



LCIE

WIFI 2,4GHz Template: Release August 08th, 2017

TEST REPORT

N°: 157205-726501-C

Version : 02

Subject

Radio spectrum matters
tests according to standards:
47 CFR Part 15.247 [fb](#)

Issued to

SAGEMCOM BROADBAND SAS
250 Route de l' Empereur
92500 – RUEIL MALMAISON
FRANCE

Apparatus under test

- ↻ Product
- ↻ Trade mark
- ↻ Manufacturer
- ↻ Model under test
- ↻ Serial number
- ↻ FCC ID

Sound Box
Sagemcom®
SAGEMCOM
Sound Box SBDV01
253770742
VW3SBDV01

Test date : September 14, 2018 to October 2, 2018
Test location Fontenay Aux Roses
Test Site 6230B-1
Composition of document 117 pages
Document issued on November 19, 2018

Written by :
Armand MAHOUNGOU
Tests operator



Fayette

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PUBLICATION HISTORY

Version	Date	Author	Modification
01	October 8, 2018	Armand MAHOUNGOU	Creation of the document
02	November 19, 2018	Armand MAHOUNGOU	Customer request withdraw all picture of the EUT from test report Add clarification on measurement P55-58/117 and P66-70/117 Add conducted measurement at 240V / 50 Hz P76-77/117



SUMMARY

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1. TEST PROGRAM

References

- 47 CFR Part 15.247
- KDB 558074 D01 DTS Meas Guidance v04
- KDB 662911 D01 Multiple Transmitter Output v02r01
- ANSI C63.10-2013

Radio requirement:

Clause (47CFR Part 15.247) Test Description	Test result - Comments			
Occupied Bandwidth ℞	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
6dB Bandwidth ℞	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA()	<input type="checkbox"/> NP(1)
Duty Cycle ℞	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
Maximum Conducted Output Power ℞	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
Power Spectral Density ℞	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
Conducted Spurious Emission at the Band Edge ℞	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA()	<input type="checkbox"/> NP(1)
Unwanted Emissions into Non-Restricted Frequency Bands ℞	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA()	<input type="checkbox"/> NP(1)
AC Power Line Conducted Emission ℞	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA(2)	<input type="checkbox"/> NP(1)
Unwanted Emissions into Restricted Frequency Bands ℞	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
Receiver Radiated emissions ℞	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
This table is a summary of test report, see conclusion of each clause of this test report for detail.				

(1): Limited program

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

PASS: EUT complies with standard's requirement

FAIL: EUT does not comply with standard's requirement

NA: Not Applicable

NP: Test Not Performed



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

2.1. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT):

Sagemcom® Sound Box SBDV01

Power supply : NBC80A200400M2

Serial Number: 253770742

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
Cable	Power supply	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-
Ethernet cable	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
Laptop computer	-	-	-



L C I E

Equipment information:

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

Antenna Characteristic			
Antenna assembly	Gain (dBi)	Frequency Band (MHz)	Impedance(Ω)
1	2.119	2450	50
2	1.279	2450	50
Accumulated	4.719	2450	50

Accumulated gain calculation		
Formula used for calculation	KDB	Correlated
$10 \log\left[\frac{10G_1}{20} + \frac{10G_2}{20} + \dots + \frac{10G_N}{20}\right] \frac{2}{NANT} \text{dBi}$	KDB 662911 D01 v02r01	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No



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

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



L C I E

DATA RATE		
802.11b		
Data Rate (Mbps)	Modulation Type	Modulation Worst Case
1	DBPSK	<input type="checkbox"/>
2	DQPSK	<input type="checkbox"/>
5.5	DQPSK	<input type="checkbox"/>
11	CCK	<input checked="" type="checkbox"/>

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

2.2. RUNNING MODE

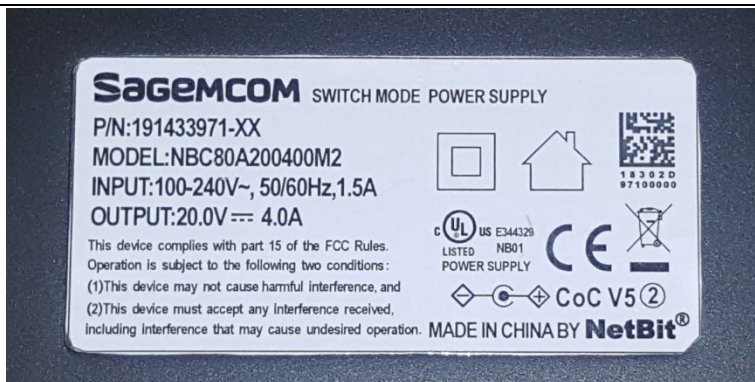
The EUT is set in the following modes during tests:


- Permanent emission with modulation on a fixed channel in the data rate that produced the highest power
- Permanent reception

Following commands with the specific test software "Tera-Term" are used to set the product:

- See document: 998049_02 - WIFI compliance test command of PONY FCC 5GHz, for the commands used during test.
- See document: SAGEMCOM_soundbox_wifi_2G_5G, for the commands used during test.

2.3. EQUIPMENT LABELLING



Factory S/N Code barre type 128	Code barre type 128	 LISTED I.T.E. E308616	SAGEMCOM Sound Box SBDV01 253770742-ind 20V --- 4A Date Code: WW/YY SSID : amplify-CCDDEE Made in CZECH Republic Manufactured under license from Dolby Laboratories. Dolby, Dolby Audio and the double-D symbol are trademarks of Dolby Laboratories.
	MSO Part Number: 12345		
	Code barre type 128		
	SGC S/N: 123456789012		
MAC Address : aa:bb:cc:dd:ee	FCC ID: VW3SBDV01		
TYM S/N : XXXXXXXXXX			

2.4. EQUIPMENT MODIFICATION

- None Modification:

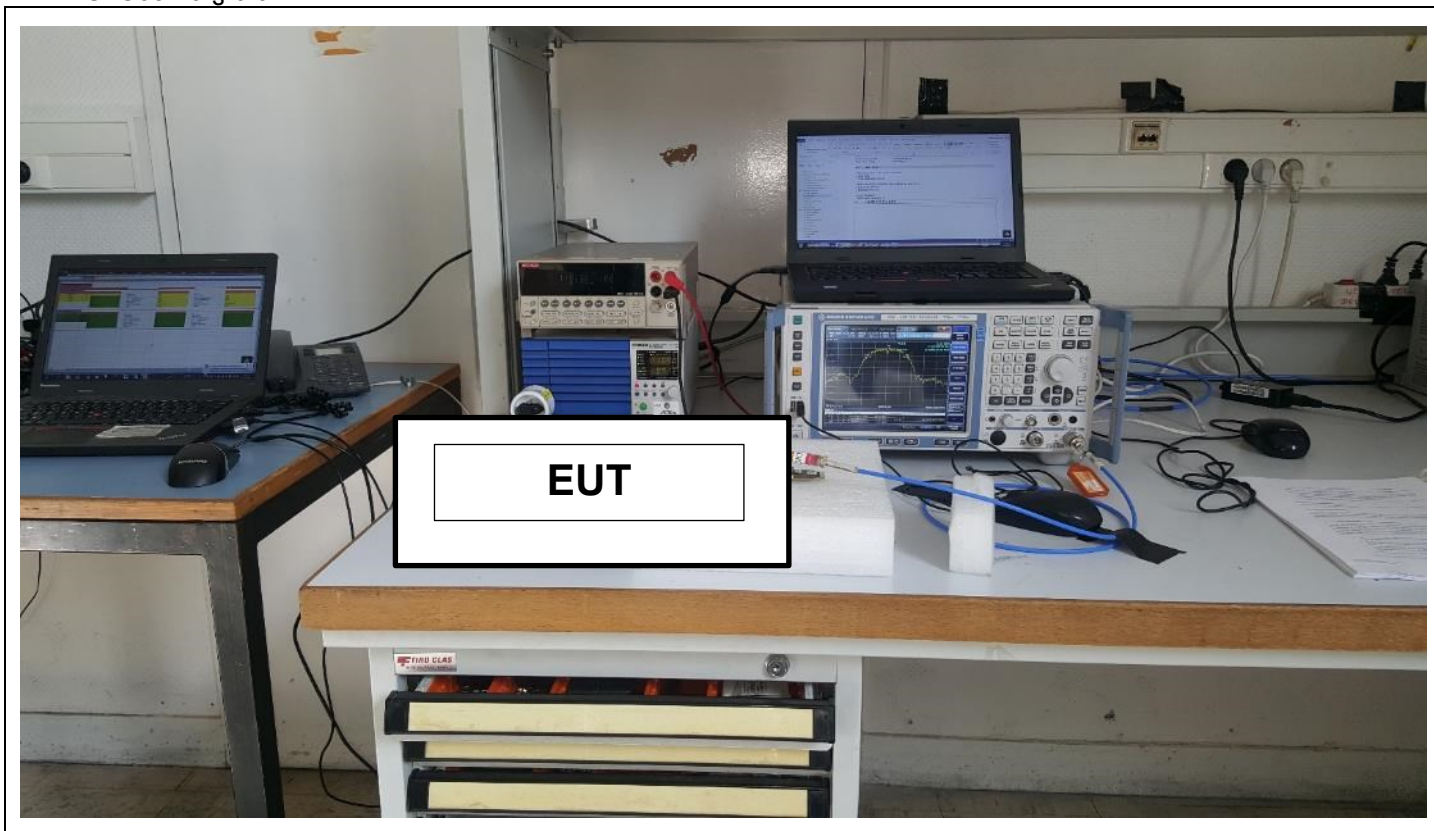
3. OCCUPIED BANDWIDTH

3.1. TEST CONDITIONS

Test performed by : Armand MAHOUNGOU
Date of test : September 27, 2018 to September 28, 2018
Ambient temperature : 24°C & 26°C
Relative humidity : 46% & 43%

3.2. TEST SETUP

- The Equipment Under Test is installed:
 - On a table
 - In an anechoic chamber
- Measurement is performed with a spectrum analyzer in:
 - Conducted Method
 - Radiated Method
- Test Procedure:
 - ANSI C63.10 § 6.9.2



Photograph for Occupied bandwidth



3.1. LIMIT

None

3.2. TEST EQUIPMENT LIST

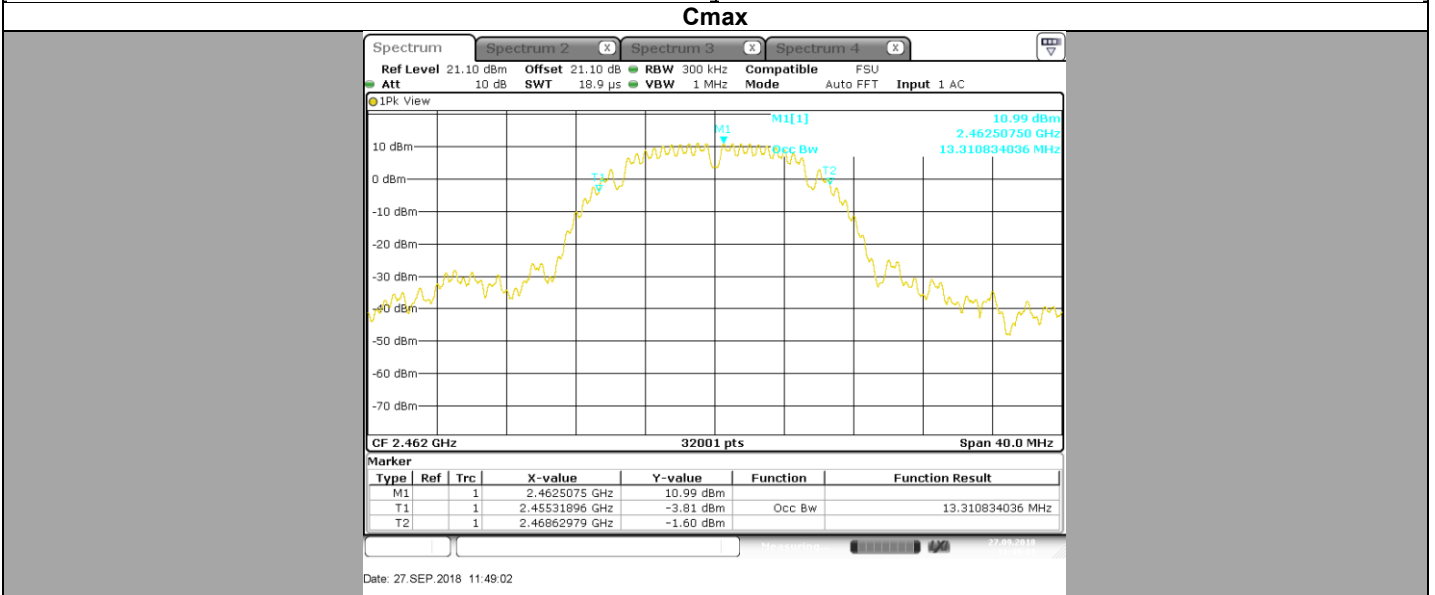
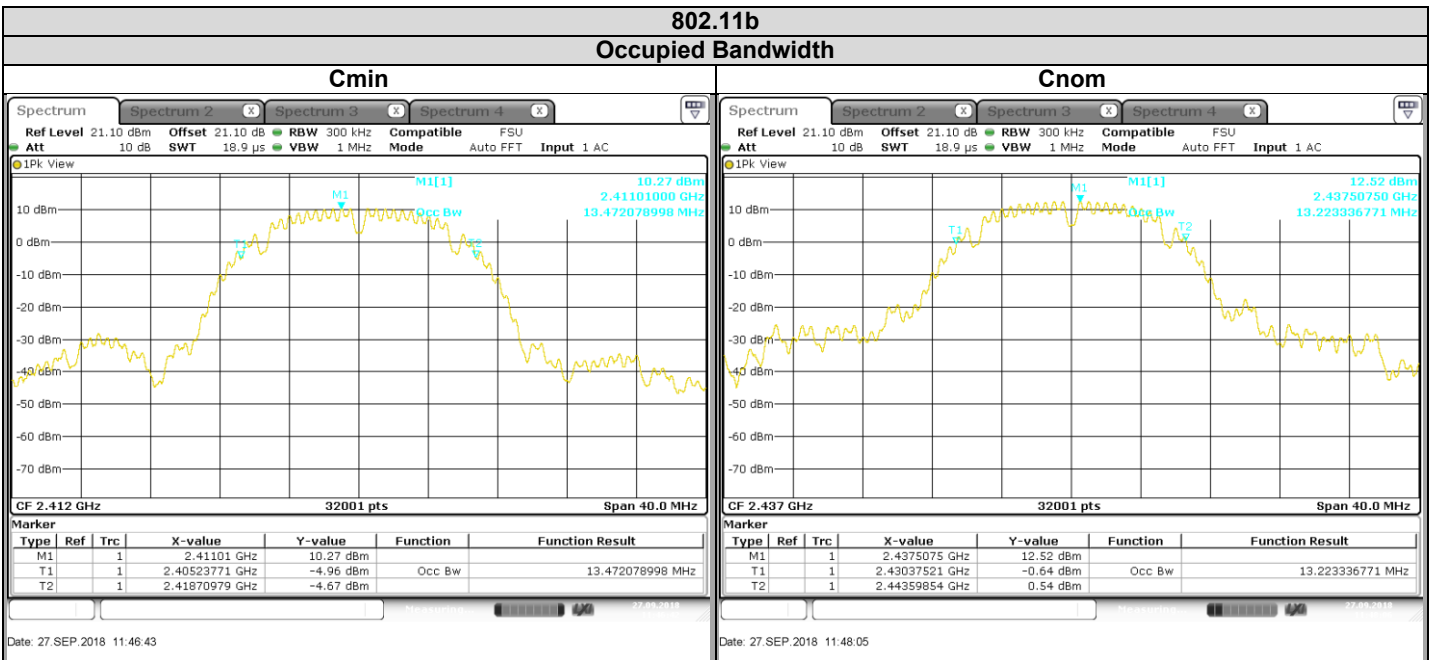
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2016/11	2018/11
Multimeter	KEITHLEY	2000	A1242090	2017/05	2019/05
Power supply	KIKUSUI	PCR500M	A7040079	Cal with Multimeter	Cal with Multimeter
Cable	TELEDYNE	920-0202-048	A5329674	2017/10	2018/10

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



L C I E

3.3. RESULTS

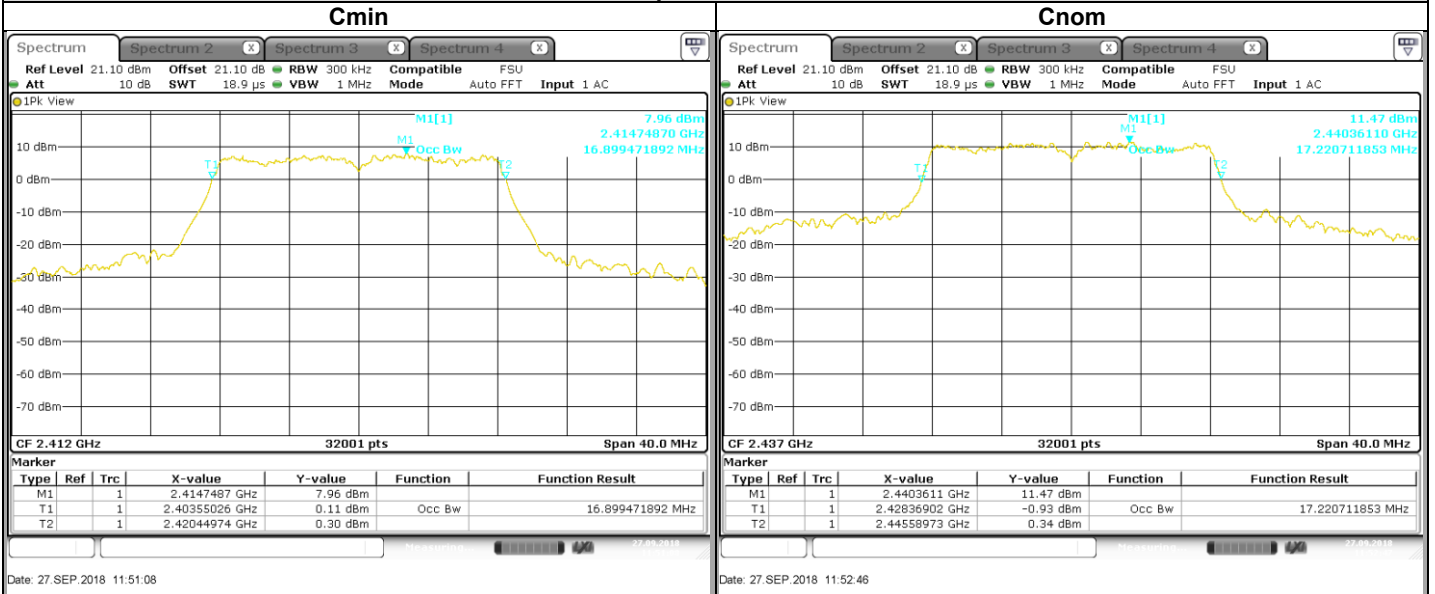


Channel	Occupied Bandwidth (MHz)
Cmin	13.472
Cnom	13.223
Cmax	13.311

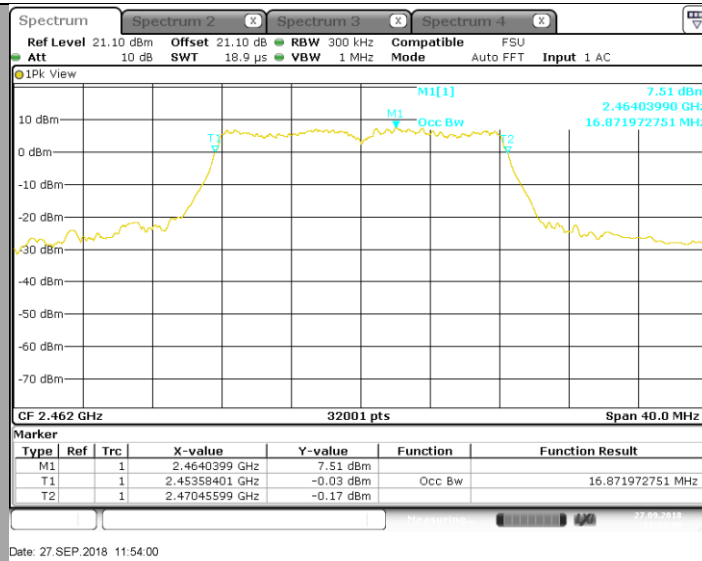


L C I E

802.11g
Occupied Bandwidth



Cmax

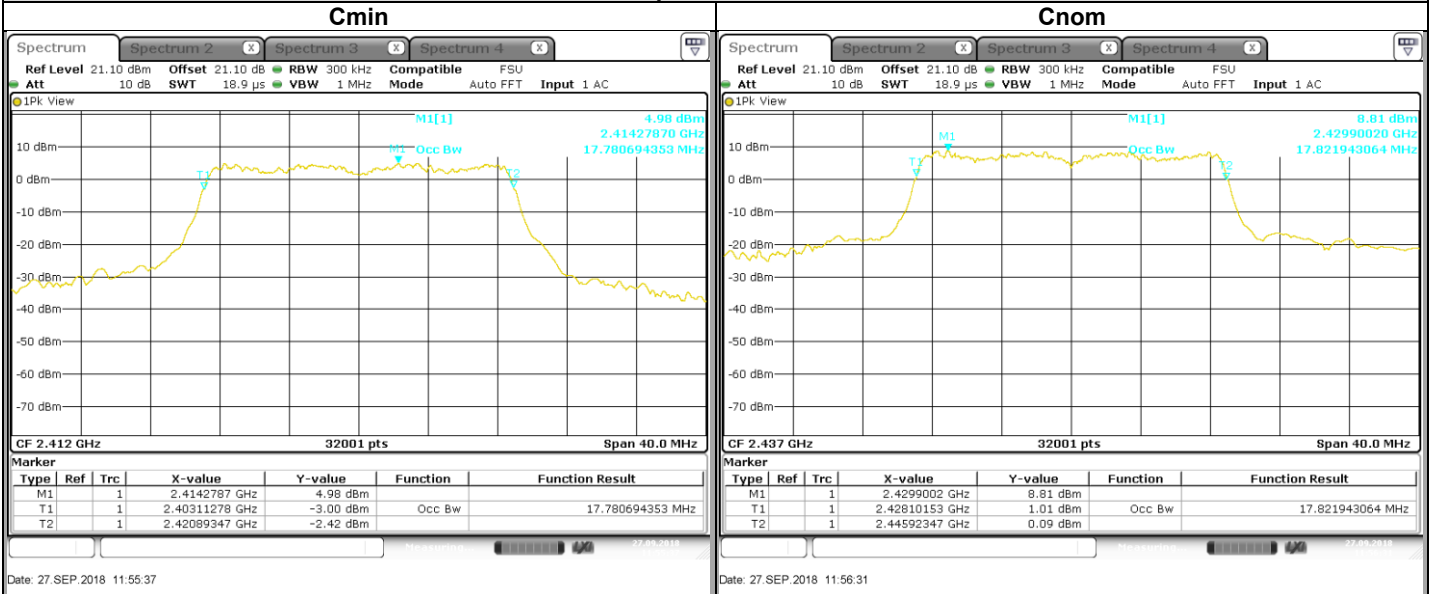


Channel	Occupied Bandwidth (MHz)
Cmin	16.899
Cnom	17.221
Cmax	16.872

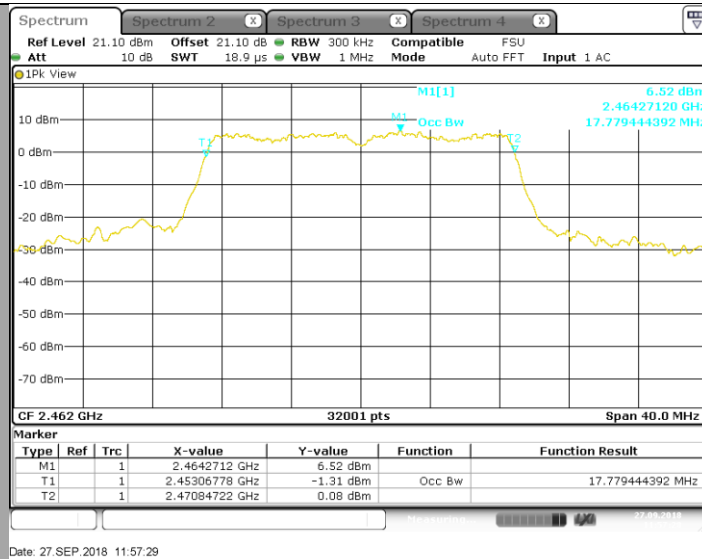


L C I E

802.11n HT20
Occupied Bandwidth



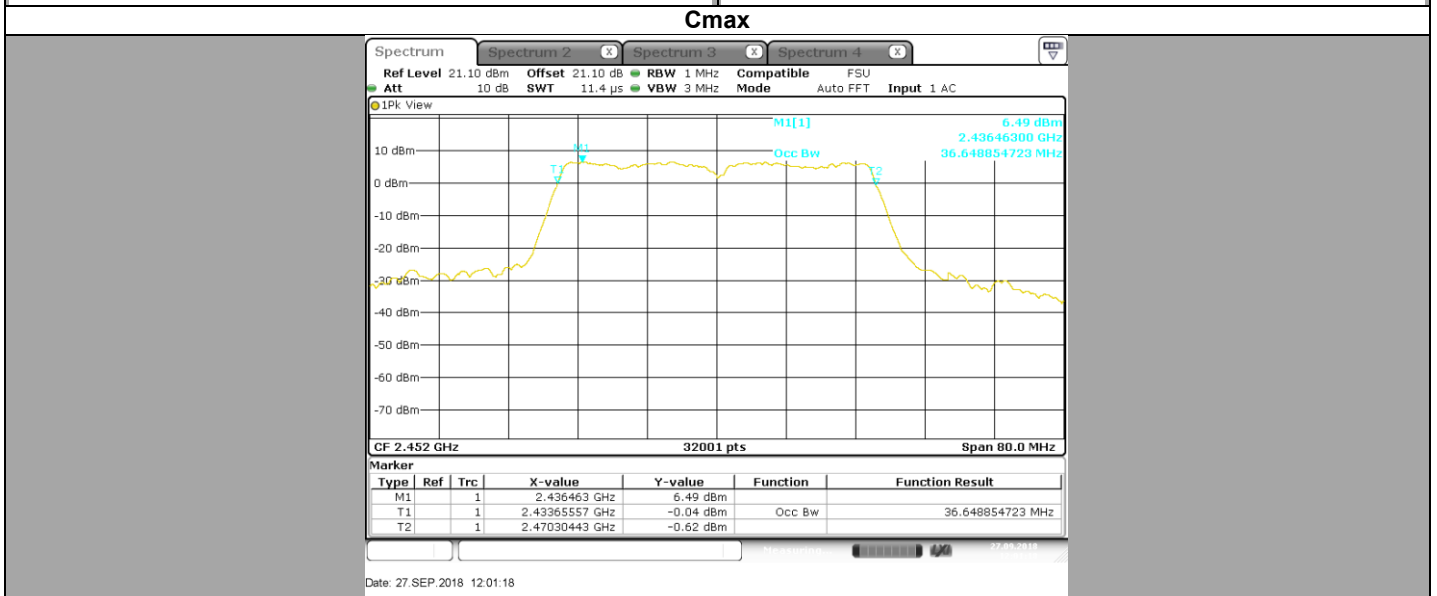
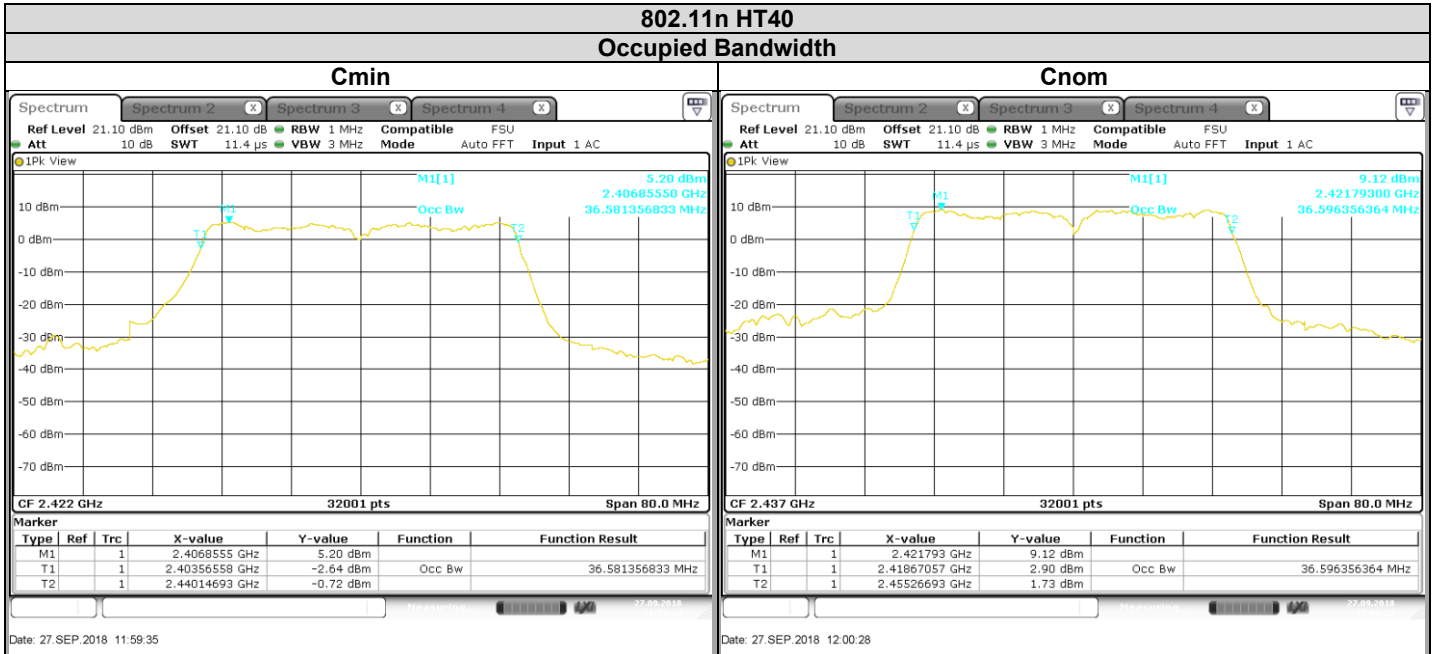
Cmax



Channel	Occupied Bandwidth (MHz)
Cmin	17.781
Cnom	17.822
Cmax	17.779



L C I E



Channel	Occupied Bandwidth (MHz)
Cmin	36.581
Cnom	36.596
Cmax	36.649

3.1. CONCLUSION

Occupied Channel Bandwidth measurement performed on the sample of the product **Sagemcom® Sound Box SBDV01**, SN: **253770742**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.

4. 6DB EMISSION BANDWIDTH

4.1. TEST CONDITIONS

Test performed by : Armand MAHOUNGOU
Date of test : September 27, 2018 to September 28, 2018
Ambient temperature : 24°C & 26°C
Relative humidity : 46% & 43%

4.2. TEST SETUP

- The Equipment Under Test is installed:

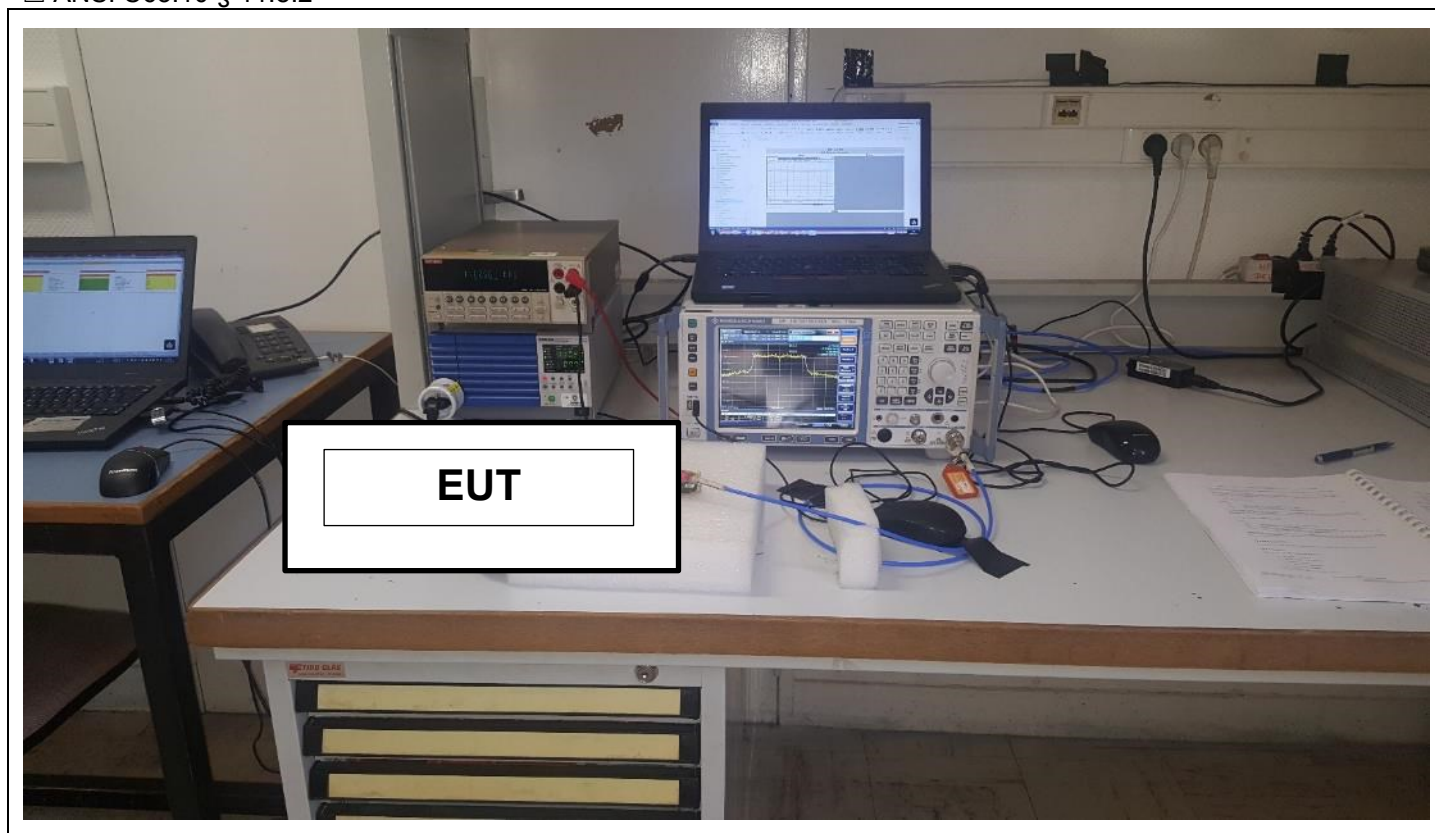
- On a table
- In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

- Conducted Method
- Radiated Method

- Test Procedure:

- ANSI C63.10 § 11.8.1
- ANSI C63.10 § 11.8.2



Photograph for 6dB emission bandwidth



4.3. LIMIT

The 6dB bandwidth shall be at least 500kHz

4.4. TEST EQUIPMENT LIST

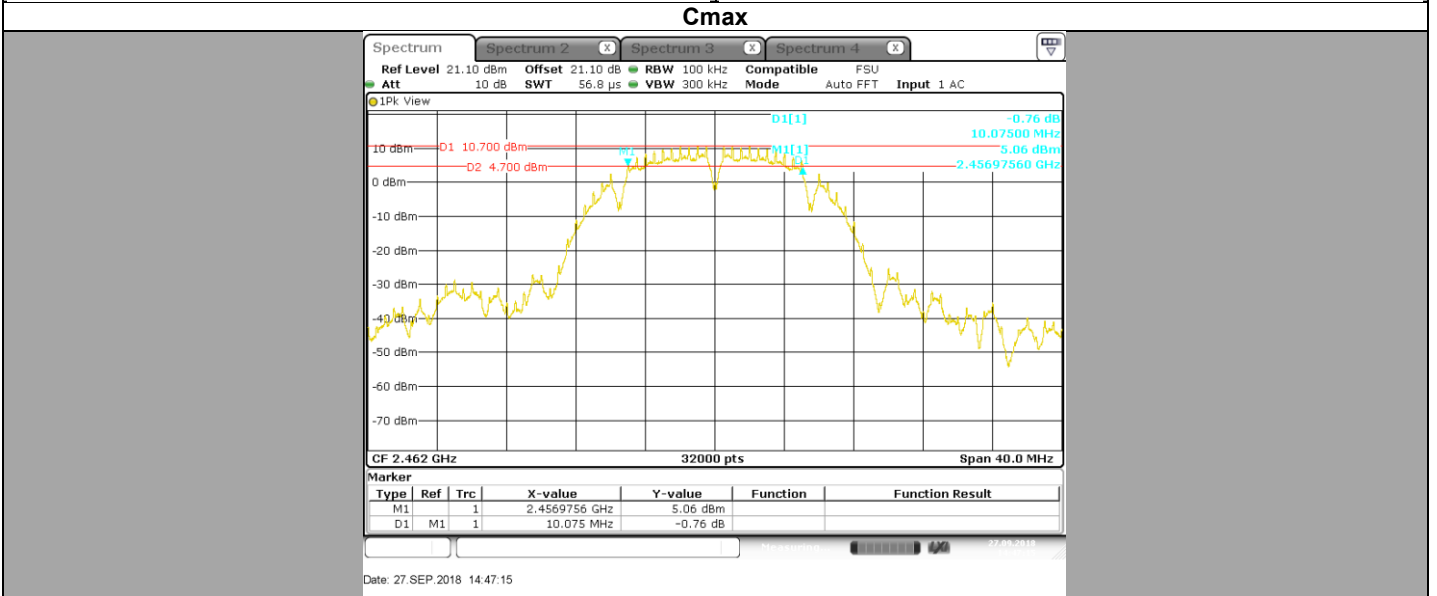
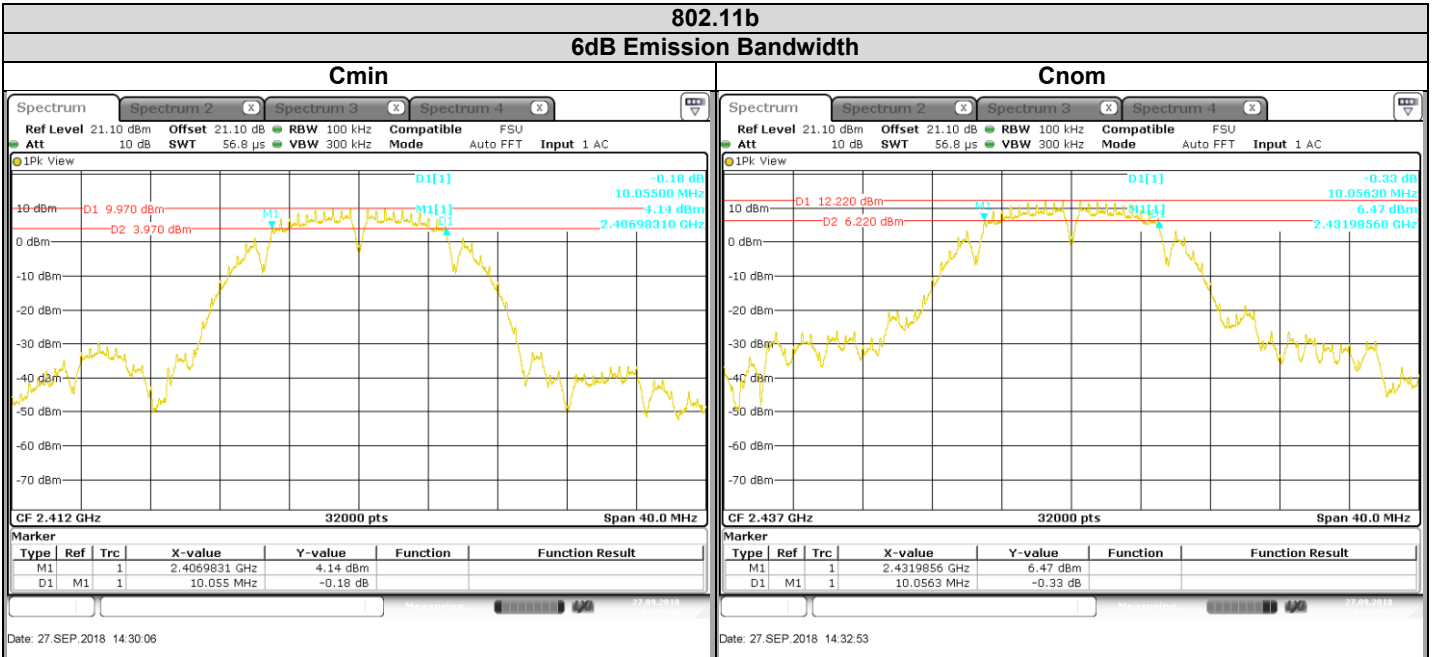
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2016/11	2018/11
Multimeter	KEITHLEY	2000	A1242090	2017/05	2019/05
Power supply	KIKUSUI	PCR500M	A7040079	Cal with Multimeter	Cal with Multimeter
Cable	TELEDYNE	920-0202-048	A5329674	2017/10	2018/10

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



L C I E

4.5. RESULTS



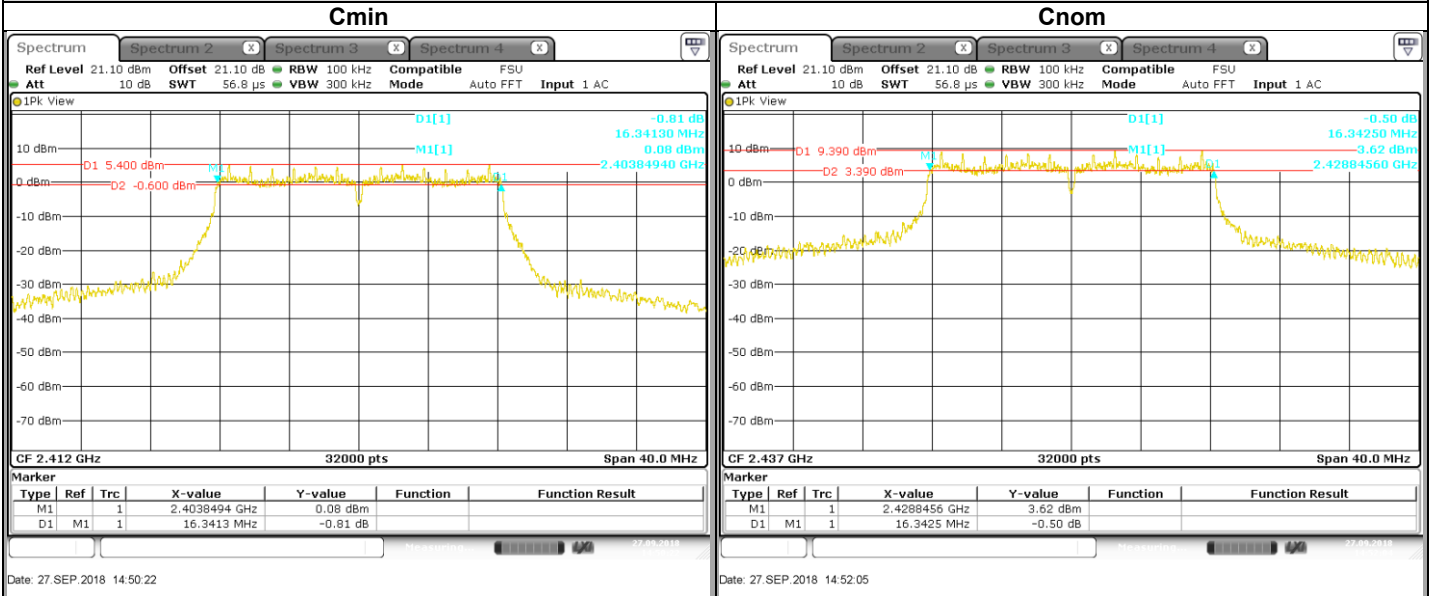
Channel	6dB Emission Bandwidth (MHz)	Limit (MHz)
Cmin	10.05	Minimum 0.5
Cnom	10.06	Minimum 0.5
Cmax	10.07	Minimum 0.5



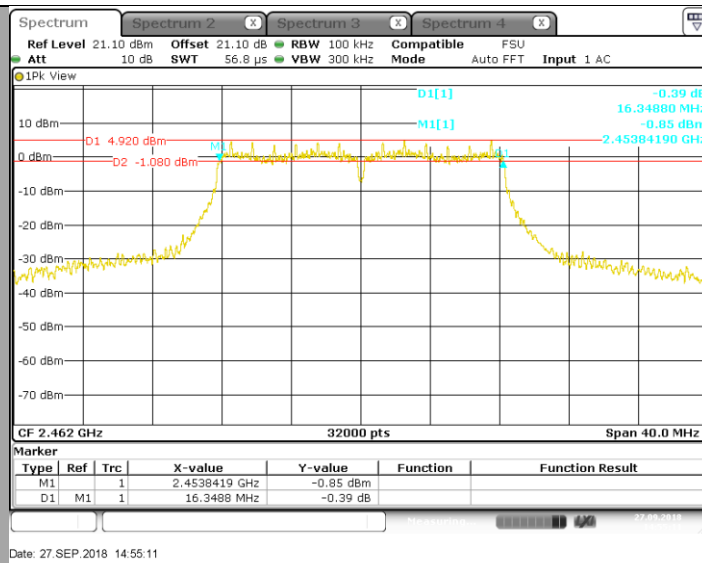
L C I E

802.11g

6dB Emission Bandwidth



Cmax



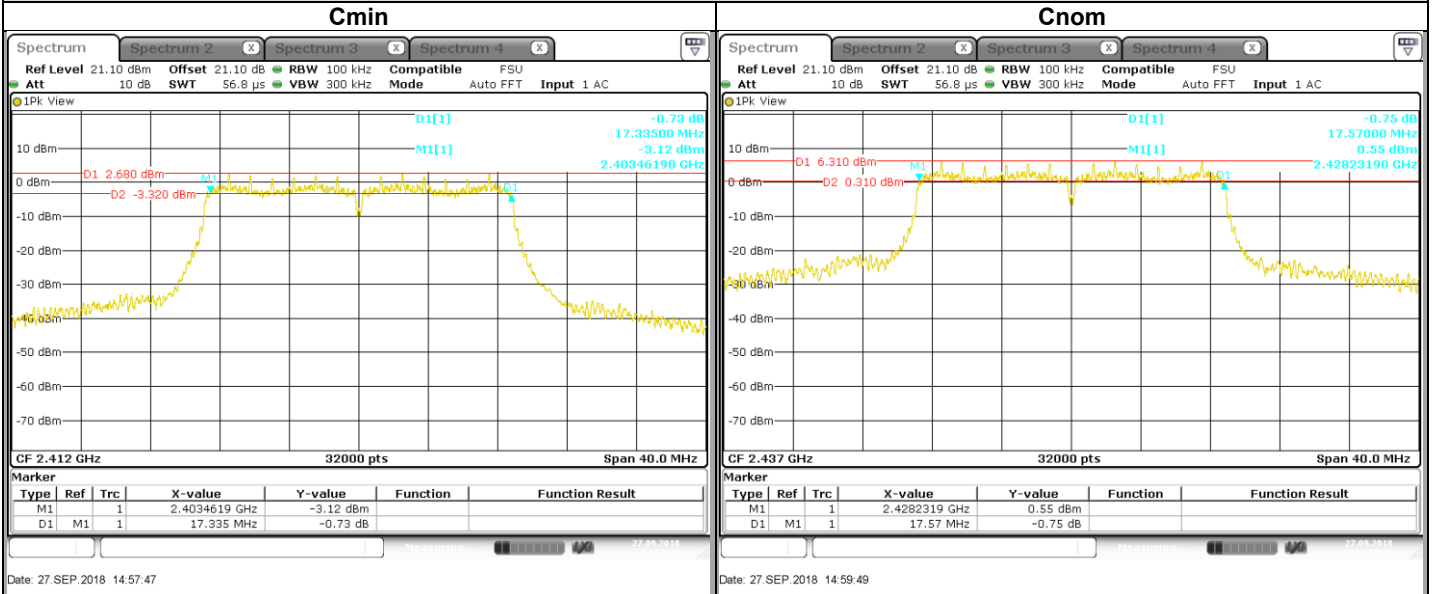
Channel	6dB Emission Bandwidth (MHz)	Limit (MHz)
Cmin	16.34	Minimum 0.5
Cnom	16.34	Minimum 0.5
Cmax	16.35	Minimum 0.5



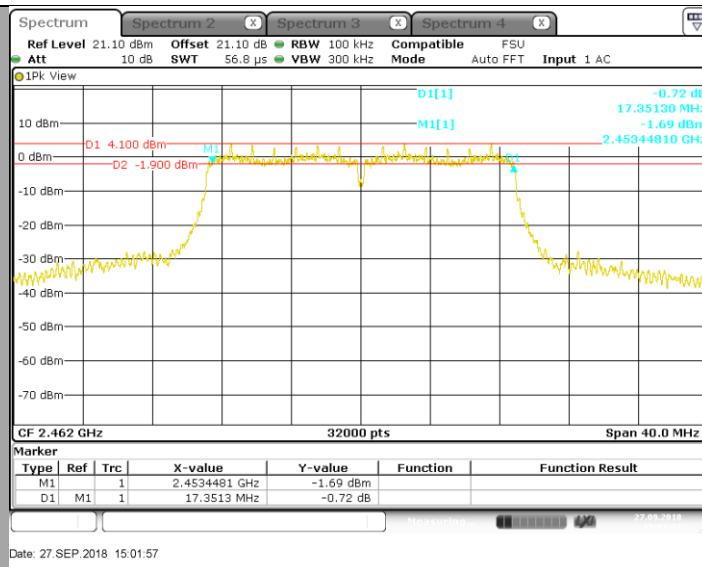
L C I E

802.11n HT20

6dB Emission Bandwidth



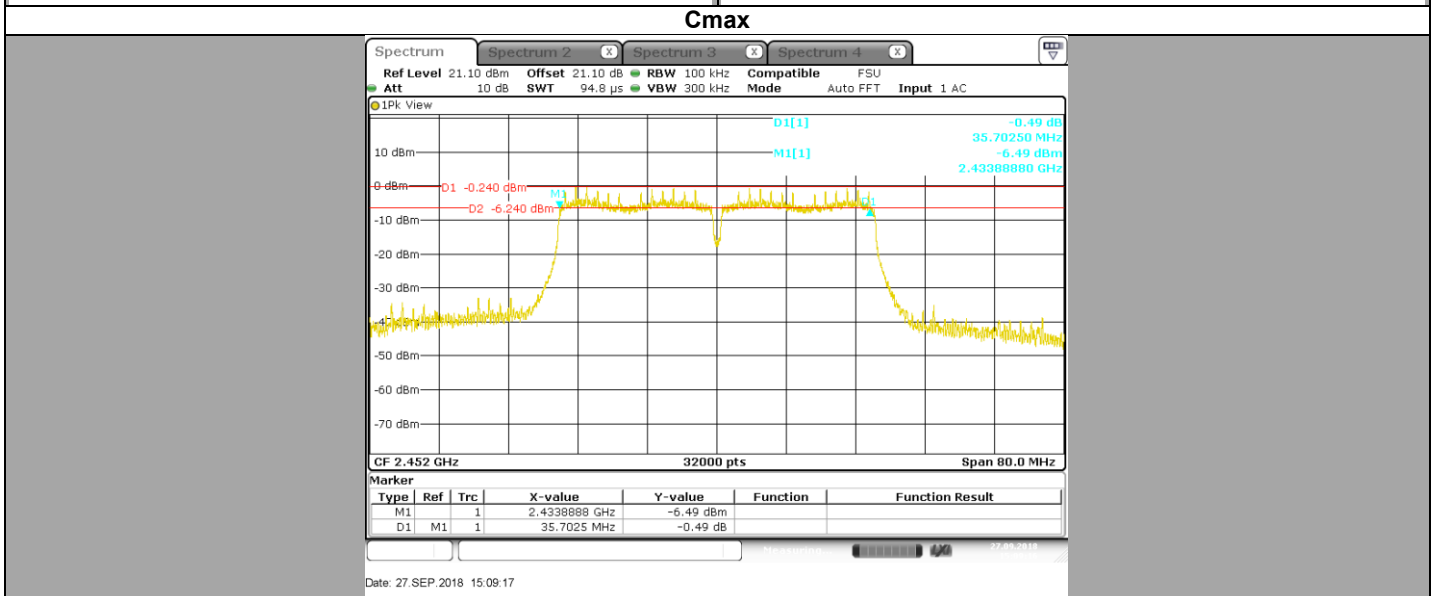
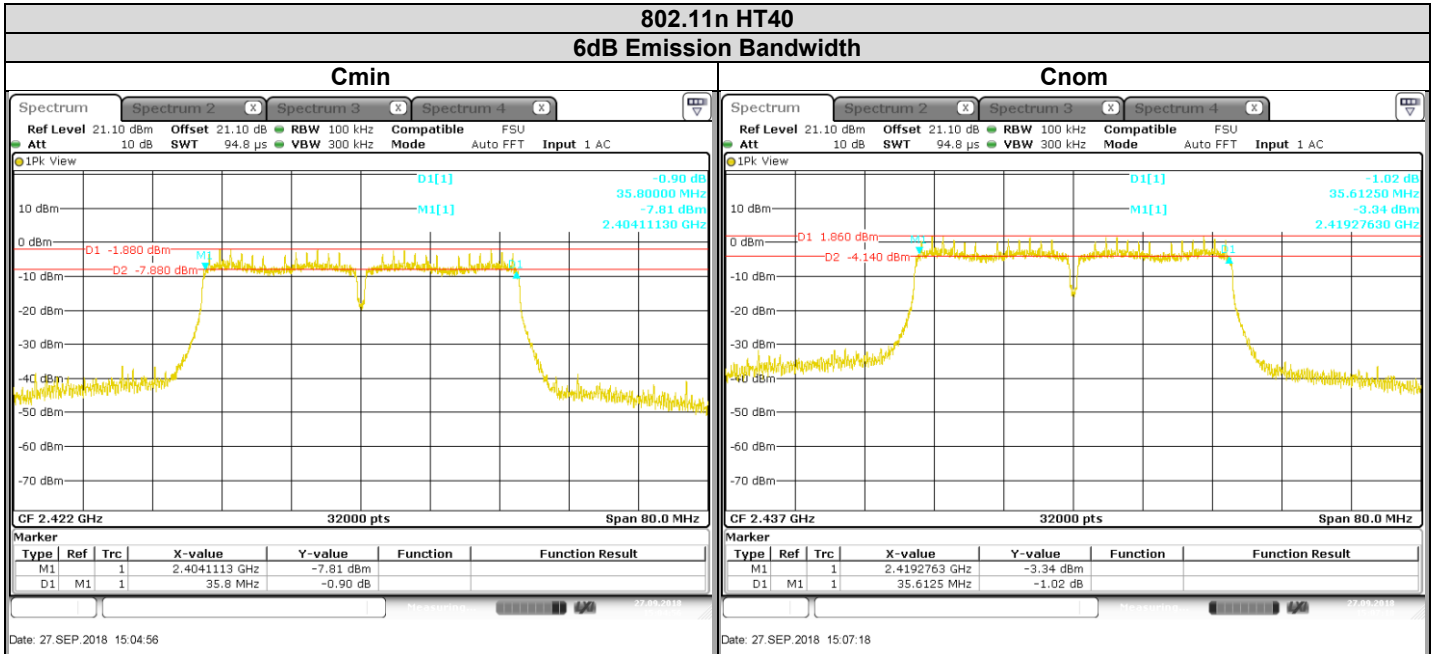
Cmax



Channel	6dB Emission Bandwidth (MHz)	Limit (MHz)
Cmin	17.33	Minimum 0.5
Cnom	17.57	Minimum 0.5
Cmax	17.35	Minimum 0.5



L C I E



Channel	6dB Emission Bandwidth (MHz)	Limit (MHz)
Cmin	35.80	Minimum 0.5
Cnom	35.61	Minimum 0.5
Cmax	35.70	Minimum 0.5

4.6. CONCLUSION

6dB Emission Bandwidth measurement performed on the sample of the product **Sagemcom® Sound Box SBDV01**, SN: **253770742**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.

5. DUTY CYCLE

5.1. TEST CONDITIONS

Test performed by : Armand MAHOUNGOU
Date of test : September 27, 2018 to September 28, 2018
Ambient temperature : 24°C & 26°C
Relative humidity : 46% & 43%

5.2. TEST SETUP

- The Equipment Under Test is installed:

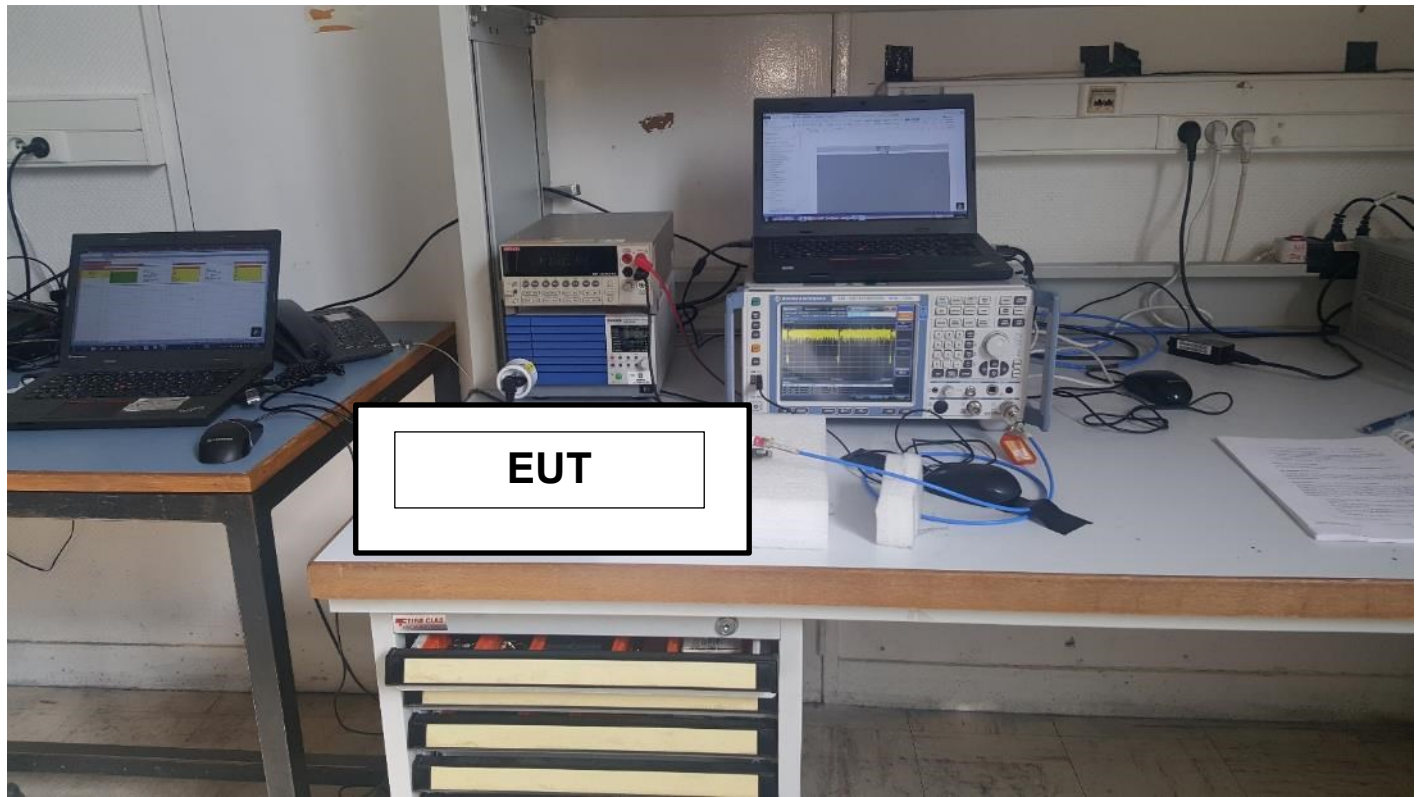
- On a table
- In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

- Conducted Method
- Radiated Method

- Test Procedure:

- ANSI C63.10 § 11.6 b)



Photograph for Duty Cycle



5.3. LIMIT

None

5.4. TEST EQUIPMENT LIST

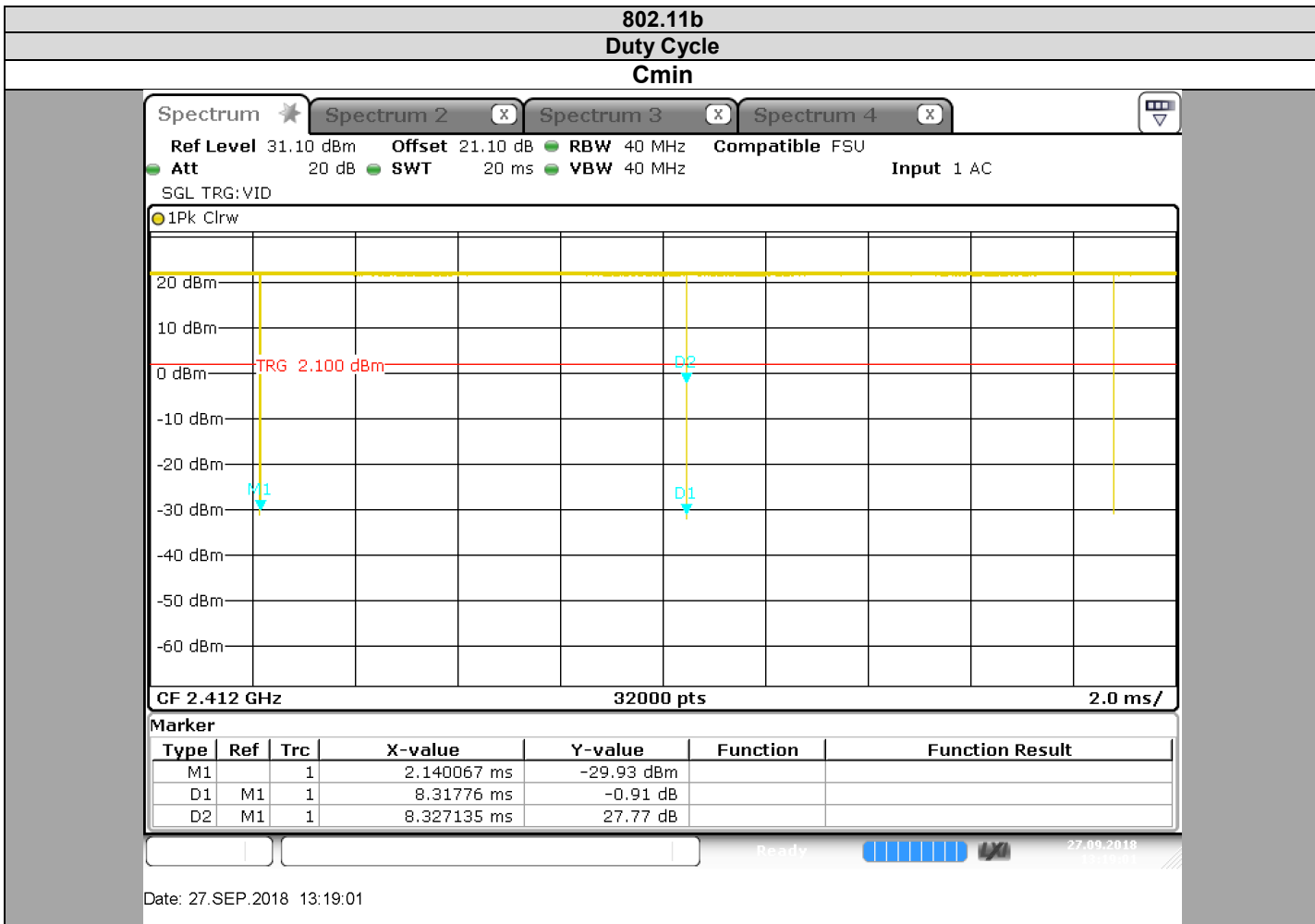
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2016/11	2018/11
Multimeter	KEITHLEY	2000	A1242090	2017/05	2019/05
Power supply	KIKUSUI	PCR500M	A7040079	Cal with Multimeter	Cal with Multimeter
Cable	TELEDYNE	920-0202-048	A5329674	2017/10	2018/10

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



L C I E

5.5. RESULTS

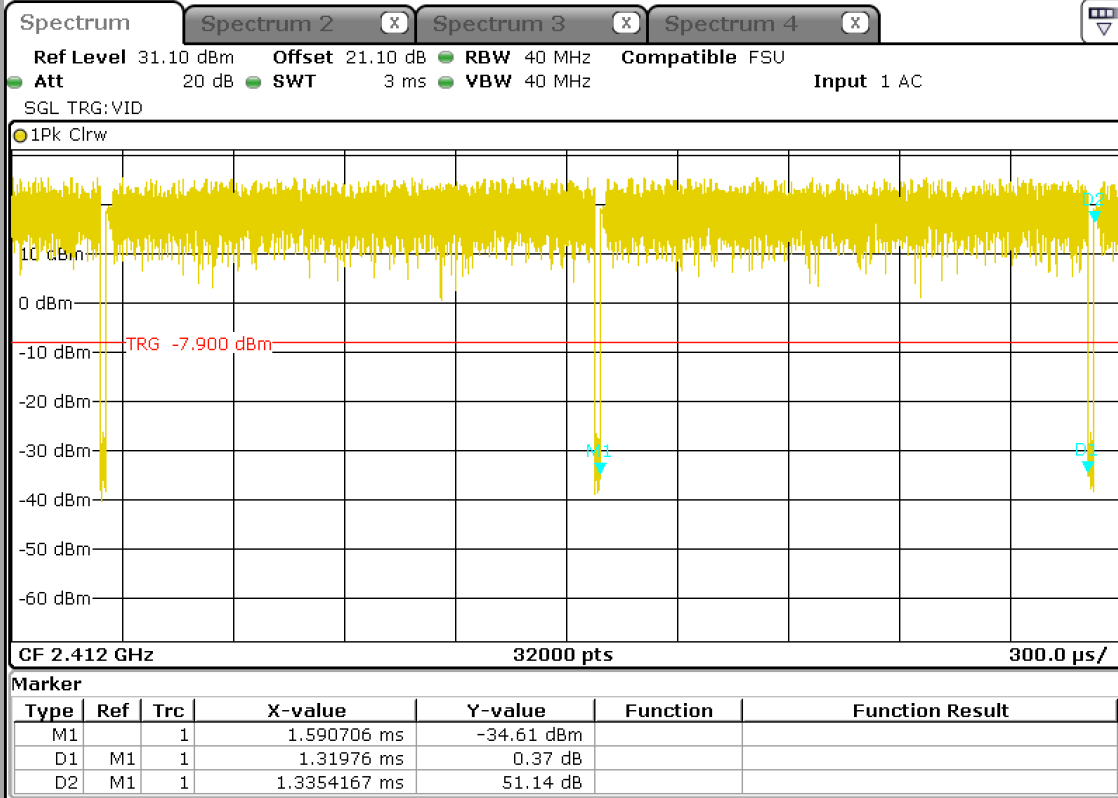


Channel	Duty Cycle (%)	Duty Cycle Correction (dB)
Channel	99.887	0.01



L C I E

802.11g
Duty Cycle
Cmin



Date: 27.SEP.2018 13:15:06

Channel	Duty Cycle (%)	Duty Cycle Correction (dB)
Channel	98.824	0.103

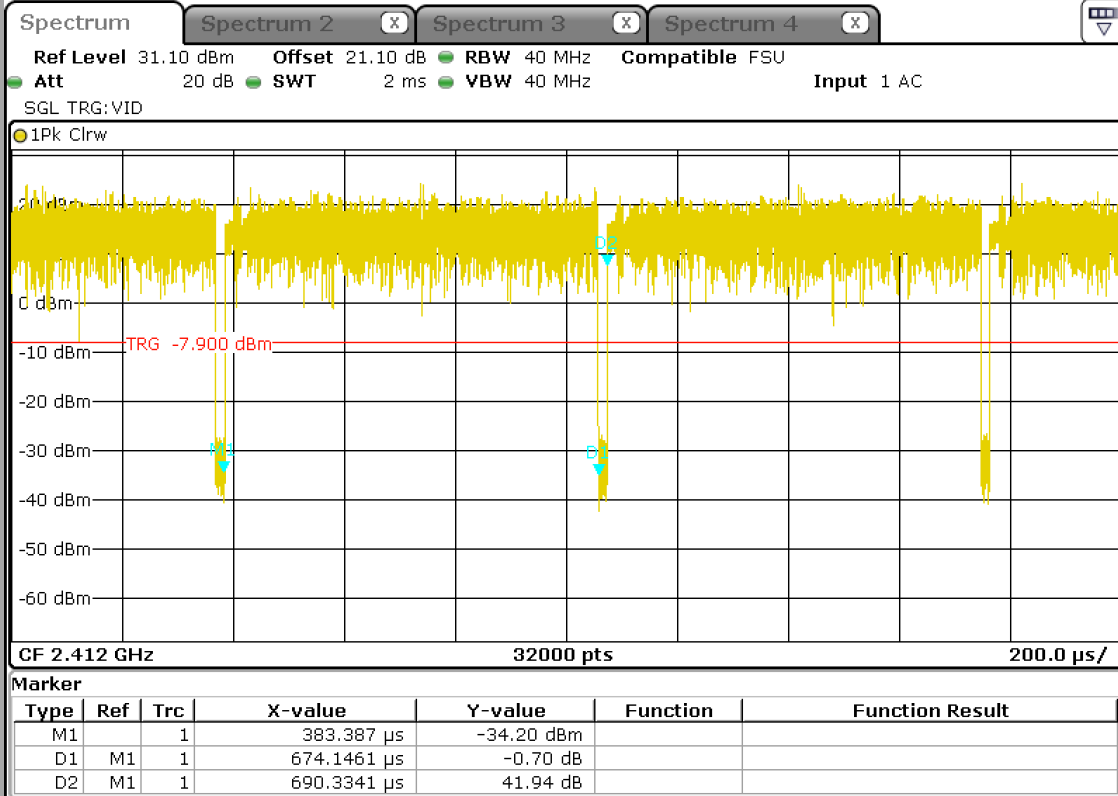


L C I E

802.11n HT20

Duty Cycle

Cmin



Date: 27.SEP.2018 13:12:32

Channel	Duty Cycle (%)	Duty Cycle Correction (dB)
Channel	97.655	0.206



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5.6. CONCLUSION

Duty Cycle measurement performed on the sample of the product **Sagemcom® Sound Box SBDV01**, SN: **253770742**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.

6. MAXIMUM CONDUCTED OUTPUT POWER

6.1. TEST CONDITIONS

Test performed by : Armand MAHOUNGOU
Date of test : September 27, 2018 to September 28, 2018
Ambient temperature : 24°C & 26°C
Relative humidity : 46% & 43%

6.2. TEST SETUP

- The Equipment Under Test is installed:

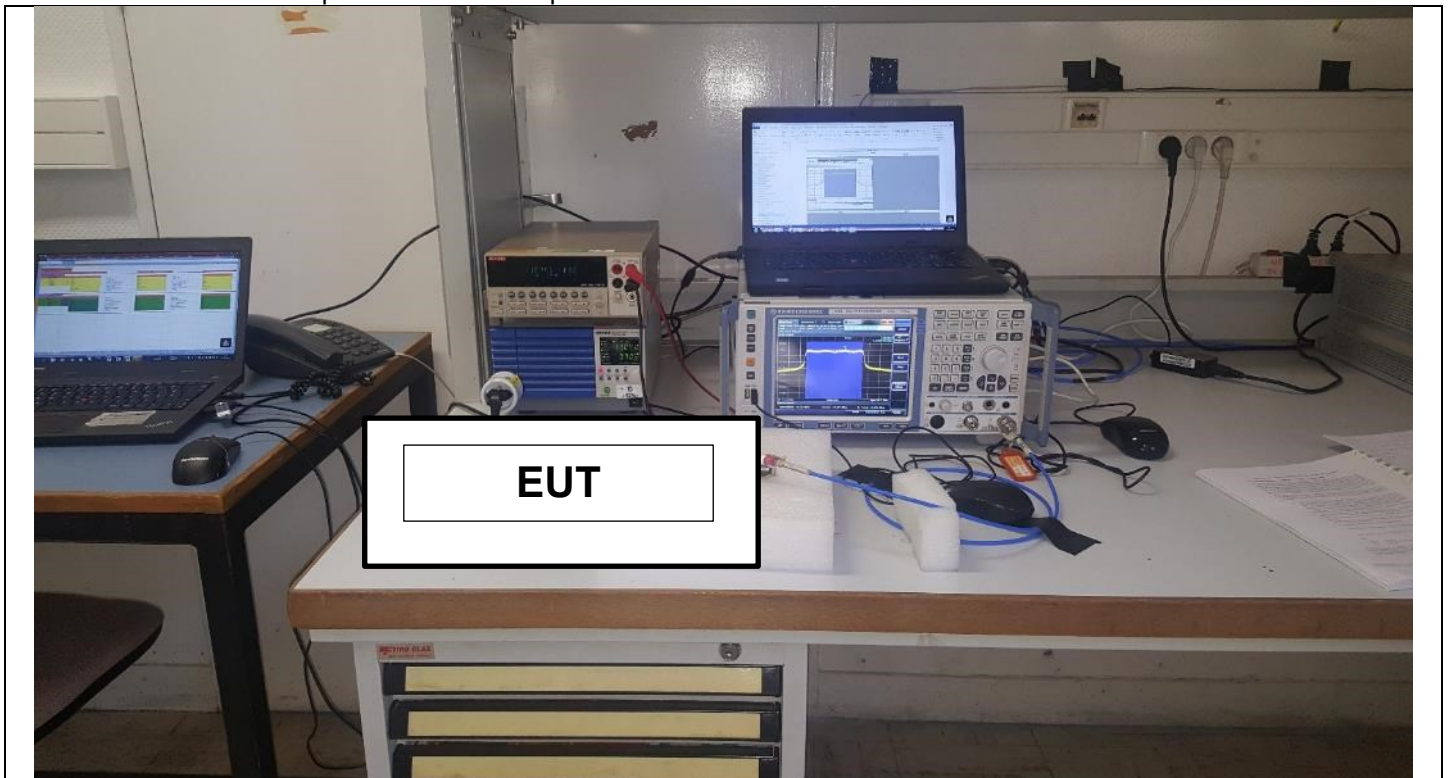
- On a table
- In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

- Conducted Method
- Radiated Method

- Test Procedure:

- ANSI C63.10 § 11.9.2.2.2 (Method AVGSA-1)
- ANSI C63.10 § 11.9.2.2.4 (Method AVGSA-2)
- KDB 662911 D01 Multiple Transmitter Output v02r01



Photograph for Maximum Conducted Output Power



6.3. LIMIT

Maximum Conducted Output power:
2400MHz-2483.5MHz: Shall not exceed 30dBm
Limits are reduced by G-6dBi if Overall Antenna Gain above 6dBi

6.4. TEST EQUIPMENT LIST

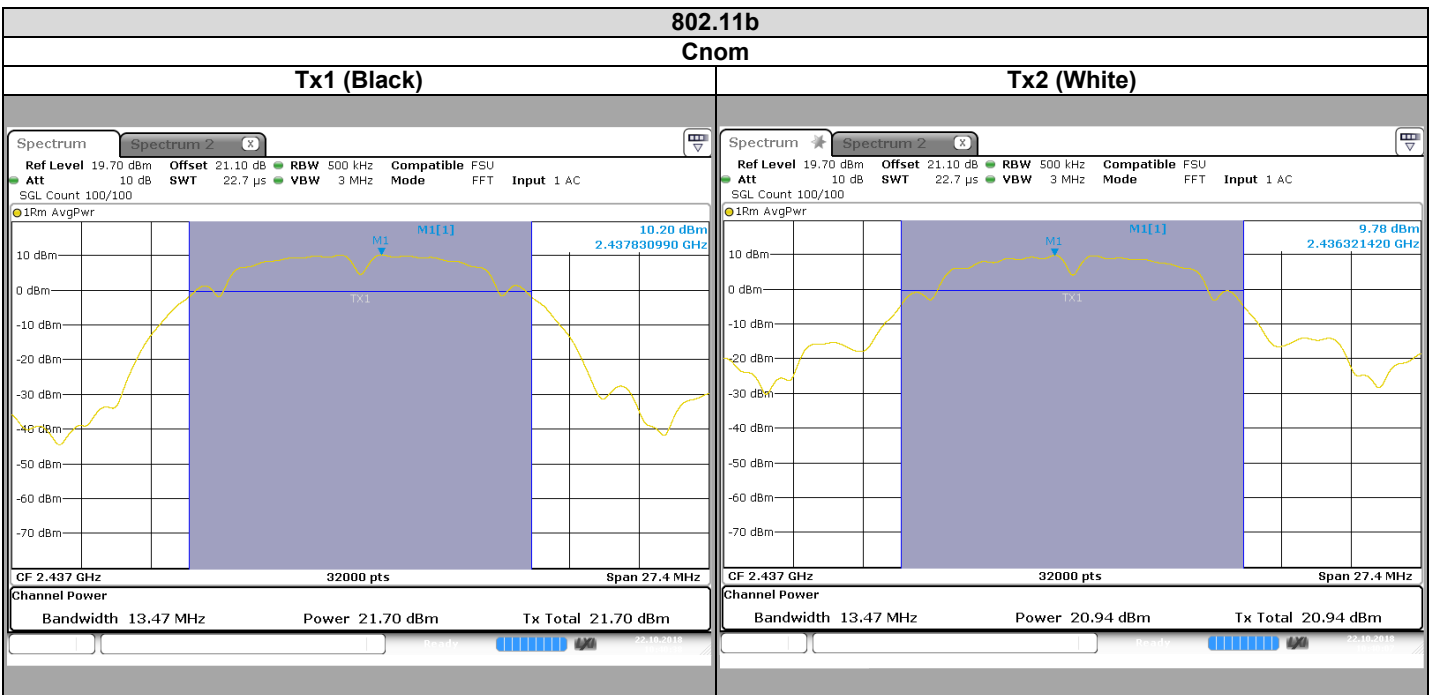
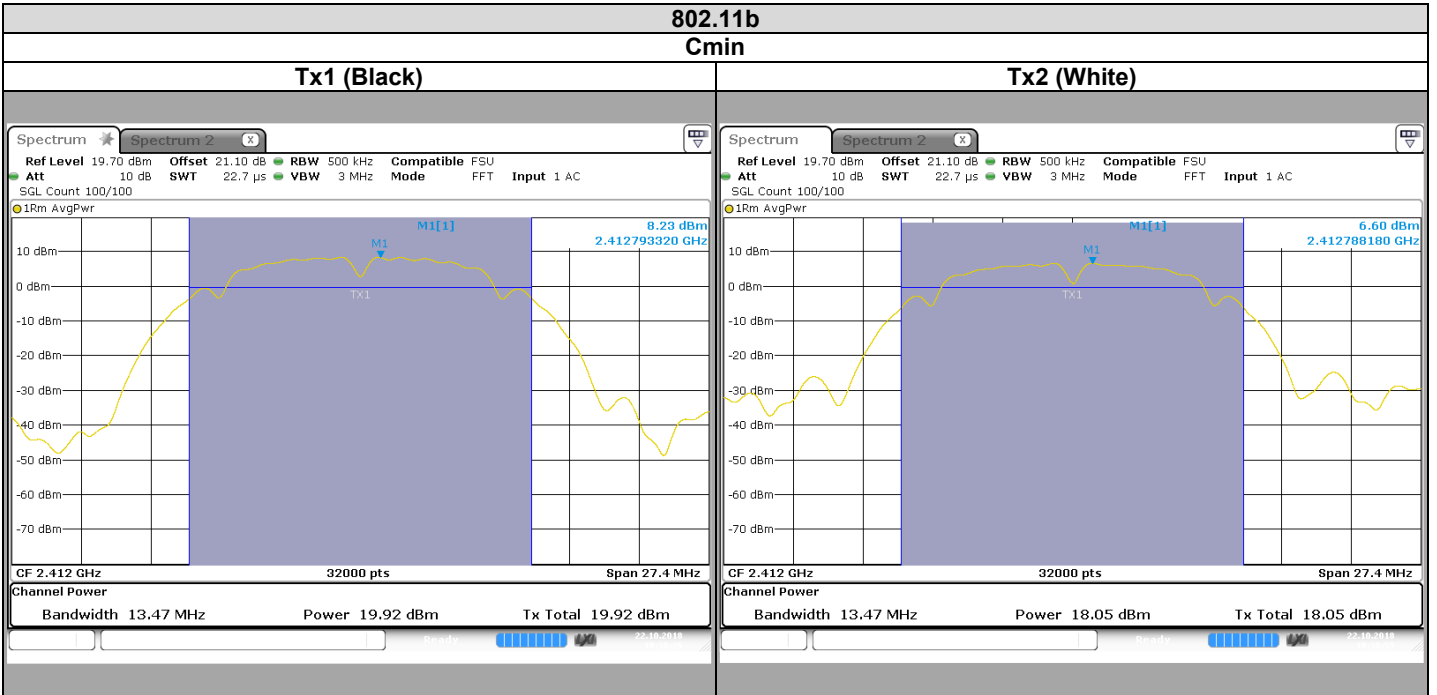
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2016/11	2018/11
Multimeter	KEITHLEY	2000	A1242090	2017/05	2019/05
Power supply	KIKUSUI	PCR500M	A7040079	Cal with Multimeter	Cal with Multimeter
Cable	TELEDYNE	920-0202-048	A5329674	2017/10	2018/10

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



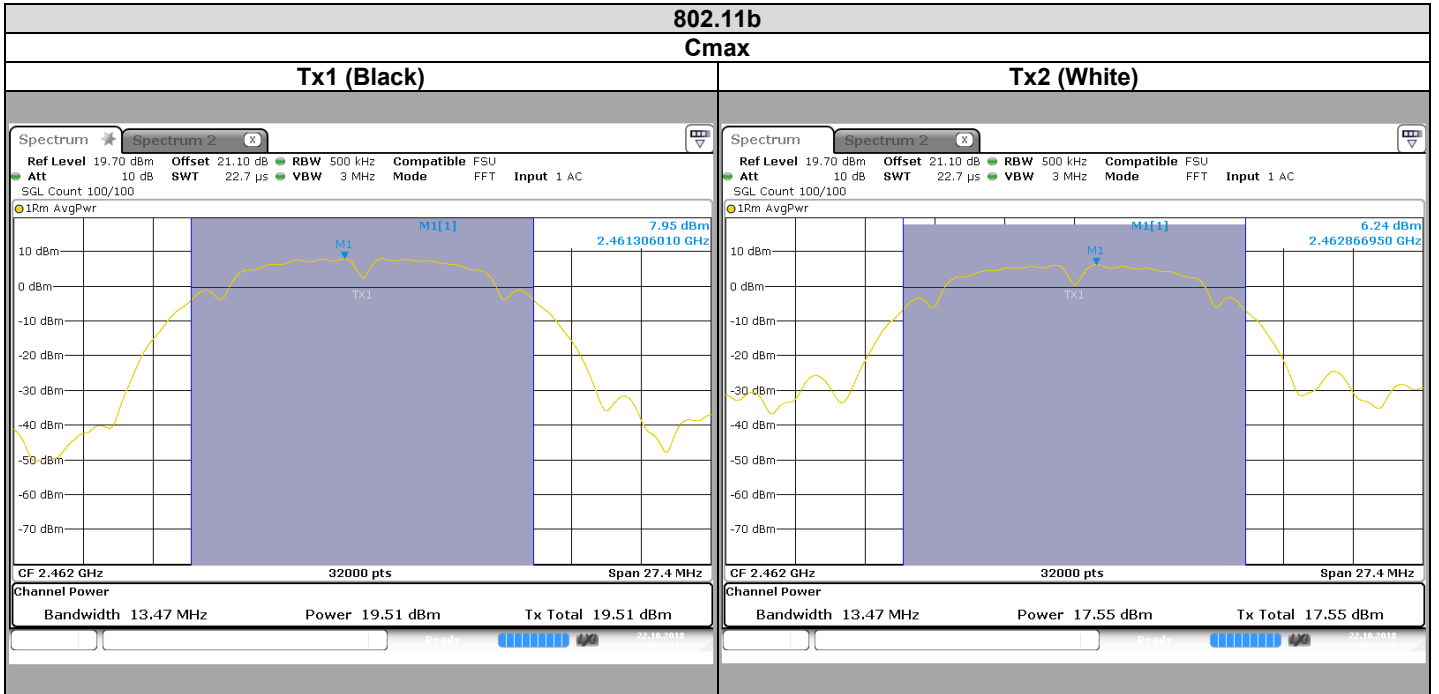
L C I E

6.5. RESULTS



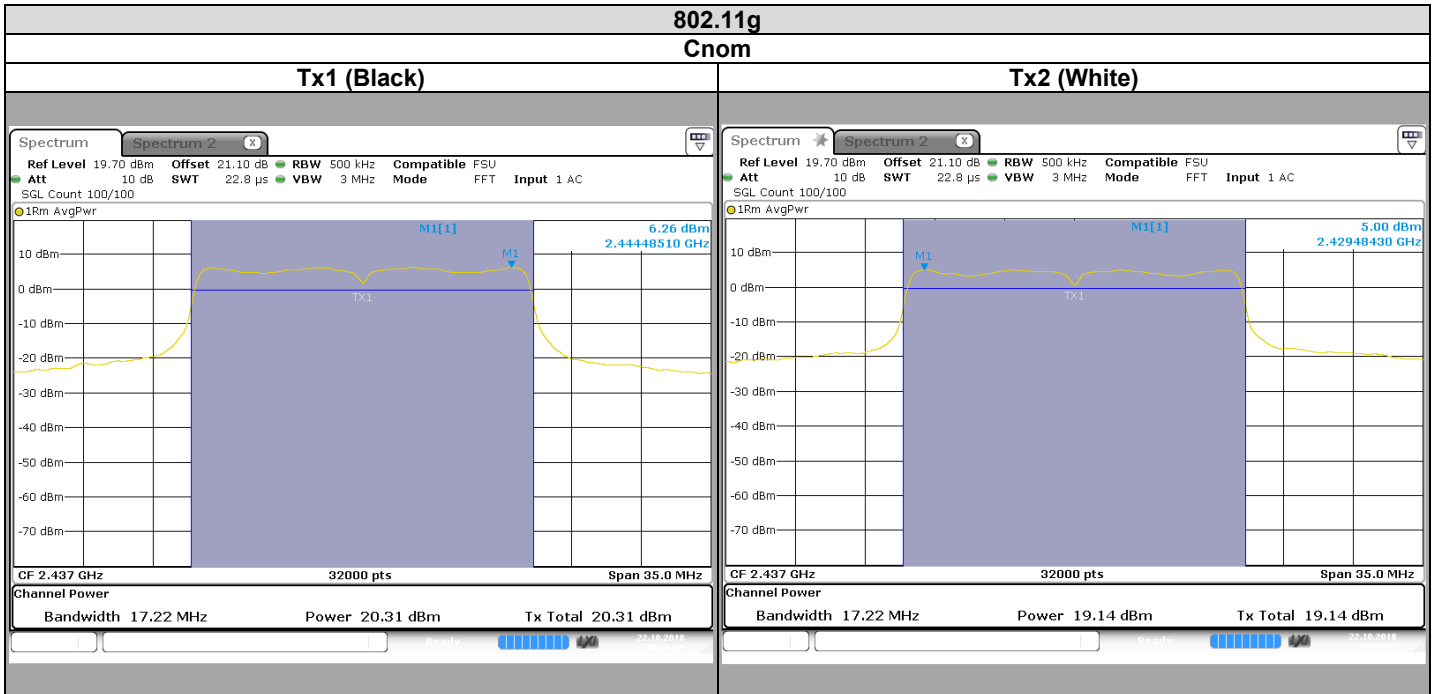
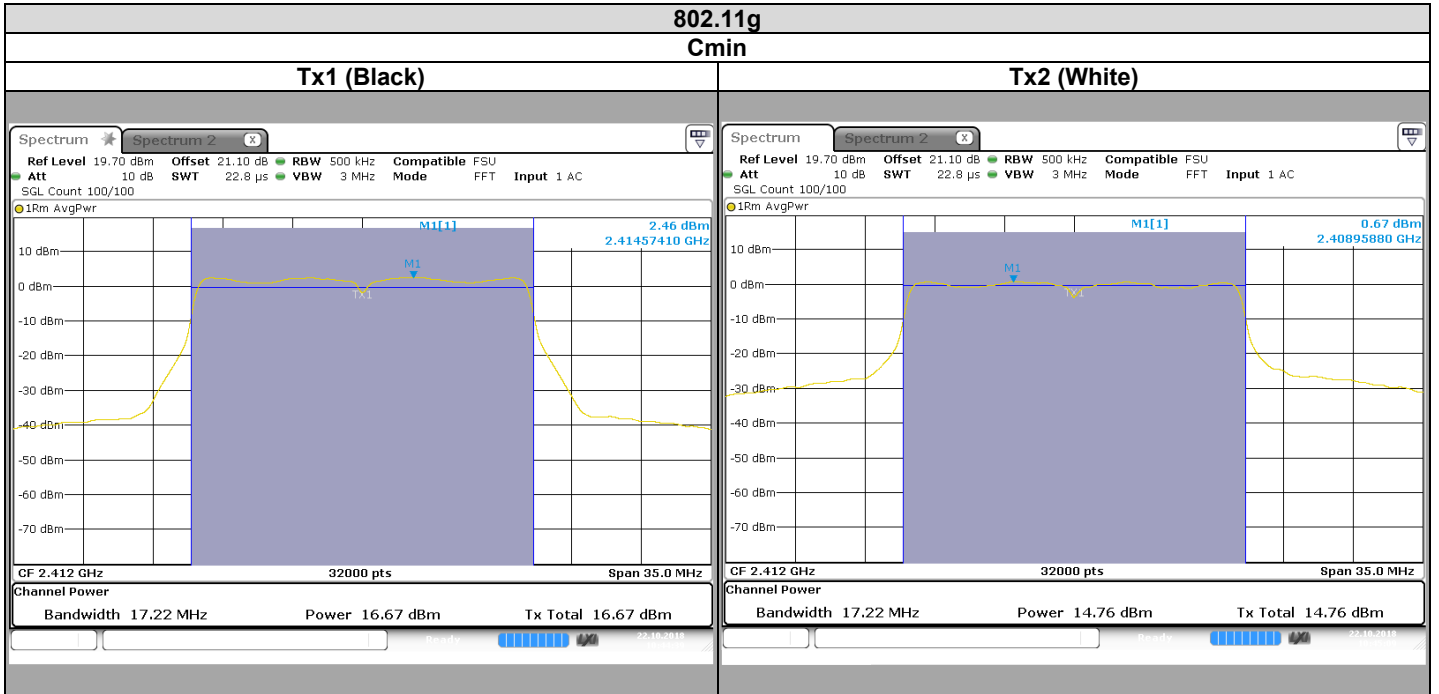


L C I E



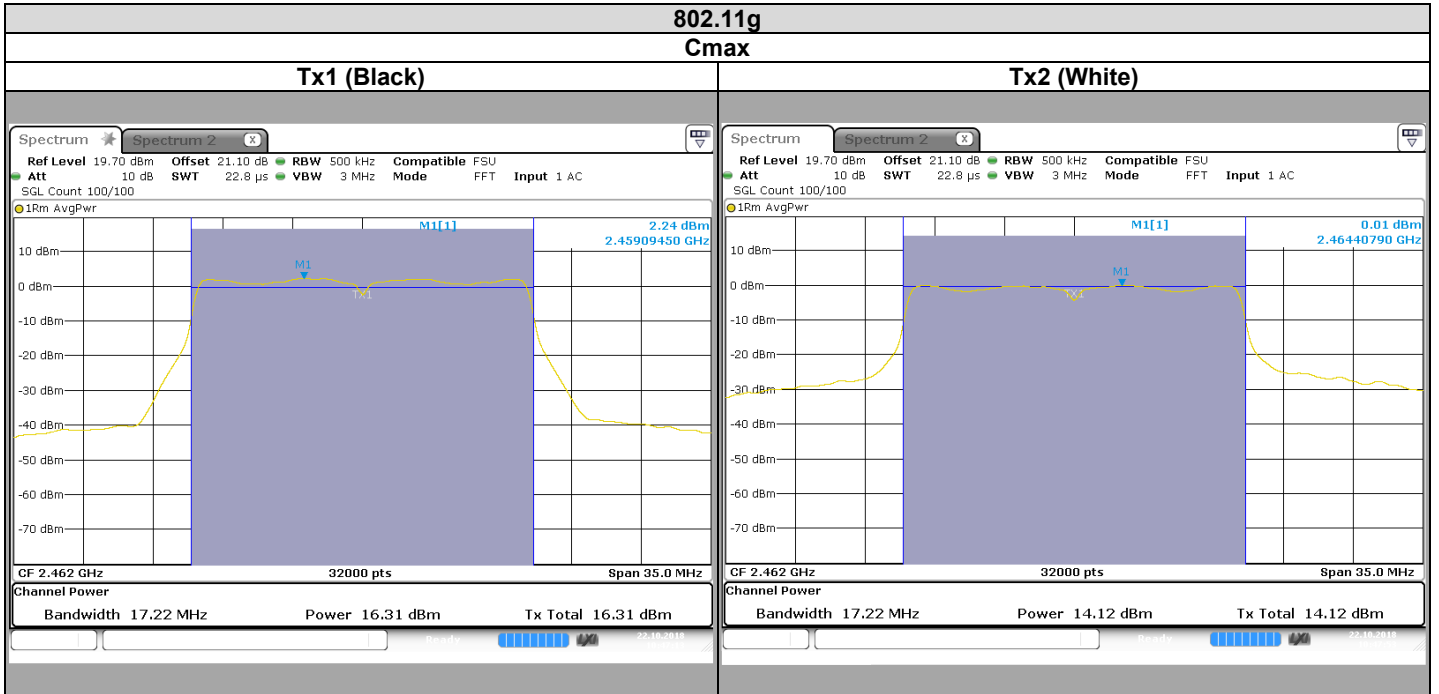


L C I E



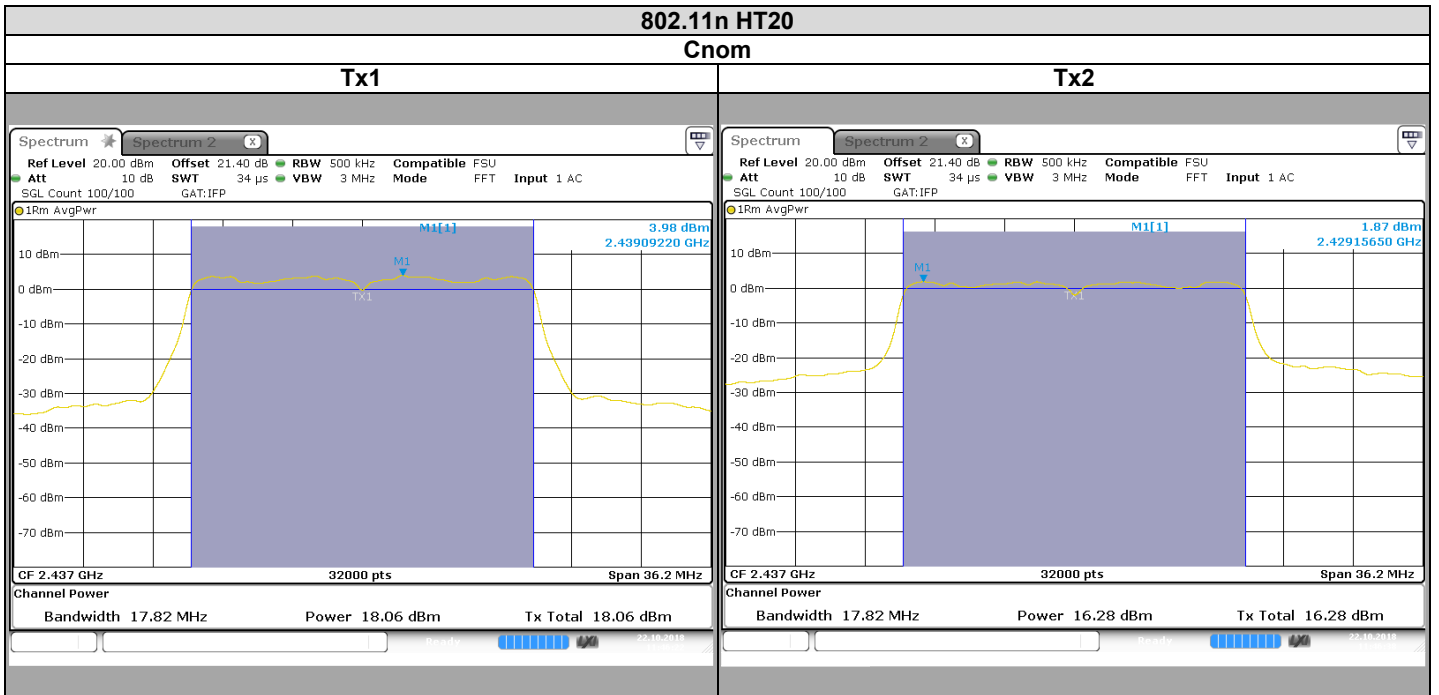
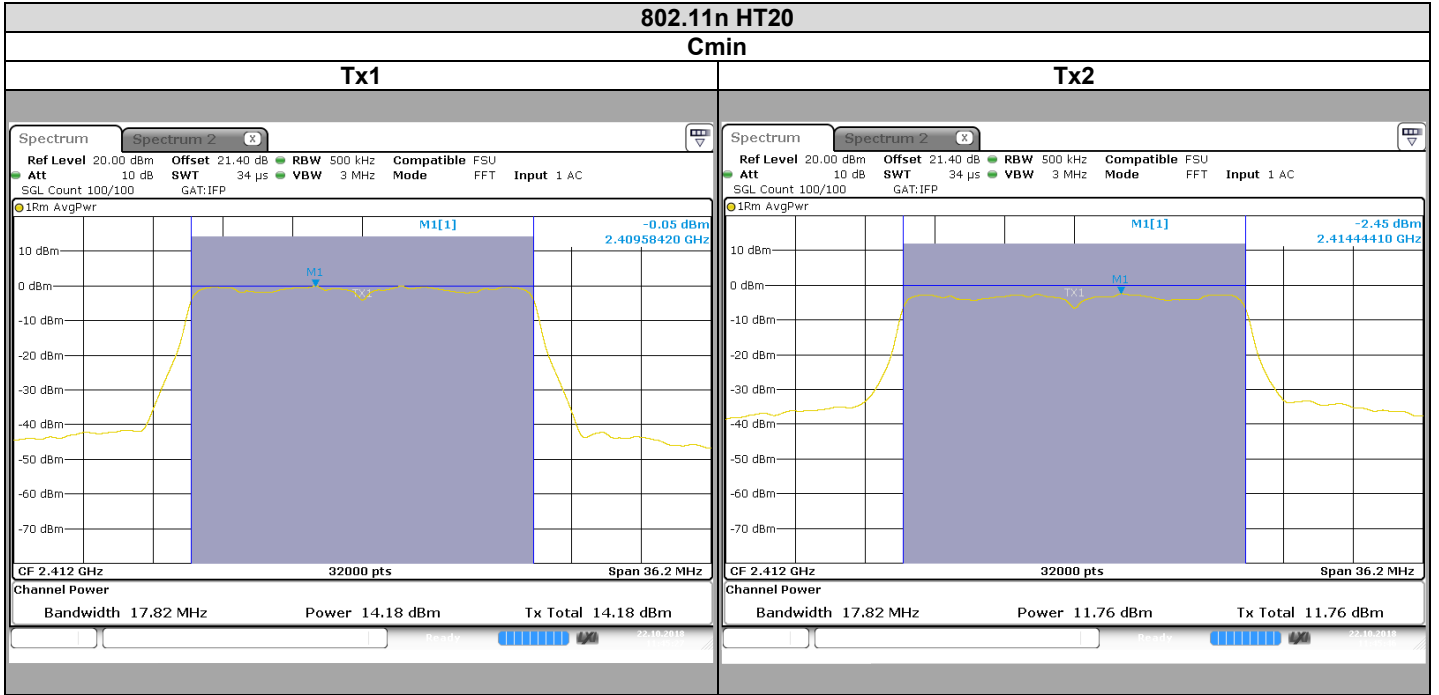


L C I E





L C I E



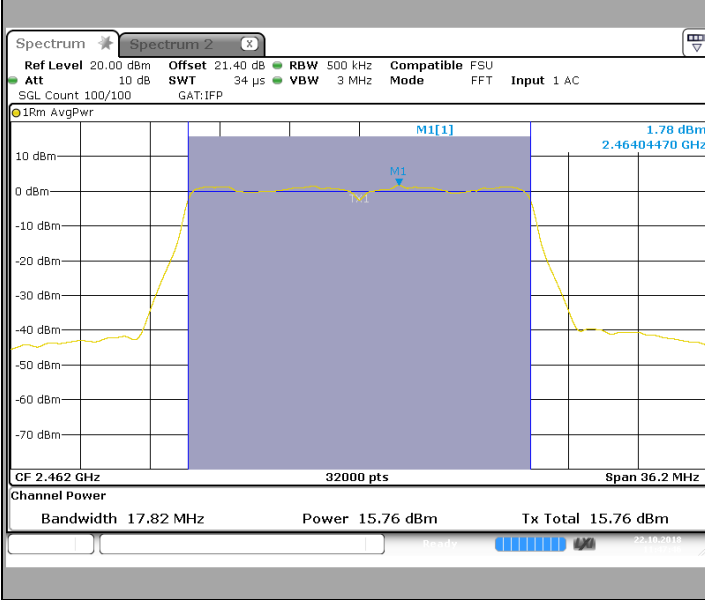


L C I E

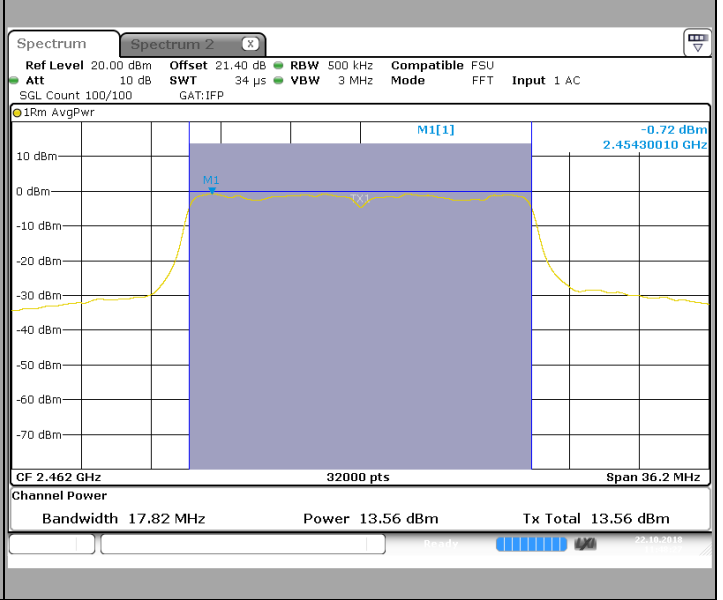
802.11n HT20

Cmax

Tx1

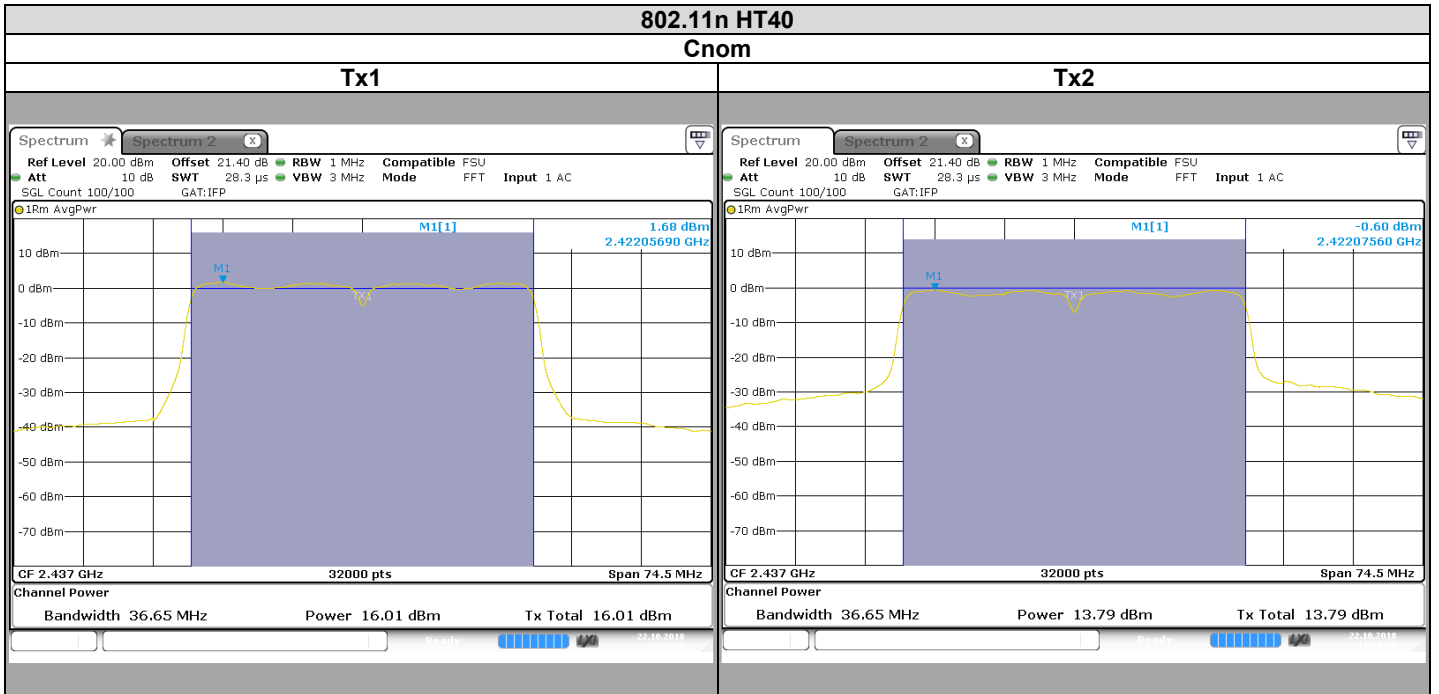
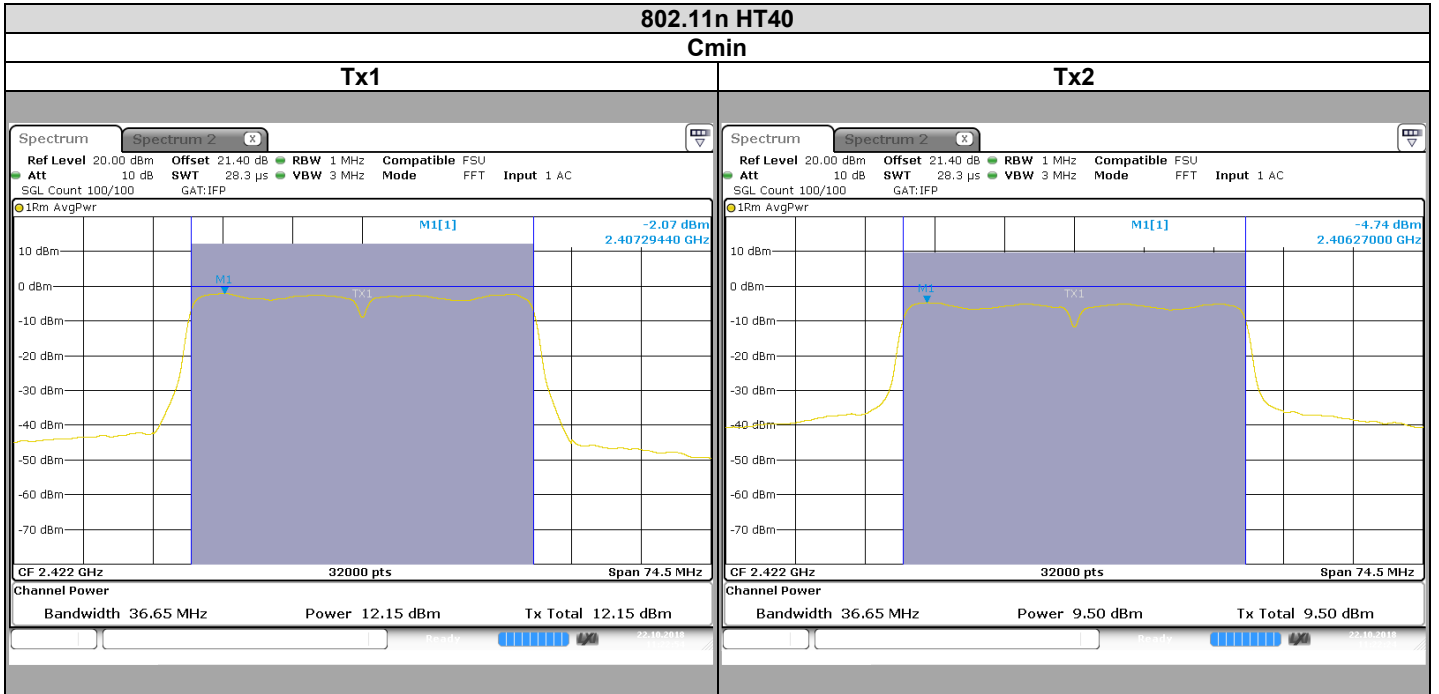


Tx2





L C I E





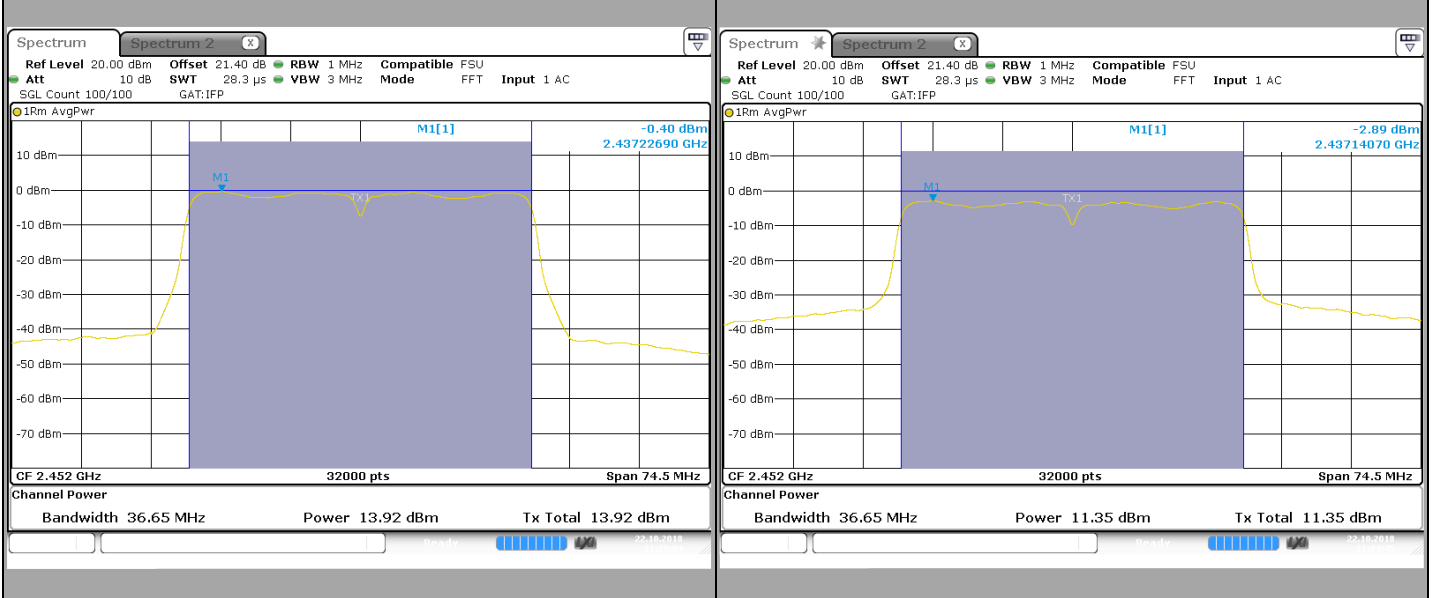
L C I E

802.11n HT40

Cmax

Tx1

Tx2





Spectrum Analyzer Offset:
Cable Loss=2.1dB + Attenuator= 20dB

802.11b							
Antenna 1							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	19,92	-	-	-	2.119	19,92	30
Cnom	21.7	-	-	-	2.119	21.7	30
Cmax	19,51	-	-	-	2.119	19,51	30

802.11b							
Antenna 2							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	18,05	-	-	-	1.279	18,05	30
Cnom	20,94	-	-	-	1.279	20,94	30
Cmax	17,55	-	-	-	1.279	17,55	30

802.11g							
Antenna 1							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	16,67	-	-	-	2.119	16,67	30
Cnom	20,31	-	-	-	2.119	20,31	30
Cmax	16,31	-	-	-	2.119	16,31	30

802.11g							
Antenna 2							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	14,76	-	-	-	1.279	14,76	30
Cnom	19,14	-	-	-	1.279	19,14	30
Cmax	14,12	-	-	-	1.279	14,12	30

802.11n HT20							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	14,18	11,76	-	-	4.719	16,15	30
Cnom	18,06	16,28	-	-	4.719	20,27	30
Cmax	15,76	13,56	-	-	4.719	17,81	30



L C I E

802.11n HT40							
Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Tx4 (dBm)	Overall Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Limit (dBm)
Cmin	12,15	9,5	-	-	4.719	14,03	30
Cnom	16,01	13,79	-	-	4.719	18,05	30
Cmax	13,92	11,35	-	-	4.719	15,83	30

6.6. CONCLUSION

Maximum Conducted Output Power measurement performed on the sample of the product **Sagemcom® Sound Box SBDV01**, SN: **253770742**, in configuration and description presented in this test report, show levels **compliant** to the **47 CFR PART 15.247** limits.

7. POWER SPECTRAL DENSITY

7.1. TEST CONDITIONS

Test performed by : Armand MAHOUNGOU
Date of test : September 27, 2018 to September 28, 2018
Ambient temperature : 24°C & 26°C
Relative humidity : 46% & 43%

7.2. TEST SETUP

- The Equipment Under Test is installed:

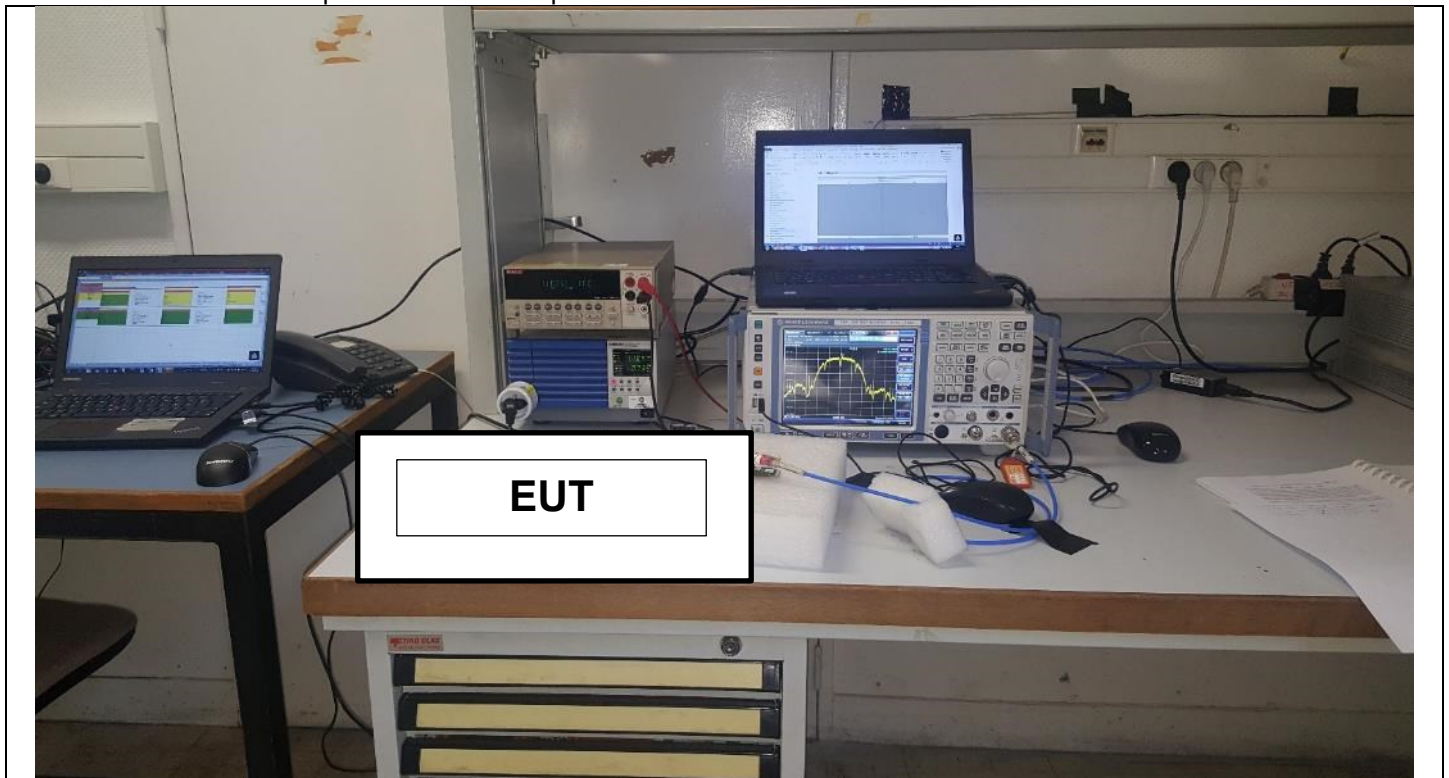
- On a table
- In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

- Conducted Method
- Radiated Method

- Test Procedure:

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



Photograph for Power Spectral Density



7.3. LIMIT

Power Spectral Density:
2400MHz-2483.5MHz: Shall not exceed 8dBm/3kHz
Limits are reduced by G-6dBi if Overall Antenna Gain above 6dBi

7.4. TEST EQUIPMENT LIST

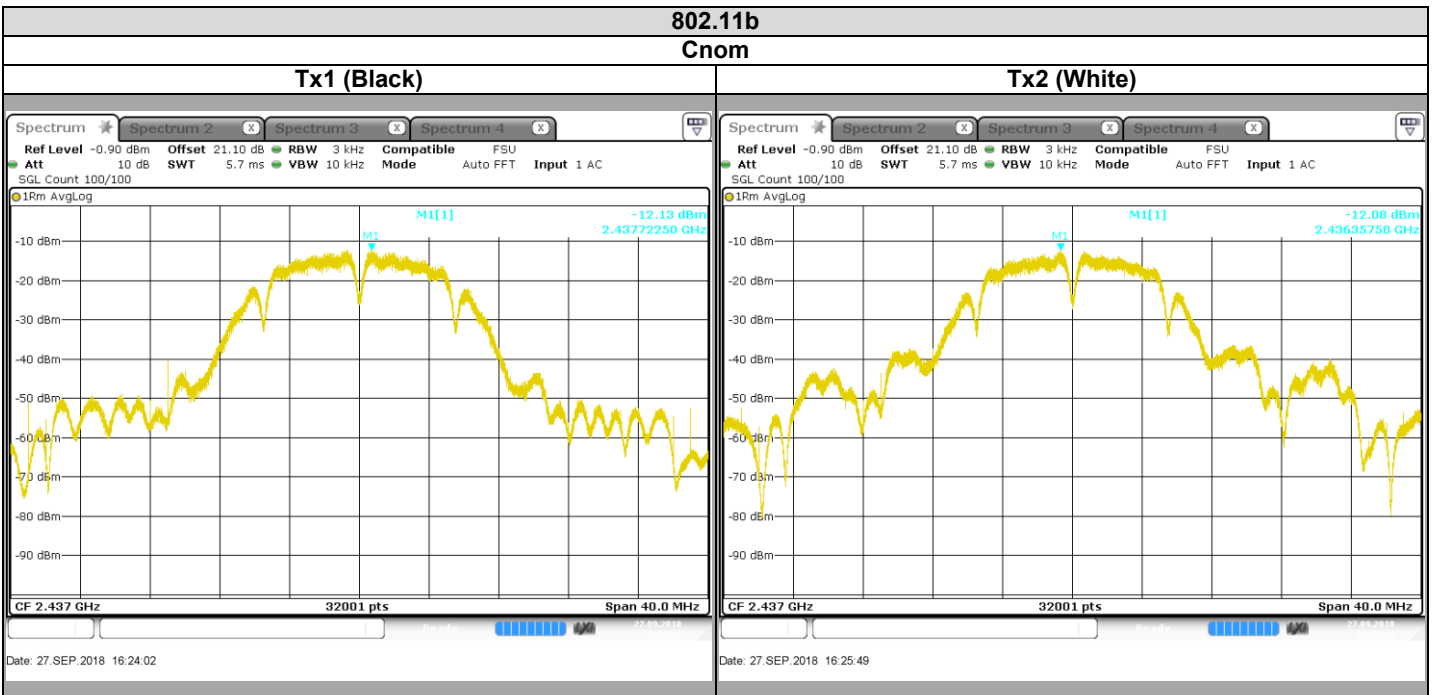
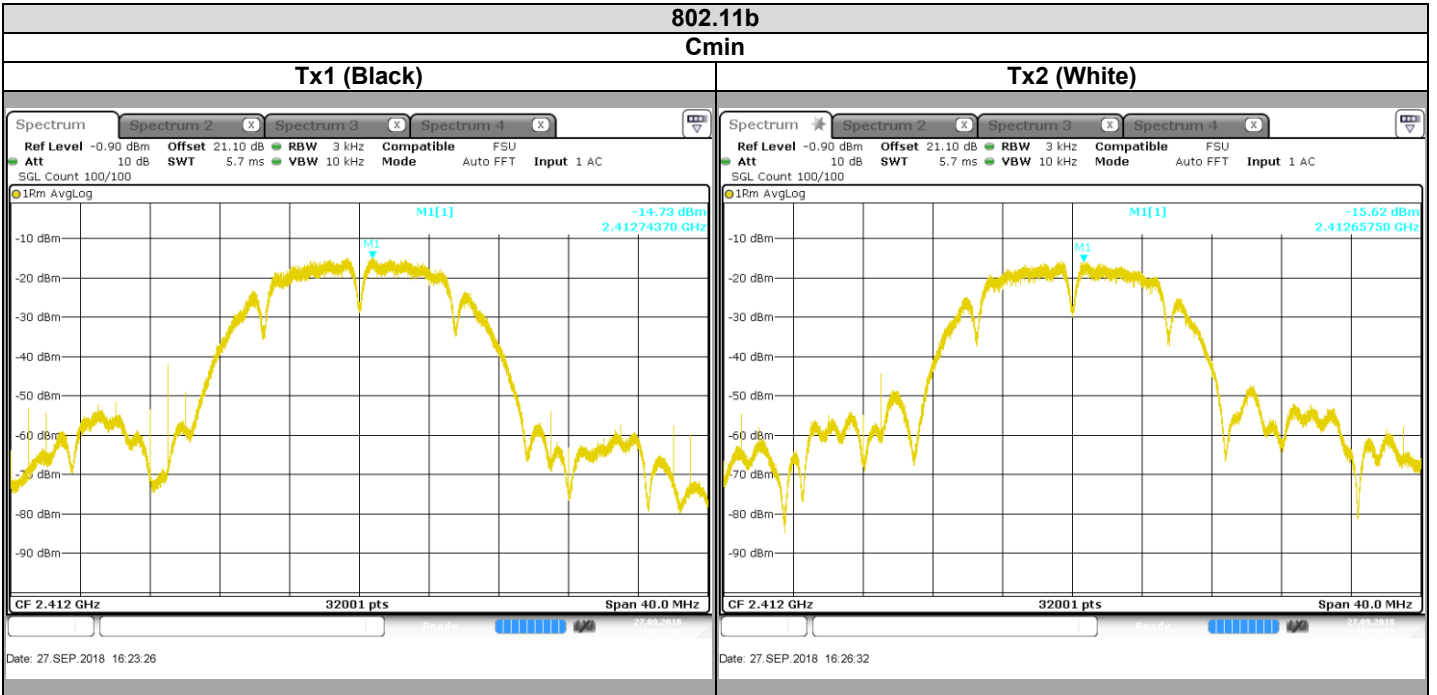
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2016/11	2018/11
Multimeter	KEITHLEY	2000	A1242090	2017/05	2019/05
Power supply	KIKUSUI	PCR500M	A7040079	Cal with Multimeter	Cal with Multimeter
Cable	TELEDYNE	920-0202-048	A5329674	2017/10	2018/10

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



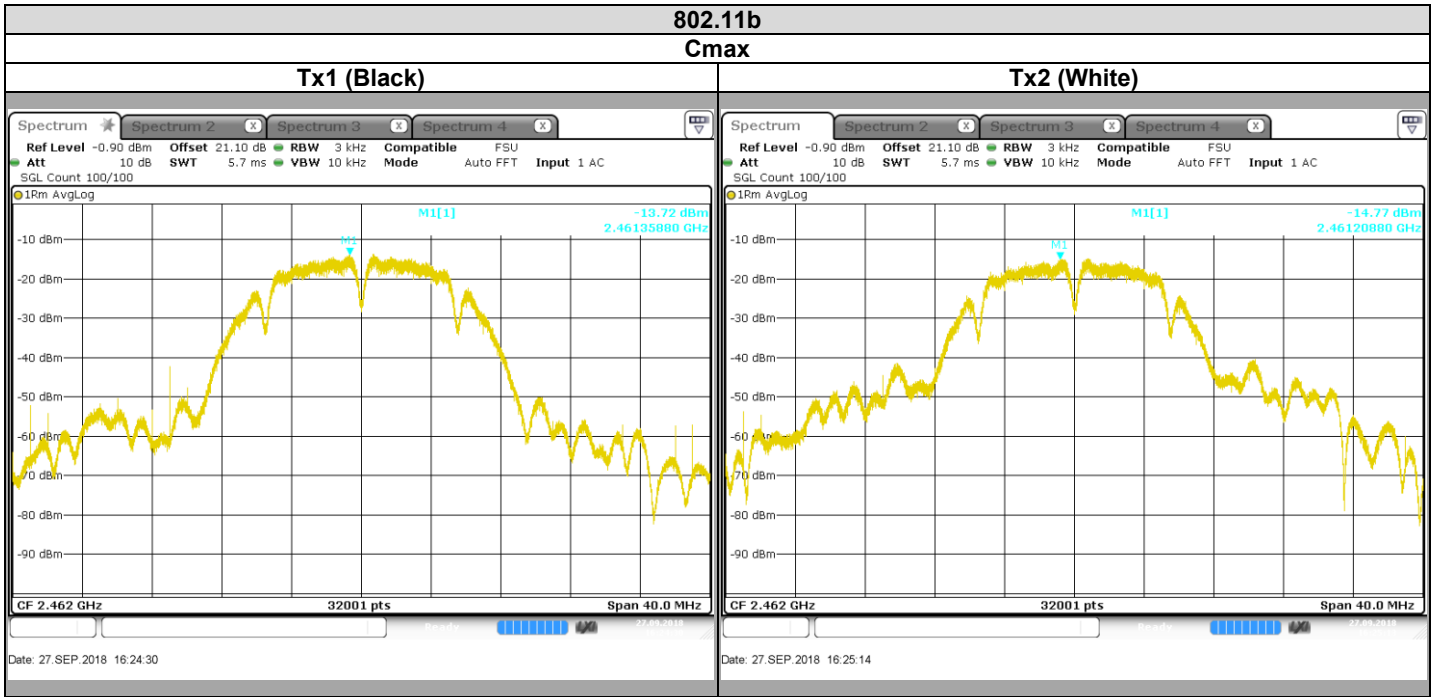
L C I E

7.5. RESULTS



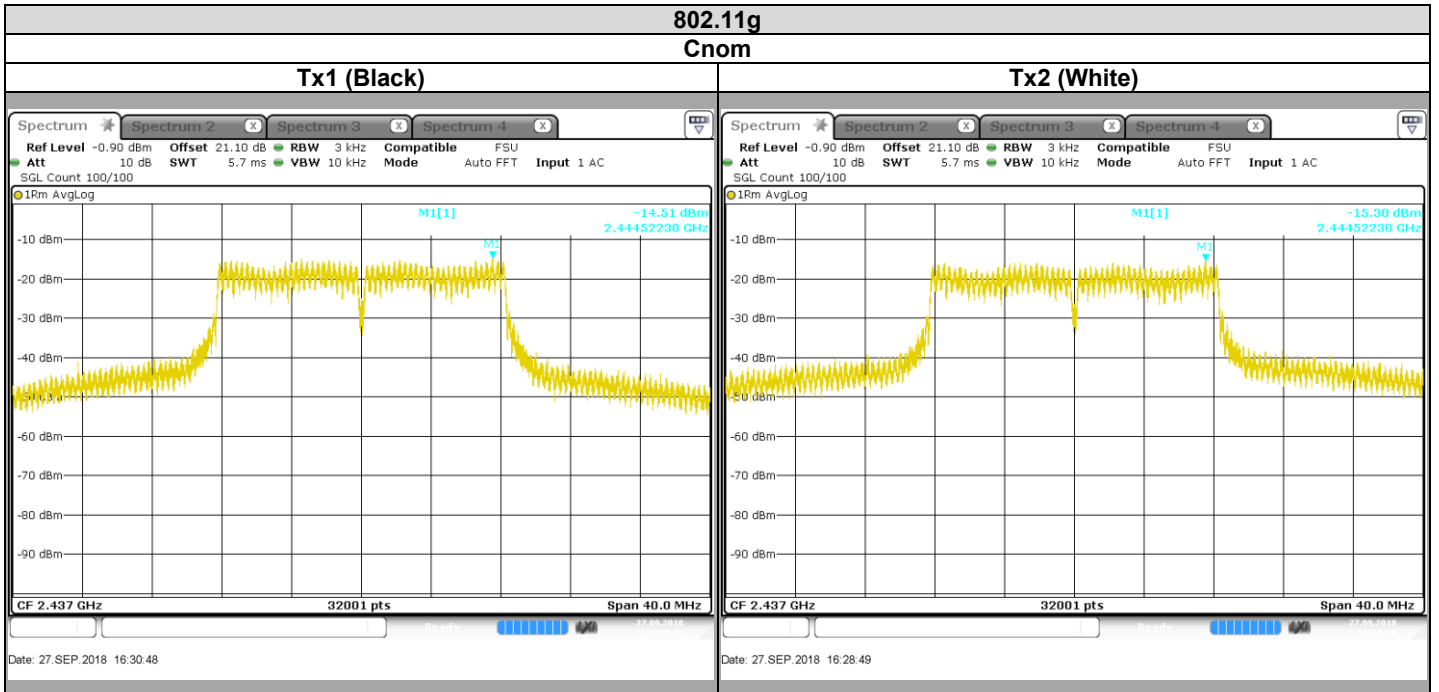
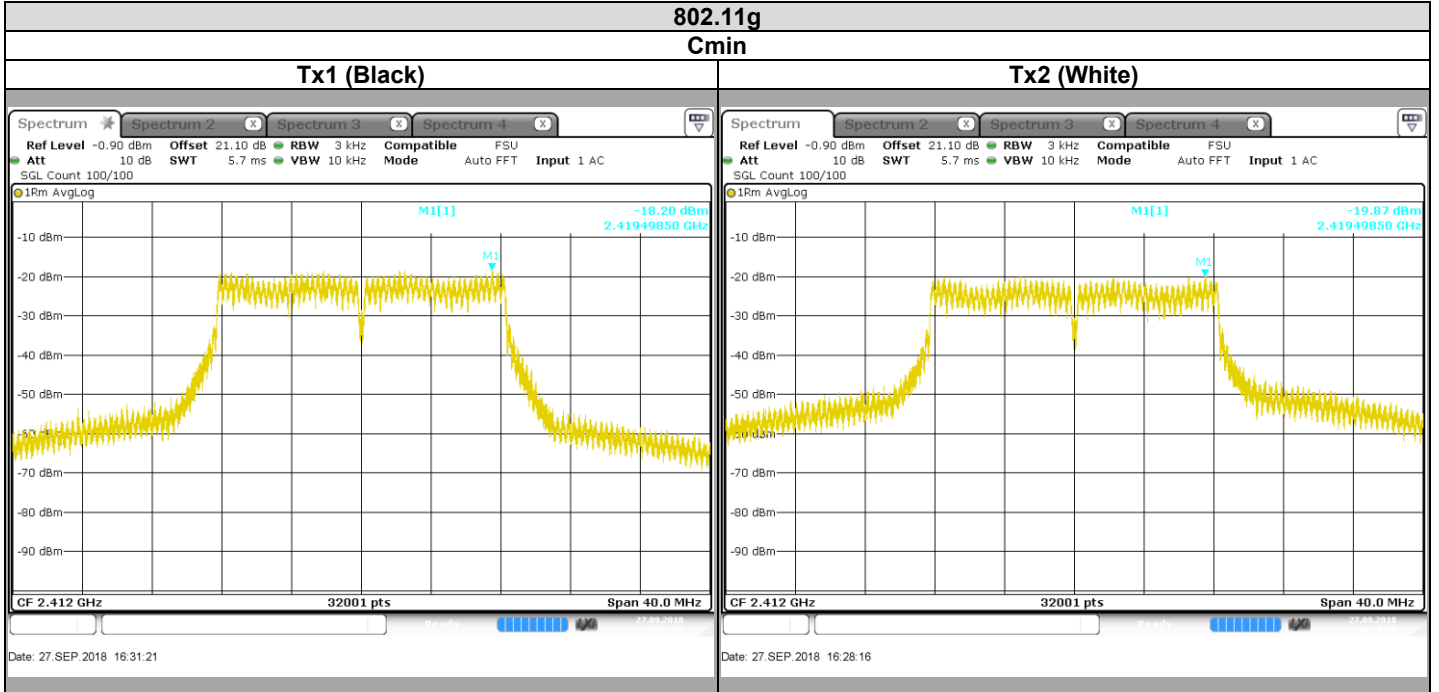


L C I E





L C I E





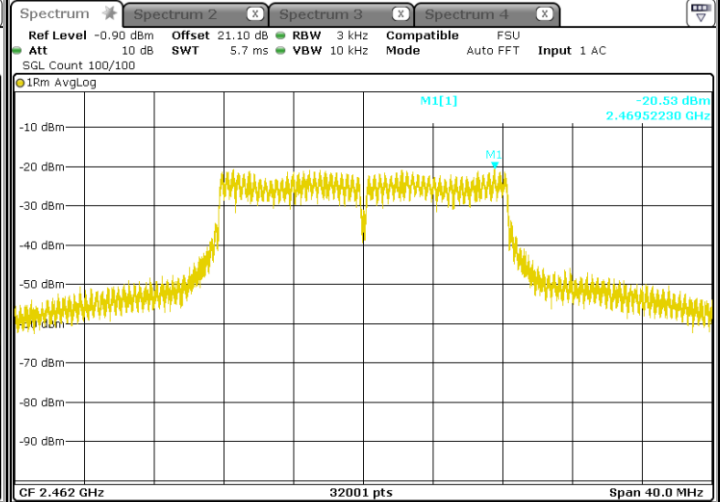
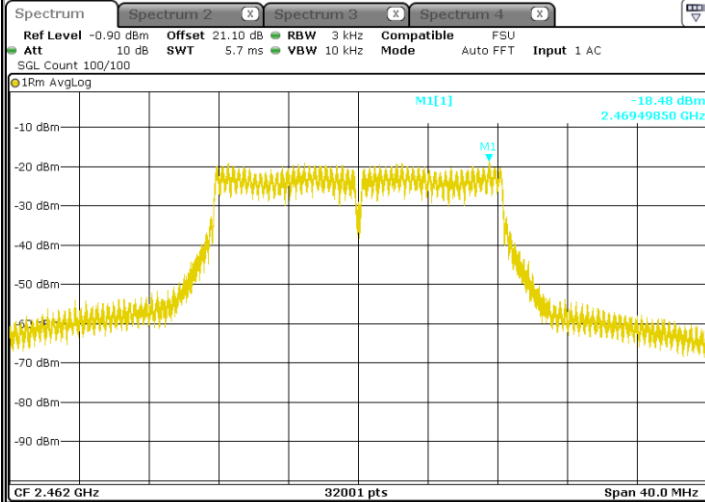
L C I E

802.11g

Cmax

Tx1 (Black)

Tx2 (White)

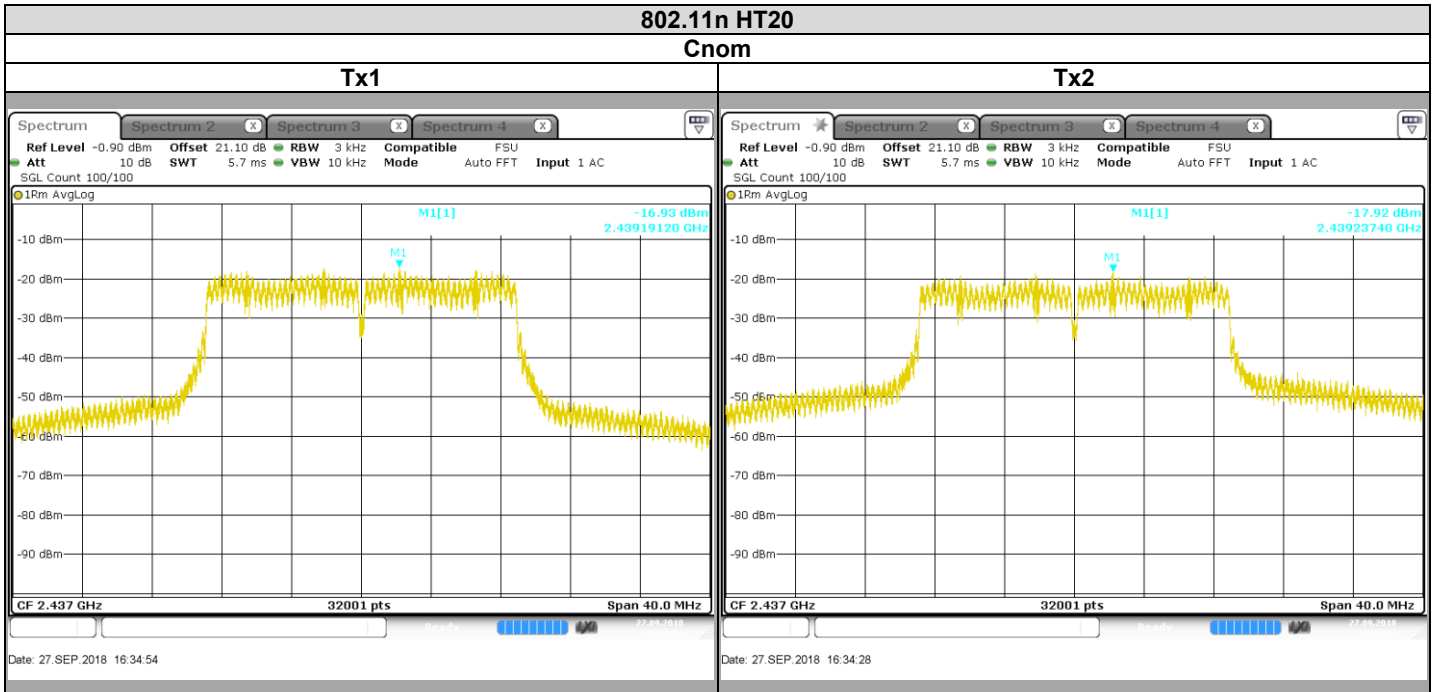
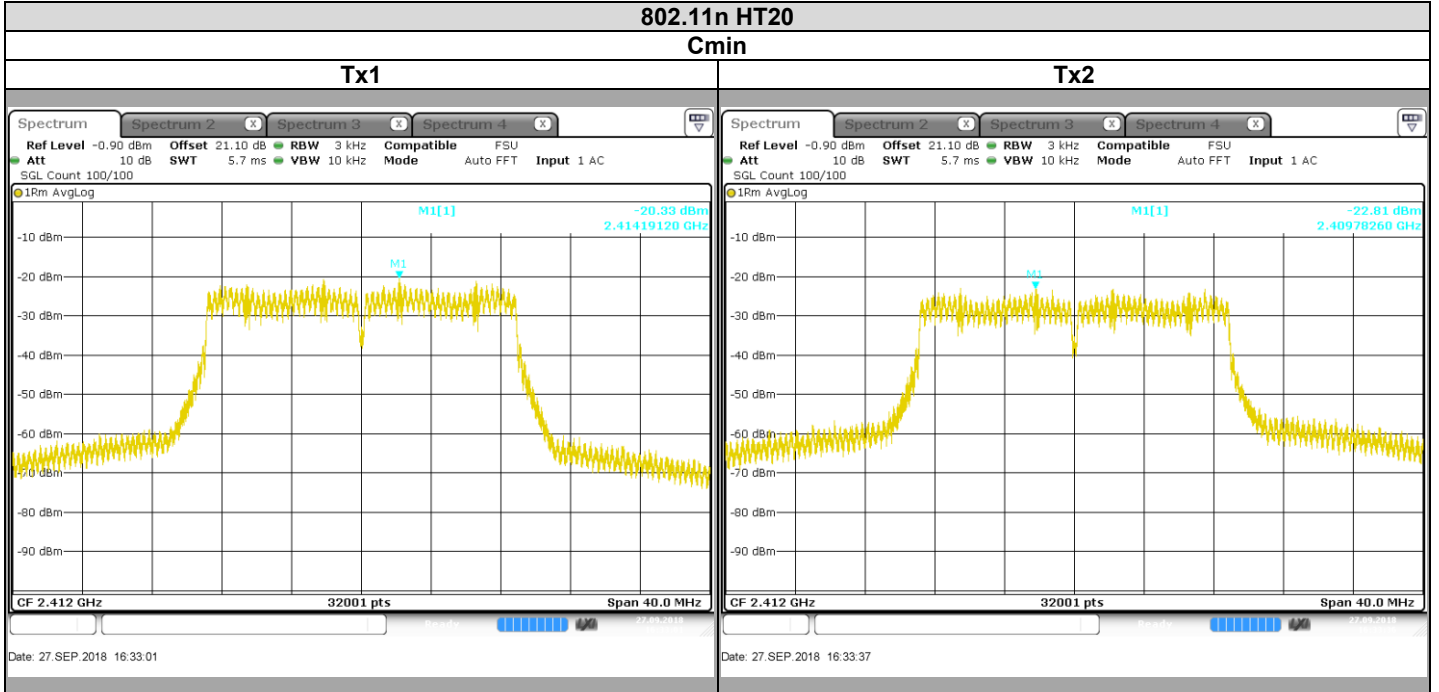


Date: 27.SEP.2018 16:30:09

Date: 27.SEP.2018 16:29:24



L C I E





L C I E

