SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technological Development District, Guangzhou, China 510663

Telephone: +86 (0) 20 82155555
Fax: +86 (0) 20 82075059
Email: ee.guangzhou@sgs.com

TEST REPORT

Application No.:	GZEM1812000130CR
Applicant:	GE Lighting
Address of Applicant:	Nele park, Cleveland, OH 44112
Manufacturer:	GE Lighting
Address of Manufacturer:	Nele park, Cleveland, OH 44112
Factory:	Nanchang Innotech Techonology Co.,Ltd
Address of Factory:	No.399, Rule Lake Avenue, Nanchang Airport Economic Zone, Nanchang, China
Equipment Under Test (EUT):	
FCC ID:	PUU-CSWONXXBWF1
EUT Name:	Smart Switch
Model No.:	CSWONBLBWF1, CSWONOCBWF1 ¤
¤	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark:	GE
Standard(s) :	47 CFR Part 15, Subpart C 15.247
Date of Receipt:	2018-12-26
Date of Test:	2019-01-14 to 2019-01-16
Date of Issue:	2019-03-04
Test Result:	Pass*

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

Kobe Jian
Lab Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2019-03-04		Original

Authorized for issue by:				
Tested By		Kevin Zhang **Kevin_Zhang /Project Engineer**		2019-01-14 to 2019-01-16 **Date**
Checked By		Ricky Liu **Ricky_Liu /Reviewer**		2019-01-21 **Date**

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch, EEC Laboratory
No.198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075068 www.sgsgroup.com.cn
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075068 sgs.china@sgs.com

2 Test Summary

Radio Spectrum Technical Requirement				
Item	**Standard**	**Method**	**Requirement**	**Result**
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(c)	Pass

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Minimum 6dB Bandwidth	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.9.1	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Power Spectrum Density	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass

¤ Declaration of EUT Family Grouping:

Model No.: CSWONBLBWF1, CSWONOCBWF1

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference on the passive infrared sensor (PIR) sensor and ambient light sensor.

The model CSWONBLBWF1 has no sensor, The model CSWONOCBWF1 has a PIR sensor and an ambient light sensor.

Model CSWONBLBWF1 and CSWONOCBWF1 have the same Wi-Fi and Bluetooth modules.

Therefore only one model CSWONBLBWF1 was tested in this report.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power Supply:	AC 120V 60Hz
Test Voltage:	AC 120V 60Hz
Cable:	GROUND cable (unshielded, 20cm)
	NEUTRAL cable (unshielded, 20cm)
	LINE cable (unshielded, 20cm)
	LOAD cable (unshielded, 20cm)
Antenna Gain	0.2dBi
Antenna Type	Integrated Antenna
Channel Spacing	5MHz
Modulation Type	802.11b: DSSS (CCK, DQPSK, DBPSK)
	802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels	802.11b/g/n(HT20):11
	802.11n(HT40):7
Operation Frequency	802.11b/g/n(HT20): 2412MHz to 2462MHz
	802.11n(HT40): 2422MHz to 2452MHz

4.2 Environment Parameter

Environment Parameter	Selected Values During Tests	
Relative Humidity	Ambient	
Value	Temperature(℃)	Voltage(V)
TNVN	25	120
TLVN	0	120
THVN	50	120

Note:
VN: Normal Voltage
TN: Normal Temperature
TL: Low Extreme Test Temperature
TH: High Extreme Test Temperature

Operation Frequency each of channel (802.11b/g/n HT20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	5	2432MHz	9	2452MHz		
2	2417MHz	6	2437MHz	10	2457MHz		
3	2422MHz	7	2442MHz	11	2462MHz		
4	2427MHz	8	2447MHz				

Operation Frequency each of channel(802.11n HT40)					
Channel	Frequency	Channel	Frequency	Channel	Frequency
3	2422MHz	6	2437MHz	9	2452MHz
4	2427MHz	7	2442MHz		
5	2432MHz	8	2447MHz		

Using test software was control EUT work in continuous transmitter and receiver mode. And select test channel as below:

For 802.11b/g/n (HT20):

Channel	Frequency
The lowest channel (CH1)	2412MHz
The middle channel (CH7)	2442MHz
The highest channel (CH13)	2462MHz

For 802.11n (HT40):

Channel	Frequency
The lowest channel (CH3)	2422MHz
The middle channel (CH7)	2442MHz
The highest channel (CH11)	2452MHz

4.3 Description of Support Units

The EUT has been tested with 500W incandescent bulb supplied by SGS and used for support testing.

4.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	±5.5 x 10-8
2	Duty cycle	±0.57%
3	Occupied Bandwidth	±3%
4	RF Conducted power	±0.68dB
5	RF Power Density	±1.50dB
6	Conducted Spurious Emissions	±1.04dB
7	RF Radiated Power	±4.5dB (below 1GHz)
		±4.8dB (above 1GHz)
8	Radiated Spurious Emission Test	±4.5dB (30MHz-1GHz)
		±4.8dB (1GHz-18GHz)
9	Temperature	±0.4°C
10	Humidity	±1.3%
11	Supply Voltages	±1.5%
12	Time	±3%

4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

4.6 Test Facility

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

● NVLAP (Lab Code: 200611-0)

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

● ACMA

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

● SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

● CNAS (Lab Code: L0167)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to

ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

● FCC Recognized 2.948 Listed Test Firm(Registration No.: 282399)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

● FCC Recognized Accredited Test Firm(Registration No.: 486818)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818, Jul 13, 2017.

● Industry Canada (Registration No.: 4620B-1)

The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

● VCCI (Registration No.: R-12460, C-12584, G-10449 and T-11179)

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584，G-10449 and T-11179 respectively.

● CBTL (Lab Code: TL129)

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None

5 Equipment List

Conducted Emissions at AC Power Line (150kHz-30MHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Shielding Room	Zhong Yu	8m x 3m x 3.8m	EMC0306	N/A	N/A
Two-Line V-Netwok	R&S	ENV216	EMC0118	2018-01-19	2019-01-18
LISN	R&S	ENV216	EMC2135	2018-09-21	2019-09-20
EMI Test Receiver	Rohde & Schwarz	ESCS30	EMC0506	2018-11-19	2019-11-18
Coaxial Cable	HangTianXing	2m	EMC0107	2017-07-23	2019-07-22
Voltage Probe	SGS	N/A	EMC0106	2018-04-04	2020-04-03
Conical Metal Housing	SGS-EMC	N/A	EMC0167	2018-04-19	2020-04-18
Test Software E3c	Audix	Ver. 5.4.1221b	GZE100-62	N/A	N/A

Minimum 6dB Bandwidth					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EXA Signal Analzer	AgilentTechnologies	N9010A	EMC2138	2018-11-19	2019-11-18
6dB Attenuator	HP	8491A	EMC2062	2018-04-04	2020-04-03
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A

Conducted Peak Output Power					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EXA Signal Analzer	AgilentTechnologies	N9010A	EMC2138	2018-11-19	2019-11-18
6dB Attenuator	HP	8491A	EMC2062	2018-04-04	2020-04-03
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A

Power Spectrum Density					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EXA Signal Analzer	AgilentTechnologies	N9010A	EMC2138	2018-11-19	2019-11-18
6dB Attenuator	HP	8491A	EMC2062	2018-04-04	2020-04-03
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch, EMC Laboratory
No.198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075068 www.sgsgroup.com.cn
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075068 sgs.china@sgs.com

Conducted Band Edges Measurement					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
MXA Signal Analyzer	AgilentTechnologies	N9020A	SEM004-10	2018-03-10	2019-03-09
ESG Vector Signal Generator	Keysight	E4438C	SEM006-03	2018-04-10	2019-04-10
EXG Analog Signal Generator	AgilentTechnologies	N5171B	SEM006-04	2017-07-26	2020-07-25
Power Meter	AgilentTechnologies	U2021XA_Ch2	SEM009-02	2018-09-20	2019-09-19
Power Meter	AgilentTechnologies	U2021XA_Ch3	SEM009-03	2018-09-20	2019-09-19
EXA Signal Analzer	AgilentTechnologies	N9010A	EMC2138	2018-11-19	2019-11-18
6dB Attenuator	HP	8491A	EMC2062	2018-04-04	2020-04-03
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A

Conducted Spurious Emissions					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EXA Signal Analzer	AgilentTechnologies	N9010A	EMC2138	2018-11-19	2019-11-18
6dB Attenuator	HP	8491A	EMC2062	2018-04-04	2020-04-03
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch, EEC Laboratory
No.198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075068 www.sgsgroup.com.cn
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075068 sgs.china@sgs.com

Radiated Emissions which fall in the restricted bands					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2018-01-19	2019-01-18
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2018-01-19	2019-01-18
Chamber cable	HangTianXing	N/A	EMC0542	2017-06-30	2019-06-30
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKMESS-ELEKTRONIK	VULB 9160	EMC2025	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6112B	EMC0524	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2017-05-04	2020-05-03
Horn Antenna 1GHz-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2016-09-09	2019-09-08
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2019-01-07	2020-01-08
Amplifier	HP	8447F	EMC2065	2018-06-01	2019-05-31
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2018-11-19	2019-11-18
Active Loop Antenna	EMCO	6502	EMC0523	2018-02-24	2019-02-23
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2018-01-19	2019-01-18
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2019-01-07	2020-01-08
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2017-06-18	2019-06-18
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-12-19	2019-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2018-11-19	2019-11-18
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2018-11-19	2019-11-18
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKMESS-ELEKTRONIK	VULB 9168	SEM003-18	2016-06-29	2019-06-28
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

Radiated Spurious Emissions					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2018-01-19	2019-01-18
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2018-01-19	2019-01-18
Chamber cable	HangTianXing	N/A	EMC0542	2017-06-30	2019-06-30
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKMESS-ELEKTRONIK	VULB 9160	EMC2025	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6112B	EMC0524	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2017-05-04	2020-05-03
Horn Antenna 1GHz-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2016-09-09	2019-09-08
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2019-01-07	2020-01-08
Amplifier	HP	8447F	EMC2065	2018-06-01	2019-05-31
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2018-11-19	2019-11-18
Active Loop Antenna	EMCO	6502	EMC0523	2018-02-24	2019-02-23
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2018-01-19	2019-01-18
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2019-01-07	2020-01-08
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2017-06-18	2019-06-18
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-12-19	2019-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2018-11-19	2019-11-18
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2018-11-19	2019-11-18
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKMESS-ELEKTRONIK	VULB 9168	SEM003-18	2016-06-29	2019-06-28
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
DMM	Fluke	73	EMC0006	2018-07-20	2019-07-19
DMM	Fluke	73	EMC0007	2018-07-19	2019-07-18

SGS-CSTC Standards Technical Services Co. Ltd. Guangzhou Branch
No.198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075068 www.sgsgroup.com.cn
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075068 sgs.china@sgs.com

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(c)

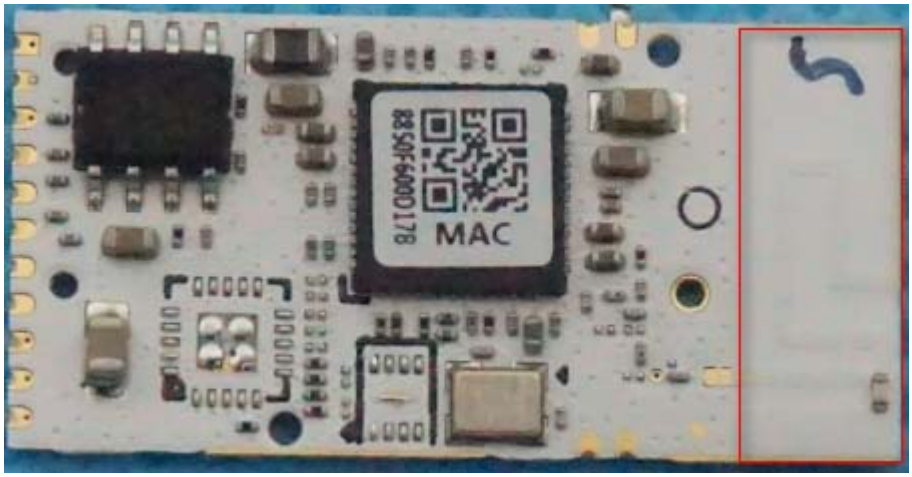
6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

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. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0.2dBi.

7 Radio Spectrum Matter Test Results

7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

Frequency of emission(MHz)	Conducted limit(dBμV)	
	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.		

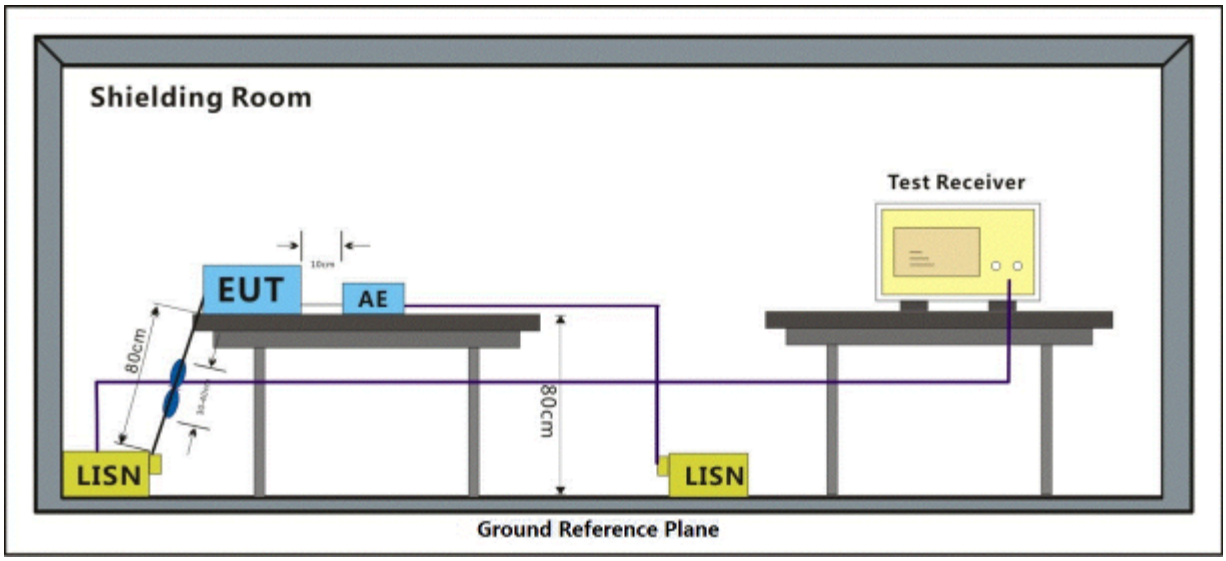
7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24.2 °C Humidity: 58.3 % RH Atmospheric Pressure: 1020 mbar

Test mode c:Normal Working_Keep the EUT in communication with other device.

7.1.2 Test Setup Diagram



7.1.3 Measurement Procedure and Data

1) The mains terminal disturbance voltage test was conducted in a shielded room.

2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

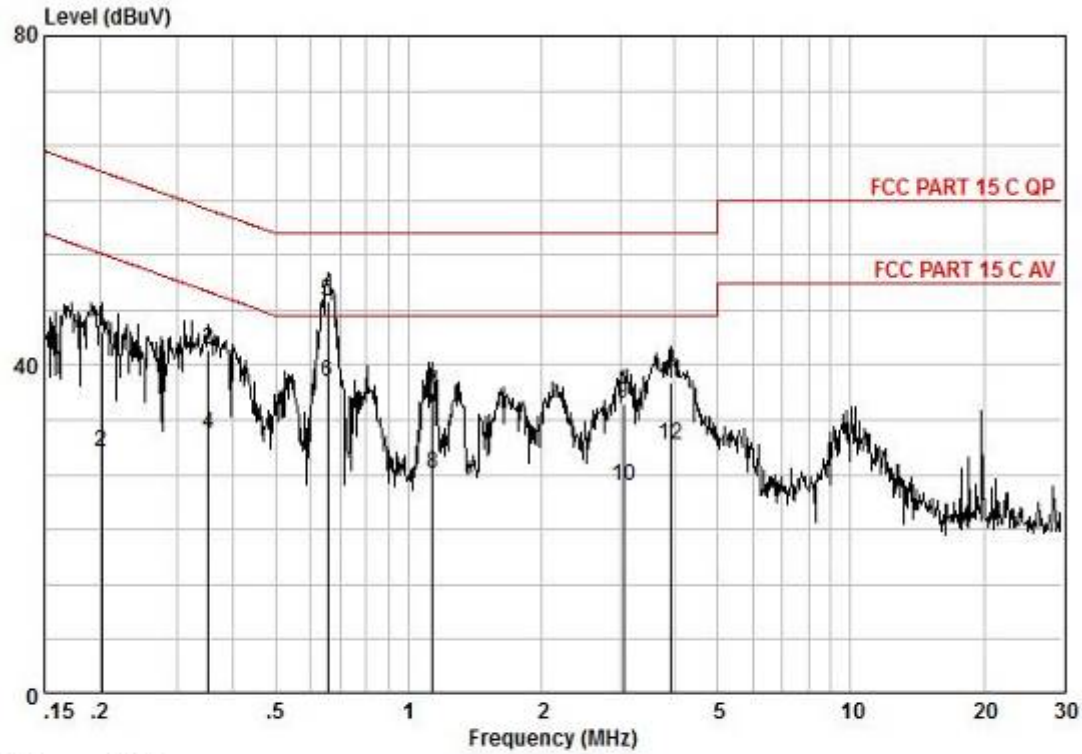
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,

4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor

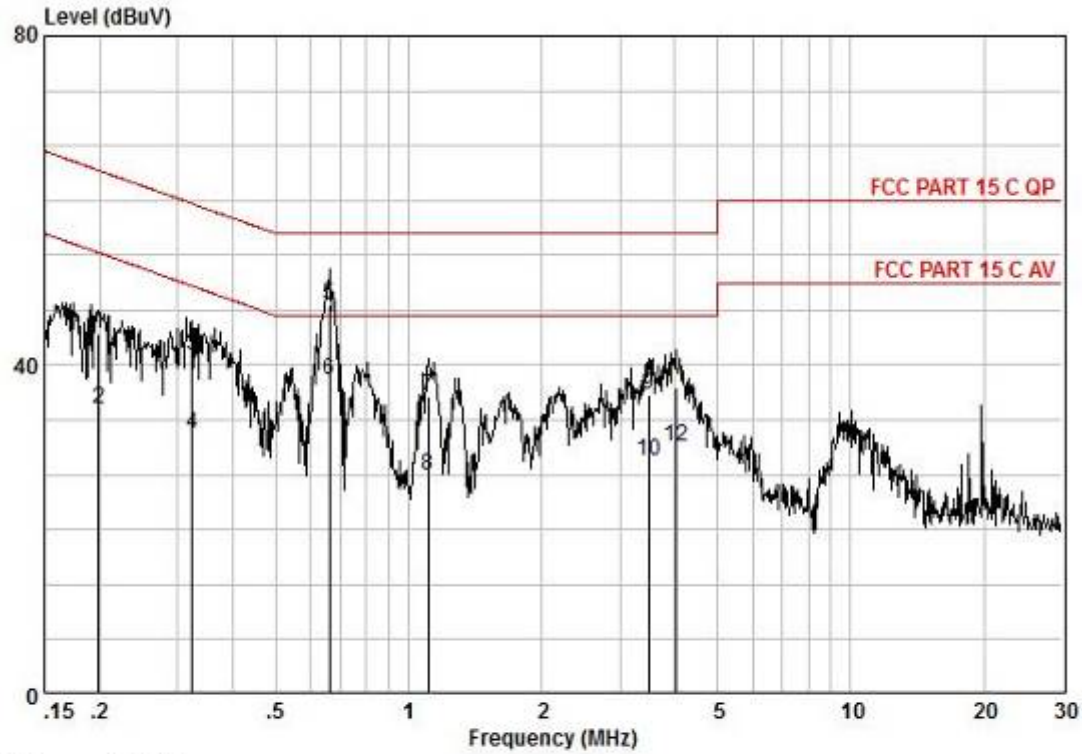
Mode:c; Line:Live Line



Pol :LIVE
No :
Model :

Frequency MHz	read level dBuV	Cable Loss dB	LISN Factor dB	Measured level dBuV	Limit Line dBuV	Over limit dB	Remark
0,20	34,38	0,10	9,62	44,10	63,54	-19,43	QP
0,20	19,76	0,10	9,62	29,48	53,54	-24,05	AVERAGE
0,35	32,00	0,16	9,64	41,80	58,91	-17,11	QP
0,35	21,86	0,16	9,64	31,66	48,91	-17,25	AVERAGE
0,65	37,80	0,24	9,62	47,66	56,00	-8,34	QP
0,65	27,98	0,24	9,62	37,84	46,00	-8,16	AVERAGE
1,13	26,64	0,30	9,63	36,57	56,00	-19,43	QP
1,13	16,99	0,30	9,63	26,92	46,00	-19,08	AVERAGE
3,06	25,12	0,54	9,62	35,28	56,00	-20,72	QP
3,06	15,16	0,54	9,62	25,32	46,00	-20,68	AVERAGE
3,92	27,58	0,62	9,62	37,83	56,00	-18,17	QP
3,92	19,95	0,62	9,62	30,20	46,00	-15,80	AVERAGE

Mode:c; Line:Neutral Line



Pol :NEUTRAL
No :
Model :

Frequency MHz	read level dBuV	Cable Loss dB	LISN Factor dB	Measured level dBuV	Limit Line dBuV	Over limit dB	Remark
0,20	34,08	0,10	9,58	43,76	63,67	-19,90	QP
0,20	25,01	0,10	9,58	34,69	53,67	-18,97	AVERAGE
0,32	31,47	0,15	9,57	41,19	59,62	-18,43	QP
0,32	21,78	0,15	9,57	31,50	49,62	-18,12	AVERAGE
0,66	37,58	0,24	9,58	47,40	56,00	-8,60	QP
0,66	28,34	0,24	9,58	38,16	46,00	-7,84	AVERAGE
1,11	26,21	0,30	9,58	36,09	56,00	-19,91	QP
1,11	16,65	0,30	9,58	26,53	46,00	-19,47	AVERAGE
3,49	26,33	0,58	9,57	36,49	56,00	-19,51	QP
3,49	18,13	0,58	9,57	28,29	46,00	-17,71	AVERAGE
4,01	26,98	0,63	9,59	37,20	56,00	-18,80	QP
4,01	19,82	0,63	9,59	30,04	46,00	-15,96	AVERAGE

7.2 Minimum 6dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)
Test Method: ANSI C63.10 (2013) Section 11.8.1
Limit: ≥500 kHz

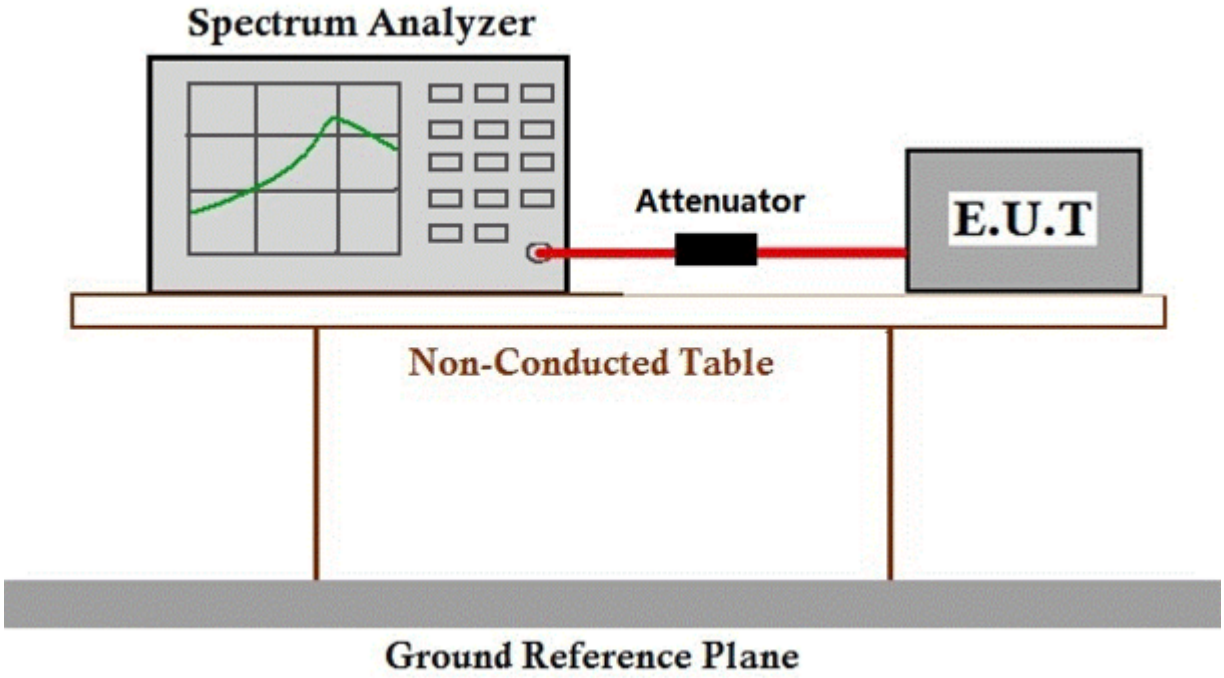
7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25.1 °C Humidity: 49.3 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

7.2.2 Test Setup Diagram



7.2.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247

7.3 Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)

Test Method: ANSI C63.10 (2013) Section 11.9.1

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥50 hopping channels
	0.25 for 25≤ hopping channels <50
	1 for digital modulation
2400-2483.5	1 for ≥75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

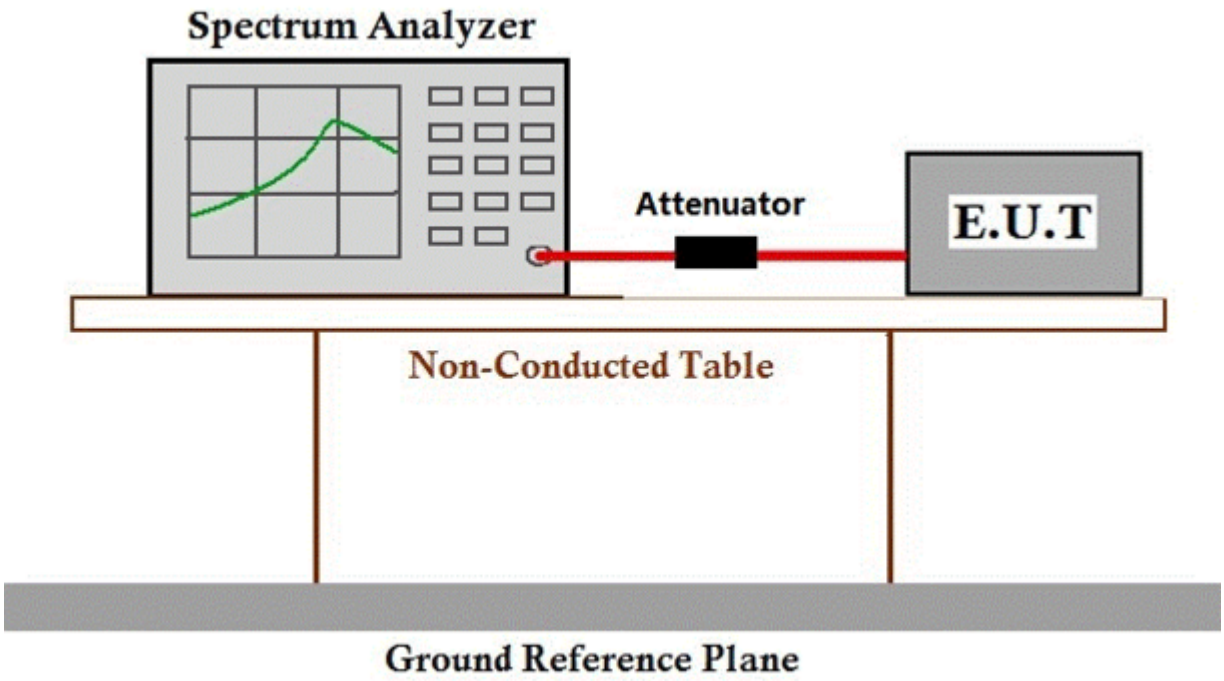
7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 25.1 °C Humidity: 49.3 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

7.3.2 Test Setup Diagram



7.3.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247

7.4 Power Spectrum Density

Test Requirement	47 CFR Part 15, Subpart C 15.247(e)
Test Method:	ANSI C63.10 (2013) Section 11.10.2
Limit:	≤8dBm in any 3 kHz band during any time interval of continuous transmission

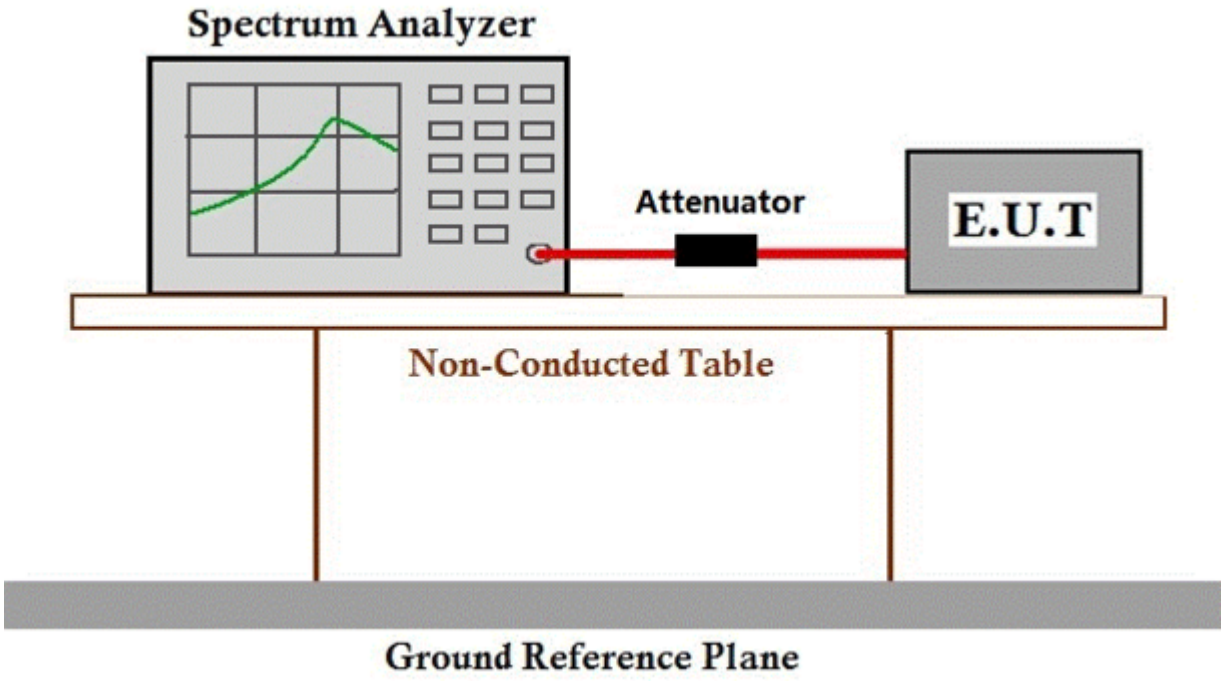
7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 25.1 °C Humidity: 49.3 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

7.4.2 Test Setup Diagram



7.4.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247

7.5 Conducted Band Edges Measurement

Test Requirement	47 CFR Part 15, Subpart C 15.247(d)
Test Method:	ANSI C63.10 (2013) Section 11.13.3.2
Limit:	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 either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)

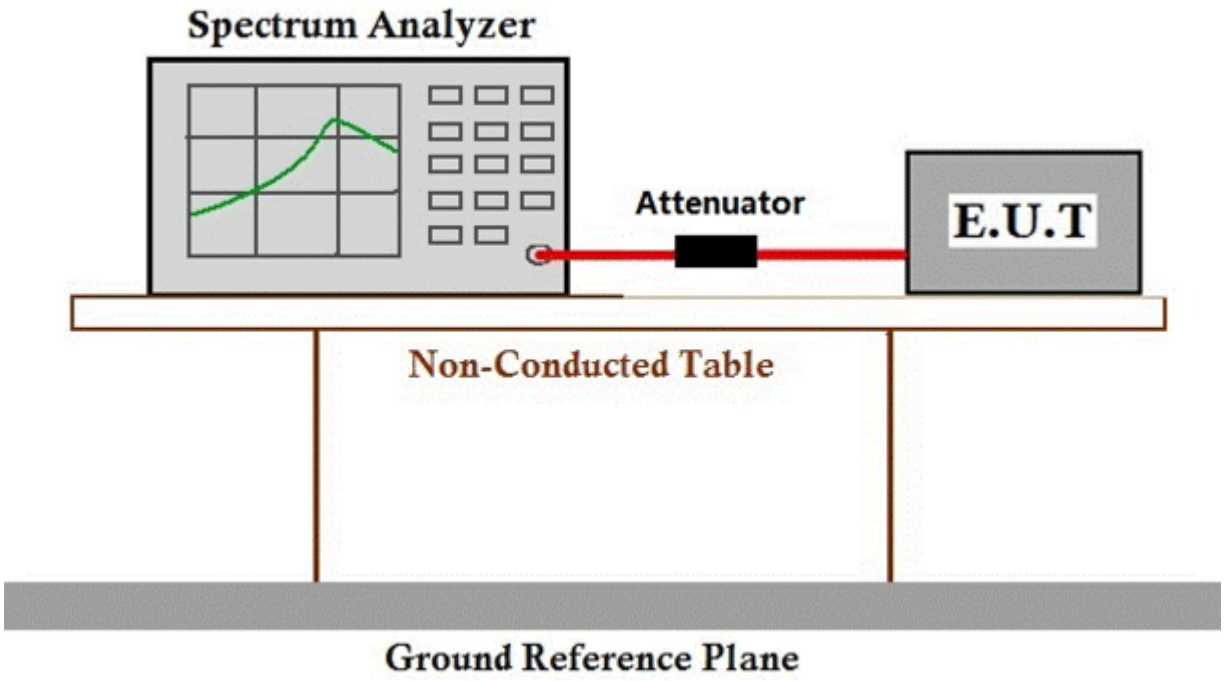
7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 25.1 °C Humidity: 49.3 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

7.5.2 Test Setup Diagram



7.5.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247

7.6 Conducted Spurious Emissions

Test Requirement	47 CFR Part 15, Subpart C 15.247(d)
Test Method:	ANSI C63.10 (2013) Section 11.11
Limit:	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 either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)

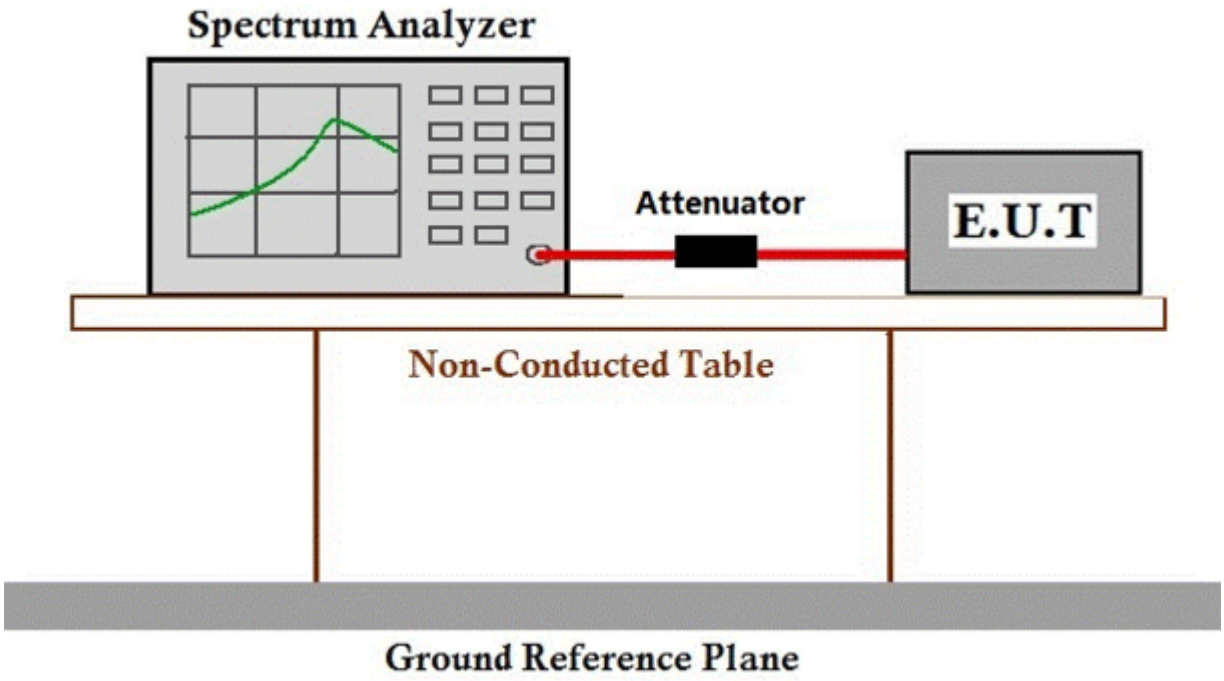
7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 25.1 °C Humidity: 49.3 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

7.6.2 Test Setup Diagram



7.6.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247

7.7 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.247(d)
Test Method: ANSI C63.10 (2013) Section 6.10.5
Measurement Distance: 3m
Limit:

Frequency(MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.		

7.7.1 E.U.T. Operation

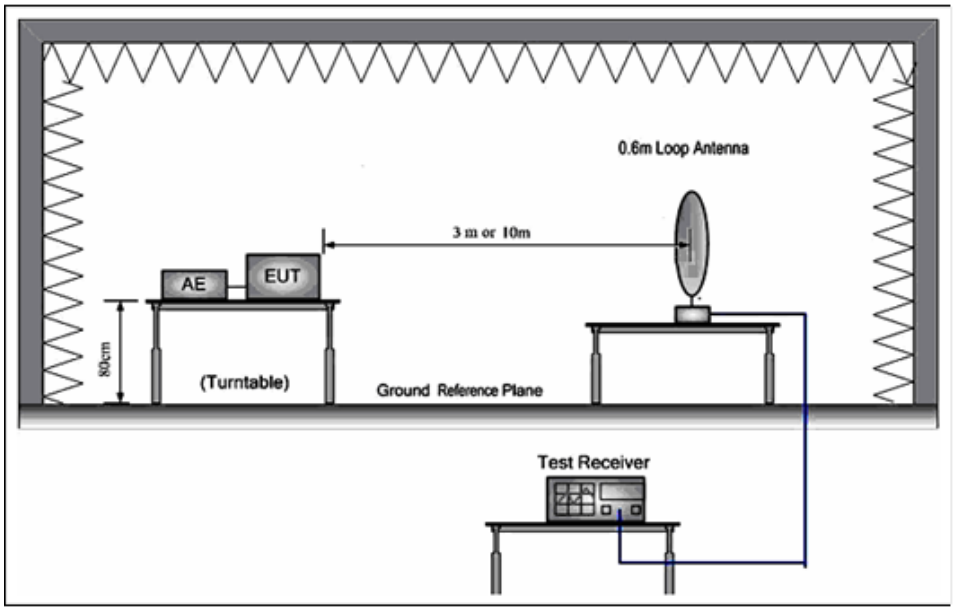
Operating Environment:

Temperature: 23 °C Humidity: 65.2 % RH Atmospheric Pressure: 1020 mbar

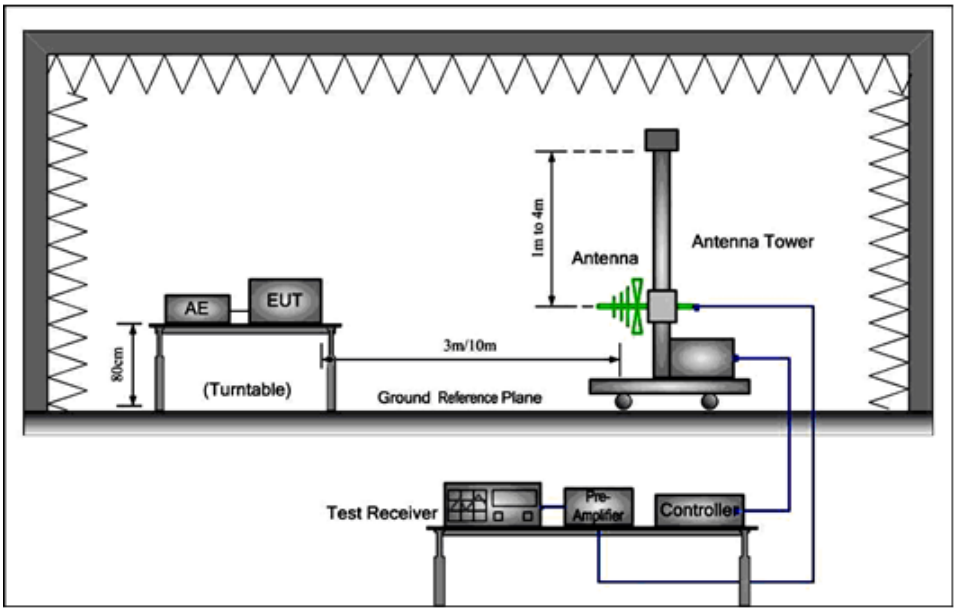
Test mode b:TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

7.7.2 Test Setup Diagram

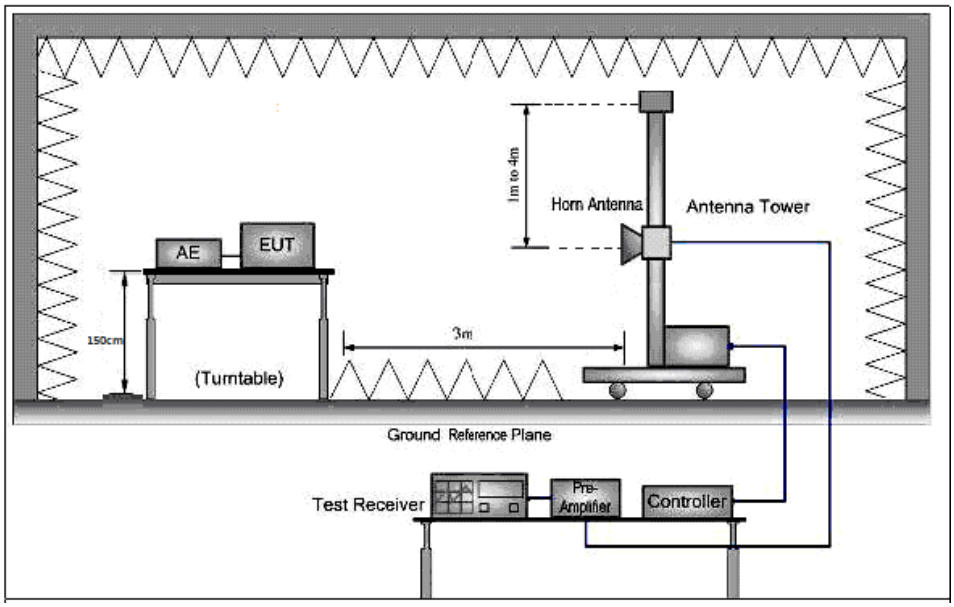
9kHz to 30MHz



30MHz to 1GHz



Above 1GHz



7.7.3 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

Mode:b; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:Low

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	35.33	26.25	5.03	37.44	29.17	54.00	-24.83	HORIZONTAL	Average
2	2310.000	49.13	26.25	5.03	37.44	42.97	74.00	-31.03	HORIZONTAL	Peak
3	2390.000	46.12	26.43	4.88	37.42	40.01	54.00	-13.99	HORIZONTAL	Average
4	2390.000	57.95	26.43	4.88	37.42	51.84	74.00	-22.16	HORIZONTAL	Peak
5	2483.500	36.99	26.58	5.23	37.40	31.40	54.00	-22.60	HORIZONTAL	Average
6	2483.500	51.93	26.58	5.23	37.40	46.34	74.00	-27.66	HORIZONTAL	Peak
7	2500.000	35.63	26.60	4.95	37.39	29.79	54.00	-24.21	HORIZONTAL	Average
8	2500.000	51.23	26.60	4.95	37.39	45.39	74.00	-28.61	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:b; bandwidth:20MHz; Channel:Low

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	32.26	26.25	5.03	37.44	26.10	54.00	-27.90	VERTICAL	Average
2	2310.000	47.71	26.25	5.03	37.44	41.55	74.00	-32.45	VERTICAL	Peak
3	2390.000	35.58	26.43	4.88	37.42	29.47	54.00	-24.53	VERTICAL	Average
4	2390.000	47.80	26.43	4.88	37.42	41.69	74.00	-32.31	VERTICAL	Peak
5	2483.500	34.35	26.58	5.23	37.40	28.76	54.00	-25.24	VERTICAL	Average
6	2483.500	49.54	26.58	5.23	37.40	43.95	74.00	-30.05	VERTICAL	Peak
7	2500.000	33.01	26.60	4.95	37.39	27.17	54.00	-26.83	VERTICAL	Average
8	2500.000	48.36	26.60	4.95	37.39	42.52	74.00	-31.48	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:High

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	35.32	26.25	5.03	37.44	29.16	54.00	-24.84	HORIZONTAL	Average
2	2310.000	47.58	26.25	5.03	37.44	41.42	74.00	-32.58	HORIZONTAL	Peak
3	2390.000	36.51	26.43	4.88	37.42	30.40	54.00	-23.60	HORIZONTAL	Average
4	2390.000	49.57	26.43	4.88	37.42	43.46	74.00	-30.54	HORIZONTAL	Peak
5	2483.500	44.59	26.58	5.23	37.40	39.00	54.00	-15.00	HORIZONTAL	Average
6	2483.500	56.97	26.58	5.23	37.40	51.38	74.00	-22.62	HORIZONTAL	Peak
7	2500.000	40.30	26.60	4.95	37.39	34.46	54.00	-19.54	HORIZONTAL	Average
8	2500.000	53.84	26.60	4.95	37.39	48.00	74.00	-26.00	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:b; bandwidth:20MHz; Channel:High

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	32.91	26.25	5.03	37.44	26.75	54.00	-27.25	VERTICAL	Average
2	2310.000	46.55	26.25	5.03	37.44	40.39	74.00	-33.61	VERTICAL	Peak
3	2390.000	32.30	26.43	4.88	37.42	26.19	54.00	-27.81	VERTICAL	Average
4	2390.000	46.68	26.43	4.88	37.42	40.57	74.00	-33.43	VERTICAL	Peak
5	2483.500	39.76	26.58	5.23	37.40	34.17	54.00	-19.83	VERTICAL	Average
6	2483.500	52.14	26.58	5.23	37.40	46.55	74.00	-27.45	VERTICAL	Peak
7	2500.000	34.63	26.60	4.95	37.39	28.79	54.00	-25.21	VERTICAL	Average
8	2500.000	47.49	26.60	4.95	37.39	41.65	74.00	-32.35	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:Low

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	33.26	26.25	5.03	37.44	27.10	54.00	-26.90	HORIZONTAL	Average
2	2310.000	47.19	26.25	5.03	37.44	41.03	74.00	-32.97	HORIZONTAL	Peak
3	2390.000	44.41	26.43	4.88	37.42	38.30	54.00	-15.70	HORIZONTAL	Average
4	2390.000	59.15	26.43	4.88	37.42	53.04	74.00	-20.96	HORIZONTAL	Peak
5	2483.500	35.28	26.58	5.23	37.40	29.69	54.00	-24.31	HORIZONTAL	Average
6	2483.500	50.46	26.58	5.23	37.40	44.87	74.00	-29.13	HORIZONTAL	Peak
7	2500.000	36.38	26.60	4.95	37.39	30.54	54.00	-23.46	HORIZONTAL	Average
8	2500.000	51.69	26.60	4.95	37.39	45.85	74.00	-28.15	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:Low

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	35.72	26.25	5.03	37.44	29.56	54.00	-24.44	VERTICAL	Average
2	2310.000	47.32	26.25	5.03	37.44	41.16	74.00	-32.84	VERTICAL	Peak
3	2390.000	35.63	26.43	4.88	37.42	29.52	54.00	-24.48	VERTICAL	Average
4	2390.000	52.68	26.43	4.88	37.42	46.57	74.00	-27.43	VERTICAL	Peak
5	2483.500	33.37	26.58	5.23	37.40	27.78	54.00	-26.22	VERTICAL	Average
6	2483.500	47.73	26.58	5.23	37.40	42.14	74.00	-31.86	VERTICAL	Peak
7	2500.000	31.79	26.60	4.95	37.39	25.95	54.00	-28.05	VERTICAL	Average
8	2500.000	47.64	26.60	4.95	37.39	41.80	74.00	-32.20	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:High

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	34.95	26.25	5.03	37.44	28.79	54.00	-25.21	HORIZONTAL	Average
2	2310.000	46.81	26.25	5.03	37.44	40.65	74.00	-33.35	HORIZONTAL	Peak
3	2390.000	36.90	26.43	4.88	37.42	30.79	54.00	-23.21	HORIZONTAL	Average
4	2390.000	51.33	26.43	4.88	37.42	45.22	74.00	-28.78	HORIZONTAL	Peak
5	2483.500	48.16	26.58	5.23	37.40	42.57	54.00	-11.43	HORIZONTAL	Average
6	2483.500	66.21	26.58	5.23	37.40	60.62	74.00	-13.38	HORIZONTAL	Peak
7	2500.000	39.57	26.60	4.95	37.39	33.73	54.00	-20.27	HORIZONTAL	Average
8	2500.000	54.79	26.60	4.95	37.39	48.95	74.00	-25.05	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:High

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	32.34	26.25	5.03	37.44	26.18	54.00	-27.82	VERTICAL	Average
2	2310.000	46.90	26.25	5.03	37.44	40.74	74.00	-33.26	VERTICAL	Peak
3	2390.000	28.52	26.43	4.88	37.42	22.41	54.00	-31.59	VERTICAL	Average
4	2390.000	47.07	26.43	4.88	37.42	40.96	74.00	-33.04	VERTICAL	Peak
5	2483.500	46.90	26.58	5.23	37.40	41.31	54.00	-12.69	VERTICAL	Average
6	2483.500	60.43	26.58	5.23	37.40	54.84	74.00	-19.16	VERTICAL	Peak
7	2500.000	34.84	26.60	4.95	37.39	29.00	54.00	-25.00	VERTICAL	Average
8	2500.000	49.01	26.60	4.95	37.39	43.17	74.00	-30.83	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	36.72	26.25	5.03	37.44	30.56	54.00	-23.44	HORIZONTAL	Average
2	2310.000	48.63	26.25	5.03	37.44	42.47	74.00	-31.53	HORIZONTAL	Peak
3	2390.000	49.17	26.43	4.88	37.42	43.06	54.00	-10.94	HORIZONTAL	Average
4	2390.000	62.58	26.43	4.88	37.42	56.47	74.00	-17.53	HORIZONTAL	Peak
5	2483.500	37.42	26.58	5.23	37.40	31.83	54.00	-22.17	HORIZONTAL	Average
6	2483.500	53.69	26.58	5.23	37.40	48.10	74.00	-25.90	HORIZONTAL	Peak
7	2500.000	35.77	26.60	4.95	37.39	29.93	54.00	-24.07	HORIZONTAL	Average
8	2500.000	52.90	26.60	4.95	37.39	47.06	74.00	-26.94	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	32.47	26.25	5.03	37.44	26.31	54.00	-27.69	VERTICAL	Average
2	2310.000	46.39	26.25	5.03	37.44	40.23	74.00	-33.77	VERTICAL	Peak
3	2390.000	42.07	26.43	4.88	37.42	35.96	54.00	-18.04	VERTICAL	Average
4	2390.000	55.94	26.43	4.88	37.42	49.83	74.00	-24.17	VERTICAL	Peak
5	2483.500	34.36	26.58	5.23	37.40	28.77	54.00	-25.23	VERTICAL	Average
6	2483.500	48.27	26.58	5.23	37.40	42.68	74.00	-31.32	VERTICAL	Peak
7	2500.000	32.25	26.60	4.95	37.39	26.41	54.00	-27.59	VERTICAL	Average
8	2500.000	48.17	26.60	4.95	37.39	42.33	74.00	-31.67	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High

	Freq	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	32.63 26.25	5.03	37.44	26.47	54.00	-27.53	HORIZONTAL	Average
2	2310.000	47.44 26.25	5.03	37.44	41.28	74.00	-32.72	HORIZONTAL	Peak
3	2390.000	39.88 26.43	4.88	37.42	33.77	54.00	-20.23	HORIZONTAL	Average
4	2390.000	50.63 26.43	4.88	37.42	44.52	74.00	-29.48	HORIZONTAL	Peak
5	2483.500	55.07 26.58	5.23	37.40	49.48	54.00	-4.52	HORIZONTAL	Average
6	2483.500	67.00 26.58	5.23	37.40	61.41	74.00	-12.59	HORIZONTAL	Peak
7	2500.000	44.63 26.60	4.95	37.39	38.79	54.00	-15.21	HORIZONTAL	Average
8	2500.000	58.97 26.60	4.95	37.39	53.13	74.00	-20.87	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High

	Freq	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	33.72 26.25	5.03	37.44	27.56	54.00	-26.44	VERTICAL	Average
2	2310.000	46.62 26.25	5.03	37.44	40.46	74.00	-33.54	VERTICAL	Peak
3	2390.000	33.24 26.43	4.88	37.42	27.13	54.00	-26.87	VERTICAL	Average
4	2390.000	46.54 26.43	4.88	37.42	40.43	74.00	-33.57	VERTICAL	Peak
5	2483.500	44.33 26.58	5.23	37.40	38.74	54.00	-15.26	VERTICAL	Average
6	2483.500	58.49 26.58	5.23	37.40	52.90	74.00	-21.10	VERTICAL	Peak
7	2500.000	41.24 26.60	4.95	37.39	35.40	54.00	-18.60	VERTICAL	Average
8	2500.000	56.65 26.60	4.95	37.39	50.81	74.00	-23.19	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:Low

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	36.22	26.25	5.03	37.44	30.06	54.00	-23.94	HORIZONTAL	Average
2	2310.000	46.60	26.25	5.03	37.44	40.44	74.00	-33.56	HORIZONTAL	Peak
3	2390.000	42.96	26.43	4.88	37.42	36.85	54.00	-17.15	HORIZONTAL	Average
4	2390.000	60.28	26.43	4.88	37.42	54.17	74.00	-19.83	HORIZONTAL	Peak
5	2483.500	37.45	26.58	5.23	37.40	31.86	54.00	-22.14	HORIZONTAL	Average
6	2483.500	54.19	26.58	5.23	37.40	48.60	74.00	-25.40	HORIZONTAL	Peak
7	2500.000	36.78	26.60	4.95	37.39	30.94	54.00	-23.06	HORIZONTAL	Average
8	2500.000	52.00	26.60	4.95	37.39	46.16	74.00	-27.84	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:Low

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	33.03	26.25	5.03	37.44	26.87	54.00	-27.13	VERTICAL	Average
2	2310.000	46.42	26.25	5.03	37.44	40.26	74.00	-33.74	VERTICAL	Peak
3	2390.000	38.62	26.43	4.88	37.42	32.51	54.00	-21.49	VERTICAL	Average
4	2390.000	56.13	26.43	4.88	37.42	50.02	74.00	-23.98	VERTICAL	Peak
5	2483.500	35.82	26.58	5.23	37.40	30.23	54.00	-23.77	VERTICAL	Average
6	2483.500	48.24	26.58	5.23	37.40	42.65	74.00	-31.35	VERTICAL	Peak
7	2500.000	34.40	26.60	4.95	37.39	28.56	54.00	-25.44	VERTICAL	Average
8	2500.000	48.93	26.60	4.95	37.39	43.09	74.00	-30.91	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:High

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	28.44	26.25	5.03	37.44	22.28	54.00	-31.72	HORIZONTAL	Average
2	2310.000	43.73	26.25	5.03	37.44	37.57	74.00	-36.43	HORIZONTAL	Peak
3	2390.000	31.85	26.43	4.88	37.42	25.74	54.00	-28.26	HORIZONTAL	Average
4	2390.000	45.54	26.43	4.88	37.42	39.43	74.00	-34.57	HORIZONTAL	Peak
5	2483.500	33.25	26.58	5.23	37.40	27.66	54.00	-26.34	HORIZONTAL	Average
6	2483.500	47.46	26.58	5.23	37.40	41.87	74.00	-32.13	HORIZONTAL	Peak
7	2500.000	33.53	26.60	4.95	37.39	27.69	54.00	-26.31	HORIZONTAL	Average
8	2500.000	46.75	26.60	4.95	37.39	40.91	74.00	-33.09	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:High

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	34.17	26.25	5.03	37.44	28.01	54.00	-25.99	VERTICAL	Average
2	2310.000	47.68	26.25	5.03	37.44	41.52	74.00	-32.48	VERTICAL	Peak
3	2390.000	32.52	26.43	4.88	37.42	26.41	54.00	-27.59	VERTICAL	Average
4	2390.000	48.45	26.43	4.88	37.42	42.34	74.00	-31.66	VERTICAL	Peak
5	2483.500	42.66	26.58	5.23	37.40	37.07	54.00	-16.93	VERTICAL	Average
6	2483.500	59.16	26.58	5.23	37.40	53.57	74.00	-20.43	VERTICAL	Peak
7	2500.000	39.40	26.60	4.95	37.39	33.56	54.00	-20.44	VERTICAL	Average
8	2500.000	53.31	26.60	4.95	37.39	47.47	74.00	-26.53	VERTICAL	Peak

7.8 Radiated Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.247(d)
Test Method: ANSI C63.10 (2013) Section 6.4,6.5,6.6
Measurement Distance: 3m
Limit:

Frequency(MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.		

7.8.1 E.U.T. Operation

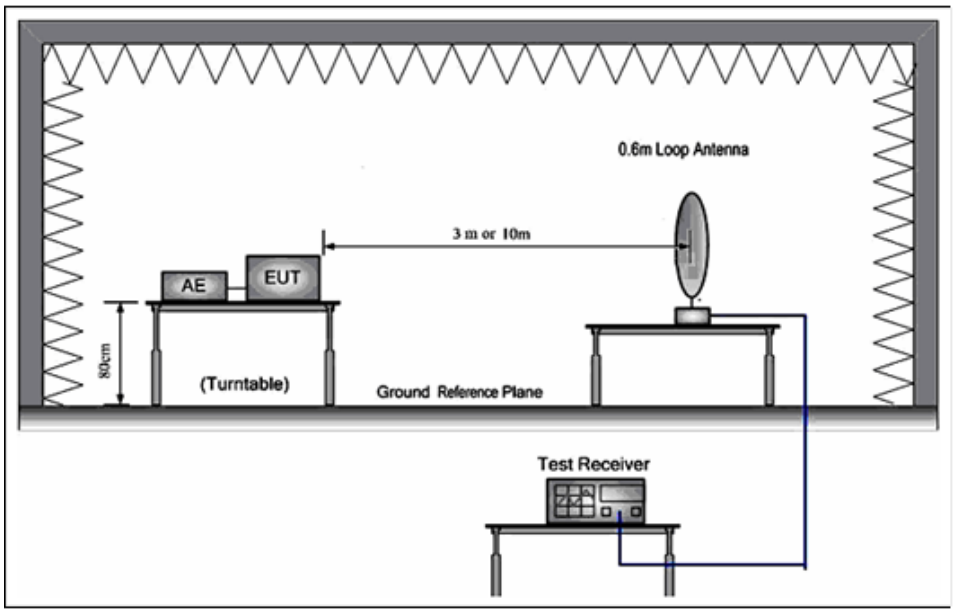
Operating Environment:

Temperature: 23 °C Humidity: 65.3 % RH Atmospheric Pressure: 1020 mbar

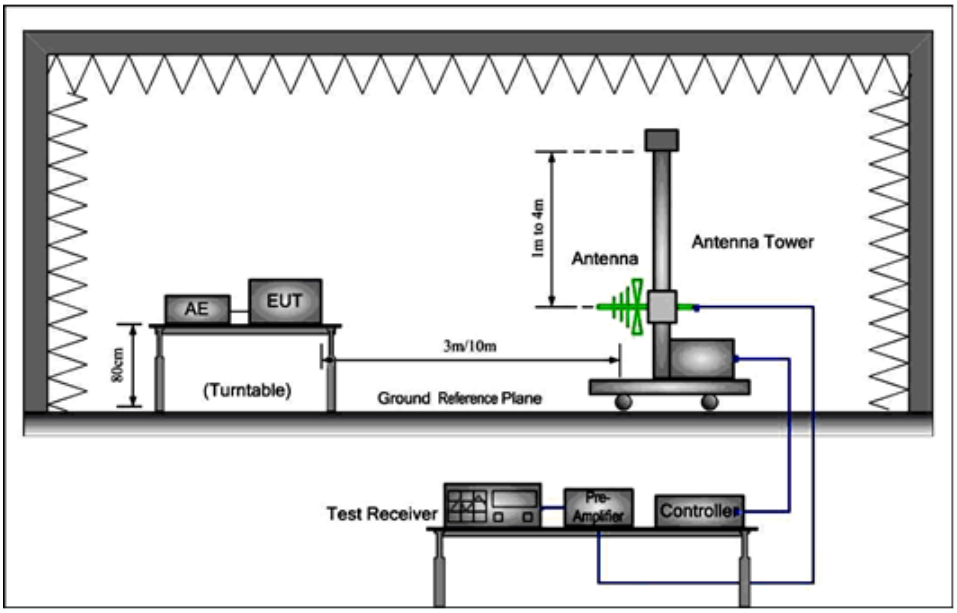
Test mode b:TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

7.8.2 Test Setup Diagram

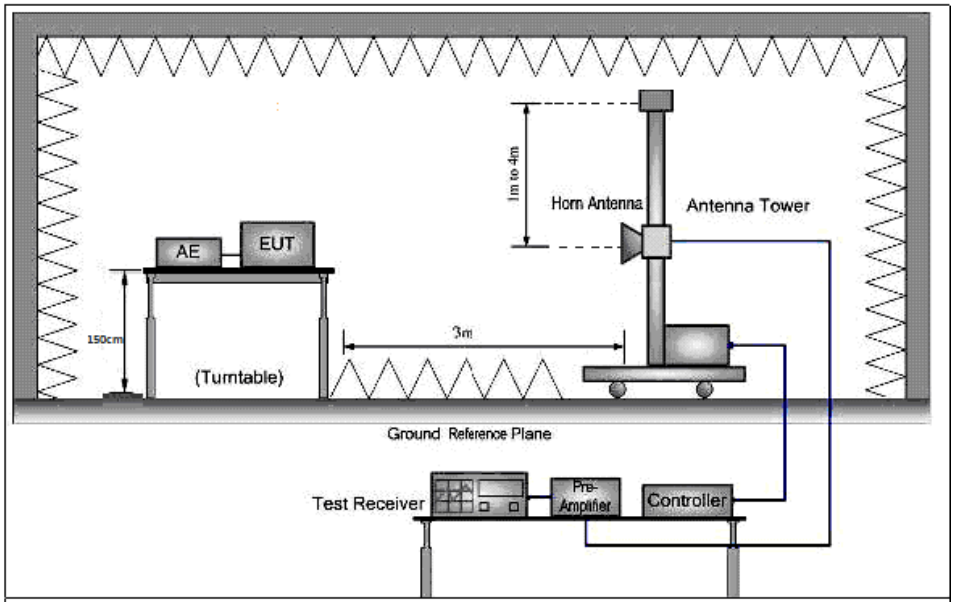
9kHz to 30MHz



30MHz to 1GHz



Above 1GHz



7.8.3 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

Remark:

1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

3) Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

4) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown

Mode:b; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:Low

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	52.575	24.98	12.85	0.60	29.49	8.94	40.00	-31.06	HORIZONTAL	QP
2	66.034	25.42	11.26	0.67	29.43	7.92	40.00	-32.08	HORIZONTAL	QP
3	145.351	27.30	13.17	1.10	29.40	12.17	43.50	-31.33	HORIZONTAL	QP
4	588.905	29.42	20.46	1.97	29.51	22.34	46.00	-23.66	HORIZONTAL	QP
5	766.057	29.30	22.37	2.83	29.41	25.09	46.00	-20.91	HORIZONTAL	QP
6	938.833	29.12	24.39	3.62	28.28	28.85	46.00	-17.15	HORIZONTAL	QP

Mode:b; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:Low

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3703.723	31.40	28.52	7.24	36.93	30.23	54.00	-23.77	HORIZONTAL	Average
2	3703.723	45.83	28.52	7.24	36.93	44.66	74.00	-29.34	HORIZONTAL	Peak
3	4824.771	30.45	30.82	6.01	36.94	30.34	54.00	-23.66	HORIZONTAL	Average
4	4824.771	45.33	30.82	6.01	36.94	45.22	74.00	-28.78	HORIZONTAL	Peak
5	7236.309	29.91	35.55	7.35	36.93	35.88	54.00	-18.12	HORIZONTAL	Average
6	7236.309	43.52	35.55	7.35	36.93	49.49	74.00	-24.51	HORIZONTAL	Peak
7	8319.836	28.47	36.22	8.15	36.92	35.92	54.00	-18.08	HORIZONTAL	Average
8	8319.836	43.24	36.22	8.15	36.92	50.69	74.00	-23.31	HORIZONTAL	Peak
9	9648.970	28.57	37.54	8.18	37.08	37.21	54.00	-16.79	HORIZONTAL	Average
10	9648.970	43.18	37.54	8.18	37.08	51.82	74.00	-22.18	HORIZONTAL	Peak
11	12060.850	27.96	39.46	10.71	37.17	40.96	54.00	-13.04	HORIZONTAL	Average
12	12060.850	41.08	39.46	10.71	37.17	54.08	74.00	-19.92	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:b; bandwidth:20MHz; Channel:Low

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	55.415	25.65	12.52	0.59	29.49	9.27	40.00	-30.73	VERTICAL	QP
2	99.528	28.84	9.56	0.85	29.40	9.85	43.50	-33.65	VERTICAL	QP
3	163.182	28.01	13.31	1.28	29.40	13.20	43.50	-30.30	VERTICAL	QP
4	590.974	30.47	20.49	1.99	29.51	23.44	46.00	-22.56	VERTICAL	QP
5	752.743	28.52	22.16	2.96	29.41	24.23	46.00	-21.77	VERTICAL	QP
6	929.008	28.55	24.27	3.68	28.35	28.15	46.00	-17.85	VERTICAL	QP

Mode:b; Polarization:Vertical; Modulation:b; bandwidth:20MHz; Channel:Low

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3867.831	34.47	29.22	7.69	36.91	34.47	54.00	-19.53	VERTICAL	Average
2	3867.831	45.35	29.22	7.69	36.91	45.35	74.00	-28.65	VERTICAL	Peak
3	4824.197	33.86	30.82	6.01	36.94	33.75	54.00	-20.25	VERTICAL	Average
4	4824.197	46.32	30.82	6.01	36.94	46.21	74.00	-27.79	VERTICAL	Peak
5	6954.852	28.11	35.06	7.26	36.95	33.48	54.00	-20.52	VERTICAL	Average
6	6954.852	44.14	35.06	7.26	36.95	49.51	74.00	-24.49	VERTICAL	Peak
7	8638.399	30.20	36.20	7.96	36.95	37.41	54.00	-16.59	VERTICAL	Average
8	8638.399	43.91	36.20	7.96	36.95	51.12	74.00	-22.88	VERTICAL	Peak
9	9648.020	29.54	37.54	8.18	37.08	38.18	54.00	-15.82	VERTICAL	Average
10	9648.020	43.47	37.54	8.18	37.08	52.11	74.00	-21.89	VERTICAL	Peak
11	12060.610	25.24	39.46	10.71	37.17	38.24	54.00	-15.76	VERTICAL	Average
12	12060.610	40.61	39.46	10.71	37.17	53.61	74.00	-20.39	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:middle

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3757.637	30.40	28.82	7.65	36.92	29.95	54.00	-24.05	HORIZONTAL	Average
2	3757.637	44.75	28.82	7.65	36.92	44.30	74.00	-29.70	HORIZONTAL	Peak
3	4884.276	31.89	30.95	6.86	36.95	32.75	54.00	-21.25	HORIZONTAL	Average
4	4884.276	44.64	30.95	6.86	36.95	45.50	74.00	-28.50	HORIZONTAL	Peak
5	7326.420	27.63	35.74	7.39	36.92	33.84	54.00	-20.16	HORIZONTAL	Average
6	7326.420	42.70	35.74	7.39	36.92	48.91	74.00	-25.09	HORIZONTAL	Peak
7	8285.710	27.54	36.25	8.17	36.92	35.04	54.00	-18.96	HORIZONTAL	Average
8	8285.710	43.95	36.25	8.17	36.92	51.45	74.00	-22.55	HORIZONTAL	Peak
9	9768.240	28.23	37.74	8.37	37.09	37.25	54.00	-16.75	HORIZONTAL	Average
10	9768.240	42.72	37.74	8.37	37.09	51.74	74.00	-22.26	HORIZONTAL	Peak
11	12210.950	27.13	39.21	10.98	37.06	40.26	54.00	-13.74	HORIZONTAL	Average
12	12210.950	41.61	39.21	10.98	37.06	54.74	74.00	-19.26	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:b; bandwidth:20MHz; Channel:middle

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	4145.664	30.21	29.64	6.76	36.90	29.71	54.00	-24.29	VERTICAL	Average
2	4145.664	44.25	29.64	6.76	36.90	43.75	74.00	-30.25	VERTICAL	Peak
3	4884.151	31.16	30.95	6.86	36.95	32.02	54.00	-21.98	VERTICAL	Average
4	4884.151	45.67	30.95	6.86	36.95	46.53	74.00	-27.47	VERTICAL	Peak
5	7326.708	28.41	35.74	7.39	36.92	34.62	54.00	-19.38	VERTICAL	Average
6	7326.708	43.19	35.74	7.39	36.92	49.40	74.00	-24.60	VERTICAL	Peak
7	8943.274	28.84	36.47	8.18	37.00	36.49	54.00	-17.51	VERTICAL	Average
8	8943.274	43.83	36.47	8.18	37.00	51.48	74.00	-22.52	VERTICAL	Peak
9	9768.020	29.49	37.74	8.37	37.09	38.51	54.00	-15.49	VERTICAL	Average
10	9768.020	44.02	37.74	8.37	37.09	53.04	74.00	-20.96	VERTICAL	Peak
11	12210.850	27.17	39.21	10.98	37.06	40.30	54.00	-13.70	VERTICAL	Average
12	12210.850	41.10	39.21	10.98	37.06	54.23	74.00	-19.77	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:High

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3141.145	31.21	27.90	5.65	37.02	27.74	54.00	-26.26	HORIZONTAL	Average
2	3141.145	47.15	27.90	5.65	37.02	43.68	74.00	-30.32	HORIZONTAL	Peak
3	4924.317	31.11	31.01	7.49	36.95	32.66	54.00	-21.34	HORIZONTAL	Average
4	4924.317	44.53	31.01	7.49	36.95	46.08	74.00	-27.92	HORIZONTAL	Peak
5	7386.092	25.55	35.85	7.42	36.92	31.90	54.00	-22.10	HORIZONTAL	Average
6	7386.092	43.26	35.85	7.42	36.92	49.61	74.00	-24.39	HORIZONTAL	Peak
7	8368.069	26.88	36.18	8.11	36.93	34.24	54.00	-19.76	HORIZONTAL	Average
8	8368.069	43.63	36.18	8.11	36.93	50.99	74.00	-23.01	HORIZONTAL	Peak
9	9848.312	28.54	37.82	8.46	37.09	37.73	54.00	-16.27	HORIZONTAL	Average
10	9848.312	43.29	37.82	8.46	37.09	52.48	74.00	-21.52	HORIZONTAL	Peak
11	12310.610	24.34	39.03	11.10	36.97	37.50	54.00	-16.50	HORIZONTAL	Average
12	12310.610	39.03	39.03	11.10	36.97	52.19	74.00	-21.81	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:b; bandwidth:20MHz; Channel:High

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3567.138	31.64	28.06	6.28	36.94	29.04	54.00	-24.96	VERTICAL	Average
2	3567.138	45.84	28.06	6.28	36.94	43.24	74.00	-30.76	VERTICAL	Peak
3	4924.151	26.56	31.01	7.49	36.95	28.11	54.00	-25.89	VERTICAL	Average
4	4924.151	43.84	31.01	7.49	36.95	45.39	74.00	-28.61	VERTICAL	Peak
5	7386.806	27.38	35.85	7.42	36.92	33.73	54.00	-20.27	VERTICAL	Average
6	7386.806	43.58	35.85	7.42	36.92	49.93	74.00	-24.07	VERTICAL	Peak
7	8789.516	27.59	36.35	8.02	36.97	34.99	54.00	-19.01	VERTICAL	Average
8	8789.516	43.02	36.35	8.02	36.97	50.42	74.00	-23.58	VERTICAL	Peak
9	9848.221	27.84	37.82	8.46	37.09	37.03	54.00	-16.97	VERTICAL	Average
10	9848.221	42.91	37.82	8.46	37.09	52.10	74.00	-21.90	VERTICAL	Peak
11	12310.220	27.68	39.03	11.10	36.97	40.84	54.00	-13.16	VERTICAL	Average
12	12310.220	40.86	39.03	11.10	36.97	54.02	74.00	-19.98	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:Low

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	54.071	24.92	12.71	0.59	29.49	8.73	40.00	-31.27	HORIZONTAL	QP
2	100.581	29.57	9.64	0.85	29.40	10.66	43.50	-32.84	HORIZONTAL	QP
3	173.205	27.86	12.88	1.32	29.40	12.66	43.50	-30.84	HORIZONTAL	QP
4	616.372	29.08	20.70	2.10	29.50	22.38	46.00	-23.62	HORIZONTAL	QP
5	807.429	28.70	22.78	2.76	29.37	24.87	46.00	-21.13	HORIZONTAL	QP
6	945.440	27.87	24.49	3.57	28.24	27.69	46.00	-18.31	HORIZONTAL	QP

Mode:b; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:Low

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	4824.962	34.09	30.82	6.01	36.94	33.98	54.00	-20.02	HORIZONTAL	Average
2	4824.962	48.14	30.82	6.01	36.94	48.03	74.00	-25.97	HORIZONTAL	Peak
3	6106.616	29.69	32.63	7.01	37.00	32.33	54.00	-21.67	HORIZONTAL	Average
4	6106.616	43.52	32.63	7.01	37.00	46.16	74.00	-27.84	HORIZONTAL	Peak
5	7236.052	45.17	35.55	7.35	36.93	51.14	54.00	-3.86	HORIZONTAL	Average
6	7236.052	48.78	35.55	7.35	36.93	54.75	74.00	-19.25	HORIZONTAL	Peak
7	8840.473	28.30	36.40	8.06	36.98	35.78	54.00	-18.22	HORIZONTAL	Average
8	8840.473	43.41	36.40	8.06	36.98	50.89	74.00	-23.11	HORIZONTAL	Peak
9	9648.140	28.08	37.54	8.18	37.08	36.72	54.00	-17.28	HORIZONTAL	Average
10	9648.140	43.32	37.54	8.18	37.08	51.96	74.00	-22.04	HORIZONTAL	Peak
11	12060.610	26.61	39.46	10.71	37.17	39.61	54.00	-14.39	HORIZONTAL	Average
12	12060.610	40.97	39.46	10.71	37.17	53.97	74.00	-20.03	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:Low

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	51.662	32.55	12.91	0.60	29.50	16.56	40.00	-23.44	VERTICAL	QP
2	58.203	30.20	12.29	0.58	29.48	13.59	40.00	-26.41	VERTICAL	QP
3	86.200	33.44	7.87	0.83	29.40	12.74	40.00	-27.26	VERTICAL	QP
4	158.112	26.42	13.38	1.25	29.40	11.65	43.50	-31.85	VERTICAL	QP
5	724.261	28.34	21.66	3.56	29.43	24.13	46.00	-21.87	VERTICAL	QP
6	919.287	26.91	24.16	3.74	28.43	26.38	46.00	-19.62	VERTICAL	QP

Mode:b; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:Low

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3834.438	33.61	29.12	7.80	36.91	33.62	54.00	-20.38	VERTICAL	Average
2	3834.438	45.80	29.12	7.80	36.91	45.81	74.00	-28.19	VERTICAL	Peak
3	4824.662	33.78	30.82	6.01	36.94	33.67	54.00	-20.33	VERTICAL	Average
4	4824.662	48.92	30.82	6.01	36.94	48.81	74.00	-25.19	VERTICAL	Peak
5	7236.150	31.91	35.55	7.35	36.93	37.88	54.00	-16.12	VERTICAL	Average
6	7236.150	44.85	35.55	7.35	36.93	50.82	74.00	-23.18	VERTICAL	Peak
7	8539.102	25.76	36.13	8.00	36.94	32.95	54.00	-21.05	VERTICAL	Average
8	8539.102	42.71	36.13	8.00	36.94	49.90	74.00	-24.10	VERTICAL	Peak
9	9648.390	27.90	37.54	8.18	37.08	36.54	54.00	-17.46	VERTICAL	Average
10	9648.390	43.00	37.54	8.18	37.08	51.64	74.00	-22.36	VERTICAL	Peak
11	12060.850	25.98	39.46	10.71	37.17	38.98	54.00	-15.02	VERTICAL	Average
12	12060.850	40.13	39.46	10.71	37.17	53.13	74.00	-20.87	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:middle

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3725.195	30.68	28.64	7.42	36.92	29.82	54.00	-24.18	HORIZONTAL	Average
2	3725.195	44.92	28.64	7.42	36.92	44.06	74.00	-29.94	HORIZONTAL	Peak
3	4884.043	42.23	30.95	6.86	36.95	43.09	54.00	-10.91	HORIZONTAL	Average
4	4884.043	47.81	30.95	6.86	36.95	48.67	74.00	-25.33	HORIZONTAL	Peak
5	7326.267	45.88	35.74	7.39	36.92	52.09	54.00	-3.91	HORIZONTAL	Average
6	7326.267	48.97	35.74	7.39	36.92	55.18	74.00	-18.82	HORIZONTAL	Peak
7	8866.062	31.29	36.42	8.09	36.99	38.81	54.00	-15.19	HORIZONTAL	Average
8	8866.062	42.98	36.42	8.09	36.99	50.50	74.00	-23.50	HORIZONTAL	Peak
9	9768.240	30.99	37.74	8.37	37.09	40.01	54.00	-13.99	HORIZONTAL	Average
10	9768.240	43.20	37.74	8.37	37.09	52.22	74.00	-21.78	HORIZONTAL	Peak
11	12210.300	27.09	39.21	10.98	37.06	40.22	54.00	-13.78	HORIZONTAL	Average
12	12210.300	41.57	39.21	10.98	37.06	54.70	74.00	-19.30	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:middle

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3867.831	31.20	29.22	7.69	36.91	31.20	54.00	-22.80	VERTICAL	Average
2	3867.831	45.51	29.22	7.69	36.91	45.51	74.00	-28.49	VERTICAL	Peak
3	4884.043	31.62	30.95	6.86	36.95	32.48	54.00	-21.52	VERTICAL	Average
4	4884.043	46.76	30.95	6.86	36.95	47.62	74.00	-26.38	VERTICAL	Peak
5	7326.267	34.72	35.74	7.39	36.92	40.93	54.00	-13.07	VERTICAL	Average
6	7326.267	47.44	35.74	7.39	36.92	53.65	74.00	-20.35	VERTICAL	Peak
7	8840.473	29.91	36.40	8.06	36.98	37.39	54.00	-16.61	VERTICAL	Average
8	8840.473	43.06	36.40	8.06	36.98	50.54	74.00	-23.46	VERTICAL	Peak
9	9768.349	29.33	37.74	8.37	37.09	38.35	54.00	-15.65	VERTICAL	Average
10	9768.349	44.00	37.74	8.37	37.09	53.02	74.00	-20.98	VERTICAL	Peak
11	12210.700	27.38	39.21	10.98	37.06	40.51	54.00	-13.49	VERTICAL	Average
12	12210.700	41.13	39.21	10.98	37.06	54.26	74.00	-19.74	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:High

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3308.894	32.92	27.90	5.66	36.98	29.50	54.00	-24.50	HORIZONTAL	Average
2	3308.894	47.35	27.90	5.66	36.98	43.93	74.00	-30.07	HORIZONTAL	Peak
3	4924.241	28.50	31.01	7.49	36.95	30.05	54.00	-23.95	HORIZONTAL	Average
4	4924.241	43.29	31.01	7.49	36.95	44.84	74.00	-29.16	HORIZONTAL	Peak
5	7386.906	29.83	35.85	7.42	36.92	36.18	54.00	-17.82	HORIZONTAL	Average
6	7386.906	43.15	35.85	7.42	36.92	49.50	74.00	-24.50	HORIZONTAL	Peak
7	8789.516	28.13	36.35	8.02	36.97	35.53	54.00	-18.47	HORIZONTAL	Average
8	8789.516	43.47	36.35	8.02	36.97	50.87	74.00	-23.13	HORIZONTAL	Peak
9	9848.916	29.10	37.82	8.46	37.09	38.29	54.00	-15.71	HORIZONTAL	Average
10	9848.916	44.95	37.82	8.46	37.09	54.14	74.00	-19.86	HORIZONTAL	Peak
11	12310.540	26.53	39.03	11.10	36.97	39.69	54.00	-14.31	HORIZONTAL	Average
12	12310.540	40.51	39.03	11.10	36.97	53.67	74.00	-20.33	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:High

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	4218.186	30.88	29.75	6.58	36.91	30.30	54.00	-23.70	VERTICAL	Average
2	4218.186	45.63	29.75	6.58	36.91	45.05	74.00	-28.95	VERTICAL	Peak
3	4924.662	32.09	31.01	7.49	36.95	33.64	54.00	-20.36	VERTICAL	Average
4	4924.662	46.37	31.01	7.49	36.95	47.92	74.00	-26.08	VERTICAL	Peak
5	7386.527	31.12	35.85	7.42	36.92	37.47	54.00	-16.53	VERTICAL	Average
6	7386.527	44.16	35.85	7.42	36.92	50.51	74.00	-23.49	VERTICAL	Peak
7	8764.146	29.97	36.33	8.00	36.97	37.33	54.00	-16.67	VERTICAL	Average
8	8764.146	43.45	36.33	8.00	36.97	50.81	74.00	-23.19	VERTICAL	Peak
9	9848.880	29.04	37.82	8.46	37.09	38.23	54.00	-15.77	VERTICAL	Average
10	9848.880	44.57	37.82	8.46	37.09	53.76	74.00	-20.24	VERTICAL	Peak
11	12310.850	26.21	39.03	11.10	36.97	39.37	54.00	-14.63	VERTICAL	Average
12	12310.850	40.42	39.03	11.10	36.97	53.58	74.00	-20.42	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	54.643	26.16	12.63	0.59	29.49	9.89	40.00	-30.11	HORIZONTAL	QP
2	120.699	29.03	11.54	0.92	29.40	12.09	43.50	-31.41	HORIZONTAL	QP
3	160.909	26.37	13.37	1.27	29.40	11.61	43.50	-31.89	HORIZONTAL	QP
4	506.479	29.11	18.31	2.21	29.63	20.00	46.00	-26.00	HORIZONTAL	QP
5	750.108	29.21	22.11	3.01	29.41	24.92	46.00	-21.08	HORIZONTAL	QP
6	958.794	28.39	24.71	3.44	28.16	28.38	46.00	-17.62	HORIZONTAL	QP

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3682.374	30.73	28.43	7.03	36.93	29.26	54.00	-24.74	HORIZONTAL	Average
2	3682.374	45.43	28.43	7.03	36.93	43.96	74.00	-30.04	HORIZONTAL	Peak
3	4824.633	29.33	30.82	6.01	36.94	29.22	54.00	-24.78	HORIZONTAL	Average
4	4824.633	45.36	30.82	6.01	36.94	45.25	74.00	-28.75	HORIZONTAL	Peak
5	7236.006	27.78	35.55	7.35	36.93	33.75	54.00	-20.25	HORIZONTAL	Average
6	7236.006	44.43	35.55	7.35	36.93	50.40	74.00	-23.60	HORIZONTAL	Peak
7	8917.462	26.27	36.45	8.14	37.00	33.86	54.00	-20.14	HORIZONTAL	Average
8	8917.462	43.98	36.45	8.14	37.00	51.57	74.00	-22.43	HORIZONTAL	Peak
9	9648.312	26.79	37.54	8.18	37.08	35.43	54.00	-18.57	HORIZONTAL	Average
10	9648.312	43.04	37.54	8.18	37.08	51.68	74.00	-22.32	HORIZONTAL	Peak
11	12060.850	26.94	39.46	10.71	37.17	39.94	54.00	-14.06	HORIZONTAL	Average
12	12060.850	40.65	39.46	10.71	37.17	53.65	74.00	-20.35	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	51.121	31.98	12.94	0.60	29.50	16.02	40.00	-23.98	VERTICAL	QP
2	86.503	34.23	7.84	0.84	29.40	13.51	40.00	-26.49	VERTICAL	QP
3	102.001	32.11	9.74	0.85	29.40	13.30	43.50	-30.20	VERTICAL	QP
4	570.610	29.12	20.14	1.94	29.53	21.67	46.00	-24.33	VERTICAL	QP
5	768.748	28.02	22.41	2.83	29.41	23.85	46.00	-22.15	VERTICAL	QP
6	893.857	28.58	23.95	2.86	28.70	26.69	46.00	-19.31	VERTICAL	QP

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3556.843	32.34	28.03	6.24	36.95	29.66	54.00	-24.34	VERTICAL	Average
2	3556.843	46.52	28.03	6.24	36.95	43.84	74.00	-30.16	VERTICAL	Peak
3	4824.058	31.91	30.82	6.01	36.94	31.80	54.00	-22.20	VERTICAL	Average
4	4824.058	46.39	30.82	6.01	36.94	46.28	74.00	-27.72	VERTICAL	Peak
5	6303.890	28.62	33.60	6.96	36.99	32.19	54.00	-21.81	VERTICAL	Average
6	6303.890	43.59	33.60	6.96	36.99	47.16	74.00	-26.84	VERTICAL	Peak
7	7236.806	29.65	35.55	7.35	36.93	35.62	54.00	-18.38	VERTICAL	Average
8	7236.806	44.73	35.55	7.35	36.93	50.70	74.00	-23.30	VERTICAL	Peak
9	9648.916	29.33	37.54	8.18	37.08	37.97	54.00	-16.03	VERTICAL	Average
10	9648.916	42.71	37.54	8.18	37.08	51.35	74.00	-22.65	VERTICAL	Peak
11	12060.350	27.86	39.46	10.71	37.17	40.86	54.00	-13.14	VERTICAL	Average
12	12060.350	41.79	39.46	10.71	37.17	54.79	74.00	-19.21	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:middle

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	4884.339	29.06	30.95	6.86	36.95	29.92	54.00	-24.08	HORIZONTAL	Average
2	4884.339	44.68	30.95	6.86	36.95	45.54	74.00	-28.46	HORIZONTAL	Peak
3	5967.033	27.59	32.28	7.20	37.00	30.07	54.00	-23.93	HORIZONTAL	Average
4	5967.033	44.40	32.28	7.20	37.00	46.88	74.00	-27.12	HORIZONTAL	Peak
5	7326.034	29.49	35.74	7.39	36.92	35.70	54.00	-18.30	HORIZONTAL	Average
6	7326.034	44.47	35.74	7.39	36.92	50.68	74.00	-23.32	HORIZONTAL	Peak
7	8738.852	26.09	36.30	7.98	36.96	33.41	54.00	-20.59	HORIZONTAL	Average
8	8738.852	43.08	36.30	7.98	36.96	50.40	74.00	-23.60	HORIZONTAL	Peak
9	9768.450	26.06	37.74	8.37	37.09	35.08	54.00	-18.92	HORIZONTAL	Average
10	9768.450	42.47	37.74	8.37	37.09	51.49	74.00	-22.51	HORIZONTAL	Peak
11	12210.390	24.42	39.21	10.98	37.06	37.55	54.00	-16.45	HORIZONTAL	Average
12	12210.390	40.15	39.21	10.98	37.06	53.28	74.00	-20.72	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:middle

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3757.637	29.66	28.82	7.65	36.92	29.21	54.00	-24.79	VERTICAL	Average
2	3757.637	45.60	28.82	7.65	36.92	45.15	74.00	-28.85	VERTICAL	Peak
3	4884.276	31.28	30.95	6.86	36.95	32.14	54.00	-21.86	VERTICAL	Average
4	4884.276	46.05	30.95	6.86	36.95	46.91	74.00	-27.09	VERTICAL	Peak
5	7326.542	28.83	35.74	7.39	36.92	35.04	54.00	-18.96	VERTICAL	Average
6	7326.542	43.10	35.74	7.39	36.92	49.31	74.00	-24.69	VERTICAL	Peak
7	8489.882	25.46	36.10	8.03	36.94	32.65	54.00	-21.35	VERTICAL	Average
8	8489.882	42.98	36.10	8.03	36.94	50.17	74.00	-23.83	VERTICAL	Peak
9	9768.432	27.44	37.74	8.37	37.09	36.46	54.00	-17.54	VERTICAL	Average
10	9768.432	43.84	37.74	8.37	37.09	52.86	74.00	-21.14	VERTICAL	Peak
11	12210.850	26.40	39.21	10.98	37.06	39.53	54.00	-14.47	VERTICAL	Average
12	12210.850	41.32	39.21	10.98	37.06	54.45	74.00	-19.55	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3650.582	31.41	28.31	6.75	36.93	29.54	54.00	-24.46	HORIZONTAL	Average
2	3650.582	45.96	28.31	6.75	36.93	44.09	74.00	-29.91	HORIZONTAL	Peak
3	4924.151	28.29	31.01	7.49	36.95	29.84	54.00	-24.16	HORIZONTAL	Average
4	4924.151	43.85	31.01	7.49	36.95	45.40	74.00	-28.60	HORIZONTAL	Peak
5	7386.852	26.31	35.85	7.42	36.92	32.66	54.00	-21.34	HORIZONTAL	Average
6	7386.852	42.77	35.85	7.42	36.92	49.12	74.00	-24.88	HORIZONTAL	Peak
7	8764.146	25.75	36.33	8.00	36.97	33.11	54.00	-20.89	HORIZONTAL	Average
8	8764.146	43.43	36.33	8.00	36.97	50.79	74.00	-23.21	HORIZONTAL	Peak
9	9848.497	27.08	37.82	8.46	37.09	36.27	54.00	-17.73	HORIZONTAL	Average
10	9848.497	43.73	37.82	8.46	37.09	52.92	74.00	-21.08	HORIZONTAL	Peak
11	12310.540	24.37	39.03	11.10	36.97	37.53	54.00	-16.47	HORIZONTAL	Average
12	12310.540	40.89	39.03	11.10	36.97	54.05	74.00	-19.95	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3992.781	28.74	29.48	7.26	36.90	28.58	54.00	-25.42	VERTICAL	Average
2	3992.781	45.91	29.48	7.26	36.90	45.75	74.00	-28.25	VERTICAL	Peak
3	4924.307	28.58	31.01	7.49	36.95	30.13	54.00	-23.87	VERTICAL	Average
4	4924.307	44.83	31.01	7.49	36.95	46.38	74.00	-27.62	VERTICAL	Peak
5	7386.309	27.11	35.85	7.42	36.92	33.46	54.00	-20.54	VERTICAL	Average
6	7386.309	43.83	35.85	7.42	36.92	50.18	74.00	-23.82	VERTICAL	Peak
7	8917.462	28.60	36.45	8.14	37.00	36.19	54.00	-17.81	VERTICAL	Average
8	8917.462	43.95	36.45	8.14	37.00	51.54	74.00	-22.46	VERTICAL	Peak
9	9848.530	27.61	37.82	8.46	37.09	36.80	54.00	-17.20	VERTICAL	Average
10	9848.530	43.73	37.82	8.46	37.09	52.92	74.00	-21.08	VERTICAL	Peak
11	12310.900	26.03	39.03	11.10	36.97	39.19	54.00	-14.81	VERTICAL	Average
12	12310.900	40.94	39.03	11.10	36.97	54.10	74.00	-19.90	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:Low

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	50.942	26.66	12.95	0.60	29.50	10.71	40.00	-29.29	HORIZONTAL	QP
2	71.832	26.17	10.50	0.73	29.41	7.99	40.00	-32.01	HORIZONTAL	QP
3	142.824	27.67	13.13	1.07	29.40	12.47	43.50	-31.03	HORIZONTAL	QP
4	549.020	29.20	19.49	2.12	29.55	21.26	46.00	-24.74	HORIZONTAL	QP
5	766.057	29.36	22.37	2.83	29.41	25.15	46.00	-20.85	HORIZONTAL	QP
6	919.287	28.68	24.16	3.74	28.43	28.15	46.00	-17.85	HORIZONTAL	QP

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:Low

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3735.978	29.84	28.70	7.50	36.92	29.12	54.00	-24.88	HORIZONTAL	Average
2	3735.978	45.44	28.70	7.50	36.92	44.72	74.00	-29.28	HORIZONTAL	Peak
3	4844.339	29.74	30.88	6.31	36.94	29.99	54.00	-24.01	HORIZONTAL	Average
4	4844.339	45.38	30.88	6.31	36.94	45.63	74.00	-28.37	HORIZONTAL	Peak
5	7266.262	29.52	35.60	7.36	36.92	35.56	54.00	-18.44	HORIZONTAL	Average
6	7266.262	43.64	35.60	7.36	36.92	49.68	74.00	-24.32	HORIZONTAL	Peak
7	9047.272	28.85	36.57	8.29	37.02	36.69	54.00	-17.31	HORIZONTAL	Average
8	9047.272	43.97	36.57	8.29	37.02	51.81	74.00	-22.19	HORIZONTAL	Peak
9	9688.480	29.05	37.61	8.25	37.08	37.83	54.00	-16.17	HORIZONTAL	Average
10	9688.480	44.01	37.61	8.25	37.08	52.79	74.00	-21.21	HORIZONTAL	Peak
11	12110.700	28.07	39.37	10.82	37.12	41.14	54.00	-12.86	HORIZONTAL	Average
12	12110.700	42.72	39.37	10.82	37.12	55.79	74.00	-18.21	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:Low

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	45.855	29.30	12.87	0.70	29.52	13.35	40.00	-26.65	VERTICAL	QP
2	56.991	32.43	12.37	0.58	29.48	15.90	40.00	-24.10	VERTICAL	QP
3	89.905	36.46	7.60	0.84	29.40	15.50	43.50	-28.00	VERTICAL	QP
4	173.814	29.93	12.86	1.32	29.40	14.71	43.50	-28.79	VERTICAL	QP
5	656.530	29.60	21.12	2.12	29.48	23.36	46.00	-22.64	VERTICAL	QP
6	922.516	28.76	24.20	3.72	28.40	28.28	46.00	-17.72	VERTICAL	QP

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:Low

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3992.781	31.36	29.48	7.26	36.90	31.20	54.00	-22.80	VERTICAL	Average
2	3992.781	45.54	29.48	7.26	36.90	45.38	74.00	-28.62	VERTICAL	Peak
3	4844.721	31.98	30.88	6.31	36.94	32.23	54.00	-21.77	VERTICAL	Average
4	4844.721	45.35	30.88	6.31	36.94	45.60	74.00	-28.40	VERTICAL	Peak
5	7266.999	28.12	35.60	7.36	36.92	34.16	54.00	-19.84	VERTICAL	Average
6	7266.999	43.33	35.60	7.36	36.92	49.37	74.00	-24.63	VERTICAL	Peak
7	8638.399	27.46	36.20	7.96	36.95	34.67	54.00	-19.33	VERTICAL	Average
8	8638.399	42.57	36.20	7.96	36.95	49.78	74.00	-24.22	VERTICAL	Peak
9	9688.312	27.88	37.61	8.25	37.08	36.66	54.00	-17.34	VERTICAL	Average
10	9688.312	43.53	37.61	8.25	37.08	52.31	74.00	-21.69	VERTICAL	Peak
11	12110.740	25.58	39.37	10.82	37.12	38.65	54.00	-15.35	VERTICAL	Average
12	12110.740	39.93	39.37	10.82	37.12	53.00	74.00	-21.00	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:middle

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3725.195	30.41	28.64	7.42	36.92	29.55	54.00	-24.45	HORIZONTAL	Average
2	3725.195	44.24	28.64	7.42	36.92	43.38	74.00	-30.62	HORIZONTAL	Peak
3	4884.993	29.47	30.95	6.86	36.95	30.33	54.00	-23.67	HORIZONTAL	Average
4	4884.993	45.25	30.95	6.86	36.95	46.11	74.00	-27.89	HORIZONTAL	Peak
5	7326.070	28.89	35.74	7.39	36.92	35.10	54.00	-18.90	HORIZONTAL	Average
6	7326.070	43.57	35.74	7.39	36.92	49.78	74.00	-24.22	HORIZONTAL	Peak
7	8713.630	26.31	36.27	7.96	36.96	33.58	54.00	-20.42	HORIZONTAL	Average
8	8713.630	41.88	36.27	7.96	36.96	49.15	74.00	-24.85	HORIZONTAL	Peak
9	9768.420	26.96	37.74	8.37	37.09	35.98	54.00	-18.02	HORIZONTAL	Average
10	9768.420	43.73	37.74	8.37	37.09	52.75	74.00	-21.25	HORIZONTAL	Peak
11	12110.580	24.61	39.37	10.82	37.12	37.68	54.00	-16.32	HORIZONTAL	Average
12	12110.580	40.23	39.37	10.82	37.12	53.30	74.00	-20.70	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:middle

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3867.831	28.26	29.22	7.69	36.91	28.26	54.00	-25.74	VERTICAL	Average
2	3867.831	44.82	29.22	7.69	36.91	44.82	74.00	-29.18	VERTICAL	Peak
3	4884.307	31.46	30.95	6.86	36.95	32.32	54.00	-21.68	VERTICAL	Average
4	4884.307	45.29	30.95	6.86	36.95	46.15	74.00	-27.85	VERTICAL	Peak
5	6159.797	31.53	32.84	6.95	37.00	34.32	54.00	-19.68	VERTICAL	Average
6	6159.797	43.01	32.84	6.95	37.00	45.80	74.00	-28.20	VERTICAL	Peak
7	7326.349	29.21	35.74	7.39	36.92	35.42	54.00	-18.58	VERTICAL	Average
8	7326.349	44.18	35.74	7.39	36.92	50.39	74.00	-23.61	VERTICAL	Peak
9	9768.390	30.67	37.74	8.37	37.09	39.69	54.00	-14.31	VERTICAL	Average
10	9768.390	43.65	37.74	8.37	37.09	52.67	74.00	-21.33	VERTICAL	Peak
11	12210.900	27.65	39.21	10.98	37.06	40.78	54.00	-13.22	VERTICAL	Average
12	12210.900	42.34	39.21	10.98	37.06	55.47	74.00	-18.53	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:High

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3757.637	31.18	28.82	7.65	36.92	30.73	54.00	-23.27	HORIZONTAL	Average
2	3757.637	45.51	28.82	7.65	36.92	45.06	74.00	-28.94	HORIZONTAL	Peak
3	4904.721	32.43	30.97	7.07	36.95	33.52	54.00	-20.48	HORIZONTAL	Average
4	4904.721	45.19	30.97	7.07	36.95	46.28	74.00	-27.72	HORIZONTAL	Peak
5	7356.982	30.95	35.78	7.40	36.92	37.21	54.00	-16.79	HORIZONTAL	Average
6	7356.982	43.64	35.78	7.40	36.92	49.90	74.00	-24.10	HORIZONTAL	Peak
7	8943.274	28.13	36.47	8.18	37.00	35.78	54.00	-18.22	HORIZONTAL	Average
8	8943.274	43.57	36.47	8.18	37.00	51.22	74.00	-22.78	HORIZONTAL	Peak
9	9808.140	28.12	37.79	8.41	37.09	37.23	54.00	-16.77	HORIZONTAL	Average
10	9808.140	42.79	37.79	8.41	37.09	51.90	74.00	-22.10	HORIZONTAL	Peak
11	12260.900	26.27	39.15	11.02	37.03	39.41	54.00	-14.59	HORIZONTAL	Average
12	12260.900	40.89	39.15	11.02	37.03	54.03	74.00	-19.97	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:High

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3856.668	30.31	29.19	7.73	36.91	30.32	54.00	-23.68	VERTICAL	Average
2	3856.668	44.98	29.19	7.73	36.91	44.99	74.00	-29.01	VERTICAL	Peak
3	4904.317	29.59	30.97	7.07	36.95	30.68	54.00	-23.32	VERTICAL	Average
4	4904.317	44.97	30.97	7.07	36.95	46.06	74.00	-27.94	VERTICAL	Peak
5	7356.144	28.23	35.78	7.40	36.92	34.49	54.00	-19.51	VERTICAL	Average
6	7356.144	43.26	35.78	7.40	36.92	49.52	74.00	-24.48	VERTICAL	Peak
7	8764.146	27.24	36.33	8.00	36.97	34.60	54.00	-19.40	VERTICAL	Average
8	8764.146	43.78	36.33	8.00	36.97	51.14	74.00	-22.86	VERTICAL	Peak
9	9808.525	27.78	37.79	8.41	37.09	36.89	54.00	-17.11	VERTICAL	Average
10	9808.525	43.99	37.79	8.41	37.09	53.10	74.00	-20.90	VERTICAL	Peak
11	12260.420	27.96	39.15	11.02	37.03	41.10	54.00	-12.90	VERTICAL	Average
12	12260.420	41.27	39.15	11.02	37.03	54.41	74.00	-19.59	VERTICAL	Peak

8 Appendix

8.1 Appendix 15.247

1.6dB Bandwidth

Test Mode	Test Channel	Ant	OBW[MHz]	EBW[MHz]	Limit	Verdict
11B	2412	Ant1	11.129	8.552	0.5	PASS
11B	2442	Ant1	11.092	8.456	0.5	PASS
11B	2462	Ant1	11.108	8.462	0.5	PASS
11G	2412	Ant1	16.415	16.40	0.5	PASS
11G	2442	Ant1	16.433	16.41	0.5	PASS
11G	2462	Ant1	16.432	16.41	0.5	PASS
11N20SISO	2412	Ant1	17.587	17.14	0.5	PASS
11N20SISO	2442	Ant1	17.595	17.11	0.5	PASS
11N20SISO	2462	Ant1	17.591	17.14	0.5	PASS
11N40SISO	2422	Ant1	36.030	35.76	0.5	PASS
11N40SISO	2442	Ant1	36.083	36.34	0.5	PASS
11N40SISO	2452	Ant1	36.089	36.34	0.5	PASS