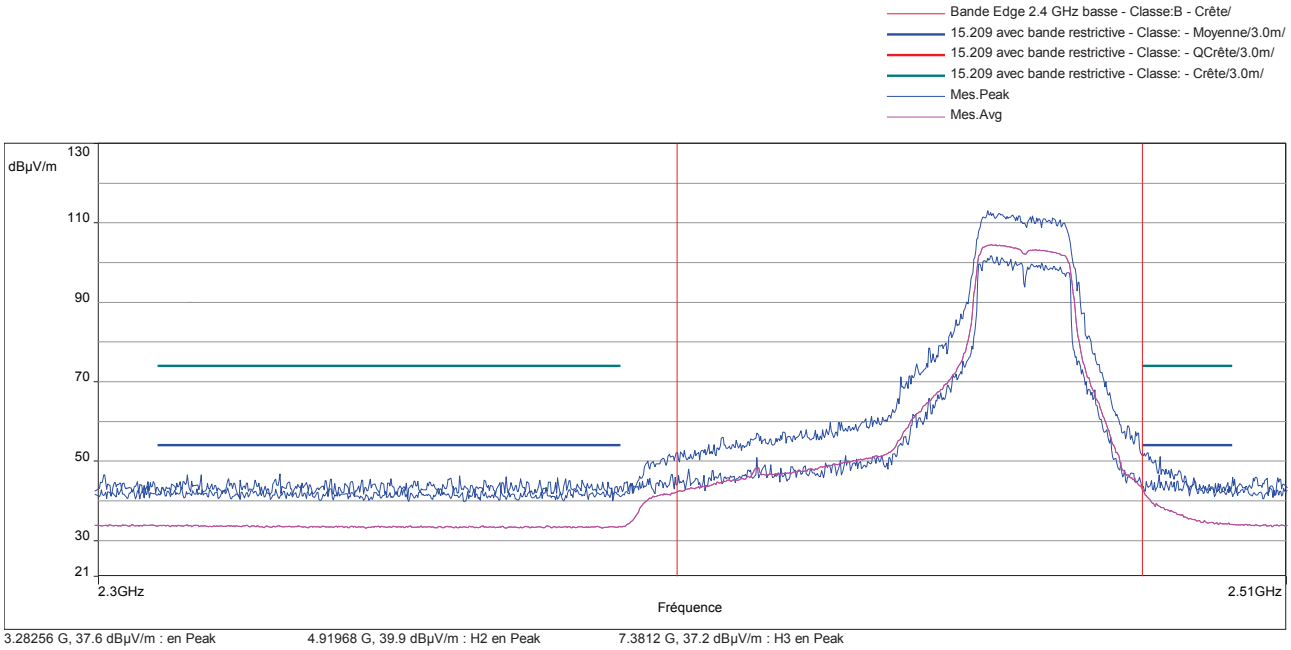
3.216 G, 37.6 dBµV/m : en Peak 4.82688 G, 41.7 dBµV/m : H2 en Peak 7.244 G, 35.8 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11g – bandwidth 20 MHz – Back Left



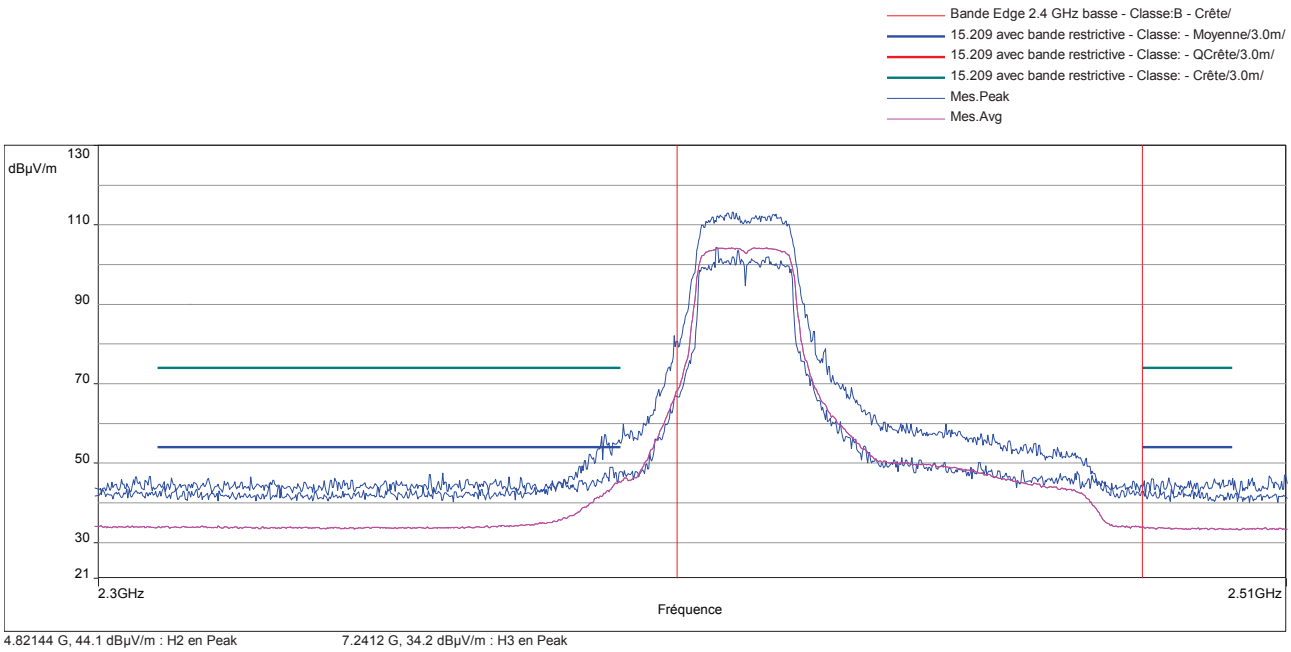
3.24928 G, 37.6 dBµV/m : en Peak 4.87264 G, 39 dBµV/m : H2 en Peak 7.3128 G, 37 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11g bandwidth 20 MHz – Back Left



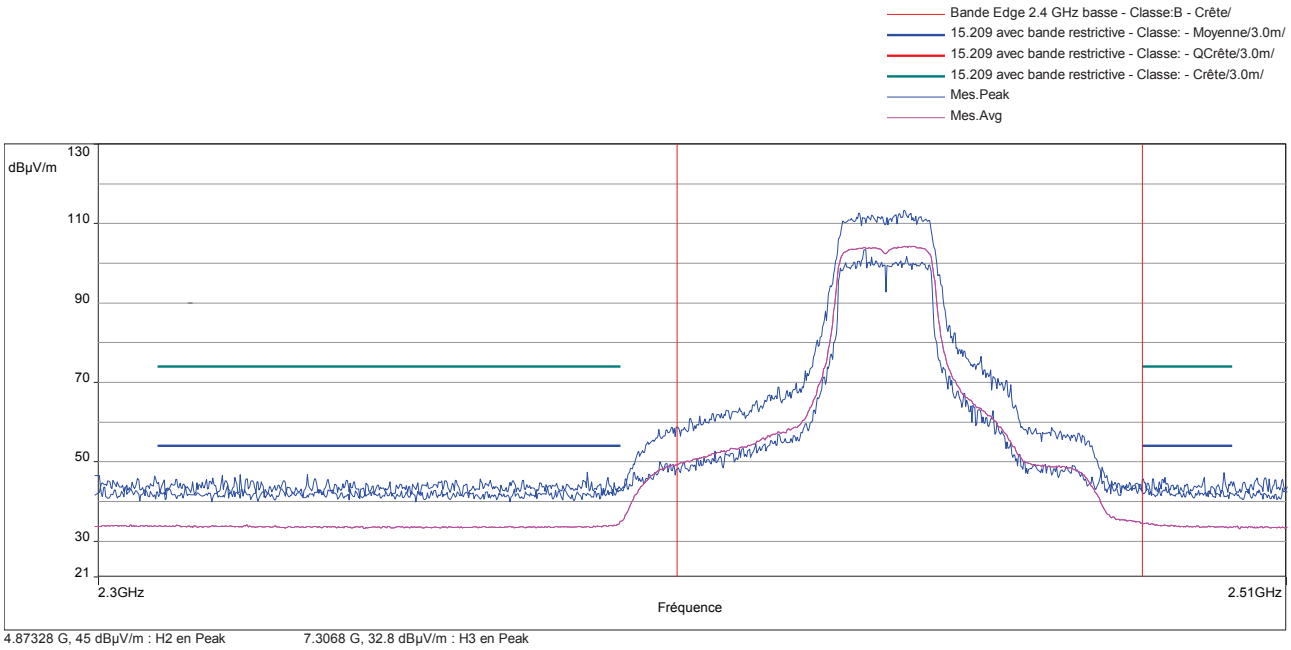
3.28256 G, 37.6 dBµV/m : en Peak 4.91968 G, 39.9 dBµV/m : H2 en Peak 7.3812 G, 37.2 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11g – bandwidth 20 MHz – Back Right



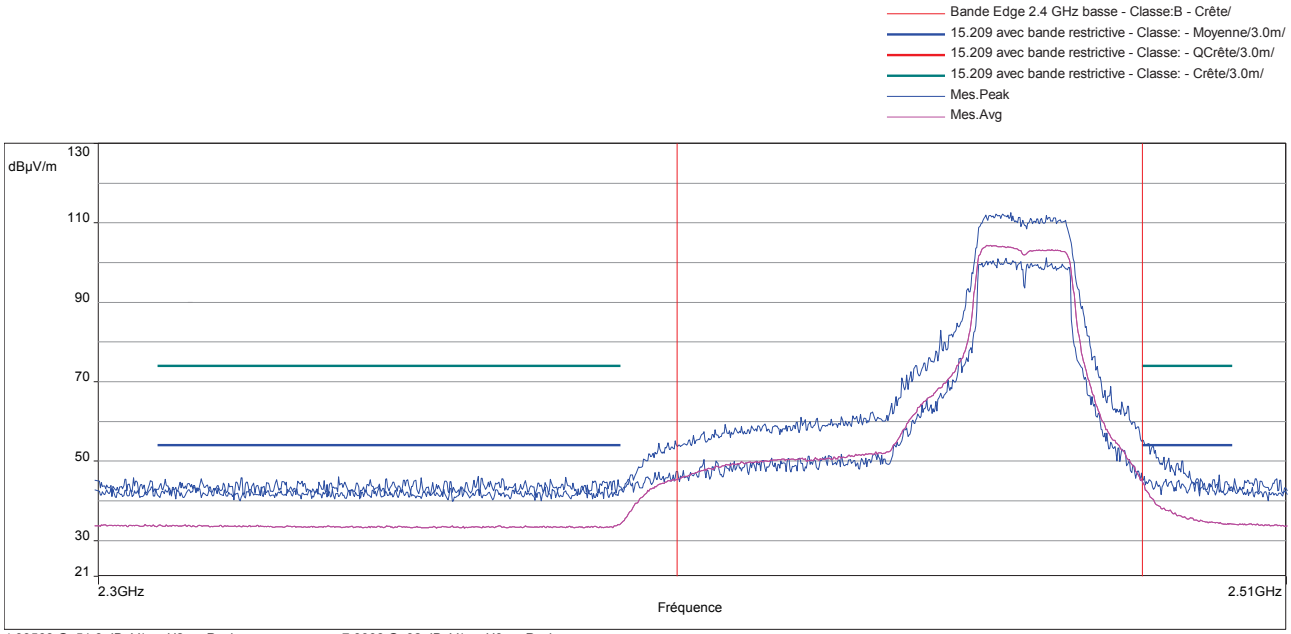
4.82144 G, 44.1 dBµV/m : H2 en Peak 7.2412 G, 34.2 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11g – bandwidth 20 MHz – Back Right



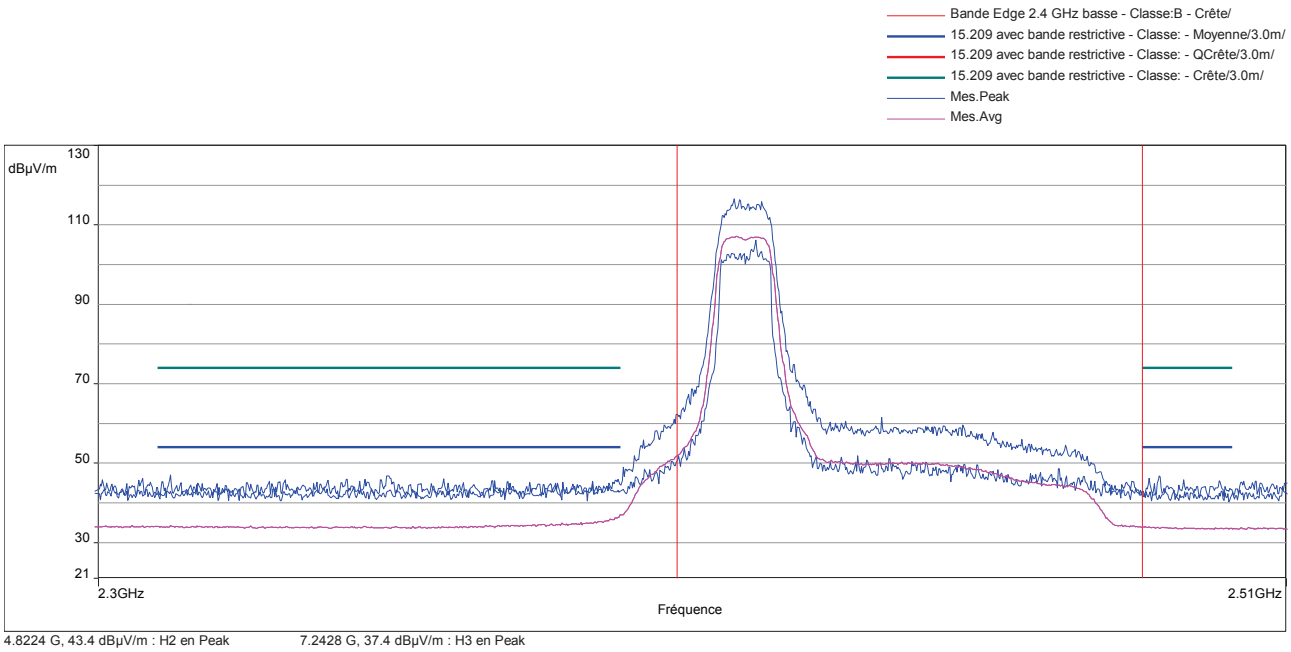
4.87328 G, 45 dBµV/m : H2 en Peak 7.3068 G, 32.8 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11g bandwidth 20 MHz – Back Right



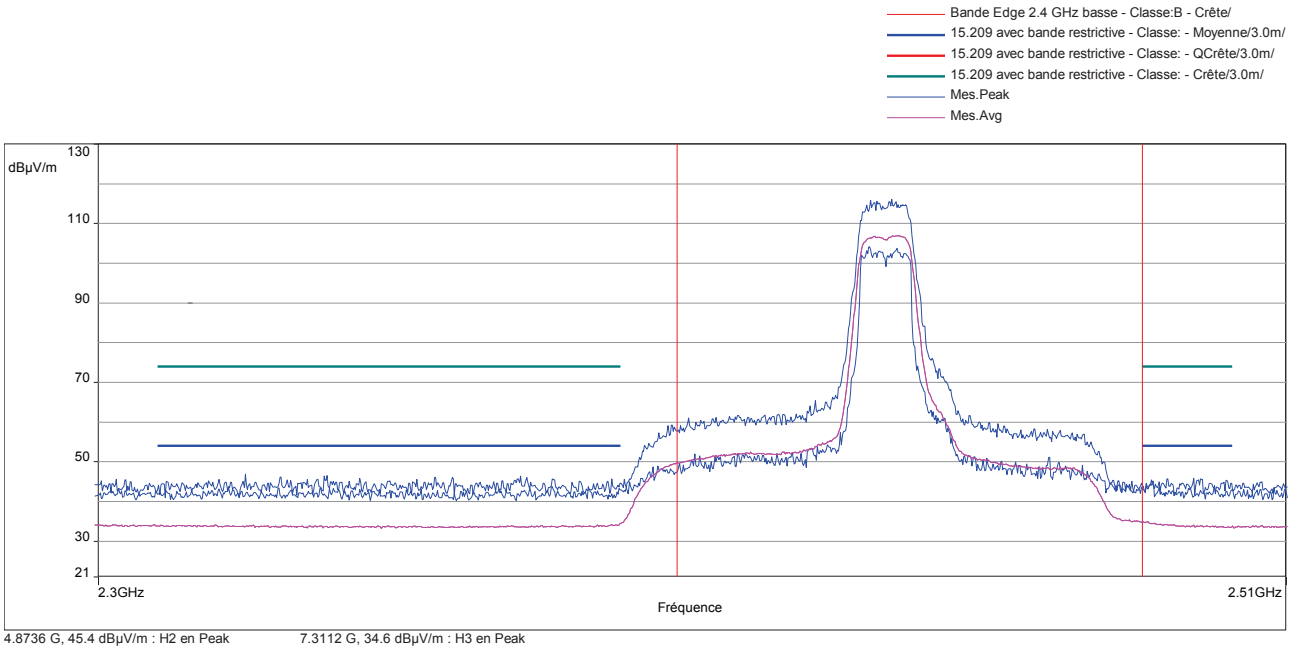
4.93568 G, 51.8 dBµV/m : H2 en Peak 7.3908 G, 32 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11n – bandwidth 10 MHz – Front Left



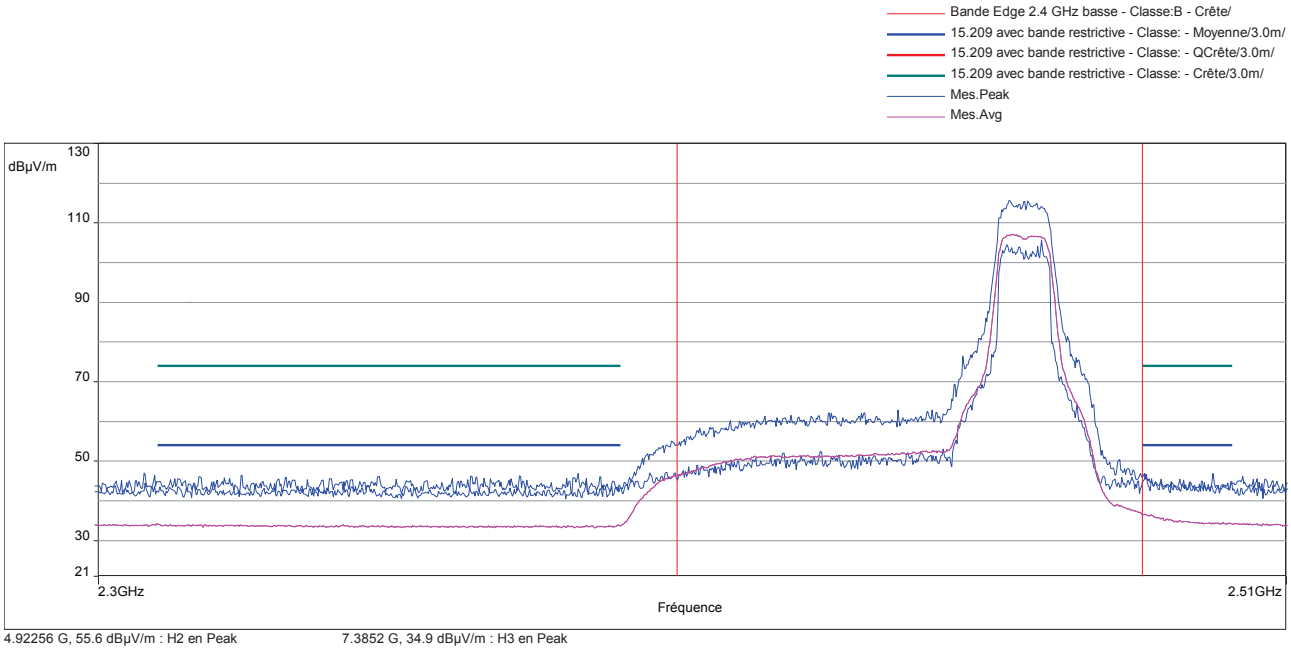
4.8224 G, 43.4 dBµV/m : H2 en Peak 7.2428 G, 37.4 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11n – bandwidth 10 MHz – Front Left



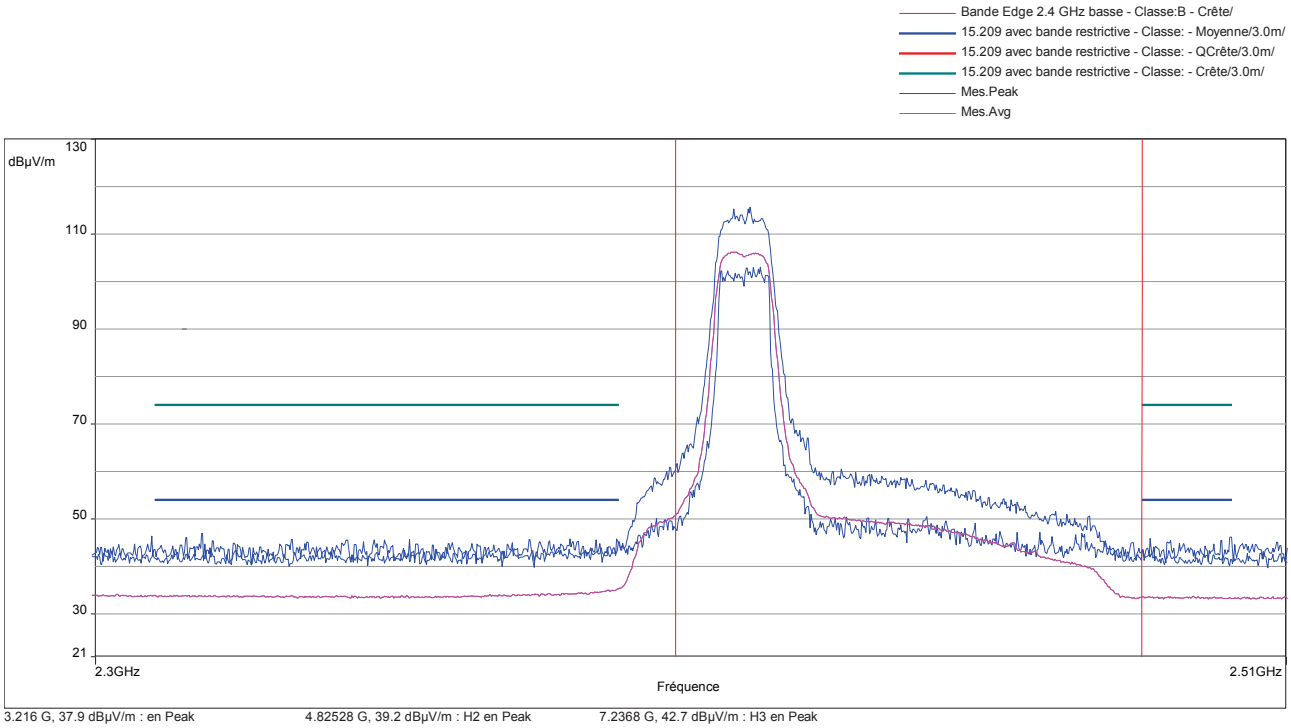
4.8736 G, 45.4 dBµV/m : H2 en Peak 7.3112 G, 34.6 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11n bandwidth 10 MHz – Front Left



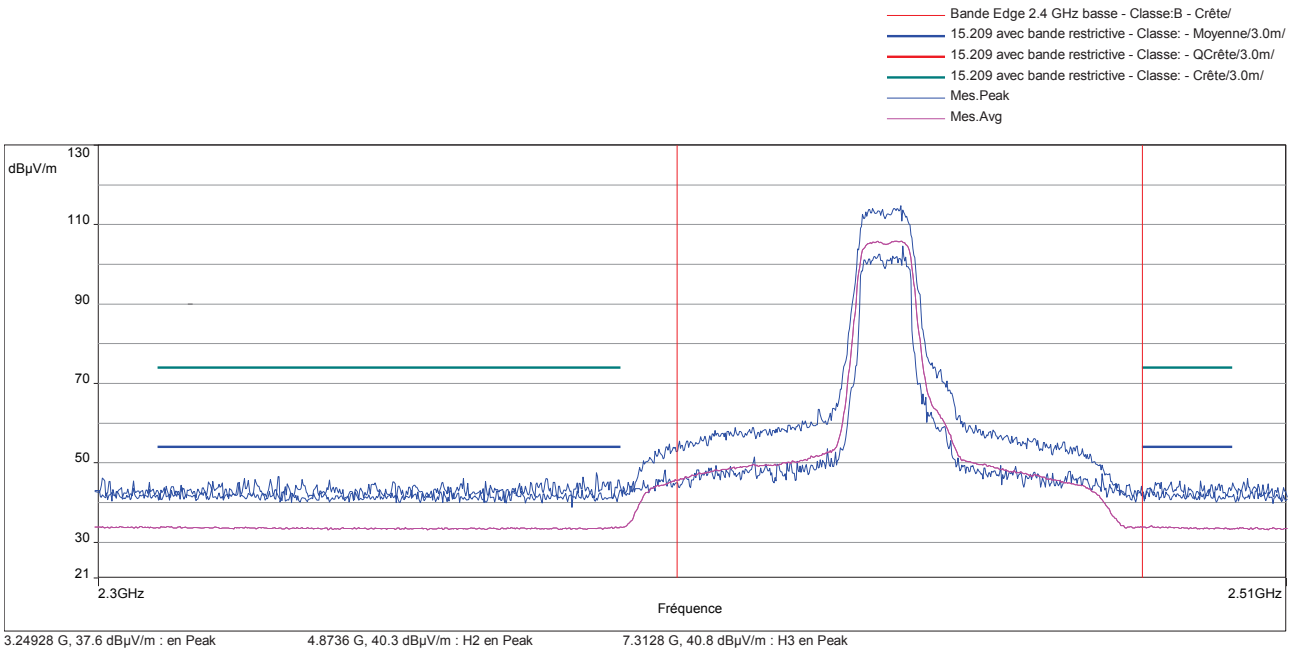
4.92256 G, 55.6 dBµV/m : H2 en Peak 7.3852 G, 34.9 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11n – bandwidth 10 MHz – Front Right



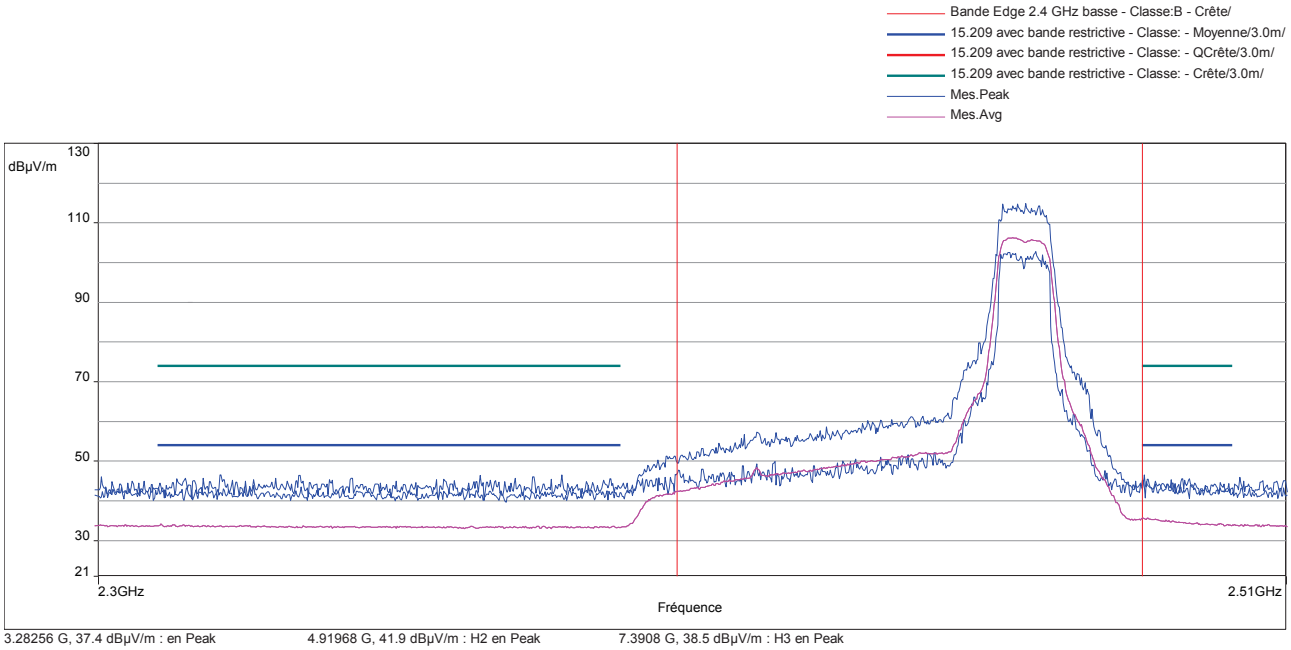
3.216 G, 37.9 dBµV/m : en Peak 4.82528 G, 39.2 dBµV/m : H2 en Peak 7.2368 G, 42.7 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11n – bandwidth 10 MHz – Front Right



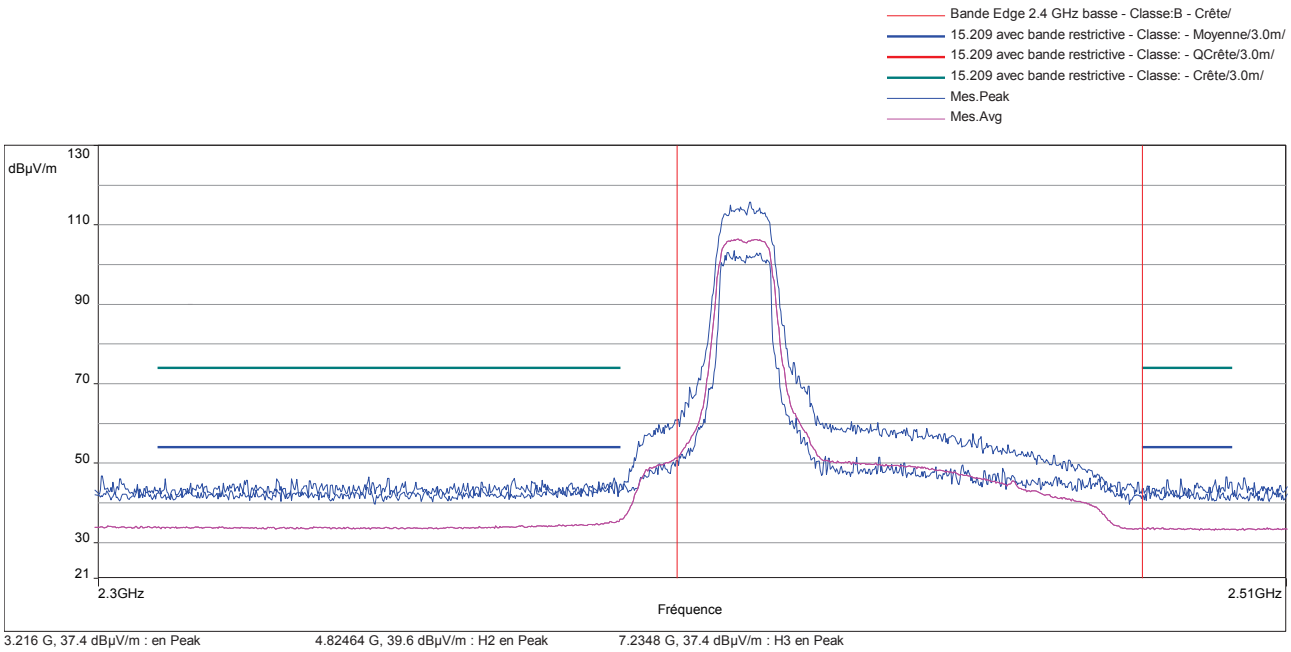
3.24928 G, 37.6 dBµV/m : en Peak 4.8736 G, 40.3 dBµV/m : H2 en Peak 7.3128 G, 40.8 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11n bandwidth 10 MHz – Front Right



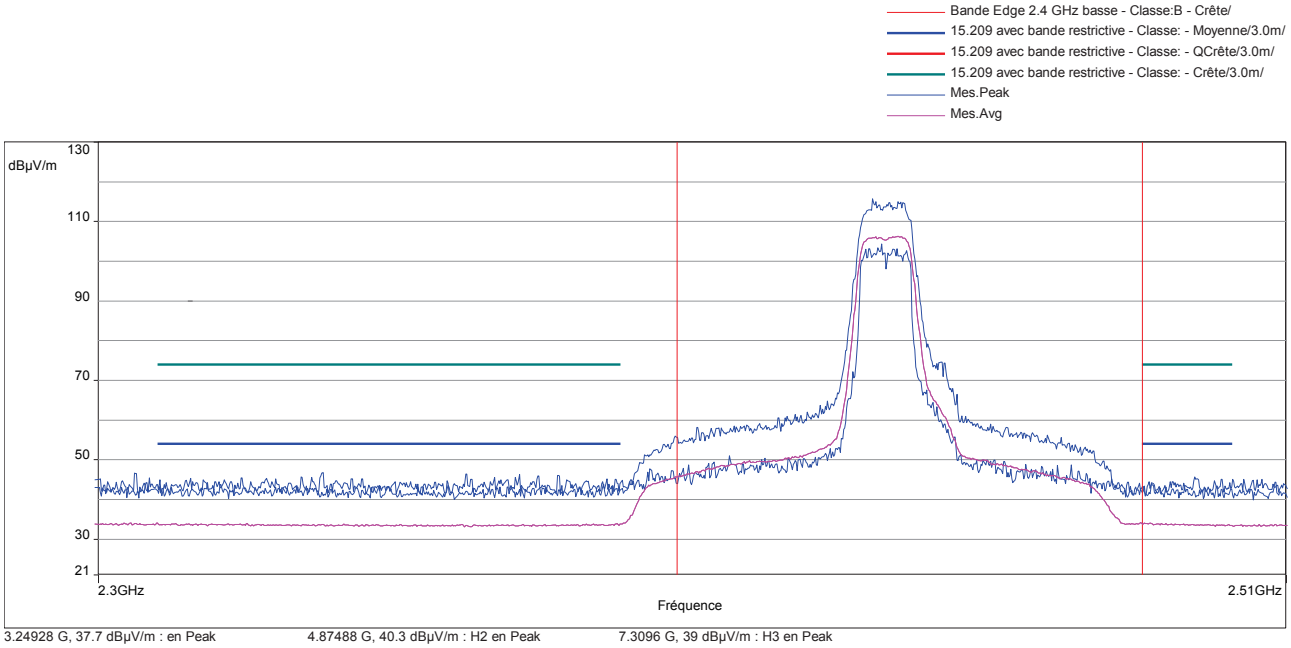
3.28256 G, 37.4 dBµV/m : en Peak 4.91968 G, 41.9 dBµV/m : H2 en Peak 7.3908 G, 38.5 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11n – bandwidth 10 MHz – Back Left



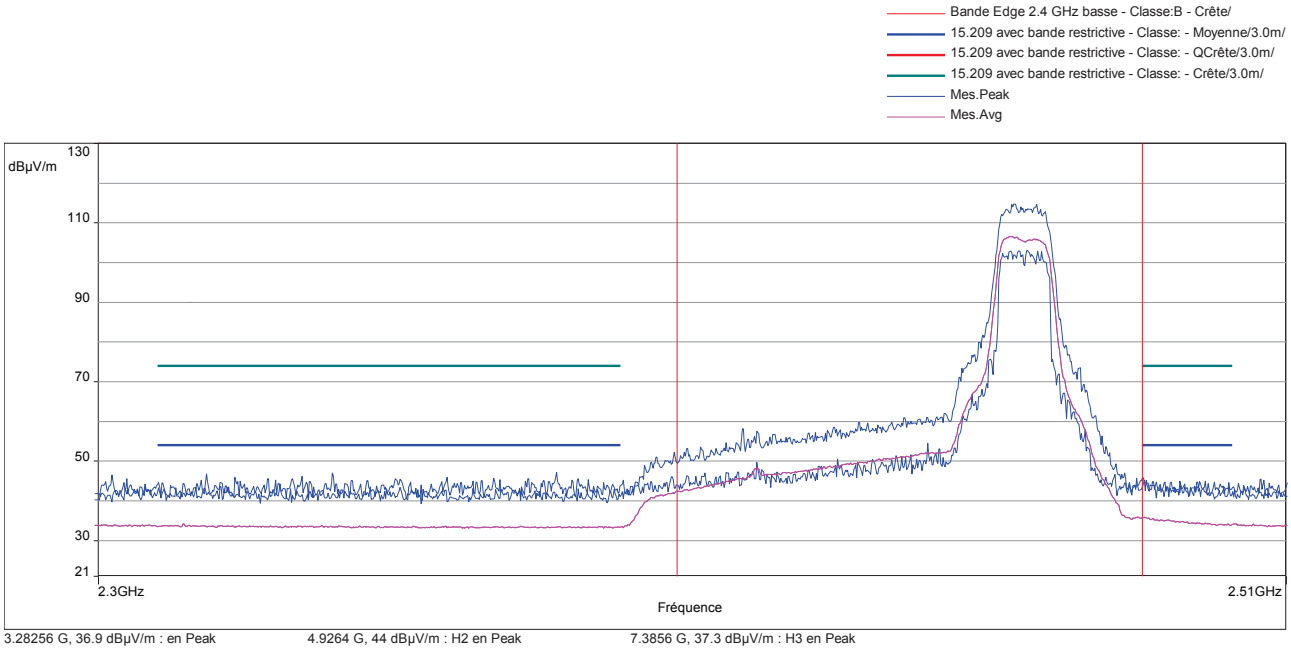
3.216 G, 37.4 dBµV/m : en Peak 4.82464 G, 39.6 dBµV/m : H2 en Peak 7.2348 G, 37.4 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11n – bandwidth 10 MHz – Back Left



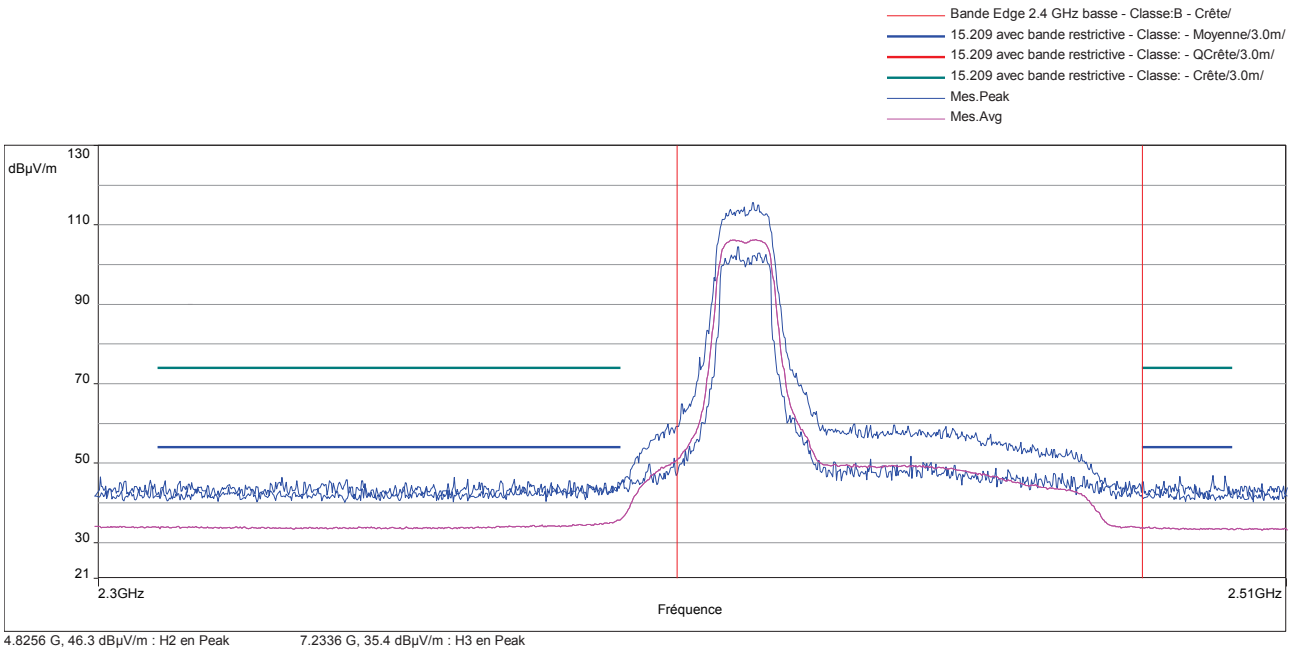
3.24928 G, 37.7 dBµV/m : en Peak 4.87488 G, 40.3 dBµV/m : H2 en Peak 7.3096 G, 39 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11n bandwidth 10 MHz – Back Left



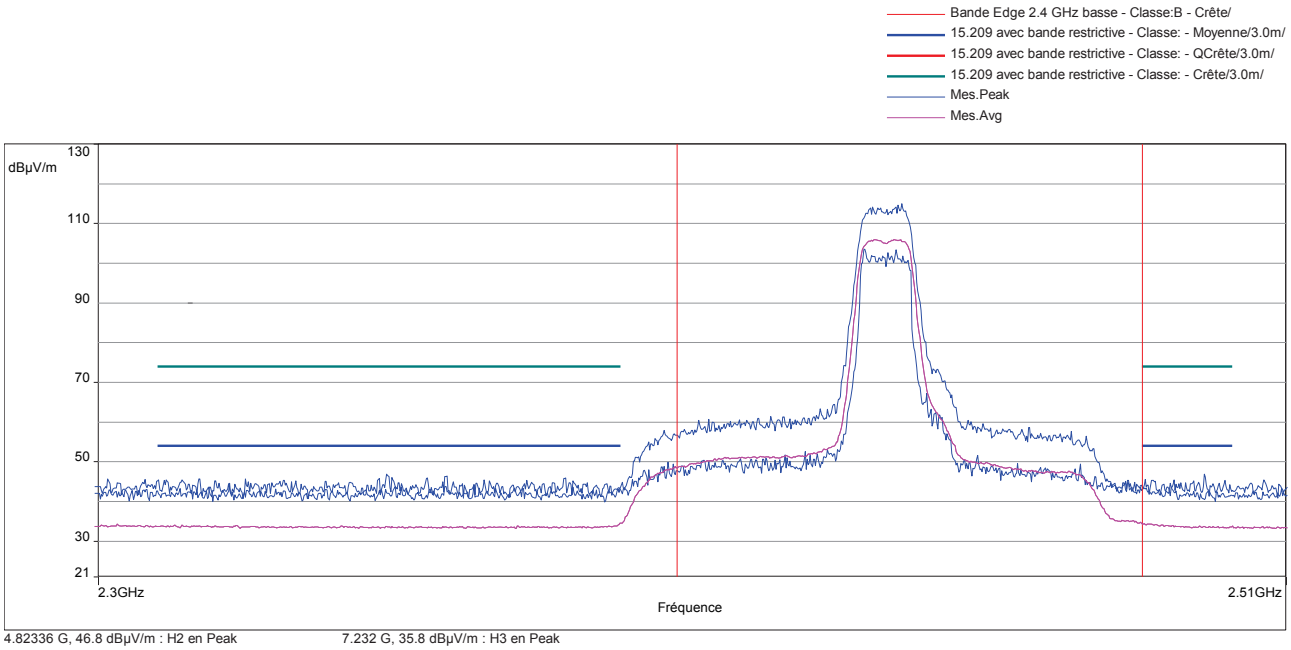
3.28256 G, 36.9 dBµV/m : en Peak 4.9264 G, 44 dBµV/m : H2 en Peak 7.3856 G, 37.3 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11n – bandwidth 10 MHz – Back Right



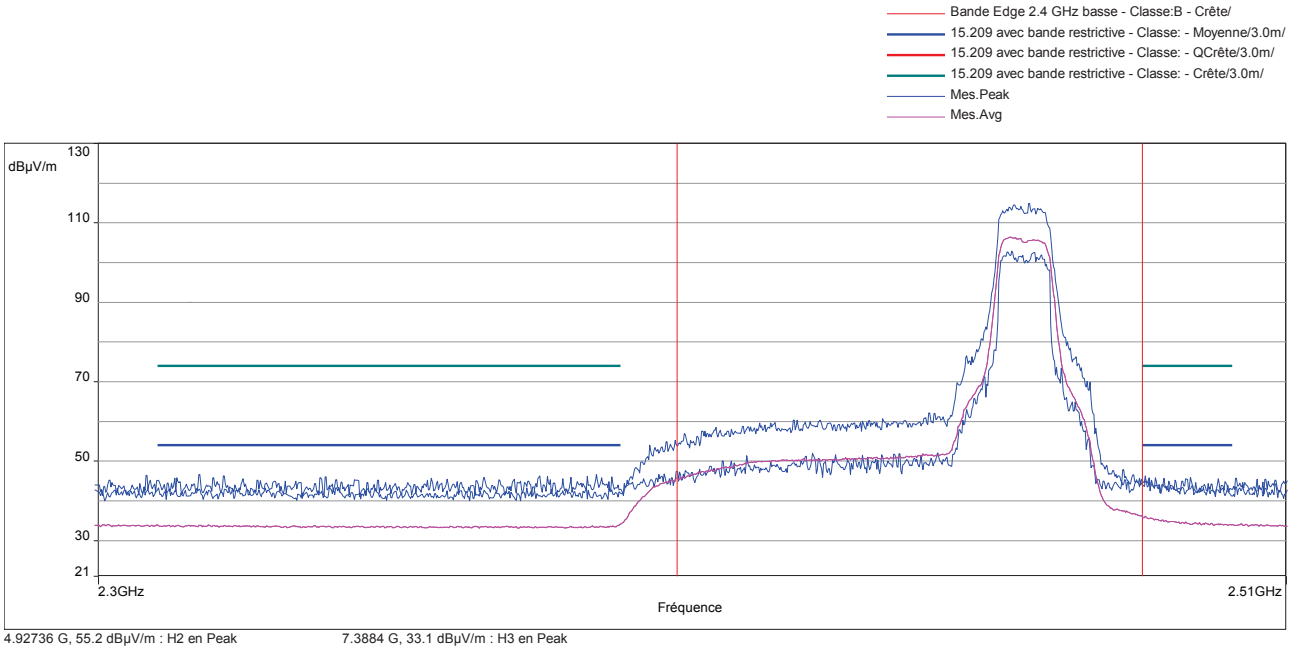
4.8256 G, 46.3 dBµV/m : H2 en Peak 7.2336 G, 35.4 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11n – bandwidth 10 MHz – Back Right



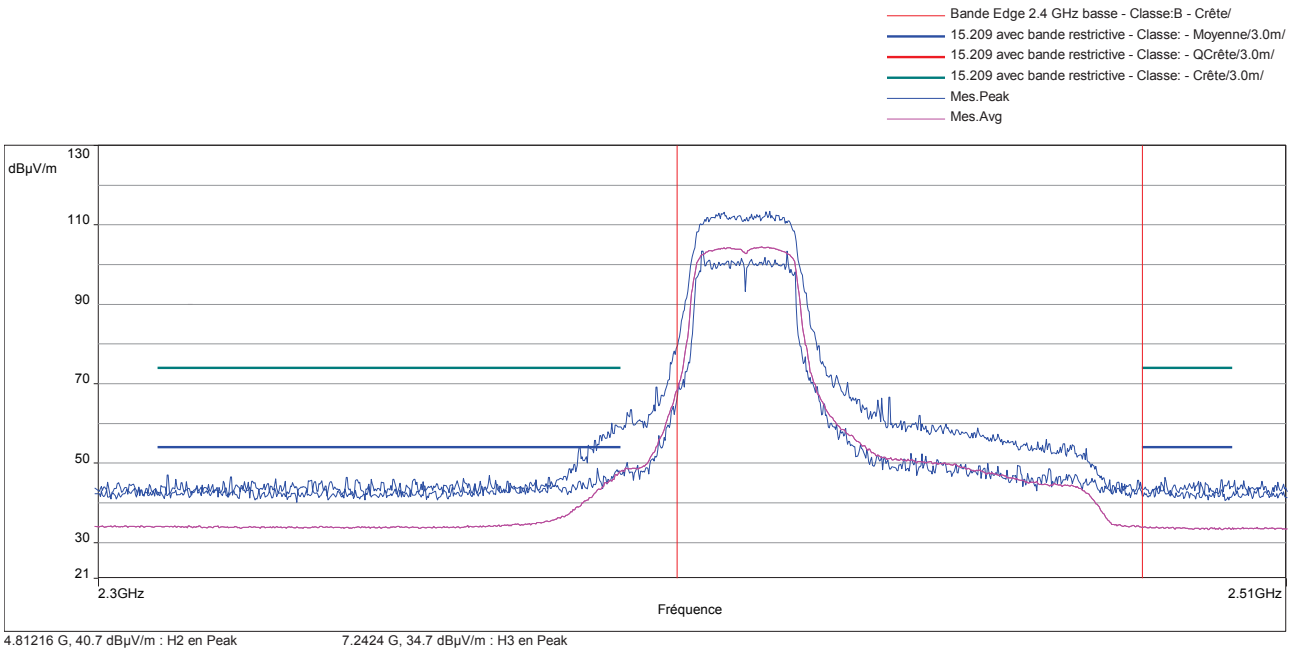
4.82336 G, 46.8 dBµV/m : H2 en Peak 7.232 G, 35.8 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11n bandwidth 10 MHz – Back Right



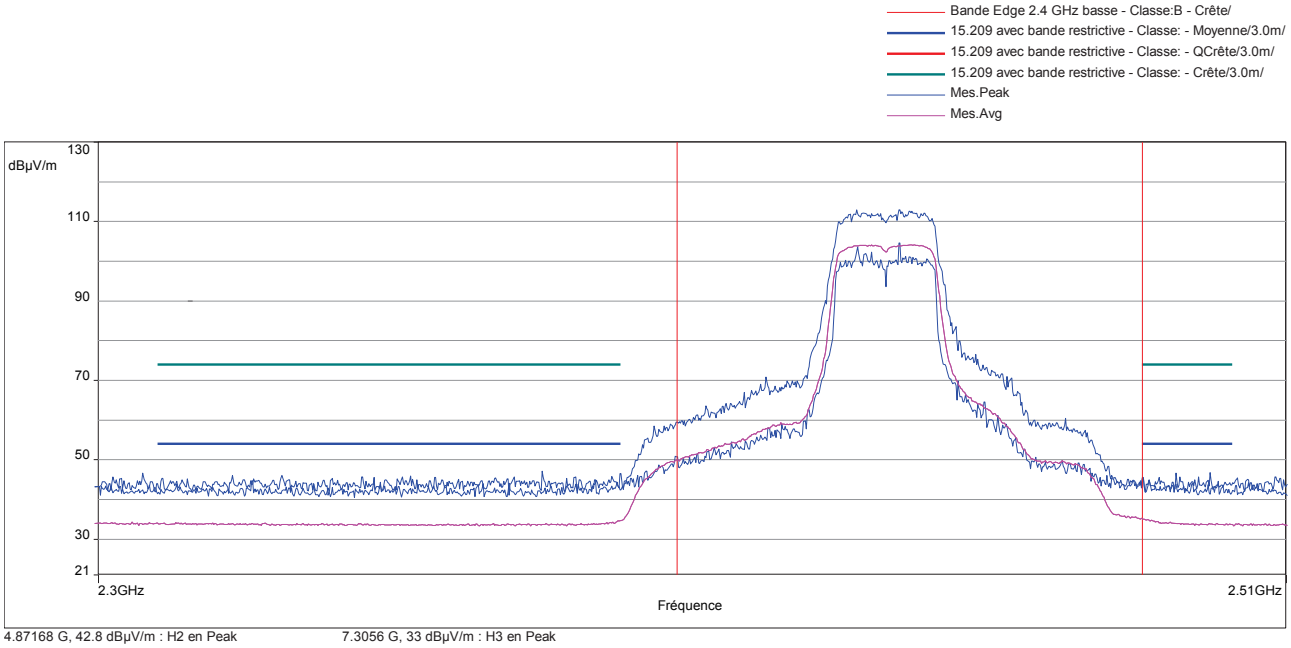
4.92736 G, 55.2 dBµV/m : H2 en Peak 7.3884 G, 33.1 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11n – bandwidth 20 MHz – Front Left



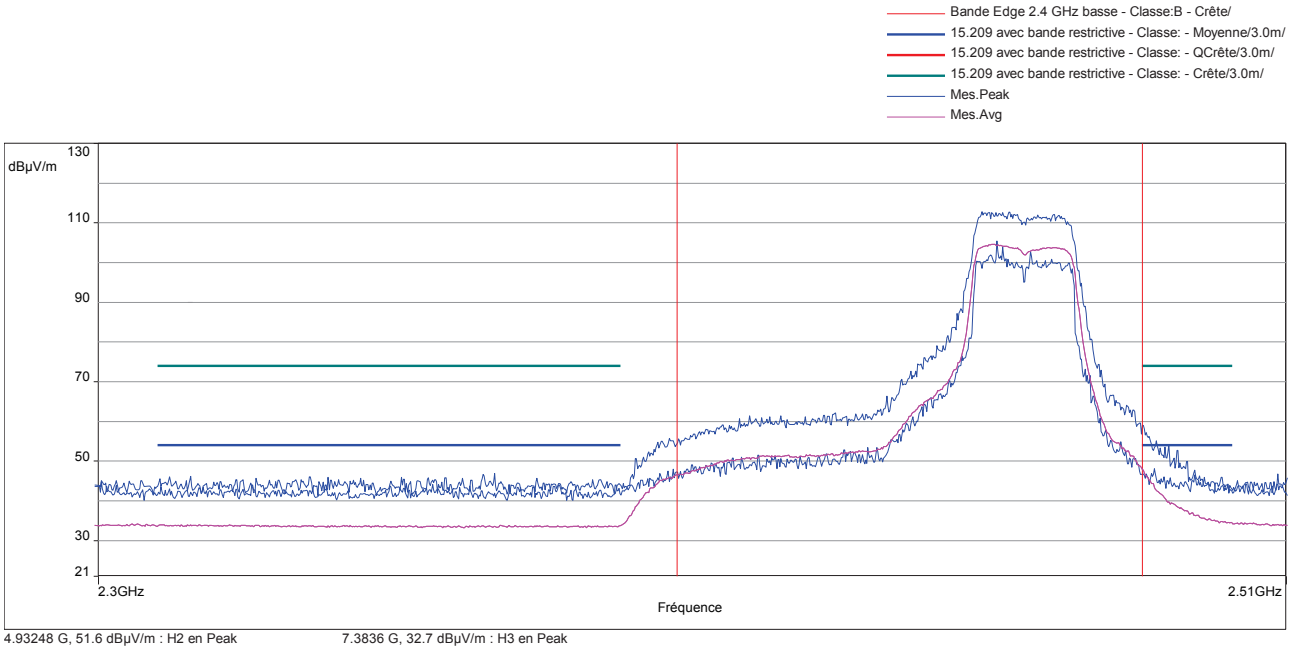
4.81216 G, 40.7 dBµV/m : H2 en Peak 7.2424 G, 34.7 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11n – bandwidth 20 MHz – Front Left



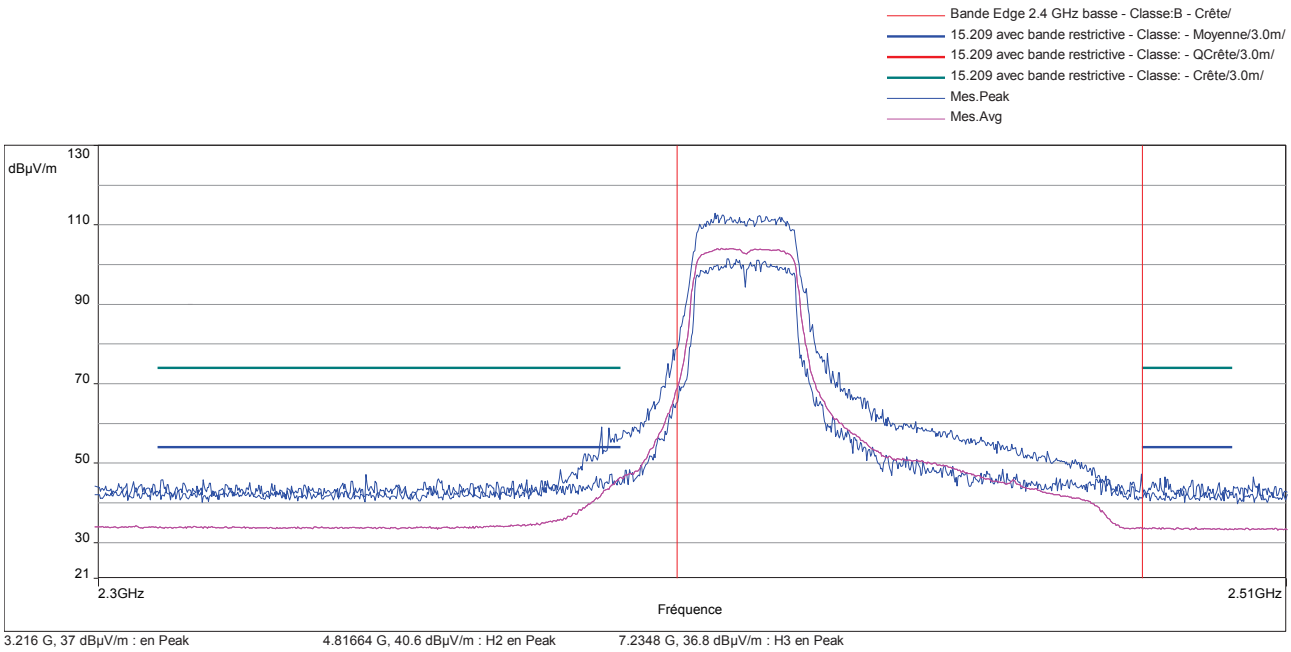
4.87168 G, 42.8 dBµV/m : H2 en Peak 7.3056 G, 33 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11n bandwidth 20 MHz – Front Left



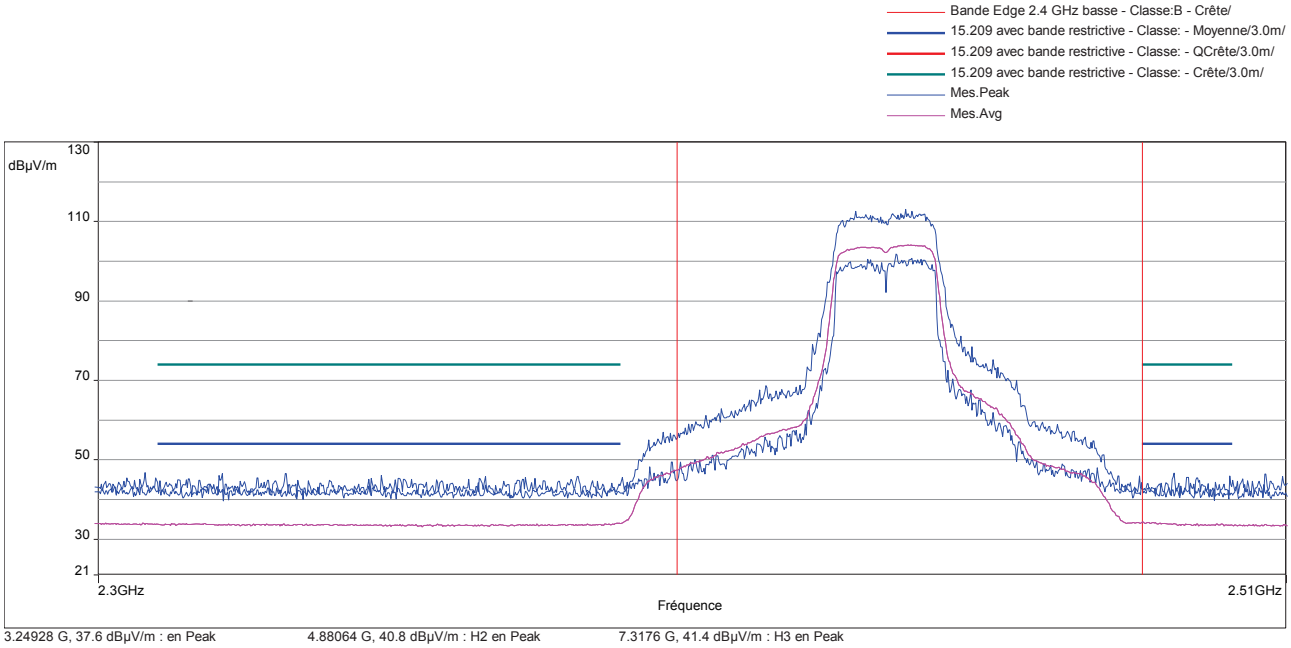
4.93248 G, 51.6 dBµV/m : H2 en Peak 7.3836 G, 32.7 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11n – bandwidth 20 MHz – Front Right



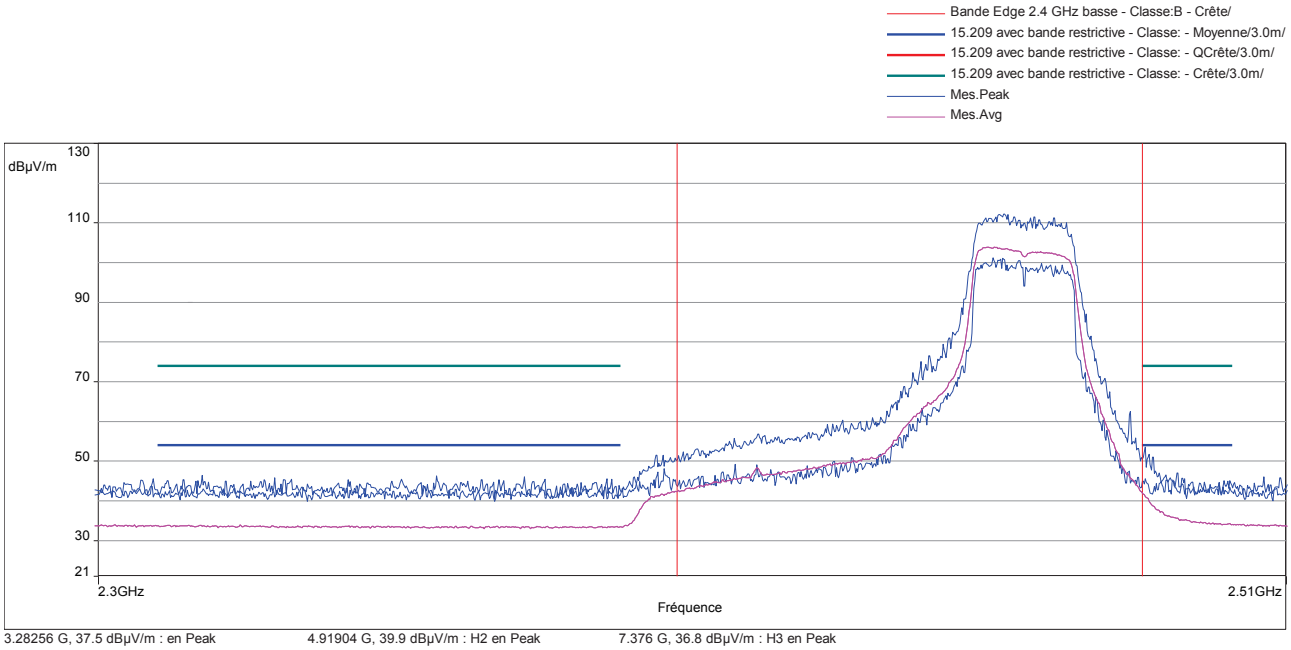
3.216 G, 37 dBµV/m : en Peak 4.81664 G, 40.6 dBµV/m : H2 en Peak 7.2348 G, 36.8 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11n – bandwidth 20 MHz – Front Right



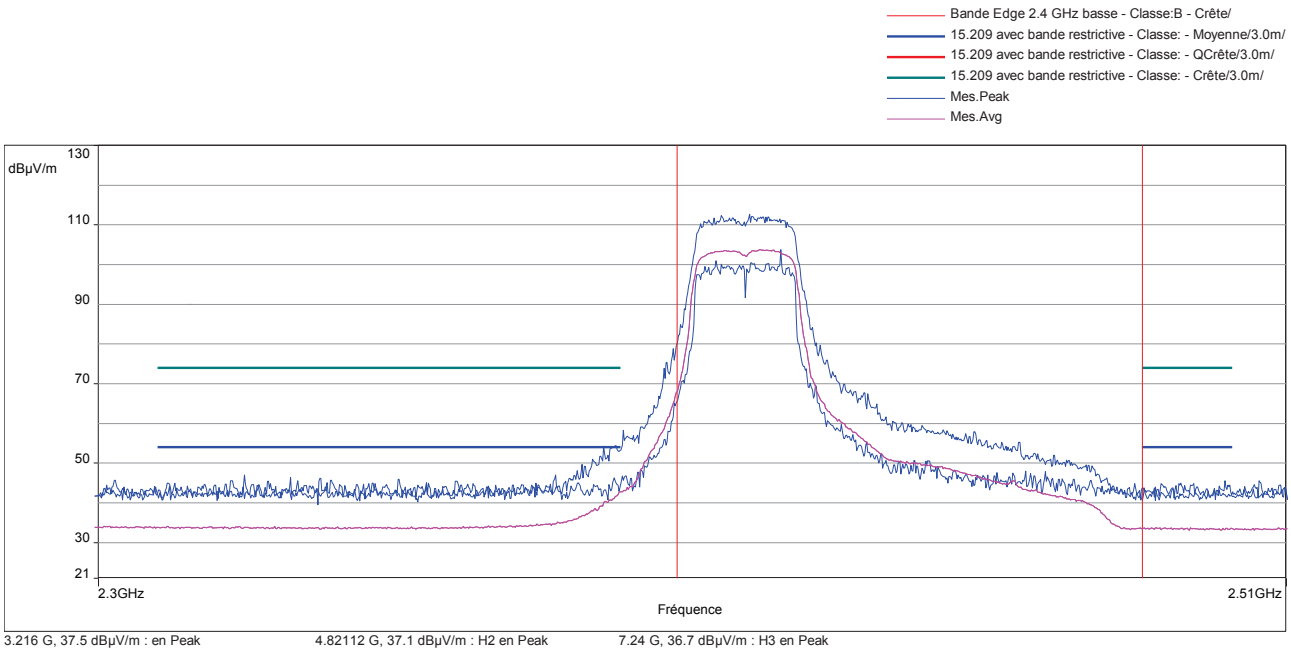
3.24928 G, 37.6 dBµV/m : en Peak 4.88064 G, 40.8 dBµV/m : H2 en Peak 7.3176 G, 41.4 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11n bandwidth 20 MHz – Front Right



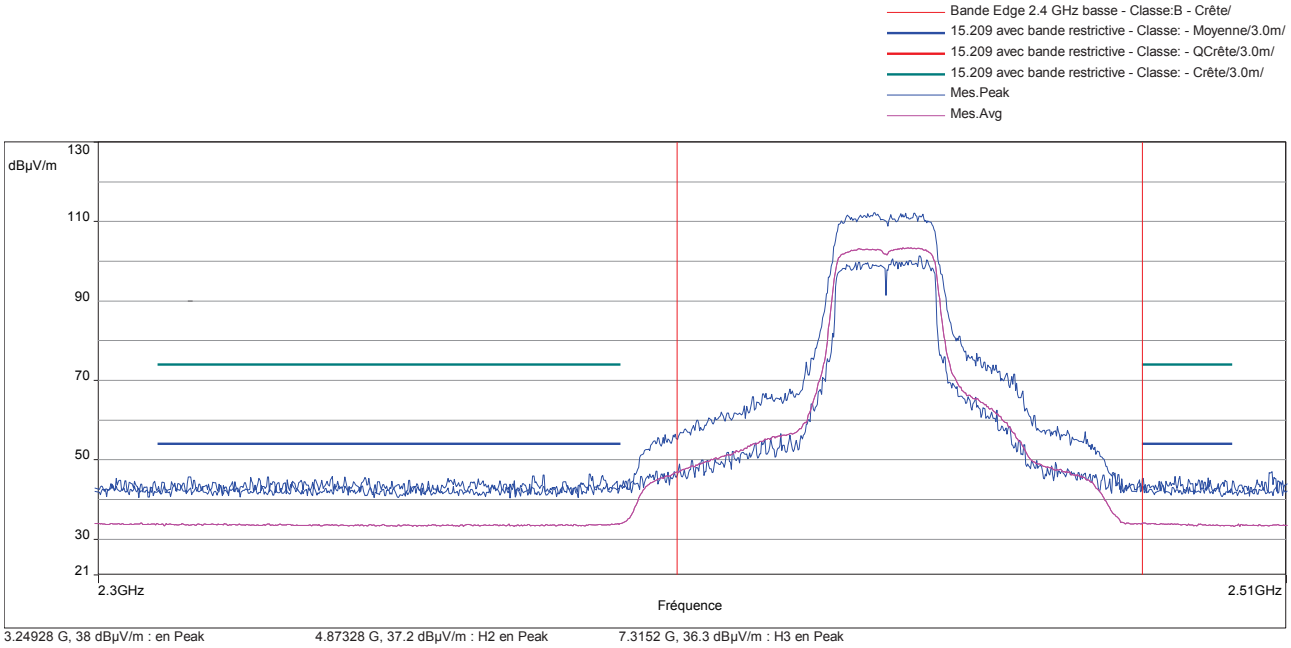
3.28256 G, 37.5 dBµV/m : en Peak 4.91904 G, 39.9 dBµV/m : H2 en Peak 7.376 G, 36.8 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11n – bandwidth 20 MHz – Back Left



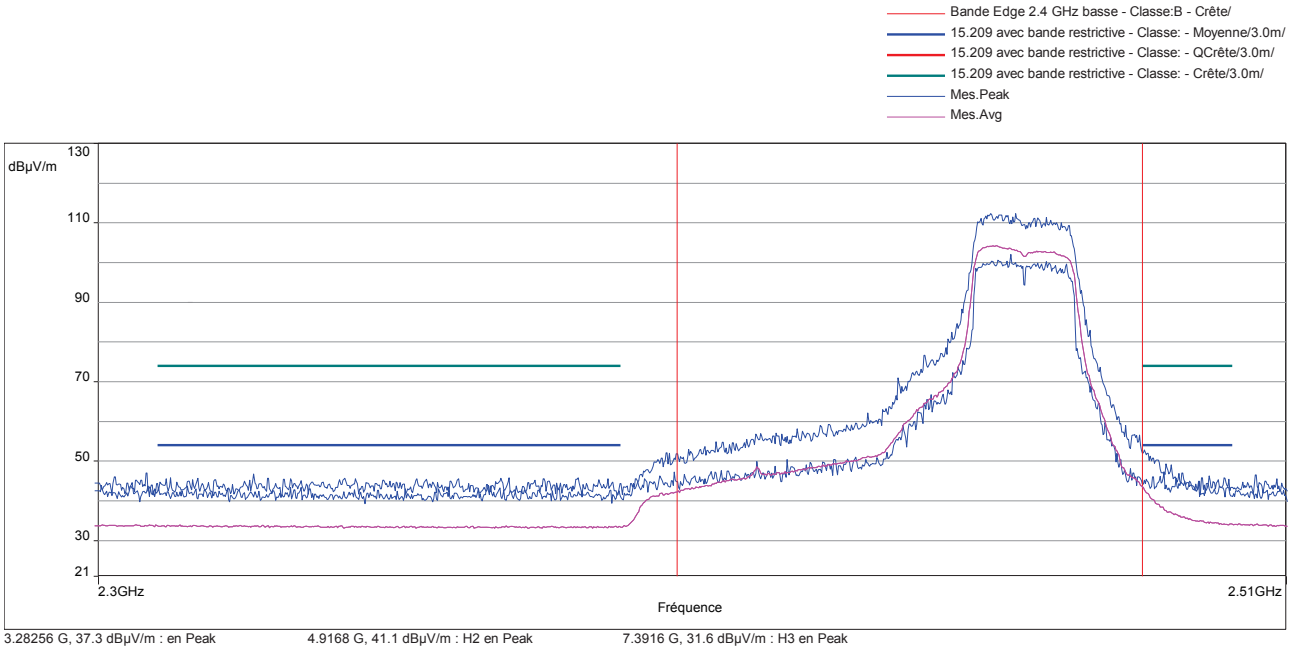
3.216 G, 37.5 dBµV/m : en Peak 4.82112 G, 37.1 dBµV/m : H2 en Peak 7.24 G, 36.7 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11n – bandwidth 20 MHz – Back Left



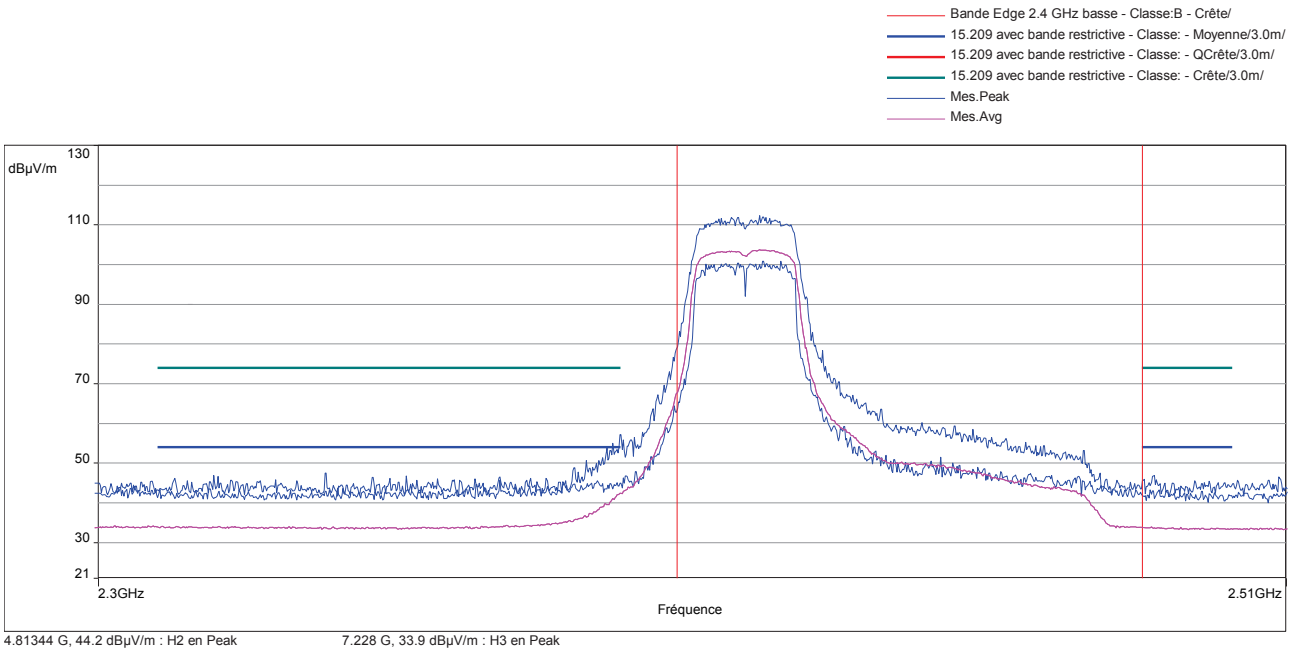
3.24928 G, 38 dBµV/m : en Peak 4.87328 G, 37.2 dBµV/m : H2 en Peak 7.3152 G, 36.3 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11n bandwidth 20 MHz – Back Left



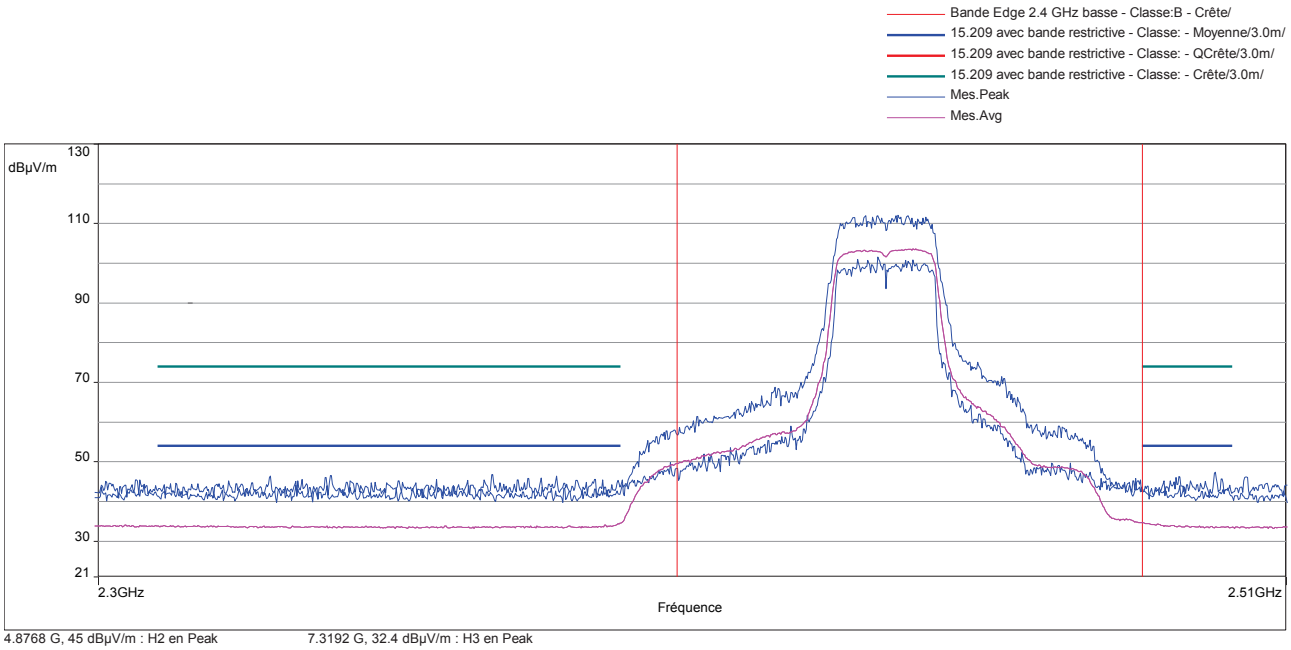
3.28256 G, 37.3 dBµV/m : en Peak 4.9168 G, 41.1 dBµV/m : H2 en Peak 7.3916 G, 31.6 dBµV/m : H3 en Peak

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11n – bandwidth 20 MHz – Back Right



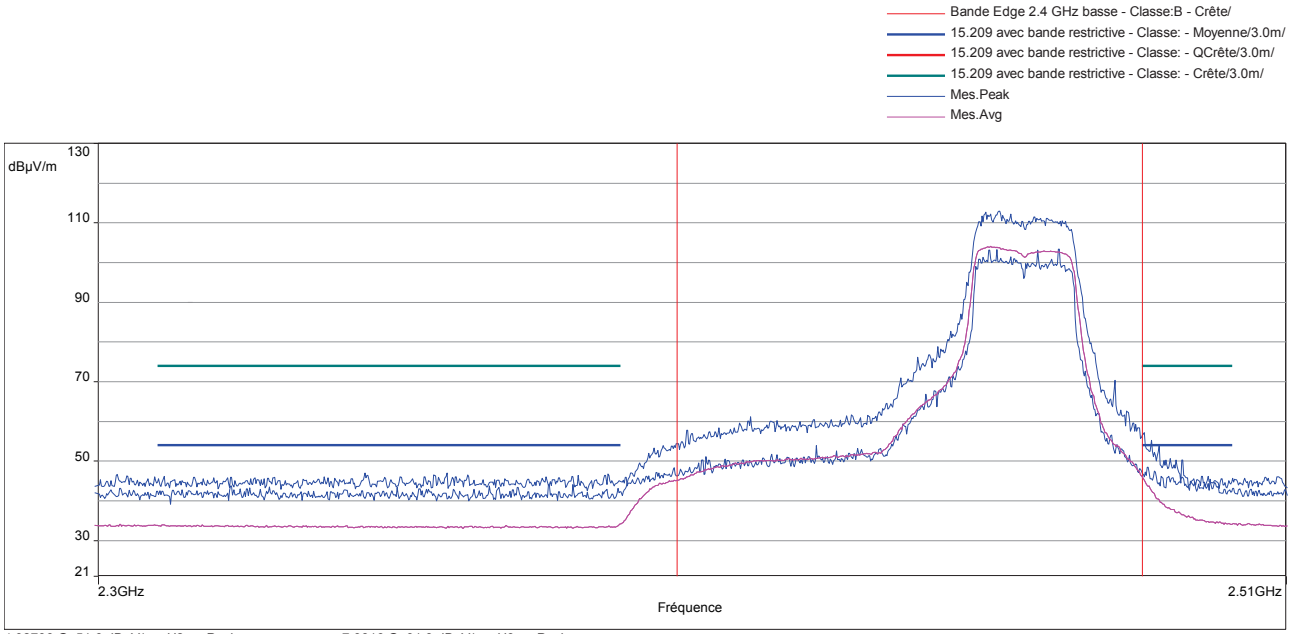
4.81344 G, 44.2 dBµV/m : H2 en Peak 7.228 G, 33.9 dBµV/m : H3 en Peak

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11n – bandwidth 20 MHz – Back Right



4.8768 G, 45 dBµV/m : H2 en Peak 7.3192 G, 32.4 dBµV/m : H3 en Peak

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11n bandwidth 20 MHz – Back Right



4.92736 G, 51.6 dBµV/m : H2 en Peak 7.3816 G, 31.8 dBµV/m : H3 en Peak

Test conclusion:

RESPECTED STANDARD

12. MAXIMUM CONDUCTED POWER DENSITY

Temperature (°C) : 25 **Humidity (%HR):** 58 **Date :** May 28, 2018
Technician : M. DUMESNIL

Standard: FCC Part 15

Test procedure: paragraph 15.247 (e)
AVGPSD-1 of paragraph 10.3 of KDB 558074 for 802.11b mode
AVGPSD-2 of paragraph 10.5 of KDB 558074 for 802.11g and 802.11n modes

Test set up:

The measure is realized in conducted mode with an analyser and the following settings are used.

Bandwidth selected	**10 MHz**	**20 MHz**
Span	20 MHz	40 MHz
RBW	100 kHz	100 kHz
VBW	1 MHz	1 MHz
detector	RMS	RMS
Points	8001	8001
Trace mode	Avg power	Avg power
Number of traces	100	100

Then the peak marker function is used.

For 802.11g and 802.11n modes, duty cycle correction factor measurement is added. (Correction= 10 log (1/X) = 0.29 dB max)

This factor is already included on the results (tables and graphs)

The measure is repeated on each output port of the EUT. Then the results were summed in linear power unit for mode g and n.

Equipment under test operating condition:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate (see §2).

We used for power source the internal fully charged battery

- According with KDB 662911 the antenna gain is calculated as follow:

Total gain = antenna gain (dBi) + array gain
With Array Gain = 10 log (NANT/NSS) dB = 3 and with NANT=2 and NSS=1

Total gain = 0.98 +3 = 3.98 dBi

- See appendix for plot

Results:

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11b – Bandwidth 10 MHz

Maximum conducted power density (dBm/100 kHz):				Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	
6.15	6.29	6.47	6.25	8

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11b – Bandwidth 10 MHz

Maximum conducted power density (dBm/100 kHz):				Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	
6.22	6.34	6.12	6.22	8

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11b – Bandwidth 10 MHz

Maximum conducted power density (dBm/100 kHz):				Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	
6.35	6.23	6.29	6.05	8

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11b – Bandwidth 20 MHz

Maximum conducted power density (dBm/100 kHz):				Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	
3.69	3.76	3.92	3.71	8

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11b – Bandwidth 20 MHz

Maximum conducted power density (dBm/100 kHz):				Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	
3.45	3.50	3.54	3.48	8

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11b – Bandwidth 20 MHz

Maximum conducted power density (dBm/100 kHz):				Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right	
3.51	3.47	3.90	3.33	8

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11g – Bandwidth 10 MHz

Maximum conducted power density (dBm/100 kHz):				Sum of maximum conducted power density (dBm/100kHz) (1)	Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
1.59	1.87	1.89	1.99	4.95	8

(1) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11g – Bandwidth 10 MHz

Maximum conducted power density (dBm/100 kHz):				Sum of maximum conducted power density (dBm/100kHz) (1)	Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
1.54	1.73	1.88	1.61	4.76	8

(1) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11g – Bandwidth 10 MHz

Maximum conducted power density (dBm/100 kHz):				Sum of maximum conducted power density (dBm/100kHz) (1)	Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
1.76	1.99	2.19	1.93	5.07	8

(1) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11g – Bandwidth 20 MHz

Maximum conducted power density (dBm/100 kHz):				Sum of maximum conducted power density (dBm/100kHz) (1)	Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
-0.10	0.17	0.06	-0.10	3.05	8

(1) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11g – Bandwidth 20 MHz

Maximum conducted power density (dBm/100 kHz):				Sum of maximum conducted power density (dBm/100kHz) (1)	Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
-0.19	-0.11	0.06	-0.28	2.95	8

(1) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11g – Bandwidth 20 MHz

Maximum conducted power density (dBm/100 kHz):				Sum of maximum conducted power density (dBm/100kHz) (1)	Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
-0.01	0.51	0.71	0.01	3.38	8

(1) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11n – Bandwidth 10 MHz

Maximum conducted power density (dBm/100 kHz):				Sum of maximum conducted power density (dBm/100kHz) (1)	Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
1.42	1.89	1.96	1.66	4.82	8

(1) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11n – Bandwidth 10 MHz

Maximum conducted power density (dBm/100 kHz):				Sum of maximum conducted power density (dBm/100kHz) (1)	Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
1.35	1.66	1.60	1.63	4.66	8

(1) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11n – Bandwidth 10 MHz

Maximum conducted power density (dBm/100 kHz):				Sum of maximum conducted power density (dBm/100kHz) (1)	Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
1.92	1.96	2.05	1.31	5.00	8

(1) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 1 (F = 2412 MHz) – Mode 802.11n – Bandwidth 20 MHz

Maximum conducted power density (dBm/100 kHz):				Sum of maximum conducted power density (dBm/100kHz) (1)	Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
-0.39	-0.41	-0.22	-0.20	2.80	8

(1) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 6 (F = 2437 MHz) – Mode 802.11n – Bandwidth 20 MHz

Maximum conducted power density (dBm/100 kHz):				Sum of maximum conducted power density (dBm/100kHz) (1)	Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
-0.25	0.42	-0.51	-0.45	3.11	8

(1) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Sample N° 1 Channel 11 (F = 2462 MHz) – Mode 802.11n – Bandwidth 20 MHz

Maximum conducted power density (dBm/100 kHz):				Sum of maximum conducted power density (dBm/100kHz) (1)	Limit (dBm/3kHz)
Chain Front Left	Chain Front Right	Chain Back Left	Chain Back Right		
0.31	0.35	0.13	-0.33	3.34	8

(1) Max between: Front Left + Front Right
Back Left + Back Right
Front Left + Back Left
Front Right + Back Right

Test conclusion:

RESPECTED STANDARD

□□□ End of report, 4 appendixes to be forwarded □□□

APPENDIX 1: Test equipment list

Additional provisions to the general radiated emission limitations

TYPE	MANUFACTURER	EMITECH NUMBER
Spectrum Analyzer FSP40	Rohde & Schwarz	4088
Attenuator 10dB 26AH-10	Inmet	3314
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC V3.16.0.64	0000

Maximum conducted (average) output power

TYPE	MANUFACTURER	EMITECH NUMBER
Switch 0SP120	Rohde et Schwarz	10812
Attenuator 20dB	Midwest Microwave	8549
Meteo station WS-9232	La Crosse Technology	8750
Software EMC 32	Rohde et Schwarz	10811

Intentional radiator

TYPE	MANUFACTURER	EMITECH NUMBER
Open test site	EMITECH	8732
Turntable and mat controller	EMITECH	8855
Full anechoic chamber	EMITECH	10759
Turntable and mat controller NCD	MATURO	10789
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Test receiver ESI7	Rohde & Schwarz	8707
Spectrum Analyzer FSP40	Rohde & Schwarz	4088
Biconical antenna VHA 9103	Schwarzbeck	8528
Biconical antenna 3110	Emco	7240
Log periodic antenna 3147	Emco	8783
Log periodic antenna HL223	Rohde & Schwarz	7190
Antenna 3115	EMCO	8534
Antenna 3117	ETS-Lindgren	10771
Antenna SAS-572	AH Systems	7124
Low-noise amplifier ZFL-1000LN	Mini-circuit	10730
Low-noise amplifier S005180M3201	LUCIX Corp.	12590
Low-noise amplifier S180265L3201 LNA	LUCIX Corp.	8704
Reject band filter BRM50702	Microtronics	7298
Reject band filter BRM50702	Microtronics	7299
Cable k-20cm	STORM MICROWAE	8974
Cable N-1.5m	-	9398
Cable K-2m	SUCOFLEX	12917
Cable N-1m	SUCOFLEX	14302
Cable N-2m	SUCOFLEX	14303
Cable N-2.5m	SUCOFLEX	14304

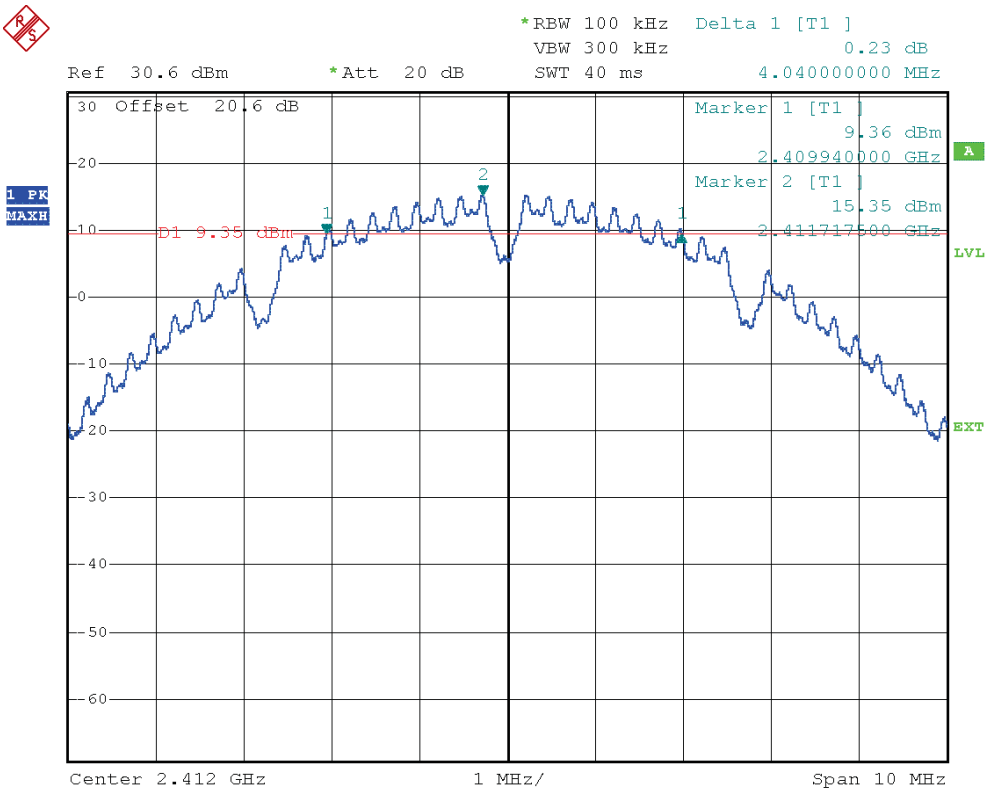
Cable N-4m	SUCOFLEX	14305
Meteo station 608-H1	Testo	7566
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC V3.16.0.64	0000

Maximum conducted power density

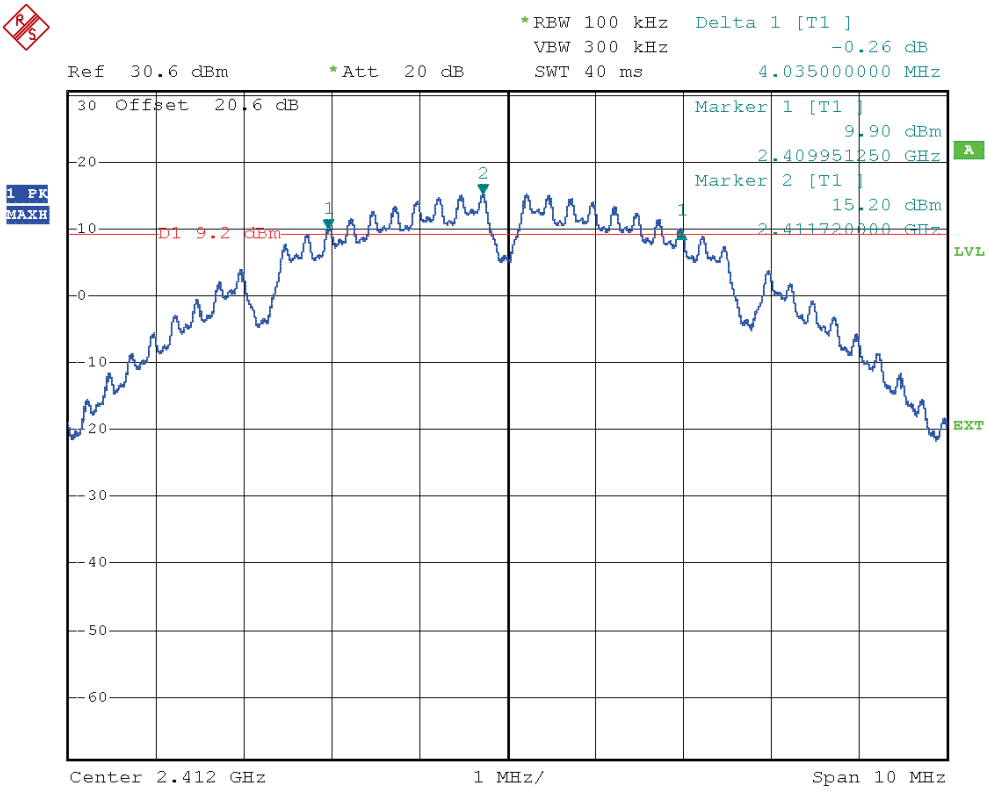
TYPE	MANUFACTURER	EMITECH NUMBER
Spectrum Analyzer FSL18	Rohde & Schwarz	14539
Attenuator 20dB	Midwest Microwave	8549
Meteo station WS-9232	La Crosse Technology	8750
Software Commander V1.6.4	Rohde et Schwarz	10811

APPENDIX 2: 6 dB bandwidth

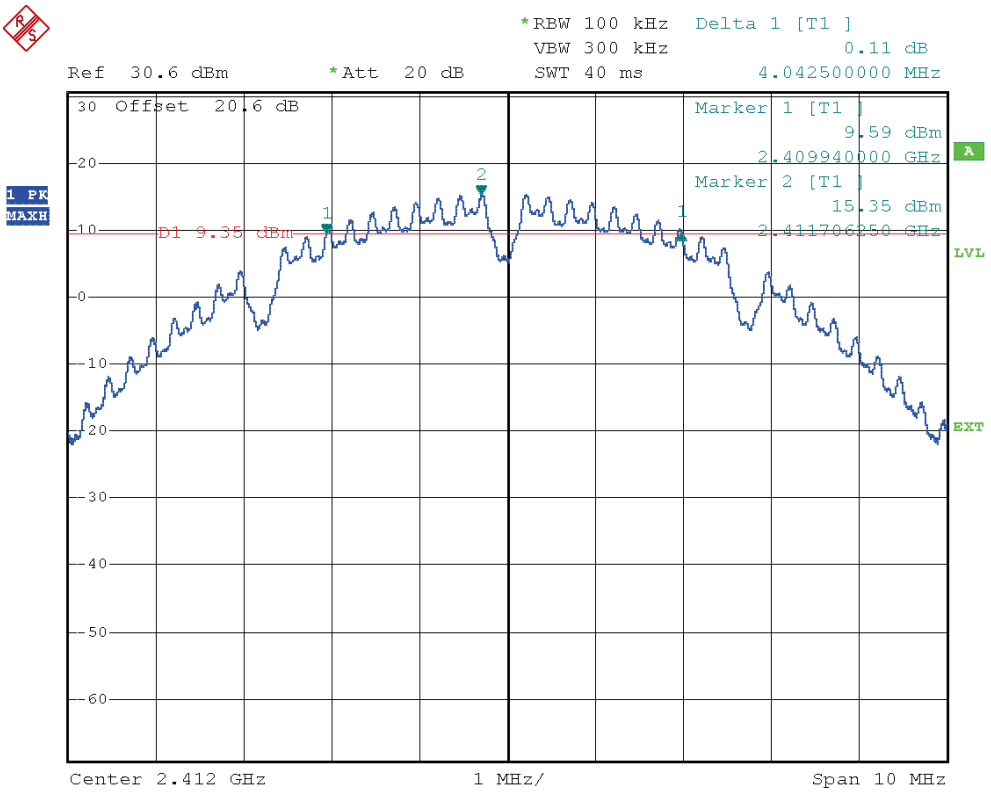
Channel 1 (F = 2412 MHz) – Mode 802.11b – bandwidth 10 MHz – Front Left



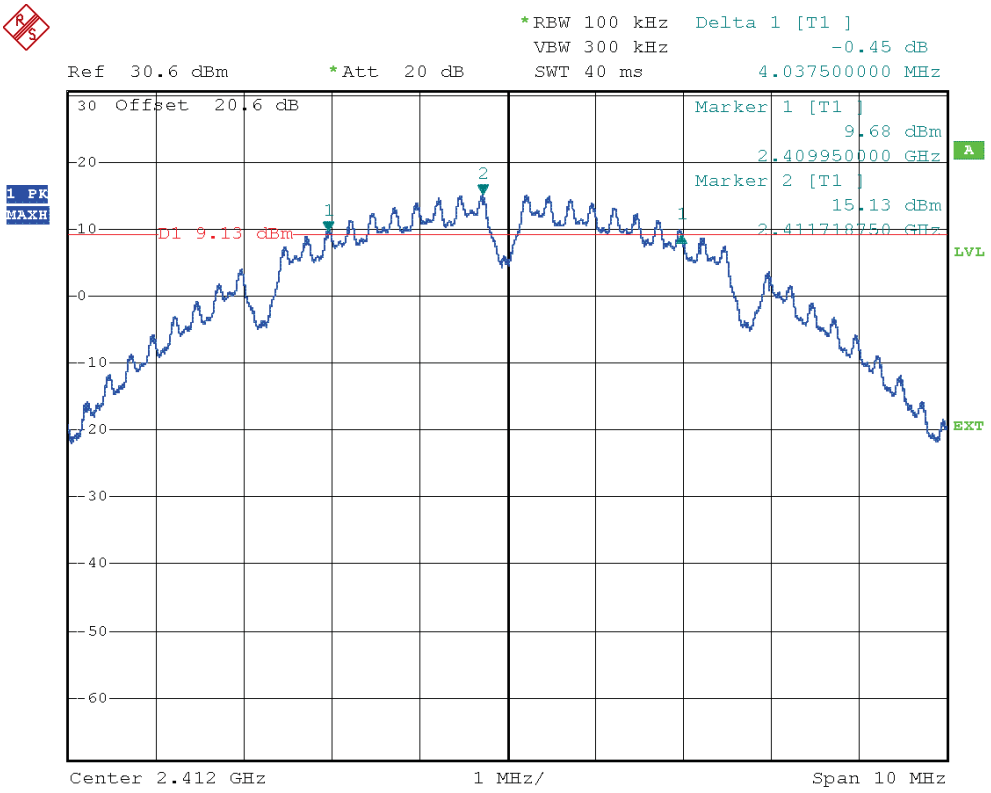
Channel 1 (F = 2412 MHz) – Mode 802.11b – bandwidth 10 MHz – Front Right



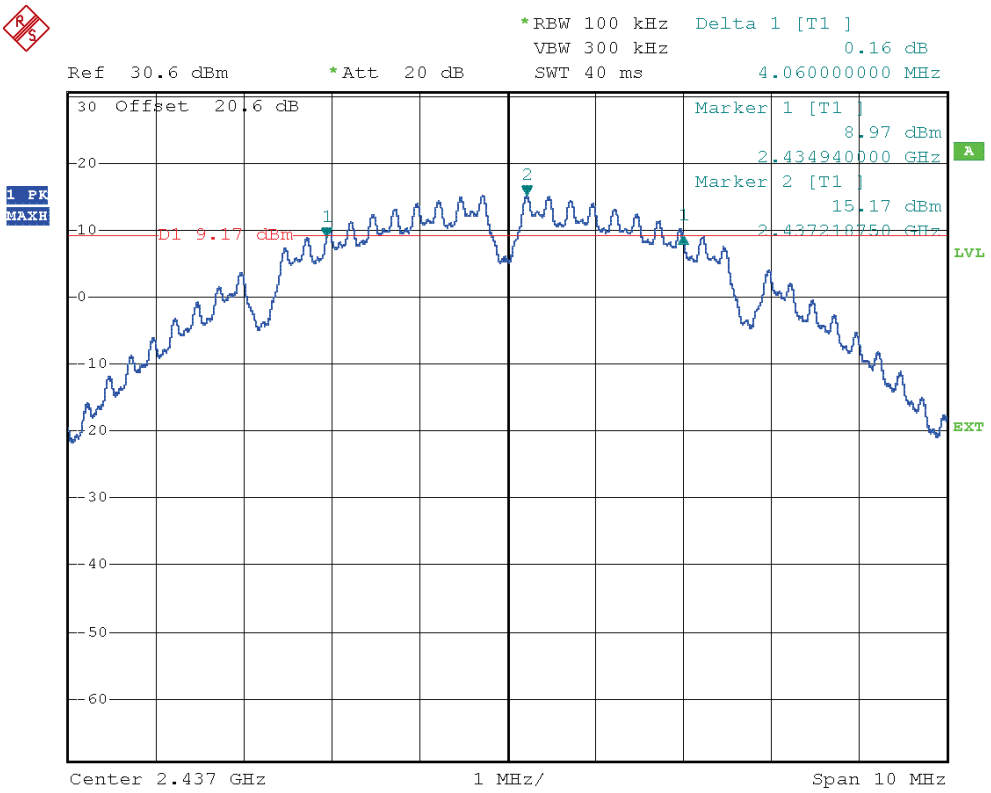
Channel 1 (F = 2412 MHz) – Mode 802.11b – bandwidth 10 MHz – Back Left



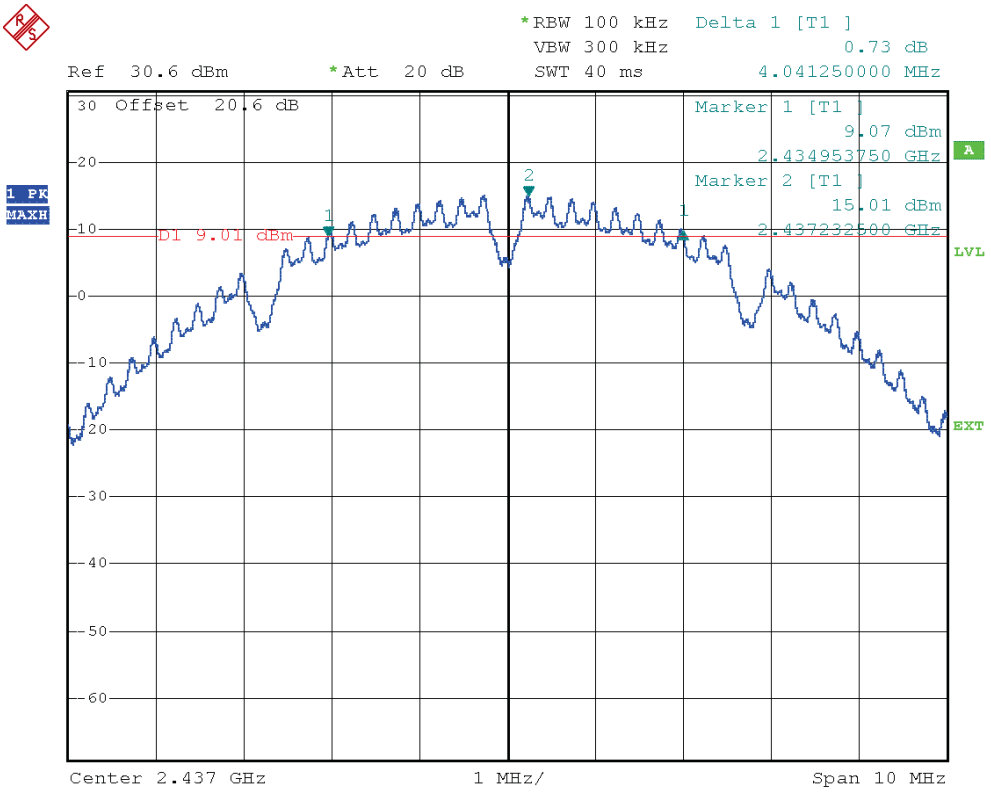
Channel 1 (F = 2412 MHz) – Mode 802.11b – bandwidth 10 MHz – Back Right



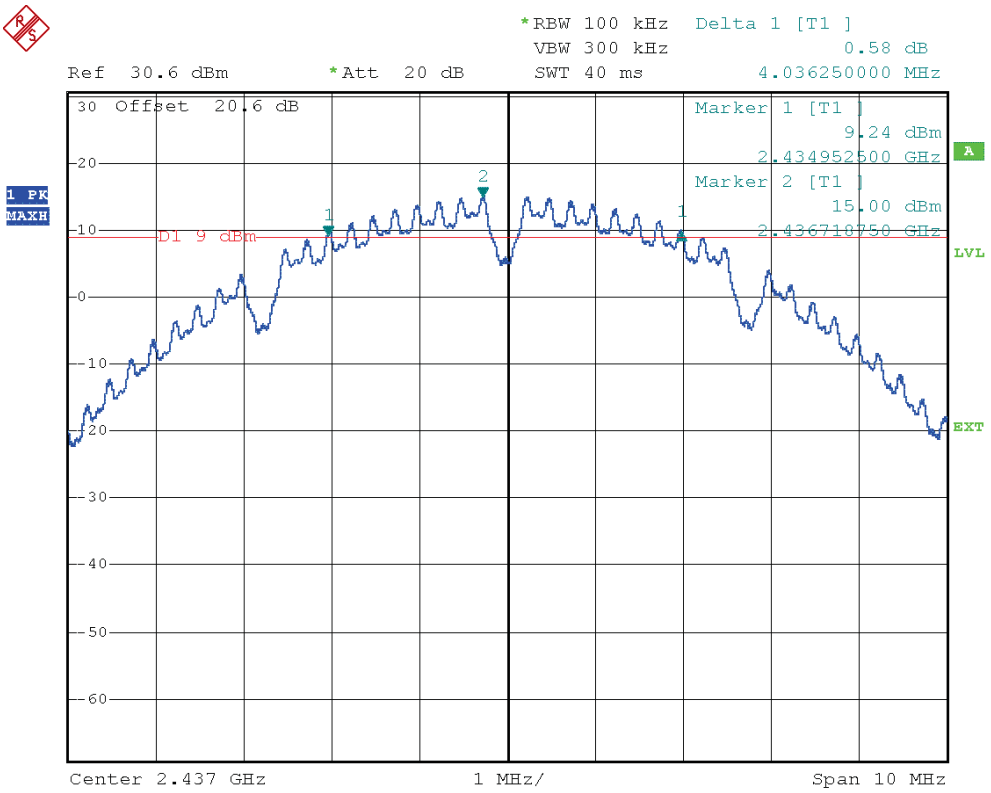
Channel 6 (F = 2437 MHz) – Mode 802.11b – bandwidth 10 MHz – Front Left



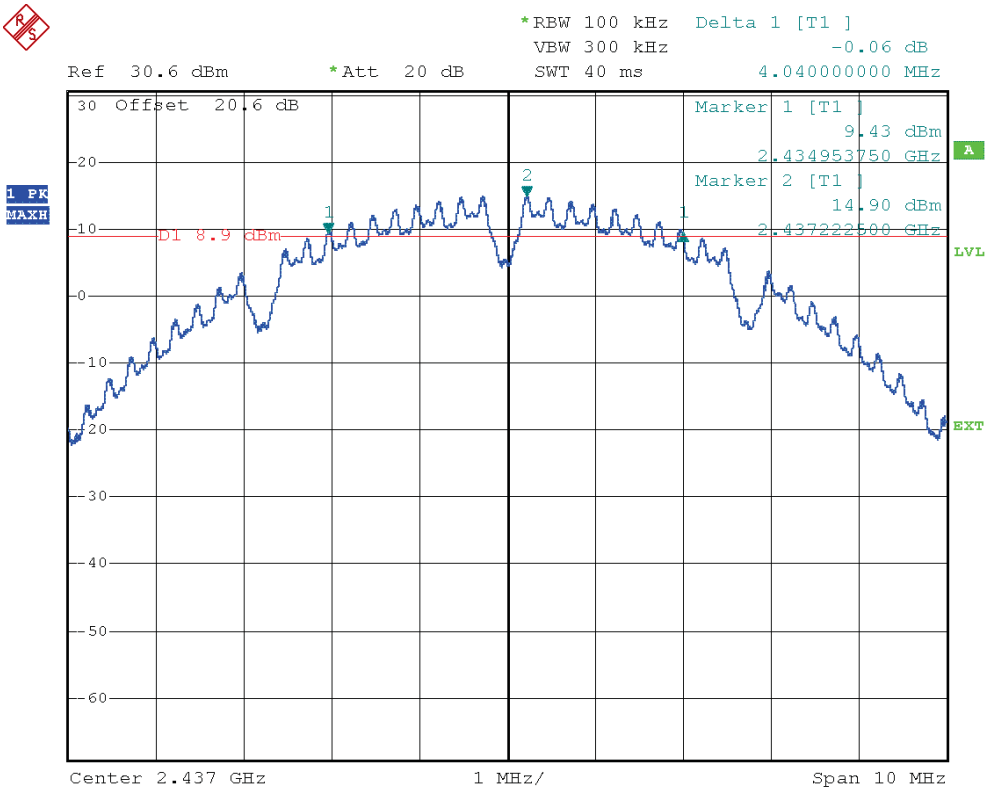
Channel 6 (F = 2437 MHz) – Mode 802.11b – bandwidth 10 MHz – Front Right



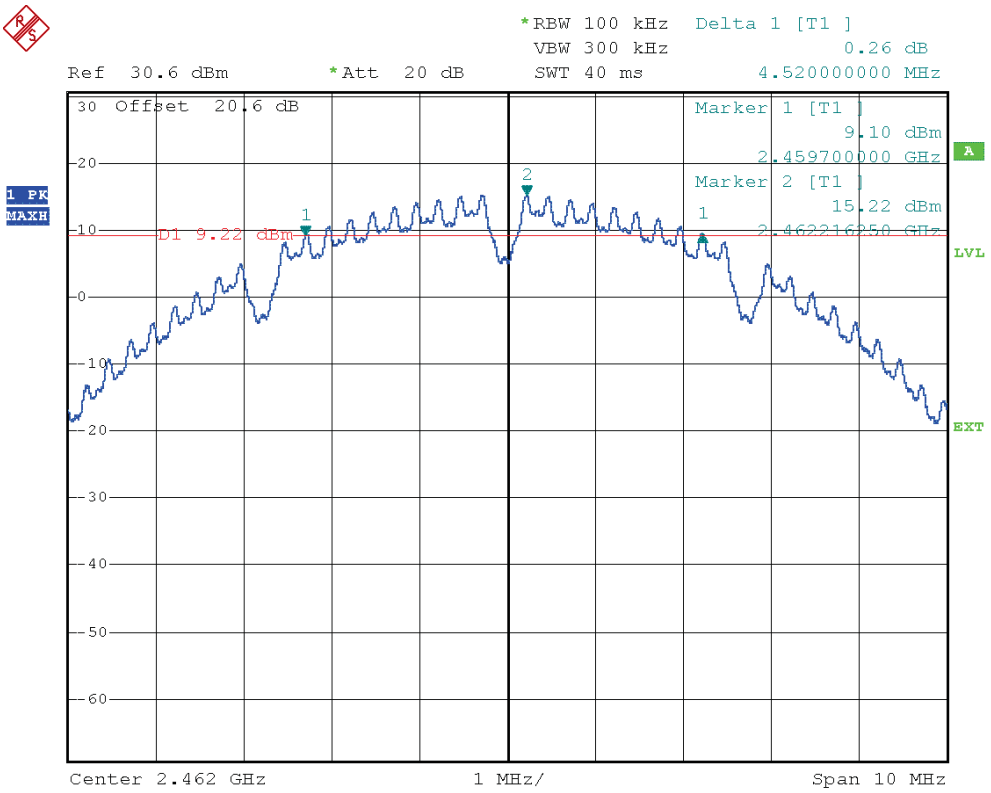
Channel 6 (F = 2437 MHz) – Mode 802.11b – bandwidth 10 MHz – Back Left



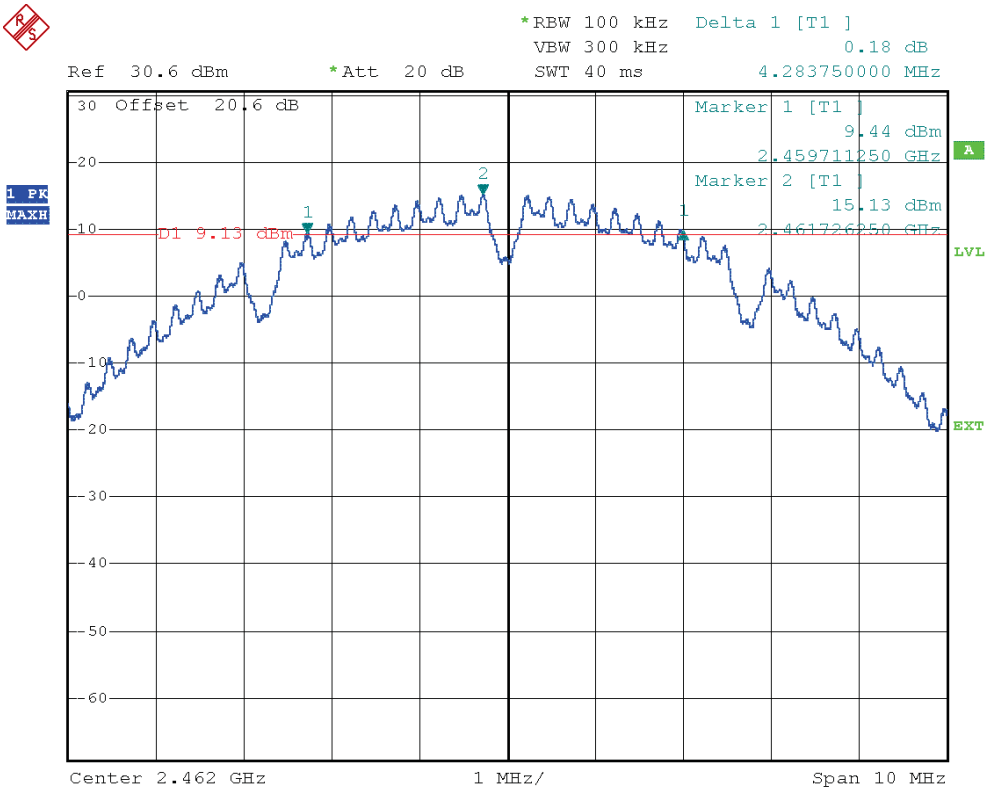
Channel 6 (F = 2437 MHz) – Mode 802.11b – bandwidth 10 MHz – Back Right



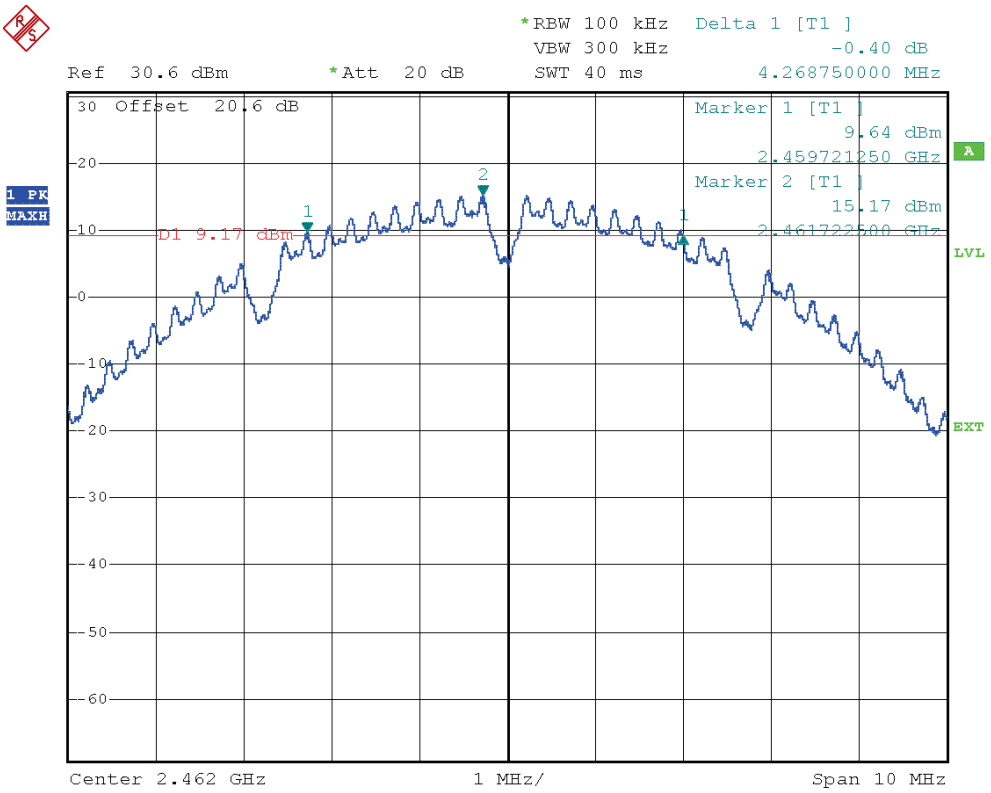
Channel 11 (F = 2462 MHz) – Mode 802.11b – bandwidth 10 MHz – Front Left



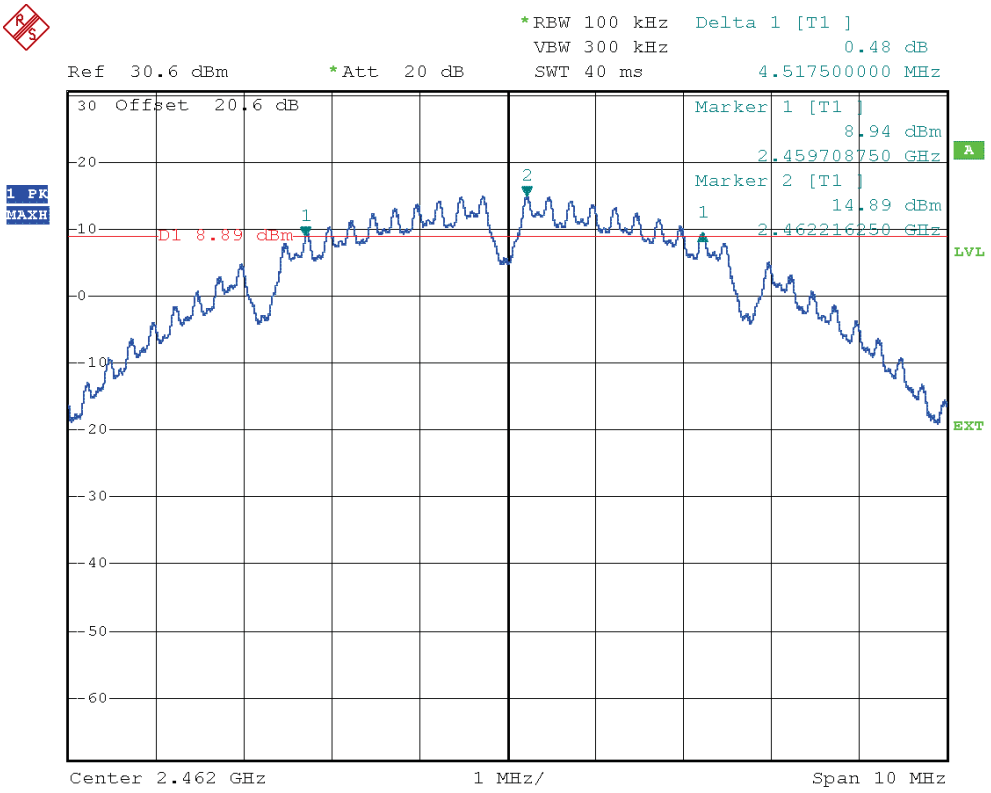
Channel 11 (F = 2462 MHz) – Mode 802.11b – bandwidth 10 MHz – Front Right



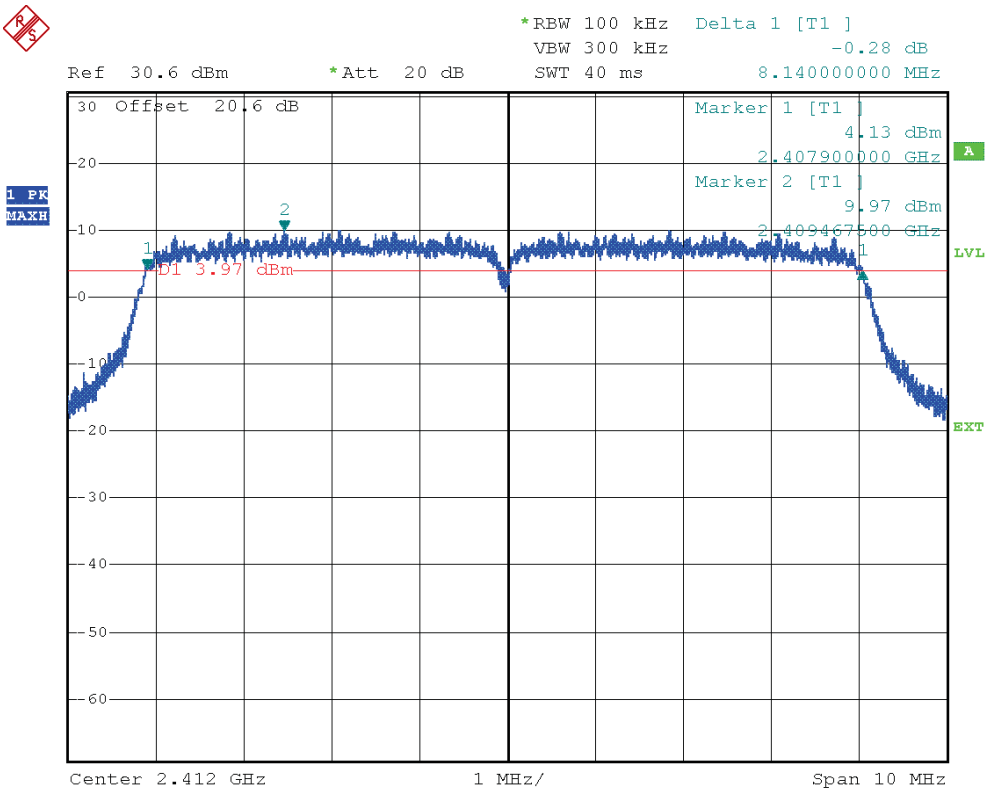
Channel 11 (F = 2462 MHz) – Mode 802.11b – bandwidth 10 MHz – Back Left



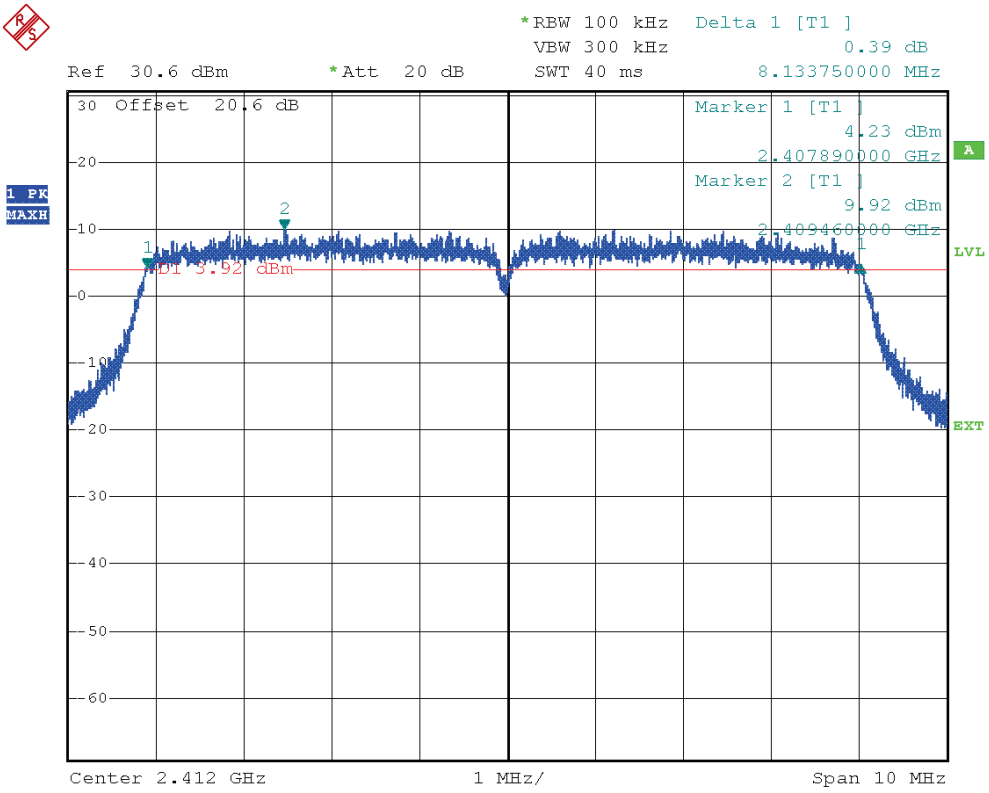
Channel 11 (F = 2462 MHz) – Mode 802.11b – bandwidth 10 MHz – Back Right



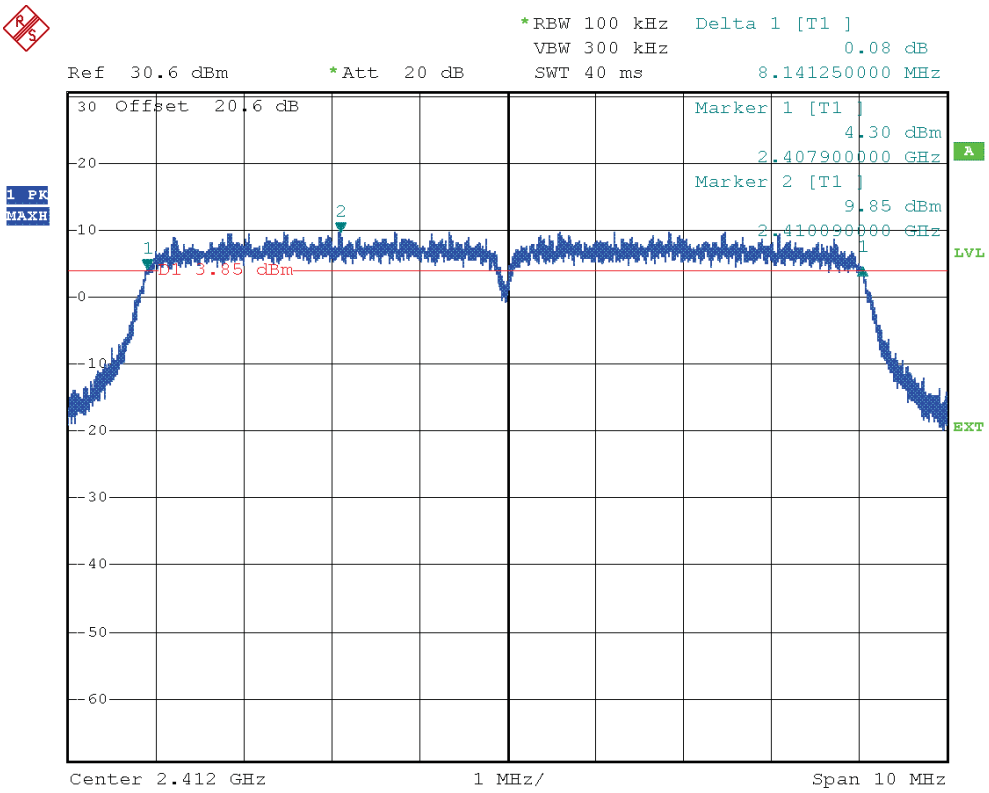
Channel 1 (F = 2412 MHz) – Mode 802.11g – bandwidth 10 MHz – Front Left



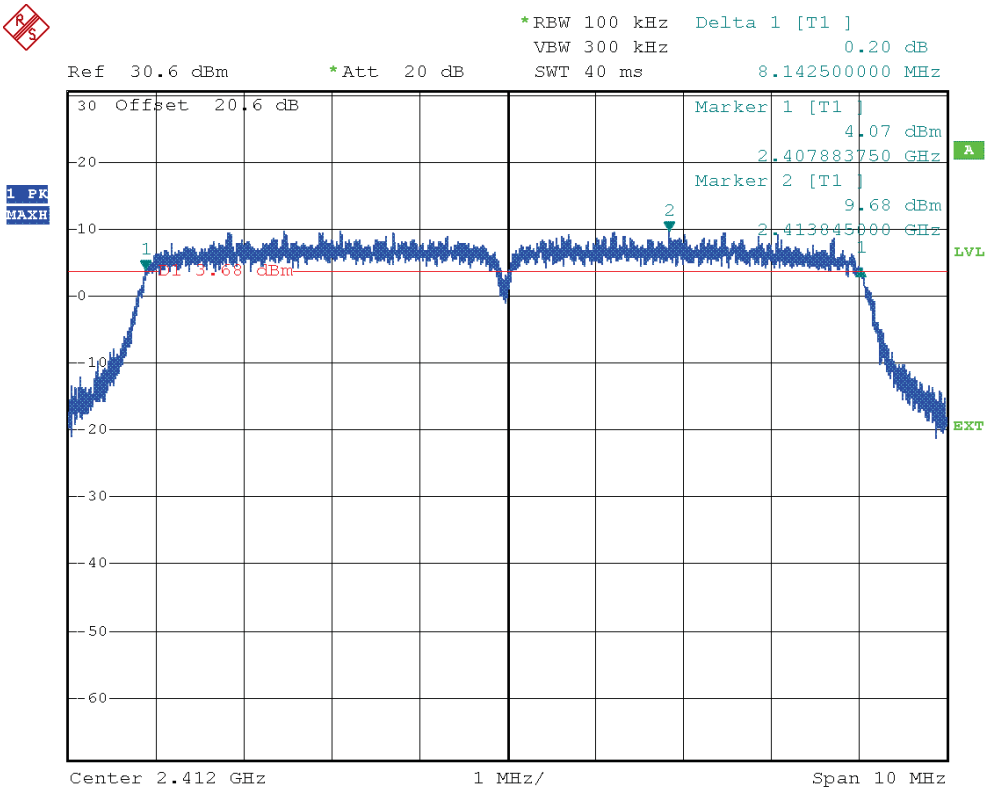
Channel 1 (F = 2412 MHz) – Mode 802.11g – bandwidth 10 MHz – Front Right



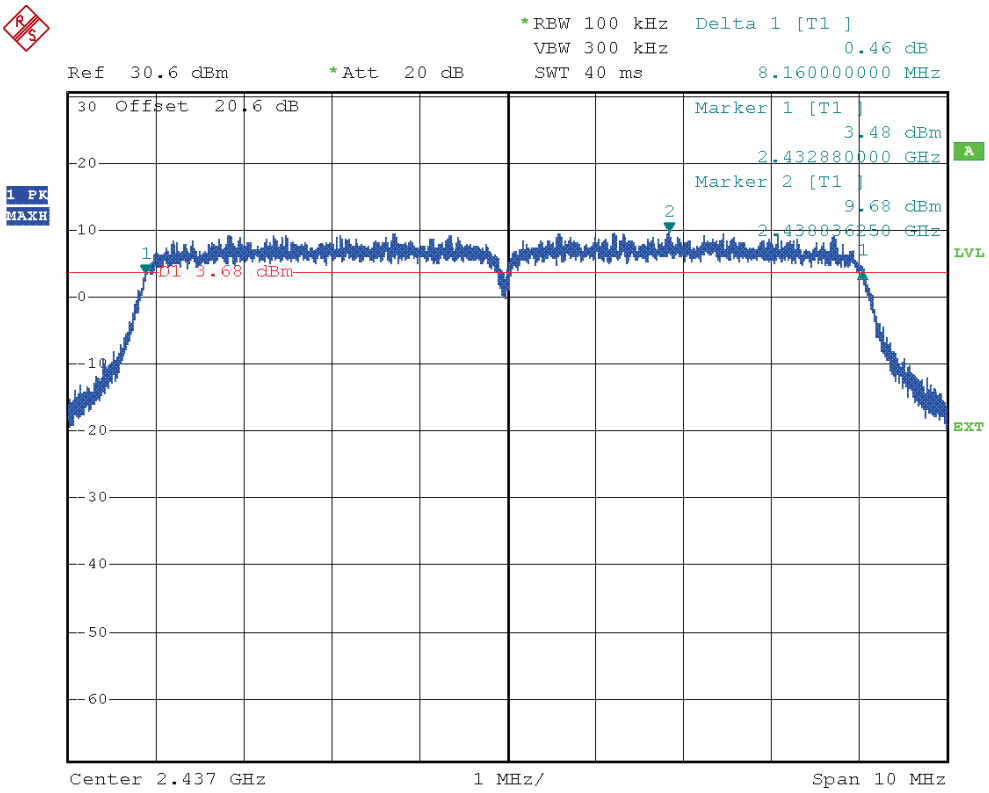
Channel 1 (F = 2412 MHz) – Mode 802.11g – bandwidth 10 MHz – Back Left



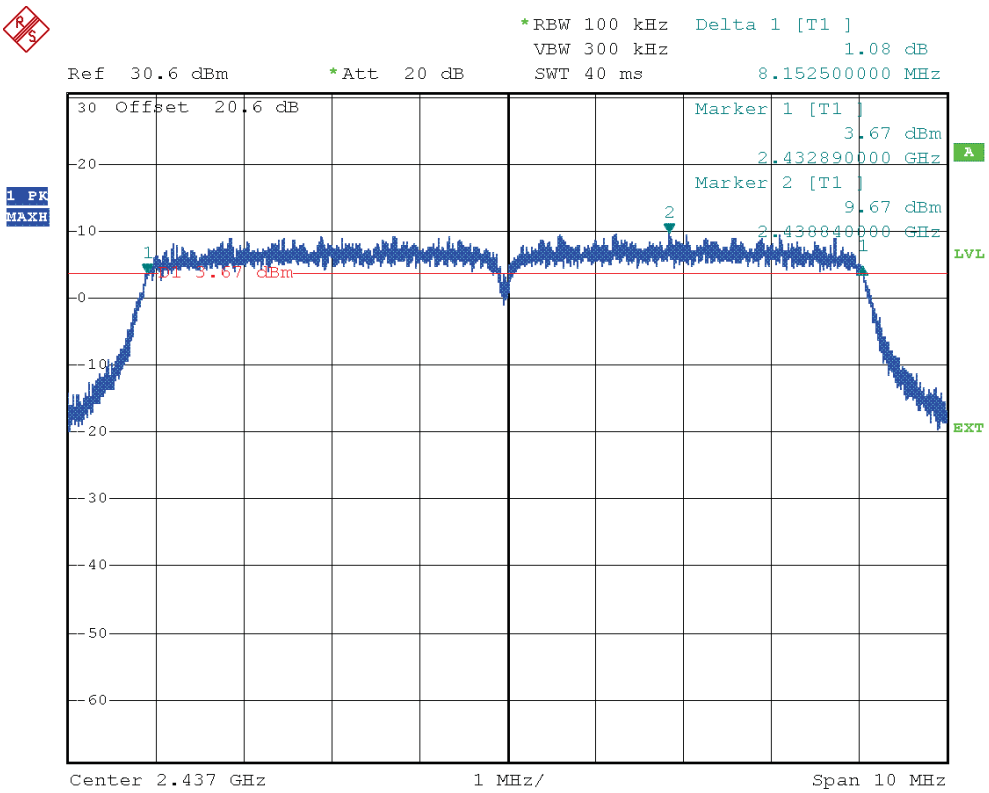
Channel 1 (F = 2412 MHz) – Mode 802.11g – bandwidth 10 MHz – Back Right



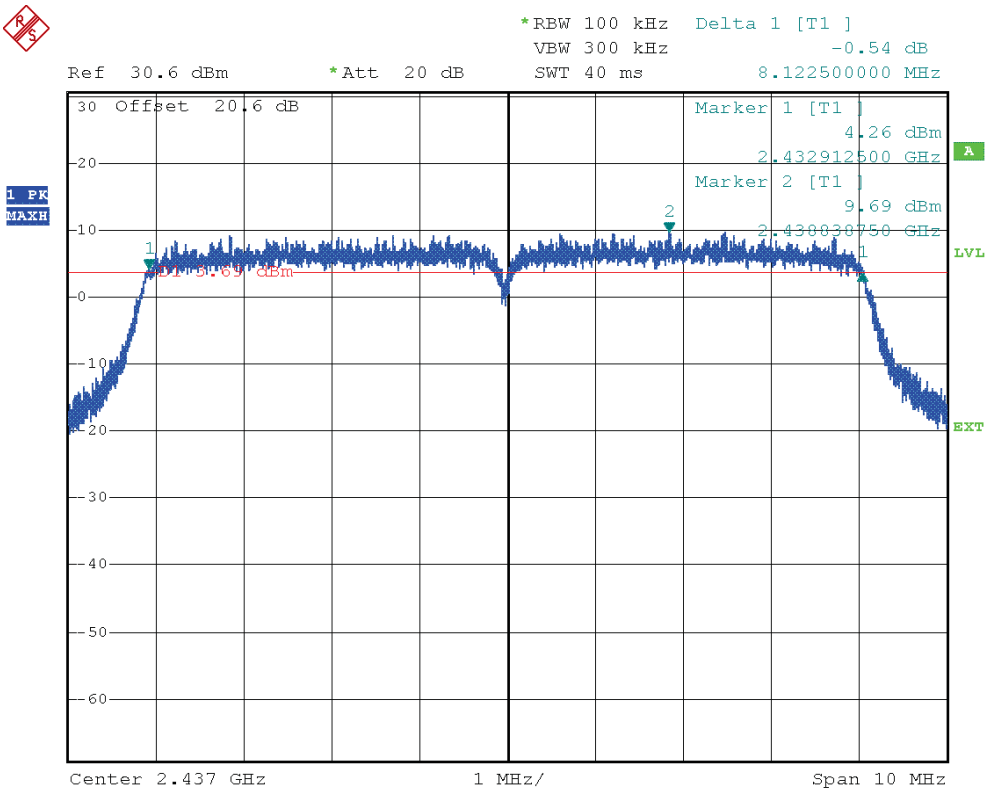
Channel 6 (F = 2437 MHz) – Mode 802.11g – bandwidth 10 MHz – Front Left



Channel 6 (F = 2437 MHz) – Mode 802.11g – bandwidth 10 MHz – Front Right



Channel 6 (F = 2437 MHz) – Mode 802.11g – bandwidth 10 MHz – Back Left



Channel 6 (F = 2437 MHz) – Mode 802.11g – bandwidth 10 MHz – Back Right