



FCC Radio Test Report

FCC ID: 2BCGWBE700

This report concerns: **Class II permissive Change**

Project No. : 2405G088
Equipment : 1) BE15000 Tri-Band Wi-Fi 7 Router
2) BE11000 Tri-Band Wi-Fi 7 Router
Brand Name : tp-link
Test Model : 1) Archer BE700
Series Model : 1) Archer BE700 Pro
2) Archer BE11000 Pro
Applicant : TP-LINK CORPORATION PTE. LTD.
Address : 7 Temasek Boulevard #29-03 Suntec Tower One, Singapore 038987
Manufacturer : TP-LINK CORPORATION PTE. LTD.
Address : 7 Temasek Boulevard #29-03 Suntec Tower One, Singapore 038987
Date of Receipt : May 23, 2024
Date of Test : May 23, 2024 ~ May 24, 2024
Issued Date : May 24, 2024
Report Version : R00
Test Sample : Engineering Sample No.: SSL20240523217
Standard(s) : FCC CFR Title 47, Part 15, Subpart E

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**.

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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.

Table of Contents	Page
REPORT ISSUED HISTORY	4
1 . APPLICABLE STANDARDS	5
2 . SUMMARY OF TEST RESULTS	5
2.1 TEST FACILITY	6
2.2 MEASUREMENT UNCERTAINTY	6
2.3 TEST ENVIRONMENT CONDITIONS	6
3 . GENERAL INFORMATION	7
3.1 GENERAL DESCRIPTION OF EUT	7
3.2 TEST MODES	13
3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	14
3.4 SUPPORT UNITS	14
3.5 CUSTOMER INFORMATION DESCRIPTION	14
4 . RADIATED EMISSIONS	15
4.1 LIMIT	15
4.2 TEST PROCEDURE	15
4.3 DEVIATION FROM TEST STANDARD	16
4.4 TEST SETUP	16
4.5 EUT OPERATION CONDITIONS	16
4.6 TEST RESULTS - 30 MHZ TO 1000 MHZ	16
5 . MEASUREMENT INSTRUMENTS LIST	17
6 . EUT TEST PHOTOS	18
APPENDIX A - RADIATED EMISSION - 30 MHZ TO 1000 MHZ	19

REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-3-2405G088	R00	Original Report.	May 24, 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 987594 D02 U-NII 6GHz EMC Measurement v02r01

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

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 E				
Standard(s) Section	Test Item	Test Result	Judgment	Remark
15.407(b) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX A	PASS	-----

Note:

- (1) "N/A" denotes test is not applicable in this test report.
- (2) The worst cases of radiated emissions below 1GHz have been re-evaluated by sample of FCC ID: 2BCGWBE700, model name: Archer BE700. It is found that the new data are the worse, so the test data are reissue from the FCC ID: 2BCGWBE700, model name: Archer BE700. Model difference(s): Model Archer BE700 changed the signal transformer of the network port.
- (3) The other test records and results please refer to the test report number: 2401RSU046-U1, issued date is 2024-03-07, and issued by:
 Test Laboratory: MRT Technology (Suzhou) Co., Ltd
 Address 1: D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
 Address 2: 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China

Which was accredited by A2LA, FCC designation number is CN1166, 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 No.3, Jinshagang 1st Road, Dalang, 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% 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_i (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

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	23°C	53%	AC 120V/60Hz	Jensen Zhou	May 23, 2024- May 24, 2024

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	1) BE15000 Tri-Band Wi-Fi 7 Router 2) BE11000 Tri-Band Wi-Fi 7 Router
Brand Name	tp-link
Test Model	1) Archer BE700
Series Model	1) Archer BE700 Pro 2) Archer BE11000 Pro
Model Difference(s)	1# The only difference between the models is in the design of the RJ45 port. Other designs (including hardware and software) are the same. Archer BE700 with 1Gbps ports and Archer BE700 Pro and Archer BE11000 Pro with 10G bps port. Archer BE700 was selected for final tests in this report. 2# Archer BE11000 has the different model and product name from Archer BE700 Pro, others are exactly the same.
Power Source	DC voltage supplied from AC adapter. Model: T120330-2B4
Power Rating	INPUT: 100-240V~ 50/60Hz 1A OUTPUT: 12.0V === 3.3A
Operation Frequency Band(s)	UNII-5: 5925 MHz ~ 6425 MHz UNII-6: 6425 MHz ~ 6525 MHz UNII-7: 6525 MHz ~ 6875 MHz UNII-8: 6875 MHz ~ 7125 MHz
Modulation Type	IEEE 802.11ax/be: OFDMA
Bit Rate of Transmitter	IEEE 802.11ax: up to 4804 Mbps IEEE 802.11be: up to 11528 Mbps

Note:

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

2. Channel List:

UNII-5					
IEEE 802.11ax(HE20) / IEEE 802.11be(EHT20)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	5955	33	6115	65	6275
5	5975	37	6135	69	6295
9	5995	41	6155	73	6315
13	6015	45	6175	77	6335
17	6035	49	6195	81	6355
21	6055	53	6215	85	6375
25	6075	57	6235	89	6395
29	6095	61	6255	93	6415

UNII-5					
IEEE 802.11ax(HE40) / IEEE 802.11be(EHT40)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	5965	35	6125	67	6285
11	6005	43	6165	75	6325
19	6045	51	6205	83	6365
27	6085	59	6245	91	6405

UNII-5					
IEEE 802.11ax(HE80) / IEEE 802.11be(EHT80)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
7	5985	39	6145	71	6305
23	6065	55	6225	87	6385

UNII-5					
IEEE 802.11ax(HE160) / IEEE 802.11be(EHT160)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
15	6025	47	6185	79	6345

UNII-5					
IEEE 802.11be(EHT320)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
31	6105	63	6265	95	6425

UNII-6					
IEEE 802.11ax(HE20) / IEEE 802.11be(EHT20)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
97	6435	105	6475	113	6515
101	6455	109	6495		

UNII-6					
IEEE 802.11ax(HE40) / IEEE 802.11be(EHT40)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
99	6445	107	6485	115	6525

UNII-6					
IEEE 802.11ax(HE80) / IEEE 802.11be(EHT80)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
103	6465				

UNII-6					
IEEE 802.11ax(HE160) / IEEE 802.11be(EHT160)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
111	6505				

UNII-7					
IEEE 802.11ax(HE20) / IEEE 802.11be(EHT20)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
117	6535	141	6655	165	6775
121	6555	145	6675	169	6795
125	6575	149	6695	173	6815
129	6595	153	6715	177	6835
133	6615	157	6735	181	6855
137	6635	161	6755	185	6875

UNII-7					
IEEE 802.11ax(HE40) / IEEE 802.11be(EHT40)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
123	6565	147	6685	171	6805
131	6605	155	6725	179	6845
139	6645	163	6765		

UNII-7					
IEEE 802.11ax(HE80) / IEEE 802.11be(EHT80)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
119	6545	151	6705	183	6865
135	6625	167	6785		

UNII-7					
IEEE 802.11ax(HE160) / IEEE 802.11be(EHT160)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
143	6665	175	6825		

UNII-7					
IEEE 802.11be(EHT320)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
127	6585	159	6745		

UNII-8					
IEEE 802.11ax(HE20) / IEEE 802.11be(EHT20)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
189	6895	205	6975	221	7055
193	6915	209	6995	225	7075
197	6935	213	7015	229	7095
201	6955	217	7035		

UNII-8					
IEEE 802.11ax(HE40) / IEEE 802.11be(EHT40)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
187	6885	203	6965	219	7045
195	6925	211	7005	227	7085

UNII-8					
IEEE 802.11ax(HE80) / IEEE 802.11be(EHT80)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
199	6945	215	7025		

UNII-8					
IEEE 802.11ax(HE160) / IEEE 802.11be(EHT160)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
207	6985				

UNII-8					
IEEE 802.11be(EHT320)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
191	6905				

3. Antenna Specification:

Antenna Type	Frequency Band (MHz)	Tx Paths	Number of spatial streams	Antenna Gain (dBi)				Beamforming Directional Gain (dBi)	CDD Directional Gain (dBi)	
				Ant 0	Ant 1	Ant 2	Ant 3		For Power	For PSD
Dipole (Ant 1, 3)	5925 ~ 6425	4	1	1.45	2.09	2.20	-0.15	4.36	2.20	4.36
			4	1.45	2.09	2.20	-0.15	--	2.20	2.20
Franklin (Ant 0, 2)	6425 ~ 6525	4	1	2.47	2.23	1.62	2.62	4.80	2.62	4.80
			4	2.47	2.23	1.62	2.62	--	2.62	2.62
Franklin (Ant 0, 2)	6525 ~ 6875	4	1	2.67	2.70	2.34	2.86	5.04	2.86	5.04
			4	2.67	2.70	2.34	2.86	--	2.86	2.86
Franklin (Ant 0, 2)	6875 ~ 7125	4	1	2.51	2.24	0.73	2.27	4.96	2.51	4.96
			4	2.51	2.24	0.73	2.27	--	2.51	2.51

- The device supports CDD Mode and Beamforming mode, details refer to the table as below.
- CDD signals are correlated, the directional gain as follows,
 When $N_{SS}=1$, for power measurements: Array Gain = 0 dB for $N_{ANT} \leq 4$, the directional gain = max antenna gain + array gain
 For power spectral density (PSD) measurements: the max directional gain (each angle) = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}]$
 When $N_{SS}=4$, the Directional Gain = $G_{ANT \text{ MAX}} + 10 \log(N_{ANT}/N_{SS})$ dBi
- Beamforming signals are correlated, the directional gain as follows,
 the max directional gain (each angle) = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}]$
- The information as above is from the antenna report.

Test Mode	Tx Paths	CDD Mode	Beamforming Mode
802.11ax/be (6ID / 6PP)	4	√	√

3.2 TEST MODES

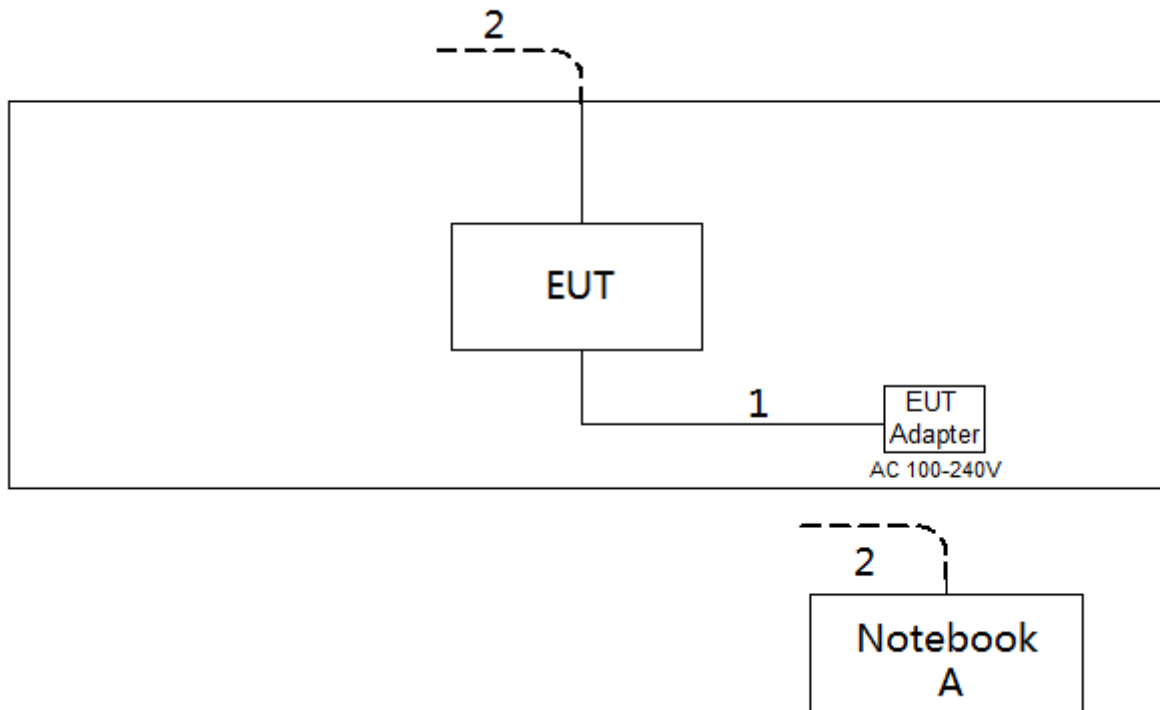
The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

Pretest Mode	Description
Mode 1	TX BE(EHT320) Mode Channel 95

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

Radiated emissions test - Below 1GHz	
Final Test Mode	Description
Mode 1	TX BE(EHT320) Mode Channel 95

3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
A	Notebook	Honor	14SER5 3500	N/A

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

3.5 CUSTOMER INFORMATION DESCRIPTION

- 1) The antenna gain and beamforming gain are 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 EMISSIONS MEASUREMENT (30 MHz to 1000 MHz)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

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 1GHz)
- b. 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.
- c. 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).
- d. 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.
- e. 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)
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

The following table is the setting of the receiver:

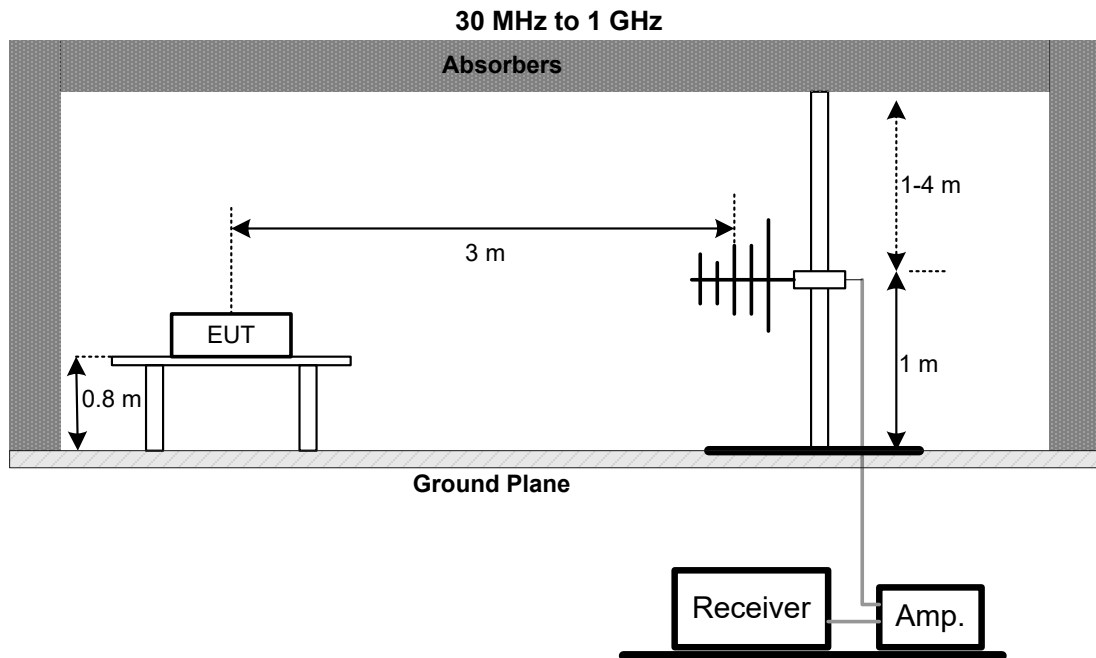
Spectrum Parameters	Setting
Start ~ Stop Frequency	30 MHz~1000 MHz for RBW 100 kHz

Receiver Parameters	Setting
Start ~ Stop Frequency	30 MHz~1000 MHz for QP 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

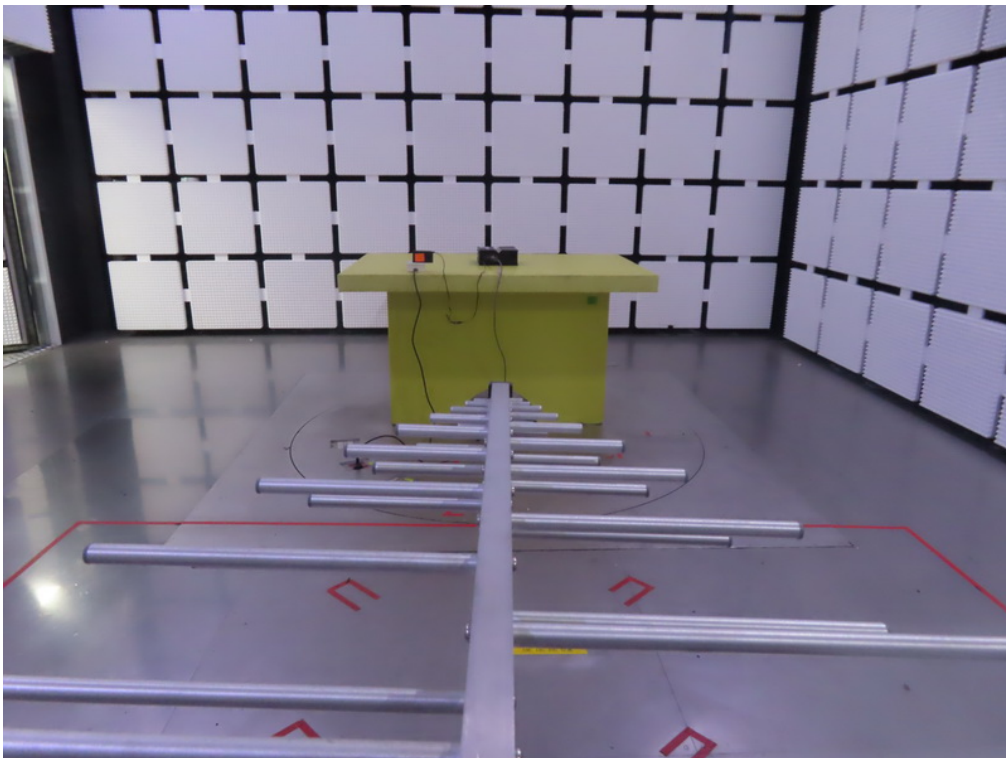
Please refer to the APPENDIX A.

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	1462	Dec. 13, 2024
2	Attenuator	EMC INSTRUMENT	EMCI-N-6-06	AT-06009	Dec. 13, 2024
3	Preamplifier	EMC INSTRUMENT	EMC001330	980863	Apr. 07, 2025
4	Cable	RegalWay	LMR400-NMNM-12.5m	N/A	N/A
5	Cable	RegalWay	LMR400-NMNM-3m	N/A	N/A
6	Cable	RegalWay	LMR400-NMNM-0.5m	N/A	N/A
7	Receiver	Agilent	N9038A	MY52130039	Dec. 22, 2024
8	Filter	STI	STI15-9923	N/A	Jun. 16, 2024
9	Positioning Controller	MF	MF-7802	N/A	N/A
10	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
11	966 Chamber room	CM	9*6*6	N/A	May 16, 2025

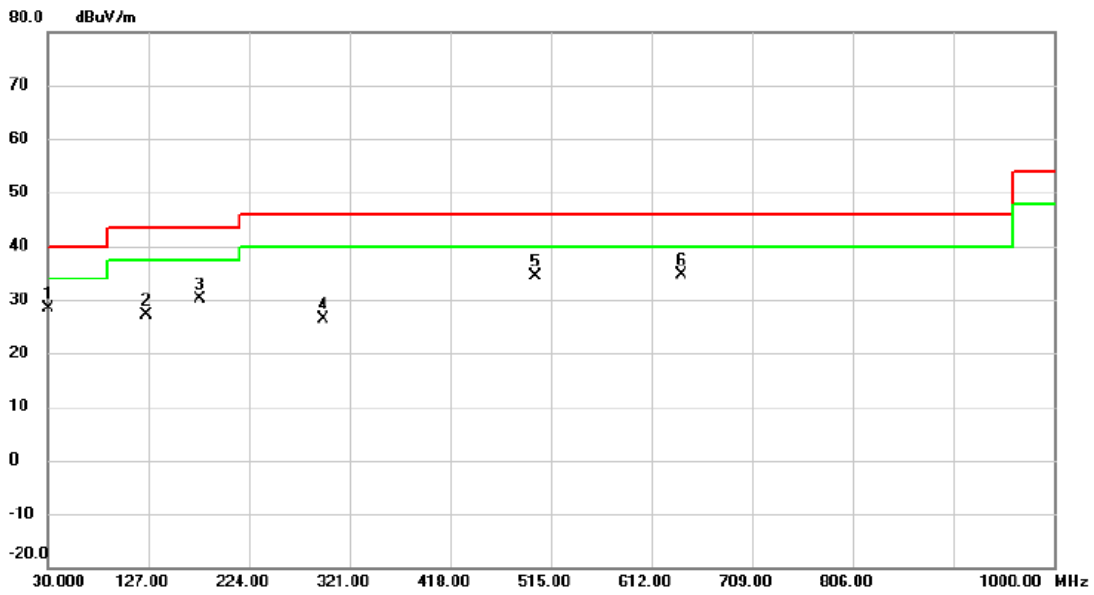
Remark "N/A" denotes no model name, serial no. or calibration specified.

All calibration period of equipment list is one year.

6. EUT TEST PHOTOS**Radiated Emissions Test Photos****30 MHz to 1 GHz**

APPENDIX A - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

Test Mode	TX BE(EHT320) Mode Channel 95	Polarization	Vertical
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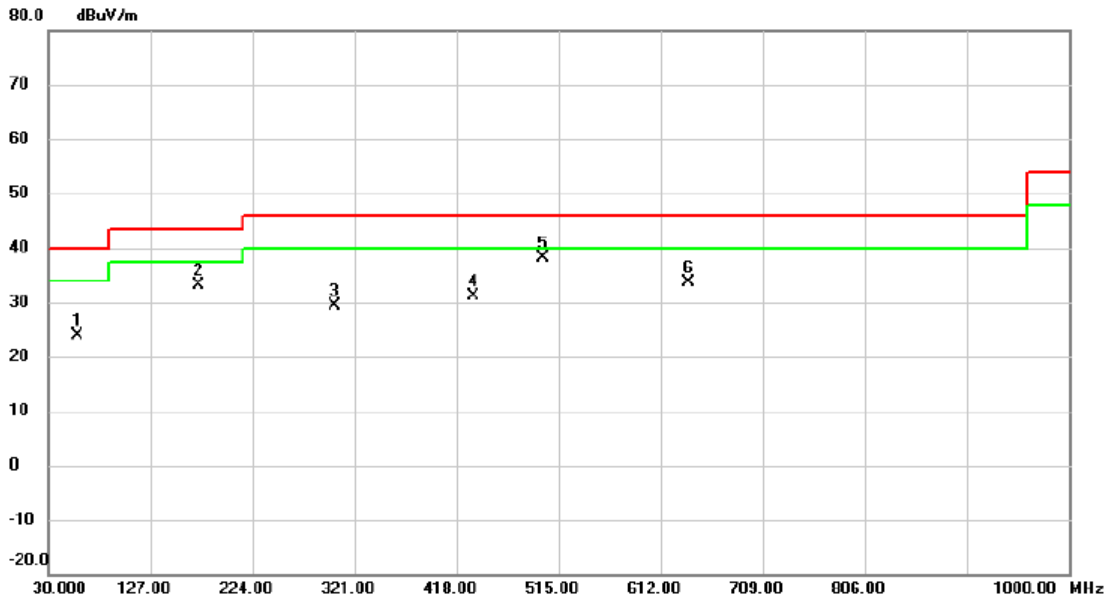


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		30.970	41.29	-12.96	28.33	40.00	-11.67	peak	
2		125.060	40.01	-12.78	27.23	43.50	-16.27	peak	
3		176.955	42.16	-11.94	30.22	43.50	-13.28	peak	
4		295.295	36.92	-10.62	26.30	46.00	-19.70	peak	
5		499.965	40.40	-5.93	34.47	46.00	-11.53	peak	
6	*	641.100	37.64	-2.96	34.68	46.00	-11.32	peak	

REMARKS:

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

Test Mode	TX BE(EHT320) Mode Channel 95	Polarization	Horizontal
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No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	58.130	35.59	-11.79	23.80	40.00	-16.20	peak	
2	172.590	44.54	-11.49	33.05	43.50	-10.45	peak	
3	302.085	39.80	-10.50	29.30	46.00	-16.70	peak	
4	434.490	38.26	-7.09	31.17	46.00	-14.83	peak	
5 *	499.965	44.17	-5.93	38.24	46.00	-7.76	peak	
6	638.675	36.69	-3.00	33.69	46.00	-12.31	peak	

REMARKS:

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

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

End of Test Report