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Report No.: GZEM180700437202
Page: 1 of 104
FCC ID: 2AEZA-DI2018

TEST REPORT

Application No.: GZEM1807004372CR
Applicant: GUANZHOU BOSMA TECHNOLOGY CO.,LTD
Address of Applicant: FL.2&3, Building A5, NO.11 Kai-Yuan AVE., Guangzhou, China
Manufacturer: The same as Applicant
Address of Manufacturer: The same as Applicant
Factory: The same as Applicant
Address of Factory: The same as Applicant
Equipment Under Test (EUT):
FCC ID: 2AEZA-DI2018
EUT Name: SMART HUB CAMERA
Model No.: BOSMA X1
Trade Mark: BOSMA
Standard(s) : 47 CFR Part 15, Subpart C 15.247
Date of Receipt: 2018-07-31
Date of Test: 2018-08-08 to 2018-08-22
Date of Issue: 2018-08-24

Test Result:	Pass*
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* 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.

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2018-08-24		Original

Authorized for issue by:			
Tested By		 Curry_Wu /Project Engineer	2018-08-08 to 2018-08-22 Date
Checked By		 Ricky_Liu /Reviewer	2018-08-24 Date

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

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4 General Information

4.1 Details of E.U.T.

Power Supply:	Model:LX050200U001 INPUT:AC 100-240V 50/60Hz OUTPUT:DC 5V 2A
Test Voltage:	AC 120V 60Hz
Cable:	About 0.8m unscreened USB cable
Antenna Gain	3dBi
Antenna Type	Integral 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 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

RF

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

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
198 Kezhu Road, Scientechn Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663

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

No tests were sub-contracted.

4.5 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-2460, C-2584, G-449 and T-1179)**

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-2460, C-2584, G-449 and T-1179 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, IEC600 01 and Rules of procedure IEC600 02, and the relevant IEC600 CB-Scheme Operational documents.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Minimum 6dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2138	2017-11-15	2018-11-14
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 Analyzer	Agilent Technologies	N9010A	EMC2138	2017-11-15	2018-11-14
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 Analyzer	Agilent Technologies	N9010A	EMC2138	2017-11-15	2018-11-14
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 Emissions at Mains Terminals (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	SCHAFFNER CHASE	MN2050D/1	EMC0102	2017-09-20	2018-09-19
EMI Test Receiver	Rohde & Schwarz	ESCS30	EMC0506	2017-11-27	2018-11-26
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

Conducted Band Edges Measurement					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
MXA Signal Analyzer	Agilent Technologies	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	Agilent Technologies	N5171B	SEM006-04	2017-07-26	2020-07-25
Power Meter	Agilent Technologies	U2021XA_Ch2	SEM009-02	2017-09-19	2018-09-18
Power Meter	Agilent Technologies	U2021XA_Ch3	SEM009-03	2017-09-19	2018-09-18
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2138	2017-11-15	2018-11-14
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 Analyzer	Agilent Technologies	N9010A	EMC2138	2017-11-15	2018-11-14
6dB Attenuator	HP	8491A	EMC2062	2018-04-04	2020-04-03
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A

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	SCHWARZBECK MESS-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	2018-01-08	2019-01-07
Amplifier	HP	8447F	EMC2065	2018-06-01	2019-05-31
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2017-11-20	2018-11-19
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	2018-01-08	2019-01-07
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	2017-11-29	2018-11-28
MXE EMI Receiver	Keysight	N9038A	EMC2139	2017-11-15	2018-11-14
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2017-11-15	2018-11-14
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	SCHWARZBECK MESS-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	2018-01-08	2019-01-07
Amplifier	HP	8447F	EMC2065	2018-06-01	2019-05-31
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2017-11-20	2018-11-19
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	2018-01-08	2019-01-07
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	2017-11-29	2018-11-28
MXE EMI Receiver	Keysight	N9038A	EMC2139	2017-11-15	2018-11-14
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2017-11-15	2018-11-14
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

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)

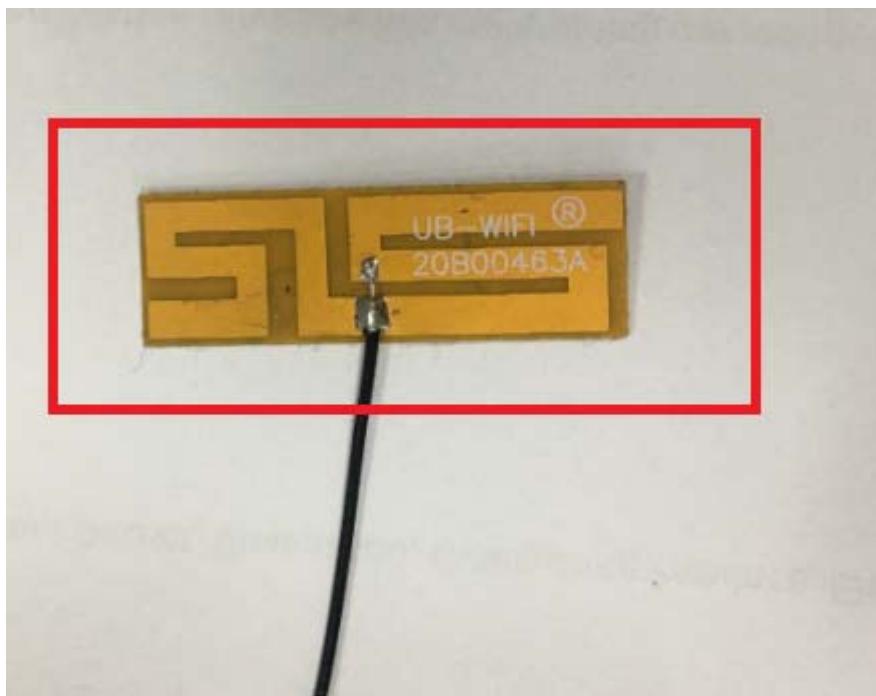
6.1.2 Conclusion

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 3dBi.

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(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.

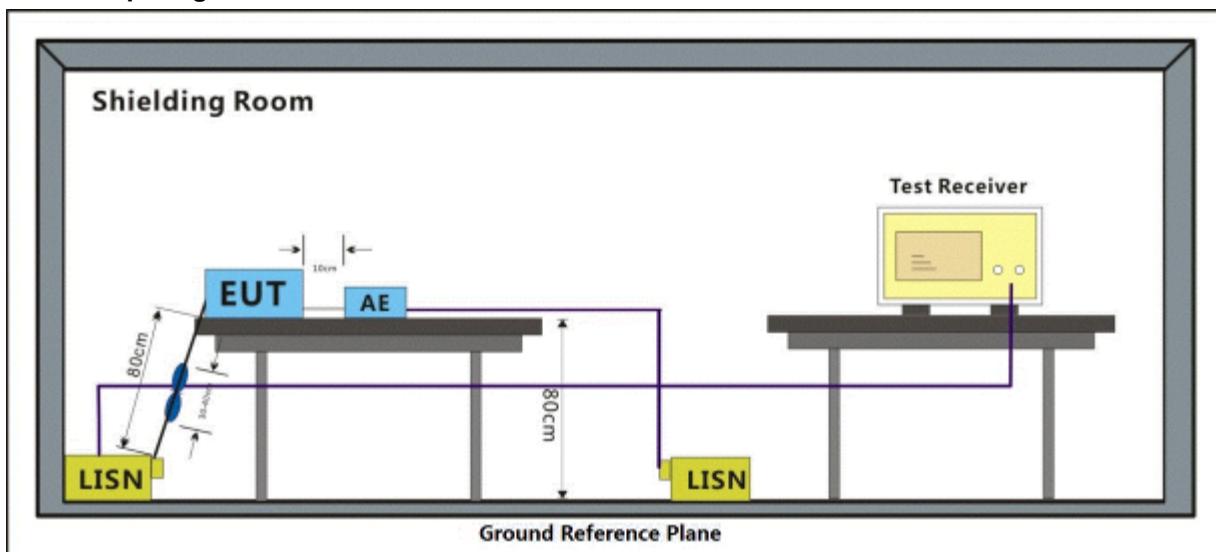
7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 66.5 % RH Atmospheric Pressure: 1020 mbar

Test modes c:WIFI 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.

7.1.2 Test Setup Diagram

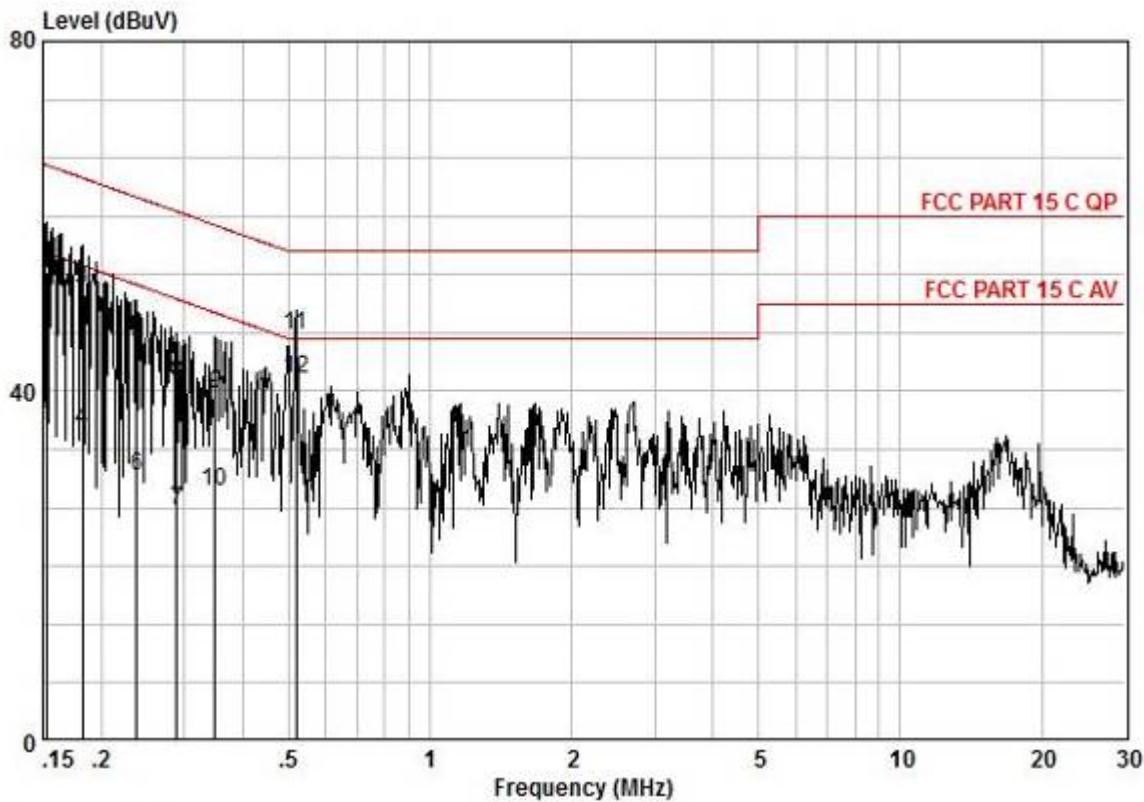


7.1.3 Measurement Procedure and Data

- 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/50 μ H + 50hm 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

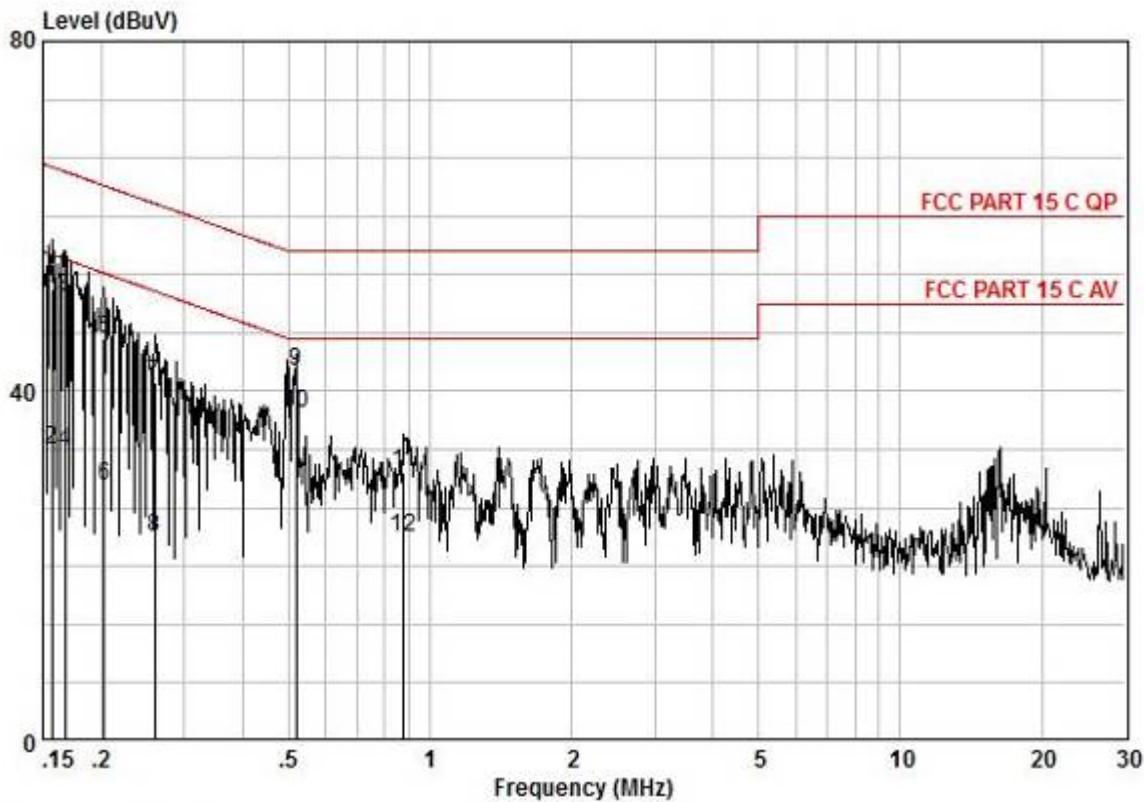
Mode:c; Line:Live Line



Pol :LIVE
No :WIFI
Model :

Frequency MHz	read level dBuV	Cable Loss dB	LISN Factor dB	Measured level dBuV	Limit Line dBuV	Over limit dB	Remark
0.15	26.37	0.10	9.47	35.94	55.87	-19.93	AVERAGE
0.15	44.11	0.10	9.47	53.68	65.87	-12.19	QP
0.18	41.91	0.10	9.57	51.58	64.37	-12.79	QP
0.18	25.76	0.10	9.57	35.43	54.37	-18.94	AVERAGE
0.24	35.73	0.12	9.63	45.48	62.17	-16.70	QP
0.24	20.48	0.12	9.63	30.23	52.17	-21.95	AVERAGE
0.29	16.56	0.14	9.63	26.33	50.54	-24.21	AVERAGE
0.29	31.20	0.14	9.63	40.97	60.54	-19.57	QP
0.35	29.88	0.16	9.64	39.68	59.00	-19.32	QP
0.35	18.81	0.16	9.64	28.61	49.00	-20.39	AVERAGE
0.52	36.51	0.21	9.65	46.36	56.00	-9.64	QP
0.52	31.67	0.21	9.65	41.52	46.00	-4.48	AVERAGE

Mode:c; Line:Neutral Line



Pol : NEUTRAL
No : WIFI
Model :

Frequency MHz	read level dBuV	Cable Loss dB	LISN Factor dB	Measured level dBuV	Limit Line dBuV	Over limit dB	Remark
0.16	42.21	0.10	9.41	51.72	65.65	-13.93	QP
0.16	23.93	0.10	9.41	33.44	55.65	-22.21	AVERAGE
0.17	41.12	0.10	9.46	50.68	65.08	-14.39	QP
0.17	23.56	0.10	9.46	33.12	55.08	-21.95	AVERAGE
0.20	36.20	0.10	9.59	45.89	63.49	-17.60	QP
0.20	19.50	0.10	9.59	29.19	53.49	-24.30	AVERAGE
0.26	31.26	0.13	9.58	40.97	61.42	-20.46	QP
0.26	13.66	0.13	9.58	23.37	51.42	-28.06	AVERAGE
0.52	32.56	0.21	9.55	42.32	56.00	-13.68	QP
0.52	27.82	0.21	9.55	37.58	46.00	-8.42	AVERAGE
0.88	20.91	0.28	9.59	30.78	56.00	-25.22	QP
0.88	13.55	0.28	9.59	23.42	46.00	-22.58	AVERAGE

7.2 Minimum 6dB Bandwidth

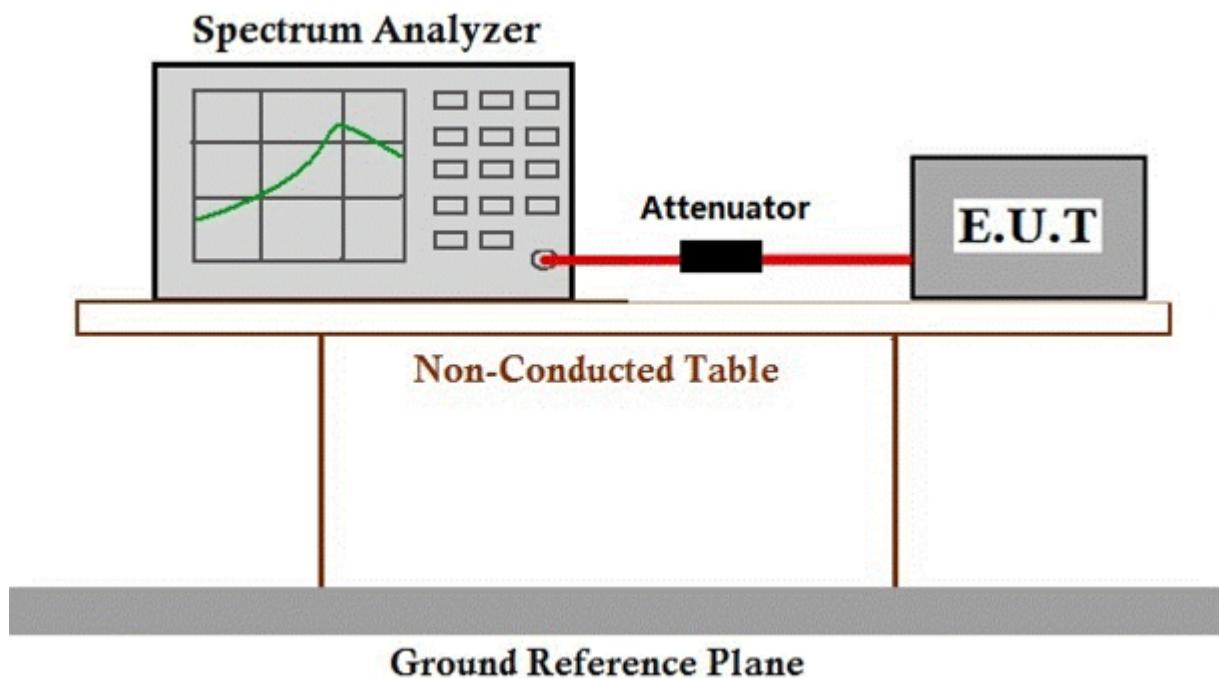
Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)
Test Method: ANSI C63.10 (2013) Section 11.8.1
Limit: ≥ 500 kHz

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24.9 °C Humidity: 63.7 % RH Atmospheric Pressure: 1020 mbar
Test mode c:WIFI 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 $25 \leq$ 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

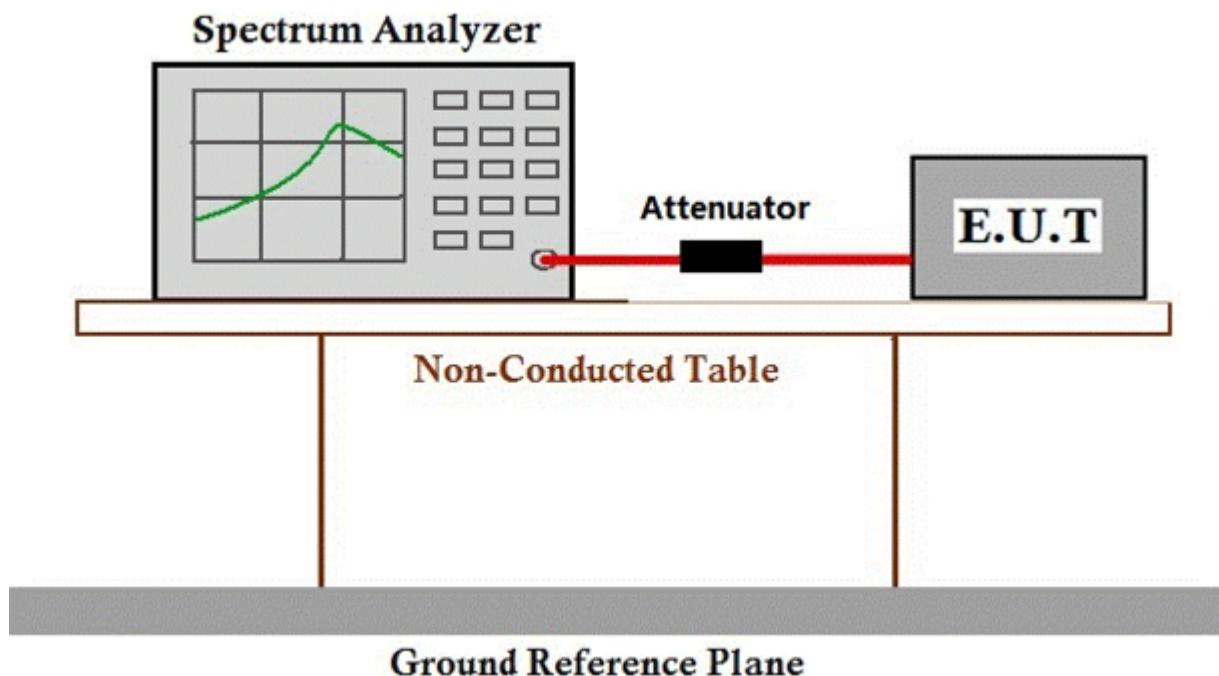
7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 24.9 °C Humidity: 63.7 % RH Atmospheric Pressure: 1020 mbar

Test mode c:WIFI 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

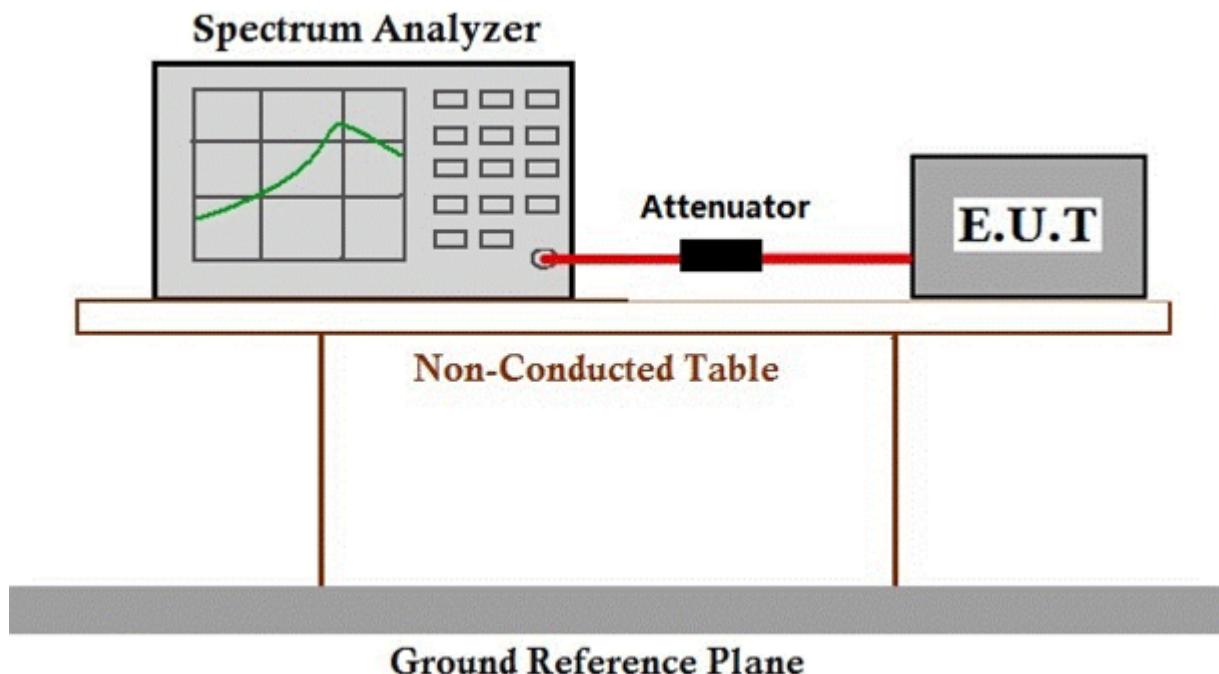
7.4 Power Spectrum Density

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

7.4.1 E.U.T. Operation

Operating Environment:
Temperature: 25 °C Humidity: 63.7 % RH Atmospheric Pressure: 1020 mbar
Test mode c:WIFI 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

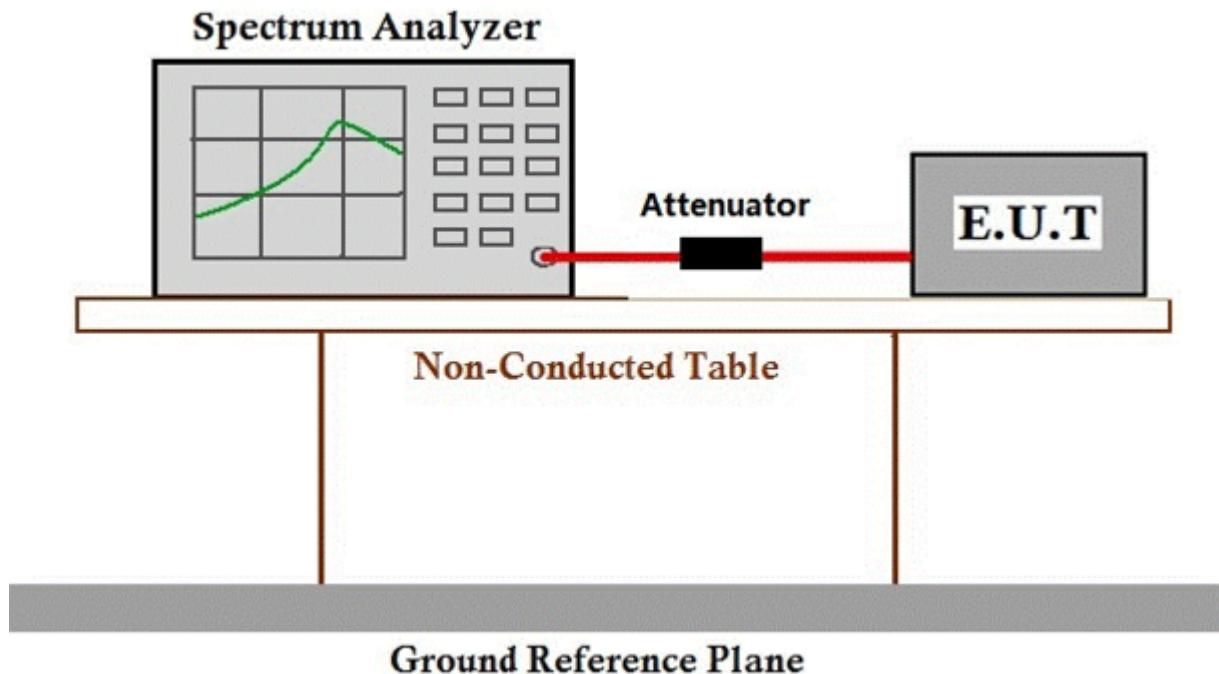
Test Requirement	47 CFR Part 15, Subpart C 15.247(d)
Test Method:	ANSI C63.10 (2013) Section 11.13.3.2
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional 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: 24.9 °C Humidity: 63.8 % RH Atmospheric Pressure: 1020 mbar

Test mode c:WIFI 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))

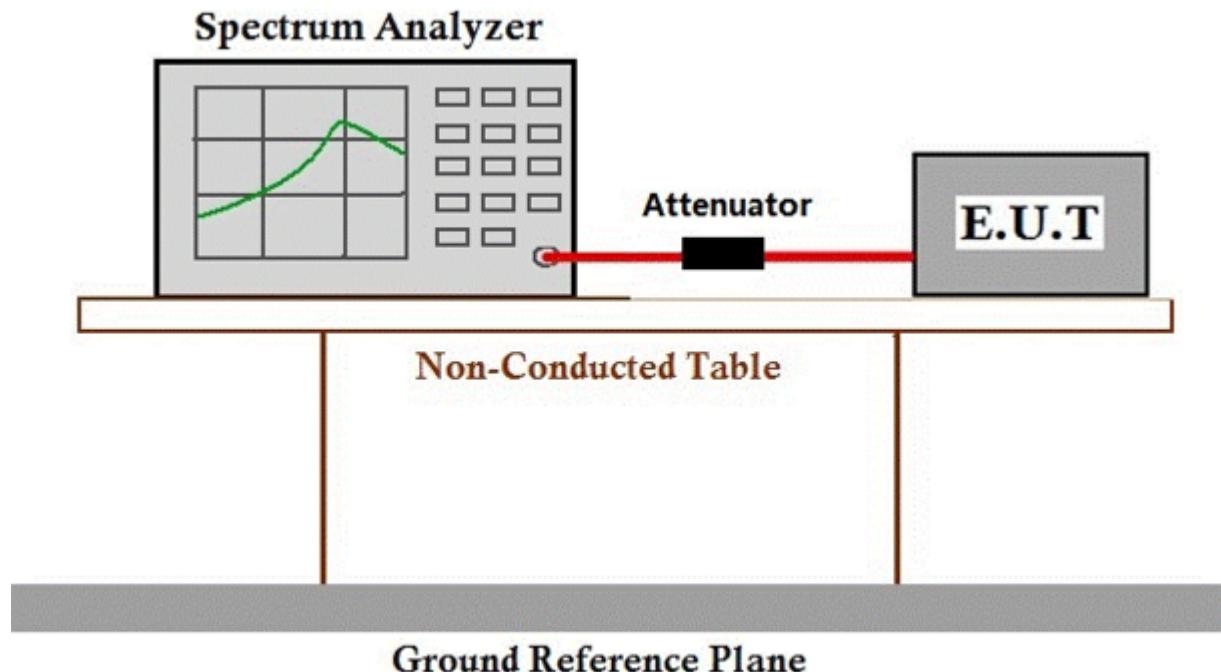
7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 63.7 % RH Atmospheric Pressure: 1020 mbar

Test mode c:WIFI 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.

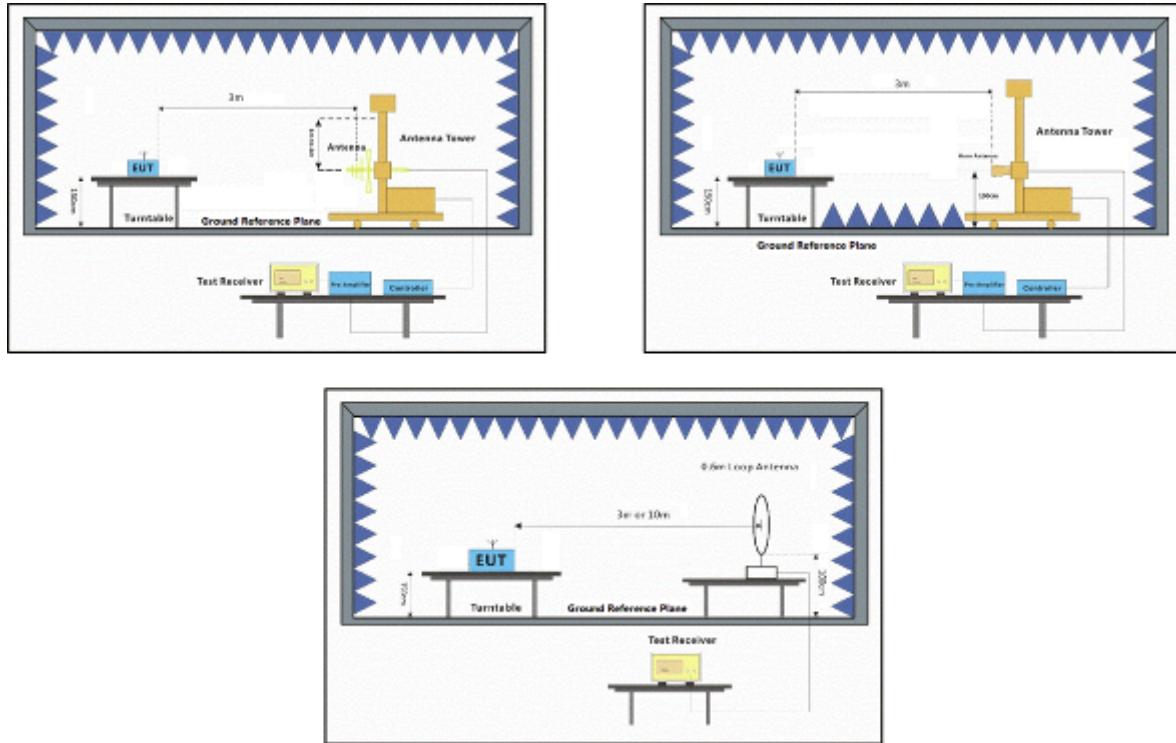
7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 24.3 °C Humidity: 55 % RH Atmospheric Pressure: 1020 mbar

Test modes c:WIFI 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



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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	36.25	26.25	5.03	37.44	30.09	54.00	-23.91	HORIZONTAL	Average
2	2310.000	49.09	26.25	5.03	37.44	42.93	74.00	-31.07	HORIZONTAL	Peak
3	2390.000	36.37	26.43	4.88	37.42	30.26	54.00	-23.74	HORIZONTAL	Average
4	2390.000	48.18	26.43	4.88	37.42	42.07	74.00	-31.93	HORIZONTAL	Peak
5	2483.500	33.95	26.58	5.23	37.40	28.36	54.00	-25.64	HORIZONTAL	Average
6	2483.500	46.94	26.58	5.23	37.40	41.35	74.00	-32.65	HORIZONTAL	Peak
7	2500.000	34.53	26.60	4.95	37.39	28.69	54.00	-25.31	HORIZONTAL	Average
8	2500.000	46.52	26.60	4.95	37.39	40.68	74.00	-33.32	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	36.59	26.25	5.03	37.44	30.43	54.00	-23.57	VERTICAL	Average
2	2310.000	48.04	26.25	5.03	37.44	41.88	74.00	-32.12	VERTICAL	Peak
3	2390.000	33.96	26.43	4.88	37.42	27.85	54.00	-26.15	VERTICAL	Average
4	2390.000	46.98	26.43	4.88	37.42	40.87	74.00	-33.13	VERTICAL	Peak
5	2483.500	35.02	26.58	5.23	37.40	29.43	54.00	-24.57	VERTICAL	Average
6	2483.500	47.22	26.58	5.23	37.40	41.63	74.00	-32.37	VERTICAL	Peak
7	2500.000	34.91	26.60	4.95	37.39	29.07	54.00	-24.93	VERTICAL	Average
8	2500.000	46.96	26.60	4.95	37.39	41.12	74.00	-32.88	VERTICAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	36.14	26.25	5.03	37.44	29.98	54.00	-24.02	HORIZONTAL	Average
2	2310.000	47.33	26.25	5.03	37.44	41.17	74.00	-32.83	HORIZONTAL	Peak
3	2390.000	34.93	26.43	4.88	37.42	28.82	54.00	-25.18	HORIZONTAL	Average
4	2390.000	46.08	26.43	4.88	37.42	39.97	74.00	-34.03	HORIZONTAL	Peak
5	2483.500	32.80	26.58	5.23	37.40	27.21	54.00	-26.79	HORIZONTAL	Average
6	2483.500	46.09	26.58	5.23	37.40	40.50	74.00	-33.50	HORIZONTAL	Peak
7	2500.000	34.30	26.60	4.95	37.39	28.46	54.00	-25.54	HORIZONTAL	Average
8	2500.000	46.48	26.60	4.95	37.39	40.64	74.00	-33.36	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	35.42	26.25	5.03	37.44	29.26	54.00	-24.74	VERTICAL	Average
2	2310.000	47.58	26.25	5.03	37.44	41.42	74.00	-32.58	VERTICAL	Peak
3	2390.000	34.90	26.43	4.88	37.42	28.79	54.00	-25.21	VERTICAL	Average
4	2390.000	48.37	26.43	4.88	37.42	42.26	74.00	-31.74	VERTICAL	Peak
5	2483.500	35.26	26.58	5.23	37.40	29.67	54.00	-24.33	VERTICAL	Average
6	2483.500	47.60	26.58	5.23	37.40	42.01	74.00	-31.99	VERTICAL	Peak
7	2500.000	35.23	26.60	4.95	37.39	29.39	54.00	-24.61	VERTICAL	Average
8	2500.000	47.71	26.60	4.95	37.39	41.87	74.00	-32.13	VERTICAL	Peak

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

Freq	ReadAntenna		Cable Preamp		Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2310.000	32.86	26.25	5.03	37.44	26.70	54.00	-27.30 HORIZONTAL Average
2	2310.000	44.74	26.25	5.03	37.44	38.58	74.00	-35.42 HORIZONTAL Peak
3	2390.000	54.36	26.43	4.88	37.42	48.25	54.00	-5.75 HORIZONTAL Average
4	2390.000	67.25	26.43	4.88	37.42	61.14	74.00	-12.86 HORIZONTAL Peak
5	2483.500	31.44	26.58	5.23	37.40	25.85	54.00	-28.15 HORIZONTAL Average
6	2483.500	44.77	26.58	5.23	37.40	39.18	74.00	-34.82 HORIZONTAL Peak
7	2500.000	31.38	26.60	4.95	37.39	25.54	54.00	-28.46 HORIZONTAL Average
8	2500.000	43.65	26.60	4.95	37.39	37.81	74.00	-36.19 HORIZONTAL Peak

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

Freq	ReadAntenna		Cable Preamp		Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2310.000	33.62	26.25	5.03	37.44	27.46	54.00	-26.54 VERTICAL Average
2	2310.000	46.45	26.25	5.03	37.44	40.29	74.00	-33.71 VERTICAL Peak
3	2390.000	53.76	26.43	4.88	37.42	47.65	54.00	-6.35 VERTICAL Average
4	2390.000	71.25	26.43	4.88	37.42	65.14	74.00	-8.86 VERTICAL Peak
5	2483.500	31.45	26.58	5.23	37.40	25.86	54.00	-28.14 VERTICAL Average
6	2483.500	45.69	26.58	5.23	37.40	40.10	74.00	-33.90 VERTICAL Peak
7	2500.000	31.83	26.60	4.95	37.39	25.99	54.00	-28.01 VERTICAL Average
8	2500.000	45.02	26.60	4.95	37.39	39.18	74.00	-34.82 VERTICAL Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	33.08	26.25	5.03	37.44	26.92	54.00	-27.08	HORIZONTAL	Average
2	2310.000	44.88	26.25	5.03	37.44	38.72	74.00	-35.28	HORIZONTAL	Peak
3	2390.000	29.21	26.43	4.88	37.42	23.10	54.00	-30.90	HORIZONTAL	Average
4	2390.000	45.63	26.43	4.88	37.42	39.52	74.00	-34.48	HORIZONTAL	Peak
5	2483.500	32.22	26.58	5.23	37.40	26.63	54.00	-27.37	HORIZONTAL	Average
6	2483.500	48.59	26.58	5.23	37.40	43.00	74.00	-31.00	HORIZONTAL	Peak
7	2500.000	31.70	26.60	4.95	37.39	25.86	54.00	-28.14	HORIZONTAL	Average
8	2500.000	44.86	26.60	4.95	37.39	39.02	74.00	-34.98	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	32.73	26.25	5.03	37.44	26.57	54.00	-27.43	VERTICAL	Average
2	2310.000	44.18	26.25	5.03	37.44	38.02	74.00	-35.98	VERTICAL	Peak
3	2390.000	31.77	26.43	4.88	37.42	25.66	54.00	-28.34	VERTICAL	Average
4	2390.000	45.05	26.43	4.88	37.42	38.94	74.00	-35.06	VERTICAL	Peak
5	2483.500	34.21	26.58	5.23	37.40	28.62	54.00	-25.38	VERTICAL	Average
6	2483.500	48.13	26.58	5.23	37.40	42.54	74.00	-31.46	VERTICAL	Peak
7	2500.000	33.57	26.60	4.95	37.39	27.73	54.00	-26.27	VERTICAL	Average
8	2500.000	45.01	26.60	4.95	37.39	39.17	74.00	-34.83	VERTICAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2305.929	47.75	26.23	5.04	37.44	41.58	74.00	-32.42	HORIZONTAL	Peak
2	2317.550	46.66	26.27	5.02	37.44	40.51	74.00	-33.49	HORIZONTAL	Peak
3	2390.000	54.09	26.43	4.88	37.42	47.98	54.00	-6.02	HORIZONTAL	Average
4	2390.000	74.11	26.43	4.88	37.42	68.00	74.00	-6.00	HORIZONTAL	Peak
5	2483.500	31.26	26.58	5.23	37.40	25.67	54.00	-28.33	HORIZONTAL	Average
6	2483.500	47.39	26.58	5.23	37.40	41.80	74.00	-32.20	HORIZONTAL	Peak
7	2500.000	32.93	26.60	4.95	37.39	27.09	54.00	-26.91	HORIZONTAL	Average
8	2500.000	44.83	26.60	4.95	37.39	38.99	74.00	-35.01	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	31.98	26.25	5.03	37.44	25.82	54.00	-28.18	VERTICAL	Average
2	2310.000	44.14	26.25	5.03	37.44	37.98	74.00	-36.02	VERTICAL	Peak
3	2390.000	54.75	26.43	4.88	37.42	48.64	54.00	-5.36	VERTICAL	Average
4	2390.000	70.04	26.43	4.88	37.42	63.93	74.00	-10.07	VERTICAL	Peak
5	2483.500	30.61	26.58	5.23	37.40	25.02	54.00	-28.98	VERTICAL	Average
6	2483.500	45.21	26.58	5.23	37.40	39.62	74.00	-34.38	VERTICAL	Peak
7	2500.000	32.50	26.60	4.95	37.39	26.66	54.00	-27.34	VERTICAL	Average
8	2500.000	45.19	26.60	4.95	37.39	39.35	74.00	-34.65	VERTICAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	31.87	26.25	5.03	37.44	25.71	54.00	-28.29	HORIZONTAL	Average
2	2310.000	47.11	26.25	5.03	37.44	40.95	74.00	-33.05	HORIZONTAL	Peak
3	2390.000	33.32	26.43	4.88	37.42	27.21	54.00	-26.79	HORIZONTAL	Average
4	2390.000	46.86	26.43	4.88	37.42	40.75	74.00	-33.25	HORIZONTAL	Peak
5	2483.500	44.23	26.58	5.23	37.40	38.64	54.00	-15.36	HORIZONTAL	Average
6	2483.500	55.45	26.58	5.23	37.40	49.86	74.00	-24.14	HORIZONTAL	Peak
7	2500.000	33.55	26.60	4.95	37.39	27.71	54.00	-26.29	HORIZONTAL	Average
8	2500.000	45.53	26.60	4.95	37.39	39.69	74.00	-34.31	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	32.74	26.25	5.03	37.44	26.58	54.00	-27.42	VERTICAL	Average
2	2310.000	46.39	26.25	5.03	37.44	40.23	74.00	-33.77	VERTICAL	Peak
3	2390.000	32.45	26.43	4.88	37.42	26.34	54.00	-27.66	VERTICAL	Average
4	2390.000	46.90	26.43	4.88	37.42	40.79	74.00	-33.21	VERTICAL	Peak
5	2483.500	39.50	26.58	5.23	37.40	33.91	54.00	-20.09	VERTICAL	Average
6	2483.500	51.15	26.58	5.23	37.40	45.56	74.00	-28.44	VERTICAL	Peak
7	2500.000	33.99	26.60	4.95	37.39	28.15	54.00	-25.85	VERTICAL	Average
8	2500.000	47.04	26.60	4.95	37.39	41.20	74.00	-32.80	VERTICAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	32.25	26.25	5.03	37.44	26.09	54.00	-27.91	HORIZONTAL	Average
2	2310.000	44.86	26.25	5.03	37.44	38.70	74.00	-35.30	HORIZONTAL	Peak
3	2390.000	53.75	26.43	4.88	37.42	47.64	54.00	-6.36	HORIZONTAL	Average
4	2390.000	70.57	26.43	4.88	37.42	64.46	74.00	-9.54	HORIZONTAL	Peak
5	2483.500	33.97	26.58	5.23	37.40	28.38	54.00	-25.62	HORIZONTAL	Average
6	2483.500	46.01	26.58	5.23	37.40	40.42	74.00	-33.58	HORIZONTAL	Peak
7	2500.000	32.55	26.60	4.95	37.39	26.71	54.00	-27.29	HORIZONTAL	Average
8	2500.000	43.90	26.60	4.95	37.39	38.06	74.00	-35.94	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	30.80	26.25	5.03	37.44	24.64	54.00	-29.36	VERTICAL	Average
2	2310.000	45.13	26.25	5.03	37.44	38.97	74.00	-35.03	VERTICAL	Peak
3	2390.000	54.62	26.43	4.88	37.42	48.51	54.00	-5.49	VERTICAL	Average
4	2390.000	71.78	26.43	4.88	37.42	65.67	74.00	-8.33	VERTICAL	Peak
5	2483.500	32.27	26.58	5.23	37.40	26.68	54.00	-27.32	VERTICAL	Average
6	2483.500	47.10	26.58	5.23	37.40	41.51	74.00	-32.49	VERTICAL	Peak
7	2500.000	32.75	26.60	4.95	37.39	26.91	54.00	-27.09	VERTICAL	Average
8	2500.000	44.00	26.60	4.95	37.39	38.16	74.00	-35.84	VERTICAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2304.516	47.65	26.23	5.04	37.44	41.48	74.00	-32.52	HORIZONTAL	Peak
2	2316.981	46.92	26.27	5.02	37.44	40.77	74.00	-33.23	HORIZONTAL	Peak
3	2366.070	48.33	26.38	4.92	37.43	42.20	74.00	-31.80	HORIZONTAL	Peak
4	2383.831	47.52	26.43	4.88	37.42	41.41	74.00	-32.59	HORIZONTAL	Peak
5	2490.181	54.57	26.59	5.09	37.39	48.86	74.00	-25.14	HORIZONTAL	Peak
6	2503.958	47.14	26.61	4.96	37.39	41.32	74.00	-32.68	HORIZONTAL	Peak
7	2521.517	47.02	26.64	4.98	37.38	41.26	74.00	-32.74	HORIZONTAL	Peak
8	2537.644	47.21	26.66	5.00	37.38	41.49	74.00	-32.51	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	32.96	26.25	5.03	37.44	26.80	54.00	-27.20	VERTICAL	Average
2	2310.000	46.95	26.25	5.03	37.44	40.79	74.00	-33.21	VERTICAL	Peak
3	2390.000	32.96	26.43	4.88	37.42	26.85	54.00	-27.15	VERTICAL	Average
4	2390.000	46.79	26.43	4.88	37.42	40.68	74.00	-33.32	VERTICAL	Peak
5	2483.500	42.01	26.58	5.23	37.40	36.42	54.00	-17.58	VERTICAL	Average
6	2483.500	56.65	26.58	5.23	37.40	51.06	74.00	-22.94	VERTICAL	Peak
7	2500.000	34.68	26.60	4.95	37.39	28.84	54.00	-25.16	VERTICAL	Average
8	2500.000	48.93	26.60	4.95	37.39	43.09	74.00	-30.91	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.

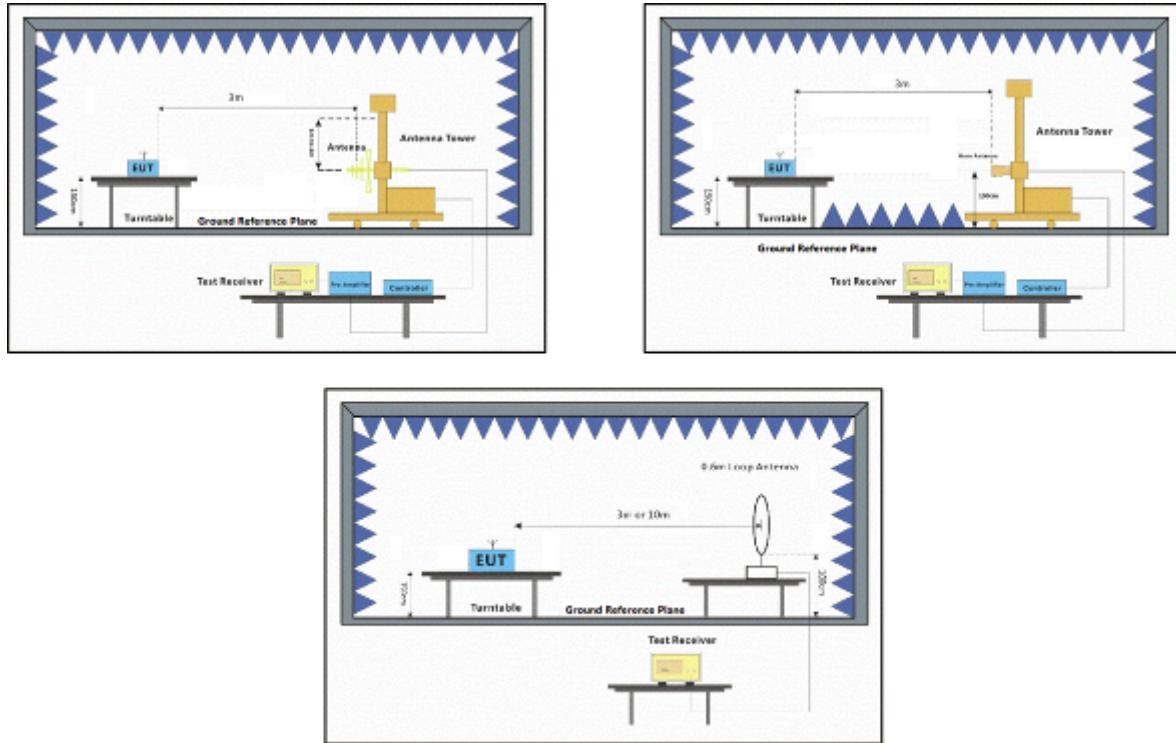
7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 24.3 °C Humidity: 55 % RH Atmospheric Pressure: 1020 mbar

Test modes c:WIFI 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



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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3834.438	34.45	29.12	7.80	36.91	34.46	54.00	-19.54	HORIZONTAL	Average
2	3834.438	45.17	29.12	7.80	36.91	45.18	74.00	-28.82	HORIZONTAL	Peak
3	4824.043	33.28	30.82	6.01	36.94	33.17	54.00	-20.83	HORIZONTAL	Average
4	4824.043	45.61	30.82	6.01	36.94	45.50	74.00	-28.50	HORIZONTAL	Peak
5	7236.763	31.02	35.55	7.35	36.93	36.99	54.00	-17.01	HORIZONTAL	Average
6	7236.763	43.94	35.55	7.35	36.93	49.91	74.00	-24.09	HORIZONTAL	Peak
7	8319.836	32.81	36.22	8.15	36.92	40.26	54.00	-13.74	HORIZONTAL	Average
8	8319.836	44.27	36.22	8.15	36.92	51.72	74.00	-22.28	HORIZONTAL	Peak
9	9152.479	30.42	36.73	8.37	37.04	38.48	54.00	-15.52	HORIZONTAL	Average
10	9152.479	41.85	36.73	8.37	37.04	49.91	74.00	-24.09	HORIZONTAL	Peak
11	12060.760	29.40	39.46	10.71	37.17	42.40	54.00	-11.60	HORIZONTAL	Average
12	12060.760	40.23	39.46	10.71	37.17	53.23	74.00	-20.77	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	4039.212	33.03	29.53	7.13	36.90	32.79	54.00	-21.21	VERTICAL	Average
2	4039.212	45.03	29.53	7.13	36.90	44.79	74.00	-29.21	VERTICAL	Peak
3	4824.721	33.13	30.82	6.01	36.94	33.02	54.00	-20.98	VERTICAL	Average
4	4824.721	44.81	30.82	6.01	36.94	44.70	74.00	-29.30	VERTICAL	Peak
5	7236.309	31.40	35.55	7.35	36.93	37.37	54.00	-16.63	VERTICAL	Average
6	7236.309	43.79	35.55	7.35	36.93	49.76	74.00	-24.24	VERTICAL	Peak
7	8153.195	29.89	36.39	8.28	36.91	37.65	54.00	-16.35	VERTICAL	Average
8	8153.195	41.63	36.39	8.28	36.91	49.39	74.00	-24.61	VERTICAL	Peak
9	9648.479	30.88	37.54	8.18	37.08	39.52	54.00	-14.48	VERTICAL	Average
10	9648.479	42.03	37.54	8.18	37.08	50.67	74.00	-23.33	VERTICAL	Peak
11	12060.180	27.19	39.46	10.71	37.17	40.19	54.00	-13.81	VERTICAL	Average
12	12060.180	40.35	39.46	10.71	37.17	53.35	74.00	-20.65	VERTICAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3801.333	35.50	29.01	7.89	36.92	35.48	54.00	-18.52	HORIZONTAL	Average
2	3801.333	45.42	29.01	7.89	36.92	45.40	74.00	-28.60	HORIZONTAL	Peak
3	4884.058	34.70	30.95	6.86	36.95	35.56	54.00	-18.44	HORIZONTAL	Average
4	4884.058	46.33	30.95	6.86	36.95	47.19	74.00	-26.81	HORIZONTAL	Peak
5	7326.015	31.65	35.74	7.39	36.92	37.86	54.00	-16.14	HORIZONTAL	Average
6	7326.015	43.89	35.74	7.39	36.92	50.10	74.00	-23.90	HORIZONTAL	Peak
7	8440.945	31.34	36.13	8.06	36.93	38.60	54.00	-15.40	HORIZONTAL	Average
8	8440.945	44.28	36.13	8.06	36.93	51.54	74.00	-22.46	HORIZONTAL	Peak
9	9768.430	30.78	37.74	8.37	37.09	39.80	54.00	-14.20	HORIZONTAL	Average
10	9768.430	40.98	37.74	8.37	37.09	50.00	74.00	-24.00	HORIZONTAL	Peak
11	12210.520	29.96	39.21	10.98	37.06	43.09	54.00	-10.91	HORIZONTAL	Average
12	12210.520	41.04	39.21	10.98	37.06	54.17	74.00	-19.83	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3834.438	32.64	29.12	7.80	36.91	32.65	54.00	-21.35	VERTICAL	Average
2	3834.438	44.97	29.12	7.80	36.91	44.98	74.00	-29.02	VERTICAL	Peak
3	4884.058	35.26	30.95	6.86	36.95	36.12	54.00	-17.88	VERTICAL	Average
4	4884.058	45.86	30.95	6.86	36.95	46.72	74.00	-27.28	VERTICAL	Peak
5	7326.150	32.23	35.74	7.39	36.92	38.44	54.00	-15.56	VERTICAL	Average
6	7326.150	44.58	35.74	7.39	36.92	50.79	74.00	-23.21	VERTICAL	Peak
7	8489.882	31.97	36.10	8.03	36.94	39.16	54.00	-14.84	VERTICAL	Average
8	8489.882	44.79	36.10	8.03	36.94	51.98	74.00	-22.02	VERTICAL	Peak
9	9768.432	29.38	37.74	8.37	37.09	38.40	54.00	-15.60	VERTICAL	Average
10	9768.432	42.49	37.74	8.37	37.09	51.51	74.00	-22.49	VERTICAL	Peak
11	12210.100	28.64	39.21	10.98	37.06	41.77	54.00	-12.23	VERTICAL	Average
12	12210.100	40.07	39.21	10.98	37.06	53.20	74.00	-20.80	VERTICAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m		dB	dB	dBuV/m	dBuV/m		dB
1	3280.326	40.64	27.90	5.75	36.99	37.30	54.00	-16.70	HORIZONTAL	Average
2	3280.326	50.09	27.90	5.75	36.99	46.75	74.00	-27.25	HORIZONTAL	Peak
3	4960.072	32.35	31.05	7.84	36.96	34.28	54.00	-19.72	HORIZONTAL	Average
4	4960.072	45.14	31.05	7.84	36.96	47.07	74.00	-26.93	HORIZONTAL	Peak
5	6974.982	44.10	35.08	7.27	36.94	49.51	54.00	-4.49	HORIZONTAL	Average
6	6974.982	32.48	35.08	7.27	36.94	37.89	54.00	-16.11	HORIZONTAL	Average
7	7440.480	30.36	35.92	7.43	36.92	36.79	54.00	-17.21	HORIZONTAL	Average
8	7440.480	42.96	35.92	7.43	36.92	49.39	74.00	-24.61	HORIZONTAL	Peak
9	9920.684	30.36	37.92	8.63	37.10	39.81	54.00	-14.19	HORIZONTAL	Average
10	9920.684	42.62	37.92	8.63	37.10	52.07	74.00	-21.93	HORIZONTAL	Peak
11	12400.850	26.66	38.93	11.17	36.90	39.86	54.00	-14.14	HORIZONTAL	Average
12	12400.850	40.39	38.93	11.17	36.90	53.59	74.00	-20.41	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m		dB	dB	dBuV/m	dBuV/m		dB
1	3890.255	32.99	29.27	7.61	36.91	32.96	54.00	-21.04	VERTICAL	Average
2	3890.255	44.85	29.27	7.61	36.91	44.82	74.00	-29.18	VERTICAL	Peak
3	4960.721	33.18	31.05	7.84	36.96	35.11	54.00	-18.89	VERTICAL	Average
4	4960.721	45.66	31.05	7.84	36.96	47.59	74.00	-26.41	VERTICAL	Peak
5	7440.015	29.28	35.92	7.43	36.92	35.71	54.00	-18.29	VERTICAL	Average
6	7440.015	43.58	35.92	7.43	36.92	50.01	74.00	-23.99	VERTICAL	Peak
7	9920.916	33.02	37.92	8.63	37.10	42.47	54.00	-11.53	VERTICAL	Average
8	9920.916	44.87	37.92	8.63	37.10	54.32	74.00	-19.68	VERTICAL	Peak
9	12400.520	28.80	38.93	11.17	36.90	42.00	54.00	-12.00	VERTICAL	Average
10	12400.520	40.84	38.93	11.17	36.90	54.04	74.00	-19.96	VERTICAL	Peak

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

Freq	ReadAntenna		Cable Preamp		Limit Level	Line Limit	Over Limit	Pol/Phase	Remark
	Level	Factor	Loss	Factor					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	120.699	20.90	11.06	1.20	0.00	33.16	43.50	-10.34	HORIZONTAL QP
2	181.283	15.89	12.63	1.44	0.00	29.96	43.50	-13.54	HORIZONTAL QP
3	243.377	18.05	12.44	1.63	0.00	32.12	46.00	-13.88	HORIZONTAL QP
4	360.448	20.37	15.65	1.96	0.00	37.98	46.00	-8.02	HORIZONTAL QP
5	482.216	15.95	17.93	2.36	0.00	36.24	46.00	-9.76	HORIZONTAL QP
6	724.261	8.57	21.52	2.90	0.00	32.99	46.00	-13.01	HORIZONTAL QP

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

Freq	ReadAntenna		Cable Preamp		Limit Level	Line Limit	Over Limit	Pol/Phase	Remark
	Level	Factor	Loss	Factor					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	3214.623	36.41	27.90	5.91	38.47	31.75	54.00	-22.25	HORIZONTAL Average
2	3214.623	48.92	27.90	5.91	38.47	44.26	74.00	-29.74	HORIZONTAL Peak
3	4824.641	32.64	30.82	6.01	38.11	31.36	54.00	-22.64	HORIZONTAL Average
4	4824.641	45.77	30.82	6.01	38.11	44.49	74.00	-29.51	HORIZONTAL Peak
5	5847.517	31.83	32.20	7.44	37.40	34.07	54.00	-19.93	HORIZONTAL Average
6	5847.517	44.52	32.20	7.44	37.40	46.76	74.00	-27.24	HORIZONTAL Peak
7	7236.474	30.83	35.55	7.35	37.43	36.30	54.00	-17.70	HORIZONTAL Average
8	7236.474	44.64	35.55	7.35	37.43	50.11	74.00	-23.89	HORIZONTAL Peak
9	9648.164	30.48	37.54	8.18	37.40	38.80	54.00	-15.20	HORIZONTAL Average
10	9648.164	44.21	37.54	8.18	37.40	52.53	74.00	-21.47	HORIZONTAL Peak
11	12060.520	29.08	39.46	10.71	37.42	41.83	54.00	-12.17	HORIZONTAL Average
12	12060.520	43.77	39.46	10.71	37.42	56.52	74.00	-17.48	HORIZONTAL Peak

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

Freq	ReadAntenna		Cable Preamp		Limit Level	Line Limit	Over Pol/Phase	Remark
	Level	Factor	Loss	Factor				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	120.699	13.32	11.06	1.20	0.00	25.58	43.50	-17.92 VERTICAL QP
2	360.448	16.15	15.65	1.96	0.00	33.76	46.00	-12.24 VERTICAL QP
3	482.216	16.34	17.93	2.36	0.00	36.63	46.00	-9.37 VERTICAL QP
4	603.539	9.59	20.33	2.62	0.00	32.54	46.00	-13.46 VERTICAL QP
5	724.261	8.53	21.52	2.90	0.00	32.95	46.00	-13.05 VERTICAL QP
6	845.088	7.57	22.85	3.10	0.00	33.52	46.00	-12.48 VERTICAL QP

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

Freq	ReadAntenna		Cable Preamp		Limit Level	Line Limit	Over Pol/Phase	Remark
	Level	Factor	Loss	Factor				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2981.899	35.31	27.88	4.65	37.99	29.85	54.00	-24.15 VERTICAL Average
2	2981.899	46.56	27.88	4.65	37.99	41.10	74.00	-32.90 VERTICAL Peak
3	3834.438	32.96	29.12	7.80	38.11	31.77	54.00	-22.23 VERTICAL Average
4	3834.438	46.82	29.12	7.80	38.11	45.63	74.00	-28.37 VERTICAL Peak
5	4824.948	33.64	30.82	6.01	38.11	32.36	54.00	-21.64 VERTICAL Average
6	4824.948	46.45	30.82	6.01	38.11	45.17	74.00	-28.83 VERTICAL Peak
7	7236.052	30.52	35.55	7.35	37.43	35.99	54.00	-18.01 VERTICAL Average
8	7236.052	44.70	35.55	7.35	37.43	50.17	74.00	-23.83 VERTICAL Peak
9	9648.221	30.73	37.54	8.18	37.40	39.05	54.00	-14.95 VERTICAL Average
10	9648.221	44.93	37.54	8.18	37.40	53.25	74.00	-20.75 VERTICAL Peak
11	12060.420	29.16	39.46	10.71	37.42	41.91	54.00	-12.09 VERTICAL Average
12	12060.420	44.03	39.46	10.71	37.42	56.78	74.00	-17.22 VERTICAL Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2838.921	33.54	27.63	4.76	37.96	27.97	54.00	-26.03	HORIZONTAL	Average
2	2838.921	46.64	27.63	4.76	37.96	41.07	74.00	-32.93	HORIZONTAL	Peak
3	3867.831	32.45	29.22	7.69	38.13	31.23	54.00	-22.77	HORIZONTAL	Average
4	3867.831	46.08	29.22	7.69	38.13	44.86	74.00	-29.14	HORIZONTAL	Peak
5	4884.043	33.26	30.95	6.86	38.14	32.93	54.00	-21.07	HORIZONTAL	Average
6	4884.043	45.28	30.95	6.86	38.14	44.95	74.00	-29.05	HORIZONTAL	Peak
7	7326.070	30.77	35.74	7.39	37.46	36.44	54.00	-17.56	HORIZONTAL	Average
8	7326.070	44.25	35.74	7.39	37.46	49.92	74.00	-24.08	HORIZONTAL	Peak
9	9768.149	30.99	37.74	8.37	37.37	39.73	54.00	-14.27	HORIZONTAL	Average
10	9768.149	44.39	37.74	8.37	37.37	53.13	74.00	-20.87	HORIZONTAL	Peak
11	12210.220	30.05	39.21	10.98	37.30	42.94	54.00	-11.06	HORIZONTAL	Average
12	12210.220	44.87	39.21	10.98	37.30	57.76	74.00	-16.24	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2939.115	34.13	27.82	4.77	37.94	28.78	54.00	-25.22	VERTICAL	Average
2	2939.115	46.94	27.82	4.77	37.94	41.59	74.00	-32.41	VERTICAL	Peak
3	3801.333	33.61	29.01	7.89	38.10	32.41	54.00	-21.59	VERTICAL	Average
4	3801.333	45.58	29.01	7.89	38.10	44.38	74.00	-29.62	VERTICAL	Peak
5	4884.721	34.49	30.95	6.86	38.14	34.16	54.00	-19.84	VERTICAL	Average
6	4884.721	45.96	30.95	6.86	38.14	45.63	74.00	-28.37	VERTICAL	Peak
7	7326.914	31.74	35.74	7.39	37.46	37.41	54.00	-16.59	VERTICAL	Average
8	7326.914	45.17	35.74	7.39	37.46	50.84	74.00	-23.16	VERTICAL	Peak
9	9768.371	30.87	37.74	8.37	37.37	39.61	54.00	-14.39	VERTICAL	Average
10	9768.371	44.52	37.74	8.37	37.37	53.26	74.00	-20.74	VERTICAL	Peak
11	12210.740	29.74	39.21	10.98	37.30	42.63	54.00	-11.37	VERTICAL	Average
12	12210.740	44.38	39.21	10.98	37.30	57.27	74.00	-16.73	VERTICAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2888.584	34.97	27.73	4.86	37.91	29.65	54.00	-24.35	HORIZONTAL	Average
2	2888.584	46.36	27.73	4.86	37.91	41.04	74.00	-32.96	HORIZONTAL	Peak
3	3834.438	33.32	29.12	7.80	38.11	32.13	54.00	-21.87	HORIZONTAL	Average
4	3834.438	46.31	29.12	7.80	38.11	45.12	74.00	-28.88	HORIZONTAL	Peak
5	4924.975	33.59	31.01	7.49	38.17	33.92	54.00	-20.08	HORIZONTAL	Average
6	4924.975	44.39	31.01	7.49	38.17	44.72	74.00	-29.28	HORIZONTAL	Peak
7	7386.015	30.35	35.85	7.42	37.48	36.14	54.00	-17.86	HORIZONTAL	Average
8	7386.015	44.28	35.85	7.42	37.48	50.07	74.00	-23.93	HORIZONTAL	Peak
9	9848.257	29.07	37.82	8.46	37.36	37.99	54.00	-16.01	HORIZONTAL	Average
10	9848.257	43.86	37.82	8.46	37.36	52.78	74.00	-21.22	HORIZONTAL	Peak
11	12310.580	30.11	39.03	11.10	37.25	42.99	54.00	-11.01	HORIZONTAL	Average
12	12310.580	44.69	39.03	11.10	37.25	57.57	74.00	-16.43	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3141.145	32.90	27.90	5.65	38.39	28.06	54.00	-25.94	VERTICAL	Average
2	3141.145	47.25	27.90	5.65	38.39	42.41	74.00	-31.59	VERTICAL	Peak
3	4039.212	33.96	29.53	7.13	38.25	32.37	54.00	-21.63	VERTICAL	Average
4	4039.212	46.49	29.53	7.13	38.25	44.90	74.00	-29.10	VERTICAL	Peak
5	4924.993	32.89	31.01	7.49	38.17	33.22	54.00	-20.78	VERTICAL	Average
6	4924.993	46.66	31.01	7.49	38.17	46.99	74.00	-27.01	VERTICAL	Peak
7	7386.516	30.11	35.85	7.42	37.48	35.90	54.00	-18.10	VERTICAL	Average
8	7386.516	43.66	35.85	7.42	37.48	49.45	74.00	-24.55	VERTICAL	Peak
9	9809.916	31.40	37.79	8.41	37.37	40.23	54.00	-13.77	VERTICAL	Average
10	9809.916	44.59	37.79	8.41	37.37	53.42	74.00	-20.58	VERTICAL	Peak
11	12310.420	31.98	39.03	11.10	37.25	44.86	54.00	-9.14	VERTICAL	Average
12	12310.420	44.68	39.03	11.10	37.25	57.56	74.00	-16.44	VERTICAL	Peak

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

Freq	ReadAntenna		Cable Preamp		Limit Level	Line Limit	Over Pol/Phase	Remark
	Level	Factor	Loss	Factor				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	120.679	20.90	11.06	1.20	0.00	33.16	43.50	-10.34 HORIZONTAL QP
2	211.227	15.91	11.20	1.53	0.00	28.64	43.50	-14.86 HORIZONTAL QP
3	360.478	20.37	15.65	1.96	0.00	37.98	46.00	-8.02 HORIZONTAL QP
4	482.562	17.95	17.93	2.36	0.00	38.24	46.00	-7.76 HORIZONTAL QP
5	603.579	12.31	20.33	2.62	0.00	35.26	46.00	-10.74 HORIZONTAL QP
6	845.128	8.91	22.85	3.10	0.00	34.86	46.00	-11.14 HORIZONTAL QP

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

Freq	ReadAntenna		Cable Preamp		Limit Level	Line Limit	Over Pol/Phase	Remark
	Level	Factor	Loss	Factor				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2822.558	33.56	27.59	4.73	37.98	27.90	54.00	-26.10 HORIZONTAL Average
2	2822.558	46.34	27.59	4.73	37.98	40.68	74.00	-33.32 HORIZONTAL Peak
3	4039.212	32.55	29.53	7.13	38.25	30.96	54.00	-23.04 HORIZONTAL Average
4	4039.212	46.21	29.53	7.13	38.25	44.62	74.00	-29.38 HORIZONTAL Peak
5	4824.419	32.96	30.82	6.01	38.11	31.68	54.00	-22.32 HORIZONTAL Average
6	4824.419	45.27	30.82	6.01	38.11	43.99	74.00	-30.01 HORIZONTAL Peak
7	7236.461	31.55	35.55	7.35	37.43	37.02	54.00	-16.98 HORIZONTAL Average
8	7236.461	44.86	35.55	7.35	37.43	50.33	74.00	-23.67 HORIZONTAL Peak
9	9648.371	30.15	37.54	8.18	37.40	38.47	54.00	-15.53 HORIZONTAL Average
10	9648.371	44.91	37.54	8.18	37.40	53.23	74.00	-20.77 HORIZONTAL Peak
11	12060.620	31.52	39.46	10.71	37.42	44.27	54.00	-9.73 HORIZONTAL Average
12	12060.620	44.06	39.46	10.71	37.42	56.81	74.00	-17.19 HORIZONTAL Peak

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

Freq	ReadAntenna		Cable Preamp		Limit Level	Line Limit	Over Pol/Phase	Remark
	Level	Factor	Loss	Factor				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	120.719	16.32	11.06	1.20	0.00	28.58	43.50	-14.92 VERTICAL QP
2	181.493	14.35	12.63	1.44	0.00	28.42	43.50	-15.08 VERTICAL QP
3	360.248	20.15	15.65	1.96	0.00	37.76	46.00	-8.24 VERTICAL QP
4	482.186	19.34	17.93	2.36	0.00	39.63	46.00	-6.37 VERTICAL QP
5	724.251	10.53	21.52	2.90	0.00	34.95	46.00	-11.05 VERTICAL QP
6	845.288	10.57	22.85	3.10	0.00	36.52	46.00	-9.48 VERTICAL QP

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

Freq	ReadAntenna		Cable Preamp		Limit Level	Line Limit	Over Pol/Phase	Remark
	Level	Factor	Loss	Factor				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	3901.516	31.01	29.30	7.56	38.15	29.72	54.00	-24.28 VERTICAL Average
2	3901.516	46.86	29.30	7.56	38.15	45.57	74.00	-28.43 VERTICAL Peak
3	4824.649	33.86	30.82	6.01	38.11	32.58	54.00	-21.42 VERTICAL Average
4	4824.649	45.04	30.82	6.01	38.11	43.76	74.00	-30.24 VERTICAL Peak
5	6640.542	28.30	34.49	7.15	37.28	32.66	54.00	-21.34 VERTICAL Average
6	6640.542	43.34	34.49	7.15	37.28	47.70	74.00	-26.30 VERTICAL Peak
7	7236.475	29.65	35.55	7.35	37.43	35.12	54.00	-18.88 VERTICAL Average
8	7236.475	44.28	35.55	7.35	37.43	49.75	74.00	-24.25 VERTICAL Peak
9	9648.640	29.64	37.54	8.18	37.40	37.96	54.00	-16.04 VERTICAL Average
10	9648.640	44.14	37.54	8.18	37.40	52.46	74.00	-21.54 VERTICAL Peak
11	12060.290	29.71	39.46	10.71	37.42	42.46	54.00	-11.54 VERTICAL Average
12	12060.290	44.57	39.46	10.71	37.42	57.32	74.00	-16.68 VERTICAL Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2782.060	33.45	27.46	4.71	37.99	27.63	54.00	-26.37	HORIZONTAL	Average
2	2782.060	46.85	27.46	4.71	37.99	41.03	74.00	-32.97	HORIZONTAL	Peak
3	3661.149	32.24	28.34	6.83	37.96	29.45	54.00	-24.55	HORIZONTAL	Average
4	3661.149	44.81	28.34	6.83	37.96	42.02	74.00	-31.98	HORIZONTAL	Peak
5	4884.110	31.81	30.95	6.86	38.14	31.48	54.00	-22.52	HORIZONTAL	Average
6	4884.110	43.42	30.95	6.86	38.14	43.09	74.00	-30.91	HORIZONTAL	Peak
7	7326.122	29.76	35.74	7.39	37.46	35.43	54.00	-18.57	HORIZONTAL	Average
8	7326.122	42.70	35.74	7.39	37.46	48.37	74.00	-25.63	HORIZONTAL	Peak
9	9768.221	30.68	37.74	8.37	37.37	39.42	54.00	-14.58	HORIZONTAL	Average
10	9768.221	44.11	37.74	8.37	37.37	52.85	74.00	-21.15	HORIZONTAL	Peak
11	12210.220	28.13	39.21	10.98	37.30	41.02	54.00	-12.98	HORIZONTAL	Average
12	12210.220	44.39	39.21	10.98	37.30	57.28	74.00	-16.72	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2905.331	34.95	27.76	4.85	37.91	29.65	54.00	-24.35	VERTICAL	Average
2	2905.331	47.15	27.76	4.85	37.91	41.85	74.00	-32.15	VERTICAL	Peak
3	3725.195	32.57	28.64	7.42	38.04	30.59	54.00	-23.41	VERTICAL	Average
4	3725.195	44.64	28.64	7.42	38.04	42.66	74.00	-31.34	VERTICAL	Peak
5	4884.043	32.66	30.95	6.86	38.14	32.33	54.00	-21.67	VERTICAL	Average
6	4884.043	44.58	30.95	6.86	38.14	44.25	74.00	-29.75	VERTICAL	Peak
7	7326.741	27.78	35.74	7.39	37.46	33.45	54.00	-20.55	VERTICAL	Average
8	7326.741	42.96	35.74	7.39	37.46	48.63	74.00	-25.37	VERTICAL	Peak
9	9768.151	28.10	37.74	8.37	37.37	36.84	54.00	-17.16	VERTICAL	Average
10	9768.151	44.49	37.74	8.37	37.37	53.23	74.00	-20.77	VERTICAL	Peak
11	12210.350	28.52	39.21	10.98	37.30	41.41	54.00	-12.59	VERTICAL	Average
12	12210.350	43.71	39.21	10.98	37.30	56.60	74.00	-17.40	VERTICAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2766.024	35.68	27.40	4.74	37.97	29.85	54.00	-24.15	HORIZONTAL	Average
2	2766.024	48.05	27.40	4.74	37.97	42.22	74.00	-31.78	HORIZONTAL	Peak
3	3790.361	32.31	28.97	7.83	38.09	31.02	54.00	-22.98	HORIZONTAL	Average
4	3790.361	46.03	28.97	7.83	38.09	44.74	74.00	-29.26	HORIZONTAL	Peak
5	4924.307	32.65	31.01	7.49	38.17	32.98	54.00	-21.02	HORIZONTAL	Average
6	4924.307	46.81	31.01	7.49	38.17	47.14	74.00	-26.86	HORIZONTAL	Peak
7	7326.474	30.54	35.74	7.39	37.46	36.21	54.00	-17.79	HORIZONTAL	Average
8	7326.474	44.54	35.74	7.39	37.46	50.21	74.00	-23.79	HORIZONTAL	Peak
9	9848.916	28.85	37.82	8.46	37.36	37.77	54.00	-16.23	HORIZONTAL	Average
10	9848.916	44.69	37.82	8.46	37.36	53.61	74.00	-20.39	HORIZONTAL	Peak
11	12310.900	29.84	39.03	11.10	37.25	42.72	54.00	-11.28	HORIZONTAL	Average
12	12310.900	44.89	39.03	11.10	37.25	57.77	74.00	-16.23	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2956.155	33.97	27.84	4.71	37.96	28.56	54.00	-25.44	VERTICAL	Average
2	2956.155	46.87	27.84	4.71	37.96	41.46	74.00	-32.54	VERTICAL	Peak
3	3823.371	31.28	29.08	7.83	38.11	30.08	54.00	-23.92	VERTICAL	Average
4	3823.371	45.72	29.08	7.83	38.11	44.52	74.00	-29.48	VERTICAL	Peak
5	4924.721	34.05	31.01	7.49	38.17	34.38	54.00	-19.62	VERTICAL	Average
6	4924.721	46.20	31.01	7.49	38.17	46.53	74.00	-27.47	VERTICAL	Peak
7	7386.267	29.81	35.85	7.42	37.48	35.60	54.00	-18.40	VERTICAL	Average
8	7386.267	44.22	35.85	7.42	37.48	50.01	74.00	-23.99	VERTICAL	Peak
9	9848.151	29.81	37.82	8.46	37.36	38.73	54.00	-15.27	VERTICAL	Average
10	9848.151	44.64	37.82	8.46	37.36	53.56	74.00	-20.44	VERTICAL	Peak
11	12310.610	29.27	39.03	11.10	37.25	42.15	54.00	-11.85	VERTICAL	Average
12	12310.610	44.69	39.03	11.10	37.25	57.57	74.00	-16.43	VERTICAL	Peak

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

Freq	ReadAntenna		Cable Preamp		Limit Level	Line Limit	Over Limit	Pol/Phase	Remark
	Level	Factor	Loss	Factor					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	120.189	23.93	11.03	1.20	0.00	36.16	43.50	-7.34	HORIZONTAL QP
2	243.177	17.05	12.44	1.63	0.00	31.12	46.00	-14.88	HORIZONTAL QP
3	360.468	19.37	15.65	1.96	0.00	36.98	46.00	-9.02	HORIZONTAL QP
4	482.196	14.95	17.93	2.36	0.00	35.24	46.00	-10.76	HORIZONTAL QP
5	603.579	14.31	20.33	2.62	0.00	37.26	46.00	-8.74	HORIZONTAL QP
6	845.188	10.91	22.85	3.10	0.00	36.86	46.00	-9.14	HORIZONTAL QP

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

Freq	ReadAntenna		Cable Preamp		Limit Level	Line Limit	Over Limit	Pol/Phase	Remark
	Level	Factor	Loss	Factor					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2734.229	31.54	27.25	4.79	37.93	25.65	54.00	-28.35	HORIZONTAL Average
2	2734.229	45.96	27.25	4.79	37.93	40.07	74.00	-33.93	HORIZONTAL Peak
3	3629.540	30.64	28.24	6.59	37.93	27.54	54.00	-26.46	HORIZONTAL Average
4	3629.540	45.12	28.24	6.59	37.93	42.02	74.00	-31.98	HORIZONTAL Peak
5	4844.110	30.74	30.88	6.31	38.12	29.81	54.00	-24.19	HORIZONTAL Average
6	4844.110	44.05	30.88	6.31	38.12	43.12	74.00	-30.88	HORIZONTAL Peak
7	7266.806	28.13	35.60	7.36	37.44	33.65	54.00	-20.35	HORIZONTAL Average
8	7266.806	43.13	35.60	7.36	37.44	48.65	74.00	-25.35	HORIZONTAL Peak
9	9688.164	28.88	37.61	8.25	37.39	37.35	54.00	-16.65	HORIZONTAL Average
10	9688.164	44.07	37.61	8.25	37.39	52.54	74.00	-21.46	HORIZONTAL Peak
11	12110.850	28.34	39.37	10.82	37.38	41.15	54.00	-12.85	HORIZONTAL Average
12	12110.850	44.59	39.37	10.82	37.38	57.40	74.00	-16.60	HORIZONTAL Peak

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

Freq	ReadAntenna		Cable		Preamp		Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor	Level	Line				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	120.679	15.32	11.06	1.20	0.00	27.58	43.50	-15.92	VERTICAL	QP
2	181.173	14.35	12.63	1.44	0.00	28.42	43.50	-15.08	VERTICAL	QP
3	360.387	18.15	15.65	1.96	0.00	35.76	46.00	-10.24	VERTICAL	QP
4	482.266	18.34	17.93	2.36	0.00	38.63	46.00	-7.37	VERTICAL	QP
5	724.321	10.53	21.52	2.90	0.00	34.95	46.00	-11.05	VERTICAL	QP
6	845.118	8.57	22.85	3.10	0.00	34.52	46.00	-11.48	VERTICAL	QP

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

Freq	ReadAntenna		Cable		Preamp		Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor	Level	Line				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2871.934	33.08	27.70	4.83	37.92	27.69	54.00	-26.31	VERTICAL	Average
2	2871.934	45.41	27.70	4.83	37.92	40.02	74.00	-33.98	VERTICAL	Peak
3	3779.422	45.39	28.92	7.78	38.08	44.01	54.00	-9.99	VERTICAL	Average
4	3779.422	30.49	28.92	7.78	38.08	29.11	74.00	-44.89	VERTICAL	Peak
5	4844.151	31.50	30.88	6.31	38.12	30.57	54.00	-23.43	VERTICAL	Average
6	4844.151	44.75	30.88	6.31	38.12	43.82	74.00	-30.18	VERTICAL	Peak
7	7266.015	28.98	35.60	7.36	37.44	34.50	54.00	-19.50	VERTICAL	Average
8	7266.015	43.52	35.60	7.36	37.44	49.04	74.00	-24.96	VERTICAL	Peak
9	9688.164	30.18	37.61	8.25	37.39	38.65	54.00	-15.35	VERTICAL	Average
10	9688.164	43.88	37.61	8.25	37.39	52.35	74.00	-21.65	VERTICAL	Peak
11	12110.270	27.19	39.37	10.82	37.38	40.00	54.00	-14.00	VERTICAL	Average
12	12110.270	43.37	39.37	10.82	37.38	56.18	74.00	-17.82	VERTICAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m		dB	dB	dBuV/m	dBuV/m		dB
1	2774.030	33.24	27.43	4.72	37.98	27.41	54.00	-26.59	HORIZONTAL	Average
2	2774.030	46.15	27.43	4.72	37.98	40.32	74.00	-33.68	HORIZONTAL	Peak
3	3845.537	31.84	29.15	7.77	38.12	30.64	54.00	-23.36	HORIZONTAL	Average
4	3845.537	45.60	29.15	7.77	38.12	44.40	74.00	-29.60	HORIZONTAL	Peak
5	4884.151	33.09	30.95	6.86	38.14	32.76	54.00	-21.24	HORIZONTAL	Average
6	4884.151	45.34	30.95	6.86	38.14	45.01	74.00	-28.99	HORIZONTAL	Peak
7	7326.144	29.32	35.74	7.39	37.46	34.99	54.00	-19.01	HORIZONTAL	Average
8	7326.144	43.51	35.74	7.39	37.46	49.18	74.00	-24.82	HORIZONTAL	Peak
9	9768.684	29.12	37.74	8.37	37.37	37.86	54.00	-16.14	HORIZONTAL	Average
10	9768.684	44.05	37.74	8.37	37.37	52.79	74.00	-21.21	HORIZONTAL	Peak
11	12210.390	29.49	39.21	10.98	37.30	42.38	54.00	-11.62	HORIZONTAL	Average
12	12210.390	43.91	39.21	10.98	37.30	56.80	74.00	-17.20	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m		dB	dB	dBuV/m	dBuV/m		dB
1	2939.115	33.72	27.82	4.77	37.94	28.37	54.00	-25.63	VERTICAL	Average
2	2939.115	46.21	27.82	4.77	37.94	40.86	74.00	-33.14	VERTICAL	Peak
3	3779.422	31.87	28.92	7.78	38.08	30.49	54.00	-23.51	VERTICAL	Average
4	3779.422	44.39	28.92	7.78	38.08	43.01	74.00	-30.99	VERTICAL	Peak
5	4884.975	33.76	30.95	6.86	38.14	33.43	54.00	-20.57	VERTICAL	Average
6	4884.975	45.44	30.95	6.86	38.14	45.11	74.00	-28.89	VERTICAL	Peak
7	7326.122	29.71	35.74	7.39	37.46	35.38	54.00	-18.62	VERTICAL	Average
8	7326.122	43.60	35.74	7.39	37.46	49.27	74.00	-24.73	VERTICAL	Peak
9	9768.371	29.82	37.74	8.37	37.37	38.56	54.00	-15.44	VERTICAL	Average
10	9768.371	43.83	37.74	8.37	37.37	52.57	74.00	-21.43	VERTICAL	Peak
11	12210.220	27.77	39.21	10.98	37.30	40.66	54.00	-13.34	VERTICAL	Average
12	12210.220	43.46	39.21	10.98	37.30	56.35	74.00	-17.65	VERTICAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m		dB	dB	dBuV/m	dBuV/m		dB
1	2830.728	32.92	27.61	4.75	37.97	27.31	54.00	-26.69	HORIZONTAL	Average
2	2830.728	45.59	27.61	4.75	37.97	39.98	74.00	-34.02	HORIZONTAL	Peak
3	3703.723	31.49	28.52	7.24	38.01	29.24	54.00	-24.76	HORIZONTAL	Average
4	3703.723	43.64	28.52	7.24	38.01	41.39	74.00	-32.61	HORIZONTAL	Peak
5	4904.948	31.64	30.97	7.07	38.15	31.53	54.00	-22.47	HORIZONTAL	Average
6	4904.948	44.52	30.97	7.07	38.15	44.41	74.00	-29.59	HORIZONTAL	Peak
7	7356.122	28.64	35.78	7.40	37.46	34.36	54.00	-19.64	HORIZONTAL	Average
8	7356.122	43.27	35.78	7.40	37.46	48.99	74.00	-25.01	HORIZONTAL	Peak
9	9808.916	28.80	37.79	8.41	37.37	37.63	54.00	-16.37	HORIZONTAL	Average
10	9808.916	43.89	37.79	8.41	37.37	52.72	74.00	-21.28	HORIZONTAL	Peak
11	12260.700	27.73	39.15	11.02	37.28	40.62	54.00	-13.38	HORIZONTAL	Average
12	12260.700	43.14	39.15	11.02	37.28	56.03	74.00	-17.97	HORIZONTAL	Peak

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

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m		dB	dB	dBuV/m	dBuV/m		dB
1	2913.740	34.51	27.78	4.83	37.91	29.21	54.00	-24.79	VERTICAL	Average
2	2913.740	45.84	27.78	4.83	37.91	40.54	74.00	-33.46	VERTICAL	Peak
3	3845.537	30.45	29.15	7.77	38.12	29.25	54.00	-24.75	VERTICAL	Average
4	3845.537	44.36	29.15	7.77	38.12	43.16	74.00	-30.84	VERTICAL	Peak
5	4904.993	33.92	30.97	7.07	38.15	33.81	54.00	-20.19	VERTICAL	Average
6	4904.993	45.89	30.97	7.07	38.15	45.78	74.00	-28.22	VERTICAL	Peak
7	7356.122	30.83	35.78	7.40	37.46	36.55	54.00	-17.45	VERTICAL	Average
8	7356.122	43.93	35.78	7.40	37.46	49.65	74.00	-24.35	VERTICAL	Peak
9	9808.312	29.97	37.79	8.41	37.37	38.80	54.00	-15.20	VERTICAL	Average
10	9808.312	44.79	37.79	8.41	37.37	53.62	74.00	-20.38	VERTICAL	Peak
11	12260.850	29.41	39.15	11.02	37.28	42.30	54.00	-11.70	VERTICAL	Average
12	12260.850	43.90	39.15	11.02	37.28	56.79	74.00	-17.21	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	12.139	8.344	0.5	PASS
11B	2442	Ant1	12.124	9.048	0.5	PASS
11B	2462	Ant1	12.134	8.344	0.5	PASS
11G	2412	Ant1	16.446	16.47	0.5	PASS
11G	2437	Ant1	16.455	16.43	0.5	PASS
11G	2442	Ant1	16.436	16.42	0.5	PASS
11G	2462	Ant1	16.447	16.47	0.5	PASS
11N20SISO	2412	Ant1	17.530	17.20	0.5	PASS
11N20SISO	2442	Ant1	17.523	17.19	0.5	PASS
11N20SISO	2462	Ant1	17.523	17.16	0.5	PASS
11N40SISO	2422	Ant1	35.882	35.69	0.5	PASS
11N40SISO	2442	Ant1	35.862	35.47	0.5	PASS
11N40SISO	2452	Ant1	35.905	35.50	0.5	PASS

