

FCC Radio Test Report

FCC ID: EROTS80

Report No. : BTL-FCCP-2-2502T154
Equipment : (1) 8 inch Touch Screen Table top
 (2) 10.1 inch Touch Screen Table top
Model Name : (1) M202404005
 (2) M202404006
Brand Name : CRESTRON
Applicant : Crestron Electronics, Inc.
Address : 15 Volvo Drive, Rockleigh, NJ 07647

Radio Function : Bluetooth Low Energy

FCC Rule Part(s) : FCC CFR Title 47, Part 15, Subpart C (15.247)
Measurement : ANSI C63.10-2013
Procedure(s)

Date of Receipt : 2025/2/27
Date of Test : 2025/3/3 ~ 2025/4/1
Issued Date : 2025/6/11

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

Prepared by

: Brett Shen
Brett Shen, Engineer



Approved by

: Jerry Chuang
Jerry Chuang, Supervisor

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 Service mail: btl_qa@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** 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**.

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** 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

REVISION HISTORY	5
1 SUMMARY OF TEST RESULTS	6
1.1 TEST FACILITY	7
1.2 MEASUREMENT UNCERTAINTY	7
1.3 TEST ENVIRONMENT CONDITIONS	7
1.4 DUTY CYCLE	8
2 GENERAL INFORMATION	9
2.1 DESCRIPTION OF EUT	9
2.2 TEST MODES	11
2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	12
2.4 SUPPORT UNITS	12
3 RADIATED EMISSIONS TEST	13
3.1 LIMIT	13
3.2 TEST PROCEDURE	14
3.3 DEVIATION FROM TEST STANDARD	14
3.4 TEST SETUP	14
3.5 EUT OPERATING CONDITIONS	15
3.6 TEST RESULT – 9 KHZ TO 30 MHZ	16
3.7 TEST RESULT – 30 MHZ TO 1 GHZ	16
3.8 TEST RESULT – ABOVE 1 GHZ	16
4 BANDWIDTH TEST	17
4.1 APPLIED PROCEDURES / LIMIT	17
4.2 TEST PROCEDURE	17
4.3 DEVIATION FROM STANDARD	17
4.4 TEST SETUP	17
4.5 EUT OPERATION CONDITIONS	17
4.6 TEST RESULTS	17
5 OUTPUT POWER TEST	18
5.1 APPLIED PROCEDURES / LIMIT	18
5.2 TEST PROCEDURE	18
5.3 DEVIATION FROM STANDARD	18
5.4 TEST SETUP	18
5.5 EUT OPERATION CONDITIONS	18
5.6 TEST RESULTS	18
6 POWER SPECTRAL DENSITY TEST	19
6.1 APPLIED PROCEDURES / LIMIT	19
6.2 TEST PROCEDURE	19
6.3 DEVIATION FROM STANDARD	19
6.4 TEST SETUP	19
6.5 EUT OPERATION CONDITIONS	19
6.6 TEST RESULTS	19
7 ANTENNA CONDUCTED SPURIOUS EMISSION	20
7.1 APPLIED PROCEDURES / LIMIT	20
7.2 TEST PROCEDURE	20
7.3 DEVIATION FROM STANDARD	20
7.4 TEST SETUP	20
7.5 EUT OPERATION CONDITIONS	20

7.6	TEST RESULTS	20
8	LIST OF MEASURING EQUIPMENTS	21
9	EUT TEST PHOTO	22
10	EUT PHOTOS	22
APPENDIX A	RADIATED EMISSIONS - 9 KHZ TO 30 MHZ	23
APPENDIX B	RADIATED EMISSIONS - 30 MHZ TO 1 GHZ	28
APPENDIX C	RADIATED EMISSIONS - ABOVE 1 GHZ	31
APPENDIX D	BANDWIDTH	50
APPENDIX E	OUTPUT POWER	53
APPENDIX F	POWER SPECTRAL DENSITY TEST	55
APPENDIX G	ANTENNA CONDUCTED SPURIOUS EMISSION	58

REVISION HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-2-2502T154	R00	Original Report.	2025/5/27	Invalid
BTL-FCCP-2-2502T154	R01	Revised Typo.	2025/6/11	Valid

1 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards.

Standard(s) Section	Description	Test Result	Judgement	Remark
15.207	AC Power Line Conducted Emissions	-----	N/A	NOTE (3)
15.205 15.209 15.247(d)	Radiated Emissions	APPENDIX A APPENDIX B APPENDIX C	Pass	-----
15.247(a)(2)	Bandwidth	APPENDIX D	Pass	-----
15.247(b)(3)	Output Power	APPENDIX E	Pass	-----
15.247(e)	Power Spectral Density	APPENDIX F	Pass	-----
15.247(d)	Antenna conducted Spurious Emission	APPENDIX G	Pass	-----
15.203	Antenna Requirement	-----	Pass	-----

Statement of Conformity

The statement of conformity is based on the binary decision rule according to IEC Guide 115 and ILAC G8 "simple acceptance" principle. Without considering measurement uncertainty, its specific risk is less than 50% PFA. (PFA: Probability of False Accept)

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 is a DC input device.

1.1 TEST FACILITY

The test locations stated below are under the TAF Accreditation Number 0659.

The test location(s) used to collect the test data in this report are:

No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan
(FCC DN: TW0659)

C05 CB08 CB11 SR10 SR11
No. 72, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan
(FCC DN: TW0659)

C06 CB21 CB22

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, 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 %.

A. Radiated emissions test :

Test Site	Measurement Frequency Range	U (dB)
CB21	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

B. Conducted test :

Test Item	U (dB)
Occupied Bandwidth	0.5334
Output power	0.3669
Power Spectral Density	0.6591
Conducted Spurious emissions	0.5416
Conducted Band edges	0.5348

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

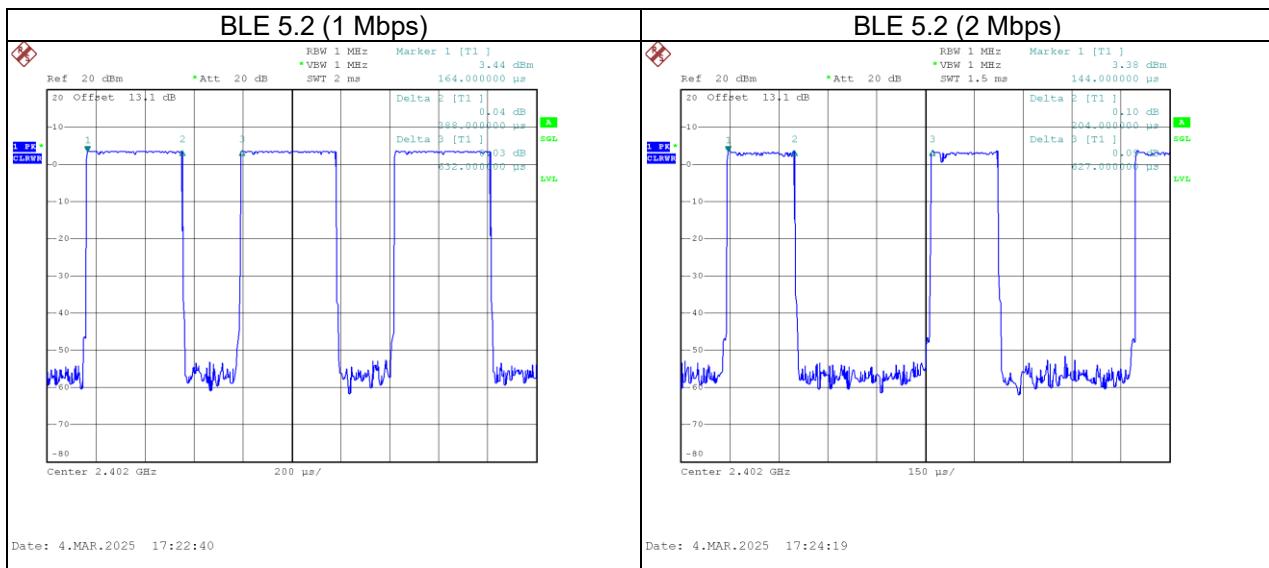
Test Item	Environment Condition	Test Voltage	Tested by
Radiated emissions below 1 GHz	Refer to data	DC 48V	Mark Wang
Radiated emissions above 1 GHz	Refer to data	DC 48V	Mark Wang
Bandwidth	22.3 °C, 61 %	DC 48V	Ken Lan
Output Power	23.9 °C, 47 %	DC 48V	Ken Lan
Power Spectral Density	22.3 °C, 61 %	DC 48V	Ken Lan
Antenna conducted Spurious Emission	22.3 °C, 61 %	DC 48V	Ken Lan

1.4 DUTY CYCLE

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

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

Remark	Delta 2			Delta 3	On Time/Period	10 log(1/Duty Cycle)
Mode	ON (ms)	Numbers (ON)	On Time (B) (ms)	Period (ON+OFF) (ms)	Duty Cycle (%)	Duty Factor (dB)
BLE 5.2 (1 Mbps)	0.388	1	0.388	0.632	61.39%	2.12
BLE 5.2 (2 Mbps)	0.204	1	0.204	0.627	32.54%	4.88



2 GENERAL INFORMATION

2.1 DESCRIPTION OF EUT

Equipment	(1) 8 inch Touch Screen Table top (2) 10.1 inch Touch Screen Table top
Model Name	(1) M202404005 (2) M202404006
Brand Name	CRESTRON
Model Difference	M202404005: Screen size 8 Inch Table top. M202404006: Screen size 10.1 Inch Table top
Power Source	DC voltage supplied from PoE.
Power Rating	Input 48 VDC 350mA (802.3at type 1) Input 48 VDC 600mA (802.3at type 2)
Products Covered	N/A
Operation Band	2400 MHz ~ 2483.5 MHz
Operation Frequency	2402 MHz ~ 2480 MHz
Modulation Technology	GFSK
Transfer Rate	1 Mbps, 2 Mbps
Output Power Max.	1 Mbps: 4.35 dBm (0.0027 W) 2 Mbps: 4.52 dBm (0.0028 W)
Test Software Version	Qualcomm Radio Control Toolkit Version 4.0.00203.0
Test Model	M202404006
Sample Status	Engineering Sample
EUT Modification(s)	N/A

NOTE:

(1) The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

(2) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	20	2442
01	2404	21	2444
02	2406	22	2446
03	2408	23	2448
04	2410	24	2450
05	2412	25	2452
06	2414	26	2454
07	2416	27	2456
08	2418	28	2458
09	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
15	2432	35	2472
16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
19	2440	39	2480

(3) Table for Filed Antenna:

For Screen size 8 Inch Table top:

Antenna	Manufacture	Part number	Type	Connector	Frequency (MHz)	Gain (dBi)
Main	SHENZHEN SUNWAY COMMUNICATION CO., LTD.	1100016748	FPC	I-PEX	2420-2480	0.65

For Screen size 10 Inch Table top:

Antenna	Manufacture	Part number	Type	Connector	Frequency (MHz)	Gain (dBi)
Main	SHENZHEN SUNWAY COMMUNICATION CO., LTD.	1100016748	FPC	I-PEX	2420-2480	2.41

Note: Antenna gain higher is used for testing.

(4) The above Antenna information are derived from the antenna data sheet provided by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

2.2 TEST MODES

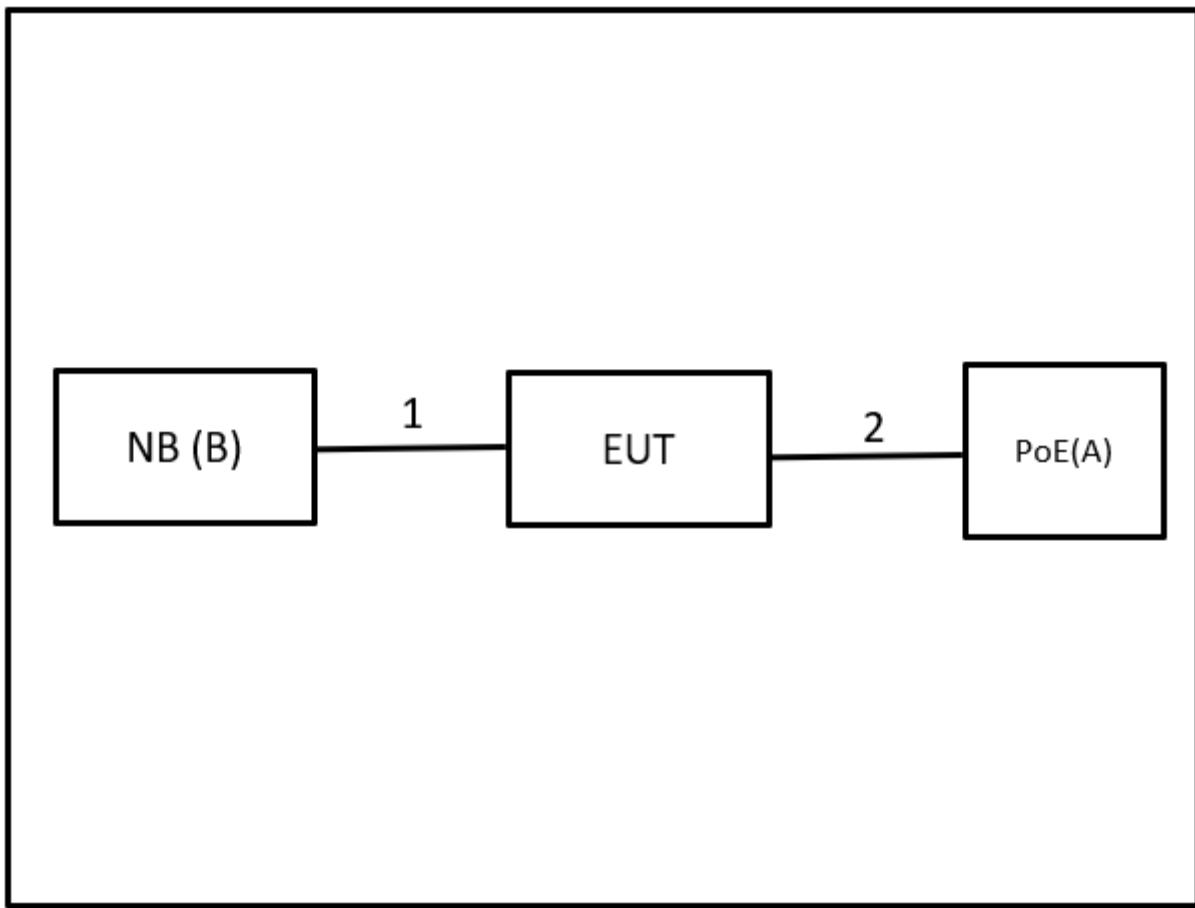
Test Items	Test mode	Channel	Note
Transmitter Radiated Emissions (below 1GHz)	2 Mbps	39	-
Transmitter Radiated Emissions (above 1GHz)	1/2 Mbps	00/39	Bandedge
	1/2 Mbps	00/19/39	Harmonic
Transmitter Radiated Emissions (above 18GHz)	2 Mbps	39	-
Bandwidth	1/2 Mbps	00/19/39	-
Output Power	1/2 Mbps	00/19/39	-
Power Spectral Density	1/2 Mbps	00/19/39	-
Antenna conducted Spurious Emission	1/2 Mbps	00/19/39	-

NOTE:

- (1) For radiated emission band edge test, both Vertical and Horizontal are evaluated, but only the worst case (Vertical) is recorded.
- (2) All X, Y and Z axes are evaluated, but only the worst case (X axis) is recorded.
- (3) The EUT supports both BLE 4.0 and 5.2, we will pick BLE 5.2 for testing.

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.



2.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.	Remarks
A	PoE	NETGEAR	GS305EPP	N/A	Supplied by test requester
B	NB	dyna	Portege-X40 G	N/A	Furnished by test lab.

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	N/A	N/A	1.5m	TypeC to TypeC	Furnished by test lab.
2	N/A	N/A	1m	RJ45	Supplied by test requester

3 RADIATED EMISSIONS TEST

3.1 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 (dB μ V/m)		Measurement Distance (meters)
	Peak	Average	
Above 1000	74	54	3

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 (dB μ V/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 (dB μ V)		Correct Factor (dB/m)		Measurement Value (dB μ V/m)
41.91	+	-8.36	=	33.55

Measurement Value (dB μ V/m)		Limit Value (dB μ V/m)		Margin Level (dB)
33.55	-	43.50	=	-9.95

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

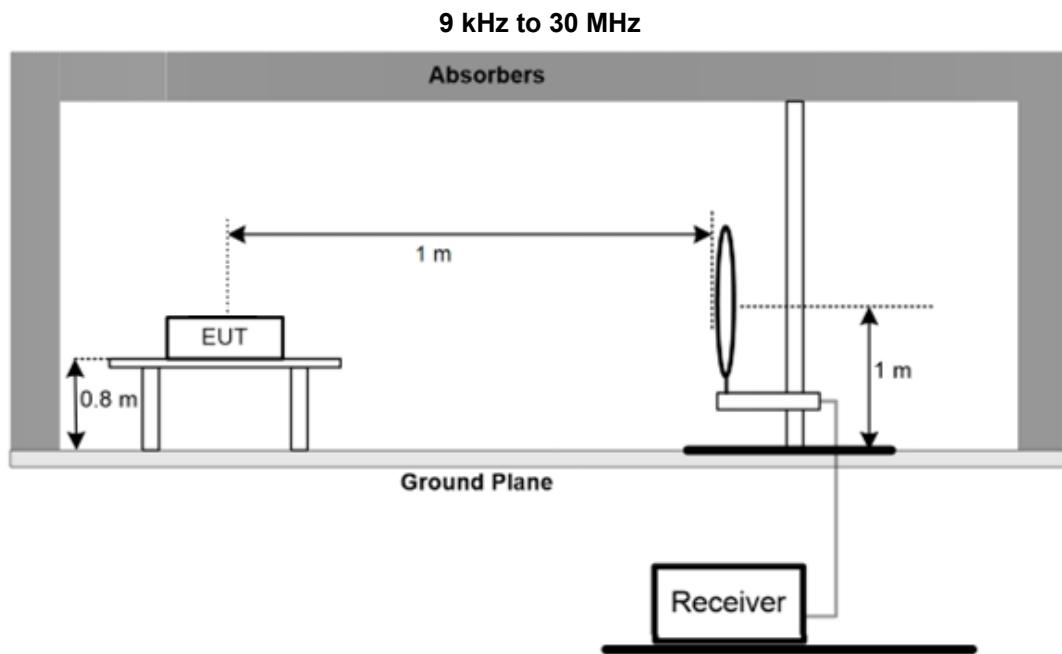
3.2 TEST PROCEDURE

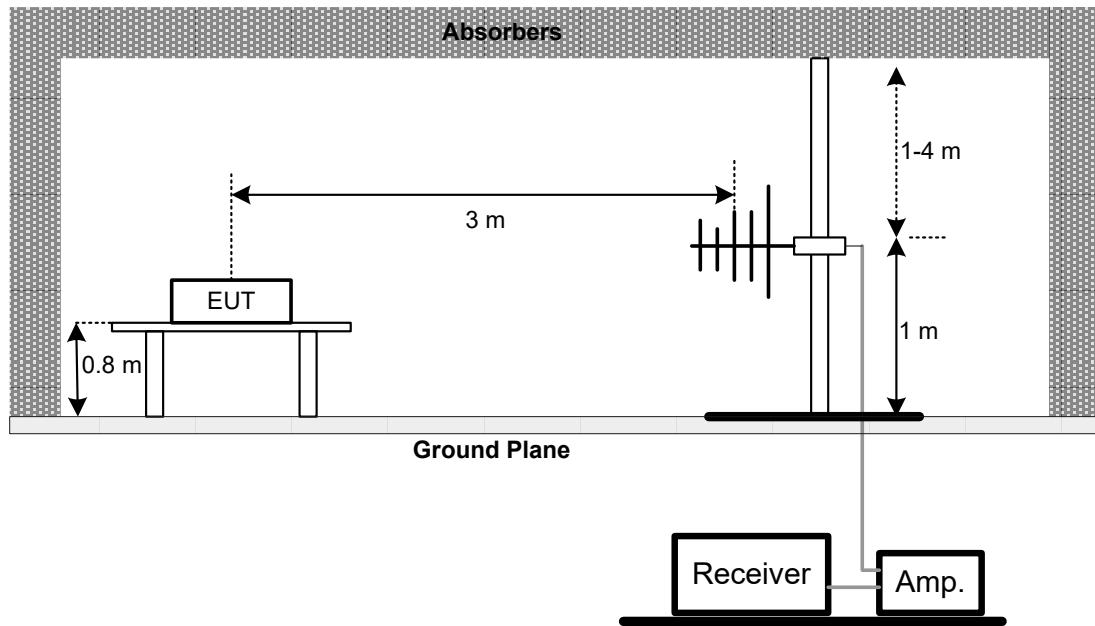
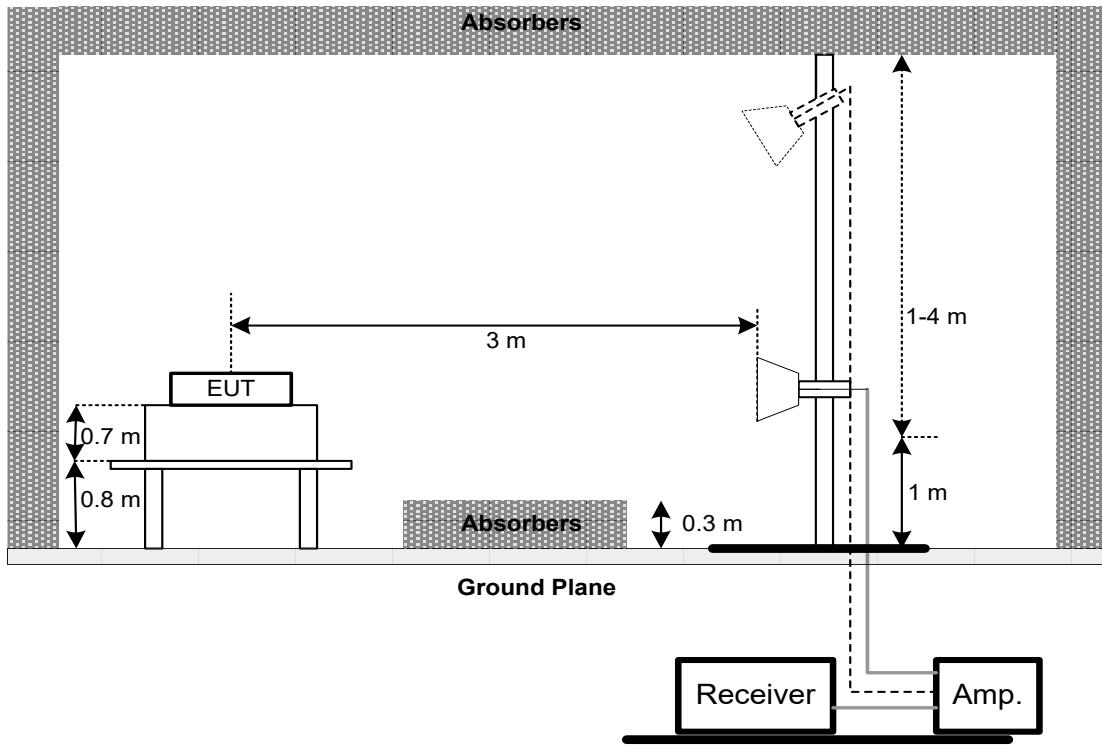
- a. The measuring distance of 1 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 30MHz)
- b. The measuring distance 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)
- c. 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)
- d. 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.
- e. 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).
- f. 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.
- g. 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.
- h. 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)
- i. 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)
- j. For the actual test configuration, please refer to the related Item – EUT TEST PHOTO.

3.3 DEVIATION FROM TEST STANDARD

No deviation.

3.4 TEST SETUP



30 MHz to 1 GHz**Above 1 GHz****3.5 EUT OPERATING CONDITIONS**

The EUT was programmed to be in continuously transmitting mode.

3.6 TEST RESULT – 9 KHZ TO 30 MHZ

Please refer to the APPENDIX A.

3.7 TEST RESULT – 30 MHZ TO 1 GHZ

Please refer to the APPENDIX B.

3.8 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.

4 BANDWIDTH TEST

4.1 APPLIED PROCEDURES / LIMIT

Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

4.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- Spectrum Setting : RBW= 100KHz, VBW=300KHz, Sweep time = 2.5 ms.

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP



4.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

4.6 TEST RESULTS

Please refer to the APPENDIX D.

5 OUTPUT POWER TEST

5.1 APPLIED PROCEDURES / LIMIT

Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Maximum Output Power	1 watt or 30dBm	2400-2483.5	PASS

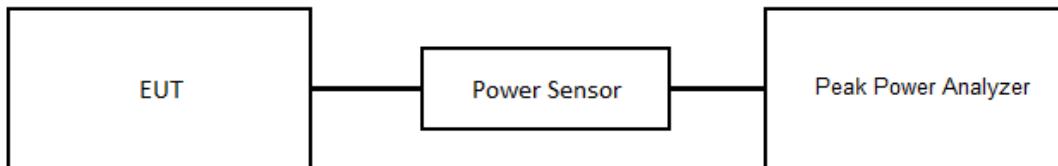
5.2 TEST PROCEDURE

- a. The EUT was directly connected to the peak power analyzer and antenna output port as show in the block diagram below,
- b. The maximum peak conducted output power was performed in accordance with FCC KDB 558074 D01 15.247 Meas Guidance.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

5.6 TEST RESULTS

Please refer to the APPENDIX E.

6 POWER SPECTRAL DENSITY TEST

6.1 APPLIED PROCEDURES / LIMIT

Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(e)	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

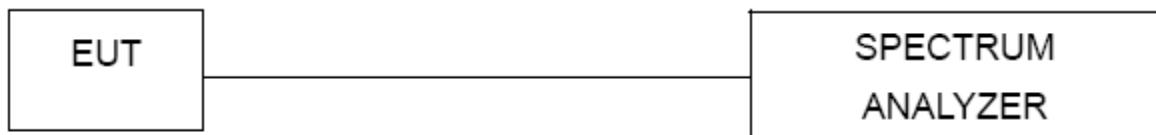
6.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting: RBW=3KHz, VBW=10 KHz, Sweep time = auto.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULTS

Please refer to the APPENDIX F.

7 ANTENNA CONDUCTED SPURIOUS EMISSION

7.1 APPLIED PROCEDURES / LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits.

7.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 100KHz, VBW=300KHz, Sweep time = 10 ms.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

7.6 TEST RESULTS

Please refer to the APPENDIX G.

8 LIST OF MEASURING EQUIPMENTS

Radiated Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Preamplifier	EMCI	EMC330N	980850	2024/9/5	2025/9/4
2	Preamplifier	EMCI	EMC118A45SE	980819	2025/3/5	2026/3/4
3	Pre-Amplifier	EMCI	EMC184045SE	980907	2024/9/4	2025/9/3
4	Preamplifier	EMCI	EMC001340	980579	2024/9/4	2025/9/3
5	Test Cable	EMCI	EMC104-SM-1000	180809	2025/3/5	2026/3/4
6	Test Cable	EMCI	EMC104-SM-SM-3000	220322	2025/3/5	2026/3/4
7	Test Cable	EMCI	EMC104-SM-SM-7000	220324	2025/3/5	2026/3/4
8	EXA Signal Analyzer	keysight	N9020B	MY57120120	2025/2/19	2026/2/18
9	Loop Ant	Electro-Metrics	EMCI-LPA600	291	2024/9/9	2025/9/8
10	Horn Antenna	RFSPIN	DRH18-E	211202A18EN	2024/5/9	2025/5/8
11	Horn Ant	Schwarzbeck	BBHA 9170D	1136	2024/5/17	2025/5/16
12	Log-bicon Antenna	Schwarzbeck	VULB9168	1369	2024/6/14	2025/6/13
13	6dB Attenuator	EMCI	EMCI-N-6-06	AT-06001	2024/6/14	2025/6/13
14	Test Cable	EMCI	EMC101G-KM-K M-3000	220329	2025/3/12	2026/3/11
15	Test Cable	EMCI	EMC102-KM-KM-1000	220327	2025/3/12	2026/3/11
16	Measurement Software	EZ	EZ_EMC (Version NB-03A1-01)	N/A	N/A	N/A

Bandwidth						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP 40	100129	2024/3/27	2025/3/26

Output Power						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Peak Power Analyzer	Keysight	8990B	MY51000517	2024/3/12	2025/3/11
2	Power Sensor	Keysight	N1923A	MY58310005	2024/3/12	2025/3/11

Power Spectral Density						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP 40	100129	2024/3/27	2025/3/26

Antenna conducted Spurious Emission						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP 40	100129	2024/3/27	2025/3/26

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

9 EUT TEST PHOTO

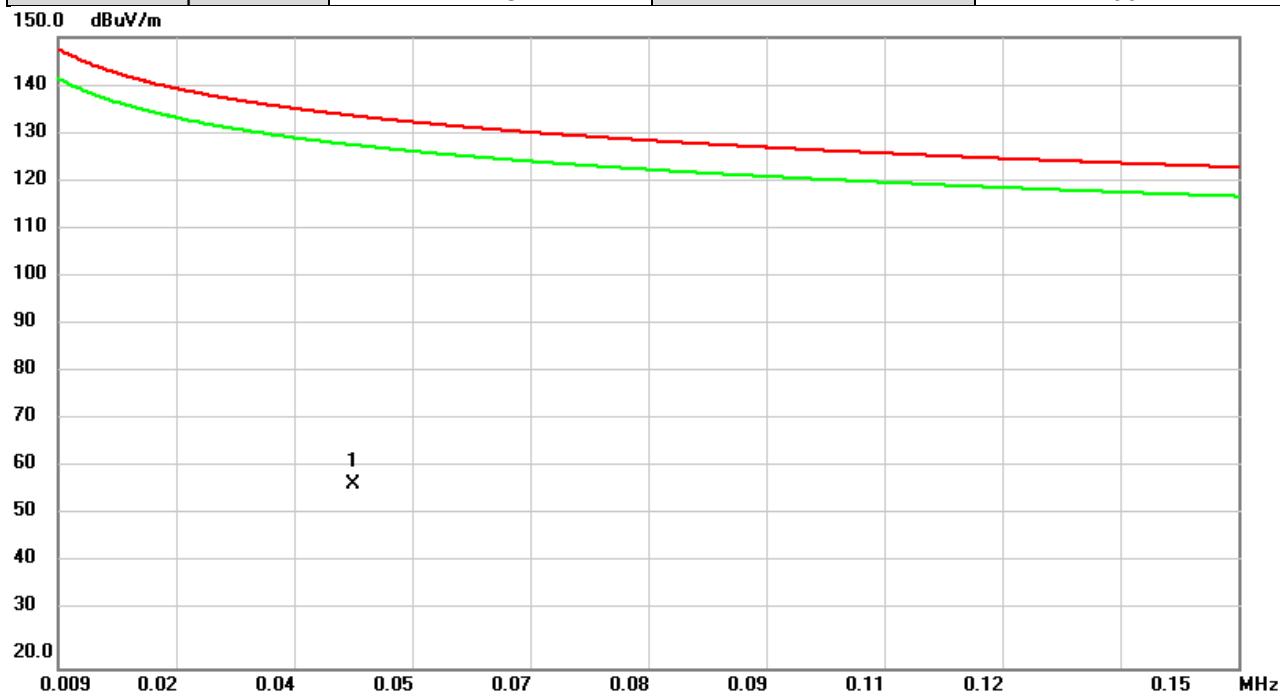
Please refer to document Appendix No.: TP-2502T154-FCCP-1 (APPENDIX-TEST PHOTOS).

10 EUT PHOTOS

Please refer to document Appendix No.: EP-2502T154-1 (APPENDIX-EUT PHOTOS).

APPENDIX A RADIATED EMISSIONS - 9 KHZ TO 30 MHZ

Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/3/31
Test Frequency	2480MHz	Polarization	Vertical
Temp	21°C	Hum.	60%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1	*	0.0442	32.98	24.75	57.73	133.78	-76.05

REMARKS:

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

Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/3/31
Test Frequency	2480MHz	Polarization	Vertical
Temp	21°C	Hum.	60%

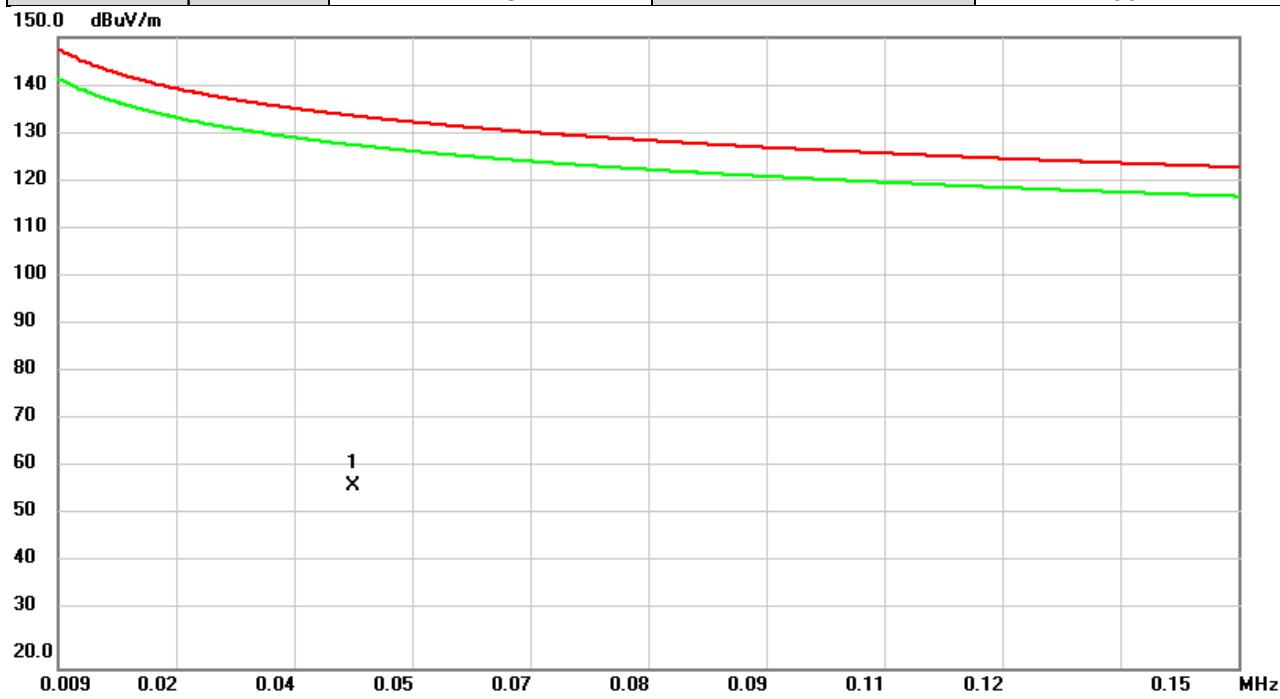


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.1500	16.89	13.97	30.86	123.16	-92.30	AVG	
2	*	1.6902	34.24	-1.14	33.10	82.12	-49.02	QP	
3		5.9130	30.78	-4.13	26.65	88.62	-61.97	QP	
4		9.0153	16.26	-3.26	13.00	88.62	-75.62	QP	
5		19.8798	19.09	-3.92	15.17	88.62	-73.45	QP	
6		24.7782	23.44	-2.99	20.45	88.62	-68.17	QP	

REMARKS:

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

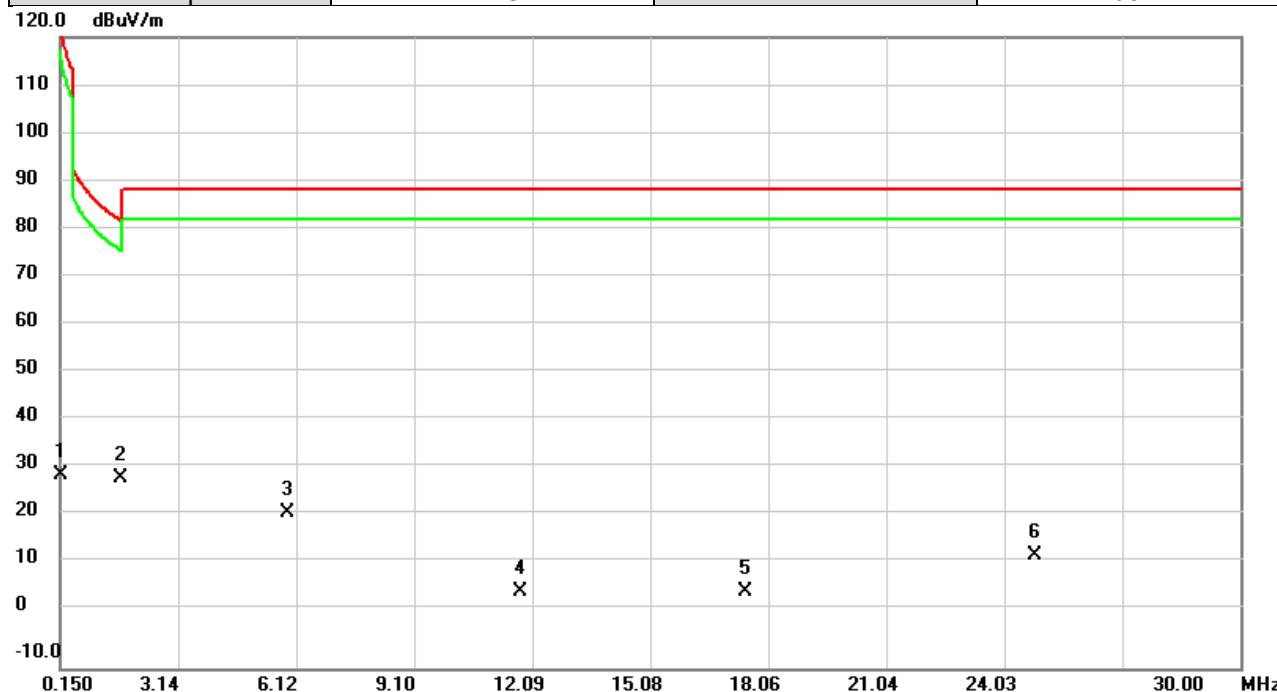
Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/3/31
Test Frequency	2480MHz	Polarization	Horizontal
Temp	21°C	Hum.	60%



REMARKS:

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

Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/3/31
Test Frequency	2480MHz	Polarization	Horizontal
Temp	21°C	Hum.	60%



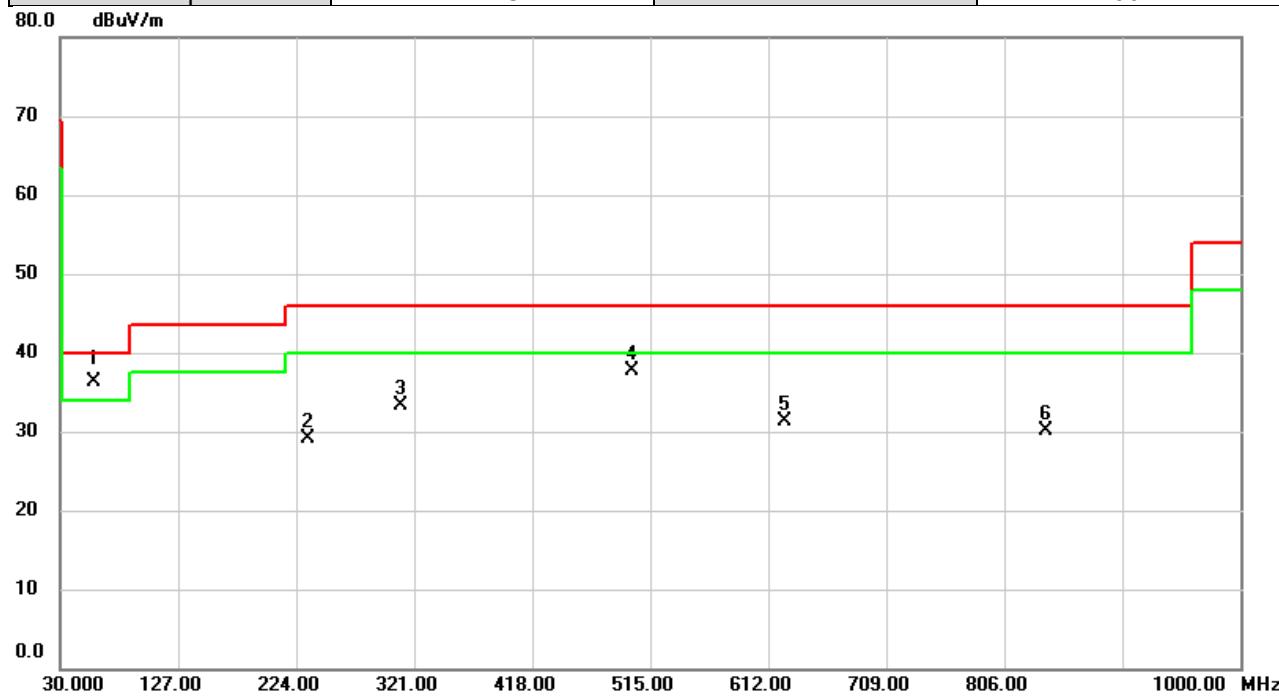
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.1500	15.75	13.97	29.72	123.16	-93.44	AVG	
2	*	1.6902	30.39	-1.14	29.25	82.12	-52.87	QP	
3		5.9140	26.10	-4.13	21.97	88.62	-66.65	QP	
4		11.7944	9.05	-3.16	5.89	88.62	-82.73	QP	
5		17.4968	9.30	-3.68	5.62	88.62	-83.00	QP	
6		24.7911	16.36	-2.99	13.37	88.62	-75.25	QP	

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	BLE 5.2 (2 Mbps)	Test Date	2025/3/31
Test Frequency	2480MHz	Polarization	Vertical
Temp	21°C	Hum.	60%

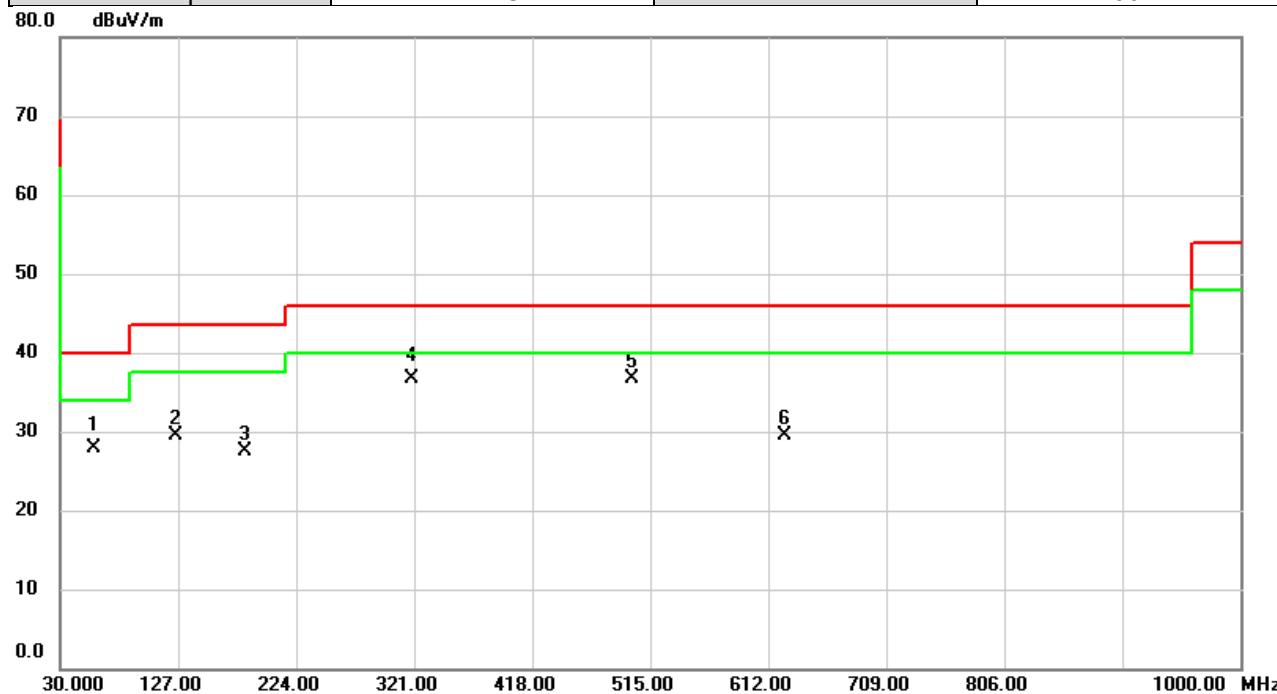


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	58.2916	48.52	-12.27	36.25	40.00	-3.75	QP	
2		233.1503	43.45	-14.26	29.19	46.00	-16.81	peak	
3		310.6210	44.20	-10.95	33.25	46.00	-12.75	peak	
4		499.9973	44.19	-6.55	37.64	46.00	-8.36	peak	
5		624.9980	35.14	-3.80	31.34	46.00	-14.66	peak	
6		840.3056	30.68	-0.64	30.04	46.00	-15.96	peak	

REMARKS:

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

Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/3/31
Test Frequency	2480MHz	Polarization	Horizontal
Temp	21°C	Hum.	60%



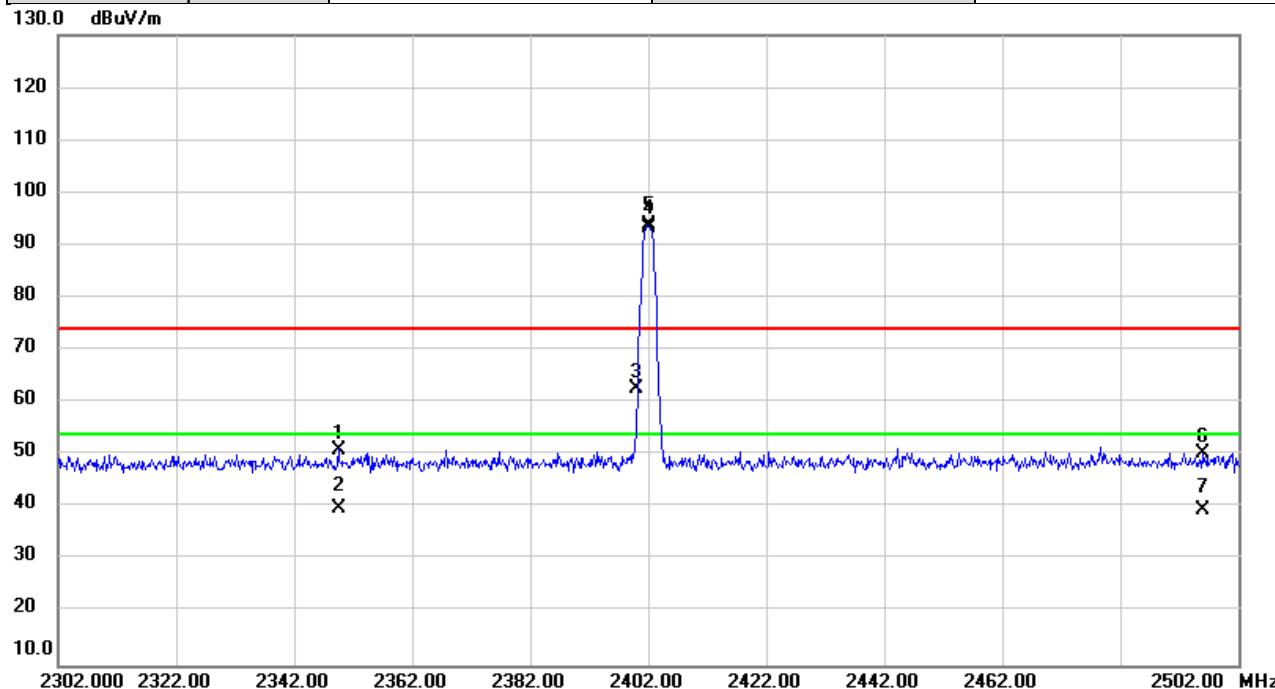
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		58.2593	40.12	-12.27	27.85	40.00	-12.15	QP	
2		124.9953	43.40	-13.86	29.54	43.50	-13.96	peak	
3		181.4170	40.97	-13.55	27.42	43.50	-16.08	peak	
4	*	319.1245	47.53	-10.81	36.72	46.00	-9.28	QP	
5		499.9973	43.20	-6.55	36.65	46.00	-9.35	peak	
6		624.9656	33.39	-3.80	29.59	46.00	-16.41	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	BLE 5.2 (1 Mbps)	Test Date	2025/3/24
Test Frequency	2402MHz	Polarization	Vertical
Temp	25°C	Hum.	64%

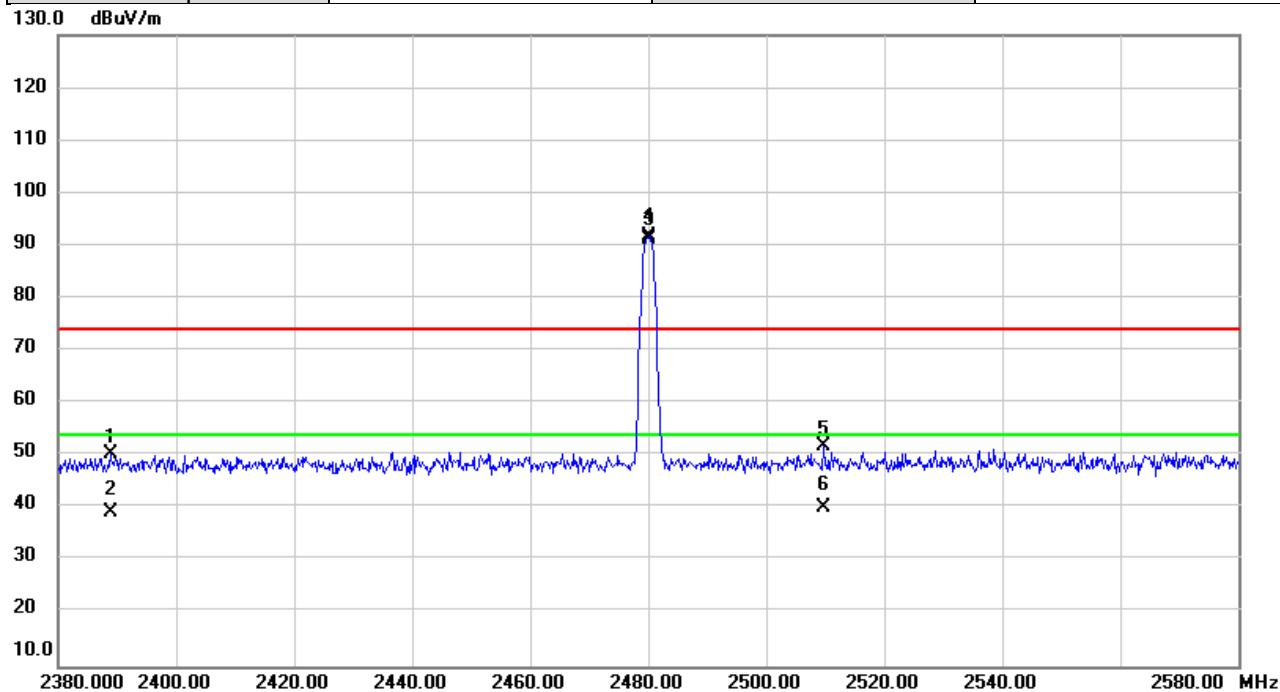


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level						
1		2349.573	55.31	-4.21	51.10	74.00	-22.90	peak	
2		2349.573	44.01	-4.21	39.80	54.00	-14.20	AVG	
3		2400.000	66.93	-4.14	62.79	74.00	-11.21	peak	No Limit
4	X	2402.000	97.97	-4.15	93.82	74.00	19.82	peak	No Limit
5	*	2402.000	97.29	-4.15	93.14	54.00	39.14	AVG	No Limit
6		2495.893	54.49	-4.04	50.45	74.00	-23.55	peak	
7		2495.893	43.62	-4.04	39.58	54.00	-14.42	AVG	

REMARKS:

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

Test Mode	BLE 5.2 (1 Mbps)	Test Date	2025/3/24
Test Frequency	2480MHz	Polarization	Vertical
Temp	25°C	Hum.	64%

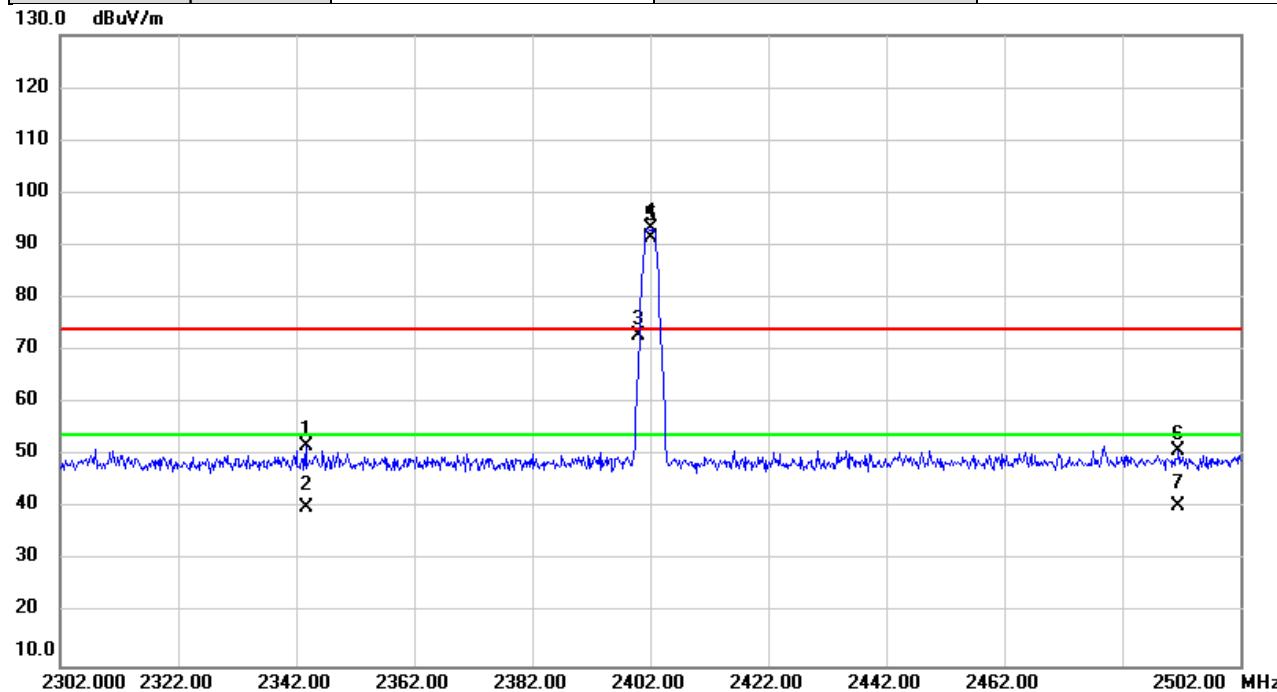


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
			Level					
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector Comment
1		2388.987	54.41	-4.16	50.25	74.00	-23.75	peak
2		2388.987	43.47	-4.16	39.31	54.00	-14.69	AVG
3	X	2480.000	95.74	-4.05	91.69	74.00	17.69	peak No Limit
4	*	2480.000	95.20	-4.05	91.15	54.00	37.15	AVG No Limit
5		2509.740	55.77	-4.00	51.77	74.00	-22.23	peak
6		2509.740	44.11	-4.00	40.11	54.00	-13.89	AVG

REMARKS:

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

Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/3/24
Test Frequency	2402MHz	Polarization	Vertical
Temp	25°C	Hum.	64%

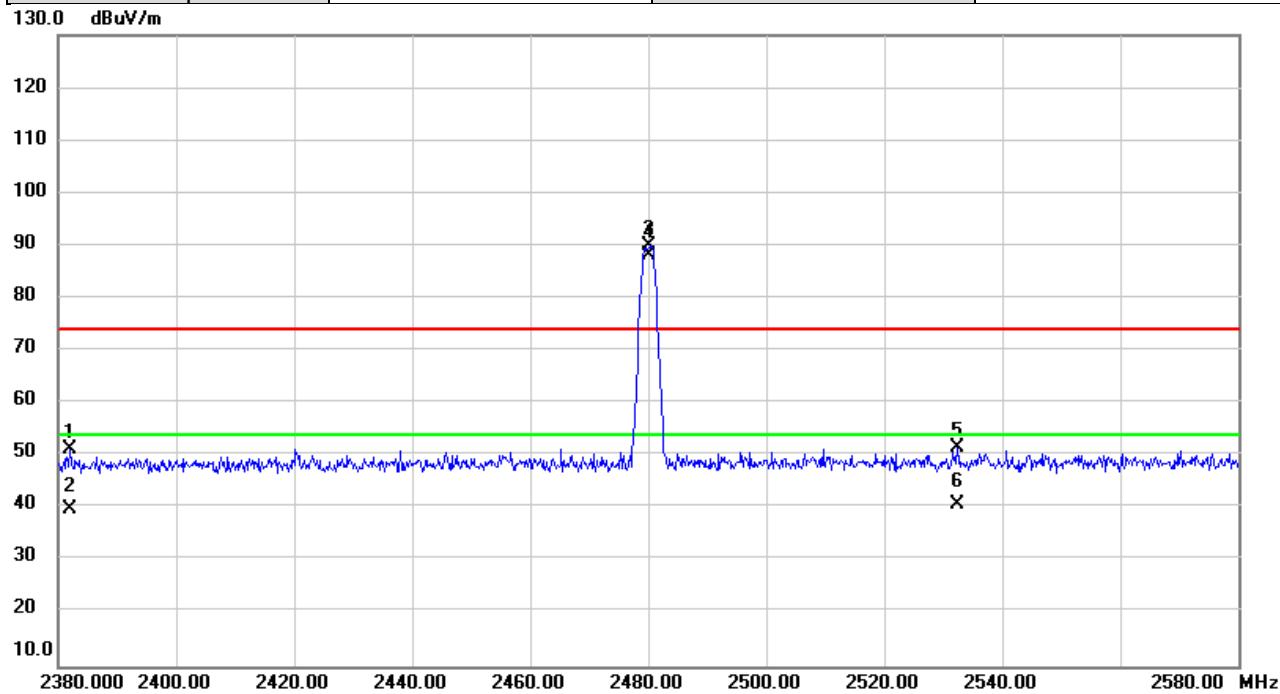


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2343.727	56.04	-4.21	51.83	74.00	-22.17	peak	
2		2343.727	44.37	-4.21	40.16	54.00	-13.84	AVG	
3		2400.000	77.08	-4.14	72.94	74.00	-1.06	peak	No Limit
4	X	2402.000	97.47	-4.15	93.32	74.00	19.32	peak	No Limit
5	*	2402.000	95.73	-4.15	91.58	54.00	37.58	AVG	No Limit
6		2491.567	55.09	-4.04	51.05	74.00	-22.95	peak	
7		2491.567	44.42	-4.04	40.38	54.00	-13.62	AVG	

REMARKS:

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

Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/3/24
Test Frequency	2480MHz	Polarization	Vertical
Temp	25°C	Hum.	64%

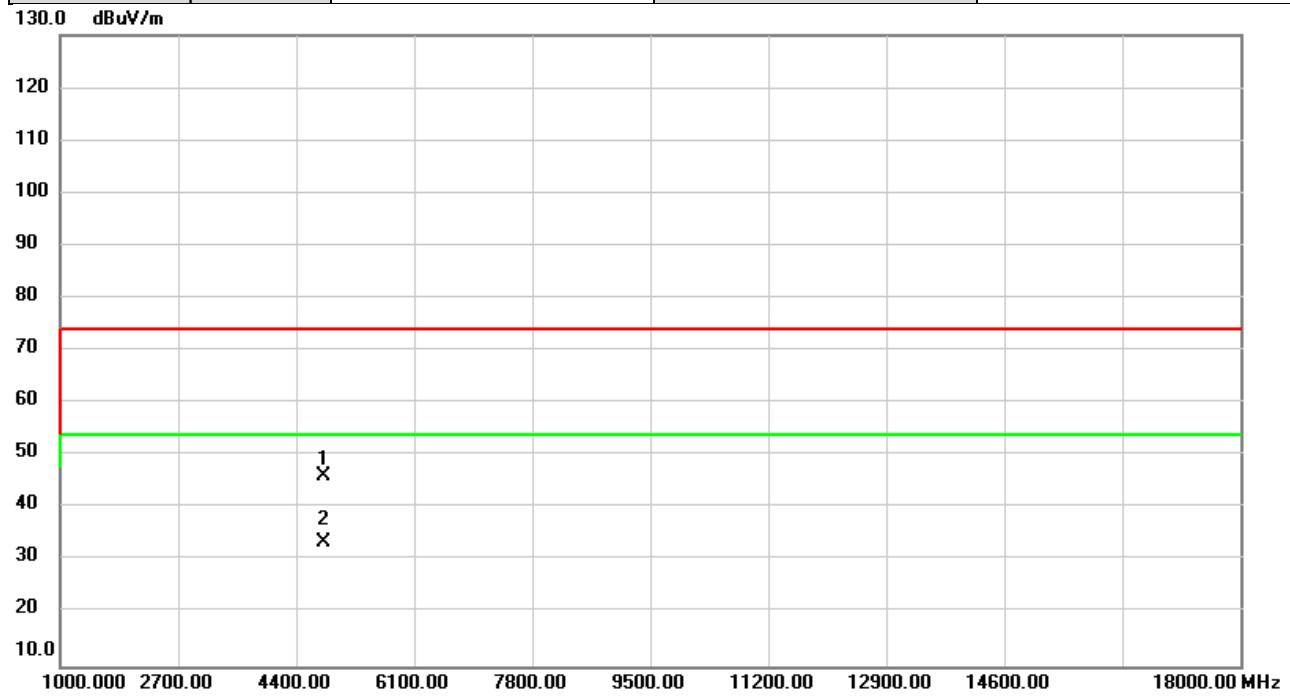


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over
			Level				
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1		2382.047	55.38	-4.17	51.21	74.00	-22.79
2		2382.047	44.13	-4.17	39.96	54.00	-14.04
3	X	2480.000	93.93	-4.05	89.88	74.00	15.88
4	*	2480.000	92.29	-4.05	88.24	54.00	34.24
5		2532.280	55.48	-3.91	51.57	74.00	-22.43
6		2532.280	44.56	-3.91	40.65	54.00	-13.35

REMARKS:

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

Test Mode	BLE 5.2 (1 Mbps)	Test Date	2025/3/24
Test Frequency	2402MHz	Polarization	Vertical
Temp	25°C	Hum.	64%

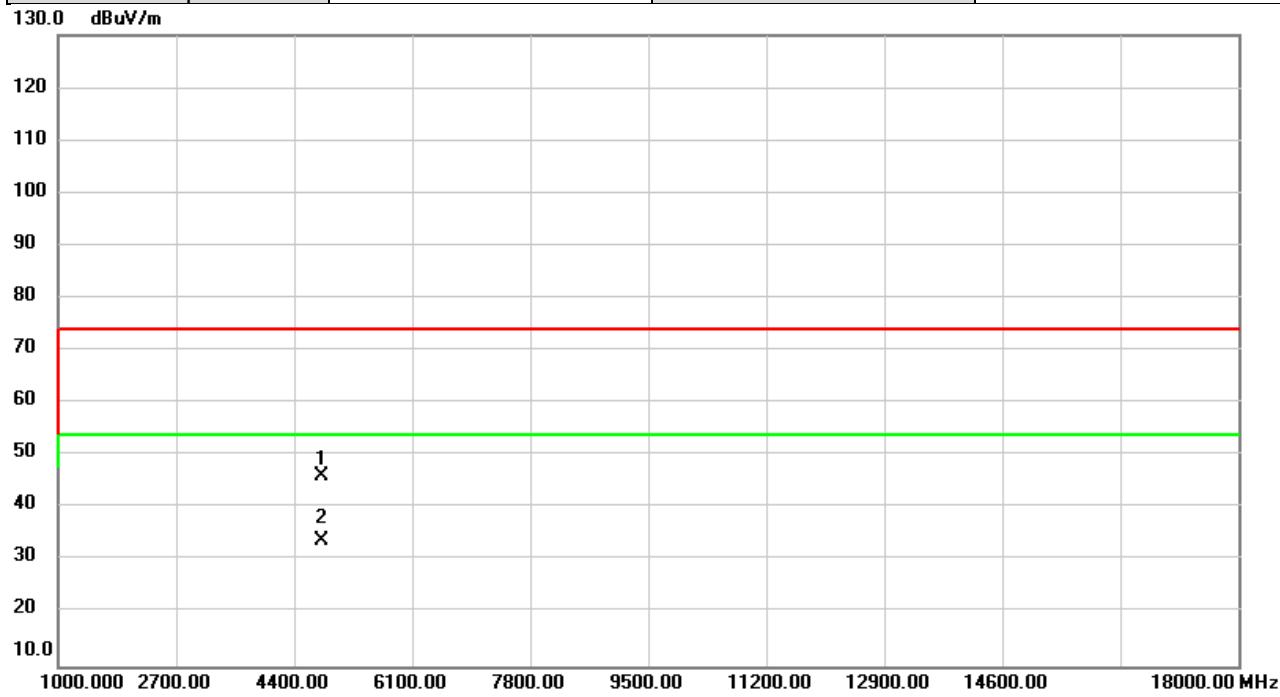


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	Detector	Comment
1		4804.000	44.25	1.84	46.09	74.00	-27.91	peak
2	*	4804.000	31.66	1.84	33.50	54.00	-20.50	AVG

REMARKS:

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

Test Mode	BLE 5.2 (1 Mbps)	Test Date	2025/3/24
Test Frequency	2402MHz	Polarization	Horizontal
Temp	25°C	Hum.	64%

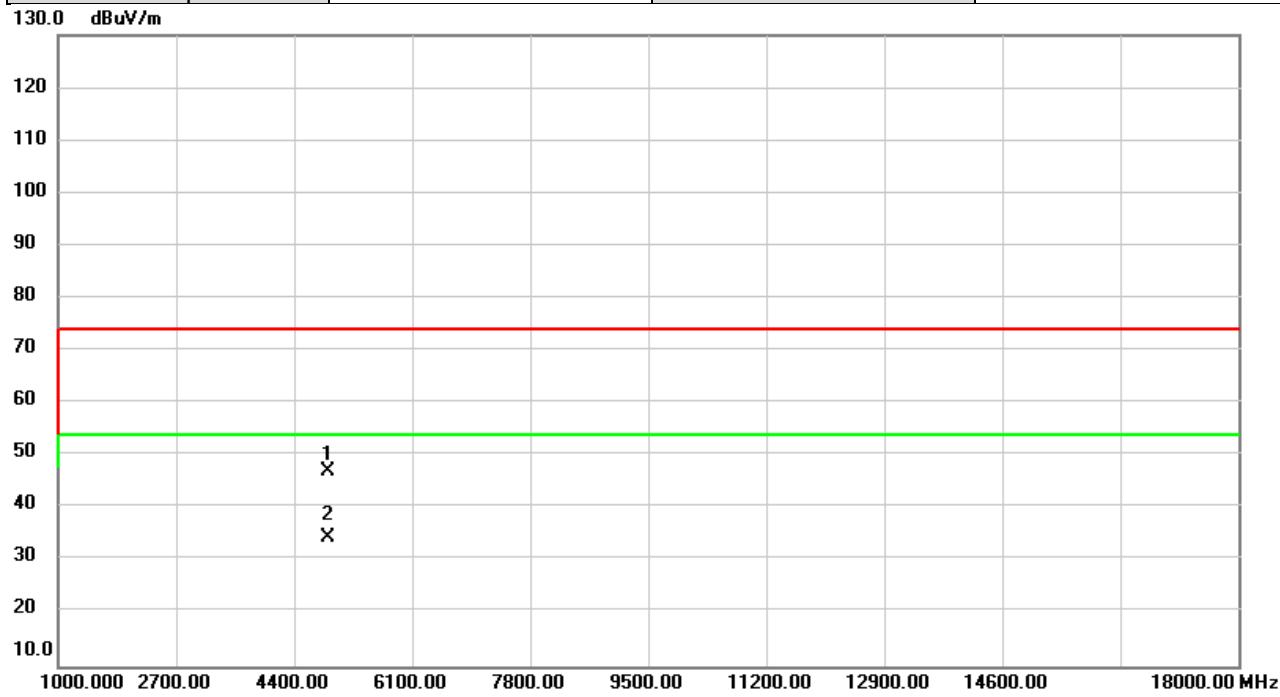


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.000	44.28	1.84	46.12	74.00	-27.88	peak	
2	*	4804.000	31.90	1.84	33.74	54.00	-20.26	AVG	

REMARKS:

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

Test Mode	BLE 5.2 (1 Mbps)	Test Date	2025/3/24
Test Frequency	2440MHz	Polarization	Vertical
Temp	25°C	Hum.	64%

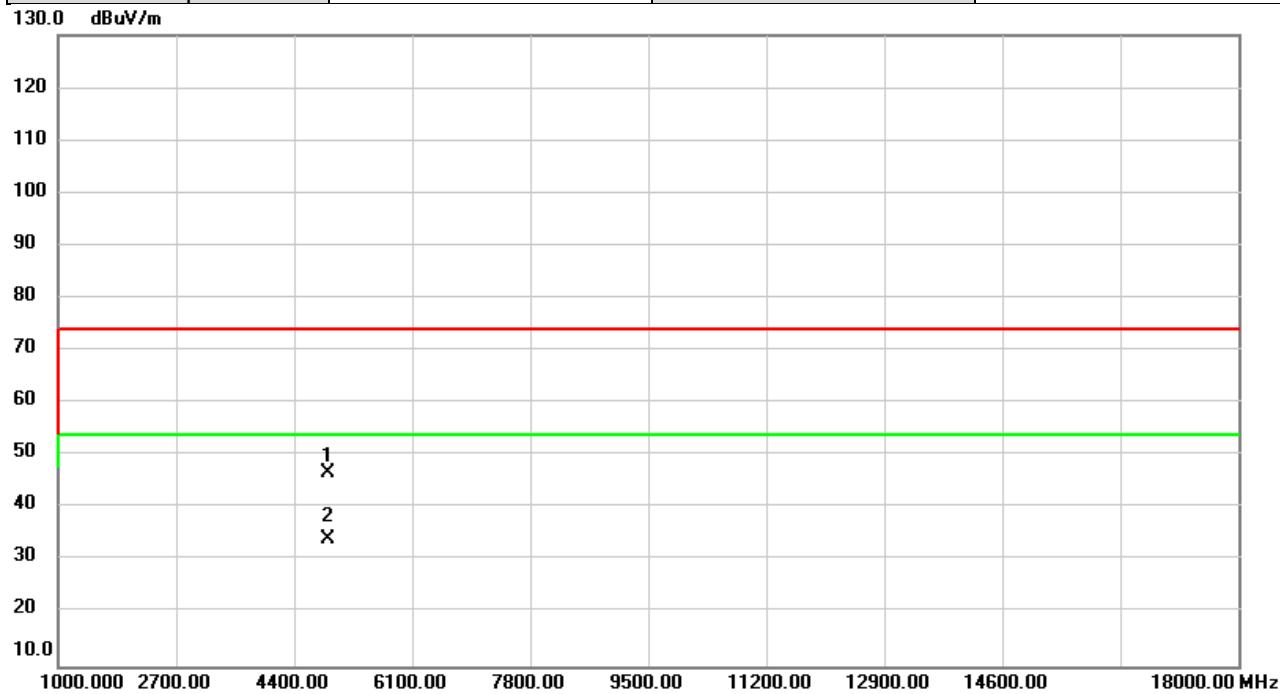


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over
		MHz	dBuV	dB	dBuV/m	dB	Detector Comment
1		4880.000	44.96	2.07	47.03	74.00	-26.97 peak
2	*	4880.000	32.47	2.07	34.54	54.00	-19.46 AVG

REMARKS:

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

Test Mode	BLE 5.2 (1 Mbps)	Test Date	2025/3/24
Test Frequency	2440MHz	Polarization	Horizontal
Temp	25°C	Hum.	64%

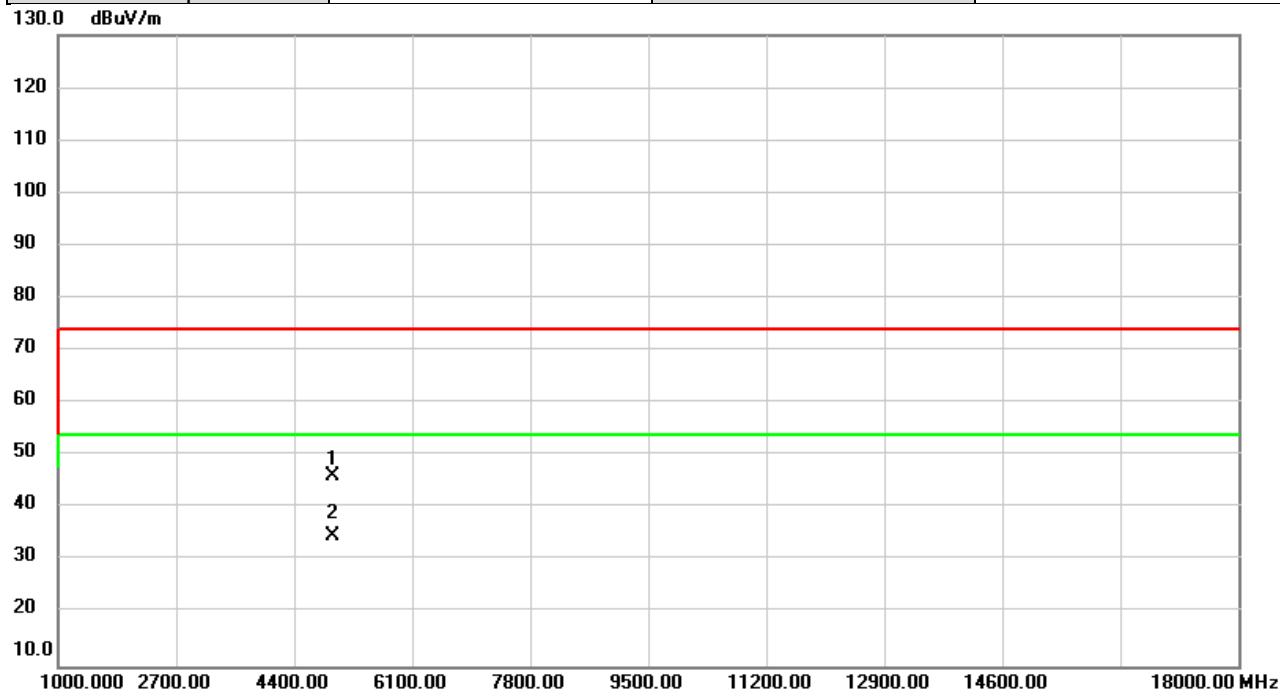


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	Detector	Comment
1		4880.000	44.68	2.07	46.75	74.00	-27.25	peak
2	*	4880.000	32.11	2.07	34.18	54.00	-19.82	AVG

REMARKS:

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

Test Mode	BLE 5.2 (1 Mbps)	Test Date	2025/3/24
Test Frequency	2480MHz	Polarization	Vertical
Temp	25°C	Hum.	64%

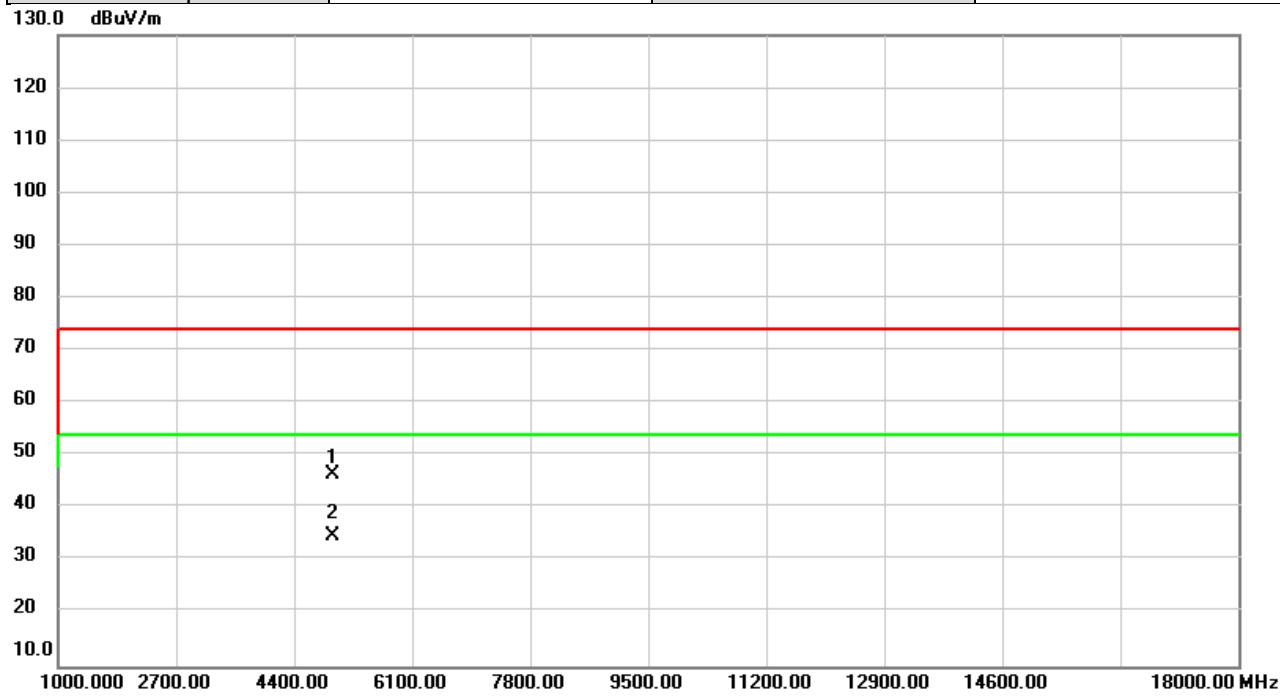


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4960.000	43.70	2.32	46.02	74.00	-27.98	peak	
2	*	4960.000	32.46	2.32	34.78	54.00	-19.22	AVG	

REMARKS:

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

Test Mode	BLE 5.2 (1 Mbps)	Test Date	2025/3/24
Test Frequency	2480MHz	Polarization	Horizontal
Temp	25°C	Hum.	64%

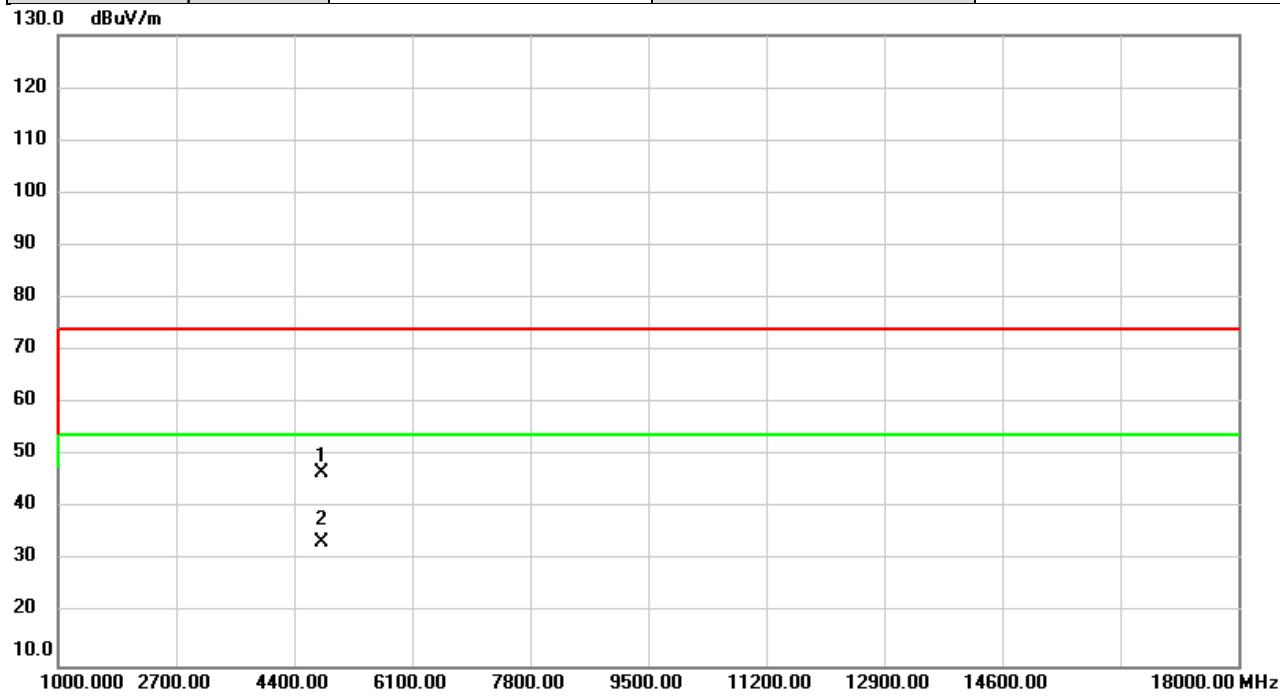


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	Detector	Comment
1		4960.000	44.04	2.32	46.36	74.00	-27.64	peak
2	*	4960.000	32.39	2.32	34.71	54.00	-19.29	AVG

REMARKS:

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

Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/3/24
Test Frequency	2402MHz	Polarization	Vertical
Temp	25°C	Hum.	64%

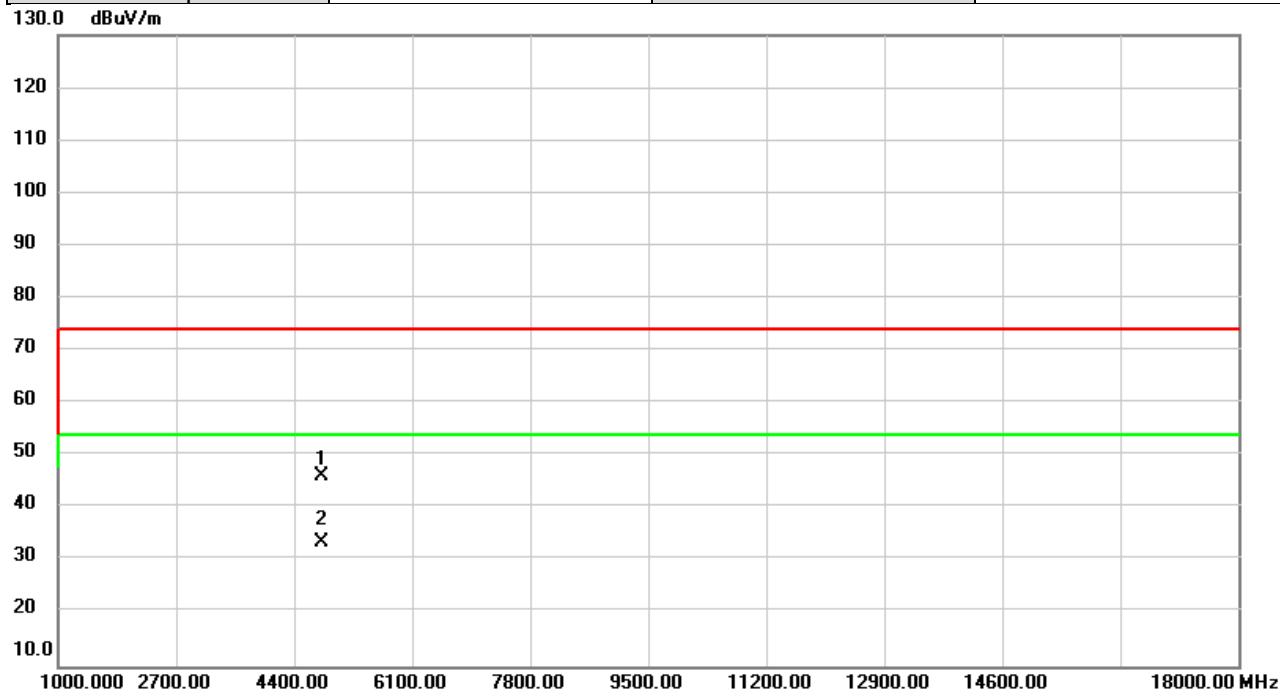


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.000	44.77	1.84	46.61	74.00	-27.39	peak	
2	*	4804.000	31.71	1.84	33.55	54.00	-20.45	AVG	

REMARKS:

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

Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/3/24
Test Frequency	2402MHz	Polarization	Horizontal
Temp	25°C	Hum.	64%

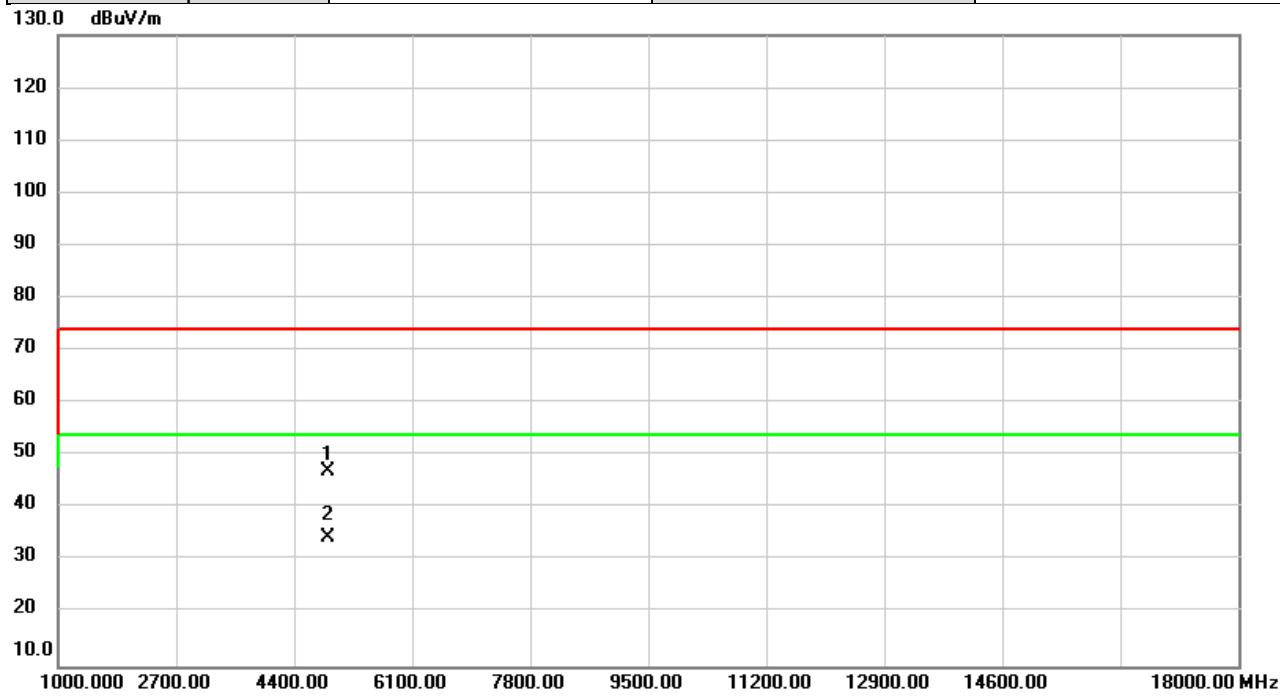


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	Detector	Comment
1		4804.000	44.23	1.84	46.07	74.00	-27.93	peak
2	*	4804.000	31.71	1.84	33.55	54.00	-20.45	AVG

REMARKS:

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

Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/3/24
Test Frequency	2440MHz	Polarization	Vertical
Temp	25°C	Hum.	64%

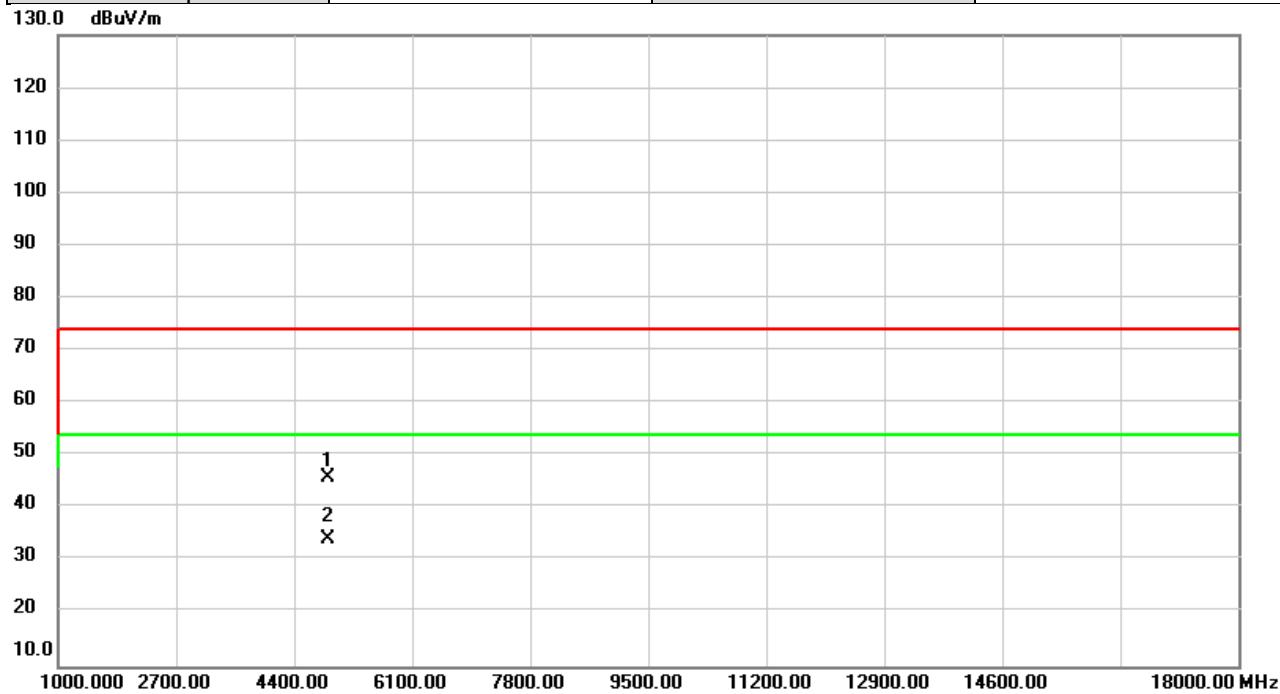


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4880.000	44.96	2.07	47.03	74.00	-26.97	peak	
2	*	4880.000	32.28	2.07	34.35	54.00	-19.65	AVG	

REMARKS:

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

Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/3/24
Test Frequency	2440MHz	Polarization	Horizontal
Temp	25°C	Hum.	64%

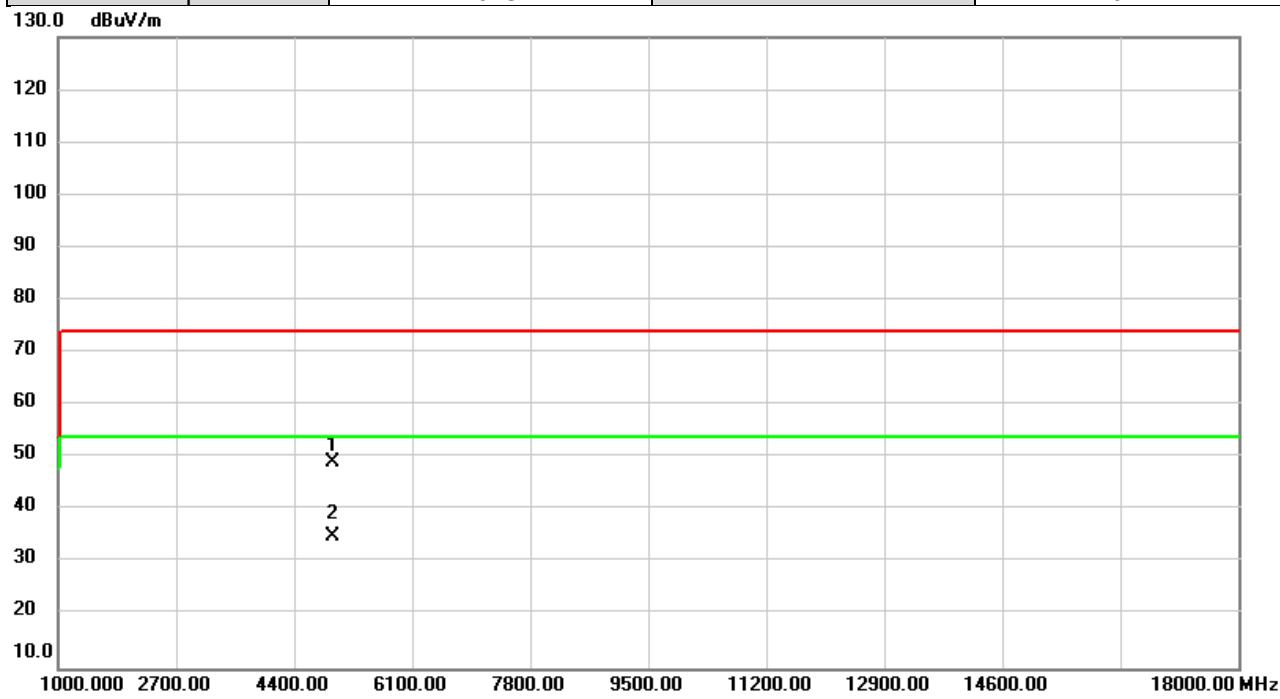


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4880.000	43.89	2.07	45.96	74.00	-28.04	peak	
2	*	4880.000	32.06	2.07	34.13	54.00	-19.87	AVG	

REMARKS:

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

Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/3/24
Test Frequency	2480MHz	Polarization	Vertical
Temp	25°C	Hum.	64%

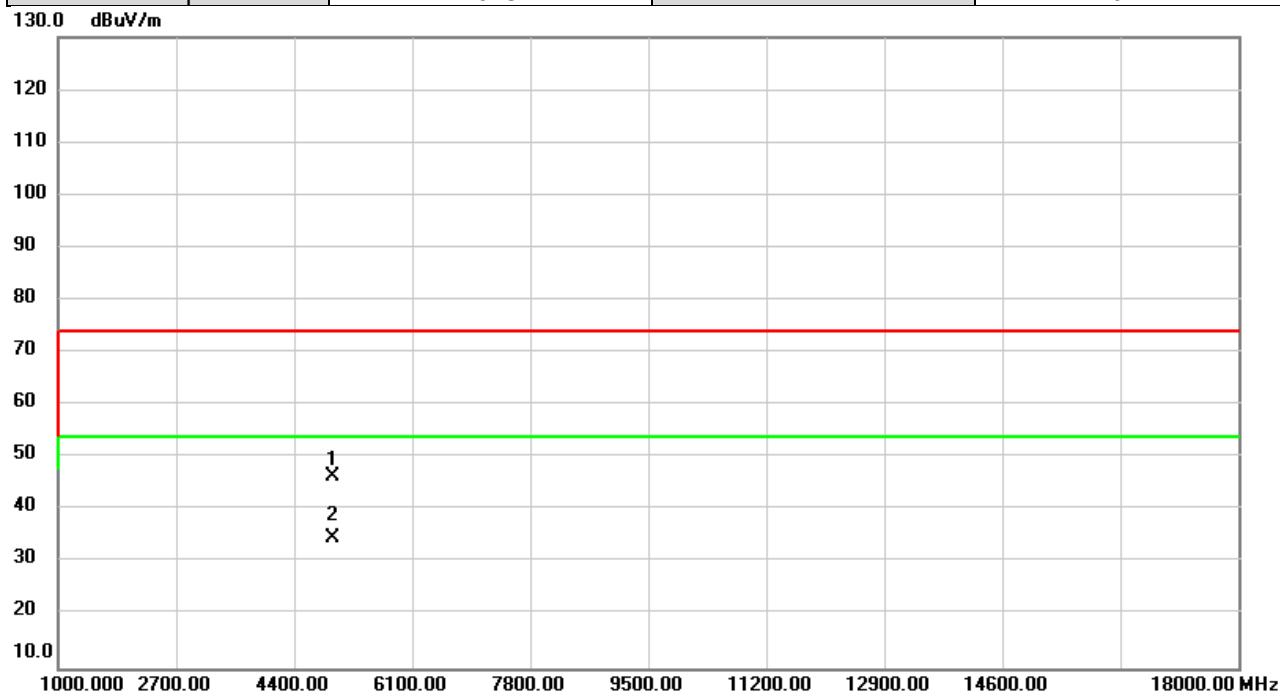


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4960.000	46.79	2.32	49.11	74.00	-24.89	peak	
2	*	4960.000	32.72	2.32	35.04	54.00	-18.96	AVG	

REMARKS:

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

Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/3/24
Test Frequency	2480MHz	Polarization	Horizontal
Temp	25°C	Hum.	64%

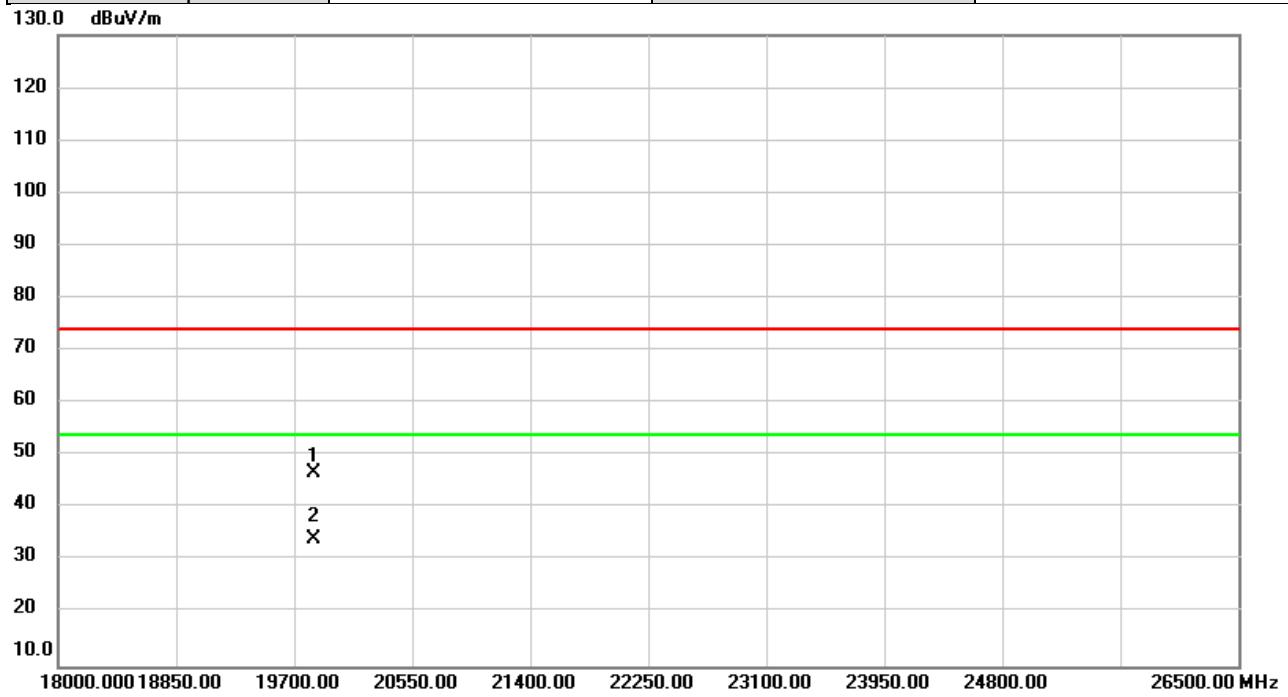


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	Detector	Comment
1		4960.000	43.99	2.32	46.31	74.00	-27.69	peak
2	*	4960.000	32.41	2.32	34.73	54.00	-19.27	AVG

REMARKS:

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

Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/4/1
Test Frequency	2480MHz	Polarization	Vertical
Temp	20°C	Hum.	66%

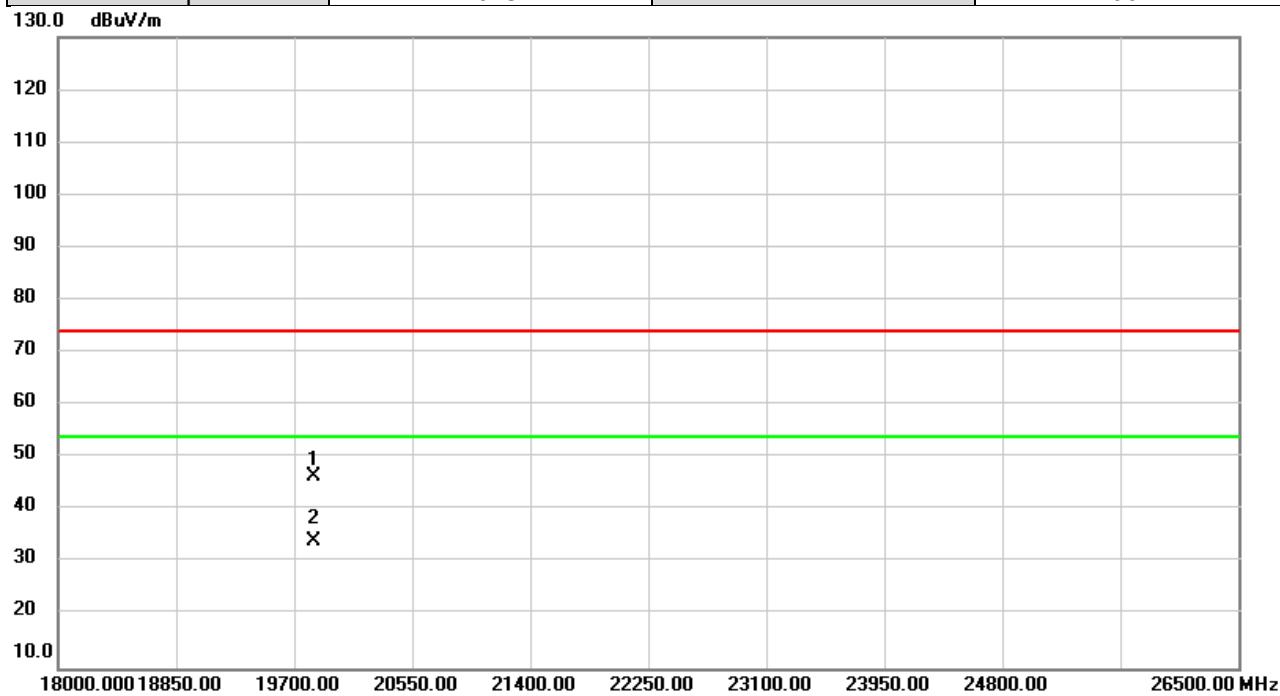


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over
			Level	Factor	ment		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1	*	19840.00	52.95	-6.31	46.64	74.00	-27.36
2	*	19840.00	40.48	-6.31	34.17	54.00	-19.83

REMARKS:

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

Test Mode	BLE 5.2 (2 Mbps)	Test Date	2025/4/1
Test Frequency	2480MHz	Polarization	Horizontal
Temp	20°C	Hum.	66%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		19840.00	52.81	-6.31	46.50	74.00	-27.50	peak	
2	*	19840.00	40.53	-6.31	34.22	54.00	-19.78	AVG	

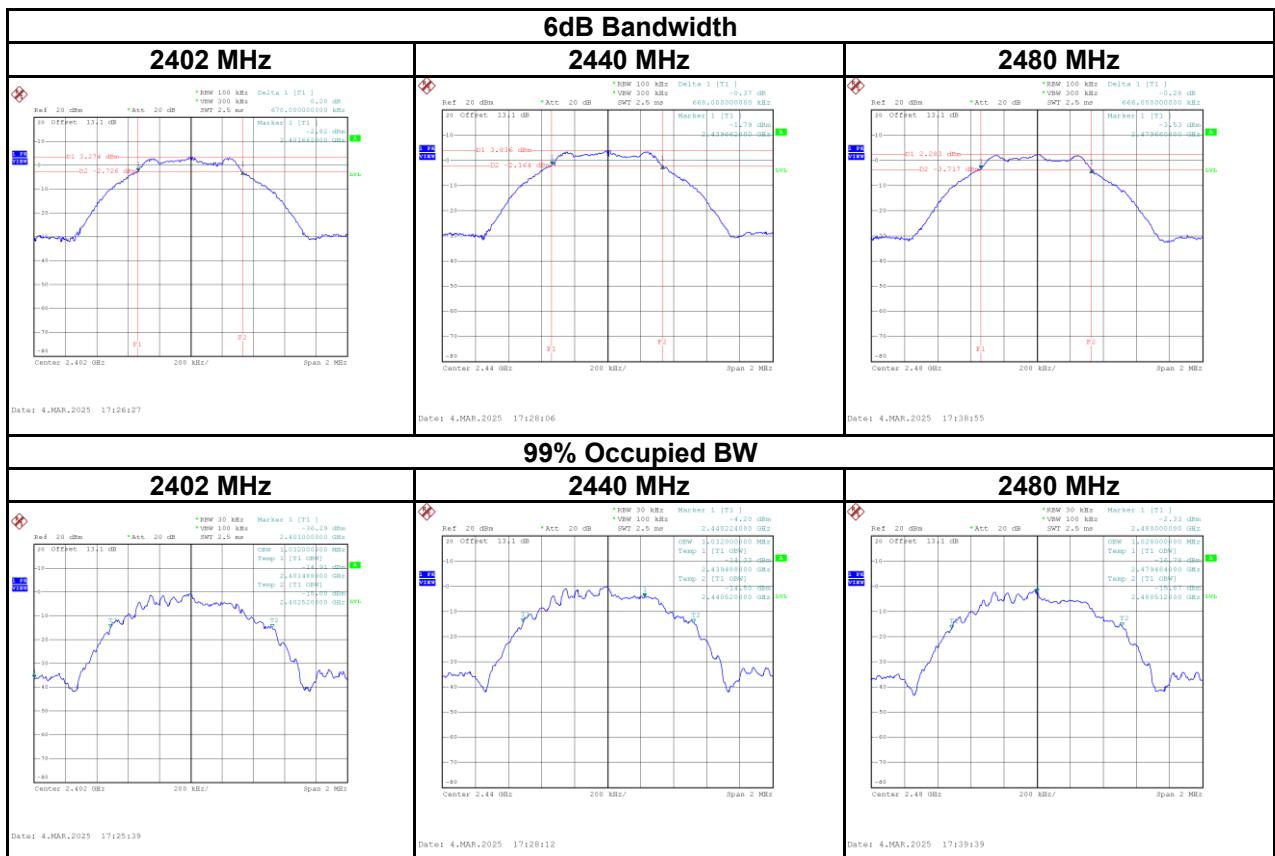
REMARKS:

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

APPENDIX D BANDWIDTH

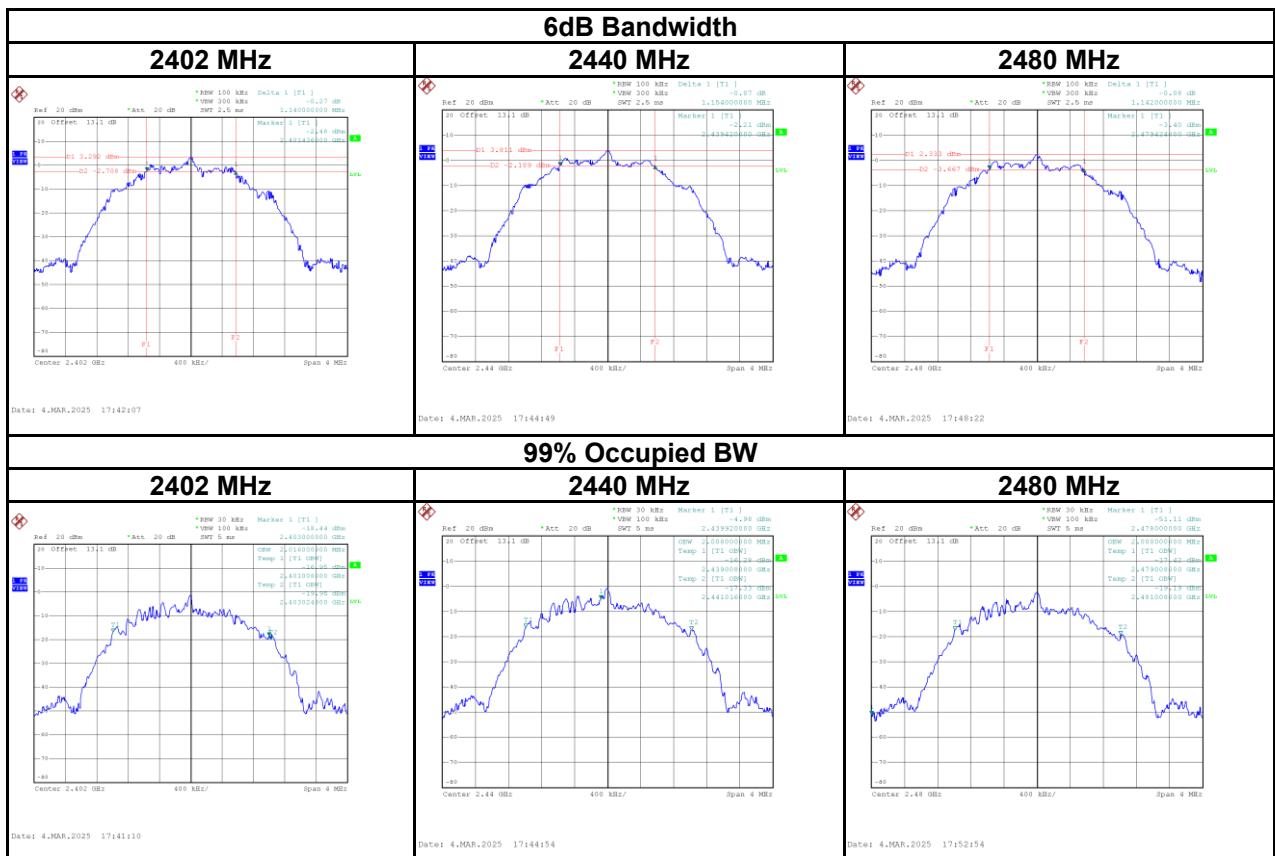
Test Mode:	1Mbps
------------	-------

Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2402	0.67	1.03	500	Pass
2440	0.67	1.03	500	Pass
2480	0.67	1.03	500	Pass



Test Mode:	2Mbps
------------	-------

Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2402	1.14	2.02	500	Pass
2440	1.15	2.01	500	Pass
2480	1.14	2.00	500	Pass



APPENDIX E OUTPUT POWER

Test Mode :	1Mbps	Tested Date	2025/3/3
-------------	-------	-------------	----------

Frequency (MHz)	Peak Power (dBm)	Peak Power (W)	Power Limit (dBm)	Power Limit (W)	Test Result
2402	4.12	0.0026	30.00	1.0000	Pass
2440	4.07	0.0026	30.00	1.0000	Pass
2480	4.35	0.0027	30.00	1.0000	Pass

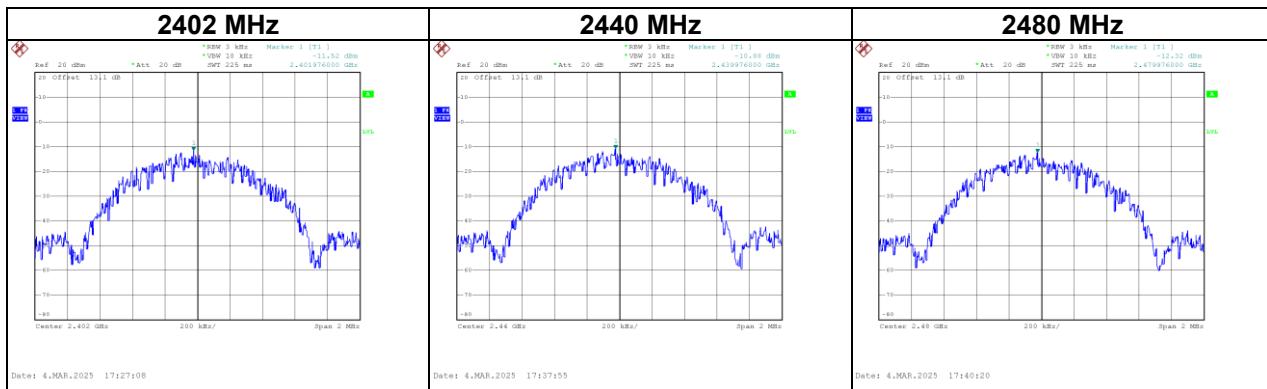
Test Mode :	2Mbps	Tested Date	2025/3/3
-------------	-------	-------------	----------

Frequency (MHz)	Peak Power (dBm)	Peak Power (W)	Power Limit (dBm)	Power Limit (W)	Test Result
2402	4.34	0.0027	30.00	1.0000	Pass
2440	4.23	0.0026	30.00	1.0000	Pass
2480	4.52	0.0028	30.00	1.0000	Pass

APPENDIX F POWER SPECTRAL DENSITY TEST

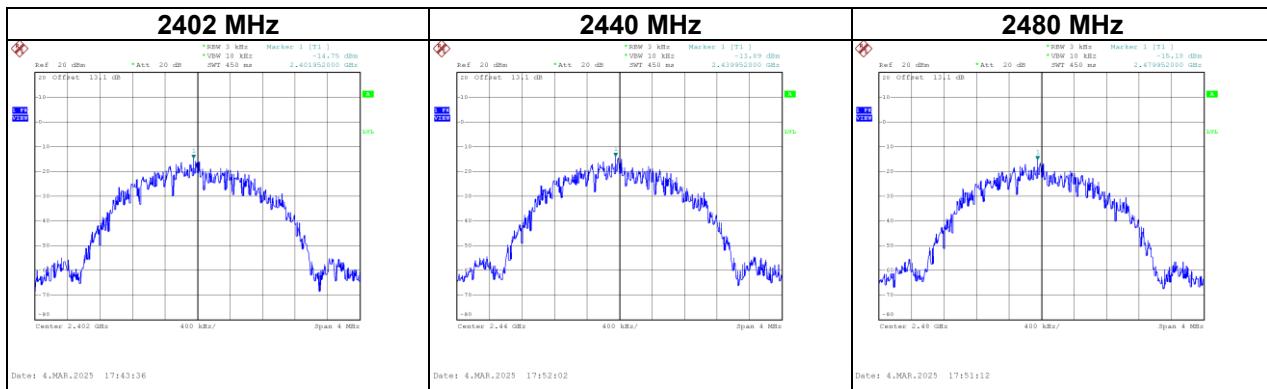
Test Mode :	1Mbps
-------------	-------

Frequency (MHz)	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Test Result
2402	-11.52	8	Pass
2440	-10.88	8	Pass
2480	-12.32	8	Pass



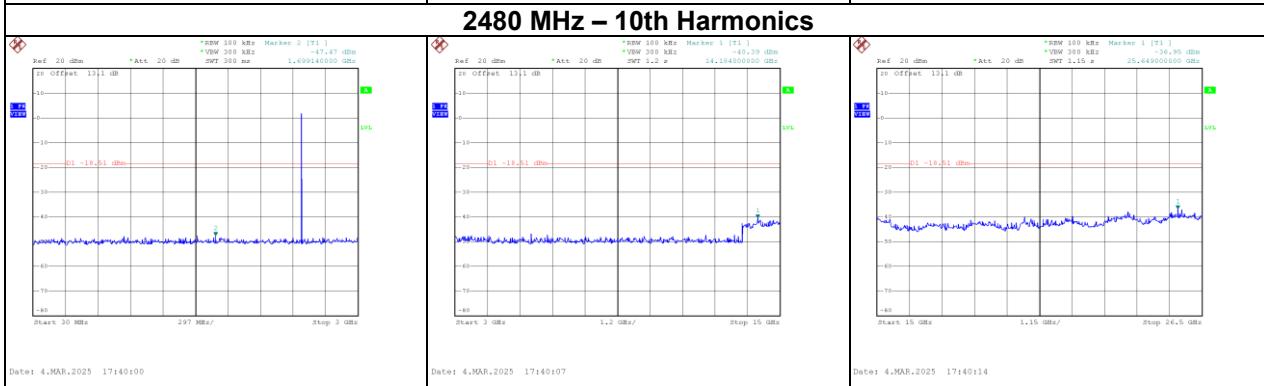
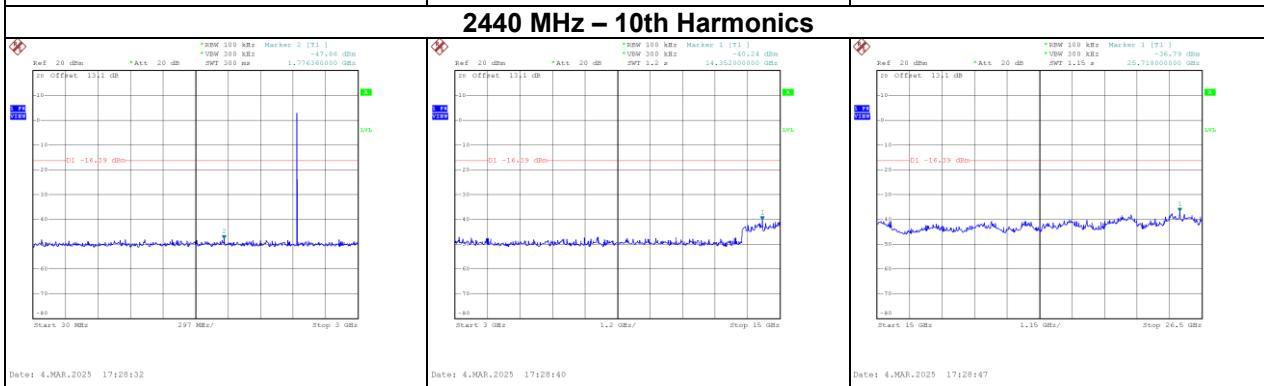
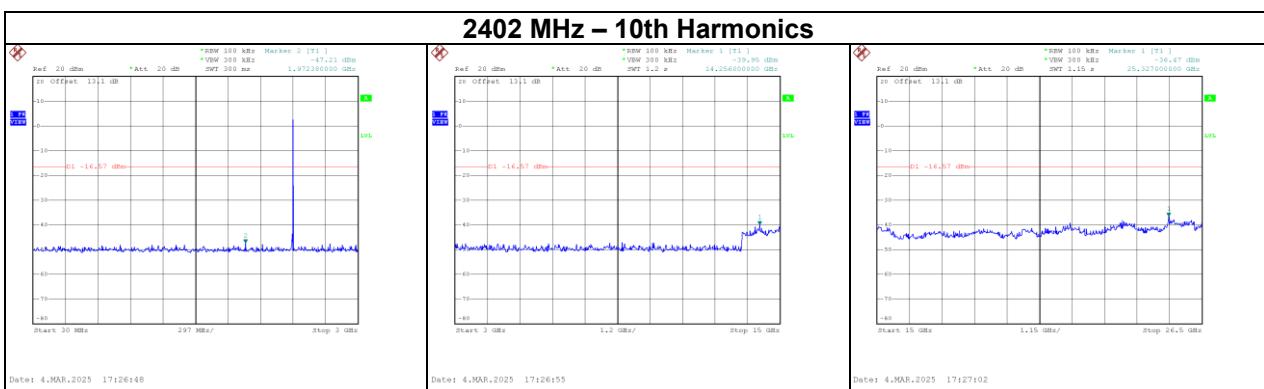
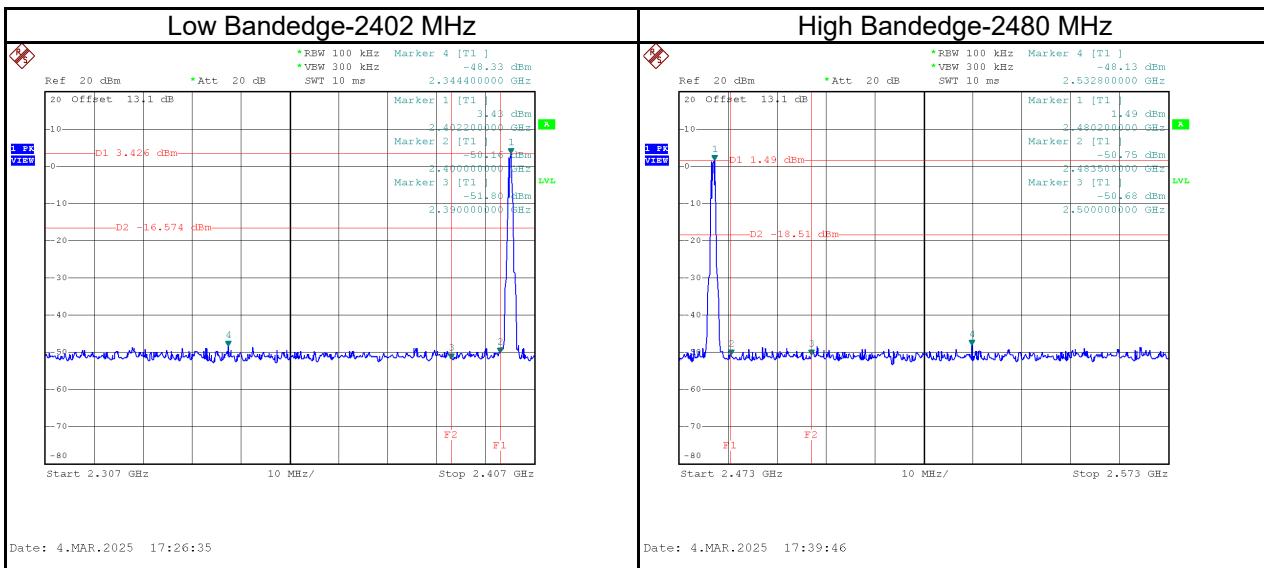
Test Mode : 2Mbps

Frequency (MHz)	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Test Result
2402	-14.75	8	Pass
2440	-13.89	8	Pass
2480	-15.18	8	Pass

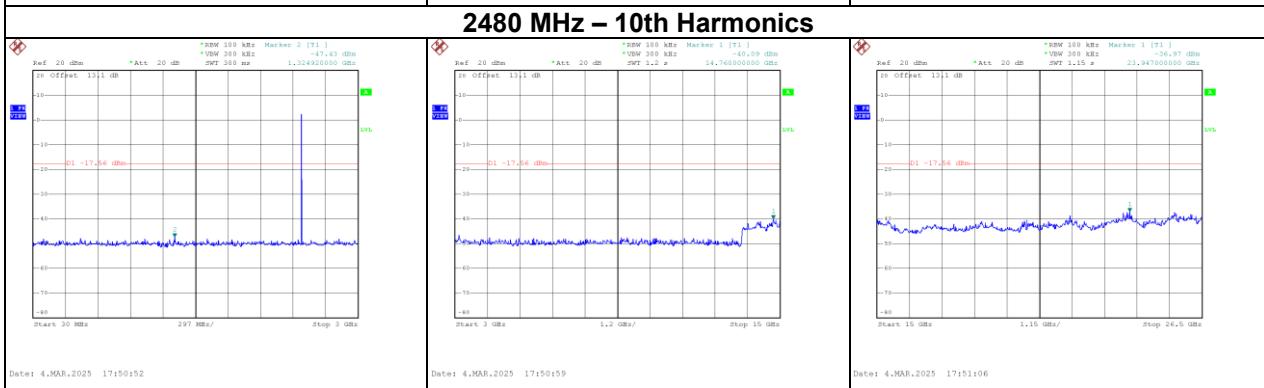
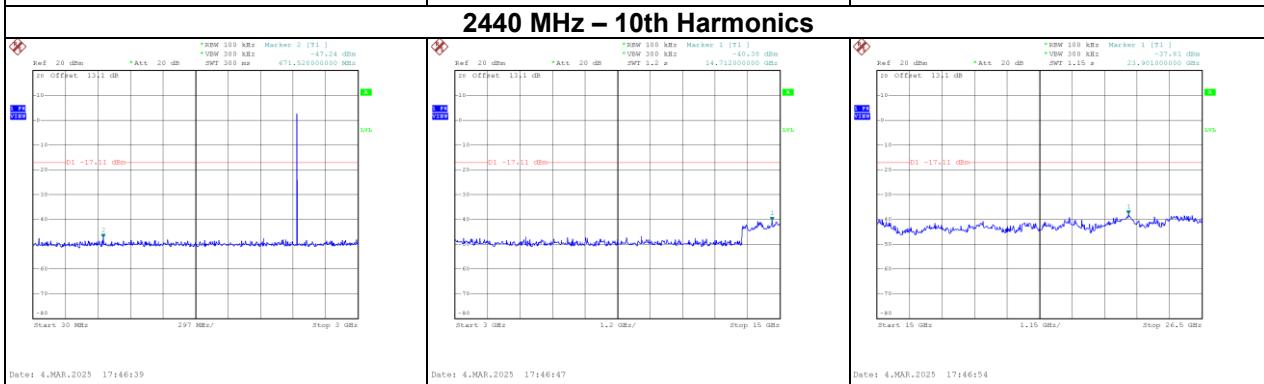
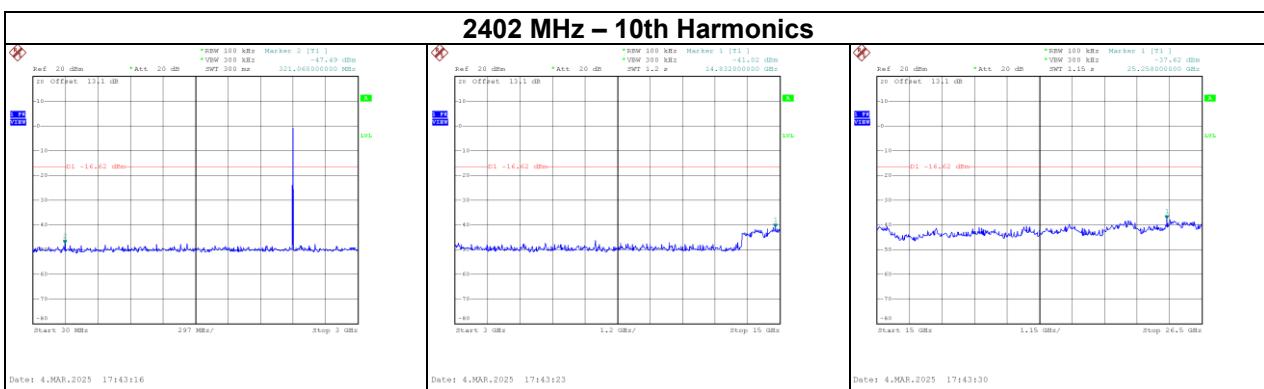
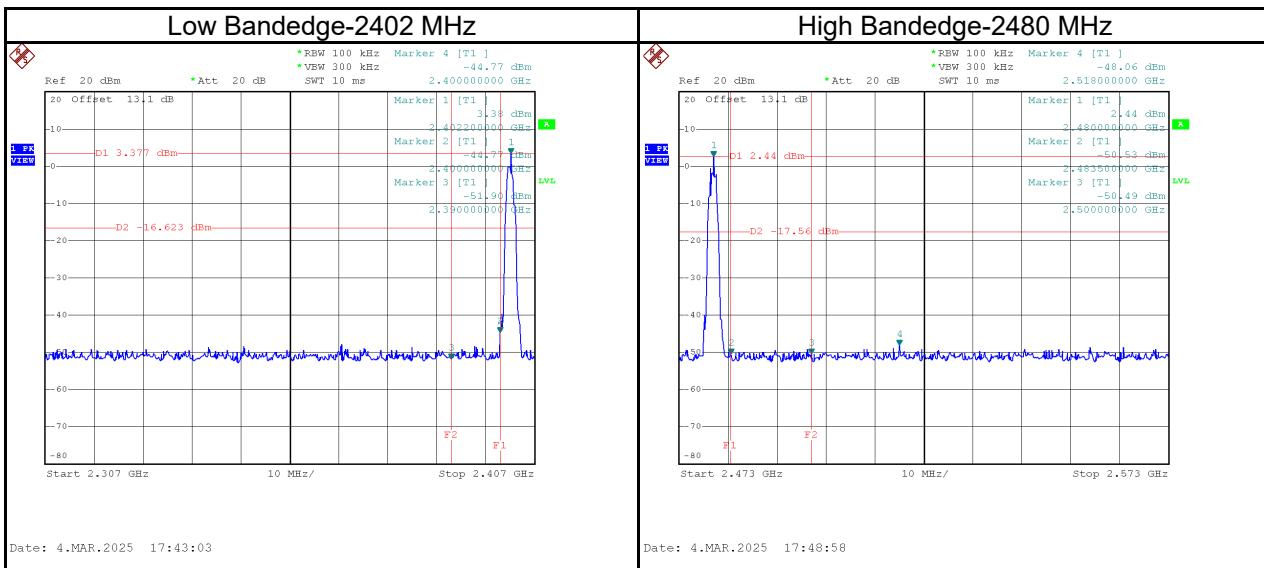


APPENDIX G ANTENNA CONDUCTED SPURIOUS EMISSION

Test Mode : 1Mbps



Test Mode : 2Mbps



End of Test Report