FCC 47 CFR PART 15 SUBPART C: 2012 AND ANSI C63.4:2009 TEST REPORT

For

AC 750Mbps Dual-Band Wireless Router

Model : BR261c

Trade Name : Sapido

Issued for

Sapido Technology Inc.

1F., No. 383., Sec. 2, Minsheng Rd., West Central District, Tainan 700, Taiwan, R.O.C.

Issued by

Compliance Certification Services Inc.
Tainan Lab.
No.8,Jiucengling, Xinhua Dist., Tainan City 712, Taiwan (R.O.C.)
TEL: 886-6-580-2201
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Issued Date: March 06, 2014

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	March 06, 2014	Initial Issue	ALL	Sunny Chang

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TITLE PAGE NO.

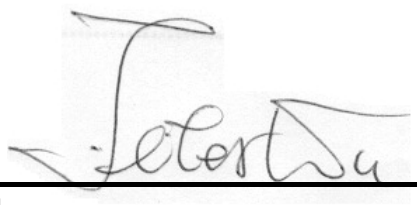
1. TEST REPORT CERTIFICATION

Applicant	：Sapido Technology Inc.
Address	：1F., No. 383., Sec. 2, Minsheng Rd., West Central District, Tainan 700, Taiwan, R.O.C.
Manufacturer	：E-TOP Navigator Technology Inc.
Address	：No.82, Gongye 2nd Rd., Annan Dist., Tainan City 709, Taiwan (R.O.C.)
Equipment Under Test	：AC 750Mbps Dual-Band Wireless Router
Model Number	：BR261c
Brand Name	：Sapido
Date of Test	：December 05, 2013 ~ December 29, 2014

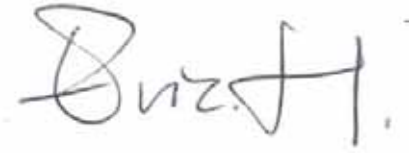
APPLICABLE STANDARD	
Standard	**Test Result**
FCC Part 15 Subpart C: 2012 AND ANSI C63.4:2009	PASS

WE HEREBY CERTIFY THAT: The above equipment has been tested by Compliance Certification Services Inc., and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by: ***Reviewed by:***



Jeter Wu
Assistant Manager



Eric Huang
Assistant Section Manager

2. EUT DESCRIPTION

Product Name	AC 750Mbps Dual-Band Wireless Router
Model Number	BR261c
Brand Name	Sapido
Identify Number	T140211N91
Received Date	December 05, 2013
Frequency Range	IEEE 802.11b/g, 802.11n HT20 : 2412MHz 2462MHz IEEE 802.11n HT40 : 2422MHz 2452MHz IEEE 802.11a, IEEE 802.11n HT20 : 5745MHz ~ 5825MHz IEEE 802.11n HT40 : 5755MHz ~ 5795MHz IEEE 802.11ac VHT80 : 5775MHz
Transmit Power	IEEE 802.11b (2412MHz 2462MHz) : 12.83 dBm IEEE 802.11g (2412MHz 2462MHz) : 15.59 dBm IEEE 802.11n HT20 (2412MHz 2462MHz) : 17.44 dBm IEEE 802.11n HT40 (2422MHz 2452MHz) : 16.50 dBm IEEE 802.11a (5745MHz ~ 5825MHz) : 24.50 dBm IEEE 802.11n HT20 (5745MHz ~ 5825MHz) : 24.54 dBm IEEE 802.11n HT40 (5755MHz ~ 5795MHz) : 23.79 dBm IEEE 802.11ac VHT80 (5775MHz) : 23.44 dBm
Channel Spacing	IEEE 802.11b/g, 802.11n HT20/HT40 : 5MHz IEEE 802.11a, 802.11n HT20 : 20MHz IEEE 802.11n HT40 : 20MHz IEEE 802.11ac VHT80 : 20MHz
Channel Number	IEEE 802.11b/g, 802.11n HT20 : 11 Channels IEEE 802.11n HT40 : 7 Channels IEEE 802.11a, 802.11n HT20 : 5 Channels IEEE 802.11n HT40 : 2 Channels IEEE 802.11ac VHT80 : 1 Channels

Transmit Data Rate	2.4GHz IEEE 802.11b：11, 5.5, 2, 1 Mbps IEEE 802.11g：54, 48 ,36, 24, 18, 12, 9, 6 Mbps IEEE 802.11n HT20： (MCS0-MCS7) 7.2M、14.4M、21.7M、28.9M、43.3M、57.8M、65M、72Mbps (MCS8-MCS15) 14.4M、28.9M、43.3M、57.8M、86.7M、115.6M、130M、144.4Mbps IEEE 802.11n HT40： (MCS0-MCS7) 15M、30M、45M、60M、90M、120M、135M、150Mbps (MCS8-MCS15) 30M、60M、90M、120M、180M、240M、270M、300Mbps 5GHz IEEE 802.11a：54, 48 ,36, 24, 18, 12, 9, 6 Mbps IEEE 802.11n HT20： (MCS0-MCS8) 7.2M、14.4M、21.7M、28.9M、43.3M、57.8M、65M、72.2M、 86.7Mbps IEEE 802.11n HT40： (MCS0-MCS9) 15M、30M、45M、60M、90M、120M、135M、150、180、200Mbps IEEE 802.11ac VHT80： (MCS0-MCS9) 32.5M、65M、97.5M、130M、195M、260M、292.5M、325M、390、433.3Mbps
Type of Modulation	DSSS (CCK, DQPSK, DBPSK) for 802.11b OFDM (64QAM, 16QAM, QPSK, BPSK) for 802.11g, 802.11n HT20/40 , 802.11ac HT20/HT40/HT80
Antenna Type	**2.4GHz Antenna*2pcs (2T2R)** Manufacture: ARISTOTLE ENTERPRIESE INC. Type: Dipole Model: RFA-02-8-Y8M3L-C603 & RFA-02-8-Y8M3R-C603 Gain 8dBi **5GHz Antenna*1pcs (1T1R)** Manufacture: ARISTOTLE ENTERPRIESE INC. Type: Dipole Model: RFA-25-T173-B32-C603 Gain 7dBi
Power Rating	12Vdc; 1.2A(Powered from Adapter)
Test Voltage	120Vac, 60Hz

Power Adapter :

No.	Manufacturer	Model No.	Power Input	Power Output
1	Sapido	AD122p	100-240Vac, 50/60Hz, 0.5A	12Vdc, 1.2A

Remark :

1. *The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*
2. *For more details, please refer to the User's manual of the EUT.*
3. *This submittal(s) (test report) is intended for FCC ID: **2ABUQ-BR261C** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.*

4. To add a series model is for business necessary. The different of the each model is shown as below:

Multiple Listing:

Company Name / Address	Brand Name	Model Name	Product Name
Sapido Technology Inc. 1F , No. 383., Sec. 2, Minsheng Rd., West Central District, Tainan 700, Taiwan, R.O.C.	Sapido	BR261c GR267c	AC 750Mbps Dual-Band Wireless Router AC 1200Mbps Giga Dual-Band Wireless Router
Amigo Technology Inc. 5F., No.63, Lane 77, Xing-Ai Road, Neihu Dist., Taipei City 114, Taiwan (R.O.C.)	Amigo	BR261c GR267c	AC 750Mbps Dual-Band Wireless Router AC 1200Mbps Giga Dual-Band Wireless Router

3. DESCRIPTION OF TEST MODES

Conducted Emission / Radiated Emission Test (Below 1 GHz)

1. The following test modes were scanned during the preliminary test:

No.	Pre-Test Mode
1	TX Mode

2. After the preliminary scan, the following test mode was found to produce the highest emission level.

Final Test Mode		
Emission	Radiated Emission	TX Mode
	Conducted Emission	TX Mode

Remark : *Then, the above highest emission mode of the configuration of the EUT and cable was chosen for all final test items.*

Conducted / Radiated Emission Test (Above 1 GHz)

IEEE 802.11b, 802.11g, 802.11n HT20 mode

The EUT had been tested under operating condition.

There are three channels have been tested as following :

Channel	Frequency (MHz)
Low	2412
Middle	2437
High	2462

IEEE 802.11b mode : 1Mbps data rate (worst case) were chosen for full testing.

IEEE 802.11g mode : 6Mbps data rate (worst case) were chosen for full testing.

IEEE 802.11n HT20 mode : 14.4Mbps data rate (worst case) were chosen for full testing.

IEEE 802.11n HT40 mode

The EUT had been tested under operating condition.

There are three channels have been tested as following :

Channel	Frequency (MHz)
Low	2422
Middle	2437
High	2452

IEEE 802.11n HT40 mode : 30Mbpss data rate (worst case) were chosen for full testing.

IEEE 802.11a, 802.11n HT20 mode

The EUT had been tested under operating condition.

There are three channels have been tested as following :

Channel	Frequency (MHz)
Low	5745
Middle	5785
High	5825

IEEE 802.11a mode : 6Mbps data rate (worst case) were chosen for full testing.

IEEE 802.11n HT20 mode : 7.2Mbps data rate (worst case) were chosen for full testing.

IEEE 802.11n HT40 mode

The EUT had been tested under operating condition.

There are three channels have been tested as following :

Channel	Frequency (MHz)
Low	5755
High	5795

IEEE 802.11n HT40 mode : 15Mbp data rate (worst case) were chosen for full testing.

IEEE 802.11ac VHT80 mode

The EUT had been tested under operating condition.

There are three channels have been tested as following :

Channel	Frequency (MHz)
Middle	5775

IEEE 802.11n HT40 mode : 32.5Mbp data rate (worst case) were chosen for full testing.

While all conducted test the spectrum / power meter was connected to the Booster RF-out for 2.4GHz and the chain 1 of WiFi module for 5GHz.

4. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4: 2009 and FCC CFR 47, 15.207, 15.209 , 15.247 and KDB 558074.

5. FACILITIES AND ACCREDITATION

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

No.8,Jiucengling, Xinhua Dist., Tainan City 712, Taiwan (R.O.C.)

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI

C63.4 and CISPR Publication 22.

5.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

Taiwan	TAF

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	Industry Canada
Germany	TUV NORD
Taiwan	BSMI
USA	FCC

Copies of granted accreditation certificates are available for downloading from our web site, http:///www.ccsrf.com

5.3 MEASUREMENT UNCERTAINTY

The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4-2.

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz Test Site : OATS-6	±3.38dB
Radiated Emission, 200 to 1000 MHz Test Site : OATS-6	±3.04dB
Radiated Emission, 1 to 26.5 GHz	± 3.20dB
Power Line Conducted Emission	± 2.01dB

Uncertainty figures are valid to a confidence level of 95%, K=2

6. SETUP OF EQUIPMENT UNDER TEST

SUPPORT EQUIPMENT

For RF test

No.	Product	Manufacturer	Model No.	Certify No.	Signal cable
1	Note Book	IBM	T43	DoC	Power cable, unshd, 1.6m

No.	Signal cable description	
A	DC Power	Unshielded, 1.2m, 1pcs
B	LAN Cable	Unshielded, 10m, 1pcs

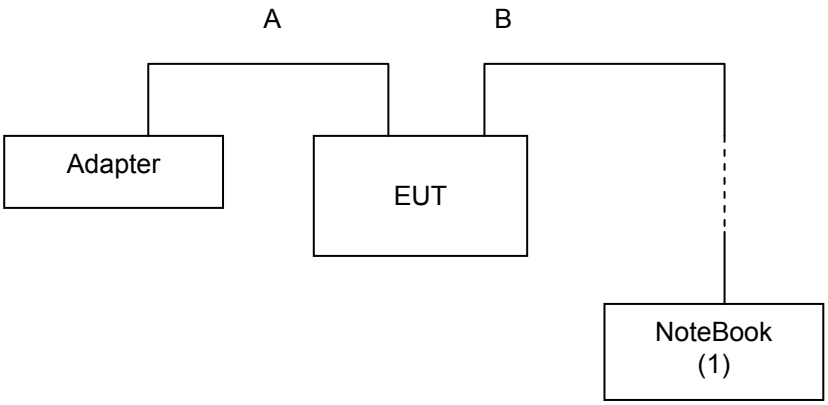
For EMI test

No.	Product	Manufacturer	Model No.	Certify No.	Signal cable
1	Notebook	Acer	AS 3830TG	DOC	Power cable, unshd, 1.6m
2	Notebook	TOSHIBA	Satellite L730	DOC	Power cable, unshd, 1.6m
3	3G Modem	NOVATEL	Qualcomm 3G CDMA	PKRNVWMC727	N/A
4	HUB	BARRICAD	SMC7008BR	DOC	Power cable, unshd, 1.6m

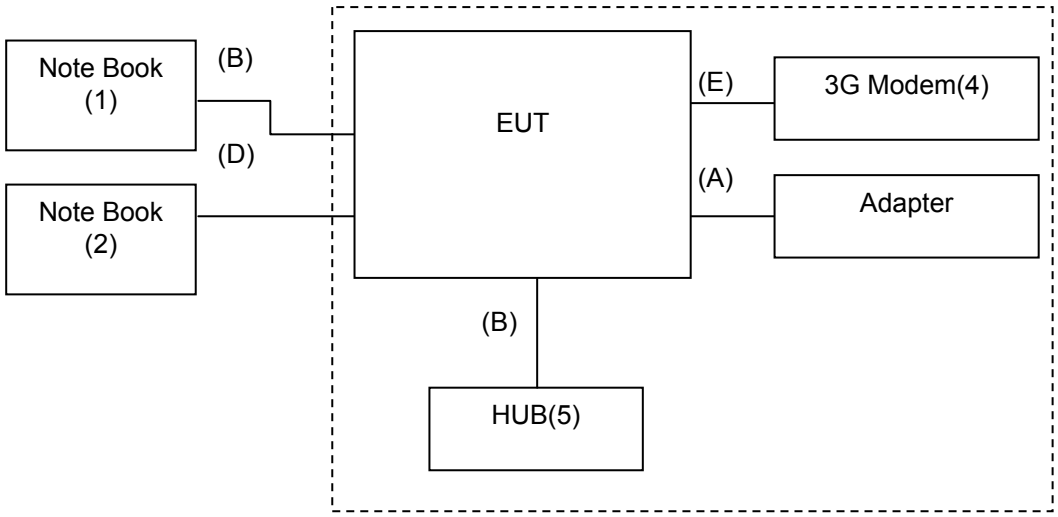
No.	Signal cable description	
A	Power	Unshielded, 1.2m, 1pcs.
B	LAN	Unshielded, 3m, 3pcs.
C	LAN	Unshielded, 10m, 1pcs.
D	LAN	Unshielded, 10m, 1pcs.
E	USB	Shielded, 0.2m, 1pcs.

SETUP DIAGRAM FOR TESTS

For RF test



For EMI test



EUT OPERATING CONDITION

RF Setup (2.4G)

1. Set up all computers like the setup diagram.
2. The Test Program “MP_test” software was used for testing.

TX Mode:

- ⇨ **Tx Mode:CCK 、OFDM、 HT MixMode** (Bandwidth: 20、40)
- ⇨ **Tx Data Rate: 1Mbps long** (IEEE 802.11b mode ,Chain 0 TX)
  6Mbps (IEEE 802.11g mode ,Chain 0 TX)
  14.4Mbps (IEEE 802.11n HT20 mode ,Chain 0, Chain 1 TX)
  30Mbps (IEEE 802.11n HT40 mode, Chain 0, Chain 1 TX)

Power control mode

Target Power: IEEE 802.11b Channel Low (2412MHz) =42 **(Chain 0)**
IEEE 802.11b Channel Middle (2437MHz) =44 **(Chain 0)**
IEEE 802.11b Channel High (2462MHz) = 44 **(Chain 0)**
Target Power: IEEE 802.11g Channel Low (2412MHz) = 50 **(Chain 0)**
IEEE 802.11g Channel Middle (2437MHz) = 50 **(Chain 0)**
IEEE 802.11g Channel High (2462MHz) = 49 **(Chain 0)**
Target Power: IEEE 802.11n HT20 Channel Low (2412MHz) = 48 **(Chain 0)**
IEEE 802.11 n HT20 Channel Middle (2437MHz) =48 **(Chain 0)**
IEEE 802.11 n HT20 Channel High (2462MHz) = 48 **(Chain 0)**
IEEE 802.11n HT20 Channel Low (2412MHz) = 33 **(Chain 1)**
IEEE 802.11 n HT20 Channel Middle (2437MHz) = 35 **(Chain 1)**
IEEE 802.11 n HT20 Channel High (2462MHz) = 35 **(Chain 1)**
Target Power: IEEE 802.11n HT40 Channel Low (2422MHz) = 47 **(Chain 0)**
IEEE 802.11 n HT40 Channel Middle (2437MHz) = 48 **(Chain 0)**
IEEE 802.11 n HT40 Channel High (2452MHz) = 48 **(Chain 0)**
IEEE 802.11n HT40 Channel Low (2422MHz) = 32 **(Chain 1)**
IEEE 802.11 n HT40 Channel Middle (2437MHz) = 36**(Chain 1)**
IEEE 802.11 n HT40 Channel High (2452MHz) = 36 **(Chain 1)**

RX Mode：

Start RX

3. All of the function are under run.
4. Start test.

Normal Link Setup

1. Set up all computers like the setup diagram.
2. All of the function are under run.
3. Notebook PC (2) ping 192.168.0.10 –t to Notebook PC (1).
4. Notebook PC (1) ping 192.168.0.20 –t to Notebook PC (2).
5. Notebook PC (1) ping 192.168.0.50 –t to Wireless Access Point (3).

Start test.

RF Setup (5G)

1. Set up all computers like the setup diagram.
2. The Test Program “MP_test” software was used for testing.

TX Mode:

- ⇨ **Tx Mode:**
- ⇨ **OFDM、HT MixMode** (Bandwidth: 20、40)、**VHT Mode** (Bandwidth: 80)
- ⇨ **Tx Data Rate: 6Mbps** (IEEE 802.11a mode ,Chain 0 TX)
  7.2Mbps (IEEE 802.11n HT20 mode ,Chain 0 TX)
  15Mbps (IEEE 802.11n HT40 mode, Chain 0 TX)
  32.5Mbps (IEEE 802.11ac VHT80 mode, Chain 0 TX)

Power control mode
Target Power:
IEEE 802.11a Higher Sub-Band Channel Low (5745MHz) = 10 **(Chain 0)**
IEEE 802.11a Higher Sub-Band Channel Middle (5785MHz) = 08 **(Chain 0)**
IEEE 802.11a Higher Sub-Band Channel High (5825MHz) = 06 **(Chain 0)**
Target Power:
IEEE 802.11n HT20 Higher Sub-Band Channel Low (5745MHz) = 10 **(Chain 0)**
IEEE 802.11n HT20 Higher Sub-Band Channel Middle (5785MHz) = 08 **(Chain 0)**
IEEE 802.11n HT20 Higher Sub-Band Channel High (5825MHz) = 06 **(Chain 0)**
Target Power:
IEEE 802.11n HT40 Higher Sub-Band Channel Low (5755MHz) = 10 **(Chain 0)**
IEEE 802.11n HT40 Higher Sub-Band Channel High (5795MHz) = 09 **(Chain 0)**
Target Power:
IEEE 802.11ac VHT80 Higher Sub-Band Channel Middle (5775MHz) = 09 **(Chain 0)**

RX Mode：
MAC Address: FFFFFFFFFFFF

Start RX
3. All of the function are under run.
4. Start test.

Normal Link Setup
1. Set up all computers like the setup diagram.
2. All of the function are under run.
3. Notebook PC (2) ping 192.168.0.10 –t to Notebook PC (1).
4. Notebook PC (1) ping 192.168.0.20 –t to Notebook PC (2).
5. Notebook PC (1) ping 192.168.0.50 –t to Wireless Access Point (3).

Start test.

7. FCC PART 15.247 REQUIREMENTS

7.1 6dB BANDWIDTH

LIMITS

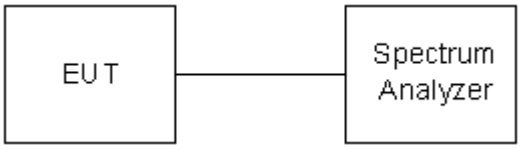
§ 15.247(a) (2) For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	R&S	FSEK 30	835253/002	SEP. 28, 2014

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

The tests were performed in accordance with KDB 558074 8.1 & 8.2.

Option 1:

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Option 2:

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW ≥ 3 RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.

TEST RESULTS

IEEE 802.11b Mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Pass / Fail
Low	2412	10.10	500	PASS
Middle	2437	10.10	500	PASS
High	2462	10.10	500	PASS

IEEE 802.11g Mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Pass / Fail
Low	2412	16.59	500	PASS
Middle	2437	16.59	500	PASS
High	2462	16.59	500	PASS

IEEE 802.11n HT20 Mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (kHz)	Pass / Fail
		Chain 0	Chain 1		
Low	2412	17.86	17.80	500	PASS
Middle	2437	17.86	17.80	500	PASS
High	2462	17.86	17.80	500	PASS

IEEE 802.11n HT40 Mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (kHz)	Pass / Fail
		Chain 0	Chain 1		
Low	2422	36.67	36.31	500	PASS
Middle	2437	36.67	36.55	500	PASS
High	2452	36.67	36.55	500	PASS

IEEE 802.11a Mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Pass / Fail
Low	5745	16.59	500	PASS
Middle	5785	16.59	500	PASS
High	5825	16.59	500	PASS

IEEE 802.11n HT20 Mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Pass / Fail
Low	5745	17.80	500	PASS
Middle	5785	17.80	500	PASS
High	5825	17.80	500	PASS

IEEE 802.11n HT40 Mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Pass / Fail
Low	5755	36.67	500	PASS
High	5795	36.67	500	PASS

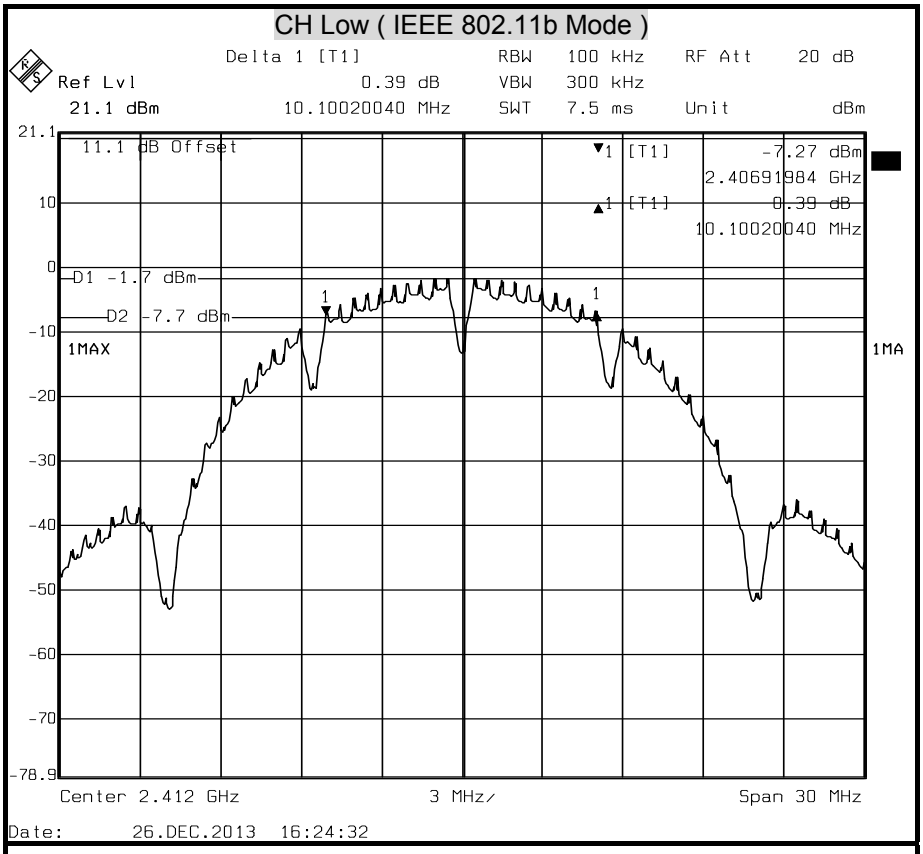
IEEE 802.11ac VHT80 Mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Pass / Fail
Middle	5775	76.71	500	PASS

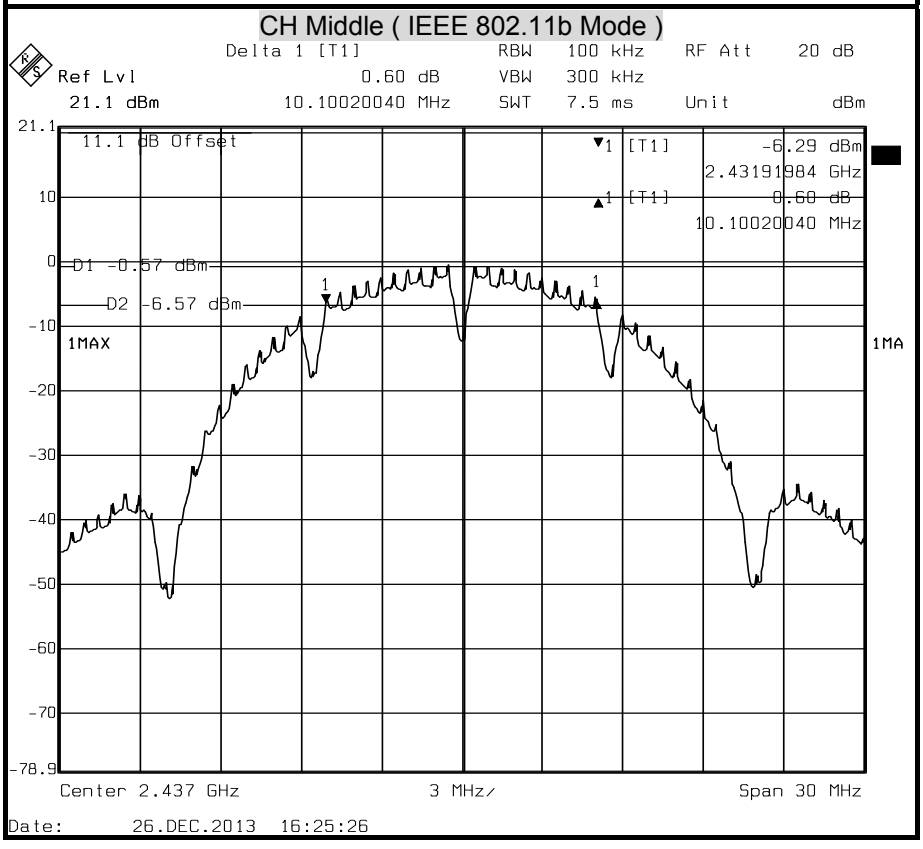
6dB BANDWIDTH

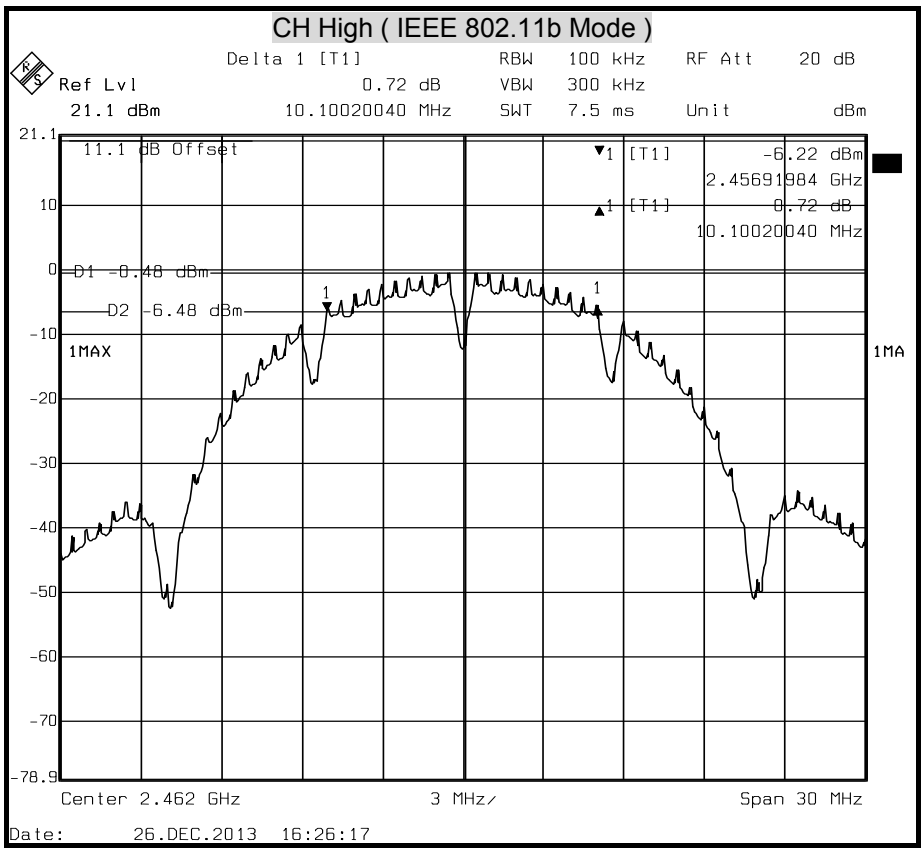
(2.4GHz)

CH Low (IEEE 802.11b Mode)

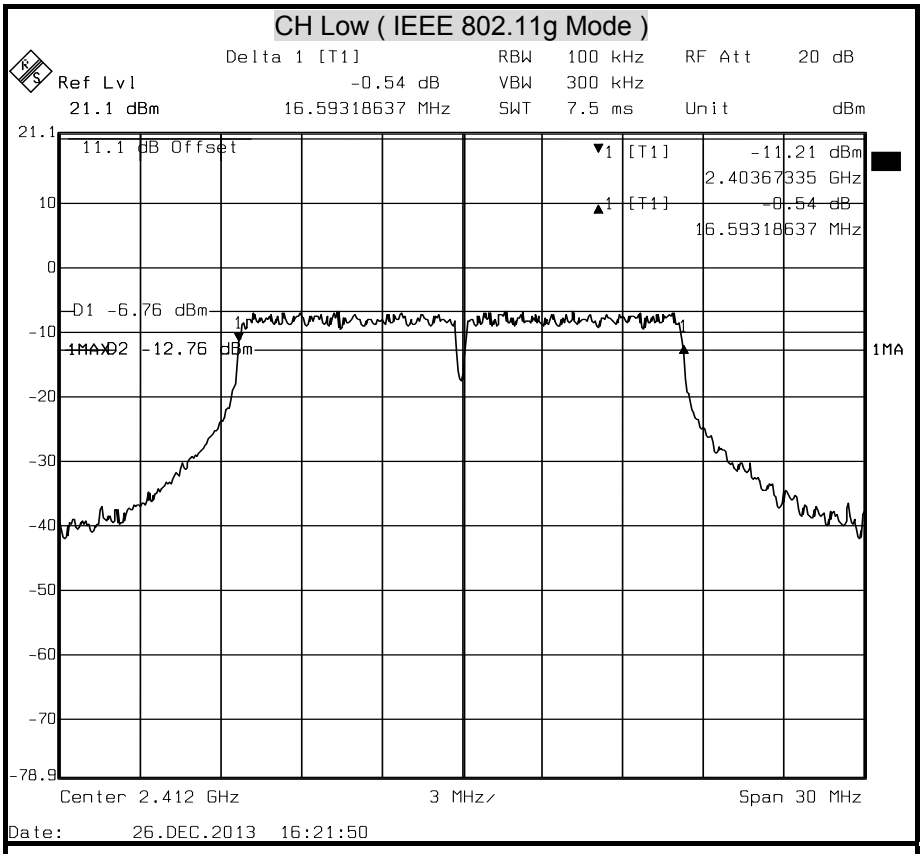


CH Middle (IEEE 802.11b Mode)

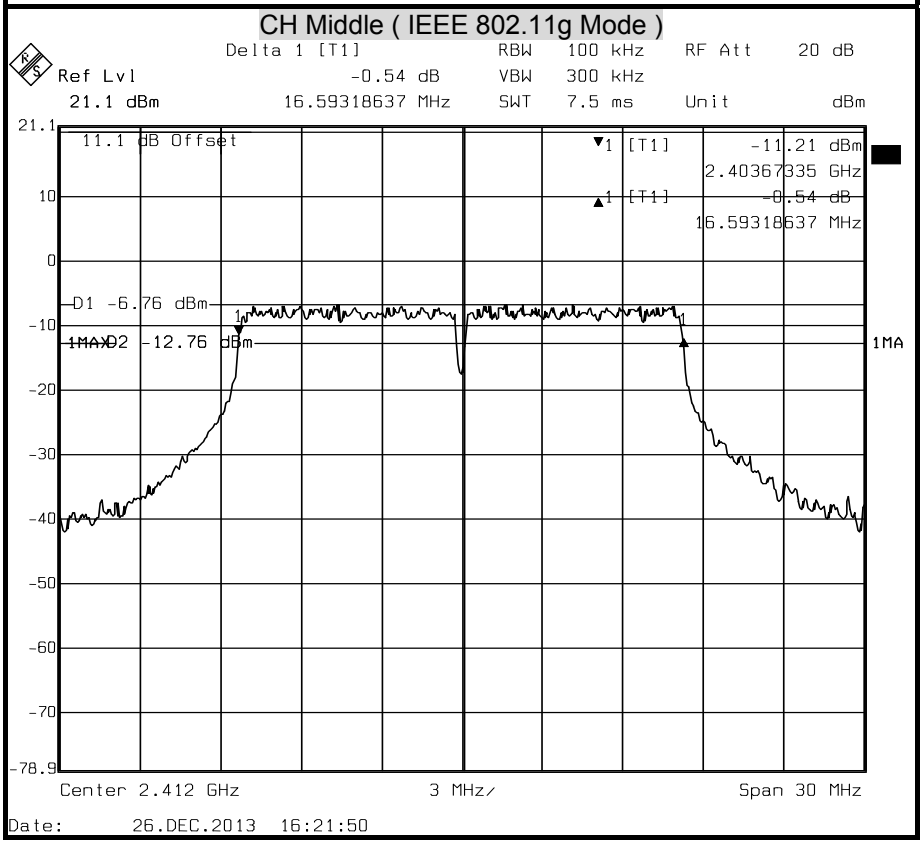


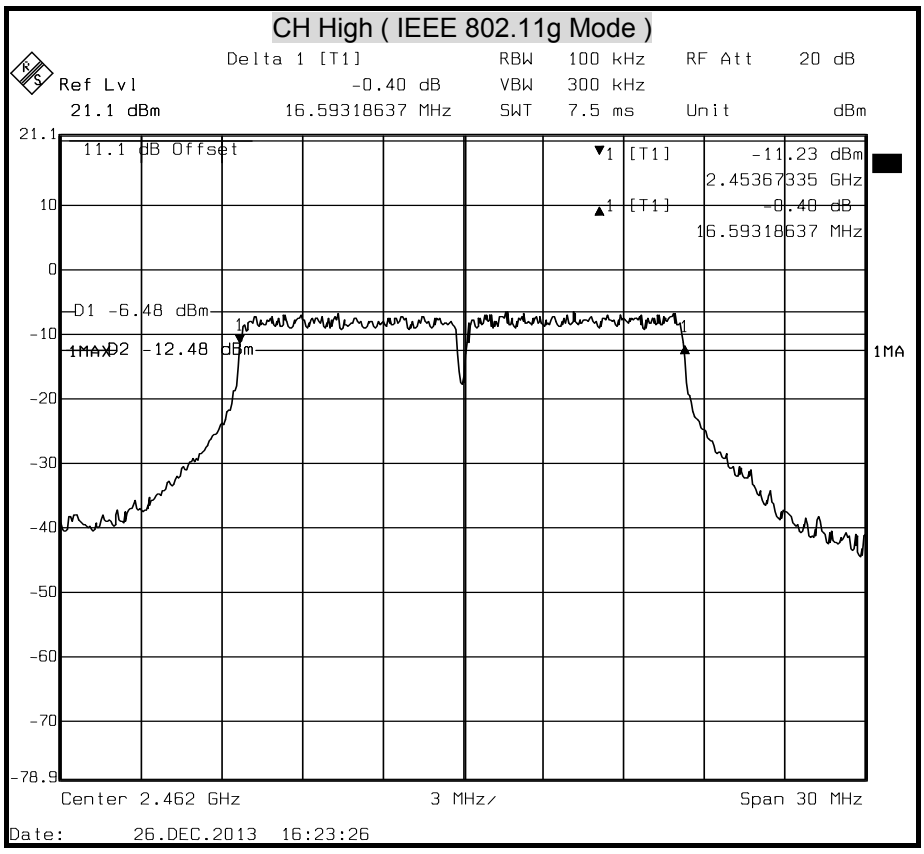


CH Low (IEEE 802.11g Mode)



CH Middle (IEEE 802.11g Mode)





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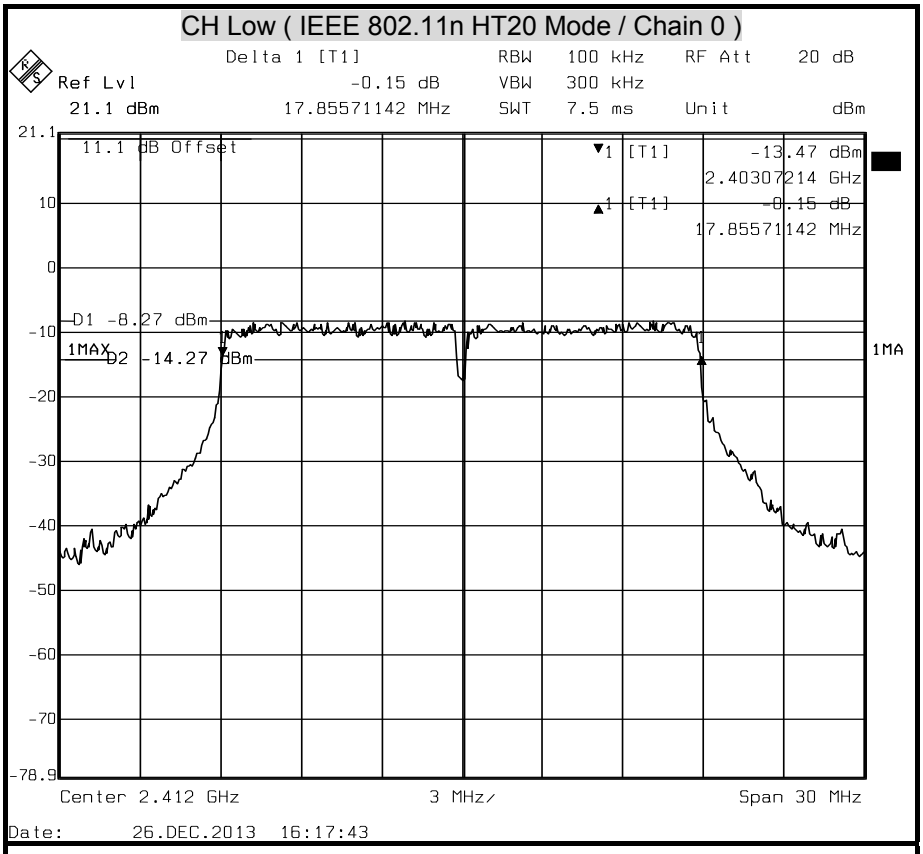
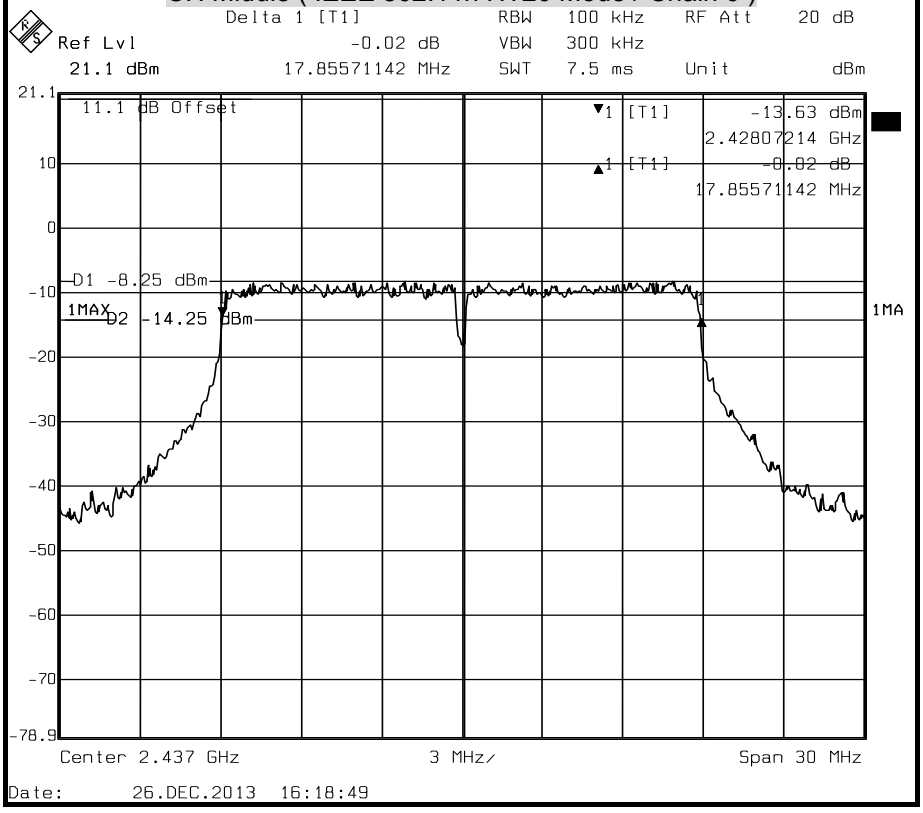
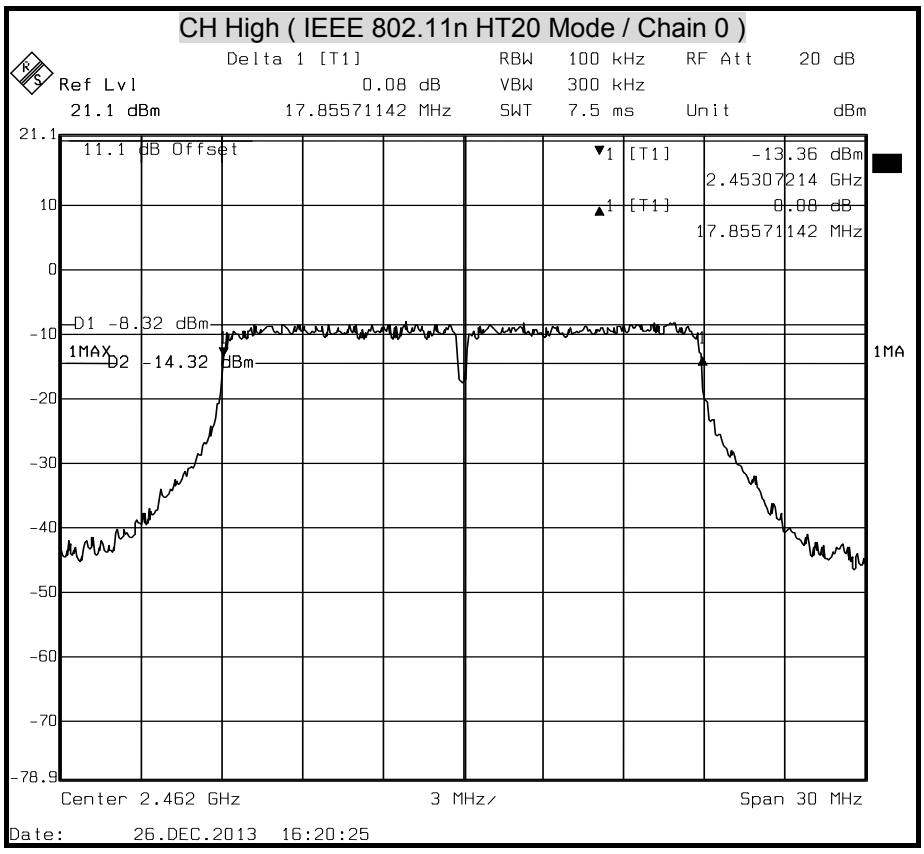
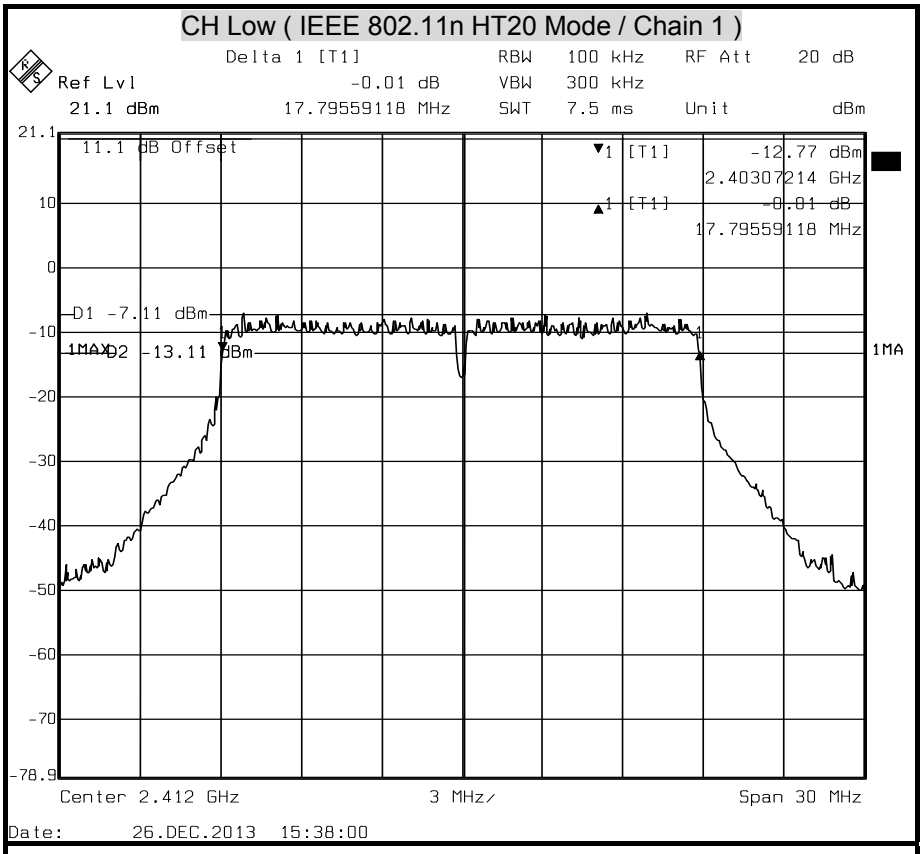


CH Middle (IEEE 802.11n HT20 Mode / Chain 0)

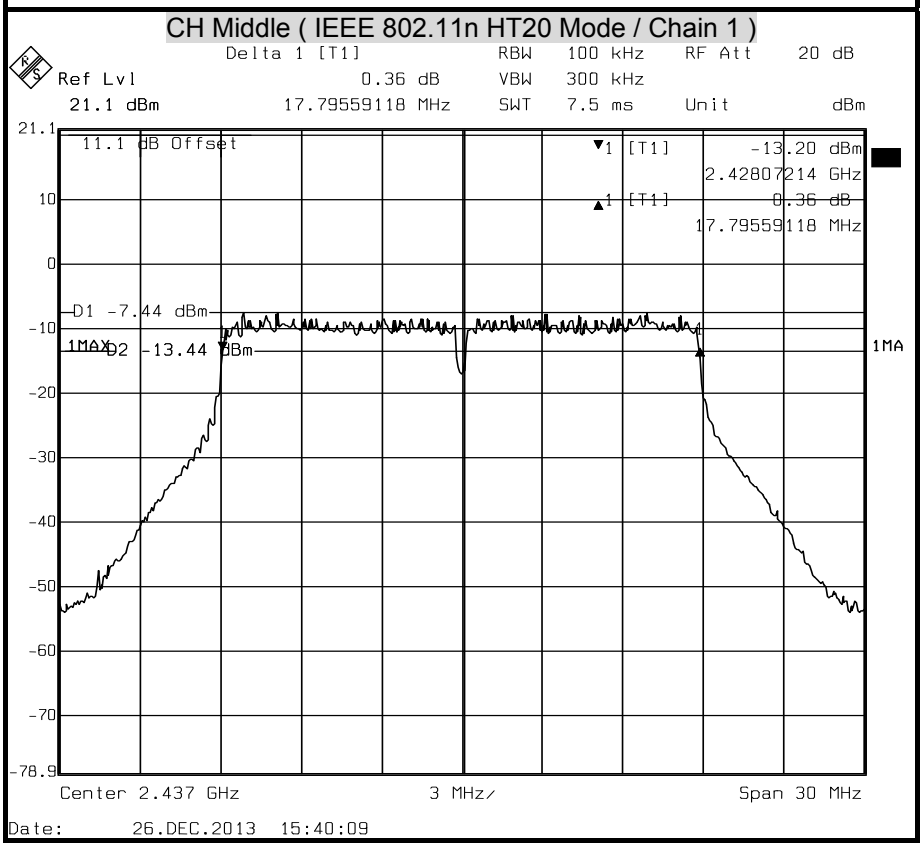


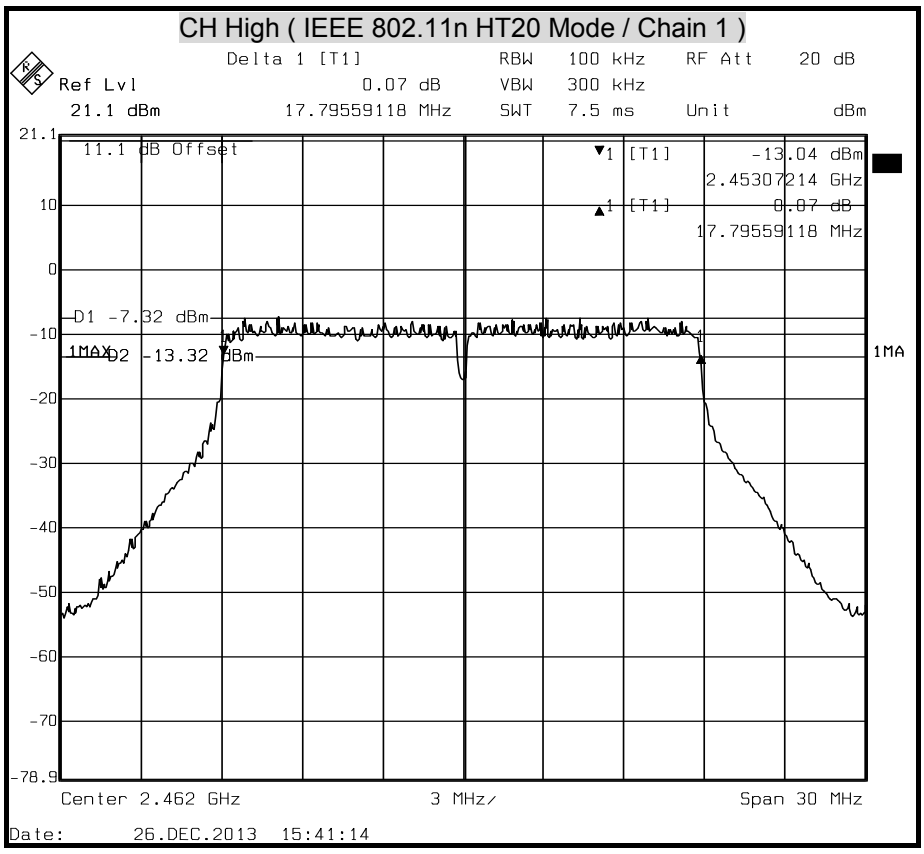


CH Low (IEEE 802.11n HT20 Mode / Chain 1)

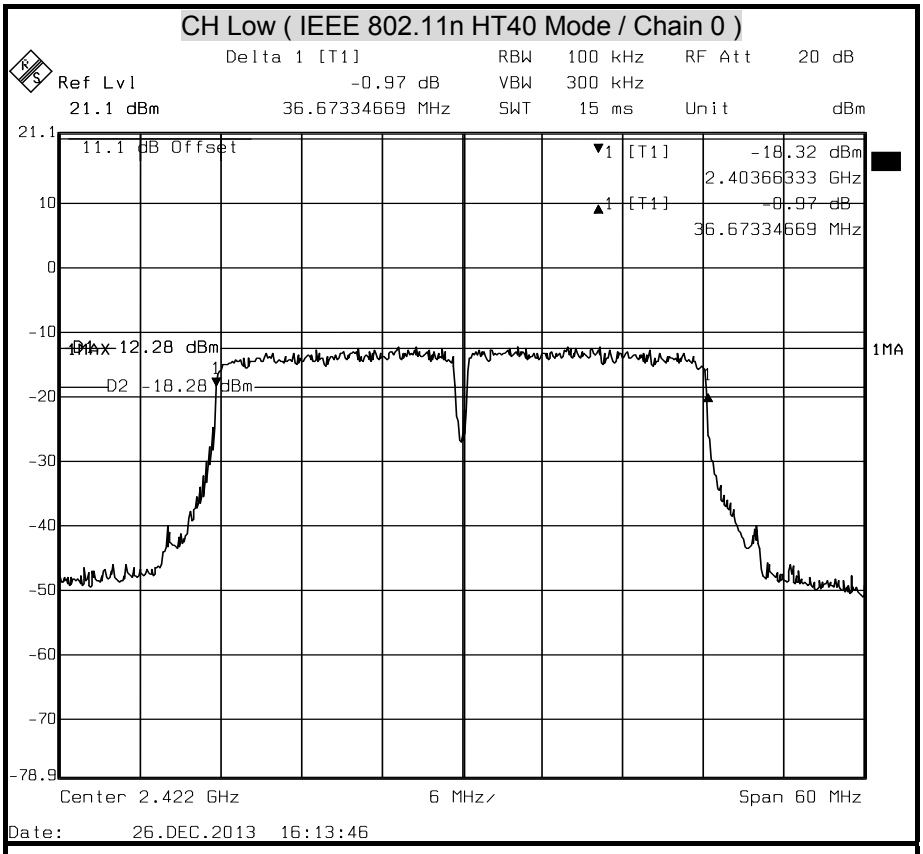


CH Middle (IEEE 802.11n HT20 Mode / Chain 1)

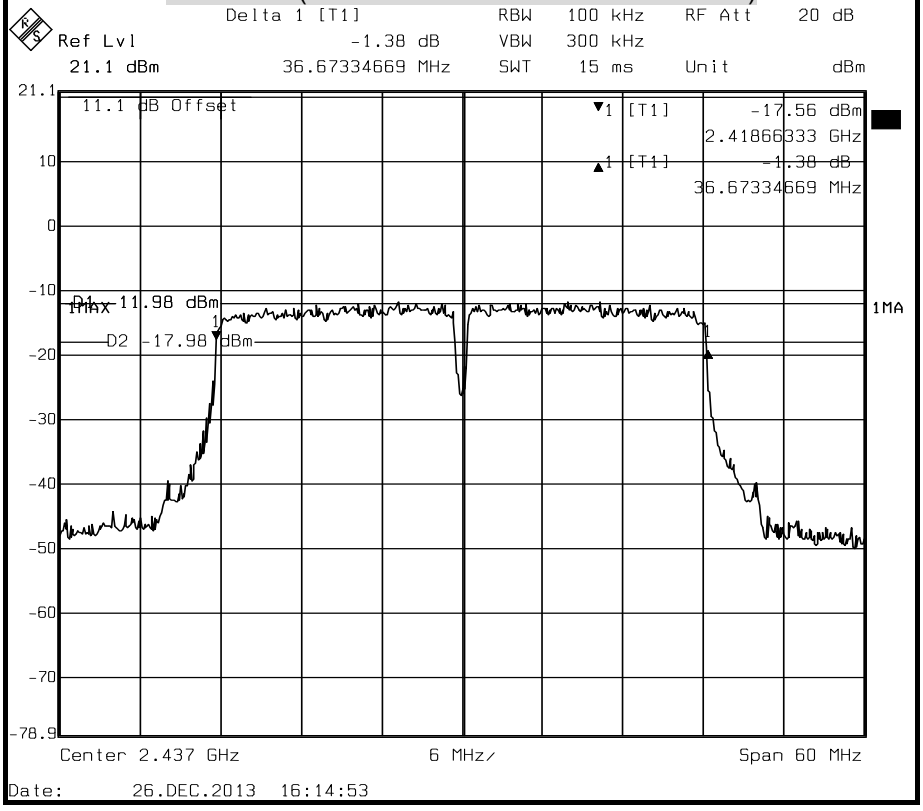


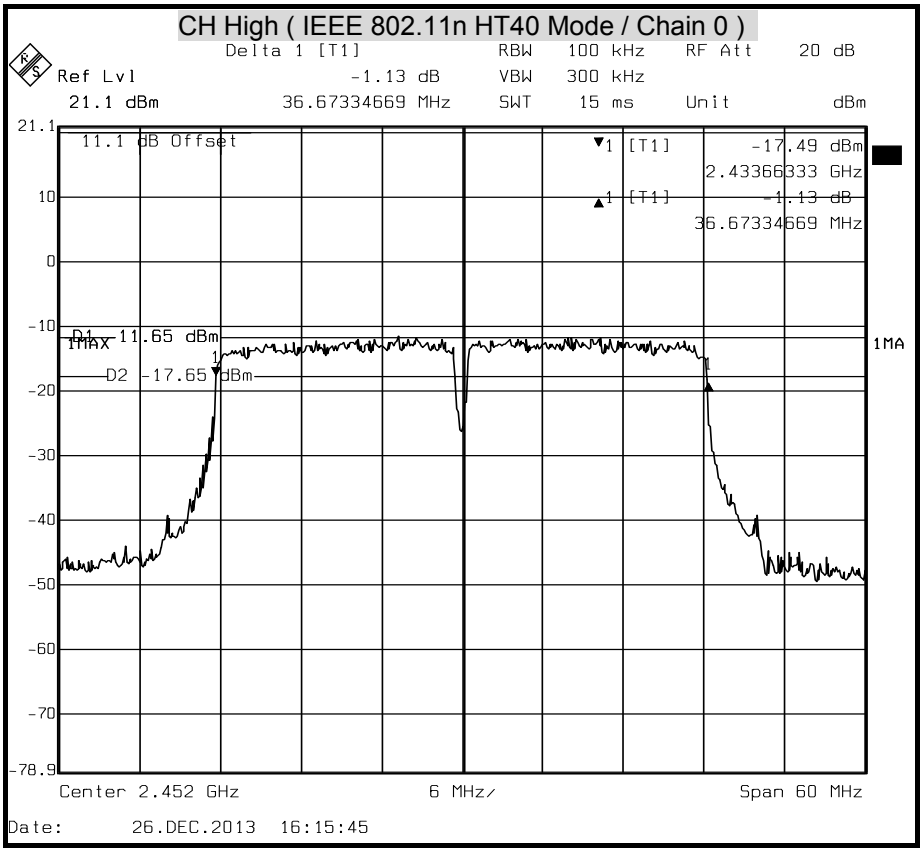


CH Low (IEEE 802.11n HT40 Mode / Chain 0)

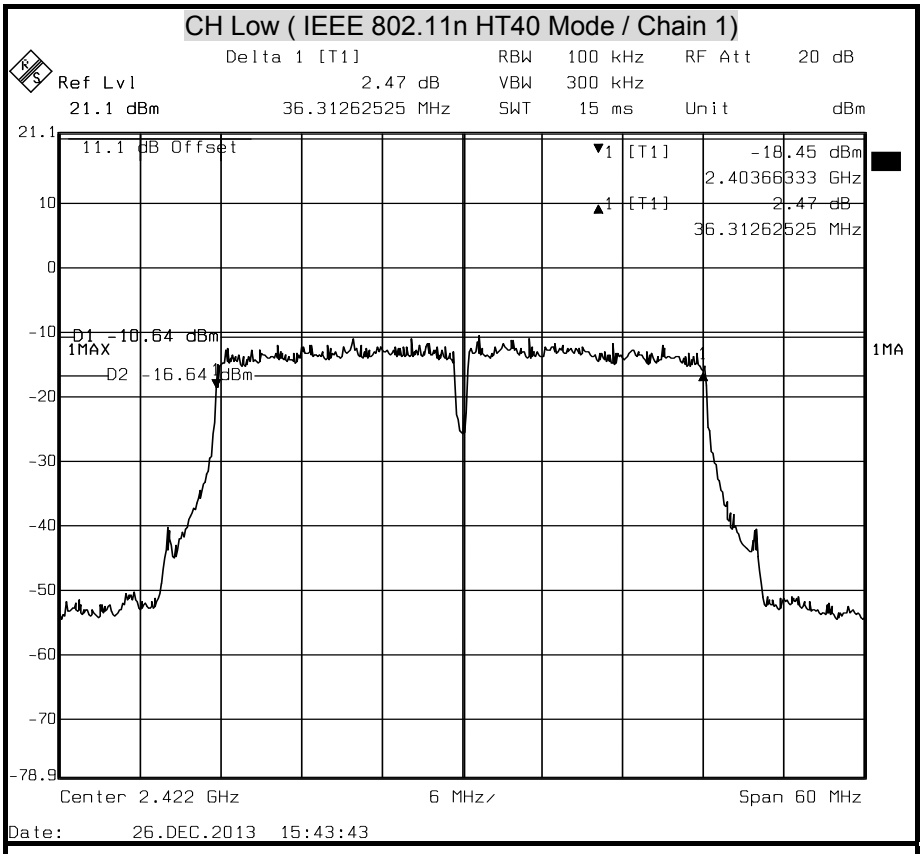


CH Middle (IEEE 802.11n HT40 Mode / Chain 0)

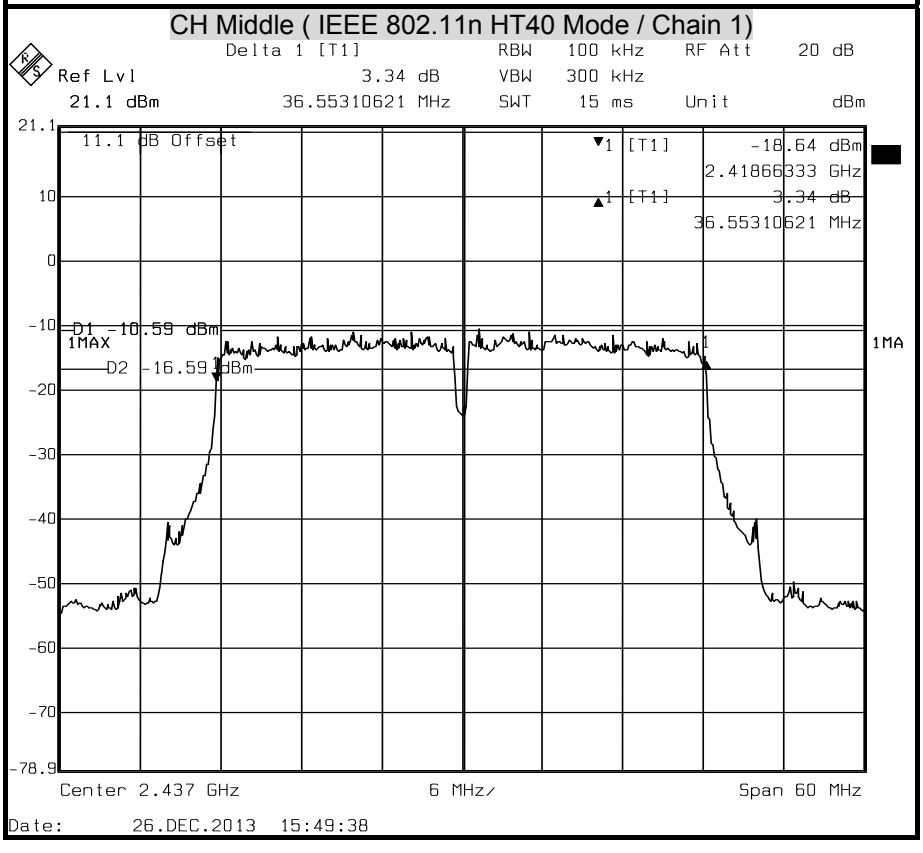


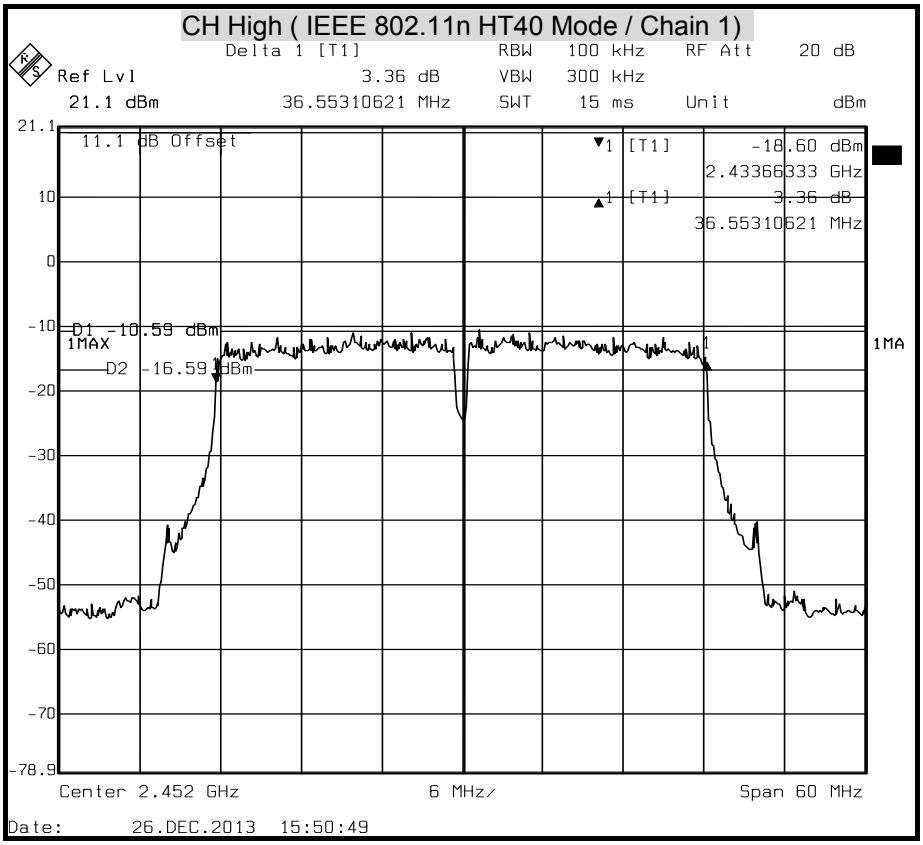


CH Low (IEEE 802.11n HT40 Mode / Chain 1)



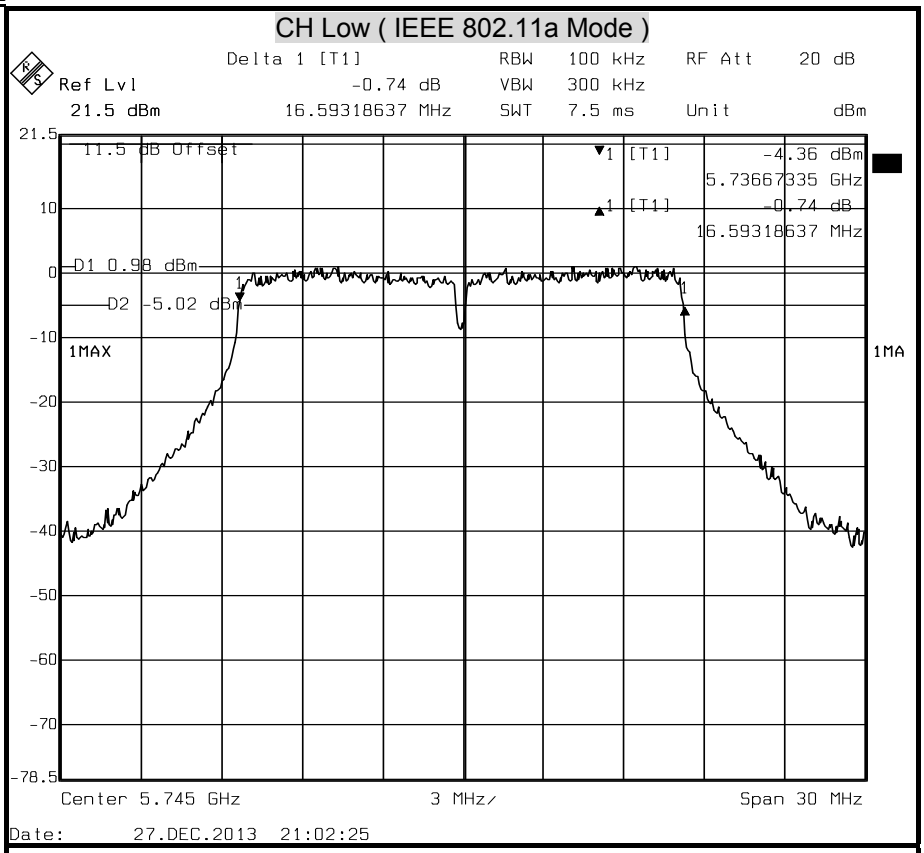
CH Middle (IEEE 802.11n HT40 Mode / Chain 1)



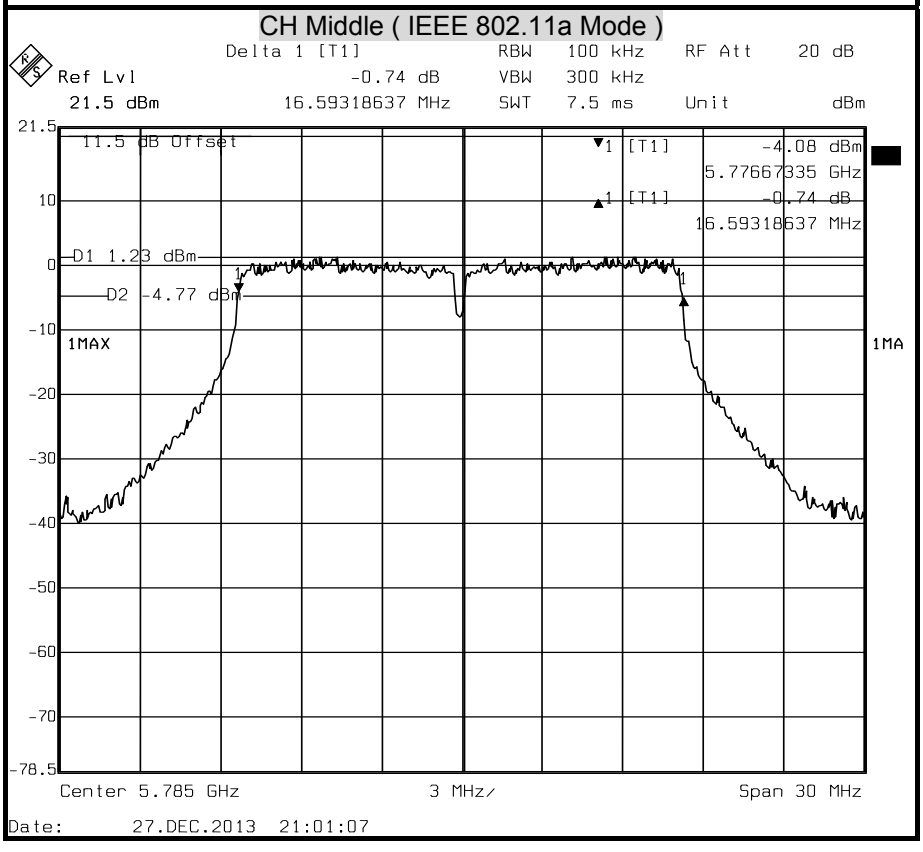


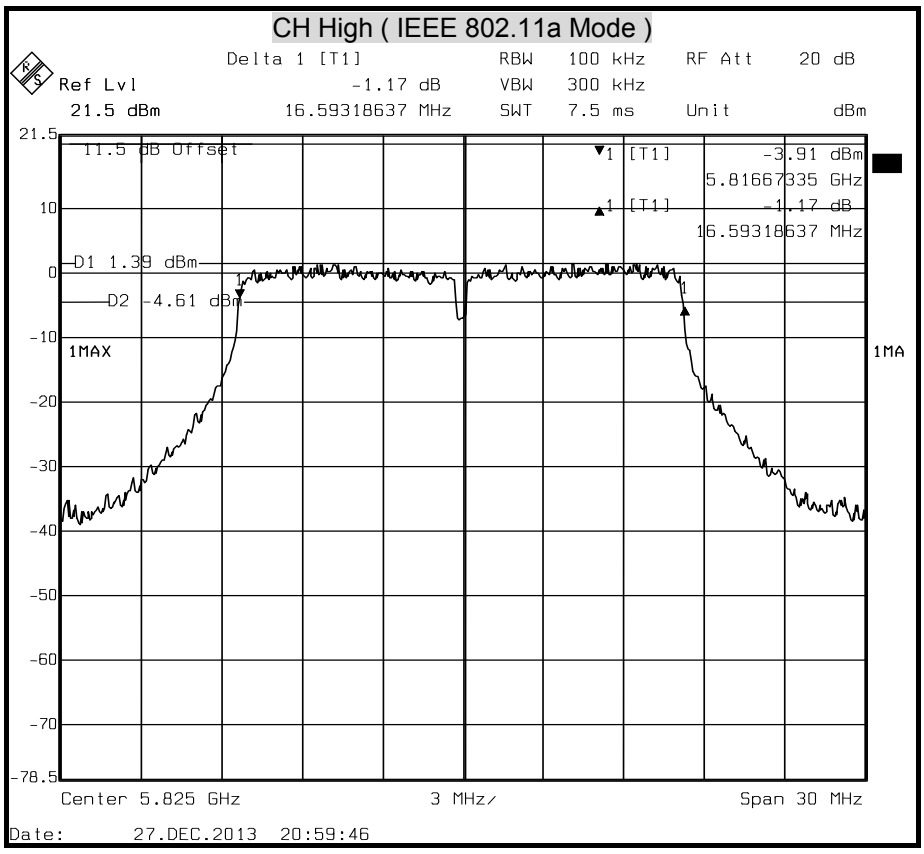
5GHz

CH Low (IEEE 802.11a Mode)

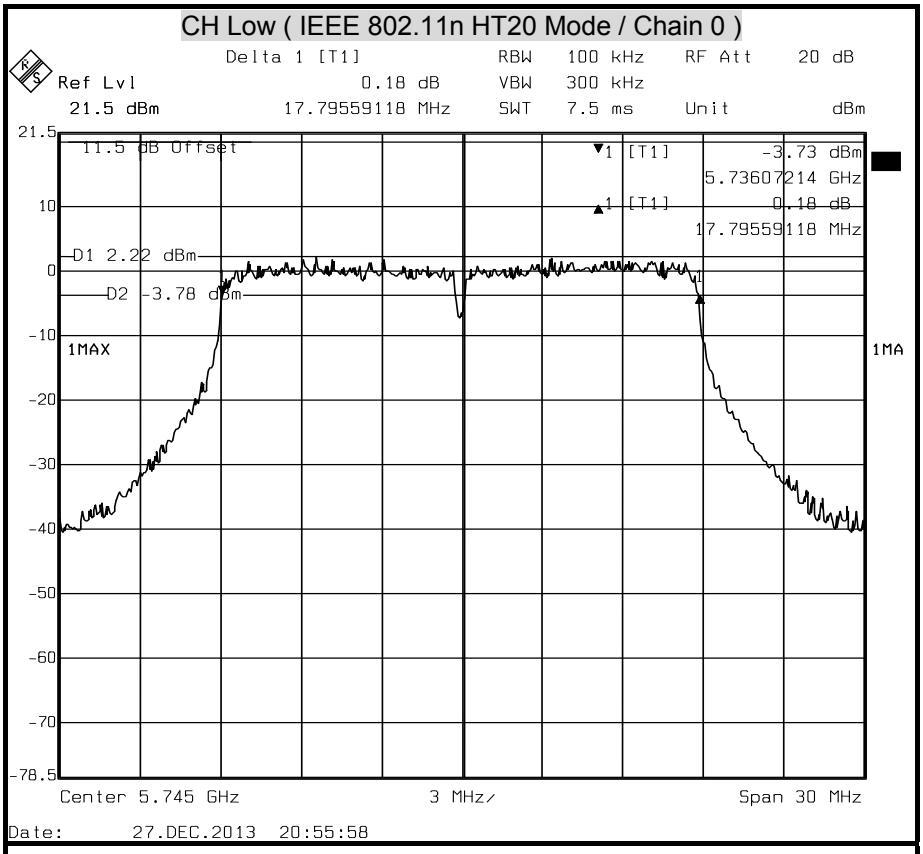


CH Middle (IEEE 802.11a Mode)

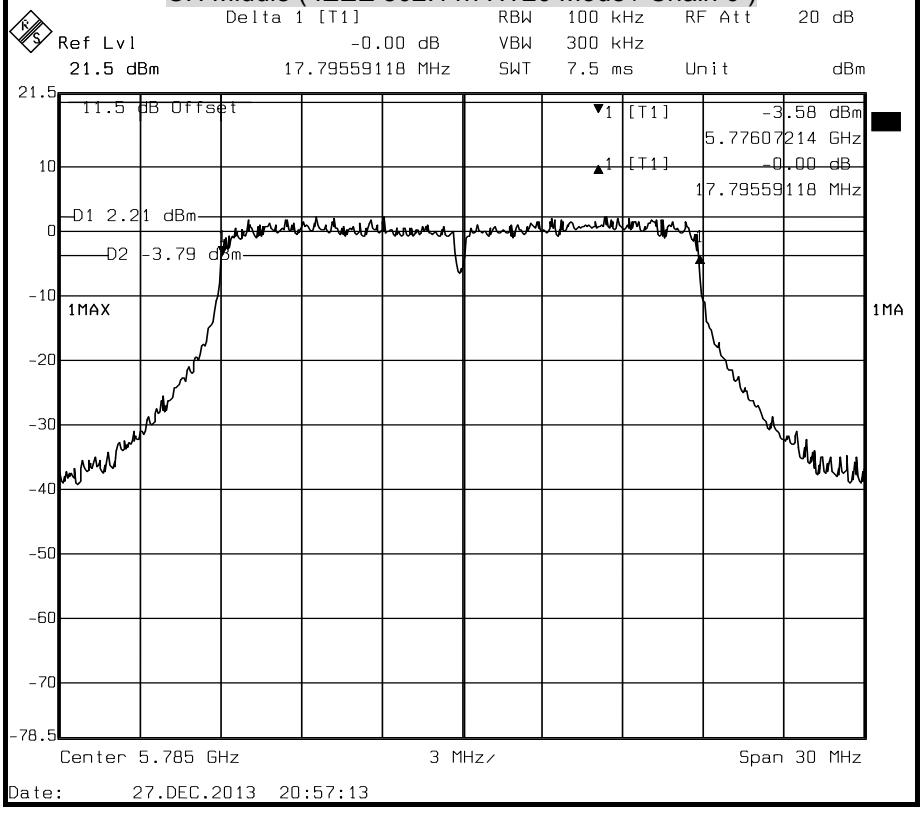


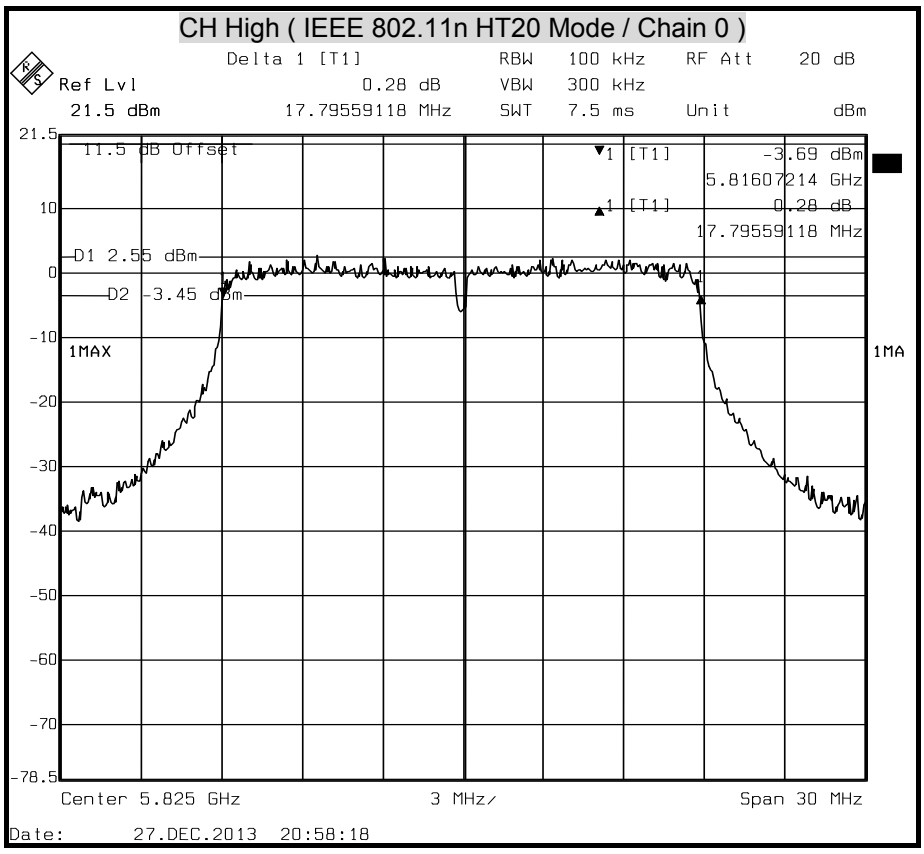


CH Low (IEEE 802.11n HT20 Mode / Chain 0)

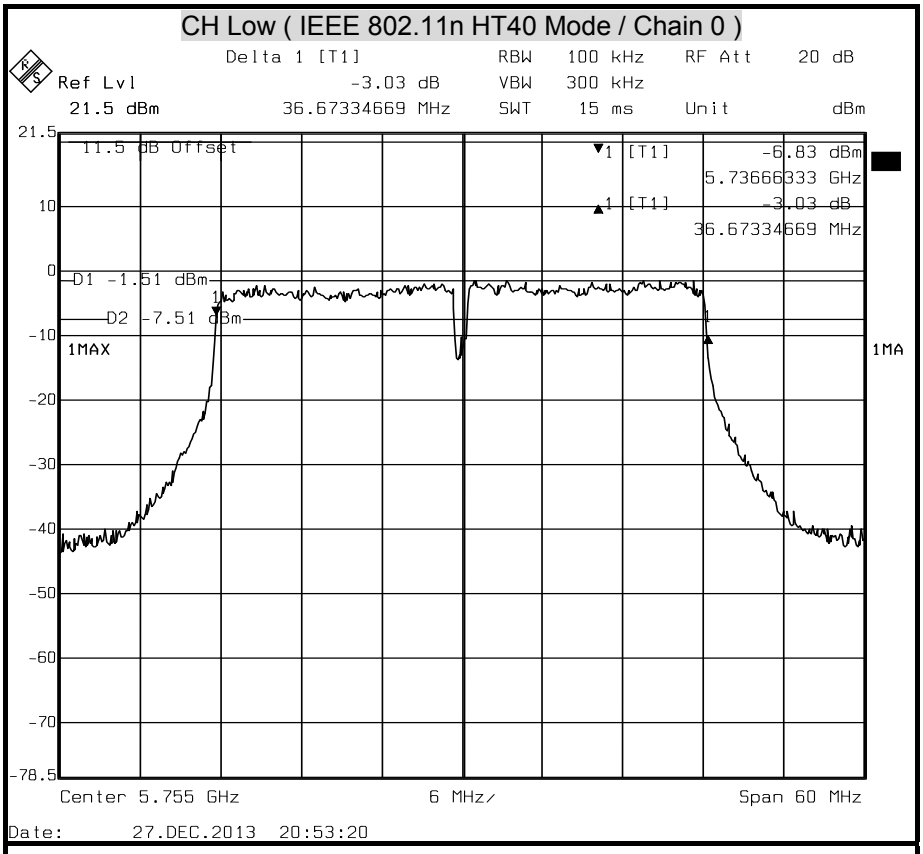


CH Middle (IEEE 802.11n HT20 Mode / Chain 0)

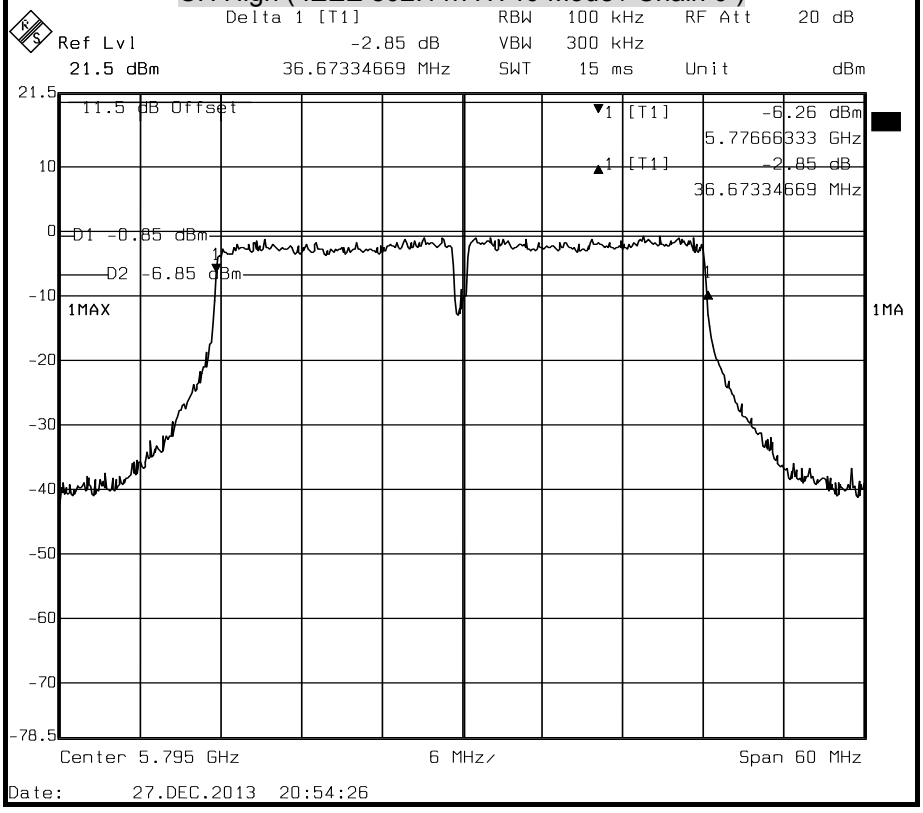


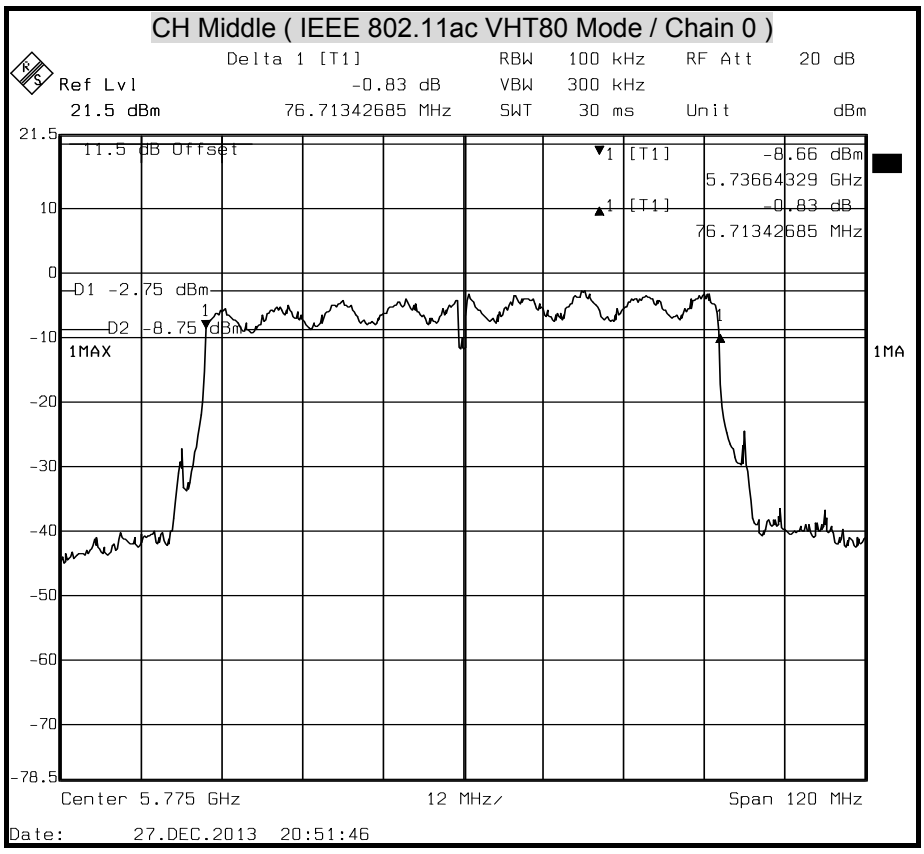


CH Low (IEEE 802.11n HT40 Mode / Chain 0)



CH High (IEEE 802.11n HT40 Mode / Chain 0)





7.2 MAXIMUM PEAK OUTPUT POWER

LIMITS

§ 15.247(b) The maximum peak output power of the intentional radiator shall not exceed the following :

§ 15.247(b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands : 1 watt.

§ 15.247(b) (4) Except as shown in paragraphs (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST EQUIPMENT

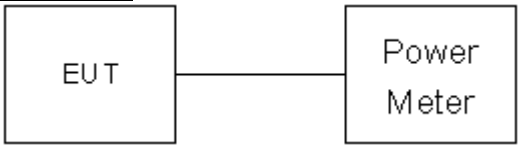
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	R&S	FSEK 30	835253/002	SEP. 28, 2014
Power Meter	Anritsu	ML2487A	6K00003888	JUN. 24, 2014

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP

For Peak Power

For Average Power



TEST PROCEDURE

The tests were performed in accordance with KDB 558074 9.1.2 & 9.2.2.3 .

Integrated band power method

This procedure may be used when the maximum available RBW of the measurement instrument is less than the DTS bandwidth.
a) Set the RBW = 1 MHz.
b) Set the VBW ≥ 3 RBW
c) Set the span ≥ 1.5 x DTS bandwidth.
d) Detector = peak.
e) Sweep time = auto couple.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select peak detector). If the instrument does not have a band power function, sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the DTS bandwidth.

Average Power

Connect the EUT to power meter, set the center frequency of the power meter to the channel center frequency.

TEST RESULTS

IEEE 802.11b Mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	2412	11.62	28	PASS
Middle	2437	12.69		PASS
High	2462	12.83		PASS

Remark: *At finial test to get the worst-case emission at 1Mbps.*

IEEE 802.11g Mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	2412	15.39	28	PASS
Middle	2437	15.50		PASS
High	2462	15.59		PASS

Remark: *At finial test to get the worst-case emission at 6Mbps.*

IEEE 802.11n HT20 Mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)		Peak Power Total (dBm)	Peak Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1			
Low	2412	14.50	14.36	17.44	24.99	PASS
Middle	2437	14.31	14.06	17.20		PASS
High	2462	14.60	14.19	17.41		PASS

Remark: *At finial test to get the worst-case emission at 14.4Mbps.*

IEEE 802.11n HT40 Mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)		Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1			
Low	2422	13.40	13.00	16.21	24.99	PASS
Middle	2437	13.60	13.22	16.42		PASS
High	2452	13.77	13.19	16.50		PASS

Remark: *At finial test to get the worst-case emission at 30Mbps.*

IEEE 802.11a Mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	5745	24.34	29	PASS
Middle	5785	24.50		PASS
High	5825	24.23		PASS

Remark: *At finial test to get the worst-case emission at 6Mbps.*

IEEE 802.11n HT20 Mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	5745	23.85	29	PASS
Middle	5785	24.15		PASS
High	5825	24.54		PASS

Remark: *At finial test to get the worst-case emission at 7.2Mbps.*

IEEE 802.11n HT40 Mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	5755	23.28	29	PASS
High	5795	23.79		PASS

Remark: *At finial test to get the worst-case emission at 15Mbp.*

IEEE 802.11ac VHT80 Mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Middle	5775	23.44	29	PASS

Remark: *At finial test to get the worst-case emission at 32.5Mbps.*

Average Power

802.11b Mode

Channel	Frequency (MHz)	Average Power (dBm)
Low	2412	9.30
Middle	2437	10.44
High	2462	10.60

802.11g Mode

Channel	Frequency (MHz)	Average Power (dBm)
Low	2412	8.45
Middle	2437	8.76
High	2462	8.61

802.11n HT20 Mode

Channel	Frequency (MHz)	Average Power ChainA (dBm)	Average Power ChainB (dBm)	Average Power Total (dBm)
Low	2412	7.04	7.42	10.24
Middle	2437	6.96	7.03	10.01
High	2462	7.13	7.15	10.15

802.11n HT40 Mode

Channel	Frequency (MHz)	Average Power ChainA (dBm)	Average Power ChainB (dBm)	Average Power Total (dBm)
Low	2422	5.88	6.36	9.14
Middle	2437	6.07	6.49	9.30
High	2452	6.33	6.52	9.44

802.11a Mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	5745	16.23	0.0420
Middle	5785	16.38	0.0435
High	5825	16.44	0.0441

802.11n HT20 Mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	5745	16.13	0.0410
Middle	5785	16.14	0.0411
High	5825	16.29	0.0426

802.11n HT40 Mode

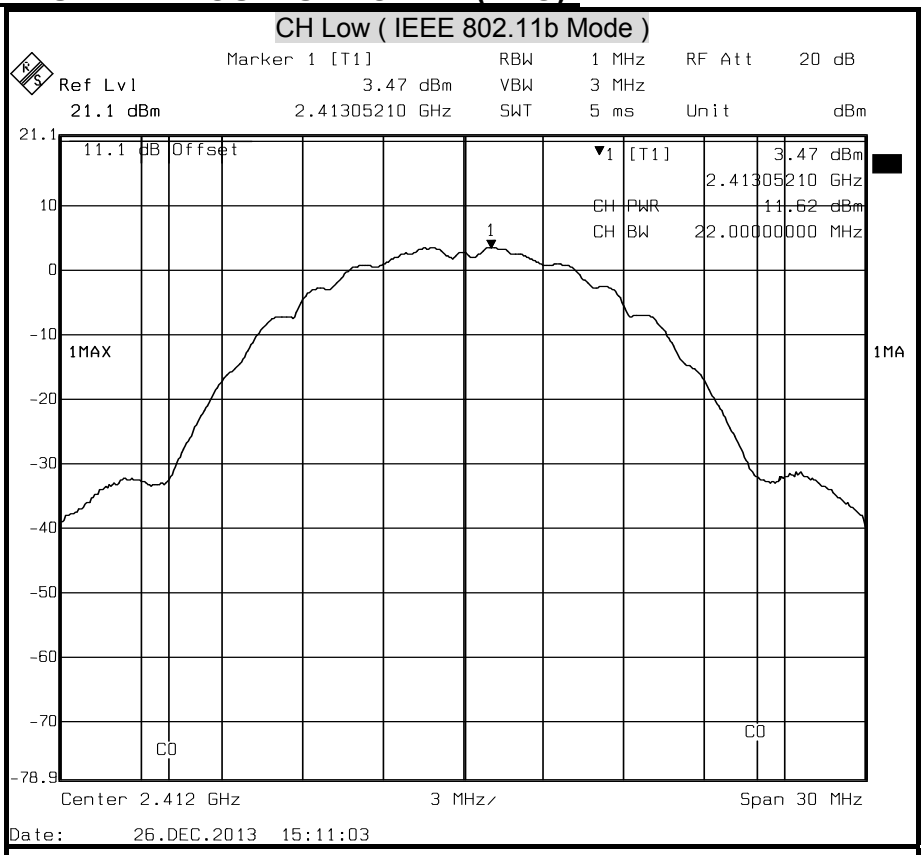
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	5755	16.53	0.0450
High	5795	16.88	0.0488

802.11ac VHT80 Mode

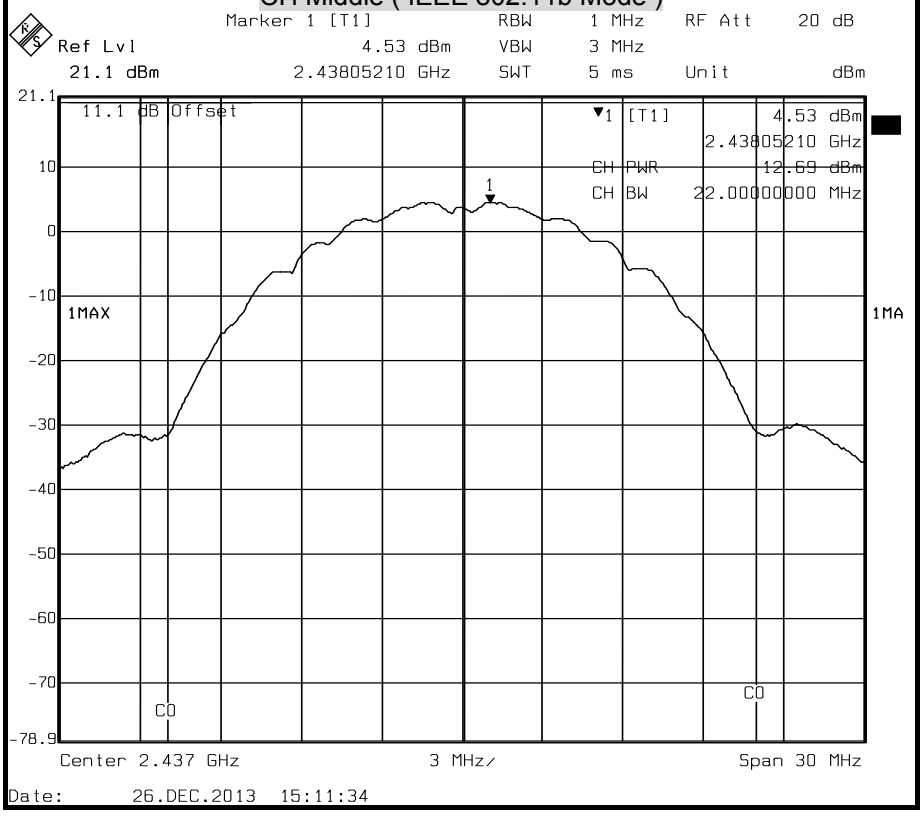
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Middle	5775	16.74	0.0472

MAXIMUM PEAK OUTPUT POWER (2.4G)

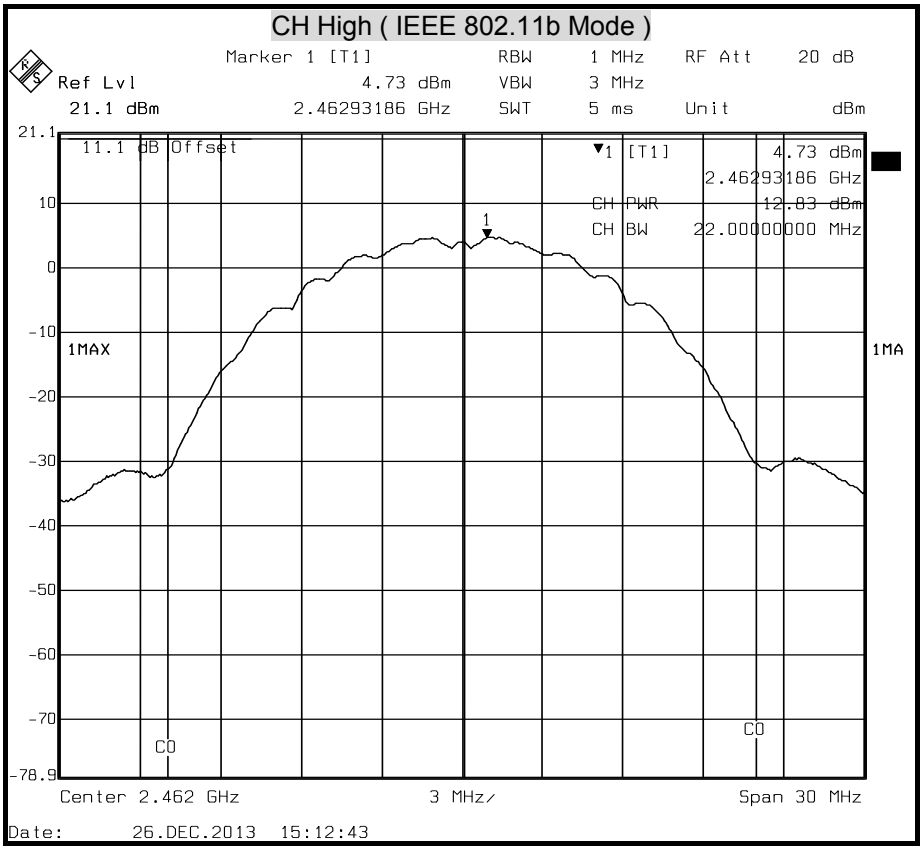
CH Low (IEEE 802.11b Mode)



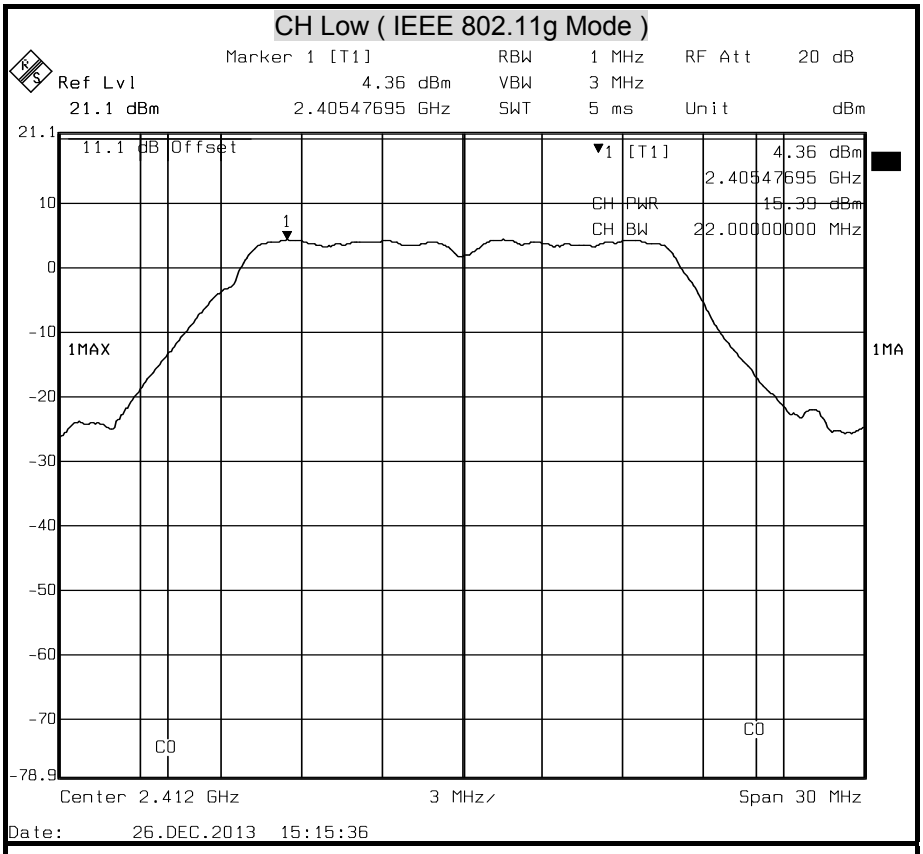
CH Middle (IEEE 802.11b Mode)



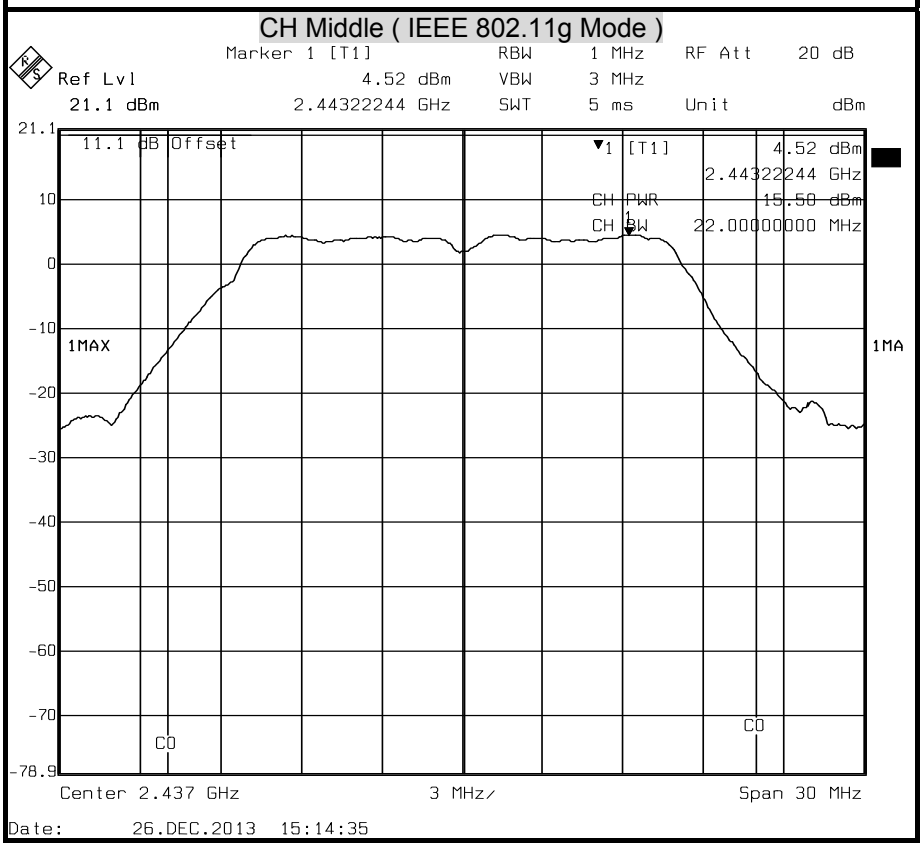
CH High (IEEE 802.11b Mode)

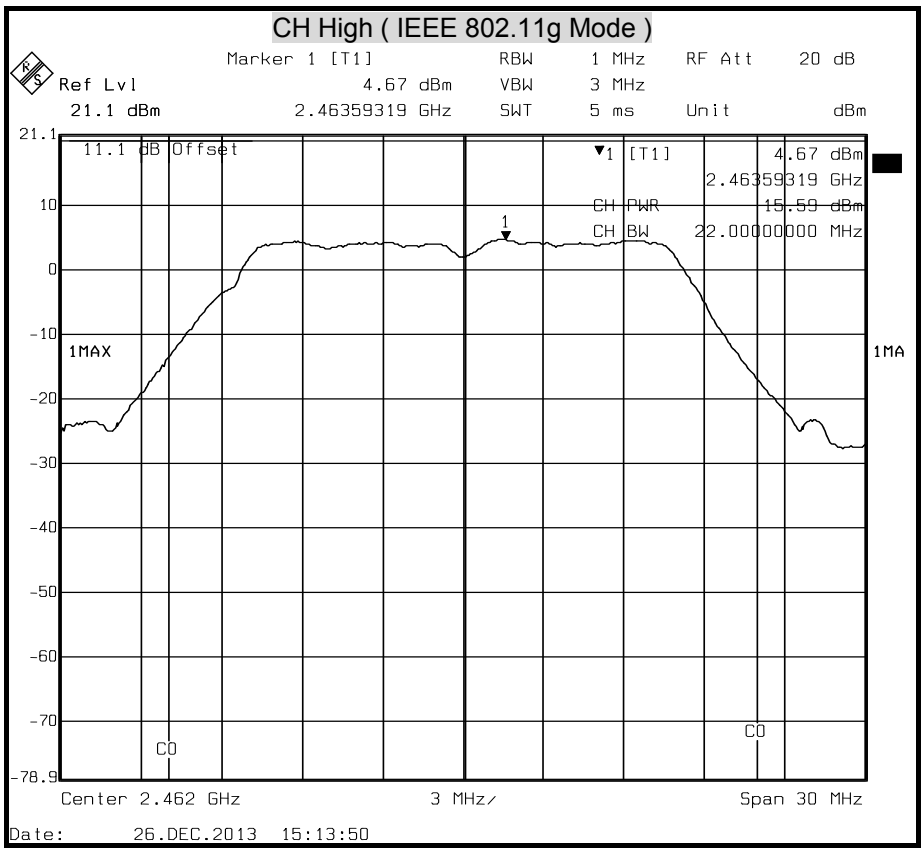


CH Low (IEEE 802.11g Mode)

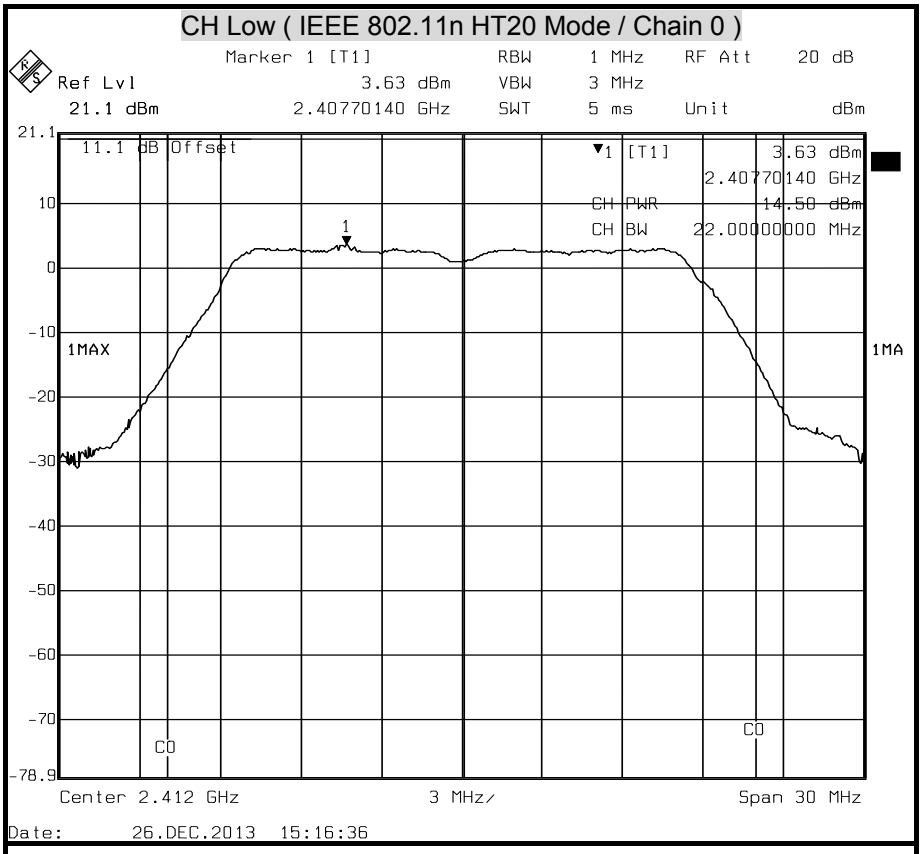


CH Middle (IEEE 802.11g Mode)

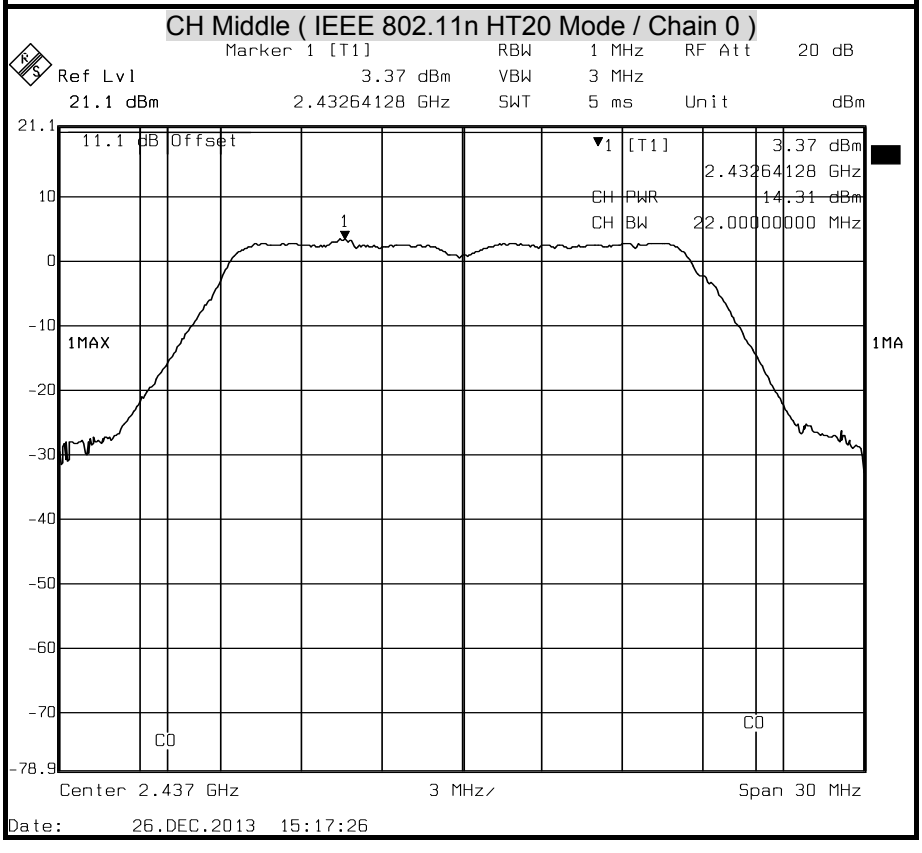


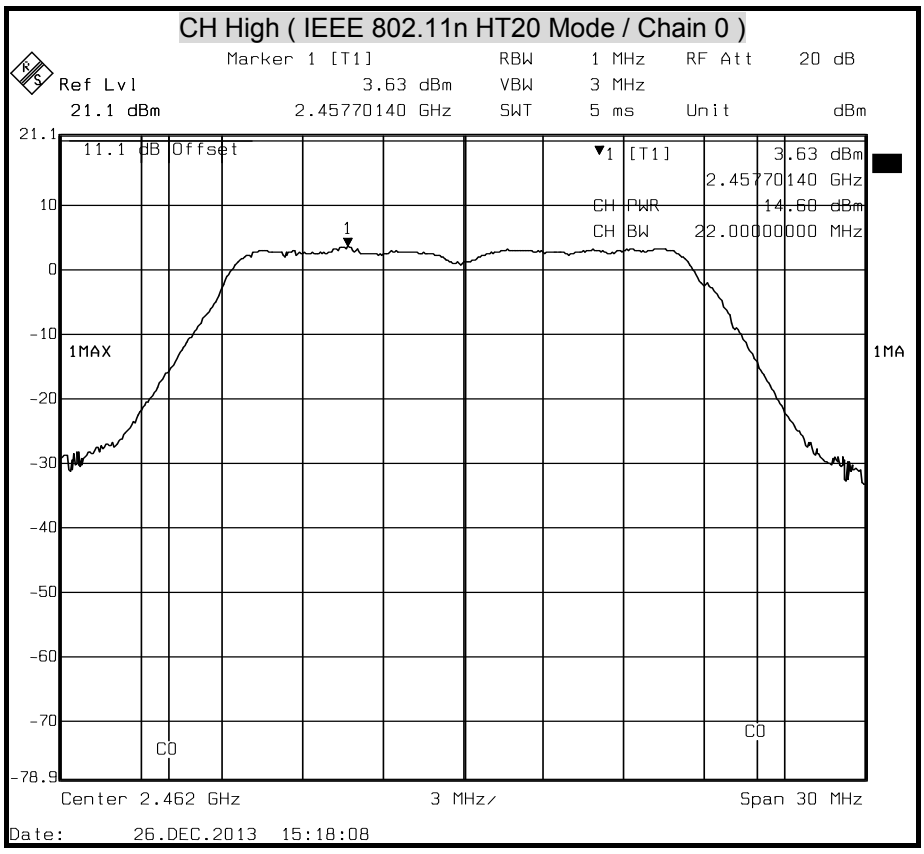


CH Low (IEEE 802.11n HT20 Mode / Chain 0)

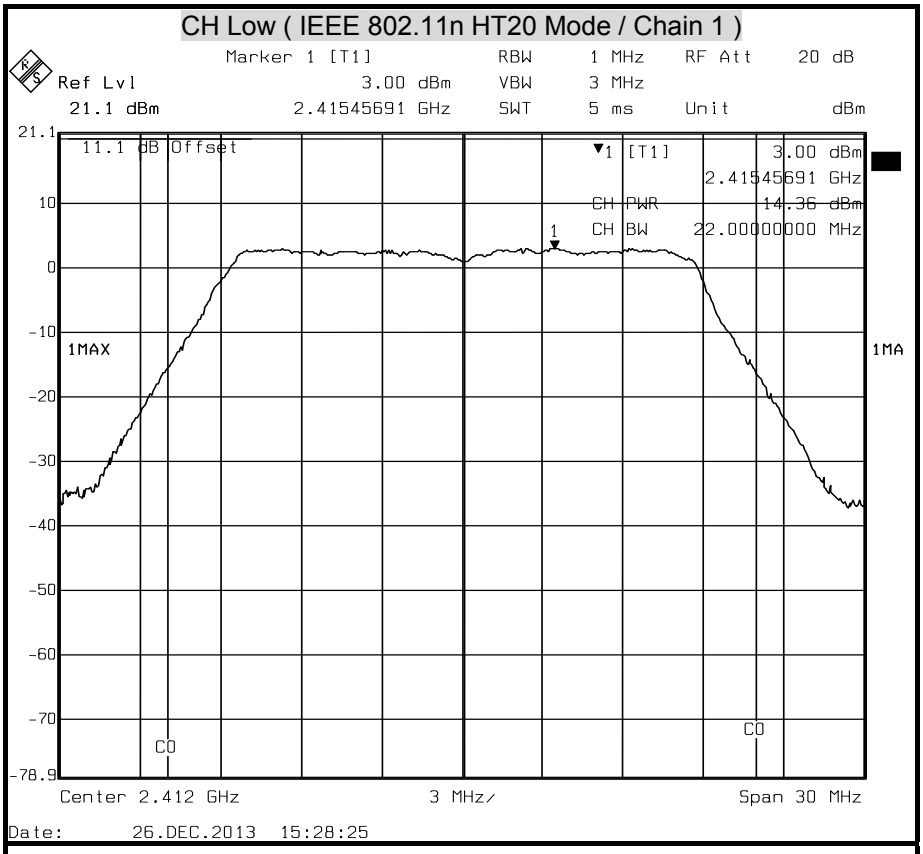


CH Middle (IEEE 802.11n HT20 Mode / Chain 0)

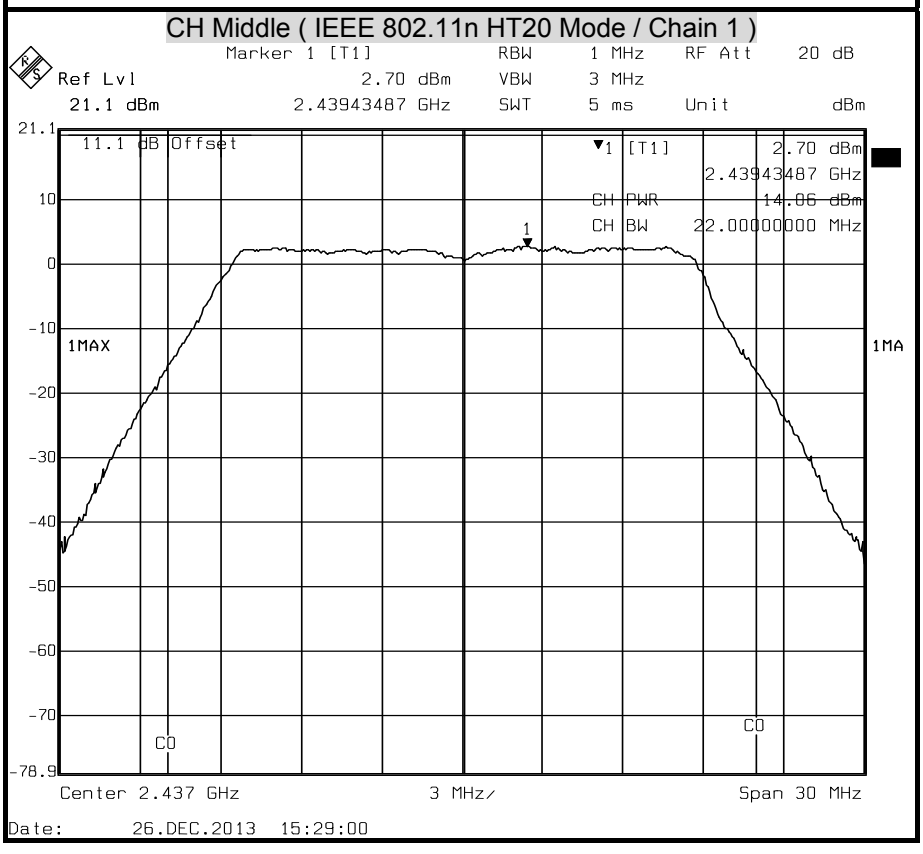


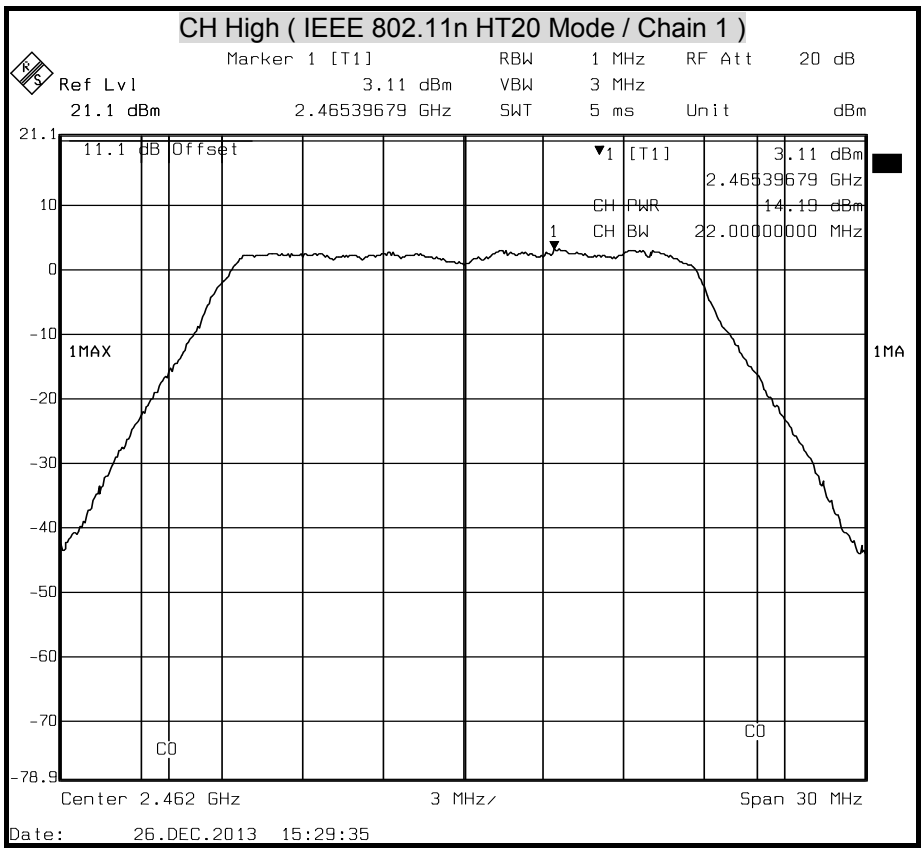


CH Low (IEEE 802.11n HT20 Mode / Chain 1)

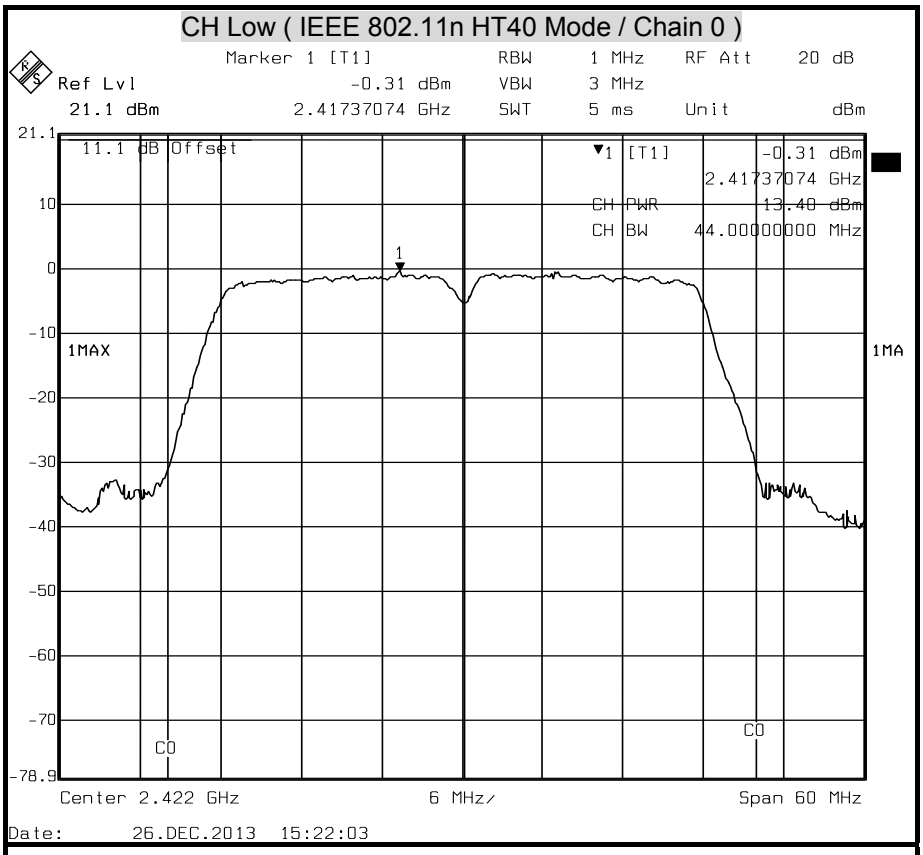


CH Middle (IEEE 802.11n HT20 Mode / Chain 1)

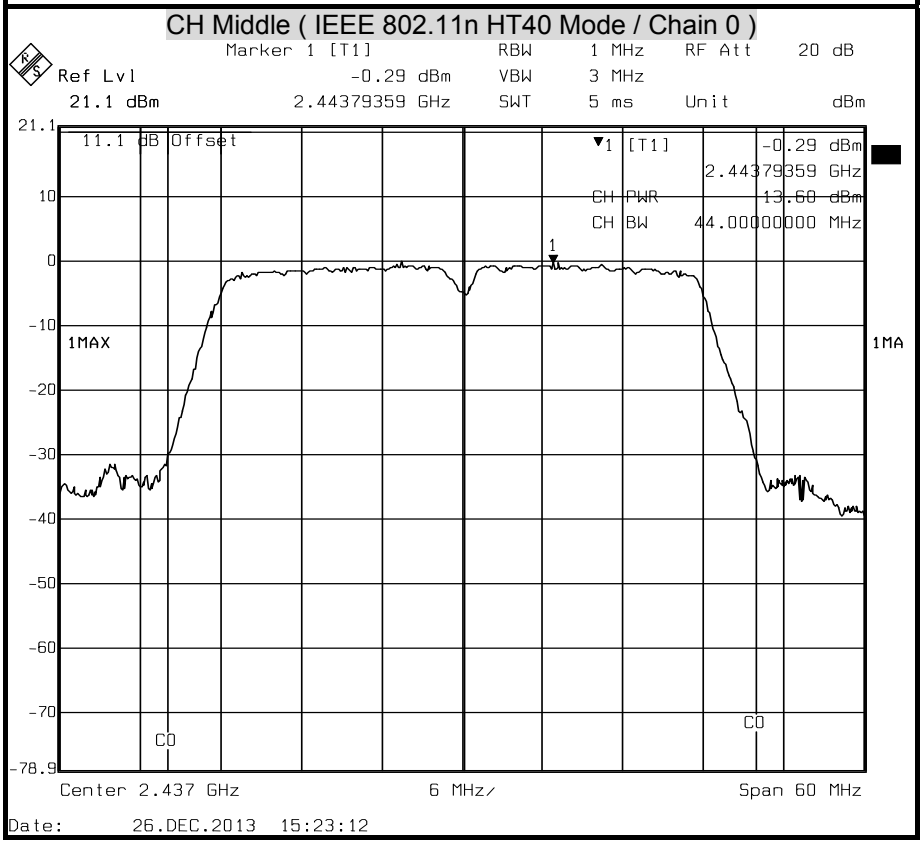


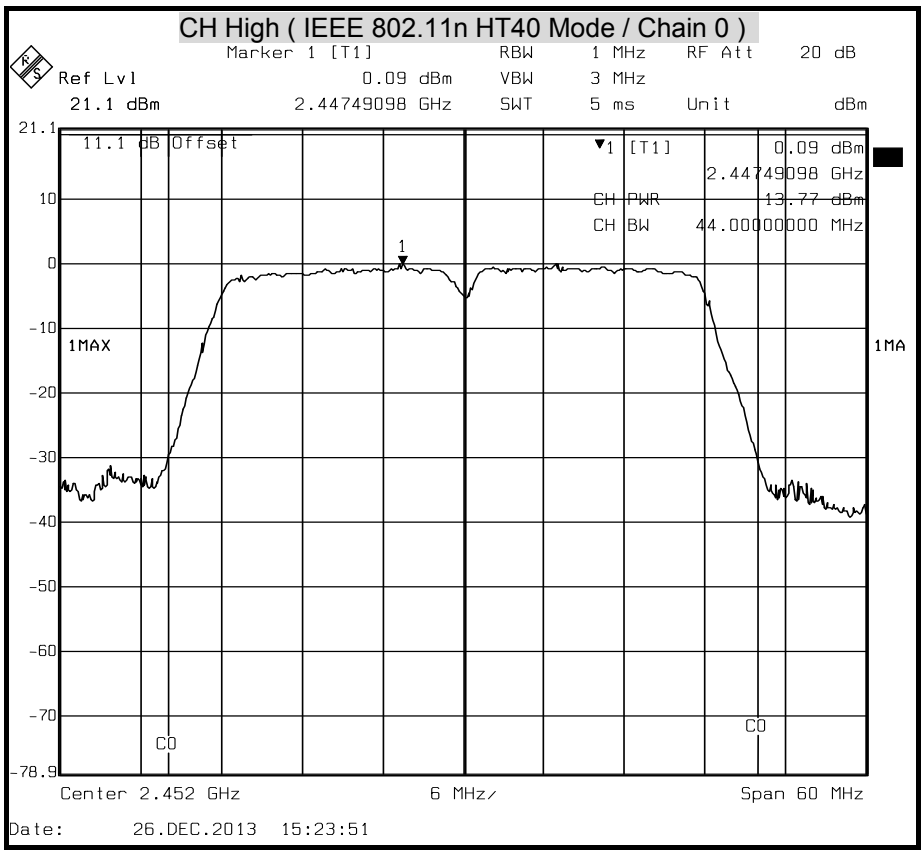


CH Low (IEEE 802.11n HT40 Mode / Chain 0)

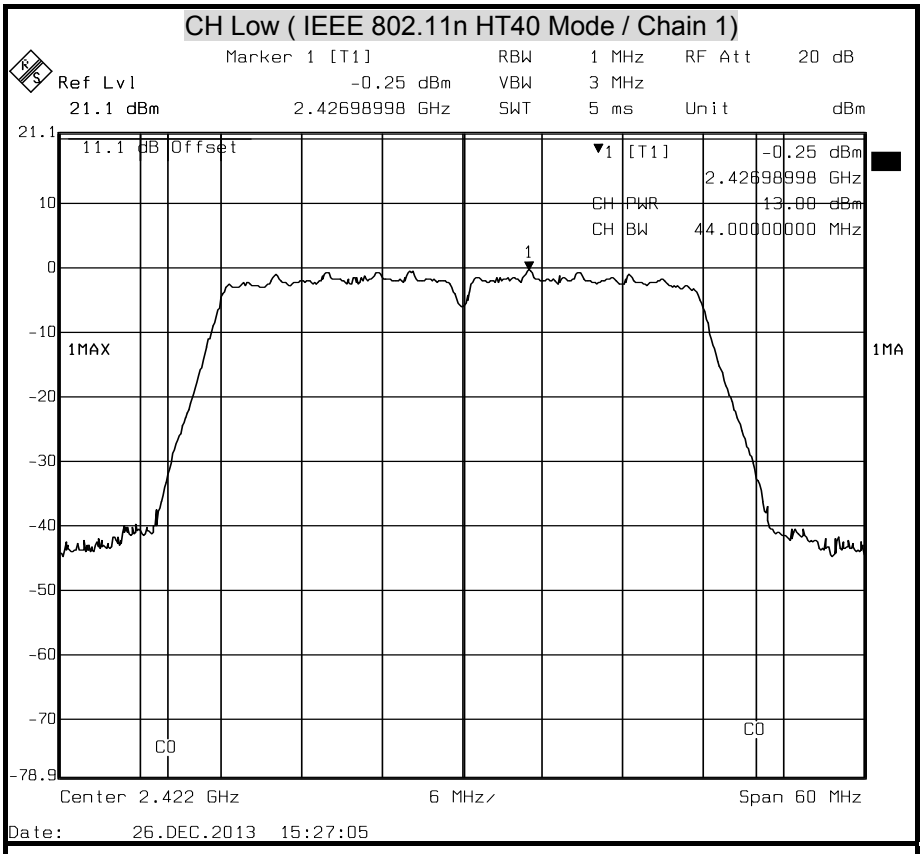


CH Middle (IEEE 802.11n HT40 Mode / Chain 0)

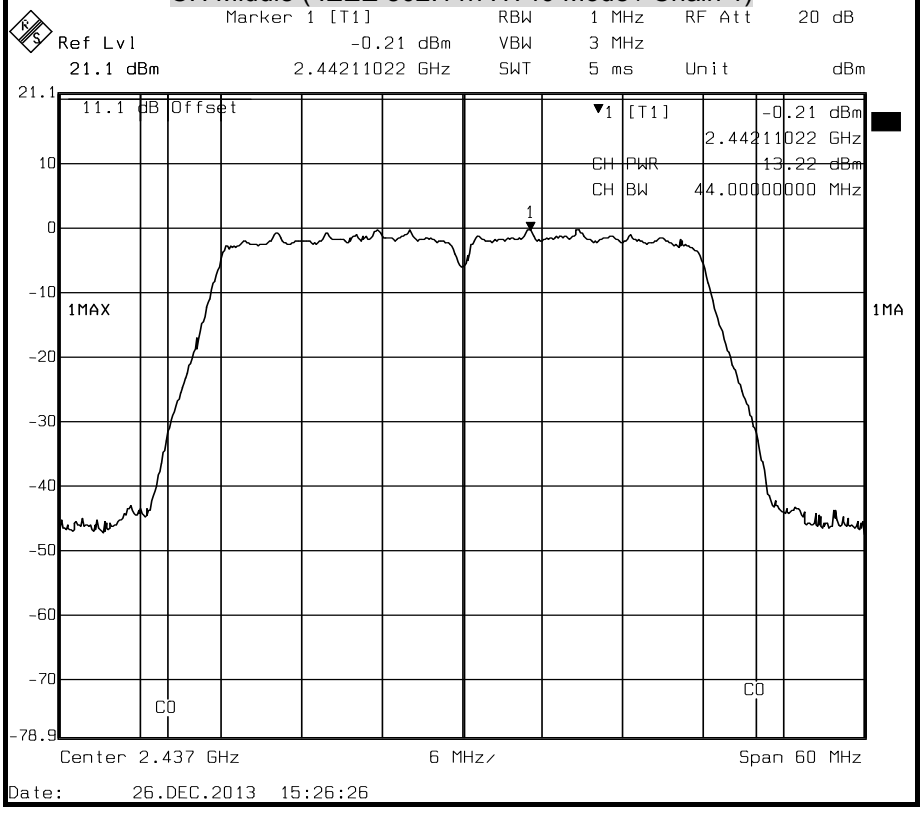


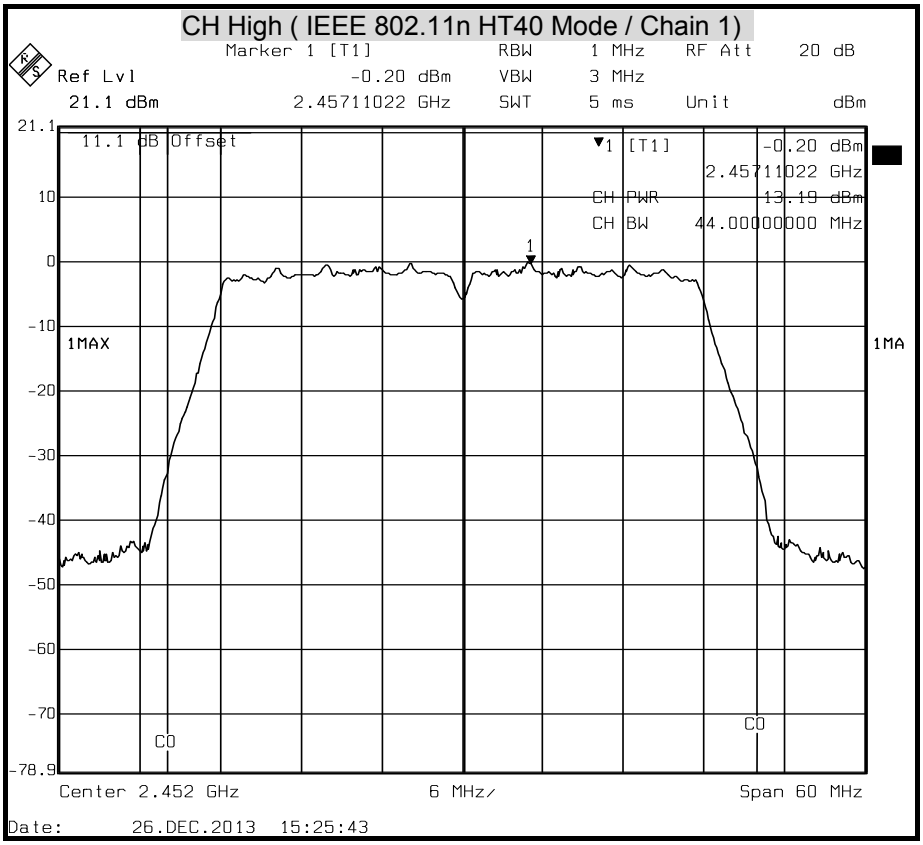


CH Low (IEEE 802.11n HT40 Mode / Chain 1)



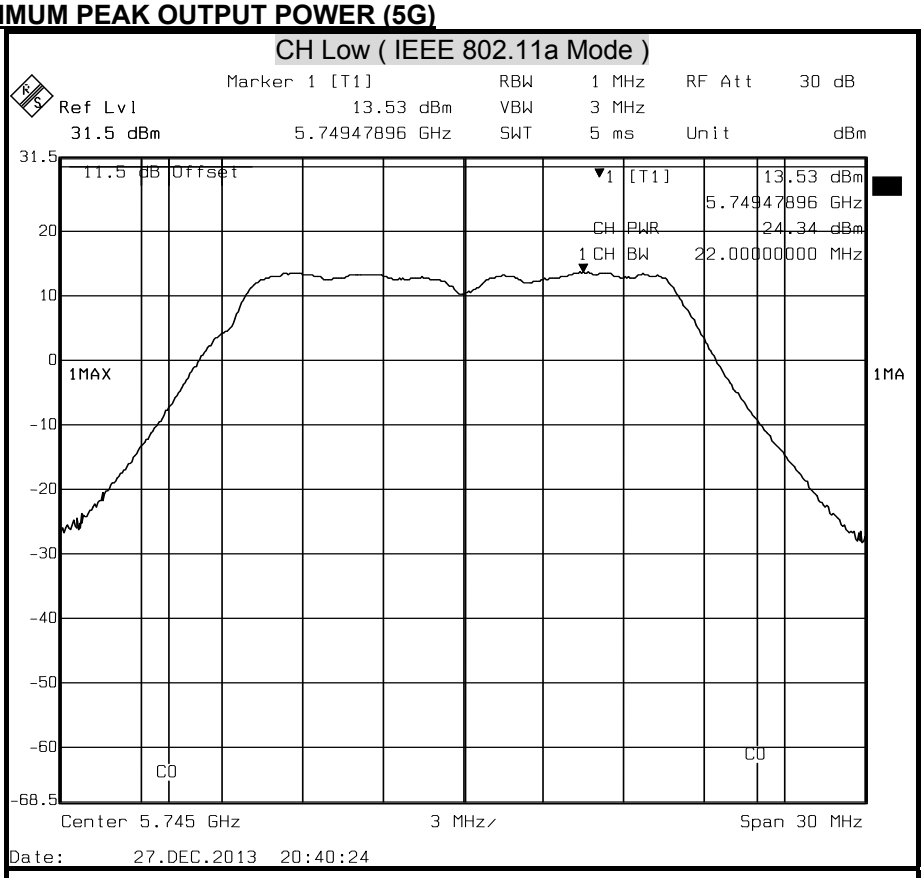
CH Middle (IEEE 802.11n HT40 Mode / Chain 1)



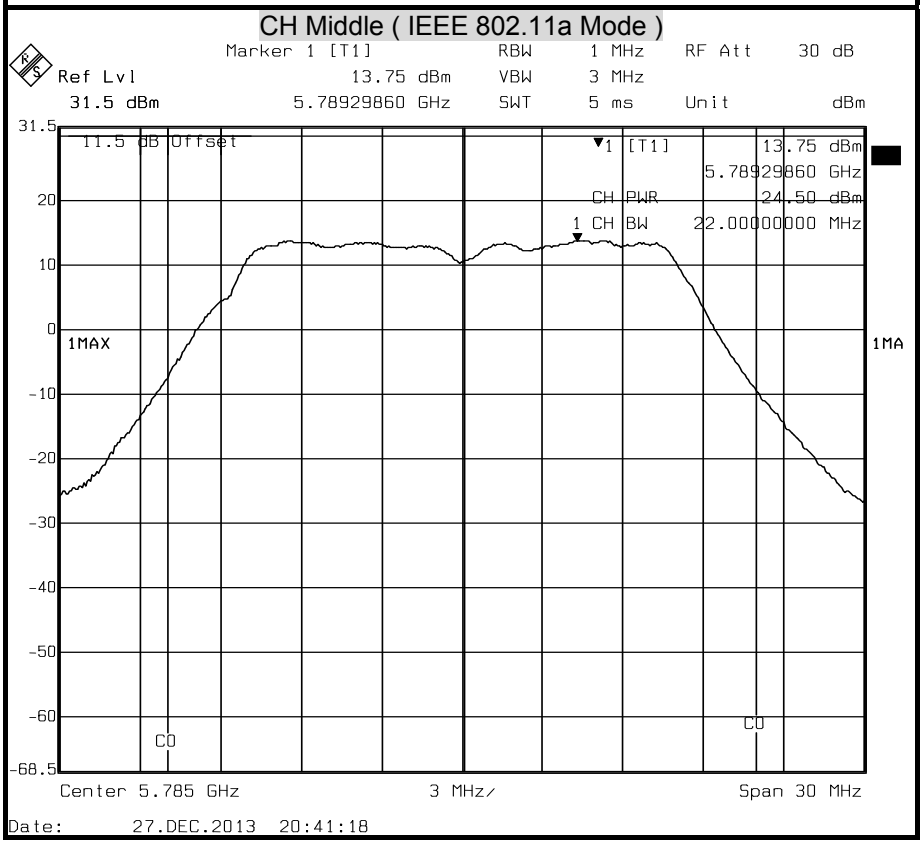


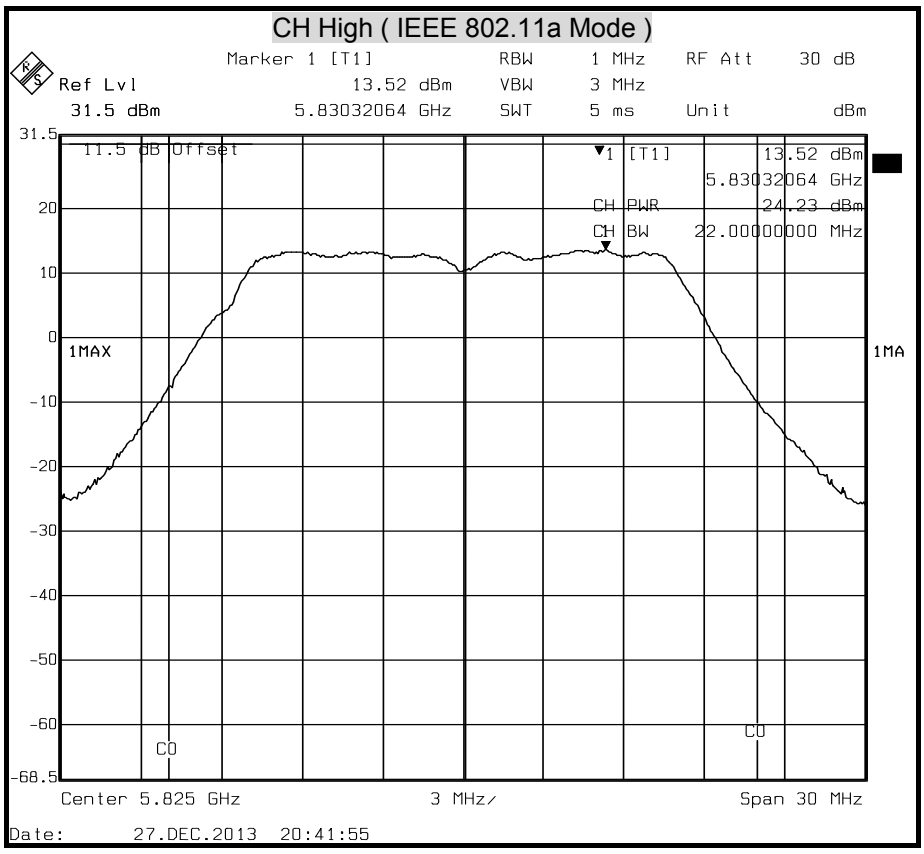
MAXIMUM PEAK OUTPUT POWER (5G)

CH Low (IEEE 802.11a Mode)

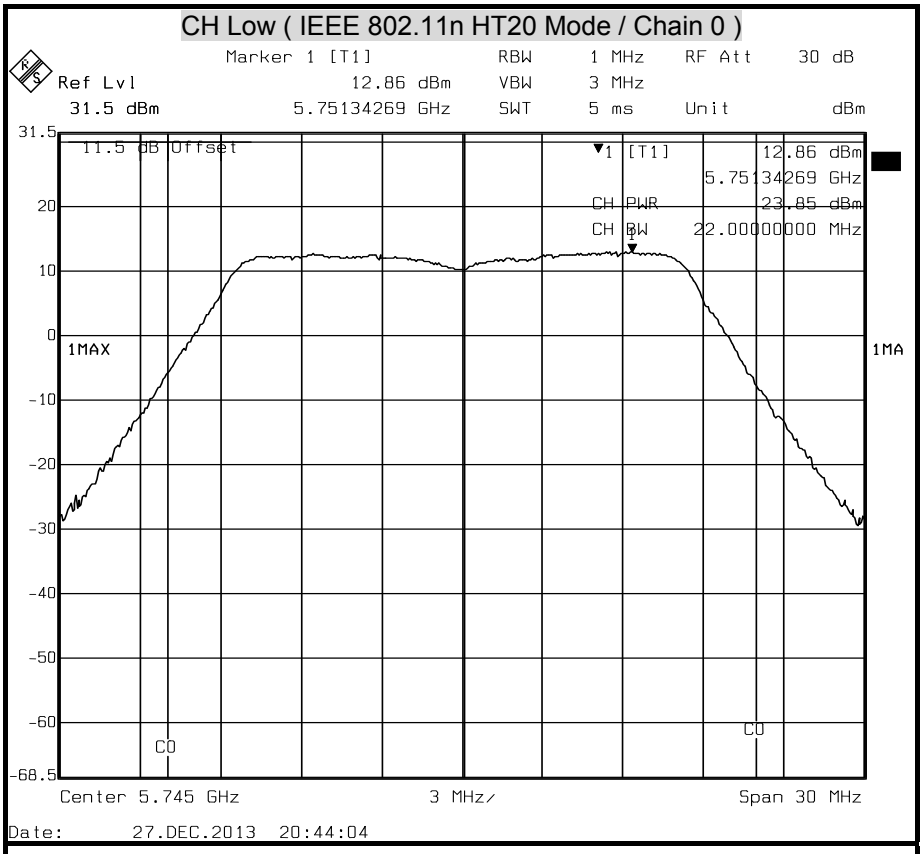


CH Middle (IEEE 802.11a Mode)

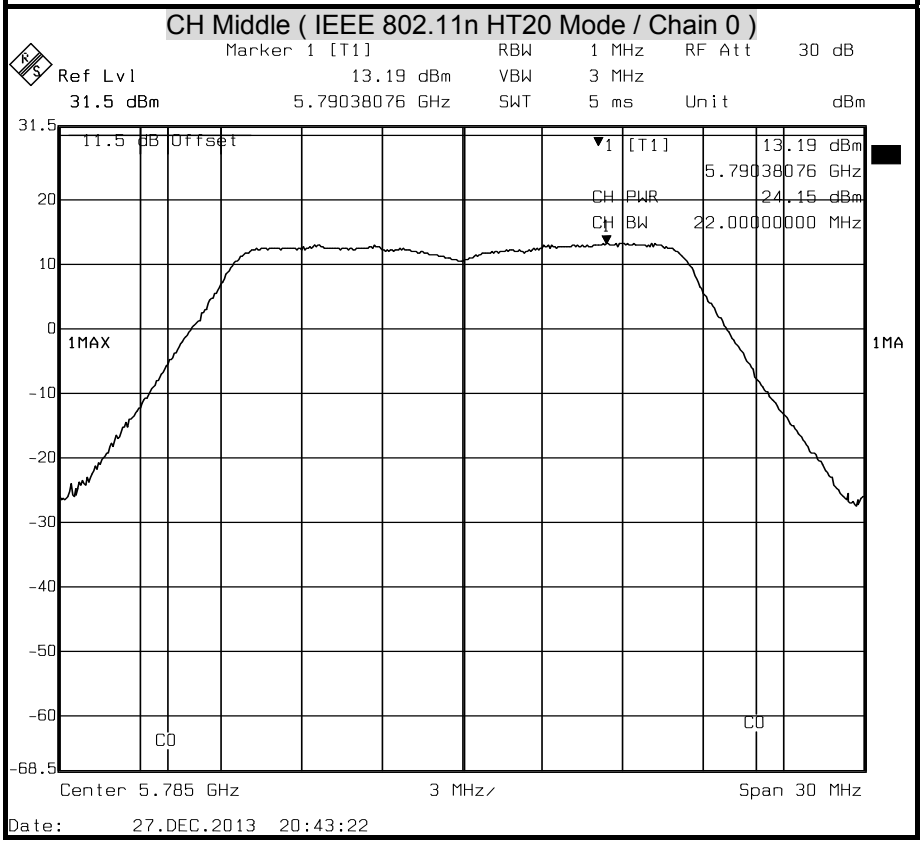


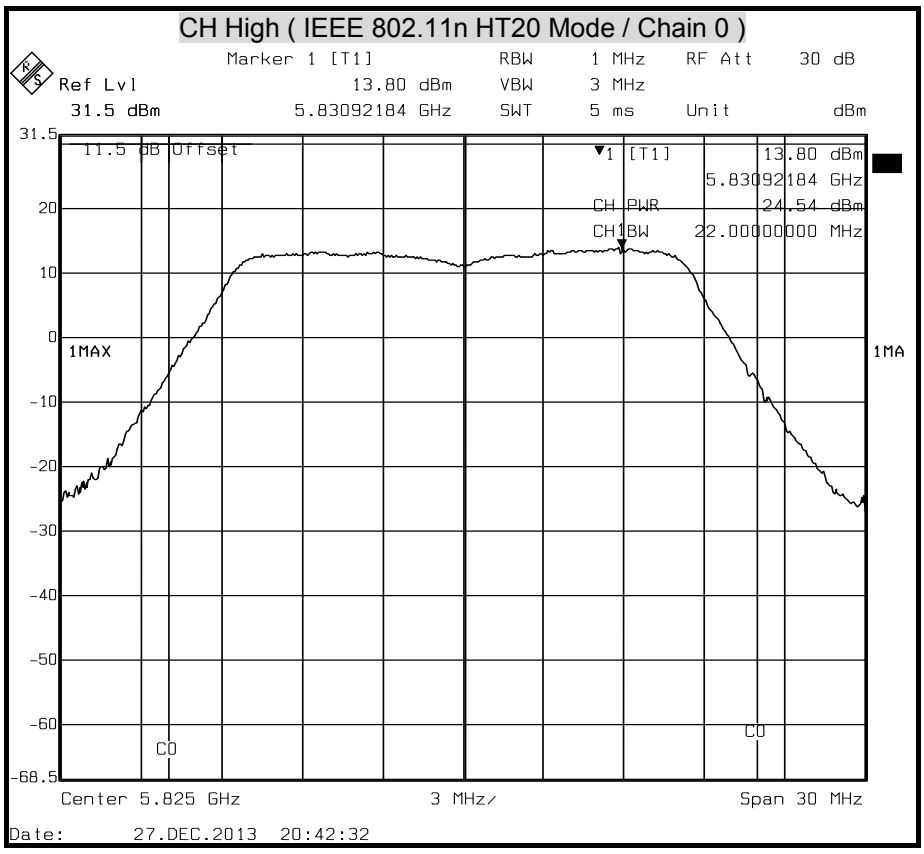


CH Low (IEEE 802.11n HT20 Mode / Chain 0)

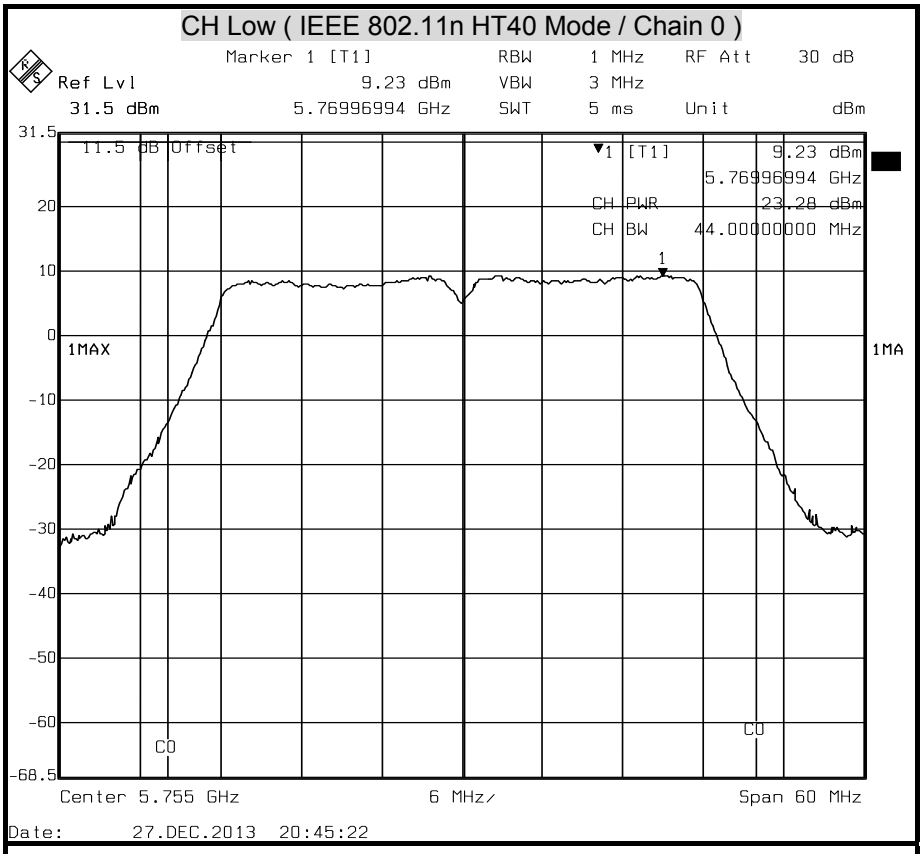


CH Middle (IEEE 802.11n HT20 Mode / Chain 0)

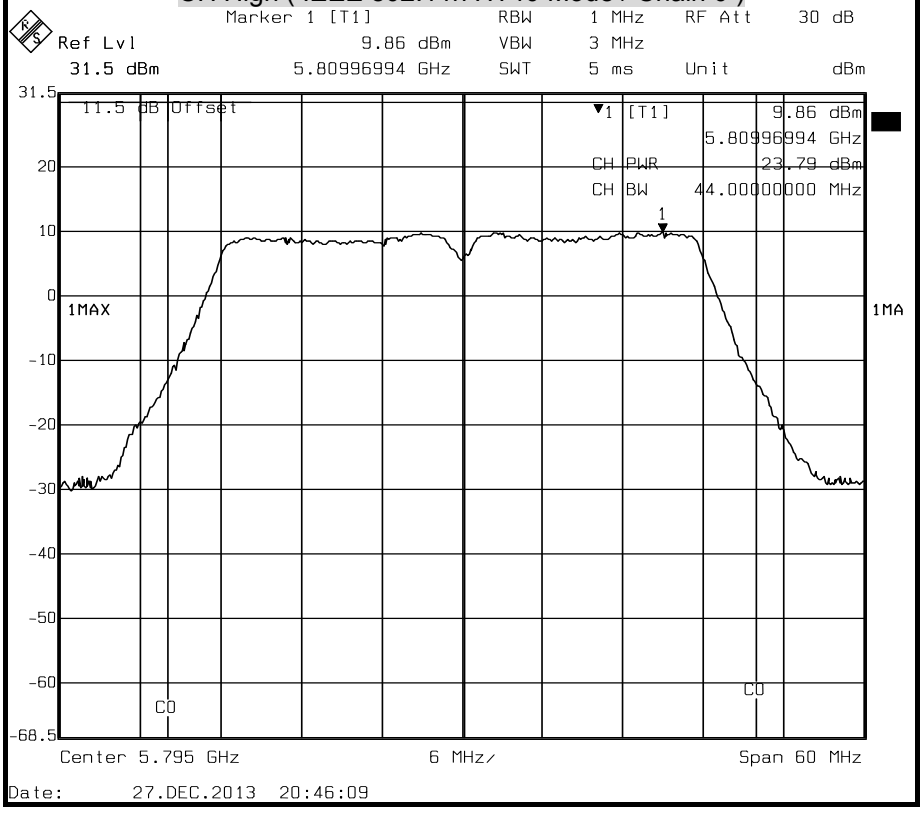


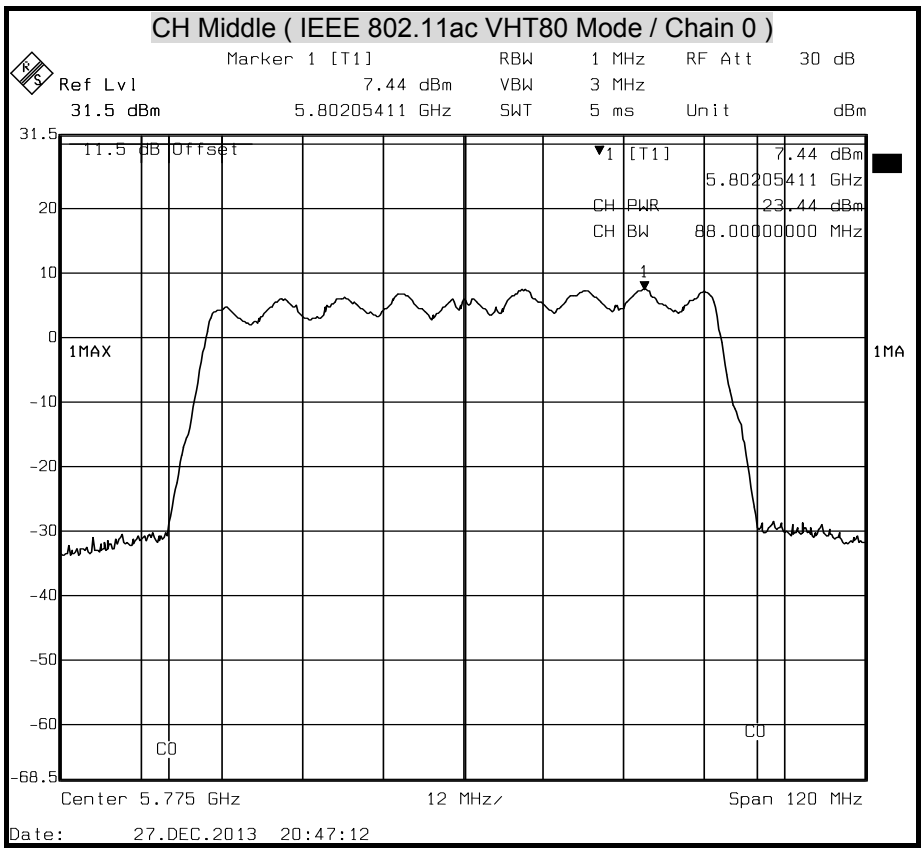


CH Low (IEEE 802.11n HT40 Mode / Chain 0)



CH High (IEEE 802.11n HT40 Mode / Chain 0)





7.3 POWER SPECTRAL DENSITY

LIMITS

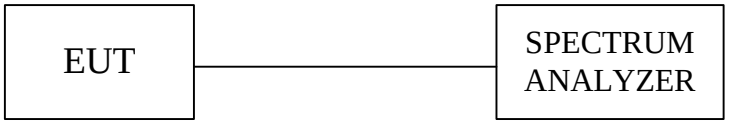
§ 15.247(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	R&S	FSEK 30	835253/002	SEP. 28, 2014

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

The tests were performed in accordance with KDB 558074 10.2.

Method PKPSD (peak PSD)

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance, and is optional if the maximum conducted (average) output power was used to demonstrate compliance.
a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ 3 RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

TEST RESULTS

No non-compliance noted.

TEST RESULTS

IEEE 802.11b Mode

Channel	Frequency (MHz)	Reading (dBm)	Limit (dBm)	Margin (dB)	Result
Low	2412	-1.81	6.00	-7.81	PASS
Middle	2437	-0.69	6.00	-6.69	PASS
High	2462	-0.32	6.00	-6.32	PASS

NOTE : 1. At finial test to get the worst-case emission at 1Mbps long.
2. The cable assembly insertion loss of 11.1dB (including 10 dB pad and 1.1 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11g Mode

Channel	Frequency (MHz)	Reading (dBm)	Limit (dBm)	Margin (dB)	Result
Low	2412	-6.70	6.00	-12.70	PASS
Middle	2437	-6.49	6.00	-12.49	PASS
High	2462	-6.45	6.00	-12.45	PASS

NOTE : 1. At finial test to get the worst-case emission at 6Mbps long.
2. The cable assembly insertion loss of 11.1dB (including 10 dB pad and 1.1 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11n HT20 Mode

Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Margin (dB)	Result
		Chain0	Chain1	Total			
Low	2412	-8.23	-7.77	-4.98	2.99	-7.97	PASS
Middle	2437	-8.03	-8.01	-5.01	2.99	-8.00	PASS
High	2462	-7.96	-7.80	-4.87	2.99	-7.86	PASS

Remark:

1. At finial test to get the worst-case emission at 14.4Mbps.
2. The cable assembly insertion loss of 11.1dB (including 10 dB pad and 1.1 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11n HT40 Mode

Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Margin (dB)	Result
		Chain0	Chain1	Total			
Low	2422	-12.17	-10.96	-8.51	2.99	-11.50	PASS
Middle	2437	-11.61	-10.83	-8.19	2.99	-11.18	PASS
High	2452	-11.40	-11.34	-8.36	2.99	-11.35	PASS

Remark:

1. At finial test to get the worst-case emission at 30Mbpss.

2. The cable assembly insertion loss of 11.1dB (including 10 dB pad and 1.1 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11a Mode

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Minimum Limit (dBm)	Pass / Fail
Low	5745	0.98	7	PASS
Middle	5785	1.23		PASS
High	5825	1.39		PASS

Remark:

1. At finial test to get the worst-case emission at 6Mbps.
2. The cable assembly insertion loss of 11.5dB (including 10 dB pad and 1.5 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11n HT20 Mode

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Minimum Limit (dBm)	Pass / Fail
Low	5745	2.22	7	PASS
Middle	5785	2.21		PASS
High	5825	2.55		PASS

Remark:

1. At finial test to get the worst-case emission at 7.2Mbps.
2. The cable assembly insertion loss of 11.5dB (including 10 dB pad and 1.5 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11n HT40 Mode

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Minimum Limit (dBm)	Pass / Fail
Low	5755	-1.51	7	PASS
High	5795	-0.85		PASS

Remark:

1. At finial test to get the worst-case emission at 15Mbp.
2. The cable assembly insertion loss of 11.5dB (including 10 dB pad and 1.5 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11ac VHT40 Mode

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Minimum Limit (dBm)	Pass / Fail
Middle	5775	-2.75	7	PASS

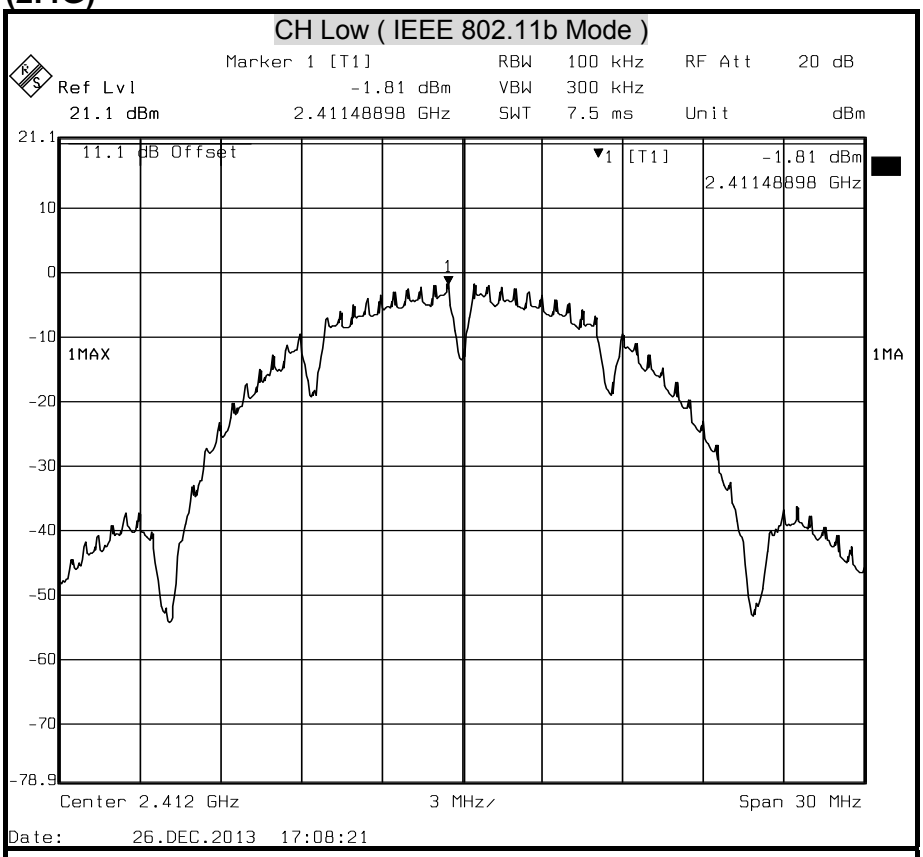
Remark:

1. At finial test to get the worst-case emission at 32.5Mbp.
2. The cable assembly insertion loss of 11.5dB (including 10 dB pad and 1.5 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

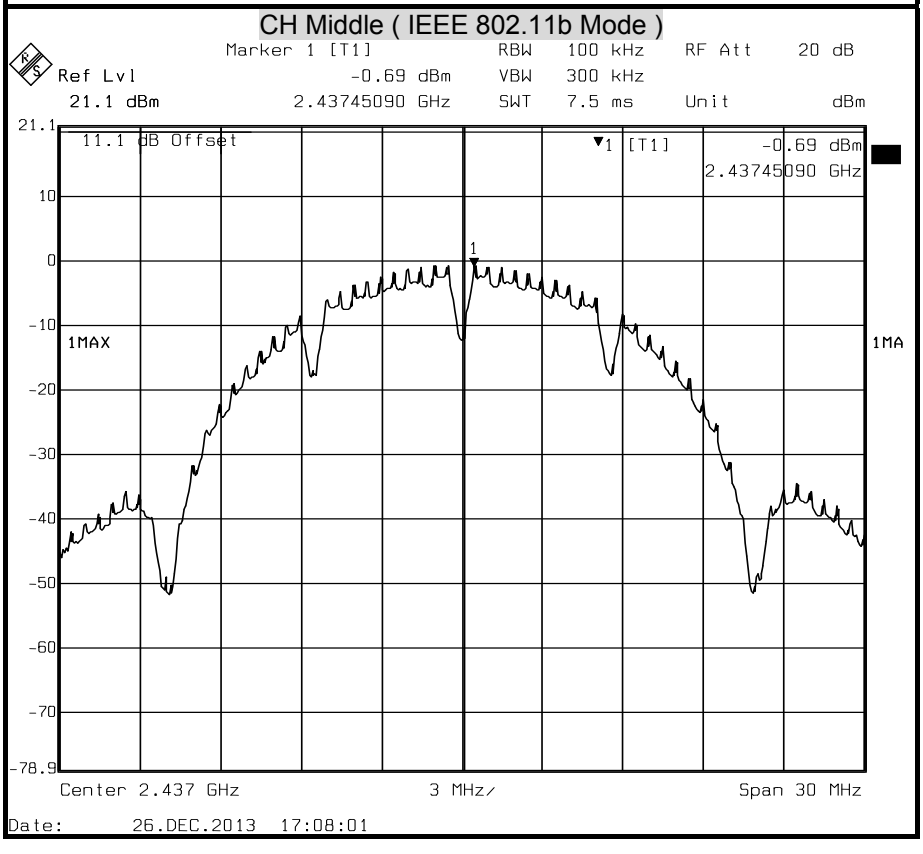
POWER SPECTRAL DENSITY

(2.4G)

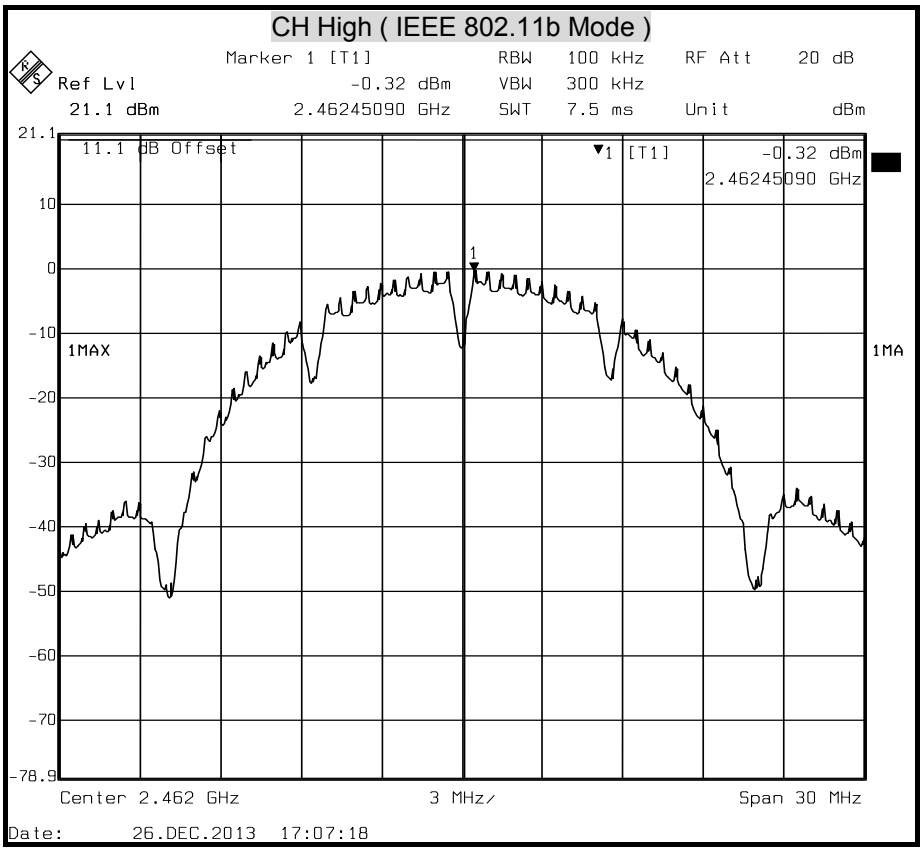
CH Low (IEEE 802.11b Mode)



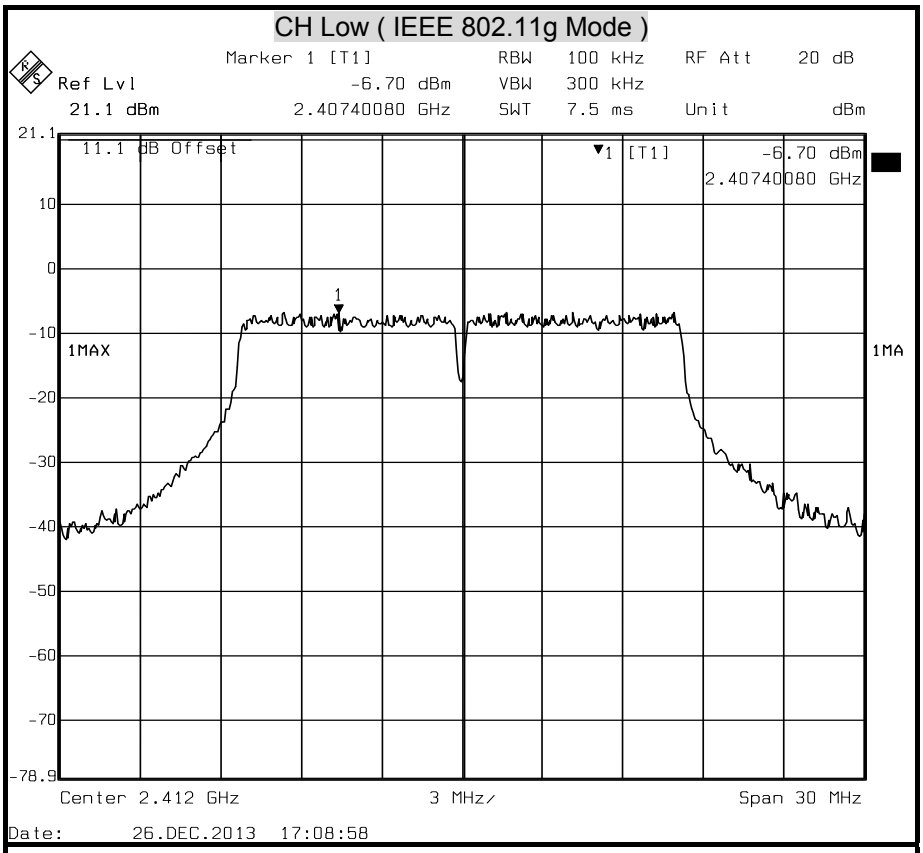
CH Middle (IEEE 802.11b Mode)



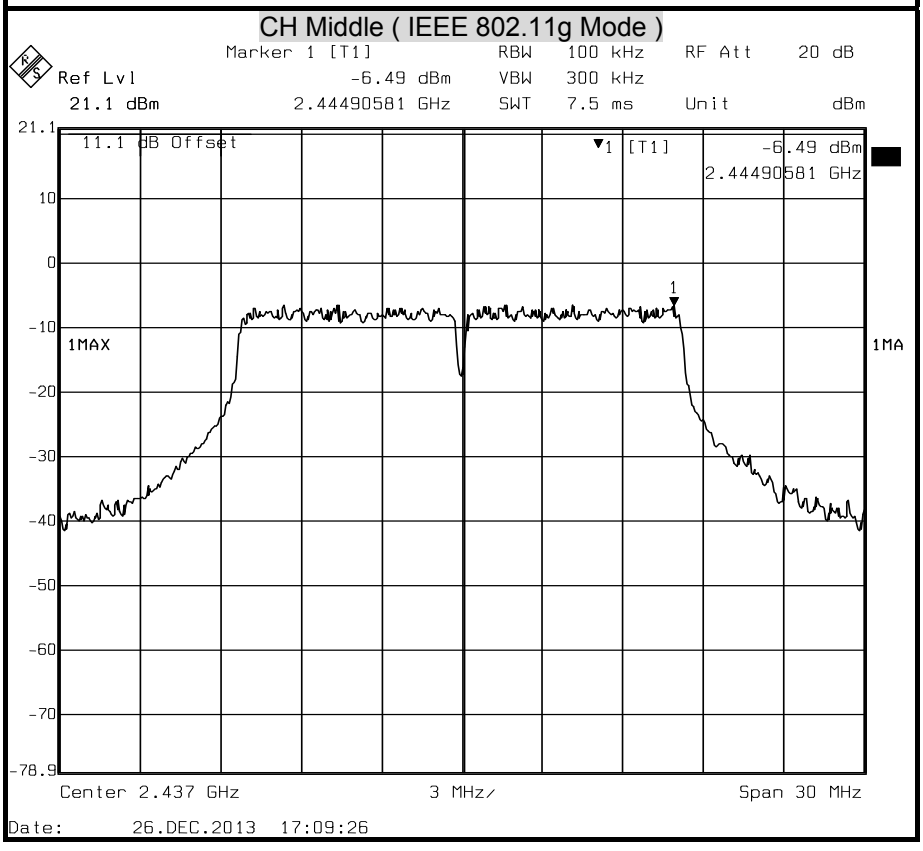
CH High (IEEE 802.11b Mode)



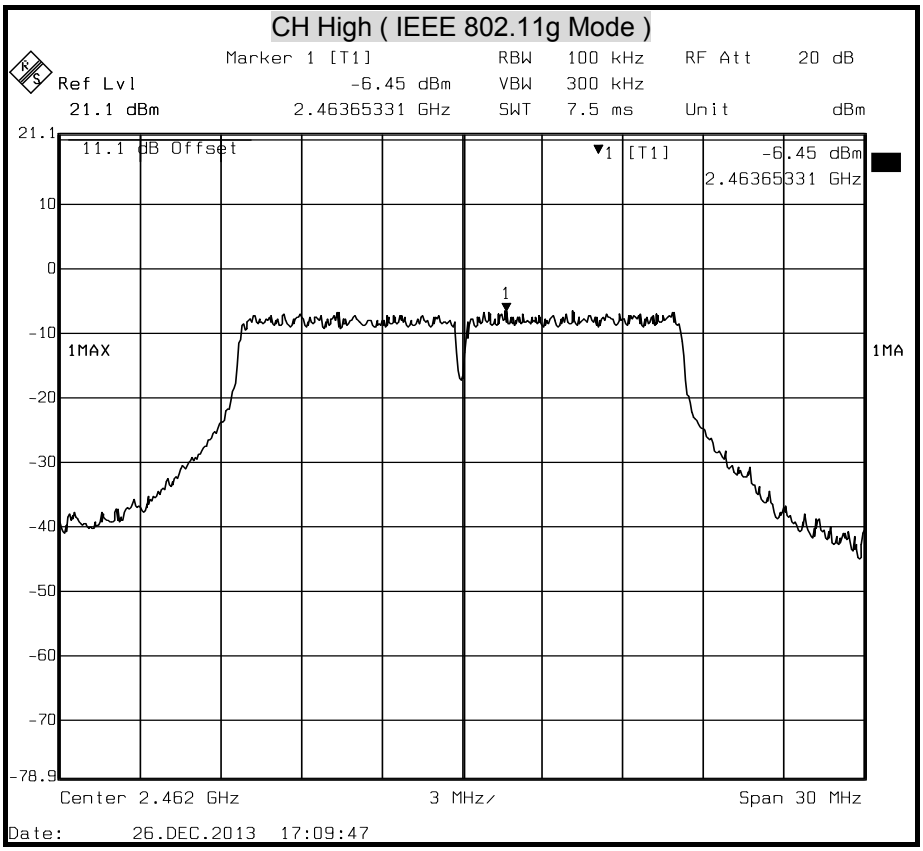
CH Low (IEEE 802.11g Mode)



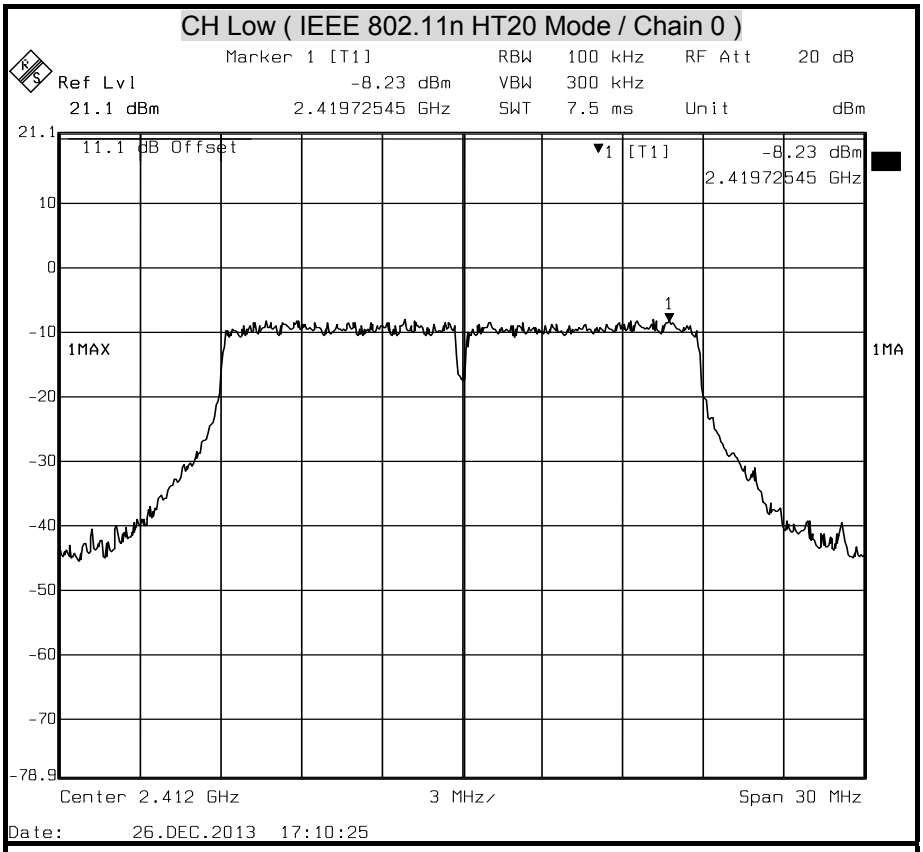
CH Middle (IEEE 802.11g Mode)



CH High (IEEE 802.11g Mode)



CH Low (IEEE 802.11n HT20 Mode / Chain 0)



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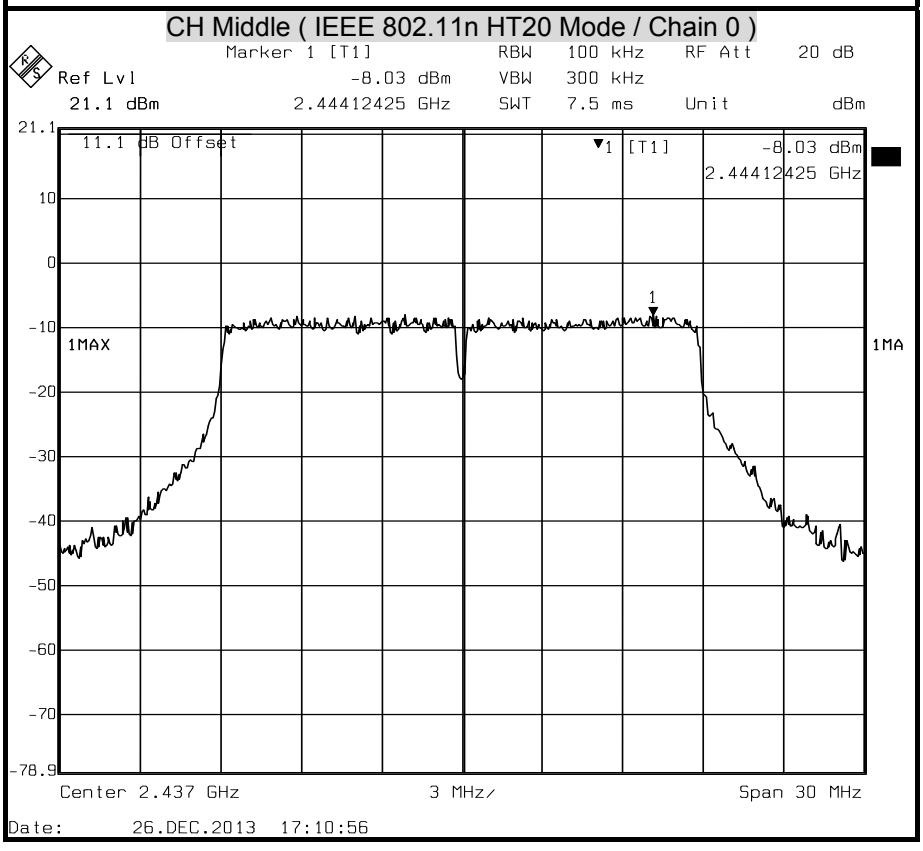
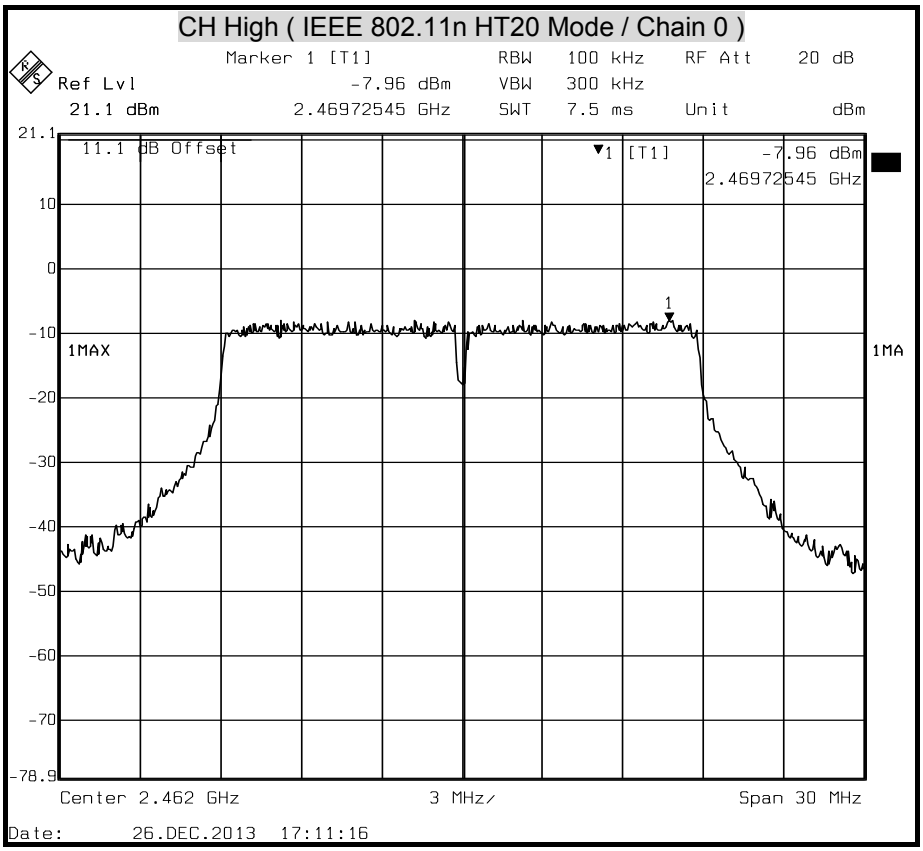


CH High (IEEE 802.11n HT20 Mode / Chain 0)



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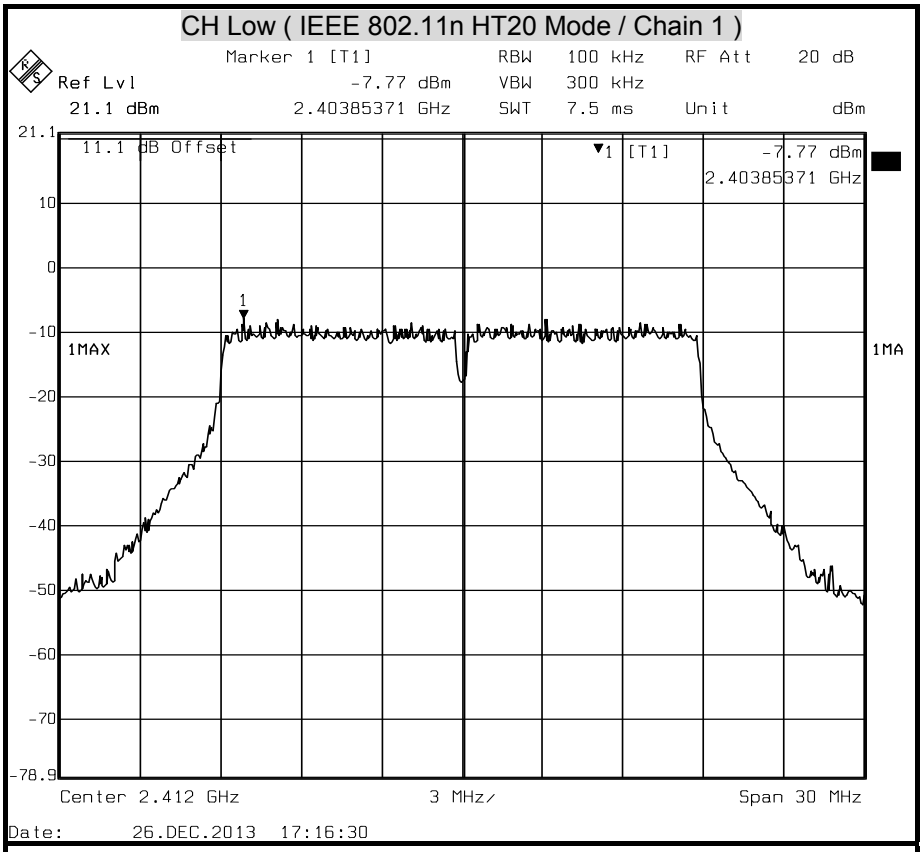
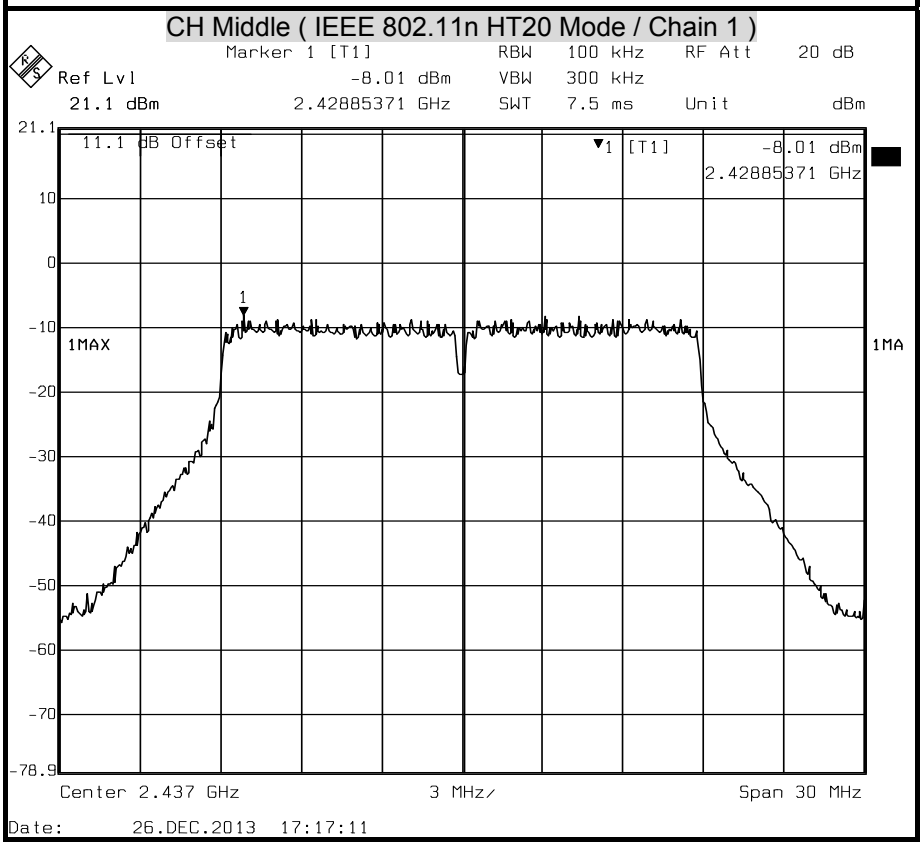
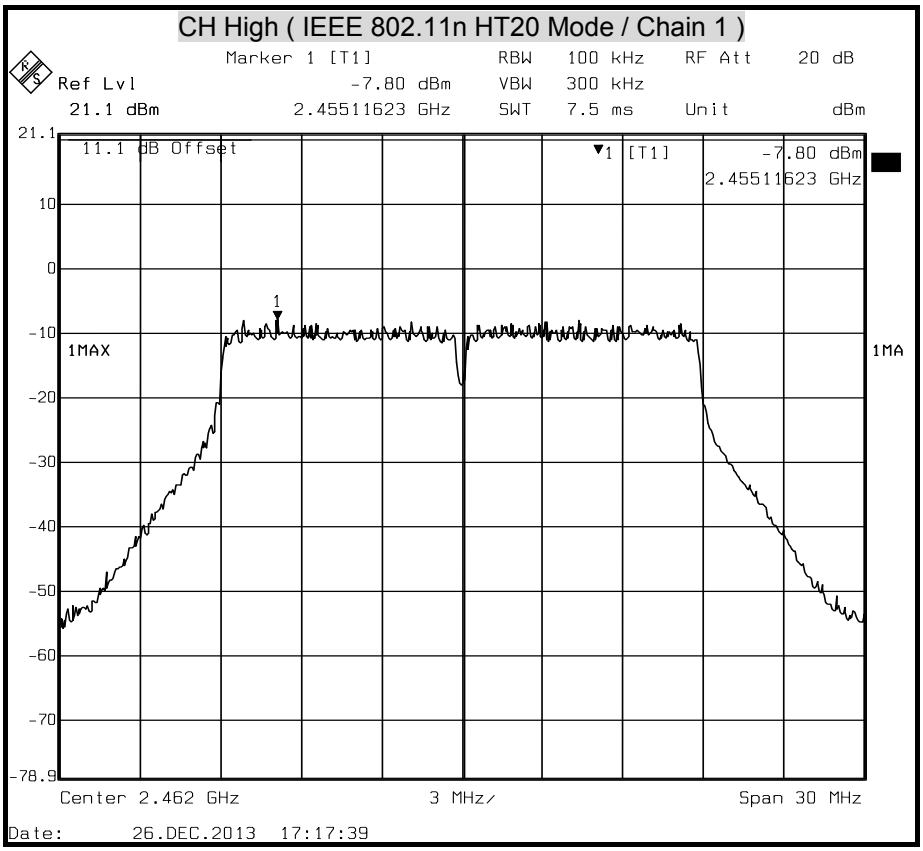


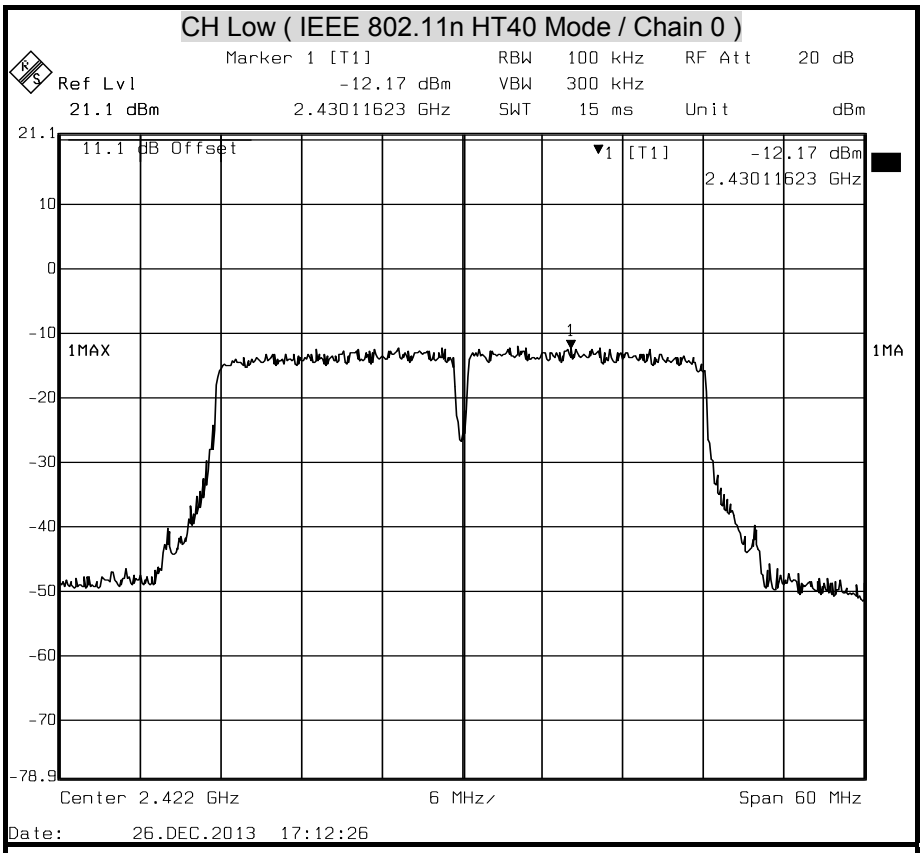
CH Middle (IEEE 802.11n HT20 Mode / Chain 1)



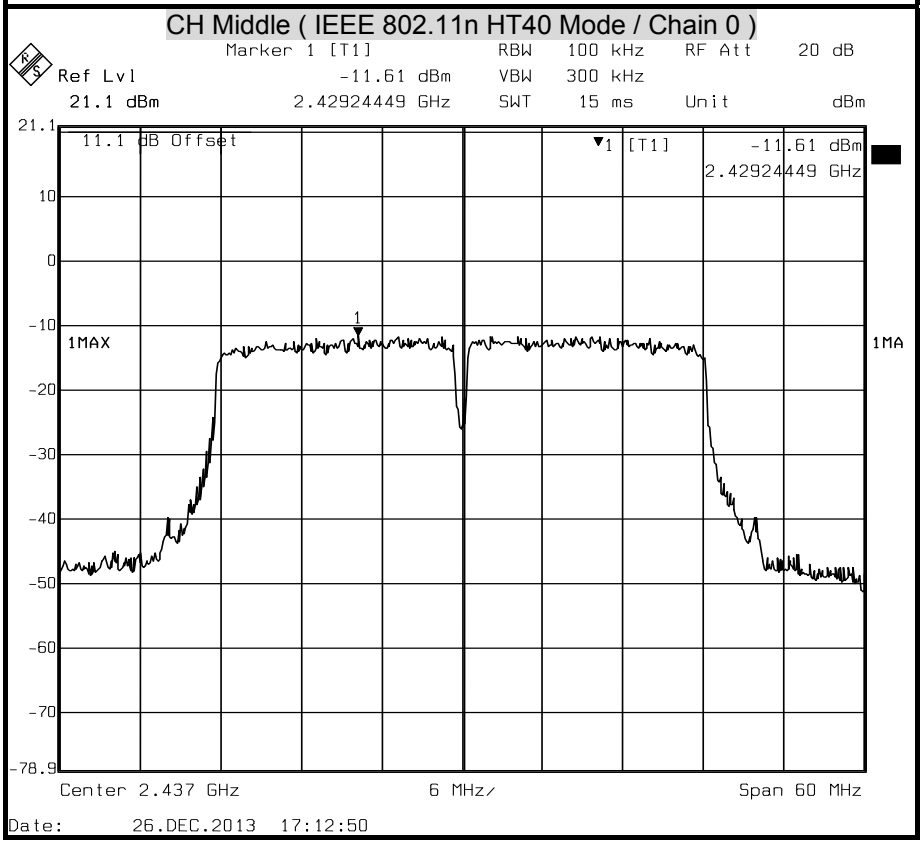
CH High (IEEE 802.11n HT20 Mode / Chain 1)

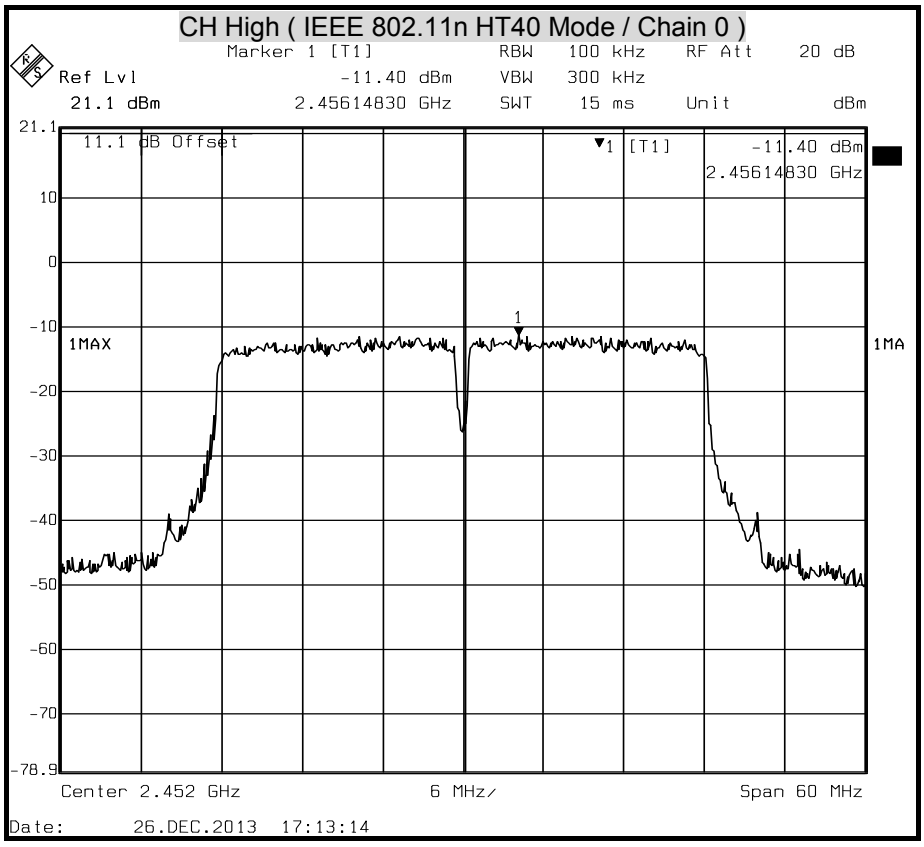


CH Low (IEEE 802.11n HT40 Mode / Chain 0)

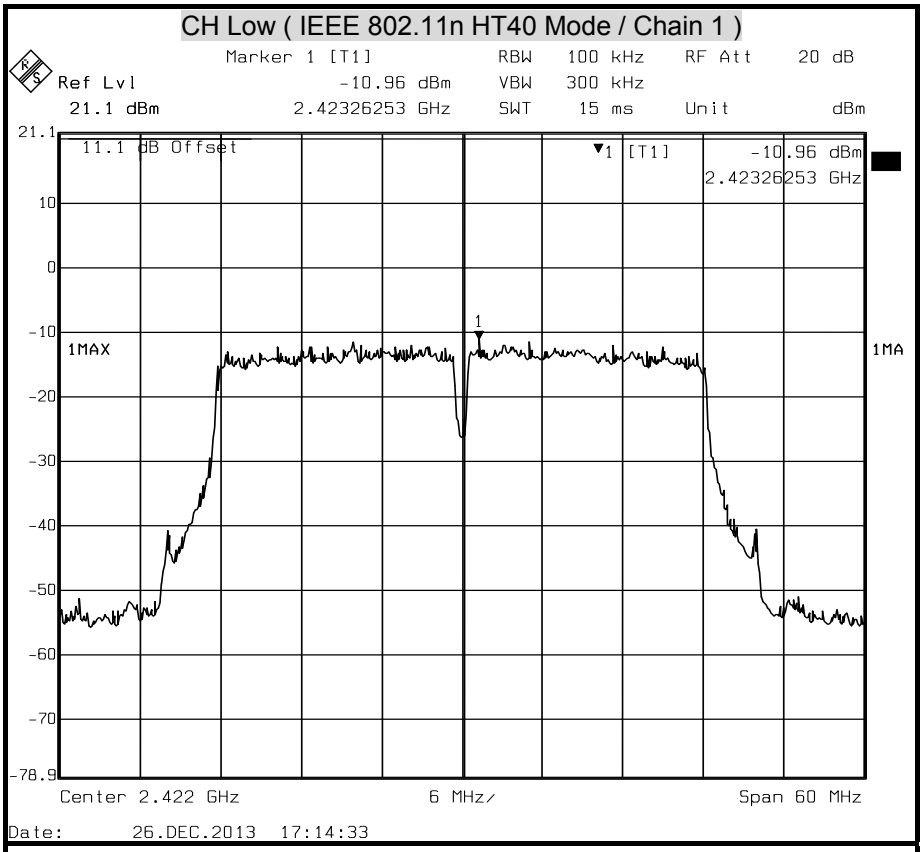


CH Middle (IEEE 802.11n HT40 Mode / Chain 0)

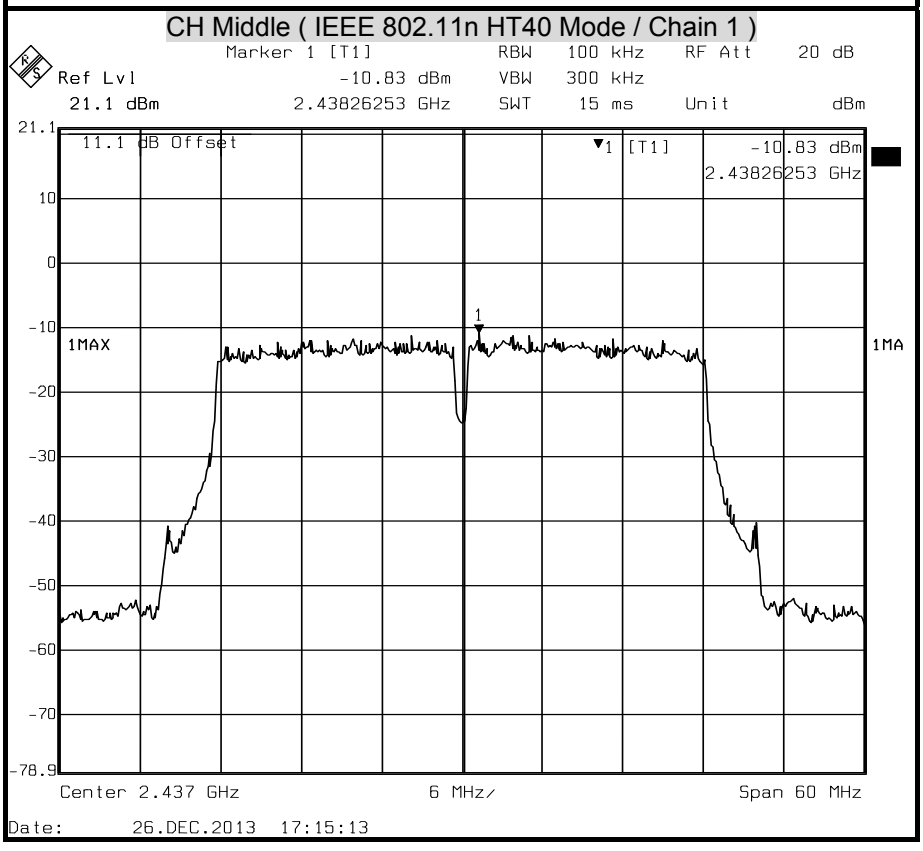


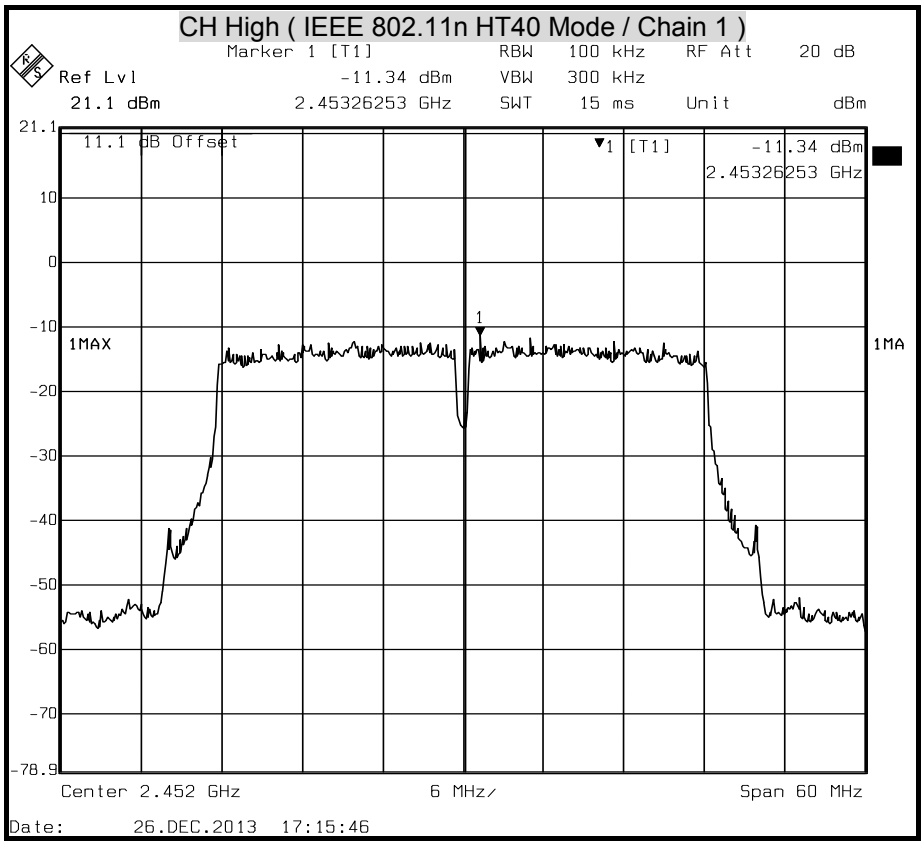


CH Low (IEEE 802.11n HT40 Mode / Chain 1)



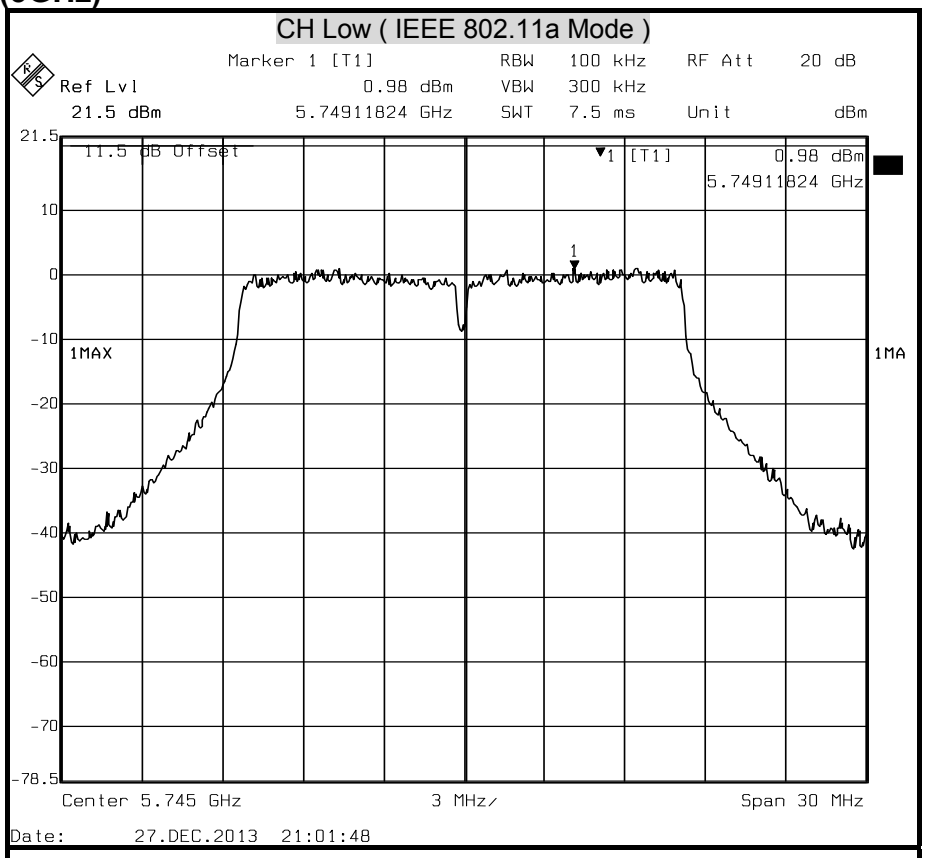
CH Middle (IEEE 802.11n HT40 Mode / Chain 1)



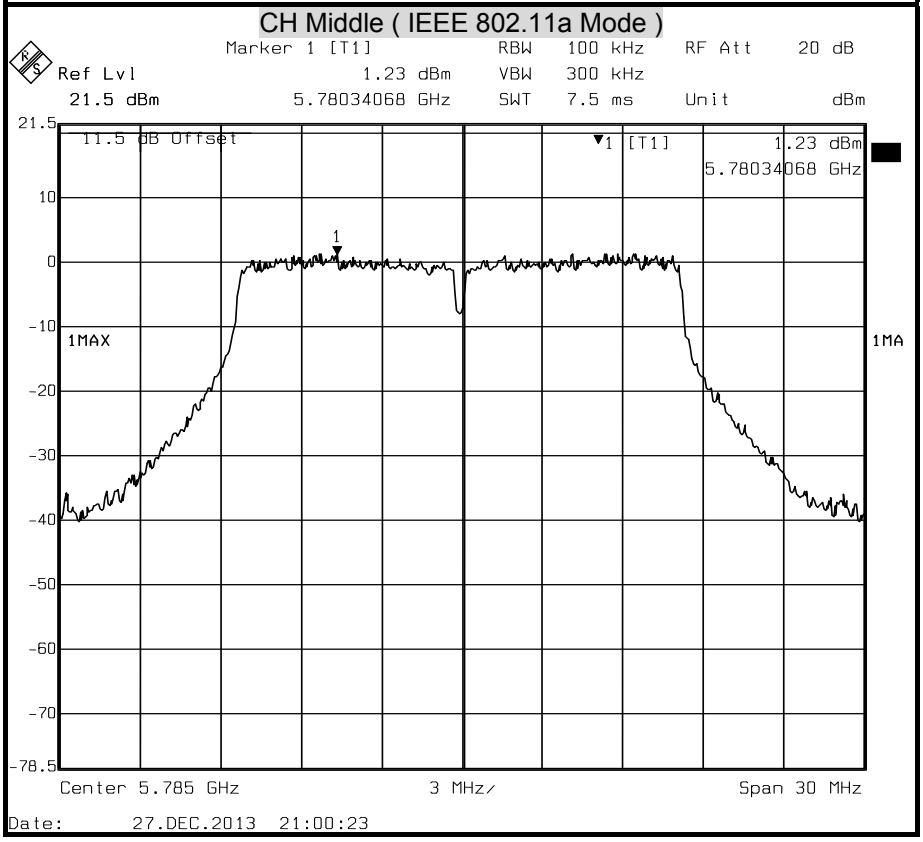


(5GHz)

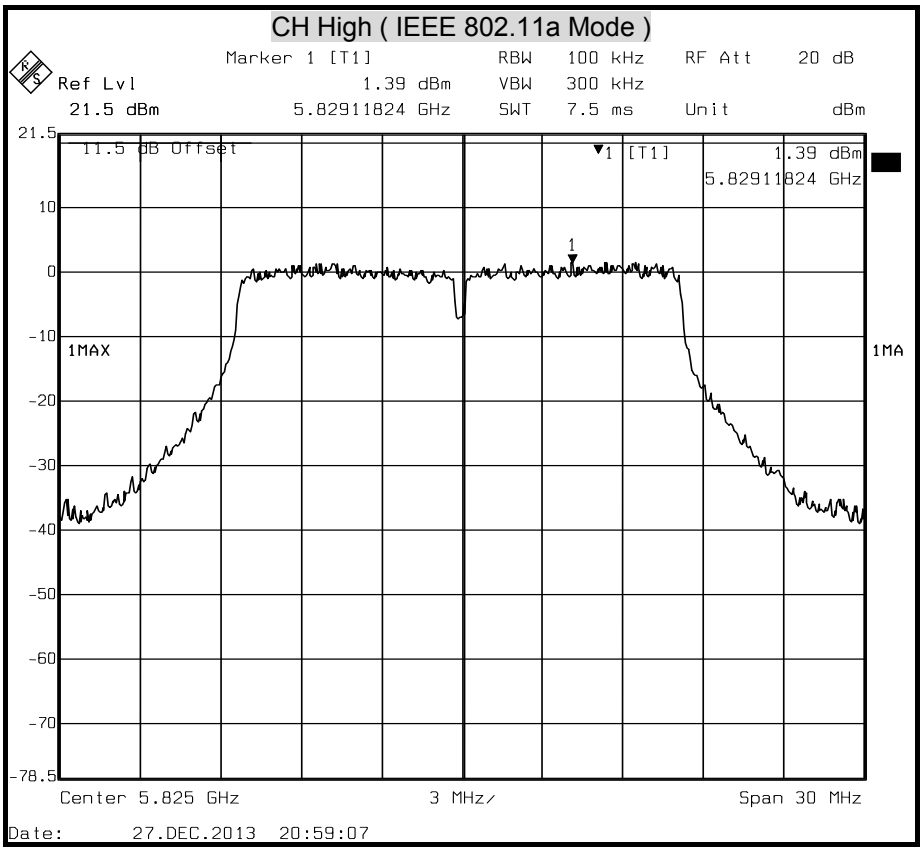
CH Low (IEEE 802.11a Mode)



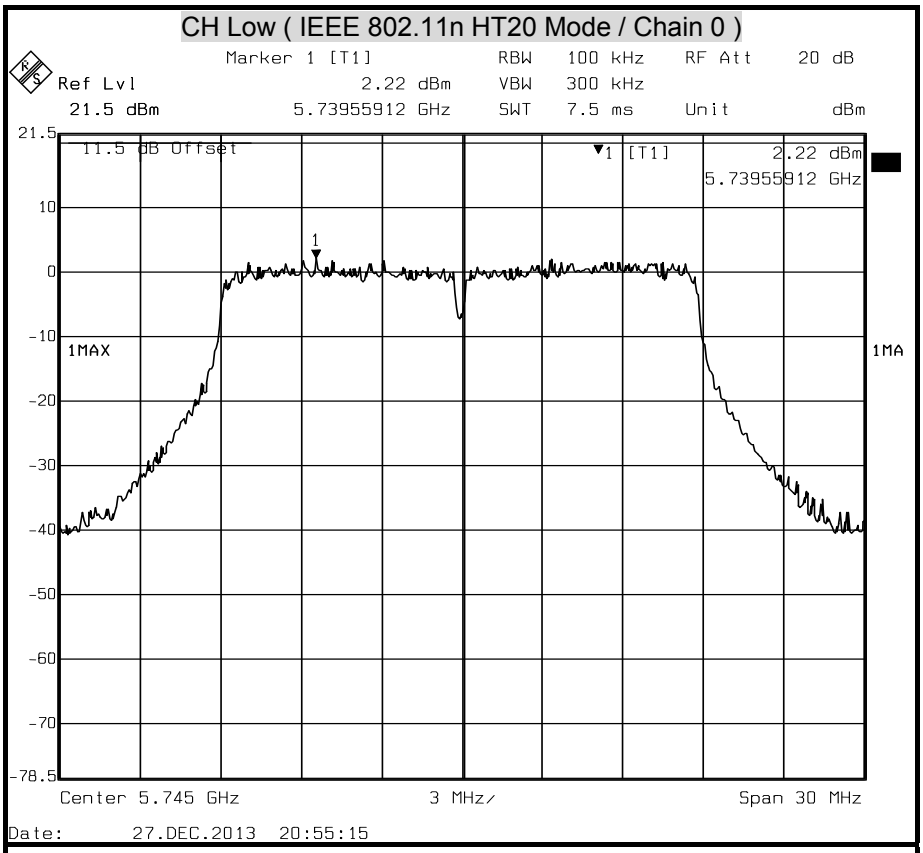
CH Middle (IEEE 802.11a Mode)



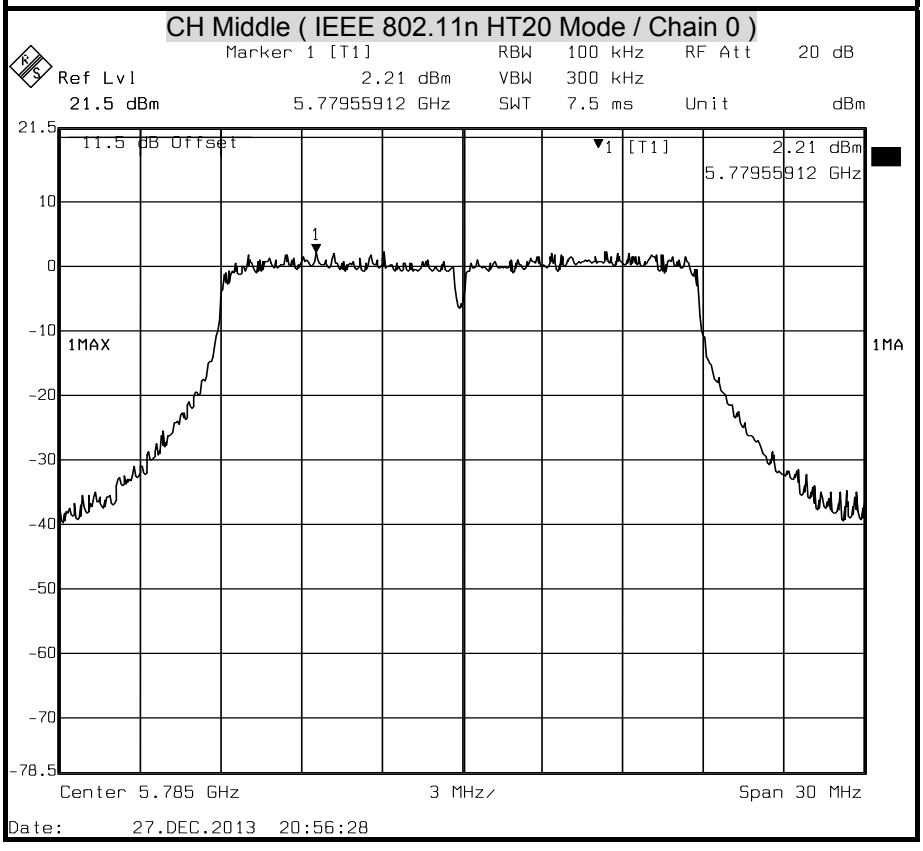
CH High (IEEE 802.11a Mode)



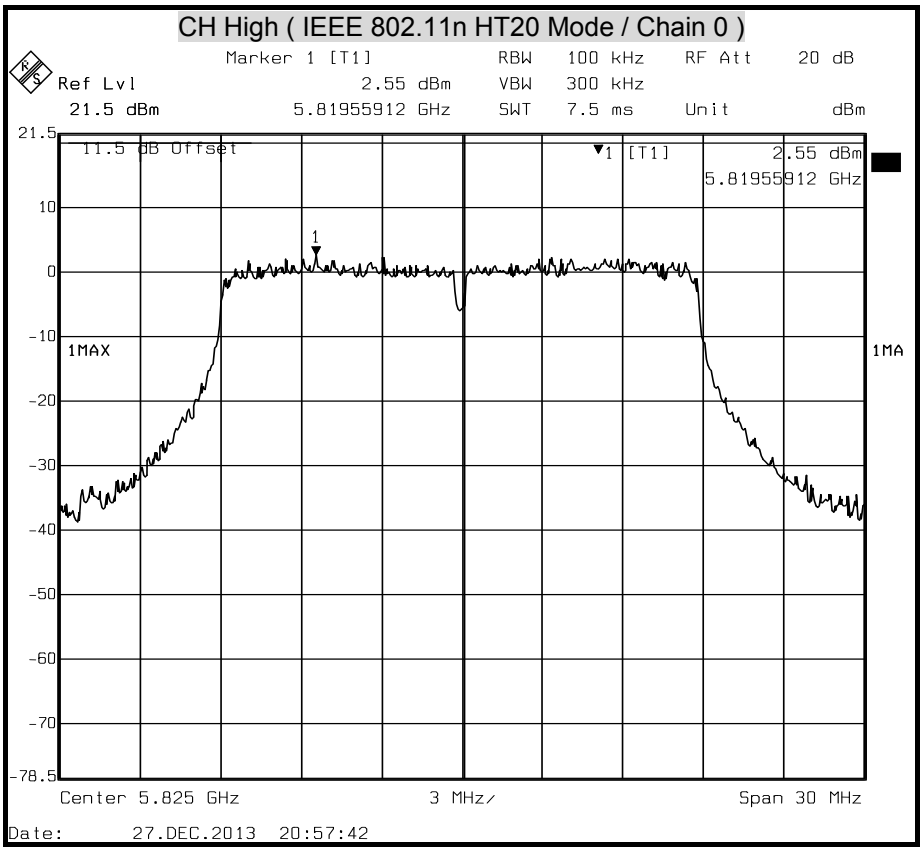
CH Low (IEEE 802.11n HT20 Mode / Chain 0)



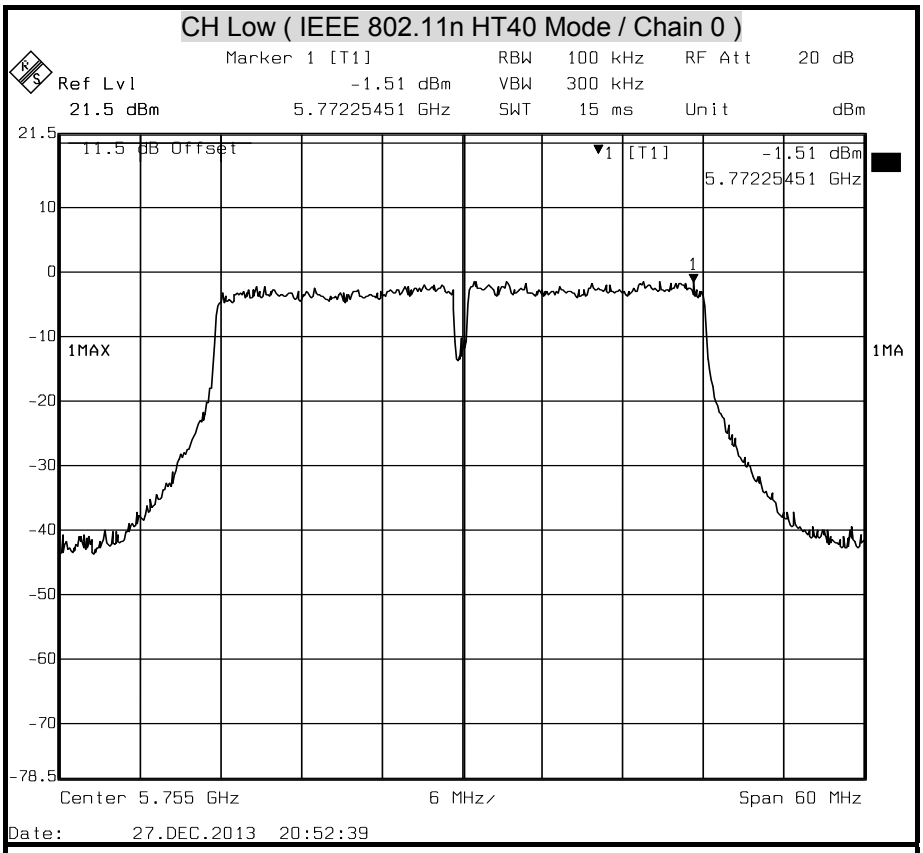
CH Middle (IEEE 802.11n HT20 Mode / Chain 0)



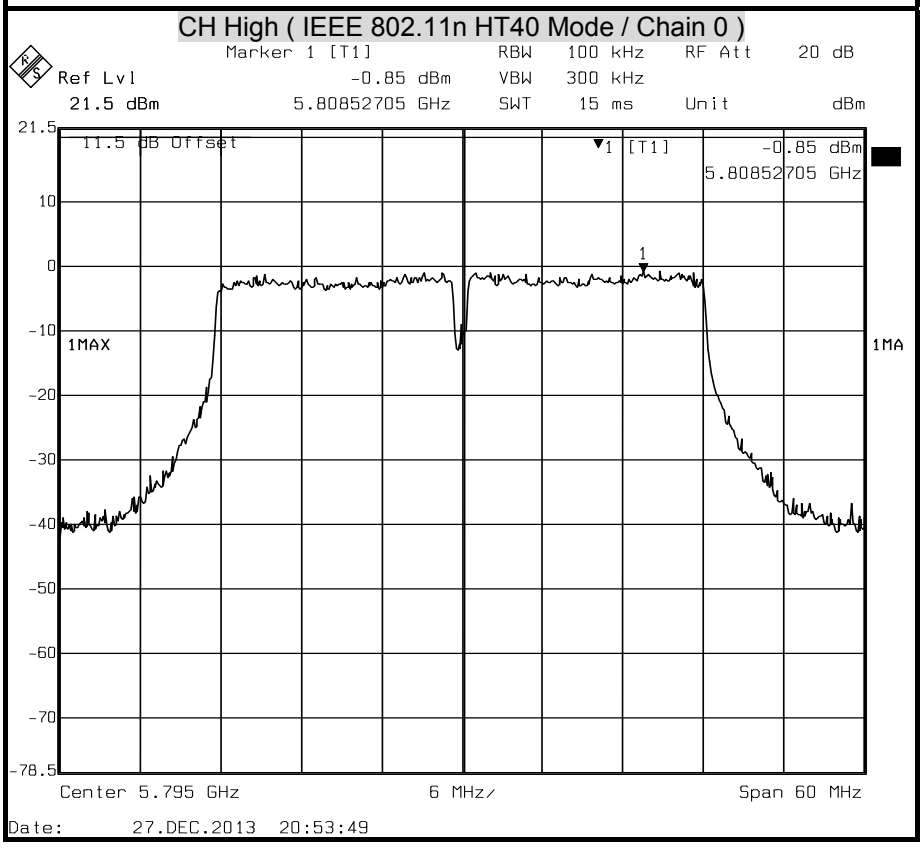
CH High (IEEE 802.11n HT20 Mode / Chain 0)

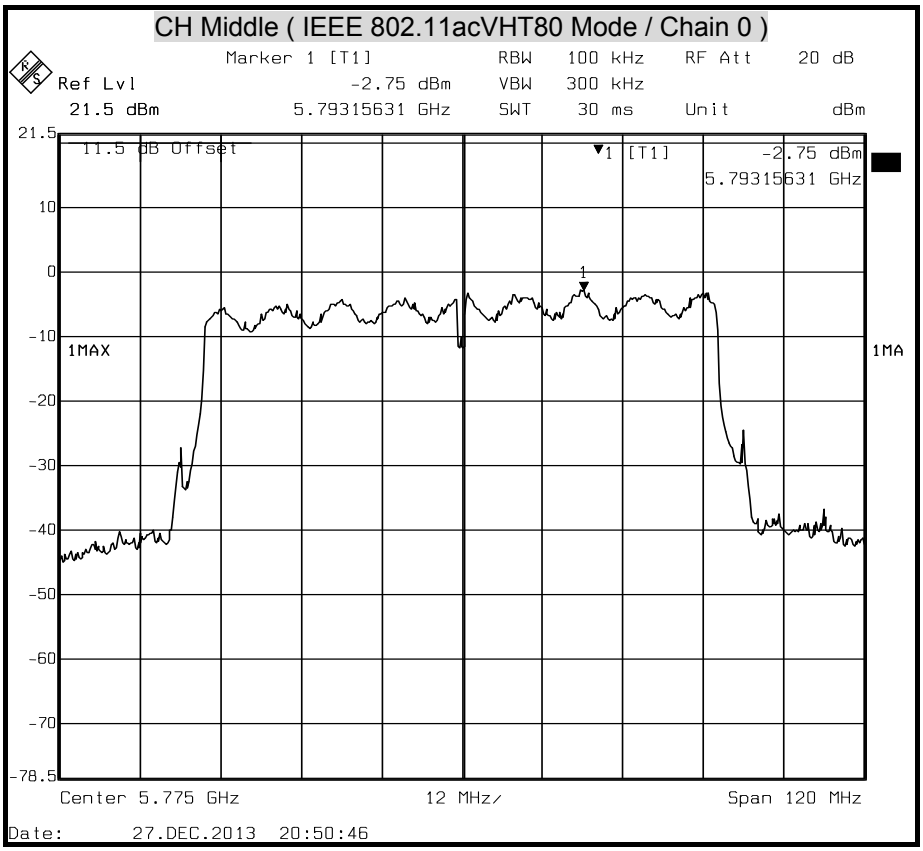


CH Low (IEEE 802.11n HT40 Mode / Chain 0)



CH High (IEEE 802.11n HT40 Mode / Chain 0)





7.4 CONDUCTED SPURIOUS EMISSION

LIMITS

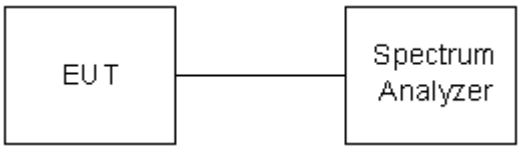
§ 15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	R&S	FSEK 30	835253/002	SEP. 28, 2014

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

The tests were performed in accordance with KDB 558074 11.2 & 11.3 .

11.2 Reference level measurement

Establish a reference level by using the following procedure:

a) Set instrument center frequency to DTS channel center frequency.

b) Set the span to ≥ 1.5 times the *DTS bandwidth*.

c) Set the RBW = 100 kHz.
d) Set the VBW ≥ 3 x RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum PSD level.

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

11.3 Emission level measurement

a) Set the center frequency and span to encompass frequency range to be measured.
b) Set the RBW = 100 kHz.
c) Set the VBW ≥ 3 x RBW.
d) Detector = peak.
e) Ensure that the number of measurement points ≥ span/RBW
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in 11.1 a) or 11.1 b). Report the three highest emissions relative to the limit.

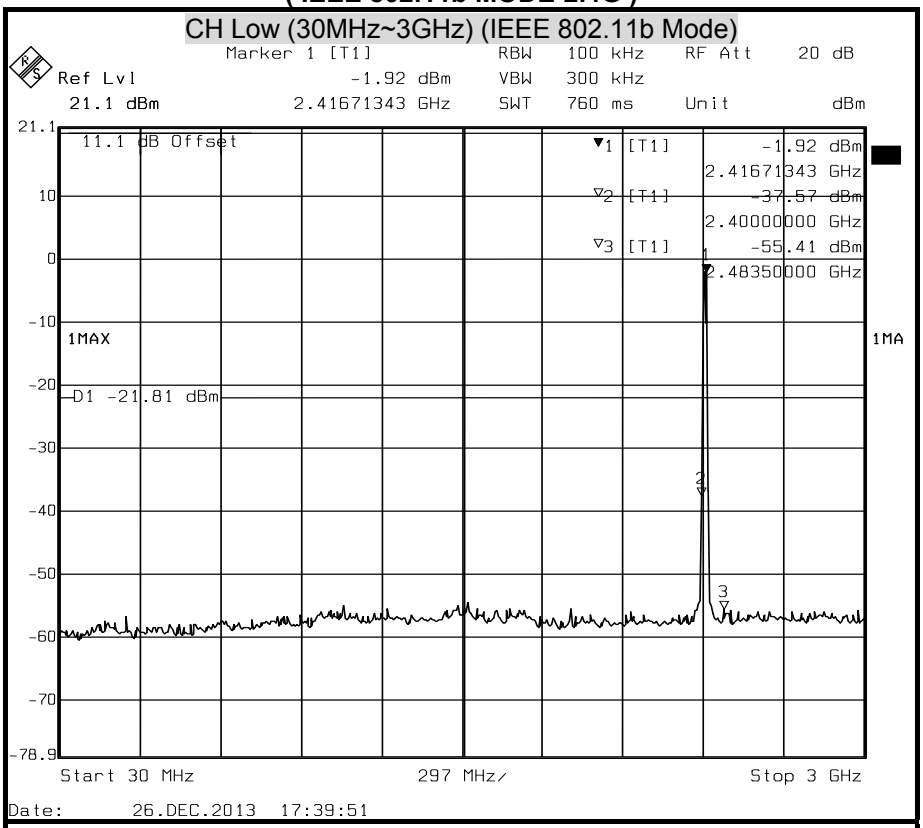
TEST RESULTS

No non-compliance noted.

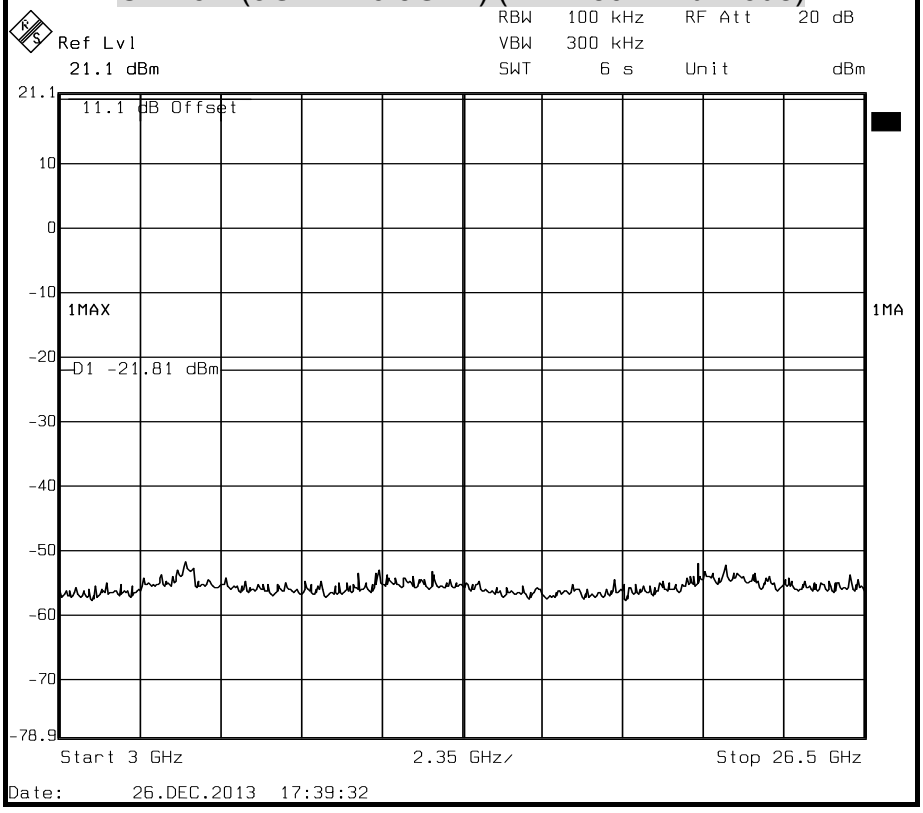
TEST RESULTS

OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT
(IEEE 802.11b MODE-2.4G)

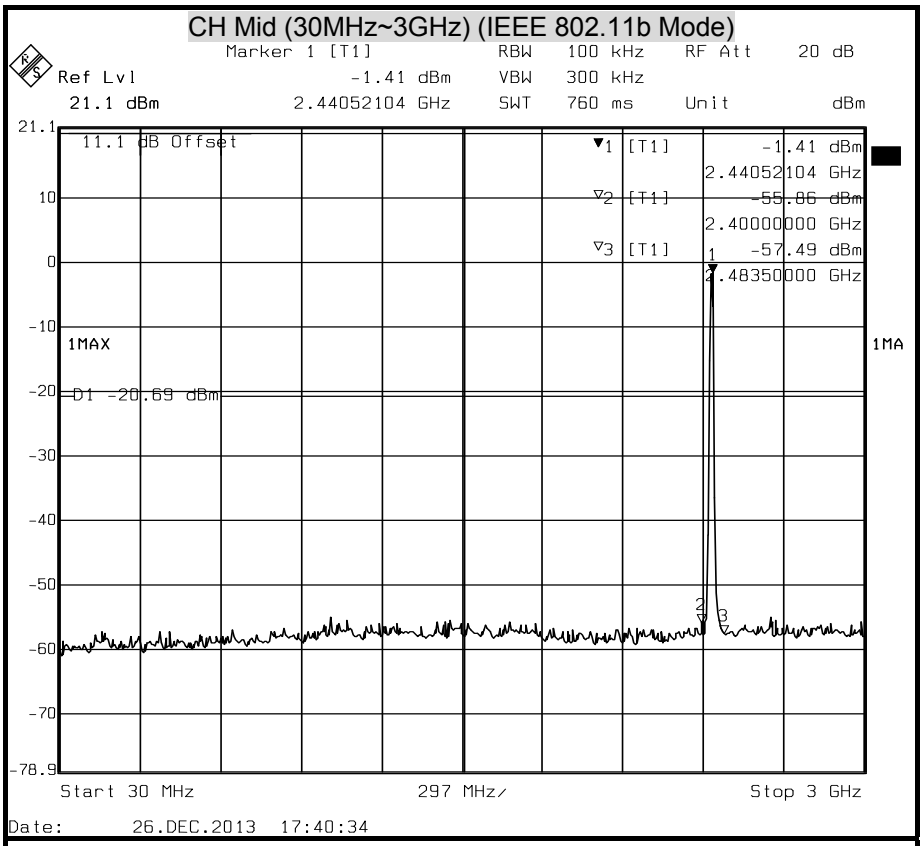
CH Low (30MHz~3GHz) (IEEE 802.11b Mode)



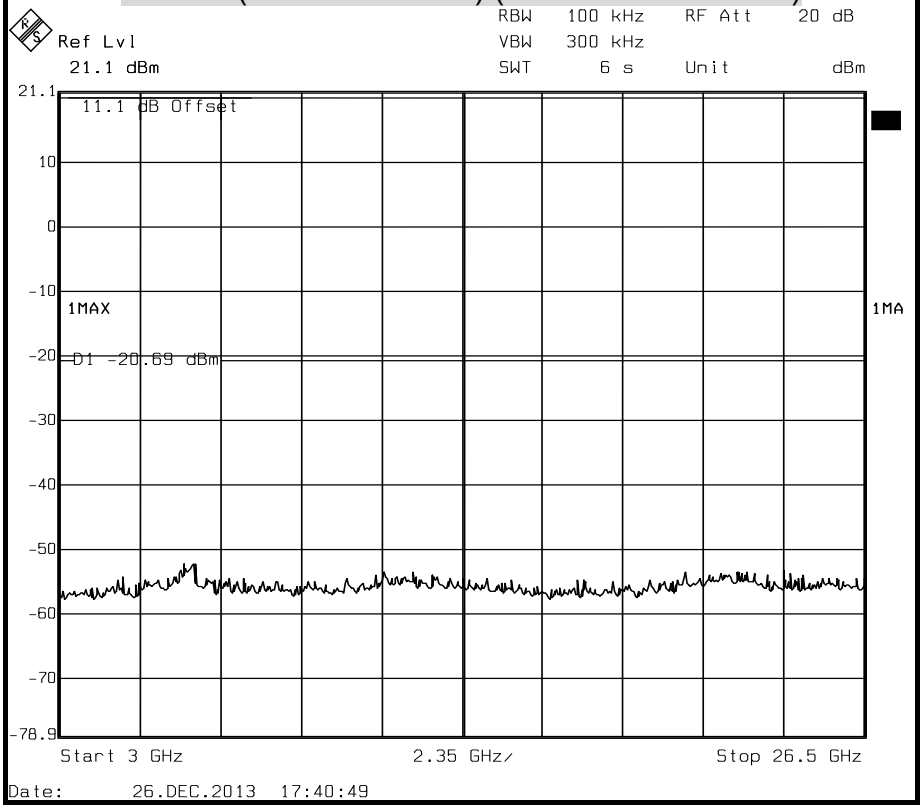
CH Low (3GHz~26.5GHz) (IEEE 802.11b Mode)



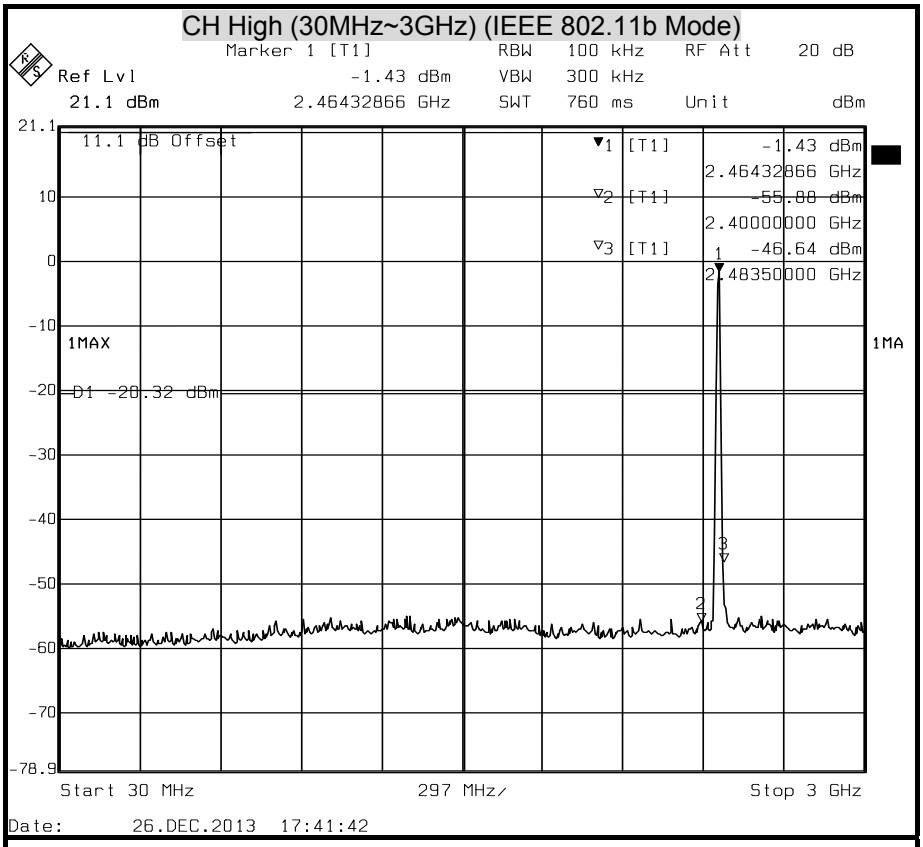
CH Mid (30MHz~3GHz) (IEEE 802.11b Mode)



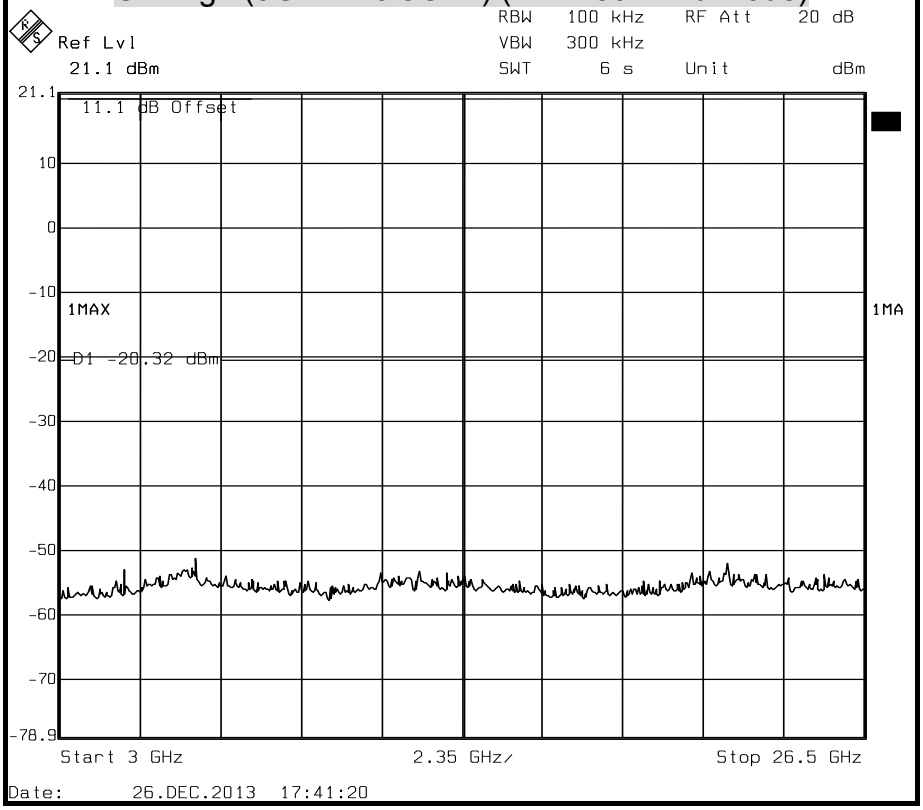
CH Mid (3GHz~26.5GHz) (IEEE 802.11b Mode)



CH High (30MHz~3GHz) (IEEE 802.11b Mode)

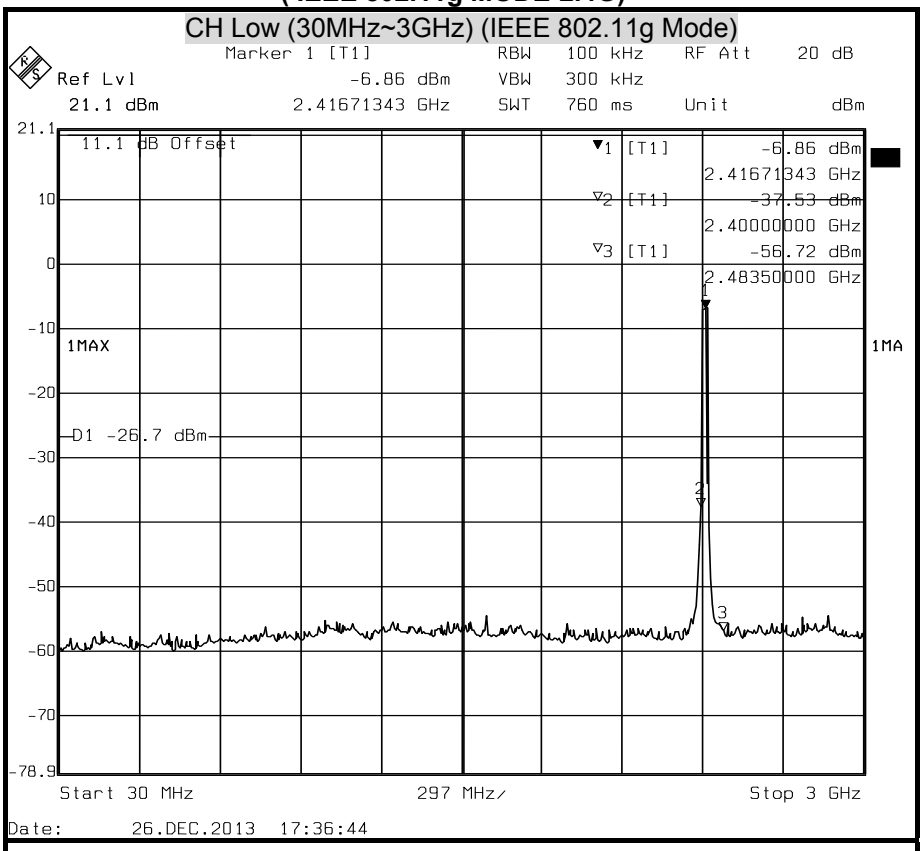


CH High (3GHz~26.5GHz) (IEEE 802.11b Mode)

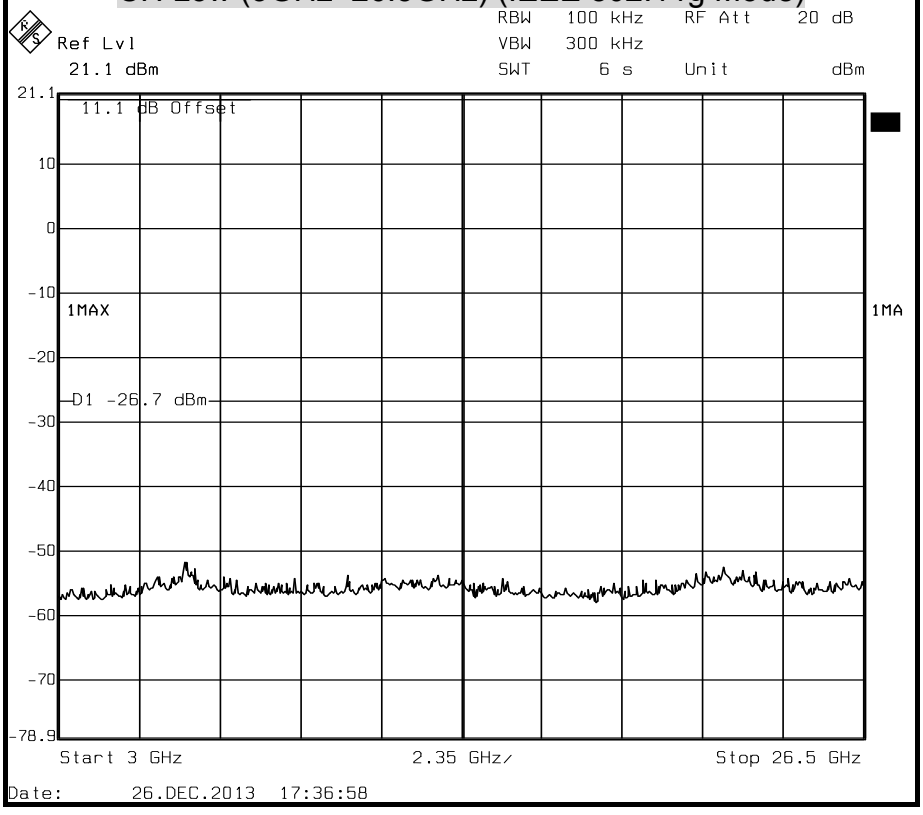


OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT
(IEEE 802.11g MODE-2.4G)

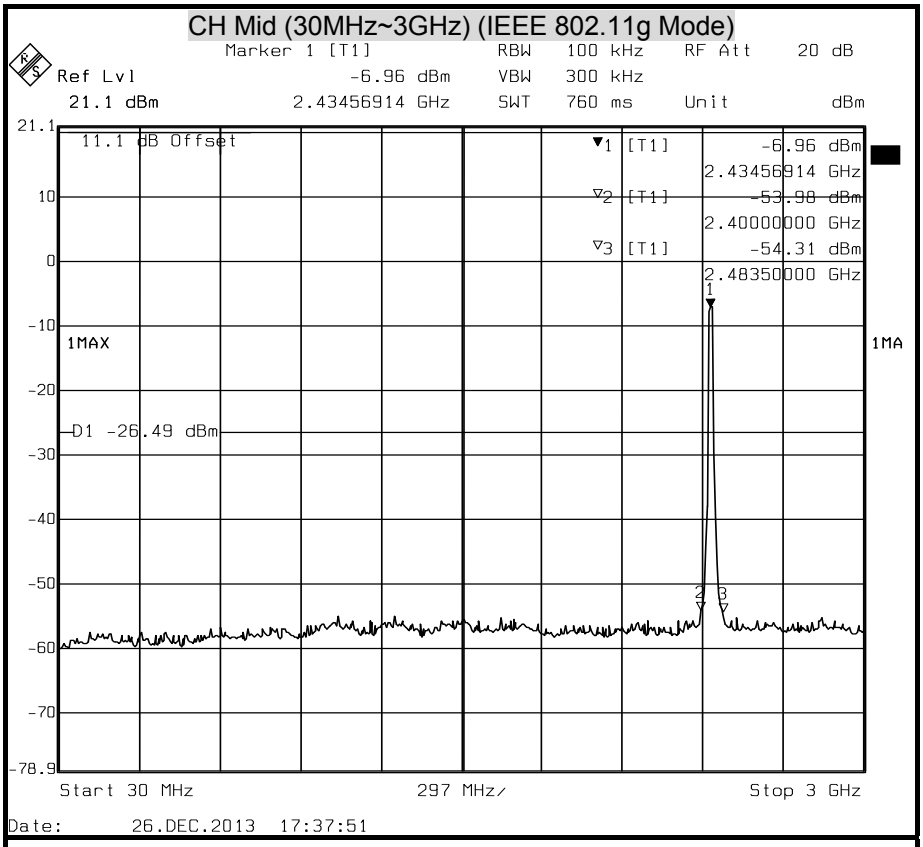
CH Low (30MHz~3GHz) (IEEE 802.11g Mode)



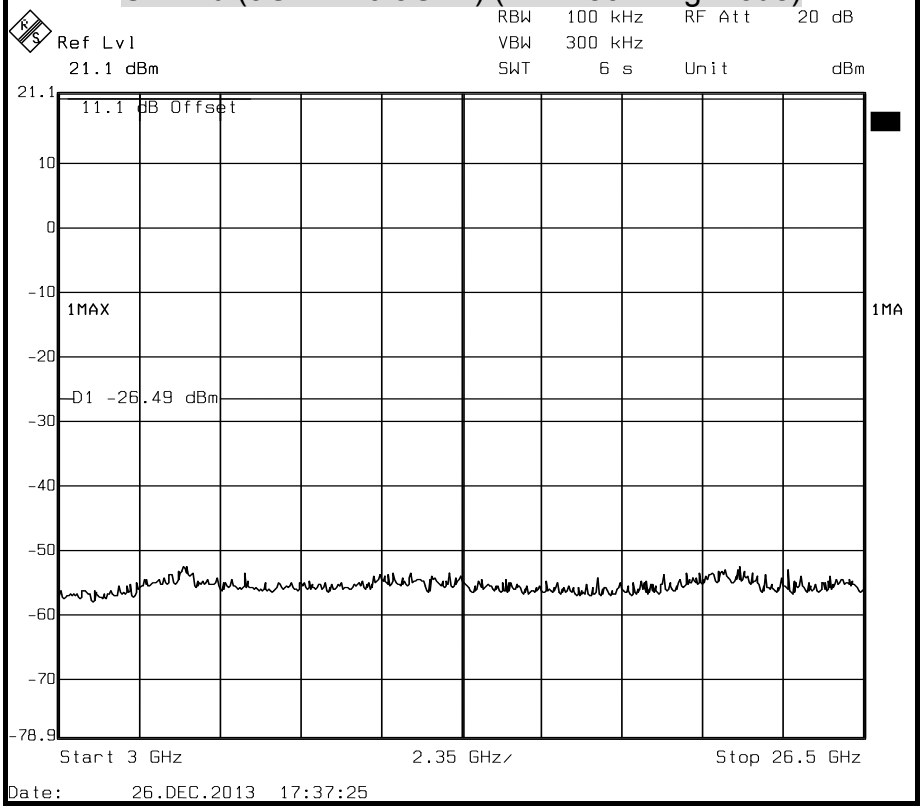
CH Low (3GHz~26.5GHz) (IEEE 802.11g Mode)



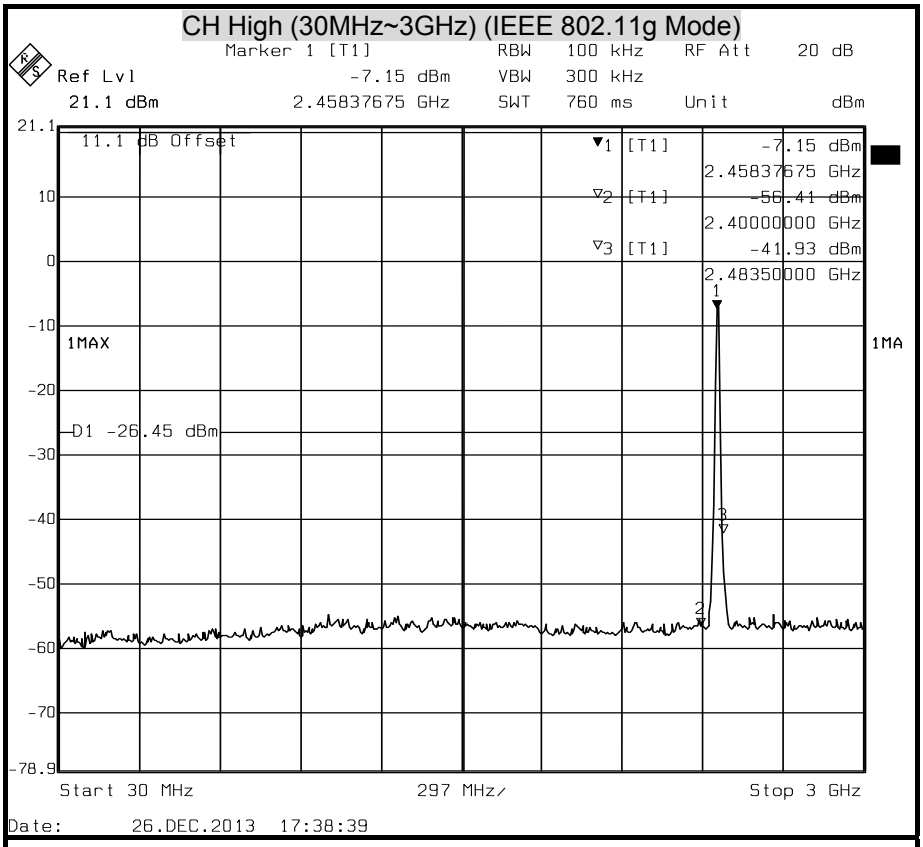
CH Mid (30MHz~3GHz) (IEEE 802.11g Mode)



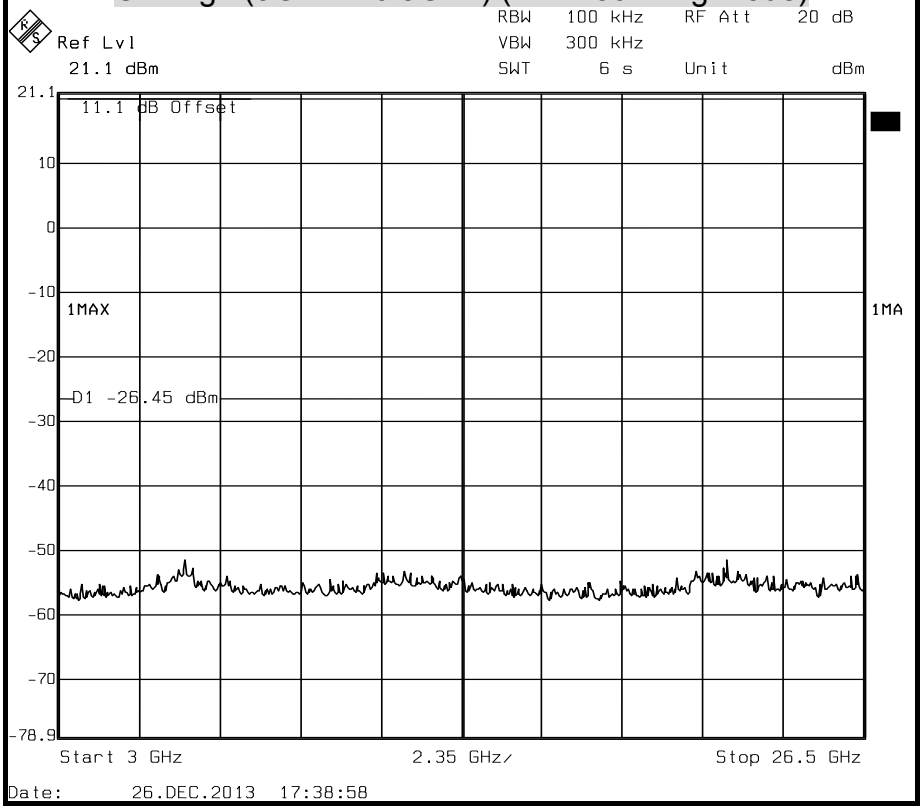
CH Mid (3GHz~26.5GHz) (IEEE 802.11g Mode)



CH High (30MHz~3GHz) (IEEE 802.11g Mode)

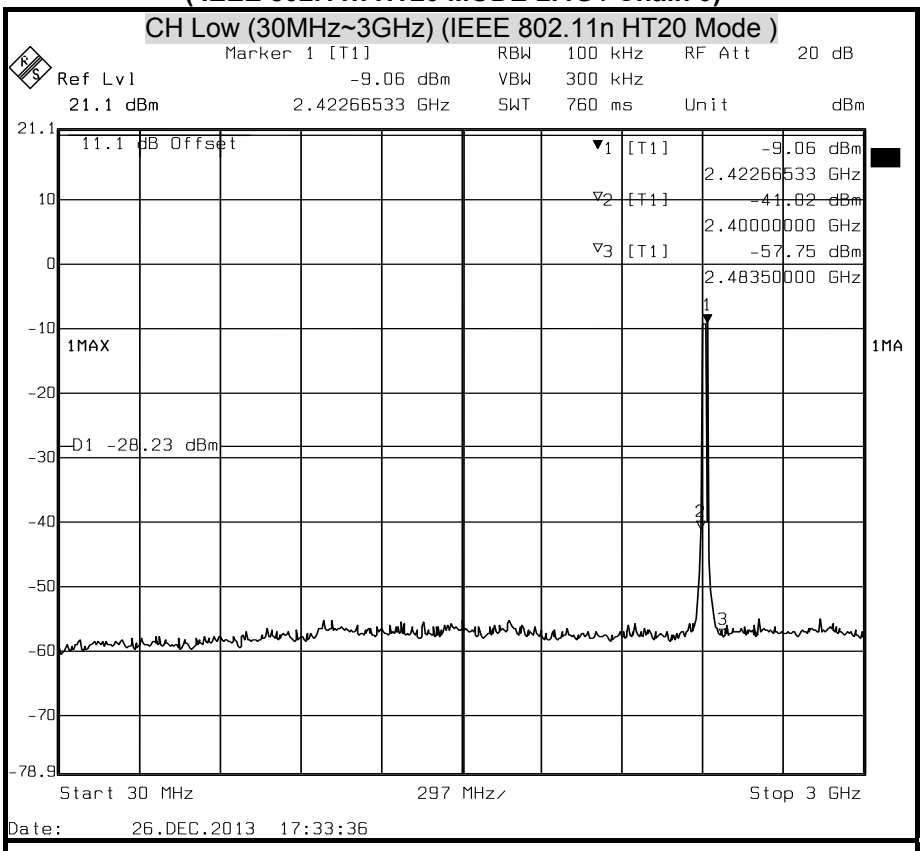


CH High (3GHz~26.5GHz) (IEEE 802.11g Mode)

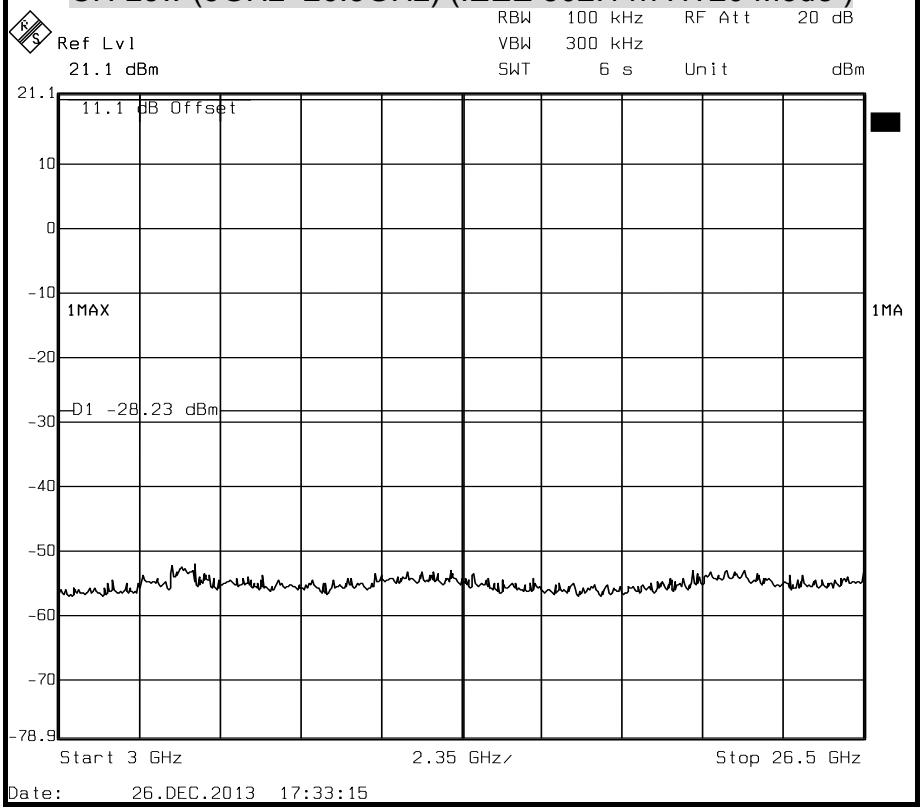


OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT
(IEEE 802.11n HT20 MODE-2.4G / Chain 0)

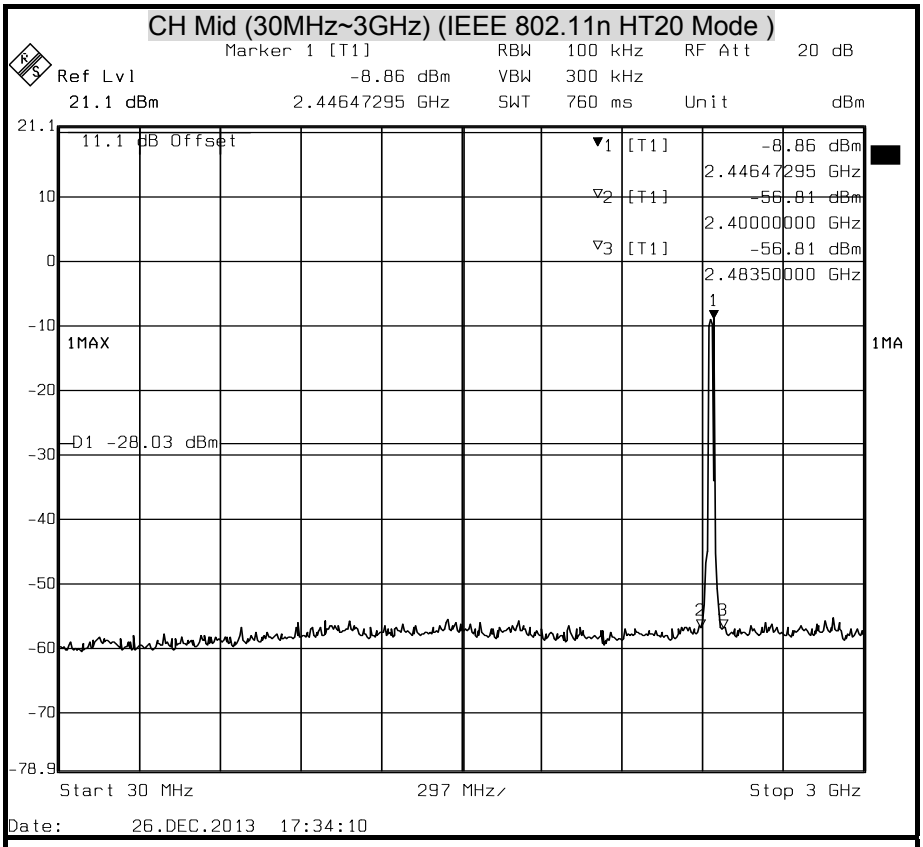
CH Low (30MHz~3GHz) (IEEE 802.11n HT20 Mode)



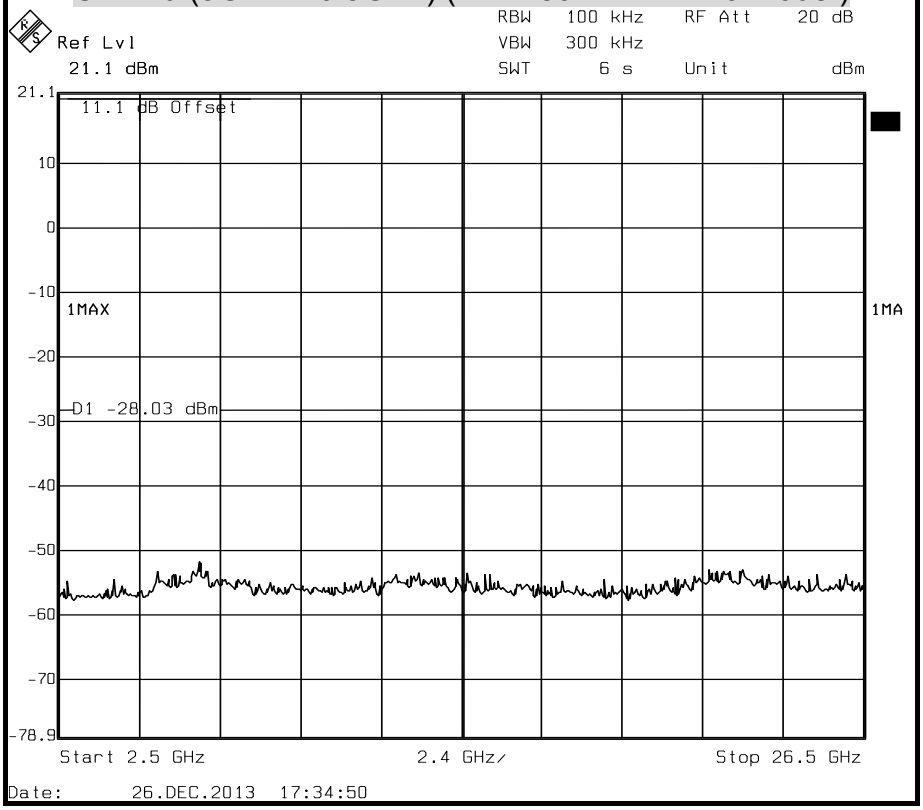
CH Low (3GHz~26.5GHz) (IEEE 802.11n HT20 Mode)



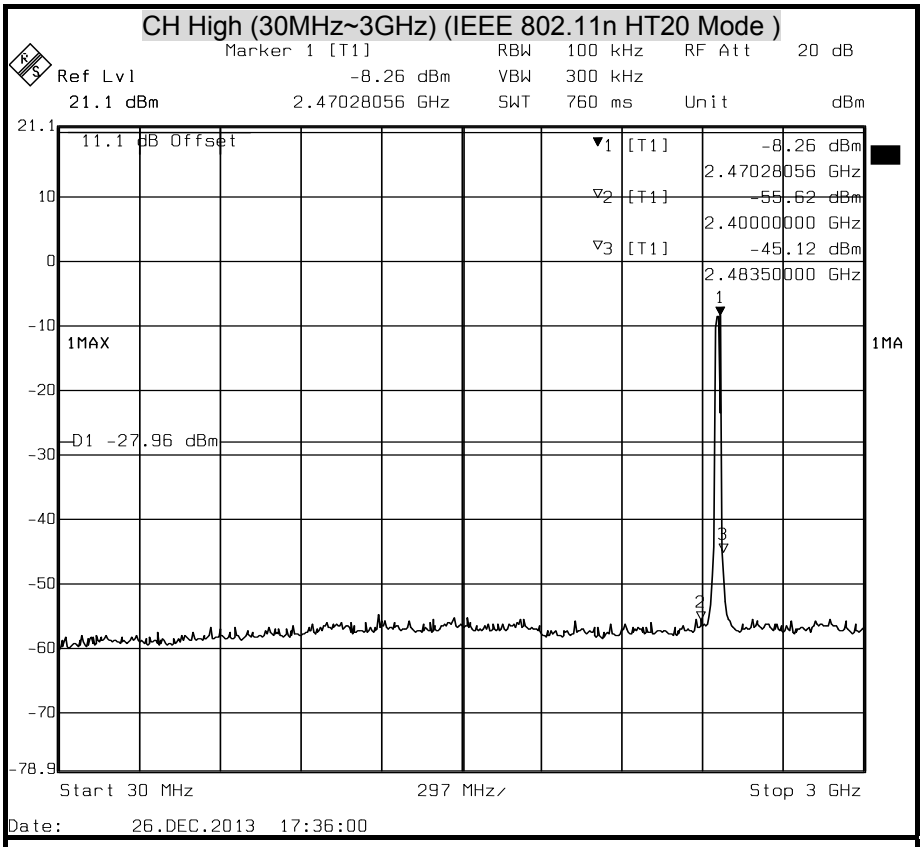
CH Mid (30MHz~3GHz) (IEEE 802.11n HT20 Mode)



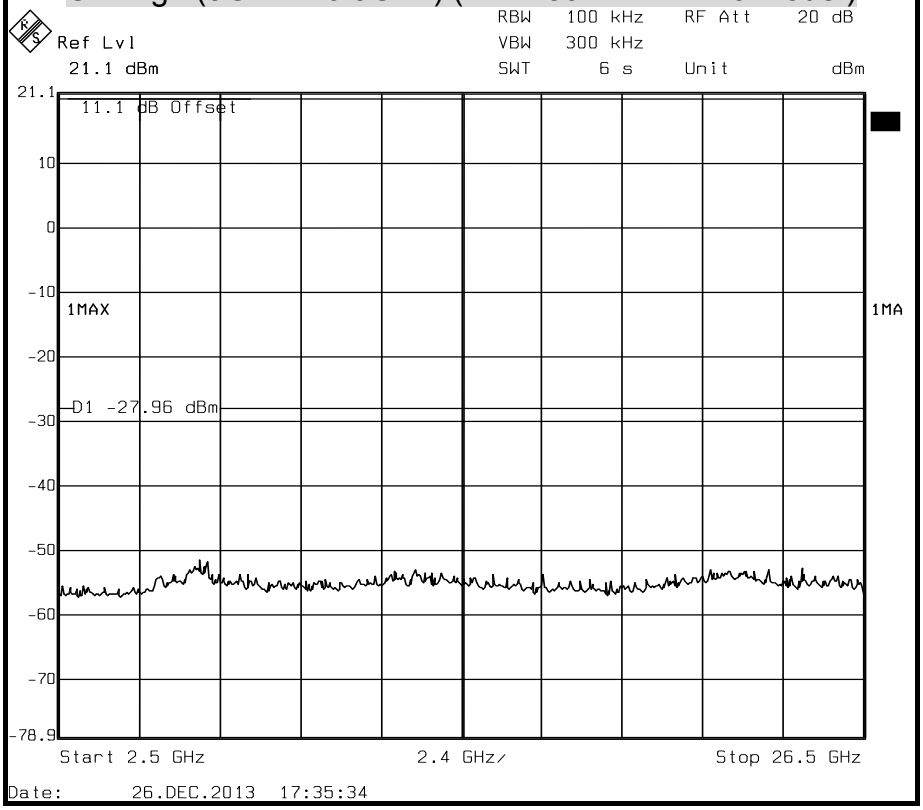
CH Mid (3GHz~26.5GHz) (IEEE 802.11n HT20 Mode)



CH High (30MHz~3GHz) (IEEE 802.11n HT20 Mode)

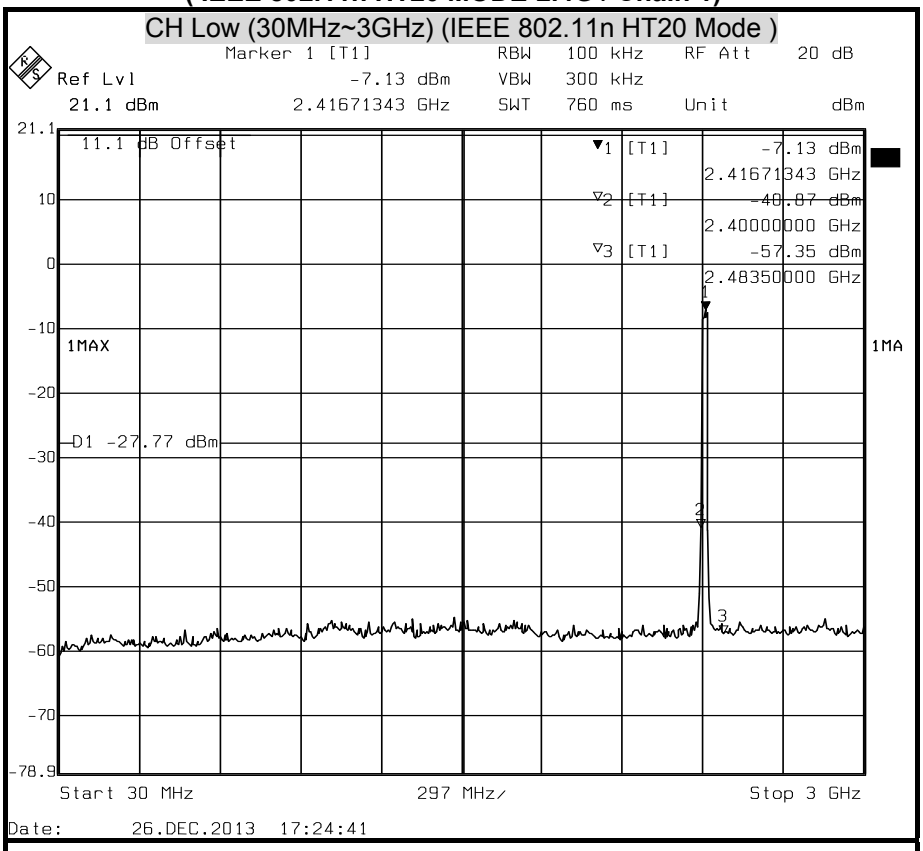


CH High (3GHz~26.5GHz) (IEEE 802.11n HT20 Mode)

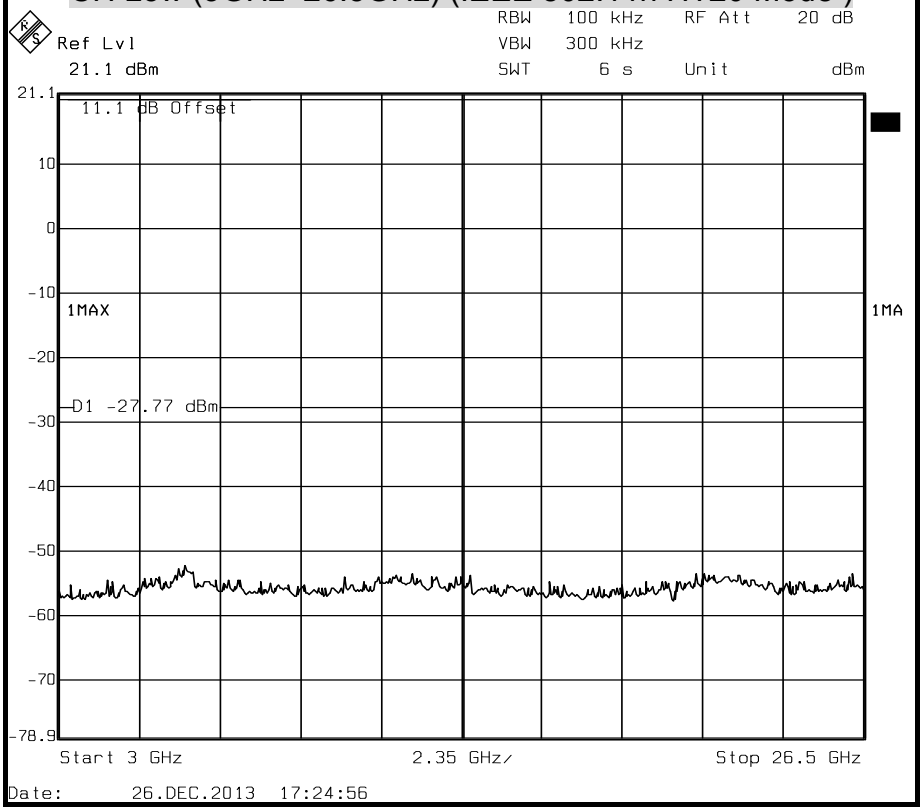


OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT
(IEEE 802.11n HT20 MODE-2.4G / Chain 1)

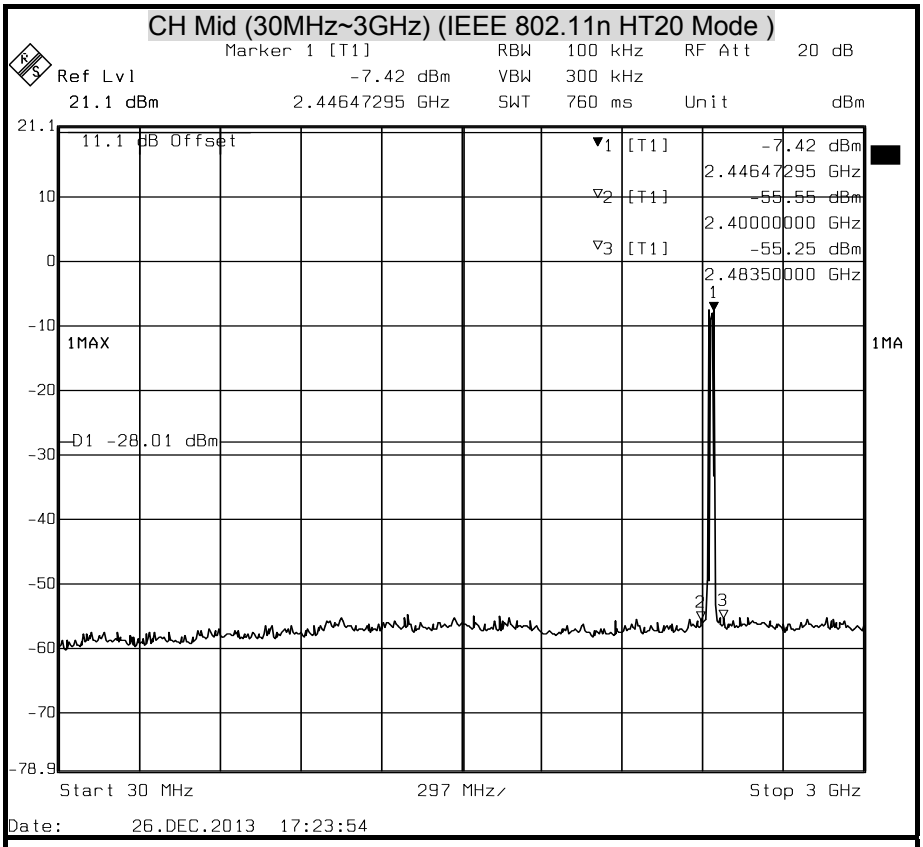
CH Low (30MHz~3GHz) (IEEE 802.11n HT20 Mode)



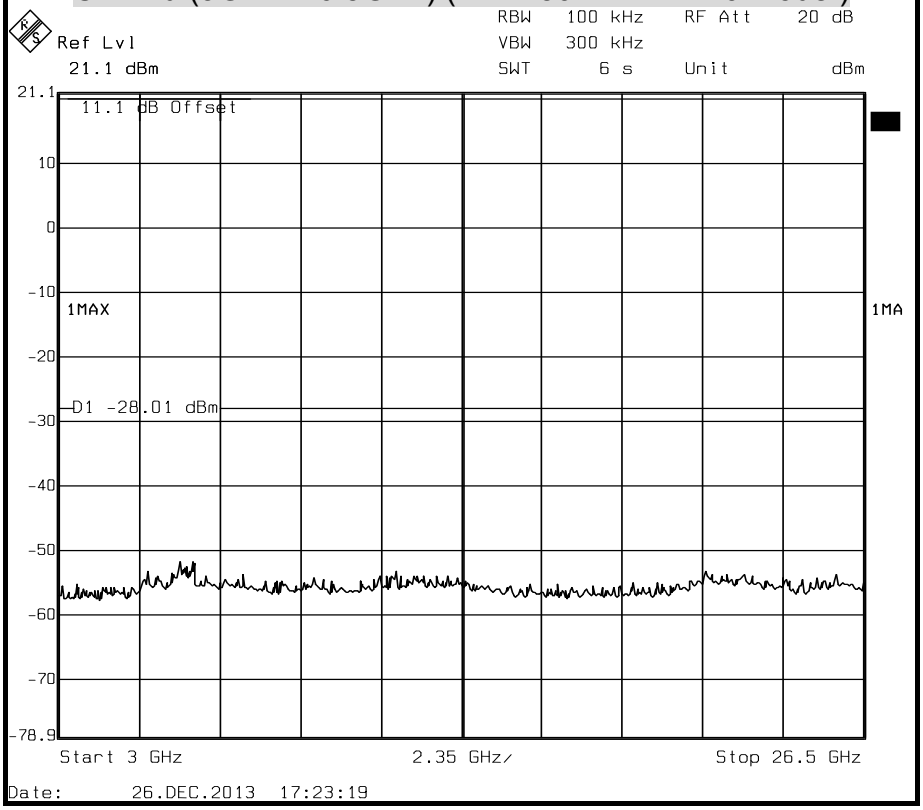
CH Low (3GHz~26.5GHz) (IEEE 802.11n HT20 Mode)



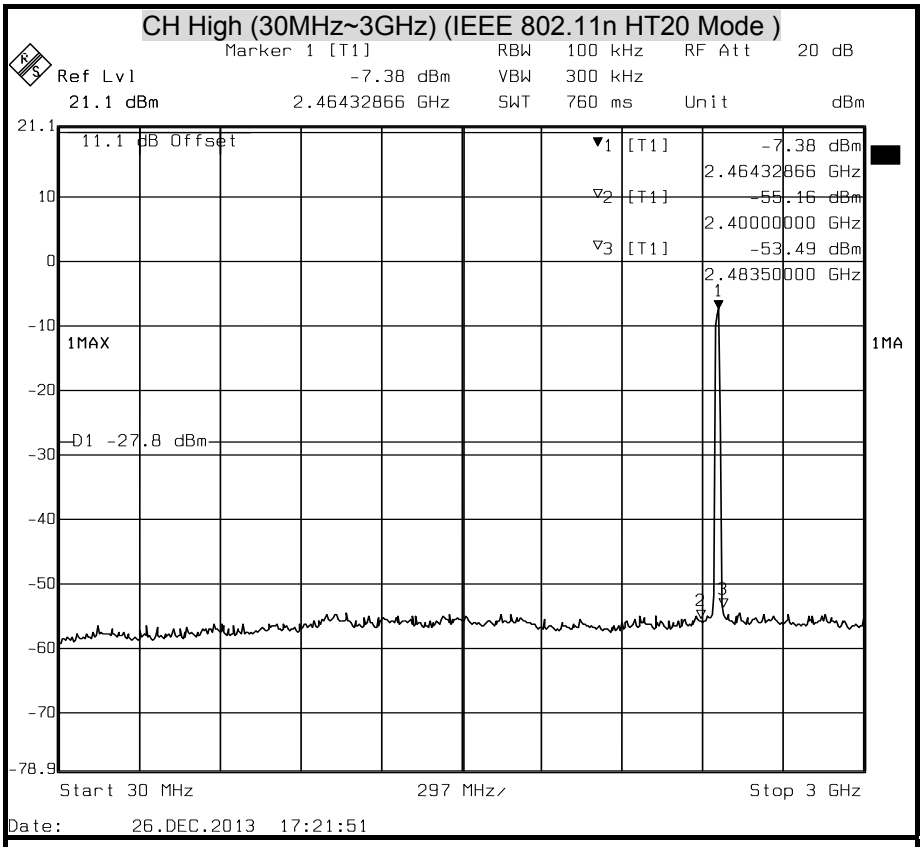
CH Mid (30MHz~3GHz) (IEEE 802.11n HT20 Mode)



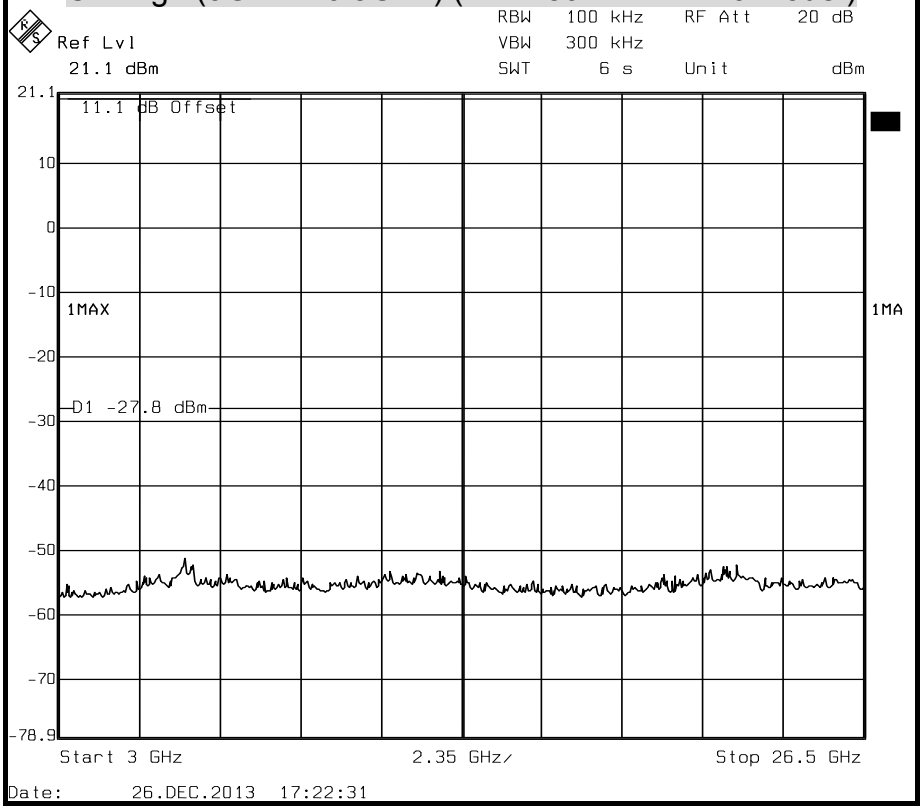
CH Mid (3GHz~26.5GHz) (IEEE 802.11n HT20 Mode)



CH High (30MHz~3GHz) (IEEE 802.11n HT20 Mode)

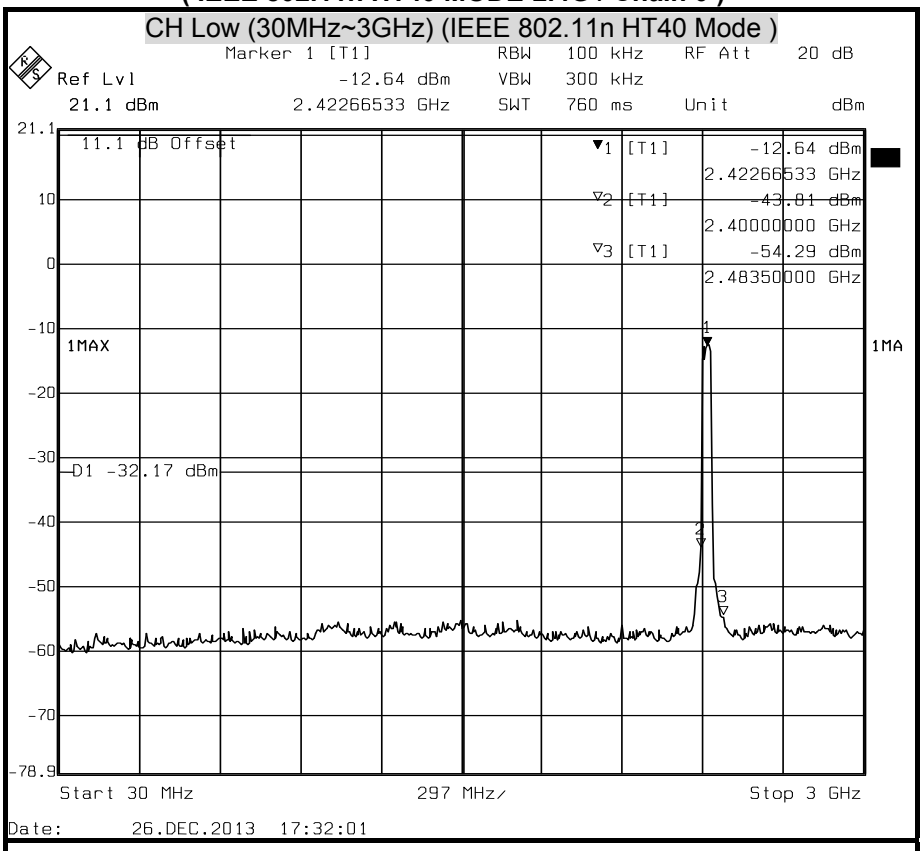


CH High (3GHz~26.5GHz) (IEEE 802.11n HT20 Mode)

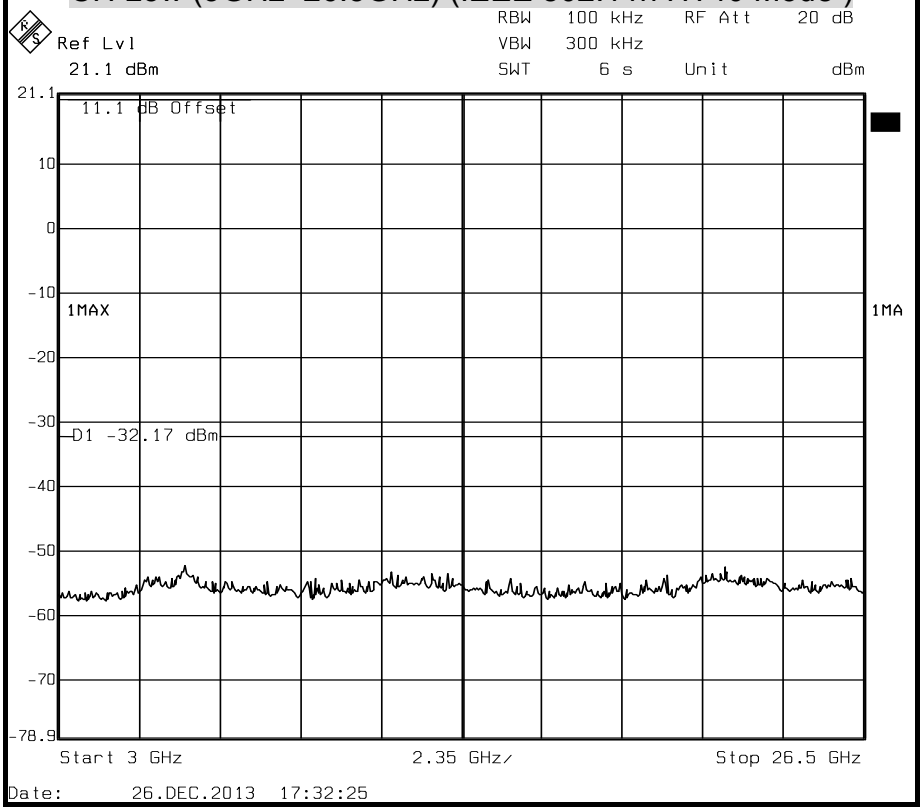


OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT
(IEEE 802.11n HT40 MODE-2.4G / Chain 0)

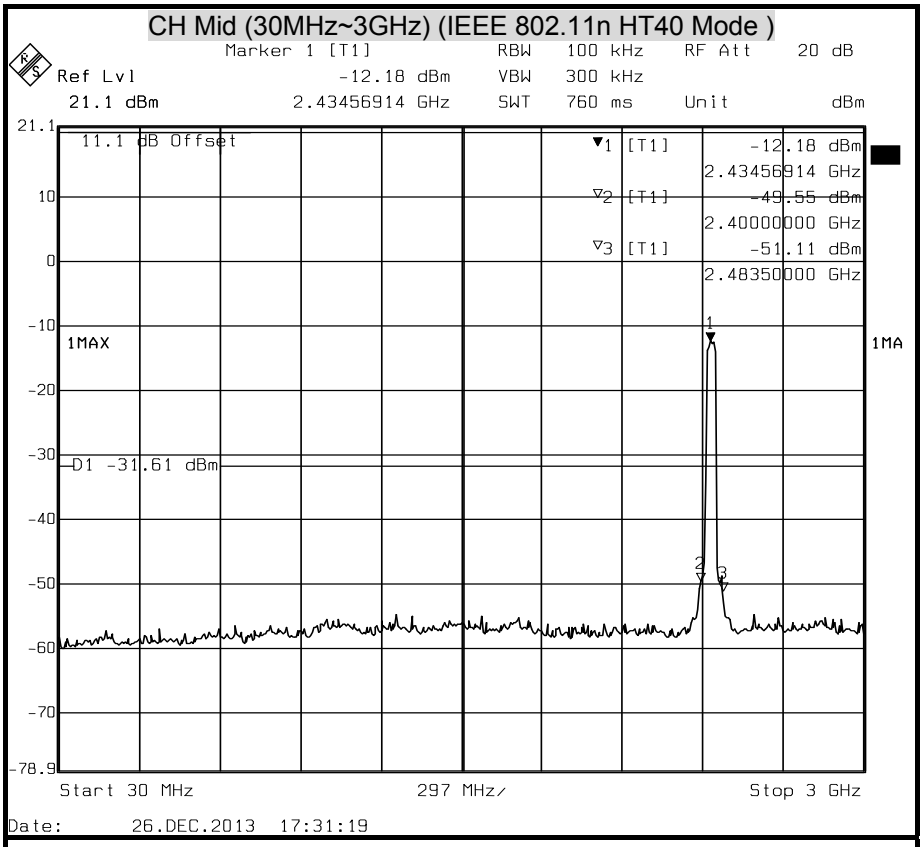
CH Low (30MHz~3GHz) (IEEE 802.11n HT40 Mode)



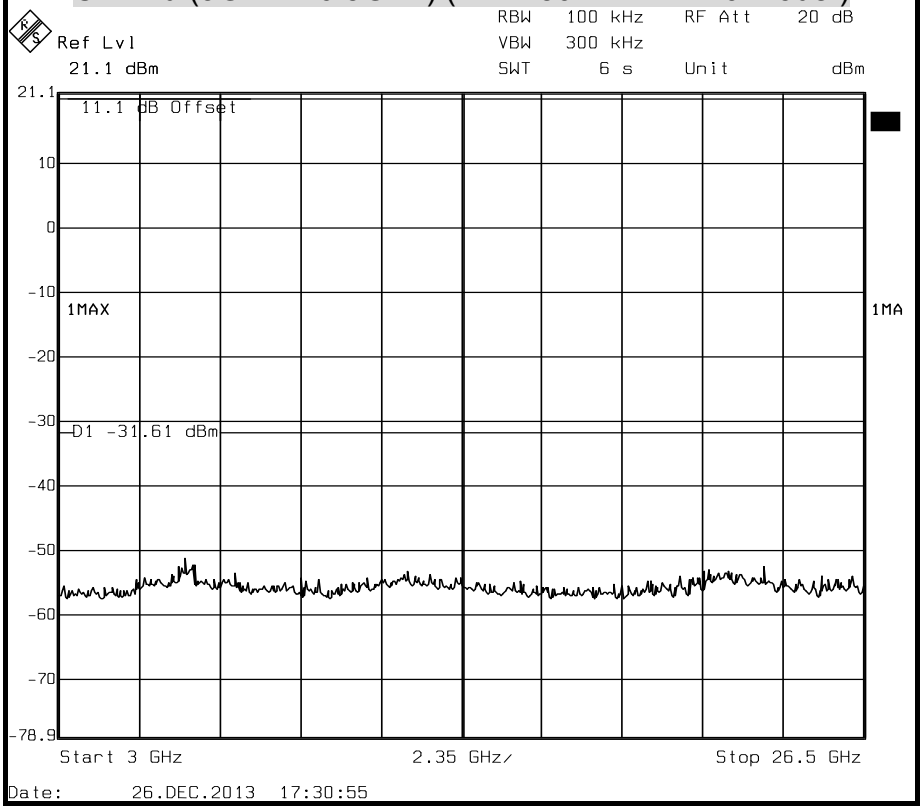
CH Low (3GHz~26.5GHz) (IEEE 802.11n HT40 Mode)



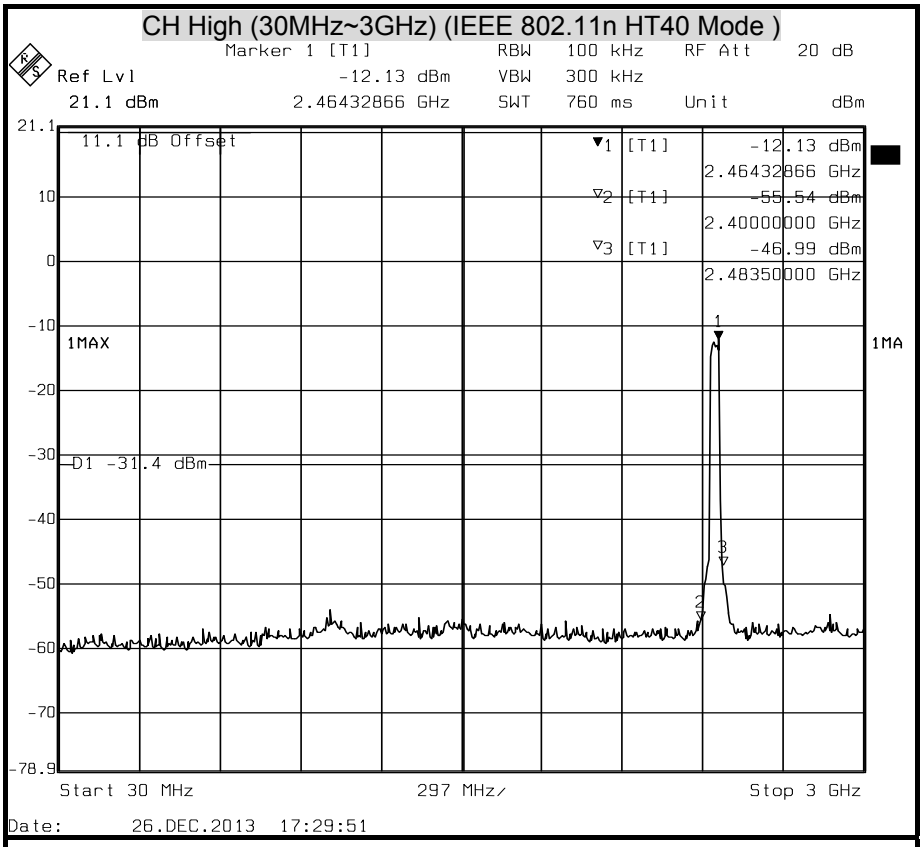
CH Mid (30MHz~3GHz) (IEEE 802.11n HT40 Mode)



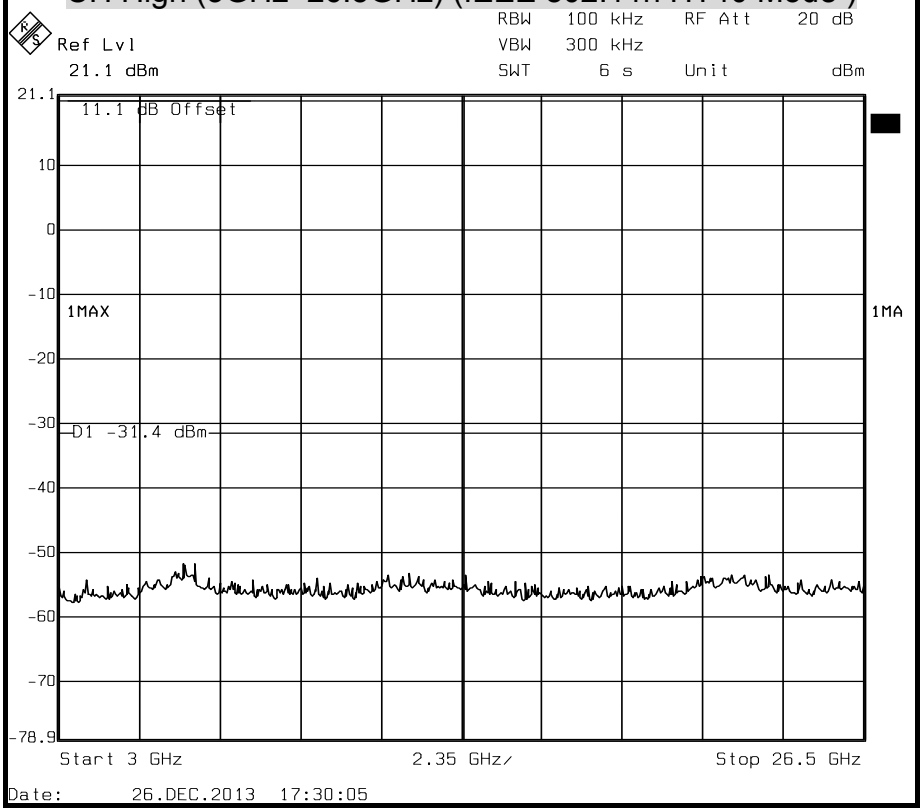
CH Mid (3GHz~26.5GHz) (IEEE 802.11n HT40 Mode)



CH High (30MHz~3GHz) (IEEE 802.11n HT40 Mode)

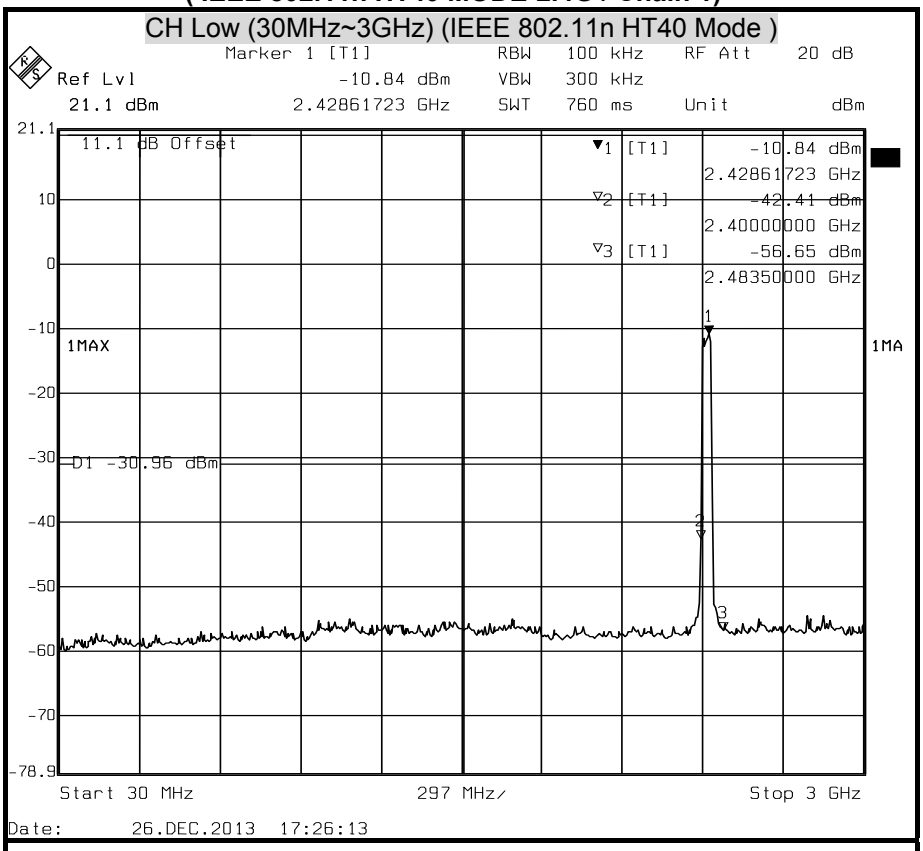


CH High (3GHz~26.5GHz) (IEEE 802.11n HT40 Mode)

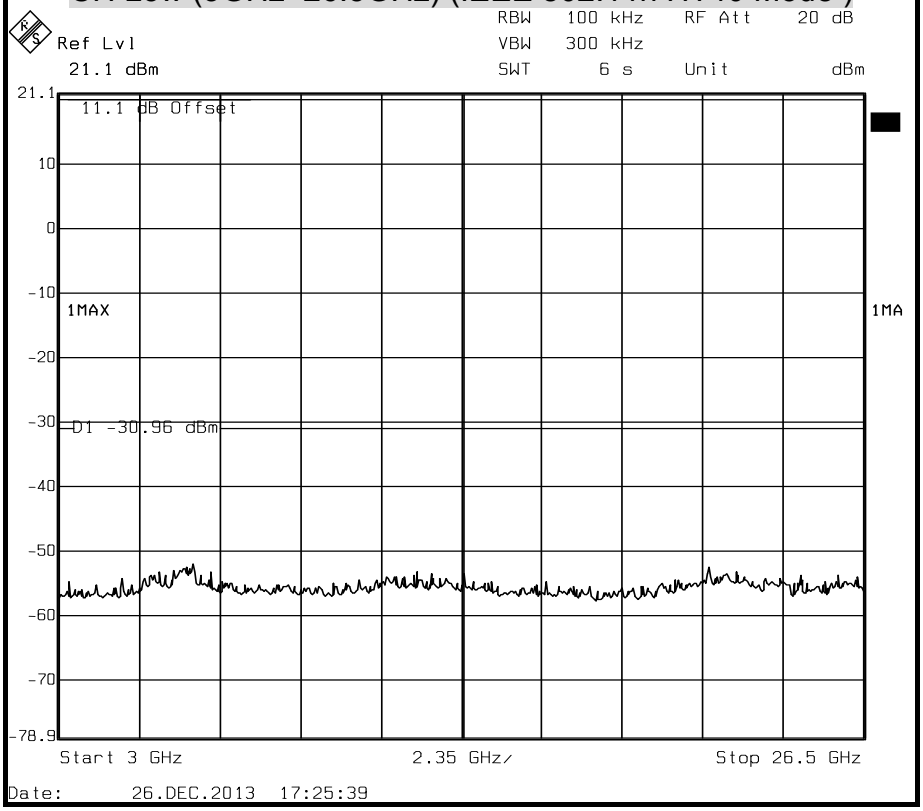


OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT
(IEEE 802.11n HT40 MODE-2.4G / Chain 1)

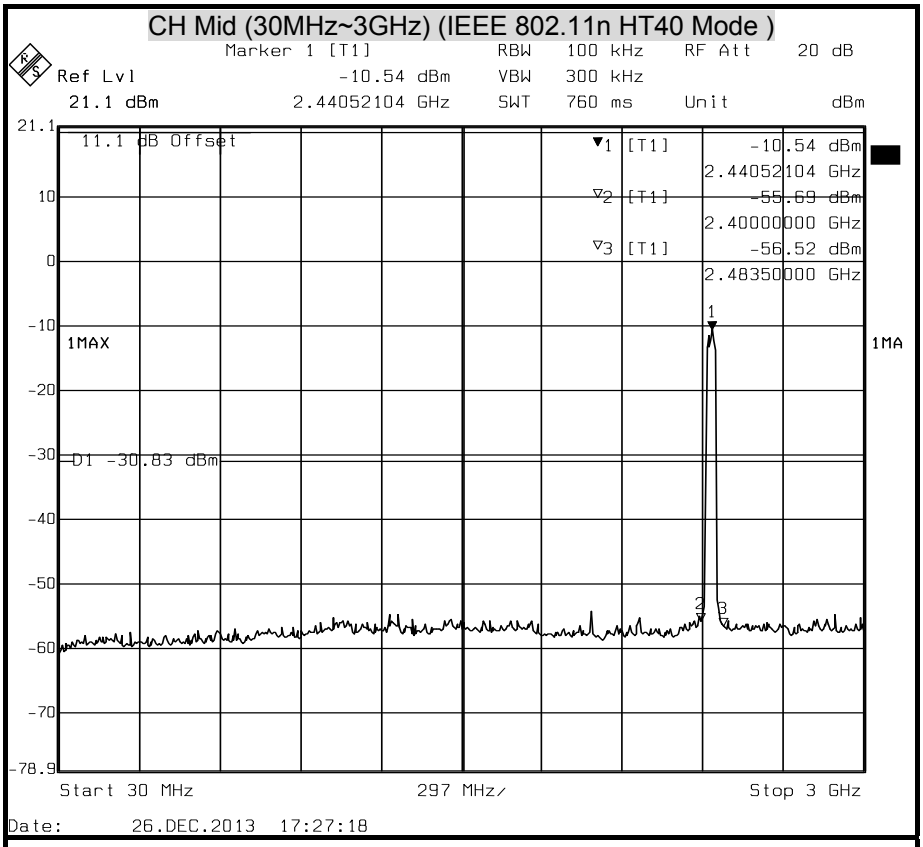
CH Low (30MHz~3GHz) (IEEE 802.11n HT40 Mode)



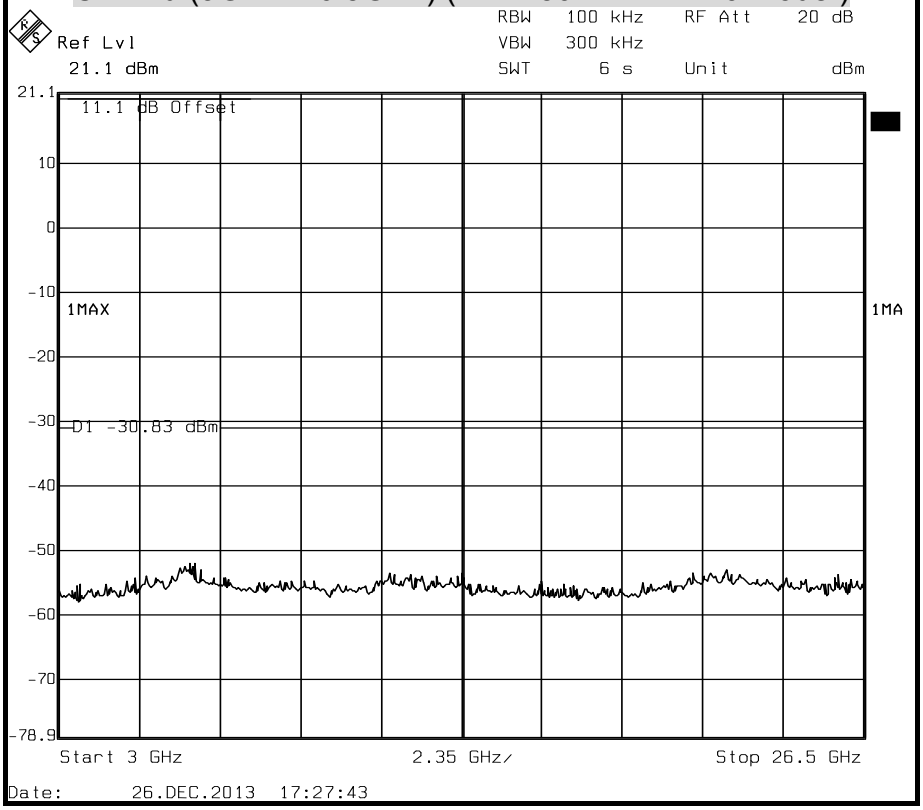
CH Low (3GHz~26.5GHz) (IEEE 802.11n HT40 Mode)



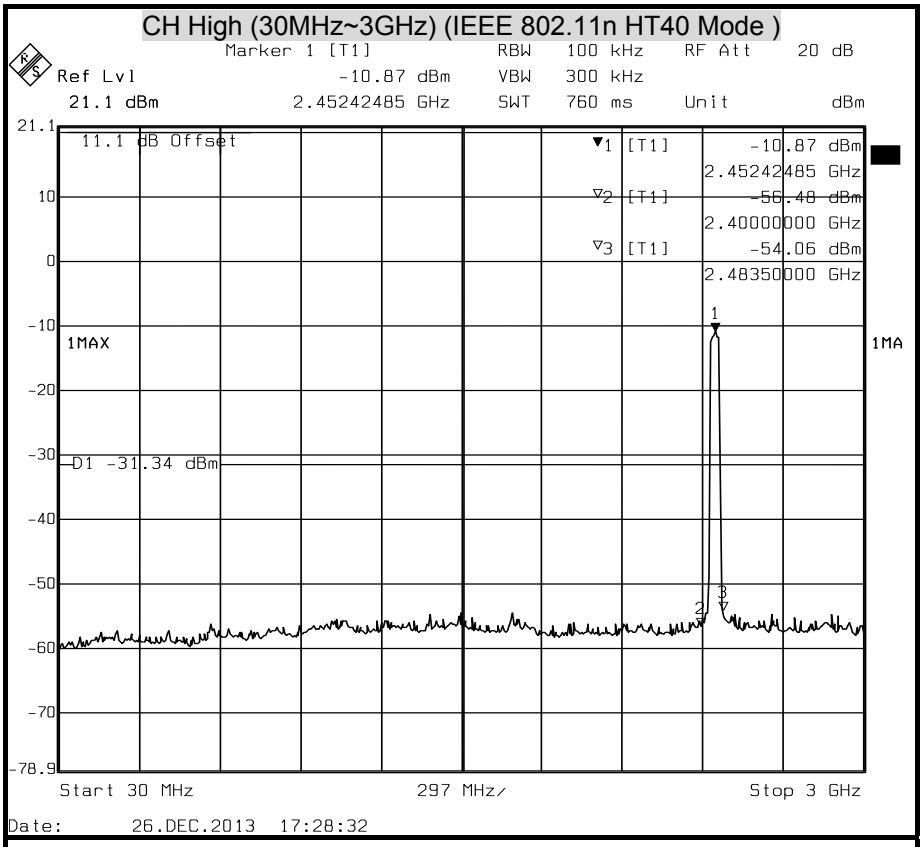
CH Mid (30MHz~3GHz) (IEEE 802.11n HT40 Mode)



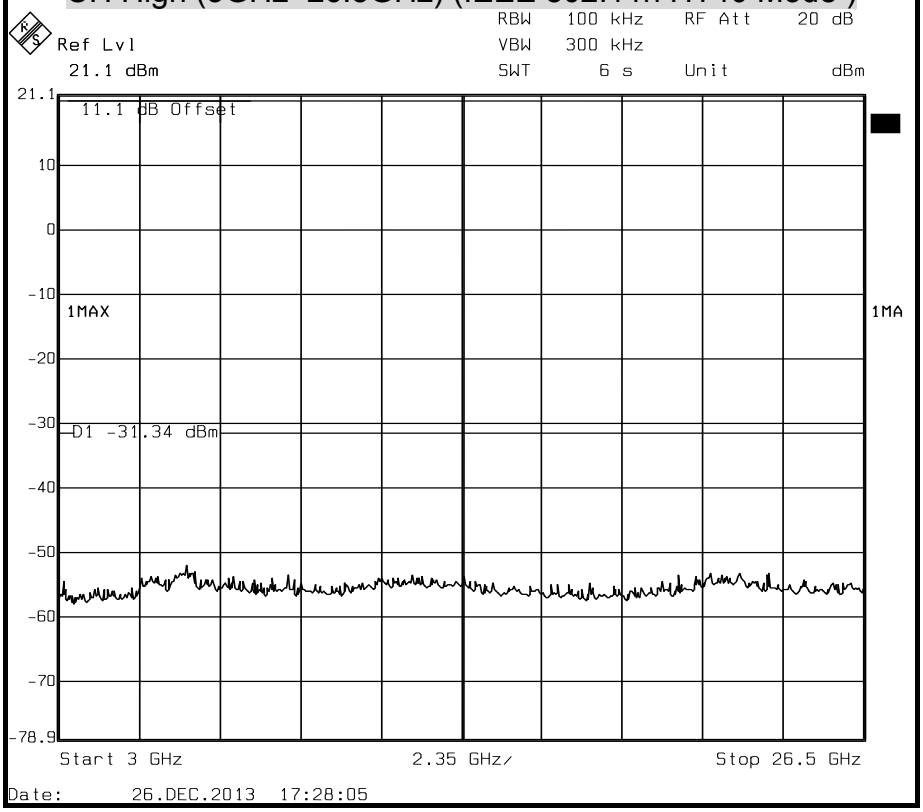
CH Mid (3GHz~26.5GHz) (IEEE 802.11n HT40 Mode)



CH High (30MHz~3GHz) (IEEE 802.11n HT40 Mode)

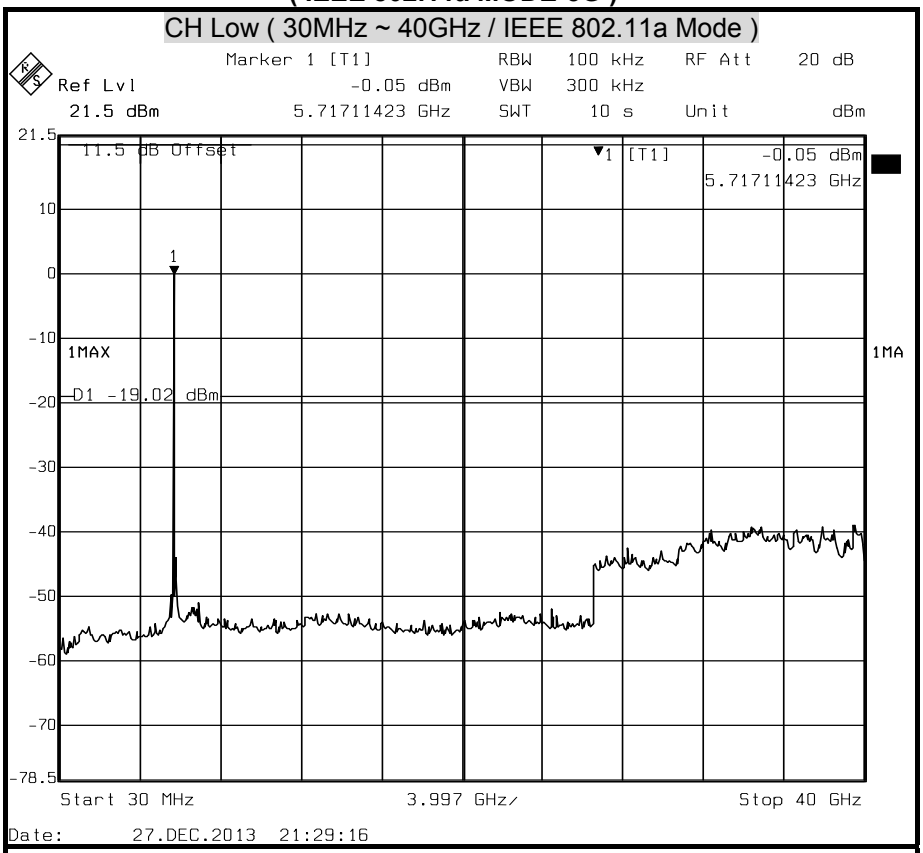


CH High (3GHz~26.5GHz) (IEEE 802.11n HT40 Mode)

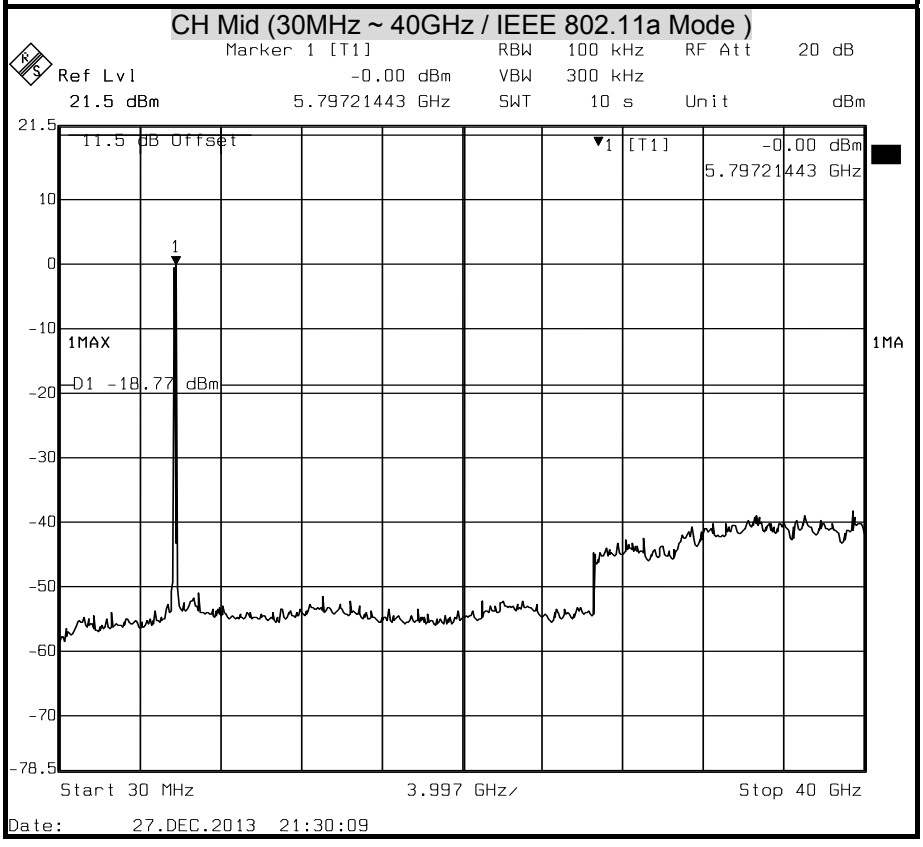


OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT
(IEEE 802.11a MODE-5G)

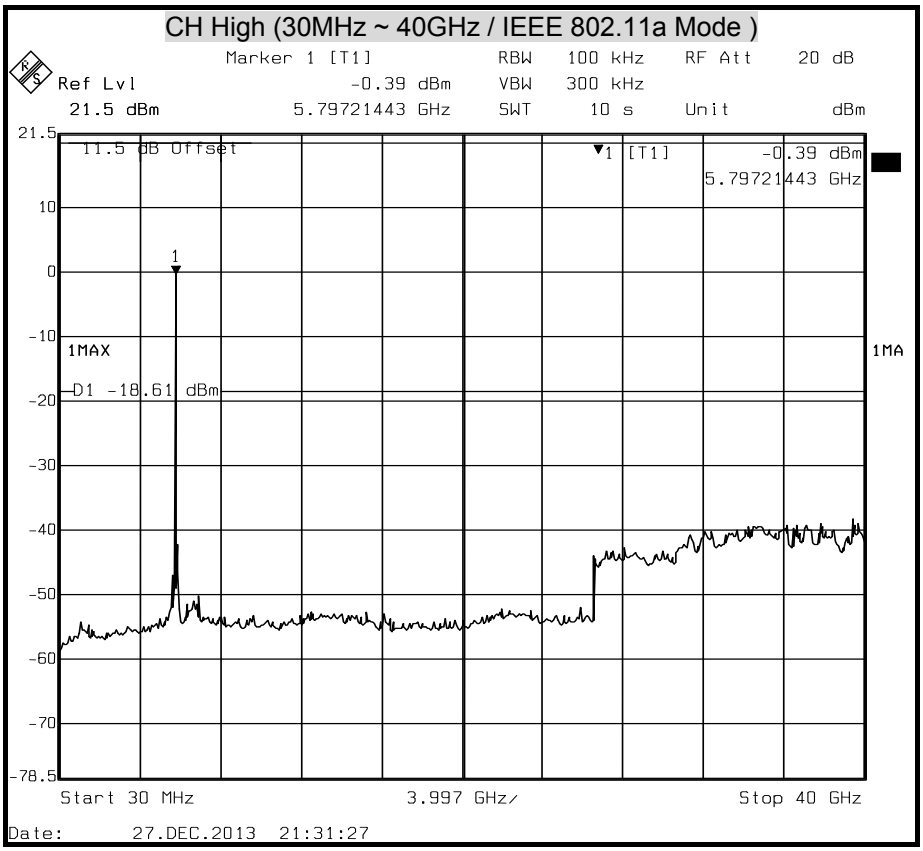
CH Low (30MHz ~ 40GHz / IEEE 802.11a Mode)



CH Mid (30MHz ~ 40GHz / IEEE 802.11a Mode)

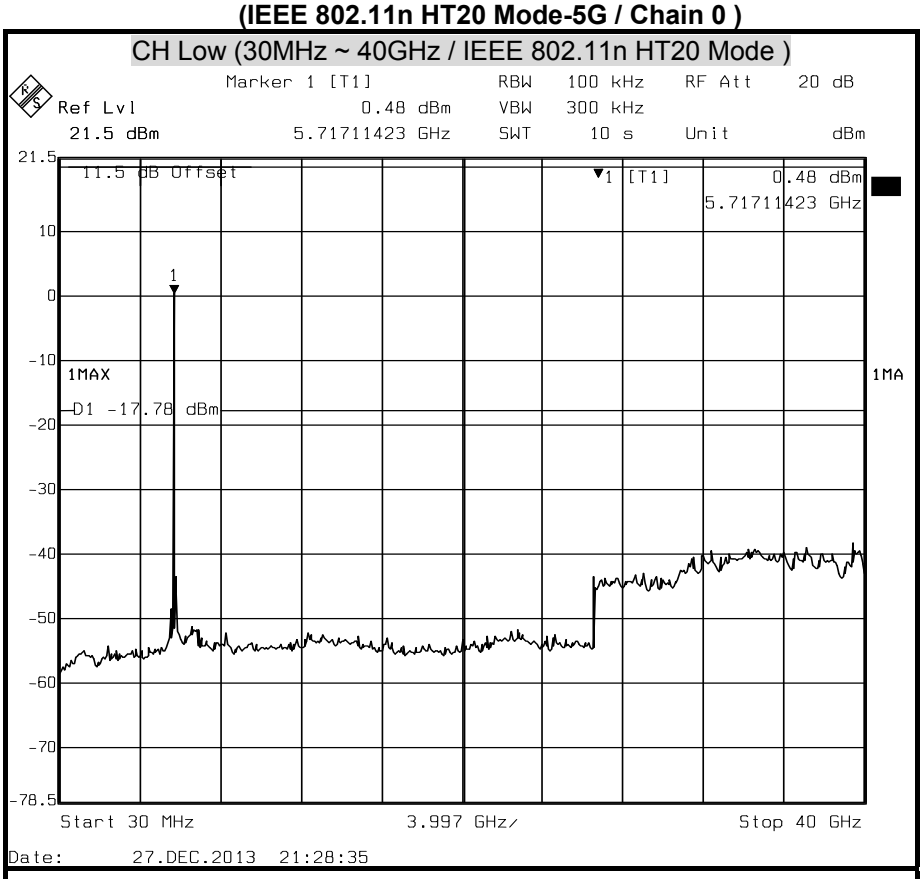


CH High (30MHz ~ 40GHz / IEEE 802.11a Mode)

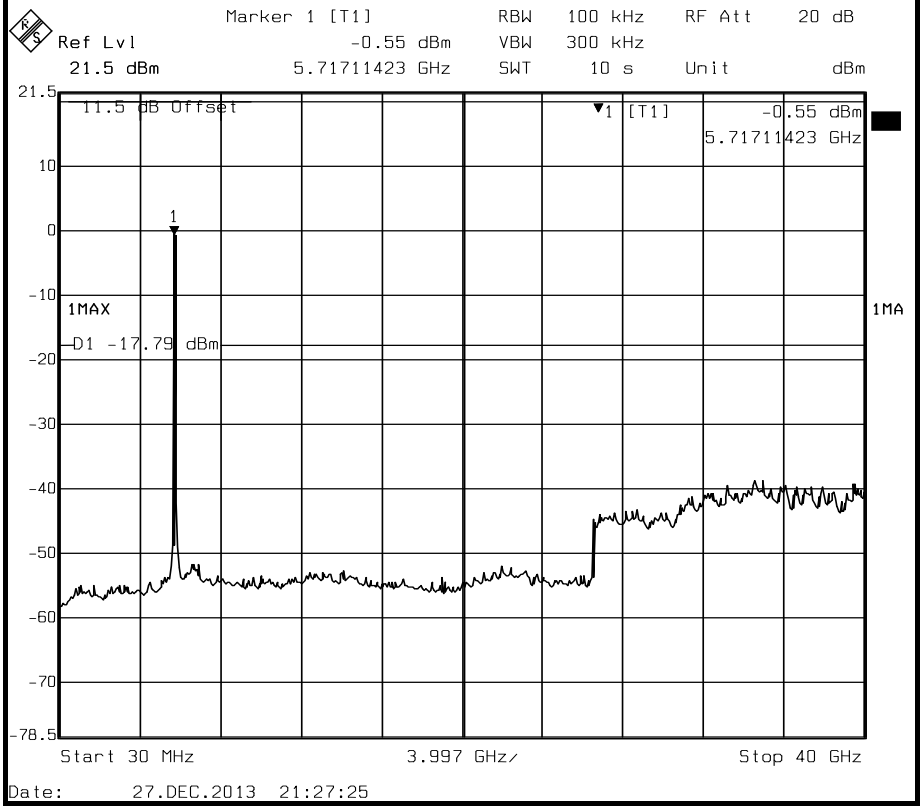


OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT
(IEEE 802.11n HT20 Mode-5G / Chain 0)

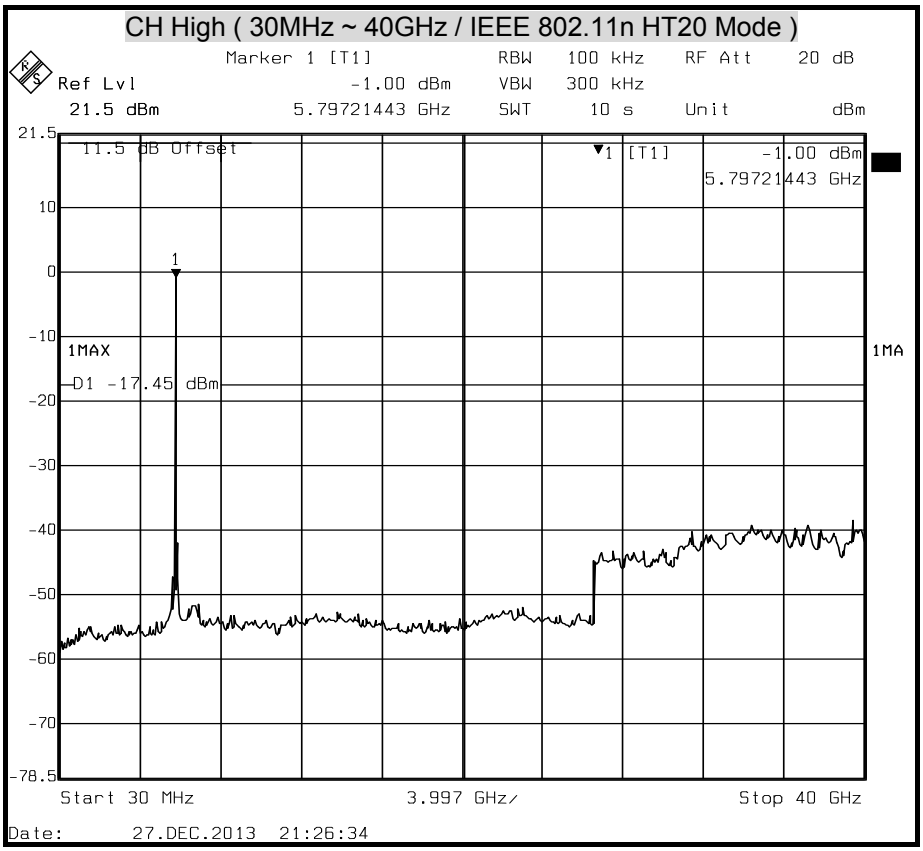
CH Low (30MHz ~ 40GHz / IEEE 802.11n HT20 Mode)



CH Mid (26.5MHz ~ 40GHz / IEEE 802.11n HT20 Mode)

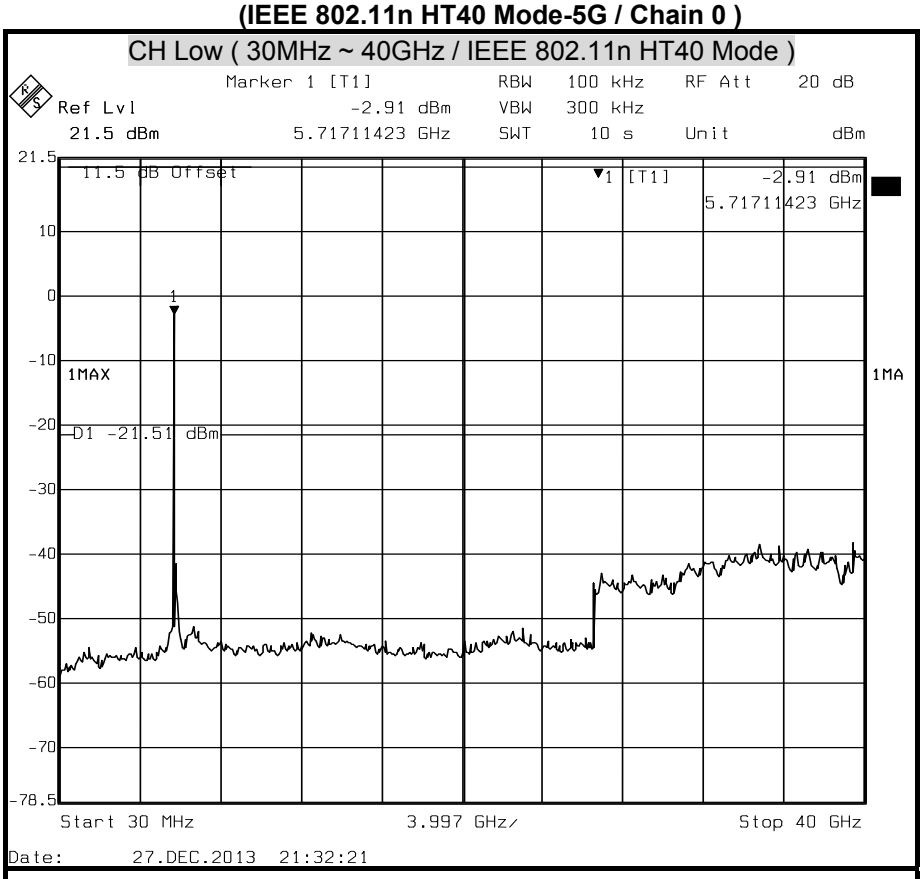


CH High (30MHz ~ 40GHz / IEEE 802.11n HT20 Mode)

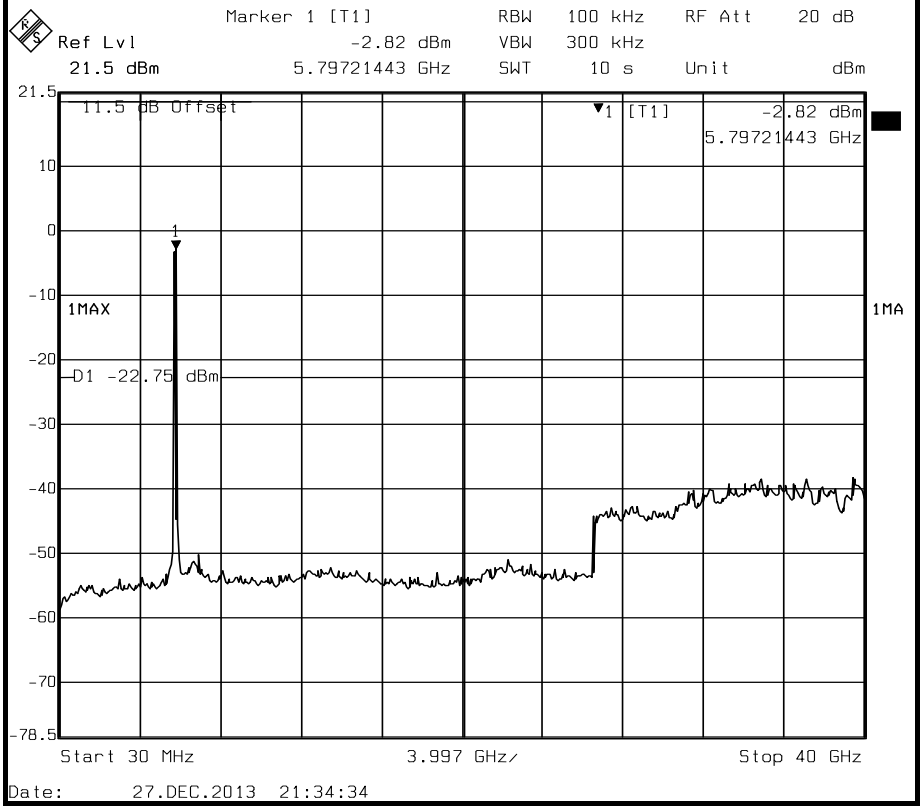


OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT
(IEEE 802.11n HT40 Mode-5G / Chain 0)

CH Low (30MHz ~ 40GHz / IEEE 802.11n HT40 Mode)

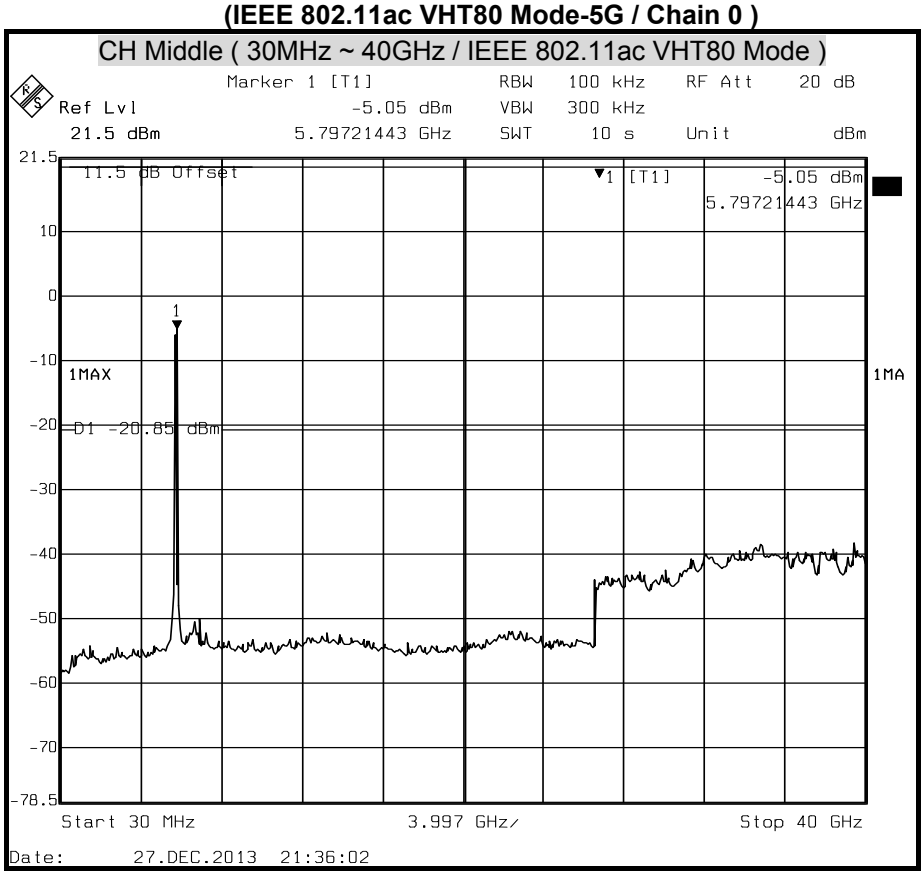


CH High (30MHz ~ 40GHz / IEEE 802.11n HT40 Mode)



OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT

(IEEE 802.11ac VHT80 Mode-5G / Chain 0)



7.5 RADIATED EMISSION

LIMITS

(1) According to § 15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 -1710	10.6 -12.7
6.26775 - 6.26825	108 -121.94	1718.8 - 1722.2	13.25 -13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 – 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 -16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3338	36.43 - 36.5
12.57675 - 12.57725	322 -335.4	3600 - 4400	([2])
13.36 - 13.41			

Remark:
1. *[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.*
2. *[2] Above 38.6*

(2) According to § 15.205 (b) Except as provided in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

(3) According to § 15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table :

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(KHz)	300
0.490 – 1.705	24000/F(KHz)	30
1.705 – 30.0	30	30
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

Remark: ***Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

(4) According to § 15.209 (b) In the emission table above, the tighter limit applies at the band edges.

TEST EQUIPMENT

The following test equipments are utilized in making the measurements contained in this report.

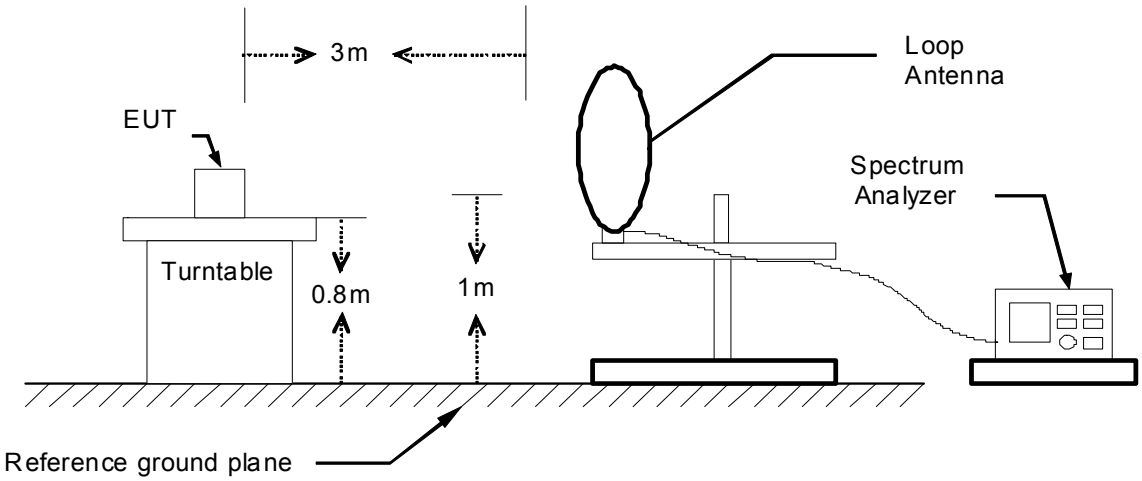
Open Area Test Site # 6				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
TYPE N COAXIAL CABLE	SUHNER	CHA9513	6	DEC. 18, 2014
BI-LOG Antenna	Sunol	JB1	A070506-2	SEP. 09, 2014
LOOP ANTENNA	EMCO	6502	8905-2356	JUN. 10, 2014
Pre-Amplifier	HP	8447F	2944A03817	DEC. 18, 2014
Pre-Amplifier	EMCI	EMC 012645	980097	DEC. 20, 2014
EMI Receiver	R&S	ESVS10	833206/012	JUN. 26, 2014
Horn Antenna	Com-Power	AH-118	071032	DEC. 05, 2014
3116 Double Ridge Antenna (40G)	ETS-LINDGREN	3116	00078900	DEC. 27, 2014
Turn Table	Yo Chen	001	----------	N.C.R.
Antenna Tower	AR	TP1000A	309874	N.C.R.
Controller	CT	SC101	----------	N.C.R.
RF Swicth	E-INSTRUMENT TELH LTD	ERS-180A	EC1204141	N.C.R
Power Meter	Anritsu	ML2487A	6K00003888	JUN. 24, 2014
Power Sensor	Anritsu	MA2491A	33265	JUN. 24, 2014
Temp./Humidity Chamber	K.SON	THS-M1	242	AUG. 08, 2014
DC Power Source	LOKO	DSP-5050	L1507009282	N.C.R
Spectrum Analyzer	R&S	FSU	200789	JUL. 01, 2014
Spectrum Analyzer	R&S	FSEK 30	835253/002	SEP. 28, 2014

Remark: *1. Each piece of equipment is scheduled for calibration once a year.*
2. N.C.R = No Calibration Request.

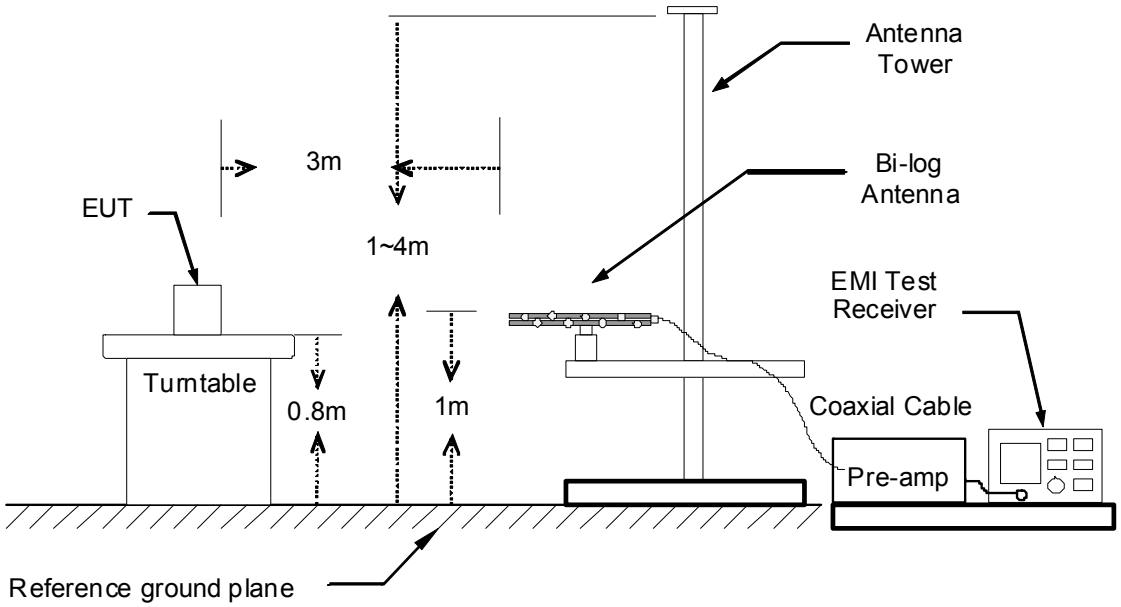
TEST SETUP

The diagram below shows the test setup that is utilized to make the measurements for emission from below 1GHz.

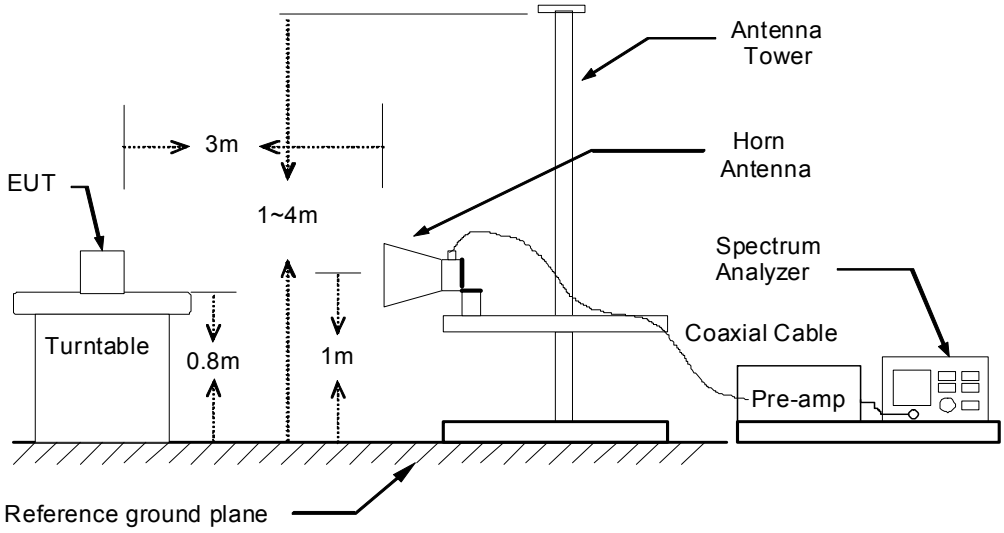
9kHz ~ 30MHz



30MHz ~ 1GHz



The diagram below shows the test setup that is utilized to make the measurements for emission above 1GHz.



TEST PROCEDURE

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
2. While measuring the radiated emission below 1GHz, the EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. While measuring the radiated emission above 1GHz, the EUT was set 3 meters away from the interference-receiving antenna.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarization of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
7. The tests were performed in accordance with KDB 558074 5.4 .

Remark：

1. *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.*
2. *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection and frequency above 1GHz.*
3. *The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.*

TEST RESULTS

Below 1 GHz (9kHz ~ 30MHz)

No emission found between lowest internal used/generated frequency to 30MHz.

Below 1 GHz (30MHz ~ 1GHz)

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/29
Test Mode	TX Mode	TEMP & Humidity	15.4°C, 52%

Horizontal

Frequency	Meter Reading	Antenna Factor	Cable Loss	Emission Level	Limits	Margin	Detector Mode
(MHz)	(dBμV)	(dB/M)	(dB)	(dBμV/M)	(dBμV/M)	(dB)	PK/QP
250.00	18.62	12.80	3.96	35.38	46.00	-10.62	QP
374.98	13.18	15.98	4.63	33.79	46.00	-12.21	QP
500.00	15.92	18.43	5.60	39.95	46.00	-6.05	QP
625.00	10.68	19.89	5.76	36.33	46.00	-9.67	QP
750.00	12.49	21.58	5.81	39.88	46.00	-6.12	QP
875.00	14.70	22.93	6.06	43.69	46.00	-2.31	QP
N/A	-----	-----	-----	-----	-----	-----	-----

Vertical

Frequency	Meter Reading	Antenna Factor	Cable Loss	Emission Level	Limits	Margin	Detector Mode
(MHz)	(dBμV)	(dB/M)	(dB)	(dBμV/M)	(dBμV/M)	(dB)	PK/QP
44.96	23.84	11.72	1.95	37.51	40.00	-2.49	QP
77.62	24.99	8.24	2.34	35.57	40.00	-4.43	QP
125.00	16.92	14.13	3.12	34.17	43.50	-9.34	QP
249.99	21.34	12.80	3.96	38.10	46.00	-7.90	QP
500.00	19.57	18.43	5.60	43.60	46.00	-2.40	QP
750.02	12.06	21.58	5.81	39.45	46.00	-6.55	QP
875.00	14.38	22.93	6.06	43.37	46.00	-2.63	QP
N/A	-----	-----	-----	-----	-----	-----	-----

REMARK: Emission level (dBμV/m) =Antenna Factor (dB/m) + Cable loss (dB) + Meter Reading (dBμV).

Above 1 GHz

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/28
Test Mode	IEEE 802.11b TX / CH Low	TEMP & Humidity	15.3°C, 52%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4823.80	61.51	33.47	3.84	45.07	0.40	54.14	74.00	-19.86	P
*	4823.80	58.24	33.47	3.84	45.07	0.40	50.87	54.00	-3.13	A
	9647.86	54.42	38.96	5.60	42.97	0.50	56.52	74.00	-17.48	P
	9647.86	49.92	38.96	5.60	42.97	0.50	52.02	54.00	-1.98	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4823.80	62.54	33.47	3.84	45.07	0.40	55.17	74.00	-18.83	P
*	4823.80	58.48	33.47	3.84	45.07	0.40	51.11	54.00	-2.89	A
	9678.32	54.16	38.97	5.61	42.96	0.50	56.29	74.00	-17.71	P
	9678.32	50.84	38.97	5.61	42.96	0.50	52.97	54.00	-1.03	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/28
Test Mode	IEEE 802.11b TX / CH Middle	TEMP & Humidity	15.3°C, 52%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4873.95	60.06	33.65	3.85	45.13	0.40	52.83	74.00	-21.17	P
*	4873.95	56.34	33.65	3.85	45.13	0.40	49.11	54.00	-4.89	A
*	9478.15	53.71	38.89	5.54	43.03	0.50	55.61	74.00	-18.39	P
*	9478.15	50.58	38.89	5.54	43.03	0.50	52.48	54.00	-1.52	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4873.89	61.62	33.65	3.85	45.13	0.40	54.39	74.00	-19.61	P
*	4873.89	58.82	33.65	3.85	45.13	0.40	51.59	54.00	-2.41	A
	9678.15	54.96	38.97	5.61	42.96	0.50	57.09	74.00	-16.91	P
	9678.15	50.80	38.97	5.61	42.96	0.50	52.93	54.00	-1.07	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/28
Test Mode	IEEE 802.11b TX / CH High	TEMP & Humidity	15.3°C, 52%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4923.84	59.33	33.83	3.86	45.18	0.40	52.24	74.00	-21.76	P
*	4923.84	56.04	33.83	3.86	45.18	0.40	48.95	54.00	-5.05	A
	9847.84	54.32	39.04	5.69	42.91	0.50	56.64	74.00	-17.36	P
	9847.84	50.18	39.04	5.69	42.91	0.50	52.50	54.00	-1.50	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4823.64	58.86	33.47	3.84	45.07	0.40	51.49	74.00	-22.51	P
*	4823.64	47.96	33.47	3.84	45.07	0.40	40.59	54.00	-13.41	A
	9847.84	54.48	39.04	5.69	42.91	0.50	56.80	74.00	-17.20	P
	9847.84	50.29	39.04	5.69	42.91	0.50	52.61	54.00	-1.39	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/28
Test Mode	IEEE 802.11g TX / CH Low	TEMP & Humidity	15.3°C, 52%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4824.51	57.46	33.47	3.84	45.07	0.40	50.09	74.00	-23.91	P
*	4824.51	47.00	33.47	3.84	45.07	0.40	39.63	54.00	-14.37	A
	9648.34	54.36	38.96	5.60	42.97	0.50	56.46	74.00	-17.54	P
	9648.34	49.83	38.96	5.60	42.97	0.50	51.93	54.00	-2.07	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4823.64	58.86	33.47	3.84	45.07	0.40	51.49	74.00	-22.51	P
*	4823.64	47.96	33.47	3.84	45.07	0.40	40.59	54.00	-13.41	A
	9648.21	54.41	38.96	5.60	42.97	0.50	56.51	74.00	-17.49	P
	9648.21	50.35	38.96	5.60	42.97	0.50	52.45	54.00	-1.55	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/28
Test Mode	IEEE 802.11g TX / CH Middle	TEMP & Humidity	15.3°C, 52%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4877.82	55.01	33.66	3.85	45.13	0.40	47.79	74.00	-26.21	P
*	4877.82	45.41	33.66	3.85	45.13	0.40	38.19	54.00	-15.81	A
*	9478.03	52.19	38.89	5.54	43.03	0.50	54.09	74.00	-19.91	P
*	9478.03	50.37	38.89	5.54	43.03	0.50	52.27	54.00	-1.73	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4875.62	57.71	33.65	3.85	45.13	0.40	50.48	74.00	-23.52	P
*	4875.62	47.14	33.65	3.85	45.13	0.40	39.91	54.00	-14.09	A
	9678.09	53.19	38.97	5.61	42.96	0.50	55.32	74.00	-18.68	P
	9678.09	50.70	38.97	5.61	42.96	0.50	52.83	54.00	-1.17	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/28
Test Mode	IEEE 802.11g TX / CH High	TEMP & Humidity	15.3°C, 52%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4921.88	54.96	33.82	3.86	45.18	0.40	47.86	74.00	-26.14	P
*	4921.88	45.59	33.82	3.86	45.18	0.40	38.49	54.00	-15.51	A
	9847.89	53.19	39.04	5.69	42.91	0.50	55.51	74.00	-18.49	P
	9847.89	49.93	39.04	5.69	42.91	0.50	52.25	54.00	-1.75	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4921.88	55.24	33.82	3.86	45.18	0.40	48.14	74.00	-25.86	P
	4921.88	45.75	33.82	3.86	45.18	0.40	38.65	54.00	-15.35	A
	9848.23	54.09	39.04	5.69	42.91	0.50	56.41	74.00	-17.59	P
	9848.23	50.26	39.04	5.69	42.91	0.50	52.58	54.00	-1.42	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/28
Test Mode	IEEE 802.11n HT20 TX / CH Low	TEMP & Humidity	15.3°C, 52%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4823.77	55.62	33.47	3.84	45.07	0.40	48.25	74.00	-25.75	P
*	4823.77	45.59	33.47	3.84	45.07	0.40	38.22	54.00	-15.78	A
	9648.04	53.62	38.96	5.60	42.97	0.50	55.72	74.00	-18.28	P
	9648.04	49.52	38.96	5.60	42.97	0.50	51.62	54.00	-2.38	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4824.14	55.62	33.47	3.84	45.07	0.40	48.25	74.00	-25.75	P
*	4824.14	46.24	33.47	3.84	45.07	0.40	38.87	54.00	-15.13	A
	9648.21	54.26	38.96	5.60	42.97	0.50	56.36	74.00	-17.64	P
	9648.21	50.03	38.96	5.60	42.97	0.50	52.13	54.00	-1.87	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/28
Test Mode	IEEE 802.11n HT20 TX / CH Middle	TEMP & Humidity	15.3°C, 52%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4876.34	56.09	33.65	3.85	45.13	0.40	48.87	74.00	-25.13	P
*	4876.34	45.24	33.65	3.85	45.13	0.40	38.02	54.00	-15.98	A
*	9477.72	53.95	38.89	5.54	43.03	0.50	55.85	74.00	-18.15	P
*	9477.72	49.93	38.89	5.54	43.03	0.50	51.83	54.00	-2.17	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4849.30	55.78	33.56	3.84	45.10	0.40	48.48	74.00	-25.52	P
*	4849.30	45.59	33.56	3.84	45.10	0.40	38.29	54.00	-15.71	A
	9678.18	54.26	38.97	5.61	42.96	0.50	56.39	74.00	-17.61	P
	9678.18	50.46	38.97	5.61	42.96	0.50	52.59	54.00	-1.41	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/28
Test Mode	IEEE 802.11n HT20 TX / CH High	TEMP & Humidity	15.3°C, 52%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4922.29	54.48	33.82	3.86	45.18	0.40	47.38	74.00	-26.62	P
*	4922.29	45.06	33.82	3.86	45.18	0.40	37.96	54.00	-16.04	A
	9847.96	53.99	39.04	5.69	42.91	0.50	56.31	74.00	-17.69	P
	9847.96	50.24	39.04	5.69	42.91	0.50	52.56	54.00	-1.44	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4923.36	55.84	33.82	3.86	45.18	0.40	48.75	74.00	-25.25	P
*	4923.36	46.24	33.82	3.86	45.18	0.40	39.15	54.00	-14.85	A
	9848.17	54.29	39.04	5.69	42.91	0.50	56.61	74.00	-17.39	P
	9848.17	50.13	39.04	5.69	42.91	0.50	52.45	54.00	-1.55	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/28
Test Mode	IEEE 802.11n HT40 TX / CH Low	TEMP & Humidity	15.3°C, 52%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4843.76	53.58	33.54	3.84	45.09	0.40	46.27	74.00	-27.73	P
*	4843.76	43.90	33.54	3.84	45.09	0.40	36.59	54.00	-17.41	A
	9688.24	53.84	38.98	5.62	42.95	0.50	55.98	74.00	-18.02	P
	9688.24	49.73	38.98	5.62	42.95	0.50	51.87	54.00	-2.13	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4840.80	55.24	33.53	3.84	45.09	0.40	47.92	74.00	-26.08	P
*	4840.80	44.70	33.53	3.84	45.09	0.40	37.38	54.00	-16.62	A
	9688.16	54.28	38.98	5.62	42.95	0.50	56.42	74.00	-17.58	P
	9688.16	50.18	38.98	5.62	42.95	0.50	52.32	54.00	-1.68	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/28
Test Mode	IEEE 802.11n HT40 TX / CH Middle	TEMP & Humidity	15.3°C, 52%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4861.90	54.29	33.60	3.85	45.11	0.40	47.03	74.00	-26.97	P
*	4861.90	43.90	33.60	3.85	45.11	0.40	36.64	54.00	-17.36	A
*	9478.20	53.66	38.89	5.54	43.03	0.50	55.56	74.00	-18.44	P
*	9478.20	50.01	38.89	5.54	43.03	0.50	51.91	54.00	-2.09	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4876.34	54.60	33.65	3.85	45.13	0.40	47.38	74.00	-26.62	P
*	4876.34	44.30	33.65	3.85	45.13	0.40	37.08	54.00	-16.92	A
	9677.85	54.17	38.97	5.61	42.96	0.50	56.30	74.00	-17.70	P
	9677.85	49.92	38.97	5.61	42.96	0.50	52.05	54.00	-1.95	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/28
Test Mode	IEEE 802.11n HT40 TX / CH High	TEMP & Humidity	15.3°C, 52%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4901.23	54.54	33.74	3.86	45.16	0.40	47.39	74.00	-26.61	P
*	4901.23	43.69	33.74	3.86	45.16	0.40	36.54	54.00	-17.46	A
	9808.11	53.17	39.02	5.67	42.92	0.50	55.45	74.00	-18.55	P
	9808.11	49.67	39.02	5.67	42.92	0.50	51.95	54.00	-2.05	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	4900.03	54.54	33.74	3.86	45.15	0.40	47.38	74.00	-26.62	P
*	4900.03	44.50	33.74	3.86	45.15	0.40	37.34	54.00	-16.66	A
	9808.24	54.19	39.02	5.67	42.92	0.50	56.47	74.00	-17.53	P
	9808.24	50.34	39.02	5.67	42.92	0.50	52.62	54.00	-1.38	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/27
Test Mode	IEEE 802.11a TX / CH Low	TEMP & Humidity	15.5°C, 53%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1550.01	58.42	27.07	2.30	44.68	0.30	43.41	74.00	-30.59	P
*	1550.01	49.99	27.07	2.30	44.68	0.30	34.98	54.00	-19.02	A
*	11489.73	55.04	40.67	6.10	43.30	0.60	59.11	74.00	-14.89	P
*	11489.73	44.72	40.67	6.10	43.30	0.60	48.79	54.00	-5.21	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1550.00	60.01	27.07	2.30	44.68	0.30	45.00	74.00	-29.00	P
*	1550.00	51.84	27.07	2.30	44.68	0.30	36.83	54.00	-17.17	A
*	11490.17	56.58	40.67	6.10	43.30	0.60	60.65	74.00	-13.35	P
*	11490.17	46.54	40.67	6.10	43.30	0.60	50.61	54.00	-3.39	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/27
Test Mode	IEEE 802.11a TX / CH Middle	TEMP & Humidity	15.5°C, 53%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1549.98	58.46	27.07	2.30	44.68	0.30	43.45	74.00	-30.55	P
*	1549.98	50.31	27.07	2.30	44.68	0.30	35.30	54.00	-18.70	A
*	11569.86	56.42	40.76	6.11	43.31	0.60	60.58	74.00	-13.42	P
*	11569.86	44.80	40.76	6.11	43.31	0.60	48.96	54.00	-5.04	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1549.97	59.08	27.07	2.30	44.68	0.30	44.07	74.00	-29.93	P
*	1549.97	51.54	27.07	2.30	44.68	0.30	36.53	54.00	-17.47	A
*	11569.57	57.24	40.76	6.11	43.31	0.60	61.40	74.00	-12.60	P
*	11569.57	46.77	40.76	6.11	43.31	0.60	50.93	54.00	-3.07	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/27
Test Mode	IEEE 802.11a TX / CH High	TEMP & Humidity	15.5°C, 53%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1550.00	58.76	27.07	2.30	44.68	0.30	43.75	74.00	-30.25	P
*	1550.00	50.34	27.07	2.30	44.68	0.30	35.33	54.00	-18.67	A
*	10649.49	55.29	39.40	5.92	43.11	0.53	58.03	74.00	-15.97	P
*	10649.49	44.36	39.40	5.92	43.11	0.53	47.10	54.00	-6.90	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1549.97	59.83	27.07	2.30	44.68	0.30	44.82	74.00	-29.18	P
*	1549.97	51.62	27.07	2.30	44.68	0.30	36.61	54.00	-17.39	A
*	11649.77	56.63	40.82	6.12	43.32	0.60	60.86	74.00	-13.14	P
*	11649.77	46.49	40.82	6.12	43.32	0.60	50.72	54.00	-3.28	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/27
Test Mode	IEEE 802.11n HT20 TX / CH Low	TEMP & Humidity	15.5°C, 53%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1549.98	59.62	27.07	2.30	44.68	0.30	44.61	74.00	-29.39	P
*	1549.98	50.78	27.07	2.30	44.68	0.30	35.77	54.00	-18.23	A
*	11489.79	55.59	40.67	6.10	43.30	0.60	59.66	74.00	-14.34	P
*	11489.79	45.01	40.67	6.10	43.30	0.60	49.08	54.00	-4.92	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1550.00	59.72	27.07	2.30	44.68	0.30	44.71	74.00	-29.29	P
*	1550.00	51.54	27.07	2.30	44.68	0.30	36.53	54.00	-17.47	A
*	11489.87	56.07	40.67	6.10	43.30	0.60	60.14	74.00	-13.86	P
*	11489.87	46.92	40.67	6.10	43.30	0.60	50.99	54.00	-3.01	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/27
Test Mode	IEEE 802.11n HT20 TX / CH Middle	TEMP & Humidity	15.5°C, 53%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1550.00	58.74	27.07	2.30	44.68	0.30	43.73	74.00	-30.27	P
*	1550.00	50.68	27.07	2.30	44.68	0.30	35.67	54.00	-18.33	A
*	11570.46	55.34	40.76	6.11	43.31	0.60	59.50	74.00	-14.50	P
*	11570.46	44.91	40.76	6.11	43.31	0.60	49.07	54.00	-4.93	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1550.01	59.99	27.07	2.30	44.68	0.30	44.98	74.00	-29.02	P
*	1550.01	51.84	27.07	2.30	44.68	0.30	36.83	54.00	-17.17	A
*	11569.74	56.59	40.76	6.11	43.31	0.60	60.75	74.00	-13.25	P
*	11569.74	47.21	40.76	6.11	43.31	0.60	51.37	54.00	-2.63	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/27
Test Mode	IEEE 802.11n HT20 TX / CH High	TEMP & Humidity	15.5°C, 53%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1549.97	58.72	27.07	2.30	44.68	0.30	43.71	74.00	-30.29	P
*	1549.97	50.80	27.07	2.30	44.68	0.30	35.79	54.00	-18.21	A
*	11649.52	57.14	40.82	6.12	43.32	0.60	61.37	74.00	-12.63	P
*	11649.52	45.46	40.82	6.12	43.32	0.60	49.69	54.00	-4.31	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1550.02	60.24	27.07	2.30	44.68	0.30	45.23	74.00	-28.77	P
*	1550.02	51.89	27.07	2.30	44.68	0.30	36.88	54.00	-17.12	A
*	11646.80	57.71	40.82	6.12	43.32	0.60	61.93	74.00	-12.07	P
*	11646.80	46.68	40.82	6.12	43.32	0.60	50.90	54.00	-3.10	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/27
Test Mode	IEEE 802.11n HT40 TX / CH Low	TEMP & Humidity	15.5°C, 53%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1550.00	58.42	27.07	2.30	44.68	0.30	43.41	74.00	-30.59	P
*	1550.00	50.77	27.07	2.30	44.68	0.30	35.76	54.00	-18.24	A
*	11509.71	55.04	40.71	6.10	43.30	0.60	59.15	74.00	-14.85	P
*	11509.71	44.96	40.71	6.10	43.30	0.60	49.07	54.00	-4.93	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1549.98	59.68	27.07	2.30	44.68	0.30	44.67	74.00	-29.33	P
*	1549.98	51.49	27.07	2.30	44.68	0.30	36.48	54.00	-17.52	A
*	11509.87	55.47	40.71	6.10	43.30	0.60	59.58	74.00	-14.42	P
*	11509.87	46.87	40.71	6.10	43.30	0.60	50.98	54.00	-3.02	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/27
Test Mode	IEEE 802.11n HT40 TX / CH High	TEMP & Humidity	15.5°C, 53%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1549.98	59.02	27.07	2.30	44.68	0.30	44.01	74.00	-29.99	P
*	1549.98	50.71	27.07	2.30	44.68	0.30	35.70	54.00	-18.30	A
*	11589.79	54.88	40.77	6.11	43.31	0.60	59.06	74.00	-14.94	P
*	11589.79	44.60	40.77	6.11	43.31	0.60	48.78	54.00	-5.22	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1550.00	59.88	27.07	2.30	44.68	0.30	44.87	74.00	-29.13	P
*	1550.00	51.74	27.07	2.30	44.68	0.30	36.73	54.00	-17.27	A
*	11589.93	55.41	40.77	6.11	43.31	0.60	59.59	74.00	-14.41	P
*	11589.93	46.30	40.77	6.11	43.31	0.60	50.48	54.00	-3.52	A

REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	John Chen
Model	BR261c	Test Date	2013/12/27
Test Mode	IEEE 802.11ac HT80 TX / CH Middle	TEMP & Humidity	15.5°C, 53%

	Measurement Distance at 3m Horizontal polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1550.00	58.71	27.07	2.30	44.68	0.30	43.70	74.00	-30.30	P
*	1550.00	50.36	27.07	2.30	44.68	0.30	35.35	54.00	-18.65	A
*	11552.58	54.93	40.74	6.11	43.31	0.60	59.07	74.00	-14.93	P
*	11552.58	42.50	40.74	6.11	43.31	0.60	46.64	54.00	-7.36	A

	Measurement Distance at 3m Vertical polarity									
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBμV)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(P/Q/A)
*	1550.00	59.50	27.07	2.30	44.68	0.30	44.49	74.00	-29.51	P
*	1550.00	51.46	27.07	2.30	44.68	0.30	36.45	54.00	-17.55	A
*	11551.71	54.28	40.74	6.11	43.31	0.60	58.42	74.00	-15.58	P
*	11551.71	42.72	40.74	6.11	43.31	0.60	46.86	54.00	-7.14	A

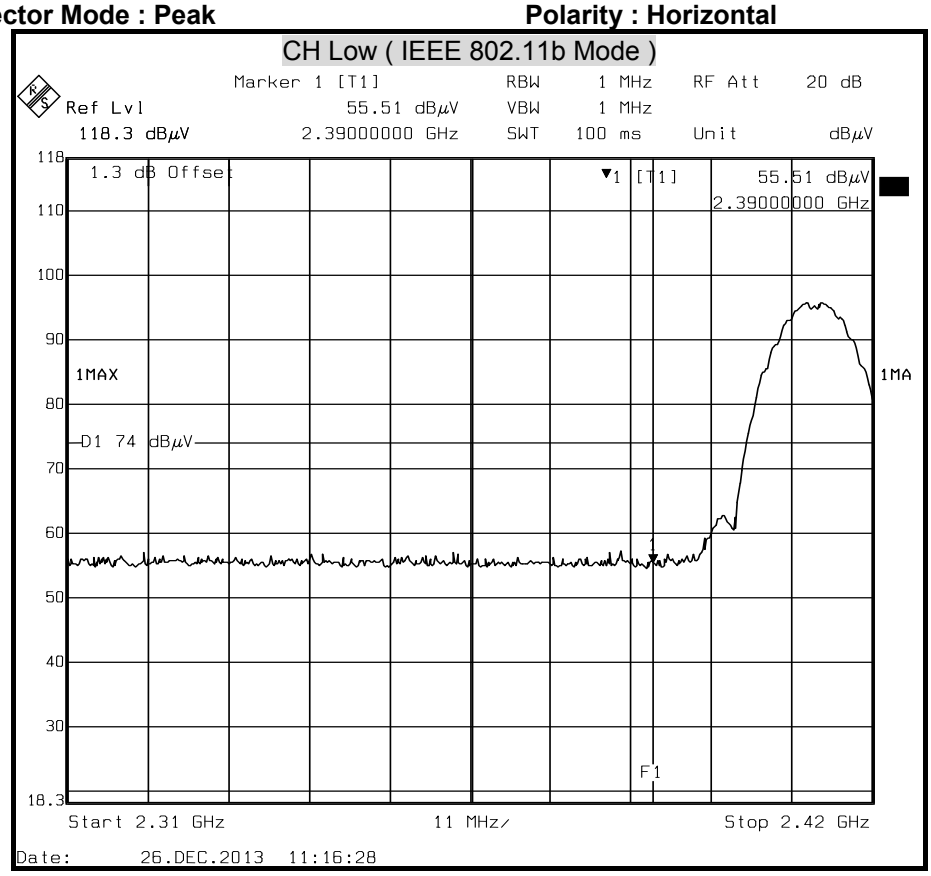
REMARK:

1. *AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss*
2. *Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz*
3. *The result basic equation calculation is as follow:*
   Level = Reading + AF + Cable – Preamp + Filter , Margin = Level-Limit
4. *The other emission levels were 20dB below the limit*
5. *The test limit distance is 3M limit.*
6. ** means: the frequency is under 15.205 restricted bands.*

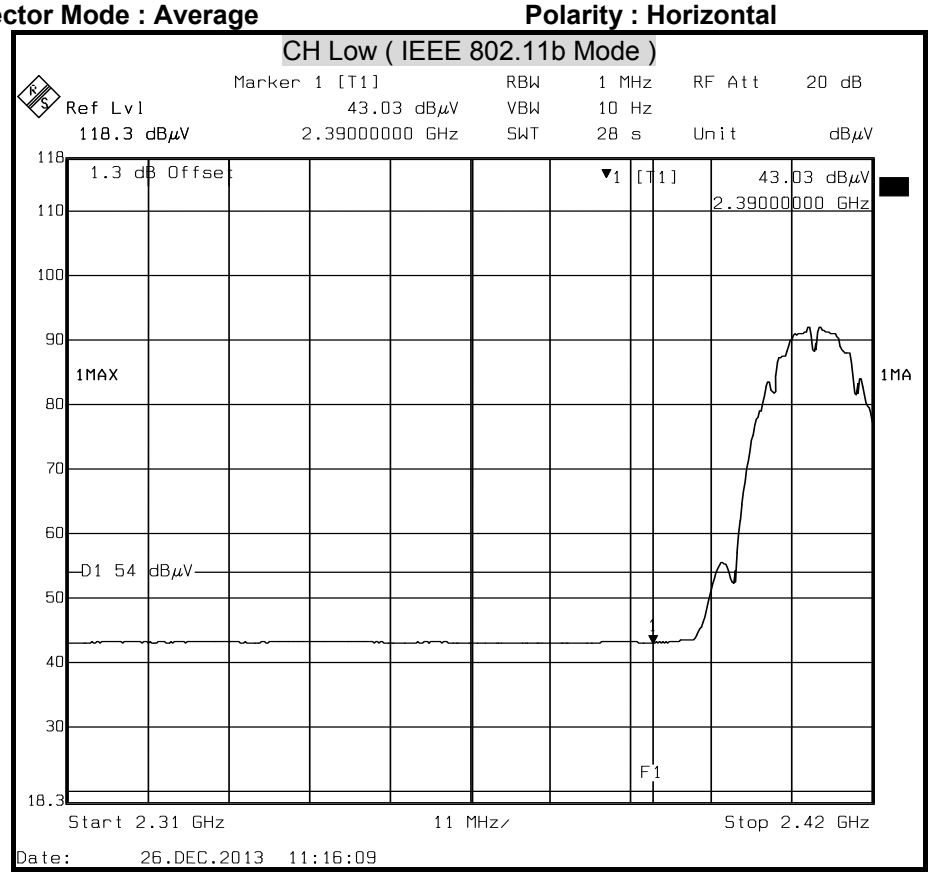
2.4GHz

Band Edges (IEEE 802.11b mode / CH Low)

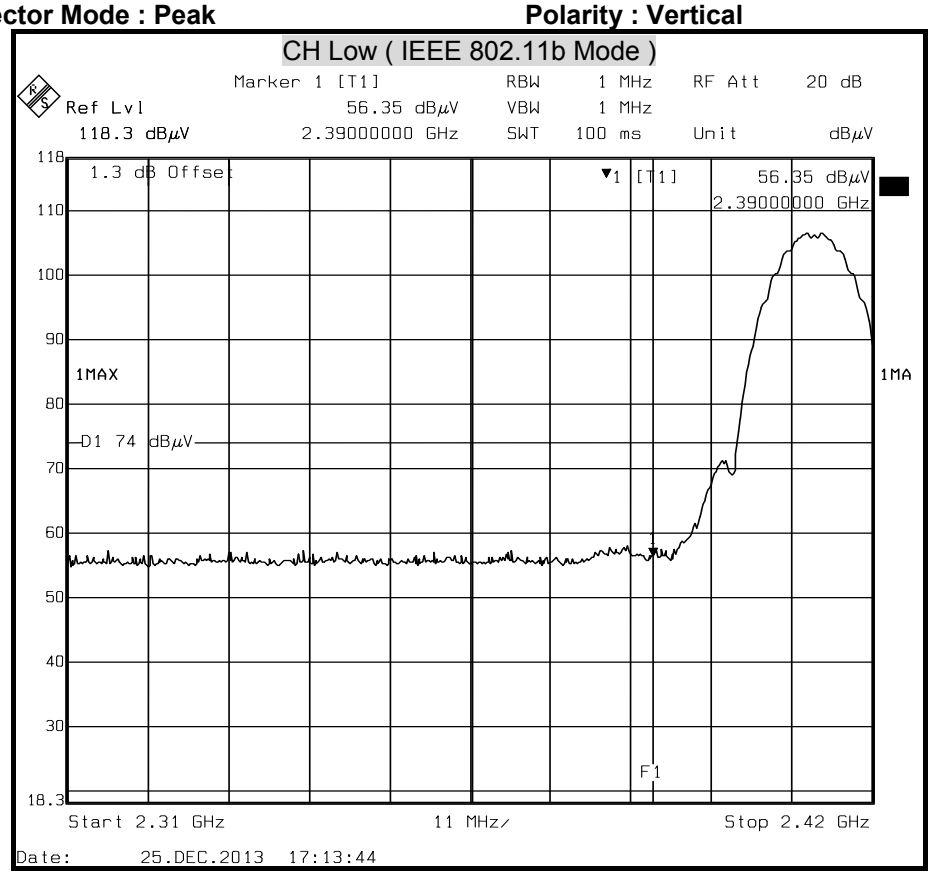
Detector Mode : Peak **Polarity : Horizontal**



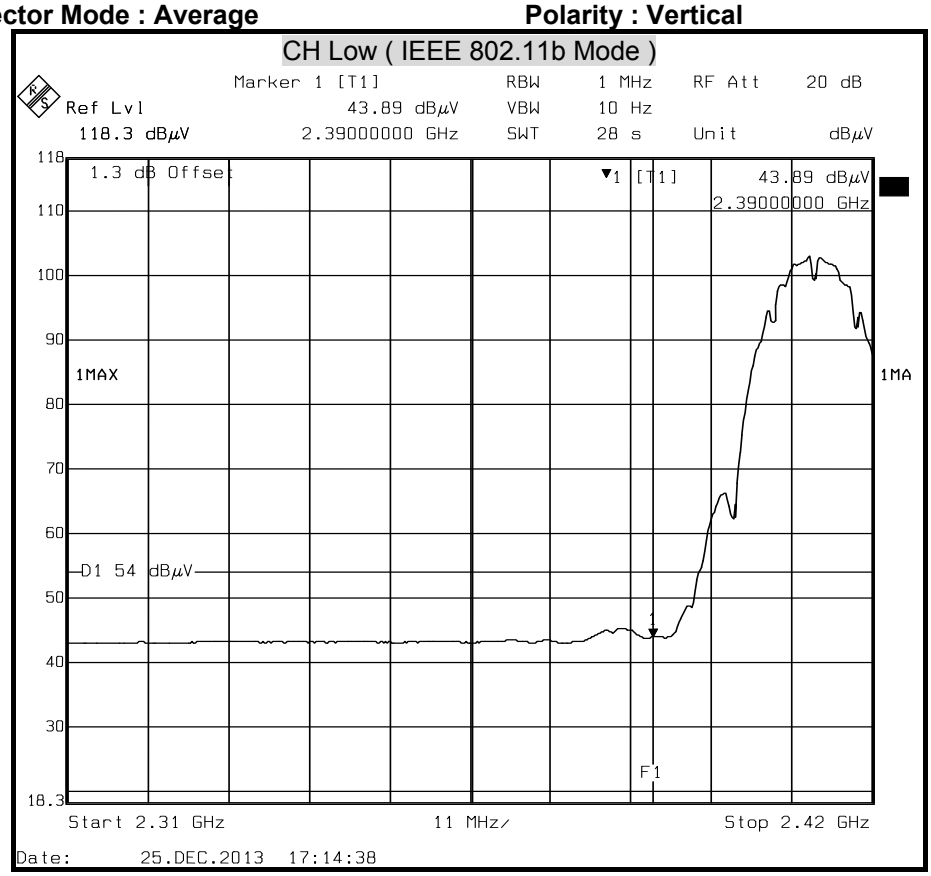
Detector Mode : Average **Polarity : Horizontal**



Detector Mode : Peak **Polarity : Vertical**

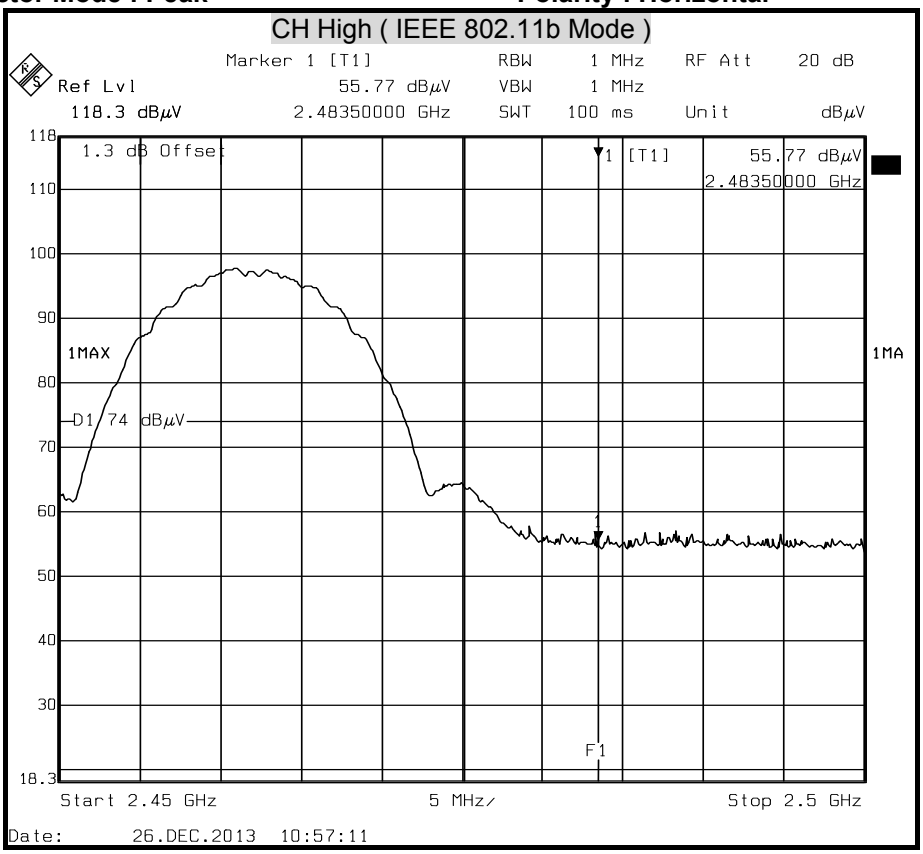


Detector Mode : Average **Polarity : Vertical**

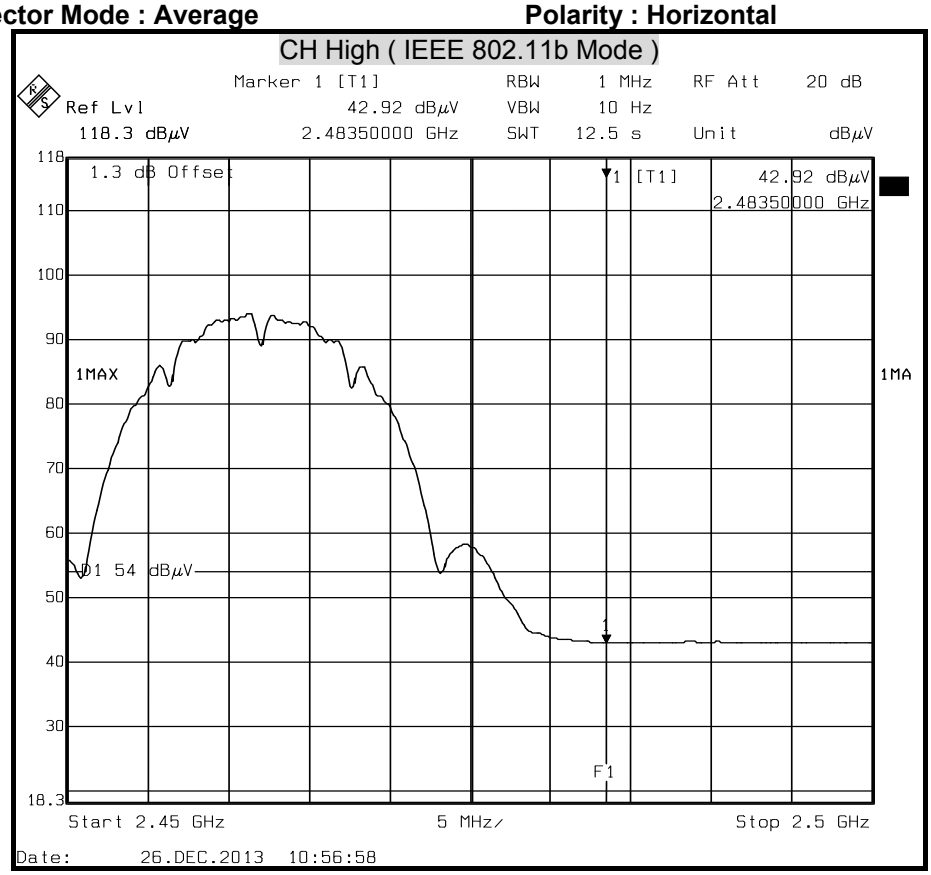


Band Edges (IEEE 802.11b mode / CH High)

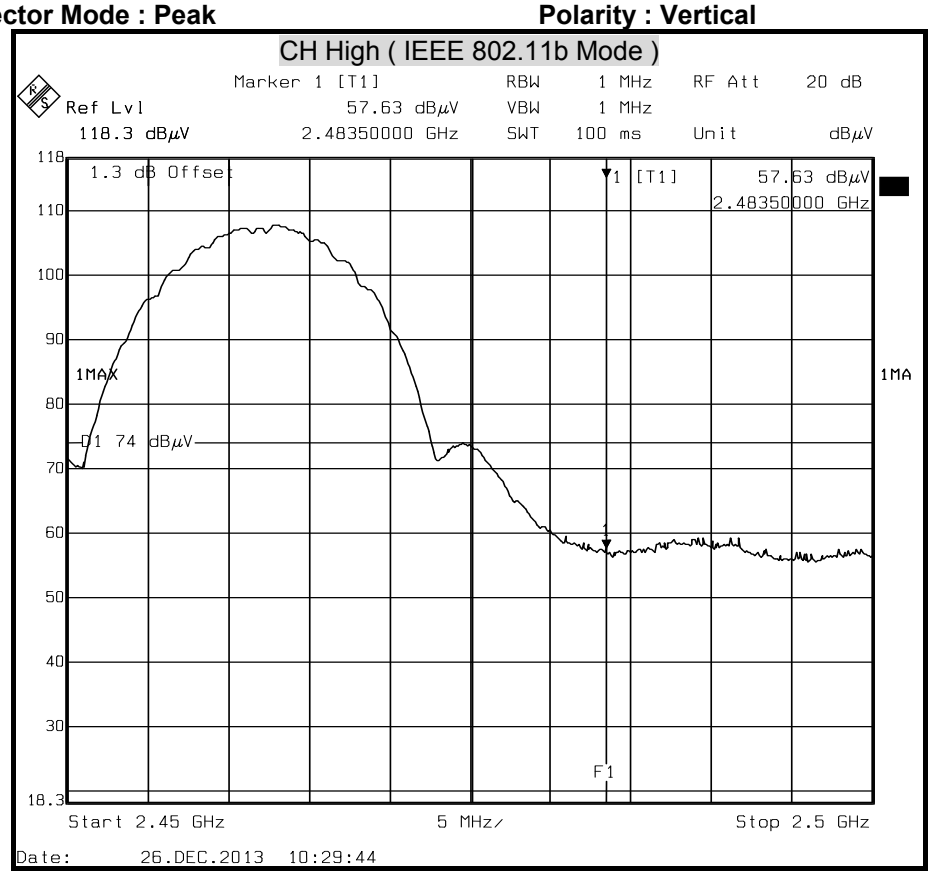
Detector Mode : Peak **Polarity : Horizontal**



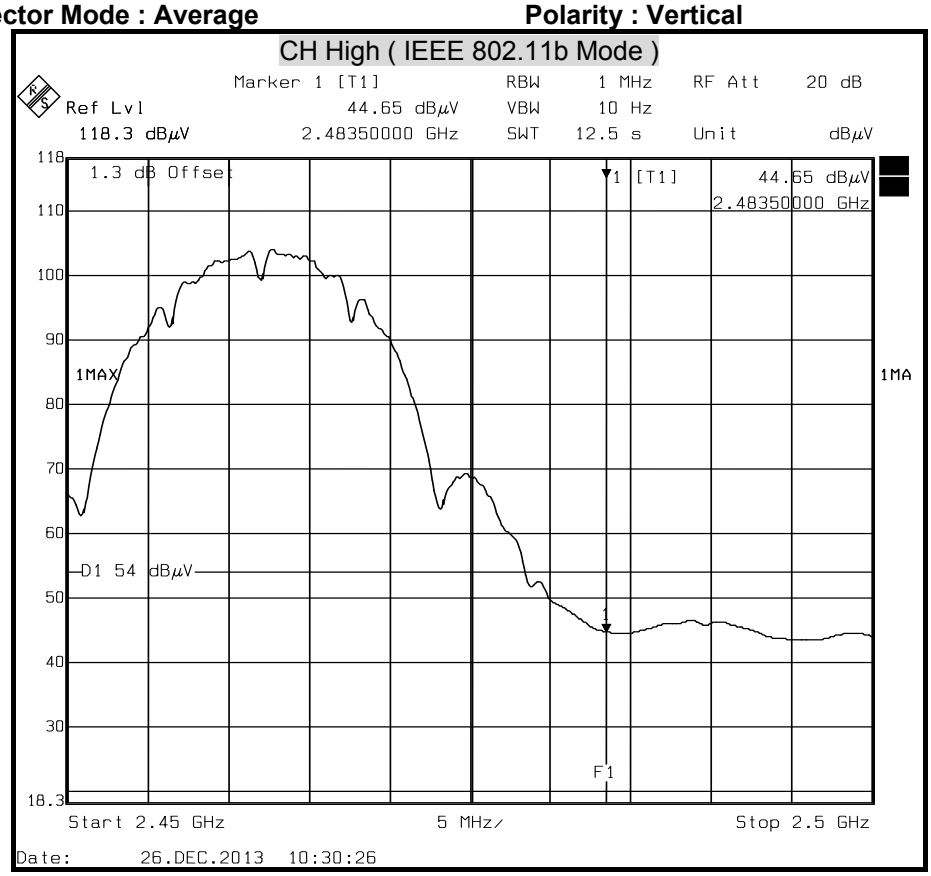
Detector Mode : Average **Polarity : Horizontal**



Detector Mode : Peak **Polarity : Vertical**

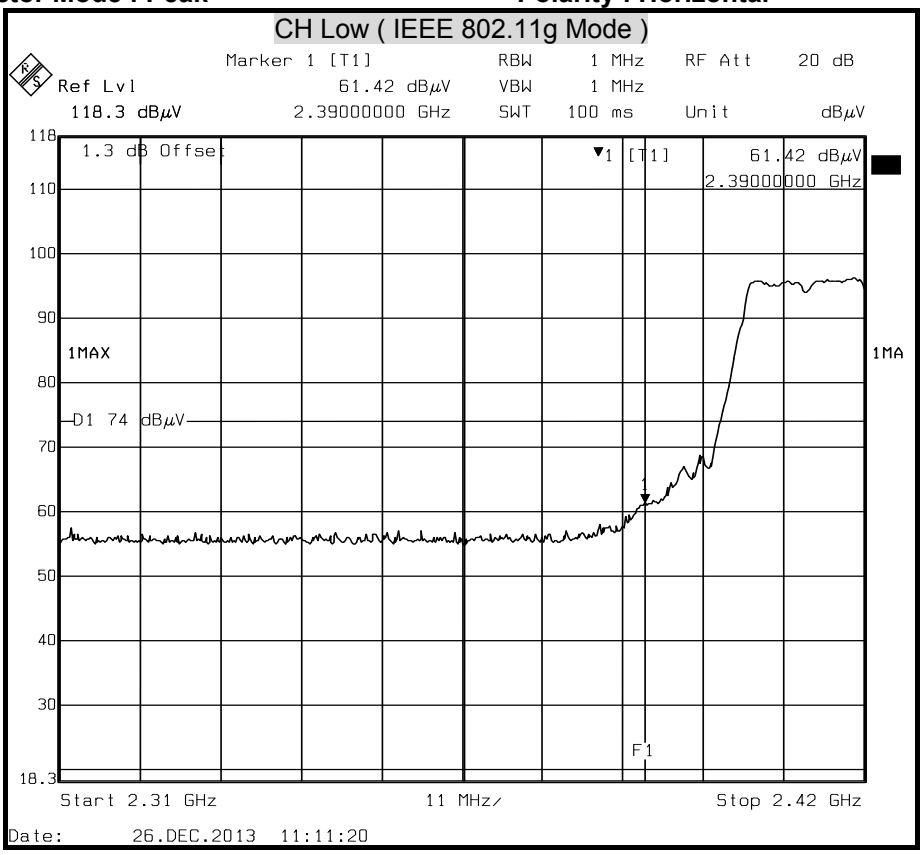


Detector Mode : Average **Polarity : Vertical**

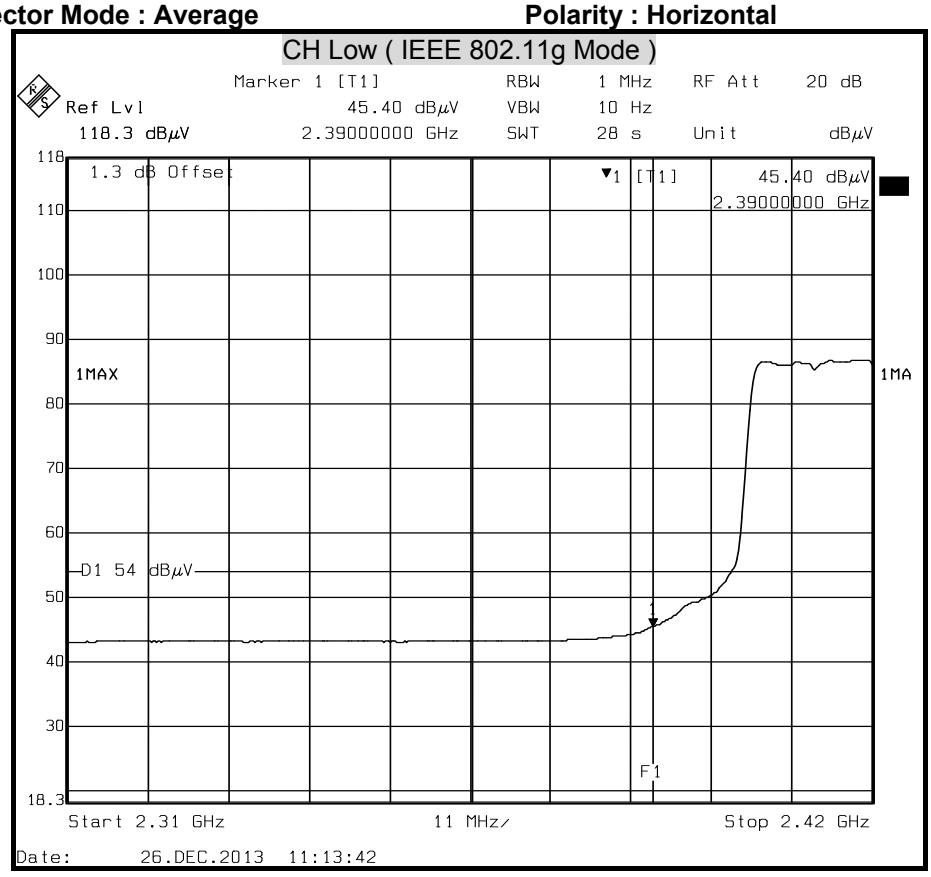


Band Edges (IEEE 802.11g mode / CH Low)

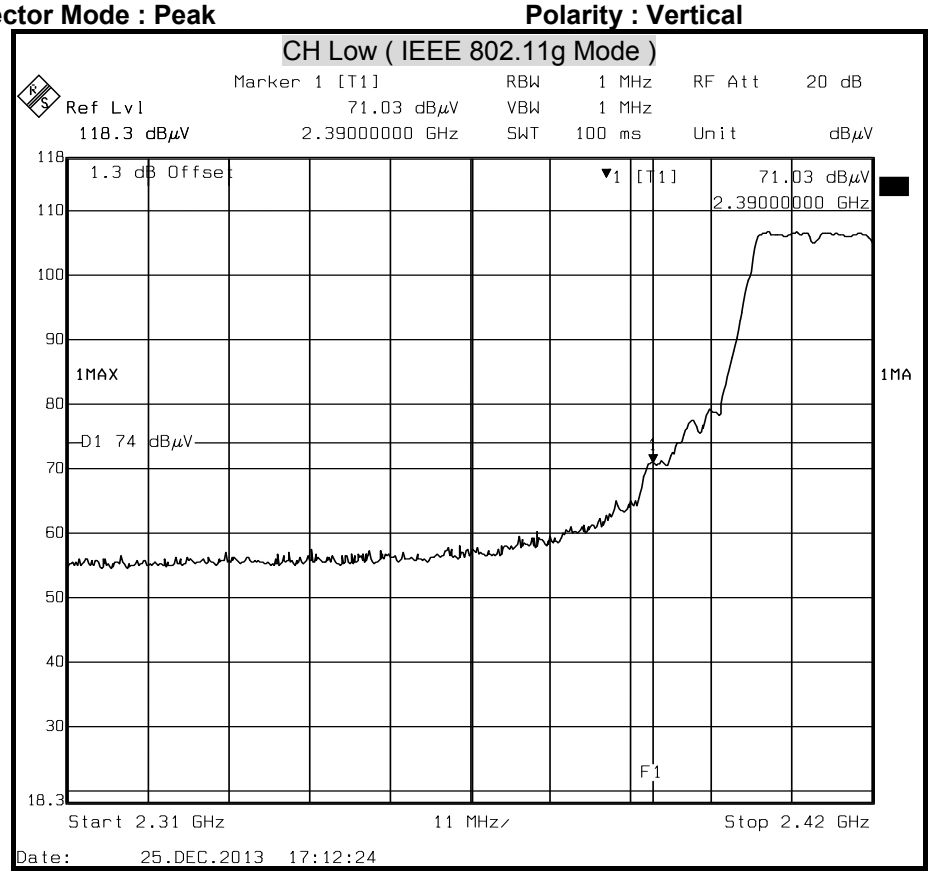
Detector Mode : Peak **Polarity : Horizontal**



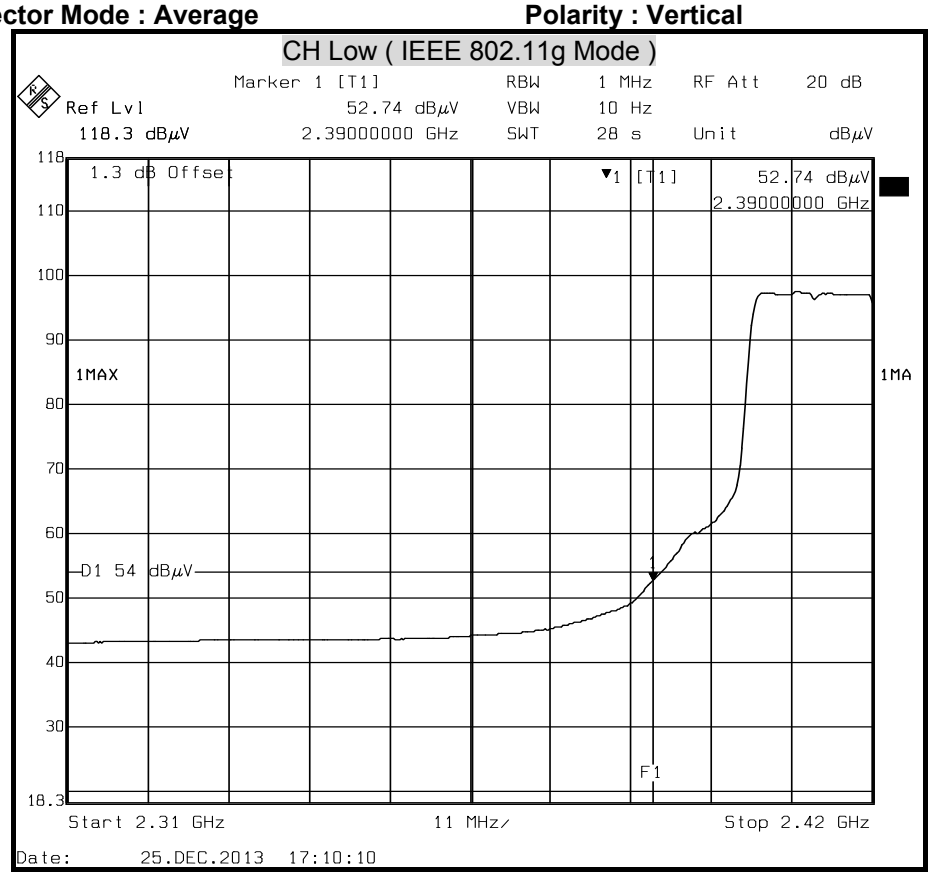
Detector Mode : Average **Polarity : Horizontal**



Detector Mode : Peak **Polarity : Vertical**

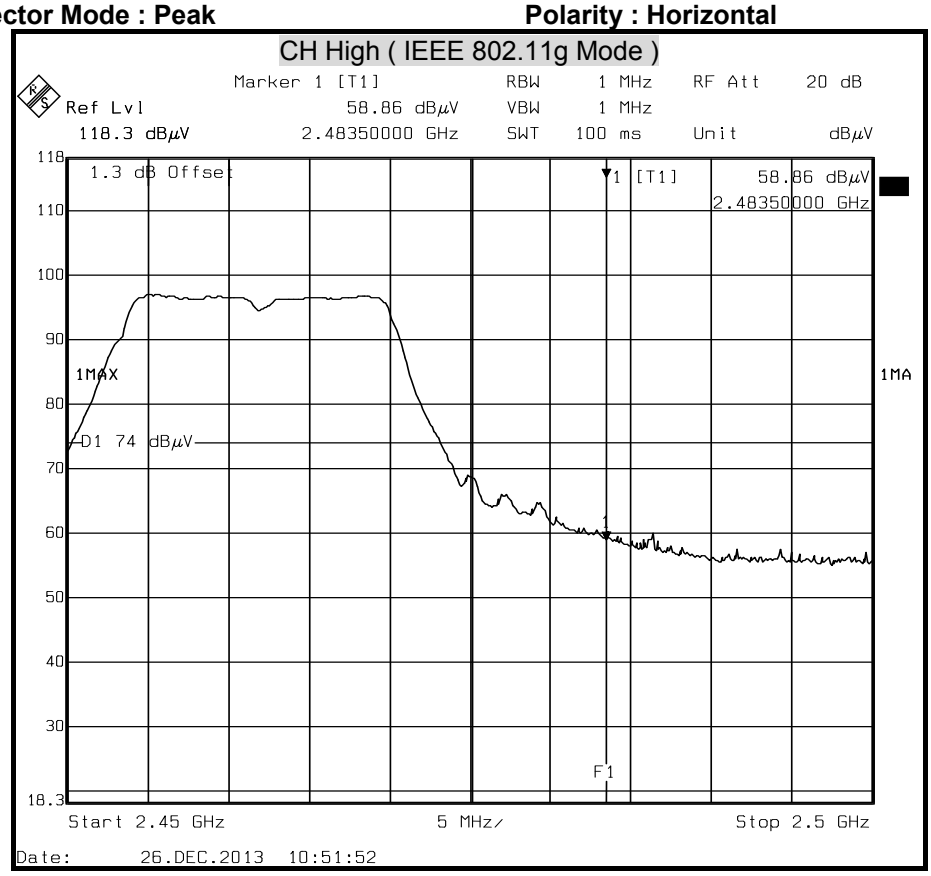


Detector Mode : Average **Polarity : Vertical**

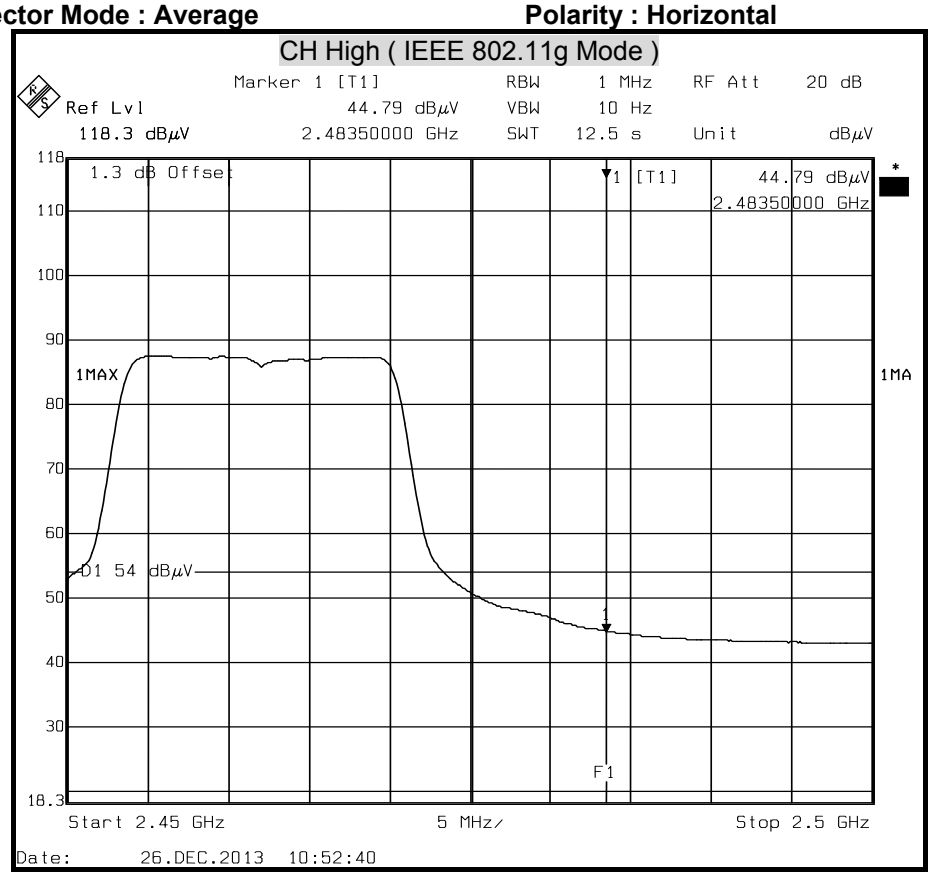


Band Edges (IEEE 802.11g mode / CH High)

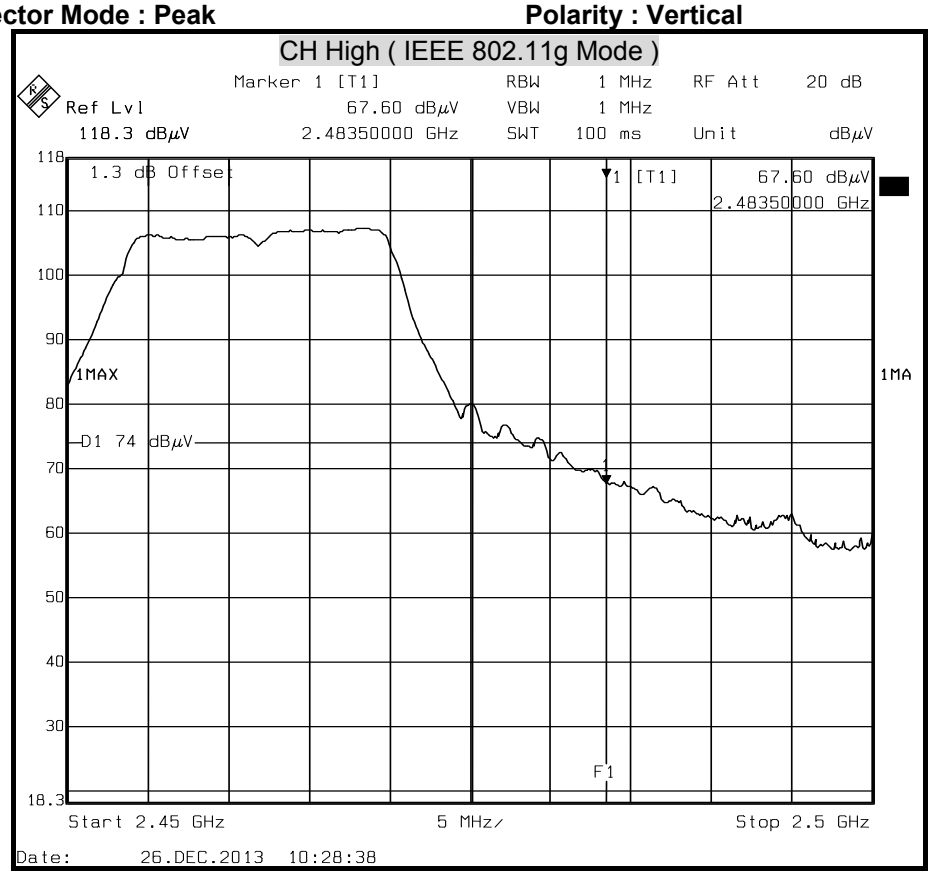
Detector Mode : Peak **Polarity : Horizontal**



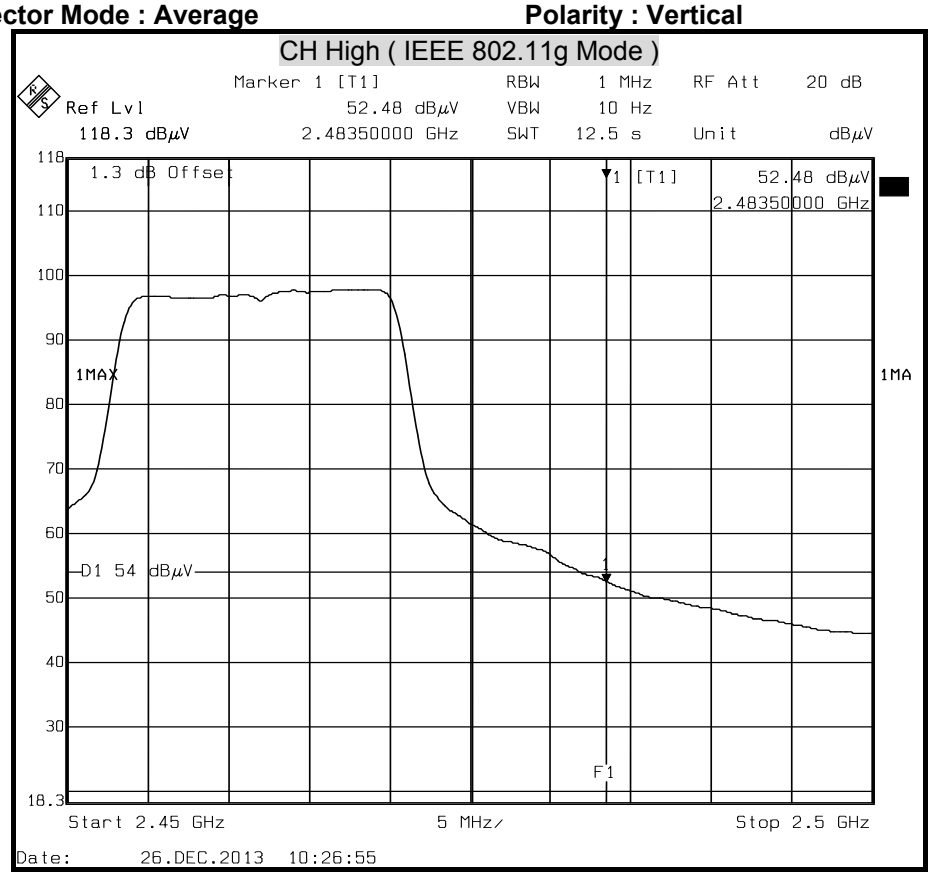
Detector Mode : Average **Polarity : Horizontal**



Detector Mode : Peak **Polarity : Vertical**

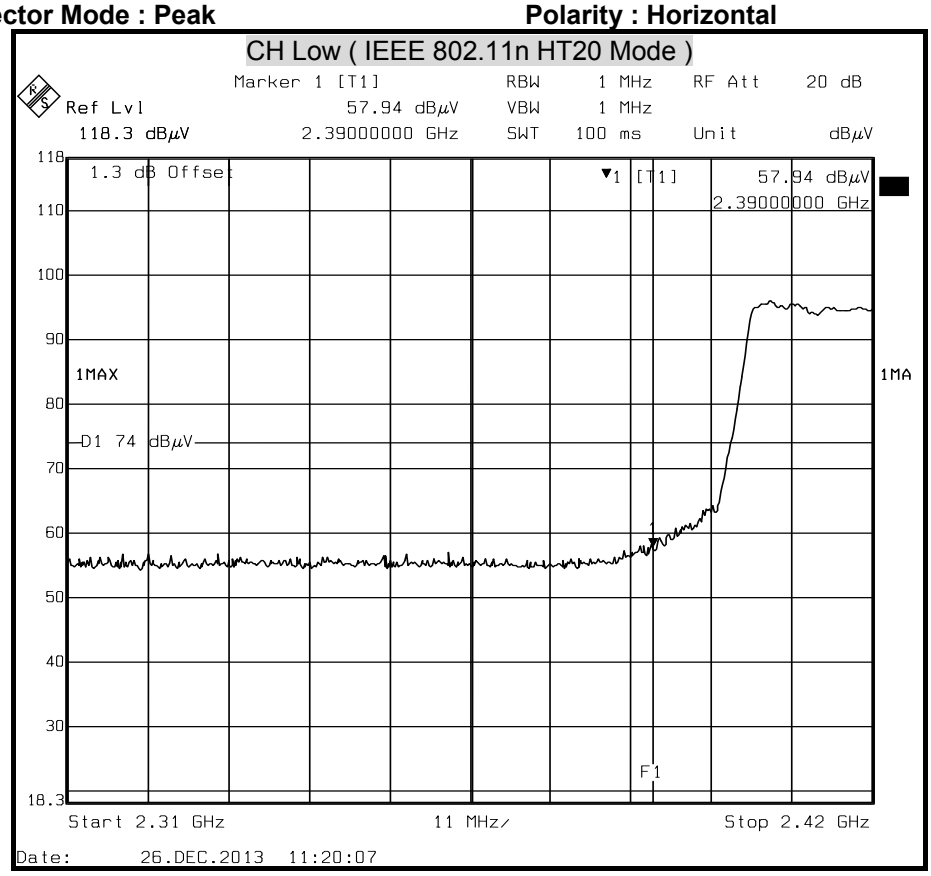


Detector Mode : Average **Polarity : Vertical**

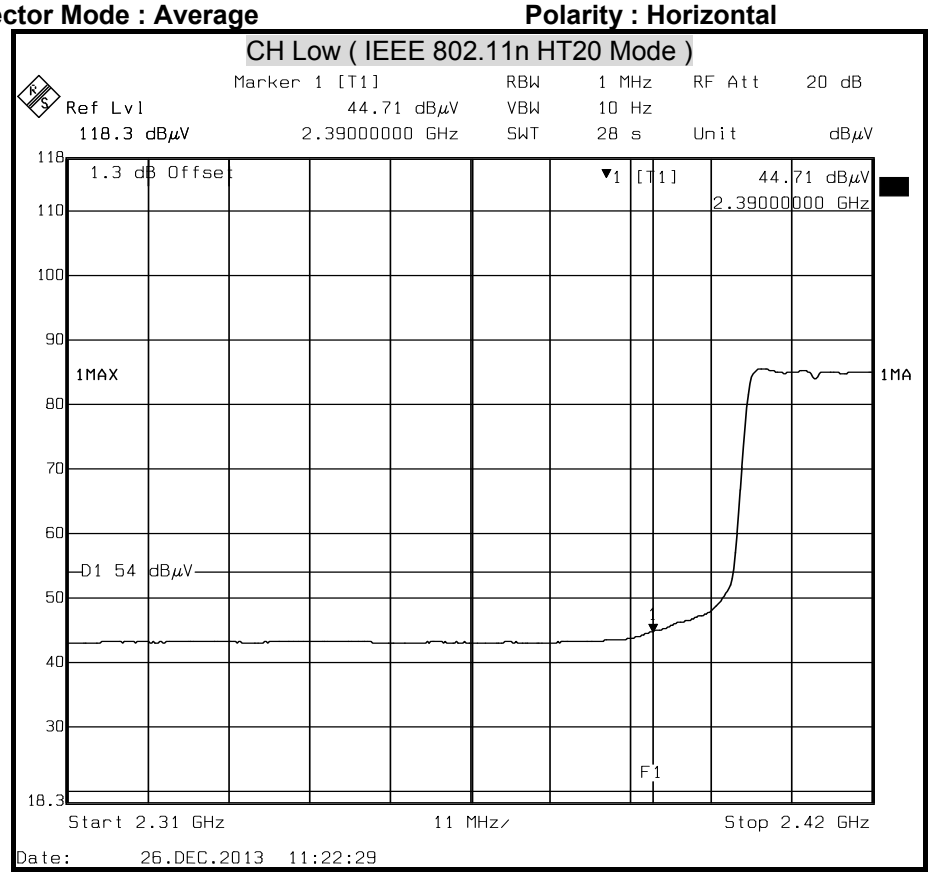


Band Edges (IEEE 802.11n HT20 mode / CH Low)

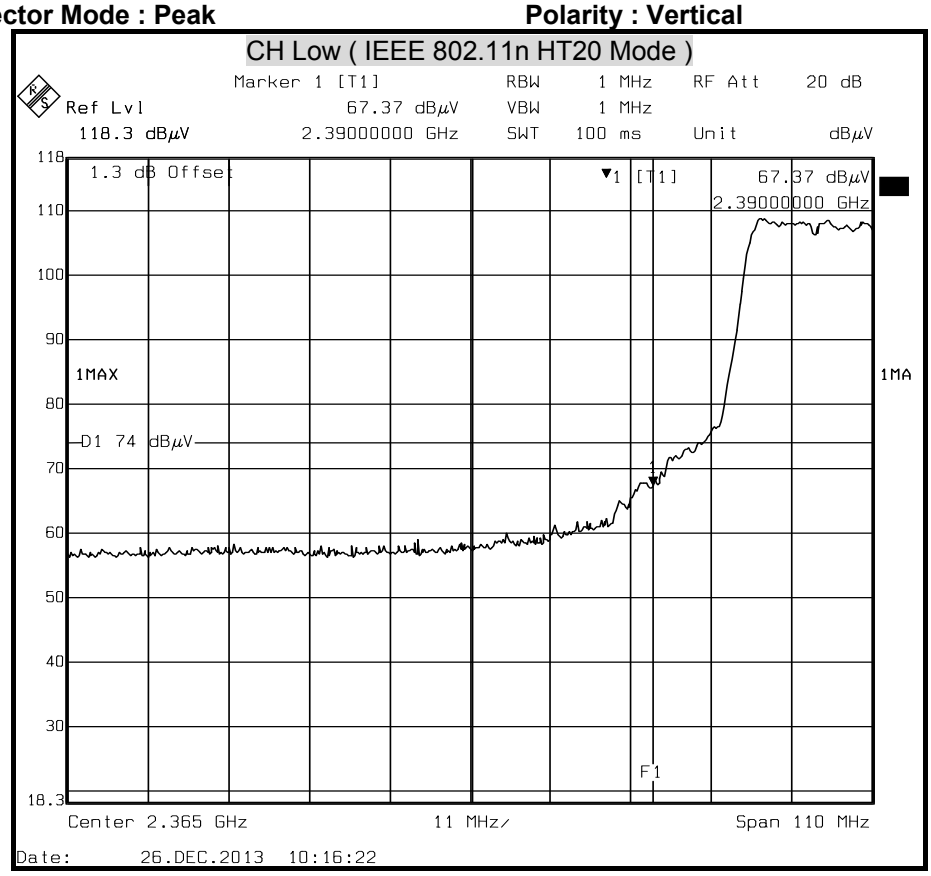
Detector Mode : Peak **Polarity : Horizontal**



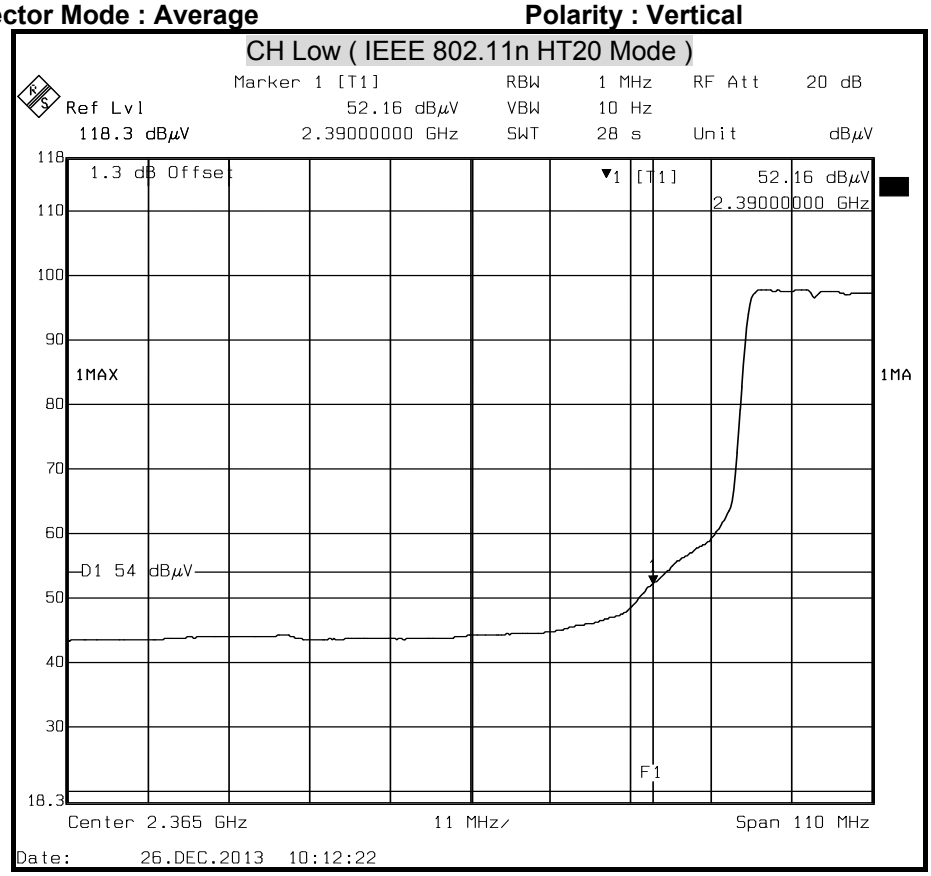
Detector Mode : Average **Polarity : Horizontal**



Detector Mode : Peak **Polarity : Vertical**

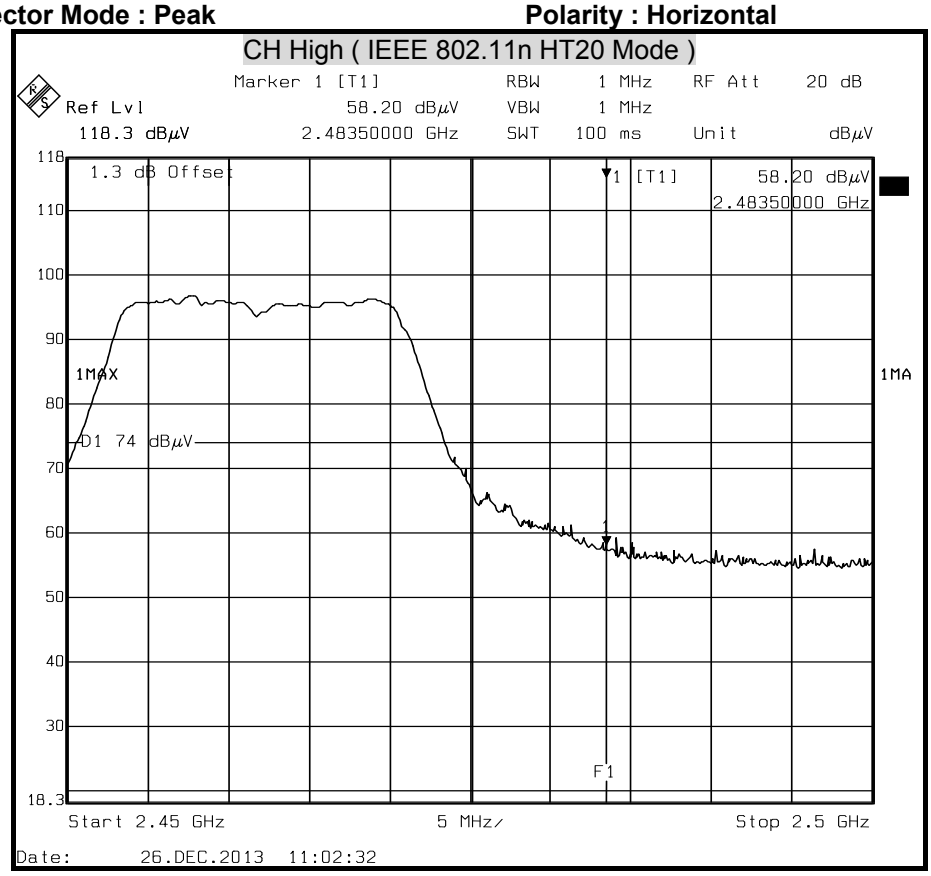


Detector Mode : Average **Polarity : Vertical**

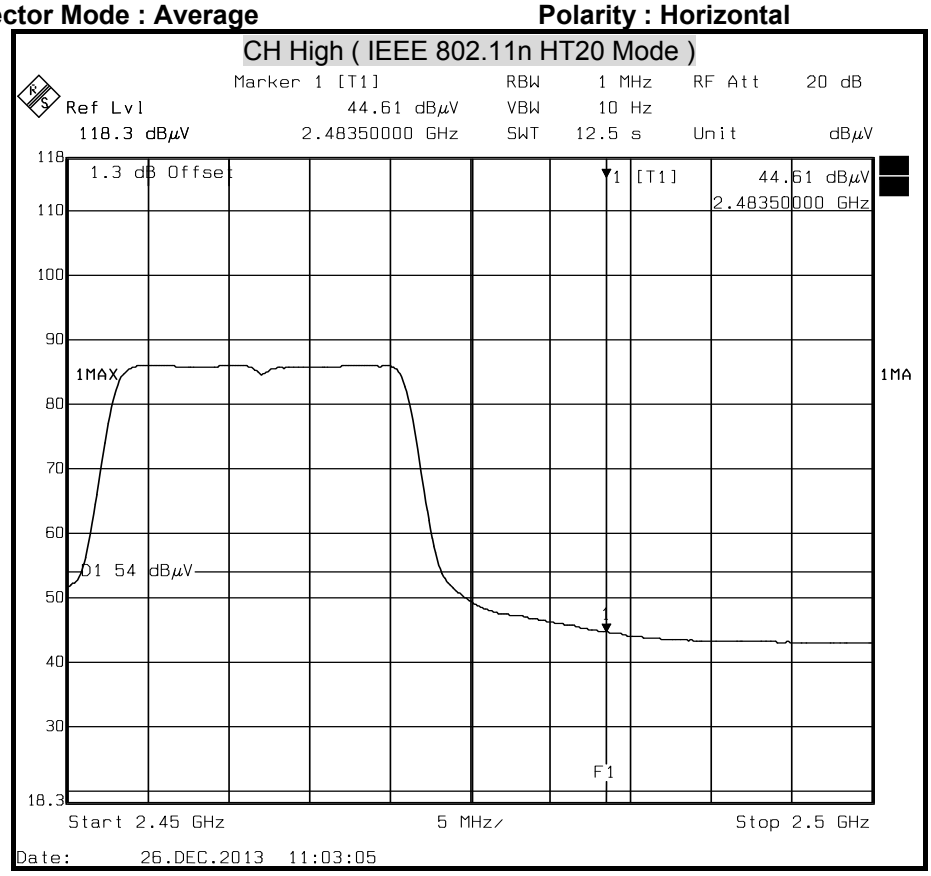


Band Edges (IEEE 802.11n HT20 mode / CH High)

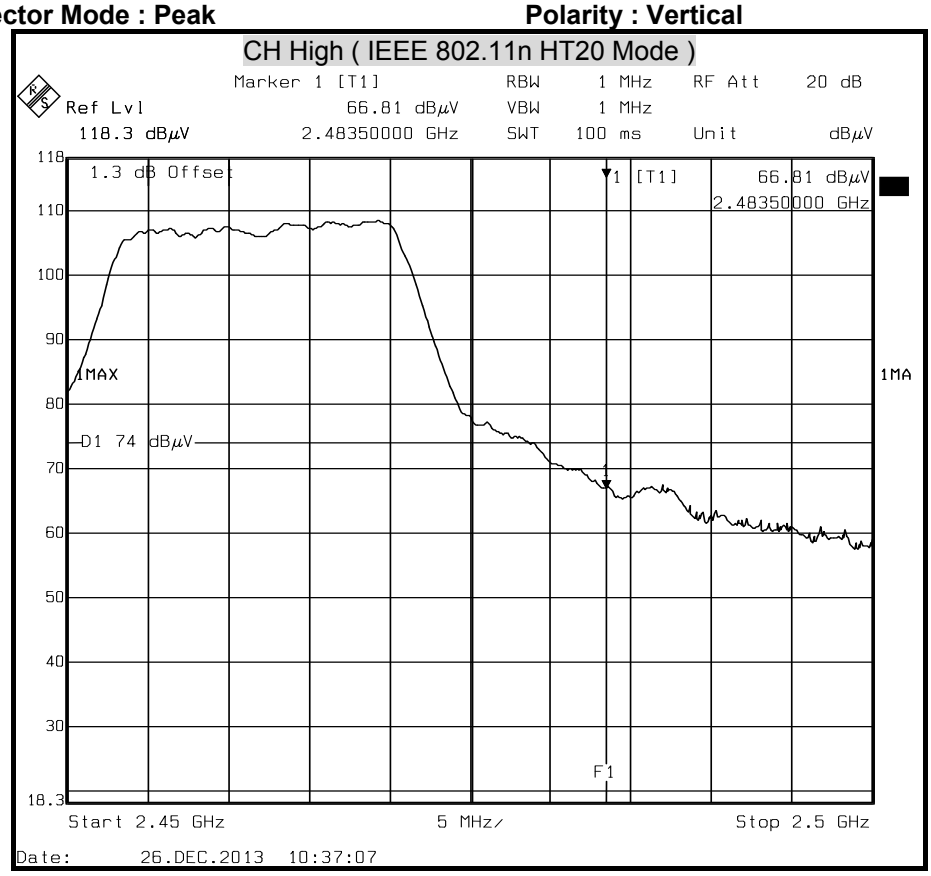
Detector Mode : Peak **Polarity : Horizontal**



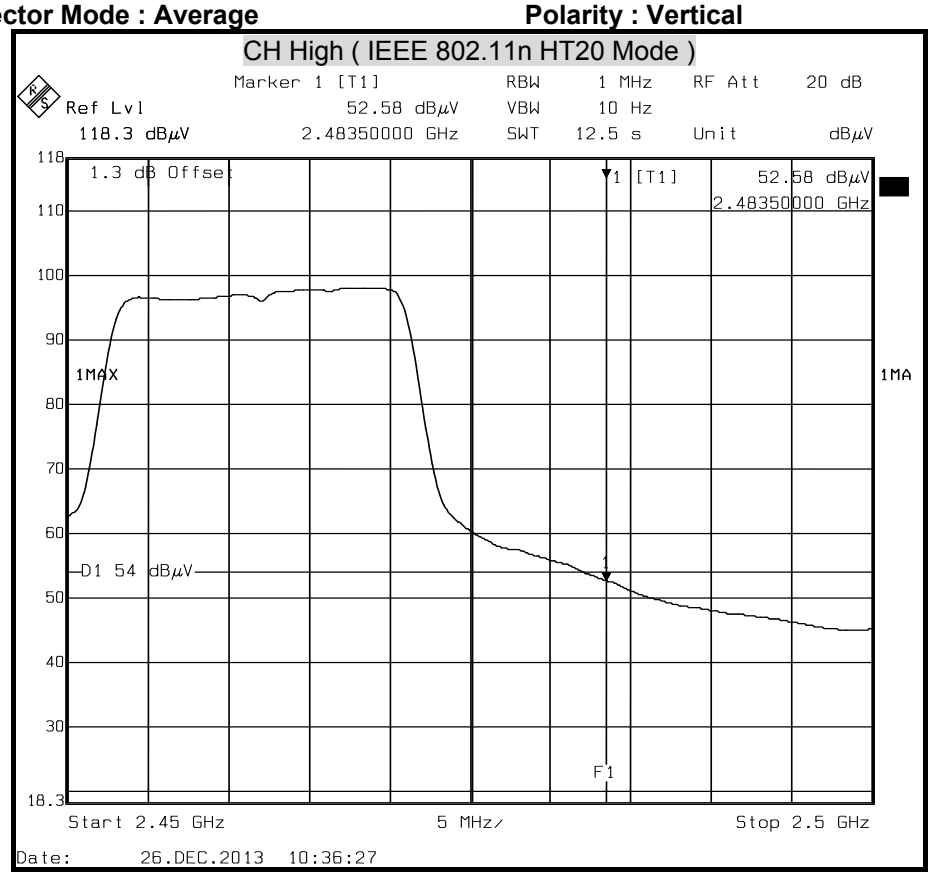
Detector Mode : Average **Polarity : Horizontal**



Detector Mode : Peak **Polarity : Vertical**

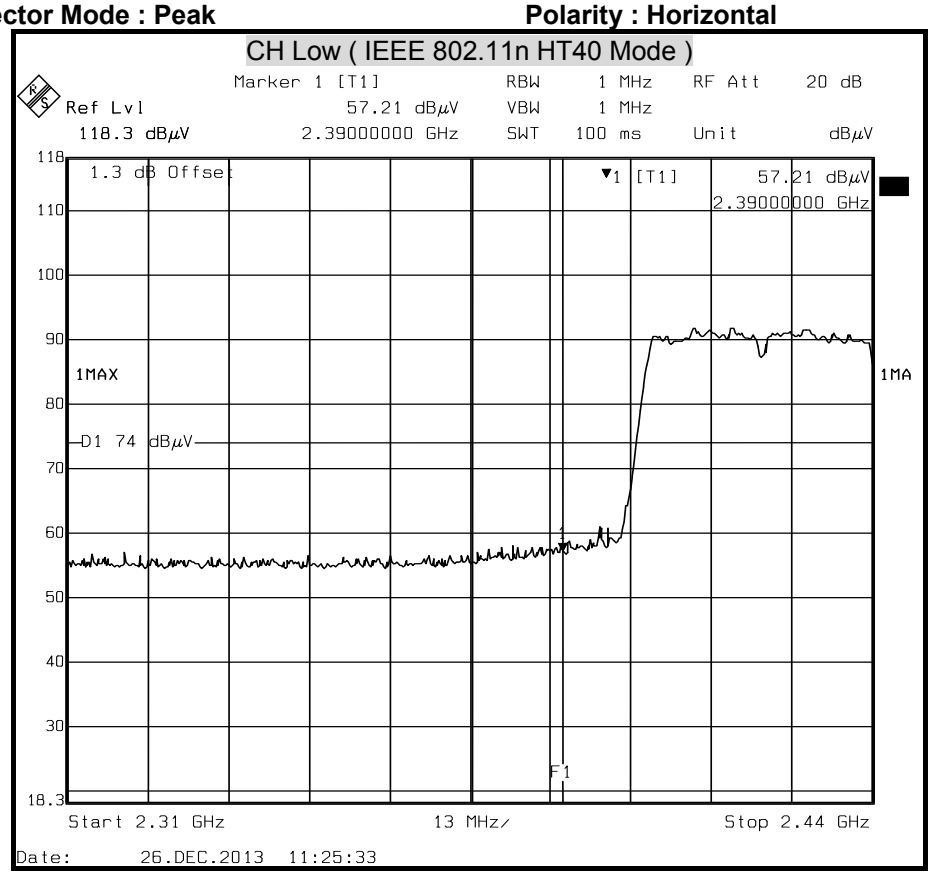


Detector Mode : Average **Polarity : Vertical**

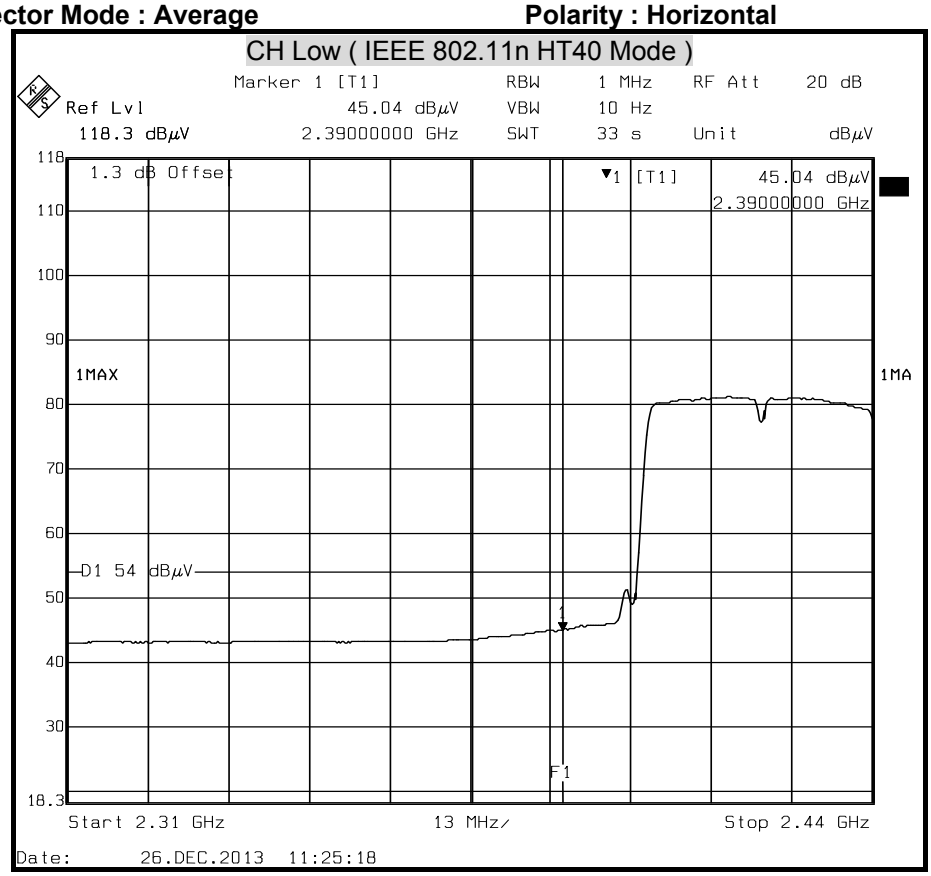


Band Edges (IEEE 802.11n HT40 mode / CH Low)

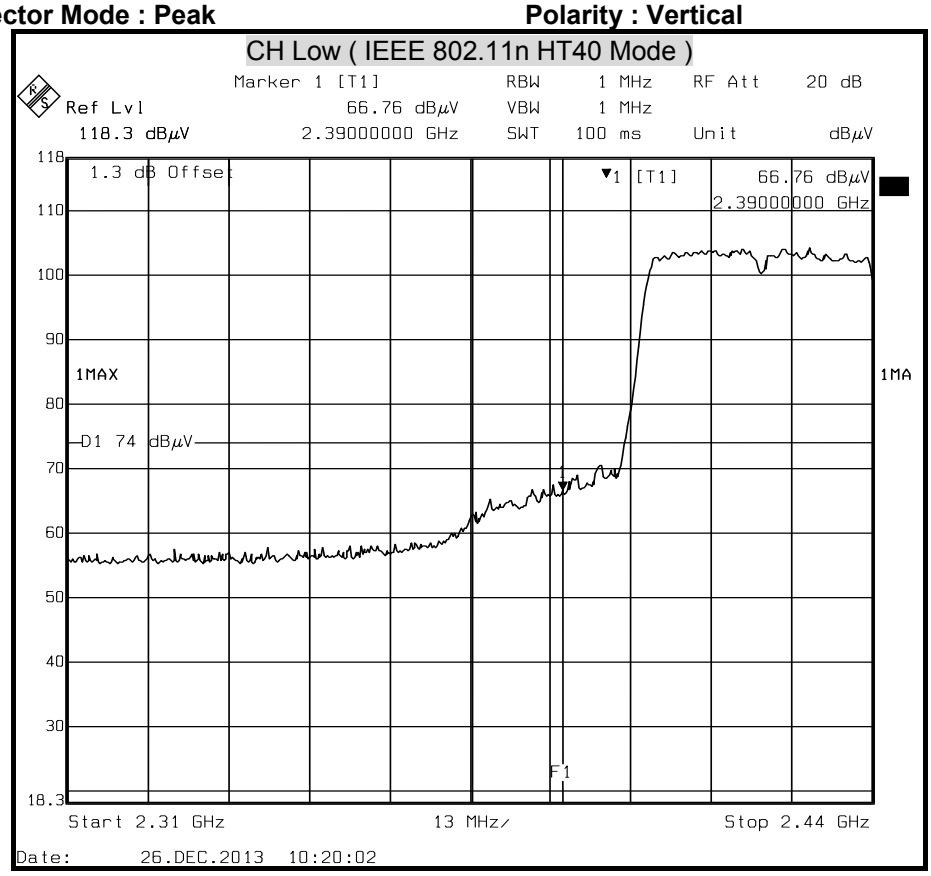
Detector Mode : Peak **Polarity : Horizontal**



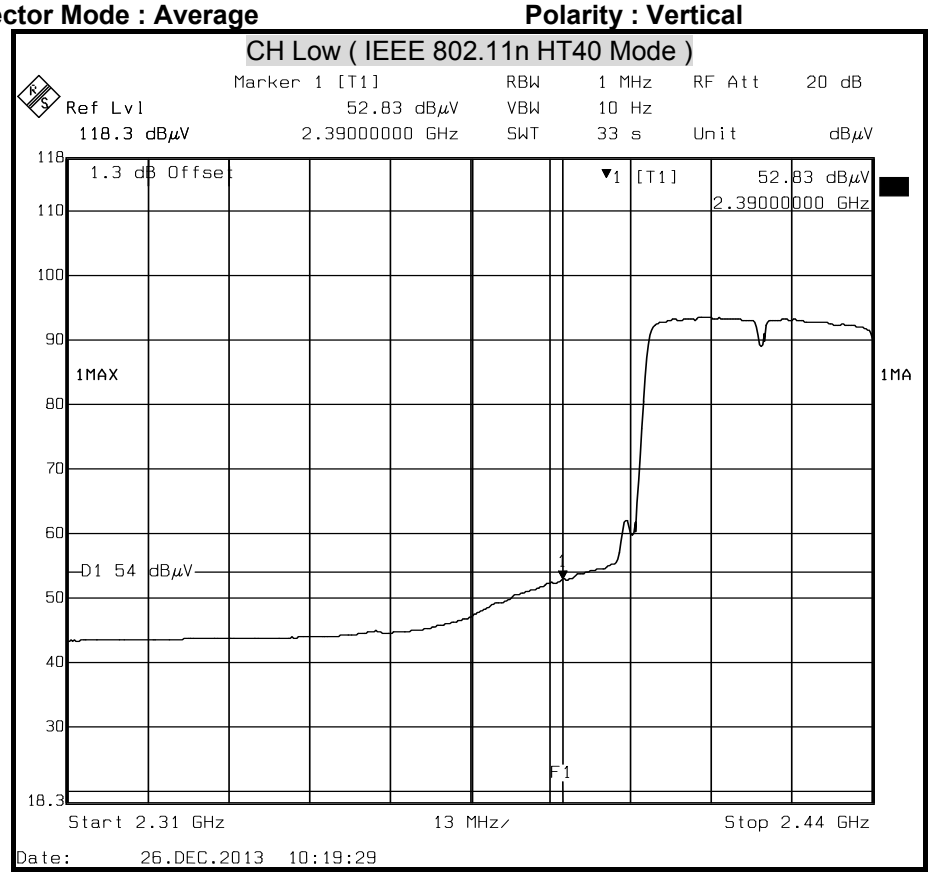
Detector Mode : Average **Polarity : Horizontal**



Detector Mode : Peak **Polarity : Vertical**

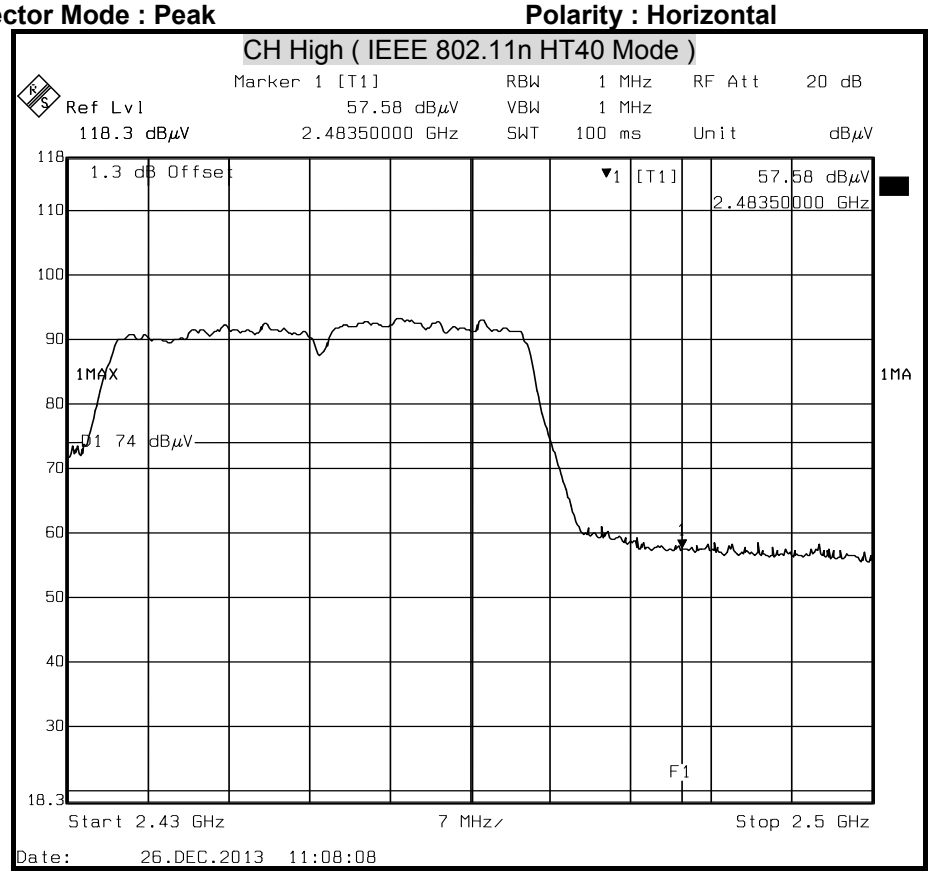


Detector Mode : Average **Polarity : Vertical**

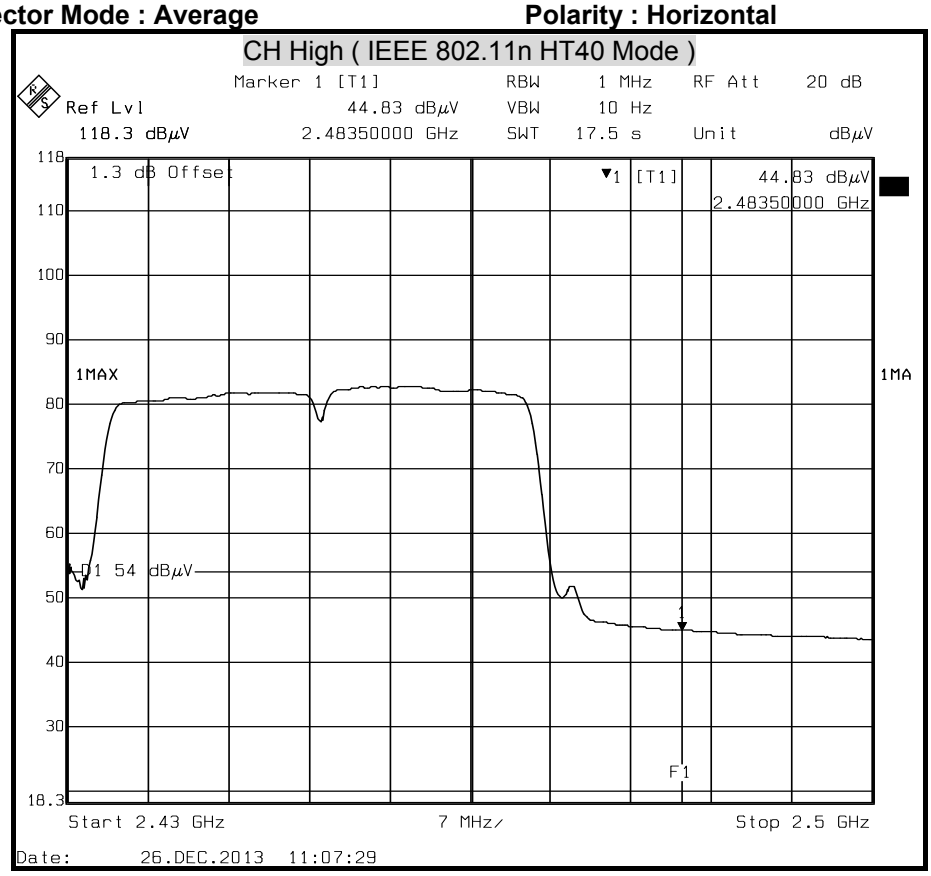


Band Edges (IEEE 802.11n HT40 mode / CH High)

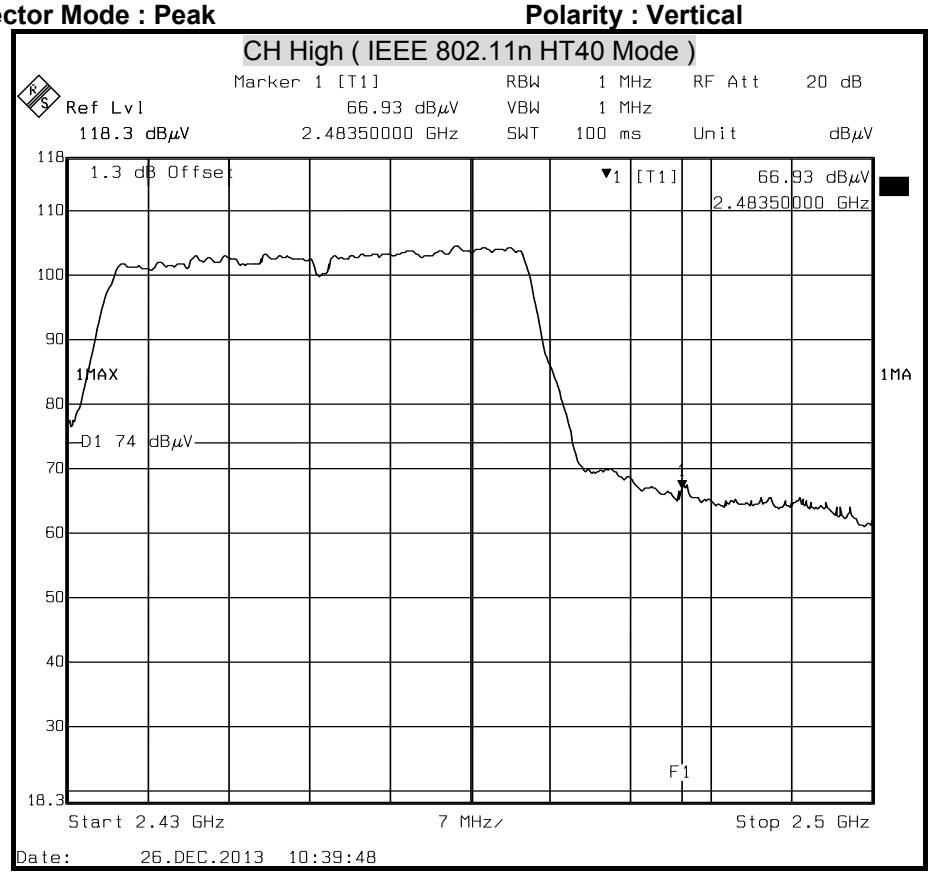
Detector Mode : Peak **Polarity : Horizontal**



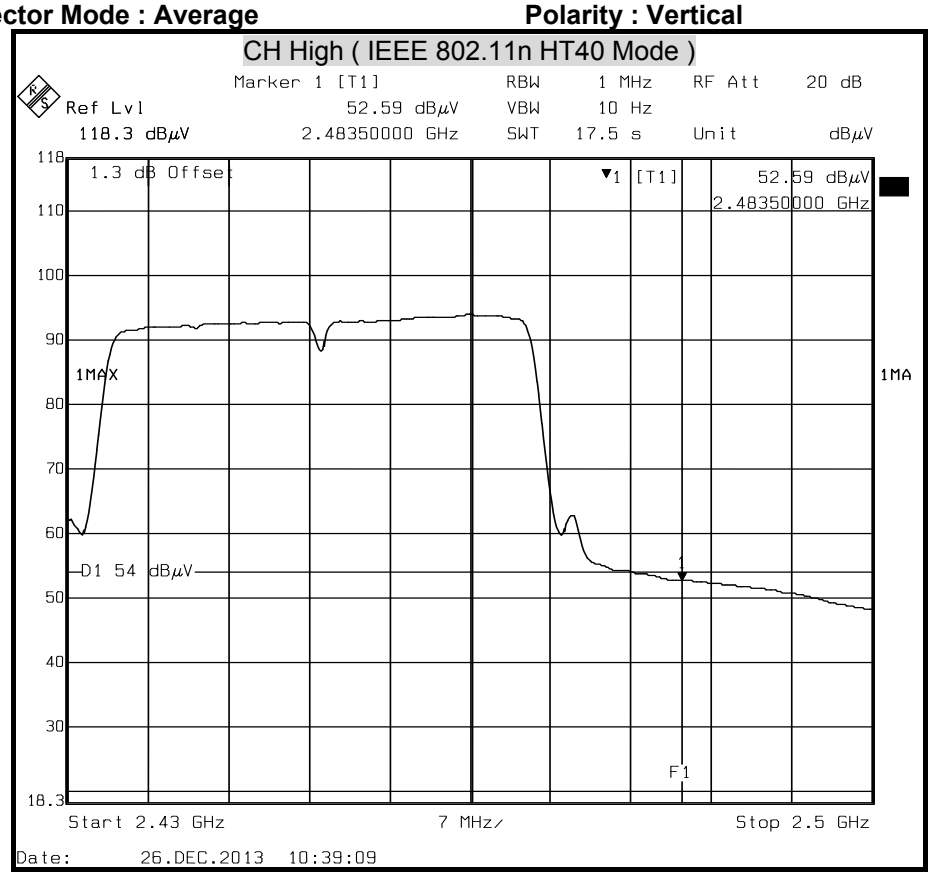
Detector Mode : Average **Polarity : Horizontal**



Detector Mode : Peak **Polarity : Vertical**



Detector Mode : Average **Polarity : Vertical**



7.6 CONDUCTED EMISSION

LIMITS

§ 15.207 (a) Except as shown in paragraph (b) and (c) this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

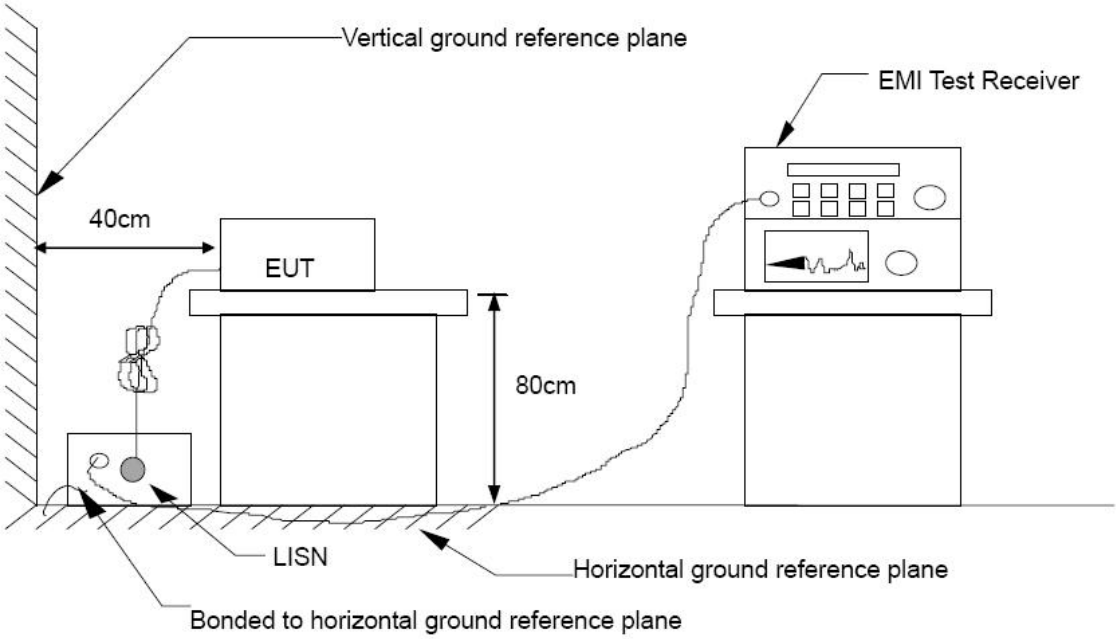
Frequency Range (MHz)	Conducted Limit (dBμv)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5.00	56	46
5.00 - 30.0	60	50

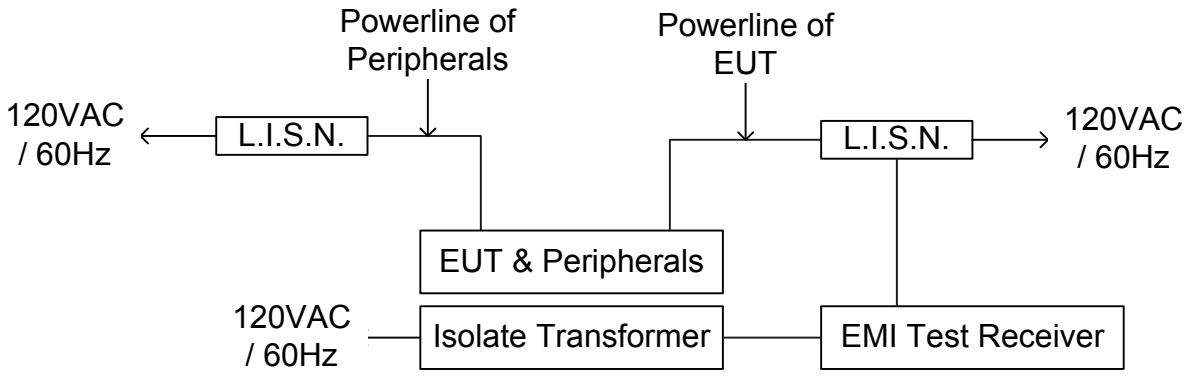
TEST EQUIPMENT

Conducted Emission room #1				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
L.I.S.N.	SCHWARZBECK	NNLK 8130	8130124	AUG. 12, 2014
	Rohde & Schwarz	ESH 3-Z5	840062/021	SEP. 09, 2014
TEST RECEIVER	Rohde & Schwarz	ESCS 30	100348	AUG. 09, 2014
BNC COAXIAL CABLE	CCS	BNC50	11	NOV. 19, 2014
Test S/W	e-3 (5.04211c) R&S (2.27)			

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP





TEST PROCEDURE

The basic test procedure was in accordance with ANSI C63.4:2003.

The test procedure is performed in a 4m × 3m × 2.4m (L×W×H) shielded room.

The EUT along with its peripherals were placed on a 1.0m (W) × 1.5m (L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.

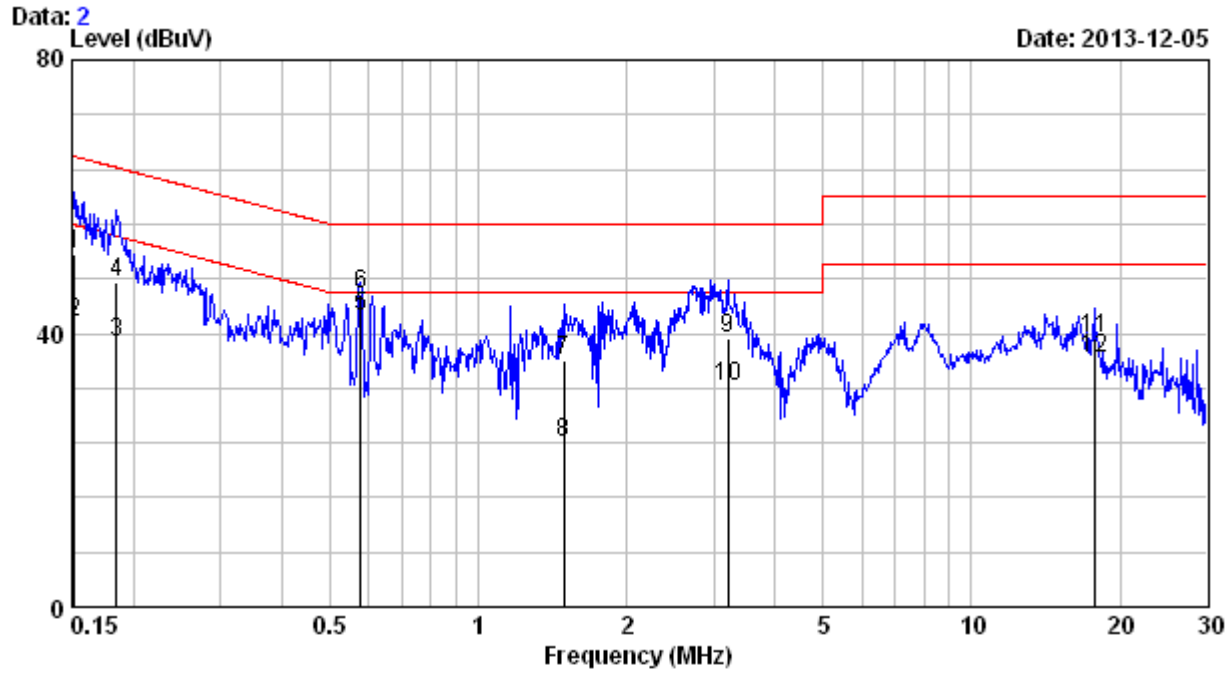
The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.

The EUT was located so that the distance between the boundary of the EUT and the closest surface of the LISN is 0.8 m. Where a mains flexible cord was provided by the manufacturer shall be 1 m long, or if in excess of 1 m, the excess cable was folded back and forth as far as possible so as to form a bundle not exceeding 0.4 m in length.

TEST RESULTS

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	Shiang Su
Model	BR261c	Test Date	2013/12/05
Test Mode	Router Mode	Temp. & Humidity	25.5℃, 65%

LINE



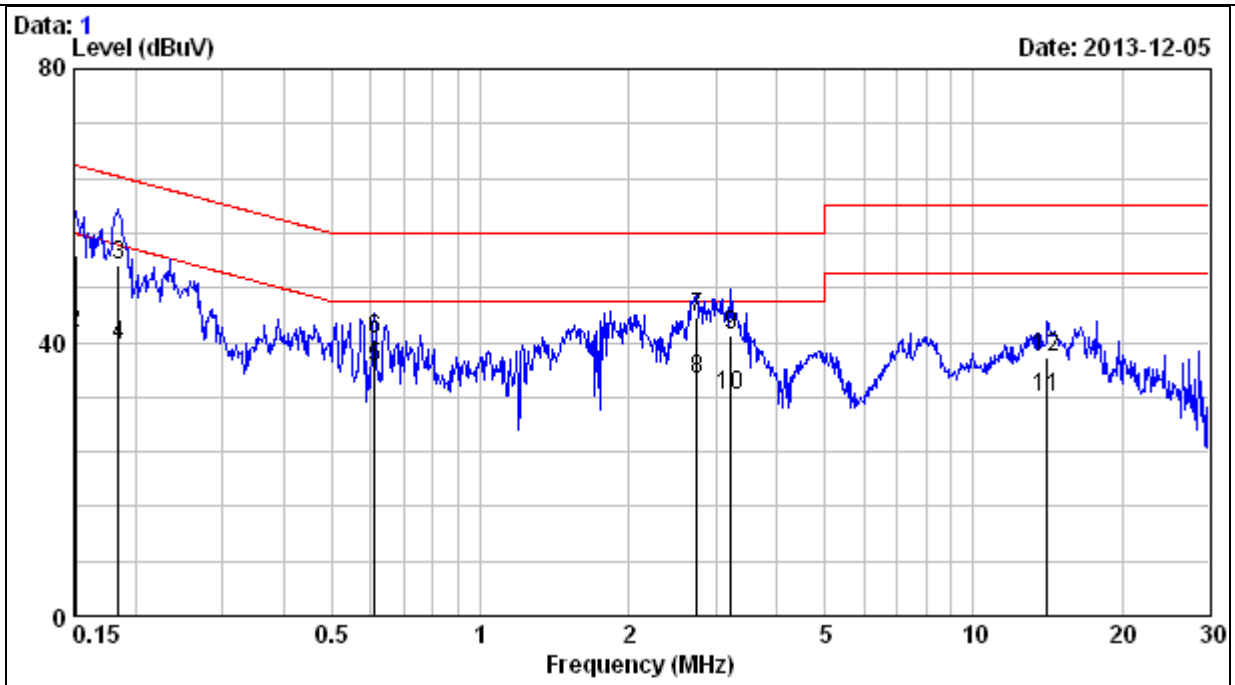
Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.15	7.39	0.08	44.11	51.58	65.91	-14.33	QP
0.15	7.39	0.08	34.19	41.66	55.91	-14.25	AVERAGE
0.18	7.57	0.12	30.93	38.61	54.28	-15.67	AVERAGE
0.18	7.57	0.12	39.69	47.37	64.28	-16.91	QP
0.58	7.29	0.24	35.08	42.61	46.00	-3.39	AVERAGE
0.58	7.29	0.24	38.07	45.60	56.00	-10.40	QP
1.49	7.76	0.25	28.14	36.14	56.00	-19.86	QP
1.49	7.76	0.25	16.00	24.00	46.00	-22.00	AVERAGE
3.21	8.69	0.26	30.33	39.28	56.00	-16.72	QP
3.21	8.69	0.26	23.28	32.23	46.00	-13.77	AVERAGE
17.75	8.68	0.36	30.19	39.23	60.00	-20.77	QP
17.75	8.68	0.36	27.24	36.28	50.00	-13.72	AVERAGE

Remark:

1. *Correction Factor = Insertion loss + Cable loss*
2. *Emission level = Reading Value + Correction factor*
3. *Margin value = Emission level – Limit value*

Product Name	AC 750Mbps Dual-Band Wireless Router	Test By	Shiang Su
Model	BR261c	Test Date	2013/12/05
Test Mode	Router Mode	Temp. & Humidity	24.5℃, 65%

NEUTRAL



Freq. MHz	LISN Factor dB	Cable Loss dB	Meter Reading dBuV	Measured Level dBuV	Limits dBuV	Over Limits dBuV	Detector
0.15	7.38	0.08	45.43	52.89	65.96	-13.07	QP
0.15	7.38	0.08	33.84	41.30	55.96	-14.66	AVERAGE
0.18	7.57	0.12	43.66	51.34	64.28	-12.94	QP
0.18	7.57	0.12	31.88	39.56	54.28	-14.72	AVERAGE
0.61	7.27	0.25	28.94	36.46	46.00	-9.54	AVERAGE
0.61	7.27	0.25	32.82	40.34	56.00	-15.66	QP
2.75	8.49	0.26	34.89	43.64	56.00	-12.36	QP
2.75	8.49	0.26	25.86	34.61	46.00	-11.39	AVERAGE
3.22	8.68	0.27	32.19	41.14	56.00	-14.86	QP
3.22	8.68	0.27	23.36	32.31	46.00	-13.69	AVERAGE
14.14	8.62	0.34	23.12	32.08	50.00	-17.92	AVERAGE
14.14	8.62	0.34	28.88	37.84	60.00	-22.16	QP

Remark:

1. Correction Factor = Insertion loss + Cable loss
2. Emission level = Reading Value + Correction factor
3. Margin value = Emission level – Limit value

APPENDIX I MAXIMUM PERMISSIBLE EXPOSURE

According to FCC 1.1310 : The criteria listed in the following table shall be used to evaluate theenvironment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time
(A) Limits for Occupational / Control Exposures				
300-1,500	--	--	F/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Population / Uncontrol Exposures				
300-1,500	--	--	F/1500	6
1,500-100,000	--	--	1	30

CALCULATIONS

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

Where E = Field strength in Volts / meter
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and
d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$

Where d = Distance in cm
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm2

LIMIT

Power Density Limit, S=1.0mW/cm^2

TEST RESULTS

Numeric antenna gain :

Antenna Gain 1 (2.4G):	8.00	dBi =	6.309573
Antenna Gain 2 (2.4G):	8.00	dBi =	6.309573
Array Gain (2.4G):	11.01	dBi =	12.61915
Antenna Gain 1 (5G):	7	dBi =	5.011872

No non-compliance noted: (MPE distance equals 20 cm)

IEEE 802.11b (2.4G)	=	0.0796 *	19.1867	*	6.30957344	÷ 400 =	0.02409
IEEE 802.11g (2.4G)	=	0.0796 *	36.2243	*	6.30957344	÷ 400 =	0.04548
IEEE 802.11n HT20 (2.4G)	=	0.0796 *	55.4736	*	12.61914689	÷ 400 =	0.13931
IEEE 802.11n HT40 (2.4G)	=	0.0796 *	44.6681	*	12.61914689	÷ 400 =	0.11217
IEEE 802.11a (5G)	=	0.0796 *	281.8383	*	5.01187234	÷ 400 =	0.28109
IEEE 802.11n HT20 (5G)	=	0.0796 *	284.4461	*	5.01187234	÷ 400 =	0.2837
IEEE 802.11n HT40 (5G)	=	0.0796 *	239.3316	*	5.01187234	÷ 400 =	0.2387
IEEE 802.11ac VHT80 (5G)	=	0.0796 *	220.8005	*	5.01187234	÷ 400 =	0.22022

Mode	Antenna Gain (dBi)	Minimum separation distance (cm)	Output Power (dBm)	Output Power (mW)	Power Density Limit (mW/cm^2)	Power Density at 20cm (mW/cm^2)
IEEE 802.11b (2.4G)	8.00	20.0	12.83	19.19	1.00	0.024091
IEEE 802.11g (2.4G)	8.00	20.0	15.59	36.22	1.00	0.045483
IEEE 802.11n HT20 (2.4G)	11.01	20.0	17.44	55.47	1.00	0.139306
IEEE 802.11n HT40 (2.4G)	11.01	20.0	16.50	44.67	1.00	0.112171
IEEE 802.11a (5G)	7.00	20.0	24.50	281.84	1.00	0.281095
IEEE 802.11n HT20 (5G)	7.00	20.0	24.54	284.45	1.00	0.283696
IEEE 802.11n HT40 (5G)	7.00	20.0	23.79	239.33	1.00	0.238700
IEEE 802.11ac VHT80 (5G)	7.00	20.0	23.44	220.80	1.00	0.220218

Remark: *For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.*