



Report No.: HKEM181100090601
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FCC ID: EW780-1368-00
IC: 1135B-80136800

TEST REPORT

Application No.: HKEM1811000906IT
Applicant: VTECH TELECOMMUNICATIONS LTD
Address of Applicant: 23/F, Tai Ping Industrial Centre, Block 1, 57 Ting Kok Road, Tai Po, Hong Kong
Manufacturer: VTECH TELECOMMUNICATIONS LTD
Address of Manufacturer: 23/F, Tai Ping Industrial Centre, Block 1, 57 Ting Kok Road, Tai Po, Hong Kong
Factory: VTech (Dongguan) Telecommunications Limited.
Address of Factory: VTech Science Park, Xia Ling Bei Management Zone, Liaobu, Dongguan, Guangdong, China.

Equipment Under Test (EUT):

EUT Name: Full HD Pan & Tilt Camera with Alarm
HVIN: 35-600010BU
Model No.: VC9511 Camera, VC9511-2 Camera, VC9511-3 Camera, VC9511-11 Camera, VC9511-21 Camera, VC951z-abcd Camera ♣

Trade mark: VTech
♣ Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.

Standard(s): CFR 47 FCC Part 15, Subpart C, 2017
RSS-247 Issue 2: May 2017
RSS-Gen Issue 5: April 2018

Date of Receipt: 2018-10-08
Date of Test: 2018-10-01 to 2018-10-26
Date of Issue: 2018-11-20

Test Result :	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Ivan Toa

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2018-11-20		Original

Authorized for issue by:			
Tested By			2018-10-26
		_____ Leo Xu /Project Engineer	_____ Date
Checked By			2018-11-20
		_____ Ivan Toa /Reviewer	_____ Date

2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	CFR 47 FCC Part 15, Subpart C 15.247	N/A	CFR 47 FCCPart 15, Subpart C 15.203 & 15.247(c)	Pass
Antenna Requirement	RSS-GEN Issue 5, April 2018	N/A	RSS-Gen Section 8.3	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Disturbance at AC Power Line(150kHz-30MHz)	CFR 47 FCCPart 15, Subpart C 15.207	ANSI C63.10: 2013 Section 6.2	CFR 47 FCCPart 15, Subpart C 15.207	Pass
Conducted Peak Output Power	CFR 47 FCCPart 15, Subpart C 15.247	ANSI C63.10: 2013 Section 11.9.1.2	CFR 47 FCCPart 15, Subpart C 15.247(b)(3)	Pass
Minimum 6dB Bandwidth	CFR 47 FCCPart 15, Subpart C 15.247	ANSI C63.10: 2013 Section 11.8.1	CFR 47 FCCPart 15, Subpart C 15.247a(2)	Pass
Power Spectrum Density	CFR 47 FCCPart 15, Subpart C 15.247	ANSI C63.10: 2013 Section 11.10.2	CFR 47 FCCPart 15, Subpart C 15.247(e)	Pass
Conducted Spurious Emissions	CFR 47 FCCPart 15, Subpart C 15.247	ANSI C63.10: 2013 Section 11.11	CFR 47 FCCPart 15, Subpart C 15.247(d)	Pass
Radiated Spurious Emissions	CFR 47 FCCPart 15, Subpart C 15.247 & 15.209	ANSI C63.10: 2013 Section 6.10.4	CFR 47 FCCPart 15, Subpart C 15.209 & 15.247(d)	Pass
Radiated Emissions which fall in the restricted bands	CFR 47 FCCPart 15, Subpart C 15.247	ANSI C63.10: 2013 Section 6.10.5	CFR 47 FCCPart 15, Subpart C 15.209 & 15.247(d)	Pass
Conducted Band Edges Measurement	CFR 47 FCCPart 15, Subpart C 15.247	ANSI C63.10: 2013 Section 11.13.3.2	CFR 47 FCCPart 15, Subpart C 15.247(d)	Pass
Conducted Emissions at AC Power Line (150kHz-30MHz)	RSS-GEN Issue 5, April 2018	ANSI C63.10 (2013) Section 6.2	RSS-Gen Section 8.8	Pass
99% Bandwidth	RSS-GEN Issue 5, April 2018	ANSI C63.10 Section 6.9.3	RSS-Gen Section 6.6	Pass
Frequency stability	RSS-GEN Issue 5, April 2018	RSS-GEN Issue 5 Section 6.11	RSS-GEN Issue 5 Section 6.11	Pass
Minimum 6dB Bandwidth	RSS-247 Issue 2, February 2017	ANSI C63.10 (2013) Section 11.8.1	RSS-247 Section 5.2(a)	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Peak Output Power	RSS-247 Issue 2, February 2017	ANSI C63.10 (2013) Section 11.9.1	RSS-247 Section 5.4(d)	Pass
Power Spectrum Density	RSS-247 Issue 2, February 2017	ANSI C63.10 (2013) Section 11.10.2	RSS-247 Clause 5.2(b)	Pass
Conducted Band Edges Measurement	RSS-247 Issue 2, February 2017	ANSI C63.10 (2013) Section 11.12	RSS-247 Section 5.5	Pass
Conducted Spurious Emissions	RSS-247 Issue 2, February 2017	ANSI C63.10 (2013) Section 11.11	RSS-247 Section 5.5	Pass
Radiated Emissions which fall in the restricted bands	RSS-GEN Issue 5, April 2018	ANSI C63.10 (2013) Section 6.4&6.5&6.6	RSS-247 Section 3.3 & RSS-Gen Section 8.9	Pass
Radiated Spurious Emissions	RSS-GEN Issue 5, April 2018	ANSI C63.10 (2013) Section 6.4&6.5&6.6	RSS-247 Section 3.3 & RSS-Gen Section 8.9	Pass

Declaration of EUT Family Grouping:

Model: VC9511 Camera, VC9511-2 Camera, VC9511-3 Camera, VC9511-11 Camera, VC9511-21 Camera, VC951z-abcd Camera

According to the confirmation from the applicant, the above models are identical in all electrical aspects in relating to the circuit design, PCB layout, electrical components used, internal wiring and function. The differences are only the model and color for trading purpose

Suffix (“ a, b, c, d, z” of “VC951z-abcd Camera”) represents as:

z=packaging, can be 0-9, a-z, A-Z

a=number of IP Cam; can be 0-9, a-z, A-Z or blank

b=color options, can be 0-9, a-z, A-Z or blank

c= combinations of sensor types/ other accessory in the bundle, can be 0-9, 00-99 or blank

d= combinations of sensor types/ other accessory in the bundle, can be 0-9, 00-99 or blank

Therefore only the model VC9511 Camera was tested in this report



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4 General Information

4.1 Details of E.U.T.

Power supply:	AC100-240V, 50/60Hz 0.5A
Adapter	Adaptor 1*
	Adapter Model: CS12N050150FUF
	Input: AC100-240V, 50/60Hz 0.5A
	Output: DC 5.0V, 1.5A
	Adaptor 2
	Adapter Model: S012CDU0500150
	Input: AC100-240V, 50/60Hz 0.4A
	Output: DC 5.0V, 1.5A
	*Remark: Complete measurement was performed with Adaptor 1 in this report
Cable	295cm 2 wires unshielded DC power cable
Funtion	Wireless Network camera, Local storage (micro sd card) recording
Test Voltage	AC120V 60 Hz
Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels IEEE 802.11n HT40: 7 Channels
Channel Separation:	5MHz
Type of Modulation:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM, QPSK,BPSK)
Sample Type:	Fixed production
Antenna Type:	PIFA Antenna
Antenna Gain:	2 dBi
Frequency List	

Channel list for 802.11b/g/n(HT20)

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	5	2432	9	2452
2	2417	6	2437	10	2457
3	2422	7	2442	11	2462
4	2427	8	2447		

Remark: Test frequencies for 20MHz bandwidth are the lowest channel: 1 channel(2412MHz), middle channel: 6 channel (2437 MHz) and highest channel: 11 channel (2462 MHz).

Channel list for 802.11n(HT40)

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
		5	2432	9	2452
		6	2437		
3	2422	7	2442		
4	2427	8	2447		

Test frequencies for 40MHz bandwidth are the lowest channel: 3 channel(2422MHz), middle channel: 6 channel (2437 MHz) and highest channel: 9 channel (2452 MHz).

4.2 Description of Support Units

The EUT has been tested as an independent unit for fixed frequency by testing lab.

The EUT has been tested with corresponding accessories as below:

Supplied by client

Description	Manufacturer	Model No.	SN/Certificate NO
Engineering test board	--	--	--

Supplied by SGS:

Description	Manufacturer	Model No.	SN/Certificate NO
NoteBook	Dell	Inspiron 15 3000	--

4.3 Measurement Uncertainty

The following expanded uncertainties for the measurement of emission recorded in this report are based on a coverage factor $k=2$, providing a level of confidence of approximately 95% :

No.	Item	Measurement Uncertainty
1	RF conducted power	$\pm 2.01\text{dB}$
2	Conducted Spurious emissions	$\pm 2.01\text{dB}$
3	Conducted Disturbance 150kHz - 30MHz	$\pm 2.77\text{dB}$
4	Radiated disturbance 9 kHz - 30MHz	$\pm 4.09\text{dB}$
5	Radiated disturbance 30MHz - 1GHz	$\pm 5.28\text{dB}$
6	Radiated disturbance 1GHz - 18GHz	$\pm 5.11\text{dB}$
7	Temperature test	$\pm 1^\circ\text{C}$
8	Humidity test	$\pm 3\%$
9	DC and low frequency voltages test	$\pm 0.5\%$

4.4 Test Location

All tests were performed at:

SGS IECC Limited (Member of the SGS Group (SGS SA))
No. 16-B, Yip Wo Street, On Lok Tsuen, Fanling, N.T., Hong Kong
Tel: +852 2305 2570 Fax: +852 2756 4480

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized or accredited by the following organizations:

• **HOKLAS (Lab Code: 125)**

SGS IECC Limited has been accepted by HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a HOKLAS Accredited Laboratory, this laboratory meets the requirements of ISO/IEC 17025:2005 and it has been accredited for performing specific test as listed in the scope of accreditation within the test category of Electrical and Electronic Products.

• **FCC Recognized Accredited Test Firm (CAB Registration No.: 446297)**

SGS IECC Limited has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: HK0010, Test Firm Registration Number: 446297.

• **Industry Canada (Registration No.: 5193A-2)**

The 3m Alternative Semi-anechoic chamber of SGS IECC Limited has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 5193A-2..

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Radiated Emission			
Equipment	Manufacturer	Model / Serial No.	Cal. Due Date
3m Semi-Anechoic Chamber	ChamPro	N/A	2020/09/14
Test Receiver	Rohde & Schwarz	ESCS 30 / 100388	2019/09/26
EMI Test Receiver	Rohde & Schwarz	ESR3	2019/08/15
Signal Generator	Rohde & Schwarz	SMT03 / 832939/017	2019/06/04
Spectrum Analyzer	Rohde & Schwarz	FSP 30 / 101474	2019/05/30
Loop Antenna	Rohde & Schwarz	HFH2-Z2 / 871336/48	2019/01/22
Antenna 30-1000MHz	Schaffner	CBL6111C / 2791	2019/10/26
Antennas (30MHz-300MHz)	Schwarzbeck	BBA9106, VHA9103	2019/11/14
Log-periodic Antennas (300MHz-1000MHz)	Schwarzbeck	UHALP9107	2019/11/14
Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D / 9120D-1070	2019/01/22
Double Ridge Horn Antenna 2-18 GHz	Schwarzbeck	BBHA 9120 C	2020/03/13
Highpass Filter	Wainwright	WHNX3.5/26.5G-6SS / nil	2018/12/18
Band Reject Filter	Wainwright	WRCJV 2400/2500-2100/2800-40/3SS / nil	2018/12/18
Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170 / 9170-492	2019/11/23
Preamplifier 10MHz – 6GHz	Schwarzbeck	BBV9743 / 9743-052	2019/04/18
Preamplifier 1-18GHz	Schwarzbeck	BBV9718 / 9718-223	2019/01/22
Preamplifier 18-26.5GHz	Schwarzbeck	BBV9719 / 9719-019	2019/11/18
Coaxial Cable	--	E167	2019/10/09
RF Cable	HUBER+SUHNER	E207	2019/11/16
Boresight Mast Controller	ChamPro	AM-BS-4500-E / 060860-ABS	--
Turntable with Controller	ChamPro	EM1000 / 60860	--

Conducted Emission			
Equipment	Manufacturer	Model / Serial No.	Calibration Due
Test Receiver	Rohde & Schwarz	ESHS 30 / 839667/002	2019/09/26
Signal Generator	Rohde & Schwarz	SMT03 / 832939/017	2019/06/04
Artificial Mains Network (LISN)	Schwarzbeck	NSLK 8127 / 8127309	2019/09/26
Impulse Limiter	Rohde & Schwarz	ESH-3-Z2 / 357881052	2019/01/22

RF Conducted			
Equipment	Manufacturer	Model / Serial No.	Cal. Due Date
Wireless Conn. Tester (CMW)	Rohde & Schwarz	CMW270	2019/08/12
OSP	Rohde & Schwarz	OSP-B157W8	2019/09/17
FSV40 SIGNAL ANALYZER 40GHz	Rohde & Schwarz	FSV40	2019/08/12
SMBV100A VECTOR SIGNAL GENERATOR	Rohde & Schwarz	SMBV100A	2019/08/12
Cable	Rohde & Schwarz	J12J103539-00-2	2019/08/12

Frequency stability			
Equipment	Manufacturer	Model / Serial No.	Cal. Due Date
Conditional Chamber -40°C~ +150°C	CEPREI	CZ-E-608D/ZH12649	2019/09/17
EMI Test Receiver	Rohde & Schwarz	ESR3	2019/08/15
Spectrum Analyzer	Rohde & Schwarz	FSP 30 / 101474	2019/05/30

General Use Equipment			
Equipment	Manufacturer	Model / Serial No.	Cal. Due Date
Digital Multimeter	Fluke	189 / 83640020	2019/05/22
Temperature / Humidity meter	-	E159	2019/09/20

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

FCC Part 15 Subpart C Section 15.247 & 15.203
RSS-Gen Section 8.3

6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Testing shall be performed using the highest gain antenna of each combination of licence-exempt transmitter and antenna type, with the transmitter output power set at the maximum level. When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna manufacturer.

15.203 requirement:

For intentional device. According to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (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.

EUT Antenna:

The antenna uses a unique coupling to the intentional radiator with 2dBi and no consideration of replacement.

Photo of antenna refer to Appendix – Internal photo.



7 Radio Spectrum Matter Test Results

7.1 Conducted Disturbance at AC Power Line(150kHz-30MHz)

Test Requirement FCC Part 15 Subpart C Section 15.207
 RSS-Gen Section 8.8
Test Method: ANSI C63.10 Section 6.2
Limit:

Frequency of emission(MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

7.1.1 E.U.T. Operation

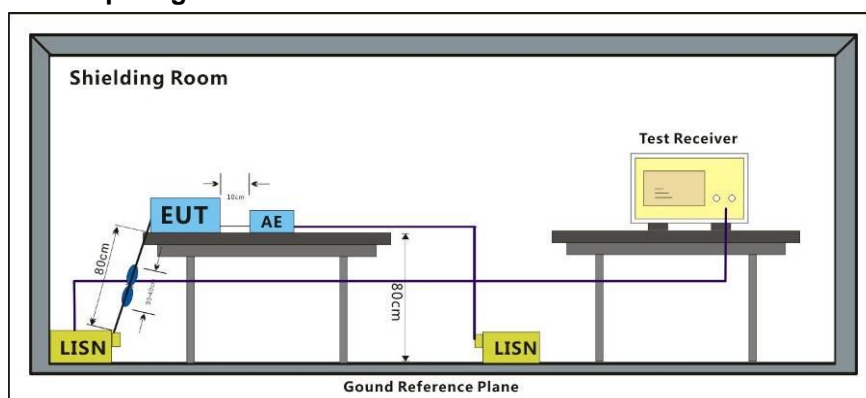
Operating Environment:

Temperature: 25.0 °C Humidity: 56 % RH Atmospheric Pressure: 1015 mbar

Test mode Pretest the EUT with Continuous Video transmitting mode for adaptor 1 and adaptor 2

The worst case for final test: Test the EUT with Continuous Video transmitting mode and adaptor 1

7.1.2 Test Setup Diagram

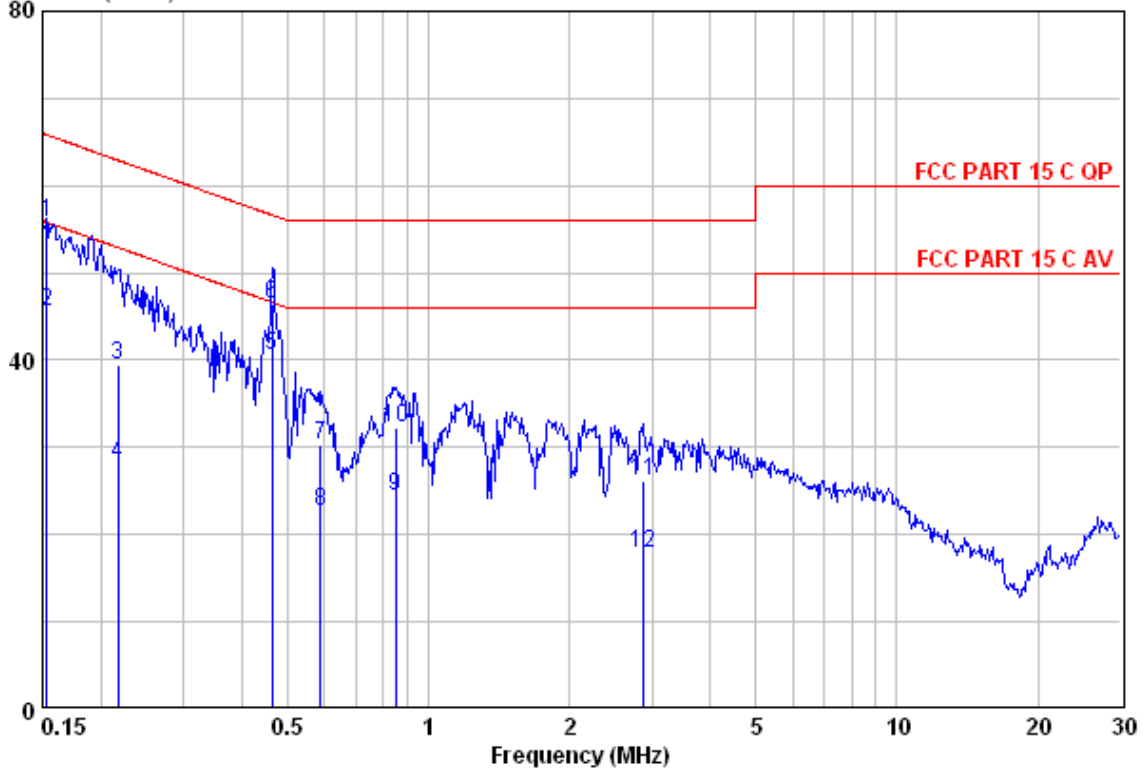


7.1.3 Measurement Data

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Live Line

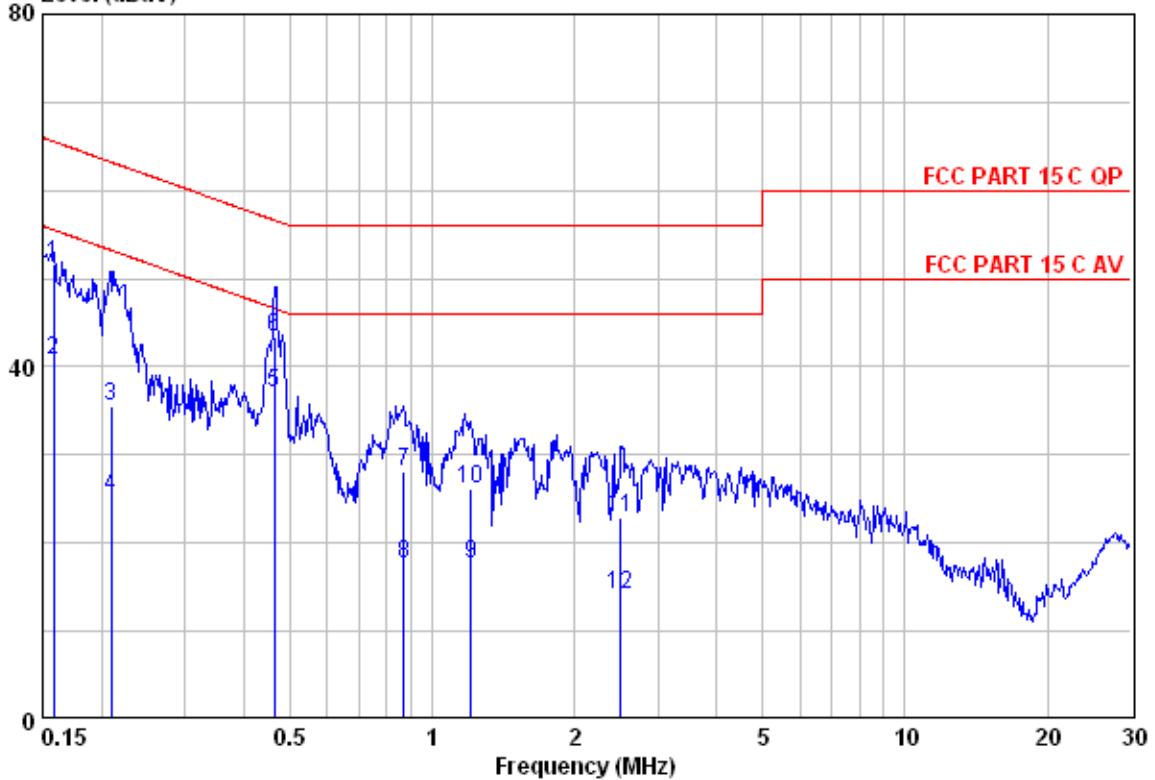
Data: 12
Level (dBuV)



	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.15	0.00	9.93	45.88	55.81	55.82	-0.01	AVERAGE
2	0.15	0.00	9.93	35.72	45.65	65.82	-20.17	QP
3	0.22	0.00	9.93	29.54	39.47	62.92	-23.45	QP
4	0.22	0.00	9.93	18.09	28.02	52.92	-24.90	AVERAGE
5	0.46	0.00	9.94	30.64	40.58	46.63	-6.05	AVERAGE
6	0.46	0.00	9.94	36.40	46.34	56.63	-10.29	QP
7	0.59	0.00	9.94	20.44	30.38	56.00	-25.62	QP
8	0.59	0.00	9.94	12.75	22.69	46.00	-23.31	AVERAGE
9	0.85	0.00	9.96	14.45	24.41	46.00	-21.59	AVERAGE
10	0.85	0.00	9.96	22.32	32.28	56.00	-23.72	QP
11	2.88	0.00	10.03	16.24	26.27	56.00	-29.73	QP
12	2.88	0.00	10.03	7.95	17.98	46.00	-28.02	AVERAGE

Neutral Line

Data: 10
 Level (dBuV)



	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1 peak	0.16	0.00	9.95	41.78	51.73	55.56	-3.83	AVERAGE
2	0.16	0.00	9.95	30.88	40.83	65.56	-24.73	QP
3	0.21	0.00	9.95	25.56	35.51	63.23	-27.72	QP
4	0.21	0.00	9.95	15.41	25.36	53.23	-27.87	AVERAGE
5	0.46	0.00	9.95	27.14	37.09	46.63	-9.53	AVERAGE
6	0.46	0.00	9.95	33.36	43.31	56.63	-13.31	QP
7	0.87	0.00	9.98	18.16	28.14	56.00	-27.86	QP
8	0.87	0.00	9.98	7.73	17.71	46.00	-28.29	AVERAGE
9	1.21	0.00	10.00	7.73	17.73	46.00	-28.27	AVERAGE
10	1.21	0.00	10.00	16.08	26.08	56.00	-29.92	QP
11	2.50	0.00	10.03	12.86	22.89	56.00	-33.11	QP
12	2.50	0.00	10.03	4.06	14.09	46.00	-31.91	AVERAGE

7.2 Conducted RF Output Power

Test Requirement FCC Part 15 Subpart C Section 15.247(b)(3)
 RSS-247 Section 5.4(d)

Test Method: ANSI C63.10 Section 11.9.1

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1w for ≥ 50 hopping channels
	0.25w for $25 \leq$ hopping channels < 50
	1 for digital modulation
2400-2483.5	1w for ≥ 75 non-overlapping hopping channels
	0.125w for all other frequency hopping systems
	1w for digital modulation
5725-5850	1w for frequency hopping systems and digital modulation

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 56 % RH Atmospheric Pressure: 1015 mbar

Test mode Continuous Transmitting Mode with 802.11b/g/n (20) and 802.11n(HT40).

The worst case Continuous Transmitting Mode

for final test: Through Pre-scan, found

1Mbps of rate is the worst case of 802.11b;

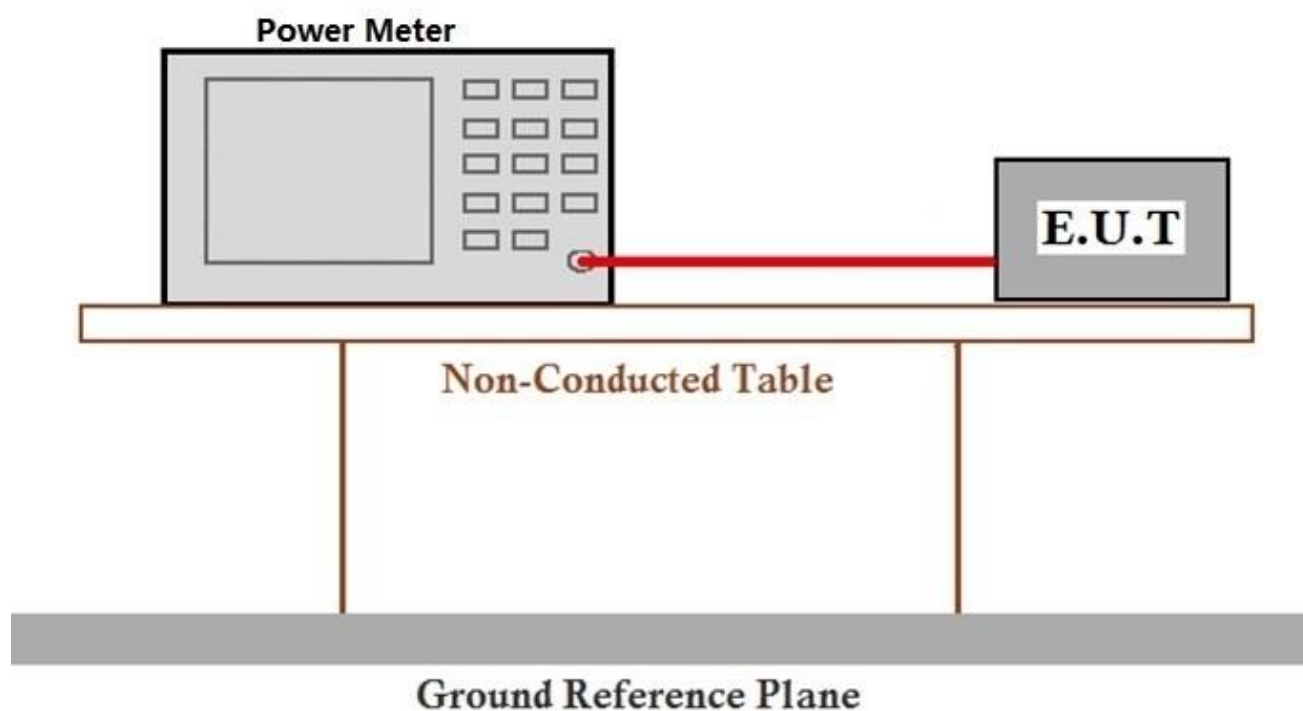
6Mbps of rate is the worst case of 802.11g;

7.2Mbps of rate is the worst case of 802.11n(HT20);

15Mbps of rate is the worst case of 802.11n(HT40).

Only the data of worst case is recorded in the report

7.2.2 Test Setup Diagram



7.2.3 Measurement Data

The detailed test data see: section 9 Appendix

7.3 Minimum 6dB Bandwidth

Test Requirement	FCC Part 15 Subpart C Section 15.247a(2) RSS-247 Section 5.2(a)
Test Method:	ANSI C63.10 Section 11.8.1
Limit:	≥500 kHz

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 56 % RH Atmospheric Pressure: 1015 mbar

Test mode Continuous Transmitting Mode

The worst case for final test: Continuous Transmitting Mode with 802.11b/g/n (20) and 802.11n(HT40).

Through Pre-scan, found

1Mbps of rate is the worst case of 802.11b;

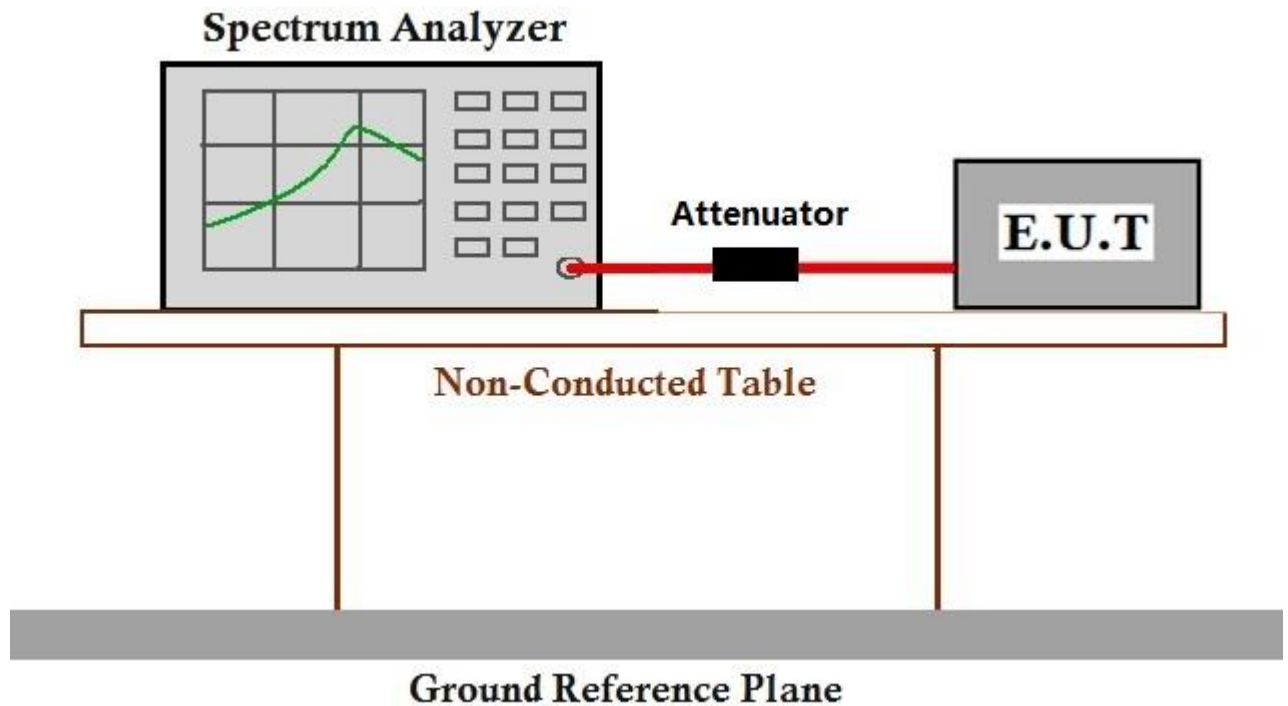
6Mbps of rate is the worst case of 802.11g;

7.2Mbps of rate is the worst case of 802.11n(HT20);

15Mbps of rate is the worst case of 802.11n(HT40).

Only the data of worst case is recorded in the report

7.3.2 Test Setup Diagram



7.3.3 Measurement Data

The detailed test data see: section 9 Appendix

7.4 Power Spectrum Density

Test Requirement FCC Part 15, Subpart C Section 15.247(e)
 RSS-247 Clause 5.2(b)

Test Method: ANSI C63.10 Section 11.10.2

Limit: ≤8dBm in any 3 kHz band during any time interval of continuous transmission

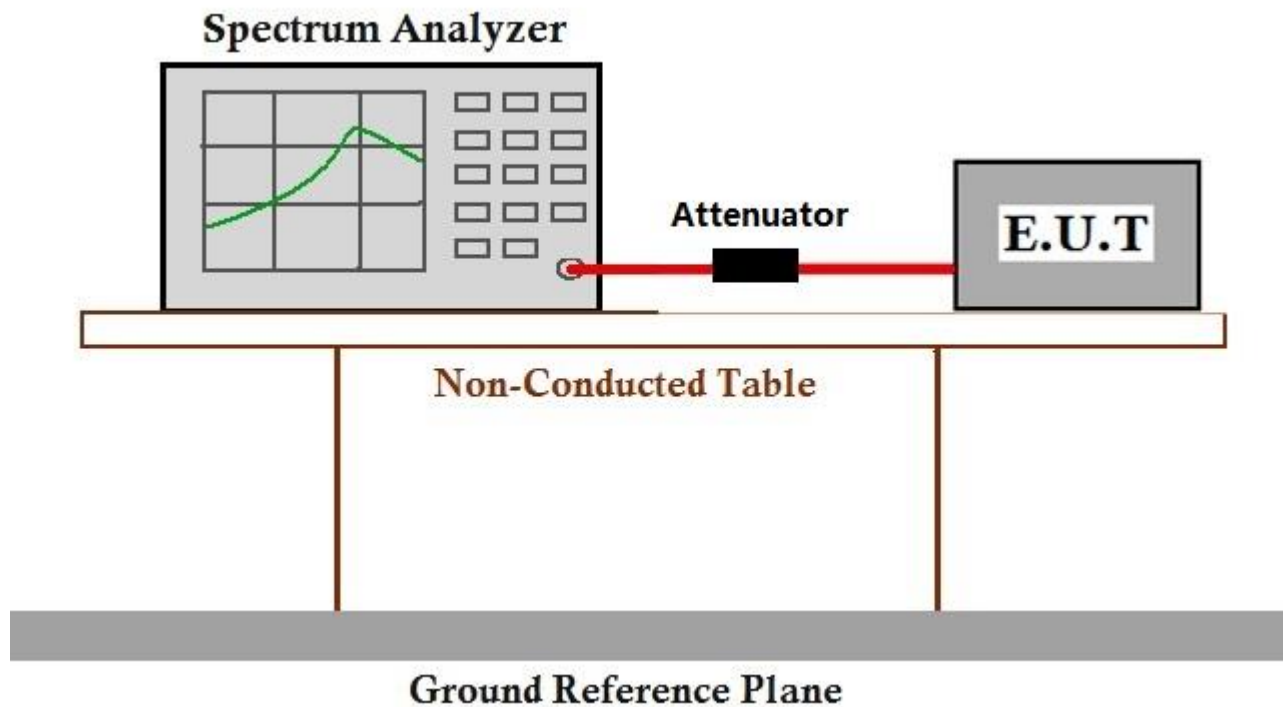
7.4.1 E.U.T. Operation

Operating Environment:
 Temperature: 25.0 °C Humidity: 56 % RH Atmospheric Pressure: 1015 mbar

Test mode Continuous Transmitting Mode
 Continuous Transmitting Mode with 802.11b/g/n (20) and 802.11n(HT40).

The worst case for final test: Continuous Transmitting Mode
 Through Pre-scan, found
 1Mbps of rate is the worst case of 802.11b;
 6Mbps of rate is the worst case of 802.11g;
 7.2Mbps of rate is the worst case of 802.11n(HT20);
 15Mbps of rate is the worst case of 802.11n(HT40).
 Only the data of worst case is recorded in the report

7.4.2 Test Setup Diagram



7.4.3 Measurement Data

The detailed test data see: section 9 Appendix



7.5 Conducted Spurious Emissions

Test Requirement	FCC Part 15, Subpart C Section 15.247(d) RSS-247 Section 5.5
Test Method:	ANSI C63.10 Section 11.11
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.

7.5.1 E.U.T. Operation

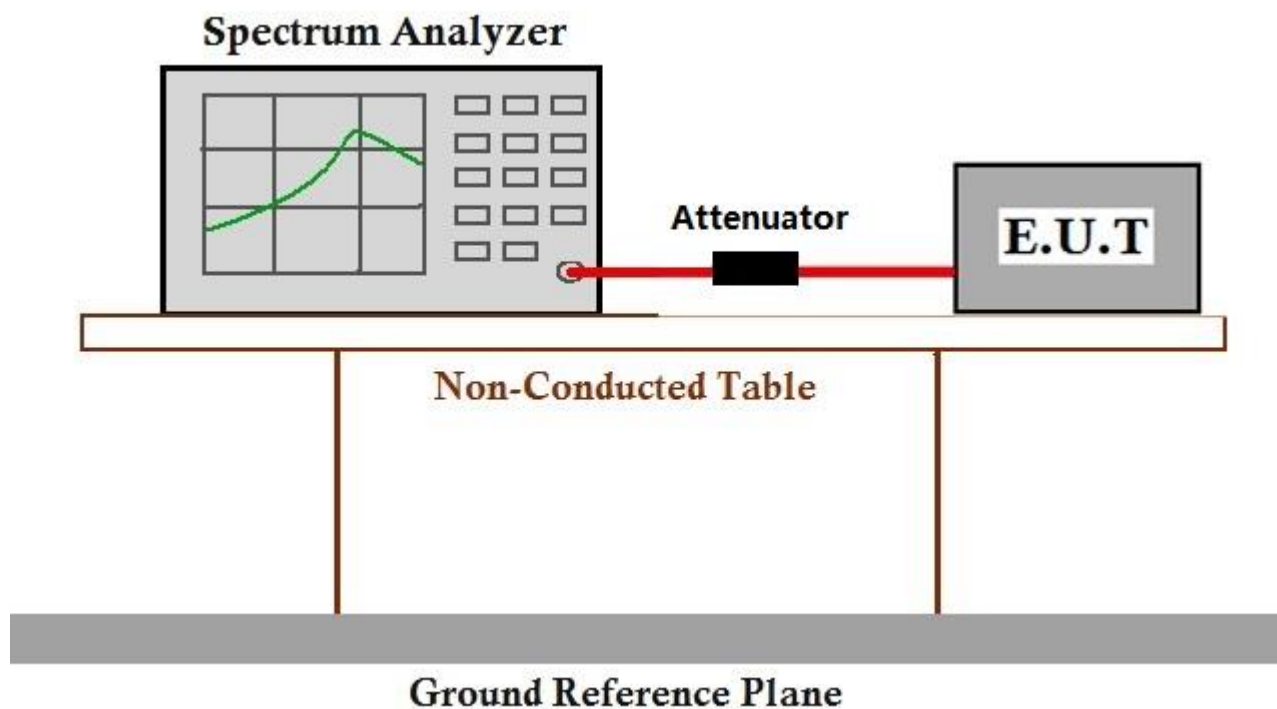
Operating Environment:

Temperature: 25.0 °C Humidity: 56 % RH Atmospheric Pressure: 1015 mbar

Test mode: Continuous Transmitting Mode
 Continuous Transmitting Mode with 802.11b/g/n (20) and 802.11n(HT40).

The worst case for final test: Continuous Transmitting Mode
 Through Pre-scan, found
 1Mbps of rate is the worst case of 802.11b;
 6Mbps of rate is the worst case of 802.11g;
 7.2Mbps of rate is the worst case of 802.11n(HT20);
 15Mbps of rate is the worst case of 802.11n(HT40).
 Only the data of worst case is recorded in the report

7.5.2 Test Setup Diagram



7.5.3 Measurement Data

The detailed test data see: section 9 Appendix



7.6 Radiated Spurious Emissions

Test Requirement FCC Part 15, Subpart C Section 15.209 & 15.247(d)
 RSS-247 Section 3.3 & RSS-Gen Section 8.9

Test Method: ANSI C63.10 Section 6.10.4
 ANSI C63.10 Section 6.4&6.5&6.6

Measurement Distance: 3m

Limit:

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: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C Humidity: 52 % RH Atmospheric Pressure: 1015 mbar

Test mode Continuous Transmitting Mode with 802.11b/g/n (20) and 802.11n(HT40).

The worst case Continuous Transmitting Mode

for final test: Through Pre-scan, found

1Mbps of rate is the worst case of 802.11b;

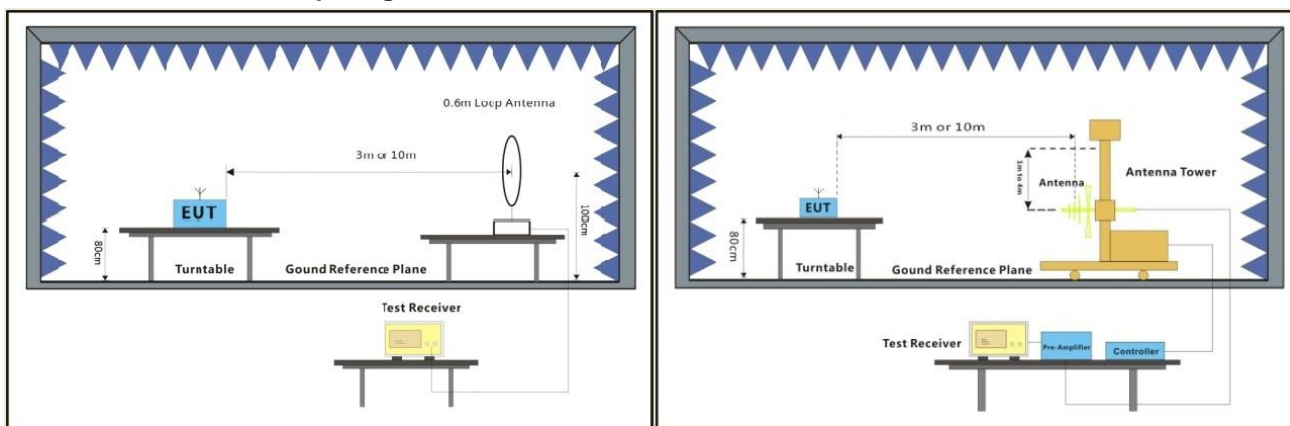
6Mbps of rate is the worst case of 802.11g;

7.2Mbps of rate is the worst case of 802.11n(HT20);

15Mbps of rate is the worst case of 802.11n(HT40).

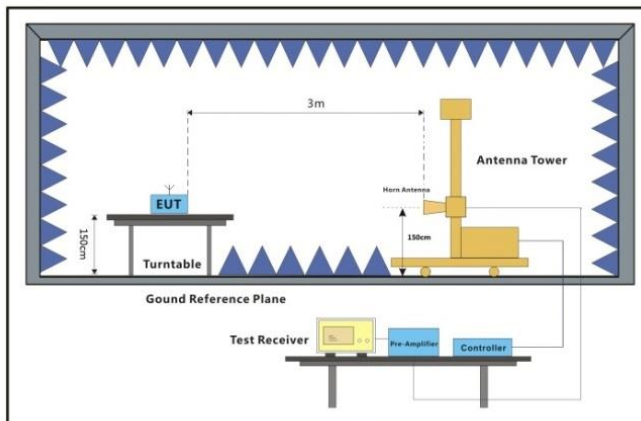
Only the data of worst case is recorded in the report

7.6.2 Test Setup Diagram



Below 30MHz

30MHz-1GHz



Above 1GHz

7.6.3 Measurement Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna 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 polarizations of the antenna are set to make the measurement.
- e. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB 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 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the Y axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

7.7 Conducted Band Edges Measurement

Test Requirement FCC Part 15, Subpart C Section 15.247(d)
 RSS-247 Section 5.5
 Test Method: ANSI C63.10 Section 11.13.3.2

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 56 % RH Atmospheric Pressure: 1015 mbar

Test mode Keep the EUT transmitted the continuous modulation test signal at the lowest and highest channel

The worst case for final test: Continuous Transmitting Mode
 Through Pre-scan, found

1Mbps of rate is the worst case of 802.11b;

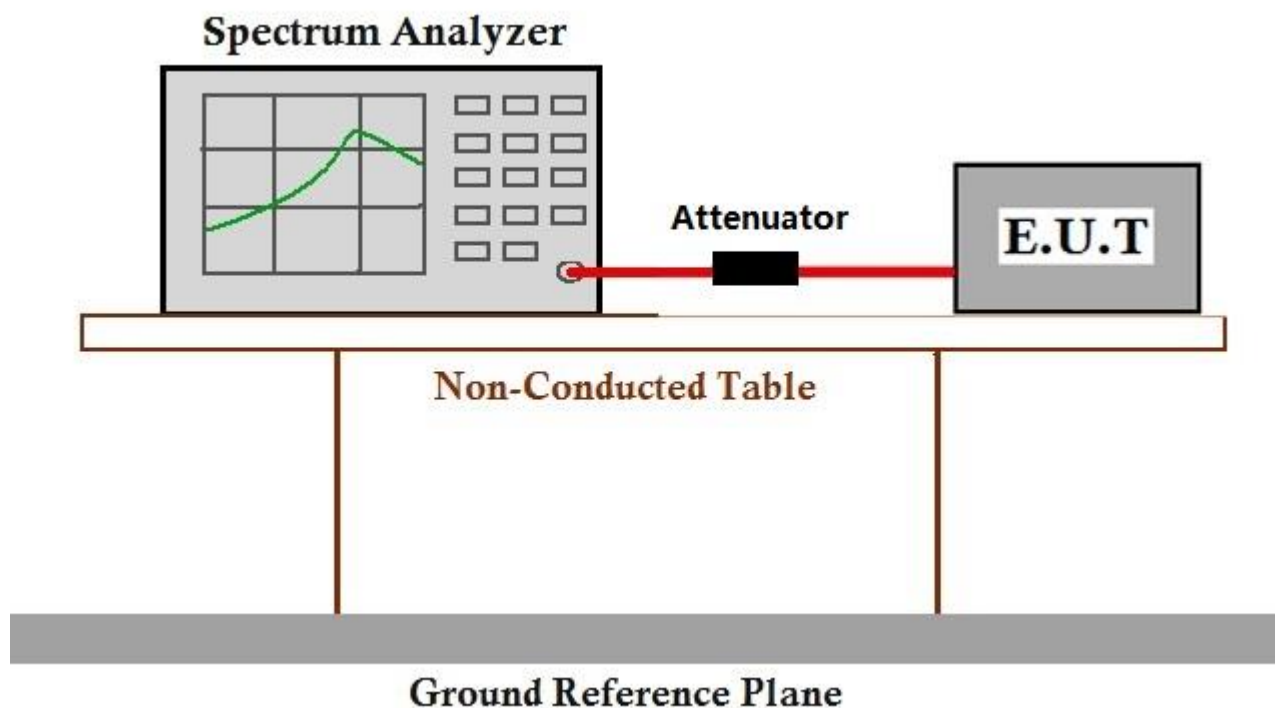
6Mbps of rate is the worst case of 802.11g;

7.2Mbps of rate is the worst case of 802.11n(HT20);

15Mbps of rate is the worst case of 802.11n(HT40).

Only the data of worst case is recorded in the report

7.7.2 Test Setup Diagram



7.7.3 Measurement Data

The detailed test data see: section 9 Appendix

7.8 99% Bandwidth

Test Requirement RSS-Gen Section 6.7
 Test Method: ANSI C63.10 Section 6.9.3

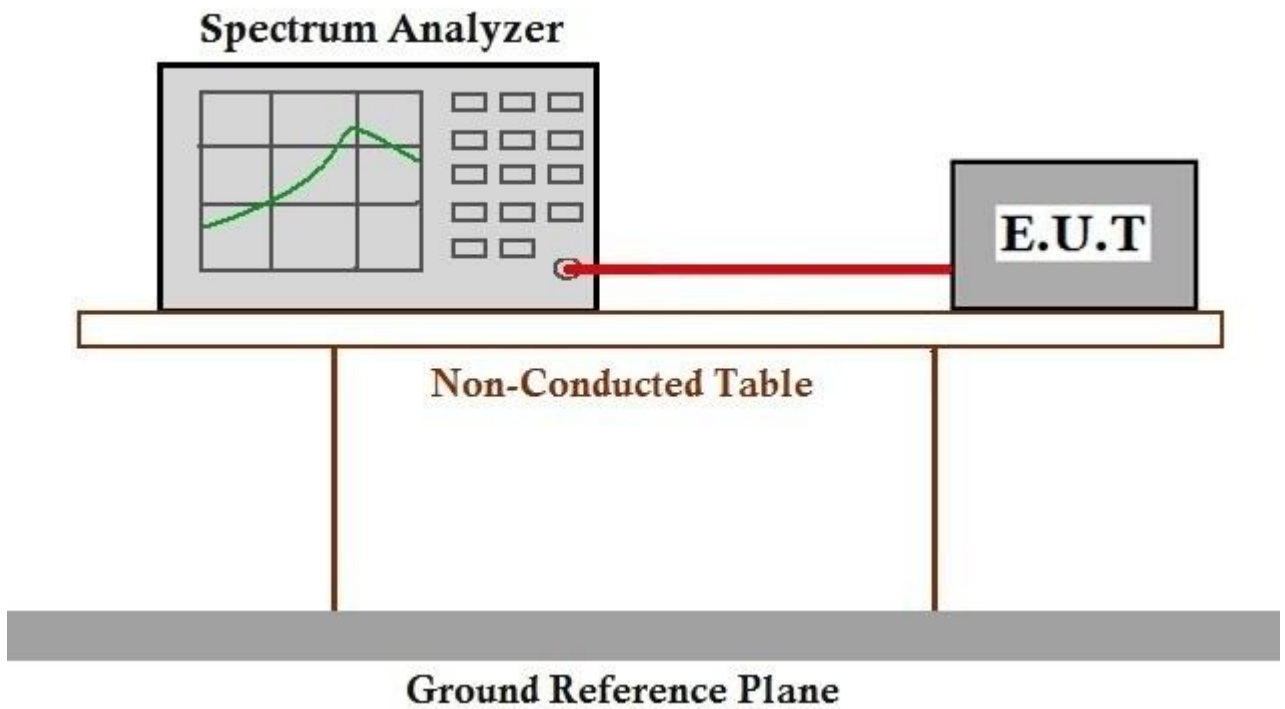
7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 56 % RH Atmospheric Pressure: 1020 mbar

Test mode Keep the EUT transmitted the continuous modulation test signal at the specific channel(s).

7.8.2 Test Setup Diagram



7.8.1 Measurement Procedure and Data

The detailed test data see: 9.1 Appendix

7.9 Transmitter Frequency Stability

Test Requirement RSS-Gen Section 6.11
 Test Method: RSS-Gen Section 6.11

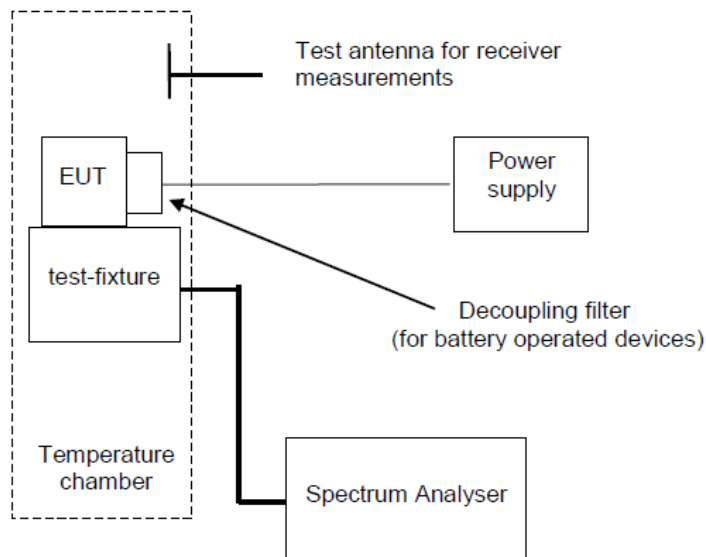
7.9.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 56 % RH Atmospheric Pressure: 1015 mbar

Test mode Keep the EUT transmitted the continuous modulation test signal at the specific channel(s).

7.9.2 Test Setup Diagram



7.9.3 Measurement Procedure and Data

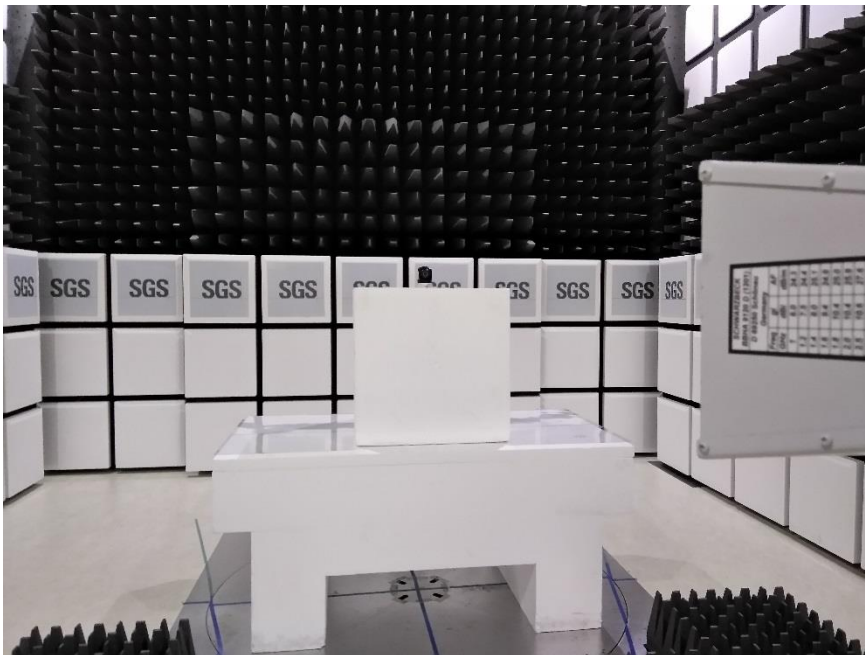
The detailed test data see: 9.1 Appendix

8 Photographs

8.1 Conducted Disturbance at AC Power Line(150kHz-30MHz) Test Setup



8.2 Radiated Spurious Emissions Test Setup



8.3 EUT Constructional Details



9 Appendix

9.1 Minimum Emission Bandwidth 6 dB

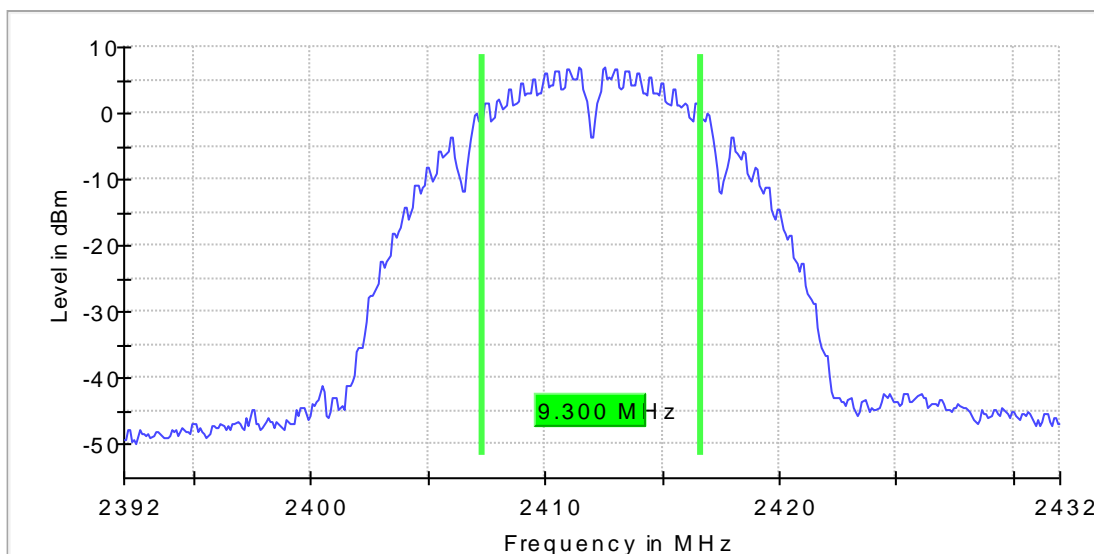
(802.11b)

Lowest channel: 2412MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2412.000000	9.300000	0.500000	---	2407.350000	2416.650000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2412.000000	6.9	PASS

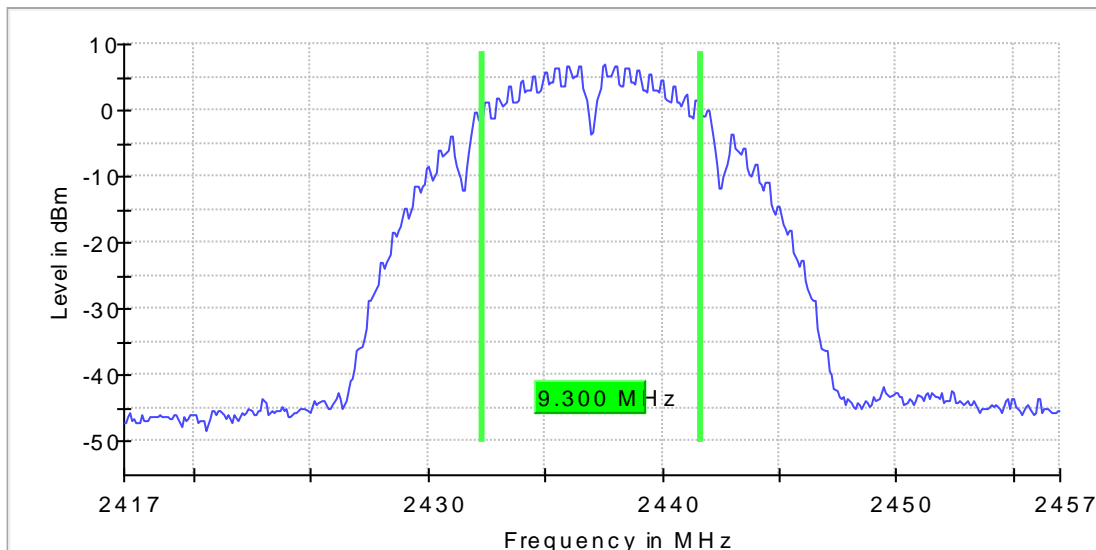


Middle channel: 2437MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2437.000000	9.300000	0.500000	---	2432.350000	2441.650000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2437.000000	6.8	PASS

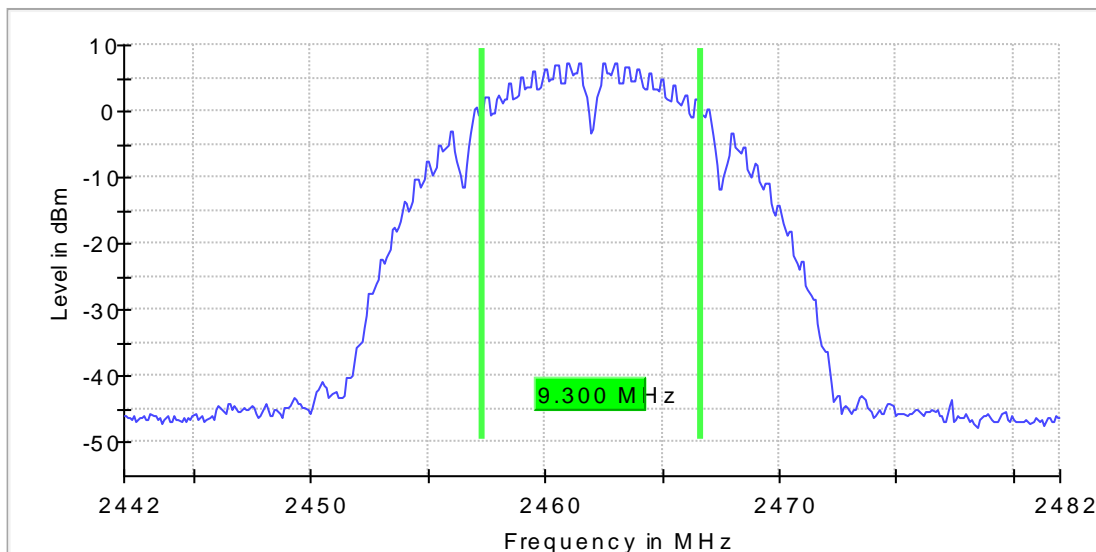


Highest channel: 2462MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2462.000000	9.300000	0.500000	---	2457.350000	2466.650000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2462.000000	7.4	PASS



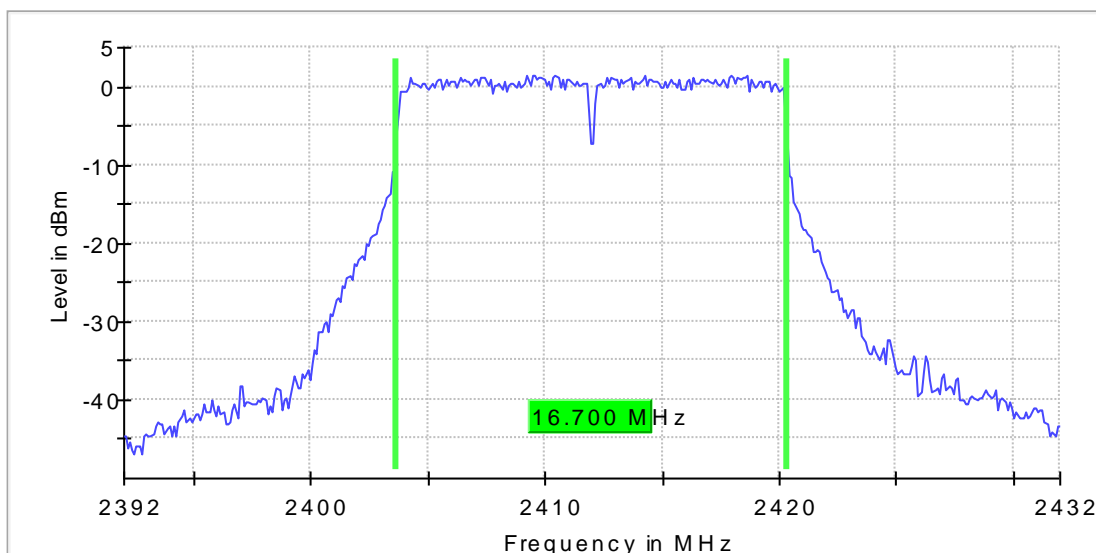
(802.11g)

Lowest channel: 2412MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2412.000000	16.700000	0.500000	---	2403.650000	2420.350000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2412.000000	1.5	PASS

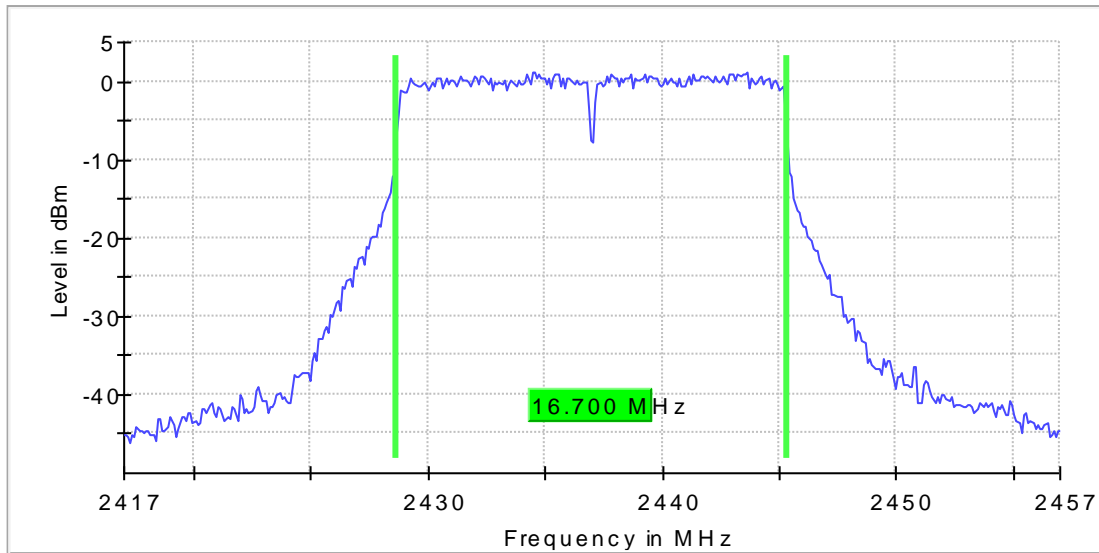


Middle channel: 2437MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2437.000000	16.700000	0.500000	---	2428.650000	2445.350000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2437.000000	1.2	PASS

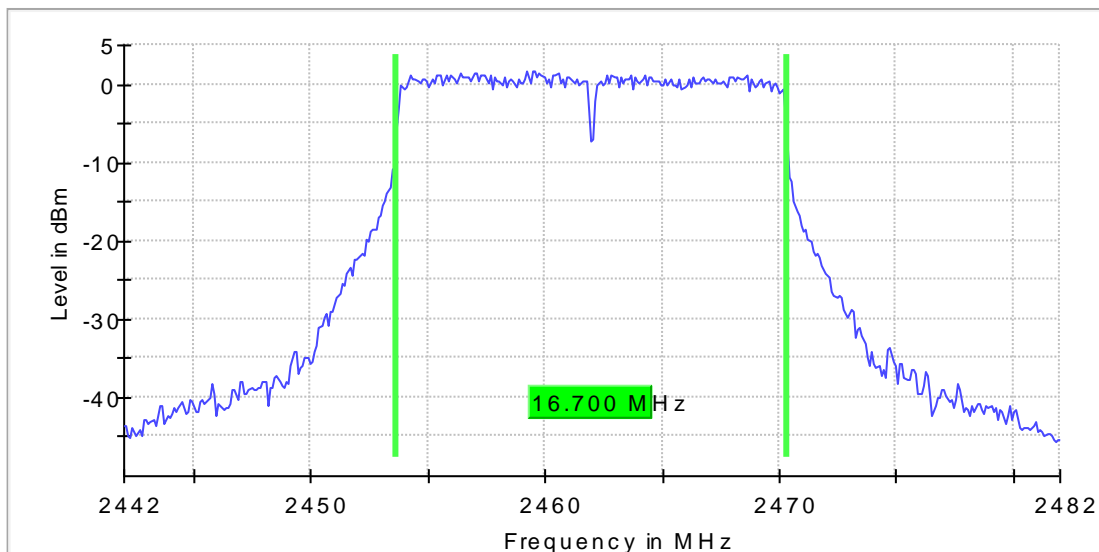


Highest channel: 2462MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2462.000000	16.700000	0.500000	---	2453.650000	2470.350000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2462.000000	1.6	PASS



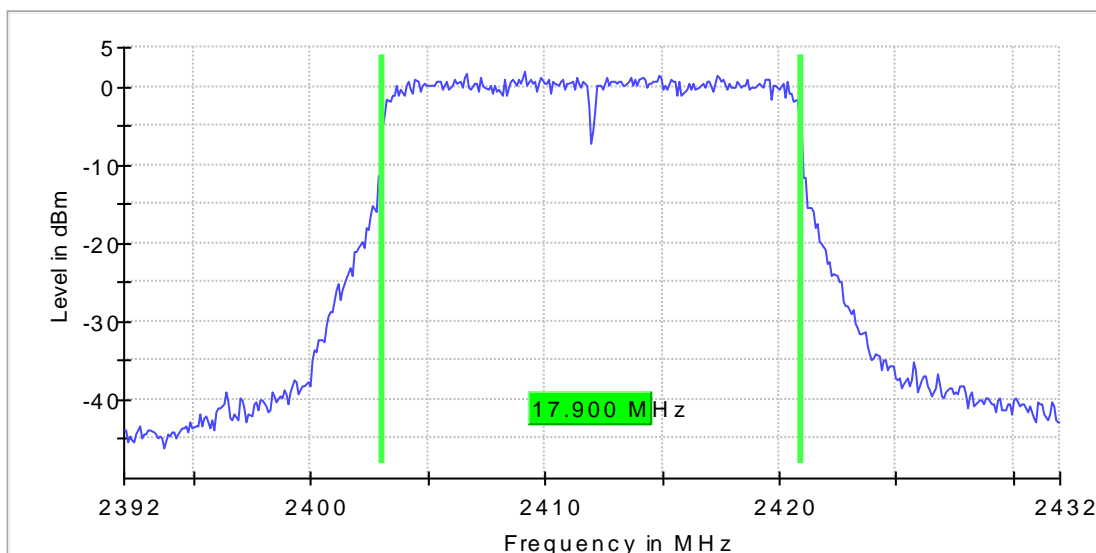
(802.11n20)

Lowest channel: 2412MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2412.000000	17.900000	0.500000	---	2403.050000	2420.950000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2412.000000	1.9	PASS

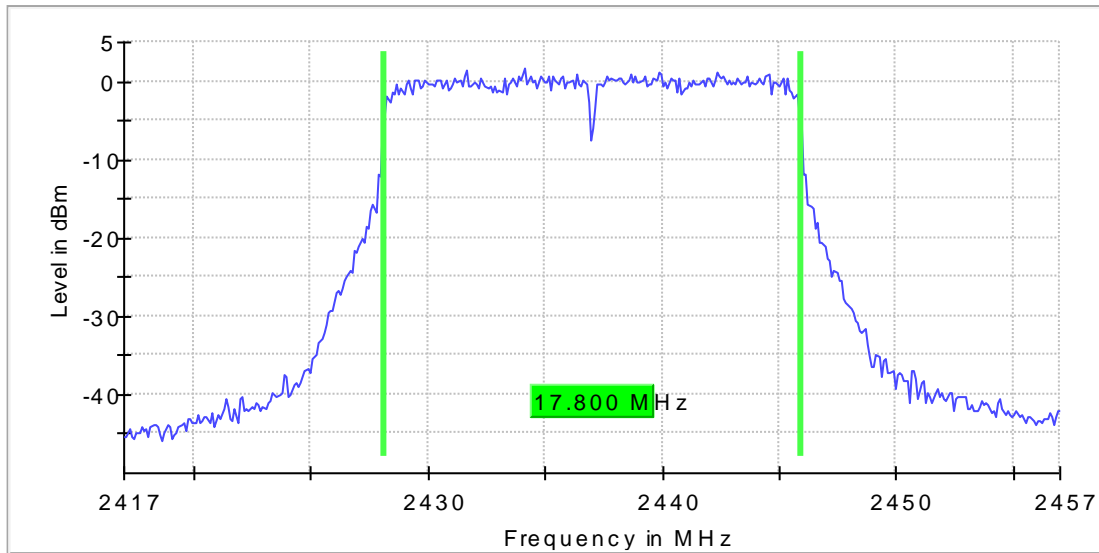


Middle channel: 2437MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2437.000000	17.800000	0.500000	---	2428.150000	2445.950000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2437.000000	1.7	PASS

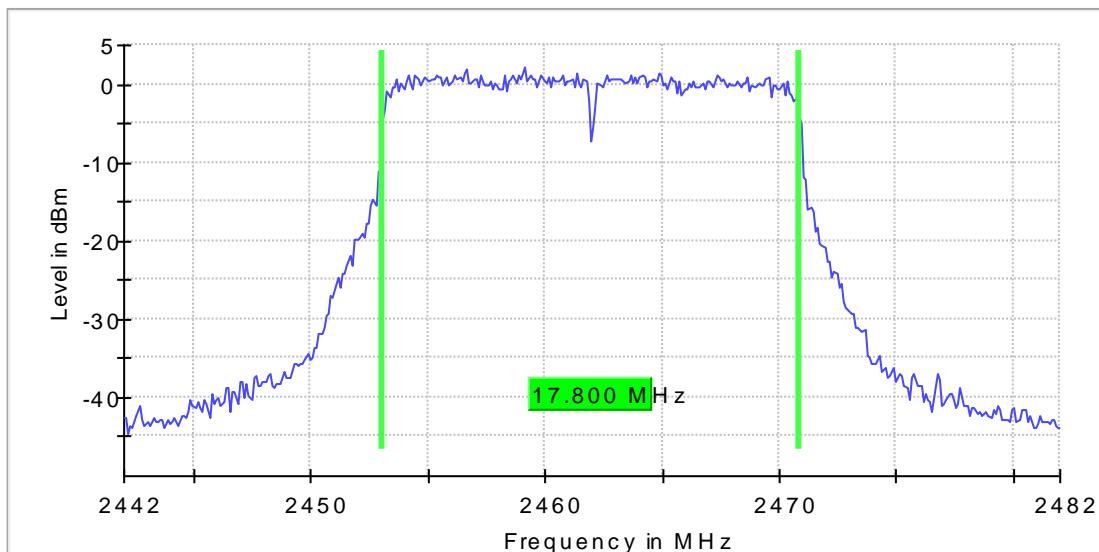


Highest channel: 2462MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2462.000000	17.800000	0.500000	---	2453.050000	2470.850000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2462.000000	2.3	PASS



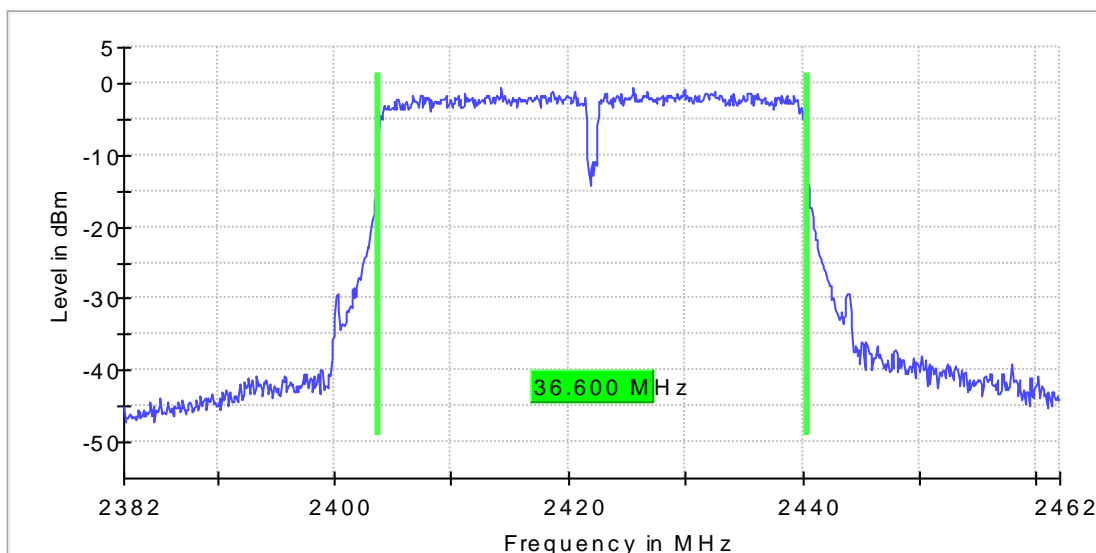
(802.11n40)

Lowest channel: 2422MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2422.000000	36.600000	0.500000	---	2403.750000	2440.350000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2422.000000	-0.7	PASS

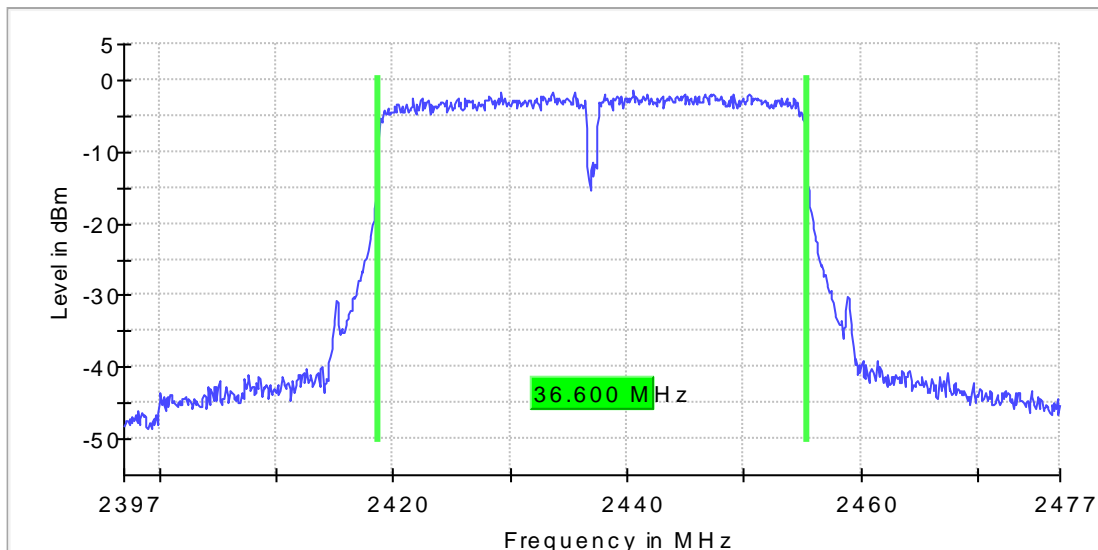


Middle channel: 2437MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2437.000000	36.600000	0.500000	---	2418.750000	2455.350000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2437.000000	-1.5	PASS

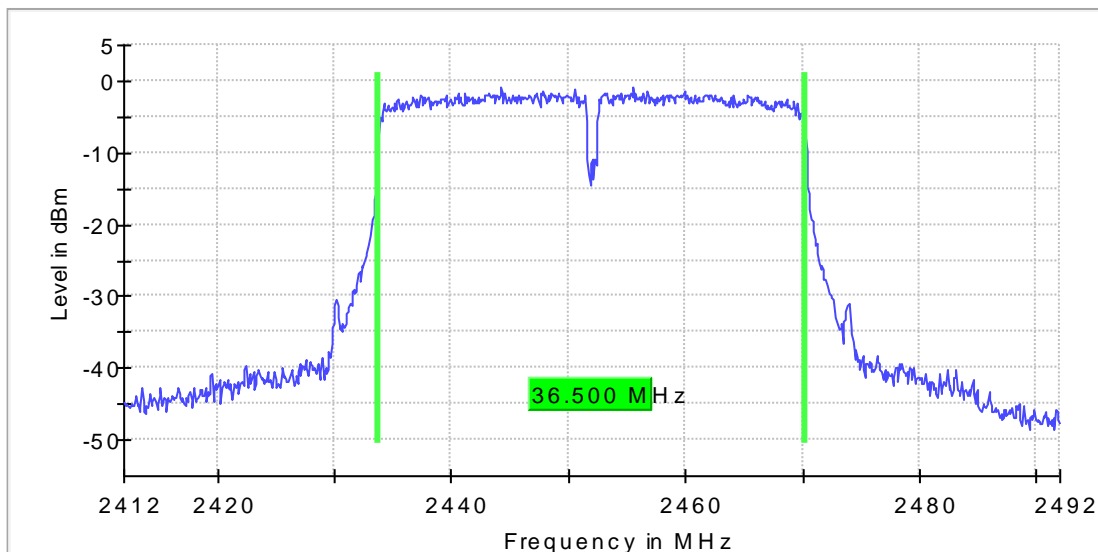


Highest channel: 2452MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2452.000000	36.500000	0.500000	---	2433.750000	2470.250000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2452.000000	-0.9	PASS

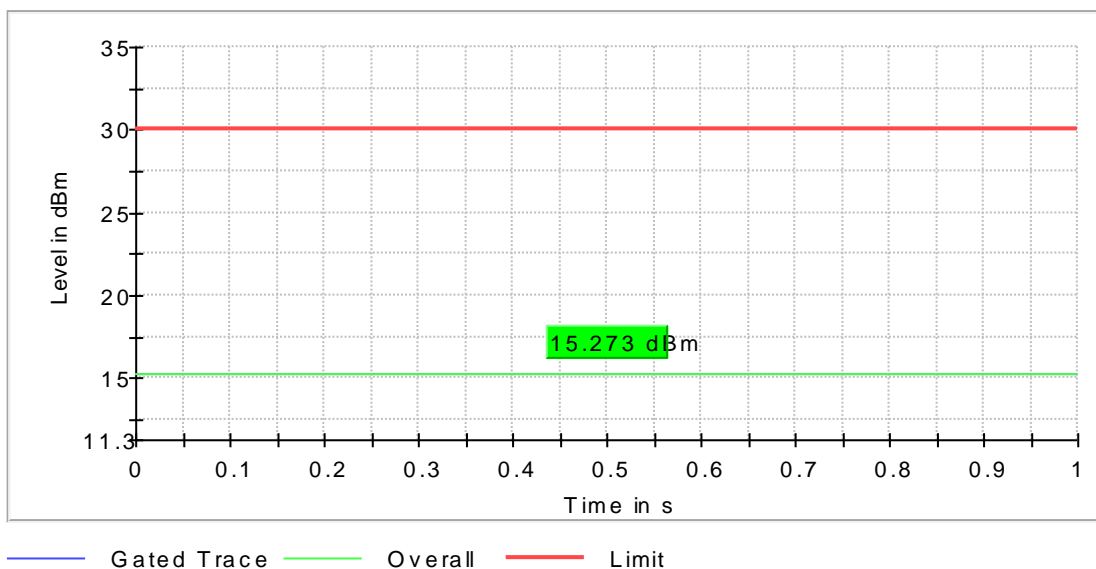


9.2 RF output power

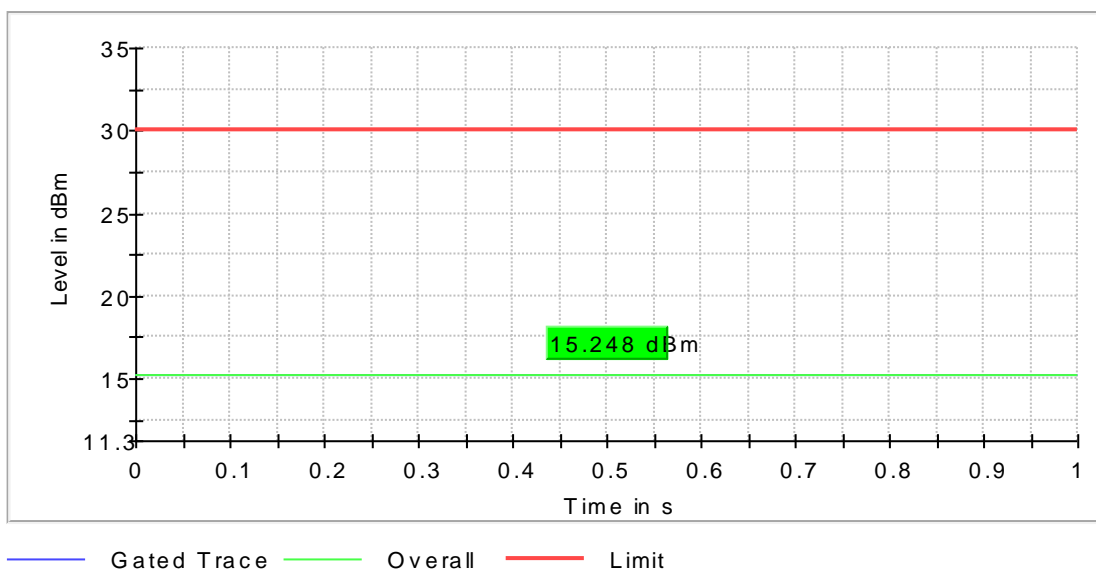
(802.11b)

Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2412.000000	15.3	30.0	17.3	100.000	PASS

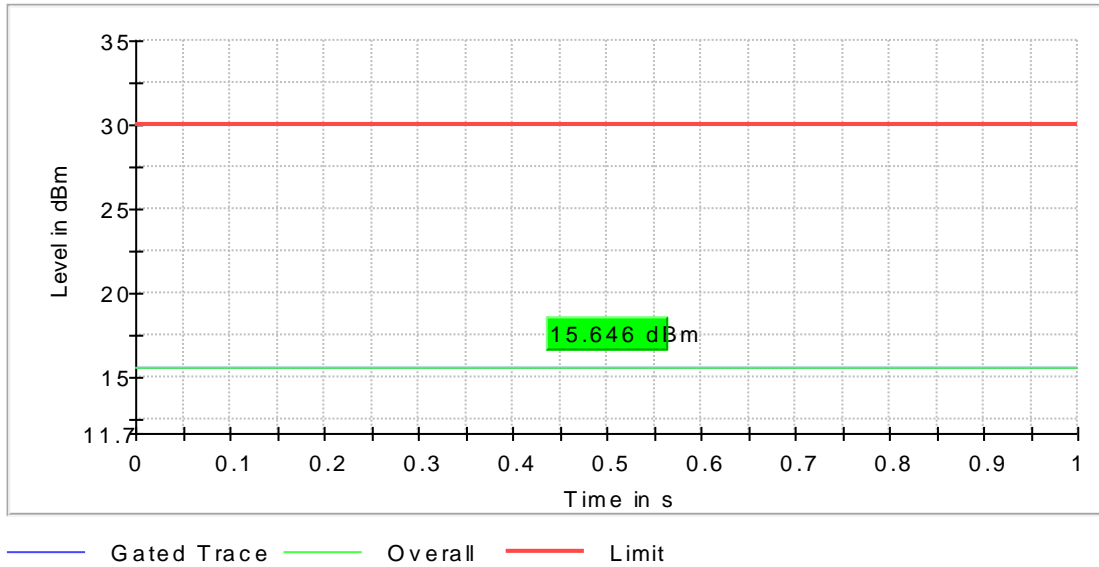


DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2437.000000	15.2	30.0	17.2	100.000	PASS





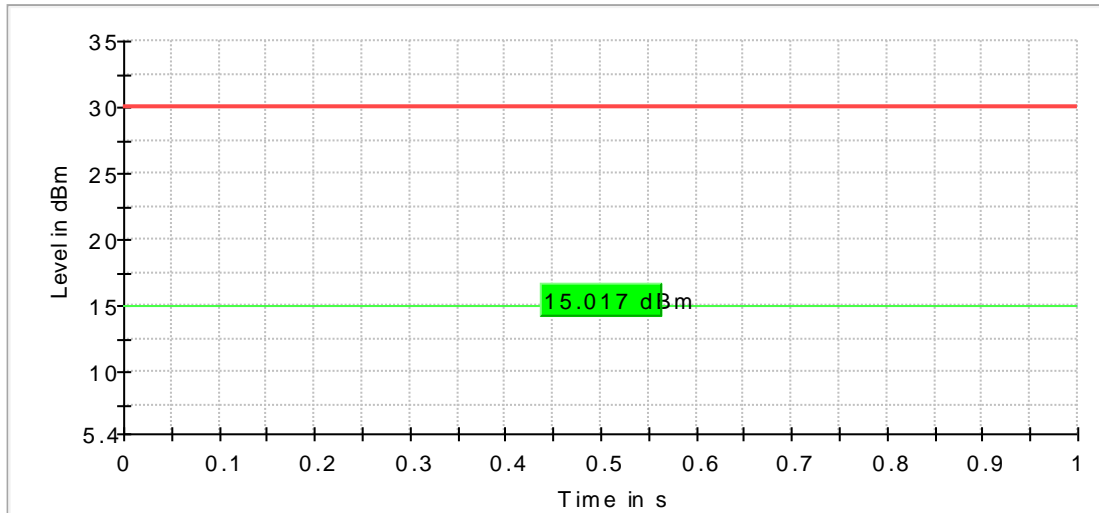
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2462.000000	15.6	30.0	17.6	100.000	PASS



(802.11g)

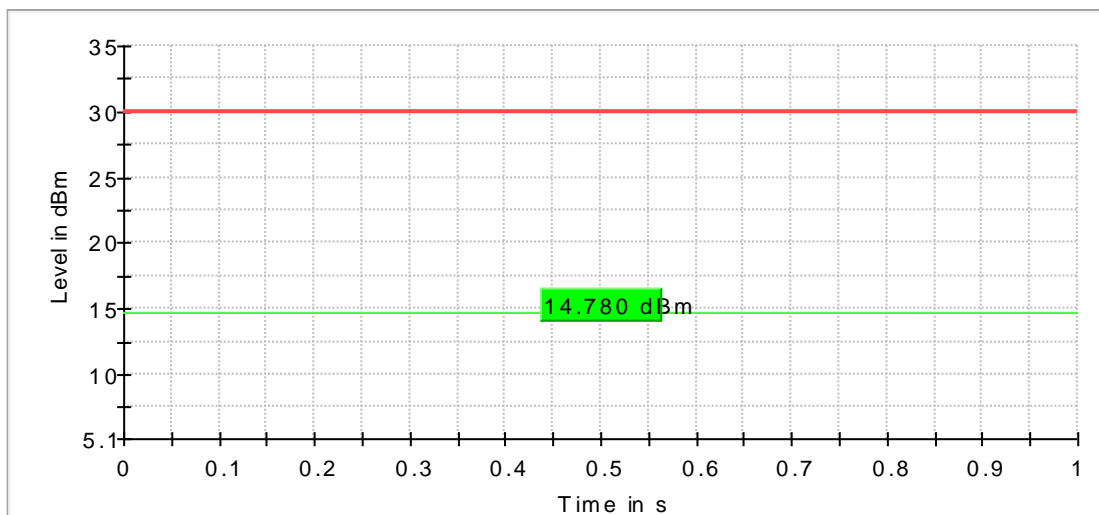
Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2412.000000	15.0	30.0	17.0	100.000	PASS



— Gated Trace — Overall — Limit

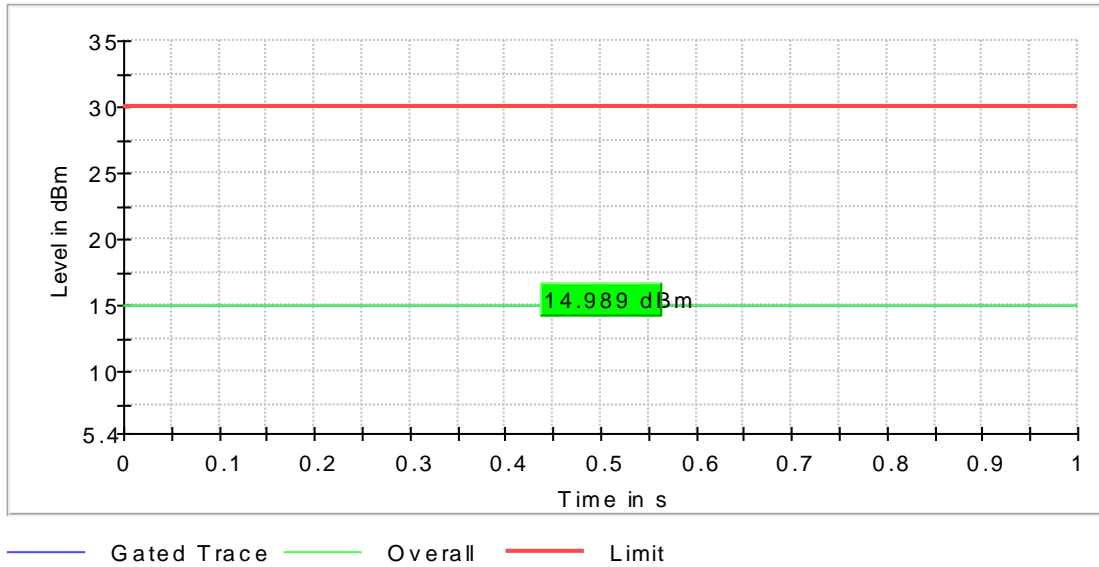
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2437.000000	14.8	30.0	16.8	100.000	PASS



— Gated Trace — Overall — Limit



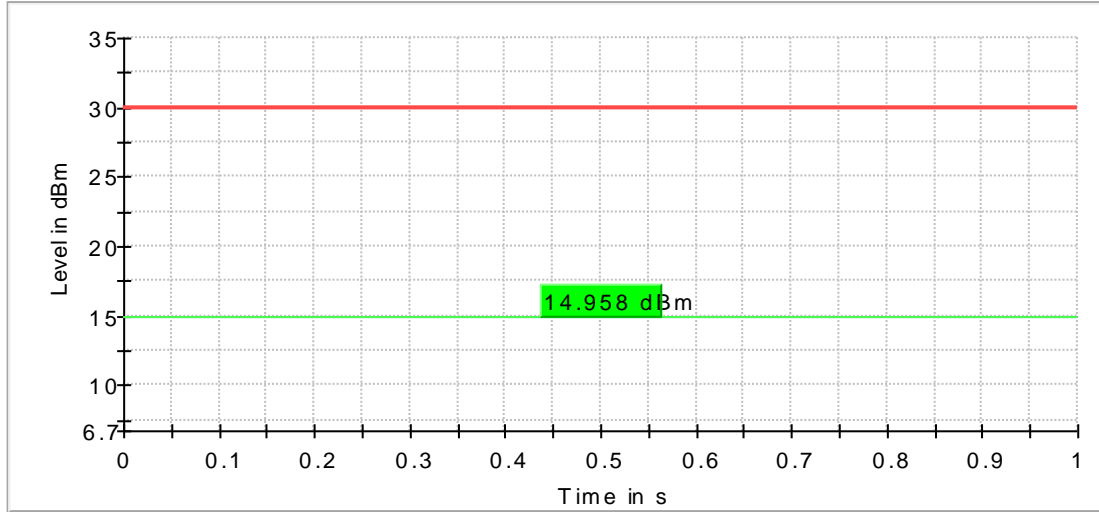
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2462.000000	15.0	30.0	17.0	100.000	PASS



(802.11n20)

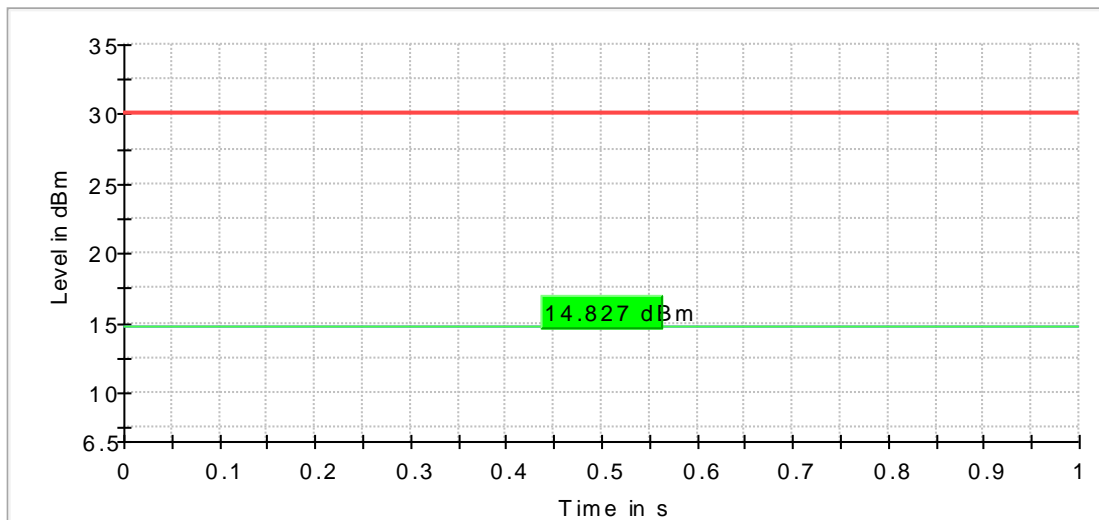
Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2412.000000	15.0	30.0	17.0	100.000	PASS



— Gated Trace — Overall — Limit

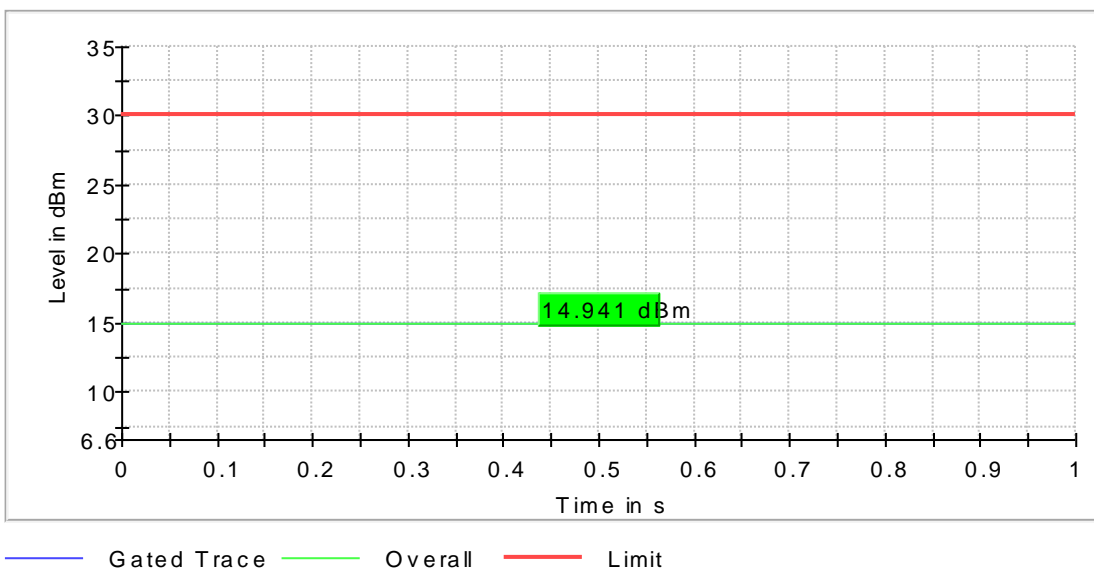
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2437.000000	14.8	30.0	16.8	100.000	PASS



— Gated Trace — Overall — Limit



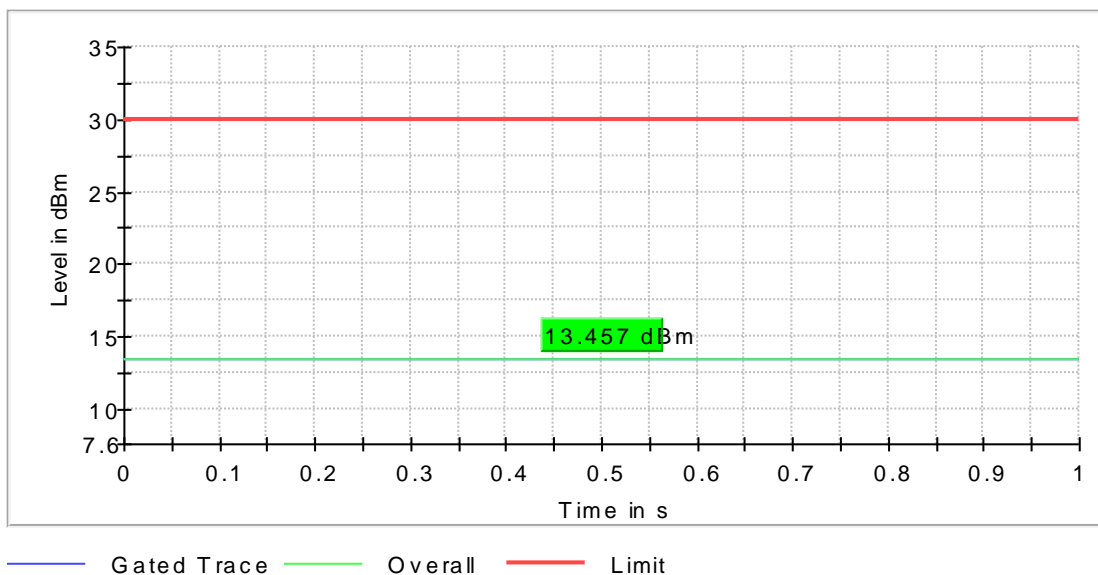
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2462.000000	14.9	30.0	16.9	100.000	PASS



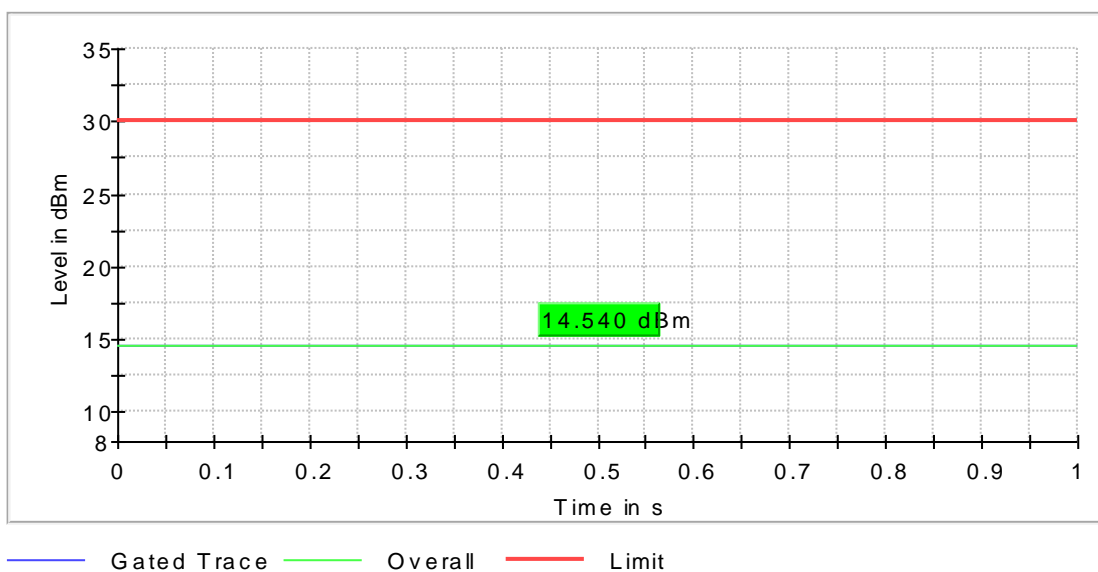
(802.11n40)

Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2422.000000	13.5	30.0	15.5	100.000	PASS

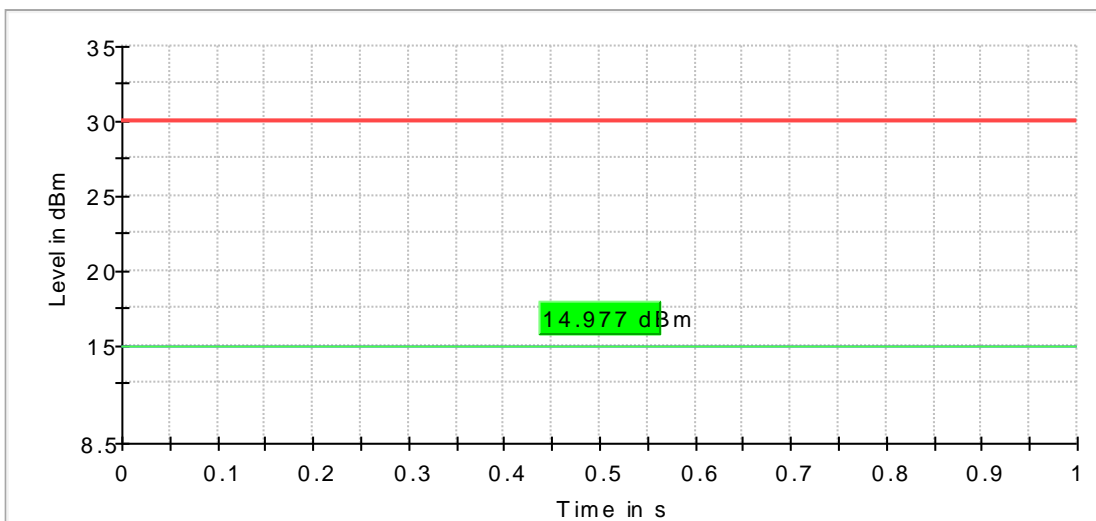


DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2437.000000	14.5	30.0	16.5	100.000	PASS





DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2452.000000	15.0	30.0	17.0	100.000	PASS



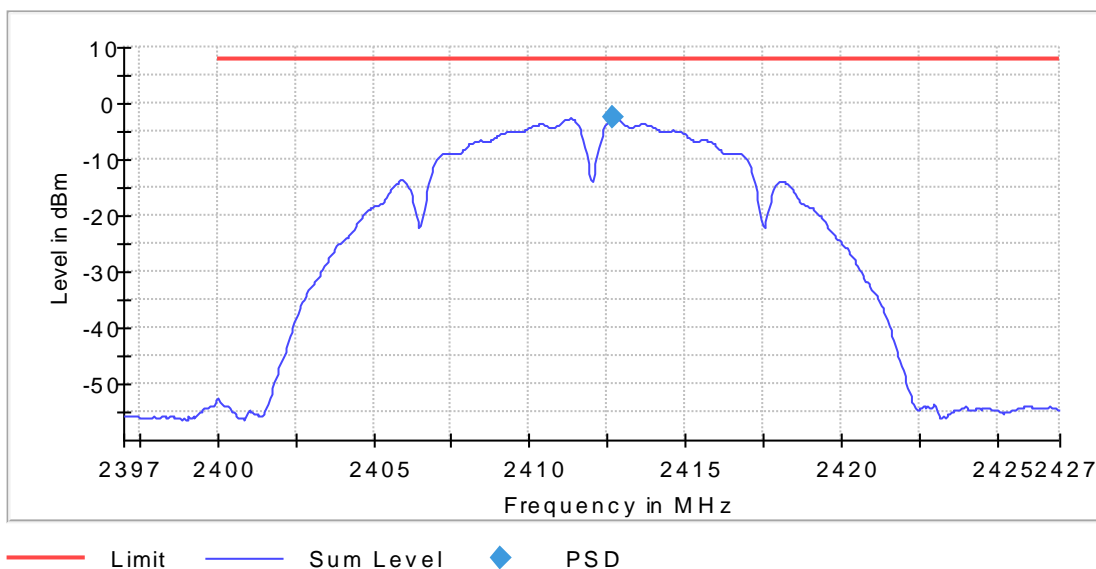
— Gated Trace — Overall — Limit

9.3 Power Spectral Density

(802.11b)

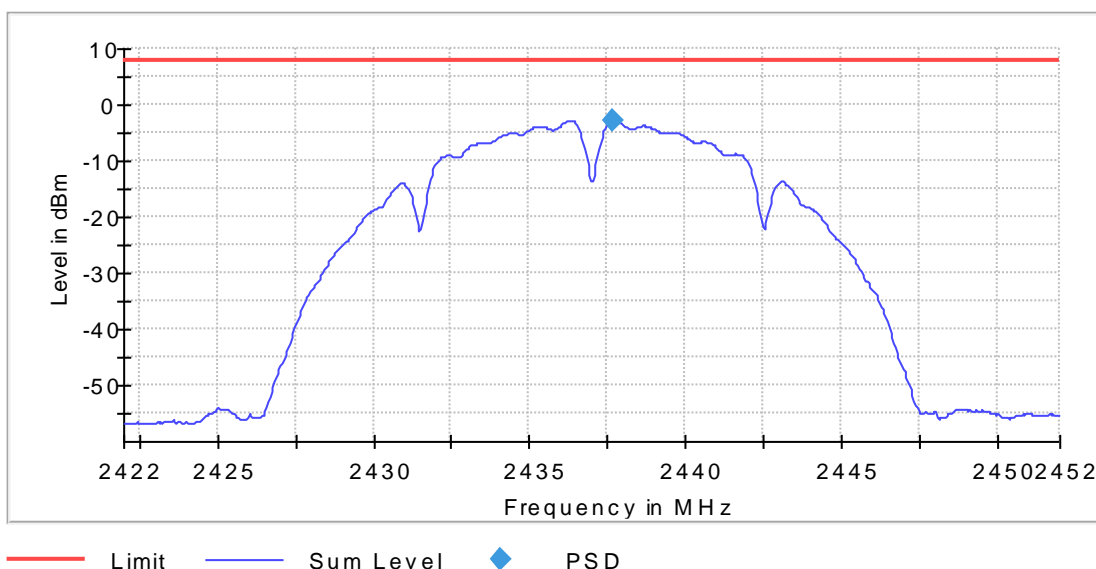
Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2412.000000	2412.675000	-2.645	8.0	PASS



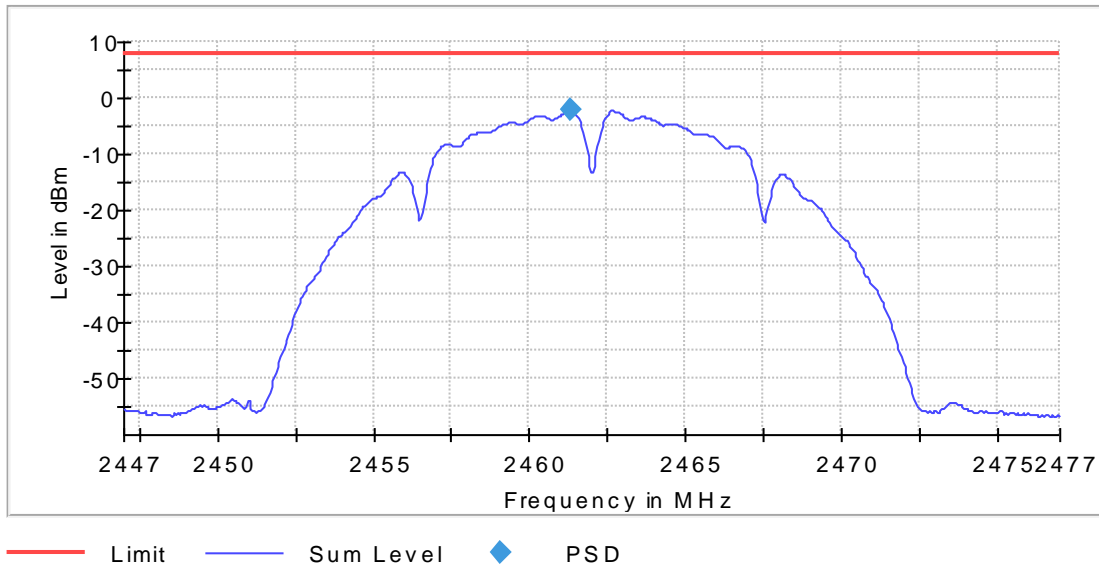
Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2437.000000	2437.675000	-2.752	8.0	PASS



Result

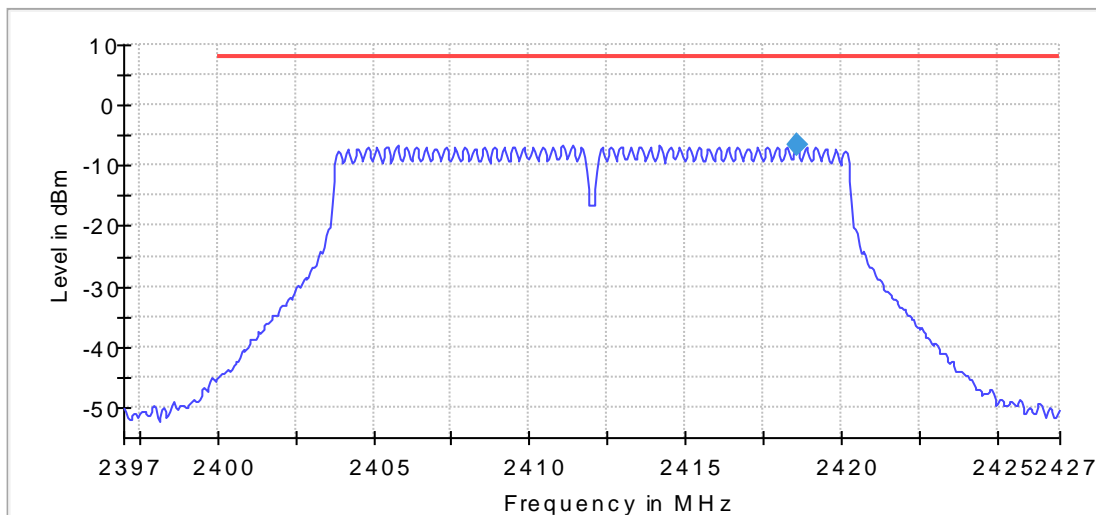
DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2462.000000	2461.325000	-2.205	8.0	PASS



(802.11g)

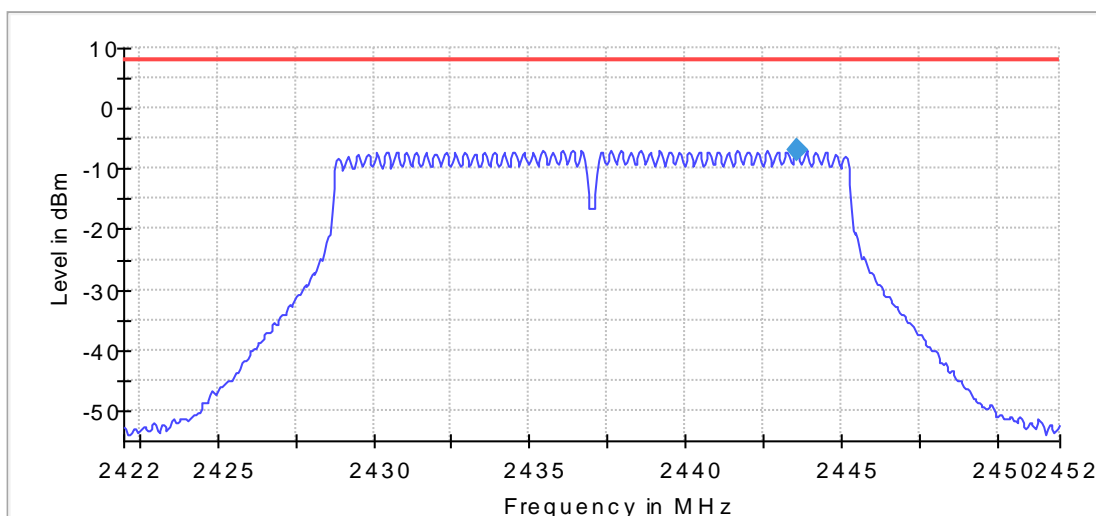
Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2412.000000	2418.575000	-6.657	8.0	PASS



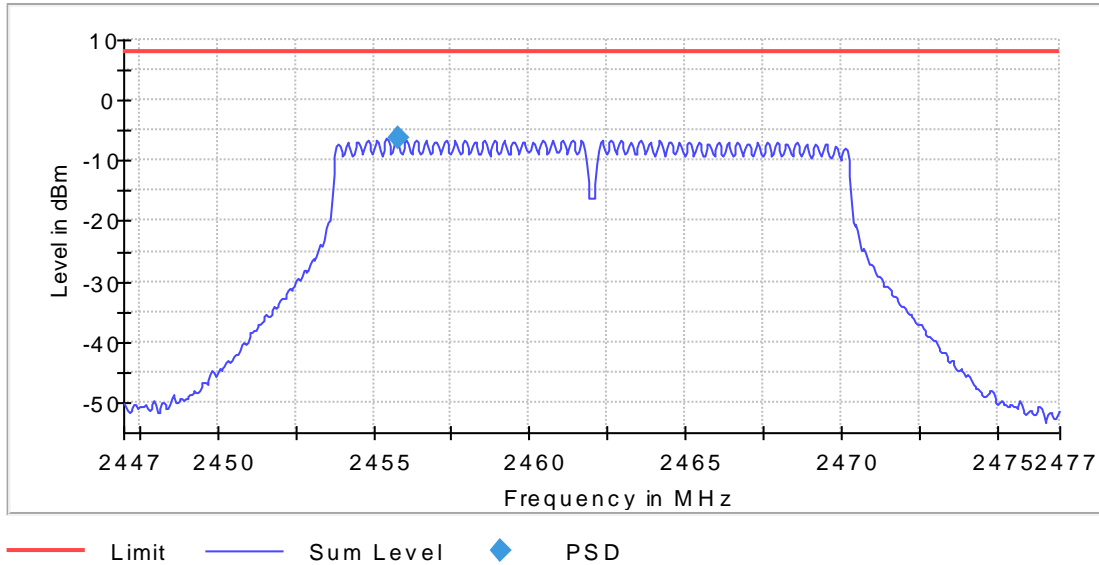
Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2437.000000	2443.575000	-6.777	8.0	PASS



Result

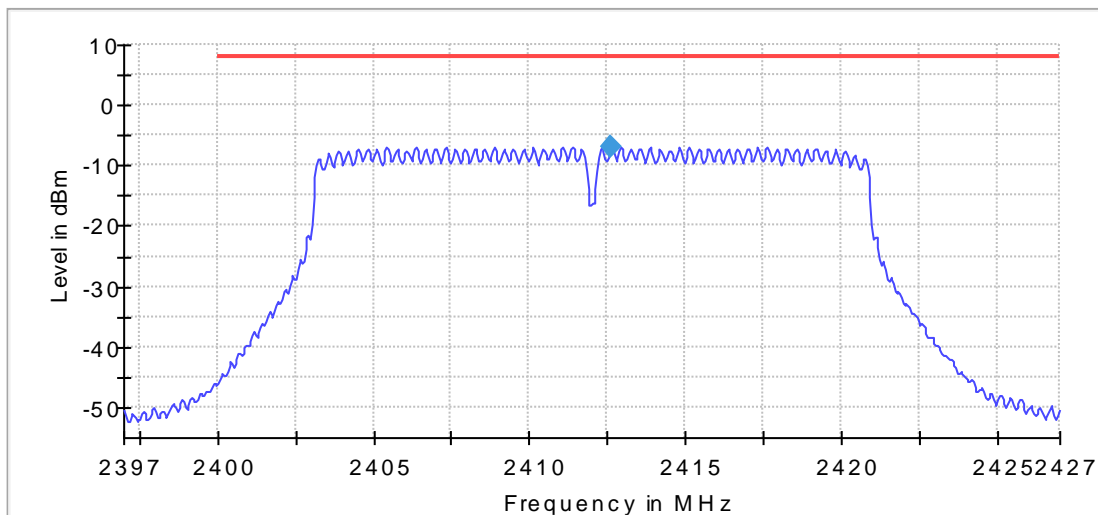
DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2462.000000	2455.775000	-6.364	8.0	PASS



(802.11n20)

Result

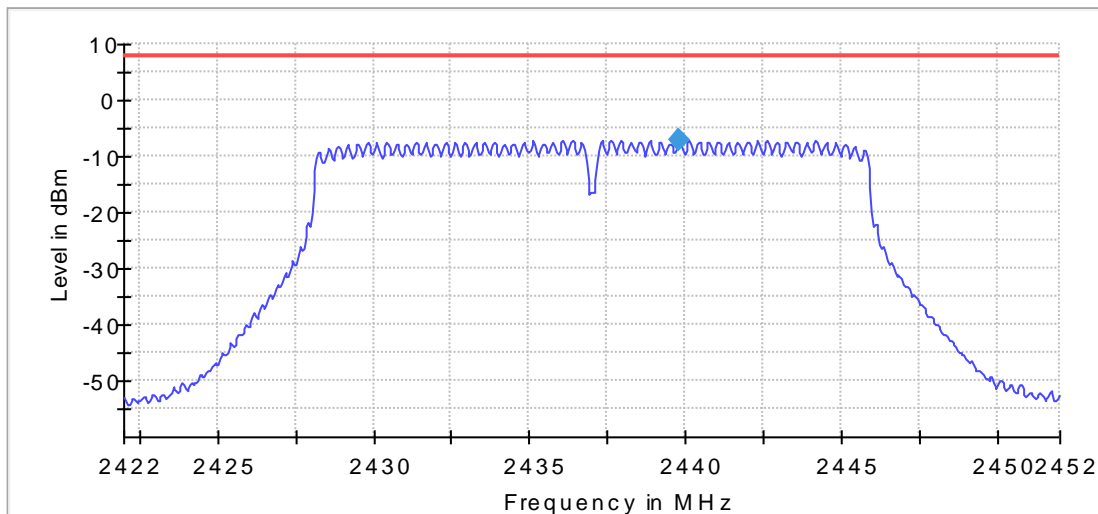
DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2412.000000	2412.625000	-6.870	8.0	PASS



— Limit — Sum Level ◆ PSD

Result

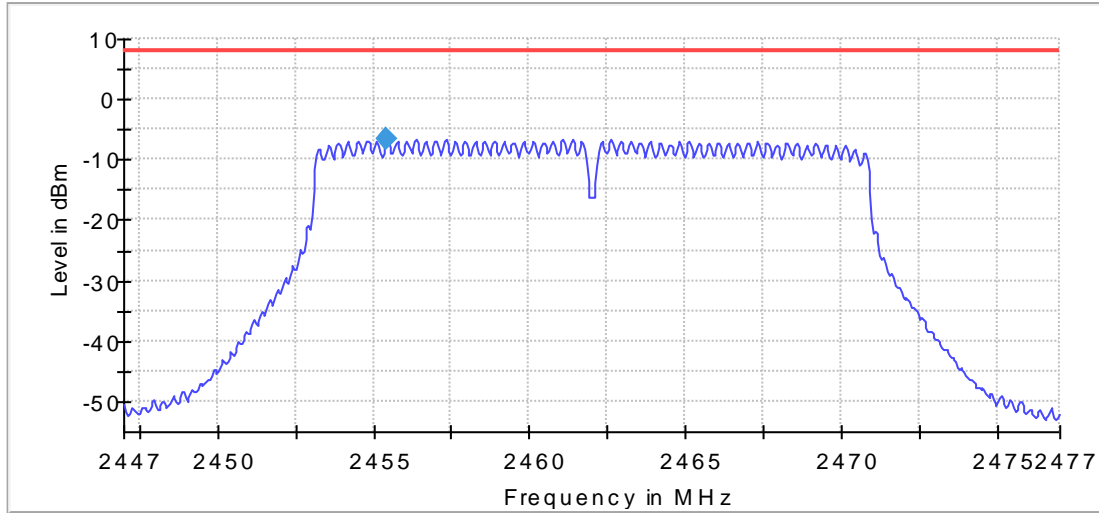
DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2437.000000	2439.825000	-7.092	8.0	PASS



— Limit — Sum Level ◆ PSD

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2462.000000	2455.425000	-6.642	8.0	PASS

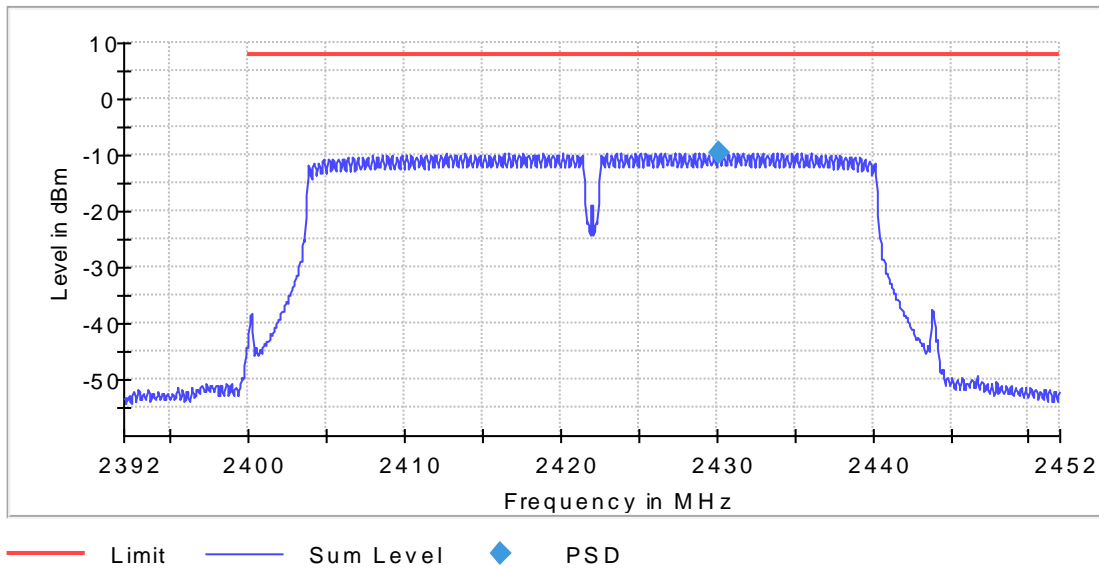


— Limit — Sum Level ◆ PSD

(802.11n40)

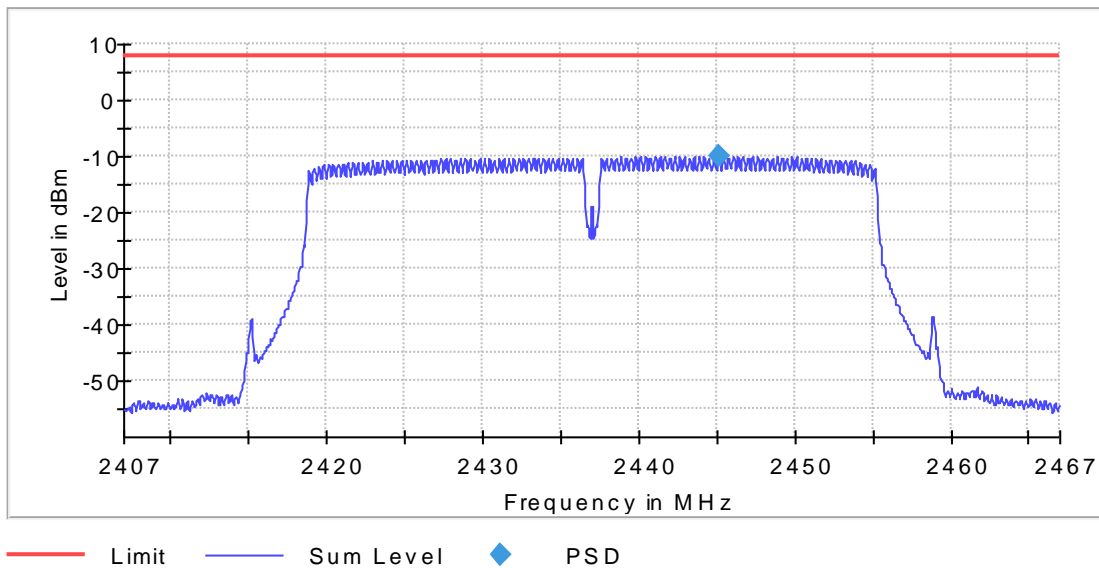
Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2422.000000	2430.125000	-9.536	8.0	PASS



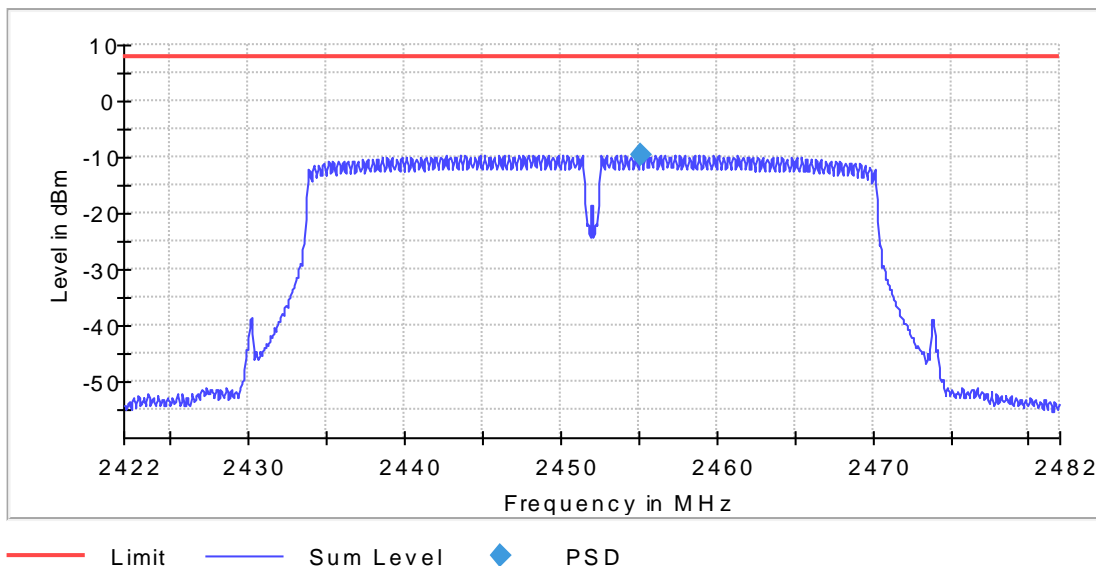
Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2437.000000	2445.125000	-9.954	8.0	PASS



Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2452.000000	2455.125000	-9.582	8.0	PASS



9.4 Band Edge

(802.11b)

Result

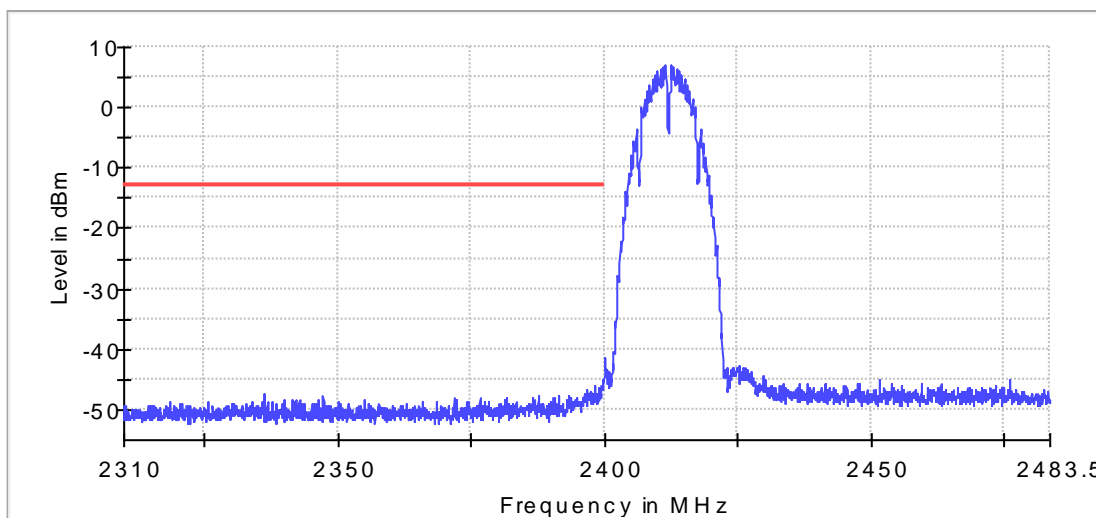
DUT Frequency (MHz)	Result
2412.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2411.525000	7.0

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.975000	-44.4	31.4	-13.0	PASS
2399.875000	-45.0	32.0	-13.0	PASS
2399.825000	-45.2	32.2	-13.0	PASS
2399.925000	-45.3	32.3	-13.0	PASS
2399.725000	-45.3	32.3	-13.0	PASS
2399.775000	-45.9	32.9	-13.0	PASS
2398.175000	-45.9	32.9	-13.0	PASS
2399.525000	-46.0	33.0	-13.0	PASS
2399.575000	-46.1	33.1	-13.0	PASS
2399.675000	-46.2	33.2	-13.0	PASS
2398.225000	-46.3	33.3	-13.0	PASS
2398.925000	-46.5	33.5	-13.0	PASS
2398.875000	-46.7	33.7	-13.0	PASS
2399.625000	-46.7	33.7	-13.0	PASS
2399.475000	-46.7	33.7	-13.0	PASS



— Limit — Sum Level × Fail

Result

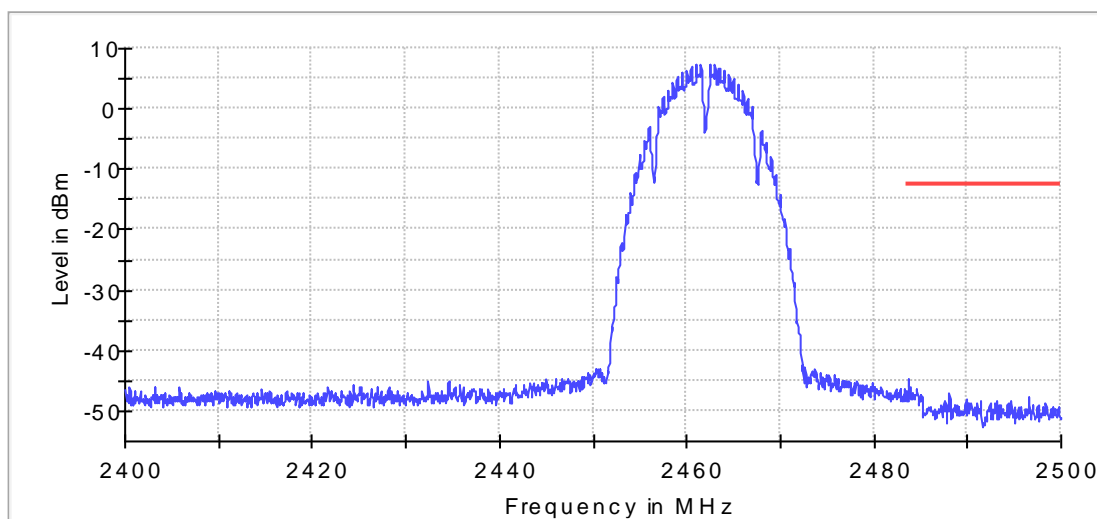
DUT Frequency (MHz)	Result
2462.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2462.525000	7.4

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2483.725000	-44.6	32.0	-12.6	PASS
2483.775000	-44.6	32.0	-12.6	PASS
2483.825000	-46.1	33.5	-12.6	PASS
2483.875000	-46.2	33.5	-12.6	PASS
2483.675000	-46.2	33.5	-12.6	PASS
2484.625000	-46.5	33.9	-12.6	PASS
2484.675000	-46.6	33.9	-12.6	PASS
2484.175000	-46.9	34.3	-12.6	PASS
2483.925000	-47.2	34.6	-12.6	PASS
2488.075000	-47.2	34.6	-12.6	PASS
2483.525000	-47.2	34.6	-12.6	PASS
2484.125000	-47.2	34.6	-12.6	PASS
2484.575000	-47.2	34.6	-12.6	PASS
2484.475000	-47.2	34.6	-12.6	PASS
2484.525000	-47.3	34.7	-12.6	PASS



— Limit — Sum Level × Fail

(802.11g)

Result

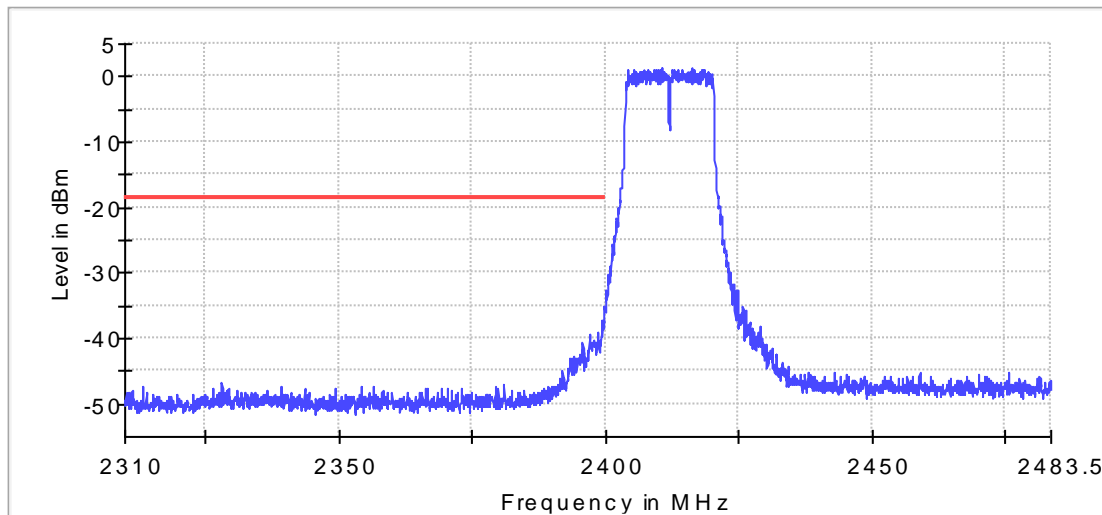
DUT Frequency (MHz)	Result
2412.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2416.175000	1.5

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.875000	-35.2	16.7	-18.5	PASS
2399.925000	-35.4	16.8	-18.5	PASS
2399.825000	-35.8	17.3	-18.5	PASS
2399.975000	-36.2	17.6	-18.5	PASS
2399.725000	-37.3	18.7	-18.5	PASS
2399.325000	-37.3	18.7	-18.5	PASS
2399.275000	-37.4	18.8	-18.5	PASS
2399.675000	-37.6	19.1	-18.5	PASS
2399.775000	-37.7	19.1	-18.5	PASS
2399.625000	-38.3	19.8	-18.5	PASS
2399.575000	-38.5	20.0	-18.5	PASS
2399.525000	-38.7	20.2	-18.5	PASS
2399.375000	-39.0	20.5	-18.5	PASS
2398.625000	-39.0	20.5	-18.5	PASS
2399.225000	-39.1	20.6	-18.5	PASS



— Limit — Sum Level × Fail

Result

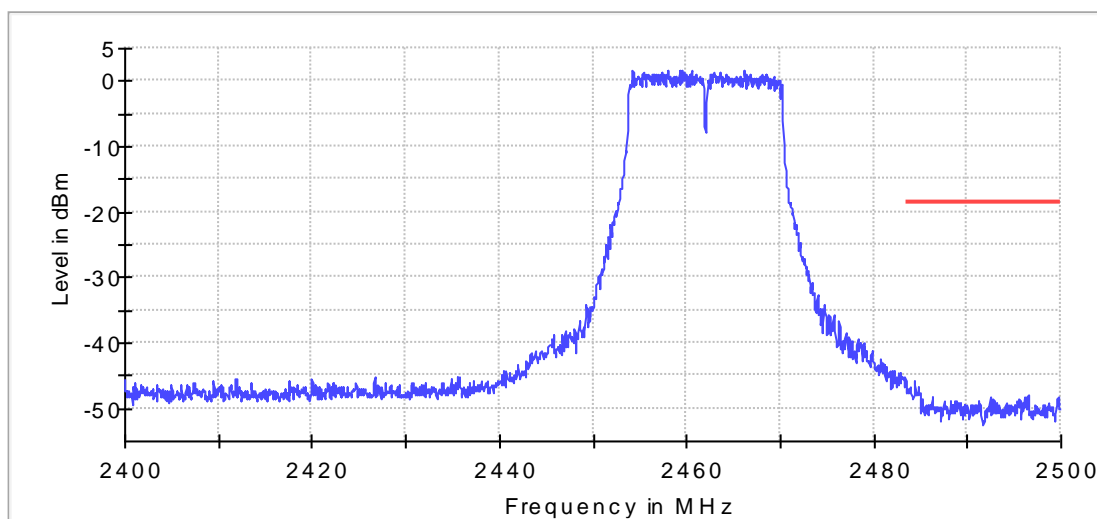
DUT Frequency (MHz)	Result
2462.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2466.175000	1.6

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2484.425000	-45.9	27.5	-18.4	PASS
2484.475000	-46.4	28.0	-18.4	PASS
2484.375000	-46.6	28.2	-18.4	PASS
2483.875000	-46.8	28.4	-18.4	PASS
2484.325000	-46.8	28.4	-18.4	PASS
2484.825000	-46.8	28.4	-18.4	PASS
2483.925000	-46.8	28.4	-18.4	PASS
2483.575000	-47.0	28.5	-18.4	PASS
2483.975000	-47.0	28.6	-18.4	PASS
2483.625000	-47.1	28.7	-18.4	PASS
2483.675000	-47.1	28.7	-18.4	PASS
2484.775000	-47.2	28.8	-18.4	PASS
2483.825000	-47.3	28.9	-18.4	PASS
2483.775000	-47.5	29.1	-18.4	PASS
2483.725000	-47.6	29.1	-18.4	PASS



— Limit — Sum Level × Fail

(802.11n20)

Result

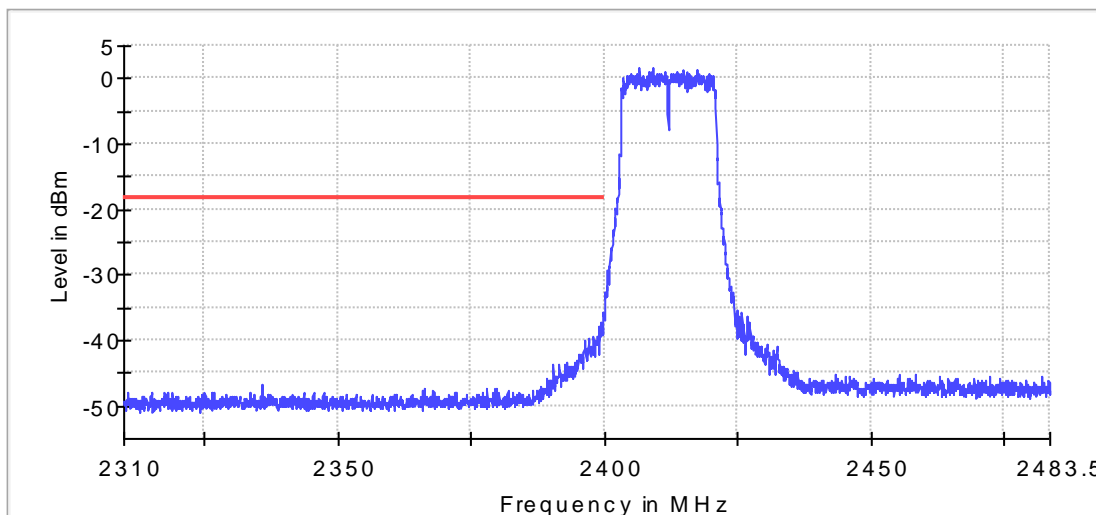
DUT Frequency (MHz)	Result
2412.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2409.125000	1.8

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.875000	-35.7	17.5	-18.2	PASS
2399.925000	-36.1	17.9	-18.2	PASS
2399.825000	-36.3	18.1	-18.2	PASS
2399.975000	-36.9	18.7	-18.2	PASS
2399.325000	-37.2	19.0	-18.2	PASS
2399.275000	-37.7	19.4	-18.2	PASS
2399.375000	-37.7	19.4	-18.2	PASS
2398.875000	-37.9	19.7	-18.2	PASS
2398.925000	-38.0	19.8	-18.2	PASS
2399.225000	-38.1	19.9	-18.2	PASS
2399.575000	-38.2	20.0	-18.2	PASS
2399.775000	-38.2	20.0	-18.2	PASS
2399.675000	-38.4	20.1	-18.2	PASS
2399.625000	-38.5	20.3	-18.2	PASS
2399.425000	-38.9	20.6	-18.2	PASS



— Limit — Sum Level × Fail

Result

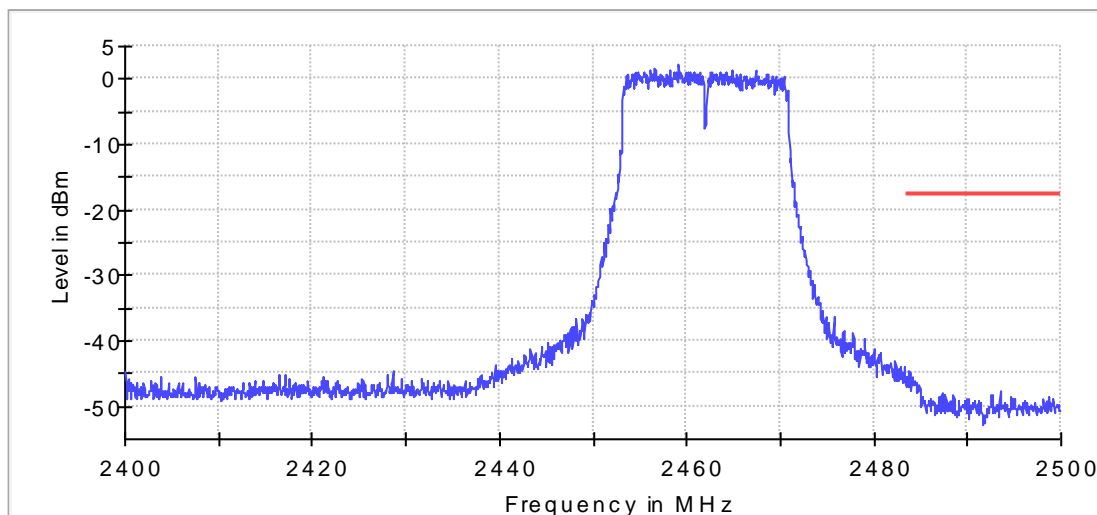
DUT Frequency (MHz)	Result
2462.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2459.125000	2.2

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2483.825000	-44.7	26.9	-17.8	PASS
2483.875000	-44.9	27.1	-17.8	PASS
2484.125000	-45.4	27.7	-17.8	PASS
2483.625000	-45.5	27.7	-17.8	PASS
2484.075000	-45.6	27.9	-17.8	PASS
2483.575000	-45.9	28.1	-17.8	PASS
2484.475000	-46.2	28.4	-17.8	PASS
2484.425000	-46.2	28.4	-17.8	PASS
2484.175000	-46.3	28.5	-17.8	PASS
2483.925000	-46.4	28.7	-17.8	PASS
2484.575000	-46.5	28.8	-17.8	PASS
2483.775000	-46.6	28.8	-17.8	PASS
2484.625000	-46.6	28.8	-17.8	PASS
2484.525000	-46.7	28.9	-17.8	PASS
2484.375000	-46.7	29.0	-17.8	PASS



— Limit — Sum Level × Fail

(802.11n40)

Result

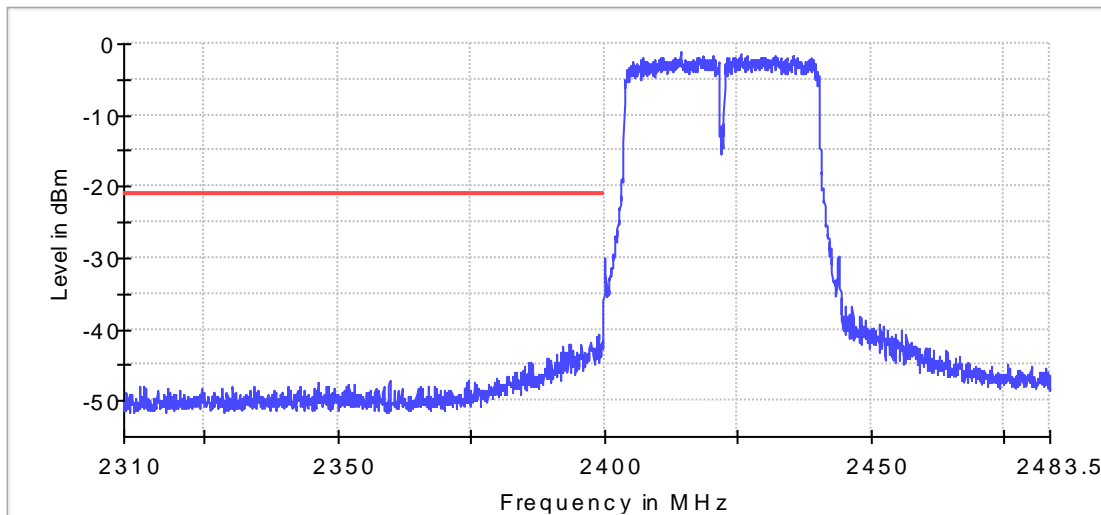
DUT Frequency (MHz)	Result
2422.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2414.275000	-1.1

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.975000	-35.1	14.0	-21.1	PASS
2399.925000	-36.0	14.8	-21.1	PASS
2399.875000	-36.4	15.3	-21.1	PASS
2399.825000	-37.2	16.1	-21.1	PASS
2399.775000	-39.0	17.9	-21.1	PASS
2399.725000	-39.9	18.8	-21.1	PASS
2398.875000	-40.7	19.6	-21.1	PASS
2398.575000	-41.0	19.9	-21.1	PASS
2398.825000	-41.4	20.3	-21.1	PASS
2398.525000	-41.6	20.4	-21.1	PASS
2399.575000	-41.6	20.5	-21.1	PASS
2397.325000	-41.8	20.7	-21.1	PASS
2399.675000	-41.8	20.7	-21.1	PASS
2398.925000	-41.8	20.7	-21.1	PASS
2395.775000	-42.0	20.8	-21.1	PASS



— Limit — Sum Level × Fail

Result

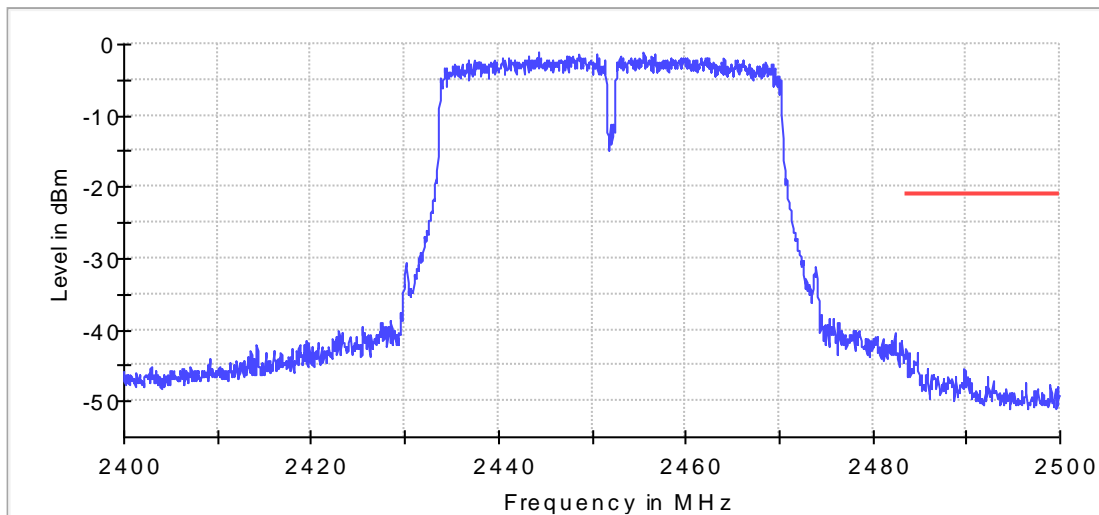
DUT Frequency (MHz)	Result
2452.000000	PASS

Inband Peak

Frequency (MHz)	Level (dBm)
2455.525000	-1.1

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2483.575000	-42.7	21.6	-21.1	PASS
2483.625000	-43.1	22.0	-21.1	PASS
2483.525000	-43.2	22.0	-21.1	PASS
2483.875000	-43.2	22.0	-21.1	PASS
2484.775000	-43.2	22.1	-21.1	PASS
2484.825000	-43.4	22.2	-21.1	PASS
2483.925000	-43.7	22.6	-21.1	PASS
2484.725000	-44.3	23.1	-21.1	PASS
2484.475000	-44.4	23.3	-21.1	PASS
2484.525000	-44.6	23.5	-21.1	PASS
2483.825000	-44.7	23.5	-21.1	PASS
2484.425000	-44.7	23.6	-21.1	PASS
2484.625000	-44.9	23.7	-21.1	PASS
2484.575000	-44.9	23.8	-21.1	PASS
2484.675000	-44.9	23.8	-21.1	PASS



— Limit — Sum Level × Fail

9.5 Conducted Spurious Emissions

(802.11b)

Result

DUT Frequency (MHz)	Result
2412.000000	PASS

Final measurements

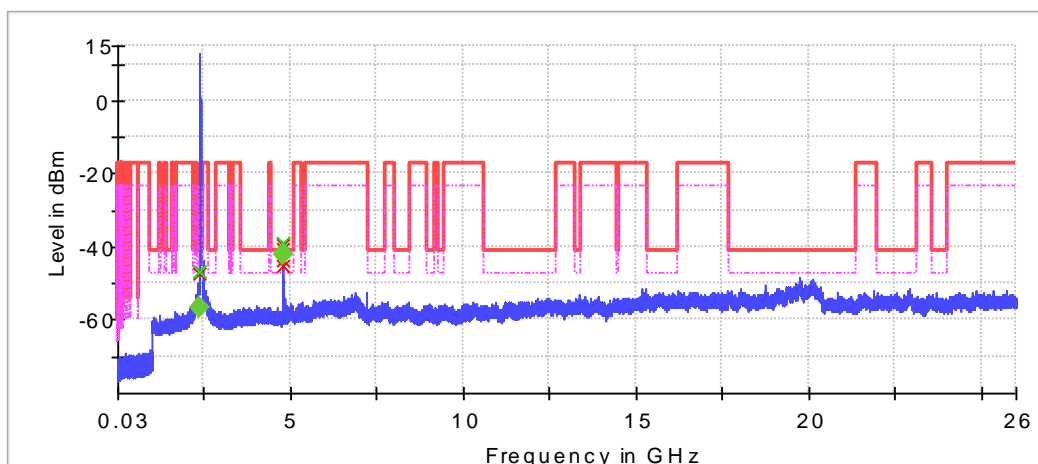
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2387.750000	-46.7	-56.7	-41.2	15.5	PASS
4824.250000	-39.2	-42.1	-41.2	0.9	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4824.250000	-39.2	-2.0	-41.2
4824.750000	-39.6	-1.6	-41.2
4823.750000	-40.4	-0.8	-41.2
4825.250000	-43.6	2.4	-41.2
4823.250000	-45.2	4.0	-41.2
2387.750000	-46.7	5.5	-41.2
2389.250000	-47.1	5.9	-41.2
2386.750000	-47.3	6.1	-41.2
2388.750000	-47.5	6.3	-41.2
2384.250000	-47.6	6.4	-41.2
2387.250000	-47.7	6.5	-41.2
2383.750000	-47.7	6.5	-41.2
2385.750000	-48.0	6.8	-41.2
2388.250000	-48.0	6.8	-41.2
4825.750000	-48.1	6.9	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2



— Limit — Sum Level - - - Threshold X Critical
X Final Critical ◆ Fail ◆ Pass

Result

DUT Frequency (MHz)	Result
2437.000000	PASS

Final measurements

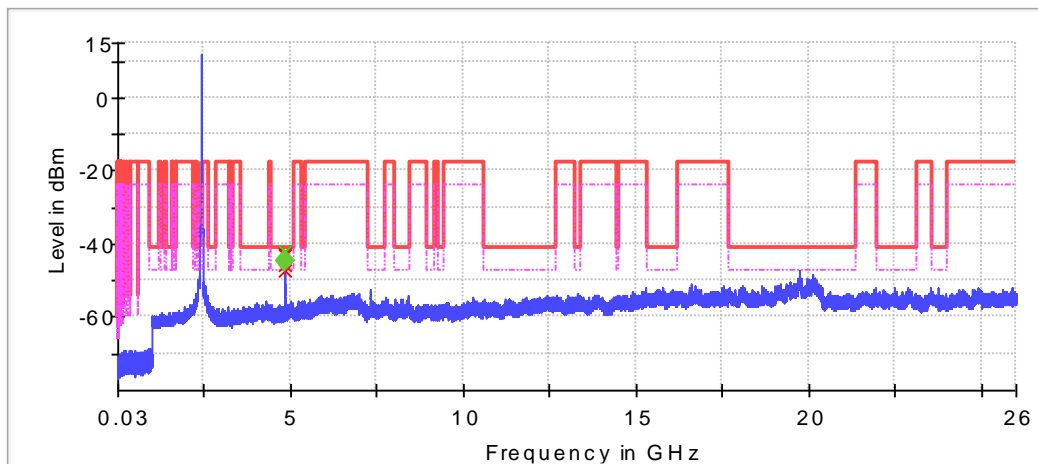
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
4874.250000	-41.9	-44.6	-41.2	3.4	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4874.250000	-41.9	0.7	-41.2
4874.750000	-42.6	1.4	-41.2
4873.750000	-43.1	1.9	-41.2
4875.250000	-45.7	4.5	-41.2
4873.250000	-47.1	5.9	-41.2
19746.250000	-47.2	6.0	-41.2
19745.750000	-47.2	6.0	-41.2
2483.750000	-47.3	6.1	-41.2
2387.750000	-48.3	7.1	-41.2
20102.750000	-48.5	7.3	-41.2
19751.750000	-48.8	7.6	-41.2
19752.250000	-48.9	7.7	-41.2
19761.250000	-49.0	7.8	-41.2
2385.750000	-49.2	8.0	-41.2
19743.250000	-49.2	8.0	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2



x Limit Final Critical
 ◆ Sum Level Fail
 ◆ Threshold Pass
 x Critical

Result

DUT Frequency (MHz)	Result
2462.000000	PASS

Final measurements

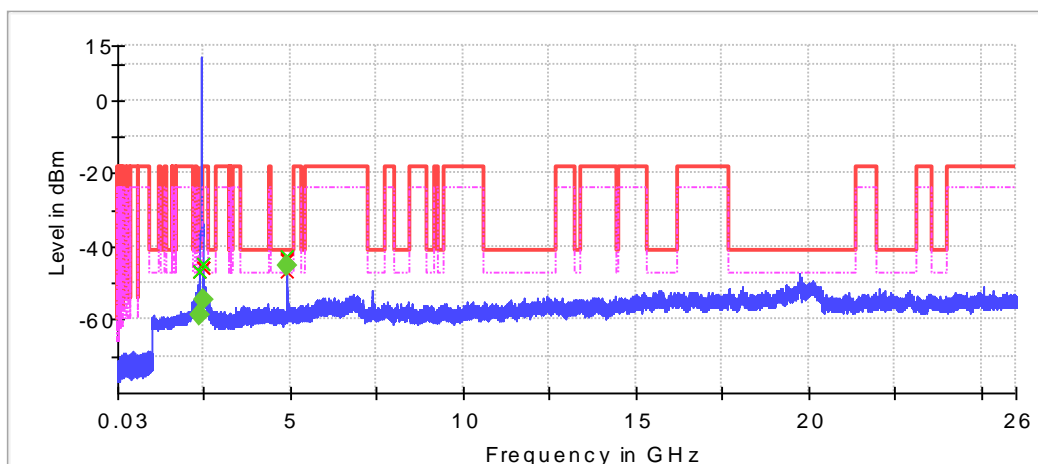
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2382.750000	-46.8	-58.5	-41.2	17.3	PASS
2483.750000	-44.9	-54.6	-41.2	13.4	PASS
4924.250000	-42.4	-45.2	-41.2	4.0	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4924.250000	-42.4	1.2	-41.2
4924.750000	-43.2	2.0	-41.2
4923.750000	-43.5	2.3	-41.2
2483.750000	-44.9	3.7	-41.2
2484.750000	-45.7	4.5	-41.2
2484.250000	-45.9	4.7	-41.2
2382.750000	-46.8	5.6	-41.2
4925.250000	-46.8	5.6	-41.2
2383.250000	-46.9	5.7	-41.2
19732.250000	-47.5	6.3	-41.2
2485.750000	-47.6	6.4	-41.2
2383.750000	-47.7	6.5	-41.2
2487.250000	-48.0	6.8	-41.2
2486.750000	-48.1	6.9	-41.2
4923.250000	-48.2	7.0	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2



— Limit — Sum Level — Threshold × Critical
× Final Critical ◆ Fail ◆ Pass

(802.11g)

Result

DUT Frequency (MHz)	Result
2412.000000	PASS

Final measurements

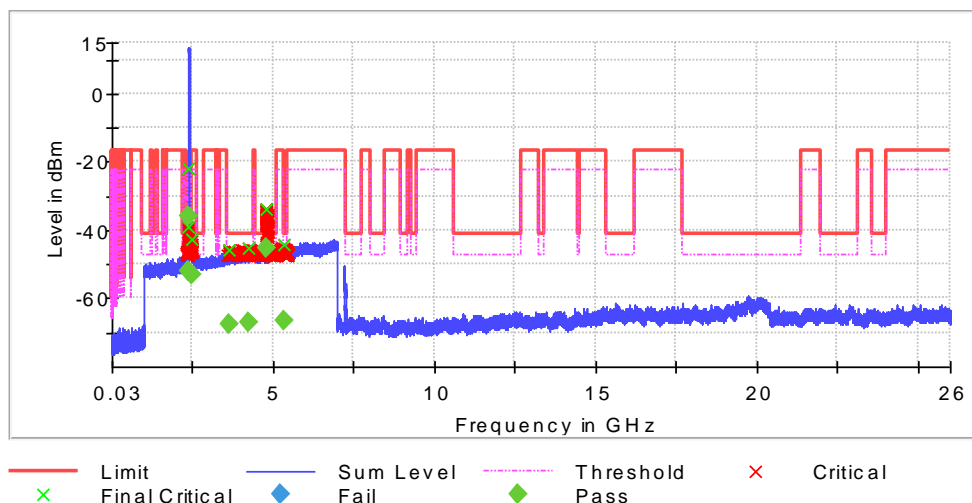
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2389.750000	-39.1	-52.2	-41.2	11.0	PASS
2399.750000	-21.6	-36.1	-16.6	19.5	PASS
2484.750000	-42.4	-53.2	-41.2	12.0	PASS
3652.750000	-45.9	-67.7	-41.2	26.5	PASS
4259.250000	-45.1	-67.2	-41.2	26.0	PASS
4824.750000	-33.8	-45.0	-41.2	3.8	PASS
5371.250000	-44.3	-66.6	-41.2	25.4	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4824.750000	-33.8	-7.4	-41.2
4825.250000	-33.9	-7.3	-41.2
4820.750000	-33.9	-7.3	-41.2
4827.750000	-34.1	-7.1	-41.2
4825.750000	-34.1	-7.1	-41.2
4827.250000	-34.4	-6.8	-41.2
4826.750000	-34.5	-6.7	-41.2
4826.250000	-35.0	-6.2	-41.2
4820.250000	-35.0	-6.2	-41.2
4813.250000	-35.2	-6.0	-41.2
4813.750000	-35.4	-5.8	-41.2
4822.750000	-35.4	-5.8	-41.2
4834.750000	-35.5	-5.7	-41.2
4821.750000	-35.6	-5.6	-41.2
4824.250000	-35.6	-5.6	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2



Result

DUT Frequency (MHz)	Result
2437.000000	PASS

Final measurements

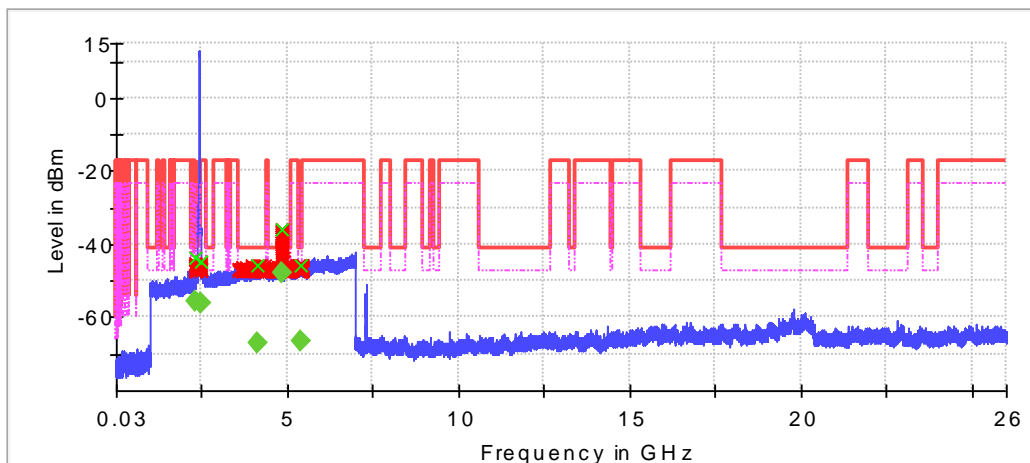
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2354.250000	-43.4	-55.8	-41.2	14.6	PASS
2483.750000	-44.9	-56.3	-41.2	15.1	PASS
4157.250000	-45.6	-67.1	-41.2	25.9	PASS
4877.250000	-36.0	-47.7	-41.2	6.5	PASS
5418.250000	-45.7	-66.5	-41.2	25.3	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4877.250000	-36.0	-5.2	-41.2
4875.250000	-36.1	-5.1	-41.2
4875.750000	-36.4	-4.8	-41.2
4873.250000	-36.4	-4.8	-41.2
4870.250000	-36.5	-4.7	-41.2
4876.250000	-36.6	-4.6	-41.2
4874.750000	-36.7	-4.5	-41.2
4870.750000	-36.8	-4.4	-41.2
4879.250000	-37.1	-4.1	-41.2
4867.750000	-37.3	-3.9	-41.2
4877.750000	-37.4	-3.8	-41.2
4871.750000	-37.4	-3.8	-41.2
4876.750000	-37.4	-3.8	-41.2
4871.250000	-37.5	-3.7	-41.2
4885.250000	-37.7	-3.5	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2



— Limit — Sum Level - - - Threshold × Critical
× Final Critical ◆ Fail ◆ Pass

Result

DUT Frequency (MHz)	Result
2462.000000	PASS

Final measurements

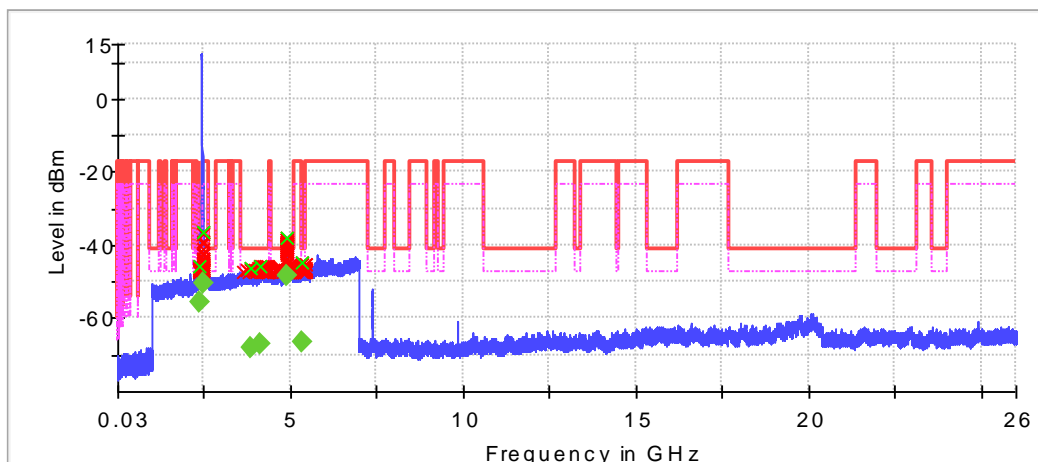
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2388.750000	-45.9	-55.5	-41.2	14.3	PASS
2483.750000	-36.4	-50.5	-41.2	9.3	PASS
3878.750000	-46.4	-67.9	-41.2	26.7	PASS
4169.750000	-45.7	-67.1	-41.2	25.9	PASS
4925.250000	-37.9	-48.5	-41.2	7.3	PASS
5377.750000	-44.8	-66.6	-41.2	25.4	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2483.750000	-36.4	-4.8	-41.2
2484.750000	-37.0	-4.2	-41.2
4925.250000	-37.9	-3.3	-41.2
4916.750000	-38.6	-2.6	-41.2
4923.250000	-38.6	-2.6	-41.2
4913.750000	-38.7	-2.5	-41.2
4924.750000	-38.8	-2.4	-41.2
4917.750000	-39.0	-2.2	-41.2
2484.250000	-39.2	-2.0	-41.2
4925.750000	-39.3	-1.9	-41.2
4926.250000	-39.4	-1.8	-41.2
2486.750000	-39.4	-1.8	-41.2
4922.750000	-39.4	-1.8	-41.2
4918.250000	-39.5	-1.7	-41.2
4915.250000	-39.6	-1.6	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2



— Limit — Sum Level - - - Threshold X Critical
X Final Critical ◆ Fail ◆ Pass

(802.11n20)

Result

DUT Frequency (MHz)	Result
2412.000000	PASS

Final measurements

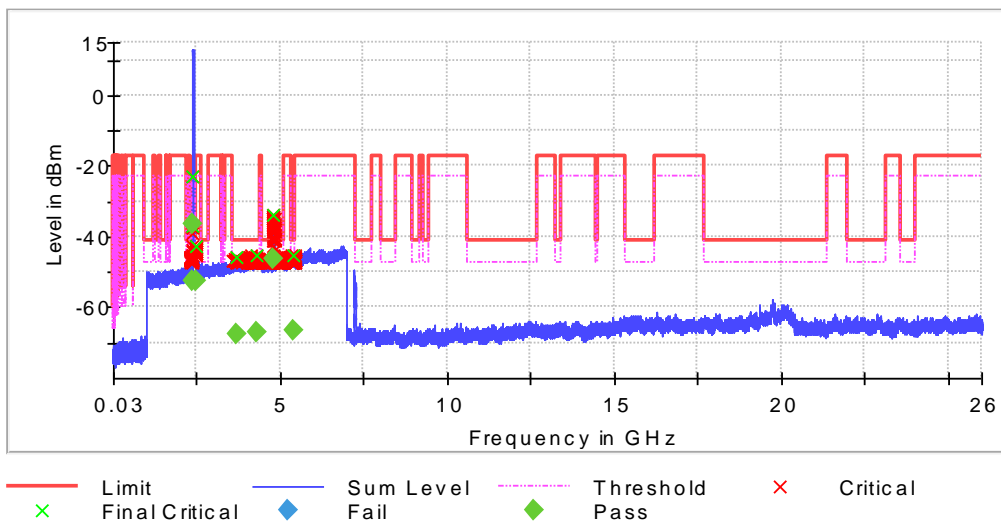
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2389.250000	-36.8	-52.4	-41.2	11.2	PASS
2399.750000	-23.0	-36.5	-17.1	19.4	PASS
2484.750000	-42.6	-52.7	-41.2	11.5	PASS
3726.250000	-45.6	-67.6	-41.2	26.4	PASS
4316.250000	-45.4	-67.2	-41.2	26.0	PASS
4822.750000	-33.8	-46.3	-41.2	5.1	PASS
5391.250000	-45.2	-66.5	-41.2	25.3	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4822.750000	-33.8	-7.4	-41.2
4818.250000	-34.0	-7.2	-41.2
4824.250000	-34.1	-7.1	-41.2
4823.750000	-34.2	-7.0	-41.2
4822.250000	-34.4	-6.8	-41.2
4820.750000	-34.5	-6.7	-41.2
4833.250000	-34.6	-6.6	-41.2
4817.750000	-34.6	-6.6	-41.2
4828.750000	-34.6	-6.6	-41.2
4820.250000	-34.7	-6.5	-41.2
4835.250000	-34.7	-6.5	-41.2
4818.750000	-34.7	-6.5	-41.2
4827.750000	-34.7	-6.5	-41.2
4830.250000	-34.8	-6.4	-41.2
4824.750000	-34.9	-6.3	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2



Result

DUT Frequency (MHz)	Result
2437.000000	PASS

Final measurements

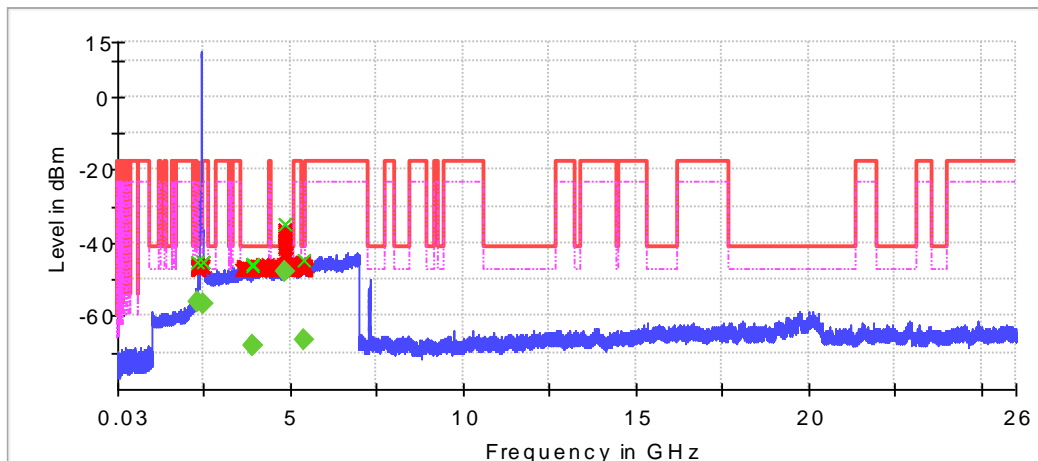
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2358.750000	-45.1	-56.1	-41.2	14.9	PASS
2483.750000	-45.0	-56.5	-41.2	15.3	PASS
3915.750000	-46.3	-67.9	-41.2	26.7	PASS
3940.750000	-45.7	-67.8	-41.2	26.6	PASS
4872.750000	-34.8	-47.9	-41.2	6.7	PASS
5416.750000	-44.9	-66.5	-41.2	25.3	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4872.750000	-34.8	-6.4	-41.2
4869.750000	-36.3	-4.9	-41.2
4865.750000	-36.4	-4.8	-41.2
4875.750000	-36.4	-4.8	-41.2
4870.250000	-36.4	-4.8	-41.2
4870.750000	-36.4	-4.8	-41.2
4874.250000	-36.4	-4.8	-41.2
4868.750000	-36.5	-4.7	-41.2
4873.750000	-36.6	-4.6	-41.2
4868.250000	-36.7	-4.5	-41.2
4874.750000	-36.9	-4.3	-41.2
4885.250000	-37.0	-4.2	-41.2
4875.250000	-37.2	-4.0	-41.2
4869.250000	-37.2	-4.0	-41.2
4871.750000	-37.2	-4.0	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2



— Limit — Sum Level - - - Threshold X Critical
X Final Critical ◆ Fail ◆ Pass

Result

DUT Frequency (MHz)	Result
2462.000000	PASS

Final measurements

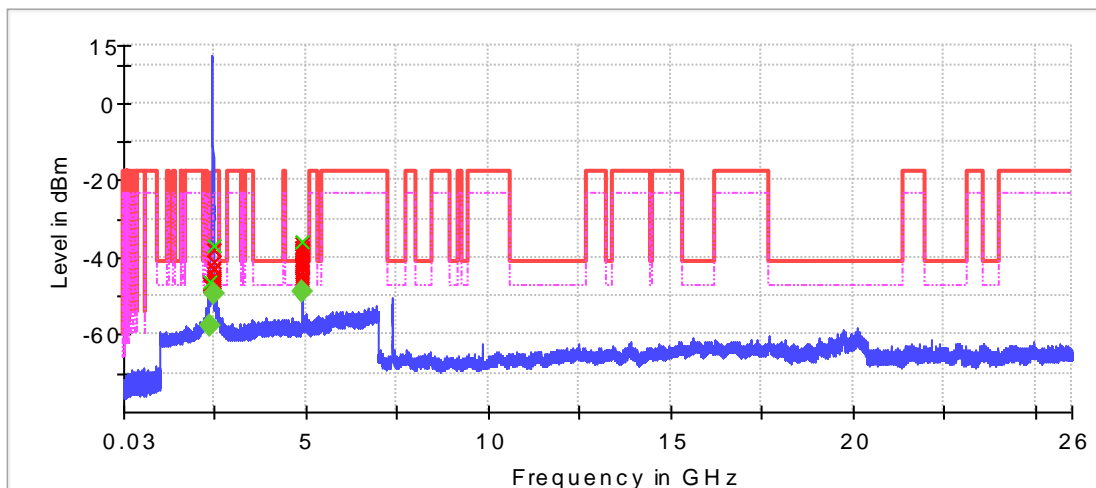
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2379.250000	-46.3	-57.6	-41.2	16.4	PASS
2483.750000	-36.7	-49.5	-41.2	8.3	PASS
4922.750000	-35.7	-49.1	-41.2	7.9	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4922.750000	-35.7	-5.5	-41.2
4922.250000	-36.2	-5.0	-41.2
4924.250000	-36.5	-4.7	-41.2
4925.750000	-36.6	-4.6	-41.2
2483.750000	-36.7	-4.5	-41.2
4924.750000	-37.2	-4.0	-41.2
4920.250000	-37.3	-3.9	-41.2
4921.250000	-37.4	-3.8	-41.2
4918.750000	-37.4	-3.8	-41.2
4920.750000	-37.5	-3.7	-41.2
4923.750000	-37.6	-3.6	-41.2
2484.250000	-37.8	-3.4	-41.2
4918.250000	-37.8	-3.4	-41.2
4925.250000	-37.8	-3.4	-41.2
2484.750000	-37.9	-3.3	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2



— Limit — Sum Level - - - Threshold × Critical
× Final Critical ◆ Fail ◆ Pass

(802.11n40)

Result

DUT Frequency (MHz)	Result
2422.000000	PASS

Final measurements

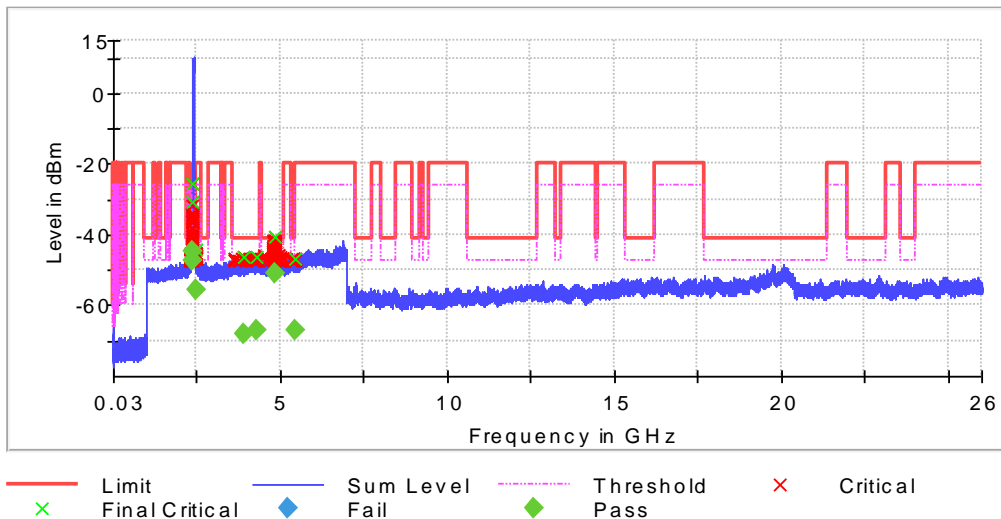
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2389.250000	-30.5	-47.2	-41.2	6.0	PASS
2393.750000	-25.5	-44.5	-19.9	24.6	PASS
2483.750000	-44.3	-55.6	-41.2	14.4	PASS
3913.250000	-46.3	-68.0	-41.2	26.8	PASS
4292.250000	-46.2	-67.2	-41.2	26.0	PASS
4844.250000	-40.6	-50.8	-41.2	9.6	PASS
5452.750000	-46.6	-66.8	-41.2	25.6	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2389.250000	-30.5	-10.7	-41.2
2388.750000	-31.8	-9.4	-41.2
2386.750000	-33.7	-7.5	-41.2
2386.250000	-34.3	-6.9	-41.2
2388.250000	-34.4	-6.8	-41.2
2389.750000	-34.5	-6.7	-41.2
2381.750000	-34.6	-6.6	-41.2
2382.250000	-34.7	-6.5	-41.2
2385.750000	-34.8	-6.4	-41.2
2384.750000	-34.8	-6.4	-41.2
2378.750000	-35.3	-5.9	-41.2
2379.250000	-35.3	-5.9	-41.2
2387.250000	-35.5	-5.7	-41.2
2387.750000	-35.6	-5.6	-41.2
2385.250000	-35.7	-5.5	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2



Result

DUT Frequency (MHz)	Result
2437.000000	PASS

Final measurements

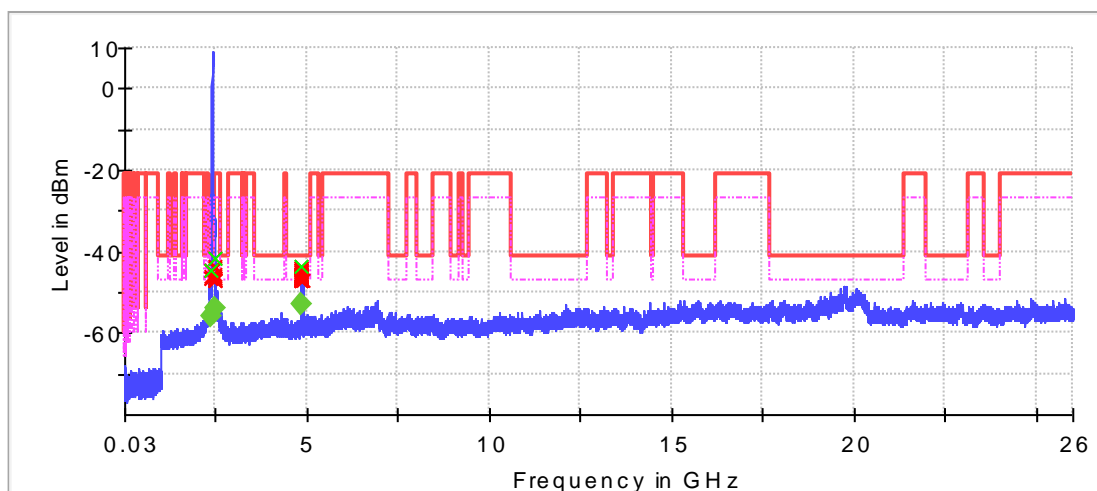
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2388.750000	-44.5	-56.0	-41.2	14.8	PASS
2484.750000	-41.8	-53.9	-41.2	12.7	PASS
4873.750000	-43.8	-53.0	-41.2	11.8	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2484.750000	-41.8	0.6	-41.2
2483.750000	-43.7	2.5	-41.2
4873.750000	-43.8	2.6	-41.2
4874.250000	-43.9	2.7	-41.2
4873.250000	-43.9	2.7	-41.2
2484.250000	-44.1	2.9	-41.2
4872.750000	-44.3	3.1	-41.2
2388.750000	-44.5	3.3	-41.2
4884.250000	-44.5	3.3	-41.2
4867.250000	-44.7	3.5	-41.2
4879.750000	-44.7	3.5	-41.2
2389.750000	-44.8	3.6	-41.2
4879.250000	-44.8	3.6	-41.2
4871.750000	-44.8	3.6	-41.2
4859.750000	-44.8	3.6	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2



— Limit — Sum Level --- Threshold X Critical
X Final Critical ◆ Fail ◆ Pass

Result

DUT Frequency (MHz)	Result
2452.000000	PASS

Final measurements

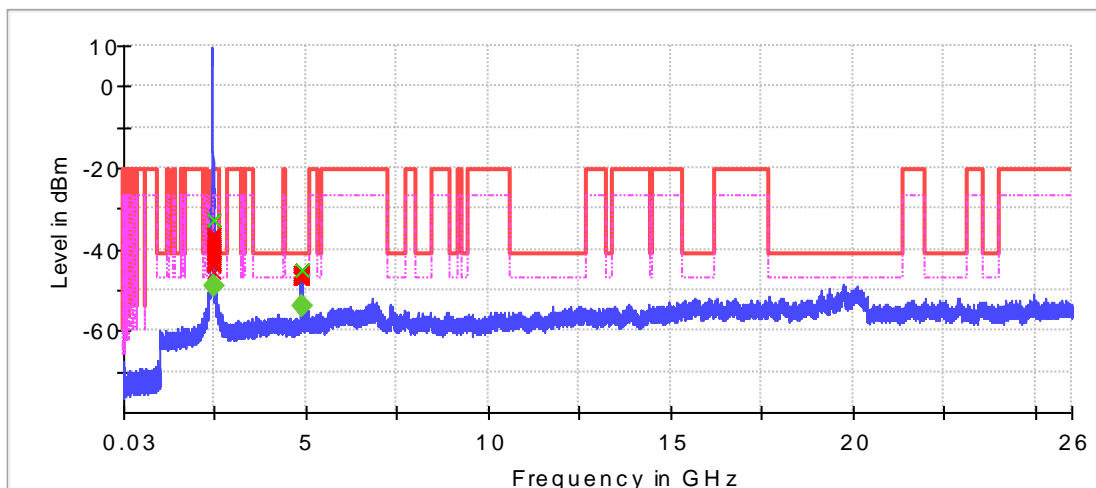
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2486.750000	-32.6	-49.2	-41.2	8.0	PASS
4903.750000	-44.9	-53.9	-41.2	12.7	PASS

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2486.750000	-32.6	-8.6	-41.2
2483.750000	-32.7	-8.5	-41.2
2488.750000	-36.0	-5.2	-41.2
2484.750000	-36.3	-4.9	-41.2
2486.250000	-36.7	-4.5	-41.2
2485.250000	-37.0	-4.2	-41.2
2484.250000	-37.1	-4.1	-41.2
2489.750000	-37.9	-3.3	-41.2
2485.750000	-38.4	-2.8	-41.2
2489.250000	-38.7	-2.5	-41.2
2487.750000	-38.8	-2.4	-41.2
2490.750000	-39.3	-1.9	-41.2
2493.750000	-39.7	-1.5	-41.2
2487.250000	-40.2	-1.0	-41.2
2491.750000	-40.4	-0.8	-41.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	1000.000000	1	1
1000.000000	2400.000000	2	2
2400.000000	2483.500000	2	2
2483.500000	7000.000000	2	2
7000.000000	18000.000000	2	2
18000.000000	26000.000000	2	2



— Limit — Sum Level - - - Threshold X Critical
X Final Critical ◆ Fail ◆ Pass

9.6 99% Occupied Bandwidth

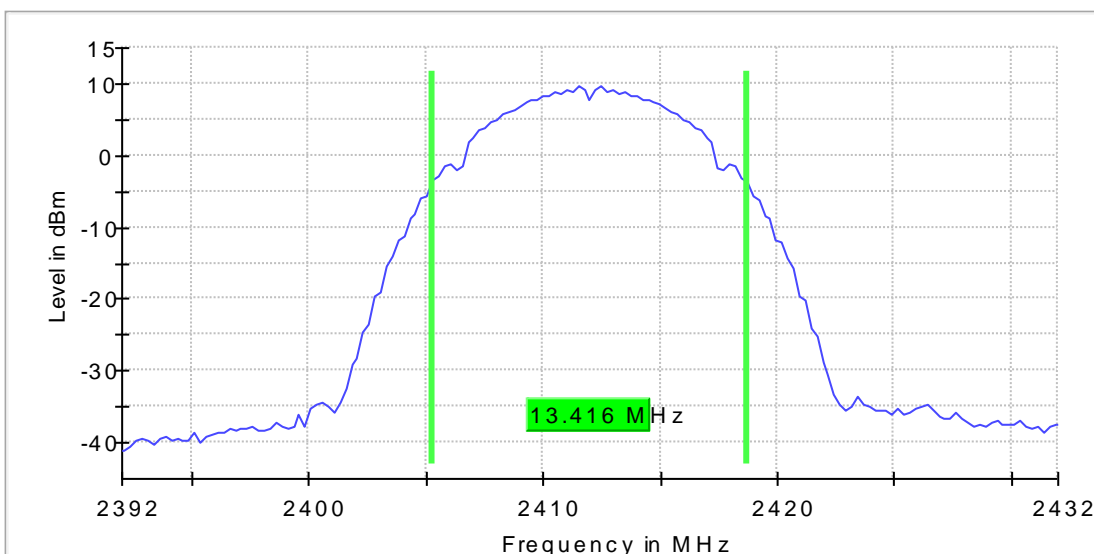
Remark: 500kHz of RBW was used for 802.11b, 802.11g and 802.11n (20MHz)
 1MHz of RBW was used for 802.11 (40MHz)

Measurement

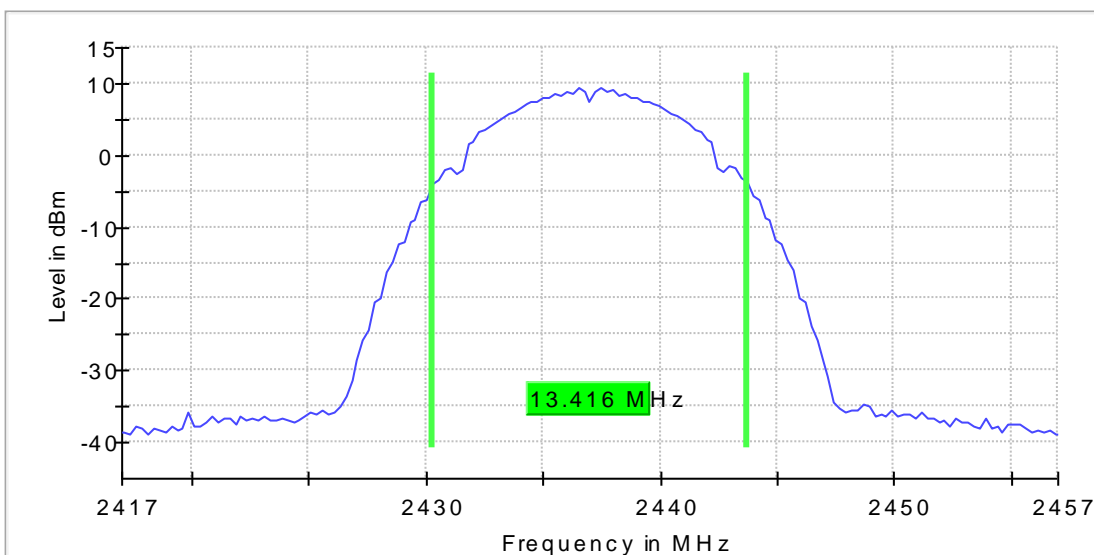
802.11b

Channel (MHz)	Bandwidth (MHz)
2412	13.4
2437	13.4
2462	13.4

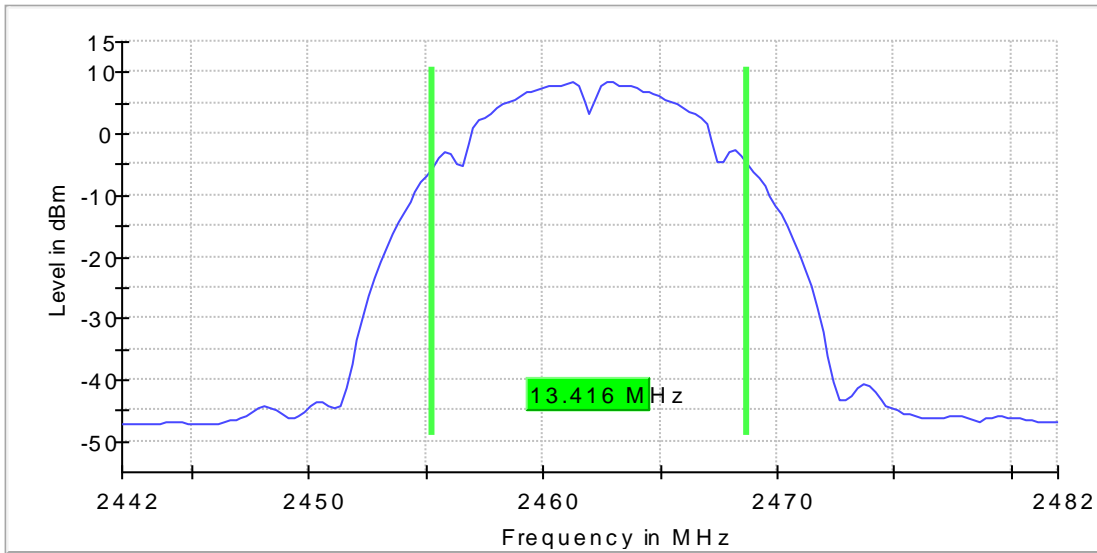
Lowest Channel



Middle Channel



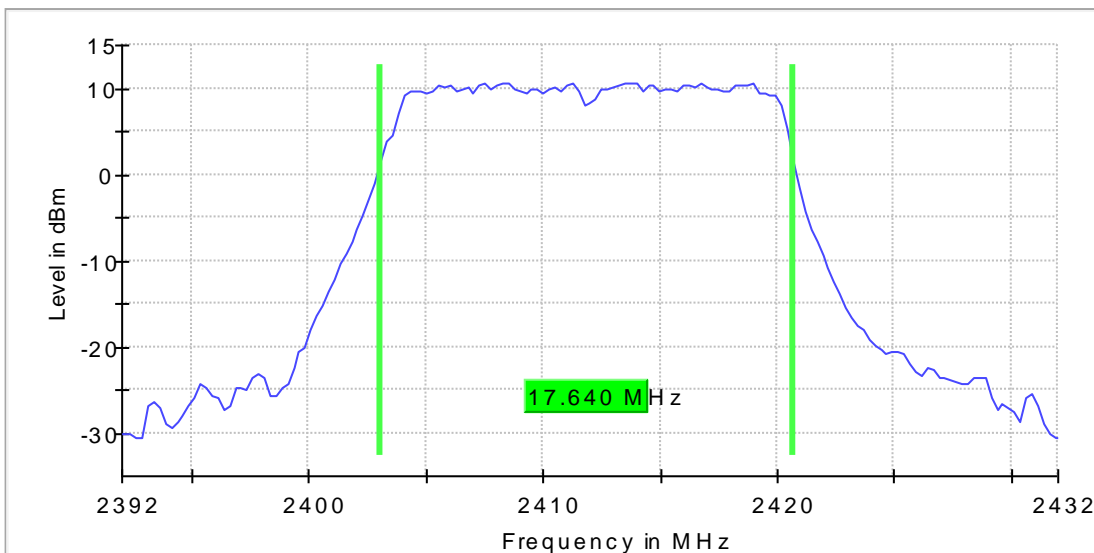
Highest Channel



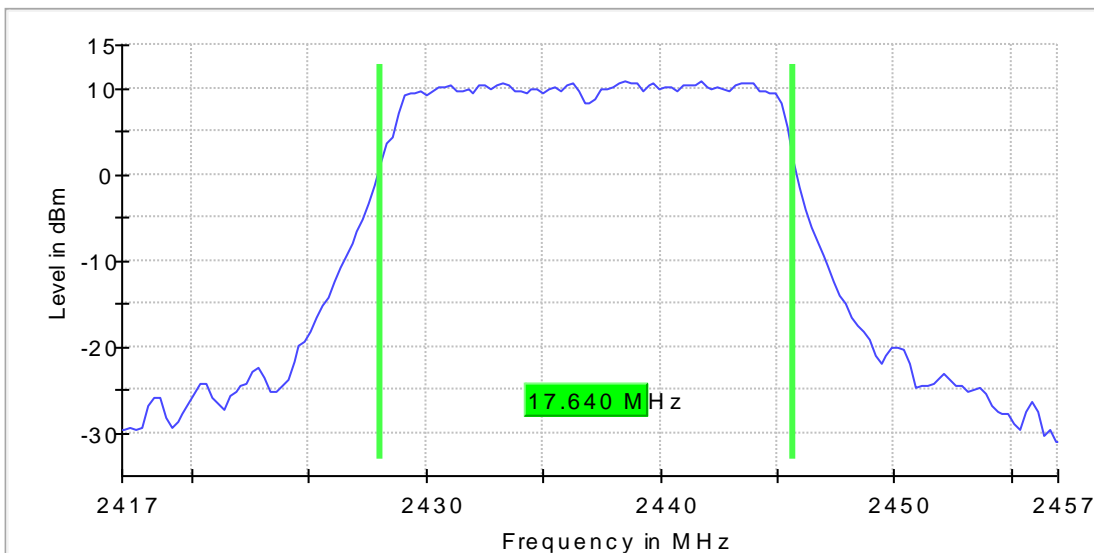
802.11g

Channel (MHz)	Bandwidth (MHz)
2412	17.6
2437	17.6
2462	17.4

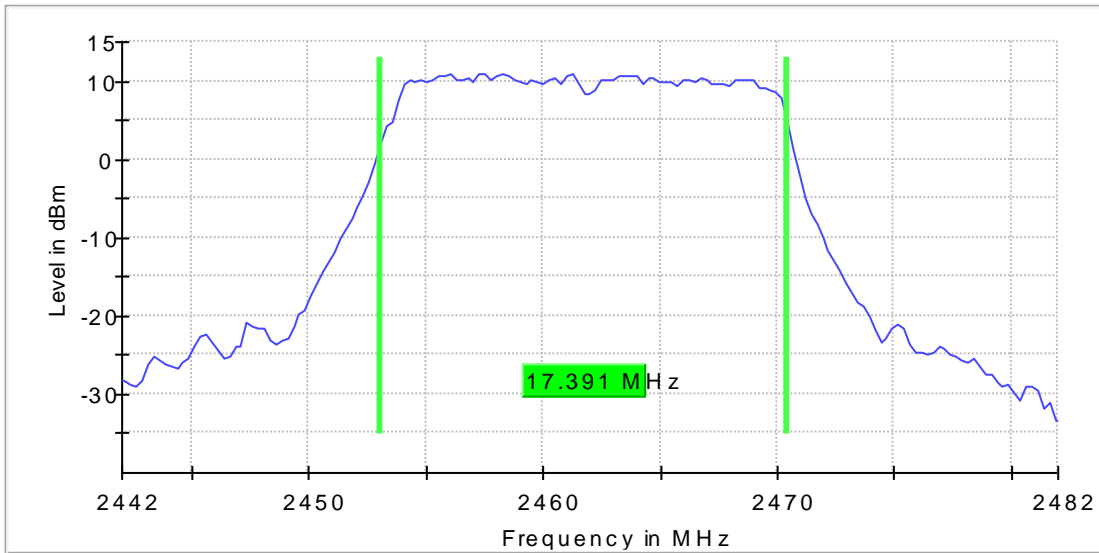
Lowest channel



Middle Channel



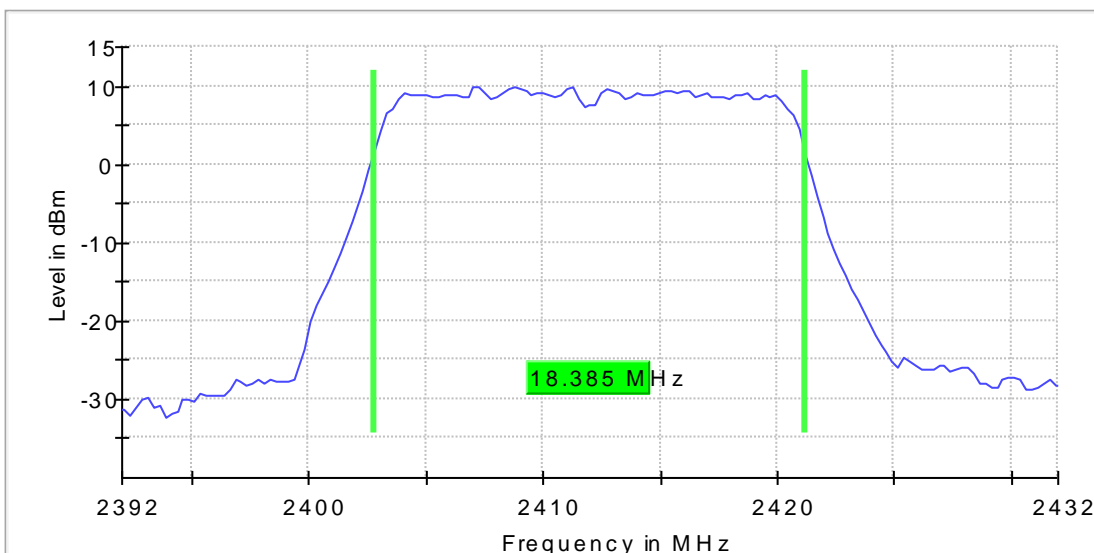
Highest Channel



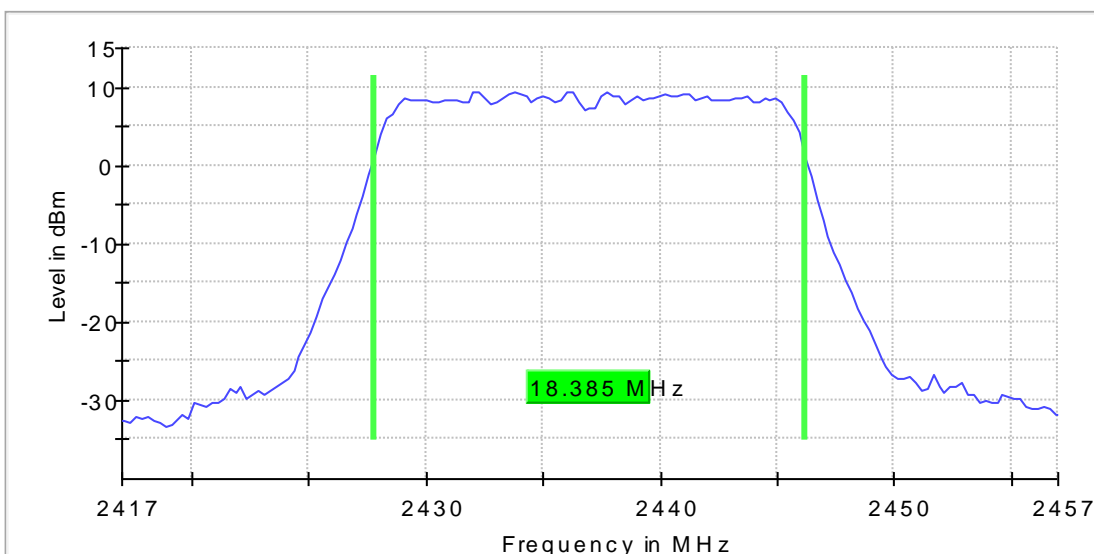
802.11n20

Channel (MHz)	Bandwidth (MHz)
2412	18.4
2437	18.4
2462	18.1

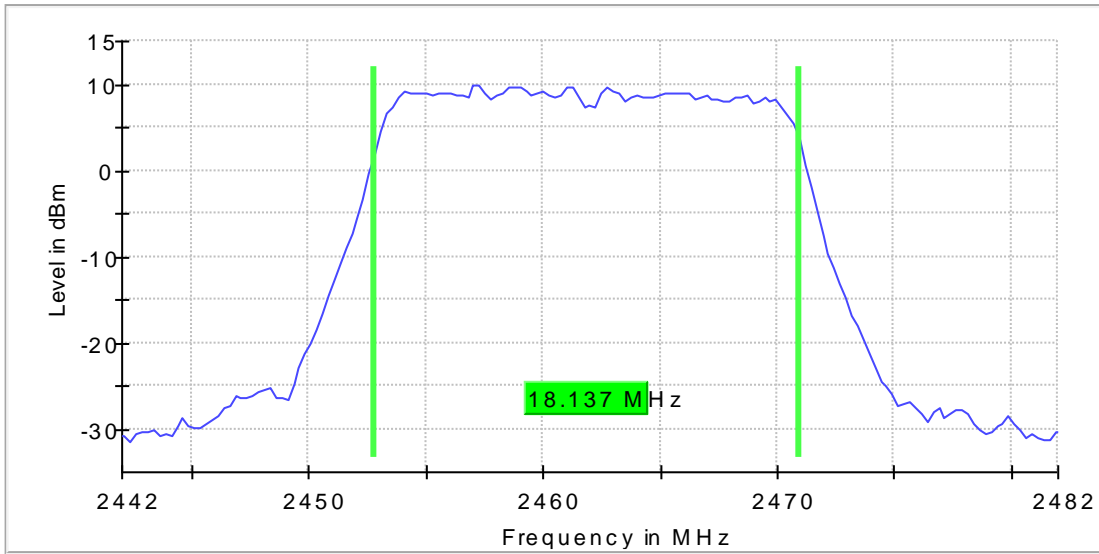
Lowest Channel



Middle Channel



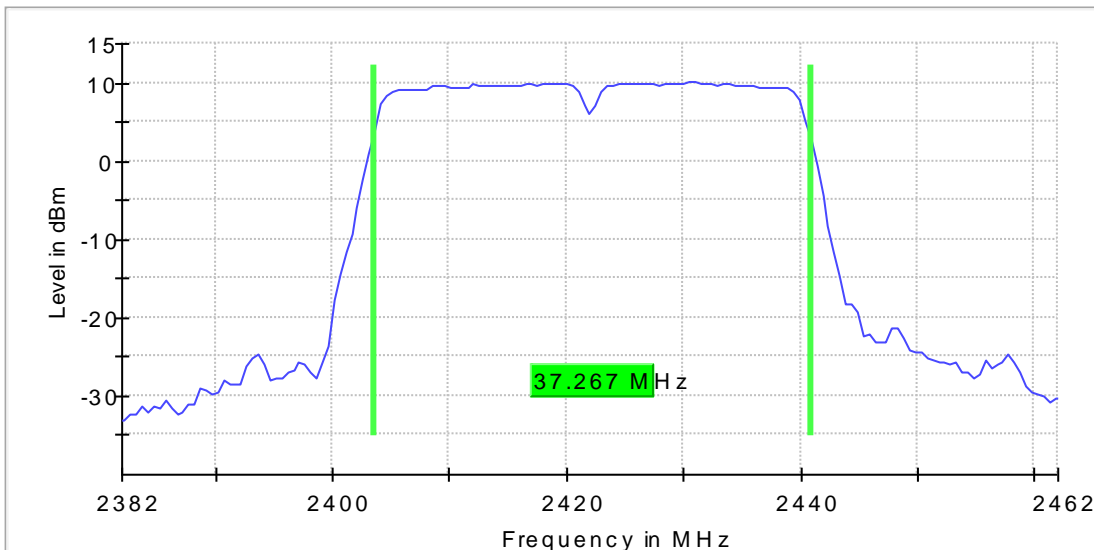
Highest Channel



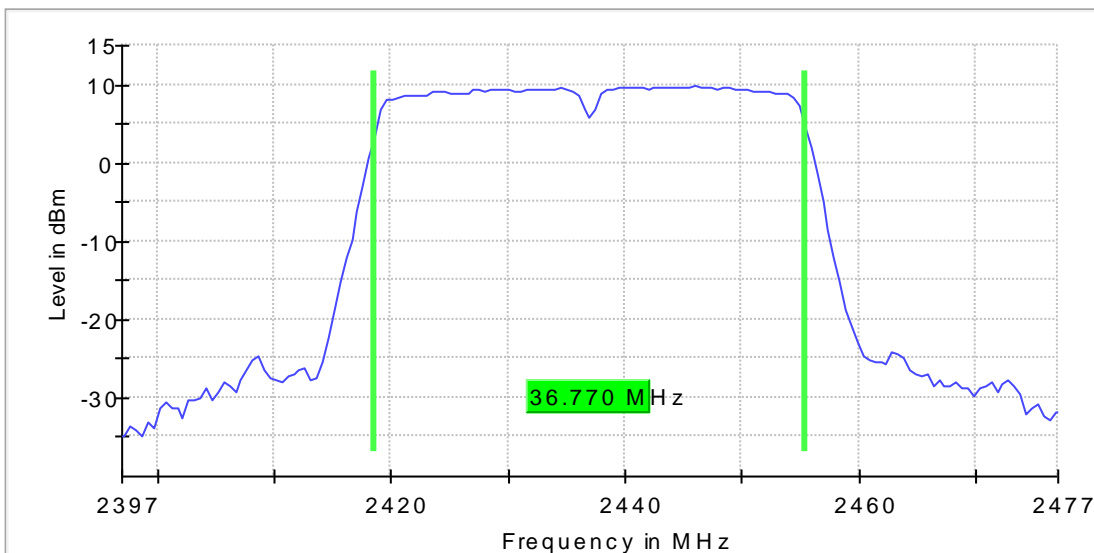
802.11n40

Channel (MHz)	Bandwidth (MHz)
2422	37.3
2437	36.8
2452	36.8

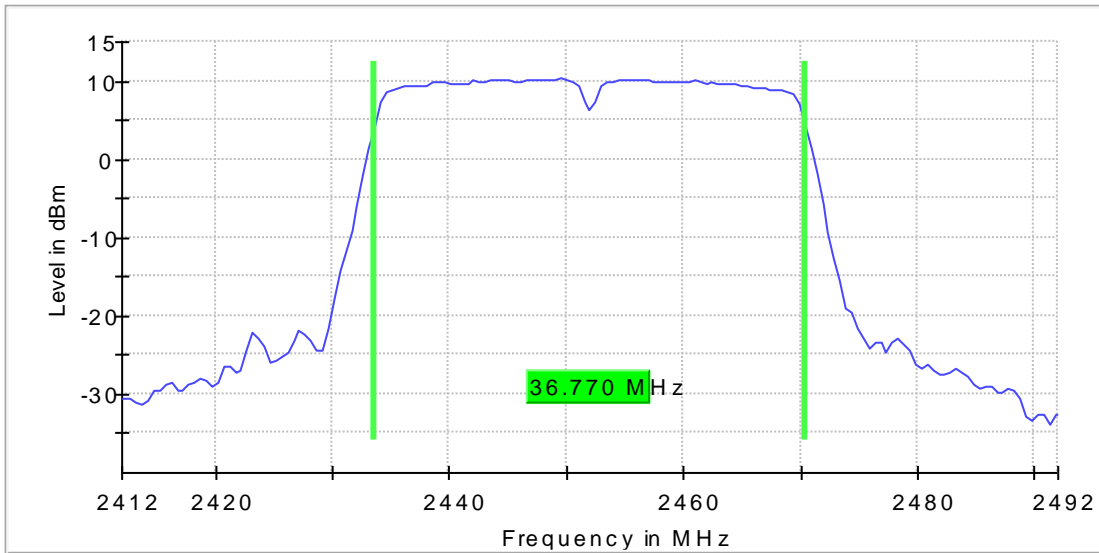
Lowest Channel



Middle Channel



Highest Channel



9.7 Frequency Stability

Normal Voltage

11b			
Temperature (°C)	2412	2437	2462
-20	2412.000	2437.043	2462.000
20	2412.043	2437.043	2462.043
50	2412.043	2437.043	2462.043

11g			
Temperature (°C)	2412	2437	2462
-20	2411.913	2436.826	2461.826
20	2411.870	2436.805	2461.783
50	2411.870	2436.826	2461.826

11n20			
Temperature (°C)	2412	2437	2462
-20	2412.065	2436.957	2461.957
20	2412.043	2436.957	2461.957
50	2412.043	2436.957	2461.957

11n40			
Temperature (°C)	2422	2437	2452
-20	2422.130	2437.043	2452.000
20	2422.174	2437.087	2452.087
50	2422.174	2437.130	2452.087

Upper Extreme Voltage (+15%)

11b			
Temperature (°C)	2412	2437	2462
20	2412.043	2437.043	2462.043

11g			
Temperature (°C)	2412	2437	2462
20	2411.870	2436.826	2461.783

11n20			
Temperature (°C)	2412	2437	2462
20	2412.043	2436.957	2461.957

11n40			
Temperature (°C)	2422	2437	2452
20	2422.174	2437.087	2452.087

Lower Extreme Voltage

11b			
Temperature (°C)	2412	2437	2462
20	2412.043	2437.043	2462.043

11g			
Temperature (°C)	2412	2437	2462
20	2411.870	2436.805	2461.826

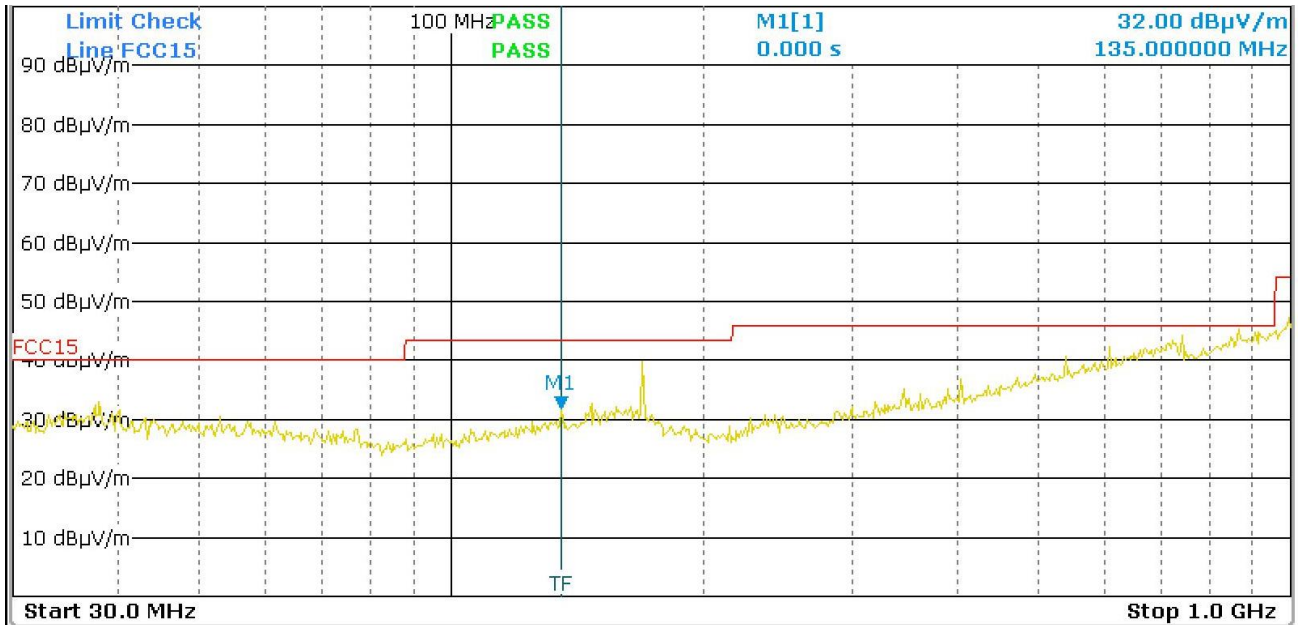
11n20			
Temperature (°C)	2412	2437	2462
20	2412.043	2436.957	2461.957

11n40			
Temperature (°C)	2422	2437	2452
20	2422.174	2437.043	2452.087

9.8 Radiated Emission

Radiated Emission Below 1G

Worst case Transmitting Mode
 mode:



Frequency (MHz)	Antenna Polarization	Emission Level (dBµV/m)	Limit (dBµV/m)	Remark
40.3	V	22.9	40.0	Pass
148.5	V	42.5	43.5	Pass
168.7	V	37.4	43.5	Pass
405.0	V	34.3	46.0	Pass
607.5	V	41.4	46.0	Pass
742.5	V	40.3	46.0	Pass

Remark:

1. Peak detector was used for measurement.

Radiated Emission above 1GHz

802.11b

Lowest Channel

Frequency (MHz)	Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)
1332	V	43.2	54.0	-10.8
4824	V	53.3	54.0	-0.7
7236	V	48.3	54.0	-5.7
9648	V	49.5	54.0	-4.5
12060	V	50.2	54.0	-3.8
14472	H	53.1	54.0	-0.9

Middle Channel

Frequency (MHz)	Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)
1332	V	46.1	54.0	-7.9
4874	V	48.5	54.0	-5.5
7311	V	47.2	54.0	-4.9
9748	V	50.2	54.0	-3.8
12185	V	51.4	54.0	-2.6
14622	V	53.0	54.0	-1.0

Highest Channel

Frequency (MHz)	Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)
1332	V	45.0	54.0	-9.0
4924	V	48.2	54.0	-5.8
7386	V	47.8	54.0	-6.2
9848	V	51.6	54.0	-2.4
12310	V	52.0	54.0	-2.0
14772	V	53.3	54.0	-0.7



802.11g

Lowest Channel

Frequency (MHz)	Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)
1600	V	44.7	54.0	-9.3
4824	V	52.1	54.0	-1.9
7236	V	47.7	54.0	-6.3
9648	V	49.3	54.0	-4.7
12060	V	51.0	54.0	-3.0
14472	V	52.9	54.0	-1.1

Middle Channel

Frequency (MHz)	Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)
1600	V	53.0	54.0	-1.0
4874	V	47.2	54.0	-6.8
7311	V	49.2	54.0	-4.8
9748	V	51.1	54.0	-2.9
12185	V	51.6	54.0	-2.4
14622	V	53.0	54.0	-1.0

Highest Channel

Frequency (MHz)	Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)
1600	V	41.0	54.0	-13.0
4924	V	52.8	54.0	-1.2
7386	V	46.9	54.0	-7.1
9848	V	49.7	54.0	-4.3
12310	V	50.4	54.0	-3.6
14772	V	53.0	54.0	-1.0



802.11n20

Lowest Channel

Frequency (MHz)	Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)
2584	V	47.6	54.0	-6.4
4824	V	53.8	54.0	-0.2
7236	V	48.4	54.0	-5.6
9648	V	49.2	54.0	-4.8
12060	V	51.2	54.0	-2.8
14472	H	53.1	54.0	-0.9

Middle Channel

Frequency (MHz)	Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)
2584	V	45.6	54.0	-8.4
4874	V	47.7	54.0	-6.3
7311	V	47.6	54.0	-6.4
9748	V	49.5	54.0	-4.5
12185	V	51.6	54.0	-2.4
14622	V	52.1	54.0	-1.9

Highest Channel

Frequency (MHz)	Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)
2584	V	49.6	54.0	-4.4
4924	V	47.2	54.0	-6.8
7386	V	48.0	54.0	-6.0
9848	V	49.2	54.0	-4.8
12310	V	52.7	54.0	-1.3
14772	V	53.8	54.0	-0.2

802.11n40

Lowest Channel

Frequency (MHz)	Polarity	Level (dBμV/m)	Limit (dBμV/m)	Over limit (dB)
2660	V	48.5	54.0	-5.5
4844	V	52.9	54.0	-1.1
7266	V	46.3	54.0	-7.7
9688	V	49.3	54.0	-4.7
12110	V	51.4	54.0	-2.6
14532	H	52.9	54.0	-1.1

Middle Channel

Frequency (MHz)	Polarity	Level (dBμV/m)	Limit (dBμV/m)	Over limit (dB)
2660	V	53.0	54.0	-1.0
4874	V	47.8	54.0	-6.2
7311	V	47.1	54.0	-6.9
9748	V	48.7	54.0	-5.3
12185	V	51.7	54.0	-2.3
14622	V	53.4	54.0	-0.6

Highest Channel

Frequency (MHz)	Polarity	Level (dBμV/m)	Limit (dBμV/m)	Over limit (dB)
2660	V	49.0	54.0	-5.0
4904	V	46.9	54.0	-7.1
7356	V	47.4	54.0	-6.6
9808	V	49.0	54.0	-5.0
12260	V	50.8	54.0	-3.2
14712	V	53.3	54.0	-0.7

Remark:

- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
- 2) Scan from 9kHz to 25GHz, the amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported .
- 3) As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.
- 4) Spurious emissions that fall within restricted band have been highlighted in Bold.

- End of Report -