FCC Report (WIFI)

Applicant:	Sunniwell Co., Ltd.
Address of Applicant:	1717 Haitai Building 229# Beisihuan Zhong Road, Bei jing 100083 P.R.China

Equipment Under Test (EUT)

Product Name:	IP SET-TOP BOX
Model No.:	S-BoxK140
Trade mark:	Sunniwell
FCC ID:	2AJJP-K140A
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247:2016
Date of sample receipt:	December 22, 2016
Date of Test:	December 23-26, 2016
Date of report issued:	December 27, 2016
Test Result :	PASS *

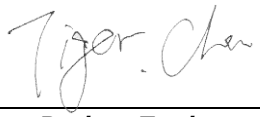
* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

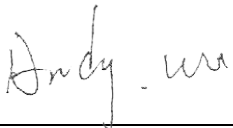
Robinson Lo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*December 27, 2016*	*Original*

Prepared By:  ***Date:*** *December 27, 2016*

Project Engineer

Check By:  ***Date:*** *December 27, 2016*

Reviewer

3 Contents

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.

Remark: Test according to ANSI C63.4:2014 and ANSI C63.10:2013.

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 Client Information

Applicant:	Sunniwell Co., Ltd.
Address of Applicant:	1717 Haitai Building 229# Beisihuan Zhong Road, Bei jing 100083 P.R.China
Manufacturer/ Factory:	Sunniwell Co., Ltd.
Address of Manufacturer/ Factory:	1717 Haitai Building 229# Beisihuan Zhong Road, Bei jing 100083 P.R.China

5.2 General Description of EUT

Product Name:	IP SET-TOP BOX
Model No.:	S-BoxK140
Operation Frequency:	802.11b/802.11g/802.11n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
Channel numbers:	802.11b/802.11g /802.11n(HT20): 11 802.11n(HT40): 7
Channel separation:	5MHz
Modulation technology:	802.11b: Direct Sequence Spread Spectrum (DSSS) 802.11g/802.11n(H20)/802.11n(H40): Orthogonal Frequency Division Multiplexing (OFDM)
Antenna Type:	PCB antenna
Antenna gain:	2.0dBi (declare by Applicant)
Power supply:	AC/DC ADAPTER MODEL:GSCU1000S012V15T INPUT:AC 100-240V 50/60Hz Max 0.5A OUTPUT:DC 12V/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:

Test channel	Frequency (MHz)	
	802.11b/802.11g/802.11n(HT20)	802.11n(HT40)
Lowest channel	2412MHz	2422MHz
Middle channel	2437MHz	2437MHz
Highest channel	2462MHz	2452MHz

5.3 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)	802.11n(HT40)
Data rate	1Mbps	6Mbps	6.5Mbps	13Mbps

5.4 Description of Support Units

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

5.5 Test Facility

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

● **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, June 22, 2016.

● **Industry Canada (IC) —Registration No.: 9079A-2**

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-2, August 15, 2016.

5.6 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.
Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102
Tel: 0755-27798480
Fax: 0755-27798960

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	9.0(L)*6.0(W)* 6.0(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	ESU EMI Test Receiver	R&S	ESU26	GTS203	June. 29 2016	June. 28 2017
4	Loop Antenna	Zhinan	ZN30900A	GTS534	June. 29 2016	June. 28 2017
5	BiConiLog Antenna	SCHWARZBECK	VULB9163	GTS214	June. 29 2016	June. 28 2017
6	Double-ridged horn antenna	SCHWARZBECK	9120D	GTS208	June. 29 2016	June. 28 2017
7	Horn Antenna	ETS-LINDGREN	3160-09	GTS218	June. 29 2016	June. 28 2017
8	RF Amplifier	HP	8347A	GTS204	June. 29 2016	June. 28 2017
9	RF Amplifier	HP	8349B	GTS206	June. 29 2016	June. 28 2017
10	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	June. 29 2016	June. 28 2017
11	PSA Series Spectrum Analyzer	Agilent	E4440A	GTS536	June. 29 2016	June. 28 2017
12	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
13	Coaxial Cable	GTS	N/A	GTS210	June. 29 2016	June. 28 2017
14	Coaxial Cable	GTS	N/A	GTS211	June. 29 2016	June. 28 2017
15	Coaxial Cable	GTS	N/A	GTS210	June. 29 2016	June. 28 2017
16	Coaxial Cable	GTS	N/A	GTS212	June. 29 2016	June. 28 2017
17	Power Meter	Anritsu	ML2495A	GTS540	June. 29 2016	June. 28 2017
18	Power Sensor	Anritsu	MA2411B	GTS541	June. 29 2016	June. 28 2017

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.16 2014	May.15 2019
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 29 2016	June. 28 2017
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 29 2016	June. 28 2017
4	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June. 29 2016	June. 28 2017
5	High voltage probe	SCHWARZBECK	TK9420	GTS537	June. 29 2016	June. 28 2017
6	ISN	SCHWARZBECK	NTFM 8158	GTS565	June. 29 2016	June. 28 2017
7	Coaxial Cable	GTS	N/A	GTS227	June. 29 2016	June. 28 2017
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Thermo meter	KTJ	TA328	GTS233	June. 29 2016	June. 28 2017
10	10dB Pulse Limiter	Rohde & Schwarz	N/A	GTS224	June. 29 2016	June. 28 2017

General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Barometer	ChangChun	DYM3	GTS257	June. 29 2016	June. 28 2017

7 Test results and Measurement Data

7.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203 /247(c)

15.203 requirement:

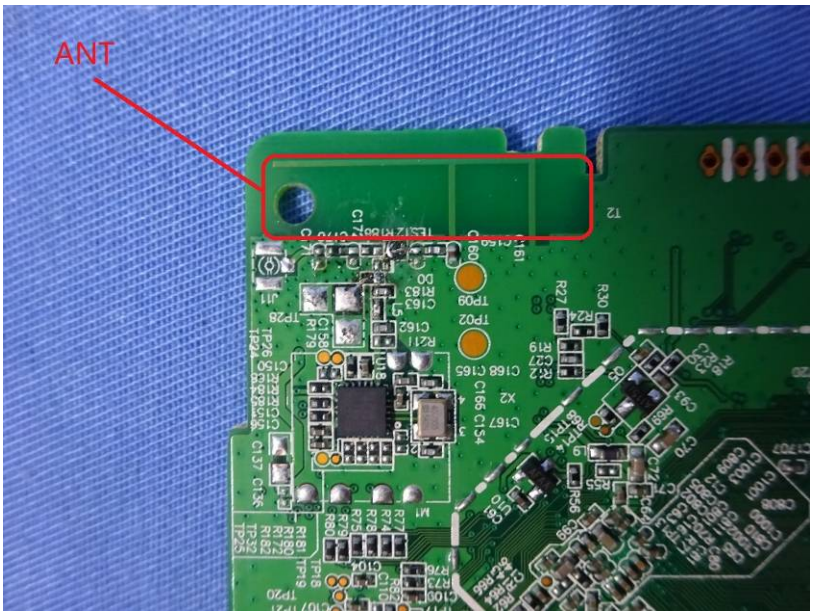
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit 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:

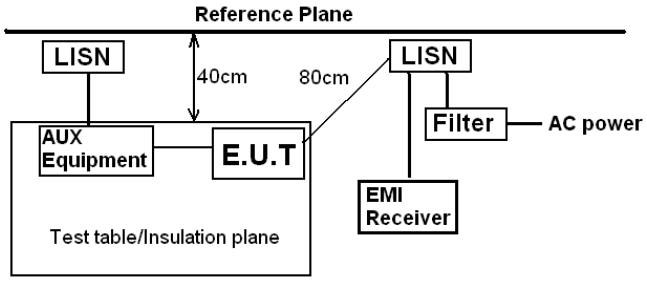
(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

E.U.T Antenna:

The antenna is PCB antenna, the best case gain of the antenna is 2.0dBi

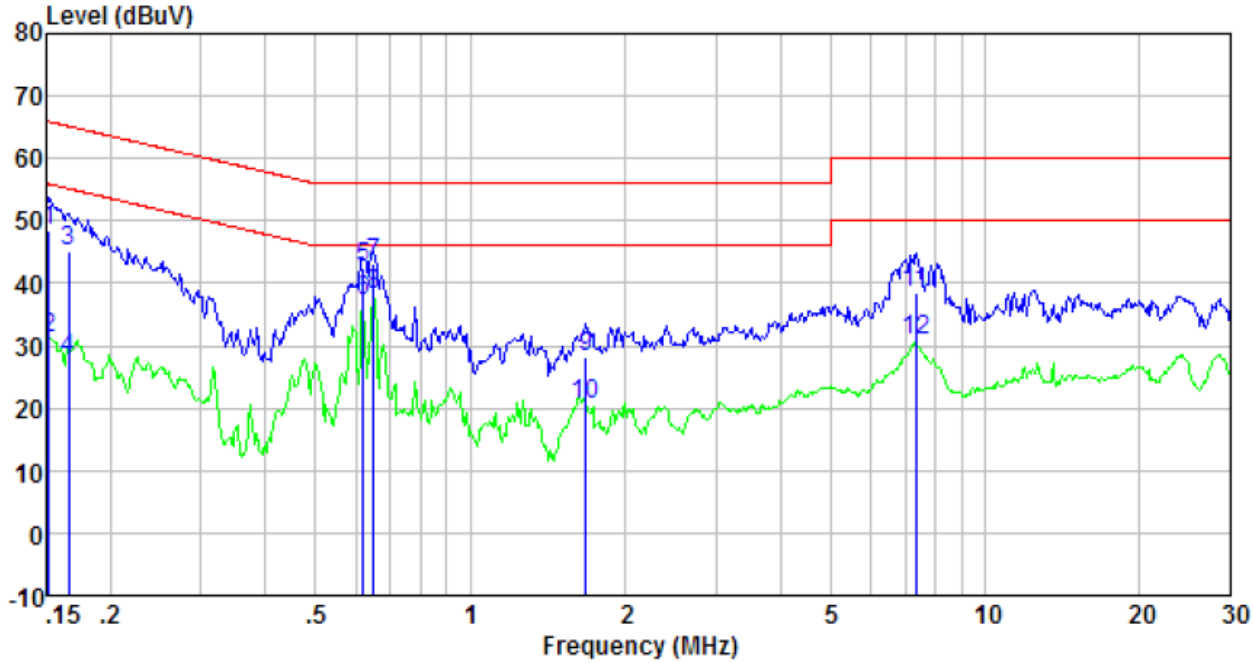


7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207
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 5.3 for details
Test results:	Pass

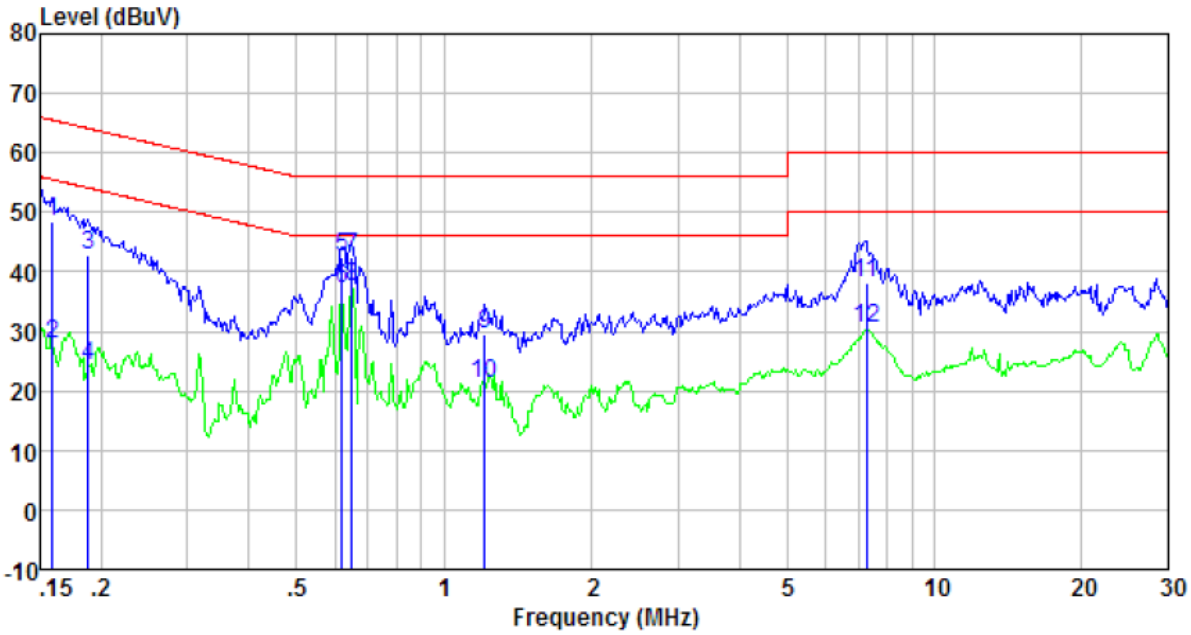
Measurement data

Line:



Freq MHz	Reading level dBuV	lISN/ISN factor dB	Cable loss dBuV	level dB	Limit level dBuV	Over limit dB	Remark
0.152	47.90	0.42	0.12	48.44	65.91	-17.47	QP
0.152	30.51	0.42	0.12	31.05	55.91	-24.86	Average
0.166	44.55	0.42	0.12	45.09	65.16	-20.07	QP
0.166	27.21	0.42	0.12	27.75	55.16	-27.41	Average
0.621	42.22	0.30	0.12	42.64	56.00	-13.36	QP
0.621	36.71	0.30	0.12	37.13	46.00	-8.87	Average
0.647	42.68	0.29	0.13	43.10	56.00	-12.90	QP
0.647	37.88	0.29	0.13	38.30	46.00	-7.70	Average
1.680	27.70	0.21	0.14	28.05	56.00	-27.95	QP
1.680	20.09	0.21	0.14	20.44	46.00	-25.56	Average
7.329	38.00	0.22	0.17	38.39	60.00	-21.61	QP
7.329	30.59	0.22	0.17	30.98	50.00	-19.02	Average

Neutral:

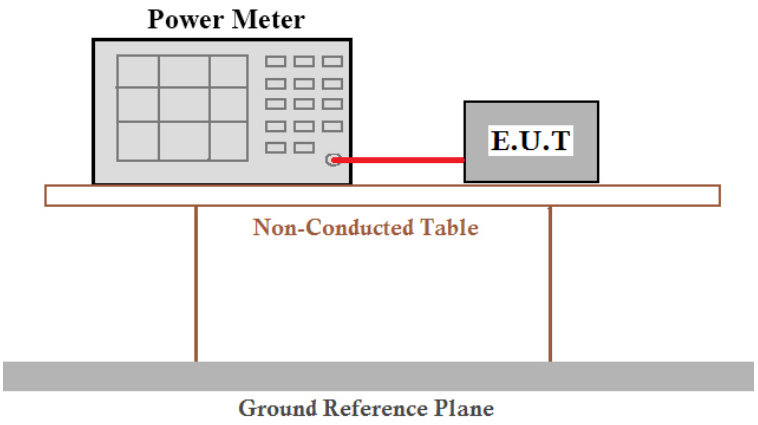


Freq MHz	Reading level dBuV	lISN/ISN factor dB	Cable loss dBuV	level dB	Limit level dBuV	Over limit dB	Remark
0.159	47.77	0.41	0.12	48.30	65.52	-17.22	QP
0.159	27.34	0.41	0.12	27.87	55.52	-27.65	Average
0.188	42.39	0.41	0.13	42.93	64.11	-21.18	QP
0.188	23.62	0.41	0.13	24.16	54.11	-29.95	Average
0.621	42.01	0.27	0.12	42.40	56.00	-13.60	QP
0.621	36.70	0.27	0.12	37.09	46.00	-8.91	Average
0.647	42.05	0.26	0.13	42.44	56.00	-13.56	QP
0.647	37.05	0.26	0.13	37.44	46.00	-8.56	Average
1.210	29.29	0.21	0.13	29.63	56.00	-26.37	QP
1.210	20.80	0.21	0.13	21.14	46.00	-24.86	Average
7.252	37.73	0.22	0.17	38.12	60.00	-21.88	QP
7.252	30.17	0.22	0.17	30.56	50.00	-19.44	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.*

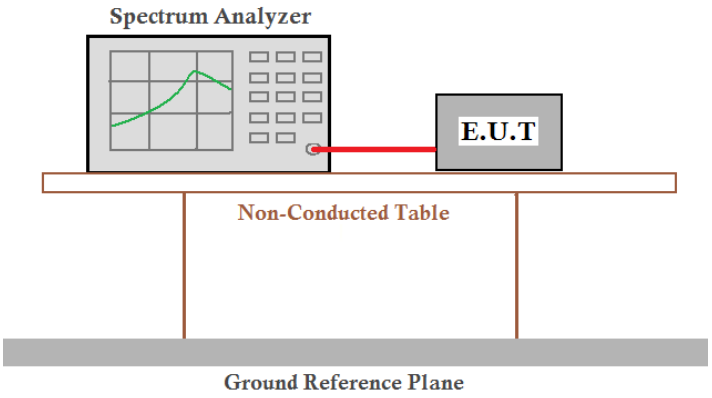
7.3 Conducted Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB558074 D01 DTS Meas Guidance V03
Limit:	30dBm
Test setup:	
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	14.41	11.71	12.03	12.79	30.00	Pass
Middle	15.22	13.81	13.22	13.17		
Highest	14.39	11.22	11.94	13.37		

7.4 Channel Bandwidth

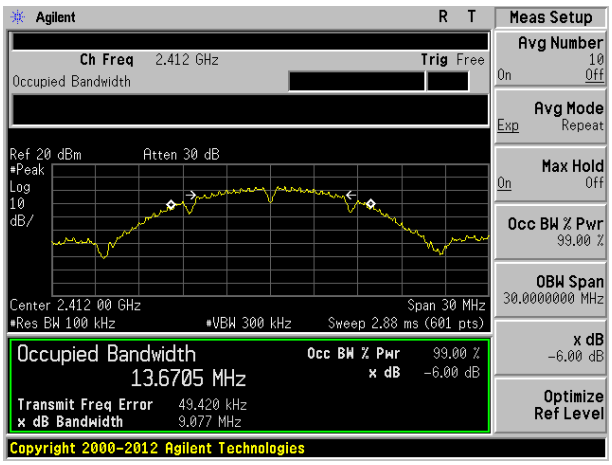
Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB558074 D01 DTS Meas Guidance V03
Limit:	>500KHz
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

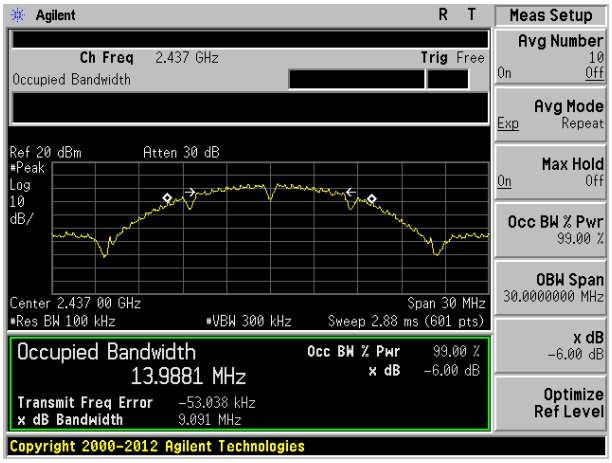
Test CH	Channel Bandwidth (MHz)				Limit(KHz)	Result
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)		
Lowest	9.077	17.792	17.808	36.558	>500	Pass
Middle	9.091	16.544	17.771	36.551		
Highest	9.106	16.576	17.774	36.519		

Test plot as follows:

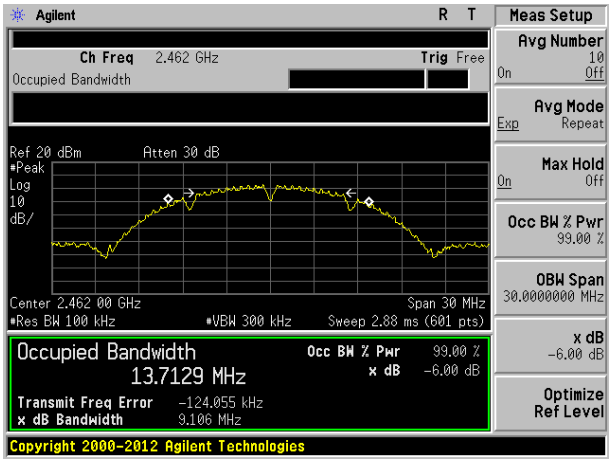
Test mode:	802.11b



Lowest channel

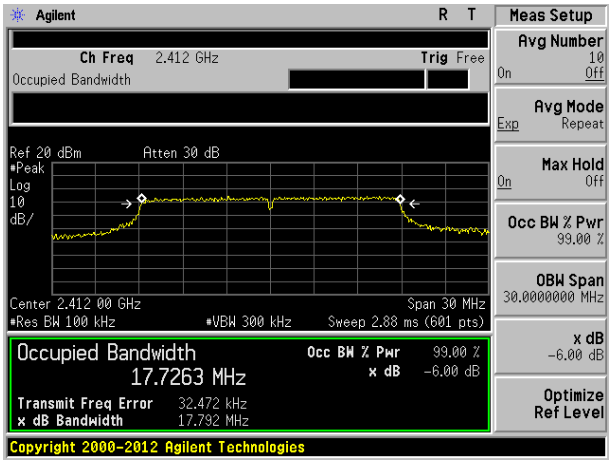


Middle channel

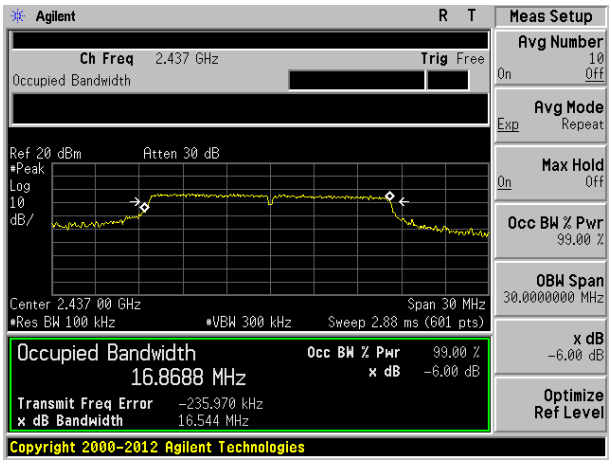


Highest channel

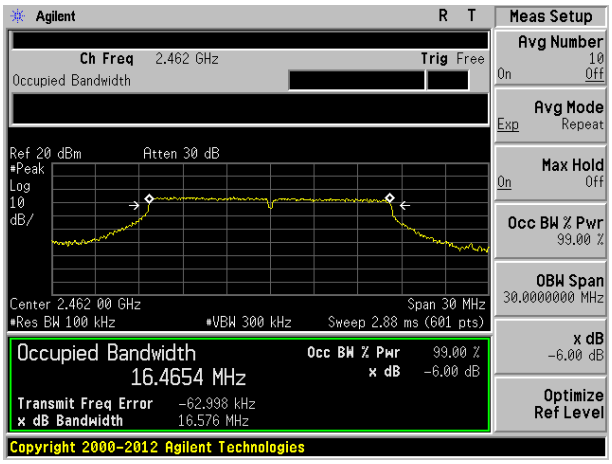
Test mode:	802.11g



Lowest channel

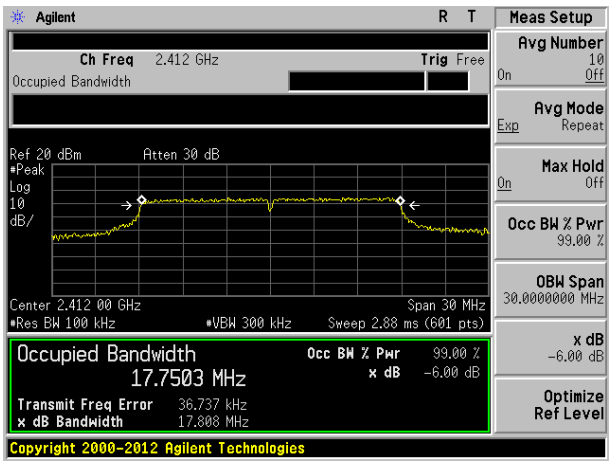


Middle channel

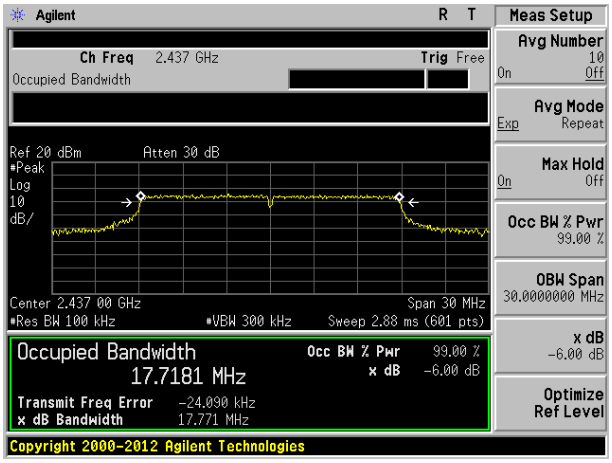


Highest channel

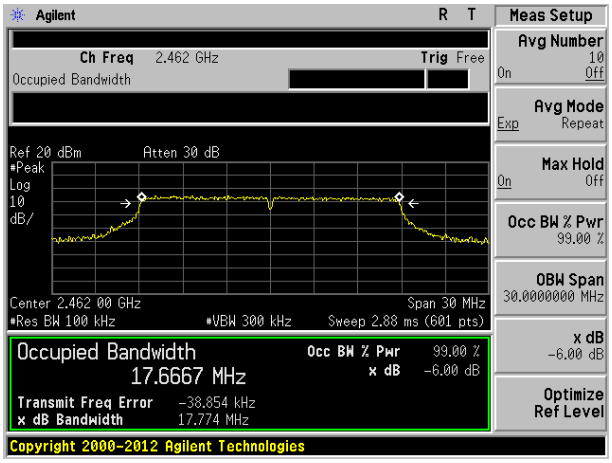
Test mode:	802.11n(HT20)



Lowest channel

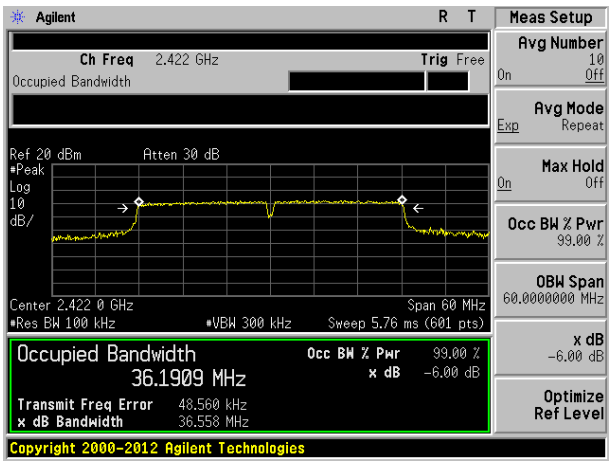


Middle channel

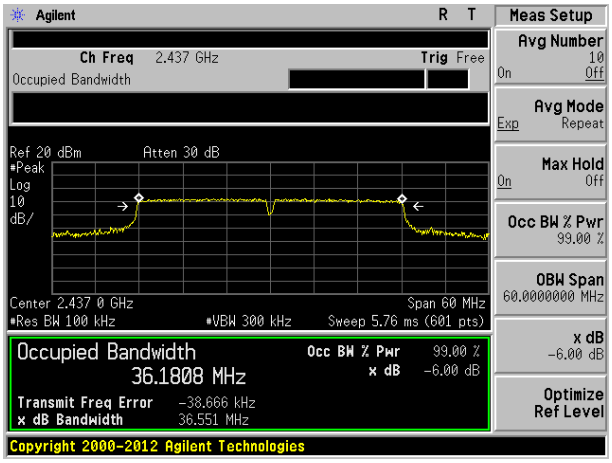


Highest channel

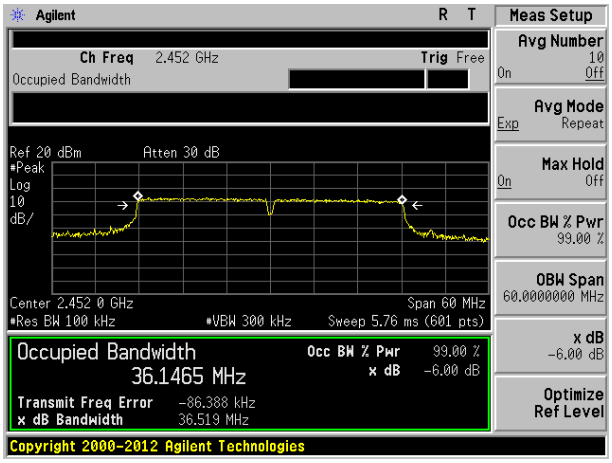
Test mode:	802.11n(HT40)



Lowest channel

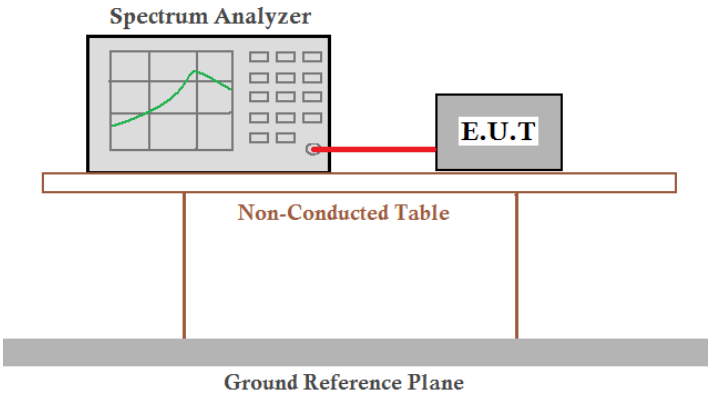


Middle channel



Highest channel

7.5 Power Spectral Density

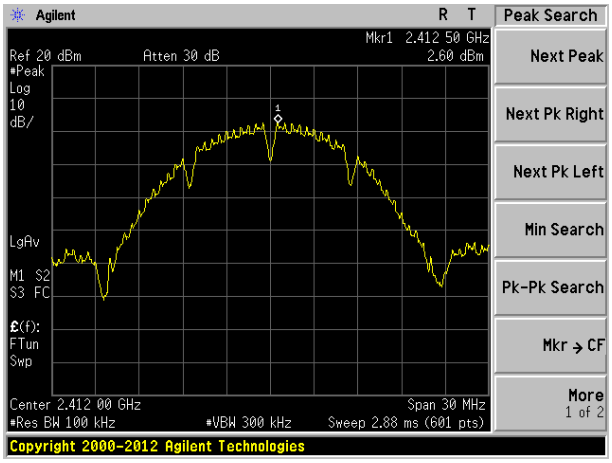
Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	KDB558074 D01 DTS Meas Guidance V03
Limit:	8dBm/3kHz
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

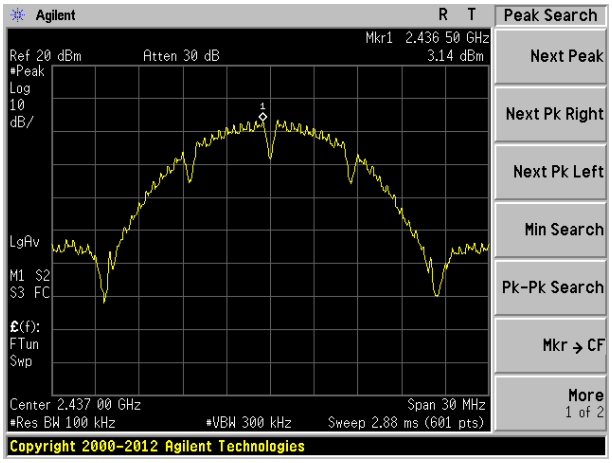
Test CH	Power Spectral Density (dBm)				Limit (dBm/3kHz)	Result
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)		
Lowest	2.60	-5.62	-5.42	-7.77	8.00	Pass
Middle	3.14	-3.23	-4.35	-7.32		
Highest	2.50	-6.35	-5.45	-7.15		

Test plot as follows:

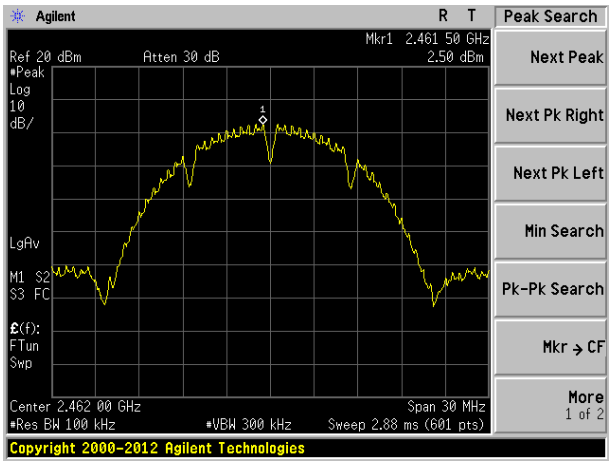
Test mode:	802.11b



Lowest channel

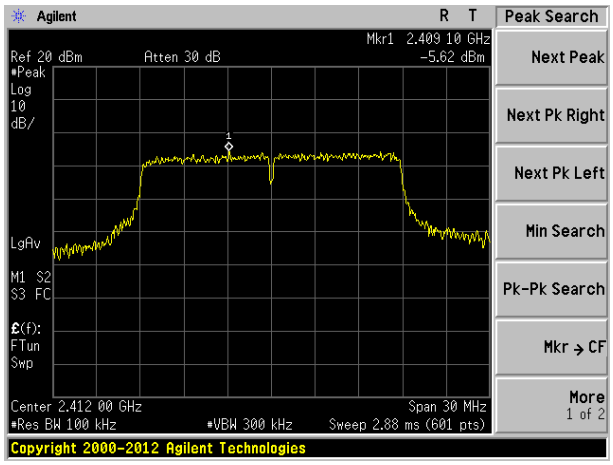


Middle channel

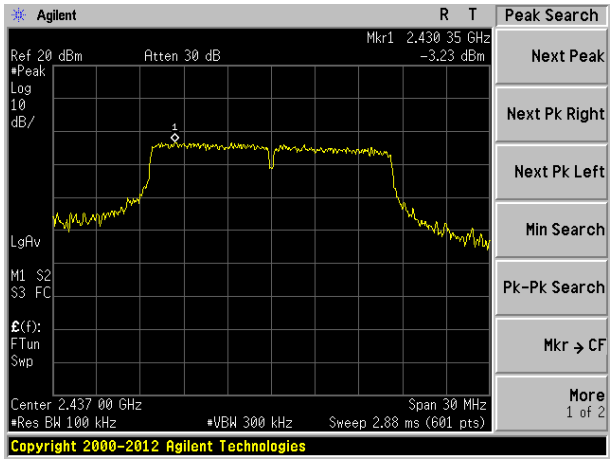


Highest channel

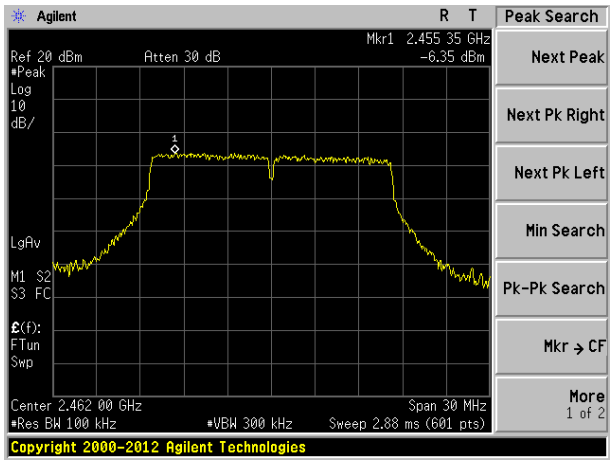
Test mode:	802.11g



Lowest channel

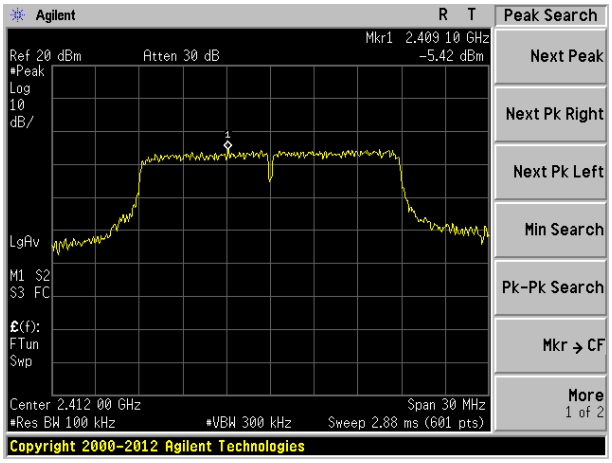


Middle channel

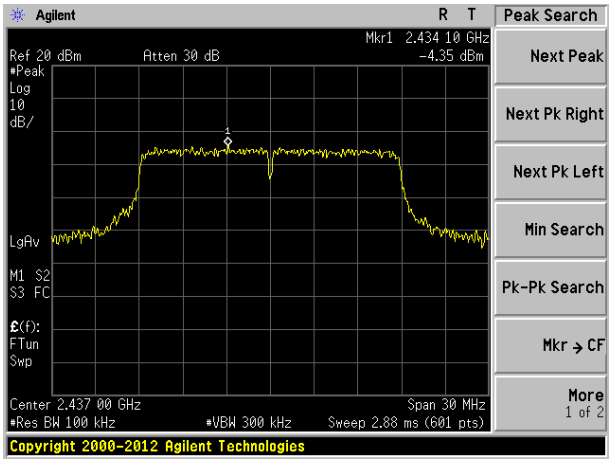


Highest channel

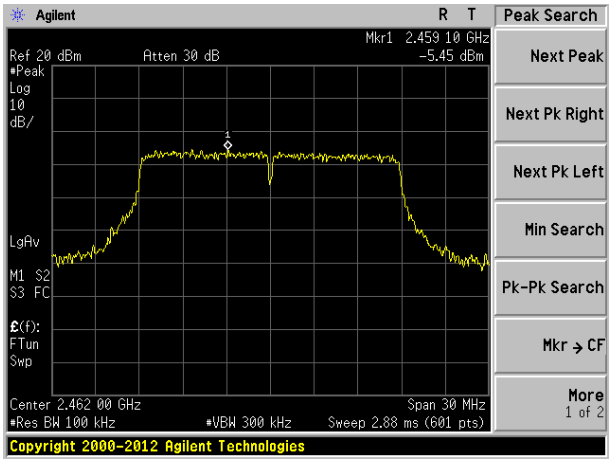
Test mode:	802.11n(HT20)



Lowest channel

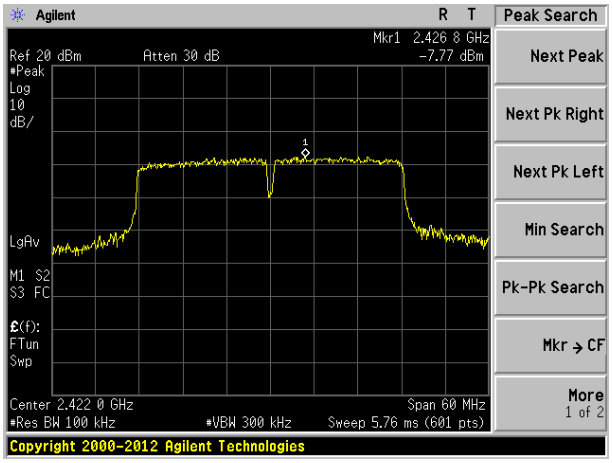


Middle channel

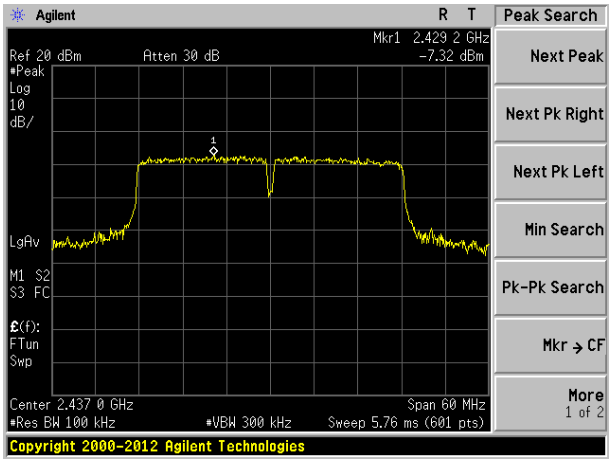


Highest channel

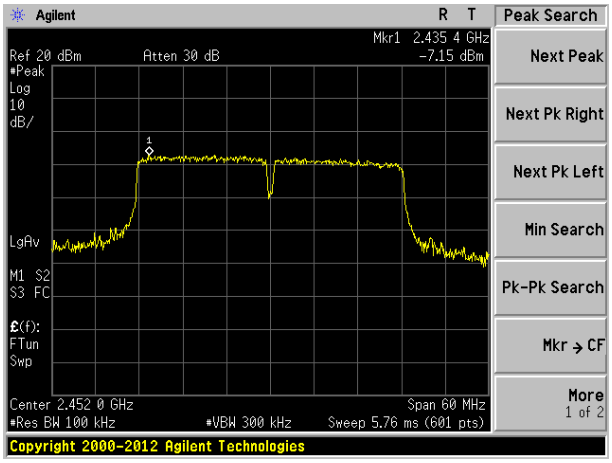
Test mode:	802.11n(HT40)



Lowest channel



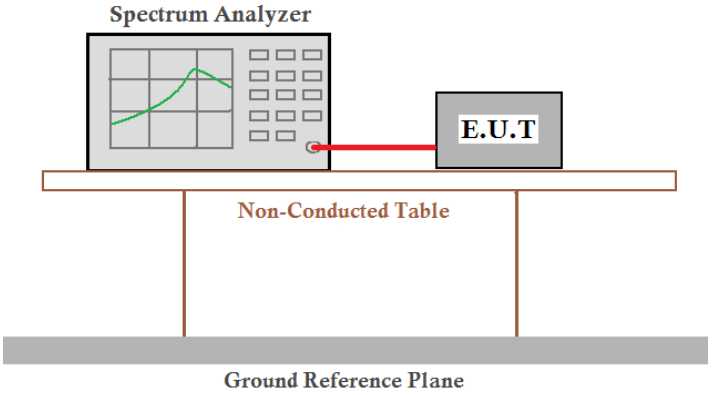
Middle channel



Highest channel

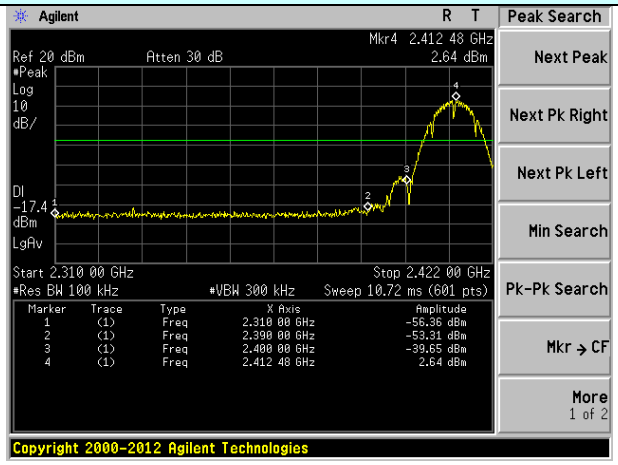
7.6 Band edges

7.6.1 Conducted Emission Method

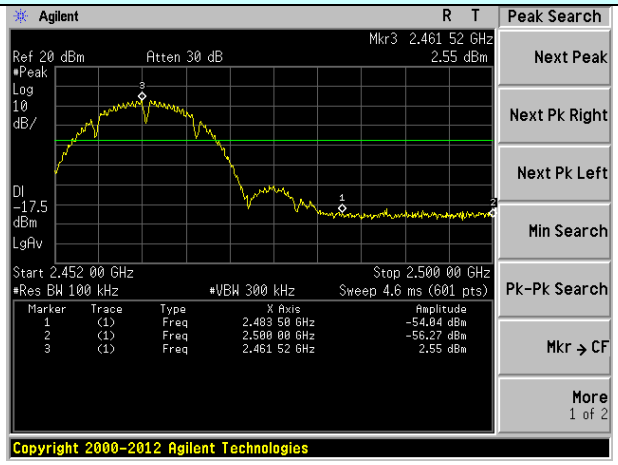
Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D01 DTS Meas Guidance V03
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be 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 5.3 for details
Test results:	Pass

Test plot as follows:

Test mode:	802.11b

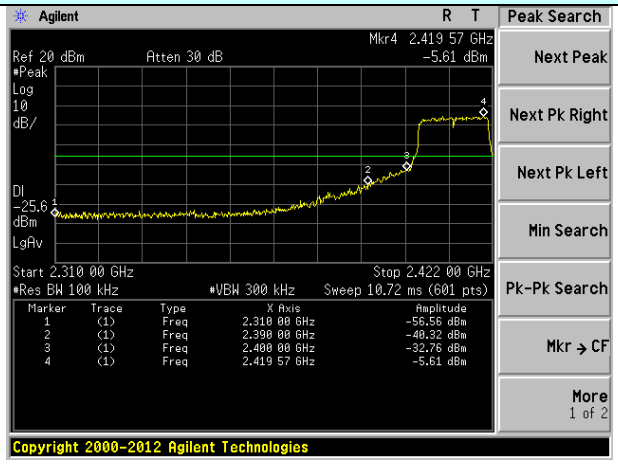


Lowest channel

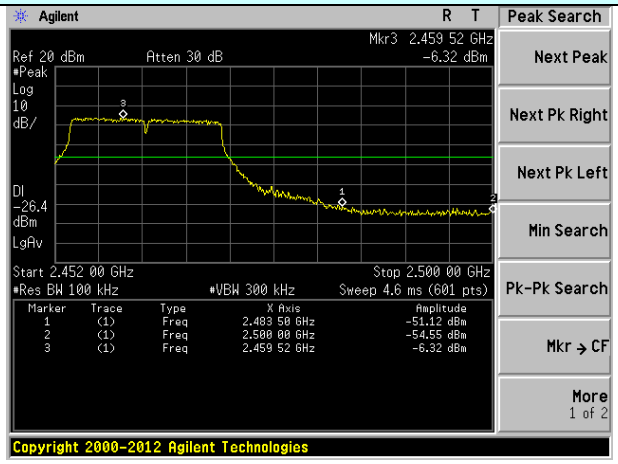


Highest channel

Test mode:	802.11g

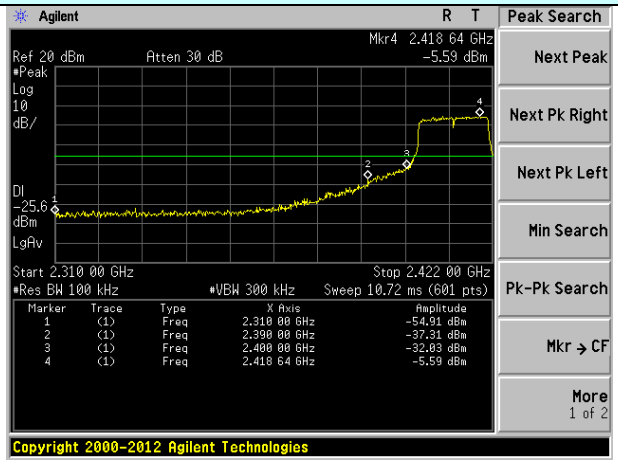


Lowest channel

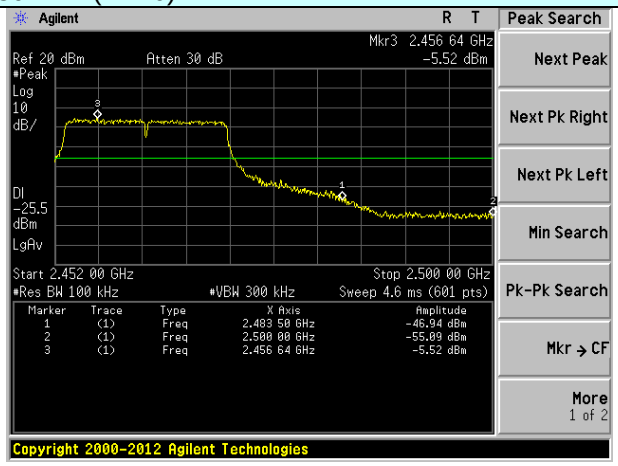


Highest channel

Test mode:	802.11n(HT20)

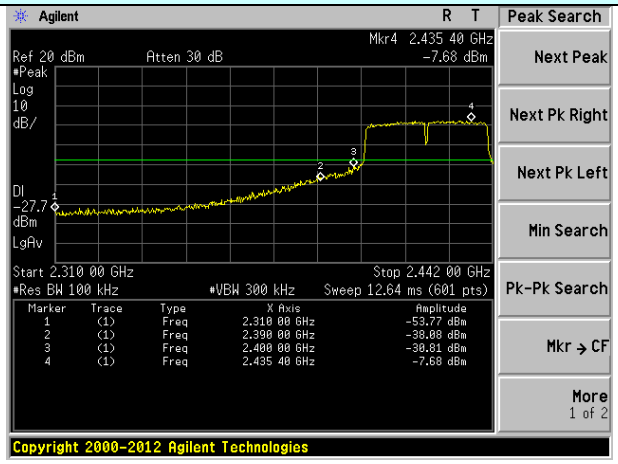


Lowest channel

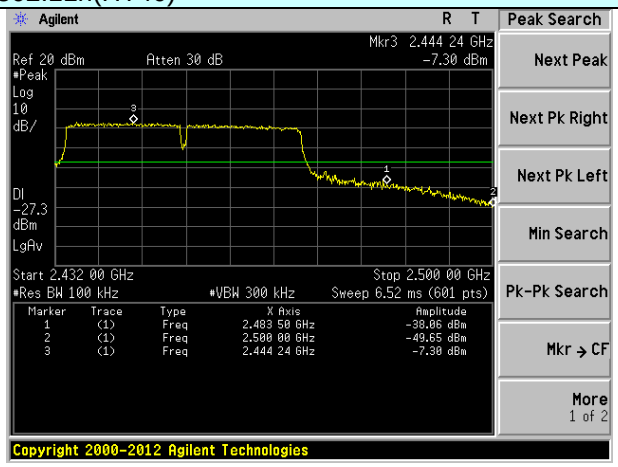


Highest channel

Test mode:	802.11n(HT40)

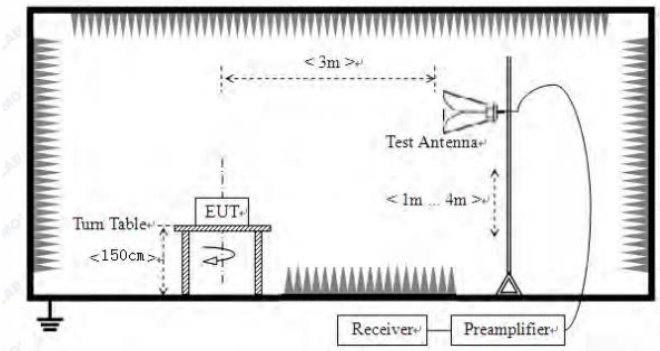


Lowest channel



Highest channel

7.6.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205
Test Method:	ANSI C63.10:2013
Test Frequency Range:	All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed.
Test site:	Measurement Distance: 3m
Receiver setup:	Frequency / Detector / RBW / VBW / Value Above 1GHz / Peak / 1MHz / 3MHz / Peak Above 1GHz / RMS / 1MHz / 3MHz / Average
Limit:	Frequency / Limit (dBuV/m @3m) / Value Above 1GHz / 54.00 / Average Above 1GHz / 74.00 / Peak
Test setup:	
Test Procedure:	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.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement data:

Remark: The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.

Test mode:	802.11b	Test channel:	Lowest

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
2390.00	51.77	27.59	5.38	34.01	50.73	74.00	-23.27	Horizontal
2400.00	60.82	27.58	5.39	34.01	59.78	74.00	-14.22	Horizontal
2390.00	53.46	27.59	5.38	34.01	52.42	74.00	-21.58	Vertical
2400.00	62.65	27.58	5.39	34.01	61.61	74.00	-12.39	Vertical

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
2390.00	38.49	27.59	5.38	34.01	37.45	54.00	-16.55	Horizontal
2400.00	46.80	27.58	5.39	34.01	45.76	54.00	-8.24	Horizontal
2390.00	40.32	27.59	5.38	34.01	39.28	54.00	-14.72	Vertical
2400.00	47.94	27.58	5.39	34.01	46.90	54.00	-7.10	Vertical

Test mode:	802.11b	Test channel:	Highest

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
2483.50	52.48	27.53	5.47	33.92	51.56	74.00	-22.44	Horizontal
2500.00	48.26	27.55	5.49	29.93	51.37	74.00	-22.63	Horizontal
2483.50	54.76	27.53	5.47	33.92	53.84	74.00	-20.16	Vertical
2500.00	50.80	27.55	5.49	29.93	53.91	74.00	-20.09	Vertical

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
2483.50	38.88	27.53	5.47	33.92	37.96	54.00	-16.04	Horizontal
2500.00	34.96	27.55	5.49	29.93	38.07	54.00	-15.93	Horizontal
2483.50	40.84	27.53	5.47	33.92	39.92	54.00	-14.08	Vertical
2500.00	36.84	27.55	5.49	29.93	39.95	54.00	-14.05	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

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
2390.00	50.95	27.59	5.38	34.01	49.91	74.00	-24.09	Horizontal
2400.00	59.73	27.58	5.39	34.01	58.69	74.00	-15.31	Horizontal
2390.00	52.58	27.59	5.38	34.01	51.54	74.00	-22.46	Vertical
2400.00	61.34	27.58	5.39	34.01	60.30	74.00	-13.70	Vertical

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
2390.00	37.91	27.59	5.38	34.01	36.87	54.00	-17.13	Horizontal
2400.00	46.13	27.58	5.39	34.01	45.09	54.00	-8.91	Horizontal
2390.00	39.68	27.59	5.38	34.01	38.64	54.00	-15.36	Vertical
2400.00	47.20	27.58	5.39	34.01	46.16	54.00	-7.84	Vertical

Test mode:	802.11g	Test channel:	Highest

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
2483.50	51.31	27.53	5.47	33.92	50.39	74.00	-23.61	Horizontal
2500.00	47.36	27.55	5.49	29.93	50.47	74.00	-23.53	Horizontal
2483.50	53.42	27.53	5.47	33.92	52.50	74.00	-21.50	Vertical
2500.00	49.74	27.55	5.49	29.93	52.85	74.00	-21.15	Vertical

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
2483.50	38.17	27.53	5.47	33.92	37.25	54.00	-16.75	Horizontal
2500.00	34.41	27.55	5.49	29.93	37.52	54.00	-16.48	Horizontal
2483.50	40.06	27.53	5.47	33.92	39.14	54.00	-14.86	Vertical
2500.00	36.26	27.55	5.49	29.93	39.37	54.00	-14.63	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

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
2390.00	51.12	27.59	5.38	34.01	50.08	74.00	-23.92	Horizontal
2400.00	59.95	27.58	5.39	34.01	58.91	74.00	-15.09	Horizontal
2390.00	52.76	27.59	5.38	34.01	51.72	74.00	-22.28	Vertical
2400.00	61.60	27.58	5.39	34.01	60.56	74.00	-13.44	Vertical

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
2390.00	38.03	27.59	5.38	34.01	36.99	54.00	-17.01	Horizontal
2400.00	46.27	27.58	5.39	34.01	45.23	54.00	-8.77	Horizontal
2390.00	39.81	27.59	5.38	34.01	38.77	54.00	-15.23	Vertical
2400.00	47.35	27.58	5.39	34.01	46.31	54.00	-7.69	Vertical

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

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
2483.50	51.55	27.53	5.47	33.92	50.63	74.00	-23.37	Horizontal
2500.00	47.54	27.55	5.49	29.93	50.65	74.00	-23.35	Horizontal
2483.50	53.70	27.53	5.47	33.92	52.78	74.00	-21.22	Vertical
2500.00	49.95	27.55	5.49	29.93	53.06	74.00	-20.94	Vertical

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
2483.50	38.32	27.53	5.47	33.92	37.40	54.00	-16.60	Horizontal
2500.00	34.52	27.55	5.49	29.93	37.63	54.00	-16.37	Horizontal
2483.50	40.22	27.53	5.47	33.92	39.30	54.00	-14.70	Vertical
2500.00	36.38	27.55	5.49	29.93	39.49	54.00	-14.51	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

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
2390.00	50.29	27.59	5.38	34.01	49.25	74.00	-24.75	Horizontal
2400.00	58.85	27.58	5.39	34.01	57.81	74.00	-16.19	Horizontal
2390.00	51.88	27.59	5.38	34.01	50.84	74.00	-23.16	Vertical
2400.00	60.28	27.58	5.39	34.01	59.24	74.00	-14.76	Vertical

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
2390.00	37.44	27.59	5.38	34.01	36.40	54.00	-17.60	Horizontal
2400.00	45.59	27.58	5.39	34.01	44.55	54.00	-9.45	Horizontal
2390.00	39.15	27.59	5.38	34.01	38.11	54.00	-15.89	Vertical
2400.00	46.61	27.58	5.39	34.01	45.57	54.00	-8.43	Vertical

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

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
2483.50	50.36	27.53	5.47	33.92	49.44	74.00	-24.56	Horizontal
2500.00	46.63	27.55	5.49	29.93	49.74	74.00	-24.26	Horizontal
2483.50	52.34	27.53	5.47	33.92	51.42	74.00	-22.58	Vertical
2500.00	48.88	27.55	5.49	29.93	51.99	74.00	-22.01	Vertical

Average value:

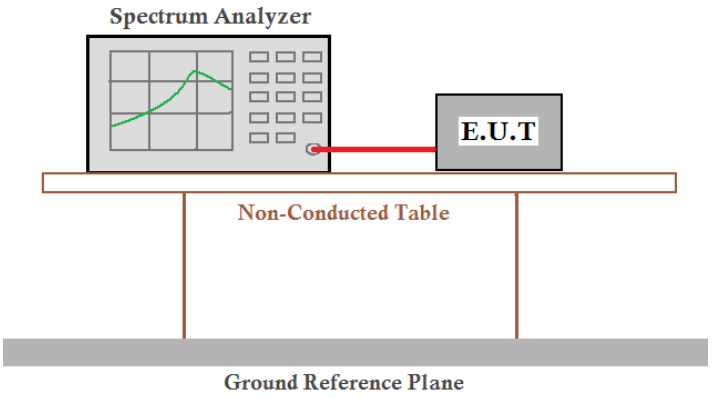
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	37.60	27.53	5.47	33.92	36.68	54.00	-17.32	Horizontal
2500.00	33.96	27.55	5.49	29.93	37.07	54.00	-16.93	Horizontal
2483.50	39.43	27.53	5.47	33.92	38.51	54.00	-15.49	Vertical
2500.00	35.79	27.55	5.49	29.93	38.90	54.00	-15.10	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

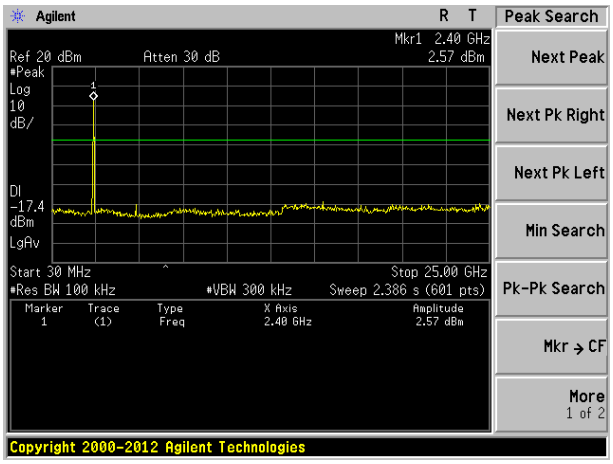
7.7.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D01 DTS Meas Guidance V03
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 5.3 for details
Test results:	Pass

Test plot as follows:

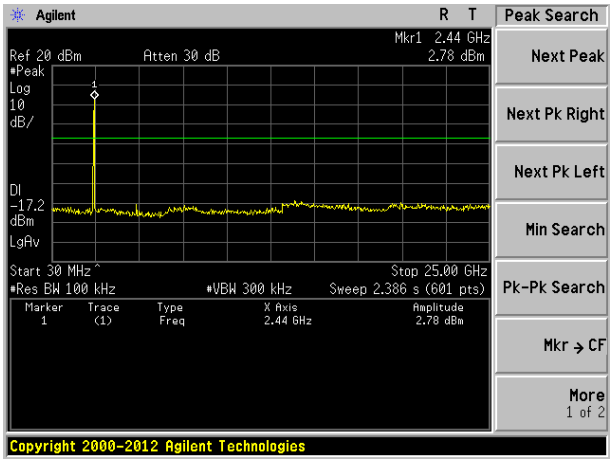
Test mode:	802.11b

Lowest channel



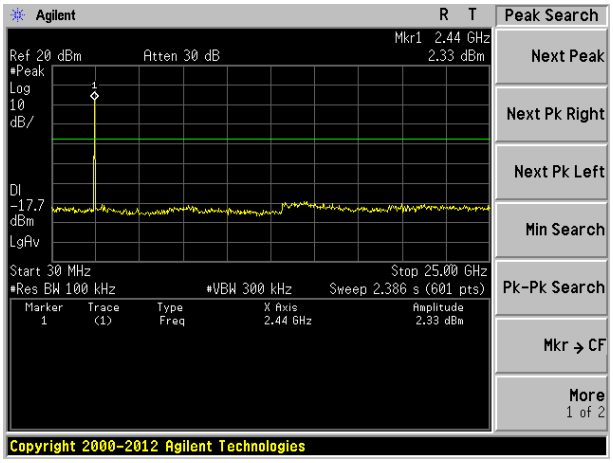
30MHz~25GHz

Middle channel



30MHz~25GHz

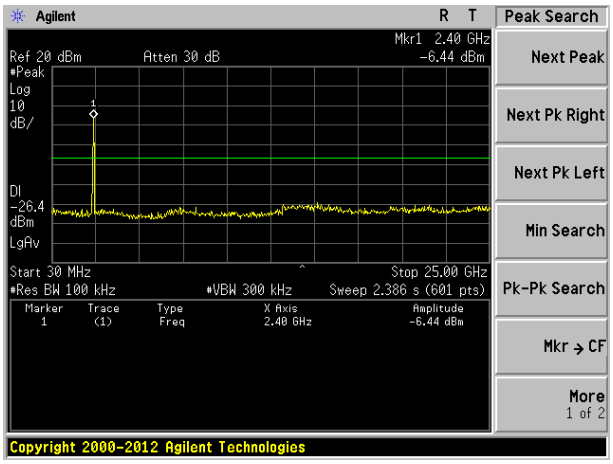
Highest channel



30MHz~25GHz

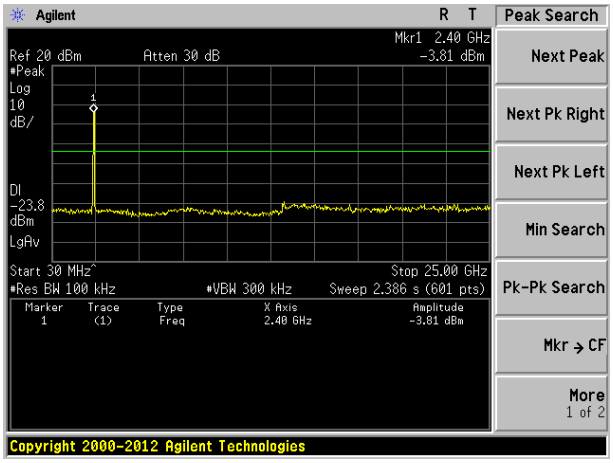
Test mode:	802.11g

Lowest channel



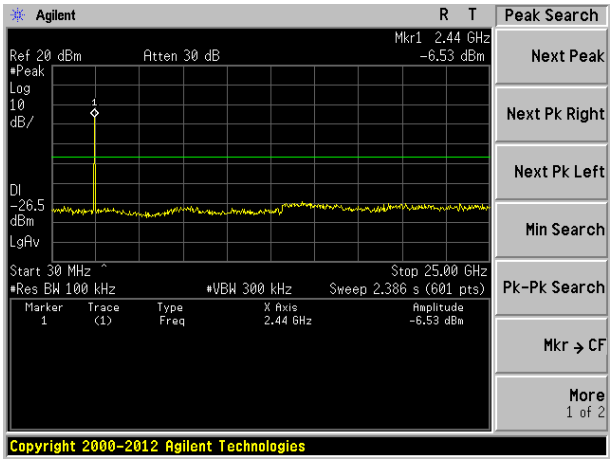
30MHz~25GHz

Middle channel



30MHz~25GHz

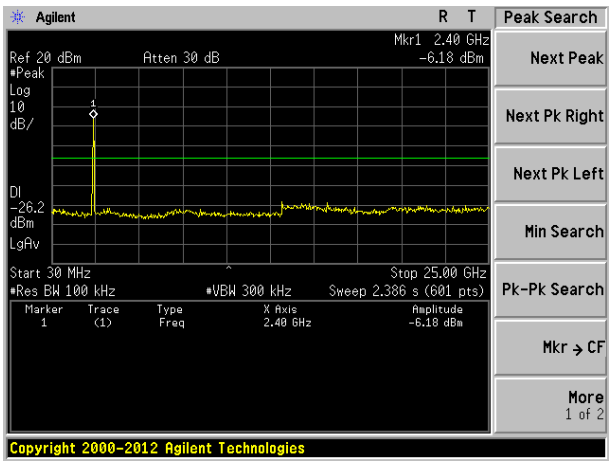
Highest channel



30MHz~25GHz

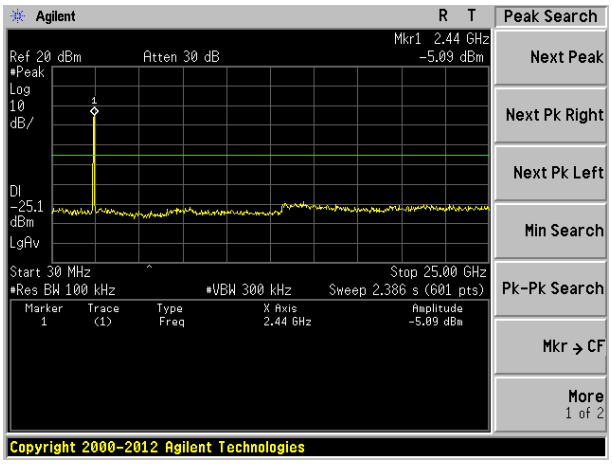
Test mode:	802.11n(HT20)

Lowest channel



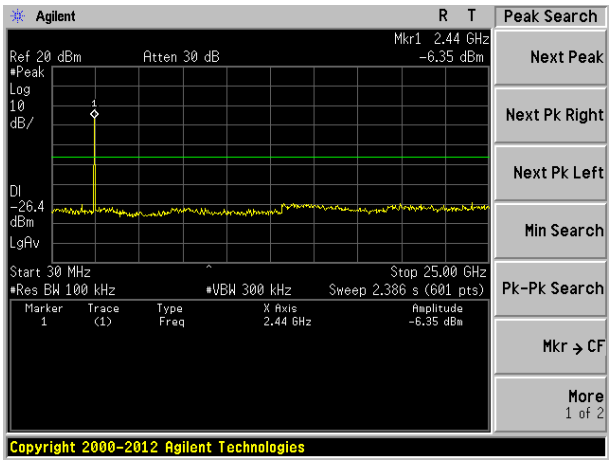
30MHz~25GHz

Middle channel



30MHz~25GHz

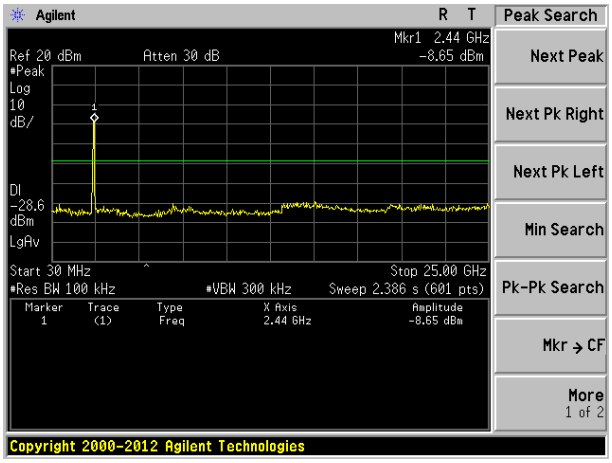
Highest channel



30MHz~25GHz

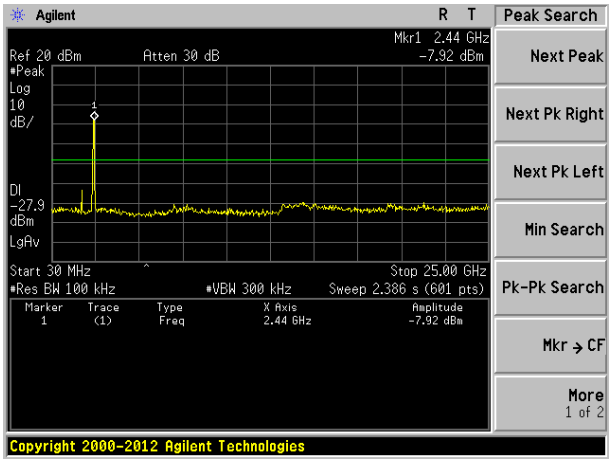
Test mode:	802.11n(HT40)

Lowest channel



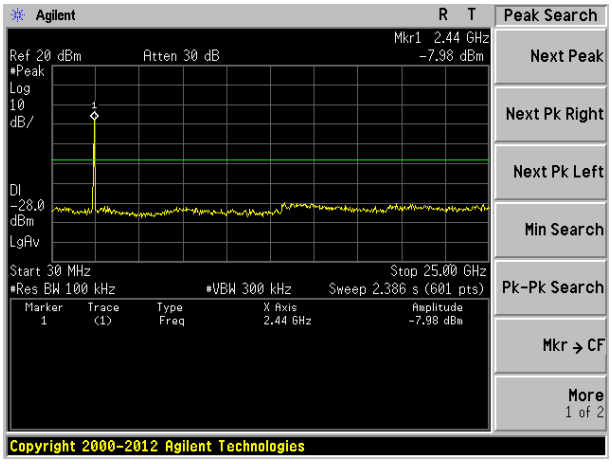
30MHz~25GHz

Middle channel



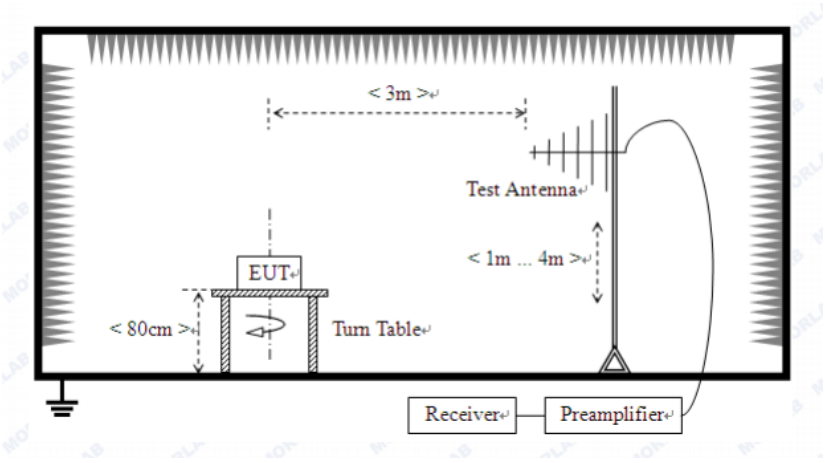
30MHz~25GHz

Highest channel

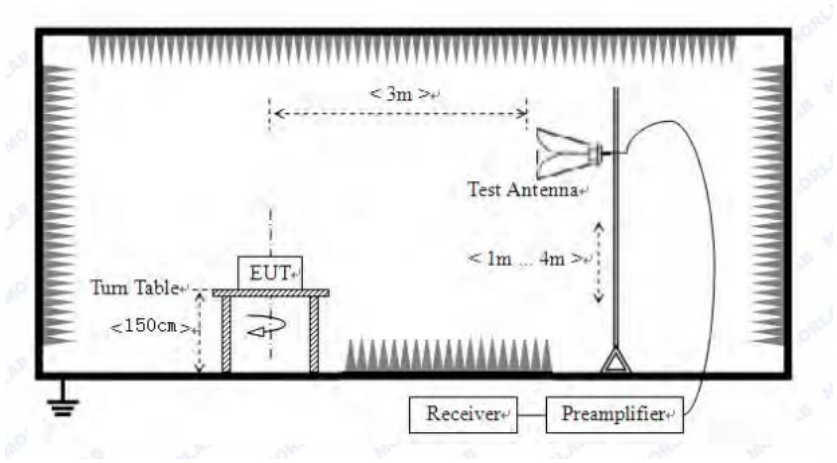


30MHz~25GHz

7.7.2 Radiated Emission Method

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td>30MHz to 25GHz</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>30MHz-1GHz</td><td>Quasi-peak</td><td>120KHz</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>RMS</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>30MHz-88MHz</td><td>40.00</td><td>Quasi-peak</td></tr>
<tr><td>88MHz-216MHz</td><td>43.50</td><td>Quasi-peak</td></tr>
<tr><td>216MHz-960MHz</td><td>46.00</td><td>Quasi-peak</td></tr>
<tr><td>960MHz-1GHz</td><td>54.00</td><td>Quasi-peak</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>Below 1GHz
 

Above 1GHz</td></tr>
</table>

	
Test Procedure:	1. The EUT was placed on the top of a rotating table(0.8 meters below 1G and 1.5 meters 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. 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.
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)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
30.96	56.02	10.40	0.56	30.09	36.89	40.00	-3.11	Vertical
81.21	50.49	8.82	1.04	29.79	30.56	40.00	-9.44	Vertical
166.07	50.52	8.36	1.66	29.33	31.21	43.50	-12.29	Vertical
250.30	50.01	12.27	2.12	29.65	34.75	46.00	-11.25	Vertical
446.41	52.99	14.59	3.07	29.40	41.25	46.00	-4.75	Vertical
744.87	47.18	18.51	4.26	29.20	40.75	46.00	-5.25	Vertical
31.29	44.12	10.40	0.57	30.09	25.00	40.00	-15.00	Horizontal
82.94	42.88	8.94	1.05	29.78	23.09	40.00	-16.91	Horizontal
149.49	48.39	9.02	1.56	29.41	29.56	43.50	-13.94	Horizontal
185.14	44.90	8.10	1.77	29.25	25.52	43.50	-17.98	Horizontal
307.83	47.55	12.11	2.40	29.95	32.11	46.00	-13.89	Horizontal
744.87	46.73	18.51	4.26	29.20	40.30	46.00	-5.70	Horizontal

■ **Above 1GHz**

Test mode:	802.11b	Test channel:	Lowest

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	40.47	31.79	8.62	32.10	48.78	74.00	-25.22	Vertical
7236.00	34.33	36.19	11.68	31.97	50.23	74.00	-23.77	Vertical
9648.00	32.79	38.07	14.16	31.56	53.46	74.00	-20.54	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	39.11	31.79	8.62	32.10	47.42	74.00	-26.58	Horizontal
7236.00	34.06	36.19	11.68	31.97	49.96	74.00	-24.04	Horizontal
9648.00	32.37	38.07	14.16	31.56	53.04	74.00	-20.96	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	29.54	31.79	8.62	32.10	37.85	54.00	-16.15	Vertical
7236.00	23.19	36.19	11.68	31.97	39.09	54.00	-14.91	Vertical
9648.00	23.14	38.07	14.16	31.56	43.81	54.00	-10.19	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4824.00	28.64	31.79	8.62	32.10	36.95	54.00	-17.05	Horizontal
7236.00	22.64	36.19	11.68	31.97	38.54	54.00	-15.46	Horizontal
9648.00	22.11	38.07	14.16	31.56	42.78	54.00	-11.22	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

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
4874.00	39.50	31.85	8.66	32.12	47.89	74.00	-26.11	Vertical
7311.00	34.38	36.37	11.71	31.91	50.55	74.00	-23.45	Vertical
9748.00	33.80	38.27	14.25	31.56	54.76	74.00	-19.24	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	39.95	31.85	8.66	32.12	48.34	74.00	-25.66	Horizontal
7311.00	33.01	36.37	11.71	31.91	49.18	74.00	-24.82	Horizontal
9748.00	33.68	38.27	14.25	31.56	54.64	74.00	-19.36	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)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	30.34	31.85	8.66	32.12	38.73	54.00	-15.27	Vertical
7311.00	22.69	36.37	11.71	31.91	38.86	54.00	-15.14	Vertical
9748.00	23.05	38.27	14.25	31.56	44.01	54.00	-9.99	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	30.06	31.85	8.66	32.12	38.45	54.00	-15.55	Horizontal
7311.00	22.10	36.37	11.71	31.91	38.27	54.00	-15.73	Horizontal
9748.00	23.40	38.27	14.25	31.56	44.36	54.00	-9.64	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

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
4924.00	45.13	31.90	8.70	32.15	53.58	74.00	-20.42	Vertical
7386.00	35.12	36.49	11.76	31.83	51.54	74.00	-22.46	Vertical
9848.00	37.14	38.62	14.31	31.77	58.30	74.00	-15.70	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	44.40	31.90	8.70	32.15	52.85	74.00	-21.15	Horizontal
7386.00	34.00	36.49	11.76	31.83	50.42	74.00	-23.58	Horizontal
9848.00	33.30	38.62	14.31	31.77	54.46	74.00	-19.54	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)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	36.03	31.90	8.70	32.15	44.48	54.00	-9.52	Vertical
7386.00	25.03	36.49	11.76	31.83	41.45	54.00	-12.55	Vertical
9848.00	25.64	38.62	14.31	31.77	46.80	54.00	-7.20	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	34.75	31.90	8.70	32.15	43.20	54.00	-10.80	Horizontal
7386.00	23.39	36.49	11.76	31.83	39.81	54.00	-14.19	Horizontal
9848.00	22.56	38.62	14.31	31.77	43.72	54.00	-10.28	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

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	40.47	31.79	8.62	32.10	48.78	74.00	-25.22	Vertical
7236.00	34.33	36.19	11.68	31.97	50.23	74.00	-23.77	Vertical
9648.00	32.79	38.07	14.16	31.56	53.46	74.00	-20.54	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	39.11	31.79	8.62	32.10	47.42	74.00	-26.58	Horizontal
7236.00	34.06	36.19	11.68	31.97	49.96	74.00	-24.04	Horizontal
9648.00	32.37	38.07	14.16	31.56	53.04	74.00	-20.96	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	29.54	31.79	8.62	32.10	37.85	54.00	-16.15	Vertical
7236.00	23.19	36.19	11.68	31.97	39.09	54.00	-14.91	Vertical
9648.00	23.14	38.07	14.16	31.56	43.81	54.00	-10.19	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertica
4824.00	28.64	31.79	8.62	32.10	36.95	54.00	-17.05	Horizontal
7236.00	22.64	36.19	11.68	31.97	38.54	54.00	-15.46	Horizontal
9648.00	22.11	38.07	14.16	31.56	42.78	54.00	-11.22	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

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
4874.00	39.50	31.85	8.66	32.12	47.89	74.00	-26.11	Vertical
7311.00	34.38	36.37	11.71	31.91	50.55	74.00	-23.45	Vertical
9748.00	33.80	38.27	14.25	31.56	54.76	74.00	-19.24	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	39.95	31.85	8.66	32.12	48.34	74.00	-25.66	Horizontal
7311.00	33.01	36.37	11.71	31.91	49.18	74.00	-24.82	Horizontal
9748.00	33.68	38.27	14.25	31.56	54.64	74.00	-19.36	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)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	30.34	31.85	8.66	32.12	38.73	54.00	-15.27	Vertical
7311.00	22.69	36.37	11.71	31.91	38.86	54.00	-15.14	Vertical
9748.00	23.05	38.27	14.25	31.56	44.01	54.00	-9.99	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	30.06	31.85	8.66	32.12	38.45	54.00	-15.55	Horizontal
7311.00	22.10	36.37	11.71	31.91	38.27	54.00	-15.73	Horizontal
9748.00	23.40	38.27	14.25	31.56	44.36	54.00	-9.64	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

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
4924.00	45.13	31.90	8.70	32.15	53.58	74.00	-20.42	Vertical
7386.00	35.12	36.49	11.76	31.83	51.54	74.00	-22.46	Vertical
9848.00	37.14	38.62	14.31	31.77	58.30	74.00	-15.70	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	44.40	31.90	8.70	32.15	52.85	74.00	-21.15	Horizontal
7386.00	34.00	36.49	11.76	31.83	50.42	74.00	-23.58	Horizontal
9848.00	33.30	38.62	14.31	31.77	54.46	74.00	-19.54	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)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	36.03	31.90	8.70	32.15	44.48	54.00	-9.52	Vertical
7386.00	25.03	36.49	11.76	31.83	41.45	54.00	-12.55	Vertical
9848.00	25.64	38.62	14.31	31.77	46.80	54.00	-7.20	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	34.75	31.90	8.70	32.15	43.20	54.00	-10.80	Horizontal
7386.00	23.39	36.49	11.76	31.83	39.81	54.00	-14.19	Horizontal
9848.00	22.56	38.62	14.31	31.77	43.72	54.00	-10.28	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

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	40.47	31.79	8.62	32.10	48.78	74.00	-25.22	Vertical
7236.00	34.33	36.19	11.68	31.97	50.23	74.00	-23.77	Vertical
9648.00	32.79	38.07	14.16	31.56	53.46	74.00	-20.54	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	39.11	31.79	8.62	32.10	47.42	74.00	-26.58	Horizontal
7236.00	34.06	36.19	11.68	31.97	49.96	74.00	-24.04	Horizontal
9648.00	32.37	38.07	14.16	31.56	53.04	74.00	-20.96	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	29.54	31.79	8.62	32.10	37.85	54.00	-16.15	Vertical
7236.00	23.19	36.19	11.68	31.97	39.09	54.00	-14.91	Vertical
9648.00	23.14	38.07	14.16	31.56	43.81	54.00	-10.19	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4824.00	28.64	31.79	8.62	32.10	36.95	54.00	-17.05	Horizontal
7236.00	22.64	36.19	11.68	31.97	38.54	54.00	-15.46	Horizontal
9648.00	22.11	38.07	14.16	31.56	42.78	54.00	-11.22	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

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
4874.00	39.50	31.85	8.66	32.12	47.89	74.00	-26.11	Vertical
7311.00	34.38	36.37	11.71	31.91	50.55	74.00	-23.45	Vertical
9748.00	33.80	38.27	14.25	31.56	54.76	74.00	-19.24	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	39.95	31.85	8.66	32.12	48.34	74.00	-25.66	Horizontal
7311.00	33.01	36.37	11.71	31.91	49.18	74.00	-24.82	Horizontal
9748.00	33.68	38.27	14.25	31.56	54.64	74.00	-19.36	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)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	30.34	31.85	8.66	32.12	38.73	54.00	-15.27	Vertical
7311.00	22.69	36.37	11.71	31.91	38.86	54.00	-15.14	Vertical
9748.00	23.05	38.27	14.25	31.56	44.01	54.00	-9.99	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	30.06	31.85	8.66	32.12	38.45	54.00	-15.55	Horizontal
7311.00	22.10	36.37	11.71	31.91	38.27	54.00	-15.73	Horizontal
9748.00	23.40	38.27	14.25	31.56	44.36	54.00	-9.64	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

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
4924.00	45.13	31.90	8.70	32.15	53.58	74.00	-20.42	Vertical
7386.00	35.12	36.49	11.76	31.83	51.54	74.00	-22.46	Vertical
9848.00	37.14	38.62	14.31	31.77	58.30	74.00	-15.70	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	44.40	31.90	8.70	32.15	52.85	74.00	-21.15	Horizontal
7386.00	34.00	36.49	11.76	31.83	50.42	74.00	-23.58	Horizontal
9848.00	33.30	38.62	14.31	31.77	54.46	74.00	-19.54	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)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	36.03	31.90	8.70	32.15	44.48	54.00	-9.52	Vertical
7386.00	25.03	36.49	11.76	31.83	41.45	54.00	-12.55	Vertical
9848.00	25.64	38.62	14.31	31.77	46.80	54.00	-7.20	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	34.75	31.90	8.70	32.15	43.20	54.00	-10.80	Horizontal
7386.00	23.39	36.49	11.76	31.83	39.81	54.00	-14.19	Horizontal
9848.00	22.56	38.62	14.31	31.77	43.72	54.00	-10.28	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

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
4844.00	39.94	31.81	8.63	32.11	48.27	74.00	-25.73	Vertical
7266.00	34.00	36.28	11.69	31.94	50.03	74.00	-23.97	Vertical
9688.00	32.55	38.13	14.21	31.52	53.37	74.00	-20.63	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4844.00	38.66	31.81	8.63	32.11	46.99	74.00	-27.01	Horizontal
7266.00	33.77	36.28	11.69	31.94	49.80	74.00	-24.20	Horizontal
9688.00	32.15	38.13	14.21	31.52	52.97	74.00	-21.03	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
4844.00	29.05	31.81	8.63	32.11	37.38	54.00	-16.62	Vertical
7266.00	22.87	36.28	11.69	31.94	38.90	54.00	-15.10	Vertical
9688.00	22.91	38.13	14.21	31.52	43.73	54.00	-10.27	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4844.00	28.22	31.81	8.63	32.11	36.55	54.00	-17.45	Horizontal
7266.00	22.36	36.28	11.69	31.94	38.39	54.00	-15.61	Horizontal
9688.00	21.90	38.13	14.21	31.52	42.72	54.00	-11.28	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

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
4874.00	39.06	31.85	8.66	32.12	47.45	74.00	-26.55	Vertical
7311.00	34.11	36.37	11.71	31.91	50.28	74.00	-23.72	Vertical
9748.00	33.60	38.27	14.25	31.56	54.56	74.00	-19.44	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	39.58	31.85	8.66	32.12	47.97	74.00	-26.03	Horizontal
7311.00	32.77	36.37	11.71	31.91	48.94	74.00	-25.06	Horizontal
9748.00	33.50	38.27	14.25	31.56	54.46	74.00	-19.54	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)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	29.93	31.85	8.66	32.12	38.32	54.00	-15.68	Vertical
7311.00	22.43	36.37	11.71	31.91	38.60	54.00	-15.40	Vertical
9748.00	22.86	38.27	14.25	31.56	43.82	54.00	-10.18	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	29.71	31.85	8.66	32.12	38.10	54.00	-15.90	Horizontal
7311.00	21.86	36.37	11.71	31.91	38.03	54.00	-15.97	Horizontal
9748.00	23.22	38.27	14.25	31.56	44.18	54.00	-9.82	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

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
4904.00	44.38	31.88	8.68	32.13	52.81	74.00	-21.19	Vertical
7356.00	34.65	36.45	11.75	31.86	50.99	74.00	-23.01	Vertical
9808.00	36.80	38.43	14.29	31.68	57.84	74.00	-16.16	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4904.00	43.76	31.88	8.68	32.13	52.19	74.00	-21.81	Horizontal
7356.00	33.59	36.45	11.75	31.86	49.93	74.00	-24.07	Horizontal
9808.00	32.99	38.43	14.29	31.68	54.03	74.00	-19.97	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)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4904.00	35.33	31.88	8.68	32.13	43.76	54.00	-10.24	Vertical
7356.00	24.57	36.45	11.75	31.86	40.91	54.00	-13.09	Vertical
9808.00	25.31	38.43	14.29	31.68	46.35	54.00	-7.65	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4904.00	34.15	31.88	8.68	32.13	42.58	54.00	-11.42	Horizontal
7356.00	22.99	36.45	11.75	31.86	39.33	54.00	-14.67	Horizontal
9808.00	22.26	38.43	14.29	31.68	43.30	54.00	-10.70	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

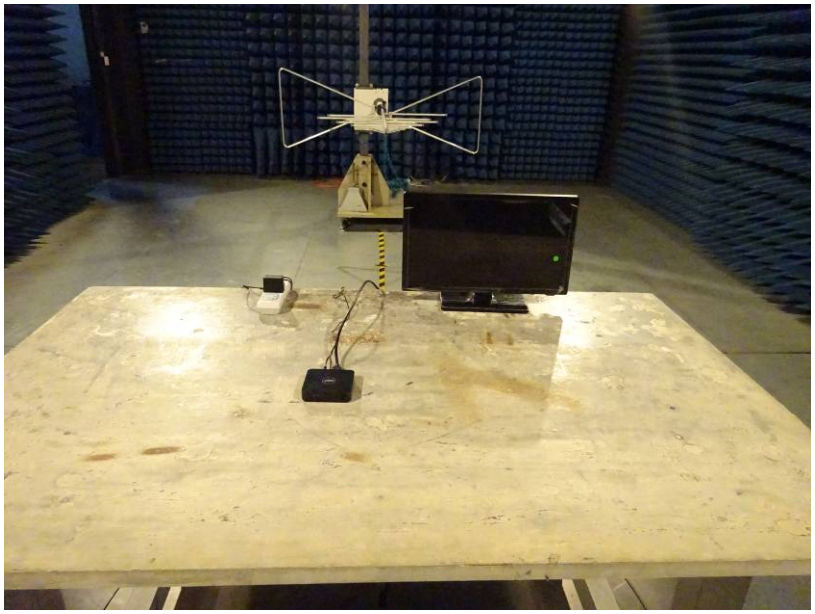
Remark:

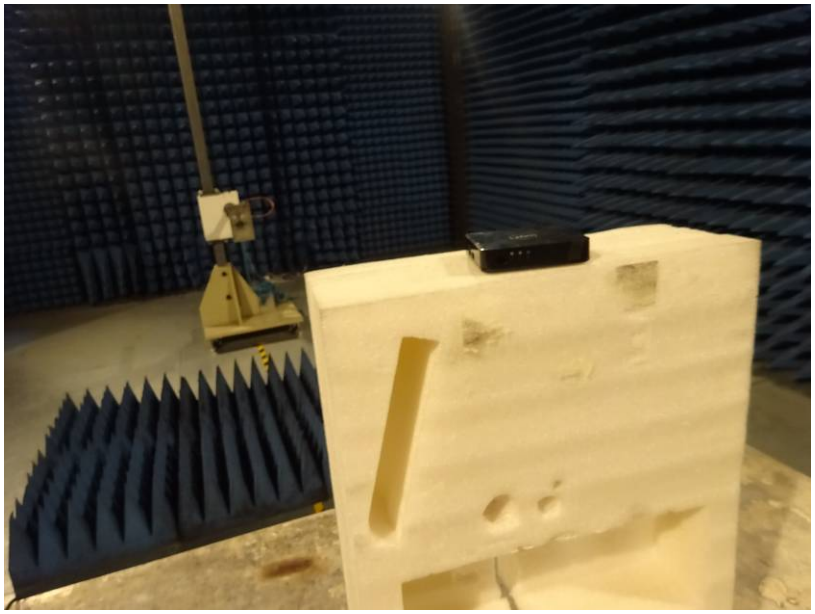
1 Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

2 "", means this data is the too weak instrument of signal is unable to test.*

8 Test Setup Photo

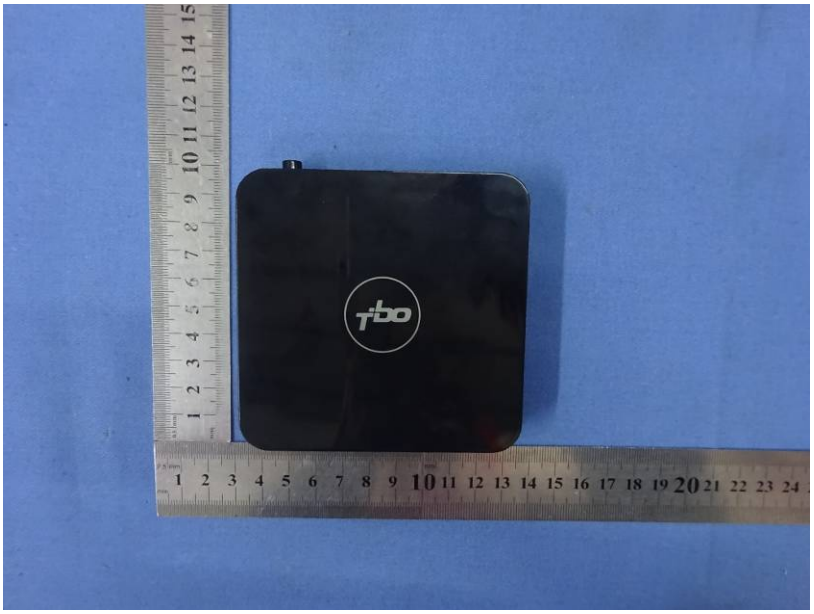
Radiated Emission

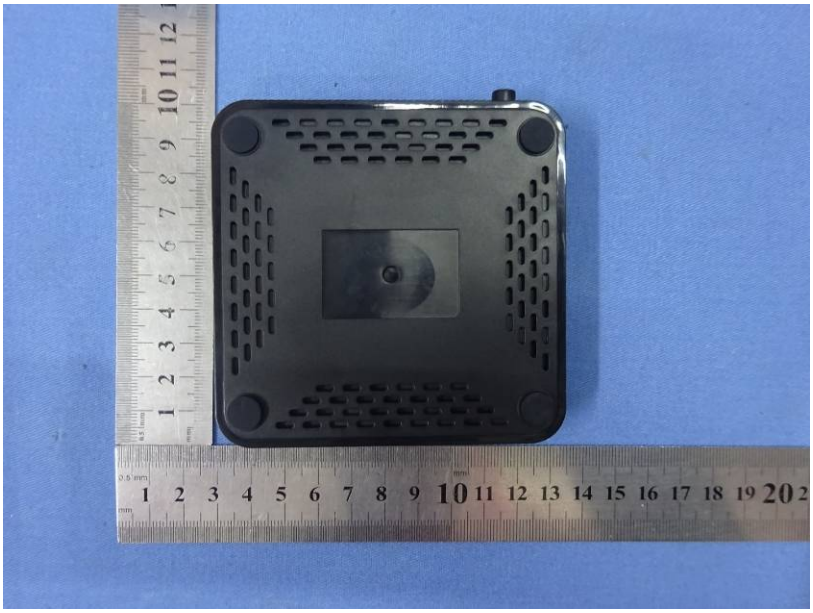




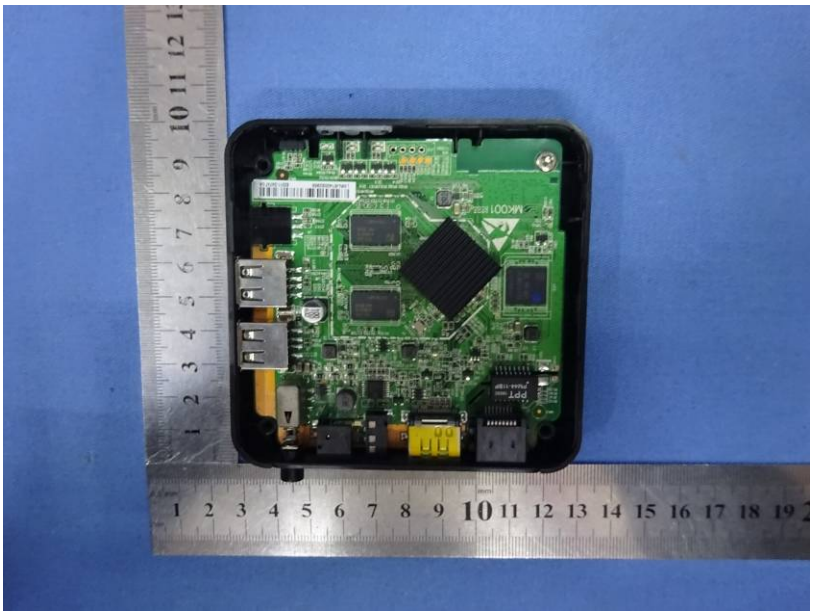
Conducted Emission

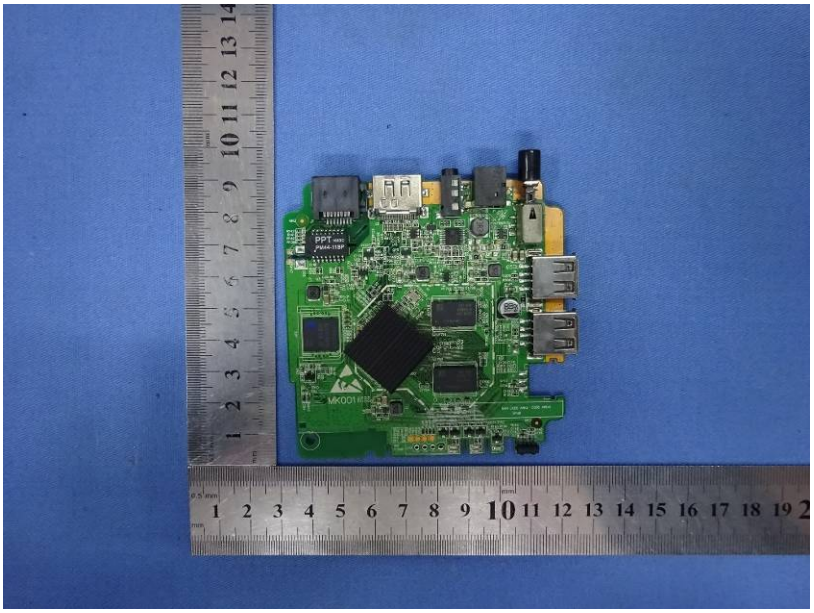
9 EUT Constructional Details

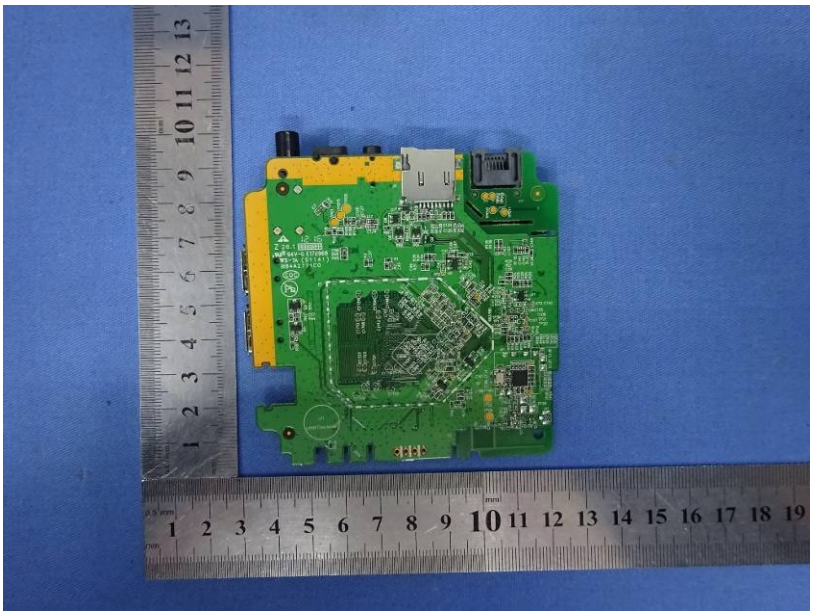





MICRO SD
HDMI
0.5 mm








AC/DC ADAPTER
MODEL:GSCU1000S012V15T
INPUT:100-240V~50/60Hz Max 0.5A
OUTPUT:12V⎓1.0A
I.T.E.Power Supply
P/N:G0975-U2 GL20
MADE IN CHINA

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