

FCC Radio Test Report

FCC ID: TE7EAP2250D

This report concerns: Class II Permissive Change

Project No. : 2204C180
Equipment : AC1200 Wireless MU-MIMO Gigabit Indoor/Outdoor Access Point
Brand Name : tp-link
Test Model : EAP225-Outdoor
Series Model : N/A
Applicant : TP-Link Technologies Co., Ltd.
Address : Building 24 (floors 1,3,4,5) and 28 (floors1-4), Central Science and Technology Park,Nanshan Shenzhen, 518057 China
Manufacturer : TP-Link Technologies Co., Ltd.
Address : Building 24 (floors 1,3,4,5) and 28 (floors1-4), Central Science and Technology Park,Nanshan Shenzhen, 518057 China
Date of Receipt : Apr. 29, 2022
Date of Test : Apr. 29, 2022 ~ May 07, 2022
Issued Date : May 07, 2022
Report Version : R01
Test Sample : Engineering Sample No.: DG2022042969 for power, DG2022042968 for others.
Standard(s) : FCC CFR Title 47, Part 15, Subpart C
FCC KDB 558074 D01 15.247 Meas Guidance v05r02
FCC KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

Chella Zheng

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TESTING CERT #5123.02

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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).

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BTL's laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** 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-1-2204C180	R00	<p>Compared with original report (FR790815AA), the product has below changes:</p> <ol style="list-style-type: none"> 1. Changed the PHY chip. 2. Changed the power supply, the isolated POE circuit is changed to non-isolated POE, adjusted DC-DC. <p>So the worst case of conducted emissions, radiated emissions and power are re-evaluated and recorded in this report. The original test results please refer to original report.</p>	May 06, 2022	Invalid
BTL-FCCP-1-2204C180	R01	Updated the power.	May 07, 2022	Valid

1. 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
15.207	AC Power Line Conducted Emissions	APPENDIX A	PASS	-----
15.247(d) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS	-----
15.247(b)(3)	Maximum Average Output Power	APPENDIX E	PASS	-----
15.203	Antenna Requirement	-----	PASS	Note(2)

Note:

- (1) "N/A" denotes test is not applicable in this test report.
- (2) The device which used a permanently attached antenna was considered sufficient to comply with the provisions of 15.203.

1.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 3 Jinshagang 1st Rd. Shixia, Dalang Town Dongguan City, Guangdong 523792 People's Republic of China.

BTL's Registration Number for FCC: 357015

BTL's Designation Number for FCC: CN1240

1.2 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. AC Power Line Conducted Emissions test:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-C02	CISPR	150kHz ~ 30MHz	2.60

B. Radiated Emissions test:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB01	CISPR	9kHz ~ 30MHz	2.36

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
DG-CB03 (3m)	CISPR	30MHz ~ 200MHz	V	4.36
		30MHz ~ 200MHz	H	3.32
		200MHz ~ 1,000MHz	V	4.08
		200MHz ~ 1,000MHz	H	3.96

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB03 (3m)	CISPR	1GHz ~ 6GHz	3.80
		6GHz ~ 18GHz	4.82

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB03 (1m)	CISPR	18 ~ 26.5 GHz	3.62
		26.5 ~ 40 GHz	4.00

C. Other Measurement:

Test Item	Uncertainty
Maximum Output Power	±0.95 dB

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

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
AC Power Line Conducted Emissions	26°C	60%	AC 120V/60Hz	Rod Tang
Radiated Emissions-9kHz to 30 MHz	20°C	60%	AC 120V/60Hz	Torocat Yuan
Radiated Emissions-30MHz to 1000MHz	22°C	52%	AC 120V/60Hz	Meers Zhang
Radiated Emissions-Above 1000MHz	22°C	52%	AC 120V/60Hz	Meers Zhang
Maximum Average Output Power	21°C	52%	AC 120V/60Hz	Laughing Zhang

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	AC1200 Wireless MU-MIMO Gigabit Indoor/Outdoor Access Point
Brand Name	tp-link
Test Model	EAP225-Outdoor
Series Model	N/A
Model Difference(s)	N/A
Power Source	Supplied from PoE Adapter. Model: TL-POE2412G
Power Rating	I/P: 100-240V~ 50/60Hz 0.4A O/P: 24.0V \approx 0.5A
Operation Frequency	2412 MHz ~ 2462 MHz
Modulation Type	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n: OFDM
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

Note:

- 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)							
CH03 - CH09 for IEEE 802.11n (HT40)							
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. Antenna Specification:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	tp-link	3101501275	Dipole	RP-SMA-F	3.36
2	tp-link	3101501275	Dipole	RP-SMA-F	3.36

Note:

- This EUT supports CDD, and all antennas have the same gain, Directional gain = $G_{ANT} + \text{Array Gain}$. For power measurements, Array Gain=0dB ($N_{ANT} \leq 4$), so the Directional gain=3.36 dBi. For power spectral density measurements, $N_{ANT}=2$, $N_{SS} = 1$. So the Directional gain= $G_{ANT} + \text{Array Gain} = G_{ANT} + 10\log(N_{ANT}/N_{SS})\text{dBi} = 3.36 + 10\log(2/1)\text{dBi} = 6.37\text{ dBi}$. Then, the power spectral density limit is $8 - (6.37 - 6) = 7.63$.
- The antenna gain is provided by the manufacturer.

4. Table for Antenna Configuration:

Operating Mode	2TX
TX Mode	
IEEE 802.11b	V (Ant. 1 + Ant. 2)
IEEE 802.11g	V (Ant. 1 + Ant. 2)
IEEE 802.11n(HT20)	V (Ant. 1 + Ant. 2)
IEEE 802.11n(HT40)	V (Ant. 1 + Ant. 2)

2.2 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 MHz Mode Channel 11
Mode 2	TX G MHz Mode Channel 01
Mode 3	TX N-20 MHz Mode Channel 06

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

AC power line conducted emissions	
Final Test Mode	Description
Mode 3	TX N-20 MHz Mode Channel 06

Radiated emissions test - Below 1GHz	
Final Test Mode	Description
Mode 3	TX N-20 MHz Mode Channel 06

Radiated emissions test - Above 1000MHz	
Final Test Mode	Description
Mode 1	TX B MHz Mode Channel 11
Mode 2	TX G MHz Mode Channel 01

Maximum Average Output Power test	
Final Test Mode	Description
Mode 3	TX N-20 MHz Mode Channel 06

NOTE:

- (1) All the bit rate of transmitter have been tested and found the lowest rate is found to be the worst case and recorded.
- (2) For AC power line conducted emissions and radiated emission below 1 GHz test, the IEEE 802.11n(HT20) channel 06 is found to be the worst case and recorded.
- (3) For radiated emission above 1 GHz test, the spurious points of 1GHz~26.5GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.

2.3 TEST SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level.

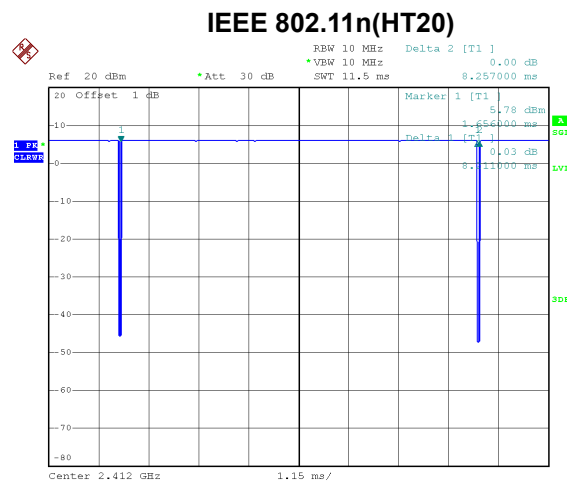
Test Software Version	cart.exe
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2.4 DUTY CYCLE

If duty cycle is $\geq 98\%$, duty factor is not required.

If duty cycle is $< 98\%$, duty factor shall be considered.

The output power = measured power + duty factor.

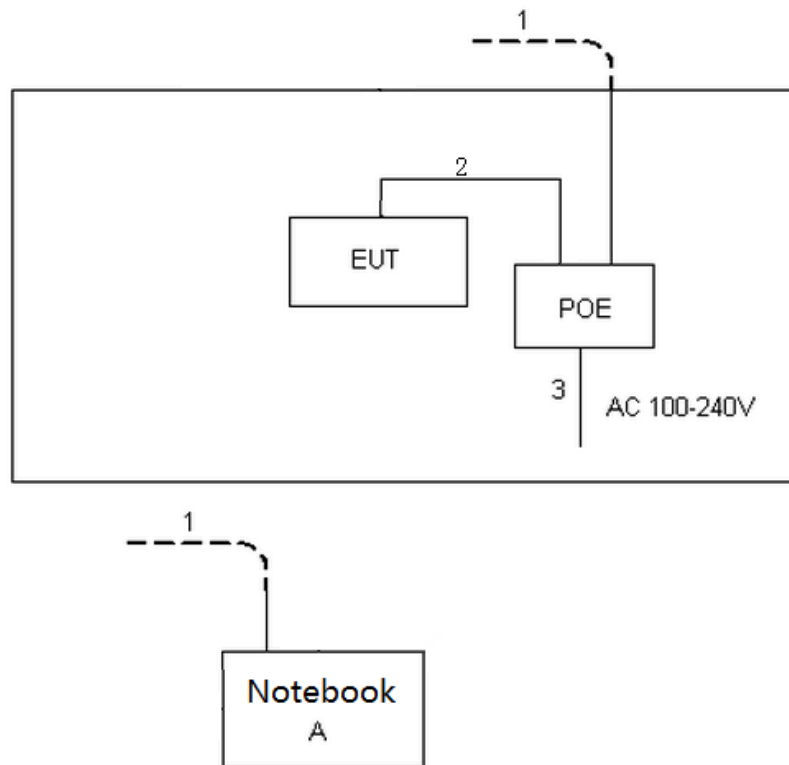


Date: 30.APR.2022 10:02:26

Duty cycle = 8.21 ms / 8.26 ms = 99.44%

Duty Factor = $10 \log(1/\text{Duty cycle}) = 0.00$

2.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.6 SUPPORT UNITS

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

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

3. AC POWER LINE CONDUCTED EMISSIONS

3.1 LIMIT

Frequency of Emission (MHz)	Limit (dB μ V)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56*	56 to 46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

NOTE:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

3.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

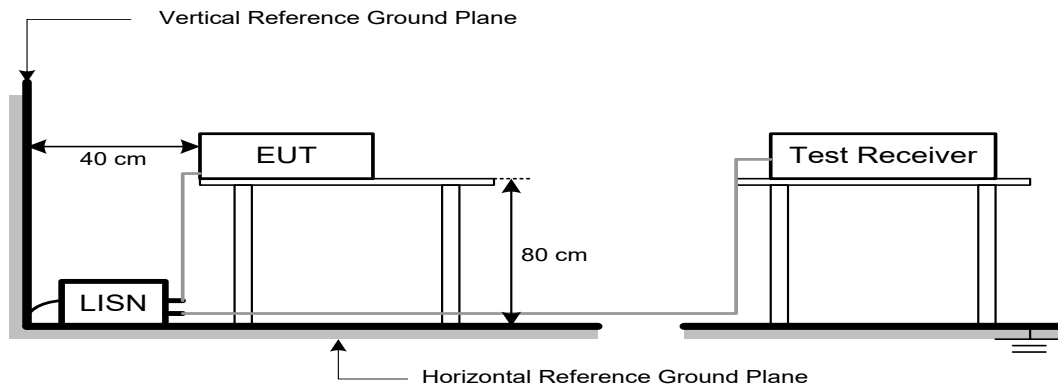
The following table is the setting of the receiver:

Receiver Parameters	Setting
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.3 DEVIATION FROM TEST STANDARD

No deviation.

3.4 TEST SETUP



3.5 EUT OPERATION CONDITIONS

EUT was programmed to be in continuously transmitting mode.

3.6 TEST RESULTS

Please refer to the APPENDIX A.

4. RADIATED EMISSIONS TEST

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 (9 kHz-1000 MHz)

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

LIMITS OF RADIATED EMISSION MEASUREMENT (30MHz-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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000 MHz)

Frequency (MHz)	(dBuV/m at 3 m)	
	Peak	Average
Above 1000	74	54

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).

4.2 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 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 1 GHz)
- 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	9 kHz~150 kHz for RBW 200 Hz
Start ~ Stop Frequency	0.15 MHz~30 MHz for RBW 9 kHz
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

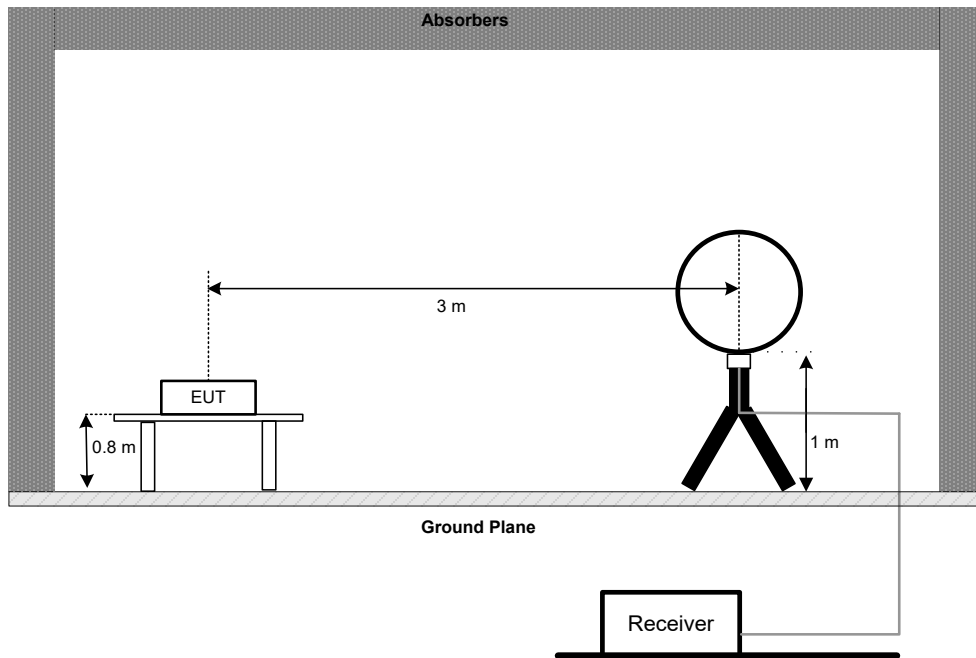
Receiver Parameters	Setting
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector
Start ~ Stop Frequency	1 GHz~26.5 GHz for PK/AVG detector

4.3 DEVIATION FROM TEST STANDARD

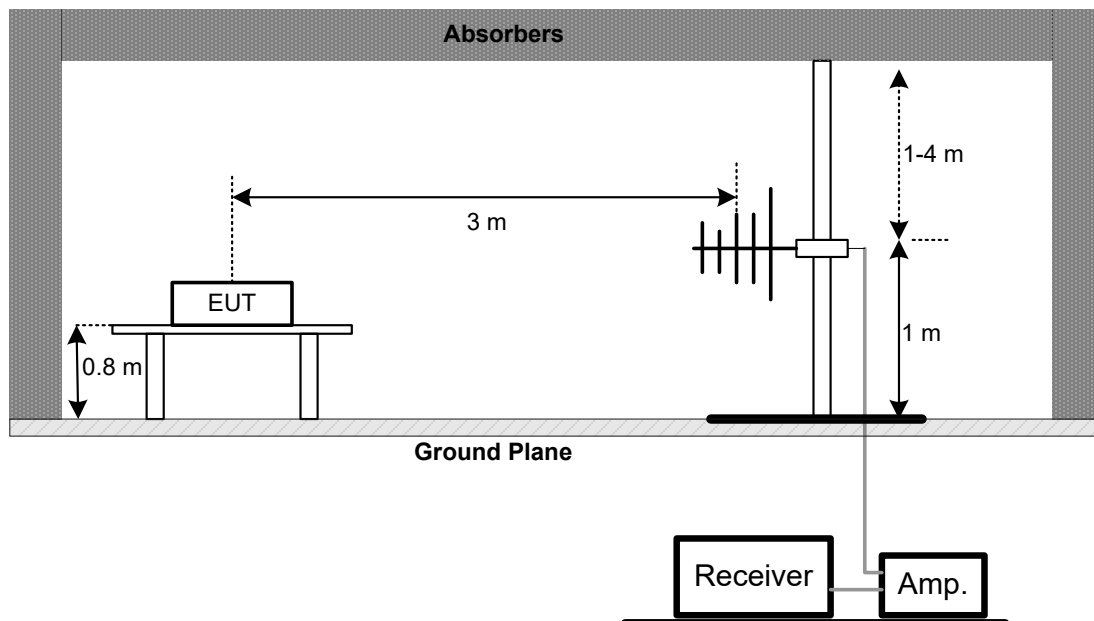
No deviation

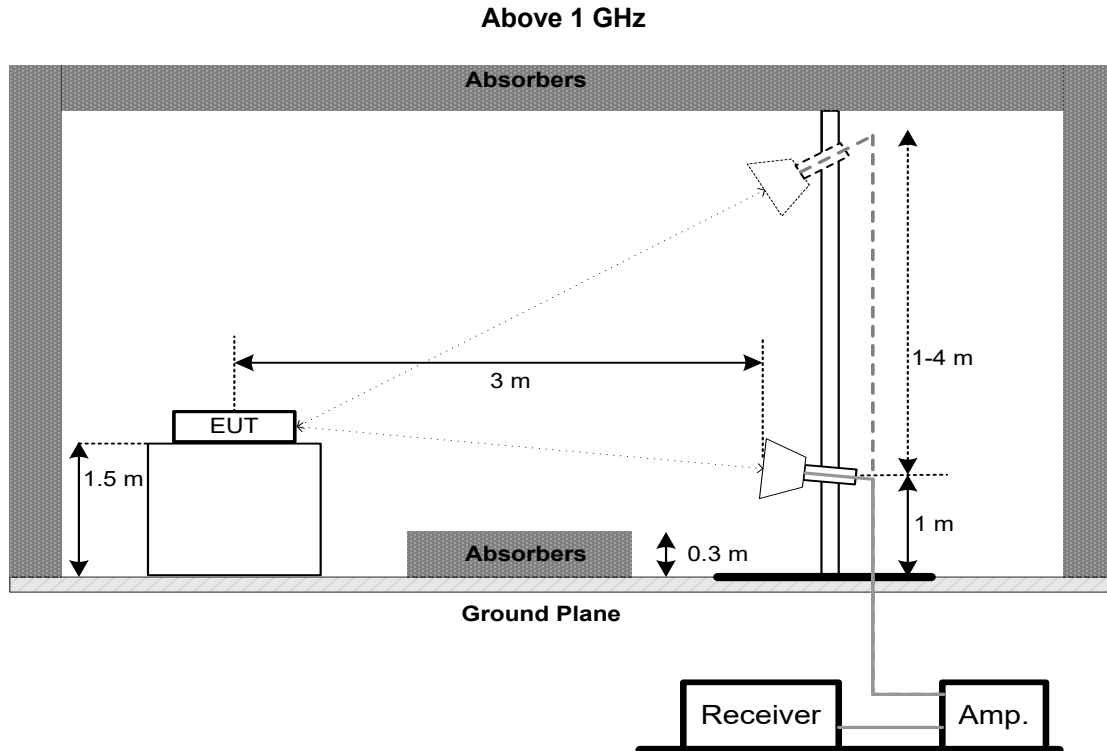
4.4 TEST SETUP

9 kHz to 30 MHz



30 MHz to 1 GHz





4.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULTS - 9 KHZ TO 30 MHZ

Please refer to the APPENDIX B.

Remark:

- (1) Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB).
- (2) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.7 TEST RESULTS - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX C.

4.8 TEST RESULTS - ABOVE 1000 MHZ

Please refer to the APPENDIX D.

Remark:

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

5. MAXIMUM AVERAGE OUTPUT POWER

5.1 LIMIT

Section	Test Item	Limit
FCC 15.247(b)(3)	Maximum Average Output Power	1.0000 Watt or 30.00 dBm

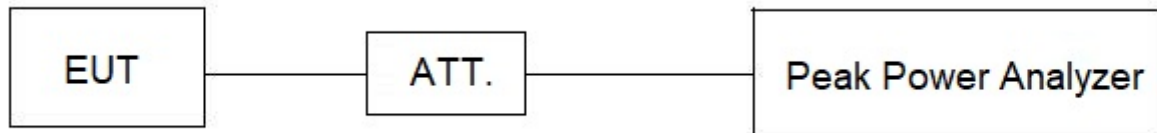
5.2 TEST PROCEDURE

- The EUT was directly connected to the Peak Power Analyzer and antenna output port as show in the block diagram below.
- The maximum conducted output power was performed in accordance with method 11.9.2.3.1 of ANSI C63.10-2013 and FCC KDB 662911 D01 v02r01 Multiple Transmitter Output.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 TEST RESULTS

Please refer to the APPENDIX E.

6. MEASUREMENT INSTRUMENTS LIST

AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	100382	Jan. 22, 2023
2	LISN	EMCO	3816/2	52765	Jan. 23, 2023
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	Jan. 23, 2023
4	50Ω Terminator	SHX	TF5-3	15041305	N/A
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	Cable	N/A	RG223	12m	Mar. 08, 2023
7	643 Shield Room	ETS	6*4*3	N/A	N/A

Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	MXE EMI Receiver	Keysight	N9038A	MY56400091	Jan. 22, 2023
2*	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Aug. 23, 2024
3	Cable	N/A	RG 213/U(9kHz~1GHz)	N/A	May 27, 2022
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
5	966 Chamber Room	ETS	9*6*6	N/A	Jul. 17, 2022

Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarzbeck	VULB9160	9160-3232	Mar. 03, 2023
2	Amplifier	HP	8447D	2944A08742	Jan. 22, 2023
3	Cable	emci	LMR-400	N/A	Nov. 30, 2022
4	Controller	CT	SC100	N/A	N/A
5	Controller	MF	MF-7802	MF780208416	N/A
6	Receiver	Agilent	N9038A	MY52130039	Jan. 22, 2023
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
8	966 Chamber Room	RM	9*6*6	N/A	Jul. 24, 2022

Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Double Ridged Horn Antenna	ARA	DRG-118A	16554	Apr. 18, 2023
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 30, 2022
3	Amplifier	Agilent	8449B	3008A02584	Jul. 10, 2022
4	Controller	CT	SC100	N/A	N/A
5	Controller	MF	MF-7802	MF780208416	N/A
6	Receiver	Agilent	N9038A	MY52130039	Jan. 22, 2023
7	EXA Spectrum Analyzer	Keysight	N9010A	MY56480488	Jan. 22, 2023
8	Low Noise Amplifier	CONNPHY	CLN-18G40G-4330-K	619413	Jul. 16, 2022
9	Cable	Talent microwave	A81-SMAMSMAM-12.5M	N/A	Oct. 15, 2022
10	Cable	Talent microwave	A40-2.92M2.92M-2.5M	N/A	Nov. 30, 2022
11	Filter	STI	STI15-9912	N/A	Jul. 10, 2022
12	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
13	966 Chamber Room	RM	9*6*6	N/A	Jul. 24, 2022

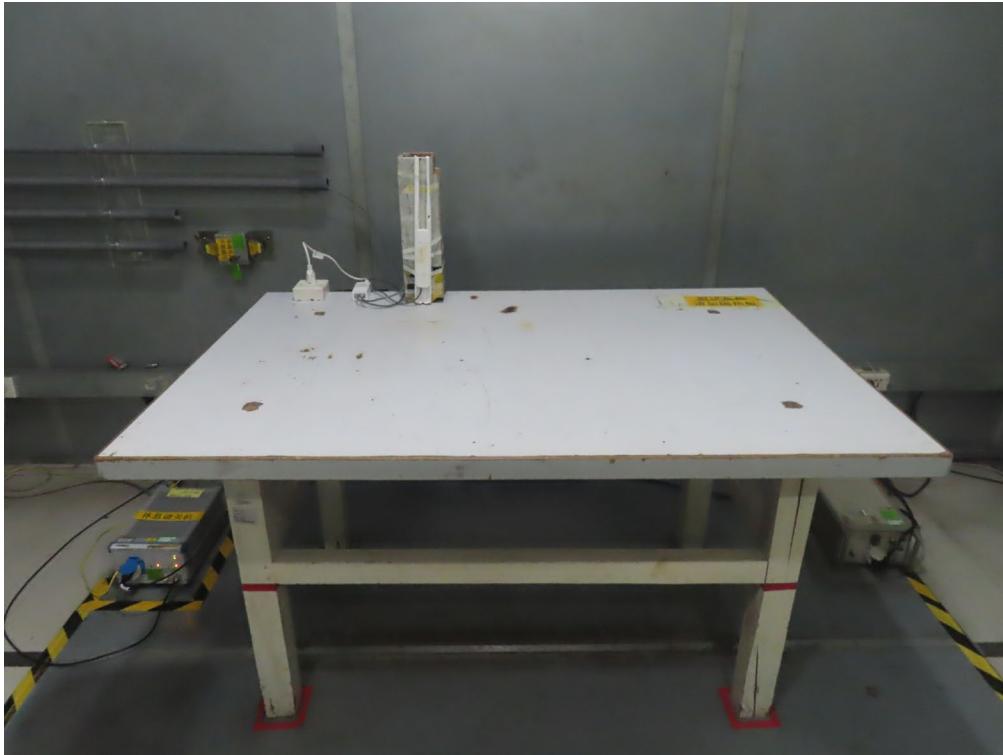
Maximum Average Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Peak Power Analyzer	Keysight	8990B	MY51000506	Jul. 10, 2022
2	Wideband power sensor	Keysight	N1923A	MY58310004	Jul. 10, 2022
3	Attenuator	WOKEN	6SM3502	VAS1214NL	N/A
4	RF Cable	Tongkaichuan	N/A	N/A	N/A

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

All calibration period of equipment list is one year.

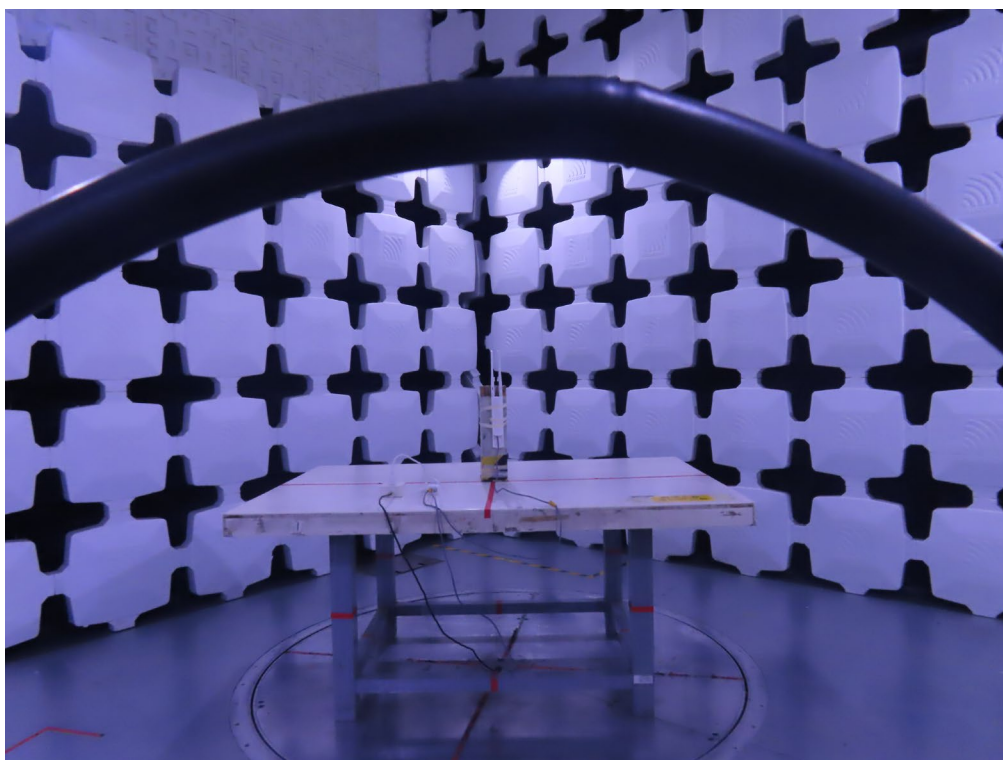
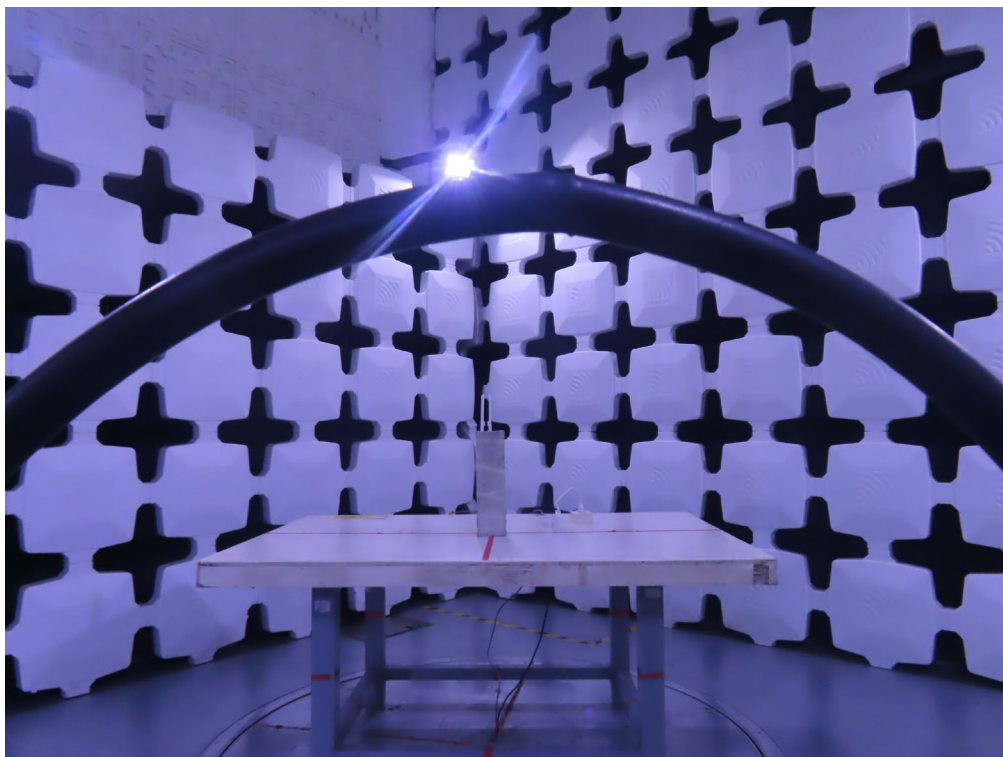
7. EUT TEST PHOTO

AC Power Line Conducted Emissions Test Photos



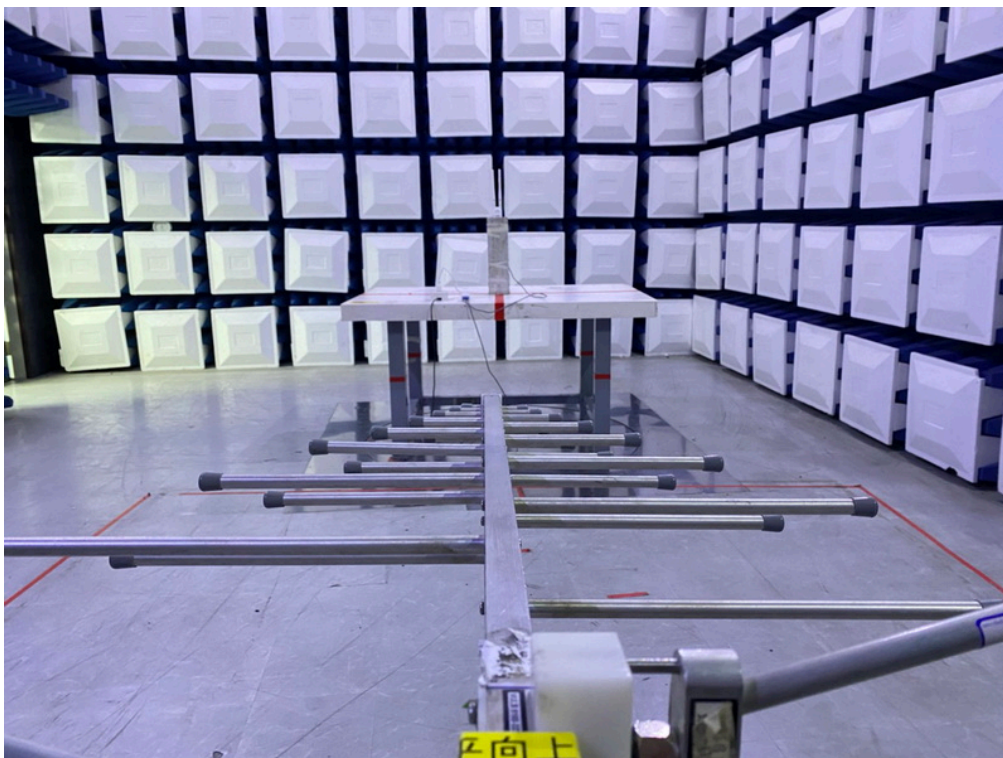
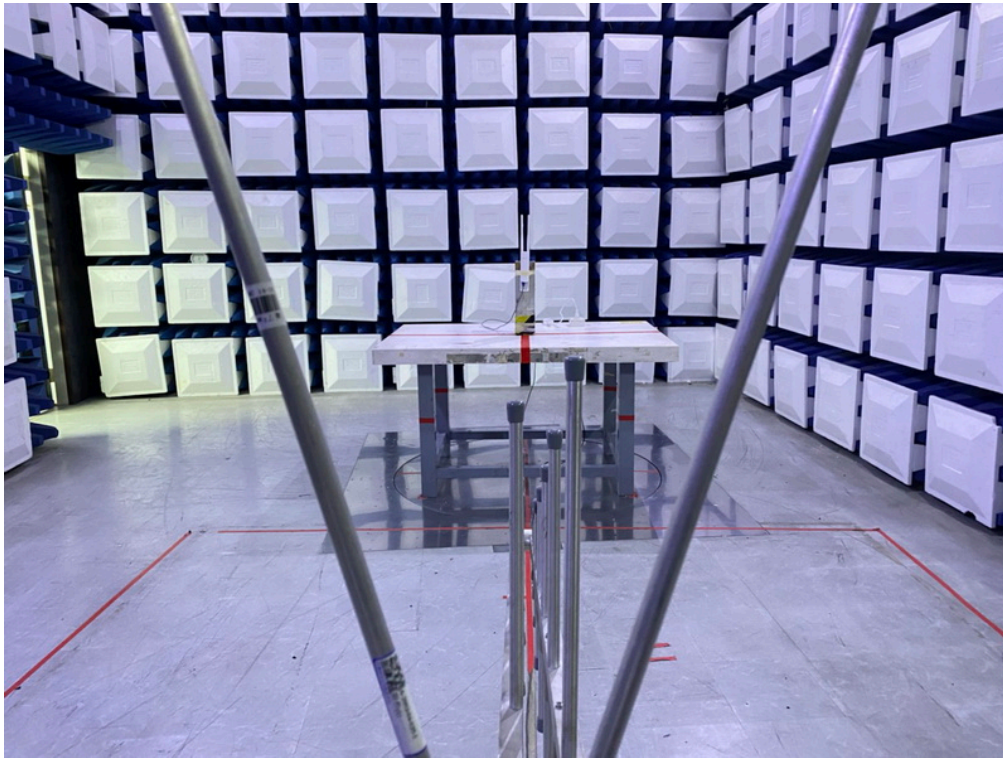
Radiated Emissions Test Photos

9 kHz to 30 MHz



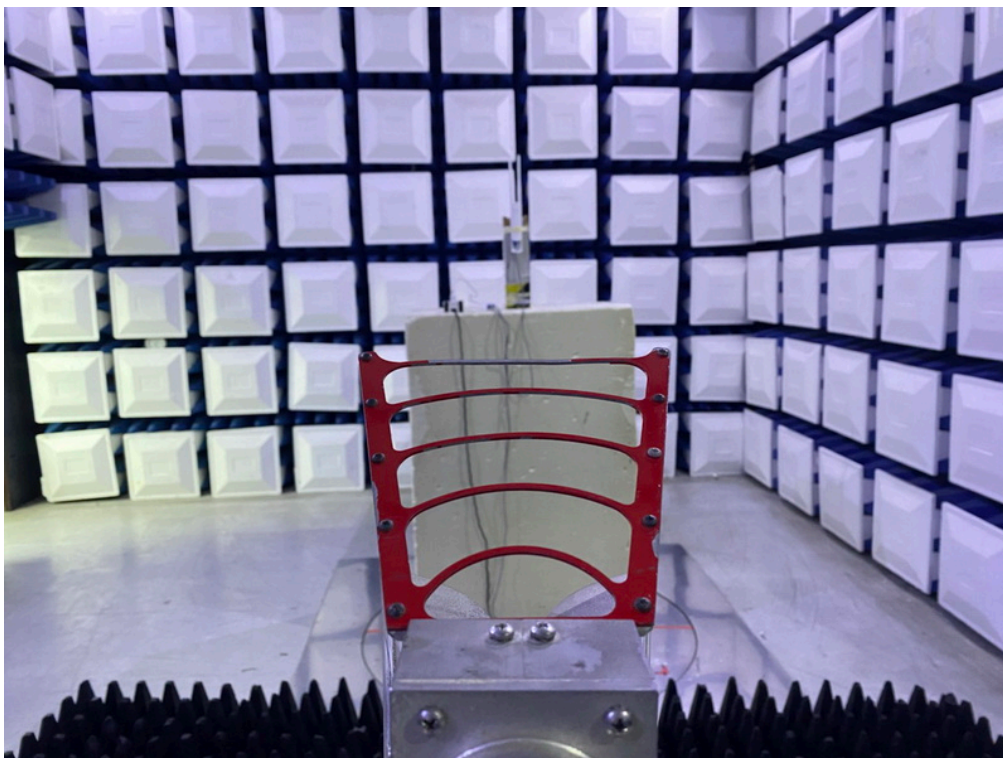
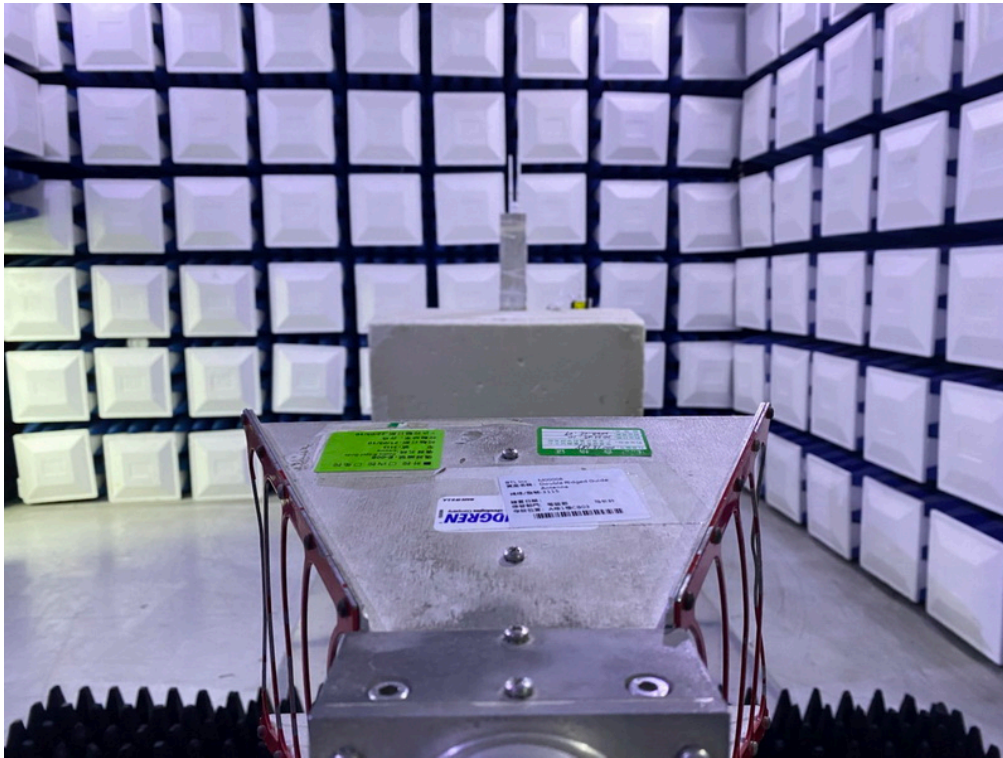
Radiated Emissions Test Photos

30 MHz to 1000 MHz



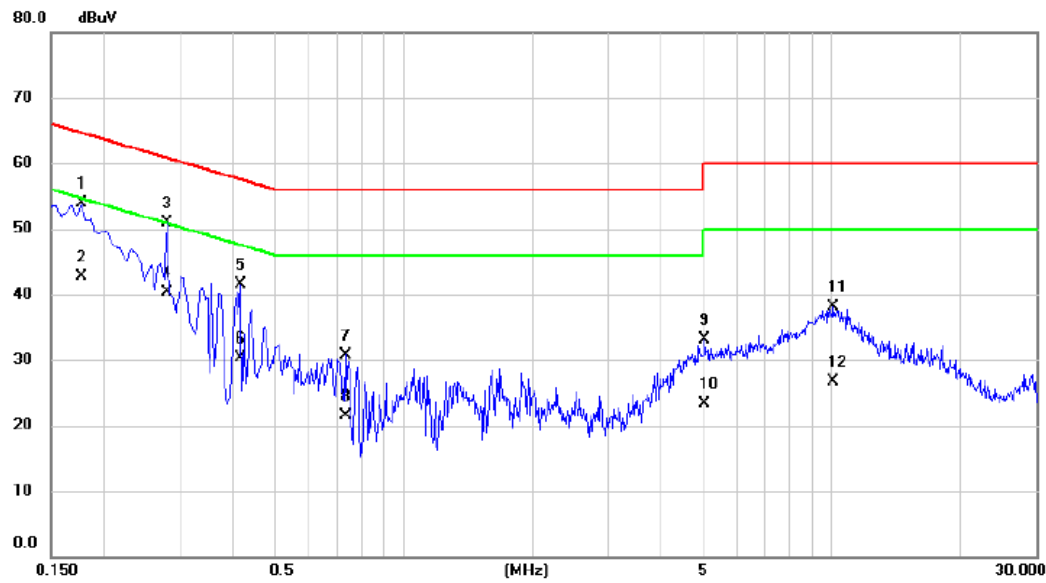
Radiated Emissions Test Photos

Above 1GHz



APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

Test Mode	TX N-20 MHz Mode Channel 06	Phase	Line
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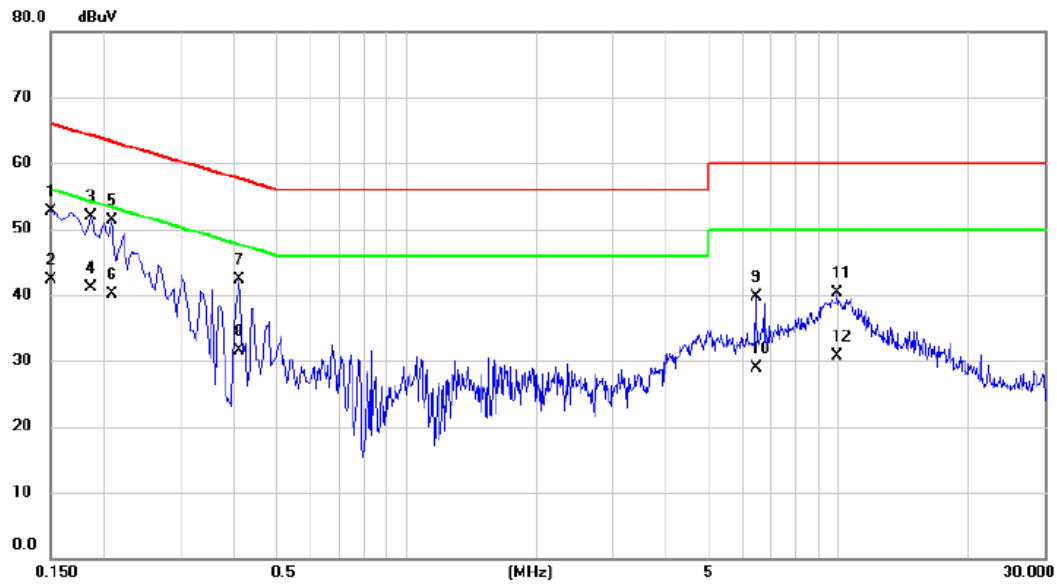
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	0.1770	44.15	9.67	53.82	64.63	-10.81	QP	
2	0.1770	33.10	9.67	42.77	54.63	-11.86	AVG	
3 *	0.2805	41.20	9.72	50.92	60.80	-9.88	QP	
4	0.2805	30.50	9.72	40.22	50.80	-10.58	AVG	
5	0.4155	31.69	9.76	41.45	57.54	-16.09	QP	
6	0.4155	20.56	9.76	30.32	47.54	-17.22	AVG	
7	0.7304	21.00	9.80	30.80	56.00	-25.20	QP	
8	0.7304	11.70	9.80	21.50	46.00	-24.50	AVG	
9	5.0460	23.01	10.12	33.13	60.00	-26.87	QP	
10	5.0460	13.20	10.12	23.32	50.00	-26.68	AVG	
11	10.0815	27.65	10.48	38.13	60.00	-21.87	QP	
12	10.0815	16.30	10.48	26.78	50.00	-23.22	AVG	

REMARKS:

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

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

Test Mode	TX N-20 MHz Mode Channel 06	Phase	Neutral
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No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector Comment	
1	0.1500	43.07	9.71	52.78	66.00	-13.22	QP	
2	0.1500	32.50	9.71	42.21	56.00	-13.79	AVG	
3	0.1860	42.19	9.73	51.92	64.21	-12.29	QP	
4	0.1860	31.40	9.73	41.13	54.21	-13.08	AVG	
5 *	0.2085	41.60	9.73	51.33	63.26	-11.93	QP	
6	0.2085	30.30	9.73	40.03	53.26	-13.23	AVG	
7	0.4110	32.45	9.79	42.24	57.63	-15.39	QP	
8	0.4110	21.70	9.79	31.49	47.63	-16.14	AVG	
9	6.4500	29.48	10.27	39.75	60.00	-20.25	QP	
10	6.4500	18.60	10.27	28.87	50.00	-21.13	AVG	
11	9.9285	29.78	10.47	40.25	60.00	-19.75	QP	
12	9.9285	20.20	10.47	30.67	50.00	-19.33	AVG	

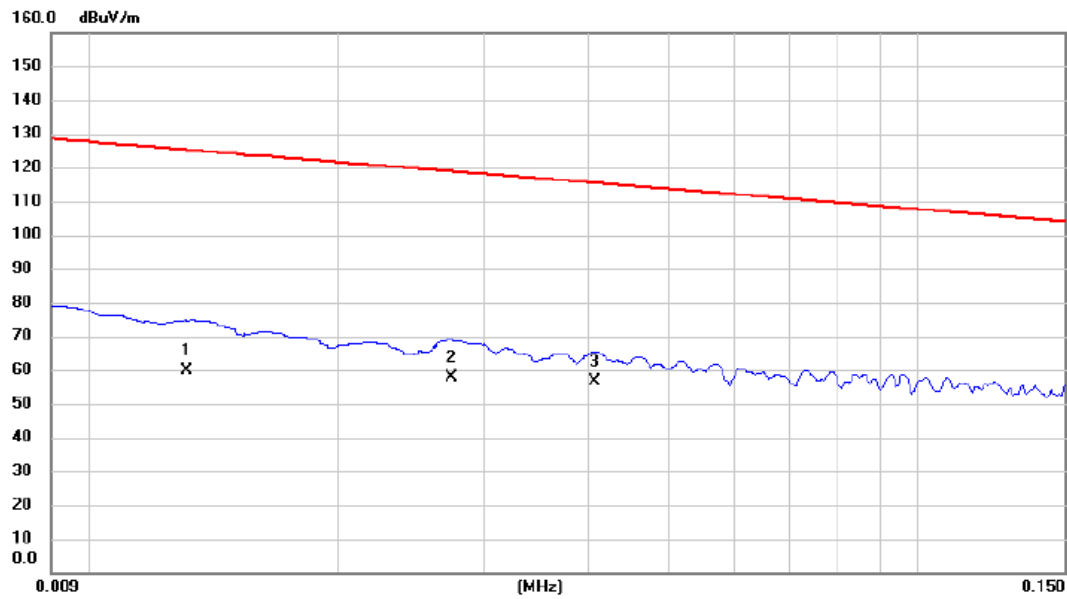
REMARKS:

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

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

APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ

Test Mode	TX N-20 MHz Mode Channel 06	Polarization	Ant 0°
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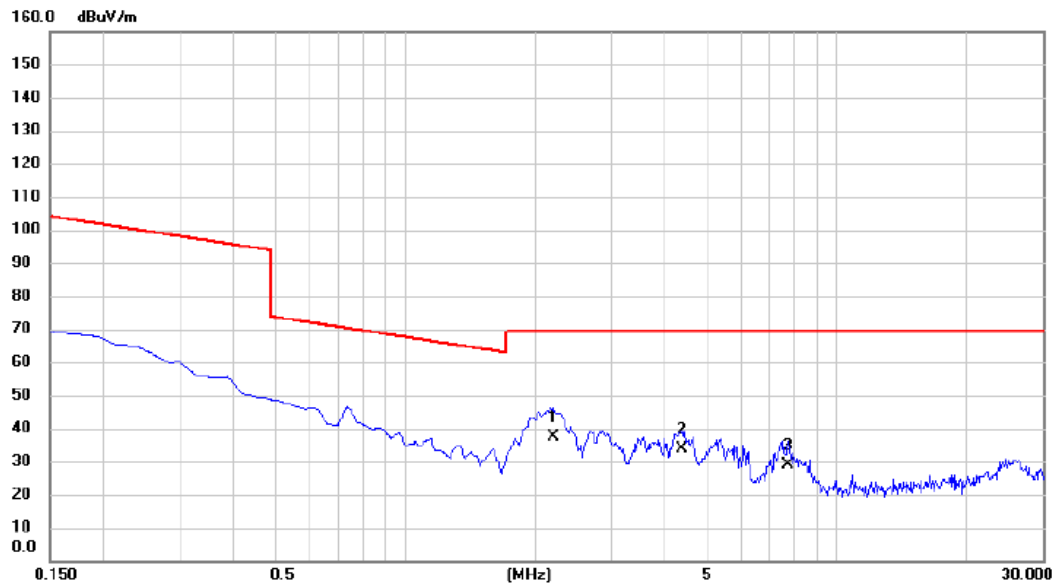
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.0131	43.37	16.46	59.83	125.26	-65.43	AVG	
2		0.0274	43.77	14.12	57.89	118.85	-60.96	AVG	
3	*	0.0407	42.62	13.81	56.43	115.41	-58.98	AVG	

REMARKS:

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

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

Test Mode	TX N-20 MHz Mode Channel 06	Polarization	Ant 0°
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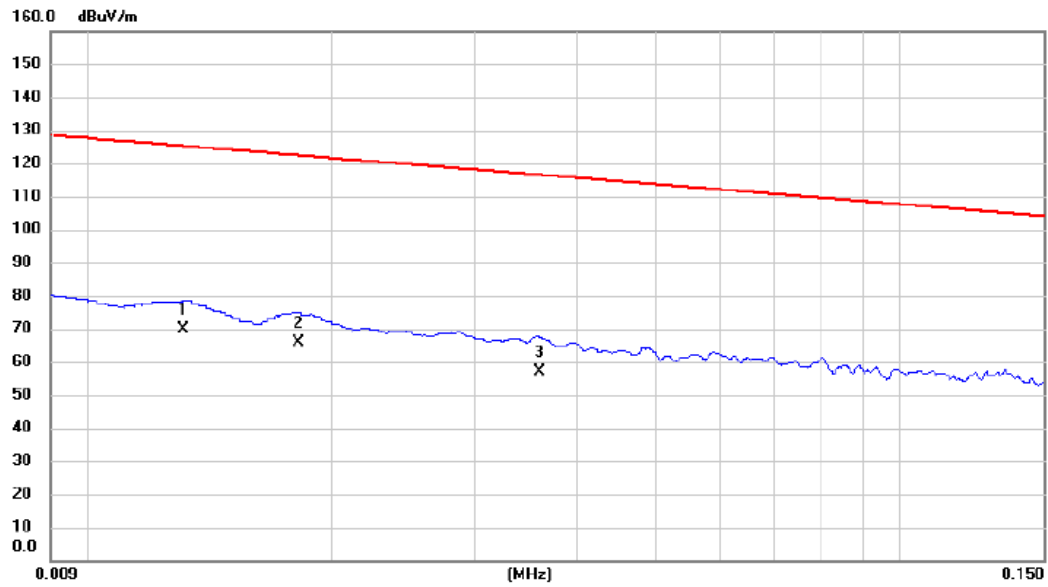


No.	Mk.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	2.2130	25.35	12.01	37.36	69.54	-32.18	QP	
2		4.3737	22.13	11.74	33.87	69.54	-35.67	QP	
3		7.6871	17.16	11.82	28.98	69.54	-40.56	QP	

REMARKS:

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

Test Mode	TX N-20 MHz Mode Channel 06	Polarization	Ant 90°
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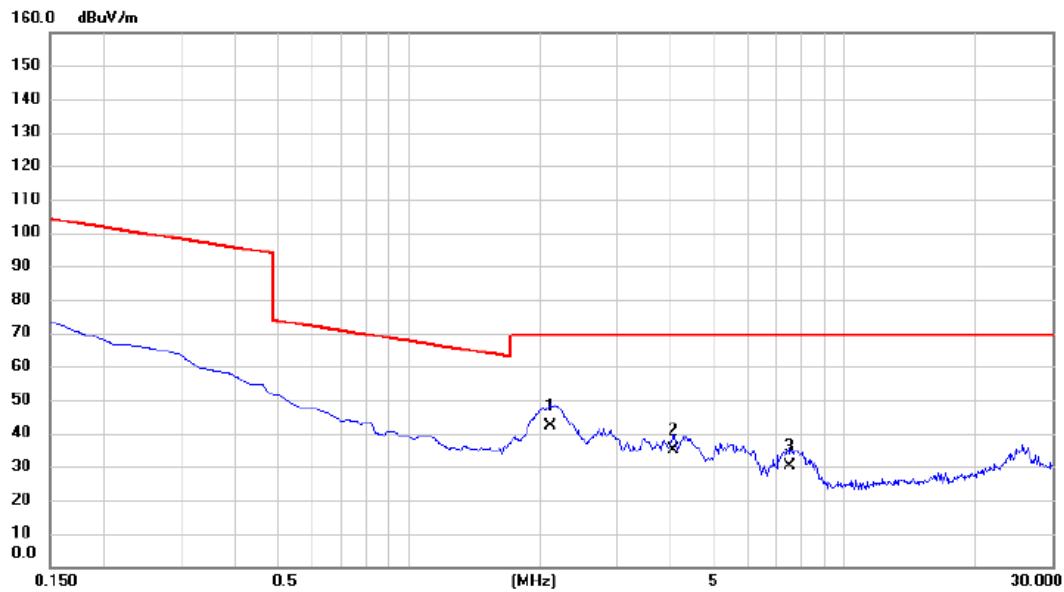
No.	Mk.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	0.0131	53.16	16.46	69.62	125.26	-55.64	AVG	
2		0.0182	51.13	14.86	65.99	122.40	-56.41	AVG	
3		0.0360	43.18	13.92	57.10	116.48	-59.38	AVG	

REMARKS:

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

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

Test Mode	TX N-20 MHz Mode Channel 06	Polarization	Ant 90°
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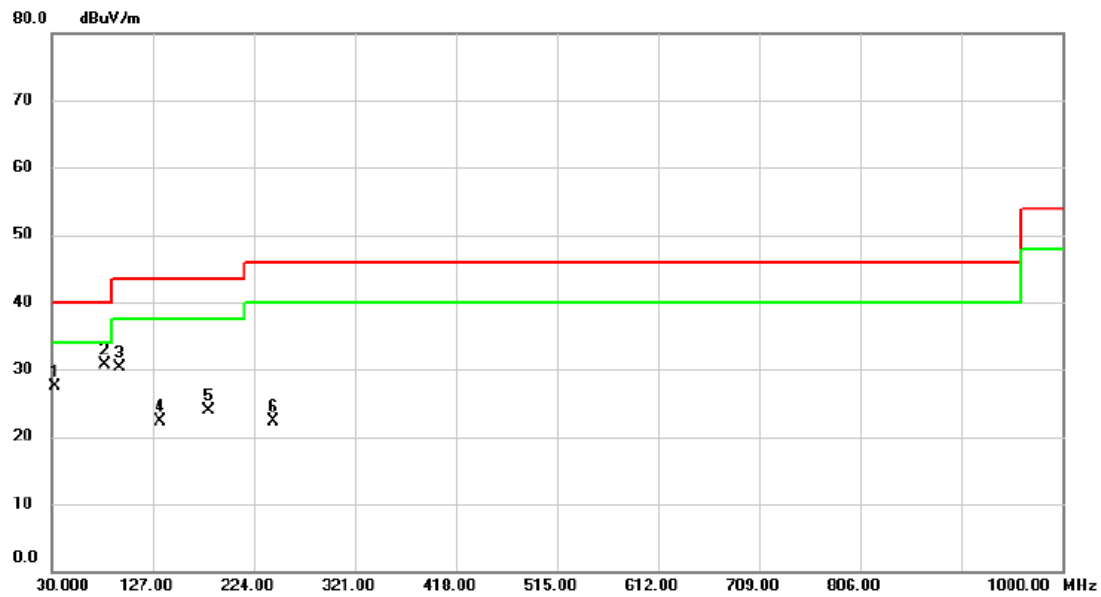
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2.1200	30.17	12.04	42.21	69.54	-27.33	QP	
2		4.0602	23.16	11.71	34.87	69.54	-34.67	QP	
3		7.4630	18.33	11.82	30.15	69.54	-39.39	QP	

REMARKS:

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

APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

Test Mode	TX N-20 MHz Mode Channel 06	Polarization	Vertical
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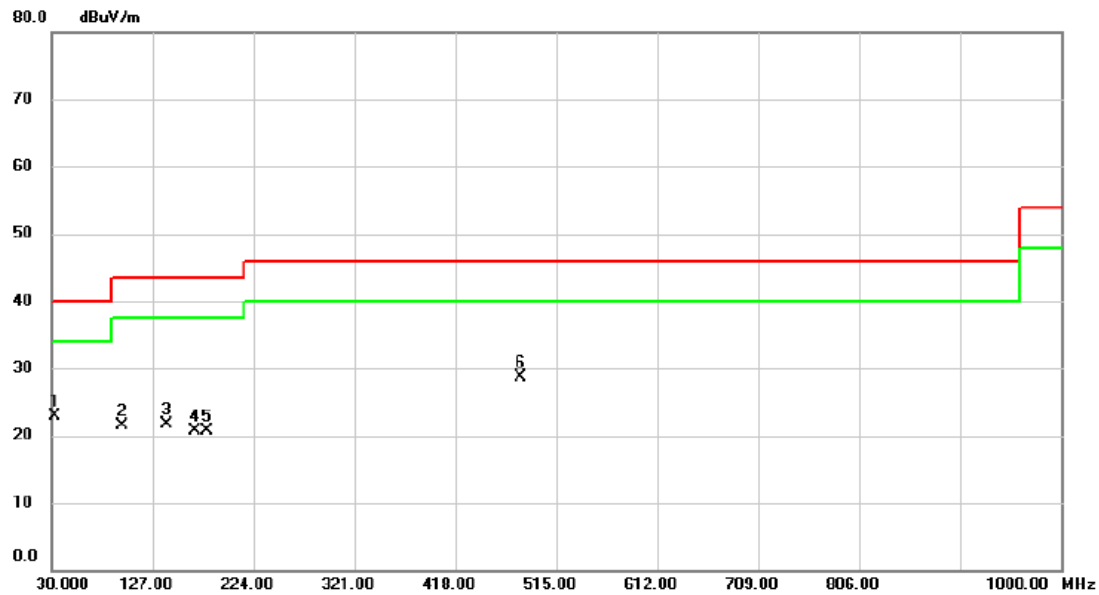
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		33.3950	43.06	-15.65	27.41	40.00	-12.59	peak	
2	*	80.4400	49.28	-18.60	30.68	40.00	-9.32	peak	
3		94.9900	48.23	-18.00	30.23	43.50	-13.27	peak	
4		133.7900	35.92	-13.63	22.29	43.50	-21.21	peak	
5		180.3500	37.95	-14.12	23.83	43.50	-19.67	peak	
6		242.4300	35.88	-13.67	22.21	46.00	-23.79	peak	

REMARKS:

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

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

Test Mode	TX N-20 MHz Mode Channel 06	Polarization	Horizontal
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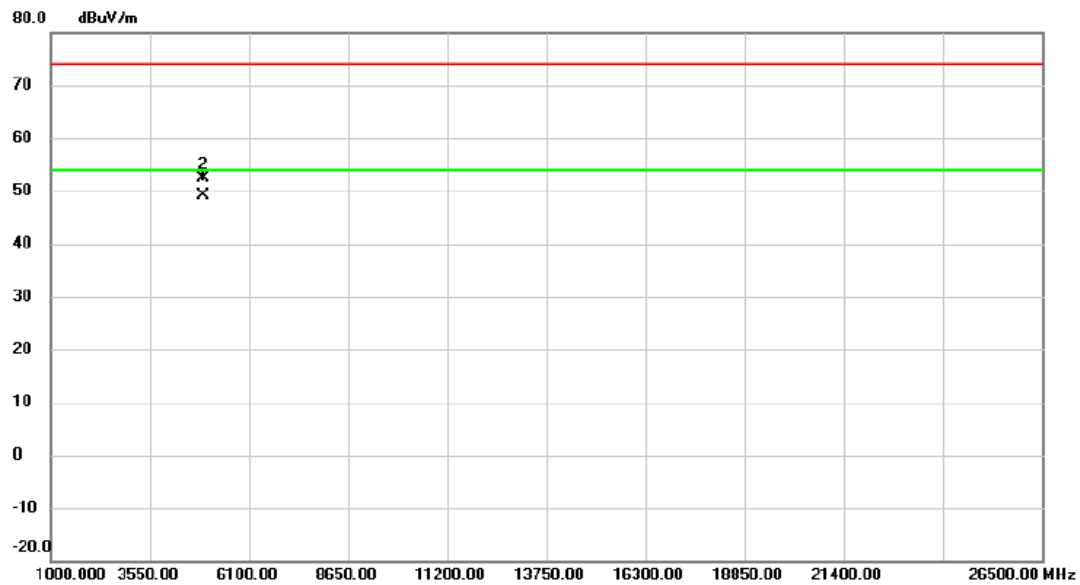
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	33.3950	38.63	-15.65	22.98	40.00	-17.02	peak	
2		97.4150	39.12	-17.57	21.55	43.50	-21.95	peak	
3		141.0650	34.81	-13.17	21.64	43.50	-21.86	peak	
4		168.2250	33.81	-13.13	20.68	43.50	-22.82	peak	
5		178.8950	34.60	-13.98	20.62	43.50	-22.88	peak	
6		480.0800	36.19	-7.42	28.77	46.00	-17.23	peak	

REMARKS:

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

APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ

Test Mode	TX B Mode Channel 11	Polarization	Vertical
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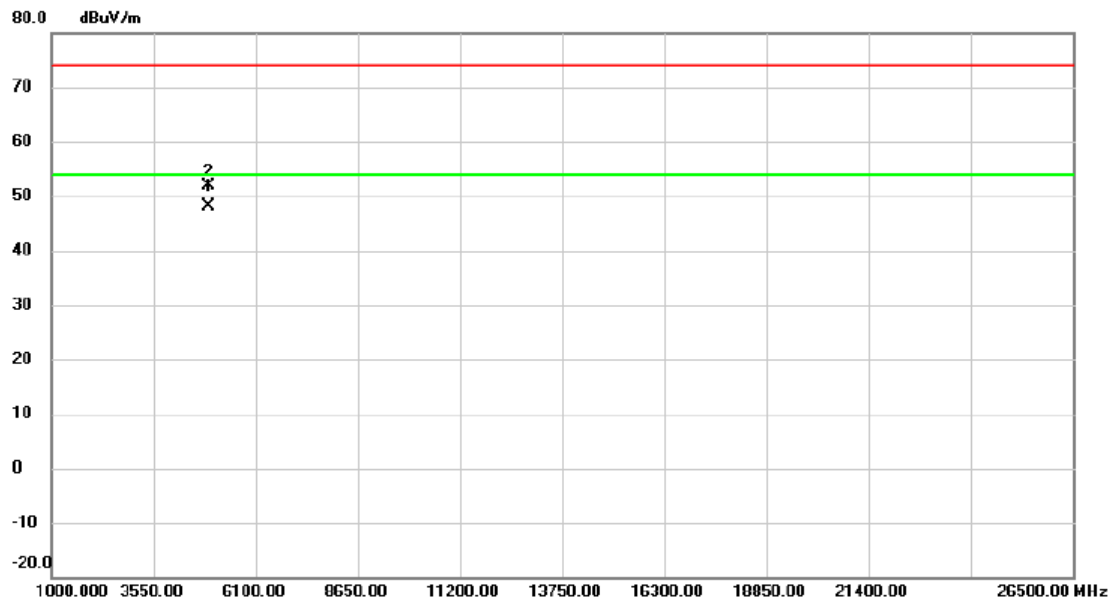


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4923.970	44.71	4.49	49.20	54.00	-4.80	AVG	
2		4923.985	47.84	4.49	52.33	74.00	-21.67	peak	

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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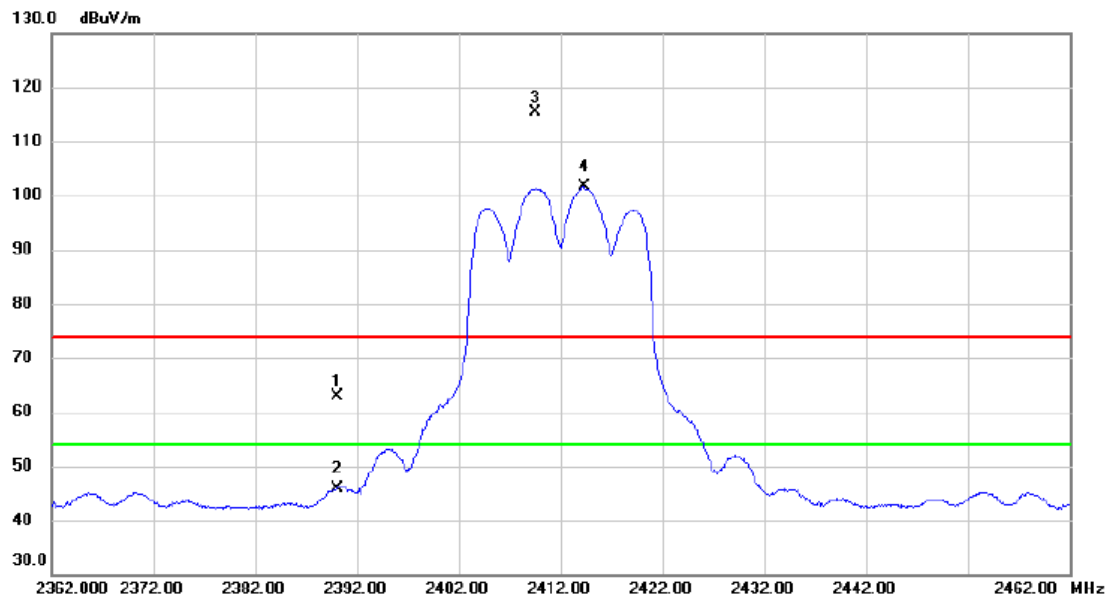


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4923.955	43.64	4.49	48.13	54.00	-5.87	AVG	
2		4924.045	47.36	4.49	51.85	74.00	-22.15	peak	

REMARKS:

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

Test Mode	TX G Mode Channel 01	Polarization	Vertical
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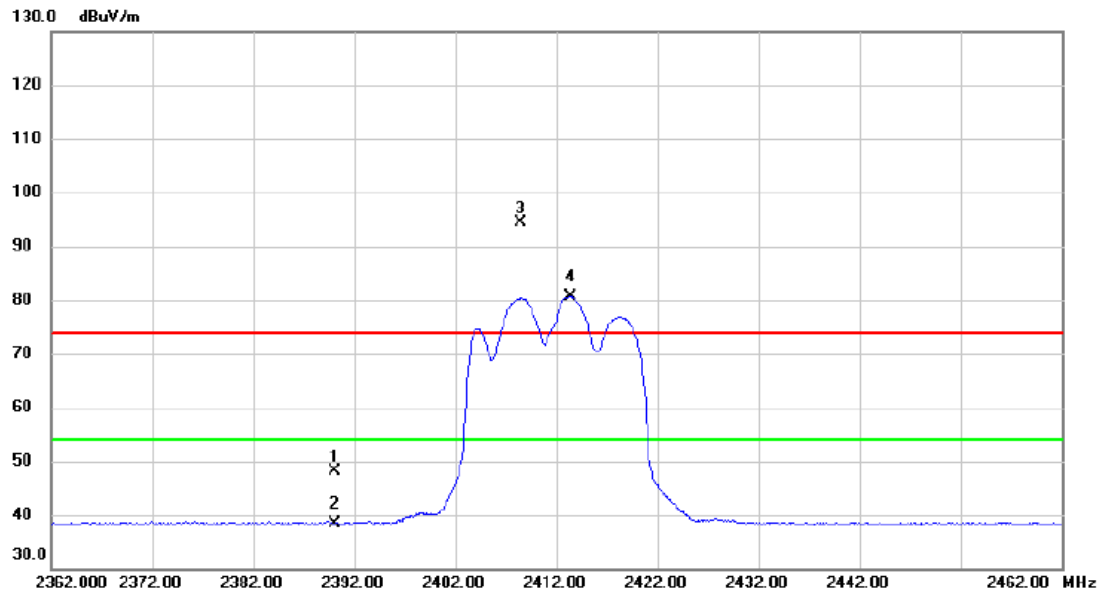


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2390.000	55.68	7.27	62.95	74.00	-11.05	peak	
2		2390.000	38.59	7.27	45.86	54.00	-8.14	AVG	
3	X	2409.600	108.0	7.28	115.31	74.00	41.31	peak	No Limit
4	*	2414.300	94.25	7.29	101.54	54.00	47.54	AVG	No Limit

REMARKS:

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

Test Mode	TX G Mode Channel 01	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		2390.000	40.95	7.27	48.22	74.00	-25.78	peak	
2		2390.000	31.21	7.27	38.48	54.00	-15.52	AVG	
3	X	2408.500	87.08	7.28	94.36	74.00	20.36	peak	No Limit
4	*	2413.400	73.23	7.29	80.52	54.00	26.52	AVG	No Limit

REMARKS:

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

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

APPENDIX E - MAXIMUM AVERAGE OUTPUT POWER

Test Mode	TX N(HT20) Mode_Ant. 1
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Channel	Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Average Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
06	2437	25.85	0.00	25.85	30.00	1.0000	Complies

Test Mode	TX N(HT20) Mode_Ant. 2
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Channel	Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Average Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
06	2437	25.96	0.00	25.96	30.00	1.0000	Complies

Test Mode	TX N(HT20) Mode_Total
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Channel	Frequency (MHz)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
06	2437	28.92	30.00	1.0000	Complies

End of Test Report