TEST REPORT

N°: 163647-742968-A **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 BROADBAND SAS 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 29, 2019
Test location	Fontenay Aux Roses
Test Site	6230B-1
Sample receipt date	October 10, 2019
Composition of document	88 pages
Document issued on	January 13, 2020

Written by :
Julien Palard
Tests operator

Approved by :
Arnaud PAYETTE
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**
- **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)
20dB Bandwidth	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Number of Hopping Frequency	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Carrier Frequency Separation	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Time of Occupancy	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Duty Cycle	☑ PASS	☐ FAIL	☐ NA	☐ NP(1)
Maximum Conducted Output Power	☑ 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:

Bluetooth Classic Type:	☐ **v1.2**	☐ **v2.0**	☐ **v2.1+EDR**	☐ **v3.0+HS**
	☐ **v4.0**	☐ **v4.1**	☐ **v4.2**	☑ **v5.0**
Frequency band:	[2400 – 2483.5] MHz			
Spectrum Modulation:	☑ FHSS			
Number of Channel:	Maximum:	79	Minimum:	20
Spacing channel:	1MHz			
Channel bandwidth:	1MHz			
Antenna Type:	☑ Integral	☐ External	☐ Dedicated	
Antenna connector:	☑ Yes	☐ No	☐ Temporary for test	
Transmit chains:	1			
	Single antenna			
Beam forming gain:	No			
Receiver chains	1			
Type of equipment:	☑ Stand-alone	☐ Plug-in	☐ Combined	
Ad-Hoc mode:	☐ Yes	☑ No		
Duty cycle:	☑ Continuous duty	☐ Intermittent duty	☐ 100% duty	
Equipment type:	☑ Production model	☐ Pre-production model		
Operating temperature range:	Tmin:	☐ -20°C	☑ 0°C	☐ °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	5.35	2400 – 2483.5	50

Hardware information		
Software (if applicable):	**V. :**	**To be provided by customer**

CHANNEL PLAN					
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
Cmin: 0	**2402**	27	2429	54	2456
1	2403	28	2430	55	2457
2	2404	29	2431	56	2458
3	2405	30	2432	57	2459
4	2406	31	2433	58	2460
5	2407	32	2434	59	2461
6	2408	33	2435	60	2462
7	2409	34	2436	61	2463
8	2410	35	2437	62	2464
9	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	**2441**	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	**Cmax: 78**	**2480**
25	2427	52	2454		
26	2428	53	2455		

DATA RATE				
Available for EUT	**Modulation type**	**Max. Data Rate (Mbps)**	**Packet type**	**Worst Case Modulation**
☑	GFSK	1	1-DM1	☐
	GFSK	1	1-DH1	☐
	GFSK	1	1-DM3	☐
	GFSK	1	1-DH3	☐
	GFSK	1	1-DM5	☐
	GFSK	1	1-DH5	☑
☐	GFSK	1	AUX1	☐
☑	π/4 DQPSK	2	2-DH1	☐
	π/4 DQPSK	2	2-DH3	☐
	π/4 DQPSK	2	2-DH5	☑
	8DPSK	3	3-DH1	☐
	8DPSK	3	3-DH3	☐
	8DPSK	3	3-DH5	☑

2.2. RUNNING MODE

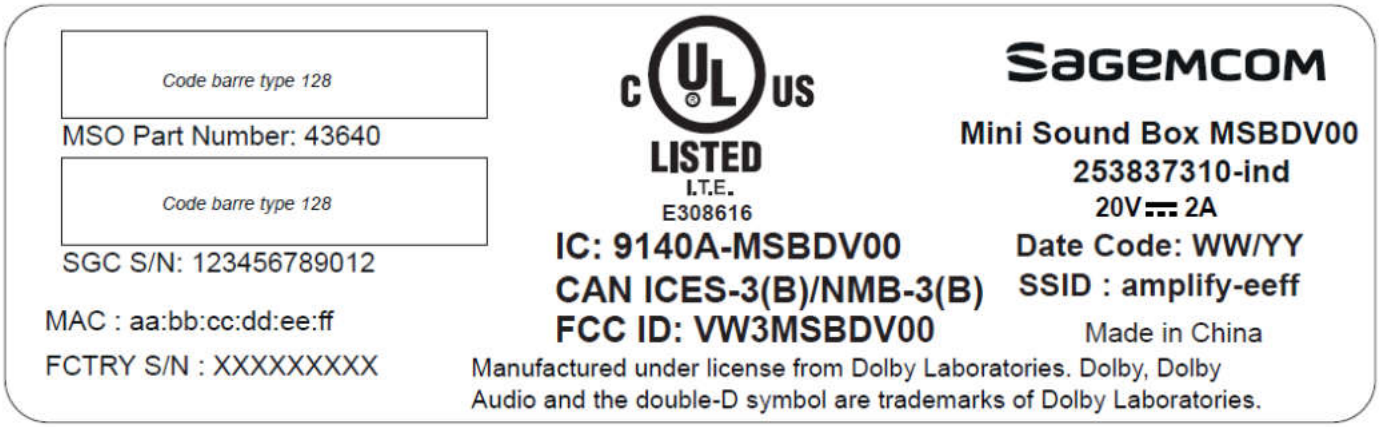
Test mode	Description of test mode
Test mode 1	Permanent emission with modulation on a fixed channel in the data rate that produced the highest power
Test mode 2	Permanent emission with modulation & hopping in the data rate that produced the highest power

Test	Running mode	
Occupied Bandwidth	☑ Test mode 1 (1)	☐ Alternative test mode()
20dB Bandwidth	☑ Test mode 1 (1)	☐ Alternative test mode()
Number of Hopping Frequency	☑ Test mode 2 (1)	☐ Alternative test mode()
Carrier Frequency Separation	☑ Test mode 1 (1)	☐ Alternative test mode()
Time of Occupancy	☑ Test mode 2 (1)	☐ Alternative test mode()
Duty Cycle	☑ Test mode 1 (1)	☐ Alternative test mode()
Maximum Conducted Output Power	☑ 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 2 (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 “Teraterm” are used to set the product:

a. – See document “BT _ Sagem Mini - SBD Commands of MSB.docx”(provided by customer) for the command used during test.

2.3. EQUIPMENT LABELLING



2.4. EQUIPMENT MODIFICATION

☑ None ☐ Modification:

3. OCCUPIED BANDWIDTH

3.1. TEST CONDITIONS

Test performed by	: Julien Palard
Date of test	: October 28, 2019
Ambient temperature	: 22 °C
Relative humidity	: 39 %

3.2. TEST SETUP

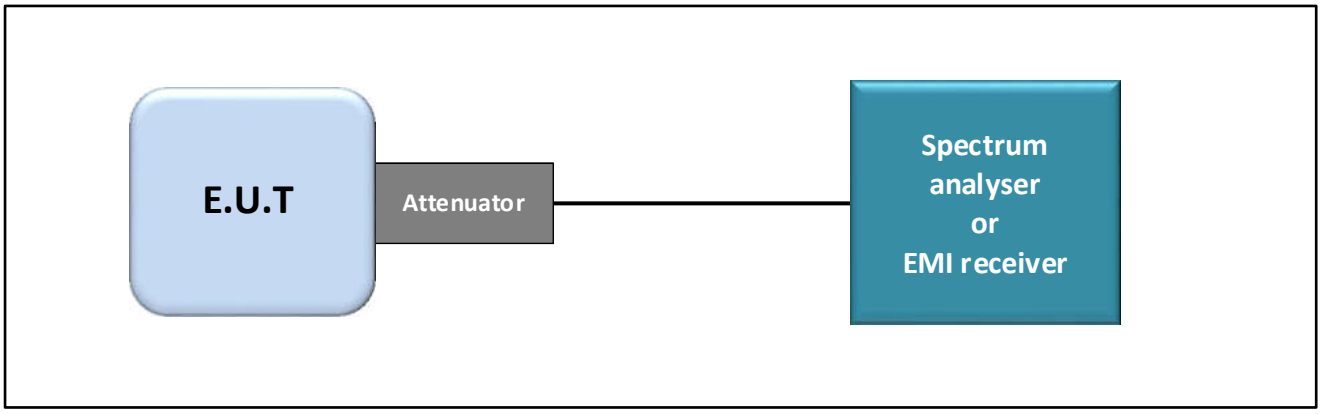
- The Equipment under Test is installed:
☑ On a table
☐ In an anechoic chamber

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

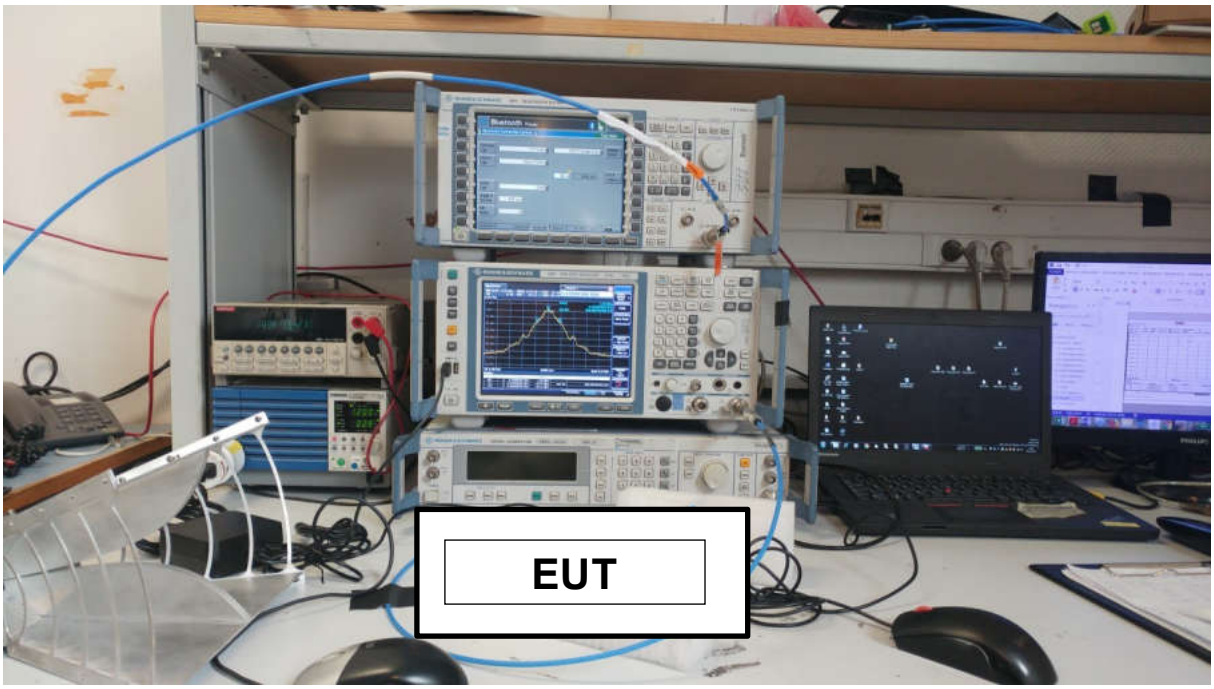
- Test Procedure:
☐ RSS-Gen Issue 5 § 6.7
☑ ANSI C63.10 § 6.9.2

Measurement Procedure:

a) RBW shall be in the range of 1% to 5% of the anticipated occupied bandwidth
b) Set the video bandwidth (VBW) ≥ 3 x RBW
c) SPAN = Capture all products of the modulation process
d) Detector = Peak.
e) Trace mode = max hold.
f) Sweep = auto couple.
g) Allow the trace to stabilize.
h) OBW 99% function of spectrum analyzer used



Test set up of Occupied Bandwidth



Photograph for Occupied bandwidth

3.3. *LIMIT*

None

3.4. TEST EQUIPMENT LIST

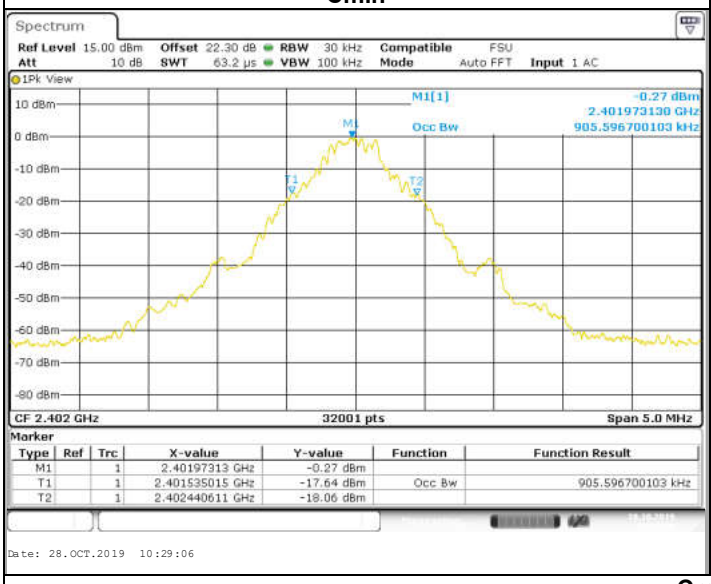
Apparatus	Trade Mark	Type	Registration number	Cal_Date	Cal_Due
Power supply	KIKUSUI	PCR500M	A7040079	Calibrated with multimeter	Calibrated with multimeter
Multimeter	Keithley	2000	A1241084	2018/12	2020/12
Cable + Attenuateur 20dB	PASTERNACK	PE350-150CM	A5329868	2018/12	2019/12
EMI receiver	ROHDE & SCHWARZ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

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

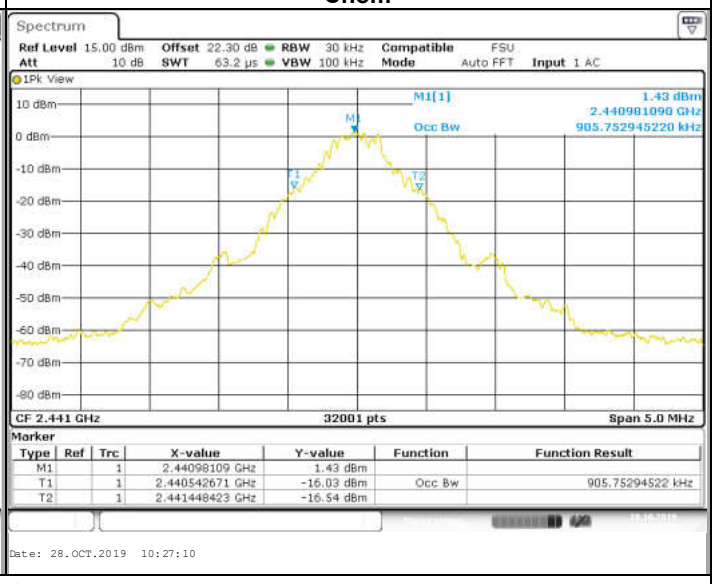
3.5. RESULTS

Occupied Bandwidth
(DH5)

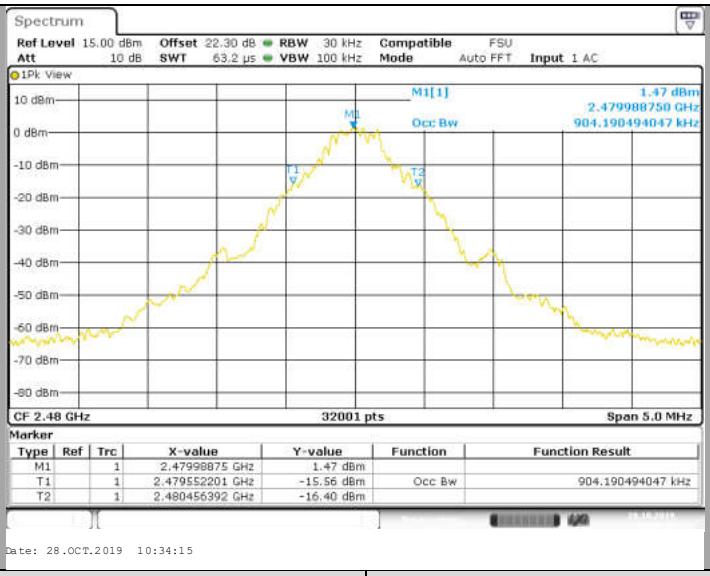
Cmin



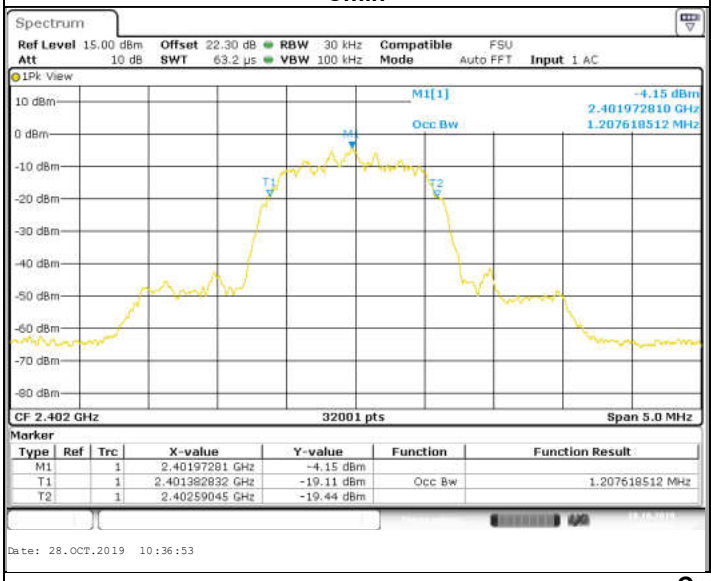
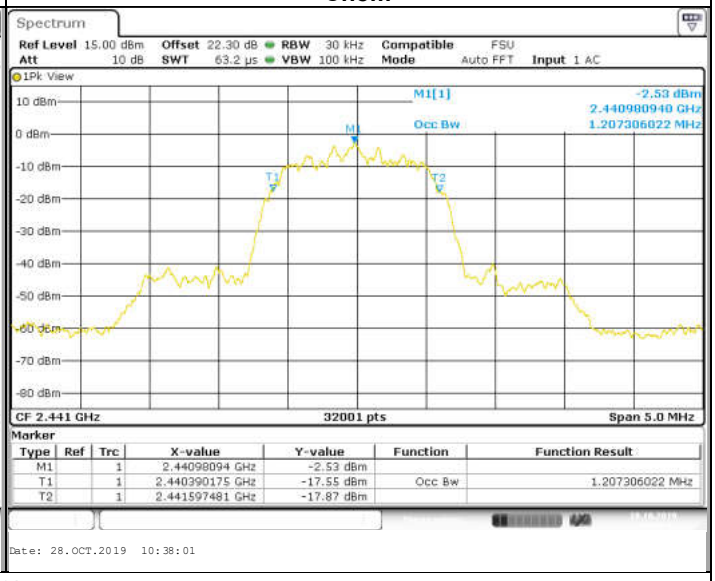
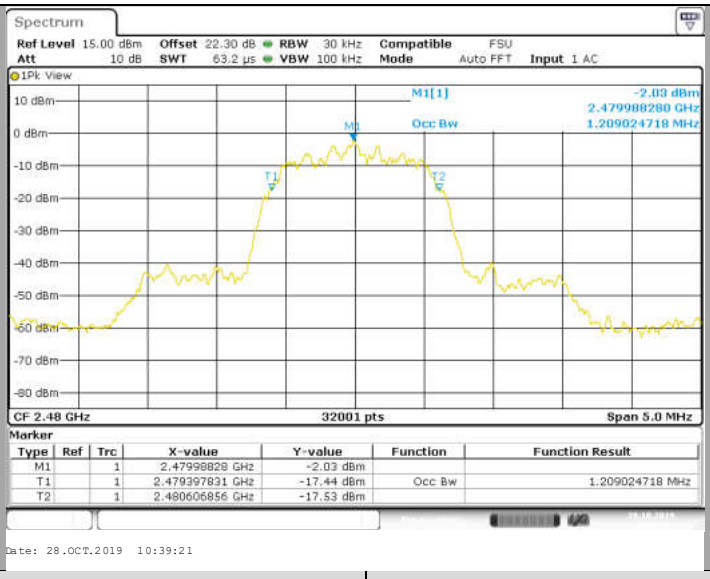
Cnom



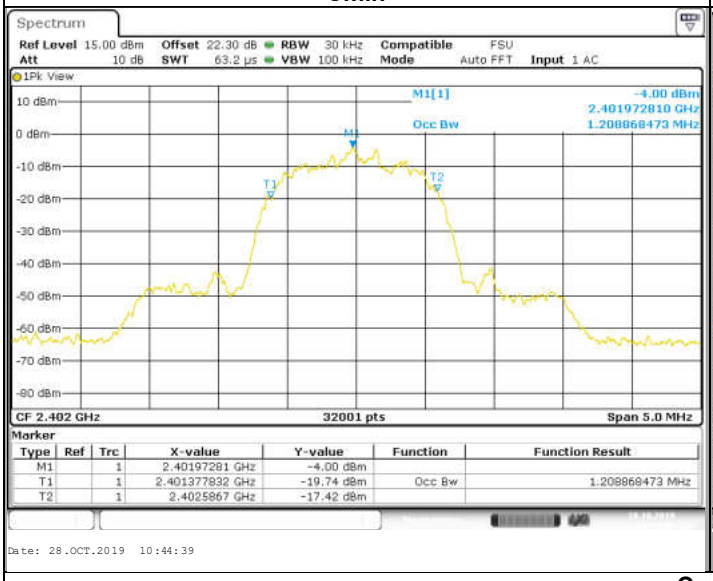
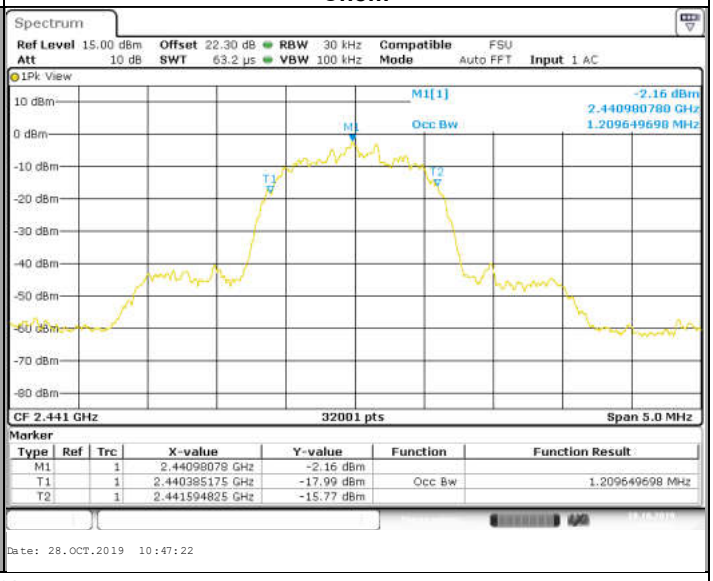
Cmax



Channel	Occupied Bandwidth (MHz)
Cmin	0.906
Cnom	0.906
Cmax	0.904

Occupied Bandwidth (2-DH5)	
Cmin	**Cnom**
	
Cmax	
	

Channel	Occupied Bandwidth (MHz)
Cmin	1.2076
Cnom	1.2073
Cmax	1.2090

Occupied Bandwidth (3-DH5)	
Cmin	**Cnom**
	
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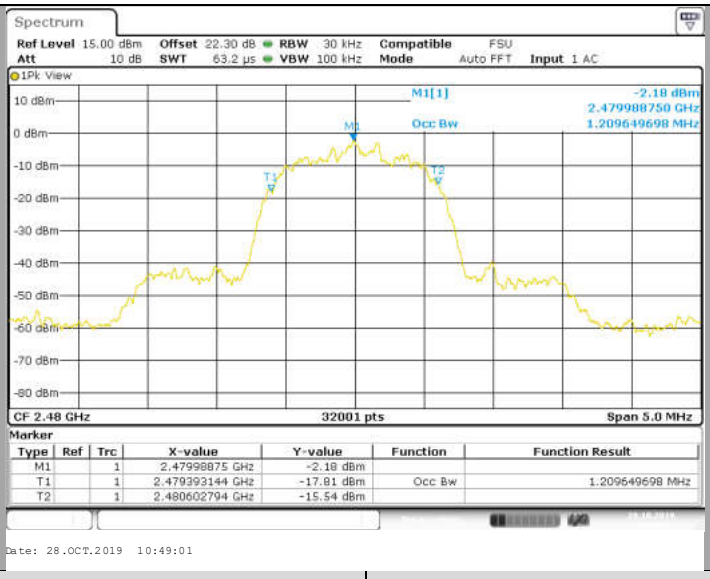
	

Channel	Occupied Bandwidth (MHz)
Cmin	1.2088
Cnom	1.2096
Cmax	1.2096

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. 20DB EMISSION BANDWIDTH

4.1. TEST CONDITIONS

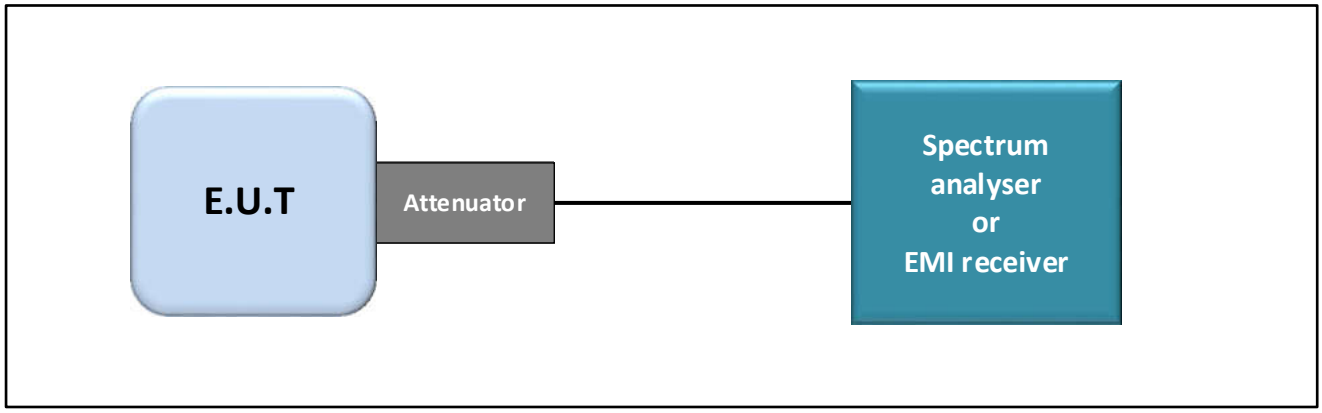
Test performed by	: Julien Palard
Date of test	: October 28, 2019
Ambient temperature	: 22 °C
Relative humidity	: 39 %

4.2. TEST SETUP

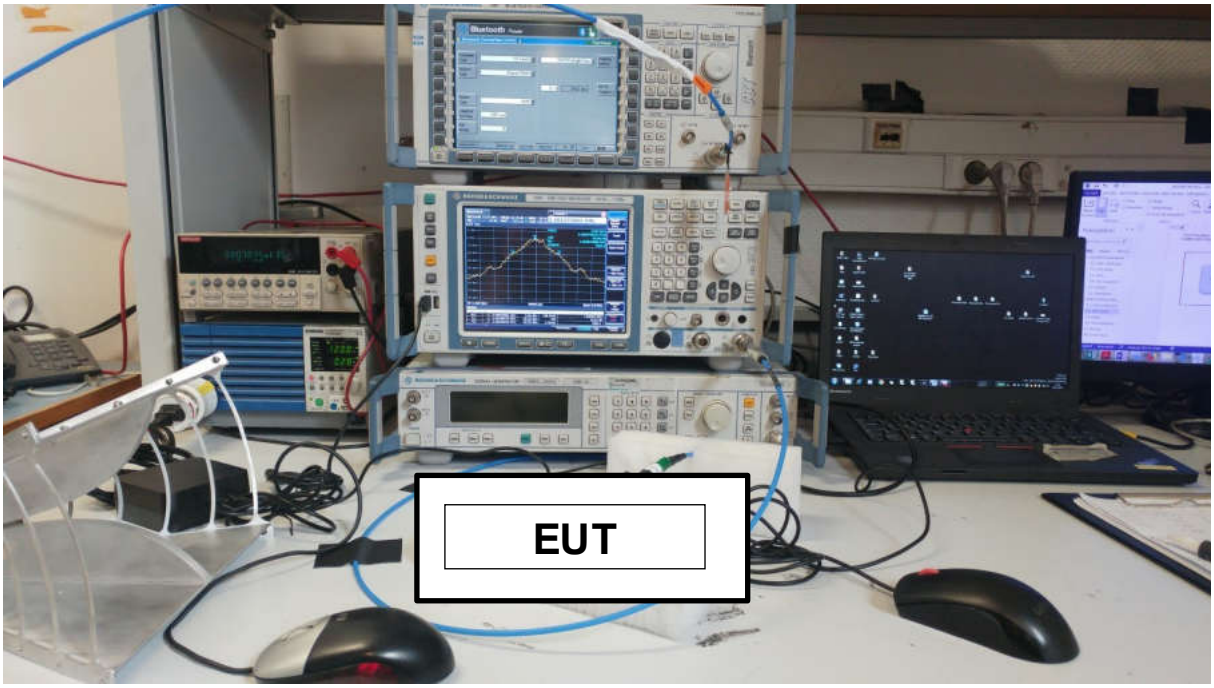
- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

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

- Test Procedure:
☑ ANSI C63.10 § 6.9.2:



Test set up of 20dB Emission Bandwidth



Photograph for 20dB emission bandwidth

4.3. LIMIT

No Limit

4.4. TEST EQUIPMENT LIST

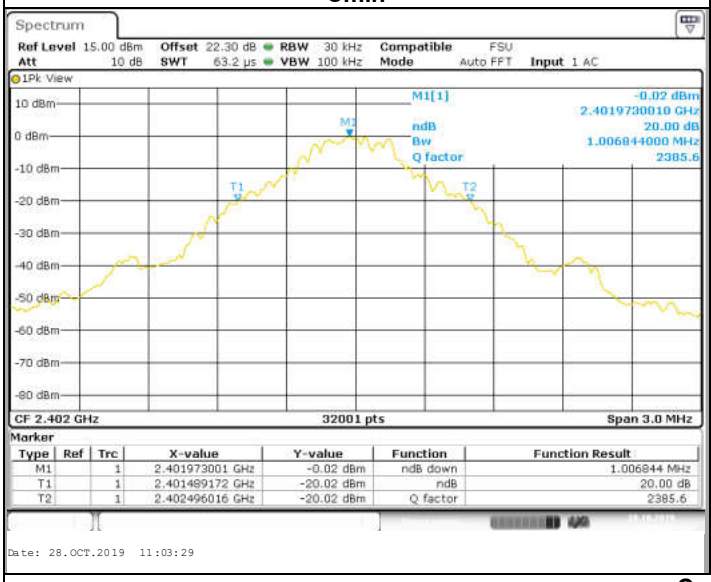
Apparatus	Trade Mark	Type	Registration number	Cal_Date	Cal_Due
Power supply	KIKUSUI	PCR500M	A7040079	Calibrated with multimeter	Calibrated with multimeter
Multimeter	Keithley	2000	A1241084	2018/12	2020/12
Cable + Attenuateur 20dB	PASTERNACK	PE350-150CM	A5329868	2018/12	2019/12
EMI receiver	ROHDE & SCHWARZ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

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

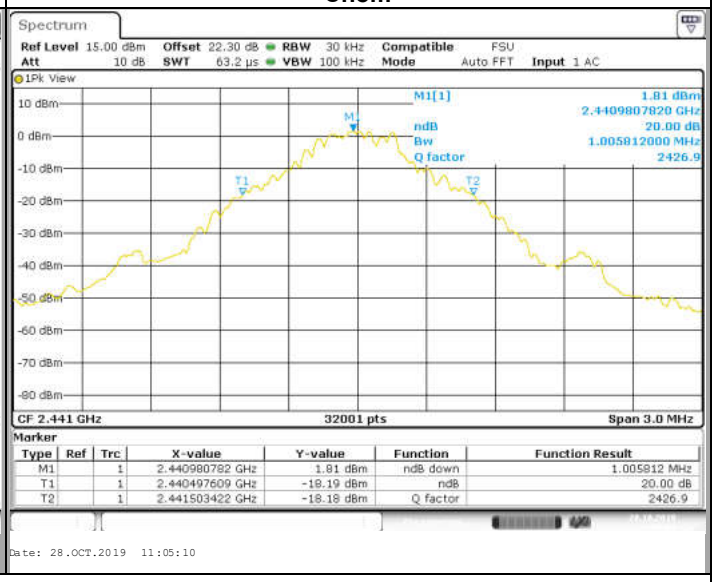
4.5. RESULTS

GFSK (DH5)

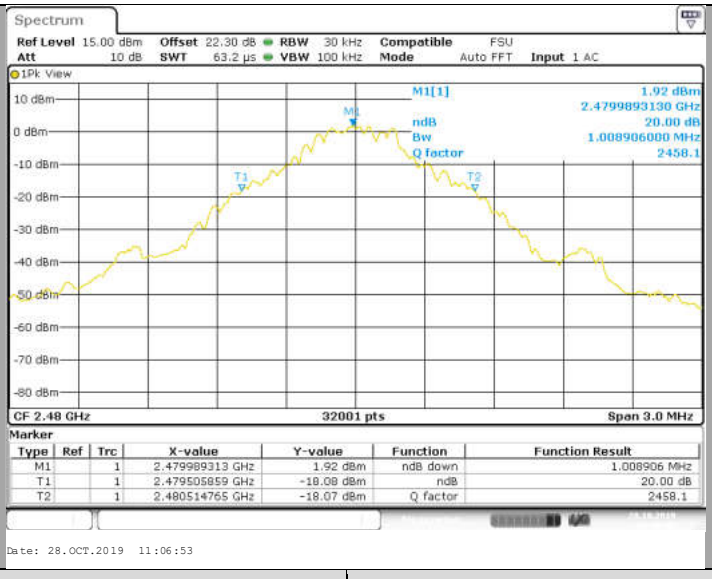
Cmin



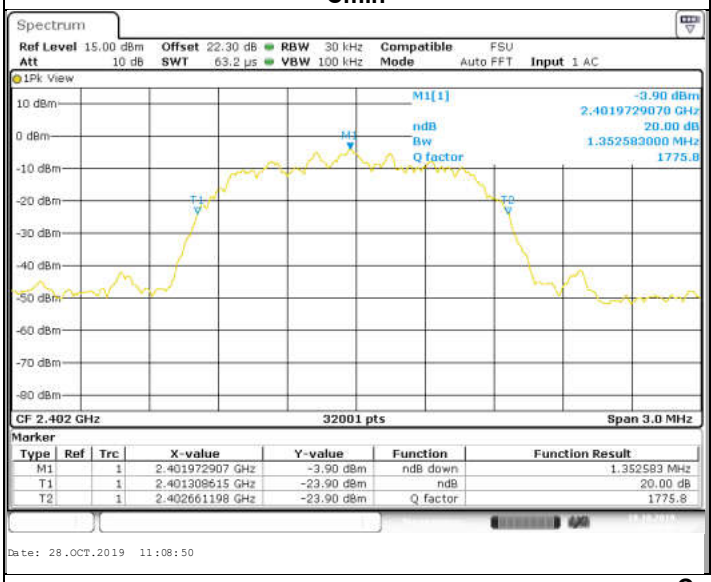
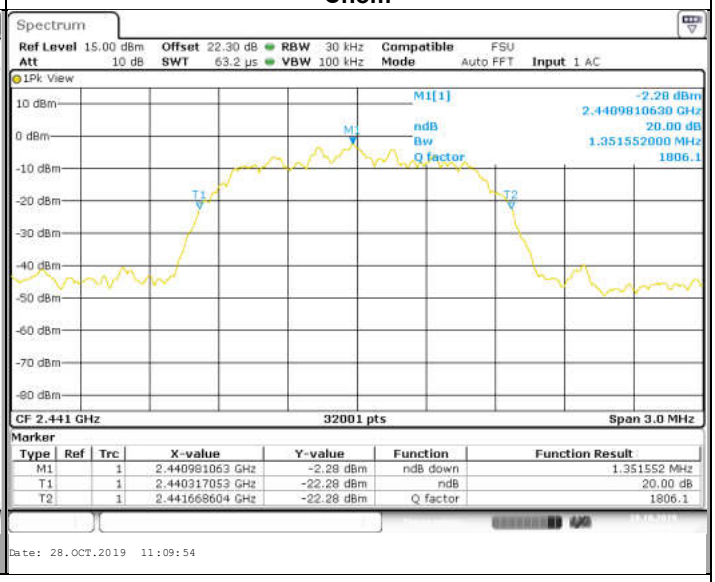
Cnom



Cmax



Channel	20dB Bandwidth (MHz)
Cmin	1.007
Cnom	1.006
Cmax	1.009

π/4 DQPSK (2-DH5)	
Cmin	**Cnom**
	
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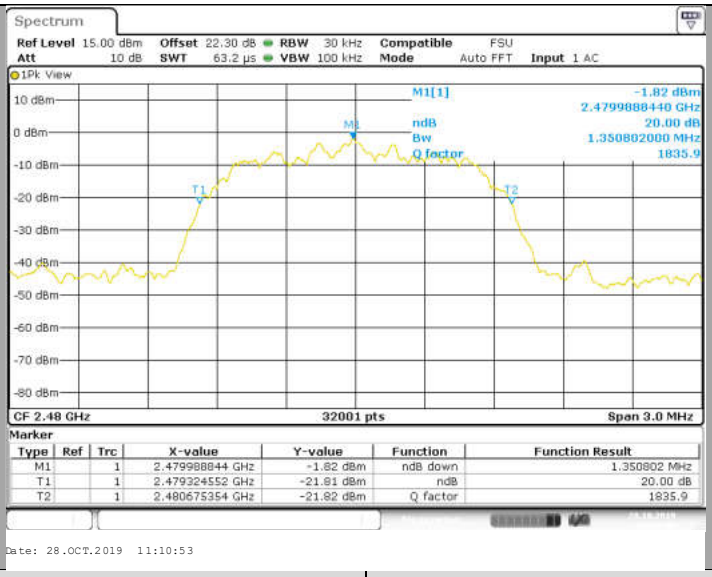
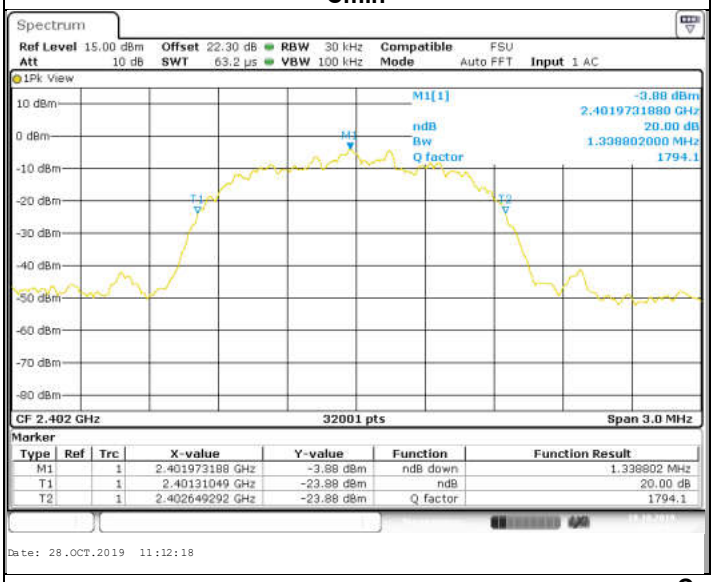
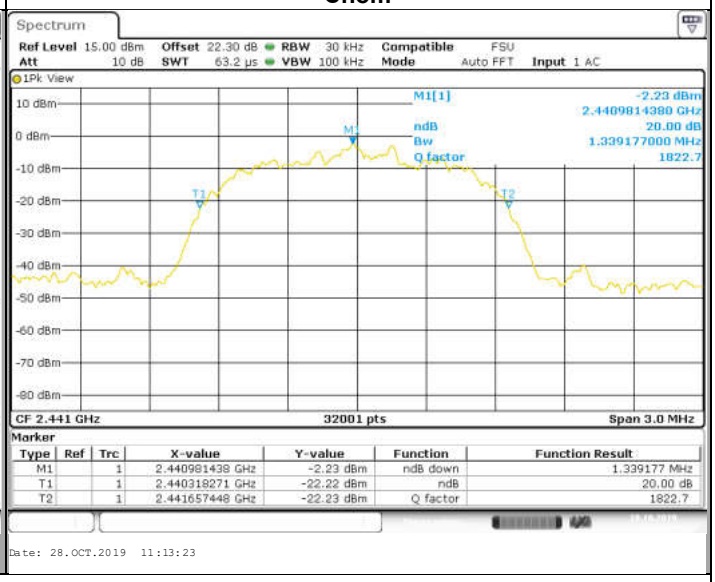
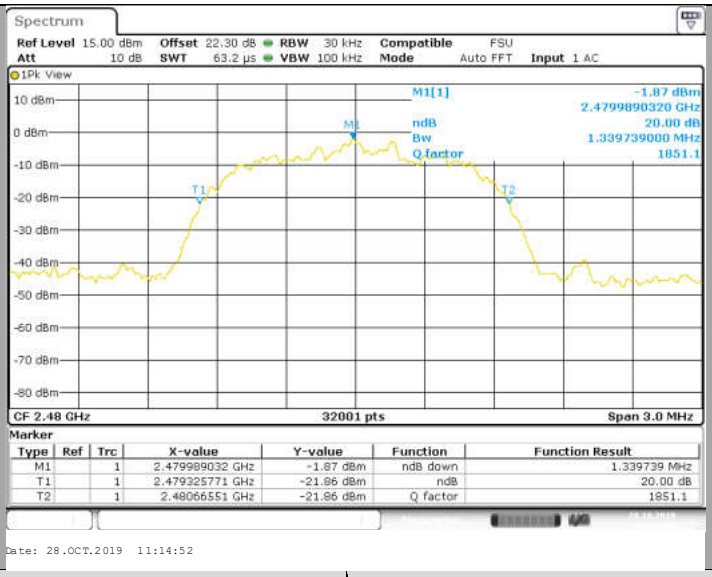
	

Channel	20dB Bandwidth (MHz)
Cmin	1.3526
Cnom	1.3516
Cmax	1.3508

8DPSK (3-DH5)	
Cmin	**Cnom**
	
Cmax	
	

Channel	20dB Bandwidth (MHz)
Cmin	1.339
Cnom	1.339
Cmax	1.340

4.6. CONCLUSION

20dB 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. CARRIER FREQUENCY SEPARATION

5.1. TEST CONDITIONS

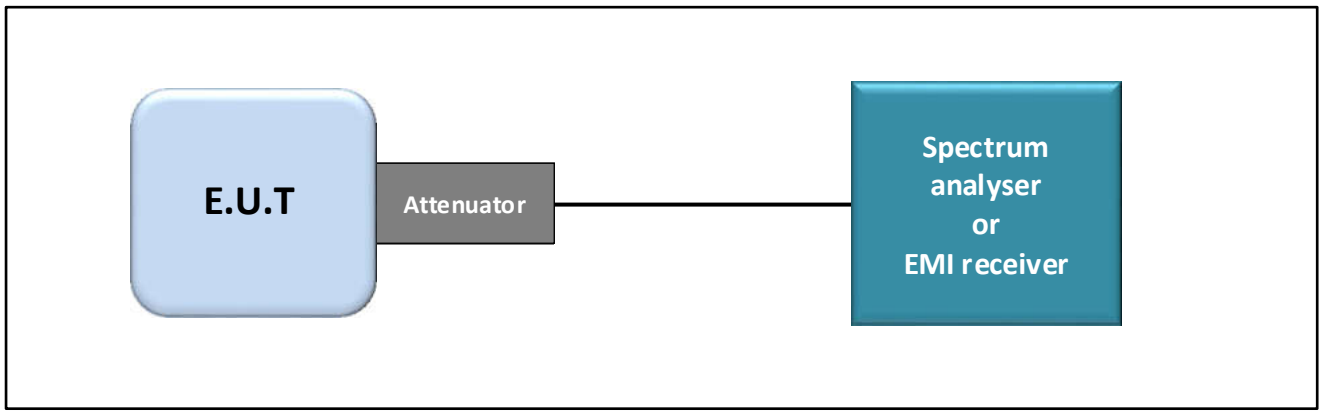
Test performed by	: Julien Palard
Date of test	: October 28, 2019
Ambient temperature	: 22 °C
Relative humidity	: 39 %

5.2. TEST SETUP

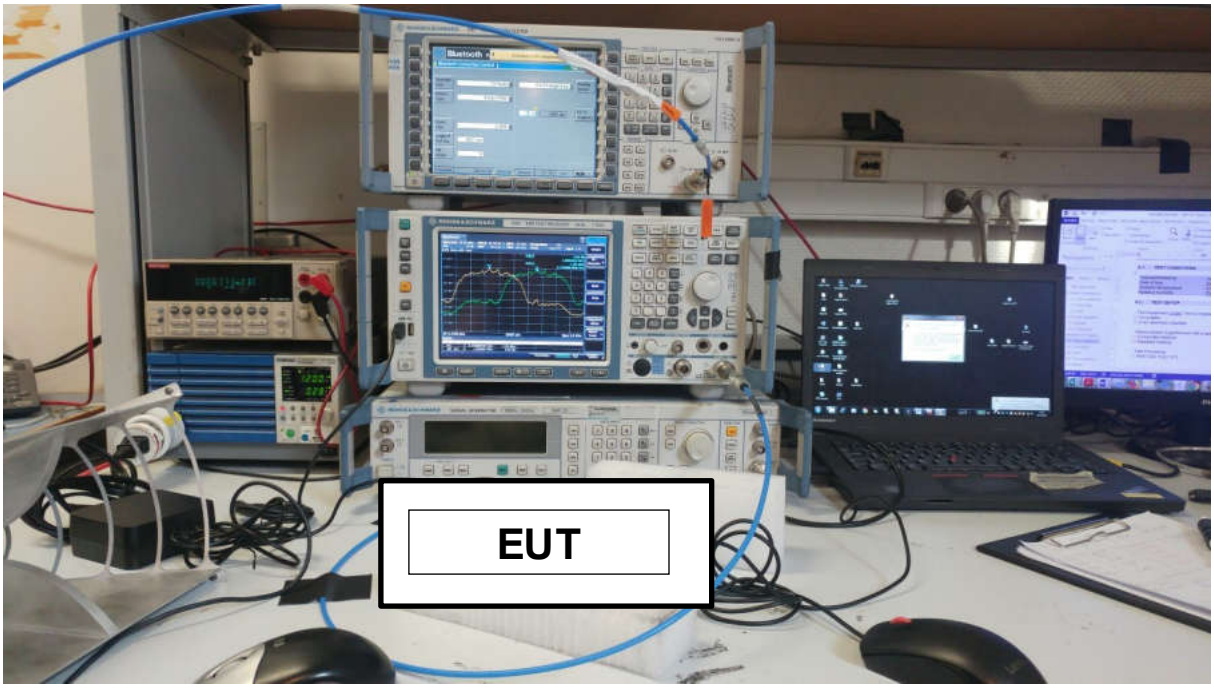
- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

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

- Test Procedure:
☑ ANSI C63.10 § 7.8.2:



Test set up of Carrier Frequency Separation



Photograph for Carrier Frequency Separation

5.3. LIMIT

Carrier Frequency Separation shall be at least two-thirds of the 20dB Bandwidth

5.4. TEST EQUIPMENT LIST

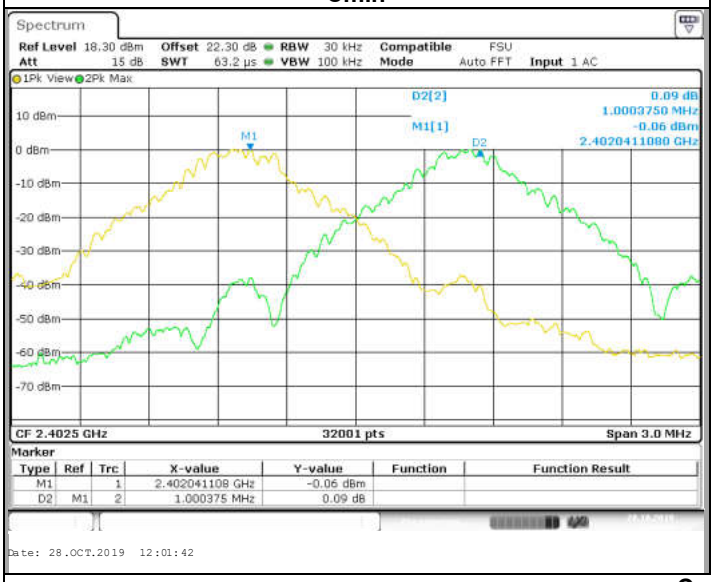
Apparatus	Trade Mark	Type	Registration number	Cal_Date	Cal_Due
Power supply	KIKUSUI	PCR500M	A7040079	Calibrated with multimeter	Calibrated with multimeter
Multimeter	Keithley	2000	A1241084	2018/12	2020/12
Cable + Attenuateur 20dB	PASTERNACK	PE350-150CM	A5329868	2018/12	2019/12
EMI receiver	ROHDE & SCHWARZ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

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

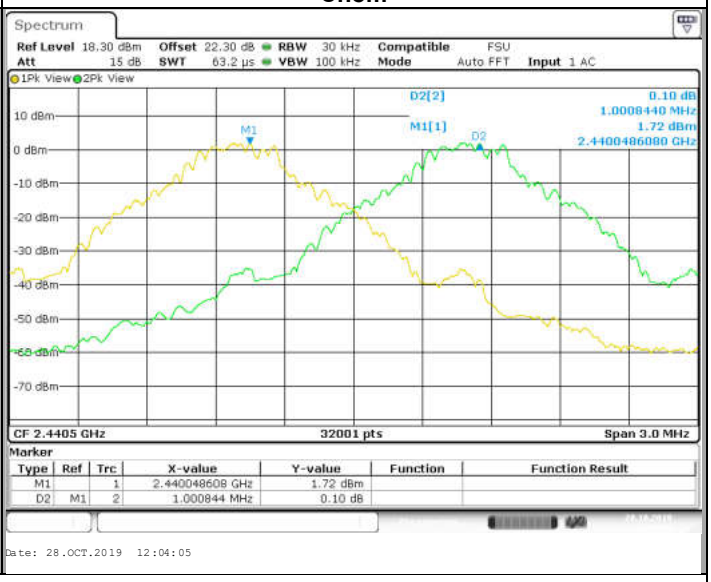
5.5. RESULTS

GFSK (DH5)

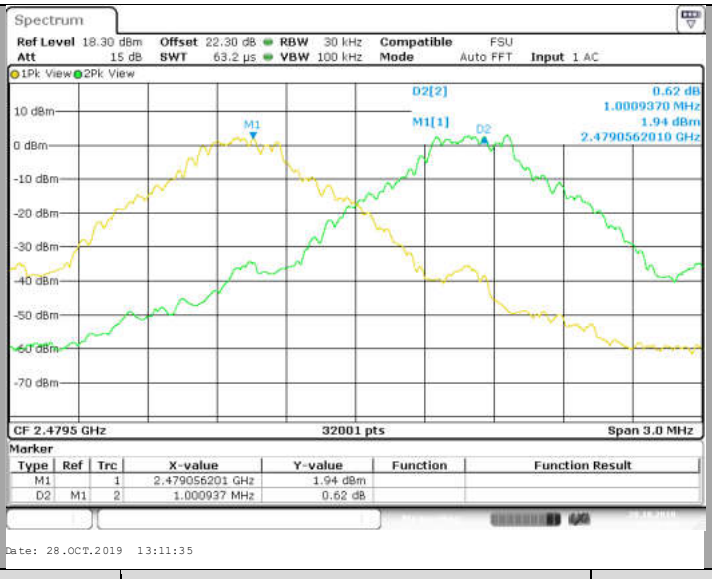
Cmin



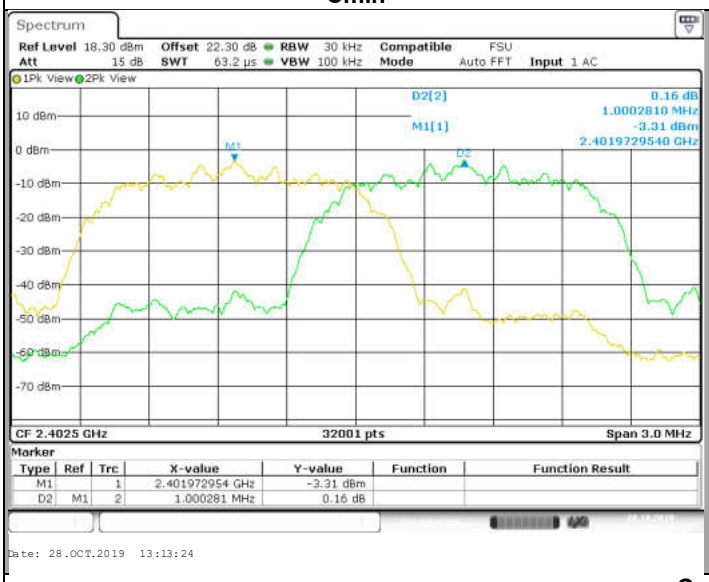
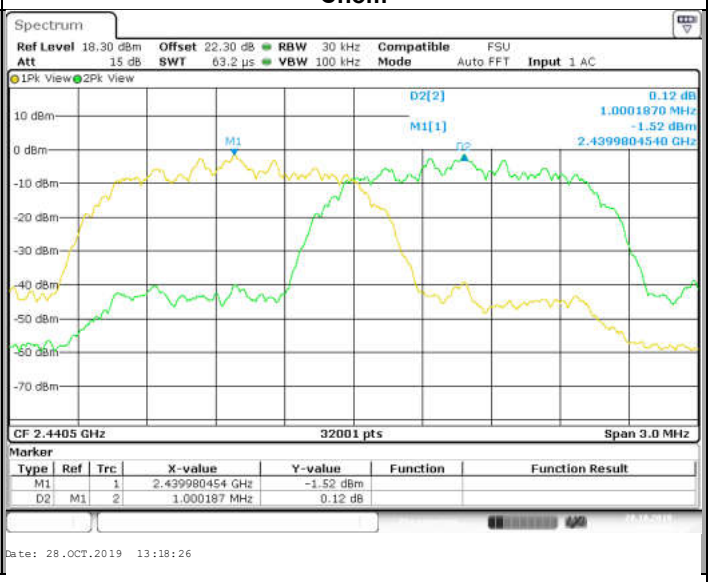
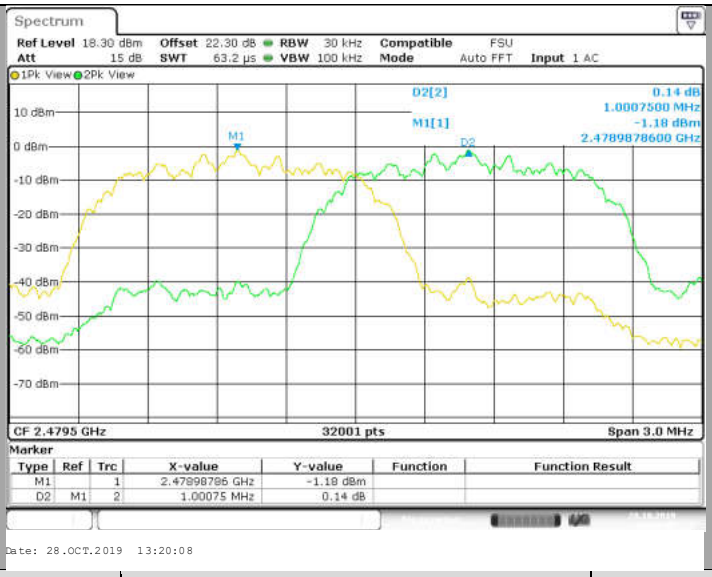
Cnom



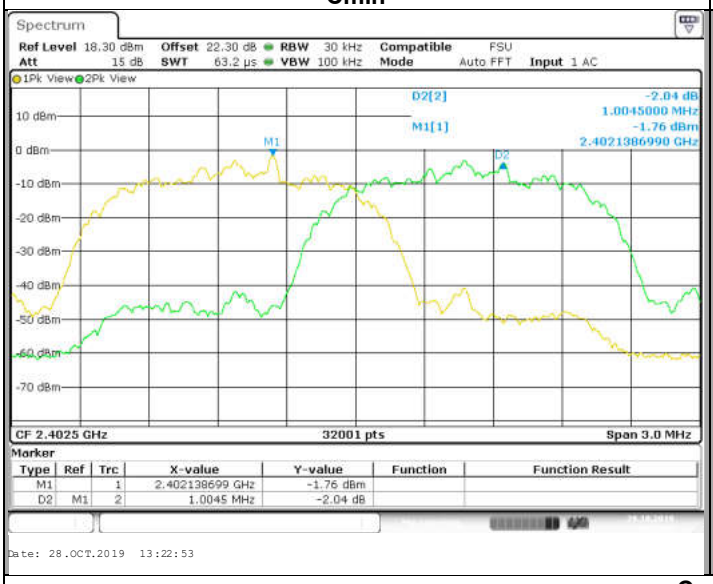
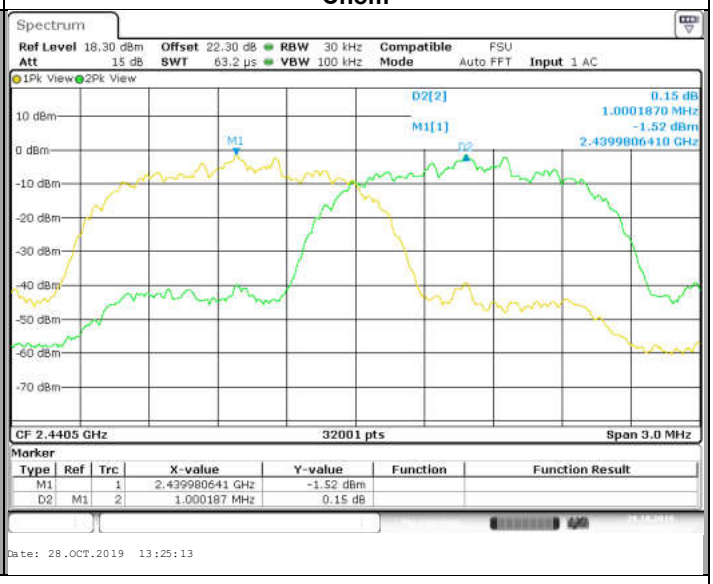
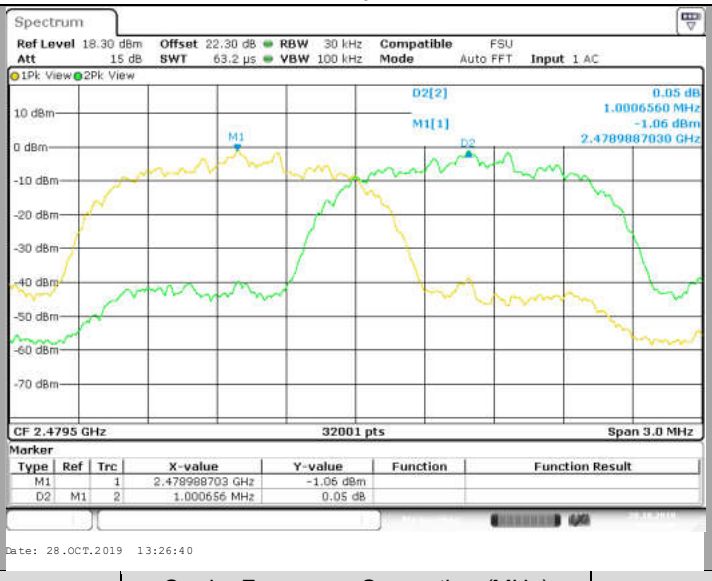
Cmax



Channel	Carrier Frequency Separation (MHz)	Limit (MHz)
Cmin	1.00	Minimum 2/3 of 20dB Emission Bandwidth
Cnom	1.00	Minimum 2/3 of 20dB Emission Bandwidth
Cmax	1.00	Minimum 2/3 of 20dB Emission Bandwidth

π/4 DQPSK (2-DH5)	
Cmin	**Cnom**
	
Cmax	
	

Channel	Carrier Frequency Separation (MHz)	Limit (MHz)
Cmin	1.00	Minimum 2/3 of 20dB Emission Bandwidth
Cnom	1.00	Minimum 2/3 of 20dB Emission Bandwidth
Cmax	1.00	Minimum 2/3 of 20dB Emission Bandwidth

8DPSK (3-DH5)		
Cmin	**Cnom**	
		
Cmax		
		

Channel	Carrier Frequency Separation (MHz)	Limit (MHz)
Cmin	1.00	Minimum 2/3 of 20dB Emission Bandwidth
Cnom	1.00	Minimum 2/3 of 20dB Emission Bandwidth
Cmax	1.00	Minimum 2/3 of 20dB Emission Bandwidth

5.6. CONCLUSION

Carrier Frequency Separation 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.

6. NUMBER OF HOPPING FREQUENCY

6.1. TEST CONDITIONS

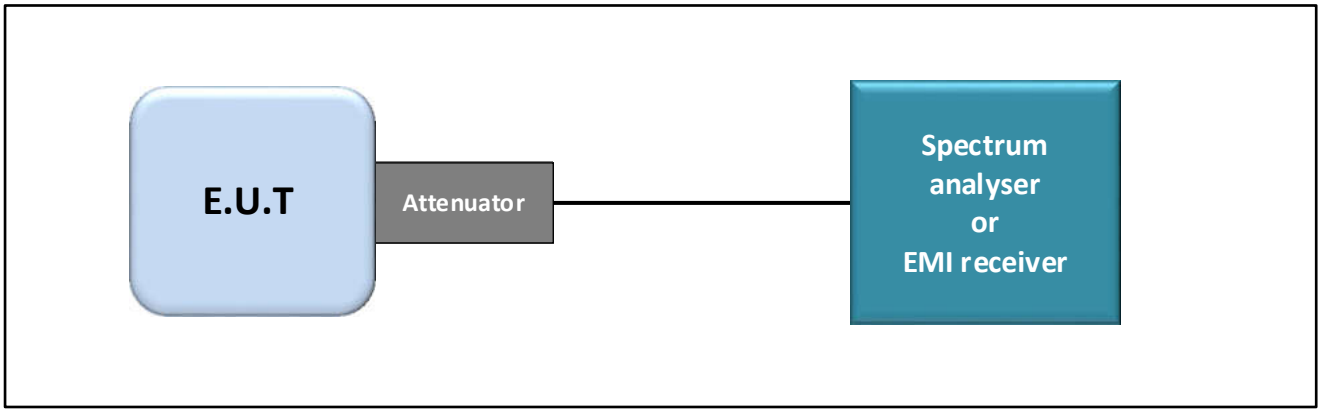
Test performed by	: Julien Palard
Date of test	: October 28, 2019
Ambient temperature	: 22 °C
Relative humidity	: 39 %

6.2. TEST SETUP

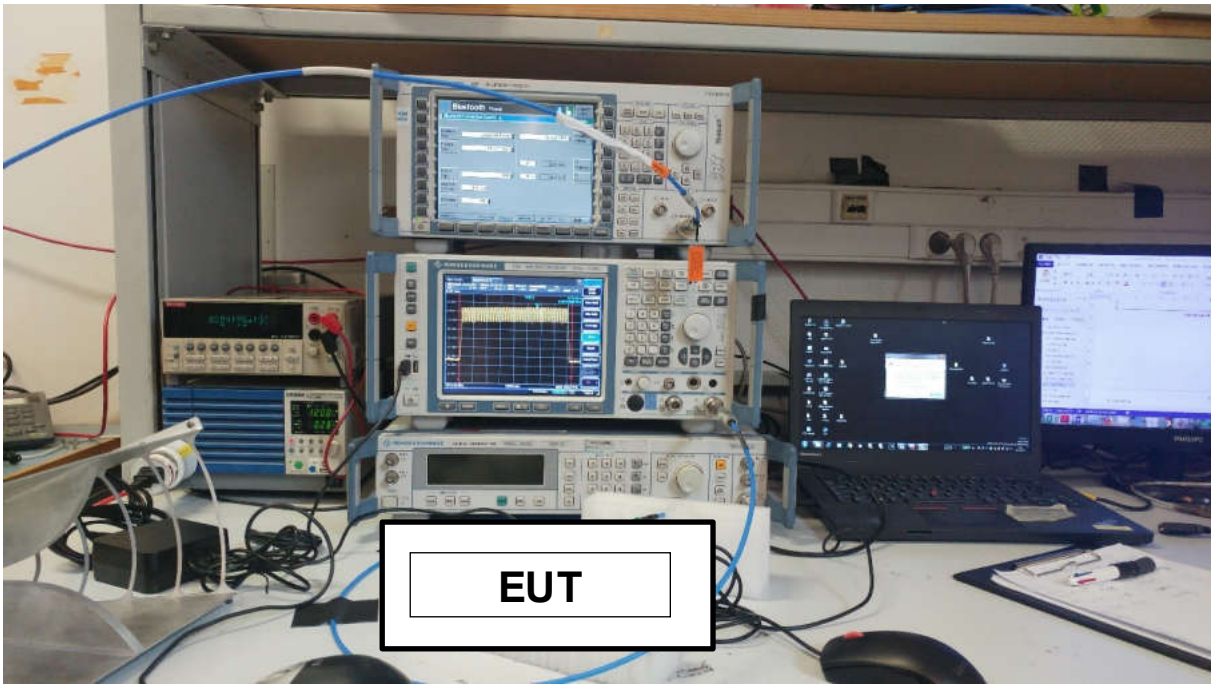
- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

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

- Test Procedure:
☑ ANSI C63.10 § 7.8.3:



Test set up of Number of Hopping Frequency



Photograph for Number of Frequency Hopping

6.3. LIMIT

Number of Hopping Frequencies shall be at least 15 channels

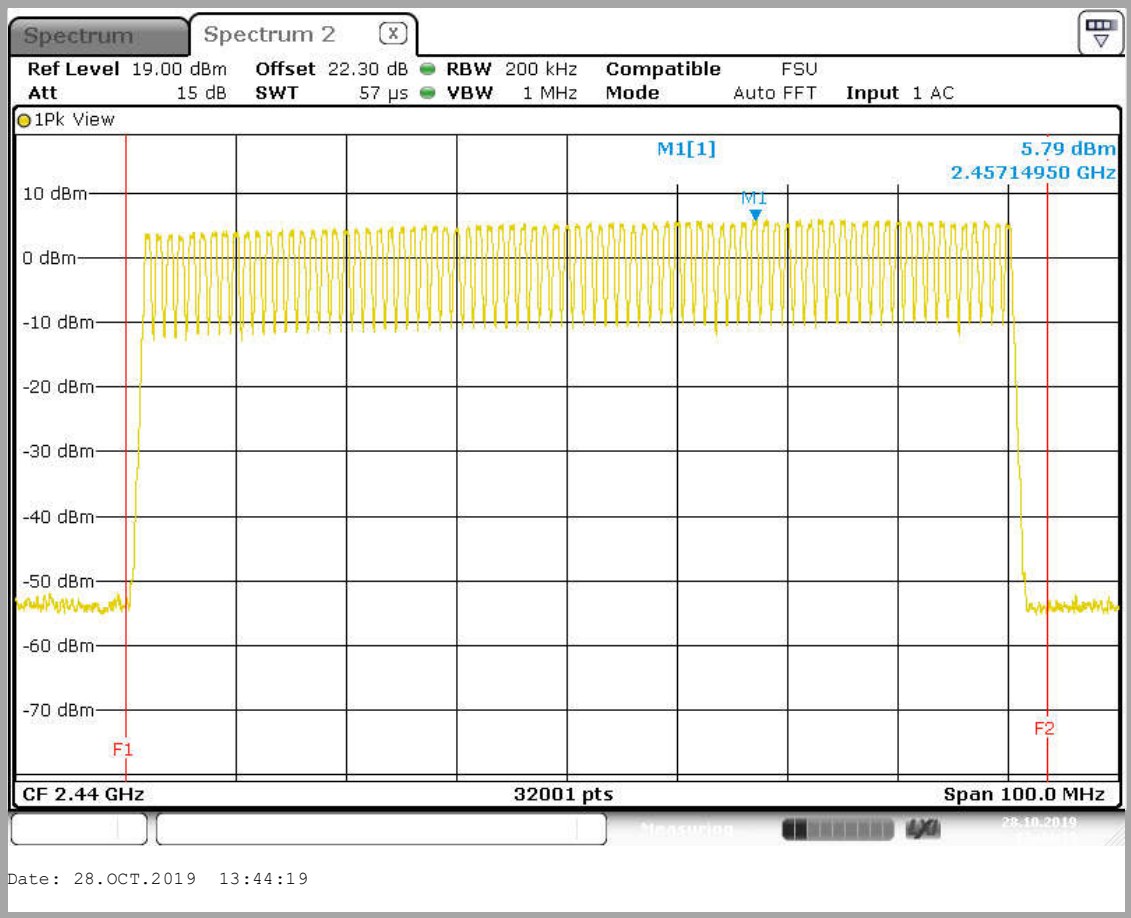
6.4. TEST EQUIPMENT LIST

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

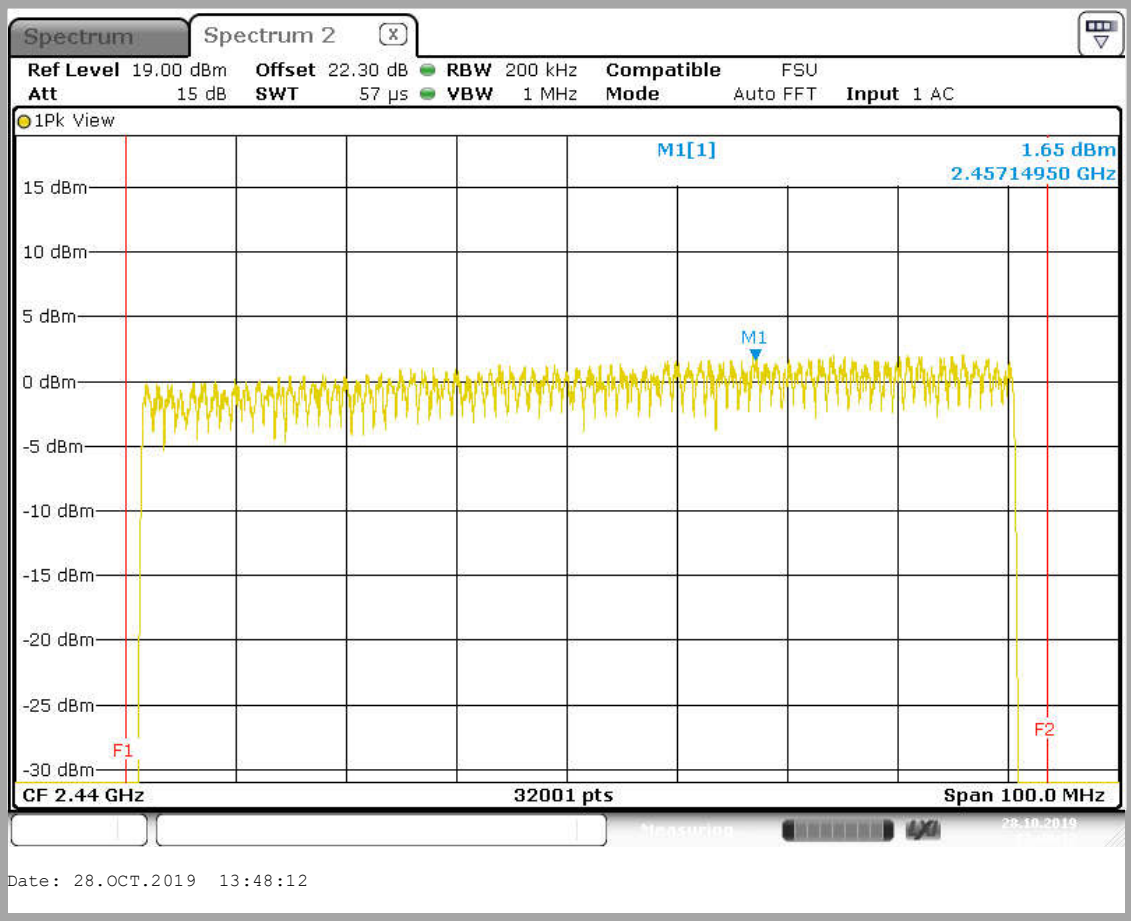
6.5. RESULTS

GFSK (DH5)
Call



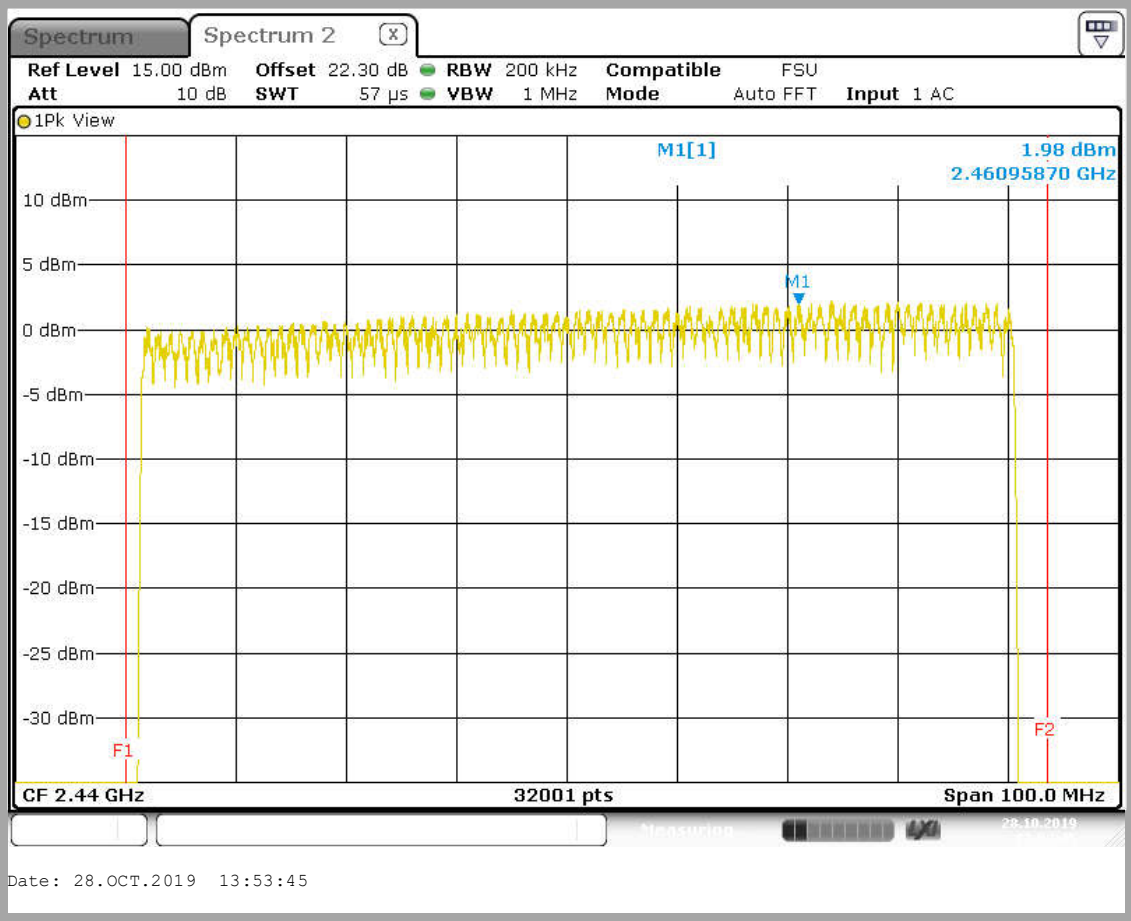
Channel	Number of Hopping Frequencies	Limit
Call	79	Minimum 15

π/4 DQPSK (2-DH5)
Call



Channel	Number of Hopping Frequencies	Limit
Call	78	Minimum 15

8DPSK (3-DH5)
Call



Channel	Number of Hopping Frequencies	Limit
Call	78	Minimum 15

6.6. CONCLUSION

Number of Frequency Hopping 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.

7. TIME OF OCCUPANCY

7.1. TEST CONDITIONS

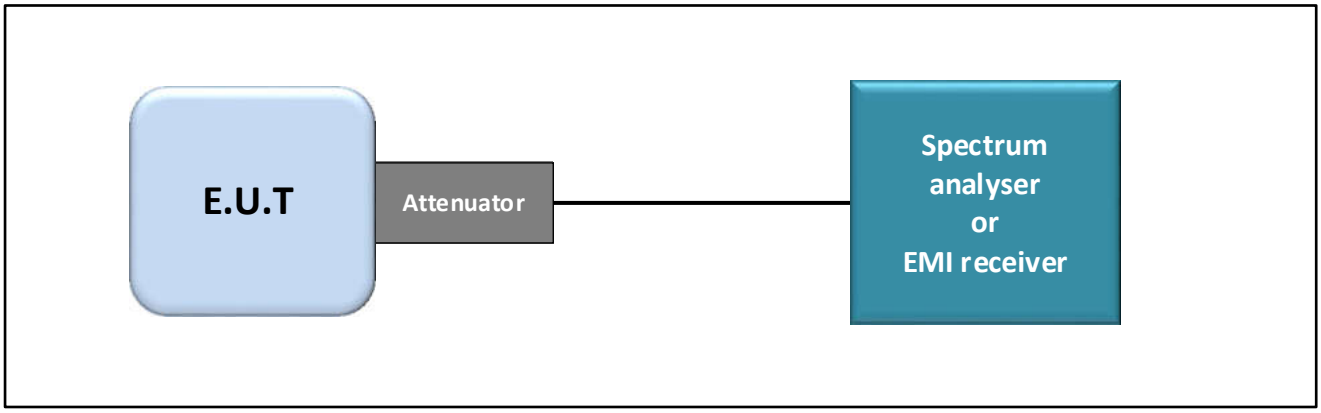
Test performed by	: Julien Palard
Date of test	: October 28, 2019
Ambient temperature	: 22 °C
Relative humidity	: 39 %

7.2. TEST SETUP

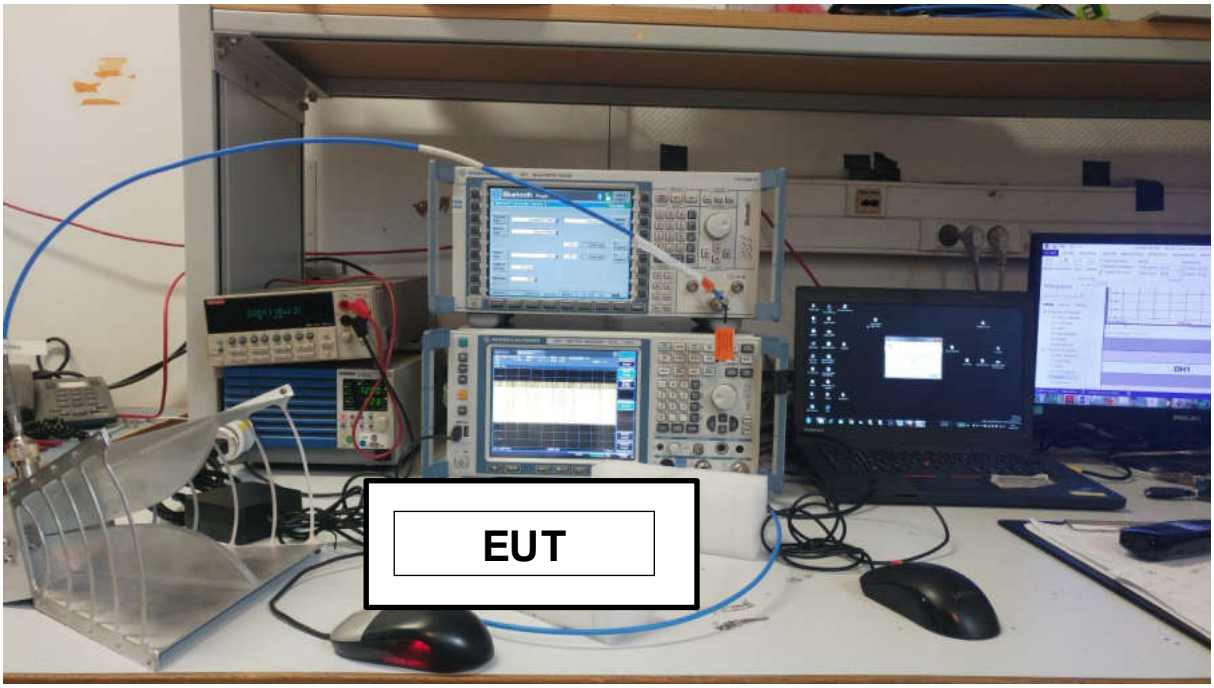
- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

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

- Test Procedure:
☑ ANSI C63.10 § 7.8.4



Test set up of Time of Occupancy



Photograph for Time of Occupancy

7.3. LIMIT

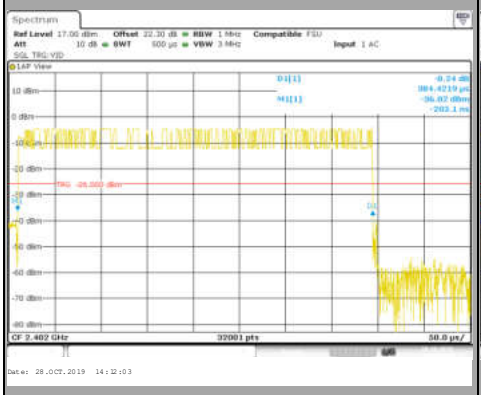
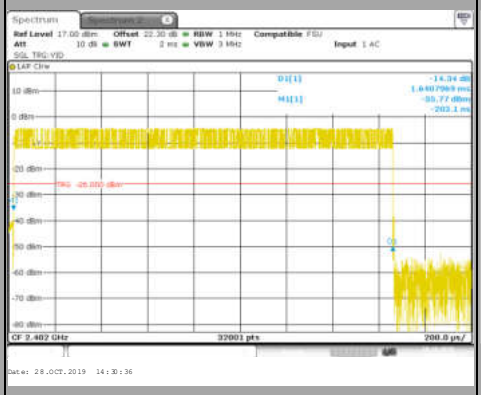
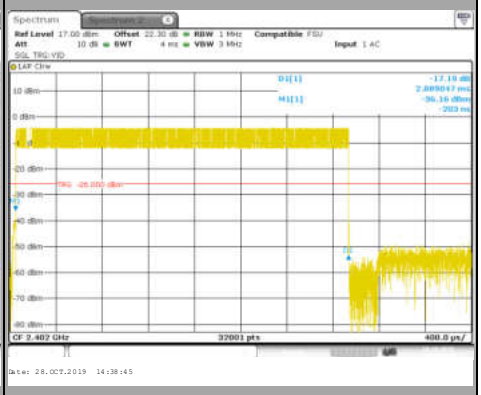
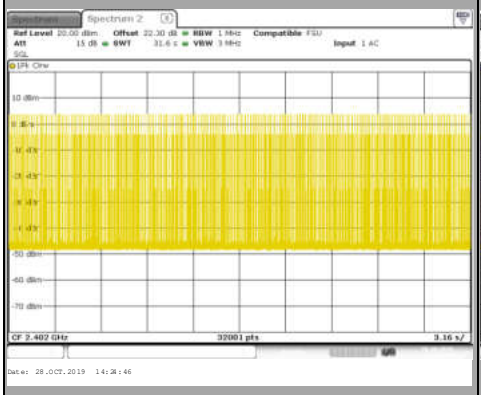
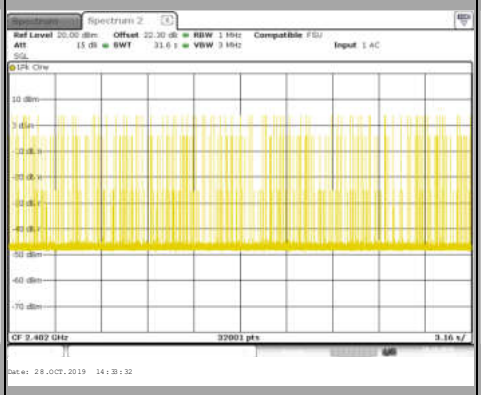
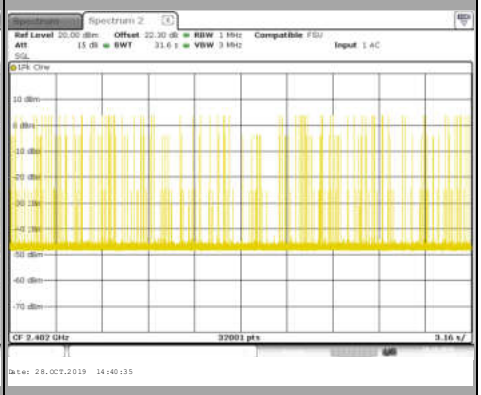
The Time of Occupancy shall not exceed 0.4s within any period of 0.4s multiplied by the number of hopping channels employed

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

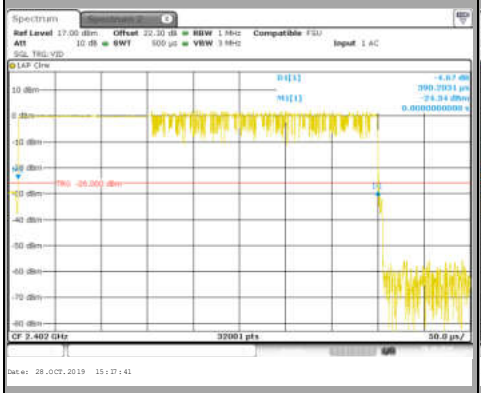
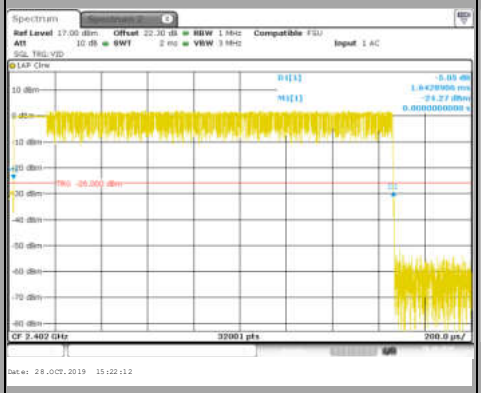
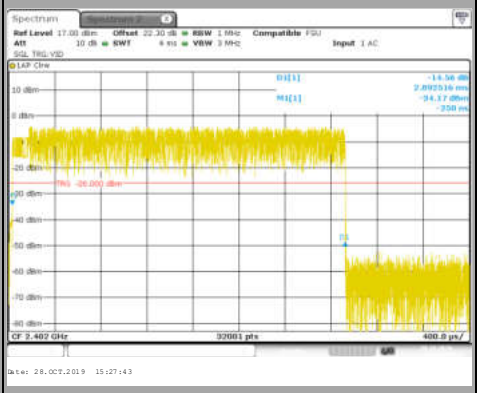
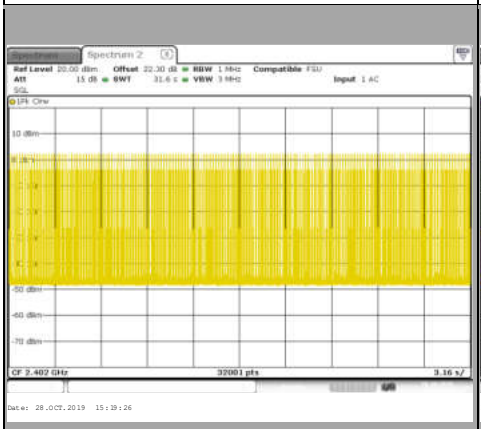
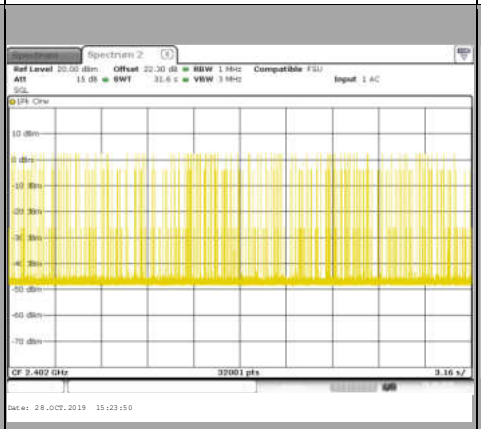
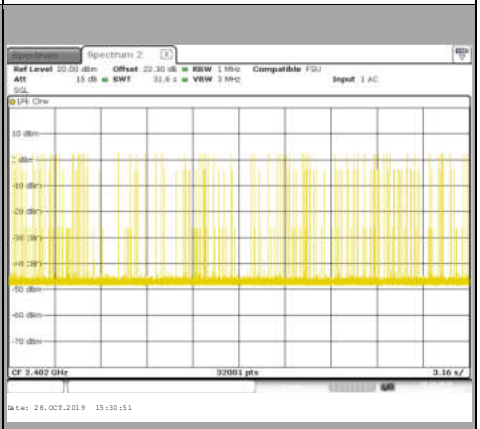
Note: In our quality system, the test equipment calibration due is more & less 2 months

7.5. RESULTS

Burst Length		
GFSK		
DH1	DH3	DH5
		
Time of Occupancy		
DH1	DH3	DH5
		

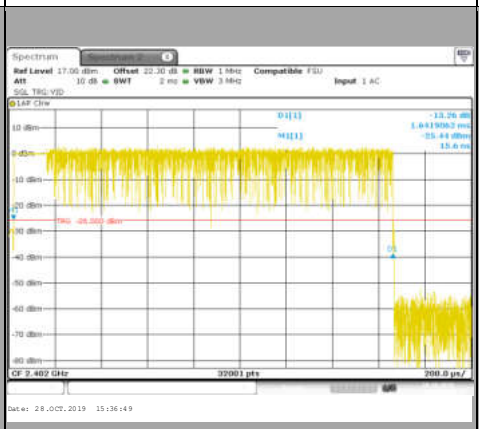
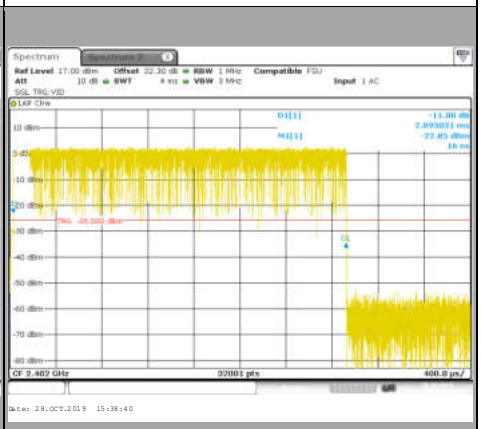
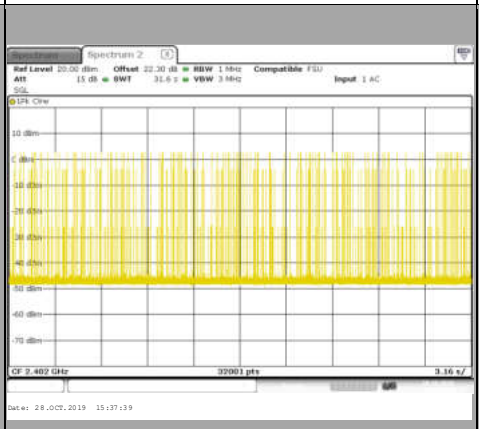
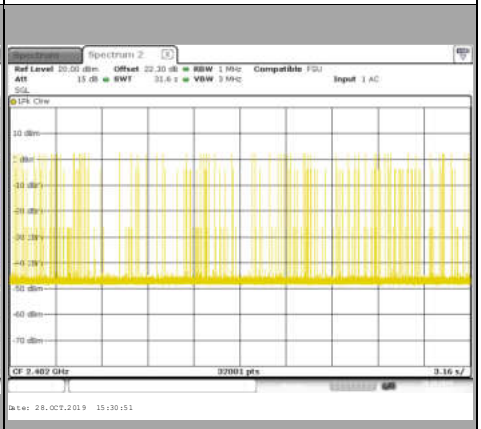
Packet Type	Burst Length (ms)	Number of Hopping during Time of Occupancy	Time of Occupancy (ms)	Limit of Time of Occupancy (ms)
DH1	0.384	320	122.88	400
DH3	1.641	112	183.79	400
DH5	2.889	77	222.45	400

Note: Period of 31.6 seconds (79 channels x 0.4)

Burst Length		
π/4 DQPSK		
2DH1	2DH3	2DH5
		
Time of Occupancy		
2DH1	2DH3	2DH5
		

Packet Type	Burst Length (ms)	Number of Hopping during Time of Occupancy	Time of Occupancy (ms)	Limit of Time of Occupancy (ms)
2DH1	0.390	332	129.48	400
2DH3	1.643	143	234.95	400
2DH5	2.893	83	240.12	400

Note: Period of 31.6 seconds (79 channels x 0.4)

Burst Length 8DPSK		
3DH1	**3DH3**	**3DH5**
		
Time of Occupancy		
3DH1	**3DH3**	**3DH5**
		

Packet Type	Burst Length (ms)	Number of Hopping during Time of Occupancy	Time of Occupancy (ms)	Limit of Time of Occupancy (ms)
3DH1	0.390	312	121.68	400
3DH3	1.642	137	224.95	400
3DH5	2.893	81	234.33	400

Note: Period of 31.6 seconds (79 channels x 0.4)

7.6. CONCLUSION

Time of Occupancy 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.

8. DUTY CYCLE

8.1. TEST CONDITIONS

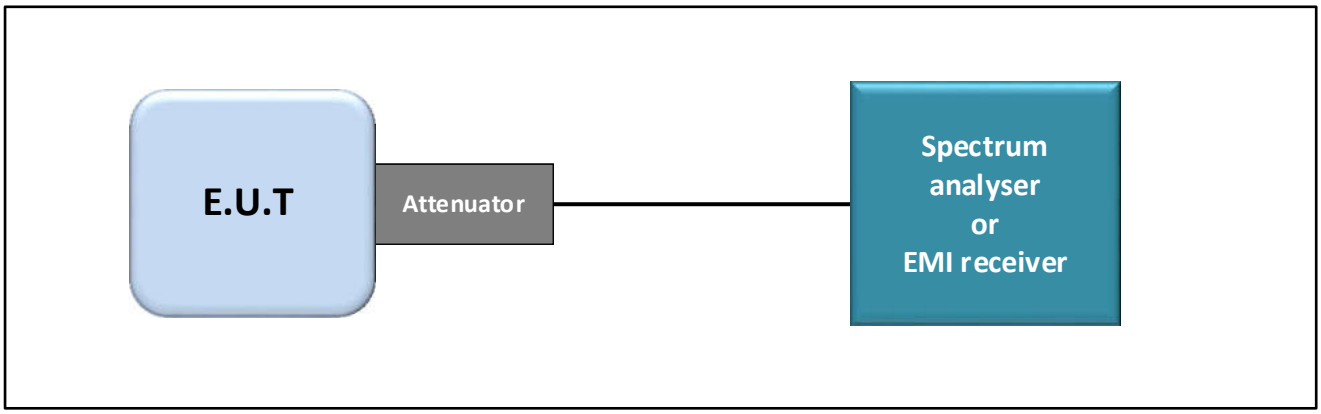
Test performed by	: Julien Palard
Date of test	: October 28, 2019
Ambient temperature	: 22 °C
Relative humidity	: 39 %

8.2. TEST SETUP

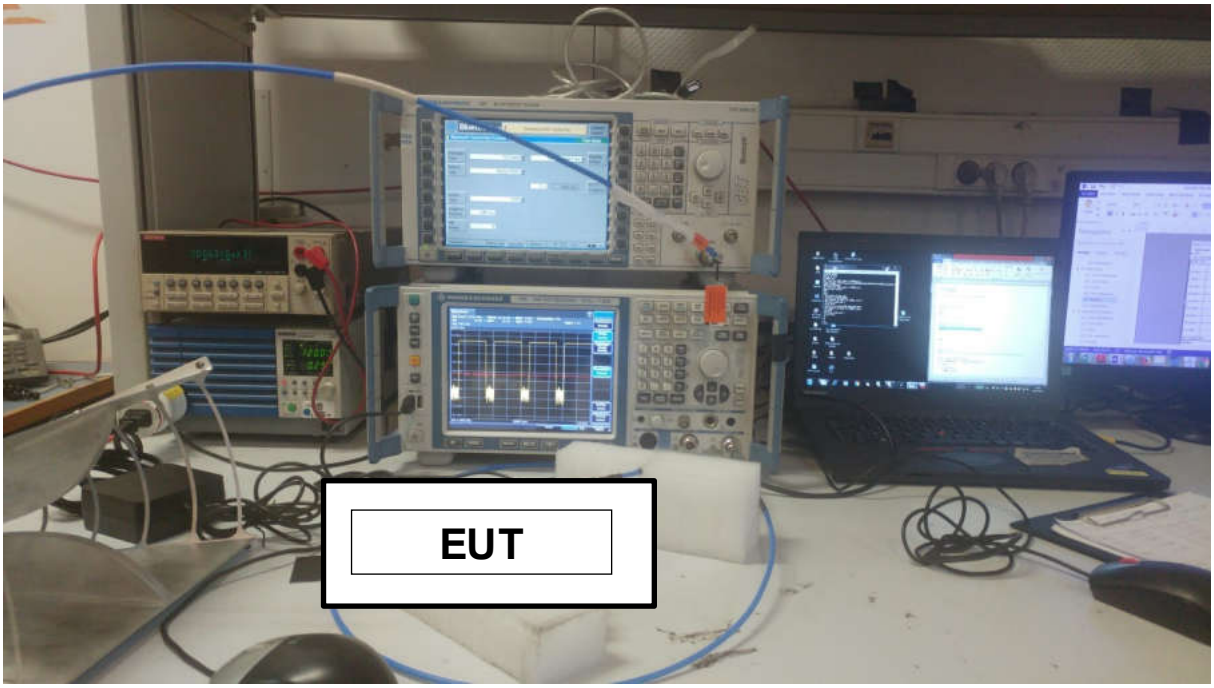
- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

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

- Test Procedure:
☑ ANSI C63.10 § 11.6



Test set up of Duty Cycle



Photograph for Duty Cycle

8.3. LIMIT

None

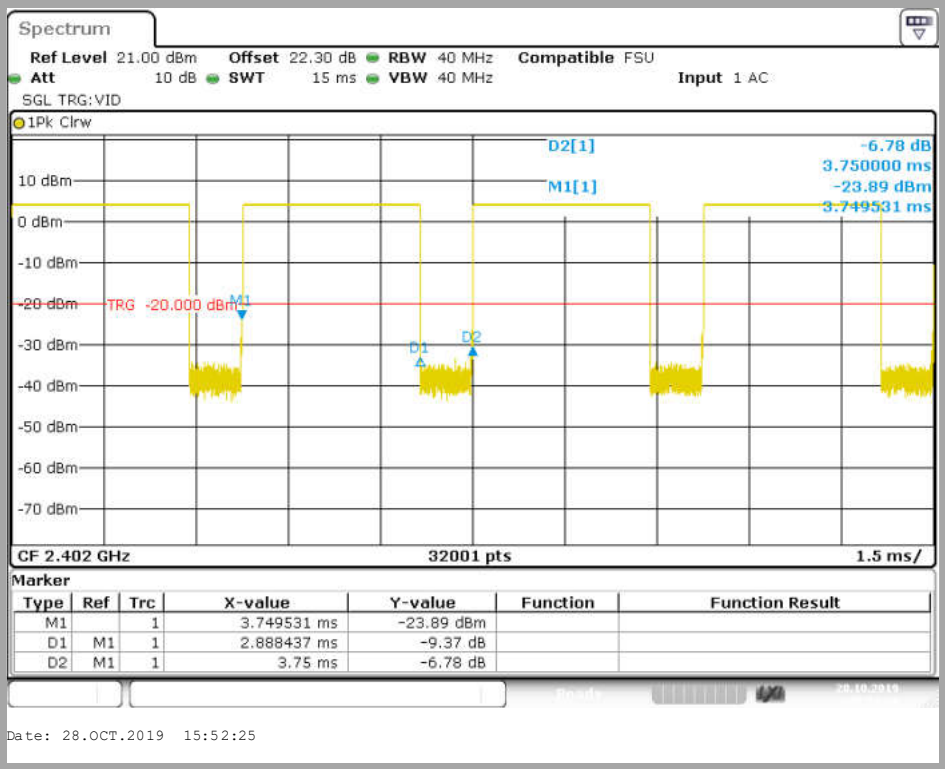
8.4. TEST EQUIPMENT LIST

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

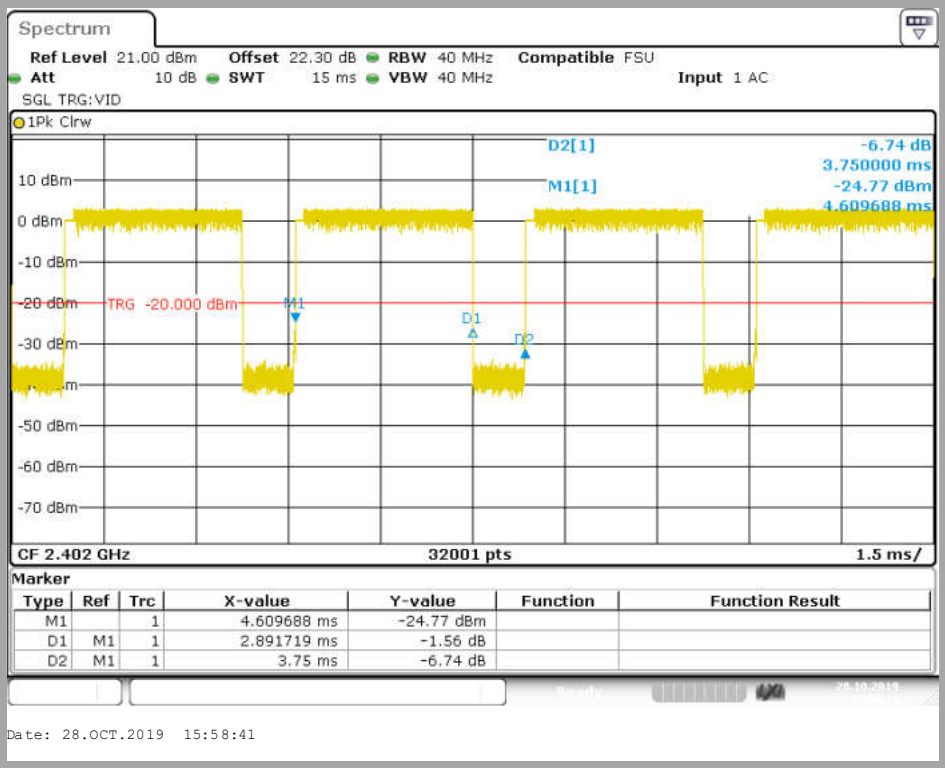
8.5. RESULTS

GFSK
Cmin



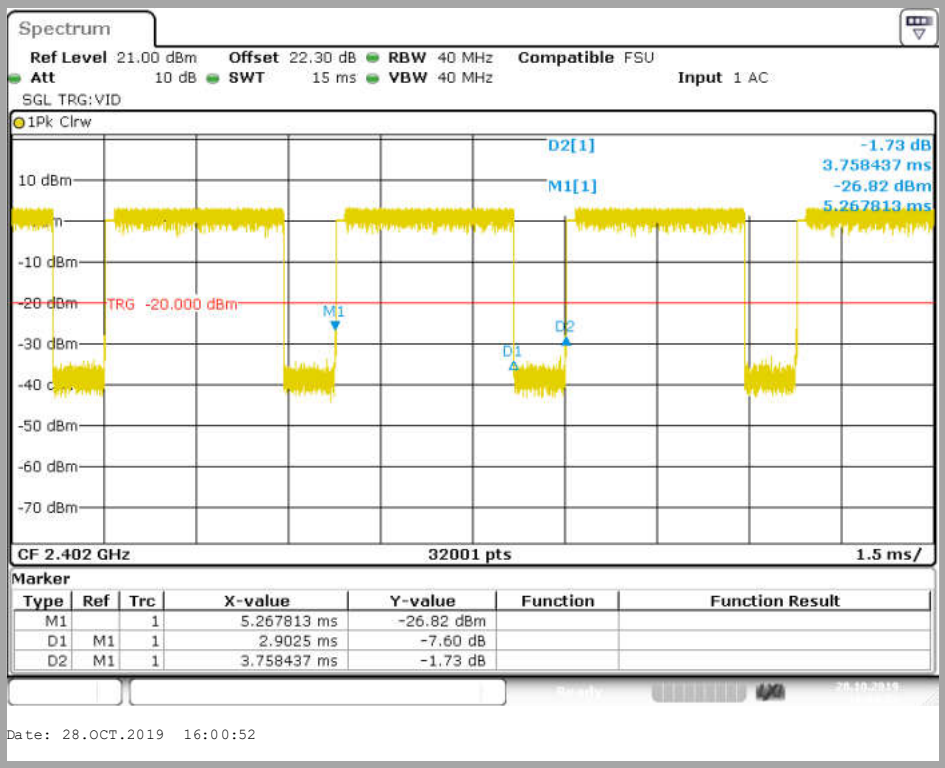
Channel	Duty Cycle (%)	Duty Cycle Correction (dB)
Channel	77.01	$20\log(\frac{1}{duty\ cycle})$ = 2.269

π/4 DQPSK
Cmin



Channel	Duty Cycle (%)	Duty Cycle Correction (dB)
Channel	77.12	$20\log(\frac{1}{duty\ cycle})$ = 2.257

8DPSK
Cmin



Channel	Duty Cycle (%)	Duty Cycle Correction (dB)
Channel	77.17	$20\log(\frac{1}{duty\ cycle})$ = 2.251

8.6. 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.

9. MAXIMUM CONDUCTED OUTPUT POWER

9.1. TEST CONDITIONS

Test performed by	: Julien Palard
Date of test	: October 28, 2019
Ambient temperature	: 22 °C
Relative humidity	: 39 %

9.2. TEST SETUP

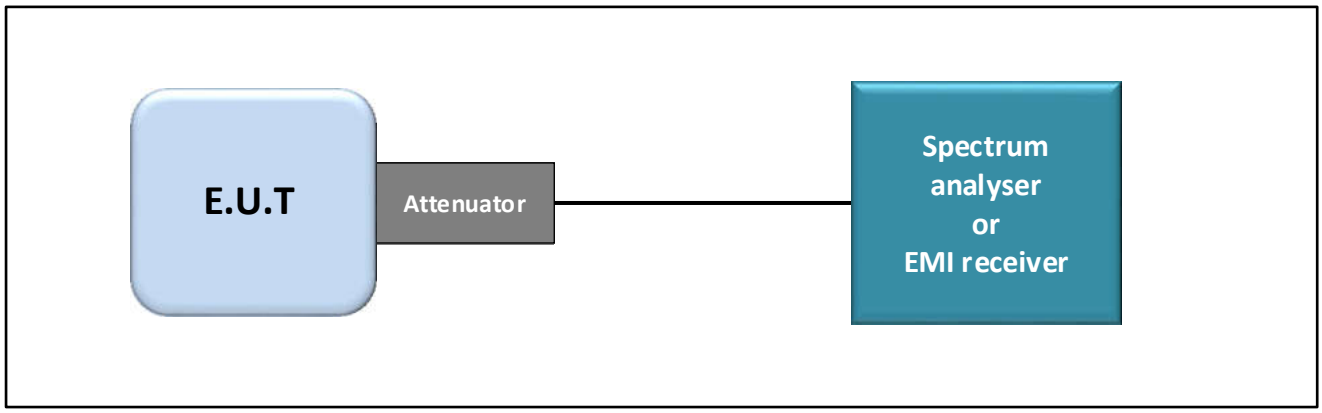
- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

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

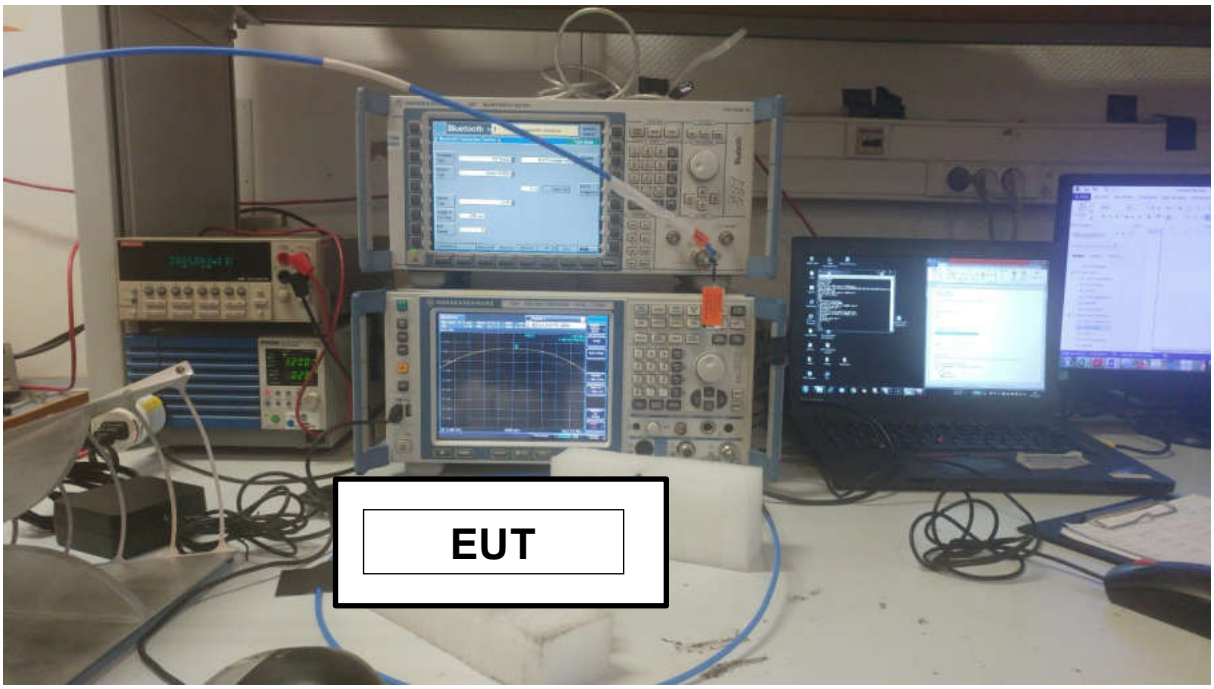
- Test Procedure:
☑ ANSI C63.10 § 7.8.5

Measurement Procedure:

a) 1) Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel.
b) 2) RBW > 20 dB bandwidth of the emission being measured.
c) 3) VBW ≥ RBW.
d) 4) Sweep: Auto.
e) 5) Detector function: Peak.
f) 6) Trace: Max hold.



Test set up of Maximum Conducted Output Power



Photograph for Maximum Conducted Output Power

9.3. LIMIT

Frequency range	Maximum Conducted Output Power
2400MHz to 2483.5MHz	≤21dBm*

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

9.4. TEST EQUIPMENT LIST

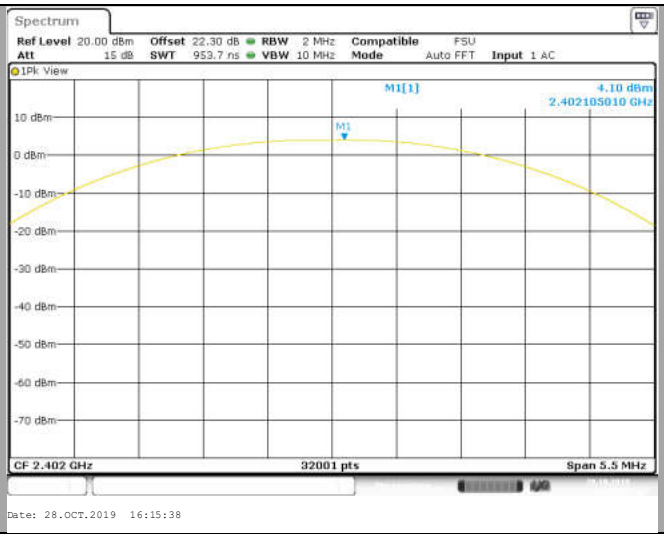
Apparatus	Trade Mark	Type	Registration number	Cal_Date	Cal_Due
Power supply	KIKUSUI	PCR500M	A7040079	Calibrated with multimeter	Calibrated with multimeter
Multimeter	Keithley	2000	A1241084	2018/12	2020/12
Cable + Attenuateur 20dB	PASTERNACK	PE350-150CM	A5329868	2018/12	2019/12
EMI receiver	ROHDE & SCHWARZ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

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

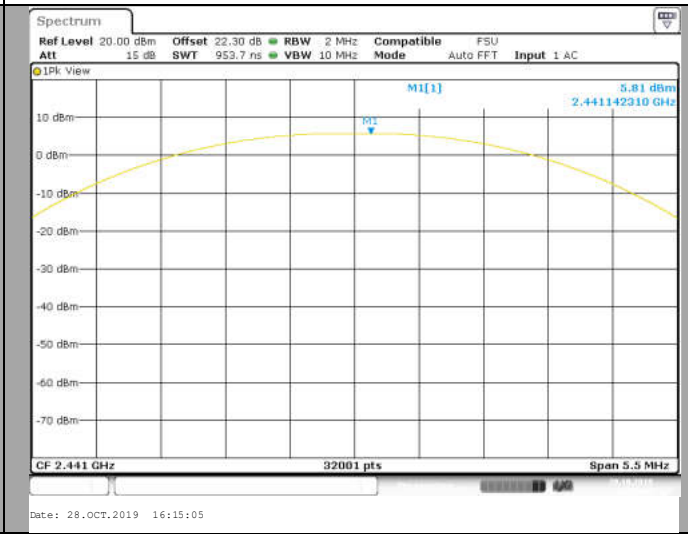
9.5. RESULTS

GFSK (DH5)

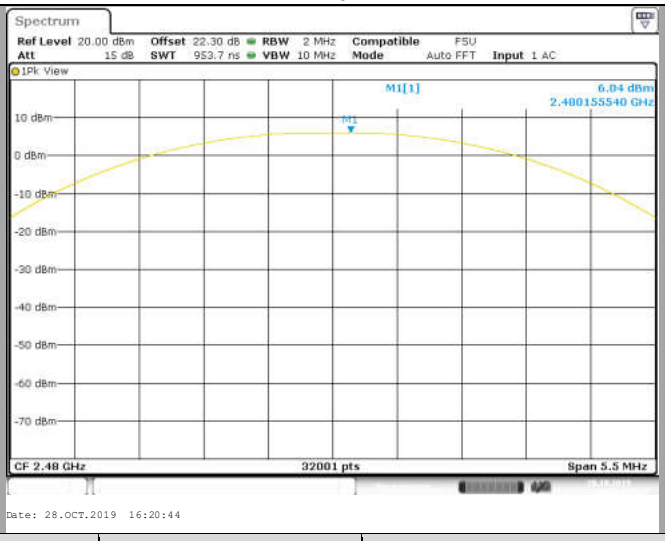
Cmin



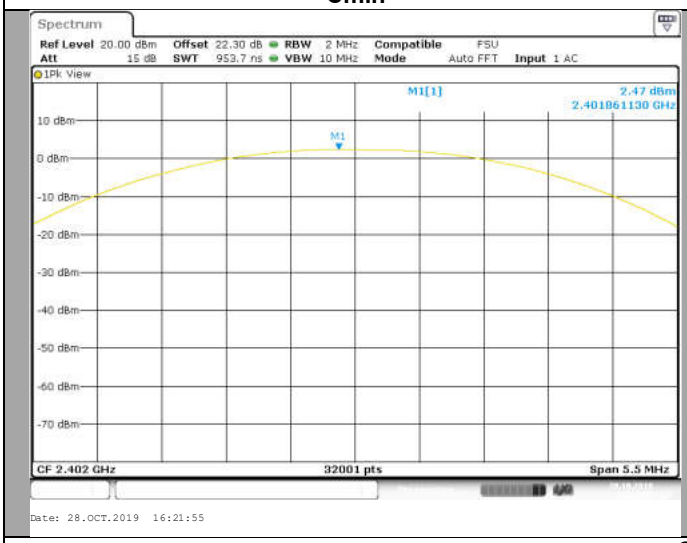
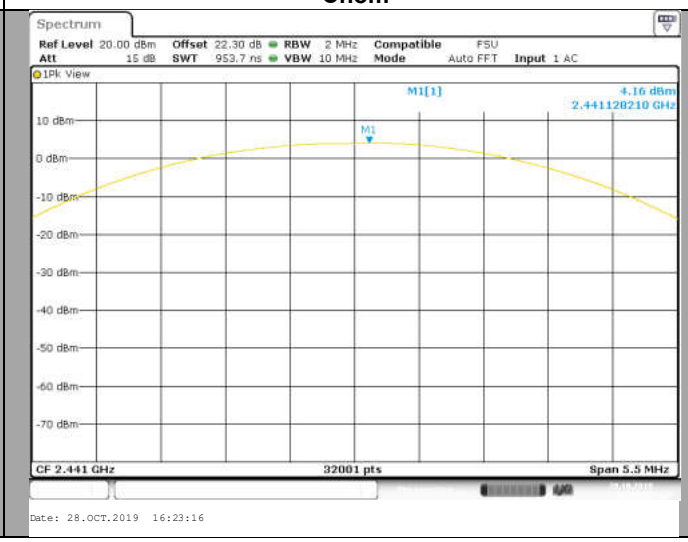
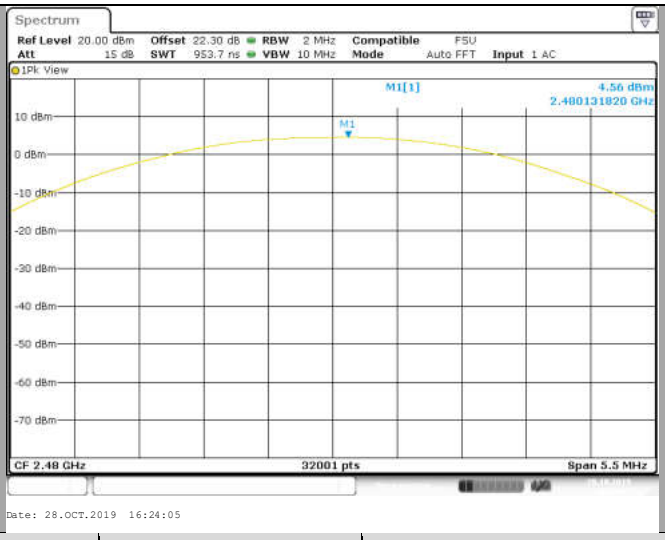
Cnom



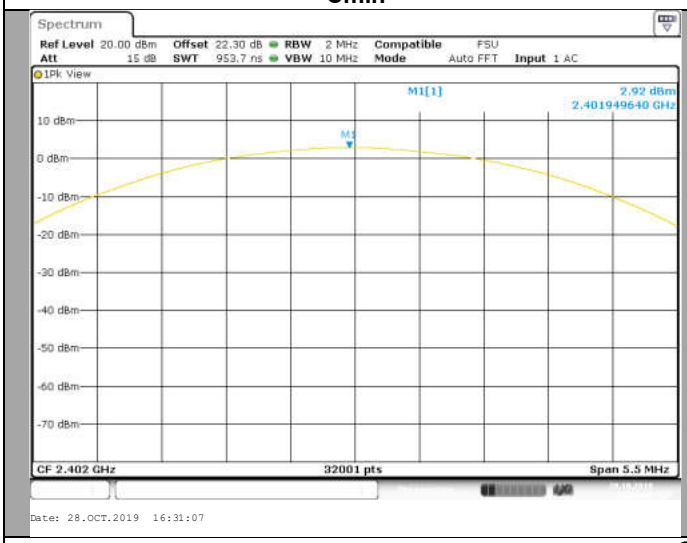
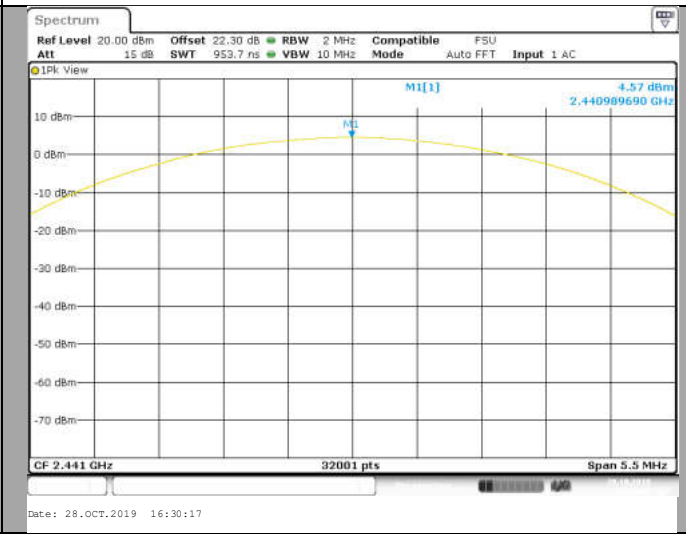
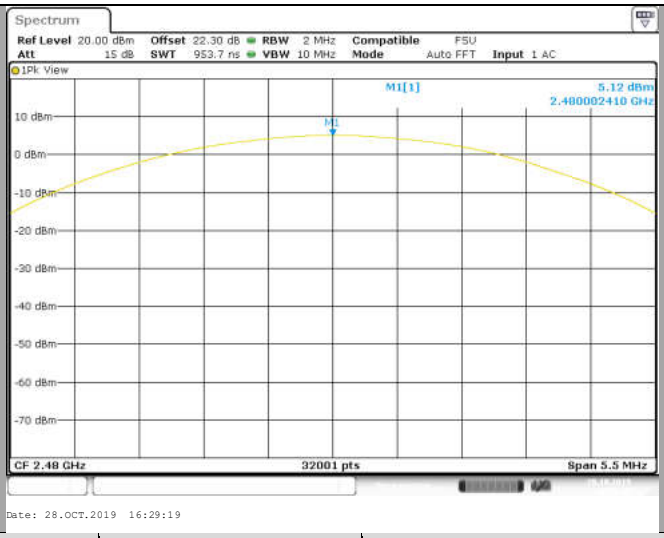
Cmax



Channel	Offset Cable + Att (dB)	Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	**22.3**	5.35	4.10	21dBm
Cnom	**22.3**	5.35	5.81	21dBm
Cmax	**22.3**	5.35	6.04	21dBm

π/4 DQPSK (2-DH5)	
Cmin	**Cnom**
	
Cmax	
	

Channel	Offset Cable + Att (dB)	Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	**22.3**	5.35	2.47	21dBm
Cnom	**22.3**	5.35	4.16	21dBm
Cmax	**22.3**	5.35	4.56	21dBm

π/4 DQPSK (3-DH5)	
Cmin	**Cnom**
	
Cmax	
	

Channel	Offset Cable + Att (dB)	Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	**22.3**	5.35	2.92	21dBm
Cnom	**22.3**	5.35	4.57	21dBm
Cmax	**22.3**	5.35	5.12	21dBm

9.6. 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.

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

10.1. TEST CONDITIONS

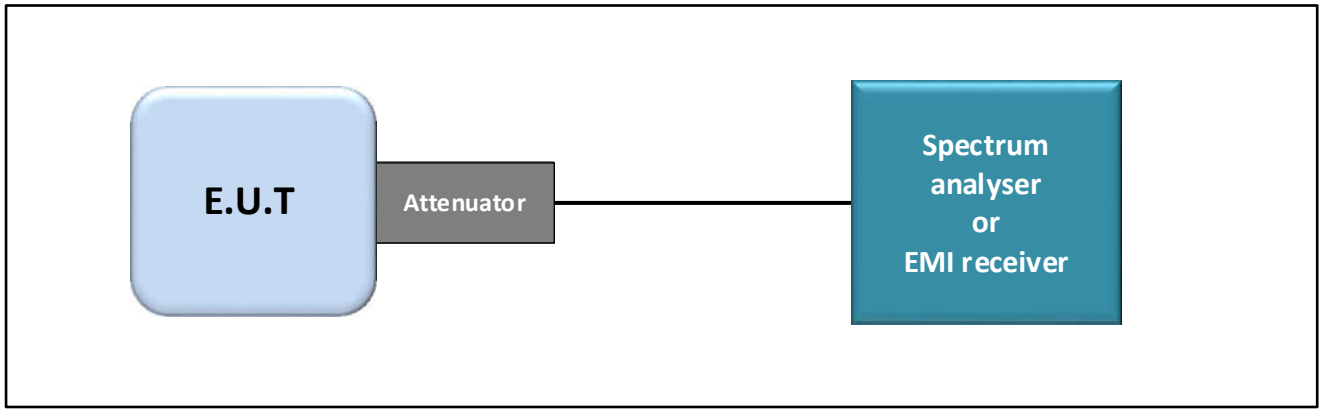
Test performed by	: Julien Palard
Date of test	: October 28, 2019
Ambient temperature	: 22 °C
Relative humidity	: 39 %

10.2. TEST SETUP

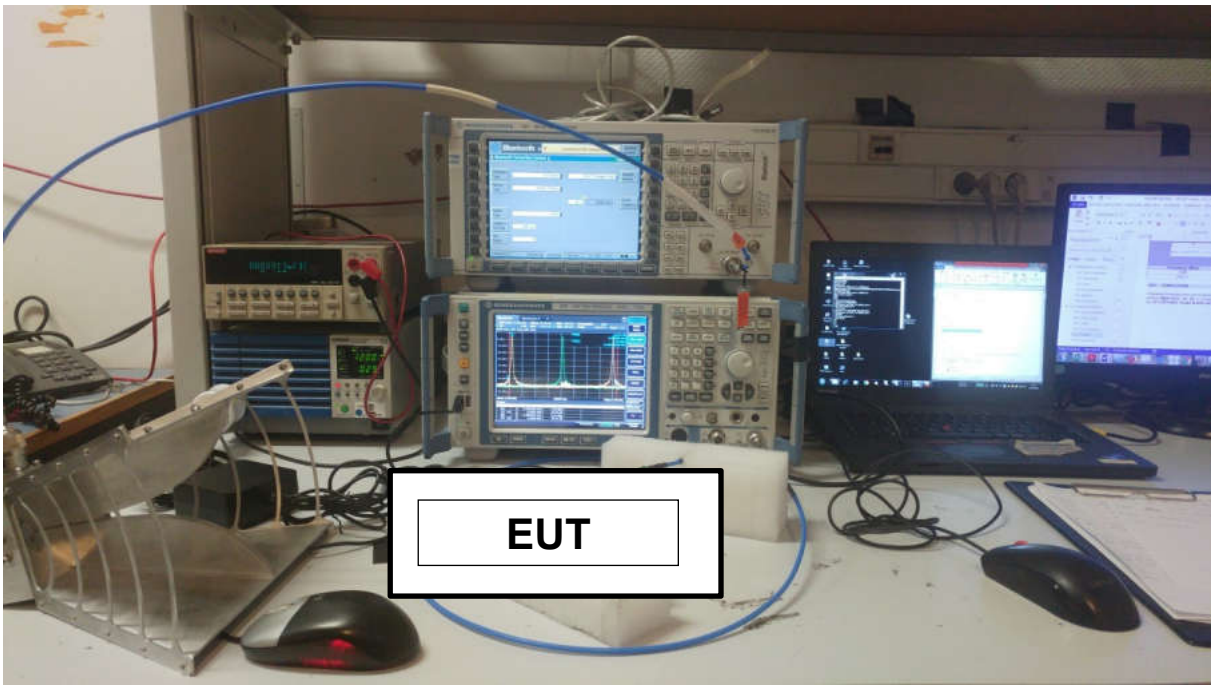
- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

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

- Test Procedure:
☑ ANSI C63.10 § 7.8.6



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

10.3. LIMIT

All Spurious Emissions must be at least 20dB below the Fundamental Radiator Level at the Band Edge Edge “2400MHz & 2483,5MHz”

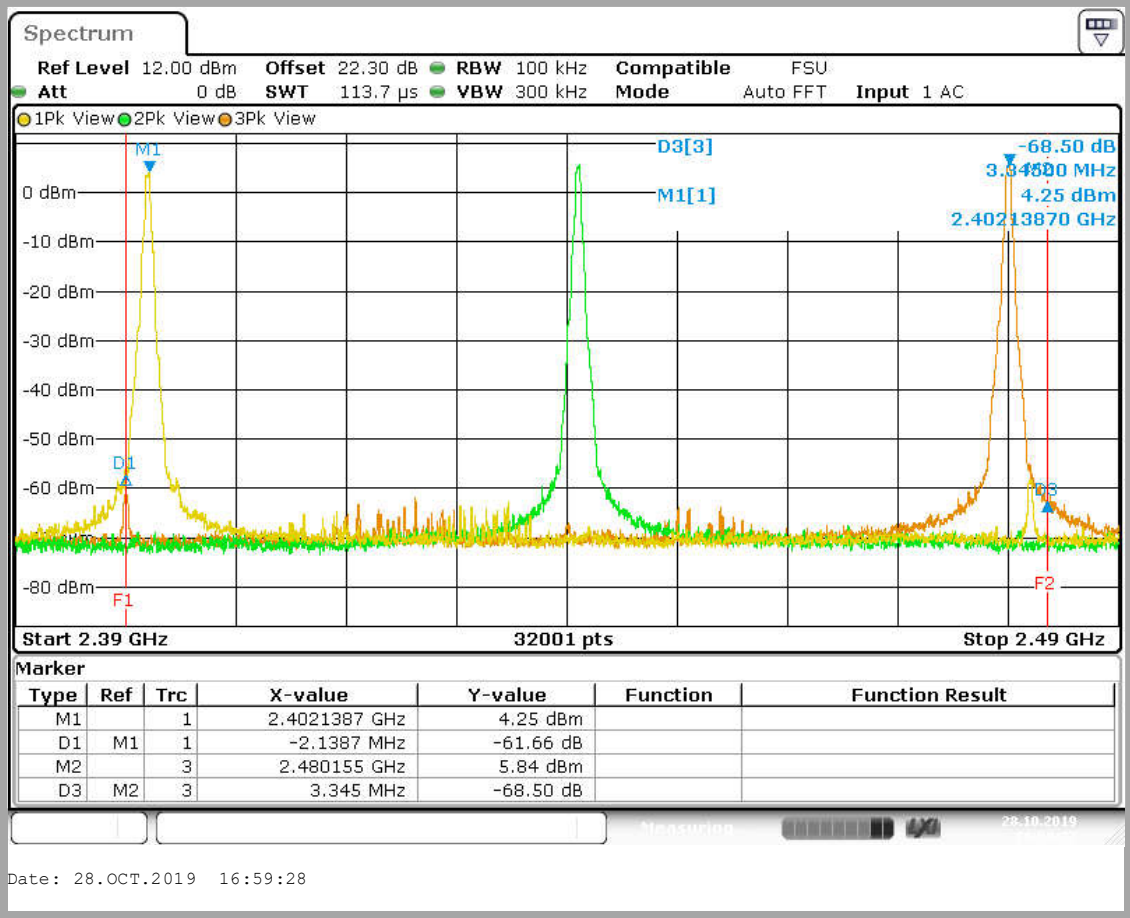
10.4. TEST EQUIPMENT LIST

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

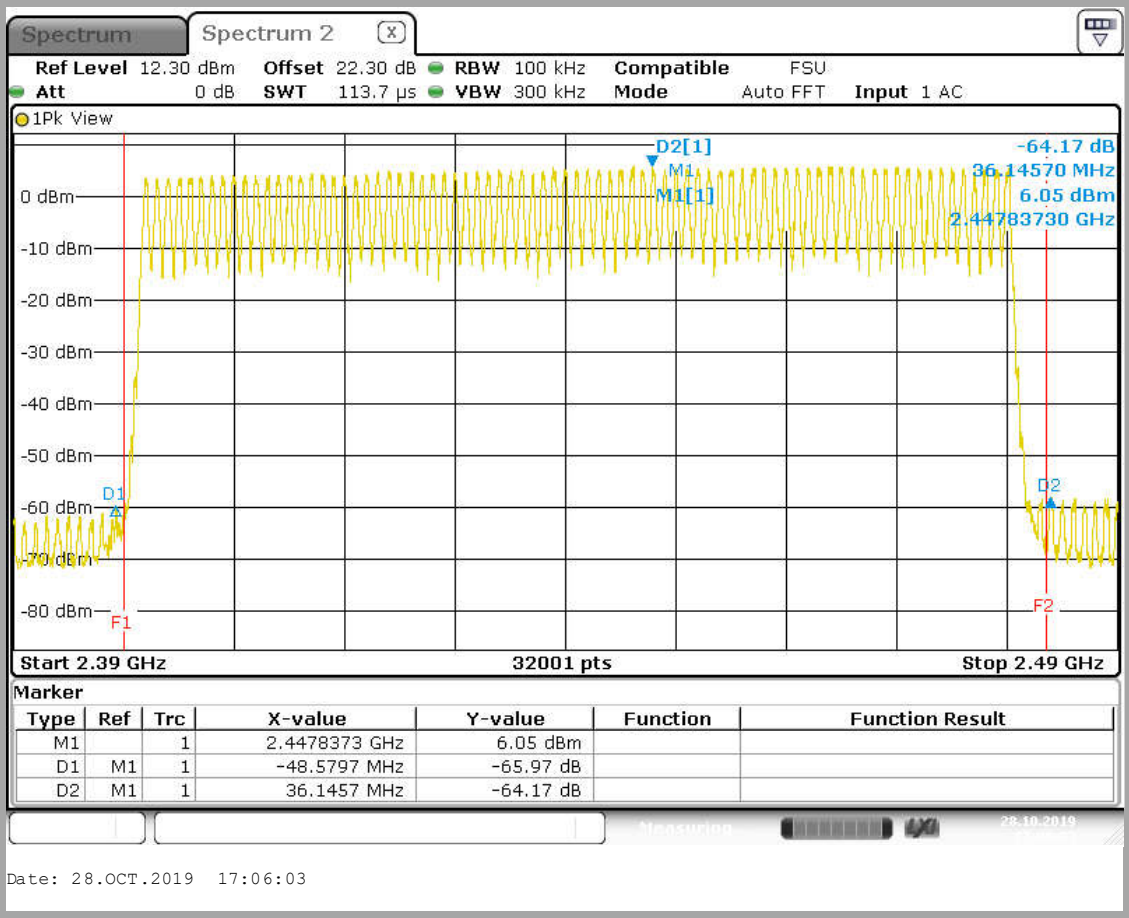
10.5. RESULTS

GFSK
Cmin/Cnom/Cmax



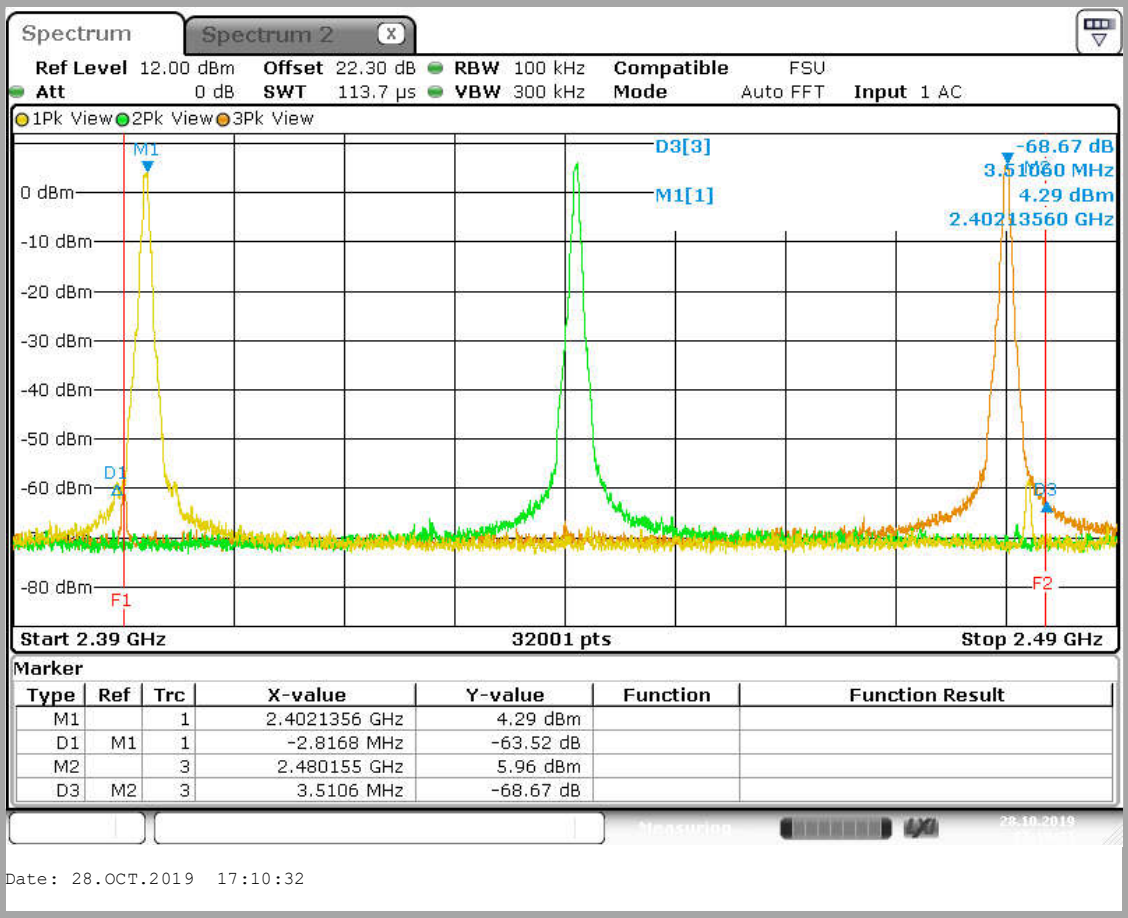
Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	61.66	20
2483.5	68.50	20

GFSK
Call



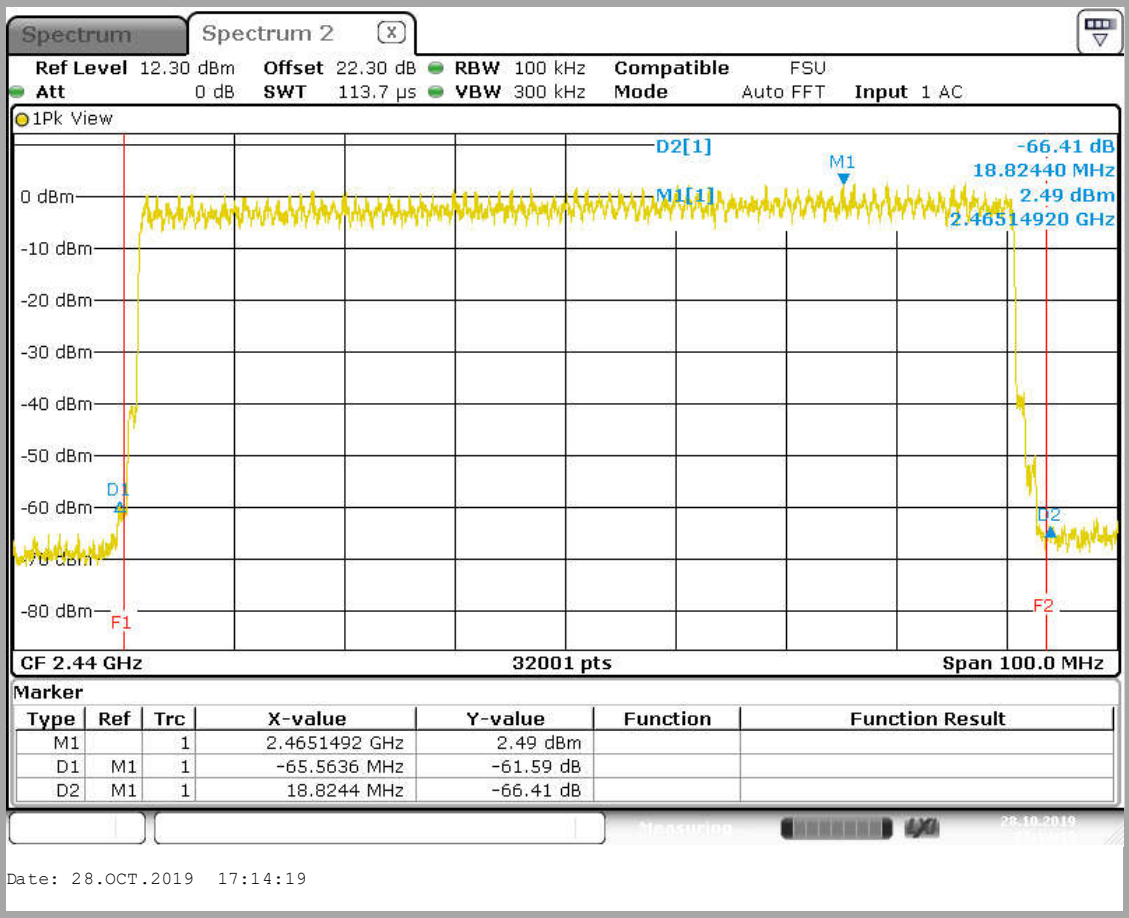
Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	65.97	20
2483.5	64.17	20

π/4 DQPSK
Cmin/Cnom/Cmax



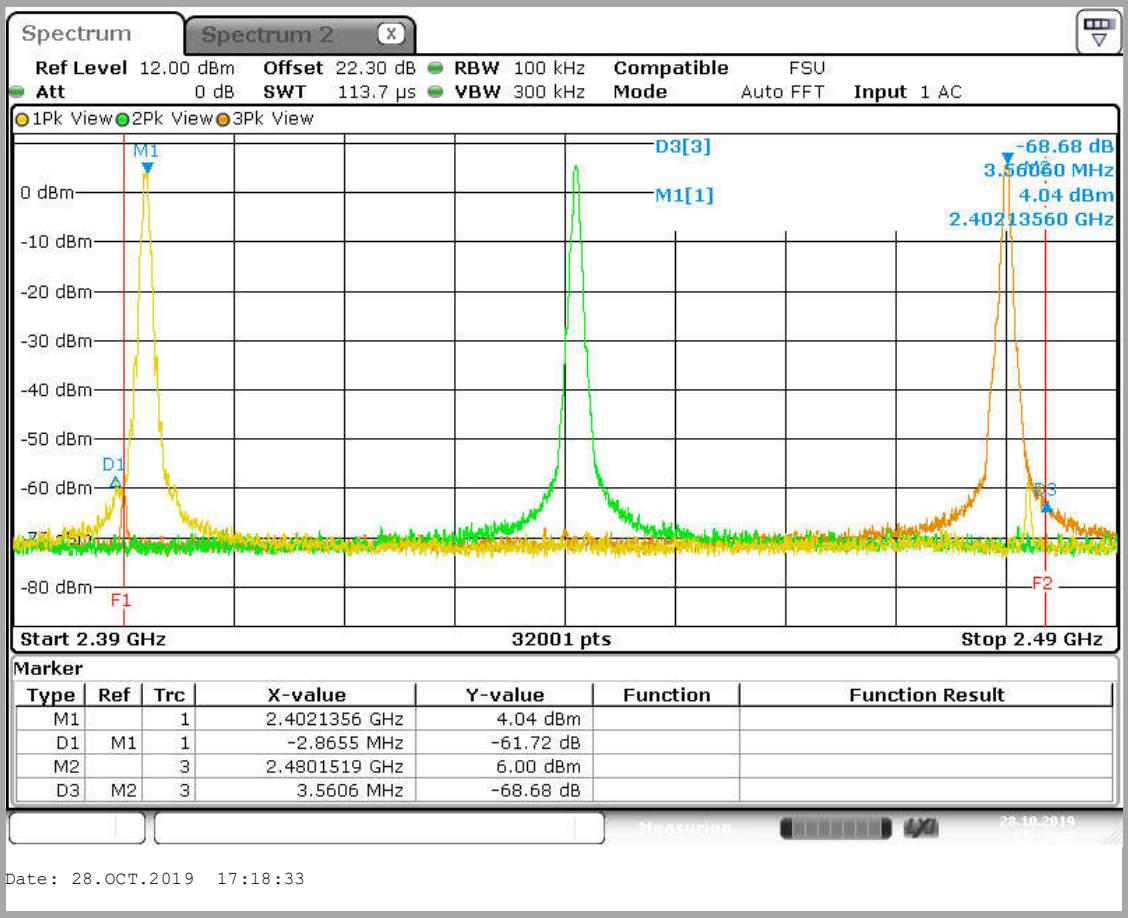
Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	63.52	20
2483.5	68.67	20

π/4 DQPSK
Call



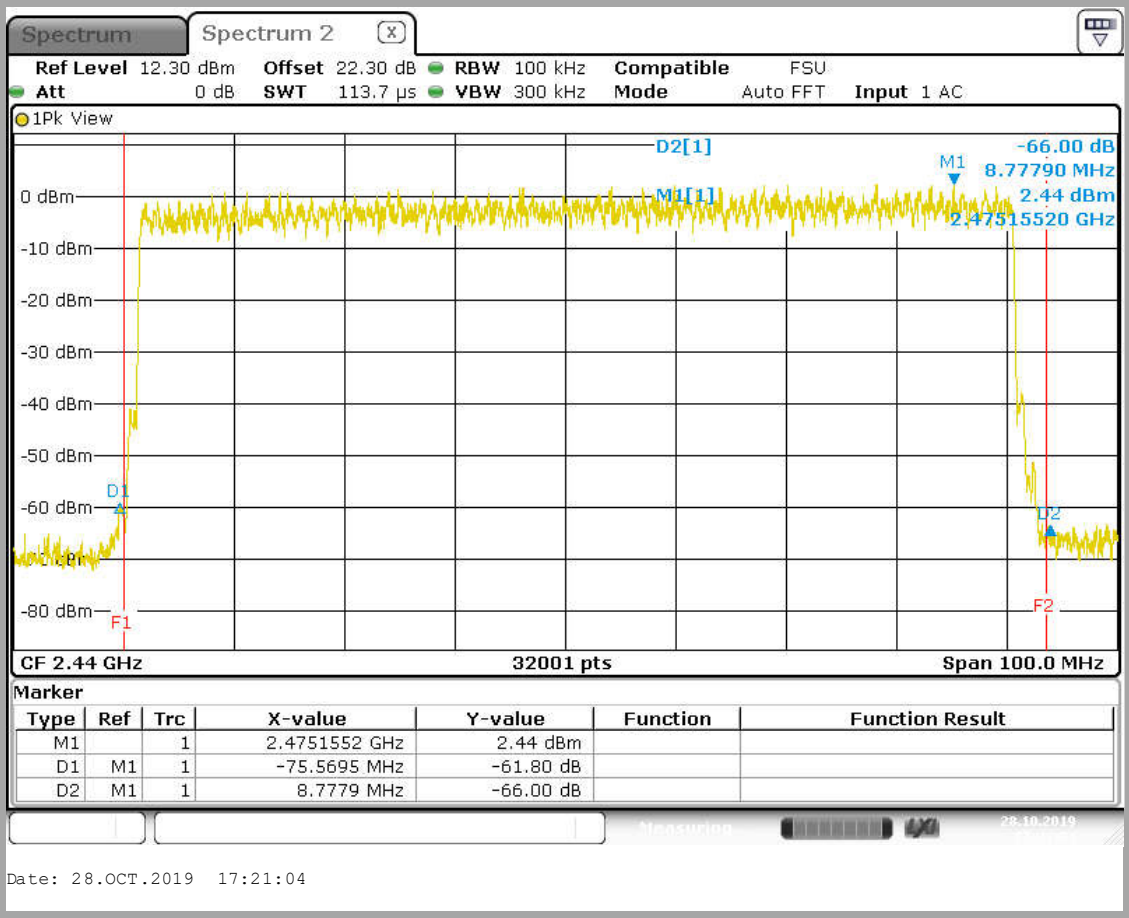
Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	61.59	20
2483.5	66.41	20

8DPSK
Cmin/Cnom/Cmax



Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	61.72	20
2483.5	68.68	20

8DPSK
Call



Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	61.80	20
2483.5	66.00	20

10.6. 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.

11. UNWANTED EMISSIONS INTO NON-RESTRICTED FREQUENCY BANDS

11.1. TEST CONDITIONS

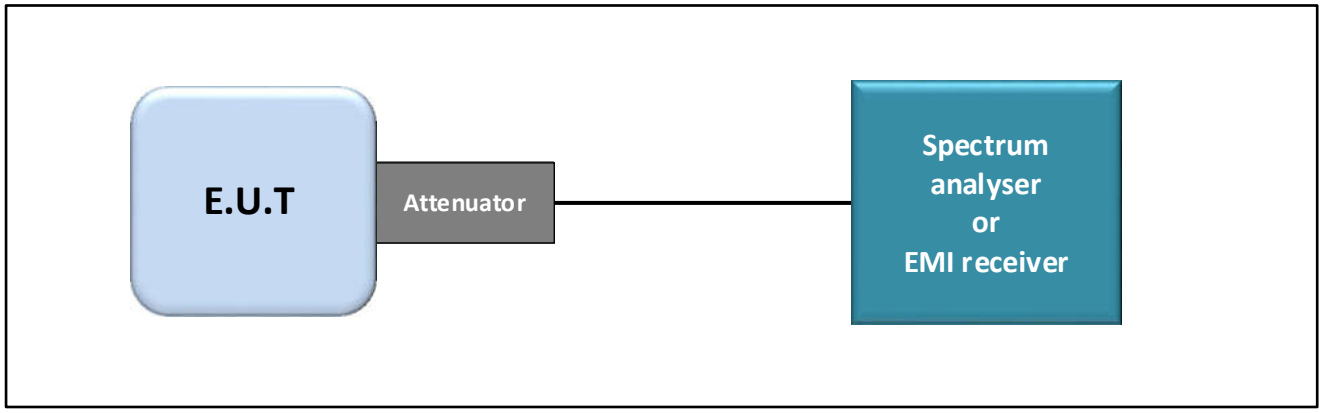
Test performed by	: Armand MAHOUNGOU
Date of test	: October 10, 2019 to October 18, 2019
Ambient temperature	: 26°C & 24°C
Relative humidity	: 52% & 49%

11.2. TEST SETUP

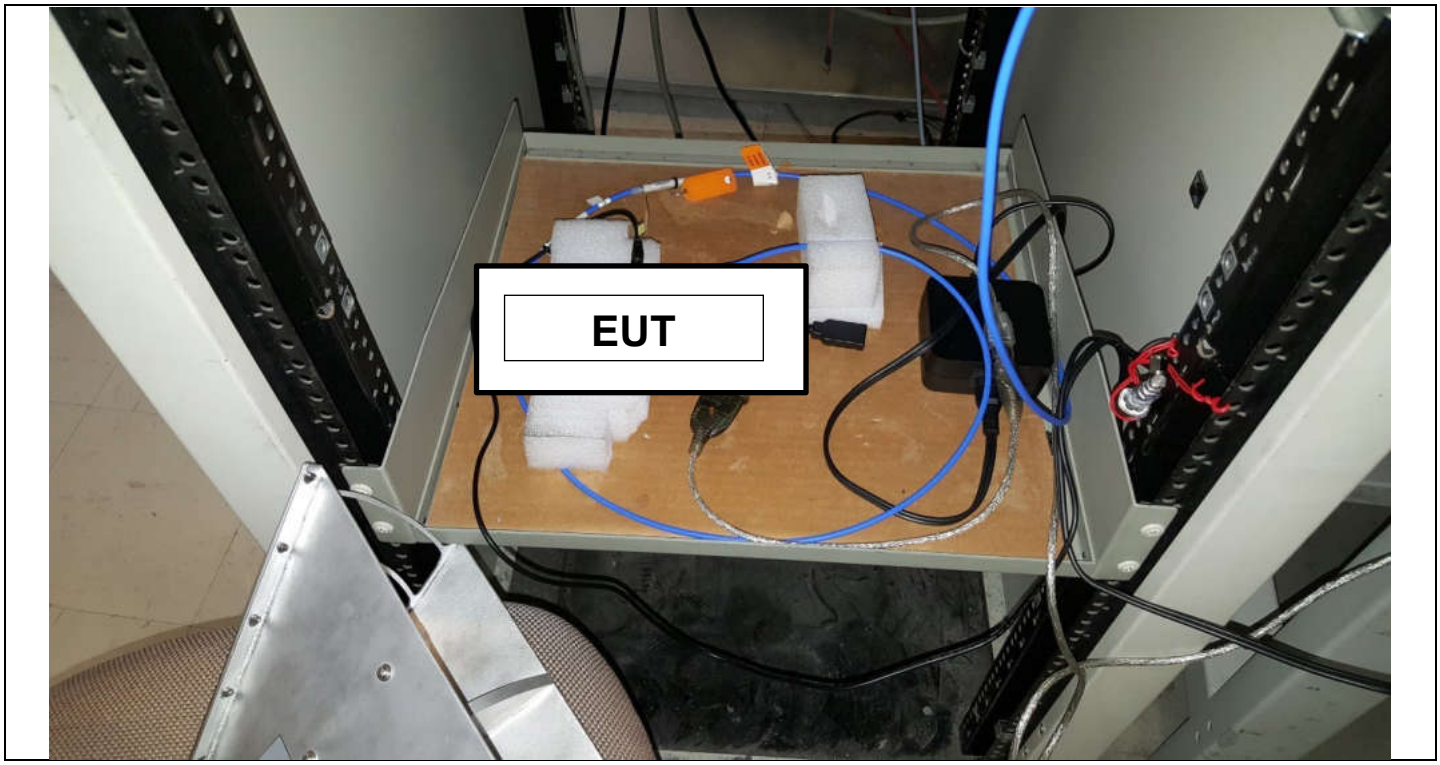
- The Equipment under Test is installed:
☑ On a table
☐ In an anechoic chamber

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

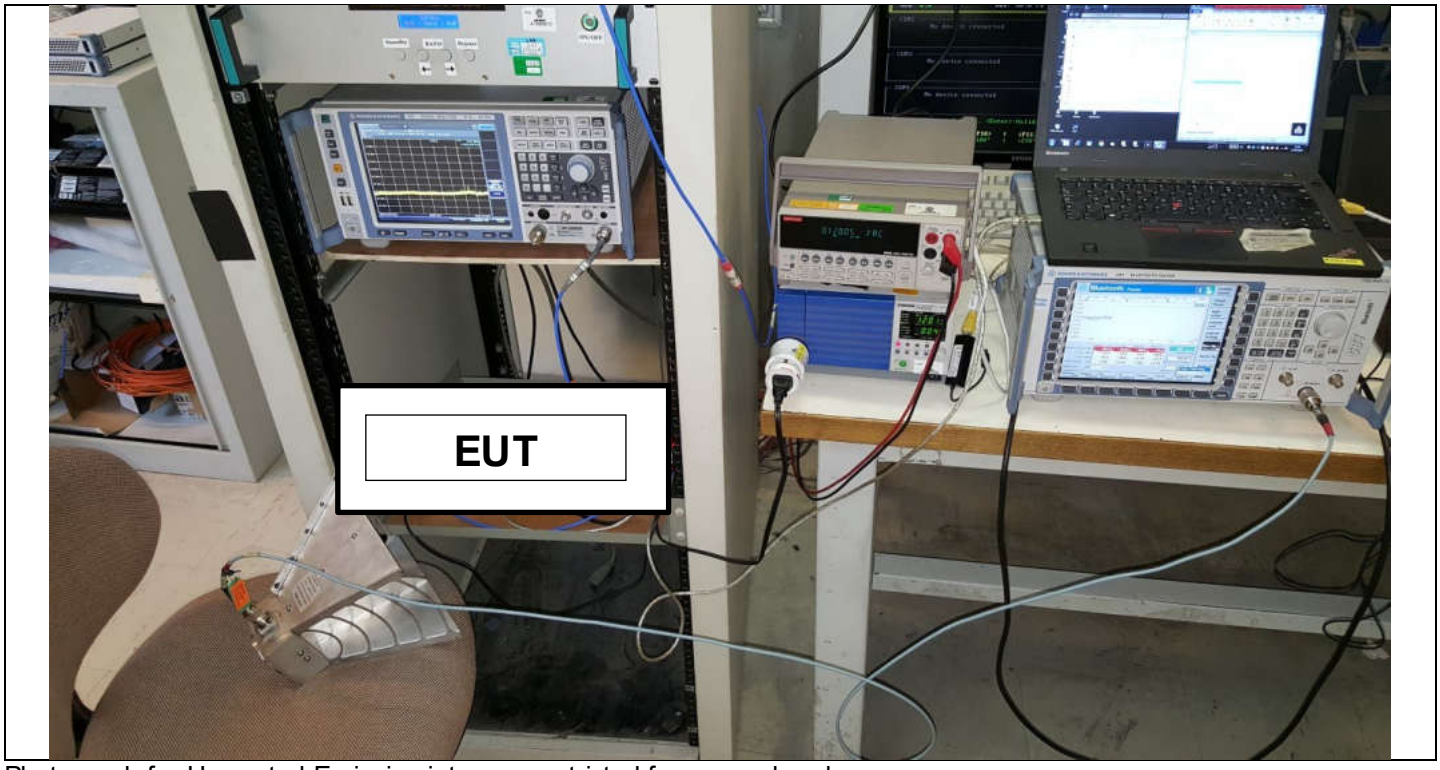
- Test Procedure:
☑ ANSI C63.10 § 7.8.8



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

11.3. LIMIT

All Spurious Emissions must be at least 20 below the Fundamental Radiator Level

11.4. 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

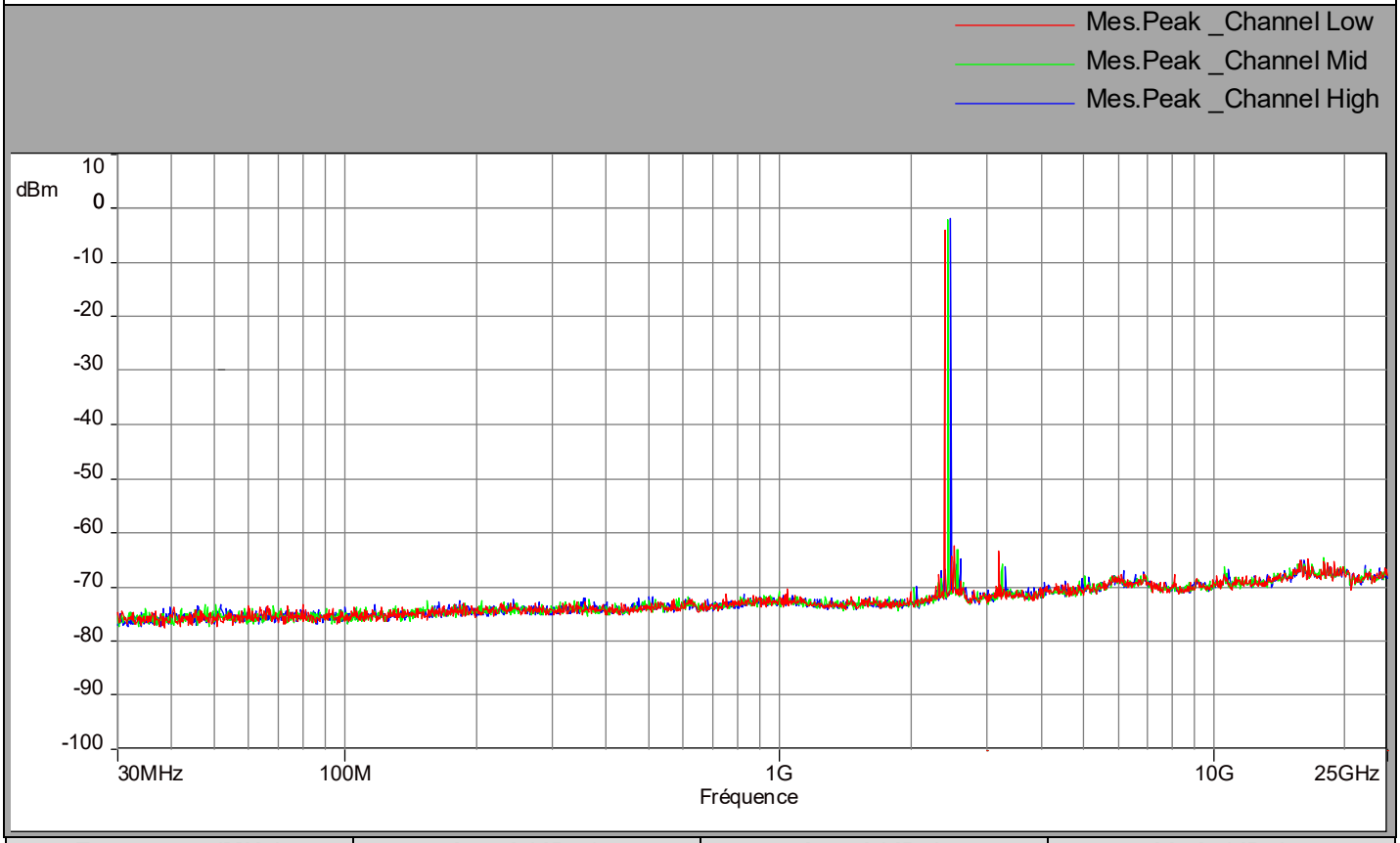
11.5. *DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION*

☑ None ☐ Divergence:

11.6. RESULTS

GFSK

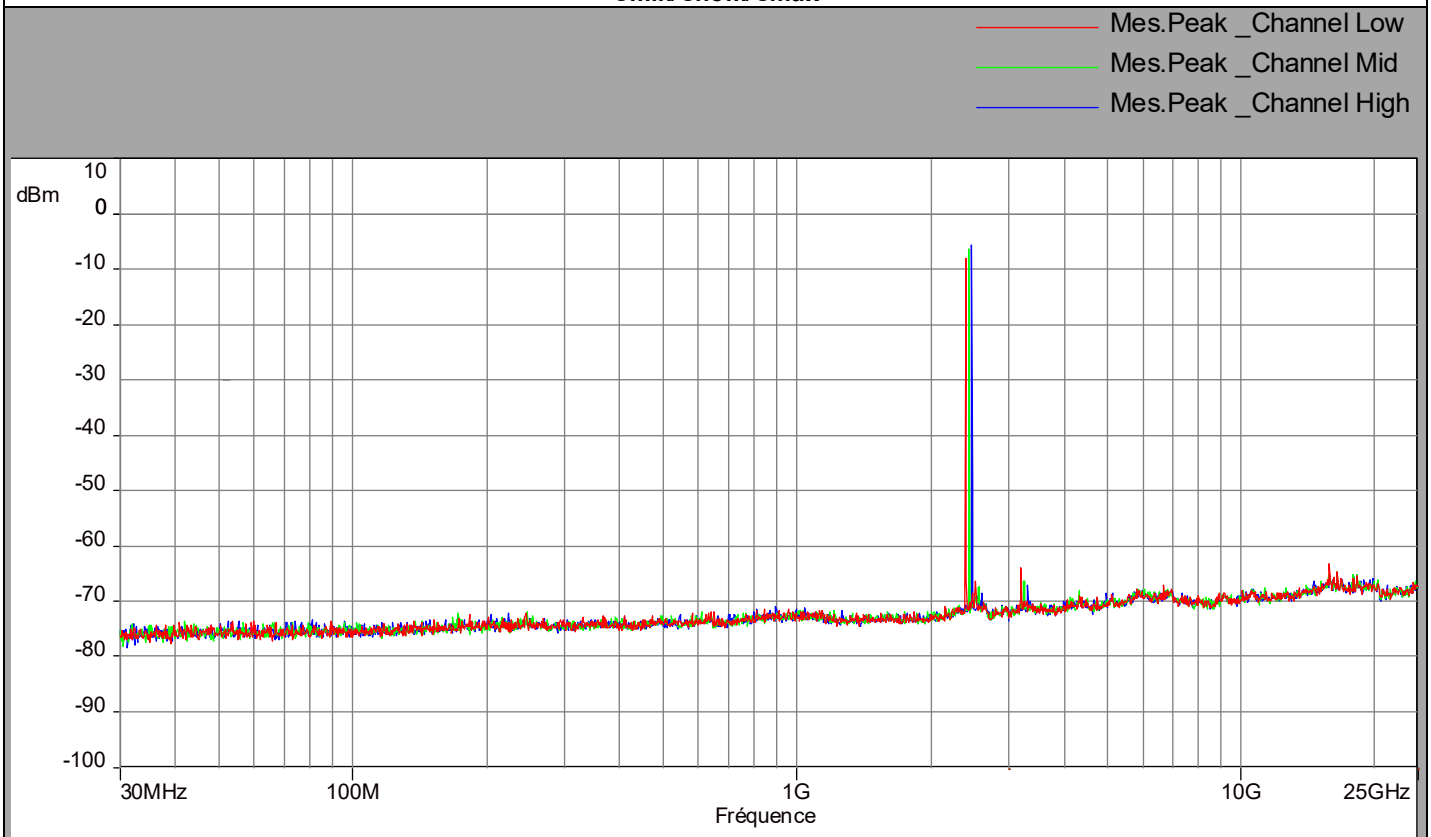
Cmin/Cnom/Cmax



Frequency (MHz)	Level (dBm)	Level (dBc)	Limit (dBc)
2402	**-4.05**		
4804	-63.43	59.38	20
2441	**-2.21**		
4882	-65.85	63.64	20
2480	**-1.88**		
4960	-66.27	64.39	20

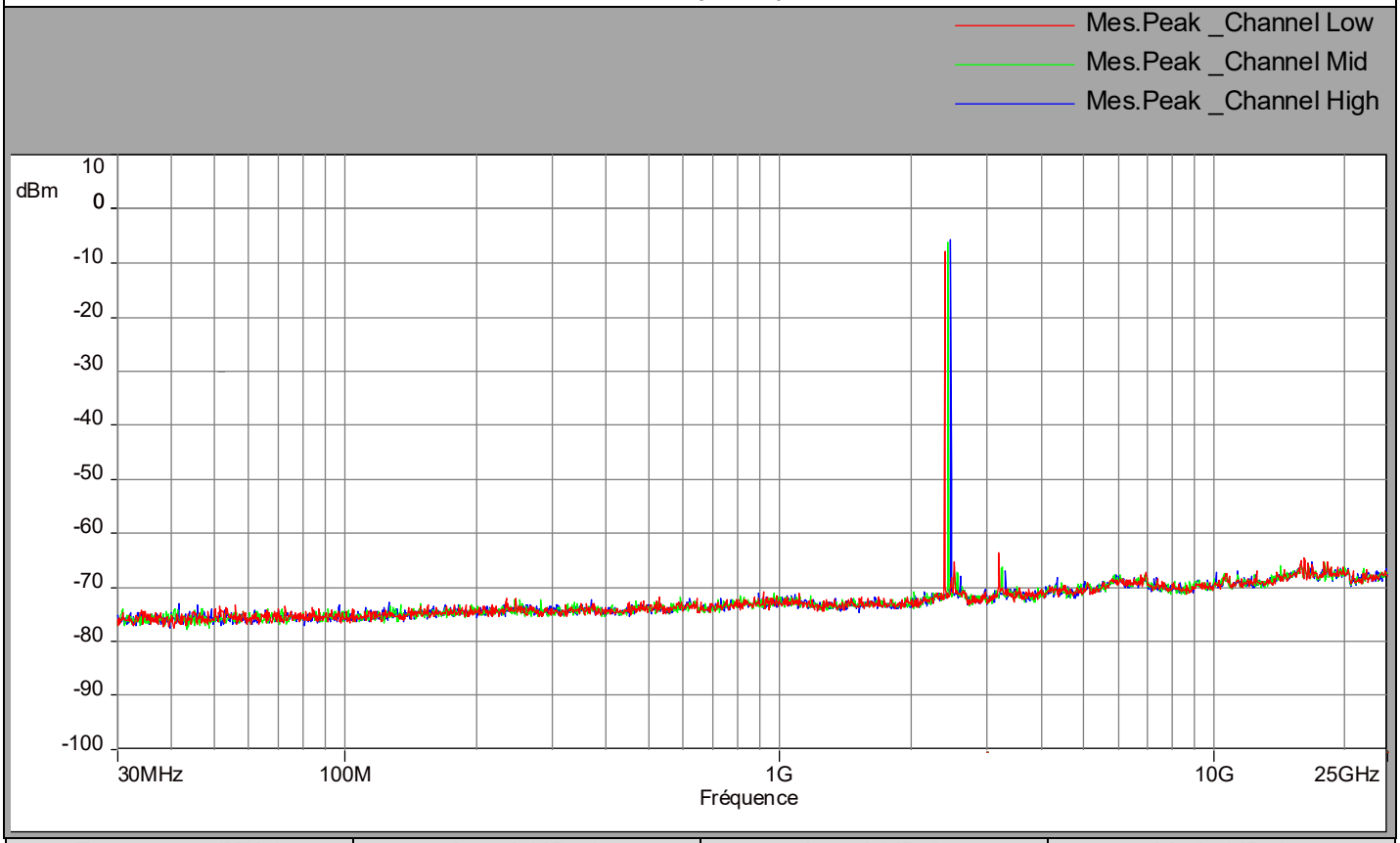
π/4 DQPSK

Cmin/Cnom/Cmax



Frequency (MHz)	Level (dBm)	Level (dBc)	Limit (dBc)
2402	**-7.97**		
4804	-63.98	56.01	20
2441	**-6.34**		
4882	-66.33	59.99	20
2480	**-5.69**		
4960	-67.07	61.38	20

8DPSK
Cmin/Cnom/Cmax



Frequency (MHz)	Level (dBm)	Level (dBc)	Limit (dBc)
2402	**-7.93**		
4804	-63.56	55.63	20
2441	**-6.11**		
4882	-66.29	60.18	20
2480	**-5.67**		
4960	-66.88	61.21	20

11.7. 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.

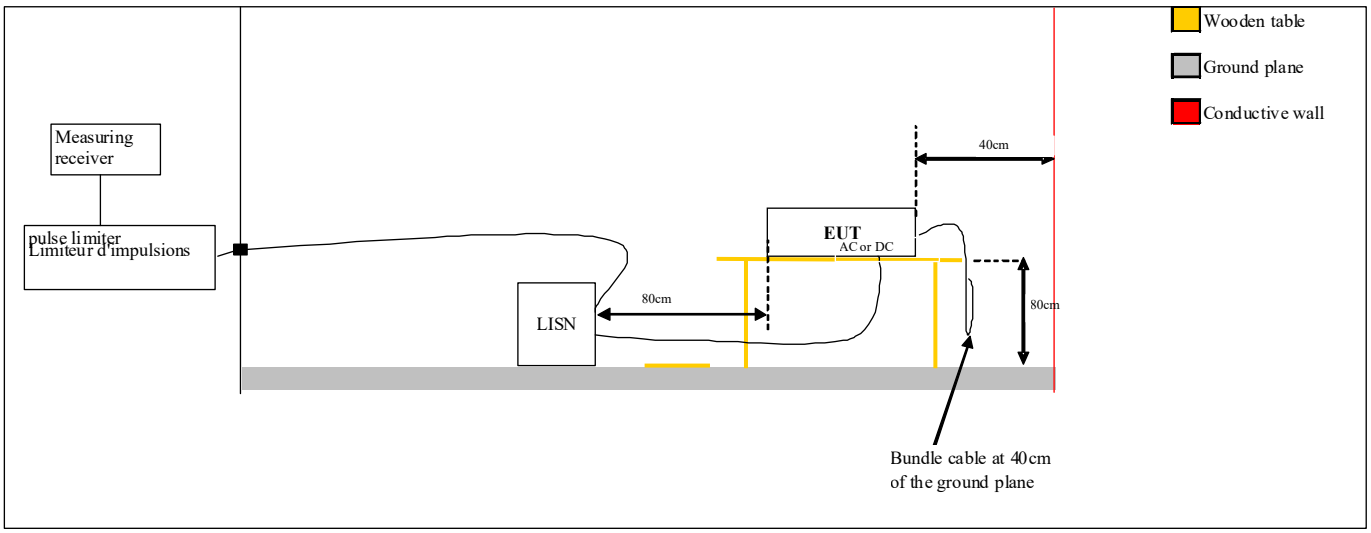
12. AC POWER LINE CONDUCTED EMISSIONS

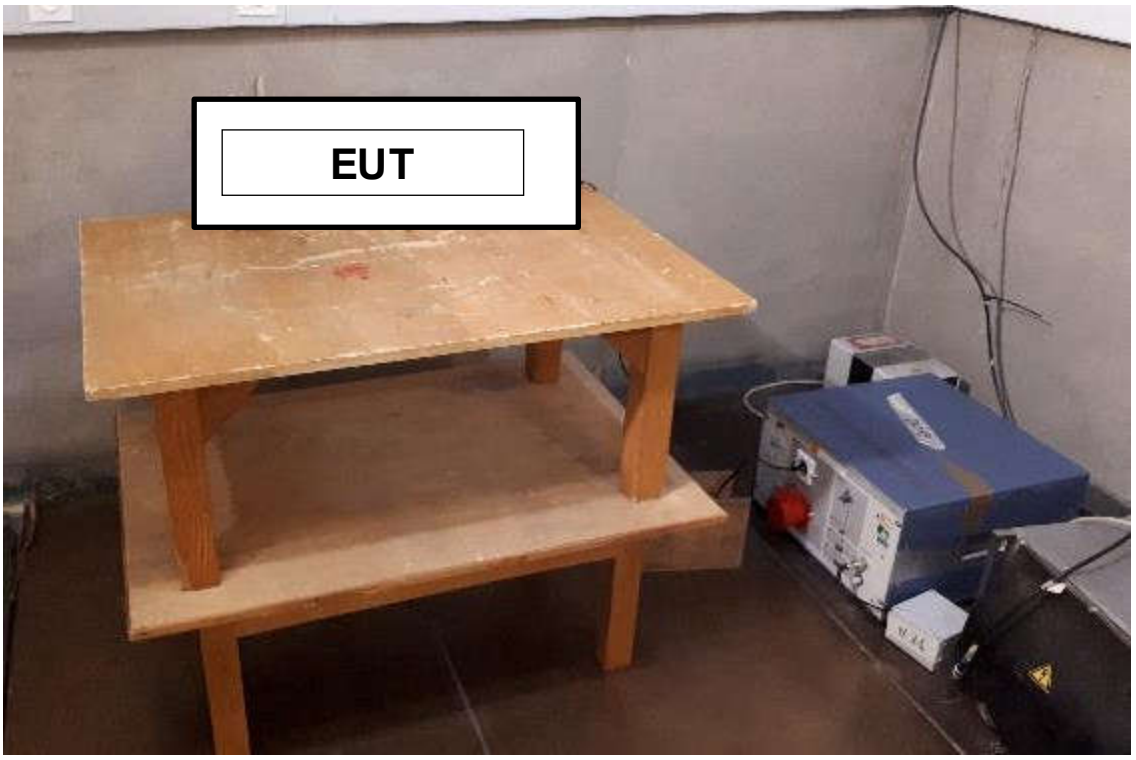
12.1. TEST CONDITIONS

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

12.2. 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

12.3. 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

12.4. 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

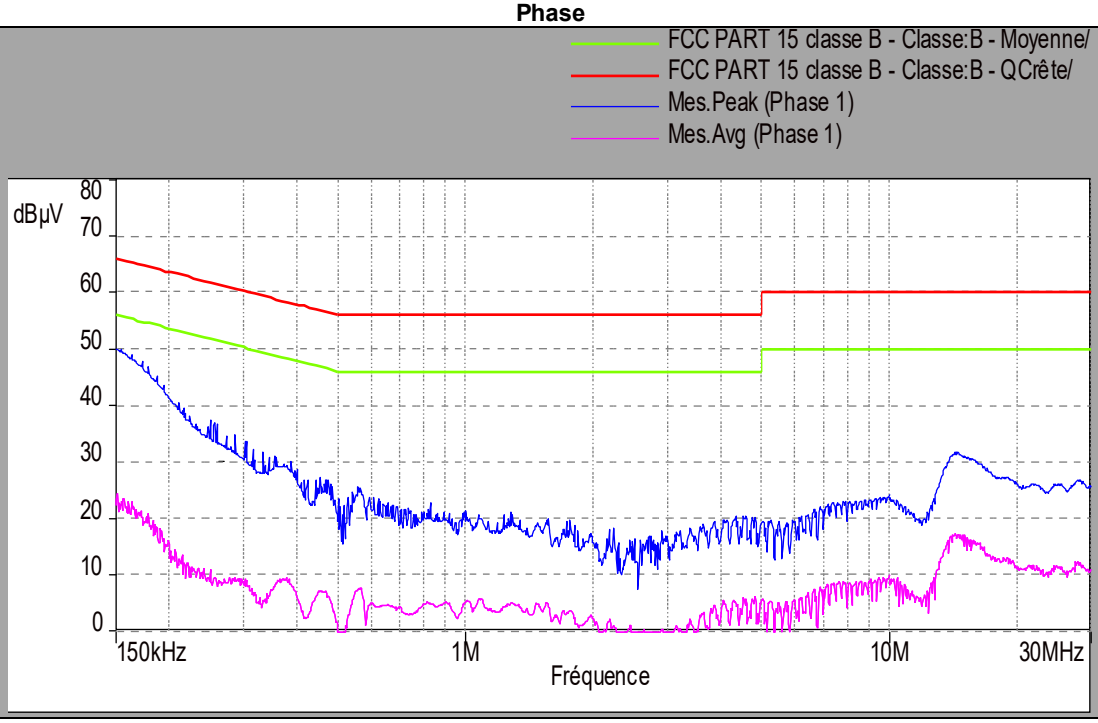
12.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

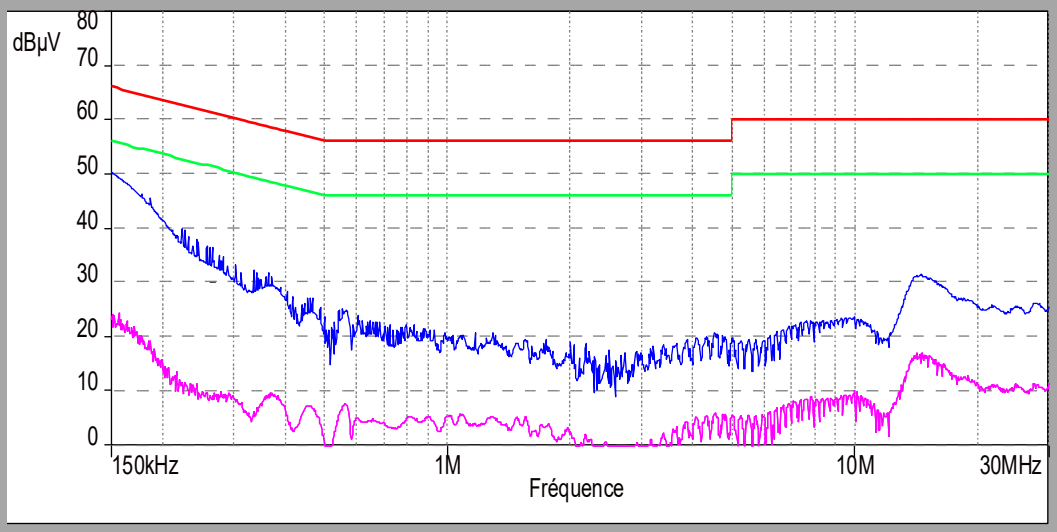
12.6. RESULTS

120V/60Hz

Phase



Line



Result for Phase 120V/60Hz :

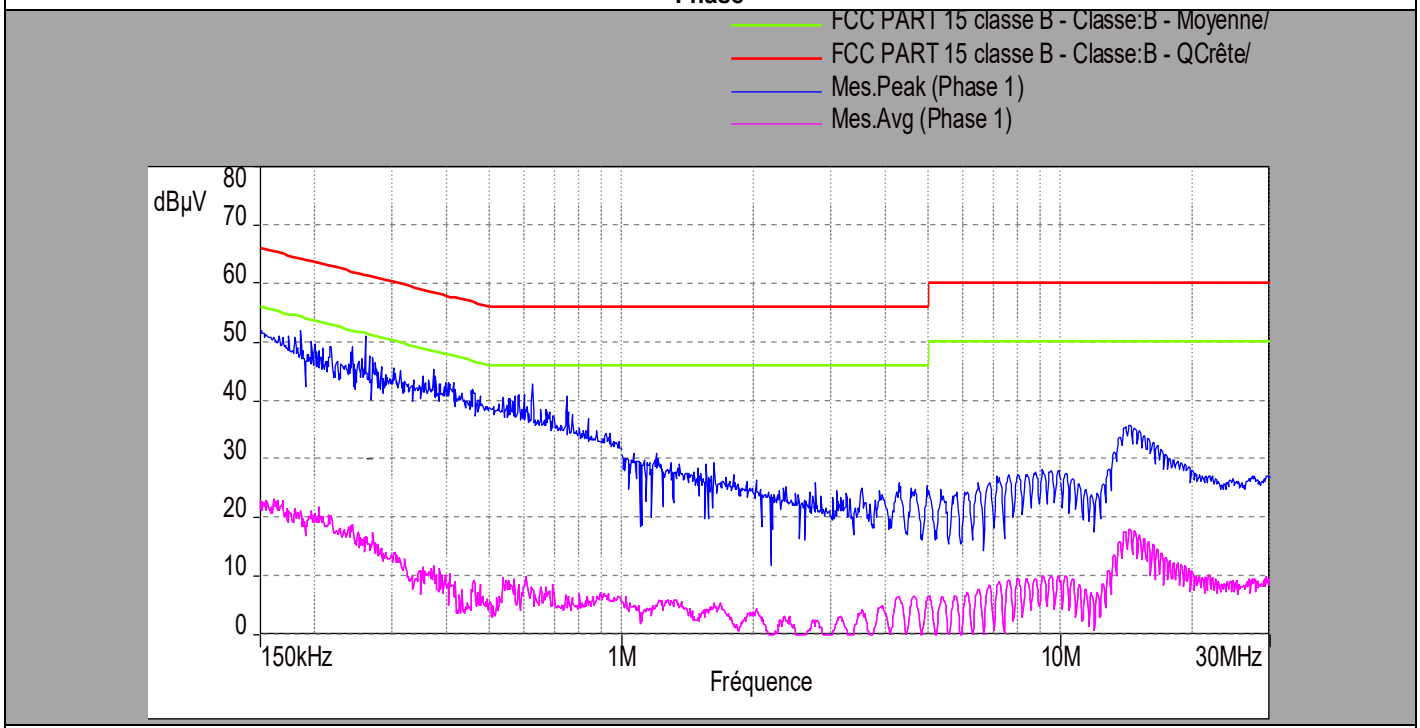
Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin peak/Quasi Peak (dB)	Average Level (dBµV)	Average Limit (dBµV)	Margin Avg/Avg (dB)
0.15	50	-	66	16	22.3	56	33.7
0.56	24.6	-	56	31.4	7.4	46	38.6
5.52	19.6	-	56	36.4	5.4	46	40.6
14.3	31	-	60	29	16.4	50	33.6
21.7	26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

Result for Line 120V/60Hz :

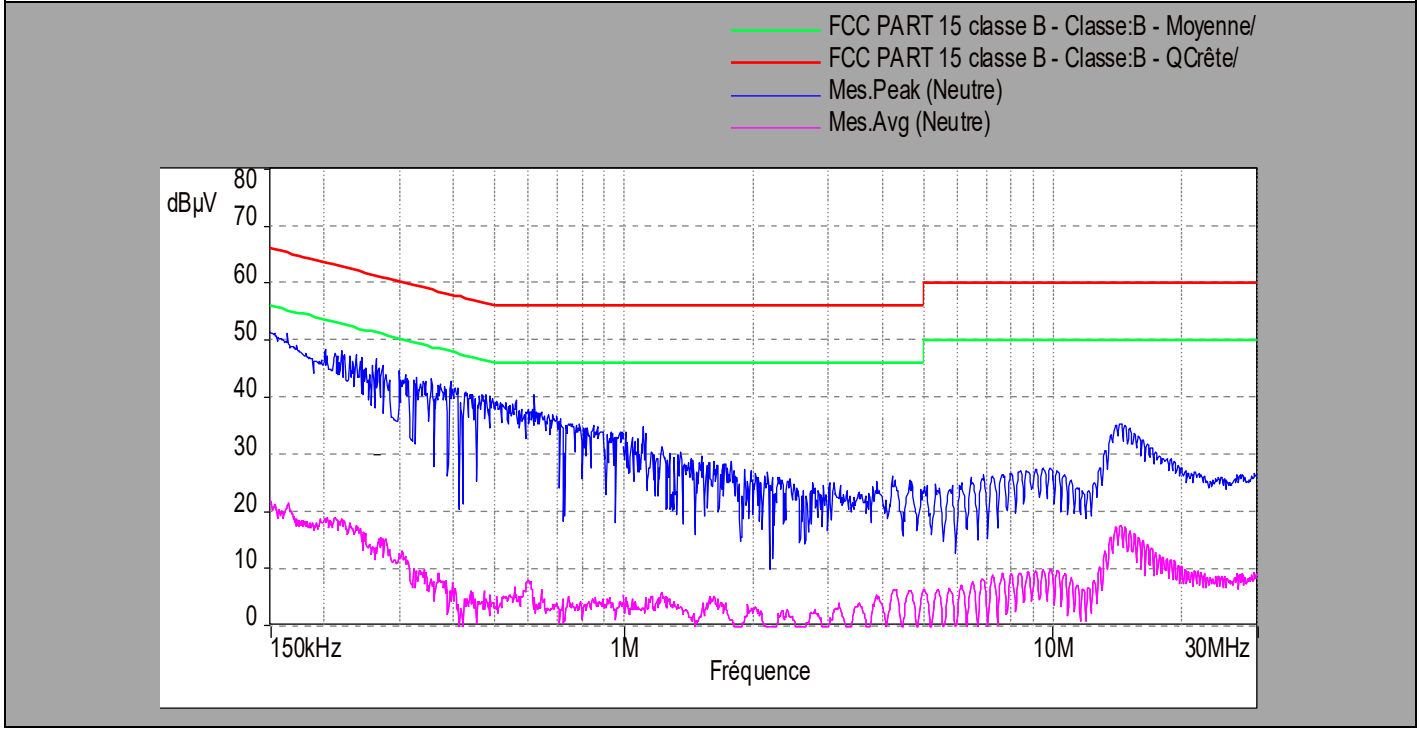
Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin peak/Quasi Peak (dB)	Average Level (dBµV)	Average Limit (dBµV)	Margin Avg/Avg (dB)
0.15	50	-	66	16	23.4	56	32.6
0.56	24.4	-	56	31.6	7.4	46	38.6
4.55	20	-	56	36	5.7	46	40.3
14.25	31.25	-	60	28.75	17	50	33
21.88	25.5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

12.7. 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.

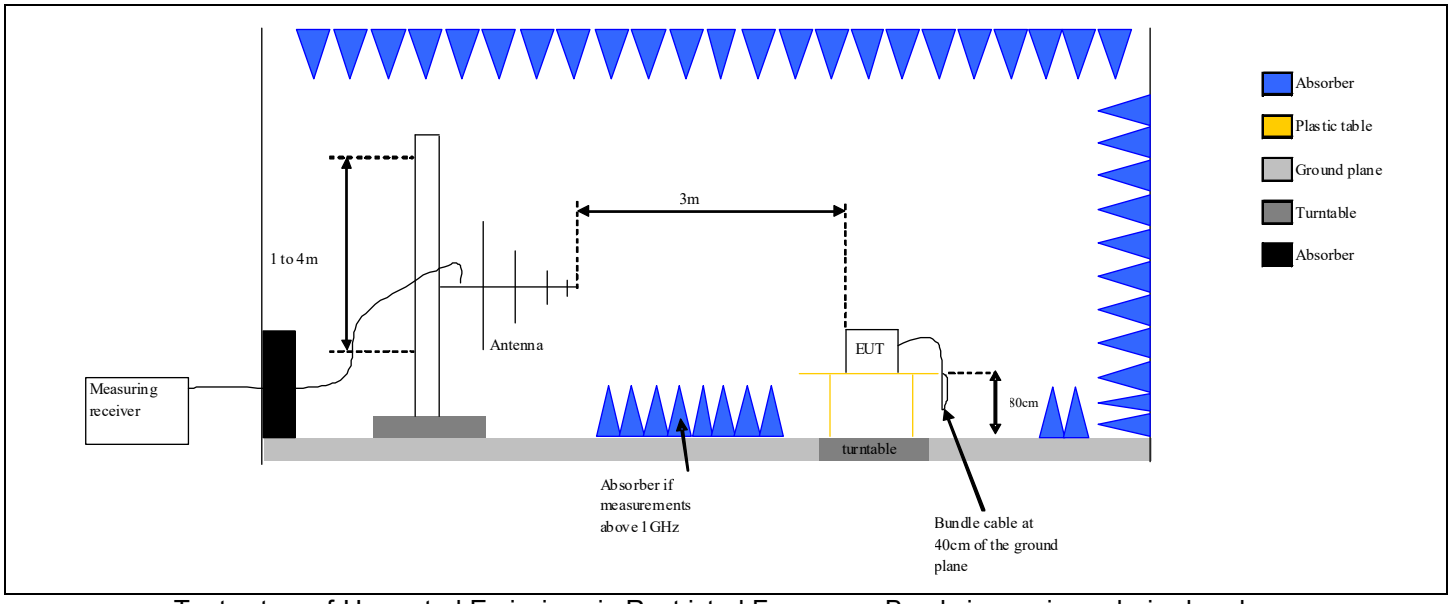
13. UNWANTED EMISSIONS IN RESTRICTED FREQUENCY BANDS

13.1. TEST CONDITIONS

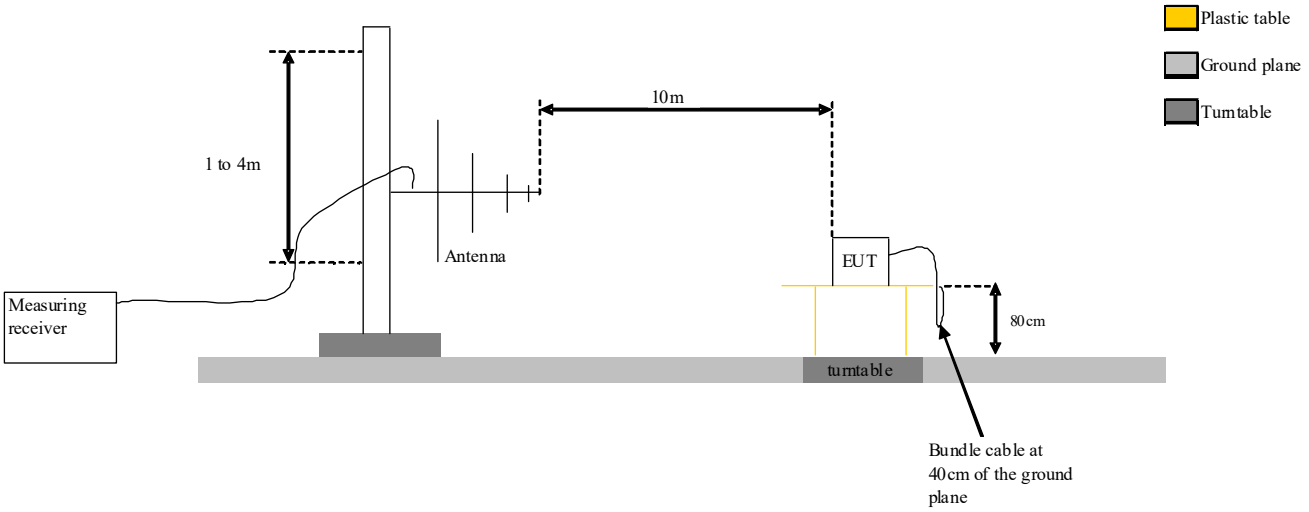
Test performed by	: Armand MAHOUNGOU & Laurent DENEUX
Date of test	: October 10, 2019 to October 18, 2019
Ambient temperature	: 26°C & 24°C
Relative humidity	: 52% & 49%

13.2. 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.

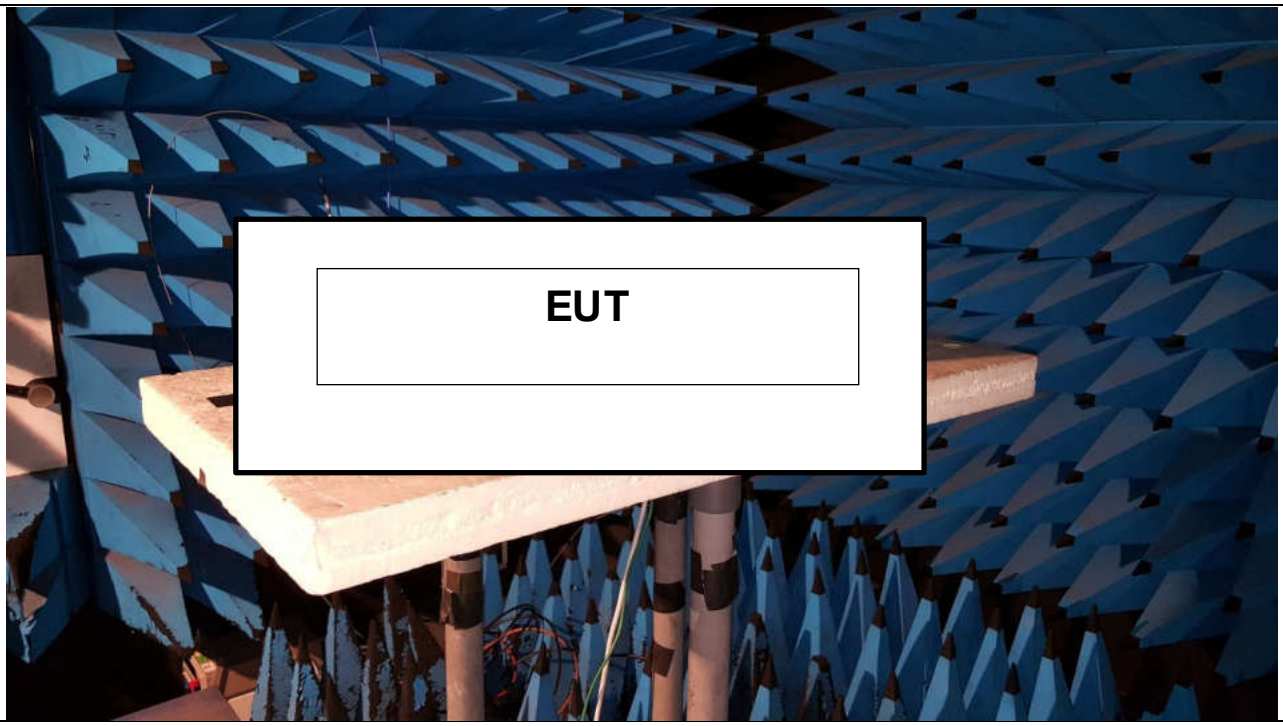


Test set up of Unwanted Emissions in Restricted Frequency Bands in semi anechoic chamber

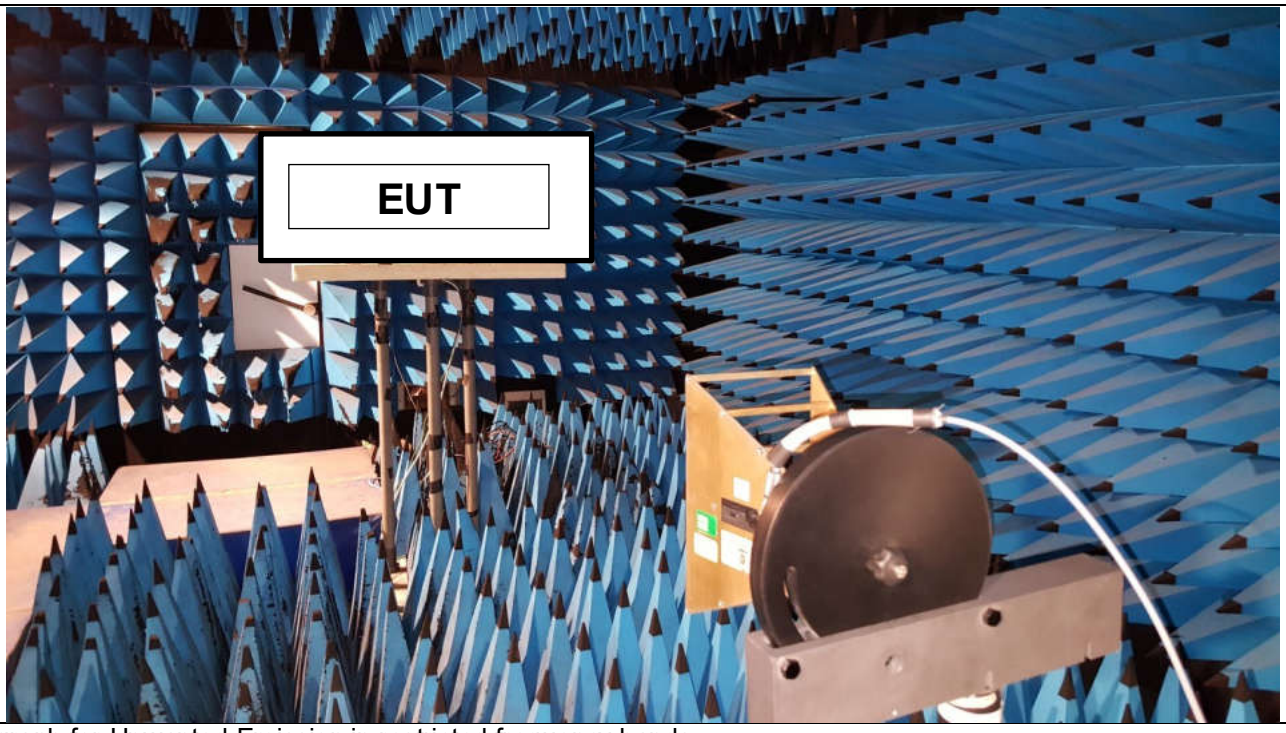


Test Set up for radiated measurement in open area test site

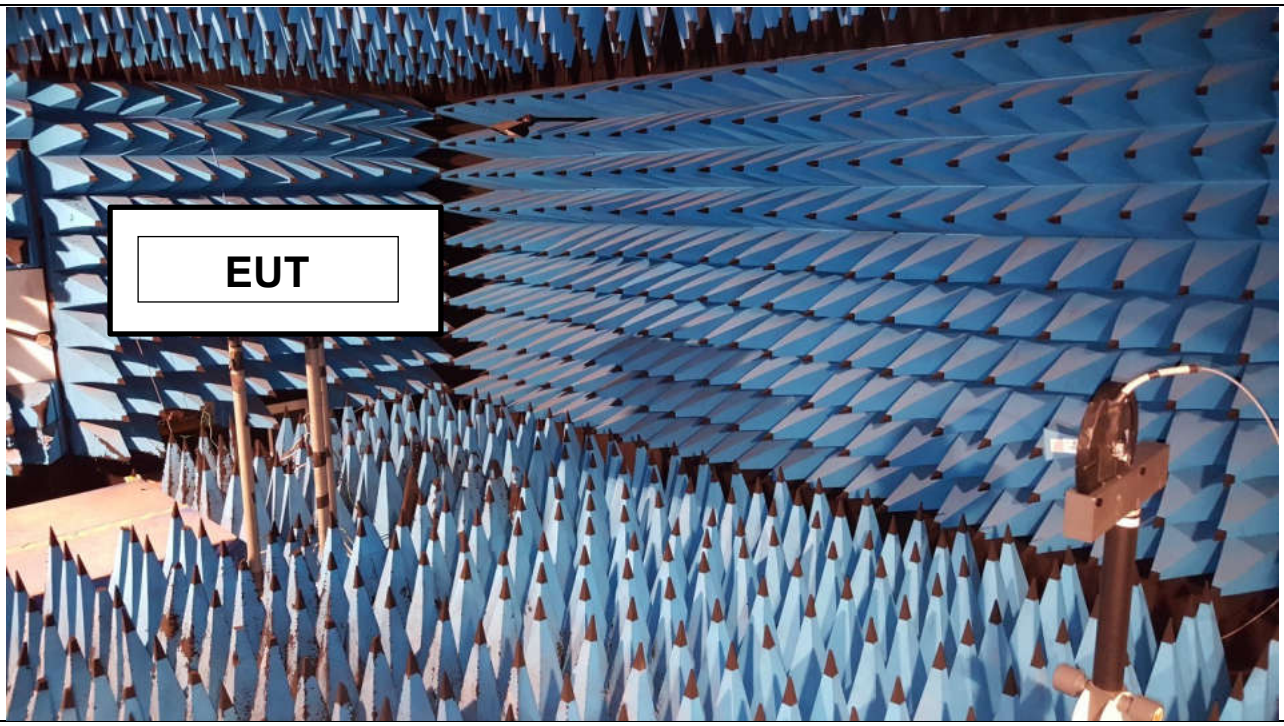
Photograph for Unwanted Emission in restricted frequency bands



Photograph for Unwanted Emission in restricted frequency bands



Photograph for Unwanted Emission in restricted frequency bands



Photograph for Unwanted Emission in restricted frequency bands

13.3. *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

13.4. 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

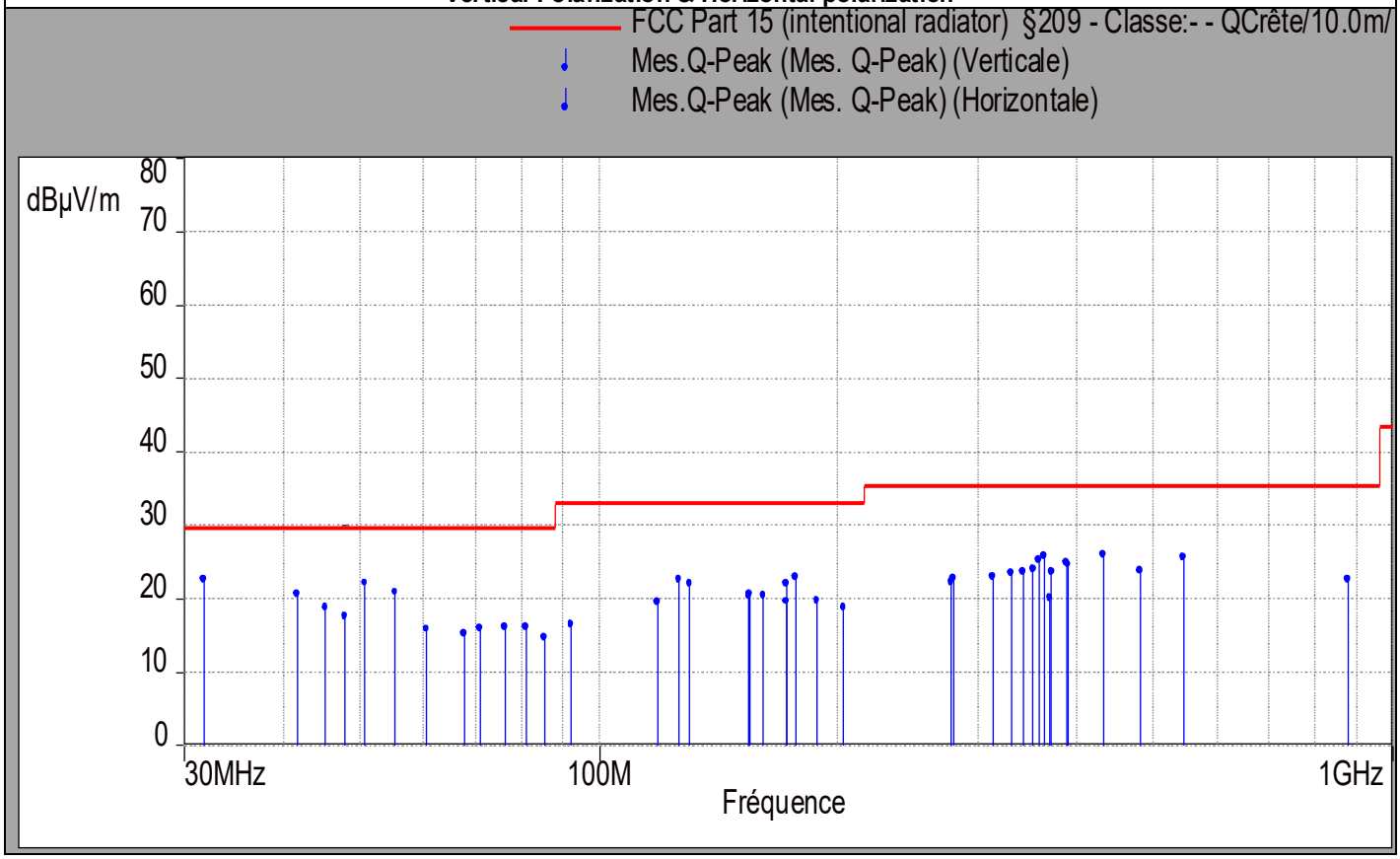
Note: In our quality system, the test equipment calibration due is more & less 2 months

13.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

13.6. RESULTS

GFSK
Below 1GHz
Channel
Vertical Polarization & Horizontal polarization



GFSK

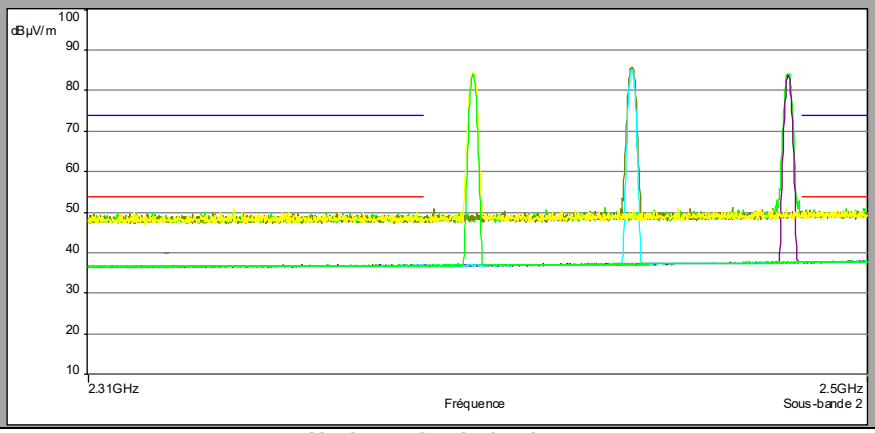
Above 1GHz Zoom 2310MHz-2500MHz

Cmin/Cnom/Cmax

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.Avg _Channel Low - Verticale (Verticale)
Mes.Peak _Channel Low - Verticale (Verticale)
Mes.Avg _Channel Mid - Verticale (Verticale)
Mes.Peak _Channel Mid - Verticale (Verticale)
Mes.Avg _Channel High - Verticale (Verticale)
Mes.Peak _Channel High - Verticale (Verticale)

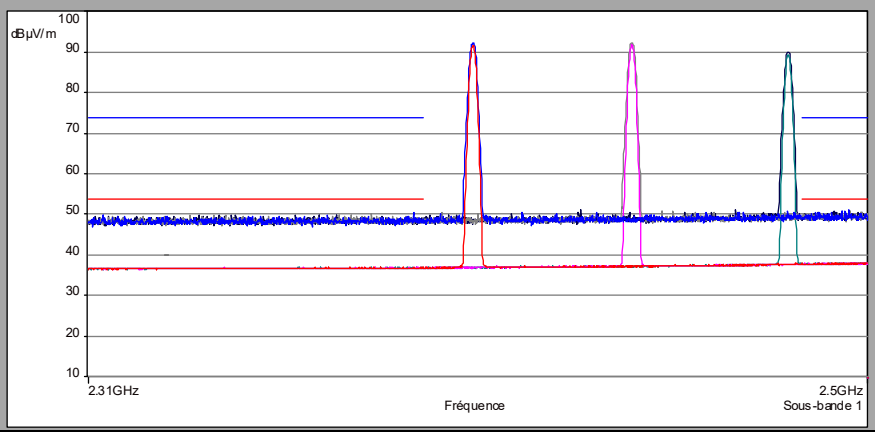
Description Sous-bande 2
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 2 ms/Pts, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp :
Polarisation:Verticale
Distance: 3 m



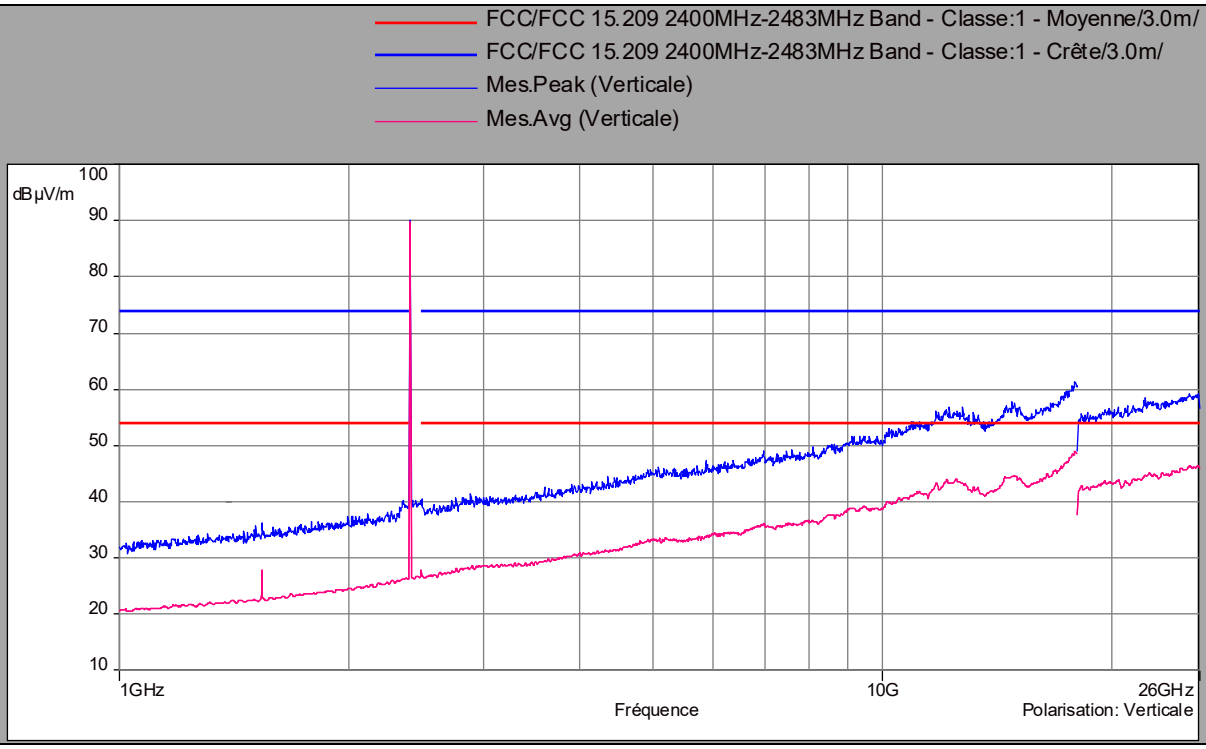
Horizontal polarization

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.Avg _Channel Low - Horizontale (Horizontale)
Mes.Peak _Channel Low - Horizontale (Horizontale)
Mes.Avg _Channel Mid - Horizontale (Horizontale)
Mes.Peak _Channel Mid - Horizontale (Horizontale)
Mes.Avg _Channel High - Horizontale (Horizontale)
Mes.Peak _Channel High - Horizontale (Horizontale)

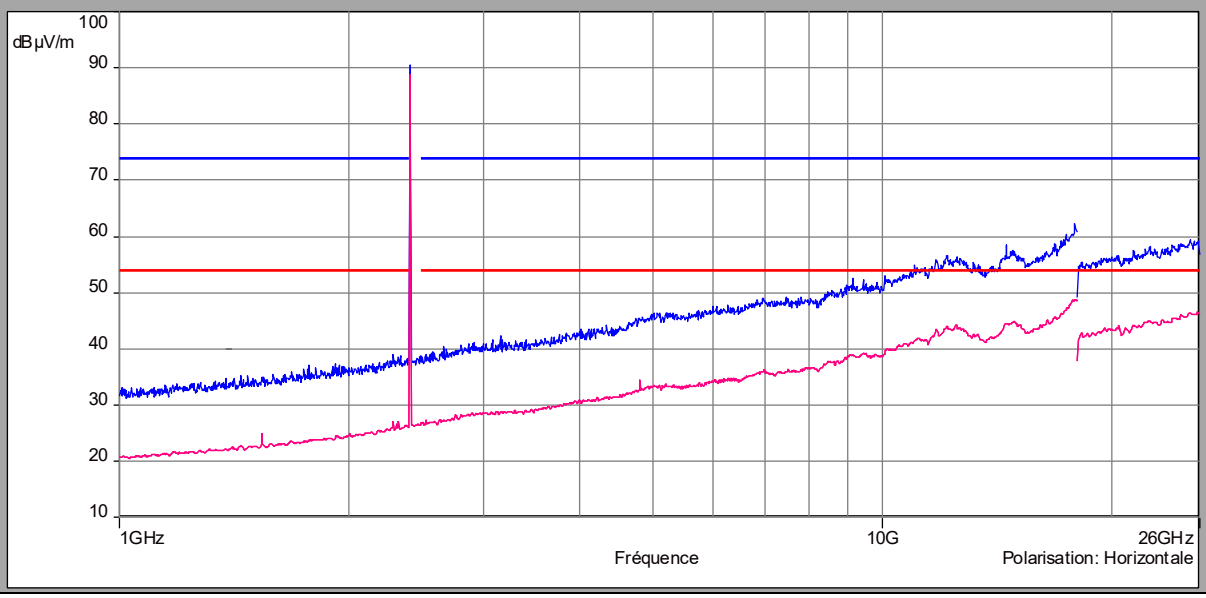
Description Sous-bande 1
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 2 ms/Pts, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp :
Polarisation:Horizontale
Distance: 3 m



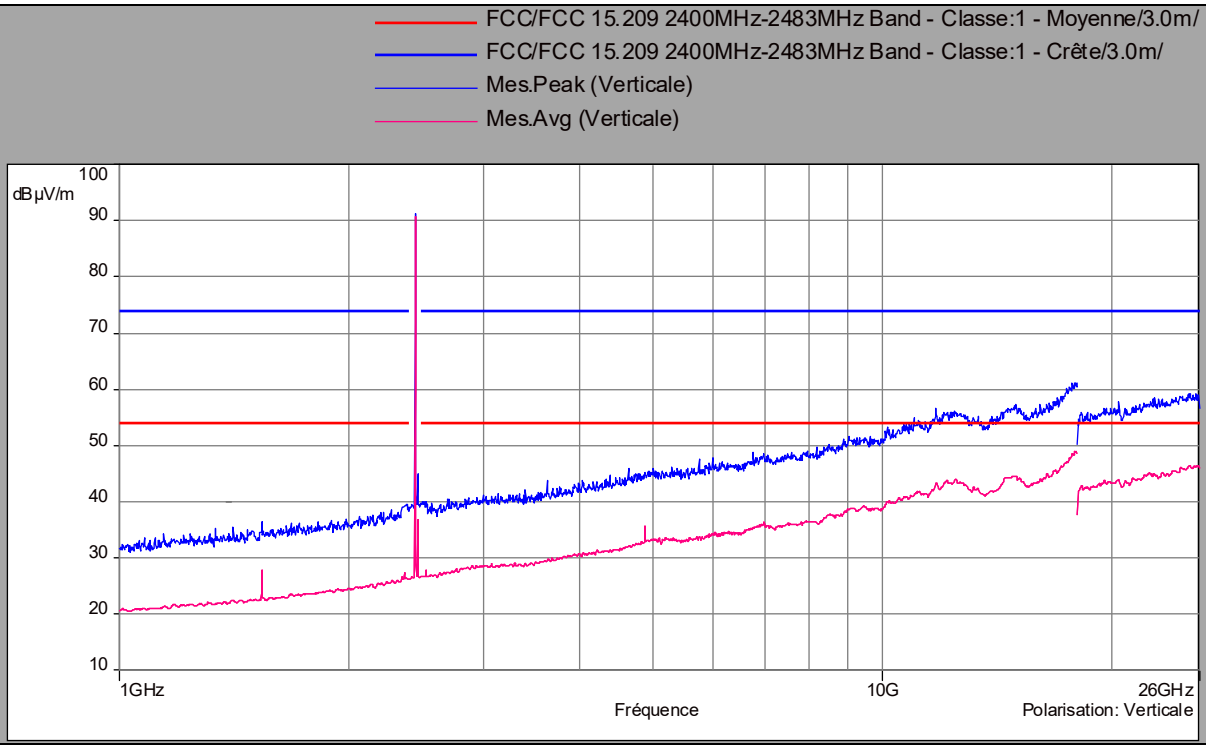
GFSK
Above 1GHz
Cmin
Vertical Polarization



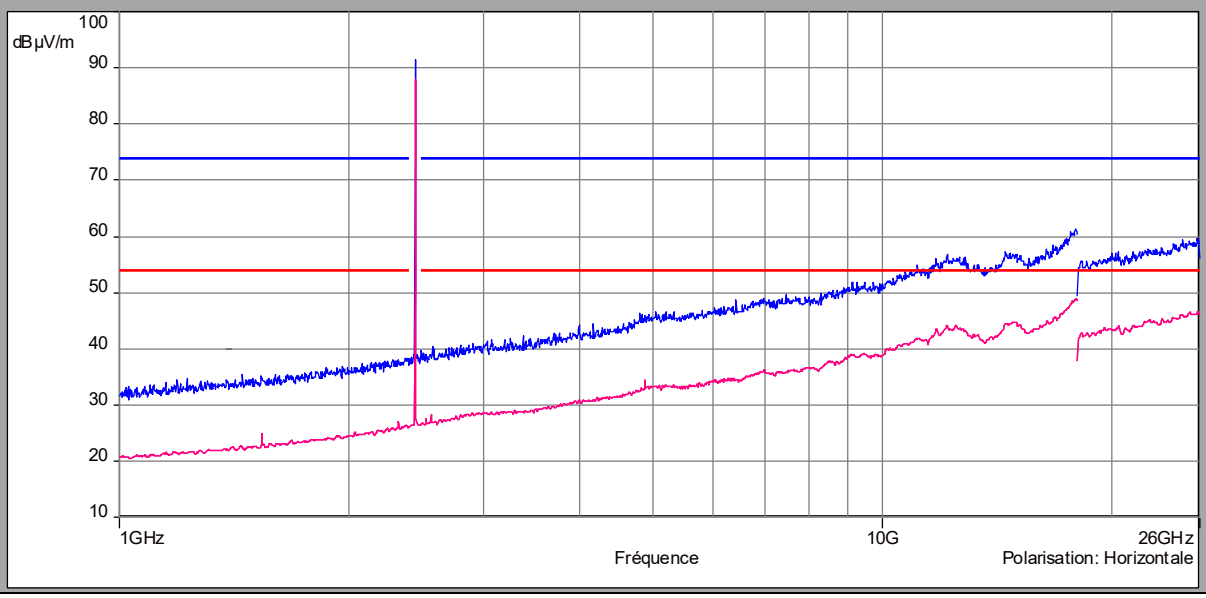
Horizontal polarization



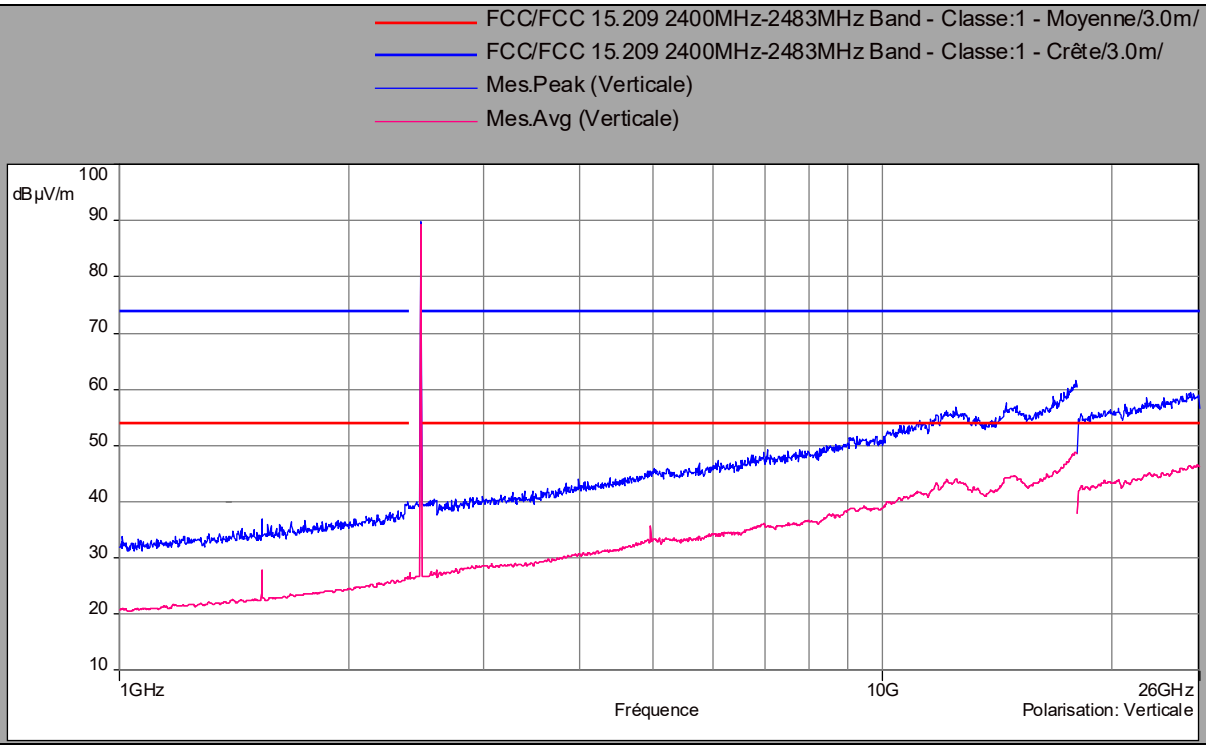
GFSK
Above 1GHz
Cnom
Vertical Polarization



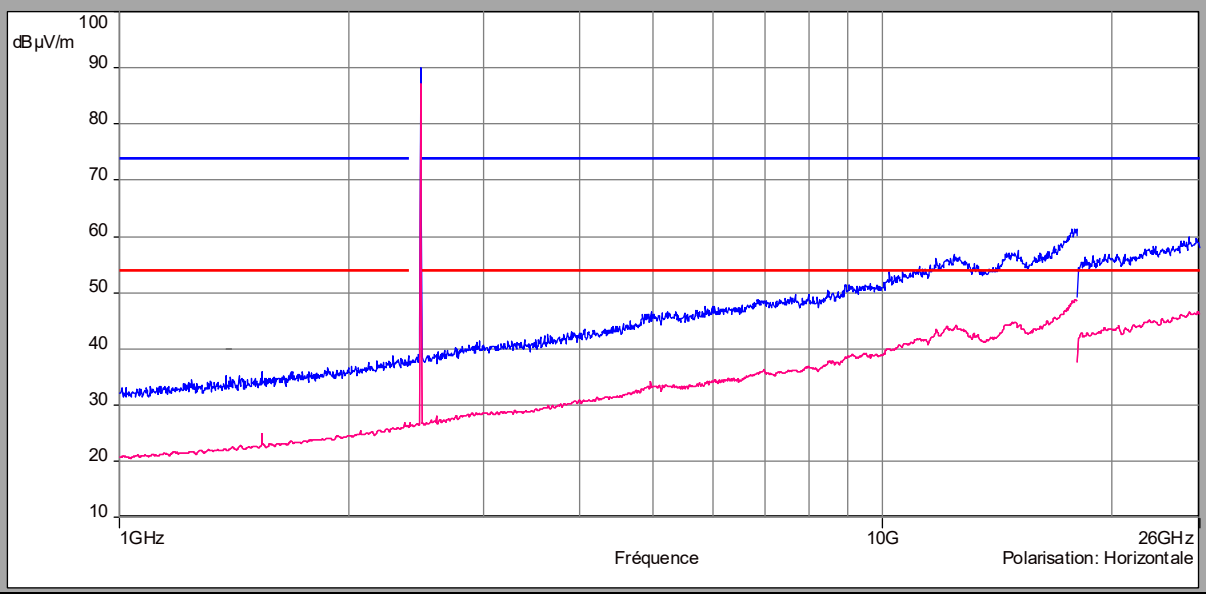
Horizontal polarization



GFSK
Above 1GHz
Cmax
Vertical Polarization



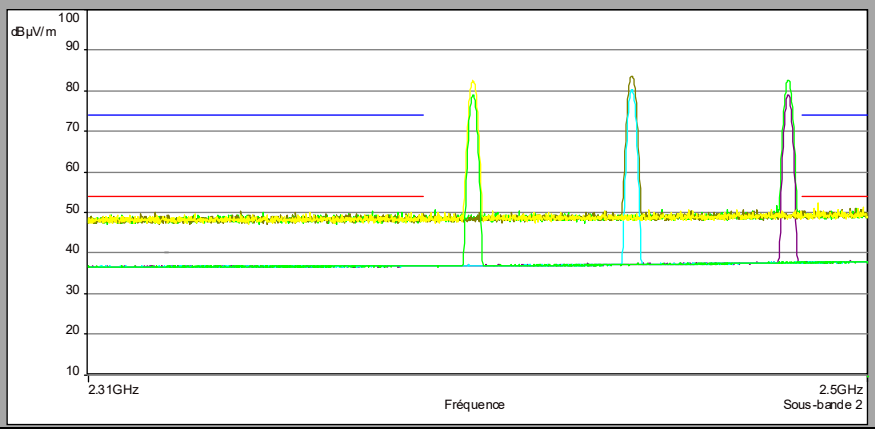
Horizontal polarization



π/4 DQPSK
Above 1GHz Zoom 2310MHz-2500MHz
Cmin/Cnom/Cmax
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.Avg _Channel Low - Verticale (Verticale)
Mes.Peak _Channel Low - Verticale (Verticale)
Mes.Avg _Channel Mid - Verticale (Verticale)
Mes.Peak _Channel Mid - Verticale (Verticale)
Mes.Avg _Channel High - Verticale (Verticale)
Mes.Peak _Channel High - Verticale (Verticale)

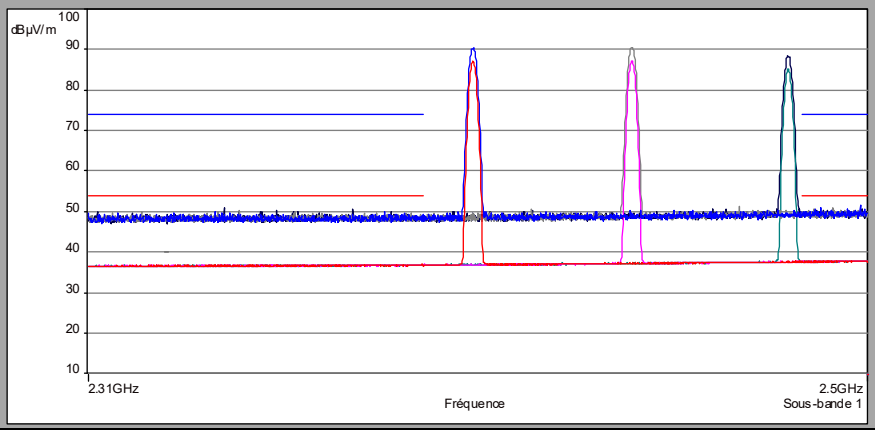
Description Sous-bande 2
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 2 ms/Pts, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp :
Polarisation:Verticale
Distance: 3 m



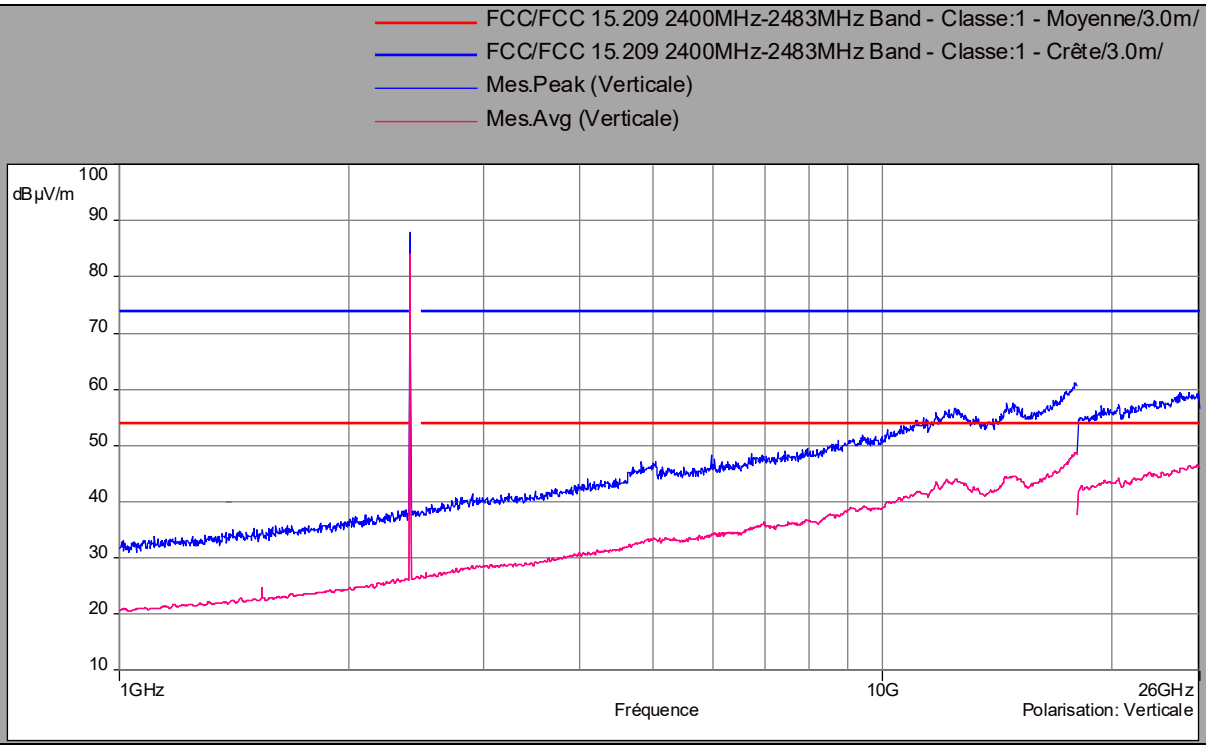
Horizontal polarization

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.Avg _Channel Low - Horizontale (Horizontale)
Mes.Peak _Channel Low - Horizontale (Horizontale)
Mes.Avg _Channel Mid - Horizontale (Horizontale)
Mes.Peak _Channel Mid - Horizontale (Horizontale)
Mes.Avg _Channel High - Horizontale (Horizontale)
Mes.Peak _Channel High - Horizontale (Horizontale)

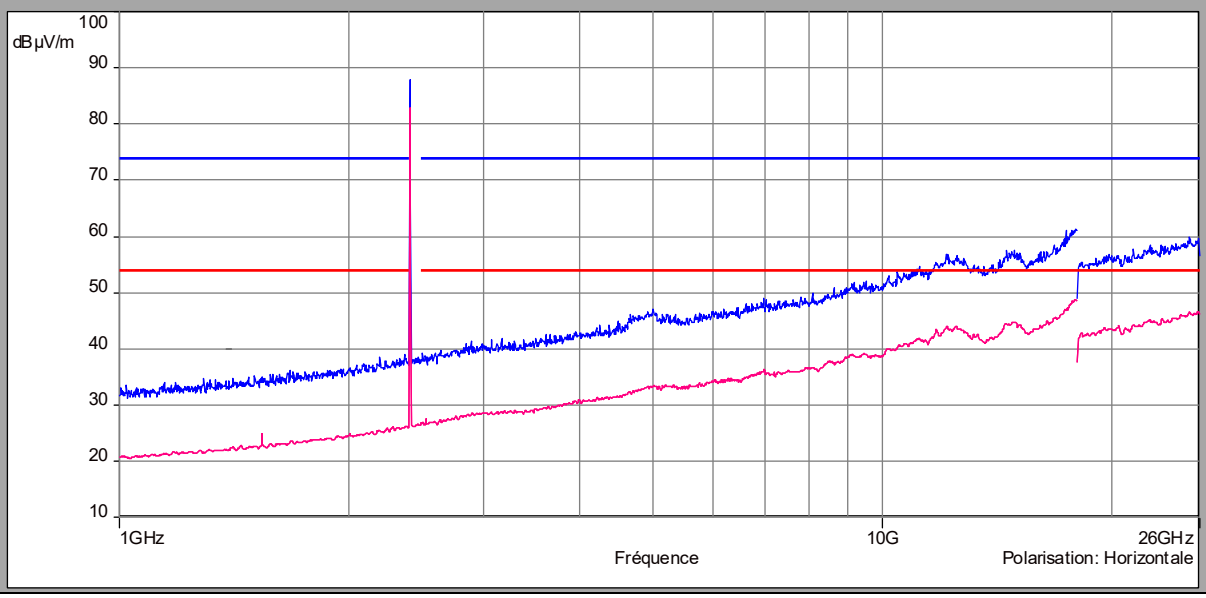
Description Sous-bande 1
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 2 ms/Pts, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp :
Polarisation:Horizontale
Distance: 3 m



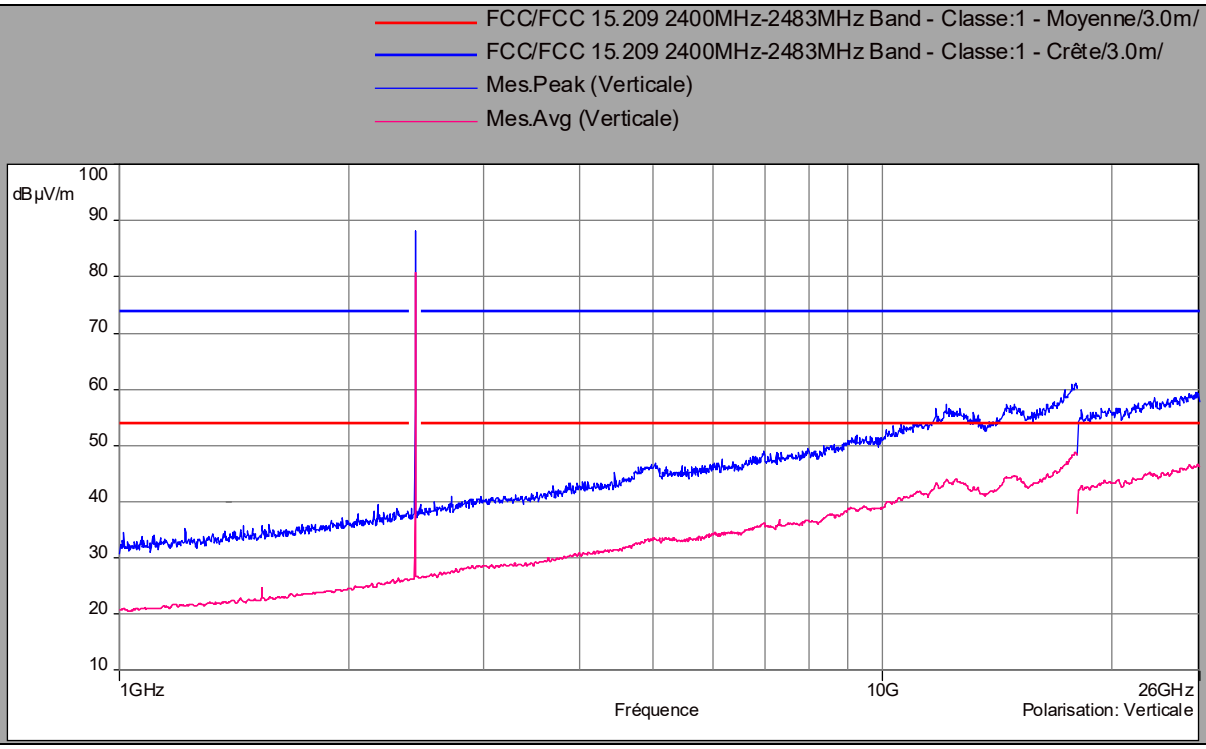
π/4 DQPSK
Above 1GHz
Cmin
Vertical Polarization



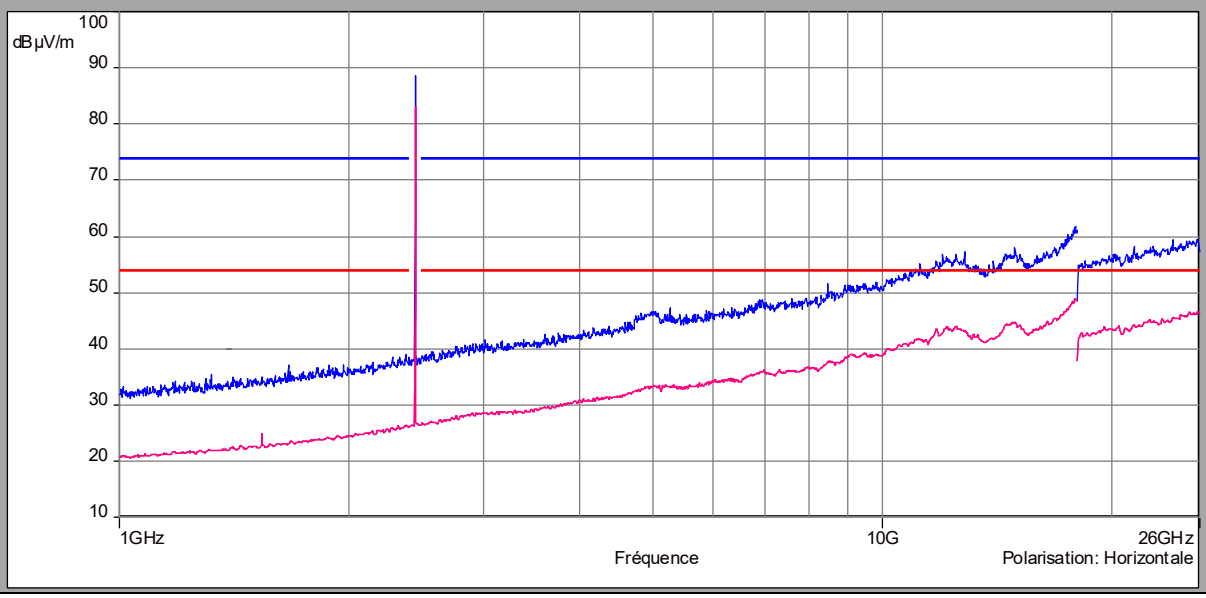
Horizontal polarization



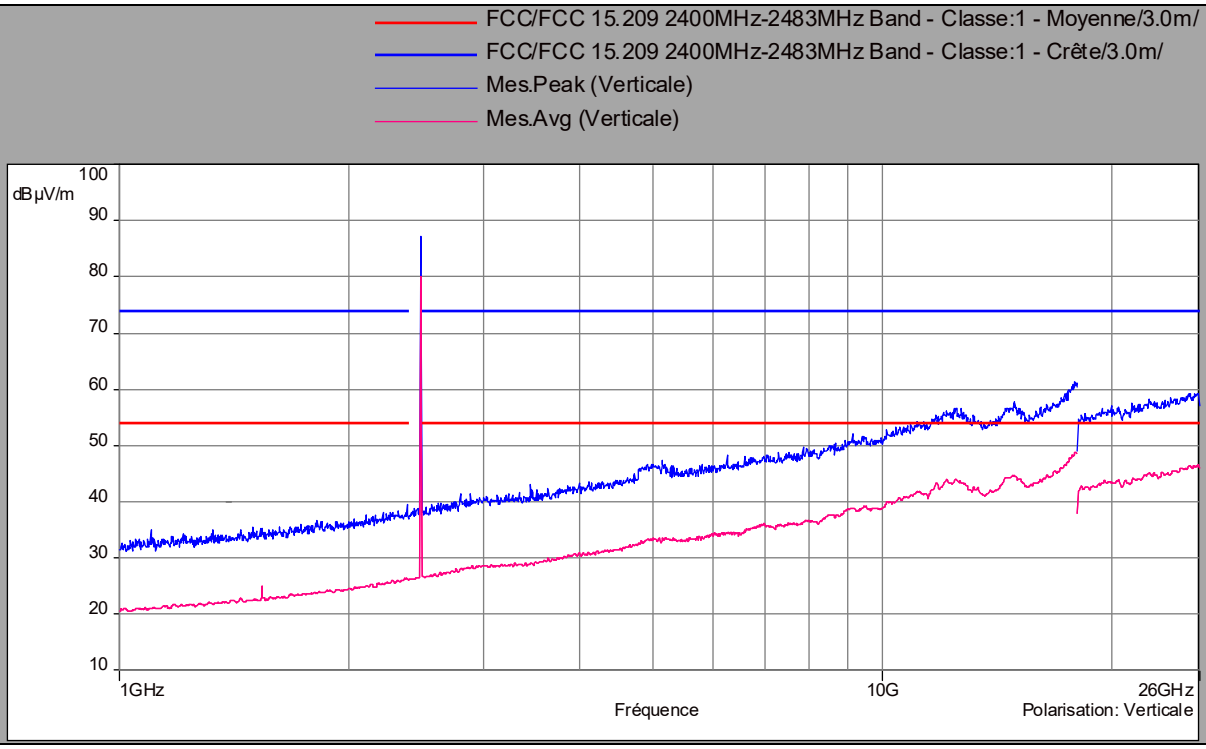
π/4 DQPSK
Above 1GHz
Cnom
Vertical Polarization



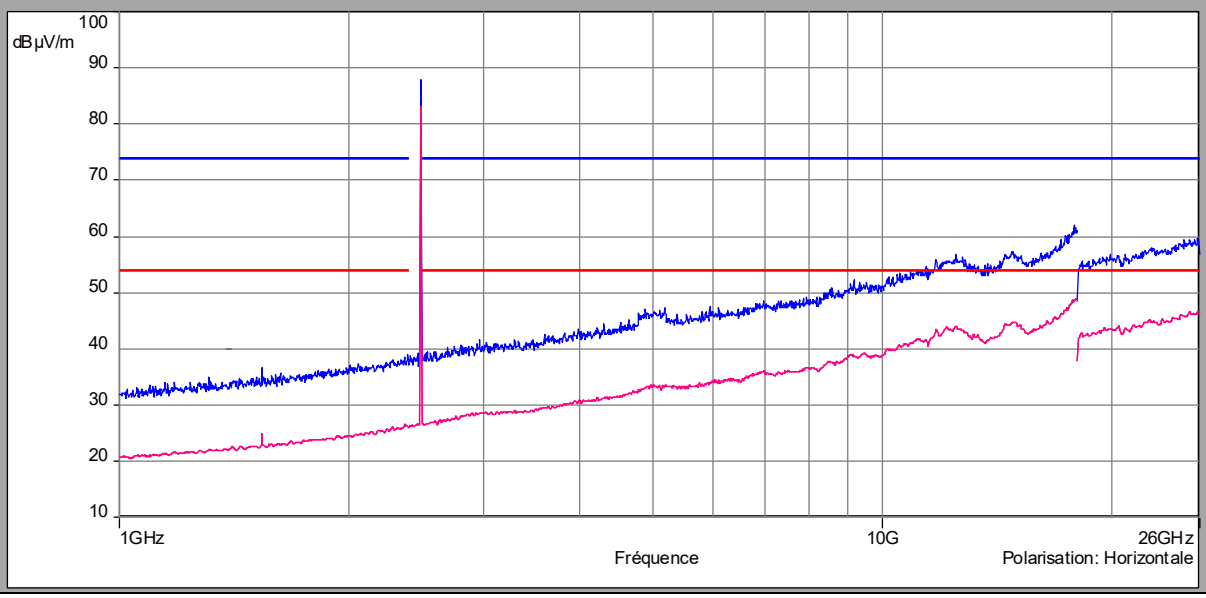
Horizontal polarization



π/4 DQPSK
Above 1GHz
Cmax
Vertical Polarization



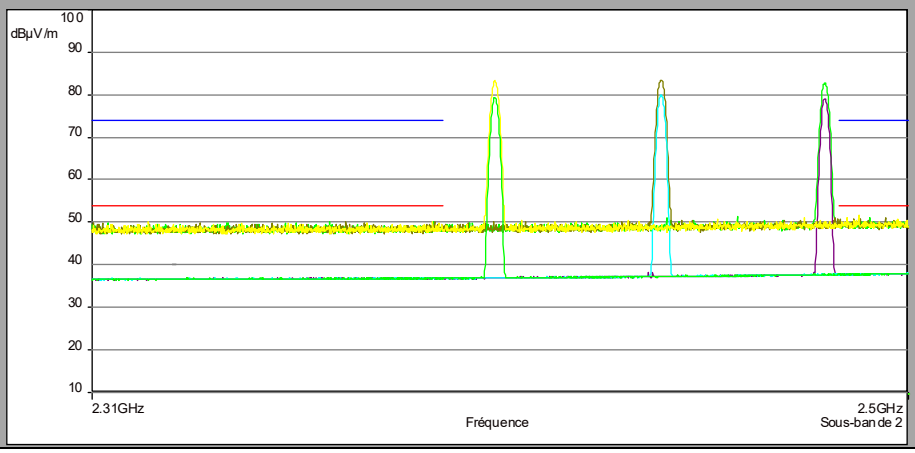
Horizontal polarization



8DPSK
Above 1GHz Zoom 2310MHz-2500MHz
Cmin/Cnom/Cmax
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.Avg _Channel Low - Verticale (Verticale)
Mes.Peak _Channel Low - Verticale (Verticale)
Mes.Avg _Channel Mid - Verticale (Verticale)
Mes.Peak _Channel Mid - Verticale (Verticale)
Mes.Avg _Channel High - Verticale (Verticale)
Mes.Peak _Channel High - Verticale (Verticale)

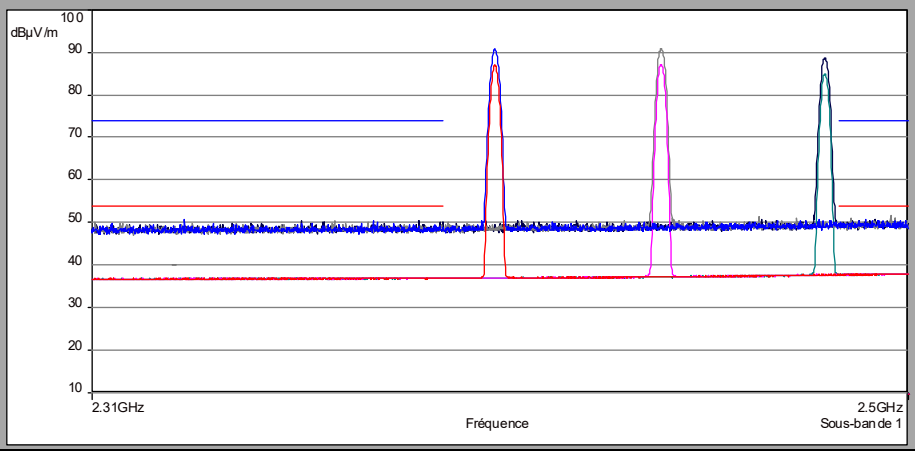
Description Sous-bande 2
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 2 ms/Pts, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp : On: 10 dB, LN Pre
Polarisation:Verticale
Distance: 3m



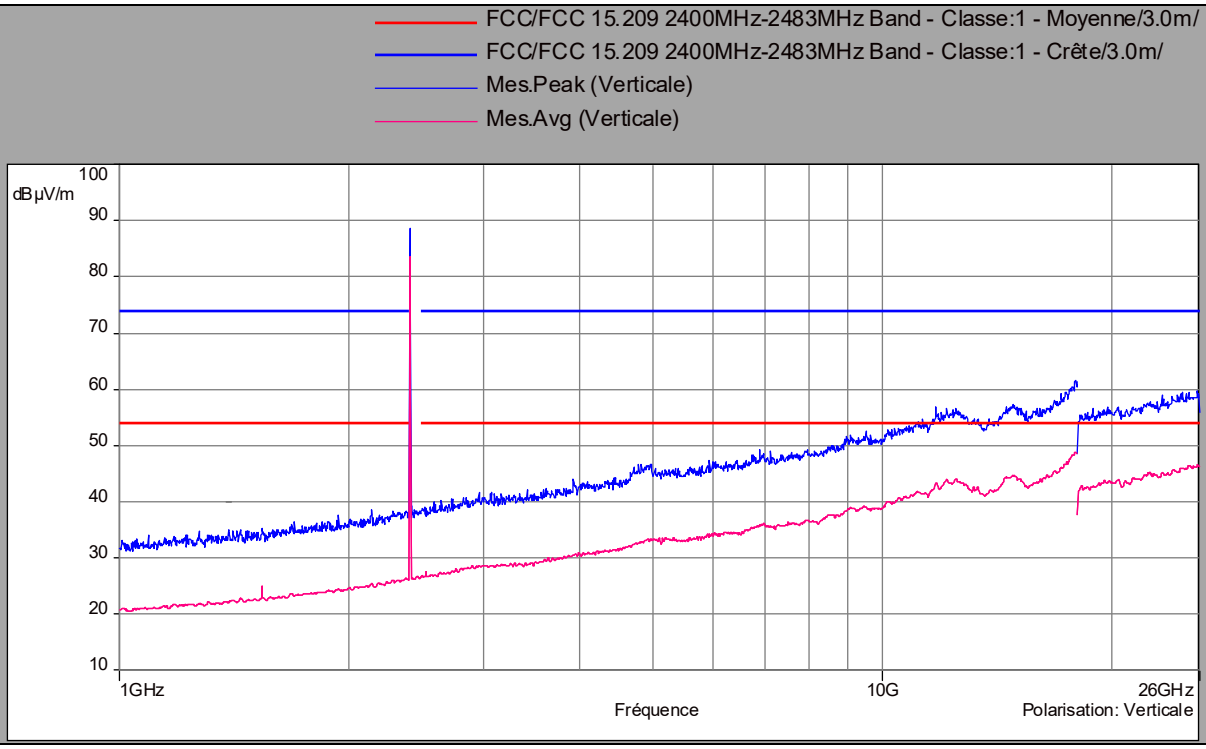
Horizontal polarization

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.Avg _Channel Low - Horizontale (Horizontale)
Mes.Peak _Channel Low - Horizontale (Horizontale)
Mes.Avg _Channel Mid - Horizontale (Horizontale)
Mes.Peak _Channel Mid - Horizontale (Horizontale)
Mes.Avg _Channel High - Horizontale (Horizontale)
Mes.Peak _Channel High - Horizontale (Horizontale)

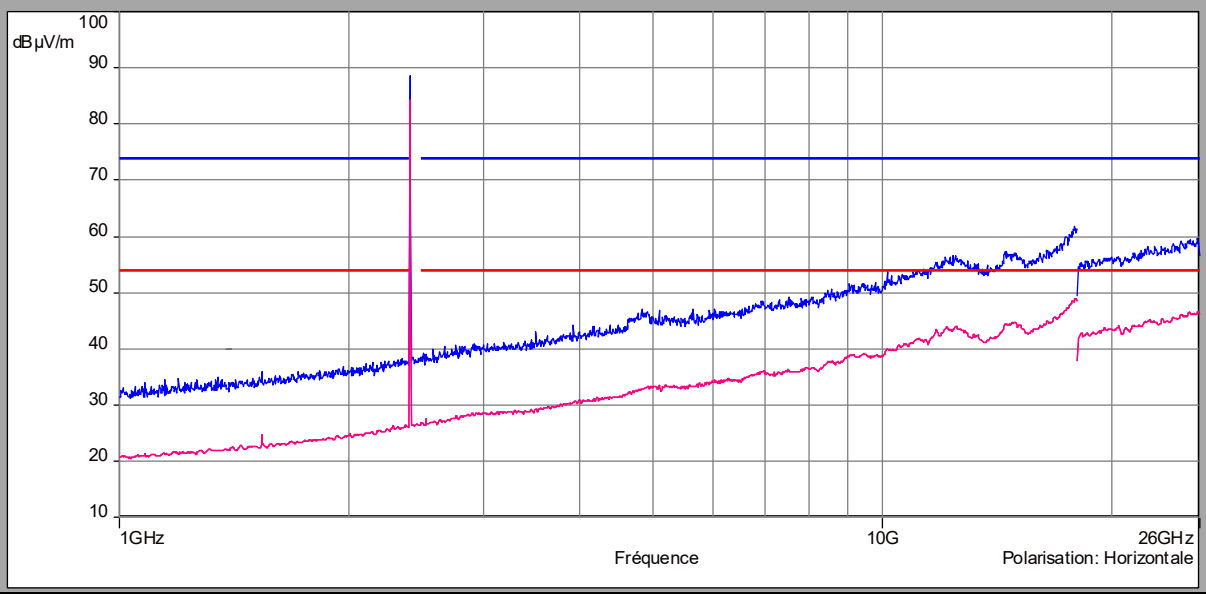
Description Sous-bande 1
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 2 ms/Pts, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp : On: 10 dB, LN Pre
Polarisation:Horizontale
Distance: 3m



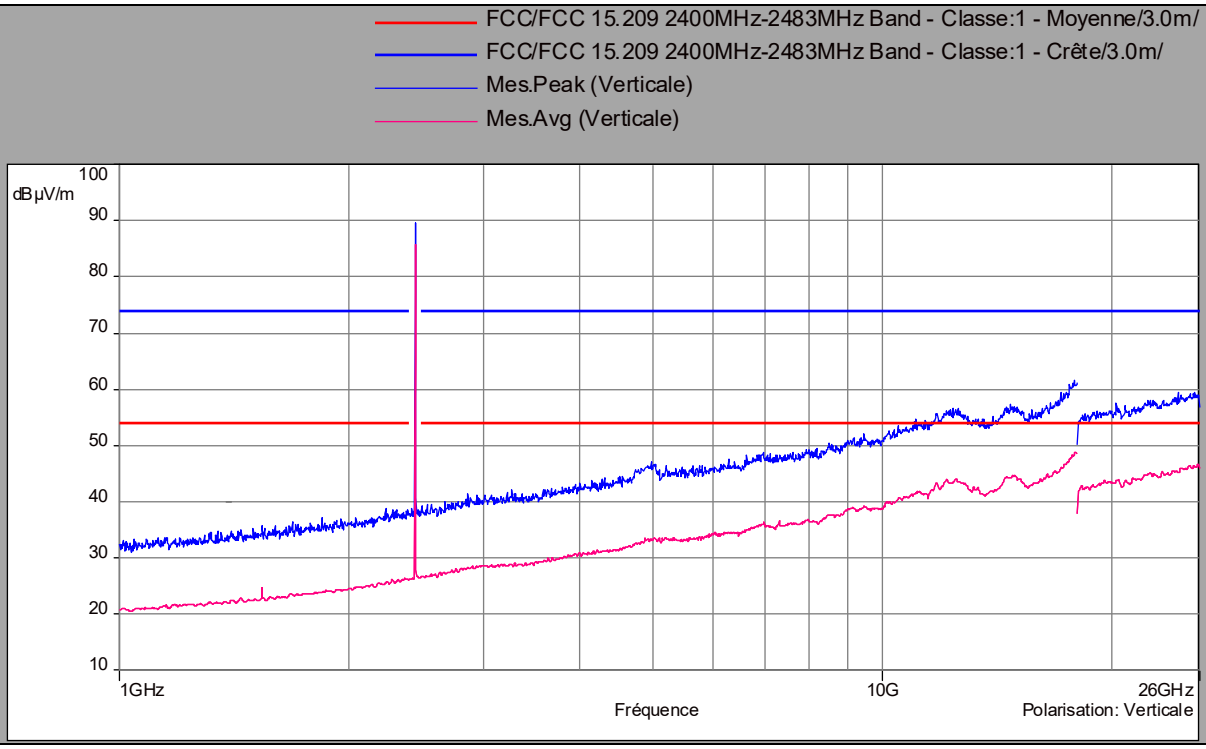
8DPSK
Above 1GHz
Cmin
Vertical Polarization



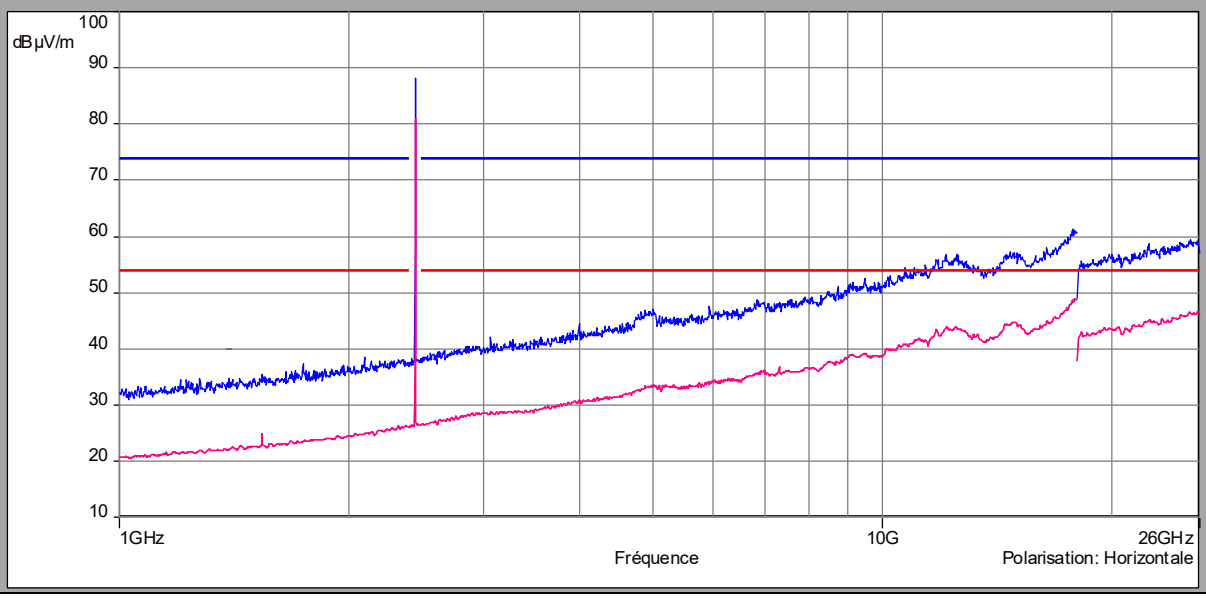
Horizontal polarization



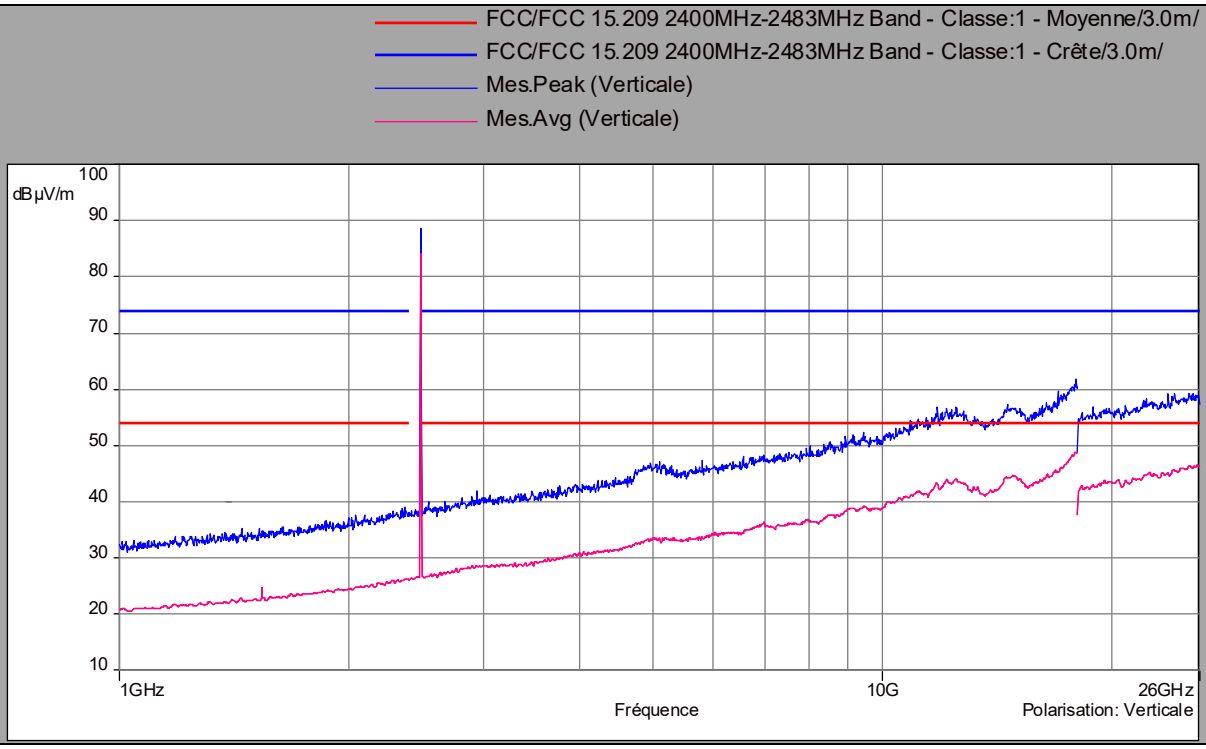
8DPSK
Above 1GHz
Cnom
Vertical Polarization



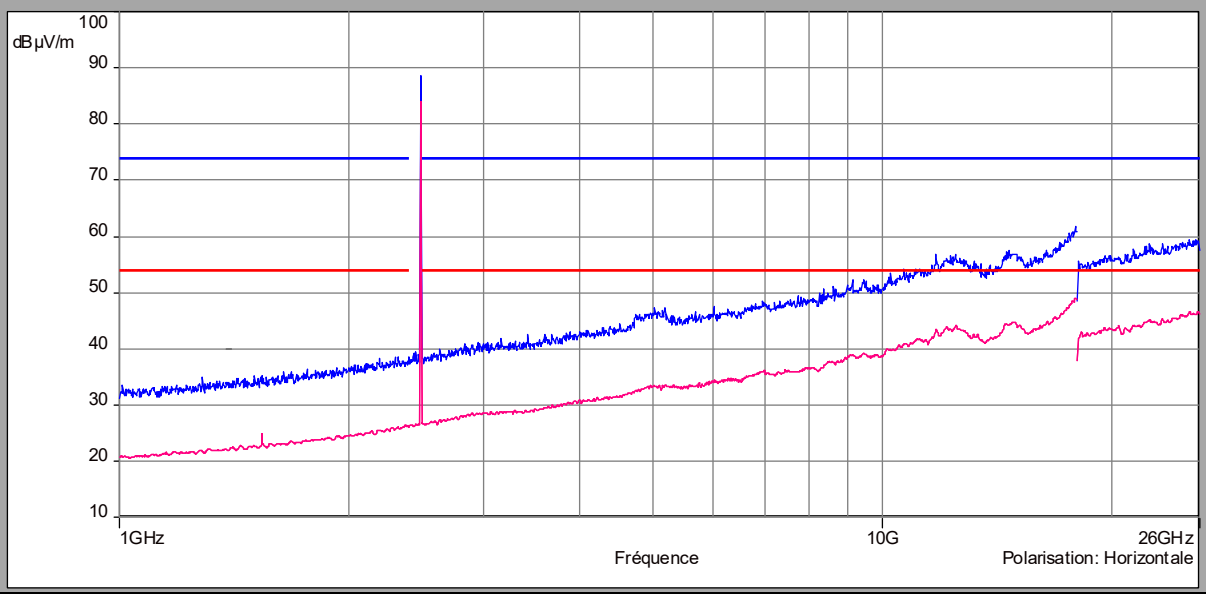
Horizontal polarization



8DPSK
Above 1GHz
Cmax
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

GFSK								
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)**
Verticale	1536	27,93	30,199	54	26,07	36,14	74	37,86
Horizontale	2390	36,52	38,789	54	17,48	47,02	74	26,98
Verticale	2390	36,15	38,419	54	17,85	47,74	74	26,26
Horizontale	2483.5	37,34	39,609	54	16,66	47,04	74	26,96
Verticale	2483.5	37,38	39,649	54	16,62	47,89	74	26,11
Horizontale	4803	34,54	36,809	54	19,46	45,31	74	28,69
Verticale	4882	35,71	37,979	54	18,29	45,95	74	28,05
Verticale	4960	35,66	37,929	54	18,34	45,92	74	28,08

π/4 DQPSK								
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	1536	25,04	27,297	54	28,96	34,68	74	39,32
Horizontale	2390	36,54	38,797	54	17,46	47,29	74	26,71
Verticale	2390	36,68	38,937	54	17,32	47,54	74	26,46
Horizontale	2483.5	37,51	39,767	54	16,49	47,58	74	26,42
Verticale	2483.5	37,11	39,367	54	16,89	47,79	74	26,21

8DPSK								
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)**
Verticale	1536	25,08	27,337	54	28,92	35,29	74	38,71
Horizontale	2390	36,69	38,947	54	17,31	47,96	74	26,04
Verticale	2390	36,55	38,807	54	17,45	47,47	74	26,53
Horizontale	2483.5	37,56	39,817	54	16,44	47,89	74	26,11
Verticale	2483.5	37,47	39,727	54	16,53	47,37	74	26,63

13.7. CONCLUSION

Unwanted Emission in 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.

14. 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