

Hangzhou Kitchen Idea Technology Co., Ltd

RF TEST REPORT

Report Type:

FCC Part 15.407 & ISED RSS-247 RF report

Model:

SKI.WB800DS2.1

REPORT NUMBER:

230300086HAN-001

ISSUE DATE:

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Applicant: Hangzhou Kitchen Idea Technology Co., Ltd
Room 2501, Huaye Building, 511 Jianye Road, Changhe Subdistrict,
Binjiang District, Hangzhou, Zhejiang, China

Manufacturer: Same as Applicant

Factory Site: Shaoxing Kitchen Idea Electrical Appliances Manufacturing Co., Ltd
West of 2nd Floor, South of Qisheng Road, Paojiang Industrial Zone,
Shaoxing City, Zhejiang Province, China

Type/Model: SKI.WB800DS2.1

FCC ID: 2A2KP-K2902

IC: 30295-K2902

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

47CFR Part 15 (2019): Radio Frequency Devices (Subpart C)

ANSI C63.10 (2013): American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices


RSS-247 Issue 2 (February 2017): Digital Transmission Systems (DTs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

RSS-Gen Issue 5 (March 2019) Amendment 1: General Requirements for Compliance of Radio Apparatus

PREPARED BY:

REVIEWED BY:

Project Engineer
Alex Wu


Reviewer
Wakeyou Wang

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Revision History

Report No.	Version	Description	Issued Date
230300086HAN-001	Rev. 01	Initial issue of report	July 31, 2023

Measurement result summary

TEST ITEM	FCC REFERENCE	IC REFERENCE	RESULT
26 dB Bandwidth & 99% Occupied Bandwidth	15.407(a)	RSS-247 Issue 2 Clause 6	Pass
Minimum 6dB Bandwidth	15.407(e)	RSS-247 Issue 2 Clause 6	Pass
Maximum Conducted Output Power	15.407(a)	RSS-247 Issue 2 Clause 6	Pass
Power spectral density	15.407(a)	RSS-247 Issue 2 Clause 6	Pass
Radiated emission	15.407(b) 15.205 15.209	RSS-247 Issue 2 Clause 6 RSS-Gen Issue 5 Clause 8.9&8.10	Pass
Power line conducted emission	15.407(b) 15.207	RSS-Gen Issue 5 Clause 8.8	Pass
Frequency Stability	15.407(g)	RSS-Gen Issue 5 Clause 8.11	Pass
Antenna requirement	15.203	-	Pass

Notes: 1: NA =Not Applicable

2. Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.

3: Additions, Deviations and Exclusions from Standards: None.

TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	RF module
Type/Model:	SKI.WB800DS2.1
Description of EUT:	The EUT is a highly integrated SoC with dual band Wi-Fi and high-performance Cortex-M4F for wireless application. The Module band is 2.4GHz and 5.0GHz.
Rating:	12VDC
EUT type:	<input checked="" type="checkbox"/> Tabletop <input type="checkbox"/> Floor standing
Brand name:	NA
Product Marketing Name:	SKI.WB800DS2.1
Hardware Version:	SKI.WB800DS2.1
Software Version:	NA
Serial numbers:	NA
Sample Identification No.:	1230227-25-003
Sample received date:	April 15, 2023
Date of test:	June 10-30, 2023

1.2 Technical Specification

FCC/IC

Frequency Range:	5150 ~ 5250MHz 5725 ~ 5850MHz
Support Standards:	802.11a, 802.11n(HT20), 802.11n(HT40), 802.11AC(VHT20), 802.11AC(VHT40), 802.11AX(HE20), 802.11AX(HE40)
Type of Modulation:	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Channel Number:	For 5180 ~ 5240MHz band: Channel 36 - 48 For 5745 ~ 5825MHz band: Channel 149 - 165
Antenna:	External Antenna, 4.2 dBi Gain

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1.3 Working Frequencies for this report

FCC/IC

802.11a /n20(HT20) /AC(VHT20) /AX(HE20)					
Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	40	5200MHz	44	5220MHz
48	5240MHz	149	5745 MHz	153	5765 MHz
157	5785 MHz	161	5805 MHz	165	5825 MHz
802.11n(HT40) /AC(VHT40) /AX(HE40)					
Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz	-	-
151	5755 MHz	159	5795 MHz	-	-

1.4 Antenna information

Antenna information:			
No.	Antenna Type	Gain	Note
1	External Antenna	4.2dBi	Internal type

Mode	Tx/Rx Function	Beamforming function	CDD function	Directional gain (dBi)
802.11a	1Tx/1Rx	NO	NO	-
802.11n(HT20)	1Tx/1Rx	NO	NO	-
802.11n(HT40)	1Tx/1Rx	NO	NO	-
802.11AC(VHT20)	1Tx/1Rx	NO	NO	-
802.11AC(VHT40)	1Tx/1Rx	NO	NO	-
802.11AX(HE20)	1Tx/1Rx	NO	NO	-
802.11AX(HE40)	1Tx/1Rx	NO	NO	-

TEST REPORT**1.5 Description of Test Facility**

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road (North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Member No: 3598 (Registration No.: R-14243, G-10845, C-14723, T-12252)
	A2LA Accreditation Lab Certificate Number: 3309.02

2 TEST SPECIFICATIONS

2.1 Standards or specification

47CFR Part 15 (2019)
 ANSI C63.10 (2013)
 RSS-247 Issue 2 (February 2017)
 RSS-Gen Issue 5 (March 2019) Amendment 1
 KDB 789033 D02 v02r01

2.2 Mode of operation during the test

While testing transmitting mode of EUT, the continuously transmission was applied by following software.

Software name	Manufacturer	Version	Supplied by
adb tool	/	/	Client

The lowest, middle and highest channel for the following modes were tested as representatives.

Frequency Band (MHz)	Mode	Lowest (MHz)	Middle (MHz)	Highest (MHz)
5150 - 5250	802.11a	5180	5200	5240
	802.11n(HT20)	5180	5200	5240
	802.11n(HT40)	5190	/	5230
	802.11AC(VHT20)	5180	5200	5240
	802.11AC(VHT40)	5190	/	5230
	802.11AX(HE20)	5180	5200	5240
	802.11AX(HE40)	5190	/	5230
5725 - 5850	802.11a	5745	5785	5825
	802.11n(HT20)	5745	5785	5825
	802.11n(HT40)	5755	/	5795
	802.11AC(VHT20)	5745	5785	5825
	802.11AC(VHT40)	5755	/	5795
	802.11AX(HE20)	5745	5785	5825
	802.11AX(HE40)	5755	/	5795

TEST REPORT

Data rate and Power setting:

The pre-scan for the conducted power with all data rates in each modulation and band was used, and the worst case was found and used in all test cases. After this pre-scan, we choose the following table of the data rate as the worst case.

Frequency Band (MHz)	Mode	Worst case data rate	Power setting
5150 - 5250	802.11a	6Mbps	10 (Default)
	802.11n(HT20)	MCS0	10 (Default)
	802.11n(HT40)	MCS0	9 (Default)
	802.11AC(VHT20)	MCS0	10 (Default)
	802.11AC(VHT40)	MCS0	9 (Default)
	802.11AX(HE20)	MCS0	10 (Default)
	802.11AX(HE40)	MCS0	9 (Default)
5725 - 5850	802.11a	6Mbps	10 (Default)
	802.11n(HT20)	MCS0	10 (Default)
	802.11n(HT40)	MCS0	9 (Default)
	802.11AC(VHT20)	MCS0	10 (Default)
	802.11AC(VHT40)	MCS0	9 (Default)
	802.11AX(HE20)	MCS0	10 (Default)
	802.11AX(HE40)	MCS0	9 (Default)

TEST REPORT

2.3 Test software list

Test Items	Software	Manufacturer	Version
Conducted emission	ESxS-K1	R&S	V2.1.0
Radiated emission	ES-K1	R&S	V1.71

2.4 Test peripherals list

Item No.	Name	Band and Model	Description
1	Laptop computer	DELL 5480	-
2	RF cable	/	0.2m length; 0.5dB loss

2.5 Test environment condition:

Test items	Temperature	Humidity
26 dB Bandwidth & 99% Occupied Bandwidth	19°C	53% RH
Minimum 6dB Bandwidth		
Maximum Conducted Output Power		
Power spectral density		
Radiated Emissions in restricted frequency bands	20°C	53% RH
Power line conducted emission	20°C	53% RH

TEST REPORT

2.6 Instrument list

Conducted Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Test Receiver	R&S	ESR7	EC 6194	2024-02-08
<input checked="" type="checkbox"/>	Attenuator	Hua Xiang	Ts5-10db-6g	EC 6194-1	2023-12-07
<input checked="" type="checkbox"/>	A.M.N.	R&S	ESH2-Z5	EC 3119	2023-11-09
<input type="checkbox"/>	A.M.N.	R&S	ENV4200	EC 3558	2024-06-05
<input checked="" type="checkbox"/>	Shielded room	Zhongyu	-	EC 2838	2024-01-11
Radiated Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Test Receiver	R&S	ESIB 26	EC 3045	2024-07-17
<input checked="" type="checkbox"/>	Test Receiver	R&S	ESR	EC6501	2023-09-05
<input checked="" type="checkbox"/>	Bilog Antenna	TESEQ	CBL 6112B	EC 6411	2024-08-22
<input checked="" type="checkbox"/>	Horn antenna	Tonscend	bha9120d	EC 6432-2	2024-02-15
<input checked="" type="checkbox"/>	Horn antenna	ETS	3117	EC 4792-1	2023-08-28
<input checked="" type="checkbox"/>	Horn antenna	TOYO	HAP18-26W	EC 4792-3	2023-07-29
<input checked="" type="checkbox"/>	Pre-amplifier	R&S	AFS42-00101800-25-S-42	EC 5262	2024-06-15
<input checked="" type="checkbox"/>	Semi-anechoic chamber	Albatross project	-	EC 3048	2024-07-08
RF test					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	PXA Signal Analyzer	Keysight	N9030A	EC 5338	2024-03-05
<input checked="" type="checkbox"/>	Vector Signal Generator	Agilent	N5182B	EC 5175	2024-03-05
<input checked="" type="checkbox"/>	Universal Radio Communication Tester	R&S	CMW500	EC5944	2024-03-05
<input checked="" type="checkbox"/>	MXG Analog Signal Generator	Agilent	N5181A	EC 5338-2	2024-03-05
<input type="checkbox"/>	Mobile Test System	Litepoint	lqxel	EC 5176	2024-01-11
<input checked="" type="checkbox"/>	Test Receiver	R&S	ESCI 7	EC 4501	2024-03-05
<input type="checkbox"/>	Climate chamber	GWS	MT3065	EC 6021	2024-03-06
<input checked="" type="checkbox"/>	Spectrum Analyzer	Keysight	N9030B	EC 6078	2024-06-15
<input checked="" type="checkbox"/>	Universal Radio Communication Tester	R&S	CMW500	EC 6209	2024-01-30
<input checked="" type="checkbox"/>	Signal generator	Agilent	N5182A	EC 6172	2023-08-09
<input checked="" type="checkbox"/>	Signal generator	Agilent	N5181A	EC 6171	2023-08-09
Additional instrument					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Therom-Hygrograph	ZJ1-2A	S.M.I.F.	EC 3783	2024-03-24
<input checked="" type="checkbox"/>	Pressure meter	YM3	Shanghai Mengde	EC 4620	2023-09-13

TEST REPORT

2.7 Measurement uncertainty

The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Measurement uncertainty
Maximum peak output power	$\pm 0.74\text{dB}$
26 dB Bandwidth & 99% Occupied Bandwidth	
Minimum 6dB Bandwidth	
Power spectral density	
Radiated Emissions in restricted frequency bands below 1GHz	$\pm 4.90\text{dB}$
Radiated Emissions in restricted frequency bands above 1GHz	$\pm 5.02\text{dB}$
Emission outside the frequency band	$\pm 2.89\text{dB}$
Power line conducted emission	$\pm 3.19\text{dB}$

TEST REPORT**3 26 dB Bandwidth & 99% Occupied Bandwidth****Test result:** Pass**3.1 Limit**

None

3.2 Measurement Procedure

The EUT was tested according to test procedure of "KDB789033 D02 General UNII Test Procedures New Rules"

26 dB Bandwidth

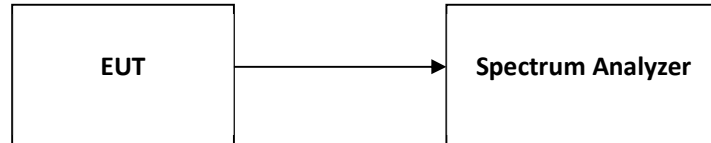
- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

99% Occupied Bandwidth

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW $\geq 3 \cdot$ RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

3.3 Test Configuration



3.4 The results of 26 dB Bandwidth & 99% Occupied Bandwidth

Please refer to Appendix A

TEST REPORT

4 Minimum 6dB Bandwidth

Test result: Pass

4.1 Limit

For systems using digital modulation techniques that may operate in the 5725 - 5850 MHz band, the minimum 6 dB bandwidth shall be at least 500 kHz.

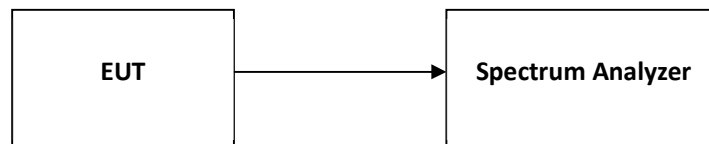
4.2 Measurement Procedure

The EUT was tested according to test procedure of "KDB789033 D02 General UNII Test Procedures New Rules"

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

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

4.3 Test Configuration



4.4 The results of Minimum 6dB Bandwidth

Please refer to Appendix A

5 Maximum conducted output power and e.i.r.p.

Test result: Pass

5.1 Limit

- For an outdoor access point operating in the band 5.15-5.25GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1W provided the maximum antenna gain does not exceed 6dBi.
The maximum e.i.r.p. at any elevation angle above 30 degrees from the horizon must not exceed 125mW (21 dBm).
- For an indoor access point operating in the band 5.15-5.25GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6dBi.
- For fixed point-to-point access points operating in the band 5.15-5.25GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1W.
- For client devices in the 5.15-5.25GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250mW provided the maximum antenna gain does not exceed 6dBi. (FCC Limit)
- For the 5.25-5.35GHz and 5.47-5.725GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250mW or $11\text{dBm} + 10\log B$, where B is the 26dB emission bandwidth in megahertz. (FCC limit)
- For the band 5.725-5.85GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1W. (FCC limit)
- For Frequency Band 5150-5250 MHz, the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. (IC limit)
- For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 99% emission bandwidth in megahertz. (IC limit)
- For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. (IC limit)
- For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. (IC limit)

If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

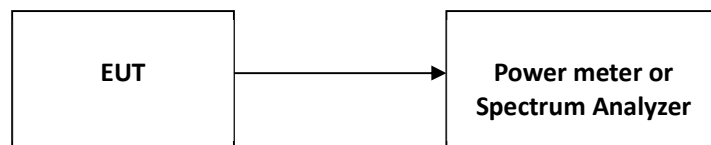
TEST REPORT

5.2 Measurement Procedure

The EUT was tested according to test procedure of “KDB789033 D02 General UNII Test Procedures New Rules”

- (i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (ii) Set RBW = 1 MHz.
- (iii) Set VBW ≥ 3 MHz.
- (iv) Number of points in sweep ≥ 2 × span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
- (v) Sweep time = auto.
- (vi) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
- (vii) If transmit duty cycle < 98%, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98%, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run.”
- (viii) Trace average at least 100 traces in power averaging (rms) mode.
- (ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

5.3 Test Configuration



5.4 Test Results of Maximum conducted output power and e.i.r.p.

Please refer to Appendix A

6 Power spectrum density

Test result: Pass

6.1 Limit

- For an outdoor access point operating in the band 5.15-5.25GHz, the maximum power spectral density shall not exceed 17dBm in any 1 megahertz band.
- For an indoor access point operating in the band 5.15-5.25GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.
- For client devices in the 5.15-5.25GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. (FCC limit)
- For the 5.25-5.35 GHz and 5.47-5.725GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. (FCC limit)
- For the band 5.725-5.85GHz, the maximum power spectral density shall not exceed 30dBm in any 500kHz band. (FCC limit)
- For the 5.15-5.25GHz band, the e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band. (IC limit)
- For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. (IC limit)
- For the 5.725-5.85GHz band, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. (IC limit)

If the transmitting antenna of directional gain greater than 6dBi is used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. If there have a beam forming type, the limit should be the less of original and original + (6 - antenna gain - beamforming gain).

TEST REPORT

6.2 Measurement Procedure

The EUT was tested according to test procedure of “KDB789033 D02 General UNII Test Procedures New Rules”

1. Create an average power spectrum for the EUT operating mode being tested by following the instructions in II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power...” (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)
2. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
3. Make the following adjustments to the peak value of the spectrum, if applicable:
 - a) If Method SA-2 or SA-2 Alternative was used, add $10 \log (1/x)$, where x is the duty cycle, to the peak of the spectrum.
 - b) If Method SA-3 Alternative was used and the linear mode was used in step II.E.2.g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
4. The result is the Maximum PSD over 1 MHz reference bandwidth.
5. For devices operating in the bands 5.15 5.25 GHz, 5.25 5.35 GHz, and 5.47 5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725 5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:
 - a) Set $RBW \geq 1/T$, where T is defined in II.B.I.a).
 - b) Set $VBW \geq 3 RBW$.
 - c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10 \log (500 \text{ kHz}/RBW)$ to the measured result, whereas $RBW (< 500 \text{ kHz})$ is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
 - d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10 \log (1\text{MHz}/RBW)$ to the measured result, whereas $RBW (< 1 \text{ MHz})$ is the reduced resolution bandwidth of spectrum analyzer set during measurement.
 - e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for steps 5.c) and 5.d) above, since $RBW=100 \text{ KHZ}$ is available on nearly all spectrum analyzers.

6.3 Test Configuration



6.4 Test Results of Power spectrum density

Please refer to Appendix A

TEST REPORT

7 Radiated Emissions

Test result: Pass

7.1 Limit

The radiated emissions which fall in the restricted bands, and the radiated emissions below 1GHz, must comply with the radiated emission limits specified showed as below:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

The radiated emissions which fall outside the restrict bands, should comply with the EIRP limit as below:

For transmitters operating in the 5.15 - 5.25 / 5.25 - 5.35 / 5.47 - 5.725GHz band:

Frequency (MHz)	EIRP Limit (dBm)	Equivalent Field Strength (3m) (dBμV/m)
<5150	-27	68.20
>5350		
<5470		
>5725		

For transmitters operating in the 5.725 - 5.85GHz band:

Frequency (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength (3m) (dBμV/m)
<5650	-27	68.20
5650 ~ 5700	-27 ~ 10	68.20 ~ 105.20
5700 ~ 5720	10 ~ 15.6	105.20 ~ 110.80
5720 ~ 5725	15.6 ~ 27	110.80 ~ 122.20
5850 ~ 5855	27 ~ 15.6	122.20 ~ 110.80
5855 ~ 5875	15.6 ~ 10	110.80 ~ 105.20
5875 ~ 5925	10 ~ -27	105.20 ~ 68.20
>5925	-27	68.20

TEST REPORT**7.2 Measurement Procedure****For Radiated emission below 30MHz:**

- a) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c) Both X and Y axes of the antenna are set to make the measurement.
- d) For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e) The test-receiver system was set to peak or quasi-peak detect function and specified bandwidth with maximum hold mode.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz:

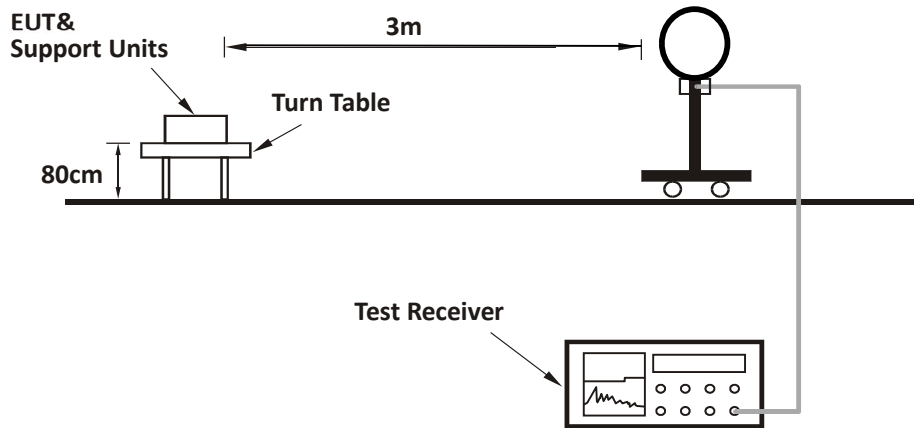
- a) The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meters chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c) The height of antenna 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.
- d) 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e) The test-receiver system was set to peak or quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f) The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

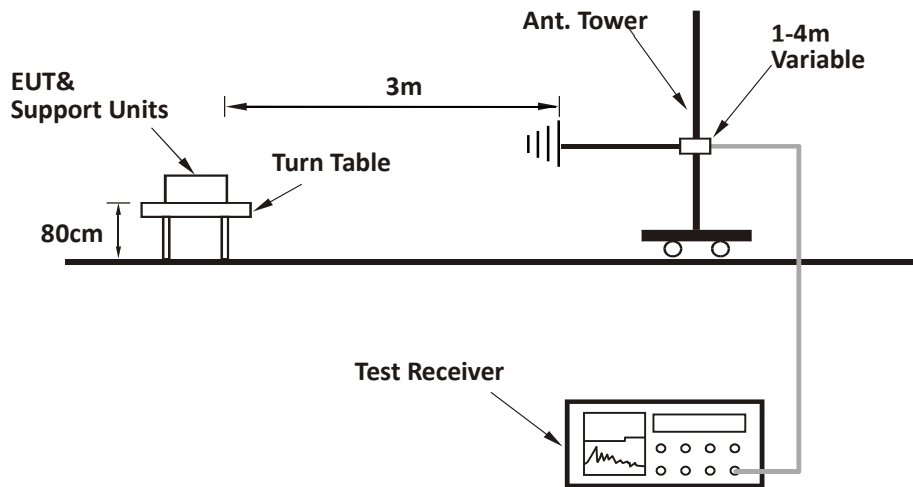
1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for peak or quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz at frequency above 1GHz for peak detection above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or $3 \times \text{RBW}$ (Duty cycle $\geq 98\%$) for average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

7.3 Test Configuration

For Radiated emission below 30MHz:

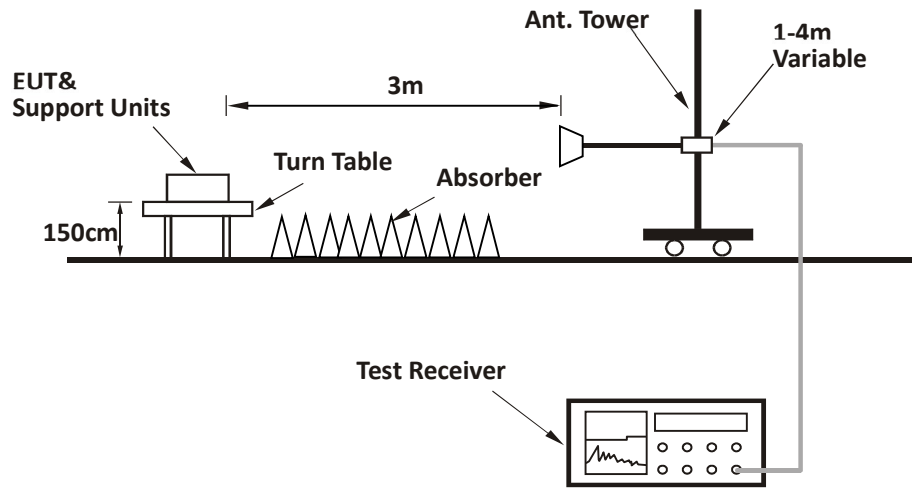


For Radiated emission 30MHz to 1GHz:



TEST REPORT

For Radiated emission above 1GHz:

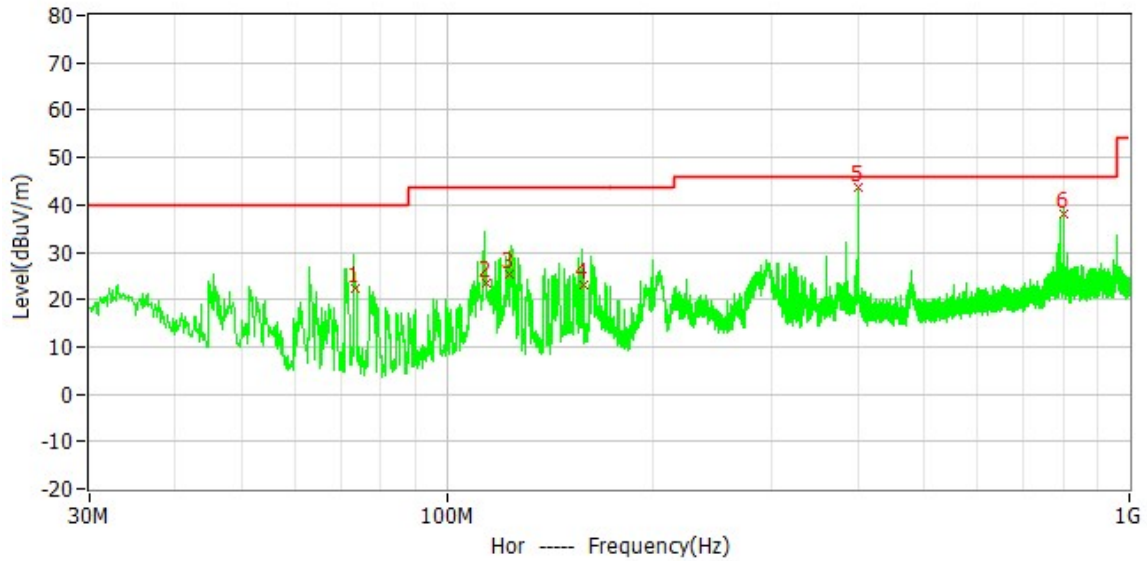


TEST REPORT

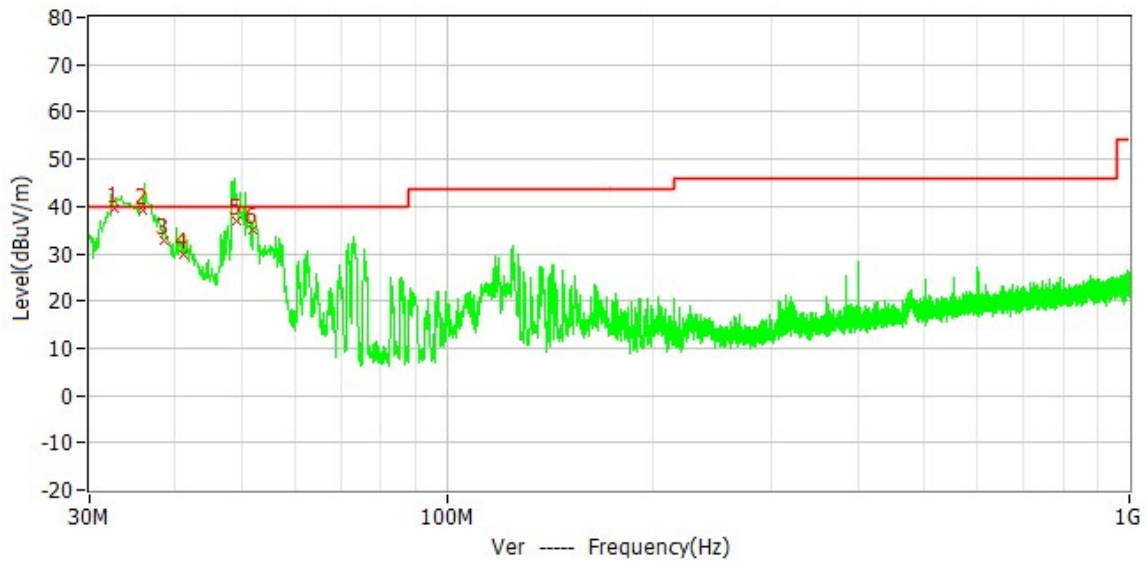
7.4 Test Results of Radiated Emissions

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

Horizontal



Vertical



TEST REPORT

Test data below 1GHz

Antenna	Frequency (MHz)	Corrected Reading (dBuV/m)	Correct Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector
H	73.483	22.50	8.40	40.00	17.50	QP
H	114.570	23.60	13.50	43.50	19.90	QP
H	123.342	25.20	13.70	43.50	18.30	QP
H	158.903	23.20	12.00	43.50	20.30	QP
H	399.998	43.50	18.50	46.00	2.50	QP
H	799.987	38.10	23.70	46.00	7.90	QP
V	32.565	39.70	19.80	40.00	0.30	QP
V	35.948	39.10	17.70	40.00	0.90	QP
V	38.671	32.70	15.90	40.00	7.30	QP
V	41.177	29.70	14.50	40.00	10.30	QP
V	49.211	37.10	10.50	40.00	2.90	QP
V	51.915	35.00	9.70	40.00	5.00	QP

TEST REPORT

Test result above 1GHz:

The emission was conducted from 1GHz to 40GHz

U-NII-1 Band:

802.11a

Channel	Polarity	Frequency (MHz)	Corrected Reading (dBuV/m)	Correct Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector
L	H	5150.00	56.70	40.90	74.00	17.30	PK
	H	5150.00	46.60	40.90	54.00	7.40	AV
	V	5150.00	55.80	40.90	74.00	18.20	PK
	V	5150.00	46.60	40.90	54.00	7.40	AV
	H	10360.00	40.60	-3.90	68.20	27.60	PK
	H	15540.00	51.50	-2.50	68.20	16.70	PK
	V	10360.00	44.80	-3.90	68.20	23.40	PK
	V	15540.00	57.80	-2.50	68.20	10.40	PK
M	H	10440.00	38.10	-3.90	68.20	30.10	PK
	H	15660.00	50.00	-2.70	68.20	18.20	PK
	V	10440.00	44.50	-3.90	68.20	23.70	PK
	V	15660.00	57.90	-2.70	68.20	10.30	PK
H	H	5350.00	56.70	41.00	74.00	17.30	PK
	H	5350.00	46.30	41.00	54.00	7.70	AV
	V	5350.00	56.10	41.00	74.00	17.90	PK
	V	5350.00	46.60	41.00	54.00	7.40	AV
	H	10480.00	47.20	-3.80	68.20	21.00	PK
	H	15720.00	57.60	-2.70	68.20	10.60	PK
	V	10480.00	47.30	-3.80	68.20	20.90	PK
	V	15720.00	58.50	-2.70	68.20	9.70	PK

TEST REPORT

802.11n20

Channel	Polarity	Frequency (MHz)	Corrected Reading (dBuV/m)	Correct Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector
L	H	5150.00	56.60	40.90	74.00	17.40	PK
	H	5150.00	46.50	40.90	54.00	7.50	AV
	V	5150.00	55.80	40.90	74.00	18.20	PK
	V	5150.00	46.50	40.90	54.00	7.50	AV
	H	10360.00	41.20	-3.90	68.20	27.00	PK
	H	15540.00	52.70	-3.90	68.20	15.50	PK
	V	10360.00	44.40	-2.50	68.20	23.80	PK
	V	15540.00	57.30	-2.50	68.20	10.90	PK
M	H	10440.00	38.70	-3.90	68.20	29.50	PK
	H	15660.00	50.30	-2.70	68.20	17.90	PK
	V	10440.00	45.20	-3.90	68.20	23.00	PK
	V	15660.00	58.10	-2.70	68.20	10.10	PK
H	H	5350.00	56.50	41.00	74.00	17.50	PK
	H	5350.00	46.20	41.00	54.00	7.80	AV
	V	5350.00	56.10	41.00	74.00	17.90	PK
	V	5350.00	46.50	41.00	54.00	7.50	AV
	H	10480.00	47.40	-3.80	68.20	20.80	PK
	H	15720.00	57.80	-2.70	68.20	10.40	PK
	V	10480.00	47.20	-3.80	68.20	21.00	PK
	V	15720.00	58.10	-2.70	68.20	10.10	PK