



FCC Radio Test Report

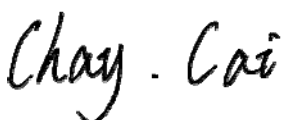
FCC ID: 2AXJ4AX55V4

This report concerns: Class II permissive Change

Project No.	: 2408G144
Equipment	: AX3000 Gigabit Wi-Fi 6 Router
Brand Name	: tp-link
Test Model	: Archer AX55
Series Model	: N/A
Applicant	: TP-Link Corporation Limited
Address	: Room 901, 9/F., New East Ocean Centre, 9 Science Museum Road, Tsim Sha Tsui, Kowloon, Hongkong
Manufacturer	: TP-Link Corporation Limited
Address	: Room 901, 9/F., New East Ocean Centre, 9 Science Museum Road, Tsim Sha Tsui, Kowloon, Hongkong
Date of Receipt	: Sep. 04, 2024
Date of Test	: Oct. 31, 2024 ~ Nov. 08, 2024
Issued Date	: Nov. 19, 2024
Report Version	: R00
Test Sample	: Engineering Sample No.: SSL2024090486 and SSL2024103190.
Standard(s)	: FCC CFR Title 47, Part 15, Subpart C

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

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Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** assumes no responsibility for the data provided by the customer, any statements, inferences or generalizations drawn by the customer or others from the reports issued by **BTL**.

The report must not be used by the client to claim product certification, approval, or endorsement by A2LA or any agency of the U.S. Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

BTL's laboratory quality assurance procedures are in compliance with the ISO/IEC 17025: 2017 requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-1-2408G144	R00	Original Report.	Nov. 19, 2024	Valid

1. APPLICABLE STANDARDS

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

ANSI C63.10-2013

The following reference test guidance is not within the scope of accreditation of A2LA:

KDB 558074 D01 15.247 Meas Guidance v05r02

KDB 662911 D01 Multiple Transmitter Output v02r01

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC CFR Title 47, Part 15, Subpart C				
Standard(s) Section	Test Item	Test Result	Judgment	Remark
15.247(d) 15.205(a) 15.209(a)	Radiated Emission	APPENDIX A APPENDIX B	PASS	-----

Note:

- (1) "N/A" denotes test is not applicable in this test report.
- (2) The worst cases of radiated emissions have been re-evaluated by sample of FCC ID: 2AXJ4AX55V4, model name: Archer AX55. It is found that the new data are the worse, so the test data are reissue from the FCC ID: 2AXJ4AX55V4, model name: Archer AX55. Model difference(s):
 1. Changed the network port signal transformer PCB from integrated plug-in transformer material to separated chip transformer material.
- (3) The other test records and results please refer to the test report number: 2308TW0104-U2, issued date is 2023-09-18, and issued by:
 Test Laboratory: MRT Technology (Taiwan) Co., Ltd
 Address: No.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C).

Which was accredited by TAF, FCC registration number is 291082, with the scopes of cited standards in this test report.

This report is only valid conjunction with the above referenced test report.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of 1-2/F, 4/F, Building A, 1-2/F, Building B, 3/F, Building C, No.3, Jinshagang 1st Road, Dalang Town, Dongguan City, Guangdong People's Republic of China.

BTL's Registration Number for FCC: 747969

BTL's Designation Number for FCC: CN1377

2.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95.45% confidence level (based on a coverage factor (k=2))

The BTL measurement uncertainty as below table:

A. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
DG-CB03 (3m)	CISPR	30MHz ~ 200MHz	V	4.40
		30MHz ~ 200MHz	H	3.62
		200MHz ~ 1,000MHz	V	4.58
		200MHz ~ 1,000MHz	H	3.98

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB03 (3m)	CISPR	1GHz ~ 6GHz	4.08
		6GHz ~ 18GHz	4.62

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

2.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By	Test Date
Radiated Emissions -30MHz to 1000MHz	22°C	51%	AC 120V/60Hz	Calvin Wen	Nov. 04, 2024
Radiated Emissions-Above 1000MHz	22°C	51%	AC 120V/60Hz	Calvin Wen	Nov. 04, 2024

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	AX3000 Gigabit Wi-Fi 6 Router
Brand Name	tp-link
Test Model	Archer AX55
Series Model	N/A
Model Difference(s)	N/A
Hardware Version	4.0
Software Version	4.0
Power Source	DC Voltage supplied from AC adapter. Model: T120200-2B1
Power Rating	I/P: 100-240V~, 50/60Hz, 0.8A O/P: 12V --- 2.0A
Operation Frequency	2412 MHz ~ 2462 MHz
Modulation Type	IEEE 802.11b: DSSS IEEE 802.11g/n: OFDM IEEE 802.11ax: OFDMA
Bit Rate of Transmitter	IEEE 802.11b: 11/5.5/2/1 Mbps IEEE 802.11g: 54/48/36/24/18/12/9/6 Mbps IEEE 802.11n: up to 300 Mbps IEEE 802.11ax: up to 574 Mbps

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. Channel List:

CH01 - CH11 for IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(HT20), IEEE 802.11ax(HE20)							
CH03 - CH09 for IEEE 802.11n(HT40), IEEE 802.11ax(HE40)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

3. Table for Filed Antenna:

Antenna Type	Frequency Band (MHz)	Tx Paths	Number of spatial streams	Max Antenna Gain (dBi)	Beamforming Directional Gain(dBi)	CDD Directional Gain (dBi)	
						For Power	For PSD
Wi-Fi Antenna							
Dipole	2412 ~ 2462	2	1	1.95	4.96	1.95	4.96
	5150 ~ 5850	2	1	2.47	5.48	2.47	5.48

Remark:

- The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.
If all antennas have the same gain, G_{ANT} , Directional gain = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows.
 - For power spectral density (PSD) measurements on all devices,
Array Gain = $10 \log (N_{ANT} / N_{SS})$ dB;
 - For power measurements on IEEE 802.11 devices,
Array Gain = 0 dB for $N_{ANT} \leq 4$;
- The EUT also supports Beam Forming mode, and the Beam Forming support 802.11ac/ax, not include 802.11a/b/g/n. BF Directional gain = $G_{ANT} + 10 \log (N_{ANT})$.
- The information as above is from the antenna specifications.

Test Mode	Tx Paths	CDD Mode	Beamforming Mode
802.11b/g/n (DTS)	2	√	X
802.11ax (DTS)	2	√	√
802.11a/n (NII)	2	√	X
802.11ac/ax (NII)	2	√	√

Note: "√" means "Support", "X" means "Not support".

3.2 DESCRIPTION OF TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

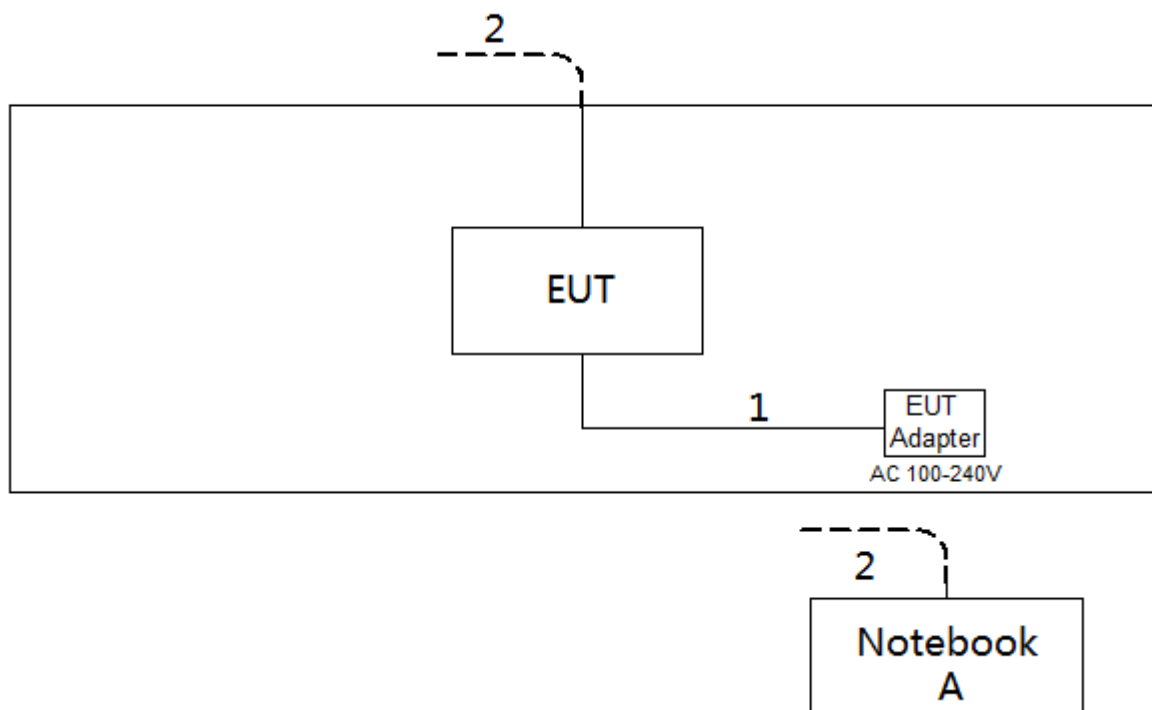
Pretest Mode	Description
Mode 1	TX B Mode Channel 11

Following mode(s) was (were) found to be the worst case(s) and selected for the final test.

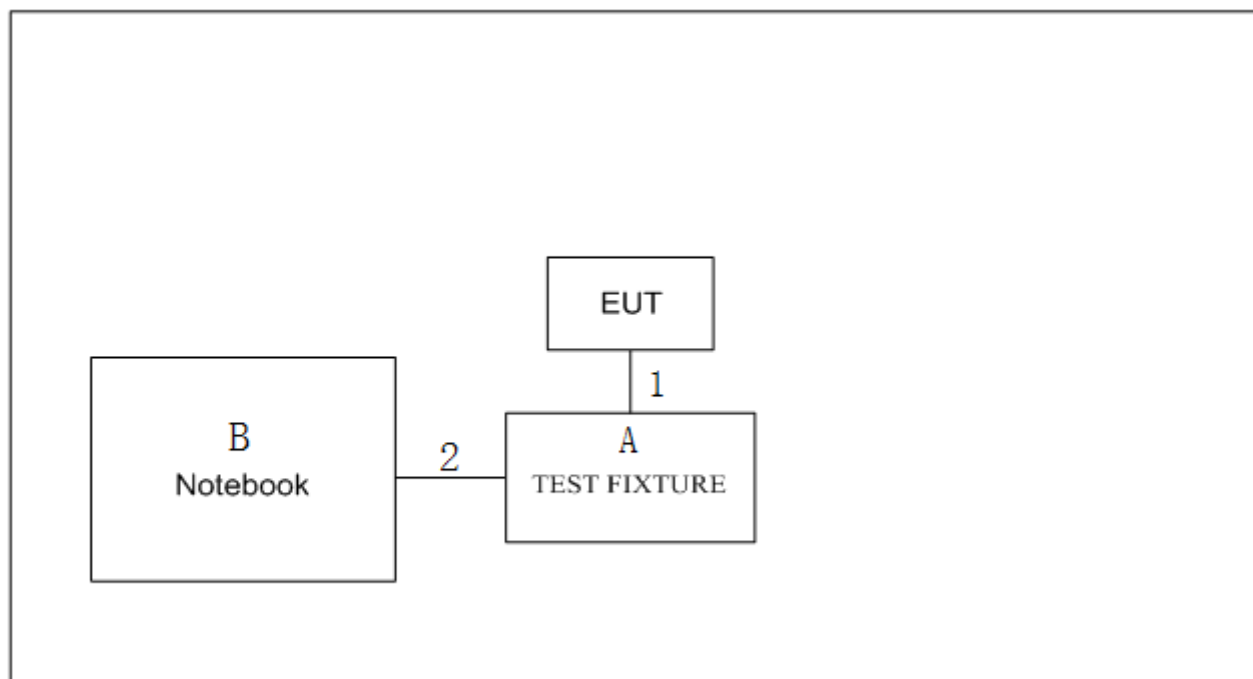
Radiated emissions test	
Final Test Mode	Description
Mode 1	TX B Mode Channel 11

3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Emissions-30MHz to 1000MHz:



Radiated Emissions-Above 1000MHz:



3.4 SUPPORT UNITS

Radiated Emissions-30MHz to 1000MHz:

Item	Equipment	Brand	Model No.	Series No.
A	Notebook	HUAWEI	NbDE-WFH9	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.5m
2	RJ45 Cable	NO	NO	10m

Radiated Emissions-Above 1000MHz:

Item	Equipment	Brand	Model No.	Series No.
A	Test Fixture	N/A	N/A	N/A
B	Notebook	Dell	Inspiron 15-7559	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	Data Cable	NO	NO	0.2m
2	USB Cable	NO	NO	1m

3.5 CUSTOMER INFORMATION DESCRIPTION

- 1) The antenna gain is provided by the manufacturer.

4. RADIATED EMISSIONS

4.1 LIMIT

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (30 MHz-1000 MHz)

Frequency (MHz)	Field Strength (μV/m at 3m)
30-88	100
88-216	150
216-960	200
Above 960	500

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000 MHz)

Frequency (MHz)	Band edge/ Harmonic at 3m (dBμV/m)		Harmonic at 1m (dBμV/m)	
	Peak	Average	Peak	Average
Above 1000	74	54	83.5 (Note 5)	63.5 (Note 5)

NOTE:

- (1) The limit for radiated test was performed according to FCC CFR Title 47, Part 15, Subpart C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).
- (4)

$$FS_{\text{limit}} = FS_{\text{max}} - 20\log\left(\frac{d_{\text{limit}}}{d_{\text{measure}}}\right)$$

20log (d_{limit}/d_{measure})=20log (3/1)=9.5 dB.

FS_{limit}: Harmonic at 3m Peak and Average limit.

FS_{max}: Harmonic at 1m Peak and Average Maximum value.

d_{limit}: Harmonic at 3m test distance.

d_{measure}: Harmonic Actual test distance.

4.2 TEST PROCEDURE

- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- b. The measuring distance of 3 m or 1m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
(below 1 GHz)
- h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1 GHz)
- i. For the actual test configuration, please refer to the related Item -EUT Test Photos.

The following table is the setting of the receiver:

Spectrum Parameters	Setting
Start ~ Stop Frequency	30 MHz~1000 MHz for RBW 100 kHz

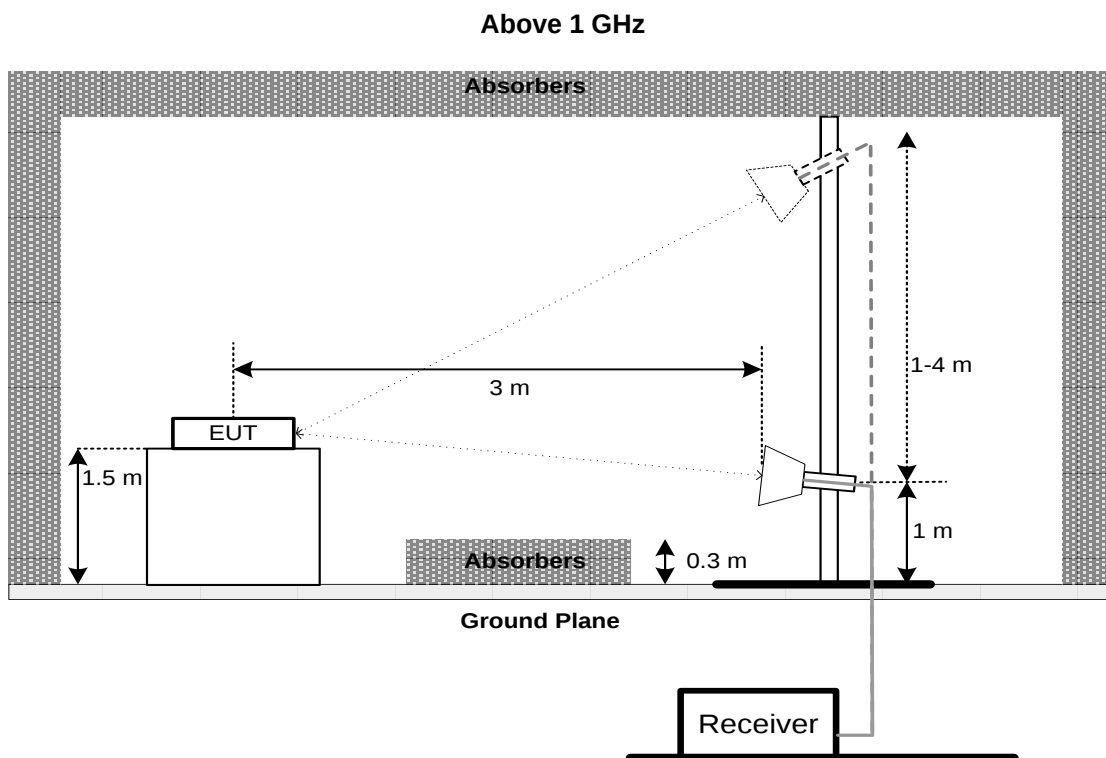
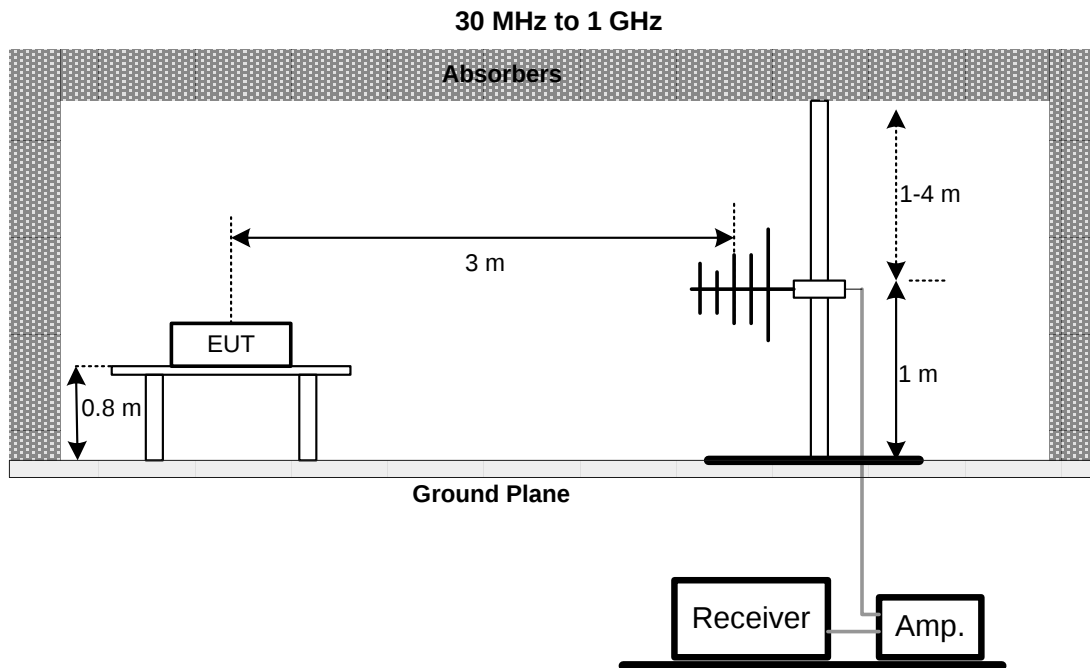
Spectrum Parameters	Setting
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1 MHz / 3 MHz for PK value 1 MHz / 1/T Hz for AVG value

Receiver Parameters	Setting
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector
Start ~ Stop Frequency	1 GHz~26.5 GHz for PK/AVG detector

4.3 DEVIATION FROM TEST STANDARD

No deviation.

4.4 TEST SETUP



4.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULTS - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX A.

4.7 TEST RESULTS - ABOVE 1000 MHZ

Please refer to the APPENDIX B.

Remark:

- (1) No limit: This is fundamental signal, the judgment is not applicable.
For fundamental signal judgment was referred to Peak output test.

5. MEASUREMENT INSTRUMENTS LIST

Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	01462	Dec. 13, 2024
2	Attenuator	EMC INSTRUMENT	EMCI-N-6-06	AT-06009	Dec. 13, 2024
3	Preamplifier	EMC INSTRUMENT	EMC001330	980998	Nov. 17, 2024
4	Cable	RegalWay	LMR400-NMNM-12.5m	N/A	Jun. 06, 2025
5	Cable	RegalWay	LMR400-NMNM-3m	N/A	Jun. 06, 2025
6	Cable	RegalWay	LMR400-NMNM-0.5m	N/A	Jun. 06, 2025
7	Receiver	Agilent	N9038A	MY52130039	Dec. 22, 2024
8	Positioning Controller	MF	MF-7802	N/A	N/A
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
10	966 Chamber room	CM	9*6*6	N/A	May 16, 2025

Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Multi-Device Controller	ETS-Lindgren	N/A	N/A	N/A
2	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
3	MXA Signal Analyzer	KEYSIGHT	N9020B	MY63380204	Nov. 17, 2024
4	Cable	RegalWay	RWLP50-4.0A-SMSM-1.3M	N/A	Jan. 09, 2025
5	Cable	RegalWay	RWLP50-2.6A-3.5M2.92MRA-3M	N/A	Jan. 09, 2025
6	Cable	RegalWay	RWLP50-4.0A-SMSM-9M	N/A	Jan. 09, 2025
7	966 Chamber room	ETS	RFD-100 (SVSWR)	Q2179	Jan. 09, 2025
8	Double Ridged Horn Antenna	EMC INSTRUMENT	DRH18-E	210509A18ES	Aug. 28, 2025
9	Preamplifier	EMC INSTRUMENT	EMC118A45SE	981001	May 31, 2025
10	Attenuator	Talent Microwave	TA10A2-S-18	N/A	N/A
11	Filter	STI	STI15-9912	N/A	Nov. 17, 2024
12	Filter	STI	STI15-9969	N/A	Nov. 17, 2024

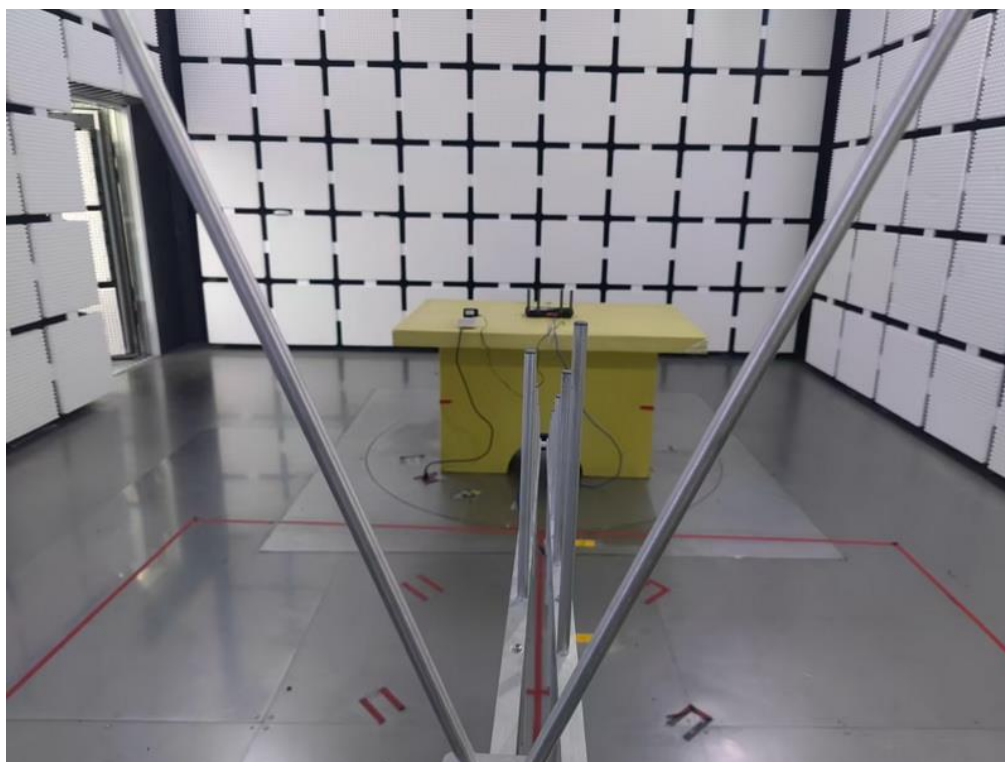
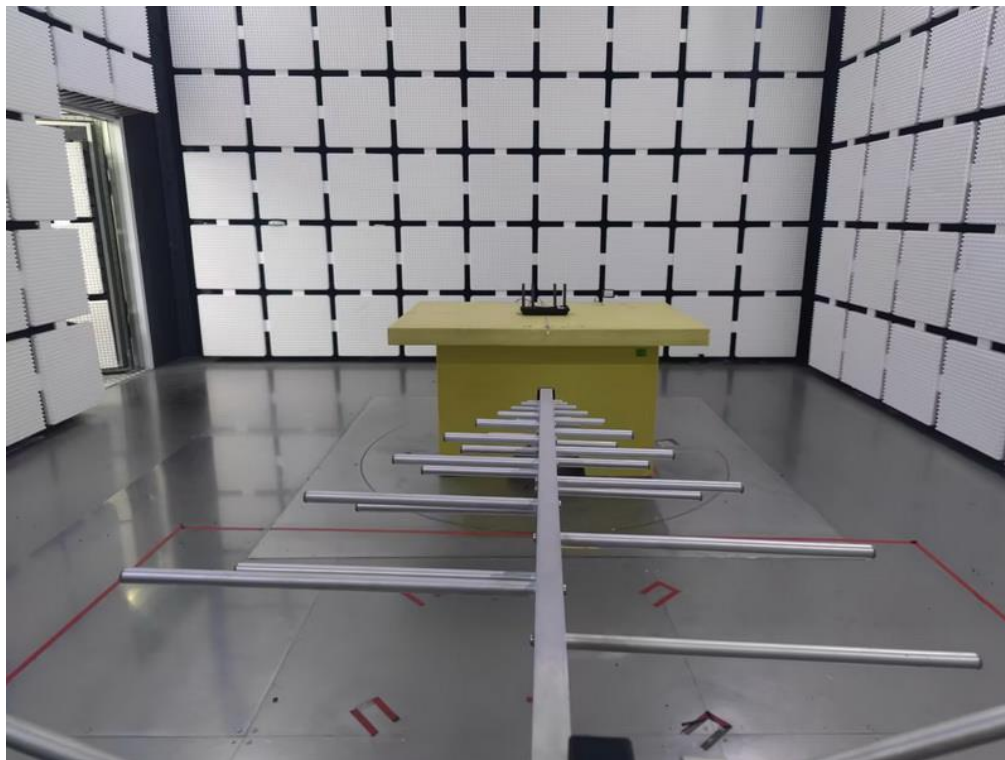
Remark "N/A" denotes no model name, serial no. or calibration specified.

All calibration period of equipment list is one year.

6. EUT TEST PHOTO

Radiated Emissions Test Photos

30 MHz to 1 GHz



Above 1 GHz



APPENDIX A - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

Test Mode	TX B Mode Channel 11	Polarization	Vertical
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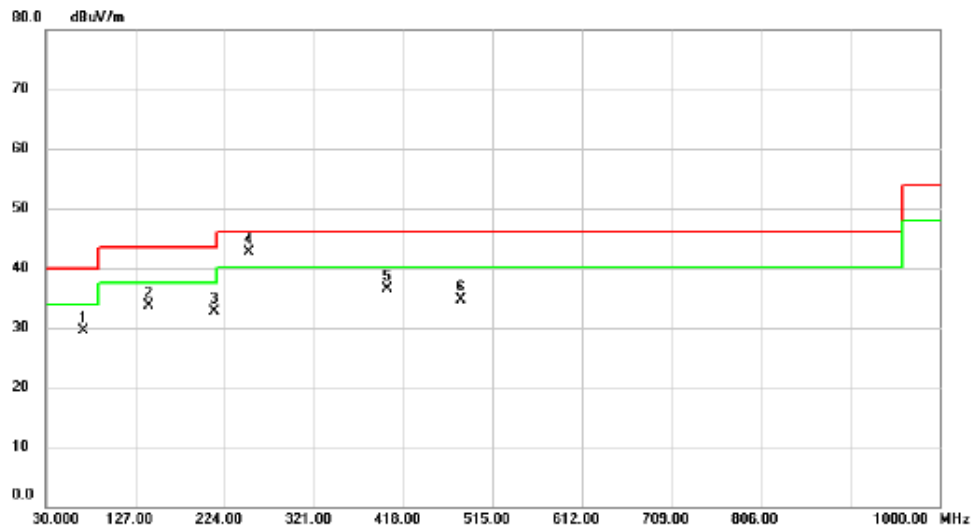
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	31.455	46.19	-12.84	33.35	40.00	-6.65	peak	
2	50.855	42.30	-11.30	31.00	40.00	-9.00	peak	
3	79.955	46.14	-15.45	30.69	40.00	-9.31	peak	
4	102.750	44.37	-15.46	28.91	43.52	-14.61	peak	
5	162.405	40.94	-10.94	30.00	43.52	-13.52	peak	
6	250.190	44.67	-12.35	32.32	46.02	-13.70	peak	

REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX B Mode Channel 11	Polarization	Horizontal
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No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	70.740	43.04	-13.63	29.41	40.00	-10.59	peak	
2	142.035	45.28	-11.58	33.70	43.52	-9.82	peak	
3	213.330	47.21	-14.41	32.80	43.52	-10.72	peak	
4 *	250.190	54.97	-12.35	42.62	46.02	-3.40	peak	
5	400.055	44.51	-8.04	36.47	46.02	-9.55	peak	
6	480.080	41.10	-6.32	34.78	46.02	-11.24	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value

APPENDIX B - RADIATED EMISSION- ABOVE 1000 MHZ

Test Mode	TX B Mode 2462 MHz	Polarization	Vertical
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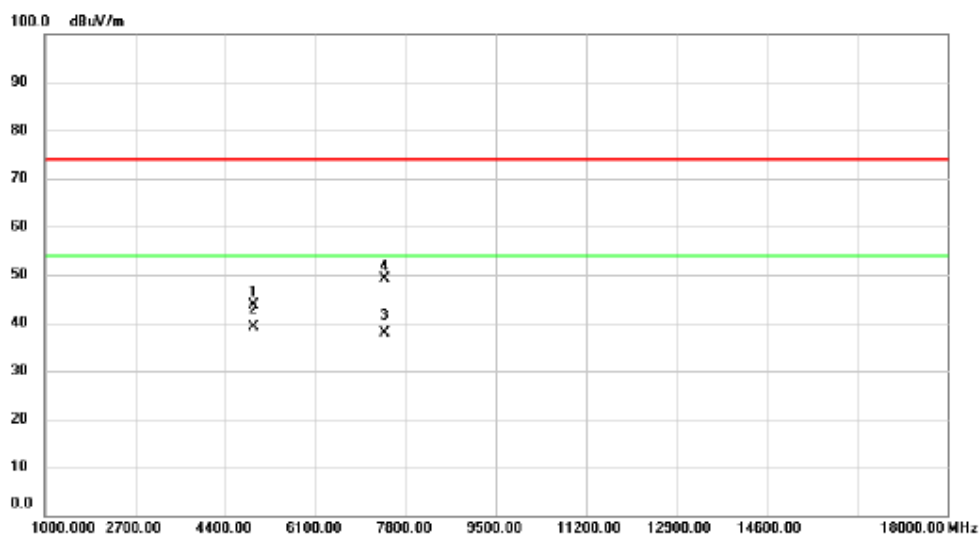


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	2460.700	110.16	7.78	117.94	54.00	63.94	AVG	No Limit
2 X	2461.150	112.41	7.78	120.19	74.00	46.19	peak	No Limit
3	2483.500	52.04	7.81	59.85	74.00	-14.15	peak	
4	2483.500	42.82	7.81	50.63	54.00	-3.37	AVG	
5	2484.350	51.28	7.81	59.09	74.00	-14.91	peak	
6	2484.350	43.57	7.81	51.38	54.00	-2.62	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX B Mode 2462 MHz	Polarization	Vertical
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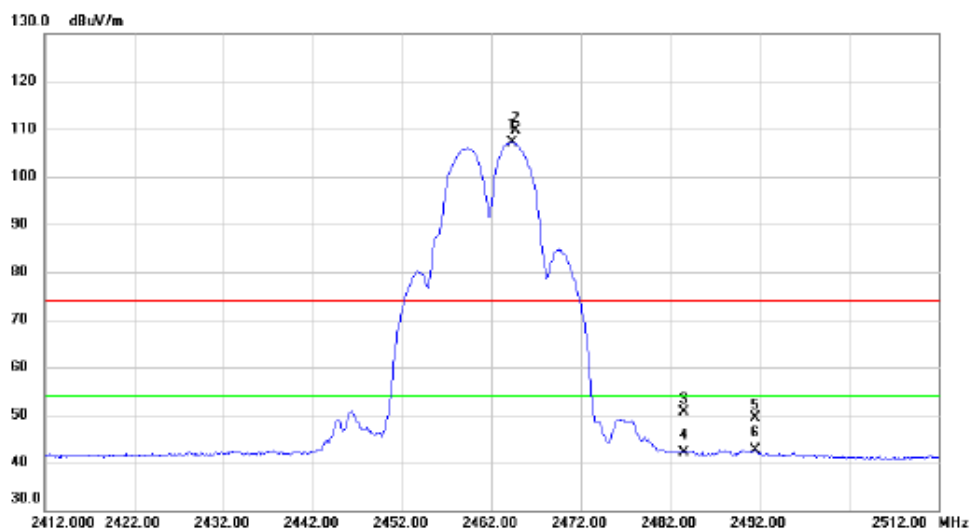


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4923.940	40.64	3.07	43.71	74.00	-30.29	peak	
2 *	4923.940	36.18	3.07	39.25	54.00	-14.75	AVG	
3	7405.275	29.65	8.31	37.96	54.00	-16.04	AVG	
4	7408.375	40.78	8.31	49.09	74.00	-24.91	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX B Mode 2462 MHz	Polarization	Horizontal
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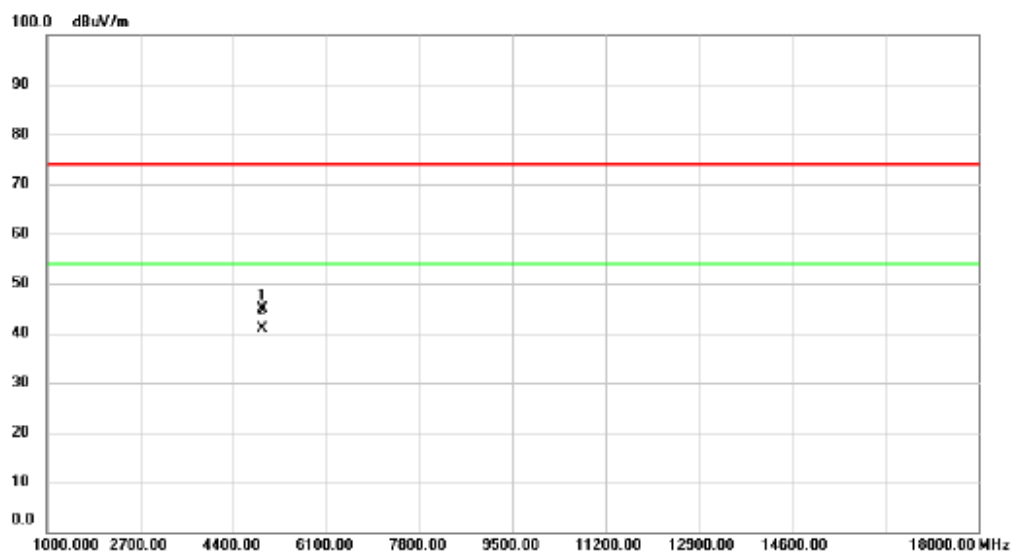


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	2464.300	99.44	7.78	107.22	54.00	53.22	AVG	No Limit
2	X	2464.750	101.75	7.78	109.53	74.00	35.53	peak	No Limit
3		2483.500	42.91	7.81	50.72	74.00	-23.28	peak	
4		2483.500	34.34	7.81	42.15	54.00	-11.85	AVG	
5		2491.500	41.48	7.82	49.30	74.00	-24.70	peak	
6		2491.500	34.77	7.82	42.59	54.00	-11.41	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX B Mode 2462 MHz	Polarization	Horizontal
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No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4923.760	41.69	3.07	44.76	74.00	-29.24	peak	
2	*	4923.980	37.77	3.07	40.84	54.00	-13.16	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

End of Test Report