TEST REPORT

RADIO

Number	125772-652184C
Composition of document	131 pages
FCC Registration Number	166175 (FAR) & 888863 (Ecuelles)
Industry Canada Number	6230B (FAR) and 6230B-1(Ecuelles)
Standards	47 CFR Part 15.407 RSS-210, Issue 8 RSS-Gen, Issue 3
Issued to	SAGEMCOM 250, route de l'Empereur 92848 RUEIL MALMAISON
Apparatus under test	Home router
Trade mark	SAGEMCOM
Manufacturer	SAGEMCOM
Type	Fast 5260
Serial number	122222222222222
FCC ID	VW3FAST5260
Test date	2013/07/17 to 2013/07/19 & 2013/07/22 to 2013/07/23 & 2014/01/17
Tests performed by	Stéphane PHOUDIAH, Gilles DE-BUYSER & Laurent DENEUX
Test site	Fontenay aux Roses & Ecuelles
Date of issue	February 19th, 2014

Written by :
Stéphane PHOUDIAH
Tests operator

Approved by :
Patrick PEREIRA
Technical Manager

LABORATOIRE CENTRAL DES INDUSTRIES ELECTRIQUES
S.A.S au capital de 15.745.984 €
RCS Nanterre B 408 363 174
33 avenue du General Leclerc
F - 92260 FONTENAY AUX ROSES

SUMMARY

1. TEST PROGRAM 3
2. EQUIPMENT DESCRIPTION 4
3. OCCUPIED BANDWIDTH 12
4. -26DB BANDWIDTH 18
5. DUTY CYCLE 24
6. POWER LIMITS & POWER SPECTRAL DENSITY 27
7. TRANSMIT POWER CONTROL 58
8. RATIO PEAK EXCURSION 76
9. AC POWER LINE CONDUCTED EMISSIONS 82
10. UNWANTED EMISSIONS & UNDESIRABLE EMISSION LIMITS 87
11. TEST EQUIPMENT LIST 130
12. UNCERTAINTIES CHART 131

1. TEST PROGRAM

References

Standards:
- 47 CFR Part 15E
- RSS-210
- RSS-Gen
- CISPR 16-4-2
- ANSI C63.10

Standard Section	Test Description	TEST RESULT - Comments
RSS-Gen § 4.6.1	Occupied Bandwidth	PASS
CFR 47 § 15.407 (a) (1) (2) (3)	-26dB Bandwidth	PASS
CFR 47 § 15.407 (a) (1) RSS-210 § A9.2 (1)	Power Limits	PASS
CFR 47 § 15.407 (a) (1) RSS-210 § A9.2 (1)	Power Spectral Density	PASS
CFR 47 § 15.207 (a) (6)	Peak Excursion Ratio	PASS
CFR 47 § 15.407 (b) (1) (2) (3) RSS-210 § A9.2 (1) (2) (3)	Undesirable Emission limits	PASS
CFR 47 § 15.407 (b) (6) CFR 47 § 15.207 RSS-Gen § 7.2.4 RSS-210 § A9.2 (3)	AC Power Line Conducted Emissions	PASS
CFR 47 § 15.209 (a) CFR 47 § 15.205 (a) CFR 47 § 15.407 (b) (6) RSS-210 § A9.2 (3)	Unwanted Emissions	PASS
CFR 47 § 15.407 (g)	Frequency Stability	PASS (The Manufacturer declares the EUT emission is maintained within the band of operation under all conditions of normal operation as specified in the user manual)
CFR 47 § 15.407 (h) (1)	Transmit Power Control	PASS
CFR 47 § 15.407 (h) (2)	Dynamic Frequency Selection	See Test Report N°122014-644470D

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 DESCRIPTION

2.1. HARDWARE & SOFTWARE IDENTIFICATION

Equipment under test (EUT):

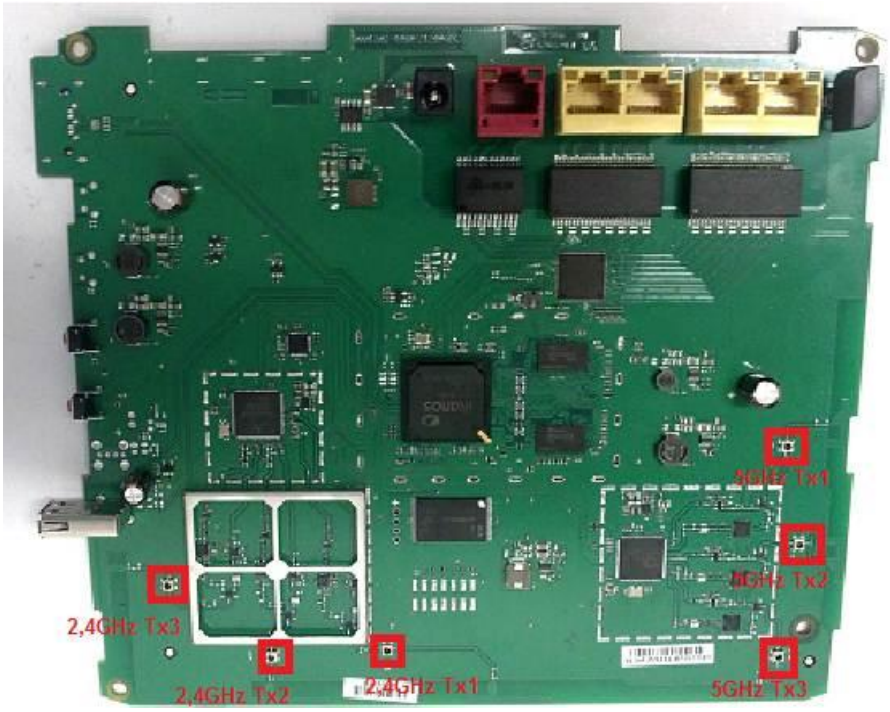
Front view

Rear View

Side view

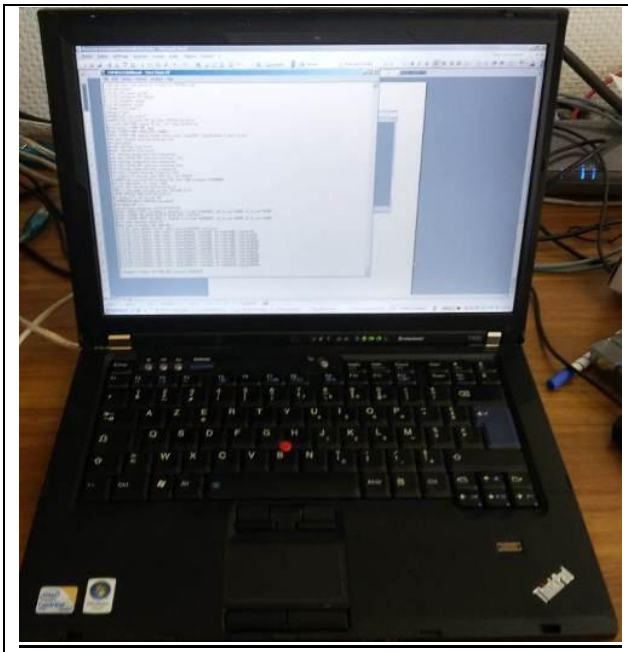
Power Supply

Photograph of EUT



Electronic Card
Photograph of EUT

Auxiliary equipment (AE) used for testing:



Laptop LENOVO T400 for Master Device Setting
Photograph of AE

Input/output:
- Input Power
- 4 Ethernet ports
- 1 WAN port
- 1 USB ports

Software identification:
-Software version: V6.0.9.1

Equipment of the same family:
According to the manufacturer declaration, the router Fast 5260 is a variant of the router F@st 5260CV. This variant is created by removing e-SATA interface and one USB interface (See FAST 5260 declaration for more information), and the radio parts of these 2 variants are strictly identical.
So, Conducted Test results in this test report are retrieves from F@st 5260CV test report (FCC ID: VW3FAST5260CV).

Equipment information:
- Wifi Version: 802.11a/n HT20/n HT40/ac VHT80
- Modulation technology: OFDM and DSSS modulation
- Transmit operating mode: Multiples antenna without beam forming
- Number of transmit chains: 3 symmetrical
- Number of receiver chains: 3
- Beamforming gain: No
- Type of the equipment: Stand-alone equipment
- Type of power source: External power supply
- Antenna type: Integral
- Test sequence/test software used: See 2.2. Running Mode
- Duty Cycle: Continuous duty
- Operating frequency range

Frequency Band (MHz)	Test Report
2400MHz to 2483,5MHz	125772-652184A
5150MHz to 5350MHz	125772-652184C&D
5470MHz to 5725MHz (Note 1)	125772-652184C&D
5725MHz to 5850MHz	125772-652184B

(Note1: The Manufacturer declares the 5600MHz -5650MHz band is not available)

- Antenna Characteristics:

All Tx	
Frequency Band (MHz)	**Declared Overall Antenna Gain (dBi)**
2.4GHz	6,4 (Note 1)
5GHz	7 (Note 1)

Note 1: Informations given by the customer in “Sagemcom_F@st 5260CV_Radio-tool -Guide_Ed1_20130503” word document.

-Channel plan 802.11a, 802.11n HT20:

Channel	Frequency (MHz)
C1=36	5180
C2=40	5200
44	5220
C3=48	5240
C4=52	5260
56	5280
C5=60	5300
C6=64	5320
C7=100	5500
104	5520
108	5540
112	5560
C8=116	5580
132	5660
136	5680
C9=140	5700

-Channel plan 802.11n HT40:

	Frequency (MHz)
C10=36+40	5190
C11=44+48	5230
C12=52+56	5270
C13=60+64	5310
C14=100+104	5510
C15=108+112	5550
C16=132+136	5670

-Channel plan 802.11ac VHT80:

Channel	Frequency (MHz)
C17=36+40+44+48	5210
C18=52+56+60+64	5290
C19=100+104+108+112	5530

-Data Rate:

802.11a	
Data Rate (Mbps)	**Modulation Type**
6	BPSK
9	BPSK
12	QPSK
18	QPSK
24	16-QAM
36	16-QAM
48	64-QAM
54	64-QAM

MCS index	Spatial streams	Modulation Type	802.11n HT20		802.11n HT40	
			Data rate (Mbit/s		Data rate (Mbit/s)	
			GI=800ns	GI=400ns	GI=800ns	GI=400ns
0	1	BPSK	6.50	7.20	13.50	15.00
1	1	QPSK	13.00	14.40	27.00	30.00
2	1	QPSK	19.50	21.70	40.50	45.00
3	1	16-QAM	26.00	28.90	54.00	60.00
4	1	16-QAM	39.00	43.30	81.00	90.00
5	1	64-QAM	52.00	57.80	108.00	120.00
6	1	64-QAM	58.50	65.00	121.50	135.00
7	1	64-QAM	65.00	72.20	135.00	150.00
8	2	BPSK	13.00	14.40	27.00	30.00
9	2	QPSK	26.00	28.90	54.00	60.00
10	2	QPSK	39.00	43.30	81.00	90.00
11	2	16-QAM	52.00	57.80	108.00	120.00
12	2	16-QAM	78.00	86.70	162.00	180.00
13	2	64-QAM	104.00	115.60	216.00	240.00
14	2	64-QAM	117.00	130.00	243.00	270.00
15	2	64-QAM	130.00	144.40	270.00	300.00
16	3	BPSK	19.50	21.70	40.50	45.00
17	3	QPSK	39.00	43.30	81.00	90.00
18	3	QPSK	58.50	65.00	121.50	135.00
19	3	16-QAM	78.00	86.70	162.00	180.00
20	3	16-QAM	117.00	130.00	243.00	270.00
21	3	64-QAM	156.00	173.30	324.00	360.00
22	3	64-QAM	175.50	195.00	364.50	405.00
23	3	64-QAM	195.00	216.70	405.00	450.00

MCS index	Spatial streams	Modulation Type	802.11ac VHT80	
			Data rate (Mbit/s	
			GI=800ns	GI=400ns
0	1	BPSK	29.3	32.5
1	1	QPSK	58.5	65
2	1	QPSK	87.8	97.5
3	1	16-QAM	117	130
4	1	16-QAM	175.5	195
5	1	64-QAM	234	260
6	1	64-QAM	263.3	292.5
7	1	64-QAM	292.5	325
8	1	256-QAM	351	390
9	1	256-QAM	390	433.3
10	2	BPSK	58,6	65
11	2	QPSK	117	130
12	2	QPSK	175.6	195
13	2	16-QAM	234	260
14	2	16-QAM	351	390
15	2	64-QAM	468	520
16	2	64-QAM	526.6	585
17	2	64-QAM	585	650
18	2	256-QAM	702	780
19	2	256-QAM	780	866.6
20	3	BPSK	87.9	97.5
21	3	QPSK	175.5	195
22	3	QPSK	263.4	292.5
23	3	16-QAM	351	390
24	3	16-QAM	526,5	585
25	3	64-QAM	702	780
26	3	64-QAM	789.9	877.5
27	3	64-QAM	877.5	975
28	3	256-QAM	1053	1170
29	3	256-QAM	1170	1299.9

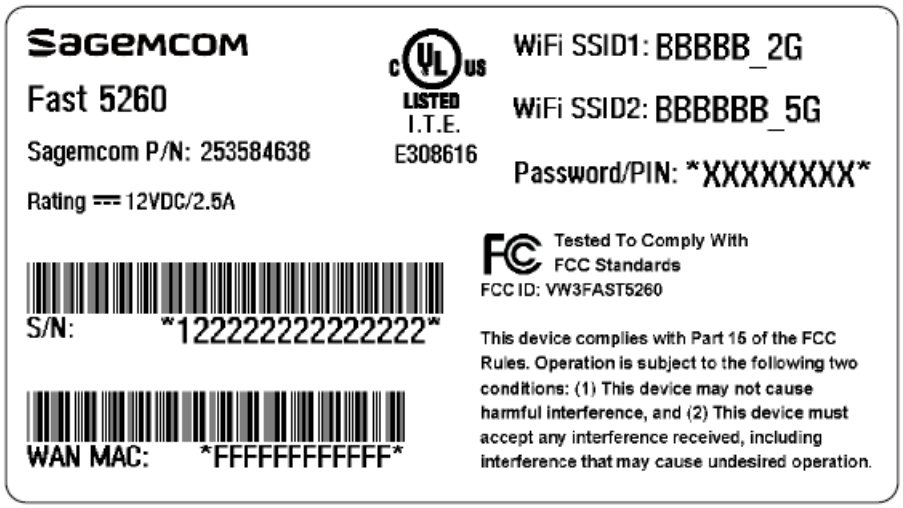
2.2. RUNNING MODE

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 (802.11a: 6Mbps, 802.11n HT20: MCS16, 802.11n HT40: MCS16, 802.11ac VHT80: MCS0)
- Permanent reception

Following commands with the specific test software “Atheros Radio Tool client v1.17.3” are used to set the product:

	Modulation	Band	Power Setting	Frequencies	Command
802.11a	6MBps	UNII-1	10	5180	tx f=5180;r=6;pl=5000;pc=-1;txch=7;tx99=1;tp=10
			10	5200	tx f=5200;r=6;pl=5000;pc=-1;txch=7;tx99=1;tp=10
			10	5240	tx f=5240;r=6;pl=5000;pc=-1;txch=7;tx99=1;tp=10
		UNII-2	16	5260	tx f=5260;r=6;pl=5000;pc=-1;txch=7;tx99=1;tp=16
			16	5300	tx f=5300;r=6;pl=5000;pc=-1;txch=7;tx99=1;tp=16
			16	5320	tx f=5320;r=6;pl=5000;pc=-1;txch=7;tx99=1;tp=16
		UNII-3	16	5500	tx f=5500;r=6;pl=5000;pc=-1;txch=7;tx99=1;tp=16
			16	5580	tx f=5580;r=6;pl=5000;pc=-1;txch=7;tx99=1;tp=16
			16	5700	tx f=5700;r=6;pl=5000;pc=-1;txch=7;tx99=1;tp=16
802.11n HT20	MCS16	UNII-1	10	5180	tx f=5180;r=t16;pl=8000;pc=-1;txch=7;tx99=1;tp=10
			10	5200	tx f=5200;r=t16;pl=8000;pc=-1;txch=7;tx99=1;tp=10
			10	5240	tx f=5240;r=t16;pl=8000;pc=-1;txch=7;tx99=1;tp=10
		UNII-2	16	5260	tx f=5260;r=t16;pl=8000;pc=-1;txch=7;tx99=1;tp=16
			16	5300	tx f=5300;r=t16;pl=8000;pc=-1;txch=7;tx99=1;tp=16
			16	5320	tx f=5320;r=t16;pl=8000;pc=-1;txch=7;tx99=1;tp=16
		UNII-3	16	5500	tx f=5500;r=t16;pl=8000;pc=-1;txch=7;tx99=1;tp=16
			16	5580	tx f=5580;r=t16;pl=8000;pc=-1;txch=7;tx99=1;tp=16
			16	5700	tx f=5700;r=t16;pl=8000;pc=-1;txch=7;tx99=1;tp=16
802.11n HT40	MCS16	UNII-1	10	5180, 5200	tx f=5180;r=f16;pl=16000;pc=-1;txch=7;tx99=1;tp=10
			10	5220, 5240	tx f=5220;r=f16;pl=16000;pc=-1;txch=7;tx99=1;tp=10
		UNII-2	18	5260, 5280	tx f=5260;r=f16;pl=16000;pc=-1;txch=7;tx99=1;tp=18
			16	5300, 5320	tx f=5300;r=f16;pl=16000;pc=-1;txch=7;tx99=1;tp=16
		UNII-3	16	5500, 5520	tx f=5500;r=f16;pl=16000;pc=-1;txch=7;tx99=1;tp=16
			18	5540, 5560	tx f=5540;r=f16;pl=16000;pc=-1;txch=7;tx99=1;tp=18
			18	5660, 5680	tx f=5660;r=f16;pl=16000;pc=-1;txch=7;tx99=1;tp=18
802.11ac VHT80	MCS0	UNII-1	10	5180, 5220, 5240, 5260	tx f=5210;r=ve0;pl=16000;pc=-1;txch=7;tx99=1;tp=10
		UNII-2	10	5260, 5280, 5300, 5320	tx f=5290;r=ve0;pl=16000;pc=-1;txch=7;tx99=1;tp=10
		UNII-3	12	5500, 5520, 5540, 5560	tx f=5530;r=ve0;pl=16000;pc=-1;txch=7;tx99=1;tp=12

2.3. EQUIPEMENT LABELLING



EUT Marking plate

EUT Power supply marking plate

2.4. EQUIPMENT MODIFICATIONS

No equipment modification has been necessary during testing.

3. OCCUPIED BANDWIDTH

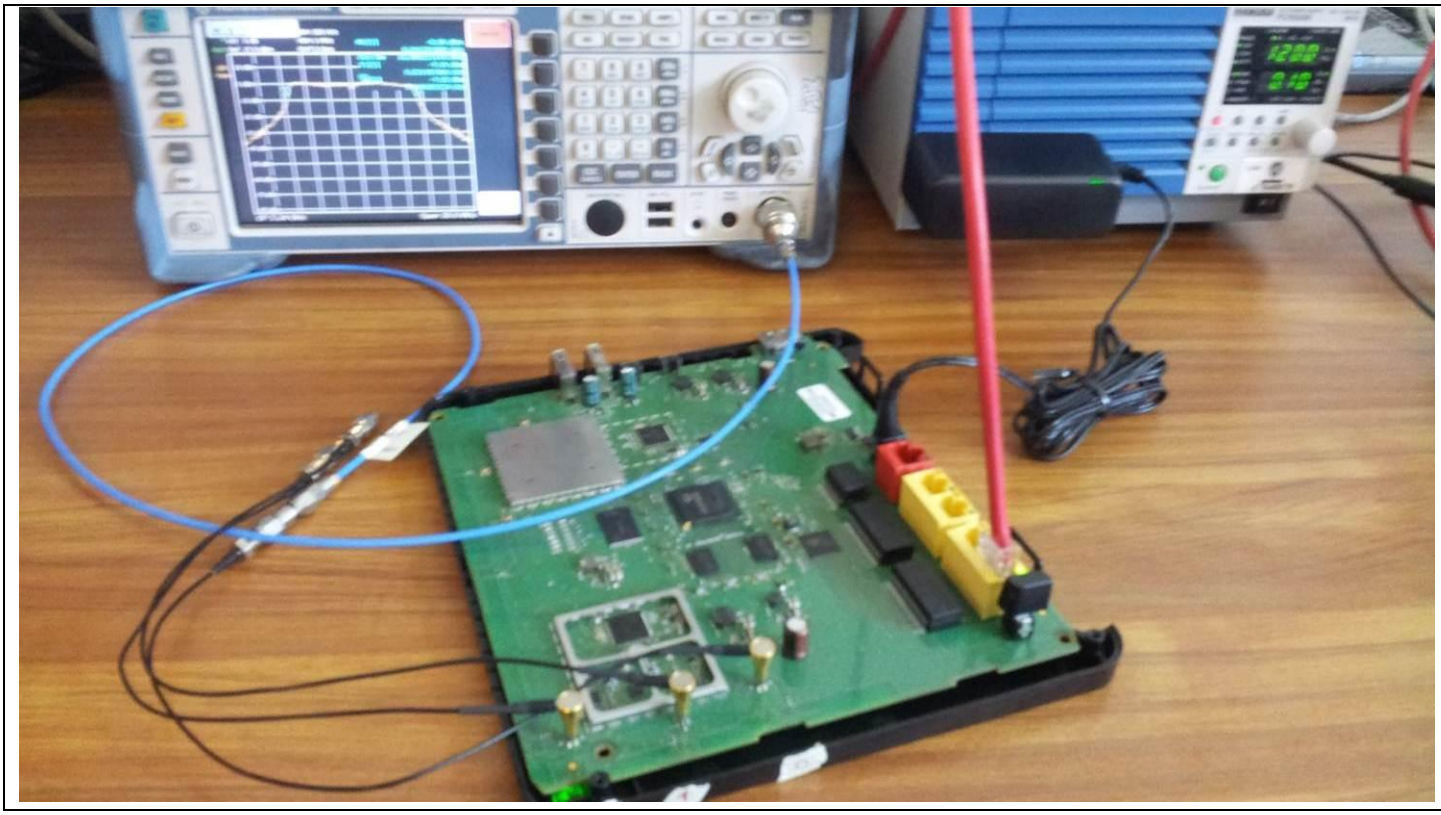
3.1. TEST CONDITIONS

Test performed by : Stéphane PHOUDIAH
Date of test : 2013/07/17
Ambient temperature : 26°C
Relative humidity : 45%

3.2. TEST SETUP

The Equipment Under Test is installed on a table and set in permanent emission with modulation. Measurement is performed with a spectrum analyzer on the EUT conducted access. The product has been tested according to the FCC KDB 789033 D01 General UNII Test Procedures v01r03 § D.

Spectrum Analyzer Setting:
Center frequency= Center of emission spectrum
Span= At least the emission spectrum
Amplitude= Sufficient to observe the signal amplitude
RBW= 1% to 5% of the OBW
VBW= 3*RBW
Sweep= Auto
Trace= Max Hold
Detector= Peak
Occupied Bandwidth 99% function activated

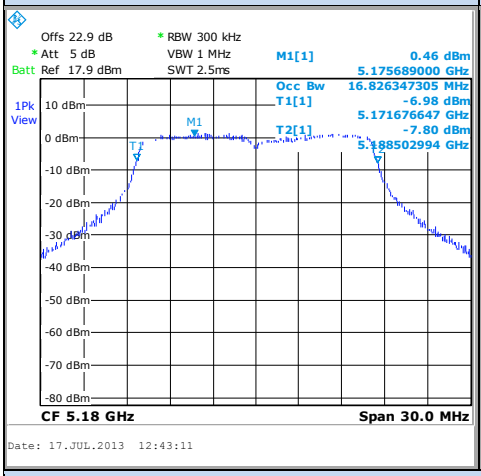


Photograph for Bandwidth

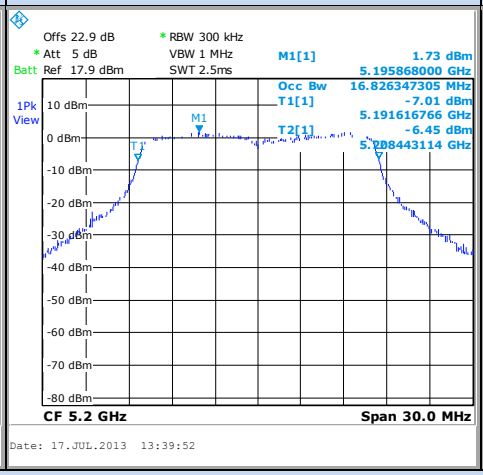
3.3. GRAPHICS & RESULTS

802.11a

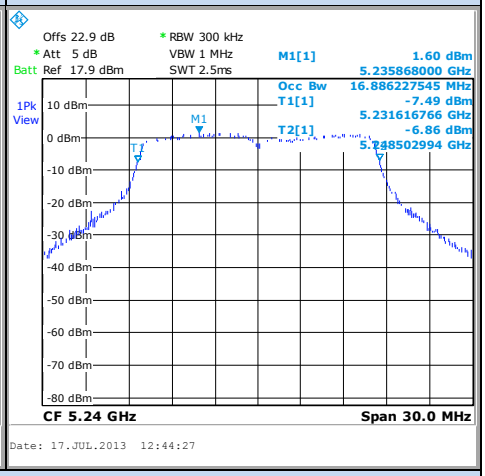
C1



C2

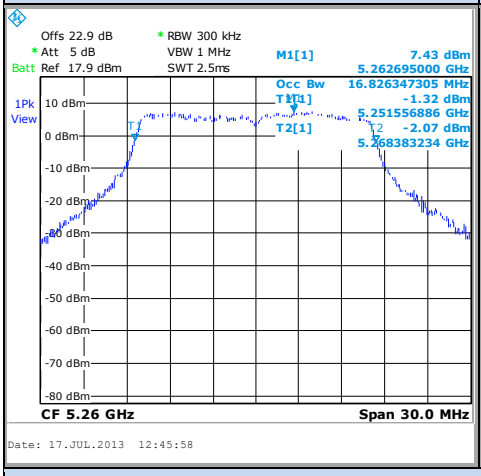


C3

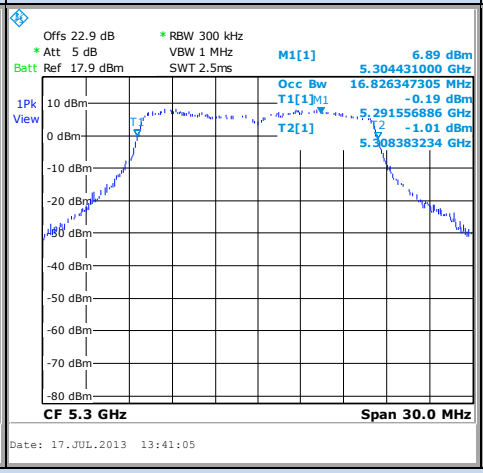


802.11a

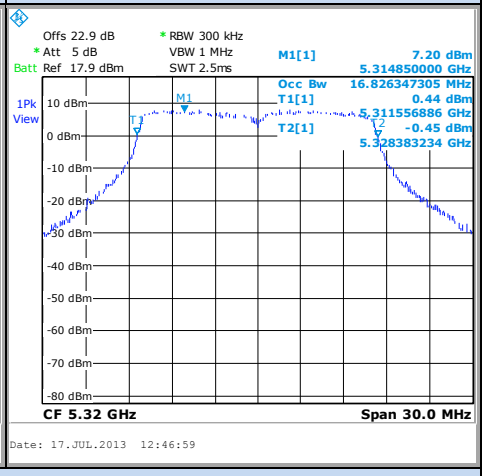
C4



C5

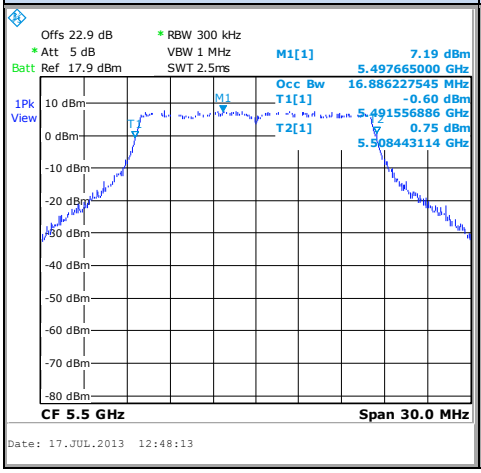


C6

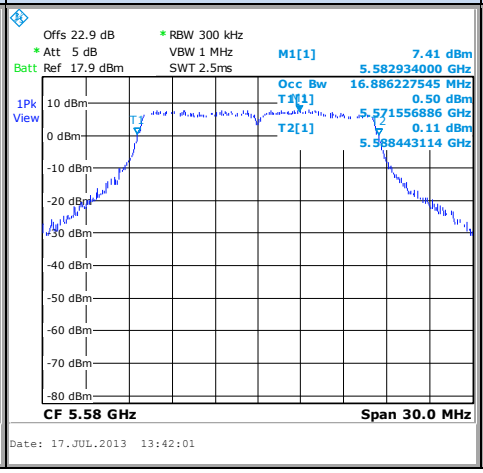


802.11a

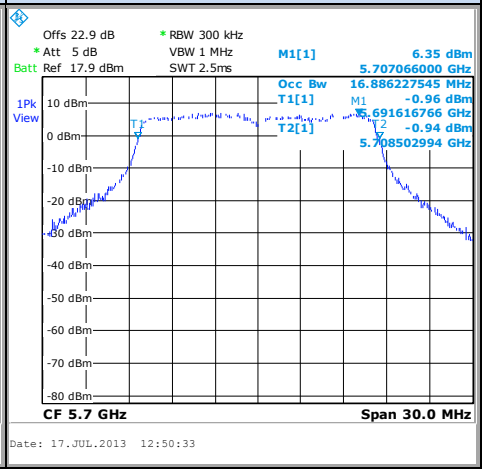
C7



C8

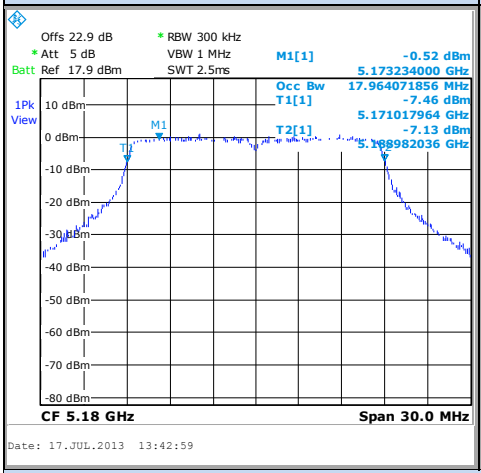


C9

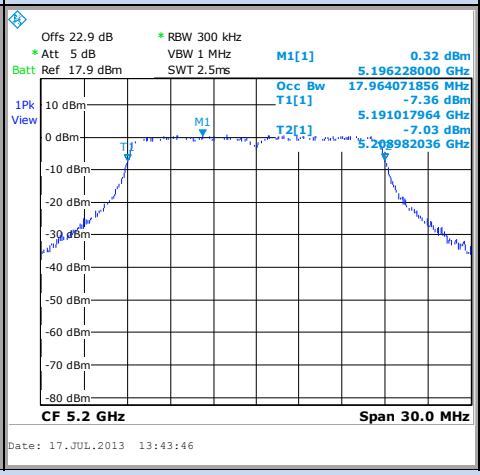


802.11n HT20

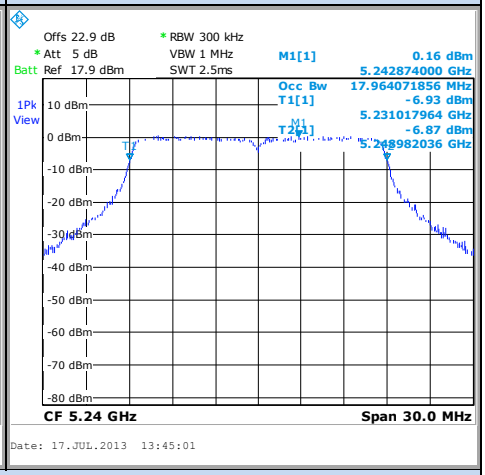
C1



C2

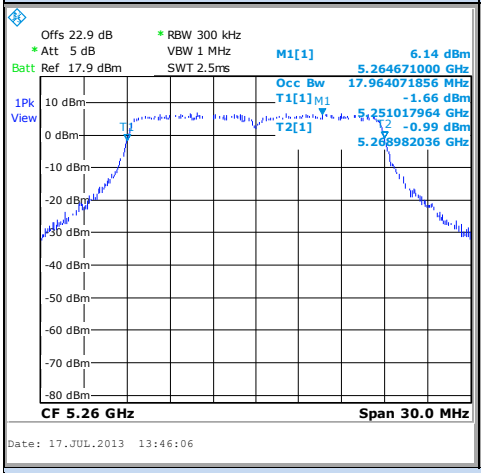


C3

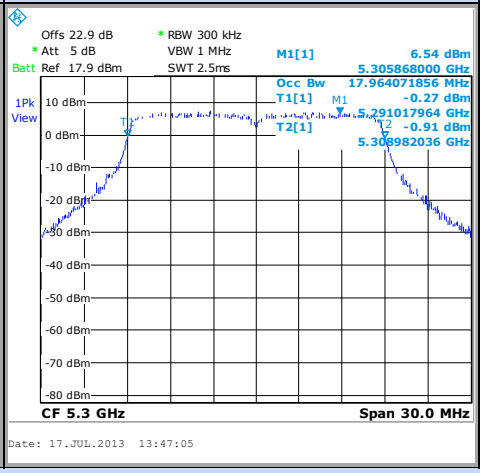


802.11n HT20

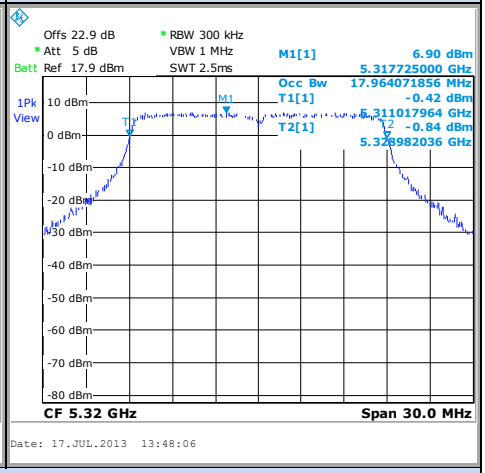
C4



C5

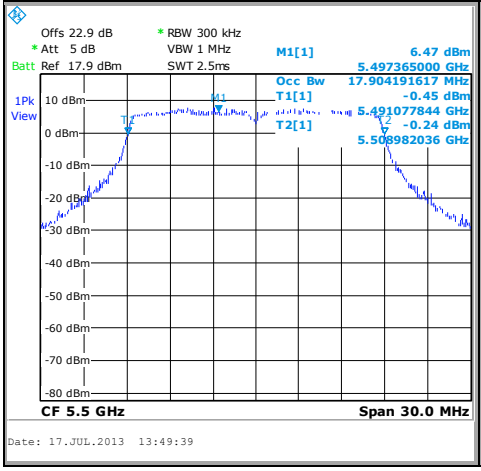


C6

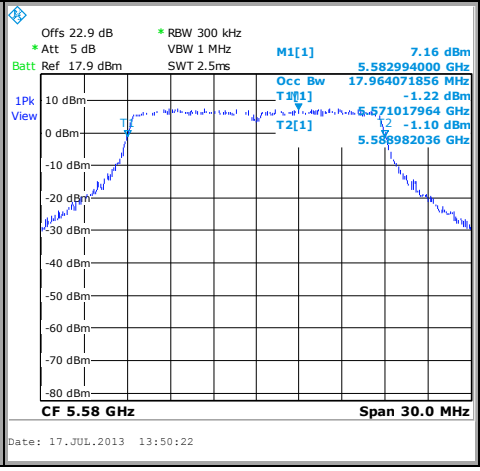


802.11n HT20

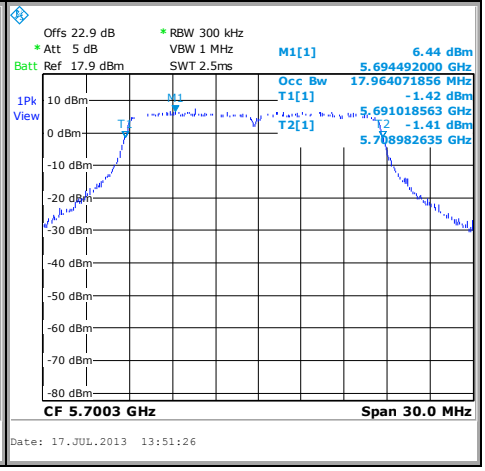
C7



C8

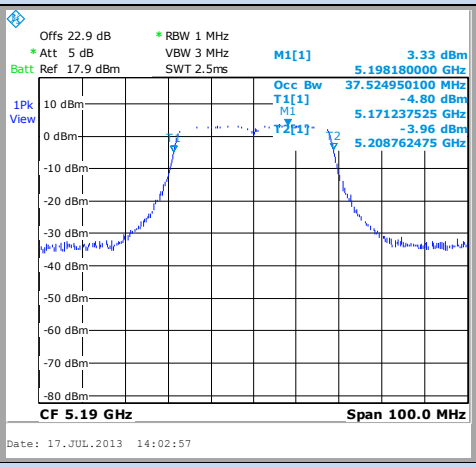


C9

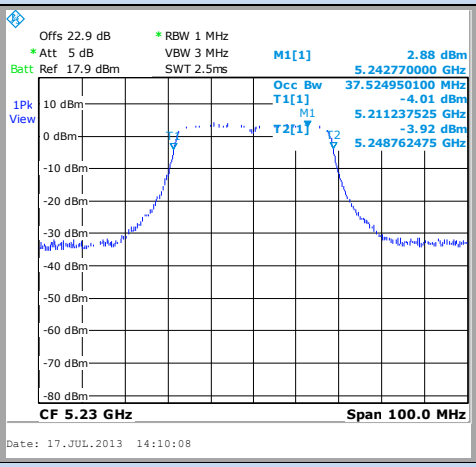


802.11n HT40

C10

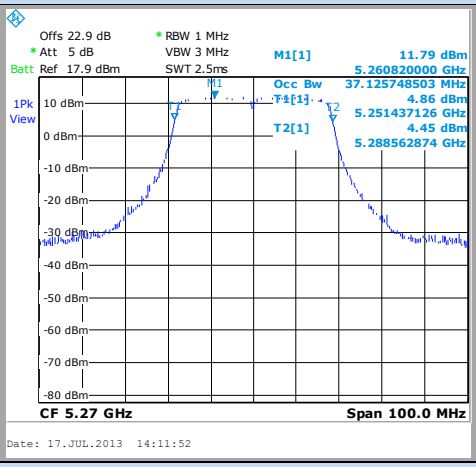


C11

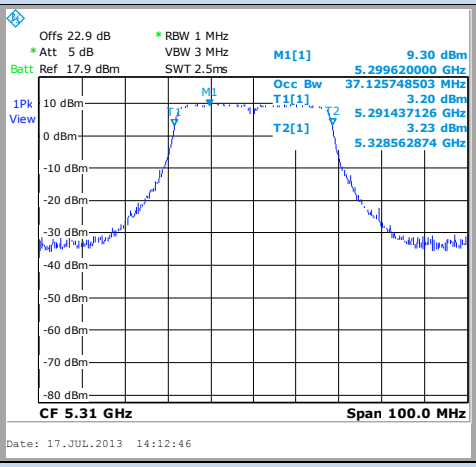


802.11n HT40

C12

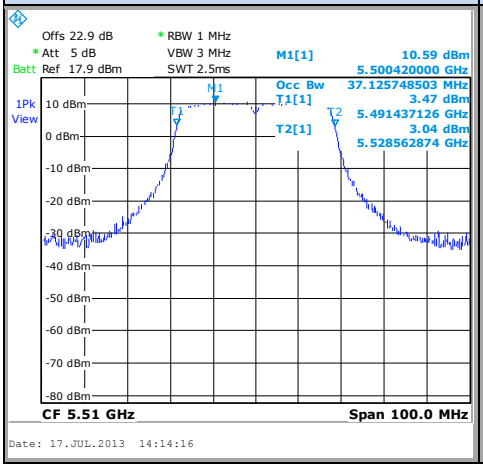


C13

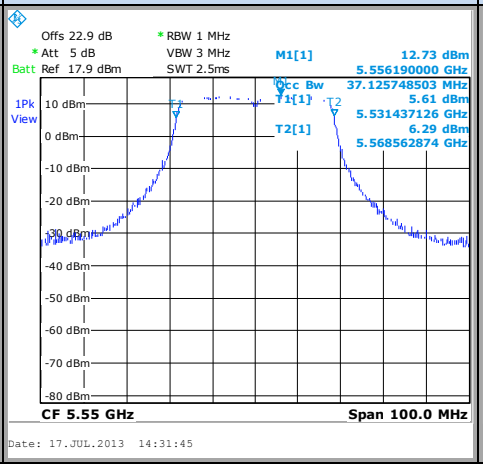


802.11n HT40

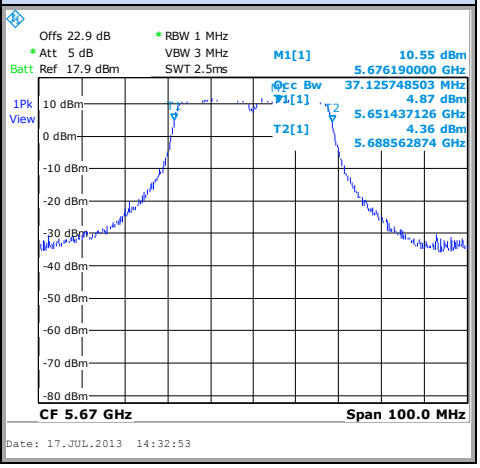
C14



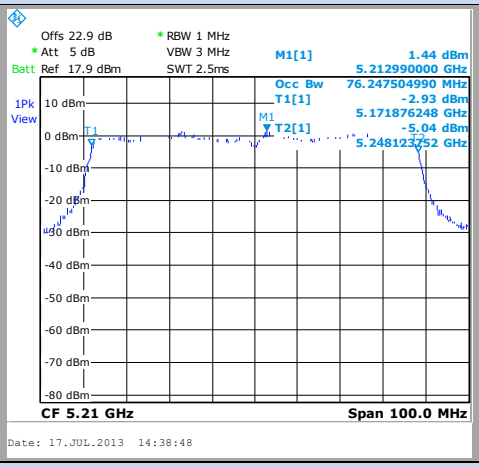
C15



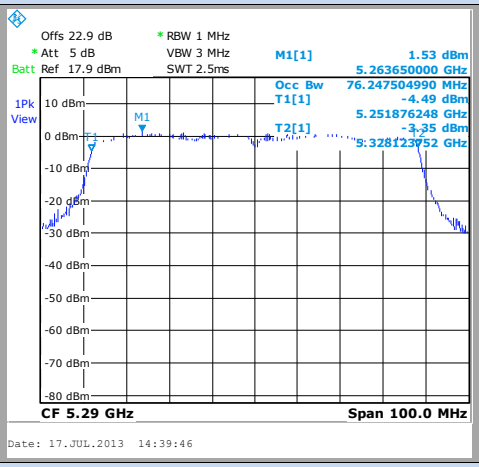
C16



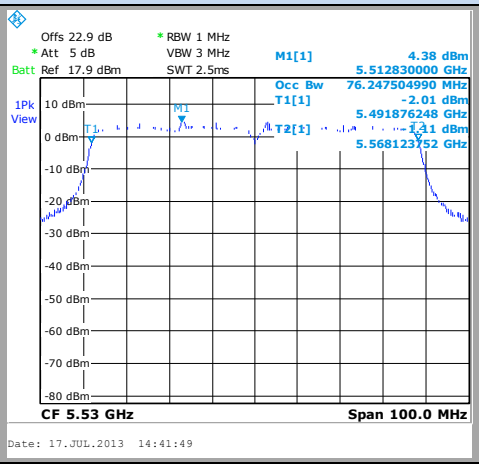
802.11ac VHT80
C17



802.11ac VHT80
C18



802.11ac VHT80
C19



802.11a

Temperature	**Tnom**								
Voltage	**Vnom**								
Frequency	C1	C2	C3	C4	C5	C6	C7	C8	C9
Occupied Bandwidth (MHz)	16,82	16,82	16,88	16,82	16,82	16,82	16,88	16,88	16,88

802.11n HT20

Temperature	**Tnom**								
Voltage	**Vnom**								
Frequency	C1	C2	C3	C4	C5	C6	C7	C8	C9
Occupied Bandwidth (MHz)	17,96	17,96	17,96	17,96	17,96	17,96	17,90	17,96	17,96

802.11n HT40

Temperature	**Tnom**						
Voltage	**Vnom**						
Frequency	C10	C11	C12	C13	C14	C15	C16
Occupied Bandwidth (MHz)	37,52	37,52	37,12	37,12	37,12	37,12	37,12

802.11ac VHT80

Temperature	**Tnom**		
Voltage	**Vnom**		
Frequency	C17	C18	C19
Occupied Bandwidth (MHz)	76,24	76,24	76,24

Result: PASS

Occupied Bandwidth Limit:
None

4. -26dB BANDWIDTH

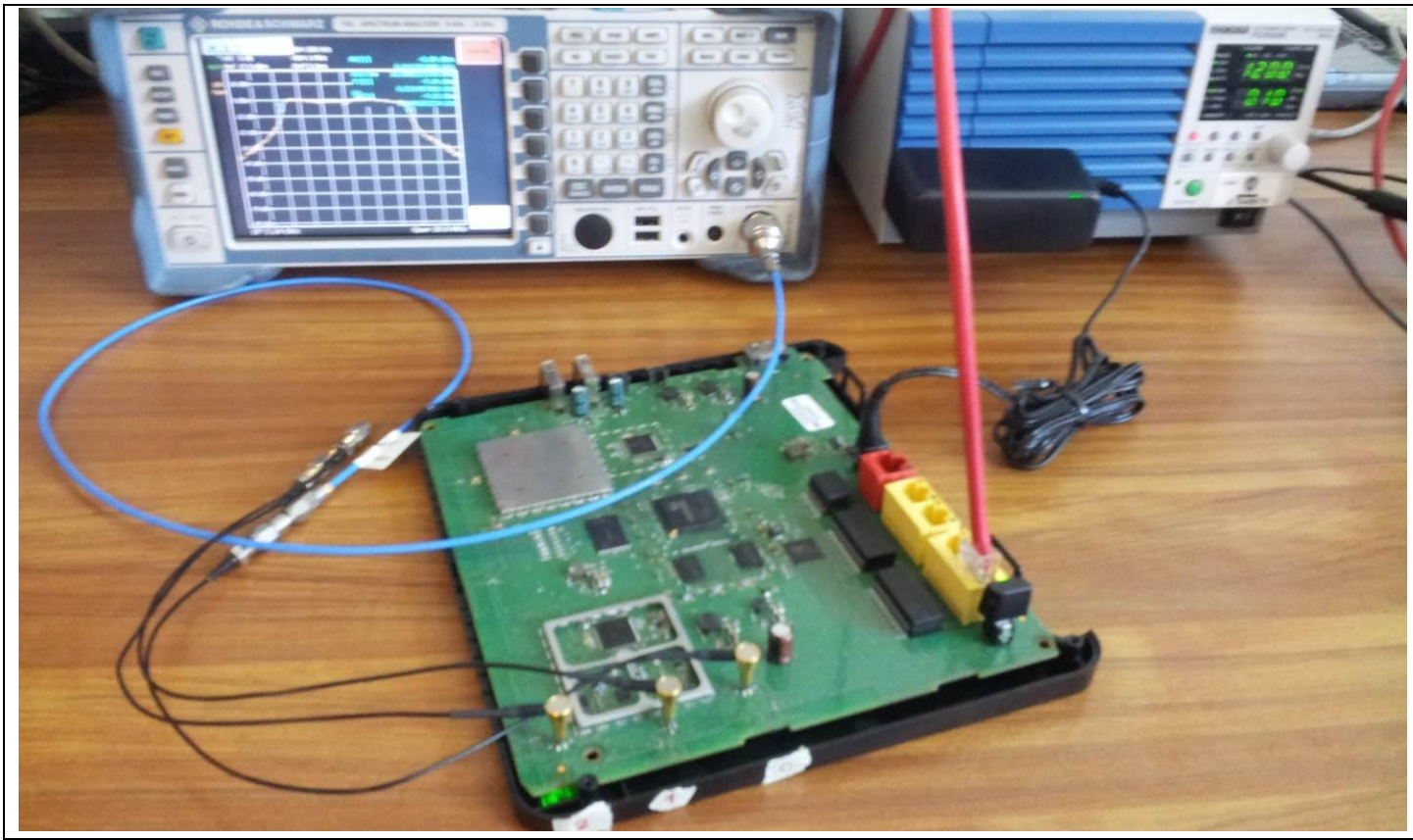
4.1. TEST CONDITIONS

Test performed by : Stéphane PHOUDIAH
Date of test : 2013/07/17
Ambient temperature : 27°C
Relative humidity : 43%

4.2. TEST SETUP

The Equipment Under Test is installed on a table and set in permanent emission with modulation. Measurement is performed with a spectrum analyzer on the EUT conducted access. The product has been tested according to the FCC KDB 789033 D01 General UNII Test Procedures v01r03 § C.

Spectrum Analyzer Setting:
Center frequency= Center of emission spectrum
Span= At least the emission spectrum
Amplitude= Sufficient to observe the signal amplitude
RBW= approximately 1% of the emission bandwidth
VBW= 3*RBW
Sweep= Auto
Trace= Max Hold
Detector= Peak
-26dB bandwidth function activated

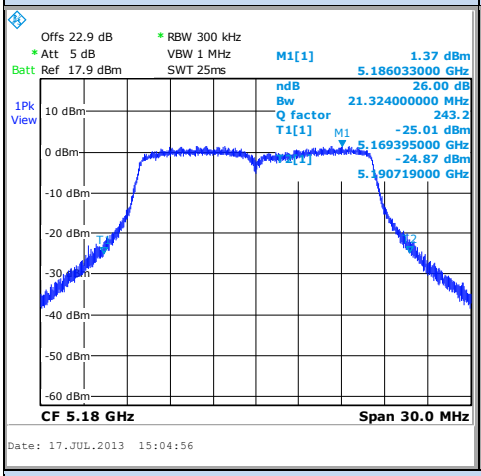


Photograph for Bandwidth

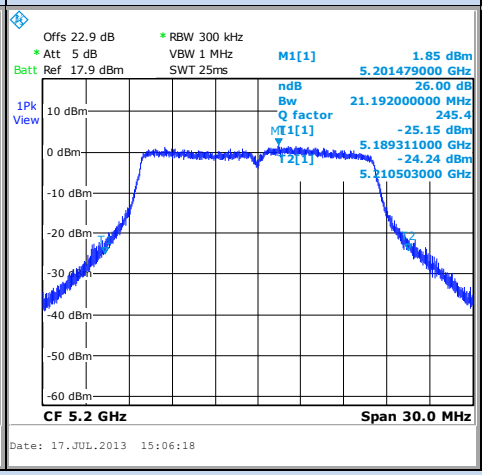
4.3. GRAPHICS & RESULTS

802.11a

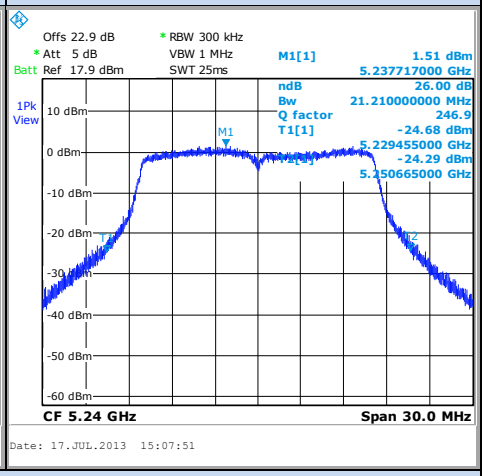
C1



C2

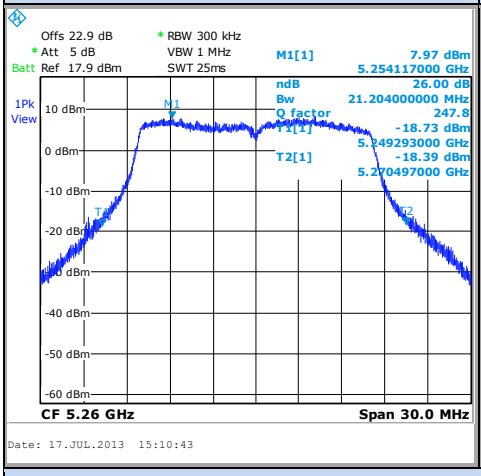


C3

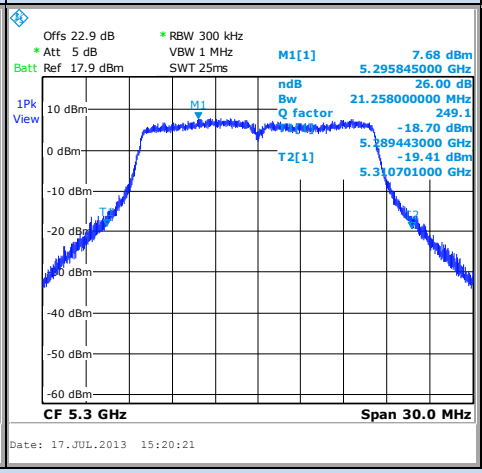


802.11a

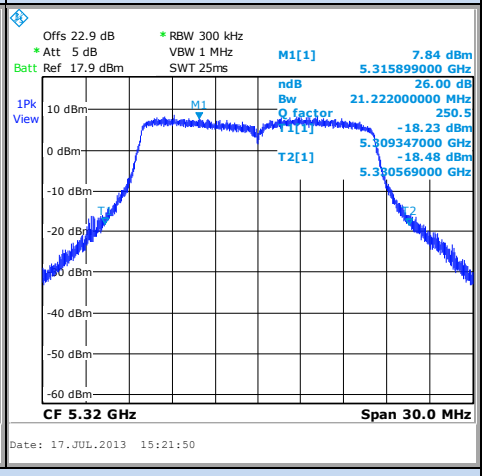
C4



C5

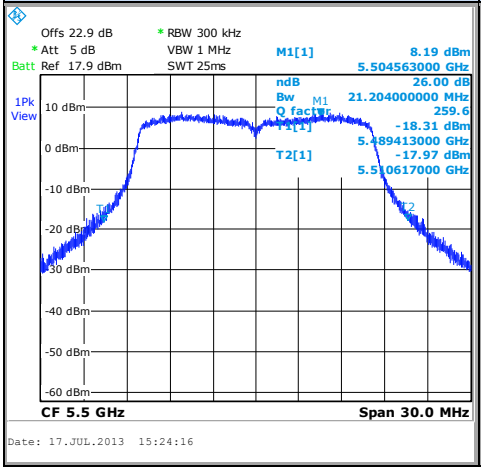


C6

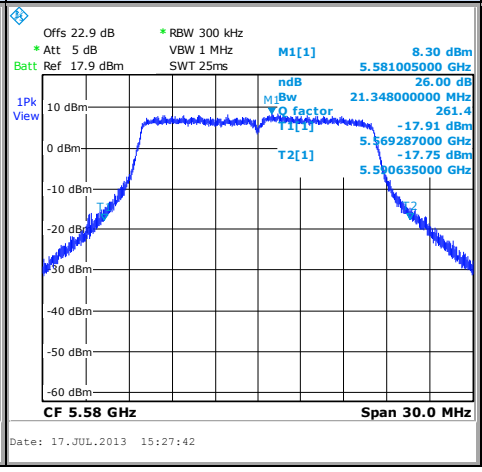


802.11a

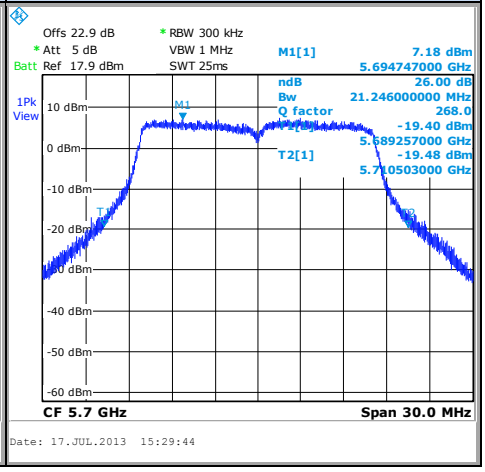
C7

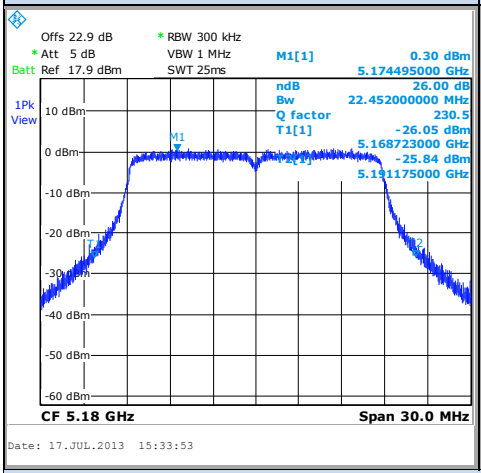
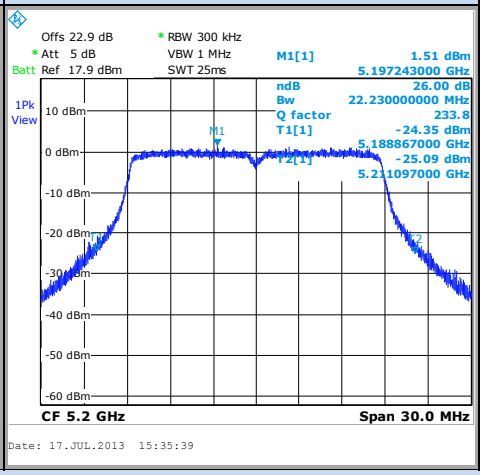
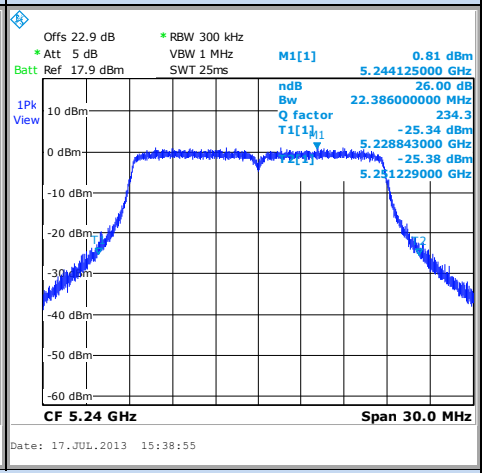


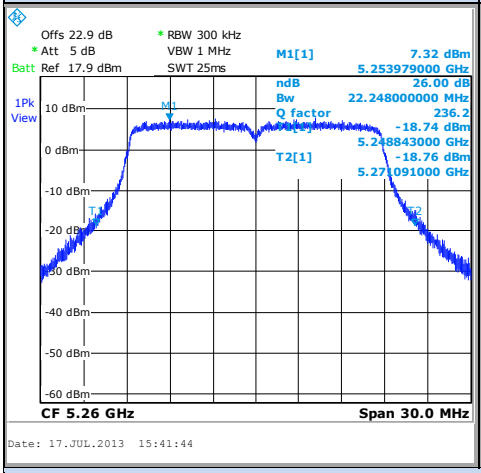
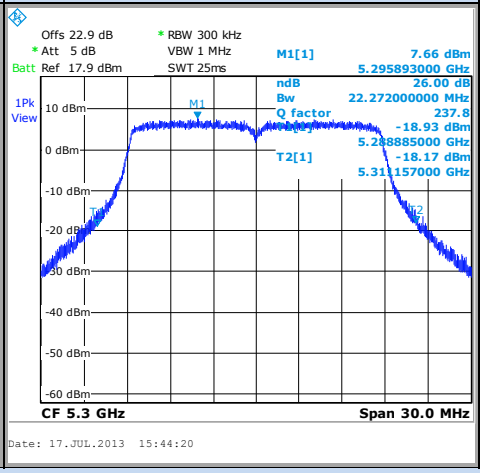
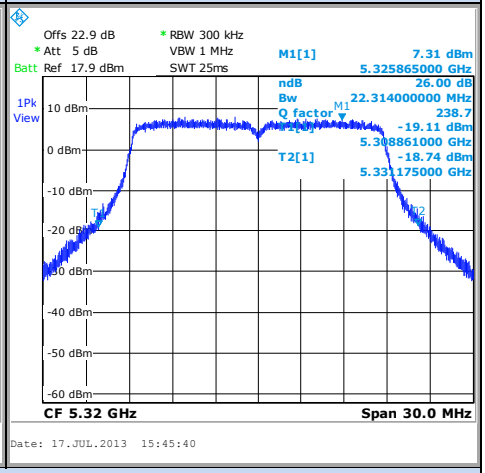
C8

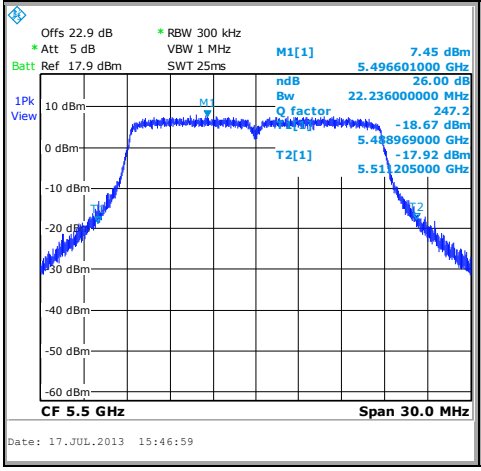
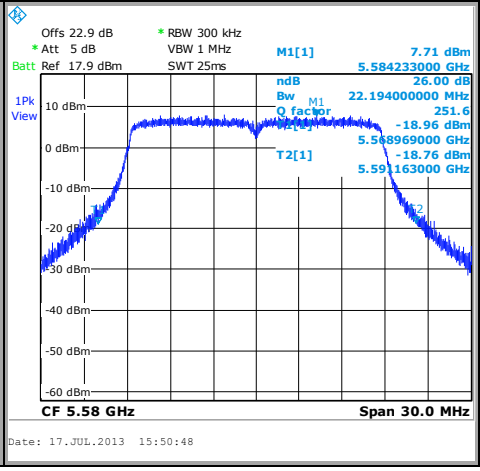
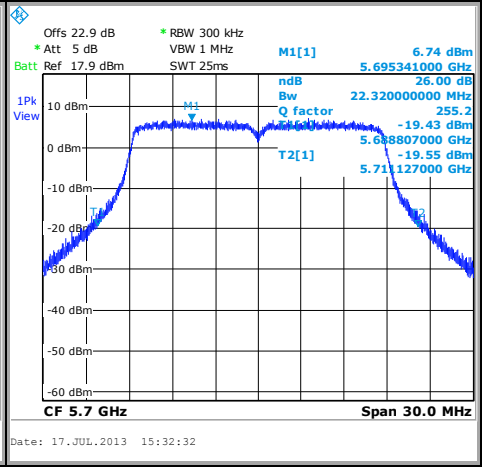


C9



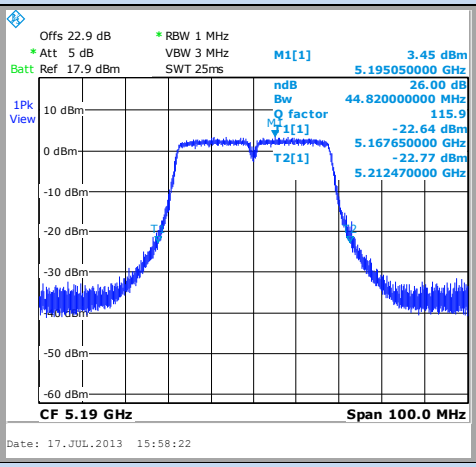
802.11n HT20		
C1	C2	C3
		
Offs 22.9 dB * RBW 300 kHz * Att 5 dB VBW 1 MHz Batt Ref 17.9 dBm SWT 25ms M1[1] 0.30 dBm 5.174495000 GHz ndB 26.00 dB Bw 22.452000000 MHz Q factor 230.5 T1[1] -26.05 dBm 5.168723000 GHz T2[1] -25.84 dBm 5.191175000 GHz CF 5.18 GHz Span 30.0 MHz Date: 17.JUL.2013 15:33:53	Offs 22.9 dB * RBW 300 kHz * Att 5 dB VBW 1 MHz Batt Ref 17.9 dBm SWT 25ms M1[1] 1.51 dBm 5.197243000 GHz ndB 26.00 dB Bw 22.230000000 MHz Q factor 233.8 T1[1] -24.35 dBm 5.188867000 GHz T2[1] -25.09 dBm 5.211097000 GHz CF 5.2 GHz Span 30.0 MHz Date: 17.JUL.2013 15:35:39	Offs 22.9 dB * RBW 300 kHz * Att 5 dB VBW 1 MHz Batt Ref 17.9 dBm SWT 25ms M1[1] 0.81 dBm 5.244125000 GHz ndB 26.00 dB Bw 22.386000000 MHz Q factor 234.3 T1[1] -25.34 dBm 5.228843000 GHz T2[1] -25.38 dBm 5.251229000 GHz CF 5.24 GHz Span 30.0 MHz Date: 17.JUL.2013 15:38:55

802.11n HT20		
C4	C5	C6
		
Offs 22.9 dB * RBW 300 kHz * Att 5 dB VBW 1 MHz Batt Ref 17.9 dBm SWT 25ms M1[1] 7.32 dBm 5.253979000 GHz ndB 26.00 dB Bw 22.248000000 MHz Q factor 236.2 T1[1] -18.74 dBm 5.248843000 GHz T2[1] -18.76 dBm 5.271091000 GHz CF 5.26 GHz Span 30.0 MHz Date: 17.JUL.2013 15:41:44	Offs 22.9 dB * RBW 300 kHz * Att 5 dB VBW 1 MHz Batt Ref 17.9 dBm SWT 25ms M1[1] 7.66 dBm 5.295893000 GHz ndB 26.00 dB Bw 22.272000000 MHz Q factor 237.8 T1[1] -18.93 dBm 5.288885000 GHz T2[1] -18.17 dBm 5.311157000 GHz CF 5.3 GHz Span 30.0 MHz Date: 17.JUL.2013 15:44:20	Offs 22.9 dB * RBW 300 kHz * Att 5 dB VBW 1 MHz Batt Ref 17.9 dBm SWT 25ms M1[1] 7.31 dBm 5.325865000 GHz ndB 26.00 dB Bw 22.314000000 MHz Q factor 238.7 T1[1] -19.11 dBm 5.308861000 GHz T2[1] -18.74 dBm 5.331175000 GHz CF 5.32 GHz Span 30.0 MHz Date: 17.JUL.2013 15:45:40

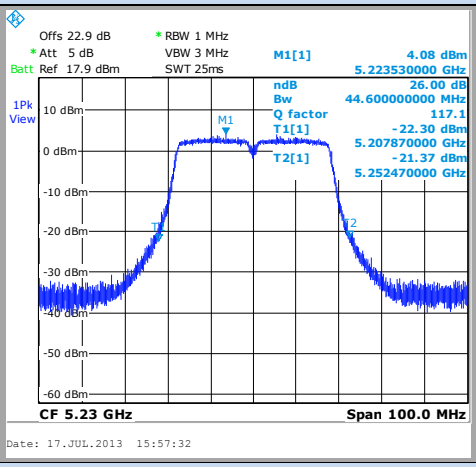
802.11n HT20		
C7	C8	C9
		
Offs 22.9 dB * RBW 300 kHz * Att 5 dB VBW 1 MHz Batt Ref 17.9 dBm SWT 25ms M1[1] 7.45 dBm 5.496601000 GHz ndB 26.00 dB Bw 22.236000000 MHz Q factor 247.2 T1[1] -18.67 dBm 5.488969000 GHz T2[1] -17.92 dBm 5.511205000 GHz CF 5.5 GHz Span 30.0 MHz Date: 17.JUL.2013 15:46:59	Offs 22.9 dB * RBW 300 kHz * Att 5 dB VBW 1 MHz Batt Ref 17.9 dBm SWT 25ms M1[1] 7.71 dBm 5.584233000 GHz ndB 26.00 dB Bw 22.194000000 MHz Q factor 251.6 T1[1] -18.96 dBm 5.568969000 GHz T2[1] -18.76 dBm 5.591163000 GHz CF 5.58 GHz Span 30.0 MHz Date: 17.JUL.2013 15:50:48	Offs 22.9 dB * RBW 300 kHz * Att 5 dB VBW 1 MHz Batt Ref 17.9 dBm SWT 25ms M1[1] 6.74 dBm 5.695341000 GHz ndB 26.00 dB Bw 22.320000000 MHz Q factor 255.2 T1[1] -19.43 dBm 5.688807000 GHz T2[1] -19.55 dBm 5.711127000 GHz CF 5.7 GHz Span 30.0 MHz Date: 17.JUL.2013 15:32:32

802.11n HT40

C10

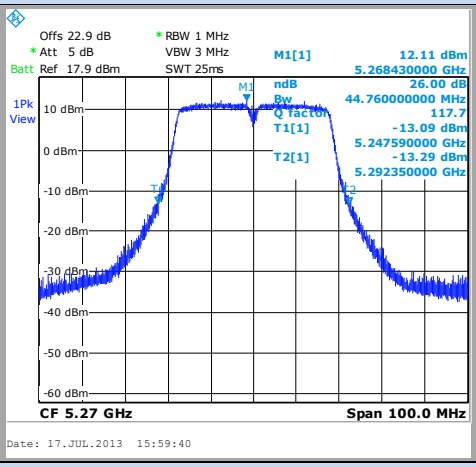


C11

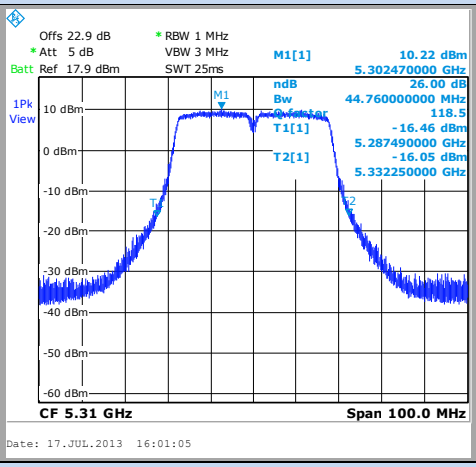


802.11n HT40

C12

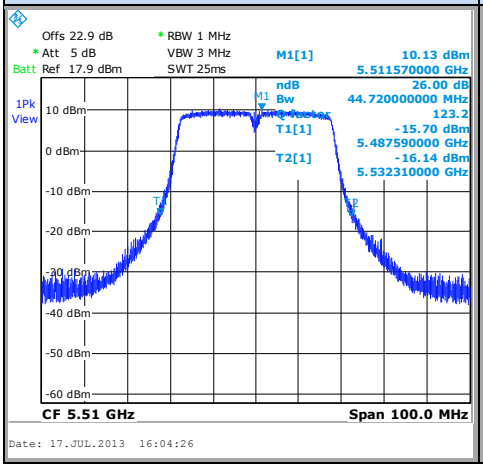


C13

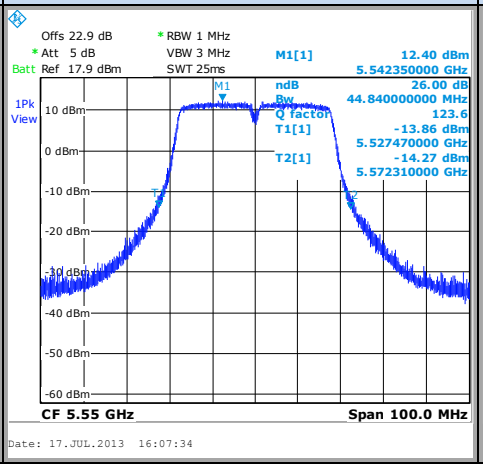


802.11n HT40

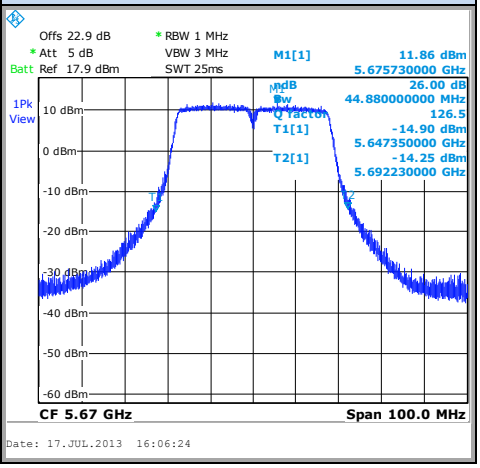
C14

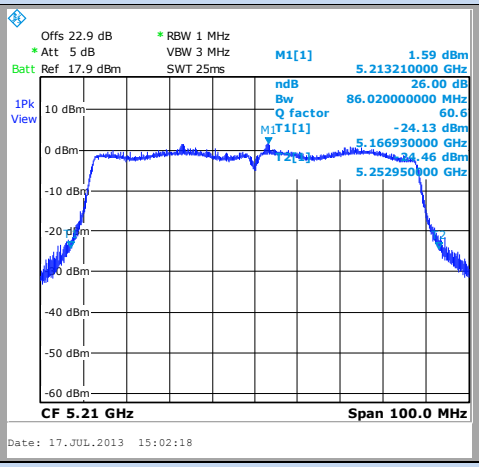


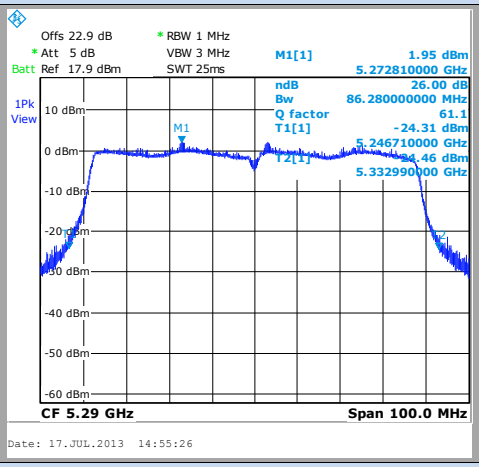
C15

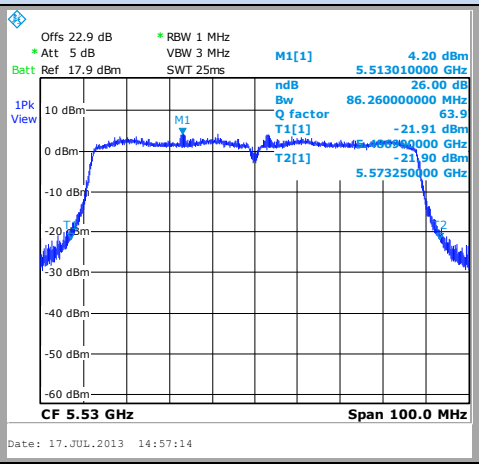


C16



802.11ac VHT80
C17


802.11ac VHT80
C18


802.11ac VHT80
C19


802.11a

Temperature	**Tnom**								
Voltage	**Vnom**								
Frequency	C1	C2	C3	C4	C5	C6	C7	C8	C9
-26dB Bandwidth (MHz)	21,32	21,19	21,21	21,2	21,25	21,22	21,2	21,34	21,24

802.11n HT20

Temperature	**Tnom**								
Voltage	**Vnom**								
Frequency	C1	C2	C3	C4	C5	C6	C7	C8	C9
-26dB Bandwidth (MHz)	22,45	22,23	22,38	22,25	22,27	22,31	22,24	22,19	22,32

802.11n HT40

Temperature	**Tnom**						
Voltage	**Vnom**						
Frequency	C10	C11	C12	C13	C14	C15	C16
-26dB Bandwidth (MHz)	44,82	44,6	44,76	44,76	44,72	44,84	44,88

802.11ac VHT80

Temperature	**Tnom**		
Voltage	**Vnom**		
Frequency	C17	C18	C19
-26dB Bandwidth (MHz)	86,02	86,28	86,26

Result: PASS

-26dB Bandwidth Limit:
None

5. DUTY CYCLE

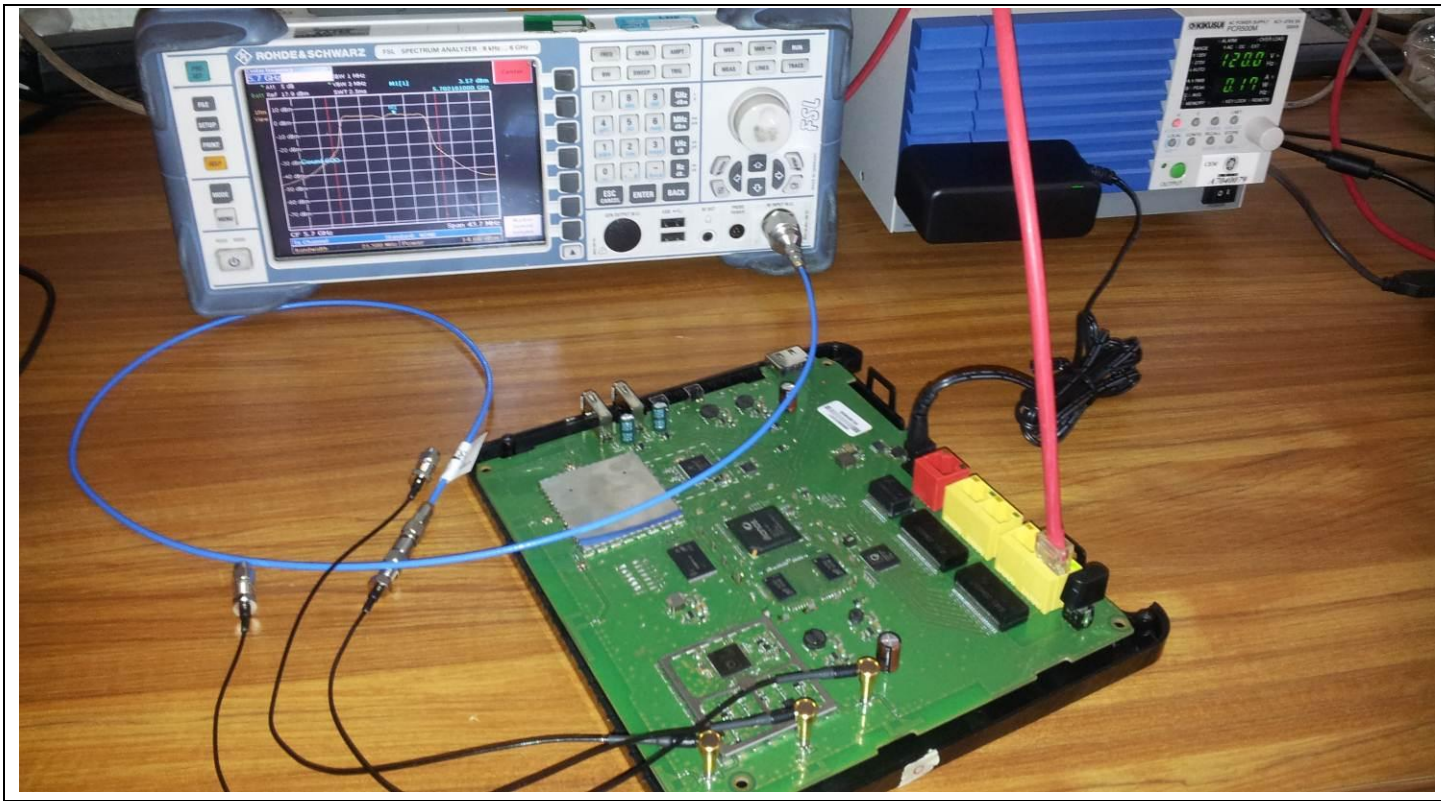
5.1. TEST CONDITIONS

Test performed by : Stéphane PHOUDIAH
Date of test : 2013/07/19
Ambient temperature : 25°C
Relative humidity : 42%

5.2. TEST SETUP

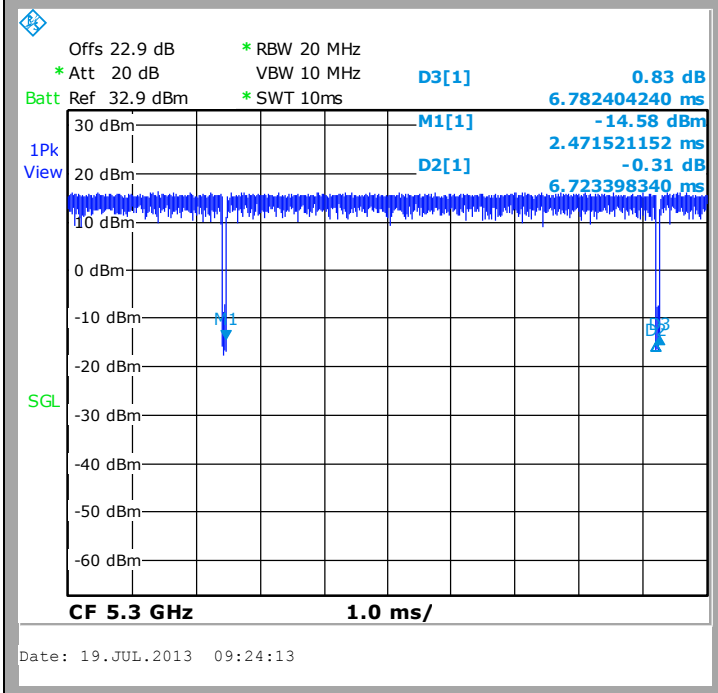
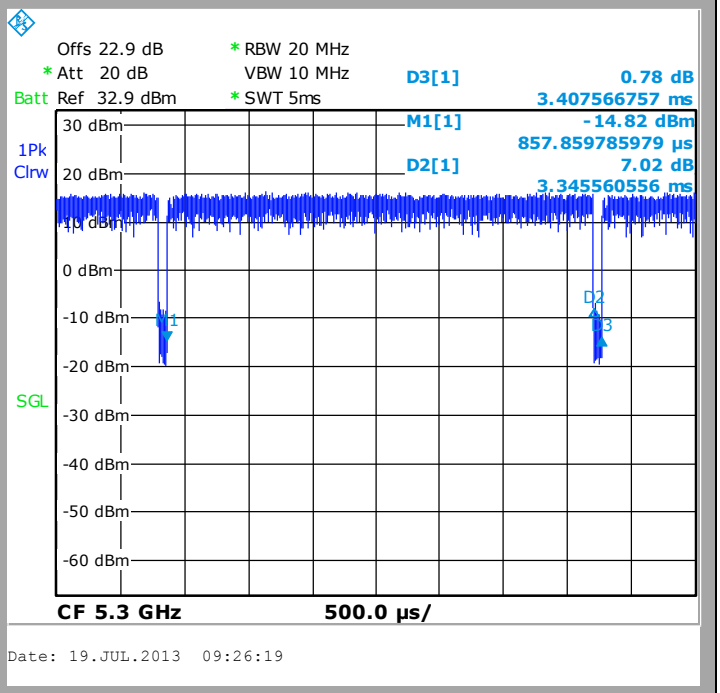
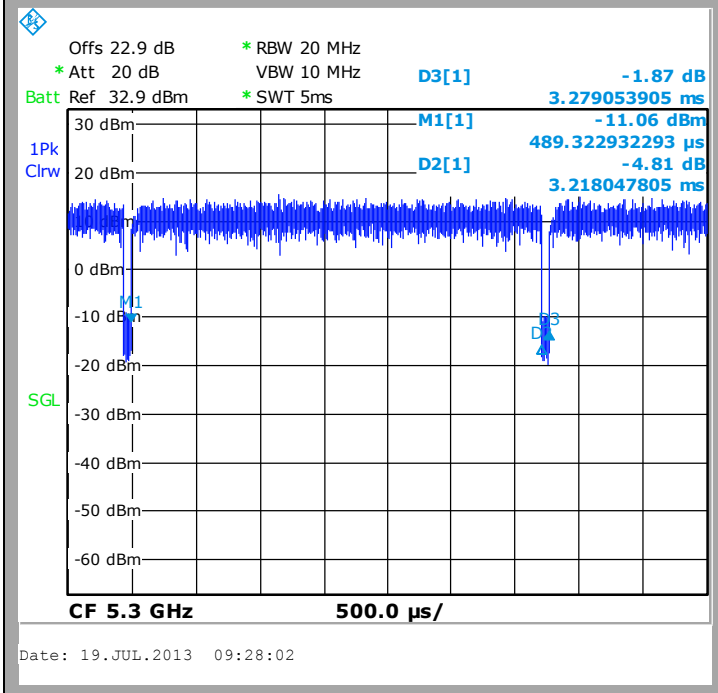
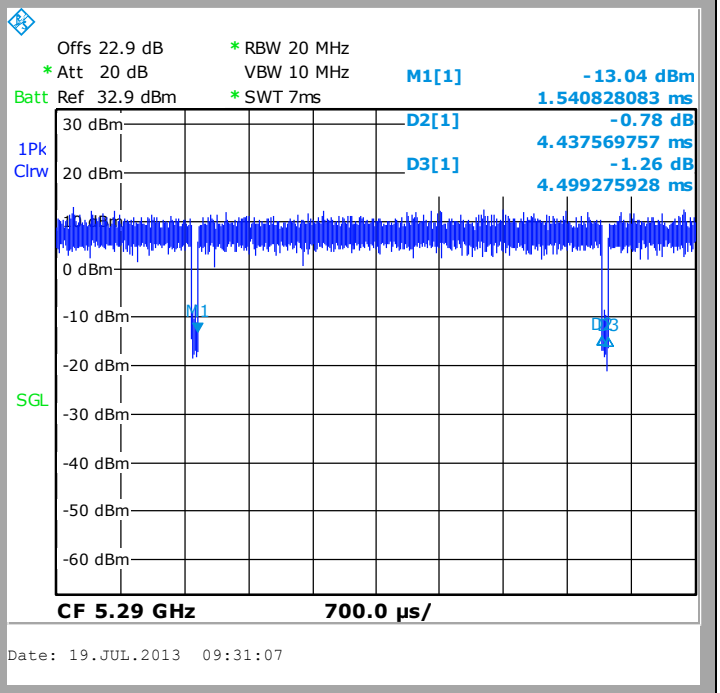
The Equipment Under Test is installed on a table and set in permanent emission with modulation. Measurement is performed with a spectrum analyzer on the EUT conducted access. The product has been tested according to the FCC KDB 789033 D01 General UNII Test Procedures v01r03 § B.

Spectrum Analyzer Setting:
Center frequency= Center of emission spectrum
Span= 0
Amplitude= Sufficient to observe the signal amplitude
RBW= Maximum
VBW= Maximum
Sweep Time= Sufficient to capture at least one period
Sweep= Single Sweep
Sweep Point= 10000
Trace= Clear/Write
Detector= Peak



Photograph for Duty Cycle

5.3. GRAPHICS & RESULTS

802.11a	802.11n HT20
C5	C5
	
802.11n HT40	802.11ac VHT80
C13	C18
	

802.11a

Temperature	**Tnom**
Voltage	**Vnom**
Frequency	C5
Duty Cycle (%)	99,1

802.11n HT20

Temperature	**Tnom**
Voltage	**Vnom**
Frequency	C5
Duty Cycle (%)	98,2

802.11n HT40

Temperature	**Tnom**
Voltage	**Vnom**
Frequency	C13
Duty Cycle (%)	98,1

802.11ac VHT80

Temperature	**Tnom**
Voltage	**Vnom**
Frequency	C18
Duty Cycle (%)	98,6

Result: PASS

Duty Cycle Limit:
None

6. POWER LIMITS & POWER SPECTRAL DENSITY

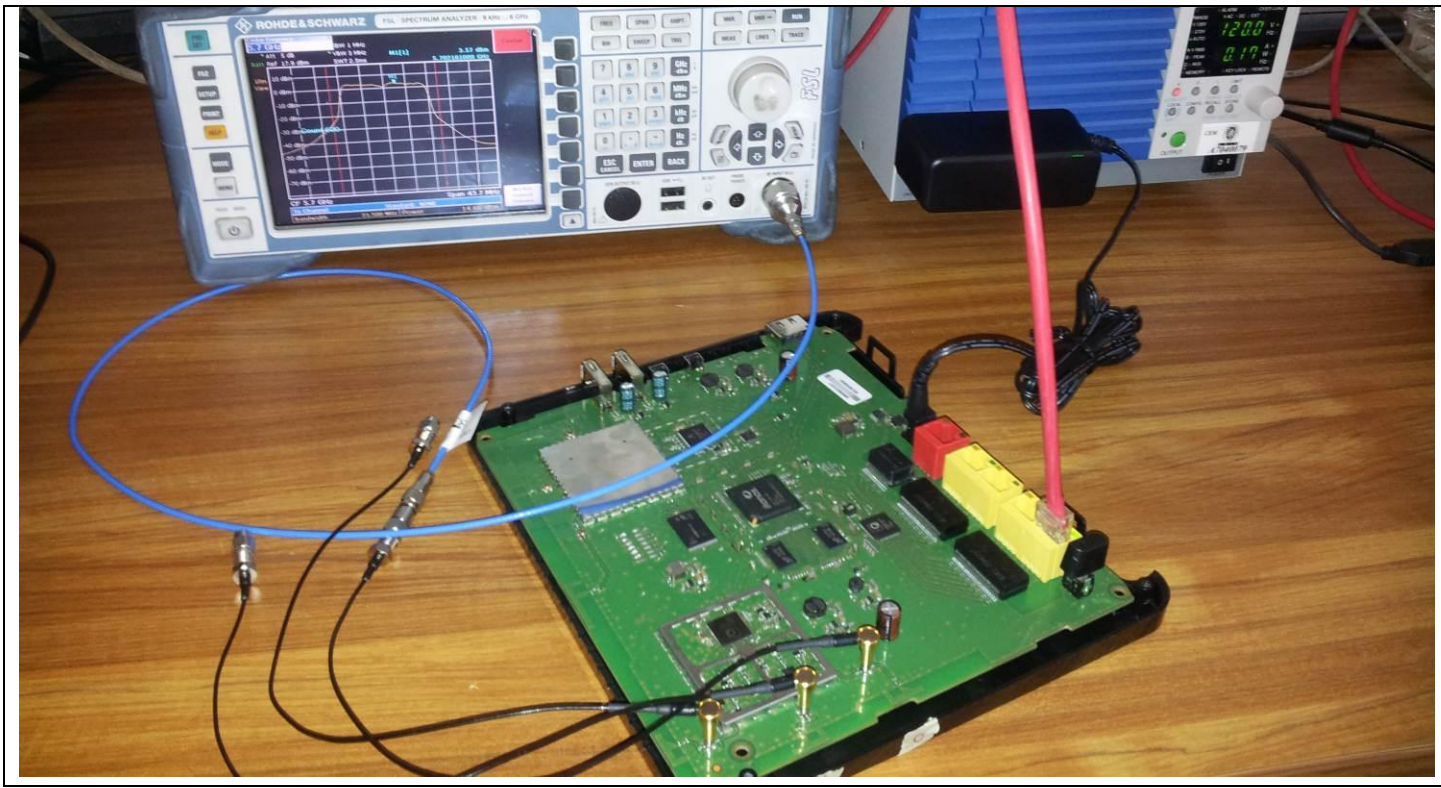
6.1. TEST CONDITIONS

Test performed by : Stéphane PHOUDIAH
Date of test : 2013/07/17 & 2013/07/18
Ambient temperature : 27°C
Relative humidity : 43%

6.2. TEST SETUP

The Equipment Under Test is installed on a table and set in permanent emission with modulation. Measurement is performed with a spectrum analyzer on the EUT conducted access. The product has been tested according to the FCC KDB 789033 D01 General UNII Test Procedures v01r03 § E) b) + F & FCC KDB 662911 D01 Multiple Transmitter Outpout v02 § E) 1).

Spectrum Analyzer Setting:
Center frequency= Center of emission spectrum
Span= At least twice the emission spectrum
Amplitude= Sufficient to observe the signal amplitude
RBW= 1MHz
VBW= 3MHz
Sweep point= 5000
Sweep time= auto
Trace=At least Average 100 traces
Detector= RMS
Meas Fonction= Channel Power inside of -26dB Bandwidth



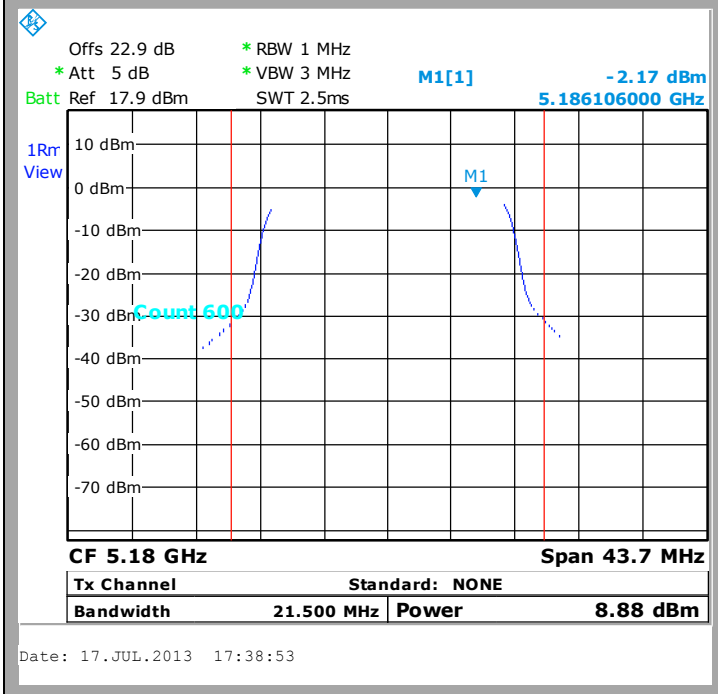
Photograph for Power Limits & Power Spectral Density

6.3. GRAPHICS & RESULTS

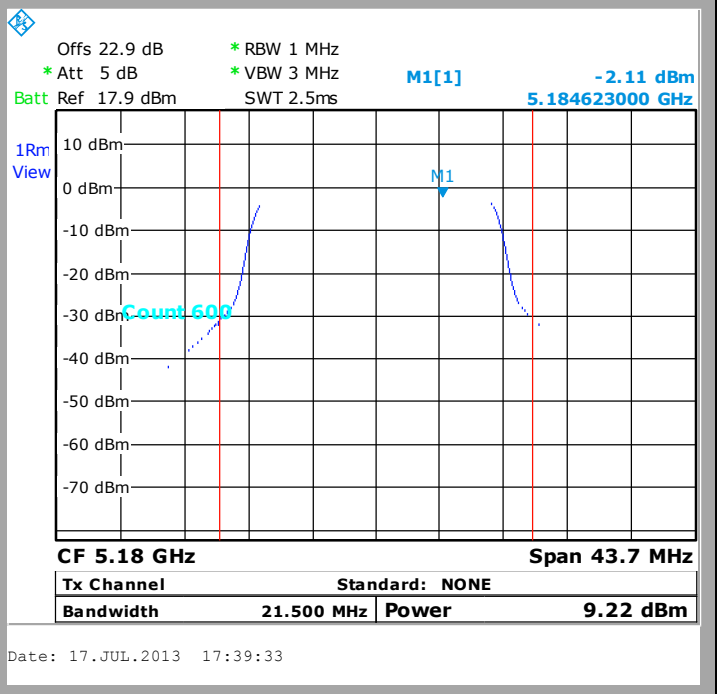
802.11a

C1

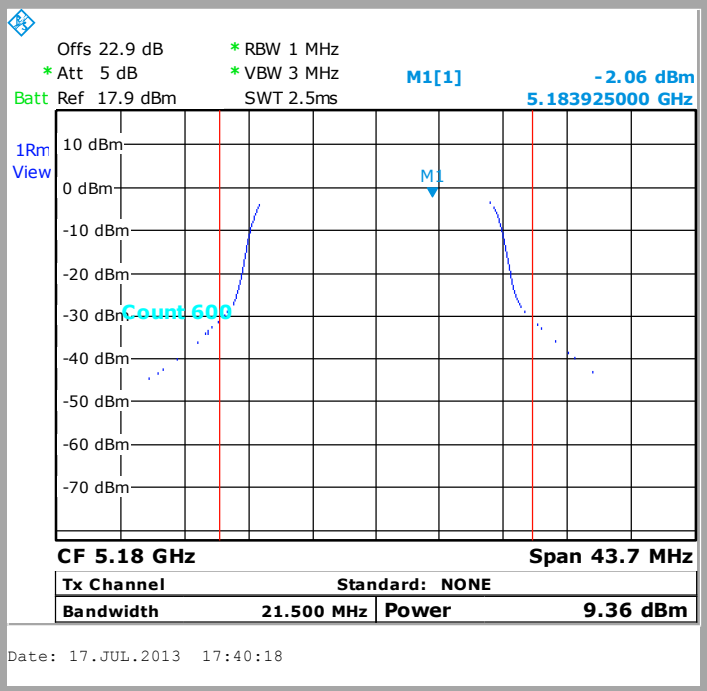
Tx1



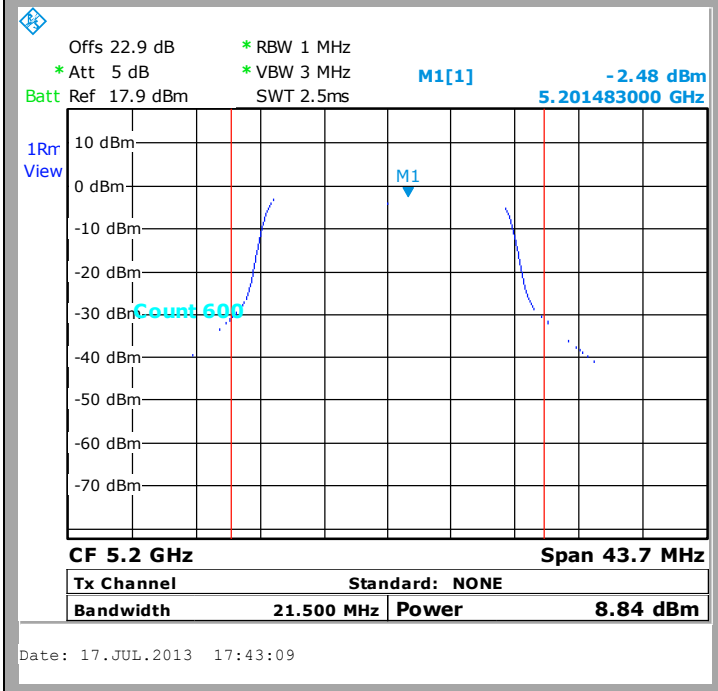
Tx2

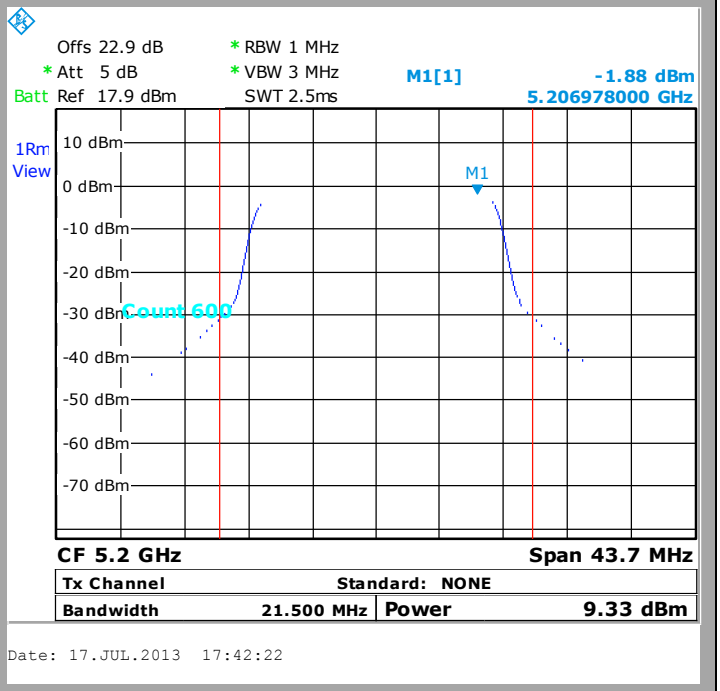


Tx3

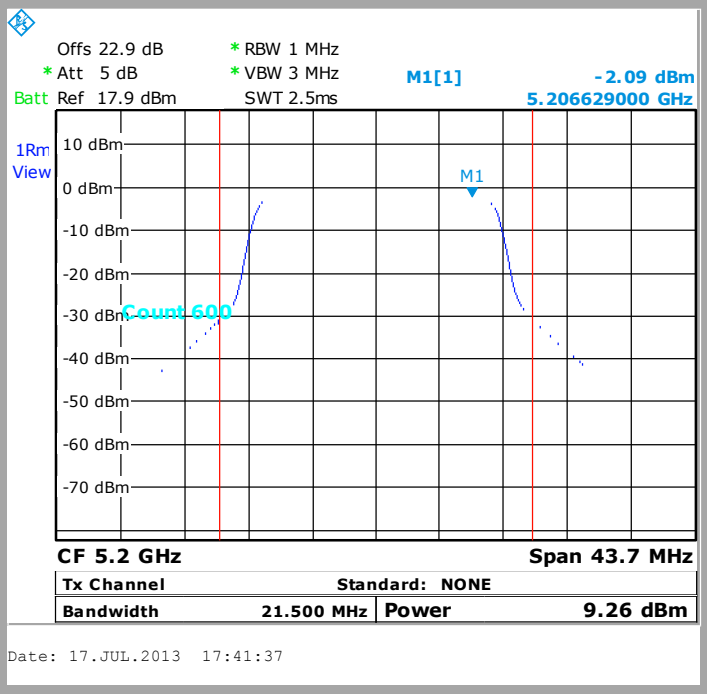


802.11a	
C2	
Tx1	Tx2

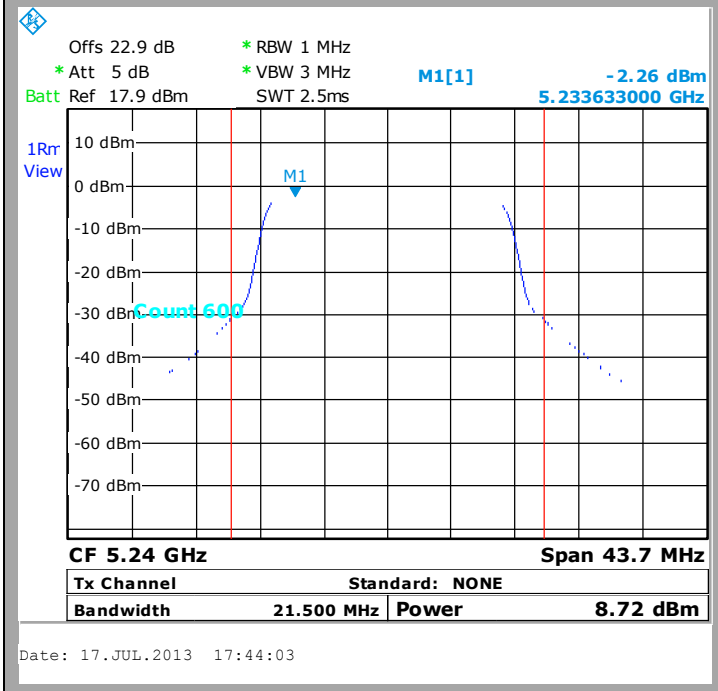


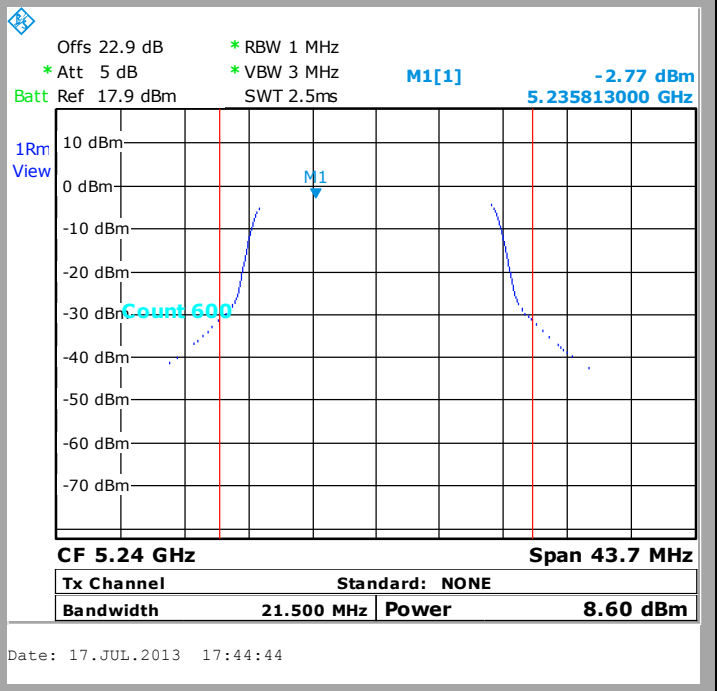


Tx3

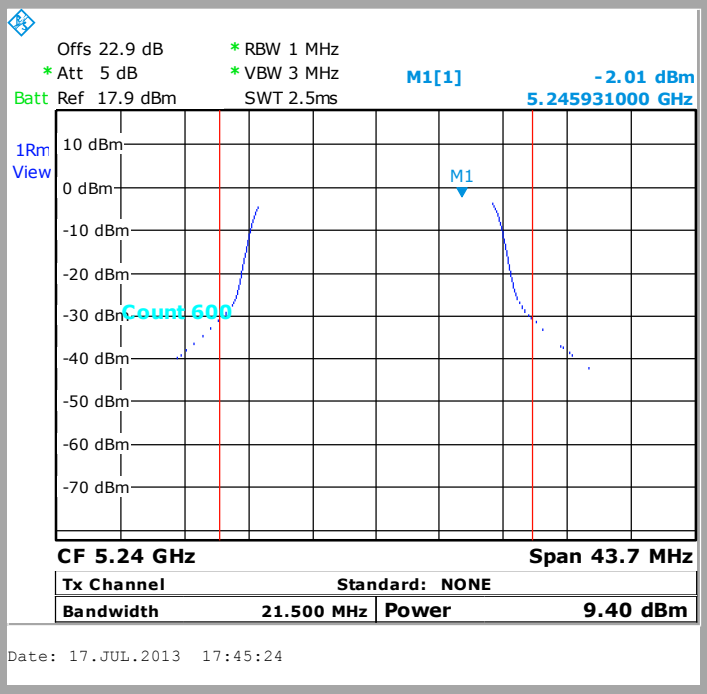


802.11a	
C3	
Tx1	Tx2

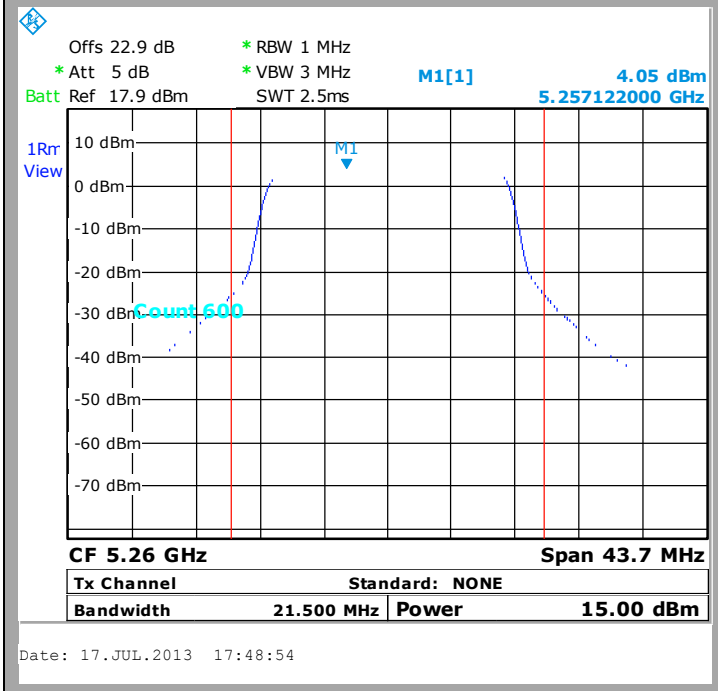


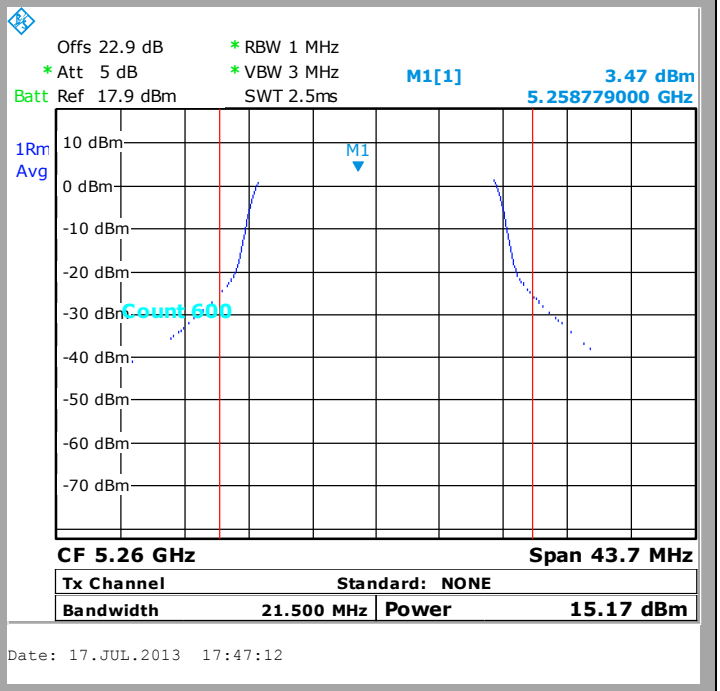


Tx3

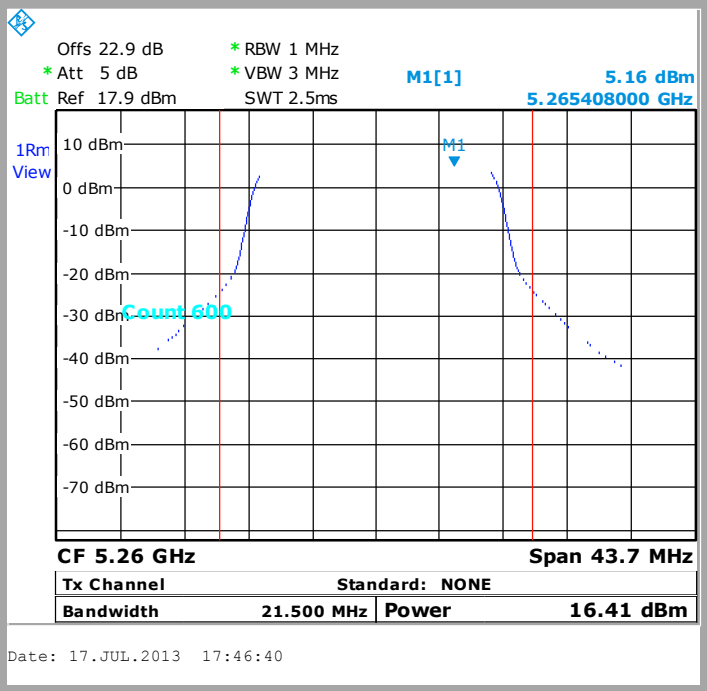


802.11a	
C4	
Tx1	Tx2

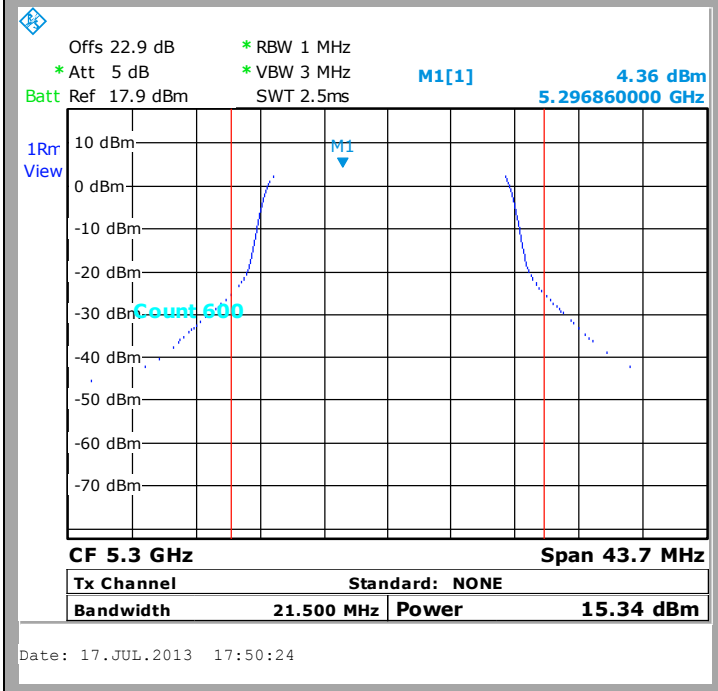


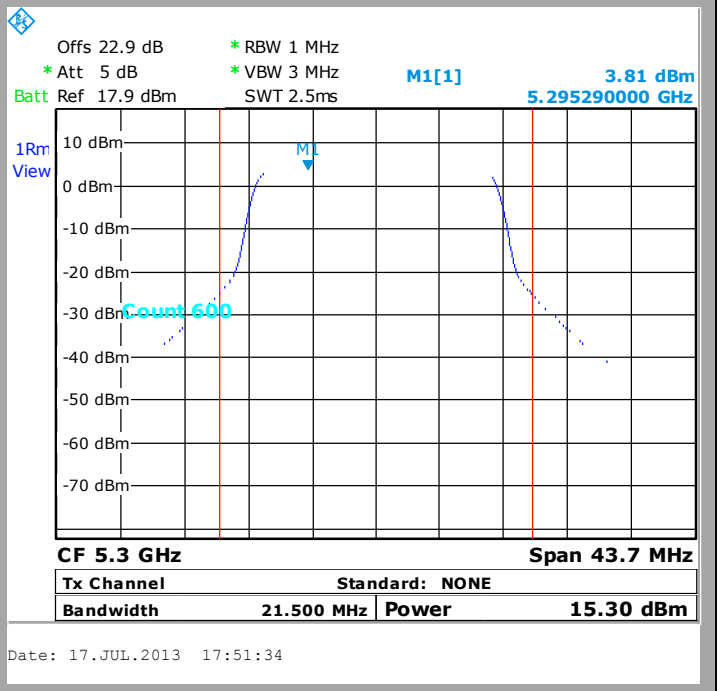


Tx3

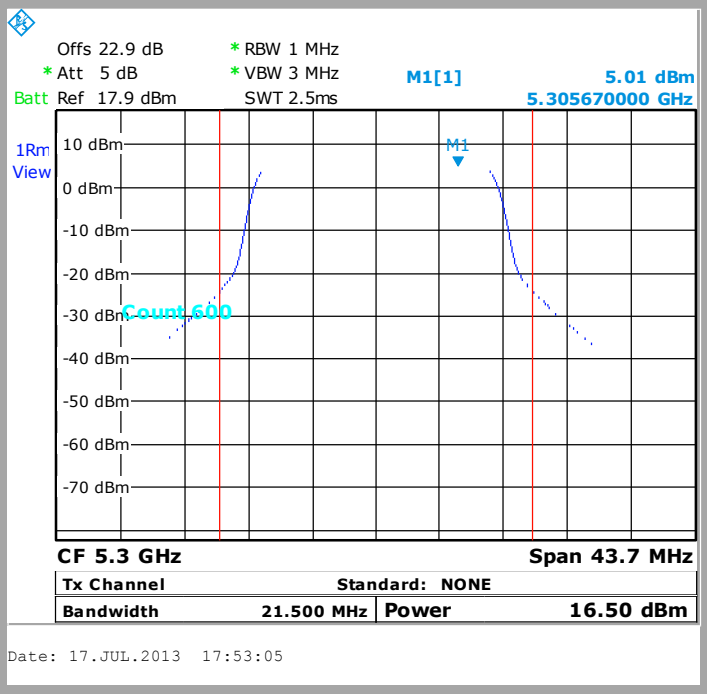


802.11a	
C5	
Tx1	Tx2

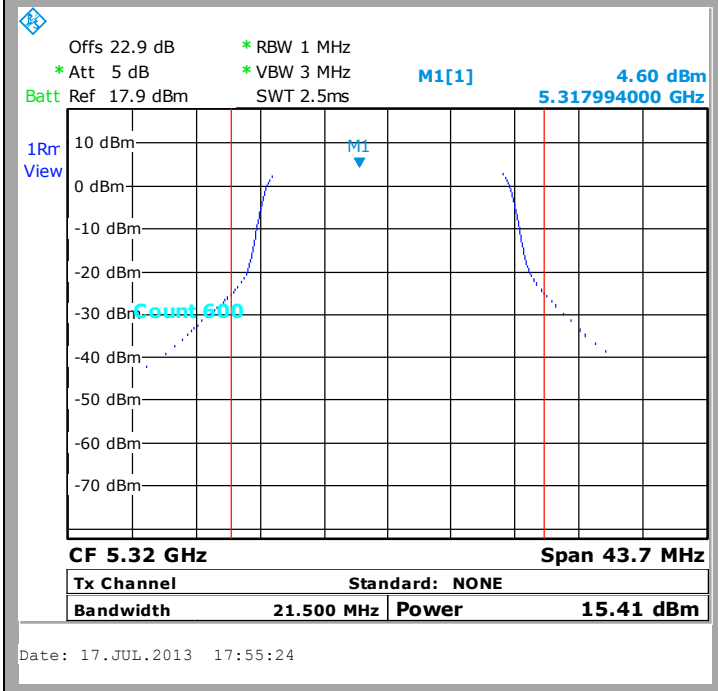


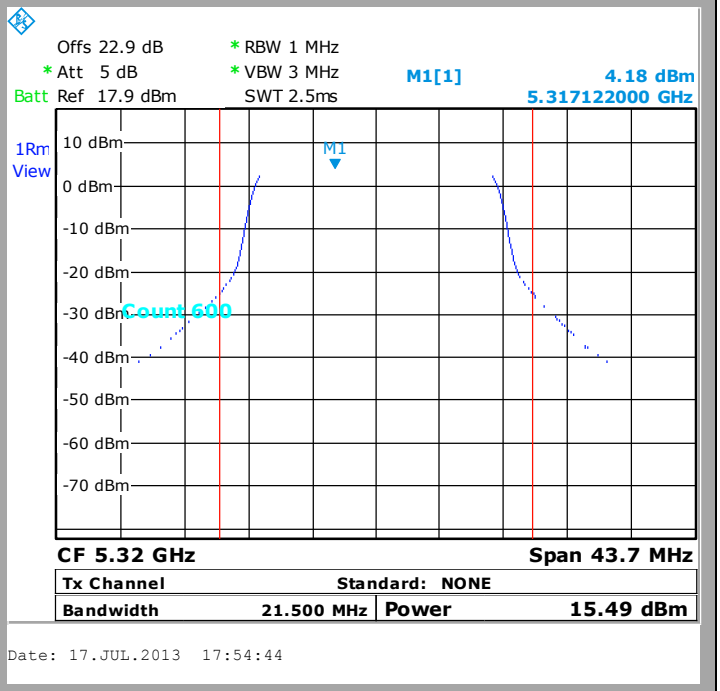


Tx3

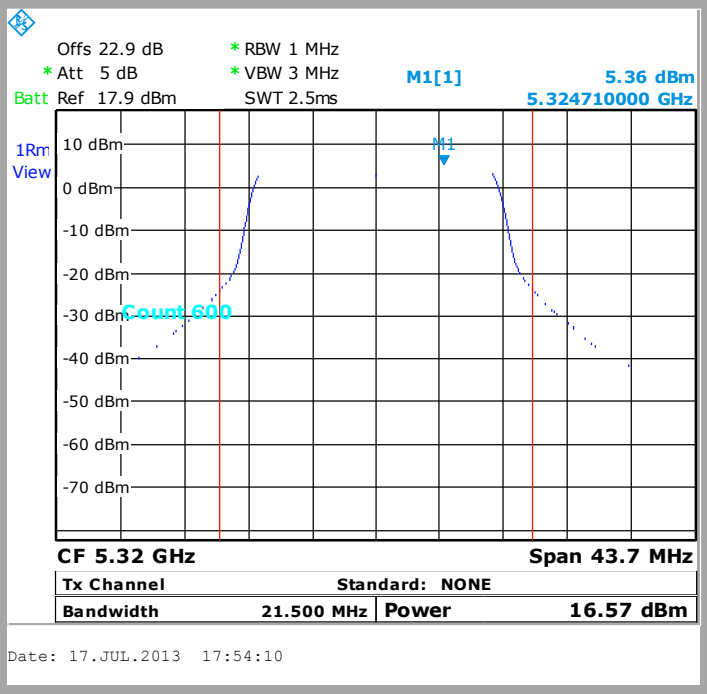


802.11a	
C6	
Tx1	Tx2

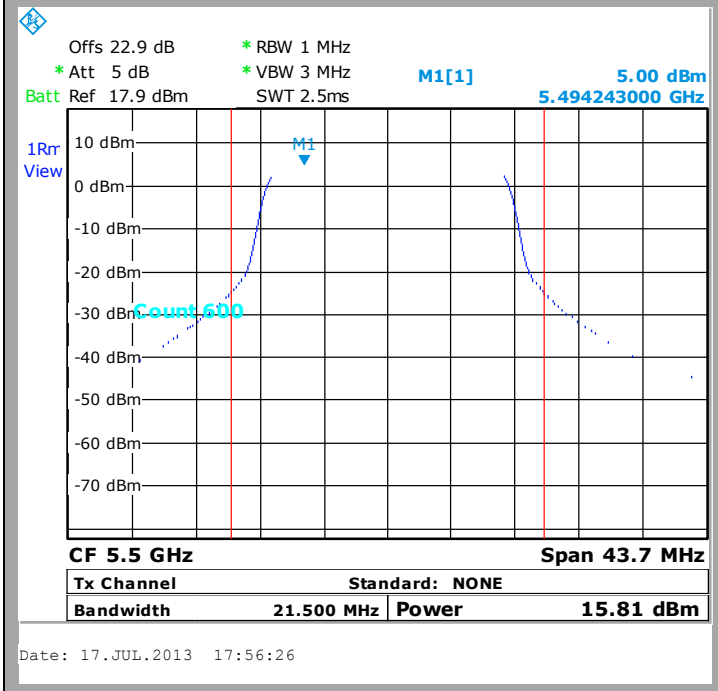


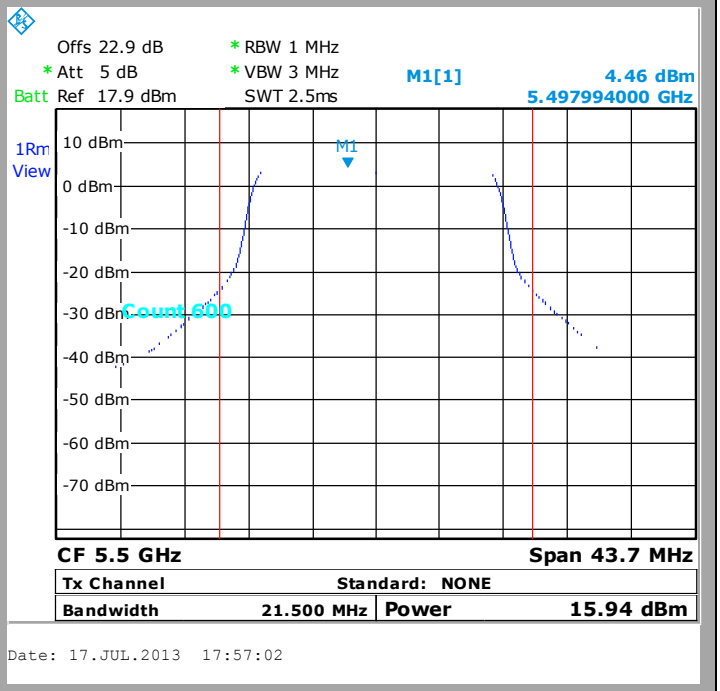


Tx3

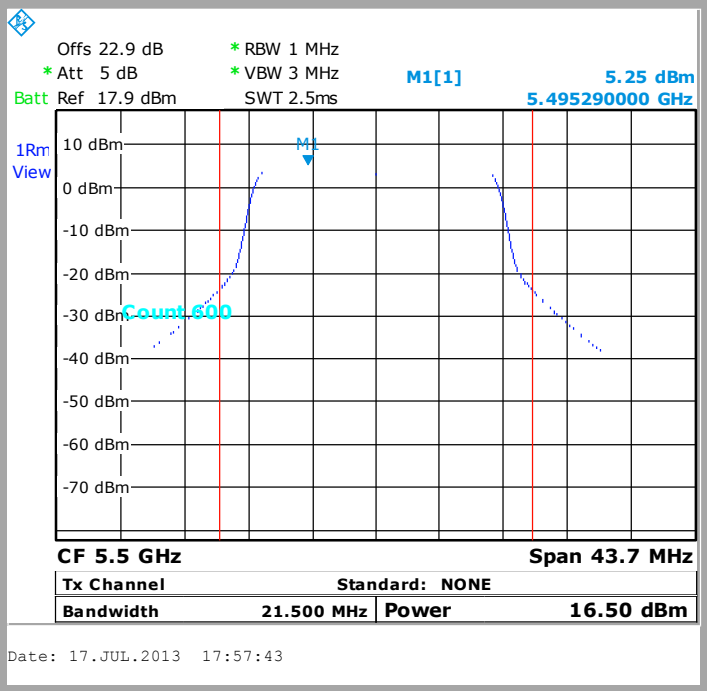


802.11a	
C7	
Tx1	Tx2

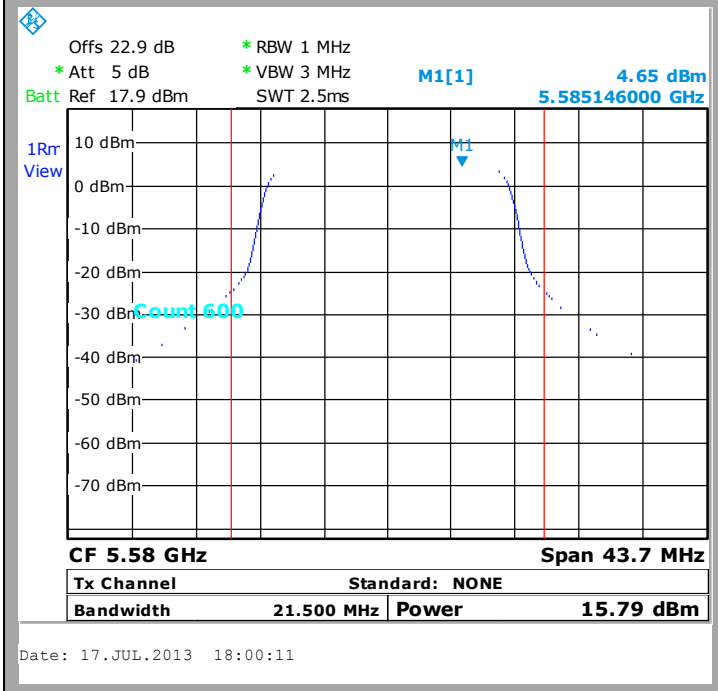


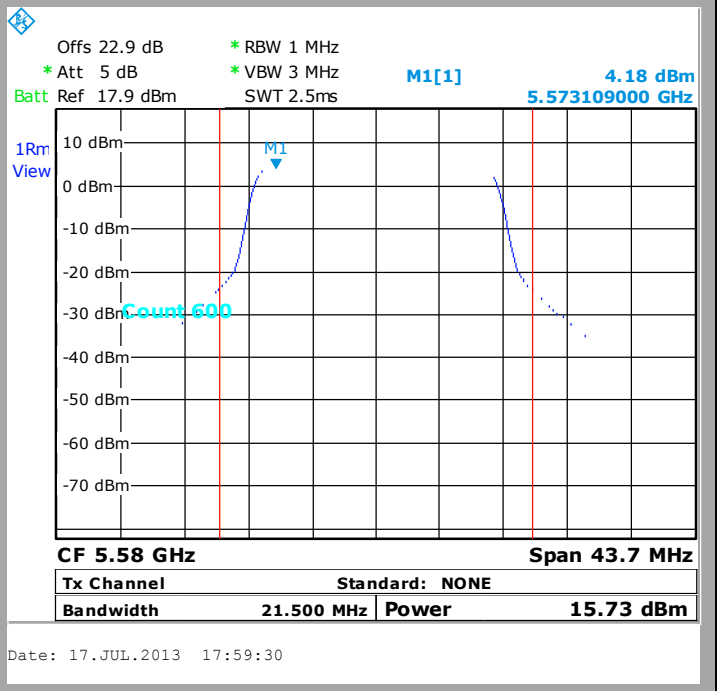


Tx3

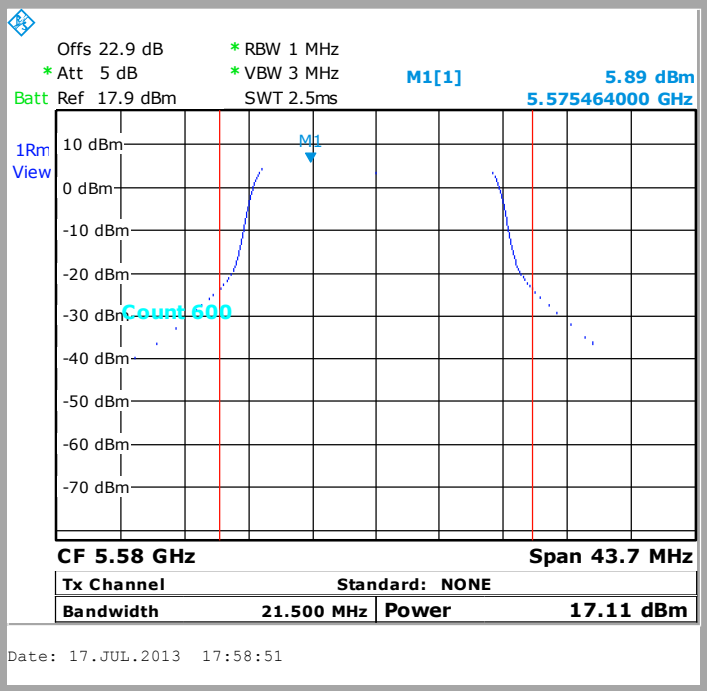


802.11a	
C8	
Tx1	Tx2

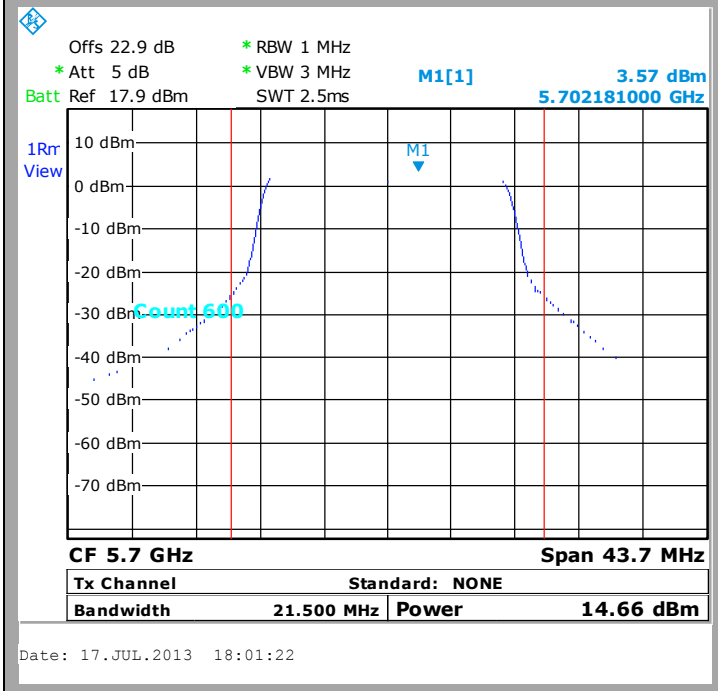


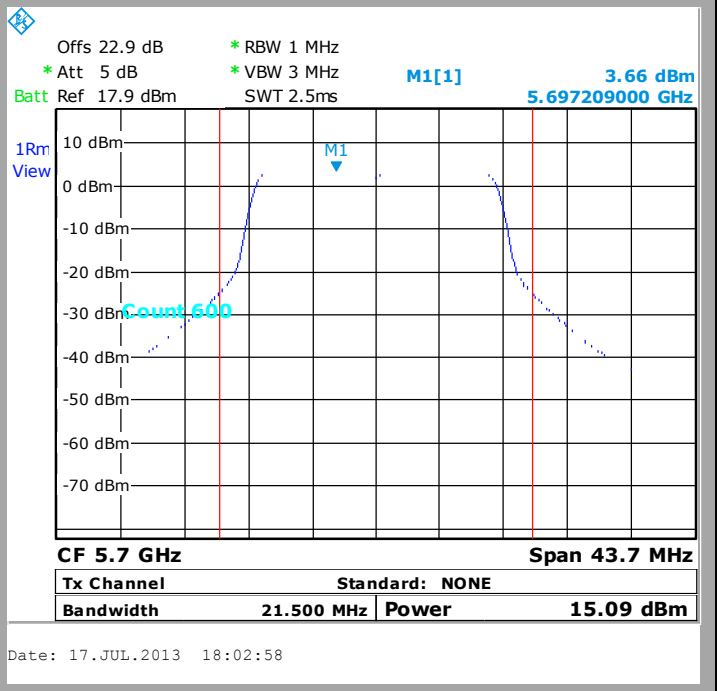


Tx3

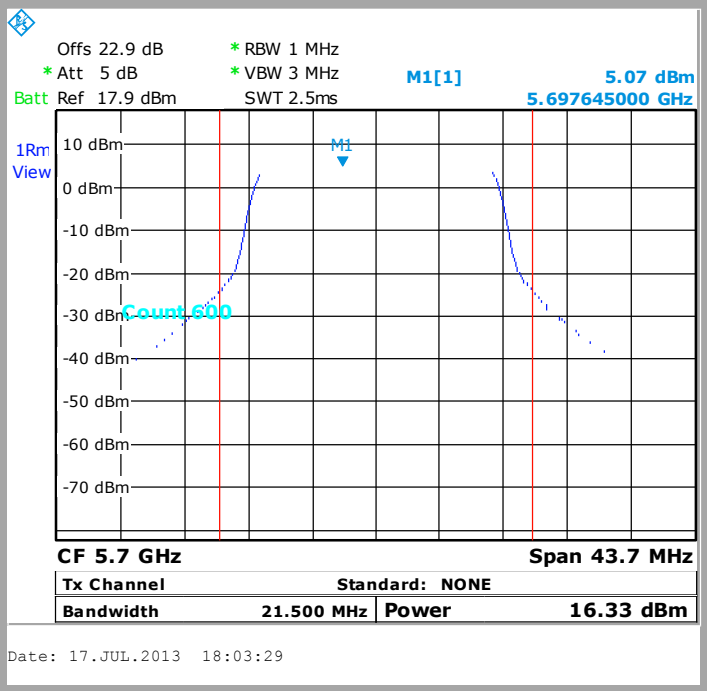


802.11a	
C9	
Tx1	Tx2

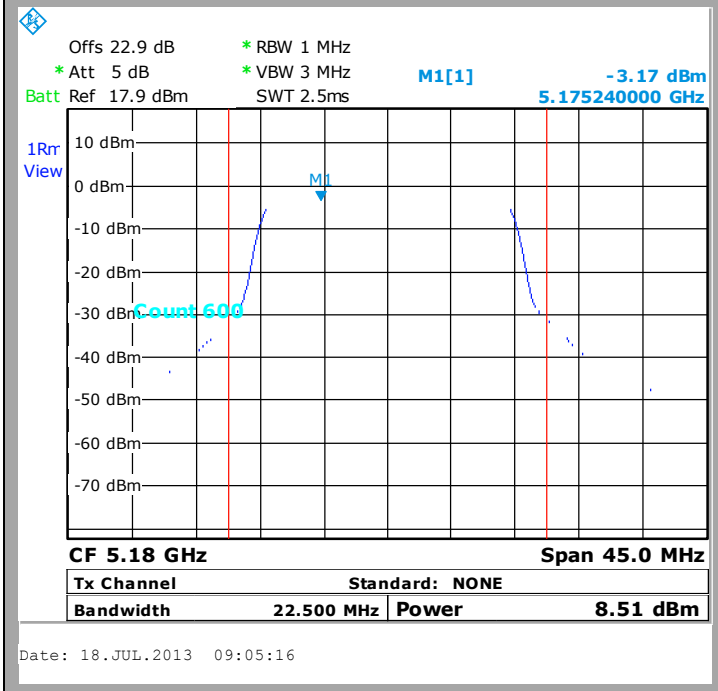


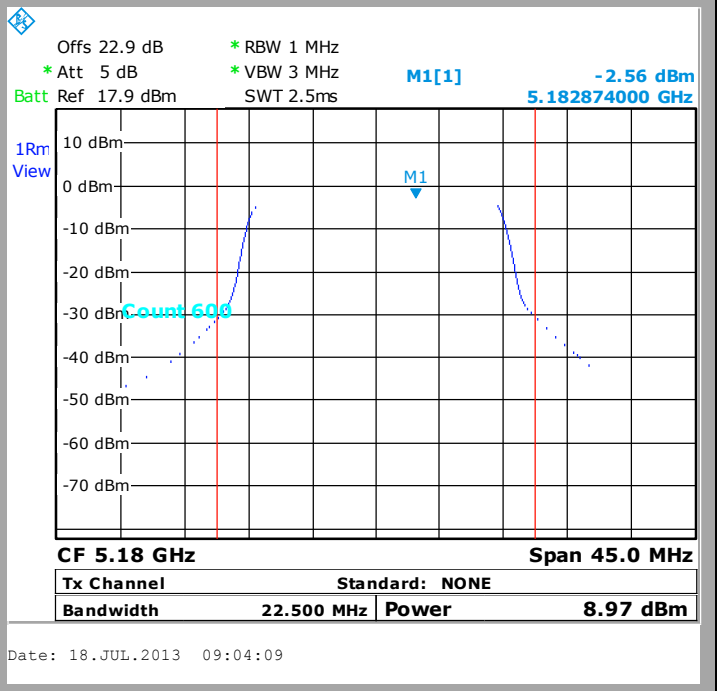


Tx3

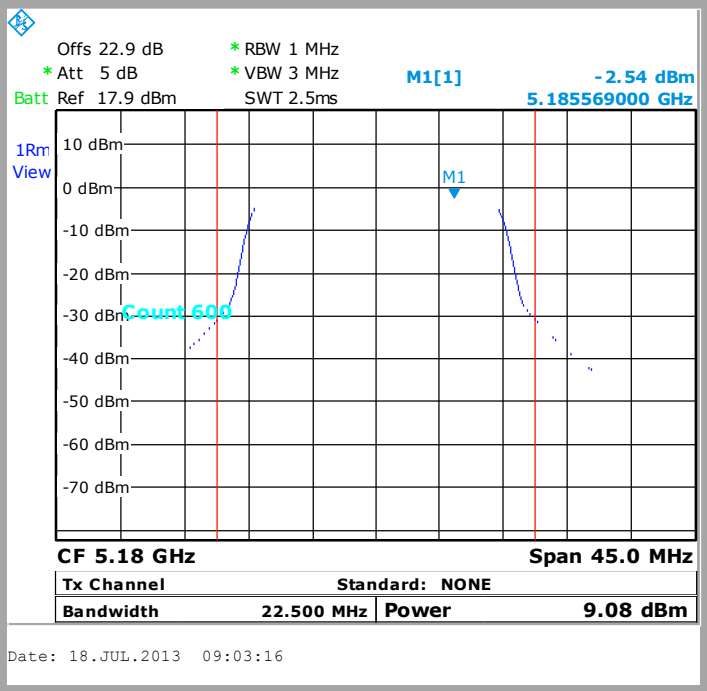


802.11n HT20	
C1	
Tx1	Tx2

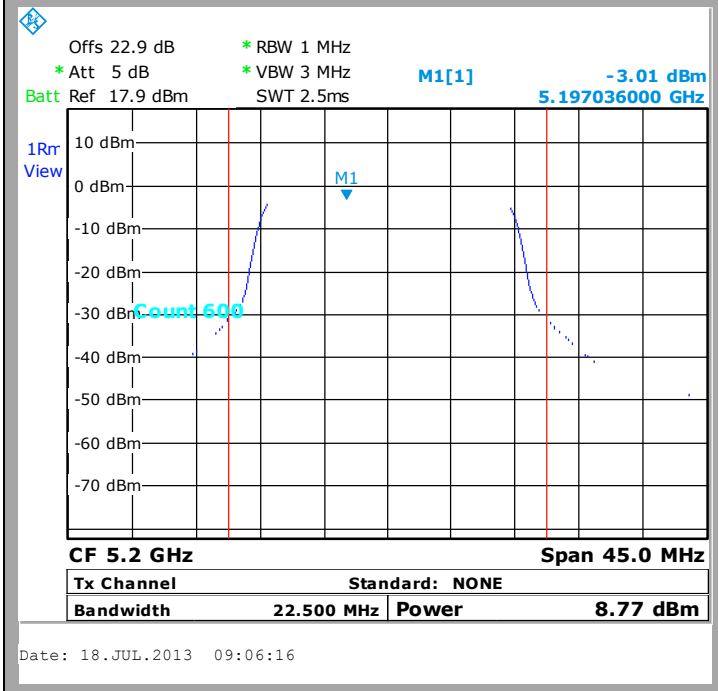


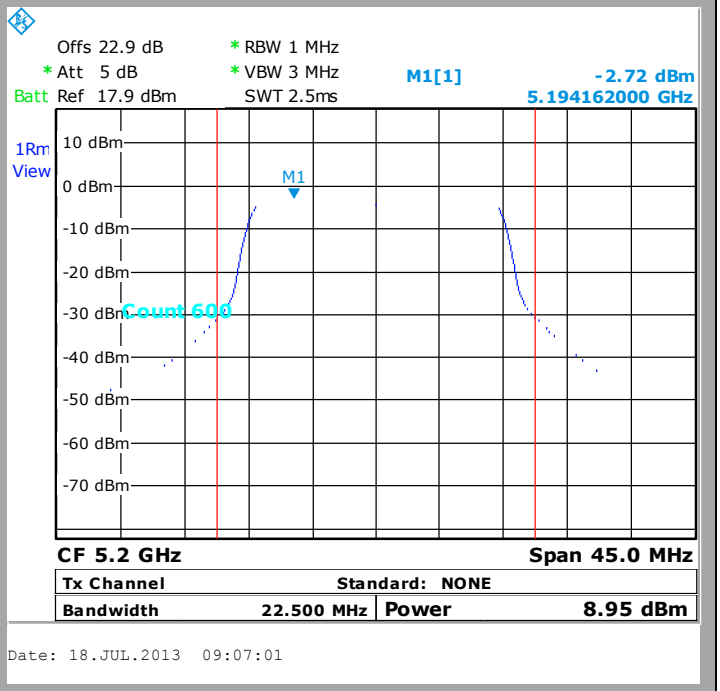


Tx3

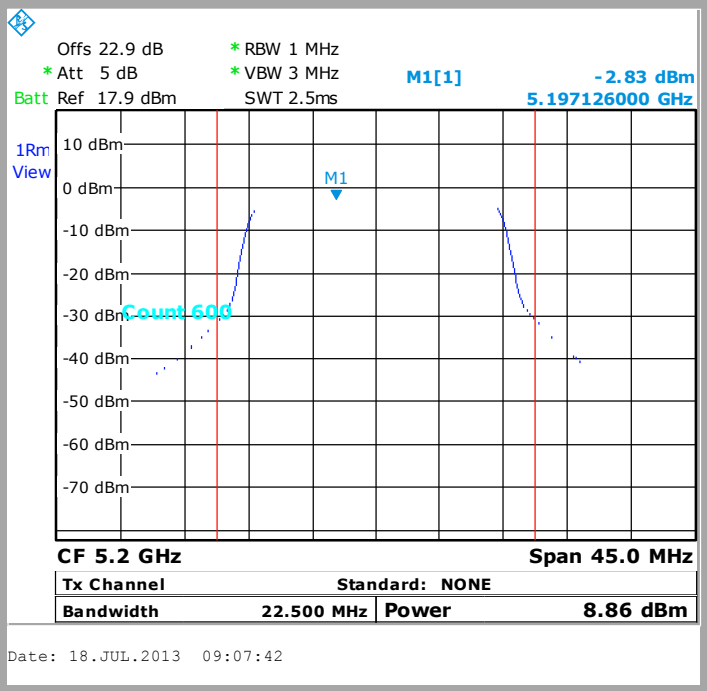


802.11n HT20	
C2	
Tx1	Tx2

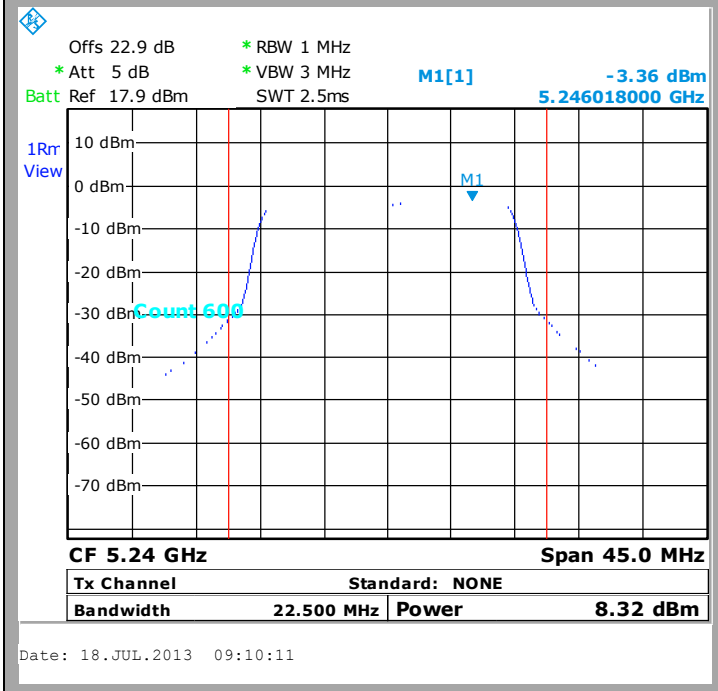


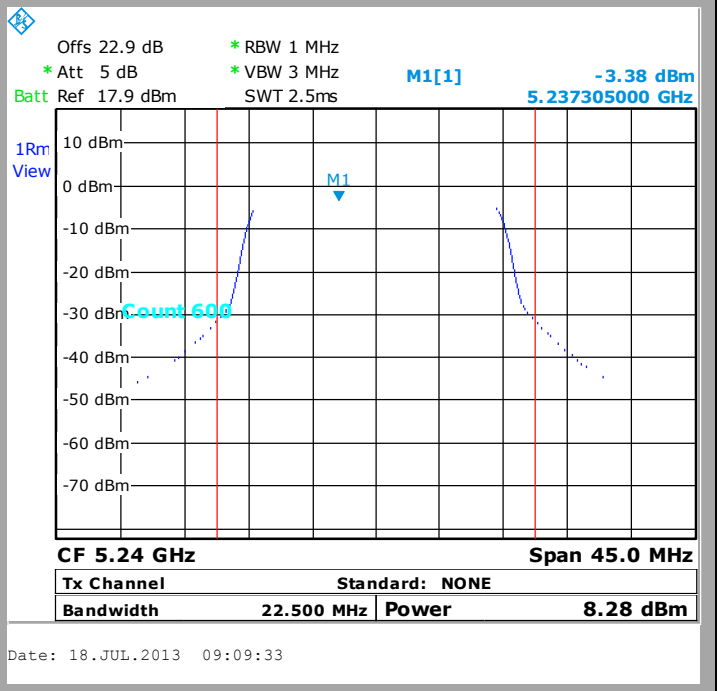


Tx3

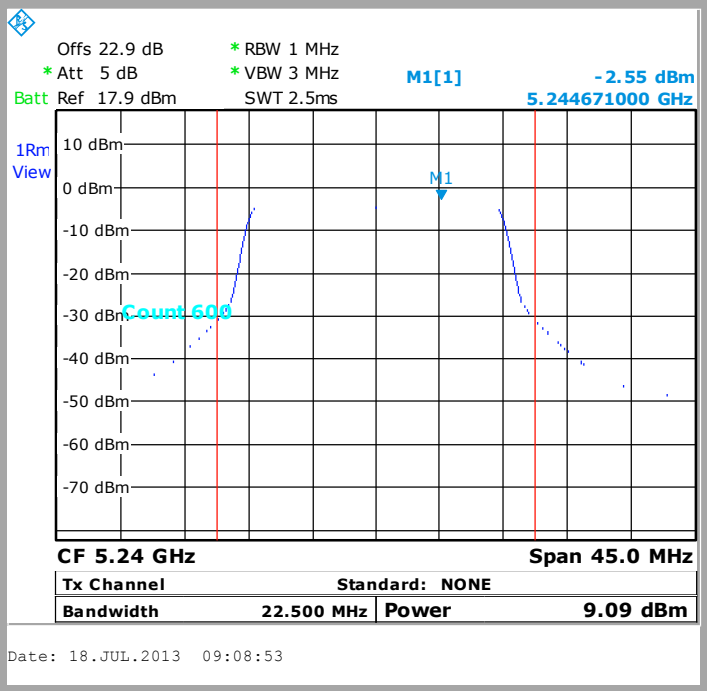


802.11n HT20	
C3	
Tx1	Tx2

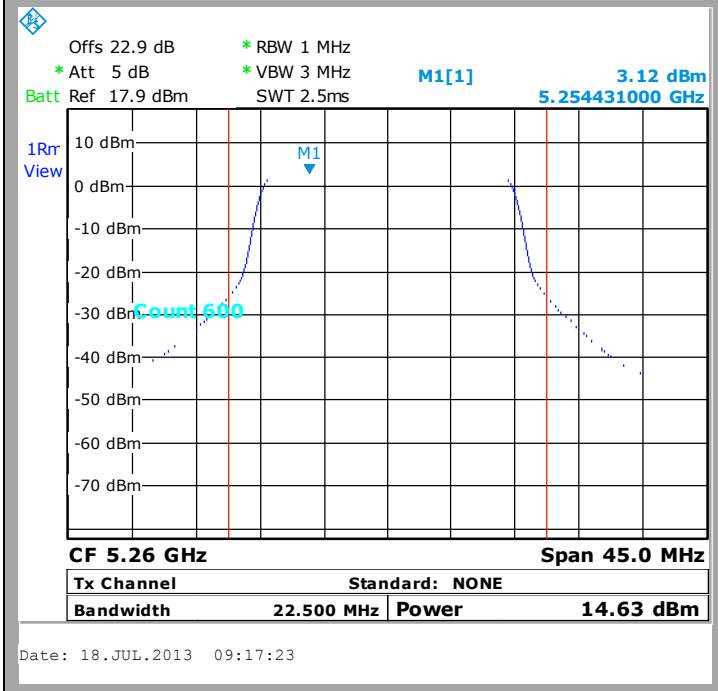


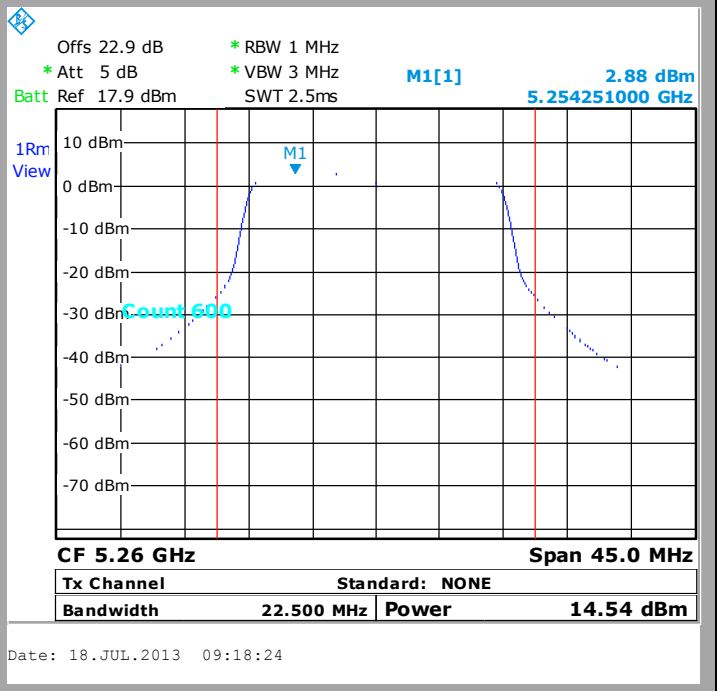


Tx3

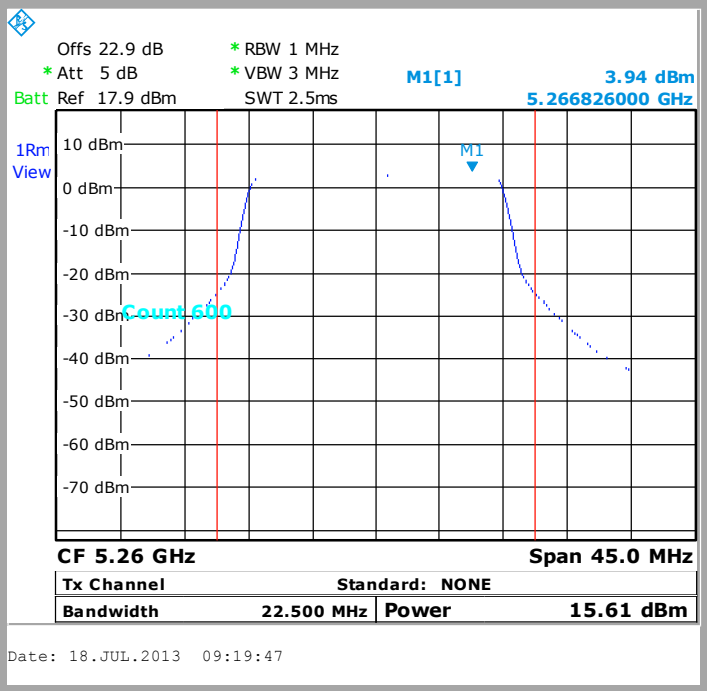


802.11n HT20	
C4	
Tx1	Tx2

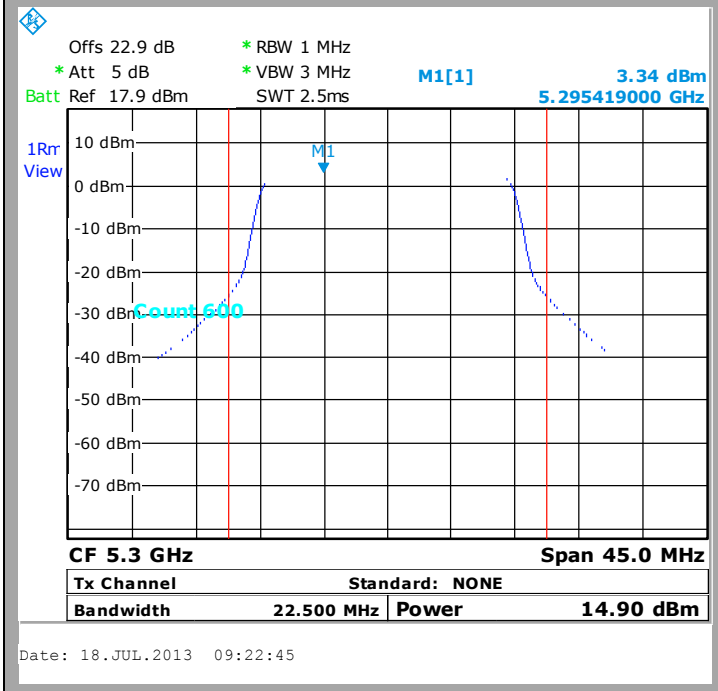


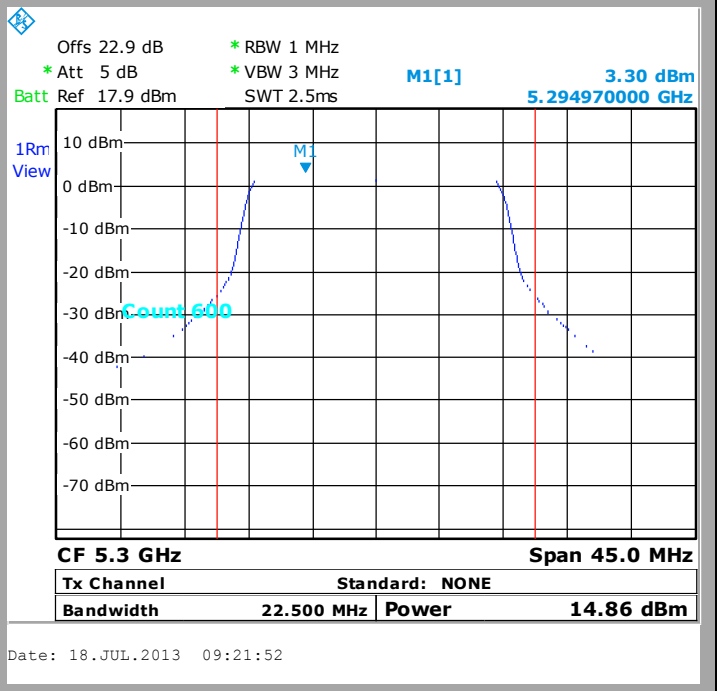


Tx3

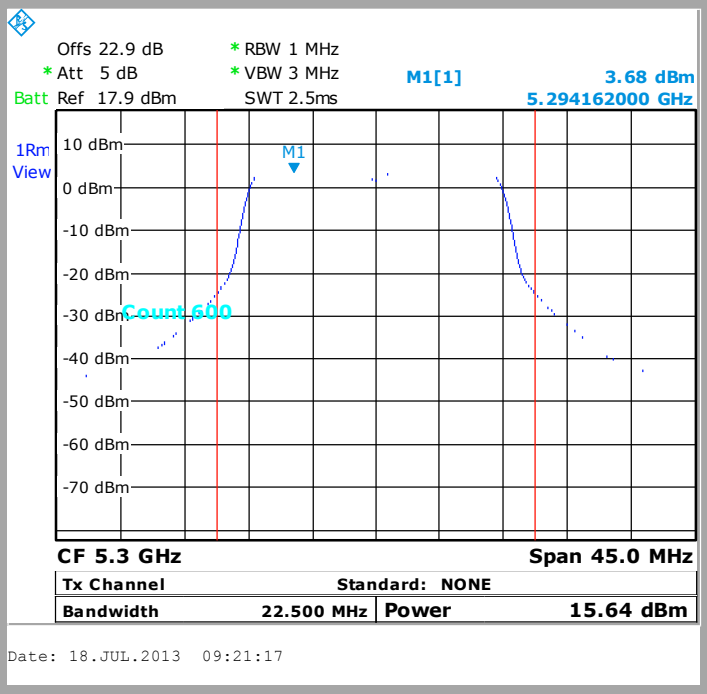


802.11n HT20	
C5	
Tx1	Tx2

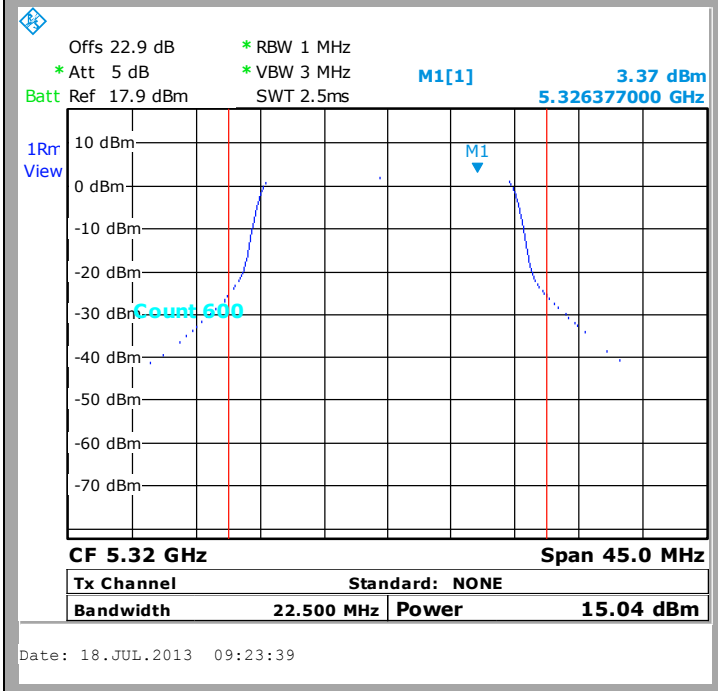


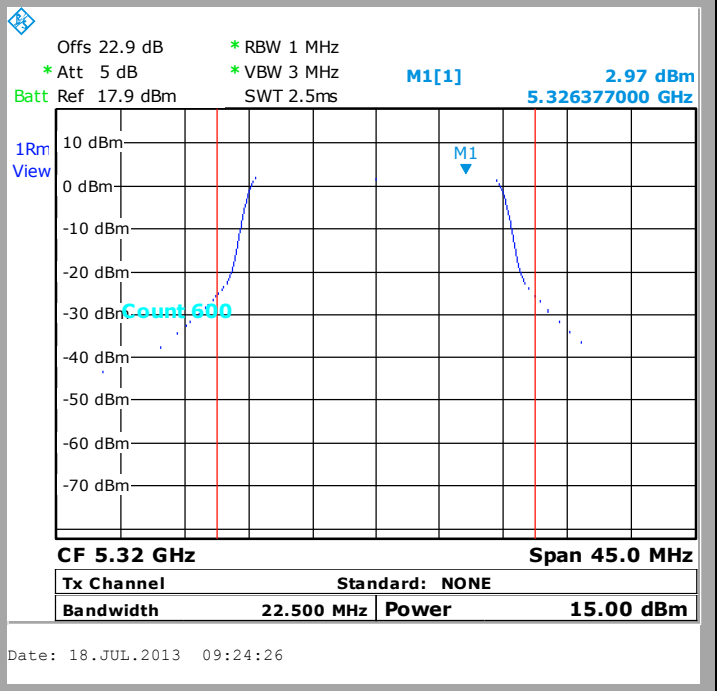


Tx3

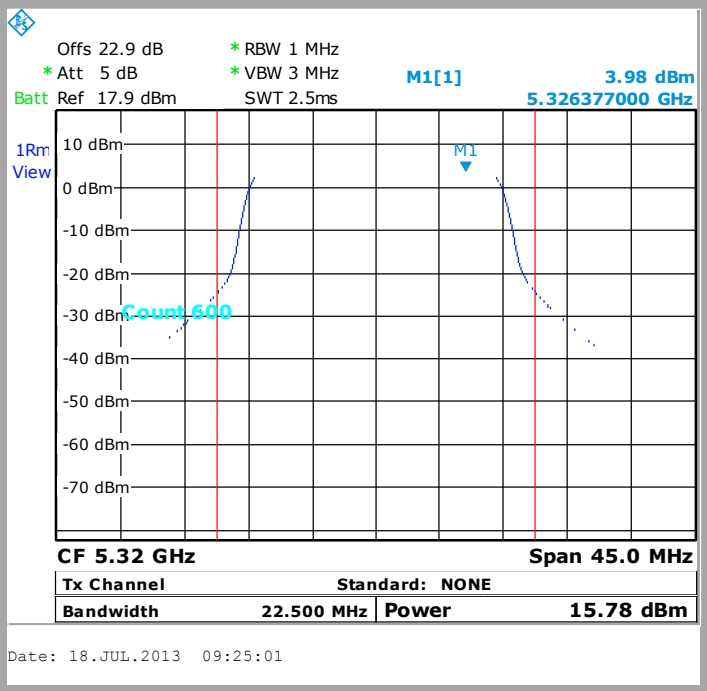


802.11n HT20	
C6	
Tx1	Tx2

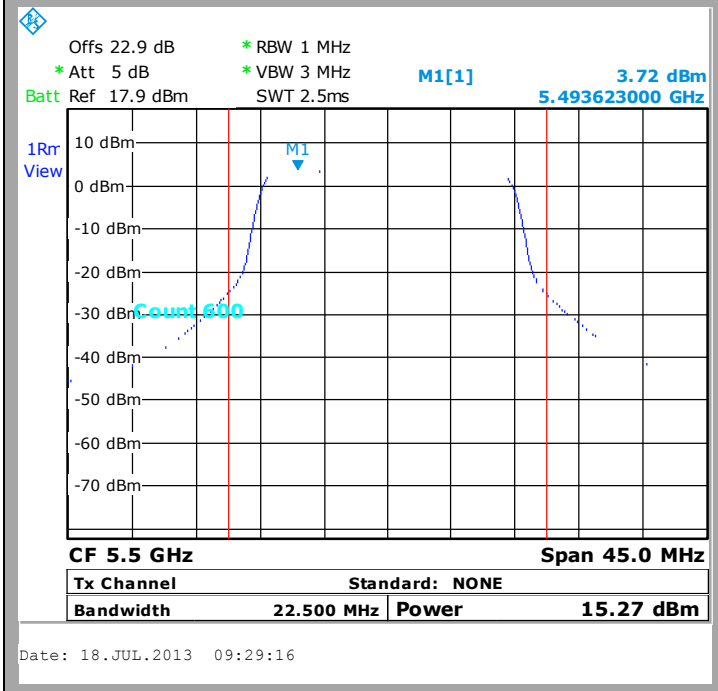


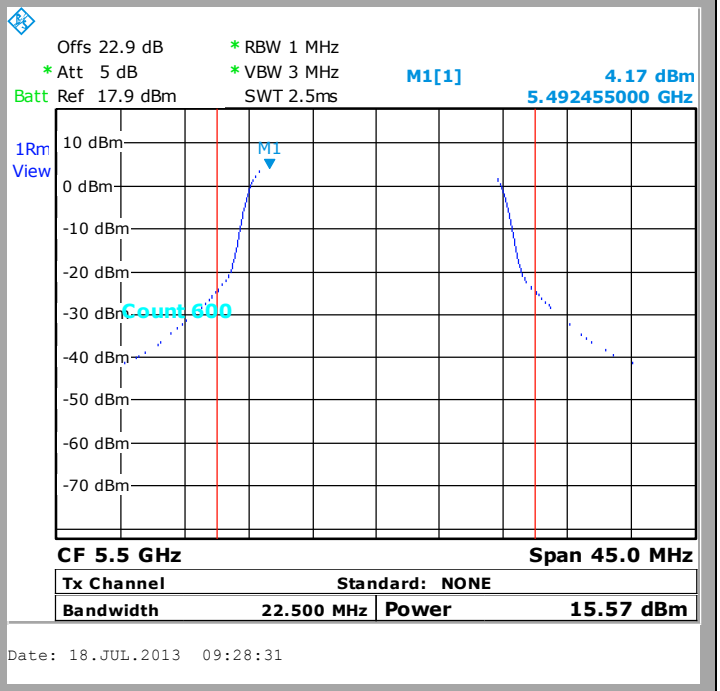


Tx3

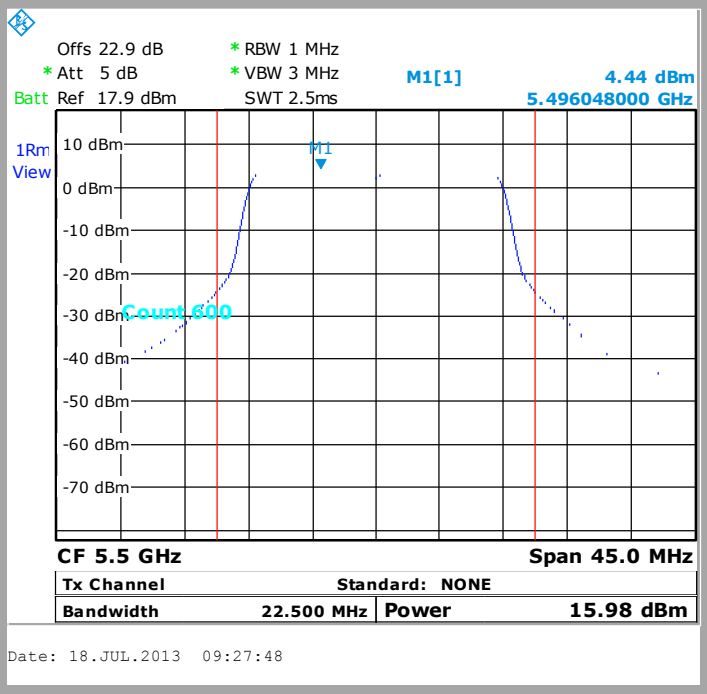


802.11n HT20	
C7	
Tx1	Tx2

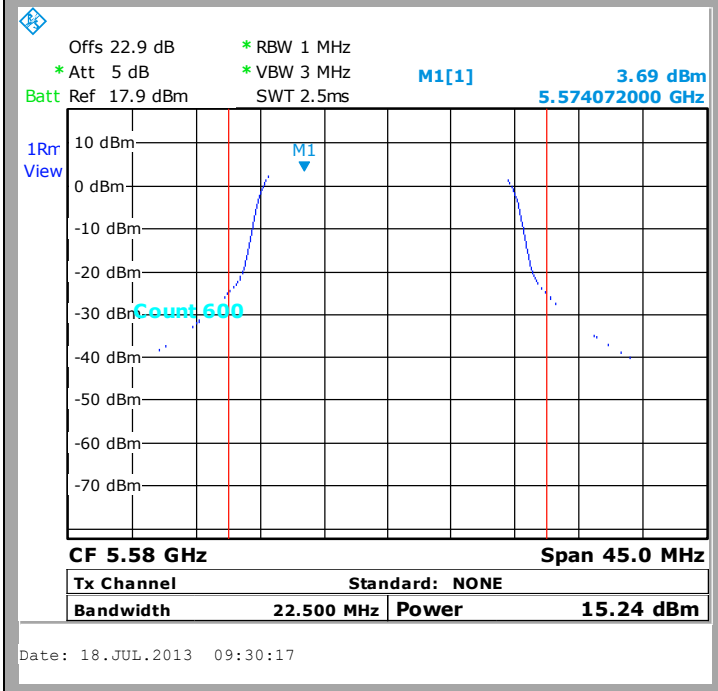


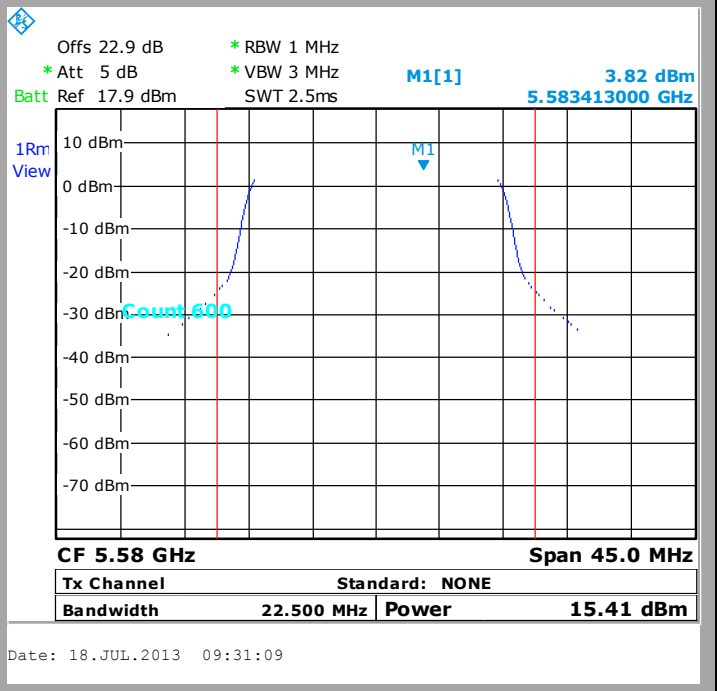


Tx3

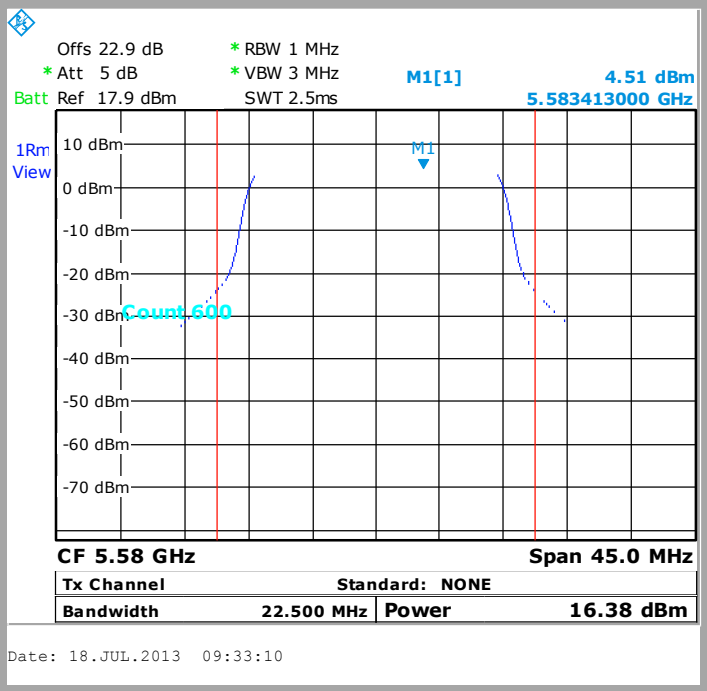


802.11n HT20	
C8	
Tx1	Tx2

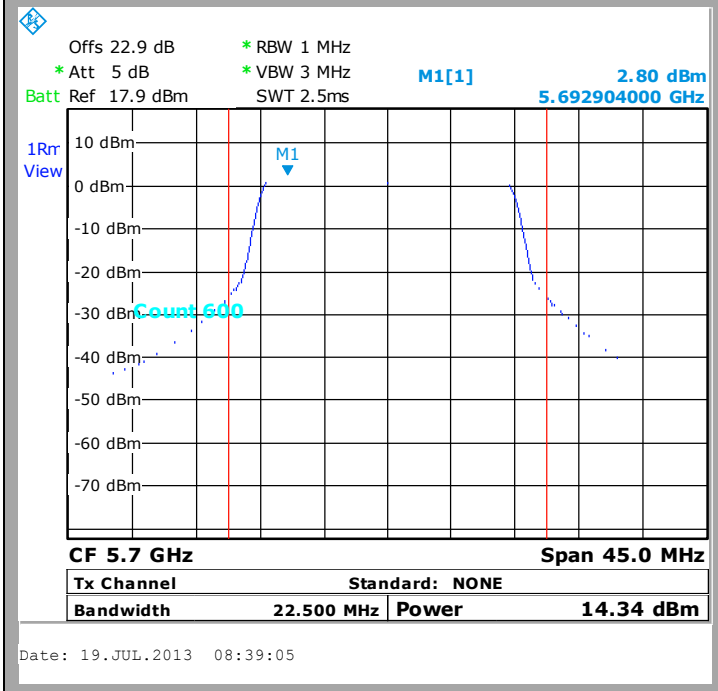


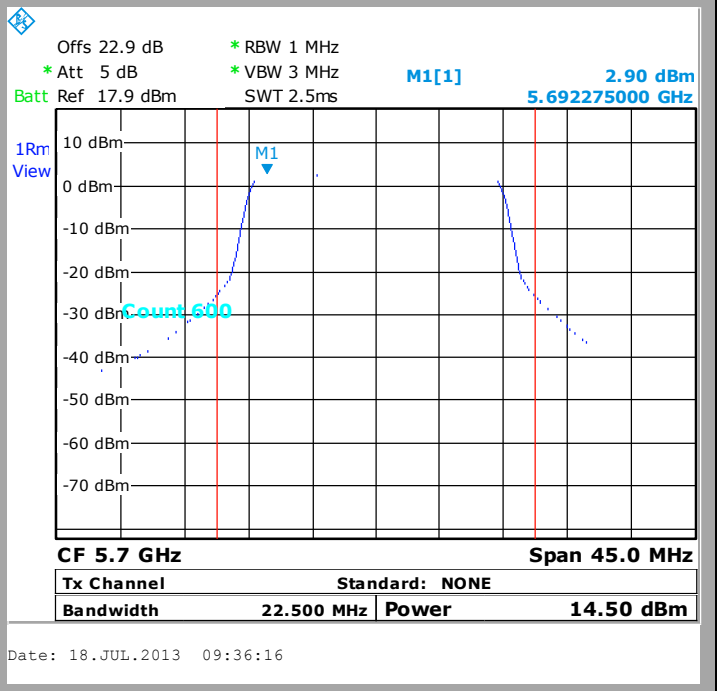


Tx3

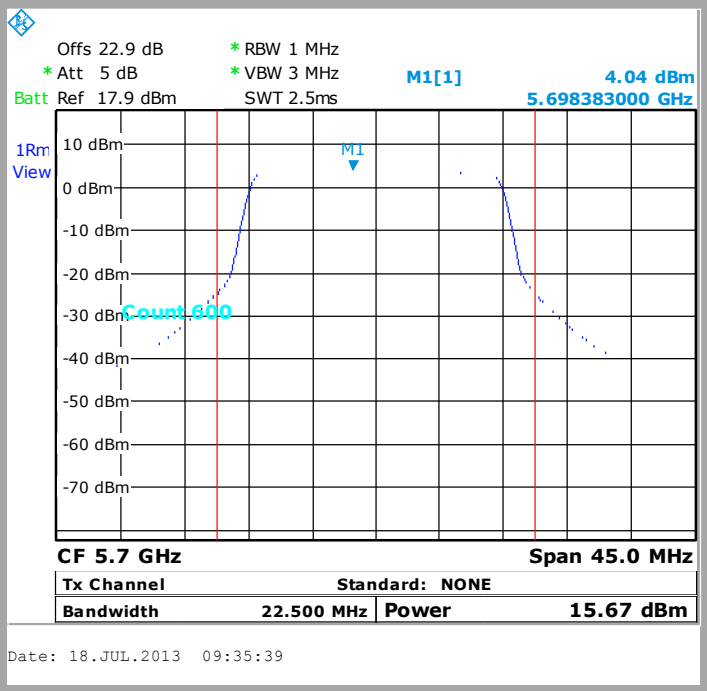


802.11n HT20	
C9	
Tx1	Tx2

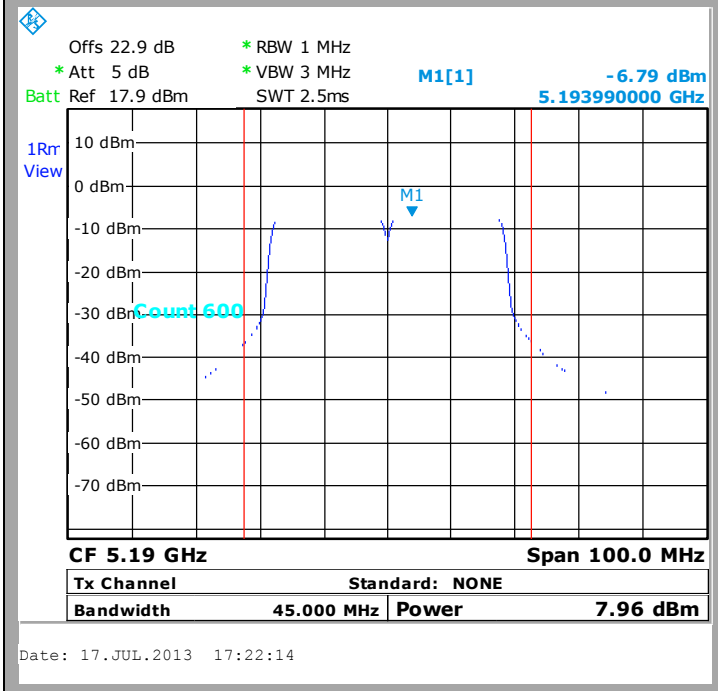


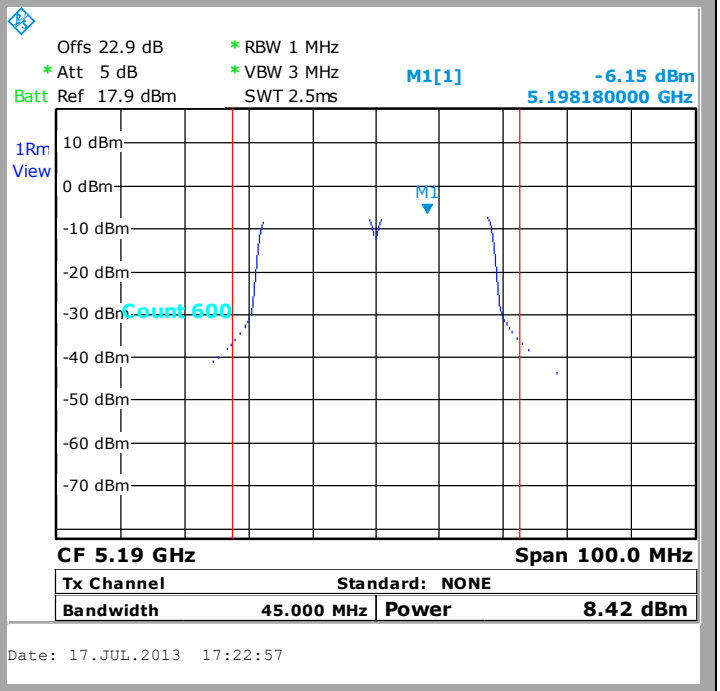


Tx3

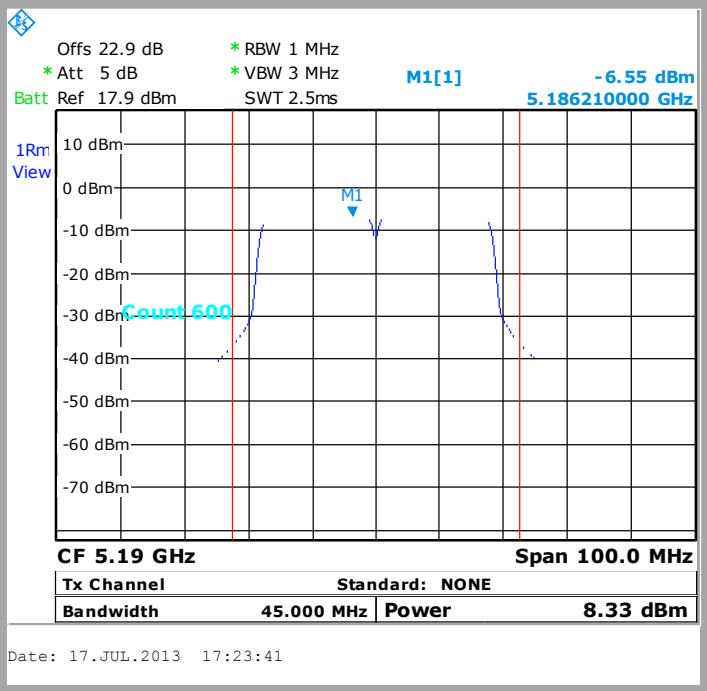


802.11n HT40	
C10	
Tx1	Tx2

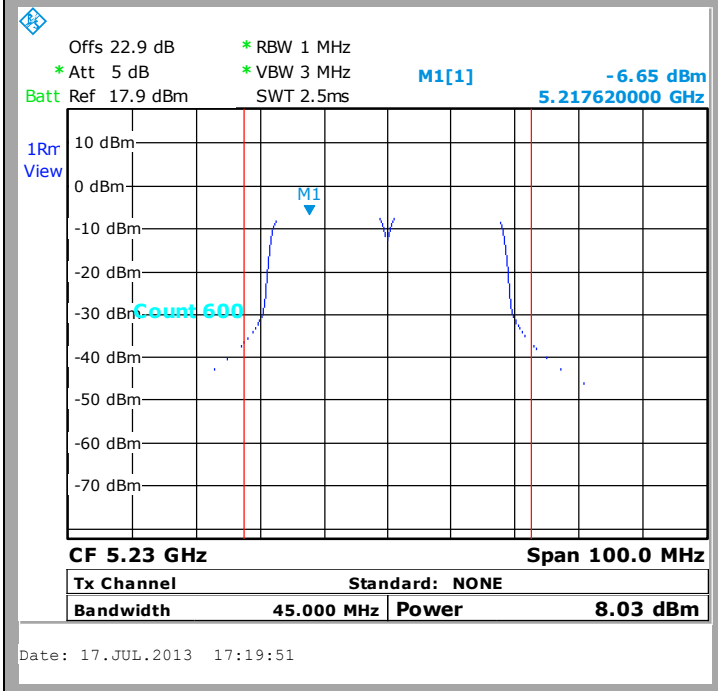


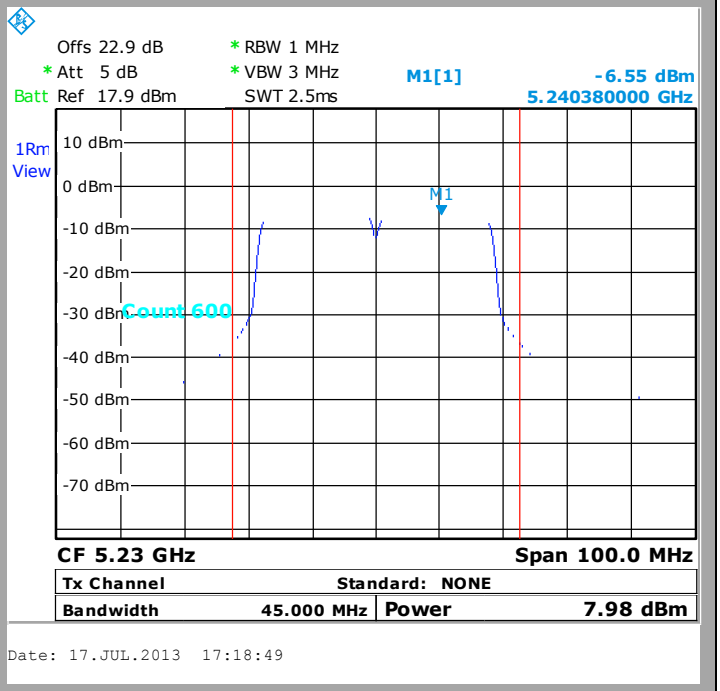


Tx3

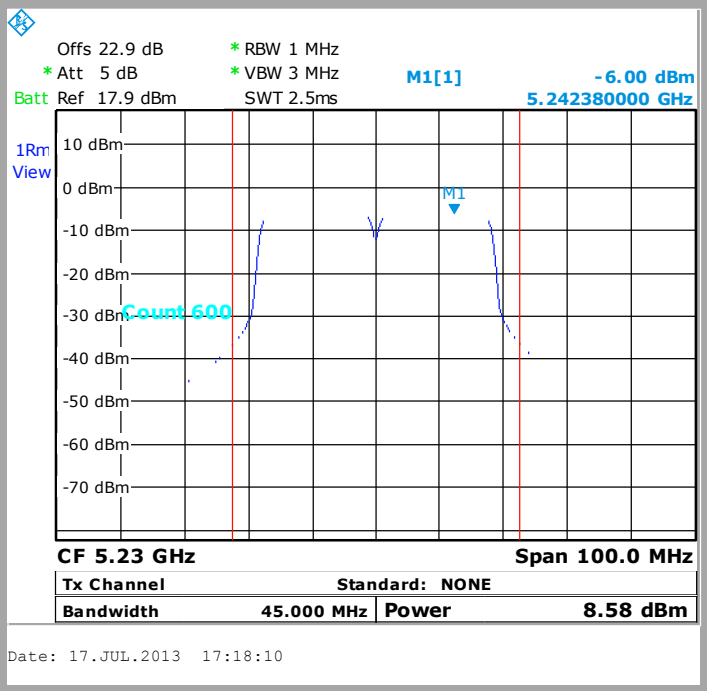


802.11n HT40	
C11	
Tx1	Tx2

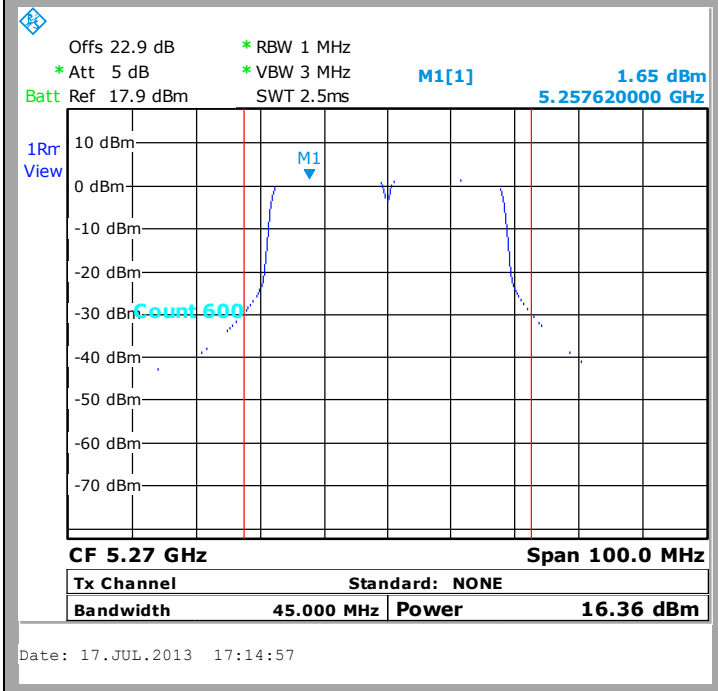


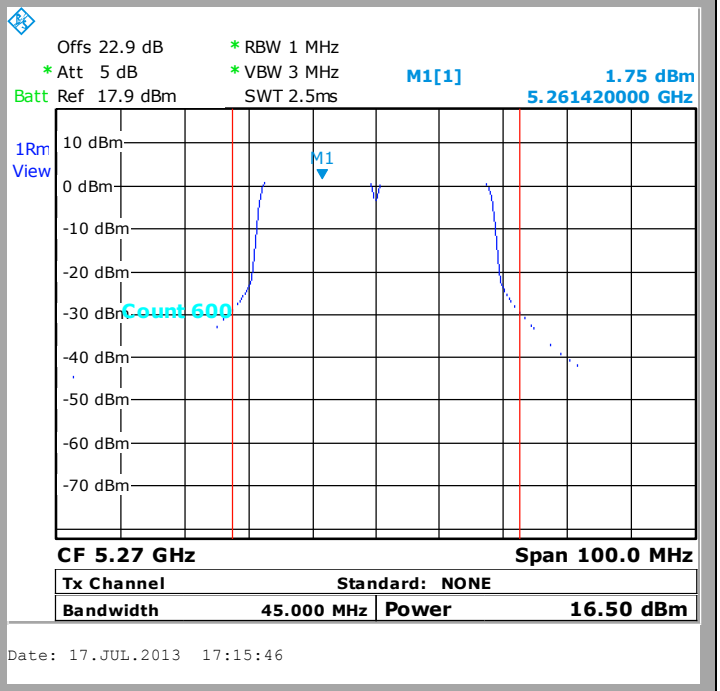


Tx3

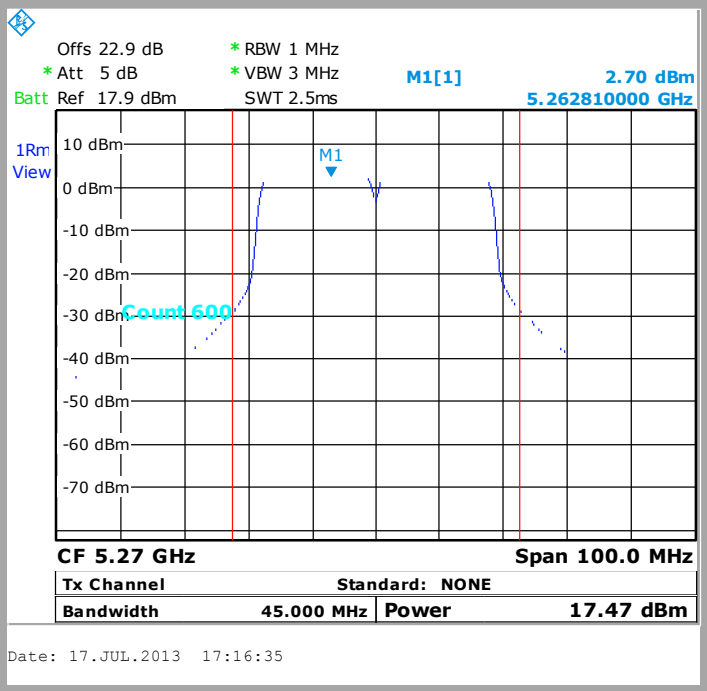


802.11n HT40	
C12	
Tx1	Tx2

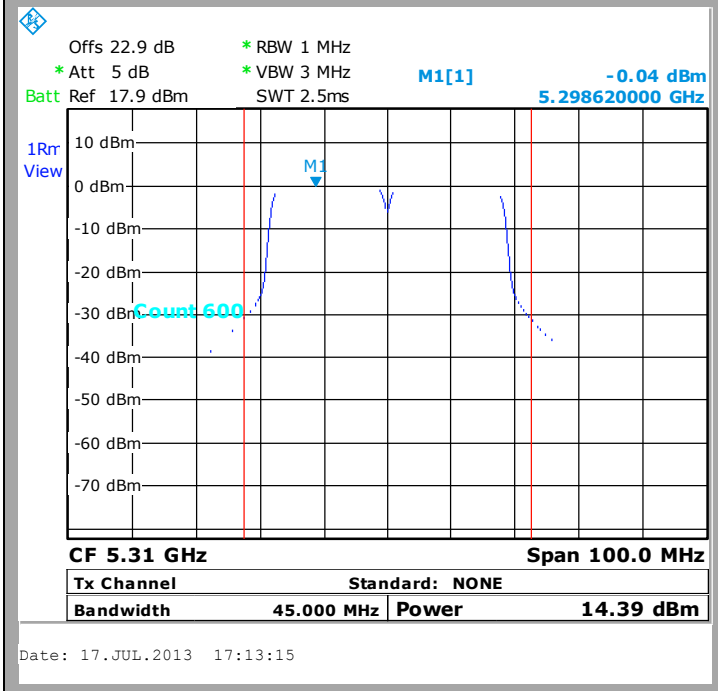


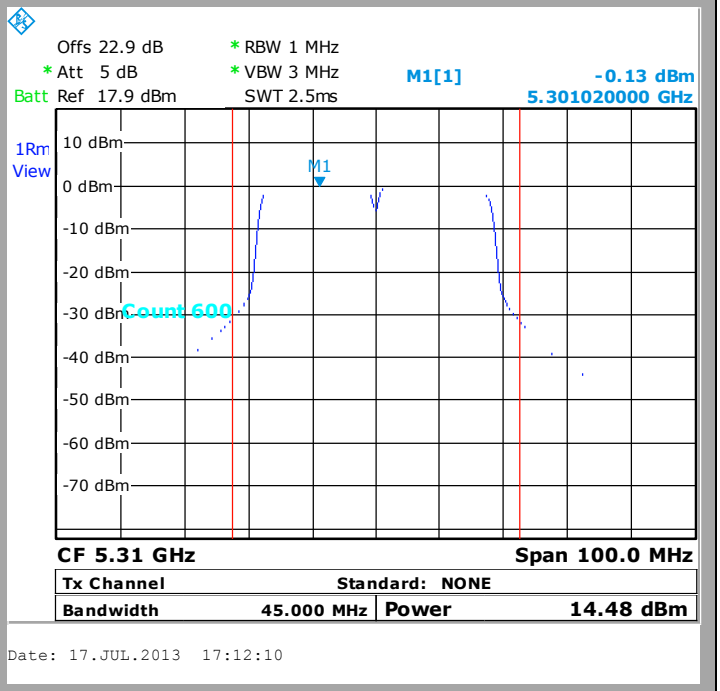


Tx3

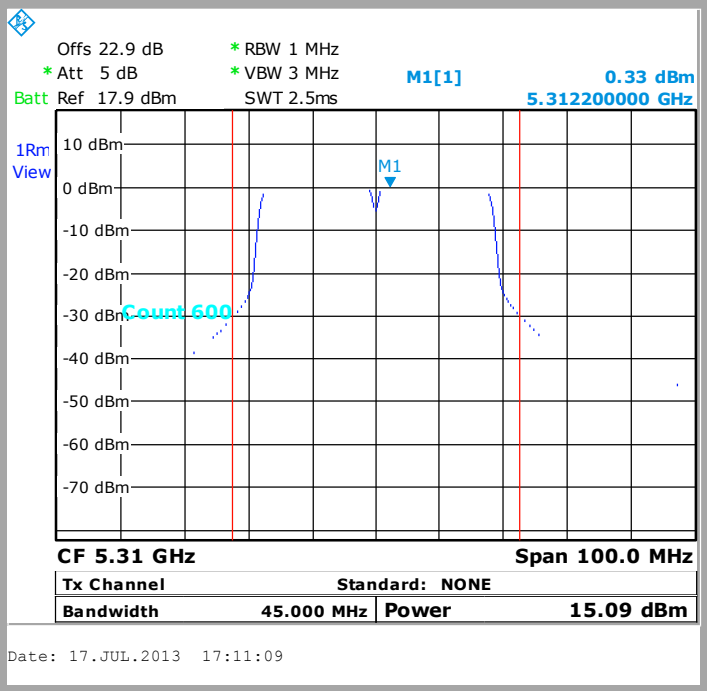


802.11n HT40	
C13	
Tx1	Tx2

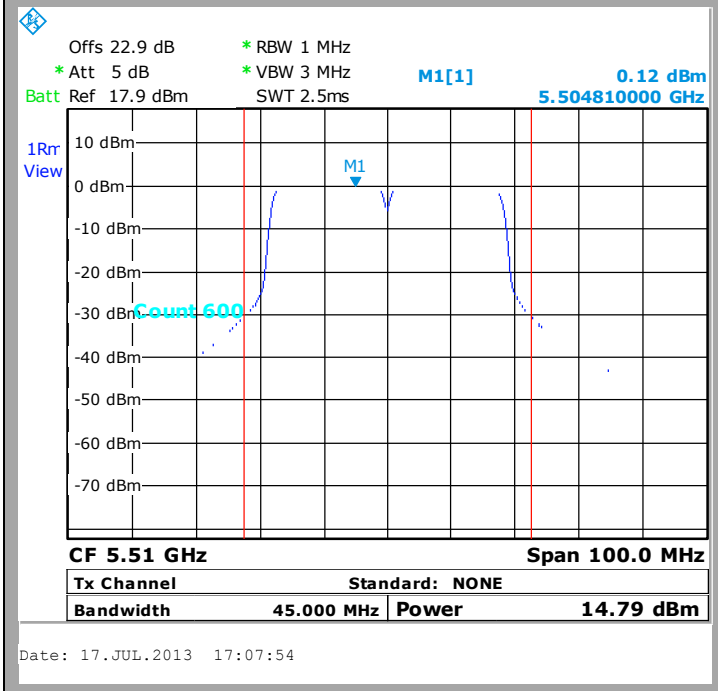


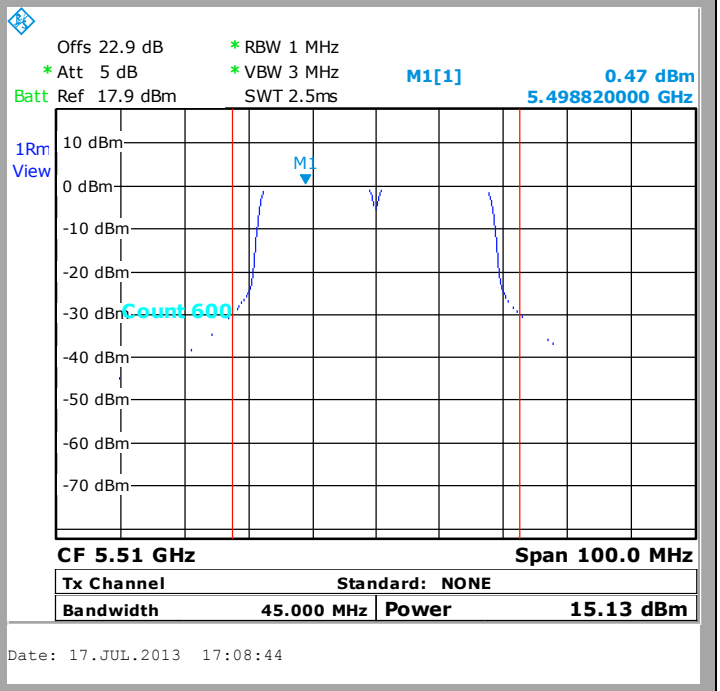


Tx3

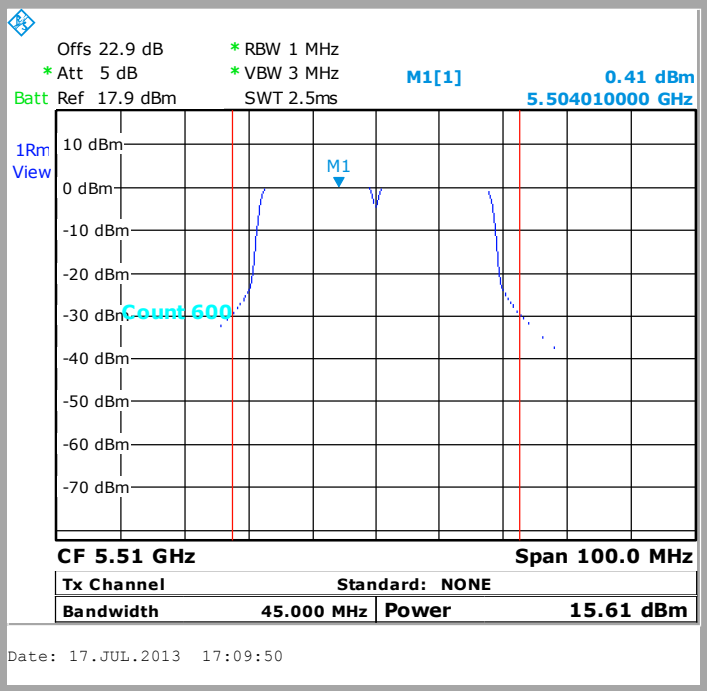


802.11n HT40	
C14	
Tx1	Tx2

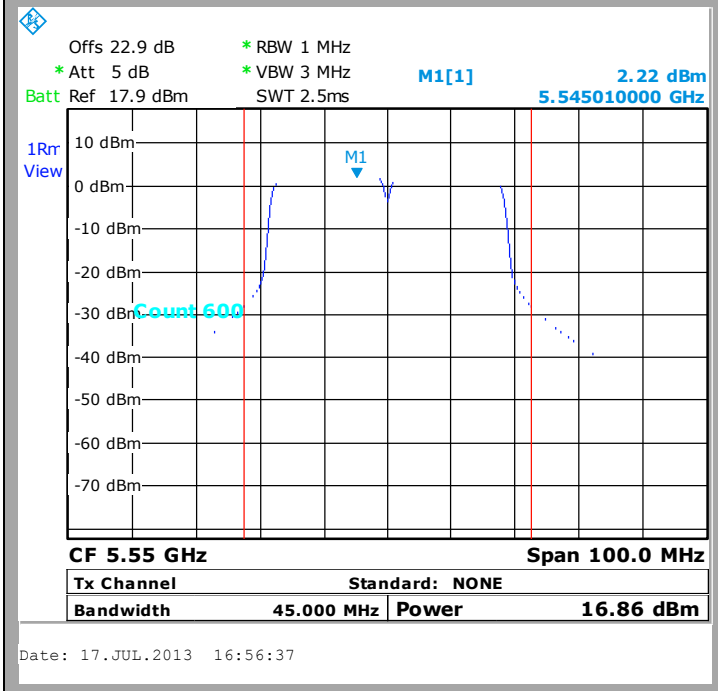


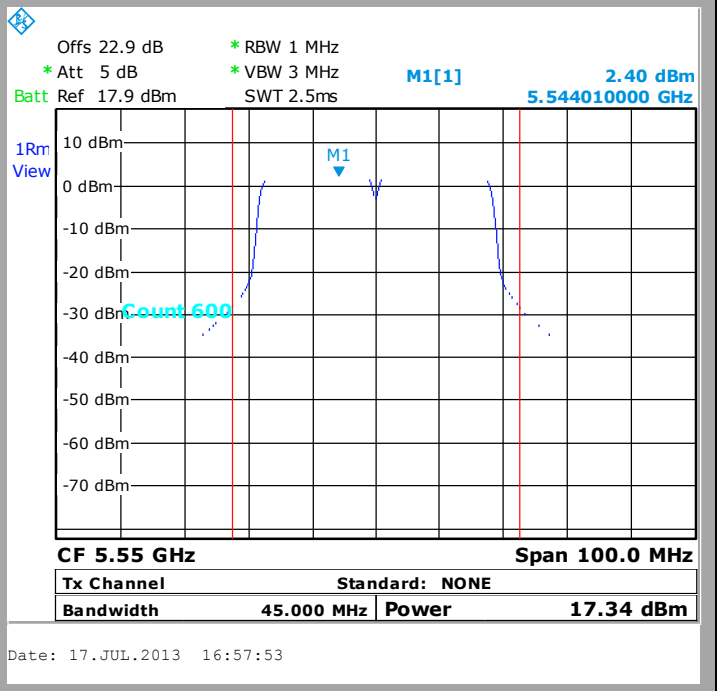


Tx3

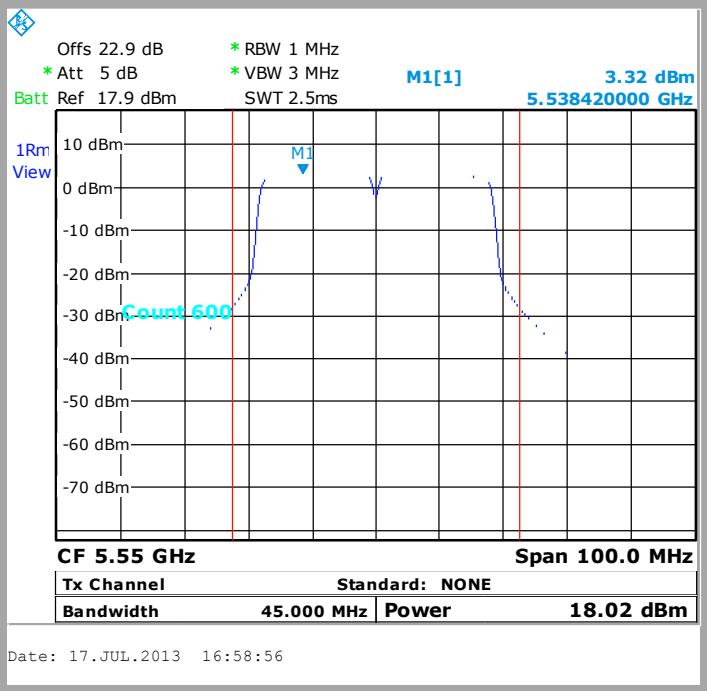


802.11n HT40	
C15	
Tx1	Tx2

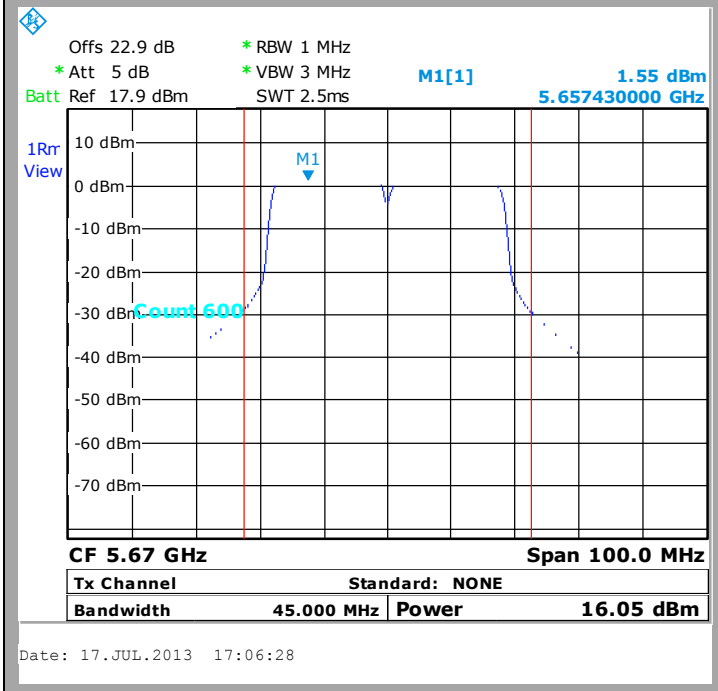


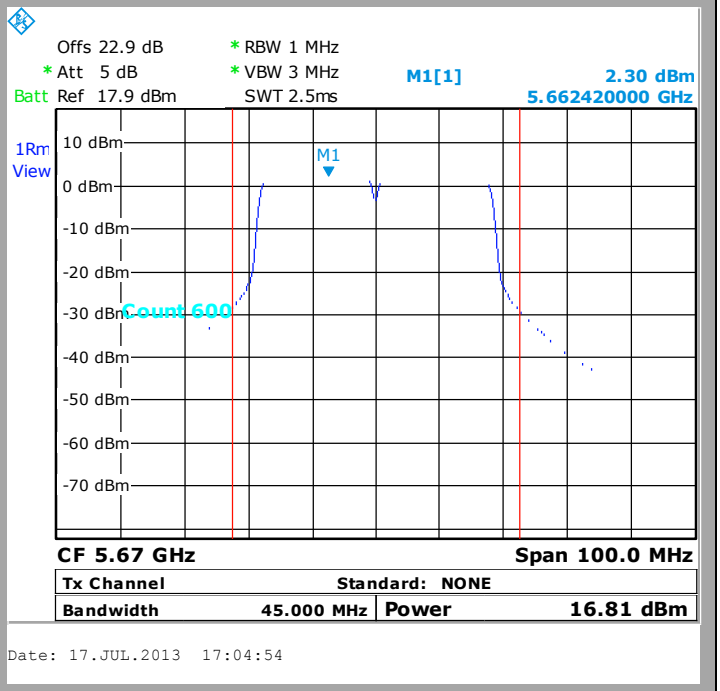


Tx3

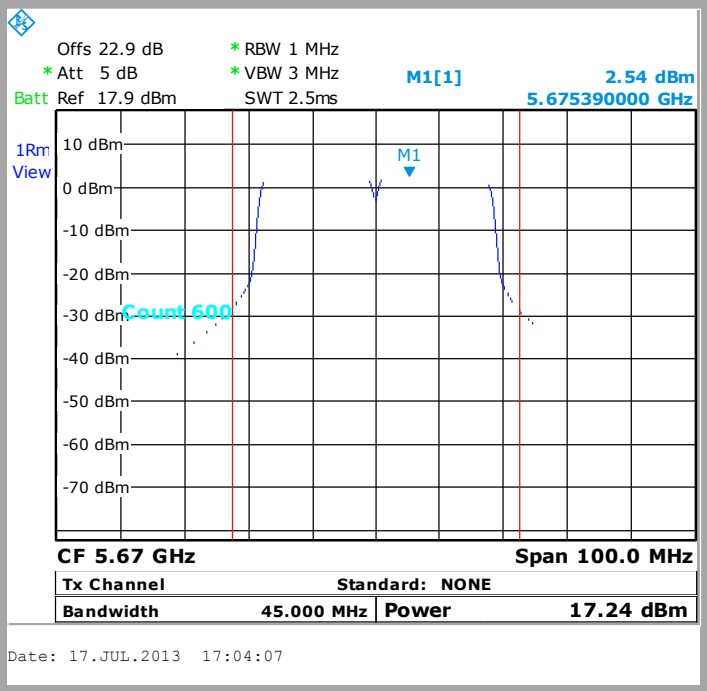


802.11n HT40	
C16	
Tx1	Tx2

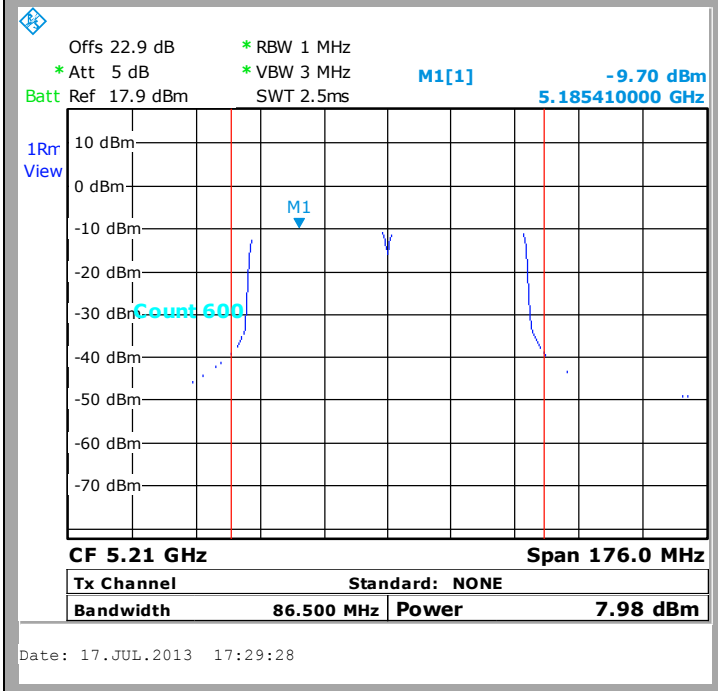


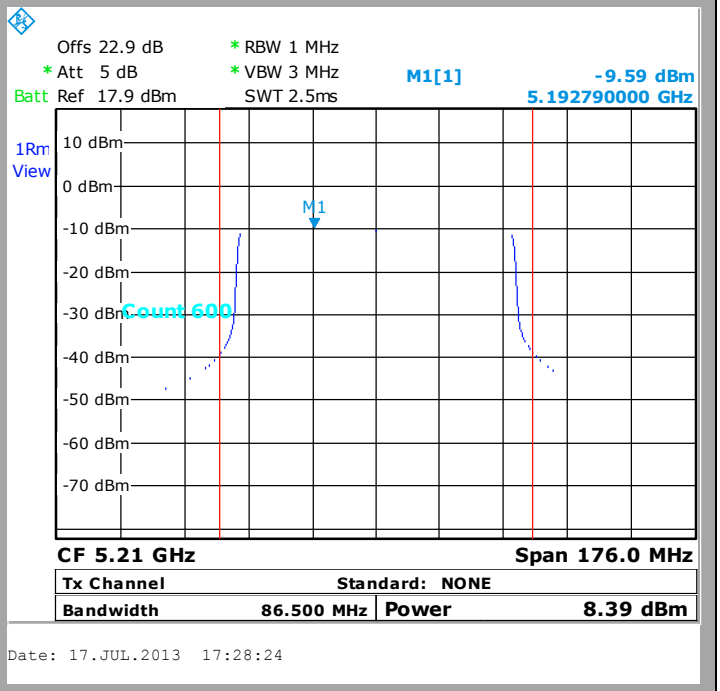


Tx3

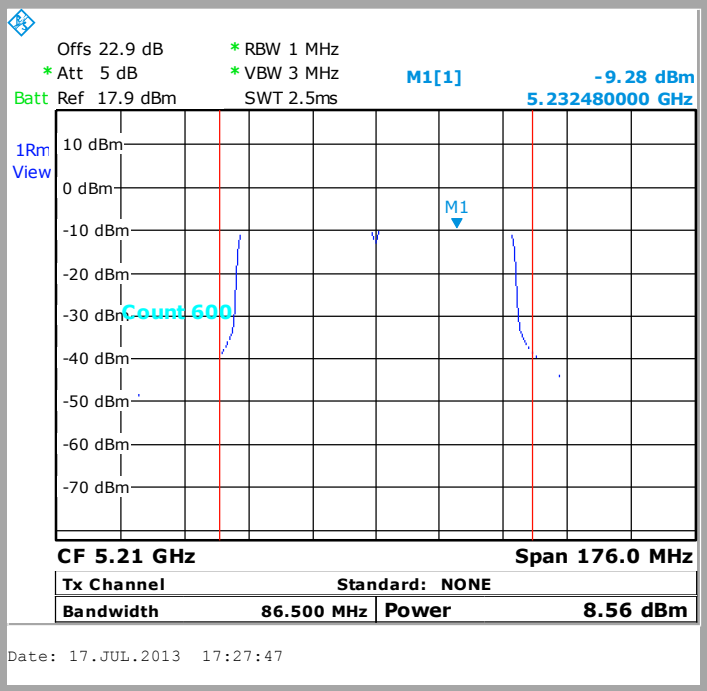


802.11ac VHT80	
C17	
Tx1	Tx2

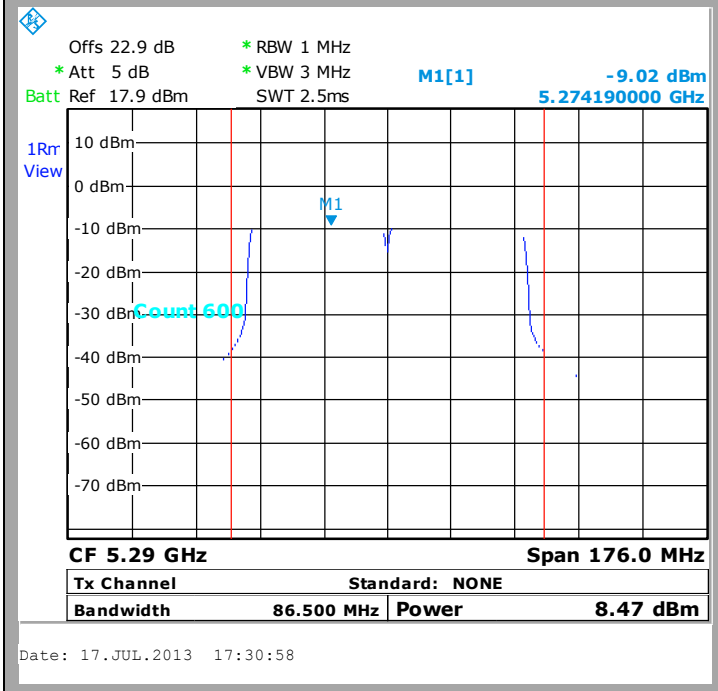


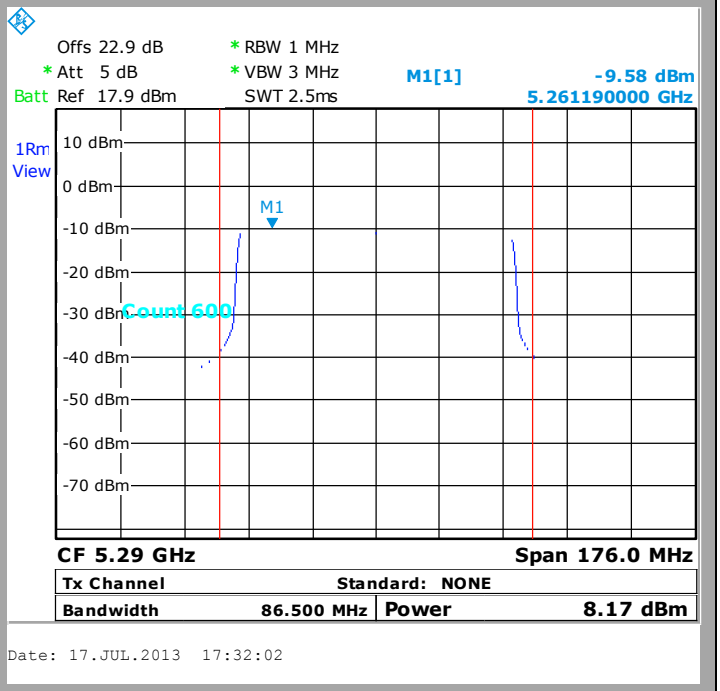


Tx3

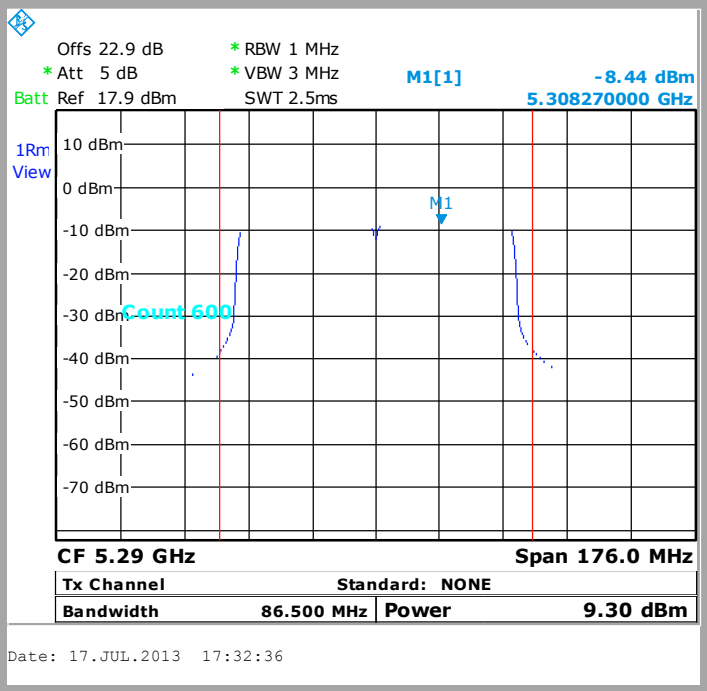


802.11ac VHT80	
C18	
Tx1	Tx2

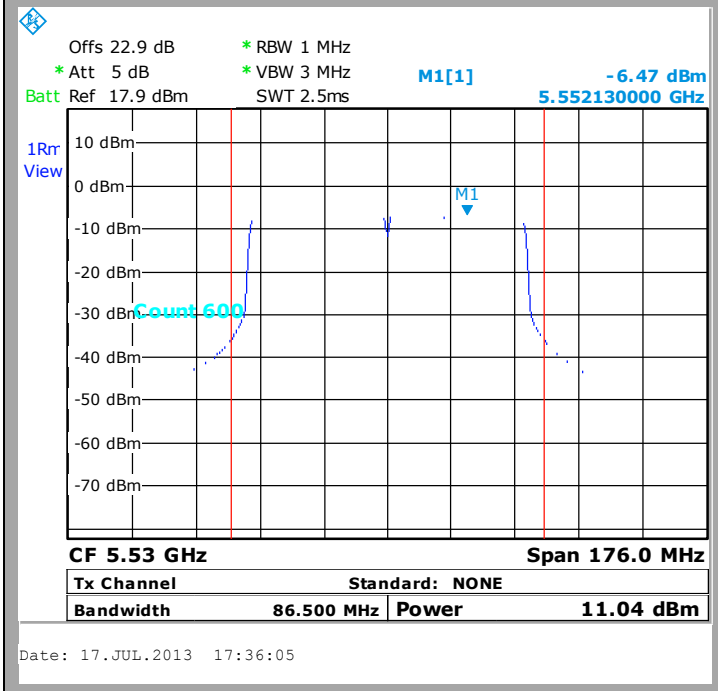


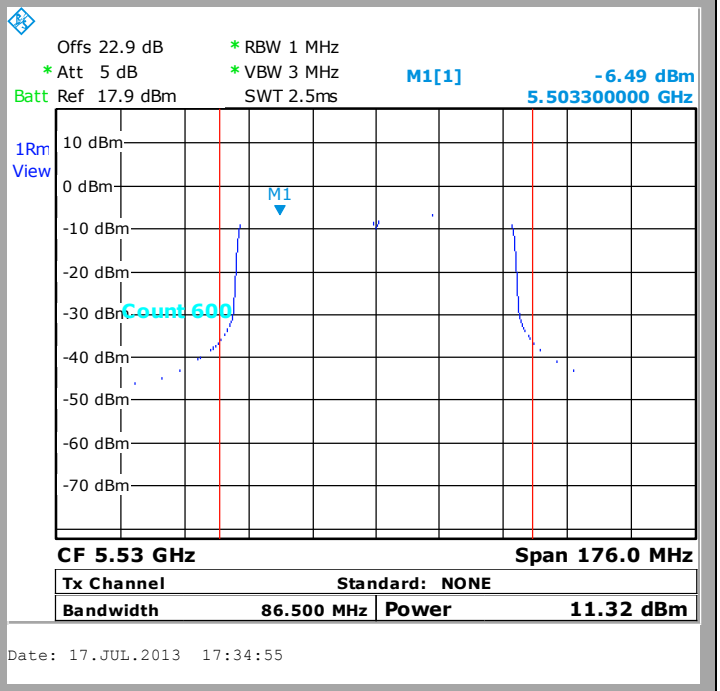


Tx3

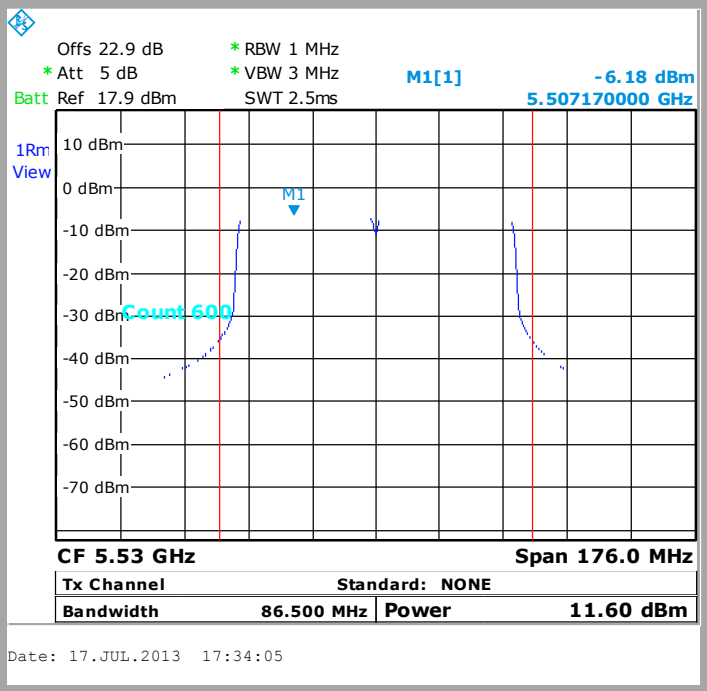


802.11ac VHT80	
C19	
Tx1	Tx2





Tx3



Spectrum Analyzer Offset:
Cable Loss=1,3dB + Attenuator= 21,6dB

802.11a

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Overall Antenna Gain (dBi)	Total Power (dBm)	Limit (dBm)
C1	8,88	9,22	9,36	7	13,93	16
C2	8,84	9,33	9,26	7	13,92	16
C3	8,72	8,6	9,4	7	13,69	16
C4	15	15,17	16,41	7	20,34	23
C5	15,34	15,3	16,5	7	20,52	23
C6	15,41	15,49	16,57	7	20,63	23
C7	15,81	15,94	16,5	7	20,87	23
C8	15,79	15,73	17,11	7	21,03	23
C9	14,66	15,09	16,33	7	20,19	23

802.11n HT20

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Overall Antenna Gain (dBi)	Total Power (dBm)	Limit (dBm)
C1	8,51	8,97	8,08	7	13,31	16
C2	8,77	8,95	8,86	7	13,63	16
C3	8,32	8,28	9,09	7	13,35	16
C4	14,63	14,54	15,61	7	19,73	23
C5	14,9	14,86	15,64	7	19,92	23
C6	15,04	15	15,78	7	20,06	23
C7	15,27	15,57	15,98	7	20,39	23
C8	15,24	15,41	16,38	7	20,48	23
C9	14,34	14,5	15,67	7	19,65	23

802.11n HT40

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Overall Antenna Gain (dBi)	Total Power (dBm)	Limit (dBm)
C10	7,96	8,42	8,33	7	13,01	16
C11	8,03	7,98	8,58	7	12,98	16
C12	16,36	16,5	17,47	7	21,58	23
C13	14,39	14,48	15,09	7	19,44	23
C14	14,79	15,13	15,61	7	19,96	23
C15	16,86	17,37	18,02	7	22,21	23
C16	16,05	16,81	17,24	7	21,50	23

802.11ac VHT80

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Overall Antenna Gain (dBi)	Total Power (dBm)	Limit (dBm)
C17	7,98	8,39	8,56	7	13,09	16
C18	8,47	8,17	9,3	7	13,44	16
C19	11,04	11,32	11,6	7	16,10	23

Result: PASS

Power Limits:
5150MHz-5250MHz: Shall not exceed 17dBm or 4dBm + 10*log (-26dB Bandwidth (MHz))
5250MHz-5350MHz: Shall not exceed 24dBm or 11dBm +10*log (-26dB Bandwidth (MHz))
5470MHz-5725MHz: Shall not exceed 24dBm or 11dBm +10*log (-26dB Bandwidth (MHz))
Limits are reduced by G-6dBi if Overall Antenna Gain above 6dBi

Spectrum Analyzer Offset:
Cable Loss=1,3dB + Attenuator= 21,6dB

802.11a

Channel	Tx1 (dBm/MHz)	Tx2 (dBm/MHz)	Tx3 (dBm/MHz)	Overall Antenna Gain (dBi)	PSD(dBm/MHz)	Limit (dBm/MHz)
C1	-2,17	-2,11	-2,06	7	2,66	3,0
C2	-2,48	-1,88	-2,09	7	2,63	3,0
C3	-2,26	-2,77	-2,01	7	2,44	3,0
C4	4,05	3,47	5,16	7	9,06	10,0
C5	4,36	3,81	5,01	7	9,19	10,0
C6	4,6	4,18	5,36	7	9,51	10,0
C7	5	4,46	5,25	7	9,69	10,0
C8	4,65	4,18	5,89	7	9,74	10,0
C9	3,57	3,66	5,07	7	8,93	10,0

802.11n HT20

Channel	Tx1 (dBm/MHz)	Tx2 (dBm/MHz)	Tx3 (dBm/MHz)	Overall Antenna Gain (dBi)	PSD(dBm/MHz)	Limit (dBm/MHz)
C1	-3,17	-2,56	-2,54	7	2,02	3,0
C2	-3,01	-2,72	-2,83	7	1,92	3,0
C3	-3,36	-3,38	-2,55	7	1,69	3,0
C4	3,12	2,88	3,94	7	8,11	10,0
C5	3,34	3,3	3,68	7	8,21	10,0
C6	3,37	2,97	3,98	7	8,23	10,0
C7	3,72	4,17	4,44	7	8,89	10,0
C8	3,69	3,82	4,51	7	8,79	10,0
C9	2,8	2,9	4,04	7	8,06	10,0

802.11n HT40

Channel	Tx1 (dBm/MHz)	Tx2 (dBm/MHz)	Tx3 (dBm/MHz)	Overall Antenna Gain (dBi)	PSD(dBm/MHz)	Limit (dBm/MHz)
C10	-6,79	-6,15	-6,55	7	-1,72	3,0
C11	-6,65	-6,55	-6	7	-1,62	3,0
C12	1,65	1,75	2,7	7	6,83	10,0
C13	-0,04	-0,13	0,33	7	4,83	10,0
C14	0,12	0,47	0,41	7	5,11	10,0
C15	2,22	2,4	3,32	7	7,45	10,0
C16	1,55	2,3	2,54	7	6,92	10,0

802.11ac VHT80

Channel	Tx1 (dBm/MHz)	Tx2 (dBm/MHz)	Tx3 (dBm/MHz)	Overall Antenna Gain (dBi)	PSD(dBm/MHz)	Limit (dBm/MHz)
C17	-9,7	-9,59	-9,28	7	-4,75	3,0
C18	-9,02	-9,58	-8,44	7	-4,22	10,0
C19	-6,47	-6,49	-6,18	7	-1,61	10,0

Result: PASS

Power Spectral Density Limit:
5150MHz-5250MHz: Shall not exceed 4dBm/MHz (Reduced by G-6dBi if Overall Antenna Gain above 6dBi)
5250MHz-5350MHz: Shall not exceed 11dBm/MHz (Reduced by G-6dBi if Overall Antenna Gain above 6dBi)
5470MHz-5725MHz: Shall not exceed 11dBm/MHz (Reduced by G-6dBi if Overall Antenna Gain above 6dBi)

7. TRANSMIT POWER CONTROL

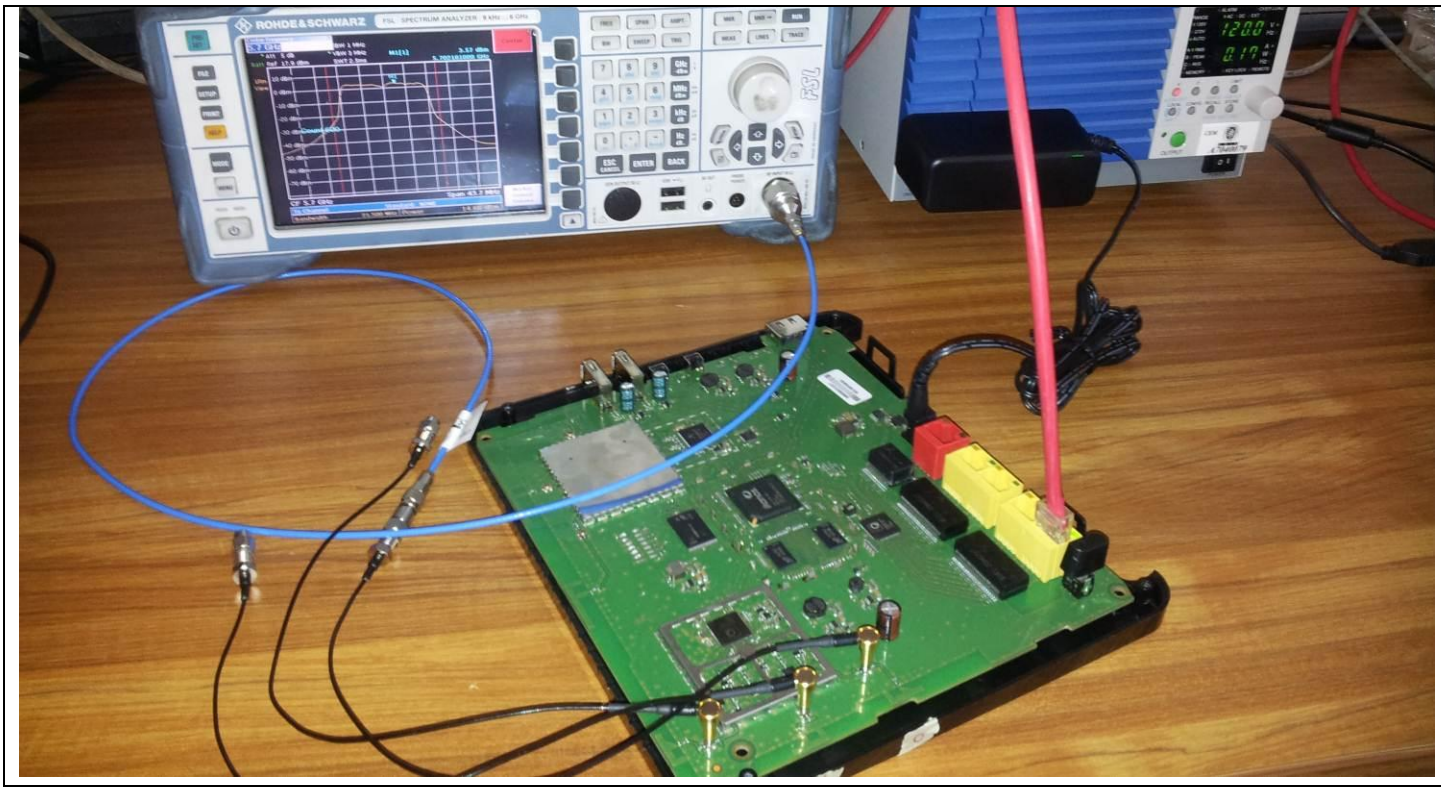
7.1. TEST CONDITIONS

Test performed by : Stéphane PHOUDIAH
Date of test : 2013/07/17 & 2013/07/18
Ambient temperature : 27°C
Relative humidity : 43%

7.2. TEST SETUP

The Equipment Under Test is installed on a table and set in permanent emission with modulation. Measurement is performed with a spectrum analyzer on the EUT conducted access. The product has been tested according to the FCC KDB 789033 D01 General UNII Test Procedures v01r03 § E) b) + F & FCC KDB 662911 D01 Multiple Transmitter Outpout v02 § E) 1).

Spectrum Analyzer Setting:
Center frequency= Center of emission spectrum
Span= At least twice the emission spectrum
Amplitude= Sufficient to observe the signal amplitude
RBW= 1MHz
VBW= 3MHz
Sweep point= 5000
Sweep time= auto
Trace=At least Average 100 traces
Detector= RMS
Meas Fonction= Channel Power inside of -26dB Bandwidth



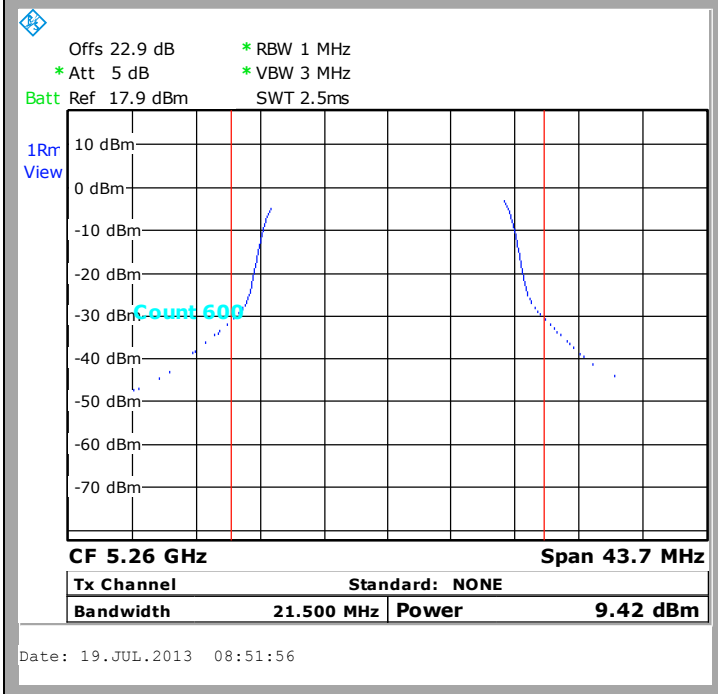
Photograph for Transmit Power Control

7.3. GRAPHICS & RESULTS

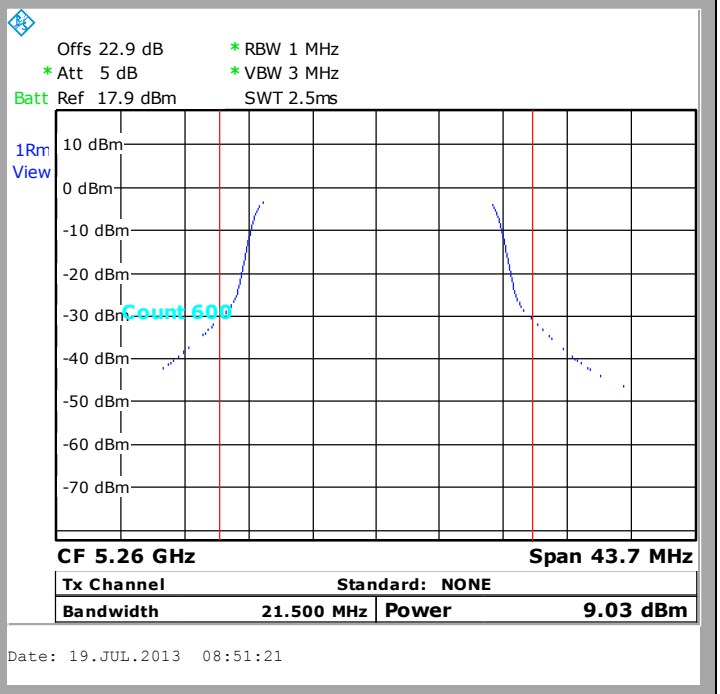
802.11a

C4

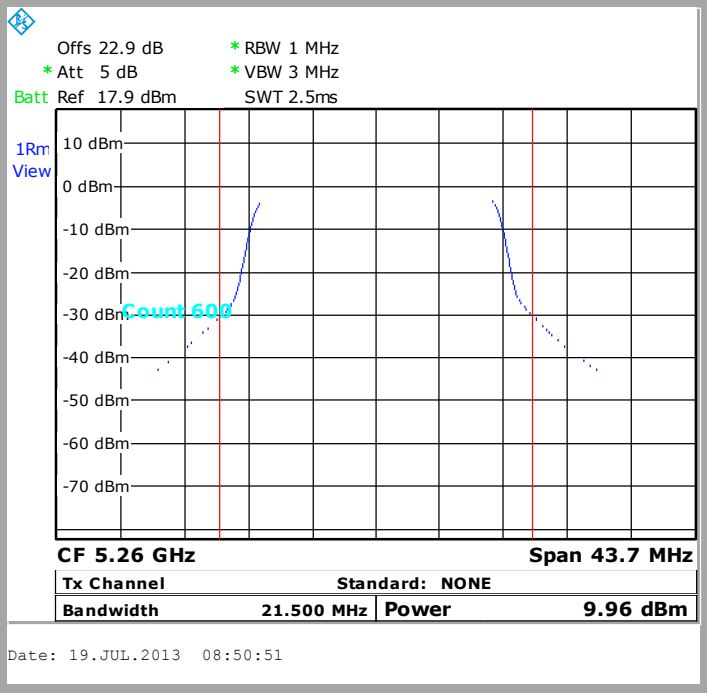
Tx1



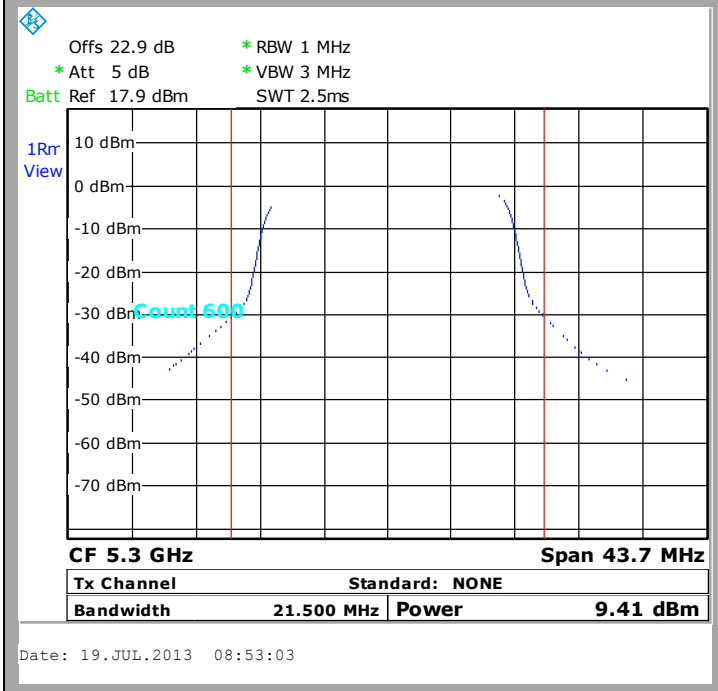
Tx2

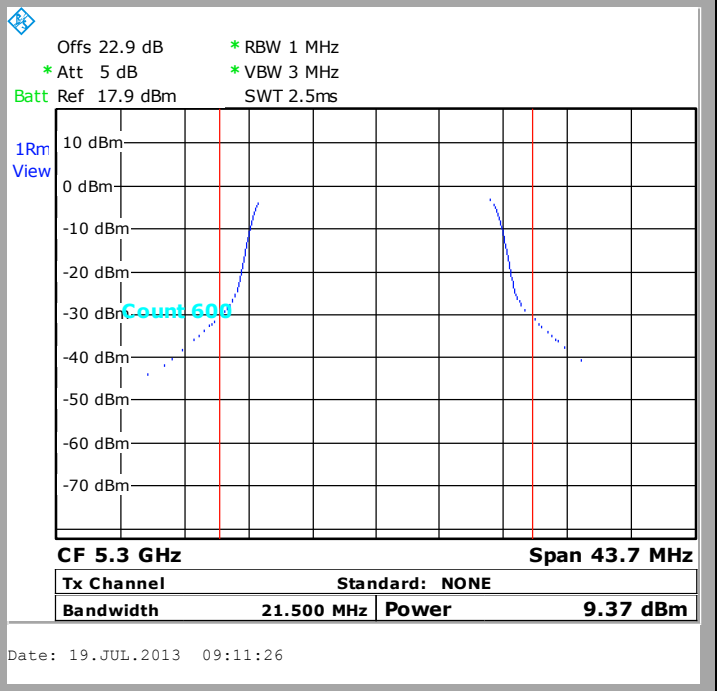


Tx3

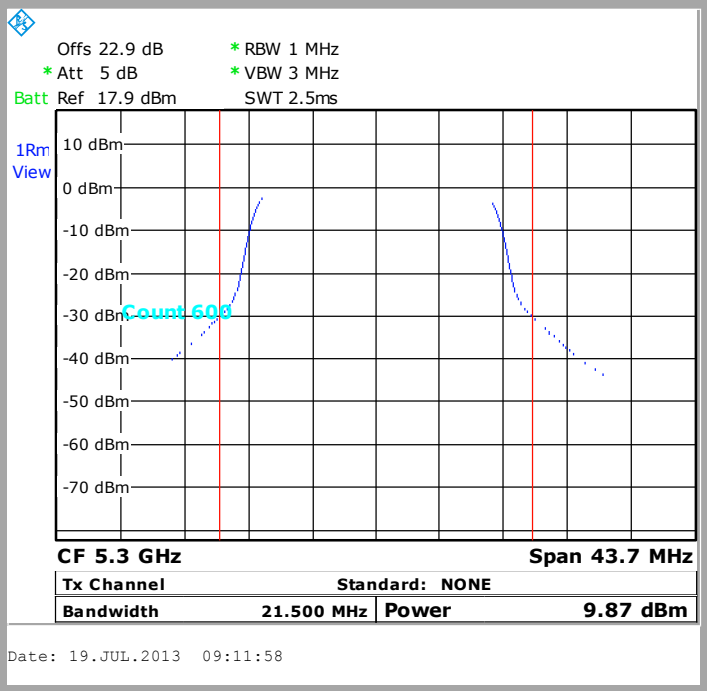


802.11a	
C5	
Tx1	Tx2

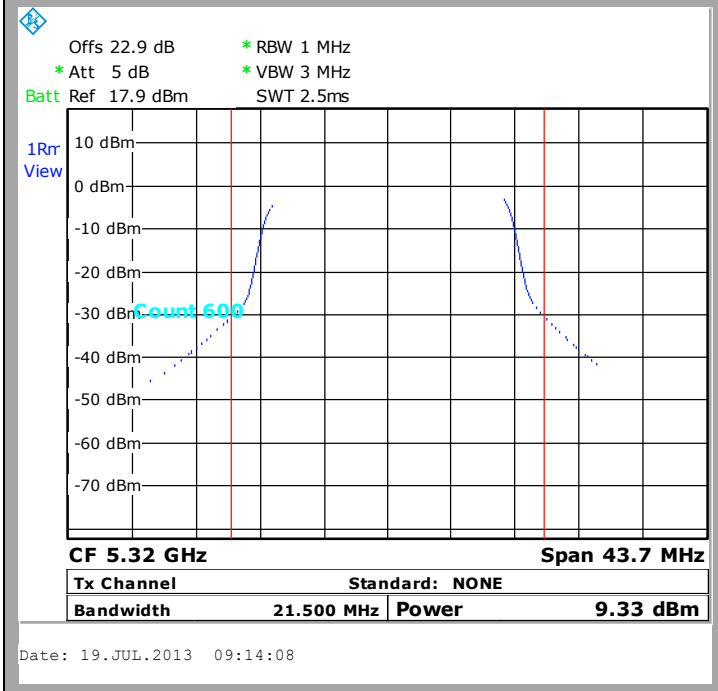


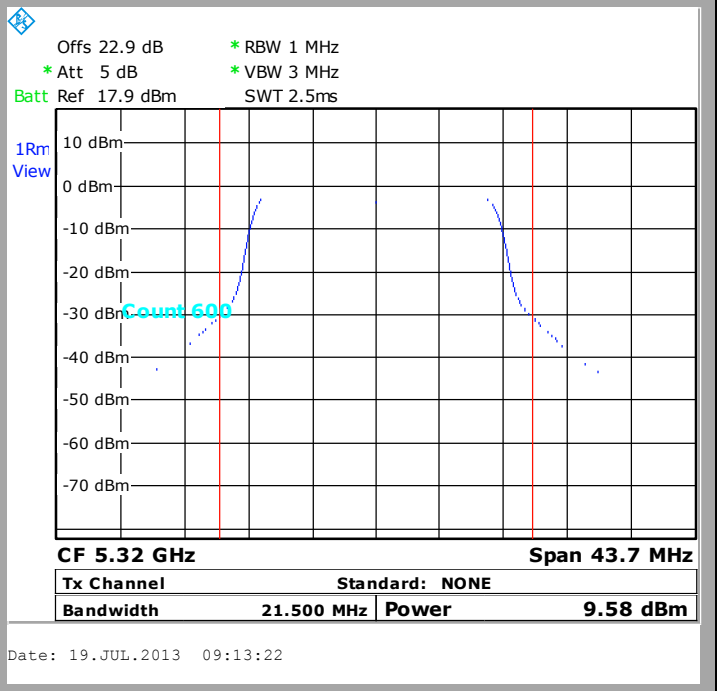


Tx3

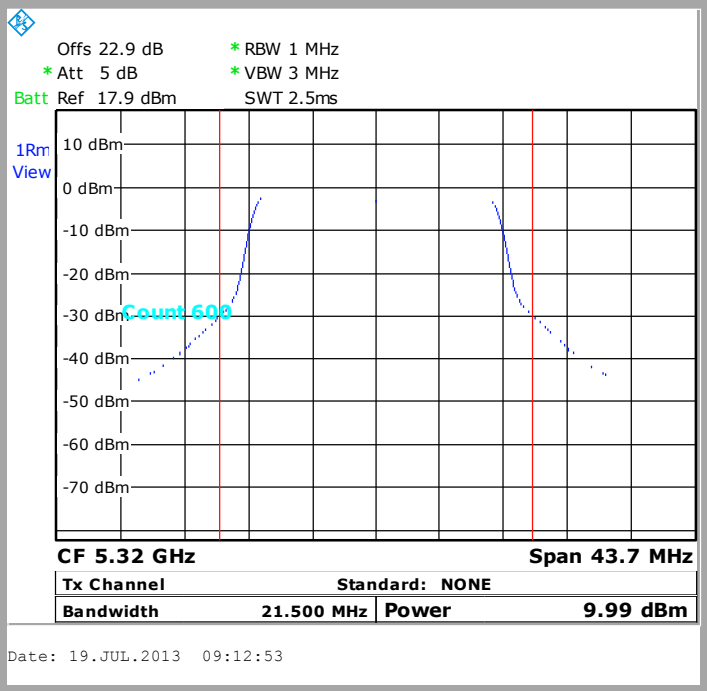


802.11a	
C6	
Tx1	Tx2

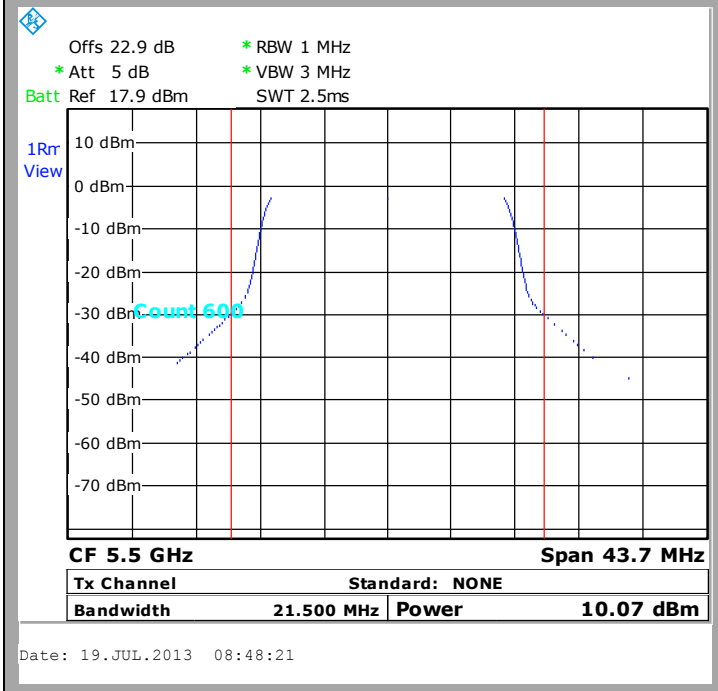


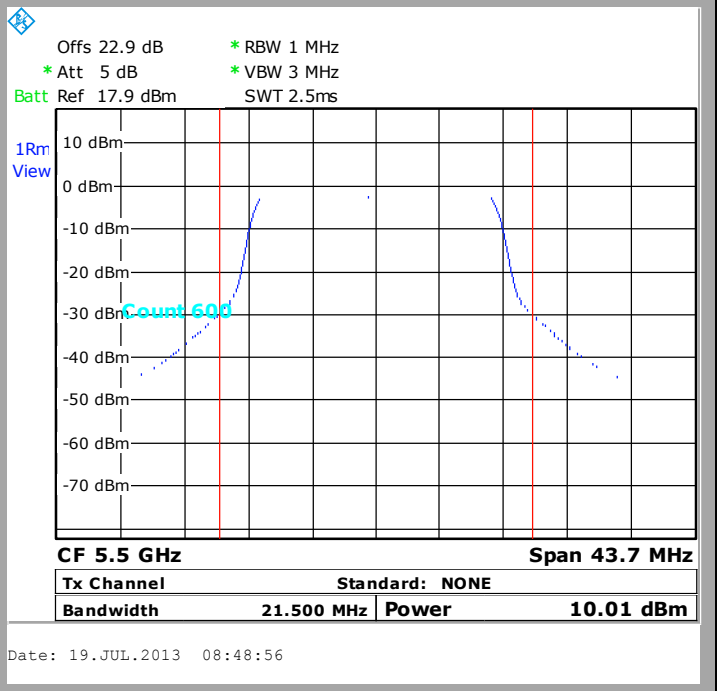


Tx3

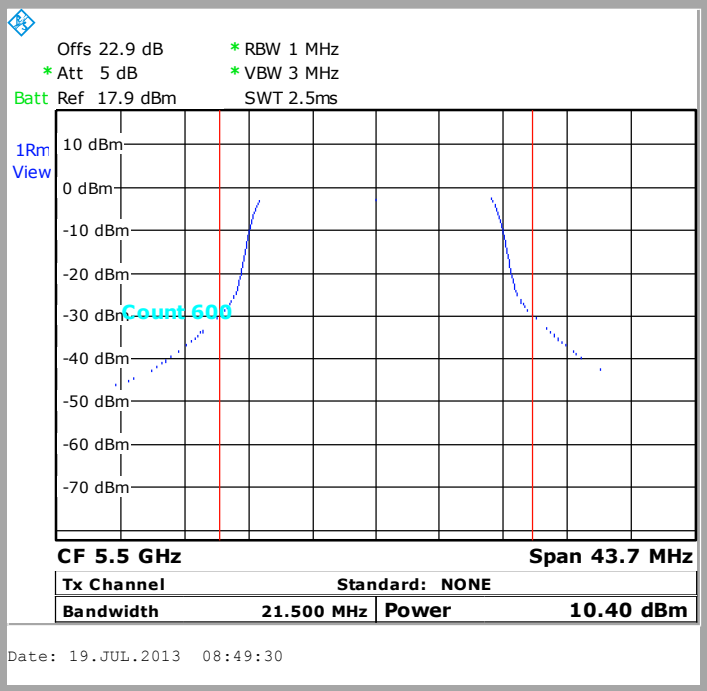


802.11a	
C7	
Tx1	Tx2

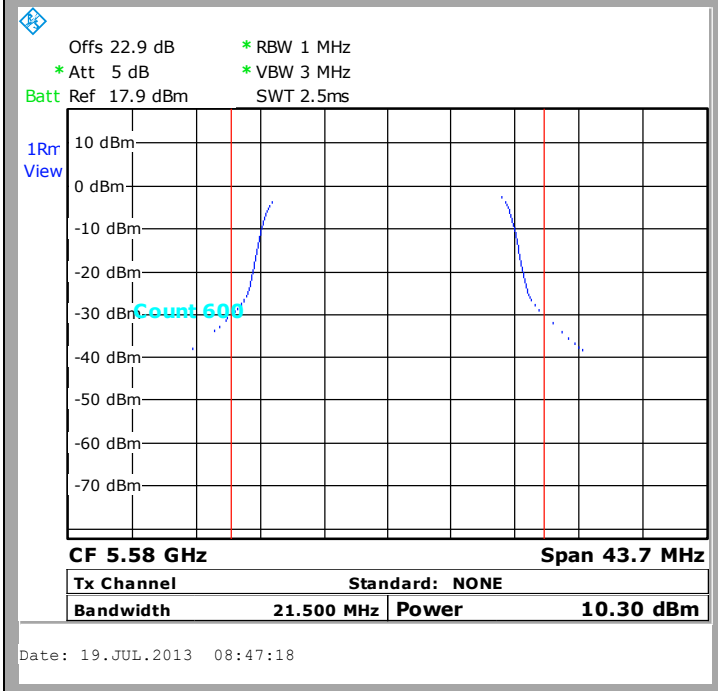


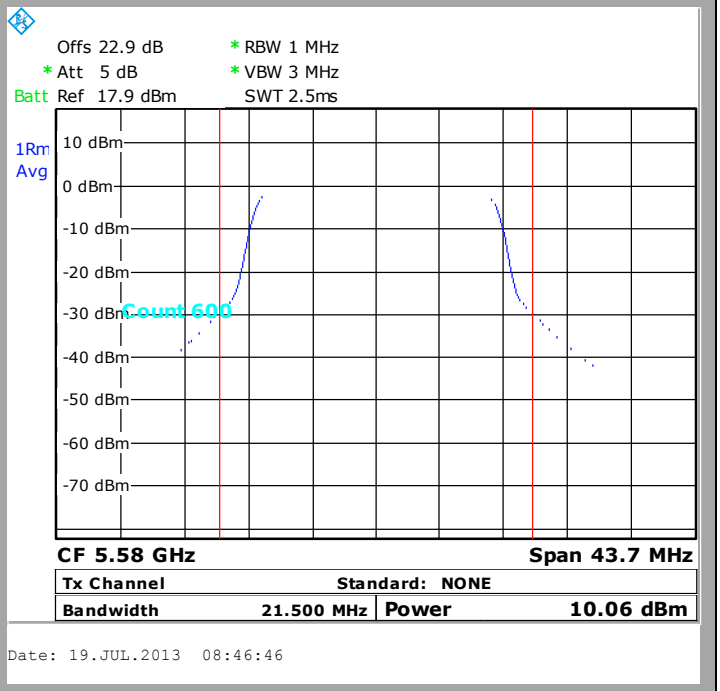


Tx3

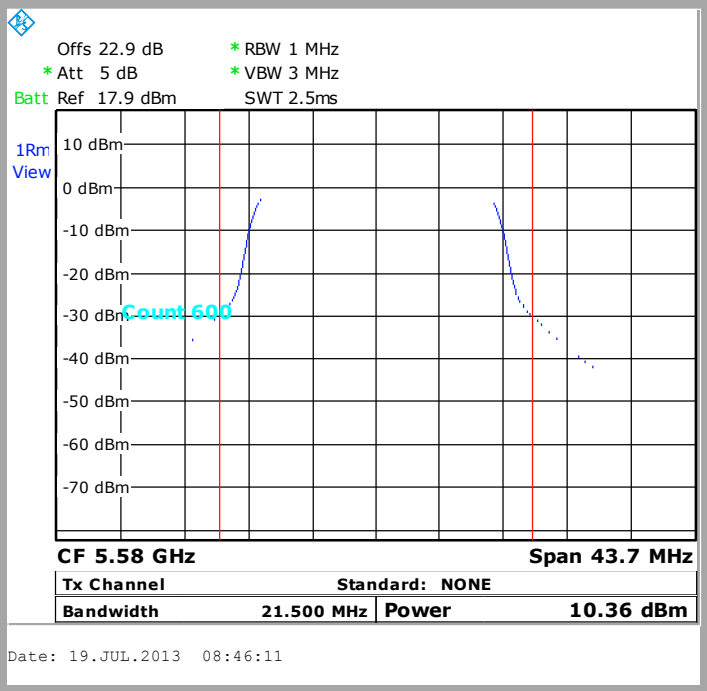


802.11a	
C8	
Tx1	Tx2

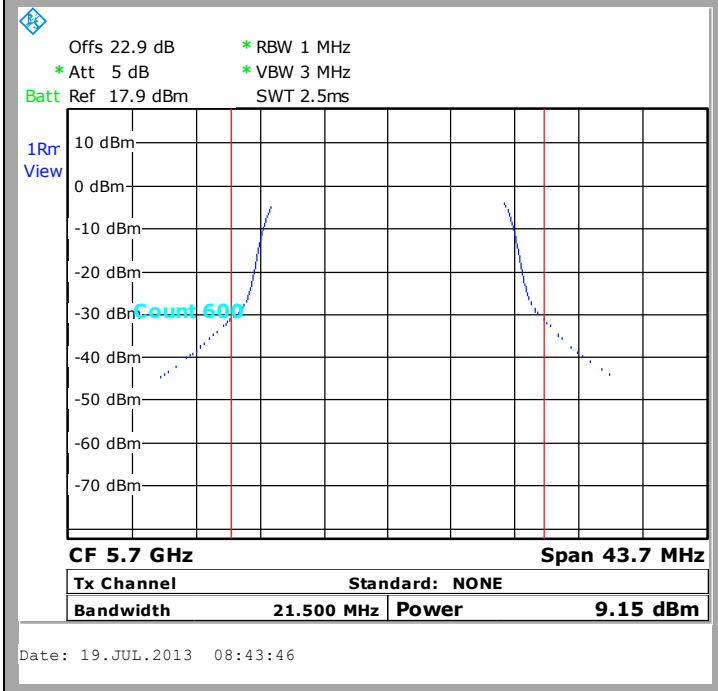


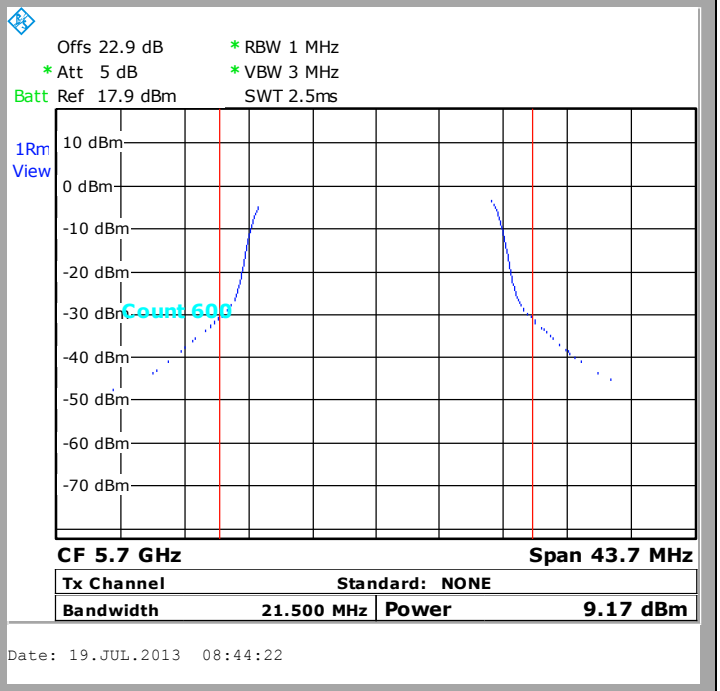


Tx3

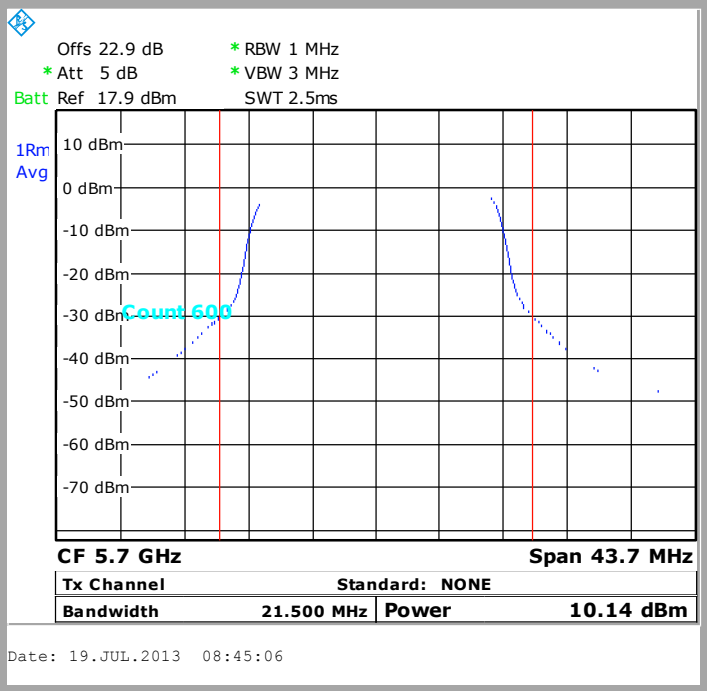


802.11a	
C9	
Tx1	Tx2

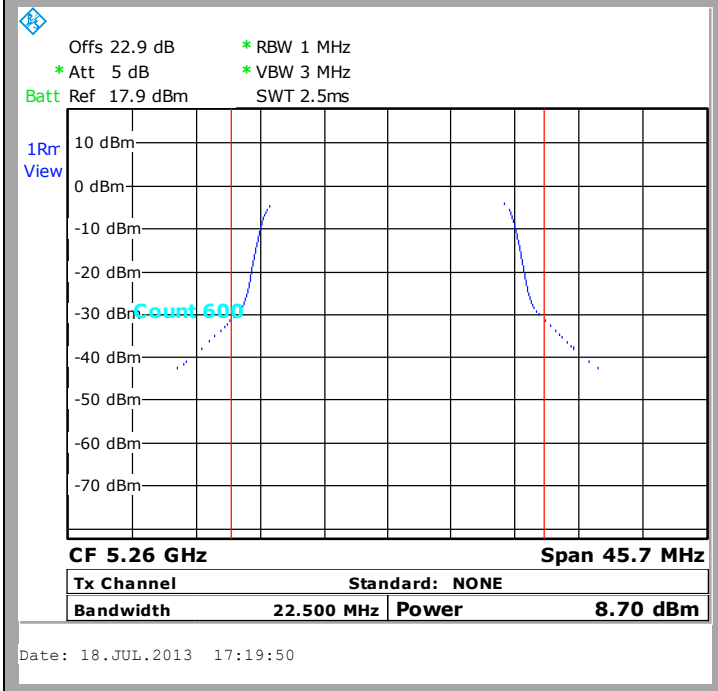


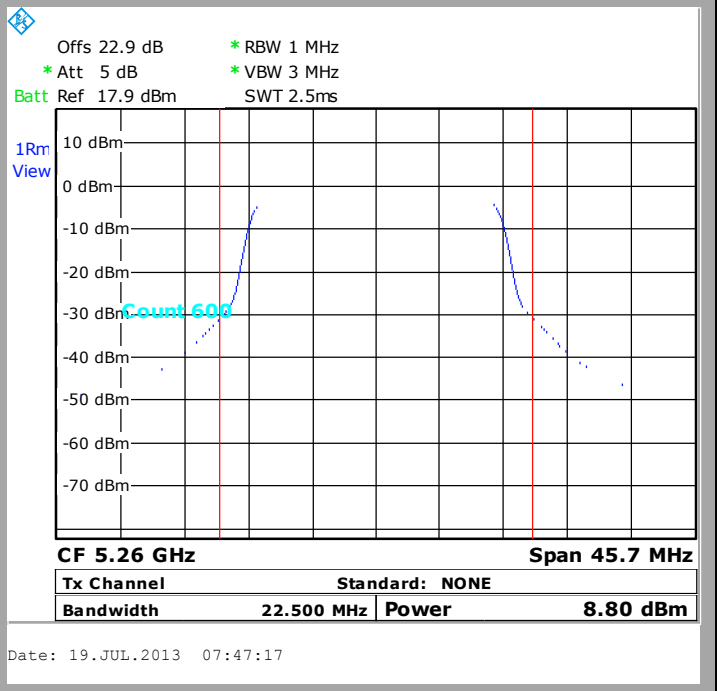


Tx3

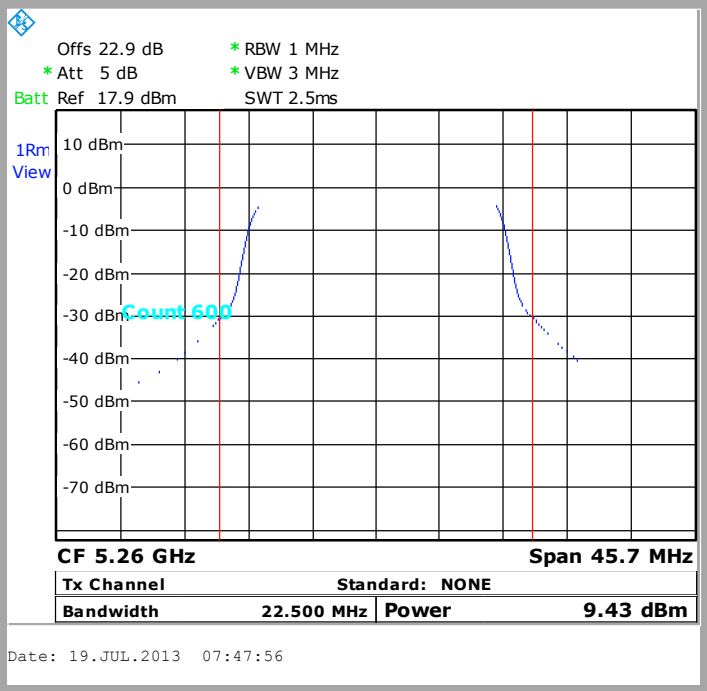


802.11n HT20	
C4	
Tx1	Tx2

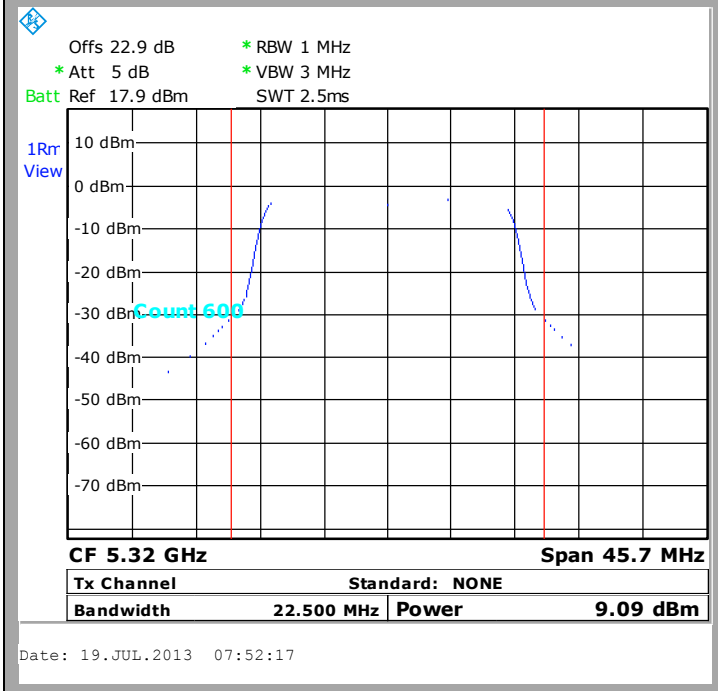


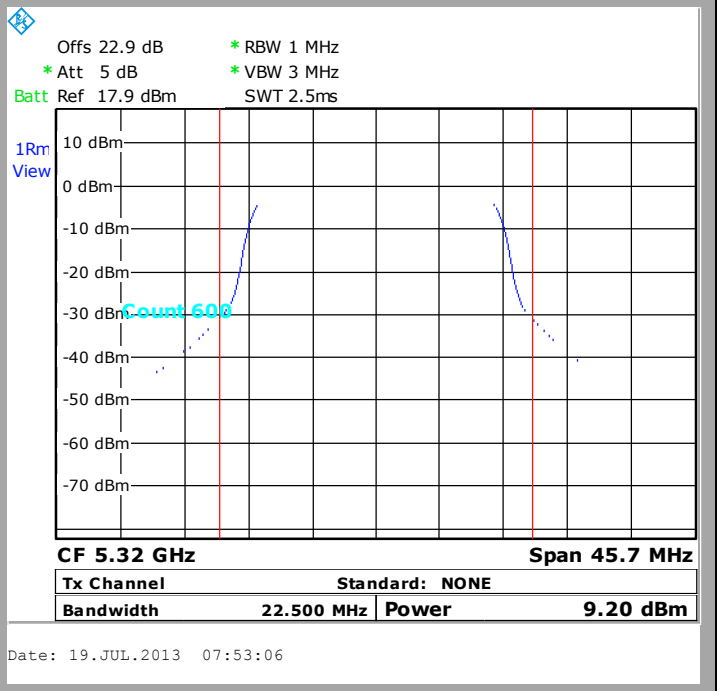


Tx3

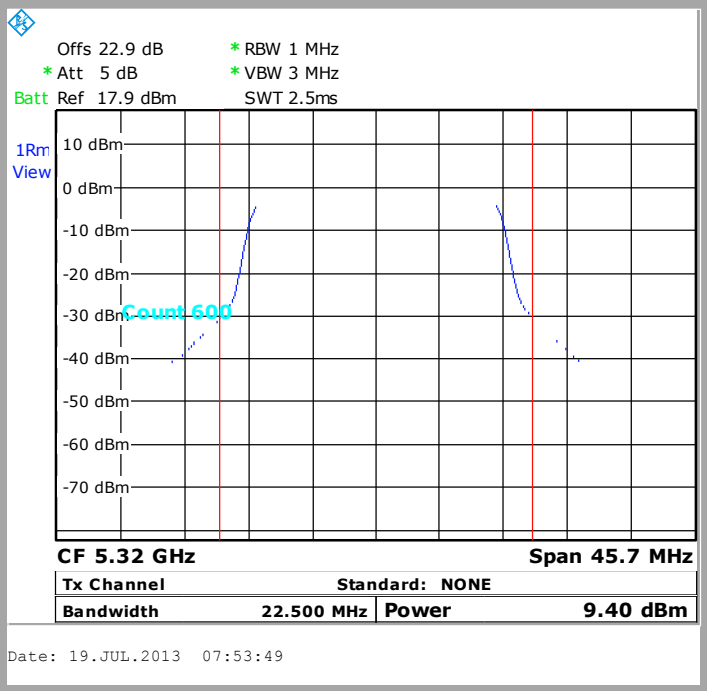


802.11n HT20	
C6	
Tx1	Tx2

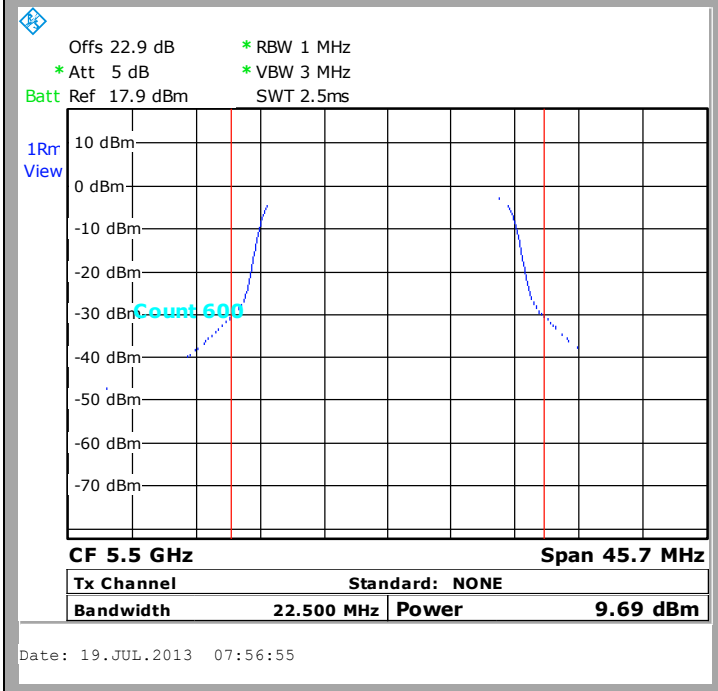


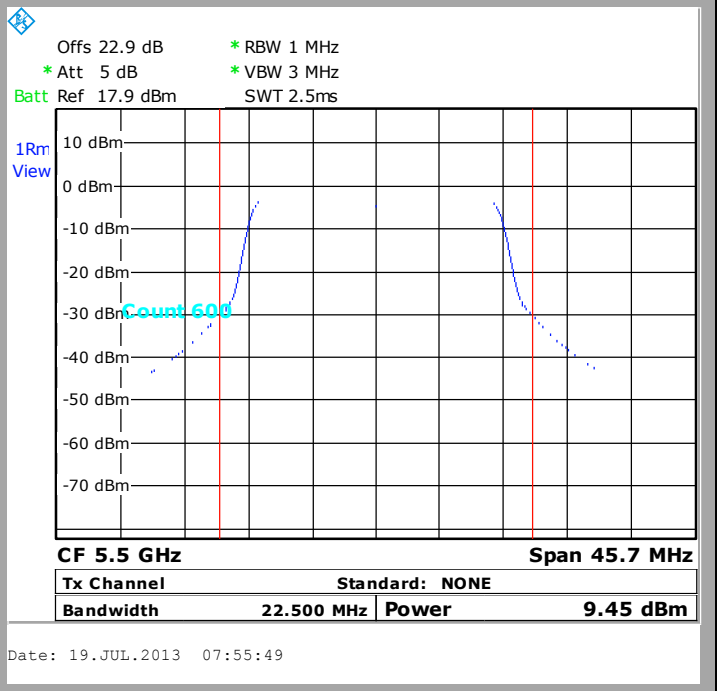


Tx3

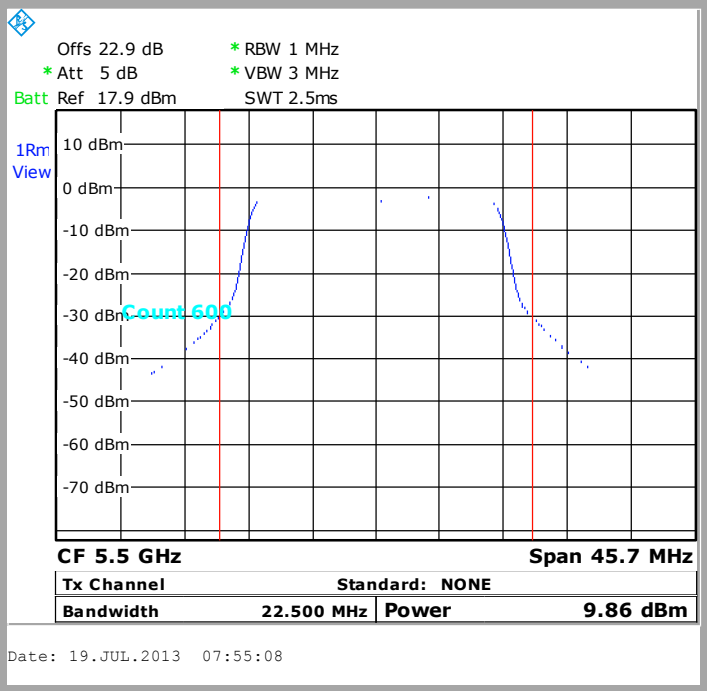


802.11n HT20	
C7	
Tx1	Tx2

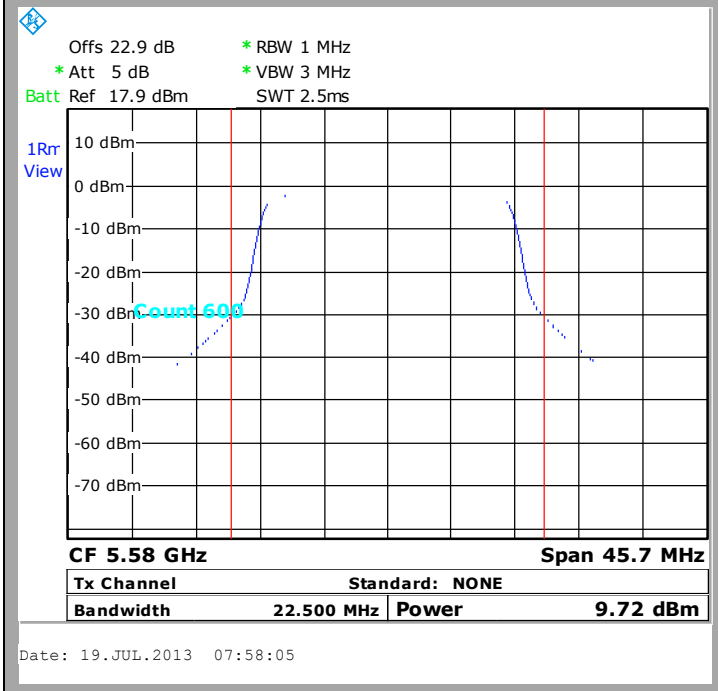


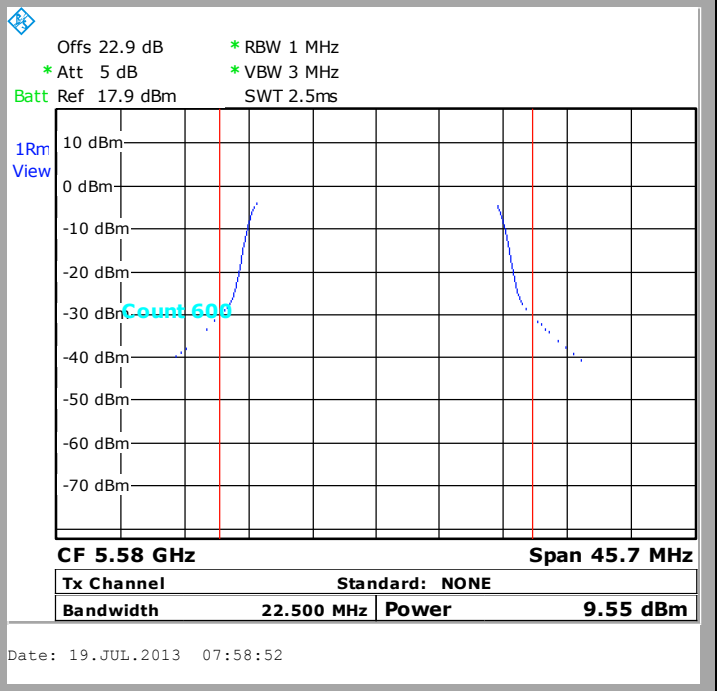


Tx3

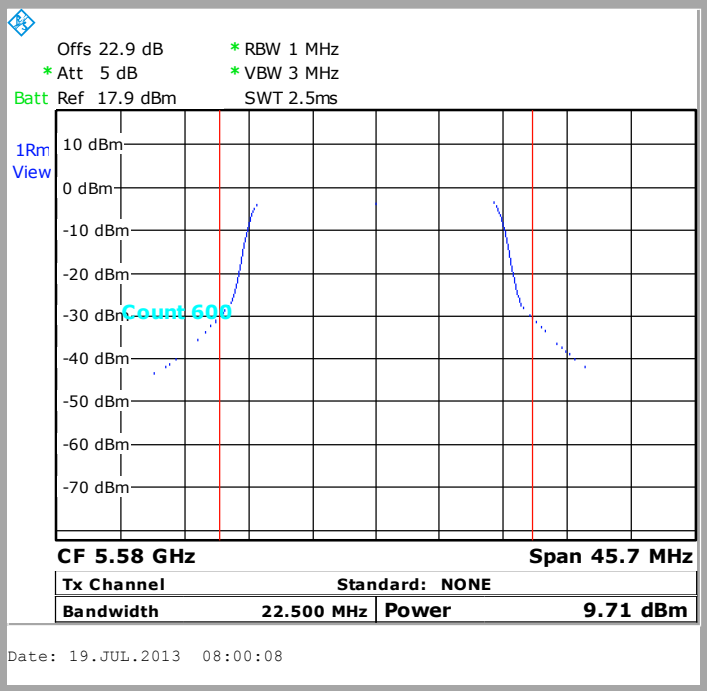


802.11n HT20	
C8	
Tx1	Tx2

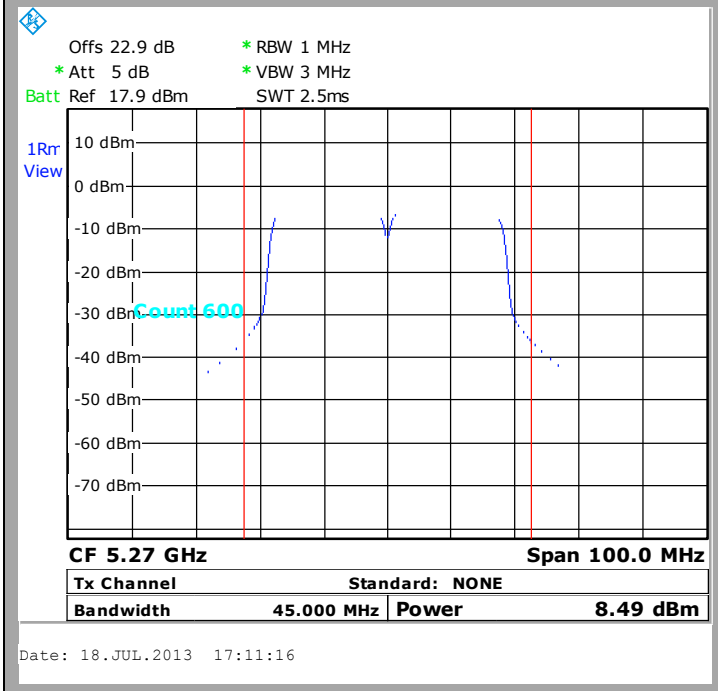


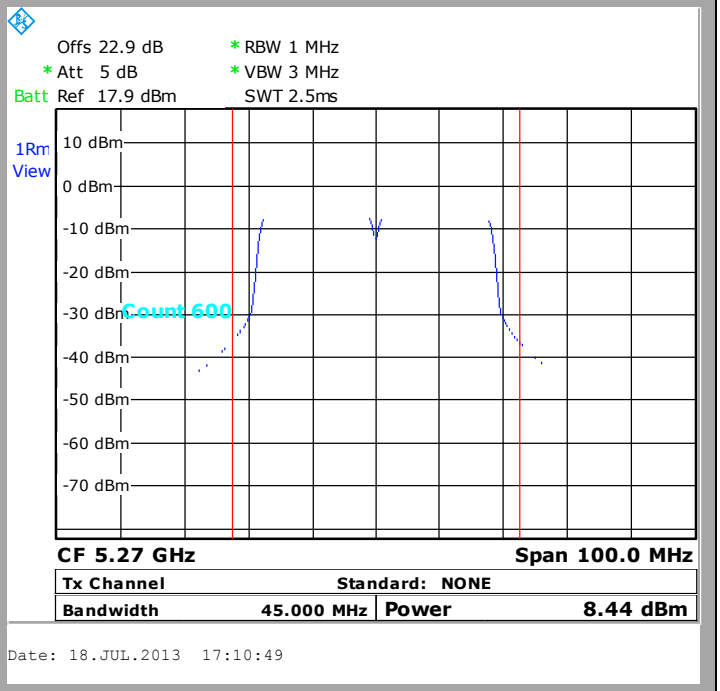


Tx3

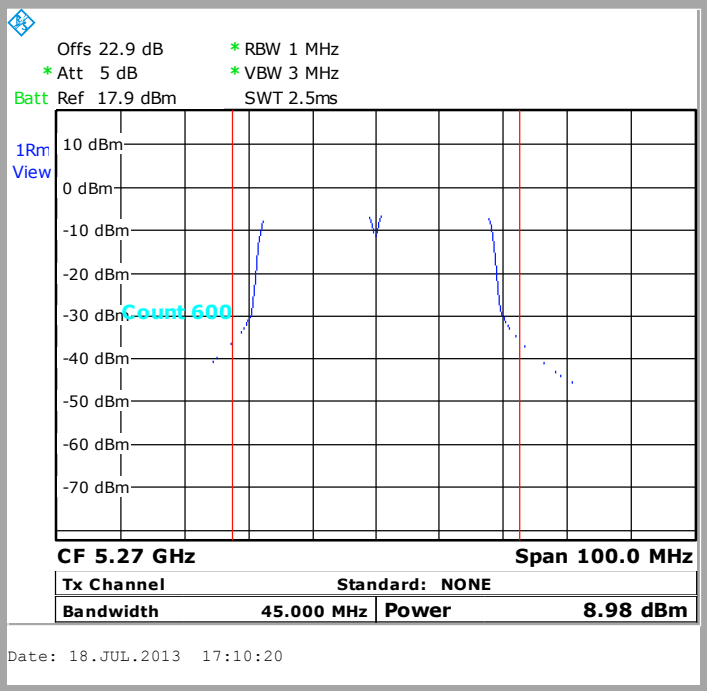


802.11n HT40	
C12	
Tx1	Tx2

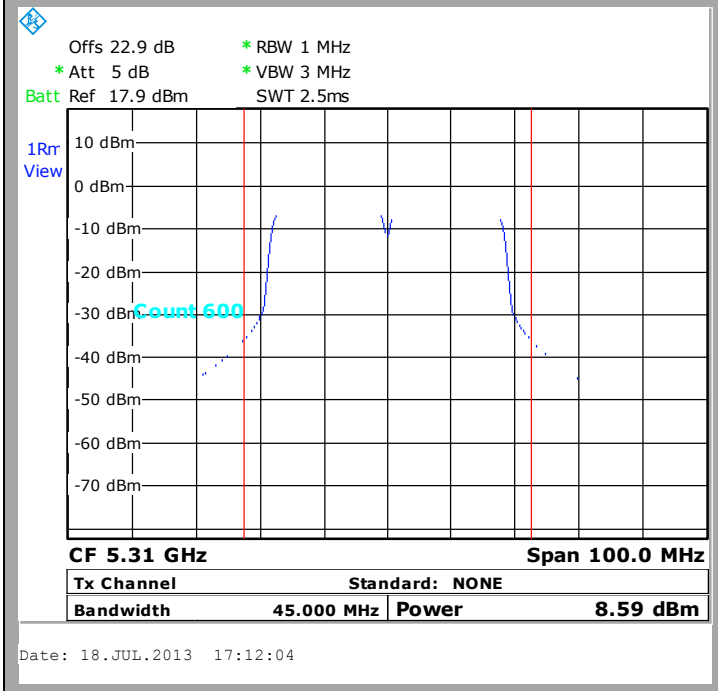


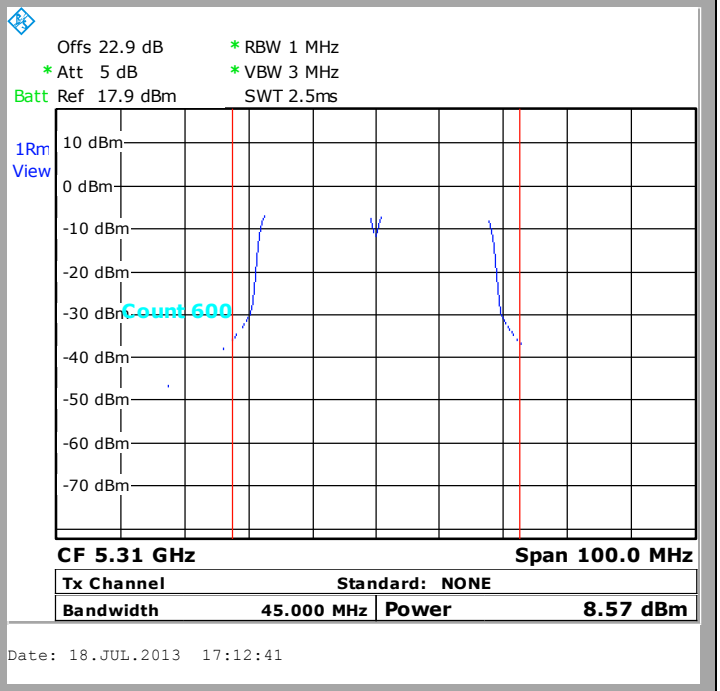


Tx3

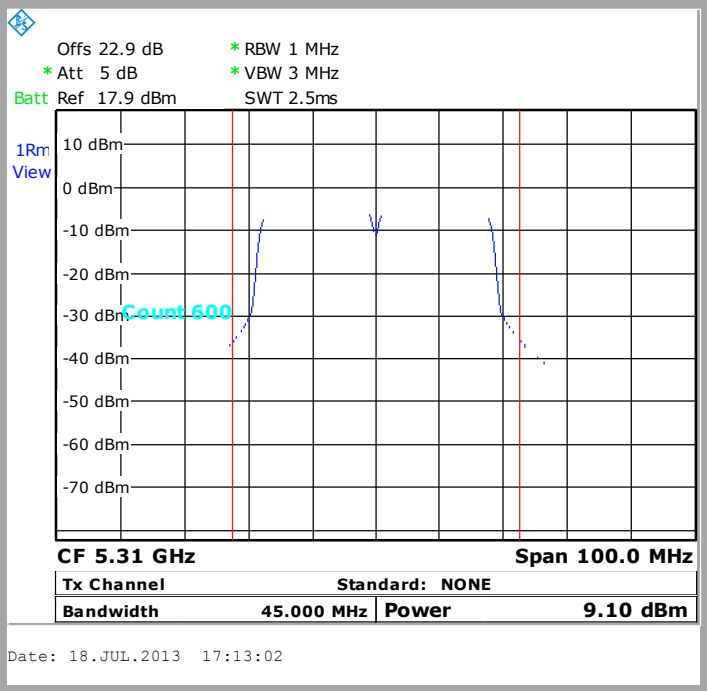


802.11n HT40	
C13	
Tx1	Tx2

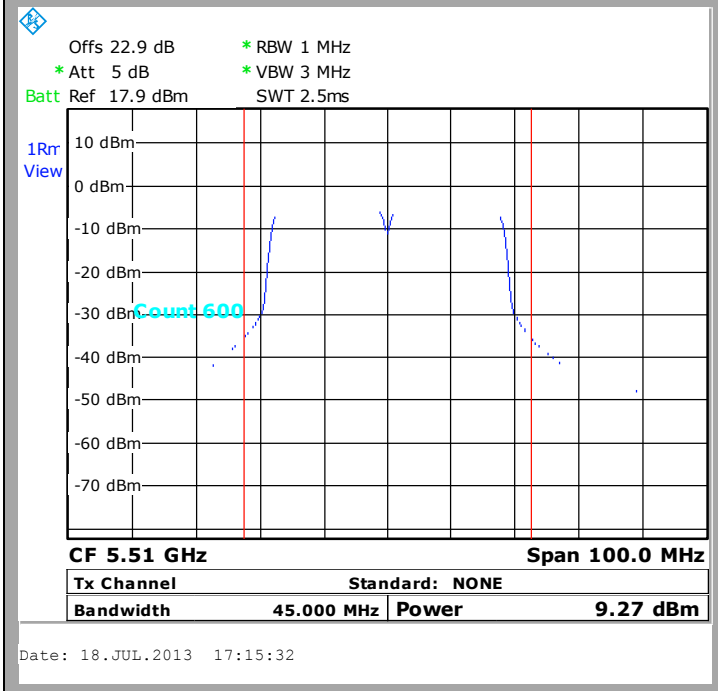


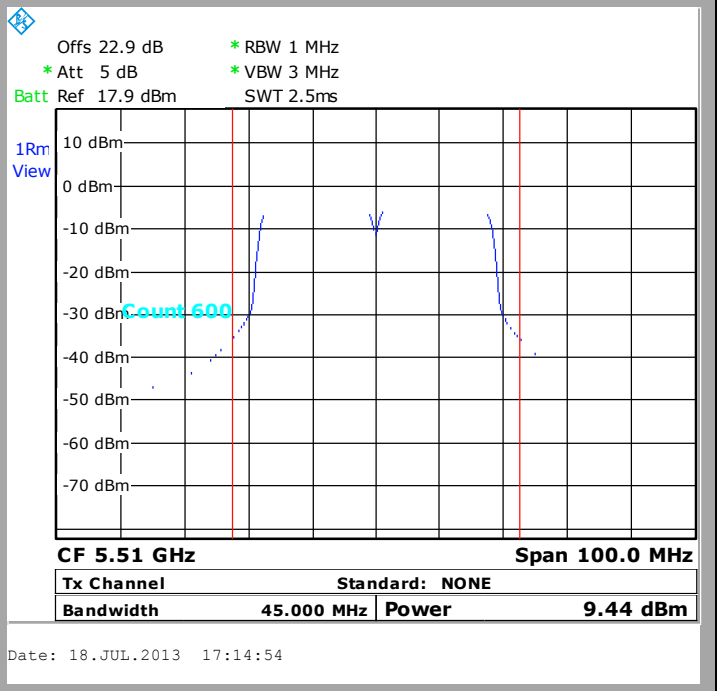


Tx3

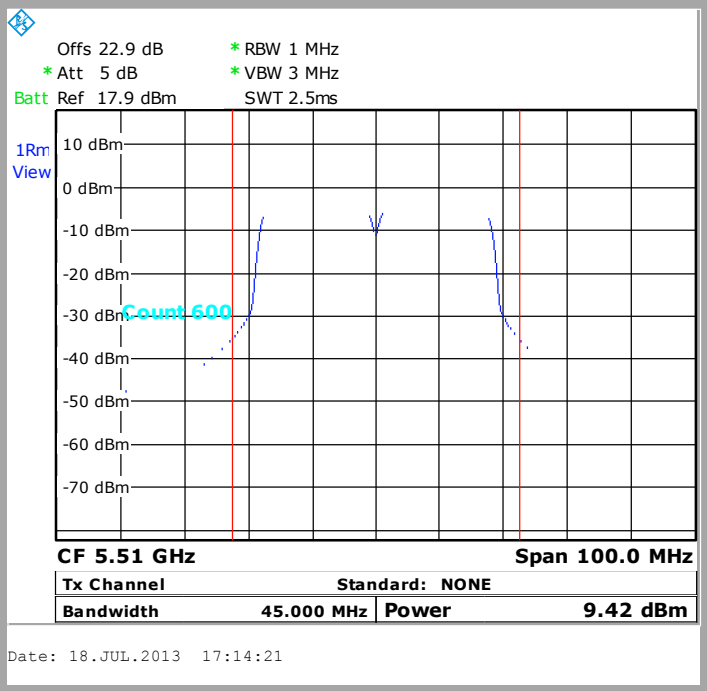


802.11n HT40	
C14	
Tx1	Tx2

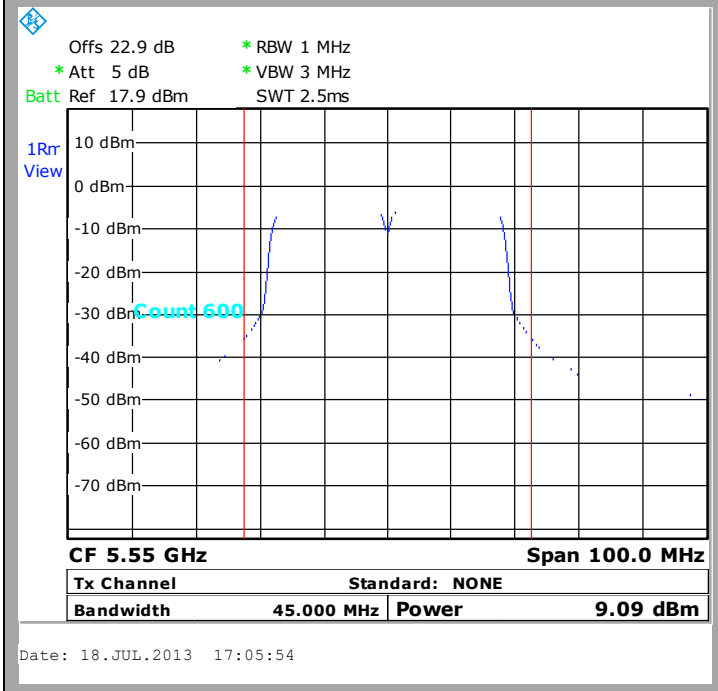


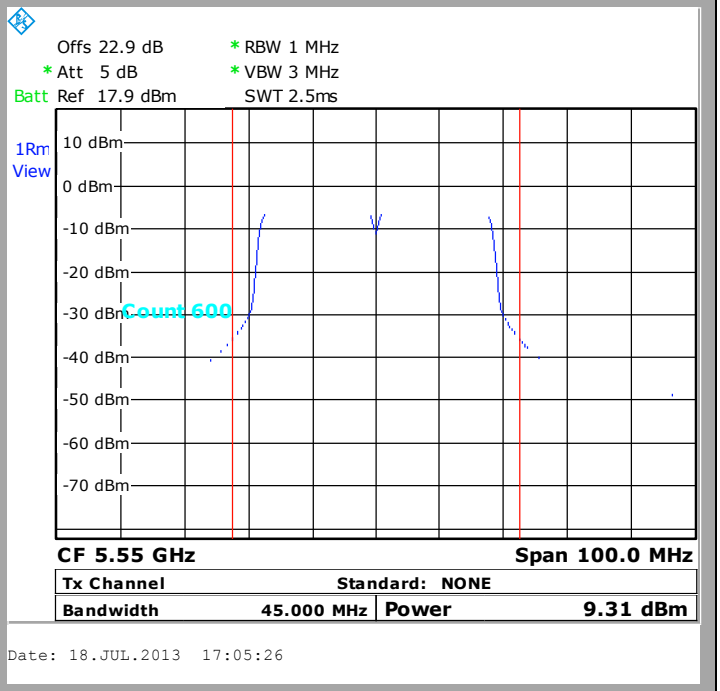


Tx3

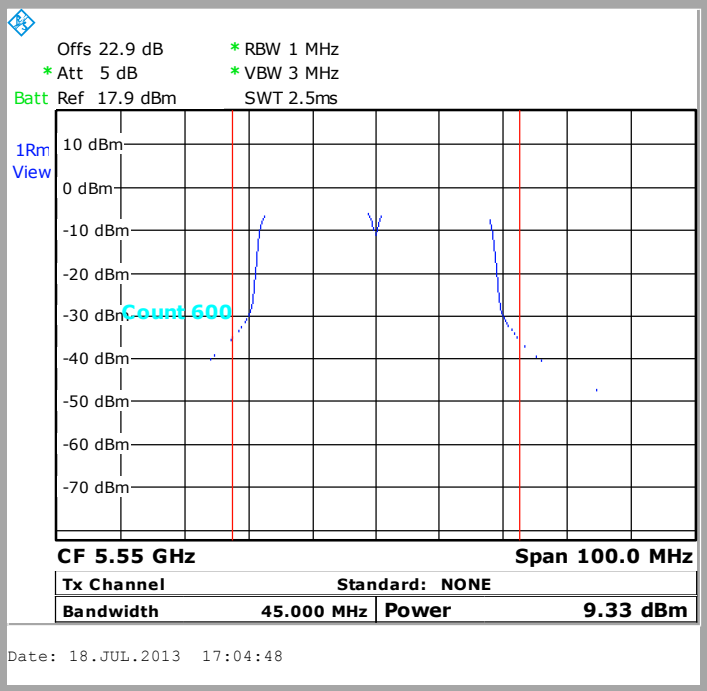


802.11n HT40	
C15	
Tx1	Tx2

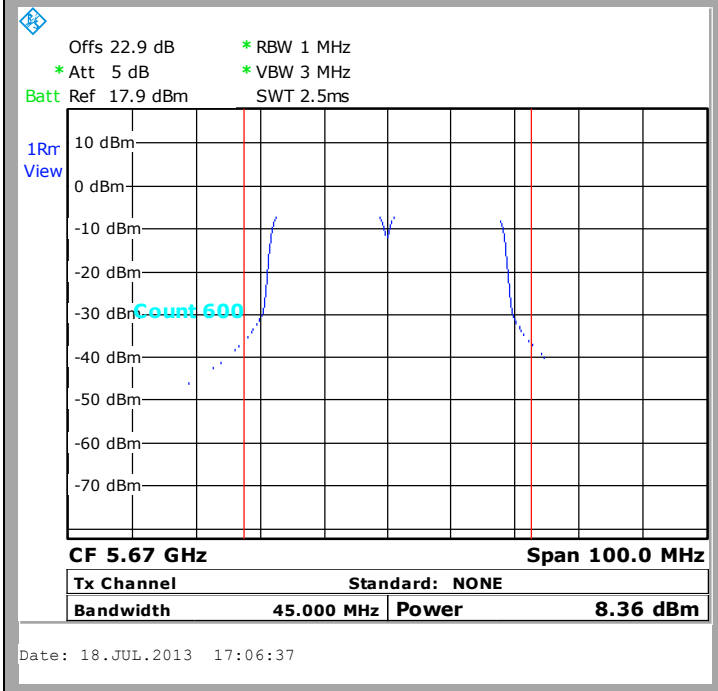


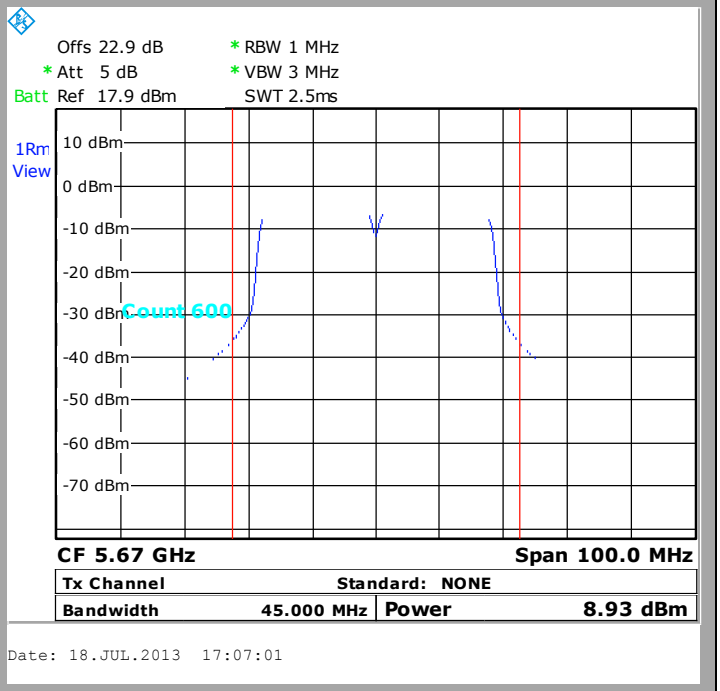


Tx3

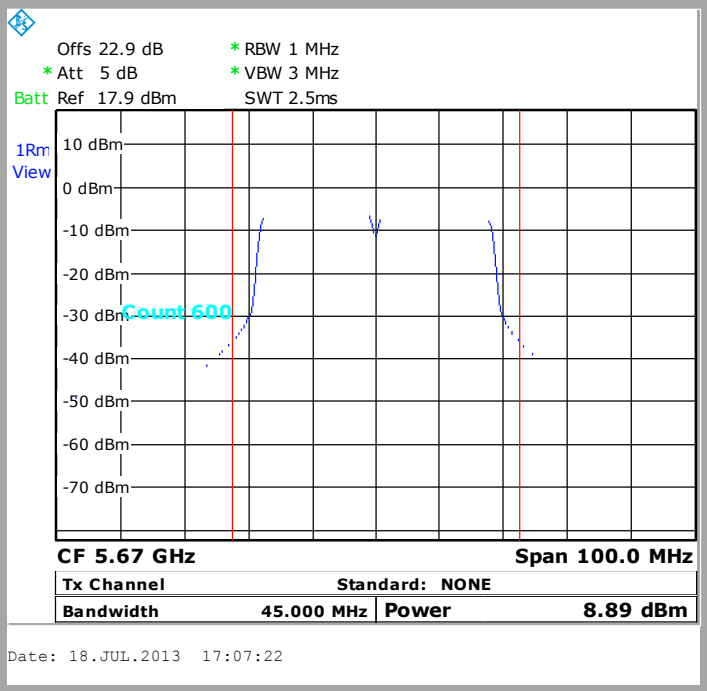


802.11n HT40	
C16	
Tx1	Tx2





Tx3



802.11a
Pmax

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Overall Antenna Gain (dBi)	Power Limits (dBm)	EIRP (dBm)	TCP
C1	8,88	9,22	9,36	7	13,93	20,93	NO
C2	8,84	9,33	9,26	7	13,92	20,92	NO
C3	8,72	8,6	9,4	7	13,69	20,69	NO
C4	15	15,17	16,41	7	20,34	27,34	YES
C5	15,34	15,3	16,5	7	20,52	27,52	YES
C6	15,41	15,49	16,57	7	20,63	27,63	YES
C7	15,81	15,94	16,5	7	20,87	27,87	YES
C8	15,79	15,73	17,11	7	21,03	28,03	YES
C9	14,66	15,09	16,33	7	20,19	27,19	YES

Pmin

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Overall Antenna Gain (dBi)	Power Limits (dBm)	EIRP (dBm)	Limit (dBm)
C4	9,42	9,03	9,96	7	14,26	21,26	24,0
C5	9,41	9,37	9,87	7	14,33	21,33	24,0
C6	9,33	9,58	9,99	7	14,41	21,41	24,0
C7	10,07	10,01	10,4	7	14,93	21,93	24,0
C8	10,3	10,06	10,36	7	15,01	22,01	24,0
C9	9,15	9,17	10,14	7	14,28	21,28	24,0

802.11n HT20
Pmax

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Overall Antenna Gain (dBi)	Power Limits (dBm)	EIRP(dBm)	TCP
C1	8,51	8,97	8,08	7	13,31	20,31	NO
C2	8,77	8,95	8,86	7	13,63	20,63	NO
C3	8,32	8,28	9,09	7	13,35	20,35	NO
C4	14,63	14,54	15,61	7	19,73	26,73	NO
C5	14,9	14,86	15,64	7	19,92	26,92	NO
C6	15,04	15	15,78	7	20,06	27,06	YES
C7	15,27	15,57	15,98	7	20,39	27,39	YES
C8	15,24	15,41	16,38	7	20,48	27,48	YES
C9	14,34	14,5	15,67	7	19,65	26,65	NO

Pmin

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Overall Antenna Gain (dBi)	Power Limits (dBm)	EIRP(dBm)	Limit (dBm)
C6	9,09	9,2	9,4	7	14,00	21,00	24,0
C7	9,69	9,45	9,86	7	14,44	21,44	24,0
C8	9,72	9,55	9,71	7	14,43	21,43	24,0

802.11n HT40
Pmax

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Overall Antenna Gain (dBi)	Total Power (dBm)	EIRP(dBm)	TCP
C10	7,96	8,42	8,33	7	13,01	20,01	NO
C11	8,03	7,98	8,58	7	12,98	19,98	NO
C12	16,36	16,5	17,47	7	21,58	28,58	YES
C13	14,39	14,48	15,09	7	19,44	26,44	NO
C14	14,79	15,13	15,61	7	19,96	26,96	NO
C15	16,86	17,37	18,02	7	22,21	29,21	YES
C16	16,05	16,81	17,24	7	21,50	28,50	YES

Pmin

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Overall Antenna Gain (dBi)	Total Power (dBm)	EIRP(dBm)	Limit (dBm)
C12	8,49	8,44	8,98	7	13,41	20,41	24,0
C15	9,09	9,31	9,33	7	14,02	21,02	24,0
C16	8,36	8,93	8,89	7	13,51	20,51	24,0

802.11ac VHT80
Pmax

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	Overall Antenna Gain (dBi)	Total Power (dBm)	EIRP(dBm)	TCP
C17	7,98	8,39	8,56	7	13,09	20,09	NO
C18	8,47	8,17	9,3	7	13,44	20,44	NO
C19	11,04	11,32	11,6	7	16,10	23,10	NO

Result: PASS

Transmit Power Control Limit:
For EIRP (Pmax) above 27dBm: EIRP (Pmin) shall not exceed 24dBm
For EIRP (Pmax) below 27dBm: No requirement

8. RATIO PEAK EXCURSION

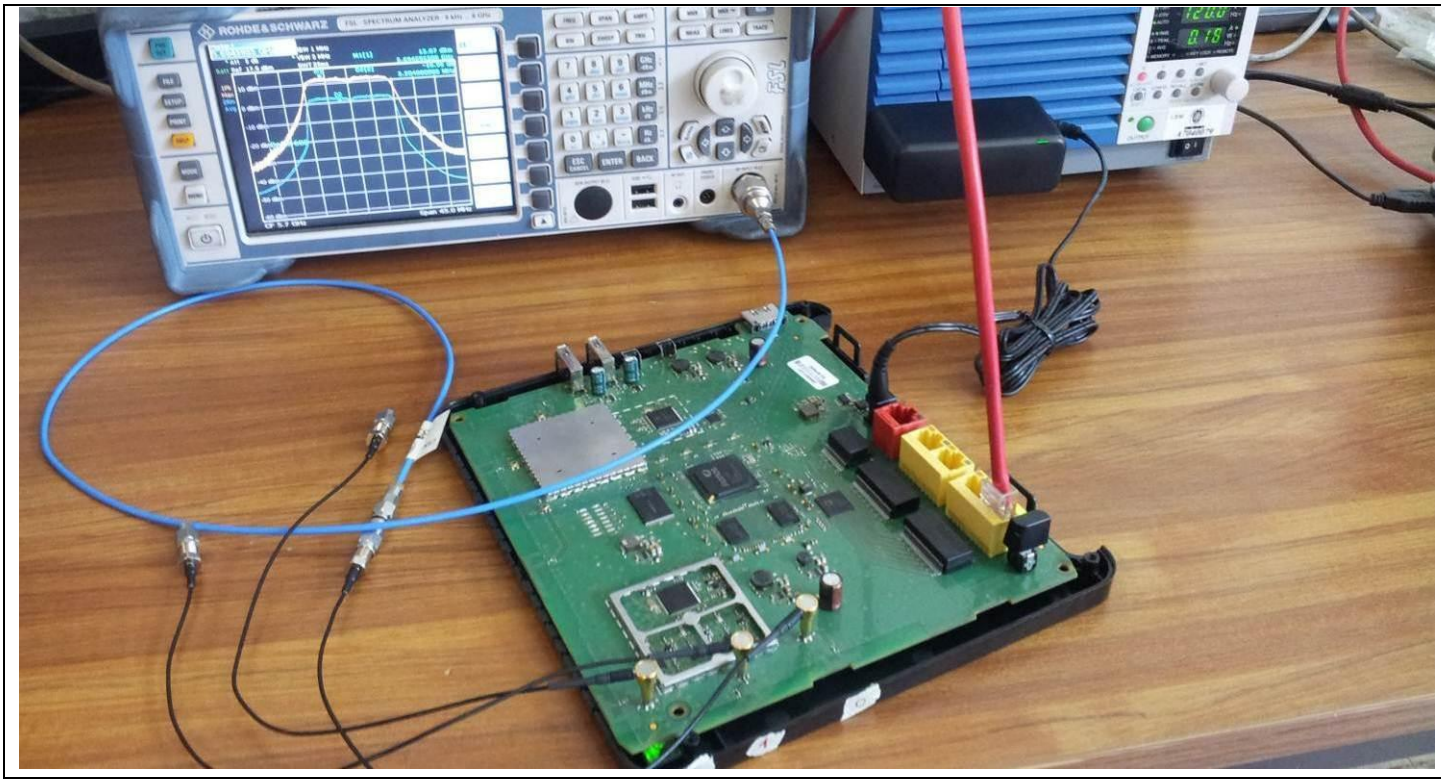
8.1. TEST CONDITIONS

Test performed by : Stéphane PHOUDIAH
Date of test : 2013/07/18
Ambient temperature : 26°C
Relative humidity : 51%

8.2. TEST SETUP

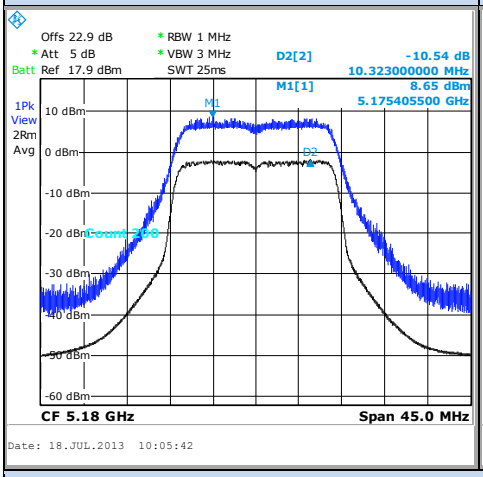
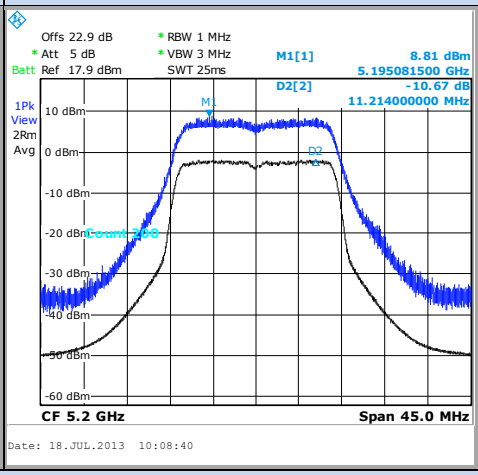
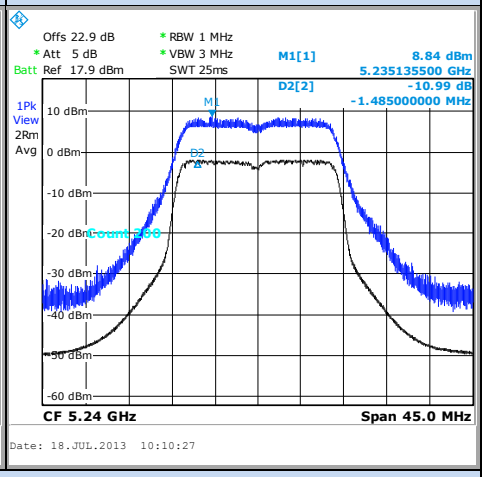
The Equipment Under Test is installed on a table and set in permanent emission with modulation. Measurement is performed with a spectrum analyzer on the EUT conducted access. The product has been tested according to the FCC KDB 789033 D01 General UNII Test Procedures v01r03 § G).

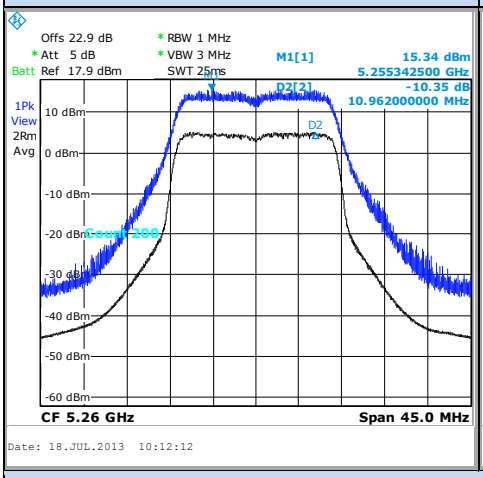
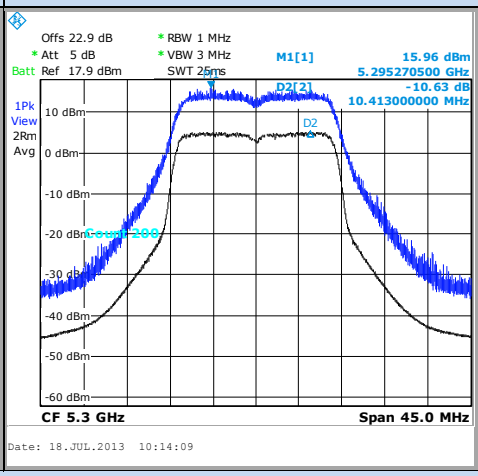
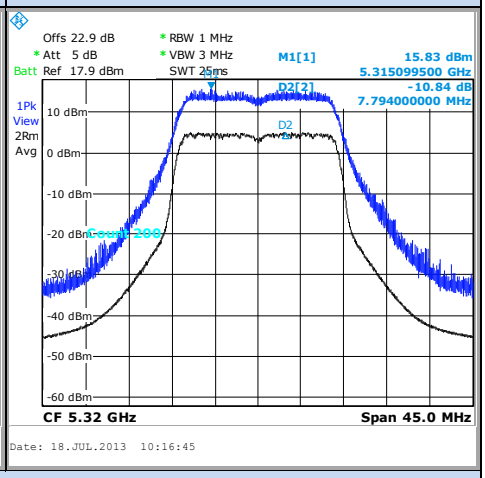
Spectrum Analyzer Setting:
Center frequency= Center of emission spectrum
Span= At least twice the emission spectrum
Amplitude= Sufficient to observe the signal amplitude
RBW= 1MHz
VBW= 3MHz
Sweep point= 5000
Sweep time= auto
Trace 1= At least Average 100 traces
Detector= RMS
Trace 2= Max Hold
Detector= Peak

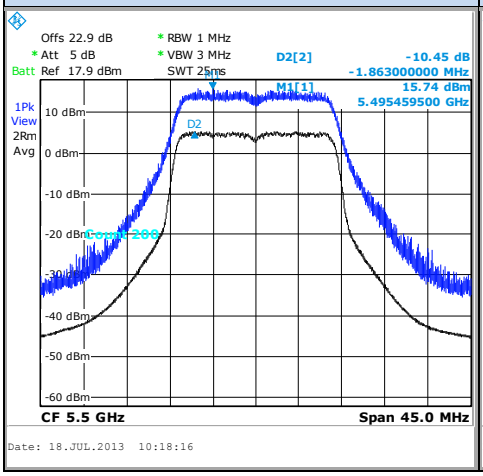
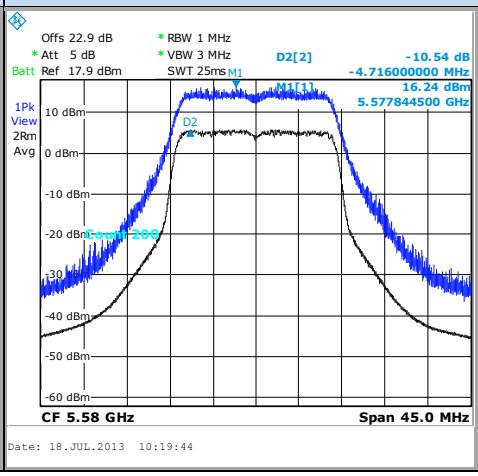
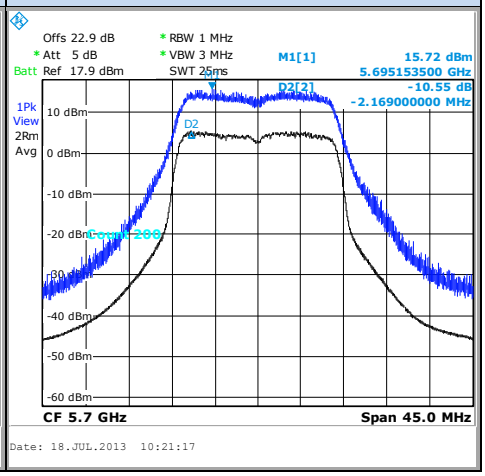


Photograph for Ratio Peak Excursion

8.3. GRAPHICS & RESULTS

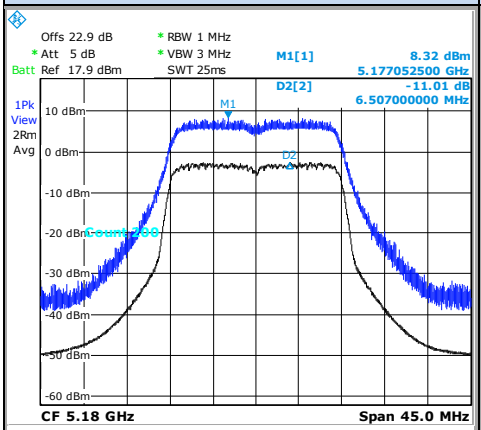
802.11a		
C1	C2	C3
		
CF 5.18 GHz Span 45.0 MHz	CF 5.2 GHz Span 45.0 MHz	CF 5.24 GHz Span 45.0 MHz
Date: 18.JUL.2013 10:05:42	Date: 18.JUL.2013 10:08:40	Date: 18.JUL.2013 10:10:27

802.11a		
C4	C5	C6
		
CF 5.26 GHz Span 45.0 MHz	CF 5.3 GHz Span 45.0 MHz	CF 5.32 GHz Span 45.0 MHz
Date: 18.JUL.2013 10:12:12	Date: 18.JUL.2013 10:14:09	Date: 18.JUL.2013 10:16:45

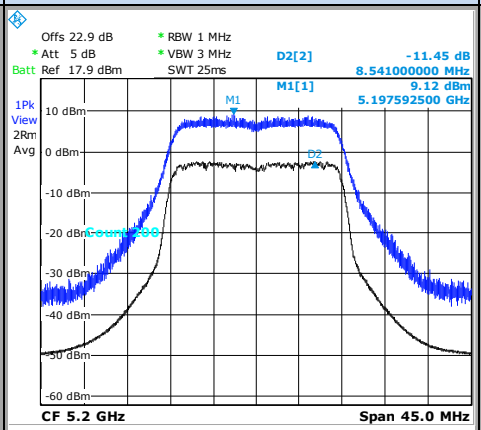
802.11a		
C7	C8	C9
		
CF 5.5 GHz Span 45.0 MHz	CF 5.58 GHz Span 45.0 MHz	CF 5.7 GHz Span 45.0 MHz
Date: 18.JUL.2013 10:18:16	Date: 18.JUL.2013 10:19:44	Date: 18.JUL.2013 10:21:17

802.11n HT20

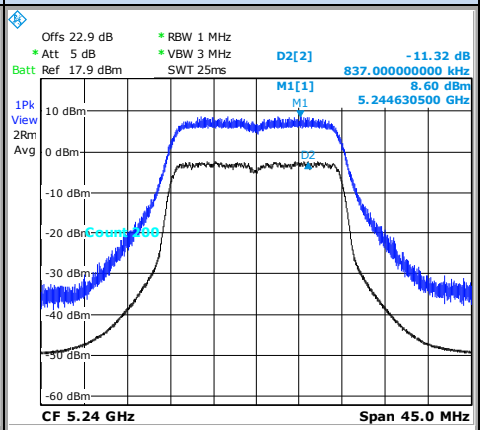
C1



C2

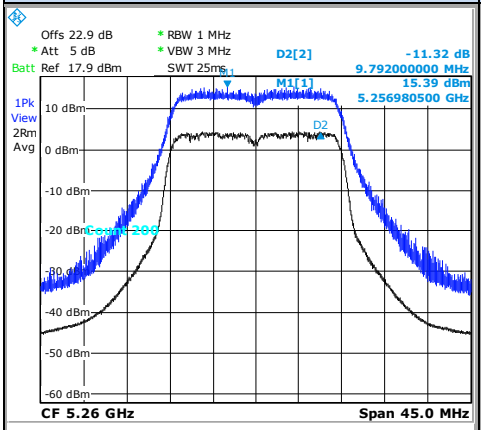


C3

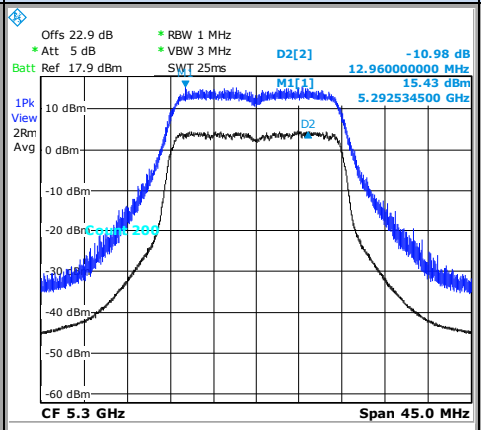


802.11n HT20

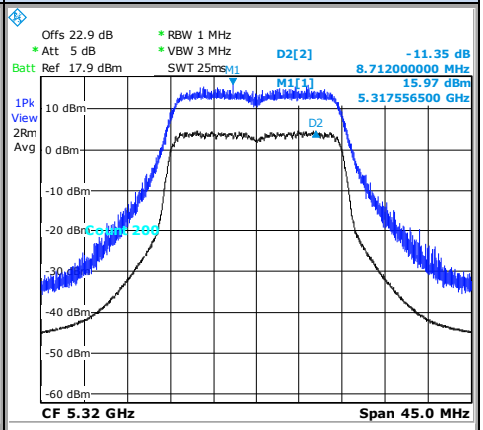
C4



C5

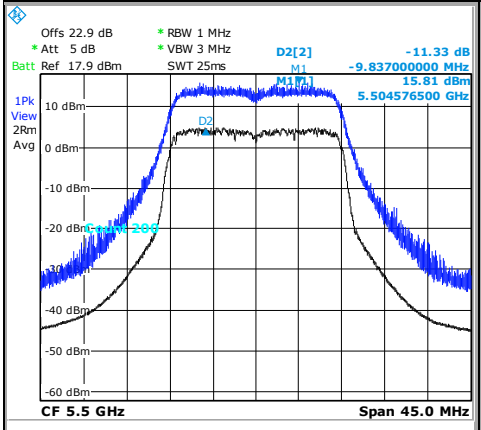


C6

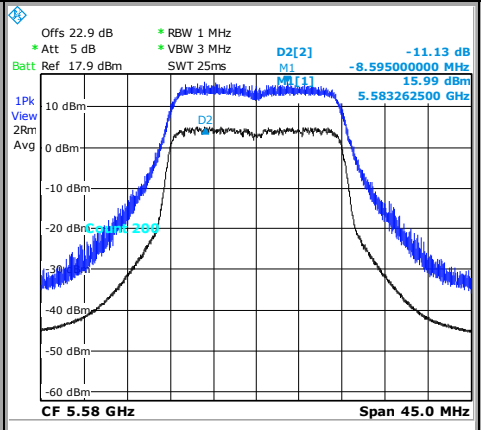


802.11n HT20

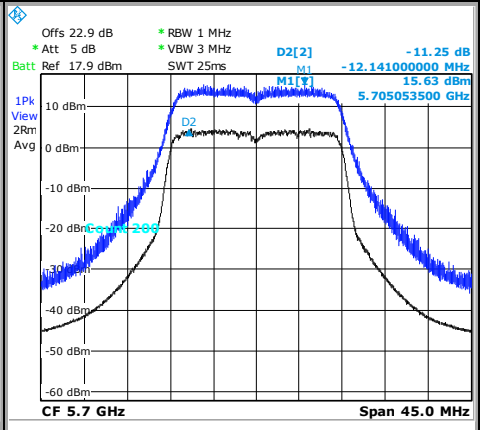
C7



C8

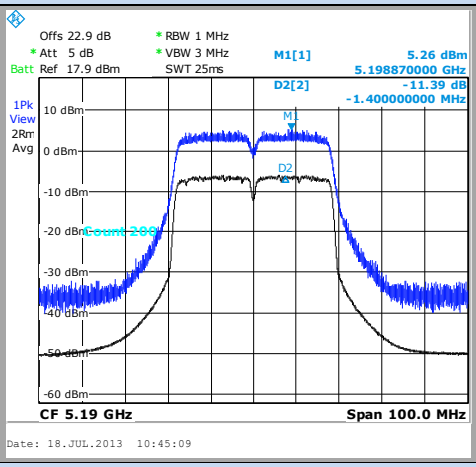


C9

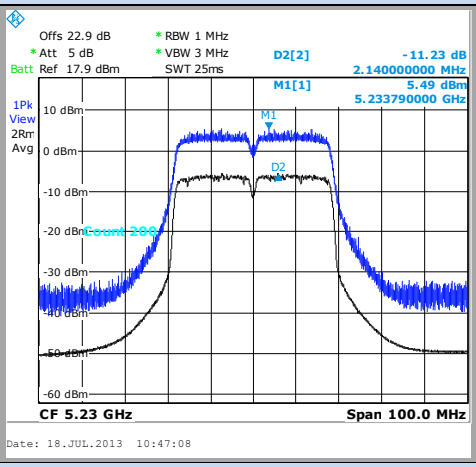


802.11n HT40

C10

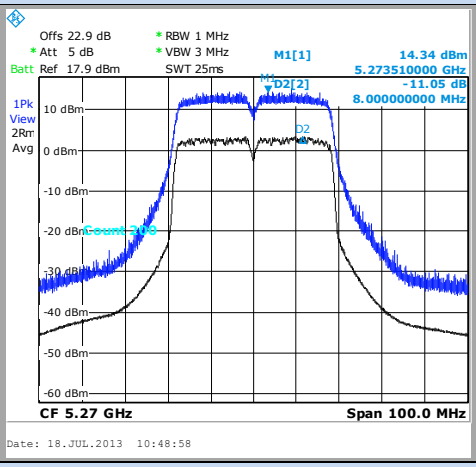


C11

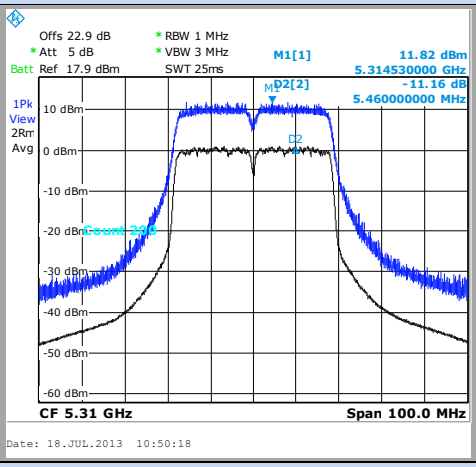


802.11n HT40

C12

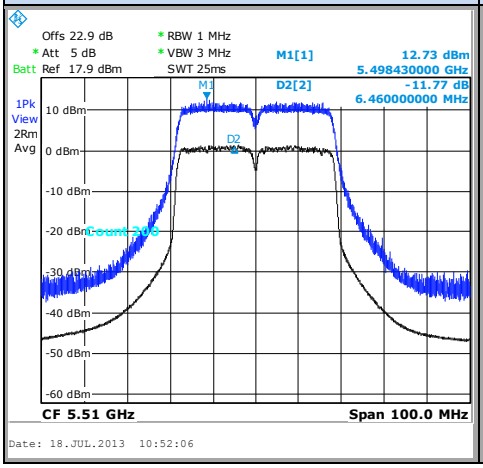


C13

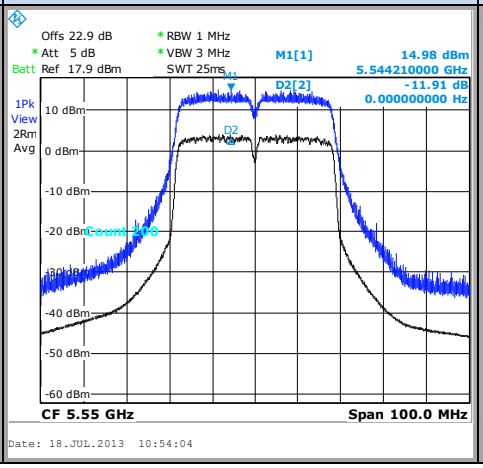


802.11n HT40

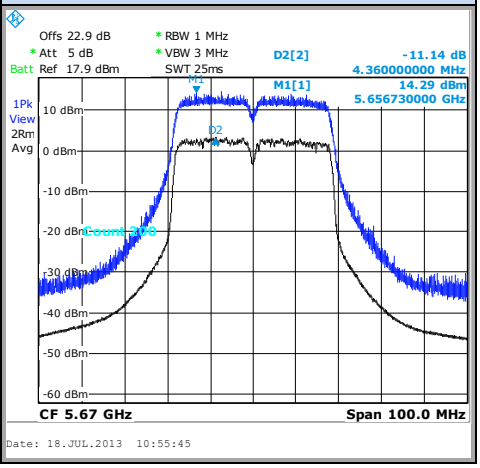
C14



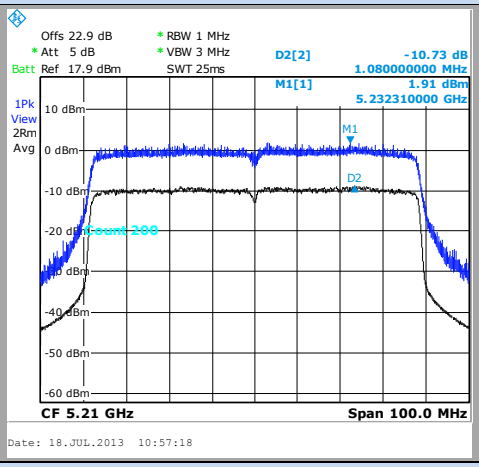
C15



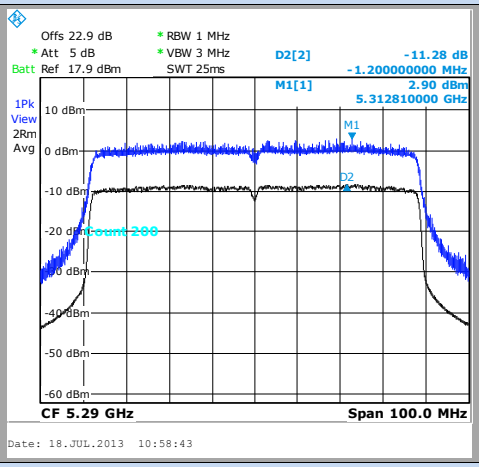
C16



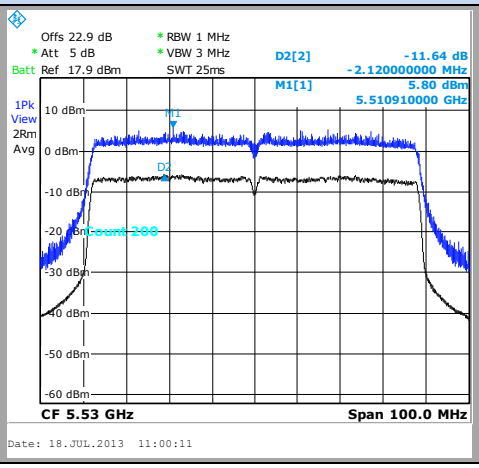
802.11ac VHT80
C17



802.11ac VHT80
C18



802.11ac VHT80
C19



802.11a

Temperature	**Tnom**								
Voltage	**Vnom**								
Frequency	C1	C2	C3	C4	C5	C6	C7	C8	C9
Ratio Peak Excursion (dB)	10,54	10,67	10,99	10,35	10,63	10,84	10,45	10,54	10,55

802.11n HT20

Temperature	**Tnom**								
Voltage	**Vnom**								
Frequency	C1	C2	C3	C4	C5	C6	C7	C8	C9
Ratio Peak Excursion (dB)	11,01	11,45	11,32	11,32	10,98	11,35	11,33	11,13	11,25

802.11n HT40

Temperature	**Tnom**						
Voltage	**Vnom**						
Frequency	C10	C11	C12	C13	C14	C15	C16
Ratio Peak Excursion (dB)	11,39	11,23	11,05	11,16	11,77	11,91	11,14

802.11ac VHT80

Temperature	**Tnom**		
Voltage	**Vnom**		
Frequency	C17	C18	C19
Ratio Peak Excursion (dB)	10,73	11,28	11,64

Result: PASS

Ratio Peak Excursion Limit:
Shall not exceed 13dB

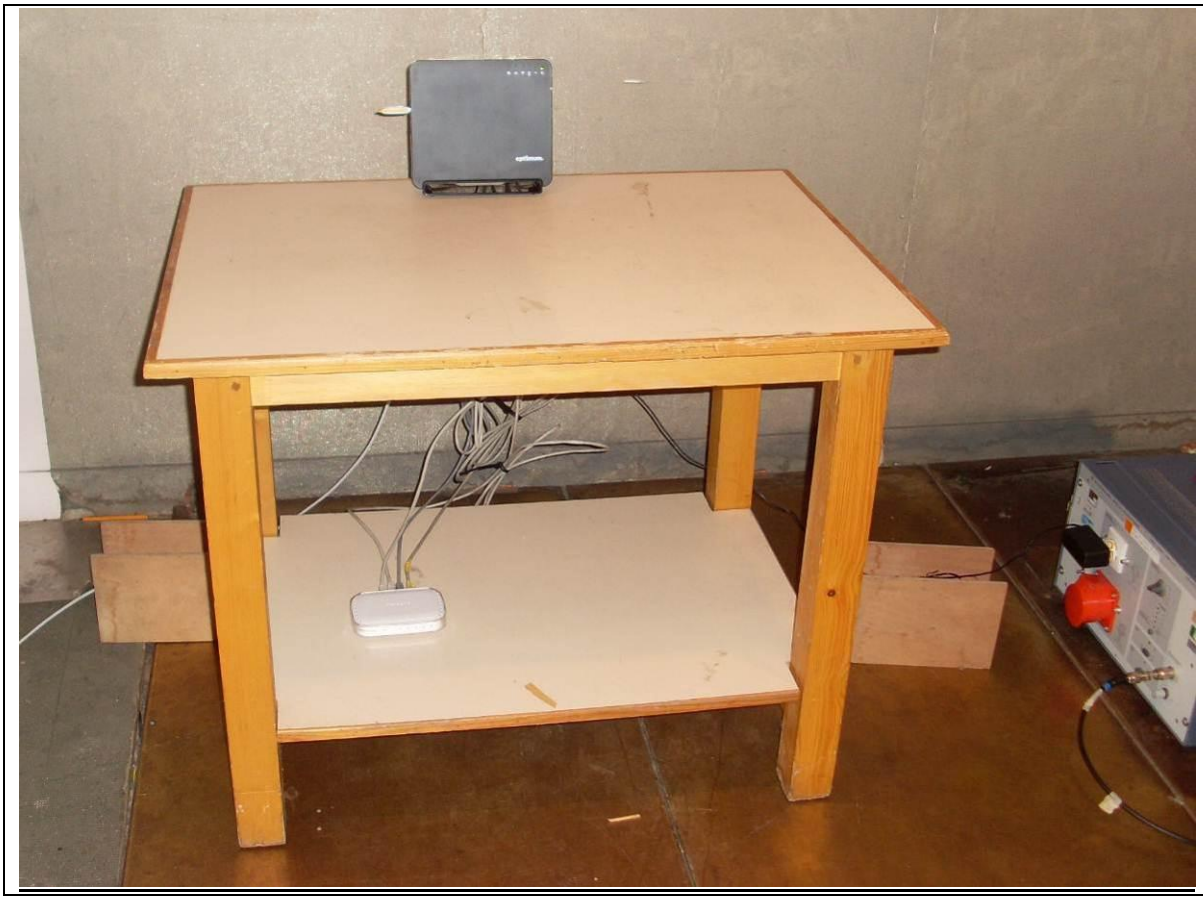
9. AC POWER LINE CONDUCTED EMISSIONS

9.1. TEST CONDITIONS

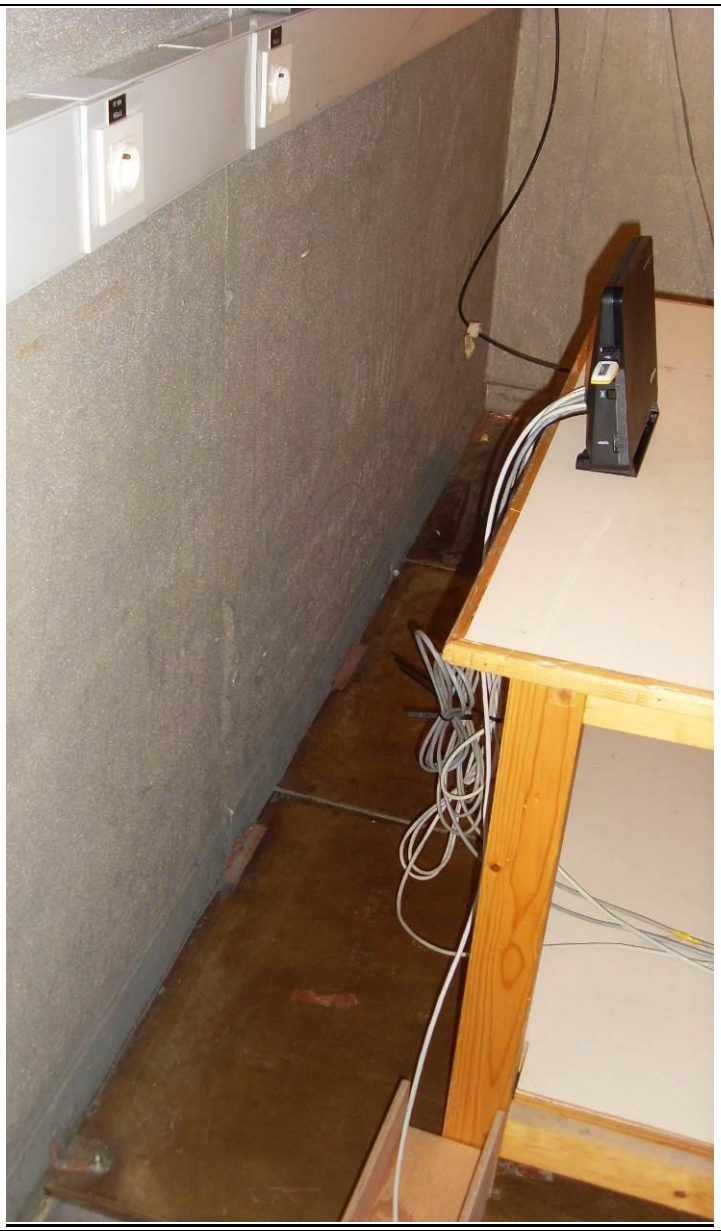
Test performed by : Laurent DENEUX
Date of test : 2013/07/23
Ambient temperature : 22°C
Relative humidity : 51%

9.2. TEST SETUP

The product has been tested according to ANSI C63.10 (2009) method. The EUT is placed on the ground reference plane, at 80cm from the LISN. The distance between the EUT and the vertical ground plane is 40cm. Auxiliaries are powered by another LISN. The cable has been shorted to 1meter length. The EUT is powered through the LISN. Measurement is made with a receiver in peak mode. This was followed by a Quasi-Peak, i.e. CISPR measurement for any strong signal. If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary. The LISN (measure) is 50Ω / 50µH. Interconnecting cables and equipment's were moved to position that maximized emission.



Photograph for AC Power Line Conducted Emissions (Front view)



Photograph for AC Power Line Conducted Emissions (Rear view)

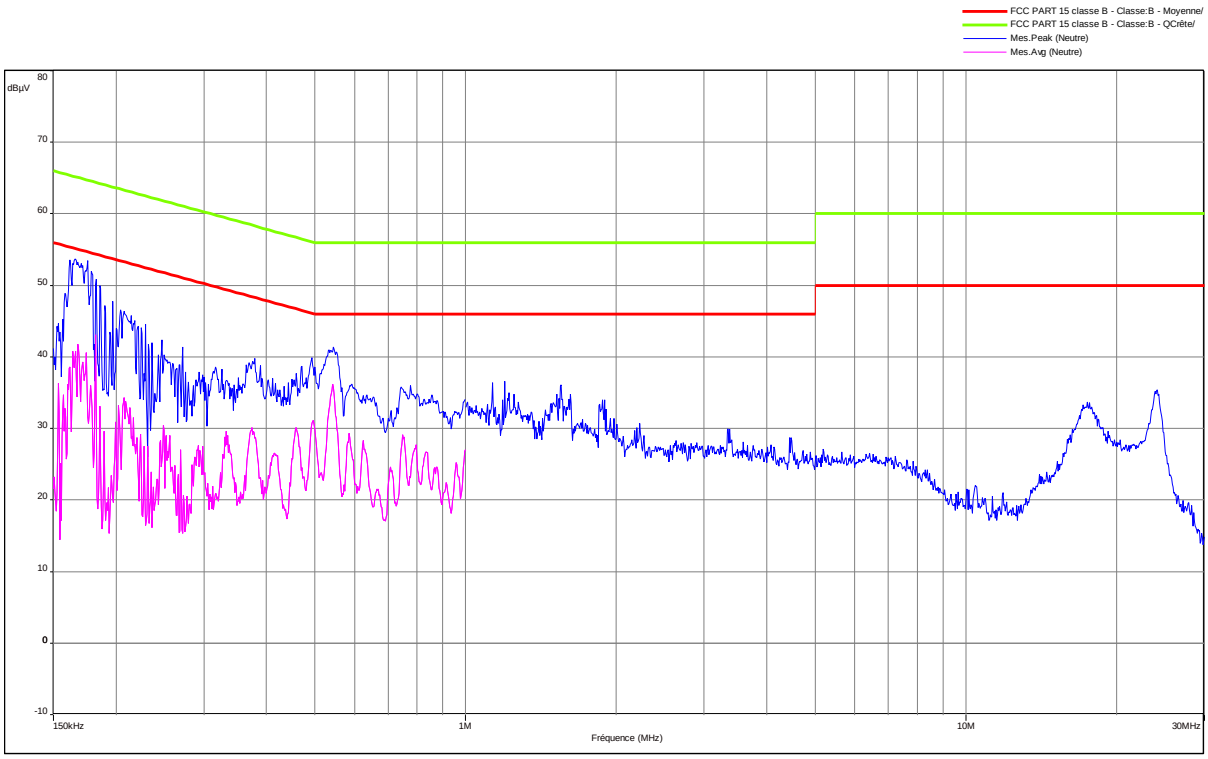
9.3. RESULTS

Worst case 802.11a

Phase Line

FCC Part.15 class B
SAGEMCOM
WIFI BOX
TYPE : FAST 5260CV
CONDUCTOR 1 ; 120V-60Hz

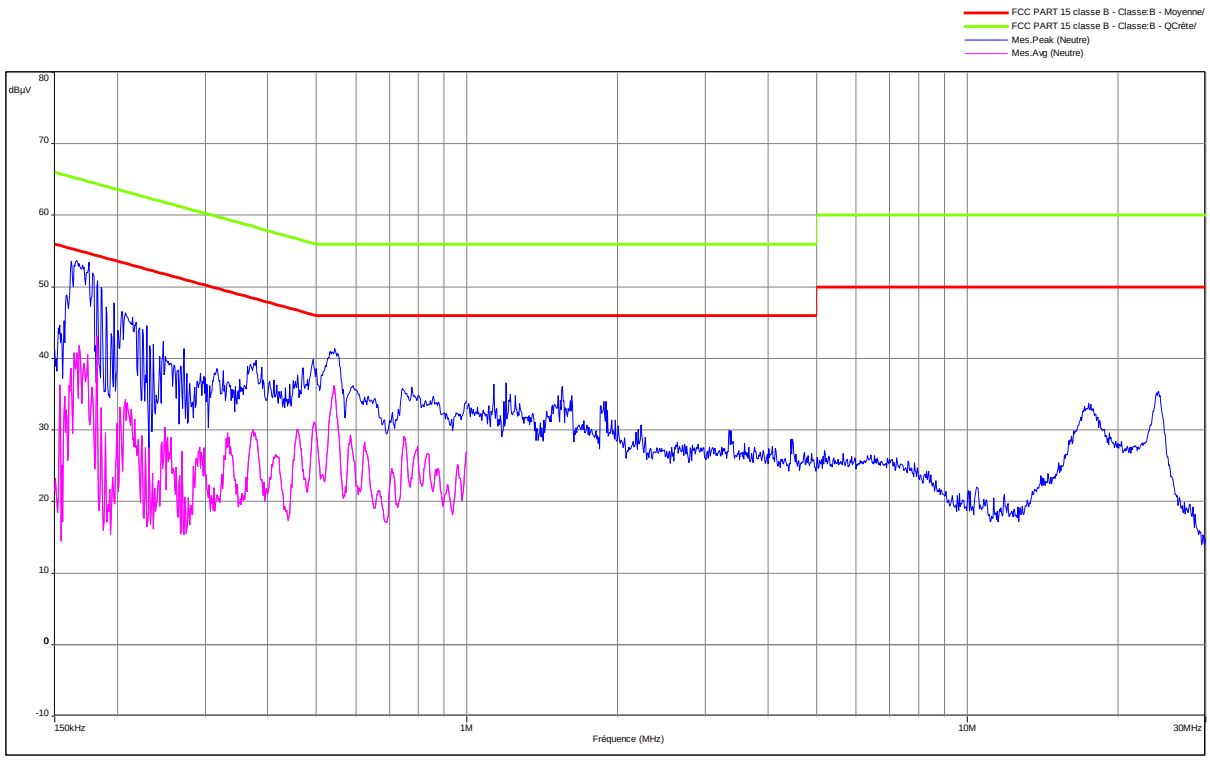
Peak and average value



Neutral Line

FCC Part.15 class B
SAGEMCOM
WIFI BOX
TYPE : FAST 5260CV
CONDUCTOR 2 ; 120V-60Hz

Peak and average value



Phase Line

Frequency (MHz)	Peak Level (dBµV/m)	Quasi-Peak Level (dBµV/m)	Quasi-Peak Limit (dBµV/m)	Average Level (dBµV/m)	Average Limit (dBµV/m)
0.166	53.6	-	65	43	55
0.544	41.3	-	56	36	46
1.552	36	-	56	-	46
17.52	33.7	-	60	-	50
24	35.4	-	60	-	50

Neutral Line

Frequency (MHz)	Peak Level (dBµV/m)	Quasi-Peak Level (dBµV/m)	Quasi-Peak Limit (dBµV/m)	Average Level (dBµV/m)	Average Limit (dBµV/m)
0.167	53.5	-	64.9	43.6	55
0.499	39	-	56.1	32.8	46
1.554	34.5	-	56	-	46
17.216	36	-	60	-	50

Result: PASS

Limit:
Quasi-Peak
0,15kHz to 0,5MHz: 66dBµV/m to 56dBµV/m*
0,5MHz to 5MHz: 56dBµV/m
5MHz to 30MHz: 60dBµV/m

Average
0,15kHz to 0,5MHz: 56dBµV/m to 46dBµV/m*
0,5MHz to 5MHz: 46dBµV/m
5MHz to 30MHz: 50dBµV/m

*Decreases with the logarithm of the frequency

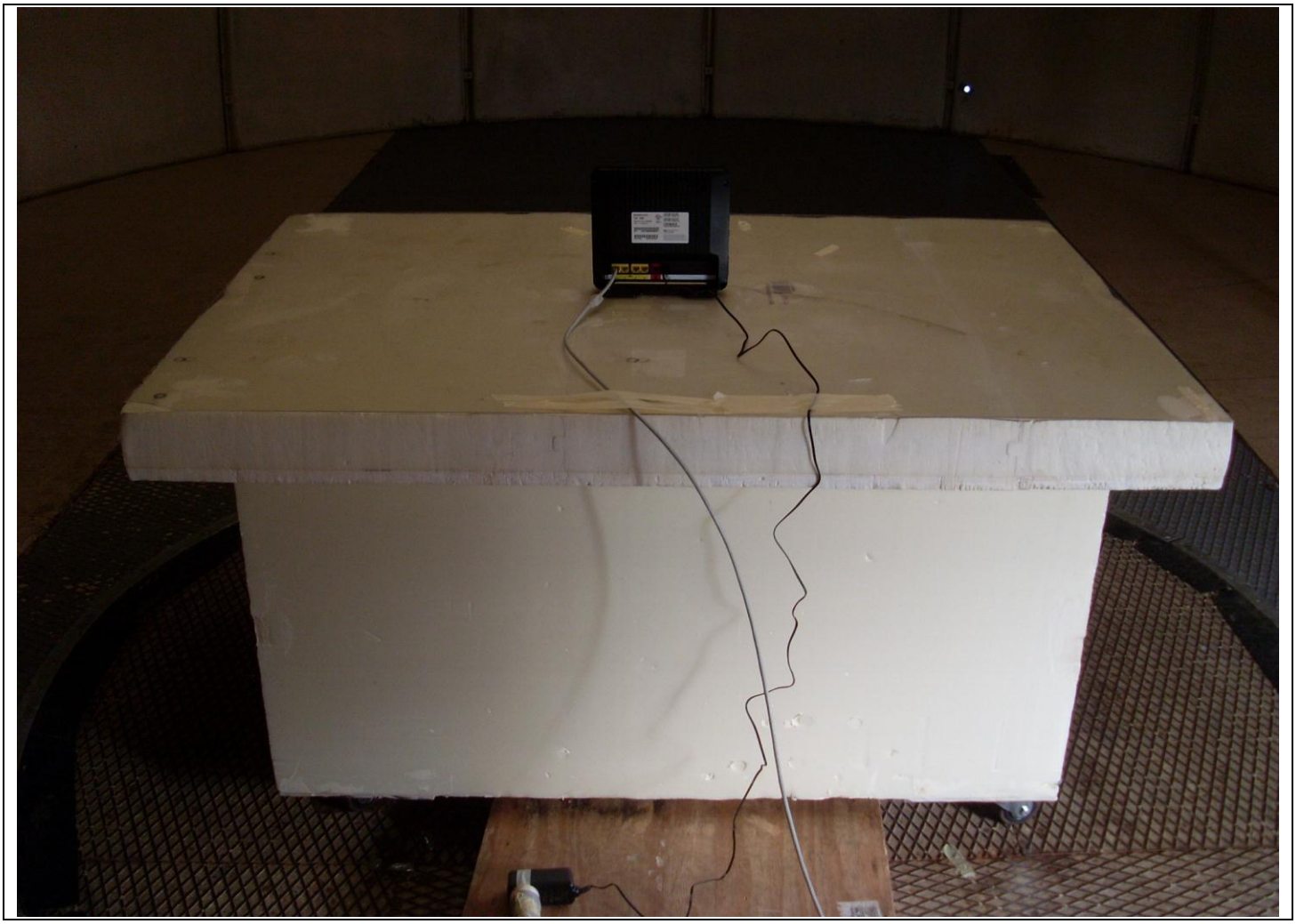
10. UNWANTED EMISSIONS & UNDESIRABLE EMISSION LIMITS

10.1. TEST CONDITIONS

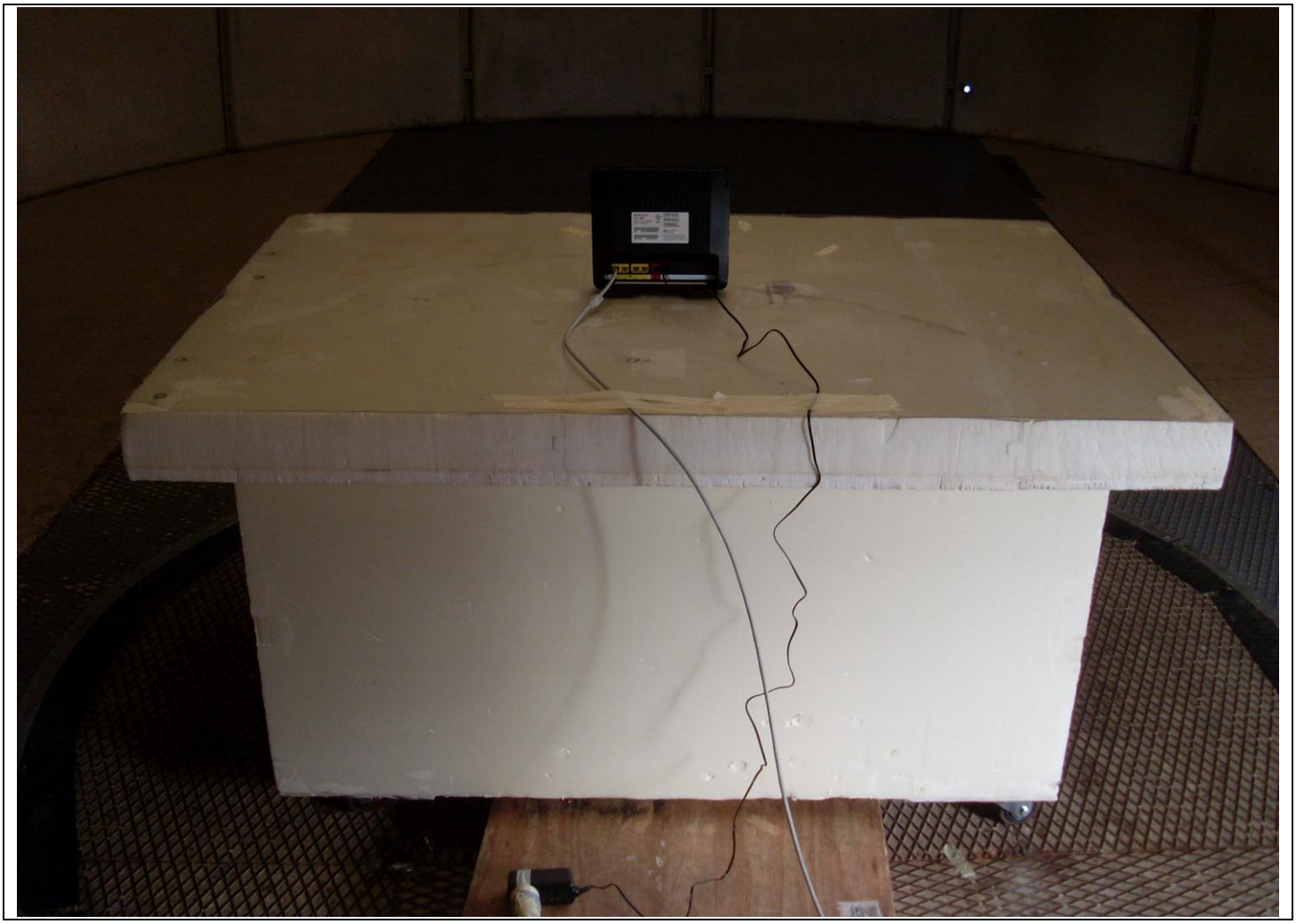
Test performed by : Laurent DENEUX
Date of test : 2013/07/23
Ambient temperature : 18°C to 35°C
Relative humidity : 45% to 51%

10.2. TEST SETUP

The product has been tested according to ANSI C63.10 (2009). The EUT is placed on an open area test site. Distance between measuring antenna and the EUT is 10m. Test is performed in horizontal (H) and vertical (V) polarization with bilog antenna below 1GHz and with a horn antenna above 1GHz. Measurement bandwidth was 120kHz below 1GHz and 1MHz above 1GHz. The level has been maximised by the turntable rotation of 360 degrees range on the 3 axis of EUT. Antenna height search was performed from 1 to 4m.
The product has been tested according to the FCC KDB 789033 D01 General UNII Test Procedures v01r03. The following factor is applied to convert E[dBµV/m] to EIRP[dBm]. EIRP[dBm]= E[dBµV/m] – 84.7



Photograph for Unwanted Emissions & Undesirable Emission Limits



Photograph for Unwanted Emissions & Undesirable Emission Limits

10.3. RESULTS

Characterization on an open test site (30MHz to 40GHz):

Worst case 802.11a
Below 1GHz

Polarisation	Frequency (MHz)	QPeak Level (dBµV/m)	QPeak Limit (dBµV/m)
Vertical	31.4	20.8	29.5
Vertical	34.5	26.6	29.5
Vertical	37.5	17.4	29.5
Vertical	41.6	23.4	29.5
Vertical	45.7	25.3	29.5
Vertical	56.3	23.6	29.5
Vertical	60.3	23	29.5
Vertical	74.4	20.3	29.5
Vertical	80.1	17.8	29.5
Vertical	114.1	18.3	33
Vertical	120	22.5	33
Vertical	125	21.7	33
Vertical	131.4	24.7	33
Vertical	135.8	29.1	33
Vertical	200	25.8	33
Vertical	250	23.4	35.5
Vertical	300	28.4	35.5
Vertical	375	29.8	35.5
Vertical	500	27	35.5
Vertical	625	30.7	35.5
Vertical	750	30.5	35.5
Vertical	756.4	33.2	35.5
Vertical	875	32	35.5
Vertical	998	30.1	44
Horizontal	200	17.2	33
Horizontal	250	22.5	35.5
Horizontal	300	29.4	35.5
Horizontal	500	28.7	35.5
Horizontal	625	28.9	35.5
Horizontal	750	30.5	35.5
Horizontal	875	31.8	35.5

802.11a
Above 1GHz
C1

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	28.8	44	42	-42.7	64	-27
Vertical	5350	29.2	44	41	-43.7	64	-27
vertical	5460	28.6	44	40.6	-44.1	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	29	44	40	-44.7	64	-27
horizontal	5350	28.9	44	40.4	-44.3	64	-27
horizontal	5460	28.9	44	41.3	-43.4	64	-27

C2

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
Vertical	4929	27.5	44	41	-43.7	64	-27
vertical	5150	27	44	39.7	-45	64	-27
Vertical	5350	27	44	39.4	-45.3	64	-27
vertical	5460	27	44	39.6	-45.1	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27	44	40	-44.7	64	-27
horizontal	5350	27	44	38	-46.7	64	-27
horizontal	5460	27.2	44	39.4	-45.3	64	-27

C3

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	28.4	44	38.9	-45.8	64	-27
Vertical	5350	29	44	41	-43.7	64	-27
vertical	5460	27	44	38.4	-46.3	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	28.9	44	38.9	-45.8	64	-27
horizontal	5350	28.7	44	40.8	-43.9	64	-27
horizontal	5460	28.8	44	40.8	-43.9	64	-27

C4

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	41	-43.7	64	-27
Vertical	5350	27	44	41	-43.7	64	-27
vertical	5460	27	44	39	-45.7	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	29	44	40	-44.7	64	-27
horizontal	5350	27.5	44	40	-44.7	64	-27
horizontal	5460	27.5	44	38.9	-45.8	64	-27

C5

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27.4	44	39.6	-45.1	64	-27
Vertical	5350	27	44	38.7	-46	64	-27
vertical	5460	26.8	44	38.3	-46.4	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	29	44	40.5	-44.2	64	-27
horizontal	5350	29	44	40.5	-44.2	64	-27
horizontal	5460	27	44	38.8	-45.9	64	-27

C6

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	29	44	40	-44.7	64	-27
Vertical	5350	29	44	40.2	-44.5	64	-27
vertical	5400	29	44	41.7	-43	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27	44	40.5	-44.2	64	-27
horizontal	5350	27.2	44	38	-46.7	64	-27
horizontal	5460	27.1	44	40	-44.7	64	-27

C7

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27.3	44	40.1	-44.6	64	-27
Vertical	5350	27	44	40.2	-44.5	64	-27
vertical	5460	27.8	44	39.8	-44.9	64	-27
vertical	5725	27.5	44	39.4	-45.3	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	4561	30	44	41.6	-43.1	64	-27
horizontal	5429	29	44	42	-42.7	64	-27
horizontal	5460	27.5	44	38.9	-45.8	64	-27
horizontal	5600	29	44	42.6	-42.1	64	-27
horizontal	5725	29.2	44	41.5	-43.2	64	-27

C8

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
Vertical	4950	27.2	44	40	-44.7	64	-27
vertical	5150	27	44	38.8	-45.9	64	-27
Vertical	5350	27	44	37	-47.7	64	-27
vertical	5460	27.1	44	39	-45.7	64	-27
vertical	5725	27.3	44	40	-44.7	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5350	27.5	44	38	-46.7	64	-27
horizontal	5460	27	44	40	-44.7	64	-27
horizontal	5725	27.3	44	41.6	-43.1	64	-27

C9

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
Vertical	4770	28	44	39.4	-45.3	64	-27
vertical	5150	27	44	39	-45.7	64	-27
Vertical	5350	27.5	44	40	-44.7	64	-27
vertical	5460	27	44	39.5	-45.2	64	-27
Vertical	5725	28.2	44	39.7	-45	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	4767	29	44	41	-43.7	64	-27
horizontal	5150	27.2	44	40	-44.7	64	-27
horizontal	5350	27	44	40.4	-44.3	64	-27
horizontal	5460	27.2	44	38.9	-45.8	64	-27
horizontal	5725	28	44	41	-43.7	64	-27

802.11n HT20
Above 1GHz
C1

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	40.3	-44.4	64	-27
Vertical	5350	27.2	44	40	-44.7	64	-27
vertical	5460	27	44	39	-45.7	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27	44	39.5	-45.2	64	-27
horizontal	5350	27	44	38	-46.7	64	-27
horizontal	5460	29	44	42	-42.7	64	-27

C2

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
Vertical	4929	27.5	44	41	-43.7	64	-27
vertical	5150	27	44	39.7	-45	64	-27
Vertical	5350	27	44	39.4	-45.3	64	-27
vertical	5460	27	44	39.6	-45.1	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27	44	40	-44.7	64	-27
horizontal	5350	27	44	38	-46.7	64	-27
horizontal	5460	27.2	44	39.4	-45.3	64	-27

C3

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	37.6	-47.1	64	-27
Vertical	5350	27	44	37.7	-47	64	-27
vertical	5460	27	44	40.1	-44.6	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27	44	38.2	-46.5	64	-27
horizontal	5350	27.2	44	39	-45.7	64	-27
horizontal	5460	27	44	39.7	-45	64	-27

C4

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	40.5	-44.2	64	-27
Vertical	5350	27	44	39.7	-45	64	-27
vertical	5460	26.7	44	39.3	-45.4	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27.2	44	40.2	-44.5	64	-27
horizontal	5350	27	44	40.3	-44.4	64	-27
horizontal	5460	27.1	44	38.2	-46.5	64	-27

C5

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	40	-44.7	64	-27
Vertical	5350	27	44	40.1	-44.6	64	-27
vertical	5460	27.1	44	39.9	-44.8	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27	44	39.3	-45.4	64	-27
horizontal	5350	27.2	44	38	-46.7	64	-27
horizontal	5460	27	44	39.5	-45.2	64	-27

C6

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	37.2	-47.5	64	-27
Vertical	5350	27.1	44	40	-44.7	64	-27
vertical	5460	27	44	40	-44.7	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27	44	39.5	-45.2	64	-27
horizontal	5350	27.2	44	39.6	-45.1	64	-27
horizontal	5460	27	44	38.3	-46.4	64	-27

C7

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	40	-44.7	64	-27
Vertical	5350	28.6	44	40.6	-44.1	64	-27
vertical	5460	29	44	41.8	-42.9	64	-27
vertical	5725	29.1	44	41	-43.7	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27.2	44	39	-45.7	64	-27
horizontal	5350	27	44	40.4	-44.3	64	-27
horizontal	5460	28.8	44	40.5	-44.2	64	-27
horizontal	5725	27.5	44	39	-45.7	64	-27

C8

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	40.3	-44.4	64	-27
Vertical	5350	27.2	44	37.8	-46.9	64	-27
vertical	5460	27	44	39.4	-45.3	64	-27
vertical	5725	27.4	44	40	-44.7	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27.2	44	39.6	-45.1	64	-27
horizontal	5350	27	44	39	-45.7	64	-27
horizontal	5460	27.1	44	40	-44.7	64	-27
horizontal	5725	27.7	44	40.6	-44.1	64	-27

C9

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	40.1	-44.6	64	-27
Vertical	5350	27	44	40.2	-44.5	64	-27
vertical	5460	27.1	44	39.8	-44.9	64	-27
vertical	5725	26.7	44	39.4	-45.3	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	26.7	44	40	-44.7	64	-27
horizontal	5350	27	44	40.3	-44.4	64	-27
horizontal	5460	27.1	44	38	-46.7	64	-27
horizontal	5725	29.4	44	42	-42.7	64	-27

802.11n HT40
Above 1GHz
C10

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	29	44	41.4	-43.3	64	-27
Vertical	5350	27	44	38.5	-46.2	64	-27
vertical	5460	26.7	44	39	-45.7	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	28.7	44	42.3	-42.4	64	-27
horizontal	5350	27.3	44	39.3	-45.4	64	-27
horizontal	5460	27.6	44	38.8	-45.9	64	-27

C11

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	40.1	-44.6	64	-27
Vertical	5350	27	44	38.8	-45.9	64	-27
vertical	5460	27	44	39.8	-44.9	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27	44	38.9	-45.8	64	-27
horizontal	5350	27.1	44	39	-45.7	64	-27
horizontal	5460	27	44	39.1	-45.6	64	-27

C12

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	40.1	-44.6	64	-27
Vertical	5350	27.1	44	39.3	-45.4	64	-27
vertical	5460	27.2	44	38.8	-45.9	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27	44	39.5	-45.2	64	-27
horizontal	5350	27.2	44	40.4	-44.3	64	-27
horizontal	5460	27	44	38.8	-45.9	64	-27

C13

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27.5	44	39	-45.7	64	-27
Vertical	5350	27.2	44	39.5	-45.2	64	-27
vertical	5460	27	44	39	-45.7	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27	44	40.2	-44.5	64	-27
horizontal	5350	27	44	40.2	-44.5	64	-27
horizontal	5460	27.6	44	38.6	-46.1	64	-27

C14

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	39.8	-44.9	64	-27
Vertical	5350	27.1	44	39.7	-45	64	-27
vertical	5460	27	44	40.8	-43.9	64	-27
vertical	5725	27.4	44	40	-44.7	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27	44	40	-44.7	64	-27
horizontal	5350	27	44	39.2	-45.5	64	-27
horizontal	5460	29	44	41.5	-43.2	64	-27
horizontal	5725	27.1	44	39.6	-45.1	64	-27

C15

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	37.5	-47.2	64	-27
Vertical	5350	27.2	44	39.7	-45	64	-27
vertical	5460	27	44	39.4	-45.3	64	-27
vertical	5725	27.3	44	40.4	-44.3	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27.3	44	40	-44.7	64	-27
horizontal	5350	27.2	44	40.2	-44.5	64	-27
horizontal	5460	27.1	44	39	-45.7	64	-27
horizontal	5725	29.4	44	41	-43.7	64	-27

C16

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	40.5	-44.2	64	-27
Vertical	5350	27.2	44	39.4	-45.3	64	-27
vertical	5460	27	44	39.2	-45.5	64	-27
vertical	5725	27	44	40.3	-44.4	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27.2	44	39.8	-44.9	64	-27
horizontal	5350	27	44	40.4	-44.3	64	-27
horizontal	5460	27.1	44	38.6	-46.1	64	-27
horizontal	5725	27.2	44	40.4	-44.3	64	-27

802.11ac VHT80
Above 1GHz
C17

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	28.9	44	41	-43.7	64	-27
Vertical	5350	28.8	44	40.4	-44.3	64	-27
vertical	5460	27.2	44	39.2	-45.5	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	29.2	44	41.2	-43.5	64	-27
horizontal	5350	26.7	44	39.3	-45.4	64	-27
horizontal	5460	27	44	39.4	-45.3	64	-27

C18

Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	40.3	-44.4	64	-27
Vertical	5350	29	44	41.7	-43	64	-27
vertical	5460	27.1	44	39.2	-45.5	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27.1	44	40.2	-44.5	64	-27
horizontal	5350	29.3	44	41.8	-42.9	64	-27
horizontal	5460	27	44	39	-45.7	64	-27

C19

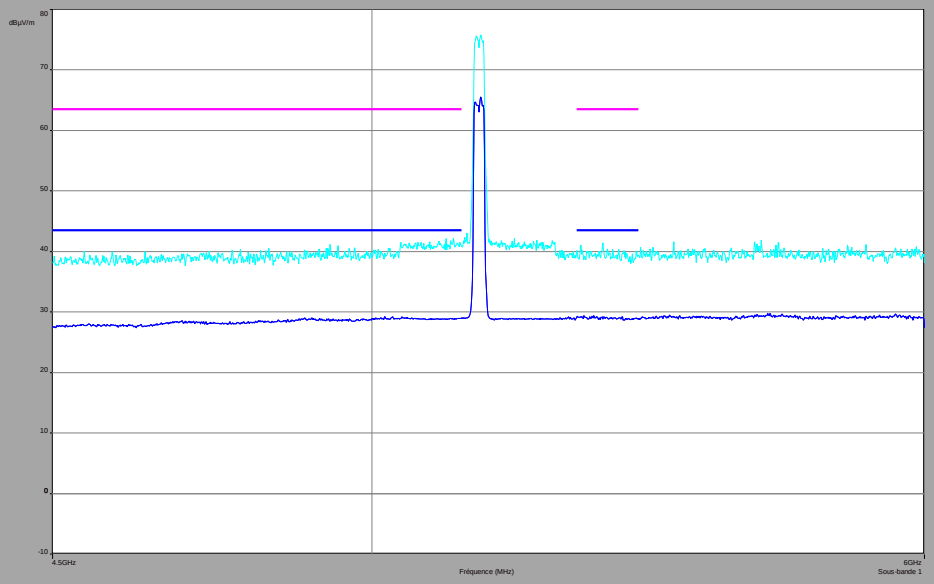
Polarisation	Frequency (MHz)	Average Level (dBµV/m)	Average Limit (dBµV/m)	Peak Level (dBµV/m)	Peak Level (dBm)	Peak Limit (dBµV/m)	Peak Limit (dBm)
vertical	1125	28.5	44	35	-49.7	64	-27
vertical	1500.1	29	44	35	-49.7	64	-27
vertical	1625.1	28.5	44	38.4	-46.3	64	-27
Vertical	2250	31.5	44	43.6	-41.1	64	-27
vertical	5150	27	44	39.5	-45.2	64	-27
Vertical	5350	29	44	41	-43.7	64	-27
vertical	5460	29	44	41.5	-43.2	64	-27
vertical	5725	29	44	40.3	-44.4	64	-27
horizontal	1125	28.3	44	33.1	-51.6	64	-27
horizontal	5150	27	44	39.5	-45.2	64	-27
horizontal	5350	27	44	39.3	-45.4	64	-27
horizontal	5460	26.7	44	39.6	-45.1	64	-27
horizontal	5725	27.4	44	40	-44.7	64	-27

Result: PASS

Limit: → 30MHz to 88MHz: 29.5dBµV/m QPeak
88MHz to 216MHz: 33dBµV/m QPeak
216MHz to 960MHz: 35.5dBµV/m QPeak
960MHz to 1000MHz: 44dBµV/m QPeak
Above 1000MHz: 64dBµV/m Peak
44dBµV/m Average

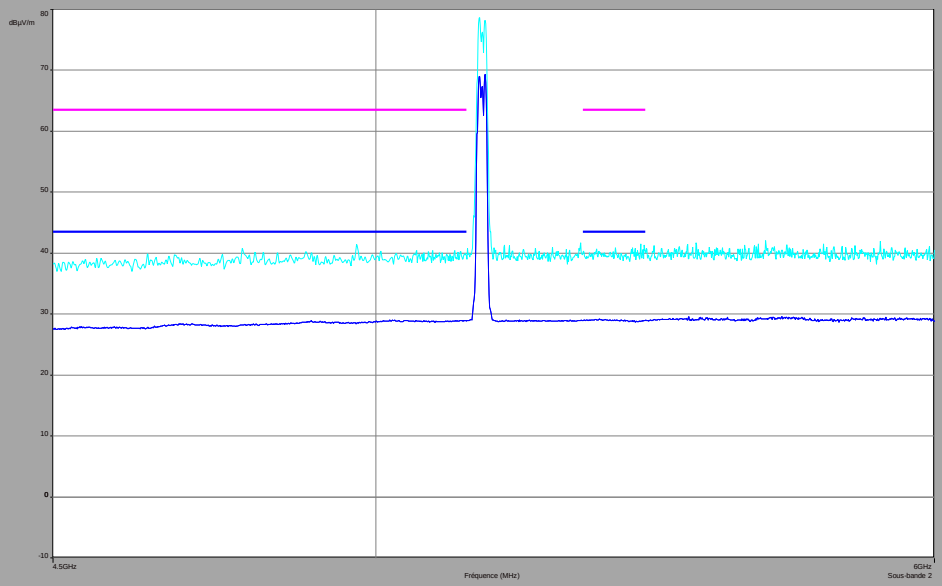
Limit: → 5150MHz-5250MHz: Shall not exceed -27dBm outside of the band
5250MHz-5350MHz: Shall not exceed -27dBm outside of the band
5470MHz-5725MHz: Shall not exceed -27dBm outside of the band

802.11a
C1
vertical



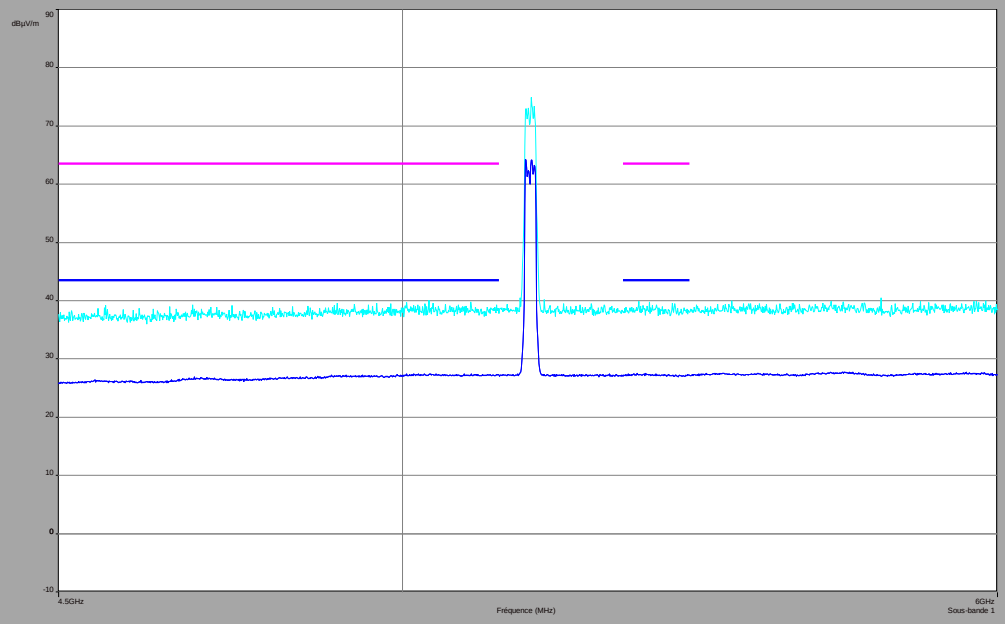
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C1
Horizontal



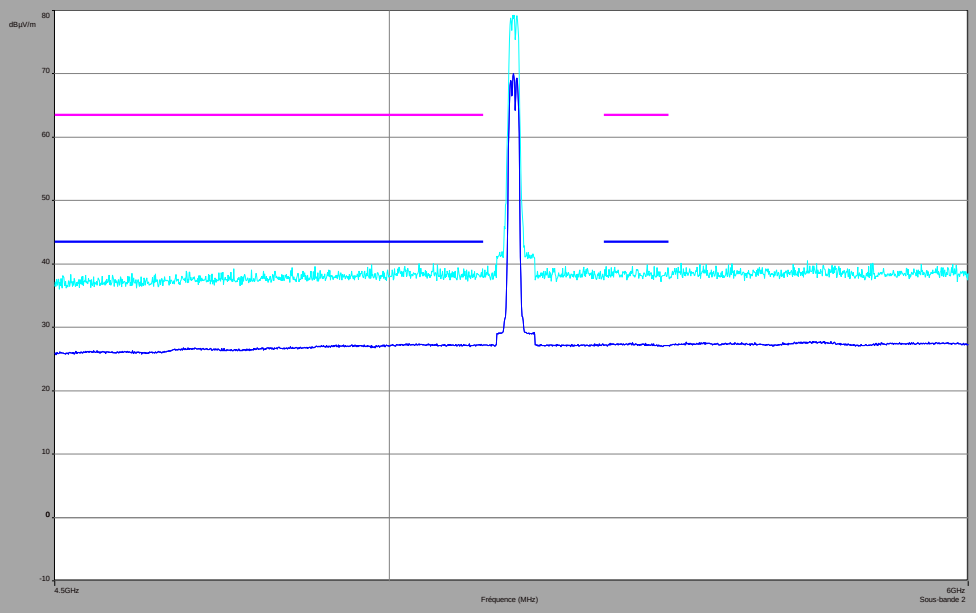
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11a
C2
vertical



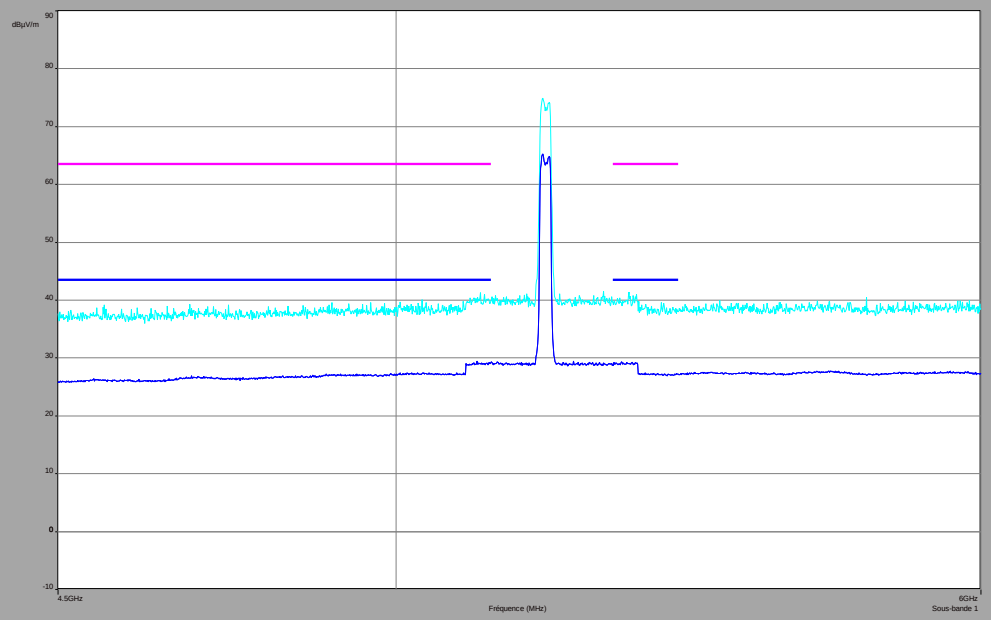
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C2
Horizontal



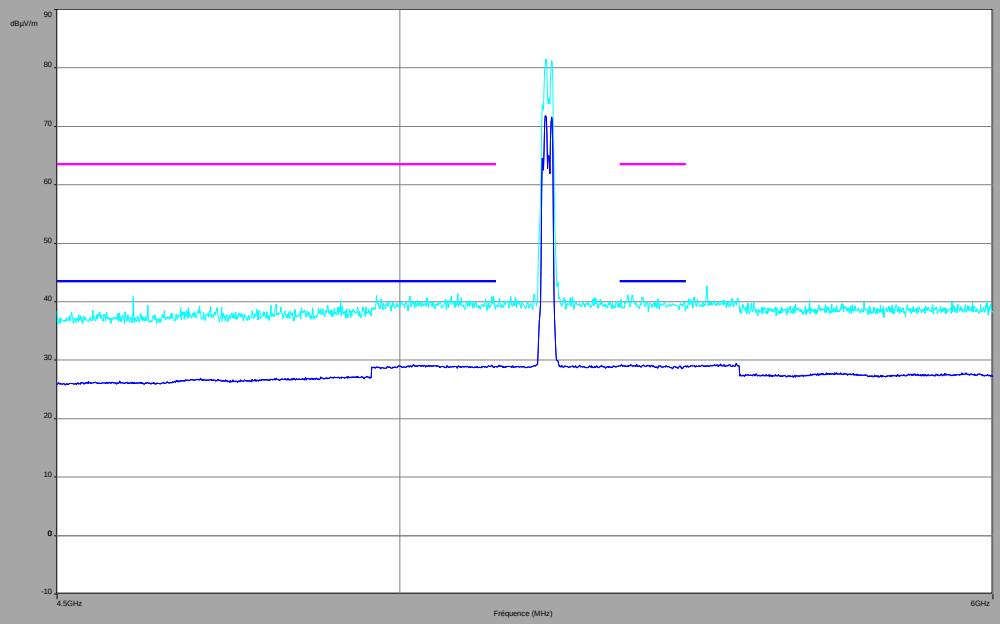
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11a
C3
vertical



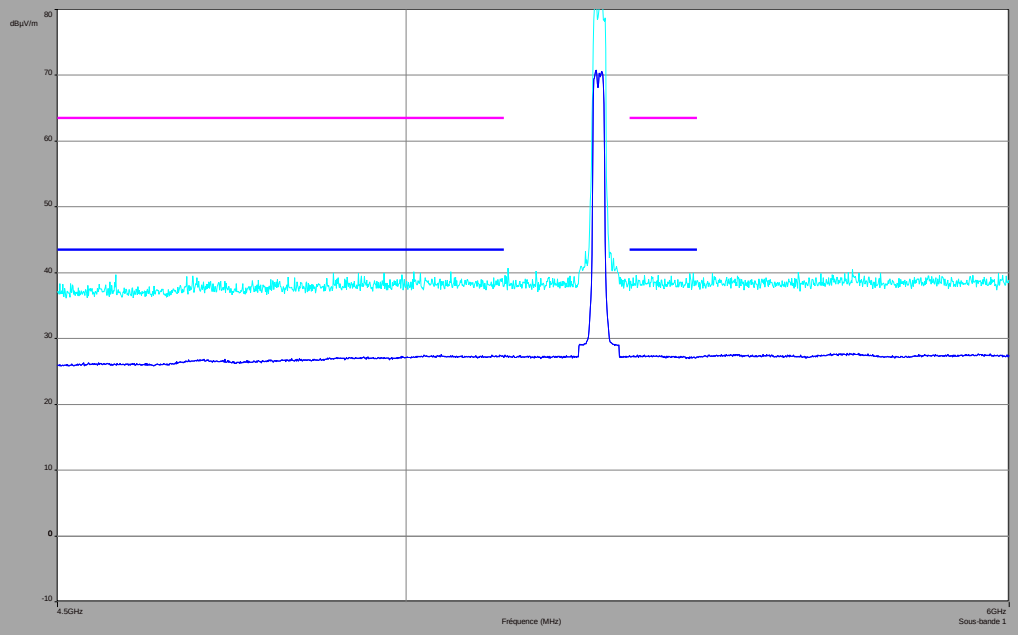
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C3
Horizontal



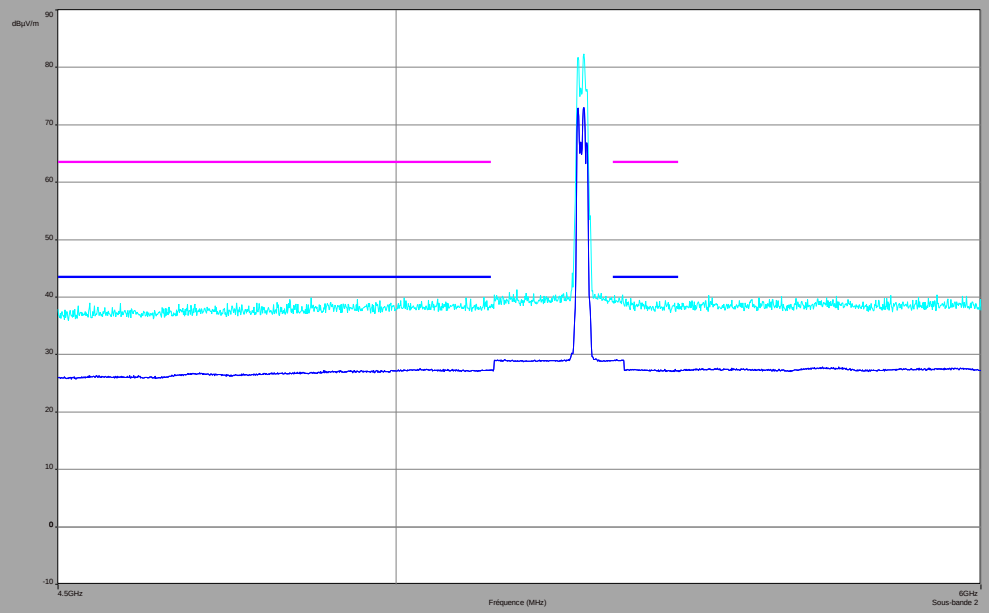
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11a
C5
vertical



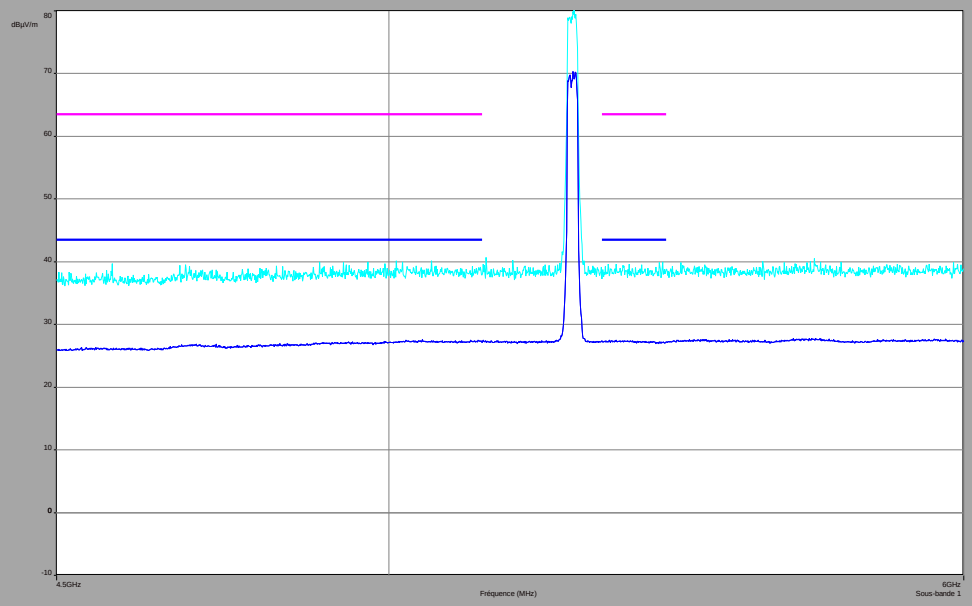
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C5
Horizontal



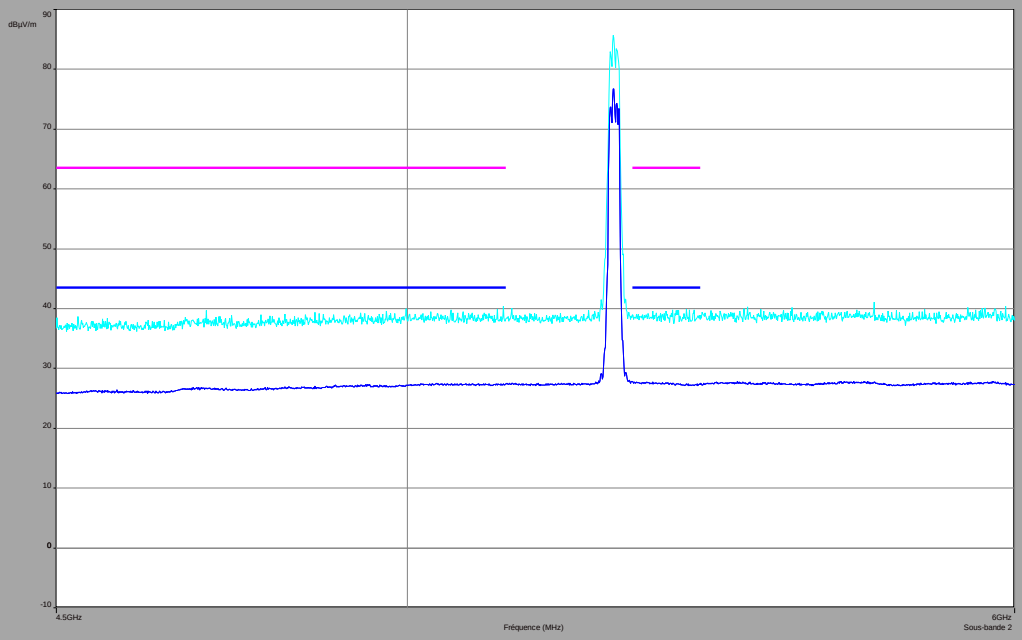
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11a
C6
vertical



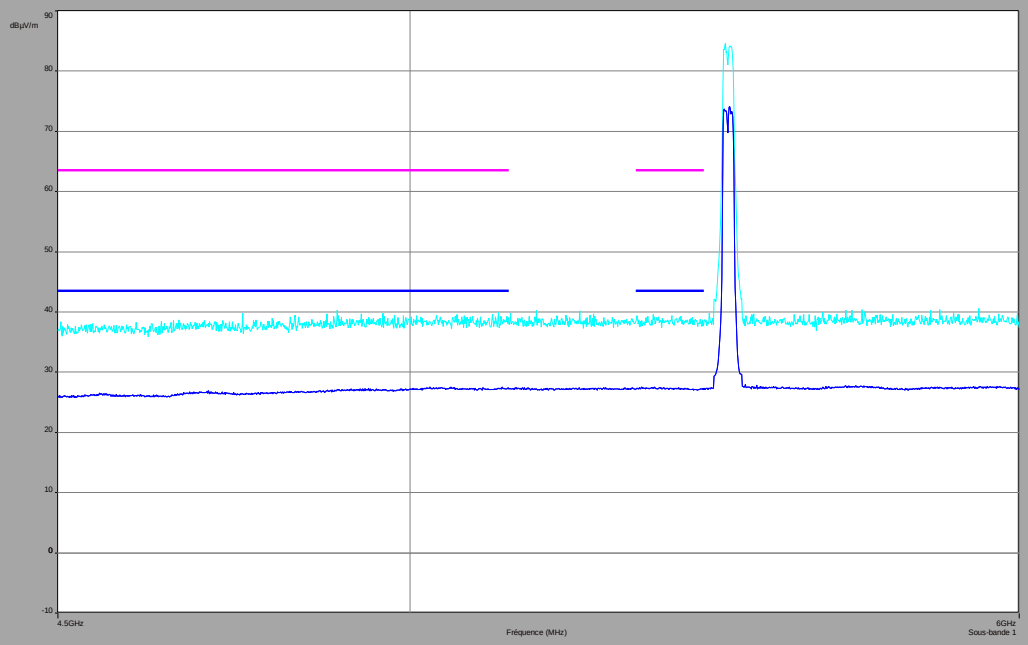
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C6
Horizontal



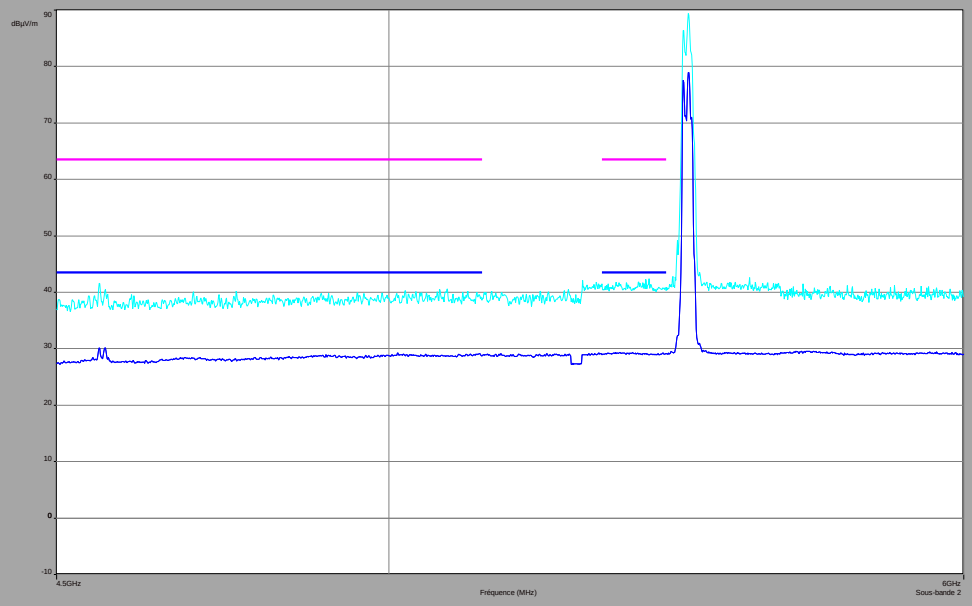
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11a
C7
vertical



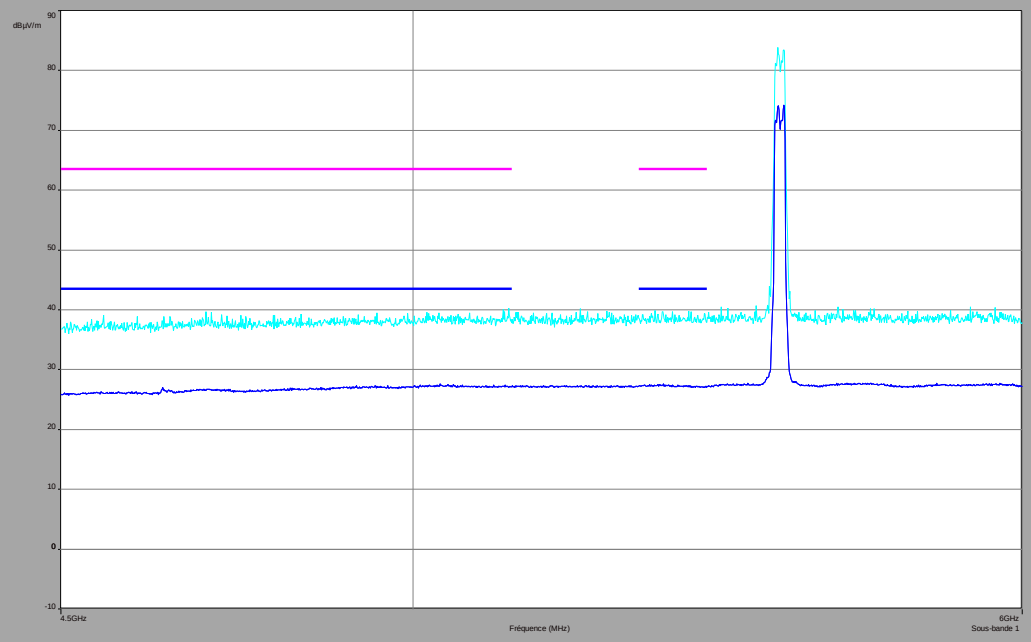
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C7
Horizontal



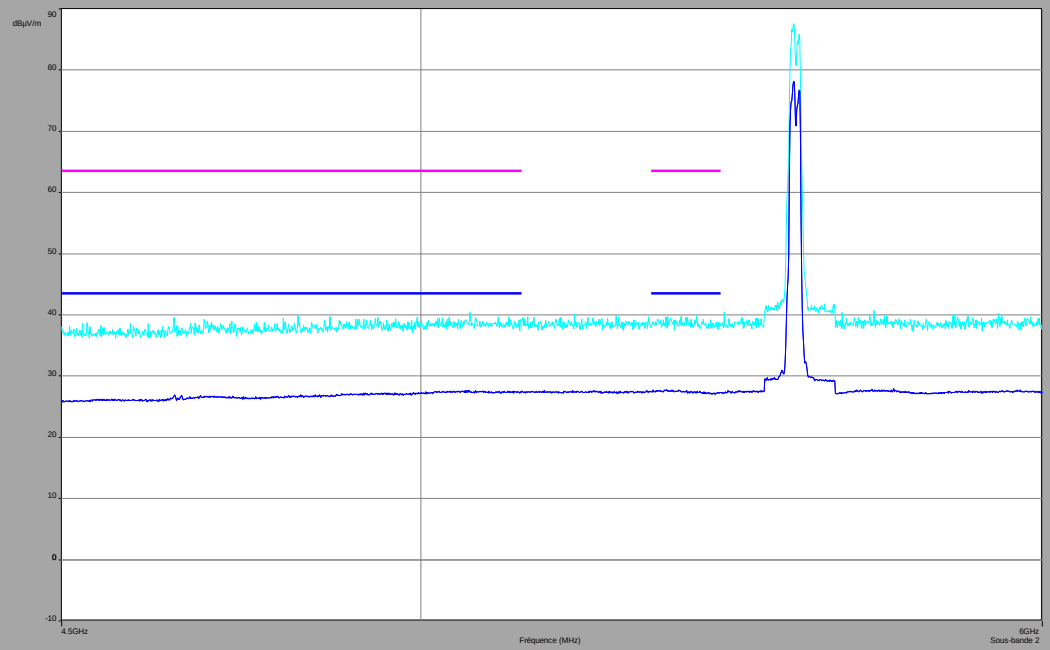
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11a
C8
vertical



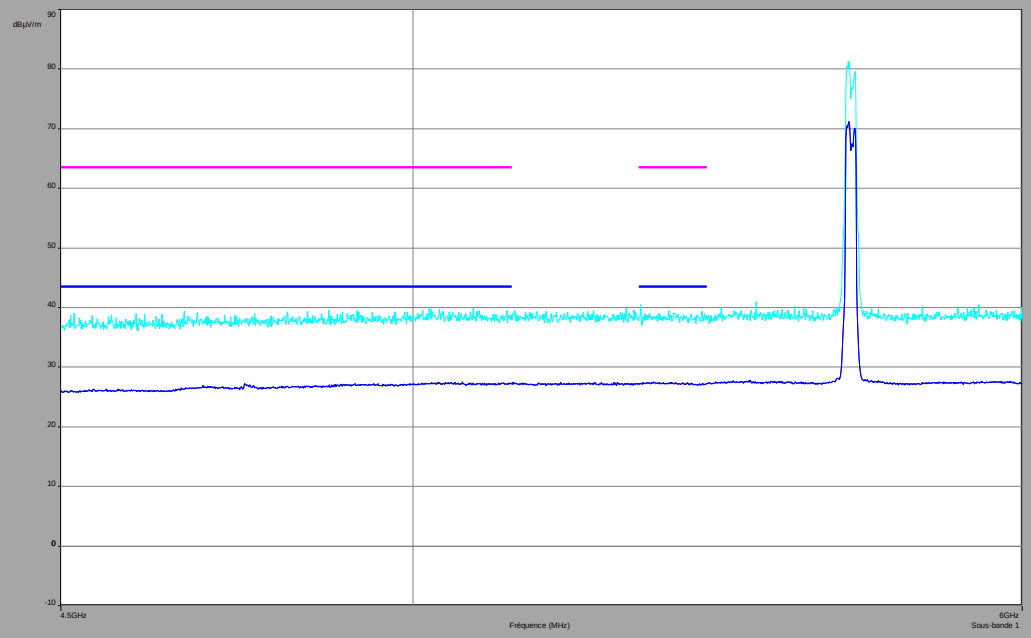
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C8
Horizontal



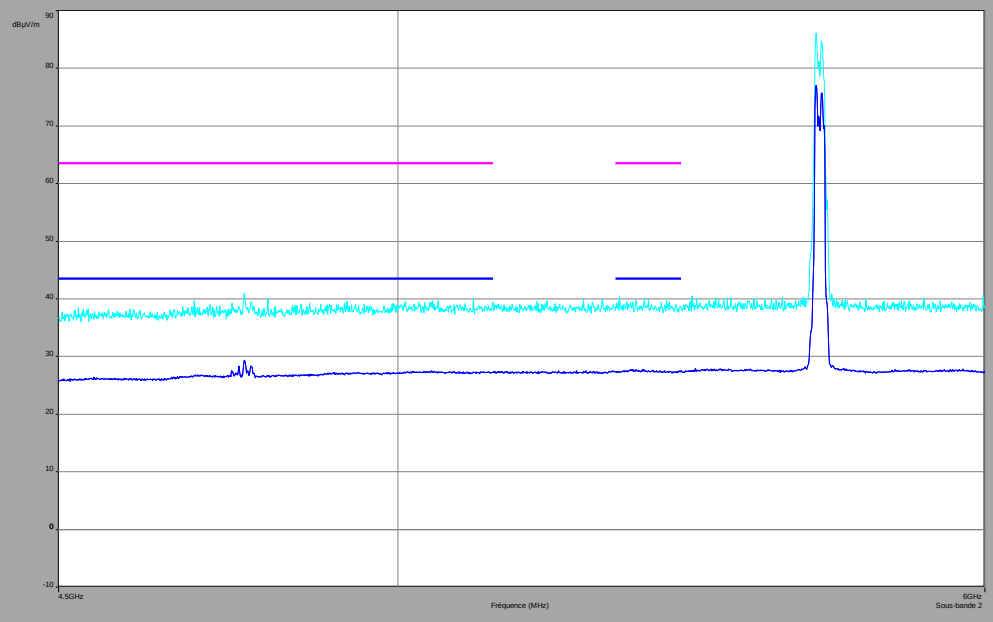
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11a
C9
vertical



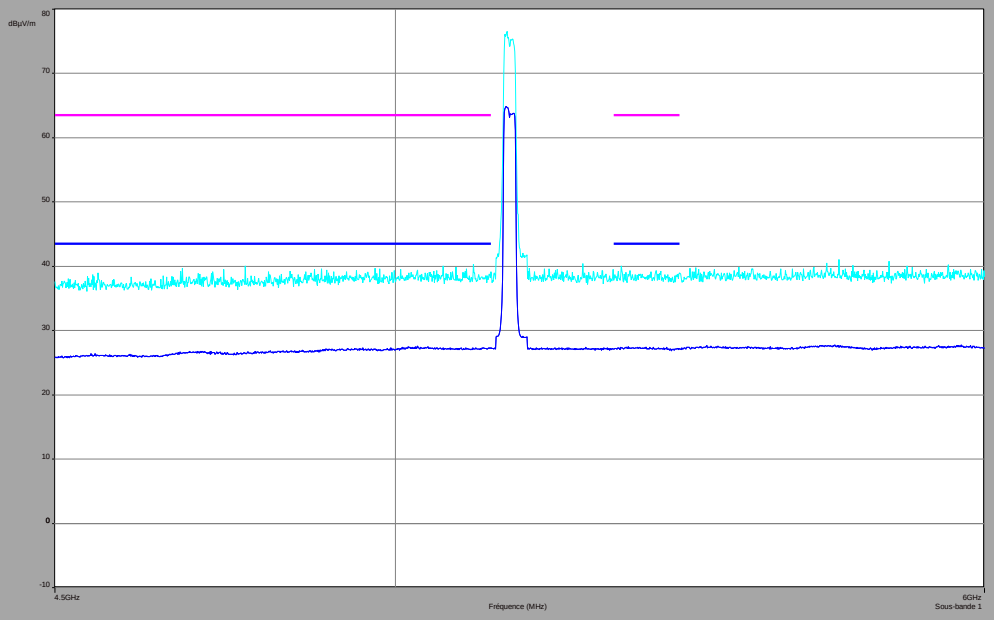
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C9
Horizontal



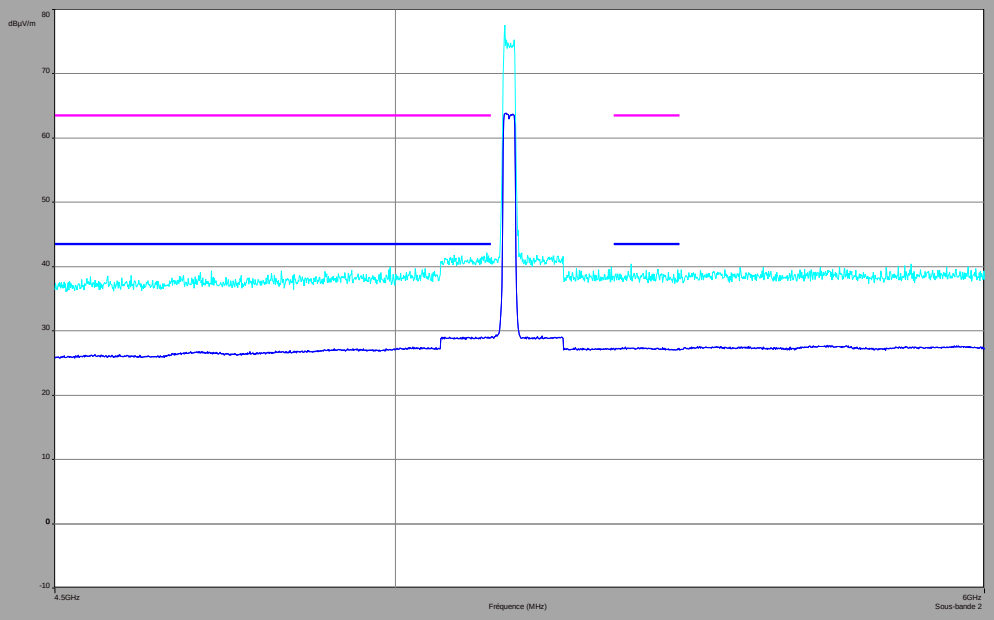
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT20
C1
vertical



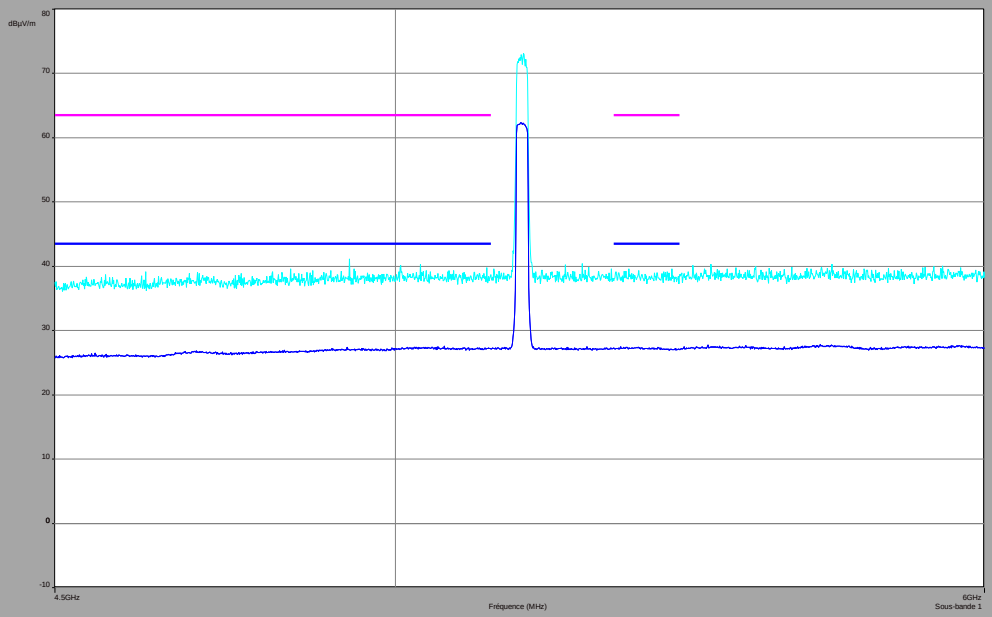
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C1
Horizontal



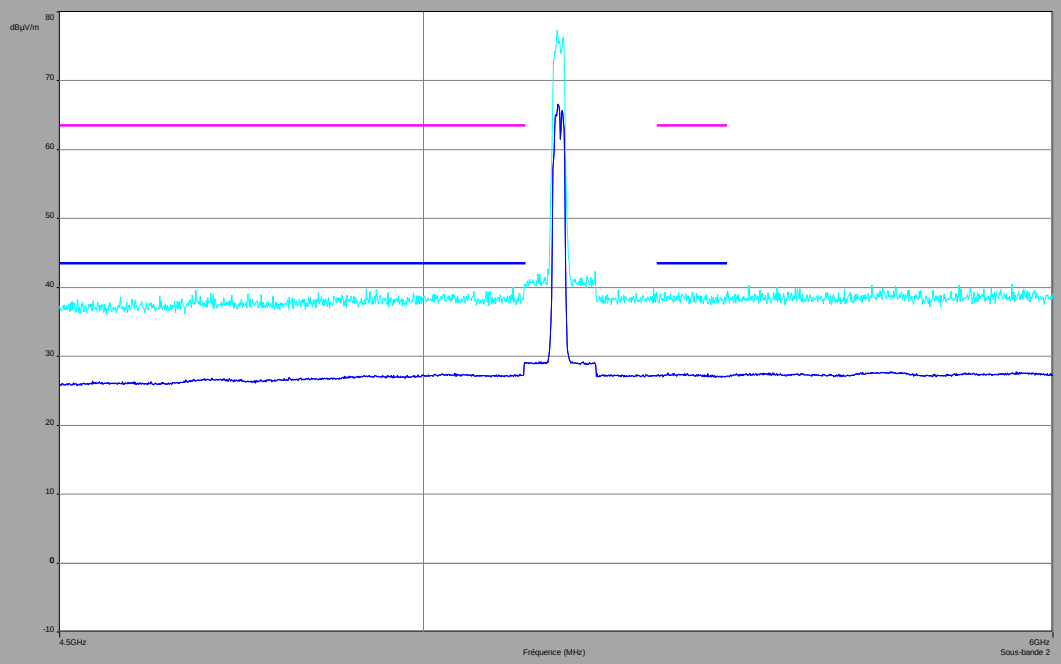
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT20
C2
vertical



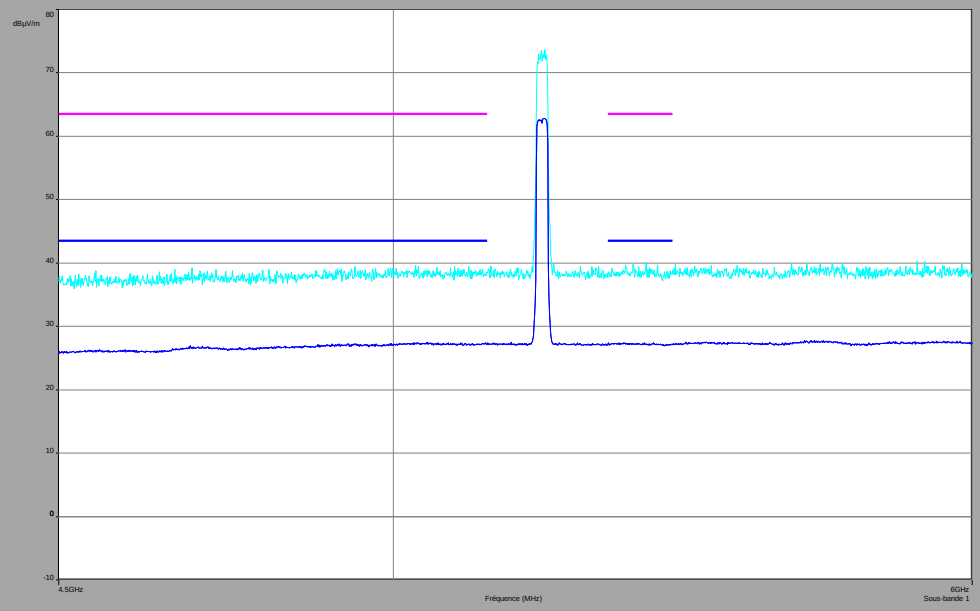
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C2
Horizontal



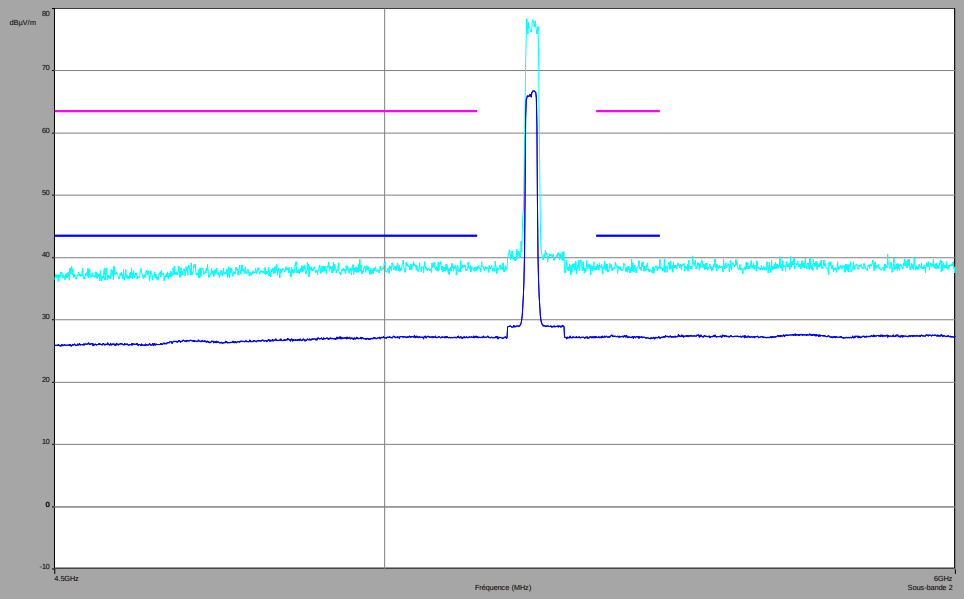
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT20
C2
vertical



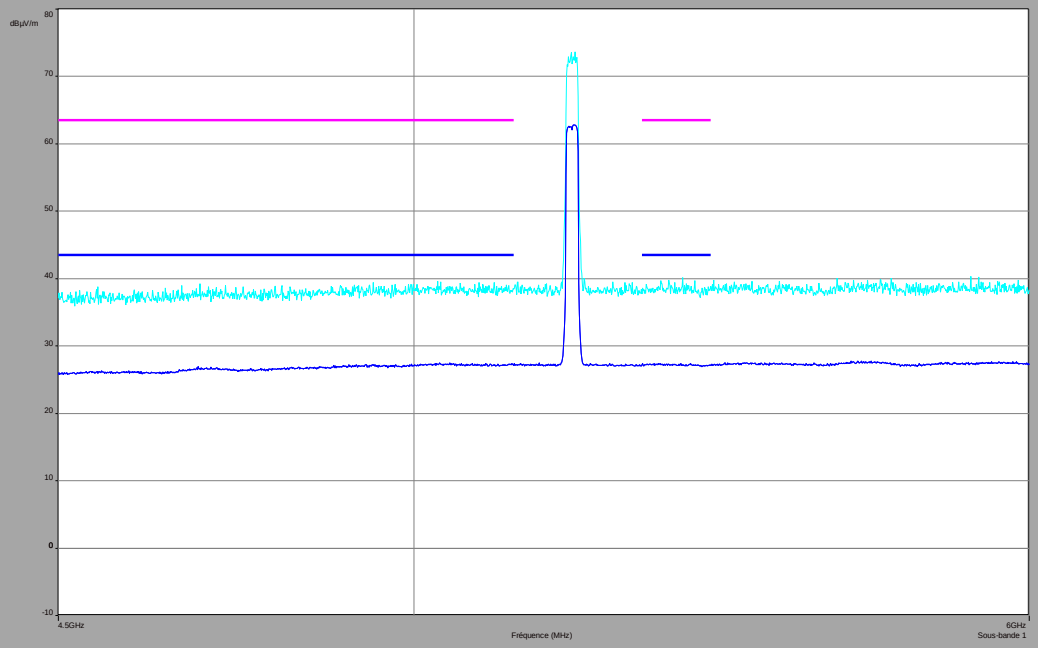
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C2
Horizontal



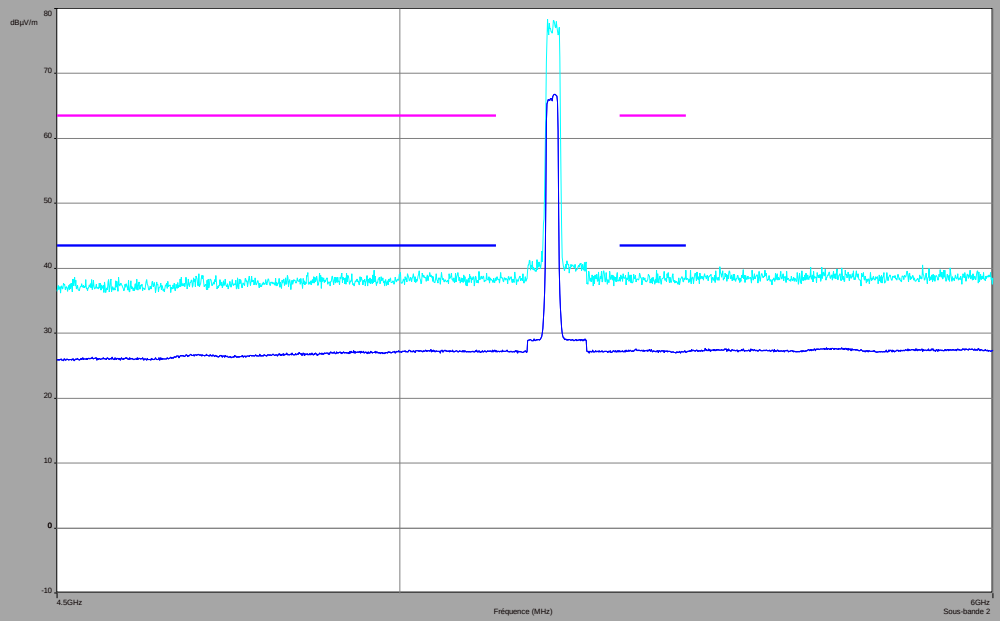
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT20
C3
vertical



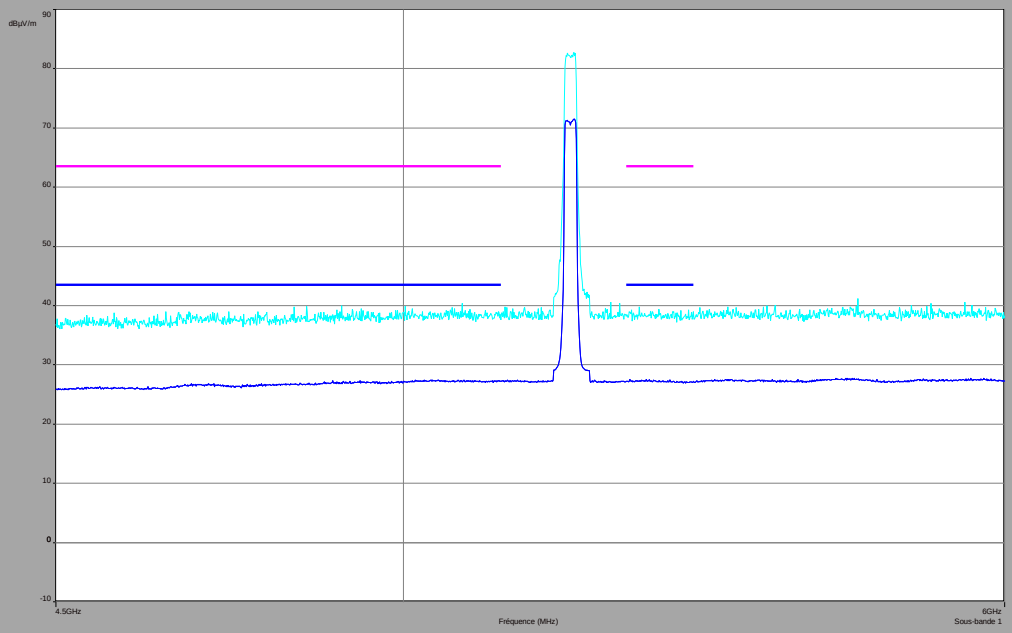
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C2
Horizontal



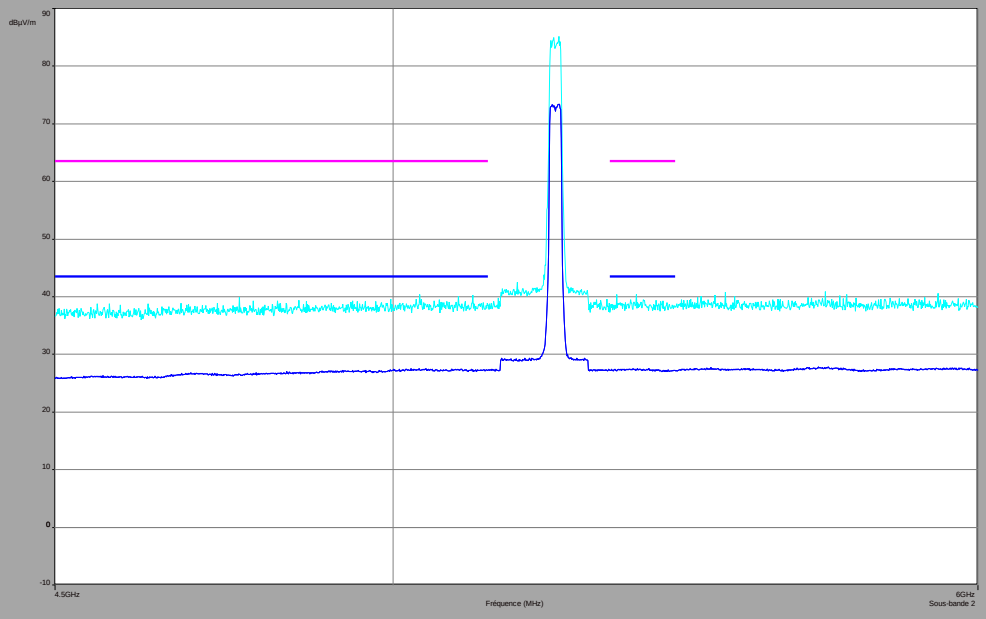
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT20
C4
vertical



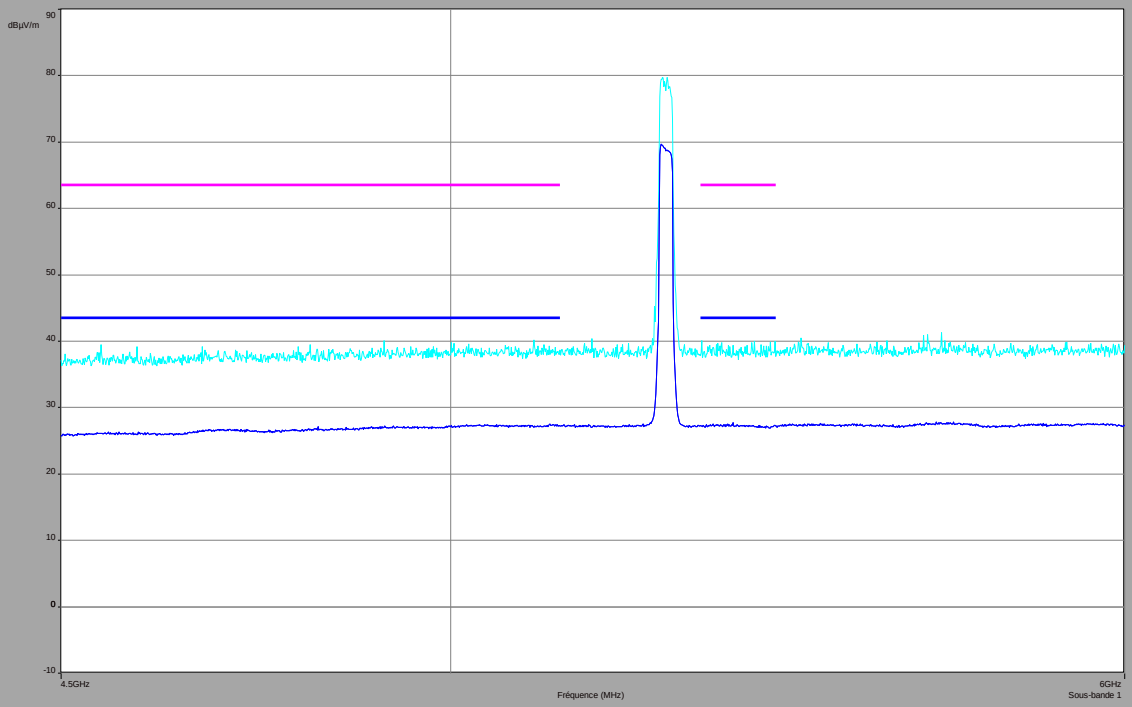
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C4
Horizontal



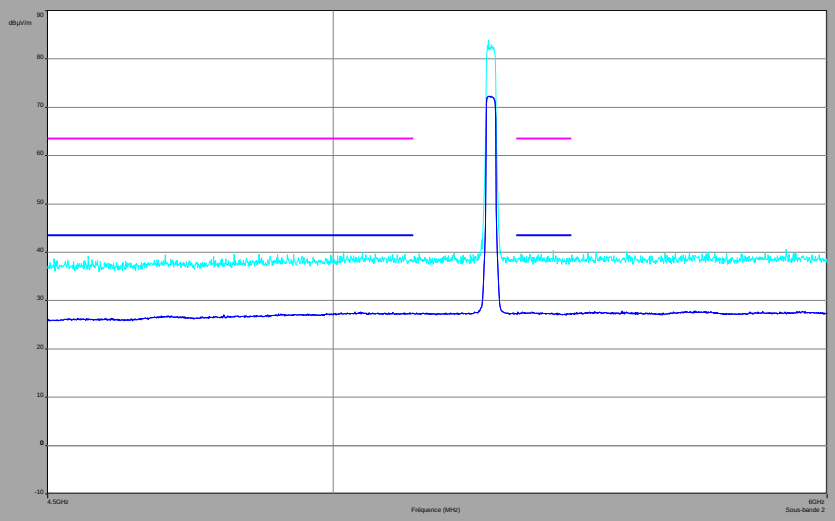
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT20
C5
vertical



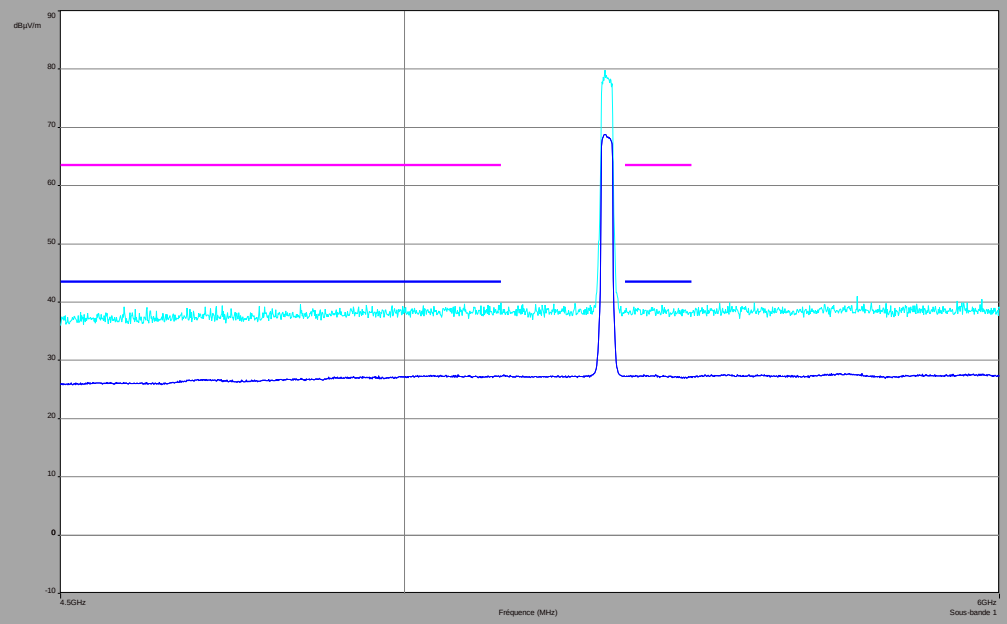
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C5
Horizontal



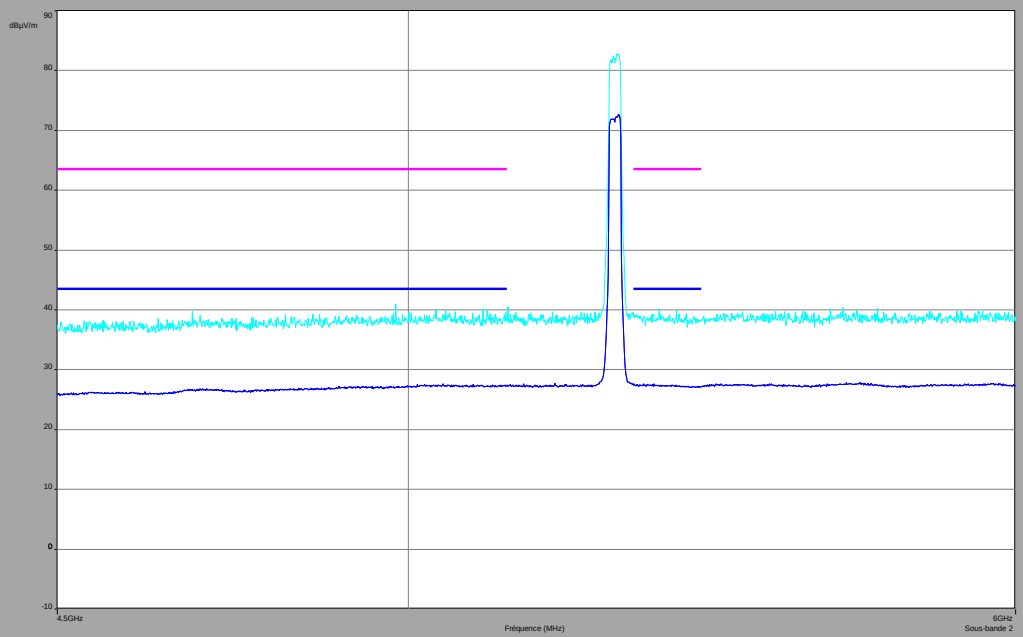
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT20
C6
vertical



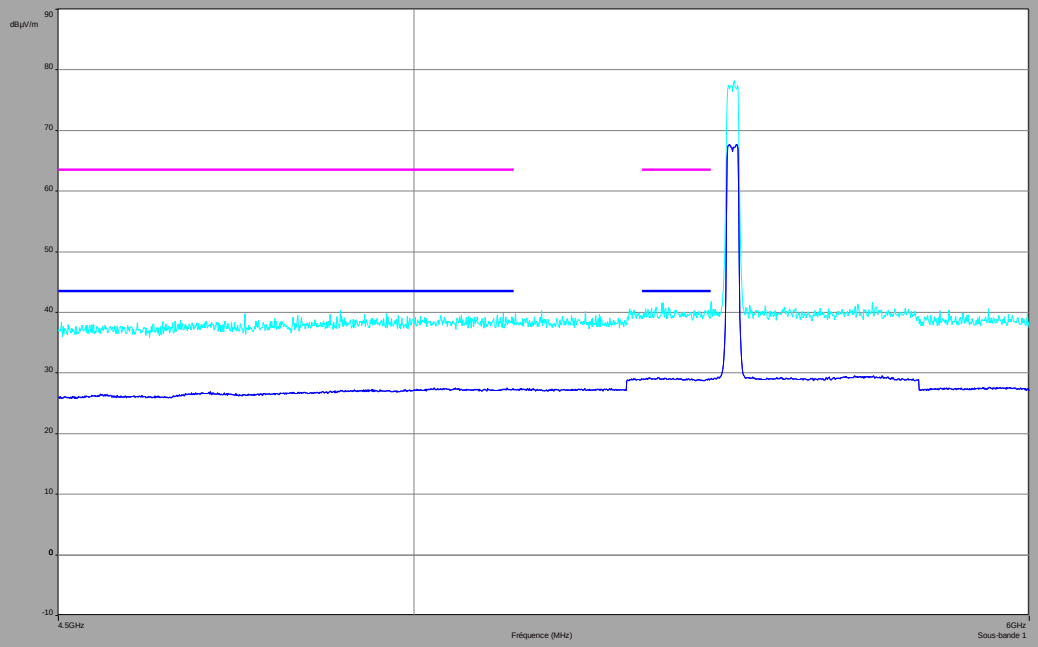
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C6
Horizontal



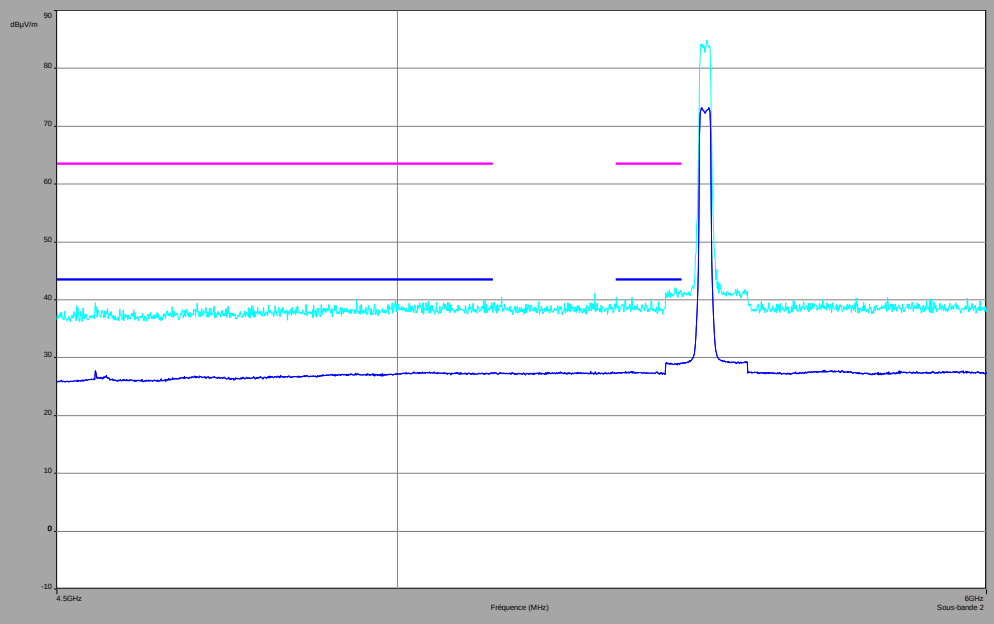
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT20
C7
vertical



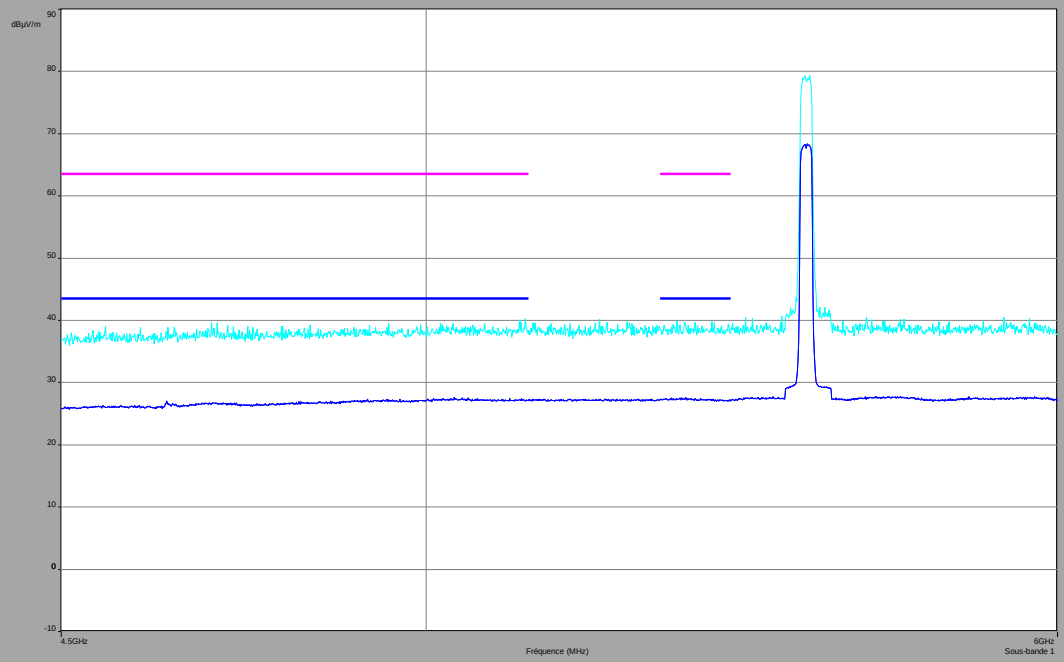
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C7
Horizontal



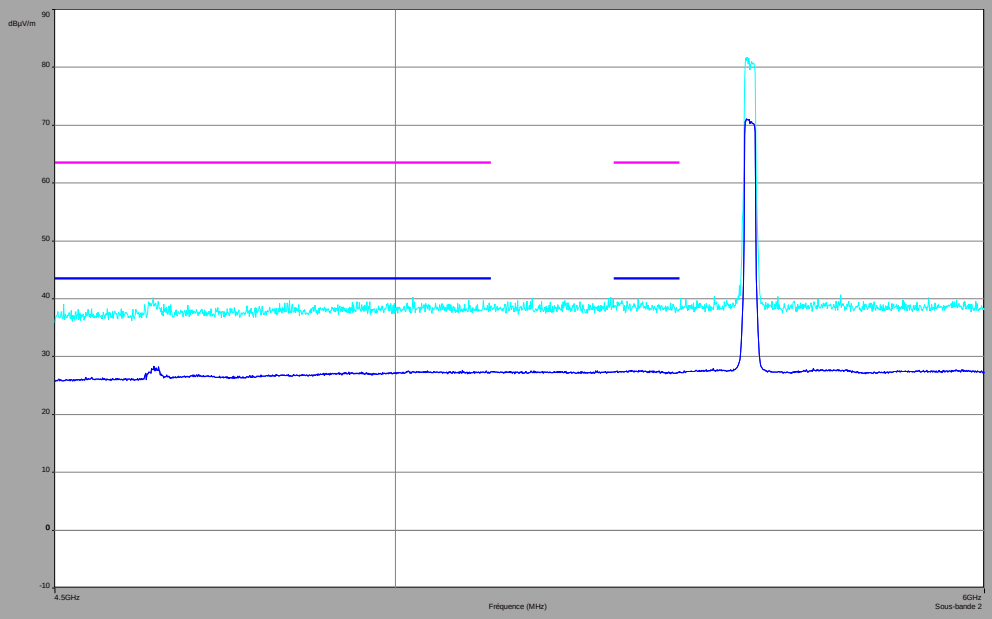
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT20
C8
vertical



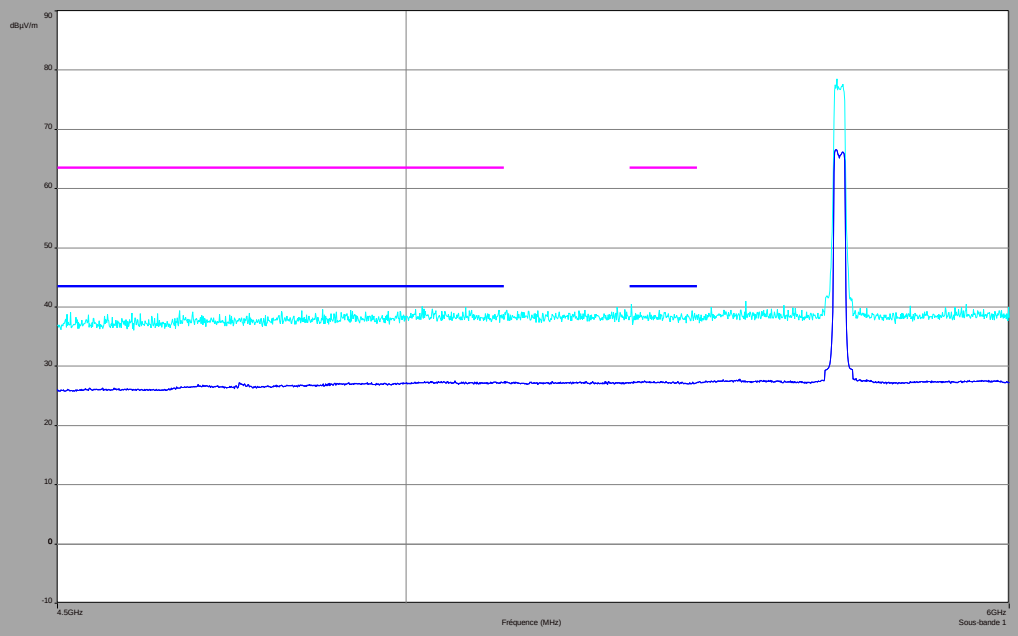
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C8
Horizontal



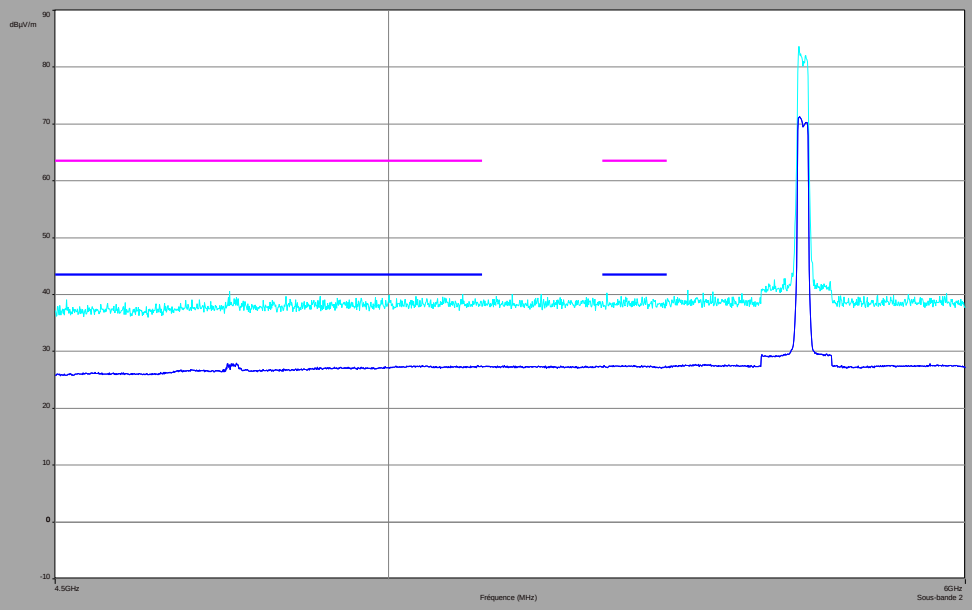
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT20
C9
vertical



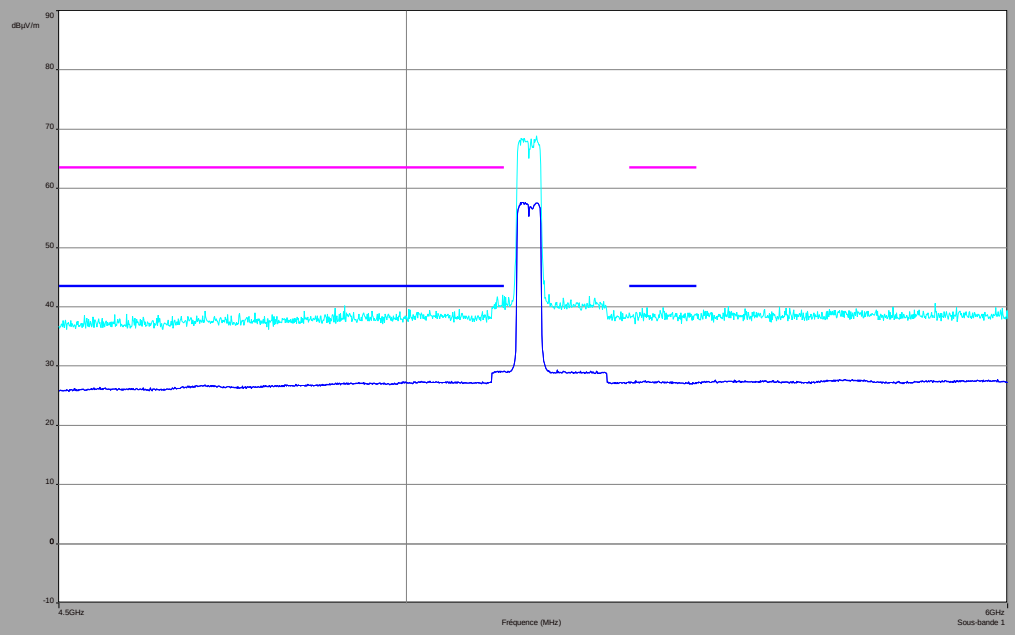
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C9
Horizontal



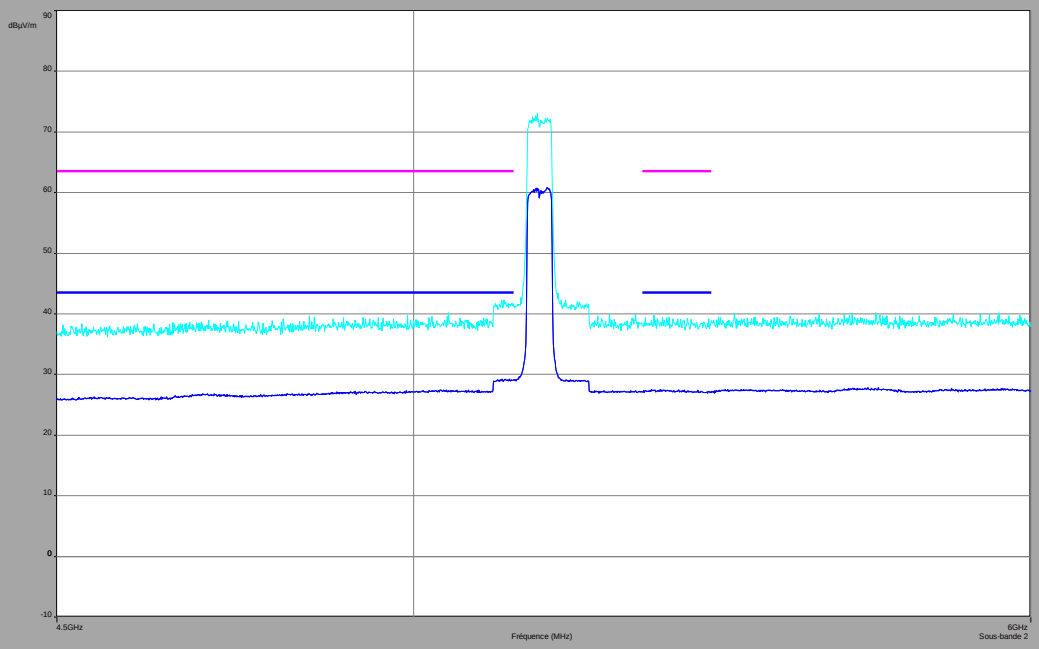
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT40
C10
vertical



FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C10
Horizontal

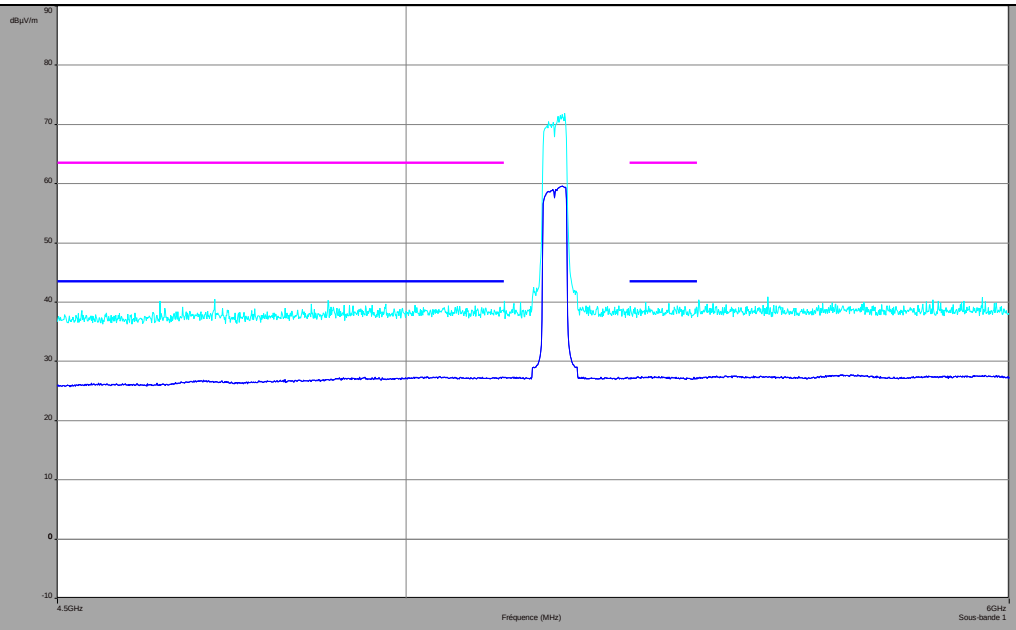


FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT40

C11

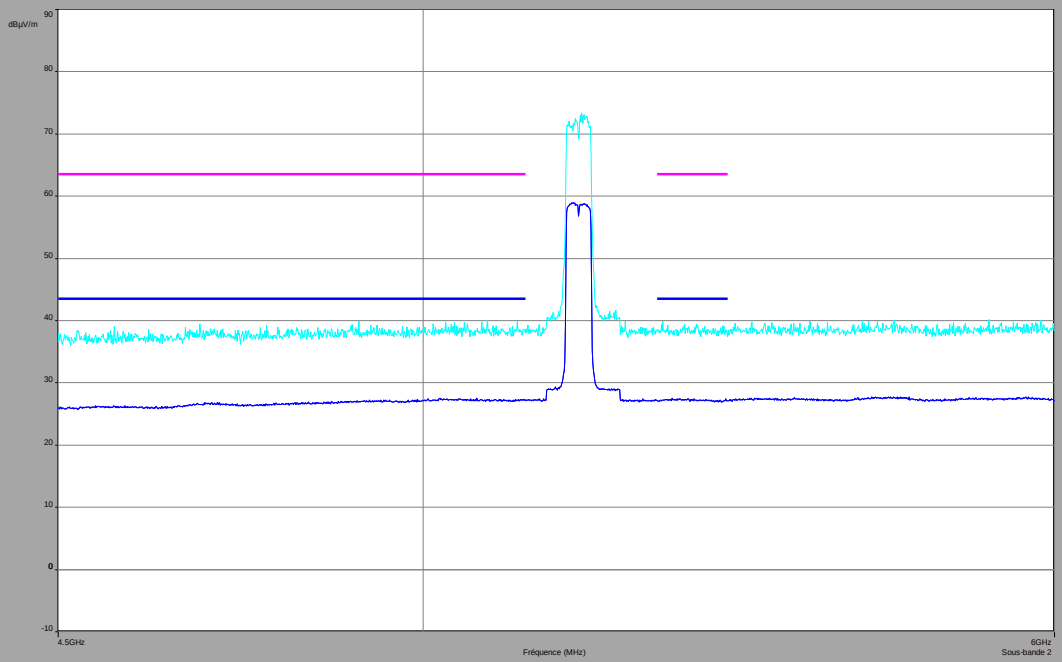
vertical



FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

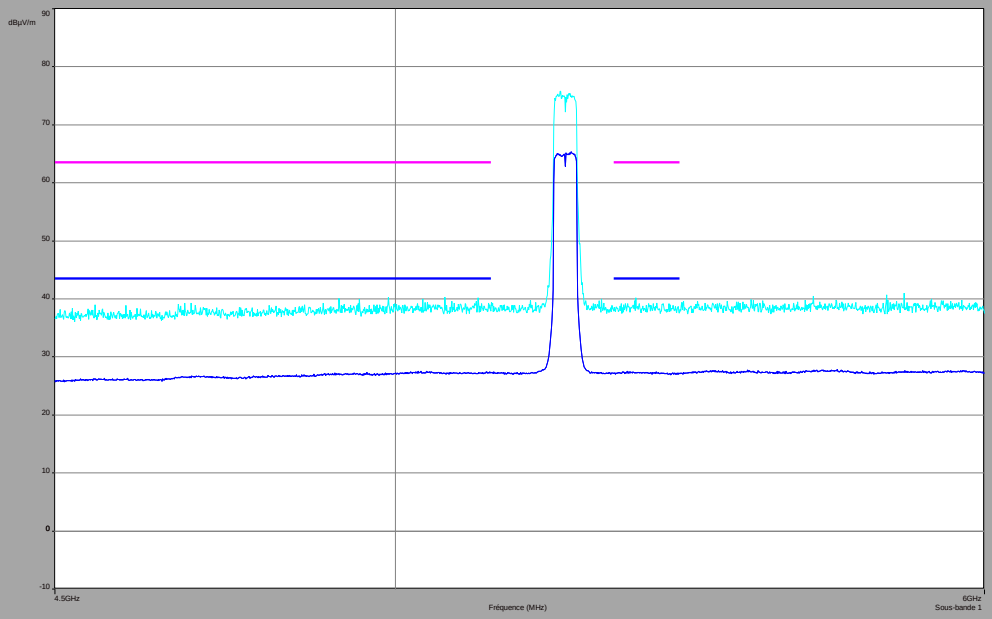
C11

Horizontal



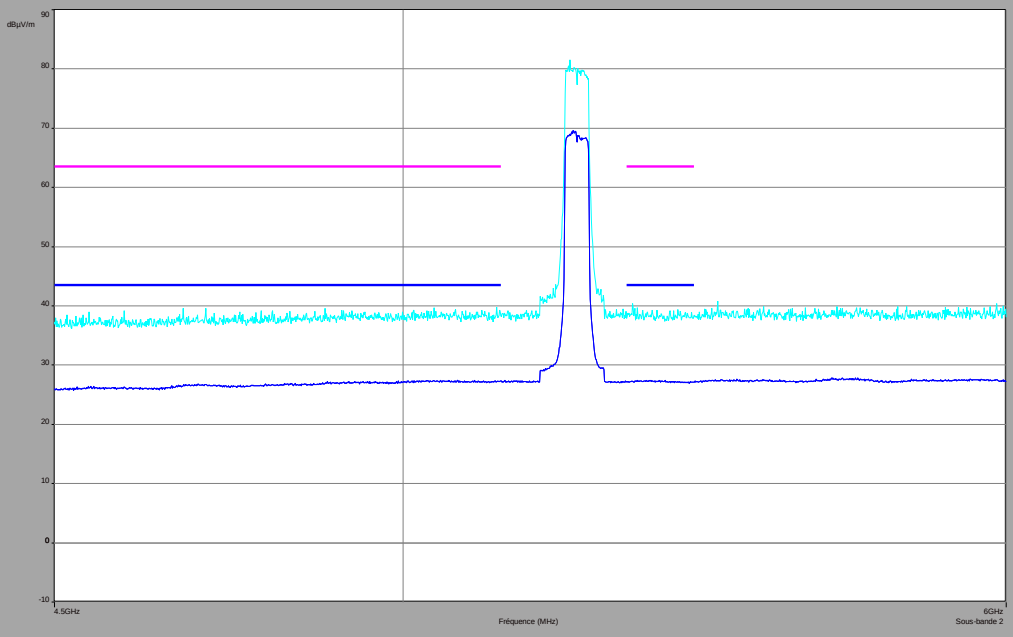
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT40
C12
vertical



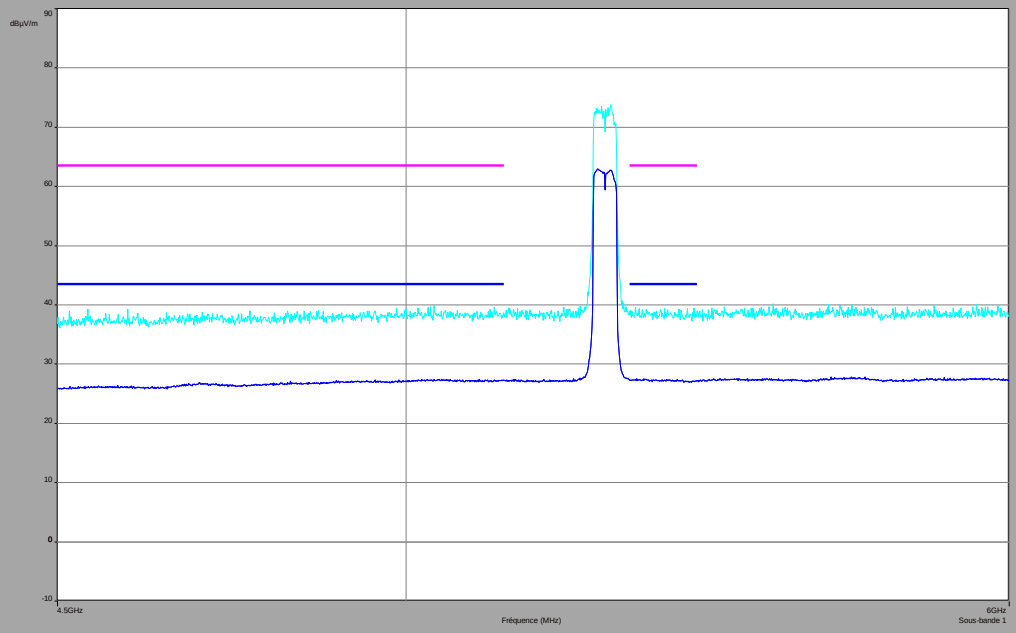
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C12
Horizontal



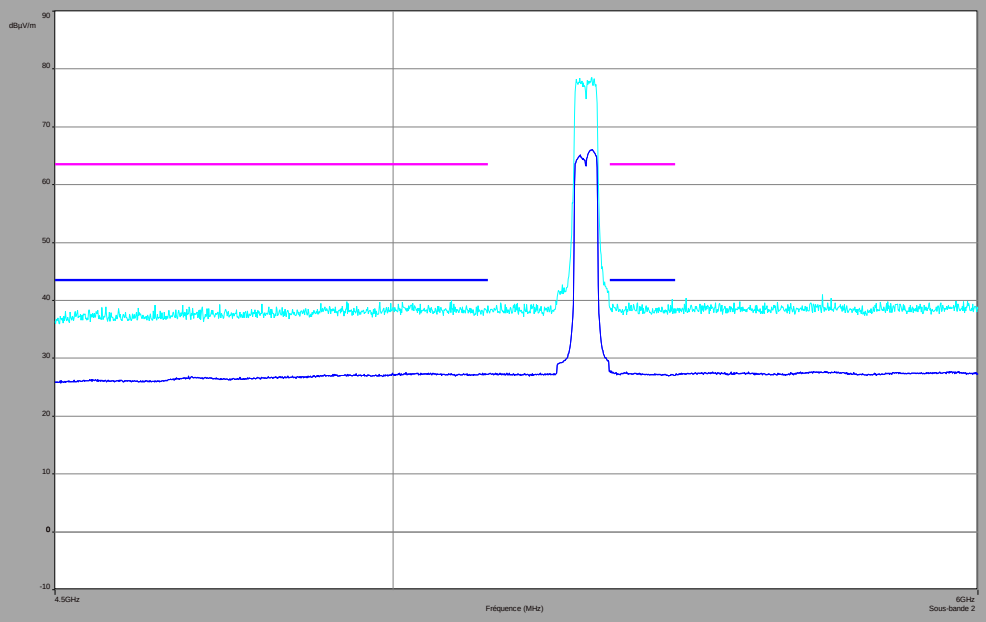
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT40
C13
vertical



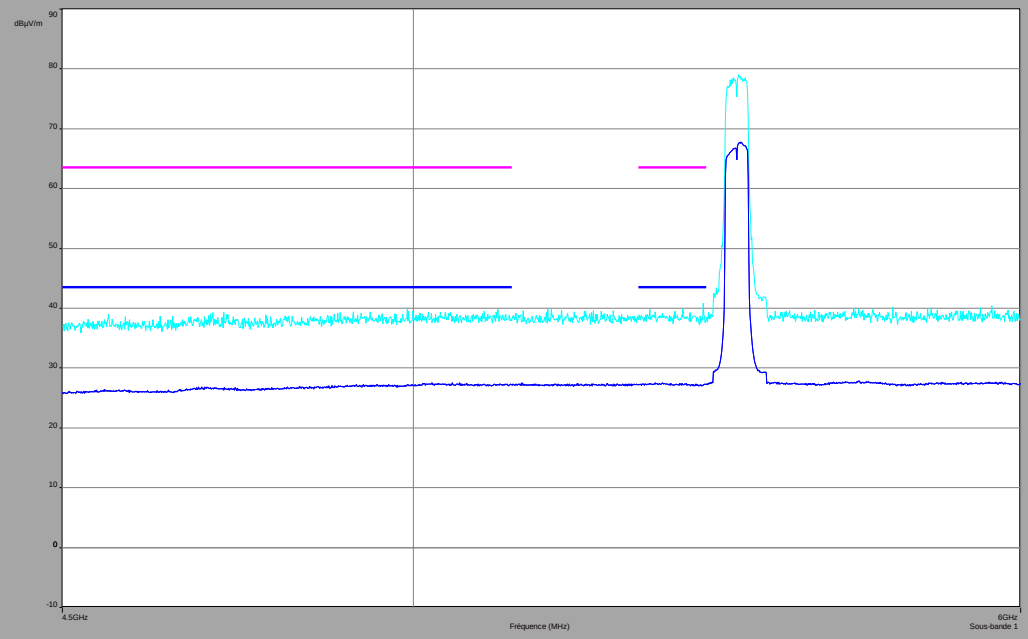
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C13
Horizontal



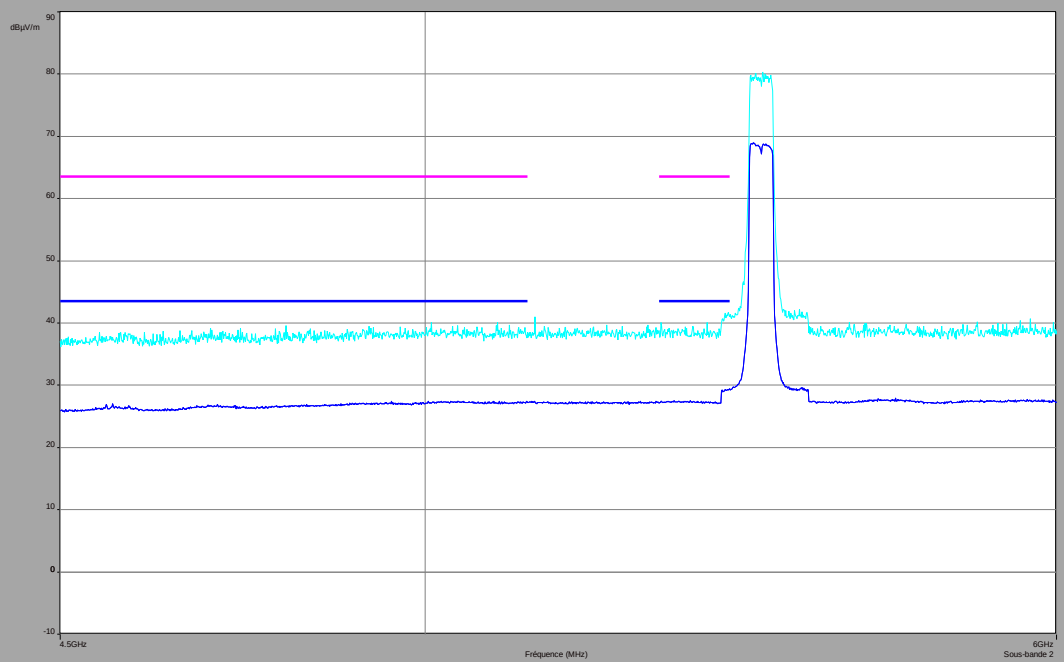
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT40
C14
vertical



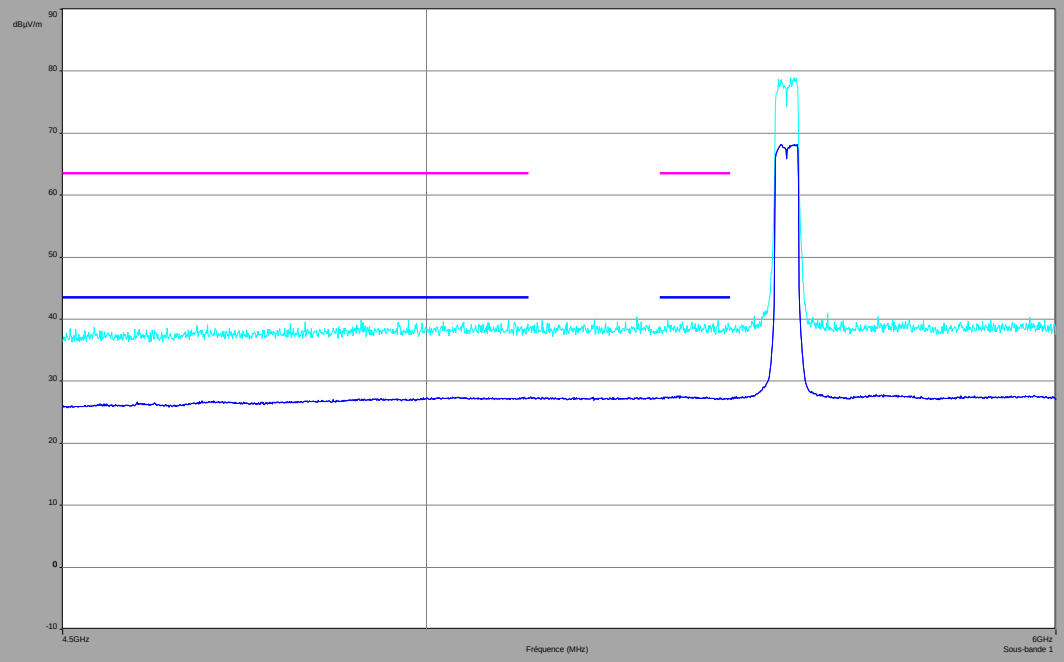
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C14
Horizontal



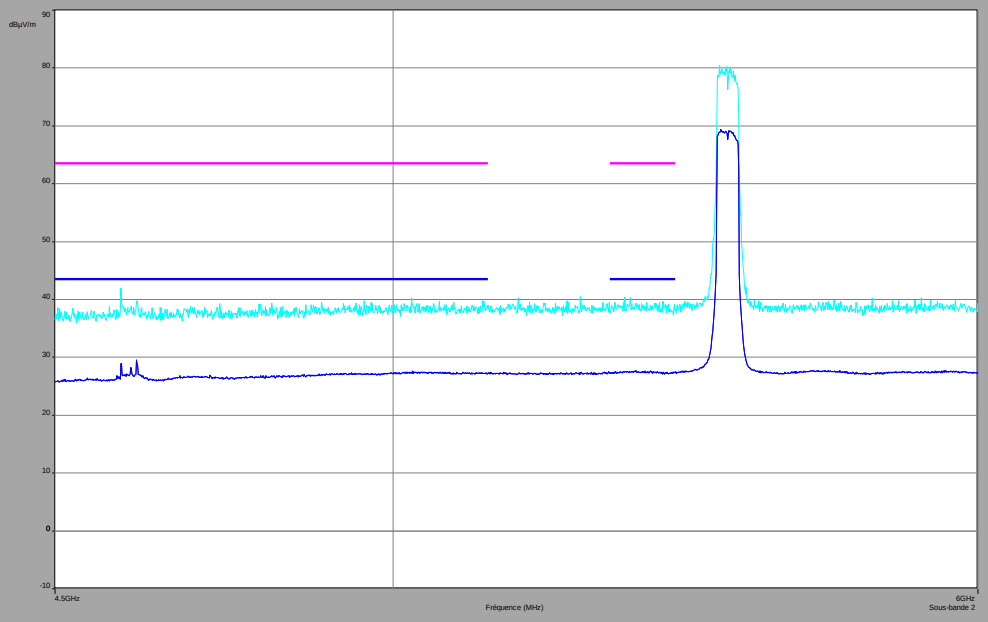
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT40
C15
vertical



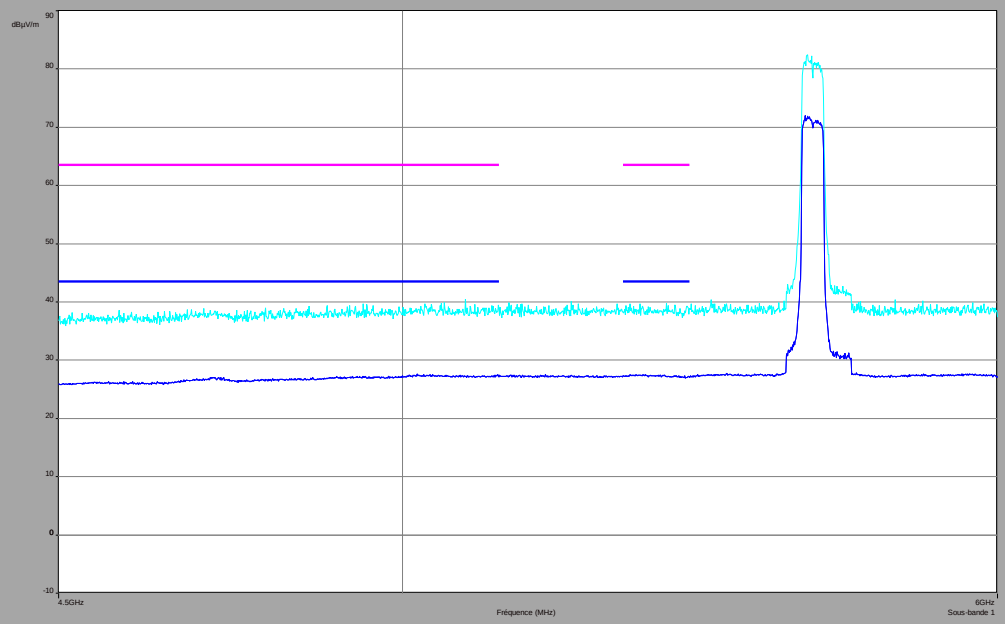
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C15
Horizontal



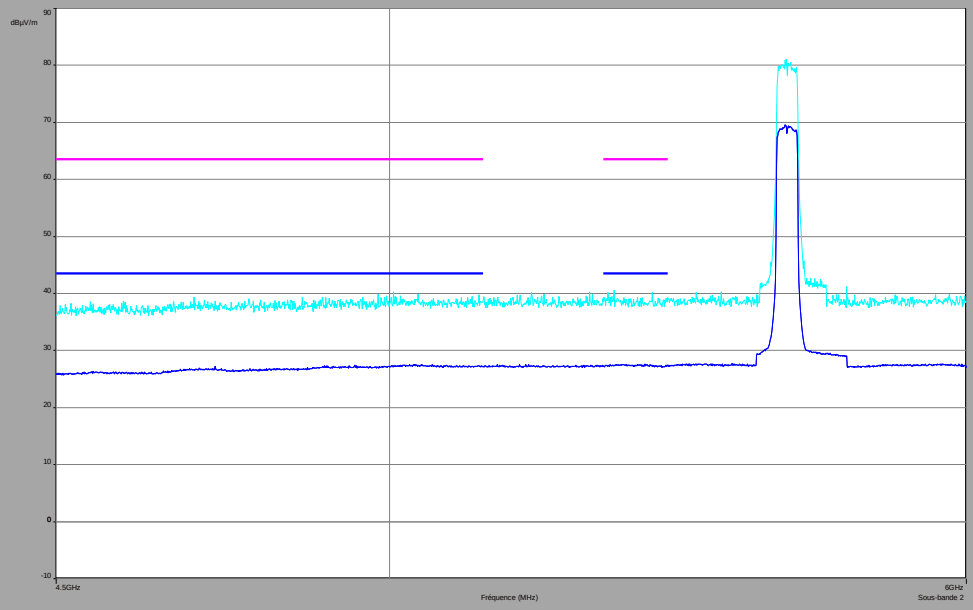
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT40
C16
vertical



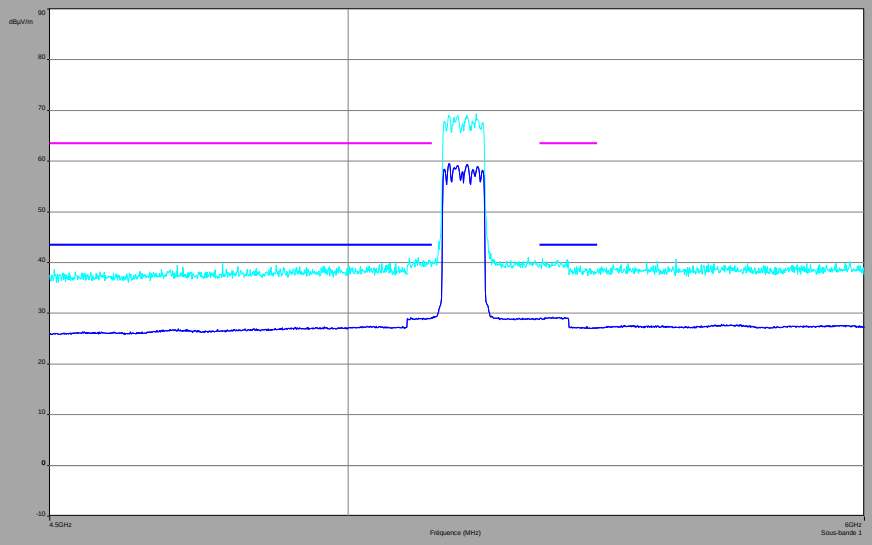
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C16
Horizontal



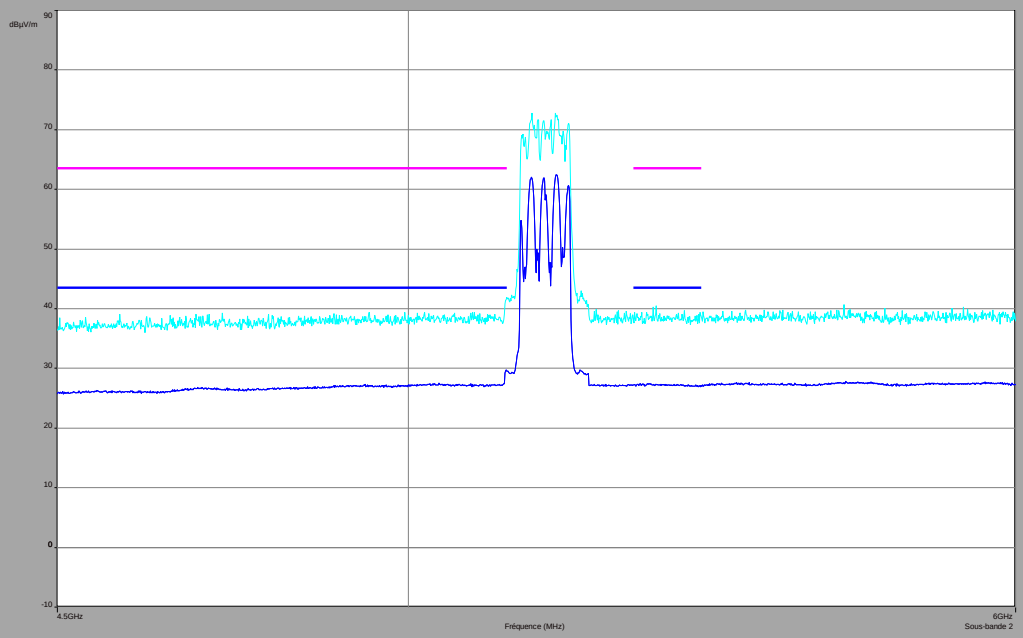
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT80
C17
vertical



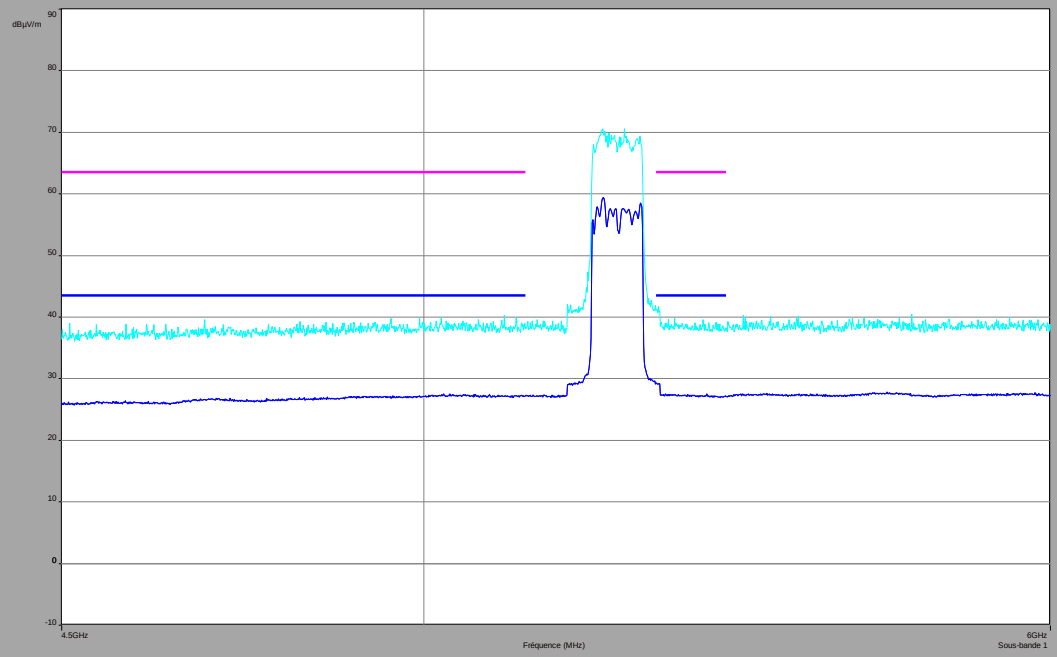
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C17
Horizontal



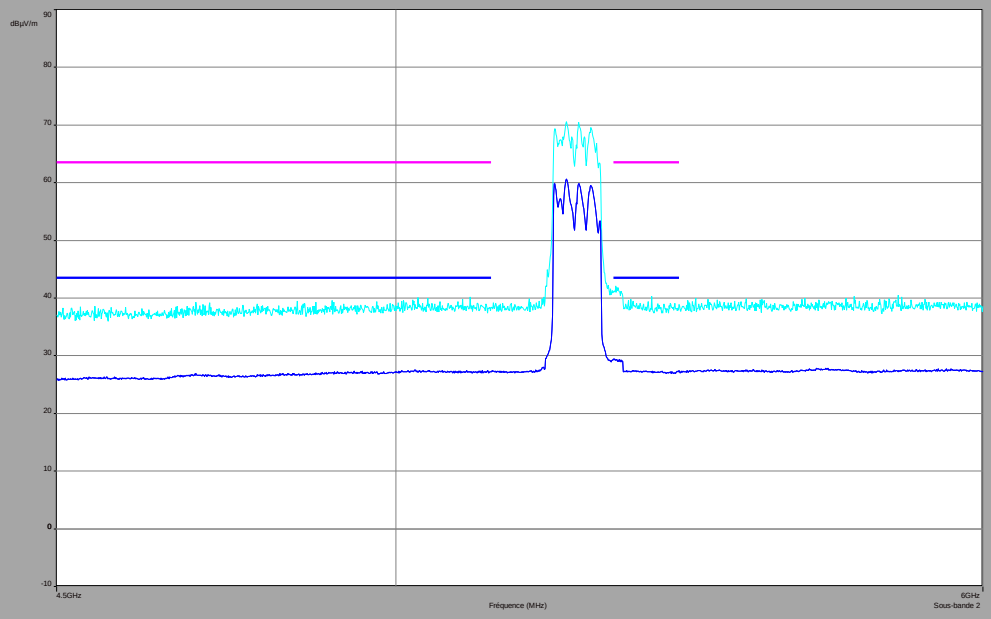
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT80
C18
vertical



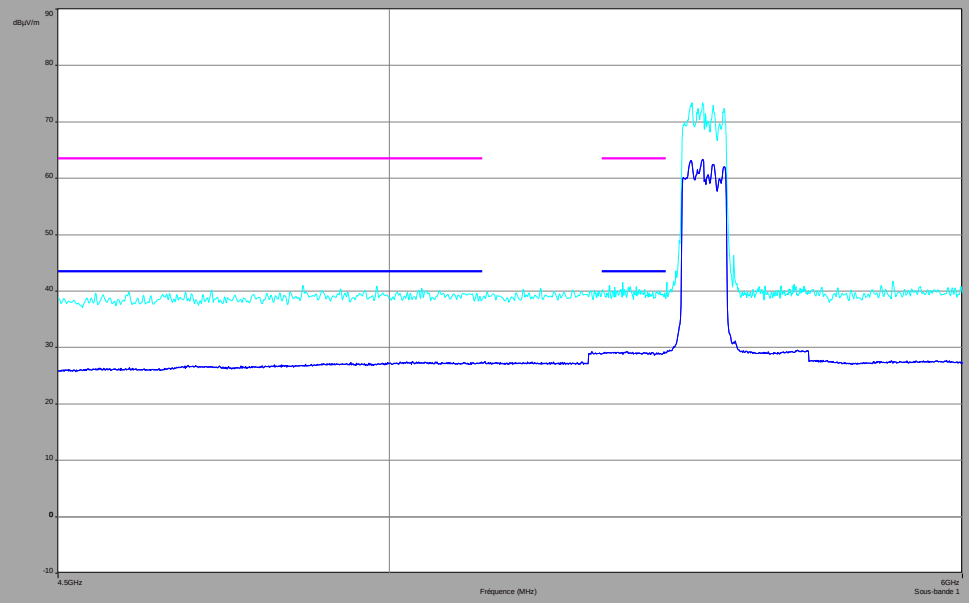
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C18
Horizontal



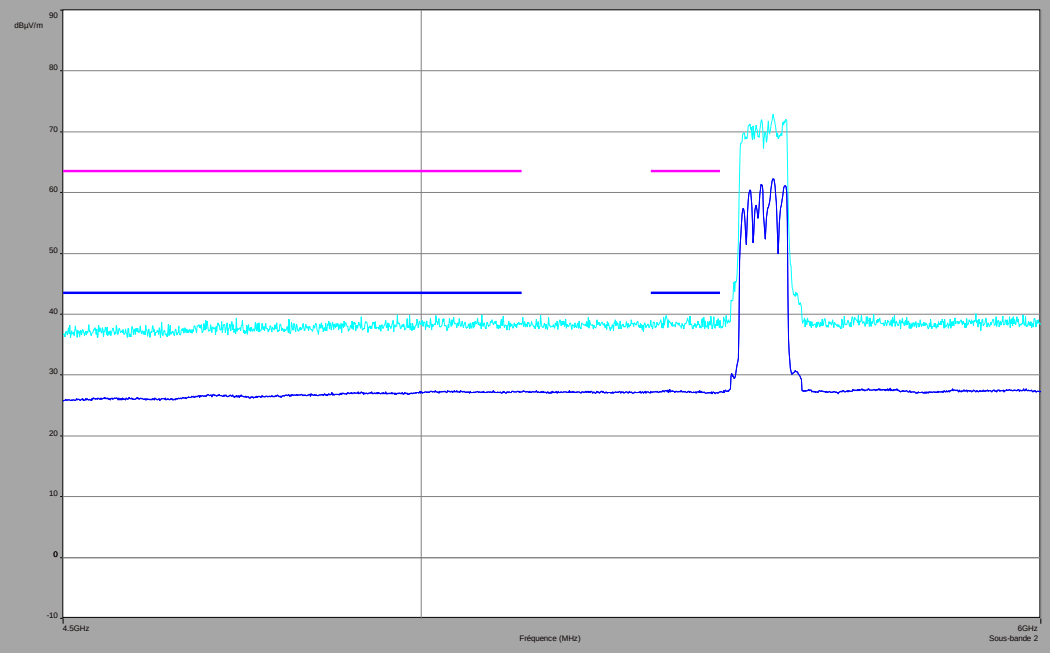
FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

802.11 n HT80
C19
vertical



FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

C19
Horizontal



FCC Part.15 restricted band – peak limit
FCC Part.15 restricted band – average value limit
Peak measurement
Average value

11. TEST EQUIPMENT LIST

Occupied Bandwidth, -26dB Bandwidth, Maximum Peak Output Power, Power Spectral Density					
Apparatus	**Trade Mark**	**Type**	**Registration number**	**Calibration date**	**Calibration due**
RF Cable	Pasternack	095 Series	A5329592	Calibrated with Power Meter & Signal Generator before use	Calibrated with Power Meter & Signal Generator before use
Attenuator	Fairviewmicrowave	SA4016	A7122212	2013/07	2014/07
Spectrum Analyser	ROHDE & SCHWARZ	FSL	A4060032	2012/11	2014/11
Signal Generator	ROHDE & SCHWARZ	SMJ100A	A544407	2013/01	2014/01
Power meter sensor	HEWLETT PACKARD	8484A	A1509070	2013/01	2014/01
Attenuator 30 dB	HEWLETT PACKARD	11708A	A7122215	2013/01	2014/01
Power supply	KIKUSUI	PCR500M	A7040079	-	-
Unwanted Emissions & Undesirable Emission limits					
Apparatus	**Trade Mark**	**Type**	**Registration number**	**Calibration date**	**Calibration due**
Open test site	LCIE	-	F2000400	2013/04	2014/04
EMI Test Receiver	ROHDE & SCHWARZ	ESU	A2642018	2013/04	2014/04
EMI Test receiver	RHODE & SCHWARZ	ESI40	A2642010	2012/09	2013/09
Preamplifier	HEWLETT PACKARD	8449B	A4069002	2012/09	2013/09
Bilog antenna	CHASE	CBL 6112A	C2040040	2013/04	2014/04
Dipole	ROHDE & SCHWARZ	HUF-Z1	C2040011	2013/03	2014/03
Logperiodic antenna	ROHDE & SCHWARZ	HL 023 A2	C2040001	2013/03	2014/03
Horn antenna	EMV	3115	C2040023	2013/04	2014/04
Horn antenna	PASTERNACK	PE9850/2F-20	C2042052	2013/02	2014/02
Horn antenna	AH SYSTEMS	SAS-572	C2042026	2012/10	2013/10
AC Power Line Conducted Emissions					
Apparatus	**Trade Mark**	**Type**	**Registration number**	**Calibration date**	**Calibration due**
Receiver	RHODE & SCHWARZ	ESU	A2642018	2013/04	2014/04
V ISLN	ROHDE & SCHWARZ	ESH2-Z5	C2322001	2013/06	2014/06
Pulse limiter	ROHDE & SCHWARZ	ESH3-Z2	A2649008	2013/02	2014/02
ground plan 2m x 3m	LCIE	-	-	-	-

12. UNCERTAINTIES CHART

Kind of test	Measurement uncertainties (k=2) ±x(dB) / (Hz)	Limit for uncertainties ±y(dB)
TRANSMITTER REQUIREMENTS		
Radio frequency	$\pm 2.10^{-8}$ Hz	$\pm 1.10^{-7}$ Hz
RF Conducted power	±0.6 dB	±1.5 dB
Spurious emissions • Frequency < 1000 MHz • Frequency > 1000 MHz	 ±3.9 dB ±3.1 dB	±6 dB
Spurious in conduction	±1.6 dB	±3 dB
Temperature	±0.5°C	±1°C
Humidity	±2.5 %	±10 %
RECEIVER REQUIREMENTS		
Spurious emissions • Frequency < 1000 MHz • Frequency > 1000 MHz	 ±3.9 dB ±3.1 dB	±6 dB