RF Test Report

For

Globe Electric Company Inc.

Test Standards:	Part 15C Subpart C §15.247 RSS 247 Issue 2
Product Name:	Wi-Fi Smart Outdoor Power Adapter
Tested Model:	50333
Brand Name:	Globe
FCC ID:	2AQUQGE50333
IC:	8290A-GE50333
Classification	(DTS) Digital Transmission System
Report No.:	EC2109022RF01
Tested Date:	2021-09-16 to 2021-10-14
Issued Date:	2021-10-14
Prepared By:	Jack Liu / Engineer
Approved By:	Tiny Yang / RF Manager

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	2021.10.14	Valid	Update the PCB board based on the original report EC2011039RF01, replace non-RF components for verification test

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Summary Of Test Result

FCC Rule	IC Rule	Description	Limit	Result	Remark
15.247(d)	RSS-247 5.5	Radiated Band Edges and Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 10.36 dB at 167.74 MHz
15.207	RSS-GEN 8.8	AC Conducted Emission	15.207(a)	Pass	Under limit 5.63 dB at 0.437 MHz

1 Test Laboratory

1.1 Test facility

CNAS (accreditation number: L11138)

Hunan Ecloud Testing Technology Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

FCC (Designation number: CN1244 , Test Firm Registration Number: 793308)

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

ISED(CAB identifier: CN0012, ISED# :24347)

Hunan Ecloud Testing Technology Co., Ltd. has been listed on the Wireless Device Testing Laboratories list of innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements.

A2LA (Certificate Code : 4895.01)

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

2 General Description

2.1 Applicant

Globe Electric Company Inc.
150 Oneida, Montreal, Quebec, Canada, H9R 1A8

2.2 Manufacturer

Globe Electric Company Inc.
150 Oneida, Montreal, Quebec, Canada, H9R 1A8

2.3 General Description Of EUT

Product	Wi-Fi Smart Outdoor Power Adapter	
Model No.	50333	
Brand Name	Globe	
Additional No.	N/A	
Difference Description	N/A	
FCC ID	2AQUQGE50333	
IC	8290A-GE50333	
Power Supply*	125Vac	
Modulation Technology	**WLAN**	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
	BLE	GFSK
	Bluetooth	GFSK, π/4-DQPSK, 8DPSK
Operating Frequency	**WLAN**	2412MHz~2462MHz
	BLE	2402MHz~2480MHz
	Bluetooth	2402MHz~2480MHz
Number Of Channel	**WLAN**	11
	BLE	40
	Bluetooth	79
Antenna Type	PCB Antenna type with -1dBi gain	
HW Version	V0.2	
SW Version	smart_plug 1.0-alpha	
I/O Ports	Refer to user's manual	

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
3. *: Pre-test AC120V and AC125V, only the worst AC125V test data is recorded in the report

2.4 Modification of EUT

No modifications are made to the EUT during all test items.

2.5 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- ANSI C63.10-2013
- IC RSS-247 Issue 2
- IC RSS-Gen Issue 5
- KDB 558074 D01 15.247 Meas Guidance v05r02

Remark:

1. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B&ICES-003, recorded in a separate test report.

3 Test Configuration of Equipment Under Test

3.1 Descriptions of Test Mode

11 channels are provided for 802.11b, 802.11g and 802.11n(HT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

7 channels are provided for 802.11n(HT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
		7	2442 MHz
		8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz		
5	2432 MHz		
6	2437 MHz		

Bluetooth LE:

Channel	Frequency	Mode
Ch00	2402MHz	GFSK
Ch19	2440MHz	GFSK
Ch39	2480MHz	GFSK

Bluetooth BR+EDR:

Mode	Channel	Frequency
GFSK	Ch00	2402MHz
	Ch39	2441MHz
	Ch78	2480MHz
4π-DQPSK	Ch00	2402MHz
	Ch39	2441MHz
	Ch78	2480MHz
8DPSK	Ch00	2402MHz
	Ch39	2441MHz
	Ch78	2480MHz

a. Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

3.2 Test Mode

3.2.1 Radiated Emission Test (Below 1GHz)

Radiated Test Cases	802.11 b
	Mode 1: CH01

Note : 1. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type. Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

2. Following channel(s) was (were) selected for the final test as listed above

3.2.2 Radiated Emission Test (Above 1GHz)

Test Item	Modulation
	802.11 b
Radiated Test Cases	Mode 1: CH01

Note : 1. The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z it was determined that Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

2. Following channel(s) was (were) selected for the final test as listed above

3. For frequency above 18GHz, the measured value is much lower than the limit, therefore, it is not reflected in the report.

3.2.3 Power Line Conducted Emission Test:

AC Conducted Emission	Mode 1 : WLAN Linking + BT Linking + Switching On + Lighting

3.3 Support Equipment

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	NETGEAR	R7800	PY315100319	N/A	shielded, 1.8 m
2.	Notebook	Lenovo	E470C	FCC sDoC	N/A	shielded cable DC O/P 1.8 m unshielded AC

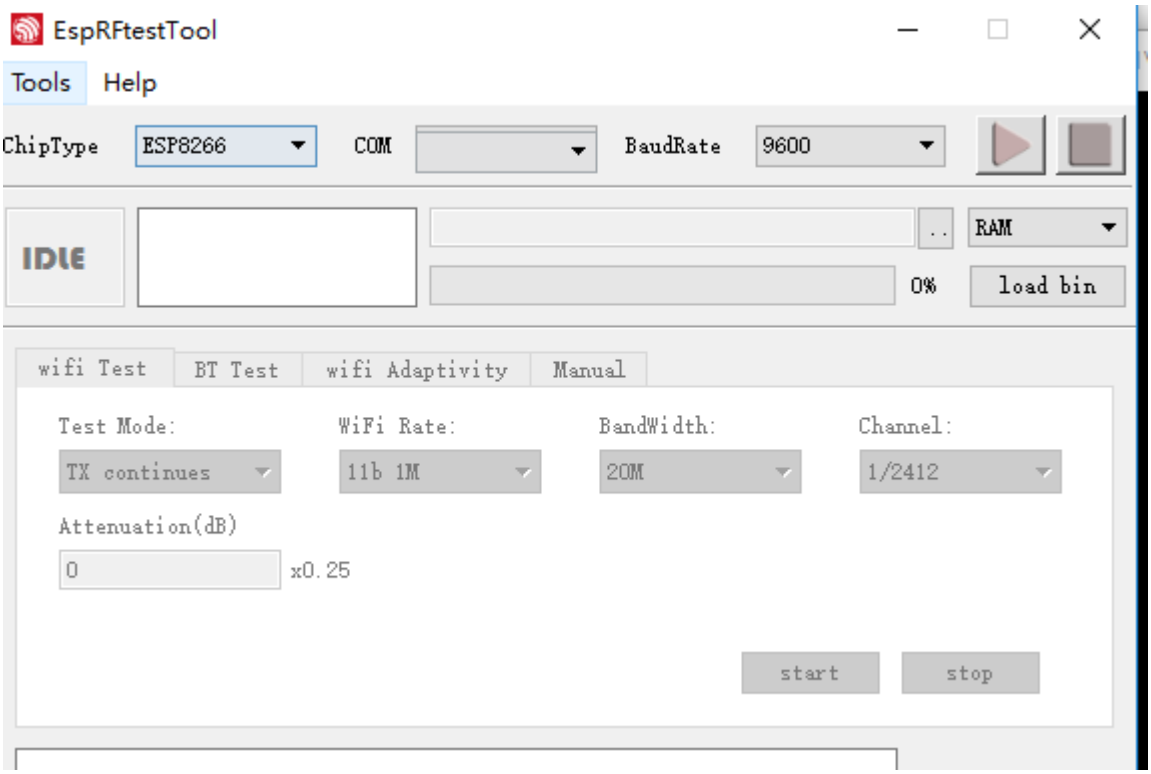
						I/P cable1.2 m
3.	WiFi Smart Bulb	Globe	34202*	2AQUQGB34202	N/A	N/A

3.4 Test Setup

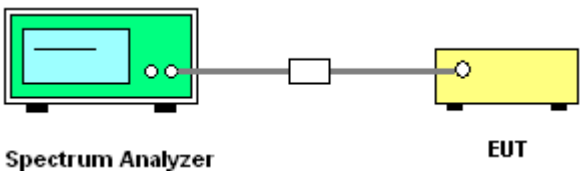
The EUT is continuously communicating to the WIFI tester during the tests.

EUT was set in the Hidden menu mode to enable WIFI communications.

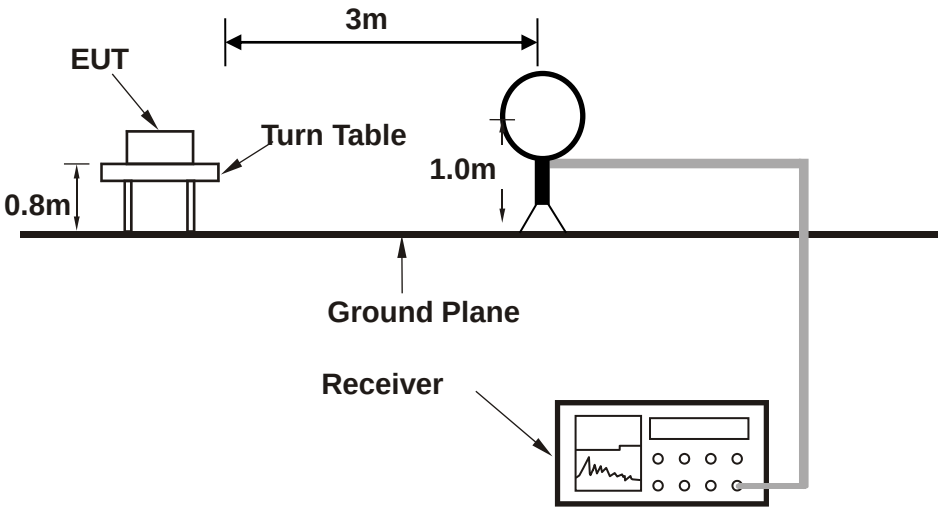
The following picture is a screenshot of the test software



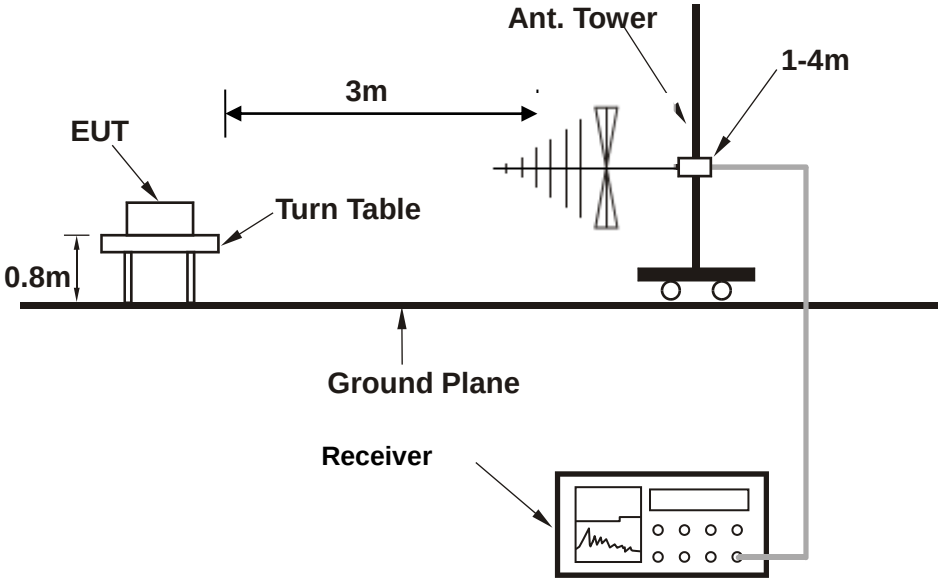
Setup diagram for Conducted Test



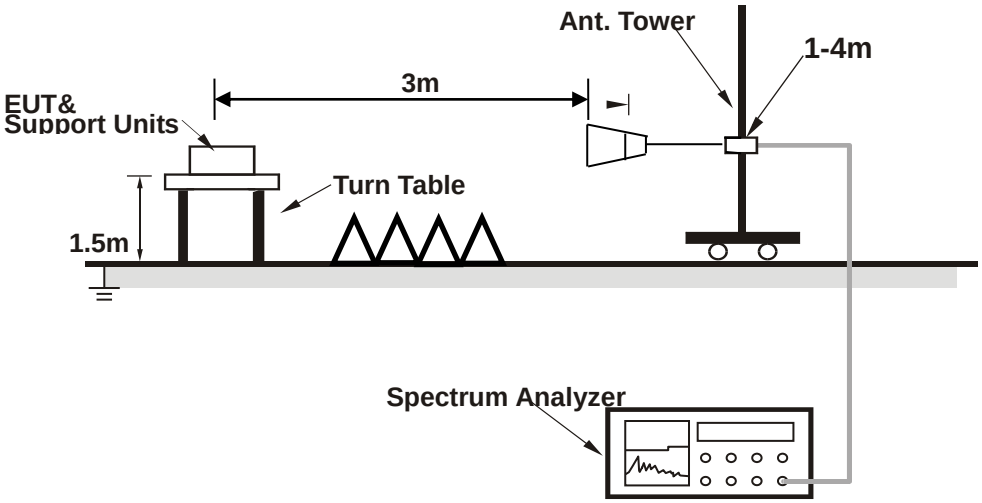
Setup diagram for Raidation(9KHz~30MHz) Test



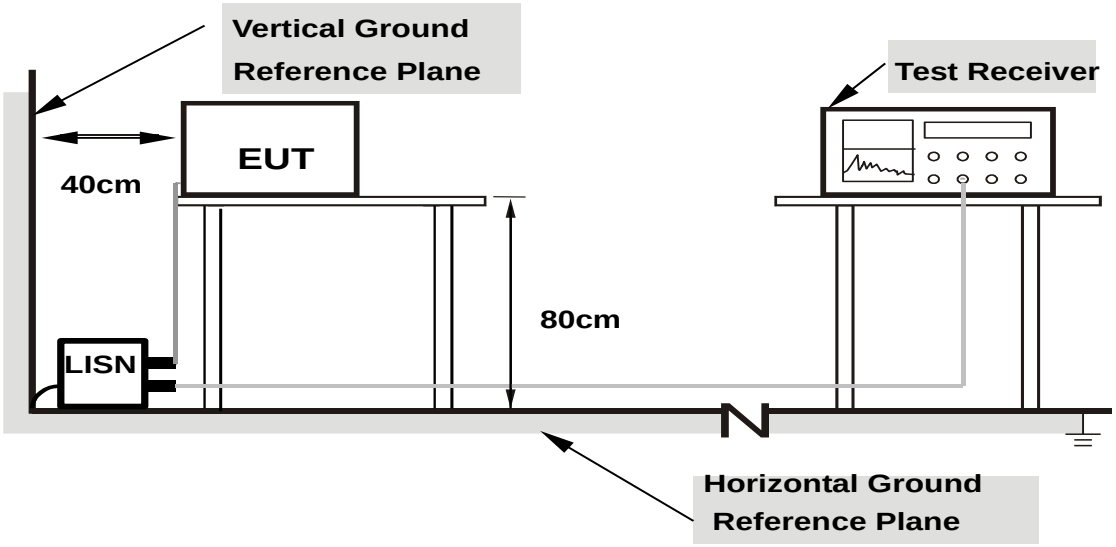
Setup diagram for Raidation(Below 1G) Test



Setup diagram for Raidation(Above1G) Test



Setup diagram for AC Conducted Emission Test



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.5 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 5 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 5 + 10 = 15 (dB)

For all radiated test items:

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Over Limit (dB μ V/m) = Level(dB μ V/m) - Limit Level (dB μ V/m)

4 Test Result

4.1 Radiated Band Edges and Spurious Emission Measurement

4.1.1 Limit of Radiated Band Edges and Spurious Emission

FCC §15.247 (d)

IC RSS-247 5.5

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 30 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

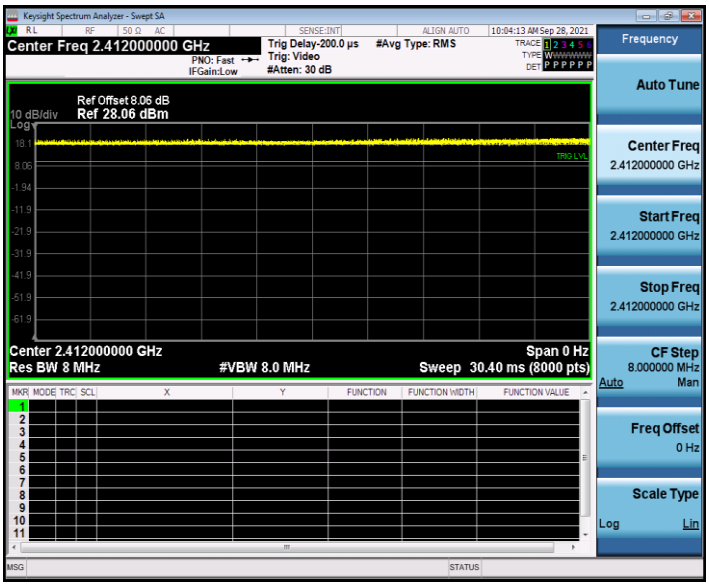
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

4.1.2 Test Procedures

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The measurement distance is 3 meter.
3. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz, RBW=1MHz for f>1GHz ; VBW RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
   (3) For average measurement:
   VBW = 10 Hz, when duty cycle is no less than 98 percent.

VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11b	100.00	-	-	10Hz



802.11b

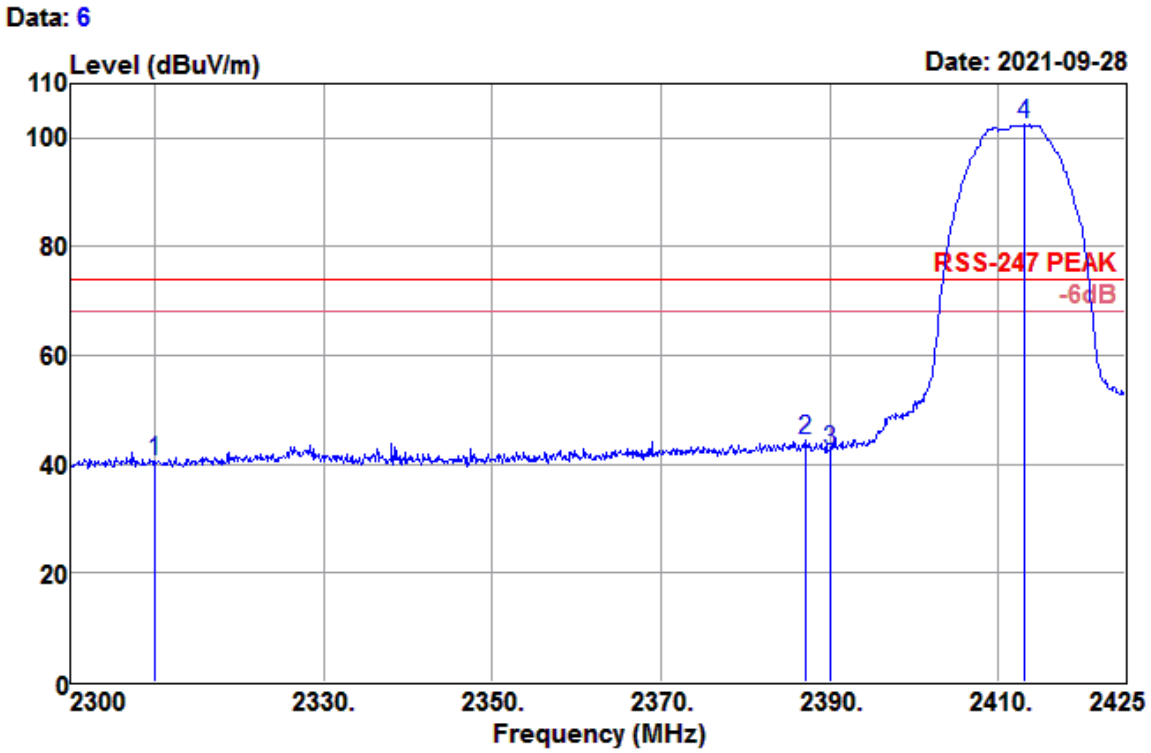
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

4.1.3 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

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

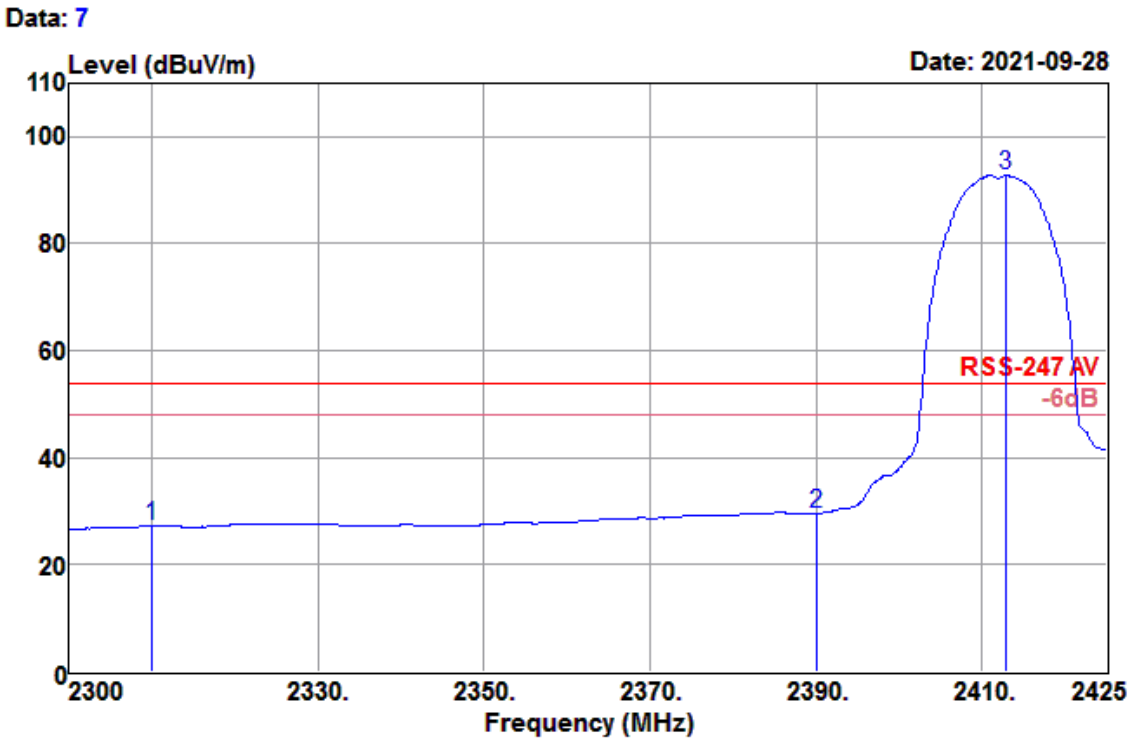
4.1.4 Test Result of Radiated Spurious at Band Edges

Test Mode :	802.11b CH01 (2412 MHz)	**Temperature :**	23~25℃
Test Engineer :	Jack Liu	**Relative Humidity :**	63~65%
Frequencey Range	2.3GHz~2.425GHz	**Polarization :**	Horizontal



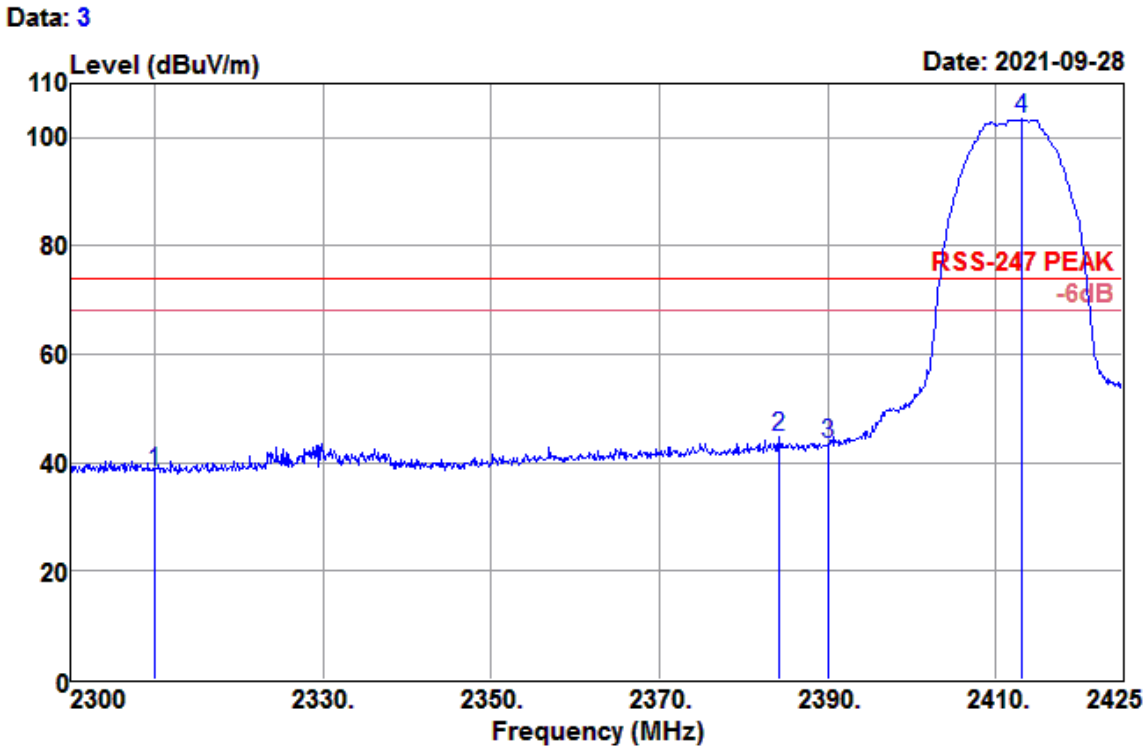
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	44.91	27.38	4.08	35.68	40.69	74.00	-33.31	Peak
2387.250	48.50	27.55	4.16	35.87	44.34	74.00	-29.66	Peak
2390.000	46.83	27.56	4.16	35.88	42.67	74.00	-31.33	Peak
2413.125	106.60	27.61	4.17	35.93	102.45	74.00	28.45	Peak

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Horizontal



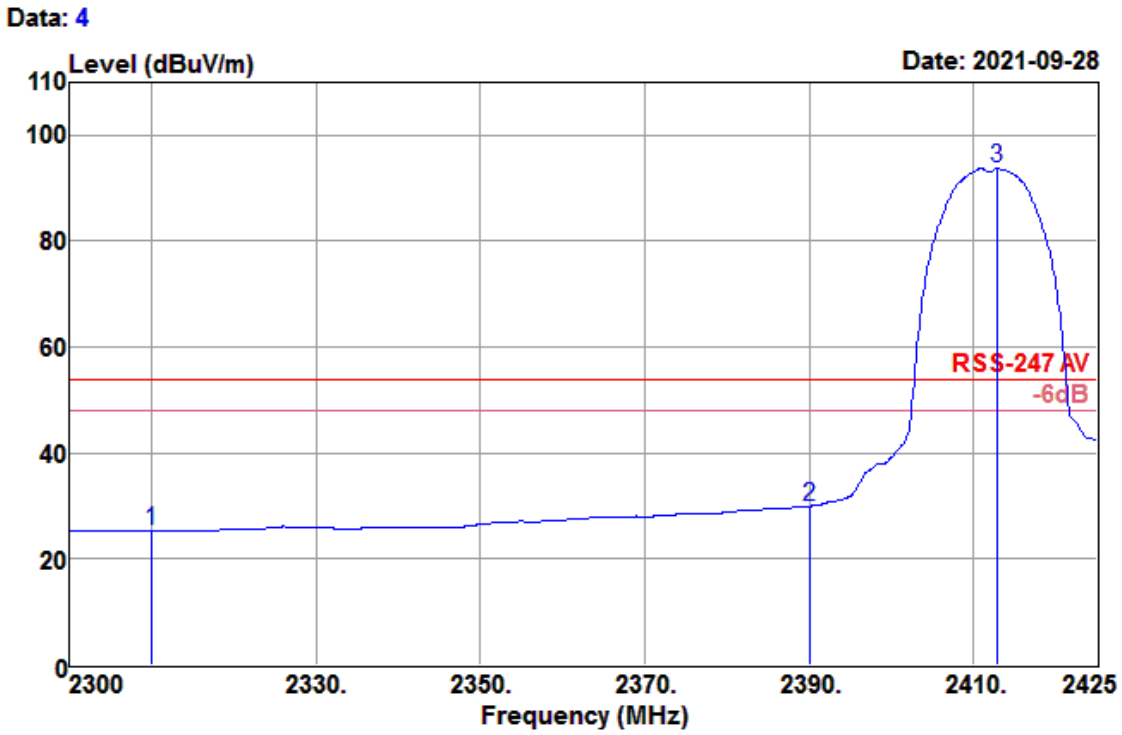
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	31.37	27.38	4.08	35.68	27.15	54.00	-26.85	Average
2390.000	33.80	27.56	4.16	35.88	29.64	54.00	-24.36	Average
2412.875	96.95	27.61	4.17	35.93	92.80	54.00	38.80	Average

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Vertical



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	42.52	27.38	4.08	35.68	38.30	74.00	-35.70	Peak
2384.250	49.06	27.55	4.15	35.86	44.90	74.00	-29.10	Peak
2390.000	47.61	27.56	4.16	35.88	43.45	74.00	-30.55	Peak
2413.125	107.54	27.61	4.17	35.93	103.39	74.00	29.39	Peak

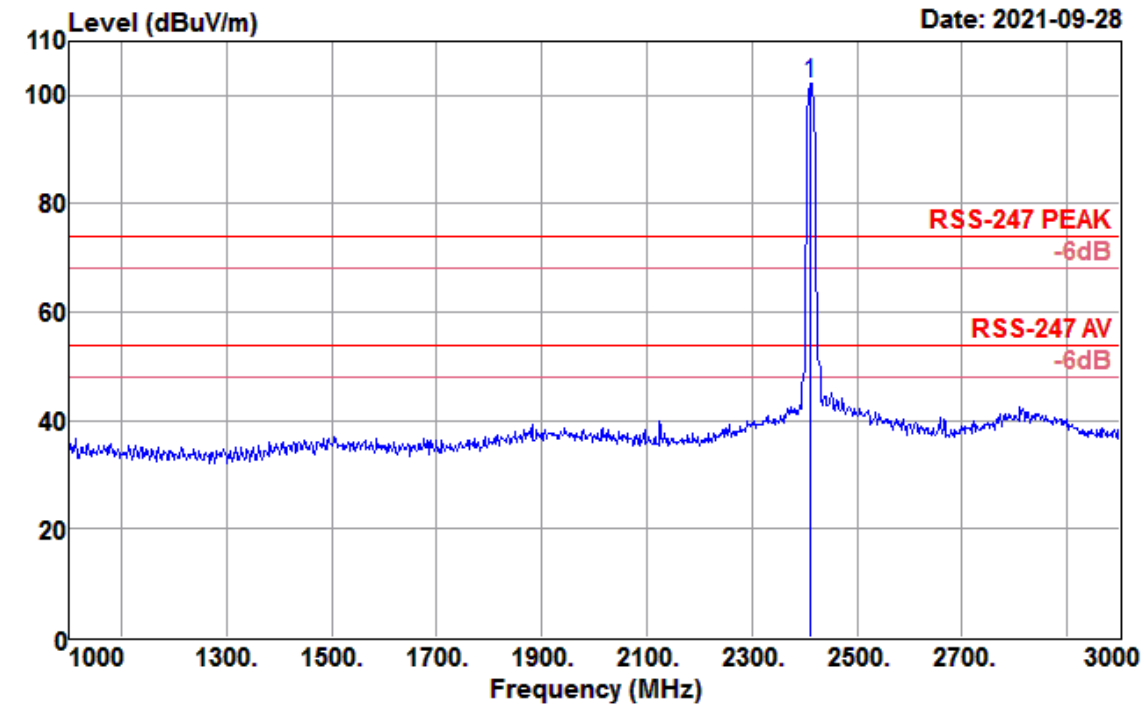
Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Vertical



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	29.59	27.38	4.08	35.68	25.37	54.00	-28.63	Average
2390.000	34.12	27.56	4.16	35.88	29.96	54.00	-24.04	Average
2412.875	97.88	27.61	4.17	35.93	93.73	54.00	39.73	Average

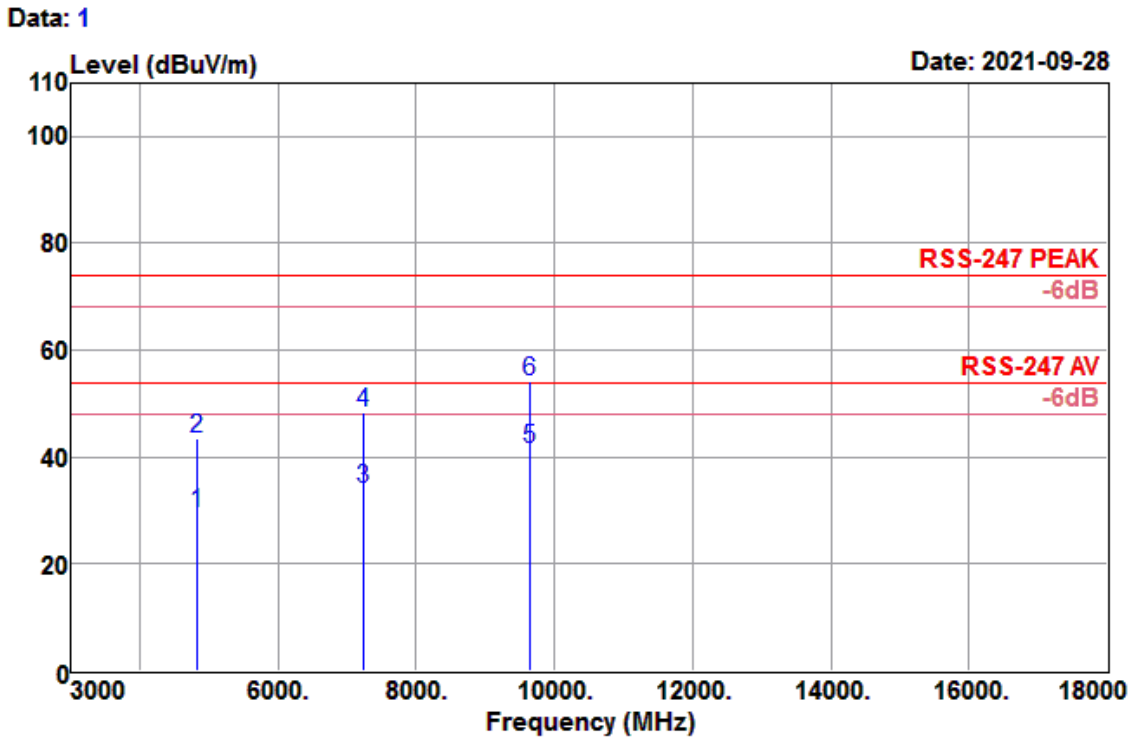
4.1.1 Test Result of Radiated Spurious Emission (1GHz ~ 10th Harmonic)

Test Mode :	802.11b CH01 (2412 MHz)	**Temperature :**	23~25℃
Test Engineer :	Jack Liu	**Relative Humidity :**	63~65%
Frequencey Range	1GHz~3GHz	**Polarization :**	Horizontal



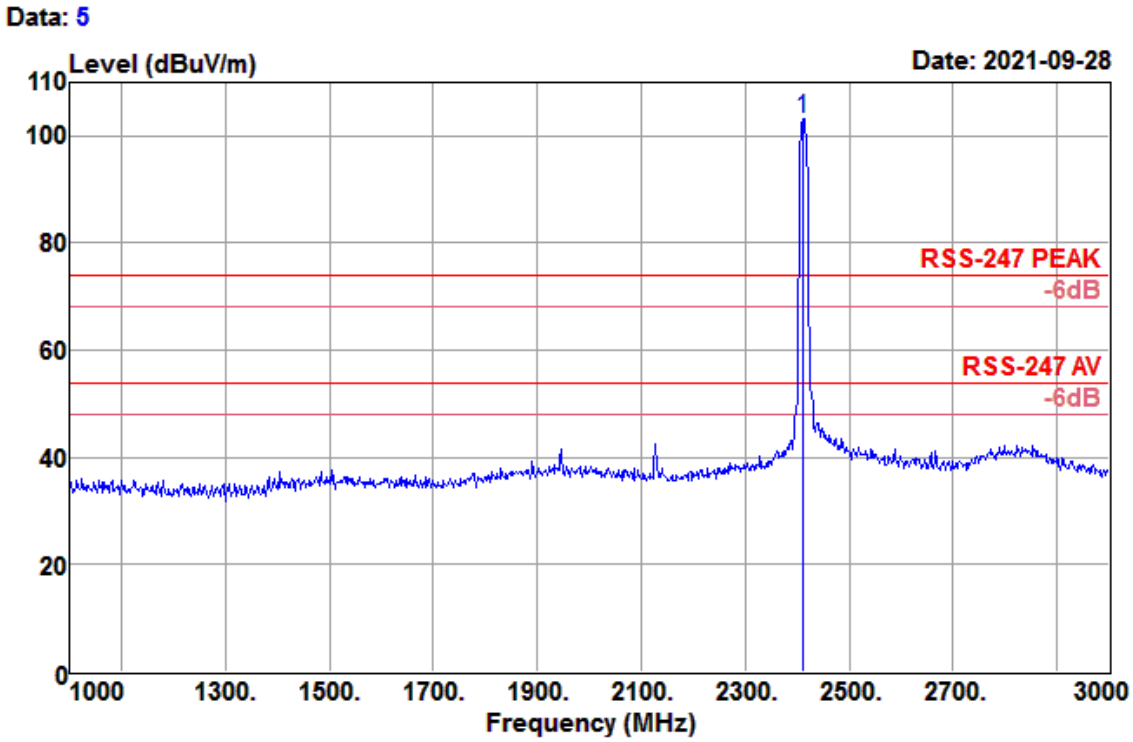
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2412.000	106.50	27.61	4.17	35.93	102.35	74.00	28.35	Peak

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Horizontal



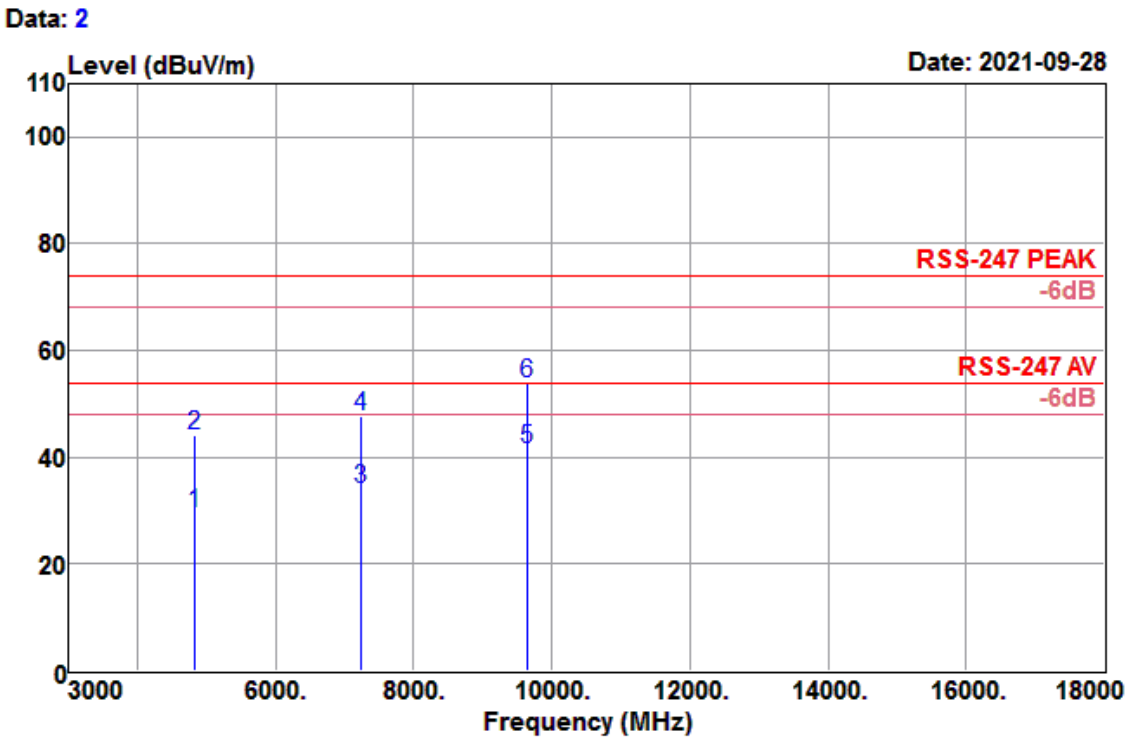
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4824.000	26.06	30.95	6.59	34.09	29.51	54.00	-24.49	Average
4824.000	40.03	30.95	6.59	34.09	43.48	74.00	-30.52	Peak
7236.000	24.32	35.47	8.71	34.41	34.09	54.00	-19.91	Average
7236.000	38.49	35.47	8.71	34.41	48.26	74.00	-25.74	Peak
9648.000	25.76	38.42	11.55	34.16	41.57	54.00	-12.43	Average
9648.000	38.40	38.42	11.55	34.16	54.21	74.00	-19.79	Peak

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Vertical



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2412.000	107.49	27.61	4.17	35.93	103.34	74.00	29.34	Peak

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Vertical

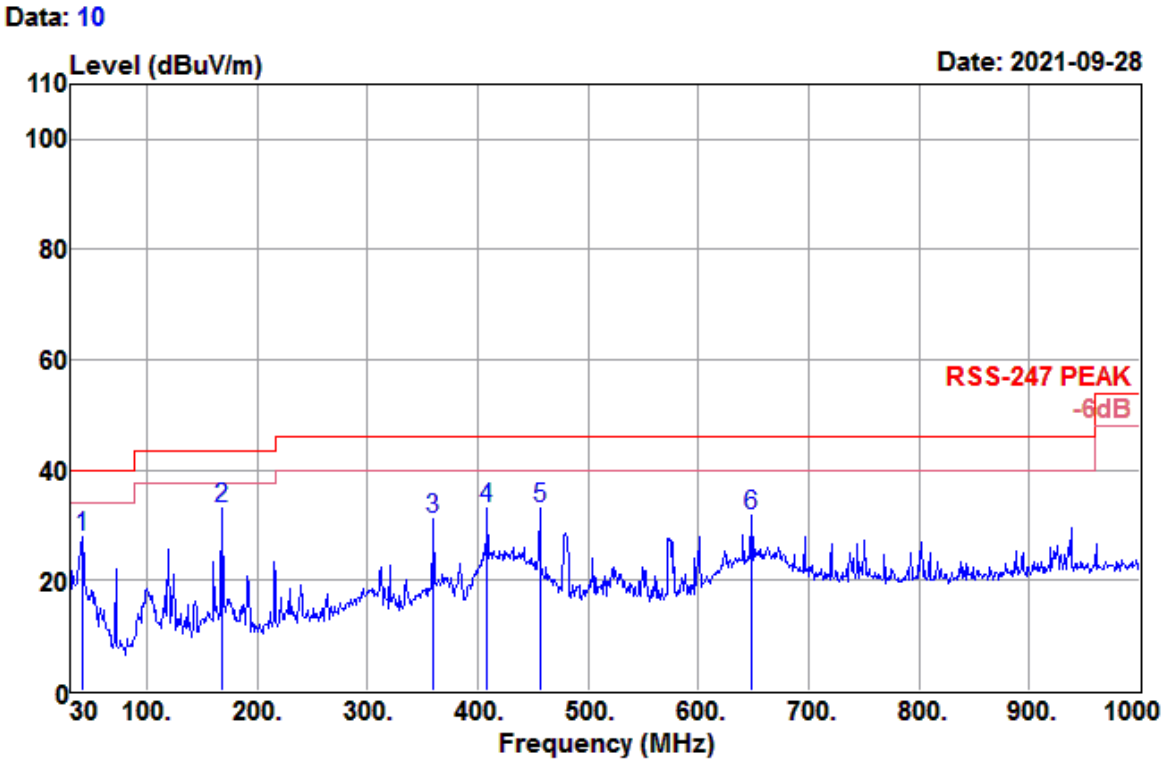


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4824.000	26.08	30.95	6.59	34.09	29.53	54.00	-24.47	Average
4824.000	40.81	30.95	6.59	34.09	44.26	74.00	-29.74	Peak
7236.000	24.41	35.47	8.71	34.41	34.18	54.00	-19.82	Average
7236.000	37.79	35.47	8.71	34.41	47.56	74.00	-26.44	Peak
9648.000	25.76	38.42	11.55	34.16	41.57	54.00	-12.43	Average
9648.000	37.98	38.42	11.55	34.16	53.79	74.00	-20.21	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

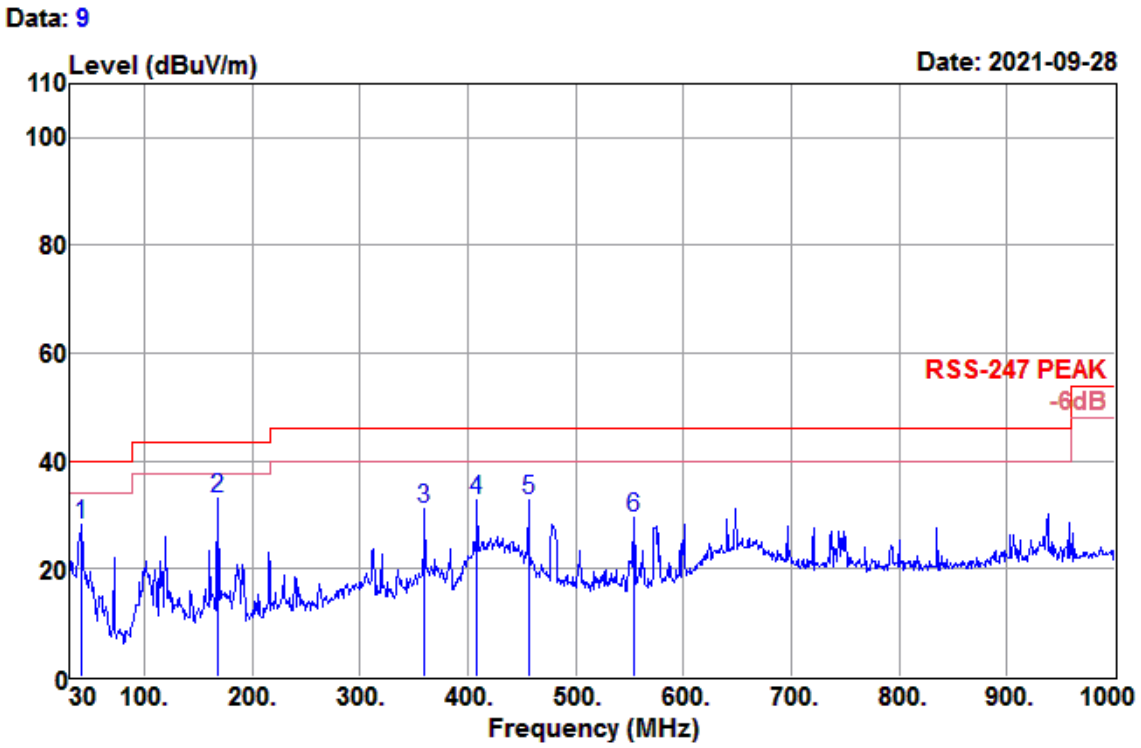
4.1.2 Test Result of Radiated Spurious Emission (30MHz ~ 1GHz)

Test Mode :	802.11b CH01 (2412 MHz)	**Temperature :**	24℃
Test Engineer :	Jack Liu	**Relative Humidity :**	60%
Frequencey Range	30MHz~1GHz	**Polarization :**	Horizontal



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
40.670	45.26	14.39	1.01	32.60	28.06	40.00	-11.94	QP
167.740	50.03	13.45	2.22	32.57	33.13	43.50	-10.37	QP
359.800	46.29	14.24	3.34	32.66	31.21	46.00	-14.79	QP
408.300	47.16	15.17	3.58	32.71	33.20	46.00	-12.80	QP
455.830	45.99	16.25	3.75	32.76	33.23	46.00	-12.77	QP
647.890	40.65	19.27	4.59	32.65	31.86	46.00	-14.14	QP

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	24℃
Test Engineer :	Jack Liu	Relative Humidity :	60%
Frequencey Range	30MHz~1GHz	Polarization :	Vertical



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
40.670	45.56	14.39	1.01	32.60	28.36	40.00	-11.64	QP
167.740	50.04	13.45	2.22	32.57	33.14	43.50	-10.36	QP
359.800	46.10	14.24	3.34	32.66	31.02	46.00	-14.98	QP
408.300	46.76	15.17	3.58	32.71	32.80	46.00	-13.20	QP
455.830	45.53	16.25	3.75	32.76	32.77	46.00	-13.23	QP
553.800	40.38	17.62	4.22	32.75	29.47	46.00	-16.53	QP

4.2 AC Conducted Emission Measurement

4.2.1 Limit of AC Conducted Emission

FCC §15.207

IC RSS-GEN 8.8

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

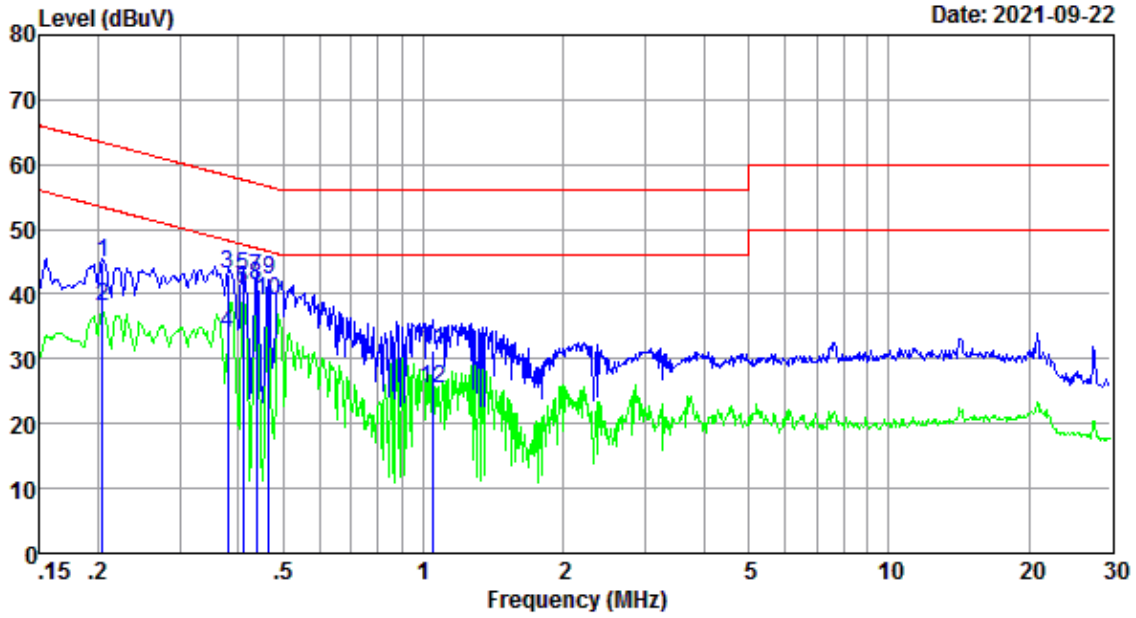
*Decreases with the logarithm of the frequency.

4.2.2 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

4.2.3 Test Result of AC Conducted Emission

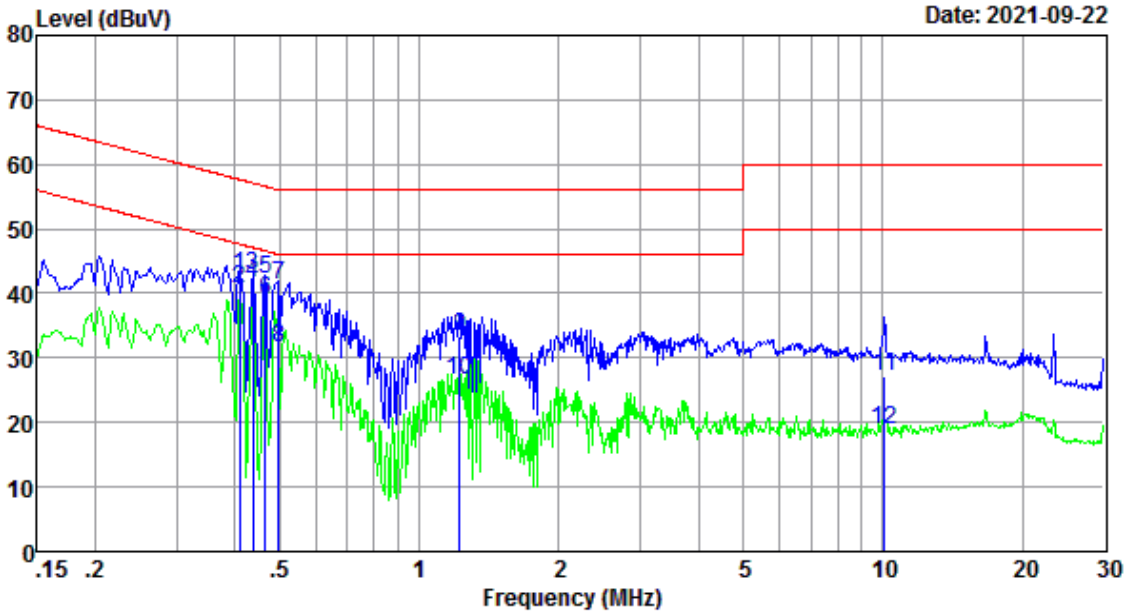
Test Mode :	Mode 1	**Temperature :**	20℃
Test Engineer :	Jack Liu	**Relative Humidity :**	64%
Test Voltage :	125Vac / 60Hz	**Phase :**	Line
Function Type :	WLAN Linking + BT Linking + Switching On + Lighting		



Freq MHz	Reading level dBuV	LISN/ISN factor dB	Cable loss dB	Result level dBuV	Limit level dBuV	Over limit dB	Remark
0.204	35.19	9.56	0.01	44.76	63.45	-18.69	QP
0.204	28.39	9.56	0.01	37.96	53.45	-15.49	Average
0.379	33.60	9.57	0.01	43.18	58.30	-15.12	QP
0.379	24.40	9.57	0.01	33.98	48.30	-14.32	Average
0.410	33.30	9.57	0.01	42.88	57.64	-14.76	QP
0.410	31.20	9.57	0.01	40.78	47.64	-6.86	Average
0.437	33.00	9.57	0.01	42.58	57.11	-14.53	QP
0.437	31.80	9.57	0.01	41.38	47.11	-5.73	Average
0.466	32.59	9.58	0.01	42.18	56.58	-14.40	QP
0.466	29.39	9.58	0.01	38.98	46.58	-7.60	Average
1.049	21.80	9.59	0.02	31.41	56.00	-24.59	QP
1.049	15.70	9.59	0.02	25.31	46.00	-20.69	Average

Result Level= Reading Level + LISN Factor + Cable Loss

Test Mode :	Mode 1	Temperature :	20℃
Test Engineer :	Jack Liu	Relative Humidity :	64%
Test Voltage :	125Vac / 60Hz	Phase :	NEUTRAL
Function Type :	WLAN Linking + BT Linking + Switching On + Lighting		



Freq MHz	Reading level dBuV	LISN/ISN factor dB	Cable loss dB	Result level dBuV	Limit level dBuV	Over limit dB	Remark
0.410	33.30	9.57	0.01	42.88	57.64	-14.76	QP
0.410	31.20	9.57	0.01	40.78	47.64	-6.86	Average
0.437	33.10	9.57	0.01	42.68	57.11	-14.43	QP
0.437	31.90	9.57	0.01	41.48	47.11	-5.63	Average
0.466	32.70	9.57	0.01	42.28	56.58	-14.30	QP
0.466	29.40	9.57	0.01	38.98	46.58	-7.60	Average
0.497	31.80	9.57	0.01	41.38	56.05	-14.67	QP
0.497	21.90	9.57	0.01	31.48	46.05	-14.57	Average
1.223	23.80	9.58	0.02	33.40	56.00	-22.60	QP
1.223	17.00	9.58	0.02	26.60	46.00	-19.40	Average
10.072	17.10	9.83	0.09	27.02	60.00	-32.98	QP
10.072	9.10	9.83	0.09	19.02	50.00	-30.98	Average

Result Level= Reading Level + LISN Factor + Cable Loss

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date	Remark
Spectrum Analyzer	Keysight	N9010A	MY56070788	2021-01-05	2022-01-04	Conducted
Power Sensor	Keysight	U2021XA	MY56510025	2021-01-05	2022-01-04	Conducted
Power Sensor	Keysight	U2021XA	MY57030005	2021-01-05	2022-01-04	Conducted
Power Sensor	Keysight	U2021XA	MY56510018	2021-01-05	2022-01-04	Conducted
Power Sensor	Keysight	U2021XA	MY56480002	2021-01-05	2022-01-04	Conducted
Thermal Chamber	Howkin	UHL-34	19111801	2021-04-21	2022-04-20	Conducted
Base Station	R&S	CMW 270	101231	2021-01-05	2022-01-04	Conducted
Signal Generator (Interferer)	Keysight	N5182B	MY56200384	2021-01-05	2022-01-04	Conducted
Signal Generator (Blocker)	Keysight	N5171B	MY56200661	2021-01-05	2022-01-04	Conducted

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV 40	101433	2021-01-05	2022-01-04	Radiation
Amplifier	Sonoma	310	363917	2021-01-06	2022-01-05	Radiation
Amplifier	Schwarzbeck	BBV 9718	327	2021-01-06	2022-01-05	Radiation
Amplifier	Narda	TTA1840-35-HG	2034380	2020-11-28	2021-11-27	Radiation
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-051	2020-02-14	2023-02-13	Radiation
Broadband Antenna	Schwarzbeck	VULB 9168	9168-757	2020-09-27	2023-09-26	Radiation
Horn Antenna	Schwarzbeck	BBHA 9120 D	1677	2020-02-14	2023-02-13	Radiation
Horn Antenna	COM-POWER	AH-1840	101117	2021-06-05	2024-06-04	Radiation
Test Software	Audix	E3	6.111221a	N/A	N/A	Radiation
Filter	Micro-Tronics	BRM 50702	G266	N/A	N/A	Radiation

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date	Remark
LISN	R&S	ENV216	102125	2021-01-05	2022-01-04	Conducted
LISN	R&S	ENV432	101327	2021-01-06	2022-01-05	Conducted
EMI Test Receiver	R&S	ESR3	102143	2021-01-06	2022-01-05	Conducted
EMI Test Software	Audix	E3	N/A	N/A	N/A	Conducted

N/A: No Calibration Required

6 Uncertainty of Evaluation

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.42dB
Radiated emission	30MHz ~ 1GMHz	2.50dB
	1GHz ~ 18GHz	3.51dB
	18GHz ~ 40GHz	3.96dB

MEASUREMENT	UNCERTAINTY
Occupied Channel Bandwidth	±196.4Hz
RF output power, conducted	±2.31dB
Power density, conducted	±2.31dB

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

Appendix H: Setup Photographs

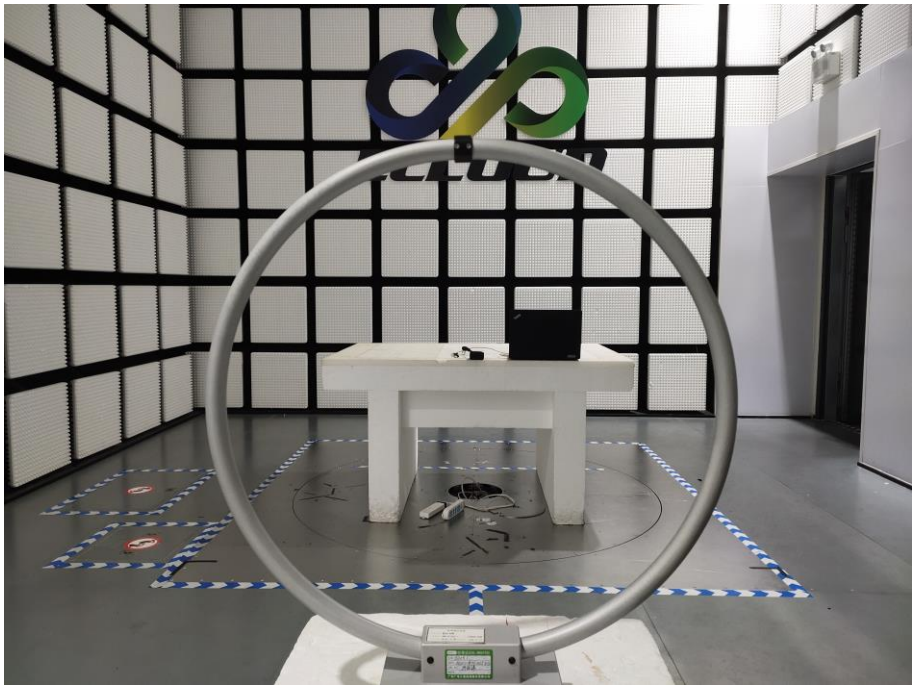


Fig. 1 Radiated emission setup photo(Below 30MHz)

Fig. 2 Radiated emission setup photo(30MHz-1GHz)

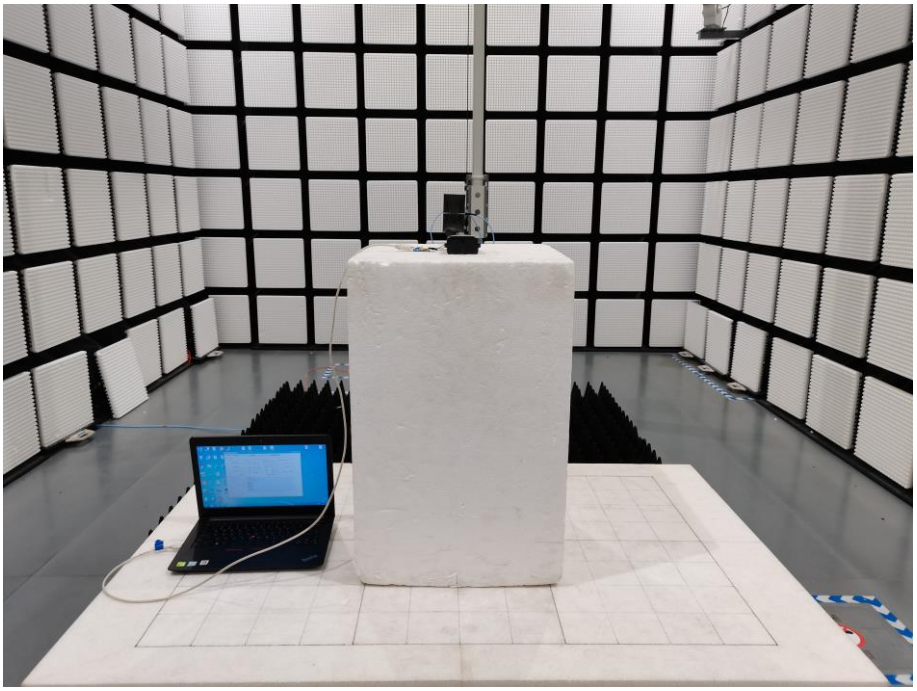


Fig. 3 Radiated emission setup photo(Above 1GHz)

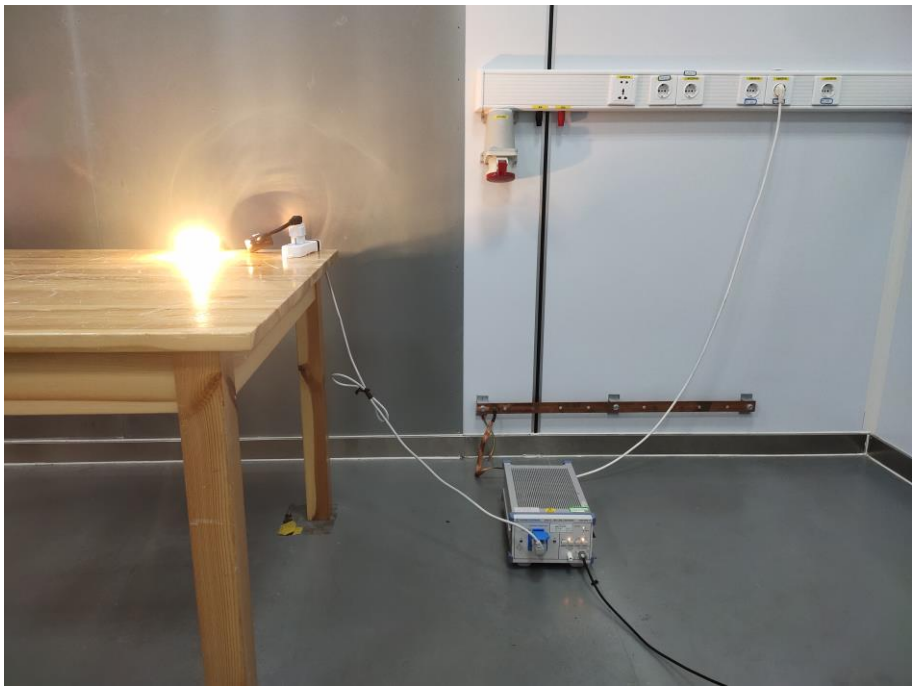


Fig. 4 Power line conducted emission setup photo

----------End of the report----------