Spectrum Analyzer Offset:
Cable Loss=20dB + Attenuator= 1.8dB

802.11b					
Channel	**Tx1 (dBm/3kHz)**	**Tx2 (dBm/3kHz)**	**Overall Antenna Gain (dBi)**	**Power Spectral Density (dBm)**	**Limit (dBm/3kHz)**
Cmin	-6,73	-5,71	3,96	-3,18	8
Cnom	-5,37	-5,63	3,96	-2.49	8
Cmax	-5,59	-5,92	3,96	-2,74	8

802.11g					
Channel	**Tx1 (dBm/3kHz)**	**Tx2 (dBm/3kHz)**	**Overall Antenna Gain (dBi)**	**Power Spectral Density (dBm)**	**Limit (dBm/3kHz)**
Cmin	-13,46	-12,66	3,96	-10,03	8
Cnom	-9,99	-8,85	3,96	-6,37	8
Cmax	-13,85	-12,72	3,96	-10,24	8

802.11n HT20					
Channel	**Tx1 (dBm/3kHz)**	**Tx2 (dBm/3kHz)**	**Overall Antenna Gain (dBi)**	**Power Spectral Density (dBm)**	**Limit (dBm/3kHz)**
Cmin	-18,06	-17,09	3,96	-14,54	8
Cnom	-13,15	-12,19	3,96	-9,63	8
Cmax	-16,99	-17,4	3,96	-14,18	8

802.11ax HT20					
Channel	**Tx1 (dBm/3kHz)**	**Tx2 (dBm/3kHz)**	**Overall Antenna Gain (dBi)**	**Power Spectral Density (dBm)**	**Limit (dBm/3kHz)**
Cmin	-17,11	-16	3,96	-13,51	8
Cnom	-12,58	-10,33	3,96	-8,30	8
Cmax	-17,89	-16,33	3,96	-14,03	8

7.6. CONCLUSION

Power Spectral Density measurement performed on the sample of the product **COGECO DIW3930 COGECO**, SN: **6211130035003**, 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

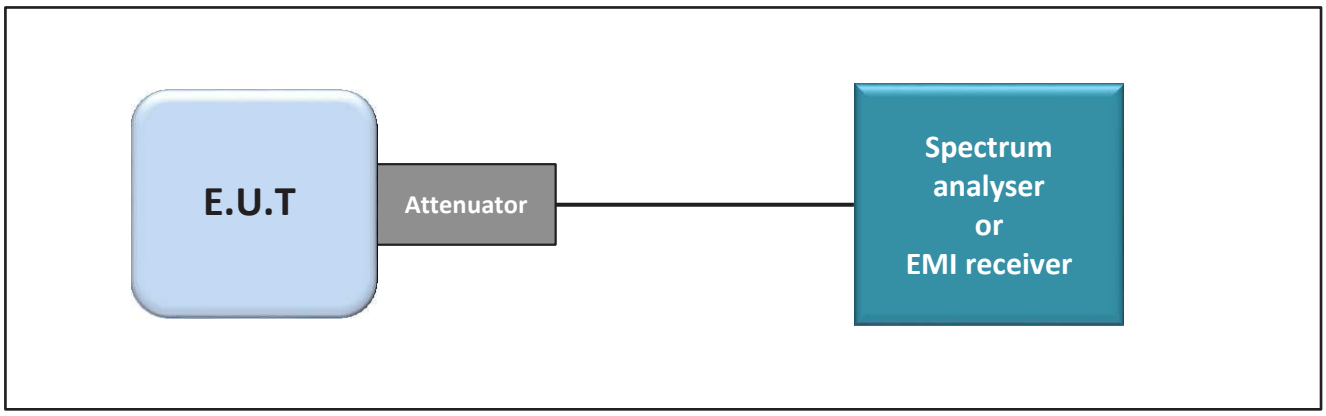
Test performed by	: Armand MAHOUNGOU
Date of test	: June 23, 2021
Ambient temperature	: 26°C
Relative humidity	: 44%

8.2. TEST SETUP

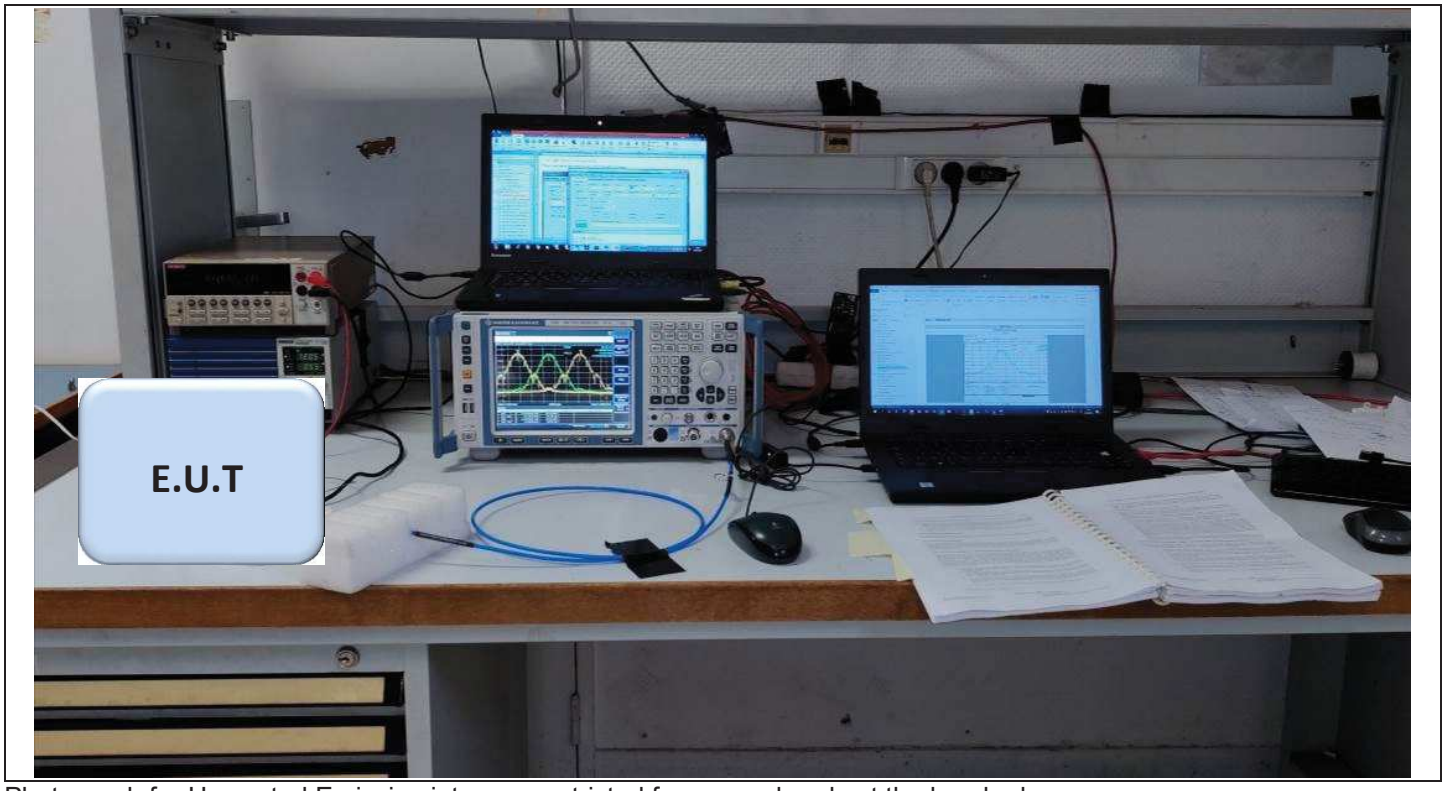
- The Equipment Under Test is installed:
☐ On a table
☐ In an anechoic chamber

- 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

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR7	A2642026	2019/07	2021/07
Cable + Attenuateur 20dB	PASTERNACK	PE350-150CM	A5329970	2020/09	2021/09
Power supply	KIKUSUI	PCR500M	A7049006	See Multimeter	See Multimeter
Multimeter	KEITHLEY	2000	A1242090	2021/03	2023/03
R&S Commander Software	ROHDE & SCHWARZ	Version 1,6,4	-	-	-
Load 50 ohms	TELEGARTNER	-	A7150103	2021/04	2023/04
Load 50 ohms	TELEGARTNER	-	A7150104	2021/04	2023/04

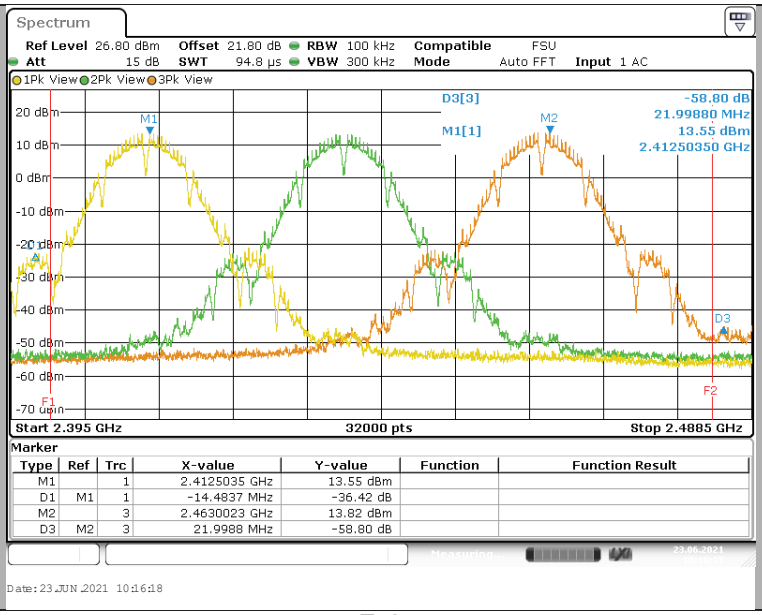
Note: In our quality system, the test equipment calibration due is more & less 2 months

8.5. RESULTS

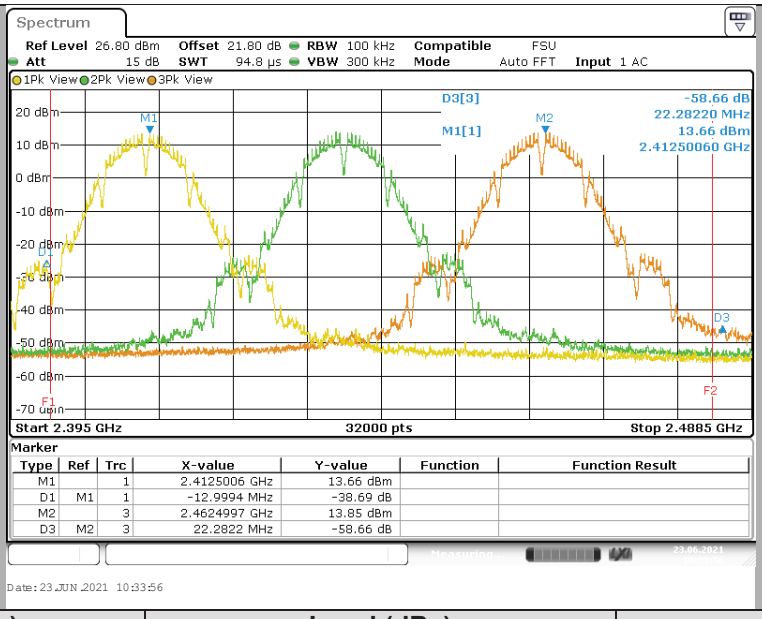
802.11b

Cmin/Cnom/Cmax

Tx1



Tx2

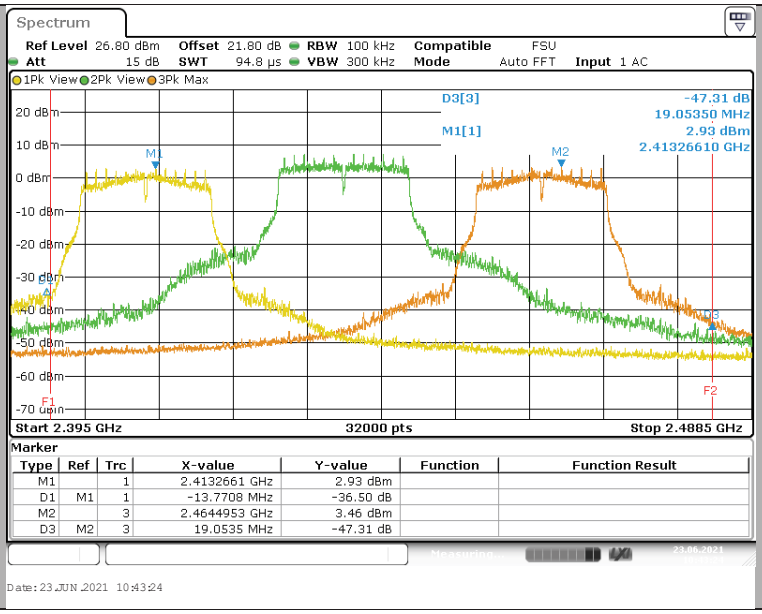


Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	36.42	30
2483.5	58.66	30

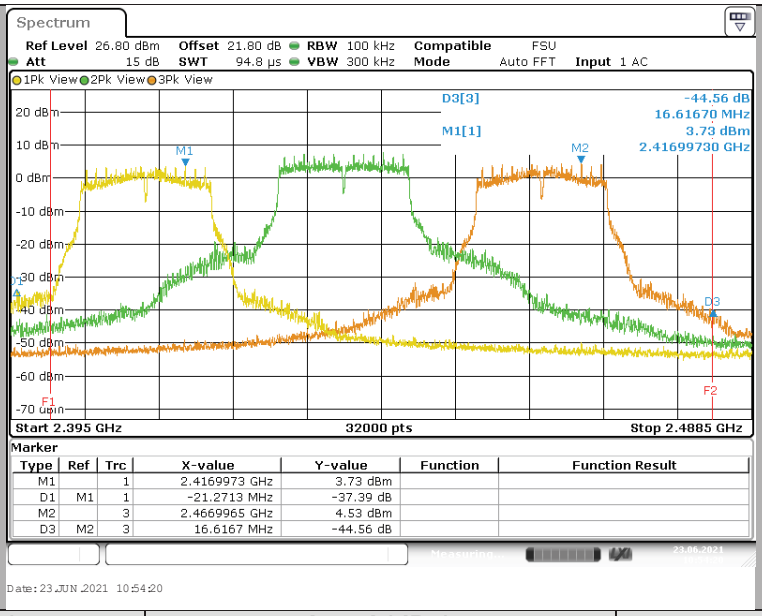
802.11g

Cmin/Cnom/Cmax

Tx1



Tx2

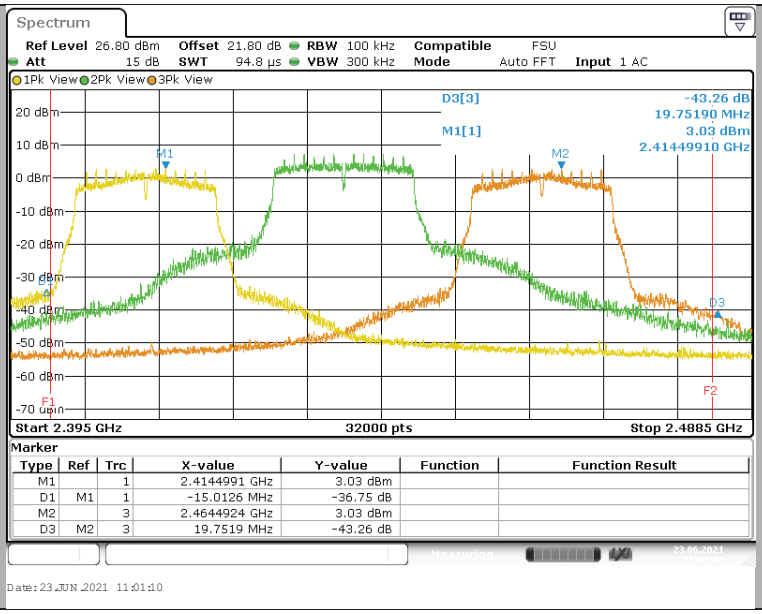


Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	36.50	30
2483.5	44.56	30

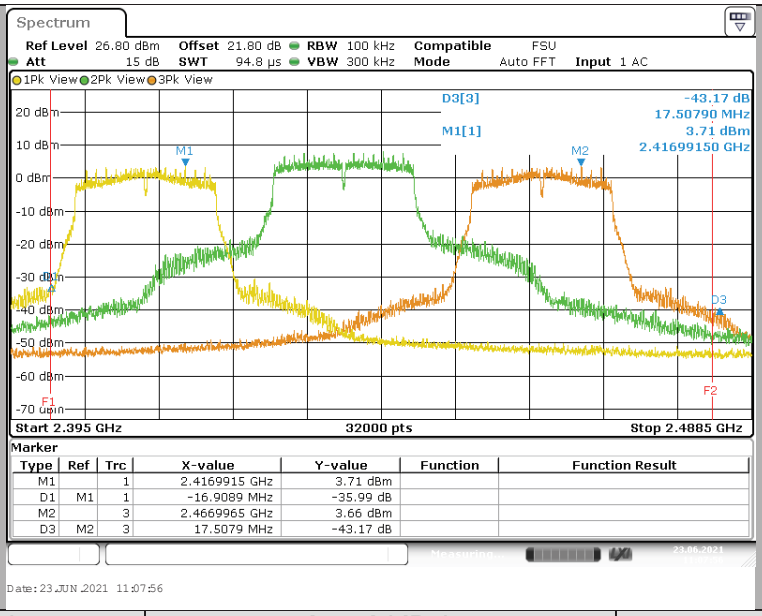
802.11n HT20

Cmin/Cnom/Cmax

Tx1



Tx2

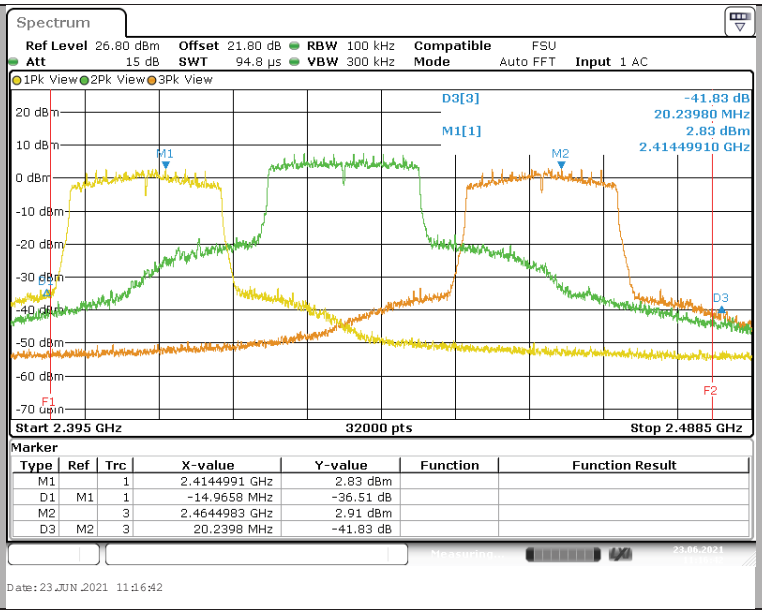


Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	35.99	30
2483.5	43.17	30

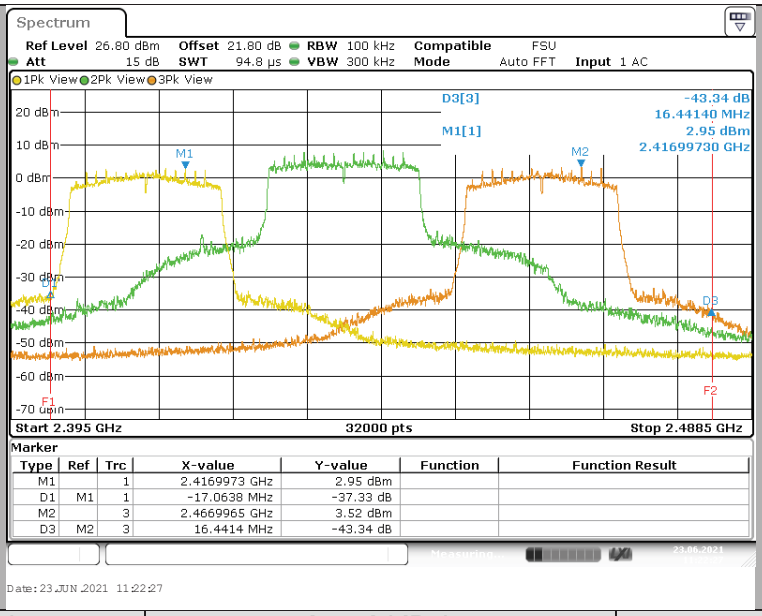
802.11ax HT20

Cmin/Cnom/Cmax

Tx1



Tx2



Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	36.51	30
2483.5	41.83	30

8.6. CONCLUSION

Unwanted Emission into non-restricted frequency bands at the band edge measurement performed on the sample of the product **COGECO DIW3930 COGECO**, SN: **6211130035003**, 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

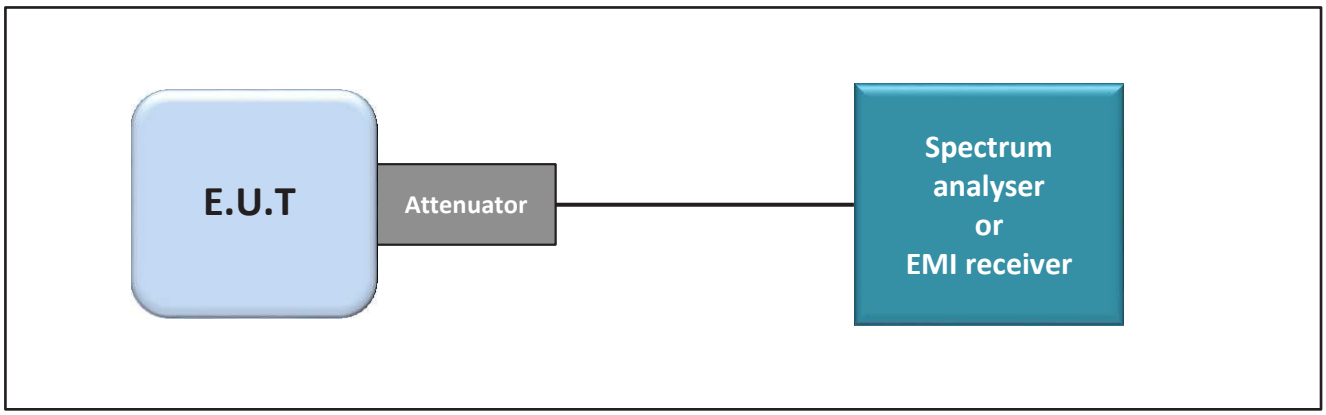
Test performed by	: Armand MAHOUNGOU
Date of test	: June 21, 2021
Ambient temperature	: 24°C
Relative humidity	: 41%

9.2. TEST SETUP

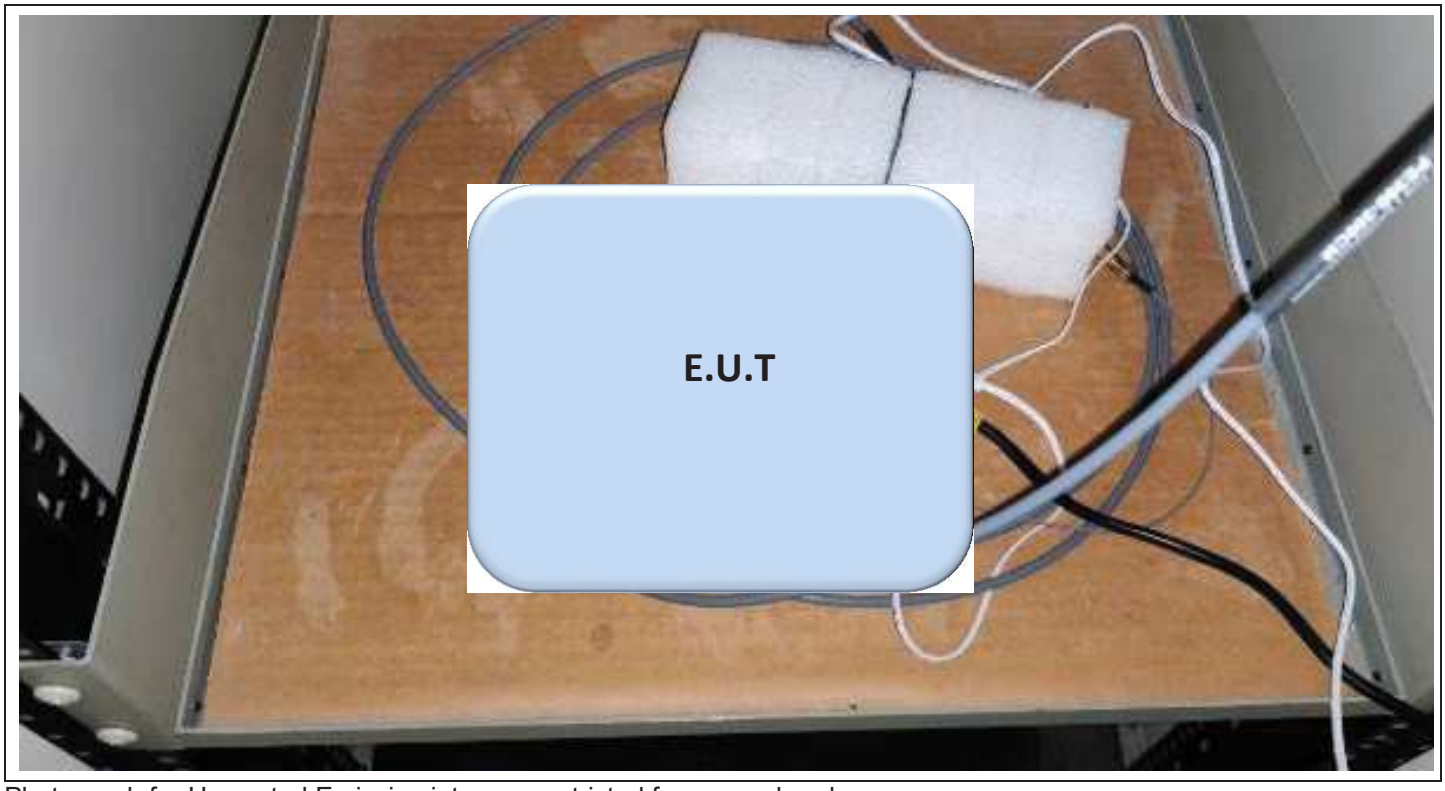
- The Equipment Under Test is installed:
☑ On a table
☐ In an anechoic chamber

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

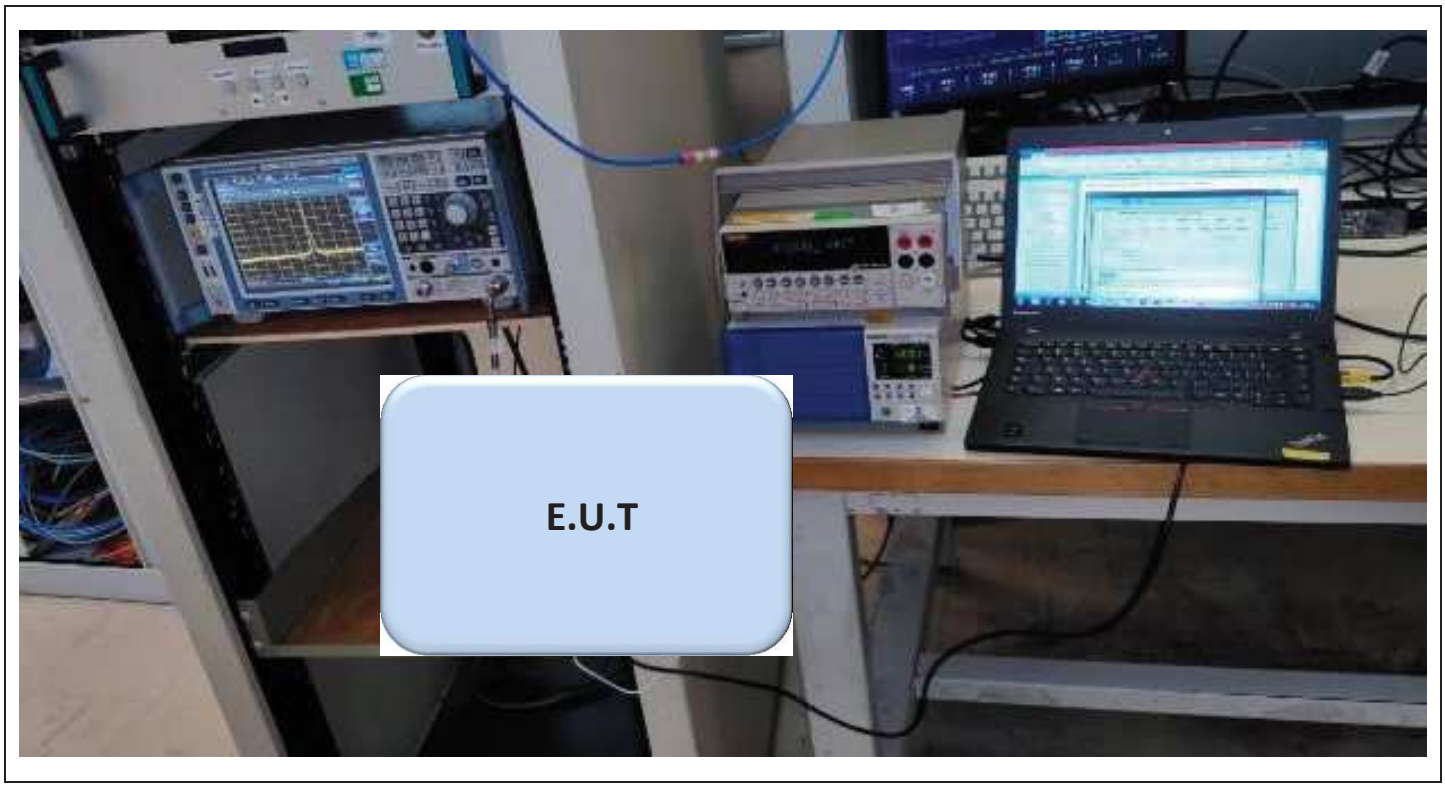
- Test Procedure:
☑ ANSI C63.10 § 11.11
☑ KDB 662911 D01 Multiple Transmitter Output v02r01



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 30dB (Average Conducted Power) below the Fundamental Radiator Level

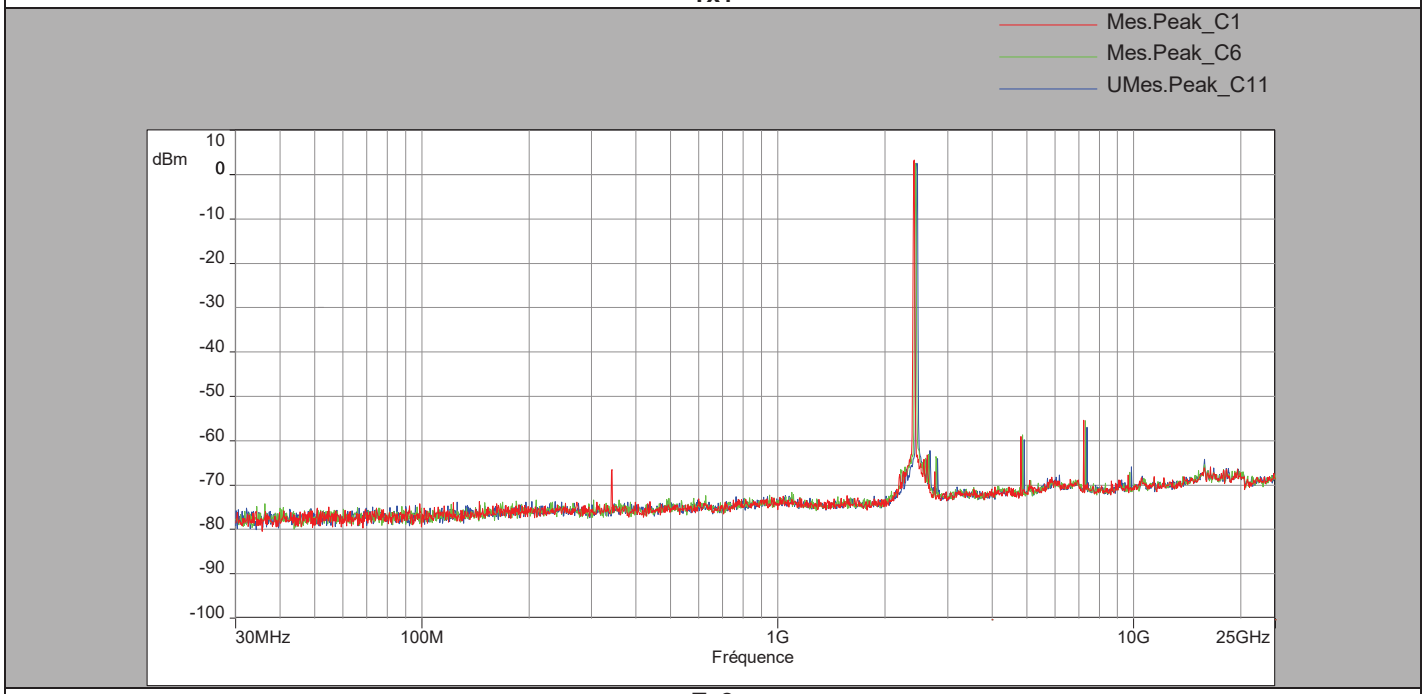
9.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
BAT EMC Software	NEXIO	Version 3.19.1.18	-	-	-
Cable S36 chamber	PASTERNACK	PE360-1500CM	A5329940	2021/02	2022/02
EMI receiver	ROHDE & SCHWARZ	FSV40GHz	A4060061	2019/05	2021/05
Multimeter	KEITHLEY	2000	A1242090	2019/05	2021/05
Power supply	KIKUSUI	PCR500M	A7040079	See Multimeter	See Multimeter
High Pass Filter 2,4GHz	WAINWRIGHT	WHK12-2494	A7484068	2019/07	2021/07
Attenuator 3dB Cable Spurious Conducted	-	WA54-3-12	A7122223	2021/02	2022/02
Load 50 ohms	TELEGARTNER	-	A7150105	2021/04	2023/04
Load 50 ohms	TELEGARTNER	-	A7150104	2021/04	2023/04

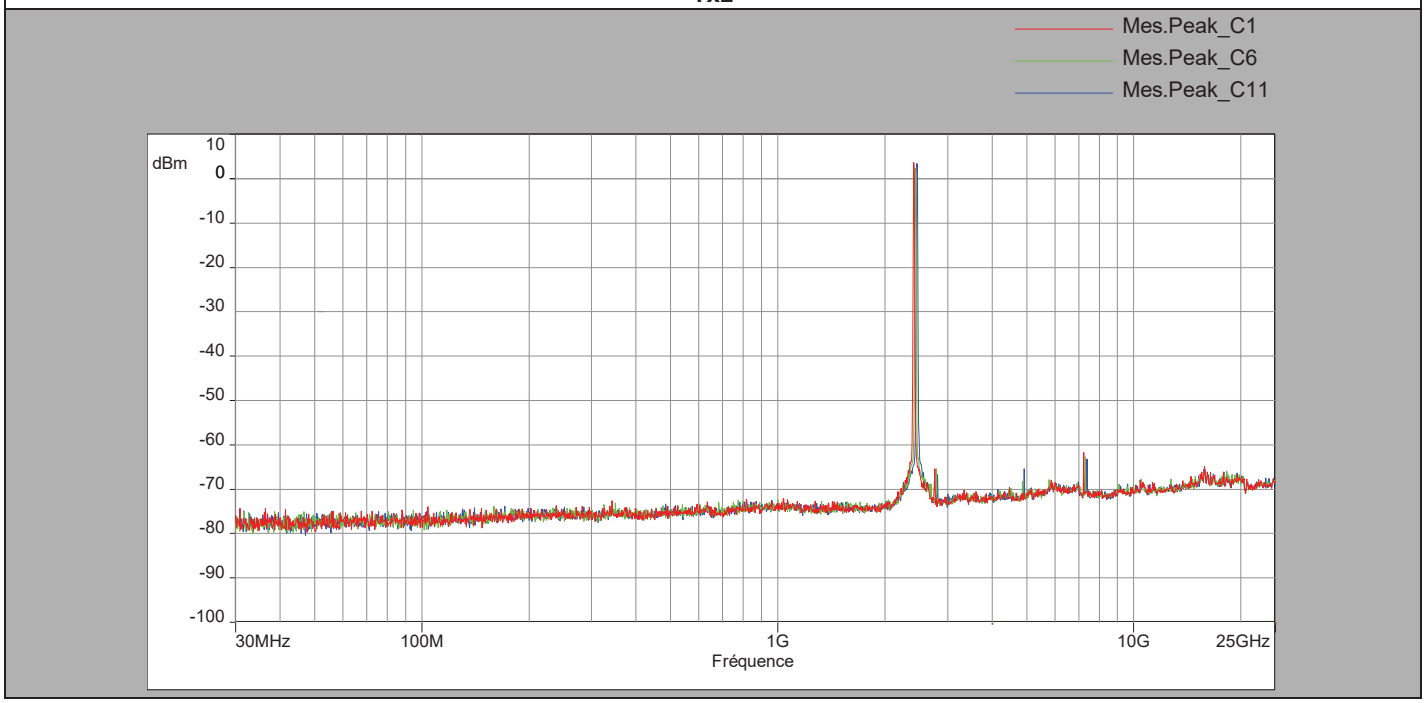
Note: In our quality system, the test equipment calibration due is more & less 2 months

9.5. RESULTS

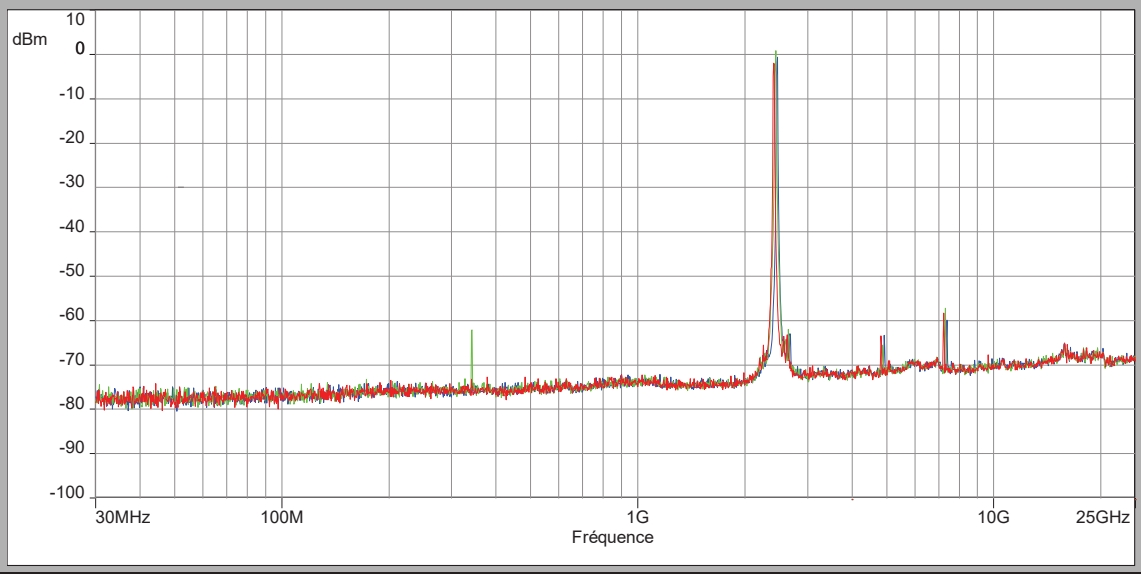
802.11b
Cmin/Cnom/Cmax
Tx1



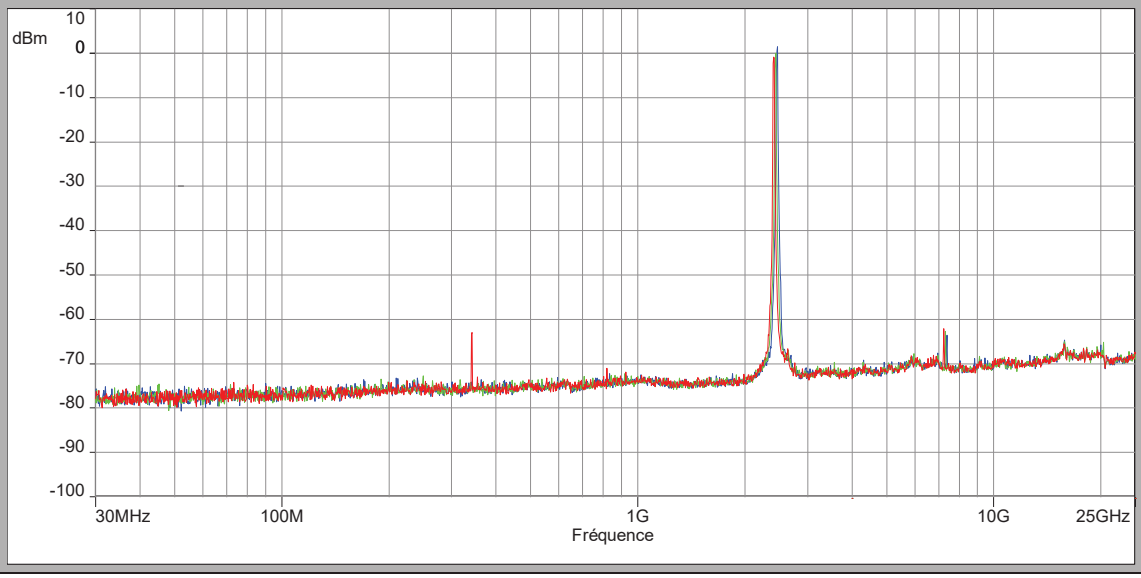
Tx2



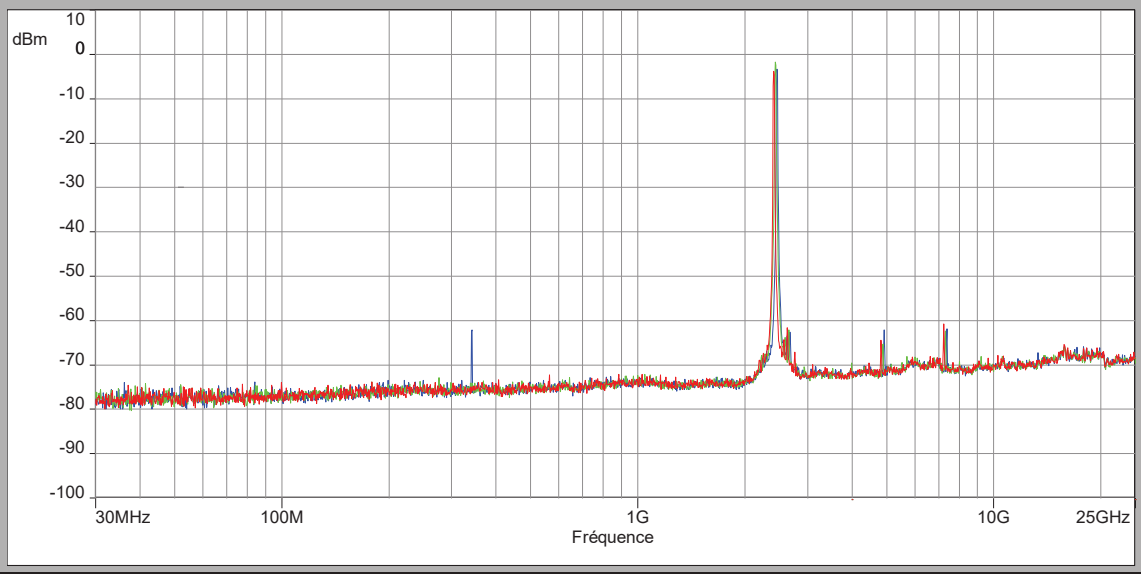
802.11g
Cmin/Cnom/Cmax
Tx1



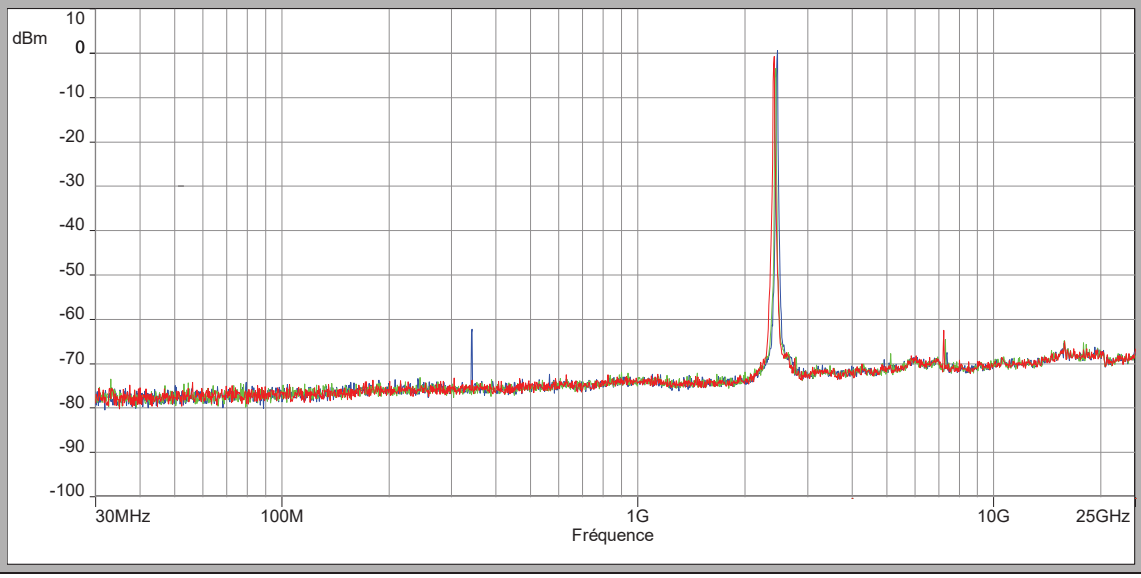
Tx2



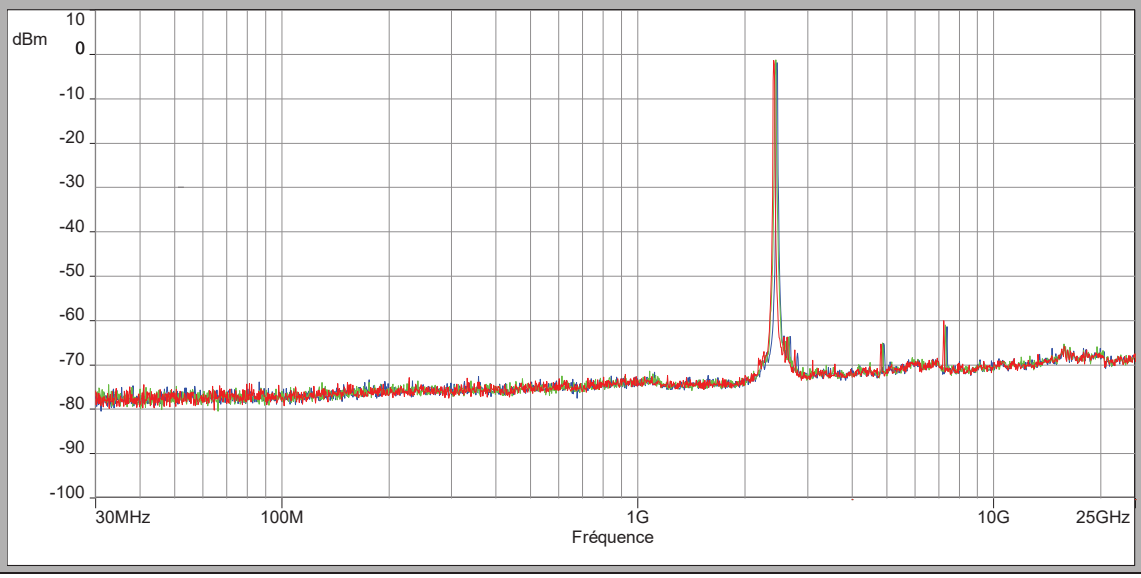
802.11n HT20
Cmin/Cnom/Cmax
Tx1



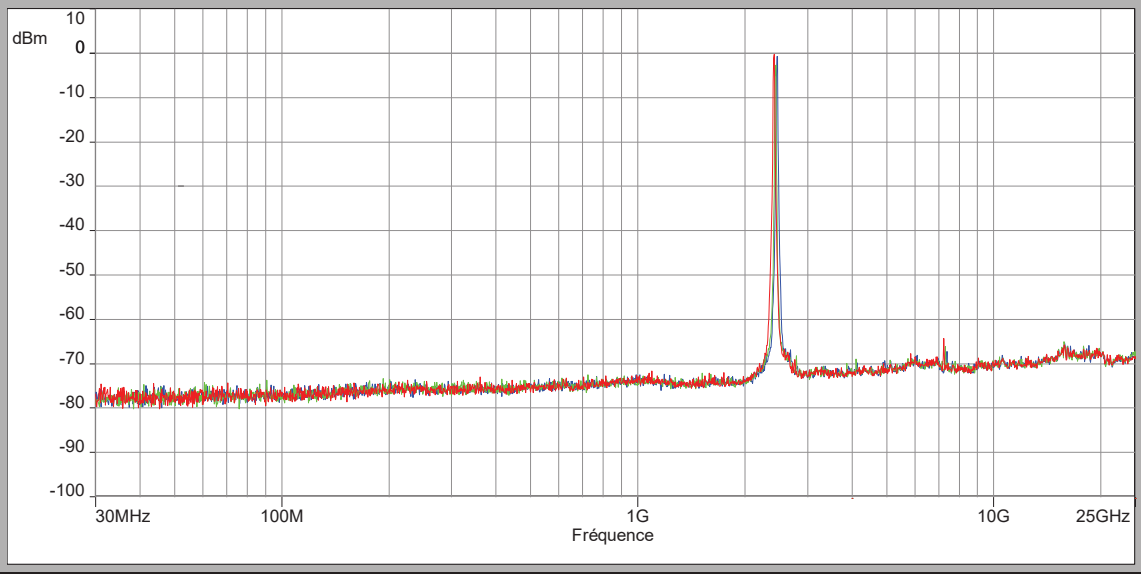
Tx2



802.11ax HT20
Cmin/Cnom/Cmax
Tx1



Tx2



802.11b			
Antenna 1			
Frequency (MHz)	Level (dBm)	Level (dBc)	Limit (dBc)
2412	3,24		
4823	-59,03	55,79	30
7234	-55,43	52,19	30
9647	-67,72	64,48	30
2437	2,59		
4873	-58,72	56,13	30
7312	-55,46	52,87	30
9748	-67,17	64,58	30
2462	2,56		
4924	-59,79	57,23	30
7385	-57,02	54,46	30
9848	-65,85	63,29	30

802.11b			
Antenna 2			
Frequency (MHz)	Level (dBm)	Level (dBc)	Limit (dBc)
2412	3,60		
7234	-61,76	58,16	30
2437	2,27		
4873	-68,27	66,00	30
7311	-62,68	60,41	30
2462	3,36		
4924	-65,38	62,02	30
7384	-63,16	59,80	30

802.11g			
Antenna 1			
Frequency (MHz)	Level (dBm)	Level (dBc)	Limit (dBc)
2412	-2,02		
4822	-63,42	61,40	30
7234	-58,26	56,24	30
2437	0,88		
4874	-65,56	64,68	30
7311	-57,26	56,38	30
2462	-0,56		
4922	-63,33	62,77	30
7388	-59,89	59,33	30

802.11g			
Antenna 2			
Frequency (MHz)	Level (dBm)	Level (dBc)	Limit (dBc)
2412	-0,84		
7234	-62,09	61,25	30
2437	0,05		
7308	-62,73	62,68	30
2462	1,43		
7387	-63,58	62,15	30

802.11n HT20			
Antenna 1			
Frequency (MHz)	Level (dBm)	Level (dBc)	Limit (dBc)
2412	-3,76		
4825	-64,38	60,62	30
7240	-60,79	57,03	30
2437	-1,73		
4879	-65,28	63,55	30
7317	-62,37	60,64	30
2462	-3,37		
4925	-62,08	58,71	30
7384	-61,82	58,45	30

802.11n HT20			
Antenna 2			
Frequency (MHz)	Level (dBm)	Level (dBc)	Limit (dBc)
2412	-0,74		
7234	-62,53	61,79	30
2437	-3,40		
7315	-64,51	61,11	30
2462	0,56		
7385	-67,52	66,96	30

802.11ax HT20			
Antenna 1			
Frequency (MHz)	Level (dBm)	Level (dBc)	Limit (dBc)
2412	-1,37		
4826	-65,22	63,85	30
7234	-60,03	58,66	30
2437	-1,24		
4877	-65,07	63,83	30
7306	-61,01	59,77	30
2462	-1,85		
4912	-65,15	63,3	30
7385	-61,41	59,56	30

802.11ax HT20			
Antenna 2			
Frequency (MHz)	Level (dBm)	Level (dBc)	Limit (dBc)
2412	-0.25		
7236	-64.30	64,05	30
2437	-2.66		
7304	-66.09	63,43	30
2462	-0.77		
7391	-67.25	66,48	30

9.6. CONCLUSION

Unwanted Emission into non-restricted frequency bands measurement performed on the sample of the product **COGECO DIW3930 COGECO**, SN: **6211130035003**, 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	: June 24, 2021
Ambient temperature	: 21 °C
Relative humidity	: 46 %

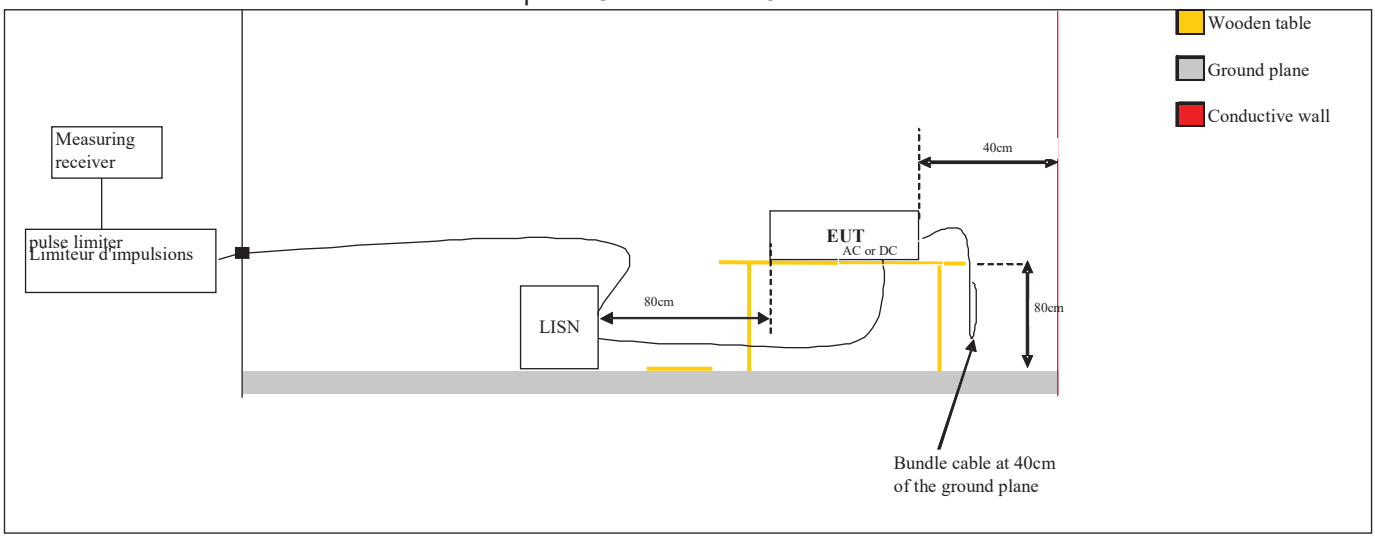
10.2. TEST SETUP

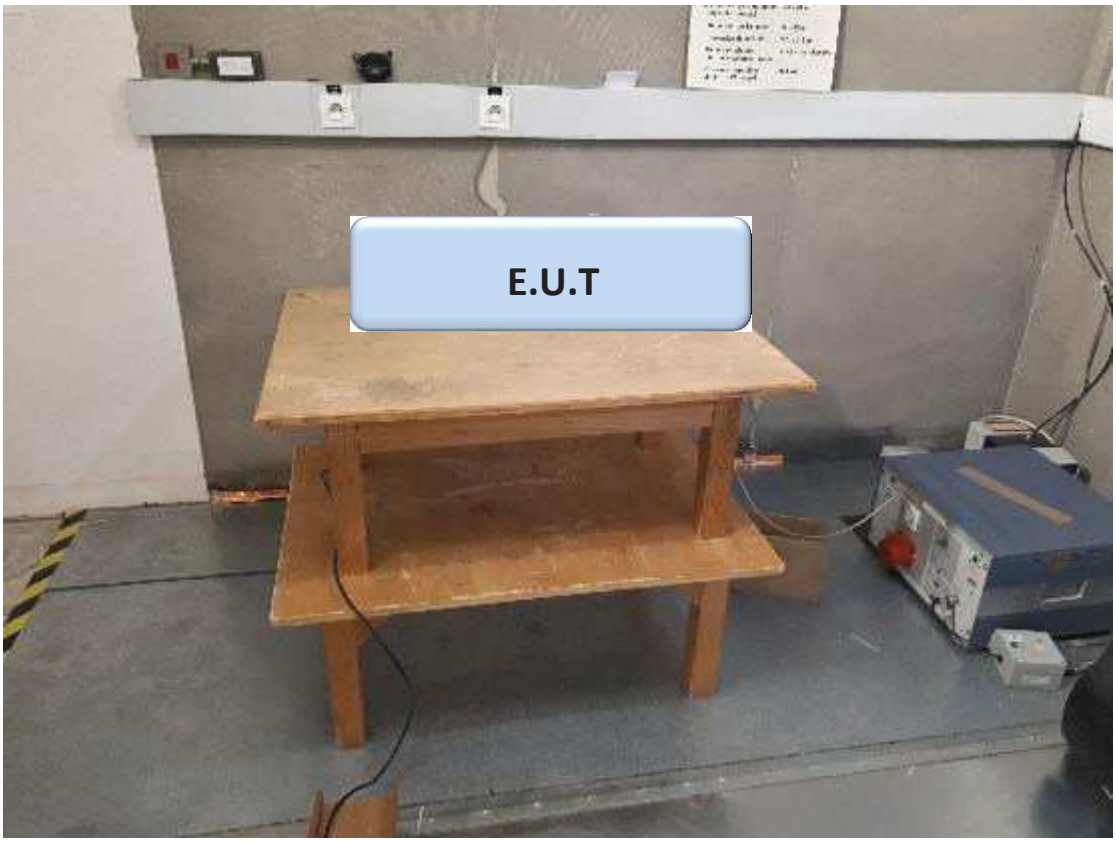
The product has been tested according to ANSI C63.10 method. The EUT is placed on the ground reference plane, at 80cm from the LISN. The distance between the EUT and the vertical ground plane is 40cm. Auxiliaries are powered by another LISN. The cable has been shorted to 1meter length. The EUT is powered 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.

Voltage table used (for Power Line Conducted Emissions):

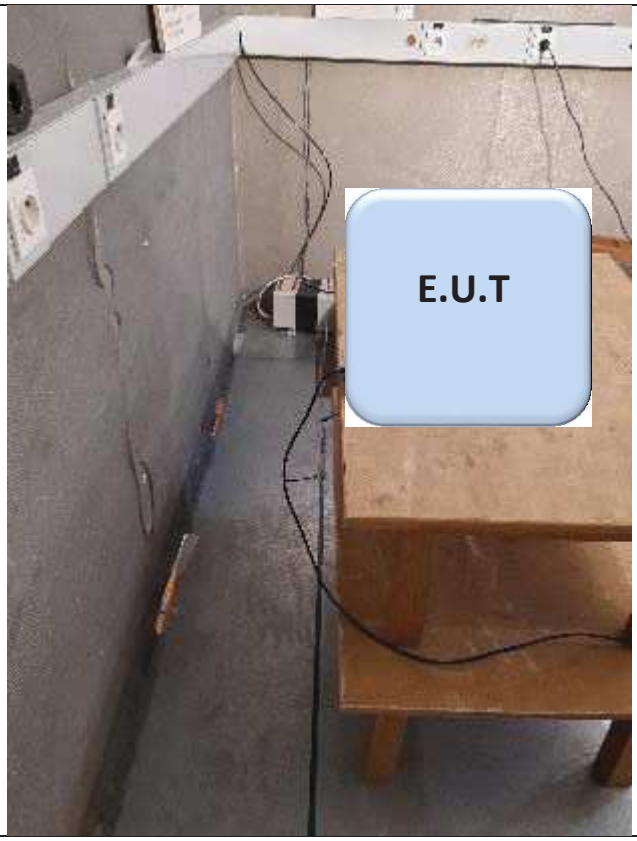
Type	Measurement performed:	
☑ AC / ☐ DC (Auxiliary used)	☑ 120VAC/60Hz	☑ 240VAC/50Hz
☐ USB (Laptop auxiliary)	☐ 120VAC/60Hz (Laptop auxiliary)	☐ 240VAC/50Hz(Laptop auxiliary)

Test set up of AC Power Line Conducted Emissions





Photograph for AC Power Line Conducted Emissions (Front view)



Photograph for AC Power Line Conducted Emissions (Rear view)

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	ESU	A2642018	2020-10	2022-10
V ISLN	ROHDE & SCHWARZ	ESH2-Z5	C2322002	2020-10	2021-10
Pulse limiter	ROHDE & SCHWARZ	ESH3-Z2	A2649008	2020-05	2021-05
Cable	-	-	A5329417	2020-12	2021-12
Cable	LCIE	-	A5329589	2020-11	2021-11
Reference ground plan 3 x 3m	L.C.I.E.	-	-	-	-

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

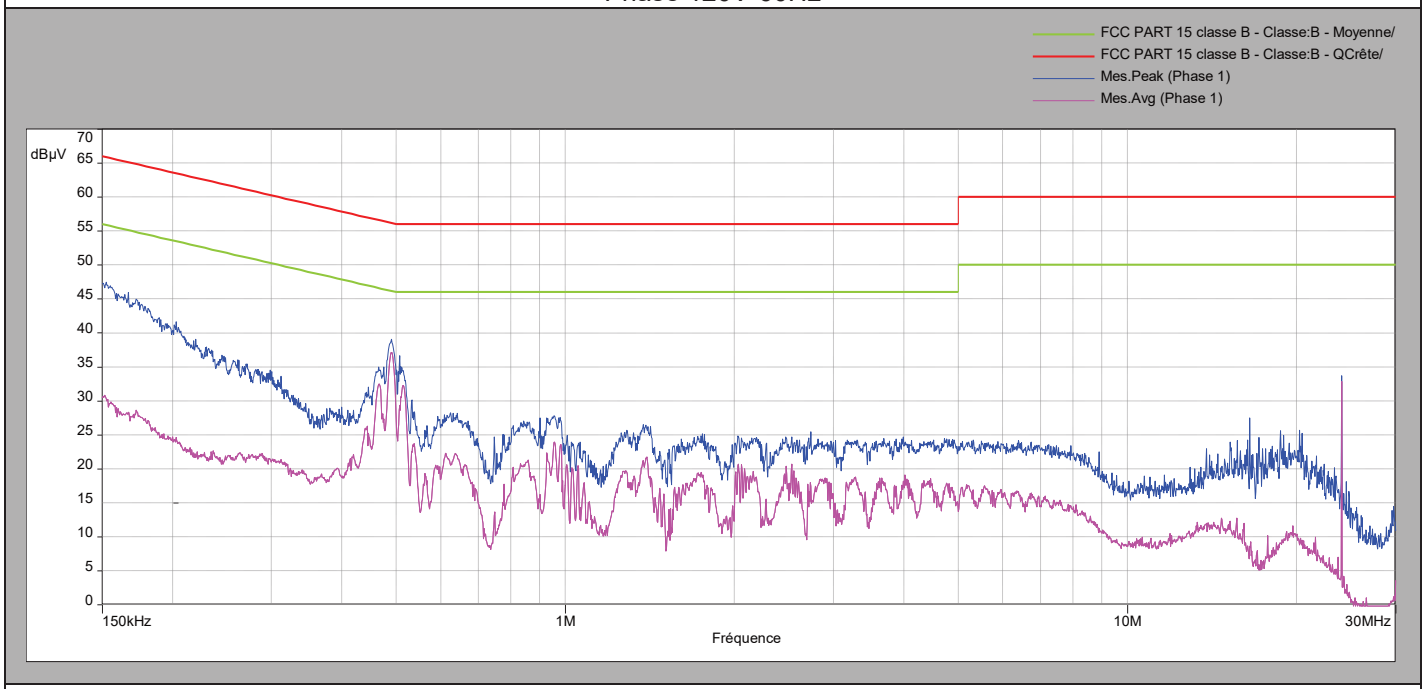
☑ None ☐ Divergence:

10.6. RESULTS

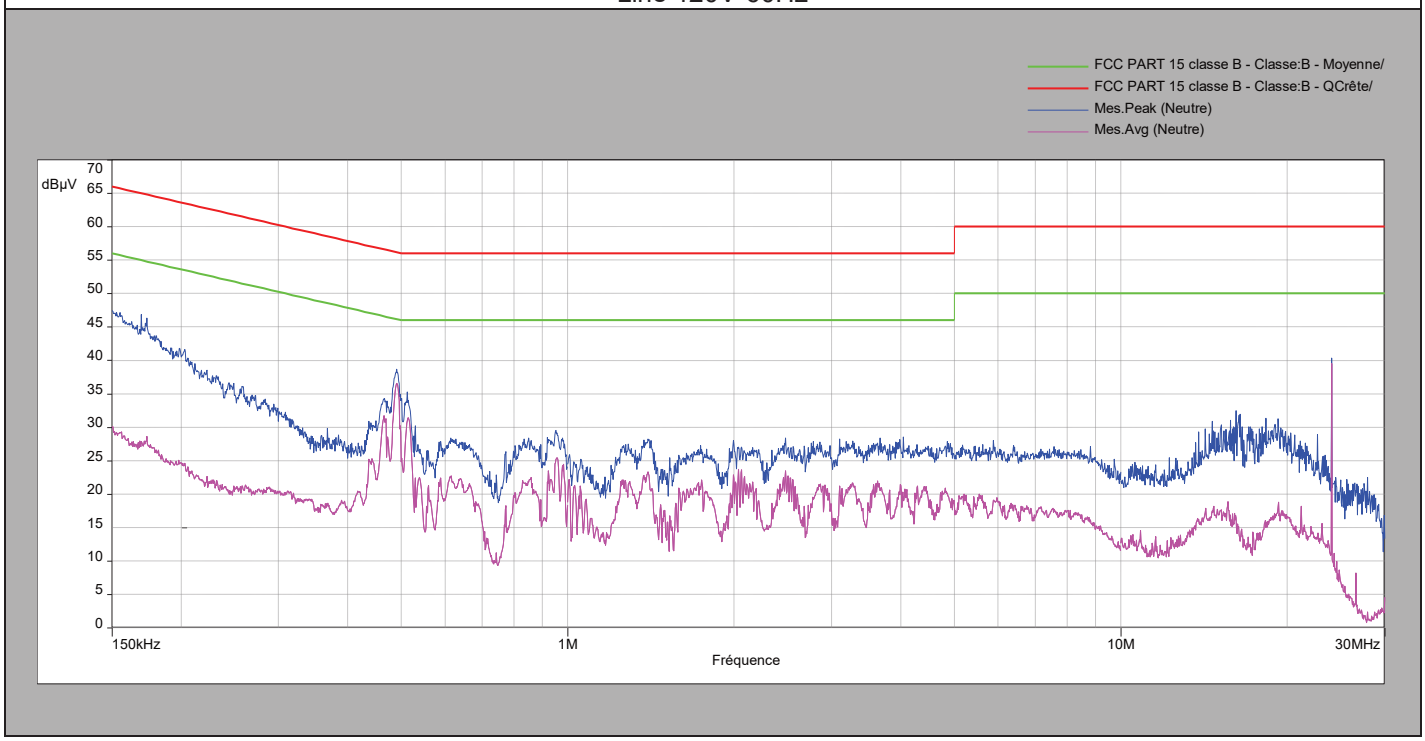
802.11b

Cmin

Phase 120V-60Hz



Line 120V-60Hz



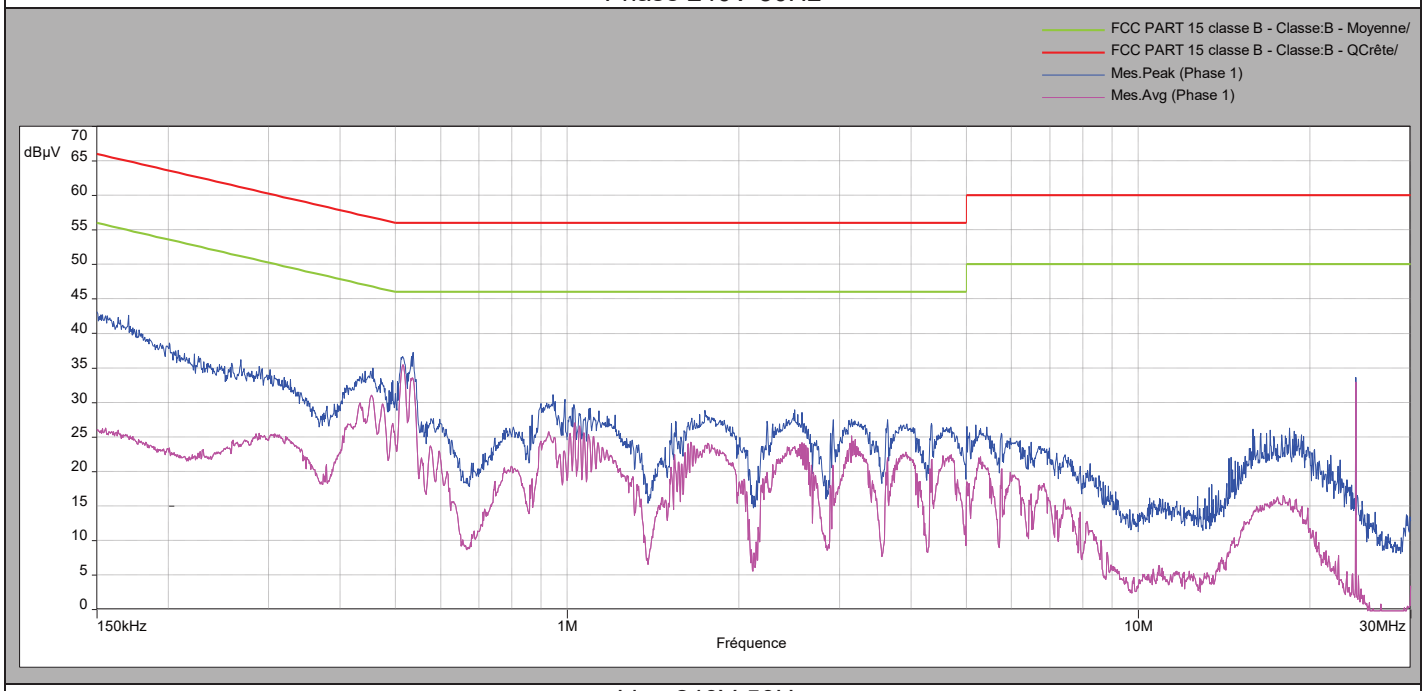
Phase Line 120V-60Hz							
Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin Quasi-Peak (dBµV)	Average Level (dBµV)	Average Limit (dBµV)	Margin Average (dBµV)
0,1525	47,06	-	65,86	18,8	27,98	55,86	27,88
0,4905	38,45	-	56,16	17,71	36,61	46,16	9,55
0,6255	26,29	-	56	29,71	17,85	46	28,15
20,23	22,4	-	60	37,6	6,03	50	43,97
24,046	33,87	-	60	26,13	32,99	50	17,01

Neutral Line 120V-60Hz							
Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin Quasi-Peak (dBµV)	Average Level (dBµV)	Average Limit (dBµV)	Margin Average (dBµV)
0,15	47,7	-	66	18,3	27,91	56	28,09
0,4905	37,99	-	56,16	18,17	35,84	46,16	10,32
16,15	29,59	-	60	30,41	10,34	50	39,66
18,29	27,76	-	60	32,24	11,84	50	38,16
24,046	40,56	-	60	19,44	39,39	50	10,61

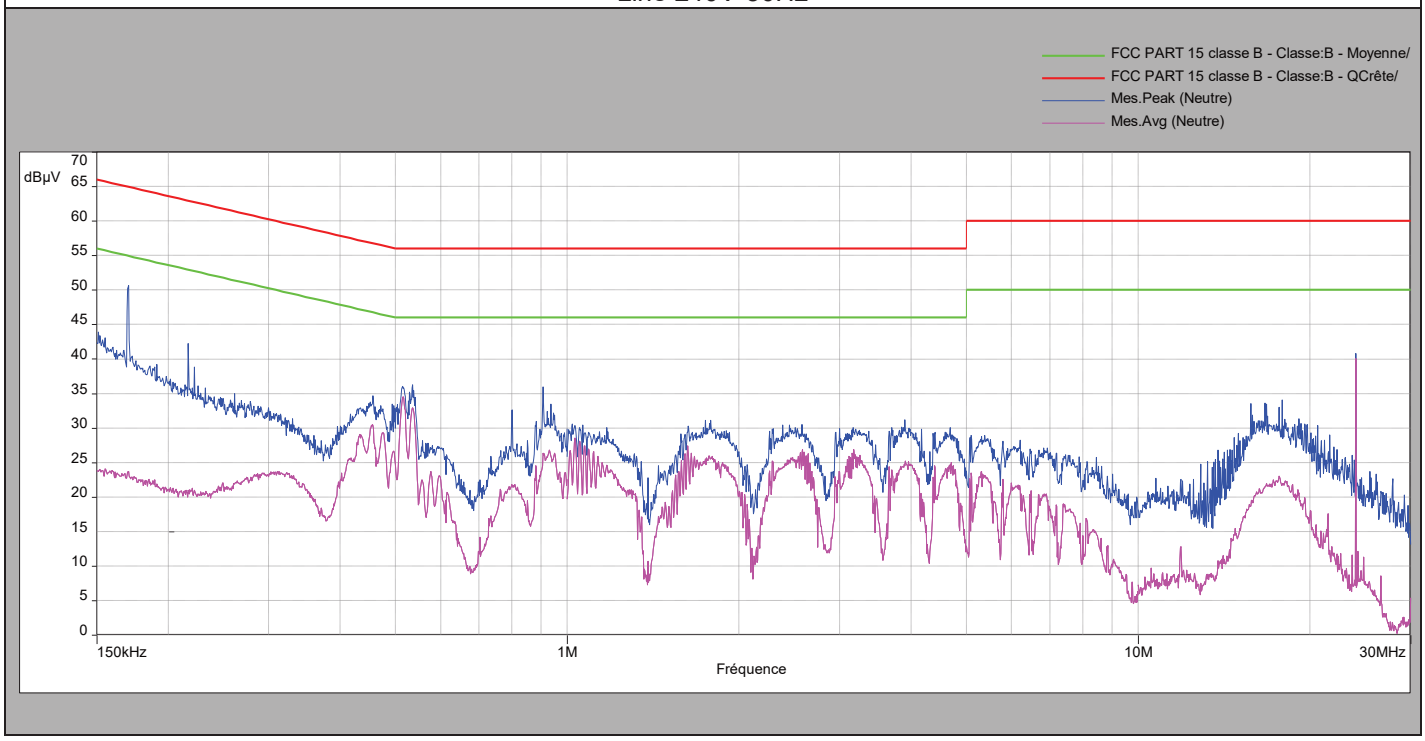
802.11b

Cmin

Phase 240V-50Hz



Line 240V-50Hz



Phase Line 240V-50Hz							
Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin Quasi-Peak (dBµV)	Average Level (dBµV)	Average Limit (dBµV)	Margin Average (dBµV)
0,15	43,71	-	66	22,29	23,79	56	32,21
0,537	35,89	-	56	20,11	33	46	13
0,9435	29,02	-	56	26,98	20,77	46	25,23
18,42	24,24	-	60	35,76	12,15	50	37,85
24,046	34,2	-	60	25,8	33,11	50	16,89

Neutral Line 240V-50Hz							
Frequency (MHz)	Peak Level (dBµV)	Quasi-Peak Level (dBµV)	Quasi-Peak Limit (dBµV)	Margin Quasi-Peak (dBµV)	Average Level (dBµV)	Average Limit (dBµV)	Margin Average (dBµV)
0,1705	40,81	-	64,94	24,13	20,86	54,94	34,08
0,2615	42,66	-	61,38	18,72	19,56	51,38	31,82
0,9075	30,71	-	56	25,29	22,54	46	23,46
1,782	29,8	-	56	26,2	22,85	46	23,15
24,048	40,73	-	60	19,27	39,49	50	10,51

10.7. CONCLUSION

Ac Power Line Conducted Emission measurement performed on the sample of the product **COGECO DIW3930 COGECO,** SN: **6211130035003**, 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

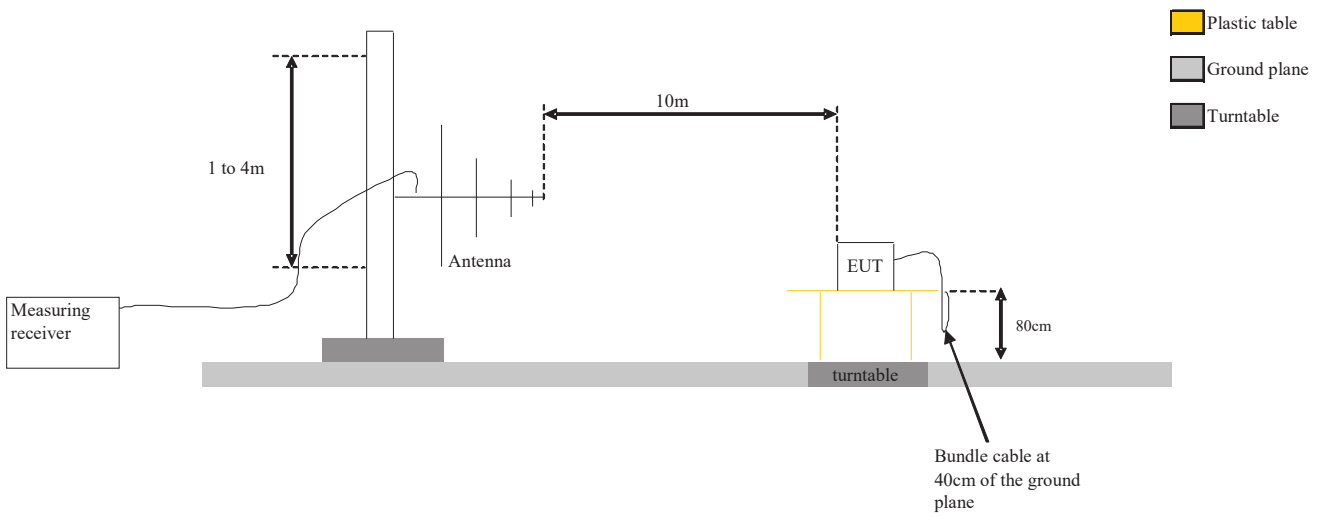
11.1. TEST CONDITIONS

Test performed by : Armand MAHOUNGOU & Laurent DENEUX
Date of test : June 15, 2021 to June 24, 2021
Ambient temperature : 25°C
Relative humidity : 47%

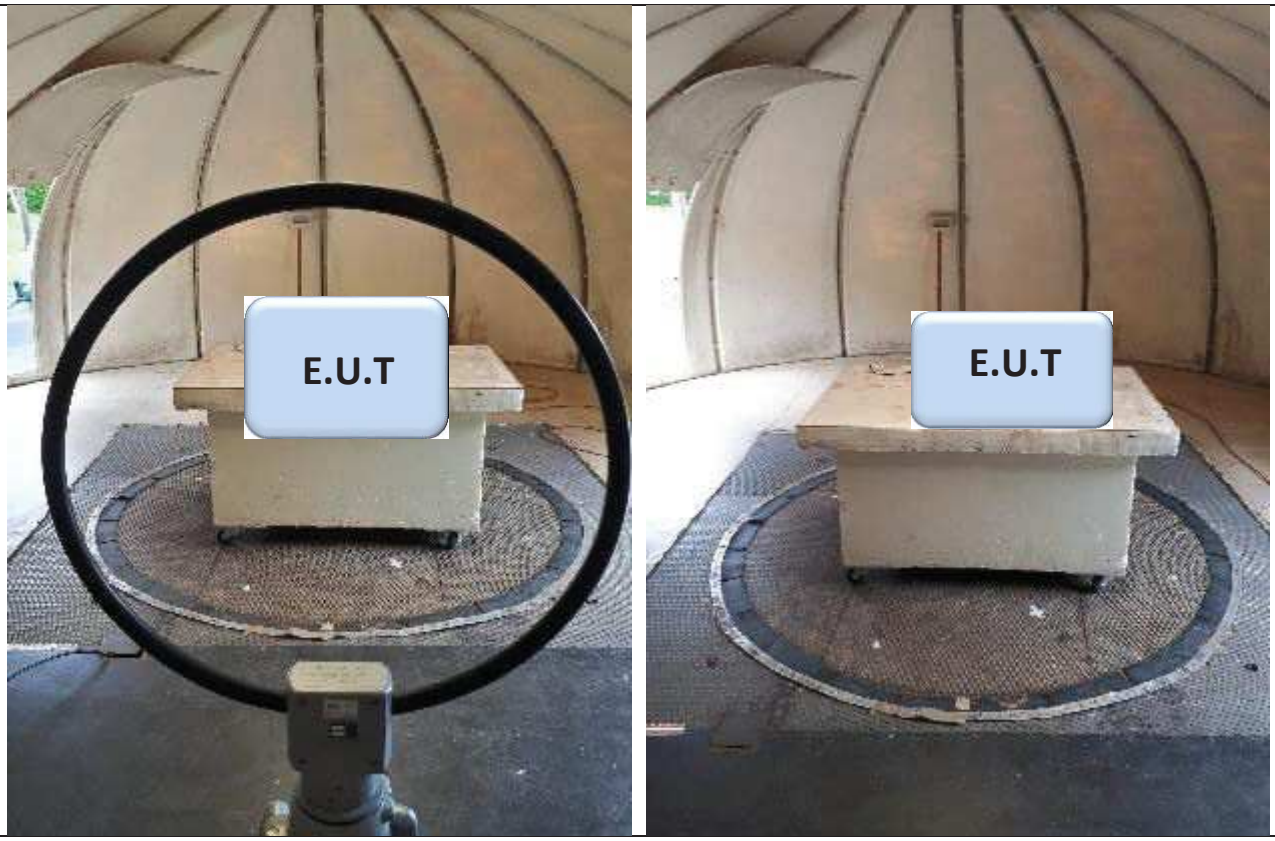
11.2. TEST SETUP

The product has been tested according to ANSI C63.10 and FCC part 15 subpart C:

Frequency range :	Below 30MHz	From 30MHz to 1GHz	Above 1GHz
Antenna Polarization :	Parallel, Perpendicular And Ground parallel	Horizontal And Vertical	Horizontal And Vertical
Antenna Height :	1m	Varied from 1m to 4m	Varied from 1m to 4m
Antenna Type :	Loop	Bi-Log	Horn
RBW Filter :	200Hz below 150kHz 9kHz above 150kHz	120kHz	1MHz
Maximization :	Turntable rotation of 360 degrees range		
EUT height :	0.8m		1.5m
Test site :	Open Aera Test Site	Open Aera Test Site	Open Aera Test Site
Distance EUT-Antenna :	3m	10m	3m



Test Set up for radiated measurement in open area test site



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
BAT EMC Software	NEXIO	Version 3,19,1,18	-	-	-
Preamplifier	LCIE	LCIE-ALB-001	A7080073	2021/02	2023/02
Horn antenna	AH SYSTEMS	SAS 571	C2042041	2019/11	2021/11
Horn antenna (18-26,5GHz)	PASTERNACK	PE9852/2F-20	C2042048	2020/06	2022/06
EMI receiver	ROHDE & SCHWARZ	FSV40GHz	A4060061	2019/05	2021/05
Cable S36 chamber	PASTERNACK	PE360-3000CM	A5329872	2021/02	2022/02
Cable S36 chamber	PASTERNACK	PE360-1000CM	A5329939	2021/02	2022/02
Cable S36 chamber	PASTERNACK	PE360-1500CM	A5329940	2021/02	2022/02
High Pass Filter 2,4GHz	WAINWRIGHT	WHK12-2494	A7484068	2019/07	2021/07
Open test site	LCIE	-	F2000400	2021-02	2022-02
EMI Test Receiver	ROHDE & SCHWARZ	ESU	A2642018	2020-10	2022-10
Loop antenna	R&S	HFH2-Z2	C2040269	2020-09	2022-09
Cable	-	-	A53291007	2021-02	2022-02
Cable			A5329361	2020-12	2021-12
Antenne bilog	CHASE	CBL 6112A	C2040040	2021-04	2022-04
Cable	-	-	A5329449	2020-12	2021-12
Cable	-	-	A5329876	2020-12	2021-12

11.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

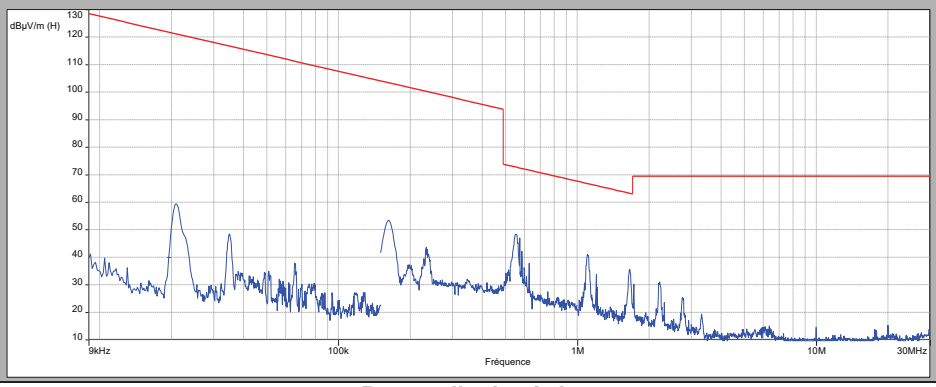
☑ None ☐ Divergence:

11.6. RESULTS

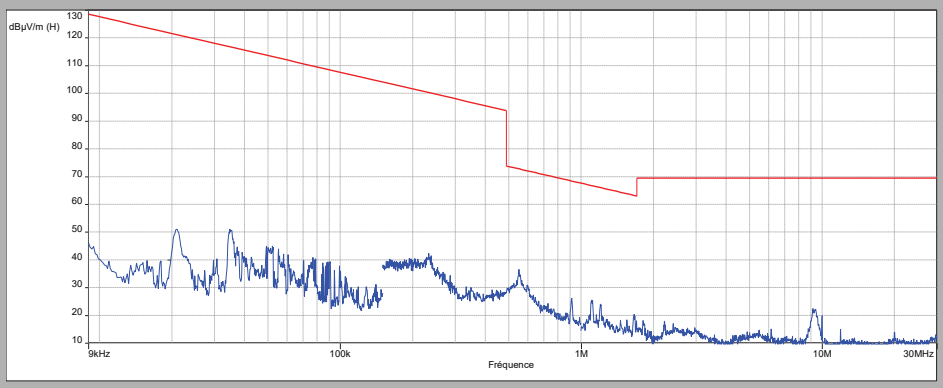
Worst case presented (see §6.5 in Maximum Conducted Output power):

9kHz to 30MHz

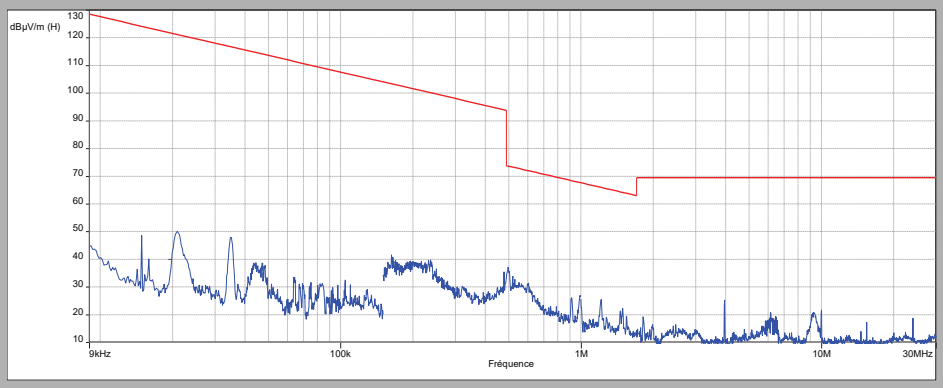
Parallel Axis



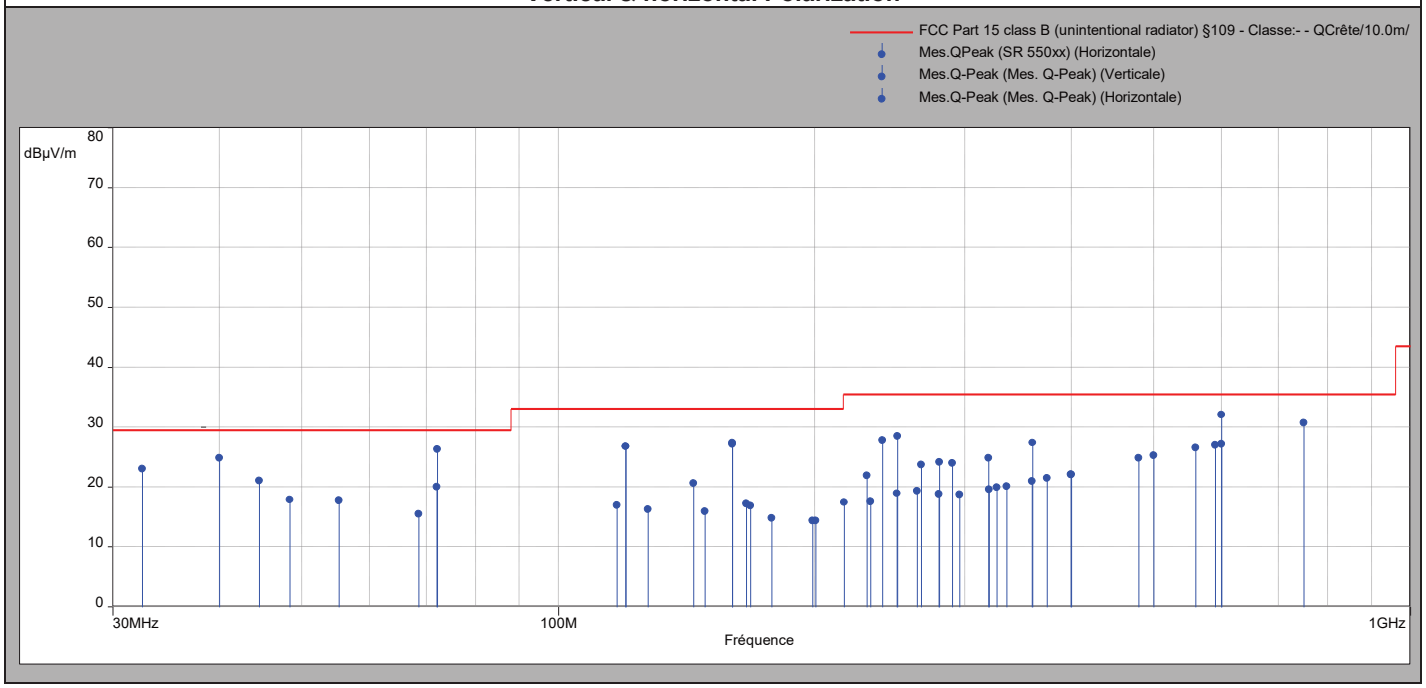
Perpendicular Axis



Ground Parallel Axis



802.11g
Cmin
Below 1GHz
Vertical & horizontal Polarization



802.11b

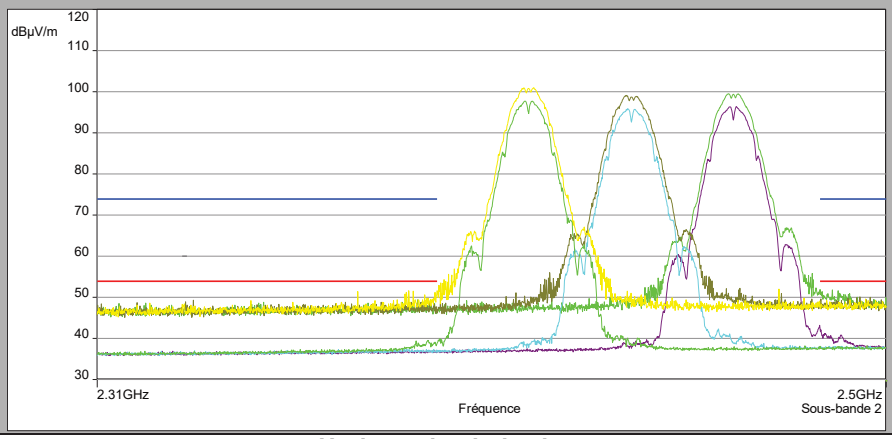
Cmin/Cnom/Cmax

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.Avg_C1 - Verticale (Verticale)
Mes.Peak_C1 - Verticale (Verticale)
Mes.Avg_C6 - Verticale (Verticale)
Mes.Peak_C6 - Verticale (Verticale)
Mes.Avg_C11 - Verticale (Verticale)
Mes.Peak_C11 - Verticale (Verticale)

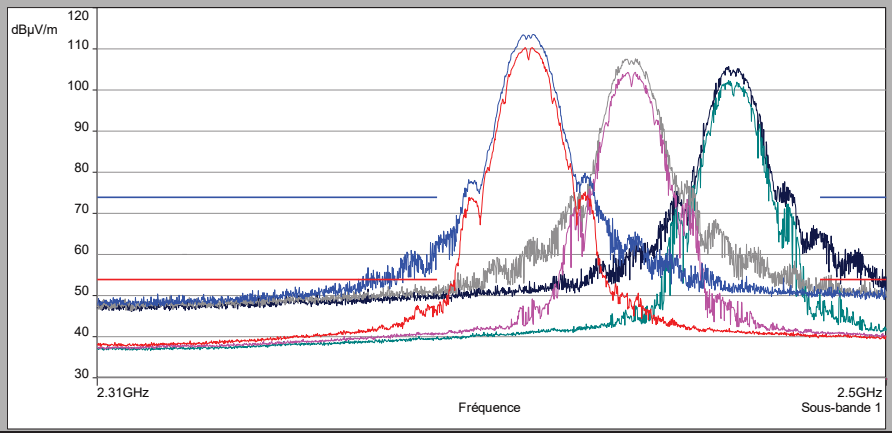
Description Sous-bande 2
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 20 ms/MHz, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp
Polarisation:Verticale
Distance: 3 m



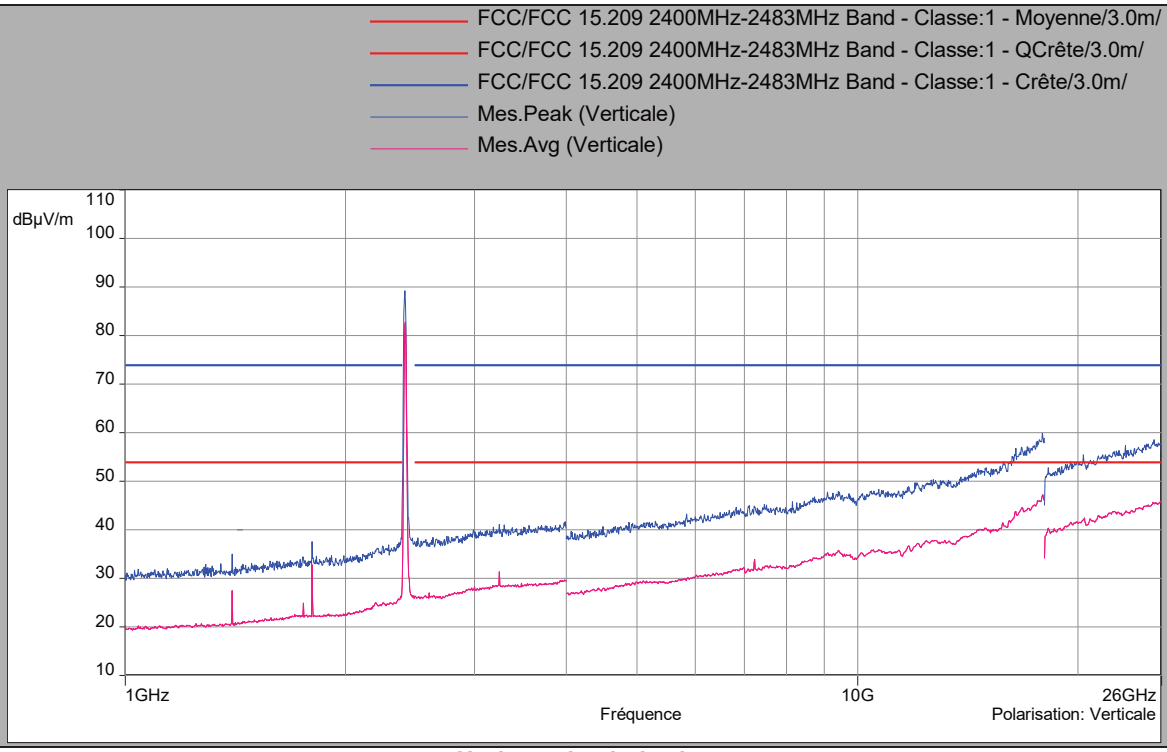
Horizontal polarization

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_C1 - Horizontale (Horizontale)
Mes.Peak_C1 - Horizontale (Horizontale)
Mes.Avg_C6 - Horizontale (Horizontale)
Mes.Peak_C6 - Horizontale (Horizontale)
Mes.Avg_C11 - Horizontale (Horizontale)
Mes.Peak_C11 - Horizontale (Horizontale)

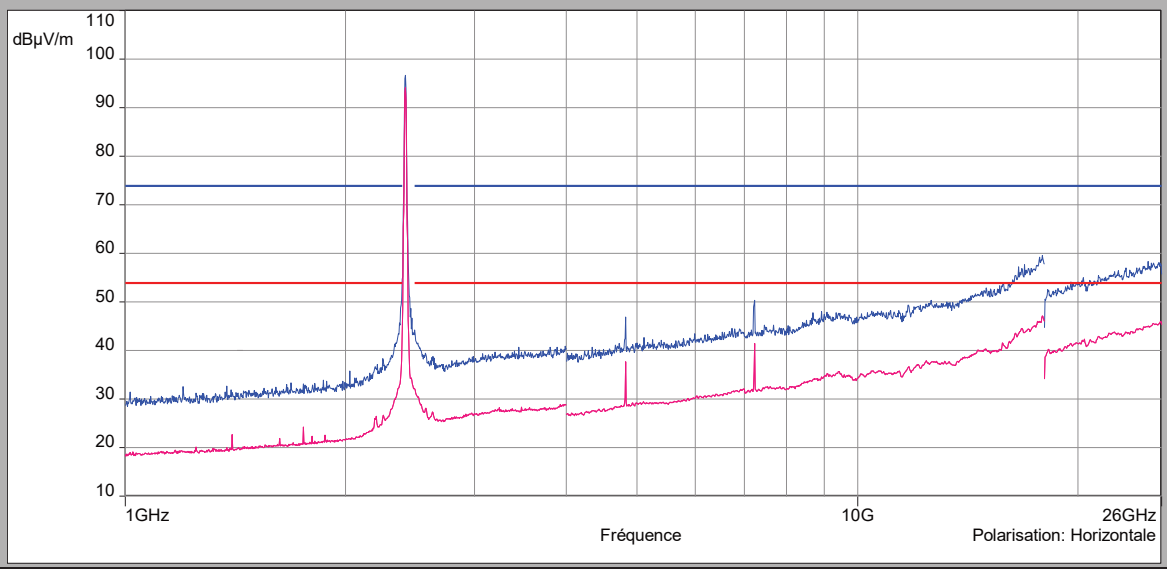
Description Sous-bande 1
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 20 ms/MHz, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp
Polarisation:Horizontale
Distance: 3 m



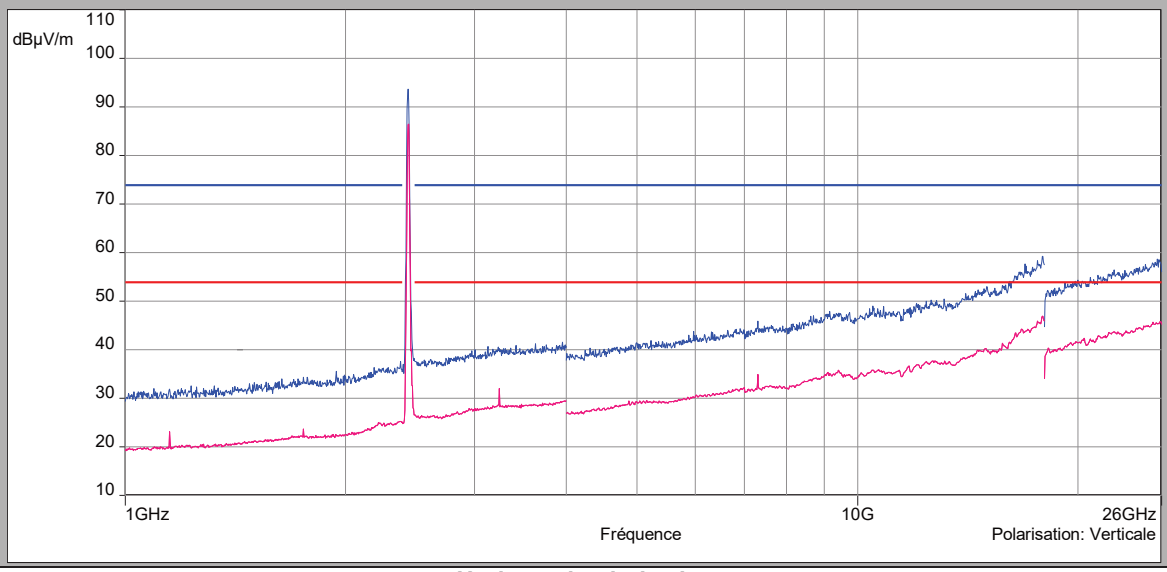
802.11b
Cmin
Above 1GHz
Vertical Polarization



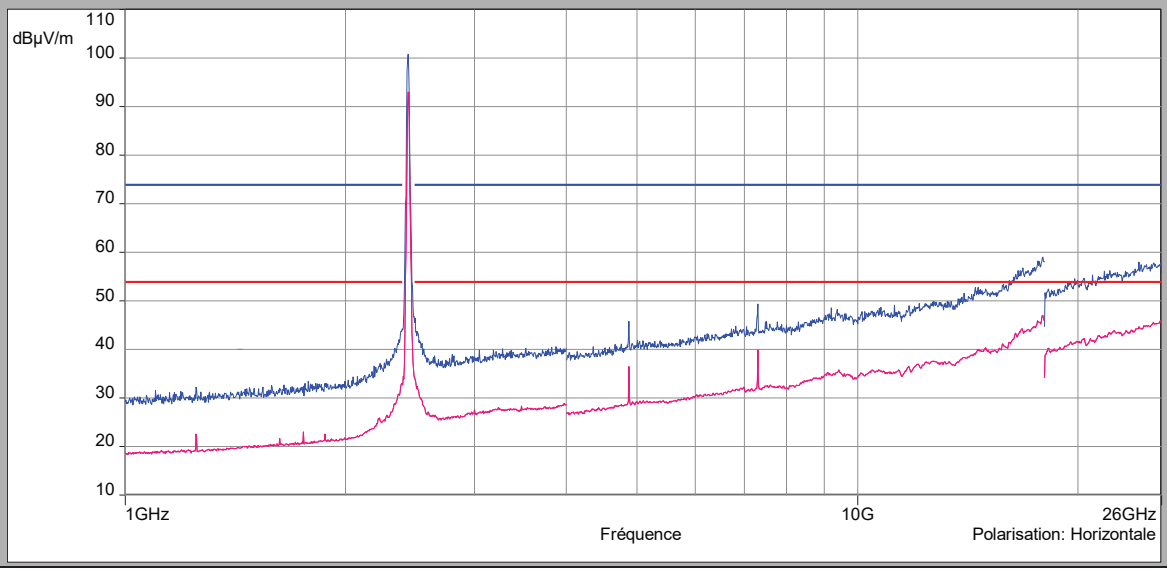
Horizontal polarization



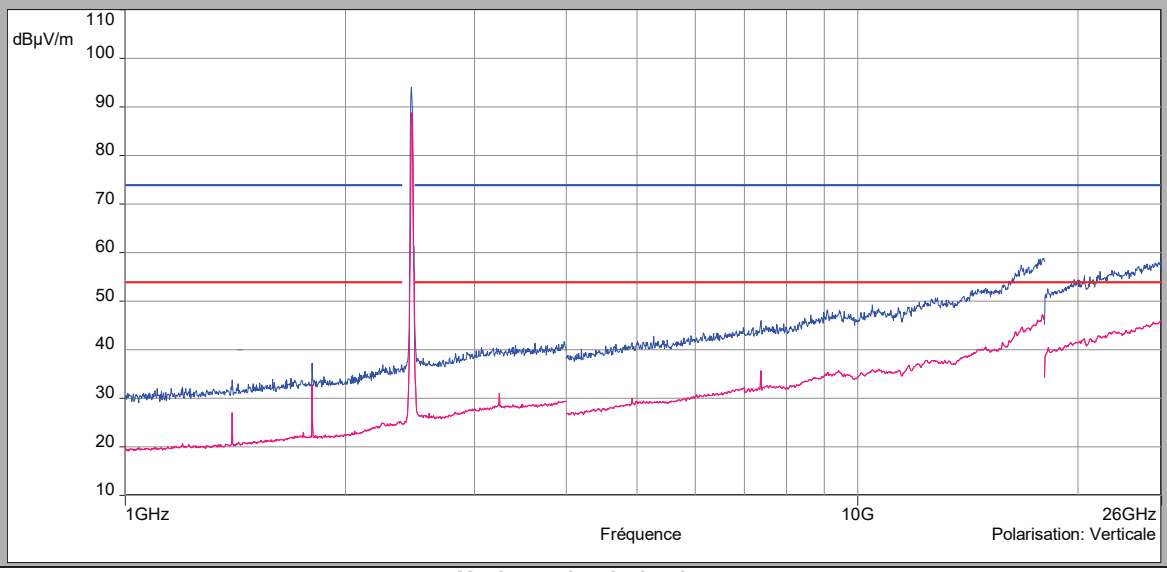
802.11b
Cnom
Above 1GHz
Vertical Polarization



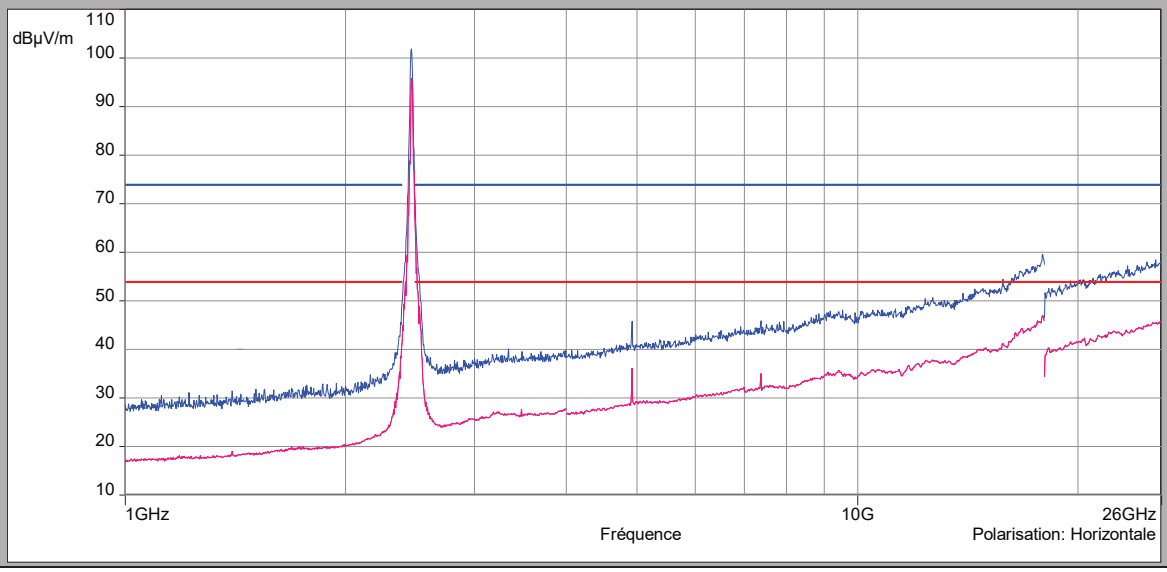
Horizontal polarization



802.11b
Cmax
Above 1GHz
Vertical Polarization



Horizontal polarization



802.11g

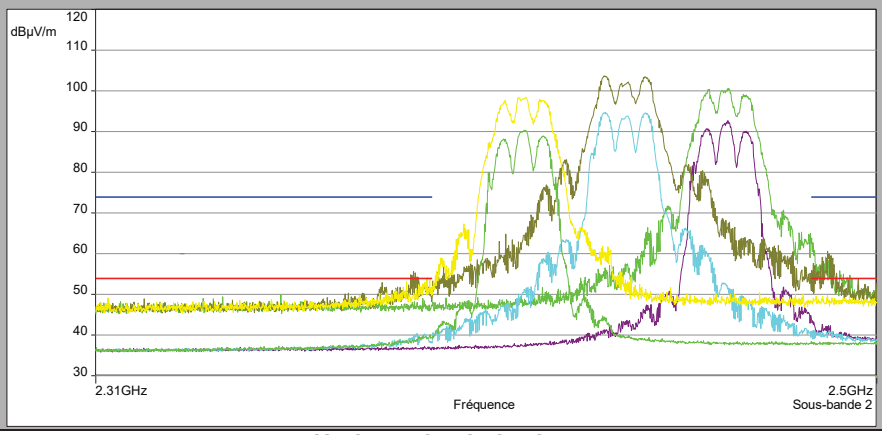
Cmin/Cnom/Cmax

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.Avg_C1 - Verticale (Verticale)
Mes.Peak_C1 - Verticale (Verticale)
Mes.Avg_C6 - Verticale (Verticale)
Mes.Peak_C6 - Verticale (Verticale)
Mes.Avg_C11 - Verticale (Verticale)
Mes.Peak_C11 - Verticale (Verticale)

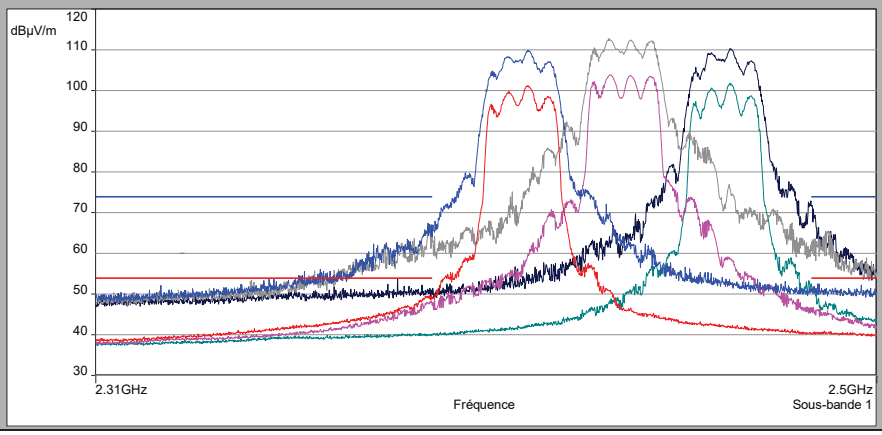
Description Sous-bande 2
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 20 ms/MHz, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp
Polarisation:Verticale
Distance: 3 m



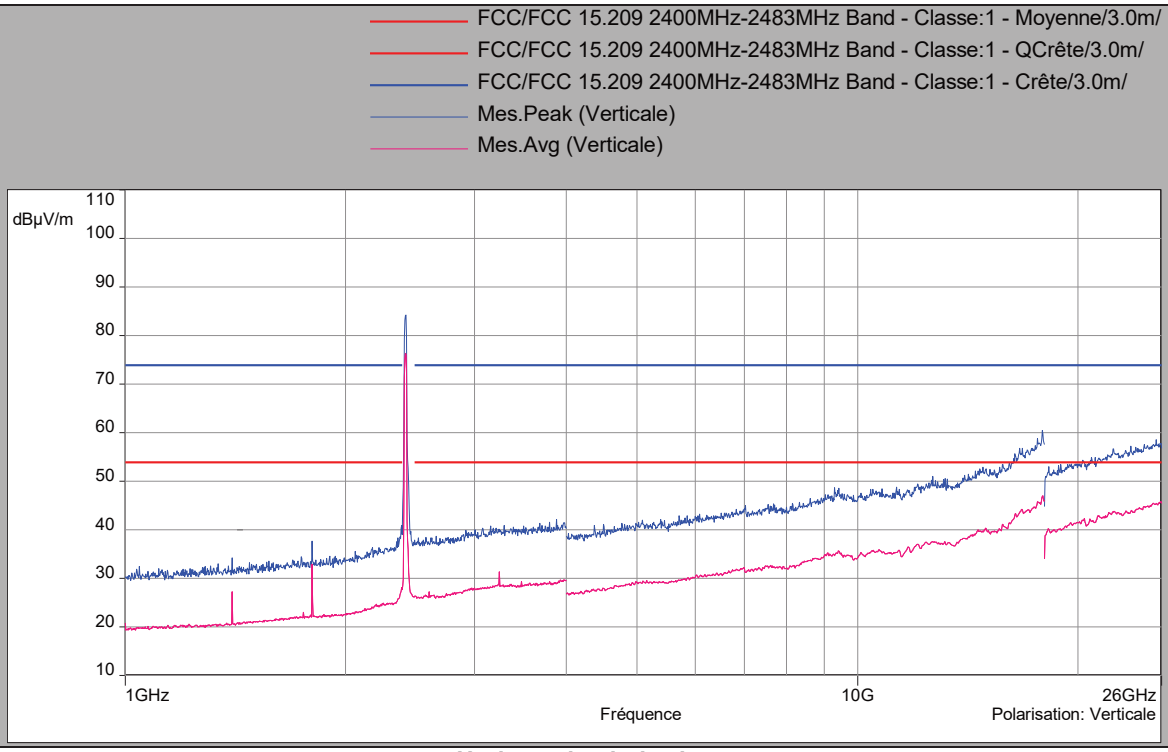
Horizontal polarization

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_C1 - Horizontale (Horizontale)
Mes.Peak_C1 - Horizontale (Horizontale)
Mes.Avg_C6 - Horizontale (Horizontale)
Mes.Peak_C6 - Horizontale (Horizontale)
Mes.Avg_C11 - Horizontale (Horizontale)
Mes.Peak_C11 - Horizontale (Horizontale)

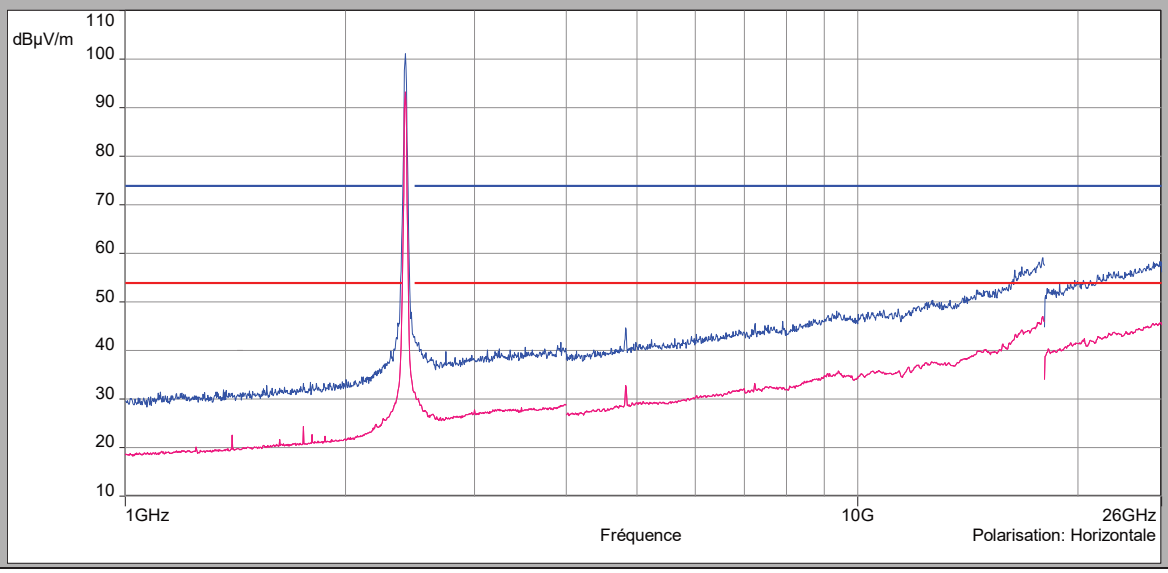
Description Sous-bande 1
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 20 ms/MHz, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp
Polarisation:Horizontale
Distance: 3 m



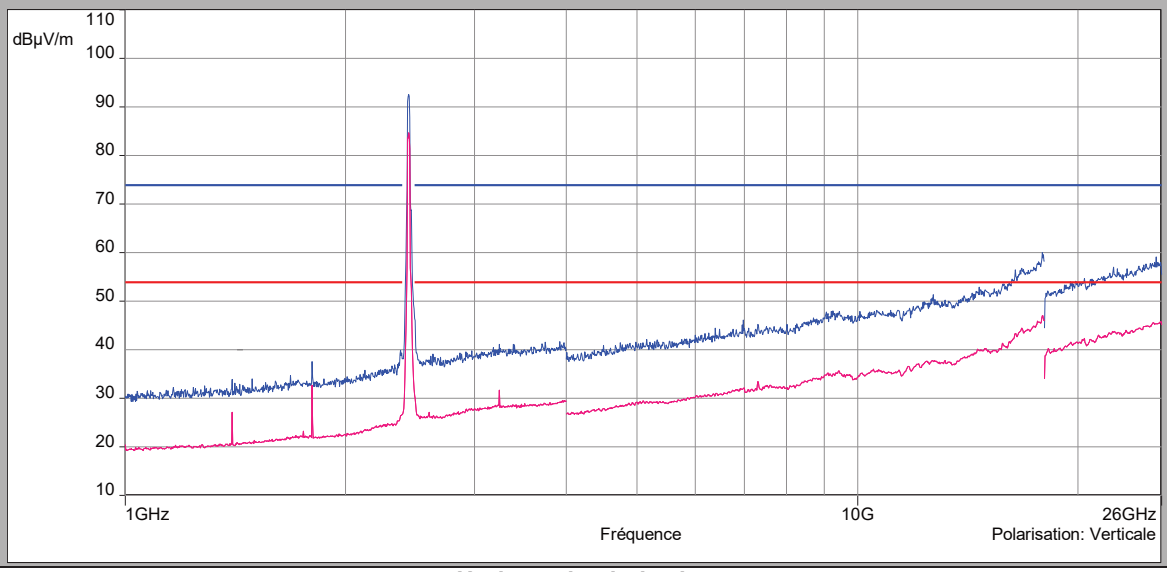
802.11g
Cmin
Above 1GHz
Vertical Polarization



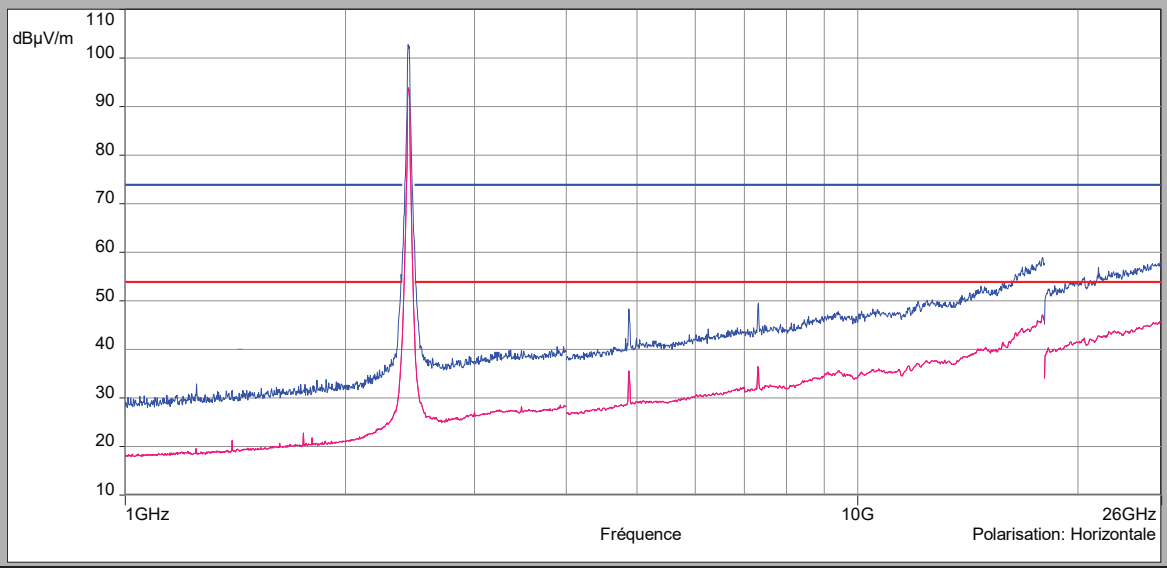
Horizontal polarization



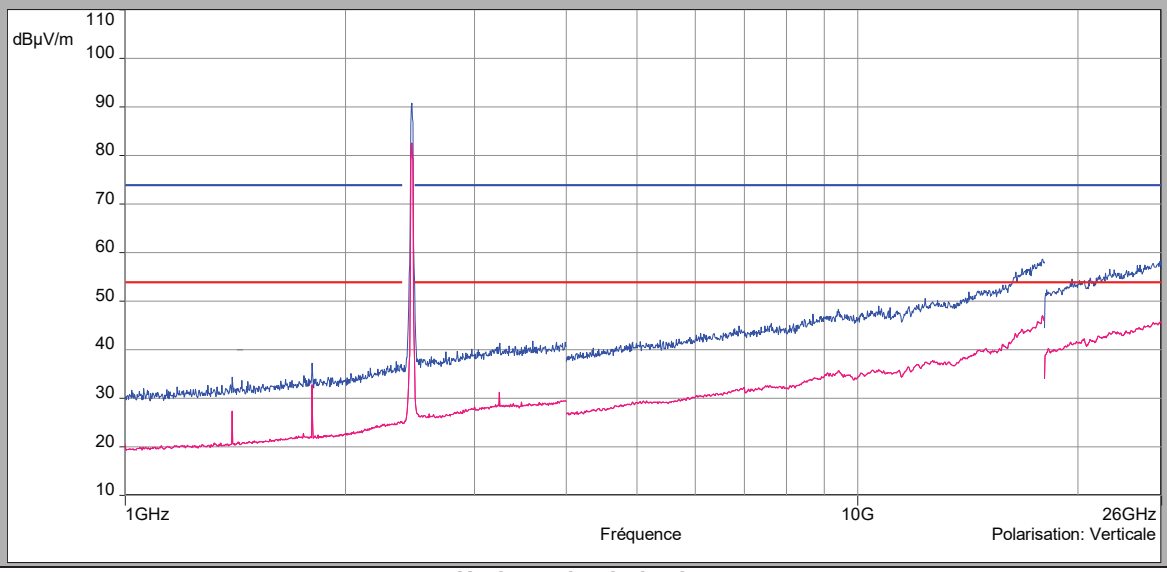
802.11g
Cnom
Above 1GHz
Vertical Polarization



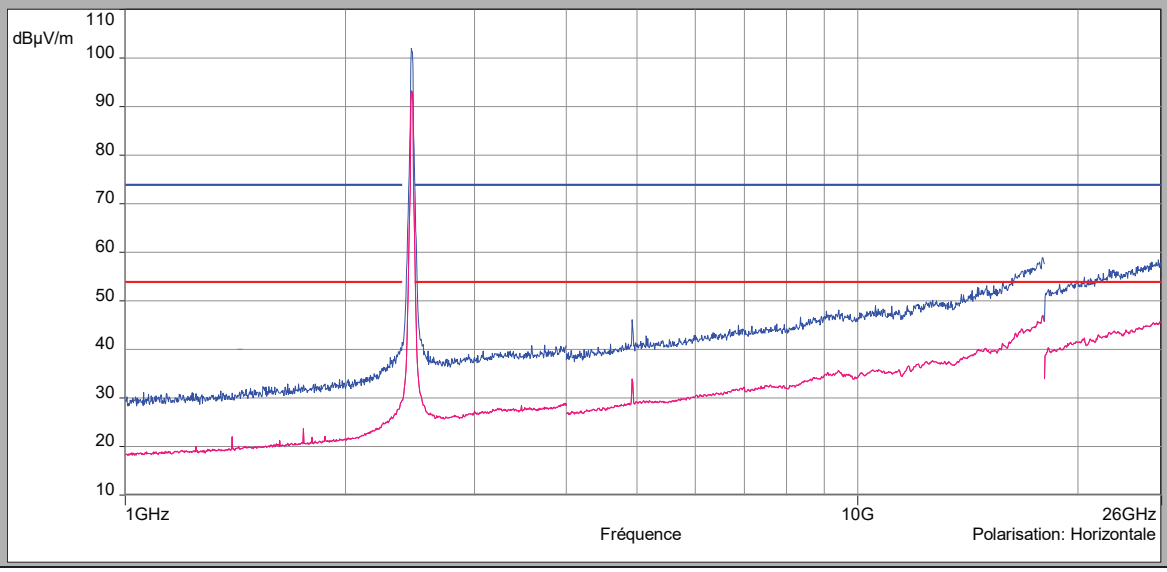
Horizontal polarization



802.11g
Cmax
Above 1GHz
Vertical Polarization



Horizontal polarization



802.11n HT20

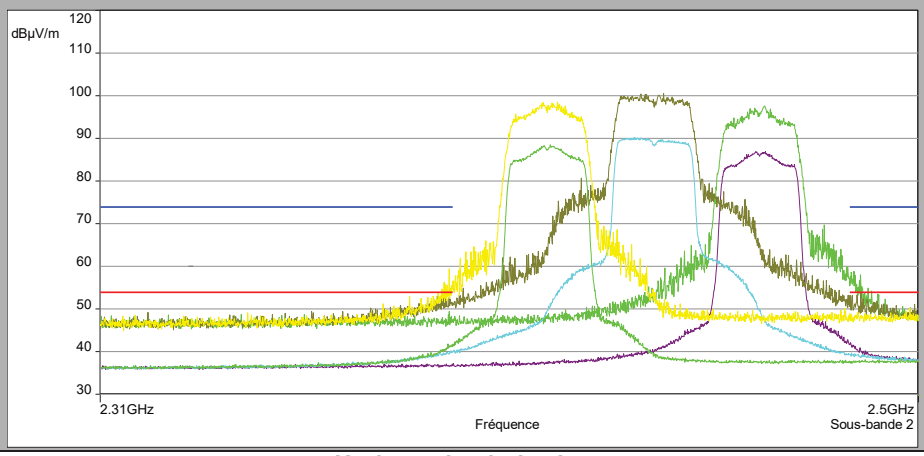
Cmin/Cnom/Cmax

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.Avg_C1 - Verticale (Verticale)
Mes.Peak_C1 - Verticale (Verticale)
Mes.Avg_C6 - Verticale (Verticale)
Mes.Peak_C6 - Verticale (Verticale)
Mes.Avg_C11 - Verticale (Verticale)
Mes.Peak_C11 - Verticale (Verticale)

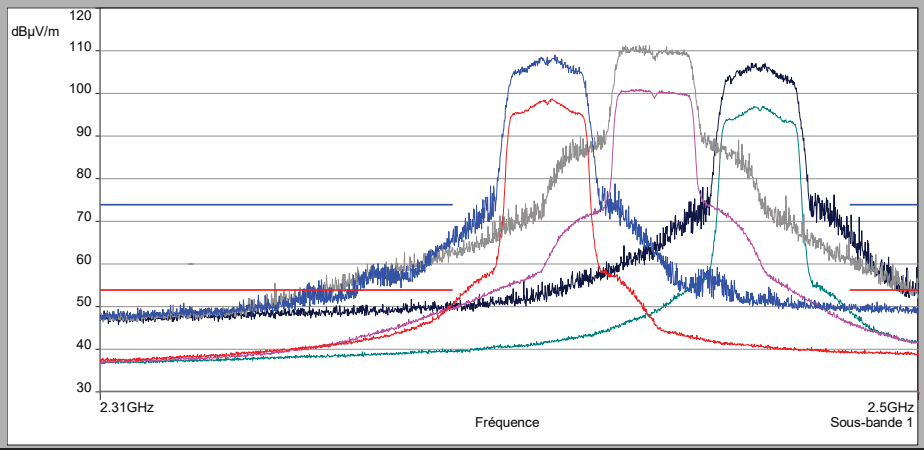
Description Sous-bande 2
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 20 ms/MHz, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp : On: 10 dB, LN P
Polarisation:Verticale
Distance: 3 m



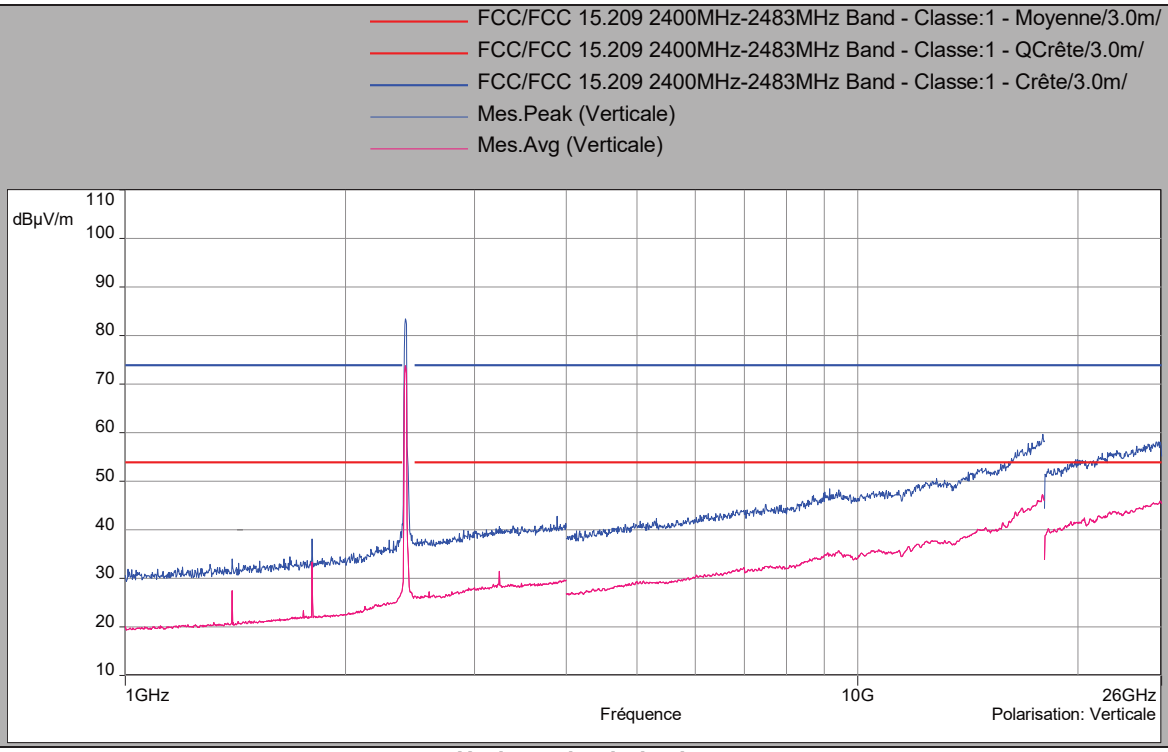
Horizontal polarization

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_C1 - Horizontale (Horizontale)
Mes.Peak_C1 - Horizontale (Horizontale)
Mes.Avg_C6 - Horizontale (Horizontale)
Mes.Peak_C6 - Horizontale (Horizontale)
Mes.Avg_C11 - Horizontale (Horizontale)
Mes.Peak_C11 - Horizontale (Horizontale)

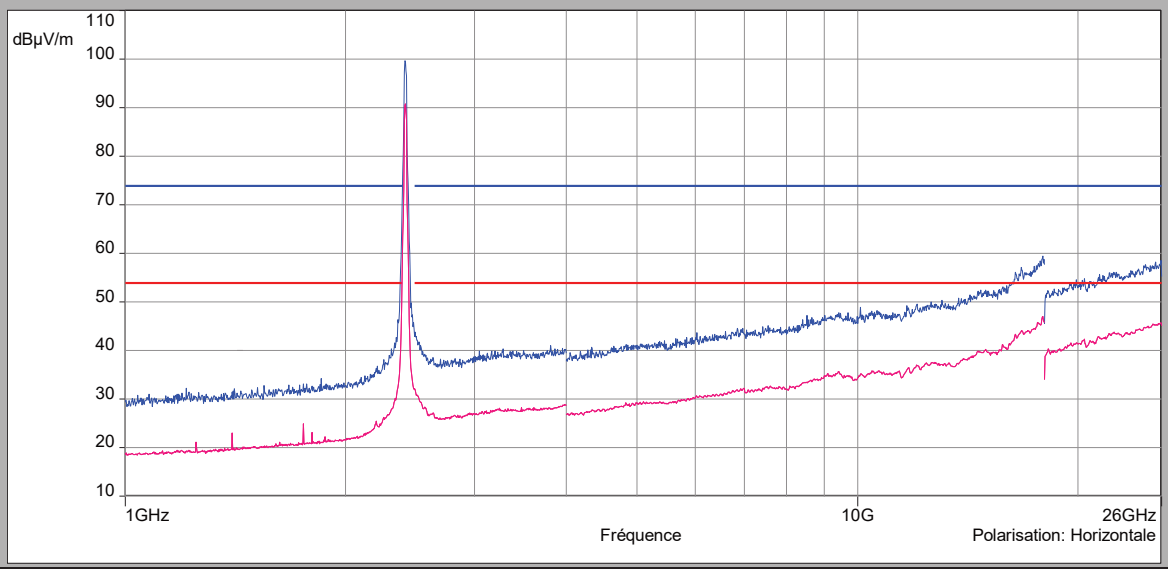
Description Sous-bande 1
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 20 ms/MHz, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp : On: 10 dB, LN P
Polarisation:Horizontale
Distance: 3 m



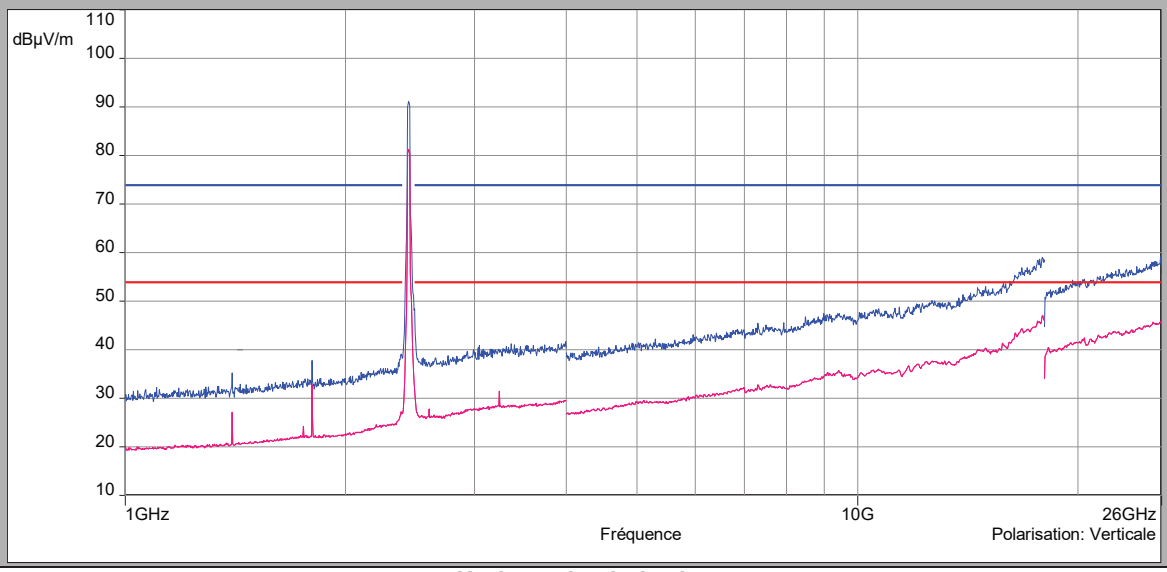
802.11n HT20
Cmin
Above 1GHz
Vertical Polarization



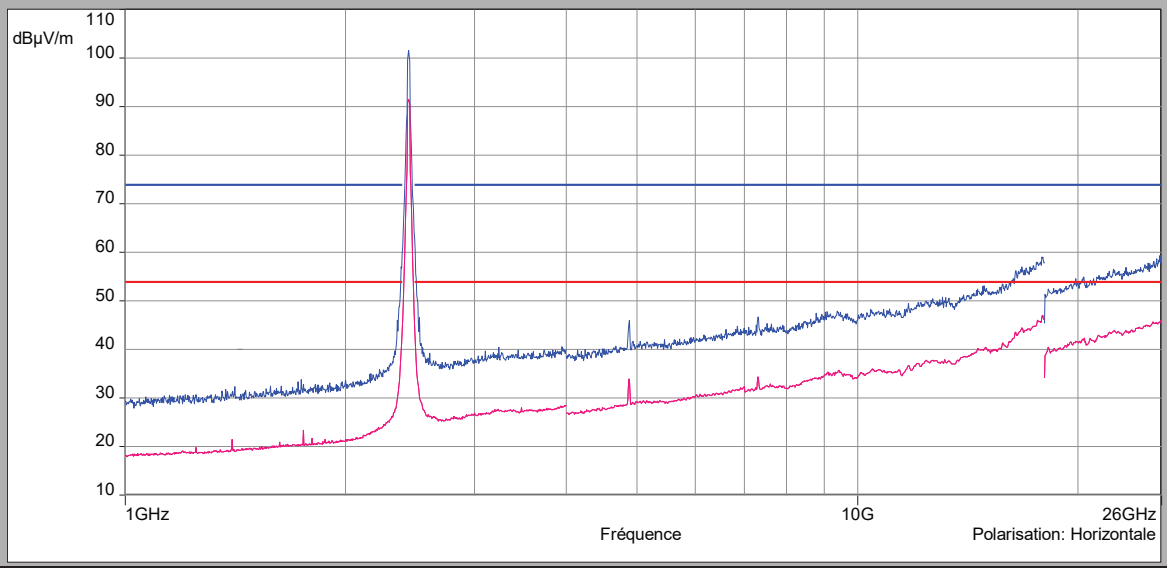
Horizontal polarization



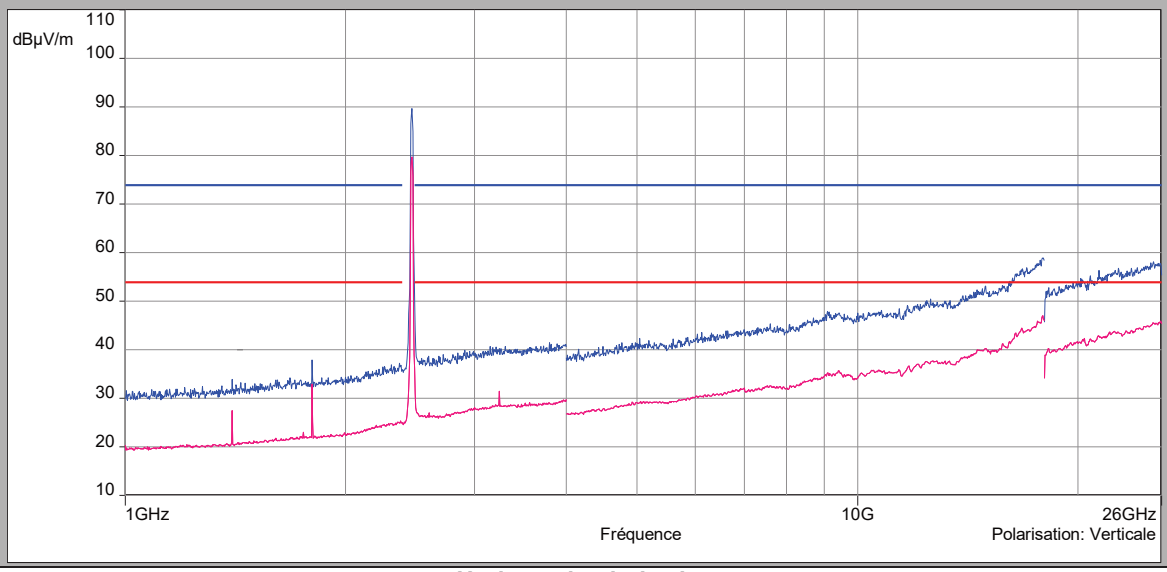
802.11n HT20
Cnom
Above 1GHz
Vertical Polarization



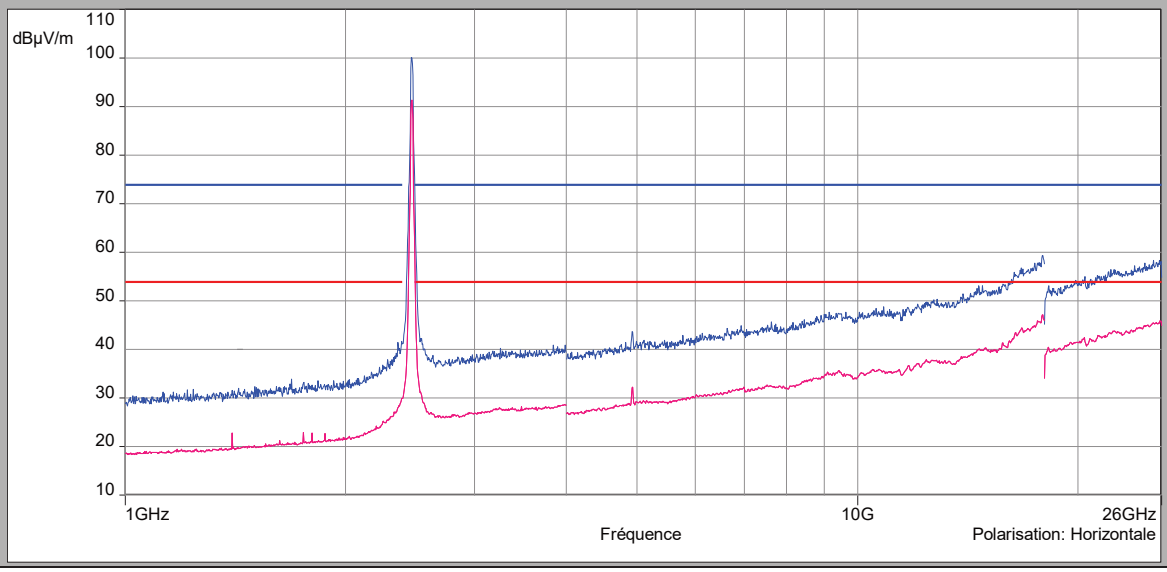
Horizontal polarization



802.11n HT20
Cmax
Above 1GHz
Vertical Polarization



Horizontal polarization



802.11ax HT20

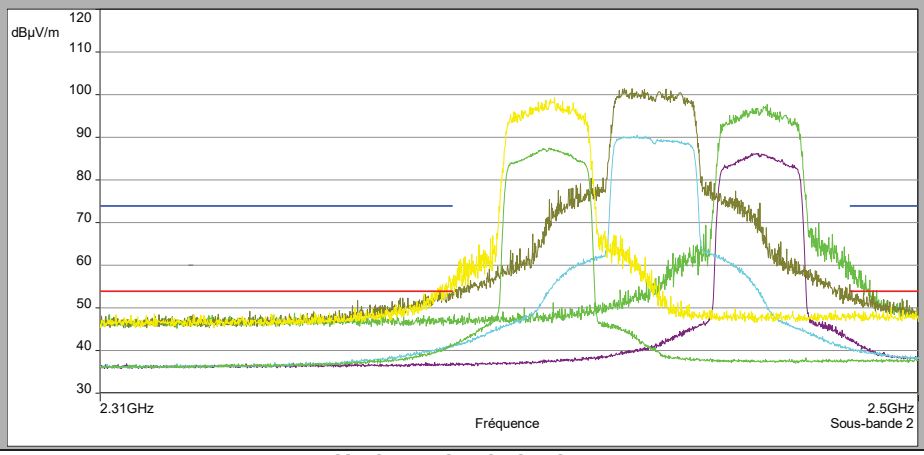
Cmin/Cnom/Cmax

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.Avg_C1 - Verticale (Verticale)
Mes.Peak_C1 - Verticale (Verticale)
Mes.Avg_C6 - Verticale (Verticale)
Mes.Peak_C6 - Verticale (Verticale)
Mes.Avg_C11 - Verticale (Verticale)
Mes.Peak_C11 - Verticale (Verticale)

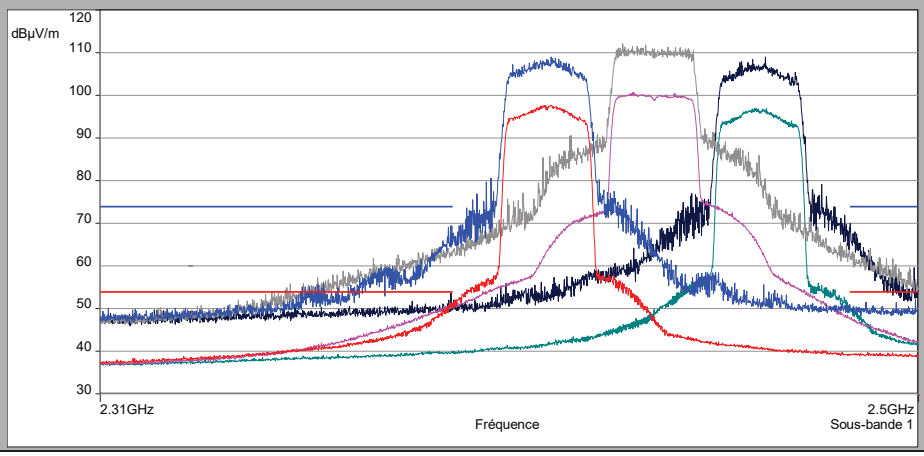
Description Sous-bande 2
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 20 ms/MHz, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp : On: 10 dB, LN P
Polarisation:Verticale
Distance: 3 m



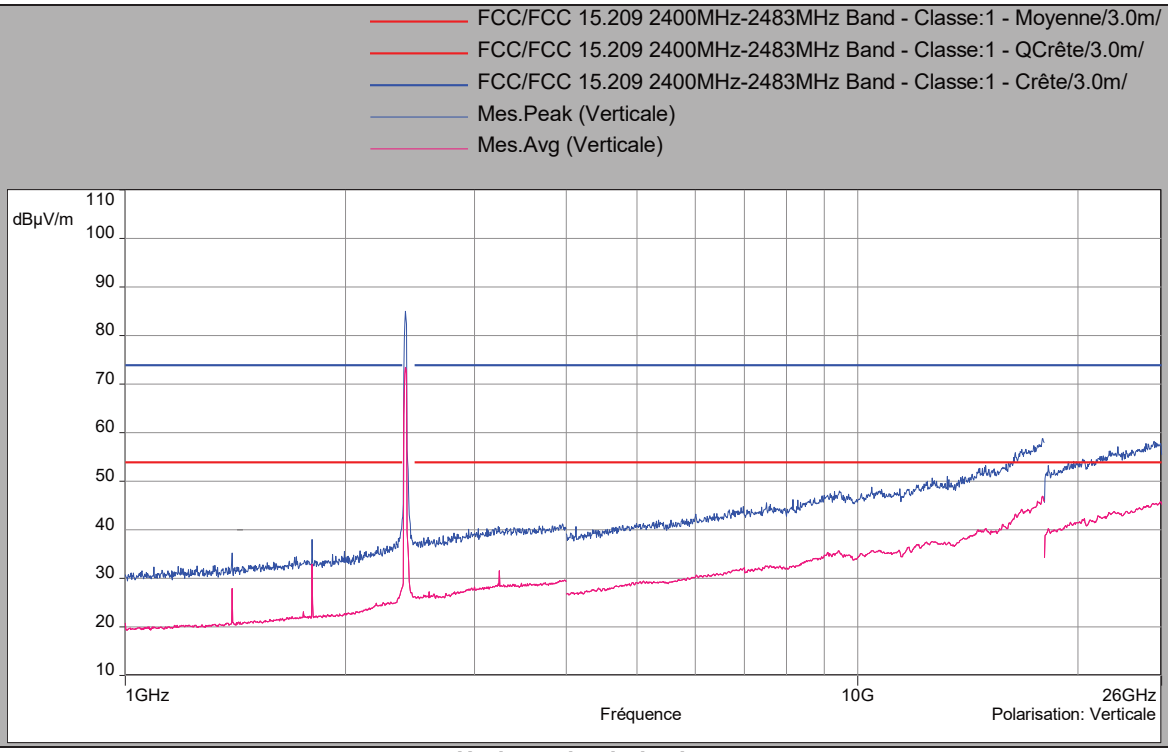
Horizontal polarization

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_C1 - Horizontale (Horizontale)
Mes.Peak_C1 - Horizontale (Horizontale)
Mes.Avg_C6 - Horizontale (Horizontale)
Mes.Peak_C6 - Horizontale (Horizontale)
Mes.Avg_C11 - Horizontale (Horizontale)
Mes.Peak_C11 - Horizontale (Horizontale)

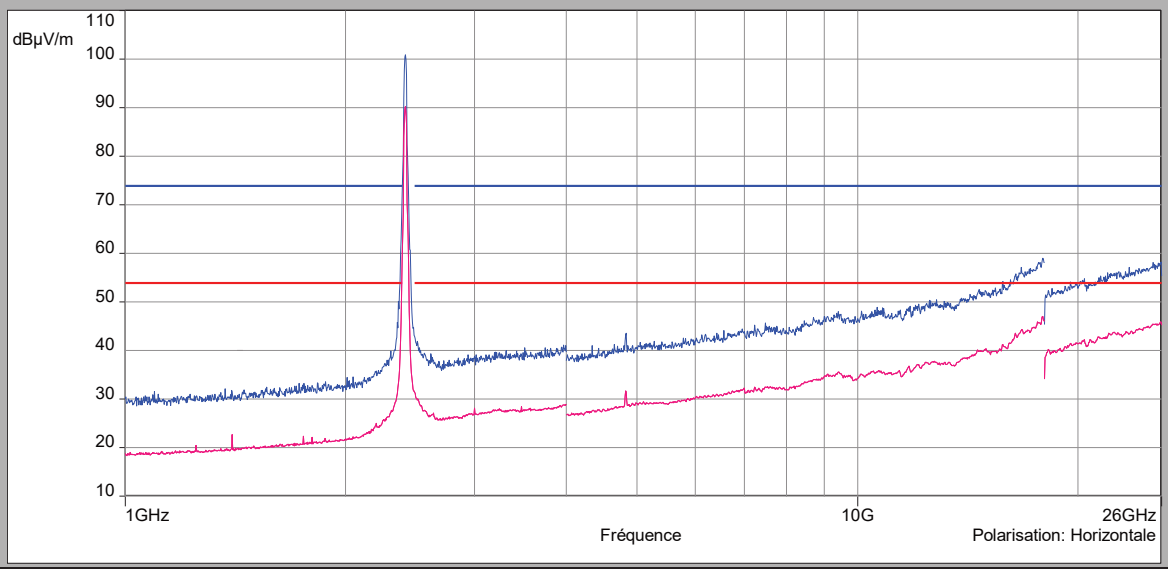
Description Sous-bande 1
Fréquences:2.31 GHz - 2.5 GHz (Mode analyseur) 32001 Points
Réglages: RBW: 1MHz, VBW: 3MHz, Durée balayage : 20 ms/MHz, Atténuation : 0 dB, Nombre de Balayages : 1, Preamp : On: 10 dB, LN P
Polarisation:Horizontale
Distance: 3 m



802.11ax HT20
Cmin
Above 1GHz
Vertical Polarization

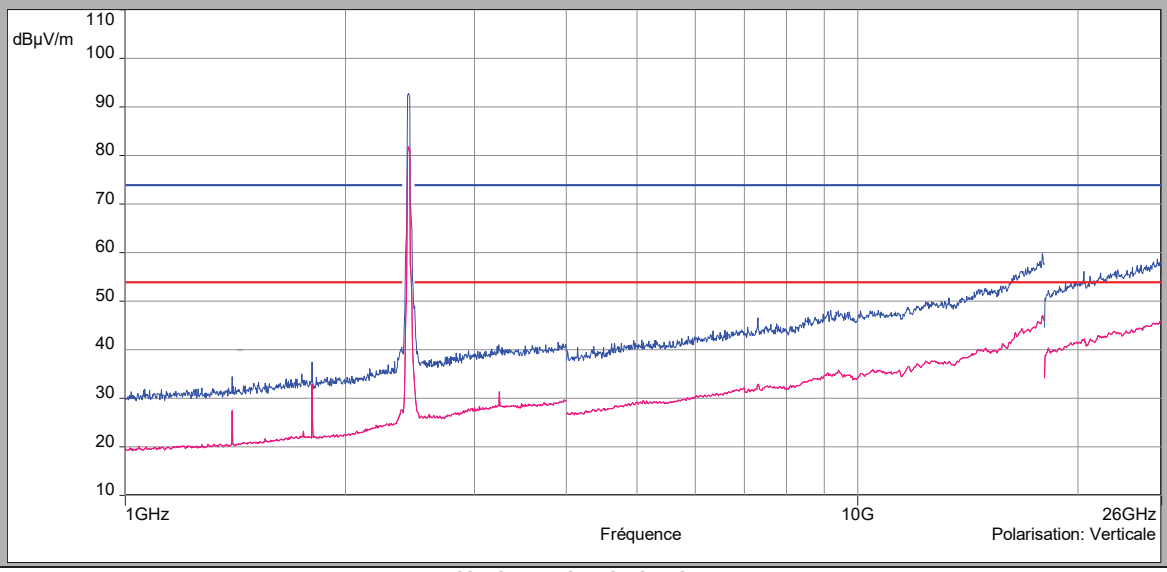


Horizontal polarization



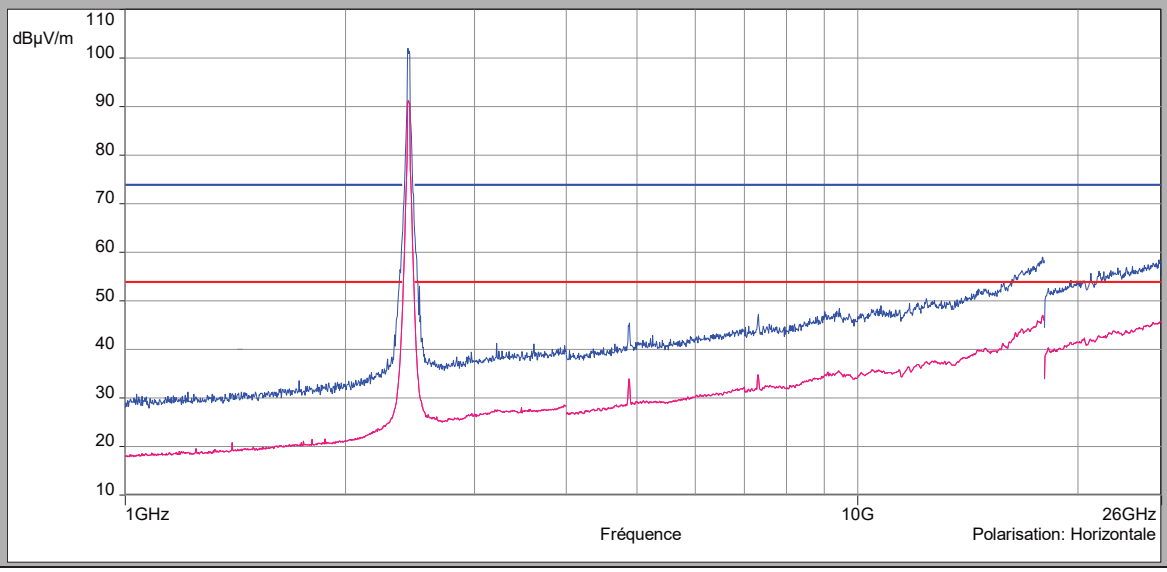
802.11ax HT20
Cnom
Above 1GHz
Vertical Polarization

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

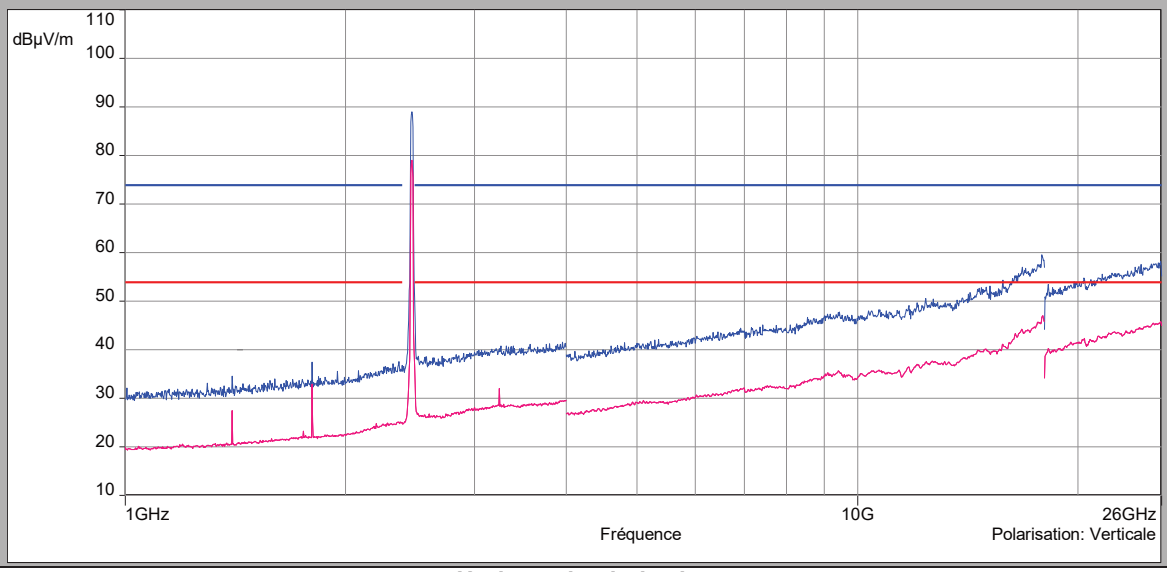


Horizontal polarization

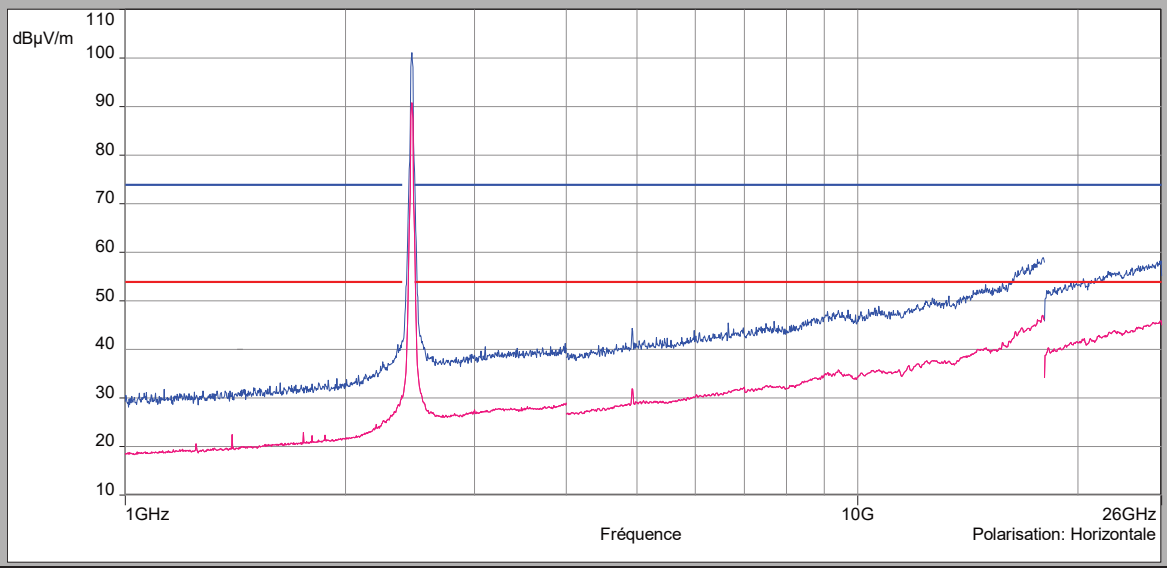
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - QCrête/3.0m/
FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
Mes.Peak (Horizontale)
Mes.Avg (Horizontale)



802.11ax HT20
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				
Frequency (MHz)	Peak Level (dBµV/m)	QPeak Level (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)
72	-	26.31	29.5	3.19
120	-	26.84	33	6.16
160	-	27.38	33	5.62
250	-	28.43	35.5	7.07
600	-	32.12	35.5	3.38
750	-	30.68	35.5	4.82

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)
Verticale	1400	27,46	27,52	54	26,48	34,96	74	39,04
Verticale	1799	32,74	32,80	54	21,20	37,56	74	36,44
Horizontale	2390	47,84	47,90	54	6,10	64,65	74	9,35
Verticale	2390	39,55	39,61	54	14,39	51,57	74	22,43
Horizontale	2483.5	51,68	51,74	54	2,26	66,99	74	7,01
Verticale	2483.5	43,22	43,28	54	10,72	51,78	74	22,22
Horizontale	4821	37,73	37,79	54	16,21	46,93	74	27,07
Horizontale	4872	36,43	36,49	54	17,51	45,77	74	28,23
Horizontale	4919	36,11	36,17	54	17,83	45,82	74	28,18
Horizontale	7230	41,45	41,51	54	12,49	50,31	74	23,69
Horizontale	7307	39,92	39,98	54	14,02	49,37	74	24,63
Horizontale	7377	35,06	35,12	54	18,88	45,84	74	28,16

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)
Verticale	1399	27,27	27,36	54	26,64	34,21	74	39,79
Verticale	1799	32,88	32,97	54	21,03	37,64	74	36,36
Horizontale	2390	49,61	49,70	54	4,30	67,38	74	6,62
Verticale	2390	40,11	40,20	54	13,80	54,07	74	19,93
Horizontale	2483.5	51,68	51,77	54	2,23	70,91	74	3,09
Verticale	2483.5	44,77	44,86	54	9,14	64,98	74	9,02
Horizontale	4824	32,78	32,87	54	21,13	44,64	74	29,36
Horizontale	4874	35,53	35,62	54	18,38	48,36	74	25,64
Horizontale	4922	33,93	34,02	54	19,98	46,11	74	27,89
Horizontale	7308	36,42	36,51	54	17,49	49,59	74	24,41

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)**
Verticale	1399	27,51	27,62	54	26,38	34,02	74	39,98
Verticale	1801	33,31	33,42	54	20,58	38,11	74	35,89
Horizontale	2390	51,34	51,45	54	2,55	67,62	74	6,38
Verticale	2390	41,79	41,90	54	12,10	59,36	74	14,64
Horizontale	2483.5	49,69	49,80	54	4,20	71,51	74	2,49
Verticale	2483.5	42,81	42,92	54	11,08	59,82	74	14,18
Horizontale	4877	33,92	34,03	54	19,97	46,01	74	27,99
Horizontale	7308	34,38	34,49	54	19,51	46,63	74	27,37
Horizontale	4923	32,22	32,38	54	21,67	43,68	74	30,32

802.11ax 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)**
Verticale	1399	27,88	28,14	54	25,86	35,18	74	38,82
Verticale	1799	32,94	33,20	54	20,80	37,99	74	36,01
Horizontale	2390	51,32	51,58	54	2,42	69,44	74	4,56
Verticale	2390	41,58	41,84	54	12,16	57,74	74	16,26
Horizontale	2483.5	50,82	51,08	54	2,92	69,97	74	4,03
Verticale	2483.5	43,01	43,27	54	10,73	62,52	74	11,48
Horizontale	4828	31,64	31,90	54	22,10	43,57	74	30,43
Horizontale	4876	33,87	34,13	54	19,87	45,48	74	28,52
Horizontale	4922	31,86	32,12	54	21,88	44,23	74	29,77
Horizontale	7308	34,81	35,07	54	18,93	47,21	74	26,79

11.7. CONCLUSION

Unwanted emissions measurement performed on the sample of the product **COGECO DIW3930 COGECO**, SN: **6211130035003**, 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