

FCC REPORT

Applicant: Touchmax Technology Limited

Address of Applicant: Room 501, Building 5, Zhongxin Industrial Zone, Nanshan District, Shenzhen

Equipment Under Test (EUT)

Product Name: HDMI Dongle

Model No.: STV9801, STV9802, STV9803, STV9805, STV9806

FCC ID: QUBSTV98

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247:2011

Date of sample receipt: October 22, 2012

Date of Test: October 22-27, 2012

Date of report issue: October 29, 2012

Test Result : PASS *

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

Authorized Signature:



Robinson Lo
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	October 29, 2012	Original

Prepared By:

Hank. Yan
Project Engineer

Date:

October 29, 2012

Check By:

Hans. Hu
Reviewer

Date:

October 29, 2012

3 Contents

Page

1	COVER PAGE	1
2	VERSION	2
3	CONTENTS	3
4	TEST SUMMARY	4
5	GENERAL INFORMATION	5
5.1	CLIENT INFORMATION	5
5.2	GENERAL DESCRIPTION OF E.U.T.	5
5.3	TEST MODE	7
5.4	TEST FACILITY	7
5.5	TEST LOCATION	8
5.6	OTHER INFORMATION REQUESTED BY THE CUSTOMER	8
5.7	DESCRIPTION OF SUPPORT UNITS	8
6	TEST INSTRUMENTS LIST	9
7	TEST RESULTS AND MEASUREMENT DATA	10
7.1	ANTENNA REQUIREMENT:	10
7.2	CONDUCTED EMISSIONS	11
7.3	CONDUCTED PEAK OUTPUT POWER	14
7.4	CHANNEL BANDWIDTH	19
7.5	POWER SPECTRAL DENSITY	24
7.6	BAND EDGES	29
7.6.1	Conducted Emission Method	29
7.6.2	Radiated Emission Method	32
7.7	SPURIOUS EMISSION	37
7.7.1	Conducted Emission Method	37
7.7.2	Radiated Emission Method	42
8	TEST SETUP PHOTO	57
9	EUT CONSTRUCTIONAL DETAILS	59

4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass
Channel Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247(d)	Pass
Spurious Emission	15.205/15.209	Pass

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

5 General Information

5.1 Client Information

Applicant:	Touchmax Technology Limited
Address of Applicant:	Room 501, Building 5, Zhongxin Industrial Zone, Nanshan District, Shenzhen
Manufacturer/Factory:	Touchmax Technology Limited
Address of Manufacturer/Factory:	Room 501, Building 5, Zhongxin Industrial Zone, Nanshan District, Shenzhen

5.2 General Description of E.U.T.

Product Name:	HDMI Dongle
Model No.:	STV9801, STV9802, STV9803, STV9805, STV9806
Remark:	Only the Model No. STV9801 was tested, since the electrical circuit design, PCB layout, Electrical Parts and Figure are identical to the basic model, except the appearance color and model name.
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(HT20)) 2422MHz~2452MHz (802.11n(HT40))
Channel numbers:	11 for 802.11b/802.11g /802.11n(HT20) 7 for 802.11(HT40)
Channel separation:	5MHz
Modulation technology: (IEEE 802.11b)	Direct Sequence Spread Spectrum(DSSS)
Modulation technology: (IEEE 802.11g/802.11n)	Orthogonal Frequency Division Multiplexing(OFDM)
Antenna Type:	Integral Antenna
Antenna gain:	2.8dBi (declare by Applicant)
Power supply:	Model No. BX-050100 Input: AC 100-240V 50/60Hz 0.15A Output: DC 5V 1A

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:

802.11b/802.11g/802.11n(HT20)

Channel	Frequency
The lowest channel	2412MHz
The middle channel	2437MHz
The Highest channel	2462MHz

802.11n(HT40)

Channel	Frequency
The lowest channel	2422MHz
The middle channel	2437MHz
The Highest channel	2452MHz

5.3 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode
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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:

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

Mode	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n(HT20)	6.5Mbps
802.11n(HT40)	13Mbps

Final Test Mode:

According to ANSI C63.4 standards, the test results are both the “worst case” and “worst setup” 1Mbps for 802.11b, 6Mbps for 802.11g , 6.5Mbps for 802.11n(HT20), 13Mbps for 802.11n(HT40)

5.4 Test Facility

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

- **CNAS —Registration No.: CNAS L5775**

CNAS has accredited Global United Technology Services Co., Ltd. To ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **FCC —Registration No.: 600491**

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 600491, July 20, 2010.

- **Industry Canada (IC)**

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-1.

5.5 Test Location

All tests were performed at:
Global United Technology Services Co., Ltd. Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China Tel: 0755-27798480 Fax: 0755-27798960

5.6 Other Information Requested by the Customer

None.

5.7 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
PHILIPS	LCD TV	19PFL3120/T3	AU1A1212002906	FCC DoC

6 Test Instruments list

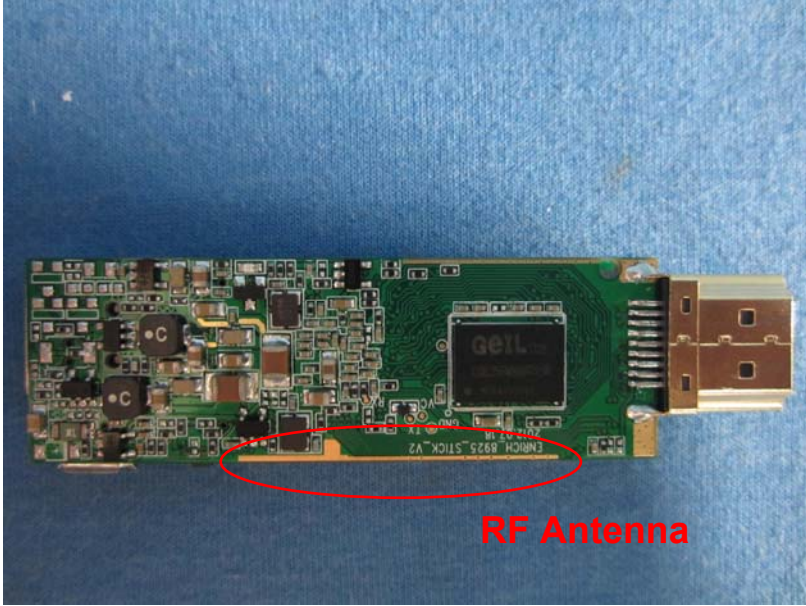
Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 30 2011	Mar. 29 2013
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 03 2012	Jul. 02 2013
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 25 2012	Feb. 24 2013
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 29 2012	June 28 2013
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2011	Mar. 29 2013
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	Mar. 31 2012	Mar. 30 2013
9	Coaxial Cable	GTS	N/A	GTS211	Mar. 31 2012	Mar. 30 2013
10	Coaxial cable	GTS	N/A	GTS210	Mar. 31 2012	Mar. 30 2013
11	Coaxial Cable	GTS	N/A	GTS212	Mar. 31 2012	Mar. 30 2013
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 03 2012	Jul. 02 2013
13	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 03 2012	Jul. 02 2013
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 29 2012	June 28 2013
15	Band filter	Amindeon	82346	GTS219	Mar. 31 2012	Mar. 30 2013

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	7.0(L)x3.0(W)x3.0(H)	GTS264	Sep. 08 2011	Sep. 07 2013
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	Jul. 03 2012	Jul. 02 2013
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	Jul. 03 2012	Jul. 02 2013
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	Jul. 03 2012	Jul. 02 2013
5	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	Jul. 03 2012	Jul. 02 2013
6	Coaxial Cable	GTS	N/A	GTS227	Jul. 03 2012	Jul. 02 2013
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	Barometer	ChangChun	DYM3	GTS257	July 10 2012	July 09 2013

7 Test results and Measurement Data

7.1 Antenna requirement:

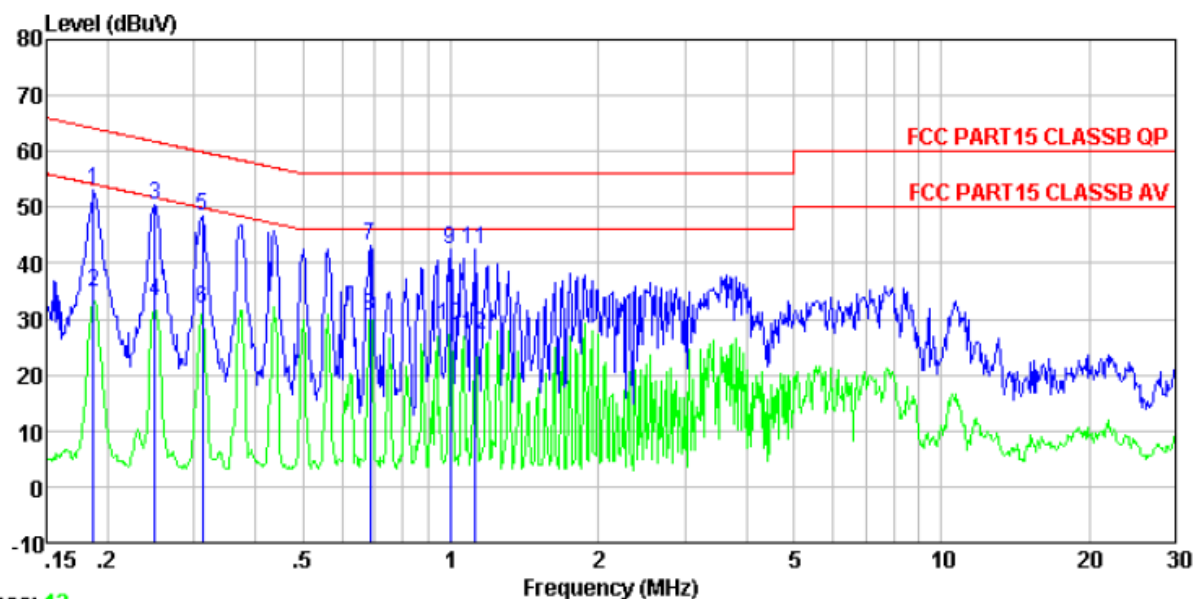
Standard requirement:	FCC Part15 C Section 15.203 /247(c)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique 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.	
E.U.T Antenna:	
<i>The antenna is Integral antenna, the best case gain of the antenna is 2.8dBi</i> 	

7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207																
Test Method:	ANSI C63.4:2003																
Test Frequency Range:	150KHz to 30MHz																
Class / Severity:	Class B																
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto																
Limit:	<table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>5-30</td><td>60</td><td>50</td></tr></table> * Decreases with the logarithm of the frequency.			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
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															
Test setup:	Reference Plane Test table/Insulation plane <i>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</i>																
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 C63.4: 2003 on conducted measurement.																
Test Instruments:	Refer to section 6.0 for details																
Test mode:	Refer to section 5.3 for details																
Test results:	Pass																

Measurement data:

Line:



Trace: 12

Condition : FCC PART15 CLASSB QP LISN-2012 LINE

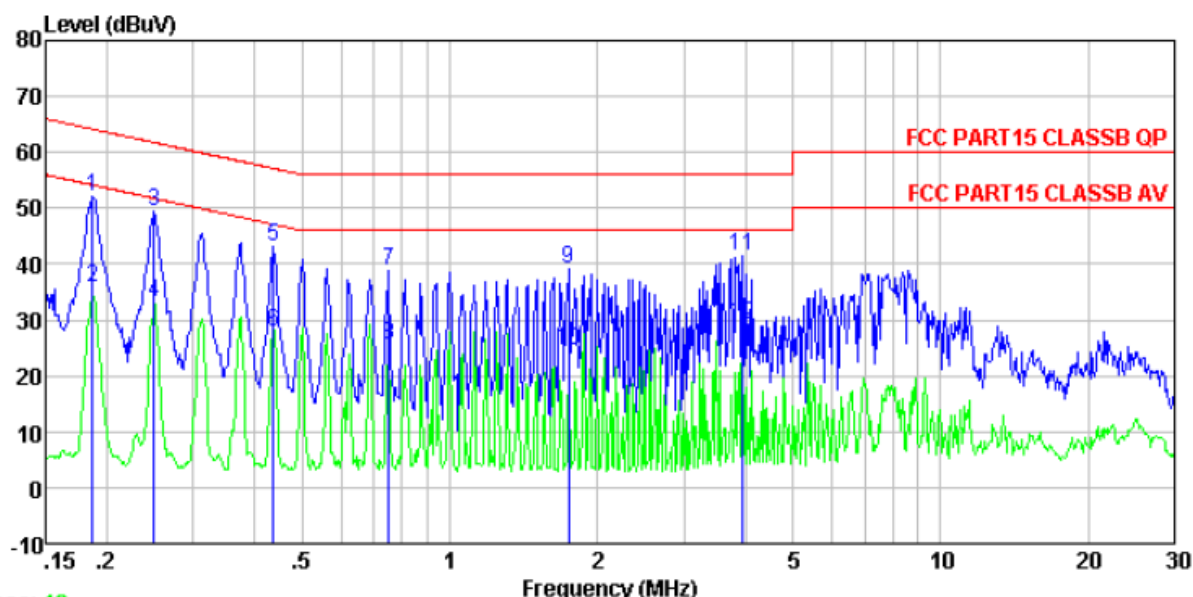
Job No. : 1260RF

Test Mode : WiFi mode

Test Engineer: Sam

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.187	53.16	-0.23	0.10	53.03	64.15	-11.12	QP
2	0.187	34.80	-0.23	0.10	34.67	54.15	-19.48	Average
3	0.249	50.72	-0.23	0.10	50.59	61.78	-11.19	QP
4	0.249	33.20	-0.23	0.10	33.07	51.78	-18.71	Average
5	0.312	48.41	-0.22	0.10	48.29	59.93	-11.64	QP
6	0.312	32.03	-0.22	0.10	31.91	49.93	-18.02	Average
7	0.686	43.09	-0.20	0.10	42.99	56.00	-13.01	QP
8	0.686	30.70	-0.20	0.10	30.60	46.00	-15.40	Average
9	1.000	42.50	-0.21	0.10	42.39	56.00	-13.61	QP
10	1.000	29.10	-0.21	0.10	28.99	46.00	-17.01	Average
11	1.123	42.45	-0.21	0.10	42.34	56.00	-13.66	QP
12	1.123	27.20	-0.21	0.10	27.09	46.00	-18.91	Average

Neutral:



Trace: 10

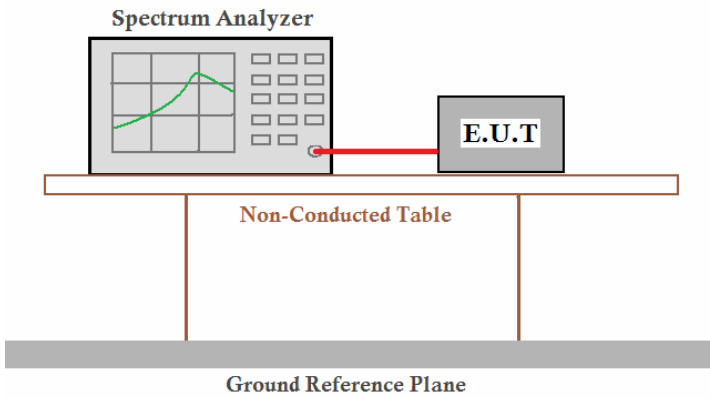
Condition : FCC PART15 CLASSB QP LISN-2012 NEUTRAL
 Job No. : 1260RF
 Test Mode : WiFi mode
 Test Engineer: Sam

	Read Freq	LISN Level	Cable Factor	Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.187	52.09	-0.09	0.10	52.10	64.15	-12.05	QP
2	0.187	35.70	-0.09	0.10	35.71	54.15	-18.44	Average
3	0.249	49.44	-0.09	0.10	49.45	61.78	-12.33	QP
4	0.249	33.10	-0.09	0.10	33.11	51.78	-18.67	Average
5	0.437	43.05	-0.08	0.10	43.07	57.11	-14.04	QP
6	0.437	27.70	-0.08	0.10	27.72	47.11	-19.39	Average
7	0.751	38.85	-0.08	0.10	38.87	56.00	-17.13	QP
8	0.751	25.40	-0.08	0.10	25.42	46.00	-20.58	Average
9	1.744	39.01	-0.11	0.10	39.00	56.00	-17.00	QP
10	1.744	24.70	-0.11	0.10	24.69	46.00	-21.31	Average
11	3.943	41.68	-0.15	0.10	41.63	56.00	-14.37	QP
12	3.943	29.10	-0.15	0.10	29.05	46.00	-16.95	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

7.3 Conducted Peak Output Power

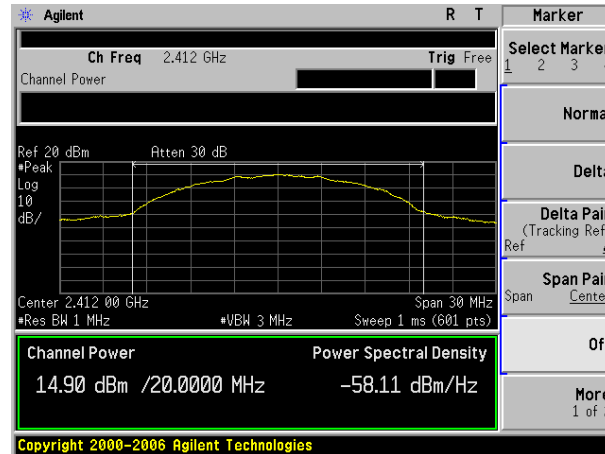
Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.4:2003 and KDB558074 D01 Meas Guidance
Limit:	30dBm
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by two vertical legs and sits on a Ground Reference Plane.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

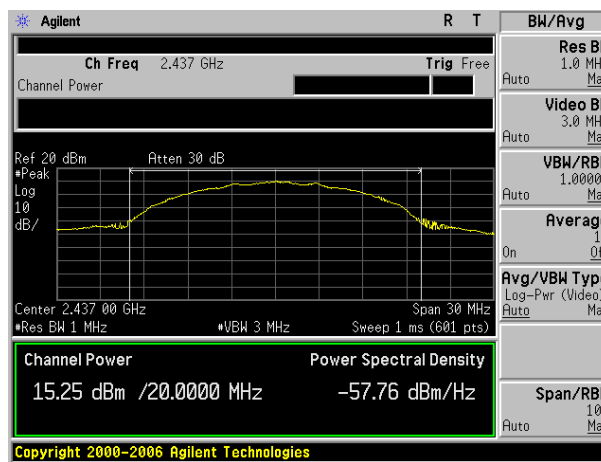
Test CH	Peak Output Power (dBm)				Limit(dBm)	Result
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)		
Lowest	14.90	13.05	13.00	13.28	30.00	Pass
Middle	15.25	14.00	13.38	13.60		
Highest	16.22	14.60	14.21	14.15		

Test plot as follows:

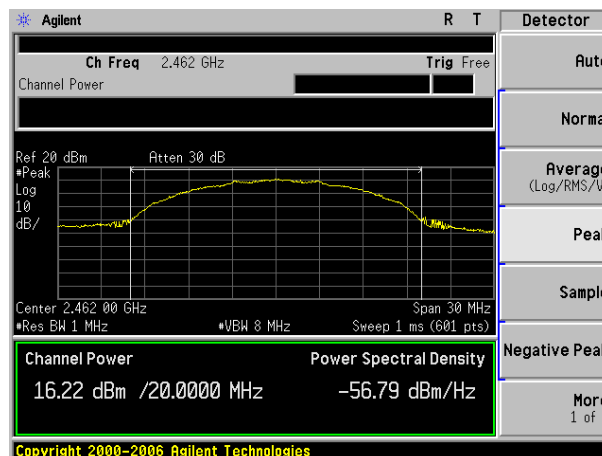
Test mode:	802.11b
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Lowest channel

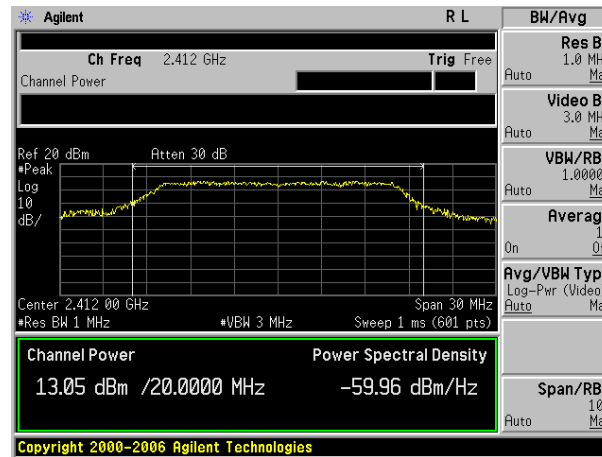


Middle channel

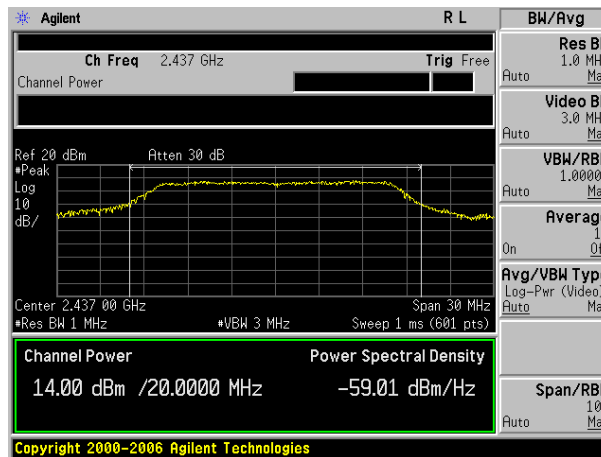


Highest channel

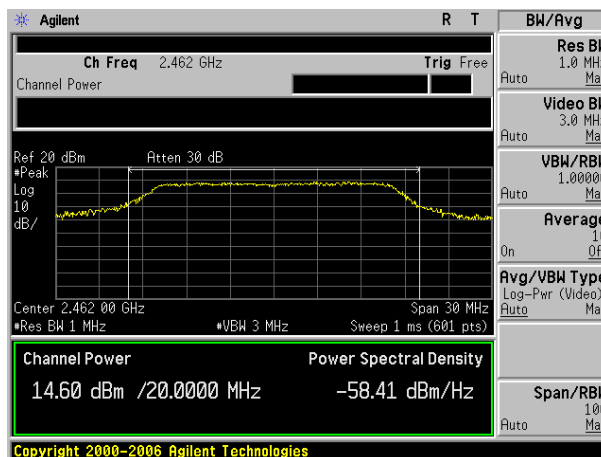
Test mode:	802.11g
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Lowest channel

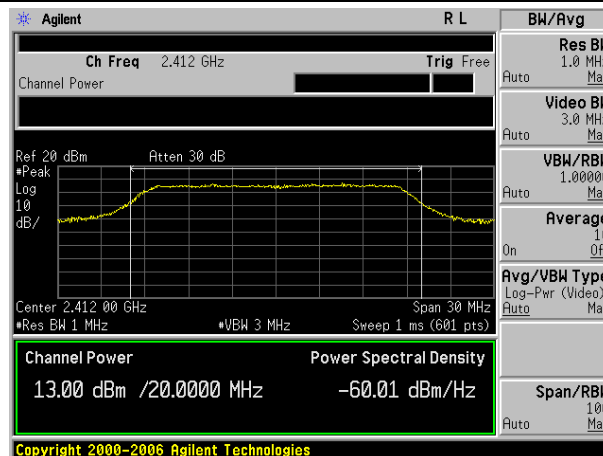


Middle channel

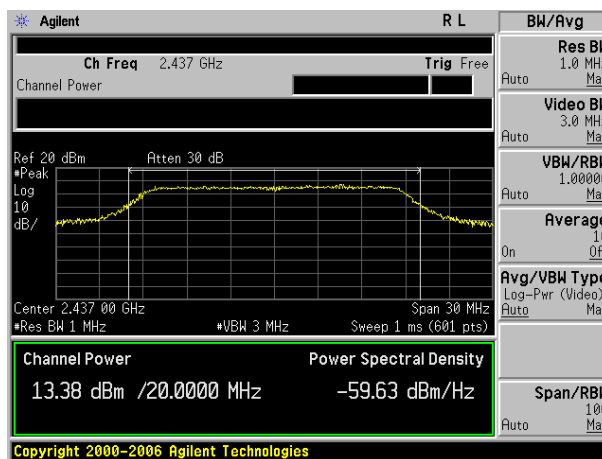


Highest channel

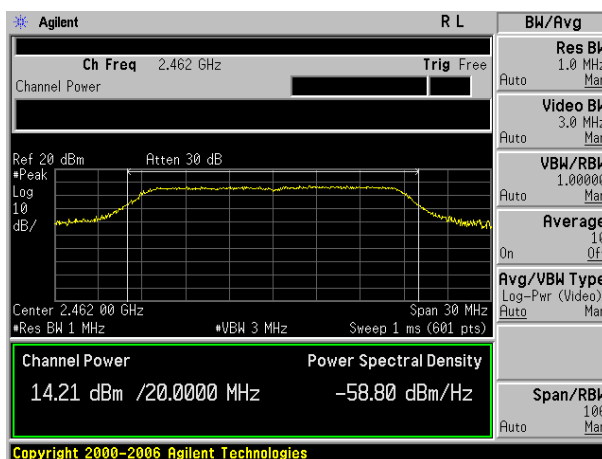
Test mode:	802.11n(HT20)
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Lowest channel



Middle channel

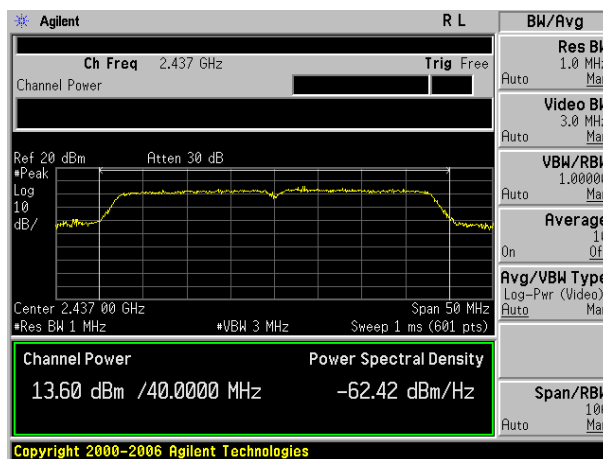


Highest channel

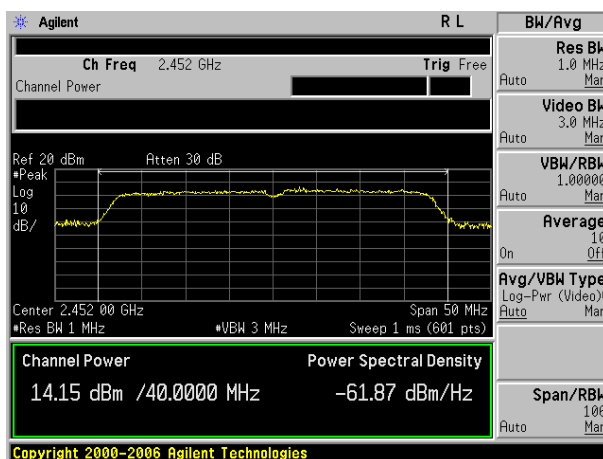
Test mode:	802.11n(HT40)
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Lowest channel

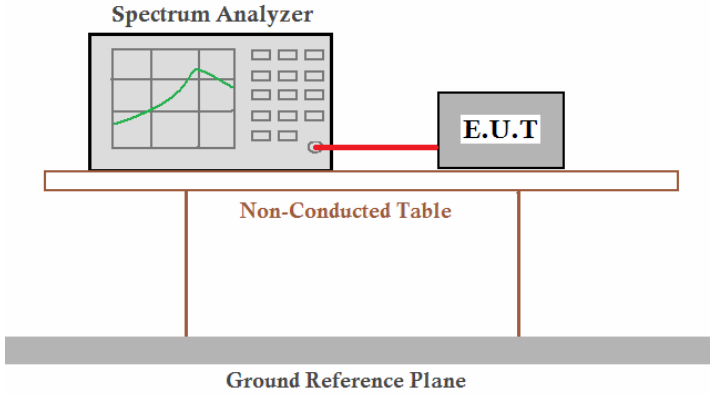


Middle channel



Highest channel

7.4 Channel Bandwidth

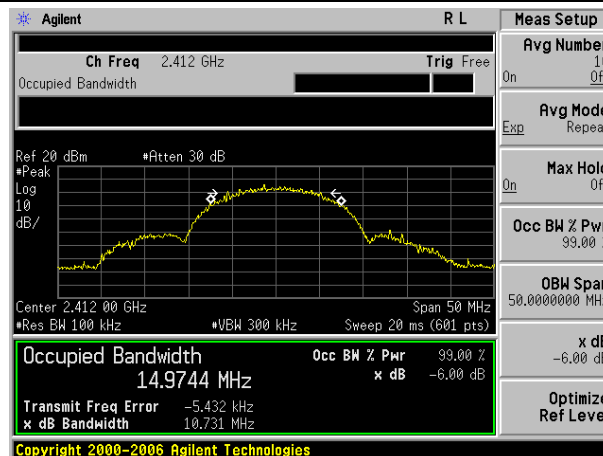
Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	ANSI C63.4:2003 and KDB558074 D01 Meas Guidance
Limit:	>500KHz
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

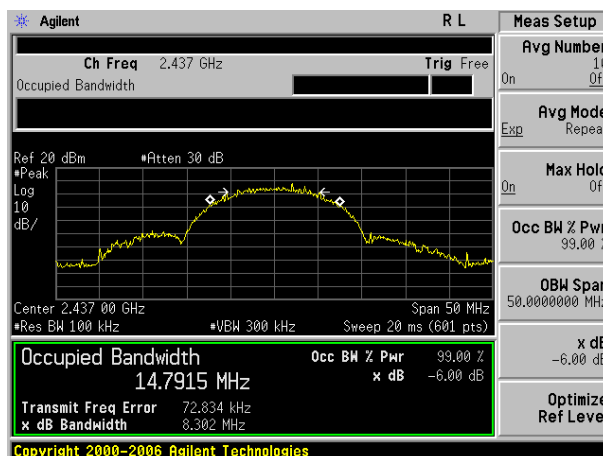
Test CH	Channel Bandwidth (MHz)				Limit(KHz)	Result
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)		
Lowest	10.731	16.481	17.581	35.283	>500	Pass
Middle	8.302	16.469	17.522	35.513		
Highest	10.243	16.465	17.571	35.255		

Test plot as follows:

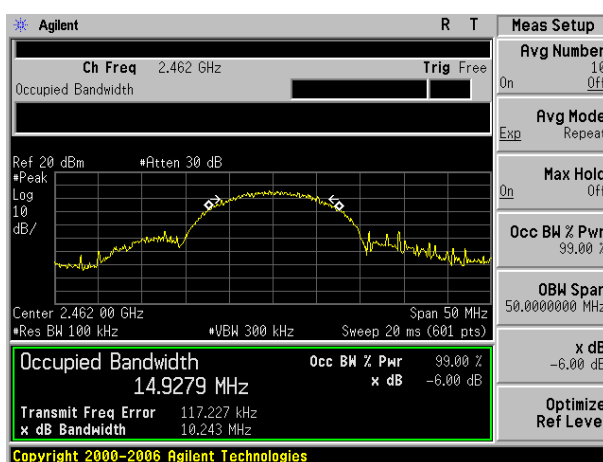
Test mode:	802.11b
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Lowest channel

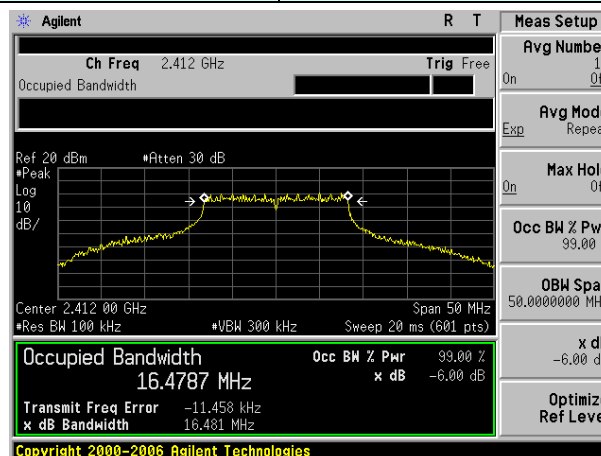


Middle channel

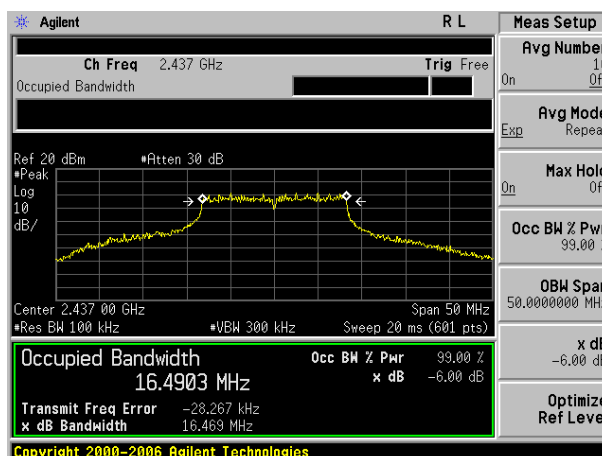


Highest channel

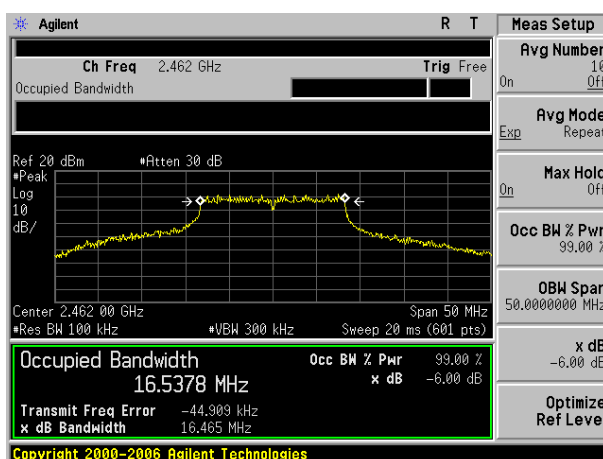
Test mode:	802.11g
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Lowest channel

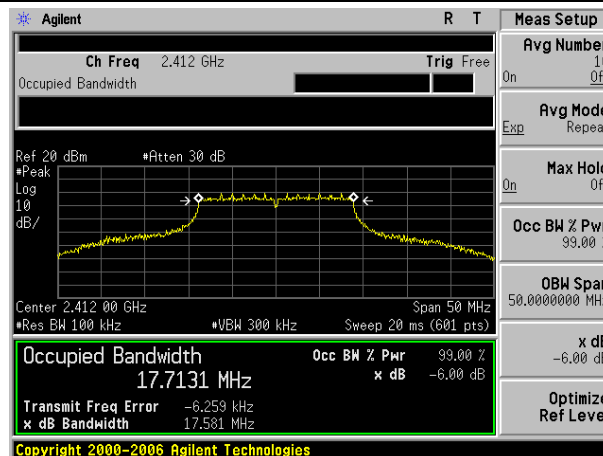


Middle channel

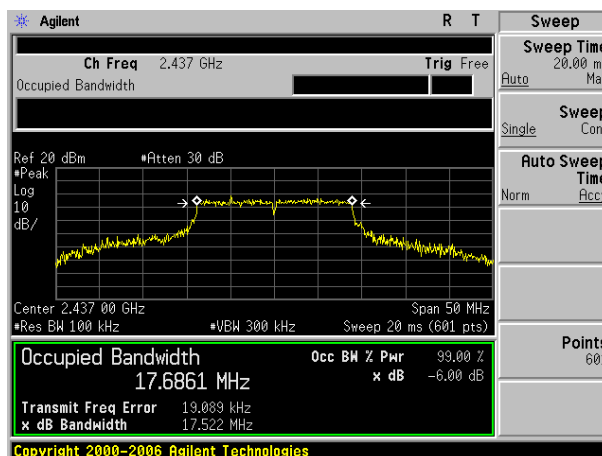


Highest channel

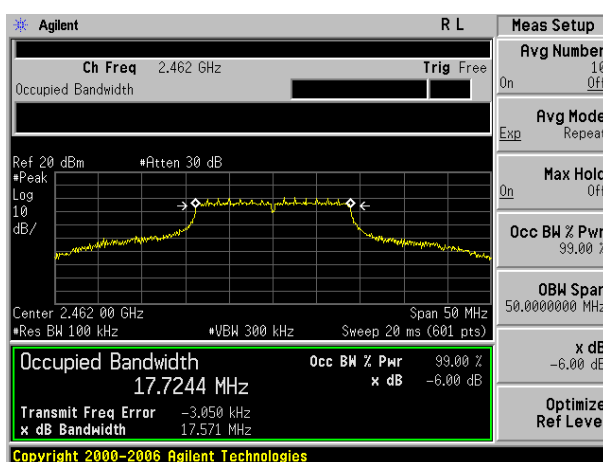
Test mode:	802.11n(HT20)
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Lowest channel



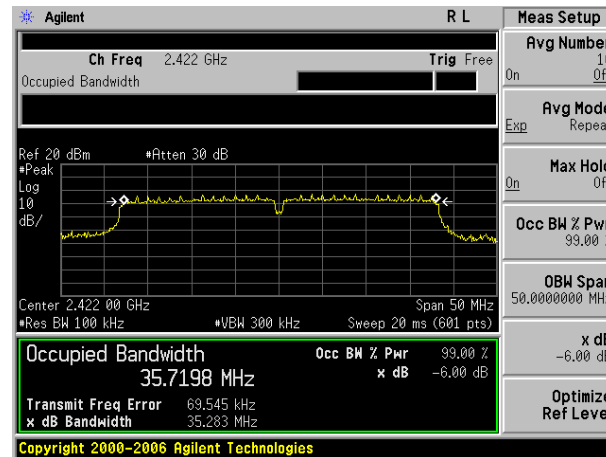
Middle channel



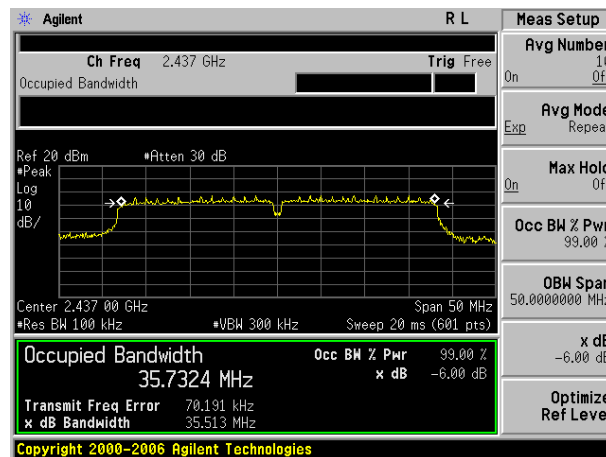
Highest channel

Test mode:

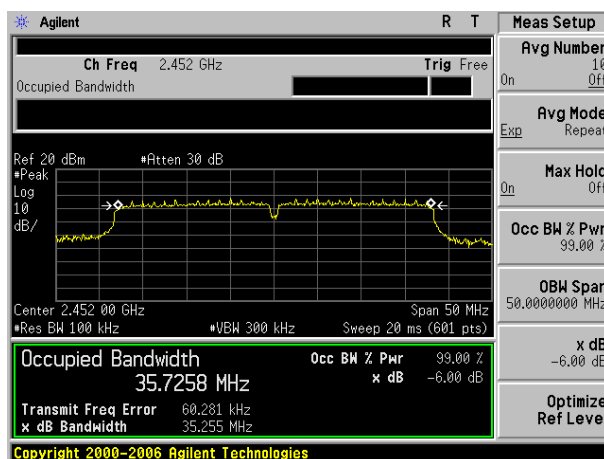
802.11n(HT40)



Lowest channel

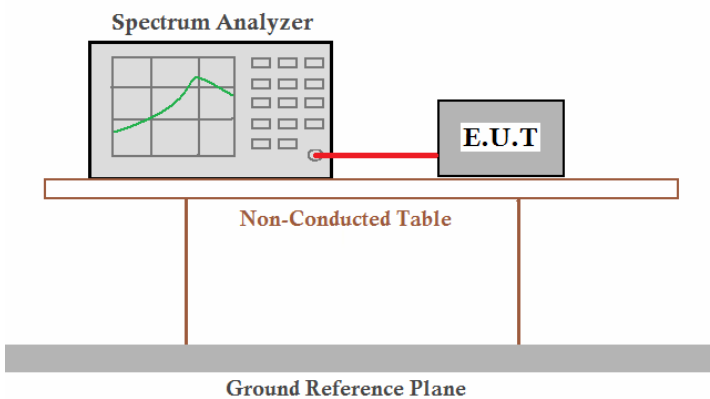


Middle channel



Highest channel

7.5 Power Spectral Density

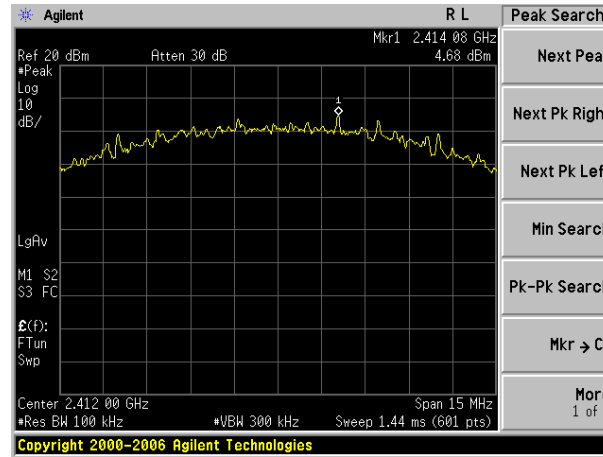
Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	ANSI C63.4:2003 and KDB558074 D01 Meas Guidance
Limit:	8dBm
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

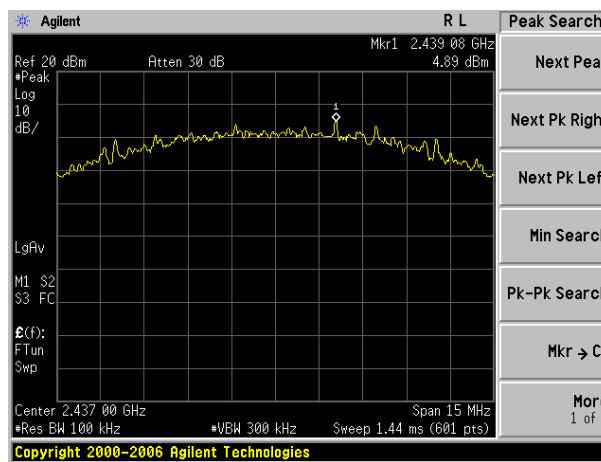
Test CH	Power Spectral Density				Limit(dBm/3kHz)	Result
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)		
Lowest	4.68	-0.75	-1.16	-3.13	8.00	Pass
Middle	4.98	0.06	-0.87	-2.72		
Highest	5.70	0.61	0.29	-2.14		

Test plot as follows:

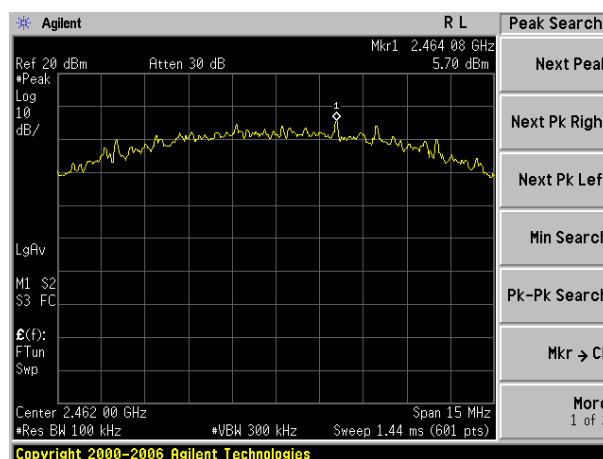
Test mode:	802.11b
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Lowest channel

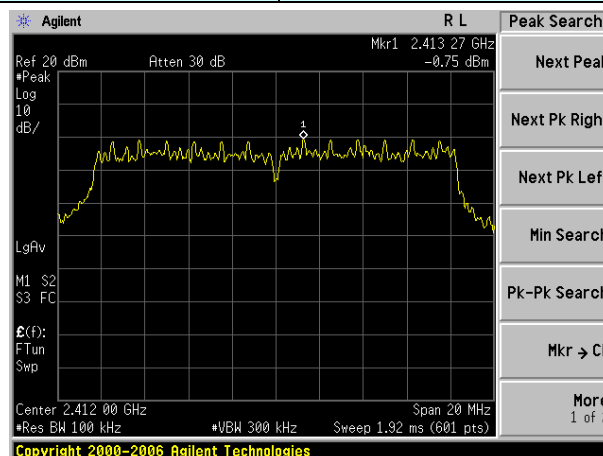


Middle channel

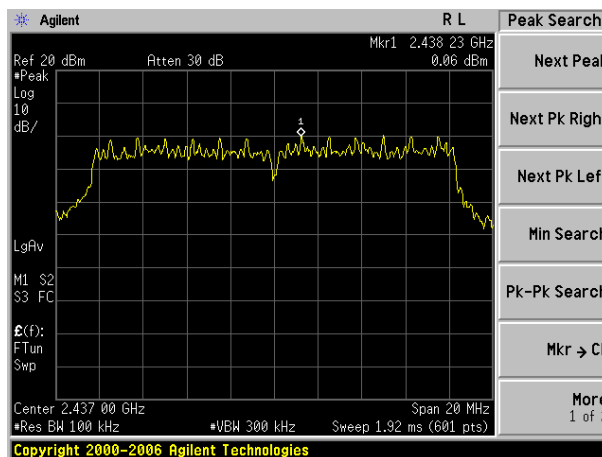


Highest channel

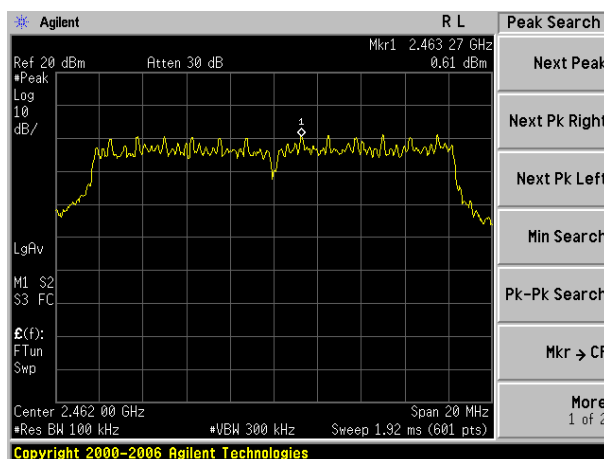
Test mode:	802.11g
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Lowest channel

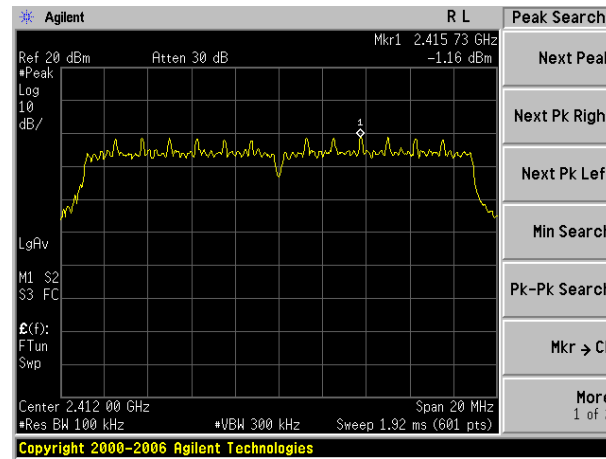


Middle channel

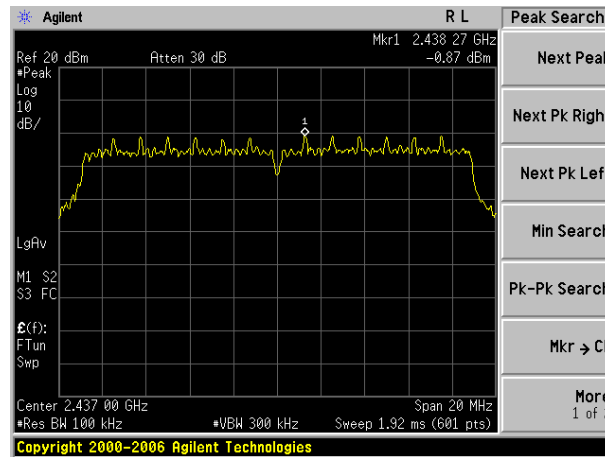


Highest channel

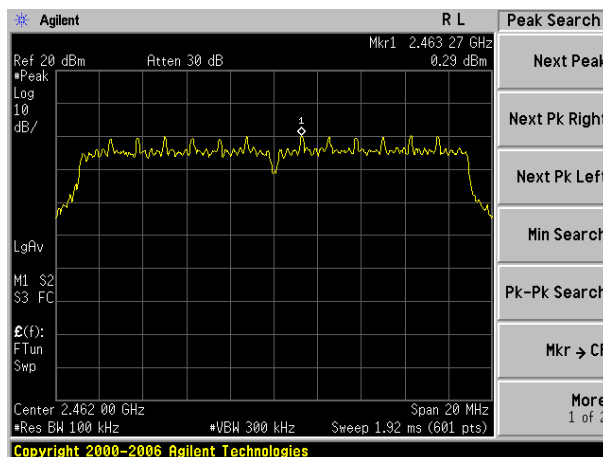
Test mode:	802.11n(HT20)
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Lowest channel

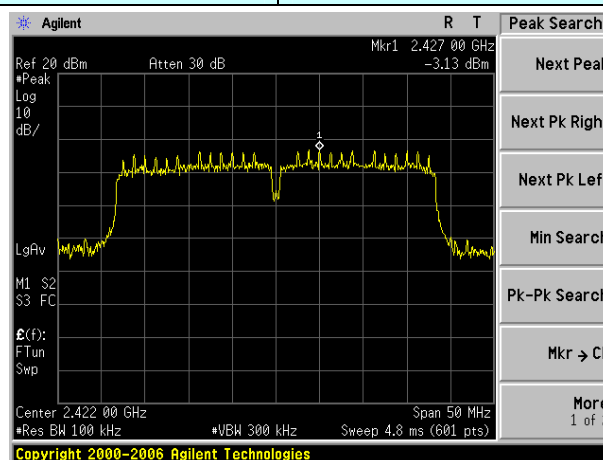


Middle channel

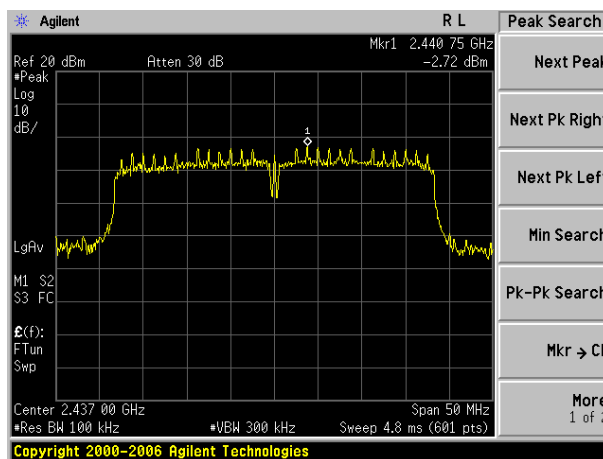


Highest channel

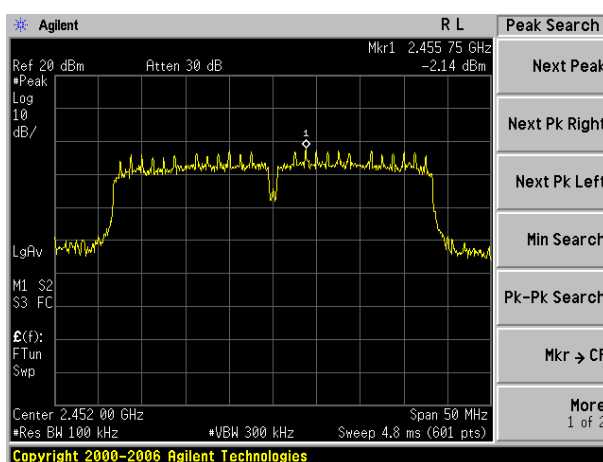
Test mode:	802.11n(HT40)
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Lowest channel



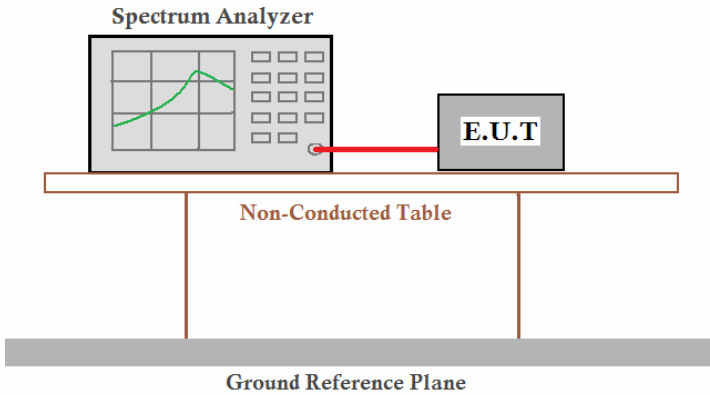
Middle channel



Highest channel

7.6 Band edges

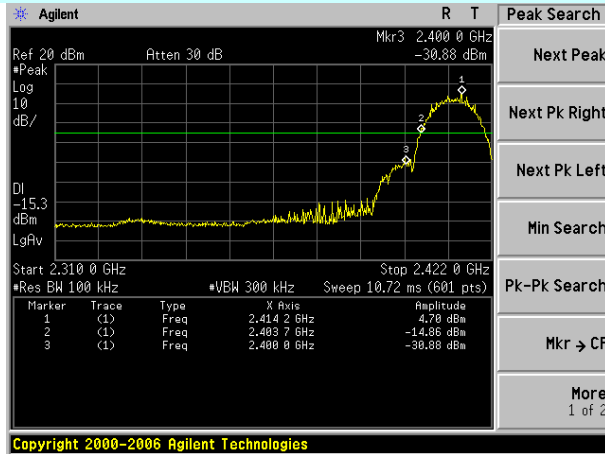
7.6.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and KDB558074 D01 Meas Guidance
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:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

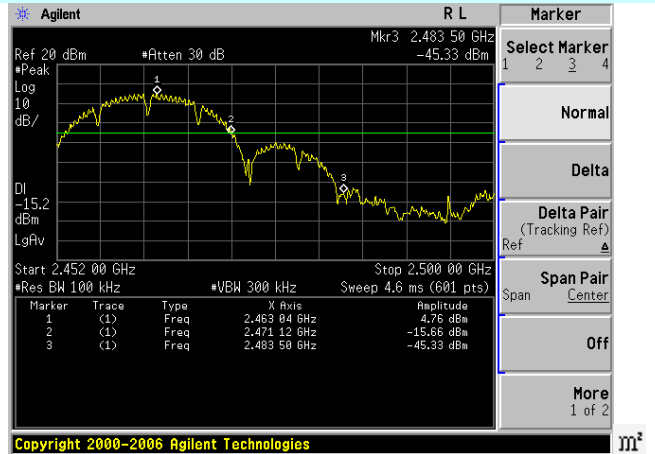
Test plot as follows:

Test mode:

802.11b



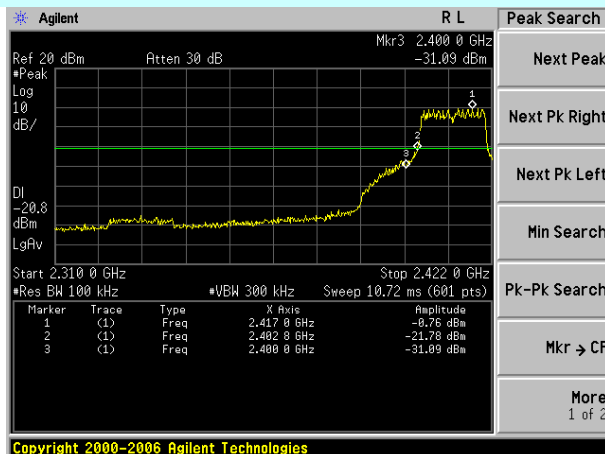
Lowest channel



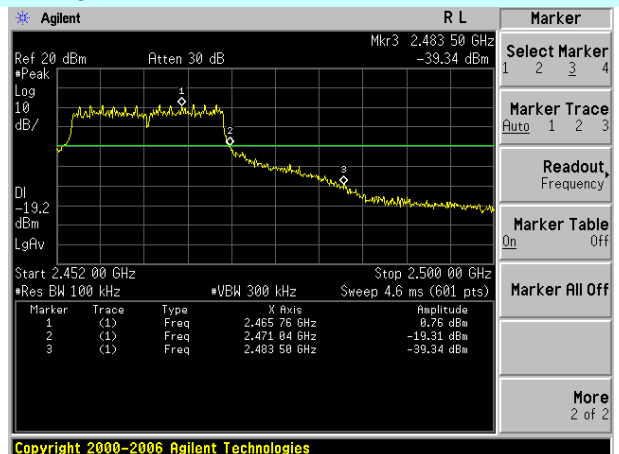
Highest channel

Test mode:

802.11g



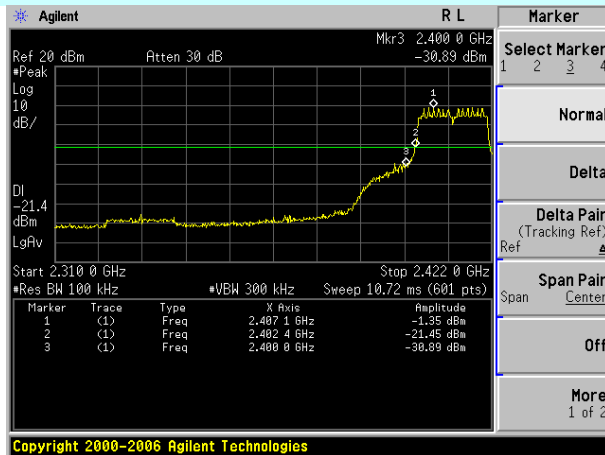
Lowest channel



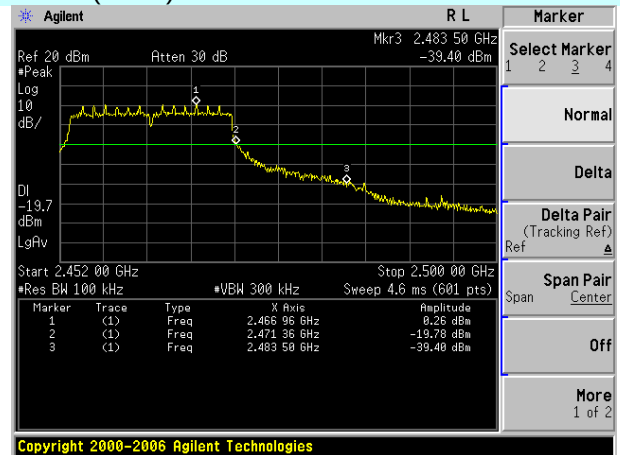
Highest channel

Test mode:

802.11n(HT20)



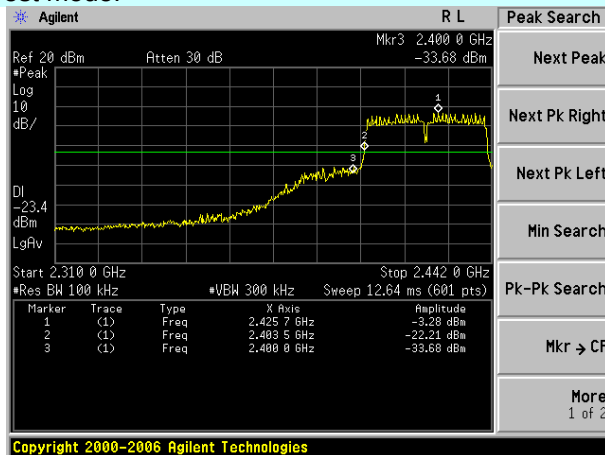
Lowest channel



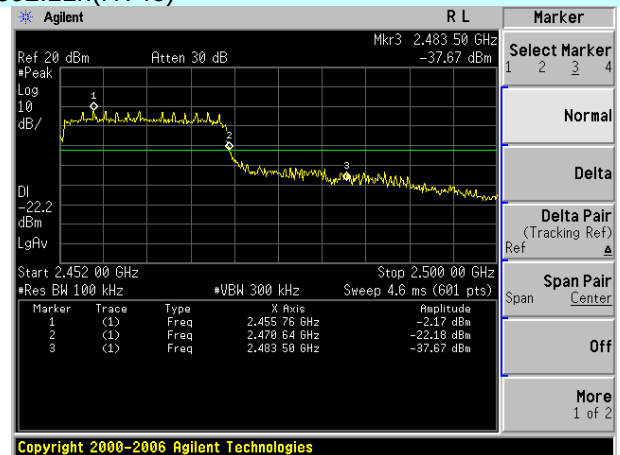
Highest channel

Test mode:

802.11n(HT40)

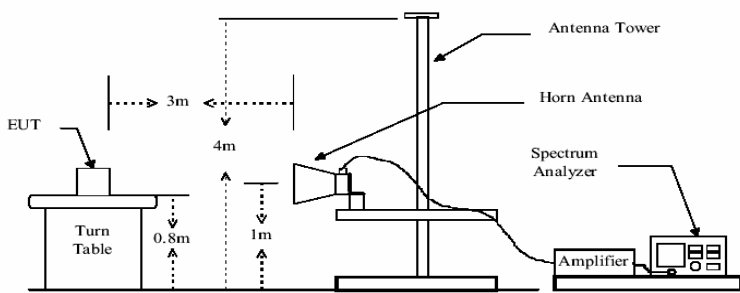


Lowest channel



Highest channel

7.6.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.4: 2003				
Test Frequency Range:	30MHz to 25GHz, only worse case is reported				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		AV	1MHz	10Hz	Average Value
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	Above 1GHz		54.00		Average Value
			74.00		Peak Value
Test setup:					
Test Procedure:	1. Change the TV to HDMI input mode as a monitor, then plug the EUT into the TV's HDMI input port. 2. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 3. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 4. 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. 5. 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. 6. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 7. 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 5.3 for details				
Test results:	Pass				

Measurement data:

Test mode:	802.11b	Test channel:	Lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	47.29	27.38	3.91	34.83	43.75	74.00	-30.25	Horizontal
2400.00	50.57	27.38	3.93	34.83	47.05	74.00	-26.95	Horizontal
2390.00	49.49	27.38	3.91	34.83	45.95	74.00	-28.05	Vertical
2400.00	51.30	27.38	3.93	34.83	47.78	74.00	-26.22	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	37.81	27.38	3.91	34.83	34.27	54.00	-19.73	Horizontal
2400.00	40.67	27.38	3.93	34.83	37.15	54.00	-16.85	Horizontal
2390.00	38.62	27.38	3.91	34.83	35.08	54.00	-18.92	Vertical
2400.00	42.10	27.38	3.93	34.83	38.58	54.00	-15.42	Vertical

Test mode:	802.11b	Test channel:	Highest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	48.62	27.32	3.99	34.86	45.07	74.00	-28.93	Horizontal
2500.00	46.38	27.35	4.00	34.87	42.86	74.00	-31.14	Horizontal
2483.50	49.72	27.32	3.99	34.86	46.17	74.00	-27.83	Vertical
2500.00	48.06	27.35	4.00	34.87	44.54	74.00	-29.46	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	36.06	27.32	3.99	34.86	32.51	54.00	-21.49	Horizontal
2500.00	32.63	27.35	4.00	34.87	29.11	54.00	-24.89	Horizontal
2483.50	37.80	27.32	3.99	34.86	34.25	54.00	-19.75	Vertical
2500.00	33.79	27.35	4.00	34.87	30.27	54.00	-23.73	Vertical

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Test mode:	802.11g	Test channel:	Lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	46.07	27.38	3.91	34.83	42.53	74.00	-31.47	Horizontal
2400.00	48.35	27.38	3.93	34.83	44.83	74.00	-29.17	Horizontal
2390.00	48.39	27.38	3.91	34.83	44.85	74.00	-29.15	Vertical
2400.00	49.83	27.38	3.93	34.83	46.31	74.00	-27.69	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	33.34	27.38	3.91	34.83	29.80	54.00	-24.20	Horizontal
2400.00	35.72	27.38	3.93	34.83	32.20	54.00	-21.80	Horizontal
2390.00	33.82	27.38	3.91	34.83	30.28	54.00	-23.72	Vertical
2400.00	35.84	27.38	3.93	34.83	32.32	54.00	-21.68	Vertical

Test mode:	802.11g	Test channel:	Highest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	45.92	27.32	3.99	34.86	42.37	74.00	-31.63	Horizontal
2500.00	42.78	27.35	4.00	34.87	39.26	74.00	-34.74	Horizontal
2483.50	48.03	27.32	3.99	34.86	44.48	74.00	-29.52	Vertical
2500.00	45.63	27.35	4.00	34.87	42.11	74.00	-31.89	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	34.03	27.32	3.99	34.86	30.48	54.00	-23.52	Horizontal
2500.00	32.30	27.35	4.00	34.87	28.78	54.00	-25.22	Horizontal
2483.50	35.69	27.32	3.99	34.86	32.14	54.00	-21.86	Vertical
2500.00	33.79	27.35	4.00	34.87	30.27	54.00	-23.73	Vertical

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

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

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	46.02	27.38	3.91	34.83	42.48	74.00	-31.52	Horizontal
2400.00	47.88	27.38	3.93	34.83	44.36	74.00	-29.64	Horizontal
2390.00	42.52	27.38	3.91	34.83	38.98	74.00	-35.02	Vertical
2400.00	44.17	27.38	3.93	34.83	40.65	74.00	-33.35	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	34.64	27.38	3.91	34.83	31.10	54.00	-22.90	Horizontal
2400.00	37.20	27.38	3.93	34.83	33.68	54.00	-20.32	Horizontal
2390.00	29.39	27.38	3.91	34.83	25.85	54.00	-28.15	Vertical
2400.00	32.27	27.38	3.93	34.83	28.75	54.00	-25.25	Vertical

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

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	44.42	27.32	3.99	34.86	40.87	74.00	-33.13	Horizontal
2500.00	42.85	27.35	4.00	34.87	39.33	74.00	-34.67	Horizontal
2483.50	46.92	27.32	3.99	34.86	43.37	74.00	-30.63	Vertical
2500.00	43.79	27.35	4.00	34.87	40.27	74.00	-33.73	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	33.56	27.32	3.99	34.86	30.01	54.00	-23.99	Horizontal
2500.00	31.70	27.35	4.00	34.87	28.18	54.00	-25.82	Horizontal
2483.50	34.24	27.32	3.99	34.86	30.69	54.00	-23.31	Vertical
2500.00	32.63	27.35	4.00	34.87	29.11	54.00	-24.89	Vertical

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Test mode:	802.11n(HT40)	Test channel:	Lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	47.21	27.38	3.91	34.83	43.67	74.00	-30.33	Horizontal
2400.00	48.18	27.38	3.93	34.83	44.66	74.00	-29.34	Horizontal
2390.00	48.72	27.38	3.91	34.83	45.18	74.00	-28.82	Vertical
2400.00	51.93	27.38	3.93	34.83	48.41	74.00	-25.59	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	35.74	27.38	3.91	34.83	32.20	54.00	-21.80	Horizontal
2400.00	39.20	27.38	3.93	34.83	35.68	54.00	-18.32	Horizontal
2390.00	35.82	27.38	3.91	34.83	32.28	54.00	-21.72	Vertical
2400.00	38.70	27.38	3.93	34.83	35.18	54.00	-18.82	Vertical

Test mode:	802.11n(HT40)	Test channel:	Highest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	49.00	27.32	3.99	34.86	45.45	74.00	-28.55	Horizontal
2500.00	45.55	27.35	4.00	34.87	42.03	74.00	-31.97	Horizontal
2483.50	49.12	27.32	3.99	34.86	45.57	74.00	-28.43	Vertical
2500.00	45.83	27.35	4.00	34.87	42.31	74.00	-31.69	Vertical

Average value:

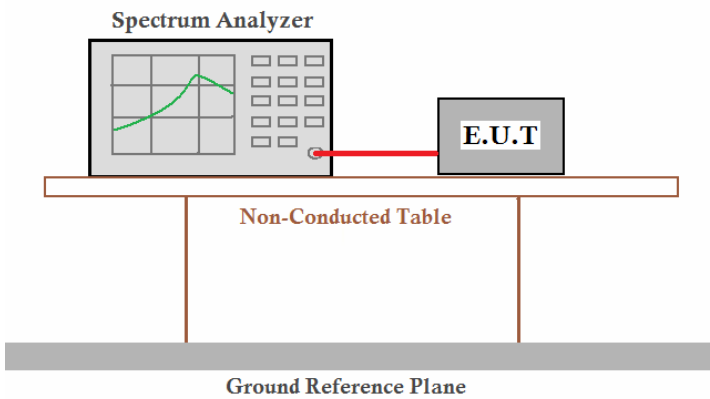
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	35.76	27.32	3.99	34.86	32.21	54.00	-21.79	Horizontal
2500.00	34.71	27.35	4.00	34.87	31.19	54.00	-22.81	Horizontal
2483.50	35.74	27.32	3.99	34.86	32.19	54.00	-21.81	Vertical
2500.00	34.17	27.35	4.00	34.87	30.65	54.00	-23.35	Vertical

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

7.7 Spurious Emission

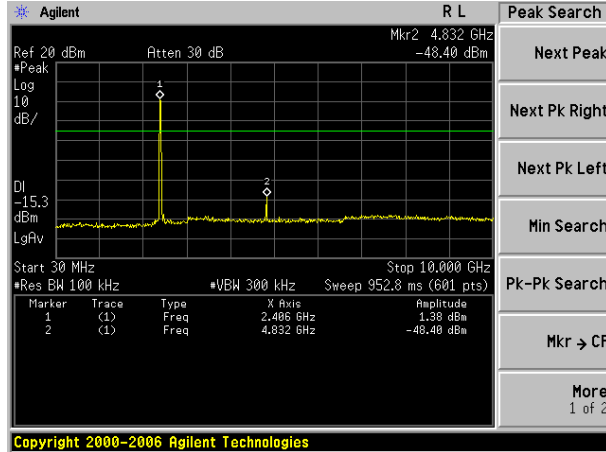
7.7.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and KDB558074 D01 Meas Guidance
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:	 The diagram illustrates the test setup for conducted emission measurement. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

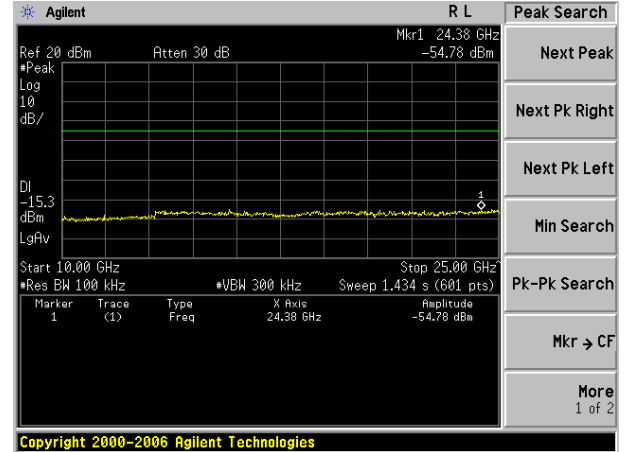
Test plot as follows:

Test mode:	802.11b
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Lowest channel

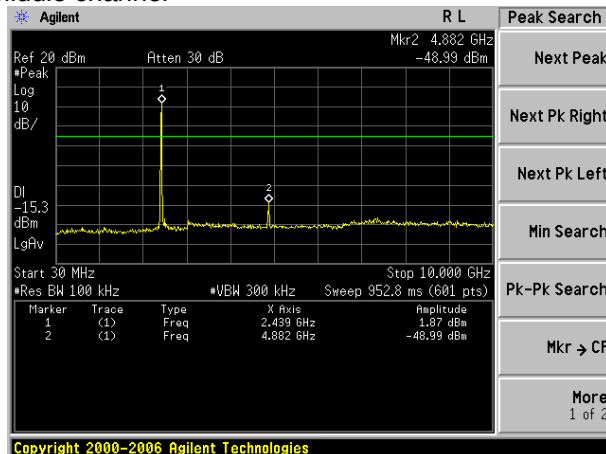


30MHz~10GHz

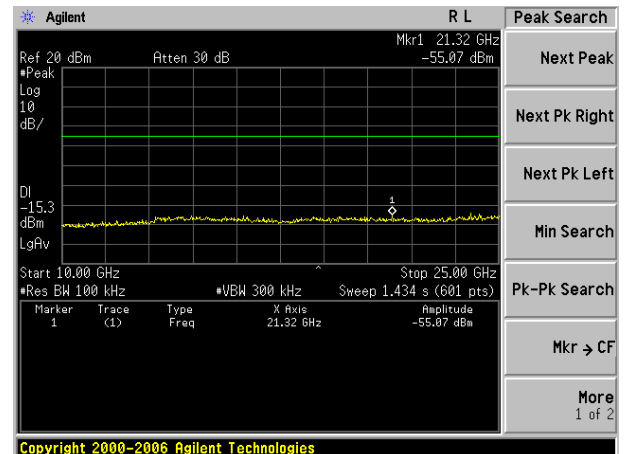


10GHz~25GHz

Middle channel

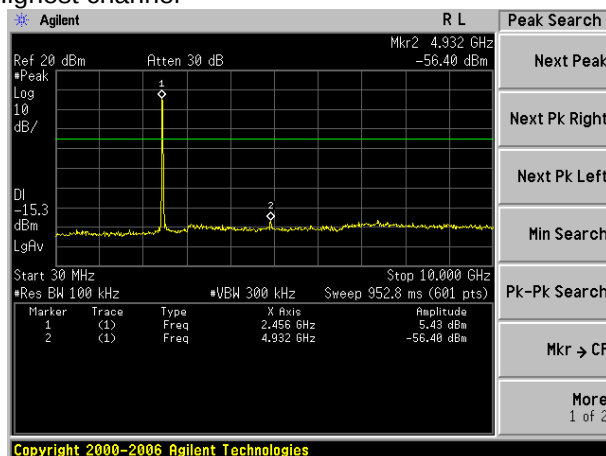


30MHz~10GHz

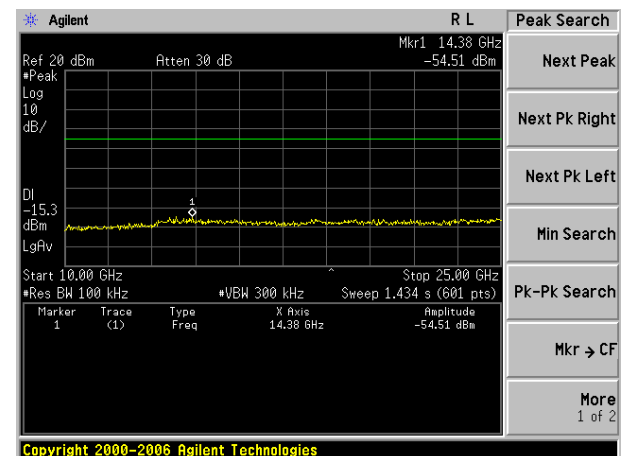


10GHz~25GHz

Highest channel



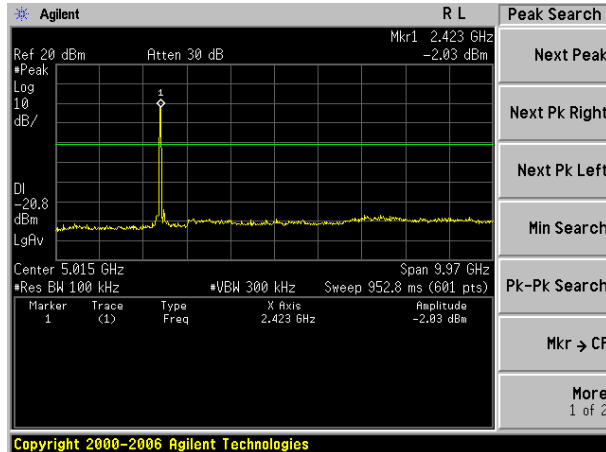
30MHz~10GHz



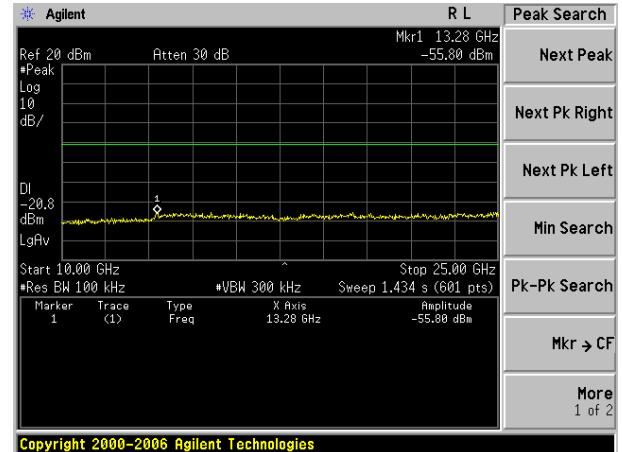
10GHz~25GHz

Test mode:	802.11g
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Lowest channel

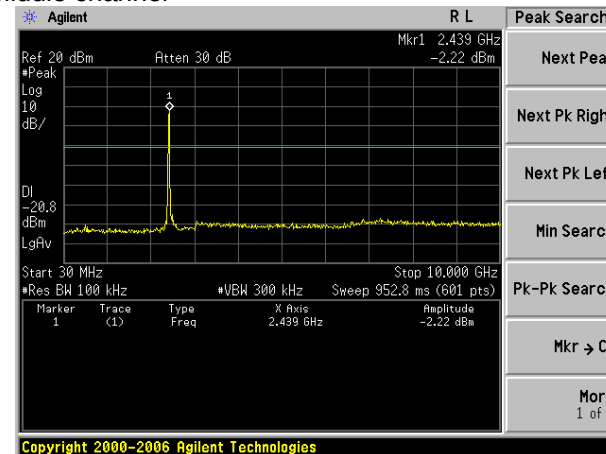


30MHz~10GHz

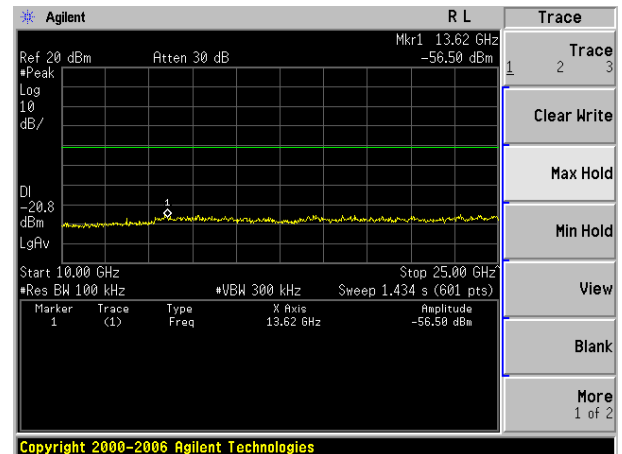


10GHz~25GHz

Middle channel

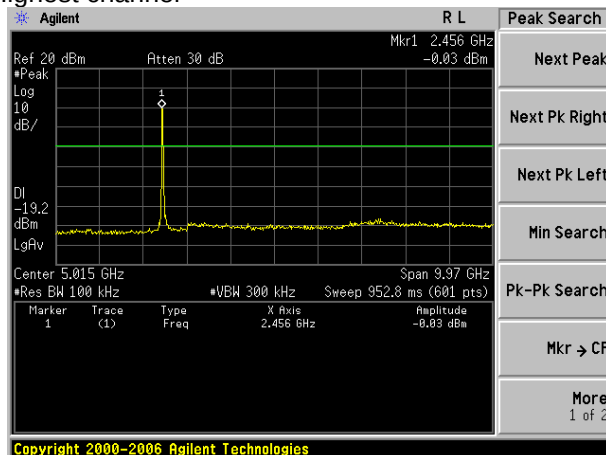


30MHz~10GHz

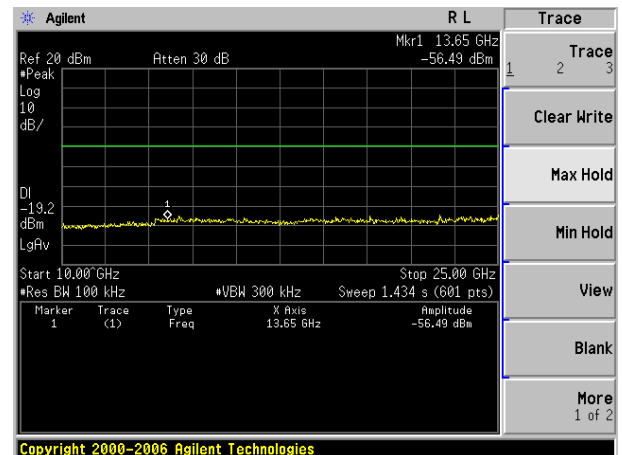


10GHz~25GHz

Highest channel



30MHz~10GHz

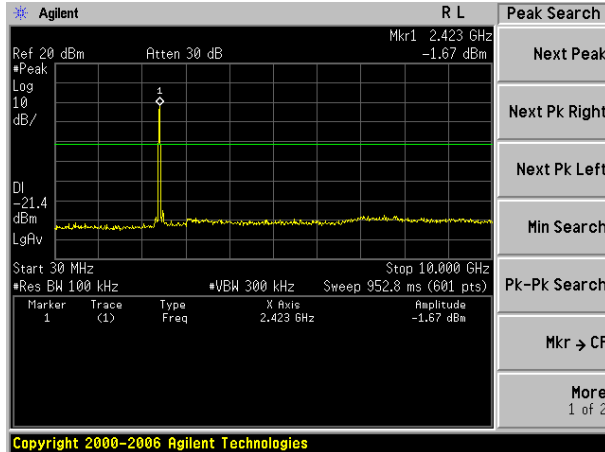


10GHz~25GHz

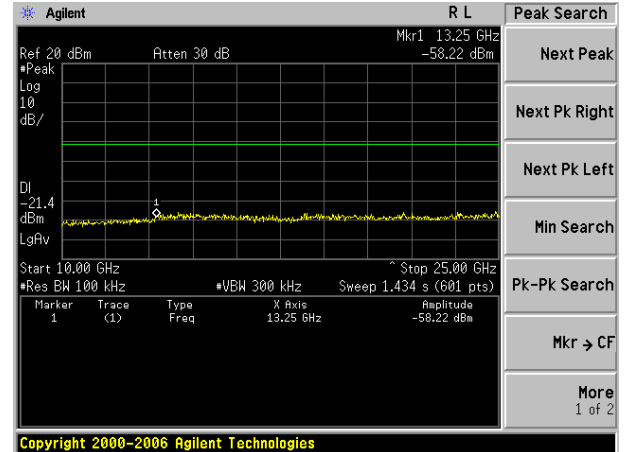
Test mode:

802.11n(HT20)

Lowest channel

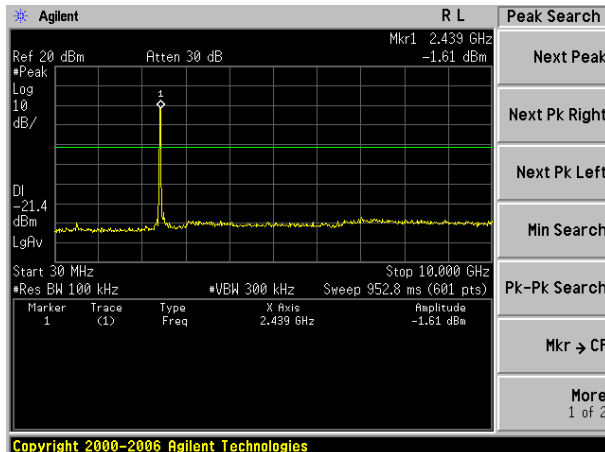


30MHz~10GHz

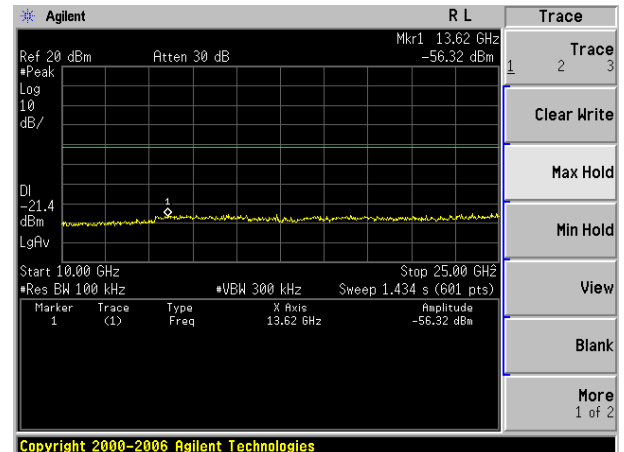


10GHz~25GHz

Middle channel

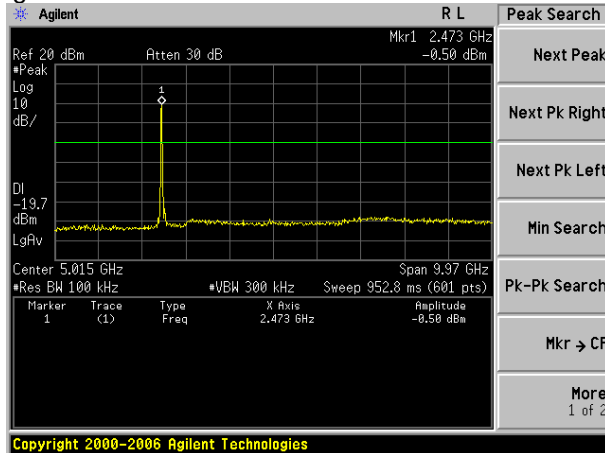


30MHz~10GHz

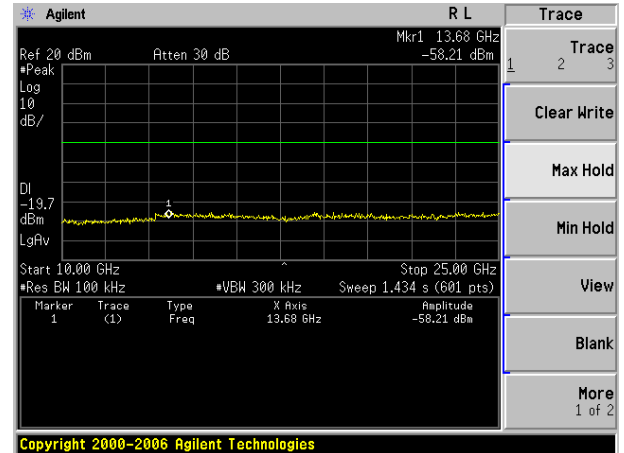


10GHz~25GHz

Highest channel



30MHz~10GHz

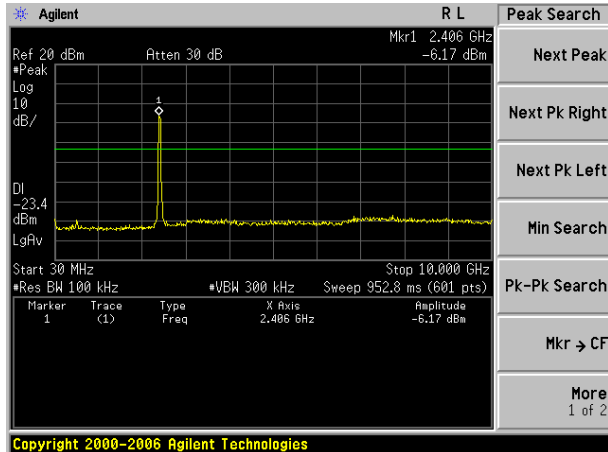


10GHz~25GHz

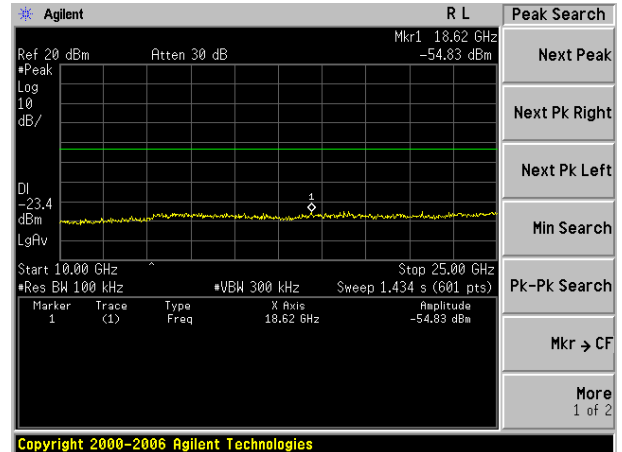
Test mode:

802.11n(HT40)

Lowest channel

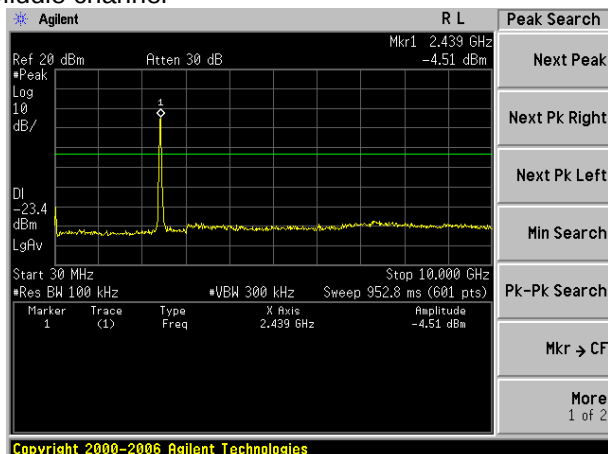


30MHz~10GHz

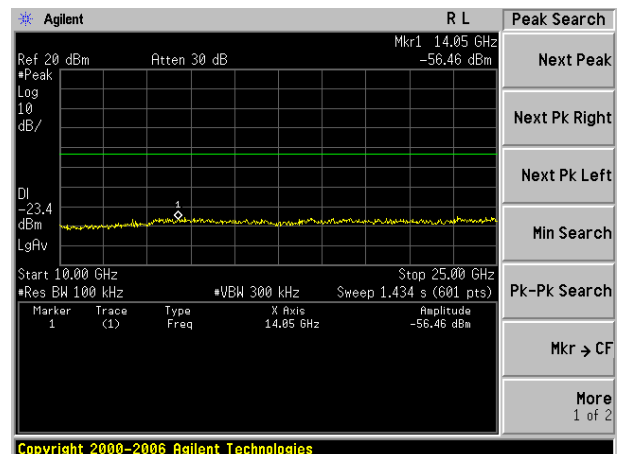


10GHz~25GHz

Middle channel

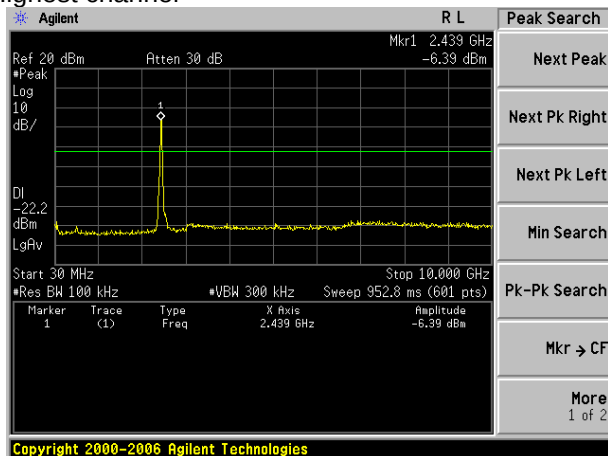


30MHz~10GHz

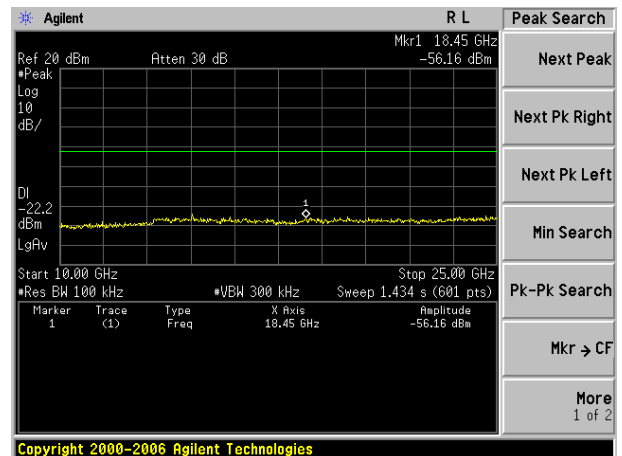


10GHz~25GHz

Highest channel



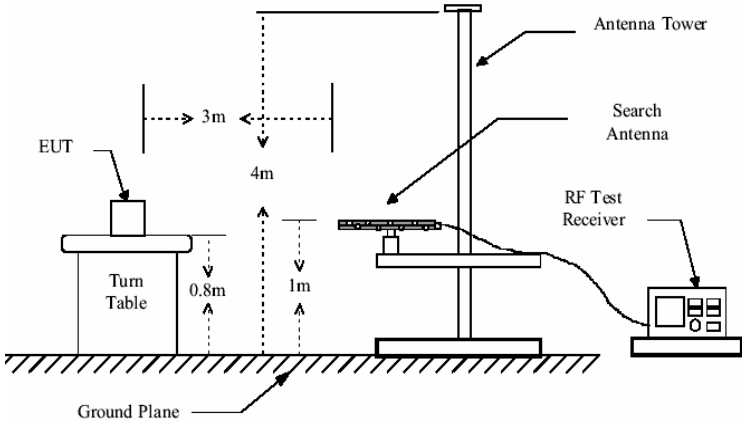
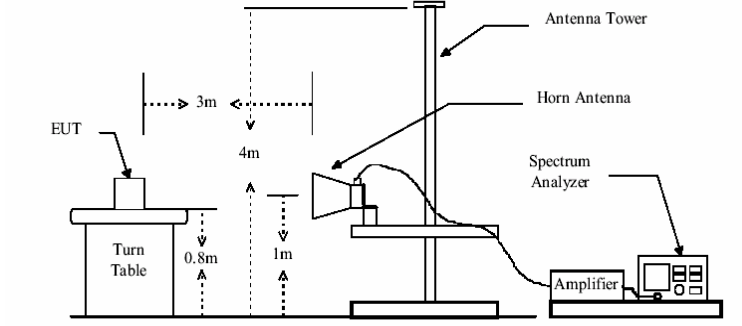
30MHz~10GHz



10GHz~25GHz

7.7.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.4: 2003				
Test Frequency Range:	30MHz to 25GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		AV	1MHz	10Hz	Average Value
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	30MHz-88MHz		40.0		Quasi-peak Value
	88MHz-216MHz		43.5		Quasi-peak Value
	216MHz-960MHz		46.0		Quasi-peak Value
	960MHz-1GHz		54.0		Quasi-peak Value
	Above 1GHz		54.0		Average Value
			74.0		Peak Value
Test Procedure:	1. Change the TV to HDMI input mode as a monitor, then plug the EUT into the TV's HDMI input port. 2. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 3. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 4. 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. 5. 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. 6. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 7. 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 setup:	Below 1GHz  Above 1GHz 
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Remark:

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

■ Below 1GHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
66.36	53.86	11.24	0.39	31.89	33.60	40.00	-6.40	Vertical
85.37	55.09	10.50	0.43	31.81	34.21	40.00	-5.79	Vertical
143.24	58.69	7.05	0.61	32.00	34.35	43.50	-9.15	Vertical
254.35	56.79	10.83	0.89	32.28	36.23	46.00	-9.77	Vertical
383.60	52.73	13.47	1.20	32.31	35.09	46.00	-10.91	Vertical
62.31	50.07	14.94	0.34	31.99	33.36	40.00	-6.64	Horizontal
78.35	51.60	10.50	0.43	31.81	30.72	40.00	-9.28	Horizontal
168.30	57.98	7.21	0.62	32.01	33.80	43.50	-9.70	Horizontal
255.35	59.84	10.83	0.89	32.28	39.28	46.00	-6.72	Horizontal
363.58	54.82	13.56	1.21	32.32	37.27	46.00	-8.73	Horizontal

■ Above 1GHz

Test mode:	802.11b	Test channel:	Lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	42.00	31.28	8.62	24.17	57.73	74.00	-16.27	Vertical
7236.00	31.02	35.36	11.68	26.52	51.54	74.00	-22.46	Vertical
9648.00	30.88	37.44	14.16	25.44	57.04	74.00	-16.96	Vertical
12060.00						74.00		Vertical
14472.00						74.00		Vertical
16884.00						74.00		Vertical
4824.00	36.46	31.28	8.62	24.17	52.19	74.00	-21.81	Horizontal
7236.00	27.60	35.36	11.68	26.52	48.12	74.00	-25.88	Horizontal
9648.00	28.05	37.44	14.16	25.44	54.21	74.00	-19.79	Horizontal
12060.00						74.00		Horizontal
14472.00						74.00		Horizontal
16884.00						74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	32.12	31.28	8.62	24.17	47.85	54.00	-6.15	Vertical
7236.00	24.15	35.36	11.68	26.52	44.67	54.00	-9.33	Vertical
9648.00	20.45	37.44	14.16	25.44	46.61	54.00	-7.39	Vertical
12060.00						54.00		Vertical
14472.00						54.00		Vertical
16884.00						54.00		Vertical
4824.00	26.34	31.28	8.62	24.17	42.07	54.00	-11.93	Horizontal
7236.00	20.62	35.36	11.68	26.52	41.14	54.00	-12.86	Horizontal
9648.00	20.11	37.44	14.16	25.44	46.27	54.00	-7.73	Horizontal
12060.00						54.00		Horizontal
14472.00						54.00		Horizontal
16884.00						54.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “*”, means this data is the too weak instrument of signal is unable to test.

Test mode:	802.11b	Test channel:	Middle
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	41.54	32.02	8.66	24.12	58.10	74.00	-15.90	Vertical
7311.00	30.46	36.64	11.71	26.71	52.10	74.00	-21.90	Vertical
9748.00	29.99	38.54	14.25	25.38	57.40	74.00	-16.60	Vertical
12185.00						74.00		Vertical
14622.00						74.00		Vertical
17059.00						74.00		Vertical
4874.00	39.15	32.02	8.66	24.12	55.71	74.00	-18.29	Horizontal
7311.00	27.82	36.64	11.71	26.71	49.46	74.00	-24.54	Horizontal
9748.00	28.16	38.54	14.25	25.38	55.57	74.00	-18.43	Horizontal
12185.00						74.00		Horizontal
14622.00						74.00		Horizontal
17059.00						74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	31.78	32.02	8.66	24.12	48.34	54.00	-5.66	Vertical
7311.00	24.15	36.64	11.71	26.71	45.79	54.00	-8.21	Vertical
9748.00	18.64	38.54	14.25	25.38	46.05	54.00	-7.95	Vertical
12185.00						54.00		Vertical
14622.00						54.00		Vertical
17059.00						54.00		Vertical
4874.00	28.12	32.02	8.66	24.12	44.68	54.00	-9.32	Horizontal
7311.00	19.66	36.64	11.71	26.71	41.30	54.00	-12.70	Horizontal
9748.00	20.06	38.54	14.25	25.38	47.47	54.00	-6.53	Horizontal
12185.00						54.00		Horizontal
14622.00						54.00		Horizontal
17059.00						54.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “*”, means this data is the too weak instrument of signal is unable to test.

Test mode:	802.11b	Test channel:	Highest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	43.61	32.14	8.70	24.05	60.40	74.00	-13.60	Vertical
7386.00	31.02	36.75	11.76	26.90	52.63	74.00	-21.37	Vertical
9848.00	29.35	38.79	14.31	25.30	57.15	74.00	-16.85	Vertical
12310.00						74.00		Vertical
14772.00						74.00		Vertical
17234.00						74.00		Vertical
4924.00	37.55	32.14	8.70	24.05	54.34	74.00	-19.66	Horizontal
7386.00	28.69	36.75	11.76	26.90	50.30	74.00	-23.70	Horizontal
9848.00	25.03	38.79	14.31	25.30	52.83	74.00	-21.17	Horizontal
12310.00						74.00		Horizontal
14772.00						74.00		Horizontal
17234.00						74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	31.44	32.14	8.70	24.05	48.23	54.00	-5.77	Vertical
7386.00	23.04	36.75	11.76	26.90	44.65	54.00	-9.35	Vertical
9848.00	17.45	38.79	14.31	25.30	45.25	54.00	-8.75	Vertical
12310.00						54.00		Vertical
14772.00						54.00		Vertical
17234.00						54.00		Vertical
4924.00	25.44	32.14	8.70	24.05	42.23	54.00	-11.77	Horizontal
7386.00	19.12	36.75	11.76	26.90	40.73	54.00	-13.27	Horizontal
9848.00	16.45	38.79	14.31	25.30	44.25	54.00	-9.75	Horizontal
12310.00						54.00		Horizontal
14772.00						54.00		Horizontal
17234.00						54.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “*”, means this data is the too weak instrument of signal is unable to test.

Test mode:	802.11g	Test channel:	lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	40.00	31.28	8.62	24.17	55.73	74.00	-18.27	Vertical
7236.00	33.45	35.36	11.68	26.52	53.97	74.00	-20.03	Vertical
9648.00	30.93	37.44	14.16	25.44	57.09	74.00	-16.91	Vertical
12060.00						74.00		Vertical
14472.00						74.00		Vertical
16884.00						74.00		Vertical
4824.00	36.10	31.28	8.62	24.17	51.83	74.00	-22.17	Horizontal
7236.00	31.52	35.36	11.68	26.52	52.04	74.00	-21.96	Horizontal
9648.00	33.49	37.44	14.16	25.44	59.65	74.00	-14.35	Horizontal
12060.00						74.00		Horizontal
14472.00						74.00		Horizontal
16884.00						74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	30.12	31.28	8.62	24.17	45.85	54.00	-8.15	Vertical
7236.00	27.15	35.36	11.68	26.52	47.67	54.00	-6.33	Vertical
9648.00	19.78	37.44	14.16	25.44	45.94	54.00	-8.06	Vertical
12060.00						54.00		Vertical
14472.00						54.00		Vertical
16884.00						54.00		Vertical
4824.00	26.77	31.28	8.62	24.17	42.50	54.00	-11.50	Horizontal
7236.00	25.05	35.36	11.68	26.52	45.57	54.00	-8.43	Horizontal
9648.00	19.65	37.44	14.16	25.44	45.81	54.00	-8.19	Horizontal
12060.00						54.00		Horizontal
14472.00						54.00		Horizontal
16884.00						54.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “*”, means this data is the too weak instrument of signal is unable to test.

Test mode:	802.11g	Test channel:	Middle
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	39.32	32.02	8.66	24.12	55.88	74.00	-18.12	Vertical
7311.00	31.66	36.64	11.71	26.71	53.30	74.00	-20.70	Vertical
9748.00	29.78	38.54	14.25	25.38	57.19	74.00	-16.81	Vertical
12185.00						74.00		Vertical
14622.00						74.00		Vertical
17059.00						74.00		Vertical
4874.00	35.46	32.02	8.66	24.12	52.02	74.00	-21.98	Horizontal
7311.00	30.94	36.64	11.71	26.71	52.58	74.00	-21.42	Horizontal
9748.00	29.48	38.54	14.25	25.38	56.89	74.00	-17.11	Horizontal
12185.00						74.00		Horizontal
14622.00						74.00		Horizontal
17059.00						74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	30.12	32.02	8.66	24.12	46.68	54.00	-7.32	Vertical
7311.00	24.05	36.64	11.71	26.71	45.69	54.00	-8.31	Vertical
9748.00	20.44	38.54	14.25	25.38	47.85	54.00	-6.15	Vertical
12185.00						54.00		Vertical
14622.00						54.00		Vertical
17059.00						54.00		Vertical
4874.00	27.12	32.02	8.66	24.12	43.68	54.00	-10.32	Horizontal
7311.00	22.66	36.64	11.71	26.71	44.30	54.00	-9.70	Horizontal
9748.00	19.62	38.54	14.25	25.38	47.03	54.00	-6.97	Horizontal
12185.00						54.00		Horizontal
14622.00						54.00		Horizontal
17059.00						54.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “*”, means this data is the too weak instrument of signal is unable to test.

Test mode:	802.11g	Test channel:	Highest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	41.02	32.14	8.70	24.05	57.81	74.00	-16.19	Vertical
7386.00	32.43	36.75	11.76	26.90	54.04	74.00	-19.96	Vertical
9848.00	31.11	38.79	14.31	25.30	58.91	74.00	-15.09	Vertical
12310.00						74.00		Vertical
14772.00						74.00		Vertical
17234.00						74.00		Vertical
4924.00	38.16	32.14	8.70	24.05	54.95	74.00	-19.05	Horizontal
7386.00	31.23	36.75	11.76	26.90	52.84	74.00	-21.16	Horizontal
9848.00	30.06	38.79	14.31	25.30	57.86	74.00	-16.14	Horizontal
12310.00						74.00		Horizontal
14772.00						74.00		Horizontal
17234.00						74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	30.02	32.14	8.70	24.05	46.81	54.00	-7.19	Vertical
7386.00	24.96	36.75	11.76	26.90	46.57	54.00	-7.43	Vertical
9848.00	19.42	38.79	14.31	25.30	47.22	54.00	-6.78	Vertical
12310.00						54.00		Vertical
14772.00						54.00		Vertical
17234.00						54.00		Vertical
4924.00	27.12	32.14	8.70	24.05	43.91	54.00	-10.09	Horizontal
7386.00	23.61	36.75	11.76	26.90	45.22	54.00	-8.78	Horizontal
9848.00	19.02	38.79	14.31	25.30	46.82	54.00	-7.18	Horizontal
12310.00						54.00		Horizontal
14772.00						54.00		Horizontal
17234.00						54.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “*”, means this data is the too weak instrument of signal is unable to test.

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

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	40.03	31.28	8.62	24.17	55.76	74.00	-18.24	Vertical
7236.00	31.12	35.36	11.68	26.52	51.64	74.00	-22.36	Vertical
9648.00	30.66	37.44	14.16	25.44	56.82	74.00	-17.18	Vertical
12060.00						74.00		Vertical
14472.00						74.00		Vertical
16884.00						74.00		Vertical
4824.00	36.45	31.28	8.62	24.17	52.18	74.00	-21.82	Horizontal
7236.00	30.95	35.36	11.68	26.52	51.47	74.00	-22.53	Horizontal
9648.00	29.71	37.44	14.16	25.44	55.87	74.00	-18.13	Horizontal
12060.00						74.00		Horizontal
14472.00						74.00		Horizontal
16884.00						74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	31.12	31.28	8.62	24.17	46.85	54.00	-7.15	Vertical
7236.00	24.02	35.36	11.68	26.52	44.54	54.00	-9.46	Vertical
9648.00	21.76	37.44	14.16	25.44	47.92	54.00	-6.08	Vertical
12060.00						54.00		Vertical
14472.00						54.00		Vertical
16884.00						54.00		Vertical
4824.00	27.44	31.28	8.62	24.17	43.17	54.00	-10.83	Horizontal
7236.00	23.63	35.36	11.68	26.52	44.15	54.00	-9.85	Horizontal
9648.00	18.06	37.44	14.16	25.44	44.22	54.00	-9.78	Horizontal
12060.00						54.00		Horizontal
14472.00						54.00		Horizontal
16884.00						54.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “*”, means this data is the too weak instrument of signal is unable to test.

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

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	39.31	32.02	8.66	24.12	55.87	74.00	-18.13	Vertical
7311.00	32.30	36.64	11.71	26.71	53.94	74.00	-20.06	Vertical
9748.00	30.75	38.54	14.25	25.38	58.16	74.00	-15.84	Vertical
12185.00						74.00		Vertical
14622.00						74.00		Vertical
17059.00						74.00		Vertical
4874.00	35.12	32.02	8.66	24.12	51.68	74.00	-22.32	Horizontal
7311.00	29.46	36.64	11.71	26.71	51.10	74.00	-22.90	Horizontal
9748.00	28.99	38.54	14.25	25.38	56.40	74.00	-17.60	Horizontal
12185.00						74.00		Horizontal
14622.00						74.00		Horizontal
17059.00						74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	29.64	32.02	8.66	24.12	46.20	54.00	-7.80	Vertical
7311.00	24.22	36.64	11.71	26.71	45.86	54.00	-8.14	Vertical
9748.00	20.09	38.54	14.25	25.38	47.50	54.00	-6.50	Vertical
12185.00						54.00		Vertical
14622.00						54.00		Vertical
17059.00						54.00		Vertical
4874.00	26.11	32.02	8.66	24.12	42.67	54.00	-11.33	Horizontal
7311.00	22.84	36.64	11.71	26.71	44.48	54.00	-9.52	Horizontal
9748.00	16.57	38.54	14.25	25.38	43.98	54.00	-10.02	Horizontal
12185.00						54.00		Horizontal
14622.00						54.00		Horizontal
17059.00						54.00		Horizontal

Remark:

1. *Final Level* = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “*”, means this data is the too weak instrument of signal is unable to test.

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

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	39.41	32.14	8.70	24.05	56.20	74.00	-17.80	Vertical
7386.00	32.02	36.75	11.76	26.90	53.63	74.00	-20.37	Vertical
9848.00	30.15	38.79	14.31	25.30	57.95	74.00	-16.05	Vertical
12310.00						74.00		Vertical
14772.00						74.00		Vertical
17234.00						74.00		Vertical
4924.00	34.35	32.14	8.70	24.05	51.14	74.00	-22.86	Horizontal
7386.00	29.64	36.75	11.76	26.90	51.25	74.00	-22.75	Horizontal
9848.00	28.33	38.79	14.31	25.30	56.13	74.00	-17.87	Horizontal
12310.00						74.00		Horizontal
14772.00						74.00		Horizontal
17234.00						74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	31.00	32.14	8.70	24.05	47.79	54.00	-6.21	Vertical
7386.00	25.11	36.75	11.76	26.90	46.72	54.00	-7.28	Vertical
9848.00	20.46	38.79	14.31	25.30	48.26	54.00	-5.74	Vertical
12310.00						54.00		Vertical
14772.00						54.00		Vertical
17234.00						54.00		Vertical
4924.00	27.16	32.14	8.70	24.05	43.95	54.00	-10.05	Horizontal
7386.00	23.34	36.75	11.76	26.90	44.95	54.00	-9.05	Horizontal
9848.00	16.74	38.79	14.31	25.30	44.54	54.00	-9.46	Horizontal
12310.00						54.00		Horizontal
14772.00						54.00		Horizontal
17234.00						54.00		Horizontal

Remark:

- 1 Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- 2 “*”, means this data is the too weak instrument of signal is unable to test.

Test mode:	802.11n(HT40)	Test channel:	Lowest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4844.00	38.12	31.40	8.63	24.04	54.11	74.00	-19.89	Vertical
7266.00	30.62	35.96	11.69	26.47	51.80	74.00	-22.20	Vertical
9688.00	30.05	37.71	14.21	25.30	56.67	74.00	-17.33	Vertical
12060.00						74.00		Vertical
14472.00						74.00		Vertical
16884.00						74.00		Vertical
4844.00	33.65	31.40	8.63	24.04	49.64	74.00	-24.36	Horizontal
7266.00	30.94	35.96	11.69	26.47	52.12	74.00	-21.88	Horizontal
9688.00	30.15	37.71	14.21	25.30	56.77	74.00	-17.23	Horizontal
12060.00						74.00		Horizontal
14472.00						74.00		Horizontal
16884.00						74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4844.00	30.49	31.40	8.63	24.04	46.48	54.00	-7.52	Vertical
7266.00	22.65	35.96	11.69	26.47	43.83	54.00	-10.17	Vertical
9688.00	18.46	37.71	14.21	25.30	45.08	54.00	-8.92	Vertical
12060.00						54.00		Vertical
14472.00						54.00		Vertical
16884.00						54.00		Vertical
4844.00	27.15	31.40	8.63	24.04	43.14	54.00	-10.86	Horizontal
7266.00	20.46	35.96	11.69	26.47	41.64	54.00	-12.36	Horizontal
9688.00	17.61	37.71	14.21	25.30	44.23	54.00	-9.77	Horizontal
12060.00						54.00		Horizontal
14472.00						54.00		Horizontal
16884.00						54.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “*”, means this data is the too weak instrument of signal is unable to test.

Test mode:	802.11n(HT40)	Test channel:	Middle
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	40.16	32.02	8.66	24.12	56.72	74.00	-17.28	Vertical
7311.00	30.17	36.64	11.71	26.71	51.81	74.00	-22.20	Vertical
9748.00	29.48	38.54	14.25	25.38	56.89	74.00	-17.11	Vertical
12185.00						74.00		Vertical
14622.00						74.00		Vertical
17059.00						74.00		Vertical
4874.00	35.11	32.02	8.66	24.12	51.67	74.00	-22.33	Horizontal
7311.00	30.48	36.64	11.71	26.71	52.12	74.00	-21.88	Horizontal
9748.00	29.49	38.54	14.25	25.38	56.90	74.00	-17.10	Horizontal
12185.00						74.00		Horizontal
14622.00						74.00		Horizontal
17059.00						74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	29.88	32.02	8.66	24.12	46.44	54.00	-7.56	Vertical
7311.00	23.15	36.64	11.71	26.71	44.79	54.00	-9.21	Vertical
9748.00	18.06	38.54	14.25	25.38	45.47	54.00	-8.53	Vertical
12185.00						54.00		Vertical
14622.00						54.00		Vertical
17059.00						54.00		Vertical
4874.00	25.16	32.02	8.66	24.12	41.72	54.00	-12.28	Horizontal
7311.00	22.64	36.64	11.71	26.71	44.28	54.00	-9.72	Horizontal
9748.00	16.45	38.54	14.25	25.38	43.86	54.00	-10.14	Horizontal
12185.00						54.00		Horizontal
14622.00						54.00		Horizontal
17059.00						54.00		Horizontal

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *“*”*, means this data is the too weak instrument of signal is unable to test.

Test mode:	802.11n(HT40)	Test channel:	Highest
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4904.00	38.45	32.08	8.68	23.97	55.24	74.00	-18.76	Vertical
7356.00	29.76	36.69	11.74	26.73	51.46	74.00	-22.54	Vertical
9808.00	29.13	38.60	14.29	25.22	56.80	74.00	-17.20	Vertical
12310.00						74.00		Vertical
14772.00						74.00		Vertical
17234.00						74.00		Vertical
4904.00	33.35	32.08	8.68	23.97	50.14	74.00	-23.86	Horizontal
7356.00	29.48	36.69	11.74	26.73	51.18	74.00	-22.82	Horizontal
9808.00	29.07	38.60	14.29	25.22	56.74	74.00	-17.27	Horizontal
12310.00						74.00		Horizontal
14772.00						74.00		Horizontal
17234.00						74.00		Horizontal

Average value:

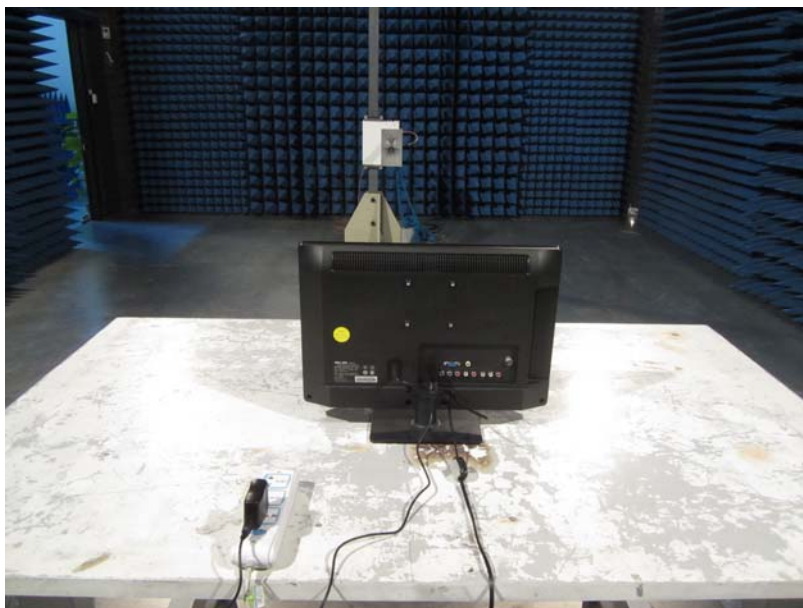
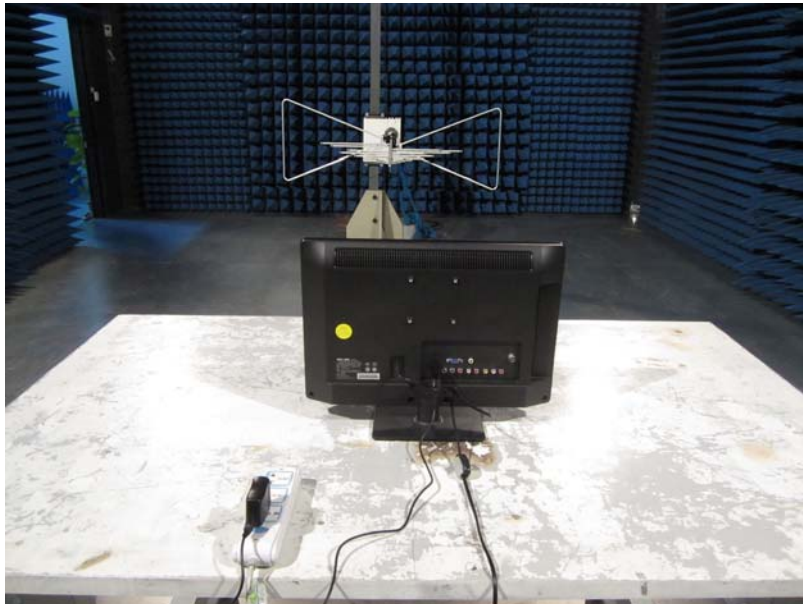
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4904.00	30.15	32.08	8.68	23.97	46.94	54.00	-7.06	Vertical
7356.00	23.65	36.69	11.74	26.73	45.35	54.00	-8.65	Vertical
9808.00	17.82	38.60	14.29	25.22	45.49	54.00	-8.51	Vertical
12310.00						54.00		Vertical
14772.00						54.00		Vertical
17234.00						54.00		Vertical
4904.00	26.95	32.08	8.68	23.97	43.74	54.00	-10.26	Horizontal
7356.00	21.05	36.69	11.74	26.73	42.75	54.00	-11.25	Horizontal
9808.00	18.46	38.60	14.29	25.22	46.13	54.00	-7.87	Horizontal
12310.00						54.00		Horizontal
14772.00						54.00		Horizontal
17234.00						54.00		Horizontal

Remark:

- 1 Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- 2 “*” means this data is too weak instrument of signal is unable to test.

8 Test Setup Photo

Radiated Emission

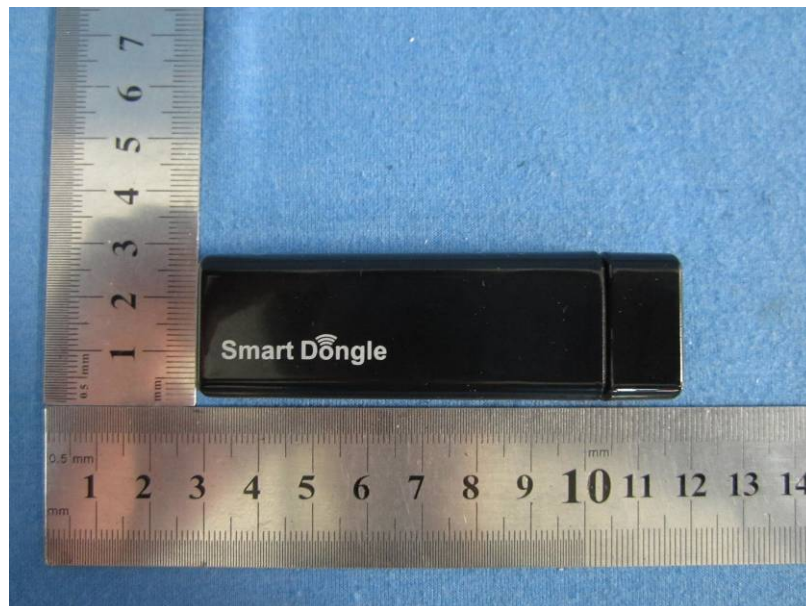


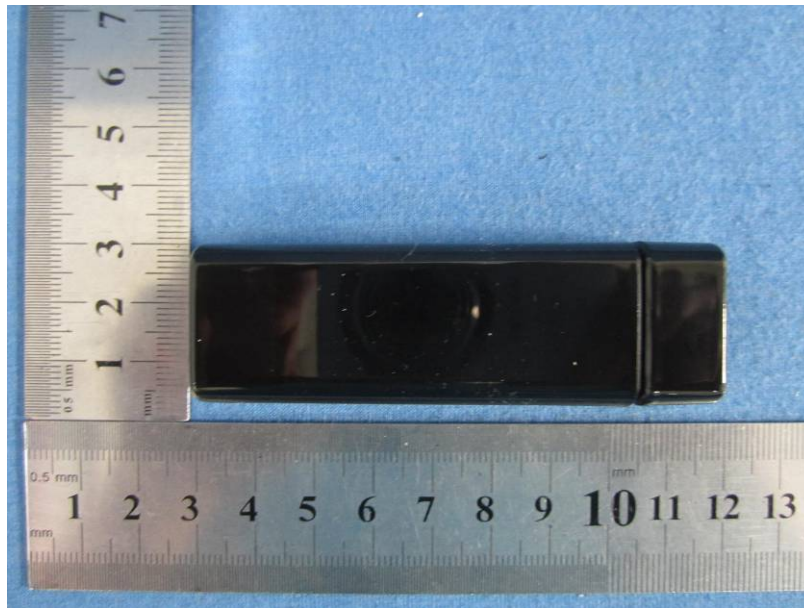


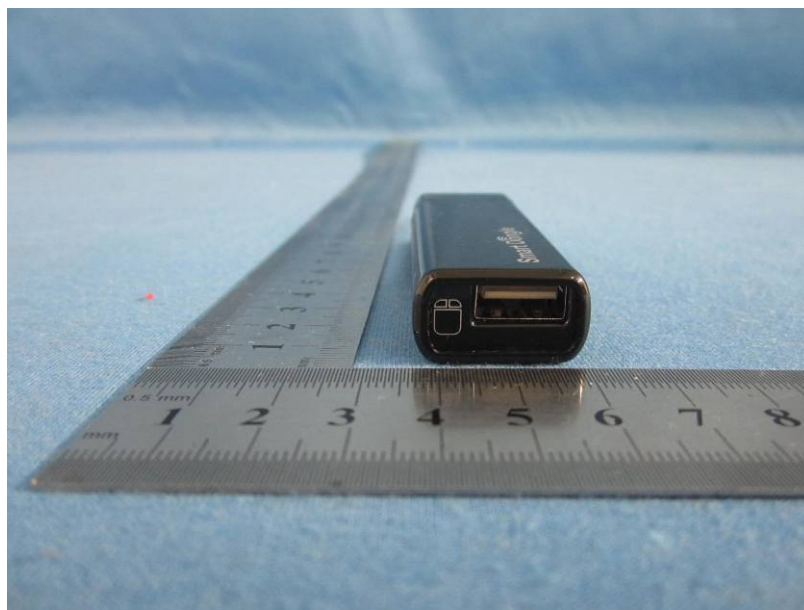
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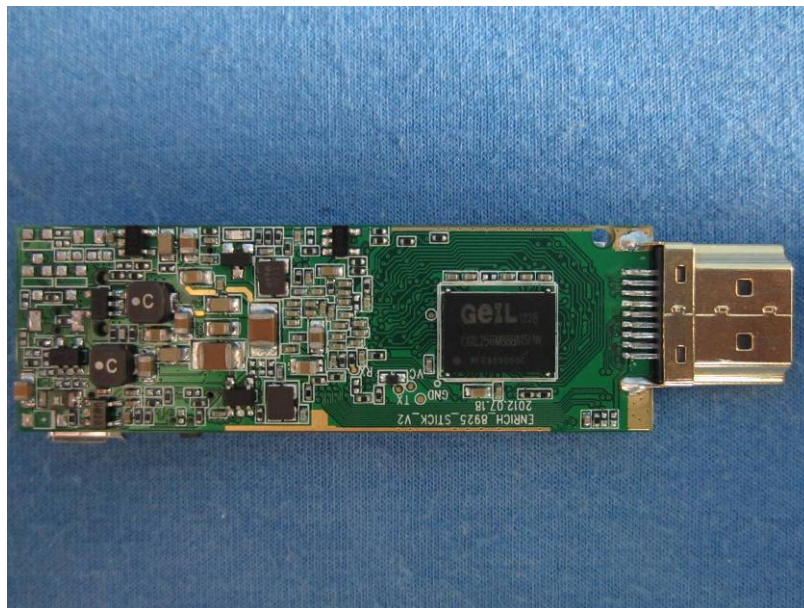
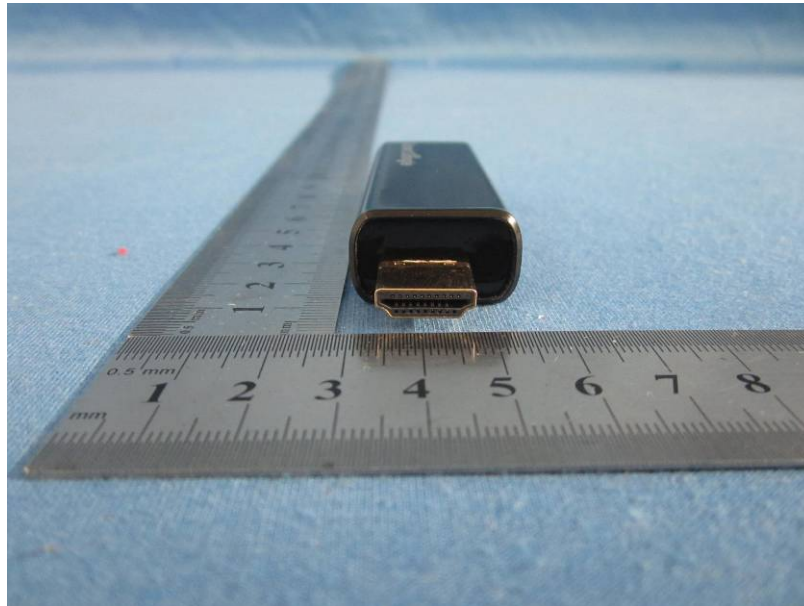


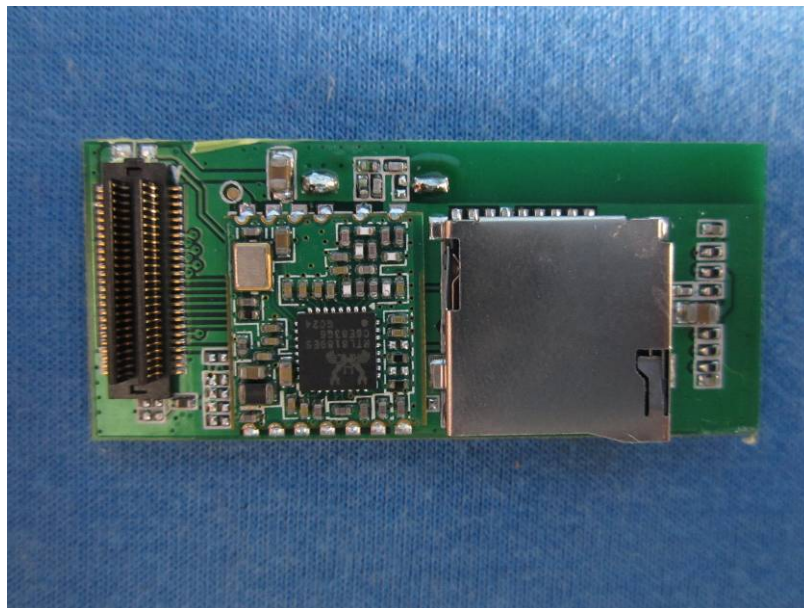
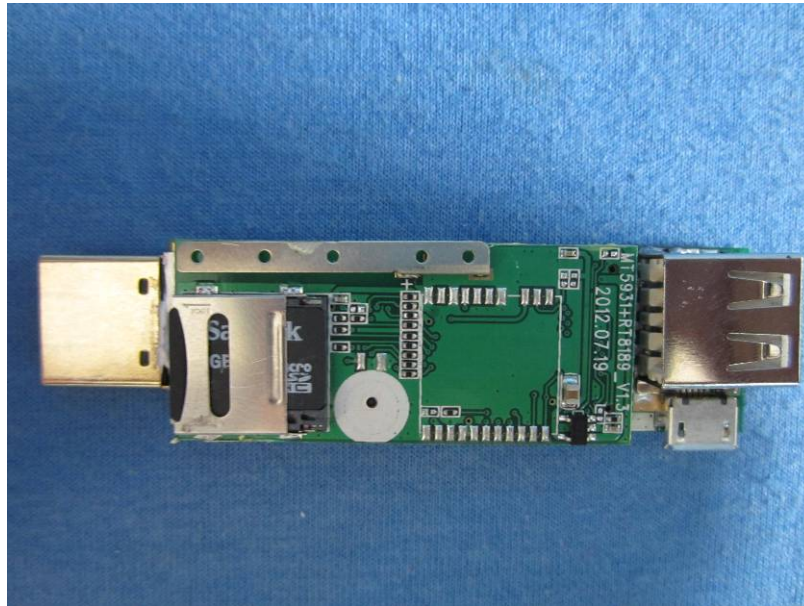
9 EUT Constructional Details

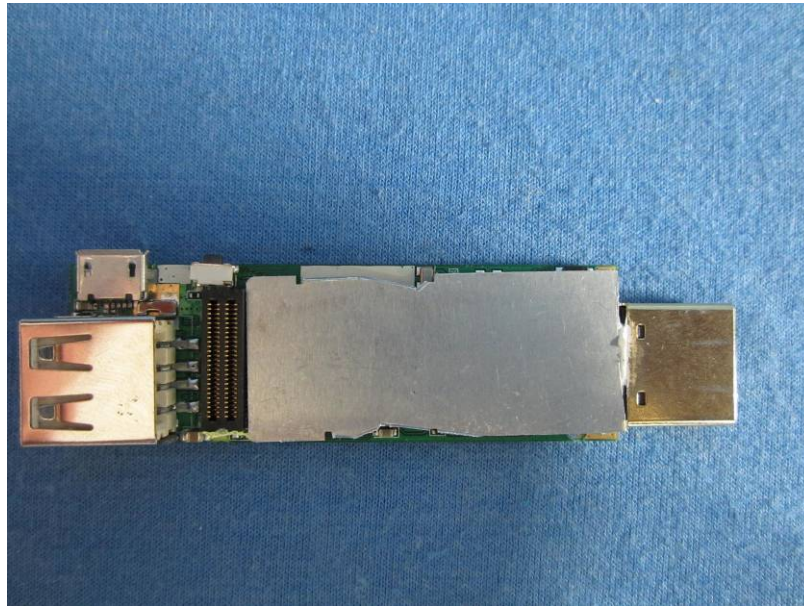












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