



MAXLAB Testing Co.,Ltd.

Report No.: MAX250410110P03-R02

TEST REPORT

FCC ID: 2BDTM-S01T

Product : 21.5 inch intelligent all-in-one machine
Model Name : S01T, D02A, D01, P01, D02, HSD-215ZJ, HSD-215ZJD01, HSD-215ZJD02
Brand : N/A
Report No. : MAX250410110P03-R02

Prepared for

Shenzhen Hongshengda Optoelectronic Technology Co., Ltd
3rd Floor, Building 4, No.161, Xingye Road, Fenghuang Community,
Fuyong Street, Bao 'an District, Shenzhen, China

Prepared by

MAXLAB Testing Co.,Ltd.

1/F, Building B, Xinshidai GR Park, Shiyuan Street, Bao'an District, Shenzhen, Guangdong,
518052, People' s Republic of China



MAXLAB Testing Co.,Ltd.

Report No.: MAX250410110P03-R02

1 TEST RESULT CERTIFICATION

Applicant : Shenzhen Hongshengda Optoelectronic Technology Co., Ltd
Address : 3rd Floor, Building 4, No.161, Xingye Road, Fenghuang Community,
Fuyong Street, Bao 'an District, Shenzhen, China
Manufacturer : Shenzhen Hongshengda Optoelectronic Technology Co., Ltd
Address : 3rd Floor, Building 4, No.161, Xingye Road, Fenghuang Community,
Fuyong Street, Bao 'an District, Shenzhen, China
Product name : 21.5 inch intelligent all-in-one machine
Model name : S01T, D02A, D01, P01, D02, HSD-215ZJ, HSD-215ZJD01, HSD-215ZJD02
Standards : FCC CFR47 Part 15 Section 15.247
Test procedure : ANSI C63.10:2020
Date of test : Apr. 10, 2025 to May 15, 2025
Date of Issue : May 16, 2025

This device described above has been tested by MAXLAB, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

This report shall not be reproduced except in full, without the written approval of MAXLAB, this document may be altered or revised by MAXLAB, personal only, and shall be noted in the revision of the document.

Test Engineer:

Cindy Zheng

Engineer/ Cindy Zheng

Technical Manager:



RF Manager/ Vivian Jiang



Contents

Page

1 TEST RESULT CERTIFICATION	2
2 TEST SUMMARY	5
3 GENERAL INFORMATION	6
3.1 GENERAL DESCRIPTION OF E.U.T.	6
3.2 CHANNEL LIST	7
3.3 TEST SITE	8
3.4 TEST SETUP CONFIGURATION	9
3.5 TEST MODE	9
4 EQUIPMENT DURING TEST	10
4.1 EQUIPMENTS LIST	10
4.2 MEASUREMENT UNCERTAINTY	12
4.3 DESCRIPTION OF SUPPORT UNITS	12
5 CONDUCTED EMISSION	13
5.1 E.U.T. OPERATION	13
5.2 EUT SETUP	13
5.3 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	14
5.4 MEASUREMENT PROCEDURE	14
5.5 CONDUCTED EMISSION LIMIT	14
5.6 MEASUREMENT DESCRIPTION	14
5.7 CONDUCTED EMISSION TEST RESULT	14
6 RADIATED SPURIOUS EMISSIONS	17
6.1 EUT OPERATION	17
6.2 TEST SETUP	18
6.3 SPECTRUM ANALYZER SETUP	19
6.4 TEST PROCEDURE	20
6.5 SUMMARY OF TEST RESULTS	21
7 CONDUCT BAND EDGE AND SPURIOUS EMISSIONS MEASUREMENT	30
7.1 TEST SETUP	31
7.2 TEST PROCEDURE	31



MAXLAB Testing Co.,Ltd.

Report No.: MAX250410110P03-R02

7.3 TEST RESULT	31
8 6DB&99% BANDWIDTH MEASUREMENT	32
8.1 TEST SETUP	32
8.2 TEST PROCEDURE	32
8.3 TEST RESULT	32
9 MAXIMUM PEAK OUTPUT POWER	33
9.1 TEST SETUP	33
9.2 TEST PROCEDURE	33
9.3 TEST RESULT	33
10 POWER SPECTRAL DENSITY	34
10.1 TEST SETUP	34
10.2 TEST PROCEDURE	34
10.3 TEST RESULT	34
11 ANTENNA APPLICATION	35
11.1 ANTENNA REQUIREMENT	35
11.2 RESULT	35
12 TEST SETUP AND EUT PHOTOS	36



MAXLAB Testing Co.,Ltd.

Report No.: MAX250410110P03-R02

2 Test Summary

Test Items	Test Requirement	Result
Conduct Emission	FCC part 15.207	PASS
Radiated Spurious Emissions	FCC part 15.205/15.209	PASS
Conducted Spurious Emission	FCC part 15.205/15.209	PASS
Band edge	FCC part 15.247(d)	PASS
6dB&99% Bandwidth	FCC part 15.247 (a)(2)	PASS
Maximum Peak Output Power	FCC part 15.247 (b)(3)	PASS
Power Spectral Density	FCC part 15.247 (e)	PASS
Antenna Requirement	FCC part 15.203/15.247 (c)	PASS

Remark:

"N/A" denotes test is not applicable in this Test Report.



MAXLAB Testing Co.,Ltd.

Report No.: MAX250410110P03-R02

3 General Information

3.1 General Description of E.U.T.

Product Name	:	21.5 inch intelligent all-in-one machine
Model Name	:	S01T
Sample ID	:	25015461X-001#
Sample(s) Status:	:	Engineer sample
Series Model.	:	D02A, D01, P01, D02, HSD-215ZJ, HSD-215ZJD01, HSD-215ZJD02
Model Different.:	:	Everything is the same except for the model name
Specification	:	802.11b/g/n/ax HT20;802.11n HT40
Operation Frequency	:	2412-2462MHz for 802.11b/g/n20; 2422-2452MHz for 802.11n40;
Number of Channel	:	11 channels for 802.11b/g/n20; 7 channels for 802.11n40;
Type of Modulation	:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g:OFDM(BPSK, QPSK, 16-QAM, 64-QAM) 802.11n:OFDM(BPSK, QPSK, 16-QAM, 64-QAM)
Antenna installation	:	Internal Antenna
Antenna Gain	:	1.99 dBi
Power supply	:	DC 11.1V by Battery; Charging input:DC 15V= 2.4A from Adapter AC 120V/60Hz
Remark: the Antenna gain is provided by customer from Antenna spec. and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.		

3.2 Channel List

The EUT has been tested under its typical operating condition.

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Those data rates (802.11b: 1 Mbps; 802.11g: 6 Mbps; 802.11n (HT20): MCS0; 802.11n (HT40): MCS0; were used for all test.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Frequency and Channel list for 802.11 b/g/n (HT20/HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	5	2432	9	2452
2	2417	6	2437	10	2457
3	2422	7	2442	11	2462
4	2427	8	2447		

Test Frequency and Channel for 802.11 b/g/n (HT20/HT40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	6	2437	11	2462
3	2422	6	2437	9	2452



MAXLAB Testing Co.,Ltd.

Report No.: MAX250410110P03-R02

3.3 Test Site

Site Description

EMC Lab.: FCC-Registration No:562200 Designation Number: CN1338

MAXLAB Testing Co., Ltd.has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA-Lab Cert.No:4707.01

MAXLAB Testing Co, Ltd.has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

Industry Canada Registration Number.Is:11093A

CAB identifier: CN0019

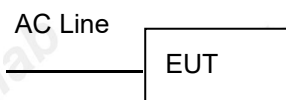
The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

Name of Firm: MAXLAB Testing Co, Ltd.

Site Location: 1/F, Building B, Xinshidai GR Park, Shiyan Street, Bao'an District, Shenzhen, Guangdong, 518052, People's Republic of China

3.4 Test Setup Configuration

Conducted Emission



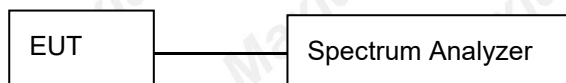
Radiated Emission (30MHz-1GHz)



Radiated Emission(above 1GHz)



Conducted Spurious



3.5 Test Mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.	

Test Software	The EUT enters engineering mode
Power level setup	18

4 Equipment During Test

4.1 Equipments List

Conducted Emission					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	MAX252	2024-10-27	2025-10-26
EMI Test Receiver	R&S	ESCI 7	MAX552	2024-10-27	2025-10-26
Coaxial Switch	ANRITSU CORP	MP59B	MAX225	2024-10-27	2025-10-26
ENV216 2-L-V-NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	MAX226	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX227	N/A	N/A
Thermo meter	KTJ	TA328	MAX233	2024-10-27	2025-10-26
Absorbing clamp	Elektronik-Feinmechanik	MDS21	MAX229	2024-10-27	2025-10-26
LISN	R&S	ENV216	308	2024-10-27	2025-10-26
LISN	R&S	ENV216	314	2024-10-27	2025-10-26

Radiation Test equipment					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)*6.4(H)	MAX250	2024-10-27	2025-10-26
Control Room	ZhongYu Electron	6.2(L)*2.5(W)*2.4(H)	MAX251	N/A	N/A
EMI Test Receiver	Rohde & Schwarz	ESU26	MAX203	2024-10-27	2025-10-26
BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	MAX214	2024-10-27	2025-10-26
Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	MAX208	2024-10-27	2025-10-26
Horn Antenna	ETS-LINDGREN	3160	MAX217	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX213	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX211	2024-10-27	2025-10-26
Coaxial cable	MAX	N/A	MAX210	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX212	2024-10-27	2025-10-26
Amplifier(100kHz-3GHz)	HP	8347A	MAX204	2024-10-27	2025-10-26
Amplifier(2GHz-20GHz)	HP	84722A	MAX206	2024-10-27	2025-10-26
Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	MAX218	2024-10-27	2025-10-26
Band filter	Amindeon	82346	MAX219	2024-10-27	2025-10-26
Power Meter	Anritsu	ML2495A	MAX540	2024-10-27	2025-10-26
Power Sensor	Anritsu	MA2411B	MAX541	2024-10-27	2025-10-26
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	MAX575	2024-10-27	2025-10-26

Splitter	Agilent	11636B	MAX237	2024-10-27	2025-10-26
Loop Antenna	ZHINAN	ZN30900A	MAX534	2024-10-27	2025-10-26
Breitband hornantenne	SCHWARZBECK	BBHA 9170	MAX579	2024-10-27	2025-10-26
Amplifier	TDK	PA-02-02	MAX574	2024-10-27	2025-10-26
Amplifier	TDK	PA-02-03	MAX576	2024-10-27	2025-10-26
PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP40	MAX578	2024-10-27	2025-10-26

RF Conducted Test:					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
MXA Signal Analyzer	Agilent	N9020A	MAX566	2024-10-27	2025-10-26
EMI Test Receiver	R&S	ESCI 7	MAX552	2024-10-27	2025-10-26
Spectrum Analyzer	Agilent	E4440A	MAX533	2024-10-27	2025-10-26
MXG vector Signal Generator	Agilent	N5182A	MAX567	2024-10-27	2025-10-26
ESG Analog Signal Generator	Agilent	E4428C	MAX568	2024-10-27	2025-10-26
USB RF Power Sensor	DARE	RPR3006W	MAX569	2024-10-27	2025-10-26
RF Switch Box	Shongyi	RFSW3003328	MAX571	2024-10-27	2025-10-26
Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	MAX572	2024-10-27	2025-10-26

Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	EZ	EZ-EMC	EMC-CON 3A1.1+
2	EMC radiation test system	EZ	EZ-EMC	FA-03A2 RE+
3	RF test system	TACHOY	RFTTest	V1.0.0
4	RF communication test system	TACHOY	RFTTest	V1.0.0

4.2 Measurement Uncertainty

Parameter	Uncertainty
RF output power, conducted	±1.0dB
Power Spectral Density, conducted	±2.2dB
Radio Frequency	± 1 x 10 ⁻⁶
Bandwidth	± 1.5 x 10 ⁻⁶
Time	±2%
Duty Cycle	±2%
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Conducted Emissions (150kHz~30MHz)	±3.64dB
Radiated Emission(9KHz~30MHz)	±4.51dB
Radiated Emission(30MHz~1GHz)	±5.03dB
Radiated Emission(1GHz~25GHz)	±4.74dB
Radiated Emission(25GHz~40GHz)	±3.38dB
Remark: The coverage Factor (k=2), and measurement Uncertainty for a level of Confidence of 95%	

4.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	21.5 inch intelligent all-in-one machine	N/A	S01T	N/A	EUT
E-2	AC/DC POWER ADAPTER	/	QLD150240AEU6DF	/	Auxiliary

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

5 Conducted Emission

Test Requirement:	: FCC CFR 47 Part 15 Section 15.207, RSS-Gen 8.8
Test Method	: ANSI C63.10:2020
Test Result	: PASS
Frequency Range	: 150kHz to 30MHz
Class/Severity	: Class B

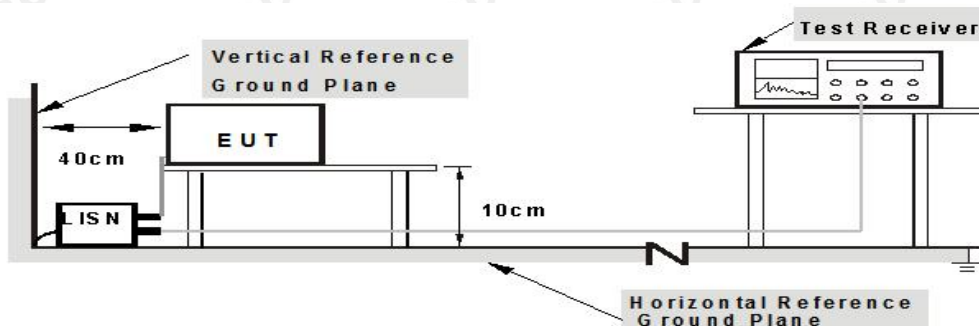
5.1 E.U.T. Operation

Operating Environment :

Temperature	: 24.5 °C
Humidity	: 51.3 % RH
Atmospheric Pressure	: 101.11kPa

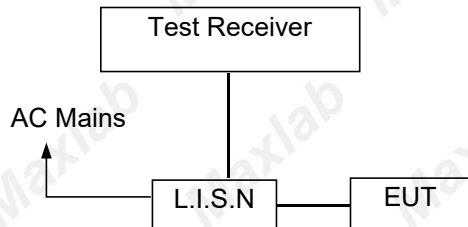
5.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10:2020.



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 10 cm from EUT and at least 10 from other units and other metal planes

5.3 Test SET-UP (Block Diagram of Configuration)



5.4 Measurement Procedure

1. The EUT was placed on a table, which is 0.1m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured was complete.

5.5 Conducted Emission Limit

Conducted Emission

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note:

1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

5.6 Measurement Description

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

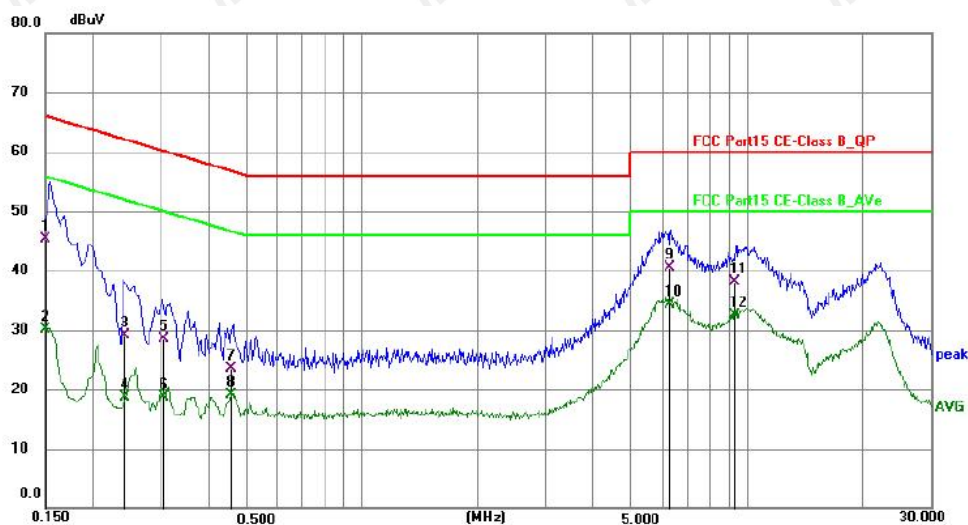
5.7 Conducted Emission Test Result

Pass.

All the modulation modes were tested the data of the worst mode (TX 802.11n20 High Channel) are recorded in the following pages and the others modulation methods do not exceed the limits.

Please refer to the following pages.

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	L
Test Voltage :	DC 15V from Adapter input AC 120V/60Hz		



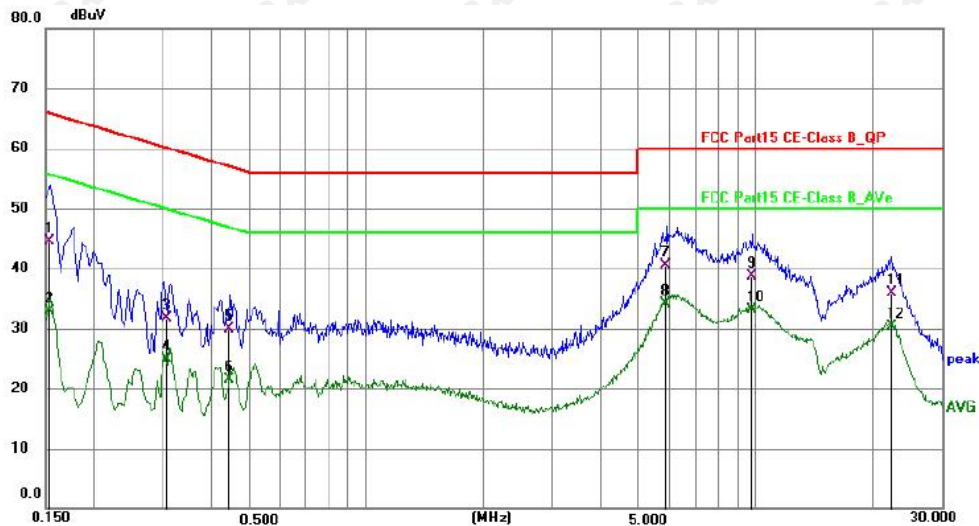
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1505	25.85	19.49	45.34	65.97	-20.63	QP	P
2	0.1505	10.69	19.49	30.18	55.97	-25.79	AVG	P
3	0.2428	9.59	19.49	29.08	62.00	-32.92	QP	P
4	0.2428	-0.83	19.49	18.66	52.00	-33.34	AVG	P
5	0.3055	9.11	19.49	28.60	60.09	-31.49	QP	P
6	0.3055	-0.80	19.49	18.69	50.09	-31.40	AVG	P
7	0.4570	4.07	19.48	23.55	56.75	-33.20	QP	P
8	0.4570	-0.47	19.48	19.01	46.75	-27.74	AVG	P
9	6.3169	20.82	19.63	40.45	60.00	-19.55	QP	P
10 *	6.3169	14.75	19.63	34.38	50.00	-15.62	AVG	P
11	9.3409	18.33	19.69	38.02	60.00	-21.98	QP	P
12	9.3409	12.88	19.69	32.57	50.00	-17.43	AVG	P

Notes: 1.An initial pre-scan was performed on the line and neutral lines with peak detector.

2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.

3.Measurement Level = Reading level + Correct Factor

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	N
Test Voltage :	DC 15V from Adapter input AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1539	24.96	19.49	44.45	65.79	-21.34	QP	P
2	0.1539	13.33	19.49	32.82	55.79	-22.97	AVG	P
3	0.3069	12.20	19.48	31.68	60.05	-28.37	QP	P
4	0.3069	5.46	19.48	24.94	50.05	-25.11	AVG	P
5	0.4441	10.40	19.49	29.89	56.98	-27.09	QP	P
6	0.4441	2.04	19.49	21.53	46.98	-25.45	AVG	P
7	5.8897	20.86	19.63	40.49	60.00	-19.51	QP	P
8 *	5.8897	14.53	19.63	34.16	50.00	-15.84	AVG	P
9	9.7761	18.97	19.72	38.69	60.00	-21.31	QP	P
10	9.7761	13.35	19.72	33.07	50.00	-16.93	AVG	P
11	22.1880	15.65	20.16	35.81	60.00	-24.19	QP	P
12	22.1880	10.20	20.16	30.36	50.00	-19.64	AVG	P

Notes: 1.An initial pre-scan was performed on the line and neutral lines with peak detector.

2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.

3.Measurement Level = Reading level + Correct Factor



MAXLAB Testing Co.,Ltd.

Report No.: MAX250410110P03-R02

6 Radiated Spurious Emissions

Test Requirement : FCC CFR47 Part 15 Section 15.209 & 15.247
Test Method : ANSI C63.10:2020
Test Result : PASS
Measurement Distance : 3m
Limit : See the follow table

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	$2400/F(\text{kHz})$	300	$10000 * 2400/F(\text{kHz})$	$20\log^{(2400/F(\text{kHz}))} + 80$
0.490 ~ 1.705	$24000/F(\text{kHz})$	30	$100 * 24000/F(\text{kHz})$	$20\log^{(24000/F(\text{kHz}))} + 40$
1.705 ~ 30	30	30	$100 * 30$	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

6.1 EUT Operation

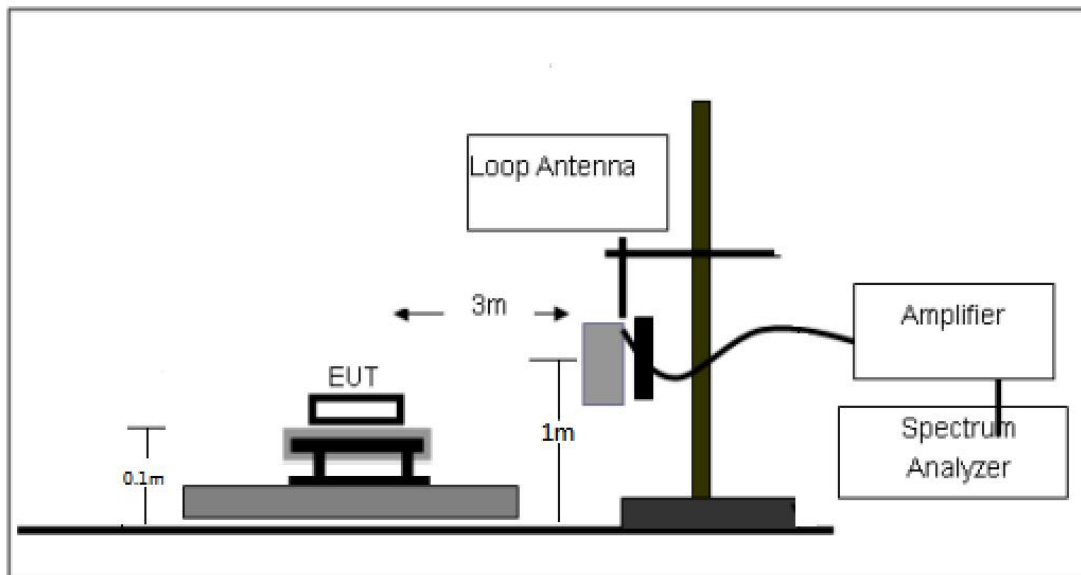
Operating Environment :

Temperature: : 24.5°C
Humidity: : 52 % RH
Atmospheric Pressure: : 101.11kPa
Test Voltage : DC 11.1V

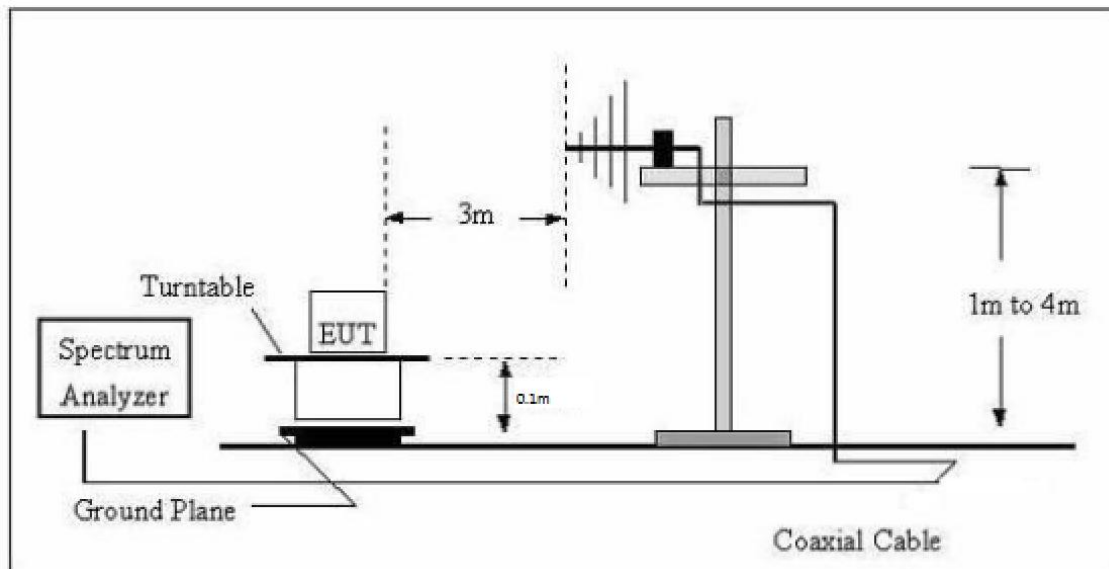
6.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site

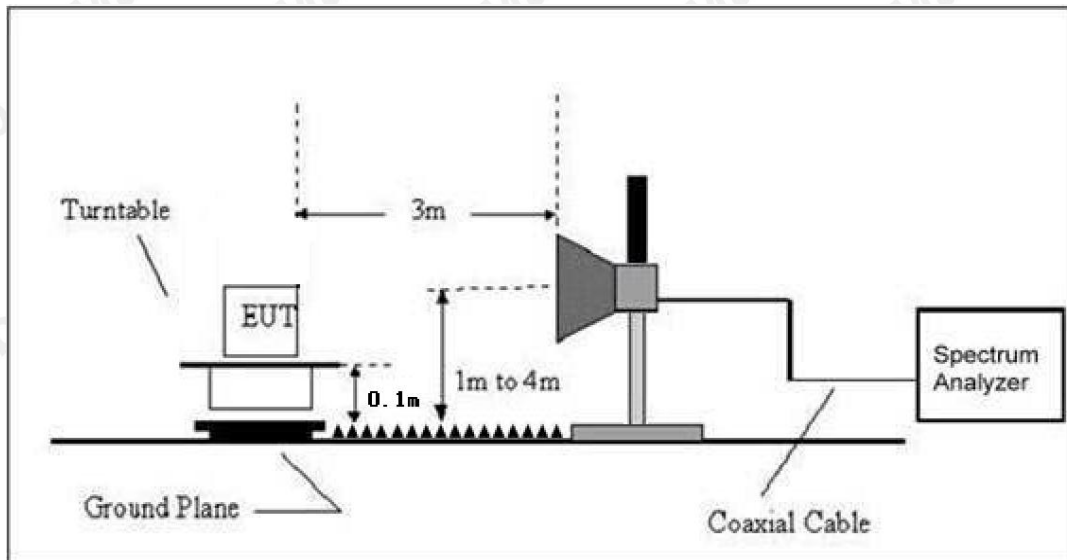
The test setup for emission measurement below 30MHz



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz



6.3 Spectrum Analyzer Setup

Below 30MHz			
IF Bandwidth	:	10kHz	
Resolution Bandwidth	:	10kHz	
Video Bandwidth	:	10kHz	
30MHz ~ 1GHz			
Detector	:	PK	QP
Resolution Bandwidth	:	100kHz	120kHz
Video Bandwidth	:	300kHz	300kHz
Above 1GHz			
Detector	:	PK	AV
Resolution Bandwidth	:	1MHz	1MHz
Video Bandwidth	:	3MHz	10Hz



MAXLAB Testing Co.,Ltd.

Report No.: MAX250410110P03-R02

6.4 Test Procedure

1. Below 1000MHz, The EUT was placed on a turn table which is 0.1m above ground plane, And above 1000MHz, The EUT was placed on a styrofoam table which is 0.1m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.
8. The test above 1GHz must be use the fully anechoic room, and the test below 1GHz use the half anechoic room



MAXLAB Testing Co.,Ltd.

Report No.: MAX250410110P03-R02

6.5 Summary of Test Results

Test Frequency: 9KHz-30MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)
--	--	--	--	>20

Note:

The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

Distance extrapolation factor = $40\log(\text{Specific distance} / \text{test distance})$ (dB);

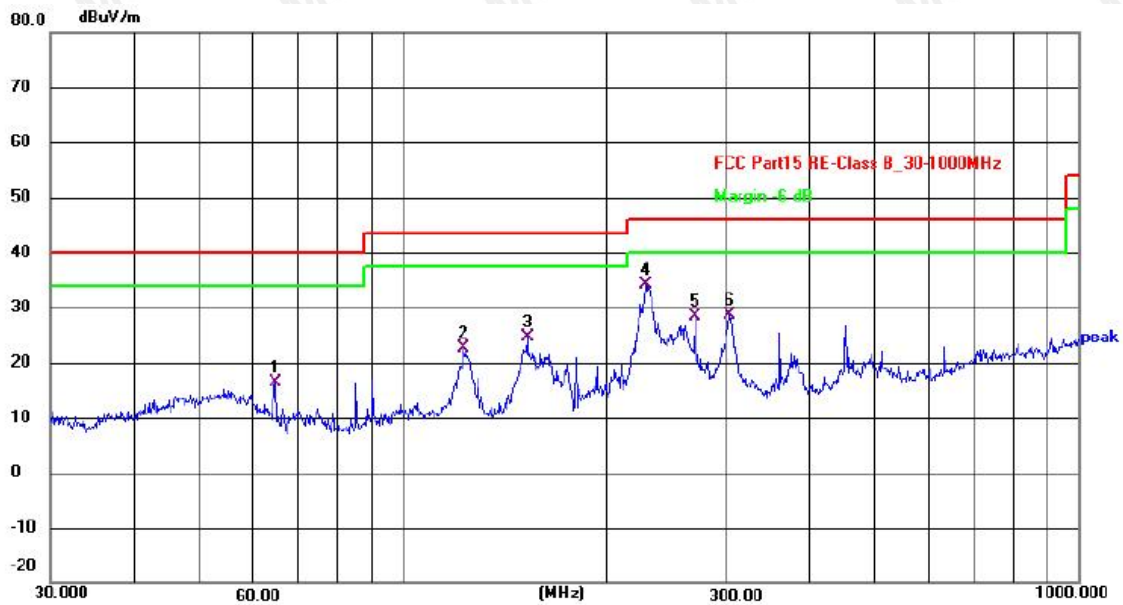
Limit line = Specific limits (dBuV) + distance extrapolation factor.

Test Frequency: 30MHz ~ 1GHz

All the modulation modes were tested the data of the worst mode (TX 802.11n20 High Channel) are recorded in the following pages and the others modulation methods do not exceed the limits.

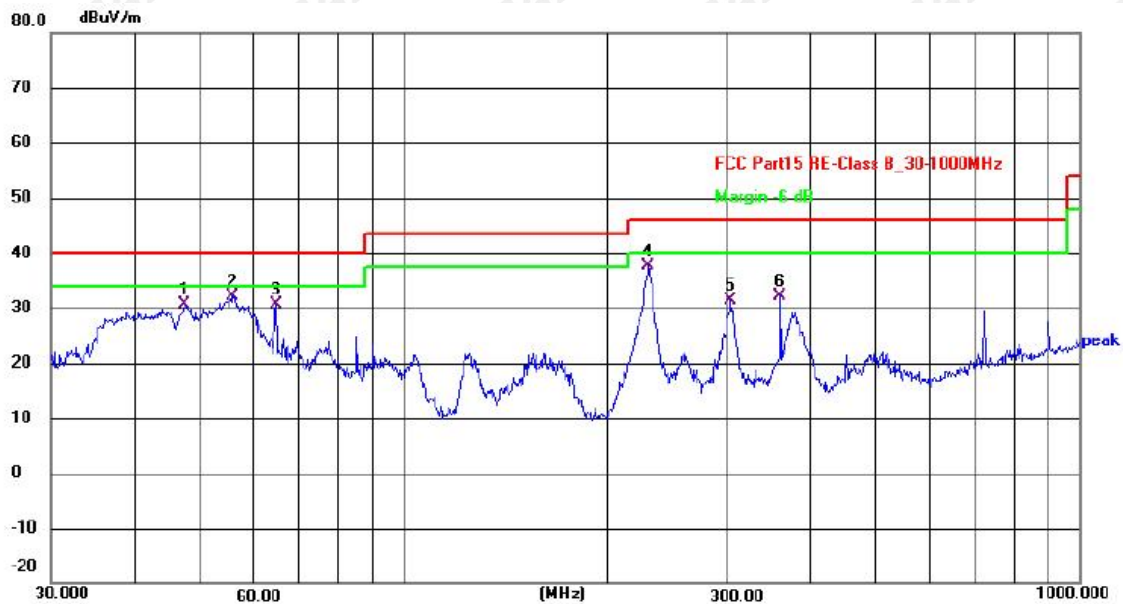
Please refer to the following test plots:

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 11.1V		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	64.6594	32.81	-16.45	16.36	40.00	-23.64	QP
2	122.8340	40.39	-17.81	22.58	43.50	-20.92	QP
3	152.6641	43.69	-19.12	24.57	43.50	-18.93	QP
4	228.4904	49.63	-15.40	34.23	46.00	-11.77	QP
5	270.3748	42.83	-14.38	28.45	46.00	-17.55	QP
6	303.5437	42.00	-13.39	28.61	46.00	-17.39	QP

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	DC 11.1V		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	47.3255	44.92	-14.28	30.64	40.00	-9.36	QP
2	55.6094	46.75	-14.67	32.08	40.00	-7.92	QP
3	64.6594	47.15	-16.45	30.70	40.00	-9.30	QP
4	230.0985	52.97	-15.35	37.62	46.00	-8.38	QP
5	304.6099	44.74	-13.39	31.35	46.00	-14.65	QP
6	360.4476	44.39	-12.37	32.02	46.00	-13.98	QP

Remark: Emission Level = Reading + Cable Loss + ANT Factor

Test Frequency: From 1GHz to 25GHz

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
Low Channel:2412MHz									
V	4824.00	54.08	30.55	5.77	24.66	53.96	74.00	-20.04	PK
V	4824.00	43.78	30.55	5.77	24.66	43.66	54.00	-10.34	AV
V	7236.00	52.38	30.33	6.32	24.55	52.92	74.00	-21.08	PK
V	7236.00	43.78	30.33	6.32	24.55	44.32	54.00	-9.68	AV
V	9648.00	53.92	30.85	7.45	24.69	55.21	74.00	-18.79	PK
V	9648.00	41.67	30.85	7.45	24.69	42.96	54.00	-11.04	AV
V	12060.00	52.79	31.02	8.99	25.57	56.33	74.00	-17.67	PK
V	12060.00	43.05	31.02	8.99	25.57	46.59	54.00	-7.41	AV
H	4824.00	53.54	30.55	5.77	24.66	53.42	74.00	-20.58	PK
H	4824.00	43.17	30.55	5.77	24.66	43.05	54.00	-10.95	AV
H	7236.00	51.92	30.33	6.32	24.55	52.46	74.00	-21.54	PK
H	7236.00	43.53	30.33	6.32	24.55	44.07	54.00	-9.93	AV
H	9648.00	55.1	30.85	7.45	24.69	56.39	74.00	-17.61	PK
H	9648.00	42.75	30.85	7.45	24.69	44.04	54.00	-9.96	AV
H	12060.00	53.83	31.02	8.99	25.57	57.37	74.00	-16.63	PK
H	12060.00	44.41	31.02	8.99	25.57	47.95	54.00	-6.05	AV

Polar	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
(H/V)	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Middle Channel:2437MHz									
V	4874.00	53.82	30.55	5.77	24.66	53.7	74.00	-20.3	PK
V	4874.00	44.24	30.55	5.77	24.66	44.12	54.00	-9.88	AV
V	7311.00	51.98	30.33	6.32	24.55	52.52	74.00	-21.48	PK
V	7311.00	43.06	30.33	6.32	24.55	43.6	54.00	-10.4	AV
V	9748.00	53.3	30.85	7.45	24.69	54.59	74.00	-19.41	PK
V	9748.00	41.77	30.85	7.45	24.69	43.06	54.00	-10.94	AV
V	12185.00	51.98	31.02	8.99	25.57	55.52	74.00	-18.48	PK
V	12185.00	43.08	31.02	8.99	25.57	46.62	54.00	-7.38	AV
H	4874.00	53.05	30.55	5.77	24.66	52.93	74.00	-21.07	PK
H	4874.00	42.85	30.55	5.77	24.66	42.73	54.00	-11.27	AV
H	7311.00	54.06	30.33	6.32	24.55	54.6	74.00	-19.4	PK
H	7311.00	43.15	30.33	6.32	24.55	43.69	54.00	-10.31	AV
H	9748.00	54.56	30.85	7.45	24.69	55.85	74.00	-18.15	PK
H	9748.00	44.52	30.85	7.45	24.69	45.81	54.00	-8.19	AV
H	12185.00	53.18	31.02	8.99	25.57	56.72	74.00	-17.28	PK
H	12185.00	42.99	31.02	8.99	25.57	46.53	54.00	-7.47	AV

Polar	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
(H/V)	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
High Channel:2462MHz									
V	4924.00	54.31	30.55	5.77	24.66	54.19	74.00	-19.81	PK
V	4924.00	43.71	30.55	5.77	24.66	43.59	54.00	-10.41	AV
V	7386.00	53.07	30.33	6.32	24.55	53.61	74.00	-20.39	PK
V	7386.00	42.43	30.33	6.32	24.55	42.97	54.00	-11.03	AV
V	9848.00	54.33	30.85	7.45	24.69	55.62	74.00	-18.38	PK
V	9848.00	42.09	30.85	7.45	24.69	43.38	54.00	-10.62	AV
V	12310.00	54.12	31.02	8.99	25.57	57.66	74.00	-16.34	PK
V	12310.00	43.14	31.02	8.99	25.57	46.68	54.00	-7.32	AV
H	4924.00	51.65	30.55	5.77	24.66	51.53	74.00	-22.47	PK
H	4924.00	44.14	30.55	5.77	24.66	44.02	54.00	-9.98	AV
H	7386.00	54.48	30.33	6.32	24.55	55.02	74.00	-18.98	PK
H	7386.00	42.66	30.33	6.32	24.55	43.2	54.00	-10.8	AV
H	9848.00	54.49	30.85	7.45	24.69	55.78	74.00	-18.22	PK
H	9848.00	45.08	30.85	7.45	24.69	46.37	54.00	-7.63	AV
H	12310.00	53.66	31.02	8.99	25.57	57.2	74.00	-16.8	PK
H	12310.00	44.07	31.02	8.99	25.57	47.61	54.00	-6.39	AV

Note:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. We test all the mode and recorded the worst mode (802.11n20) in the report.

Radiated Band Emission Measurement:

	Polar (H/V)	Frequenc y (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV /m)	Margin (dB)	Detector Type
802.11b	Low Channel 2412MHz									
	H	2390.00	58.21	35.17	3.48	27.49	54.01	74.00	-19.99	PK
	H	2390.00	50.87	35.17	3.48	27.49	46.67	54.00	-7.33	AV
	H	2400.00	61.41	35.16	3.49	27.52	57.26	74.00	-16.74	PK
	H	2400.00	51.28	35.16	3.49	27.52	47.13	54.00	-6.87	AV
	V	2390.00	59.22	35.17	3.48	27.49	55.02	74.00	-18.98	PK
	V	2390.00	51.54	35.17	3.48	27.49	47.34	54.00	-6.66	AV
	V	2400.00	60.99	35.16	3.49	27.52	56.84	74.00	-17.16	PK
	V	2400.00	50.75	35.16	3.49	27.52	46.6	54.00	-7.4	AV
	High Channel 2462MHz									
	H	2483.50	58.74	35.11	3.56	27.75	54.94	74.00	-19.06	PK
	H	2483.50	50.23	35.11	3.56	27.75	46.43	54.00	-7.57	AV
	H	2500.00	59.86	35.1	3.57	27.8	56.13	74.00	-17.87	PK
	H	2500.00	50.25	35.1	3.57	27.8	46.52	54.00	-7.48	AV
	V	2483.50	59.03	35.11	3.56	27.75	55.23	74.00	-18.77	PK
	V	2483.50	50.94	35.11	3.56	27.75	47.14	54.00	-6.86	AV
	V	2500.00	58.97	35.1	3.57	27.8	55.24	74.00	-18.76	PK
	V	2500.00	51.55	35.1	3.57	27.8	47.82	54.00	-6.18	AV
802.11g	Low Channel 2412MHz									
	H	2390.00	57.75	35.17	3.48	27.49	53.55	74.00	-20.45	PK
	H	2390.00	50.1	35.17	3.48	27.49	45.9	54.00	-8.1	AV
	H	2400.00	58.87	35.16	3.49	27.52	54.72	74.00	-19.28	PK
	H	2400.00	50.63	35.16	3.49	27.52	46.48	54.00	-7.52	AV
	V	2390.00	57.65	35.17	3.48	27.49	53.45	74.00	-20.55	PK

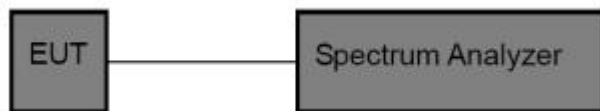
	V	2390.00	49.57	35.17	3.48	27.49	45.37	54.00	-8.63	AV
	V	2400.00	59.65	35.16	3.49	27.52	55.5	74.00	-18.5	PK
	V	2400.00	48.91	35.16	3.49	27.52	44.76	54.00	-9.24	AV
	High Channel 2462MHz									
	H	2483.50	57.04	35.11	3.56	27.75	53.24	74.00	-20.76	PK
	H	2483.50	49.22	35.11	3.56	27.75	45.42	54.00	-8.58	AV
	H	2500.00	59.18	35.1	3.57	27.8	55.45	74.00	-18.55	PK
	H	2500.00	48.9	35.1	3.57	27.8	45.17	54.00	-8.83	AV
	V	2483.50	57.8	35.11	3.56	27.75	54	74.00	-20	PK
	V	2483.50	49.94	35.11	3.56	27.75	46.14	54.00	-7.86	AV
	V	2500.00	58.83	35.1	3.57	27.8	55.1	74.00	-18.9	PK
	V	2500.00	49.42	35.1	3.57	27.8	45.69	54.00	-8.31	AV
802.11 n20	Low Channel 2412MHz									
	H	2390.00	58.34	35.17	3.48	27.49	54.14	74.00	-19.86	PK
	H	2390.00	50.26	35.17	3.48	27.49	46.06	54.00	-7.94	AV
	H	2400.00	60.98	35.16	3.49	27.52	56.83	74.00	-17.17	PK
	H	2400.00	49.64	35.16	3.49	27.52	45.49	54.00	-8.51	AV
	V	2390.00	58.06	35.17	3.48	27.49	53.86	74.00	-20.14	PK
	V	2390.00	50.51	35.17	3.48	27.49	46.31	54.00	-7.69	AV
	V	2400.00	60	35.16	3.49	27.52	55.85	74.00	-18.15	PK
	V	2400.00	50.7	35.16	3.49	27.52	46.55	54.00	-7.45	AV
	High Channel 2462MHz									
	H	2483.50	57.95	35.11	3.56	27.75	54.15	74.00	-19.85	PK
	H	2483.50	49.36	35.11	3.56	27.75	45.56	54.00	-8.44	AV
	H	2500.00	59.75	35.1	3.57	27.8	56.02	74.00	-17.98	PK
	H	2500.00	50.67	35.1	3.57	27.8	46.94	54.00	-7.06	AV

	V	2483.50	59.22	35.11	3.56	27.75	55.42	74.00	-18.58	PK
	V	2483.50	50.12	35.11	3.56	27.75	46.32	54.00	-7.68	AV
	V	2500.00	59.23	35.1	3.57	27.8	55.5	74.00	-18.5	PK
	V	2500.00	50.33	35.1	3.57	27.8	46.6	54.00	-7.4	AV
802.11 n40	Low Channel 2422MHz									
	H	2390.00	58.17	35.17	3.48	27.49	53.97	74.00	-20.03	PK
	H	2390.00	49.4	35.17	3.48	27.49	45.2	54.00	-8.8	AV
	H	2400.00	58.97	35.16	3.49	27.52	54.82	74.00	-19.18	PK
	H	2400.00	50.75	35.16	3.49	27.52	46.6	54.00	-7.4	AV
	V	2390.00	57.35	35.17	3.48	27.49	53.15	74.00	-20.85	PK
	V	2390.00	49.22	35.17	3.48	27.49	45.02	54.00	-8.98	AV
	V	2400.00	59.66	35.16	3.49	27.52	55.51	74.00	-18.49	PK
	V	2400.00	49.17	35.16	3.49	27.52	45.02	54.00	-8.98	AV
	High Channel 2452MHz									
	H	2483.50	56.91	35.11	3.56	27.75	53.11	74.00	-20.89	PK
	H	2483.50	49.2	35.11	3.56	27.75	45.4	54.00	-8.6	AV
	H	2500.00	58.79	35.1	3.57	27.8	55.06	74.00	-18.94	PK
	H	2500.00	49	35.1	3.57	27.8	45.27	54.00	-8.73	AV
	V	2483.50	58.17	35.11	3.56	27.75	54.37	74.00	-19.63	PK
	V	2483.50	50.47	35.11	3.56	27.75	46.67	54.00	-7.33	AV
	V	2500.00	58.37	35.1	3.57	27.8	54.64	74.00	-19.36	PK
	V	2500.00	49.96	35.1	3.57	27.8	46.23	54.00	-7.77	AV
Remark:										
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit										
2. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.										

7 Conduct Band Edge And Spurious Emissions Measurement

Test Requirement	:	FCC CFR47 Part 15 Section 15.247
Test Method	:	ANSI C63.10:2020
Test Limit	:	Regulation 15.247 (d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on 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)). RSS-247 § 5.5: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

7.1 Test Setup



7.2 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz, Sweep = auto
Detector function = peak, Trace = max hold

7.3 Test Result

Please see the attachment for the data.

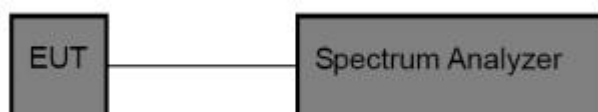
8 6dB&99% Bandwidth Measurement

Test Requirement : FCC CFR47 Part 15 Section 15.247

Test Method : ANSI C63.10:2020

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

8.1 Test Setup



8.2 Test Procedure

For 6dB Bandwidth Measurement

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: $RBW = 1\%-5\%$ OBW, $VBW \geq 3RBW$

For 99% Bandwidth Measurement

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: $RBW = 1\%-5\%$ OBW, $VBW \geq 3RBW$

8.3 Test Result

Please see the attachment for the data.

9 Maximum Peak Output Power

Test Requirement : FCC CFR47 Part 15 Section 15.247

Test Method : ANSI C63.10:2020

Test Limit : Regulation 15.247 (b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power.

RSS-247 § 5.4 (d)

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

9.1 Test Setup



9.2 Test Procedure

A peak responding power meter may be used, where the power meter and sensor system video bandwidth is greater than the occupied bandwidth of the unlicensed wireless device, rather than a spectrum analyzer.

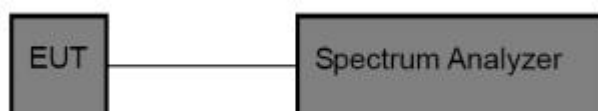
9.3 Test Result

Please see the attachment for the data.

10 Power Spectral density

Test Requirement	: FCC CFR47 Part 15 Section 15.247
Test Method	: ANSI C63.10:2020
Test Limit	: Regulation 15.247(f) The power spectral density conducted from the intentional radiator to the antenna due to the digital modulation operation of the hybrid system, with the frequency hopping operation turned off, shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

10.1 Test Setup



10.2 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 30kHz. VBW = 100kHz, Span > 1.5 times the DTS channel bandwidth(6 dB bandwidth). Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.
4. Remark: $PSD(dBm/3kHz) = PSD(dBm/30kHz) - 10\log(30kHz/3kHz)$

10.3 Test Result

Please see the attachment for the data.

11 Antenna Application

11.1 Antenna Requirement

For intentional device, according to FCC 47 CFR Section 15.203, 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

According to RSS-GEN section 6.8

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

11.2 Result

The EUT'S antenna, permanent attached antenna, is internal antenna. The antenna's gain is 1.99 dBi and meets the requirement.



MAXLAB Testing Co.,Ltd.

Report No.: MAX250410110P03-R02

12 Test Setup and EUT Photos

Reference to the attachment for details.

*******THE END REPORT*******