FCC Radio Test Report

FCC ID: TX2-RTL8822CE

Report No.	:	BTL-FCCP-1-2109T062
Equipment	:	802.11a/b/g/n/ac RTL8822CE Combo module
Model Name	:	RTL8822CE
Brand Name	:	Realtek
Applicant	:	Realtek Semiconductor Corp.
Address	:	No. 2, Innovation Road II, Hsinchu Science Part, Hsinchu 300, Taiwan
Radio Function	:	Bluetooth EDR
FCC Rule Part(s)	:	FCC Part15, Subpart C (15.247)
Measurement Procedure(s)	:	ANSI C63.10-2013
Date of Receipt	:	2021/9/15
Date of Test	:	2021/9/15 ~ 2021/11/5
Issued Date	:	2022/1/14

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

Prepared by : Jerry Chuang, Supervisor

Approved by : Peter Chen, Vice Manager

BTL Inc.
No.18, Ln. 171, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City 114, Taiwan
Tel: +886-2-2657-3299 Fax: +886-2-2657-3331 Web: www.newbtl.com

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** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

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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.

CONTENTS

REVISON HISTORY

Report No.	Version	Description	Issued Date
BTL-FCCP-1-2109T062	R00	Original Report.	2022/1/14

1 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards.

FCC Part 15, Subpart C (15.247)				
Standard(s) Section	**Description**	**Test Result**	**Judgement**	**Remark**
15.207	AC Power Line Conducted Emissions	APPENDIX A	Pass	------
15.205 15.209 15.247(d)	Radiated Emissions	APPENDIX B APPENDIX C	Pass	------
15.247 (b)(1)	Output Power	APPENDIX D	Pass	------

NOTE:
(1) ”N/A” denotes test is not applicable in this Test Report.
(2) The report format version is TP.1.1.1.
(3) This test report is issued for the RF module (FCCID: TX2-RTL8822CE) to be incorporated to the host device (Model number: 81MC, Lenovo 500e Chromebook 2nd Genxxxxxx, Lenovo 300e Chromebook 2nd Genxxxxxx, 81MCxxxxxx, 81MBxxxxxx(The”x” in the model name can be 0 to 9, A to Z, a to z, “-“ or blank), Product name: Notebook Computer).
Since the RF module has been certificated, after evaluation, above test items were criticized and reconfirmed in this report.
(4) After spot check, this revision does not change original radio parameters.

1.1 TEST FACILITY

The test facilities used to collect the test data in this report:

No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan
The test sites and facilities are covered under FCC RN: 674415 and DN: TW0659.

☒ C05 ☐ CB08 ☐ CB11 ☒ CB15 ☐ CB16
☒ SR05

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**, where expanded uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k = 2**, providing a level of confidence of approximately **95 %**. The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{cispr} requirement.

A. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	U (dB)
C05	CISPR	150 kHz ~ 30MHz	3.44

B. Radiated emissions test :

Test Site	Measurement Frequency Range	U,(dB)
CB15	0.03 GHz ~ 0.2 GHz	4.17
	0.2 GHz ~ 1 GHz	4.72
	1 GHz ~ 6 GHz	5.21
	6 GHz ~ 18 GHz	5.51
	18 GHz ~ 26 GHz	3.69
	26 GHz ~ 40 GHz	4.23

C. Conducted test :

Test Item	U,(dB)
Output Power	0.3659

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	Environment Condition	Test Voltage	Tested by
AC Power Line Conducted Emissions	22 °C, 64 %	AC 120V	Paul Shen
Radiated emissions below 1 GHz	Refer to data	AC 120V	Jay Kao
Radiated emissions above 1 GHz	Refer to data	AC 120V	Jay Kao
Output Power	23.5 °C, 51 %	AC 120V	Tim Lian

1.4 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

Test Software	CMD			
Modulation Mode	2402 MHz	2441 MHz	2480 MHz	Data Rate
GFSK	0X35	0X36	0X37	1 Mbps
π/4-DQPSK	0x39	0x39	0x39	2 Mbps
8DPSK	0x38	0x39	0x39	3 Mbps

2 GENERAL INFORMATION

2.1 DESCRIPTION OF EUT

Equipment	802.11a/b/g/n/ac RTL8822CE Combo module
Model Name	RTL8822CE
Brand Name	Realtek
Model Difference	N/A
Power Supply Rating	DC 3.3V from host equipment
Host device information	
Equipment	Notebook Computer
Model Name	81MC, Lenovo 500e Chromebook 2nd Genxxxxxx, Lenovo 300e Chromebook 2nd Genxxxxxx, 81MCxxxxxx, 81MBxxxxxx(The"x" in the model name can be 0 to 9, A to Z, a to z, "-" or blank)
Brand Name	Lenovo
Model Difference	N/A
Power Source	#1 DC voltage supplied from AC/DC adapter. 1) Manufacturer / Model: Liteon / ADLX45YLC2D 2) Manufacturer / Model: Liteon /ADLX45YLC3D 3) Manufacturer / Model: Delta / ADLX45YDC2D 4) Manufacturer / Model: Delta /ADLX45YDC3D 5) Manufacturer / Model: Chicony / ADLX45YCC2D 6) Manufacturer / Model: Chicony / ADLX45YCC3D 7) Manufacturer / Model: Acbel / ADLX45YAC3D 8) Manufacturer / Model: Acbel / ADLX45YAC2D #2 Rechargeable Li-ion Battery supplied. 1) Manufacturer / Model: Simplo / L17M3PB0 2) Manufacturer / Model: LGC / L17L3PB0 3) Manufacturer / Model: Sunwoda / L18D3PG1
Power Rating	#1 For adapter: I/P: 100-240V~1.2A/1.3A 50-60Hz O/P: 20V⎓2.25A/15V⎓3A/9V⎓2A/5V⎓2A #2 For battery: 1) 11.25V⎓3.735Ah / 42Wh 2) 11.4V⎓ TYP 3685mAh / 42Wh MIN 3575mAh / 41Wh 3) 11.25V⎓ TYP 3735mAh / 42Wh MIN 3635mAh / 41Wh
Products Covered	Please refer to Power Source.
WIFI+BT Module	Realtek / RTL8822CE
Operation Band	2400 MHz ~ 2483.5 MHz
Operation Frequency	2402 MHz ~ 2480 MHz
Maximum Output Power	1 Mbps: 4.73 dBm (0.0030 W) 2 Mbps: 4.53 dBm (0.0028 W) 3 Mbps: 5.08 dBm (0.0032 W)
Test Model	Lenovo 500e Chromebook 2nd Gen
Sample Status	Engineering Sample
EUT Modification(s)	N/A

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

(2) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

(3) Table for Filed Antenna:

Antenna	Manufacture	Part Number	Type	Connector	Frequency Range (MHz)	Gain (dBi)
Main	South Star	N12-4457-R0A	PIFA	I-PEX	2400-2500	-0.69
					5150-5350	-0.44
					5450-5650	0.31
					5750-5850	-0.01
Aux	South Star	N12-4456-R0A	PIFA	I-PEX	2400-2500	-1.01
					5150-5350	-0.46
					5450-5650	0.24
					5750-5850	1.45

Antenna	Manufacture	Part Number	Type	Connector	Frequency Range (MHz)	Gain (dBi)
Main	INPAQ	WA-F-LB-02-166	PIFA	I-PEX	2400-2500	0.92
					5150-5350	0.14
					5470-5725	0.91
					5785-5850	1.03
Aux	INPAQ	WA-F-LB-01-065	PIFA	I-PEX	2400-2500	0.17
					5150-5350	-0.03
					5470-5725	-0.7
					5785-5850	0.29

NOTE: Antenna gain higher is used for testing.

2.2 TEST MODES

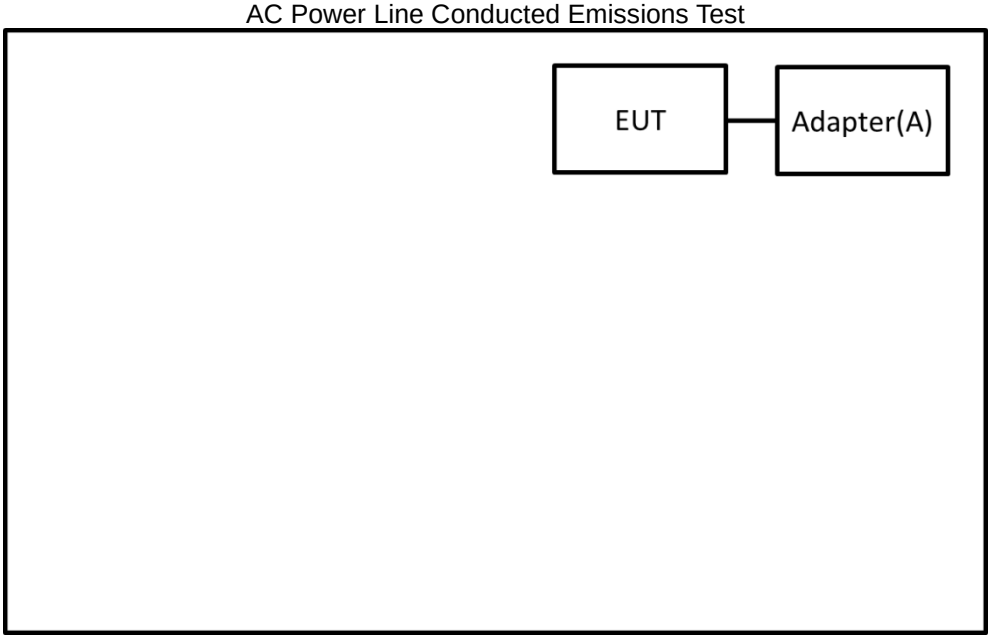
Test Items	Test mode	Channel	Note
AC power line conducted emissions	Normal/Idle	-	-
Transmitter Radiated Emissions (below 1GHz)	1 Mbps	78	-
Transmitter Radiated Emissions (above 1GHz)	1/3 Mbps	00/78	Bandedge
	1/3 Mbps	00/39/78	Harmonic
Output Power	1/2/3 Mbps	00/39/78	-

NOTE:
(1) The Radiated emissions test was verified based on the worst conducted power and Bandwidth test results reported in the original report.
(2) For radiated emission band edge test, both Vertical and Horizontal are evaluated, but only the worst case (Horizontal) is recorded.
(3) All X, Y and Z axes are evaluated, but only the worst case (X axis) is recorded.

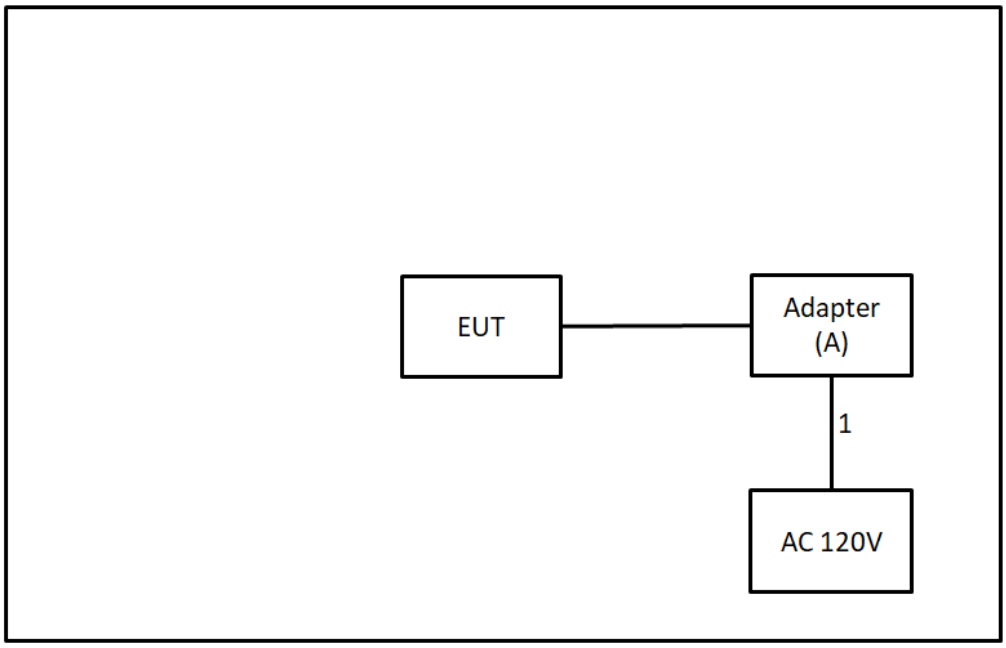
2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Equipment letters and Cable numbers refer to item numbers described in the tables of clause 2.4.

AC Power Line Conducted Emissions Test



Radiated Emissions Test



2.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.	Remarks
A	Adapter	Lenovo	ADLX45YDC3D	N/A	Supplied by test requester.

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	N/A	N/A	0.9m	Power Cord	Furnished by test lab.

3 AC POWER LINE CONDUCTED EMISSIONS TEST

3.1 LIMIT

Frequency (MHz)	Limit (dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56 *	56 - 46 *
0.50 - 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) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor (if use)
Margin Level = Measurement Value – Limit Value
Calculation example:

Reading Level		Correct Factor		Measurement Value
38.22	+	3.45	=	41.67

Measurement Value		Limit Value		Margin Level
41.67	-	60	=	-18.33

The following table is the setting of the receiver.

Receiver Parameter	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

3.2 TEST PROCEDURE

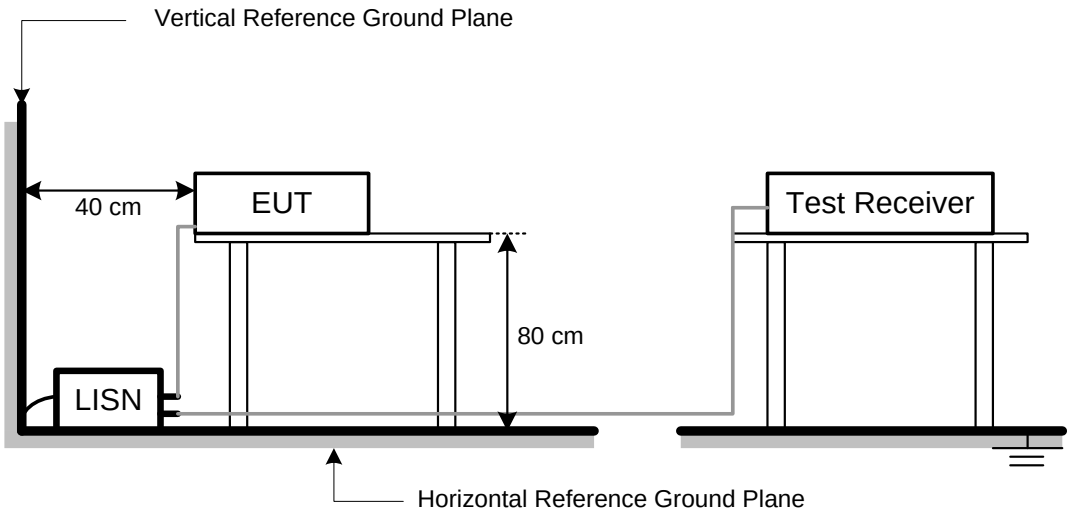
a. The EUT was placed 0.8 m above the horizontal ground plane with the EUT being connected to the power mains through a line impedance stabilization network (LISN).
All other support equipment were powered from an additional LISN(s).
The LISN provides 50 Ohm/50uH of impedance for the measuring instrument.
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 to keep the cable above 40 cm.
c. Excess I/O cables that are not connected to a peripheral shall be bundled in the center.
The end of the cable will be terminated, using the correct terminating impedance.
The overall length shall not exceed 1 m.
d. The LISN is spaced at least 80 cm from the nearest part of the EUT chassis.
e. For the actual test configuration, please refer to the related Item - EUT TEST PHOTO.

NOTE:
(1) In the results, each reading is marked as Peak, QP or AVG per the detector used.
BW=9 kHz (6 dB Bandwidth)
(2) All readings are Peak unless otherwise stated QP or AVG in column of Note. Both the QP and the AVG readings must be less than the limit for compliance.

3.3 DEVIATION FROM TEST STANDARD

No deviation.

3.4 TEST SETUP



3.5 TEST RESULT

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, then the 15.209 limit in the table below has to be followed.

LIMITS OF RADIATED EMISSIONS MEASUREMENT (9 kHz to 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
960~1000	500	3

LIMITS OF RADIATED EMISSIONS MEASUREMENT (Above 1000 MHz)

Frequency (MHz)	Radiated Emissions (dBuV/m)		Measurement Distance (meters)
	Peak	Average	
Above 1000	74	54	3

NOTE:
(1) The limit for radiated test was performed according to FCC Part 15, Subpart C.
(2) The tighter limit applies at the band edges.
(3) Emission level (dBuV/m)=20log Emission level (uV/m).
(4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
Margin Level = Measurement Value - Limit Value
Calculation example:

Reading Level		Correct Factor		Measurement Value
19.11	+	2.11	=	21.22

Measurement Value		Limit Value		Margin Level
21.22	-	54	=	-32.78

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average

Spectrum Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9KHz~90KHz for PK/AVG detector
Start ~ Stop Frequency	90KHz~110KHz for QP detector
Start ~ Stop Frequency	110KHz~490KHz for PK/AVG detector
Start ~ Stop Frequency	490KHz~30MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector

4.2 TEST PROCEDURE

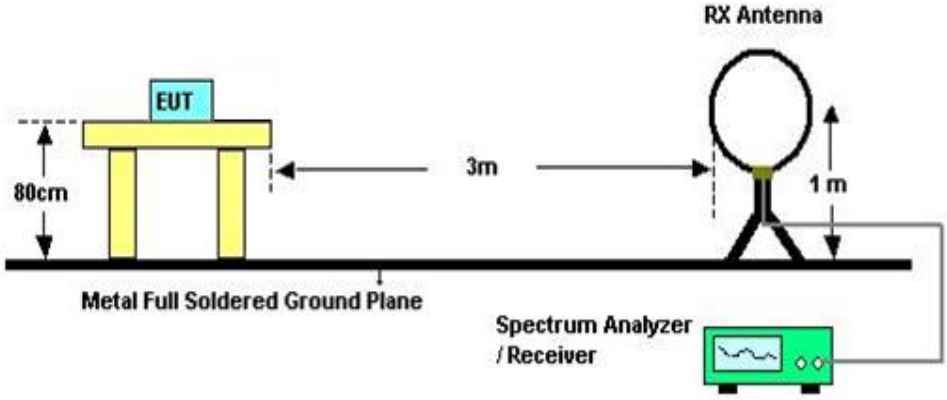
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The measuring distance 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 1GHz)
c. The height of the equipment or of the substitution antenna shall be 0.8 m or 1.5 m, 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 1GHz.
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 1GHz)
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 1GHz)
i. For the actual test configuration, please refer to the related Item – EUT TEST PHOTO.

4.3 DEVIATION FROM TEST STANDARD

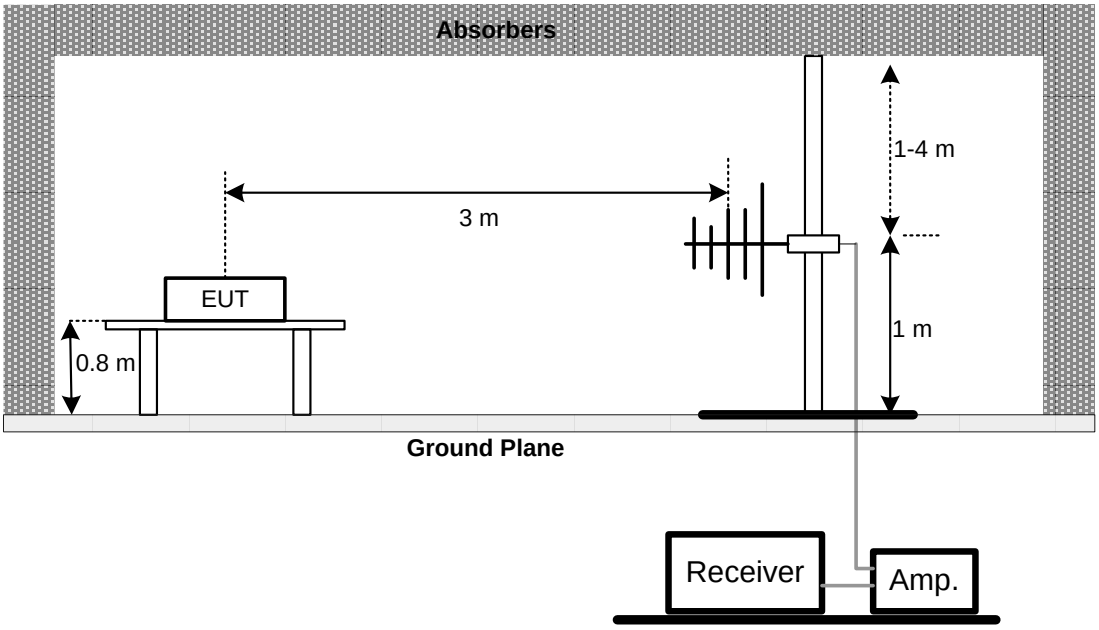
No deviation.

4.4 TEST SETUP

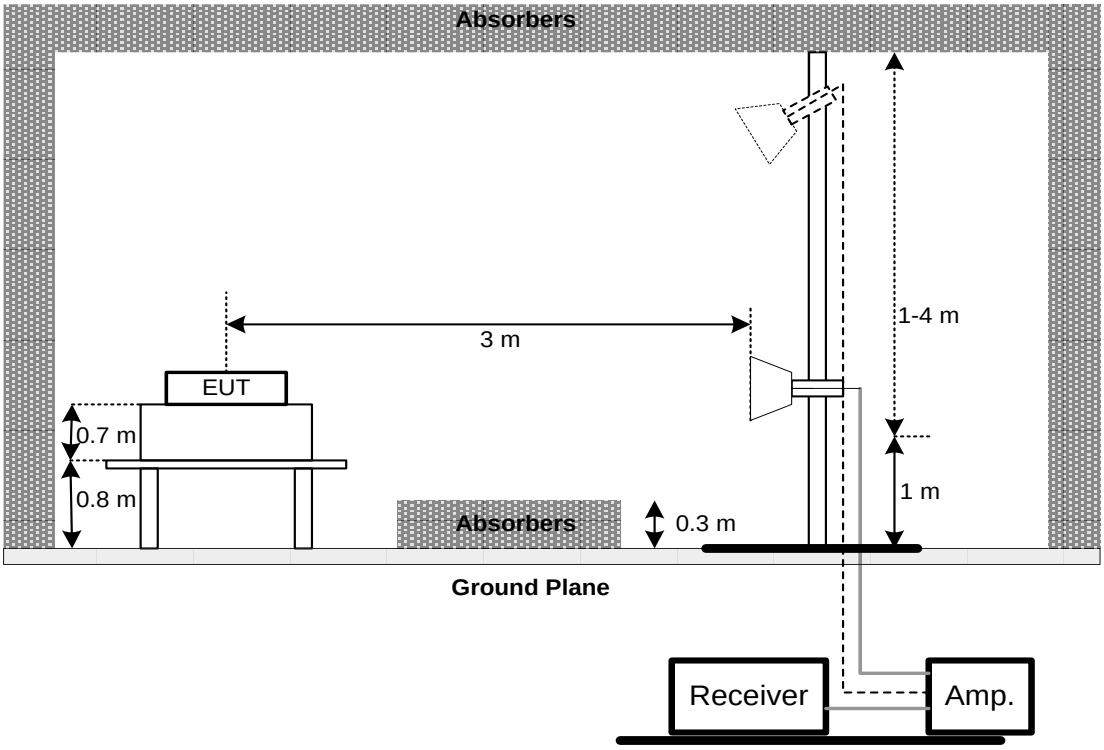
9 kHz to 30 MHz



30 MHz to 1 GHz



Above 1 GHz



4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULT – BELOW 30 MHZ

There were no emissions found below 30 MHz within 20 dB of the limit.

4.7 TEST RESULT – 30 MHZ TO 1 GHZ

Please refer to the APPENDIX B.

4.8 TEST RESULT – ABOVE 1 GHZ

Please refer to the APPENDIX C.

NOTE:

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

5 OUTPUT POWER TEST

5.1 LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(1)	Maximum peak conducted output power	0.125 Watts (20.97 dBm)	2400-2483.5	PASS

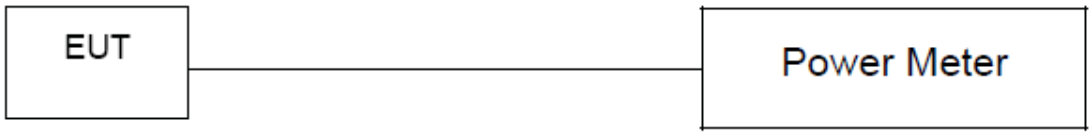
5.2 TEST PROCEDURE

a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
b. The maximum peak conducted output power was performed in accordance with method 9 b) of FCC KDB 558074 D01 DTS Meas Guidance.

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 D**.

6 LIST OF MEASURING EQUIPMENTS

AC Power Line Conducted Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	TWO-LINE V-NETWORK	R&S	ENV216	101339	2021/3/10	2022/3/9
2	Test Cable	EMCI	EMCCFD300-BM-BMR-6000	170714	2021/6/7	2022/6/6
3	EMI Test Receiver	R&S	ESR 7	101433	2020/12/11	2021/12/10
4	Measurement Software	EZ	EZ_EMC (Version NB-03A1-01)	N/A	N/A	N/A

Radiated Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Preamplifier	EMCI	EMC02325	980217	2021/4/8	2022/4/7
2	Preamplifier	EMCI	EMC012645B	980222	2021/4/8	2022/4/7
3	Preamplifier	EMCI	EMC001340	980555	2021/4/8	2022/4/7
4	Test Cable	EMCI	EMC104-SM-1000	180809	2021/4/8	2022/4/7
5	Test Cable	EMCI	EMC104-SM-SM-3000	151205	2021/4/8	2022/4/7
6	Test Cable	EMCI	EMC-SM-SM-7000	180408	2021/4/8	2022/4/7
7	MXE EMI Receiver	Agilent	N9038A	MY56400087	2021/5/27	2022/5/26
8	Signal Analyzer	Agilent	N9010A	MY56480554	2021/8/25	2022/8/24
9	Loop Ant	Electro-Metrics	EMCI-LPA600	274	2021/6/1	2022/5/31
10	Horn Ant	SCHWARZBECK	BBHA 9120D	9120D-1342	2021/6/2	2022/6/1
11	Horn Ant	Schwarzbeck	BBHA 9170	340	2021/7/9	2022/7/8
12	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-352	2021/8/11	2022/8/10
13	5dB Attenuator	EMCI	EMCI-N-6-05	AT-N0625	2021/8/11	2022/8/10
14	Measurement Software	EZ	EZ_EMC (Version NB-03A1-01)	N/A	N/A	N/A

Output Power						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Power Meter	Anritsu	ML2495A	1128008	2021/5/26	2022/5/25
2	Power Sensor	Anritsu	MA2411B	1126001	2021/5/26	2022/5/25

Remark: “N/A” denotes no model name, no serial no. or no calibration specified.
All calibration period of equipment list is one year.

7 EUT TEST PHOTO

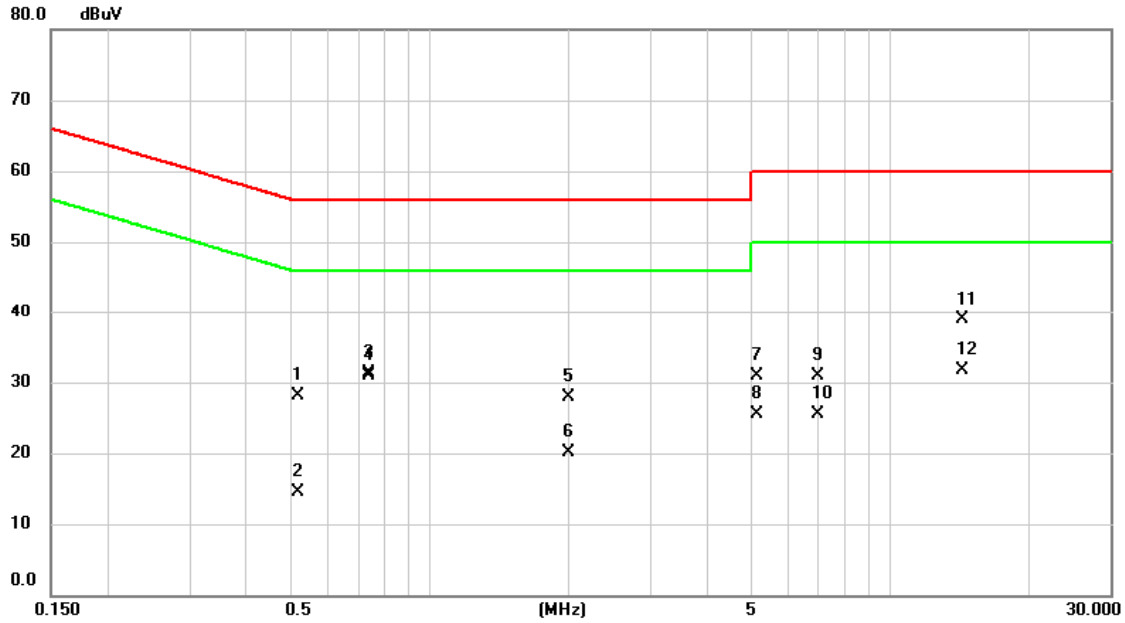
Please refer to document Appendix No.: TP-2109T062-FCCP-1 (APPENDIX-TEST PHOTOS).

8 EUT PHOTOS

Please refer to document Appendix No.: EP-2109T062-1 (APPENDIX-EUT PHOTOS).

APPENDIX A AC POWER LINE CONDUCTED EMISSIONS

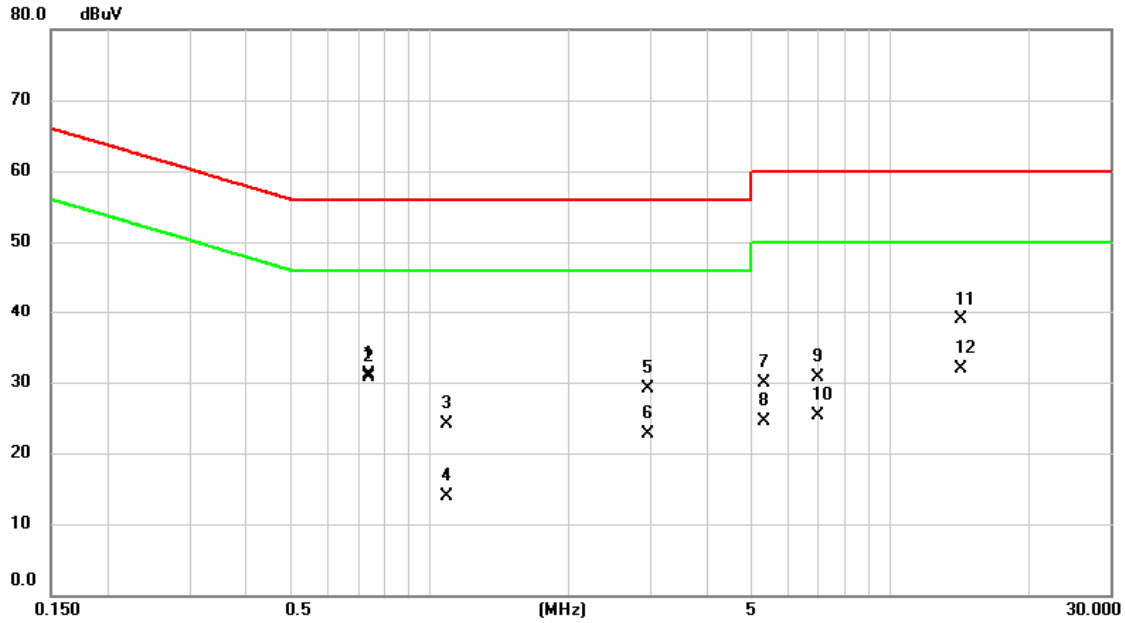
Test Mode	Normal	Tested Date	2021/11/5
Test Frequency	-	Phase	Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.5167	18.28	9.73	28.01	56.00	-27.99	QP	
2		0.5167	4.81	9.73	14.54	46.00	-31.46	AVG	
3		0.7372	21.58	9.73	31.31	56.00	-24.69	QP	
4	*	0.7372	21.13	9.73	30.86	46.00	-15.14	AVG	
5		1.9928	18.23	9.77	28.00	56.00	-28.00	QP	
6		1.9928	10.39	9.77	20.16	46.00	-25.84	AVG	
7		5.1360	20.99	9.98	30.97	60.00	-29.03	QP	
8		5.1360	15.62	9.98	25.60	50.00	-24.40	AVG	
9		6.9630	20.79	10.03	30.82	60.00	-29.18	QP	
10		6.9630	15.53	10.03	25.56	50.00	-24.44	AVG	
11		14.3408	28.83	10.17	39.00	60.00	-21.00	QP	
12		14.3408	21.44	10.17	31.61	50.00	-18.39	AVG	

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

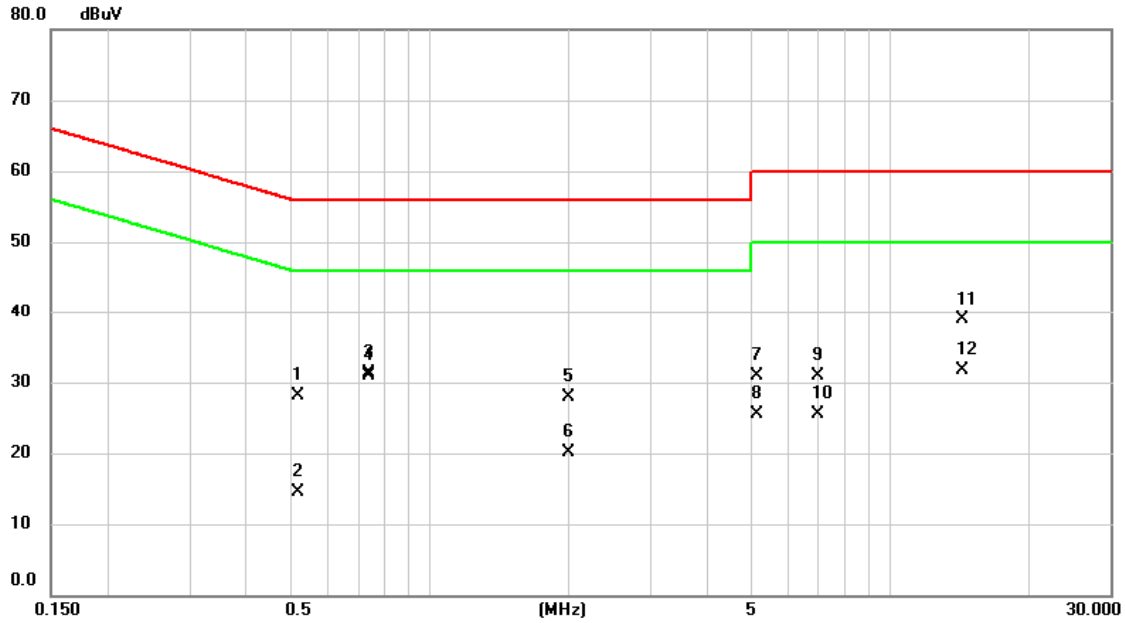
Test Mode	Normal	Tested Date	2021/11/5
Test Frequency	-	Phase	Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.7371	21.45	9.73	31.18	56.00	-24.82	QP	
2	*	0.7371	20.91	9.73	30.64	46.00	-15.36	AVG	
3		1.0882	14.46	9.74	24.20	56.00	-31.80	QP	
4		1.0882	4.23	9.74	13.97	46.00	-32.03	AVG	
5		2.9580	19.32	9.80	29.12	56.00	-26.88	QP	
6		2.9580	12.86	9.80	22.66	46.00	-23.34	AVG	
7		5.3205	19.98	9.99	29.97	60.00	-30.03	QP	
8		5.3205	14.60	9.99	24.59	50.00	-25.41	AVG	
9		6.9630	20.65	10.03	30.68	60.00	-29.32	QP	
10		6.9630	15.33	10.03	25.36	50.00	-24.64	AVG	
11		14.2800	28.77	10.17	38.94	60.00	-21.06	QP	
12		14.2800	21.74	10.17	31.91	50.00	-18.09	AVG	

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

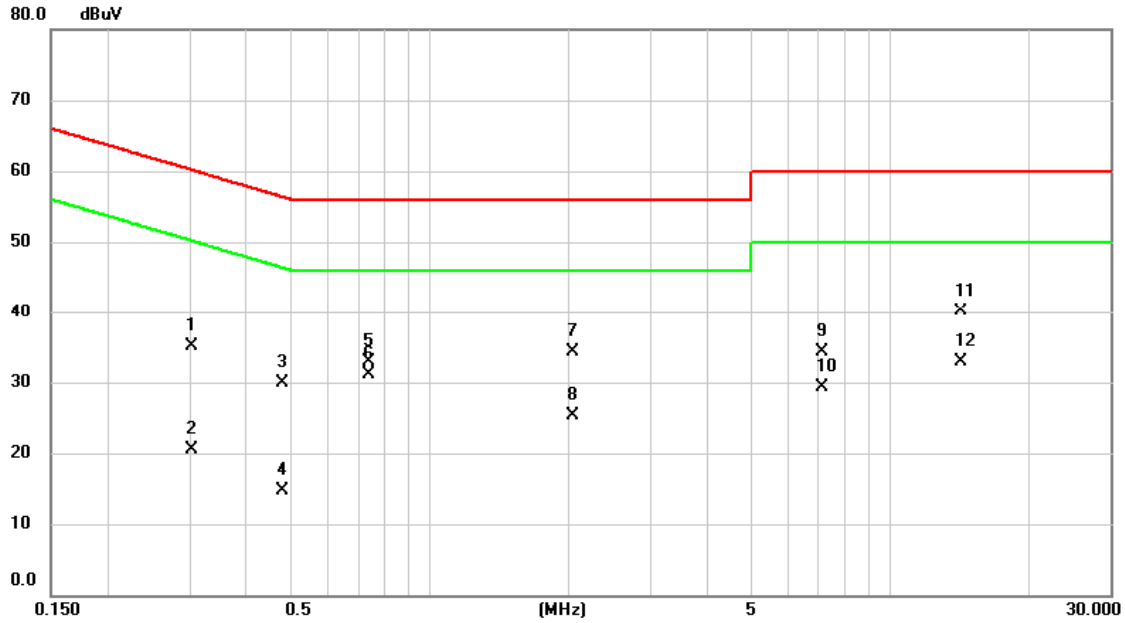
Test Mode	Idle	Tested Date	2021/11/5
Test Frequency	-	Phase	Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.5167	18.28	9.73	28.01	56.00	-27.99	QP	
2		0.5167	4.81	9.73	14.54	46.00	-31.46	AVG	
3		0.7372	21.58	9.73	31.31	56.00	-24.69	QP	
4	*	0.7372	21.13	9.73	30.86	46.00	-15.14	AVG	
5		1.9928	18.23	9.77	28.00	56.00	-28.00	QP	
6		1.9928	10.39	9.77	20.16	46.00	-25.84	AVG	
7		5.1360	20.99	9.98	30.97	60.00	-29.03	QP	
8		5.1360	15.62	9.98	25.60	50.00	-24.40	AVG	
9		6.9630	20.79	10.03	30.82	60.00	-29.18	QP	
10		6.9630	15.53	10.03	25.56	50.00	-24.44	AVG	
11		14.3408	28.83	10.17	39.00	60.00	-21.00	QP	
12		14.3408	21.44	10.17	31.61	50.00	-18.39	AVG	

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

Test Mode	Idle	Tested Date	2021/11/5
Test Frequency	-	Phase	Neutral

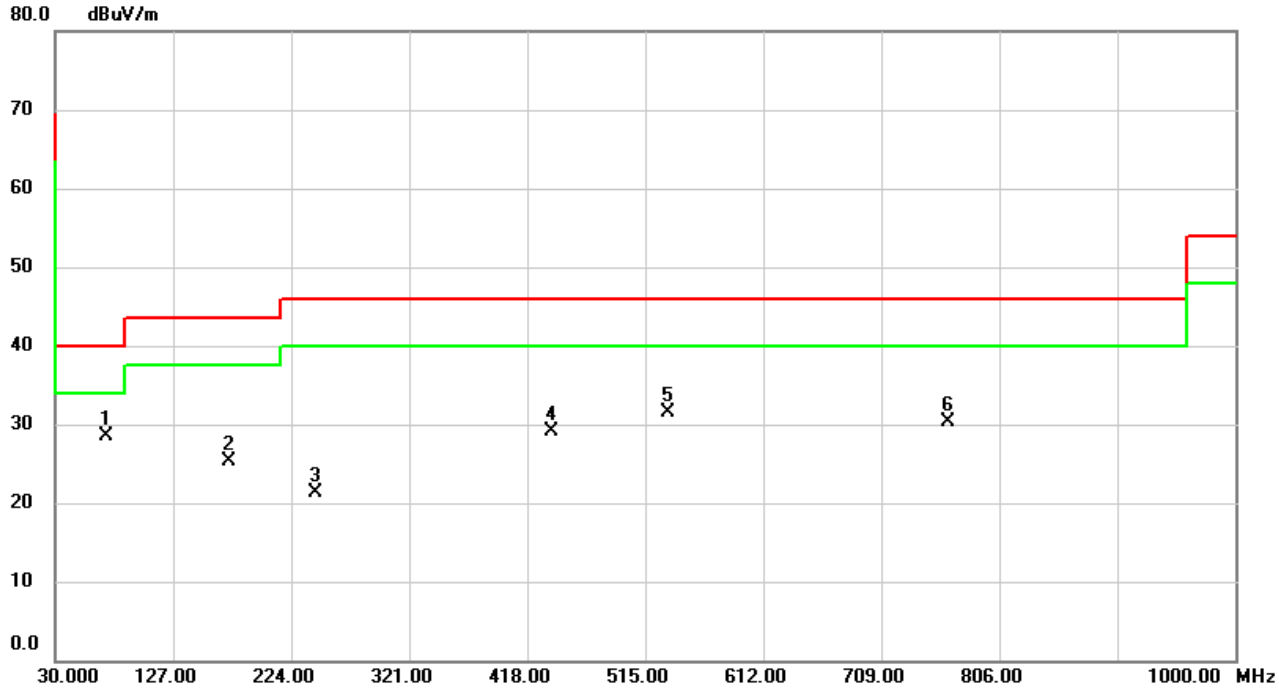


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.3030	25.46	9.73	35.19	60.16	-24.97	QP	
2		0.3030	10.83	9.73	20.56	50.16	-29.60	AVG	
3		0.4807	20.16	9.74	29.90	56.33	-26.43	QP	
4		0.4807	4.96	9.74	14.70	46.33	-31.63	AVG	
5		0.7372	23.23	9.74	32.97	56.00	-23.03	QP	
6	*	0.7372	21.31	9.74	31.05	46.00	-14.95	AVG	
7		2.0445	24.48	9.78	34.26	56.00	-21.74	QP	
8		2.0445	15.46	9.78	25.24	46.00	-20.76	AVG	
9		7.1138	24.22	10.07	34.29	60.00	-25.71	QP	
10		7.1138	19.23	10.07	29.30	50.00	-20.70	AVG	
11		14.2440	29.86	10.24	40.10	60.00	-19.90	QP	
12		14.2440	22.63	10.24	32.87	50.00	-17.13	AVG	

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

APPENDIX B RADIATED EMISSIONS - 30 MHZ TO 1 GHZ

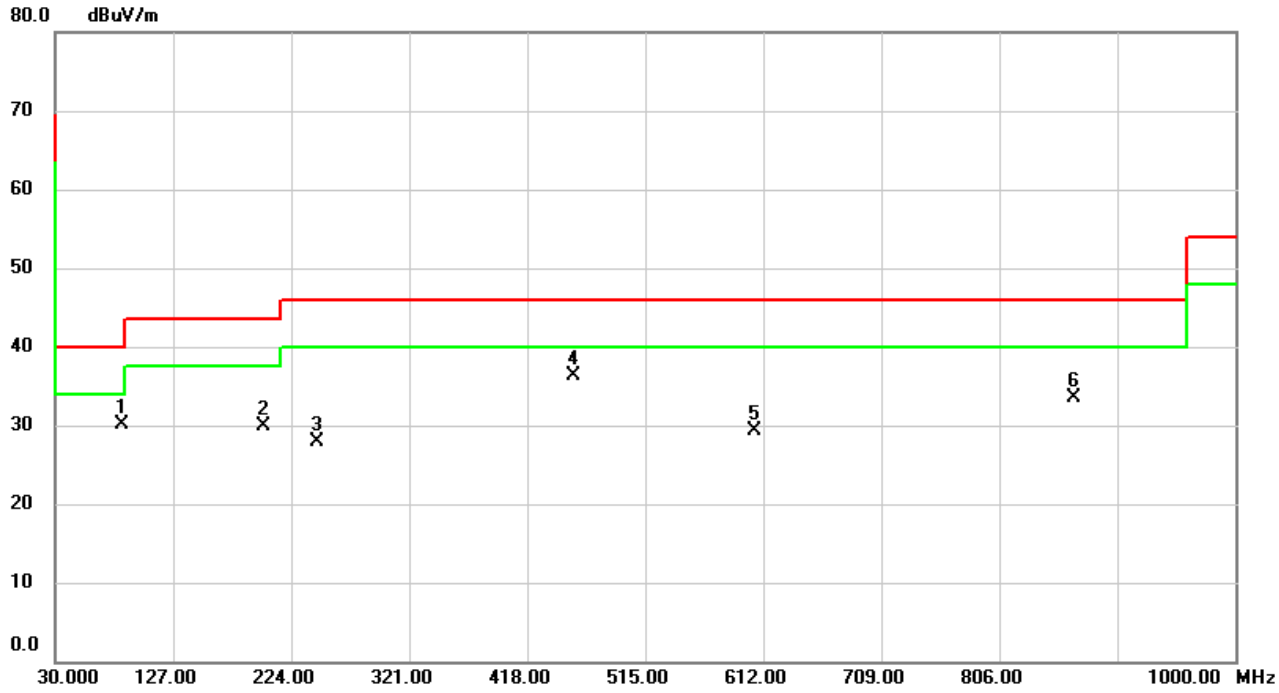
Test Mode	BT(1Mbps)	Test Date	2021/11/4
Test Frequency	2480MHz	Polarization	Vertical
Temp	23°C	Hum.	67%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	71.8070	39.87	-11.31	28.56	40.00	-11.44	peak	
2		173.3660	34.98	-9.76	25.22	43.50	-18.28	peak	
3		244.0143	31.93	-10.61	21.32	46.00	-24.68	peak	
4		437.9497	33.82	-4.74	29.08	46.00	-16.92	peak	
5		533.5917	34.46	-2.98	31.48	46.00	-14.52	peak	
6		763.6433	28.79	1.59	30.38	46.00	-15.62	peak	

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

Test Mode	BT(1Mbps)	Test Date	2021/11/4
Test Frequency	2480MHz	Polarization	Horizontal
Temp	23°C	Hum.	67%

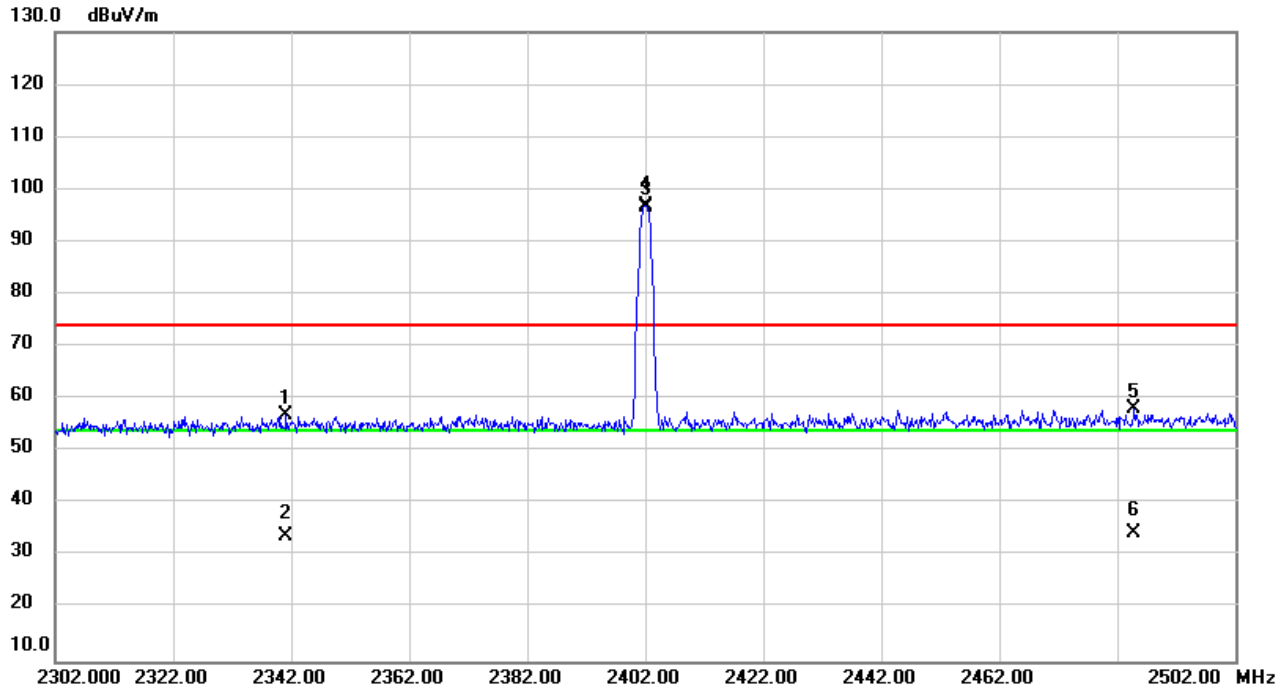


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		84.5786	44.26	-14.15	30.11	40.00	-9.89	peak	
2		201.1726	42.01	-12.11	29.90	43.50	-13.60	peak	
3		245.5340	38.40	-10.54	27.86	46.00	-18.14	peak	
4	*	456.5413	40.56	-4.29	36.27	46.00	-9.73	peak	
5		604.3046	30.39	-1.00	29.39	46.00	-16.61	peak	
6		867.0453	30.55	2.97	33.52	46.00	-12.48	peak	

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

APPENDIX C RADIATED EMISSIONS - ABOVE 1 GHZ

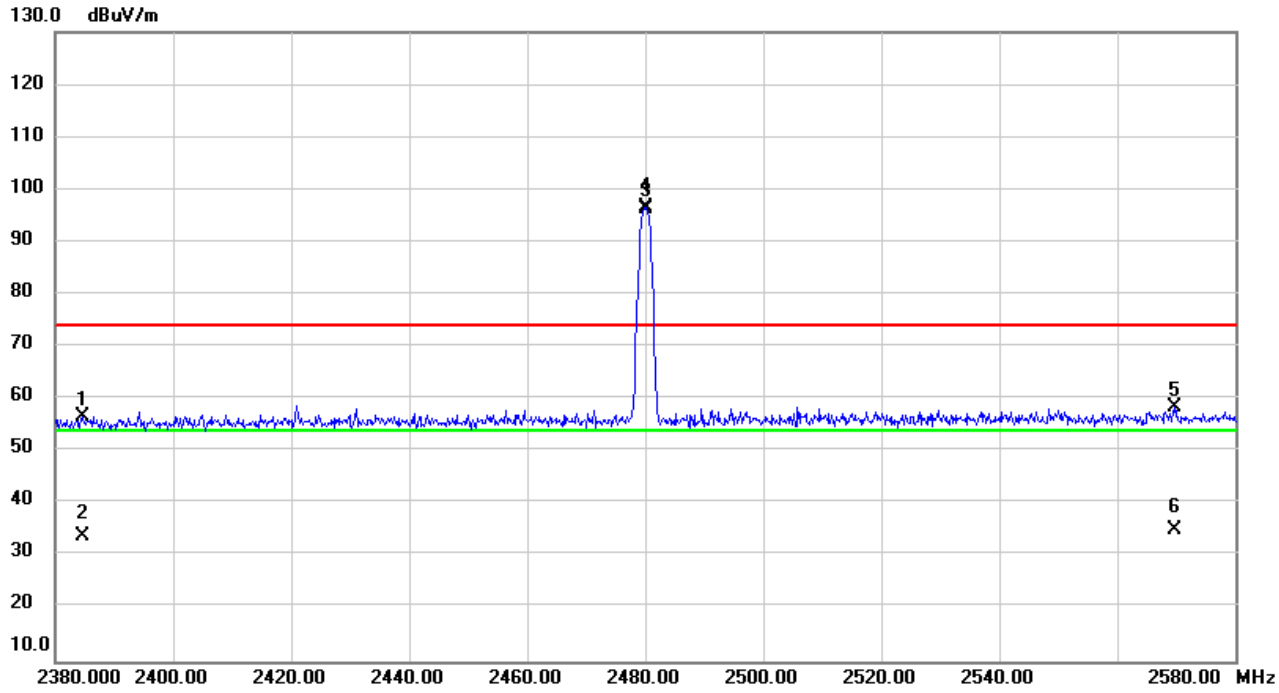
Test Mode	BT(1Mbps)	Test Date	2021/11/2
Test Frequency	2402MHz	Polarization	Horizontal
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2341.047	25.86	31.06	56.92	74.00	-17.08	peak	
2		2341.047	2.94	31.06	34.00	54.00	-20.00	AVG	
3	X	2402.000	65.71	31.26	96.97	74.00	22.97	peak	NoLimit
4	*	2402.000	65.20	31.26	96.46	54.00	42.46	AVG	NoLimit
5		2484.833	26.56	31.52	58.08	74.00	-15.92	peak	
6		2484.833	2.99	31.52	34.51	54.00	-19.49	AVG	

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

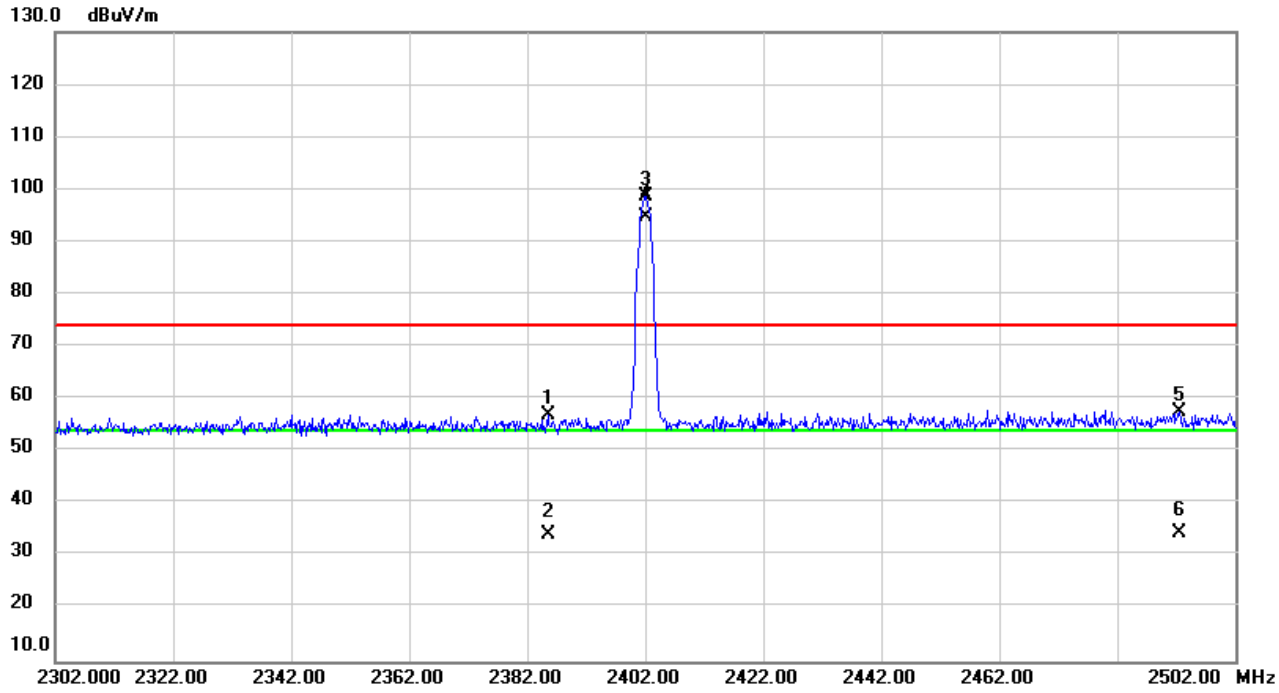
Test Mode	BT(1Mbps)	Test Date	2021/11/2
Test Frequency	2480MHz	Polarization	Horizontal
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2384.773	25.59	31.19	56.78	74.00	-17.22	peak	
2		2384.773	2.79	31.19	33.98	54.00	-20.02	AVG	
3	X	2480.000	64.97	31.51	96.48	74.00	22.48	peak	NoLimit
4	*	2480.000	64.61	31.51	96.12	54.00	42.12	AVG	NoLimit
5		2569.613	26.72	31.77	58.49	74.00	-15.51	peak	
6		2569.613	3.23	31.77	35.00	54.00	-19.00	AVG	

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

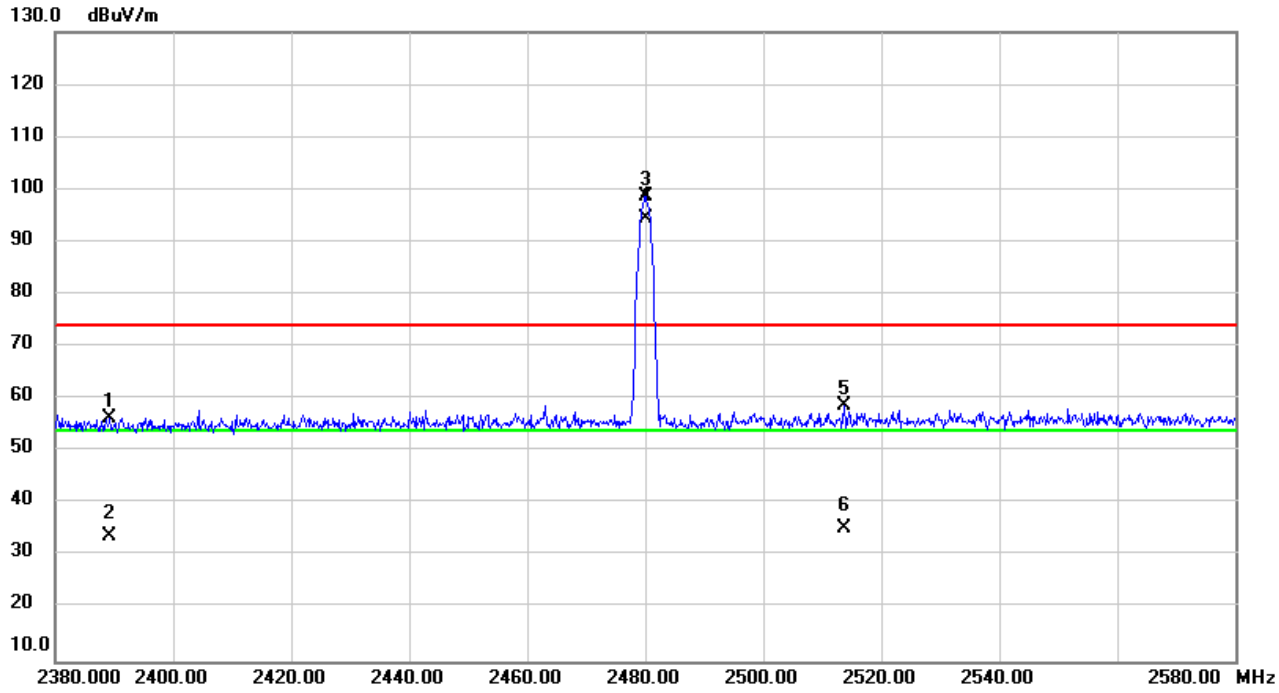
Test Mode	BT(3Mbps)	Test Date	2021/11/2
Test Frequency	2402MHz	Polarization	Horizontal
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2385.573	25.73	31.19	56.92	74.00	-17.08	peak	
2		2385.573	2.86	31.19	34.05	54.00	-19.95	AVG	
3	X	2402.000	67.37	31.26	98.63	74.00	24.63	peak	NoLimit
4	*	2402.000	63.44	31.26	94.70	54.00	40.70	AVG	NoLimit
5		2492.600	26.09	31.55	57.64	74.00	-16.36	peak	
6		2492.600	2.96	31.55	34.51	54.00	-19.49	AVG	

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

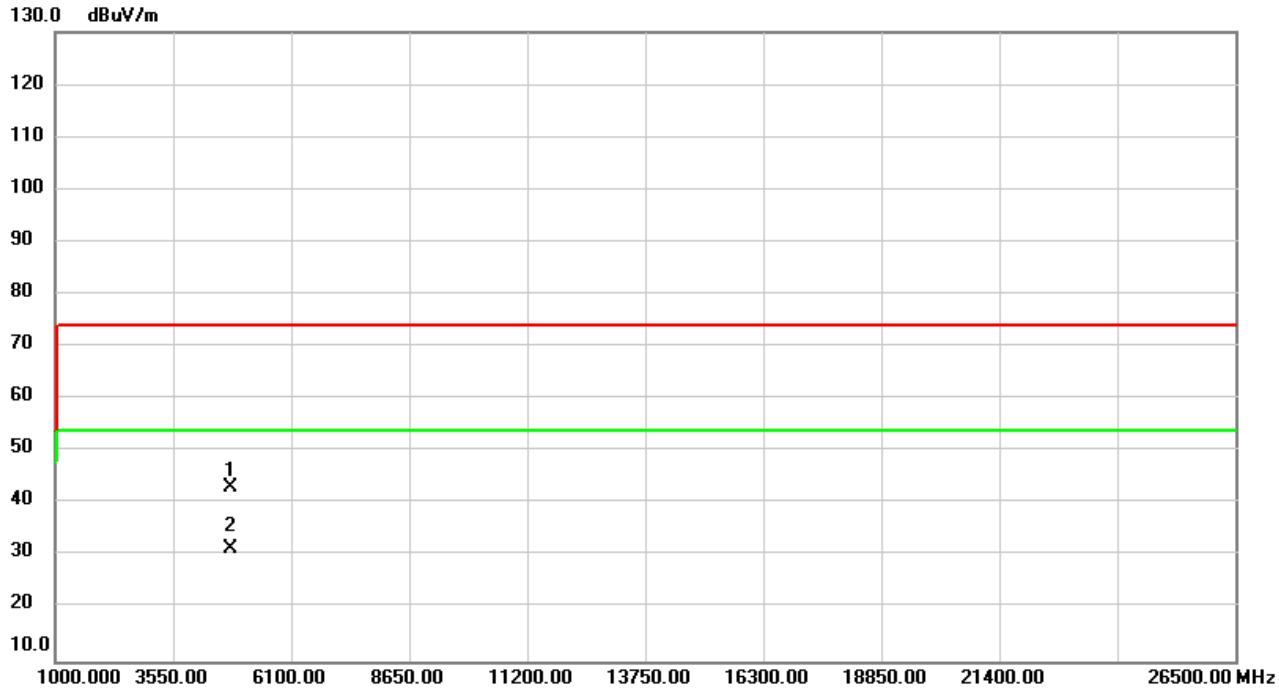
Test Mode	BT(3Mbps)	Test Date	2021/11/2
Test Frequency	2480MHz	Polarization	Horizontal
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2389.207	25.05	31.21	56.26	74.00	-17.74	peak	
2		2389.207	2.76	31.21	33.97	54.00	-20.03	AVG	
3	X	2480.000	67.11	31.51	98.62	74.00	24.62	peak	NoLimit
4	*	2480.000	62.91	31.51	94.42	54.00	40.42	AVG	NoLimit
5		2513.727	27.15	31.61	58.76	74.00	-15.24	peak	
6		2513.727	3.63	31.61	35.24	54.00	-18.76	AVG	

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

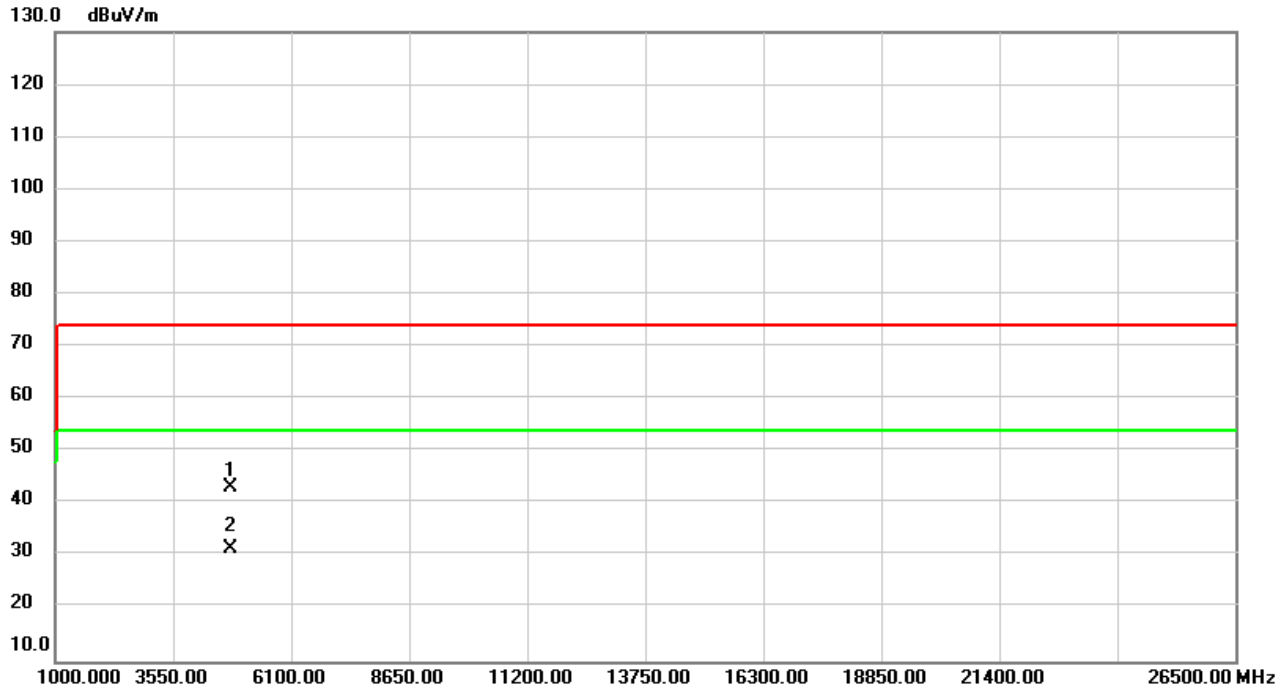
Test Mode	BT(1Mbps)	Test Date	2021/11/2
Test Frequency	2402MHz	Polarization	Vertical
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.000	53.11	-9.84	43.27	74.00	-30.73	peak	
2	*	4804.000	41.42	-9.84	31.58	54.00	-22.42	AVG	

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

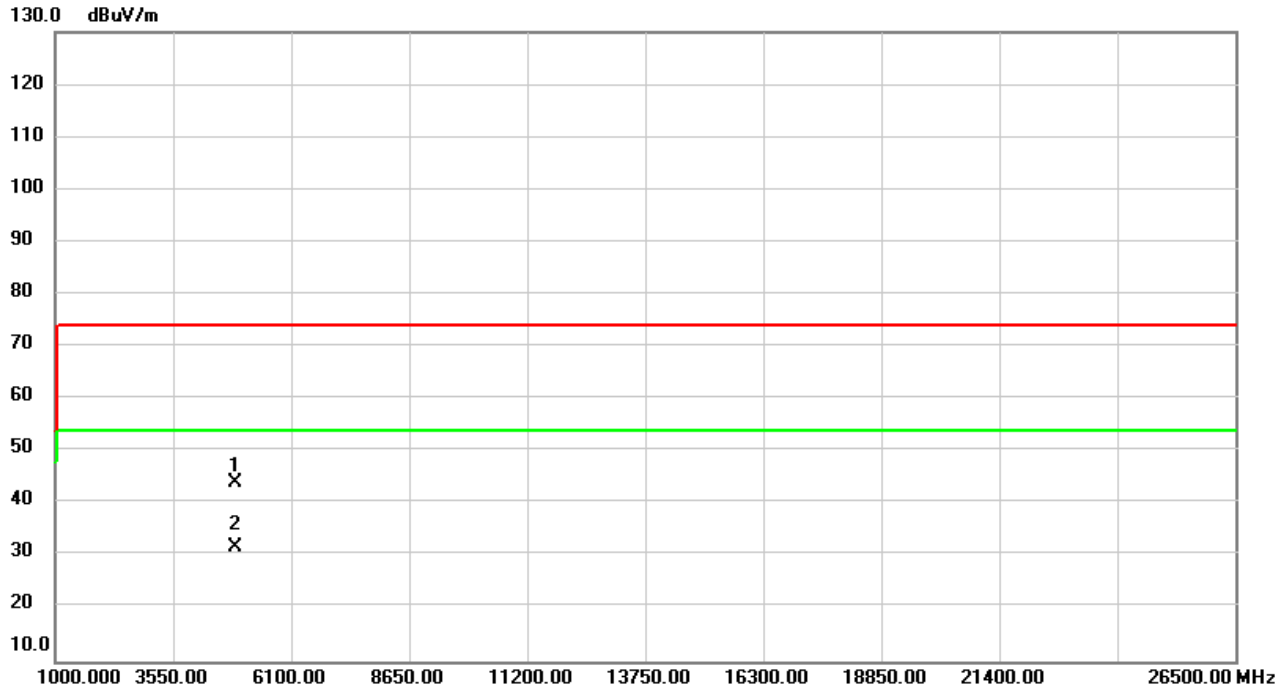
Test Mode	BT(1Mbps)	Test Date	2021/11/2
Test Frequency	2402MHz	Polarization	Horizontal
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.000	52.91	-9.84	43.07	74.00	-30.93	peak	
2	*	4804.000	41.42	-9.84	31.58	54.00	-22.42	AVG	

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

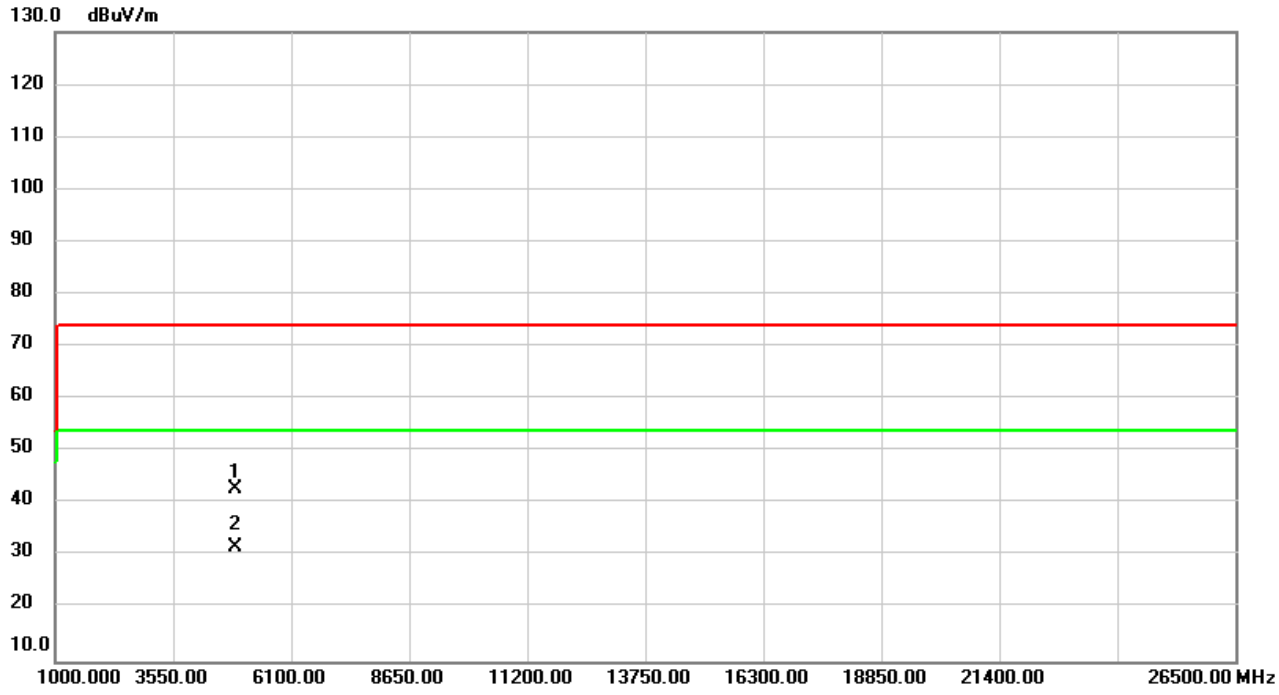
Test Mode	BT(1Mbps)	Test Date	2021/11/2
Test Frequency	2441MHz	Polarization	Vertical
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4882.000	53.68	-9.77	43.91	74.00	-30.09	peak	
2	*	4882.000	41.55	-9.77	31.78	54.00	-22.22	AVG	

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

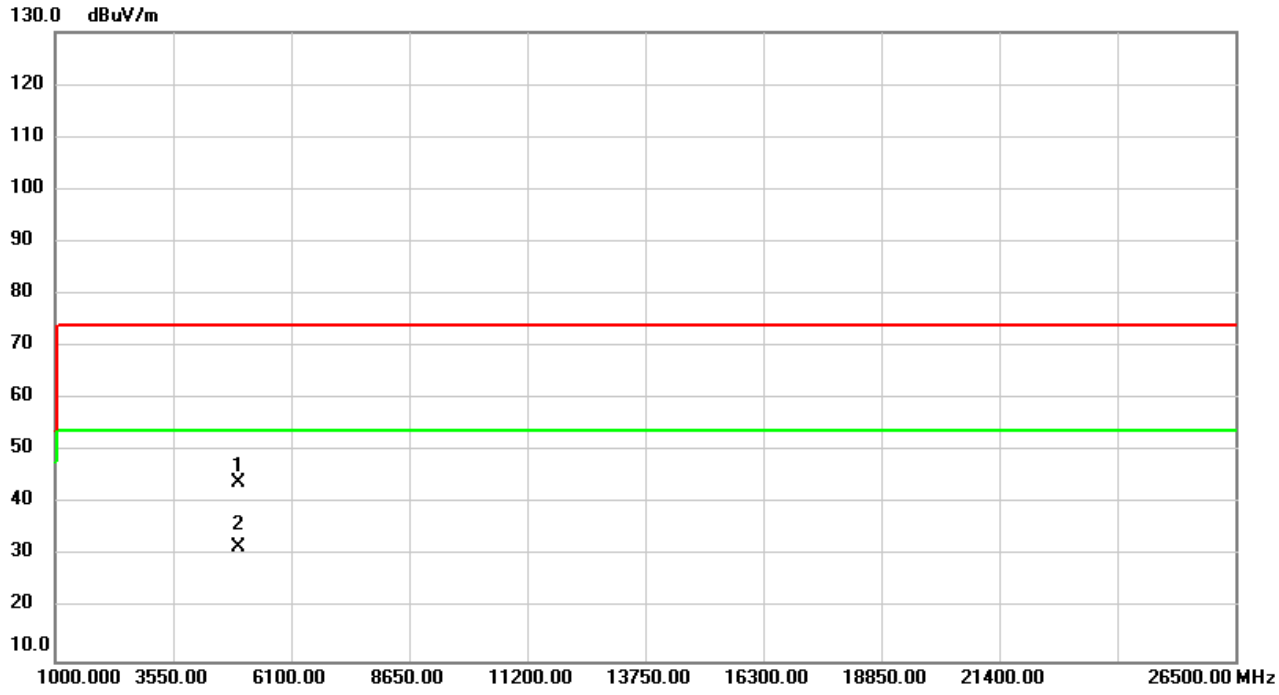
Test Mode	BT(1Mbps)	Test Date	2021/11/2
Test Frequency	2441MHz	Polarization	Horizontal
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4882.000	52.49	-9.77	42.72	74.00	-31.28	peak	
2	*	4882.000	41.46	-9.77	31.69	54.00	-22.31	AVG	

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

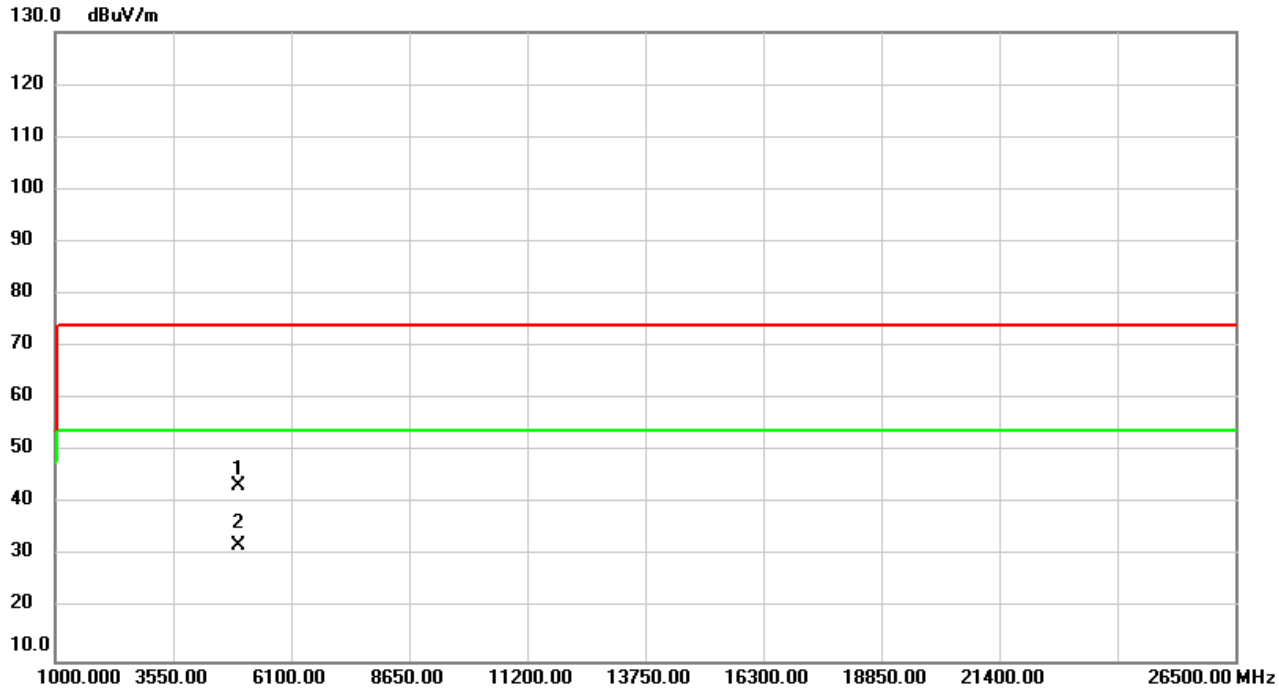
Test Mode	BT(1Mbps)	Test Date	2021/11/2
Test Frequency	2480MHz	Polarization	Vertical
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4960.000	53.72	-9.68	44.04	74.00	-29.96	peak	
2	*	4960.000	41.57	-9.68	31.89	54.00	-22.11	AVG	

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

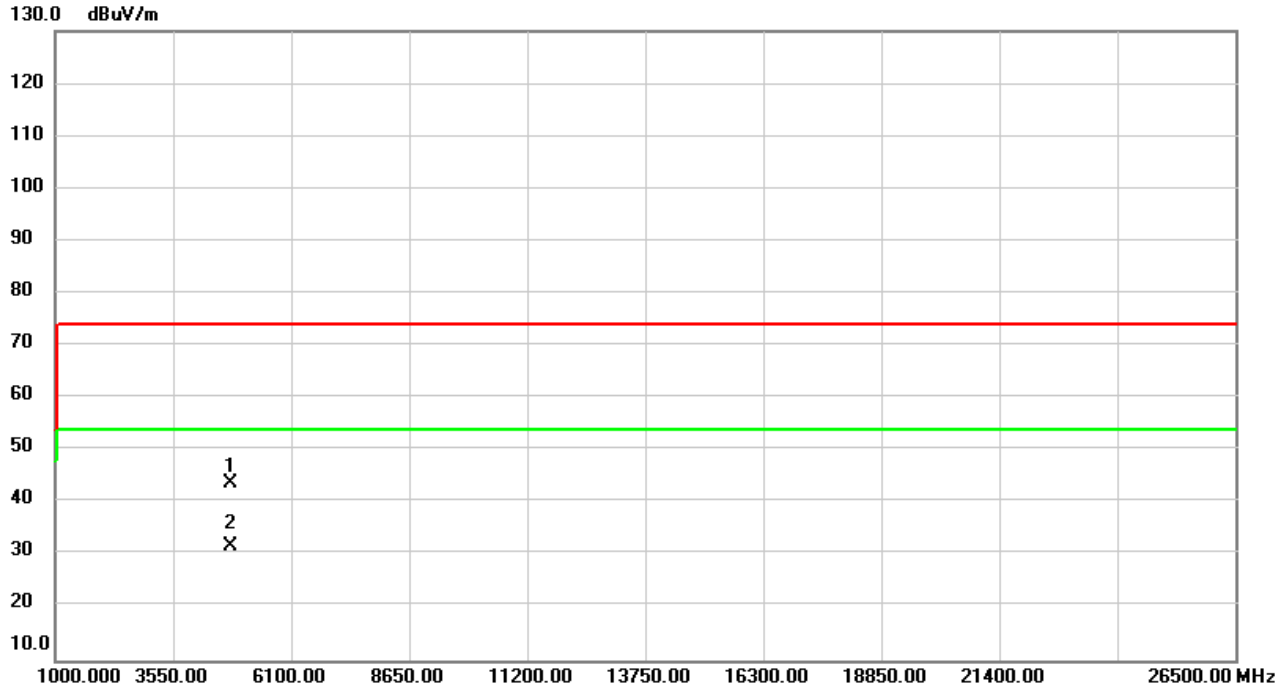
Test Mode	BT(1Mbps)	Test Date	2021/11/2
Test Frequency	2480MHz	Polarization	Horizontal
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4960.000	53.00	-9.68	43.32	74.00	-30.68	peak	
2	*	4960.000	41.77	-9.68	32.09	54.00	-21.91	AVG	

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

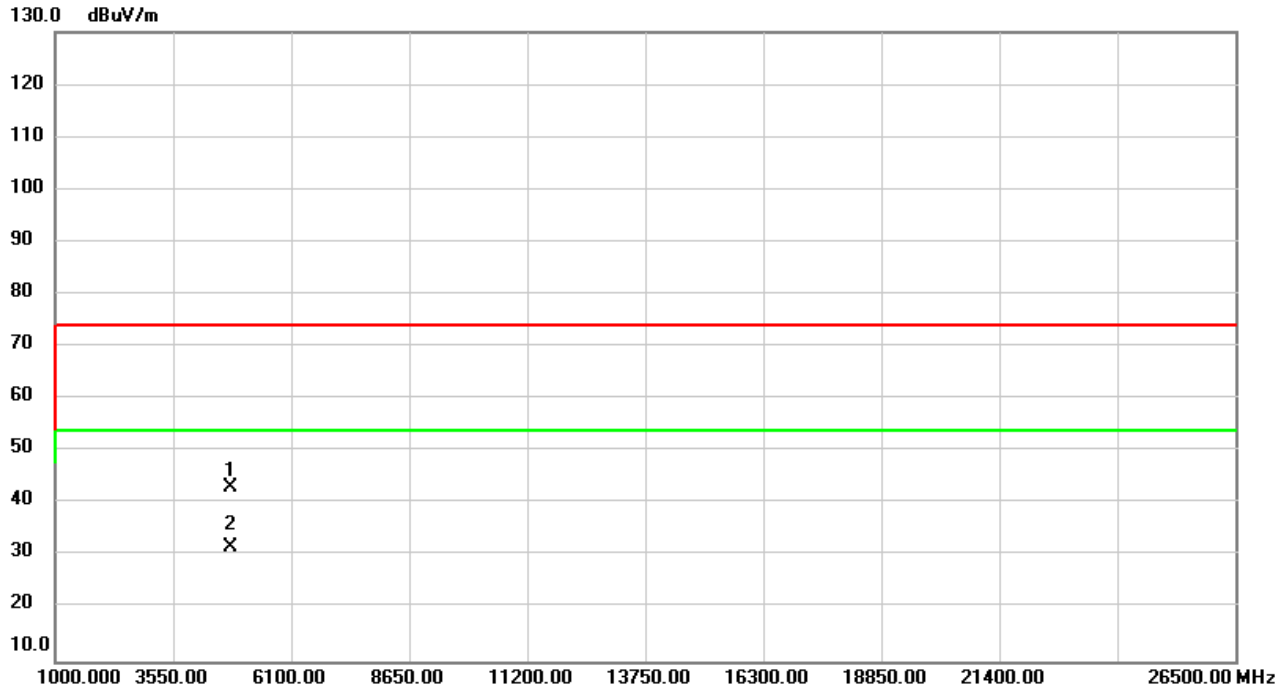
Test Mode	BT(3Mbps)	Test Date	2021/11/2
Test Frequency	2402MHz	Polarization	Vertical
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.000	53.48	-9.84	43.64	74.00	-30.36	peak	
2	*	4804.000	41.45	-9.84	31.61	54.00	-22.39	AVG	

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

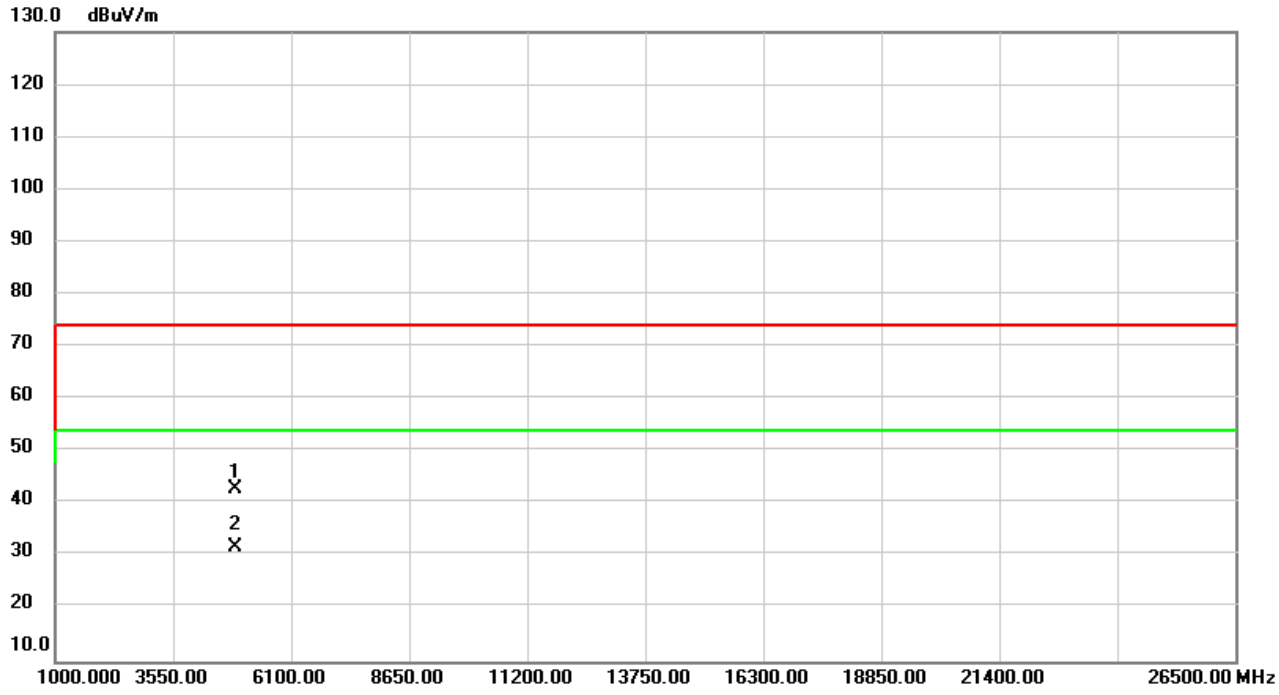
Test Mode	BT(3Mbps)	Test Date	2021/11/2
Test Frequency	2402MHz	Polarization	Horizontal
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.000	53.08	-9.84	43.24	74.00	-30.76	peak	
2	*	4804.000	41.45	-9.84	31.61	54.00	-22.39	AVG	

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

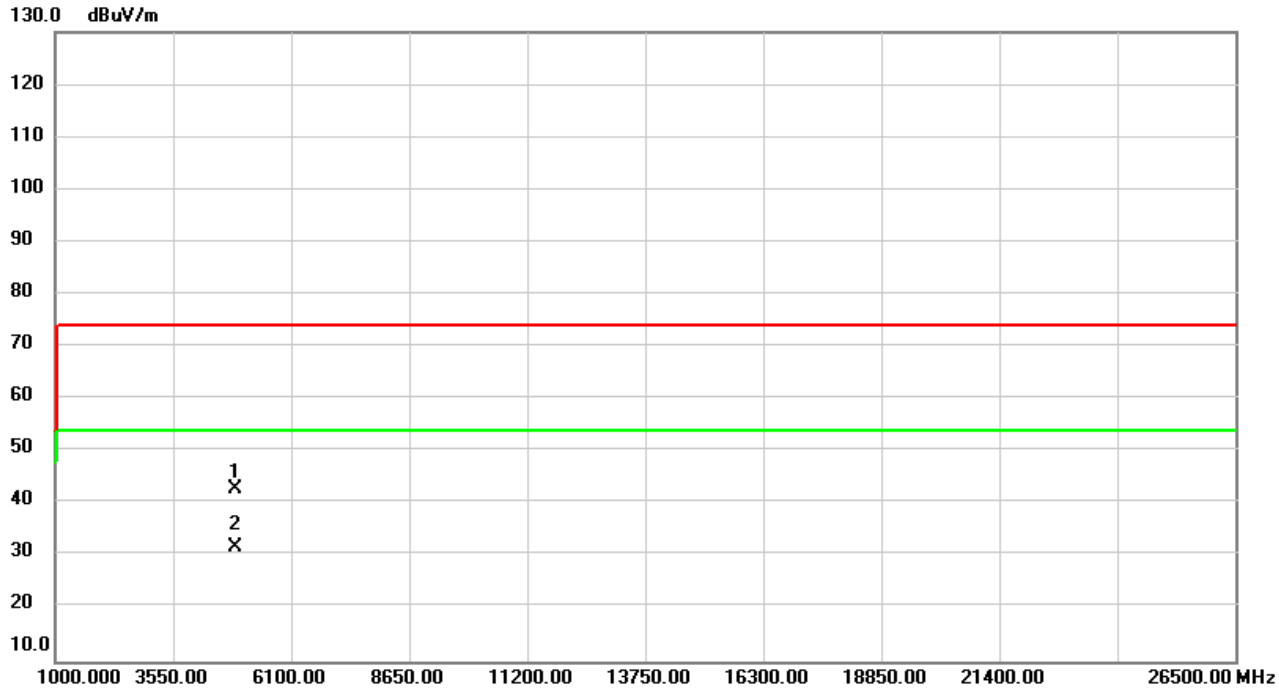
Test Mode	BT(3Mbps)	Test Date	2021/11/2
Test Frequency	2441MHz	Polarization	Vertical
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4882.000	52.71	-9.77	42.94	74.00	-31.06	peak	
2	*	4882.000	41.39	-9.77	31.62	54.00	-22.38	AVG	

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

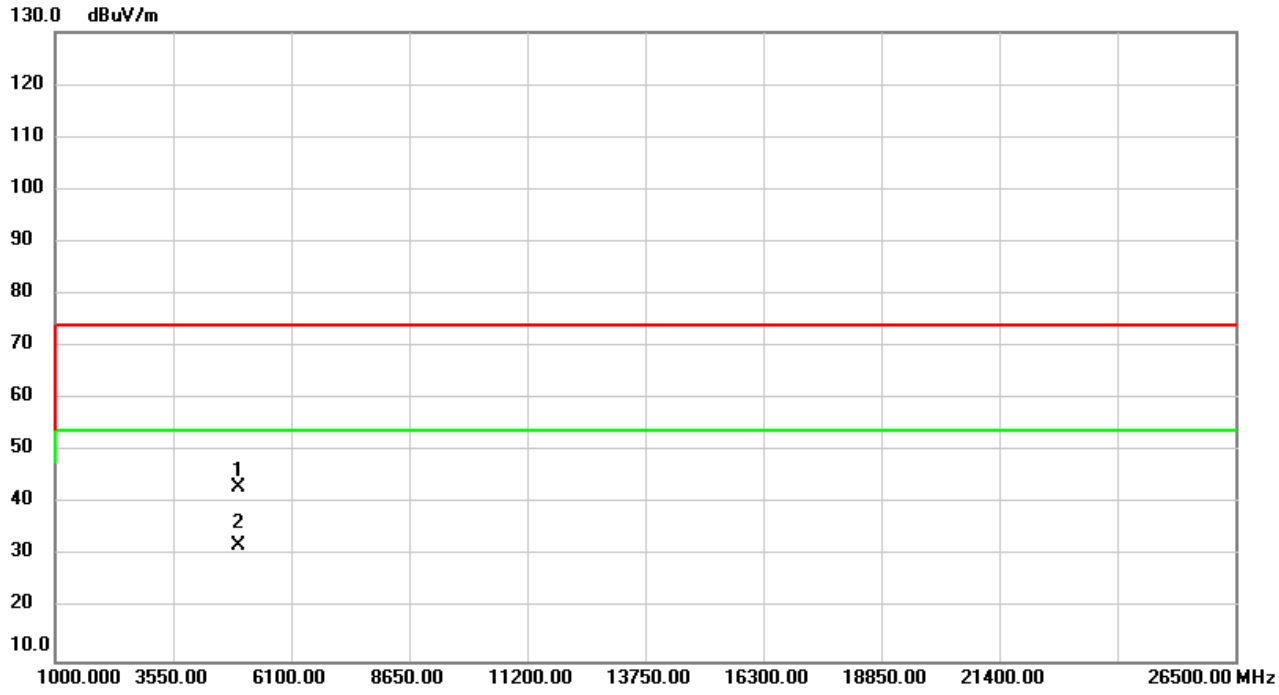
Test Mode	BT(3Mbps)	Test Date	2021/11/2
Test Frequency	2441MHz	Polarization	Horizontal
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4882.000	52.68	-9.77	42.91	74.00	-31.09	peak	
2	*	4882.000	41.46	-9.77	31.69	54.00	-22.31	AVG	

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

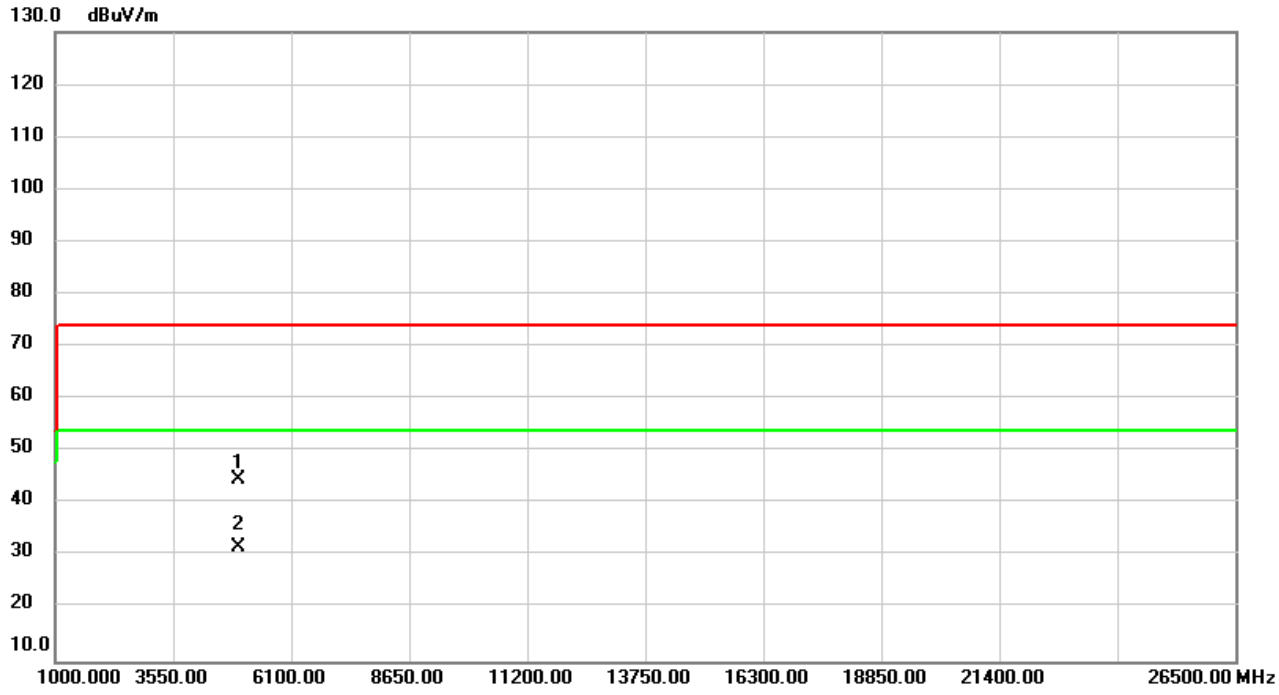
Test Mode	BT(3Mbps)	Test Date	2021/11/2
Test Frequency	2480MHz	Polarization	Vertical
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4960.000	52.84	-9.68	43.16	74.00	-30.84	peak	
2	*	4960.000	41.63	-9.68	31.95	54.00	-22.05	AVG	

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

Test Mode	BT(3Mbps)	Test Date	2021/11/2
Test Frequency	2480MHz	Polarization	Horizontal
Temp	22°C	Hum.	65%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4960.000	54.48	-9.68	44.80	74.00	-29.20	peak	
2	*	4960.000	41.54	-9.68	31.86	54.00	-22.14	AVG	

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

APPENDIX D OUTPUT POWER

Test Mode :	BT(1 Mbps)	Tested Date	2021/11/3

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	3.63	0.0023	20.97	0.1250	Pass
2441	4.40	0.0028	20.97	0.1250	Pass
2480	4.73	0.0030	20.97	0.1250	Pass

Test Mode :	BT(2 Mbps)	Tested Date	2021/11/3

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	4.35	0.0027	20.97	0.1250	Pass
2441	4.44	0.0028	20.97	0.1250	Pass
2480	4.53	0.0028	20.97	0.1250	Pass

Test Mode :	BT(3 Mbps)	Tested Date	2021/11/3

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	4.33	0.0027	20.97	0.1250	Pass
2441	4.78	0.0030	20.97	0.1250	Pass
2480	5.08	0.0032	20.97	0.1250	Pass

End of Test Report