TEST REPORT

Applicant:	TrickleStar Limited
Address of Applicant:	Room 901, Centre Point, 181-185 Gloucester Road, Wan Chai, Hong Kong, China
Manufacturer:	Computime Ltd.
Address of Manufacturer:	6/F, Building 20E, Phase 3, Hong Kong Science Park, 20 Science Park East Avenue Shatin, New Territories, Hongkong, China
Factory:	Computime Electronics (Shenzhen) Company Limited
Address of Factory:	Yuekenguangyu Industrial Park,Kangqiao Road 88#, Danzhutou Community, Nanwan Street office,Longgang District, Shenzhen, China.

Equipment Under Test (EUT)

Product Name:	Thermostat
Model No.:	TS2501
FCC ID:	2AG8Q-TS2501
IC:	7723A-TS2501
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247 RSS-Gen Issue 5 RSS-247 Issue 2
Date of sample receipt:	August 12, 2020
Date of Test:	August 13-September 17, 2020
Date of report issued:	September 18, 2020
Test Result :	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*September 18, 2020*	*Original*

Prepared By: *Date:* *September 18, 2020*

Project Engineer

Check By: *Date:* *September 18, 2020*

Reviewer

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4 Test Summary

Test Item	Section	Result
Antenna requirement	FCC part 15.203/15.247 (c) RSS-Gen Section 6.8	Pass
AC Power Line Conducted Emission	FCC part 15.207 RSS-Gen Section 8.8	Pass
Conducted Peak Output Power	FCC part 15.247 (b)(3) RSS-247 Section 5.4(d)	Pass
Channel Bandwidth & 99% OCB	FCC part 15.247 (a)(2) RSS-247 Section 5.2(a) & RSS-Gen 6.7	Pass
Power Spectral Density	FCC part 15.247 (e) RSS-247 Section 5.2(b)	Pass
Band Edge	FCC part 15.247(d) RSS-Gen 8.10 & RSS-247 5.5	Pass
Spurious Emission	FCC part 15.205/15.209 RSS-Gen Section 8.9 & 8.10	Pass

Remark: Test according to ANSI C63.10:2013 and RSS-Gen

Pass: The EUT complies with the essential requirements in the standard.

Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	± 4.34dB	(1)
Radiated Emission	30MHz ~ 1000MHz	± 4.24dB	(1)
Radiated Emission	1GHz ~ 26.5GHz	± 4.68dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.45dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

5 General Information

5.1 General Description of EUT

Product Name:	Thermostat
Model No.:	TS2501
Serial No.:	N/A
Test sample(s) ID:	GTS202008000079-1
Sample(s) Status	Engineer sample
Hardware version:	N/A
Software version:	N/A
Channel numbers:	802.11b/802.11g /802.11n(HT20): 11
Channel separation:	5MHz
Modulation technology:	802.11b: Direct Sequence Spread Spectrum (DSSS) 802.11g/802.11n(HT20): Orthogonal Frequency Division Multiplexing (OFDM)
Antenna Type:	Integral Antenna
Antenna gain:	0dBi(declare by applicant)
Power supply:	AC 24V

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

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Test channel	Frequency (MHz)
	802.11b/802.11g/802.11n(HT20)
Lowest channel	2412MHz
Middle channel	2437MHz
Highest channel	2462MHz

5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode
Remark: During the test, the dutycycle >98%, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.	

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	802.11b	802.11g	802.11n(HT20)
Data rate	1Mbps	6Mbps	6.5Mbps

5.3 Description of Support Units

Manufacturer	Description	Model	Serial Number
Supplied by client	AC adaptor	PPI76-24V05AC	N/A

5.4 Test Facility

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

● **FCC —Registration No.: 381383**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383.

● **IC —Registration No.: 9079A**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A.

● **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.
Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102
Tel: 0755-27798480
Fax: 0755-27798960

5.6 Additional Instructions

Test Software	Test command provide by manufacturer.
Power level setup	Default

6 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 02 2020	July. 01 2025
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 25 2020	June. 24 2021
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 25 2020	June. 24 2021
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 25 2020	June. 24 2021
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 25 2020	June. 24 2021
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 25 2020	June. 24 2021
9	Coaxial Cable	GTS	N/A	GTS211	June. 25 2020	June. 24 2021
10	Coaxial cable	GTS	N/A	GTS210	June. 25 2020	June. 24 2021
11	Coaxial Cable	GTS	N/A	GTS212	June. 25 2020	June. 24 2021
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 25 2020	June. 24 2021
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 25 2020	June. 24 2021
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 25 2020	June. 24 2021
15	Band filter	Amindeon	82346	GTS219	June. 25 2020	June. 24 2021
16	Power Meter	Anritsu	ML2495A	GTS540	June. 25 2020	June. 24 2021
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 25 2020	June. 24 2021
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 25 2020	June. 24 2021
19	Splitter	Agilent	11636B	GTS237	June. 25 2020	June. 24 2021
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 25 2020	June. 24 2021
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 19 2019	Oct. 18 2020
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 19 2019	Oct. 18 2020
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 19 2019	Oct. 18 2020
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 25 2020	June. 24 2021

Conducted Emission						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.15 2019	May.14 2022
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 25 2020	June. 24 2021
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 25 2020	June. 24 2021
4	ENV216 2-L-V-NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	GTS226	June. 25 2020	June. 24 2021
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Thermo meter	KTJ	TA328	GTS233	June. 25 2020	June. 24 2021
8	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	June. 25 2020	June. 24 2021
9	ISN	SCHWARZBECK	NTFM 8158	GTD565	June. 25 2020	June. 24 2021

RF Conducted Test:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	June. 25 2020	June. 24 2021
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 25 2020	June. 24 2021
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 25 2020	June. 24 2021
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	June. 25 2020	June. 24 2021
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	June. 25 2020	June. 24 2021
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	June. 25 2020	June. 24 2021
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	June. 25 2020	June. 24 2021
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	June. 25 2020	June. 24 2021

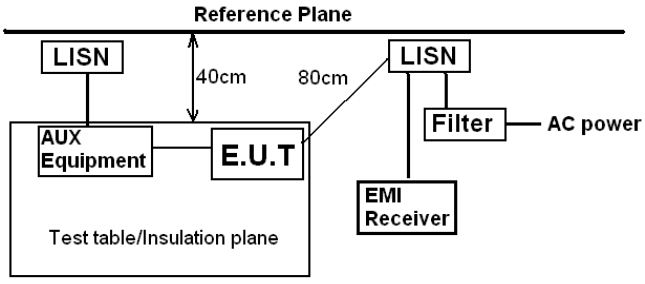
General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 25 2020	June. 24 2021
2	Barometer	ChangChun	DYM3	GTS255	June. 25 2020	June. 24 2021

7 Test results and Measurement Data

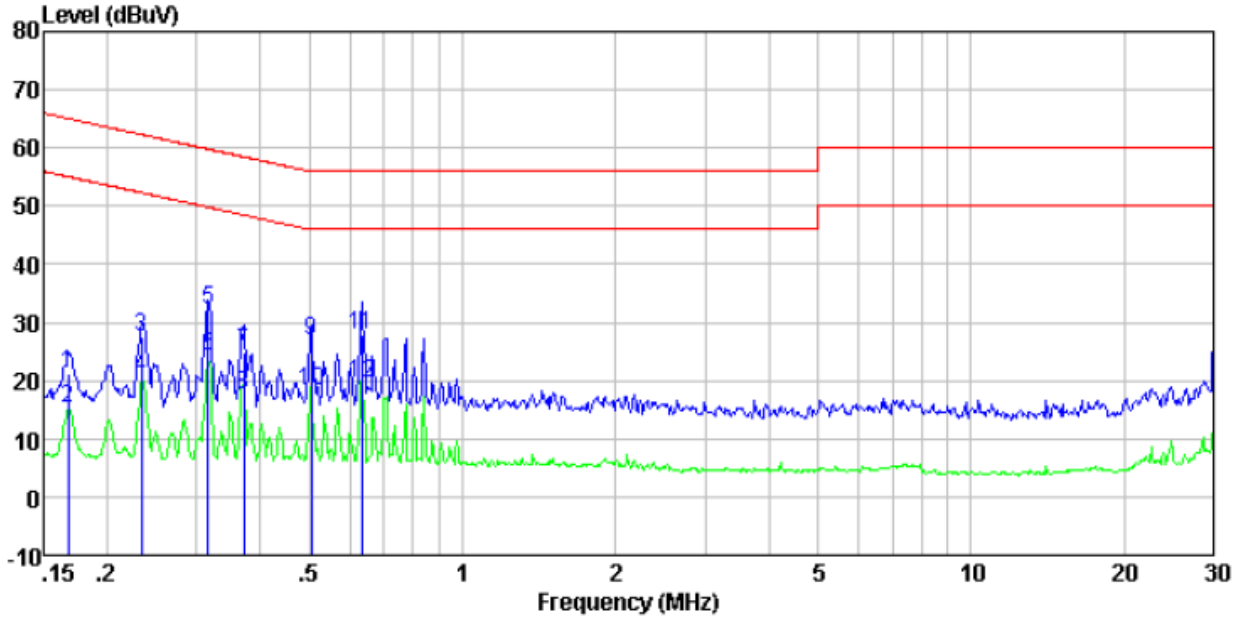
7.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
15.203 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. **15.247(c) (1)(i) requirement:** (i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.	
Standard requirement:	RSS-Gen Section 6.8
A transmitter can only be sold or operated with antennas with which it was approved. 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 measurement or on data from the antenna manufacturer. For transmitters of RF output power of 10 milliwatts or less, only the portion of the antenna gain that is in excess of 6 dBi (6 dB above isotropic gain) shall be added to the measured RF output power to demonstrate compliance with the radiated power limits specified in the applicable standard. For transmitters of output power greater than 10 milliwatts, the total antenna gain shall be added to the measured RF output power to demonstrate compliance to the specified radiated power	
EUT Antenna:	
The antenna is Integral antenna, the best case gain of the ANT is 0dBi, reference to the appendix II for details	

7.2 Conducted Emissions

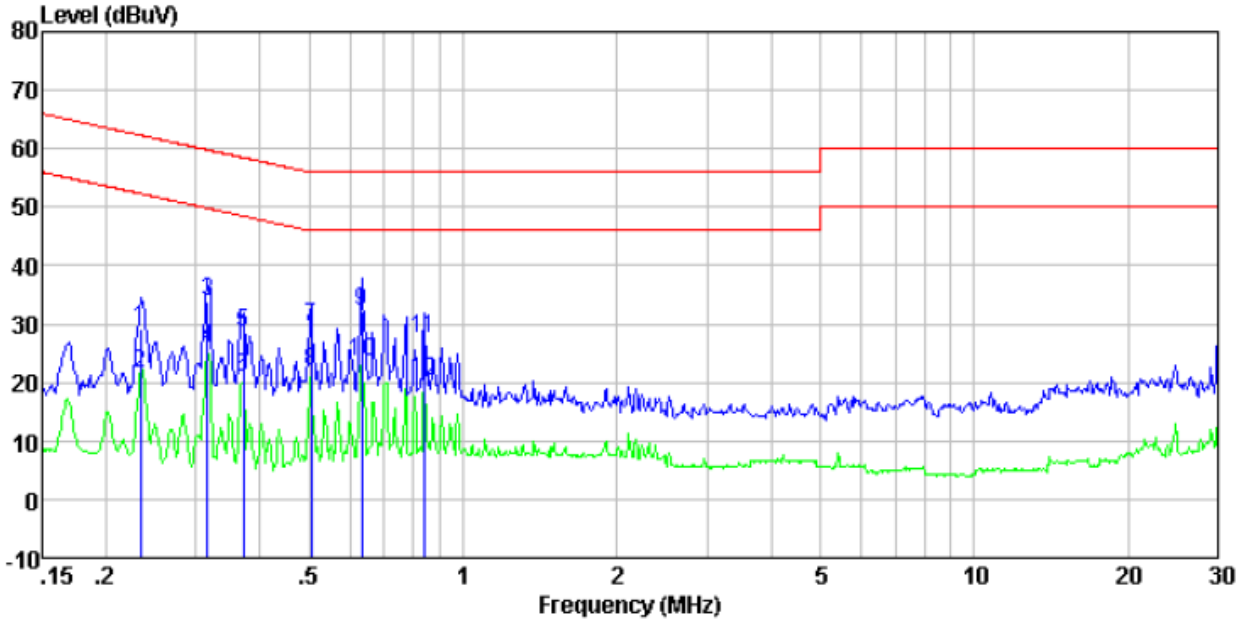
Test Requirement:	FCC Part15 C Section 15.207 RSS-Gen Section 8.8
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto
Limit:	Frequency range (MHz) / Limit (dBuV): Quasi-peak / Average 0.15-0.5: 66 to 56* / 56 to 46* 0.5-5: 56 / 46 5-30: 60 / 50 * Decreases with the logarithm of the frequency.
Test setup:	 *Remark* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*
Test procedure:	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test environment:	Temp.: 25 °C / Humid.: 52% / Press.: 1012mbar
Test results:	Pass

Measurement data
Line:



Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.17	0.78	20.40	0.09	21.27	65.08	-43.81	QP
0.17	-5.39	20.40	0.09	15.10	55.08	-39.98	Average
0.23	7.16	20.40	0.11	27.67	62.30	-34.63	QP
0.23	-0.08	20.40	0.11	20.43	52.30	-31.87	Average
0.32	11.74	20.39	0.10	32.23	59.80	-27.57	QP
0.32	3.77	20.39	0.10	24.26	49.80	-25.54	Average
0.37	4.34	20.36	0.10	24.80	58.47	-33.67	QP
0.37	-2.93	20.36	0.10	17.53	48.47	-30.94	Average
0.50	6.30	20.31	0.11	26.72	56.00	-29.28	QP
0.50	-2.08	20.31	0.11	18.34	46.00	-27.66	Average
0.63	7.58	20.28	0.12	27.98	56.00	-28.02	QP
0.63	-0.70	20.28	0.12	19.70	46.00	-26.30	Average

Neutral:

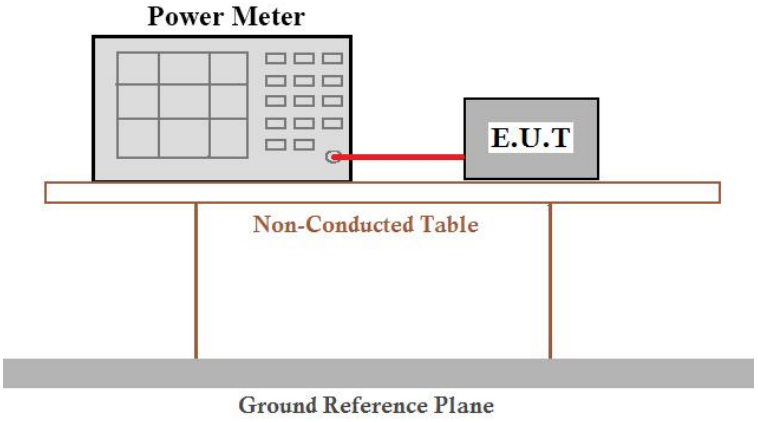


Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.23	8.68	20.40	0.11	29.19	62.30	-33.11	QP
0.23	0.98	20.40	0.11	21.49	52.30	-30.81	Average
0.32	13.46	20.39	0.10	33.95	59.80	-25.85	QP
0.32	5.27	20.39	0.10	25.76	49.80	-24.04	Average
0.37	8.09	20.36	0.10	28.55	58.47	-29.92	QP
0.37	0.40	20.36	0.10	20.86	48.47	-27.61	Average
0.50	9.18	20.31	0.11	29.60	56.00	-26.40	QP
0.50	1.57	20.31	0.11	21.99	46.00	-24.01	Average
0.63	11.84	20.28	0.12	32.24	56.00	-23.76	QP
0.63	3.16	20.28	0.12	23.56	46.00	-22.44	Average
0.84	7.18	20.23	0.14	27.55	56.00	-28.45	QP
0.84	0.00	20.23	0.14	20.37	46.00	-25.63	Average

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss
4. *If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.*

7.3 Conducted Peak Output Power

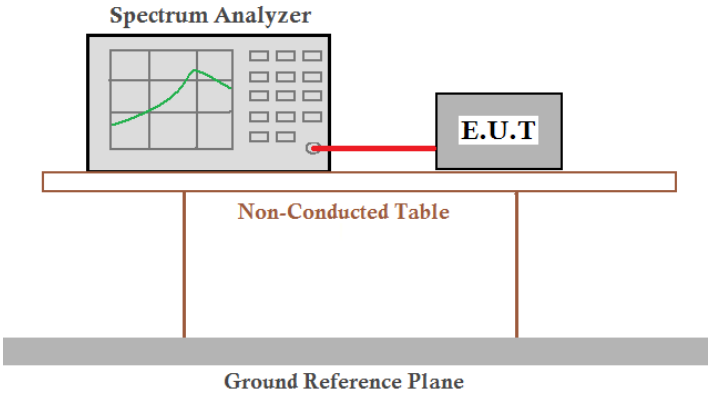
Test Requirement :	FCC Part15 C Section 15.247 (b)(3) RSS-247 Section 5.4(d)
Test Method :	KDB558074 D01 15.247 Meas Guidance V05 ANSI C63.10:2013 and RSS-Gen
Limit:	30dBm 36dBm(4W for e.i.r.p)
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

Test CH	Peak Output Power (dBm)			Limit(dBm)	Result
	802.11b	802.11g	802.11n(HT20)		
Lowest	19.83	19.01	19.44	30.00	Pass
Middle	19.73	19.20	19.21		
Highest	19.71	19.86	19.79		

Test CH	e.i.r.p (dBm)			Limit(dBm)	Result
	802.11b	802.11g	802.11n(HT20)		
Lowest	19.83	19.01	19.44	36.00	Pass
Middle	19.73	19.20	19.21		
Highest	19.71	19.86	19.79		

7.4 Channel Bandwidth & 99% Occupy Bandwidth

Test Requirement :	FCC Part15 C Section 15.247 (a)(2) RSS-Gen Section 6.7 & RSS-247 Section 5.2(a)
Test Method :	KDB558074 D01 15.247 Meas Guidance V05 ANSI C63.10:2013 and RSS-Gen
Limit:	>500KHz
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

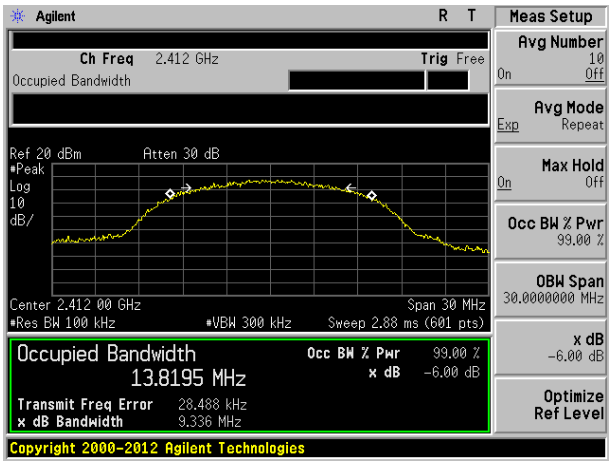
Test CH	Channel Bandwidth (MHz)			Limit(KHz)	Result
	802.11b	802.11g	802.11n(HT20)		
Lowest	9.336	16.027	16.340	>500	Pass
Middle	9.085	15.562	15.517		
Highest	9.757	15.857	16.368		

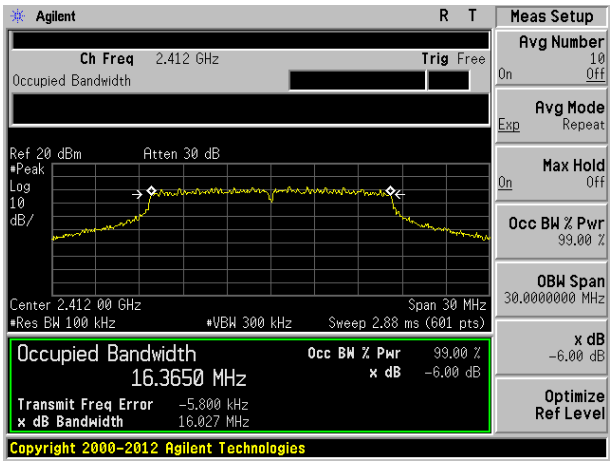
Test CH	99% Occupy Bandwidth (MHz)			Result
	802.11b	802.11g	802.11n(HT20)	
Lowest	13.8049	16.4544	17.6741	Pass
Middle	13.7723	16.5396	17.6538	
Highest	13.7400	16.4841	17.6952	

Test plot as follows:

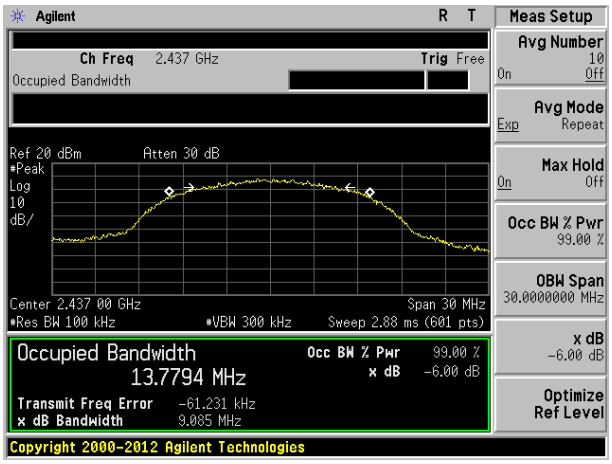
-6dB BW:

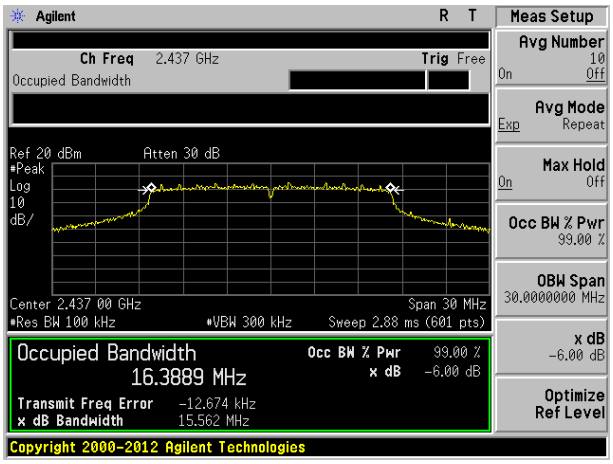
Test mode:	802.11b	Test mode:	802.11g



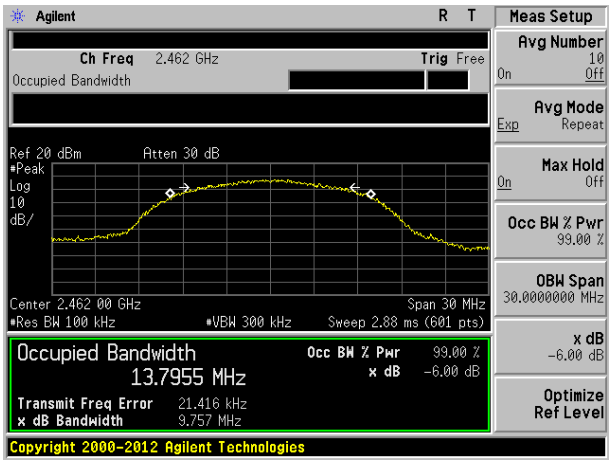


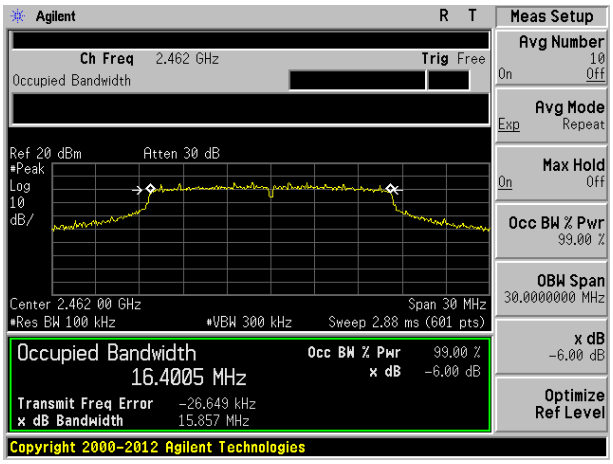
Lowest channel





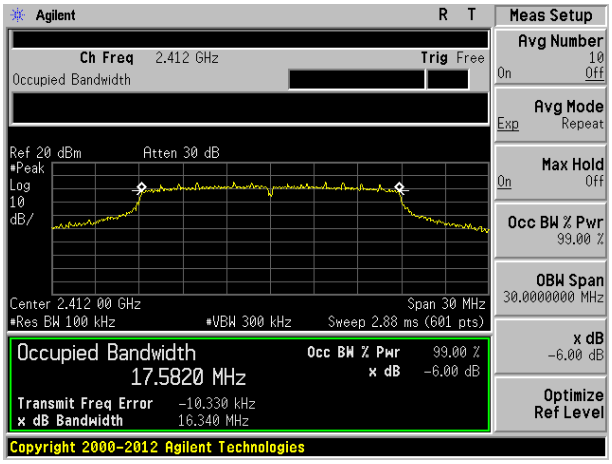
Middle channel



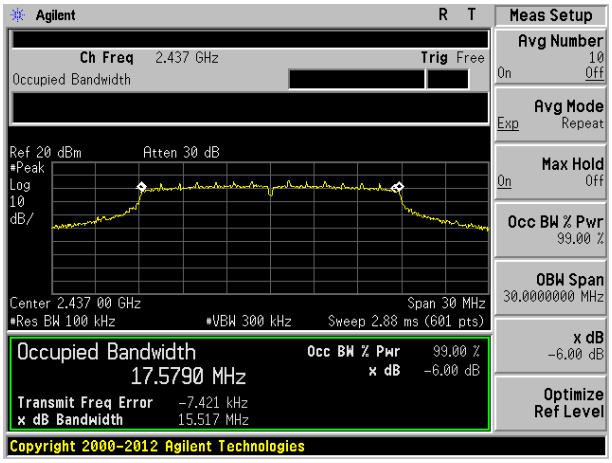


Highest channel

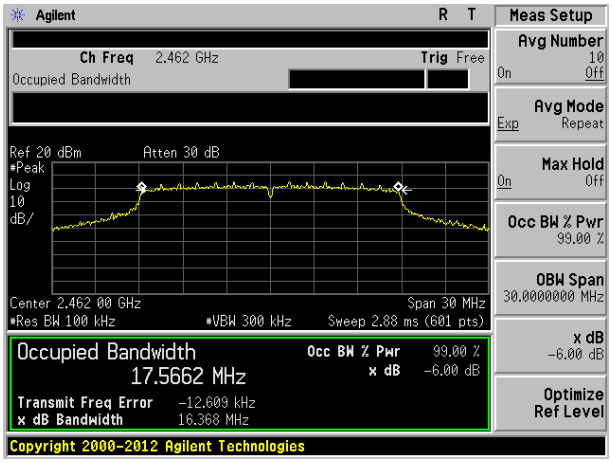
Test mode:	802.11n(HT20)



Lowest channel



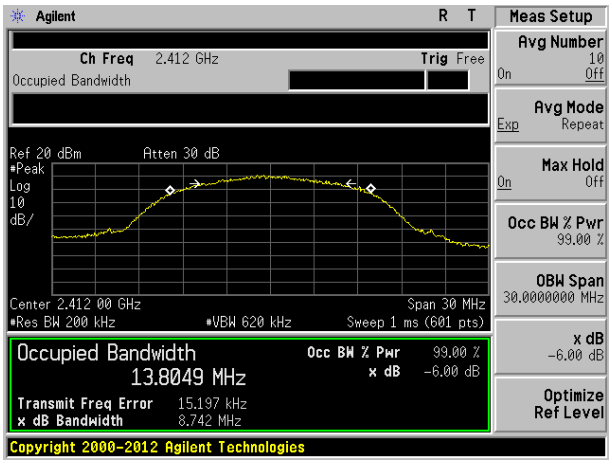
Middle channel

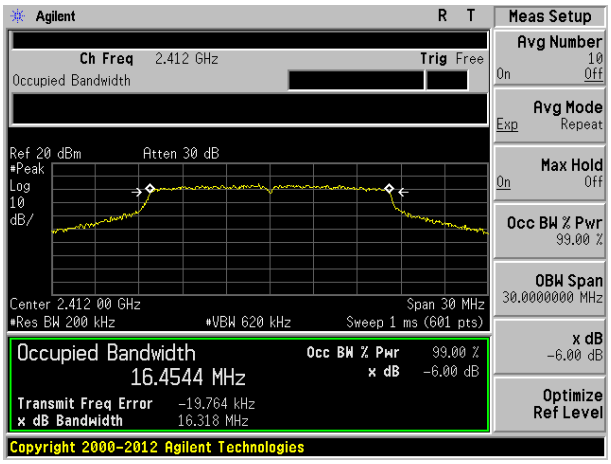


Highest channel

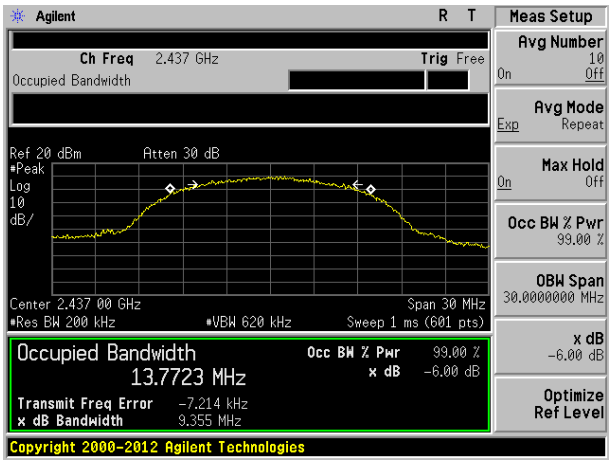
99% BW:

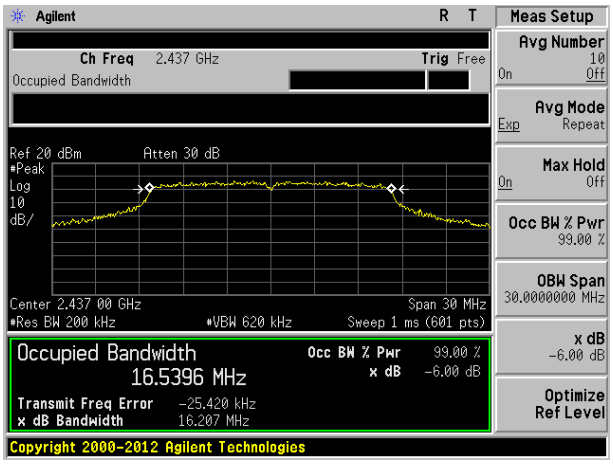
Test mode:	802.11b	Test mode:	802.11g



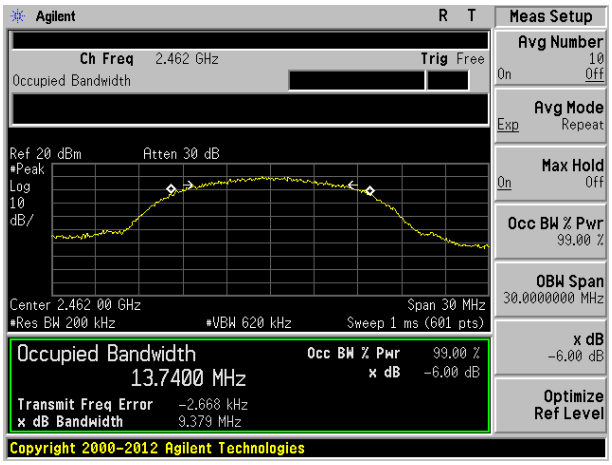


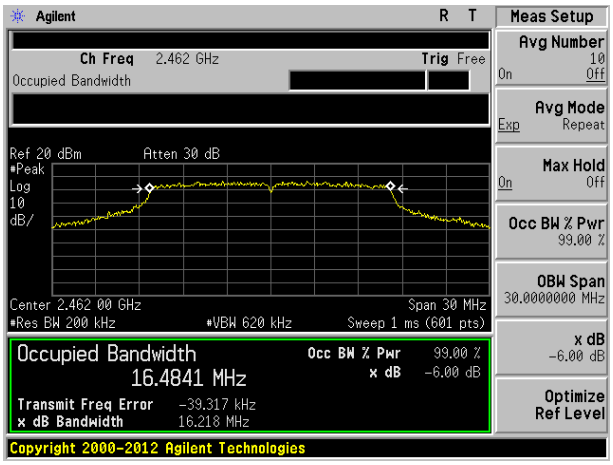
Lowest channel





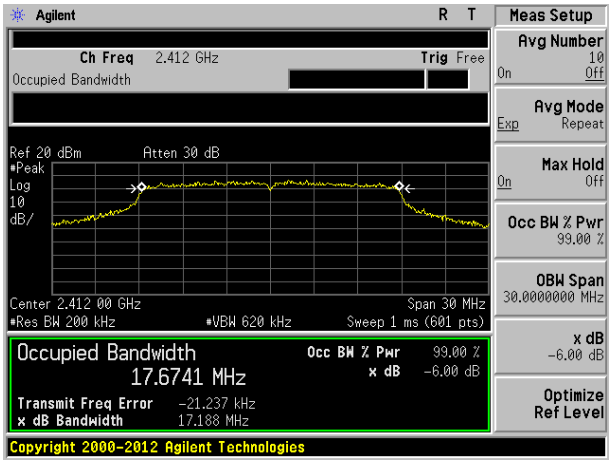
Middle channel



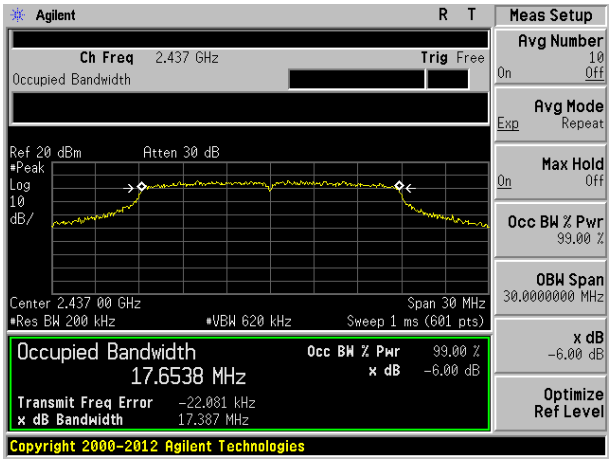


Highest channel

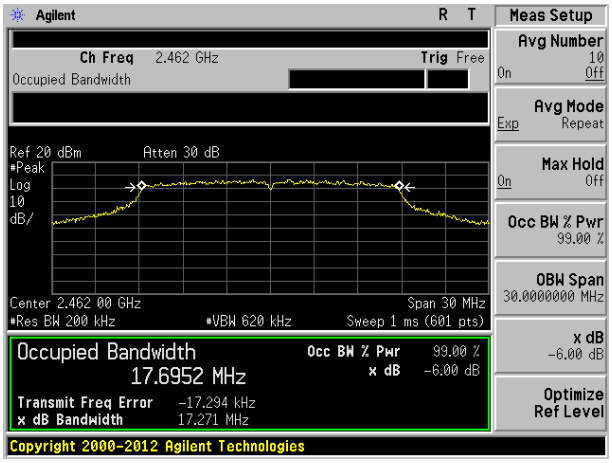
Test mode:	802.11n(HT20)



Lowest channel

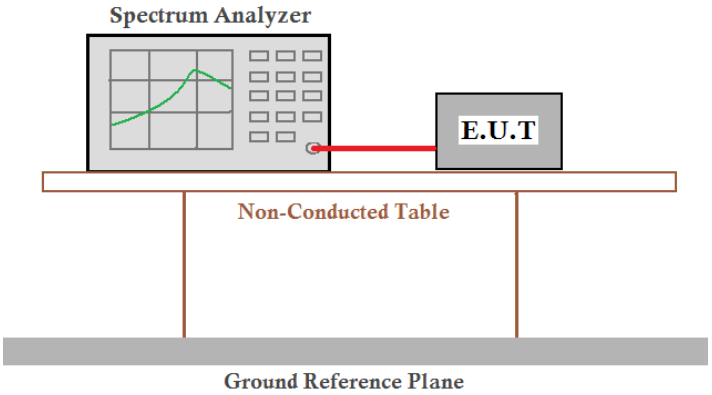


Middle channel



Highest channel

7.5 Power Spectral Density

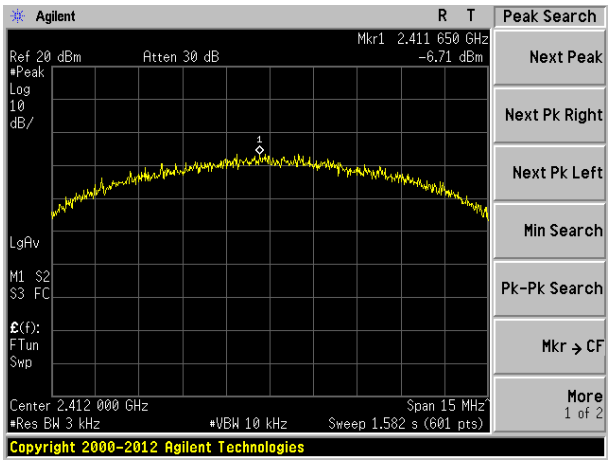
Test Requirement:	FCC Part15 C Section 15.247 (e) RSS-247 Section 5.2(b)
Test Method:	KDB558074 D01 15.247 Meas Guidance V05 ANSI C63.10:2013 and RSS-Gen
Limit:	8dBm/3kHz
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

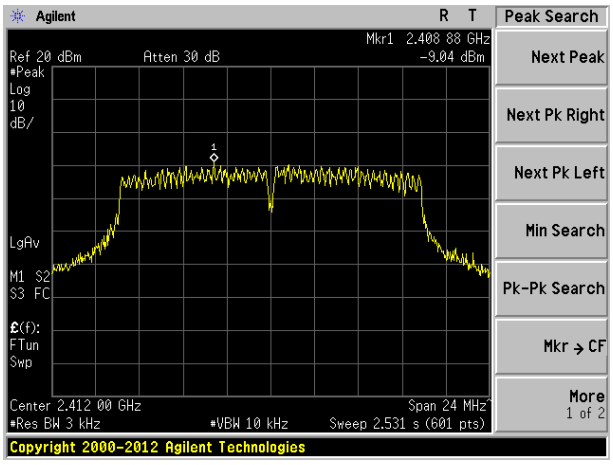
Measurement Data

Test CH	Power Spectral Density (dBm/3kHz)			Limit (dBm/3kHz)	Result
	802.11b	802.11g	802.11n(HT20)		
Lowest	-6.71	-9.04	-9.11	8.00	Pass
Middle	-6.24	-8.58	-9.49		
Highest	-6.54	-8.62	-8.99		

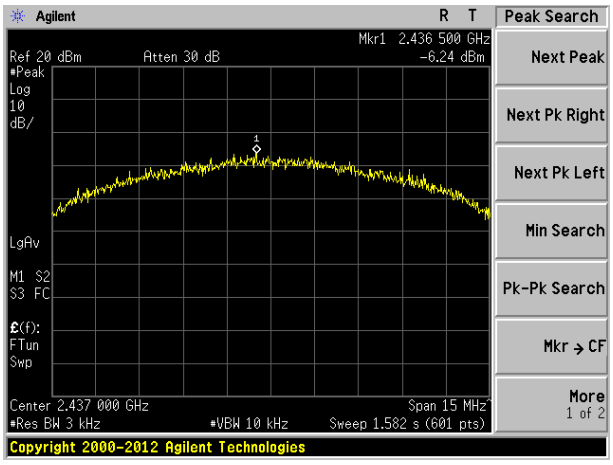
Test plot as follows:

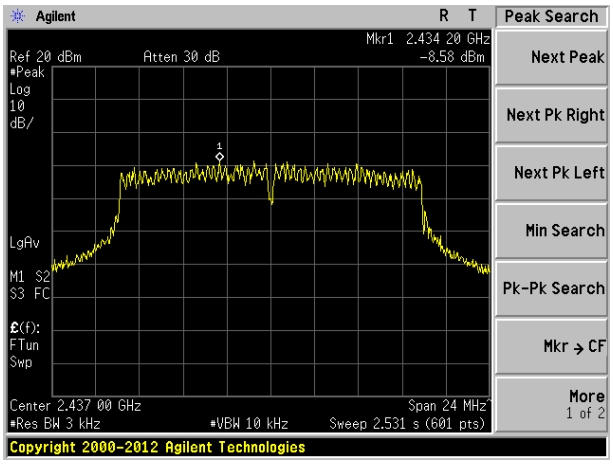
Test mode:	802.11b	Test mode:	802.11g



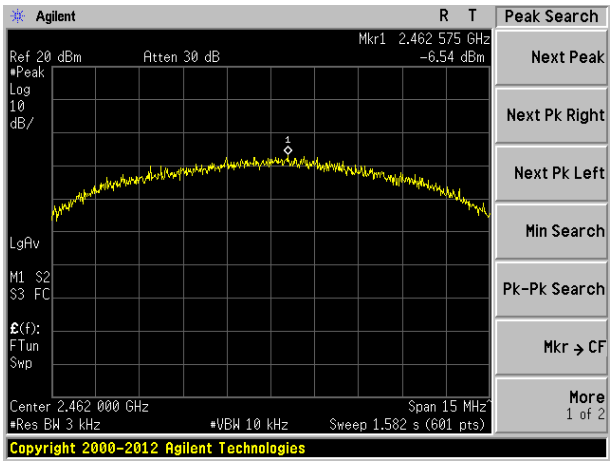


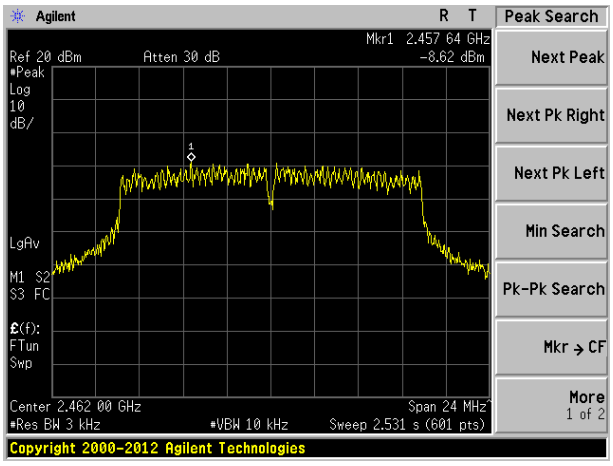
Lowest channel





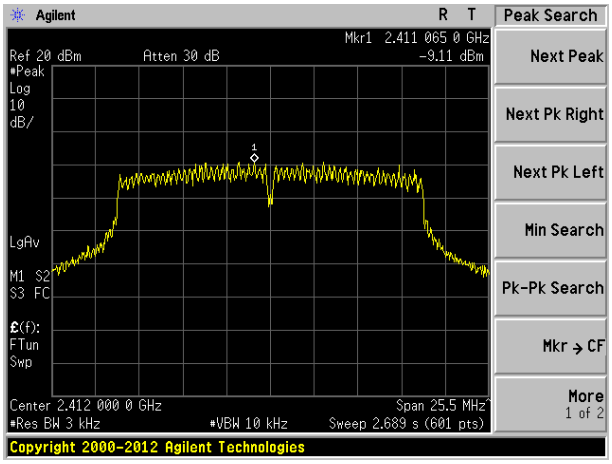
Middle channel



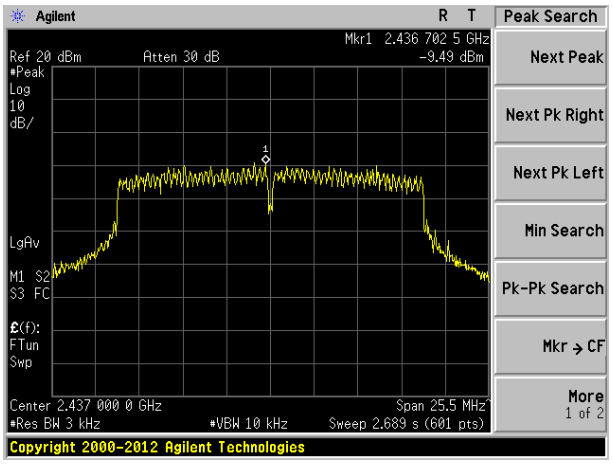


Highest channel

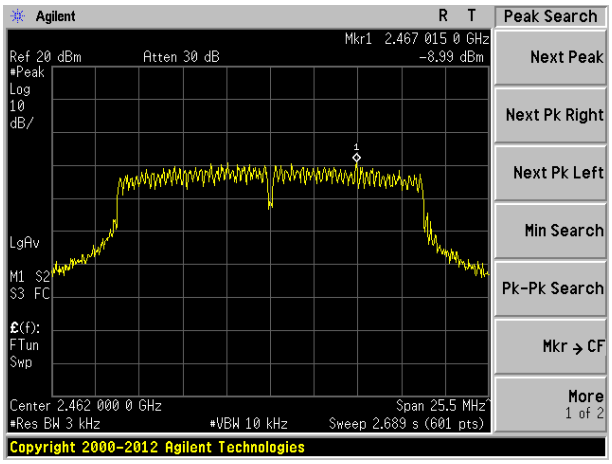
Test mode:	802.11n(HT20)



Lowest channel



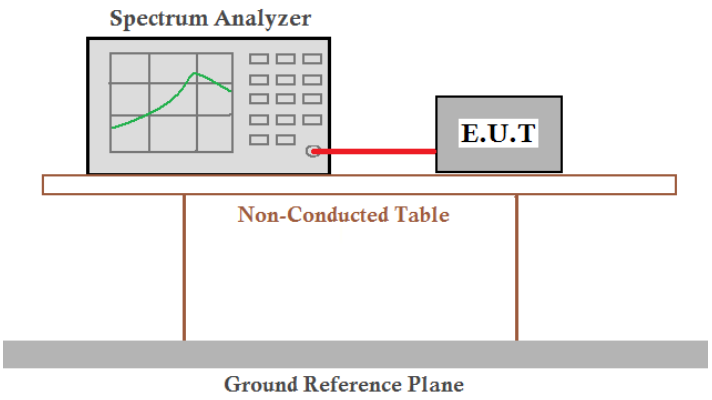
Middle channel



Highest channel

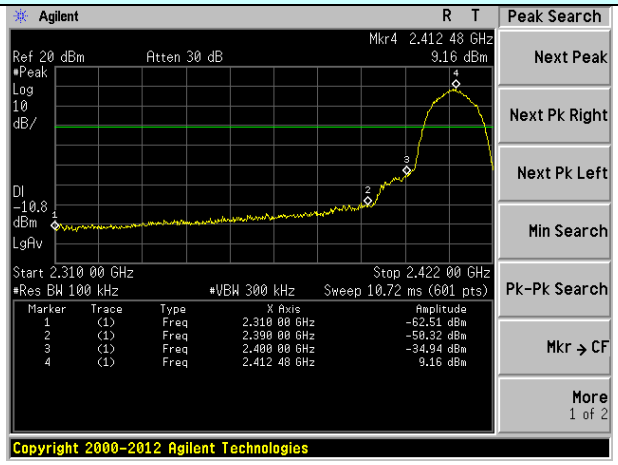
7.6 Band edges

7.6.1 Conducted Emission Method

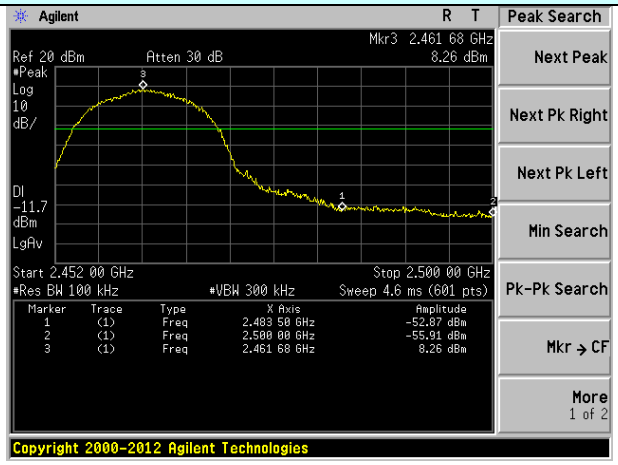
Test Requirement:	FCC Part15 C Section 15.247 (d) RSS-247 Section 5.5
Test Method:	KDB558074 D01 15.247 Meas Guidance V05 ANSI C63.10:2013 & RSS-Gen
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that 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.
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Test plot as follows:

Test mode:	802.11b

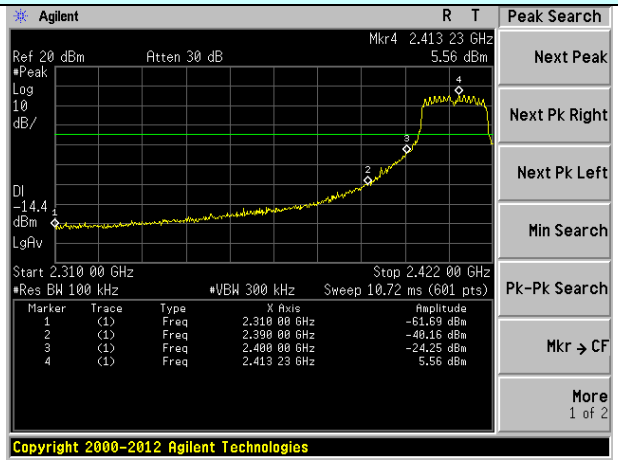


Lowest channel

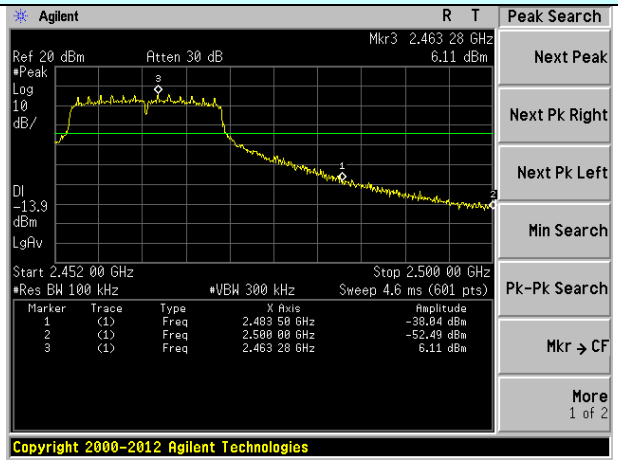


Highest channel

Test mode:	802.11g

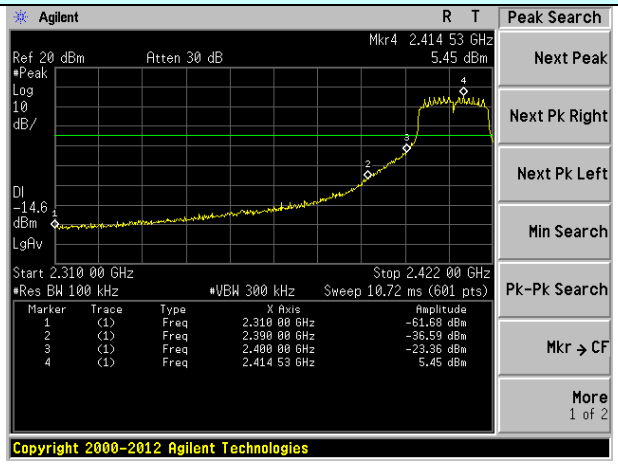


Lowest channel

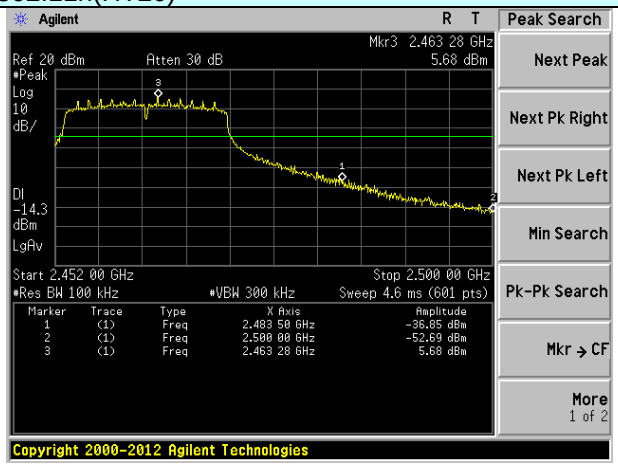


Highest channel

Test mode:	802.11n(HT20)

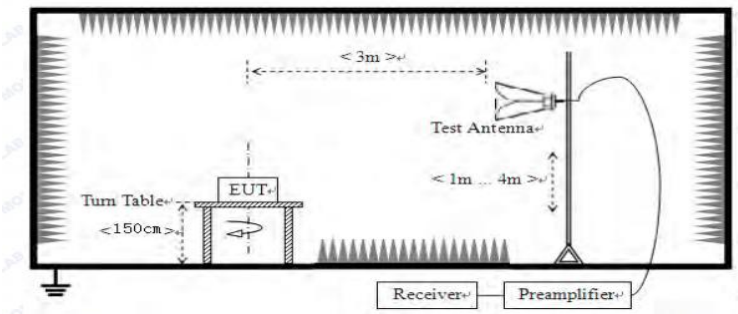


Lowest channel



Highest channel

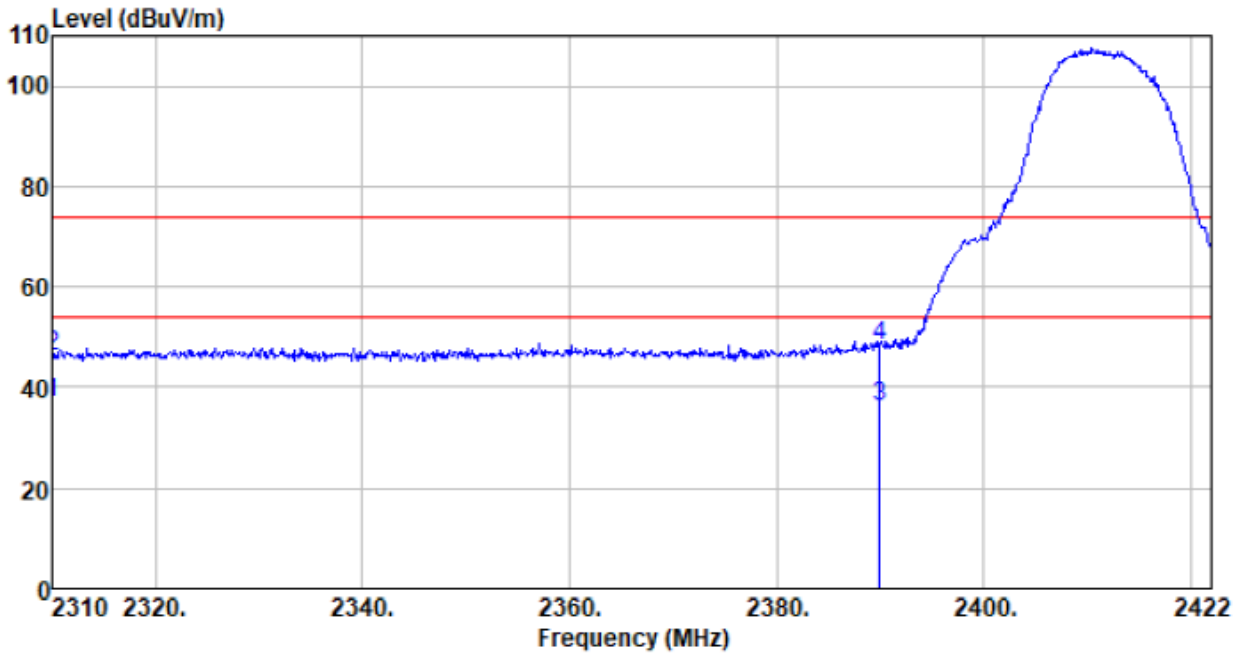
7.6.2 Radiated Emission Method

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209 and 15.205
RSS-247 3.3 & RSS-Gen Section 8.9</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2013 & RSS-Gen</td></tr>
<tr><td>Test Frequency Range:</td><td>All of the restrict bands were tested, only the worst band’s (2310MHz to 2500MHz) data was showed.</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak</td></tr>
<tr><td>Average</td><td>1MHz</td><td>3MHz</td><td>Average</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.00</td><td>Average</td></tr>
<tr><td>74.00</td><td>Peak</td></tr>
</table>
</td></tr>
<tr><td>Test setup:</td><td> 
</td></tr>
<tr><td>Test Procedure:</td><td>1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. 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.
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 rota 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 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.
7. The radiation measurements are performed in X, Y, Z axis positioning. And found the Y axis positioning which it is worse case, only the test worst case mode is recorded in the report.</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 6.0 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 5.2 for details</td></tr>
<tr><td>Test results:</td><td>Pass</td></tr>
</table>

Measurement data:

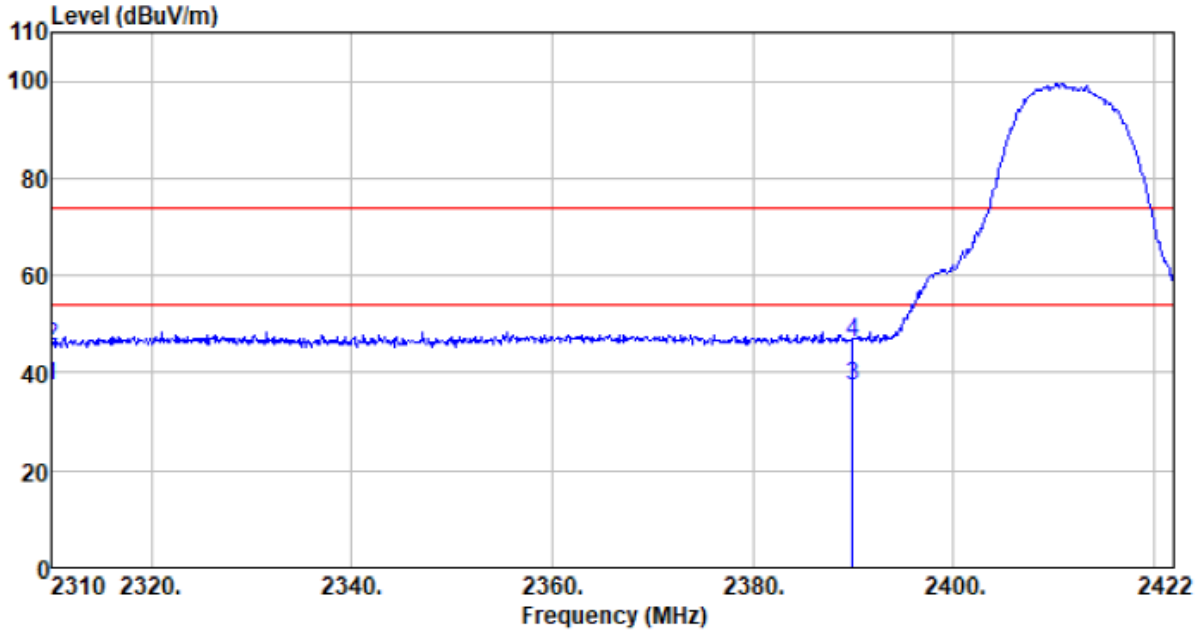
Test mode:	802.11b	Test channel:	Lowest

Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	35.05	27.14	5.30	30.43	37.06	54.00	-16.94	Average
2310.000	44.26	27.14	5.30	30.43	46.27	74.00	-27.73	Peak
2390.000	33.75	27.37	5.38	30.24	36.26	54.00	-17.74	Average
2390.000	45.64	27.37	5.38	30.24	48.15	74.00	-25.85	Peak

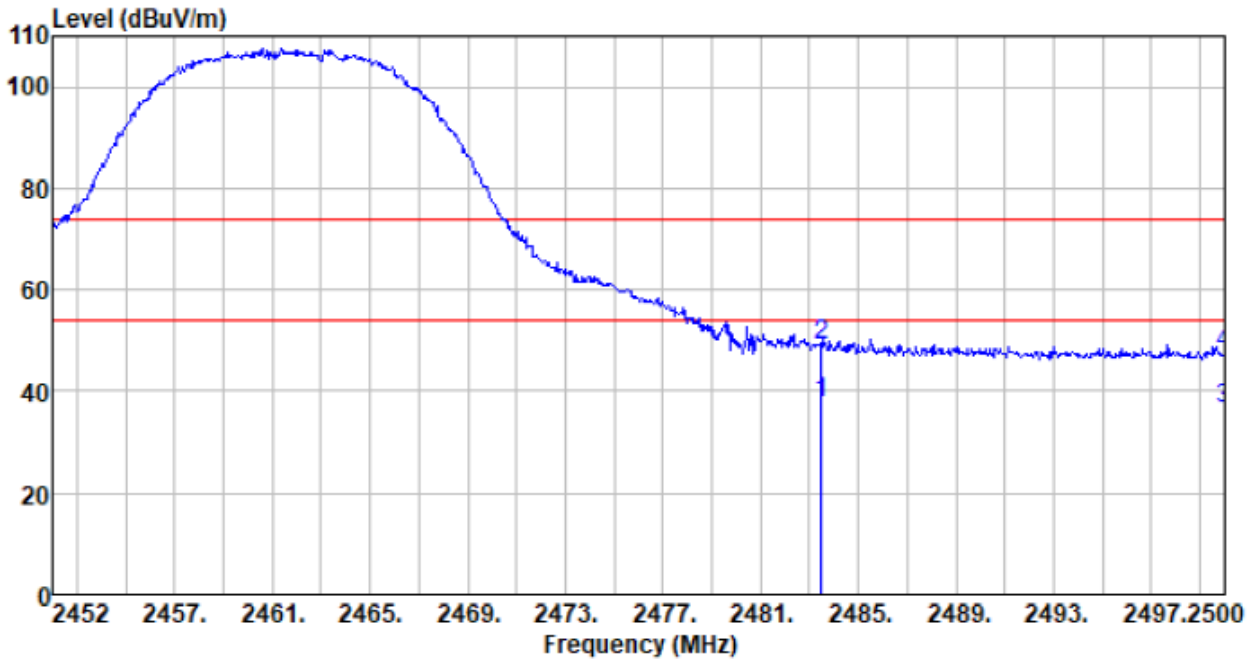
Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	35.34	27.14	5.30	30.43	37.35	54.00	-16.65	Average
2310.000	43.44	27.14	5.30	30.43	45.45	74.00	-28.55	Peak
2390.000	34.71	27.37	5.38	30.24	37.22	54.00	-16.78	Average
2390.000	43.68	27.37	5.38	30.24	46.19	74.00	-27.81	Peak

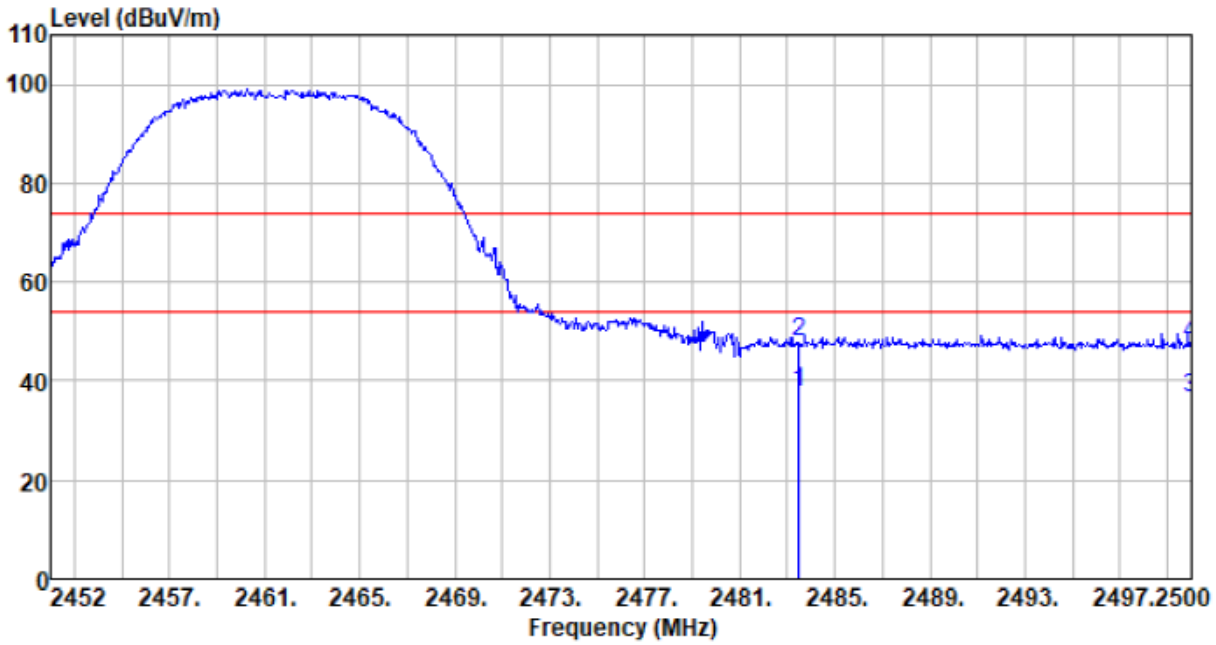
Test mode:	802.11b	Test channel:	Highest

Horizontal:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2483.500	34.88	27.66	5.47	30.12	37.89	54.00	-16.11	Average
2483.500	46.04	27.66	5.47	30.12	49.05	74.00	-24.95	Peak
2500.000	33.51	27.70	5.49	30.13	36.57	54.00	-17.43	Average
2500.000	44.30	27.70	5.49	30.13	47.36	74.00	-26.64	Peak

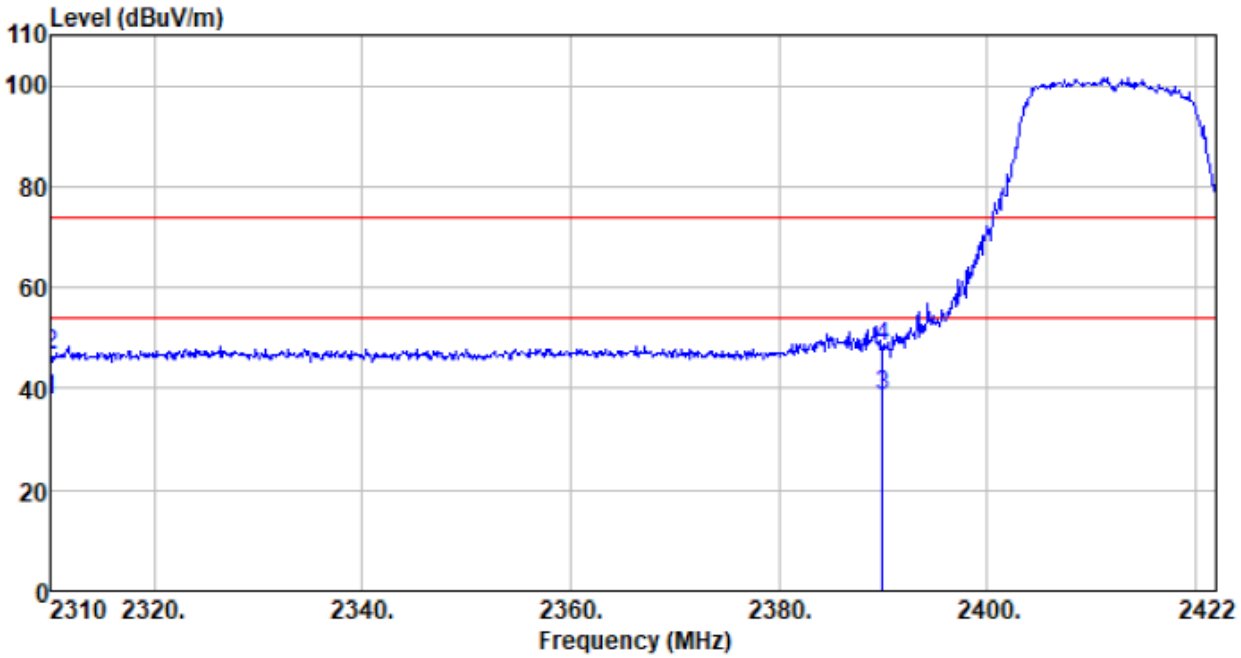
Vertical:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2483.500	34.61	27.66	5.47	30.12	37.62	54.00	-16.38	Average
2483.500	44.77	27.66	5.47	30.12	47.78	74.00	-26.22	Peak
2500.000	33.43	27.70	5.49	30.13	36.49	54.00	-17.51	Average
2500.000	44.52	27.70	5.49	30.13	47.58	74.00	-26.42	Peak

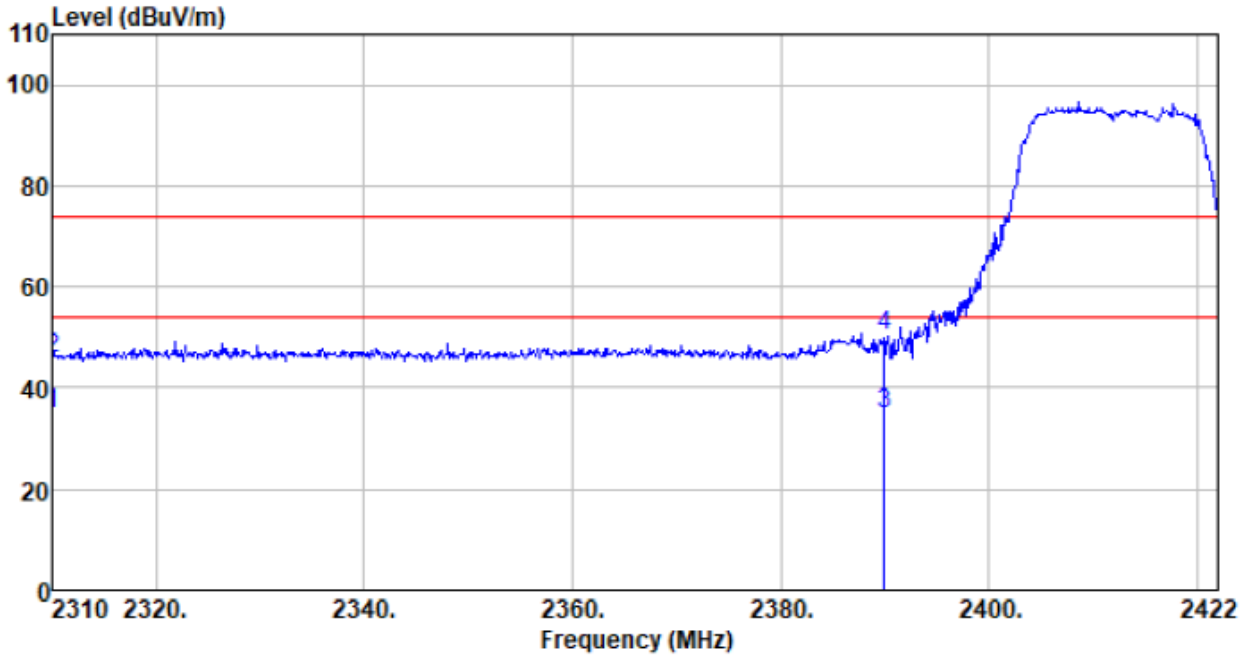
Test mode:	802.11g	Test channel:	Lowest

Horizontal:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	35.92	27.14	5.30	30.43	37.93	54.00	-16.07	Average
2310.000	44.63	27.14	5.30	30.43	46.64	74.00	-27.36	Peak
2390.000	35.93	27.37	5.38	30.24	38.44	54.00	-15.56	Average
2390.000	45.60	27.37	5.38	30.24	48.11	74.00	-25.89	Peak

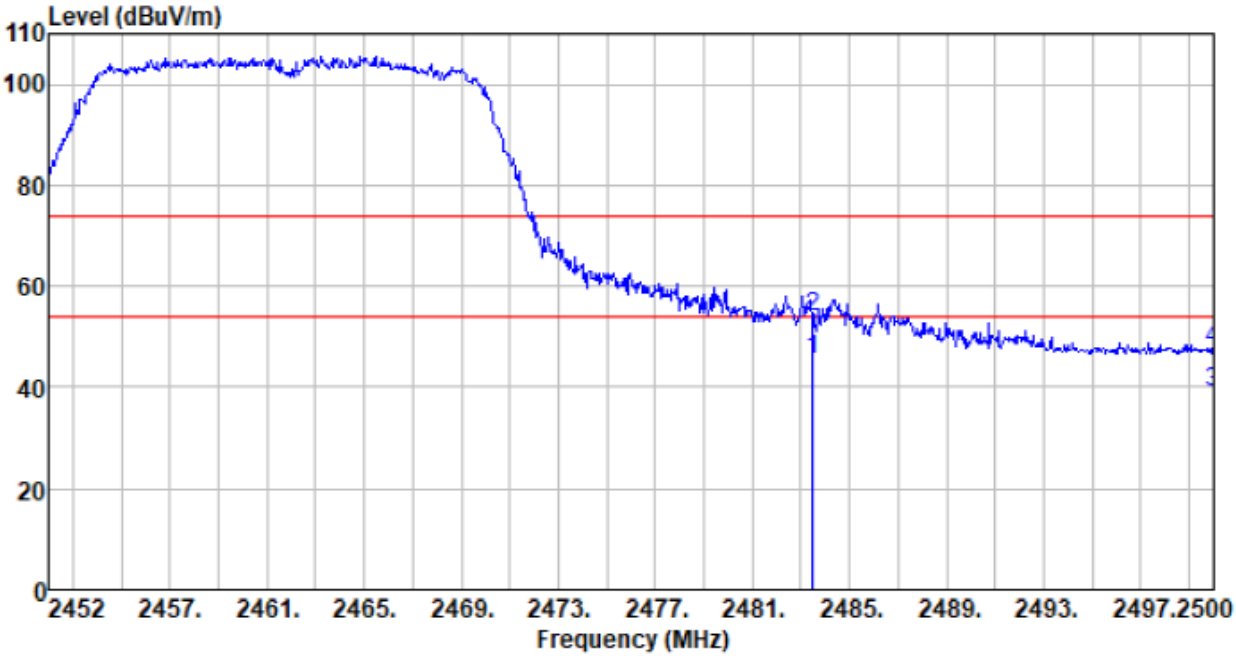
Vertical:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	32.95	27.14	5.30	30.43	34.96	54.00	-19.04	Average
2310.000	43.96	27.14	5.30	30.43	45.97	74.00	-28.03	Peak
2390.000	32.36	27.37	5.38	30.24	34.87	54.00	-19.13	Average
2390.000	47.90	27.37	5.38	30.24	50.41	74.00	-23.59	Peak

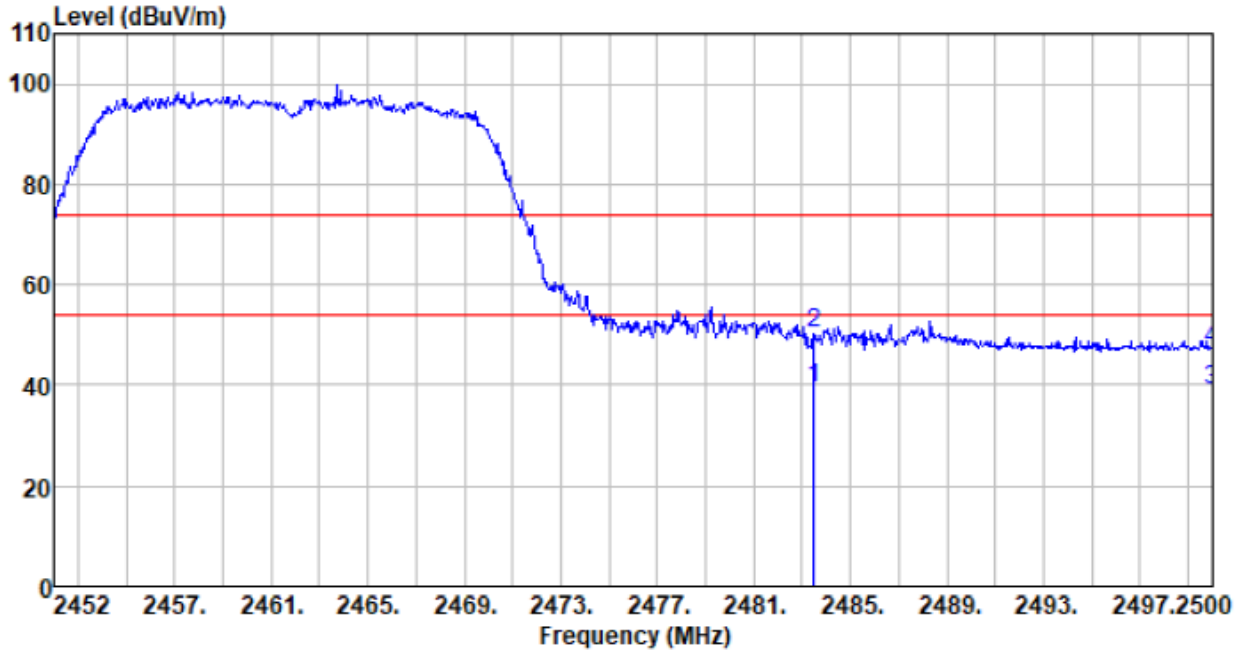
Test mode:	802.11g	Test channel:	Highest

Horizontal:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2483.500	42.26	27.66	5.47	30.12	45.27	54.00	-8.73	Average
2483.500	51.13	27.66	5.47	30.12	54.14	74.00	-19.86	Peak
2500.000	35.75	27.70	5.49	30.13	38.81	54.00	-15.19	Average
2500.000	44.30	27.70	5.49	30.13	47.36	74.00	-26.64	Peak

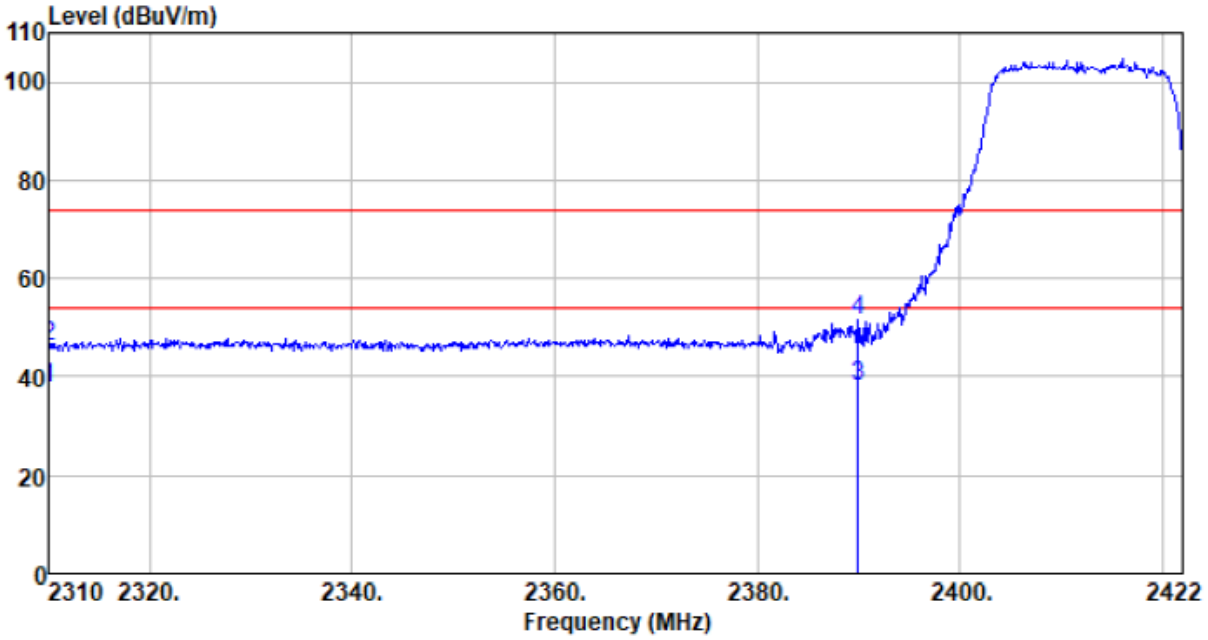
Vertical:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2483.500	36.36	27.66	5.47	30.12	39.37	54.00	-14.63	Average
2483.500	47.29	27.66	5.47	30.12	50.30	74.00	-23.70	Peak
2500.000	35.73	27.70	5.49	30.13	38.79	54.00	-15.21	Average
2500.000	44.13	27.70	5.49	30.13	47.19	74.00	-26.81	Peak

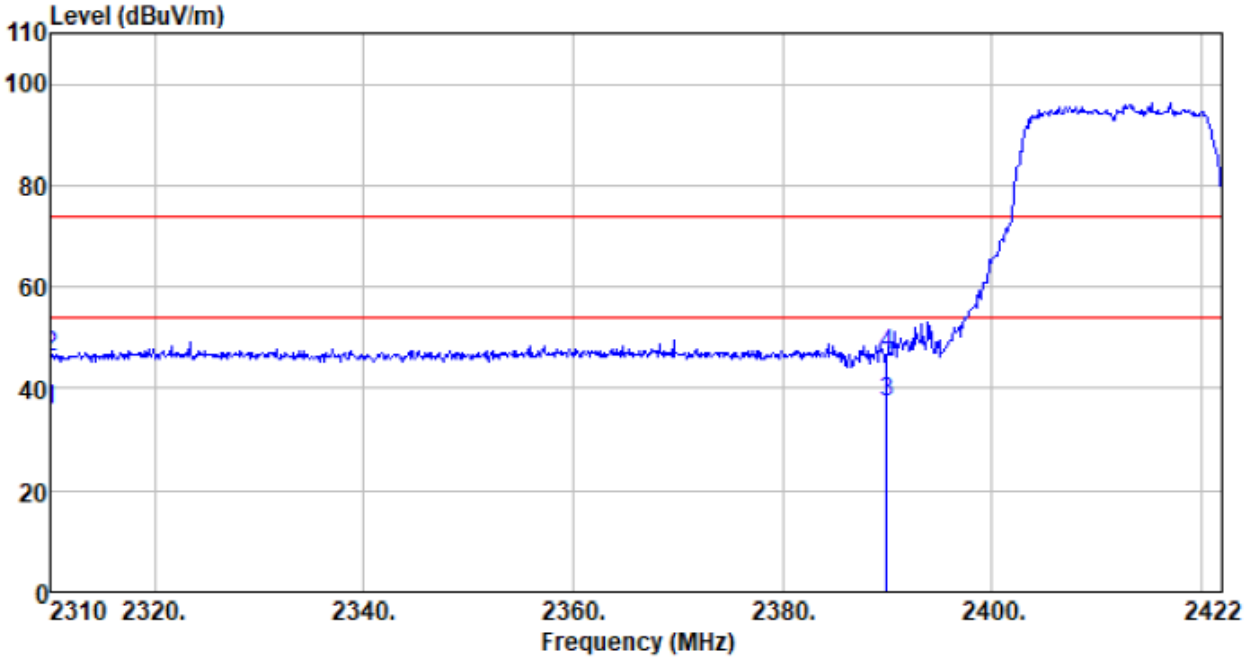
Test mode:	802.11n(HT20)	Test channel:	Lowest

Horizontal:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	35.57	27.14	5.30	30.43	37.58	54.00	-16.42	Average
2310.000	44.29	27.14	5.30	30.43	46.30	74.00	-27.70	Peak
2390.000	35.47	27.37	5.38	30.24	37.98	54.00	-16.02	Average
2390.000	49.00	27.37	5.38	30.24	51.51	74.00	-22.49	Peak

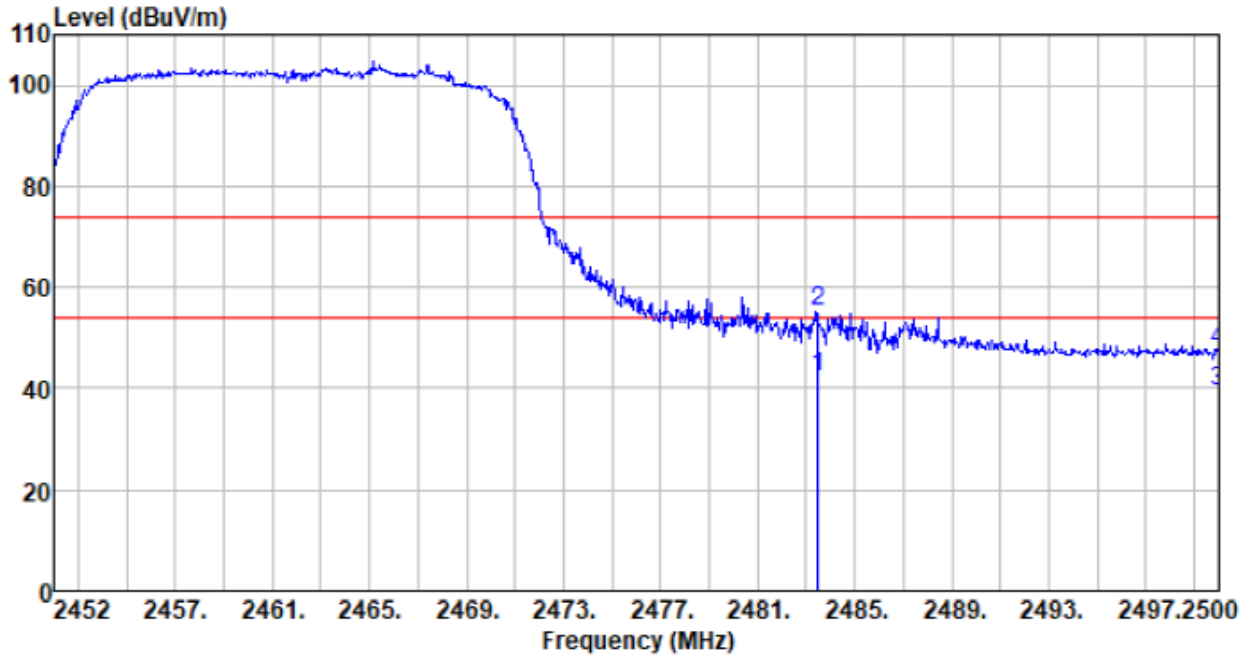
Vertical:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	33.77	27.14	5.30	30.43	35.78	54.00	-18.22	Average
2310.000	44.12	27.14	5.30	30.43	46.13	74.00	-27.87	Peak
2390.000	34.95	27.37	5.38	30.24	37.46	54.00	-16.54	Average
2390.000	44.30	27.37	5.38	30.24	46.81	74.00	-27.19	Peak

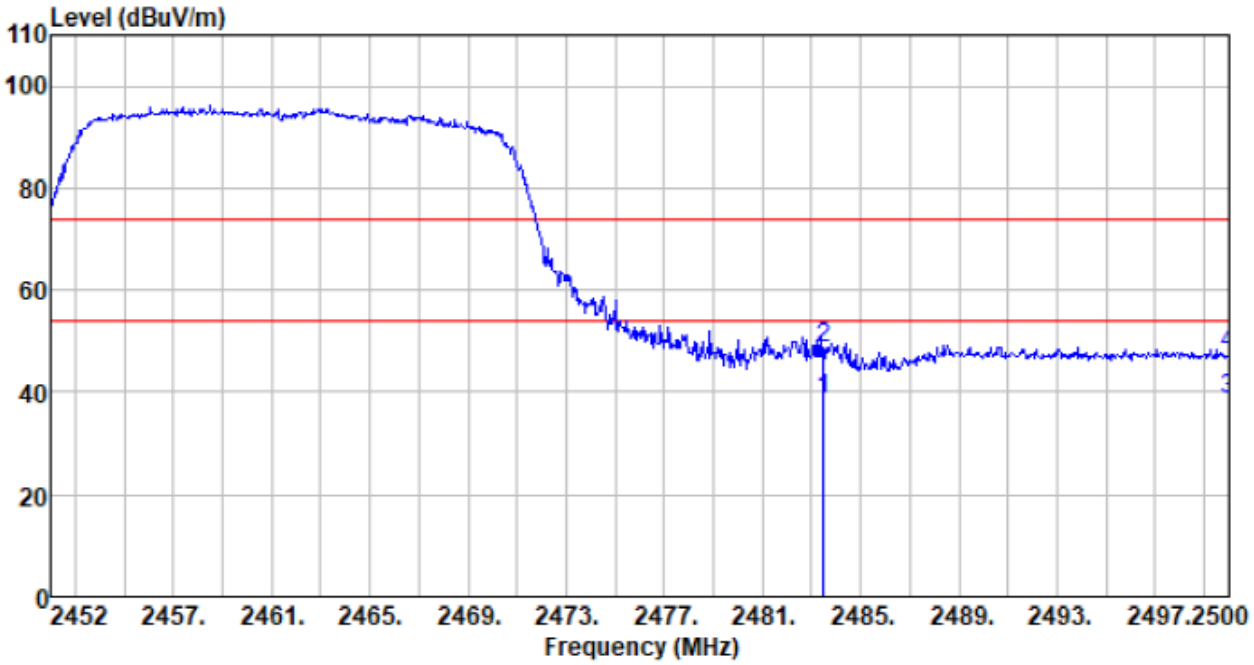
Test mode:	802.11n(HT20)	Test channel:	Highest

Horizontal:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2483.500	39.06	27.66	5.47	30.12	42.07	54.00	-11.93	Average
2483.500	52.33	27.66	5.47	30.12	55.34	74.00	-18.66	Peak
2500.000	36.44	27.70	5.49	30.13	39.50	54.00	-14.50	Average
2500.000	44.46	27.70	5.49	30.13	47.52	74.00	-26.48	Peak

Vertical:



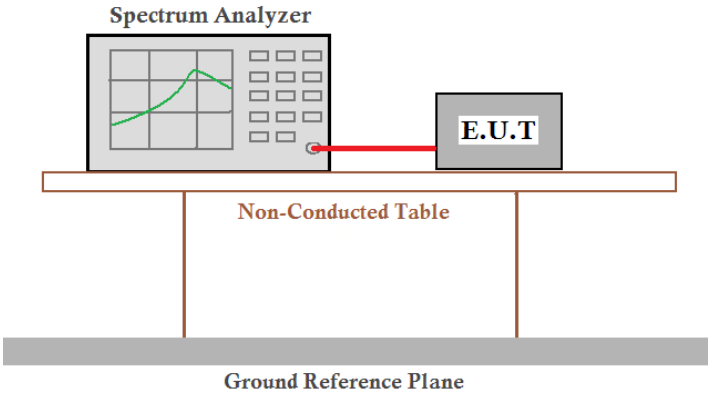
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2483.500	35.41	27.66	5.47	30.12	38.42	54.00	-15.58	Average
2483.500	45.74	27.66	5.47	30.12	48.75	74.00	-25.25	Peak
2500.000	35.47	27.70	5.49	30.13	38.53	54.00	-15.47	Average
2500.000	44.28	27.70	5.49	30.13	47.34	74.00	-26.66	Peak

Remarks:

1. *Only the worst case Main Antenna test data.*
2. *The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.*
3. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
4. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

7.7 Spurious Emission

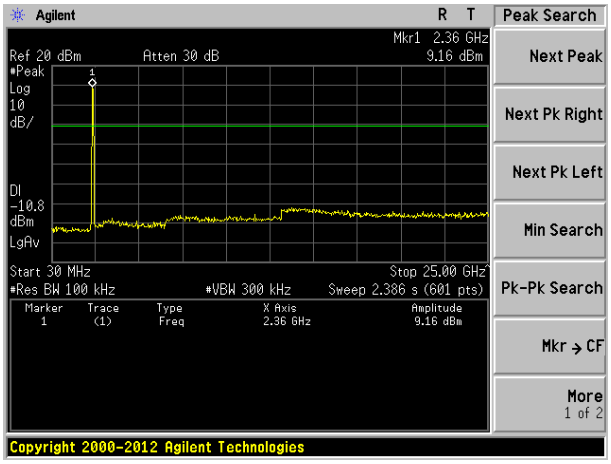
7.7.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d) RSS-247 Section 5.5
Test Method:	KDB558074 D01 15.247 Meas Guidance V05 ANSI C63.10:2013 & RSS-Gen
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.
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Test plot as follows:

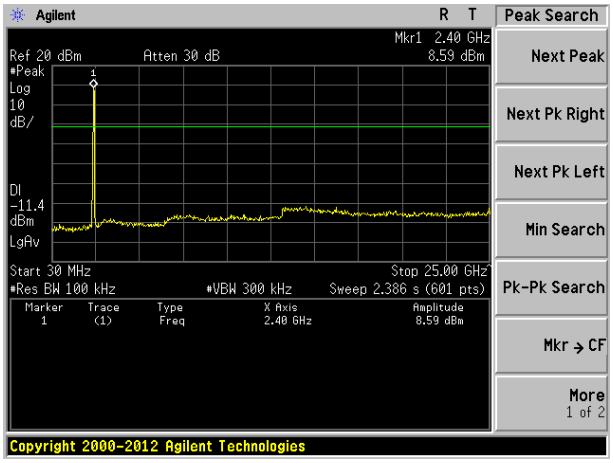
Test mode:	802.11b

Lowest channel



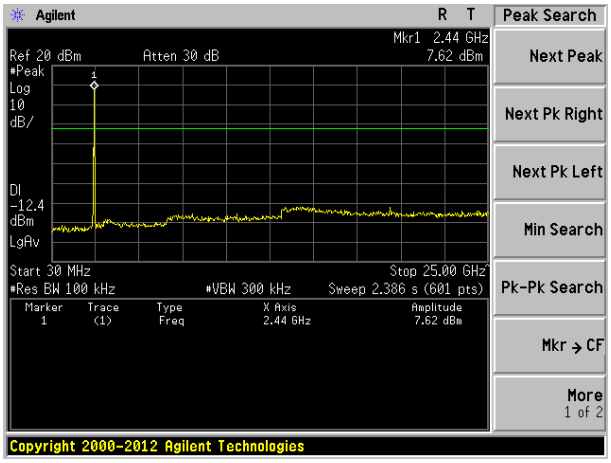
30MHz~25GHz

Middle channel



30MHz~25GHz

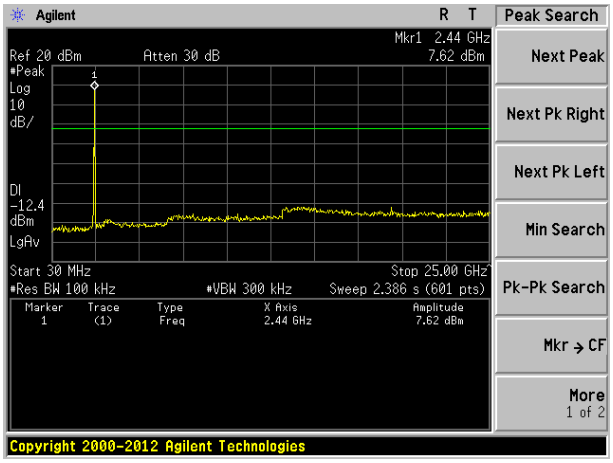
Highest channel



30MHz~25GHz

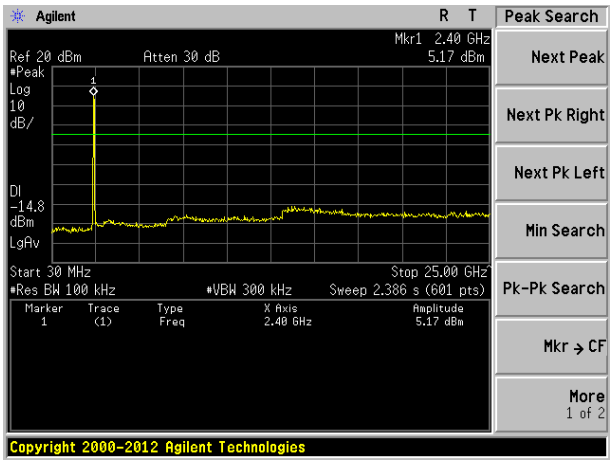
Test mode:	802.11g

Lowest channel



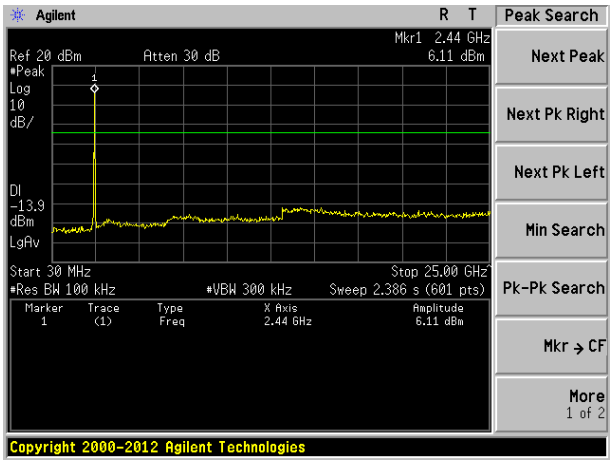
30MHz~25GHz

Middle channel



30MHz~25GHz

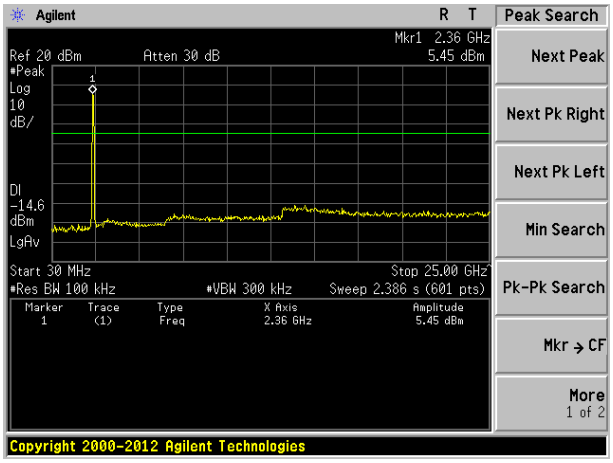
Highest channel



30MHz~25GHz

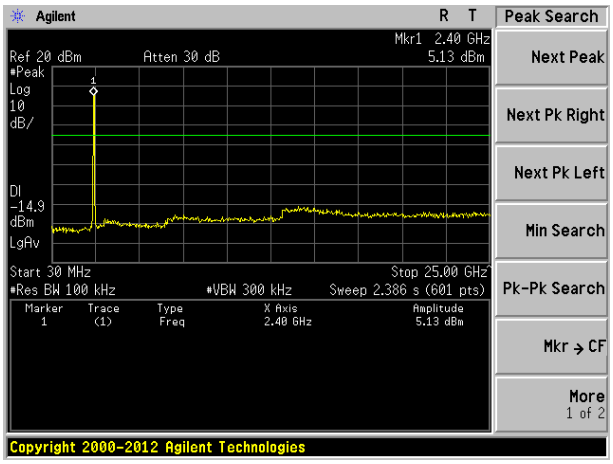
Test mode:	802.11n(HT20)

Lowest channel



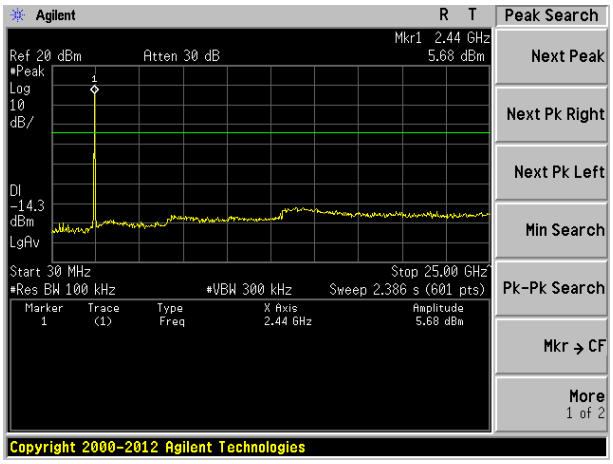
30MHz~25GHz

Middle channel



30MHz~25GHz

Highest channel

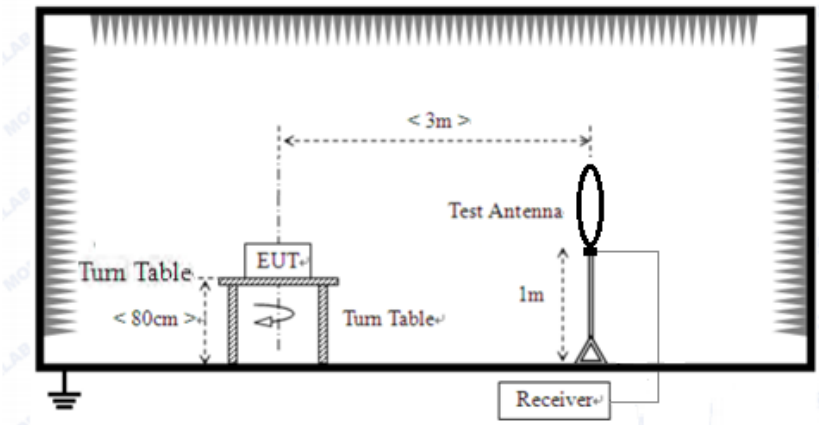


30MHz~25GHz

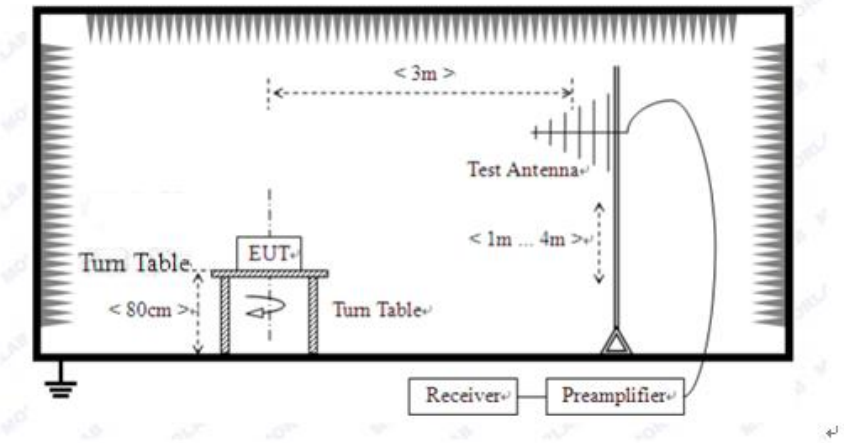
7.7.2 Radiated Emission Method

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209
RSS-247 Section 3.3 & RSS-Gen Section 8.9</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2013 & RSS-Gen</td></tr>
<tr><td>Test Frequency Range:</td><td>9kHz to 25GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Value</th></tr>
<tr><td>9KHz-150KHz</td><td>Quasi-peak</td><td>200Hz</td><td>600Hz</td><td>Quasi-peak</td></tr>
<tr><td>150KHz-30MHz</td><td>Quasi-peak</td><td>9KHz</td><td>30KHz</td><td>Quasi-peak</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average</td></tr>
</table>
</td></tr>
<tr><td>FCC Limit:</td><td>
<table>
<tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr>
<tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr>
<tr><td>1.705-30.0</td><td>30</td><td>30</td></tr>
<tr><td>30-88</td><td>100**</td><td>3</td></tr>
<tr><td>88-216</td><td>150**</td><td>3</td></tr>
<tr><td>216-960</td><td>200**</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>3</td></tr>
</table>

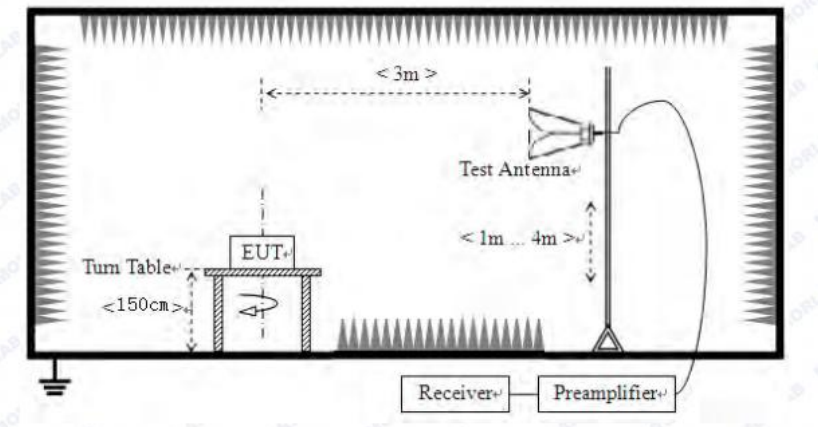
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
</td></tr>
<tr><td>IC Limit:</td><td>
Table 5 – General field strength limits at frequencies above 30 MHz
<table>
<tr><th>Frequency
(MHz)</th><th>Field strength
(µV/m at 3 m)</th></tr>
<tr><td>30 – 88</td><td>100</td></tr>
<tr><td>88 – 216</td><td>150</td></tr>
<tr><td>216 – 960</td><td>200</td></tr>
<tr><td>Above 960</td><td>500</td></tr>
</table>
Table 6 – General field strength limits at frequencies below 30 MHz
<table>
<tr><th>Frequency</th><th>Magnetic field strength (H-Field)
(µA/m)</th><th>Measurement distance
(m)</th></tr>
<tr><td>9 - 490 kHz [1]</td><td>6.37/F (F in kHz)</td><td>300</td></tr>
<tr><td>490 - 1705 kHz</td><td>63.7/F (F in kHz)</td><td>30</td></tr>
<tr><td>1.705 - 30 MHz</td><td>0.08</td><td>30</td></tr>
</table>
Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.
</td></tr>
<tr><td>Test setup:</td><td>For radiated emissions from 9kHz to 30MHz</td></tr>
</table>



For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



Test Procedure:	1. The EUT was placed on the top of a rotating table (0.8m for below 1G and 1.5m for above 1G) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna

	tower. 3. 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. 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 rota 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 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.					
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test voltage:	AC120V 60Hz					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test results:	Pass					

Remarks:

1. Only the worst case Main Antenna test data.

2. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

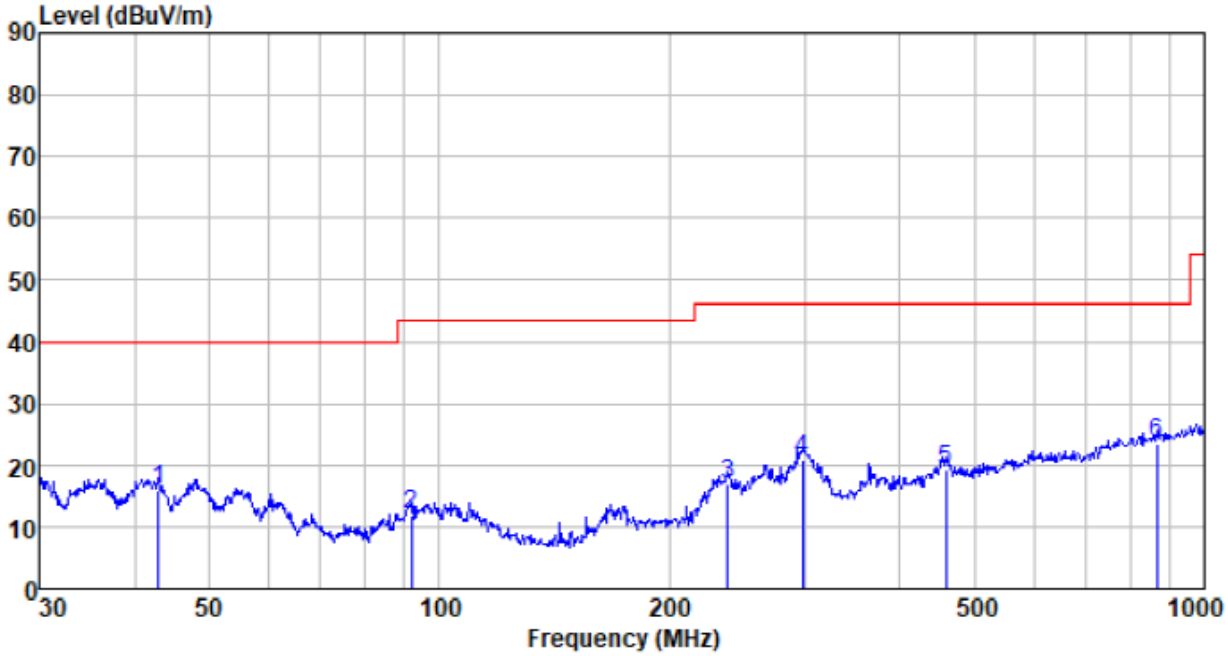
Measurement data:

■ **9kHz~30MHz**

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

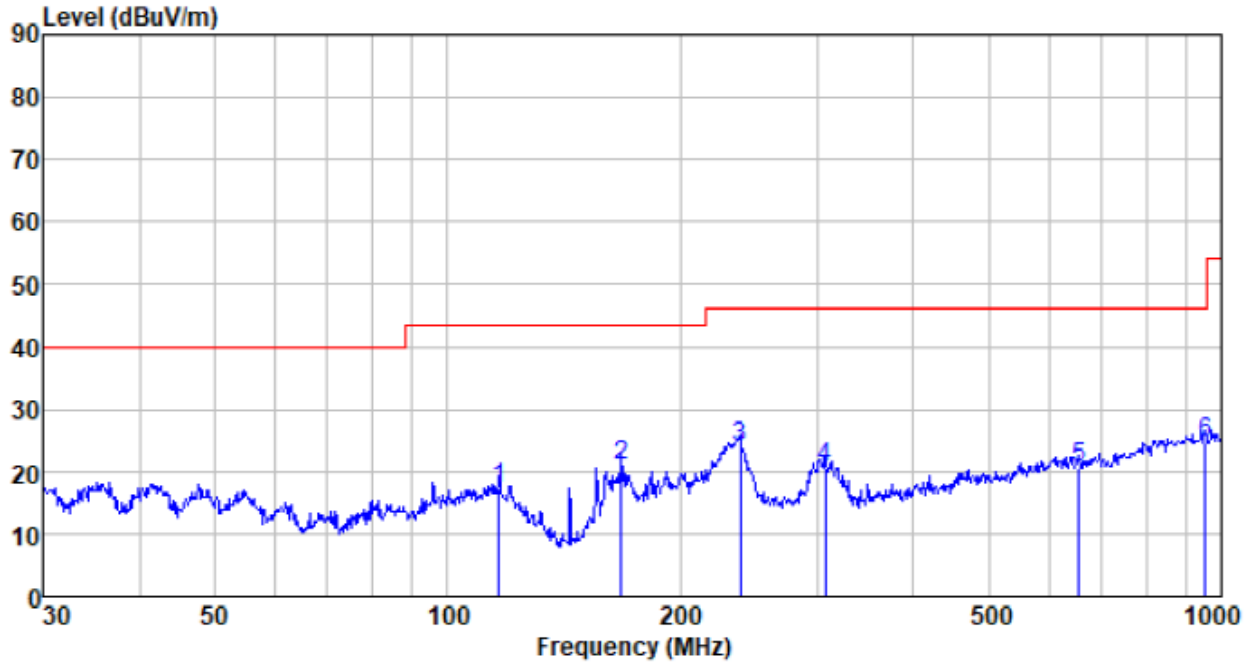
■ **Below 1GHz**

Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
42.900	39.00	12.23	0.69	35.83	16.09	40.00	-23.91	QP
91.816	36.44	10.97	1.12	36.65	11.88	43.50	-31.62	QP
238.310	40.41	11.78	2.06	37.37	16.88	46.00	-29.12	QP
298.268	42.35	13.56	2.35	37.42	20.84	46.00	-25.16	QP
459.114	37.09	16.52	3.13	37.51	19.23	46.00	-26.77	QP
866.088	34.53	21.99	4.73	37.61	23.64	46.00	-22.36	QP

Vertical:

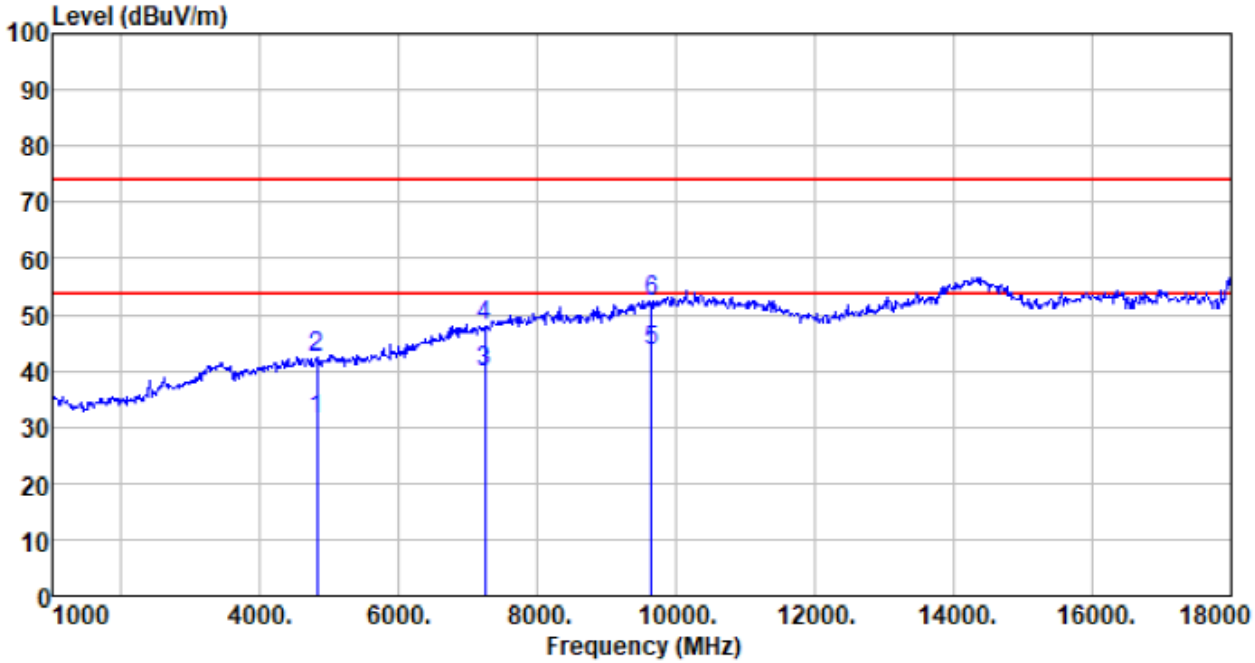


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
116.540	42.85	10.01	1.33	36.85	17.34	43.50	-26.16	QP
167.824	47.82	8.46	1.67	37.18	20.77	43.50	-22.73	QP
239.147	47.28	11.82	2.06	37.37	23.79	46.00	-22.21	QP
307.831	42.00	13.76	2.40	37.43	20.73	46.00	-25.27	QP
654.232	34.58	19.55	3.93	37.59	20.47	46.00	-25.53	QP
952.094	34.66	22.52	5.04	37.55	24.67	46.00	-21.33	QP

■ **Above 1GHz**

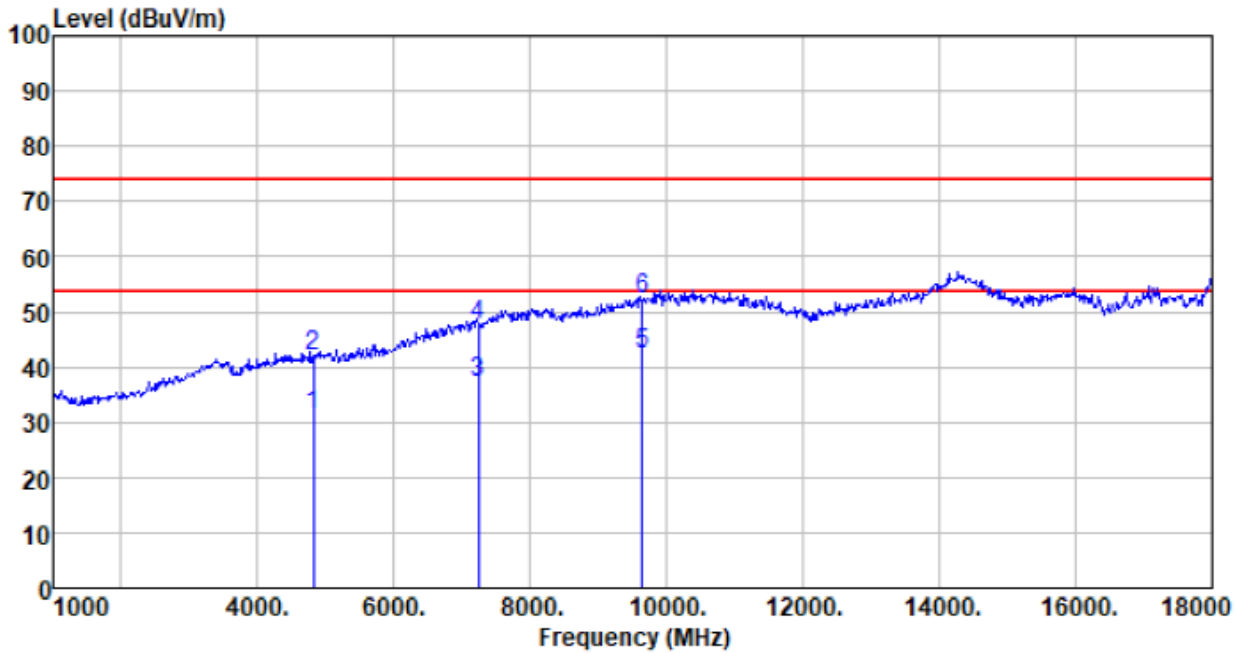
Test mode:	802.11b	Test channel:	Lowest

Horizontal:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4824.000	23.51	31.22	8.61	32.10	31.24	54.00	-22.76	Average
4824.000	34.83	31.22	8.61	32.10	42.56	74.00	-31.44	Peak
7236.000	23.90	36.25	11.68	31.97	39.86	54.00	-14.14	Average
7236.000	32.11	36.25	11.68	31.97	48.07	74.00	-25.93	Peak
9648.000	22.95	37.97	14.16	31.56	43.52	54.00	-10.48	Average
9648.000	31.92	37.97	14.16	31.56	52.49	74.00	-21.51	Peak

Vertical:

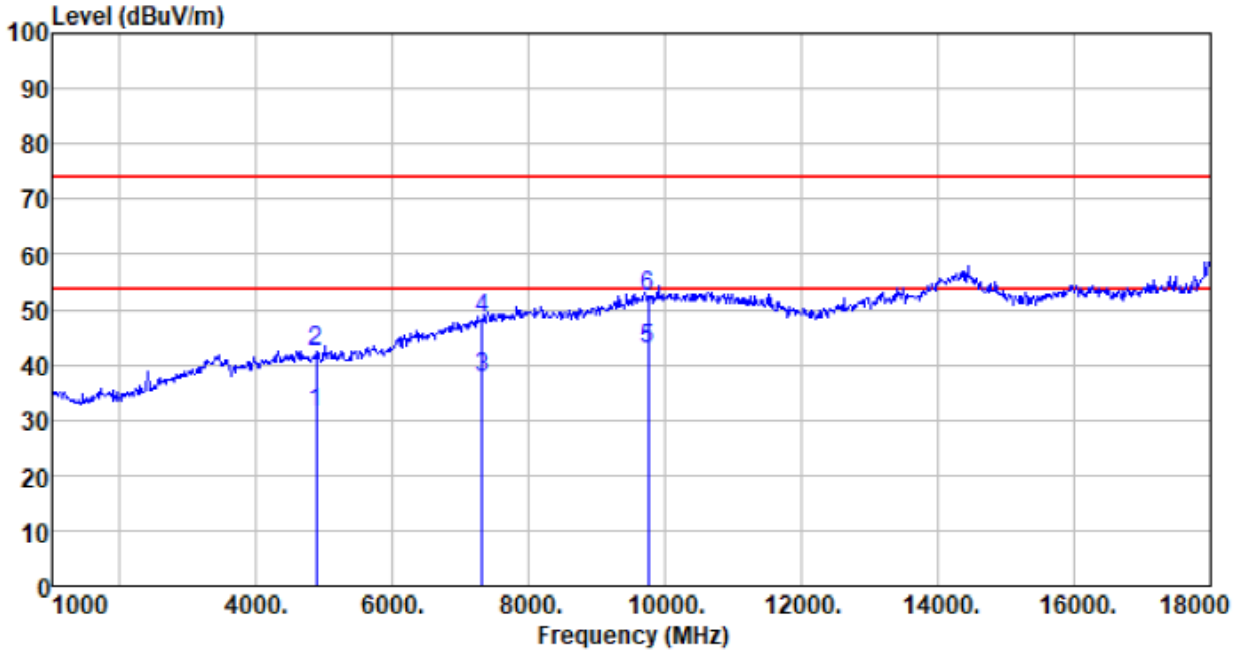


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4824.000	23.75	31.22	8.61	32.10	31.48	54.00	-22.52	Average
4824.000	34.52	31.22	8.61	32.10	42.25	74.00	-31.75	Peak
7236.000	21.39	36.25	11.68	31.97	37.35	54.00	-16.65	Average
7236.000	31.49	36.25	11.68	31.97	47.45	74.00	-26.55	Peak
9648.000	21.86	37.97	14.16	31.56	42.43	54.00	-11.57	Average
9648.000	31.76	37.97	14.16	31.56	52.33	74.00	-21.67	Peak

Remark: Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

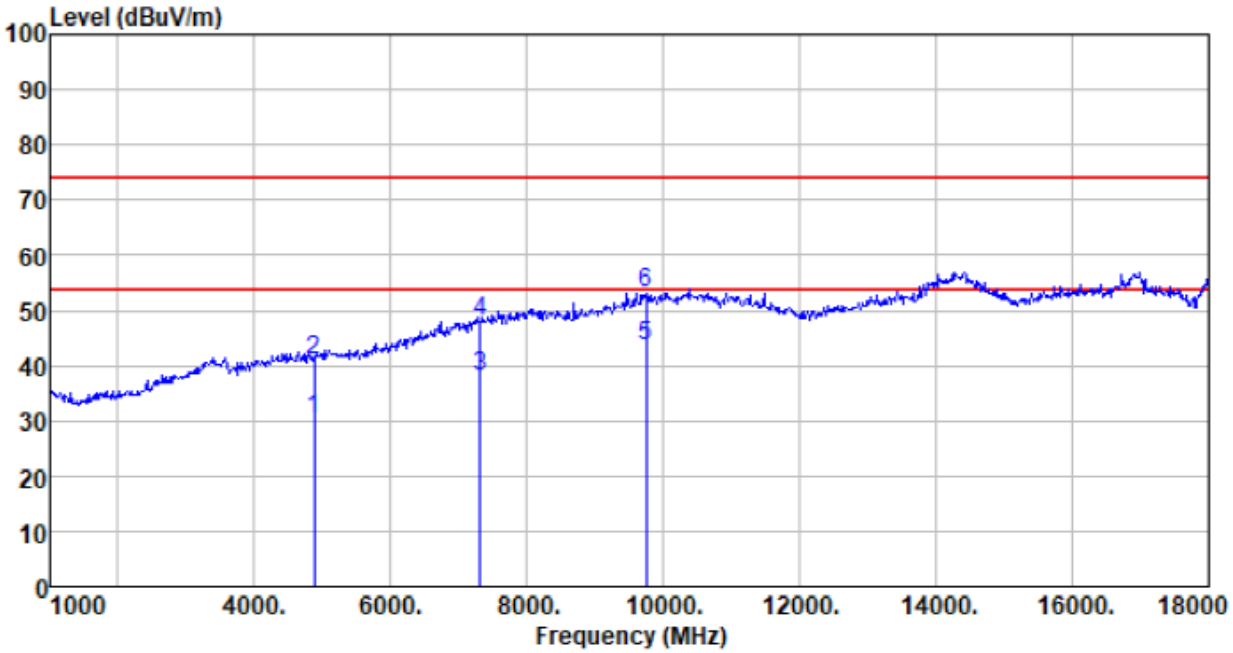
Test mode:	802.11b	Test channel:	Middle

Horizontal:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4874.000	23.43	31.31	8.66	32.12	31.28	54.00	-22.72	Average
4874.000	34.40	31.31	8.66	32.12	42.25	74.00	-31.75	Peak
7311.000	21.40	36.39	11.71	31.91	37.59	54.00	-16.41	Average
7311.000	32.07	36.39	11.71	31.91	48.26	74.00	-25.74	Peak
9748.000	21.86	38.10	14.25	31.59	42.62	54.00	-11.38	Average
9748.000	31.51	38.10	14.25	31.59	52.27	74.00	-21.73	Peak

Vertical:

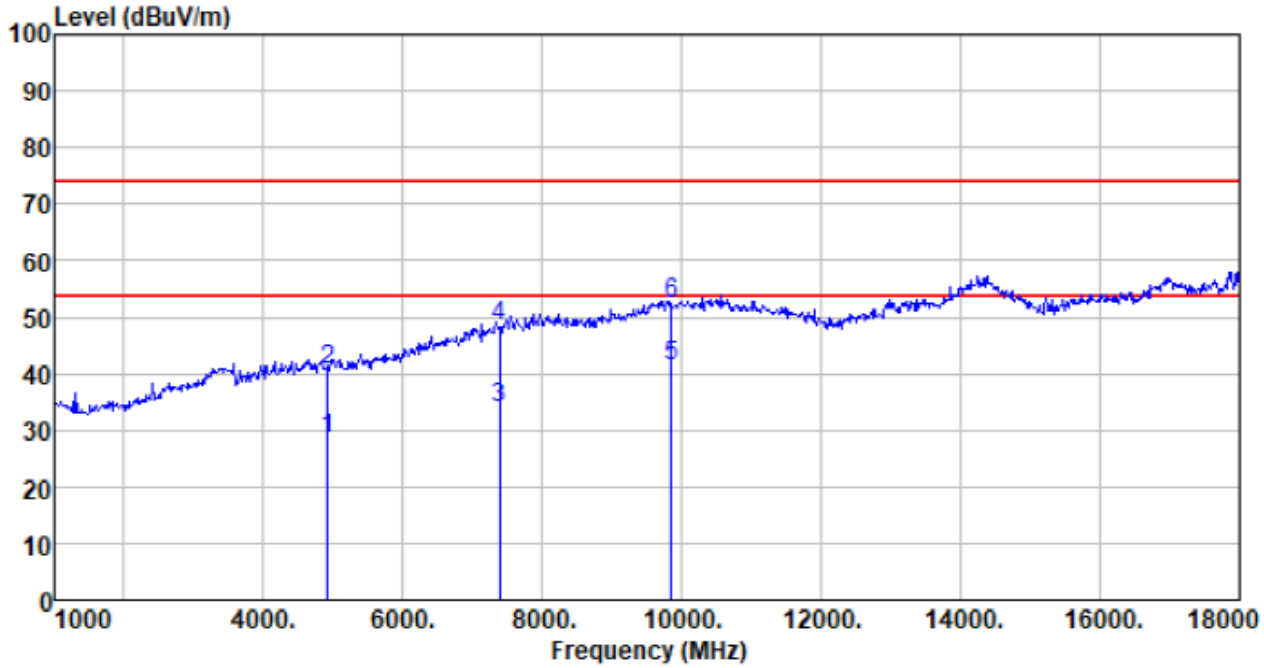


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4874.000	22.42	31.31	8.66	32.12	30.27	54.00	-23.73	Average
4874.000	33.19	31.31	8.66	32.12	41.04	74.00	-32.96	Peak
7311.000	21.87	36.39	11.71	31.91	38.06	54.00	-15.94	Average
7311.000	31.87	36.39	11.71	31.91	48.06	74.00	-25.94	Peak
9748.000	22.79	38.10	14.25	31.59	43.55	54.00	-10.45	Average
9748.000	32.36	38.10	14.25	31.59	53.12	74.00	-20.88	Peak

Remark: Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

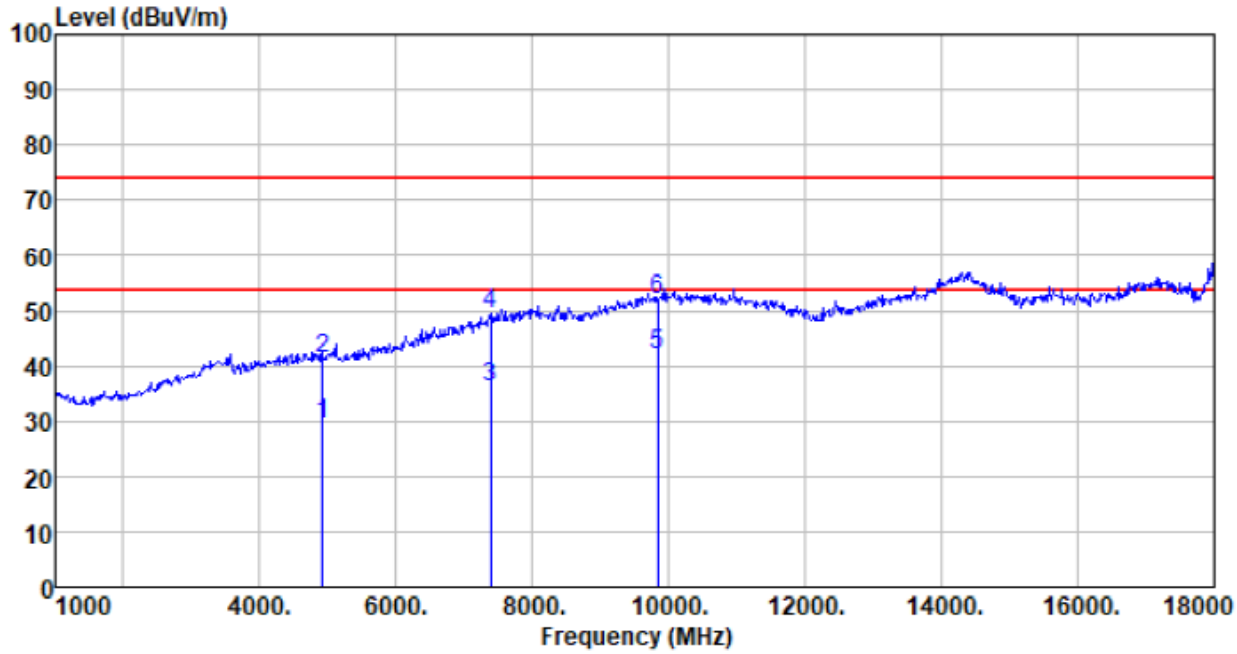
Test mode:	802.11b	Test channel:	Highest

Horizontal:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4924.000	20.47	31.39	8.70	32.15	28.41	54.00	-25.59	Average
4924.000	32.60	31.39	8.70	32.15	40.54	74.00	-33.46	Peak
7386.000	17.52	36.57	11.76	31.83	34.02	54.00	-19.98	Average
7386.000	31.76	36.57	11.76	31.83	48.26	74.00	-25.74	Peak
9848.000	20.73	38.20	14.31	31.74	41.50	54.00	-12.50	Average
9848.000	31.57	38.20	14.31	31.74	52.34	74.00	-21.66	Peak

Vertical:

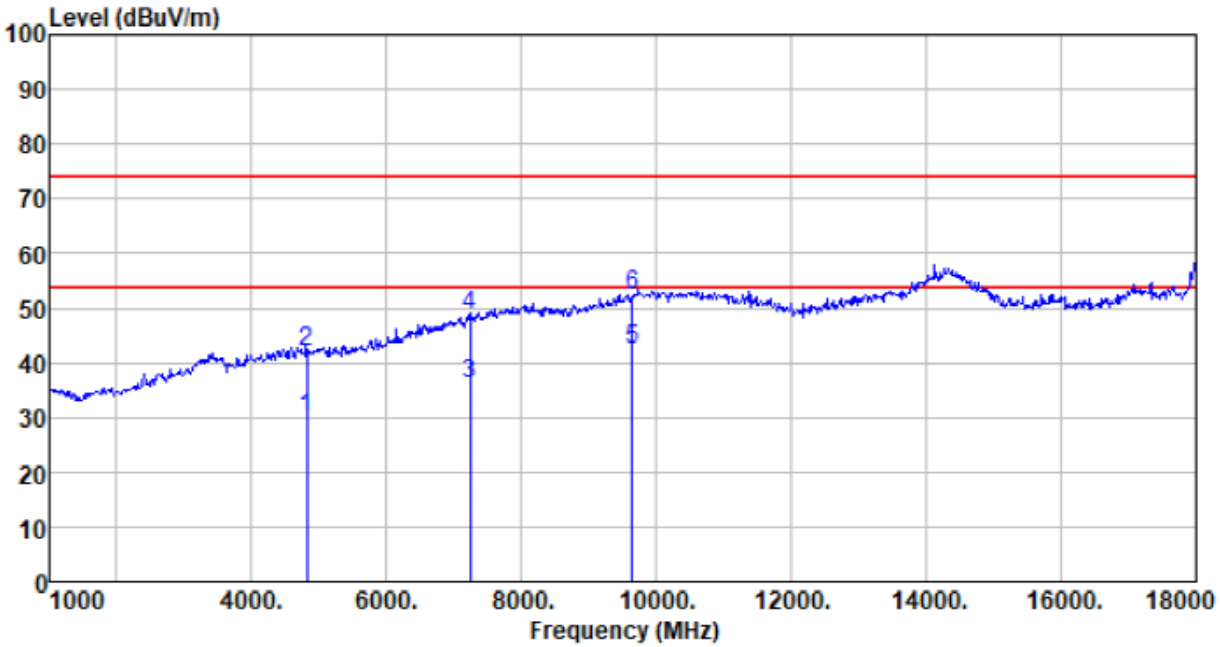


Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4924.000	21.46	31.39	8.70	32.15	29.40	54.00	-24.60	Average
4924.000	33.29	31.39	8.70	32.15	41.23	74.00	-32.77	Peak
7386.000	19.79	36.57	11.76	31.83	36.29	54.00	-17.71	Average
7386.000	32.99	36.57	11.76	31.83	49.49	74.00	-24.51	Peak
9840.000	21.37	38.20	14.31	31.74	42.14	54.00	-11.86	Average
9840.000	31.17	38.20	14.31	31.74	51.94	74.00	-22.06	Peak

Remark: Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

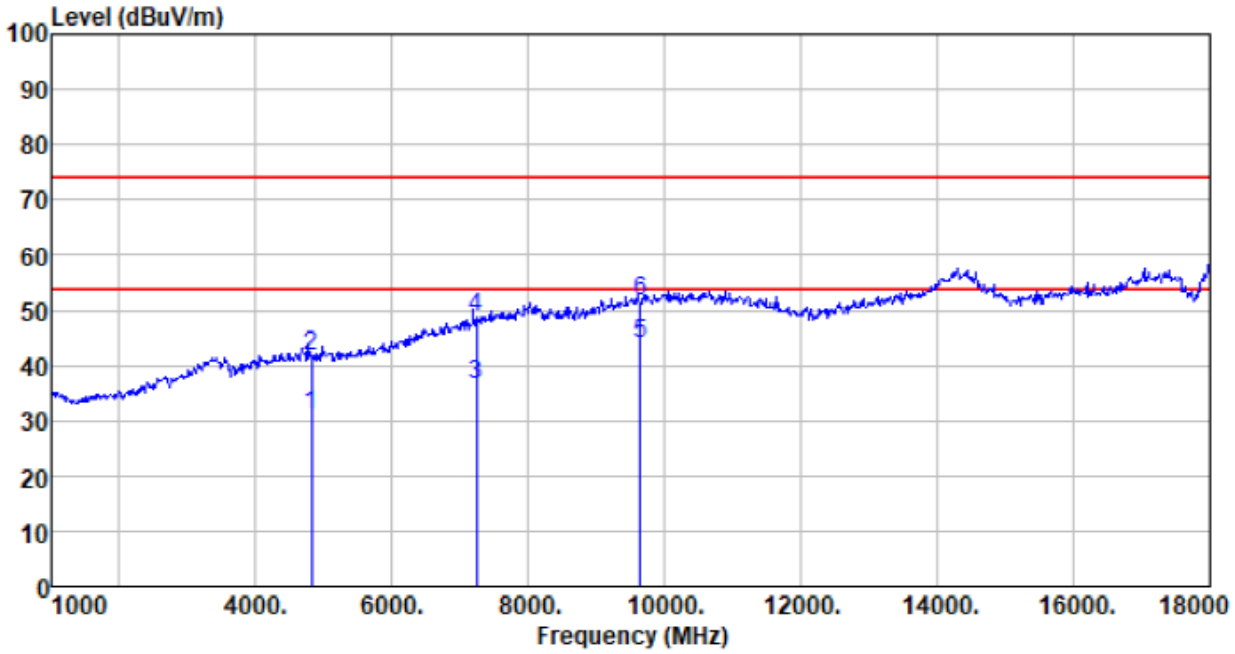
Test mode:	802.11g	Test channel:	lowest

Horizontal:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4824.000	22.24	31.22	8.61	32.10	29.97	54.00	-24.03	Average
4824.000	34.35	31.22	8.61	32.10	42.08	74.00	-31.92	Peak
7236.000	20.32	36.25	11.68	31.97	36.28	54.00	-17.72	Average
7236.000	32.75	36.25	11.68	31.97	48.71	74.00	-25.29	Peak
9648.000	21.80	37.97	14.16	31.56	42.37	54.00	-11.63	Average
9648.000	31.99	37.97	14.16	31.56	52.56	74.00	-21.44	Peak

Vertical:

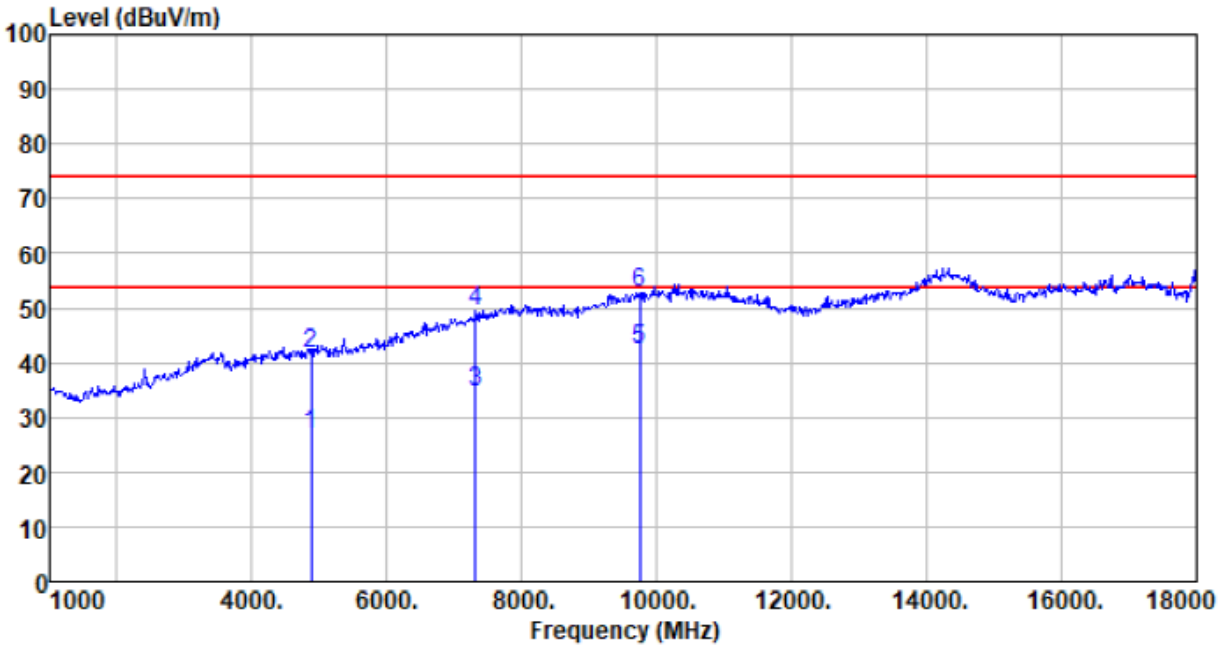


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4824.000	23.45	31.22	8.61	32.10	31.18	54.00	-22.82	Average
4824.000	34.04	31.22	8.61	32.10	41.77	74.00	-32.23	Peak
7236.000	20.48	36.25	11.68	31.97	36.44	54.00	-17.56	Average
7236.000	32.62	36.25	11.68	31.97	48.58	74.00	-25.42	Peak
9648.000	23.32	37.97	14.16	31.56	43.89	54.00	-10.11	Average
9648.000	30.95	37.97	14.16	31.56	51.52	74.00	-22.48	Peak

Remark: Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

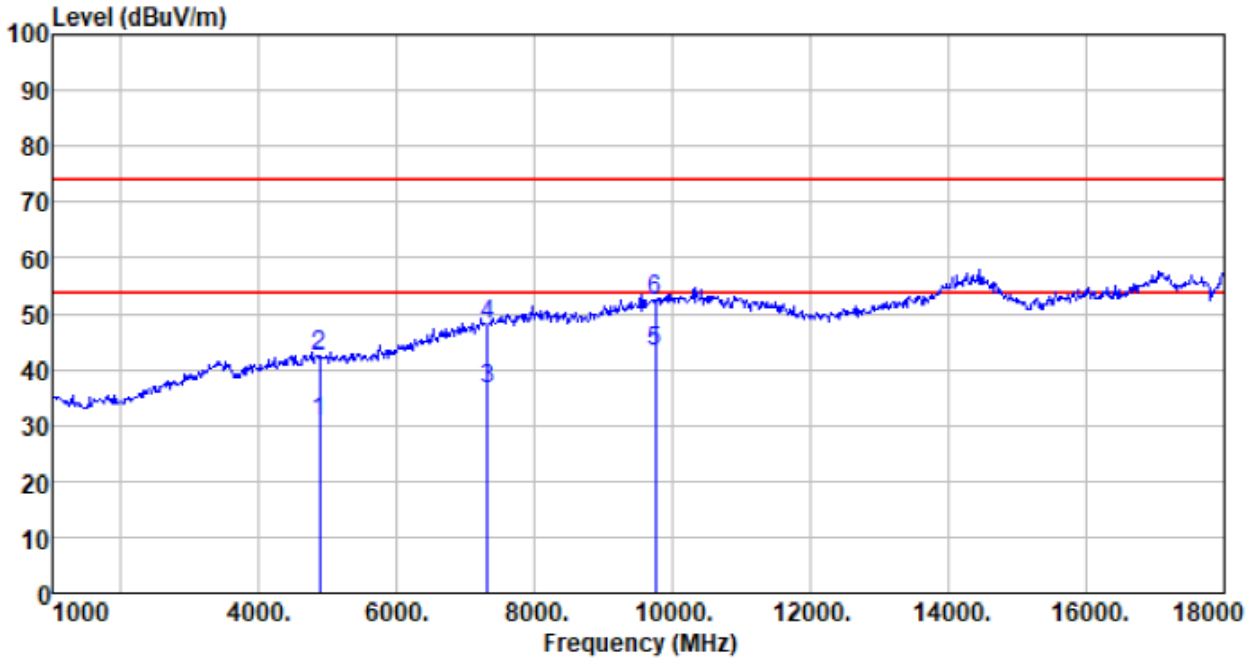
Test mode:	802.11g	Test channel:	Middle

Horizontal:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4874.000	19.18	31.31	8.66	32.12	27.03	54.00	-26.97	Average
4874.000	33.69	31.31	8.66	32.12	41.54	74.00	-32.46	Peak
7311.000	18.33	36.39	11.71	31.91	34.52	54.00	-19.48	Average
7311.000	33.34	36.39	11.71	31.91	49.53	74.00	-24.47	Peak
9748.000	21.61	38.10	14.25	31.59	42.37	54.00	-11.63	Average
9748.000	32.10	38.10	14.25	31.59	52.86	74.00	-21.14	Peak

Vertical:

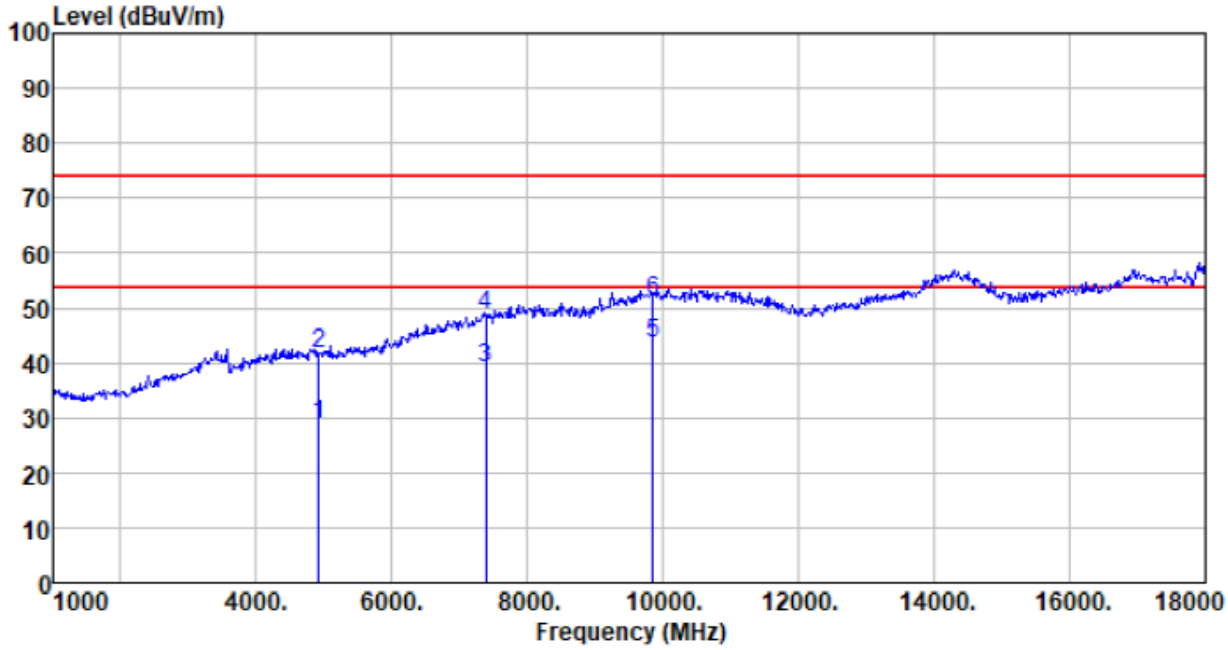


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4874.000	22.85	31.31	8.66	32.12	30.70	54.00	-23.30	Average
4874.000	34.60	31.31	8.66	32.12	42.45	74.00	-31.55	Peak
7311.000	20.28	36.39	11.71	31.91	36.47	54.00	-17.53	Average
7311.000	31.89	36.39	11.71	31.91	48.08	74.00	-25.92	Peak
9748.000	22.39	38.10	14.25	31.59	43.15	54.00	-10.85	Average
9748.000	31.49	38.10	14.25	31.59	52.25	74.00	-21.75	Peak

Remark: Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

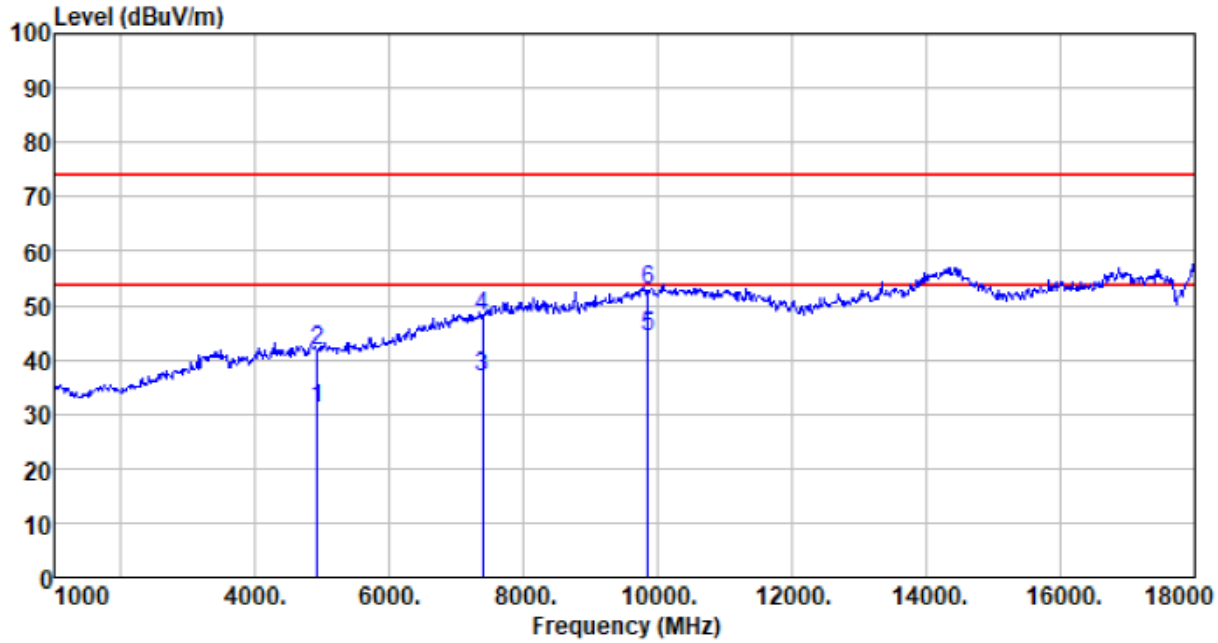
Test mode:	802.11g	Test channel:	Highest

Horizontal:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4924.000	20.79	31.39	8.70	32.15	28.73	54.00	-25.27	Average
4924.000	33.87	31.39	8.70	32.15	41.81	74.00	-32.19	Peak
7386.000	22.78	36.57	11.76	31.83	39.28	54.00	-14.72	Average
7386.000	32.32	36.57	11.76	31.83	48.82	74.00	-25.18	Peak
9848.000	22.79	38.20	14.31	31.74	43.56	54.00	-10.44	Average
9848.000	30.63	38.20	14.31	31.74	51.40	74.00	-22.60	Peak

Vertical:

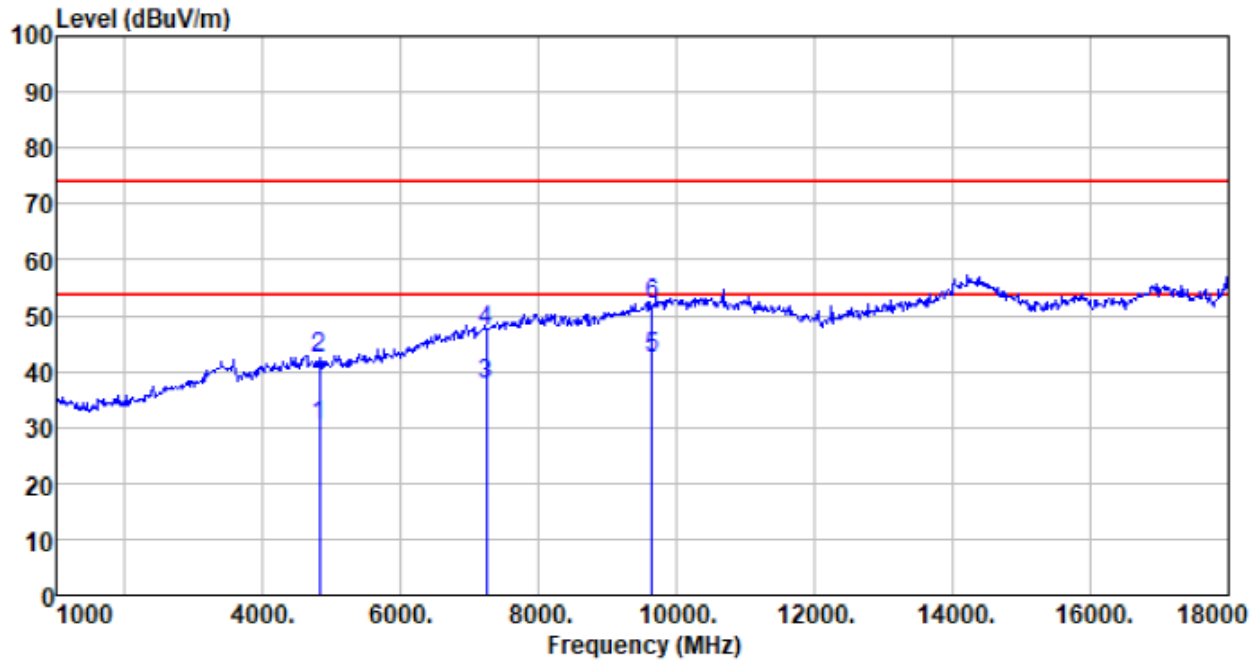


Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4924.000	23.17	31.39	8.70	32.15	31.11	54.00	-22.89	Average
4924.000	33.82	31.39	8.70	32.15	41.76	74.00	-32.24	Peak
7386.000	20.53	36.57	11.76	31.83	37.03	54.00	-16.97	Average
7386.000	31.39	36.57	11.76	31.83	47.89	74.00	-26.11	Peak
9848.000	23.58	38.20	14.31	31.74	44.35	54.00	-9.65	Average
9848.000	31.84	38.20	14.31	31.74	52.61	74.00	-21.39	Peak

Remark: Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

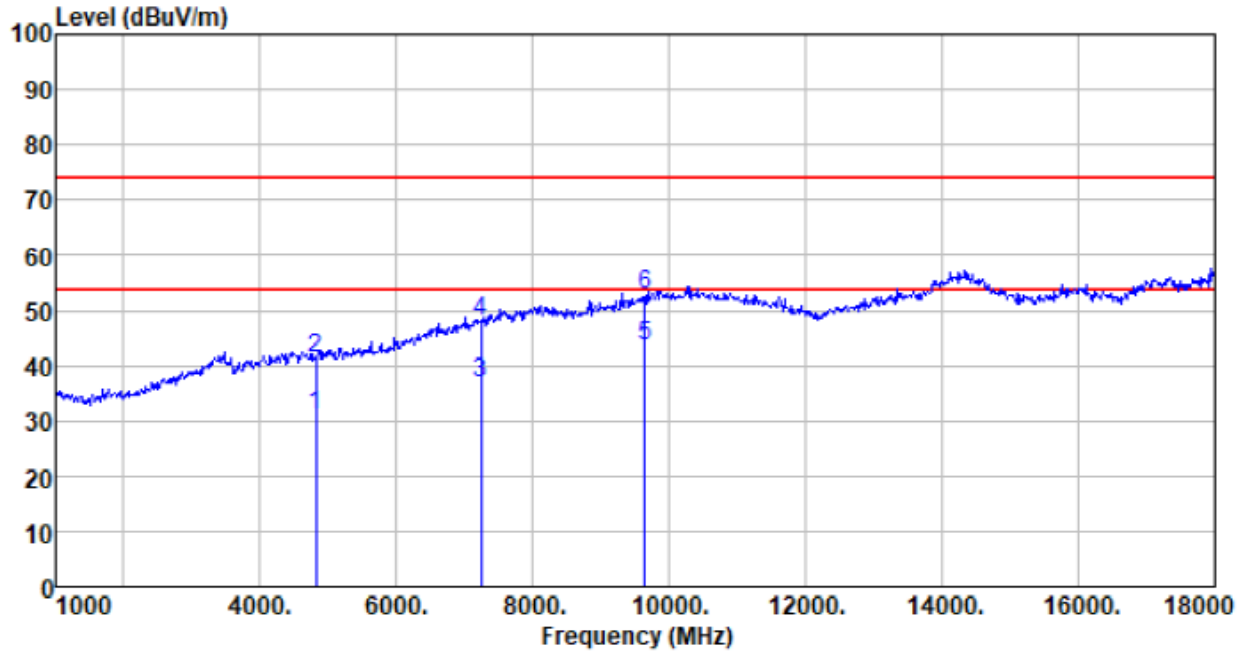
Test mode:	802.11n(HT20)	Test channel:	Lowest

Horizontal:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4824.000	22.51	31.22	8.61	32.10	30.24	54.00	-23.76	Average
4824.000	34.82	31.22	8.61	32.10	42.55	74.00	-31.45	Peak
7236.000	21.53	36.25	11.68	31.97	37.49	54.00	-16.51	Average
7236.000	31.31	36.25	11.68	31.97	47.27	74.00	-26.73	Peak
9648.000	21.77	37.97	14.16	31.56	42.34	54.00	-11.66	Average
9648.000	31.39	37.97	14.16	31.56	51.96	74.00	-22.04	Peak

Vertical:

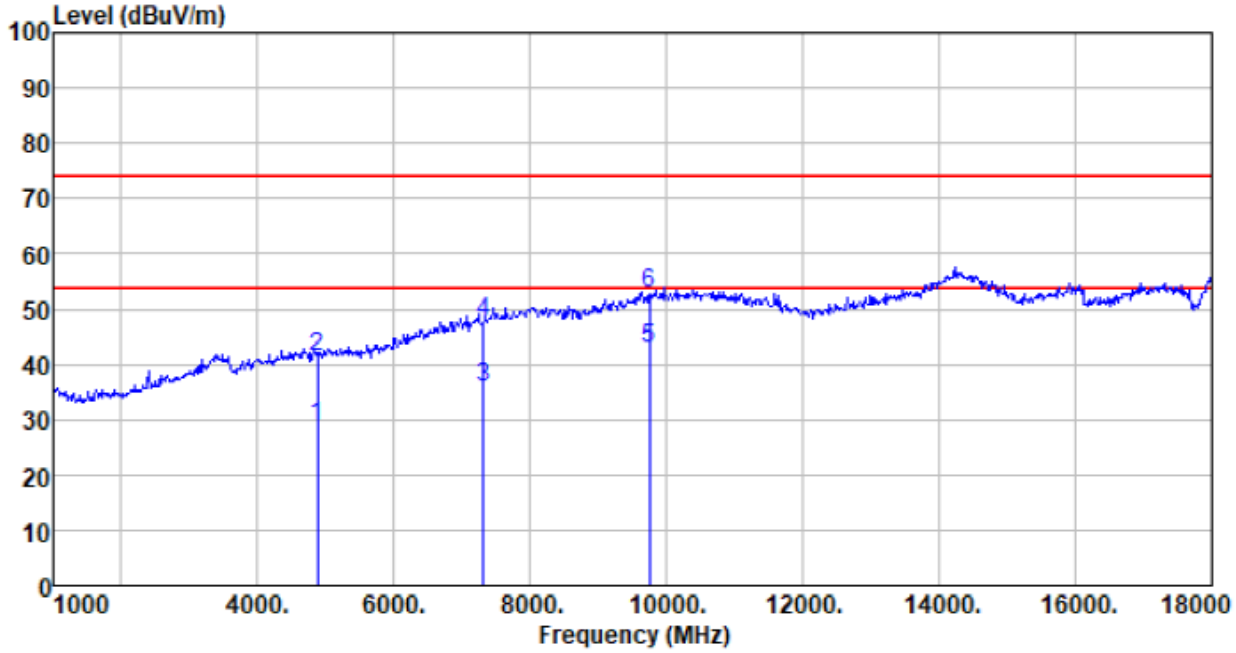


Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4824.000	23.27	31.22	8.61	32.10	31.00	54.00	-23.00	Average
4824.000	33.74	31.22	8.61	32.10	41.47	74.00	-32.53	Peak
7236.000	21.10	36.25	11.68	31.97	37.06	54.00	-16.94	Average
7236.000	32.04	36.25	11.68	31.97	48.00	74.00	-26.00	Peak
9648.000	22.89	37.97	14.16	31.56	43.46	54.00	-10.54	Average
9648.000	32.27	37.97	14.16	31.56	52.84	74.00	-21.16	Peak

Remark: Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

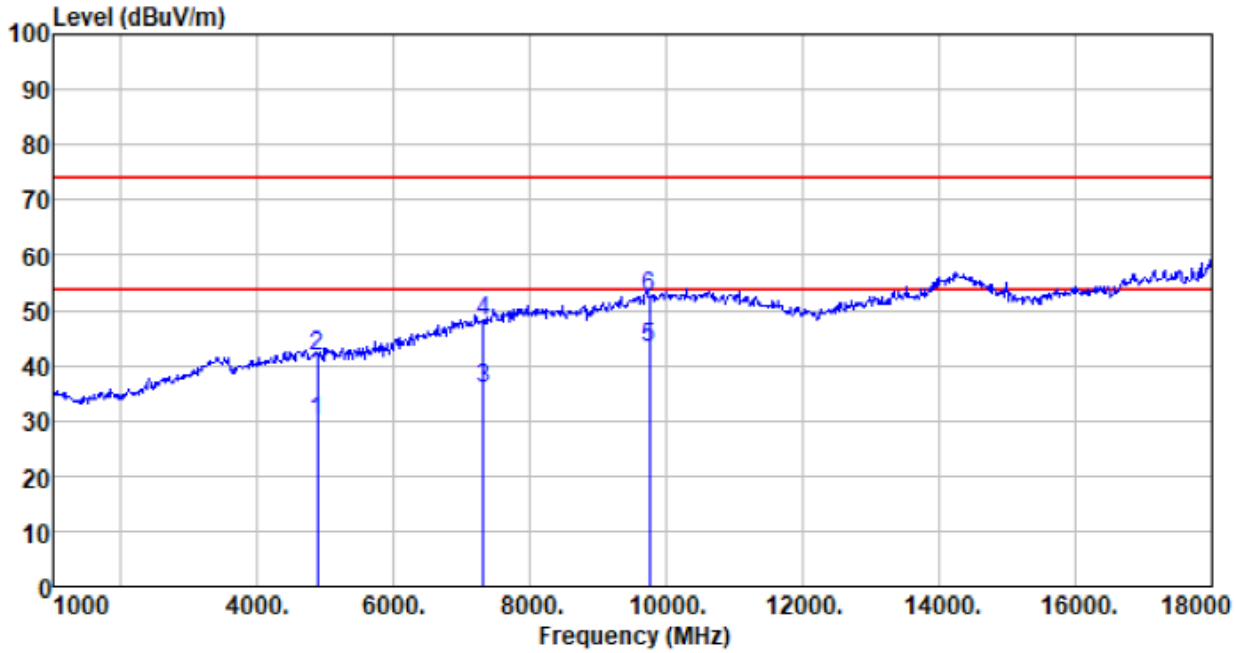
Test mode:	802.11n(HT20)	Test channel:	Middle

Horizontal:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4874.000	20.85	31.31	8.66	32.12	28.70	54.00	-25.30	Average
4874.000	33.45	31.31	8.66	32.12	41.30	74.00	-32.70	Peak
7311.000	19.52	36.39	11.71	31.91	35.71	54.00	-18.29	Average
7311.000	31.28	36.39	11.71	31.91	47.47	74.00	-26.53	Peak
9748.000	21.87	38.10	14.25	31.59	42.63	54.00	-11.37	Average
9748.000	31.87	38.10	14.25	31.59	52.63	74.00	-21.37	Peak

Vertical:

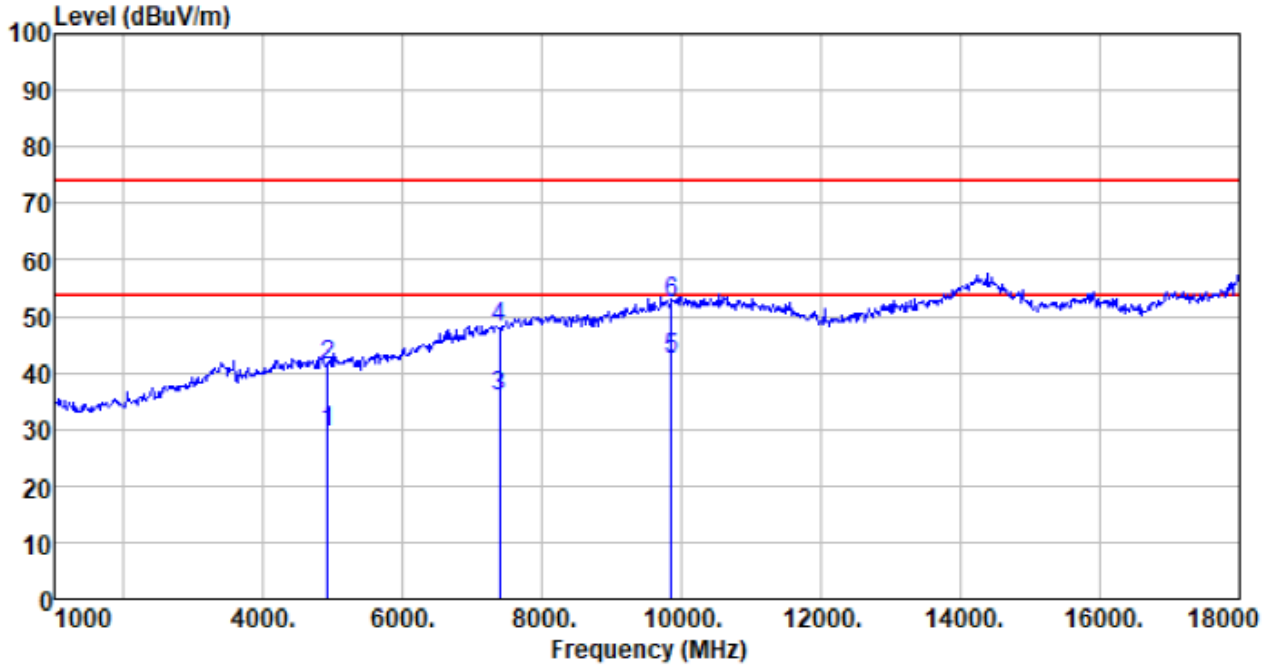


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4874.000	21.94	31.31	8.66	32.12	29.79	54.00	-24.21	Average
4874.000	33.93	31.31	8.66	32.12	41.78	74.00	-32.22	Peak
7311.000	19.52	36.39	11.71	31.91	35.71	54.00	-18.29	Average
7311.000	31.85	36.39	11.71	31.91	48.04	74.00	-25.96	Peak
9748.000	22.37	38.10	14.25	31.59	43.13	54.00	-10.87	Average
9748.000	31.67	38.10	14.25	31.59	52.43	74.00	-21.57	Peak

Remark: Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

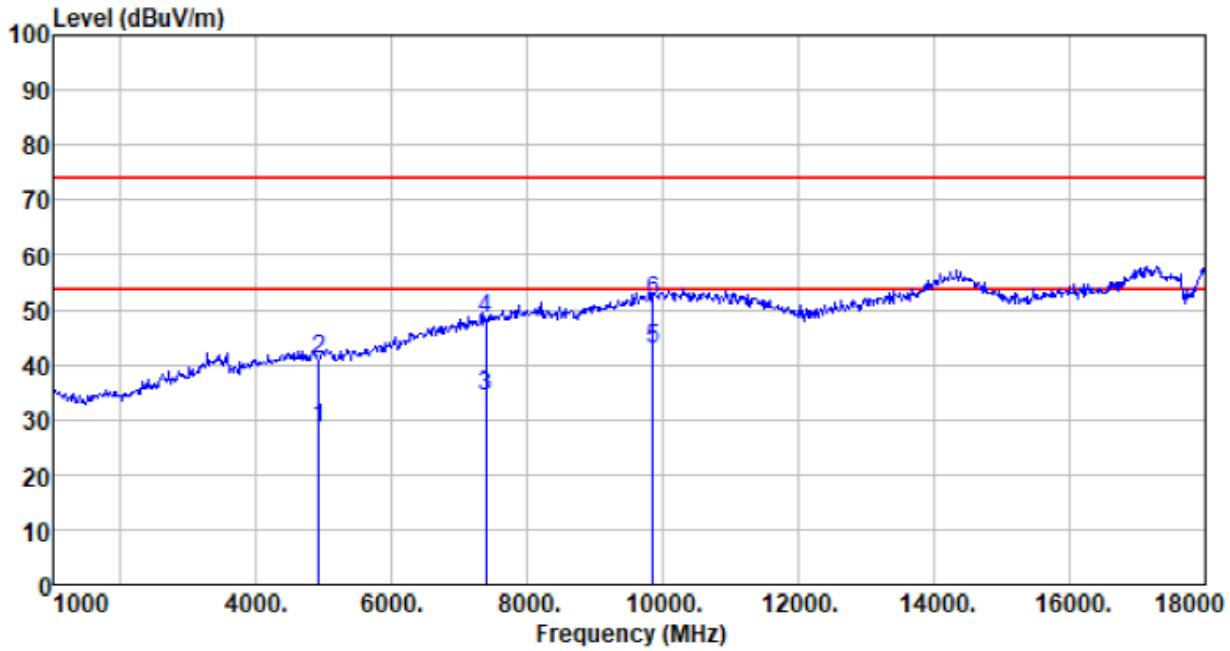
Test mode:	802.11n(HT20)	Test channel:	Highest

Horizontal:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4924.000	21.44	31.39	8.70	32.15	29.38	54.00	-24.62	Average
4924.000	33.21	31.39	8.70	32.15	41.15	74.00	-32.85	Peak
7386.000	19.42	36.57	11.76	31.83	35.92	54.00	-18.08	Average
7386.000	31.49	36.57	11.76	31.83	47.99	74.00	-26.01	Peak
9848.000	21.74	38.20	14.31	31.74	42.51	54.00	-11.49	Average
9848.000	31.71	38.20	14.31	31.74	52.48	74.00	-21.52	Peak

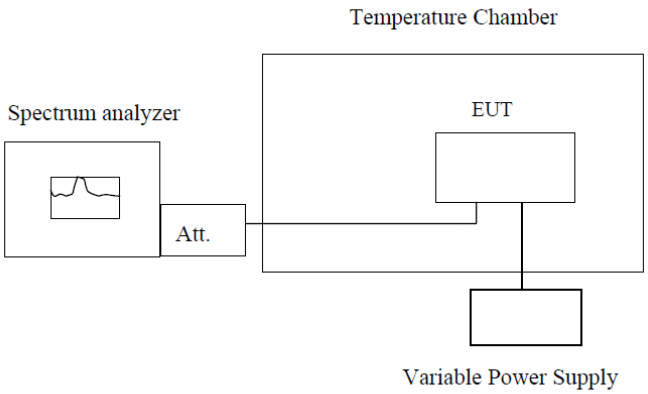
Vertical:



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4924.000	20.62	31.39	8.70	32.15	28.56	54.00	-25.44	Average
4924.000	33.07	31.39	8.70	32.15	41.01	74.00	-32.99	Peak
7386.000	17.89	36.57	11.76	31.83	34.39	54.00	-19.61	Average
7386.000	31.78	36.57	11.76	31.83	48.28	74.00	-25.72	Peak
9848.000	22.01	38.20	14.31	31.74	42.78	54.00	-11.22	Average
9848.000	31.04	38.20	14.31	31.74	51.81	74.00	-22.19	Peak

Remark: Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

7.8 Frequency stability

Test Requirement:	RSS-Gen Section 6.11& Section 8.11
Test Method:	ANSI C63.10: 2013 & RSS-Gen
Limit:	Manufactures of devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified
Test Procedure:	The EUT was setup to ANSI C63.10, 2013; tested to 2.1055 for compliance to RSS-Gen requirements.
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Remark: Set the EUT transmits at un-modulation mode to test frequency stability.

Measurement data:

Frequency stability versus Temp.						
Power Supply: AC 24V						
Temp. (°C)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)	Pass /Fail
-30	2412	2412.852	2412.548	2412.003	2412.720	Pass
	2437	2437.122	2437.414	2437.581	2437.098	Pass
	2452	2462.304	2462.980	2462.588	2462.967	Pass
	2462	2412.541	2412.992	2412.929	2412.338	Pass
-20	2412	2437.417	2437.267	2437.886	2437.815	Pass
	2437	2462.672	2462.530	2462.698	2462.898	Pass
	2452	2412.672	2412.362	2412.431	2412.948	Pass
	2462	2437.920	2437.976	2437.218	2437.493	Pass
-10	2412	2462.353	2462.757	2462.906	2462.280	Pass
	2437	2412.081	2412.983	2412.069	2412.956	Pass
	2452	2437.641	2437.355	2437.356	2437.655	Pass
	2462	2462.634	2462.672	2462.906	2462.615	Pass
0	2412	2412.348	2412.264	2412.018	2412.388	Pass
	2437	2437.325	2437.033	2437.916	2437.356	Pass
	2452	2462.125	2462.935	2462.542	2462.091	Pass
	2462	2412.120	2412.900	2412.377	2412.988	Pass
10	2412	2437.988	2437.533	2437.301	2437.173	Pass
	2437	2462.240	2462.012	2462.351	2462.601	Pass
	2452	2412.212	2412.243	2412.558	2412.546	Pass
	2462	2437.937	2437.772	2437.971	2437.138	Pass
20	2412	2462.022	2462.554	2462.570	2462.190	Pass
	2437	2412.908	2412.664	2412.589	2412.375	Pass
	2452	2437.450	2437.513	2437.159	2437.162	Pass
	2462	2462.890	2462.881	2462.542	2462.825	Pass
30	2412	2412.024	2412.987	2412.886	2412.239	Pass
	2437	2437.848	2437.186	2437.666	2437.675	Pass
	2452	2462.394	2462.971	2462.921	2462.195	Pass
	2462	2412.499	2412.781	2412.470	2412.256	Pass
40	2412	2437.151	2437.464	2437.371	2437.446	Pass
	2437	2463.000	2462.891	2462.106	2462.733	Pass
	2452	2412.402	2412.159	2412.488	2412.180	Pass
	2462	2437.916	2437.561	2437.322	2437.323	Pass
50	2412	2462.131	2462.548	2462.320	2462.361	Pass
	2437	2412.949	2412.126	2412.198	2412.073	Pass
	2452	2437.279	2437.334	2437.179	2437.350	Pass
	2462	2462.841	2462.320	2462.945	2462.044	Pass

Frequency stability versus Voltage						
Temperature: 25°C						
Power Supply (VAC)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute	Pass /Fail
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	
18	2412	2412.016	2412.360	2412.026	2412.674	Pass
	2437	2437.183	2437.706	2437.020	2437.654	Pass
	2452	2462.397	2462.518	2462.642	2462.912	Pass
	2462	2412.310	2412.759	2412.223	2412.172	Pass
30	2412	2437.957	2437.036	2437.649	2437.060	Pass
	2437	2462.952	2462.566	2462.143	2462.744	Pass
	2452	2412.559	2412.249	2412.502	2412.443	Pass
	2462	2437.709	2437.624	2437.020	2437.017	Pass

8 Test Setup Photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

------End------