TEST REPORT

N°: 163647-742968-C **Version : 01**

Subject	**Radio spectrum matters tests according to standards: 47 CFR Part 15.247 & RSS-247 Issue 2 & RSS-Gen Issue 5**
Issued to	**SAGEMCOM** 250 route de l'empereur 92500 – Rueil-Malmaison FRANCE
Apparatus under test	
Product	**Mini Sound Box**
Trade mark	**SAGEMCOM**
Manufacturer	**SAGEMCOM**
Model under test	**Mini Sound Box MSBDV00**
Serial number	**253837310**
FCC ID	**VW3MSBDV00**
IC	**9140A-MSBDV00**
Conclusion	See Test Program chapter
Test date	October 10, 2019 to October 28, 2019
Test location	Fontenay Aux Roses & Ecuelles
Test Site	6230B-1
Sample receipt date	October 10, 2019
Composition of document	103 pages
Document issued on	January 13, 2020

Written by :
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Tests operator

Approved by :
Arnaud FAYETTE
Technical manager

PUBLICATION HISTORY

Version	Date	Author	Modification
01	January 13, 2020	Julien Palard	Creation of the document

Each new edition of this test report replaces and cancels the previous edition. The control of the old editions of report is under responsibility of client.

SUMMARY

1. TEST PROGRAM

References

- **47 CFR Part 15.247**
- **RSS 247 Issue 2**
- **RSS Gen Issue 5**
- **KDB 558074 D01 DTS Meas Guidance v05r02**
- **KDB 662911 D01 Multiple Transmitter Output v02r01**
- **ANSI C63.10-2013**

Radio requirement:

Clause (47CFR Part 15.247 & RSS-247 Issue 2 & RSS-Gen Issue 5) Test Description	Test result - Comments			
Occupied Bandwidth	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
6dB Bandwidth	☑ PASS	☐ FAIL	☐ NA()	☐ NP(1)
Duty Cycle	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Maximum Conducted Output Power	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Power Spectral Density	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Conducted Spurious Emission at the Band Edge	☑ PASS	☐ FAIL	☐ NA()	☐ NP(1)
Unwanted Emissions into Non-Restricted Frequency Bands	☑ PASS	☐ FAIL	☐ NA()	☐ NP(1)
AC Power Line Conducted Emission	☑ PASS	☐ FAIL	☐ NA(2)	☐ NP(1)
Unwanted Emissions into Restricted Frequency Bands	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Receiver Radiated emissions	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
This table is a summary of test report, see conclusion of each clause of this test report for detail.				

(1): Limited program
(2): EUT not directly or indirectly connected to the AC Power Public Network

PASS: EUT complies with standard's requirement
FAIL: EUT does not comply with standard's requirement
NA: Not Applicable
NP: Test Not Performed

2. EQUIPMENT UNDER TEST: CONFIGURATION (DECLARED BY PROVIDER)

2.1. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT):
SAGEMCOM Mini **Sound Box MSBDV00** **Serial Number: 253837310**

Power supply:
During all the tests, EUT is supplied by V_{nom}: 120VAC / 60Hz
For measurement with different voltage, it will be presented in test method.

Name	Type	Rating	Reference / Sn	Comments
Supply1	☑ AC ☐ DC ☐ Battery	100V-240V	NBC40B200200M2	Sold with the product

Voltage table used (for Power Line Conducted Emissions):

Type	**Measurement performed:**	
☑ AC	☑ **120VAC/60Hz**	☑ **240VAC/50Hz**
☐ DC	☐ **+12VDC**	☐ **-....VDC**
☐ Battery	☐ **+3.6VDC**	☐ **-....VDC**
☐ USB (Laptop auxiliary)	☐ **120VAC/60Hz (Laptop auxiliary)**	☑ **240VAC/50Hz(Laptop auxiliary)**

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
Access 1	Power supply	-	☐	☐	☑	-
Access 2	Ethernet cable	-	☐	☐	☑	-
Access 3	Electronic card	-	☐	☐	☑	-

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
Laptop	-	-	Use to set the EUT

Equipment information:

Type:	**WIFI**			
Frequency band:	2400MHz-2483.5MHz			
Standard:	☑ 802.11b	☑ 802.11g	☑ 802.11n HT20	☑ 802.11n HT40
Spectrum Modulation:	☑ DSSS		☑ OFDM	
Number of Channel:	11			
Spacing channel:	5MHz			
Channel bandwidth:	☑ 20MHz		☑ 40MHz	
Antenna Type:	☑ Integral	☐ External	☐ Dedicated	
Antenna connector:	☑ Yes	☐ No	☐ Temporary for test	
Transmit chains:	☐ 1	☑ 2	☐ 3	☐ 4
Beam forming gain:	☐ Yes: XdB		☑ No	
Receiver chains	☐ 1	☑ 2	☐ 3	☐ 4
Type of equipment:	☑ Stand-alone	☐ Plug-in	☐ Combined	
Ad-Hoc mode:	☐ Yes		☑ No	
Duty cycle:	☑ Continuous duty	☐ Intermittent duty	☐ 100% duty	
Operating temperature range:	Tmin:	☐ -20°C	☑ 0°C	☐ X°C
	Tnom:	20°C		
	Tmax:	☐ 35°C	☐ 55°C	☑ 40°C
Type of power source:	☑ AC power supply	☐ DC power supply	☐ Battery	
Operating voltage range:	Vnom:	☑ 120V/60Hz	☐ X Vdc	
		☑ 240V/50Hz	☐ X Vdc	

Antenna Characteristic			
Antenna assembly	**Gain (dBi)**	**Frequency Band (MHz)**	**Impedance(Ω)**
1	2.265	2450	50
2	1.993	2450	50
Accumulated	5.140	2450	50

Accumulated gain calculation		
Formula used for calculation	**KDB**	**Correlated**
10 log[(10G1 /20 + 10G2 /20 + … + 10GN /20)2 /NANT]dBi	KDB 662911 D01 v02r01	☑ Yes / ☐ No

Hardware information		
Software (if applicable):	**V. :**	-

SAGEMCOM POWER TARGET

802.11b mode CDD	
Channels (MHz)	q max
C1 (2412)	68
C6 (2437)	74
C11 (2462)	46

802.11g mode CDD	
Channels (MHz)	q max
C1 (2412)	62
C6 (2437)	74
C11 (2462)	56

802.11n HT20 mode MIMO	
Channels (MHz)	q max
C1 (2412)	56
C6 (2437)	74
C11 (2462)	52

802.11n HT40 mode MIMO	
Channels (MHz)	q max
C1 (2422) / C3	44
C4 (2437) / C6	66
C7 (2452) / C9	40

CHANNEL PLAN	
802.11b / 802.11g / 802.11n HT20	
Channel	Frequency (MHz)
Cmin: 1	**2412**
2	2417
3	2422
4	2427
5	2432
Cmid: 6	**2437**
7	2442
8	2447
9	2452
10	2457
Cmax: 11	**2462**

CHANNEL PLAN	
802.11n HT40	
Channel	Frequency (MHz)
Cmin: 3	**2422**
4	2427
5	2432
Cmid: 6	**2437**
7	2442
8	2447
Cmax: 9	**2452**

DATA RATE		
802.11b		
Data Rate (Mbps)	**Modulation Type**	**Modulation Worst Case**
1	DBPSK	☐
2	DQPSK	☐
5.5	DQPSK	☐
11	CCK	☑

DATA RATE		
802.11g		
Data Rate (Mbps)	**Modulation Type**	**Modulation Worst Case**
6	BPSK	☑
9	BPSK	☐
12	QPSK	☐
18	QPSK	☐
24	16-QAM	☐
36	16-QAM	☐
48	64-QAM	☐
54	64-QAM	☐

DATA RATE									
802.11n HT20									
Available for EUT	MCS Index	Spatial streams	Modulation				Data Rate (Mbps)		Worst Case Modulation
							(GI = 800ns)	(GI = 400ns)	
☑	0	1	BPSK				6.5	7.2	☐
	1	1	QPSK				13	14.4	☐
	2	1	QPSK				19.5	21.7	☐
	3	1	16-QAM				26	28.9	☐
	4	1	16-QAM				39	43.3	☐
	5	1	64-QAM				52	57.8	☐
	6	1	64-QAM				58.5	65	☐
	7	1	64-QAM				65	72.2	☐
	32	1	BPSK	-	-	-	-	-	☐
☑	8	2	BPSK				13	14.4	☑
	9	2	QPSK				26	28.9	☐
	10	2	QPSK				39	43.3	☐
	11	2	16-QAM				52	57.8	☐
	12	2	16-QAM				78	86.7	☐
	13	2	64-QAM				104	115.6	☐
	14	2	64-QAM				117	130.3	☐
	15	2	64-QAM				130	144.4	☐
	33	2	16-QAM	QPSK	-	-	39	43.3	☐
	34	2	64-QAM	QPSK	-	-	52	57.8	☐
	35	2	64-QAM	16-QAM	-	-	65	72.2	☐
	36	2	16-QAM	QPSK	-	-	58.5	65	☐
	37	2	64-QAM	QPSK	-	-	78	86.7	☐
	38	2	64-QAM	16-QAM	-	-	97.5	108.3	☐
☐	16	3	BPSK				19.5	21.7	☐
	17	3	QPSK				39	43.3	☐
	18	3	QPSK				58.5	65	☐
	19	3	16-QAM				78	86.7	☐
	20	3	16-QAM				117	130	☐
	21	3	64-QAM				156	173.3	☐
	22	3	64-QAM				175.5	195	☐
	23	3	64-QAM				195	216.7	☐
	39	3	16-QAM	QPSK	QPSK	-	52	57.8	☐
	40	3	16-QAM	16-QAM	QPSK	-	65	72.2	☐
	41	3	64-QAM	QPSK	QPSK	-	65	72.2	☐
	42	3	64-QAM	16-QAM	QPSK	-	78	86.7	☐
	43	3	64-QAM	16-QAM	16-QAM	-	91	101.1	☐
	44	3	64-QAM	64-QAM	QPSK	-	91	101.1	☐
	45	3	64-QAM	64-QAM	16-QAM	-	104	115.6	☐
	46	3	16-QAM	QPSK	QPSK	-	78	86.7	☐
	47	3	16-QAM	16-QAM	QPSK	-	97.5	108.3	☐
	48	3	64-QAM	QPSK	QPSK	-	97.5	108.3	☐
	49	3	64-QAM	16-QAM	QPSK	-	117	130	☐
	50	3	64-QAM	16-QAM	16-QAM	-	136.5	151.7	☐
	51	3	64-QAM	64-QAM	QPSK	-	136.5	151.7	☐
	52	3	64-QAM	64-QAM	16-QAM	-	156	173.3	☐
☐	24	4	BPSK				26	28.9	☐
	25	4	QPSK				52	57.8	☐
	26	4	QPSK				78	86.7	☐
	27	4	16-QAM				104	115.6	☐
	28	4	16-QAM				156	173.3	☐
	29	4	64-QAM				208	231.1	☐
	30	4	64-QAM				234	260	☐
	31	4	64-QAM				260	288.9	☐
	53	4	16-QAM	QPSK	QPSK	QPSK	65	72.2	☐
	54	4	16-QAM	16-QAM	QPSK	QPSK	78	86.7	☐
	55	4	16-QAM	16-QAM	16-QAM	QPSK	91	101.1	☐
	56	4	64-QAM	QPSK	QPSK	QPSK	78	86.7	☐
	57	4	64-QAM	16-QAM	QPSK	QPSK	91	101.1	☐
	58	4	64-QAM	16-QAM	16-QAM	QPSK	104	115.6	☐
	59	4	64-QAM	16-QAM	16-QAM	16-QAM	117	130	☐
	60	4	64-QAM	QPSK	QPSK	QPSK	104	115.6	☐
	61	4	64-QAM	16-QAM	16-QAM	QPSK	117	130	☐
	62	4	64-QAM	16-QAM	16-QAM	16-QAM	130	144.4	☐
	63	4	64-QAM	64-QAM	64-QAM	QPSK	130	144.4	☐
	64	4	64-QAM	64-QAM	64-QAM	16-QAM	143	158.9	☐
	65	4	16-QAM	QPSK	QPSK	QPSK	97.5	108.3	☐
	66	4	16-QAM	16-QAM	QPSK	QPSK	117	130	☐
	67	4	16-QAM	16-QAM	16-QAM	QPSK	136.5	151.7	☐
	68	4	64-QAM	QPSK	QPSK	QPSK	117	130	☐
	69	4	64-QAM	16-QAM	QPSK	QPSK	136.5	151.7	☐
	70	4	64-QAM	16-QAM	16-QAM	QPSK	156	173.3	☐
	71	4	64-QAM	16-QAM	16-QAM	16-QAM	175.5	195	☐
	72	4	64-QAM	64-QAM	QPSK	QPSK	156	173.3	☐
	73	4	64-QAM	64-QAM	16-QAM	QPSK	175.5	195	☐
	74	4	64-QAM	64-QAM	16-QAM	16-QAM	195	216.7	☐
	75	4	64-QAM	64-QAM	64-QAM	QPSK	195	216.7	☐
	76	4	64-QAM	64-QAM	64-QAM	16-QAM	214.5	238.3	☐

DATA RATE									
802.11n HT40									
Available for EUT	MCS Index	Spatial streams	Modulation				Data Rate (Mbps)		Worst Case Modulation
							(GI = 800ns)	(GI = 400ns)	
	0	1	BPSK				13	15	☐
	1	1	QPSK				27	30	☐
	2	1	QPSK				40.5	45	☐
☑	3	1	16-QAM				54	60	☐
	4	1	16-QAM				81	90	☐
	5	1	64-QAM				108	120	☐
	6	1	64-QAM				121.5	135	☐
	7	1	64-QAM				135	150	☐
	32	1	BPSK	-	-	-	6.0	6.7	☐
	8	2	BPSK				27	30	☑
	9	2	QPSK				54	60	☐
	10	2	QPSK				81	90	☐
	11	2	16-QAM				108	120	☐
	12	2	16-QAM				162	180	☐
	13	2	64-QAM				216	240	☐
☑	14	2	64-QAM				243	270	☐
	15	2	64-QAM				270	300	☐
	33	2	16-QAM	QPSK	-	-	81	90.0	☐
	34	2	64-QAM	QPSK	-	-	108	120	☐
	35	2	64-QAM	16-QAM	-	-	135	150	☐
	36	2	16-QAM	QPSK	-	-	121.5	135	☐
	37	2	64-QAM	QPSK	-	-	162	180	☐
	38	2	64-QAM	16-QAM	-	-	202.5	225	☐
	16	3	BPSK				40.5	45	☐
	17	3	QPSK				81	90	☐
	18	3	QPSK				121.5	135	☐
	19	3	16-QAM				162	180	☐
	20	3	16-QAM				243	270	☐
	21	3	64-QAM				324	360	☐
	22	3	64-QAM				364.5	405	☐
	23	3	64-QAM				405	450	☐
	39	3	16-QAM	QPSK	QPSK	-	108	120	☐
	40	3	16-QAM	16-QAM	QPSK	-	135	150	☐
☐	41	3	64-QAM	QPSK	QPSK	-	135	150	☐
	42	3	64-QAM	16-QAM	QPSK	-	162	180	☐
	43	3	64-QAM	16-QAM	16-QAM	-	189	210	☐
	44	3	64-QAM	64-QAM	QPSK	-	189	210	☐
	45	3	64-QAM	64-QAM	16-QAM	-	216	240	☐
	46	3	16-QAM	QPSK	QPSK	-	162	180	☐
	47	3	16-QAM	16-QAM	QPSK	-	202.5	225	☐
	48	3	64-QAM	QPSK	QPSK	-	202.5	225	☐
	49	3	64-QAM	16-QAM	QPSK	-	243	270	☐
	50	3	64-QAM	16-QAM	16-QAM	-	283.5	315	☐
	51	3	64-QAM	64-QAM	QPSK	-	283.5	315	☐
	52	3	64-QAM	64-QAM	16-QAM	-	324	360	☐
	24	4	BPSK				54	60	☐
	25	4	QPSK				108	120	☐
	26	4	QPSK				162	180	☐
	27	4	16-QAM				216	240	☐
	28	4	16-QAM				324	360	☐
	29	4	64-QAM				432	480	☐
	30	4	64-QAM				486	540	☐
	31	4	64-QAM				540	600	☐
	53	4	16-QAM	QPSK	QPSK	QPSK	135	150	☐
	54	4	16-QAM	16-QAM	QPSK	QPSK	162	180	☐
	55	4	16-QAM	16-QAM	16-QAM	QPSK	189	210	☐
	56	4	64-QAM	QPSK	QPSK	QPSK	162	180	☐
	57	4	64-QAM	16-QAM	QPSK	QPSK	189	210	☐
	58	4	64-QAM	16-QAM	16-QAM	QPSK	216	240	☐
	59	4	64-QAM	16-QAM	16-QAM	16-QAM	243	270	☐
☐	60	4	64-QAM	QPSK	QPSK	QPSK	216	240	☐
	61	4	64-QAM	16-QAM	16-QAM	QPSK	243	270	☐
	62	4	64-QAM	16-QAM	16-QAM	16-QAM	270	300	☐
	63	4	64-QAM	64-QAM	64-QAM	QPSK	270	300	☐
	64	4	64-QAM	64-QAM	64-QAM	16-QAM	297	330	☐
	65	4	16-QAM	QPSK	QPSK	QPSK	202.5	225	☐
	66	4	16-QAM	16-QAM	QPSK	QPSK	243	270	☐
	67	4	16-QAM	16-QAM	16-QAM	QPSK	283.5	315	☐
	68	4	64-QAM	QPSK	QPSK	QPSK	243	270	☐
	69	4	64-QAM	16-QAM	QPSK	QPSK	283.5	315	☐
	70	4	64-QAM	16-QAM	16-QAM	QPSK	324	360	☐
	71	4	64-QAM	16-QAM	16-QAM	16-QAM	364.5	405	☐
	72	4	64-QAM	64-QAM	QPSK	QPSK	324	360	☐
	73	4	64-QAM	64-QAM	16-QAM	QPSK	364.5	405	☐
	74	4	64-QAM	64-QAM	16-QAM	16-QAM	405	450	☐
	75	4	64-QAM	64-QAM	64-QAM	QPSK	405	450	☐
	76	4	64-QAM	64-QAM	64-QAM	16-QAM	445.5	495	☐

2.2. RUNNING MODE

Test mode	Description of test mode
Test mode 1	Permanent emission with modulation on a fixed channel in the data rate that produced the highest power

Test	Running mode	
Occupied Bandwidth	☑ Test mode 1 (1)	☐ Alternative test mode()
6dB Bandwidth	☑ Test mode 1 (1)	☐ Alternative test mode()
Duty Cycle	☑ Test mode 1 (1)	☐ Alternative test mode()
Maximum Conducted Output Power	☑ Test mode 1 (1)	☐ Alternative test mode()
Power Spectral Density	☑ Test mode 1 (1)	☐ Alternative test mode()
Conducted Spurious Emission at the Band Edge	☑ Test mode 1 (1)	☐ Alternative test mode()
Unwanted Emissions into Non-Restricted Frequency Bands	☑ Test mode 1 (1)	☐ Alternative test mode()
AC Power Line Conducted Emission	☑ Test mode 1 (1)	☐ Alternative test mode()
Unwanted Emissions into Restricted Frequency Bands	☑ Test mode 1 (1)	☐ Alternative test mode()

(1) Following commands with the specific test software “Cypress Mtool V3.0.0.1” are used to set the product:

a. – See document “TARGETS FINALES 2.4 & 5GHz_SBD_Commandes LCIE_WIFI test commands of MSB.docx”(provided by customer) for the command used during test.

2.3. EQUIPMENT LABELLING

Power supply Marking Plate

2.4. EQUIPMENT MODIFICATION

☑ None ☐ Modification:

3. OCCUPIED BANDWIDTH

3.1. TEST CONDITIONS

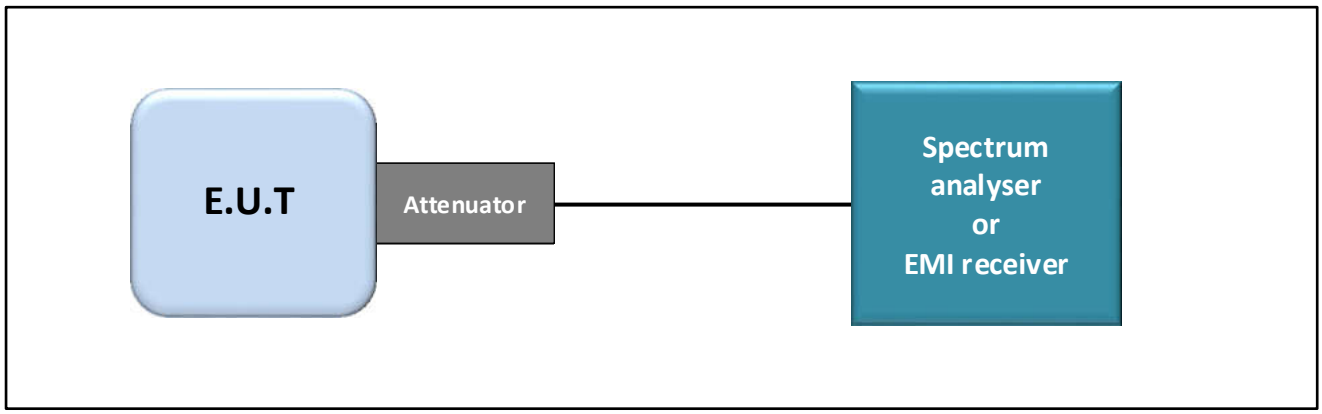
Test performed by	: Julien Palard
Date of test	: October 18, 2019
Ambient temperature	: 23 °C
Relative humidity	: 48 %

3.2. TEST SETUP

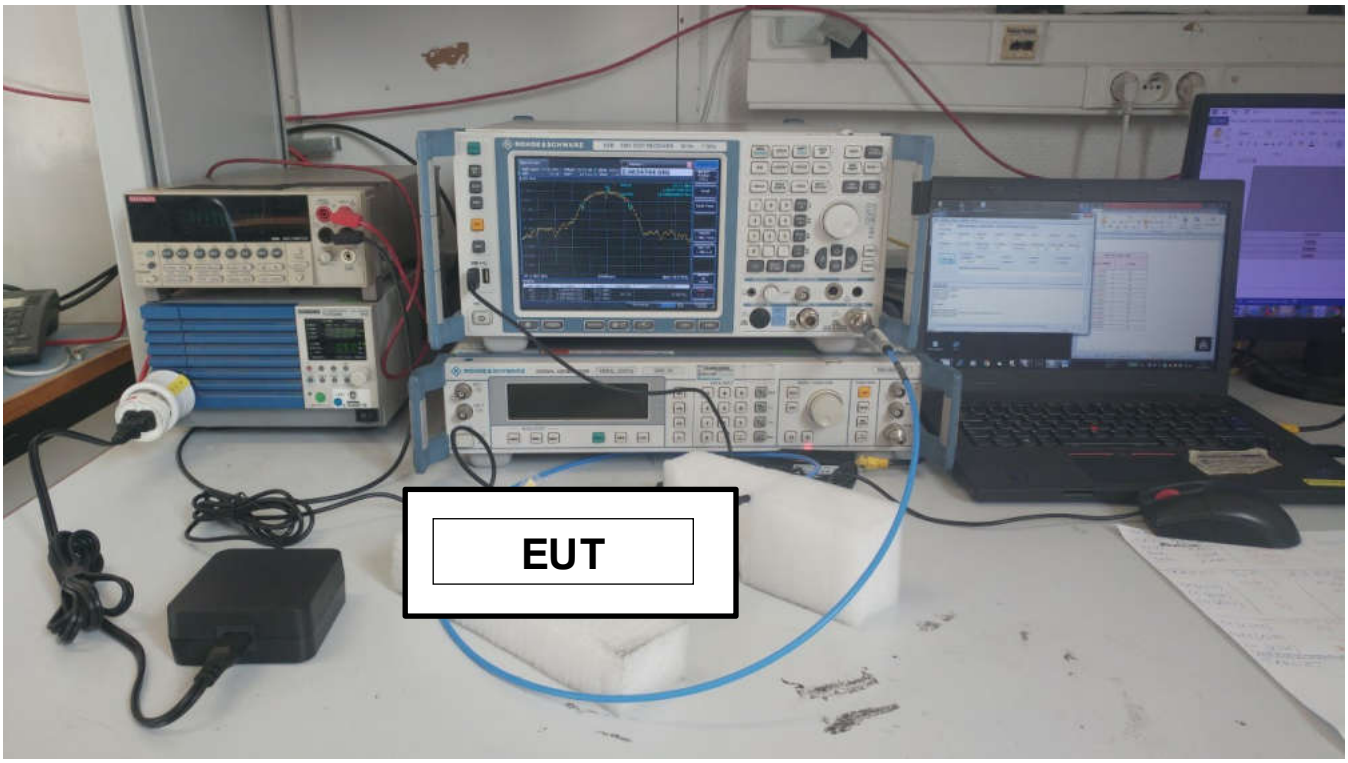
- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:
☑ Conducted Method
☐ Radiated Method

- Test Procedure:
☐ RSS-Gen Issue 5 § 6.7
☑ ANSI C63.10 § 6.9.2



Test set up of Occupied Bandwidth



Photograph for Occupied bandwidth

3.3. LIMIT

None

3.4. TEST EQUIPMENT LIST

Apparatus	Trade Mark	Type	Registration number	Cal_Date	Cal_Due
Power supply	KIKUSUI	PCR500M	A7040079	Calibrated with multimeter	Calibrated with multimeter
Multimeter	Keithley	2000	A1241084	2018/12	2020/12
Cable + Attenuateur 20dB	PASTERNACK	PE350-150CM	A5329868	2018/12	2019/12
EMI receiver	ROHDE & SCHWARZ	ESR7	A2642023	2019/01	2021/01

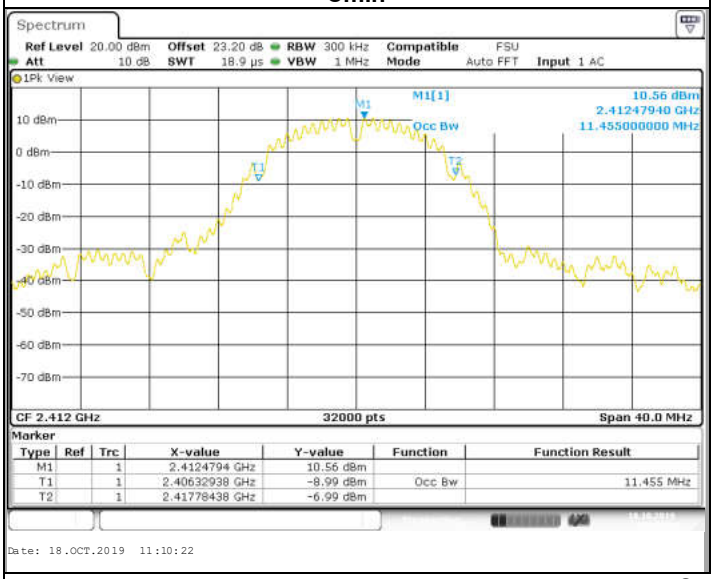
Note: In our quality system, the test equipment calibration due is more & less 2 months

3.5. RESULTS

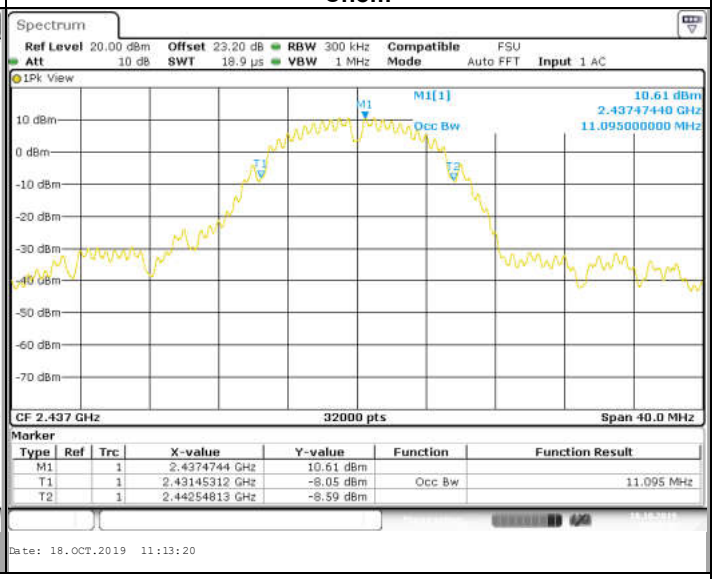
802.11b

Occupied Bandwidth

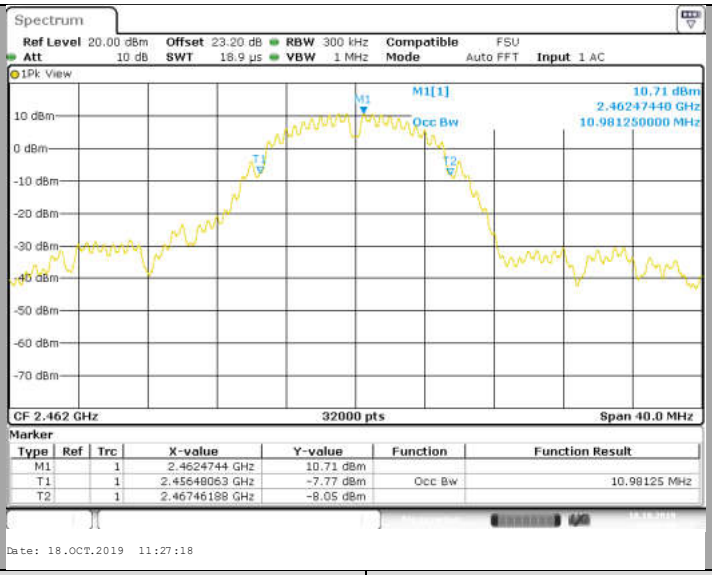
Cmin



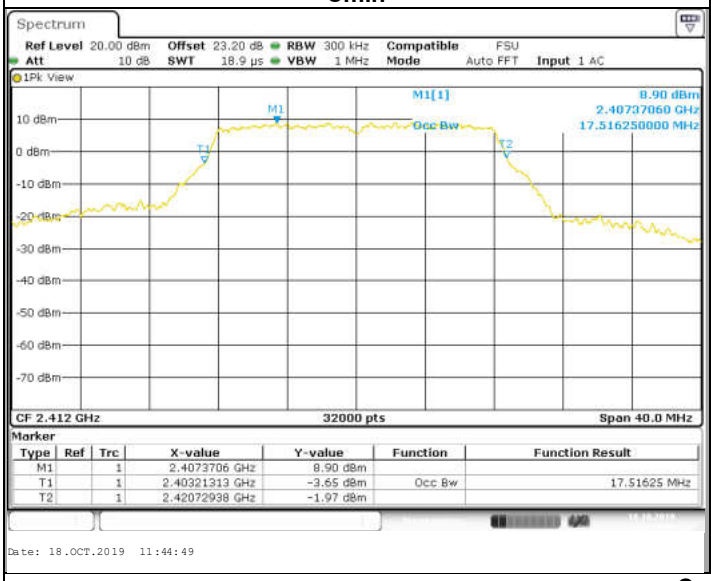
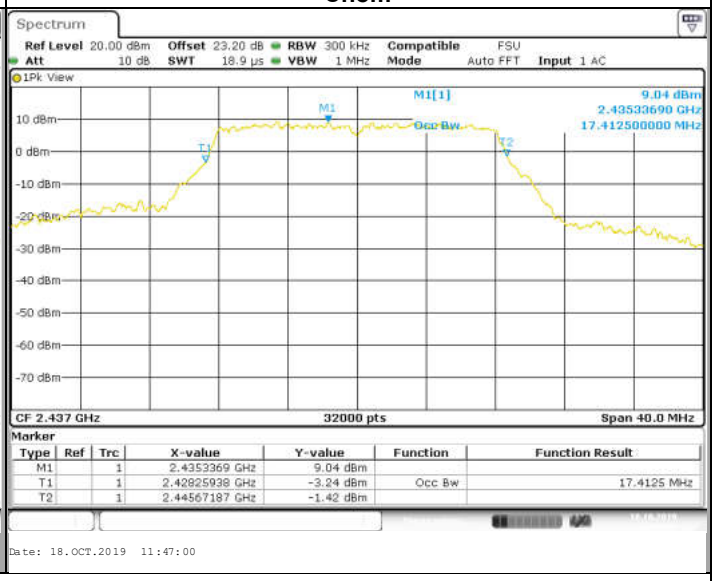
Cnom



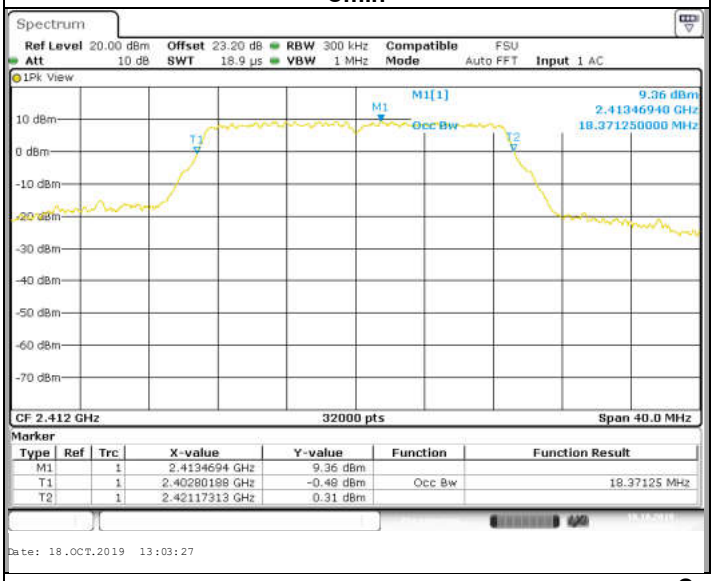
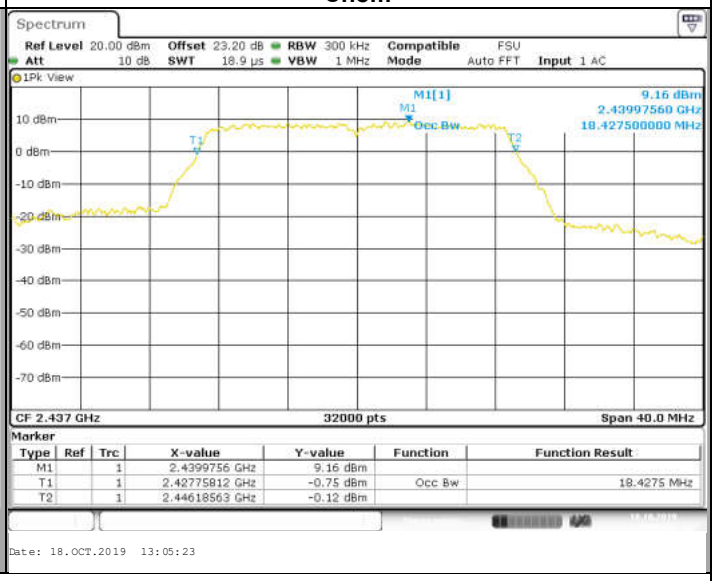
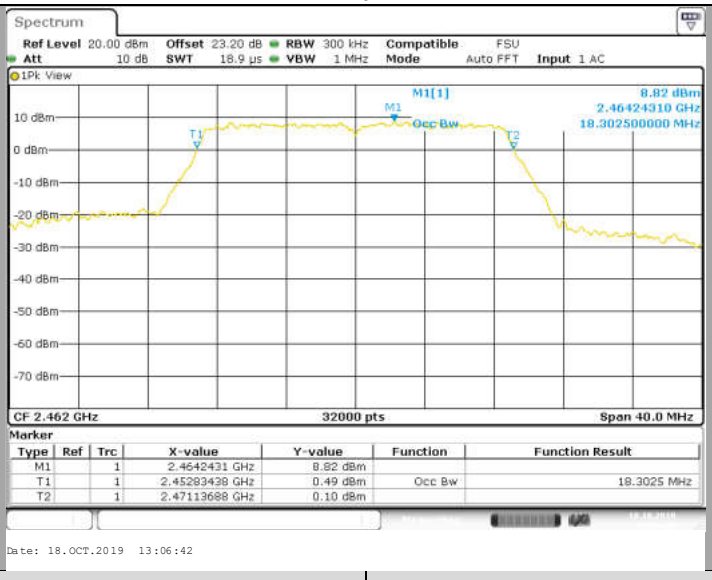
Cmax



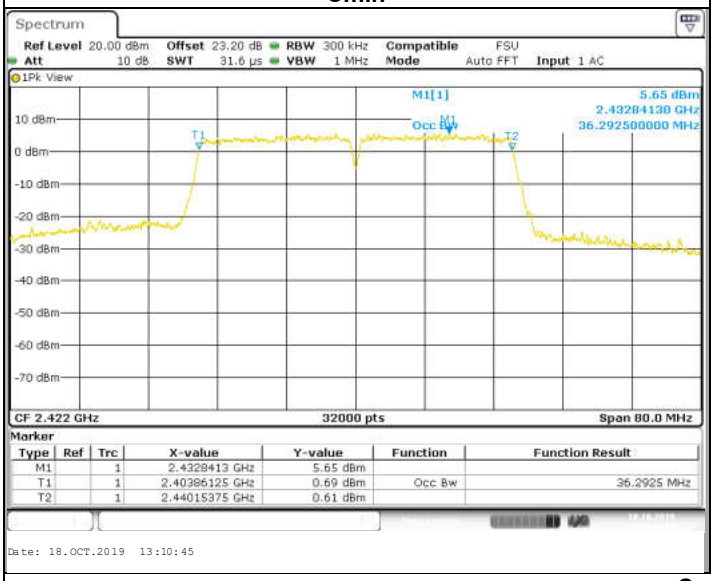
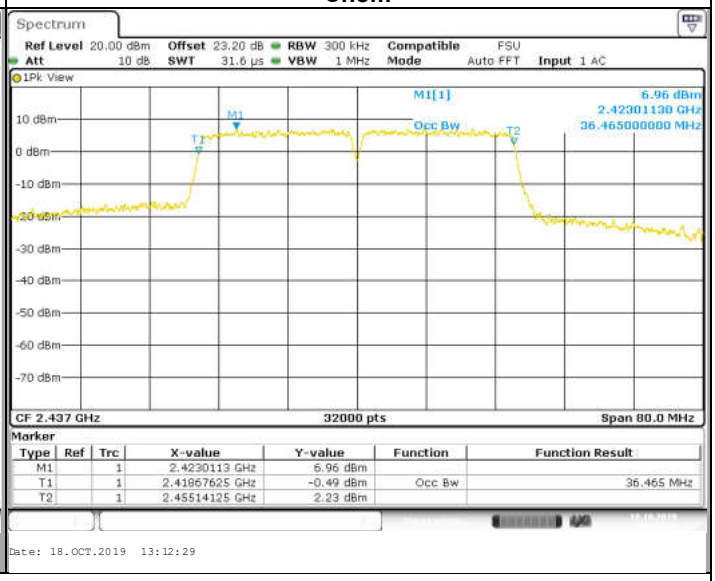
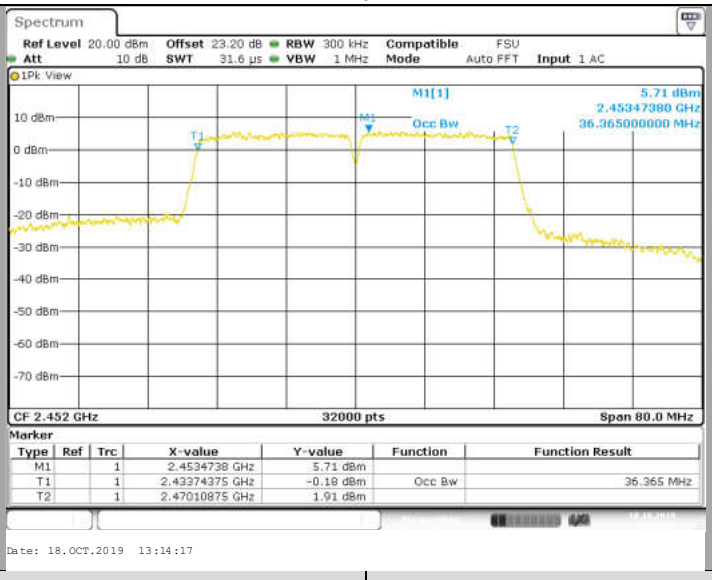
Channel	Occupied Bandwidth (MHz)
Cmin	11.455
Cnom	11.095
Cmax	10.981

802.11g	
Occupied Bandwidth	
Cmin	Cnom
	
Cmax	
	

Channel	Occupied Bandwidth (MHz)
Cmin	17.516
Cnom	17.413
Cmax	17.186

802.11n HT20	
Occupied Bandwidth	
Cmin	**Cnom**
	
Cmax	
	

Channel	Occupied Bandwidth (MHz)
Cmin	18.371
Cnom	18.428
Cmax	18.303

802.11n HT40	
Occupied Bandwidth	
Cmin	Cnom
	
Cmax	
	

Channel	Occupied Bandwidth (MHz)
Cmin	36.293
Cnom	36.465
Cmax	36.365

3.6. CONCLUSION

Occupied Channel Bandwidth measurement performed on the sample of the product **SAGEMCOM Mini Sound Box MSBDV00,** SN: **253837310**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247 & RSS-GEN ISSUE 5** limits.

4. 6DB EMISSION BANDWIDTH

4.1. TEST CONDITIONS

Test performed by	: Julien Palard
Date of test	: October 18, 2019
Ambient temperature	: 23 °C
Relative humidity	: 48 %

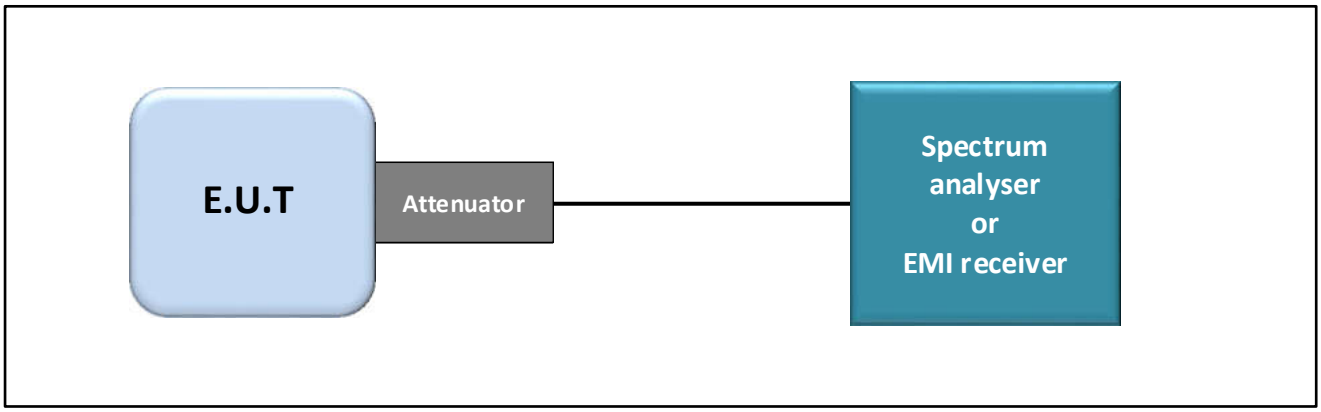
4.2. TEST SETUP

- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

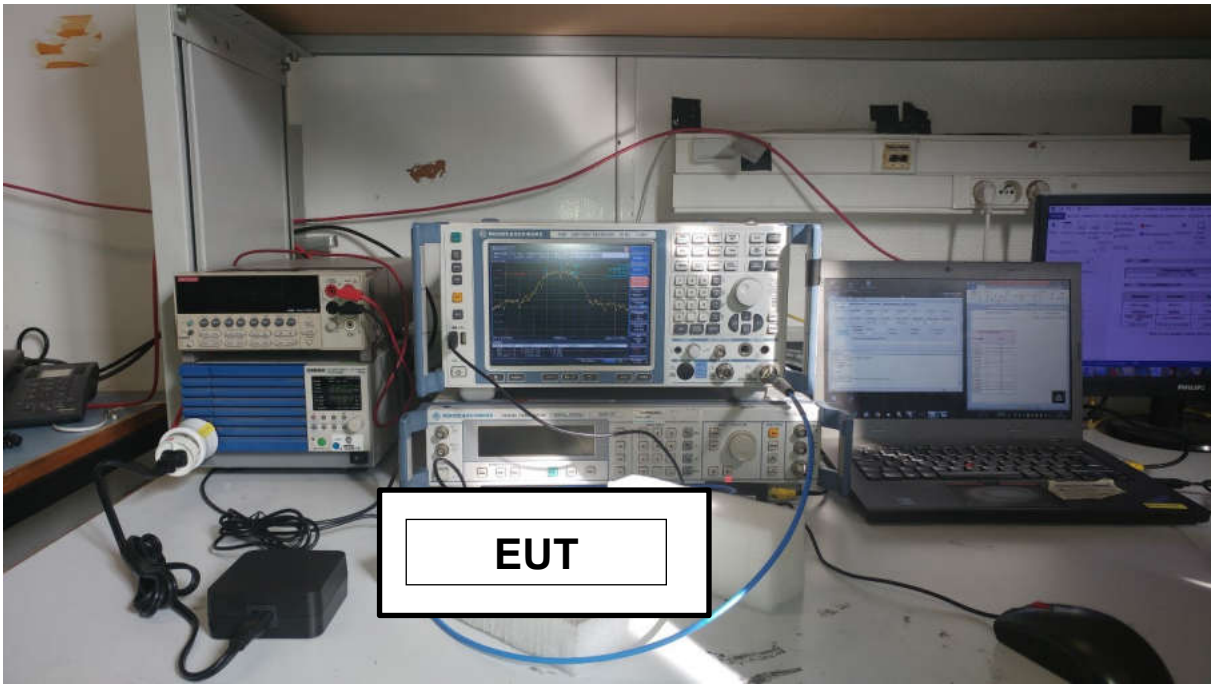
- Measurement is performed with a spectrum analyzer in:
☑ Conducted Method
☐ Radiated Method

- Test Procedure:
☑ ANSI C63.10 § 11.8.1
☐ ANSI C63.10 § 11.8.2

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



Test set up of 6dB Emission Bandwidth



Photograph for 6dB emission bandwidth

4.3. LIMIT

Frequency range	The 6dB bandwidth Limit
2400MHz to 2483.5MHz	≥ 500kHz

4.4. TEST EQUIPMENT LIST

Apparatus	Trade Mark	Type	Registration number	Cal_Date	Cal_Due
Power supply	KIKUSUI	PCR500M	A7040079	Calibrated with multimeter	Calibrated with multimeter
Multimeter	Keithley	2000	A1241084	2018/12	2020/12
Cable + Attenuateur 20dB	PASTERNACK	PE350-150CM	A5329868	2018/12	2019/12
EMI receiver	ROHDE & SCHWARZ	ESR7	A2642023	2019/01	2021/01

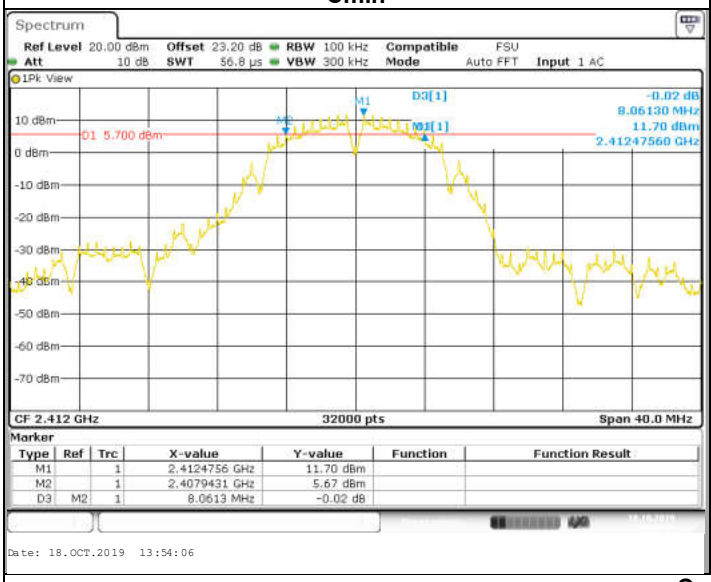
Note: In our quality system, the test equipment calibration due is more & less 2 months

4.5. RESULTS

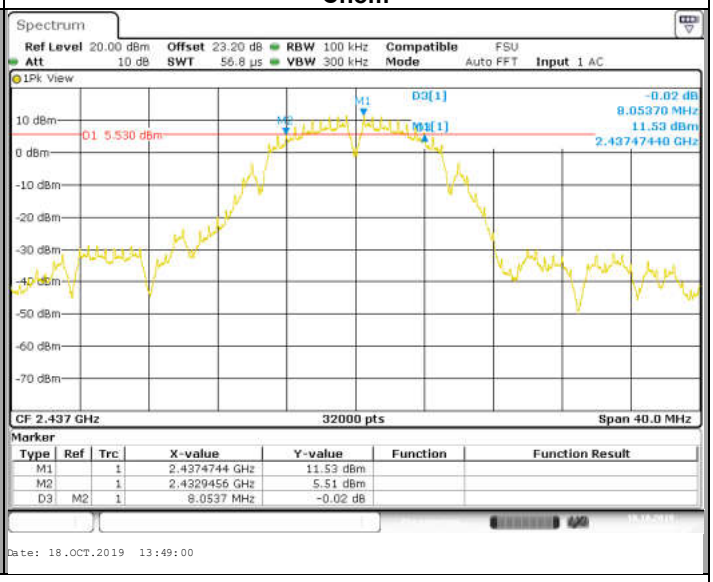
802.11b

6dB Emission Bandwidth

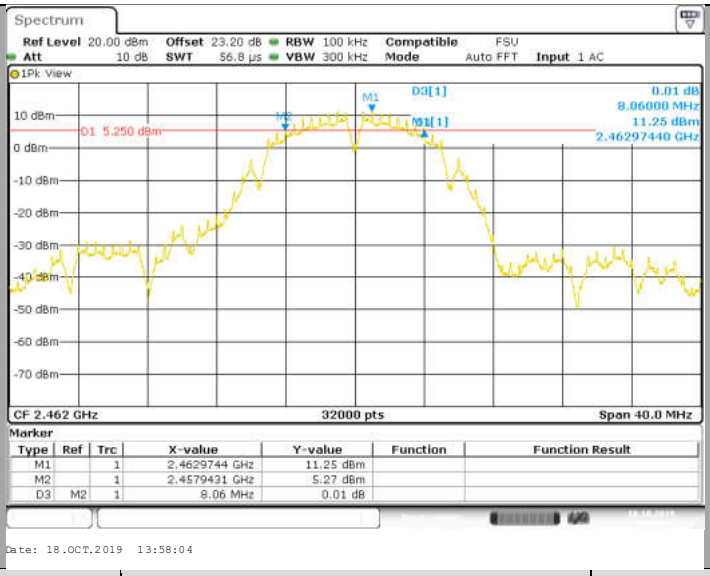
Cmin



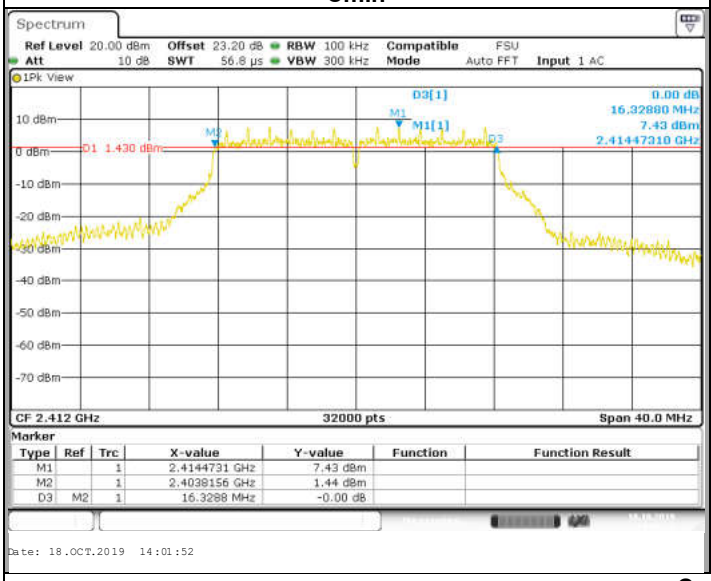
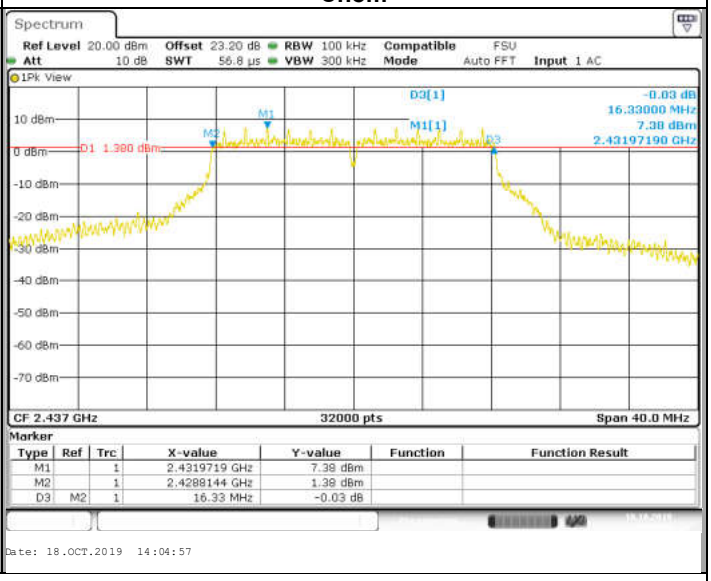
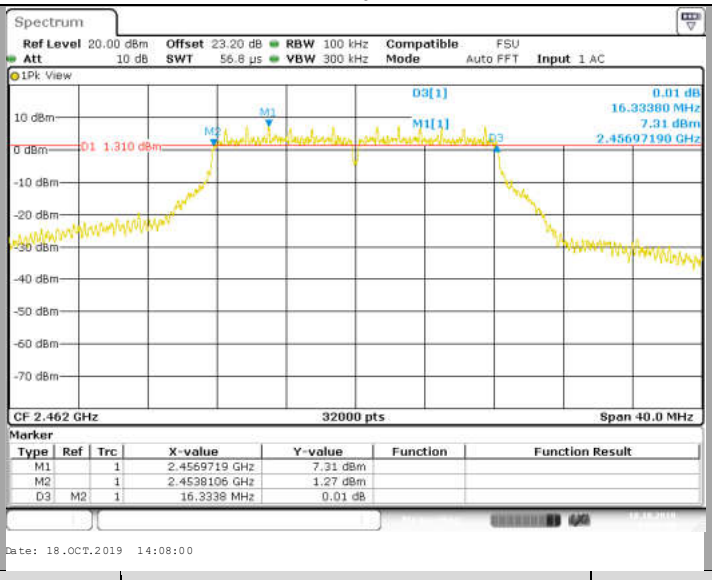
Cnom



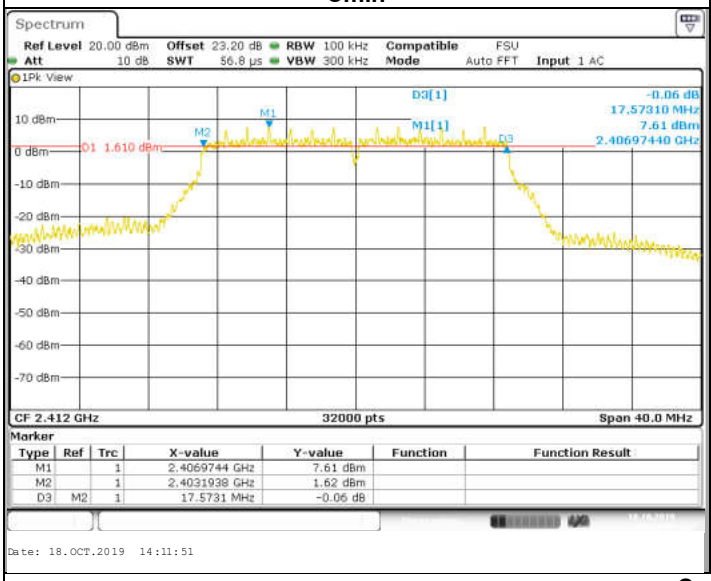
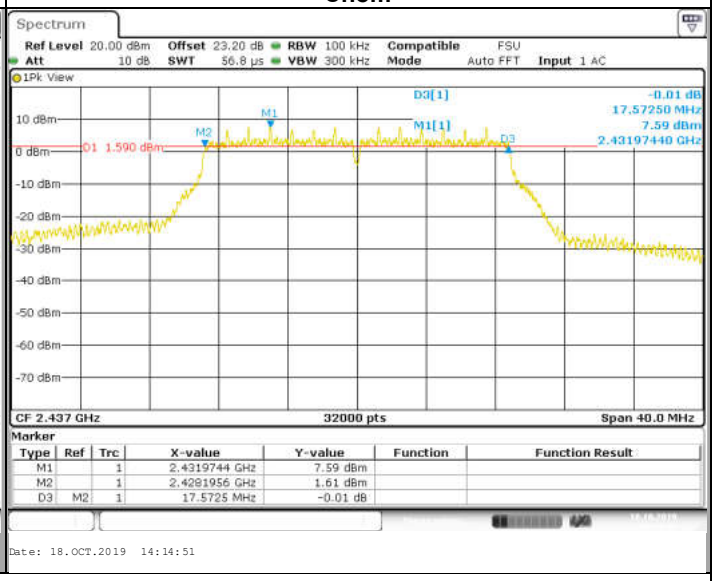
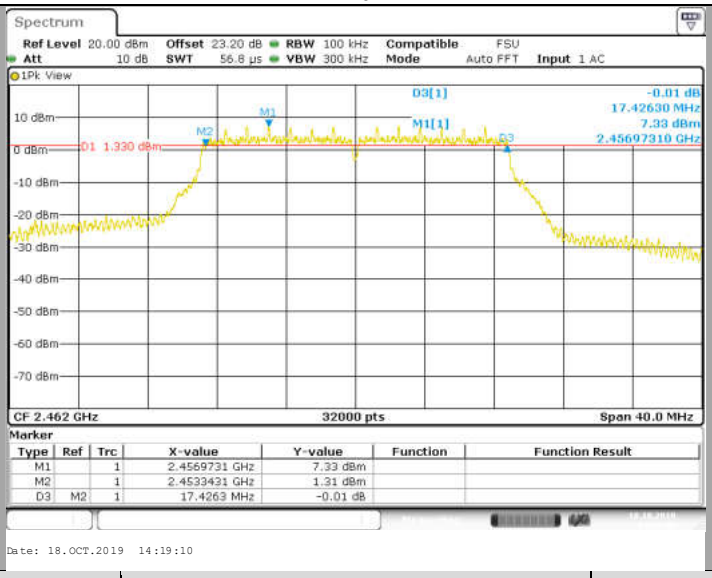
Cmax



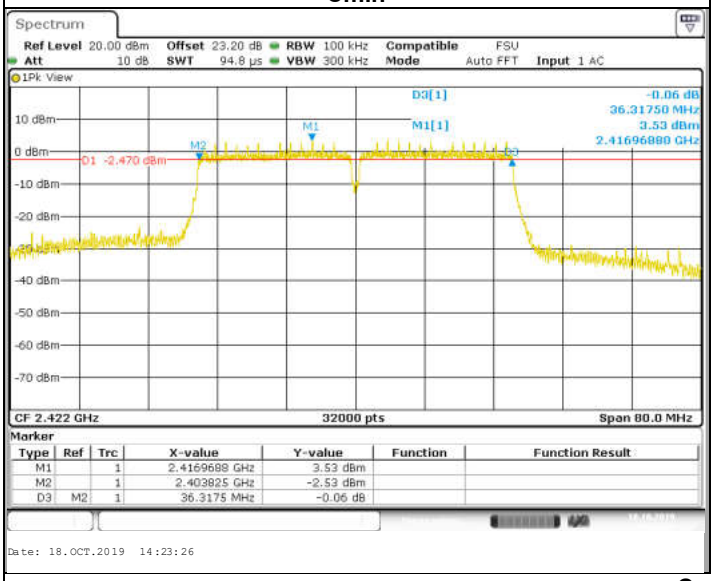
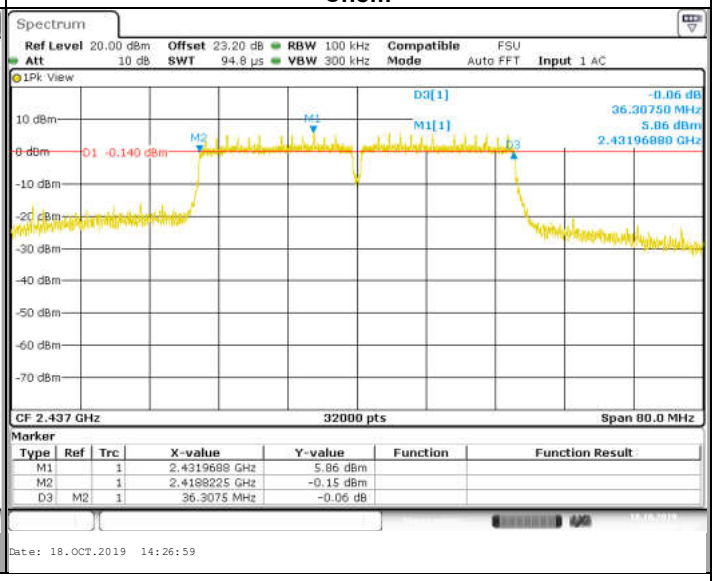
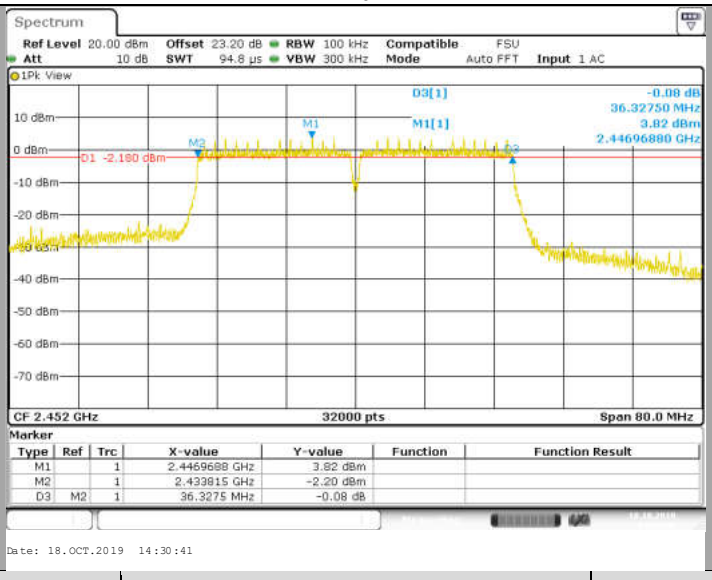
Channel	6dB Emission Bandwidth (MHz)	Limit (MHz)
Cmin	8.06	Minimum 0.5
Cnom	8.05	Minimum 0.5
Cmax	8.06	Minimum 0.5

802.11g		
6dB Emission Bandwidth		
Cmin	Cnom	
		
Cmax		
		

Channel	6dB Emission Bandwidth (MHz)	Limit (MHz)
Cmin	16.33	Minimum 0.5
Cnom	16.33	Minimum 0.5
Cmax	16.33	Minimum 0.5

802.11n HT20		
6dB Emission Bandwidth		
Cmin	Cnom	
		
Cmax		
		

Channel	6dB Emission Bandwidth (MHz)	Limit (MHz)
Cmin	17.57	Minimum 0.5
Cnom	17.57	Minimum 0.5
Cmax	17.42	Minimum 0.5

802.11n HT40		
6dB Emission Bandwidth		
Cmin	Cnom	
		
Cmax		
		

Channel	6dB Emission Bandwidth (MHz)	Limit (MHz)
Cmin	36.32	Minimum 0.5
Cnom	36.31	Minimum 0.5
Cmax	36.33	Minimum 0.5

4.6. CONCLUSION

6dB Emission Bandwidth measurement performed on the sample of the product **SAGEMCOM Mini Sound Box MSBDV00,** SN: **253837310**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247 & RSS 247 ISSUE 2** limits.

5. DUTY CYCLE

5.1. TEST CONDITIONS

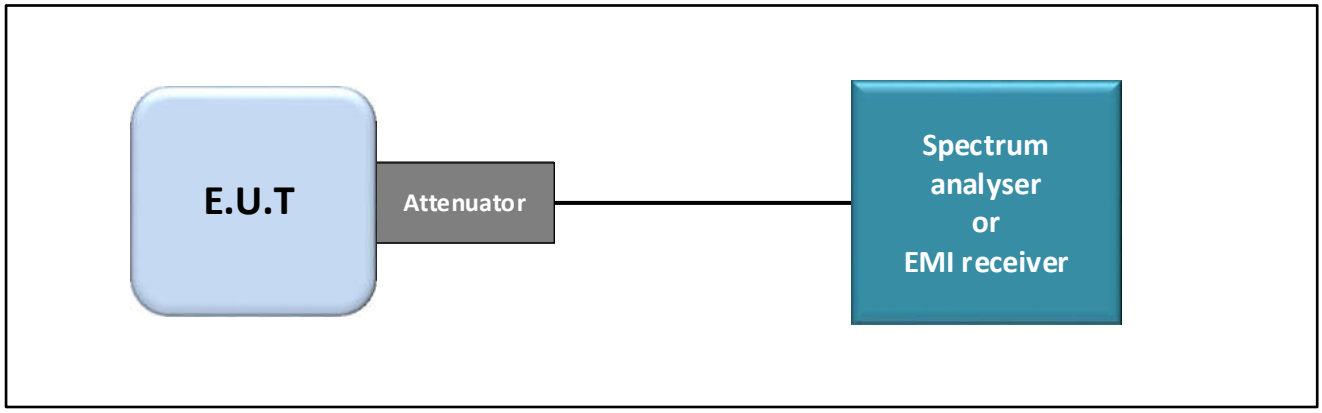
Test performed by	: Julien Palard
Date of test	: October 18, 2019
Ambient temperature	: 23 °C
Relative humidity	: 48 %

5.2. TEST SETUP

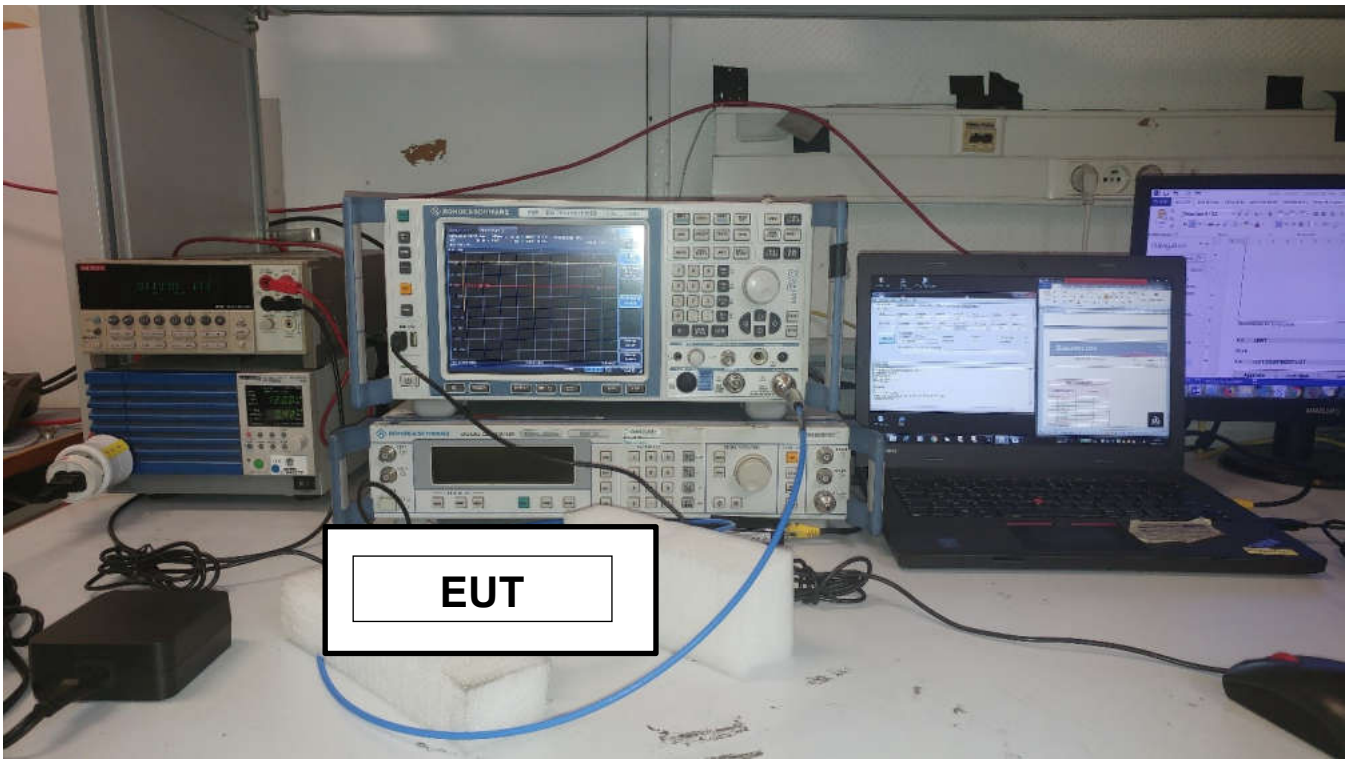
- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:
☑ Conducted Method
☐ Radiated Method

- Test Procedure:
☑ ANSI C63.10 § 11.6



Test set up of Duty Cycle



Photograph for Duty Cycle

5.3. LIMIT

None

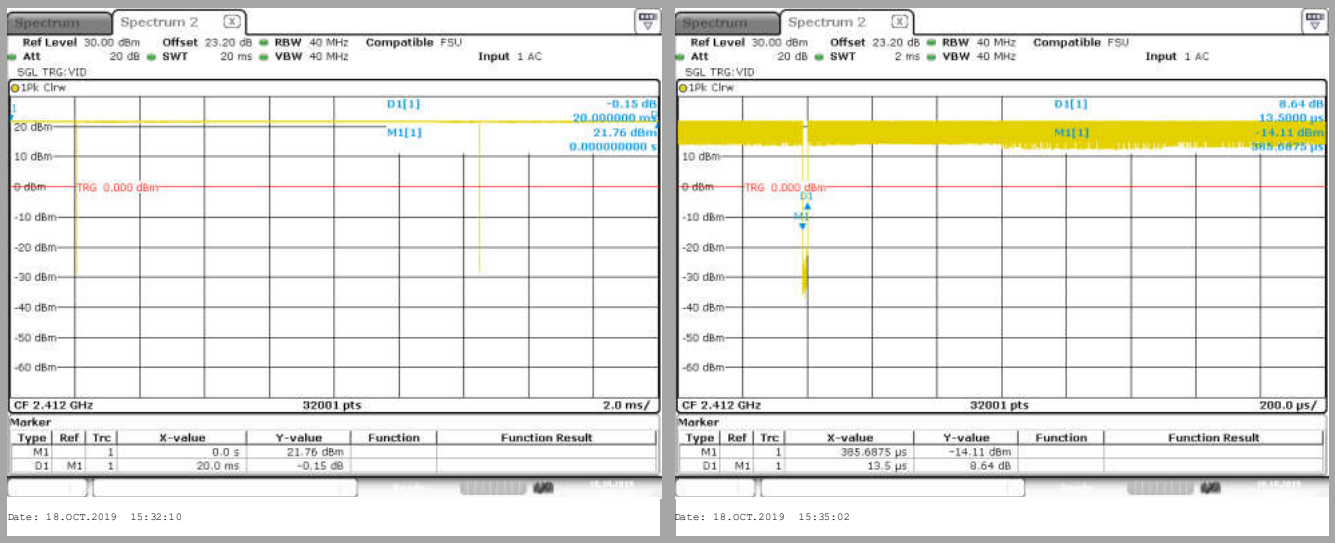
5.4. TEST EQUIPMENT LIST

Apparatus	Trade Mark	Type	Registration number	Cal_Date	Cal_Due
Power supply	KIKUSUI	PCR500M	A7040079	Calibrated with multimeter	Calibrated with multimeter
Multimeter	Keithley	2000	A1241084	2018/12	2020/12
Cable + Attenuateur 20dB	PASTERNACK	PE350-150CM	A5329868	2018/12	2019/12
EMI receiver	ROHDE & SCHWARZ	ESR7	A2642023	2019/01	2021/01

Note: In our quality system, the test equipment calibration due is more & less 2 months

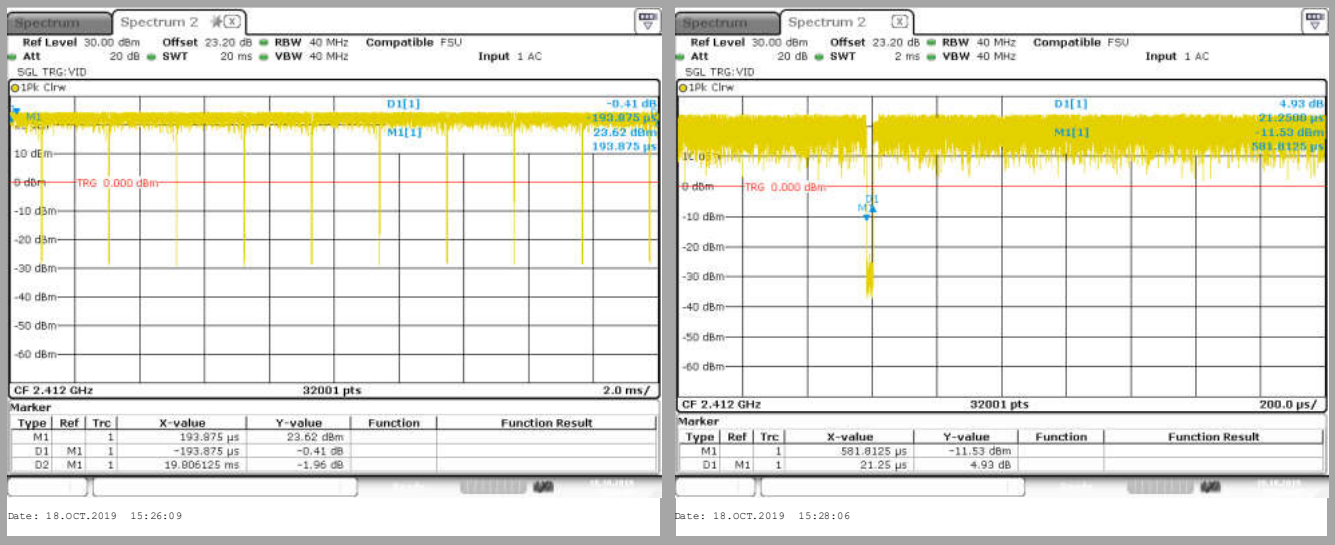
5.5. RESULTS

802.11b
Duty Cycle
Channel



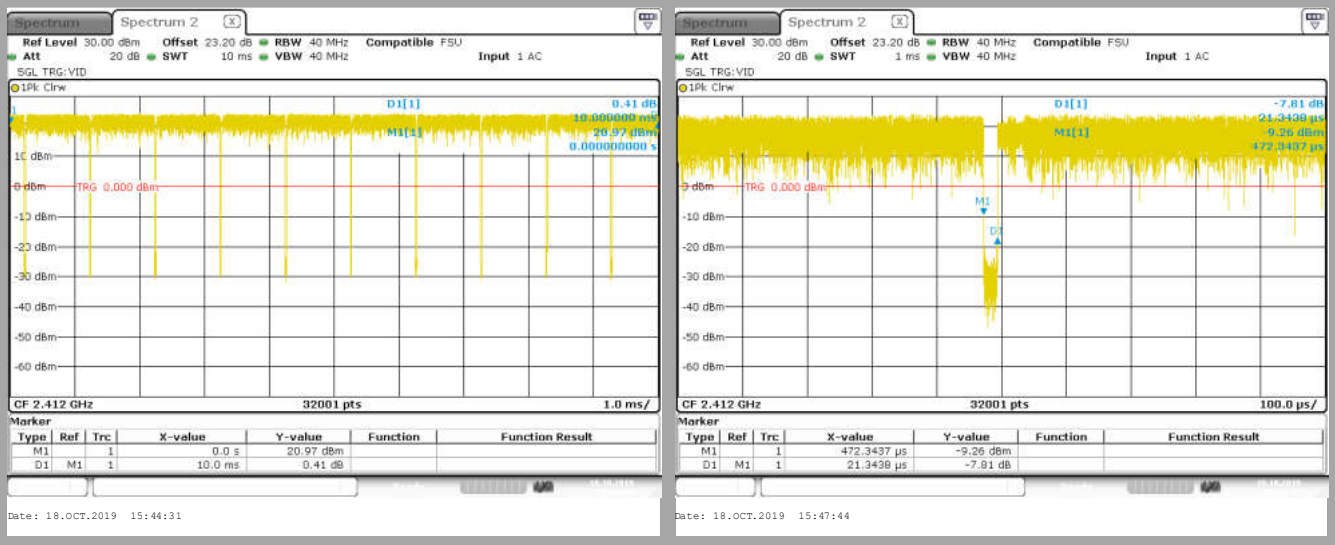
Channel	Duty Cycle (%)	Duty Cycle Correction (dB)
Channel	99.87	$20\log(\frac{1}{duty\ cycle})$ = 0.01

802.11g
Duty Cycle
Channel



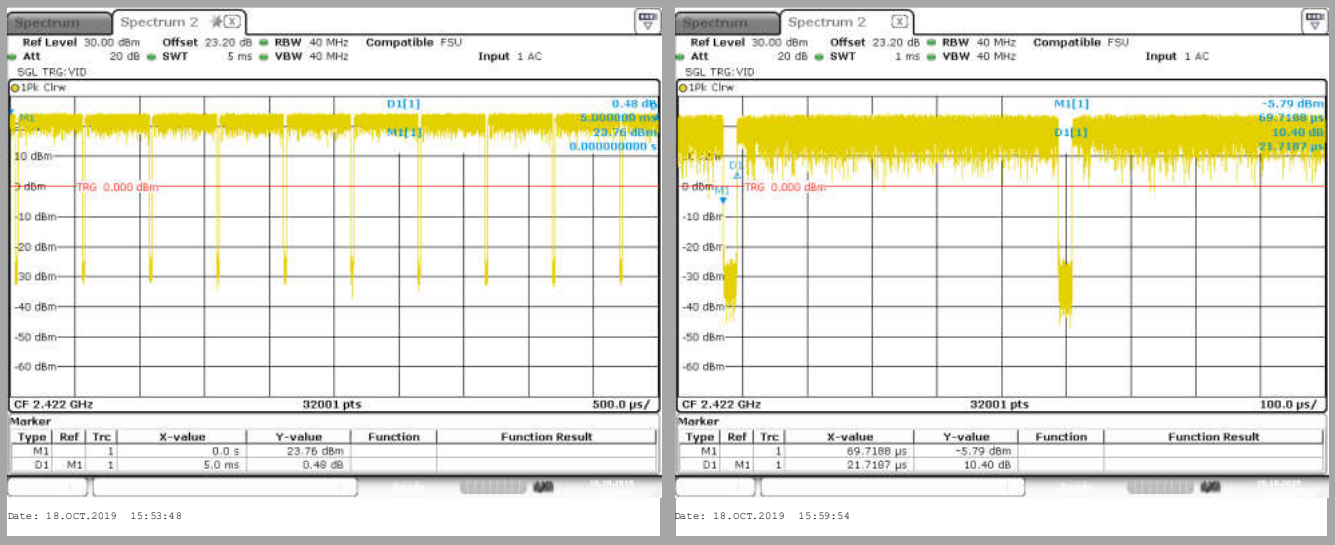
Channel	Duty Cycle (%)	Duty Cycle Correction (dB)
Channel	98.93	$20\log(\frac{1}{duty\ cycle})$ =0.09

802.11n HT20
Duty Cycle
Channel



Channel	Duty Cycle (%)	Duty Cycle Correction (dB)
Channel	97.86	$20\log(\frac{1}{duty\ cycle})$ = 0.19

802.11n HT40
Duty Cycle
Channel



Channel	Duty Cycle (%)	Duty Cycle Correction (dB)
Channel	95.64	$20\log(\frac{1}{duty\ cycle})$ = 0.39

5.6. CONCLUSION

Duty Cycle measurement performed on the sample of the product **SAGEMCOM Mini Sound Box MSBDV00**, SN: **253837310**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247 & RSS 247 ISSUE 2** limits.

6. MAXIMUM CONDUCTED OUTPUT POWER

6.1. TEST CONDITIONS

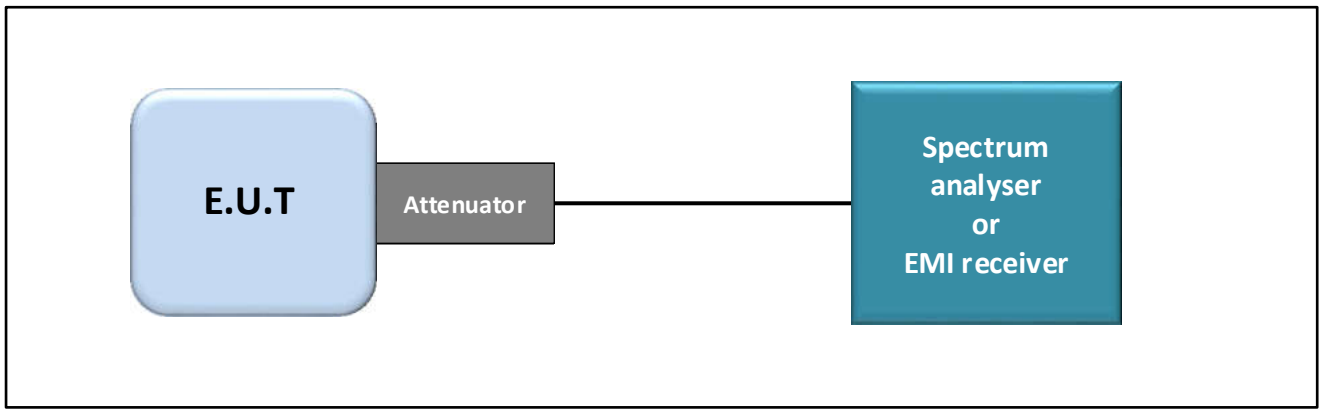
Test performed by	: Julien Palard
Date of test	: October 21, 2019
Ambient temperature	: 22 °C
Relative humidity	: 44 %

6.2. TEST SETUP

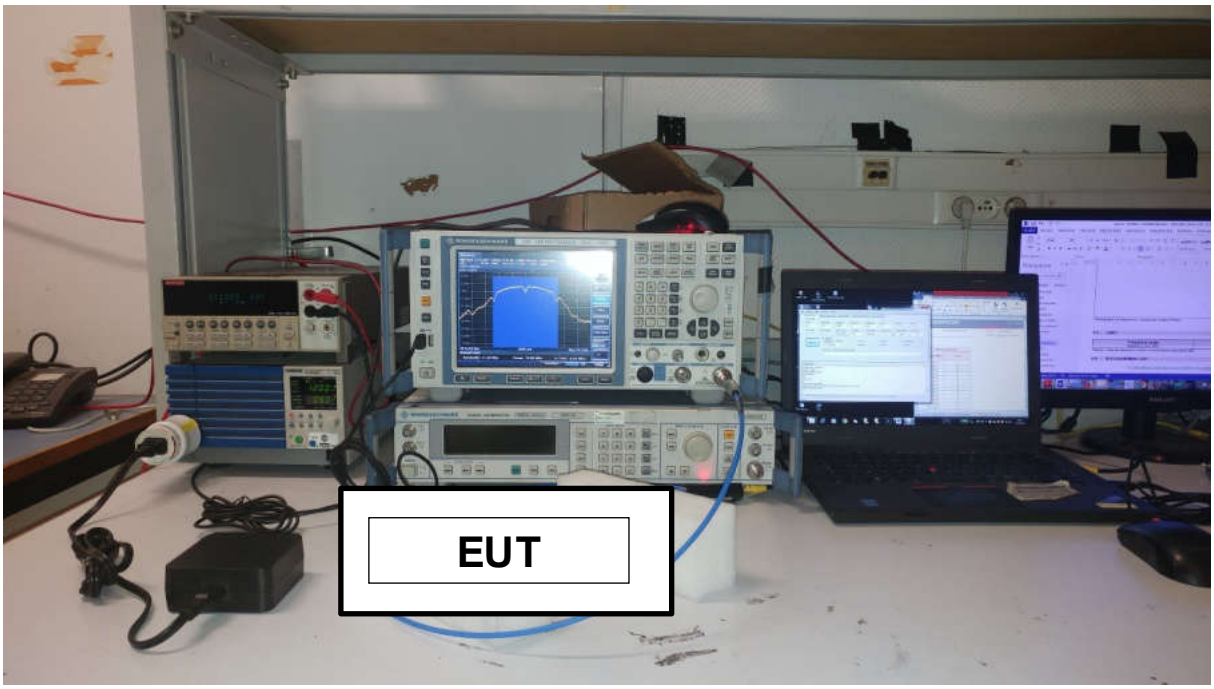
- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:
☑ Conducted Method
☐ Radiated Method

- Test Procedure:
☐ ANSI C63.10 § 11.9.1.1
☐ ANSI C63.10 § 11.9.1.2
☑ ANSI C63.10 § 11.9.2.2.2 (Method AVGSA-1)
☐ ANSI C63.10 § 11.9.2.2.4 (Method AVGSA-2)
☑ KDB 662911 D01 Multiple Transmitter Output v02r01



Test set up of Maximum Conducted Output Power



Photograph for Maximum Conducted Output Power

6.3. LIMIT

Frequency range	Maximum Conducted Output Power
2400MHz to 2483.5MHz	≤30dBm*

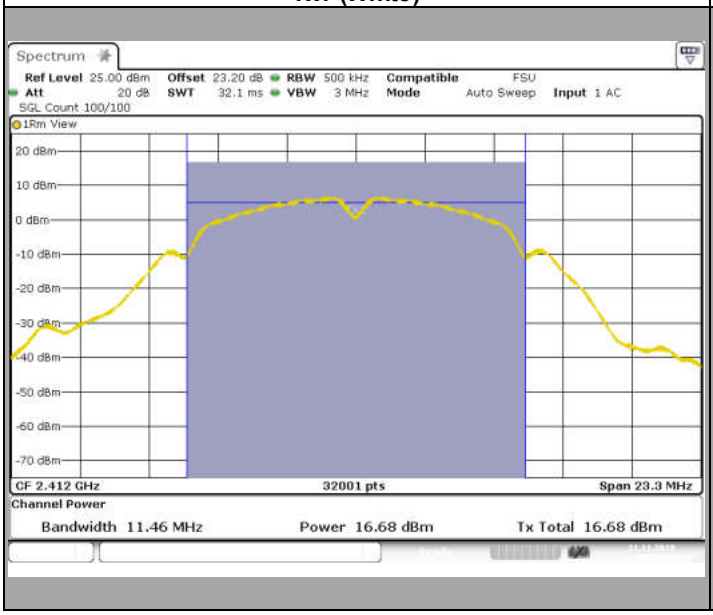
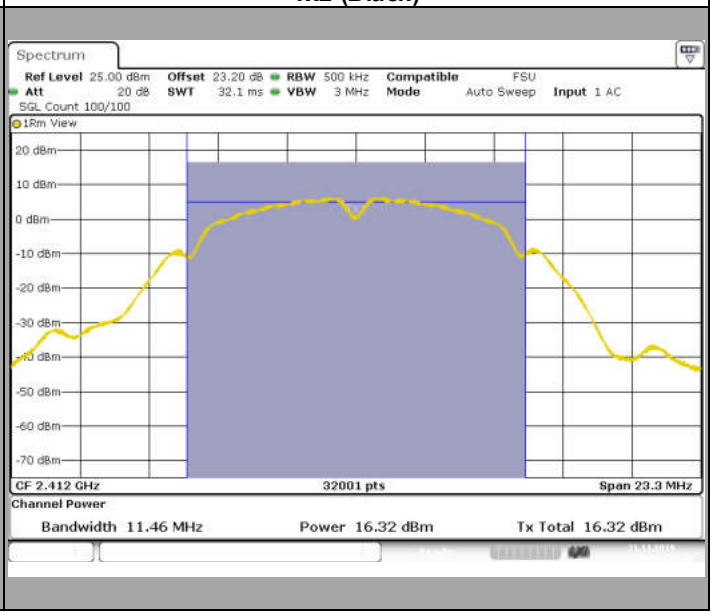
*Remark: Limits are reduced by G-6dBi if Overall Antenna Gain above 6dBi

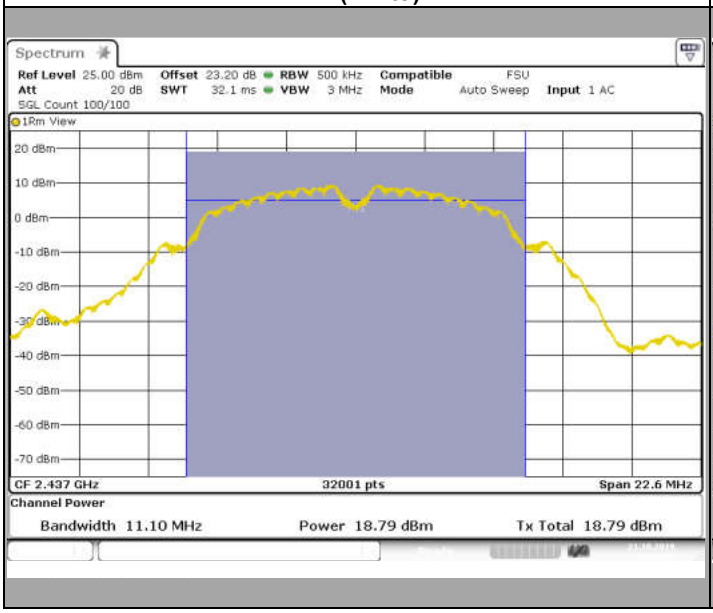
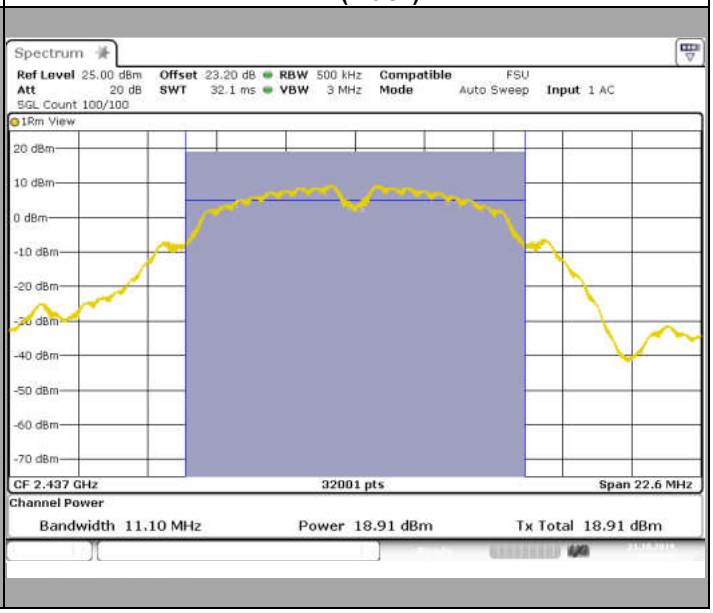
6.4. TEST EQUIPMENT LIST

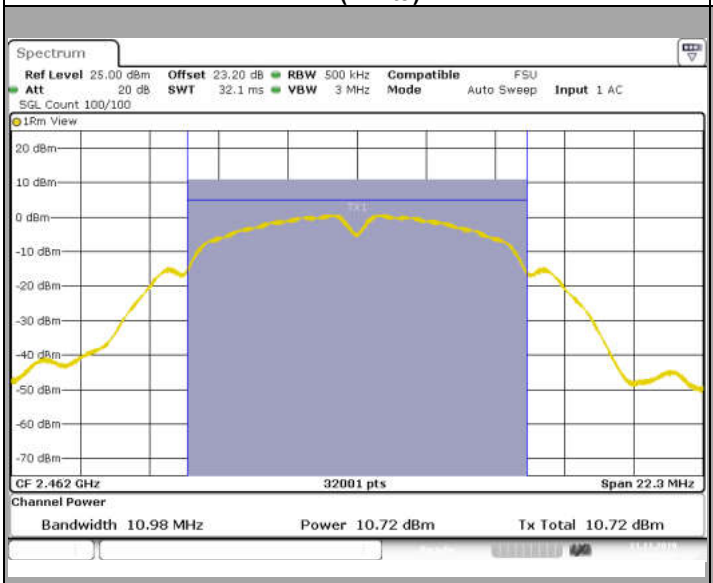
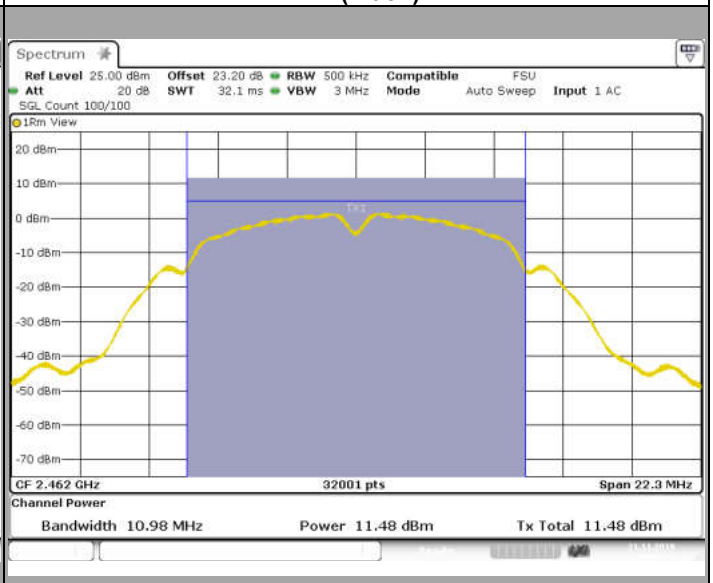
Apparatus	Trade Mark	Type	Registration number	Cal_Date	Cal_Due
Power supply	KIKUSUI	PCR500M	A7040079	Calibrated with multimeter	Calibrated with multimeter
Multimeter	Keithley	2000	A1241084	2018/12	2020/12
Cable + Attenuateur 20dB	PASTERNACK	PE350-150CM	A5329868	2018/12	2019/12
EMI receiver	ROHDE & SCHWARZ	ESR7	A2642023	2019/01	2021/01

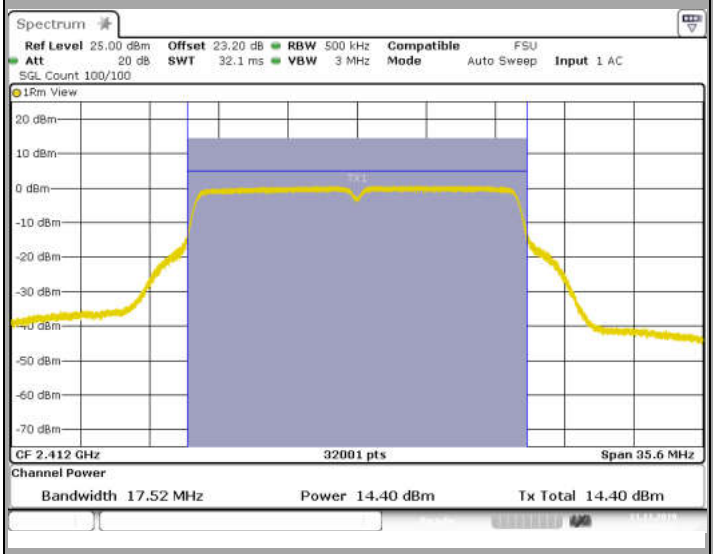
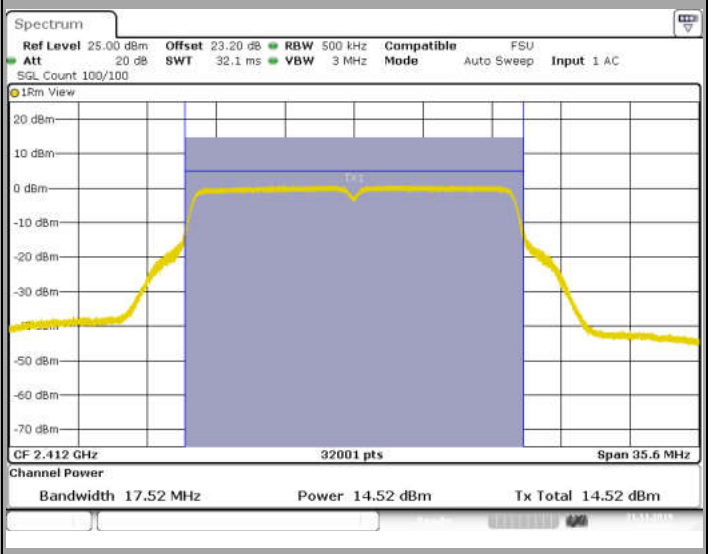
Note: In our quality system, the test equipment calibration due is more & less 2 months

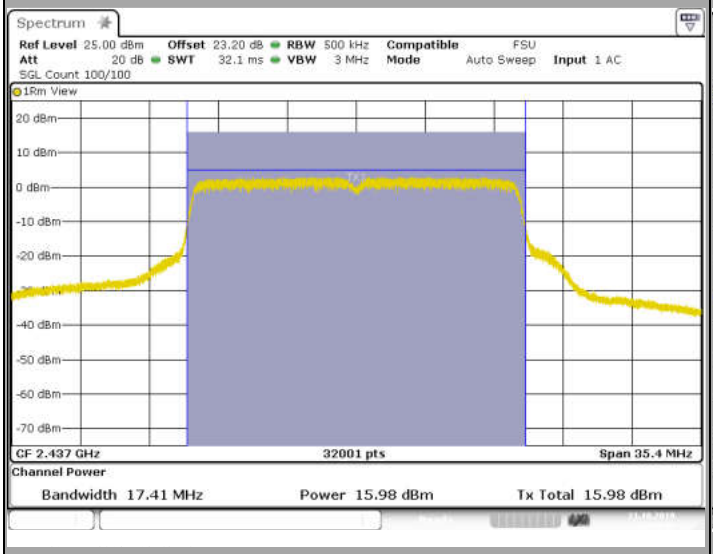
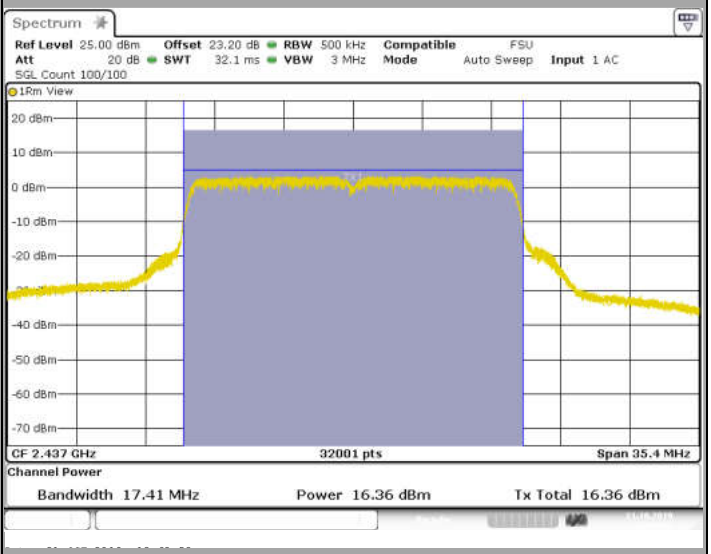
6.5. RESULTS

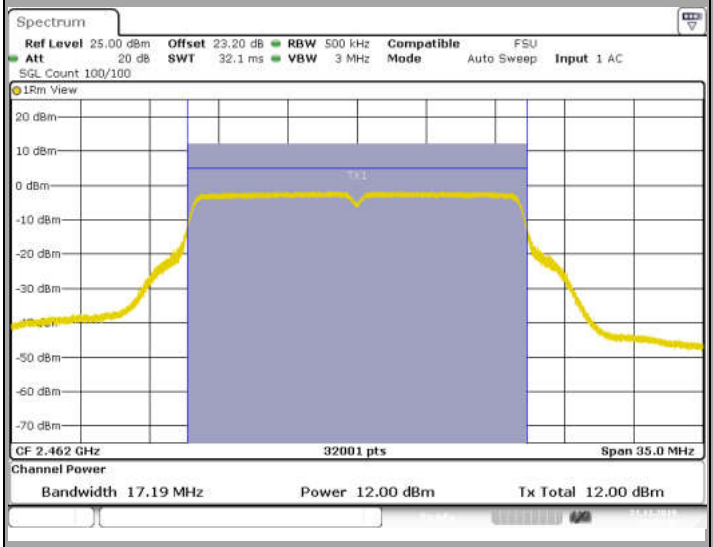
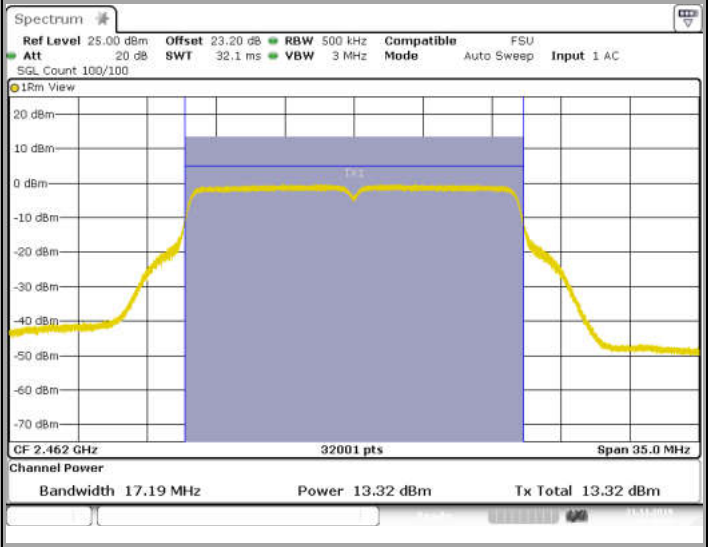
802.11b	
Cmin	
Tx1 (White)	Tx2 (Black)
	

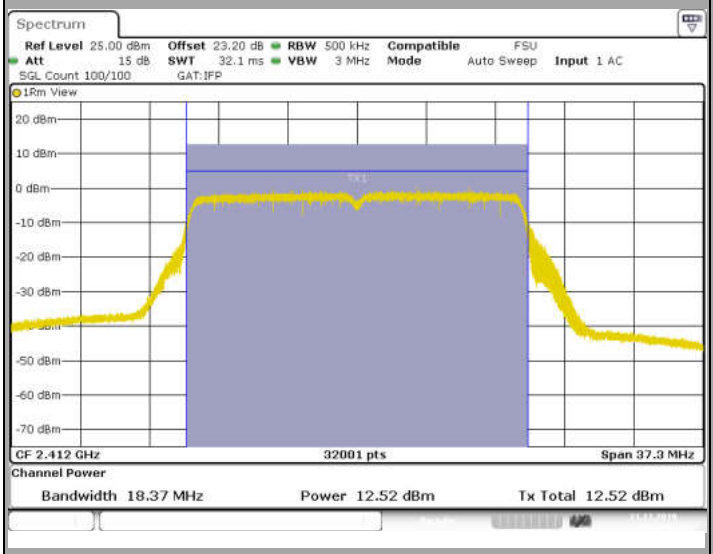
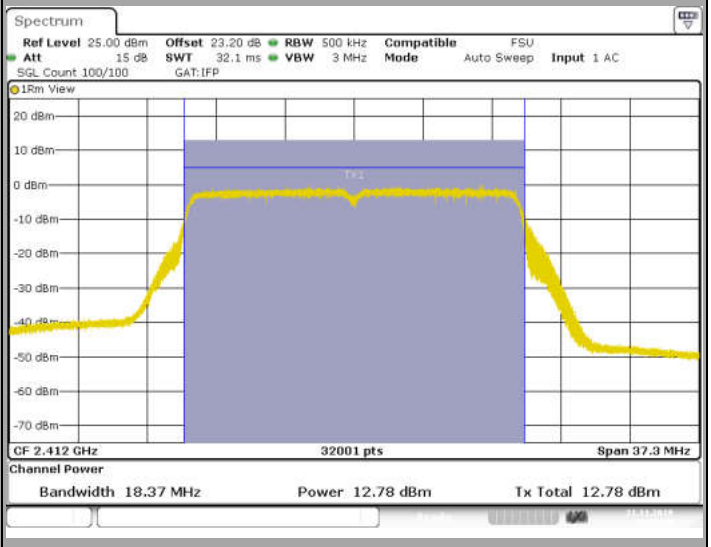
802.11b	
Cnom	
Tx1 (White)	Tx2 (Black)
	

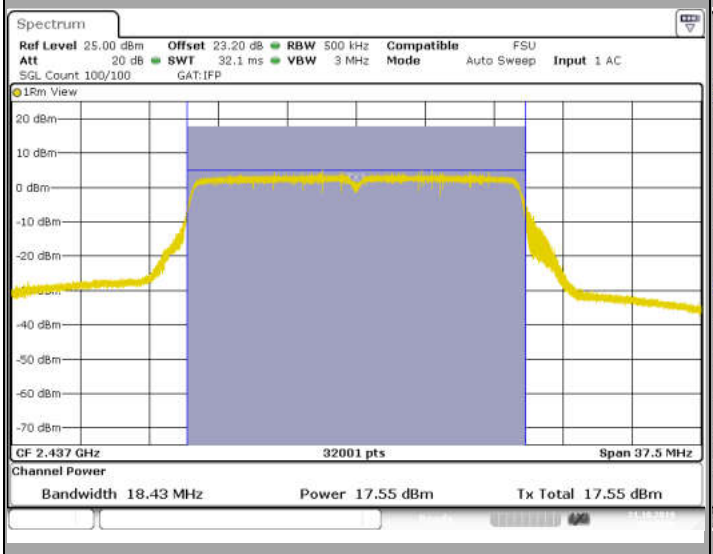
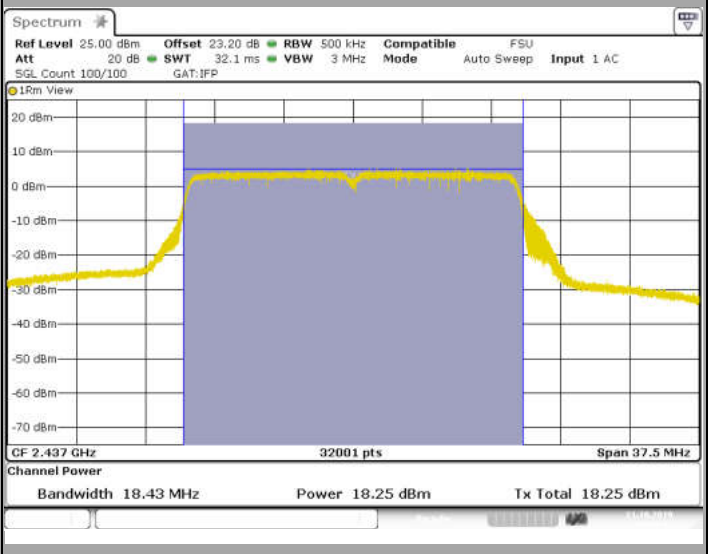
802.11b	
Cmax	
Tx1 (White)	Tx2 (Black)
	

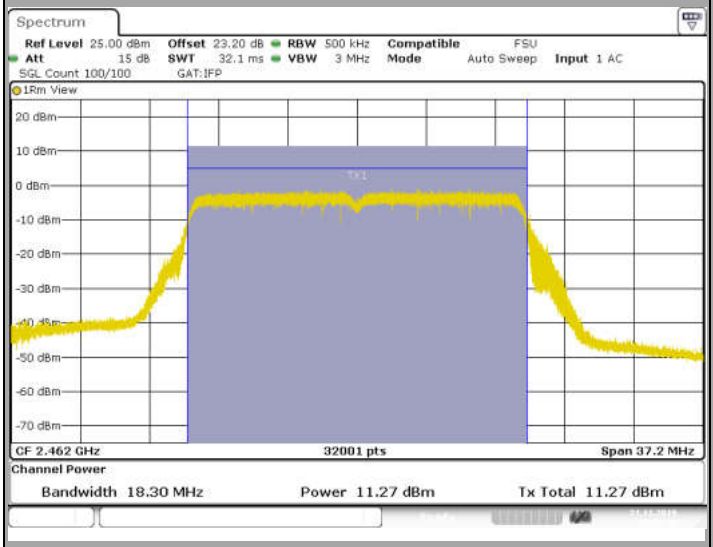
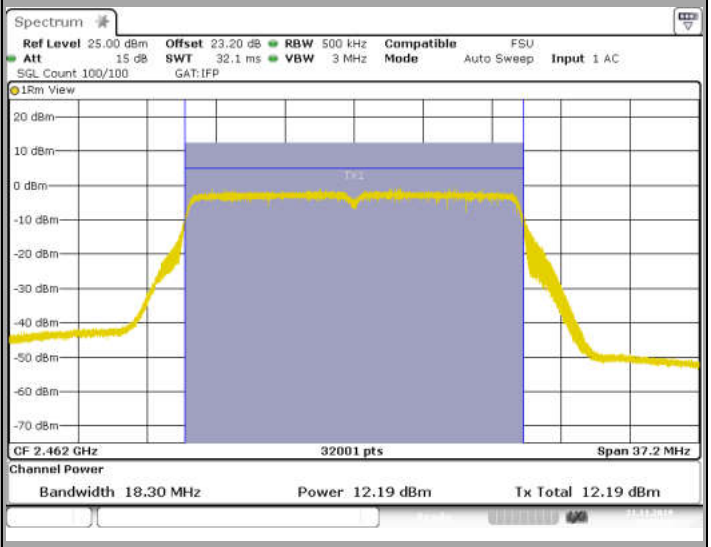
802.11g	
Cmin	
Tx1 (White)	Tx2 (Black)
	

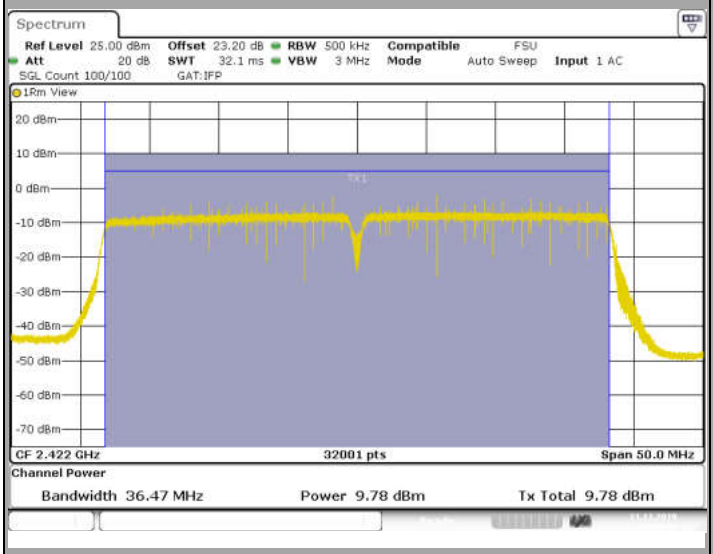
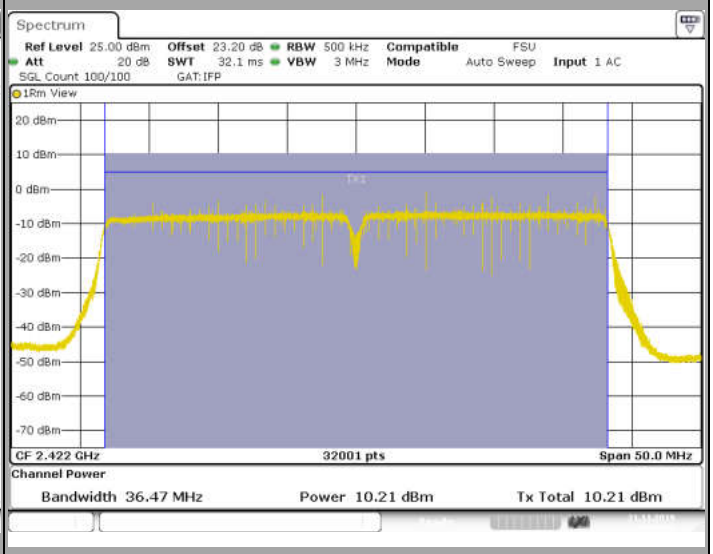
802.11g	
Cnom	
Tx1 (White)	Tx2 (Black)
	

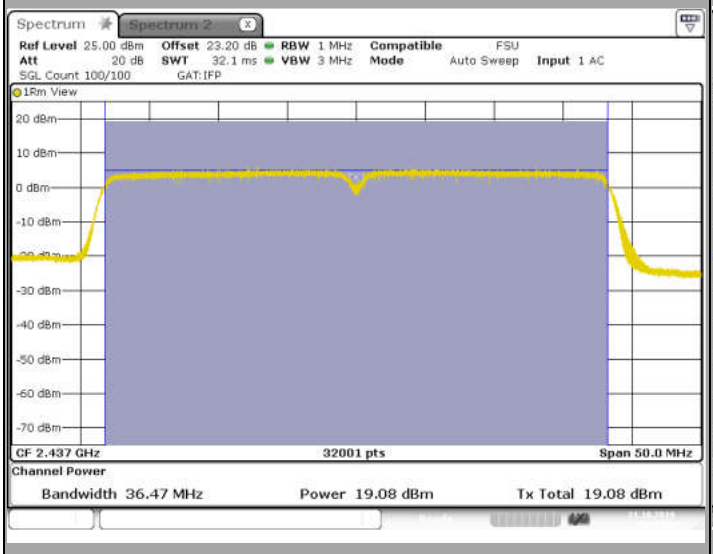
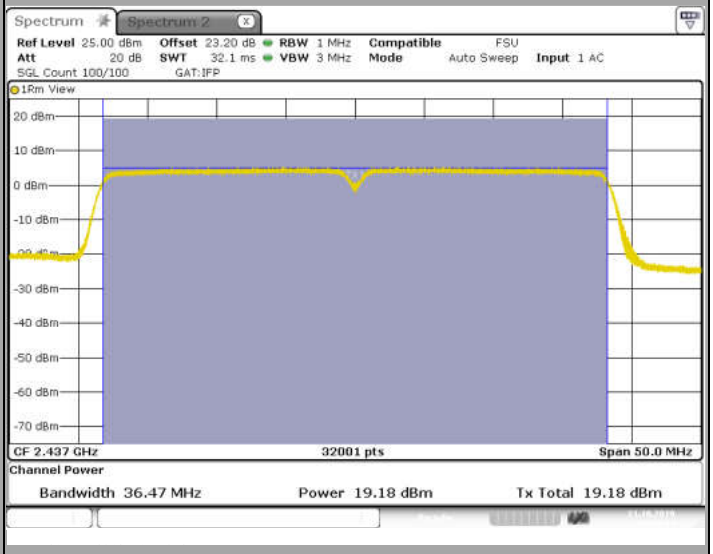
802.11g	
Cmax	
Tx1 (White)	Tx2 (Black)
	

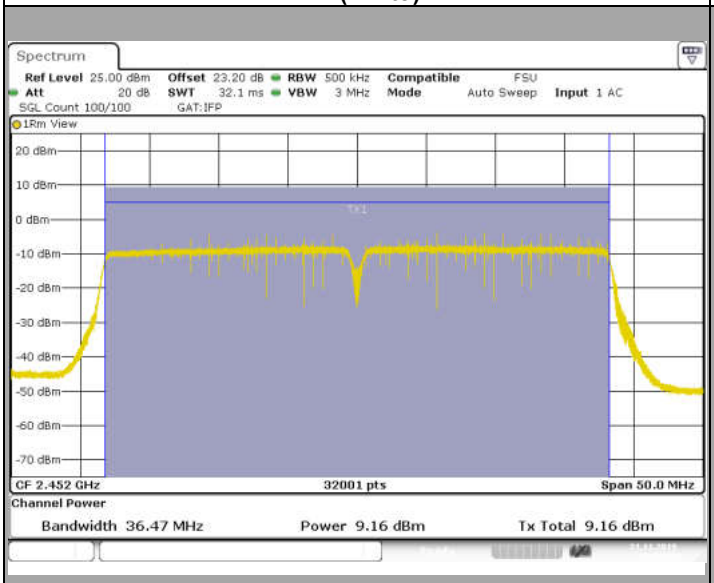
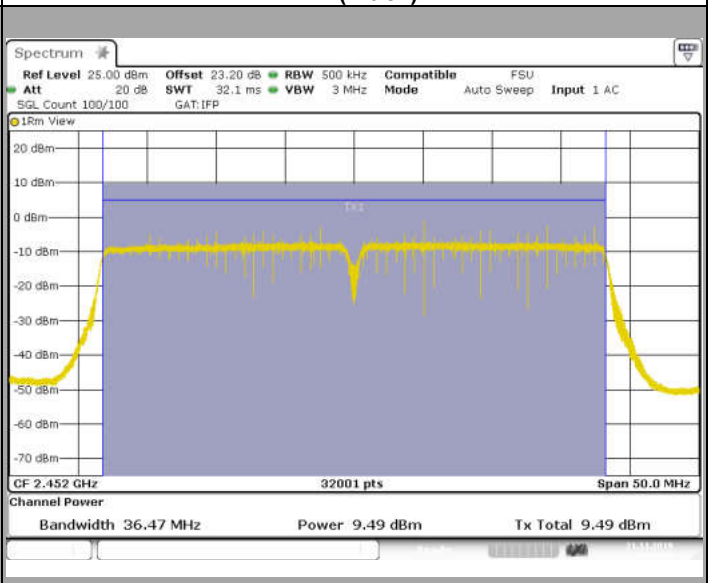
802.11n HT20	
Cmin	
Tx1 (White)	Tx2 (Black)
	

802.11n HT20	
Cnom	
Tx1 (White)	Tx2 (Black)
	

802.11n HT20	
Cmax	
Tx1 (White)	Tx2 (Black)
	

802.11n HT40	
Cmin	
Tx1 (White)	Tx2 (Black)
	

802.11n HT40	
Cnom	
Tx1 (White)	Tx2 (Black)
	

802.11n HT40	
Cmax	
Tx1 (White)	Tx2 (Black)
	

Spectrum Analyzer Offset:
Cable Loss+ Attenuator= 23.2dB

802.11b							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	16,68	16,32	-	-	5.14	19,51	30
Cnom	18,79	18,91	-	-	5.14	21,86	30
Cmax	10,72	11,48	-	-	5.14	14,13	30

802.11g							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	14,4	14,52	-	-	5.14	17,47	30
Cnom	15,98	16,36	-	-	5.14	19,18	30
Cmax	12	13,32	-	-	5.14	15,72	30

802.11n HT20							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	12,52	12,78	-	-	5.14	15,66	30
Cnom	17,55	18,25	-	-	5.14	20,92	30
Cmax	11,27	12,19	-	-	5.14	14,76	30

802.11n HT40							
Channel	**Tx1 (dBm)**	**Tx2 (dBm)**	**Tx3 (dBm)**	**Tx4 (dBm)**	**Overall Antenna Gain (dBi)**	**Maximum Conducted Power (dBm)**	**Limit (dBm)**
Cmin	9,78	10,21	-	-	5.14	13,01	30
Cnom	15,59	15,72	-	-	5.14	18,67	30
Cmax	9,16	9,49	-	-	5.14	12,34	30

6.6. CONCLUSION

Maximum Conducted Output Power measurement performed on the sample of the product **SAGEMCOM Mini Sound Box MSBDV00,** SN: **253837310**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247 & RSS 247 ISSUE 2** limits.

7. POWER SPECTRAL DENSITY

7.1. TEST CONDITIONS

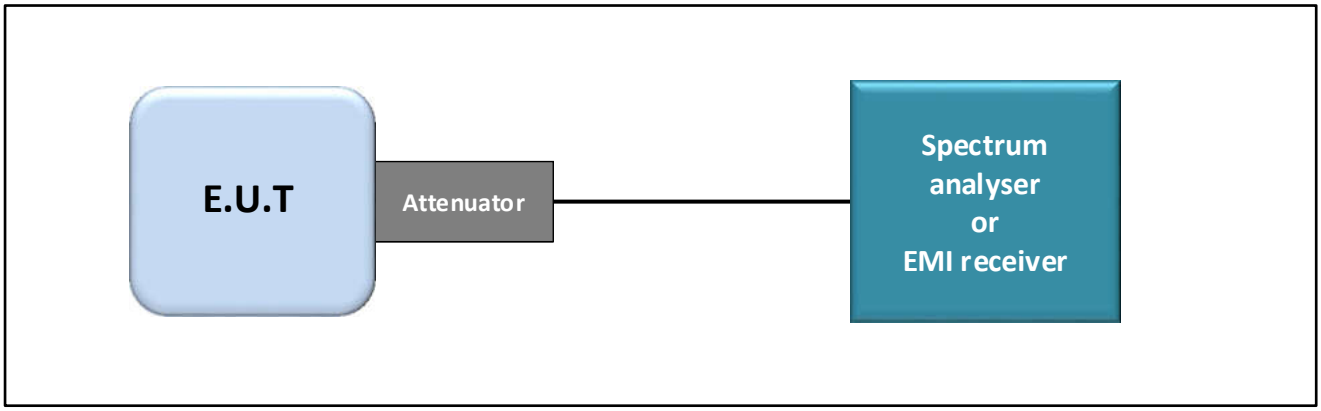
Test performed by	: Julien Palard
Date of test	: October 21, 2019
Ambient temperature	: 22 °C
Relative humidity	: 44 %

7.2. TEST SETUP

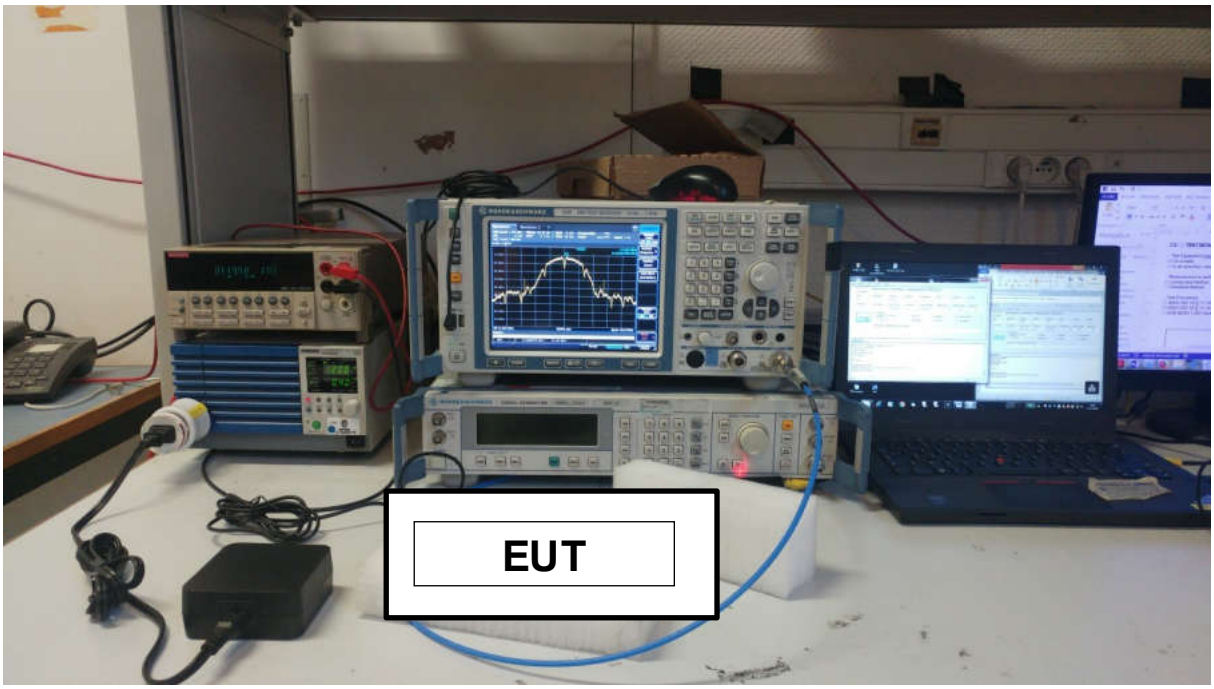
- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:
☑ Conducted Method
☐ Radiated Method

- Test Procedure:
☐ ANSI C63.10 § 11.10.2 (Method PKPSD)
☑ ANSI C63.10 § 11.10.3 (Method AVGPSD-1)
☑ KDB 662911 D01 Multiple Transmitter Output v02r01



Test set up of Power Spectral Density



Photograph for Power Spectral Density

7.3. LIMIT

Frequency range	Power Spectral Density
2400MHz to 2483.5MHz	≤8dBm/3kHz*

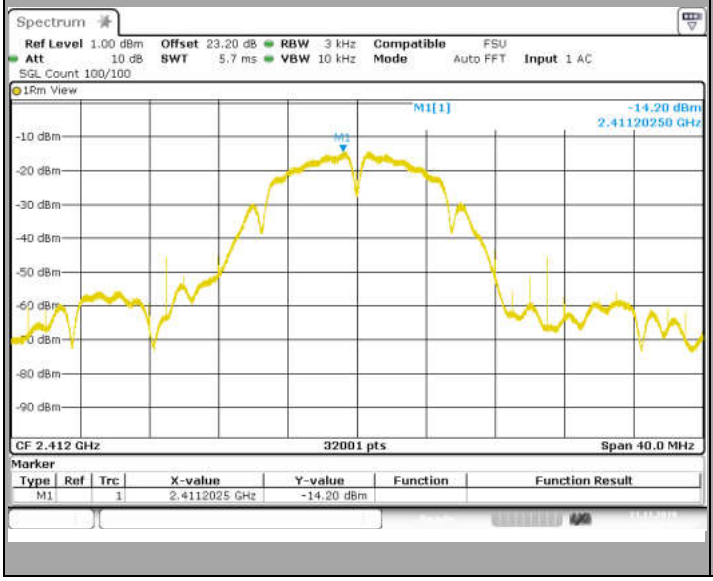
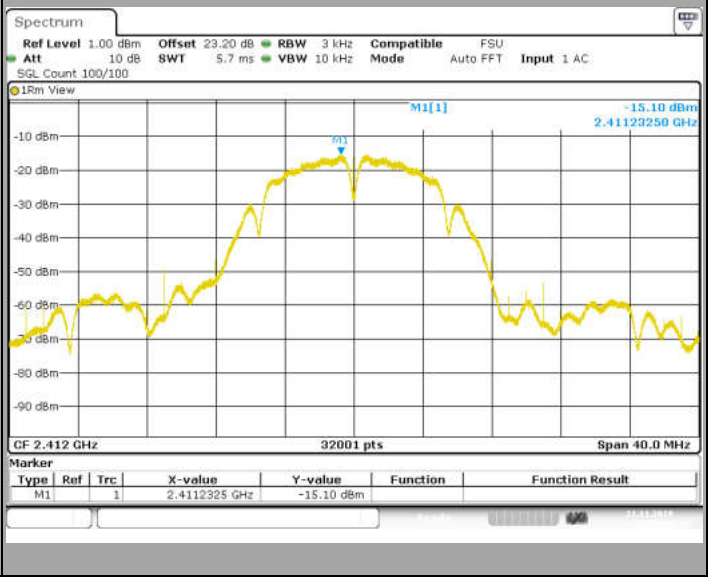
*Remark: Limits are reduced by G-6dBi if Overall Antenna Gain above 6dBi

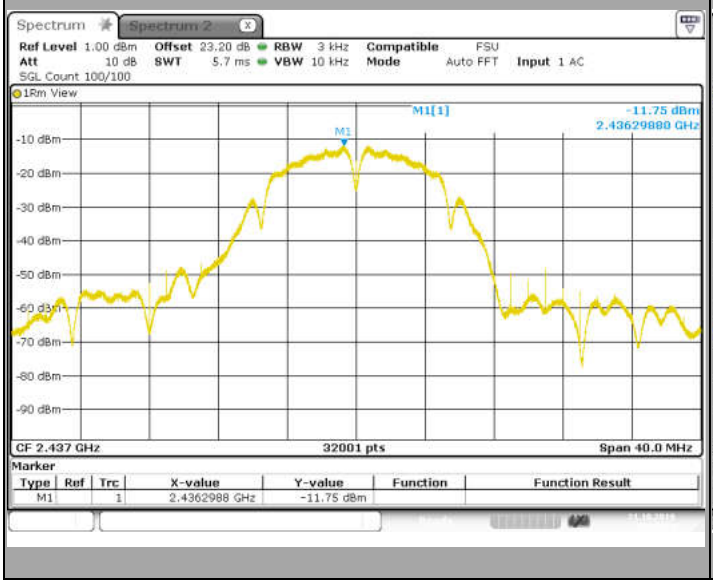
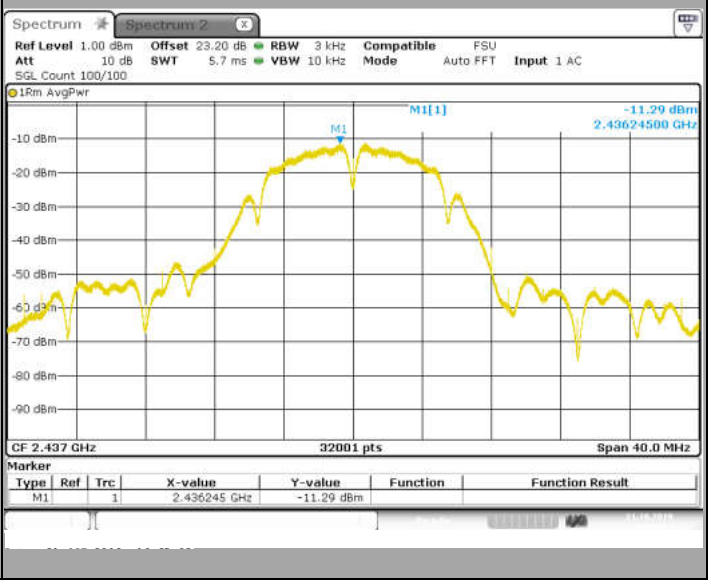
7.4. TEST EQUIPMENT LIST

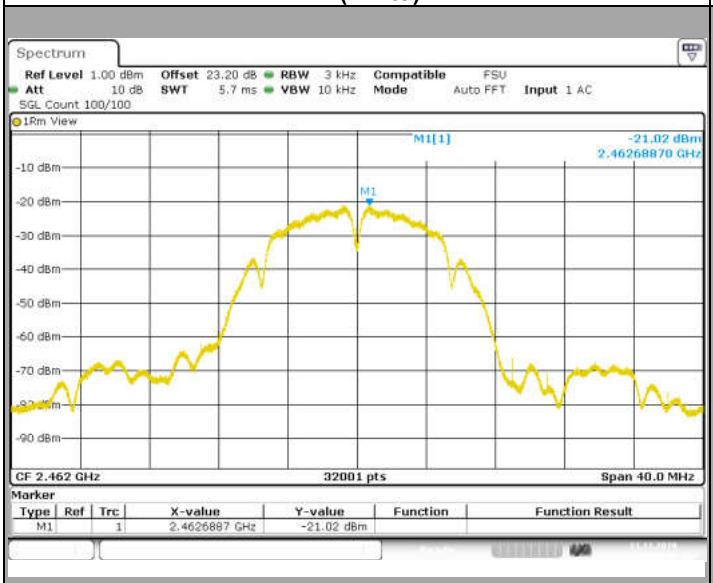
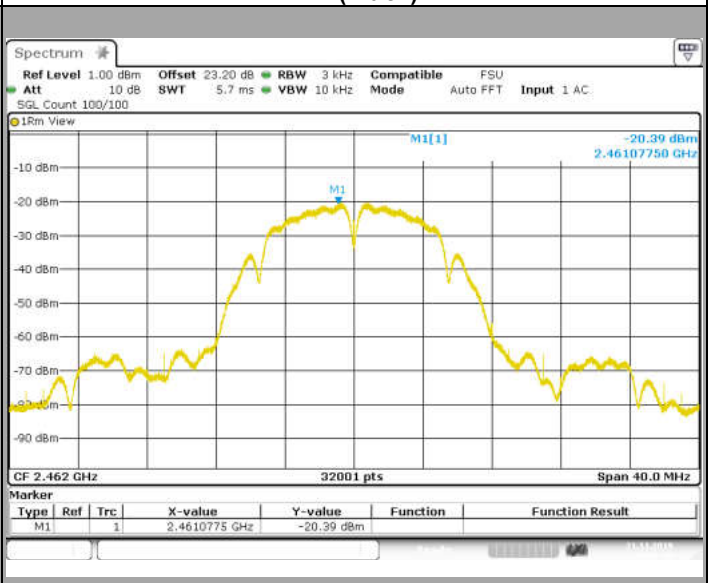
Apparatus	Trade Mark	Type	Registration number	Cal_Date	Cal_Due
Power supply	KIKUSUI	PCR500M	A7040079	Calibrated with multimeter	Calibrated with multimeter
Multimeter	Keithley	2000	A1241084	2018/12	2020/12
Cable + Attenuateur 20dB	PASTERNACK	PE350-150CM	A5329868	2018/12	2019/12
EMI receiver	ROHDE & SCHWARZ	ESR7	A2642023	2019/01	2021/01

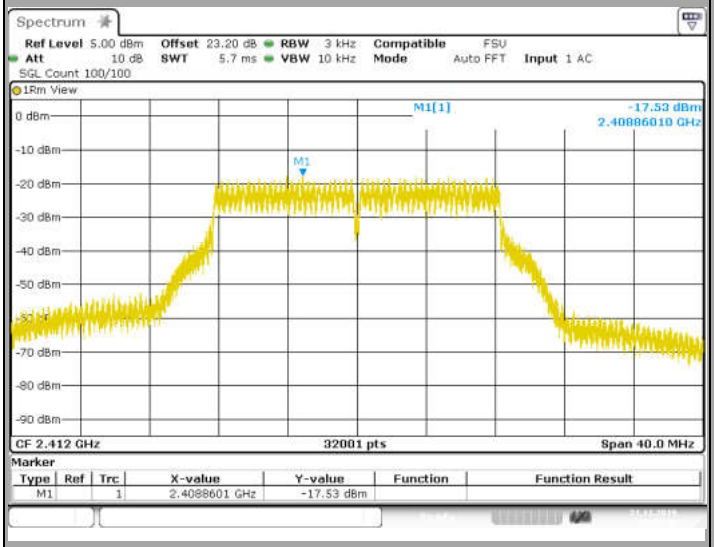
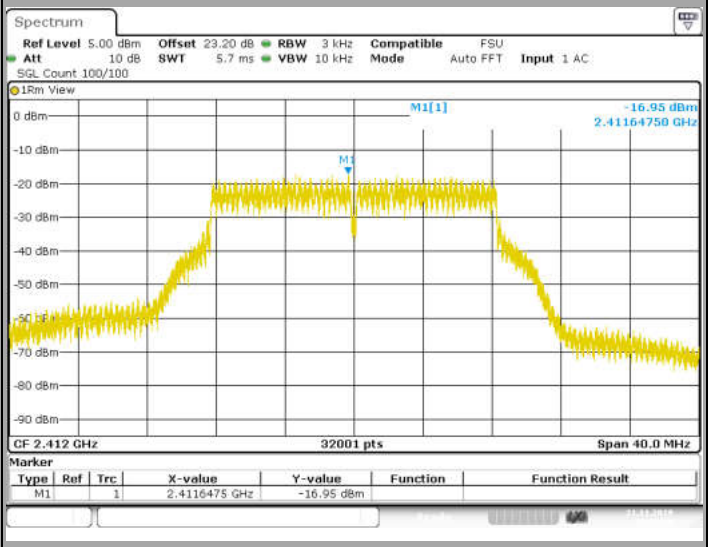
Note: In our quality system, the test equipment calibration due is more & less 2 months

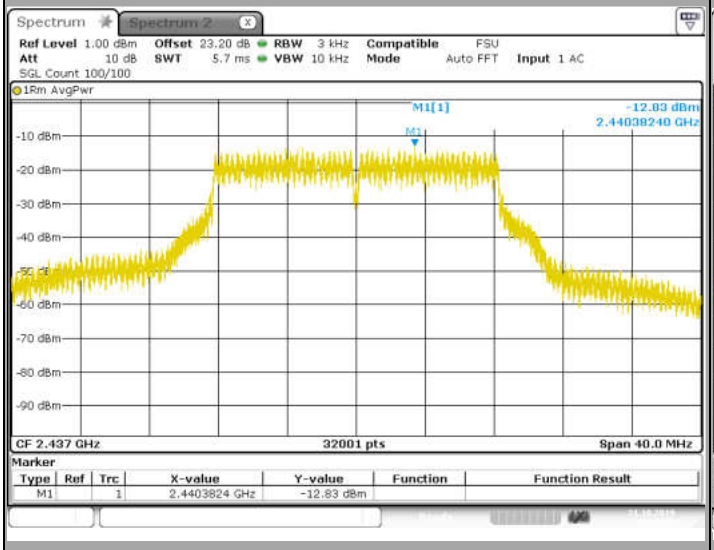
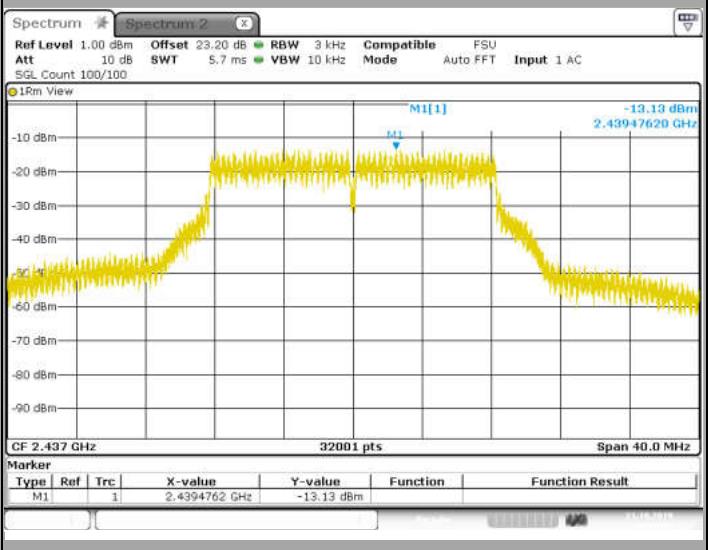
7.5. RESULTS

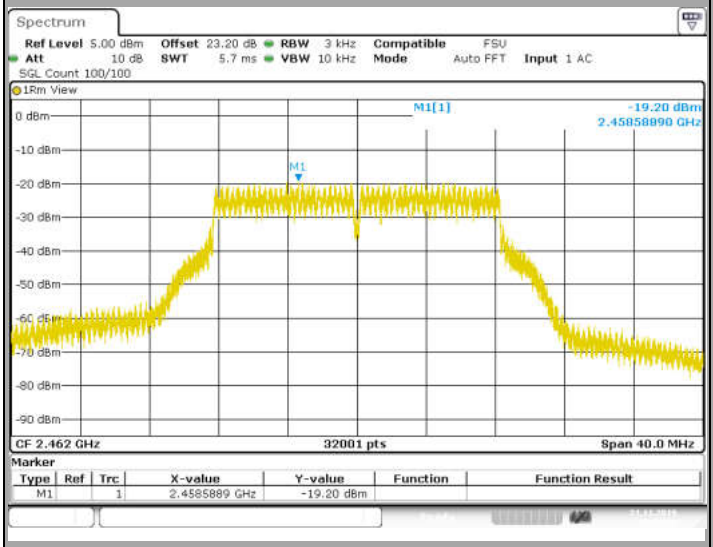
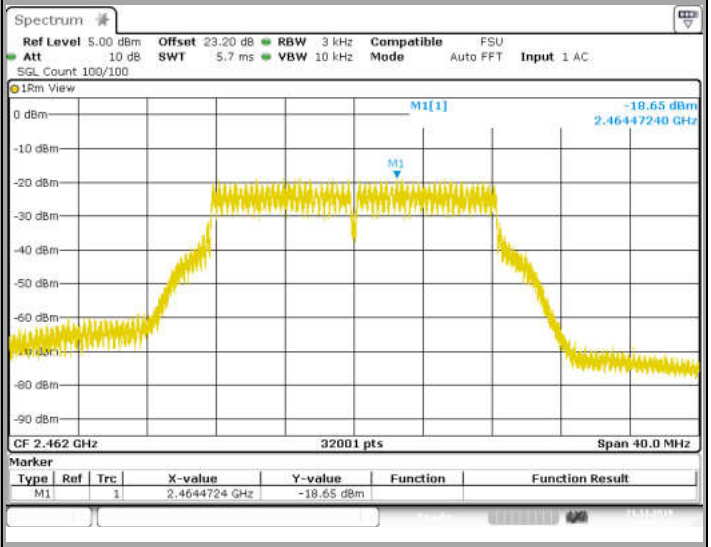
802.11b	
Cmin	
Tx1 (White)	Tx2 (Black)
	

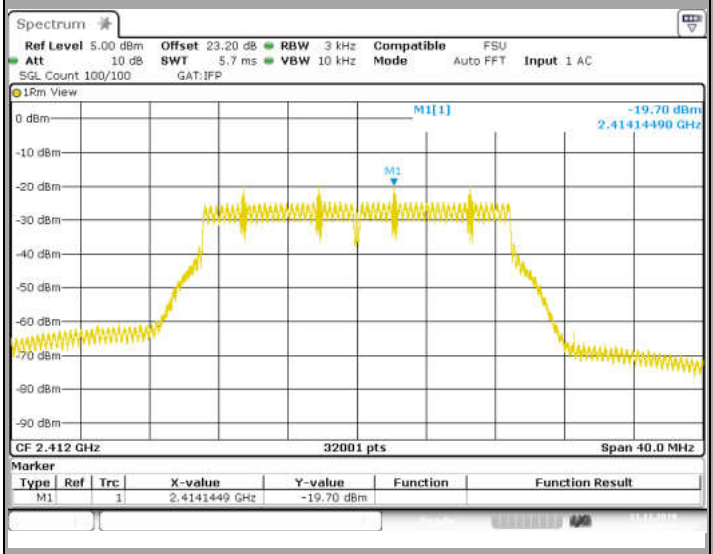
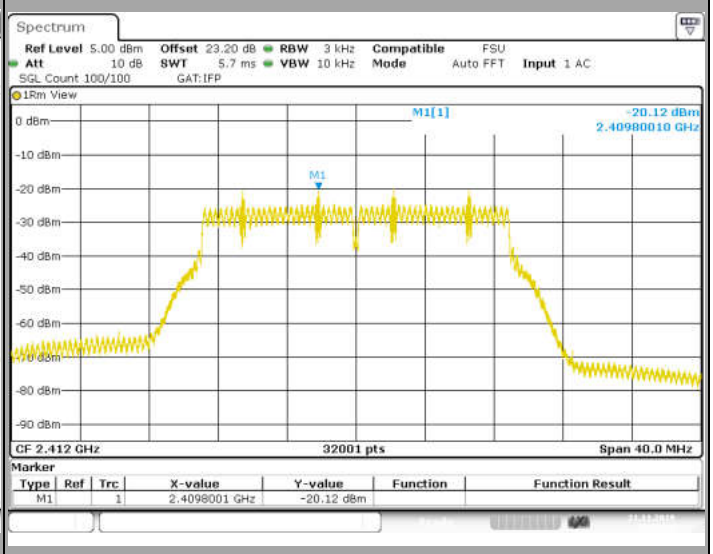
802.11b	
Cnom	
Tx1 (White)	Tx2 (Black)
	

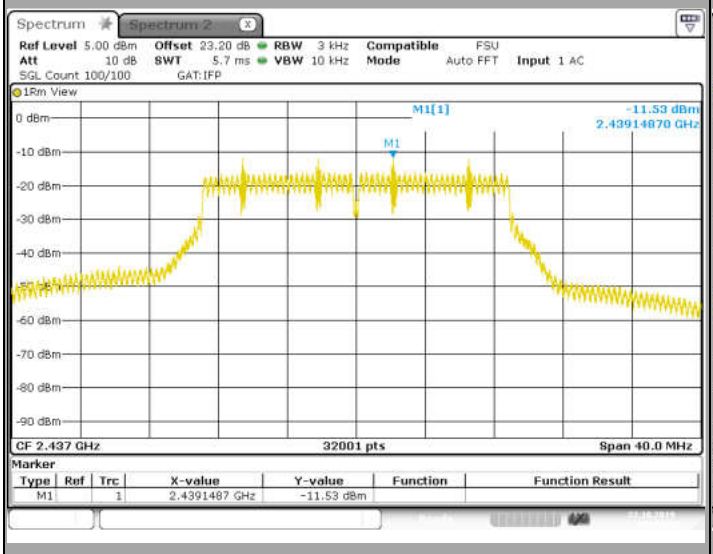
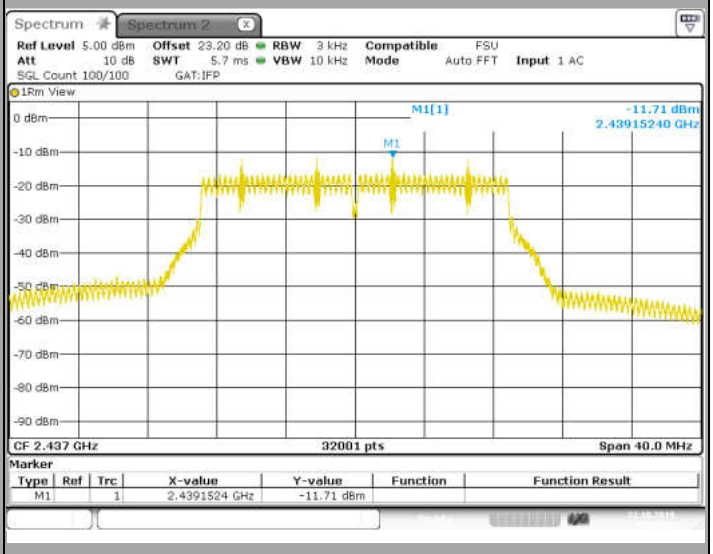
802.11b	
Cmax	
Tx1 (White)	Tx2 (Black)
	

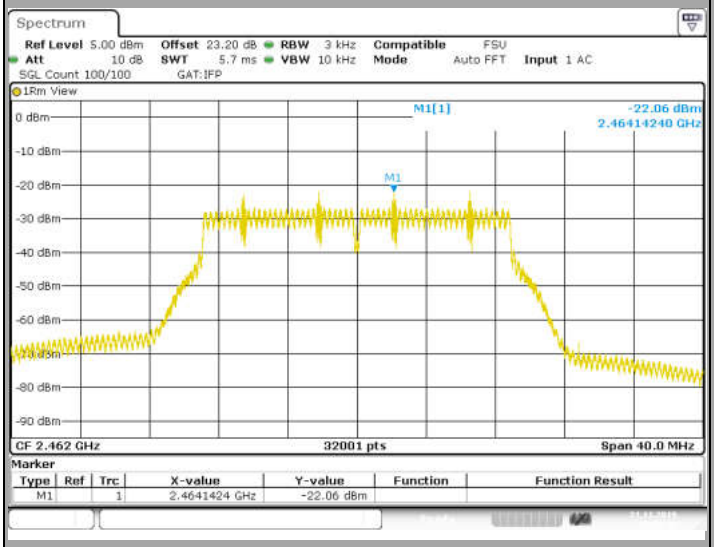
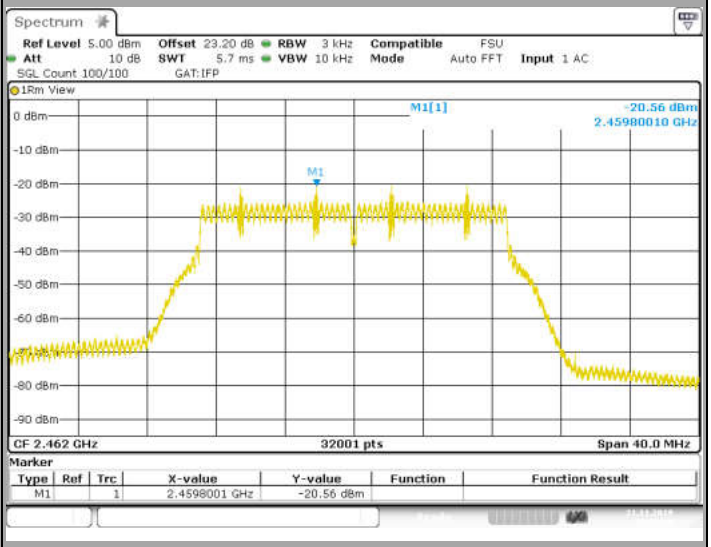
802.11g	
Cmin	
Tx1 (White)	Tx2 (Black)
	

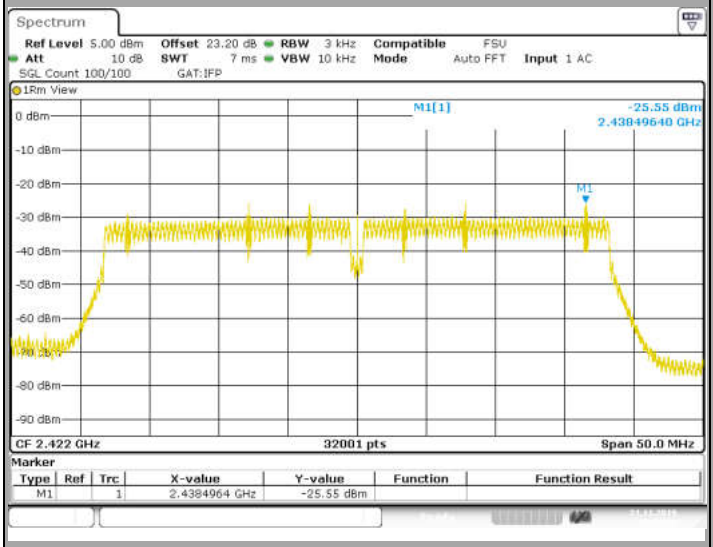
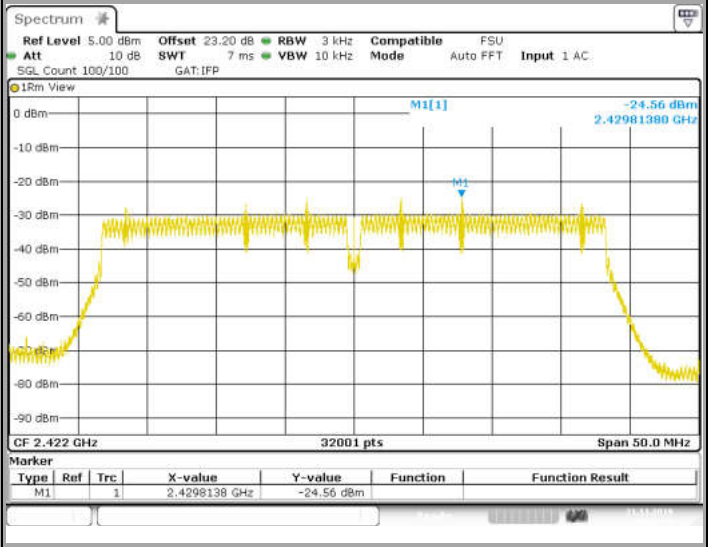
802.11g	
Cnom	
Tx1 (White)	Tx2 (Black)
	

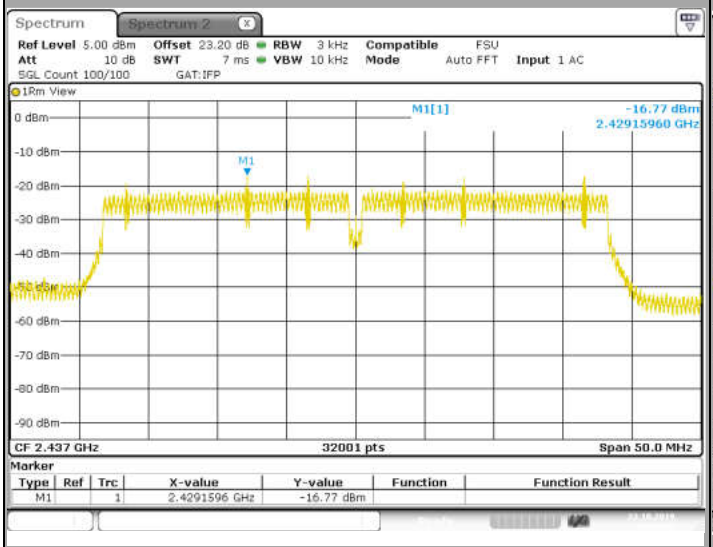
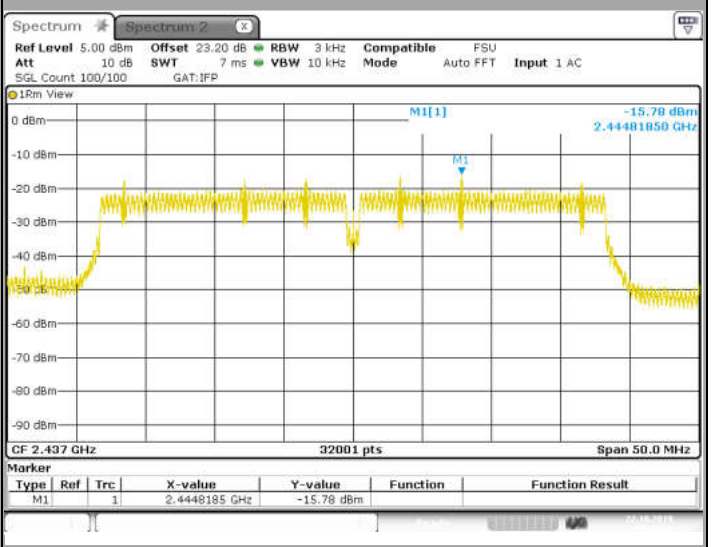
802.11g	
Cmax	
Tx1 (White)	Tx2 (Black)
	

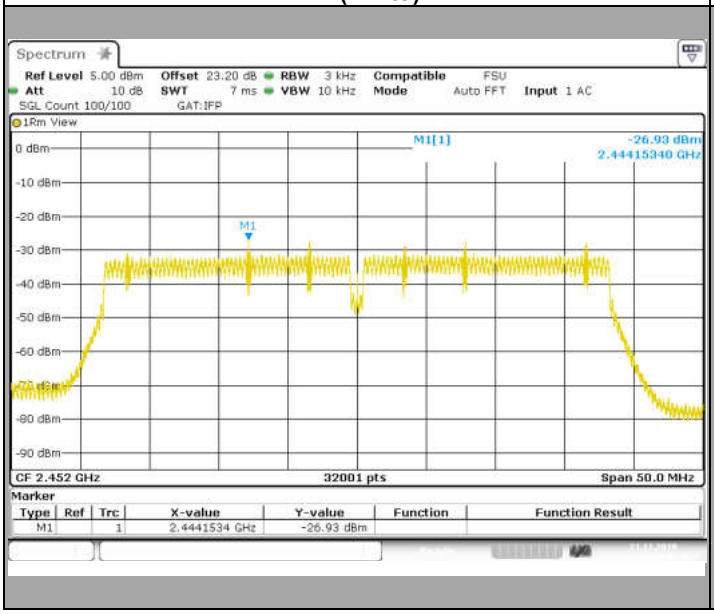
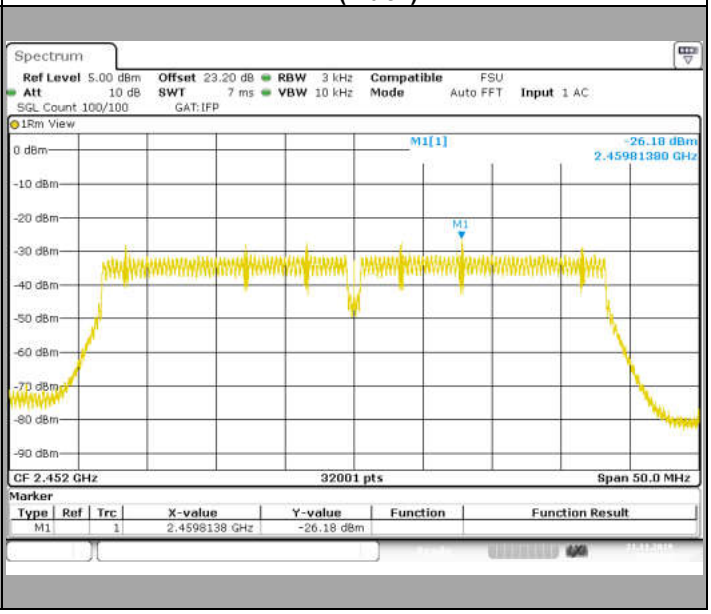
802.11nHT20	
Cmin	
Tx1 (White)	Tx2 (Black)
	

802.11nHT20	
Cnom	
Tx1 (White)	Tx2 (Black)
	

802.11nHT20	
Cmax	
Tx1 (White)	Tx2 (Black)
	

802.11nHT40	
Cmin	
Tx1 (White)	Tx2 (Black)
	

802.11nHT40	
Cnom	
Tx1 (White)	Tx2 (Black)
	

802.11nHT40	
Cmax	
Tx1 (White)	Tx2 (Black)
	

Spectrum Analyzer Offset:
Cable Loss + Attenuator= 23.2 dB

802.11b							
Channel	**Tx1 (dBm/3kHz)**	**Tx1 (dBm/3kHz)**	**Tx1 (dBm/3kHz)**	**Tx1 (dBm/3kHz)**	**Overall Antenna Gain (dBi)**	**Power Spectral Density (dBm)**	**Limit (dBm/3kHz)**
Cmin	-14,2	-15,1	-	-	5.14	-11,62	8
Cnom	-11,75	-11,29	-	-	5.14	-8,50	8
Cmax	-21,02	-20,39	-	-	5.14	-17,68	8

802.11g							
Channel	**Tx1 (dBm/3kHz)**	**Tx1 (dBm/3kHz)**	**Tx1 (dBm/3kHz)**	**Tx1 (dBm/3kHz)**	**Overall Antenna Gain (dBi)**	**Power Spectral Density (dBm)**	**Limit (dBm/3kHz)**
Cmin	-17,53	-16,95	-	-	5.14	-14,22	8
Cnom	-12,83	-13,13	-	-	5.14	-9,97	8
Cmax	-19,2	-18,65	-	-	5.14	-15,91	8

802.11n HT20							
Channel	**Tx1 (dBm/3kHz)**	**Tx1 (dBm/3kHz)**	**Tx1 (dBm/3kHz)**	**Tx1 (dBm/3kHz)**	**Overall Antenna Gain (dBi)**	**Power Spectral Density (dBm)**	**Limit (dBm/3kHz)**
Cmin	-19,7	-20,12	-	-	5.14	-16,89	8
Cnom	-11,53	-11,71	-	-	5.14	-8,61	8
Cmax	-22,06	-20,56	-	-	5.14	-18,24	8

802.11n HT40							
Channel	**Tx1 (dBm/3kHz)**	**Tx1 (dBm/3kHz)**	**Tx1 (dBm/3kHz)**	**Tx1 (dBm/3kHz)**	**Overall Antenna Gain (dBi)**	**Power Spectral Density (dBm)**	**Limit (dBm/3kHz)**
Cmin	-25,55	-24,56	-	-	5.14	-22,02	8
Cnom	-20,55	-18,97	-	-	5.14	-16,68	8
Cmax	-26,93	-26,18	-	-	5.14	-23,53	8

7.6. CONCLUSION

Power Spectral Density measurement performed on the sample of the product **SAGEMCOM Mini Sound Box MSBDV00,** SN: **253837310**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247 & RSS 247 ISSUE 2** limits.

8. UNWANTED EMISSIONS INTO NON-RESTRICTED FREQUENCY BANDS AT THE BAND EDGE

8.1. TEST CONDITIONS

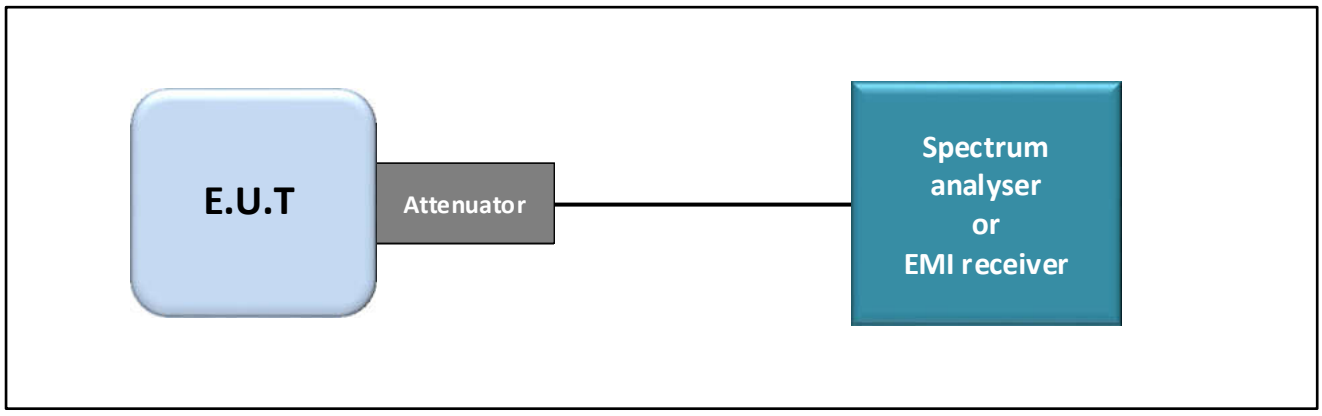
Test performed by	: Julien Palard
Date of test	: October 22, 2019
Ambient temperature	: 24 °C
Relative humidity	: 48 %

8.2. TEST SETUP

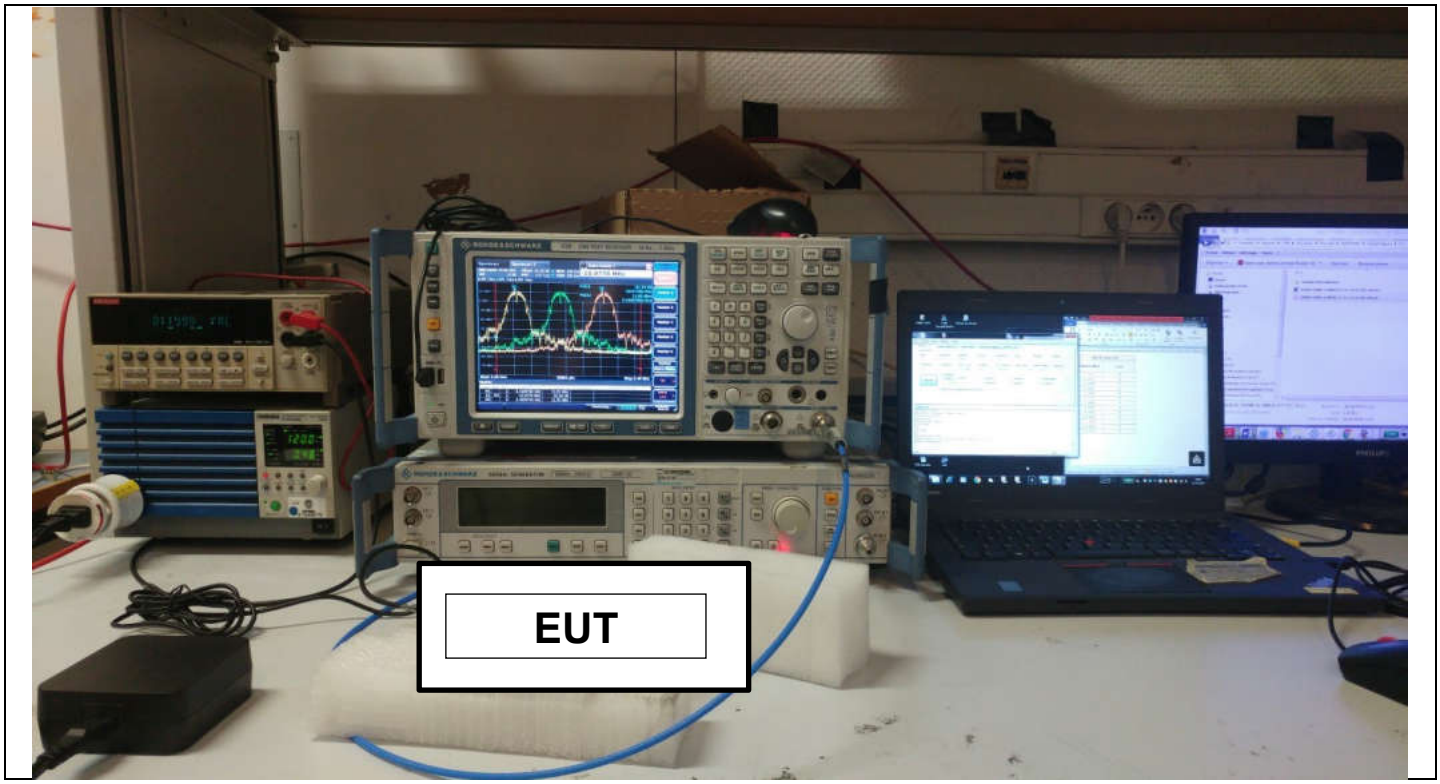
- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:
☑ Conducted Method
☐ Radiated Method

- Test Procedure:
☑ ANSI C63.10 § 11.11
☑ KDB 662911 D01 Multiple Transmitter Output v02r01



Test set up of Unwanted Emissions into Non-Restricted Frequency Bands at the Band Edge



Photograph for Unwanted Emission into non-restricted frequency bands at the band edge

8.3. LIMIT

All Spurious Emissions must be at least 30dB (Average Conducted Power) below the Fundamental Radiator Level at the Band Edge Edge “2400MHz & 2483,5MHz”

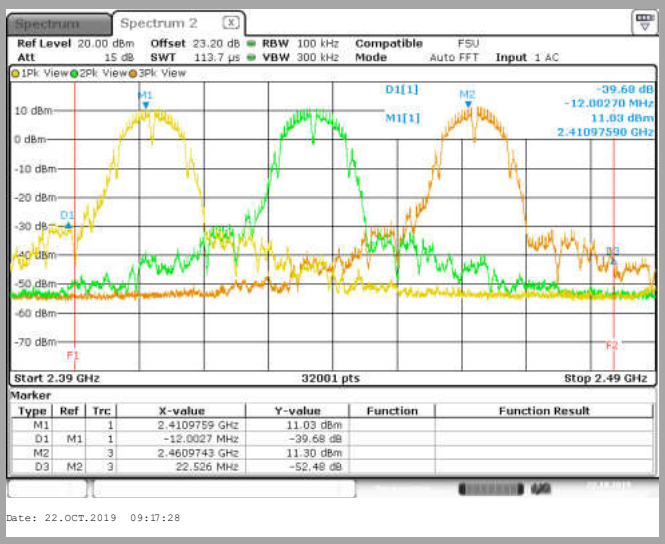
8.4. TEST EQUIPMENT LIST

Apparatus	Trade Mark	Type	Registration number	Cal_Date	Cal_Due
Power supply	KIKUSUI	PCR500M	A7040079	Calibrated with multimeter	Calibrated with multimeter
Multimeter	Keithley	2000	A1241084	2018/12	2020/12
Cable + Attenuateur 20dB	PASTERNACK	PE350-150CM	A5329868	2018/12	2019/12
EMI receiver	ROHDE & SCHWARZ	ESR7	A2642023	2019/01	2021/01

Note: In our quality system, the test equipment calibration due is more & less 2 months

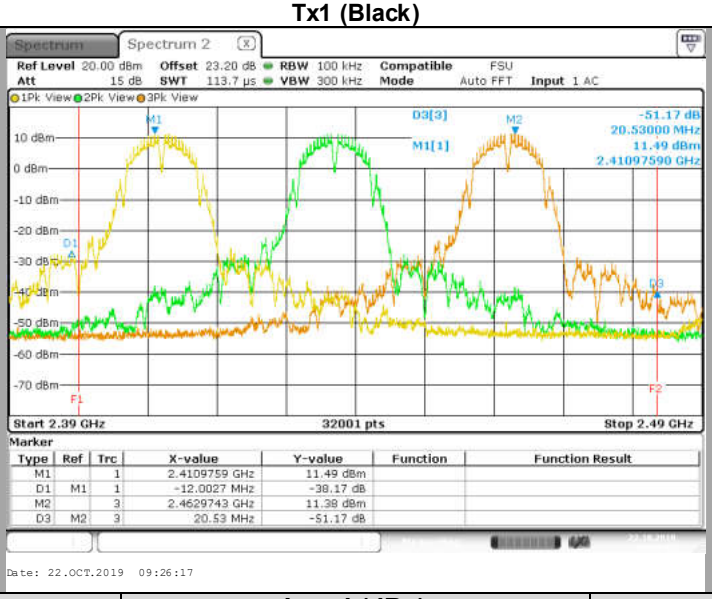
8.5. RESULTS

802.11b
Cmin/Cnom/Cmax
Tx1 (White)



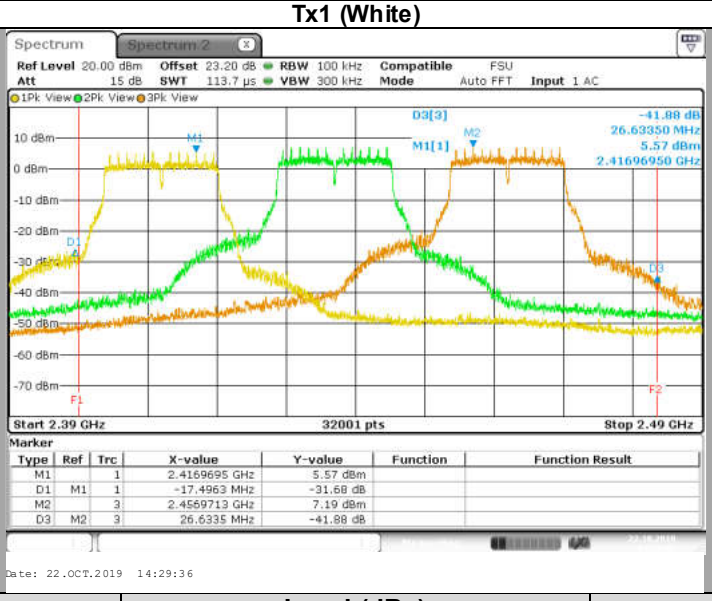
Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	39.68	30
2483.5	52.48	30

802.11b
Cmin/Cnom/Cmax
Tx1 (Black)



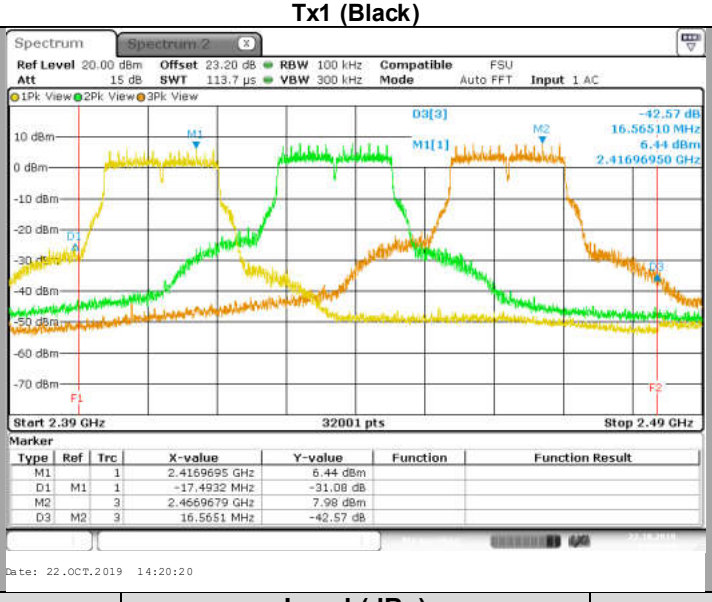
Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	38.17	30
2483.5	51.17	30

802.11g
Cmin/Cnom/Cmax
Tx1 (White)



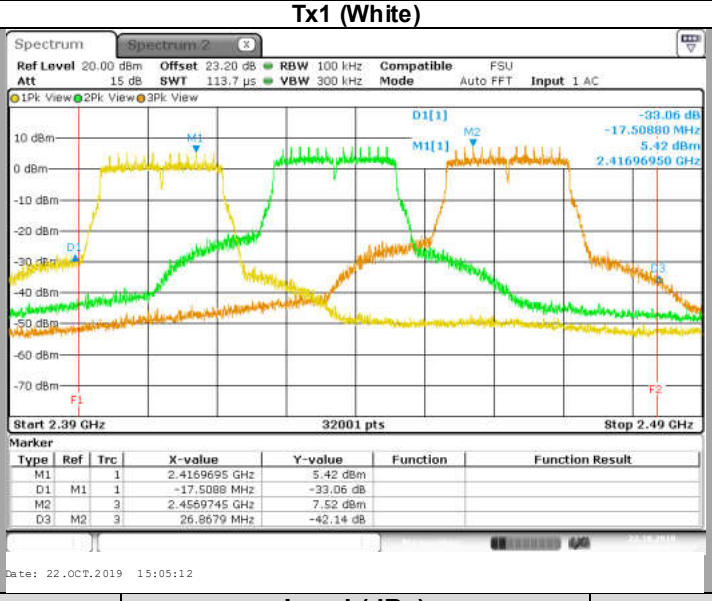
Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	31.68	30
2483.5	41.88	30

802.11g
Cmin/Cnom/Cmax
Tx1 (Black)



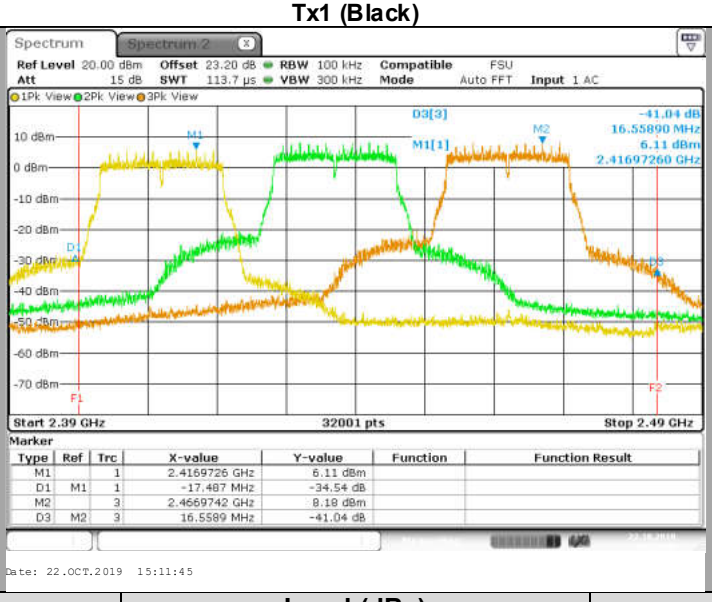
Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	31.08	30
2483.5	42.57	30

802.11nHT20
Cmin/Cnom/Cmax
Tx1 (White)



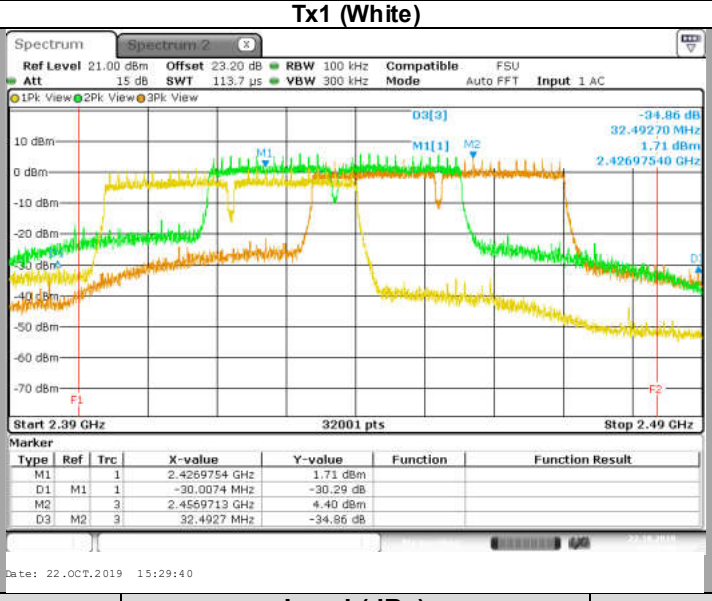
Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	33.06	30
2483.5	42.14	30

802.11nHT20
Cmin/Cnom/Cmax
Tx1 (Black)



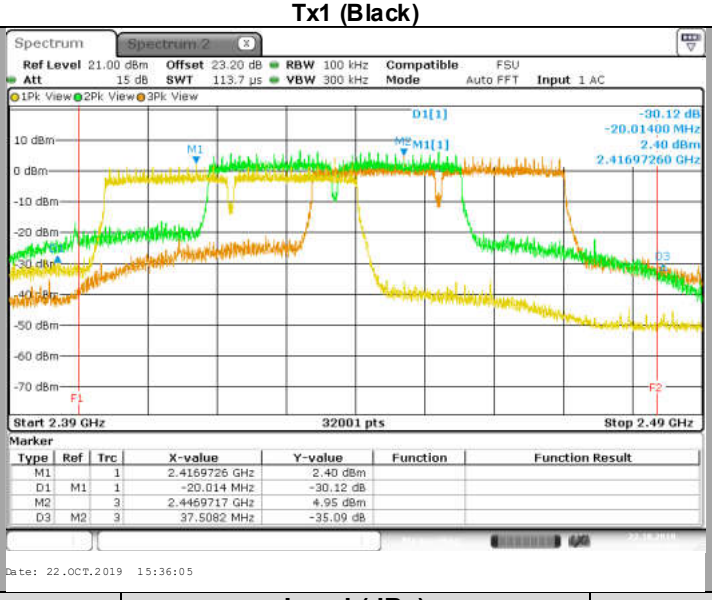
Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	34.54	30
2483.5	41.04	30

802.11nHT40
Cmin/Cnom/Cmax
Tx1 (White)



Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	30.29	30
2483.5	34.86	30

802.11nHT40
Cmin/Cnom/Cmax
Tx1 (Black)



Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	30.12	30
2483.5	35.09	30

8.6. CONCLUSION

Unwanted Emission into non-restricted frequency bands at the band edge measurement performed on the sample of the product **SAGEMCOM Mini Sound Box MSBDV00,** SN: **253837310**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247 & RSS 247 ISSUE 2** limits.

9. UNWANTED EMISSIONS INTO NON-RESTRICTED FREQUENCY BANDS

9.1. TEST CONDITIONS

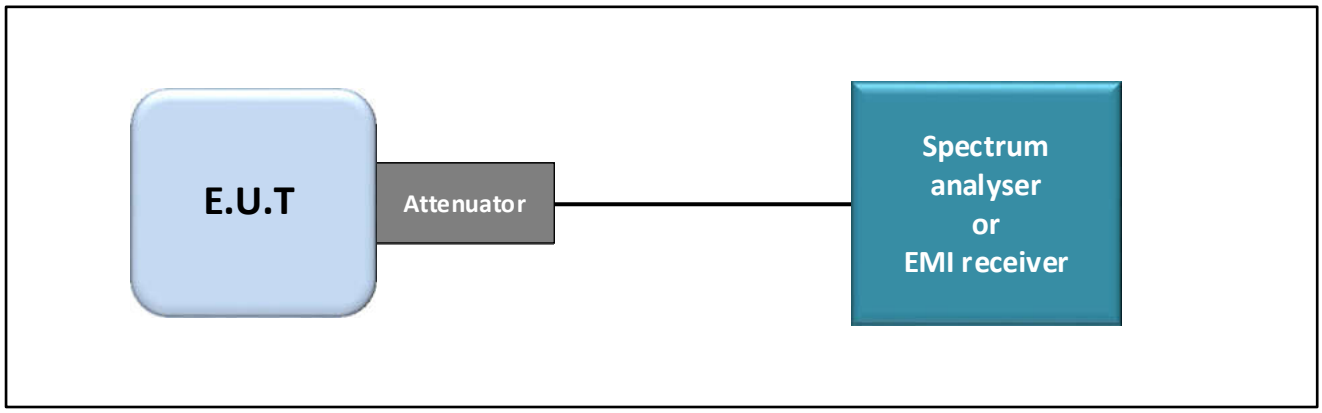
Test performed by	: Armand MAHOUNGOU
Date of test	: October 10, 2019 to October 18, 2019
Ambient temperature	: 26°C & 24°C
Relative humidity	: 52% & 49%

9.2. TEST SETUP

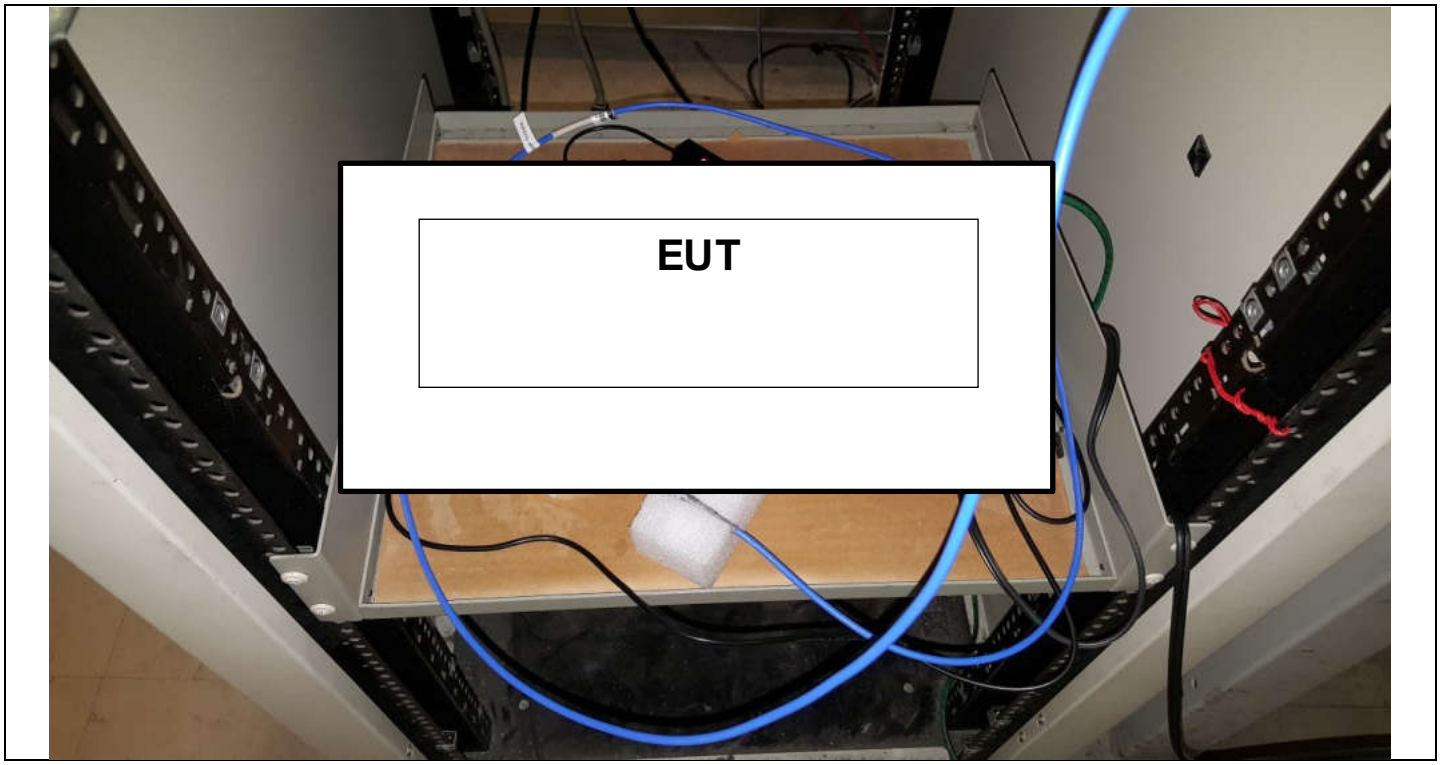
- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:
☑ Conducted Method
☐ Radiated Method

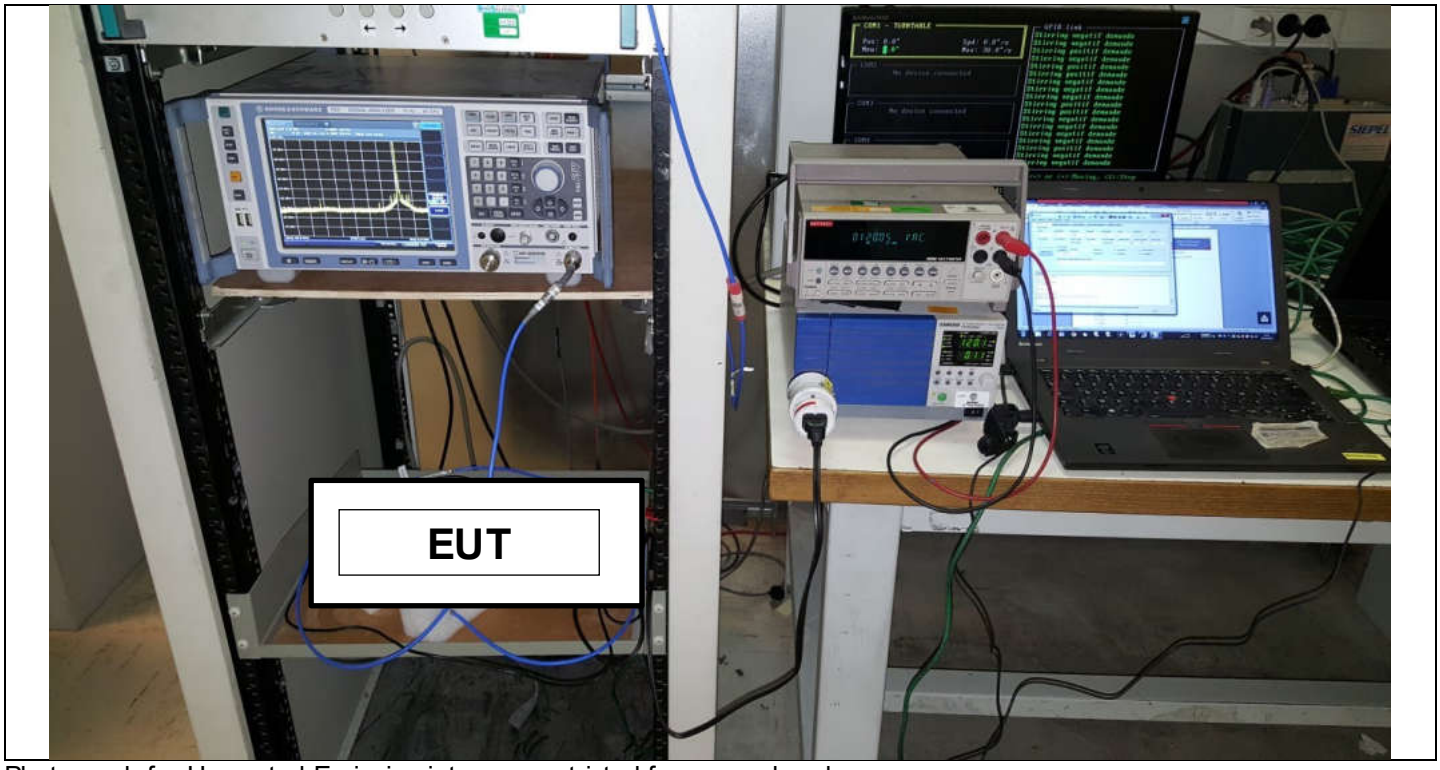
- Test Procedure:
☑ ANSI C63.10 § 11.11
☑ KDB 662911 D01 Multiple Transmitter Output v02r01



Test set up of Unwanted Emissions into Non-Restricted Frequency Bands



Photograph for Unwanted Emission into non-restricted frequency bands



Photograph for Unwanted Emission into non-restricted frequency bands

9.3. LIMIT

All Spurious Emissions must be at least Choose limit below the Fundamental Radiator Level

9.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Full anachoic chamber	SIEPEL	-	D3044019	2018/10	2022/10
Cable Conducted S36 chamber	TELEDYNE	084-0555-2MTR	A5329758	2019/02	2020/02
Attenuator 3dB Cable Spurious Conducted	-	WA54-3-12	A7122223	2019/02	2020/02
High Pass Filter 2,4GHz	WAINWRIGHT	WHK12-2494	A7484068	2019/07	2021/07
Load 50 ohms	TELEGARTNER	-	A7150103	2019/04	2021/04
Load 50 ohms	TELEGARTNER	-	A7150104	2019/04	2021/04

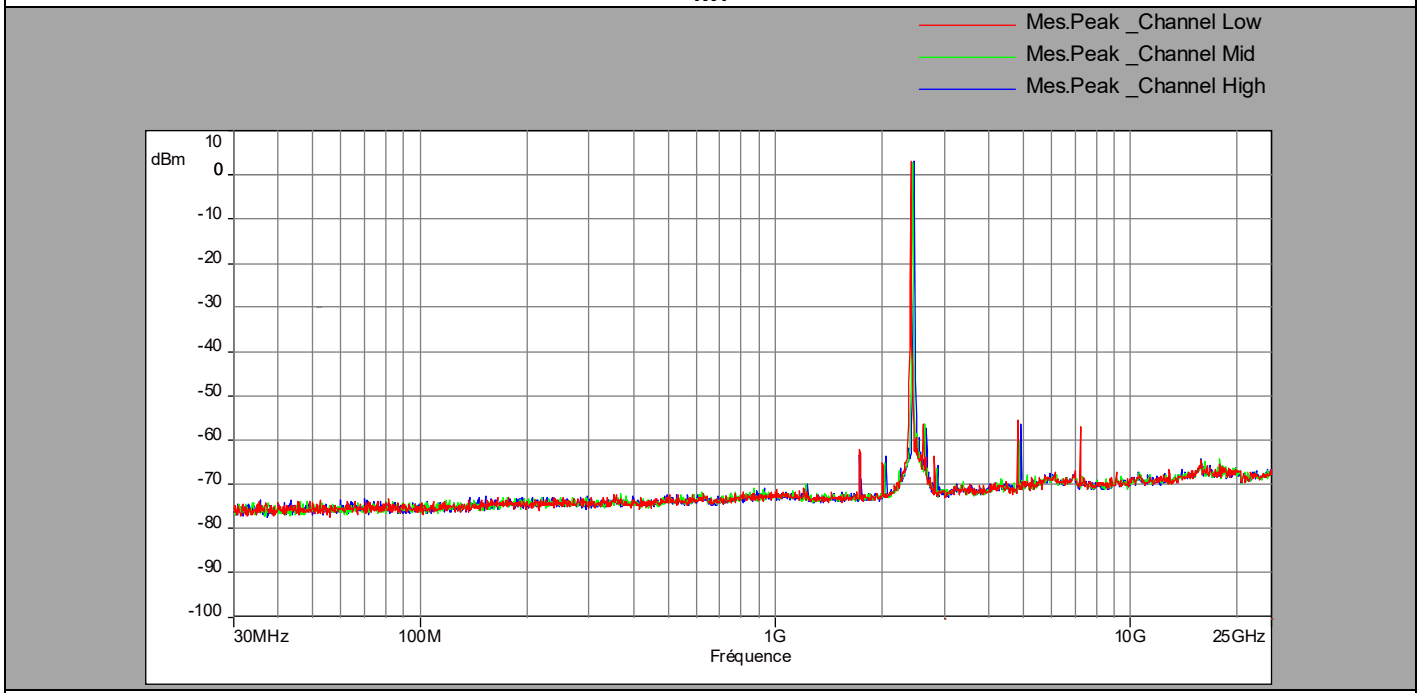
Note: In our quality system, the test equipment calibration due is more & less 2 months

9.5. *DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION*

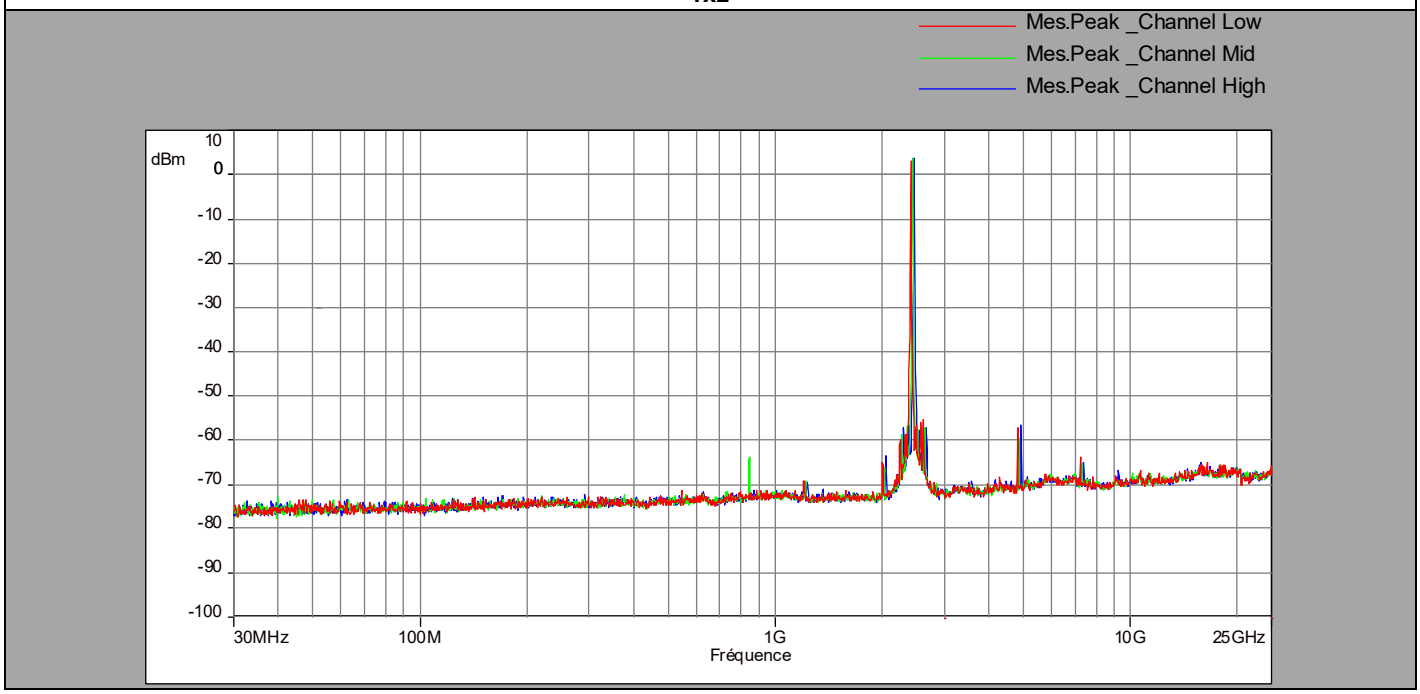
☑ None ☐ Divergence:

9.6. RESULTS

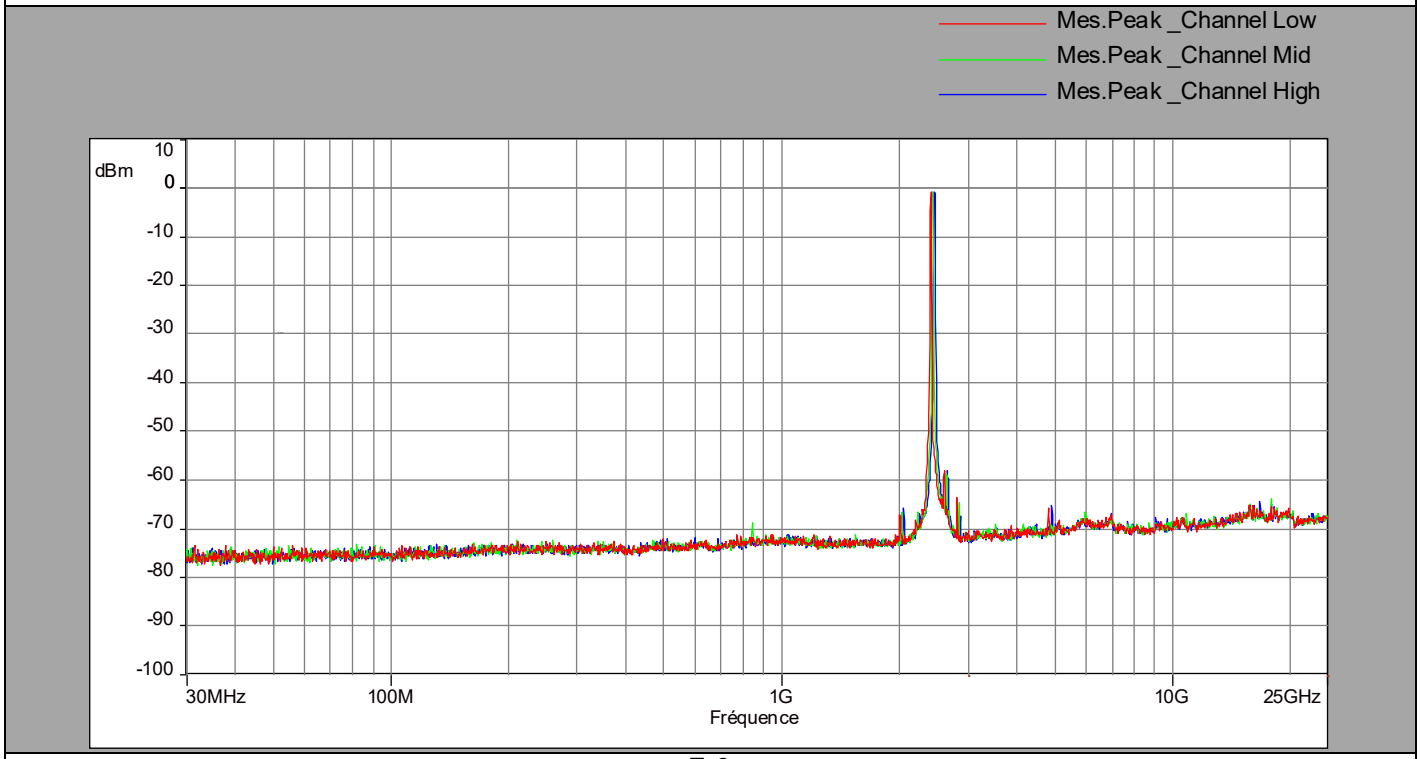
802.11b
Cmin/Cnom/Cmax
Tx1



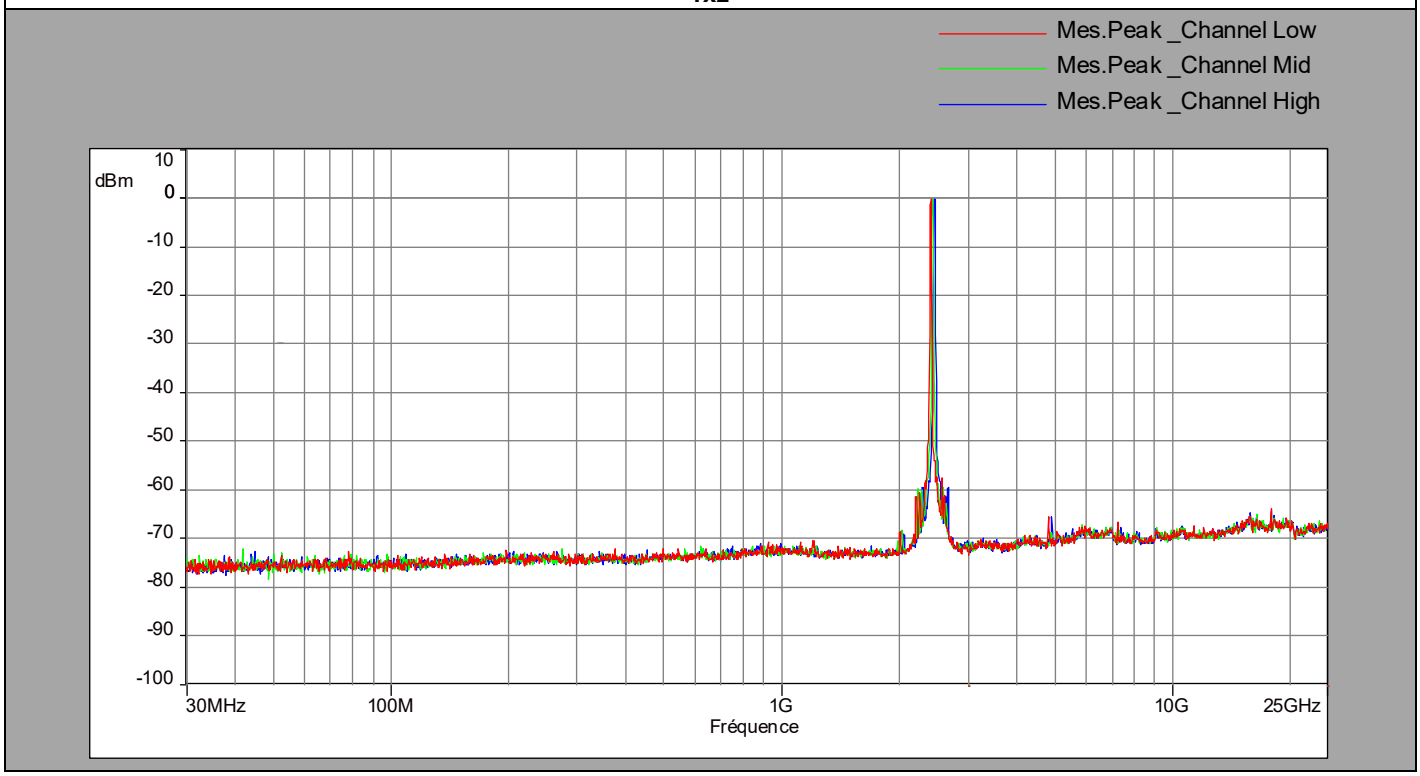
Tx2



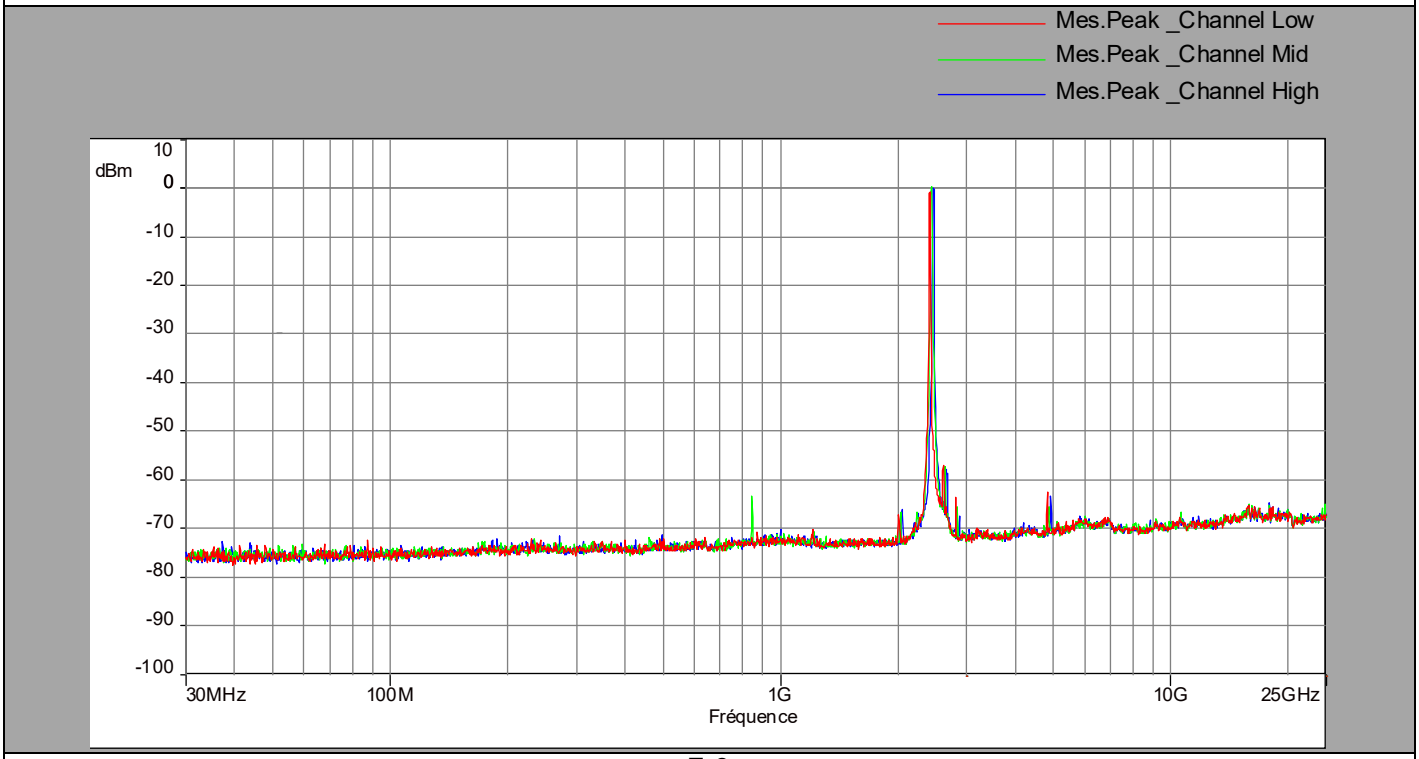
802.11g
Cmin/Cnom/Cmax
Tx1



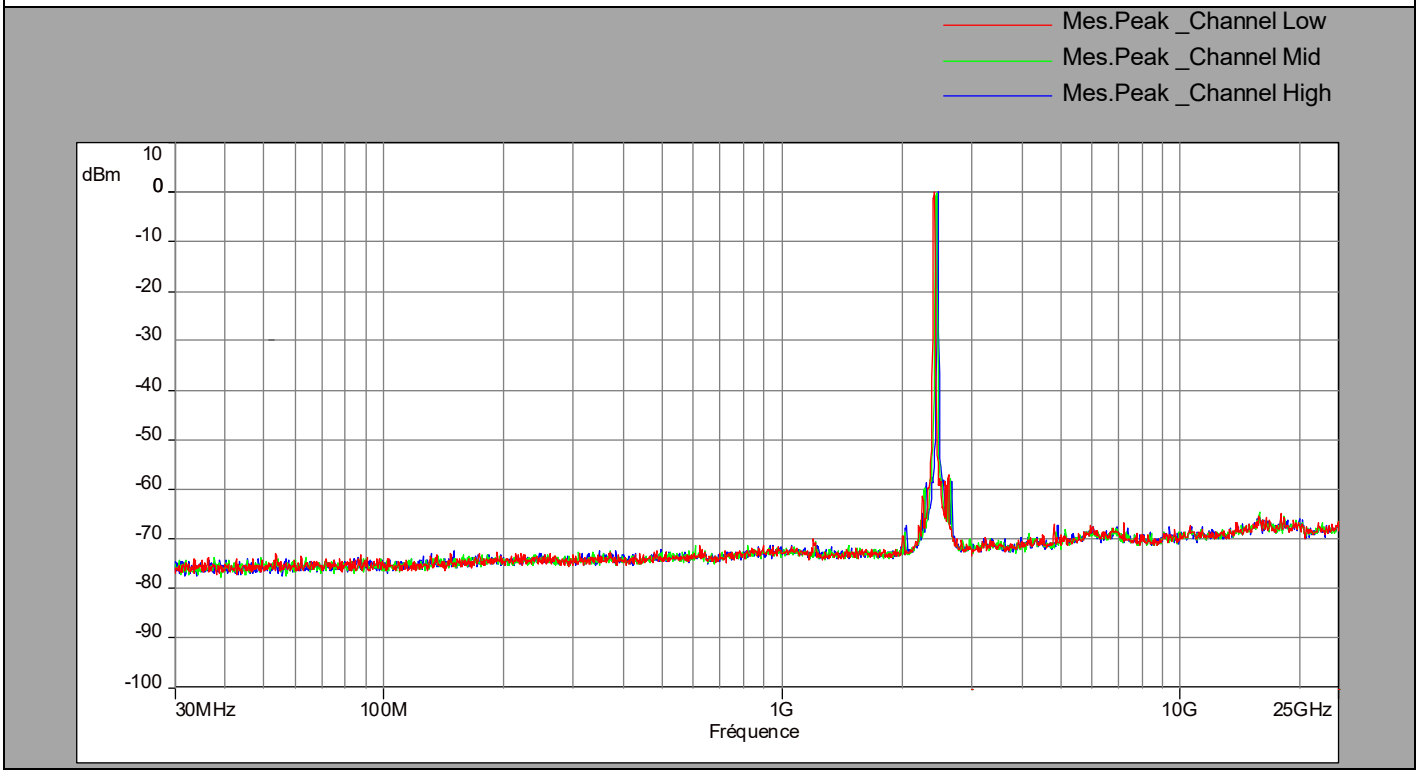
Tx2



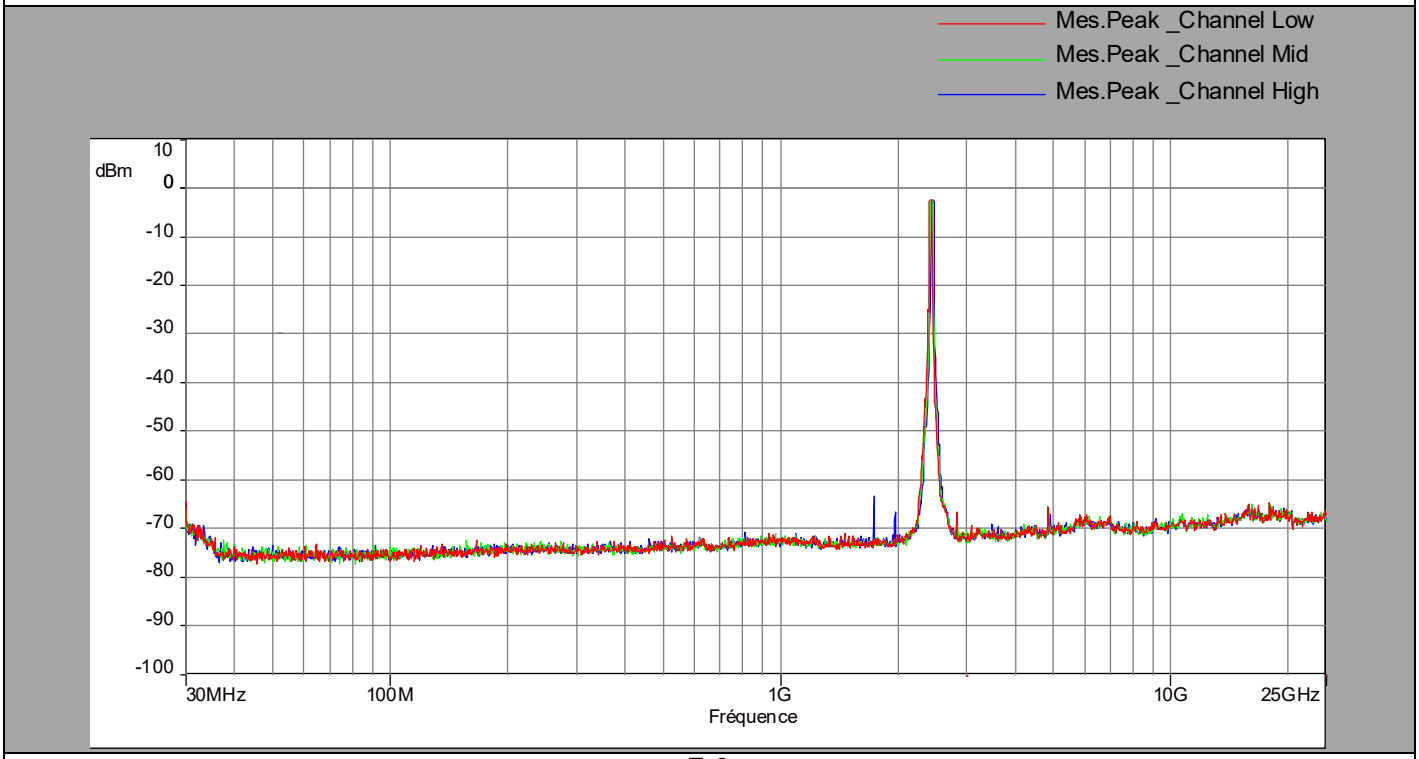
802.11n HT20
Cmin/Cnom/Cmax
Tx1



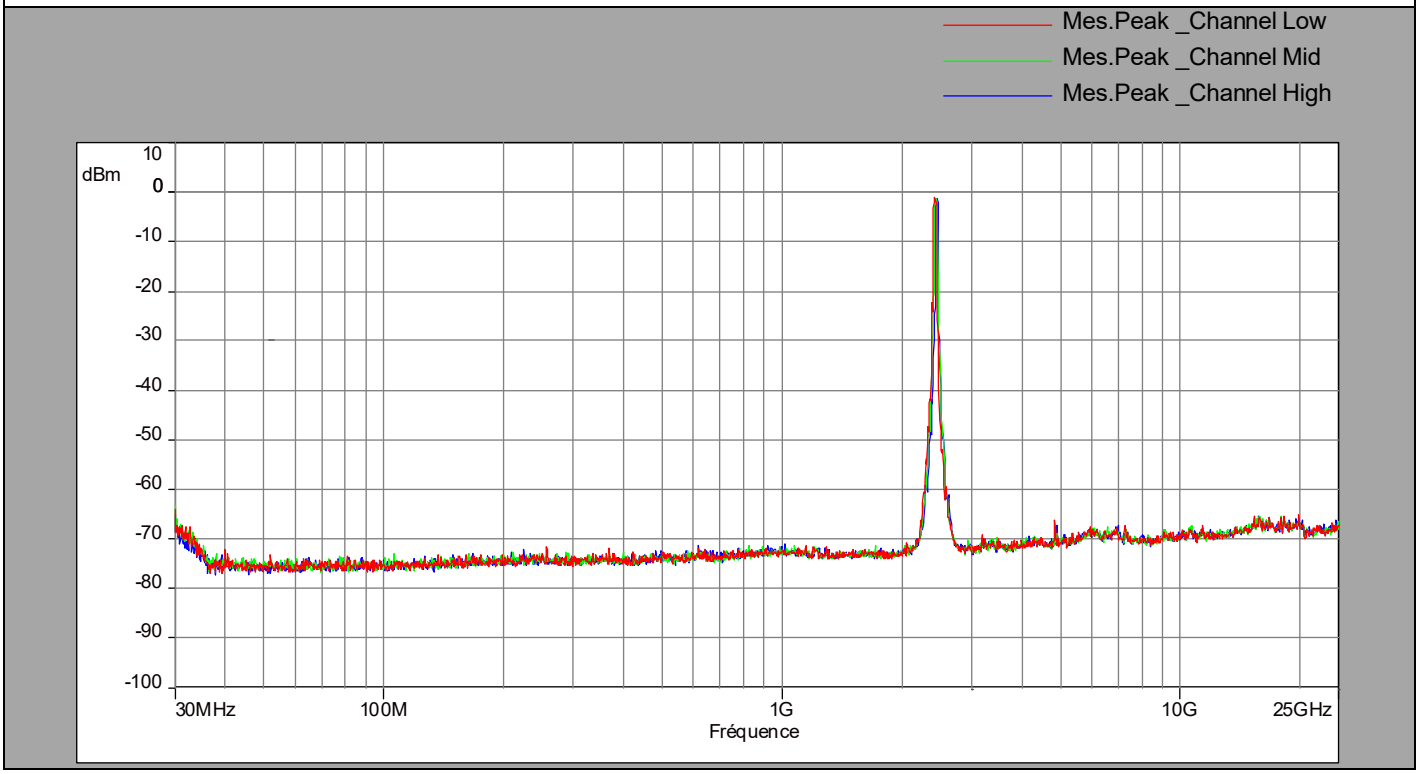
Tx2



802.11n HT40
Cmin/Cnom/Cmax
Tx1



Tx2



802.11b			
Antenna 1			
Frequency (MHz)	**Level (dBm)**	**Level (dBc)**	**Limit (dBc)**
2412	**2.99**		
4824	-55.42	52.43	20
7242	-56.82	53.83	20
2437	**2.80**		
4873	-60.45	57.65	20
2462	**2.97**		
4924	-56.32	53.35	20

802.11b			
Antenna 2			
Frequency (MHz)	**Level (dBm)**	**Level (dBc)**	**Limit (dBc)**
2412	**3.25**		
4824	-57.31	54.03	20
7235	-63.76	60.51	20
2437	**3.67**		
4873	-59.56	55.89	20
7310	-65.23	61.56	20
2462	**3.73**		
4924	-56.52	52.73	20
7387	-65.02	61.29	20

802.11g			
Antenna 1			
Frequency (MHz)	**Level (dBm)**	**Level (dBc)**	**Limit (dBc)**
2412	**-0.76**		
4825	-65.83	65.07	20
2437	**-0.84**		
4875	-69.13	68.29	20
2462	**-0.78**		
4920	-65.26	64.48	20

802.11g			
Antenna 2			
Frequency (MHz)	**Level (dBm)**	**Level (dBc)**	**Limit (dBc)**
2412	**-0.32**		
4824	-65.63	65.31	20
2437	**-0.15**		
4876	-68.82	68.67	20
2462	**-0.37**		
4925	-65.61	65.24	20

802.11n HT20			
Antenna 1			
Frequency (MHz)	**Level (dBm)**	**Level (dBc)**	**Limit (dBc)**
2412	**-0.68**		
4824	-62.59	61.91	20
2437	**0.26**		
4875	-65.47	65.21	20
2462	**0.12**		
4925	-63.18	63.06	20

802.11n HT20			
Antenna 2			
Frequency (MHz)	**Level (dBm)**	**Level (dBc)**	**Limit (dBc)**
2412	**0.04**		
4820	-67.02	66.98	20
2437	**-0.26**		
4875	-68.76	68.50	20
2462	**-0.07**		
4925	-67.15	67.08	20

802.11n HT40			
Antenna 1			
Frequency (MHz)	**Level (dBm)**	**Level (dBc)**	**Limit (dBc)**
2422	**-2.28**		
4856	-65.68	63.40	20
2437	**-2.36**		
4873	-66.98	64.62	20
2452	**-2.34**		
4905	-67.20	63.86	20

802.11n HT40			
Antenna 2			
Frequency (MHz)	**Level (dBm)**	**Level (dBc)**	**Limit (dBc)**
2422	**-1.15**		
4831	-66.27	65.12	20
2437	**-1.36**		
4881	-68.97	67.61	20
2452	**-1.37**		
4905	-67.15	65.78	20

9.7. CONCLUSION

Unwanted Emission into non-restricted frequency bands measurement performed on the sample of the product **SAGEMCOM Mini Sound Box MSBDV00,** SN: **253837310**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247 & RSS 247 ISSUE 2** limits.

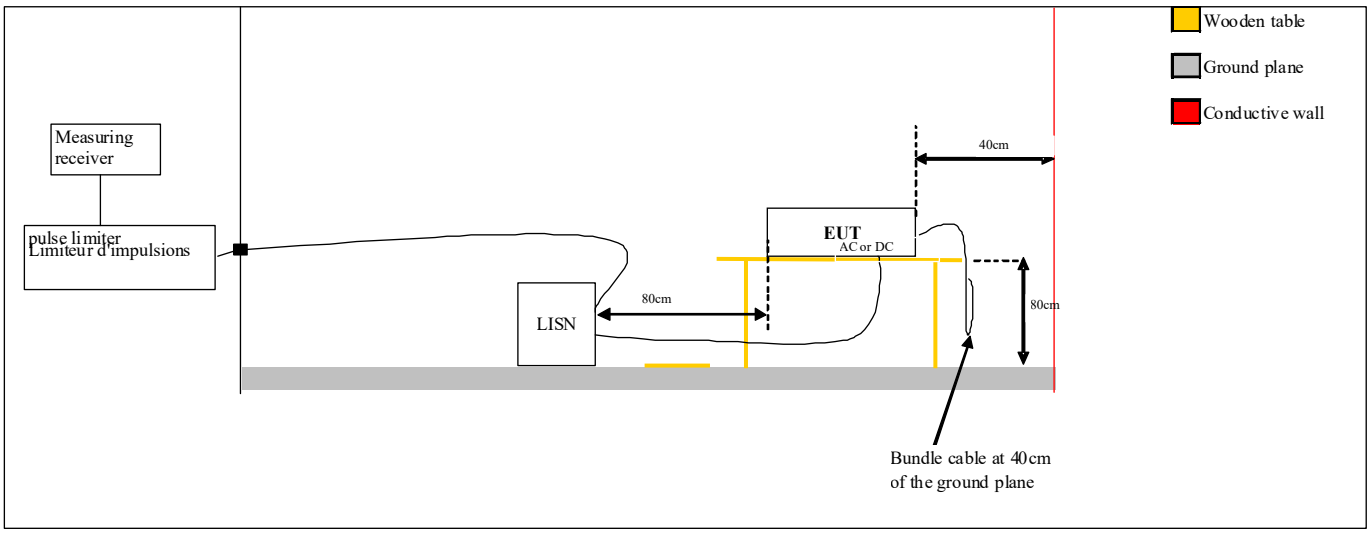
10. AC POWER LINE CONDUCTED EMISSIONS

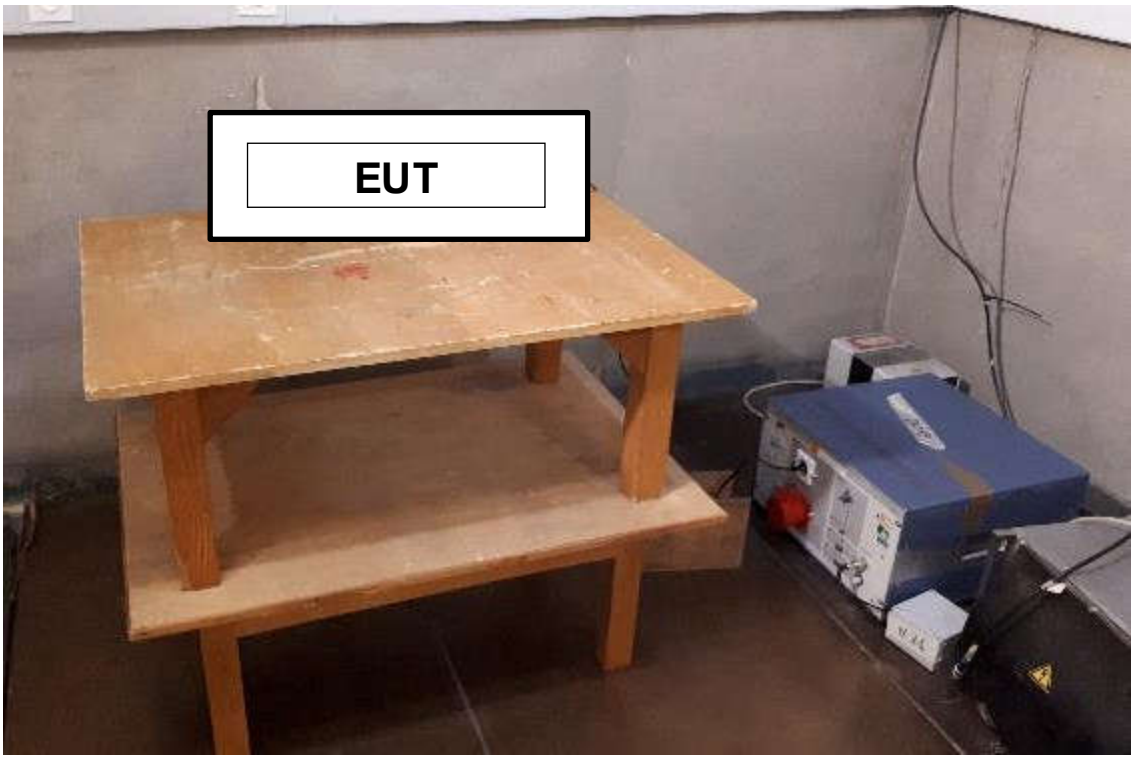
10.1. TEST CONDITIONS

Test performed by	: Laurent Deneux
Date of test	: October 18, 2019
Ambient temperature	: 21°C
Relative humidity	: 47%

10.2. TEST SETUP

The product has been tested according to ANSI C63.10 (2013) method. The EUT is placed on the ground reference plane, at 80cm from the LISN. The distance between the EUT and the vertical ground plane is 40cm. Auxiliaries are powered by another LISN. The cable has been shorted to 1meter length. The EUT is powered through the LISN. Measurement is made with a receiver in peak mode. This was followed by a Quasi-Peak, i.e. CISPR measurement for any strong signal. If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary. The LISN (measure) is 50Ω / 50µH. Interconnecting cables and equipment's were moved to position that maximized emission.





Photograph for AC Power Line Conducted Emissions (Front view)

Test set up of conducted emission on power supply

10.3. LIMIT

Frequency range	Level	Detector
0,15kHz to 0,5MHz	66dBµV to 56µV*	QPeak
	56dBµV to 46µV*	Average
0,5MHz to 5MHz	56dBµV	QPeak
	46dBµV	Average
5MHz to 30MHz	60BµV	QPeak
	50dBµV	Average

*Decreases with the logarithm of the frequency

10.4. TEST EQUIPMENT LIST

Test equipment used					
Description	**Manufacturer**	**Model**	**Identifier**	**Last Calibration date**	**Calibration due date**
EMI Test Receiver	ROHDE & SCHWARZ	ESIB26	A2642021	10/2018	10/2020
V ISLN	ROHDE & SCHWARZ	ESH2-Z5	C2322001	08/2018	08/2019
Limiter	ROHDE & SCHWARZ	ESH3-Z2	A2649008	03/2019	03/2020
Cable	-	-	A5329417	09/2018	09/2019
Cable	-	-	A5329589	09/2018	09/2019
Ground plane	LCIE	-	-	-	-

Note: In our quality system, the test equipment calibration due is more & less 2 months

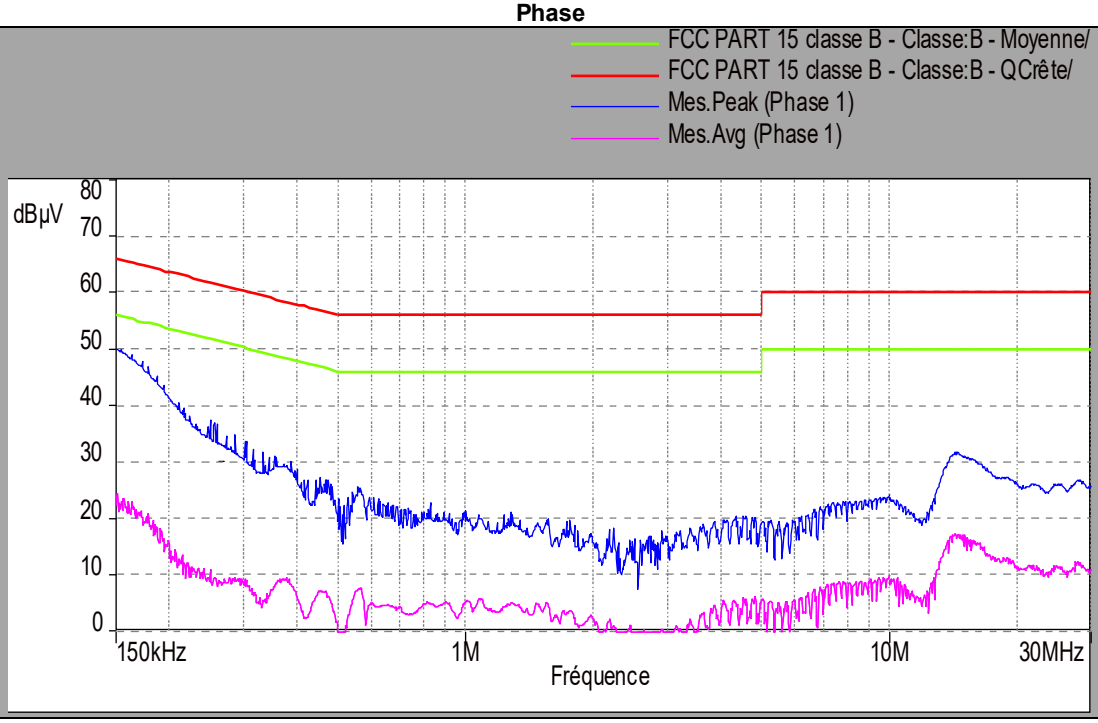
10.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

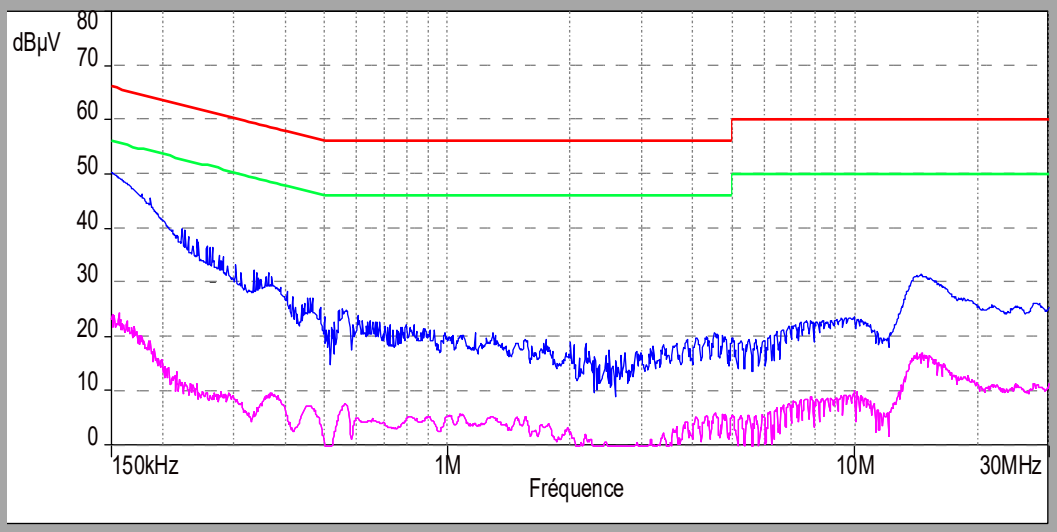
10.6. RESULTS

120V/60Hz

Phase



Line



Result for Phase 120V/60Hz :

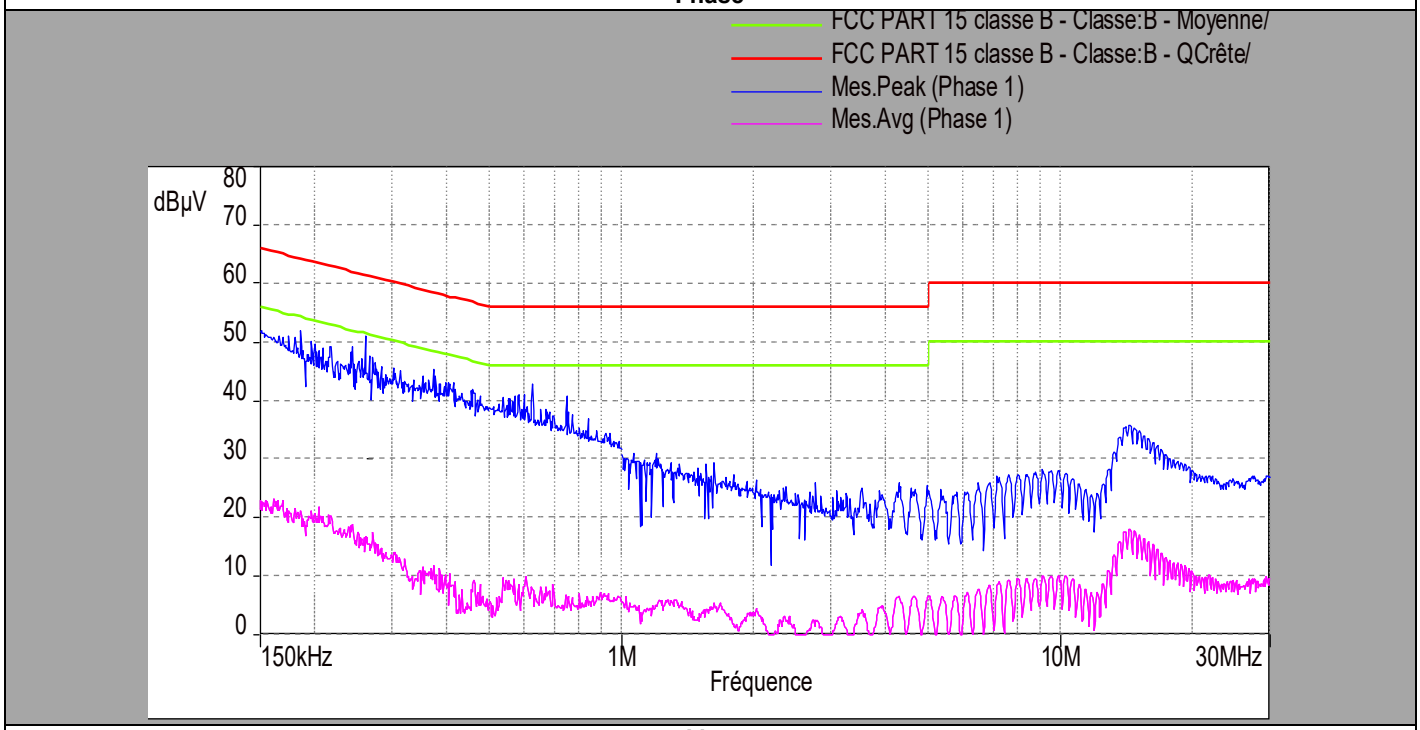
Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin peak/Quasi Peak (dB)	Average Level (dBµV)	Average Limit (dBµV)	Margin Avg/Avg (dB)
0.15	50	-	66	16	22.3	56	33.7
0.56	24.6	-	56	31.4	7.4	46	38.6
5.52	19.6	-	56	36.4	5.4	46	40.6
14.3	31	-	60	29	16.4	50	33.6
21.7	26	-	60	34	11.5	50	38.5

Result for Line 120V/60Hz :

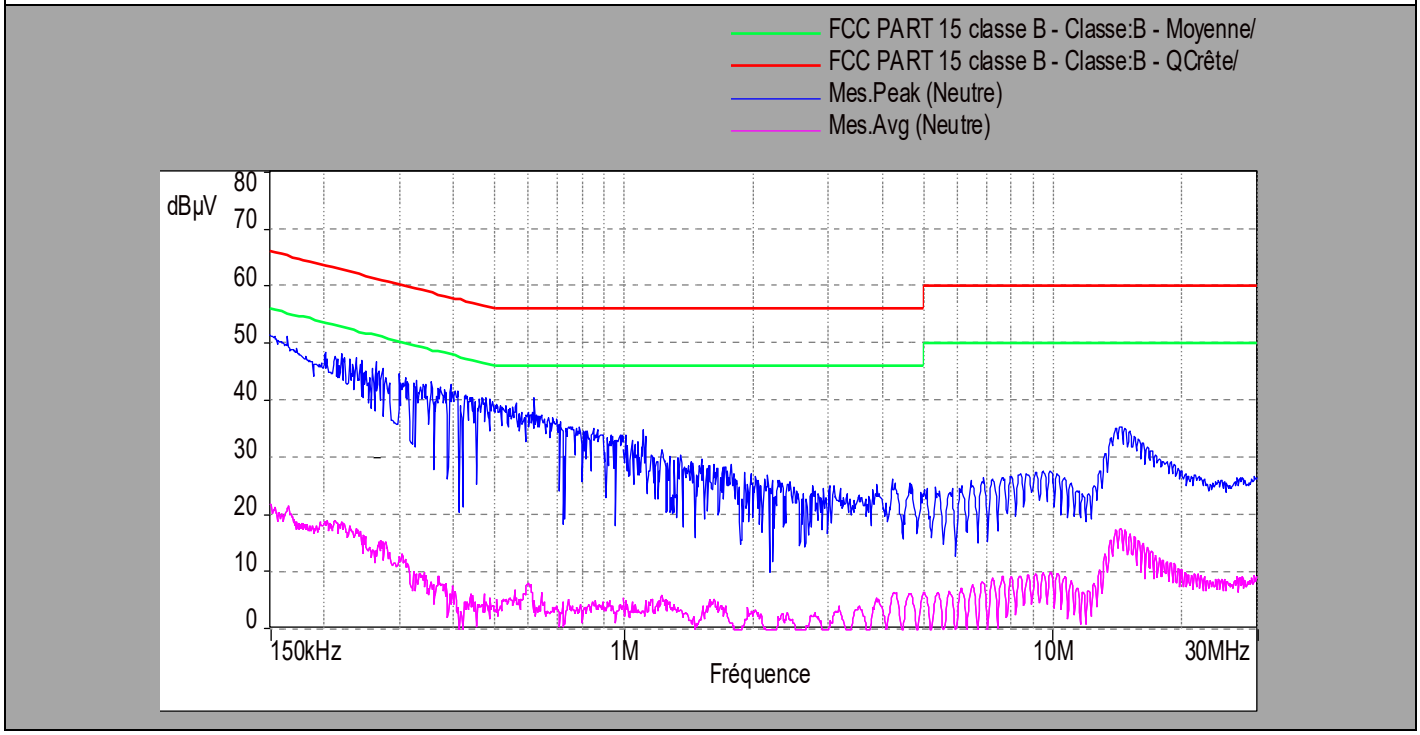
Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin peak/Quasi Peak (dB)	Average Level (dBµV)	Average Limit (dBµV)	Margin Avg/Avg (dB)
0.15	50	-	66	16	23.4	56	32.6
0.56	24.4	-	56	31.6	7.4	46	38.6
4.55	20	-	56	36	5.7	46	40.3
14.25	31.25	-	60	28.75	17	50	33
21.88	25.5	-	60	34.5	11.2	50	38.8

240V/50Hz

Phase



Line



Result for Phase 240V/50Hz :

Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin peak/Quasi Peak (dB)	Average Level (dBµV)	Average Limit (dBµV)	Margin Avg/Avg (dB)
0.154	51.3	-	65.9	14.6	22.8	55.9	33.1
0.261	51	-	61.4	10.4	16.7	51.4	34.7
0.626	42.7	-	56	13.3	10	46	36
8	28.7	-	60	31.3	10	50	40
14.4	35.5	-	60	24.5	17.4	50	32.6

Result for Line 240V/50Hz :

Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin peak/Quasi Peak (dB)	Average Level (dBµV)	Average Limit (dBµV)	Margin Avg/Avg (dB)
0.15	51.3	-	66	14.7	21.8	56	34.2
0.61	40.3	-	56	15.7	8	46	38
1.25	28.3	-	56	27.7	5	46	41
9.52	27.5	-	60	32.5	9.7	50	40.3
14.4	35.3	-	60	24.7	17.6	50	32.4

10.7. CONCLUSION

Ac Power Line Conducted Emission measurement performed on the sample of the product **SAGEMCOM Mini Sound Box MSBDV00,** SN: **253837310**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.247 & RSS 247 ISSUE 2 limits.

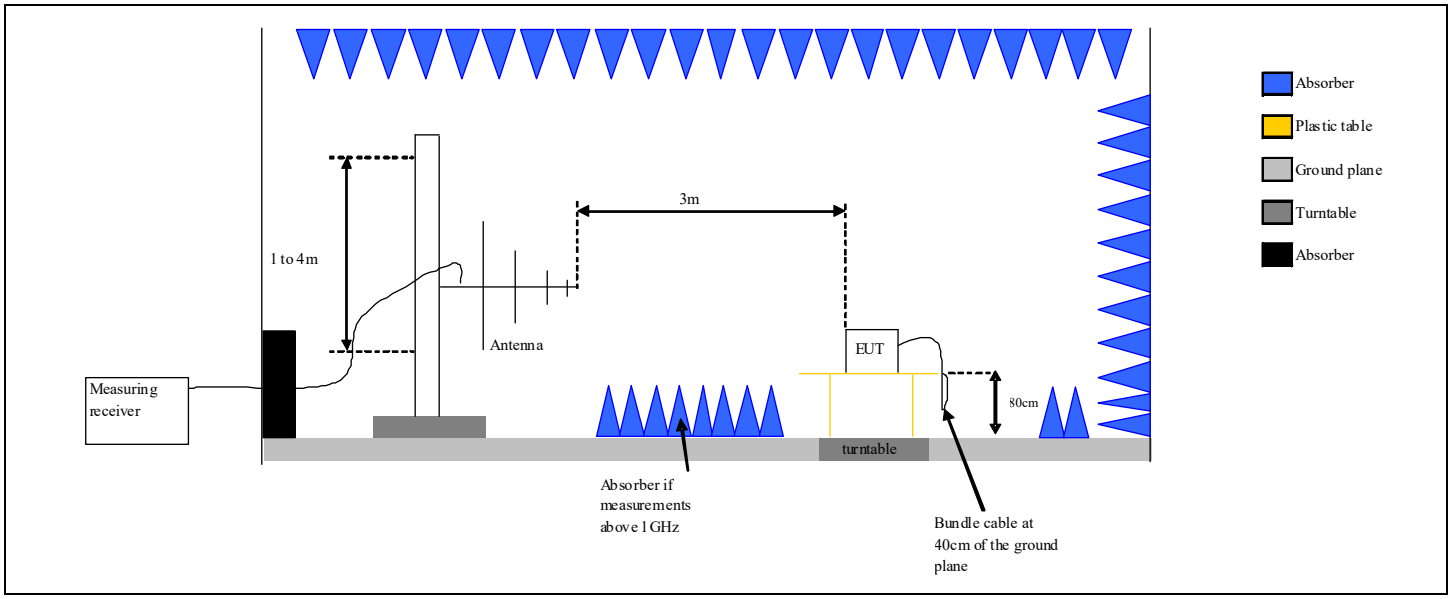
11. UNWANTED EMISSIONS IN RESTRICTED FREQUENCY BANDS

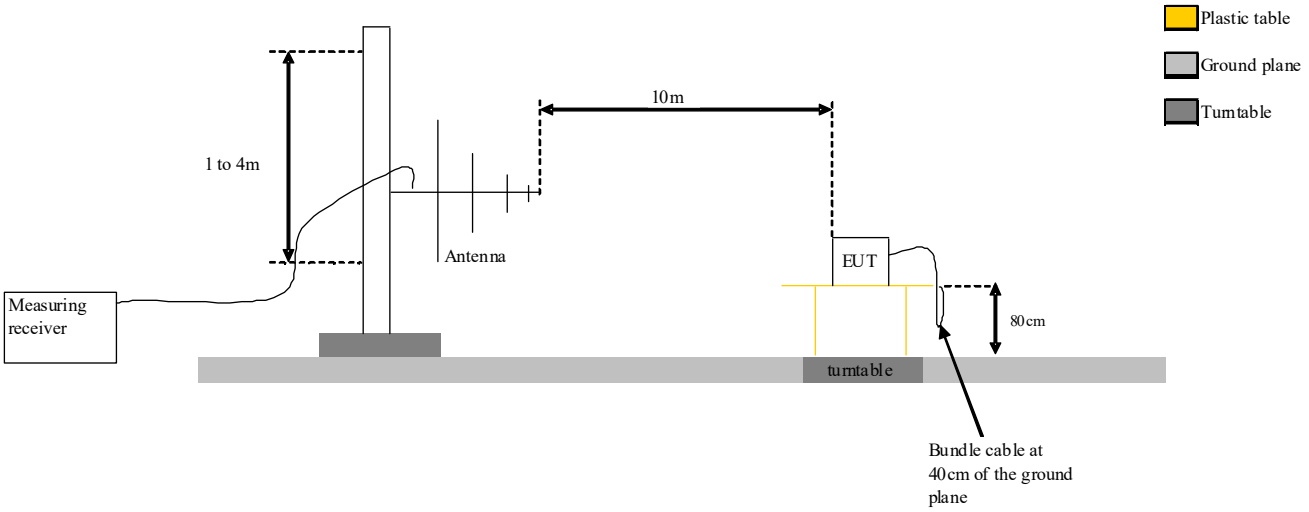
11.1. TEST CONDITIONS

Test performed by	: Armand MAHOUNGOU & Laurent DENEUX
Date of test	: October 10, 2019 to October 18, 2019
Ambient temperature	: 26°C & 24°C
Relative humidity	: 52% & 49%

11.2. TEST SETUP

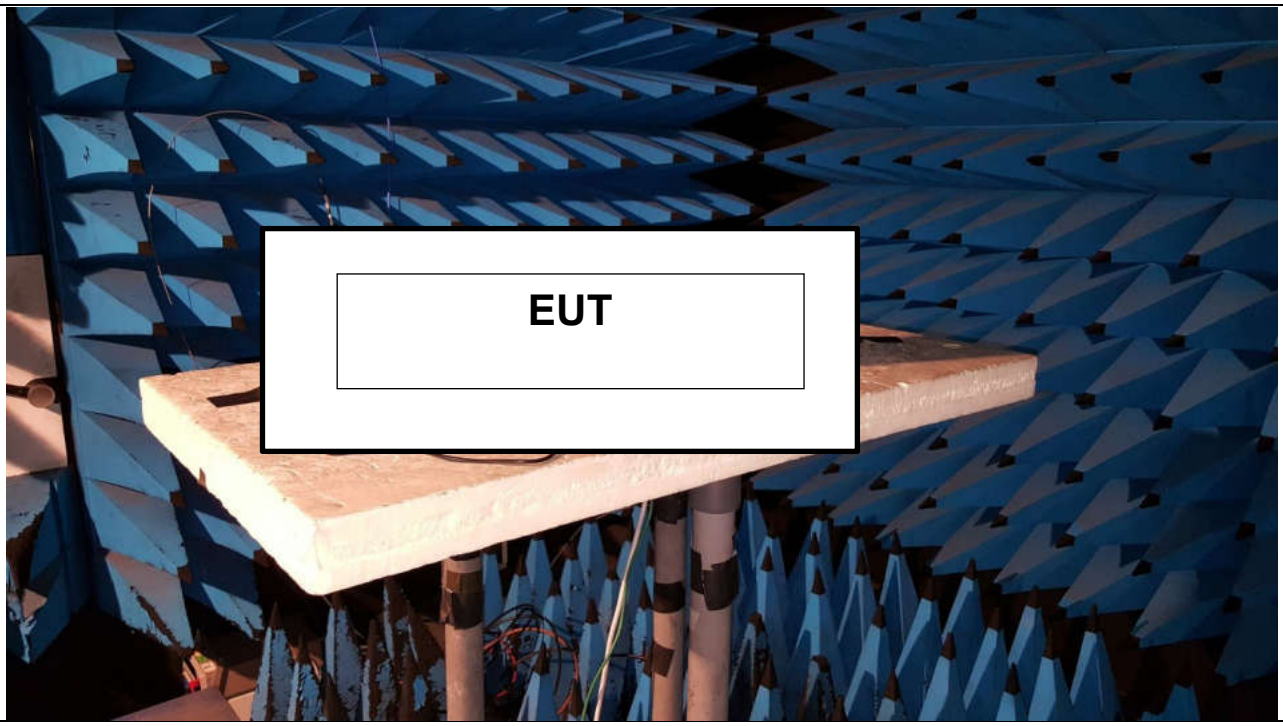
The product has been tested according to ANSI C63.10 (2013) and FCC part15 subpart C.
Test is performed in parallel, perpendicular and ground parallel axis with a loop antenna below 30MHz. Measurement bandwidth was 200Hz below 150kHz and 9kHz between 150kHz & 30MHz. The level has been maximised by the turntable rotation of 360 degrees range on the 3 axis of EUT. Antenna height was 1m. The EUT is placed **on an open area test site**. Distance between measuring antenna and the EUT is **3m**.
Test is performed in horizontal (H) and vertical (V) polarization with **bilog** between 30MHz & 1GHz and with a horn antenna above 1GHz. Measurement bandwidth was 120kHz below 1GHz and 1MHz above 1GHz. The level has been maximised by the turntable rotation of 360 degrees range on the 3 axis of EUT. Antenna height search was performed from 1 to 4m. The EUT is place at 1.5m high above 1GHz and at 0.8m high under 1GHz. The EUT is placed **in a full anechoic chamber** above 1GHz and **on an open area test site** from 30MHz to 1GHz. Distance between measuring antenna and the EUT is **3m** and **10m** respectively.



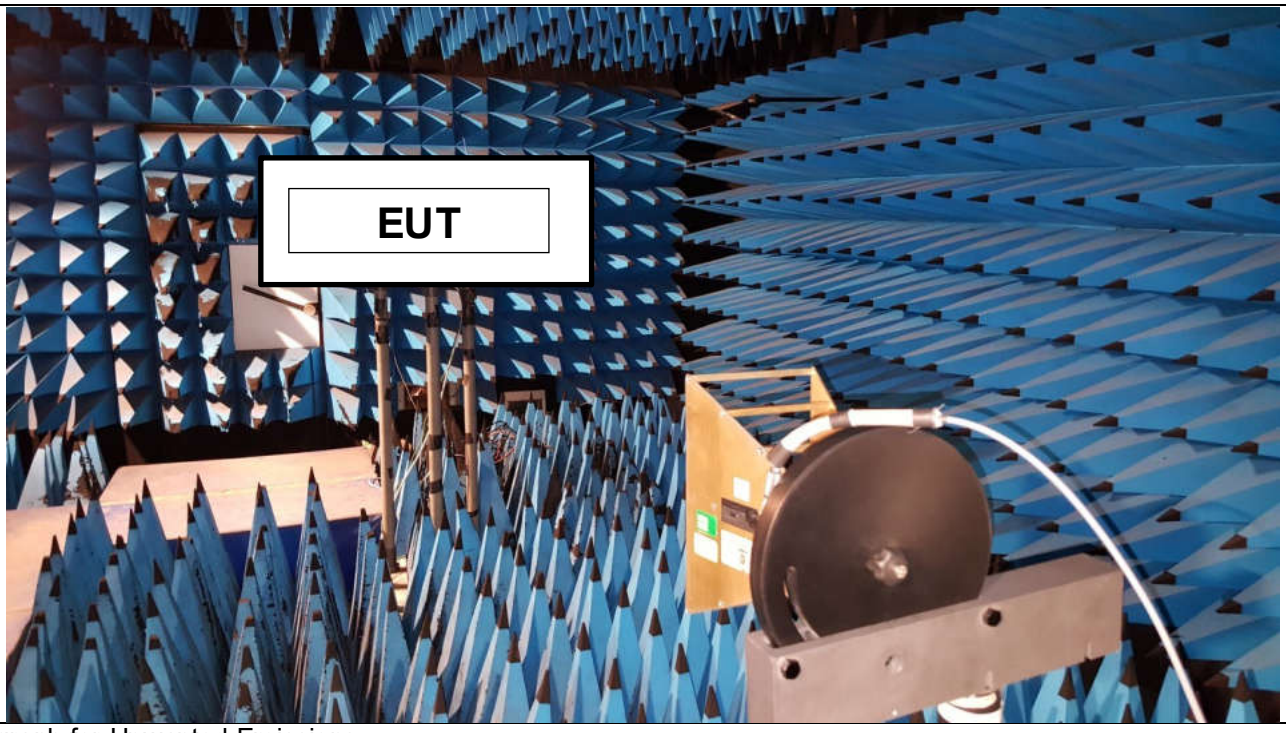


Test Set up for radiated measurement in open area test site

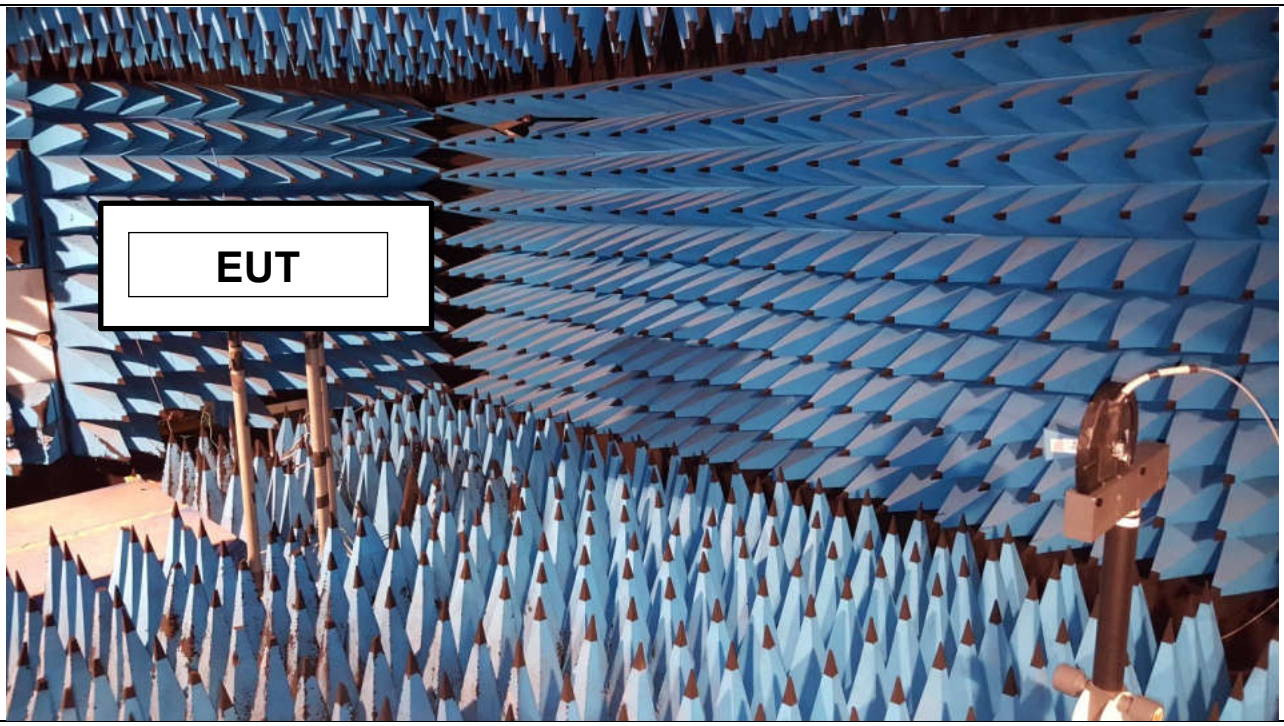
Photograph for Unwanted Emission in restricted frequency bands



Photograph for Unwanted Emissions



Photograph for Unwanted Emissions



Photograph for Unwanted Emissions

11.3. LIMIT

Measure at 300m		
Frequency range	**Level**	**Detector**
9kHz-490kHz	67.6dBµV/m /F(kHz)	QPeak
Measure at 30m		
Frequency range	**Level**	**Detector**
490kHz-1.705MHz	87.6dBµV/m /F(kHz)	QPeak
1.705MHz-30MHz	29.5dBµV/m	QPeak
Measure at 10m		
Frequency range	**Level**	**Detector**
30MHz to 88MHz	29.5dBµV/m	QPeak
88MHz to 216MHz	33dBµV/m	QPeak
216MHz to 960MHz	35.5BµV/m	QPeak
960MHz to 1000MHz	43.5dBµV/m	QPeak
Above 1000MHz	63.5dBµV/m	Peak
	43.5dBµV/m	Average
Measure at 3m		
Frequency range	**Level**	**Detector**
30MHz to 88MHz	40dBµV/m	QPeak
88MHz to 216MHz	43.5dBµV/m	QPeak
216MHz to 960MHz	46BµV/m	QPeak
960MHz to 1000MHz	54dBµV/m	QPeak
Above 1000MHz	74dBµV/m	Peak
	54dBµV/m	Average

11.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Full anachoic chamber	SIEPEL	-	D3044019	2018/10	2022/10
Preamplifier	Bonn Elektronik	BLNA 3018-8F305	A7080053	2018/12	2020/12
Horn antenna	AH SYSTEMS	SAS 571	C2042041	2017/09	2019/09
Horn antenna (18-26,5GHz)	PASTERNACK	PE9852/2F-20	C2042048	2017/12	2019/12
EMI receiver	ROHDE & SCHWARZ	FSV40GHz	A4060061	2019/05	2021/05
Cable S36 chamber	PASTERNACK	PE360-1500CM	A5329870	2019/01	2020/01
Cable S36 chamber	PASTERNACK	PE360-1000CM	A5329871	2019/01	2020/01
Cable S36 chamber	PASTERNACK	PE360-3000CM	A5329872	2019/01	2020/01
High Pass Filter 2,4GHz	WAINWRIGHT	WHK12-2494	A7484068	2019/07	2021/07
Open test site	LCIE	-	F2000400	2019-06	2020-06
EMI Test Receiver	ROHDE & SCHWARZ	ESIB26	A2642021	2018-10	2020-10
Bilog antenna	CHASE	CBL 6112A	C2040040	2019-04	2020-04
Cable	-	-	A5329442	2018-09	2019-09
Cable	-	-	A5329444	2018-09	2019-09
Cable	-	-	A5329876	2018-11	2019-11
loop antenna	RHODE & SCHWARZ	HFH2-Z2	C2040007	2018-11	2020-11
Cable	-	-	A5329442	2018-09	2019-09
Cable	-	-	A5329416	2018-12	2019-12

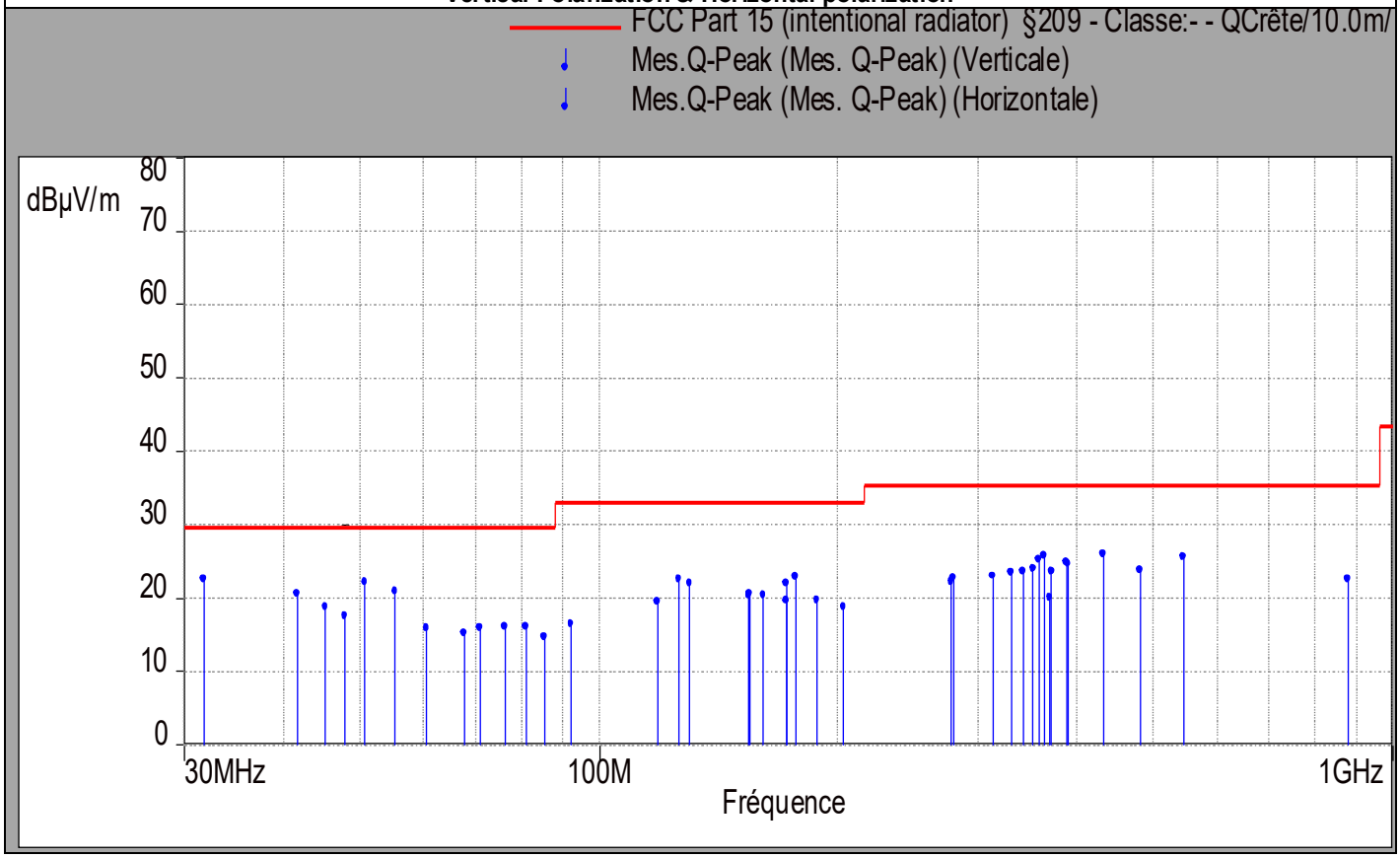
Note: In our quality system, the test equipment calibration due is more & less 2 months

11.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

11.6. RESULTS

802.11b
Below 1GHz
Vertical Polarization & Horizontal polarization



802.11b

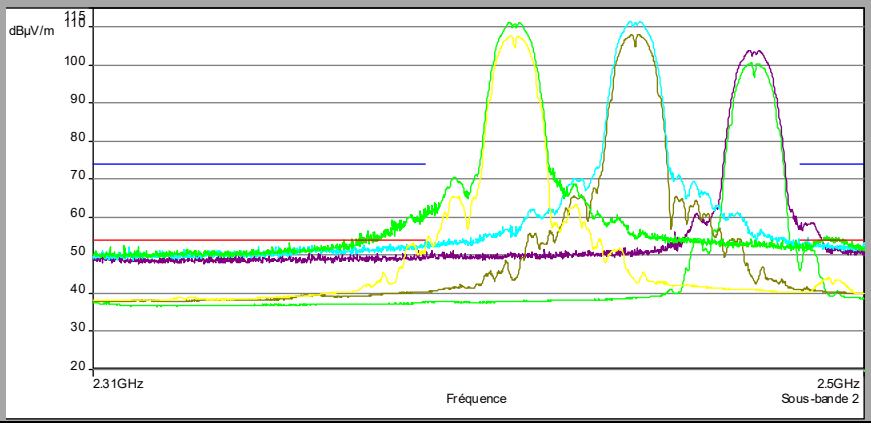
Cmin/Cnom/Cmax

Zoom 2310MHz-2500MHz

Vertical Polarization

FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
Mes.Peak _Channel Low - Verticale (Verticale)
Mes.Avg _Channel Low - Verticale (Verticale)
Mes.Peak _Channel Mid - Verticale (Verticale)
Mes.Avg _Channel Mid - Verticale (Verticale)
Mes.Peak _Channel High - Verticale (Verticale)
Mes.Avg _Channel High - Verticale (Verticale)

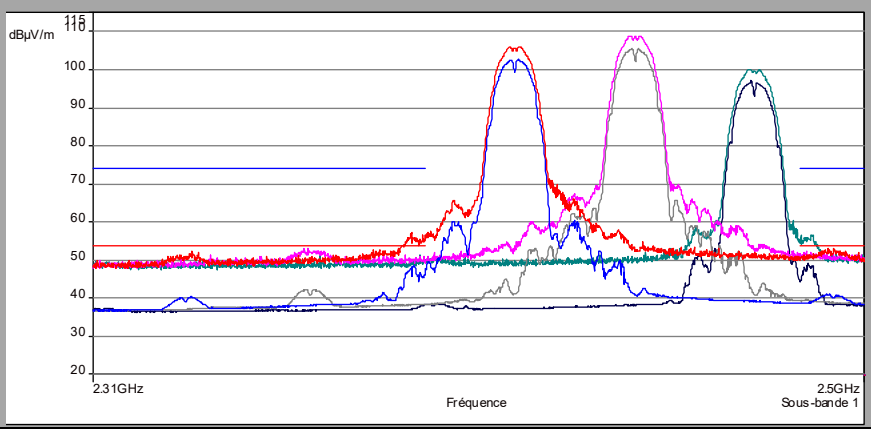
Description Sous-bande 2
Fréquences: 2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 2 ms/Pts, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp : (
Polarisation: Verticale
Distance : 3 m



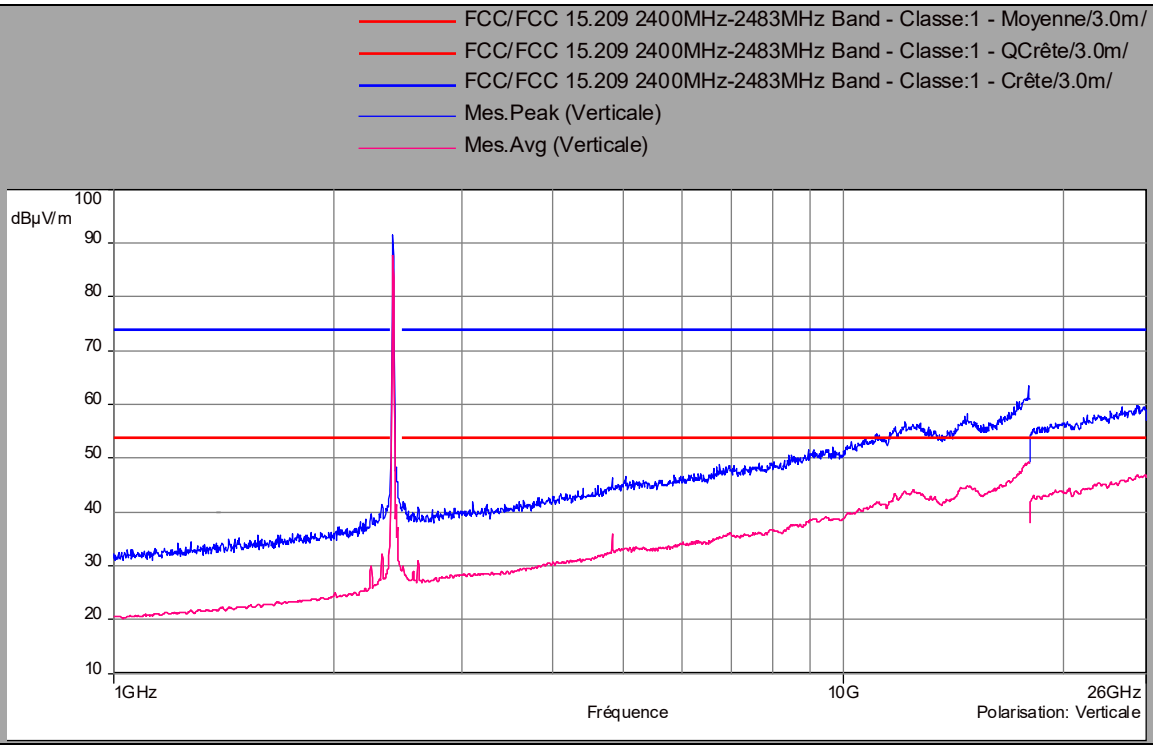
Horizontal polarization

FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
Mes.Peak _Channel Low - Horizontale (Horizontale)
Mes.Avg _Channel Low - Horizontale (Horizontale)
Mes.Peak _Channel Mid - Horizontale (Horizontale)
Mes.Avg _Channel Mid - Horizontale (Horizontale)
Mes.Peak _Channel High - Horizontale (Horizontale)
Mes.Avg _Channel High - Horizontale (Horizontale)

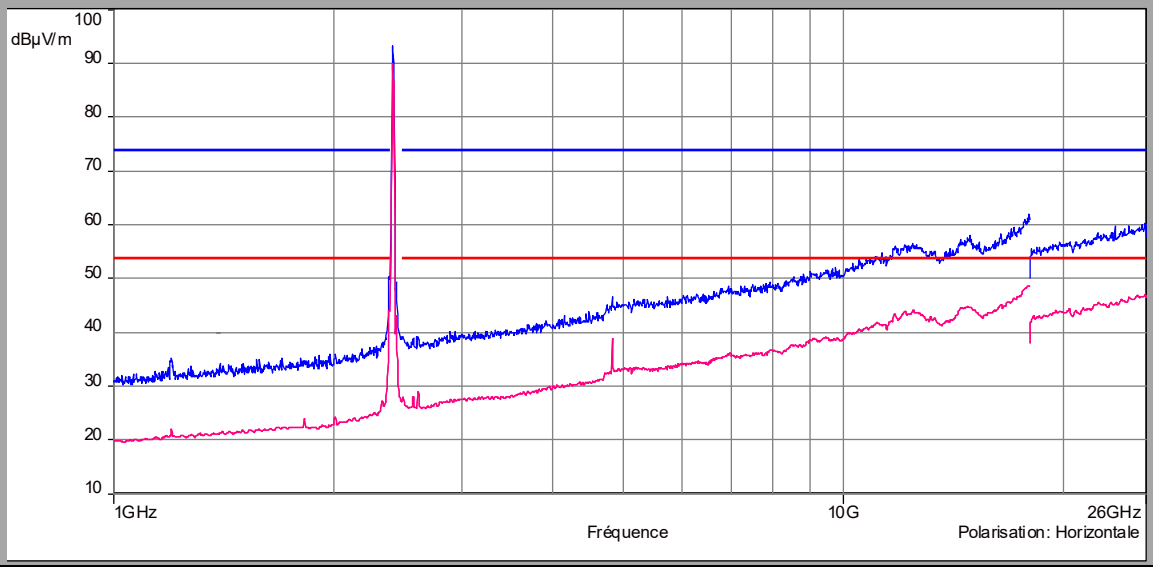
Description Sous-bande 1
Fréquences: 2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 2 ms/Pts, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp : (
Polarisation: Horizontale
Distance : 3 m



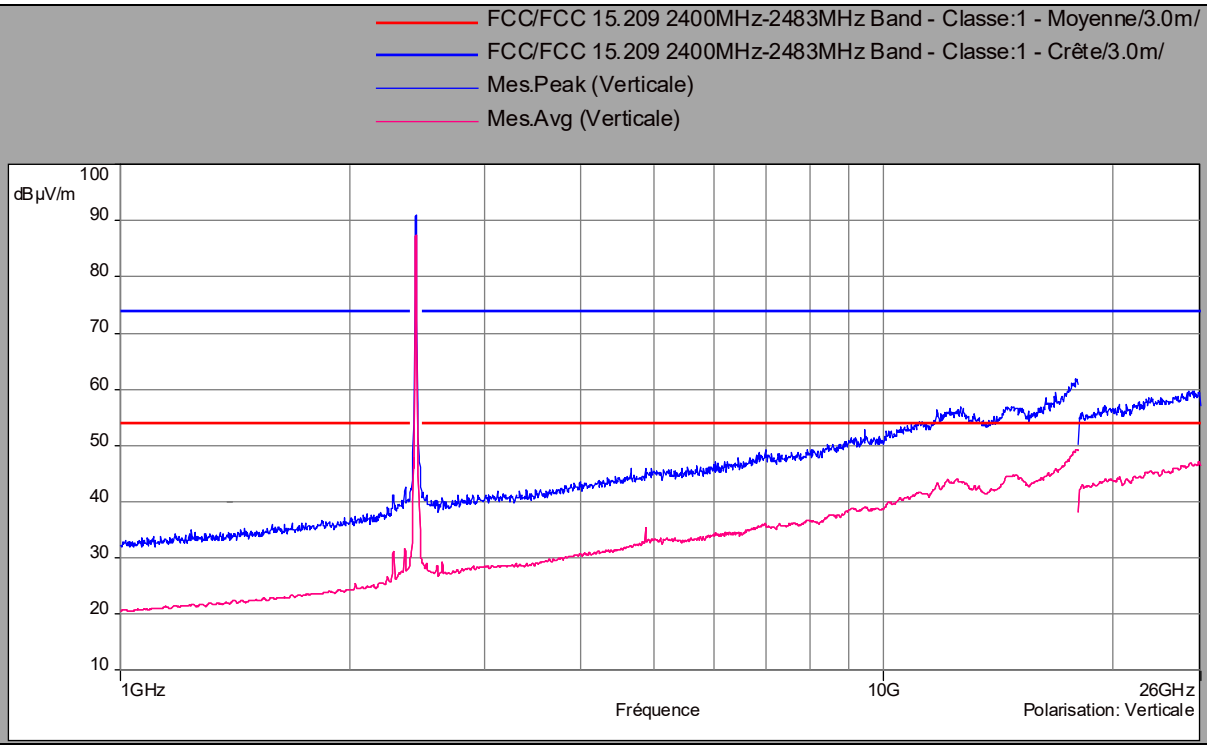
802.11b
Cmin
Above 1GHz
Vertical Polarization



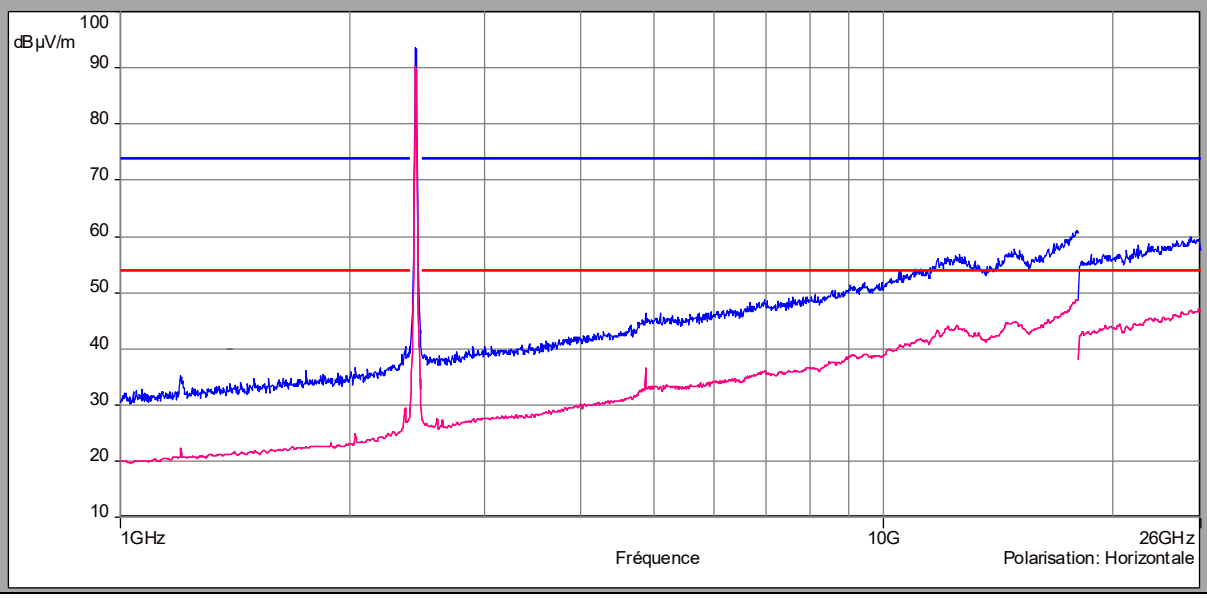
Horizontal polarization



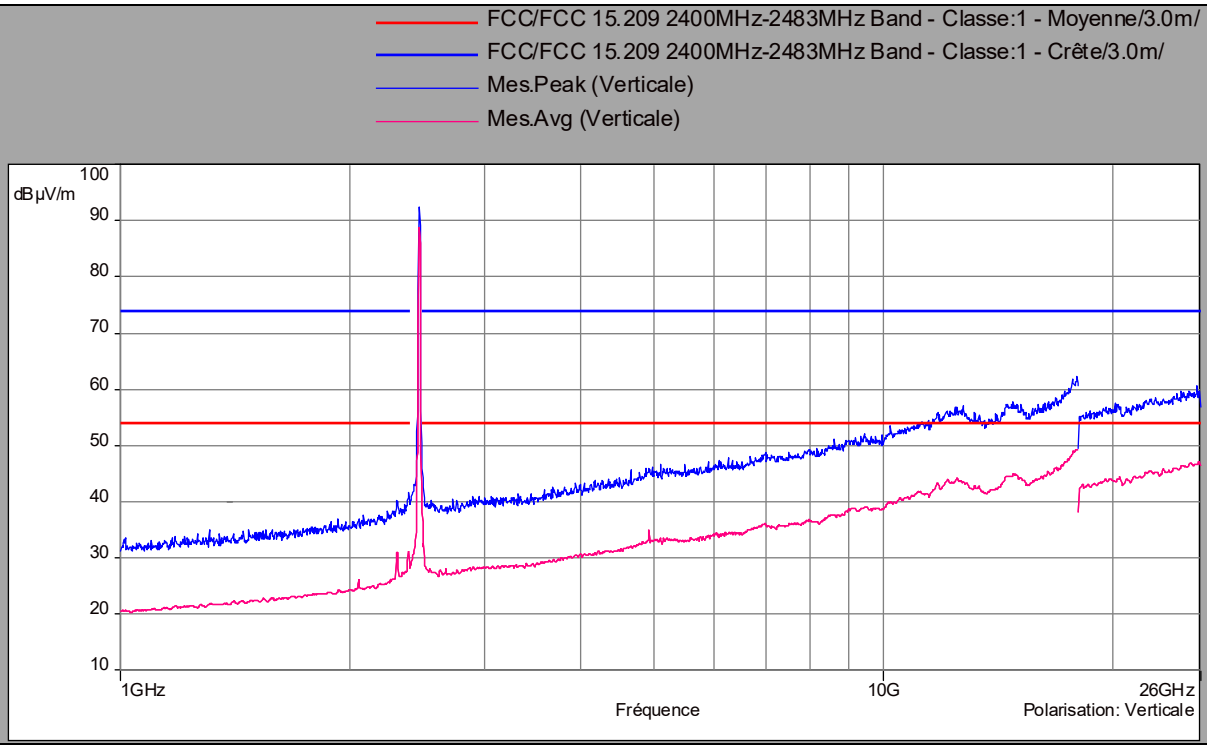
802.11b
Cnom
Above 1GHz
Vertical Polarization



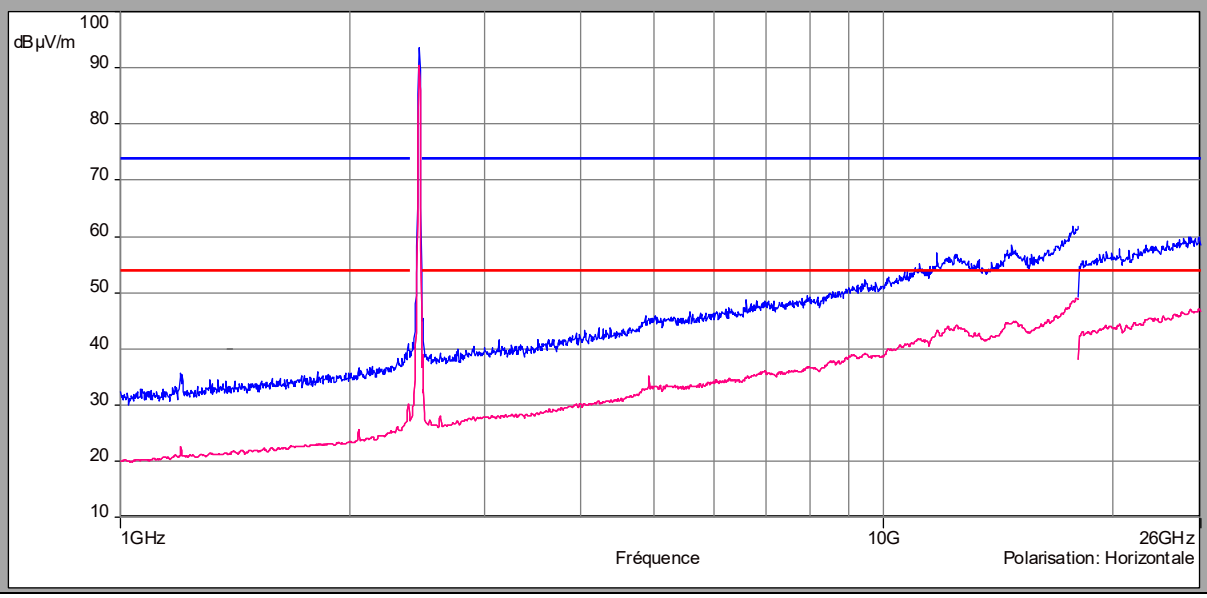
Horizontal polarization



802.11b
Cmax
Above 1GHz
Vertical Polarization



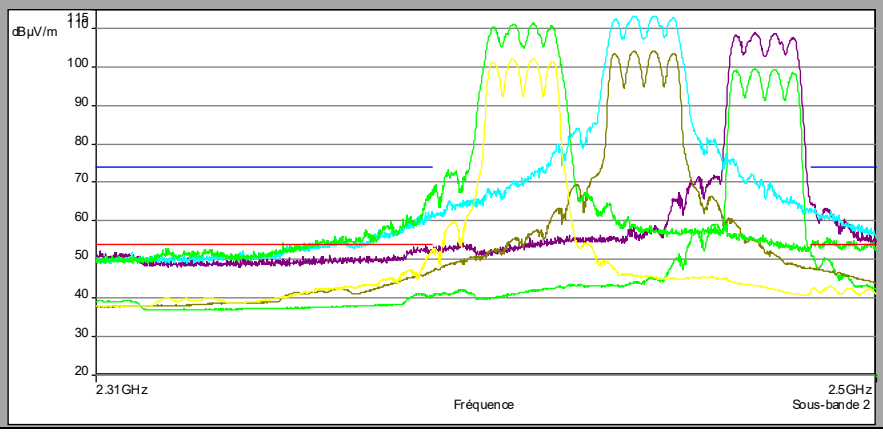
Horizontal polarization



802.11g
Cmin/Cnom/Cmax
Zoom 2310MHz-2500MHz
Vertical Polarization

FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
Mes.Peak _Channel Low - Verticale (Verticale)
Mes.Avg _Channel Low - Verticale (Verticale)
Mes.Peak _Channel Mid - Verticale (Verticale)
Mes.Avg _Channel Mid - Verticale (Verticale)
Mes.Peak _Channel High - Verticale (Verticale)
Mes.Avg _Channel High - Verticale (Verticale)

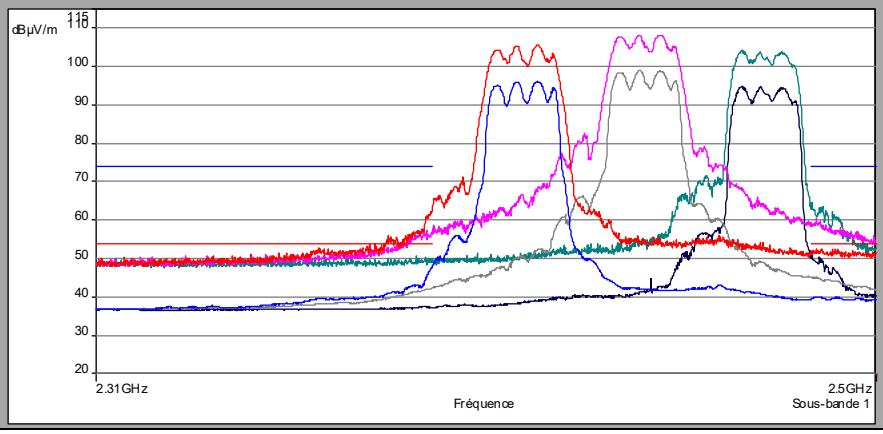
Description Sous-bande 2
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 2 ms/Pts, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp : (
Polarisation:Verticale
Distance: 3 m



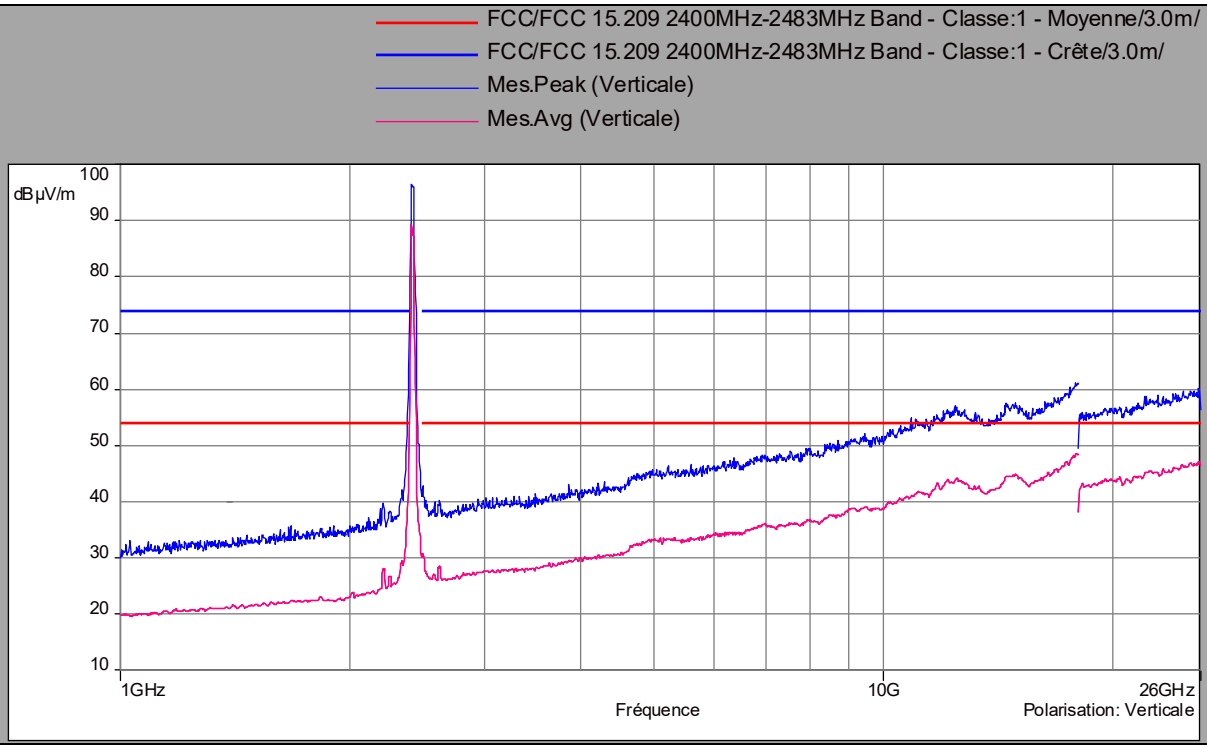
Horizontal polarization

FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
Mes.Peak _Channel Low - Horizontale (Horizontale)
Mes.Avg _Channel Low - Horizontale (Horizontale)
Mes.Peak _Channel Mid - Horizontale (Horizontale)
Mes.Avg _Channel Mid - Horizontale (Horizontale)
Mes.Peak _Channel High - Horizontale (Horizontale)
Mes.Avg _Channel High - Horizontale (Horizontale)

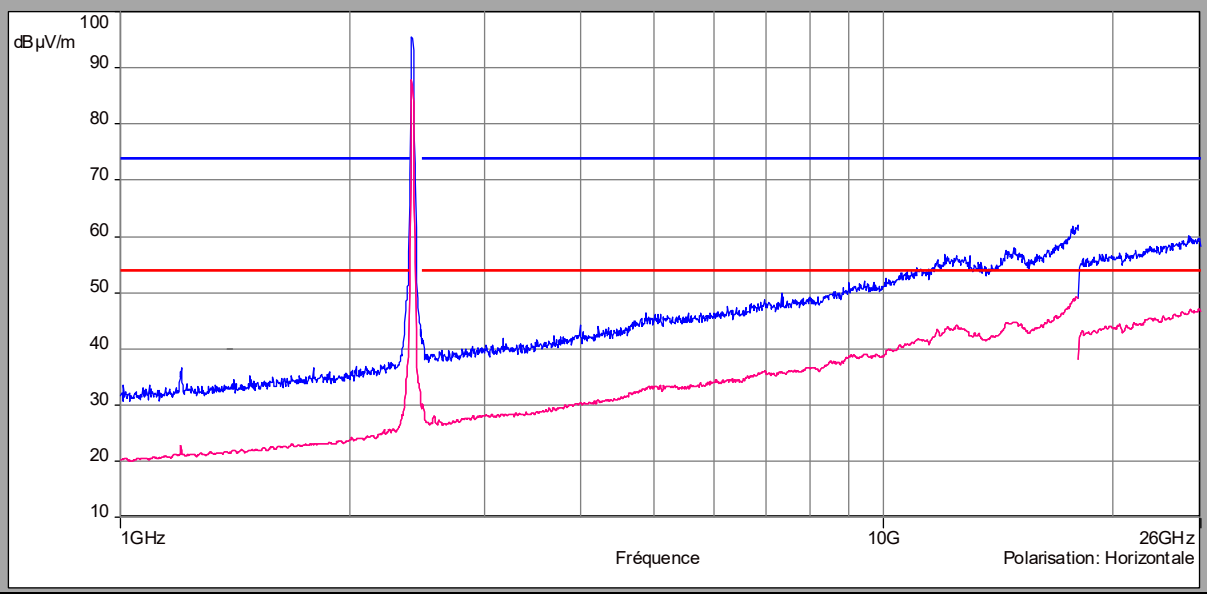
Description Sous-bande 1
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 2 ms/Pts, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp : (
Polarisation:Horizontale
Distance: 3 m



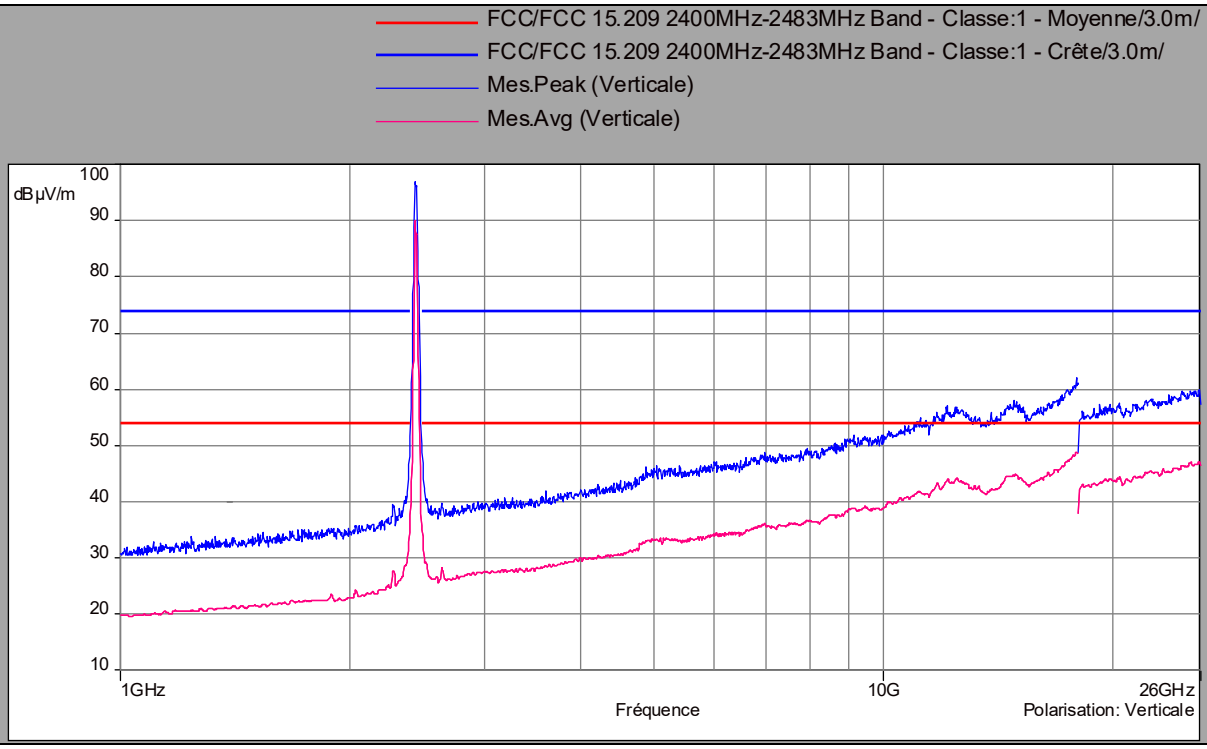
802.11g
Cmin
Above 1GHz
Vertical Polarization



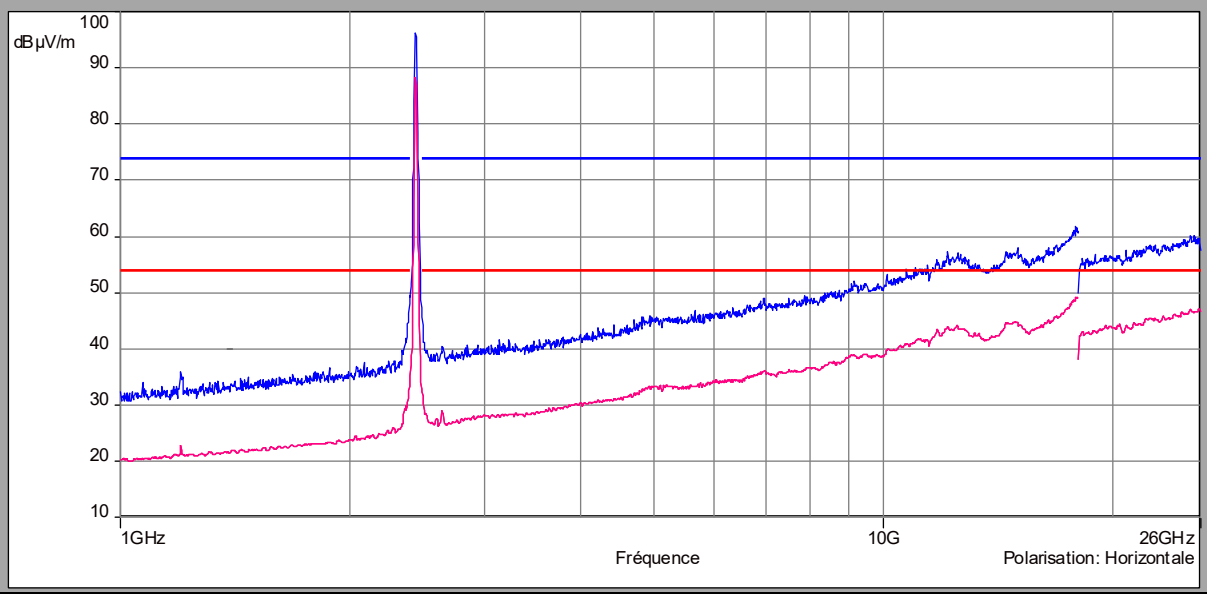
Horizontal polarization



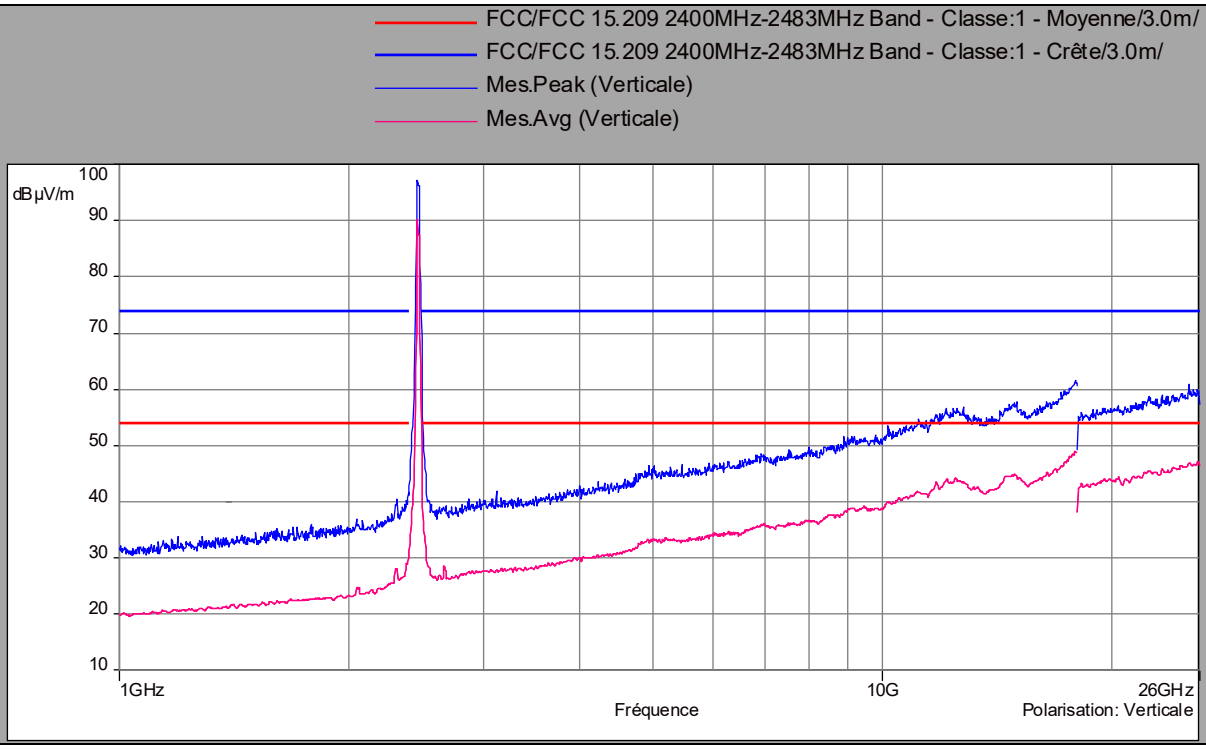
802.11g
Cnom
Above 1GHz
Vertical Polarization



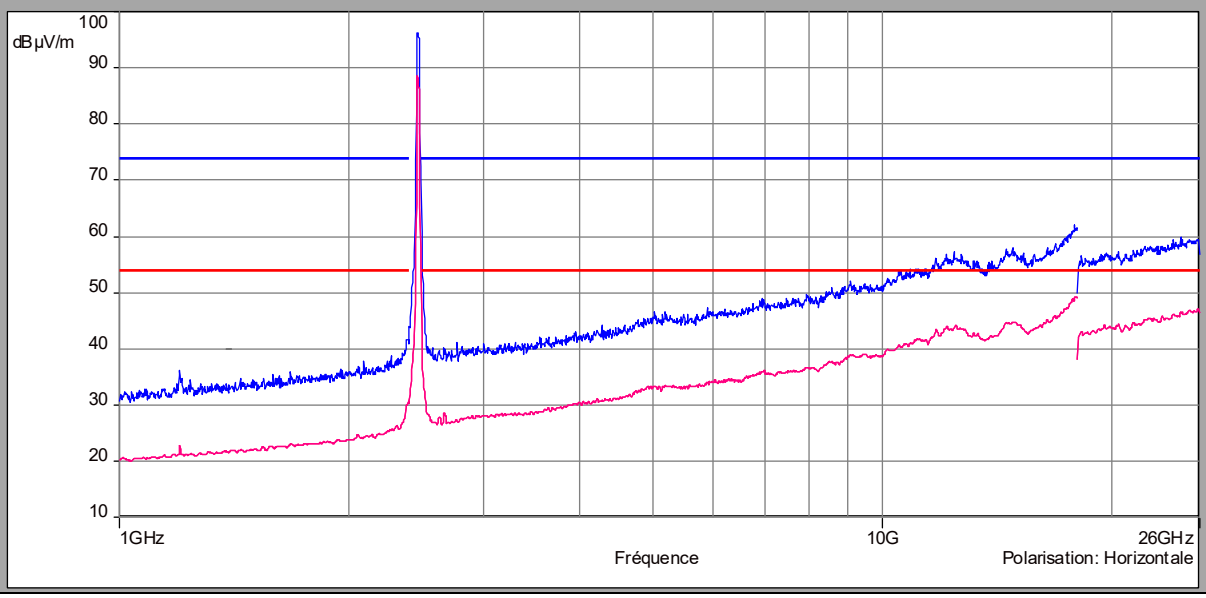
Horizontal polarization



802.11g
Cmax
Above 1GHz
Vertical Polarization



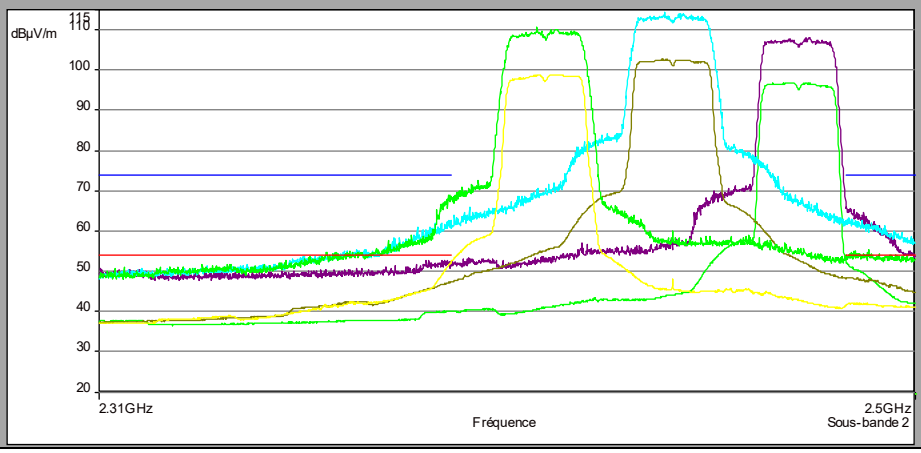
Horizontal polarization



802.11n HT20
Cmin/Cnom/Cmax
Zoom 2310MHz-2500MHz
Vertical Polarization

FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
Mes.Peak _Channel Low - Verticale (Verticale)
Mes.Avg _Channel Low - Verticale (Verticale)
Mes.Peak _Channel Mid - Verticale (Verticale)
Mes.Avg _Channel Mid - Verticale (Verticale)
Mes.Peak _Channel High - Verticale (Verticale)
Mes.Avg _Channel High - Verticale (Verticale)

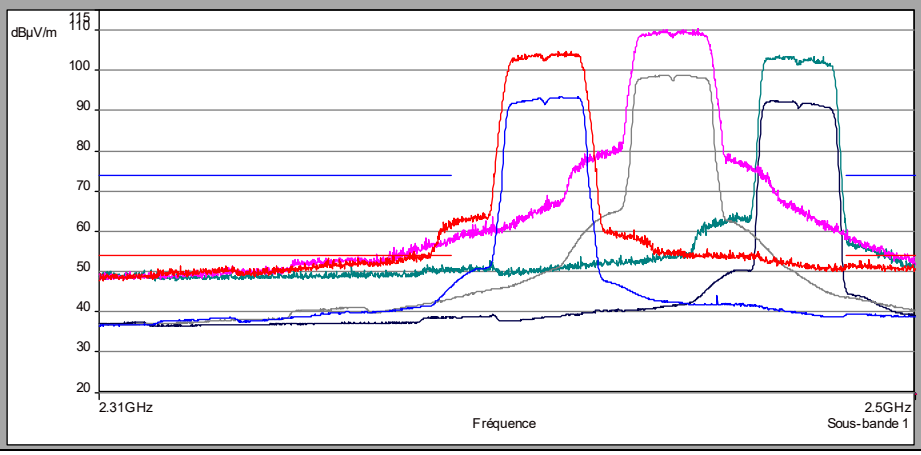
Description Sous-bande 2
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage: 2 ms/Pts, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp : On: 10 dB, LN Prea
Polarisation:Verticale
Distance: 3m



Horizontal polarization

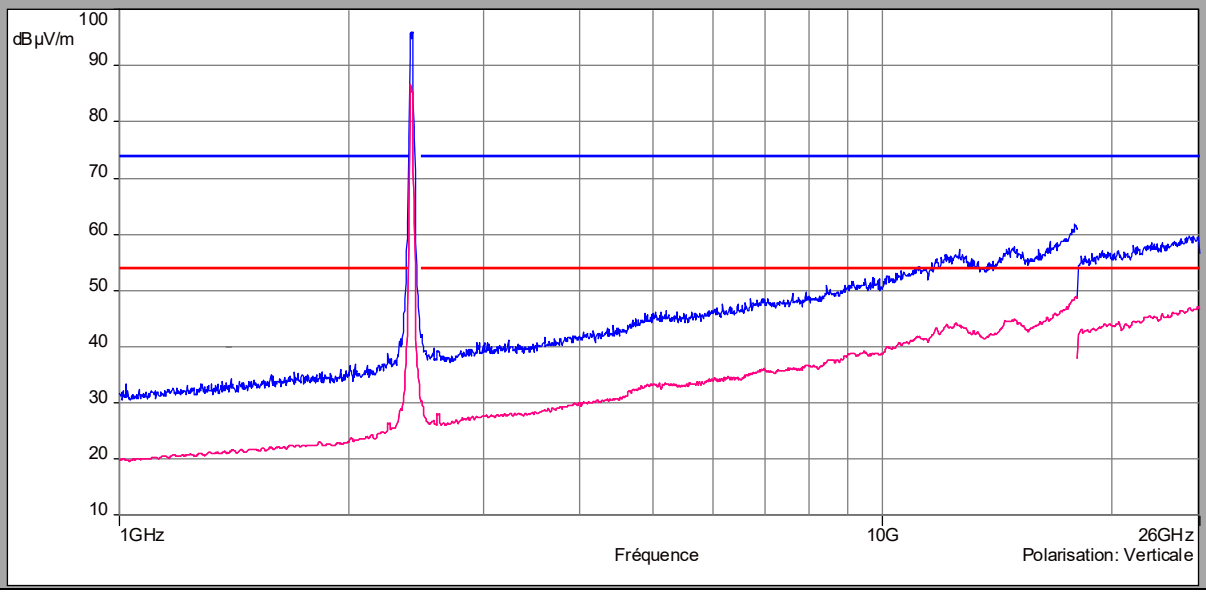
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
Mes.Peak _Channel Low - Horizontale (Horizontale)
Mes.Avg _Channel Low - Horizontale (Horizontale)
Mes.Peak _Channel Mid - Horizontale (Horizontale)
Mes.Avg _Channel Mid - Horizontale (Horizontale)
Mes.Peak _Channel High - Horizontale (Horizontale)
Mes.Avg _Channel High - Horizontale (Horizontale)

Description Sous-bande 1
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage: 2 ms/Pts, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp : On: 10 dB, LN Prea
Polarisation:Horizontale
Distance: 3m



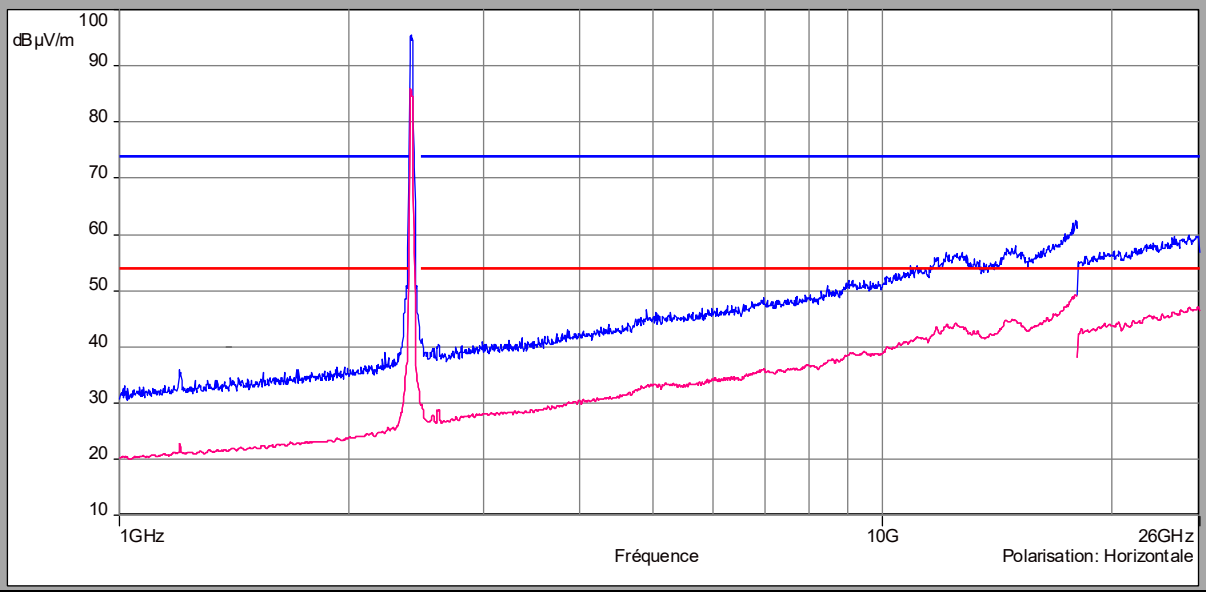
802.11n HT20
Cmin
Above 1GHz
Vertical Polarization

FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
Mes.Peak (Verticale)
Mes.Avg (Verticale)

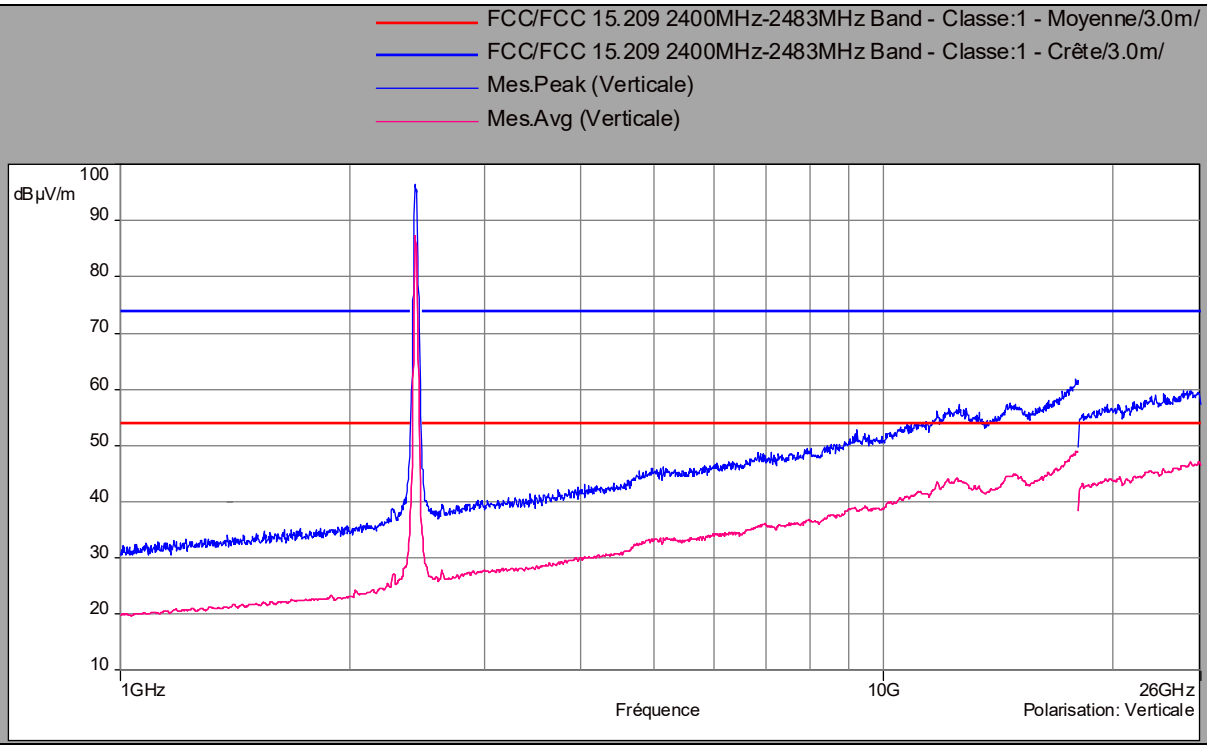


Horizontal polarization

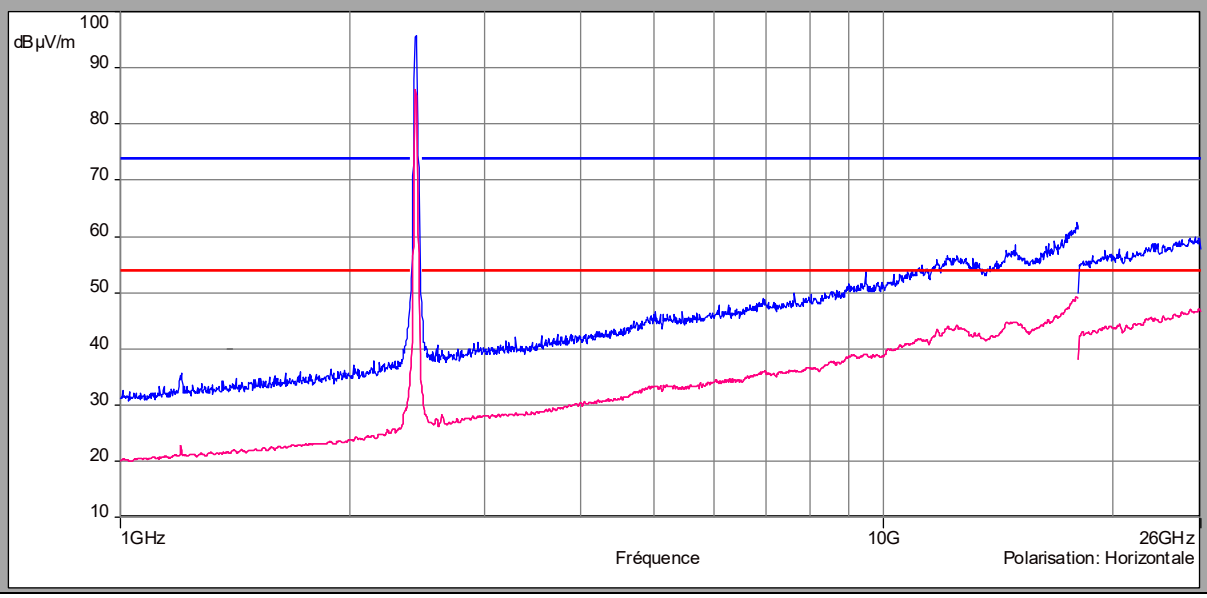
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
Mes.Peak (Horizontale)
Mes.Avg (Horizontale)



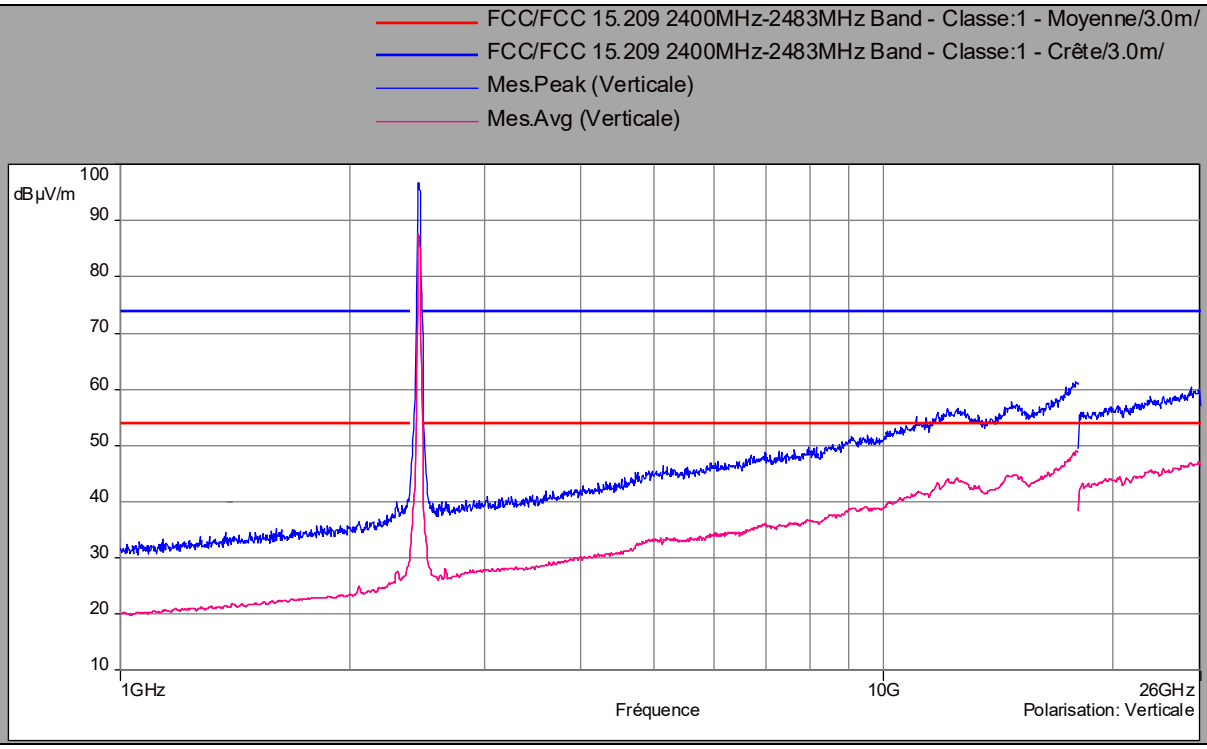
802.11n HT20
Cnom
Above 1GHz
Vertical Polarization



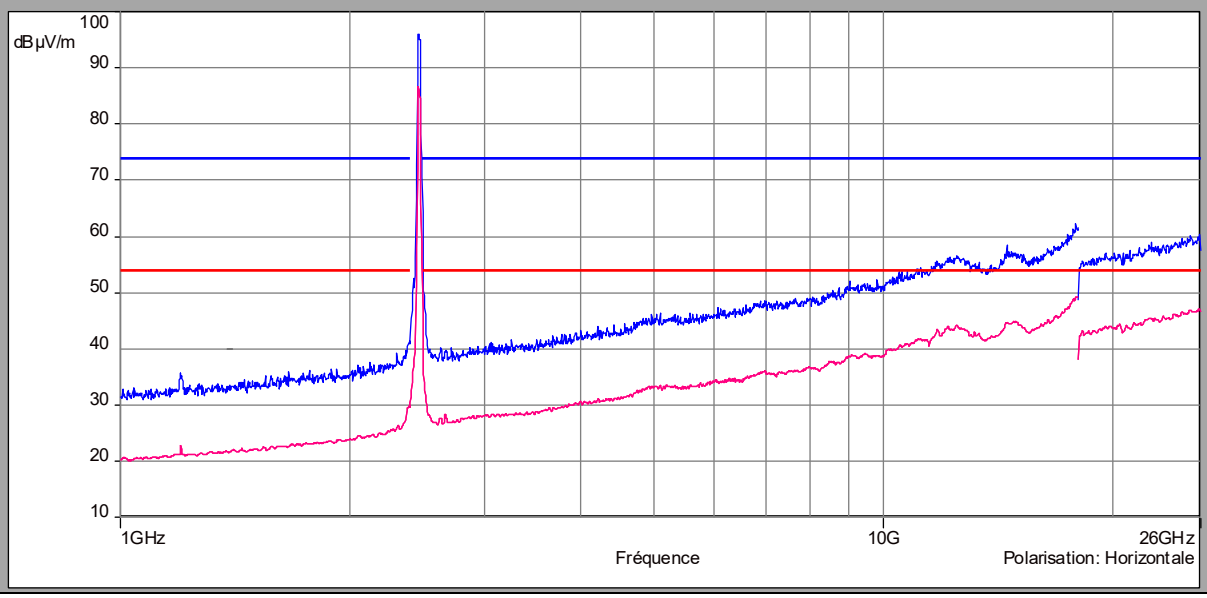
Horizontal polarization



802.11n HT20
Cmax
Above 1GHz
Vertical Polarization



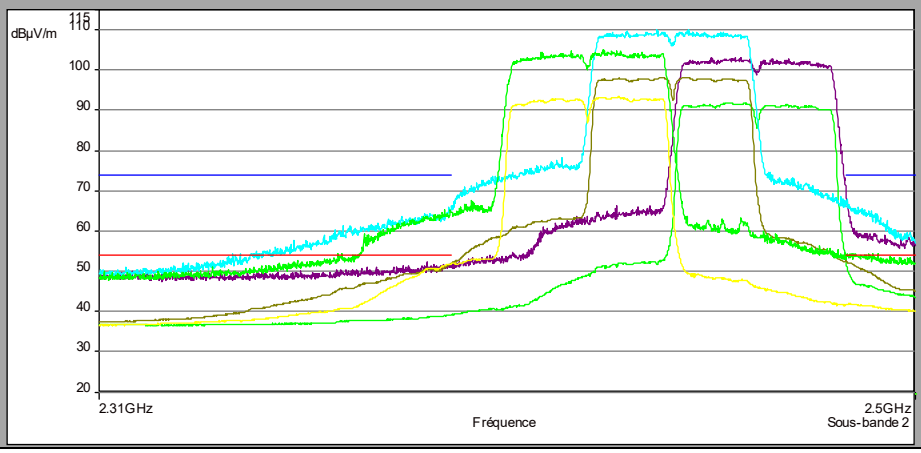
Horizontal polarization



802.11n HT40
Cmin/Cnom/Cmax
Zoom 2310MHz-2500MHz
Vertical Polarization

FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
Mes.Peak _Channel Low - Verticale (Verticale)
Mes.Avg _Channel Low - Verticale (Verticale)
Mes.Peak _Channel Mid - Verticale (Verticale)
Mes.Avg _Channel Mid - Verticale (Verticale)
Mes.Peak _Channel High - Verticale (Verticale)
Mes.Avg _Channel High - Verticale (Verticale)

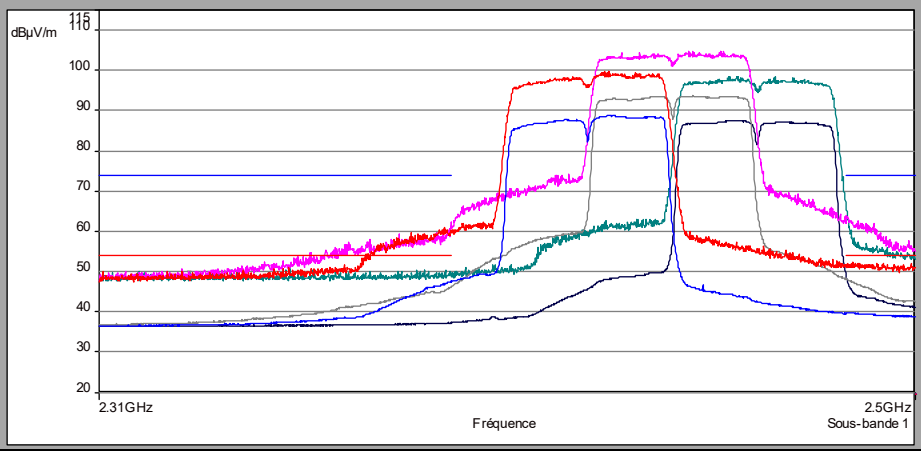
Description Sous-bande 2
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage: 2 ms/Pts, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp : On: 10 dB, LN Prea
Polarisation:Verticale
Distance: 3m



Horizontal polarization

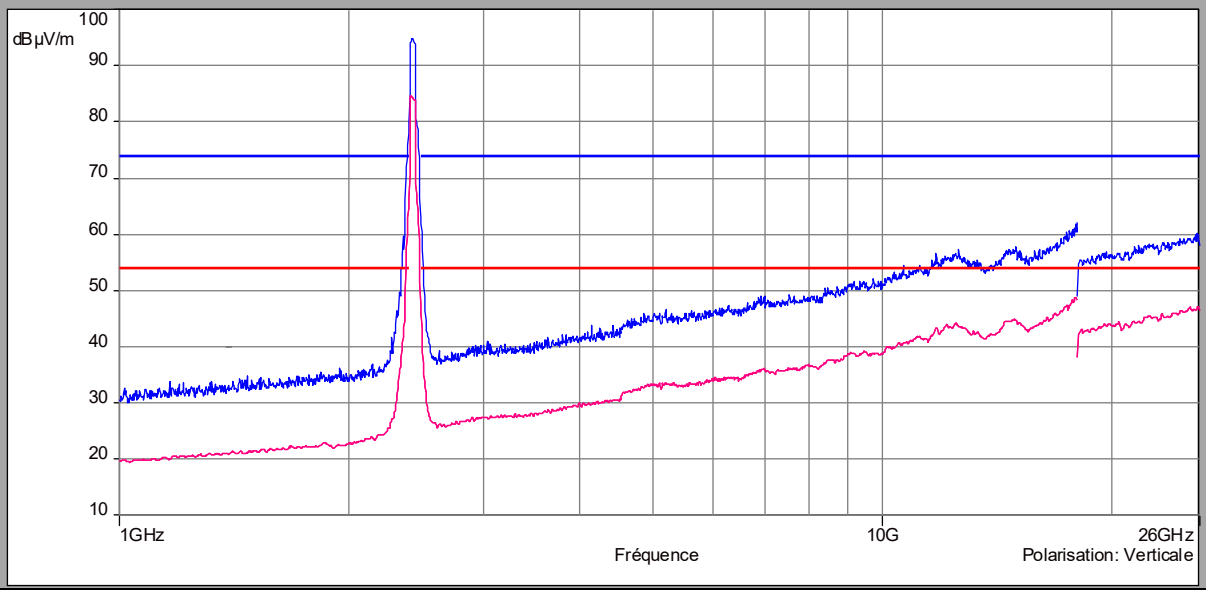
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
Mes.Peak _Channel Low - Horizontale (Horizontale)
Mes.Avg _Channel Low - Horizontale (Horizontale)
Mes.Peak _Channel Mid - Horizontale (Horizontale)
Mes.Avg _Channel Mid - Horizontale (Horizontale)
Mes.Peak _Channel High - Horizontale (Horizontale)
Mes.Avg _Channel High - Horizontale (Horizontale)

Description Sous-bande 1
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage: 2 ms/Pts, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp : On: 10 dB, LN Prea
Polarisation:Horizontale
Distance: 3m



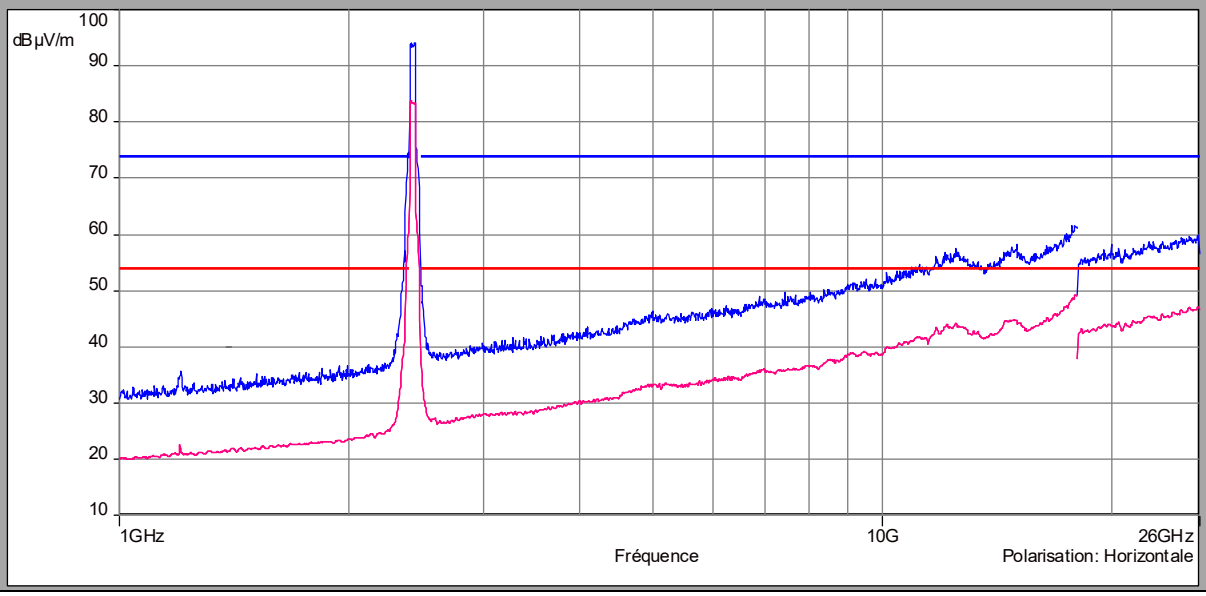
802.11n HT40
Cmin
Above 1GHz
Vertical Polarization

FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
Mes.Peak (Verticale)
Mes.Avg (Verticale)

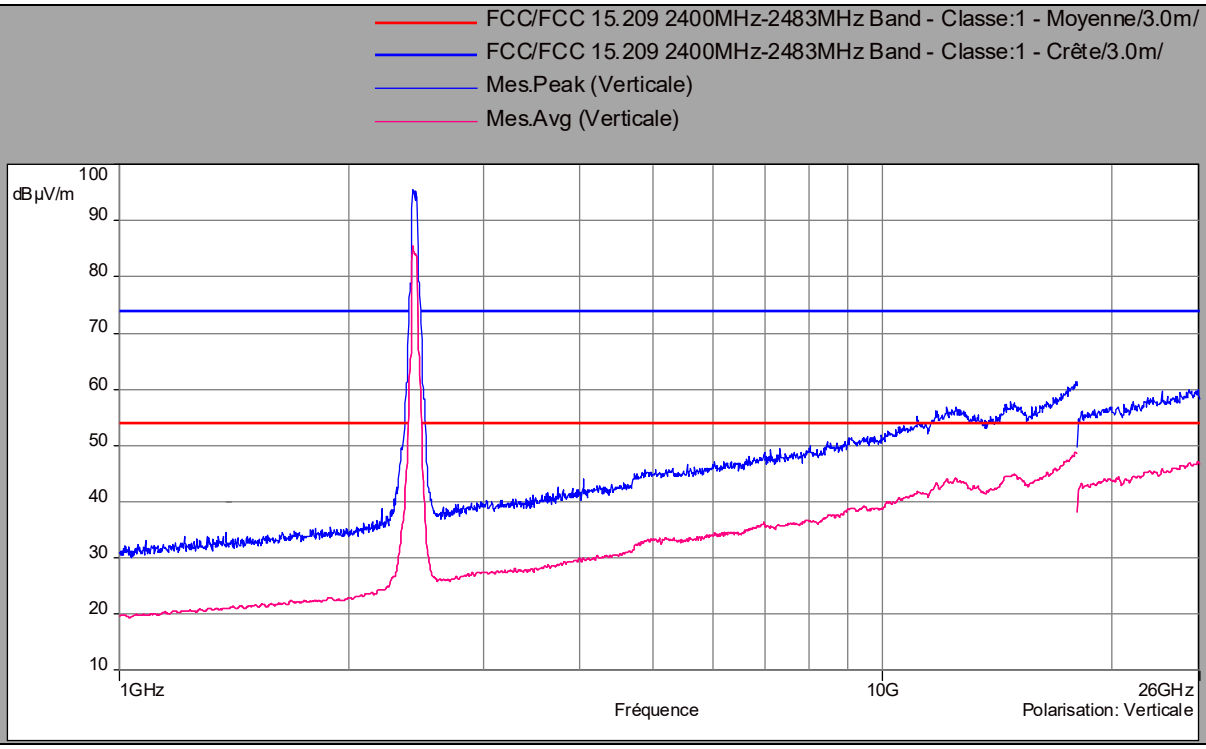


Horizontal polarization

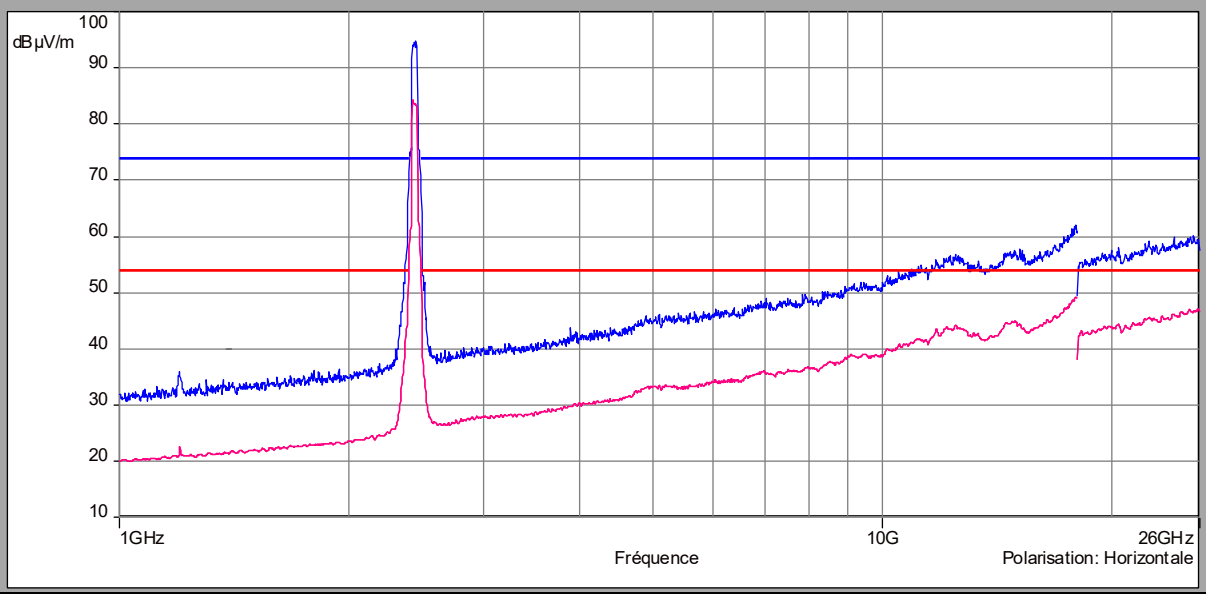
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
Mes.Peak (Horizontale)
Mes.Avg (Horizontale)



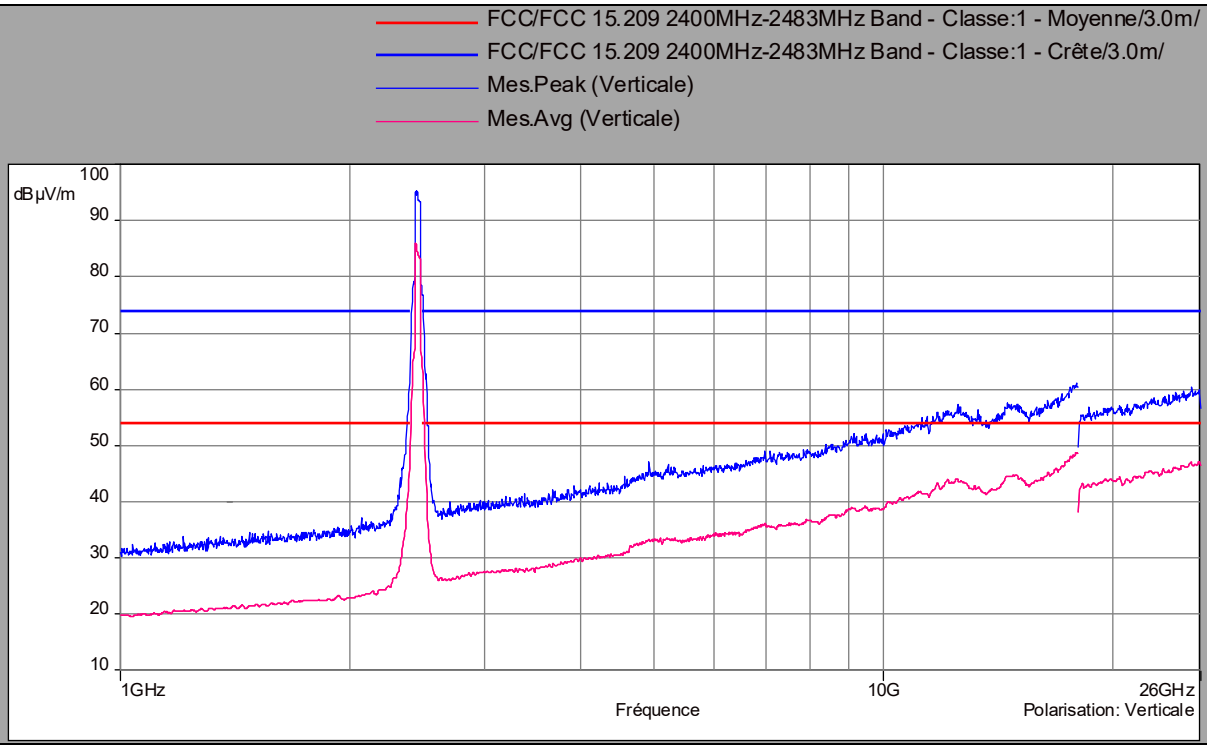
802.11n HT40
Cnom
Above 1GHz
Vertical Polarization



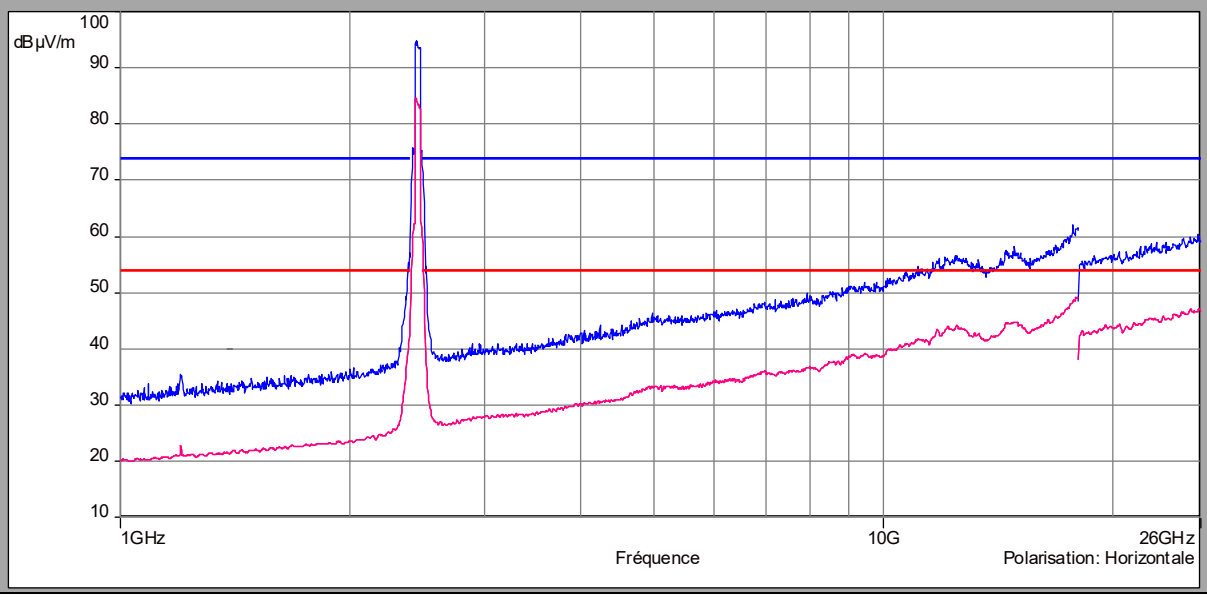
Horizontal polarization



802.11n HT40
Cmax
Above 1GHz
Vertical Polarization



Horizontal polarization



9kHz to 30MHz				
Polarization	Frequency (MHz)	Peak Level (dBµV/m)	QPeak Level (dBµV/m)	Limit (dBµV/m)
all emissions were greater than 20 dB below the limit				

Below 1GHz					
Polarization	Frequency (MHz)	Peak Level (dBµV/m)	QPeak Level (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)
V	31.7	22.71	-	29.5	6.79
V	154.4	20.45	-	33	12.55
V	352	24.08	-	35.5	11.42
V	431.5	26.02	-	35.5	9.48
H	363.1	25.78	-	35.5	9.72
H	544.5	25.7	-	35.5	9.8

802.11b								
Above 1GHz								
Cmin/Cnom/Cmax								
Polarization	Frequency (MHz)	Average Level (dBµV/m)	Average Level + Duty Cycle Factor (dBµV/m)	Average Limit (dBµV/m)	Average Margin Level (dBµV/m)	Peak Level (dBµV/m)	Peak Limit (dBµV/m)	Peak Margin Level (dBµV/m)
Horizontale	1199	22,34	22,35	54	31,66	35,19	74	38,81
Horizontale	2390	48,52	48,53	54	5,47	57,15	74	16,85
Verticale	2390	53,16	53,17	54	0,83	61,76	74	12,24
Horizontale	2483.5	49,10	49,11	54	4,89	56,44	74	17,56
Verticale	2483.5	52,23	52,24	54	1,76	58,64	74	15,36
Horizontale	4824	38,94	38,95	54	15,06	46,65	74	27,35

802.11g								
Above 1GHz								
Cmin/Cnom/Cmax								
Polarization	Frequency (MHz)	Average Level (dBµV/m)	Average Level + Duty Cycle Factor (dBµV/m)	Average Limit (dBµV/m)	Average Margin Level (dBµV/m)	Peak Level (dBµV/m)	Peak Limit (dBµV/m)	Peak Margin Level (dBµV/m)
Horizontale	1199	22,93	23,02	54	31,07	36,51	74	37,49
Horizontale	2390	47,81	47,90	54	6,10	62,01	74	11,99
Verticale	2390	51,46	51,55	54	2,45	66,77	74	7,23
Horizontale	2483.5	51,71	51,80	54	2,20	63,45	74	10,55
Verticale	2483.5	51,35	51,44	54	2,56	64,42	74	9,58

802.11n HT20								
Above 1GHz								
Cmin/Cnom/Cmax								
Polarization	**Frequency (MHz)**	**Average Level (dBµV/m)**	**Average Level + Duty Cycle Factor (dBµV/m)**	**Average Limit (dBµV/m)**	**Average Margin Level (dBµV/m)**	**Peak Level (dBµV/m)**	**Peak Limit (dBµV/m)**	**Peak Margin Level (dBµV/m)**
Horizontale	1199	22,91	23,10	54	31,09	35,93	74	38,07
Horizontale	2390	45,91	46,10	54	7.9	62,57	74	11,43
Verticale	2390	52,24	52,43	54	1,57	69,04	74	4,96
Horizontale	2483.5	44,67	44,86	54	9,14	58,60	74	15,40
Verticale	2483.5	51,88	52,07	54	1.93	65,21	74	8,79

802.11n HT40								
Above 1GHz								
Cmin/Cnom/Cmax								
Polarization	**Frequency (MHz)**	**Average Level (dBµV/m)**	**Average Level + Duty Cycle Factor (dBµV/m)**	**Average Limit (dBµV/m)**	**Average Margin Level (dBµV/m)**	**Peak Level (dBµV/m)**	**Peak Limit (dBµV/m)**	**Peak Margin Level (dBµV/m)**
Horizontale	1199	22,59	22,98	54	31,41	36,04	74	37,96
Horizontale	2390	47,26	47,65	54	6,35	60,96	74	13,04
Verticale	2390	51,67	52,06	54	1.94	65,31	74	8,69
Horizontale	2483.5	47,91	48,30	54	5.7	63,16	74	10,84
Verticale	2483.5	51,31	51,70	54	2,3	66,24	74	7,76

11.7. CONCLUSION

Unwanted emissions measurement performed on the sample of the product **SAGEMCOM Mini Sound Box MSBDV00**, SN: **253837310**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.247 & RSS 247 ISSUE 2 limits.

12. UNCERTAINTIES CHART

47 CFR Part 15.209 & 15.207 Kind of test	Wide uncertainty laboratory (k=2) ±x(dB) / (Hz)/ ms	Uncertainty limit
Measurement of conducted disturbances in voltage on the AC power port (9 kHz – 150 kHz)	2,67	3.8
Measurement of conducted disturbances in voltage on the AC power port (150 kHz – 30 MHz)	2,67	3.4
Measurement of conducted disturbances in voltage on the telecommunication port. (AAN)	3,67	5.0
Measurement of conducted disturbances in current (current clamp)	2,73	2.9
Measurement of disturbance power	2,67	4.5
Measurement of radiated magnetic field from 10kHz to 30MHz in SAC V01	4,48	/
Measurement of radiated magnetic field from 10kHz to 30MHz in SAC C01	4,48	/
Measurement of radiated electric field from 30 to 1000MHz in horizontal position on the OATS (Ecuelles)	4,88	6.3
Measurement of radiated electric field from 1 to 18GHz on the Ecuelles site	5.16	/
Measurement of radiated electric field from 30 to 1000MHz in vertical position on the OATS (Ecuelles)	4,99	6.3
Measurement of radiated electric field from 30 to 1000MHz in horizontal position in SAC C01	5,08	6.3
Measurement of radiated electric field from 30 to 1000MHz in vertical position in SAC C01	5,16	6.3
Measurement of radiated electric field from 30 to 1000MHz in horizontal position in SAC V01	5,08	6.3
Measurement of radiated electric field from 30 to 1000MHz in vertical position in SAC V01	5,15	6.3
Measurement of radiated electric field from 1 to 6 GHz C01	5,1	5.2
Measurement of radiated electric field from 1 to 6 GHz V01	4,85	5.2
Measurement of radiated magnetic field from 10kHz to 30MHz on the OATS (Ecuelles)	4,48	/

The uncertainty values calculated by the laboratory are lower than limit uncertainty values defined by the CISPR. The conformity of the sample is directly established by the applicable limits values. This table includes all uncertainties maximum feasible for testing in the laboratory, whether or not made in this report