

TEST REPORT

Report No: KST-FCR-130001

Applicant	Name	TeleAdapt (HK) Ltd
	Address	Unit G, 15/F, Block 2, Leader Industrial Center, 188-202, Texaco Road, Tsuen Wan, HK.
Manufacturer	Name	TeleAdapt Trade (Shenzhen) Limited Company Dongguan
	Address	Unit B 9/F, Haofeng Mansion, No.1, Dongxing Street One, Changping Town, Dongguan City, Guangdong Province, China
Equipment	Name	Wireless LAN Access Point
	Model No	TA-6950C
	Brand	None
	FCC ID	RR5TA-6950C
Test Standard	FCC CFR 47, Part 15. Subpart C-15.247	
Test Date(s)	2012. 12. 27 ~ 2013. 01. 09	
Issue Date	2013. 01. 10	
Test Result	Compliance	
Note	Request for various model names derived from the name of the base model by manufacturer. derived additional model names : TA-7950C, TA-8050C Refer attached file for detail. (Letter of request for derived model name)	

Supplementary Information

The device bearing the brand name and FCC ID specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with measurement procedures specified in ANSI C 63.4-2003.

We attest to the accuracy of data and all measurements reported herein were performed by KOSTEC Co., Ltd. and were made under Chief Engineer's supervision. We assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Tested by Mi Young, Lee

Approved by Gyeong Hyeon, Park

Signature



Signature

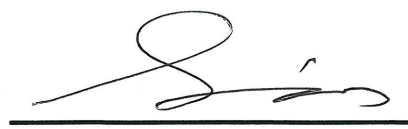


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1. GENERAL INFORMATION

1.1 Test Facility

Test laboratory and address

KOSTEC Co., Ltd.

180-254, Annyeong-dong, Hwaseong-si, Gyeonggi-do, South Korea

The open area field test site and conducted measurement facility are used for these testing. This site at was fully described in a reports submitted to the Federal Communications Commission (FCC).

The details of these reports have been found to be in complies with the requirements of Section 2.948 of the FCC Rules on November 14, 2002. The facility also complies with the radiated and conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission (FCC) has the reports on file and KOSTEC Co., Ltd. is listed under FCC Registration No.525762. The test site has been approved by the FCC for public use and is List in the FCC Public Access Link CORES (Commission Registration System)

Registration information

KCC (Korea Communications Commission) Number : KR0041

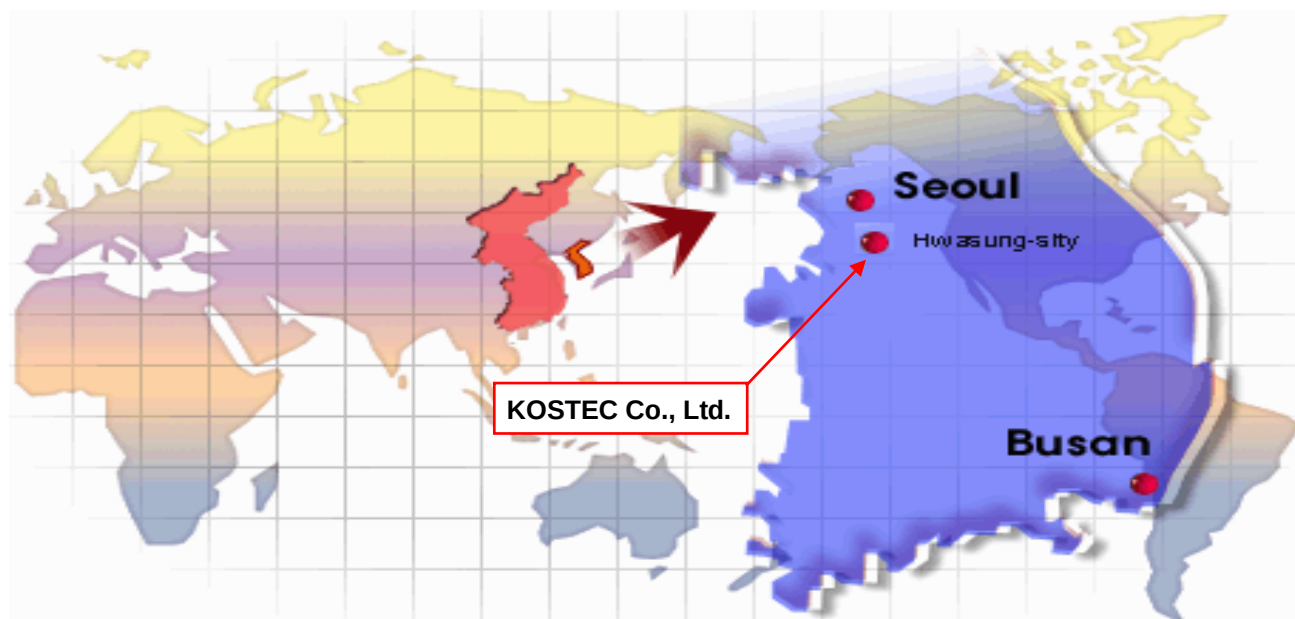
KOLAS(Korea Laboratory Accreditation Scheme) Number : 232

FCC Registration Number(FRN) : 525762

VCCI Registration Number : R-1657 / C -1763

IC Registration Site Number : 8305A-1

1.2 Location



2. EQUIPMENT DESCRIPTION

The product specification described herein was declared by manufacturer. And refer to user's manual for the details.

1) Equipment Name	Wireless LAN Access Point			
2) Model No	TA-6950C			
3) Brand Name	None			
4) Usage	Wireless LAN Access Point			
5) Serial Number	Prototype			
6) ITU emission Code	-			
7) Oscillation Type	PLL (Phase Local Loop)			
8) Modulation Type	CCK, DBPSK, DQPSK, BPSK, QPSK, 16QAM, 64QAM			
9) Emission Type	G1D, D2D			
10) Maximum Power	802.11b : 20.61 dBm 802.11g : 17.75 dBm 802.11n(20 MHz bandwidth) : 19.41 dBm 802.11n(40 MHz bandwidth) : 18.85 dBm			
11) Data Rate	802.11b : 11/5.5/2/1 Mbps 802.11g : 54/48/36/24/18/12/9/6 Mbps 802.11n(20 MHz bandwidth) : 6.5, 13, 19.5, 26, 39, 52, 58.5, 65, 78, 104, 117 & 130 Mbps 802.11n(40 MHz bandwidth) : 13.5, 27, 40.5, 54, 81, 108, 121.5, 135, 162, 216, 243 & 270 Mbps			
12) Operated Frequency	2 412 MHz ~ 2 462 MHz			
13) Channel Number	802.11b,g,n(20 MHz) : 11 802.11n(40 MHz) : 7			
14) Communication Type	Half duplex			
15) Final Amplifier	U13			
16) Operation temperature	- 20 °C - + 60 °C			
17) Power Source	AC/DC adapter Input : AC 100-240 V, 1.0 A, 50-60 Hz Output : DC 5 V, 2.0 A			
18) Antenna Description	Chip antenna, Length: 3 mm, Gain: 2.913 dBi(left) 3.579 dBi(right)			
19) FCC ID	RR5TA-6950C			
20) Cable and adapter	RJ-45 cable and adapter are turned with ferrite core provided by the applicant. Please refer a manual for details.			
	RJ 45	Length : 1.7 m Number of turns : 1 Number of bead : 1 Type : Clip type	Adapter	Length : 1.8 m Number of turns : 2 Number of bead : 1 Type : Clip type

** it is maximum peak conducted power in band

3. SYSTEM CONFIGURATION FOR TEST

3.1 Characteristics of equipment

The equipment under test was an IEEE 802.11b,g,n WLAN router operating in the 2.4 GHz bands. The EUT has five internal antennas, two transmit/receive for 2.4 GHz band. The antennas are integral to the PCB and type is chip antenna. When an RF cable is connected to the port the antenna is disconnected. For 802.11n operation the device uses MIMO – 2x2 for the 2.4 GHz band. Depending on the 802.11 MCS, the device transmits 1, 2 spatial stream. The device uses spatial multiplexing and from an RF point of view the streams are correlated with unequal gain antennas.

3.2 Used peripherals list

Description	Model No.	Serial No.	Manufacture	Remark
PC	LS40	1402KIAW215672	LG-IBM	

3.3 Product Modification

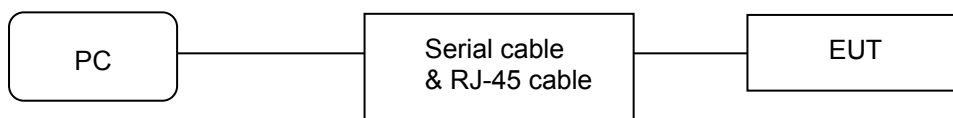
N/A

3.4 Operating Mode

- * Constantly transmitting with a modulated carrier at maximum power/widest bandwidth on the bottom, middle and top channels as required using the supported data rates/modulation types.
- * The EUT has two transmit/receive RF ports. Conducted measurements were performed on both transmit ports. RF cables and attenuators connecting the test equipment to the EUT ports were calibrated before use and the calibration data incorporated into the conducted measurement results.
- * Radiated emissions tests were performed with all unused ports terminated.

3.5 Test Setup of EUT

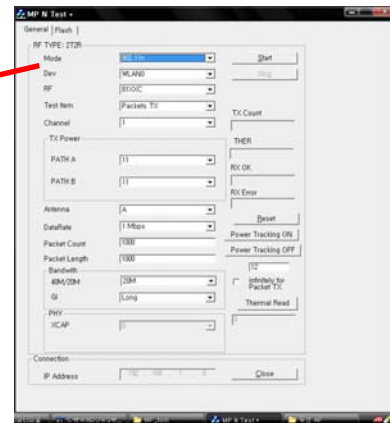
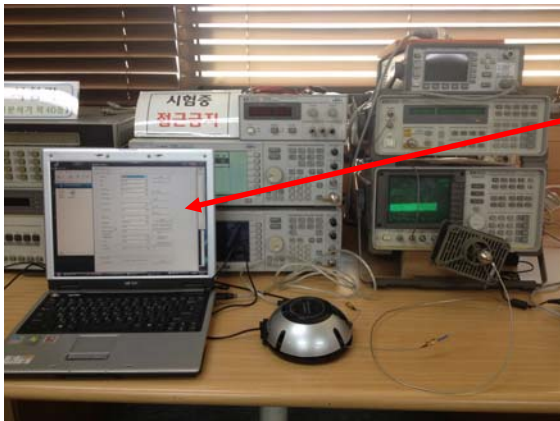
The measurements were taken in continuous transmit / receive mode using the TEST MODE. For controlling the EUT as TEST MODE, the test program was provided by the applicant.



3.6 Parameters of Test Software Setting

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

■ Test program photos



■ TX Power setting value during test

	ANT A	ANT B
802.11 b	55	55
802.11 g	60	60
802.11n (20 MHz)	60	60
802.11n (40 MHz)	60	60

3.7 Table for Test condition

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases.

3.8. Table for Carrier Frequencies

For IEEE 802.11b/g, use Channel 1 – 11. There are two bandwidth systems for IEEE 802.11n.
 for 20 MHz bandwidth systems, use channel 1 – 11, and for 40 MHz bandwidth systems, use channel 3 – 9.

Frequency Band	Channel No	Frequency	Channel No.	Frequency
2.4 GHz band	1	2412 MHz	7	2442 MHz
	2	2417 MHz	8	2447 MHz
	3	2422 MHz	9	2452 MHz
	4	2427 MHz	10	2457 MHz
	5	2432 MHz	11	2462 MHz
	6	2437 MHz		

3.9 Used Test Equipment List

No.	Instrument	Model	Serial No.	Manufacturer	Due to Cal. Date	Used
1	Tem & Hum Chamber	EY-101	90E14260	TABAI ESPEC	2013.10.05	☐
2	Spectrum Analyzer	8563E	3846A10662	Agilent Technology	2013.01.27	☒
3	Spectrum Analyzer	FSP	100083	Rohde & Schwarz	2013.03.02	☒
4	Vector signal Analyzer	89441A	3416A02620	Agilent Technology	2013.05.18	☐
5	Radio communication Analyzer	MT8815A	6200429622	ANRITSU	2013.03.02	☐
6	CDMA Mobile Station Test Set	E8285A	US40081298	Agilent Technology	2013.03.02	☐
7	Test Receiver	ESPI3	100109	Rohde & Schwarz	2013.03.02	☒
8	EMI Test receiver	ESCI7	100823	Rohde & Schwarz	2013.02.17	☒
9	Modulation analyzer	8901A	3538A07071	Agilent Technology	2013.05.18	☐
10	Audio analyzer	8903B	3514A16919	Agilent Technology	2013.05.18	☐
11	EPM Series Power meter	E4418B	GB39512547	Agilent Technology	2013.05.18	☐
12	RF Power Sensor	ECP-E18A	US37181768	Agilent Technology	2013.05.18	☐
13	Microwave Frequency Counter	5352B	2908A00480	Agilent Technology	2013.05.18	☐
14	Digital storage Oscilloscope	TDS3052	B015962	Tektronix	2013.10.05	☐
15	Multi meter	DM-313	S60901832	LG Precision Co.,Ltd.	2013.05.18	☐
16	Digital Signal Generator	E4436B	US39260458	H.P	2013.05.18	☐
17	Digital Signal Generator	E4438C	MY42083133	Agilent Technology	2013.10.05	☐
18	Signal Generator	SML03	100692	Agilent Technology	2013.03.13	☐
19	Tracking CW Signal Source	85645A	070521-A1	H.P	2013.05.18	☒
20	Ultra broadband Antenna	HL562	100075	Rohde & Schwarz	2014.04.13	☒
21	Ultra broadband Antenna	HL562	100076	Rohde & Schwarz	2012.12.08	☐
22	Dipole Antenna	HZ-12	100005	Rohde & Schwarz	2014.04.19	☐
23	Dipole Antenna	HZ-13	100007	Rohde & Schwarz	2014.04.19	☐
24	Horn Antenna	SAS-572	269	A.H. SYSTEMS	2013.07.27	☒
25	Horn Antenna	3115	9605-4834	EMCO	2014.05.15	☒
26	Loop Antenna	6502	9203-0493	EMCO	2013.06.03	☒
27	AMPLIFIER	8447D	2944A07881	HP	2013.03.02	☒
28	AMPLIFIER	TK-PA6S	12009	TESTEK	2013.05.18	☐
29	Dummy Load	8173	3780	Bird Electronic	2013.05.18	☐
30	Attenuator	8498A	3318A09485	H.P	2013.05.18	☒
31	Attenuator	50FH-030-500	1404109433	JEW Industries Inc.	2013.05.18	☐
32	Attenuator	UFA-20NPJ-20	IF836	TAMAGAWA Electronic	2013.05.18	☐
33	Band rejection filter	3TNF-0006	26	Dover Tech	2013.05.18	☐
34	Band rejection filter	3TNF-0007	311	Dover Tech	2013.05.18	☐
35	Band rejection filter	3TNF-0008	317	Dover Tech	2013.05.18	☐
36	High pass filter	WHJS1100-10EF	1	Wainwright Instrument Gmbh.	2013.05.18	☐
37	High pass filter	WHJS3000-10EF	1	Wainwright Instrument Gmbh.	2013.05.18	☐
38	Directional coupler	779D	07271	H.P	2013.05.18	☐
39	3 Way power divider	KPDSU3W	00070365	KMW	2013.03.02	☐
40	SLIDAC	None	0207-4	Myoung-Sung Electronic Co., Ltd.	2013.05.18	☐
41	DC Power supply	DRP-5030	9028029	Digital Electronic Co.,Ltd	2013.05.18	☐
42	DC Power supply	UP-3005T	68	Unicon Co.,Ltd	2013.05.18	☐
43	DC Power supply	E3610A	KR24104505	Agilent Technology	2013.05.18	☒
44	Thermo Hygrometer	PC-7800W	None	SATO	2013.10.06	☒
45	HYGRO-Thermograph	NSII-Q	1611545	SATO	2013.10.06	☒
46	Barometer	7612	81134	SATO	2014.01.15	☒

4. SUMMARY TEST RESULTS

Description of Test	FCC Rule	Reference Clause	Used	Test Result
Max. Conducted peak output power	15.247(b)(3)	Clause 5.1	☒	Compliance
Conducted peak power spectral density	15.247(e)	Clause 5.2	☒	Compliance
6 dB spectrum Bandwidth	15.247(a)(2)	Clause 5.3	☒	Compliance
Band edge of RF conducted emissions	15.247(d)	Clause 5.4	☒	Compliance
Spurious RF conducted emissions	15.247(d)	Clause 5.5	☒	Compliance
Spurious RF radiated emissions	15.247(d), 15.209	Clause 5.6	☒	Compliance
AC Conducted emission	15.207	Clause 5.7	☒	Compliance
Antenna requirement	15.203, 15.247	Clause 5.8	☒	Compliance
Compliance/pass : The EUT complies with the essential requirements in the standard. Not Compliance : The EUT does not comply with the essential requirements in the standard. N/A : The test was not applicable in the standard.				

5. MEASUREMENT RESULTS

5.1 Max. Conducted peak output power

5.1.1 Standard Applicable [FCC §15.247(b)(3)]

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power.

5.1.2 Test Environment conditions

- Ambient temperature : 22 °C,
- Relative Humidity : (58 - 60) % R.H.

5.1.3 Measurement Procedure

The transmitter output was connected to the power meter with an attenuator. The maximum peak output power was measured and recorded with the power meter. EUT was programmed to be in continuously transmitting mode.

All conducted power tests were performed using a test receiver in accordance with FCC KDB 558074 Section 5.2.1.2. Measurement Procedure PK2.

The EUT has two RF ports, Power from both ports was measured and combined using the measure-and-sum method stated in FCC KDB 662911 D01.

The Customer declared that the transmit signals from both ports are correlated. The Customer stated that the 2 antennas used have unequal antenna gains: $G_1 = 2.91 \text{ dB i}$ and $G_2 = 3.58 \text{ dB i}$. The directional gain was calculated in accordance with FCC KDB 662911 D01 Directional Gain Calculations:

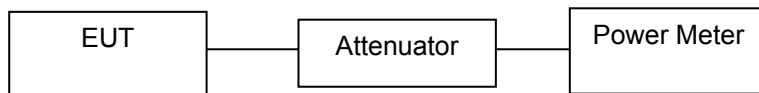
$$10 \log[(10^{G_1/20} + 10^{G_2/20})^2/2]$$

The total array gain was calculated as:

$$10 \log[(10^{2.91/20} + 10^{3.58/20})^2/2] = 6.26 \text{ dB i}$$

In accordance with 15.247(b)(4), 6.26 dB i is 0.26 dB i over the directional gain of 6 dB i therefore the maximum conducted output power limit of 30 dB m is reduced to 29.74 dB m.

5.1.4 Test setup



5.1.5 Measurement Result

802.11n / OFDM / 20 MHz / Ant 1

Channel	Frequency [MHz]	Peak Power [dBm]	Peak Power [mW]	Limit [dBm]	Test Results
1	2412	16.02	40.0	29.74	Compliance
6	2437	17.77	59.8	29.74	Compliance
11	2462	16.70	46.8	29.74	Compliance

802.11n / OFDM / 20 MHz / Ant 2

Channel	Frequency [MHz]	Peak Power [dBm]	Peak Power [mW]	Limit [dBm]	Test Results
1	2412	14.50	28.2	29.74	Compliance
6	2437	14.39	27.5	29.74	Compliance
11	2462	14.74	29.8	29.74	Compliance

802.11n / OFDM / 20 MHz / Ant 1 + Ant 2 (combined using the measure-and-sum method)

Channel	Frequency [MHz]	Peak Power [dBm]	Peak Power [mW]	Limit [dBm]	Test Results
1	2412	18.34	68.2	29.74	Compliance
6	2437	19.41	87.3	29.74	Compliance
11	2462	18.84	76.6	29.74	Compliance

802.11n / OFDM / 40 MHz / Ant 1

Channel	Frequency [MHz]	Peak Power [dBm]	Peak Power [mW]	Limit [dBm]	Test Results
3	2422	16.48	44.5	29.74	Compliance
6	2437	17.02	50.3	29.74	Compliance
9	2452	16.71	46.9	29.74	Compliance

802.11n / OFDM / 40 MHz / Ant 2

Channel	Frequency [MHz]	Peak Power [dBm]	Peak Power [mW]	Limit [dBm]	Test Results
3	2422	14.15	26.0	29.74	Compliance
6	2437	14.22	26.4	29.74	Compliance
9	2452	14.27	26.7	29.74	Compliance

802.11n / OFDM / 40 MHz / Ant 1 + Ant 2 (combined using the measure-and-sum method)

Channel	Frequency [MHz]	Peak Power [dBm]	Peak Power [mW]	Limit [dBm]	Test Results
3	2422	18.48	70.5	29.74	Compliance
6	2437	18.85	76.7	29.74	Compliance
9	2452	18.67	73.6	29.74	Compliance

802.11b / DSSS / Ant 1

Channel	Frequency [MHz]	Peak Power [dBm]	Peak Power [mW]	Limit [dBm]	Test Results
1	2412	19.11	81.5	29.74	Compliance
6	2437	20.61	115.0	29.74	Compliance
11	2462	19.44	87.9	29.74	Compliance

802.11b / DSSS / Ant 2

Channel	Frequency [MHz]	Peak Power [dBm]	Peak Power [mW]	Limit [dBm]	Test Results
1	2412	18.35	68.4	29.74	Compliance
6	2437	18.28	67.3	29.74	Compliance
11	2462	18.60	72.4	29.74	Compliance

802.11g / OFDM / Ant 1

Channel	Frequency [MHz]	Peak Power [dBm]	Peak Power [mW]	Limit [dBm]	Test Results
1	2412	16.03	40.1	29.74	Compliance
6	2437	17.75	59.6	29.74	Compliance
11	2462	16.66	46.3	29.74	Compliance

802.11g / OFDM / Ant 2

Channel	Frequency [MHz]	Peak Power [dBm]	Peak Power [mW]	Limit [dBm]	Test Results
1	2412	14.52	28.3	29.74	Compliance
6	2437	14.36	27.3	29.74	Compliance
11	2462	14.74	29.8	29.74	Compliance

5.2 Conducted peak power spectral density

5.2.1 Standard Applicable [FCC §15.247(e)]

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmit

5.2.2 Test Environment conditions

- Ambient temperature : 22 °C,
- Relative Humidity : (58 ~ 60) % R.H.

5.2.3 Measurement Procedure

The power spectral density conducted from the intentional radiator was measured with a spectrum analyzer connected to the antenna terminal, while EUT had the highest, middle and the lowest available channels. After the trace being stable, Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak power spectral density. And then adjusting (reducing) the measured power by bandwidth correction factor (BWCF) = $10\log(3 \text{ kHz}/100 \text{ kHz}) = -15.2 \text{ dB}$

All conducted power tests were performed using a test receiver in accordance with FCC KDB 558074 Section 5.3.1.

The EUT has two RF ports, Power from both ports was measured and combined using the measure-and-sum method stated in FCC KDB 662911 D01.

The Customer declared that the transmit signals from both ports are correlated. The Customer stated that the 2 antennas used have unequal antenna gains: $G_1 = 2.91 \text{ dBi}$ and $G_2 = 3.58 \text{ dBi}$. The directional gain was calculated in accordance with FCC KDB 662911 D01 Directional Gain Calculations:

$$10 \log[(10^{G_1/20} + 10^{G_2/20})^2/2]$$

The total array gain was calculated as:

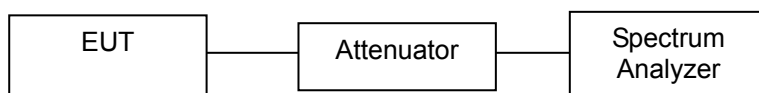
$$10 \log[(10^{2.91/20} + 10^{3.58/20})^2/2] = 6.26 \text{ dBi}$$

In accordance with 15.247(b)(4), 6.26 dBi is 0.26 dBi over the directional gain of 6 dBi therefore the maximum conducted output power limit of 8 dBm is reduced to 7.74 dBm.

The spectrum analyzer is set to the as follows :

- Span : 5-30 % greater than the EBW
- RBW : 100 kHz
- VBW : $\geq 300 \text{ kHz}$
- Sweep : auto
- Detector function : peak
- Trace : max hold

5.2.4 Test setup



5.2.5 Measurement Result

802.11n / OFDM / 20 MHz / Ant 1

Channel	Frequency [MHz]	Reading Value [dBm]	BWCF [dB]	Result Value [dBm]	Limit [dBm]	Test Results
1	2412	5.17	-15.2	-10.03	7.74	Compliance
6	2437	5.67	-15.2	-9.53	7.74	Compliance
11	2462	5.50	-15.2	-9.70	7.74	Compliance

802.11n / OFDM / 20 MHz / Ant 2

Channel	Frequency [MHz]	Reading Value [dBm]	BWCF [dB]	Result Value [dBm]	Limit [dBm]	Test Results
1	2412	2.17	-15.2	-13.03	7.74	Compliance
6	2437	2.33	-15.2	-12.87	7.74	Compliance
11	2462	2.50	-15.2	-12.70	7.74	Compliance

802.11n / OFDM / 20 MHz / Ant 1 + Ant 2 (combined using the measure-and-sum method)

Channel	Frequency [MHz]	Reading Value [dBm]		Result Value [dBm]	Limit [dBm]	Test Results
		Ant 1-BWCF	Ant 2-BWCF			
1	2412	-10.03	-13.03	-8.27	7.74	Compliance
6	2437	-9.53	-12.87	-7.88	7.74	Compliance
11	2462	-9.70	-12.70	-7.94	7.74	Compliance

802.11n / OFDM / 40 MHz / Ant 1

Channel	Frequency [MHz]	Reading Value [dBm]	BWCF [dB]	Result Value [dBm]	Limit [dBm]	Test Results
3	2422	2.33	-15.2	-12.87	7.74	Compliance
6	2437	2.83	-15.2	-12.37	7.74	Compliance
9	2452	2.83	-15.2	-12.37	7.74	Compliance

802.11n / OFDM / 40 MHz / Ant 2

Channel	Frequency [MHz]	Reading Value [dBm]	BWCF [dB]	Result Value [dBm]	Limit [dBm]	Test Results
3	2422	-0.67	-15.2	-15.87	7.74	Compliance
6	2437	-0.50	-15.2	-15.70	7.74	Compliance
9	2452	-0.50	-15.2	-15.70	7.74	Compliance

802.11n / OFDM / 40 MHz / Ant 1 + Ant 2 (combined using the measure-and-sum method)

Channel	Frequency [MHz]	Reading Value [dBm]		Result Value [dBm]	Limit [dBm]	Test Results
		Ant 1-BWCF	Ant 2-BWCF			
3	2422	-12.87	-15.87	-11.11	7.74	Compliance
6	2437	-12.37	-15.70	-10.71	7.74	Compliance
9	2452	-12.37	-15.70	-10.71	7.74	Compliance

802.11b / DSSS / Ant 1

Channel	Frequency [MHz]	Reading Value [dBm]	BWCF [dB]	Result Value [dBm]	Limit [dBm]	Test Results
1	2412	11.50	-15.2	-3.70	7.74	Compliance
6	2437	11.83	-15.2	-3.37	7.74	Compliance
11	2462	11.83	-15.2	-3.37	7.74	Compliance

802.11b / DSSS / Ant 2

Channel	Frequency [MHz]	Reading Value [dBm]	BWCF [dB]	Result Value [dBm]	Limit [dBm]	Test Results
1	2412	9.50	-15.2	-5.70	7.74	Compliance
6	2437	10.00	-15.2	-5.20	7.74	Compliance
11	2462	10.33	-15.2	-4.87	7.74	Compliance

802.11g / OFDM / Ant 1

Channel	Frequency [MHz]	Value [dBm]	BWCF [dB]	Result Value [dBm]	Limit [dBm]	Test Results
1	2412	5.83	-15.2	-9.37	7.74	Compliance
6	2437	6.00	-15.2	-9.20	7.74	Compliance
11	2462	6.50	-15.2	-8.70	7.74	Compliance

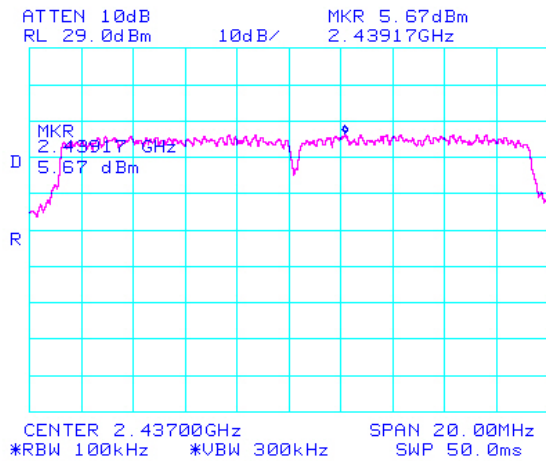
802.11g / OFDM / Ant 2

Channel	Frequency [MHz]	Value [dBm]	BWCF [dB]	Result Value [dBm]	Limit [dBm]	Test Results
1	2412	3.00	-15.2	-12.20	7.74	Compliance
6	2437	3.33	-15.2	-11.87	7.74	Compliance
11	2462	3.17	-15.2	-12.03	7.74	Compliance

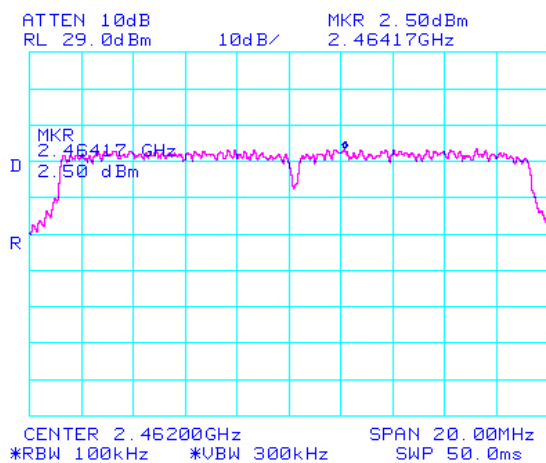
Note : All the test values were listed in the report. For plots, only the worst case of each mode were listed in the report.

5.2.6 Test Plot

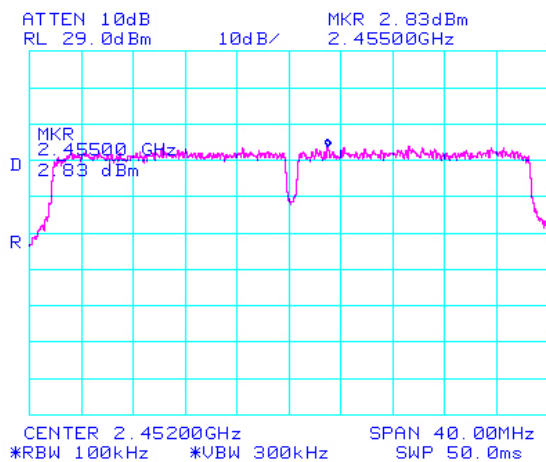
802.11n / OFDM / 20 MHz / Ant 1



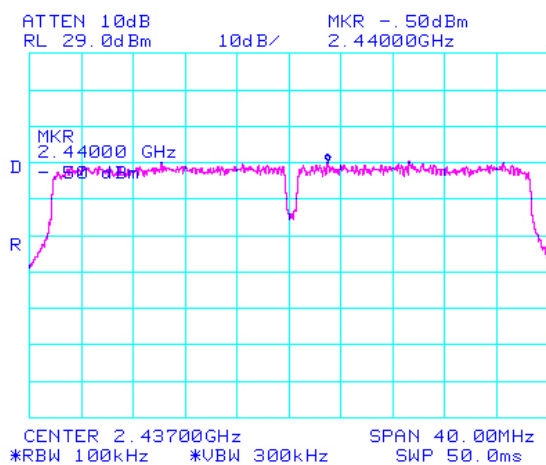
802.11n / OFDM / 20 MHz / Ant 2



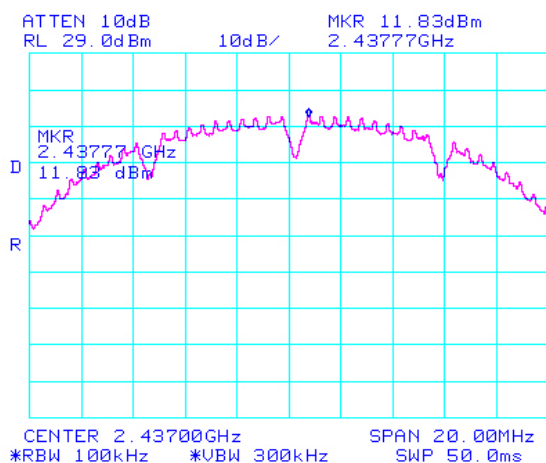
802.11n / OFDM / 40 MHz / Ant 1



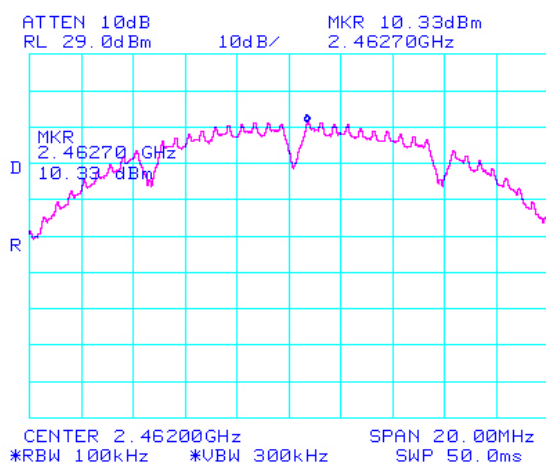
802.11n / OFDM / 40 MHz / Ant 2



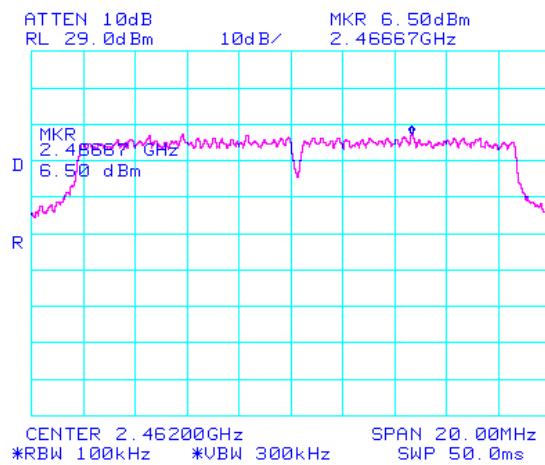
802.11b / DSSS / Ant 1



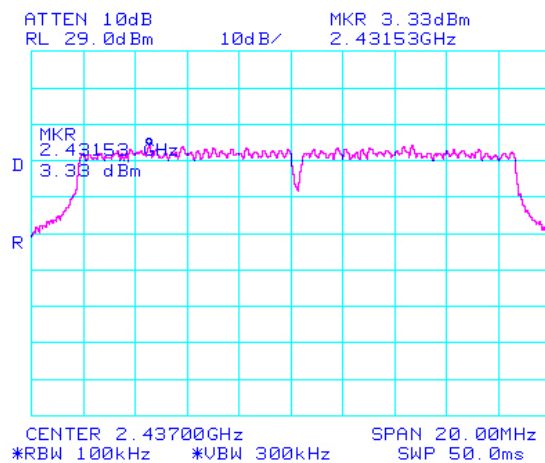
802.11b / DSSS / Ant 2



802.11g / OFDM / Ant 1



802.11g / OFDM / Ant 2



5.3 6 dB spectrum Bandwidth

5.3.1 Standard Applicable [FCC §15.247(a)(2)]

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

5.3.2 Test Environment conditions

- Ambient temperature : 22 °C,
- Relative Humidity : (58 ~ 60) % R.H.

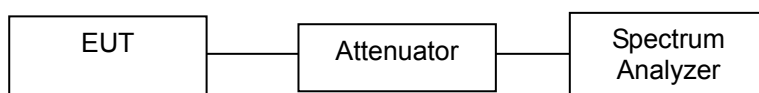
5.3.3 Measurement Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The resolution bandwidth of 100 kHz and the video bandwidth of 100 kHz were used.
3. Measured the spectrum width with power higher than 6 dB below carrier.
4. Measuring multiple antennas, the connector is required to link with spectrum analyzer through a combiner.

The spectrum analyzer is set to the as follows :

- Span : > 6 dB Bandwidth
- RBW : 100 kHz
- VBW : 300 kHz (≥ RBW)
- Sweep : auto
- Detector function : peak
- Trace : max hold

5.3.4 Test setup



5.3.5 Measurement Result

802.11n / OFDM / 20 MHz / Ant 1

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Test Results
1	2412	18.10	>0.5	Compliance
6	2437	18.10	>0.5	Compliance
11	2462	18.07	>0.5	Compliance

802.11n / OFDM / 20 MHz / Ant 2

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Test Results
1	2412	18.10	>0.5	Compliance
6	2437	18.13	>0.5	Compliance
11	2462	18.10	>0.5	Compliance

802.11n / OFDM / 40 MHz / Ant 1

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Test Results
3	2422	36.80	>0.5	Compliance
6	2437	36.73	>0.5	Compliance
9	2452	36.73	>0.5	Compliance

802.11n / OFDM / 40 MHz / Ant 2

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Test Results
3	2422	36.80	>0.5	Compliance
6	2437	36.73	>0.5	Compliance
9	2452	36.73	>0.5	Compliance

802.11b / DSSS / Ant 1

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Test Results
1	2412	10.33	>0.5	Compliance
6	2437	10.30	>0.5	Compliance
11	2462	10.27	>0.5	Compliance

802.11b / DSSS / Ant 2

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Test Results
1	2412	10.23	>0.5	Compliance
6	2437	10.30	>0.5	Compliance
11	2462	10.30	>0.5	Compliance

802.11g / OFDM / Ant 1

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Test Results
1	2412	16.83	>0.5	Compliance
6	2437	16.90	>0.5	Compliance
11	2462	16.83	>0.5	Compliance

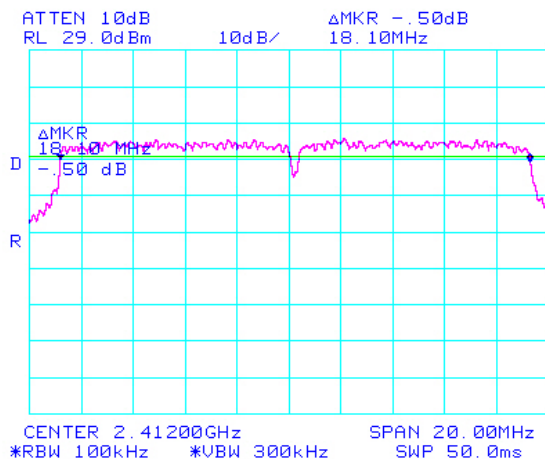
802.11g / OFDM / Ant 2

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]	Test Results
1	2412	16.83	>0.5	Compliance
6	2437	16.83	>0.5	Compliance
11	2462	16.83	>0.5	Compliance

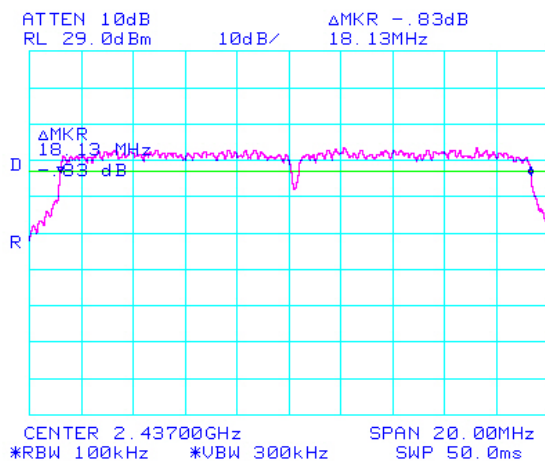
Note : All the test values were listed in the report. For plots, only the worst case of each mode were listed in the report.

5.3.6 Test Plot

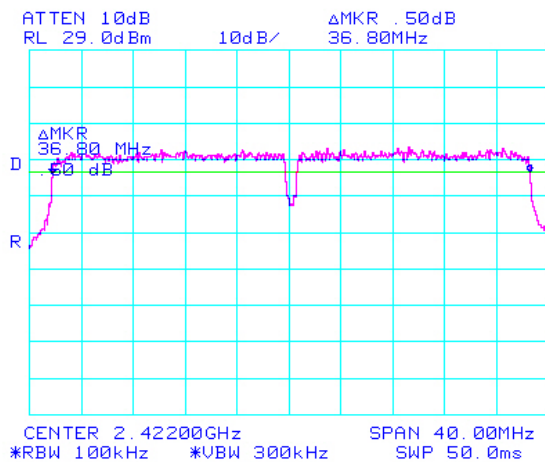
802.11n / OFDM / 20 MHz / Ant 1



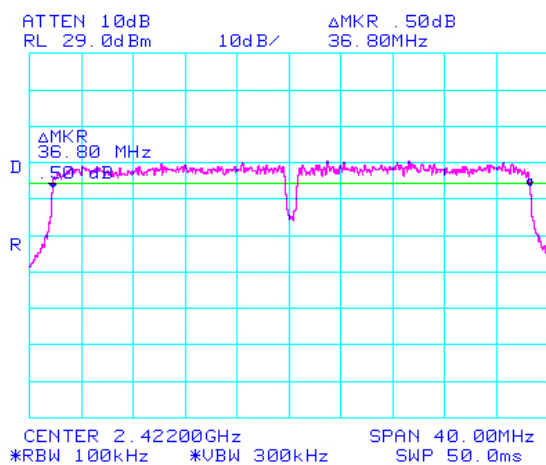
802.11n / OFDM / 20 MHz / Ant 2



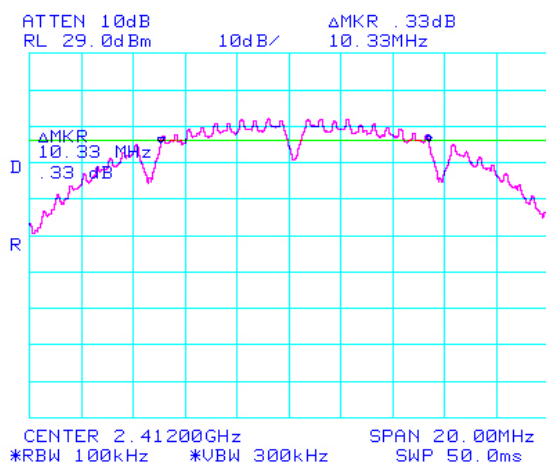
802.11n / OFDM / 40 MHz / Ant 1



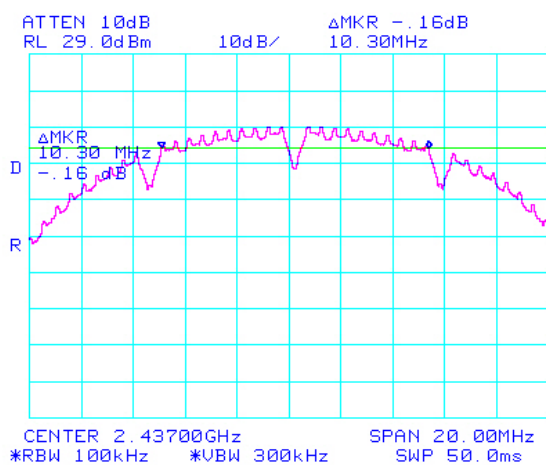
802.11n / OFDM / 40 MHz / Ant 2



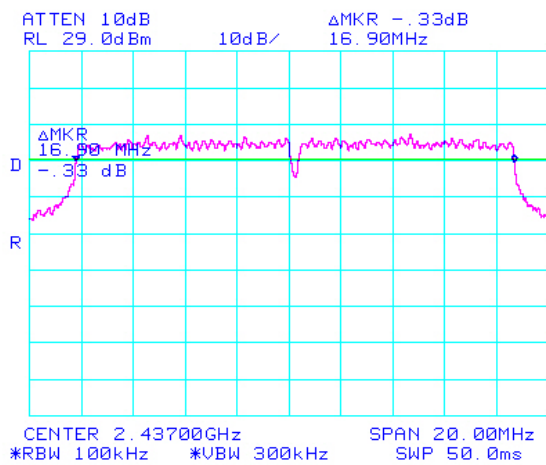
802.11b / DSSS / Ant 1



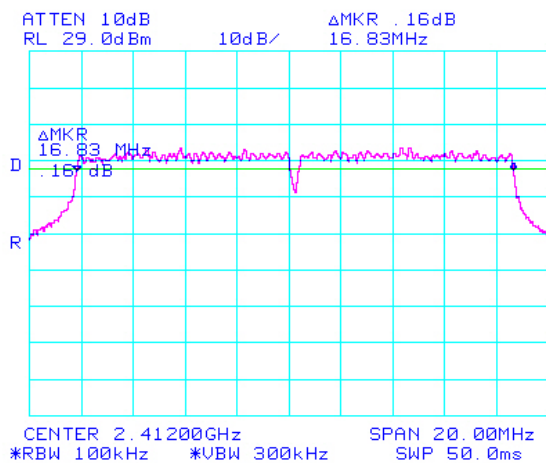
802.11b / DSSS / Ant 2



802.11g / OFDM / Ant 1



802.11g / OFDM / Ant 2



5.4 Band-edge Compliance of RF Conducted emissions

5.4.1 Standard Applicable [FCC §15.247(d)]

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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 RF conducted.

5.4.2 Test Environment conditions

- Ambient temperature : 22 °C,
- Relative Humidity : (58 ~ 60) % R.H.

5.4.3 Measurement Procedure

- ① Pre-calibration for the spectrum analyzer has to be done first through a reference CW signal from CAL OUT(-10 dBm)
- ② Reference frequency generated from the signal generator is supply to spectrum analyzer input port via RF cable and attenuator, and then, it's apply to offset value on spectrum analyzer as follows ;
on spectrum analyzer [Amplitude→1 More of 3→REF LVL OFFSET(measured loss dB)]
- ③ Remove the antenna from the EUT and then, connected to spectrum analyzer via a dc Block, suitable low loss RF cable and attenuator.
- ④ Place the EUT on the table and set on the emission at the band-edge,
- ⑤ After the trace being stable, Use the marker-to-peak function to move the marker to the peak of the in-band emission.
- ⑥ The marker-delta value now displayed must comply with the limit specified in above standard.
- ⑦ please refer to the detailed procedure method KDB 558074.

The spectrum analyzer is set to the as follows :

- Span : Wide enough to capture the peak level of the emission operating on the channel closet to the Band-edge, as well as any modulation products which fall outside of the authorized band of operation
- RBW : 100 kHz (≥ 1 % of the span)
- VBW : $\geq$ RBW
- Sweep : auto
- Detector function : peak
- Trace : Max hold

5.4.4 Test setup

Please refer 5.3.4

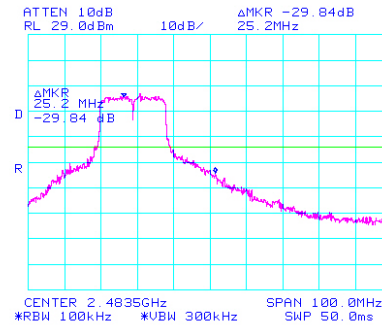
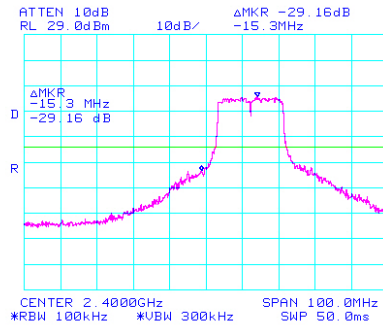
5.4.5 Measurement Result

Setting Channel		Mode	Test Results		
			Measured value [dB]	Limit [dB]	Result
CH 1	~ 2 400 MHz	802.11n / OFDM / 20 MHz / Ant 1	29.16	≤ 20	Compliance
CH 11	2 483.5 MHz ~		29.84		Compliance

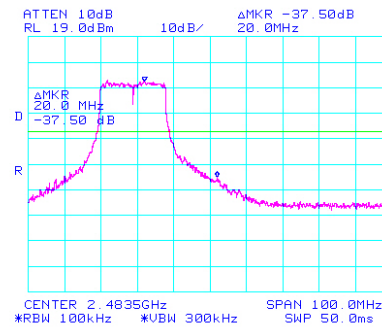
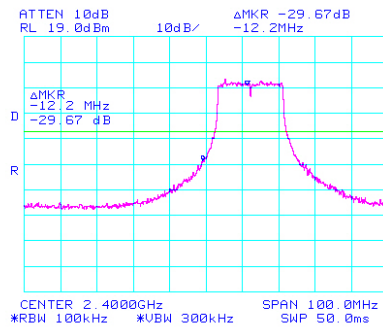
Setting Channel		Mode	Test Results		
			Measured value [dB]	Limit [dB]	Result
CH 1	~ 2 400 MHz	802.11n / OFDM / 20 MHz / Ant 2	29.67	≤ 20	Compliance
CH 11	2 483.5 MHz ~		37.50		Compliance
CH 1	~ 2 400 MHz	802.11n / OFDM / 20 MHz / Ant1+Ant 2	28.50		Compliance
CH 11	2 483.5 MHz ~		34.83		Compliance
CH 3	~ 2 400 MHz	802.11n / OFDM / 40 MHz / Ant 1	23.83		Compliance
CH 9	2 483.5 MHz ~		24.50		Compliance
CH 3	~ 2 400 MHz	802.11n / OFDM / 40 MHz / Ant 2	29.00		Compliance
CH 9	2 483.5 MHz ~		32.50		Compliance
CH 3	~ 2 400 MHz	802.11n / OFDM / 40 MHz / Ant1+Ant 2	26.83		Compliance
CH 9	2 483.5 MHz ~		29.50		Compliance
CH 1	~ 2 400 MHz	802.11b / DSSS / Ant 1	34.33		Compliance
CH 11	2 483.5 MHz ~		46.50		Compliance
CH 1	~ 2 400 MHz	802.11b / DSSS / Ant 2	37.50		Compliance
CH 11	2 483.5 MHz ~		48.50		Compliance
CH 1	~ 2 400 MHz	802.11g / OFDM / Ant 1	27.67		Compliance
CH 11	2 483.5 MHz ~		32.17		Compliance
CH 1	~ 2 400 MHz	802.11g / OFDM / Ant 2	31.33		Compliance
CH 11	2 483.5 MHz ~		37.00		Compliance

5.4.6 Test Plot

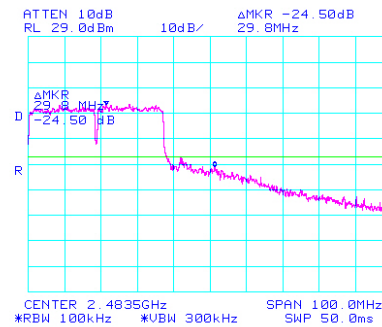
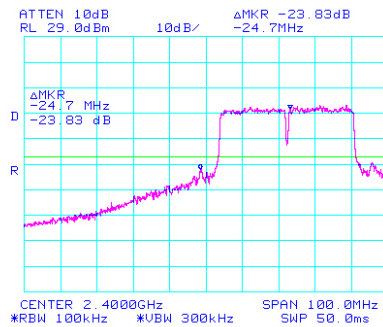
802.11n / OFDM / 20 MHz / Ant 1



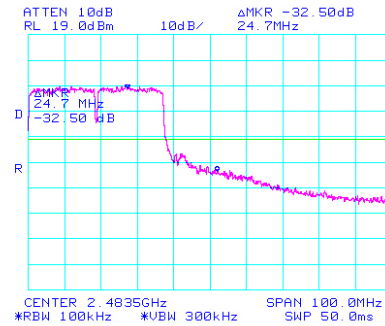
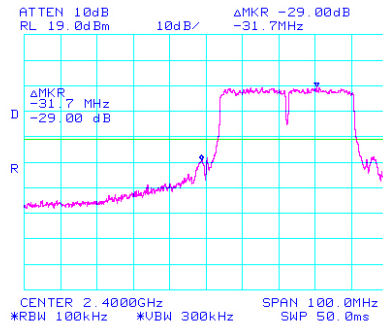
802.11n / OFDM / 20 MHz / Ant 2



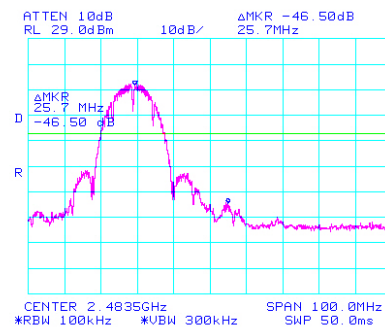
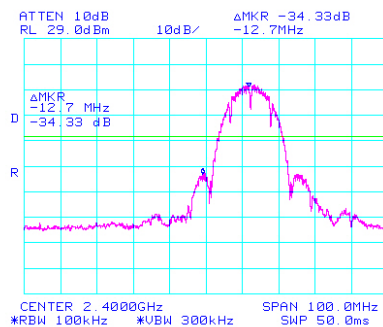
802.11n / OFDM / 40 MHz / Ant 1



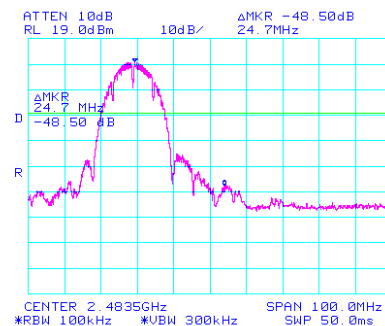
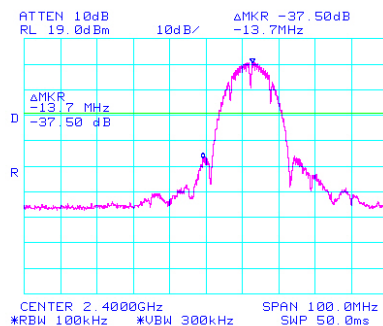
802.11n / OFDM / 40 MHz / Ant 2



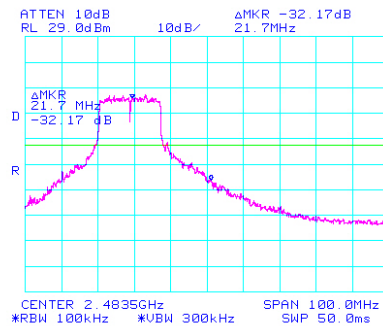
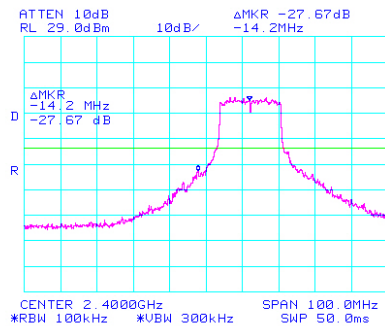
802.11b / DSSS / Ant 1



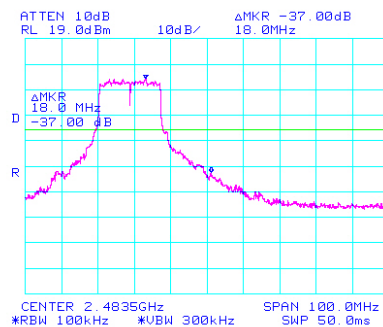
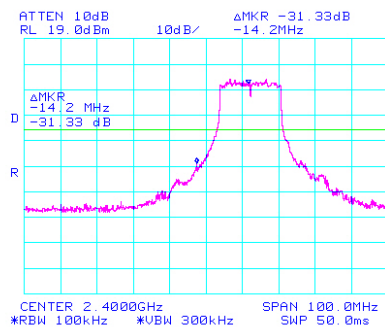
802.11b / DSSS / Ant 2



802.11g / OFDM / Ant 1



802.11g / OFDM / Ant 2



5.5 Spurious RF Conducted emissions

5.5.1 Standard Applicable [FCC §15.247(d)]

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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.

5.5.2 Test Environment conditions

- Ambient temperature : 21 °C,
- Relative Humidity : (55 - 57) % R.H.

5.5.3 Measurement Procedure

- ① Pre-calibration for the spectrum analyzer has to be done first through a reference CW signal from CAL OUT(-10 dBm)
- ② Reference frequency generated from the signal generator is supply to spectrum analyzer input port via RF cable and attenuator, and then, it's apply to offset value on spectrum analyzer as follows ; on spectrum analyzer [Amplitude→1 More of 3→REF LVL OFFSET(measured loss dB)]
- ③ Remove the antenna from the EUT and then, connected to spectrum analyzer via a dc Block, suitable low loss RF cable and attenuator.
- ④ Place the EUT on the table and set on the emission at the out band
- ⑤ After the trace being stable, Use the marker-to-peak function to move the marker to the peak of the in-band emission.
- ⑥ The marker-delta value now displayed spurious emission must comply with the limit specified in above standard.
- ⑦ The EUT has two RF ports. Both ports were measured and combined using the measure-and-sum method stated in FCC KDB 662911 D01.
- ⑧ please refer to the detailed procedure method KDB 558074.

The spectrum analyzer is set to the as follows :

- Span : wide enough to capture the peak level of the in-band emission and all spurious emissions from the Lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
- RBW : 100 kHz
- VBW : ≥ RBW
- Sweep : Auto
- Detector function : Peak
- Trace : Max hold

5.5.4 Test Setup

Please refer 5.3.4

5.5.4 Measurement Result

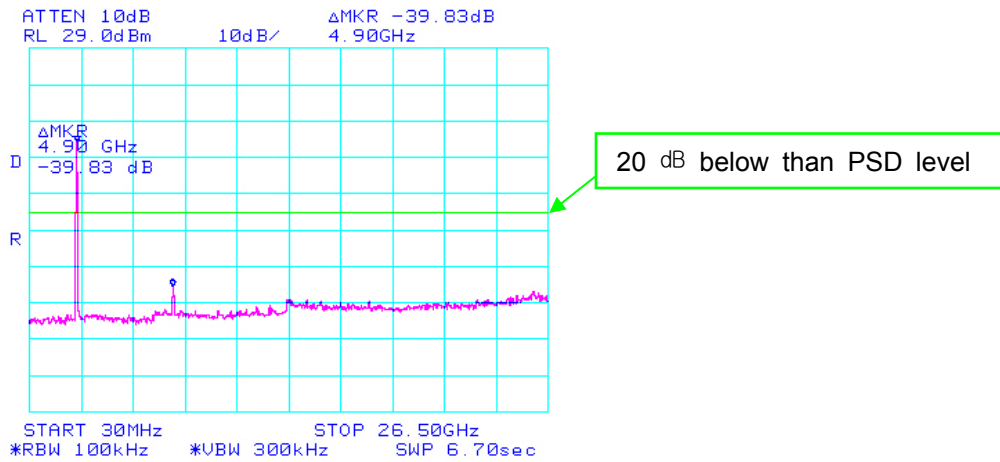
No non-compliance noted.

Please refer as following plots,

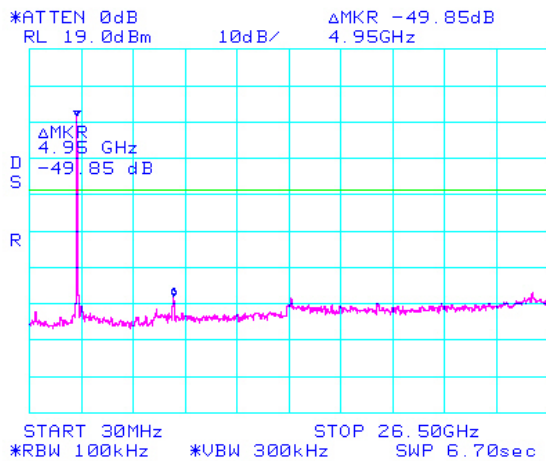
Note ∴ For plots, only the worst case of each mode were listed in the report.

5.5.5 Test Plot

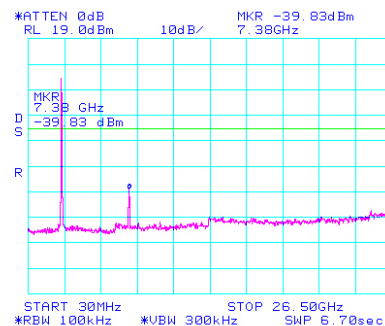
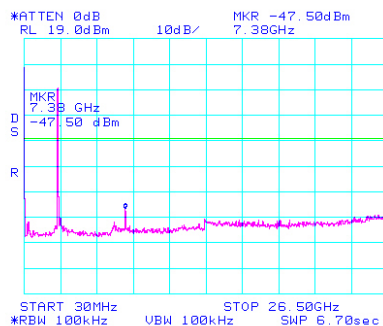
802.11n / OFDM / 20 MHz / Ant 1



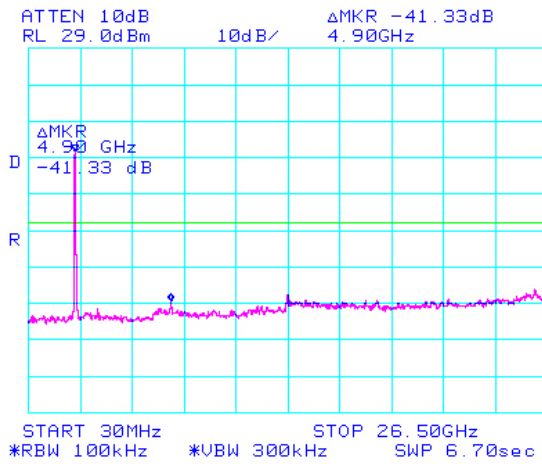
802.11n / OFDM / 20 MHz / Ant 2



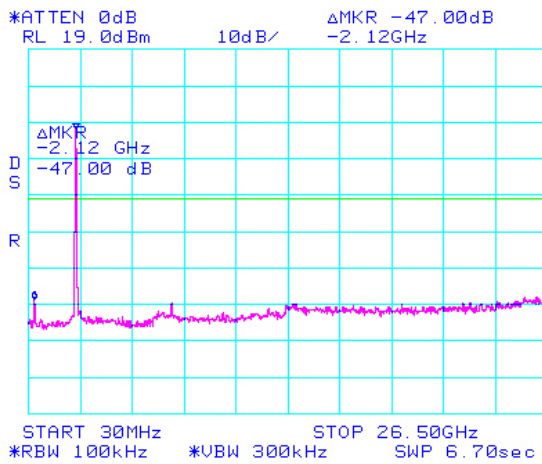
802.11n / OFDM / 20 MHz / Ant 1 + Ant 2



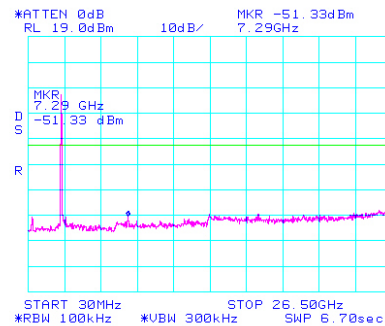
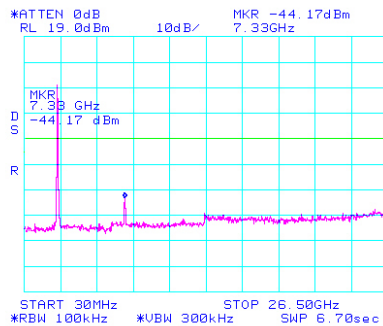
802.11n / OFDM / 40 MHz / Ant 1



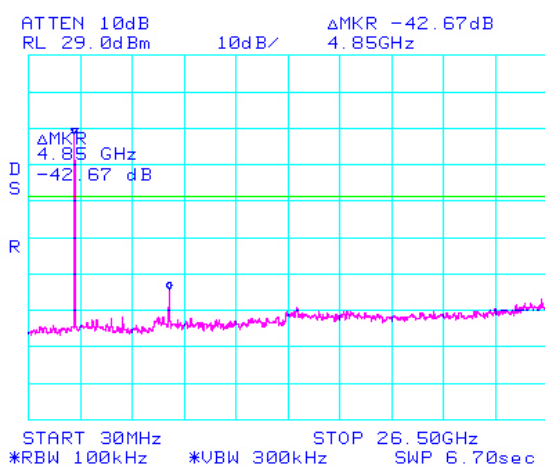
802.11n / OFDM / 40 MHz / Ant 2



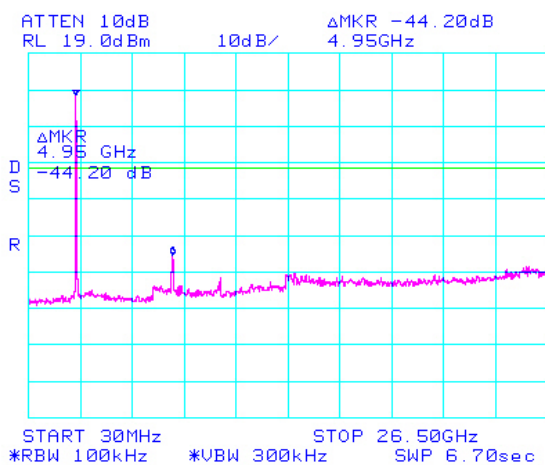
802.11n / OFDM / 40 MHz / Ant 1 + Ant 2



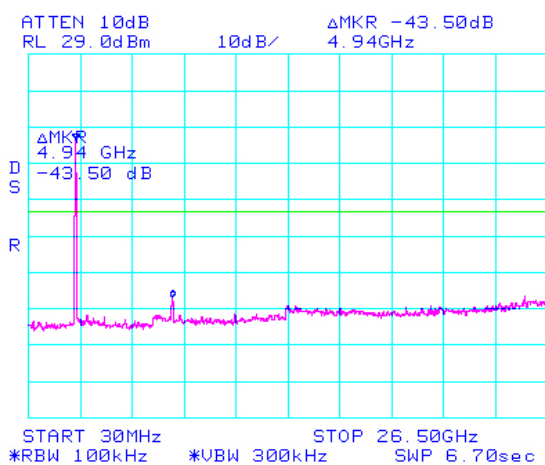
802.11b / DSSS / Ant 1



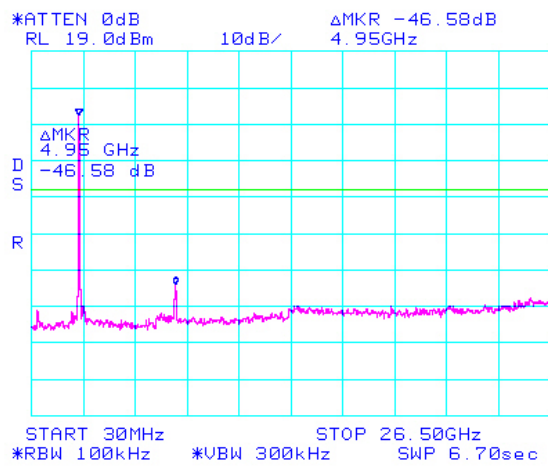
802.11b / DSSS / Ant 2



802.11g / OFDM / Ant 1



802.11g / OFDM / Ant 2



5.6 Spurious RF Radiated emissions

5.6.1 Standard Applicable [FCC §15.247(d)]

All other emissions outside these bands shall not exceed the general radiated emission limits specified in §15.209(a). And according to §15.33(a)(1), for an intentional radiator operates below 10 GHz, the frequency Range of measurements : to the tenth harmonic of the highest fundamental frequency or to 40 GHz, Whichever is lower. In addition, radiated emissions which fall in the restricted bands, as defined in Sec.15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a)

§15.209. [Table 1] limits for radiated emissions measurements (distance at 3 m)

Frequency Band [MHz]	Limit [$\mu\text{V}/\text{m}$]	Limit [$\text{dB}\mu\text{V}/\text{m}$]	Detector
30 - 88	100 **	40.00	Quasi peak
88 - 216	150 **	43.52	Quasi peak
216 - 960	200 **	46.02	Quasi peak
Above 960	500	54.00	Average

** fundamental emissions from intentional radiators operation under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz, or 470-806 MHz. However, operation within these Frequency bands is permitted under other sections of this Part Section 15.231 and 15.241

§15.205. [Table 2] Restrict Band of Operation

Only spurious emissions are permitted in any of the frequency bands listed below ;			
[MHz]	[MHz]	[MHz]	[GHz]
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505**	16.694 75 - 16.695 25	608 - 614	5.35 - 5.46
2.173 5 - 2.190 5	16.804 25 - 16.804 75	960 - 1 240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1 300 - 1 427	8.025 - 8.
4.177 25 - 4.177 75	37.5 - 38.25	1 435 - 1 626.5	9.0 - 9.2
4.207 25 - 4.207 75	73 - 74.6	1 645.5 - 1 646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1 660 - 1 710	10.6 - 12.7
6.267 75 - 6.268 25	108 - 121.94	1 718.8 - 1 722.2	13.25 - 13.
6.311 75 - 6.312 25	123 - 138	2 200 - 2 300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2 310 - 2 390	15.35 - 16.2
8.362 - 8.366	156.524 75 - 156.525 25	2 483.5 - 2 500	17.7 - 21.4
8.376 25 - 8.38 6 75	156.7 - 156.9	2 690 - 2 900	22.01 - 23.12
8.414 25 - 8.414 75	162.012 5 - 167.17	3 260 - 3 267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3 332 - 3 339	31.2 - 31.8
12.519 75 - 12.520 25	240 - 285	3 345.8 - 3 358	36.43 - 36.5
12.576 75 - 12.577 25	322 - 335.4	3 600 - 4 400	Above 38.6

** Until February 1, 1999, this restricted band shall be 0.490-0.510

5.6.2 Test Environment conditions

- Ambient temperature : 21 °C ,
- Relative Humidity : (55 - 57) % R.H.

5.6.3 Measurement Procedure

The measurements procedure of the transmitter radiated E-field is as following describe method.

The test is performed in a Shield chamber to determine the accurate frequencies, after maximum emissions level will be checked on a test chamber and measuring distance is 3 m from EUT to test antenna.

(The chamber is ensured that comply with at least 6 dB above the ambient noise level)

- ① The EUT was powered ON with continuously operating mode and placed on a 0.8 meter high non-conductive table on the reference ground plane.
 - ② The test antenna was used on Horn antenna for above 1 GHz, and if the below 1 GHz, broad-band antenna and Loop antenna were used for below 30 MHz and it's antenna positioned in both the horizontal and vertical plane was location at EUT during the test for maximized the emission measurement.
 - ③ The output of the test antenna will be connected to a measuring receiver, and it is set to tuned over the frequency range according to required standard
 - ④ The measuring detector type of the measurement receiver is based on average value of measurement instrumentation employing a CISPR Quasi Peak detector according to required standard and for above 1 GHz, set the spectrum analyzer on a average and peak detector for the provisions in §15.35 and investigated frequency range is set the spectrum analyzer according to §15.33.
 - ⑤ The fundamental frequency at which a relevant radiated signal component is detected, the test antenna will be raised and lowered through the specified range of heights in horizontal and vertical polarized orientation, until an maximum signal level is detected on the measuring receiver.
 - ⑥ The transmitter is position x,y,z axis on rotating through 360 degrees, until the maximum signal level is detected by the measuring receiver.
 - ⑦ The receiver is scanned from requested measuring frequency band and then the maximum meter reading is recorded. The radiated emissions were measured with required standard.
- The measurement results are obtained as described below:

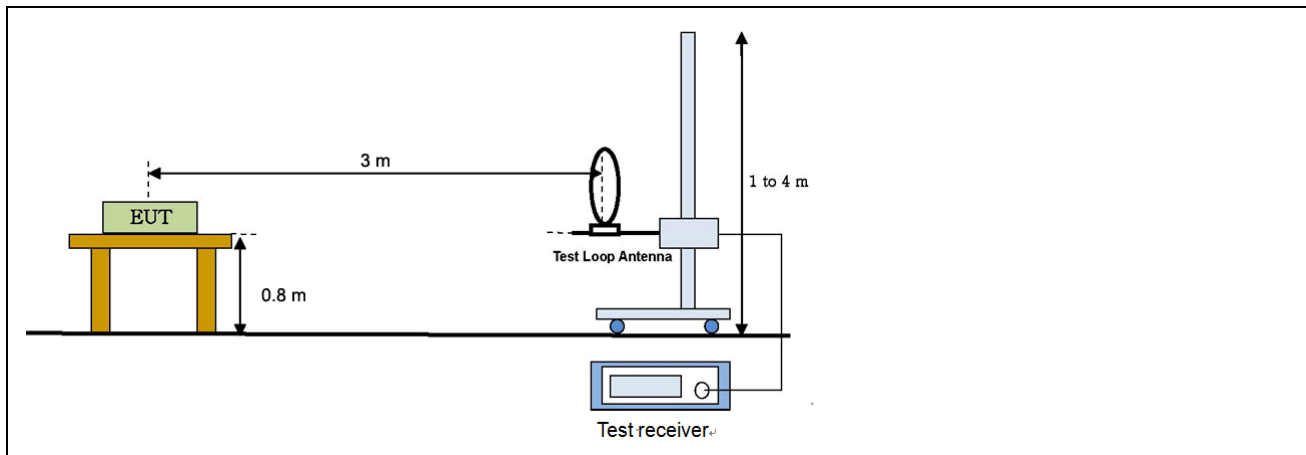
$$\text{Result(dB } \mu\text{V/m)} = \text{Reading(dB } \mu\text{V)} + \text{Antenna factor(dB/m)} + \text{CL(dB)} + \text{other applicable factor (dB)}$$
 - According to §15.33 (a)(1), Frequency range of radiated measurement is performed the tenth harmonic.
 - ※ if necessary, additionally receiver is adopted high-pass filter and preamp because lower radiated signal
 - ※ The transmitter radiated spectrum was investigated from 9 kHz to 26.5 GHz

5.6.4 Measurement Uncertainty

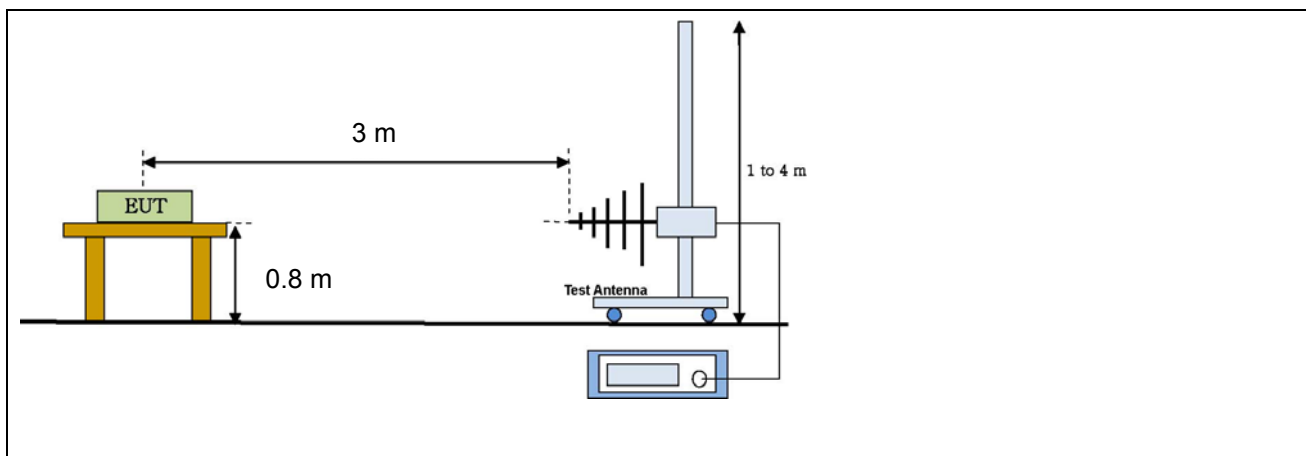
All measurements involve certain levels of uncertainties. The factors contributing to uncertainties are test receiver, Cable loss, Antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, Antenna frequency interpolation, measurement distance variation, Site imperfection, mismatch, and system repeatability based on NIS 80.81, The measurement uncertainty level with a 95 % confidence level were apply to Uncertainty of a radiation emissions measurement at Chamber of KOSTEC is ± 6.0 dB

5.6.5 Test Configuration

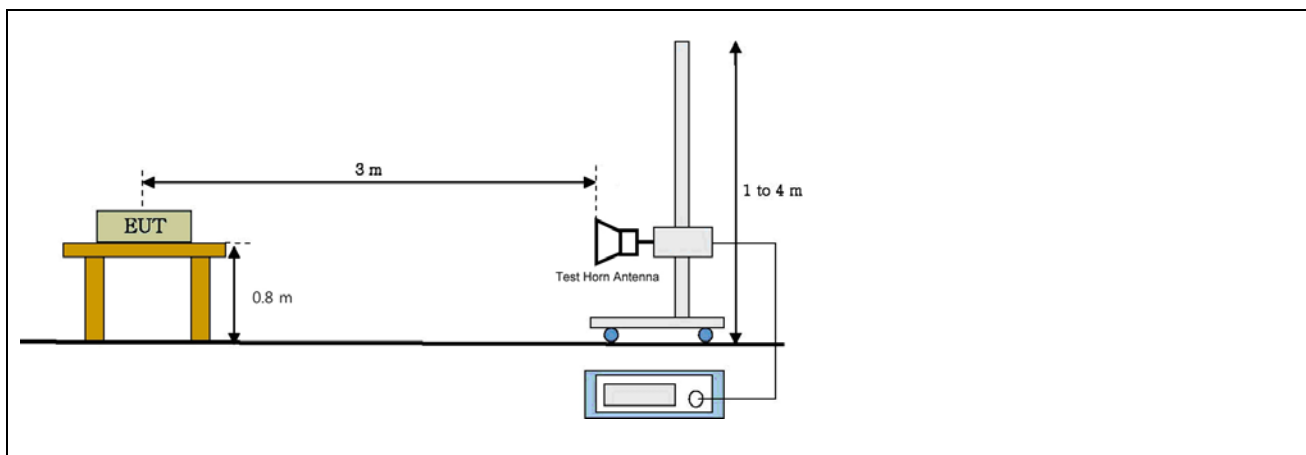
Radiated emission setup, Below 30 MHz



Radiated emission setup, Below 1 000 MHz



Radiated emission setup, Above 1 GHz



5.6.6 Measurement Result

■ TA-6950C(Basic)

■ 802.11n / OFDM / 20 MHz / CH 1

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
156.10	22.08	110	1.5	V	7.80	2.71	-	32.60	43.52	13.40	Compliance
249.22	23.47	130	1.6	H	10.09	3.53	-	37.10	46.00	8.90	Compliance
640.26	15.88	120	1.5	H	18.39	6.13	-	40.40	46.00	5.60	Compliance

Below 30MHz, Above 640.26 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	9.97	-2.33	120	1.5	H	24.86	4.77	39.60	27.30	74	54	34.40	26.70	Compliance
1.880	12.93	-1.14	120	1.5	H	26.58	6.06	45.57	31.50	74	54	28.43	22.50	Compliance
4.830	13.50	2.45	120	2.0	H	33.10	10.39	56.99	45.94	74	54	17.01	8.06	Compliance

Above 4.830 GHz Nil emission

■ 802.11n / OFDM / 20 MHz / CH 6

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
487.84	18.25	120	1.5	H	15.87	5.23	-	39.35	46.00	6.65	Compliance
640.26	15.73	120	1.5	H	18.39	6.13	-	40.25	46.00	5.75	Compliance
687.66	14.20	120	2.0	H	19.04	6.34	-	39.58	46.00	6.42	Compliance

Below 30MHz, Above 687.66 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.105	11.75	-1.79	130	1.5	H	24.87	4.78	41.40	27.86	74	54	32.60	26.14	Compliance
1.795	9.02	-2.12	130	1.5	H	26.29	5.93	41.24	30.10	74	54	32.76	23.90	Compliance
4.875	13.10	2.94	130	1.5	H	33.20	10.63	56.93	46.77	74	54	17.07	7.23	Compliance

Above 4.875 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,

Table (Deg) : Directional degree of Turn table,

Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor

Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)

Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m) + CL(dB) - Pre AMP(dB)

Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) - Meas Result(dB μ V/m)

■ 802.11n / OFDM / 20 MHz / CH 11

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
249.20	22.00	130	1.6	H	10.09	3.53	-	35.62	46.00	10.38	Compliance
640.25	14.20	120	1.5	H	18.39	6.13	-	38.72	46.00	7.28	Compliance

Below 30MHz, Above 640.25 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	9.92	-2.26	160	1.5	H	24.86	4.77	39.55	27.37	74	54	34.45	26.63	Compliance
1.805	8.94	-2.82	150	1.6	H	26.32	5.95	41.21	29.45	74	54	32.79	24.55	Compliance
4.925	13.34	2.81	160	1.6	H	33.31	10.85	57.50	46.97	74	54	16.50	7.03	Compliance

Above 4.925 GHz Nil emission

■ 802.11n / OFDM / 40 MHz / CH 3

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
642.30	15.73	120	1.5	H	18.39	6.13	-	38.72	46.00	7.28	Compliance
688.12	14.20	120	2.0	H	19.04	6.34	-	38.21	46.00	7.79	Compliance

Below 30MHz, Above 688.12 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	9.82	-1.95	130	1.5	H	24.86	4.77	39.45	27.68	74	54	34.55	26.32	Compliance
1.800	8.92	-3.06	130	1.5	H	26.31	5.94	41.17	29.19	74	54	32.83	24.81	Compliance
4.850	10.80	0.06	130	1.5	H	33.14	10.50	54.44	43.70	74	54	19.56	10.30	Compliance

Above 4.850 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m)+ CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ 802.11n / OFDM / 40 MHz / CH 6

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
650.80	14.50	120	1.5	H	18.95	4.58	-	38.03	46.00	7.97	Compliance
682.20	13.83	120	1.5	H	18.97	4.50	-	37.30	46.00	8.70	Compliance

Below 30MHz, Above 682.20 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	9.38	-1.71	160	1.5	H	24.86	4.77	39.01	27.92	74	54	34.99	26.08	Compliance
1.800	8.92	-2.52	150	1.6	H	26.31	5.94	41.17	29.73	74	54	32.83	24.27	Compliance
4.875	10.54	-0.23	160	1.6	H	33.20	10.63	54.37	43.60	74	54	19.63	10.40	Compliance

Above 4.875 GHz Nil emission

■ 802.11n / OFDM / 40 MHz / CH 9

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
652.75	11.23	130	3.0	H	18.56	6.05	-	35.83	46	10.16	Compliance
813.76	9.85	120	1.5	H	20.48	6.20	-	36.52	46	9.47	Compliance

Below 30MHz, Above 813.76 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.105	9.74	-2.10	160	1.6	H	24.87	4.78	39.39	27.55	74	54	34.61	26.45	Compliance
1.905	9.41	-2.98	180	1.5	H	26.67	6.09	42.17	29.78	74	54	31.83	24.22	Compliance
4.905	9.93	-1.00	180	1.5	H	33.27	10.78	53.97	43.04	74	54	20.03	10.96	Compliance

Above 4.905 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m)+ CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ 802.11b / DSSS / CH 1

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
622.67	8.93	110	1.5	H	18.19	6.03	-	33.09	46	12.91	Compliance
806.00	5.50	130	1.6	H	20.43	7.07	-	32.96	46	13.04	Compliance

Below 30MHz, Above 806.00 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	10.04	-1.38	180	1.6	H	24.86	4.77	39.67	28.25	74	54	34.33	25.75	Compliance
1.775	12.59	3.85	170	1.6	H	26.22	5.88	44.69	35.95	74	54	29.31	18.05	Compliance
4.825	14.59	-3.44	170	1.6	H	33.09	10.36	58.04	40.01	74	54	15.96	13.99	Compliance

Above 4.825 GHz Nil emission

■ 802.11b / DSSS / CH 6

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
625.250	6.79	130	3.0	H	18.19	6.03	-	31.00	46	15.00	Compliance
809.500	5.33	120	1.5	H	20.43	7.07	-	32.83	46	13.17	Compliance

Below 30MHz, Above 809.500 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	10.07	-1.99	130	1.5	H	24.86	4.77	39.70	27.64	74	54	34.30	26.36	Compliance
2.565	9.96	-3.91	130	1.5	H	28.40	6.97	45.33	31.46	74	54	28.67	22.54	Compliance
4.875	13.87	4.09	130	1.5	H	33.20	10.63	57.70	47.92	74	54	16.30	6.08	Compliance

Above 4.875 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m)+ CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ 802.11b / DSSS / CH 11

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
643.00	12.50	180	1.6	H	18.42	3.81	-	34.74	46	11.25	Compliance
781.75	10.00	180	1.6	H	20.12	4.96	-	35.09	46	10.90	Compliance

Below 30MHz, Above 781.75 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.105	10.48	-2.00	160	1.5	H	24.87	4.78	40.13	27.65	74	54	33.87	26.35	Compliance
2.595	8.07	-3.64	150	1.6	H	28.51	6.96	43.54	31.83	74	54	30.46	22.17	Compliance
4.925	15.61	5.44	160	1.6	H	33.31	10.85	59.77	49.60	74	54	14.23	4.40	Compliance

Above 4.925 GHz Nil emission

■ 802.11g / OFDM / CH 1

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
486.68	14.25	160	1.5	H	15.84	3.50	-	33.59	46	12.41	Compliance
640.25	12.74	160	1.5	H	18.39	3.94	-	35.07	46	10.93	Compliance

Below 30MHz, Above 640.25 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.105	10.15	-1.85	130	1.5	H	24.87	4.78	39.80	27.80	74	54	34.20	26.20	Compliance
2.500	9.16	-3.16	130	1.5	H	28.17	6.99	44.32	32.00	74	54	29.68	22.00	Compliance
4.820	10.07	-2.79	130	1.5	H	33.07	10.34	53.48	40.62	74	54	20.52	13.38	Compliance

Above 4.820 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m)+ CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ 802.11g / OFDM / CH 6

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
487.58	17.20	180	1.5	H	15.84	3.50	-	36.54	46	9.46	Compliance
780.20	8.53	180	1.5	H	20.11	5.05	-	33.69	46	12.31	Compliance

Below 30MHz, Above 780.20 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	10.12	-2.33	160	1.5	H	24.86	4.77	39.75	27.30	74	54	34.25	26.70	Compliance
1.810	8.03	-3.23	150	1.6	H	26.34	5.96	40.33	29.07	74	54	33.67	24.93	Compliance
4.880	10.06	-3.17	160	1.6	H	33.21	10.65	53.93	40.70	74	54	20.07	13.30	Compliance

Above 4.880 GHz Nil emission

■ 802.11g / OFDM / CH 11

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
687.50	12.83	180	1.6	H	19.04	4.23	-	36.10	46	9.9	Compliance
785.50	9.23	160	1.6	H	20.17	4.77	-	34.17	46	11.83	Compliance

Below 30MHz, Above 785.50 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	10.46	-2.01	130	1.5	H	24.86	4.77	40.09	27.62	74	54	33.91	26.38	Compliance
1.800	8.65	-3.00	130	1.5	H	26.31	5.94	40.90	29.25	74	54	33.10	24.75	Compliance
4.925	12.29	-1.14	130	1.5	H	33.31	10.85	56.45	43.02	74	54	17.55	10.98	Compliance

Above 4.925 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m)+ CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ TA-7950C (derived additional model)

■ 802.11n / OFDM / 20 MHz / CH 1

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
249.20	22.58	160	1.5	H	10.09	3.53	-	36.20	46.00	9.80	Compliance
640.25	14.20	150	1.5	H	18.39	6.13	-	38.72	46.00	7.28	Compliance
Below 30MHz, Above 640.26 MHz Nil emission											

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	8.86	-2.13	160	1.5	H	24.86	4.77	38.49	27.50	74.00	54.00	35.51	26.50	Compliance
1.880	11.74	-1.00	130	1.5	H	26.58	6.06	44.38	31.64	74.00	54.00	29.62	22.36	Compliance
4.830	13.2	1.83	130	1.5	H	33.10	10.39	56.69	45.32	74.00	54.00	17.31	8.68	Compliance
Above 4.830 GHz Nil emission														

■ 802.11n / OFDM / 20 MHz / CH 6

Below 1 GHz

Freq. (MHz)	Reading (dBμV/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dBμV/m)	Limit (dBμV/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
488.50	18.25	120	1.6	H	15.87	5.23	-	38.44	46.00	7.56	Compliance
640.26	15.73	120	1.6	H	18.39	6.13	-	40.72	46.00	5.28	Compliance
689.50	14.20	120	1.5	H	19.04	6.34	-	38.79	46.00	7.21	Compliance
Below 30MHz, Above 689.50 MHz Nil emission											

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.106	10.52	-1.20	120	1.5	H	24.87	4.78	40.17	28.45	74	54	33.83	25.55	Compliance
1.797	10.00	-1.41	130	1.5	H	26.29	5.93	42.22	30.81	74	54	31.78	23.19	Compliance
4.875	12.74	1.97	130	1.5	H	33.20	10.63	56.57	45.80	74	54	17.43	8.20	Compliance

Above 4.875 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,

Table (Deg) : Directional degree of Turn table,

Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor

Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)

Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m) + CL(dB) - Pre AMP(dB)

Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ 802.11n / OFDM / 20 MHz / CH 11

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
249.25	21.83	130	1.6	H	10.09	3.53	-	35.45	46.00	10.55	Compliance
640.83	15.00	120	1.5	H	18.39	6.13	-	39.52	46.00	6.48	Compliance

Below 30MHz, Above 640.83 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	8.83	-2.00	160	1.5	H	24.86	4.77	38.46	27.63	74	54	35.54	26.37	Compliance
1.805	9.11	-1.97	150	1.6	H	26.32	5.95	41.38	30.30	74	54	32.62	23.70	Compliance
4.925	12.13	2.25	160	1.6	H	33.31	10.85	56.29	46.41	74	54	17.71	7.59	Compliance

Above 4.925 GHz Nil emission

■ 802.11n / OFDM / 40 MHz / CH 3

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
642.30	16.13	120	1.5	H	18.39	6.13	-	40.65	46.00	5.35	Compliance
688.12	15.01	120	2.0	H	19.04	6.34	-	40.39	46.00	5.61	Compliance

Below 30MHz, Above 688.12 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	10.10	-2.01	180	1.5	H	24.86	4.77	39.73	27.62	74	54	34.27	26.38	Compliance
1.800	9.13	-2.87	180	1.5	H	26.31	5.94	41.38	29.38	74	54	32.62	24.62	Compliance
4.850	11.02	0.35	170	1.5	H	33.14	10.50	54.66	43.99	74	54	19.34	10.01	Compliance

Above 4.850 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m)+ CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ 802.11n / OFDM / 40 MHz / CH 6

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
650.75	14.87	180	1.7	H	18.95	4.58	-	38.40	46.00	7.60	Compliance
682.00	14.21	170	1.6	H	18.97	4.50	-	37.68	46.00	8.32	Compliance

Below 30MHz, Above 682.20 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	9.25	-1.1	160	1.5	H	24.86	4.77	38.88	28.53	74	54	35.12	25.47	Compliance
1.800	8.74	-2.41	150	1.6	H	26.31	5.94	40.99	29.84	74	54	33.01	24.16	Compliance
4.875	11.1	-0.32	160	1.6	H	33.20	10.63	54.93	43.51	74	54	19.07	10.49	Compliance

Above 4.875 GHz Nil emission

■ 802.11n / OFDM / 40 MHz / CH 9

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
657.02	12.2	120	1.6	H	18.56	6.05	-	36.81	46	9.19	Compliance
818.25	8.87	120	1.6	H	20.48	6.20	-	35.55	46	10.45	Compliance

Below 30MHz, Above 818.25 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.105	9.83	-1.83	160	1.6	H	24.87	4.78	39.48	27.82	74	54	34.52	26.18	Compliance
1.905	9.50	-2.85	180	1.5	H	26.67	6.09	42.26	29.91	74	54	31.74	24.09	Compliance
4.905	10.03	-0.67	180	1.5	H	33.27	10.78	54.08	43.38	74	54	19.92	10.62	Compliance

Above 4.905 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m)+ CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ 802.11b / DSSS / CH 1

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
622.67	9.12	180	1.5	H	18.19	6.03	-	33.34	46	12.66	Compliance
804.23	8.10	180	1.5	H	20.43	7.07	-	33.60	46	12.40	Compliance

Below 30MHz, Above 804.23 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	10.04	-1.38	180	1.6	H	24.86	4.77	38.76	27.78	74	54	35.24	26.22	Compliance
1.775	12.59	3.85	170	1.6	H	26.22	5.88	43.96	35.64	74	54	30.04	18.36	Compliance
4.825	14.59	-3.44	170	1.6	H	33.09	10.36	56.97	40.31	74	54	17.03	13.69	Compliance

Above 4.825 GHz Nil emission

■ 802.11b / DSSS / CH 6

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
625.25	7.11	130	3.0	H	18.19	6.03	-	31.33	46	14.67	Compliance
809.10	6.25	120	1.5	H	20.43	7.07	-	33.75	46	12.25	Compliance

Below 30MHz, Above 809.10 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	10.07	-1.99	130	1.5	H	24.86	4.77	39.46	27.50	74	54	34.54	26.50	Compliance
2.565	9.96	-3.91	130	1.5	H	28.40	6.97	43.71	31.32	74	54	30.29	22.68	Compliance
4.875	13.87	4.09	130	1.5	H	33.20	10.63	56.94	47.69	74	54	17.06	6.31	Compliance

Above 4.875 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m)+ CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ 802.11b / DSSS / CH 11

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
643.33	11.75	170	1.5	H	18.42	3.81	-	33.98	46	12.02	Compliance
782.10	12.33	170	1.6	H	20.12	4.96	-	37.41	46	8.59	Compliance

Below 30MHz, Above 782.10 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.105	11.74	-1.43	180	1.5	H	24.87	4.78	41.39	28.22	74	54	32.61	25.78	Compliance
2.595	9.15	-3.04	180	1.5	H	28.51	6.96	44.62	32.43	74	54	29.38	21.57	Compliance
4.925	14.37	4.1	120	1.6	H	33.31	10.85	58.53	48.26	74	54	15.47	5.74	Compliance

Above 4.925 GHz Nil emission

■ 802.11g / OFDM / CH 1

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
487.72	13.75	120	1.5	H	15.84	3.50	-	33.09	46	12.91	Compliance
640.00	13.10	180	1.5	H	18.39	3.94	-	35.43	46	10.57	Compliance

Below 30MHz, Above 640.00 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.105	11.21	-1.13	110	1.5	H	24.87	4.78	40.86	28.52	74	54	33.14	25.48	Compliance
2.500	9.78	-3.37	120	1.6	H	28.17	6.99	44.94	31.79	74	54	29.06	22.21	Compliance
4.820	9.8	-3.25	120	1.6	H	33.07	10.34	53.21	40.16	74	54	20.79	13.84	Compliance

Above 4.820 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m)+ CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ 802.11g / OFDM / CH 6

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
487.50	15.83	180	1.5	H	15.84	3.50	-	35.17	46	10.83	Compliance
779.67	10.17	180	1.5	H	20.11	5.05	-	35.33	46	10.67	Compliance

Below 30MHz, Above 779.67 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	12.41	-2.17	160	1.5	H	24.86	4.77	42.04	27.46	74	54	31.96	26.54	Compliance
1.810	9.52	-2.87	150	1.5	H	26.34	5.96	41.82	29.43	74	54	32.18	24.57	Compliance
4.880	12.45	-1.87	160	1.5	H	33.21	10.65	56.31	41.99	74	54	17.69	12.01	Compliance

Above 4.880 GHz Nil emission

■ 802.11g / OFDM / CH 11

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
687.00	11.28	180	1.6	H	19.04	4.23	-	34.55	46	11.45	Compliance
786.12	8.33	160	1.6	H	20.17	4.77	-	33.27	46	12.73	Compliance

Below 30MHz, Above 786.12 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	11.37	1.25	130	1.5	H	24.86	4.77	41.00	30.88	74	54	33.00	23.12	Compliance
1.800	9.10	-2.84	130	1.5	H	26.31	5.94	41.35	29.41	74	54	32.65	24.59	Compliance
4.925	11.97	-0.57	130	1.5	H	33.31	10.85	56.13	43.59	74	54	17.87	10.41	Compliance

Above 4.925 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m)+ CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ TA-8050C (derived additional model)

■ 802.11n / OFDM / 20 MHz / CH 1

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
156.23	21.24	180	1.5	H	7.80	2.71	-	31.75	43.52	14.25	Compliance
249.00	23.58	170	1.6	H	10.09	3.53	-	37.20	46.00	8.80	Compliance
640.86	16.25	210	1.5	H	18.39	6.13	-	40.77	46.00	5.23	Compliance

Below 30MHz, Above 640.86 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	10.33	-1.05	120	1.5	H	24.86	4.77	39.96	28.58	74	54	34.04	25.42	Compliance
1.880	11.47	-1.36	120	1.5	H	26.58	6.06	44.11	31.28	74	54	29.89	22.72	Compliance
4.830	14.53	3.84	120	2.0	H	33.10	10.39	58.02	47.33	74	54	15.98	6.67	Compliance

Above 4.830 GHz Nil emission

■ 802.11n / OFDM / 20 MHz / CH 6

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
487.72	17.13	130	1.5	H	15.87	5.23	-	38.23	46.00	7.77	Compliance
640.20	14.58	120	1.5	H	18.39	6.13	-	39.10	46.00	6.90	Compliance
687.61	13.42	120	1.6	H	19.04	6.34	-	38.8	46.00	7.20	Compliance

Below 30MHz, Above 687.66 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.105	12.17	-0.58	170	1.6	H	24.87	4.78	41.82	29.07	74	54	32.18	24.93	Compliance
1.795	10.11	-2.97	160	1.6	H	26.29	5.93	42.33	29.25	74	54	31.67	24.75	Compliance
4.875	13.56	2.25	160	1.5	H	33.20	10.63	57.39	46.08	74	54	16.61	7.92	Compliance

Above 4.875 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,

Table (Deg) : Directional degree of Turn table,

Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor

Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)

Meas Result (dB μ V/m) : Reading(dB μ V/m) + Antenna factor.(dB/m) + CL(dB) - Pre AMP(dB)

Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) - Meas Result(dB μ V/m)

■ 802.11n / OFDM / 20 MHz / CH 11

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
249.25	22.00	130	1.6	H	10.09	3.53	-	33.49	46.00	12.51	Compliance
641.00	14.20	120	1.5	H	18.39	6.13	-	38.04	46.00	7.96	Compliance

Below 30MHz, Above 641.00 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	12.78	-1.98	210	1.5	H	24.86	4.77	42.41	27.65	74	54	31.59	26.35	Compliance
1.805	10.25	-2.10	220	1.6	H	26.32	5.95	42.52	30.17	74	54	31.48	23.83	Compliance
4.925	13.78	2.13	190	1.6	H	33.31	10.85	57.94	46.29	74	54	16.06	7.71	Compliance

Above 4.925 GHz Nil emission

■ 802.11n / OFDM / 40 MHz / CH 3

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
642.18	15.37	130	1.5	H	18.39	6.13	-	39.89	46.00	6.11	Compliance
688.25	12.41	120	1.6	H	19.04	6.34	-	37.79	46.00	8.21	Compliance

Below 30MHz, Above 688.25 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	10.12	-1.41	130	1.5	H	24.86	4.77	39.75	28.22	74	54	34.25	25.78	Compliance
1.800	8.83	-2.83	130	1.5	H	26.31	5.94	41.08	29.42	74	54	32.92	24.58	Compliance
4.850	10.21	0.21	130	1.5	H	33.14	10.50	53.85	43.85	74	54	20.15	10.15	Compliance

Above 4.850 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m)+ CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ 802.11n / OFDM / 40 MHz / CH 6

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
650.72	14.25	120	1.5	H	18.95	4.58	-	37.78	46.00	8.22	Compliance
682.13	13.14	120	1.5	H	18.97	4.50	-	36.61	46.00	9.39	Compliance

Below 30MHz, Above 682.13 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	10.35	-1.02	190	1.5	H	24.86	4.77	39.98	28.61	74	54	34.02	25.39	Compliance
1.800	9.48	-1.87	180	1.6	H	26.31	5.94	41.73	30.38	74	54	32.27	23.62	Compliance
4.875	11.67	0.24	190	1.6	H	33.20	10.63	55.50	44.07	74	54	18.50	9.93	Compliance

Above 4.875 GHz Nil emission

■ 802.11n / OFDM / 40 MHz / CH 9

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
652.75	10.87	130	3.0	H	18.56	6.05	-	35.48	46	10.52	Compliance
813.76	10.05	120	1.5	H	20.48	6.20	-	36.73	46	9.27	Compliance

Below 30MHz, Above 813.76 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.105	9.67	-1.78	160	1.5	H	24.87	4.78	39.32	27.87	74	54	34.68	26.13	Compliance
1.905	9.87	-2.35	180	1.5	H	26.67	6.09	42.63	30.41	74	54	31.37	23.59	Compliance
4.905	10.25	-0.14	180	1.5	H	33.27	10.78	54.30	43.91	74	54	19.70	10.09	Compliance

Above 4.905 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m) + CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ 802.11b / DSSS / CH 1

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
622.74	9.15	110	1.5	H	18.19	6.03	-	33.37	46	12.63	Compliance
806.02	5.33	130	1.6	H	20.43	7.07	-	32.83	46	13.17	Compliance

Below 30MHz, Above 806.02 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	11.12	1.05	120	1.6	H	24.86	4.77	40.75	30.68	74	54	33.25	23.32	Compliance
1.775	12.45	2.68	120	1.6	H	26.22	5.88	44.55	34.78	74	54	29.45	19.22	Compliance
4.825	13.87	-2.89	130	1.6	H	33.09	10.36	57.32	40.56	74	54	16.68	13.44	Compliance

Above 4.825 GHz Nil emission

■ 802.11b / DSSS / CH 6

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
625.00	7.65	130	1.6	H	18.19	6.03	-	31.87	46	14.13	Compliance
809.43	6.48	120	1.5	H	20.43	7.07	-	33.98	46	12.02	Compliance

Below 30MHz, Above 809.43 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	10.33	-0.87	180	1.5	V	24.86	4.77	39.96	28.76	74	54	34.04	25.24	Compliance
2.565	10.31	-1.23	180	1.5	H	28.40	6.97	45.68	34.14	74	54	28.32	19.86	Compliance
4.875	13.51	3.97	160	1.5	H	33.20	10.63	57.34	47.80	74	54	16.66	6.20	Compliance

Above 4.875 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m)+ CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ 802.11b / DSSS / CH 11

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
643.00	11.75	180	1.6	H	18.42	3.81	-	33.98	46	12.02	Compliance
781.75	11.20	180	1.6	H	20.12	4.96	-	36.28	46	9.72	Compliance

Below 30MHz, Above 781.75 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.105	11.12	-2.02	160	1.5	H	24.87	4.78	40.77	27.63	74	54	33.23	26.37	Compliance
2.595	9.52	-1.25	150	1.5	H	28.51	6.96	44.99	34.22	74	54	29.01	19.78	Compliance
4.925	14.98	4.85	160	1.6	H	33.31	10.85	59.14	49.01	74	54	14.86	4.99	Compliance

Above 4.925 GHz Nil emission

■ 802.11g / OFDM / CH 1

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
486.71	13.86	160	1.5	H	15.84	3.50	-	33.20	46	12.80	Compliance
640.23	12.14	160	1.5	H	18.39	3.94	-	34.47	46	11.53	Compliance

Below 30MHz, Above 640.23 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.105	10.86	-1.74	130	1.5	H	24.87	4.78	40.51	27.91	74	54	33.49	26.09	Compliance
2.500	9.89	-2.85	130	1.5	H	28.17	6.99	45.05	32.31	74	54	28.95	21.69	Compliance
4.820	11.13	-1.58	130	1.5	H	33.07	10.34	54.54	41.83	74	54	19.46	12.17	Compliance

Above 4.820 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m)+ CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

■ 802.11g / OFDM / CH 6

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
487.63	17.85	180	1.5	H	15.84	3.50	-	37.19	46	8.81	Compliance
780.17	9.27	180	1.5	H	20.11	5.05	-	34.43	46	11.57	Compliance

Below 30MHz, Above 780.17 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	11.25	-1.87	160	1.5	H	24.86	4.77	40.88	27.76	74	54	33.12	26.24	Compliance
1.810	9.12	-3.12	150	1.6	H	26.34	5.96	41.42	29.18	74	54	32.58	24.82	Compliance
4.880	10.48	-2.68	160	1.6	H	33.21	10.65	54.34	41.18	74	54	19.66	12.82	Compliance

Above 4.880 GHz Nil emission

■ 802.11g / OFDM / CH 11

Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Table (Deg)	Antenna			CL (dB)	Pre AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
			Height (m)	Pol. (H/V)	Fctr. (dB/m)						
687.47	11.42	120	1.5	V	19.04	4.23	-	34.69	46	11.31	Compliance
785.86	10.35	120	1.6	H	20.17	4.77	-	35.29	46	10.71	Compliance

Below 30MHz, Above 785.86 MHz Nil emission

Above 1 GHz

Freq. (GHz)	Reading (dB μ V/m)		Table (Deg)	Antenna			CL+Pre AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV		Height (m)	Pol. (H/V)	Fctr. (dB/m)		PK	AV	PK	AV	PK	AV	
1.100	10.21	-1.86	160	1.5	H	24.86	4.77	39.84	27.77	74	54	34.16	26.23	Compliance
1.800	9.23	-2.11	170	1.5	H	26.31	5.94	41.48	30.14	74	54	32.52	23.86	Compliance
4.925	12.75	-1.89	170	1.5	H	33.31	10.85	56.91	42.27	74	54	17.09	11.73	Compliance

Above 4.925 GHz Nil emission

Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : Indicated value for test receiver,
Table (Deg) : Directional degree of Turn table,
Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor
Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB)
Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m)+ CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

※ Note

- Above 1 GHz is measured average and peak detector mode on Spectrum analyzer in accordance with FCC Rule15.35
- Limit: 54 dB μ V/m(Average), 74 dB μ V/m(Peak), Attenuated more than 20 dB below the permissible value.
- For the below 30 MHz, measured any other signal is not detected on test receiver
- It is not recorded on the report that the reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to measured.
- The transmitter radiated spectrum was investigated from 9 kHz to 26.5 GHz

5.7 AC Power Conducted emissions

5.7.1 Standard Applicable [FCC §15.207(a)]

For intentional radiator that is designed to be connected to the public utility(AC)power line, the radio frequency. Voltage that is conducted back onto the AC power line on any frequencies hopping mode within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 uH/50 ohms line Impedance stabilization network(LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

§15.207 limits for AC line conducted emissions;

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

* Decreases with the logarithm of the frequency

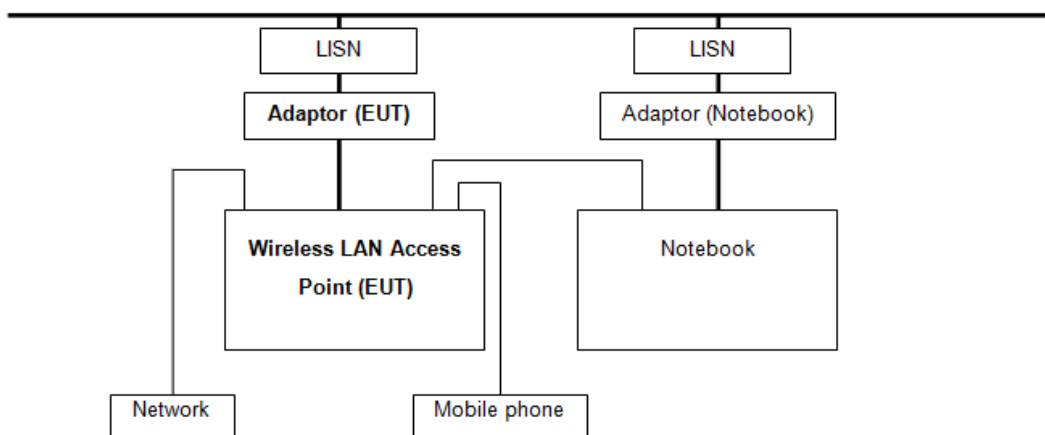
5.7.2 Test Environment conditions

- Ambient temperature : 25 - 26 °C,
- Relative Humidity : (42 - 43) % R.H.

5.7.3 Measurement Procedure

EUT was placed on a non- metallic table height of 0.8 m above the reference ground plane. Cables connected to EUT were fixed to cause maximum emission. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the Maximum signal strength.

5.7.4 Test Setup Configuration



5.7.5 Used equipment

Equipment	Model No.	Serial No.	Manufacturer	Next cal date	Used
Test receiver	ESCS30	100111	R&S	2013.05.18	●
L.I.S.N.	ESH2-Z5	100044	R&S	2013.03.13	●
	ESH3-Z5	100147	R&S	2013.05.18	●

Measurement uncertainty : Conducted Emission measurement: ± 2.4 dB (K=2)

5.7.6 Measurement Result

< Class B > TA-6950C (Basic)

Freq. [MHz]	Factor [dB]		POL	QP			AV		
	LISN	CABLE		Limit [dBuV]	Reading [dBuV]	Result [dBuV]	Limit [dBuV]	Reading [dBuV]	Result [dBuV]
0.15	0.09	0.1	N	65.79	48.31	48.50	55.79	36.92	37.11
0.35	0.09	0.1	N	58.98	46.22	46.41	48.98	37.48	37.67
0.37	0.09	0.1	N	58.44	48.99	49.18	48.44	40.52	40.71
0.38	0.09	0.1	N	58.18	51.00	51.19	48.18	41.00	41.19
0.41	0.09	0.1	N	57.69	46.50	46.69	47.69	39.09	39.28
0.42	0.09	0.1	L	57.46	46.32	46.51	47.46	37.20	37.39
0.55	0.10	0.1	N	56.00	41.59	41.79	46.00	29.43	29.63
3.10	0.13	0.2	N	56.00	38.90	39.23	46.00	29.63	29.96
4.20	0.13	0.2	N	56.00	42.13	42.46	46.00	35.81	36.14
4.28	0.13	0.2	L	56.00	42.08	42.41	46.00	36.28	36.61
4.81	0.13	0.2	L	56.00	39.86	40.19	46.00	33.55	33.88
4.83	0.13	0.2	N	56.00	39.58	39.91	46.00	33.81	34.14
7.35	0.27	0.2	N	60.00	38.82	39.29	50.00	33.77	34.24
7.37	0.27	0.2	L	60.00	39.81	40.28	50.00	34.95	35.42
9.07	0.27	0.2	N	60.00	38.42	38.89	50.00	30.79	31.26
9.56	0.27	0.2	L	60.00	40.49	40.96	50.00	32.26	32.73
9.79	0.27	0.2	N	60.00	40.39	40.86	50.00	31.49	31.96
9.81	0.27	0.2	L	60.00	39.66	40.13	50.00	31.86	32.33

- * LISN: LISN insertion Loss, Cable: Cable Loss
- * Reading: test receiver reading value
- * Result = LISN + Cable + Reading

**< Class B >
TA-7950C**

Freq. [MHz]	Factor [dB]		POL	QP			AV		
	LISN	CABLE		Limit [dBuV]	Reading [dBuV]	Result [dBuV]	Limit [dBuV]	Reading [dBuV]	Result [dBuV]
0.15	0.09	0.1	L	66.00	48.01	48.20	56.00	33.66	33.85
0.31	0.09	0.1	N	59.86	43.87	44.06	49.86	33.83	34.02
0.35	0.09	0.1	L	58.98	47.10	47.29	48.98	36.37	36.56
0.37	0.09	0.1	N	58.44	50.34	50.53	48.44	40.91	41.10
0.40	0.09	0.1	N	57.93	51.91	52.10	47.93	41.98	42.17
0.47	0.09	0.1	N	56.51	44.27	44.46	46.51	34.64	34.83
0.54	0.10	0.1	L	56.00	41.81	42.01	46.00	30.38	30.58
0.55	0.10	0.1	N	56.00	44.10	44.30	46.00	31.56	31.76
4.26	0.13	0.2	L	56.00	46.40	46.73	46.00	40.09	40.42
4.28	0.13	0.2	N	56.00	46.24	46.57	46.00	40.10	40.43
4.83	0.13	0.2	L	56.00	44.76	45.09	46.00	39.25	39.58
4.90	0.13	0.2	N	56.00	47.52	47.85	46.00	40.01	40.34
5.01	0.20	0.2	N	60.00	42.92	43.32	50.00	38.03	38.43
7.23	0.27	0.2	L	60.00	36.40	36.87	50.00	30.49	30.96
7.36	0.27	0.2	N	60.00	36.33	36.80	50.00	30.64	31.11
9.28	0.27	0.2	N	60.00	39.27	39.74	50.00	31.63	32.10
9.70	0.27	0.2	N	60.00	41.16	41.63	50.00	32.77	33.24
9.78	0.27	0.2	L	60.00	41.71	42.18	50.00	33.78	34.25

- * LISN: LISN insertion Loss, Cable: Cable Loss
- * Reading: test receiver reading value
- * Result = LISN + Cable + Reading

**< Class B >
TA-8050C**

Freq. [MHz]	Factor [dB]		POL	QP			AV		
	LISN	CABLE		Limit [dBuV]	Reading [dBuV]	Result [dBuV]	Limit [dBuV]	Reading [dBuV]	Result [dBuV]
0.35	0.09	0.1	L	58.98	48.70	48.89	48.98	39.20	39.39
0.37	0.09	0.1	N	58.44	53.61	53.80	48.44	43.16	43.35
0.40	0.09	0.1	N	57.93	53.01	53.20	47.93	44.47	44.66
0.41	0.09	0.1	L	57.69	50.34	50.53	47.69	42.08	42.27
0.42	0.09	0.1	N	57.46	49.82	50.01	47.46	41.31	41.50
0.47	0.09	0.1	N	56.51	46.98	47.17	46.51	37.41	37.60
0.54	0.10	0.1	N	56.00	42.69	42.89	46.00	33.74	33.94
0.55	0.10	0.1	L	56.00	44.08	44.28	46.00	33.29	33.49
2.60	0.13	0.2	L	56.00	41.64	41.97	46.00	32.92	33.25
2.92	0.13	0.2	L	56.00	40.92	41.25	46.00	32.22	32.55
3.02	0.13	0.2	N	56.00	40.91	41.24	46.00	31.44	31.77
3.52	0.13	0.2	L	56.00	44.11	44.44	46.00	35.15	35.48
5.05	0.20	0.2	N	60.00	37.45	37.85	50.00	31.28	31.68
7.26	0.27	0.2	N	60.00	44.15	44.62	50.00	38.17	38.64
7.31	0.27	0.2	L	60.00	45.69	46.16	50.00	39.31	39.78
9.80	0.27	0.2	L	60.00	39.50	39.97	50.00	32.13	32.60
9.81	0.27	0.2	N	60.00	38.91	39.38	50.00	31.91	32.38
16.23	0.44	0.3	N	60.00	36.04	36.78	50.00	34.16	34.90

- * LISN: LISN insertion Loss, Cable: Cable Loss
- * Reading: test receiver reading value
- * Result = LISN + Cable + Reading

5.7.7 Test Plot

Line. Live_ TA-6950C(Basic)

Kostec Co., Ltd.

03 Jan 2013 15:50

Conducted Emission

EUT: TA-6950C
 Manuf: TeleAdapt (HK) Ltd
 Op Cond: AC 120 V / 60 Hz
 Operator: S.S.Kim
 Test Spec: FCC Part15
 Comment: Live

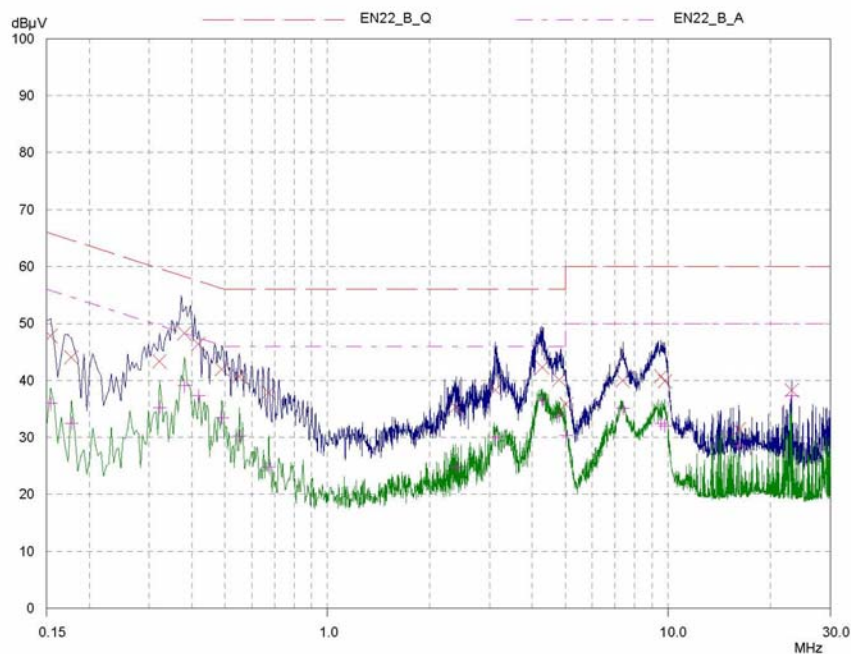
Result File: o0117_l.dat : New Measurement

Scan Settings (1 Range)

Frequencies			Receiver Settings						
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge	
150kHz	30MHz	3.9063kHz	9kHz	PK+AV	10msec	15 dB	OFF	60dB	

Transducer	No.	Start	Stop	Name
	12	9kHz	30MHz	CNEFactor

Final Measurement: Detectors: X QP / + AV
 Meas Time: 1sec
 Subranges: 25
 Acc Margin: 50 dB



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Line. Neutral_ TA-6950C(Basic)

Kostec Co., Ltd.

03 Jan 2013 15:58

Conducted Emission

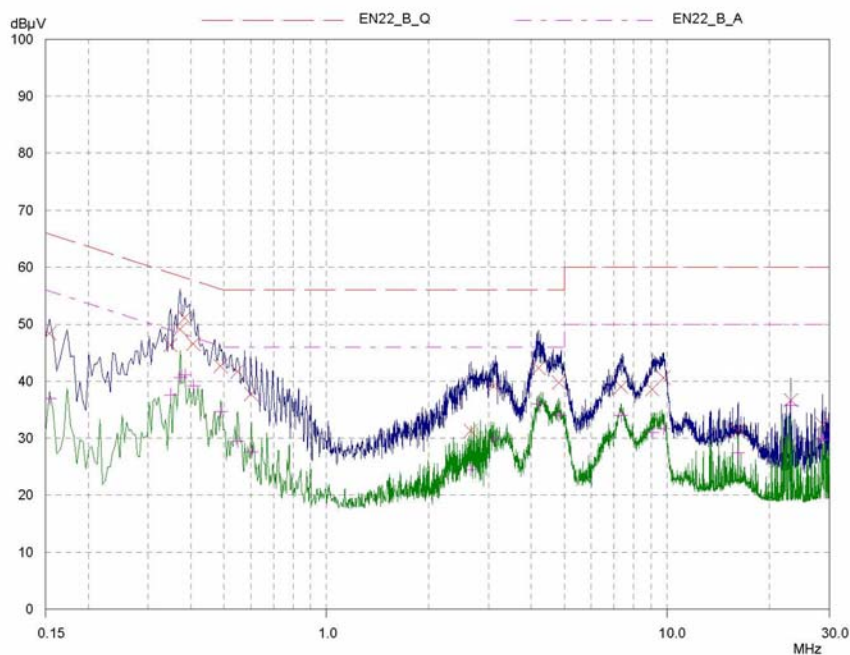
EUT: TA-6950C
 Manuf: TeleAdapt (HK) Ltd
 Op Cond: AC 120 V / 60 Hz
 Operator: S.S.Kim
 Test Spec: FCC Part15
 Comment: Neutral

Result File: o0117_n.dat : New Measurement

Scan Settings (1 Range)

Frequencies			Receiver Settings						
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge	
150kHz	30MHz	3.9063kHz	9kHz	PK+AV	10msec	15 dB	OFF	60dB	
Transducer	No.	Start	Stop	Name					
	12	9kHz	30MHz	CNEFactor					

Final Measurement: Detectors: X QP / + AV
 Meas Time: 1sec
 Subranges: 25
 Acc Margin: 50 dB



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Line. Live_ TA-7950C

Kostec Co., Ltd.

11 Jan 2013 15:38

Conducted Emission

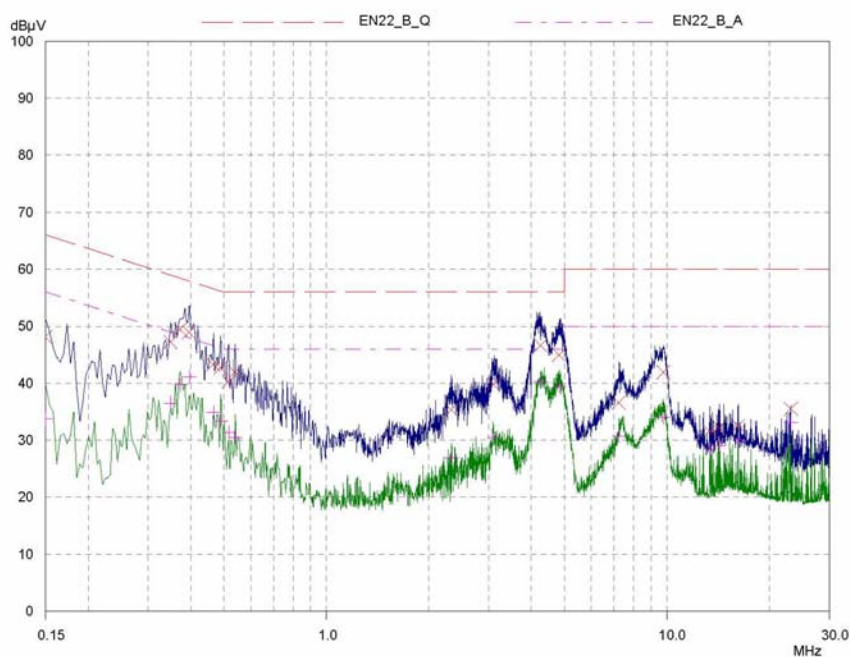
EUT: TA-7950C
 Manuf: TeleAdapt (HK) Ltd
 Op Cond: AC 120 V / 60 Hz
 Operator: S.S.Kim
 Test Spec: FCC Part15
 Comment: Live

Result File: o0117_l.dat : New Measurement

Scan Settings (1 Range)

Frequencies			Receiver Settings						
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge	
150kHz	30MHz	3.9063kHz	9kHz	PK+AV	10msec	15 dB	OFF	60dB	
Transducer	No.	Start	Stop	Name					
	12	9kHz	30MHz	CNEFactor					

Final Measurement: Detectors: X QP / + AV
 Meas Time: 1sec
 Subranges: 25
 Acc Margin: 50 dB



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Line. Neutral_ TA-7950C

Kostec Co., Ltd.

11 Jan 2013 15:30

Conducted Emission

EUT: TA-7950C
 Manuf: TeleAdapt (HK) Ltd
 Op Cond: AC 120 V / 60 Hz
 Operator: S.S.Kim
 Test Spec: FCC Part15
 Comment: Neutral

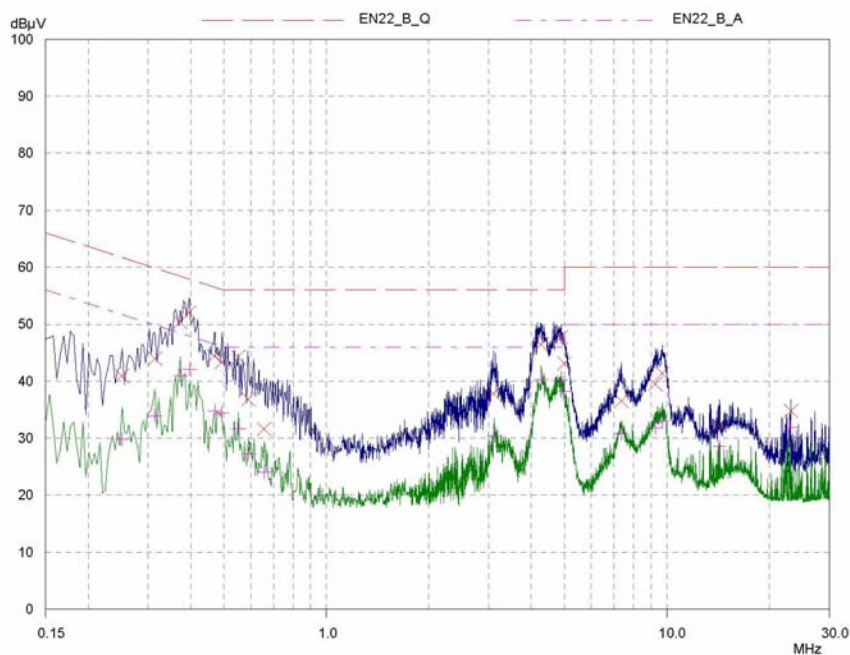
Result File: o0117_n.dat : New Measurement

Scan Settings (1 Range)

Frequencies			Receiver Settings						
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge	
150kHz	30MHz	3.9063kHz	9kHz	PK+AV	10msec	15 dB	OFF	60dB	

Transducer	No.	Start	Stop	Name
	12	9kHz	30MHz	CNEFactor

Final Measurement: Detectors: X QP / + AV
 Meas Time: 1sec
 Subranges: 25
 Acc Margin: 50 dB



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Line. Live_ TA-8050C

Kostec Co., Ltd.

03 Jan 2013 17:58

Conducted Emission

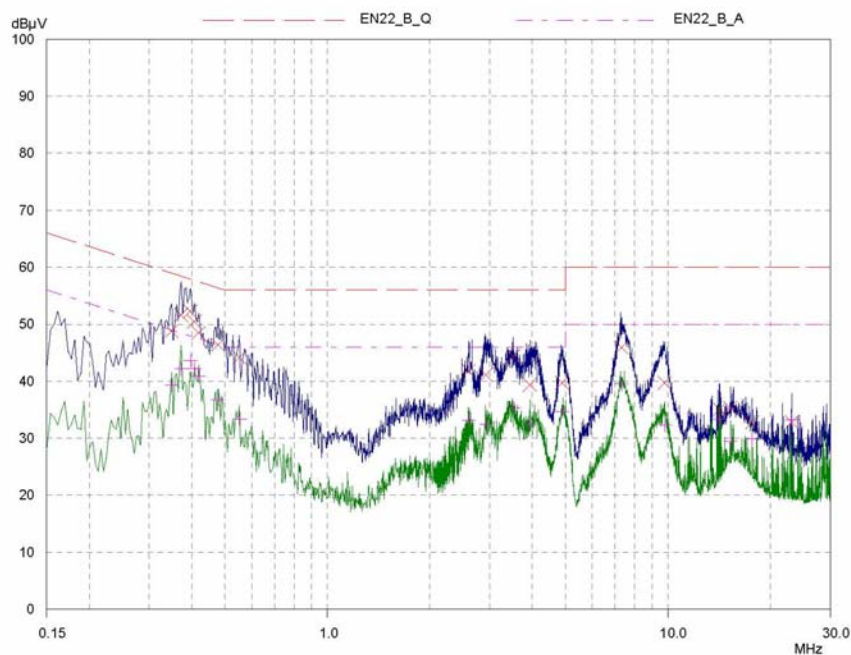
EUT: TA-8050C
 Manuf: TeleAdapt (HK) Ltd
 Op Cond: AC 120 V / 60 Hz
 Operator: S.S.Kim
 Test Spec: FCC Part15
 Comment: Live

Result File: o0117_l.dat : New Measurement

Scan Settings (1 Range)

Frequencies			Receiver Settings						
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge	
150kHz	30MHz	3.9063kHz	9kHz	PK+AV	10msec	15 dB	OFF	60dB	
Transducer	No.	Start	Stop	Name					
	12	9kHz	30MHz	CNEFactor					

Final Measurement: Detectors: X QP / + AV
 Meas Time: 1sec
 Subranges: 25
 Acc Margin: 50 dB



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Line. Neutral_ TA-8050C

Kostec Co., Ltd.

03 Jan 2013 17:06

Conducted Emission

EUT: TA-8050C
Manuf: TeleAdapt (HK) Ltd
Op Cond: AC 120 V / 60 Hz
Operator: S.S.Kim
Test Spec: FCC Part15
Comment: Neutral

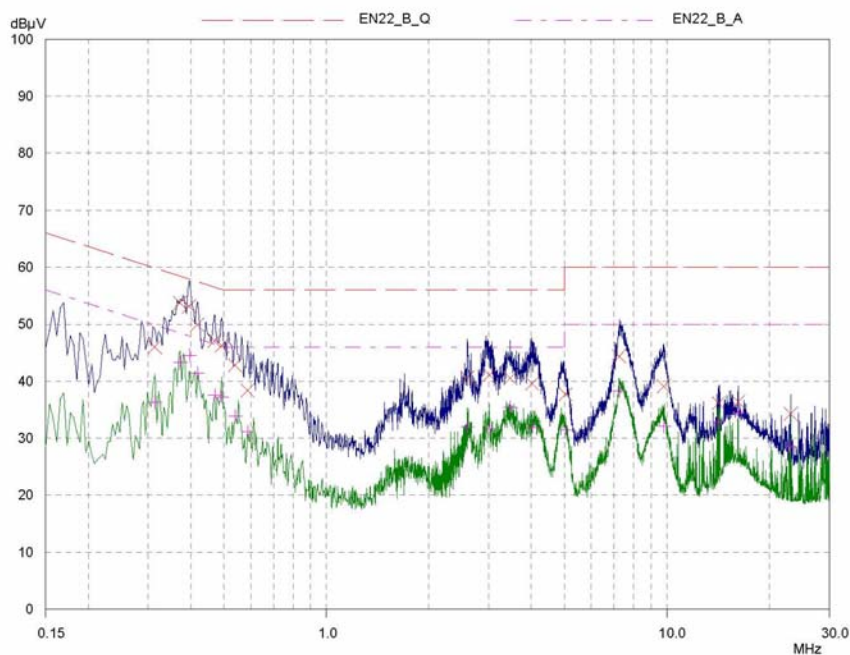
Result File: o0117_n.dat : New Measurement

Scan Settings (1 Range)

Frequencies			Receiver Settings						
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge	
150kHz	30MHz	3.9063kHz	9kHz	PK+AV	10msec	15 dB	OFF	60dB	

Transducer	No.	Start	Stop	Name
	12	9kHz	30MHz	CNEFactor

Final Measurement: Detectors: X QP / + AV
Meas Time: 1sec
Subranges: 25
Acc Margin: 50 dB



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5.8 Antenna requirement

5.8.1 Standard applicable [FCC §15.203, §15.247(4)(1)]

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

The use of a permanently attached antenna or of an antenna that user a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

The manufacturer may design the unit So that broken antenna can be replaced by the user, but the Use of a standard antenna jack or electrical connector is prohibited.

And according to §15.247(4)(1), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi.

According to above requirement standard's This product's antenna type is an chip type and it's gain is - 2.913 dBi(left) 3.579 dBi(right), So radiated emission field strength from EUT is below requirement standard limit

5.8.2 Antenna gain

Frequency Band	Gain [dBi]	Limit [dBi]	Results
(2 400 ~ 2 485) MHz	2.913 dBi(left) 3.579 dBi(right)	≤ 6	Compliance