

TEST REPORT

Product Name : Android TV Box
Brand Mark : TZ BOX
Model No. : MODEL X
Report Number : BLA-EMC-202403-A8902
FCC ID : 2BFM3-TZS128A1
Date of Sample Receipt : 2024/3/26
Date of Test : 2024/3/26 to 2024/4/19
Date of Issue : 2024/4/19
Test Standard : 47 CFR Part 15, Subpart C 15.247
Test Result : Pass

Prepared for:

SHENZHEN Newglee Technology Co.,Ltd.
Room E601,UNIS Harbour, Langshan Rd, North High-Tech Park, Nanshan District, Shenzhen, China

Prepared by:

BlueAsia of Technical Services(Shenzhen) Co.,Ltd.
Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China
TEL: +86-755-23059481

Compiled by:

Approved by:

Jozu
Blue Zheng

Review by:

Date:

Sueels

2024/4/19



REPORT REVISE RECORD

Version No.	Date	Description
00	2024/4/19	Original

BlueAsia

TABLE OF CONTENTS

1	TEST SUMMARY	5
2	GENERAL INFORMATION	6
3	GENERAL DESCRIPTION OF E.U.T.	6
4	TEST ENVIRONMENT	7
5	TEST MODE	7
6	MEASUREMENT UNCERTAINTY	7
7	DESCRIPTION OF SUPPORT UNIT	8
8	TEST FACILITY	8
9	LABORATORY LOCATION	8
10	TEST INSTRUMENTS LIST	9
11	ANTENNA REQUIREMENT	11
11.1	CONCLUSION	11
12	RADIATED SPURIOUS EMISSIONS	12
12.1	LIMITS	12
12.2	BLOCK DIAGRAM OF TEST SETUP	13
12.3	PROCEDURE	13
12.4	TEST DATA	15
13	RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS	24
13.1	LIMITS	24
13.2	BLOCK DIAGRAM OF TEST SETUP	25
13.3	PROCEDURE	25
13.4	TEST DATA	27
14	CONDUCTED SPURIOUS EMISSIONS	46
14.1	LIMITS	46
14.2	BLOCK DIAGRAM OF TEST SETUP	46
14.3	TEST DATA	47
15	CONDUCTED BAND EDGES MEASUREMENT	48
15.1	LIMITS	48
15.2	BLOCK DIAGRAM OF TEST SETUP	48

15.3	TEST DATA	49
16	MINIMUM 6DB BANDWIDTH	50
16.1	LIMITS	50
16.2	BLOCK DIAGRAM OF TEST SETUP	50
16.3	TEST DATA	50
17	POWER SPECTRUM DENSITY	51
17.1	LIMITS	51
17.2	BLOCK DIAGRAM OF TEST SETUP	51
17.3	TEST DATA	51
18	CONDUCTED PEAK OUTPUT POWER	52
18.1	LIMITS	52
18.2	BLOCK DIAGRAM OF TEST SETUP	52
18.3	TEST DATA	53
19	CONDUCTED EMISSIONS AT AC POWER LINE (150KHZ-30MHZ)	54
19.1	LIMITS	54
19.2	BLOCK DIAGRAM OF TEST SETUP	54
19.3	PROCEDURE	54
19.1	TEST DATA	56
20	APPENDIX	59
	APPENDIX A: PHOTOGRAPHS OF TEST SETUP	109
	APPENDIX B: PHOTOGRAPHS OF EUT	111

1 TEST SUMMARY

Test item	Test Requirement	Test Method	Class/Severity	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
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
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
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.6 & Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.8 & Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	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
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 Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.5 & Section 11.9.1	47 CFR Part 15, Subpart C 15.247(b)(1) & 15.247(b)(3)	Pass
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

2 GENERAL INFORMATION

Applicant	SHENZHEN Newglee Technology Co.,Ltd.
Address	Room E601,UNIS Harbour, Langshan Rd, North High-Tech Park, Nanshan District, Shenzhen, China
Manufacturer	SHENZHEN Newglee Technology Co.,Ltd.
Address	Room E601,UNIS Harbour, Langshan Rd, North High-Tech Park, Nanshan District, Shenzhen, China
Factory	Shenzhen Juhui Weiye Technology Co., Ltd.
Address	Floor 2&3, Building 1, Anjia Industrial Park, Shijia Community, Matian Street, Guangming New District, Shenzhen
Product Name	Android TV Box
Test Model No.	MODEL X

3 GENERAL DESCRIPTION OF E.U.T.

Hardware Version	MGS905X3_S2-MAIN_V4-20240219F
Software Version	V1.7.1
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz 802.11n(HT40): 2422MHz to 2452MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Channel Spacing:	5MHz
Number of Channels:	802.11b/g/n(HT20):11 802.11n(HT40):7
Antenna Type:	Internal Antenna
Antenna Gain:	2dBi (Provided by the applicant)

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	5	2432MHz	9	2452MHz		
2	2417MHz	6	2437MHz	10	2457MHz		
3	2422MHz	7	2442MHz	11	2462MHz		
4	2427MHz	8	2447MHz				
Remark:The EUT operation in above frequency list, and used test software to control the EUT for staying in continuous transmitting and receiving mode. Channel 1, 6and 11 of 802.11B/G/N20 chosen for testing.Channel 3, 6and 9 of 802.11N40 chosen for testing.							

4 TEST ENVIRONMENT

Environment	Temperature	Voltage
Normal	25°C	DC5V

5 TEST MODE

TEST MODE	TEST MODE DESCRIPTION
Transmitting mode	Keep the EUT in continuously transmitting mode with modulation. (The duty cycle is greater than 98%)
Remark: Full battery is used during all test except ac conducted emission, 802.11b/g/n(HT20) and 802.11n(HT40) all have been tested, During the radiated spurious emission test, 802.11b/11g/11nH20/11nH40 modulations all have been tested,only worse case 802.11nH20 is reported.	

6 MEASUREMENT UNCERTAINTY

Parameter	Expanded Uncertainty (Confidence of 95%)
Radiated Emission(9kHz-30MHz)	±4.34dB
Radiated Emission(30Mz-1000MHz)	±4.24dB
Radiated Emission(1GHz-18GHz)	±4.68dB
AC Power Line Conducted Emission(150kHz-30MHz)	±3.45dB

Parameter	Expanded Uncertainty (Confidence of 95%)
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±1.5 dB
Power Spectral Density, conducted	±3.0 dB
Unwanted Emissions, conducted	±3.0 dB
Temperature	±3 °C
Supply voltages	±3 %
Time	±5 %
Unwanted Radiated Emission (30MHz ~ 1000MHz)	±4.35 dB
Unwanted Radiated Emission (1GHz ~ 18GHz)	±4.44 dB

7 DESCRIPTION OF SUPPORT UNIT

Device Type	Manufacturer	Model Name	Serial No.	Remark
TV	Xiaomi	N/A	N/A	From lab (No.BLA-ZC-BS-2022026)

8 TEST FACILITY

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

- FCC — Designation No.: CN1252

BlueAsia of Technical Services(Shenzhen) Co., Ltd 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 files. Designation CN1252.

- ISED — CAB identifier No.: CN0028

BlueAsia of Technical Services(Shenzhen) Co., Ltd has been registered by Certification and Engineering Bureau of ISED for radio equipment testing with CAB identifier CN0028.

9 LABORATORY LOCATION

All tests were performed at:

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673

No tests were sub-contracted.

10 TEST INSTRUMENTS LIST

Test Equipment Of Radiated Spurious Emissions					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Chamber 1	SKET	966	N/A	2023/11/16	2026/11/15
Chamber 2	SKET	966	N/A	2021/07/20	2024/07/19
Spectrum	R&S	FSP40	100817	2023/08/30	2024/08/29
Receiver	R&S	ESR7	101199	2023/08/30	2024/08/29
Receiver	R&S	ESPI7	101477	2023/07/07	2024/07/06
broadband Antenna	Schwarzbeck	VULB9168	00836 P:00227	2022/10/12	2025/10/11
Horn Antenna	Schwarzbeck	BBHA9120D	01892 P:00331	2022/09/13	2025/09/12
Horn Antenna	Schwarzbeck	BBHA 9170	1106	2022/04/24	2024/04/23
Amplifier	SKET	LNPA_30M01G-30	SK2021060801	2023/07/07	2024/07/06
Amplifier	SKET	PA-000318G-45	N/A	2023/08/30	2024/08/29
Amplifier	SKET	LNPA_18G40G-50	SK2022071301	2023/07/14	2024/07/13
Filter group	SKET	2.4G/5G Filter group r	N/A	2023/07/07	2024/07/06
EMI software	EZ	EZ-EMC	EEMC-3A1	N/A	N/A
Loop antenna	SCHNARZBECK	FMZB1519B	00102	2022/09/14	2025/09/13
1kHz calibration audio source	SKET	MCS-ABT-C35	N/A	2023/09/04	2024/09/03
Free Field Microphone	SKET	MGS MP 663	0414	2023/09/04	2024/09/03
Audio shielding box	SKET	SB-ABT-C35	N/A	2023/03/30	2024/03/29
Controller	SKET	N/A	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-02	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-03	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-01	N/A	N/A	N/A
Signal Generator DTV	ECREDIX	DSG-1000	N/A	N/A	N/A

Test Equipment Of Conducted Emissions at AC Power Line (150kHz-30MHz)

Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Shield room	SKET	833	N/A	2023/11/16	2025/11/15
Receiver	R&S	ESPI3	101082	2023/08/30	2024/08/29
LISN	R&S	ENV216	3560.6550.15	2023/08/30	2024/08/29
LISN	AT	AT166-2	AKK1806000003	2023/08/30	2024/08/29
ISN	TESEQ	ISNT8-cat6	53580	2023/08/30	2024/08/29
Single-channel vehicle artificial power network	Schwarzbeck	NNBM 8124	01045	2023/07/07	2024/07/06
Single-channel vehicle artificial power network	Schwarzbeck	NNBM 8124	01075	2023/07/07	2024/07/06
EMI software	EZ	EZ-EMC	EEMC-3A1	N/A	N/A

Test Equipment Of RF Conducted Test

Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	2023/08/30	2024/08/29
Spectrum	Agilent	N9020A	MY49100060	2023/08/30	2024/08/29
Spectrum	Agilent	N9020A	MY54420161	2023/08/30	2024/08/29
Signal Generator	Agilent	N5182A	MY47420955	2023/08/30	2024/08/29
Signal Generator	Agilent	N5181A	MY46240904	2023/07/07	2024/07/06
Signal Generator	R&S	CMW500	132429	2023/08/30	2024/08/29
BluetoothTester	Anritsu	MT8852B	06262047872	2023/08/30	2024/08/29
Power probe	DARE	RPR3006W	14I00889SN042	2023/09/01	2024/08/31
Power detection box	CDKMV	MW100-PSB	MW201020JYT	2023/07/07	2024/07/06
DCPowersupply	zhaoxin	KXN-305D	20K305D1221363	2023/08/30	2024/08/29
DCPowersupply	zhaoxin	RXN-1505D	19R1505D050168	2023/08/30	2024/08/29
2.4GHz/5GHz RF Test software	MTS	MTS 8310	Version 2.0.0.0	N/A	N/A
Audio Analyzer	Audio Precision	ATS-1	ATS141094	2023/07/07	2024/07/06

11 ANTENNA REQUIREMENT

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	N/A

11.1 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 an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The best case gain of the antenna is 2dBi.

12 RADIATED SPURIOUS EMISSIONS

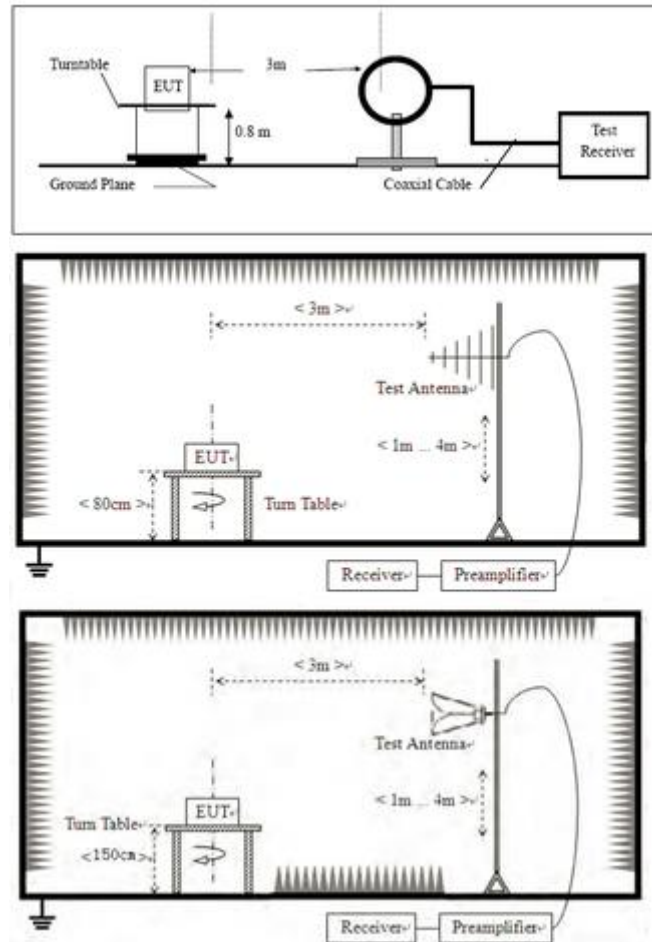
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.4,6.5,6.6
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

12.1 LIMITS

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.

12.2 BLOCK DIAGRAM OF TEST SETUP



12.3 PROCEDURE

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

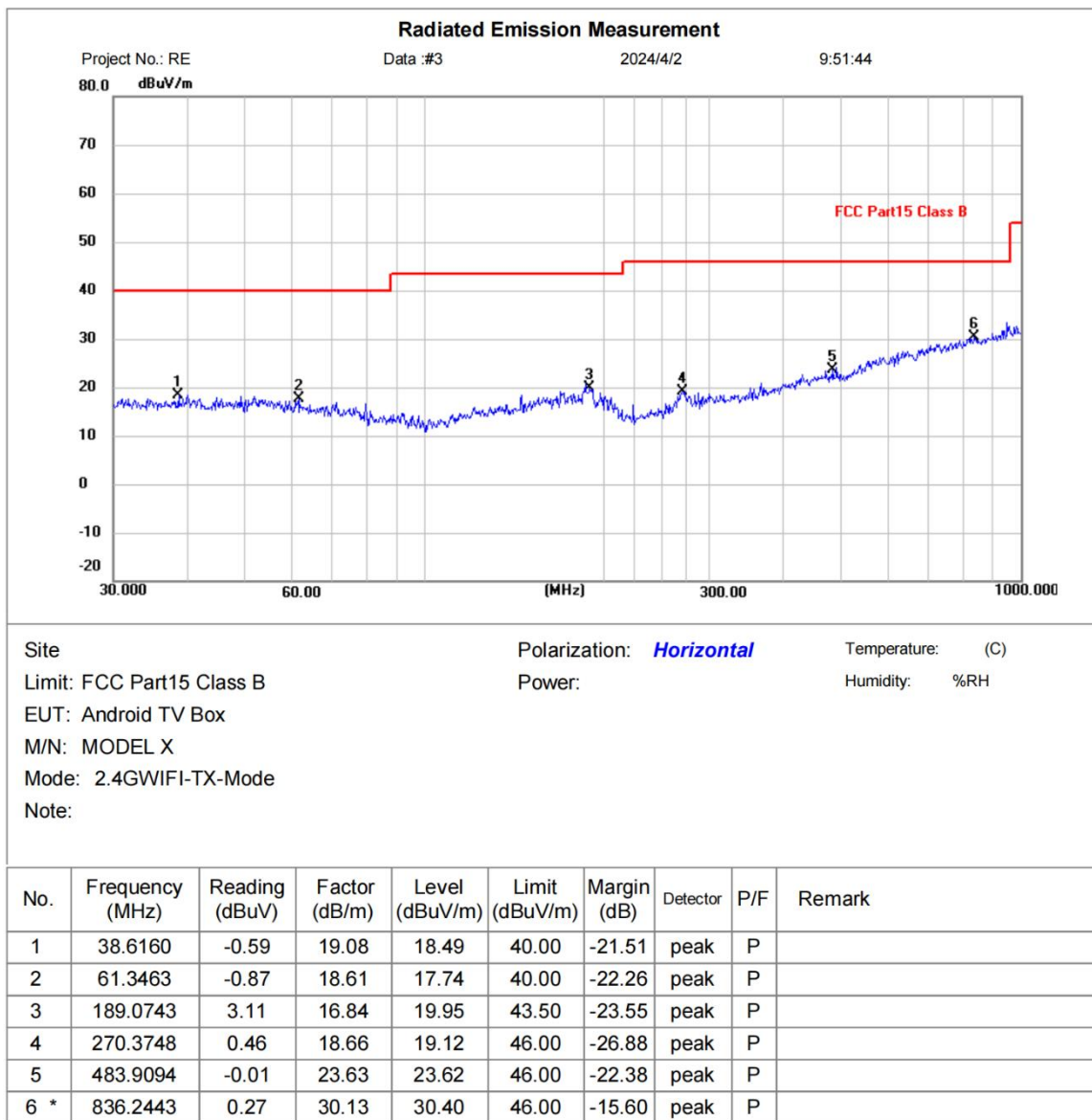
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was 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 12.75GHz 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. fundamental frequency is blocked by filter, and only spurious emission is shown.
- 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 in the report.

12.4 TEST DATA

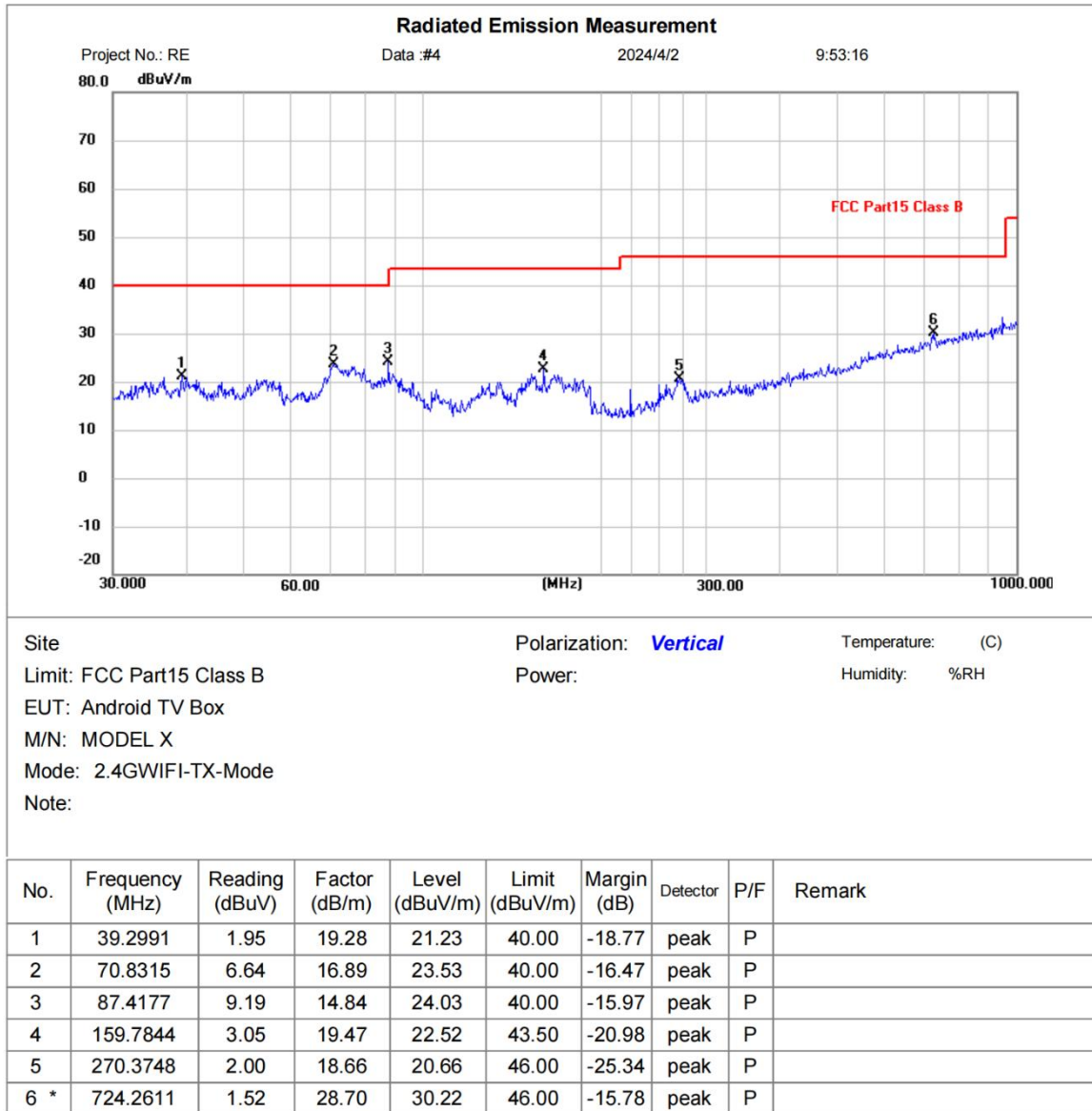
[TestMode: TX below 1G]; [Polarity: Horizontal]



*:Maximum data x:Over limit !:over margin

Test Result: Pass

[TestMode: TX below 1G]; [Polarity: Vertical]

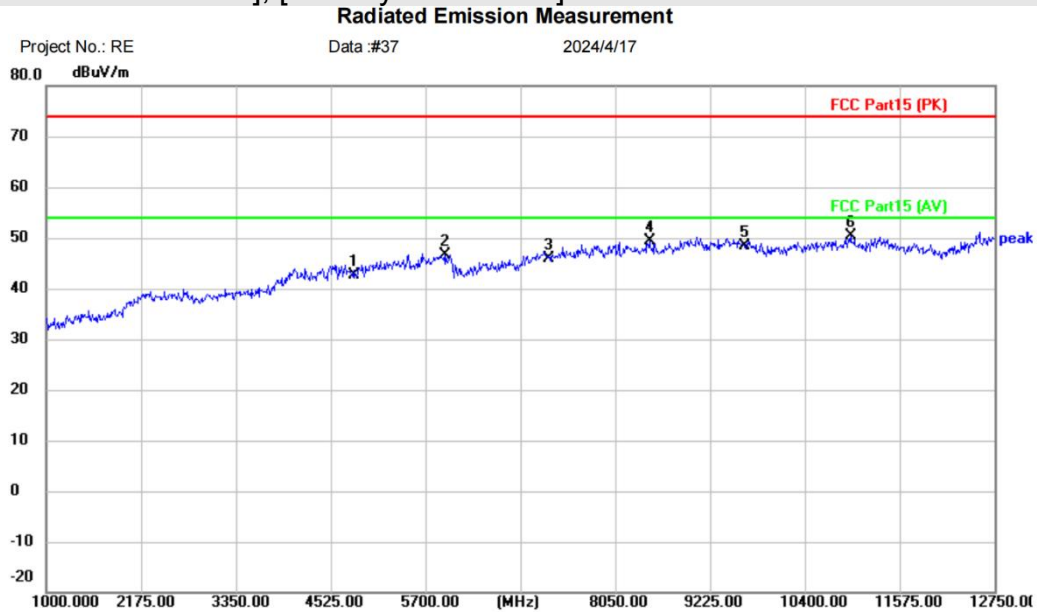


*:Maximum data x:Over limit !:over margin

Test Result: Pass

Remark: During the test, pre-scan the 802.11b/g/n mode, and found the 802.11b mode which it is worse case.

[TestMode: TX low channel]; [Polarity: Horizontal]



Site: Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11B-2412
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4824.000	37.05	5.65	42.70	74.00	-31.30	peak	
2		5946.750	37.95	8.71	46.66	74.00	-27.34	peak	
3		7236.000	36.52	9.24	45.76	74.00	-28.24	peak	
4		8473.000	38.65	10.77	49.42	74.00	-24.58	peak	
5		9648.000	36.10	12.28	48.38	74.00	-25.62	peak	
6	*	10964.00	37.09	13.35	50.44	74.00	-23.56	peak	

*:Maximum data x:Over limit !:over margin

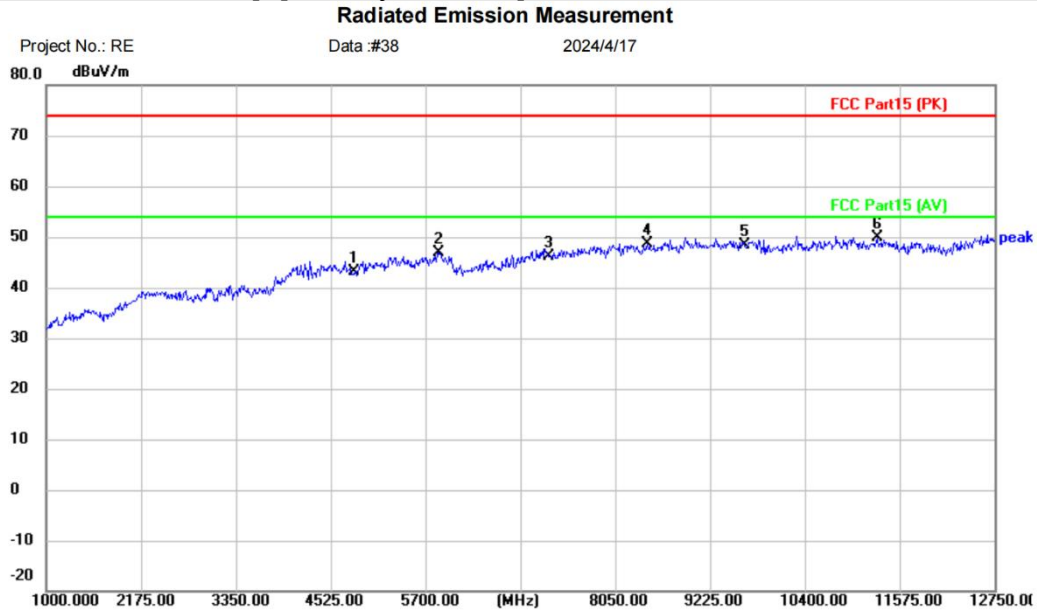
(Reference Only)

Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX low channel]; [Polarity: Vertical]



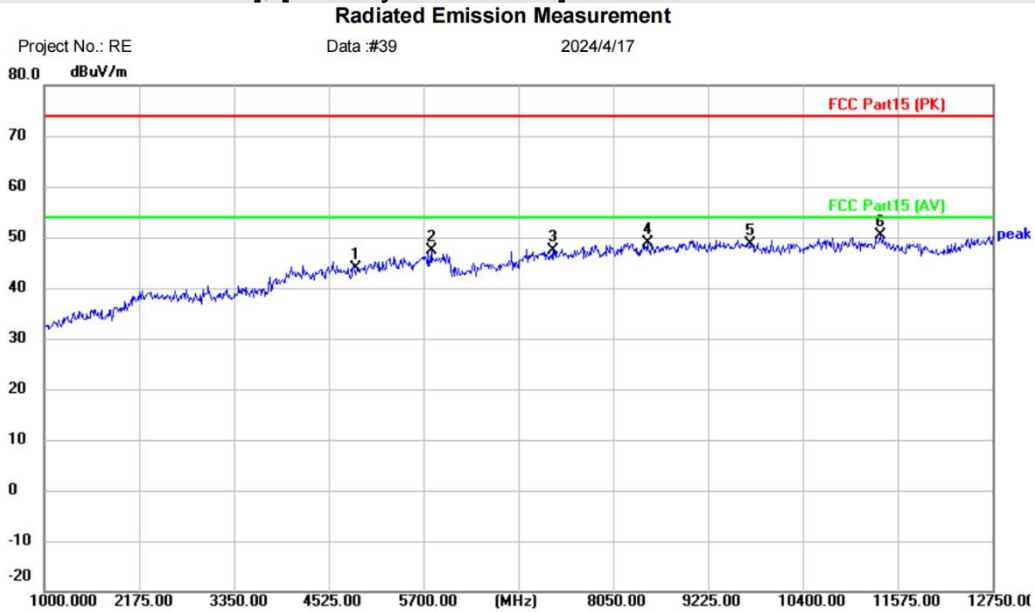
Site: Polarization: **Vertical** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11B-2412
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4824.000	37.58	5.65	43.23	74.00	-30.77	peak	
2		5864.500	38.35	8.48	46.83	74.00	-27.17	peak	
3		7236.000	36.90	9.24	46.14	74.00	-27.86	peak	
4		8449.500	38.11	10.63	48.74	74.00	-25.26	peak	
5		9648.000	36.05	12.28	48.33	74.00	-25.67	peak	
6	*	11293.00	37.13	12.70	49.83	74.00	-24.17	peak	

*:Maximum data x:Over limit !:over margin (Reference Only)
Receiver: ESR_1 Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX mid channel]; [Polarity: Horizontal]



Site: Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11B-2437
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4874.000	38.14	5.71	43.85	74.00	-30.15	peak	
2		5794.000	39.50	7.97	47.47	74.00	-26.53	peak	
3		7311.000	38.00	9.44	47.44	74.00	-26.56	peak	
4		8473.000	38.06	10.77	48.83	74.00	-25.17	peak	
5		9748.000	36.38	12.19	48.57	74.00	-25.43	peak	
6	*	11363.50	37.67	12.65	50.32	74.00	-23.68	peak	

*:Maximum data x:Over limit !:over margin

(Reference Only)

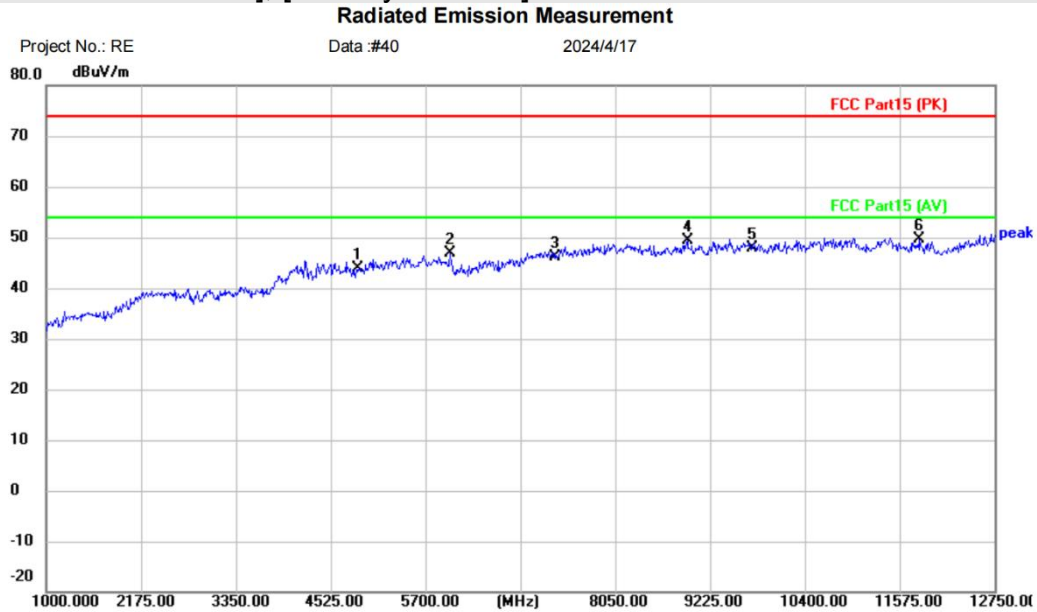
Receiver: ESR_1

Spectrum Analyzer:

FSP40

Test Result: Pass

[TestMode: TX mid channel]; [Polarity: Vertical]



Site: Polarization: **Vertical** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11B-2437
Note:

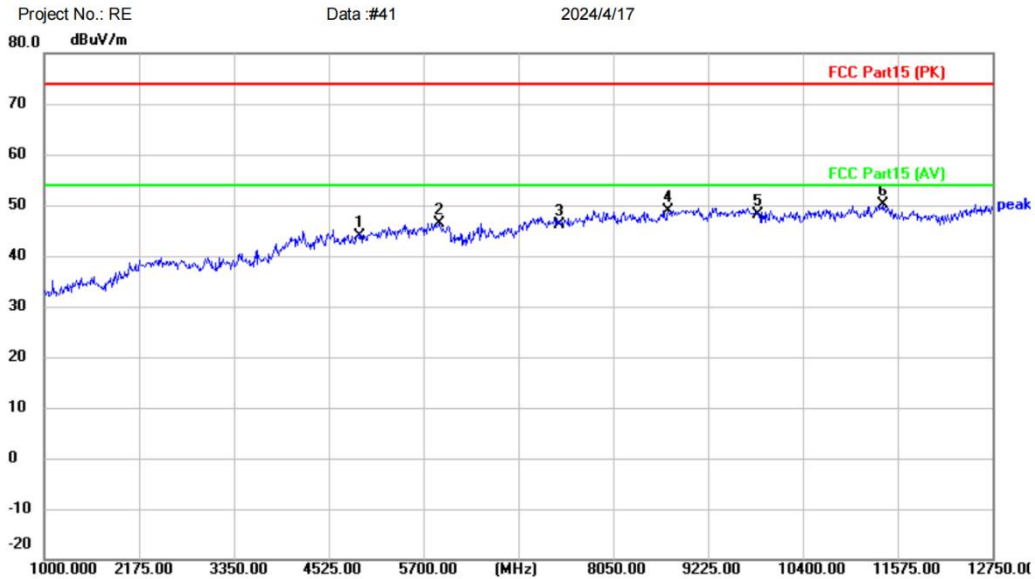
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4874.000	38.14	5.71	43.85	74.00	-30.15	peak	
2		6005.500	41.39	5.61	47.00	74.00	-27.00	peak	
3		7311.000	36.75	9.44	46.19	74.00	-27.81	peak	
4		8943.000	37.17	12.23	49.40	74.00	-24.60	peak	
5		9748.000	35.78	12.19	47.97	74.00	-26.03	peak	
6	*	11821.75	37.92	11.73	49.65	74.00	-24.35	peak	

*:Maximum data x:Over limit !:over margin (Reference Only)
Receiver: ESR_1 Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX high channel]; [Polarity: Horizontal]

Radiated Emission Measurement



Site: Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11B-2462
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4924.000	37.81	6.09	43.90	74.00	-30.10	peak	
2		5888.000	37.79	8.60	46.39	74.00	-27.61	peak	
3		7386.000	36.75	9.37	46.12	74.00	-27.88	peak	
4		8731.500	37.42	11.56	48.98	74.00	-25.02	peak	
5		9848.000	35.94	12.31	48.25	74.00	-25.75	peak	
6	*	11387.00	37.56	12.63	50.19	74.00	-23.81	peak	

*:Maximum data x:Over limit !:over margin

⟨Reference Only

Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX high channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site: Polarization: **Vertical** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11B-2462
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4924.000	37.10	6.09	43.19	74.00	-30.81	peak	
2		5641.250	39.15	7.65	46.80	74.00	-27.20	peak	
3		7386.000	36.53	9.37	45.90	74.00	-28.10	peak	
4		8473.000	38.51	10.77	49.28	74.00	-24.72	peak	
5		9848.000	34.36	12.31	46.67	74.00	-27.33	peak	
6	*	10999.25	37.14	13.48	50.62	74.00	-23.38	peak	

*:Maximum data x:Over limit !:over margin (Reference Only)
Receiver: ESR_1 Spectrum Analyzer: FSP40

Test Result: Pass

Remark:

1. Final Level = Receiver Read level + Correct factor
2. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

BlueAsia

13 RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS

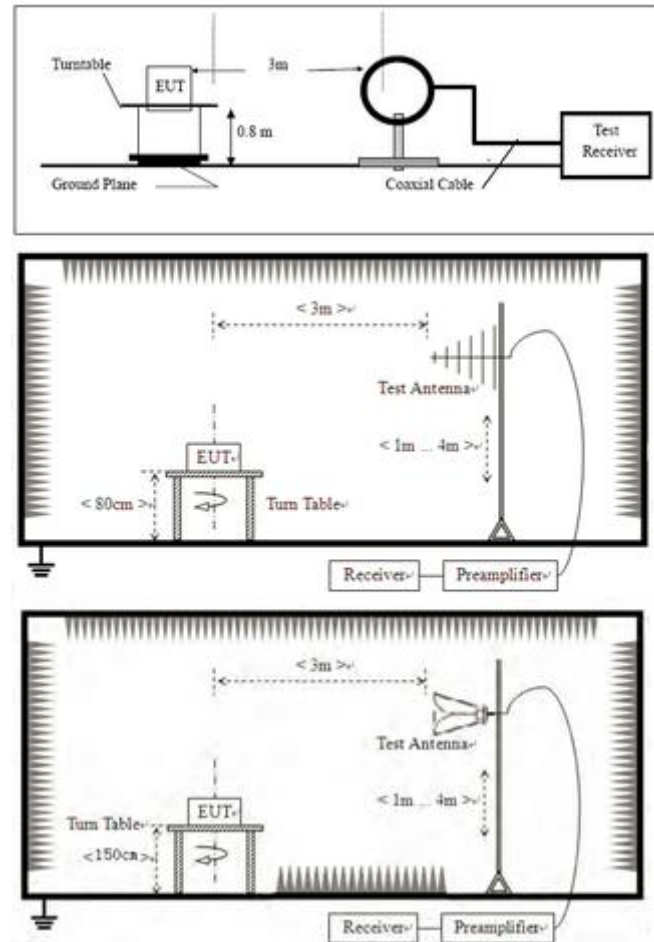
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.10.5
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

13.1 LIMITS

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.

13.2 BLOCK DIAGRAM OF TEST SETUP



13.3 PROCEDURE

- 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.
- 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.
- 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.
- 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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: $\text{Level} = \text{Read Level} + \text{Cable Loss} + \text{Antenna Factor} - \text{Preamp Factor}$

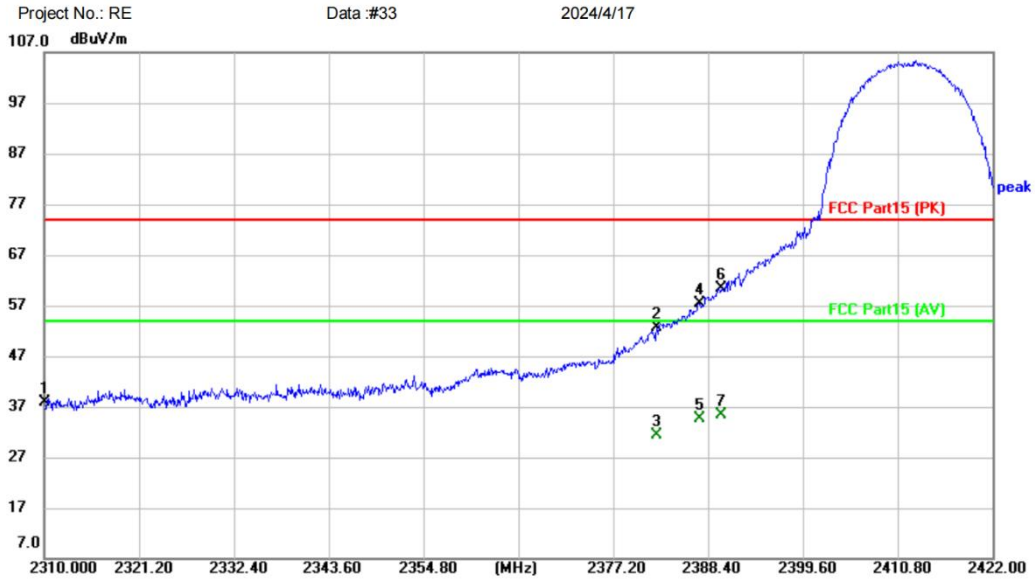
Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level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

BlueAsia

13.4 TEST DATA

[TestMode: TX b low channel]; [Polarity: Horizontal]

Radiated Emission Measurement



Site: Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11B-2412
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2310.000	40.75	-2.89	37.86	74.00	-36.14	peak	
2		2382.352	55.22	-2.70	52.52	74.00	-21.48	peak	
3		2382.352	34.18	-2.70	31.48	54.00	-22.52	AVG	
4		2387.392	60.11	-2.69	57.42	74.00	-16.58	peak	
5		2387.392	37.36	-2.69	34.67	54.00	-19.33	AVG	
6	*	2390.000	63.12	-2.70	60.42	74.00	-13.58	peak	
7		2390.000	38.17	-2.70	35.47	54.00	-18.53	AVG	

*:Maximum data x:Over limit !:over margin

(Reference Only)

Receiver: ESR_1

Spectrum Analyzer:

FSP40

Test Result: Pass

[TestMode: TX b low channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site
Limit: FCC Part15 (PK)
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11B-2412
Note:

Polarization: **Vertical**
Power:
Temperature: (C)
Humidity: %RH

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2310.000	42.13	-2.89	39.24	74.00	-34.76	peak	
2		2387.728	53.05	-2.70	50.35	74.00	-23.65	peak	
3		2387.728	32.27	-2.70	29.57	54.00	-24.43	AVG	
4	*	2390.000	55.46	-2.70	52.76	74.00	-21.24	peak	
5		2390.000	32.98	-2.70	30.28	54.00	-23.72	AVG	

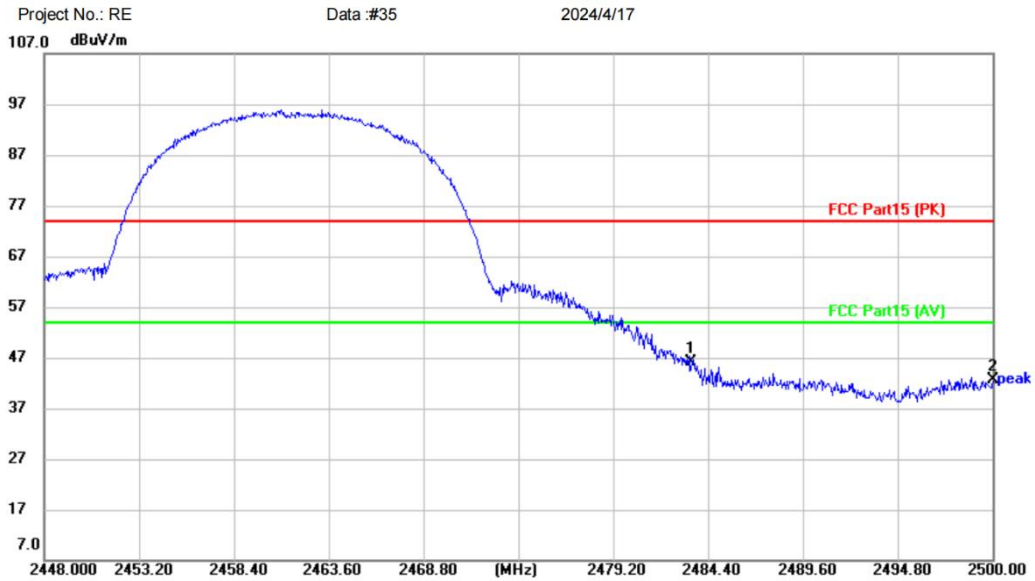
*:Maximum data x:Over limit !:over margin (Reference Only)

Receiver: ESR_1 Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX b high channel]; [Polarity: Horizontal]

Radiated Emission Measurement



Site: Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11B-2462
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	2483.500	49.06	-2.91	46.15	74.00	-27.85	peak	
2		2500.000	45.54	-3.00	42.54	74.00	-31.46	peak	

*:Maximum data x:Over limit !:over margin

(Reference Only)

Receiver: ESR_1

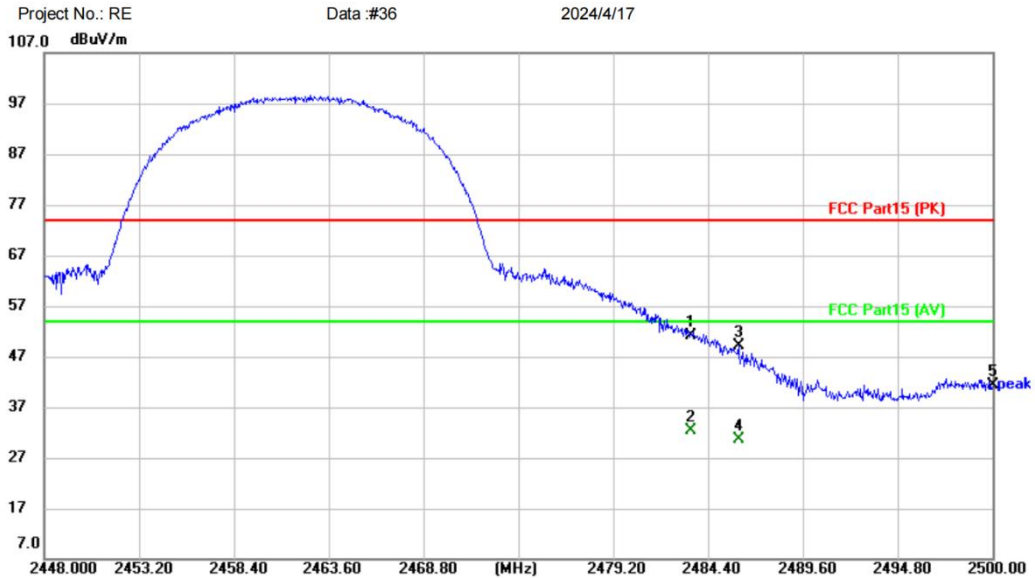
Spectrum Analyzer:

FSP40

Test Result: Pass

[TestMode: TX b high channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site: Limit: FCC Part15 (PK) EUT: Android TV Box M/N: MODEL X Mode: 2.4GWIFI-11B-2462 Note:

Polarization: **Vertical** Temperature: (C) Power: Humidity: %RH

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2483.500	53.92	-2.91	51.01	74.00	-22.99	peak	
2	*	2483.500	35.40	-2.91	32.49	54.00	-21.51	AVG	
3		2486.064	51.99	-2.92	49.07	74.00	-24.93	peak	
4		2486.064	33.58	-2.92	30.66	54.00	-23.34	AVG	
5		2500.000	44.45	-3.00	41.45	74.00	-32.55	peak	

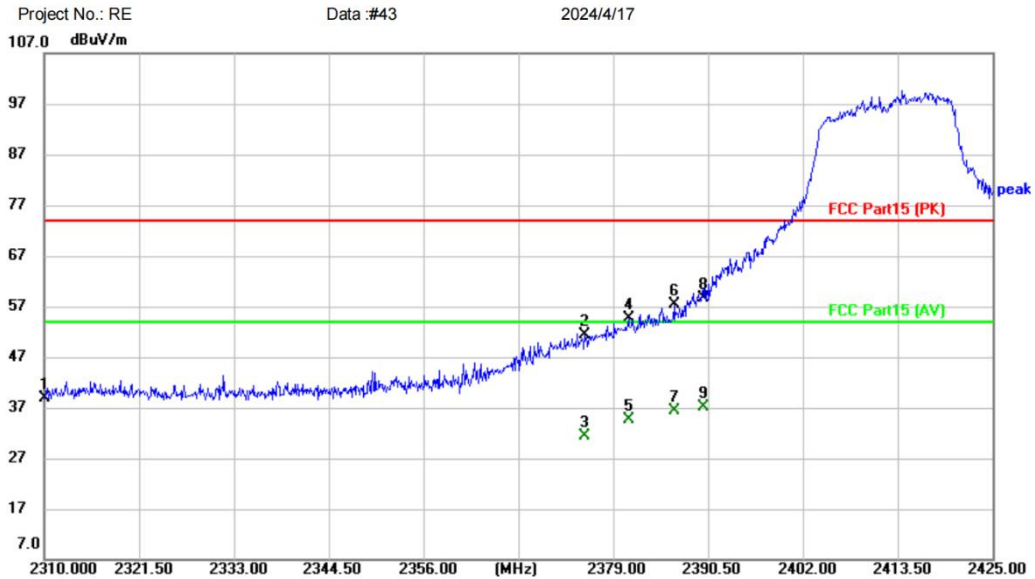
*:Maximum data x:Over limit !:over margin (Reference Only)

Receiver: ESR_1 Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX g low channel]; [Polarity: Horizontal]

Radiated Emission Measurement



Site: Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11G-2412
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2310.000	41.80	-2.89	38.91	74.00	-35.09	peak	
2		2375.550	54.13	-2.73	51.40	74.00	-22.60	peak	
3		2375.550	34.02	-2.73	31.29	54.00	-22.71	AVG	
4		2380.840	57.46	-2.72	54.74	74.00	-19.26	peak	
5		2380.840	37.40	-2.72	34.68	54.00	-19.32	AVG	
6		2386.360	60.14	-2.70	57.44	74.00	-16.56	peak	
7		2386.360	39.18	-2.70	36.48	54.00	-17.52	AVG	
8	*	2390.000	61.22	-2.70	58.52	74.00	-15.48	peak	
9		2390.000	39.82	-2.70	37.12	54.00	-16.88	AVG	

*:Maximum data x:Over limit !:over margin

〈Reference Only

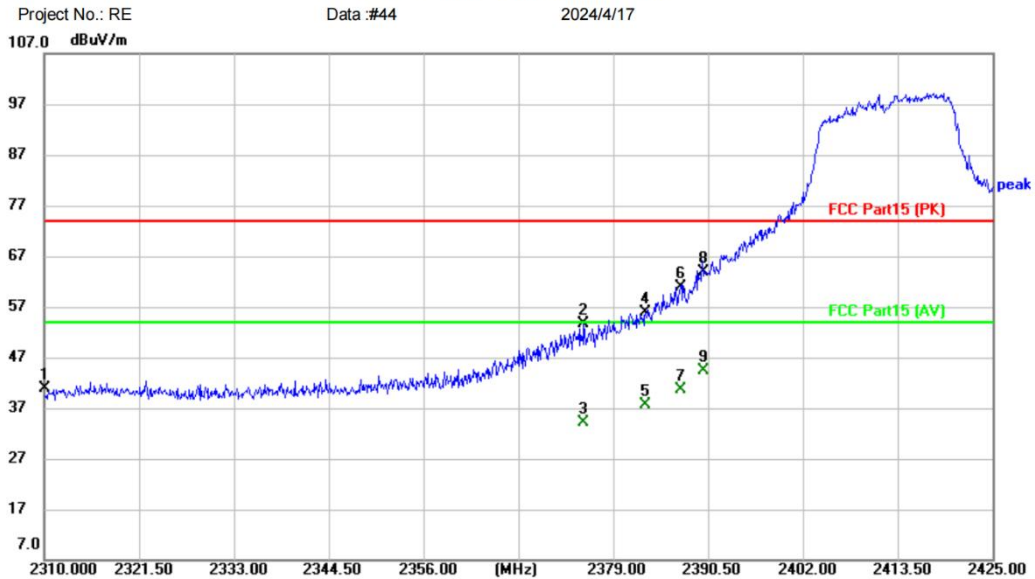
Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX g low channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site: Polarization: **Vertical** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11G-2412
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2310.000	43.67	-2.89	40.78	74.00	-33.22	peak	
2		2375.435	56.26	-2.73	53.53	74.00	-20.47	peak	
3		2375.435	36.90	-2.73	34.17	54.00	-19.83	AVG	
4		2382.910	58.49	-2.71	55.78	74.00	-18.22	peak	
5		2382.910	40.41	-2.71	37.70	54.00	-16.30	AVG	
6		2387.165	63.47	-2.69	60.78	74.00	-13.22	peak	
7		2387.165	43.38	-2.69	40.69	54.00	-13.31	AVG	
8		2390.000	66.68	-2.70	63.98	74.00	-10.02	peak	
9	*	2390.000	47.07	-2.70	44.37	54.00	-9.63	AVG	

*:Maximum data x:Over limit !:over margin

(Reference Only)

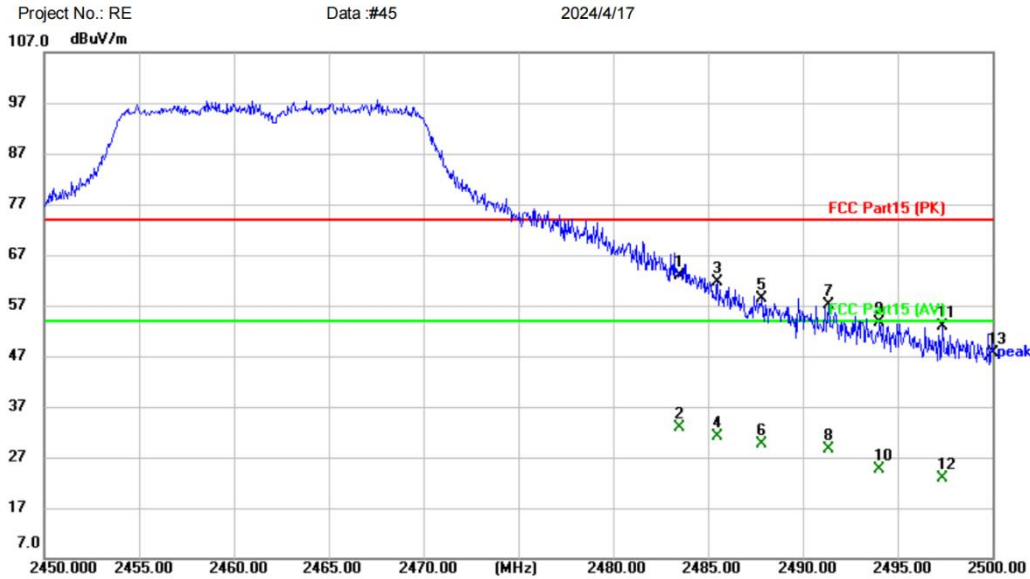
Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX g high channel]; [Polarity: Horizontal]

Radiated Emission Measurement



Site Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11G-2462
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	2483.500	65.87	-2.91	62.96	74.00	-11.04	peak	
2		2483.500	35.75	-2.91	32.84	54.00	-21.16	AVG	
3		2485.500	64.67	-2.92	61.75	74.00	-12.25	peak	
4		2485.500	33.98	-2.92	31.06	54.00	-22.94	AVG	
5		2487.850	61.31	-2.94	58.37	74.00	-15.63	peak	
6		2487.850	32.52	-2.94	29.58	54.00	-24.42	AVG	
7		2491.350	60.14	-2.95	57.19	74.00	-16.81	peak	
8		2491.350	31.61	-2.95	28.66	54.00	-25.34	AVG	
9		2494.050	56.60	-2.97	53.63	74.00	-20.37	peak	
10		2494.050	27.55	-2.97	24.58	54.00	-29.42	AVG	
11		2497.350	55.92	-2.98	52.94	74.00	-21.06	peak	
12		2497.350	25.93	-2.98	22.95	54.00	-31.05	AVG	

*:Maximum data x:Over limit !:over margin

(Reference Only)

Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

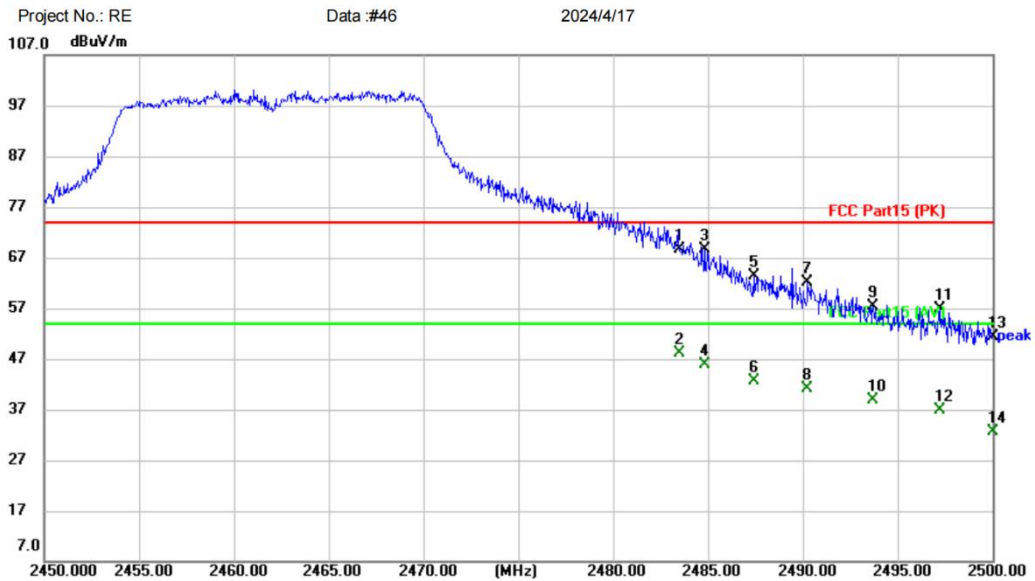
[TestMode: TX g high channel]; [Polarity: Horizontal]

No. Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Comment
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
13	2500.000	50.73	-3.00	47.73	74.00	-26.27	peak	

Test Result: Pass

[TestMode: TX g high channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site: Limit: FCC Part15 (PK) EUT: Android TV Box M/N: MODEL X Mode: 2.4GWIFI-11G-2462 Note:

Polarization: **Vertical** Temperature: (C) Humidity: %RH

Power:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2483.500	71.60	-2.91	68.69	74.00	-5.31	peak	
2		2483.500	51.15	-2.91	48.24	54.00	-5.76	AVG	
3	*	2484.800	71.63	-2.92	68.71	74.00	-5.29	peak	
4		2484.800	48.90	-2.92	45.98	54.00	-8.02	AVG	
5		2487.400	66.19	-2.93	63.26	74.00	-10.74	peak	
6		2487.400	45.49	-2.93	42.56	54.00	-11.44	AVG	
7		2490.250	65.05	-2.95	62.10	74.00	-11.90	peak	
8		2490.250	43.96	-2.95	41.01	54.00	-12.99	AVG	
9		2493.700	60.44	-2.96	57.48	74.00	-16.52	peak	
10		2493.700	41.93	-2.96	38.97	54.00	-15.03	AVG	
11		2497.250	59.91	-2.98	56.93	74.00	-17.07	peak	
12		2497.250	39.85	-2.98	36.87	54.00	-17.13	AVG	

*:Maximum data x:Over limit !:over margin <Reference Only

Receiver: ESR_1 Spectrum Analyzer: FSP40

Test Result: Pass

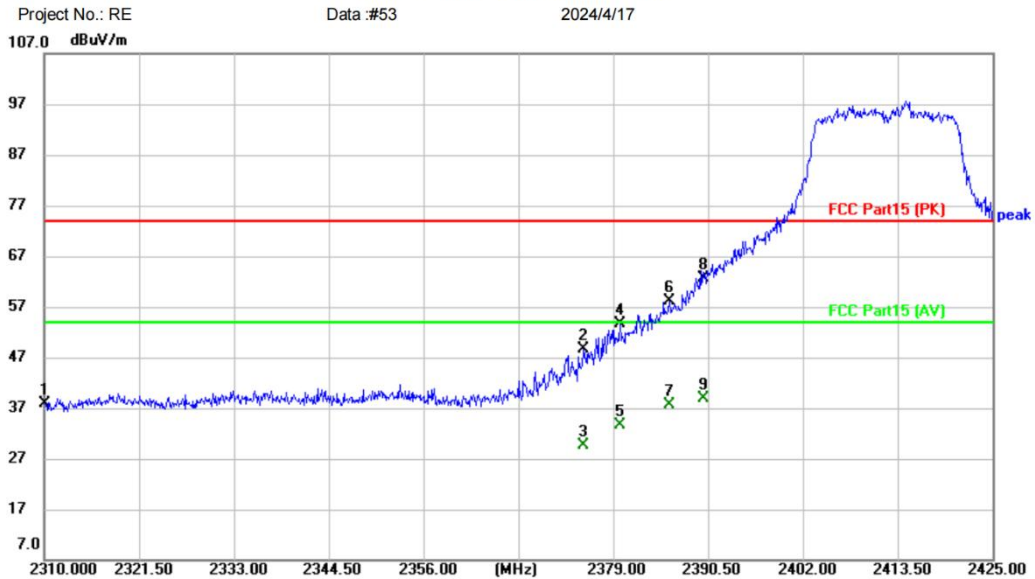
[TestMode: TX g high channel]; [Polarity: Vertical]

No. Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Comment
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
13	2500.000	54.41	-3.00	51.41	74.00	-22.59	peak	
14	2500.000	35.57	-3.00	32.57	54.00	-21.43	AVG	

Test Result: Pass

[TestMode: TX n20 low channel]; [Polarity: Horizontal]

Radiated Emission Measurement



Site: Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11N20-2412
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2310.000	40.83	-2.89	37.94	74.00	-36.06	peak	
2		2375.320	51.30	-2.73	48.57	74.00	-25.43	peak	
3		2375.320	32.31	-2.73	29.58	54.00	-24.42	AVG	
4		2379.805	56.47	-2.72	53.75	74.00	-20.25	peak	
5		2379.805	36.24	-2.72	33.52	54.00	-20.48	AVG	
6		2385.785	60.88	-2.70	58.18	74.00	-15.82	peak	
7		2385.785	40.29	-2.70	37.59	54.00	-16.41	AVG	
8	*	2390.000	65.35	-2.70	62.65	74.00	-11.35	peak	
9		2390.000	41.66	-2.70	38.96	54.00	-15.04	AVG	

*:Maximum data x:Over limit !:over margin

(Reference Only)

Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX n20 low channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site: Polarization: **Vertical** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11N20-2412
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2310.000	43.66	-2.89	40.77	74.00	-33.23	peak	
2		2378.310	54.41	-2.73	51.68	74.00	-22.32	peak	
3		2378.310	35.39	-2.73	32.66	54.00	-21.34	AVG	
4		2381.760	56.32	-2.70	53.62	74.00	-20.38	peak	
5		2381.760	37.85	-2.70	35.15	54.00	-18.85	AVG	
6		2387.625	61.21	-2.70	58.51	74.00	-15.49	peak	
7		2387.625	40.29	-2.70	37.59	54.00	-16.41	AVG	
8	*	2390.000	62.72	-2.70	60.02	74.00	-13.98	peak	
9		2390.000	42.17	-2.70	39.47	54.00	-14.53	AVG	

*:Maximum data x:Over limit !:over margin

(Reference Only)

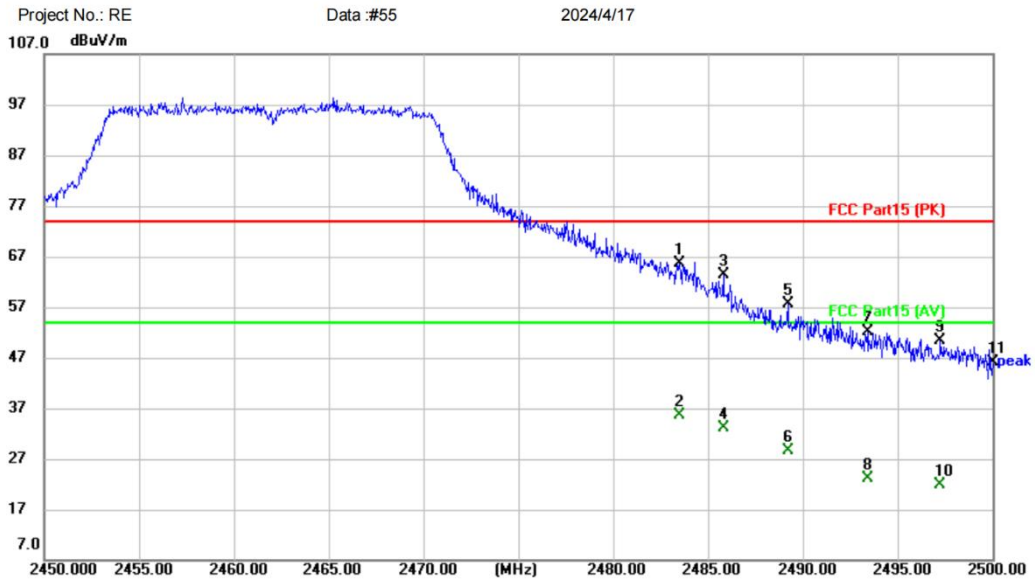
Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX n20 high channel]; [Polarity: Horizontal]

Radiated Emission Measurement



Site
Limit: FCC Part15 (PK)
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11N20-2462
Note:

Polarization: **Horizontal**
Power:
Temperature: (C)
Humidity: %RH

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	2483.500	68.45	-2.91	65.54	74.00	-8.46	peak	
2		2483.500	38.59	-2.91	35.68	54.00	-18.32	AVG	
3		2485.800	66.34	-2.92	63.42	74.00	-10.58	peak	
4		2485.800	36.17	-2.92	33.25	54.00	-20.75	AVG	
5		2489.200	60.62	-2.94	57.68	74.00	-16.32	peak	
6		2489.200	31.58	-2.94	28.64	54.00	-25.36	AVG	
7		2493.400	55.05	-2.97	52.08	74.00	-21.92	peak	
8		2493.400	26.15	-2.97	23.18	54.00	-30.82	AVG	
9		2497.250	53.33	-2.98	50.35	74.00	-23.65	peak	
10		2497.250	24.93	-2.98	21.95	54.00	-32.05	AVG	
11		2500.000	49.06	-3.00	46.06	74.00	-27.94	peak	

*:Maximum data x:Over limit !:over margin

⟨Reference Only

Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX n20 high channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site: Polarization: **Vertical** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11N20-2462
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	2483.500	69.83	-2.91	66.92	74.00	-7.08	peak	
2		2483.500	38.08	-2.91	35.17	54.00	-18.83	AVG	
3		2486.050	66.38	-2.92	63.46	74.00	-10.54	peak	
4		2486.050	35.33	-2.92	32.41	54.00	-21.59	AVG	
5		2489.550	60.70	-2.95	57.75	74.00	-16.25	peak	
6		2489.550	31.49	-2.95	28.54	54.00	-25.46	AVG	
7		2494.400	57.52	-2.97	54.55	74.00	-19.45	peak	
8		2494.400	28.64	-2.97	25.67	54.00	-28.33	AVG	
9		2497.450	54.51	-2.98	51.53	74.00	-22.47	peak	
10		2497.450	26.46	-2.98	23.48	54.00	-30.52	AVG	
11		2500.000	48.63	-3.00	45.63	74.00	-28.37	peak	

*:Maximum data x:Over limit !:over margin

⟨Reference Only

Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX n40 low channel]; [Polarity: Horizontal]

Radiated Emission Measurement



Site Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11N40-2422
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2310.000	39.44	-2.89	36.55	74.00	-37.45	peak	
2		2373.440	54.43	-2.73	51.70	74.00	-22.30	peak	
3		2373.440	34.67	-2.73	31.94	54.00	-22.06	AVG	
4		2378.640	57.25	-2.72	54.53	74.00	-19.47	peak	
5		2378.640	35.97	-2.72	33.25	54.00	-20.75	AVG	
6		2384.230	61.96	-2.71	59.25	74.00	-14.75	peak	
7		2384.230	41.96	-2.71	39.25	54.00	-14.75	AVG	
8	*	2390.000	63.35	-2.70	60.65	74.00	-13.35	peak	
9		2390.000	42.85	-2.70	40.15	54.00	-13.85	AVG	

*:Maximum data x:Over limit !:over margin

(Reference Only)

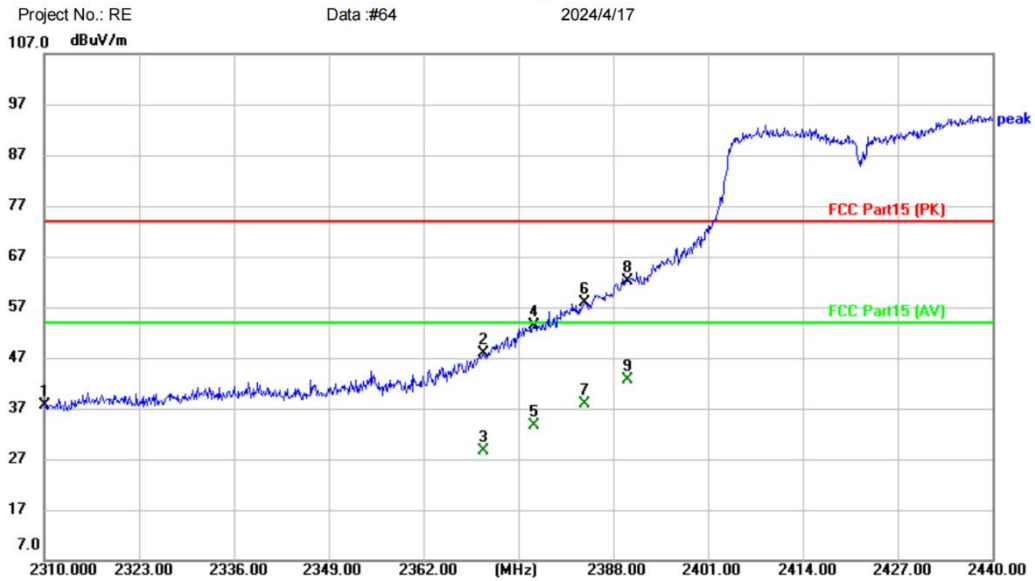
Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX n40 low channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11N40-2422
Note:

No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2310.000	40.49	-2.89	37.60	74.00	-36.40	peak	
2	2370.190	50.66	-2.73	47.93	74.00	-26.07	peak	
3	2370.190	31.32	-2.73	28.59	54.00	-25.41	AVG	
4	2377.080	56.10	-2.72	53.38	74.00	-20.62	peak	
5	2377.080	36.30	-2.72	33.58	54.00	-20.42	AVG	
6	2384.100	60.63	-2.71	57.92	74.00	-16.08	peak	
7	2384.100	40.66	-2.71	37.95	54.00	-16.05	AVG	
8	2390.000	64.89	-2.70	62.19	74.00	-11.81	peak	
9 *	2390.000	45.38	-2.70	42.68	54.00	-11.32	AVG	

*:Maximum data x:Over limit !:over margin

(Reference Only)

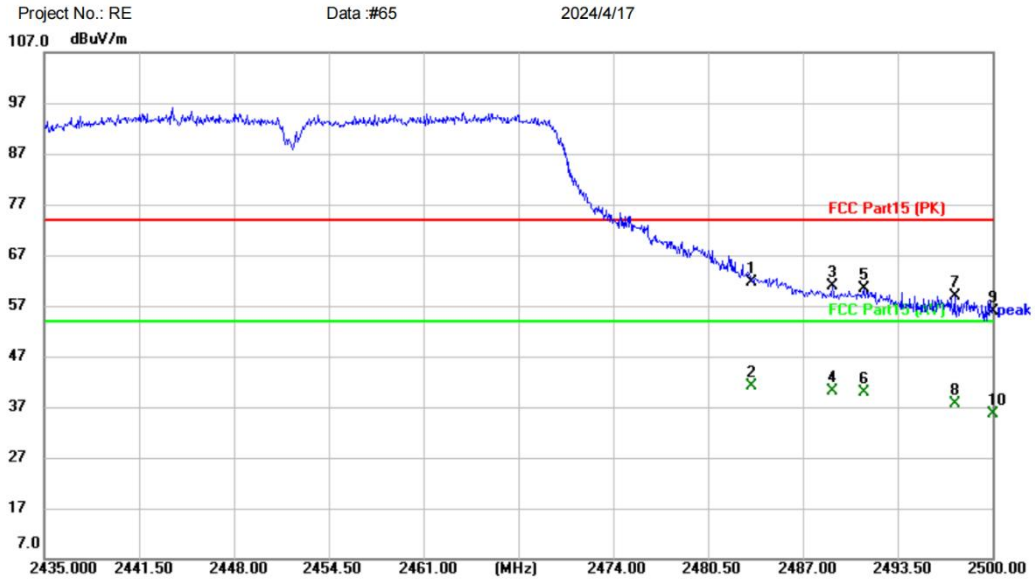
Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX n40 high channel]; [Polarity: Horizontal]

Radiated Emission Measurement



Site Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11N40-2452
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	2483.500	64.54	-2.91	61.63	74.00	-12.37	peak	
2		2483.500	43.93	-2.91	41.02	54.00	-12.98	AVG	
3		2489.015	63.91	-2.94	60.97	74.00	-13.03	peak	
4		2489.015	43.15	-2.94	40.21	54.00	-13.79	AVG	
5		2491.160	63.22	-2.95	60.27	74.00	-13.73	peak	
6		2491.160	42.80	-2.95	39.85	54.00	-14.15	AVG	
7		2497.400	61.80	-2.98	58.82	74.00	-15.18	peak	
8		2497.400	40.57	-2.98	37.59	54.00	-16.41	AVG	
9		2500.000	58.86	-3.00	55.86	74.00	-18.14	peak	
10		2500.000	38.66	-3.00	35.66	54.00	-18.34	AVG	

*:Maximum data x:Over limit !:over margin

(Reference Only)

Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX n40 high channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site Polarization: **Vertical** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Android TV Box
M/N: MODEL X
Mode: 2.4GWIFI-11N40-2452
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	2483.500	66.16	-2.91	63.25	74.00	-10.75	peak	
2		2483.500	45.49	-2.91	42.58	54.00	-11.42	AVG	
3		2485.960	65.66	-2.92	62.74	74.00	-11.26	peak	
4		2485.960	44.76	-2.92	41.84	54.00	-12.16	AVG	
5		2490.965	62.84	-2.95	59.89	74.00	-14.11	peak	
6		2490.965	41.61	-2.95	38.66	54.00	-15.34	AVG	
7		2495.125	63.09	-2.97	60.12	74.00	-13.88	peak	
8		2495.125	41.54	-2.97	38.57	54.00	-15.43	AVG	
9		2500.000	62.62	-3.00	59.62	74.00	-14.38	peak	
10		2500.000	41.15	-3.00	38.15	54.00	-15.85	AVG	

*:Maximum data x:Over limit !:over margin

〈Reference Only

Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

Remark:

1. Final Level = Receiver Read level + Correct factor
2. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

BlueAsia

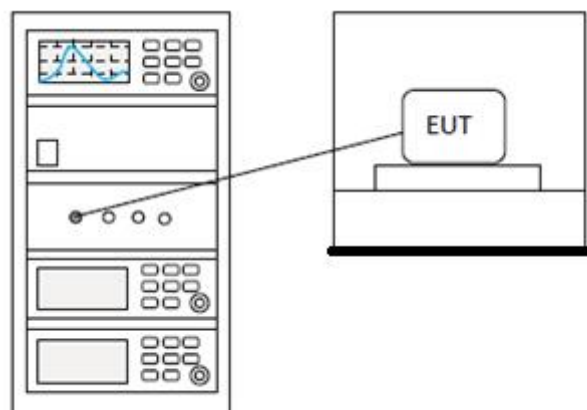
14 CONDUCTED SPURIOUS EMISSIONS

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.6 & Section 11.11
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25°C
Humidity	60%

14.1 LIMITS

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)).
---------------	---

14.2 BLOCK DIAGRAM OF TEST SETUP



14.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

BlueAsia

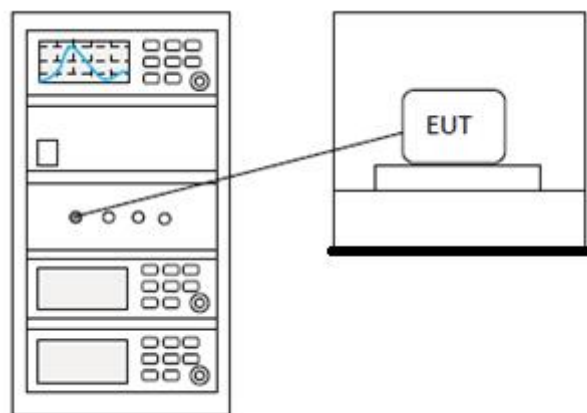
15 CONDUCTED BAND EDGES MEASUREMENT

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.8 & Section 11.13.3.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25°C
Humidity	60%

15.1 LIMITS

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)).
---------------	--

15.2 BLOCK DIAGRAM OF TEST SETUP



15.3 TEST DATA**Pass: Please Refer To Appendix: Appendix1 For Details**

BlueAsia

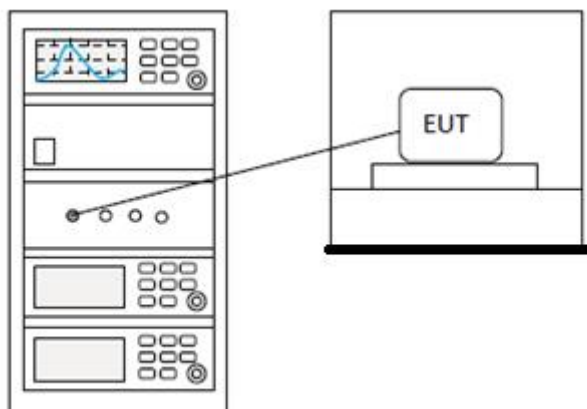
16 MINIMUM 6DB BANDWIDTH

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 11.8.1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

16.1 LIMITS

Limit:	≥ 500 kHz
--------	----------------

16.2 BLOCK DIAGRAM OF TEST SETUP



16.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

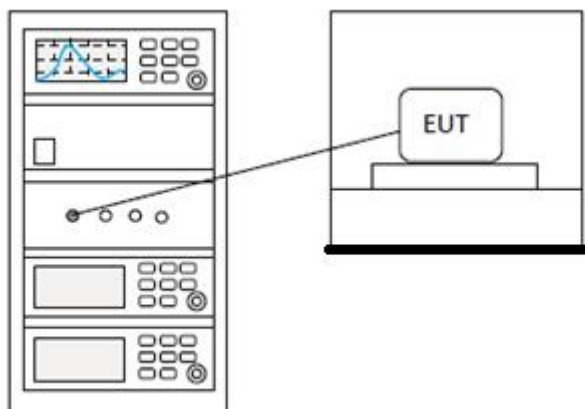
17 POWER SPECTRUM DENSITY

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 11.10.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25°C
Humidity	60%

17.1 LIMITS

Limit: $\leq 8\text{dBm}$ in any 3 kHz band during any time interval of continuous transmission

17.2 BLOCK DIAGRAM OF TEST SETUP



17.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

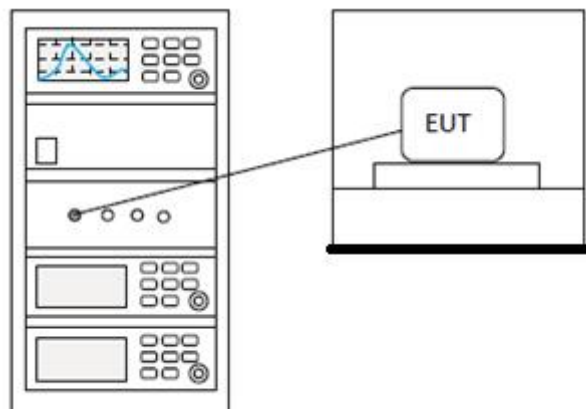
18 CONDUCTED PEAK OUTPUT POWER

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.5 & Section 11.9.1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25°C
Humidity	60%

18.1 LIMITS

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

18.2 BLOCK DIAGRAM OF TEST SETUP



18.3 TEST DATA**Pass: Please Refer To Appendix: Appendix1 For Details**

BlueAsia

19 CONDUCTED EMISSIONS AT AC POWER LINE (150KHZ-30MHZ)

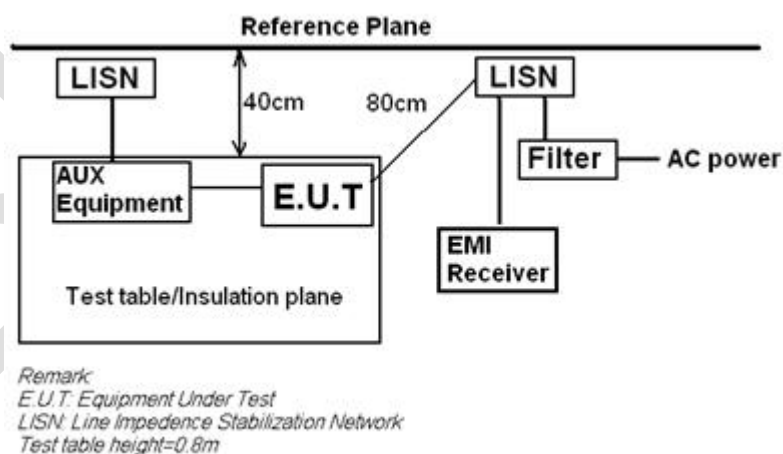
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

19.1 LIMITS

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.

19.2 BLOCK DIAGRAM OF TEST SETUP



19.3 PROCEDURE

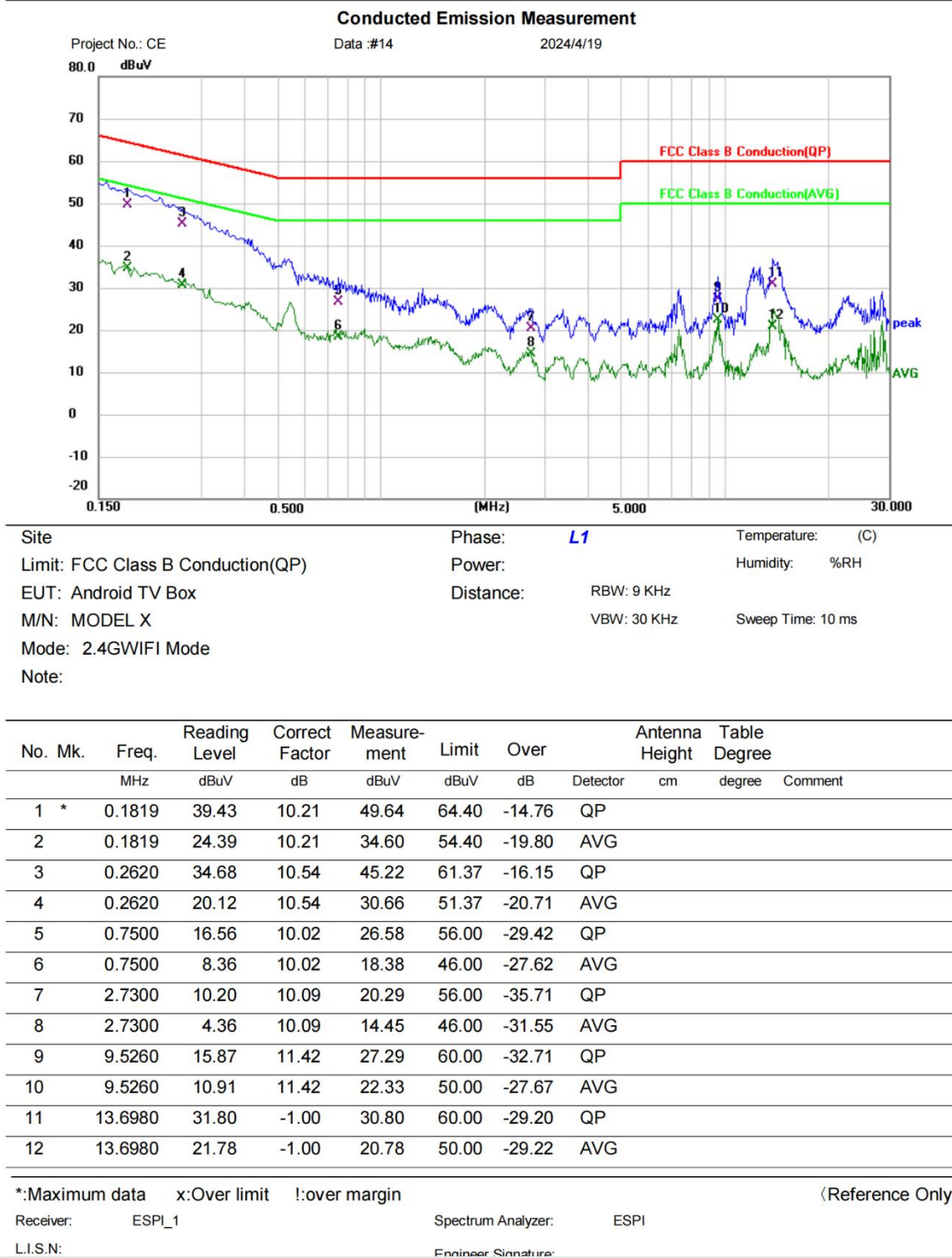
- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50H + 5ohm linear impedance. The power cables of all other units of the EUT were connected to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

- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

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

19.1 TEST DATA

[TestMode: TX mode]; [Line: Line] ;[Power:AC120V/60Hz]



Test Result: Pass