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Template : March 29th, 2023

TEST REPORT

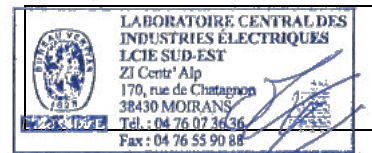
N°: 18348762-787335-C (FILE#4712035)

Version: 01

Subject	Radio spectrum tests according to the standards: FCC CFR 47 Part 15.247 & ANSI C63.10 RSS 247 & RSS-Gen
Issued to	INGENICO 9 avenue de la gare – Rovaltain TGV BP25156 26958 - VALENCE Cedex 9 France
Apparatus under test	
↳ Product	Payment terminal
↳ Trade mark	INGENICO
↳ Manufacturer	INGENICO
↳ Model under test	Desk/2600
↳ Serial number	230587317081327729816898 230587317081327729816918
↳ FCCID	XKB-D2600CLW
↳ IC	2586D-D2600CLW
Conclusion	See Test Program chapter
Test date	March 17, 2023 to April 06, 2023
Test location	LCIE Grenoble
FCC Test site	FR0008 - 197516 (MOI)
ISED Test site	6500A (MOI)
Sample receipt date	March 10, 2023
Composition of document	70 pages
Document issued on	April 27, 2023

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PUBLICATION HISTORY

Version	Date	Author	Modification
01	April 27, 2023	Akram HAKKARI	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

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1. TEST PROGRAM

References

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

Radio requirement:

Clause - Test Description		Test result - Comments
Occupied Bandwidth	<i>ISED</i>	PASS
6dB Bandwidth	<i>FCC & ISED</i>	PASS
Maximum Conducted Output Power	<i>FCC & ISED</i>	PASS
Power Spectral Density	<i>FCC & ISED</i>	PASS
Unwanted Emissions in Non-Restricted Frequency Bands	<i>FCC & ISED</i>	PASS
Unwanted Emissions in Restricted Frequency Bands	<i>FCC & ISED</i>	PASS
Receiver Radiated Emissions	<i>ISED</i>	PASS(2)

This table is a summary of test report, see conclusion of each clause of this test report for detail.

(1) Limited program

(2) Testing covered the receive mode, and receiver spurious emissions are considered to be the same as transmitter.

PASS: EUT complies with standard's requirement

FAIL: EUT does not comply with standard's requirement

NA: Not Applicable

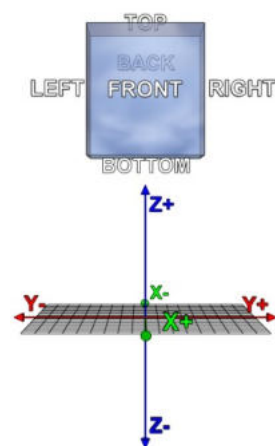
NP: Test Not Performed

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

2.1. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT):



Model under test:	Desk/2600
Serial Number:	230587317081327729816898



Dimensions:	7.6cm x 5.6cm x 16.7cm (Length x Width x Height)
Type:	Table-Top

Power supply:

All test are performed with Supply 3 and battery worst case

Name	Type	Rating	Reference / Sn	Comments
Supply1	AC	100-240VAC 0.2A 50-60Hz OUTPUT 5V 1A 5W	PHIHONG AM05R-050CK	/
				
Supply2	AC	100-240VAC 0.2A 50-60Hz OUTPUT 5V 1A 5W	PHIHONG AM05x-050D	/
				
Supply3	AC	100-240VAC 50/60Hz 0.2A OUTPUT 5V 1A 5W	Ktec KSA-5L-050100D5	/
				
Supply4	Battery	3.7Vdc Li-Ion 500mAH /1.85Wh	Springower Technology Model 562542	/



Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Comments
Supply1	AC	1.2	Yes	No	/
Supply2	AC	1.2	Yes	No	/
Supply3	AC	1.2	Yes	No	/
RJ 45	Ethernet	3	/	/	/
USB	USB C	0.5	/	/	/
USB	USB B	3	/	/	/
USB	USB A	3	/	/	/

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
LAPTOP	DELL E4750	/	/
ROUTER	ASUS RT-AC68U	/	/
USB C Adaptor	MAGIC BOX Eth/USB	230577317571324829797915	/

Equipment information (declaration of provider):

CHANNEL PLAN			
802.11b / 802.11g / 802.11n HT20		802.11n HT40	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
Cmin: 1	2412	Cmin: 3	2422
2	2417	4	2427
3	2422	5	2432
4	2427	Cmid: 6	2437
5	2432	7	2442
Cmid: 6	2437	8	2447
7	2442	Cmax: 9	2452
8	2447		
9	2452		
10	2457		
Cmax: 11	2462		

DATA RATE			
802.11b			
Available for EUT	Data Rate (Mbps)	Modulation Type	Modulation Worst Case
<input checked="" type="checkbox"/>	1	DBPSK	<input checked="" type="checkbox"/>
	2	DQPSK	<input type="checkbox"/>
	5.5	DQPSK	<input type="checkbox"/>
	11	CCK	<input type="checkbox"/>
802.11g			
Available for EUT	Data Rate (Mbps)	Modulation Type	Modulation Worst Case
<input checked="" type="checkbox"/>	6	BPSK	<input checked="" type="checkbox"/>
	9	BPSK	<input type="checkbox"/>
	12	QPSK	<input type="checkbox"/>
	18	QPSK	<input type="checkbox"/>
	24	16-QAM	<input type="checkbox"/>
	36	16-QAM	<input type="checkbox"/>
	48	64-QAM	<input type="checkbox"/>
54	64-QAM	<input type="checkbox"/>	



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



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



Antenna Characteristic			
Antenna reference	Gain (dBi)	Frequency Band	Impedance(Ω)
internal	1	2.4GHz Band	50

Hardware information			
Highest internal frequency (PLL, Quartz, Clock, Microprocessor...):	F_{Highest}:	6000	MHz
Firmware (if applicable):	V:	150051	
Software (if applicable):	V:	031600	
Equipment intended:	Mobile		
Type of equipment:	Stand-alone		
Equipment sample:	Production model		
Duty cycle:	Continuous duty		
Operating temperature range:	T_{min}:	0 °C	
	T_{nom}:	20°C	
	T_{max}:	50 °C	
Operating voltage:	V_{min} (85% Vnom):	85VAC 60Hz	
	V_{nom}:	230VAC 60Hz	
	V_{max} (115% Vnom):	276VAC 60Hz	

NC: Not communicated by provider

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 reception

Test	Running mode
Occupied Bandwidth	Test mode 1
6dB Bandwidth	Test mode 1
Maximum Conducted Output Power	Test mode 1
Power Spectral Density	Test mode 1
Conducted Spurious Emission at the Band Edge	Test mode 1
Unwanted Emissions in Non-Restricted Frequency Bands	Test mode 1
Unwanted Emissions in Restricted Frequency Bands	Test mode 1
Receiver Radiated Emissions	Test mode 2 (1)

(1) Testing covered the receive mode, and receiver spurious emissions are considered to be the same as transmitter. Commands with the specific test software are used to set the product:



Following commands with the specific test software “DutApiSisoBt” are used to set the product:

For TX mode:

802.11b :

- 1 : Connexion
- 30 0 : WIFI 2.4GHZ
- 12 1 : Set canal 1
- 22 1 13 0 1: Set the calibration on the canal 1 with the power at **13dBm** and the “0”is used to specify 802.11b.
- 25 1 1: Sets the device for continuous transmission of a modulated waveform with data rate at 1Mbps.

802.11g :

- 1 : Connexion
- 30 0 : WIFI 2.4GHZ
- 12 1 : Set canal 1
- 22 1 13 1 1: Set the calibration on the canal 1 with the power at **13dBm** and the “1”is used to specify 802.11g.
- 25 1 6: Sets the device for continuous transmission of a modulated waveform with data rate at 6Mbps.


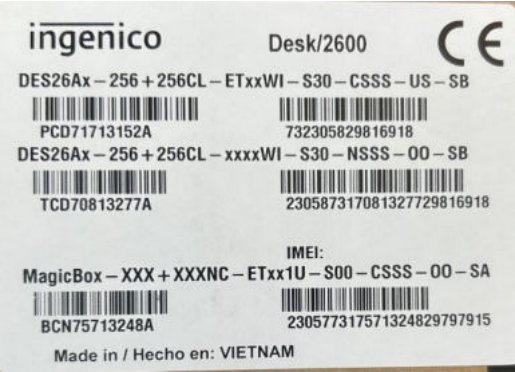
802.11nHT20 :

- 1 : Connexion
- 30 0 : WIFI 2.4GHZ
- 112 0: For HT20
- 12 1 : Set canal 1
- 22 1 13 10 1: Set the calibration on the canal 1 with the power at **13dBm**
- 26 1 15: Sets the device for continuous transmission of a modulated waveform with data rate at 6.5Mbps in MCS0.

802.11nHT40 :

- 1 : Connexion
- 30 0 : WIFI 2.4GHZ
- 112 1: For HT40
- 12 3 : Set canal 3
- 22 3 13 10 1: Set the calibration on the canal 3 with the power at **13dBm**
- 25 1 15: Set the device for continuous transmission of a modulated waveform with data rate at 13.5Mbps in MCS0.

2.3. EQUIPMENT LABELLING

Label
 <p>Used for conducted test</p>
 <p>Used for Radiated test</p>

2.4. EQUIPMENT MODIFICATIONS DURING THE TESTS

None



2.5. FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follow:

$$FS = RA + AF + CF - AG$$

Where:

FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Factor

AG = Amplifier Gain

Example:

Assume a receiver reading of 52.5dB μ V is obtained. The antenna factor of 7.4 and a cable factor of 1.1 are added. The amplifier gain of 29dB is subtracted, giving a field strength of 32 dB μ V/m.

$$FS = 52.5 + 7.4 + 1.1 - 29 = 32 \text{ dB}\mu\text{V/m}$$

The 32 dB μ V/m value can be mathematically converted to its corresponding level in μ V/m.

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(32\text{dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m.}$$

2.6. TEST DISTANCE EXTRAPOLATION – FCC/ISED

The field strength is extrapolated to the new measurement distance using formula from FCC Part15.31 (f) and §6.5-6.6 RSS-GEN:

Below 30MHz,

$$FS_{\text{limit}} = FS_{\text{max}} - 40 \log \left(\frac{d_{\text{limit}}}{d_{\text{measure}}} \right)$$

Above 30MHz,

$$FS_{\text{limit}} = FS_{\text{max}} - 20 \log \left(\frac{d_{\text{limit}}}{d_{\text{measure}}} \right)$$

Where:

FS_{limit} is the calculation of field strength at the limit distance, expressed in dB μ V/m

FS_{max} is the measured field strength, expressed in dB μ V/m

d_{measure} is the distance of the measurement point from the EUT

d_{limit} is the reference limit distance

2.7. CALIBRATION DATE

The calibration intervals are extended at 12+2 months. This extended interval is based on the fact that there is sufficient calibration data to statistically establish a trend or based on experience of use of the test equipment to assure good measurement results for a longer period.

2.8. METHOD TO DETERMINATE THE SPURIOUS RADIATED EMISSION

The Normalized Site Attenuation (NSA) is added to the maximum values observed during the azimuth search in order to obtain the spurious radiated emission. For spurious above -6dB from the limit found with the NSA, the Substitution Method is applied.

The substitution antenna replaces the equipment under test (EUT) for Effective Radiated Power (ERP) or Effective Isotropically Radiated Power (EIRP) measurement following the standard. Power is measured for a high level and calculated for the same level of radiated field strength obtained on the measuring antenna and EUT.

3. OCCUPIED BANDWIDTH

3.1. TEST CONDITIONS

Test performed by : Majid MOURZAGH / Akram HAKKARI
 Date of test : April 5, 2023
 Ambient temperature : 22 °C
 Relative humidity : 39 %

3.1. TEST SETUP

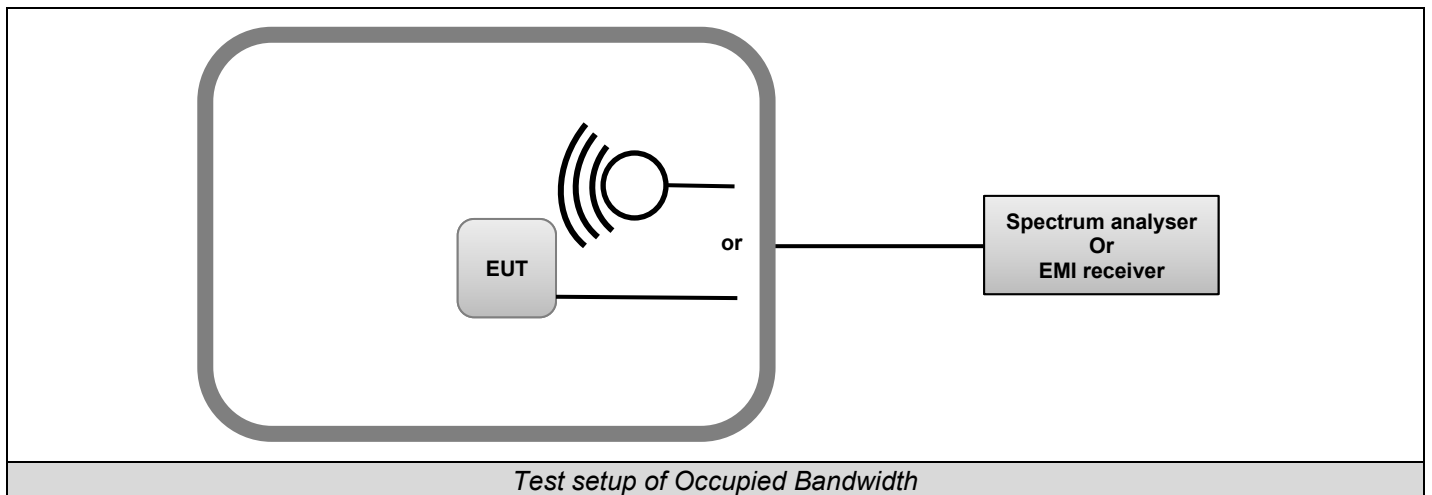
The Equipment Under Test is installed in an anechoic chamber.
 Measurement is performed with a spectrum analyzer in conducted method.

The EUT is turned ON, the center frequency of the spectrum analyzer is set to the fundamental frequency. The captured power is measured and recorded; the measurement is repeated until all frequencies required were complete.

Test Procedure:

ANSI C63.10 § 6.9.2 and RSS-Gen Issue 5 § 6.7

- RBW used in the range of 1% to 5% of the anticipated emission bandwidth
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- Detector = Peak.
- Trace mode = Max Hold.
- Sweep = Auto couple.
- Allow the trace to stabilize.
- OBW 99% function of spectrum analyzer used



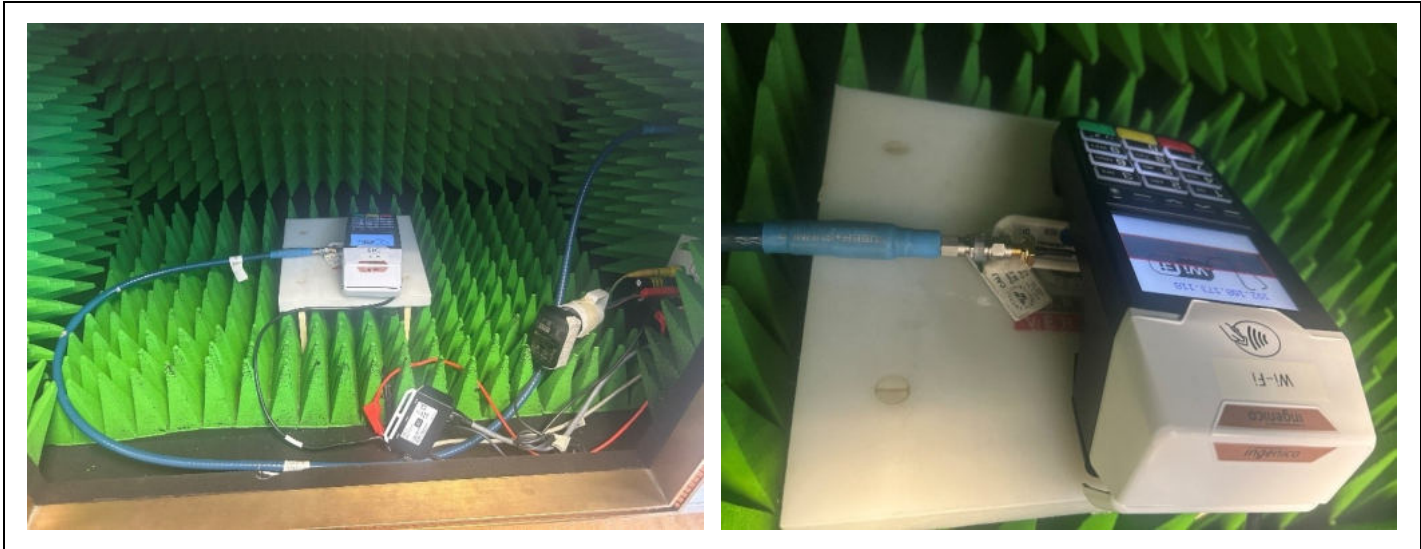


Photo of Occupied bandwidth

3.2. LIMIT

None

3.3. TEST EQUIPMENT LIST

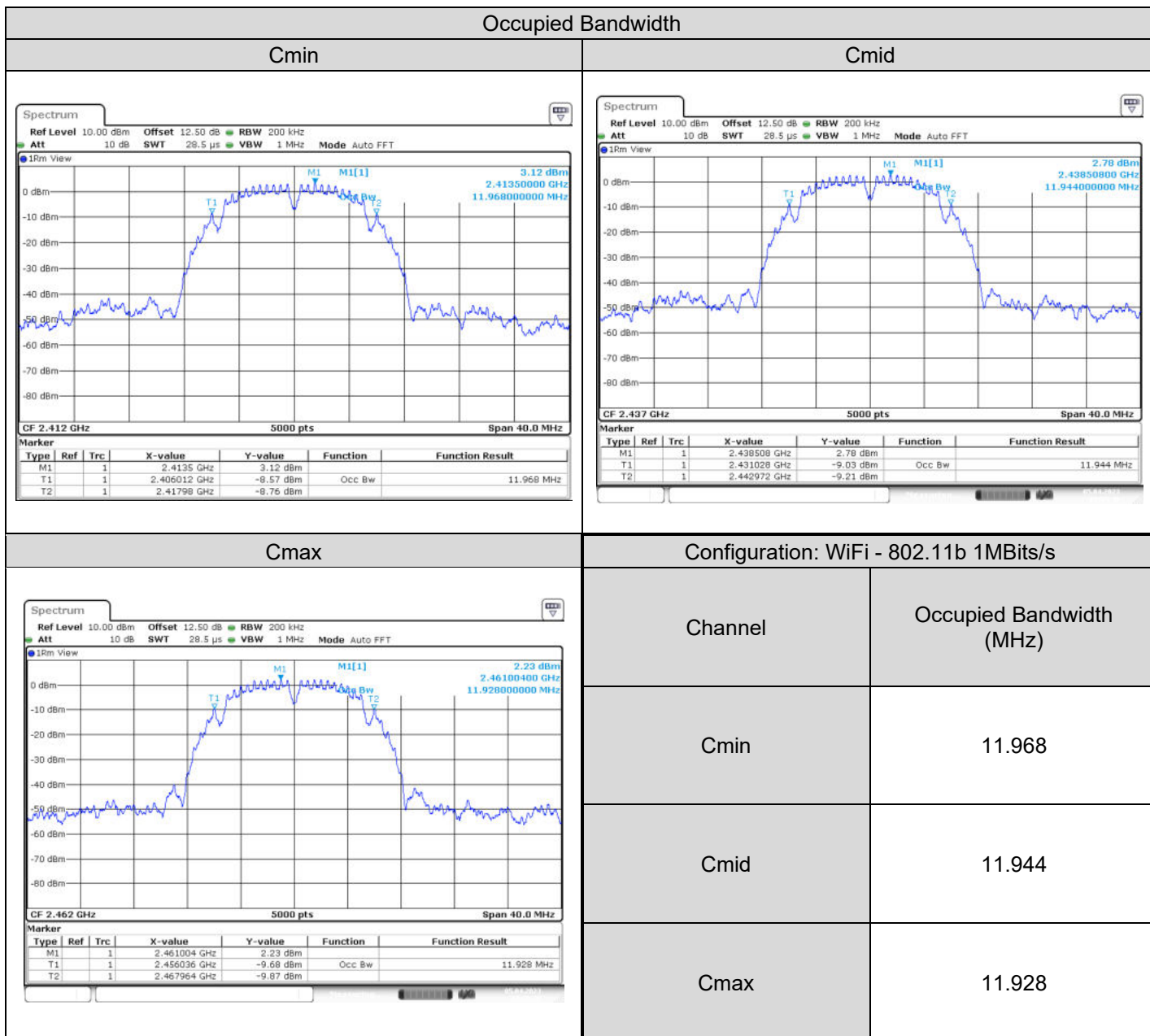
TEST EQUIPMENT USED					
Description	Manufacturer	Model	Identifier	Cal_Date	Cal_Due
Attenuator 10dB	AEROFLEX	_	A7122267	08/21	08/23
Comb EMR HF	YORK	CGE01	A3169114		
Full Anechoic Room	SIEPEL	_	D3044024		
Multimeter - CEM	FLUKE	87	A1240251	03/21	03/23
SMA 1.5m	SUCOFLEX	18GHz	A5329863	05/22	05/23
Spectrum analyzer	ROHDE & SCHWARZ	FSV 40	A4060059	11/21	11/23
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	01/21	05/23
SMA 1.5m	SUCOFLEX	18GHz	A5329864	09/22	09/23

3.4. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None



3.5. RESULTS



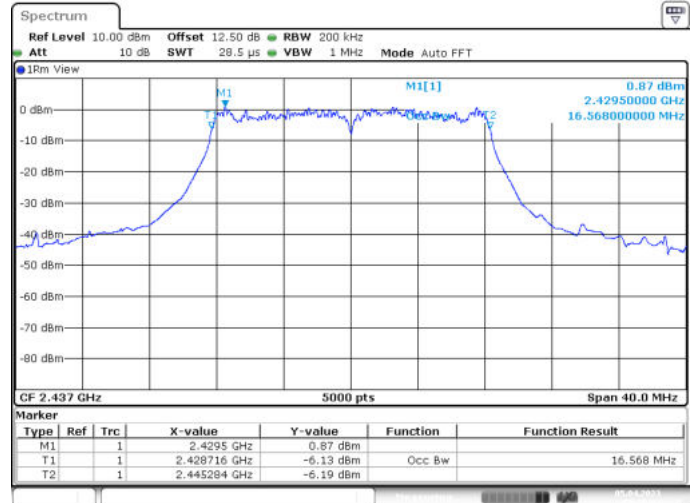
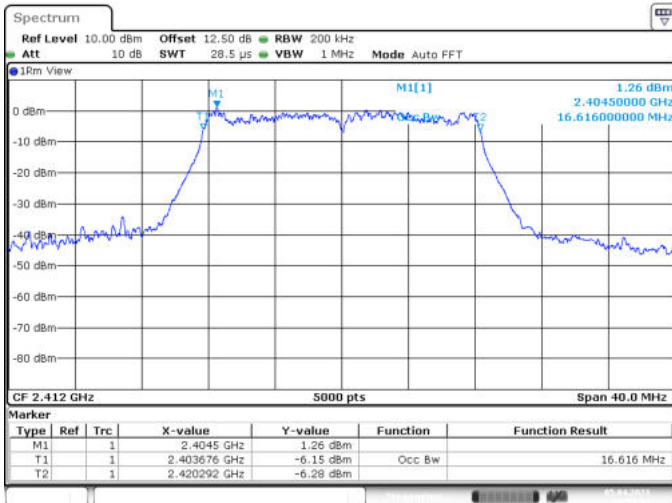


L C I E

Occupied Bandwidth

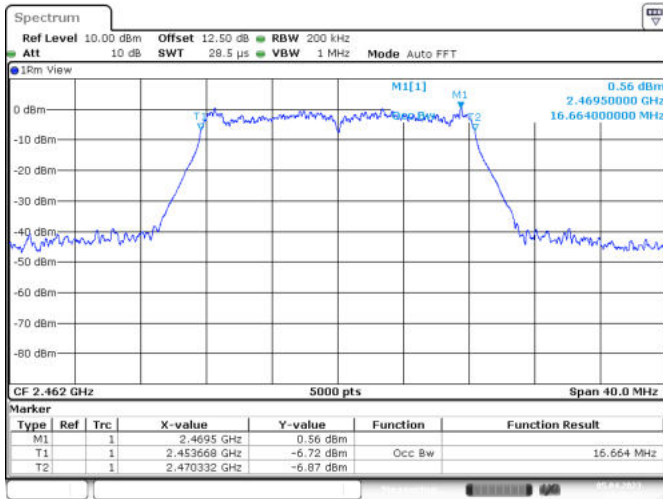
Cmin

Cmid



Cmax

Configuration: WiFi - 802.11g 6Mbits/s



Channel	Occupied Bandwidth (MHz)
Cmin	16.616
Cmid	16.568
Cmax	16.664

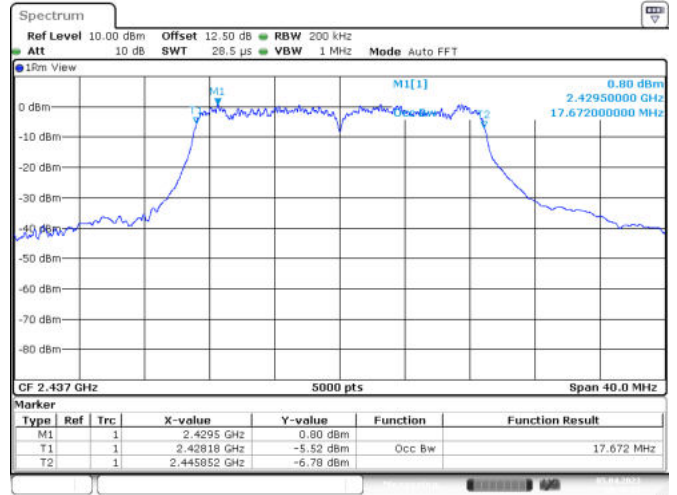
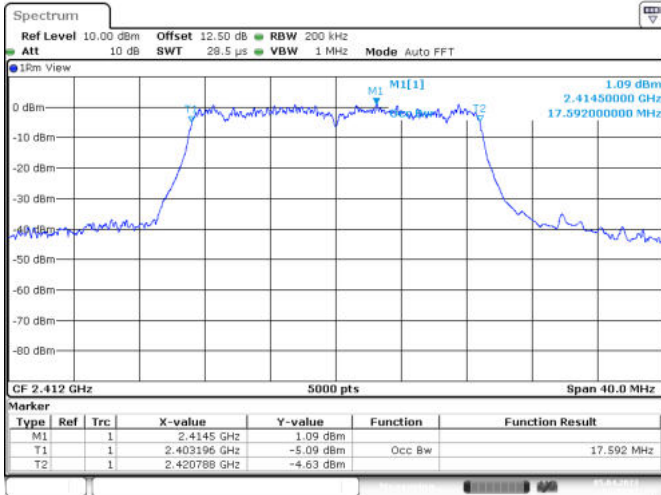


L C I E

Occupied Bandwidth

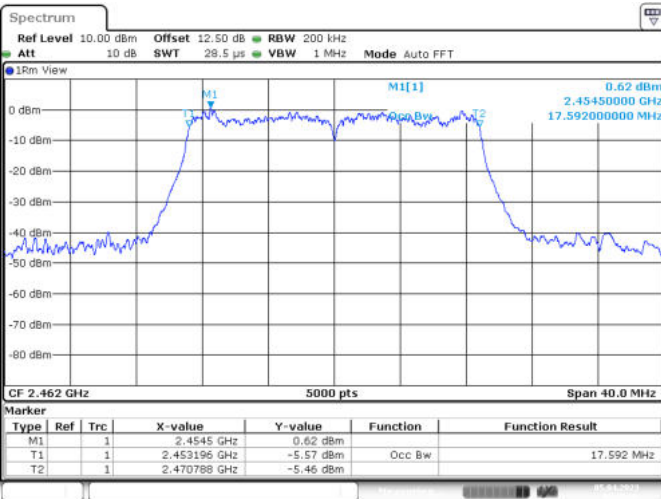
Cmin

Cmid



Cmax

Configuration: WiFi - 802.11n HT20 MCS0



Channel

Occupied Bandwidth (MHz)

Cmin

17.592

Cmid

17.672

Cmax

17.592

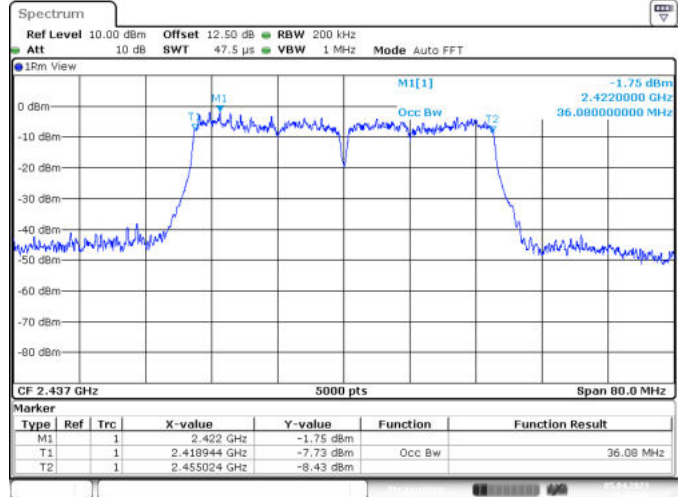
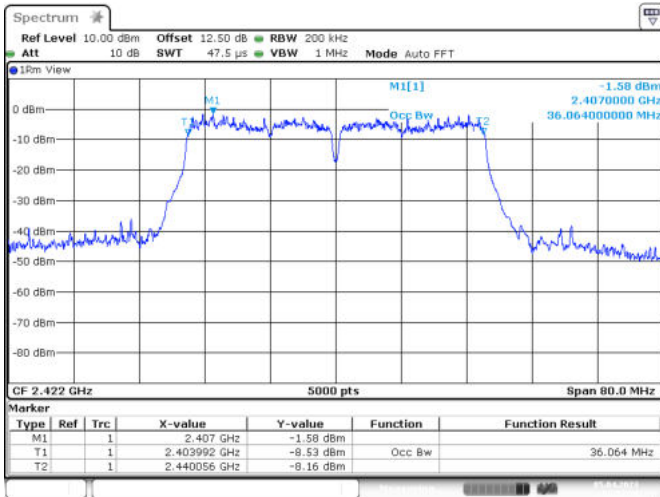


L C I E

Occupied Bandwidth

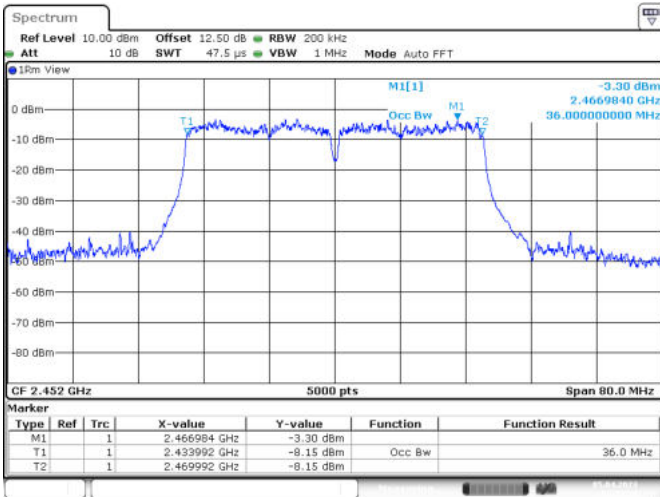
Cmin

Cmid



Cmax

Configuration: WiFi - 802.11n HT40 MCS0



Channel	Occupied Bandwidth (MHz)
Cmin	36.064
Cmid	36.08
Cmax	36

3.6. CONCLUSION

Occupied Channel Bandwidth measurement performed on the sample of the product **Desk/2600**, Sn: **230587317081327729816898**, in configuration and description presented in this test report, show levels compliant to the RSS-GEN limits.

4. 6dB BANDWIDTH

4.1. TEST CONDITIONS

Test performed by : Majid MOURZAGH / Akram HAKKARI
Date of test : April 5, 2023
Ambient temperature : 22 °C
Relative humidity : 39 %

4.2. TEST SETUP

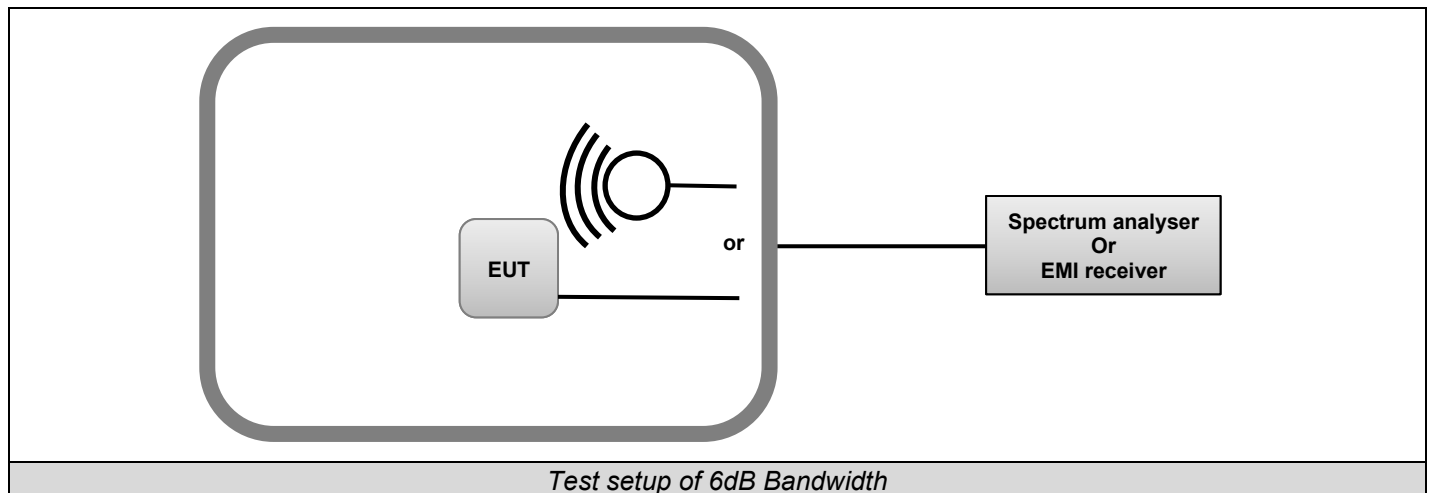
The Equipment Under Test is installed in an anechoic chamber.
Measurement is performed with a spectrum analyzer in conducted method.

The EUT is turned ON, the center frequency of the spectrum analyzer is set to the fundamental frequency. The captured power is measured and recorded; the measurement is repeated until all frequencies required were complete.

Test Procedure:

KDB 558074 D01 DTS Meas Guidance v05r02 § 8.2

- Set resolution bandwidth (RBW) = 100kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. Compare the resultant bandwidth with the RBW setting of the analyzer.



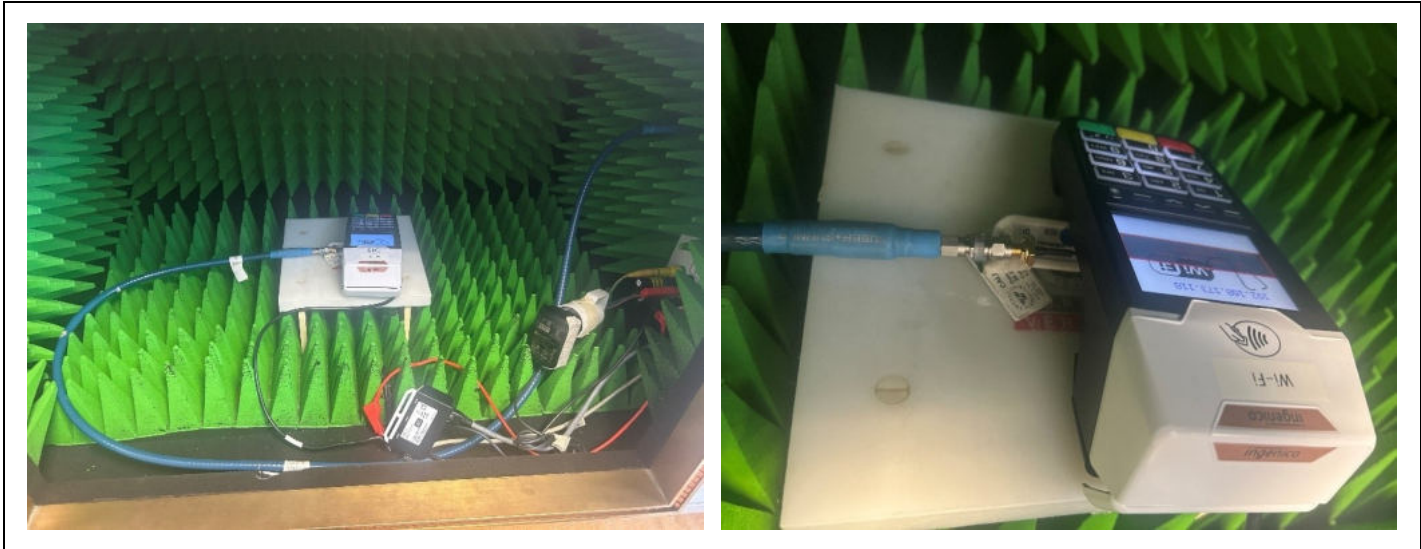


Photo of 6dB Bandwidth

4.3. LIMIT

Frequency range 902-928MHz 2400MHz to 2483.5MHz 5725-5850 MHz	6dB bandwidth ≥500kHz
--	------------------------------

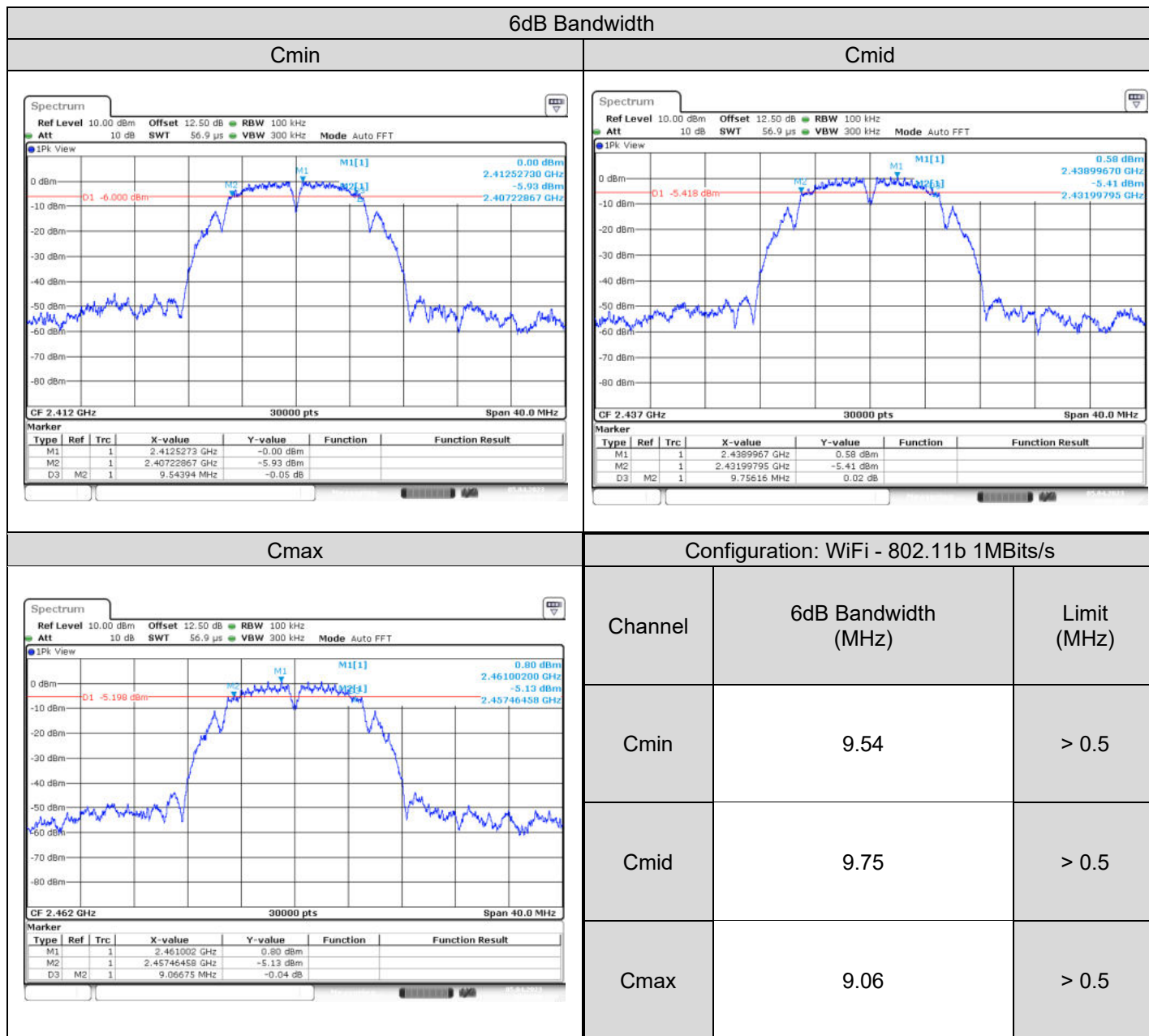
4.4. TEST EQUIPMENT LIST

TEST EQUIPMENT USED					
Description	Manufacturer	Model	Identifier	Cal_Date	Cal_Due
Attenuator 10dB	AEROFLEX	_	A7122267	08/21	08/23
Comb EMR HF	YORK	CGE01	A3169114		
Full Anechoic Room	SIEPEL	_	D3044024		
Multimeter - CEM	FLUKE	87	A1240251	03/21	03/23
SMA 1.5m	SUCOFLEX	18GHz	A5329863	05/22	05/23
Spectrum analyzer	ROHDE & SCHWARZ	FSV 40	A4060059	11/21	11/23
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	01/21	05/23
SMA 1.5m	SUCOFLEX	18GHz	A5329864	09/22	09/23

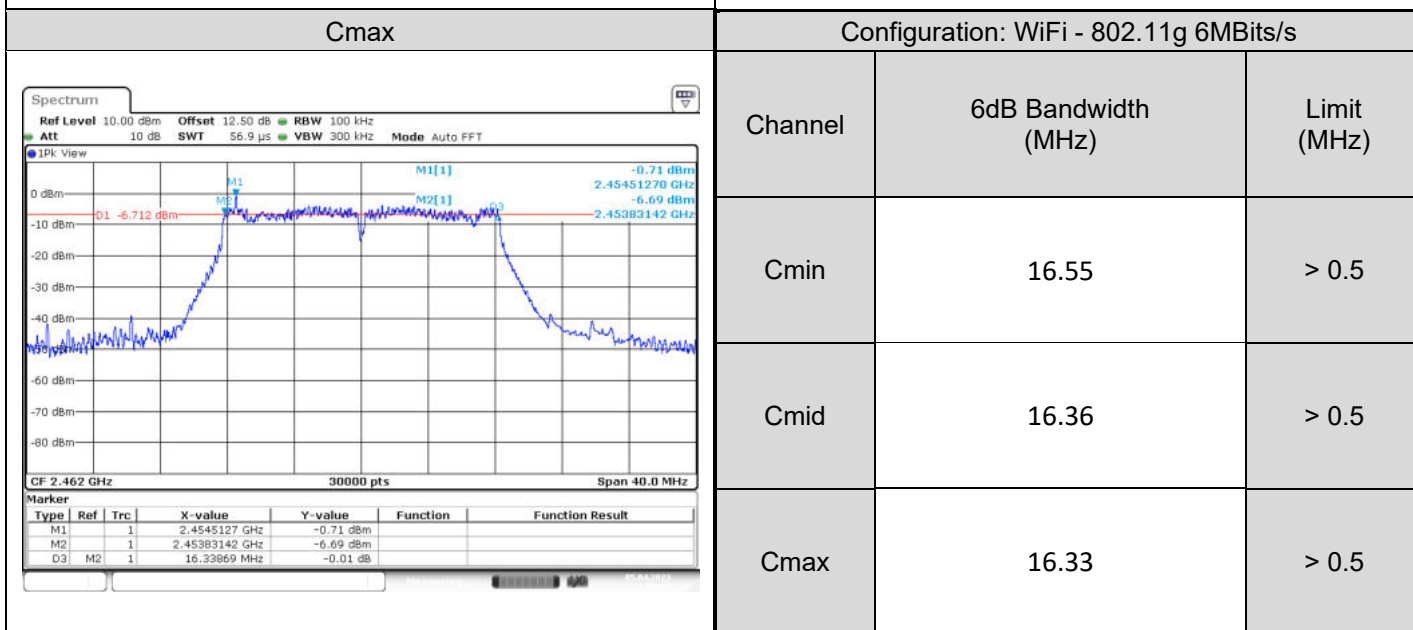
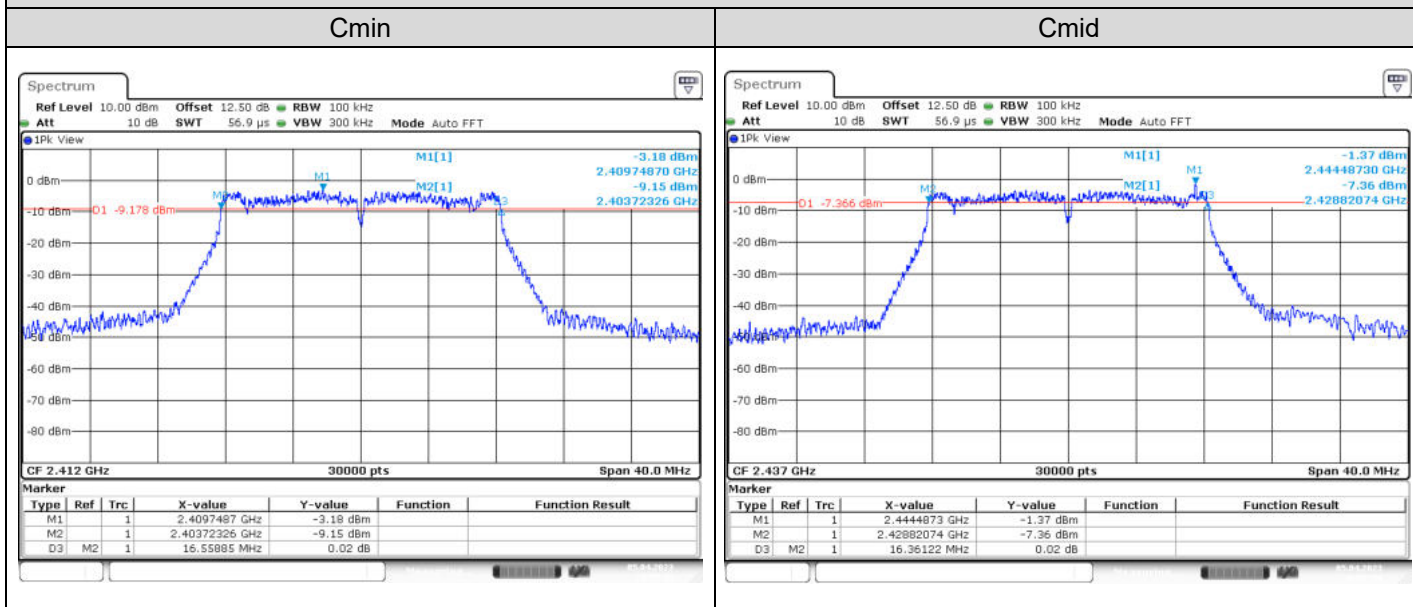
4.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

4.6. RESULTS



6dB Bandwidth

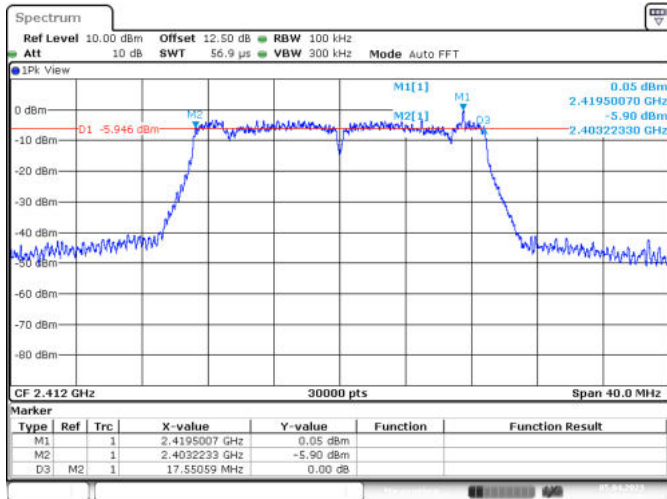




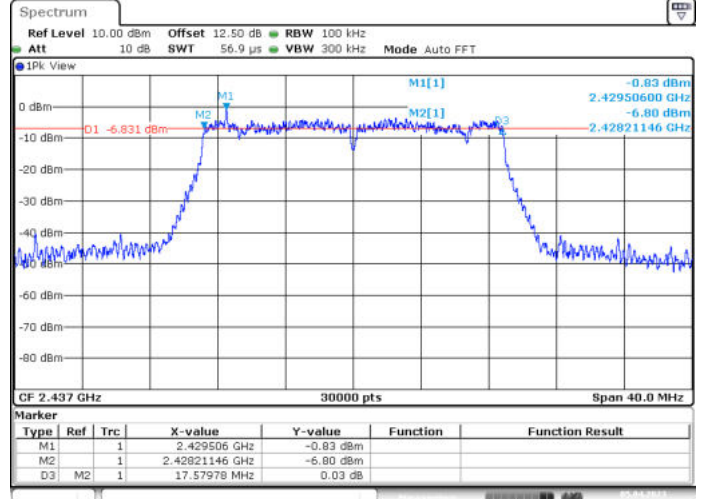
L C I E

6dB Bandwidth

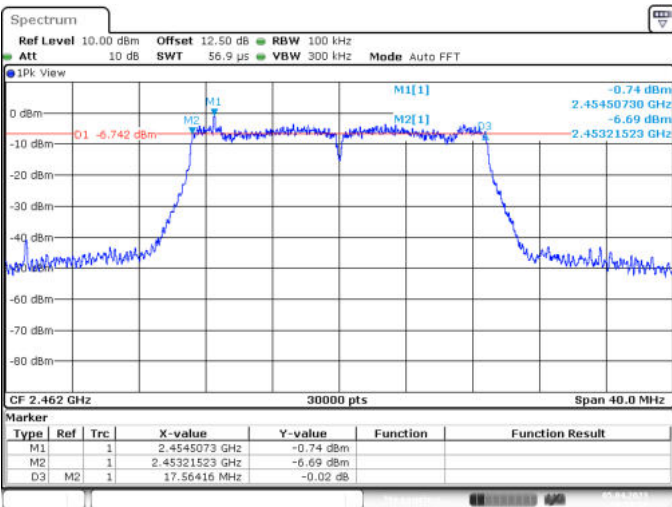
Cmin



Cmid



Cmax



Configuration: WiFi - 802.11n HT20 MCS0

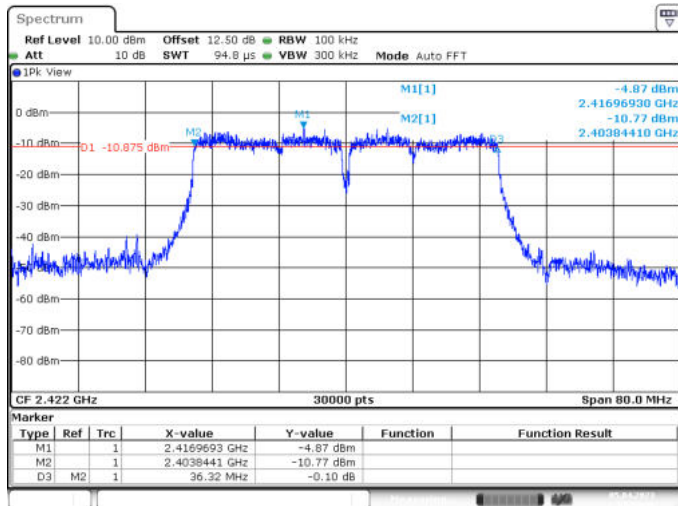
Channel	6dB Bandwidth (MHz)	Limit (MHz)
Cmin	17.55	> 0.5
Cmid	17.57	> 0.5
Cmax	17.56	> 0.5



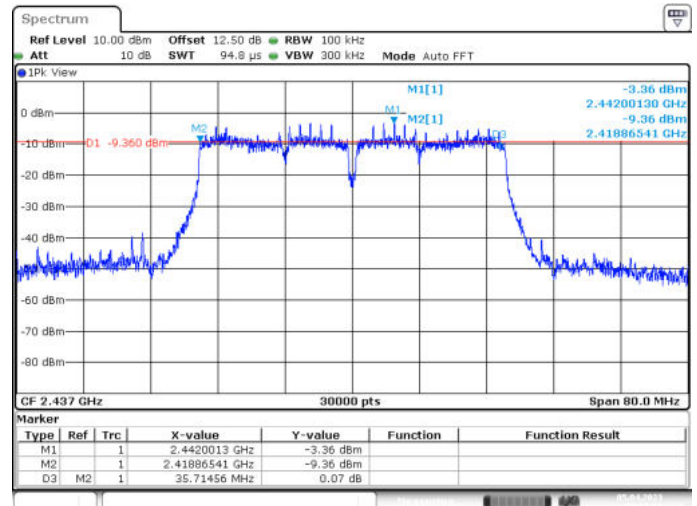
L C I E

6dB Bandwidth

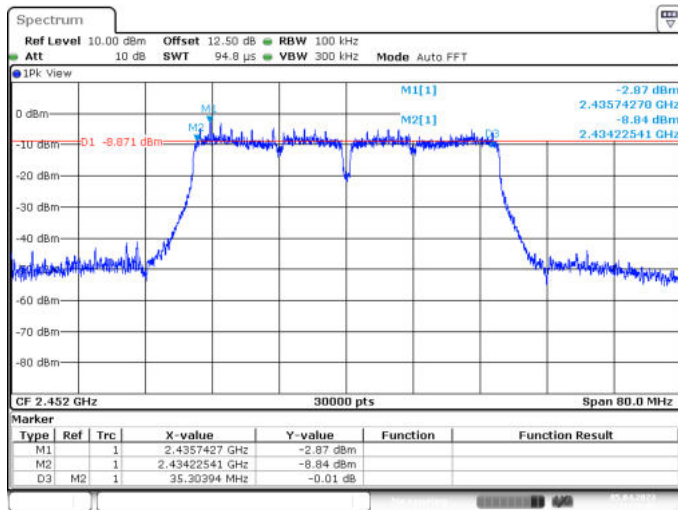
Cmin



Cmid



Cmax



Configuration: WiFi - 802.11n HT40 MCS0

Channel	6dB Bandwidth (MHz)	Limit (MHz)
Cmin	36.32	> 0.5
Cmid	35.71	> 0.5
Cmax	35.30	> 0.5

4.7. CONCLUSION

6dB Bandwidth measurement performed on the sample of the product Desk/2600, Sn: 230587317081327729816898, in configuration and description presented in this test report, show levels compliant to the 47 CFR PART 15.247 & RSS 247 limits.



5. MAXIMUM CONDUCTED OUTPUT POWER

5.1. TEST CONDITIONS

Test performed by : Majid MOURZAGH / Akram HAKKARI
Date of test : April 5, 2023
Ambient temperature : 22 °C
Relative humidity : 39 %

5.2. TEST SETUP

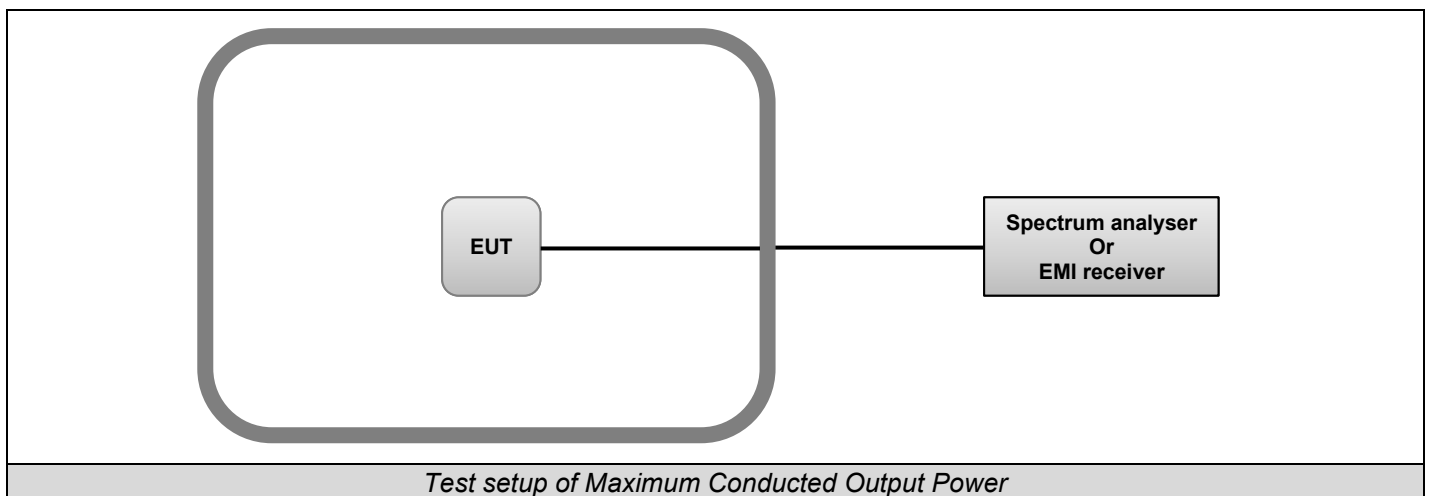
The Equipment Under Test is installed in an anechoic chamber.
Measurement is performed with a spectrum analyzer in conducted method.

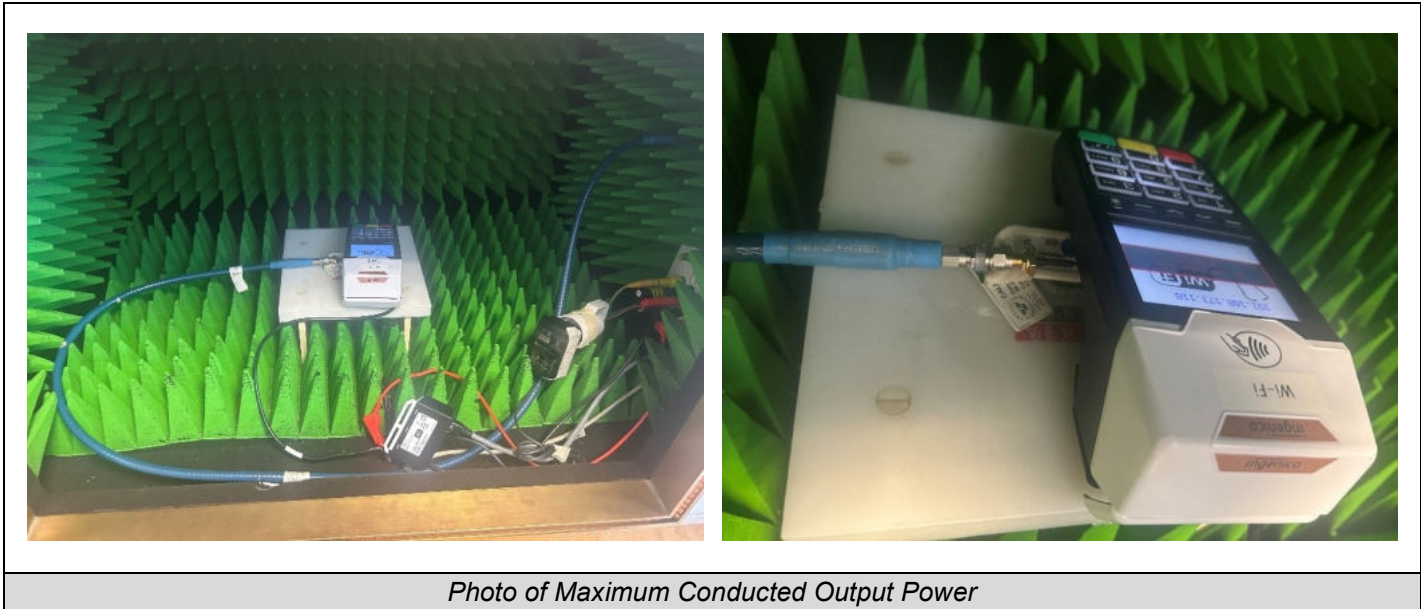
The EUT is turned ON, the center frequency of the spectrum analyzer is set to the fundamental frequency. The captured power is measured and recorded; the measurement is repeated until all frequencies required were complete.

KDB 558074 D01 DTS Meas Guidance v05r02 § 8.3.2.2(Method AVGSA-1)

Subclause 11.9.2.2 of ANSI C63.10 is applicable, Method AVGSA-1 uses trace averaging with the EUT transmitting at full power throughout each sweep.

- o a) Set span to at least 1.5 times the OBW.
- o b) Set RBW = 1% to 5% of the OBW, not to exceed 1 MHz.
- o c) Set VBW $\geq [3 \times \text{RBW}]$.
- o d) Number of points in sweep $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- o e) Sweep time = auto.
- o f) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- o g) If transmit duty cycle < 98%, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at the maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no OFF intervals) or at duty cycle $\geq 98\%$, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run."
- o h) Trace average at least 100 traces in power averaging (rms) mode.
- o i) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.





5.3. LIMIT

Frequency range	Maximum Conducted Output Power
902-928MHz 2400MHz to 2483.5MHz 5725-5850 MHz	≤30dBm*

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

5.4. TEST EQUIPMENT LIST

TEST EQUIPMENT USED					
Description	Manufacturer	Model	Identifier	Cal_Date	Cal_Due
Attenuator 10dB	AEROFLEX	—	A7122267	08/21	08/23
Comb EMR HF	YORK	CGE01	A3169114		
Full Anechoic Room	SIEPEL	—	D3044024		
Multimeter - CEM	FLUKE	87	A1240251	03/21	03/23
SMA 1.5m	SUCOFLEX	18GHz	A5329863	05/22	05/23
Spectrum analyzer	ROHDE & SCHWARZ	FSV 40	A4060059	11/21	11/23
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	01/21	05/23
SMA 1.5m	SUCOFLEX	18GHz	A5329864	09/22	09/23

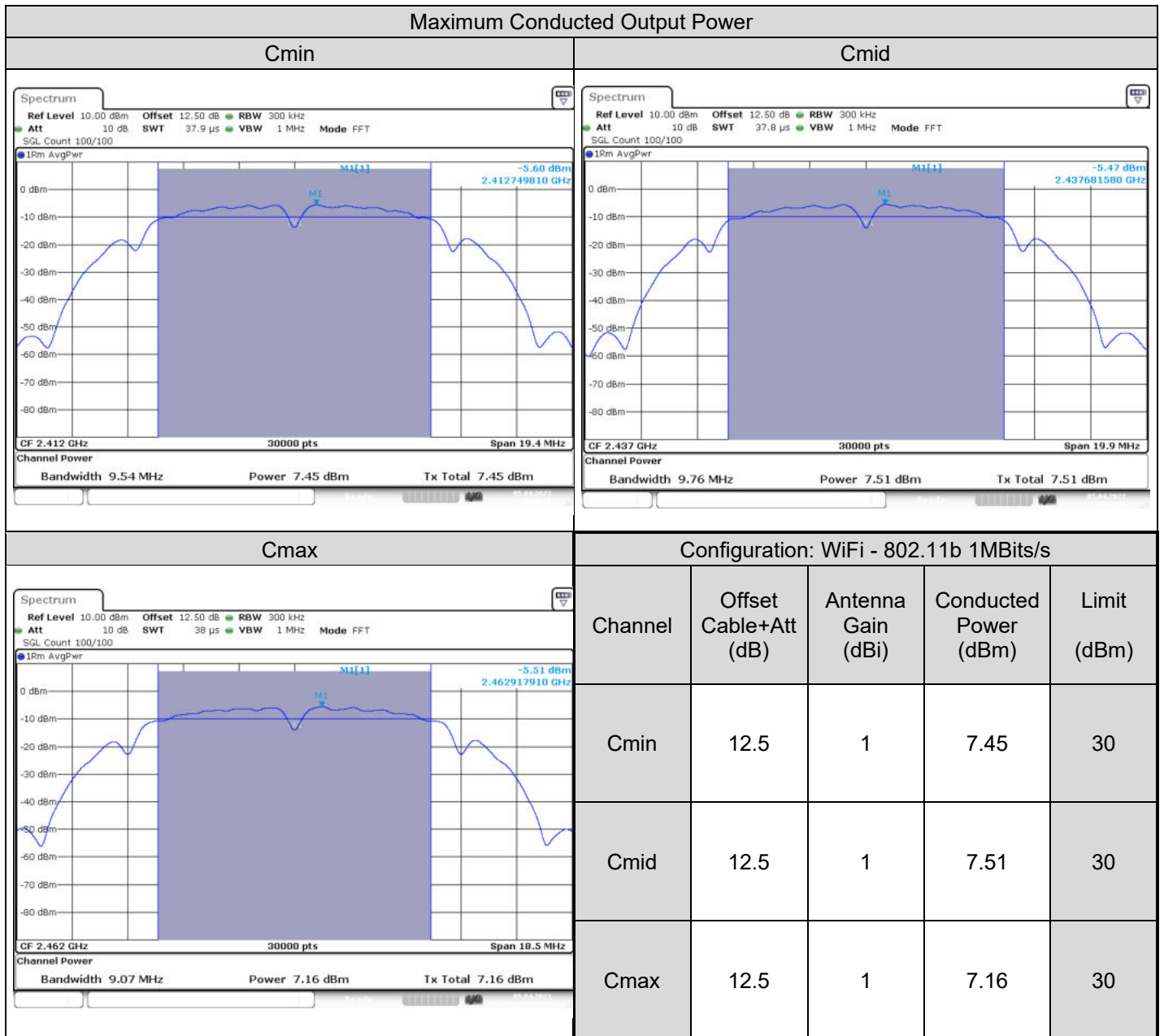
5.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None



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5.6. RESULTS



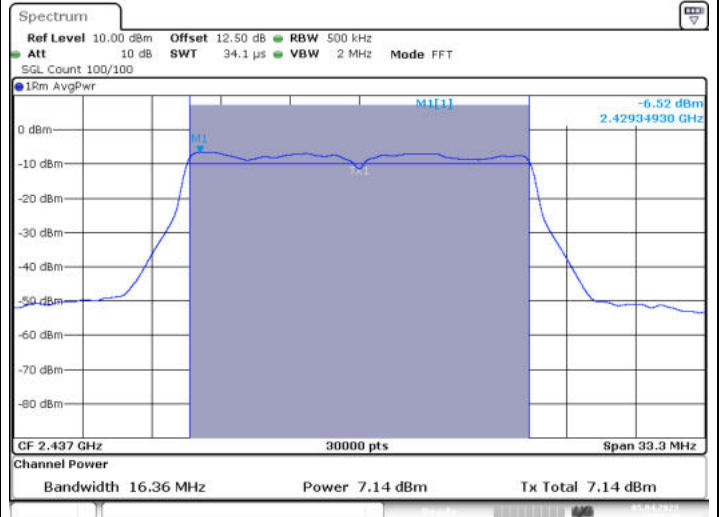
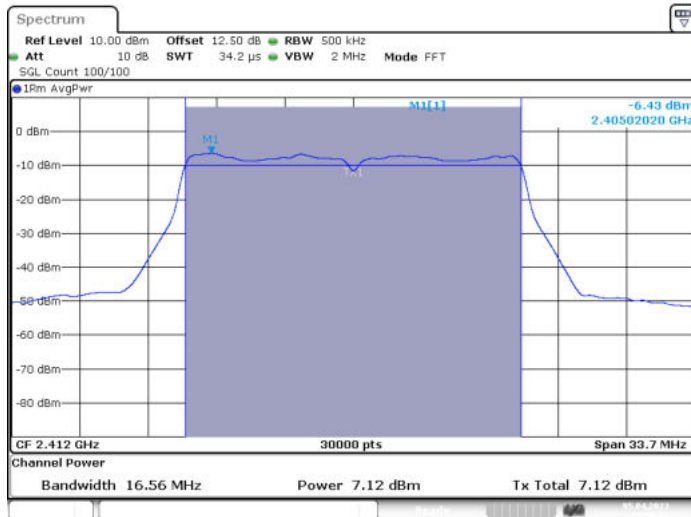


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Maximum Conducted Output Power

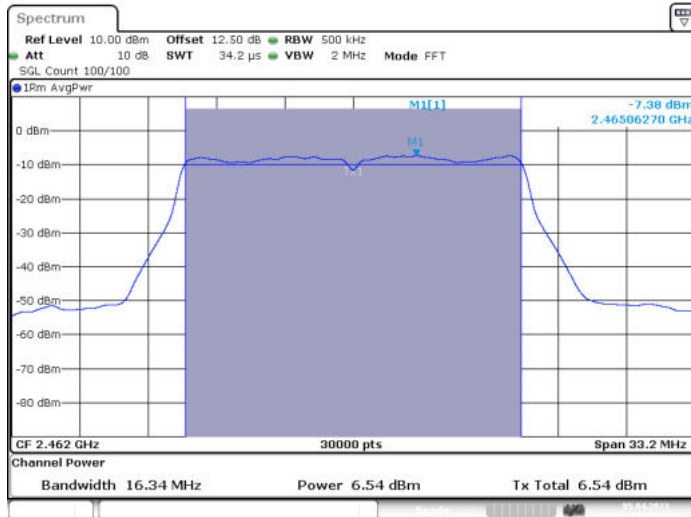
Cmin

Cmid



Cmax

Configuration: WiFi - 802.11g 6Mbits/s

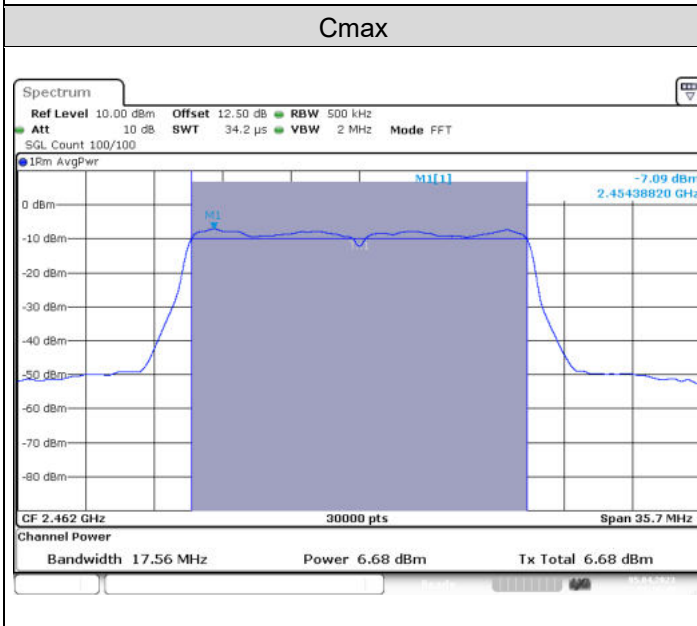
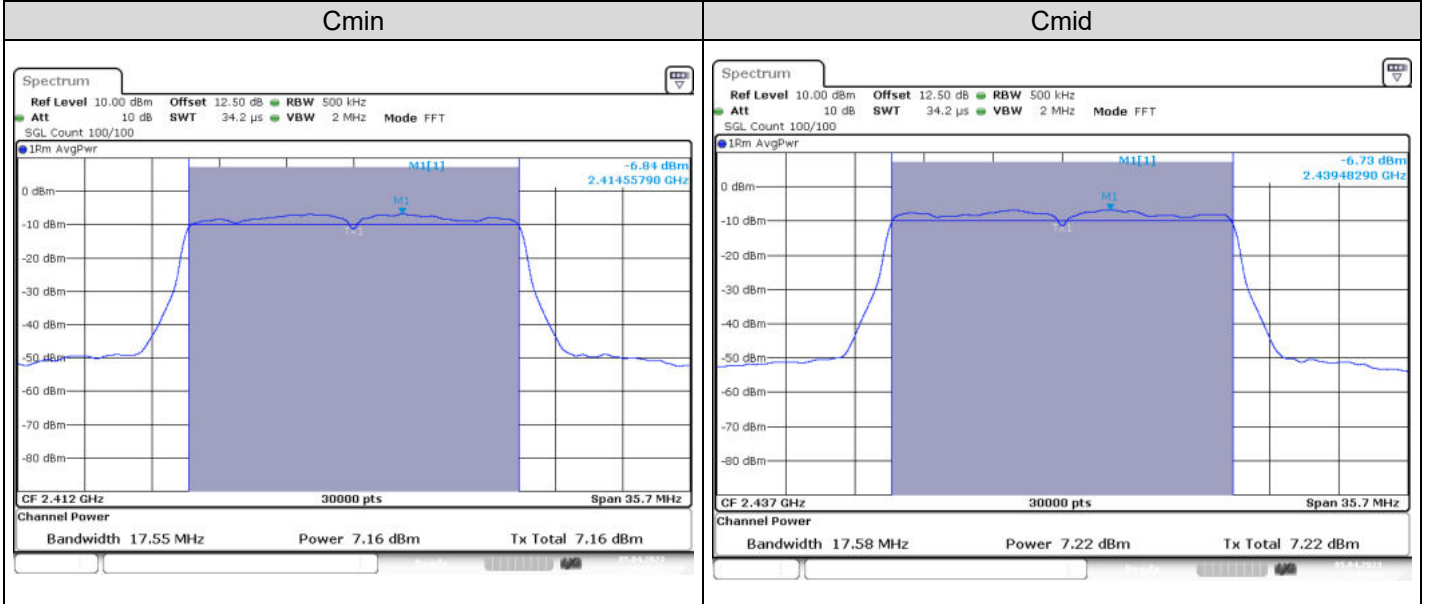


Channel	Offset Cable+Att (dB)	Antenna Gain (dBi)	Conducted Power (dBm)	Limit (dBm)
Cmin	12.5	1	7.12	30
Cmid	12.5	1	7.14	30
Cmax	12.5	1	6.54	30



L C I E

Maximum Conducted Output Power

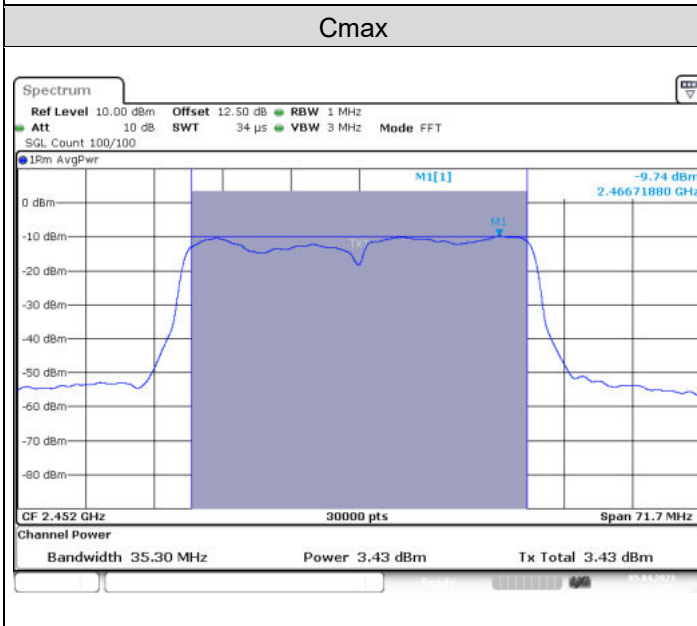
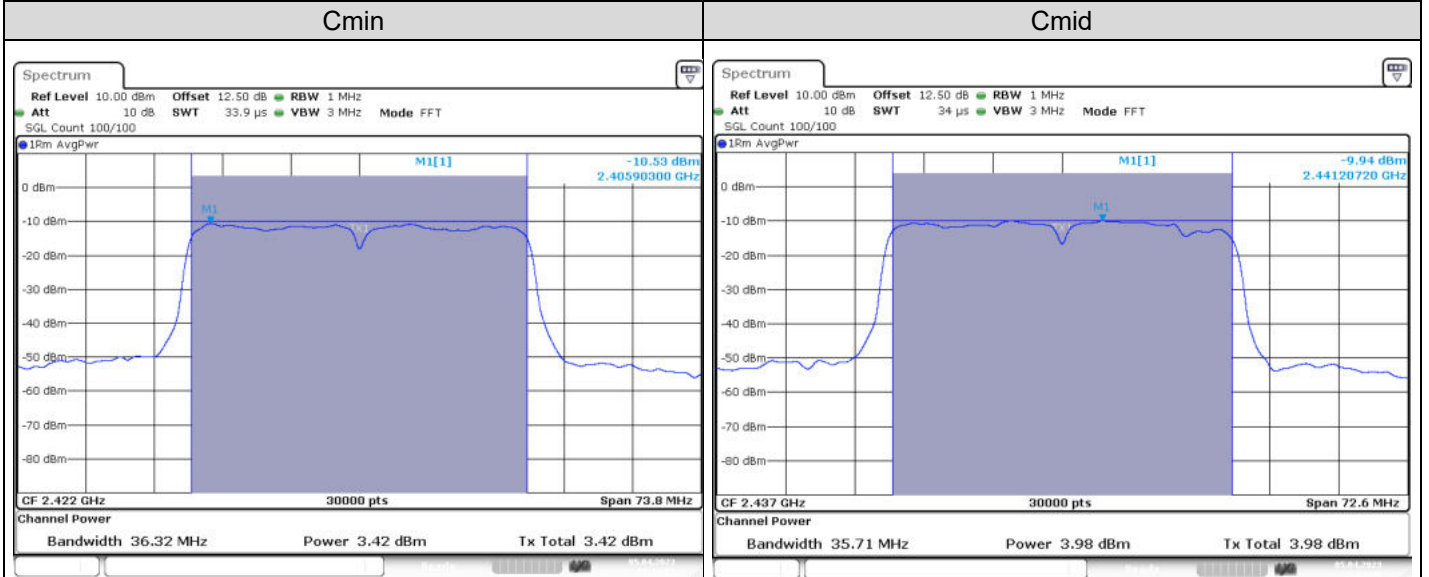


Configuration: WiFi - 802.11n HT20 MCS0				
Channel	Offset Cable+Att (dB)	Antenna Gain (dBi)	Conducted Power (dBm)	Limit (dBm)
Cmin	12.5	1	7.16	30
Cmid	12.5	1	7.22	30
Cmax	12.5	1	6.68	30



L C I E

Maximum Conducted Output Power



Configuration: WiFi - 802.11n HT20 MCS0				
Channel	Offset Cable+Att (dB)	Antenna Gain (dBi)	Conducted Power (dBm)	Limit (dBm)
Cmin	12.5	1	3.42	30
Cmid	12.5	1	3.98	30
Cmax	12.5	1	3.43	30



WiFi - 802.11b 1Mbits/s							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	7.45	/	/	/	1	7.56	30
Cmid	7.51	/	/	/	1	6.81	30
Cmax	7.16	/	/	/	1	6.65	30

Spectrum Analyser Offset: Cable Loss = 2.5 dB + Attenuator 10 dB = 12.5 dB

WiFi - 802.11b 1Mbits/s							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	7.12	/	/	/	1	6.97	30
Cmid	7.14	/	/	/	1	6.77	30
Cmax	6.54	/	/	/	1	5.75	30

Spectrum Analyser Offset: Cable Loss = 2.5 dB + Attenuator 10 dB = 12.5 dB

WiFi - 802.11b 1Mbits/s							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	7.16	/	/	/	1	7.31	30
Cmid	7.22	/	/	/	1	6.06	30
Cmax	6.68	/	/	/	1	6.03	30

Spectrum Analyser Offset: Cable Loss = 2.5 dB + Attenuator 10 dB = 12.5 dB

WiFi - 802.11b 1Mbits/s							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	3.42	/	/	/	1	4.38	30
Cmid	3.98	/	/	/	1	3.01	30
Cmax	3.43	/	/	/	1	3.40	30

Spectrum Analyser Offset: Cable Loss = 2.5 dB + Attenuator 10 dB = 12.5 dB

5.7. CONCLUSION

Maximum Output Conducted Power measurement performed on the sample of the product Desk/2600, Sn: 230587317081327729816898, in configuration and description presented in this test report, show levels compliant to the 47 CFR PART 15.247 & RSS 247 limits.

6. POWER SPECTRAL DENSITY

6.1. TEST CONDITIONS

Test performed by : Majid MOURZAGH / Akram HAKKARI
 Date of test : April 6, 2023
 Ambient temperature : 21 °C
 Relative humidity : 38 %

6.2. TEST SETUP

The Equipment Under Test is installed in an anechoic chamber. Measurement is performed with a spectrum analyzer in conducted method.

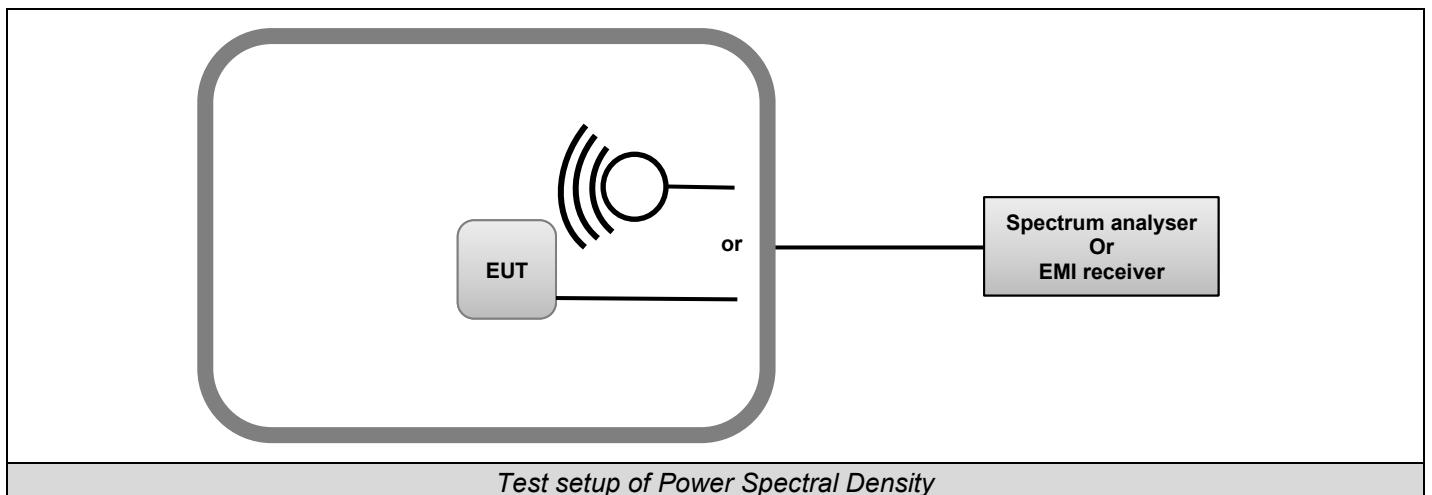
The EUT is turned ON, the center frequency of the spectrum analyzer is set to the fundamental frequency. The captured power is measured and recorded; the measurement is repeated until all frequencies required were complete.

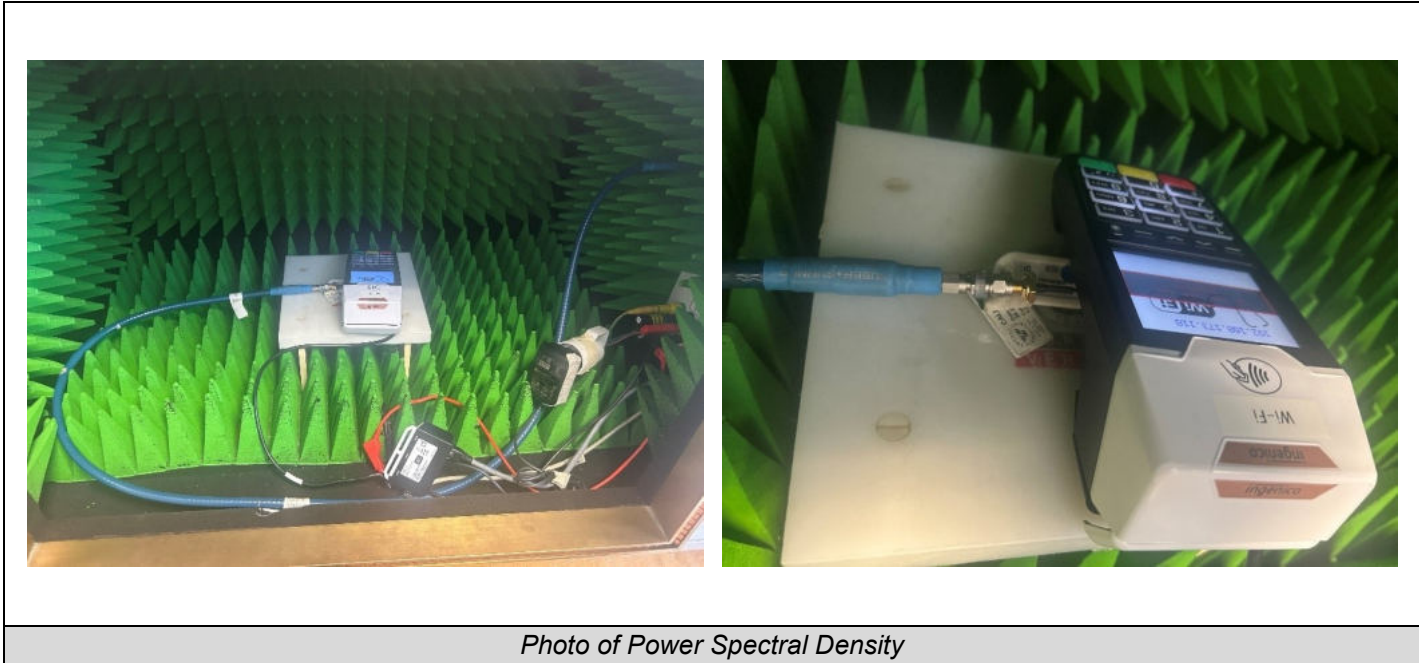
Test Procedure used: KDB 558074 D01 DTS Meas Guidance v05r02 § 8.4 (Method PKPSD)

KDB 558074 D01 DTS Meas Guidance v05r02 § 8.4 (Method PKPSD)

Subclause 11.10 of ANSI C63.10 is applicable

- Set analyzer center frequency to DTS channel center frequency.
- Set the span to 1.5 times the DTS bandwidth.
- Set the RBW to: 3 kHz.
- Set the VBW $\geq 3 \times$ RBW.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level within the RBW.
- If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.





6.3. LIMIT

Frequency range	Power Spectral Density
902-928MHz 2400MHz to 2483.5MHz 5725-5850 MHz	≤8dBm / 3kHz *

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

6.4. TEST EQUIPMENT LIST

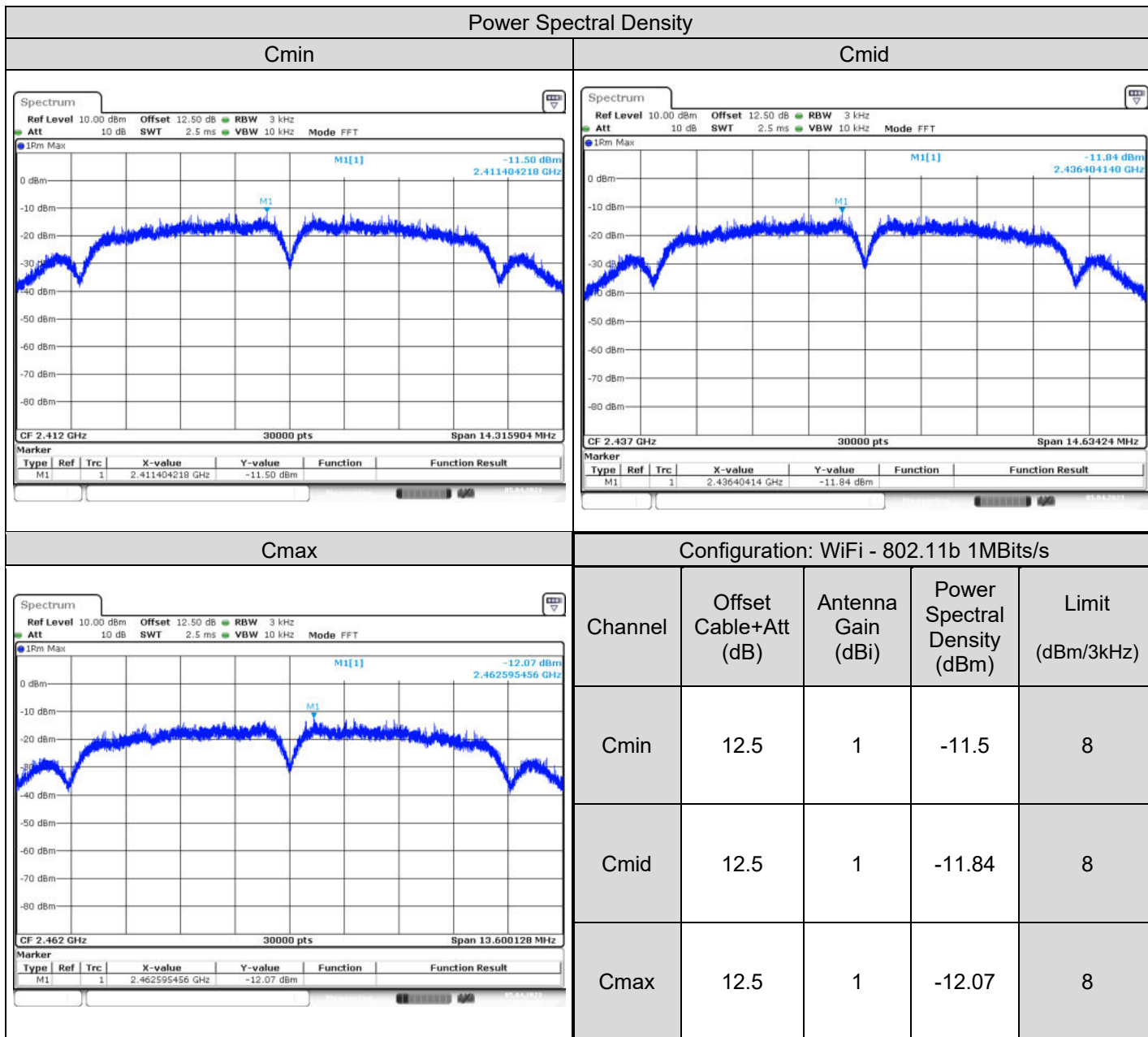
TEST EQUIPMENT USED					
Description	Manufacturer	Model	Identifier	Cal_Date	Cal_Due
Attenuator 10dB	AEROFLEX	_	A7122267	08/21	08/23
Comb EMR HF	YORK	CGE01	A3169114		
Full Anechoic Room	SIEPEL	_	D3044024		
Multimeter - CEM	FLUKE	87	A1240251	03/21	03/23
SMA 1.5m	SUCOFLEX	18GHz	A5329863	05/22	05/23
Spectrum analyzer	ROHDE & SCHWARZ	FSV 40	A4060059	11/21	11/23
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	01/21	05/23
SMA 1.5m	SUCOFLEX	18GHz	A5329864	09/22	09/23

6.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None



6.6. RESULTS



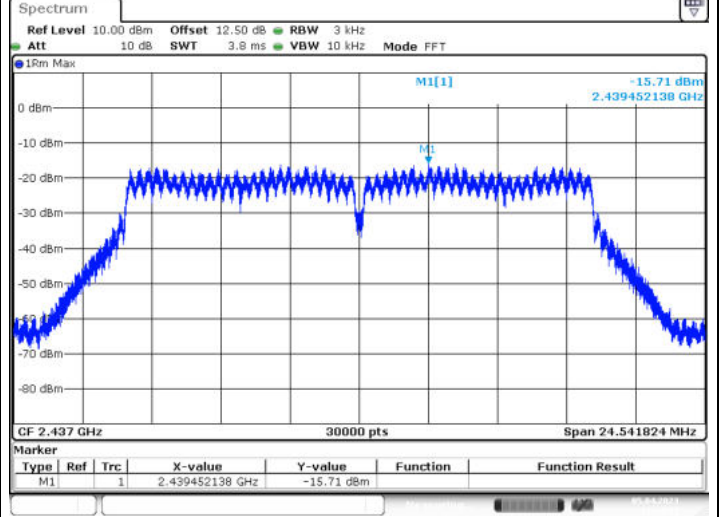
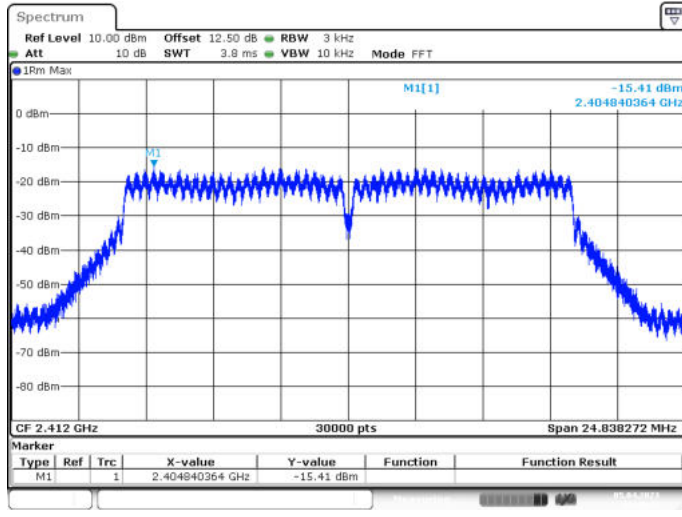


L C I E

Power Spectral Density

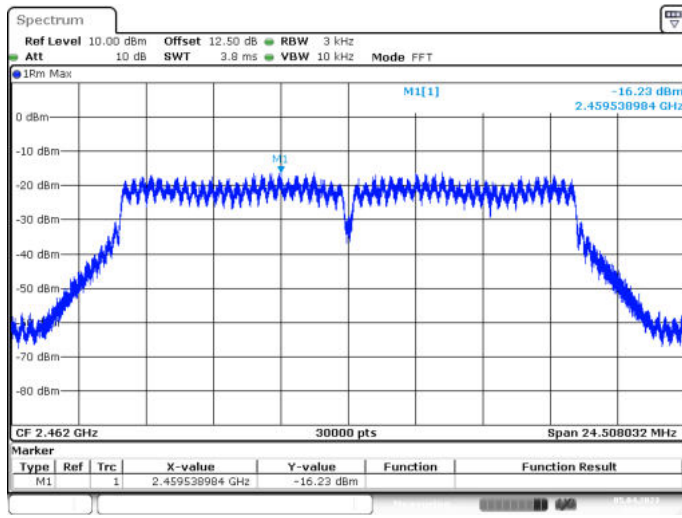
Cmin

Cmid



Cmax

Configuration: WiFi - 802.11g 6Mbps/s



Channel	Offset Cable+Att (dB)	Antenna Gain (dBi)	Power Spectral Density (dBm)	Limit (dBm/3kHz)
Cmin	12.5	1	-15.41	8
Cmid	12.5	1	-15.71	8
Cmax	12.5	1	-16.23	8

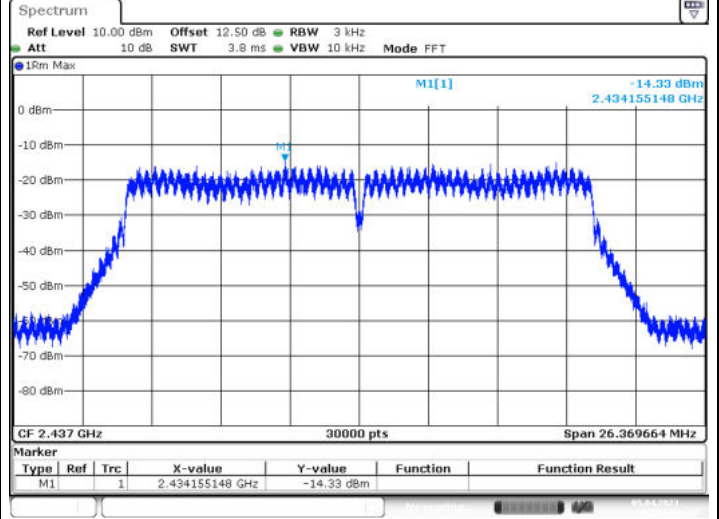
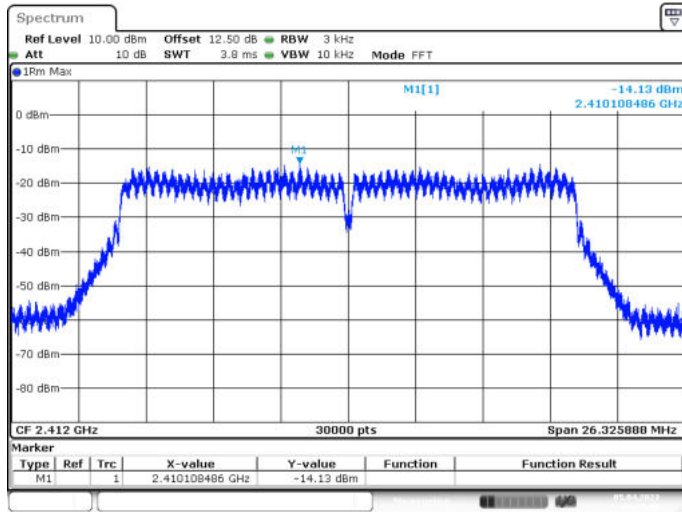


L C I E

Power Spectral Density

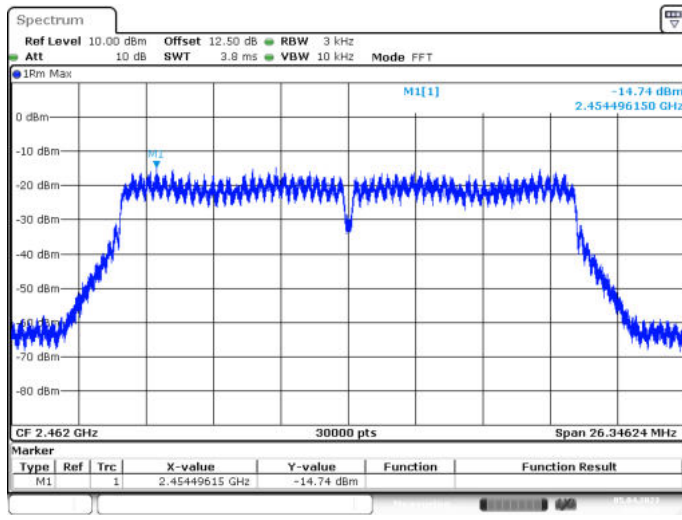
Cmin

Cmid



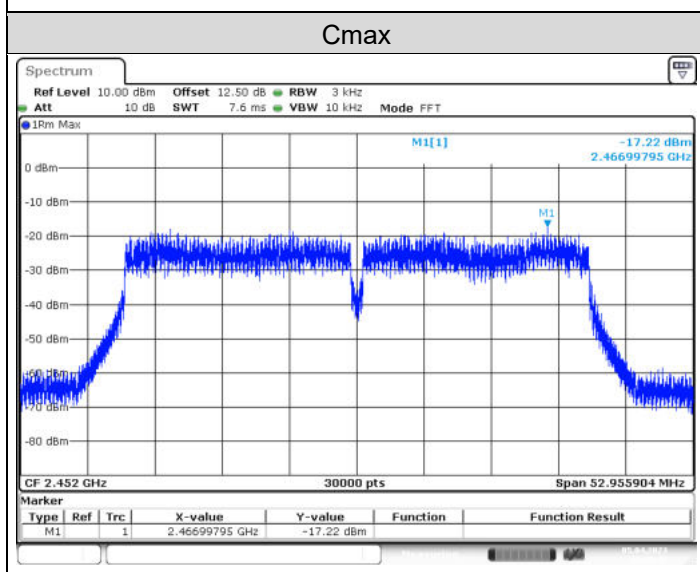
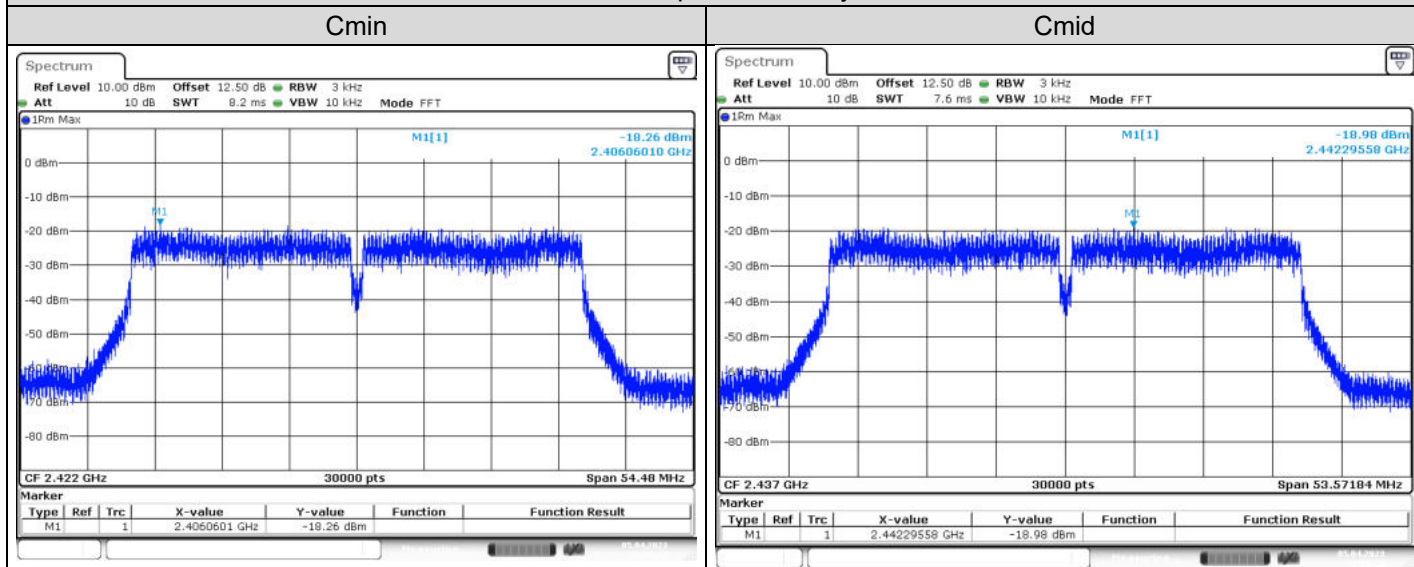
Cmax

Configuration: WiFi - 802.11n HT20 MCS0



Channel	Offset Cable+Att (dB)	Antenna Gain (dBi)	Power Spectral Density (dBm)	Limit (dBm/3kHz)
Cmin	12.5	1	-14.13	8
Cmid	12.5	1	-14.33	8
Cmax	12.5	1	-14.74	8

Power Spectral Density



Configuration: WiFi - 802.11n HT40 MCS0

Channel	Offset Cable+Att (dB)	Antenna Gain (dBi)	Power Spectral Density (dBm)	Limit (dBm/3kHz)
Cmin	12.5	1	-18.26	8
Cmid	12.5	1	-18.98	8
Cmax	12.5	1	-17.22	8



WiFi - 802.11b 1Mbits/s							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Power Spectral Density (dBm)	Limit (dBm / 3kHz)
Cmin	-11.5	/	/	/	1	-11.85	8
Cmid	-11.84	/	/	/	1	-12.41	8
Cmax	-12.07	/	/	/	1	-12.75	8
<i>Spectrum Analyser Offset: Cable Loss = 2.5 dB + Attenuator 10 dB = 12.5 dB</i>							

WiFi - 802.11b 1Mbits/s							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Power Spectral Density (dBm)	Limit (dBm / 3kHz)
Cmin	-15.41	/	/	/	1	-15.49	8
Cmid	-15.71	/	/	/	1	-16.49	8
Cmax	-16.23	/	/	/	1	-16.31	8
<i>Spectrum Analyser Offset: Cable Loss = 2.5 dB + Attenuator 10 dB = 12.5 dB</i>							

WiFi - 802.11b 1Mbits/s							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Power Spectral Density (dBm)	Limit (dBm / 3kHz)
Cmin	-14.13	/	/	/	1	-14.62	8
Cmid	-14.33	/	/	/	1	-14.63	8
Cmax	-14.74	/	/	/	1	-14.98	8
<i>Spectrum Analyser Offset: Cable Loss = 2.5 dB + Attenuator 10 dB = 12.5 dB</i>							

WiFi - 802.11b 1Mbits/s							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Power Spectral Density (dBm)	Limit (dBm / 3kHz)
Cmin	-18.26	/	/	/	1	-18.08	8
Cmid	-18.98	/	/	/	1	-18.21	8
Cmax	-17.22	/	/	/	1	-18.79	8
<i>Spectrum Analyser Offset: Cable Loss = 2.5 dB + Attenuator 10 dB = 12.5 dB</i>							

6.7. CONCLUSION

Power Spectral Density measurement performed on the sample of the product Desk/2600, Sn: 230587317081327729816898, in configuration and description presented in this test report, show levels compliant to the 47 CFR PART 15.247 & RSS 247 limits.

7. UNWANTED EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS

7.1. TEST CONDITIONS

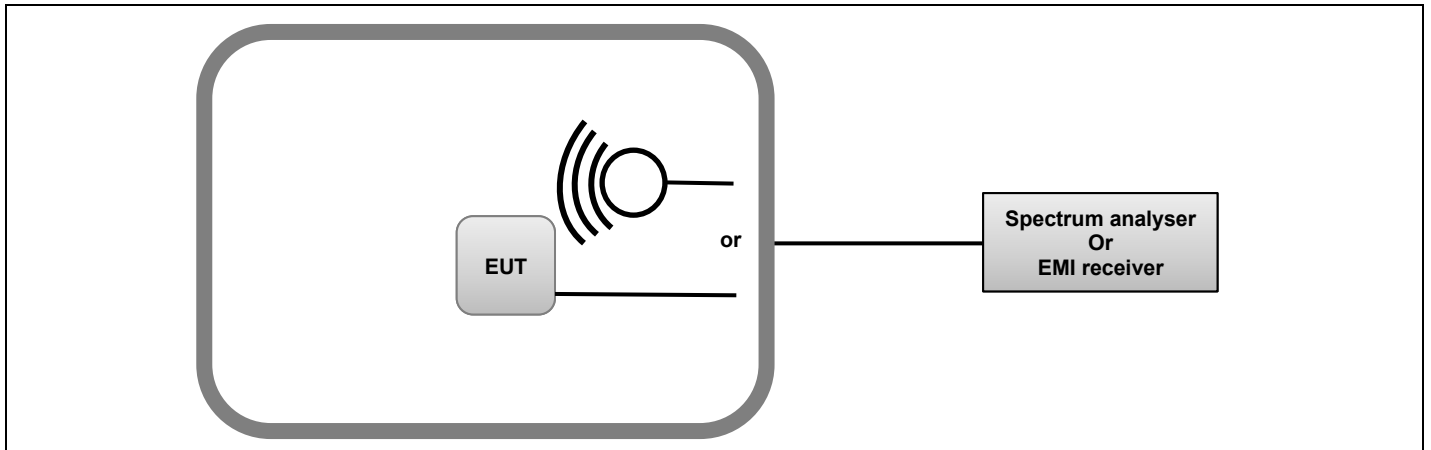
Test performed by : Majid MOURZAGH / Akram HAKKARI
Date of test : April 6, 2023
Ambient temperature : 21 °C
Relative humidity : 38 %

7.2. TEST SETUP

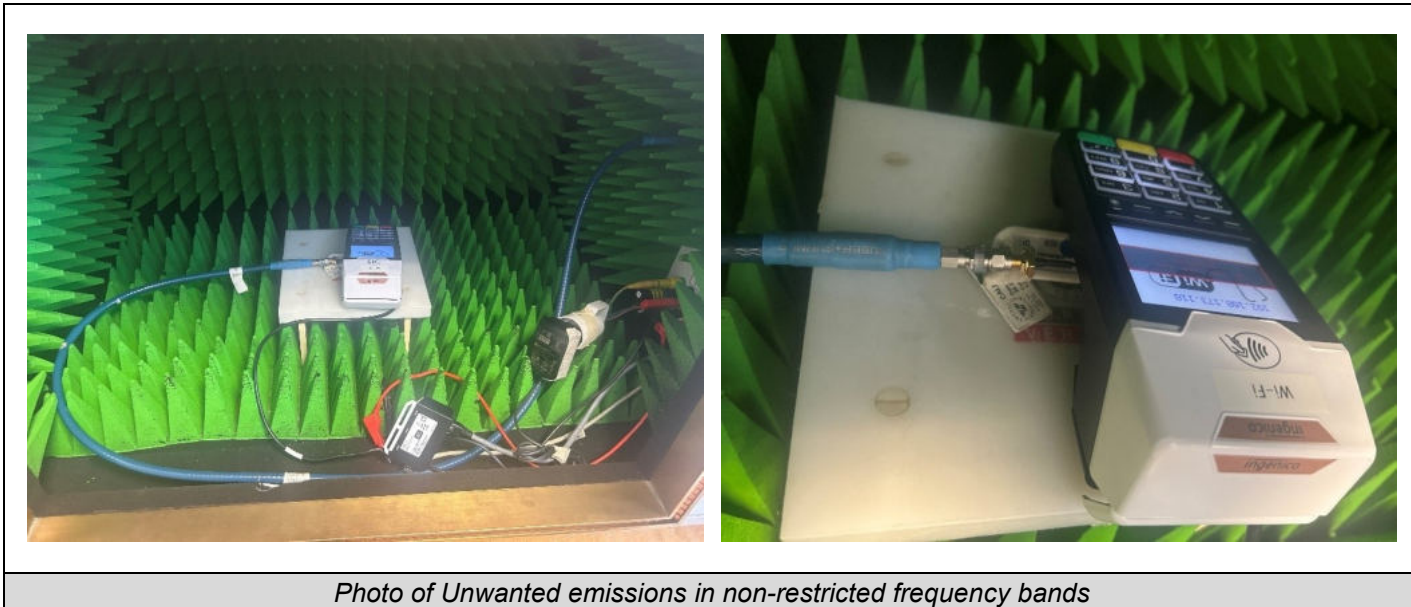
The Equipment Under Test is installed in an anechoic chamber.
Measurement is performed with a spectrum analyzer in conducted method.

The EUT is turned ON, the captured power is measured and recorded; the measurement is repeated until all frequencies required were complete.

Test Procedure:
KDB 558074 D01 DTS Meas Guidance v05r02 § 8.5



Test setup of Unwanted emissions in non-restricted frequency bands



7.3. LIMIT

All Spurious Emissions must be at least 20dB below the Fundamental Radiator Level at the Band Edge of operating frequency band and in non-restricted bands.

7.4. TEST EQUIPMENT LIST

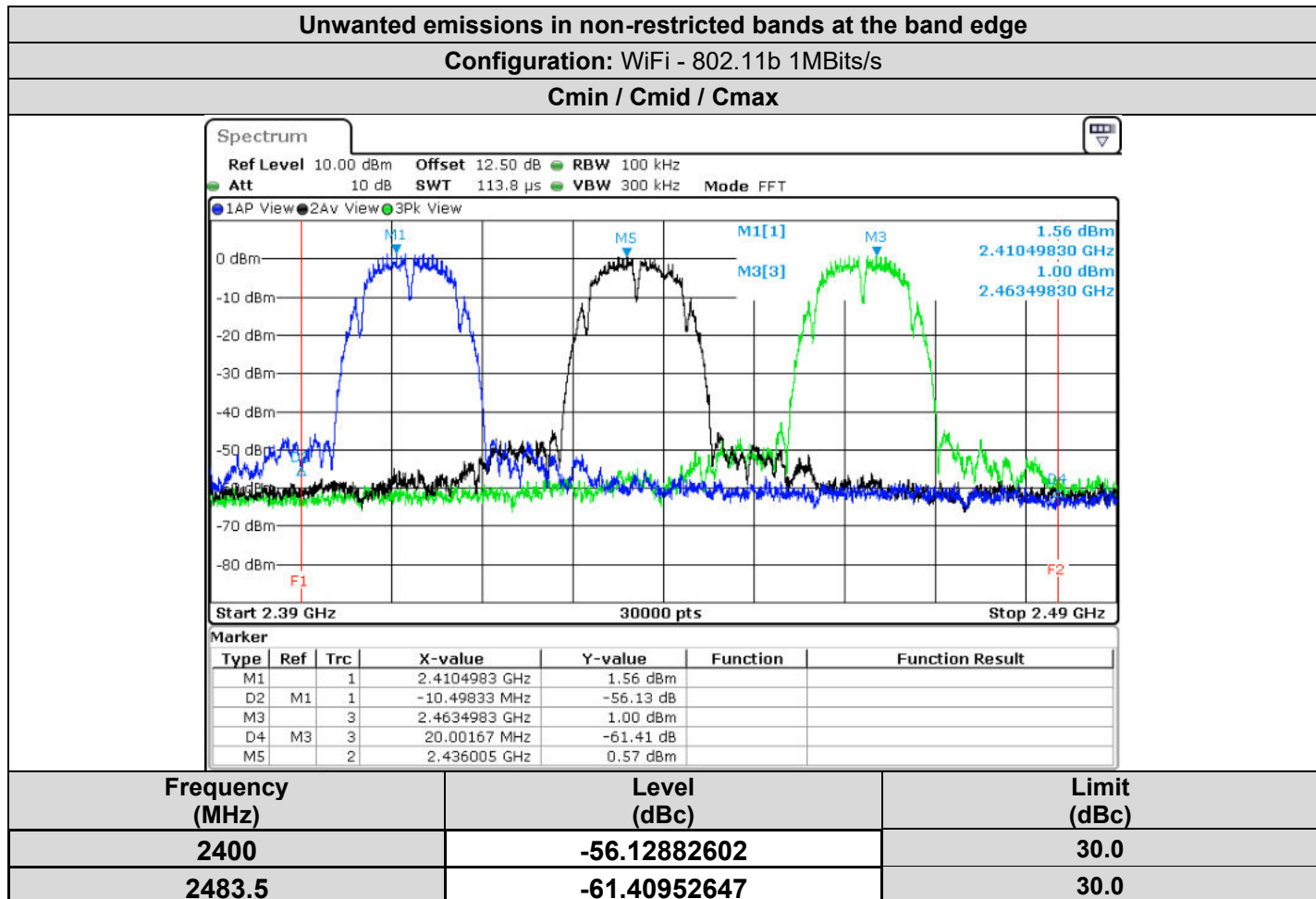
TEST EQUIPMENT USED					
Description	Manufacturer	Model	Identifier	Cal_Date	Cal_Due
Attenuator 10dB	AEROFLEX	–	A7122267	08/21	08/23
Comb EMR HF	YORK	CGE01	A3169114		
Full Anechoic Room	SIEPEL	–	D3044024		
Multimeter - CEM	FLUKE	87	A1240251	03/21	03/23
SMA 1.5m	SUCOFLEX	18GHz	A5329863	05/22	05/23
Spectrum analyzer	ROHDE & SCHWARZ	FSV 40	A4060059	11/21	11/23
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	01/21	05/23
SMA 1.5m	SUCOFLEX	18GHz	A5329864	09/22	09/23

7.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

7.6. RESULTS

7.6.1. At the band edge



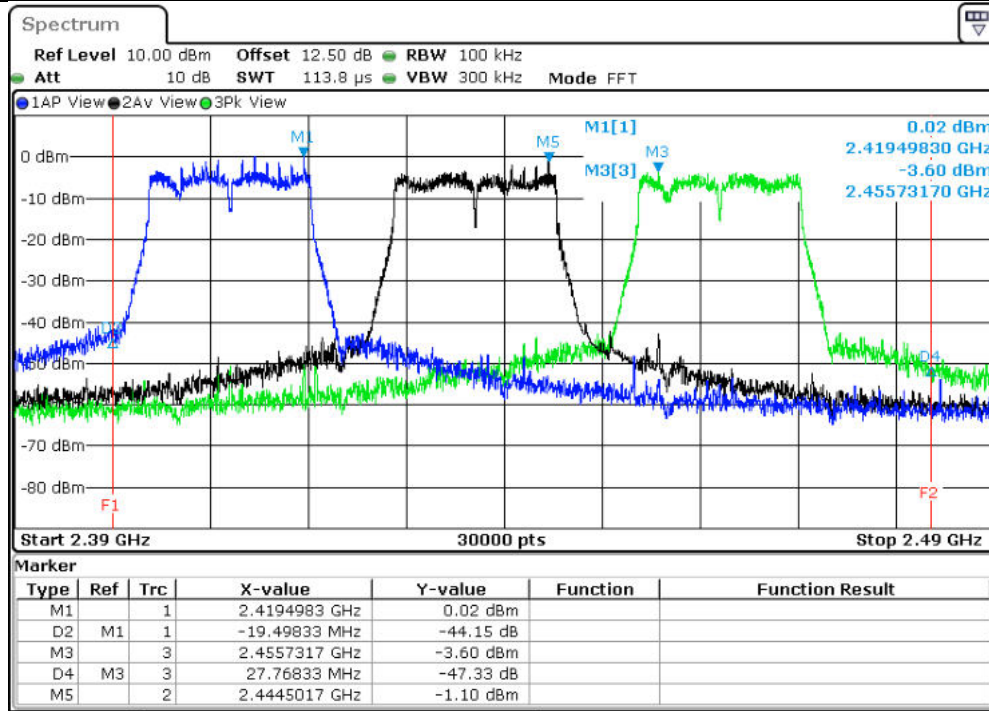


L C I E

Unwanted emissions in non-restricted bands at the band edge

Configuration: WiFi - 802.11g 6Mbits/s

Cmin / Cmid / Cmax



Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	-44.14611659	30.0
2483.5	-47.32757497	30.0

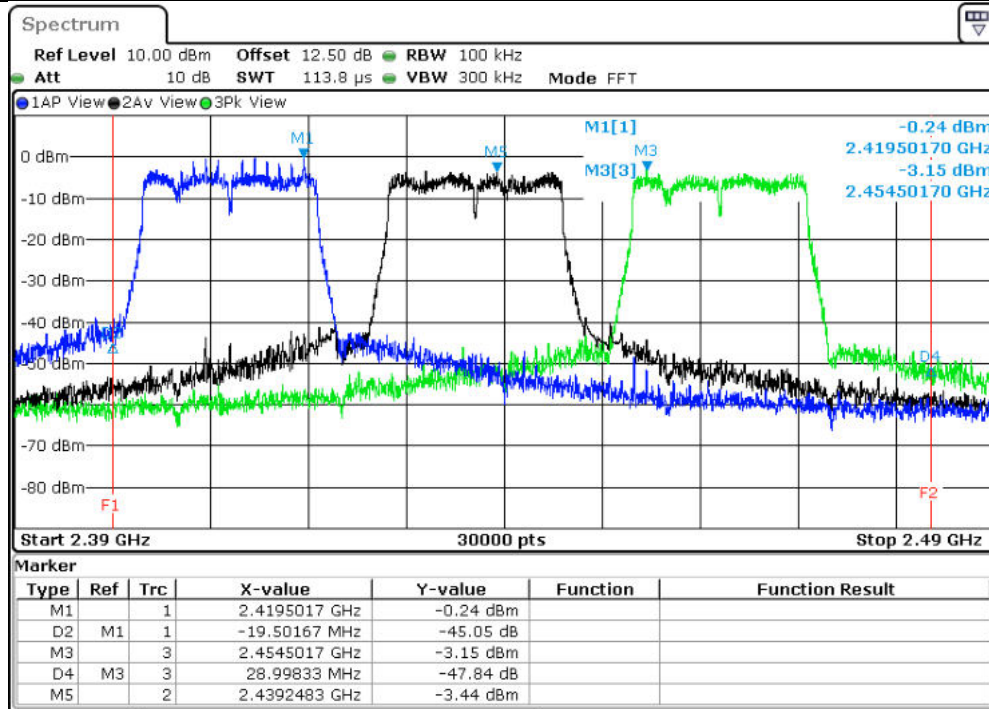


L C I E

Unwanted emissions in non-restricted bands at the band edge

Configuration: WiFi - 802.11n HT20 MCS0

Cmin / Cmid / Cmax



Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	-45.05104841	30
2483.5	-47.84226251	30

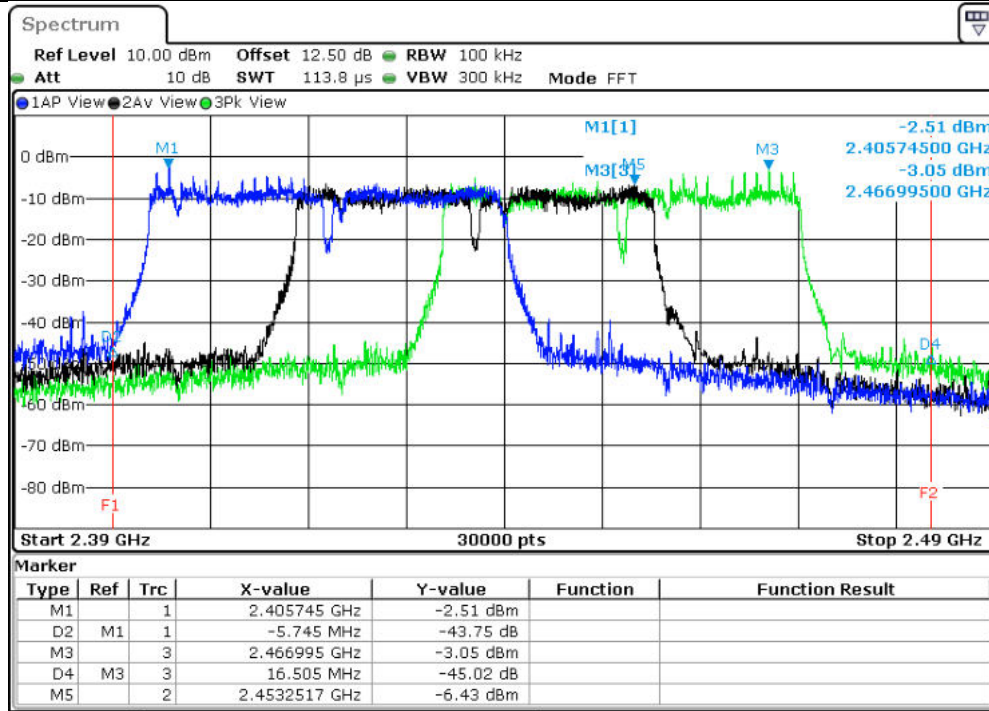


L C I E

Unwanted emissions in non-restricted bands

Configuration: WiFi - 802.11n HT40 MCS0

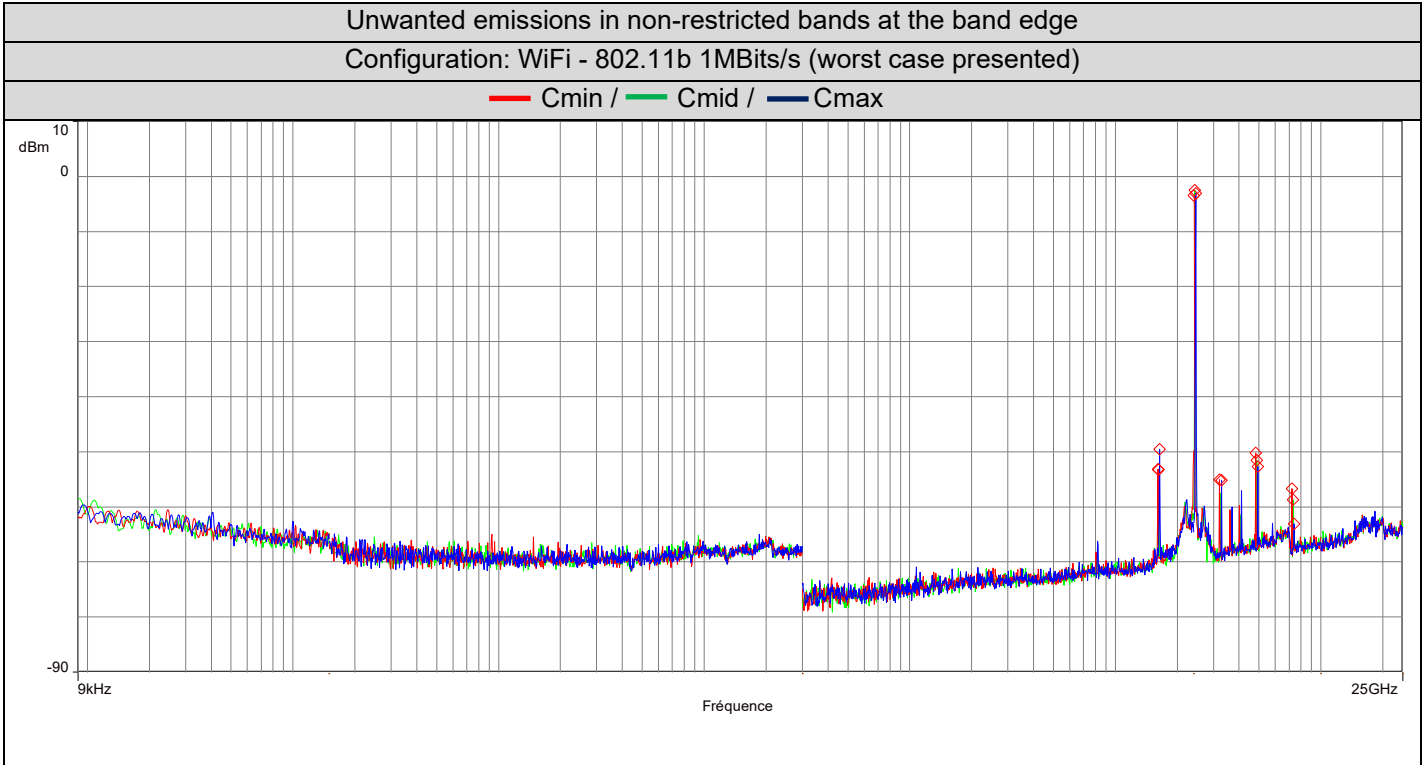
Cmin / Cmid / Cmax



Frequency (MHz)	Level (dBc)	Limit (dBc)
2400	-43.74680543	30.0
2483.5	-45.02269268	30.0



7.6.2. Non restricted frequency bands



Frequency (MHz)	Level (dBm)	Level (dBc)	Limit (dBc)
2412	-3.41		
1608.025	-53.14	-49.73	30
4824	-50.16	-46.75	30
7236	-56.67	-53.26	30
2437	-2.48		
1624.694	-53.25	-50.77	30
4874	-54.98	-52.5	30
7301	-65.13	-62.65	30
2462	-3.04		
1641.363	-49.54	-46.5	30
4924	-52.68	-3.14	30
7386	-63.08	-10.4	30

7.7. CONCLUSION

Unwanted emissions in non-restricted bands and at the band edge measurement performed on the sample of the product Desk/2600, Sn: 230587317081327729816898 , in configuration and description presented in this test report, show levels compliant to the 47 CFR PART 15.247 & RSS 247 limits.



8. UNWANTED EMISSIONS IN RESTRICTED FREQUENCY BANDS

8.1. TEST CONDITIONS

Date of test	: March 20, 2023	March 21, 2023
Test performed by	: Majid MOURZAGH	Majid MOURZAGH
Relative humidity (%)	: 41	40
Ambient temperature (°C)	: 22	21

8.2. TEST SETUP

Test procedure:
ANSI C63.10 & FCC Part 15 subpart C

Following frequency ranges, test setup parameters are different and specified in this table:

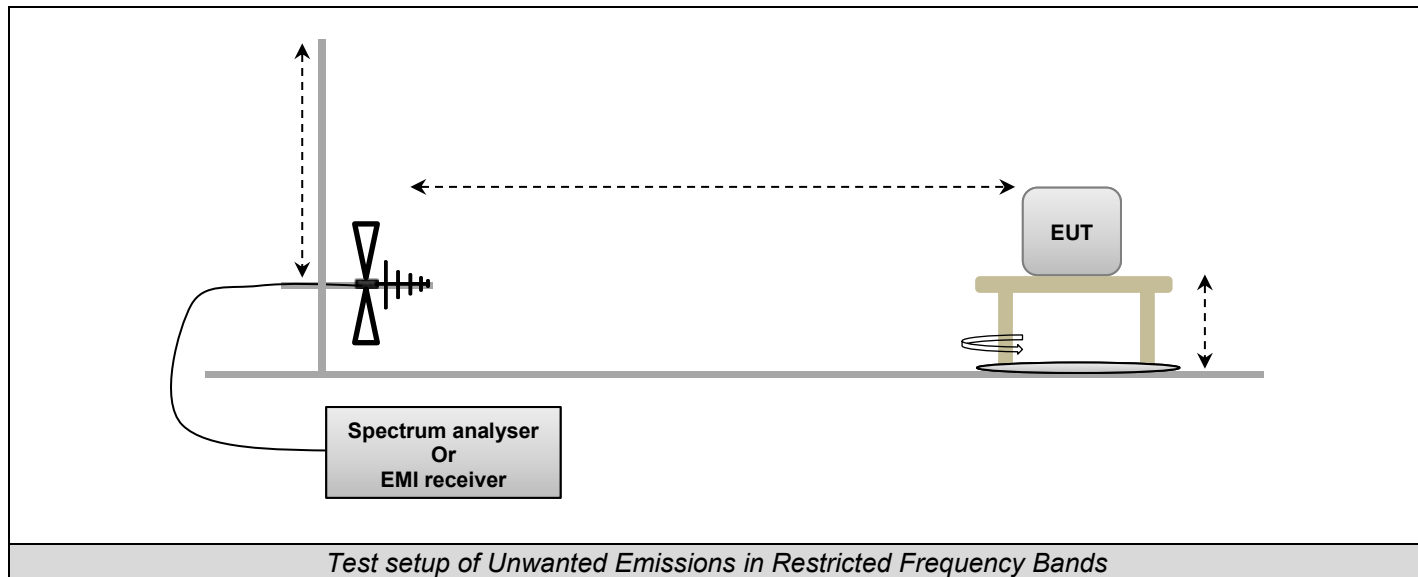
Frequency range:	9kHz to 30MHz	
Test:	Pre-Characterization	Qualification
Antenna Polarization:	Parallel, Perpendicular and Ground parallel	
Antenna Height:	1m	Varied from 1m to 4m
Antenna Type:	Loop	
RBW Filter:	200Hz below 150kHz / 9kHz above 150kHz	
Maximization:	Turntable rotation of 360 degrees range	
EUT height:	1.5m	1.0m
Test site:	Full Anechoic Chamber	Open Aera Test Site
Distance EUT - Antenna:	3m	10m
Detector:	Peak	QPeak

Frequency range:	30MHz to 1GHz	
Test:	Pre-Characterization	Qualification
Antenna Polarization:	Horizontal and Vertical	
Antenna Height:	Centered on EUT (§6.6.5 ANSI C63-10)	Varied from 1m to 4m
Antenna Type:	Bi-Log	
RBW Filter:	120kHz	
Maximization:	Turntable rotation of 360 degrees range	
EUT height:	1.5m	0.8m
Test site:	Full Anechoic Chamber	Open Aera Test Site
Distance EUT - Antenna:	3m	3m
Detector:	Peak	QPeak



Frequency range:	1GHz to 14GHz	
Test:	Pre-Characterization	Qualification
Antenna Polarization:	Horizontal and Vertical	
Antenna Height:	Centered on EUT (§6.6.5 ANSI C63-10)	Centered on EUT (§6.6.5 ANSI C63-10)
Antenna Type:	Horn	
RBW Filter:	1MHz	
Maximization:	Turntable rotation of 360 degrees range	
EUT height:	1.5m	1.5m
Test site:	Full Anechoic Chamber	Full Anechoic Chamber
Distance EUT - Antenna:	3m	3m
Detector:	Peak & Average	Peak & Average

Frequency range:	14GHz to 25GHz	
Test:	Pre-Characterization	Qualification
Antenna Polarization:	Horizontal and Vertical	
Antenna Height:	Centered on EUT (§6.6.5 ANSI C63-10)	Centered on EUT (§6.6.5 ANSI C63-10)
Antenna Type:	Horn	
RBW Filter:	1MHz	
Maximization:	Turntable rotation of 360 degrees range	
EUT height:	1.5m	1.5m
Test site:	Full Anechoic Chamber	Full Anechoic Chamber
Distance EUT - Antenna:	1m	1m
Detector:	Peak & Average	Peak & Average

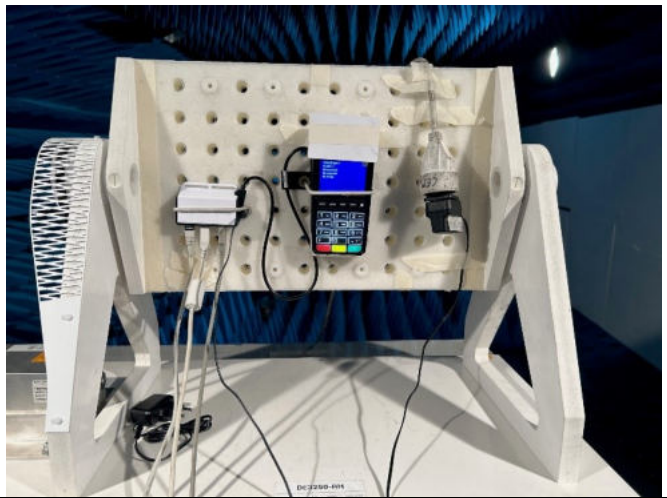
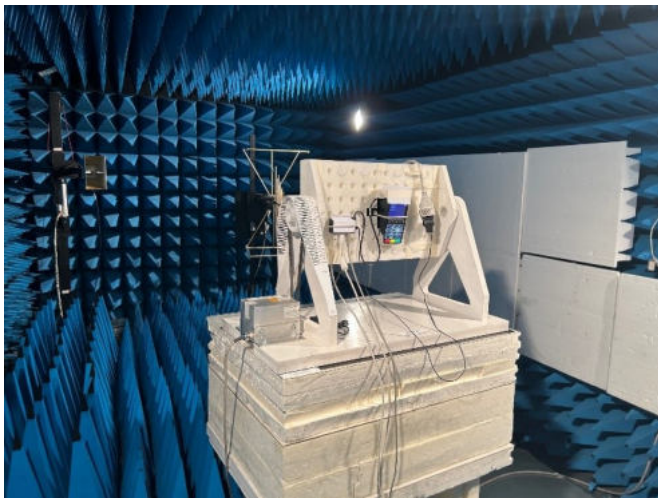




L C I E



Axis XY on FAR

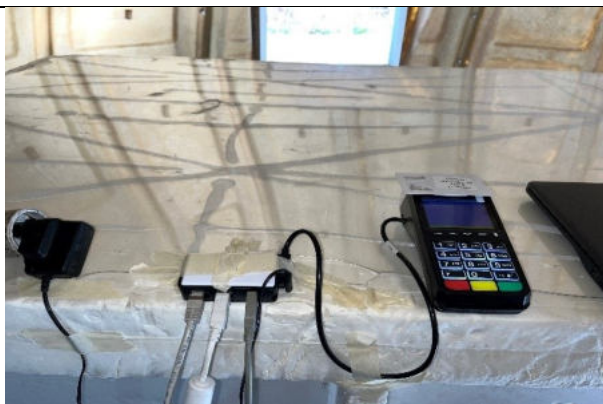


Axis Z on FAR

Photo of Unwanted Emissions in Restricted Frequency Bands



General Setup OATS



Axis XY



Axis Z

Photo of Unwanted Emissions in Restricted Frequency Bands



8.3. LIMIT

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



8.4. TEST EQUIPMENT LIST

TEST EQUIPMENT USED					
Description	Manufacturer	Model	Identifier	Cal_Date	Cal_Due
Amplifier 10MHz - 18GHz	LCIE SUD EST	–	A7102082	05/22	05/24
Antenna Bi-log	AH System	SAS-521-7	C2040180	02/21	02/23
Antenna horn 18GHz	EMCO	3115	C2042029	03/22	03/25
Antenna loop	ELECTRO-METRICS	EM-6879	C2040294	08/22	08/24
BAT EMC	NEXIO	v3.21.0.32	L1000115		
Cable 0.75m	-	18GHz	A5329900	08/22	08/24
Comb EMR HF	YORK	CGE01	A3169114		
CONTROLLER	INNCO	CO3000	D3044034		
Filtre 0.8GHz-18GHz	PASTERNAK	PE87FL1018	A7484075	12/22	12/24
Multimeter - CEM	FLUKE	189	A1240171	09/21	09/23
Rehausse Table C3	LCIE	–	F2000511		
Rehausse Table C3	LCIE	–	F2000507		
Semi-Anechoic chamber #3 (BF)	SIEPEL	–	D3044017_BF	04/22	04/25
Semi-Anechoic chamber #3 (VSWR)	SIEPEL	–	D3044017_VSWR	04/22	04/25
SMA Cable 18GHz 0.5m	TELEDYNE	18GHz	A5330059	02/23	02/24
SMA Cable 18GHz 0.5m	TELEDYNE	18GHz	A5330060	02/23	02/24
SMA Cable 18GHz 0.6m	TELEDYNE	18GHz	A5330055	02/23	02/24
SMA Cable 18GHz 3.5m	TELEDYNE	18GHz	A5330058	02/23	02/24
SMA Cable 18GHz 6m	TELEDYNE	18GHz	A5330057	02/23	02/24
Spectrum analyzer	ROHDE & SCHWARZ	FSU 26	A4060058	09/21	09/23
Table C3	LCIE	–	F2000461		
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	01/21	05/23
TILT	INNCO	TILT	D3044033		
Turntable chamber (Cage#3)	ETS Lingren	Model 2165	F2000371		
Turntable controller (Cage#3)	ETS Lingren	Model 2090	F2000444		
Antenna Mat (OATS)	ETS Lingren	2071-2	F2000392		
Biconic Antenna	EATON	94455-1	C2040234	03/21	03/23
Cable (OATS)	–	1GHz	A5329623	09/22	09/23
Emission Cable	CABELTEL	6GHz	A5329069	05/22	05/23
Emission Cable	MICRO-COAX	1GHz	A5329656	08/22	08/23
Emission Cable	RADIALEX		A5329061	08/22	08/23
OATS	–	–	F2000409	07/22	07/23
Table C1/OATS	LCIE	–	F2000445		
Turntable (OATS)	ETS Lingren	Model 2187	F2000403		



8.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

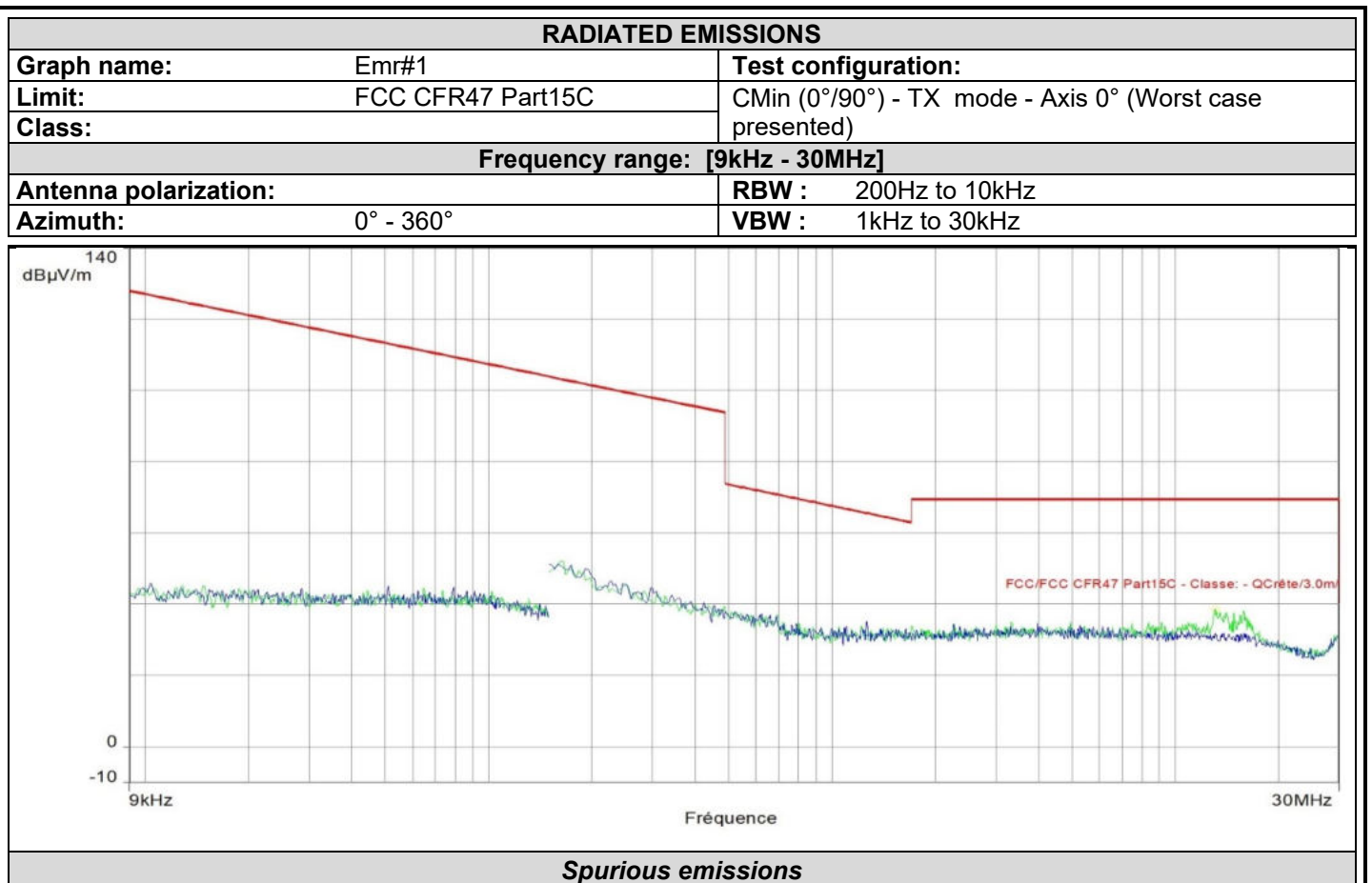
8.6. RESULTS

For all following measurements, worst case is presented with different configurations and modulations of EUT.

8.6.1. 9kHz to 30MHz

Graphs – Pre characterization:

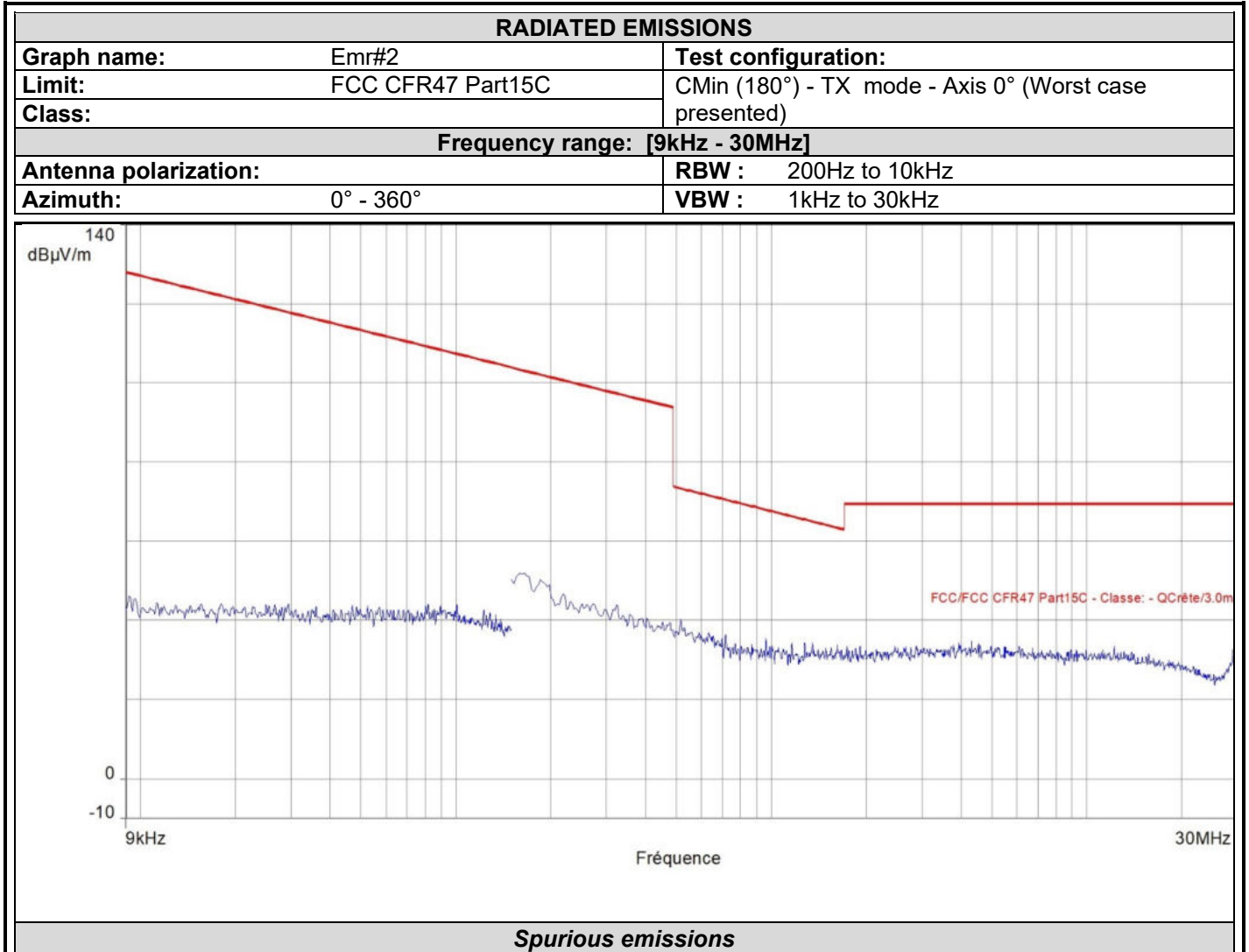
Graph identifier	Polarization	Mode	Channel	EUT position	Comments
Emr# 1	0°/90°	TX	Cmin	Axis XY/Z	See the following results
Emr# 2	180°	TX	Cmin	Axis XY/Z	See the following results
Emr# 3	0°/90°	TX	Cmid	Axis XY/Z	See the following results
Emr# 4	180°	TX	Cmid	Axis XY/Z	See the following results
Emr# 5	0°/90°	TX	Cmax	Axis XY/Z	See the following results
Emr# 6	180°	TX	Cmax	Axis XY/Z	See the following results



Spurious emissions						
Frequency (MHz)	Peak (dBµV/m)	Lim.Peak (dBµV/m)	Lim.Avg (dBµV/m)	Lim.Q-Peak (dBµV/m)	Polarization	Correction (dB)
13.033	38.7			69.5	Vertical	39.1



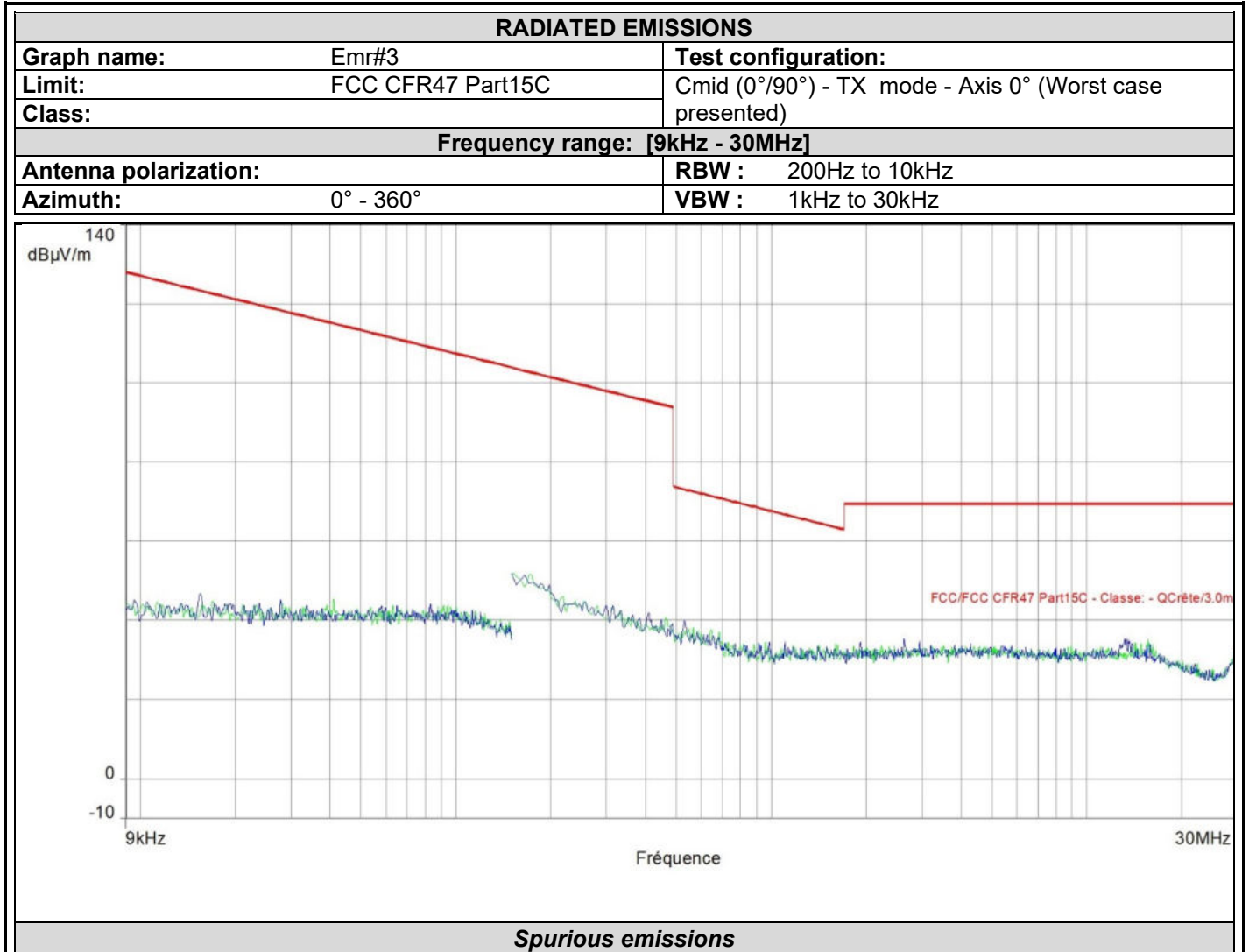
L C I E



No significant frequency observed



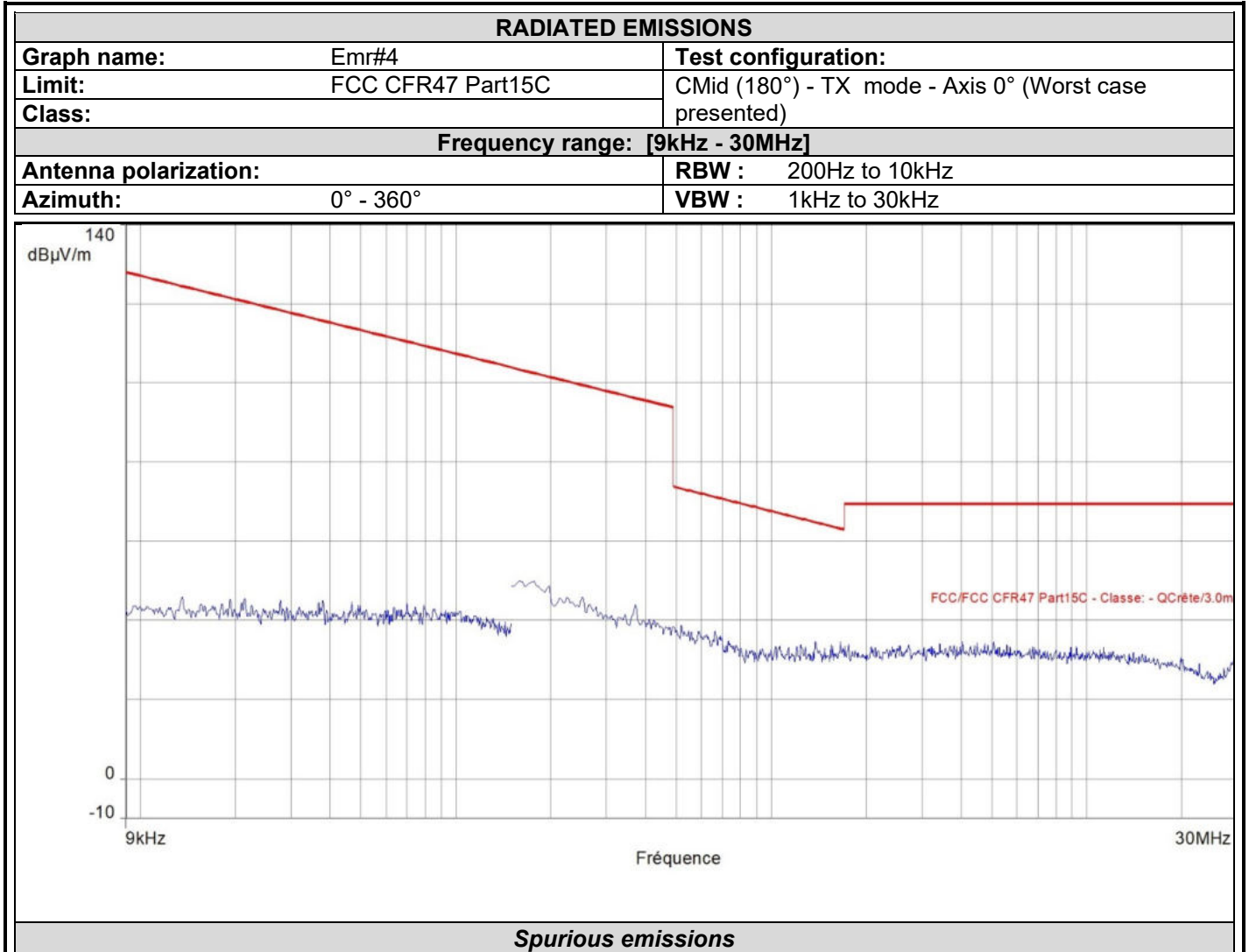
L C I E



No significant frequency observed



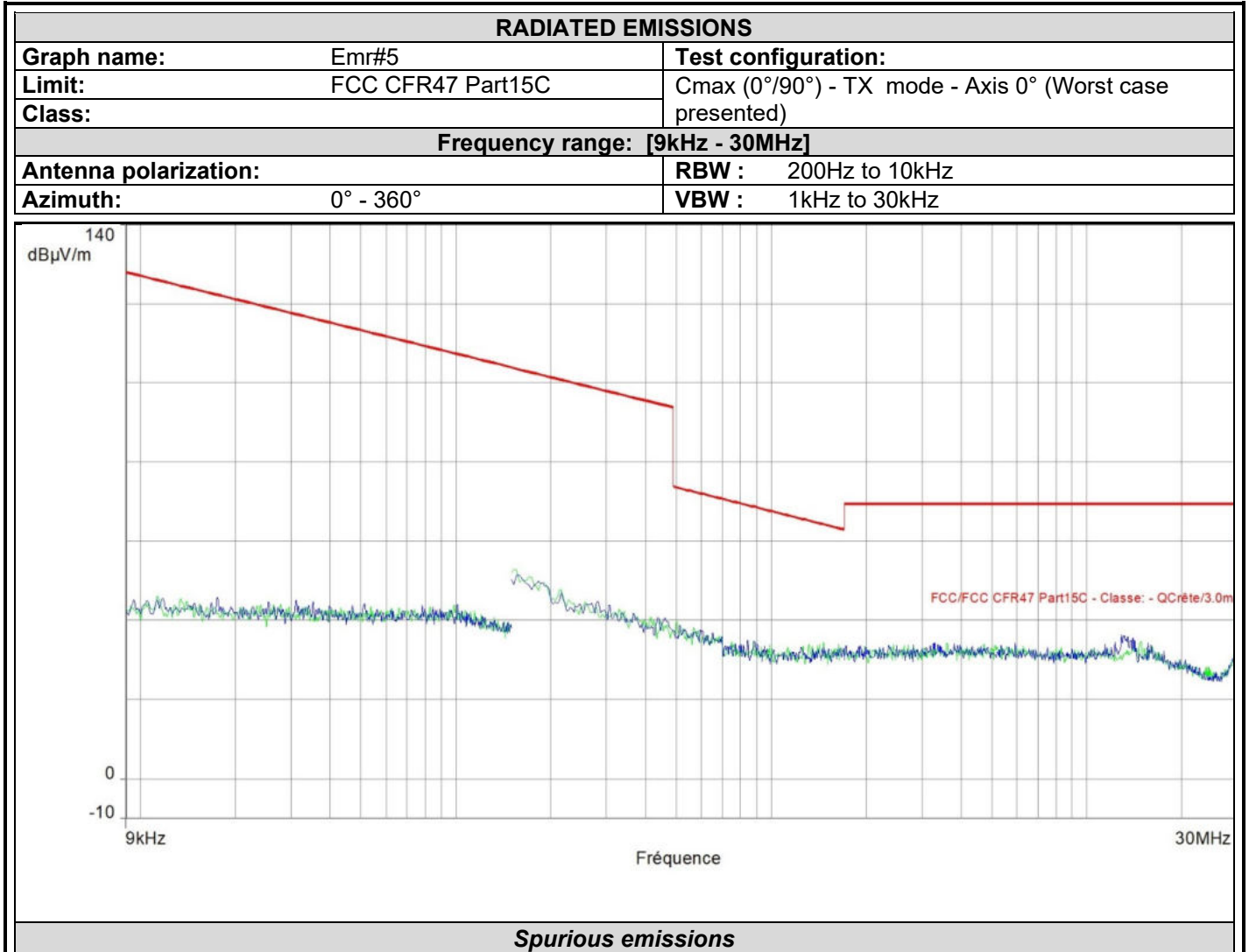
L C I E



No significant frequency observed



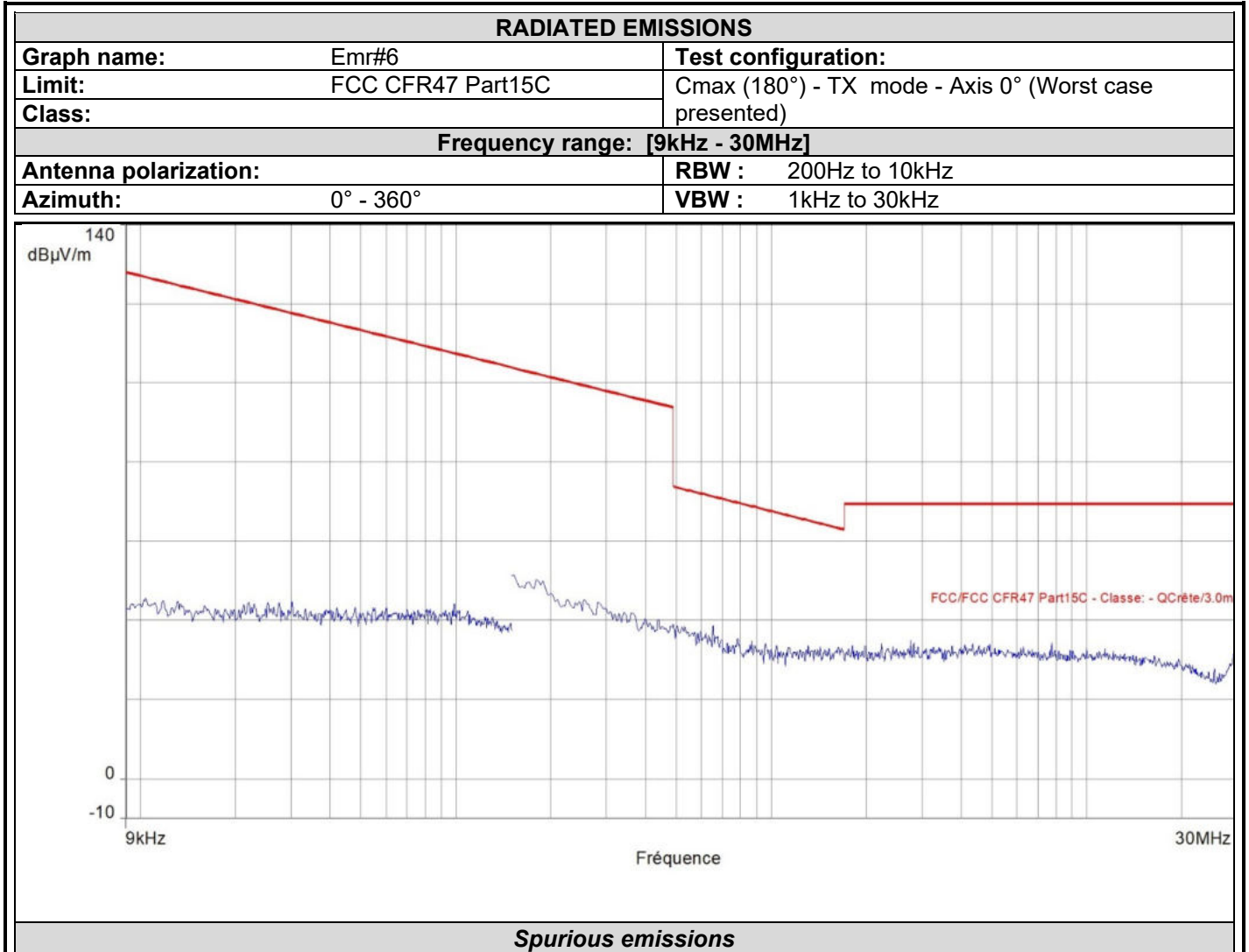
L C I E



No significant frequency observed



L C I E



No significant frequency observed

Final measurement:

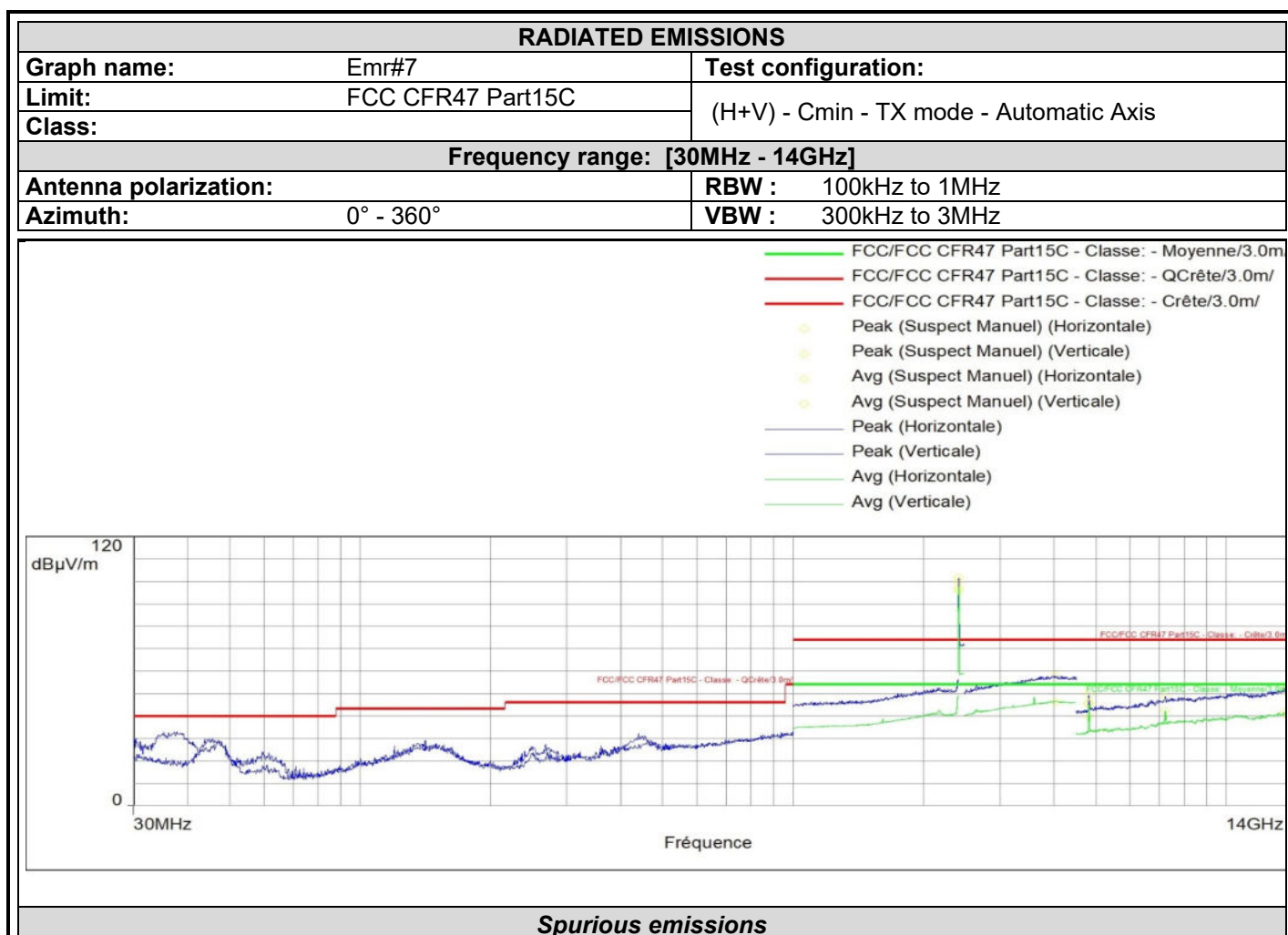
No significant frequency observed



8.6.2. 30MHz to 14GHz

Graphs – Pre characterization:

Graph identifier	Polarization	Mode	Channel	EUT position	Comments
Emr# 7	H/V	TX	Cmin	Axis XY/Z	See the following results
Emr# 8	H/V	TX	Cmid	Axis XY/Z	See the following results
Emr# 9	H/V	TX	Cmax	Axis XY/Z	See the following results

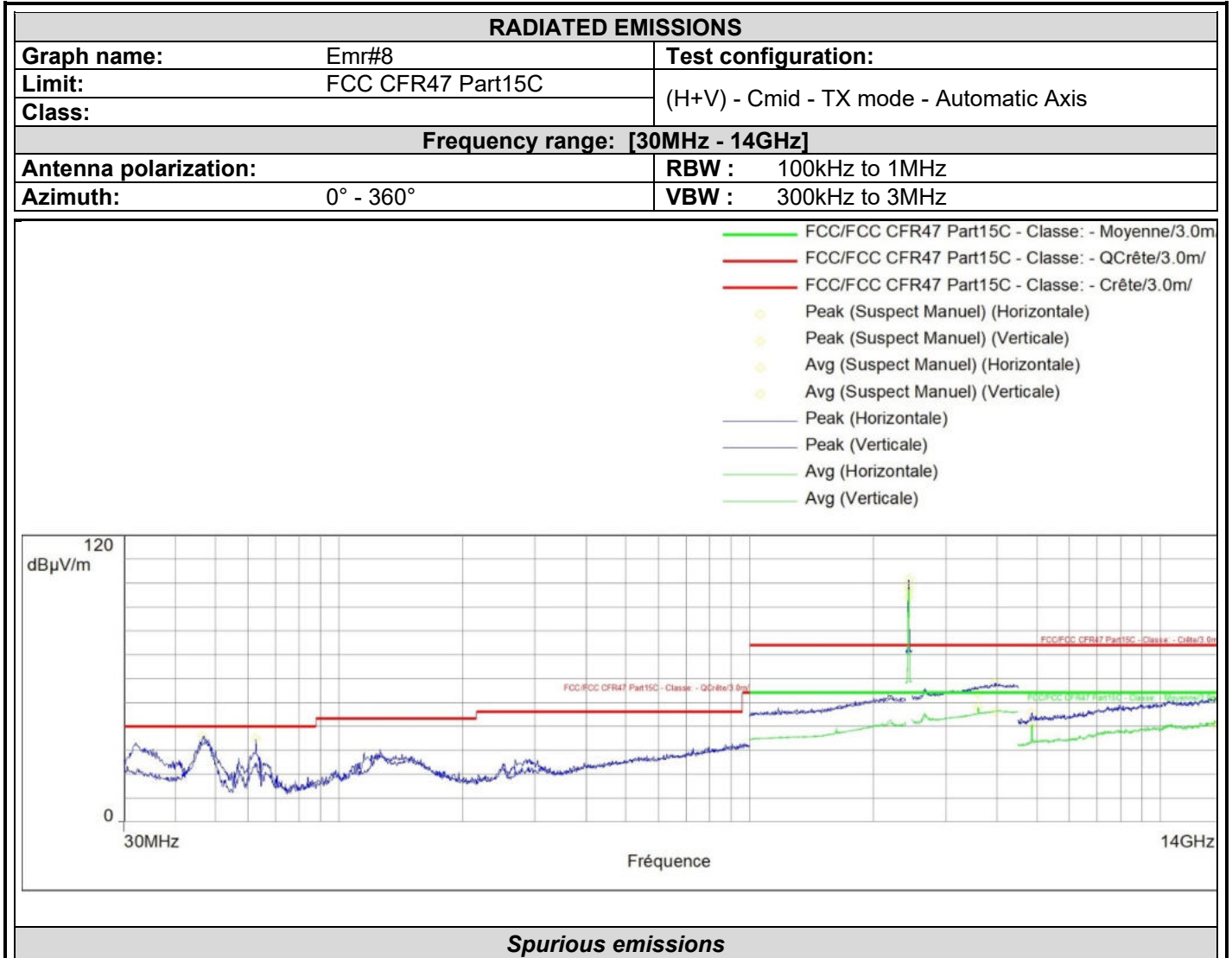


Frequency (MHz)	Peak (dBµV/m)	Lim.Peak (dBµV/m)	Avg (dBµV/m)	Lim.Avg (dBµV/m)	Polarization	Correction (dB)
2410.438*	99.8	74.0	95.5	54.0	Horizontal	34.0
4823.594	49.5	74.0	45.5	54.0	Vertical	-21.3
7236.594	48.4	74.0	42.4	54.0	Vertical	-16.2
13589.719	51.6	74.0	41.3	54.0	Vertical	-11.4
4028.542	57.8	74.0	46.2	54.0	Vertical	39.4
2410.980*	101.6	74.0	97.1	54.0	Vertical	34.0

*Carrier frequency



L C I E

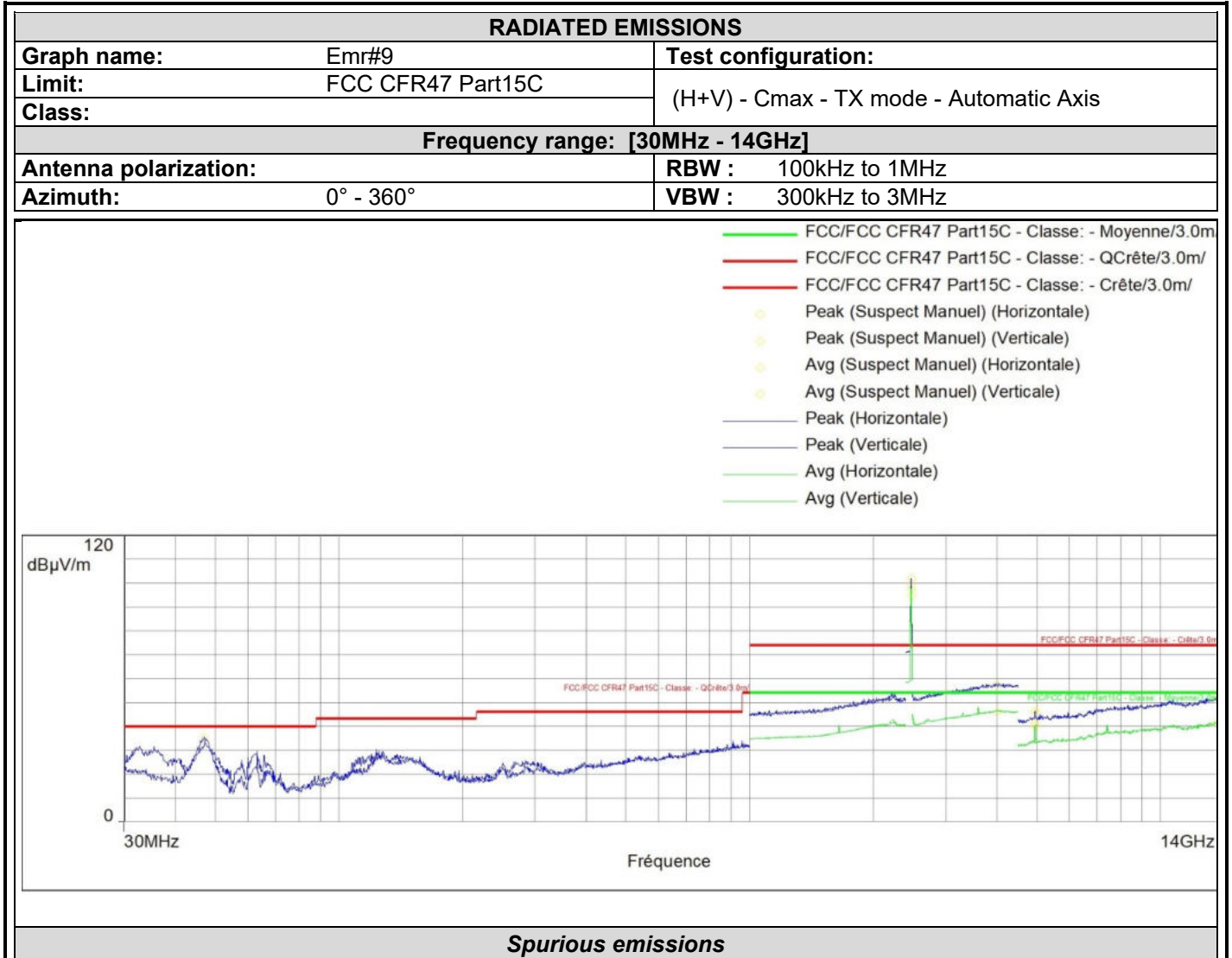


Frequency (MHz)	Peak (dBµV/m)	Lim.Peak (dBµV/m)	Avg (dBµV/m)	Lim.Avg (dBµV/m)	Lim.Q-Peak (dBµV/m)	Polarization	Correction (dB)
2435.905*	98.6	74.0	94.0	54.0		Horizontal	34.0
46.684	35.9	/	/	/	40.0	Horizontal	13.0
3958.771	58.1	74.0	46.2	54.0		Horizontal	39.3
4874.062	45.8	74.0	40.4	54.0		Vertical	-21.2
13590.906	51.7	74.0	40.8	54.0		Vertical	-11.4
3599.834	53.5	74.0	48.1	54.0		Vertical	38.3
2437.867*	101.2	74.0	96.9	54.0		Vertical	34.0
62.689	34.7	/	/	/	40.0	Vertical	9.4

*Carrier frequency



L C I E



Frequency (MHz)	Peak (dBµV/m)	Lim.Peak (dBµV/m)	Avg (dBµV/m)	Lim.Avg (dBµV/m)	Lim.Q-Peak (dBµV/m)	Polarization	Correction (dB)
2462.979*	99.4	74.0	94.7	54.0		Horizontal	34.0
47.024	35.6		/		40.0	Horizontal	12.9
4923.531	46.5	74.0	40.3	54.0		Horizontal	-21.0
13603.375	51.7	74.0	41.0	54.0		Horizontal	-11.3
4923.531	45.5	74.0	41.0	54.0		Vertical	-21.0
3996.682	57.5	74.0	46.1	54.0		Vertical	39.4
2463.062*	101.9	74.0	97.4	54.0		Vertical	34.0

*Carrier frequency

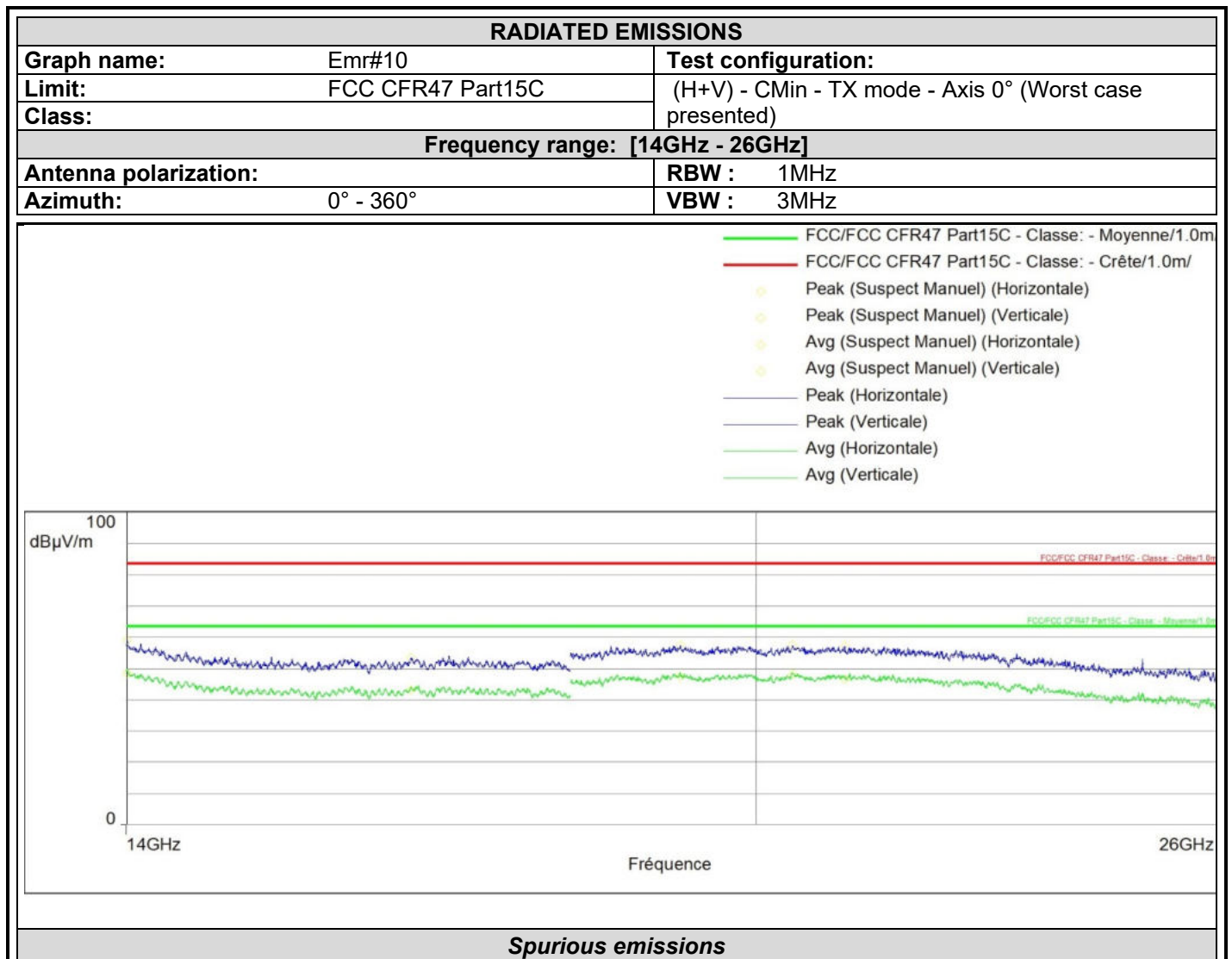
Final measurement:
No significant frequency observed



8.6.3. 1GHz to 25GHz

Graphs – Pre characterization:

Graph identifier	Polarization	Mode	Channel	EUT position	Comments
Emr# 10	H/V	TX/RX	Cmin	Axis XY/Z	See the following results
Emr# 11	H/V	TX/RX	Cmid	Axis XY/Z	See the following results
Emr# 12	H/V	TX/RX	Cmax	Axis XY/Z	See the following results

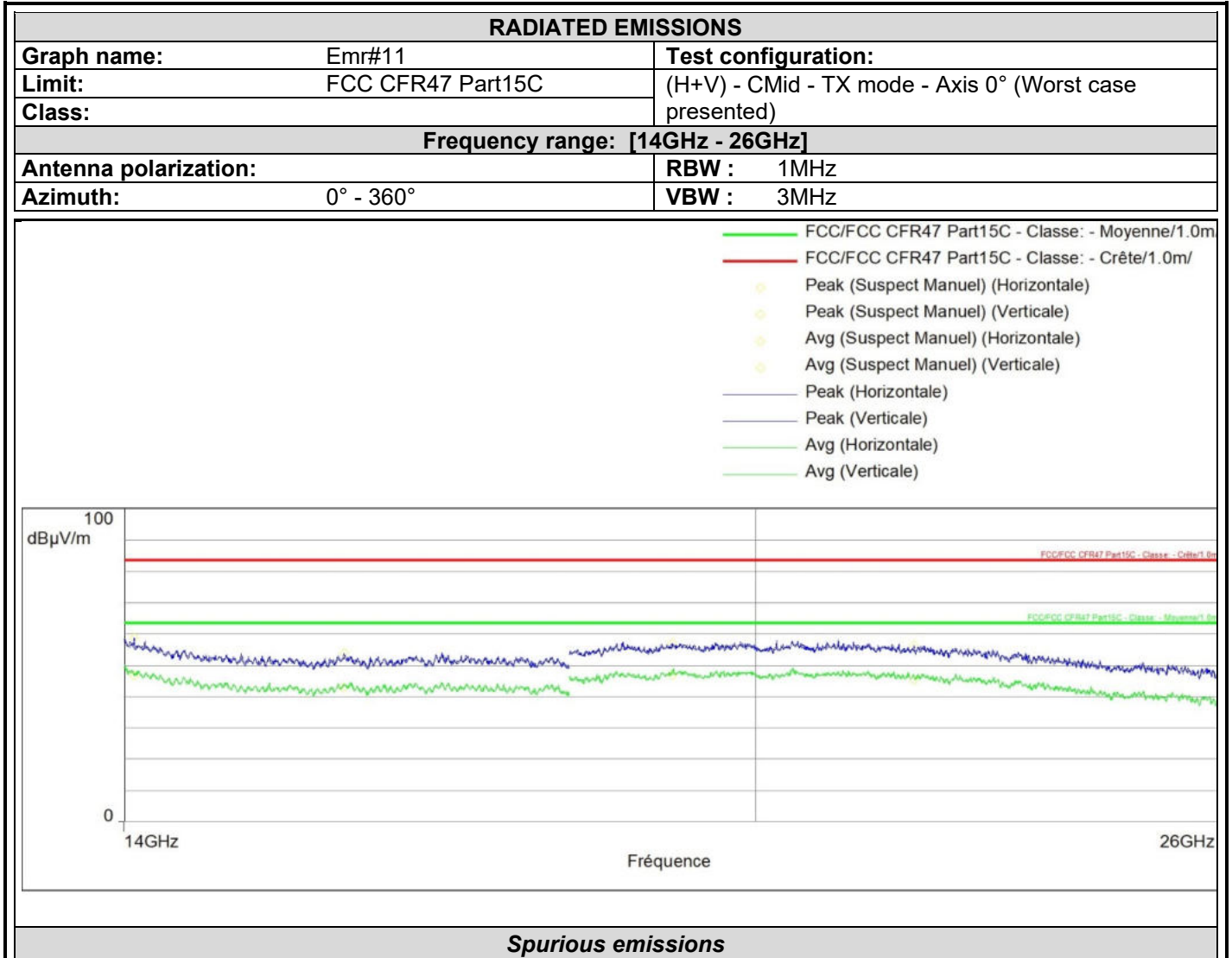


Frequency (MHz)	Peak (dBµV/m)	Lim.Peak (dBµV/m)	Avg (dBµV/m)	Lim.Avg (dBµV/m)	Polarization	Correction (dB)
14005.000	59.0	83.5	48.3	63.5	Horizontal	5.2
16445.000	53.5	83.5	42.9	63.5	Horizontal	-1.4
20415.000	57.4	83.5	48.1	63.5	Horizontal	4.0
19157.000	57.4	83.5	47.2	63.5	Vertical	3.8
21029.000	57.2	83.5	46.4	63.5	Vertical	3.4

No significant frequency observed (14GHz to 26 GHz)

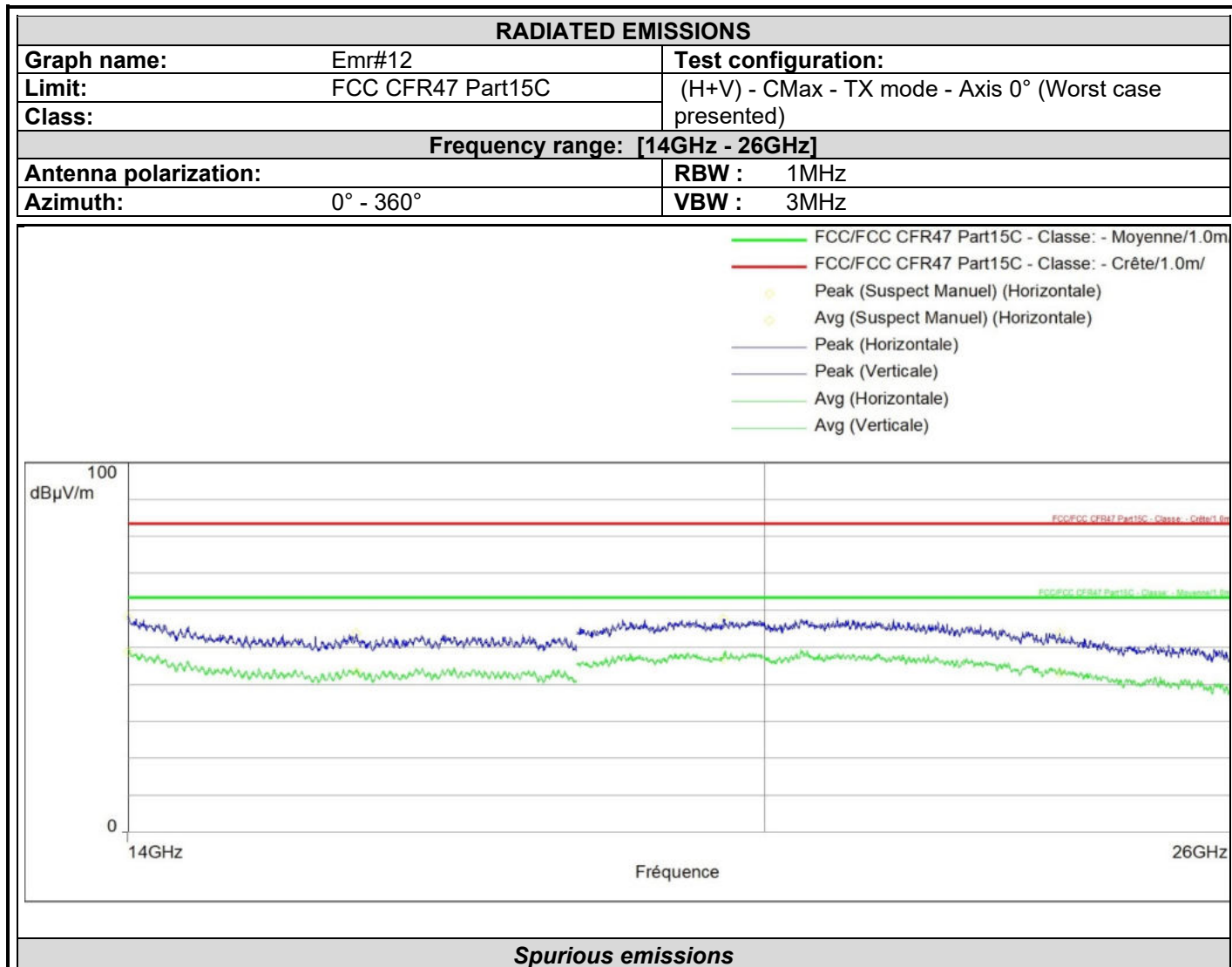


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Frequency (MHz)	Peak (dBµV/m)	Lim.Peak (dBµV/m)	Avg (dBµV/m)	Lim.Avg (dBµV/m)	Polarization	Correction (dB)
14080.500	58.9	83.5	46.5	63.5	Horizontal	4.7
15852.000	54.0	83.5	42.9	63.5	Horizontal	-1.6
19079.000	57.1	83.5	46.7	63.5	Horizontal	4.3
21867.000	56.2	83.5	45.4	63.5	Vertical	2.8

No significant frequency observed (14GHz to 26 GHz)



Frequency (MHz)	Peak (dBµV/m)	Lim.Peak (dBµV/m)	Avg (dBµV/m)	Lim.Avg (dBµV/m)	Polarization	Correction (dB)
14001.000	58.4	83.5	49.0	63.5	Horizontal	5.2
15908.500	53.8	83.5	43.4	63.5	Horizontal	-1.4
19545.000	57.7	83.5	47.0	63.5	Horizontal	3.6
23592.000	53.8	83.5	43.0	63.5	Horizontal	3.9

No significant frequency observed (14GHz to 26 GHz)

Final measurement:

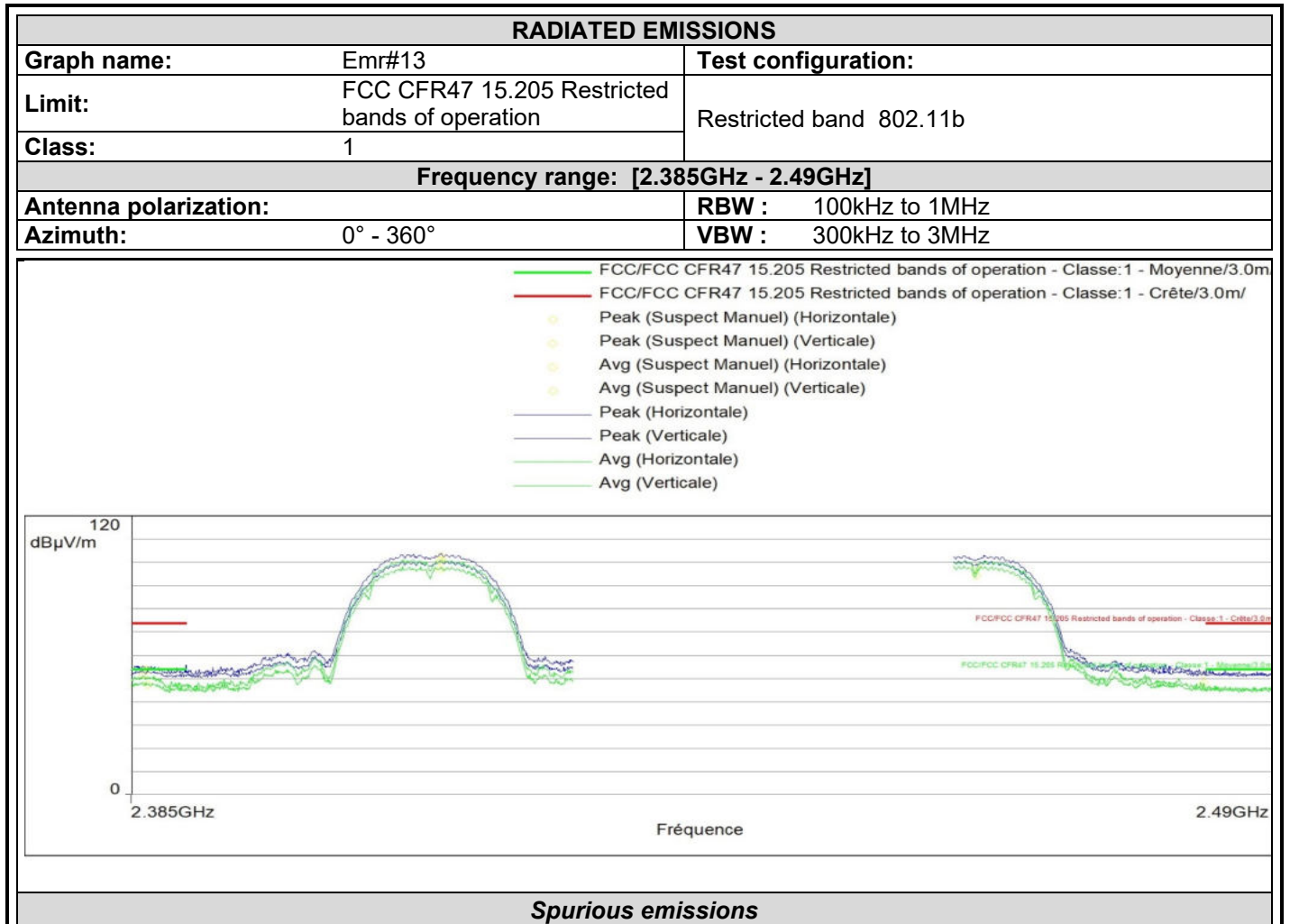
No significative frequency observed



8.6.4. Restricted Band

Graphs – Pre characterization:

Graph identifier	Polarization	Mode	Channel	EUT position	Comments
Emr# 13	H/V	TX/RX	Cmin & Cmax	Axis XY/Z	802.11b
Emr# 14	H/V	TX/RX	Cmin & Cmax	Axis XY/Z	802.11g
Emr# 15	H/V	TX/RX	Cmin & Cmax	Axis XY/Z	802.11 n20
Emr# 16	H/V	TX/RX	Cmin & Cmax	Axis XY/Z	802.11 n40

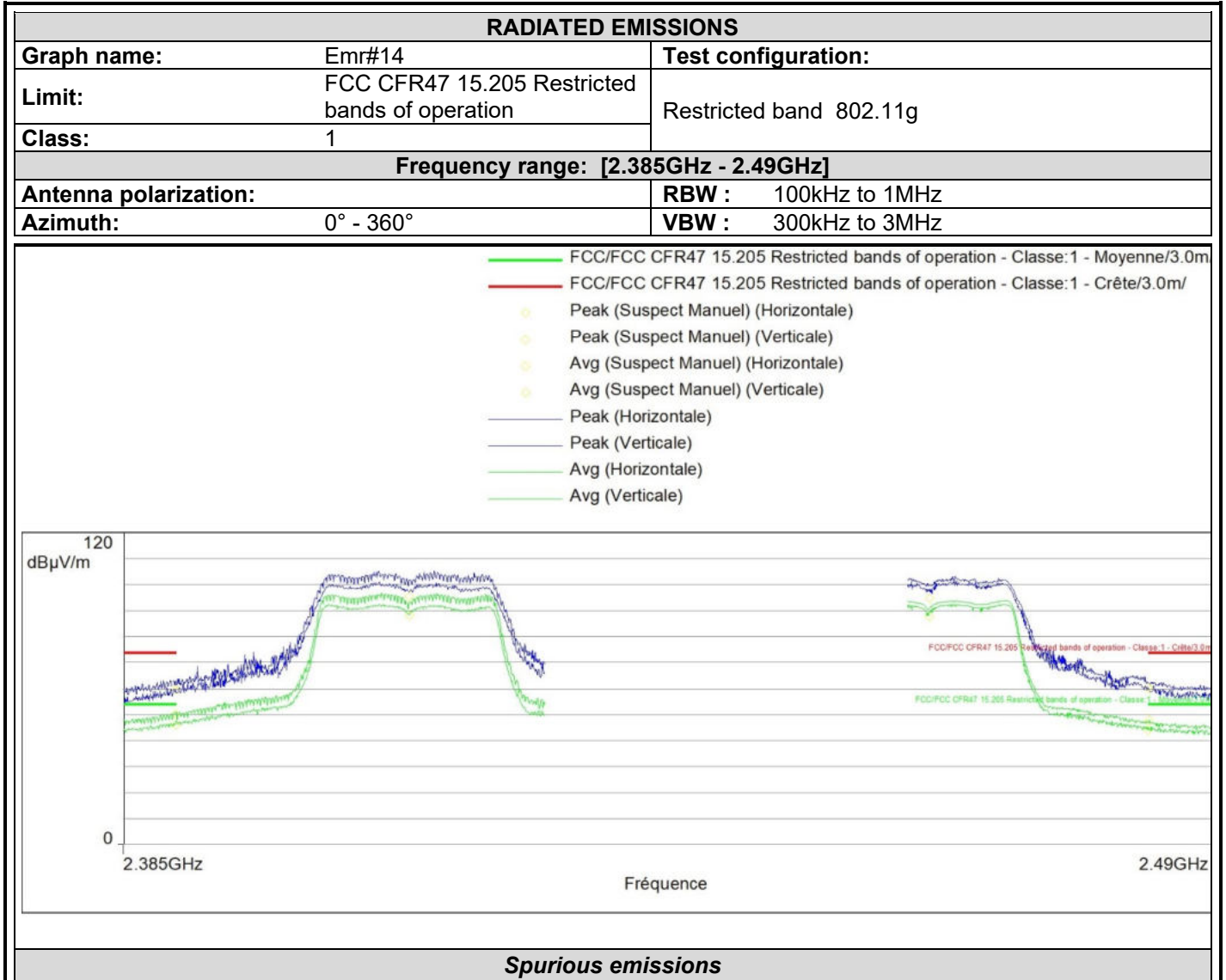


Frequency (MHz)	Peak (dBµV/m)	Lim.Peak (dBµV/m)	Avg (dBµV/m)	Lim.Avg (dBµV/m)	Polarization	Correction (dB)
2462.088	97.9		94.3		Horizontal	35.1
2483.304	51.8		48.0		Vertical	35.1
2386.480	53.7	73.9	47.2	53.9	Horizontal	34.0
2412.928	100.7		97.2		Horizontal	34.0
2386.032	54.0	73.9	51.4	53.9	Vertical	34.0
2413.024	102.8		101.3		Vertical	34.0

No significant frequency observed



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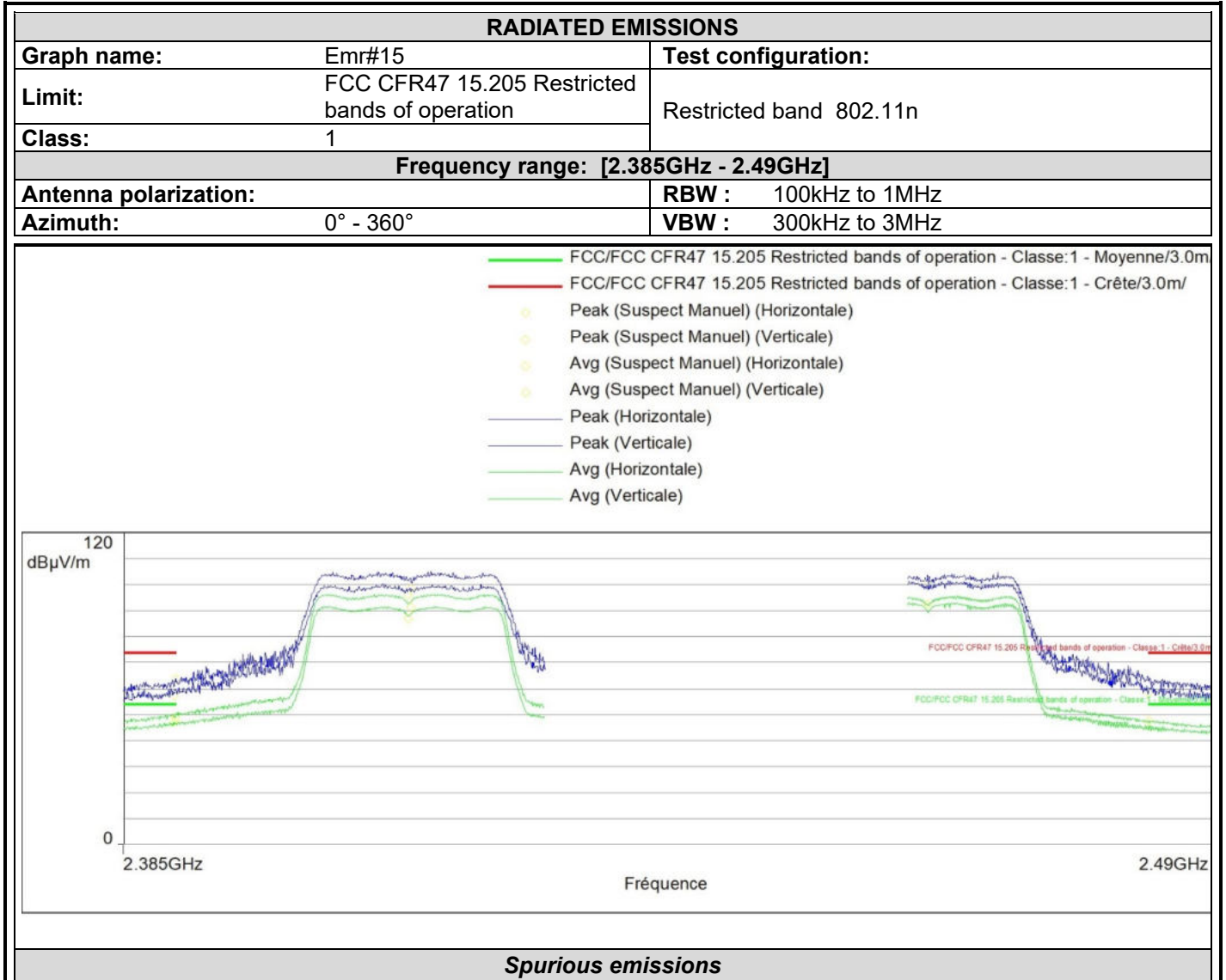
Spurious emissions

Frequency (MHz)	Peak (dBµV/m)	Lim.Peak (dBµV/m)	Avg (dBµV/m)	Lim.Avg (dBµV/m)	Polarization	Correction (dB)
2389.912	59.4	73.9	46.0	53.9	Horizontal	34.0
2412.048	95.5		88.1		Horizontal	34.0
2389.888	61.6	73.9	50.2	53.9	Vertical	34.0
2462.118	94.9		87.8		Horizontal	34.0
2483.448	60.7		43.9		Horizontal	34.0
2483.568	59.7	73.9	47.8	53.9	Vertical	34.0

No significant frequency observed



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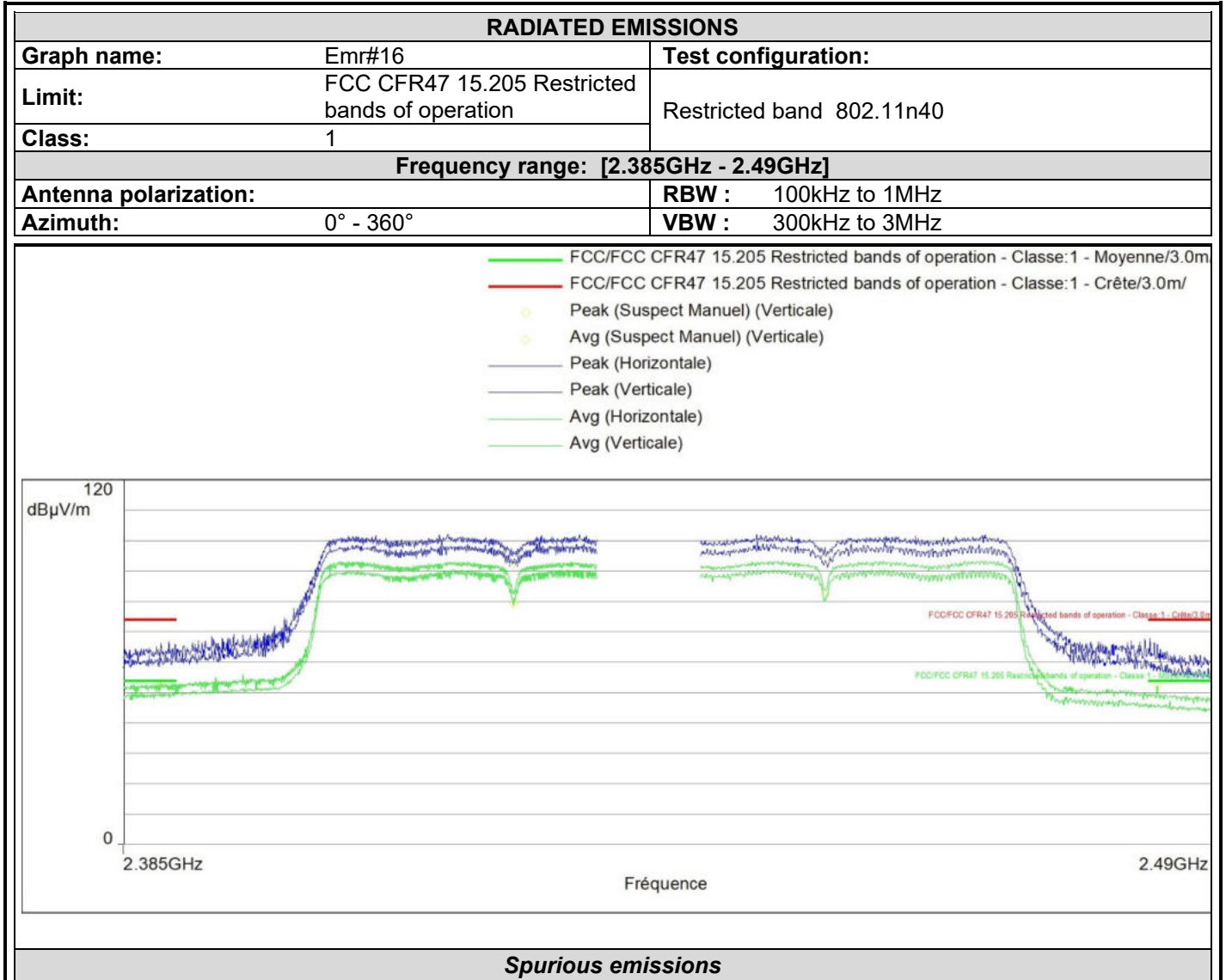


Frequency (MHz)	Peak (dBµV/m)	Lim.Peak (dBµV/m)	Avg (dBµV/m)	Lim.Avg (dBµV/m)	Polarization	Correction (dB)
2389.768	57.2	73.9	47.1	53.9	Horizontal	35.0
2411.976	96.0		86.9		Horizontal	35.1
2389.896	63.8	73.9	48.6	53.9	Vertical	35.0
2412.224	98.5		91.4		Vertical	35.1
2461.932	101.3		92.4		Vertical	35.1
2483.514	58.3	73.9	47.6	53.9	Vertical	35.1

No significant frequency observed



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Frequency (MHz)	Peak (dBµV/m)	Lim.Peak (dBµV/m)	Avg (dBµV/m)	Lim.Avg (dBµV/m)	Polarization	Correction (dB)
2388.501	62.8	73.9	53.3	53.9	Vertical	35.0
2422.053	92.2		79.2		Vertical	35.1
2452.010	94.0		82.3		Vertical	35.1
2484.390	59.8	73.9	52.2	53.9	Vertical	35.1

No significant frequency observed

8.7. CONCLUSION

Unwanted emissions in non-restricted bands measurement performed on the sample of the product Desk/2600, Sn : 230587317081327729816918, in configuration and description presented in this test report, show levels compliant to the 47 CFR PART 15.247 & RSS 247 limits.



9. UNCERTAINTIES CHART

<i>Kind of measurement</i>	<i>Wide uncertainty laboratory</i>
Occupied Channel Bandwidth	±2.8 %
Humidity	±3.2 %
Power Spectral Density, Conducted	±1.7 dB
Radio frequency	±0.3 ppm
RF power, conducted	±1.2 dB
RF power, radiated (Full anechoic chamber above 1GHz)	±3.7 dB
RF power, radiated (Semi anechoic chamber & open test site)	±5.6 dB
Spurious emission, conducted	±2.3 dB
Spurious emission, radiated (Full anechoic chamber above 1GHz)	±3.8 dB
Spurious emission, radiated (Semi anechoic chamber & open test site)	±5.7 dB
Temperature	±0.75 °C
Time	±2.3 %
Voltage	±1.7 %

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