FCC Radio Test Report

FCC ID: 2BCGWTBE552E

Report No.	:	BTL-FCCP-3-2403G002
Equipment	:	BE9300 Wi-Fi 7 Bluetooth PCIe Adapter
Model Name	:	Archer TBE552E
Brand Name	:	tp-link
Applicant	:	TP-LINK CORPORATION PTE. LTD.
Address	:	7 Temasek Boulevard #29-03 Suntec Tower One, Singapore 038987
Radio Function	:	Bluetooth Low Energy (5.0)
FCC Rule Part(s)	:	FCC CFR Title 47, Part 15, Subpart C (15.247)
Measurement Procedure(s)	:	ANSI C63.10-2013
Date of Receipt	:	2024/4/19
Date of Test	:	2024/4/19 ~ 2024/7/20
Issued Date	:	2024/7/24

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

Prepared by : Poken Huang, Engineer

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BTL Inc.

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Declaration

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

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

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

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-3-2403G002	R00	Original Report.	2024/7/1	Invalid
BTL-FCCP-3-2403G002	R01	Revised report to address comments.	2024/7/22	Invalid
BTL-FCCP-3-2403G002	R02	Revised report to address comments.	2024/7/24	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	APPENDIX A	Pass	------
15.205 15.209 15.247(d)	Radiated Emissions	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	**NOTE (3)**

NOTE:
(1) ”N/A” denotes test is not applicable in this Test Report.
(2) The report format version is TP.1.1.1.
(3) The device what use replaceable antennas with non-standard interfaces are considered sufficient to com ply with the provisions of 15.203.

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:
(FCC DN: TW0659)
No.64, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
☒ CB20 ☒ TR01 ☒ C20

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)
C20	CISPR	150 kHz ~ 30MHz	2.4498

B. Radiated emissions test:

Test Site	Measurement Frequency Range	U,(dB)
CB20	0.03 GHz ~ 0.2 GHz	4.17
	0.2 GHz ~ 1 GHz	4.72
	1 GHz ~ 6 GHz	5.20
	6 GHz ~ 18 GHz	5.50
	18 GHz ~ 26 GHz	3.69
	26 GHz ~ 40 GHz	4.23

C. Conducted test:

Test Item	U,(dB)
Occupied Bandwidth	0.53
Output power	0.37
Power Spectral Density	0.66
Conducted Spurious emissions	0.53
Conducted Band edges	0.53

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	25°C, 45%	AC 120 V	Ken Lu
Radiated emissions below 1 GHz	25°C, 65%	AC 120 V	Barry Tsui
Radiated emissions above 1 GHz	25°C, 65%	AC 120 V	Ken Lu
Bandwidth	24°C, 50%	AC 120 V	Cheng Tsai
Output Power	24°C, 50%	AC 120 V	Cheng Tsai
Power Spectral Density	24°C, 50%	AC 120 V	Cheng Tsai
Antenna conducted Spurious Emission	24°C, 50%	AC 120 V	Cheng Tsai

1.4 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

Test Software	WCN_Combo_Tool #1			
Modulation Mode	2402 MHz	2440 MHz	2480 MHz	Data Rate
1 Mbps	1	1	1	1 Mbps
2 Mbps	3	3	3	2 Mbps
500kbps(S2)	0.5	0.5	0.5	500kbps
125kbps(S8)	0.25	0.25	0.25	125kbps

2 GENERAL INFORMATION

2.1 DESCRIPTION OF EUT

Equipment	BE9300 Wi-Fi 7 Bluetooth PCIe Adapter
Brand Name	tp-link
Model Name	Archer TBE552E
Model Difference(s)	N/A
Hardware Version	1.0
Software Version	1.0
Power Source	Supplied from PCIe Slot.
Power Rating	DC 3.3V
Operation Band	2400 MHz ~ 2483.5 MHz
Operation Frequency	2402 MHz ~ 2480 MHz
Modulation Technology	GFSK
Transfer Rate	1 Mbps, 2 Mbps, 500kbps(S2), 125kbps(S8)
Output Power Max.	500kbps(S2): 13.45 dBm (0.0221 W)
Test Model	Archer TBE552E
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:

Ant.	Brand Name	Model Name	Type	Connector	Gain (dBi)
1	TP-LINK CORPORATION PTE. LTD.	3101504215	Dipole	N/A	1.00

(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

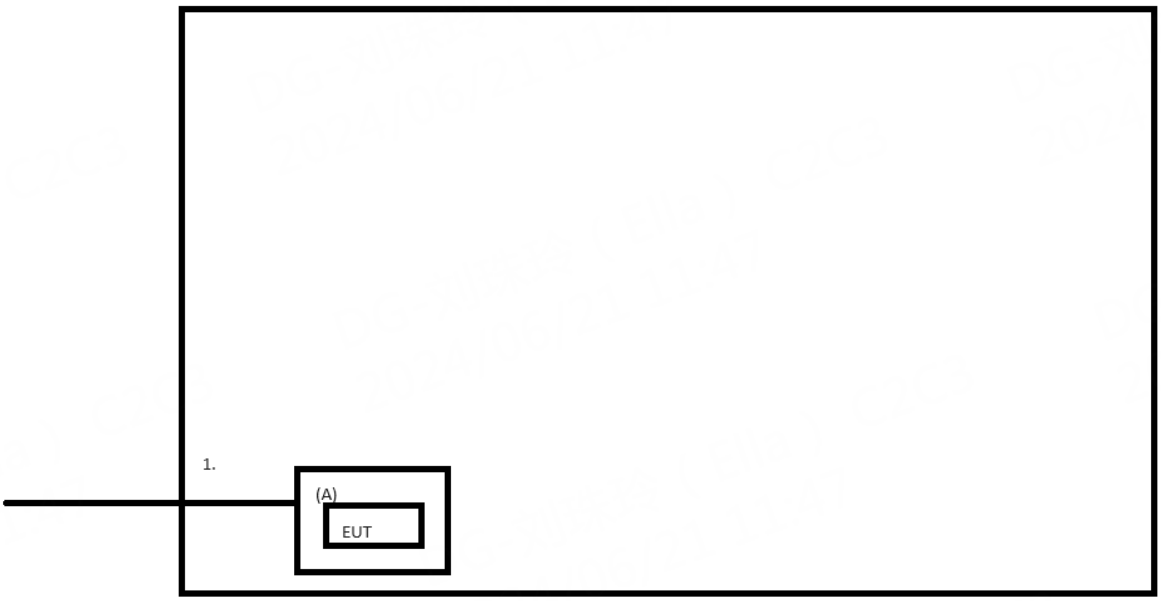
Test Items	Test mode	Channel	Note
AC power line conducted emissions	Normal/Idle	-	-
Transmitter Radiated Emissions (below 1GHz)	500kbps (S2)	19	-
Transmitter Radiated Emissions (above 1GHz)	1/2 Mbps/ 500kbps (S2)/ 125kbps(S8)	00/39	Bandedge
	1/2 Mbps/ 500kbps (S2)/ 125kbps(S8)	00/19/39	Harmonic
Bandwidth	1/2 Mbps/ 500kbps (S2)/ 125kbps(S8)	00/19/39	-
Output Power	1/2 Mbps/ 500kbps (S2)/ 125kbps(S8)	00/19/39	-
Power Spectral Density	1/2 Mbps/ 500kbps (S2)/ 125kbps(S8)	00/19/39	-
Antenna conducted Spurious Emission	1/2 Mbps/ 500kbps (S2)/ 125kbps(S8)	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) 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.
(3) For radiated emissions below 1 GHz test, the 500kbps (S2) channel 19 is found to be the worst case and recorded.

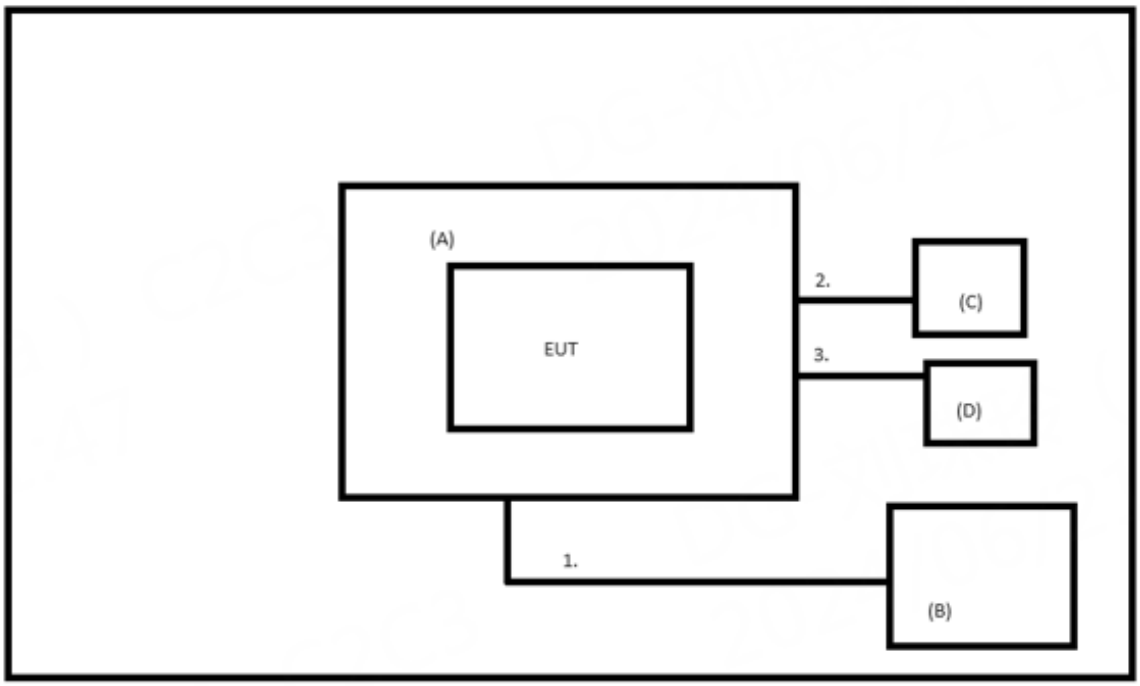
2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

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

AC power line conducted emissions



Radiated Emissions



2.4 SUPPORT UNITS

AC power line conducted emissions

Item	Equipment	Brand	Model No.	Series No.	Remarks
A	Host computer	HP	DESKTOP-TBTO665	N/A	Furnished by test lab.

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	Power cable	N	N	0.5m	Supplied by test requester.

Radiated Emissions

Item	Equipment	Brand	Model No.	Series No.	Remarks
A	Host computer	HP	DESKTOP-TBTO665	N/A	Furnished by test lab.
B	Computer screen	PHILIPS	221S8LDAB22" LED	N/A	Furnished by test lab.
C	Mouse	Lenovo	Moiuuo	8SSM50L24505A VLC25M019Z	Furnished by test lab.
D	Keyboard	Lenovo	SK-8823	8SSD51B37225A VLC25JOMX4	

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	VGA toVGA	N	N	1m	Furnished by test lab.
2	Power cable	N	N	1.8m	Furnished by test lab.
3	Power cable	N	N	1.8m	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

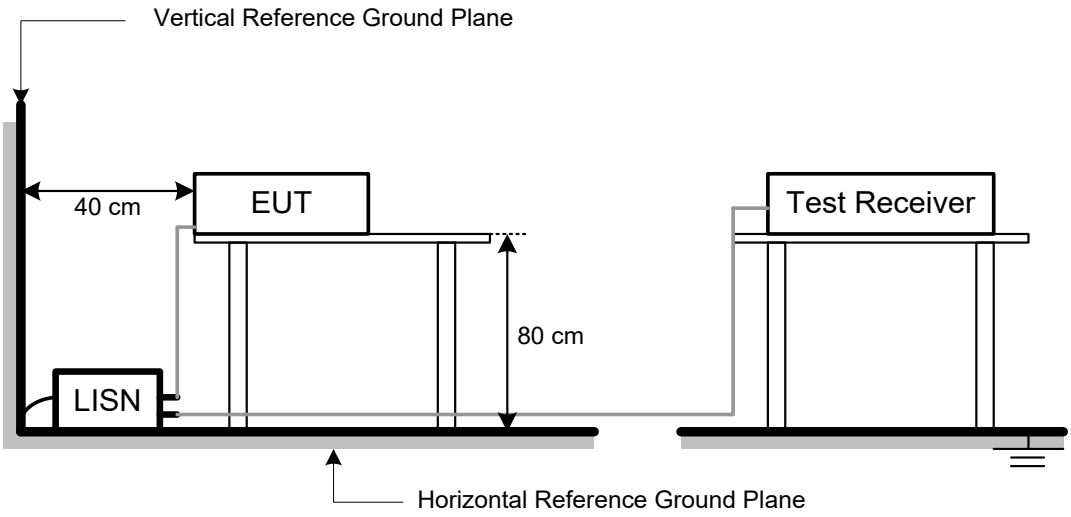
a. The EUT was placed 0.8 m above the horizontal ground plane with the EUT being connected to the power mains through a line impedance stabilization network (LISN).
All other support equipment were powered from an additional LISN(s).
The LISN provides 50 Ohm/50uH of impedance for the measuring instrument.
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 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) 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
41.91	+	-8.36	=	33.55

Measurement Value		Limit Value		Margin Level
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

4.2 TEST PROCEDURE

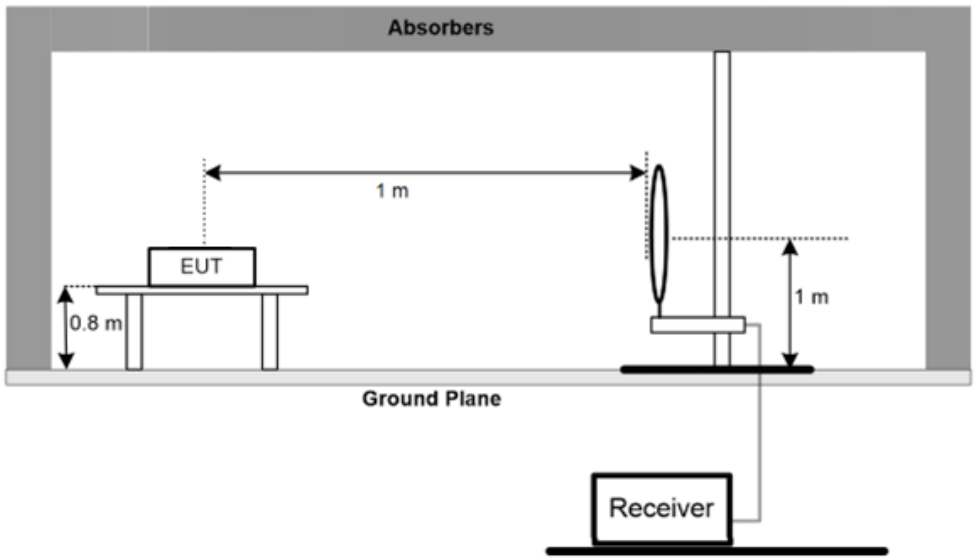
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The measuring distance 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

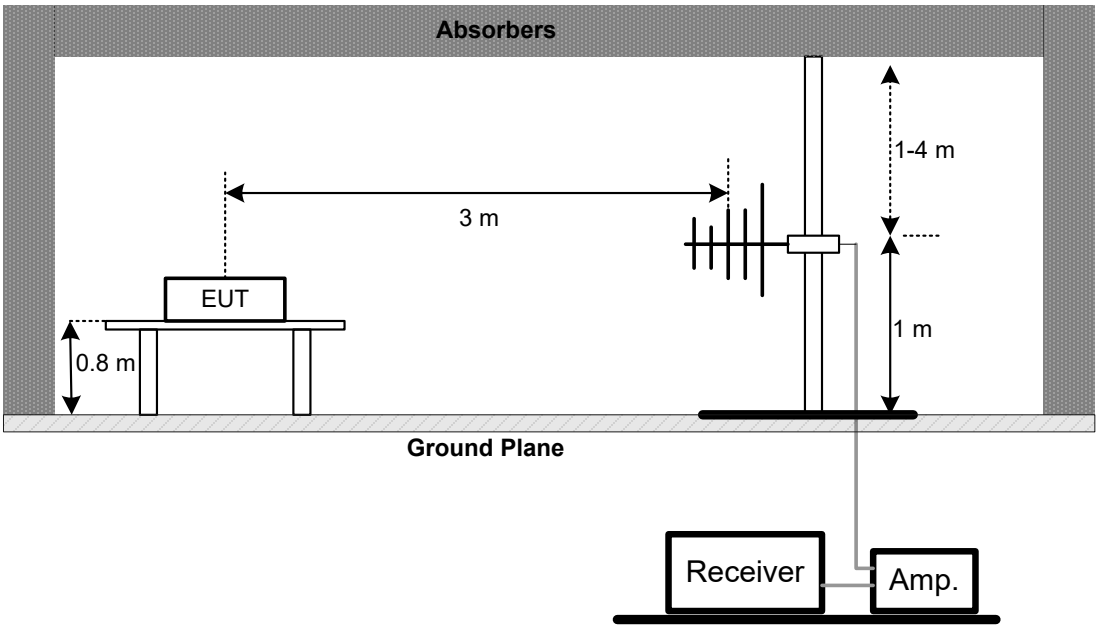
No deviation.

4.4 TEST SETUP

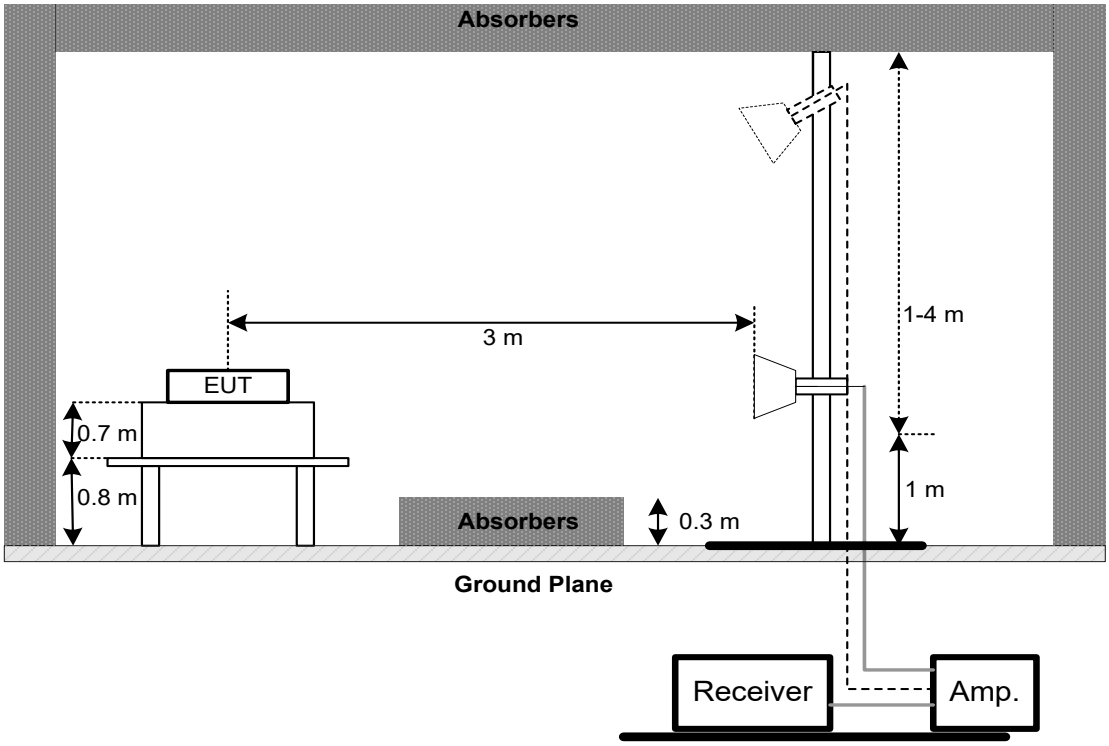
9 kHz to 30 MHz



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 BANDWIDTH TEST

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

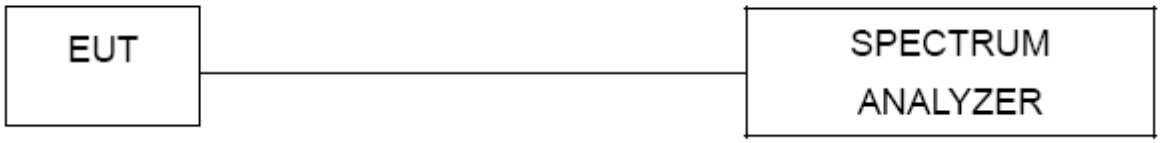
5.2 TEST PROCEDURE

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 = 2.5 ms.

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 OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Maximum Output Power	1 watt or 30dBm	2400-2483.5	PASS

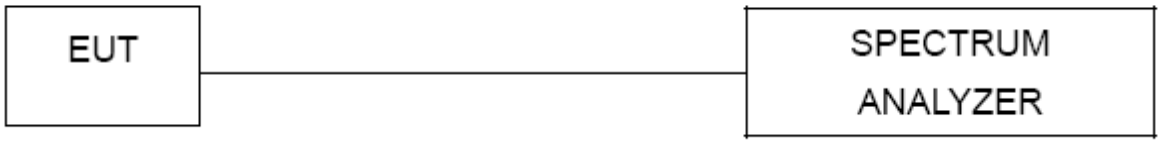
6.2 TEST PROCEDURE

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 FCC KDB 558074 D01 15.247 Meas Guidance.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.6 TEST RESULTS

Please refer to the APPENDIX E.

7 POWER SPECTRAL DENSITY TEST

7.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(e)	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

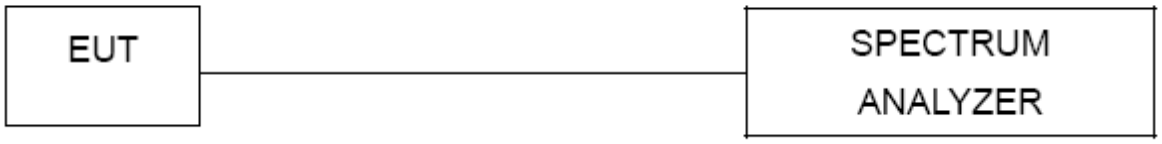
7.2 TEST PROCEDURE

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=3KHz, VBW=10 KHz, Sweep time = auto.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULTS

Please refer to the APPENDIX F.

8 ANTENNA CONDUCTED SPURIOUS EMISSION

8.1 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.

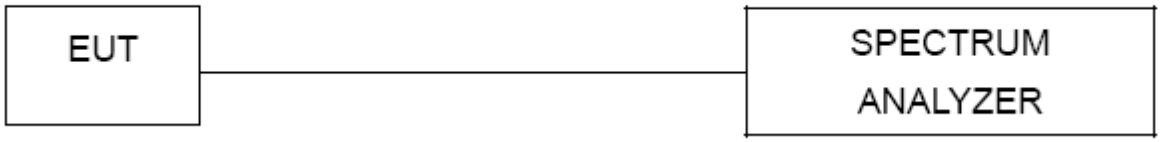
8.2 TEST PROCEDURE

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.

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

8.6 TEST RESULTS

Please refer to the APPENDIX G.

9 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	101051	2023/7/21	2024/7/20
2	Test Cable	EMCI	EMCRG58-BM-BM-9000	210501	2023/12/11	2024/12/10
3	EXA Spectrum Analyzer	keysight	N9038A	MY54130009	2023/6/26	2024/6/25
4	Measurement Software	Farad	EZ_EMC (Ver. 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	Broad-Band Horn Antenna	RFSPIN	DRH18-E	210109A18E	2024/1/10	2025/1/9
2	Pre-Amplifier	EMCI	EMC051845SE	980779	2023/12/11	2024/12/10
3	Test Cable	EMCI	EMC105-SM-SM-1000	210119	2023/12/11	2024/12/10
4	Test Cable	EMCI	EMC105-SM-SM-3000	210118	2023/12/11	2024/12/10
5	Test Cable	EMCI	EMC105-SM-SM-7000	210117	2023/12/11	2024/12/10
6	EXA Spectrum Analyzer	keysight	N9010A	MY56480554	2023/9/12	2024/9/11
7	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	01207	2023/12/18	2024/12/17
8	EMI Test Receiver	Keysight	N9038A	MY54130009	2023/6/26	2024/6/25
9	Pre-Amplifier	EMCI	EMC001330-20201222	980807	2023/12/11	2024/12/10
10	Test Cable	EMCI	EMC-8D-NM-NM-5000	150106	2023/12/11	2024/12/10
11	Test Cable	EMCI	EMC-CFD-400-NM-NM-8000	200348	2023/12/11	2024/12/10
12	Measurement Software	Farad	EZ_EMC (Ver. 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 30	100854	2023/6/26	2024/6/25

Output Power						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP 30	100854	2023/6/26	2024/6/25

Power Spectral Density						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP 30	100854	2023/6/26	2024/6/25

Antenna conducted Spurious Emission						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSP 30	100854	2023/6/26	2024/6/25

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

10 EUT TEST PHOTO

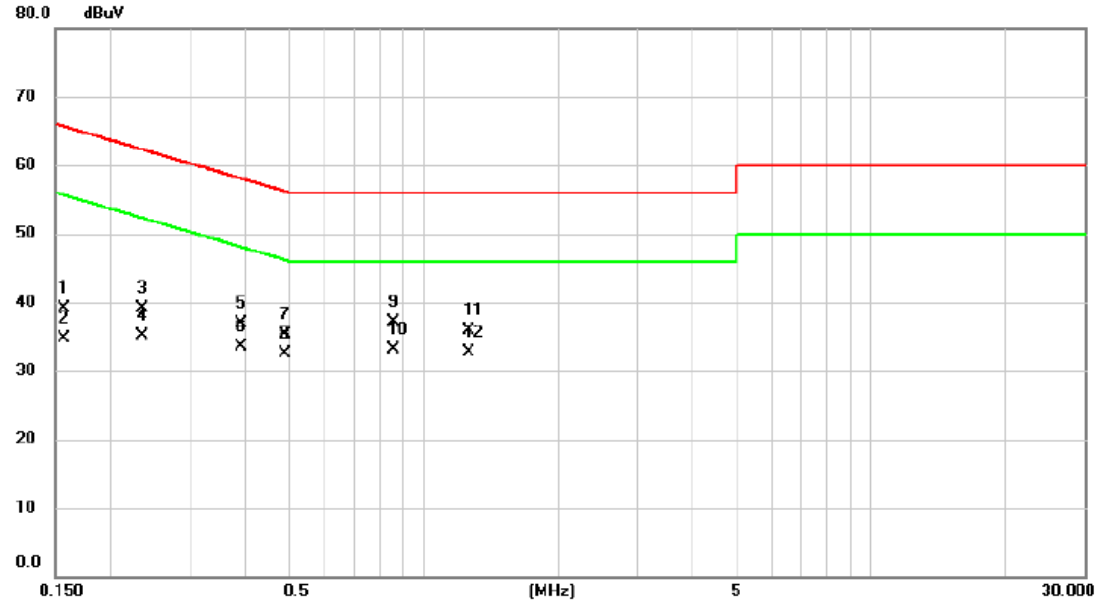
Please refer to document Appendix No.: TP-2403G002-FCCP-1 (APPENDIX-TEST PHOTOS).

11 EUT PHOTOS

Please refer to document Appendix No.: EP-2403G002-1 (APPENDIX-EUT PHOTOS).

APPENDIX A AC POWER LINE CONDUCTED EMISSIONS

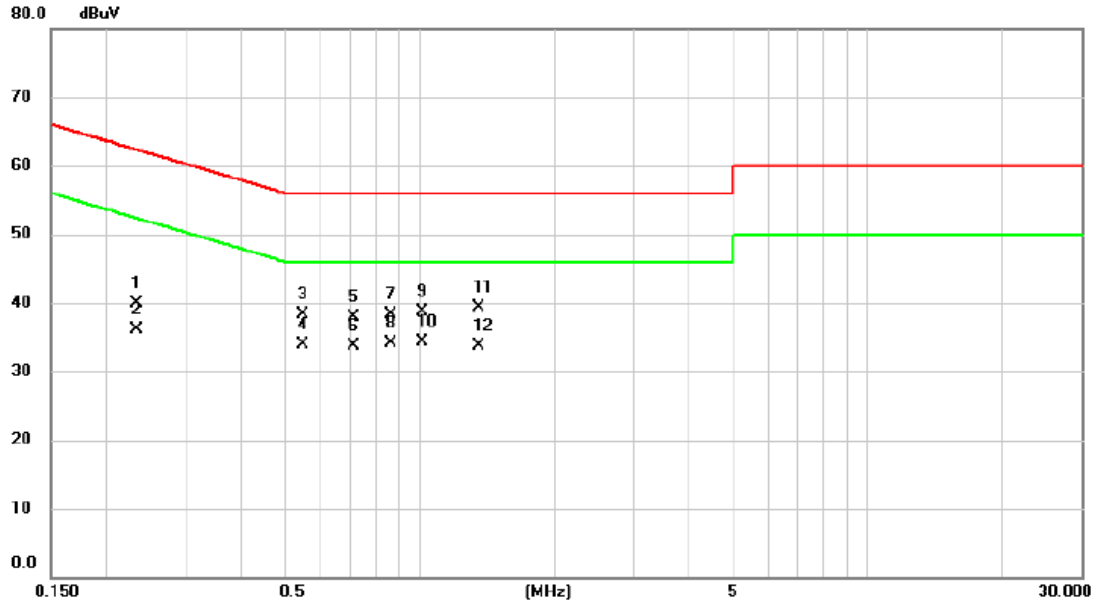
Test Mode	Normal	Tested Date	2024/5/3
Test Frequency	-	Phase	Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1566	29.46	9.65	39.11	65.64	-26.53	QP	
2		0.1566	25.06	9.65	34.71	55.64	-20.93	AVG	
3		0.2343	29.39	9.64	39.03	62.30	-23.27	QP	
4		0.2343	25.44	9.64	35.08	52.30	-17.22	AVG	
5		0.3908	27.27	9.65	36.92	58.05	-21.13	QP	
6		0.3908	23.76	9.65	33.41	48.05	-14.64	AVG	
7		0.4910	25.64	9.66	35.30	56.15	-20.85	QP	
8		0.4910	22.75	9.66	32.41	46.15	-13.74	AVG	
9		0.8554	27.44	9.69	37.13	56.00	-18.87	QP	
10	*	0.8554	23.43	9.69	33.12	46.00	-12.88	AVG	
11		1.2604	26.14	9.72	35.86	56.00	-20.14	QP	
12		1.2604	22.92	9.72	32.64	46.00	-13.36	AVG	

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

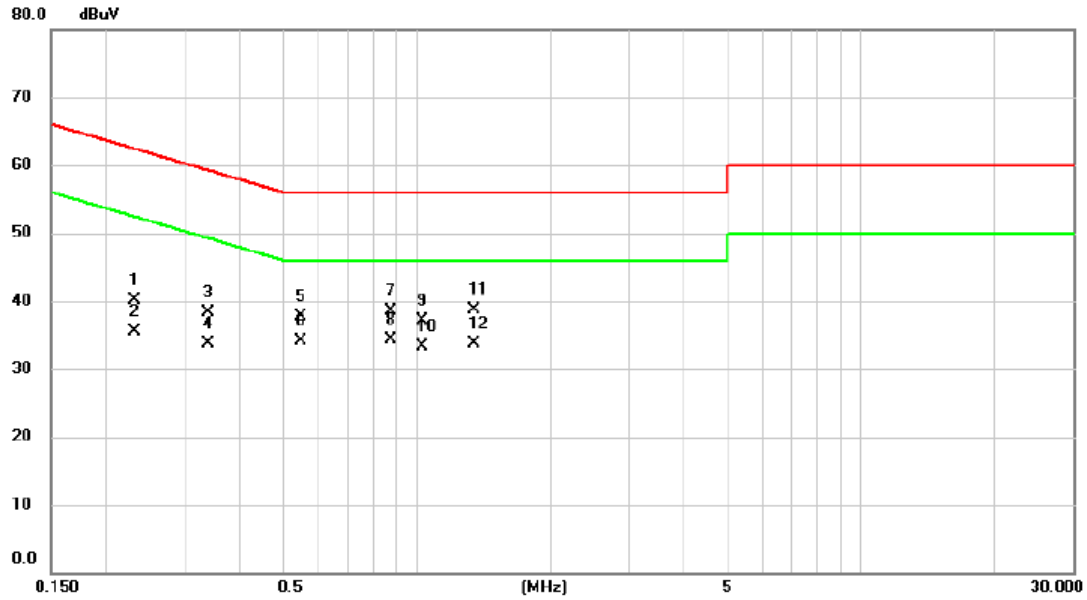
Test Mode	Normal	Tested Date	2024/5/3
Test Frequency	-	Phase	Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2340	30.31	9.63	39.94	62.31	-22.37	QP	
2		0.2340	26.43	9.63	36.06	52.31	-16.25	AVG	
3		0.5494	28.58	9.64	38.22	56.00	-17.78	QP	
4		0.5494	24.29	9.64	33.93	46.00	-12.07	AVG	
5		0.7114	28.29	9.67	37.96	56.00	-18.04	QP	
6		0.7114	24.02	9.67	33.69	46.00	-12.31	AVG	
7		0.8600	28.59	9.68	38.27	56.00	-17.73	QP	
8		0.8600	24.40	9.68	34.08	46.00	-11.92	AVG	
9		1.0174	29.07	9.69	38.76	56.00	-17.24	QP	
10	*	1.0174	24.64	9.69	34.33	46.00	-11.67	AVG	
11		1.3504	29.52	9.72	39.24	56.00	-16.76	QP	
12		1.3504	23.98	9.72	33.70	46.00	-12.30	AVG	

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

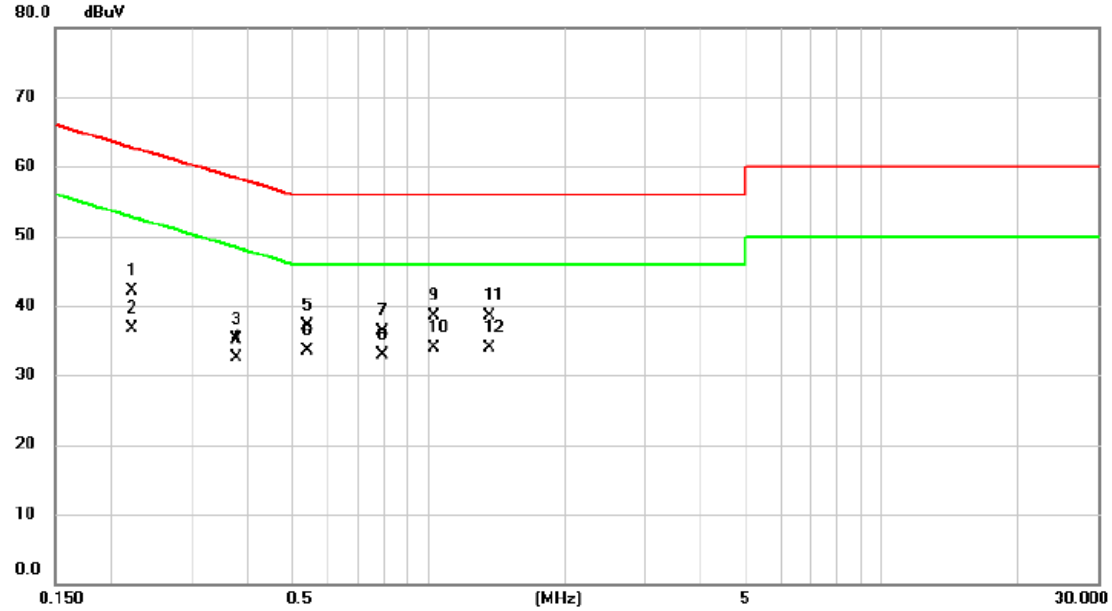
Test Mode	Idle	Tested Date	
Test Frequency	-	Phase	Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2315	30.48	9.64	40.12	62.40	-22.28	QP	
2		0.2315	25.92	9.64	35.56	52.40	-16.84	AVG	
3		0.3400	28.56	9.65	38.21	59.20	-20.99	QP	
4		0.3400	24.07	9.65	33.72	49.20	-15.48	AVG	
5		0.5494	28.00	9.66	37.66	56.00	-18.34	QP	
6		0.5494	24.46	9.66	34.12	46.00	-11.88	AVG	
7		0.8734	28.86	9.69	38.55	56.00	-17.45	QP	
8	*	0.8734	24.56	9.69	34.25	46.00	-11.75	AVG	
9		1.0310	27.42	9.70	37.12	56.00	-18.88	QP	
10		1.0310	23.59	9.70	33.29	46.00	-12.71	AVG	
11		1.3414	29.04	9.73	38.77	56.00	-17.23	QP	
12		1.3414	23.97	9.73	33.70	46.00	-12.30	AVG	

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

Test Mode	Idle	Tested Date	
Test Frequency	-	Phase	Neutral

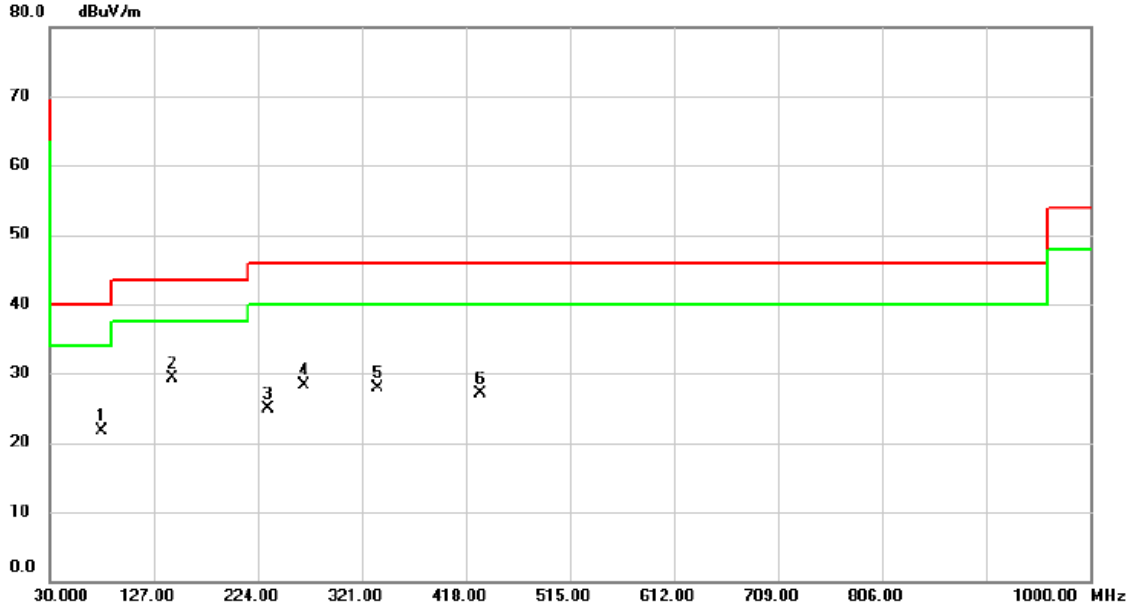


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2224	32.44	9.63	42.07	62.73	-20.66	QP	
2		0.2224	27.08	9.63	36.71	52.73	-16.02	AVG	
3		0.3772	25.57	9.63	35.20	58.34	-23.14	QP	
4		0.3772	22.94	9.63	32.57	48.34	-15.77	AVG	
5		0.5404	27.48	9.64	37.12	56.00	-18.88	QP	
6		0.5404	23.81	9.64	33.45	46.00	-12.55	AVG	
7		0.7925	26.64	9.67	36.31	56.00	-19.69	QP	
8		0.7925	23.15	9.67	32.82	46.00	-13.18	AVG	
9		1.0265	28.78	9.69	38.47	56.00	-17.53	QP	
10		1.0265	24.18	9.69	33.87	46.00	-12.13	AVG	
11		1.3595	28.82	9.72	38.54	56.00	-17.46	QP	
12	*	1.3595	24.18	9.72	33.90	46.00	-12.10	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

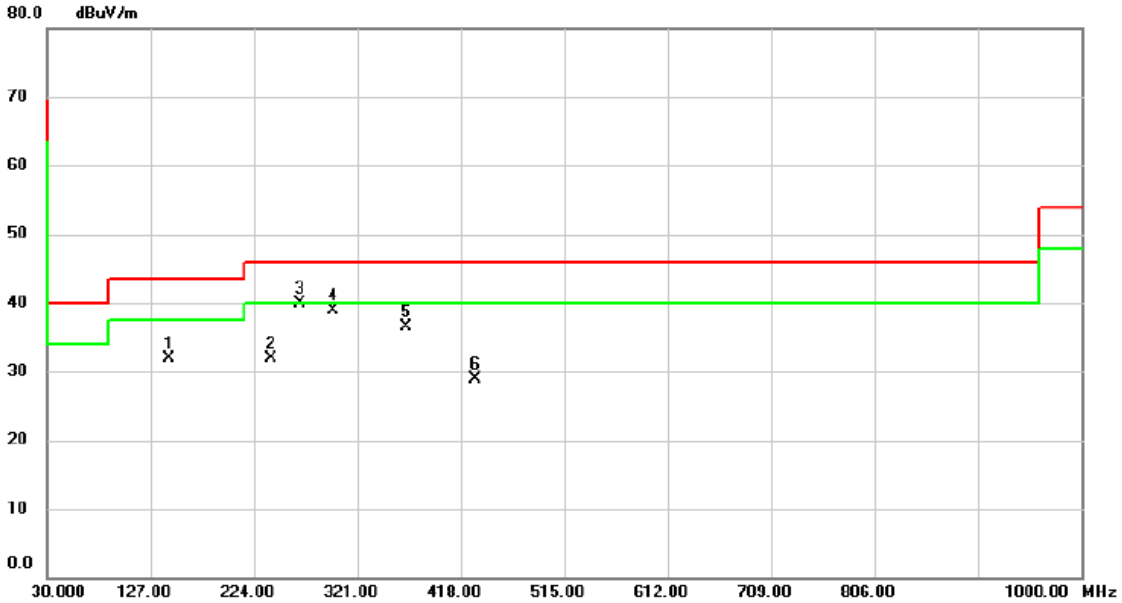
Test Mode	BLE (500kbps(S2))	Test Date	2024/4/29
Test Frequency	CH00: 2440 MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		78.5000	37.54	-15.78	21.76	40.00	-18.24	peak	200	161	
2	*	144.4600	40.98	-11.59	29.39	43.50	-14.11	peak	100	163	
3		233.7000	38.13	-13.22	24.91	46.00	-21.09	peak	200	343	
4		266.6800	39.67	-11.42	28.25	46.00	-17.75	peak			
5		335.5500	37.13	-9.30	27.83	46.00	-18.17	peak	200	200	
6		431.5800	33.69	-6.54	27.15	46.00	-18.85	peak	200	250	

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

Test Mode	BLE (500kbps(S2))	Test Date	2024/4/29
Test Frequency	CH00: 2440 MHz	Polarization	Horizontal

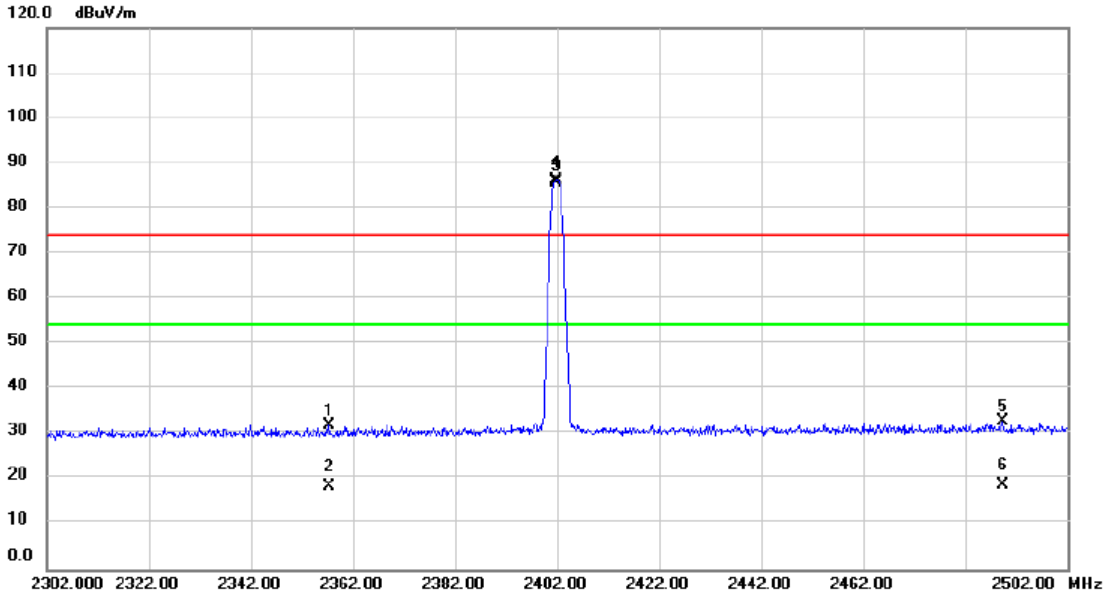


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		144.4600	43.52	-11.59	31.93	43.50	-11.57	peak	200	234	
2		240.4900	44.12	-12.25	31.87	46.00	-14.13	peak	100	191	
3	*	266.6800	51.33	-11.42	39.91	46.00	-6.09	peak	100	254	
4		298.6900	49.23	-10.26	38.97	46.00	-7.03	peak	100	254	
5		366.5900	44.90	-8.44	36.46	46.00	-9.54	peak	100	299	
6		431.5800	35.54	-6.54	29.00	46.00	-17.00	peak			

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

APPENDIX C RADIATED EMISSIONS - ABOVE 1 GHZ

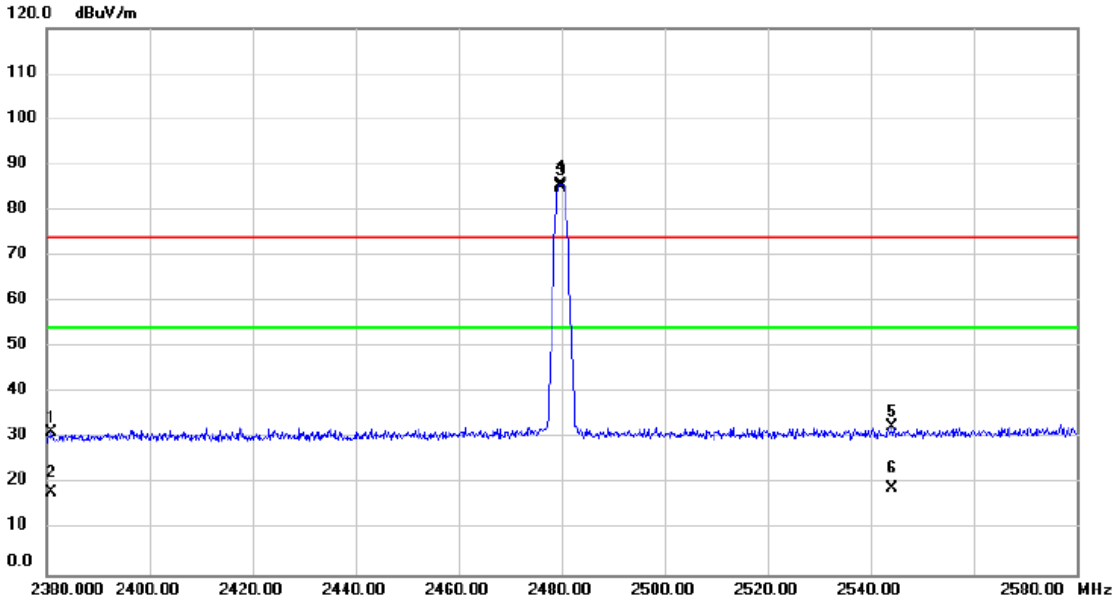
Test Mode	BLE (1 Mbps)	Test Date	2024/4/26
Test Frequency	2402MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2357.400	38.27	-6.19	32.08	74.00	-41.92	peak			
2		2357.400	24.69	-6.19	18.50	54.00	-35.50	AVG			
3	X	2401.800	92.29	-6.09	86.20	74.00	12.20	peak			No Limit
4	*	2401.800	91.74	-6.09	85.65	54.00	31.65	AVG			No Limit
5		2489.400	38.67	-5.90	32.77	74.00	-41.23	peak			
6		2489.400	24.57	-5.90	18.67	54.00	-35.33	AVG			

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

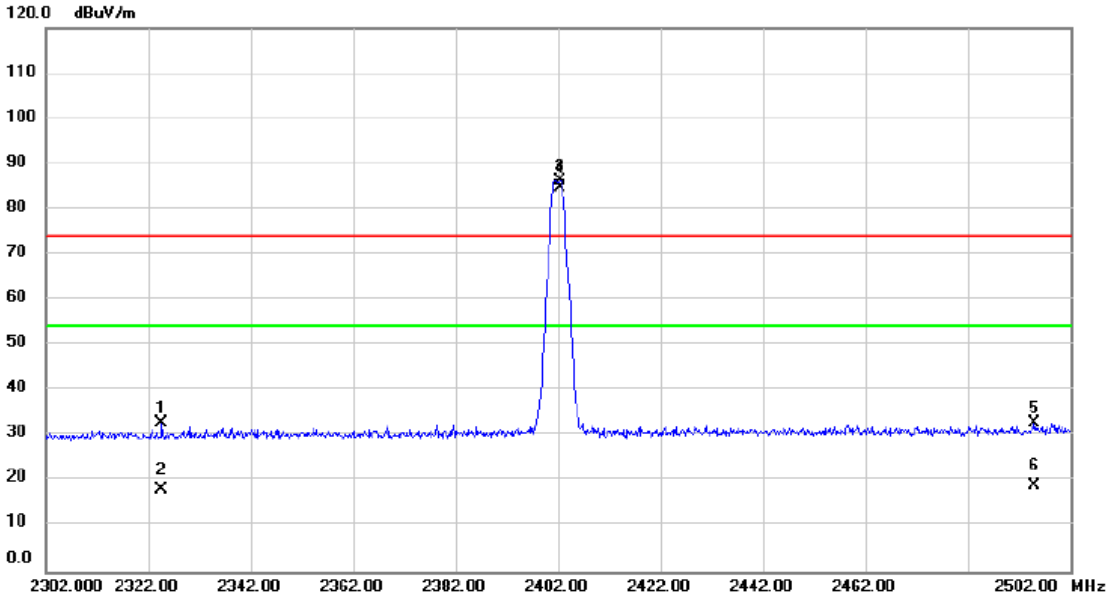
Test Mode	BLE (1 Mbps)	Test Date	2024/4/26
Test Frequency	2480MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2381.000	37.53	-6.13	31.40	74.00	-42.60	peak			
2		2381.000	24.21	-6.13	18.08	54.00	-35.92	AVG			
3	X	2479.800	91.61	-5.92	85.69	74.00	11.69	peak			No Limit
4	*	2479.800	90.97	-5.92	85.05	54.00	31.05	AVG			No Limit
5		2544.200	38.30	-5.70	32.60	74.00	-41.40	peak			
6		2544.200	24.67	-5.70	18.97	54.00	-35.03	AVG			

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

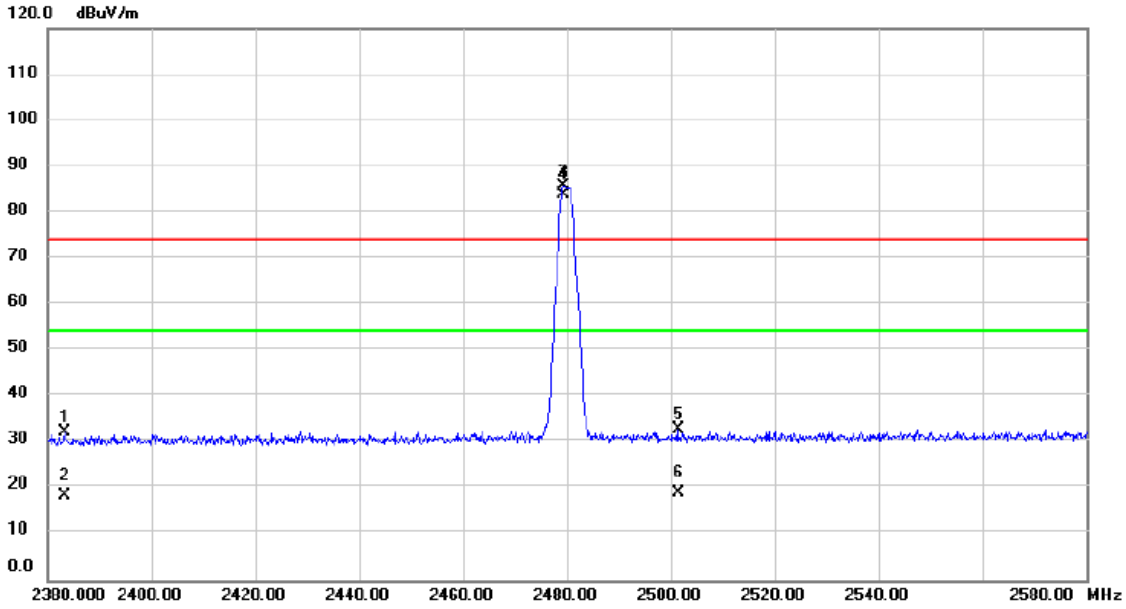
Test Mode	BLE (2 Mbps)	Test Date	2024/4/26
Test Frequency	2402MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2324.600	39.17	-6.26	32.91	74.00	-41.09	peak			
2		2324.600	24.52	-6.26	18.26	54.00	-35.74	AVG			
3	X	2402.400	92.35	-6.09	86.26	74.00	12.26	peak			No Limit
4	*	2402.400	90.77	-6.09	84.68	54.00	30.68	AVG			No Limit
5		2495.000	38.80	-5.89	32.91	74.00	-41.09	peak			
6		2495.000	25.02	-5.89	19.13	54.00	-34.87	AVG			

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

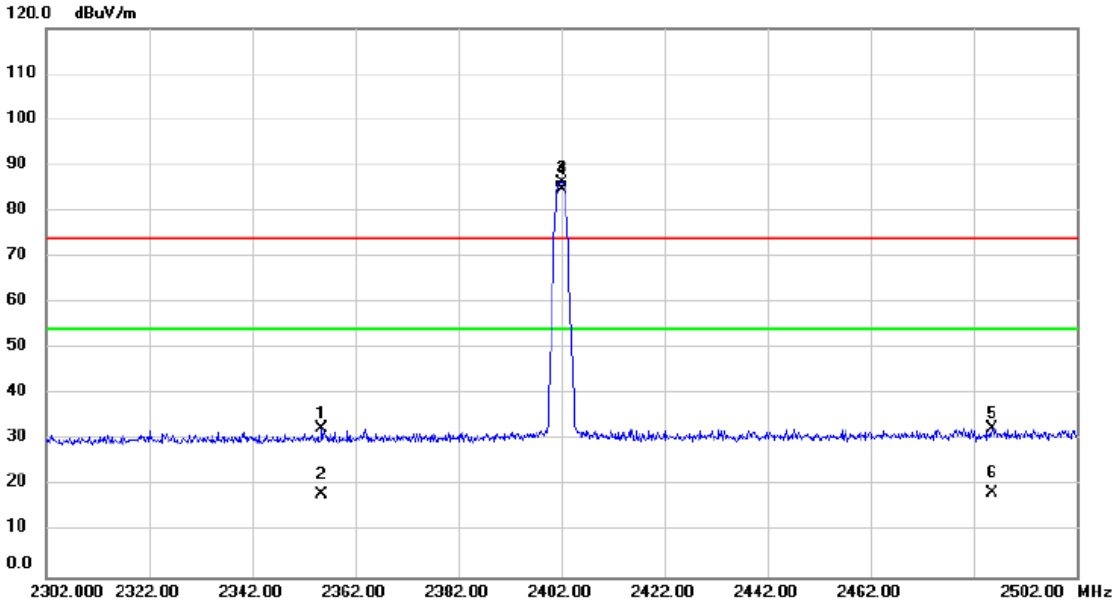
Test Mode	BLE (2 Mbps)	Test Date	2024/4/26
Test Frequency	2480MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2383.400	38.44	-6.13	32.31	74.00	-41.69	peak			
2		2383.400	24.57	-6.13	18.44	54.00	-35.56	AVG			
3	X	2479.400	91.49	-5.92	85.57	74.00	11.57	peak			No Limit
4	*	2479.400	89.83	-5.92	83.91	54.00	29.91	AVG			No Limit
5		2501.400	38.66	-5.88	32.78	74.00	-41.22	peak			
6		2501.400	24.99	-5.88	19.11	54.00	-34.89	AVG			

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

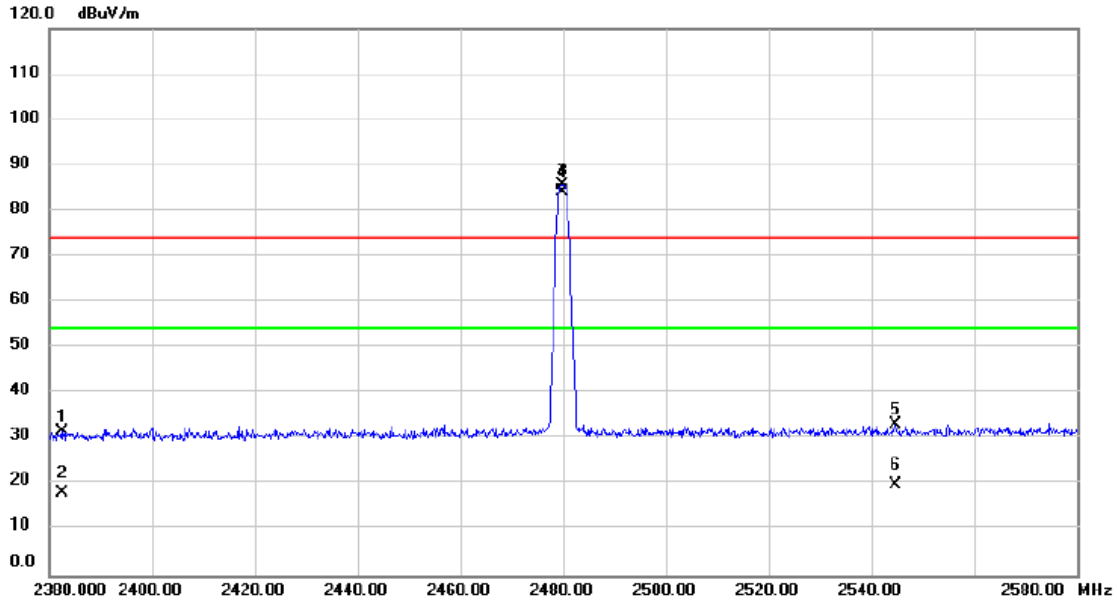
Test Mode	BLE (500kbps(S2))	Test Date	2024/4/26
Test Frequency	2402 MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2355.600	38.62	-6.19	32.43	74.00	-41.57	peak			
2		2355.600	24.25	-6.19	18.06	54.00	-35.94	AVG			
3	X	2402.200	92.43	-6.09	86.34	74.00	12.34	peak			No Limit
4	*	2402.200	90.97	-6.09	84.88	54.00	30.88	AVG			No Limit
5		2485.600	38.41	-5.91	32.50	74.00	-41.50	peak			
6		2485.600	24.33	-5.91	18.42	54.00	-35.58	AVG			

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

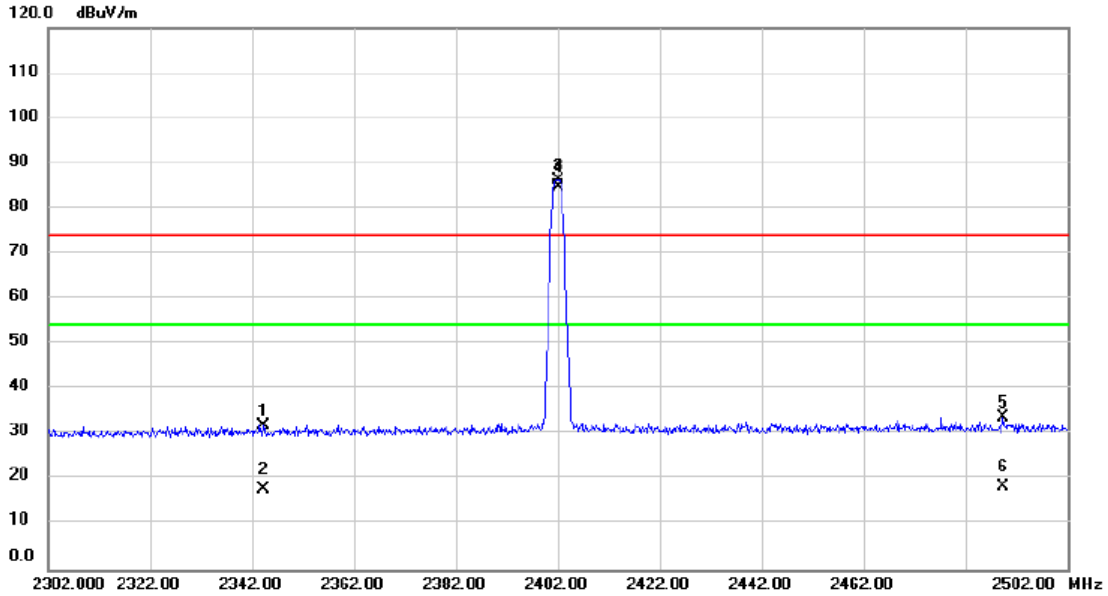
Test Mode	BLE (500kbps(S2))	Test Date	2024/4/26
Test Frequency	2480 MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2382.400	37.85	-6.13	31.72	74.00	-42.28	peak			
2		2382.400	24.28	-6.13	18.15	54.00	-35.85	AVG			
3	X	2479.800	91.64	-5.92	85.72	74.00	11.72	peak			No Limit
4	*	2479.800	90.13	-5.92	84.21	54.00	30.21	AVG			No Limit
5		2544.600	38.93	-5.70	33.23	74.00	-40.77	peak			
6		2544.600	25.71	-5.70	20.01	54.00	-33.99	AVG			

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

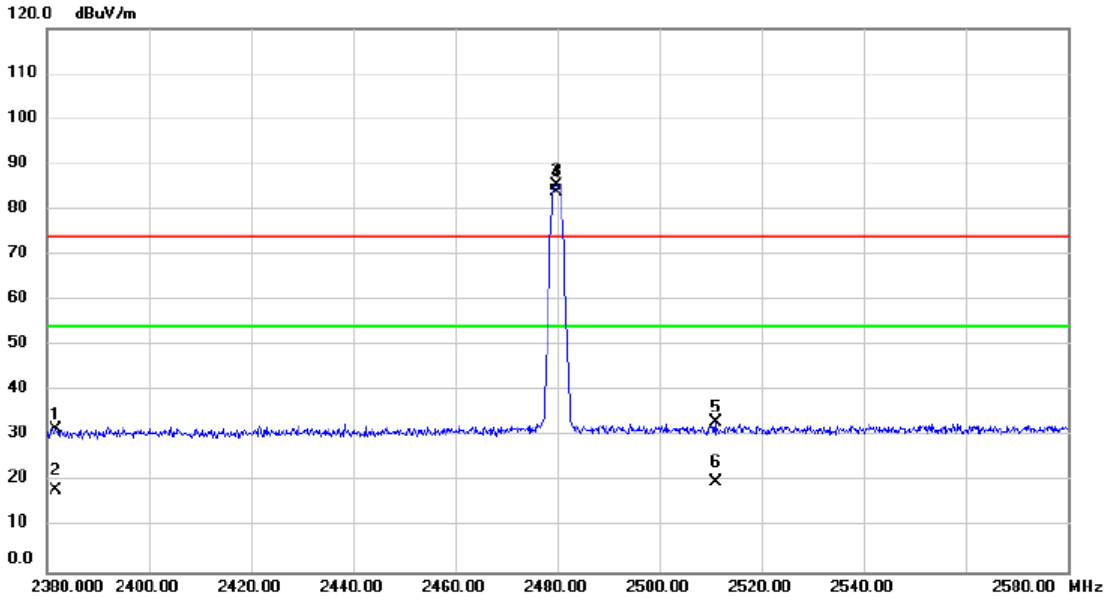
Test Mode	BLE (125kbps(S8))	Test Date	2024/4/26
Test Frequency	2402MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2344.200	38.30	-6.22	32.08	74.00	-41.92	peak			
2		2344.200	24.16	-6.22	17.94	54.00	-36.06	AVG			
3	X	2402.200	92.39	-6.09	86.30	74.00	12.30	peak			No Limit
4	*	2402.200	90.78	-6.09	84.69	54.00	30.69	AVG			No Limit
5		2489.400	39.65	-5.90	33.75	74.00	-40.25	peak			
6		2489.400	24.47	-5.90	18.57	54.00	-35.43	AVG			

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

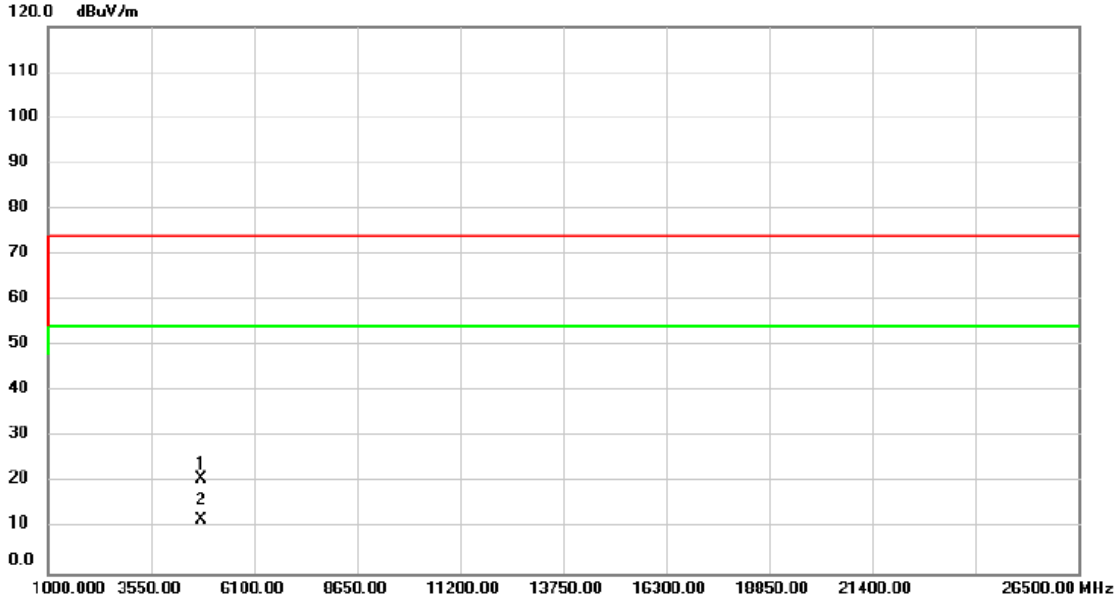
Test Mode	BLE (125kbps(S8))	Test Date	2024/4/26
Test Frequency	2480MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2381.800	37.81	-6.13	31.68	74.00	-42.32	peak			
2		2381.800	24.35	-6.13	18.22	54.00	-35.78	AVG			
3	X	2479.800	91.39	-5.92	85.47	74.00	11.47	peak			No Limit
4	*	2479.800	89.82	-5.92	83.90	54.00	29.90	AVG			No Limit
5		2511.000	38.86	-5.83	33.03	74.00	-40.97	peak			
6		2511.000	25.68	-5.83	19.85	54.00	-34.15	AVG			

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

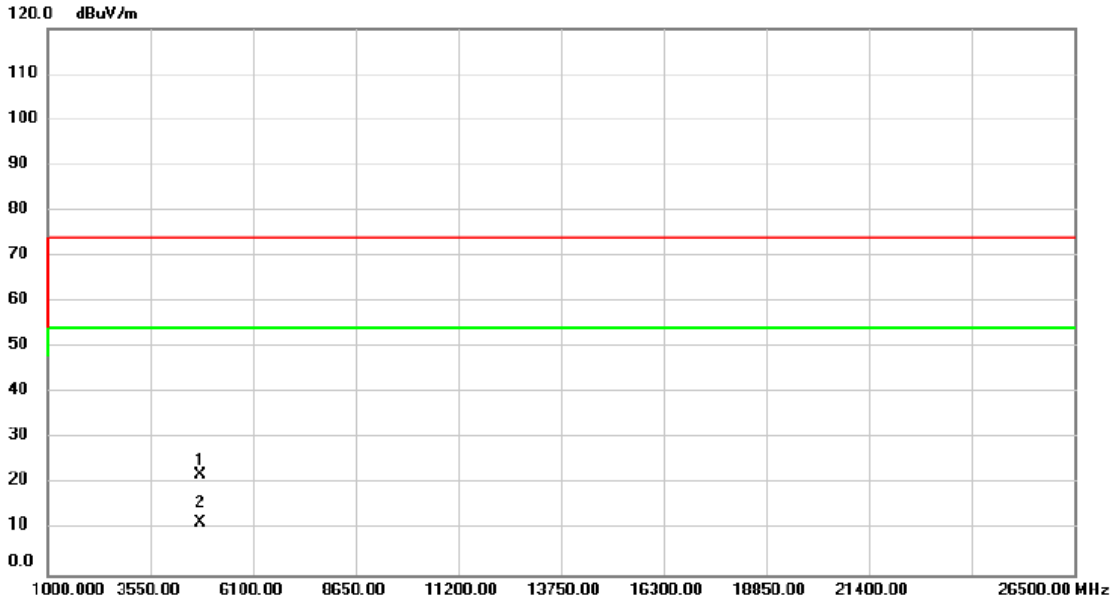
Test Mode	BLE (1 Mbps)	Test Date	2024/4/26
Test Frequency	2402MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4804.000	29.42	-8.62	20.80	74.00	-53.20	peak			
2	*	4804.000	20.52	-8.62	11.90	54.00	-42.10	AVG			

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

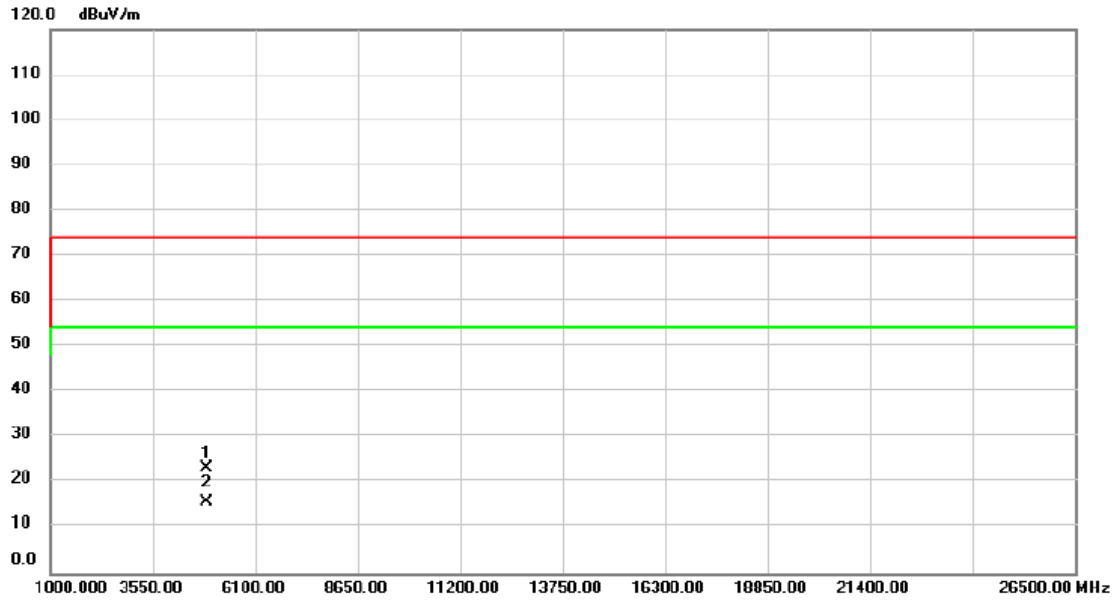
Test Mode	BLE (1 Mbps)	Test Date	2024/4/26
Test Frequency	2402MHz	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4804.000	30.74	-8.62	22.12	74.00	-51.88	peak			
2	*	4804.000	20.13	-8.62	11.51	54.00	-42.49	AVG			

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

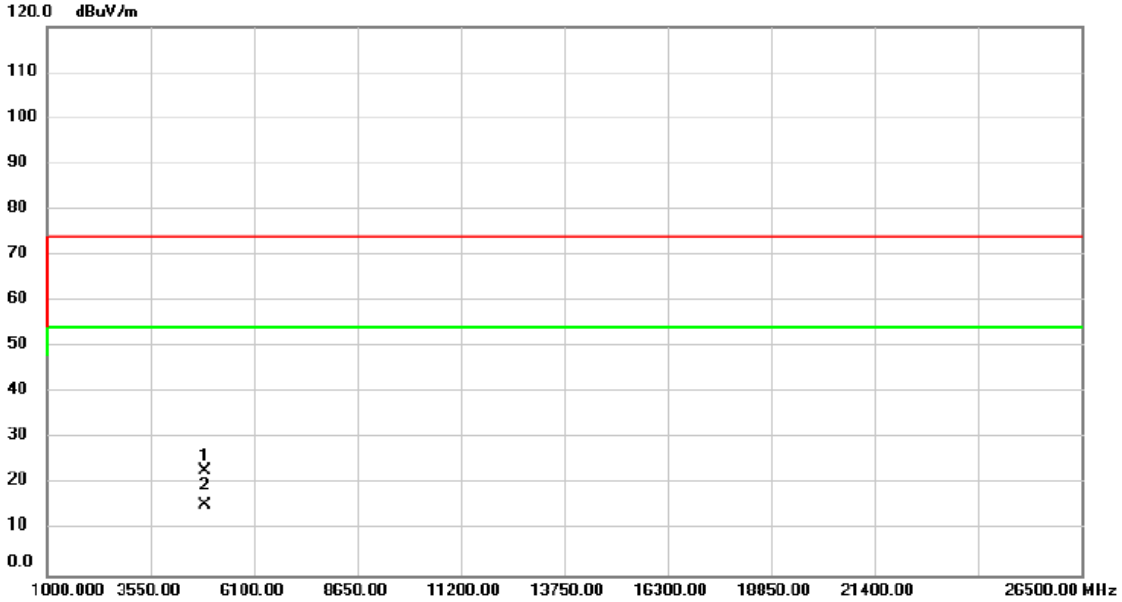
Test Mode	BLE (1 Mbps)	Test Date	2024/4/26
Test Frequency	2440MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4876.000	31.75	-8.43	23.32	74.00	-50.68	peak			
2	*	4876.000	24.18	-8.43	15.75	54.00	-38.25	AVG			

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

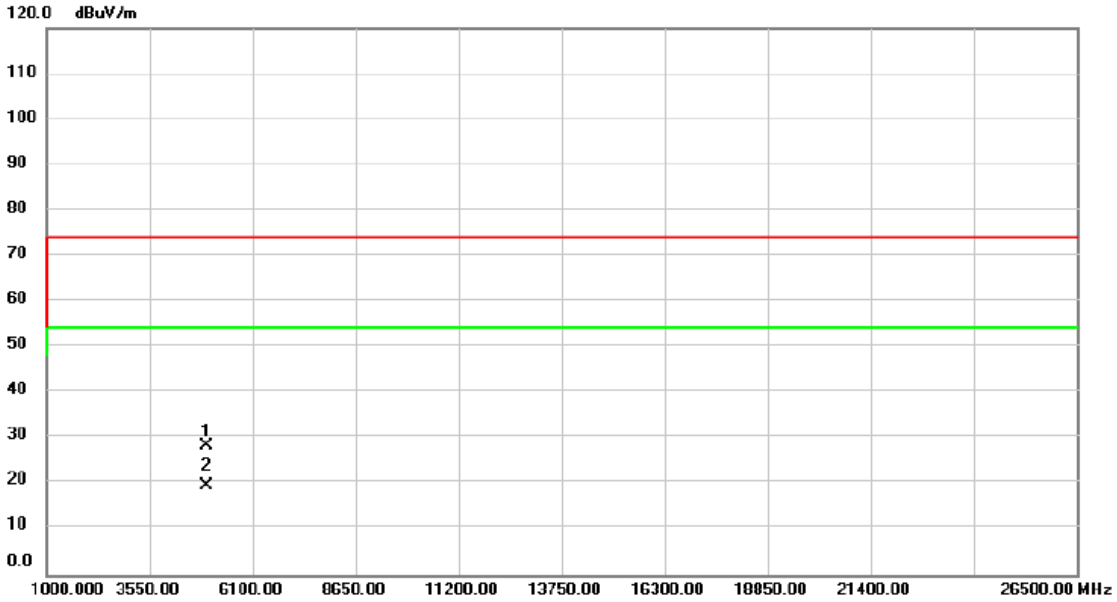
Test Mode	BLE (1 Mbps)	Test Date	2024/4/26
Test Frequency	2440MHz	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4880.000	31.29	-8.43	22.86	74.00	-51.14	peak			
2	*	4880.000	23.75	-8.43	15.32	54.00	-38.68	AVG			

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

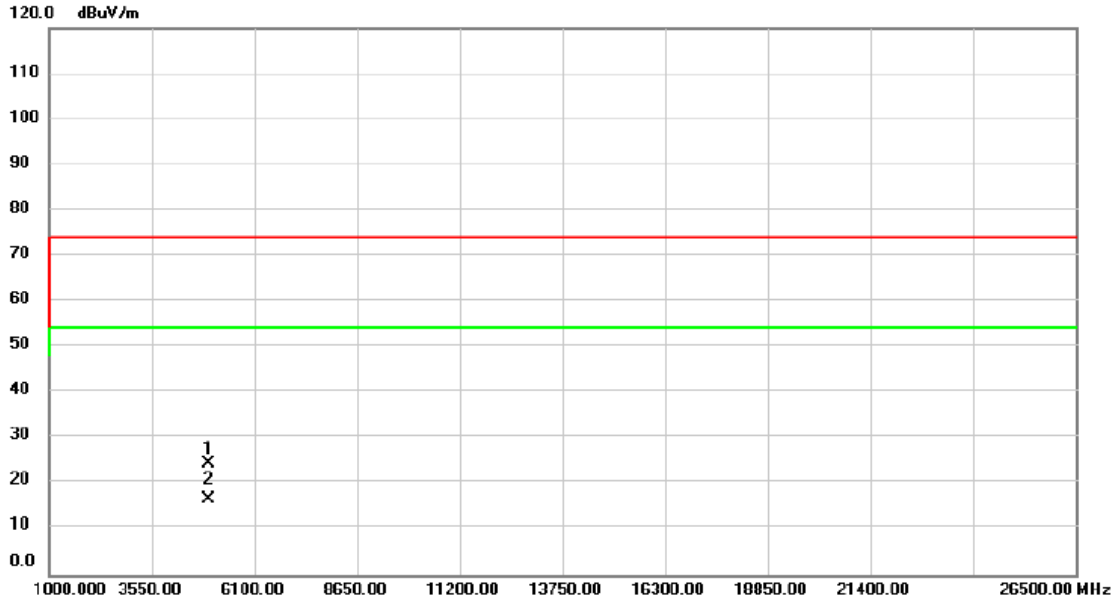
Test Mode	BLE (1 Mbps)	Test Date	2024/4/26
Test Frequency	2480MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4960.000	36.61	-8.23	28.38	74.00	-45.62	peak			
2	*	4960.000	27.82	-8.23	19.59	54.00	-34.41	AVG			

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

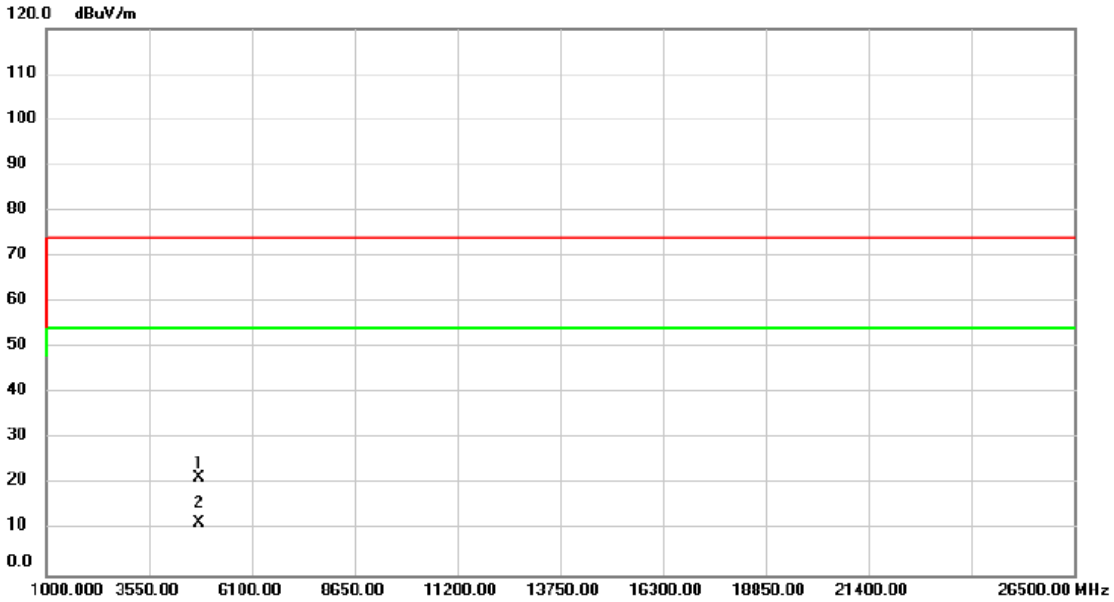
Test Mode	BLE (1 Mbps)	Test Date	2024/4/26
Test Frequency	2480MHz	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4960.000	32.81	-8.23	24.58	74.00	-49.42	peak			
2	*	4960.000	24.80	-8.23	16.57	54.00	-37.43	AVG			

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

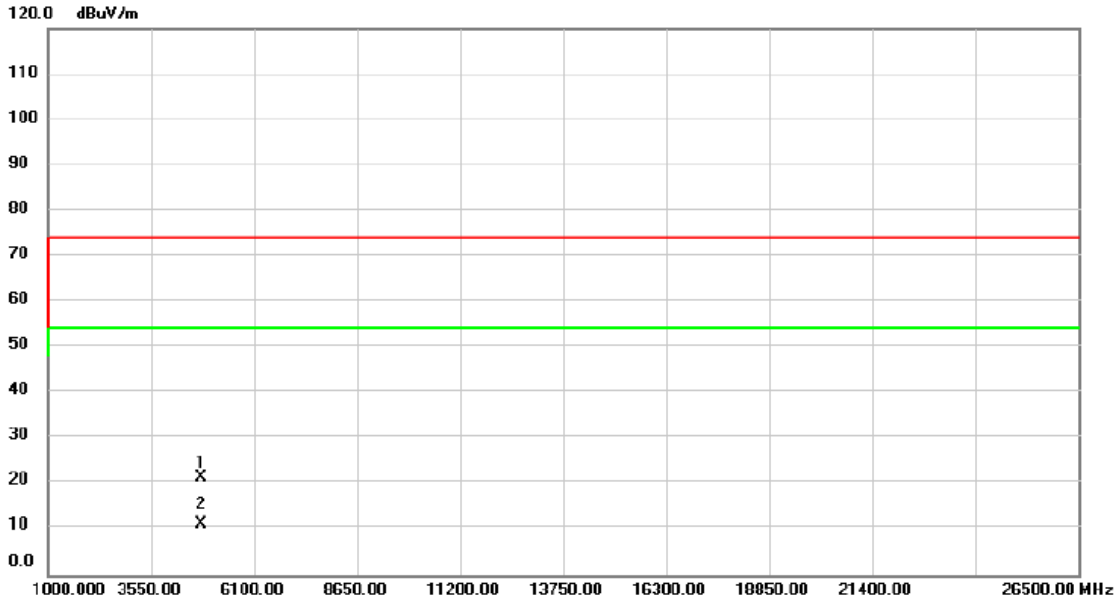
Test Mode	BLE (2 Mbps)	Test Date	2024/4/26
Test Frequency	2402MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4804.000	30.05	-8.62	21.43	74.00	-52.57	peak			
2	*	4804.000	20.07	-8.62	11.45	54.00	-42.55	AVG			

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

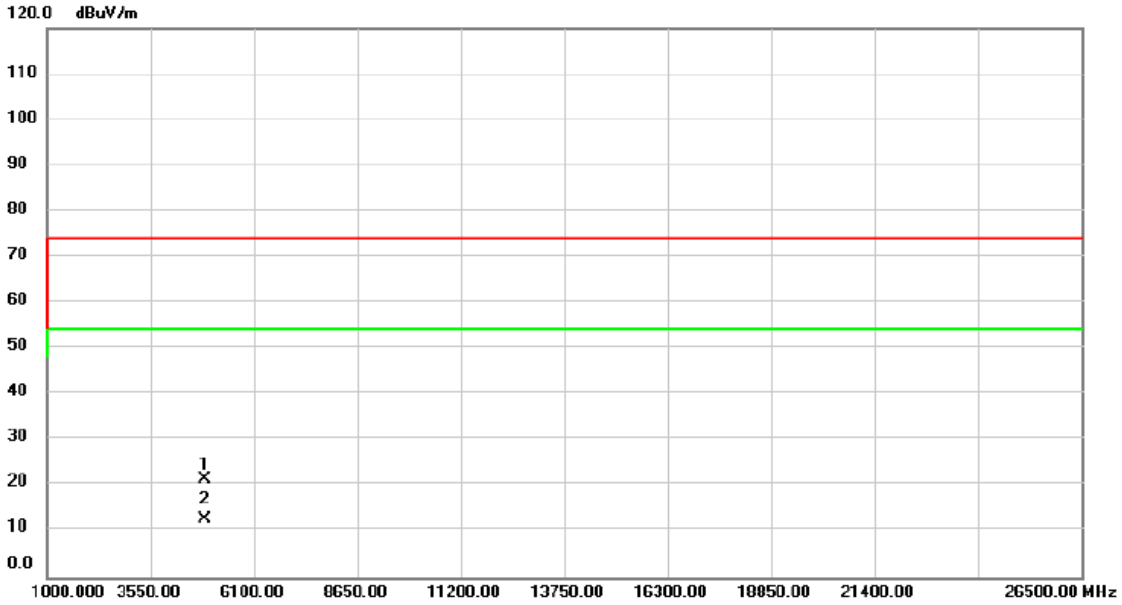
Test Mode	BLE (2 Mbps)	Test Date	2024/4/26
Test Frequency	2402MHz	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4804.000	30.16	-8.62	21.54	74.00	-52.46	peak			
2	*	4804.000	19.84	-8.62	11.22	54.00	-42.78	AVG			

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

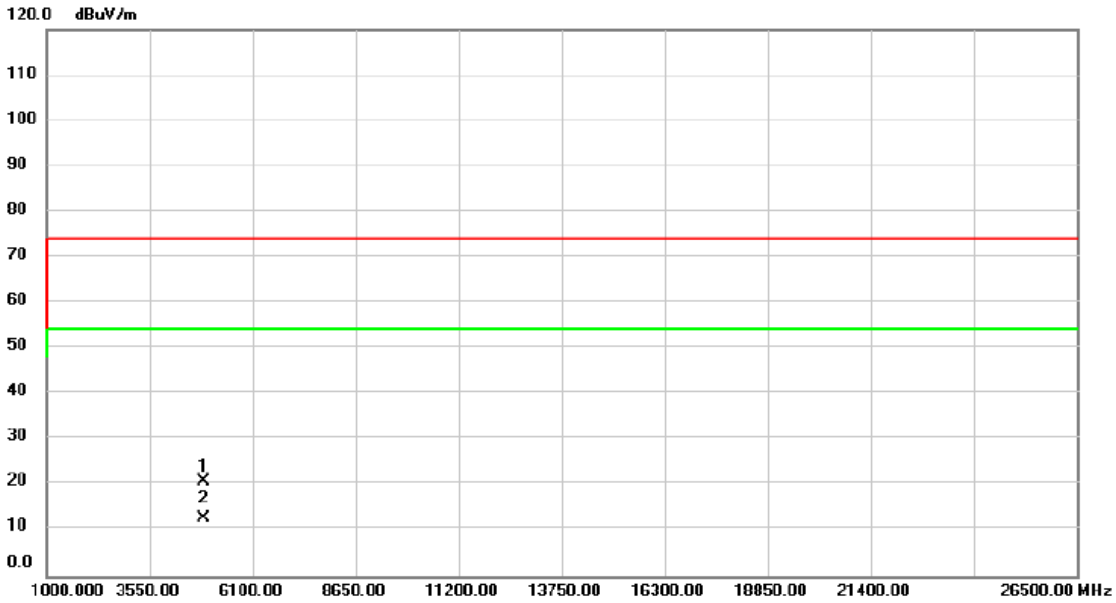
Test Mode	BLE (2 Mbps)	Test Date	2024/4/26
Test Frequency	2440MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4880.000	29.86	-8.43	21.43	74.00	-52.57	peak			
2	*	4880.000	21.04	-8.43	12.61	54.00	-41.39	AVG			

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

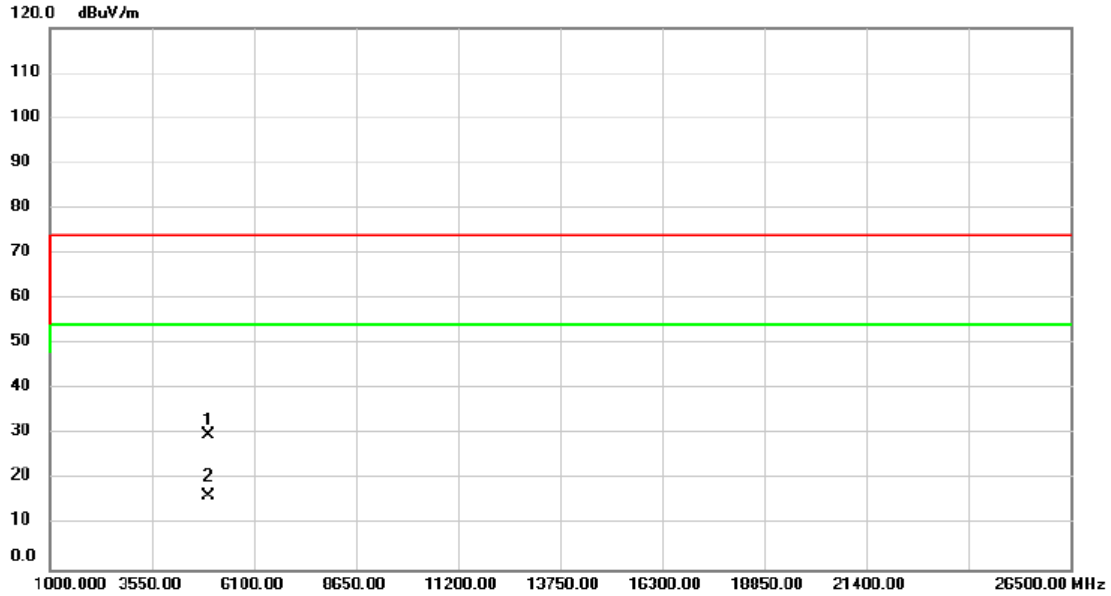
Test Mode	BLE (2 Mbps)	Test Date	2024/4/26
Test Frequency	2440MHz	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4880.000	29.26	-8.43	20.83	74.00	-53.17	peak			
2	*	4880.000	21.09	-8.43	12.66	54.00	-41.34	AVG			

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

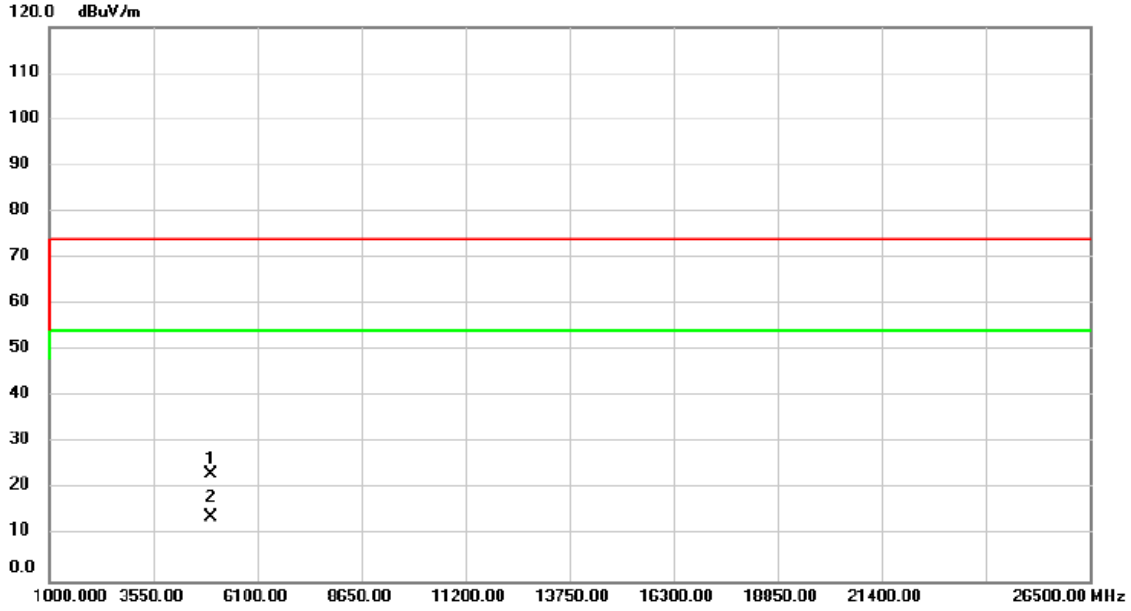
Test Mode	BLE (2 Mbps)	Test Date	2024/4/26
Test Frequency	2480MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4960.000	38.17	-8.23	29.94	74.00	-44.06	peak			
2	*	4960.000	24.51	-8.23	16.28	54.00	-37.72	AVG			

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

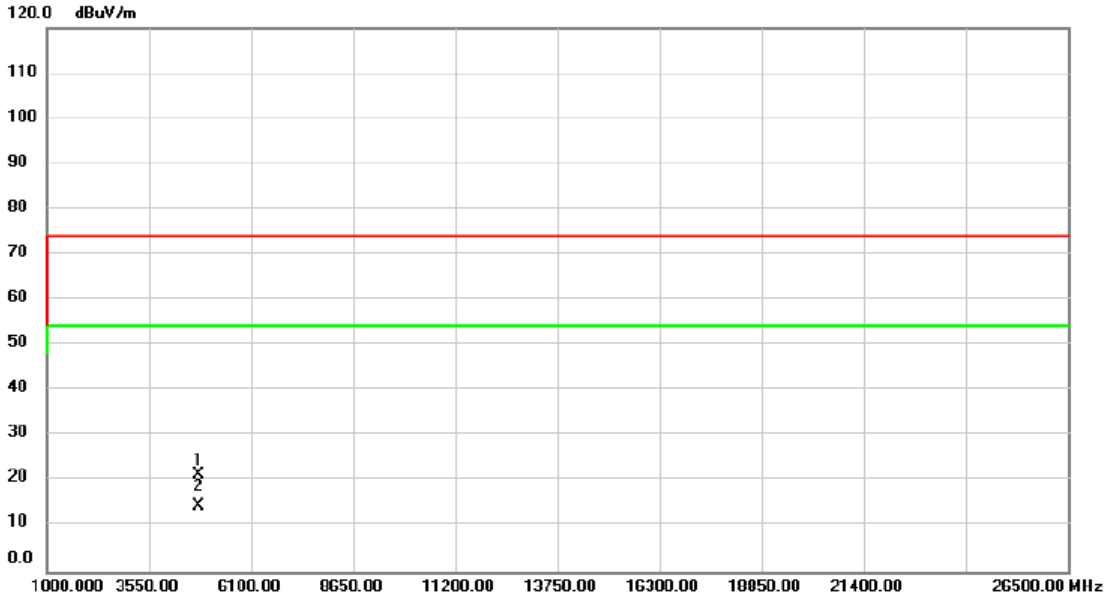
Test Mode	BLE (2 Mbps)	Test Date	2024/4/26
Test Frequency	2480MHz	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4960.000	31.48	-8.23	23.25	74.00	-50.75	peak			
2	*	4960.000	22.24	-8.23	14.01	54.00	-39.99	AVG			

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

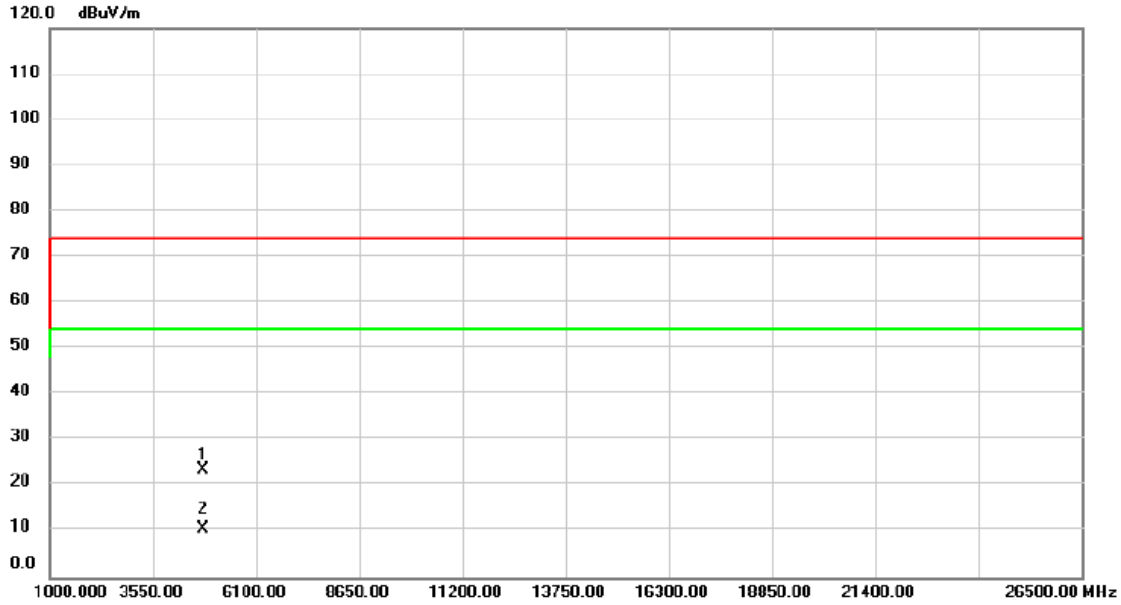
Test Mode	BLE (500kbps(S2))	Test Date	2024/4/26
Test Frequency	2402MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4804.000	30.04	-8.62	21.42	74.00	-52.58	peak			
2	*	4804.000	23.14	-8.62	14.52	54.00	-39.48	AVG			

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

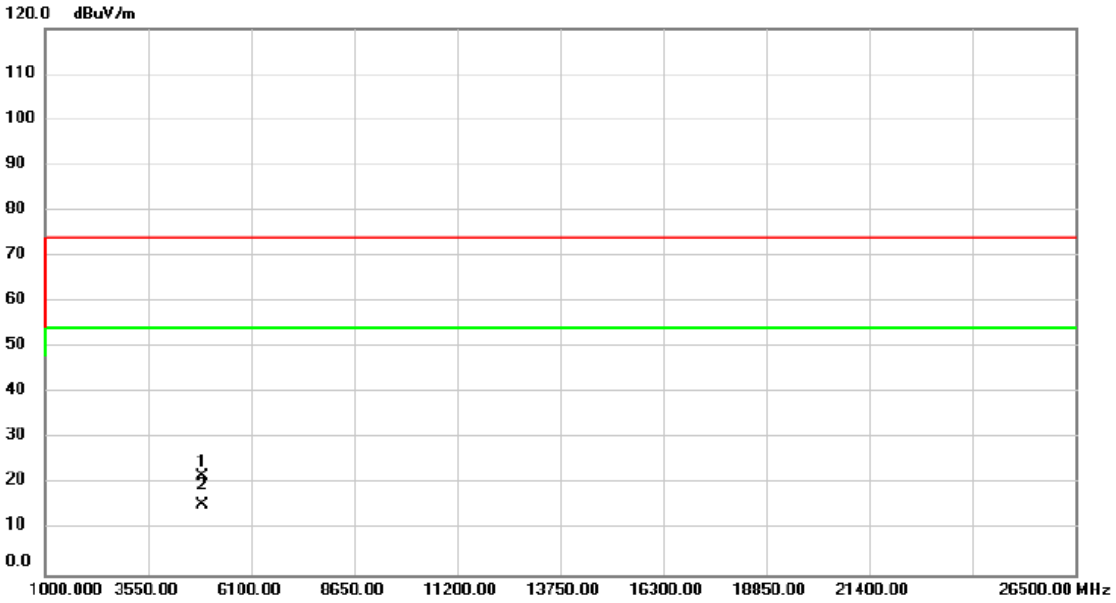
Test Mode	BLE (500kbps(S2))	Test Date	2024/4/26
Test Frequency	2402MHz	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4804.000	32.08	-8.62	23.46	74.00	-50.54	peak			
2	*	4804.000	19.24	-8.62	10.62	54.00	-43.38	AVG			

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

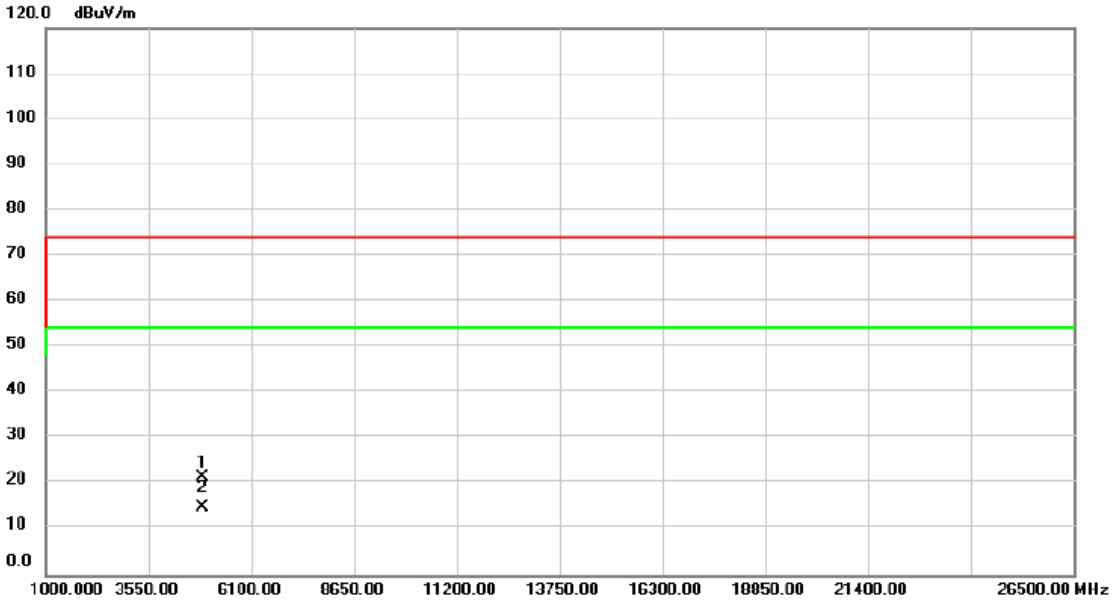
Test Mode	BLE (500kbps(S2))	Test Date	2024/4/26
Test Frequency	2440MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4880.000	30.14	-8.43	21.71	74.00	-52.29	peak			
2	*	4880.000	23.96	-8.43	15.53	54.00	-38.47	AVG			

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

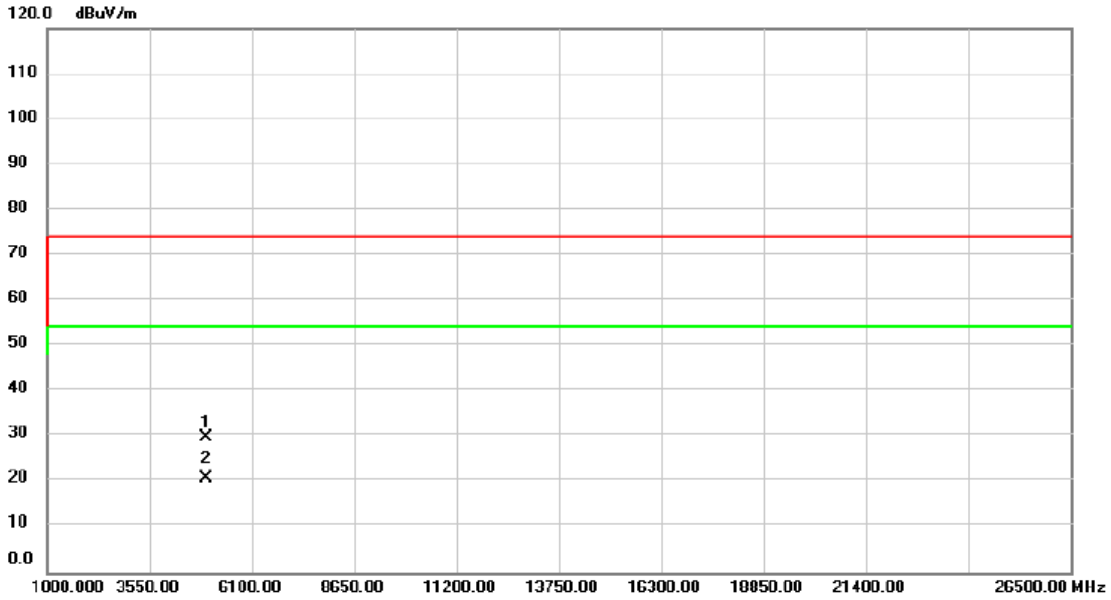
Test Mode	BLE (500kbps(S2))	Test Date	2024/4/26
Test Frequency	2440MHz	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4880.000	29.81	-8.43	21.38	74.00	-52.62	peak			
2	*	4880.000	23.27	-8.43	14.84	54.00	-39.16	AVG			

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

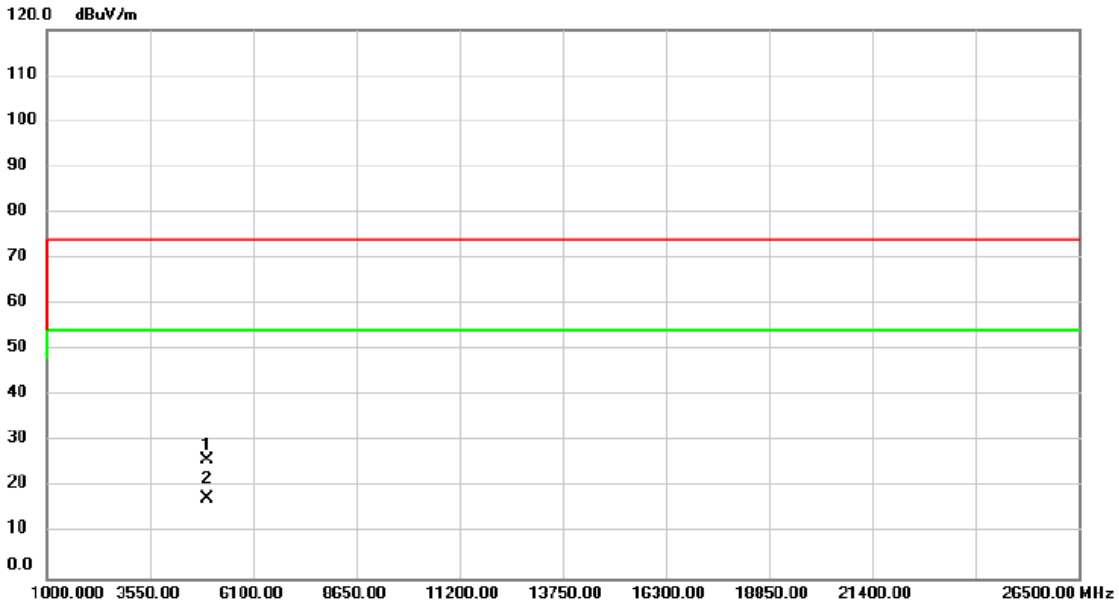
Test Mode	BLE (500kbps(S2))	Test Date	2024/4/26
Test Frequency	2480MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4960.000	38.06	-8.23	29.83	74.00	-44.17	peak			
2	*	4960.000	28.95	-8.23	20.72	54.00	-33.28	AVG			

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

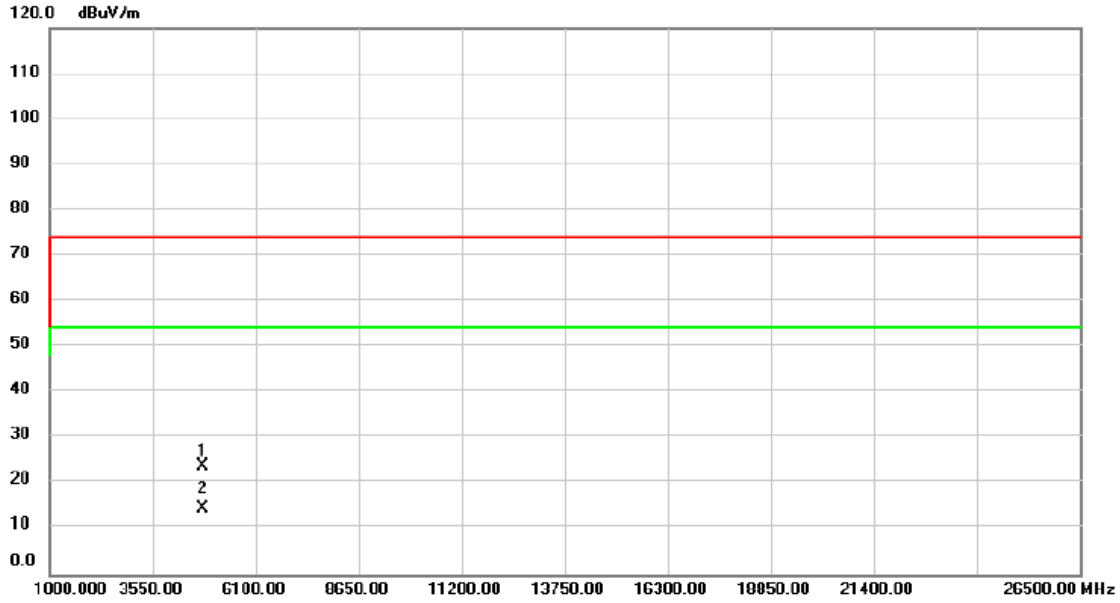
Test Mode	BLE (500kbps(S2))	Test Date	2024/4/26
Test Frequency	2480MHz	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4960.000	34.28	-8.23	26.05	74.00	-47.95	peak			
2	*	4960.000	25.64	-8.23	17.41	54.00	-36.59	AVG			

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

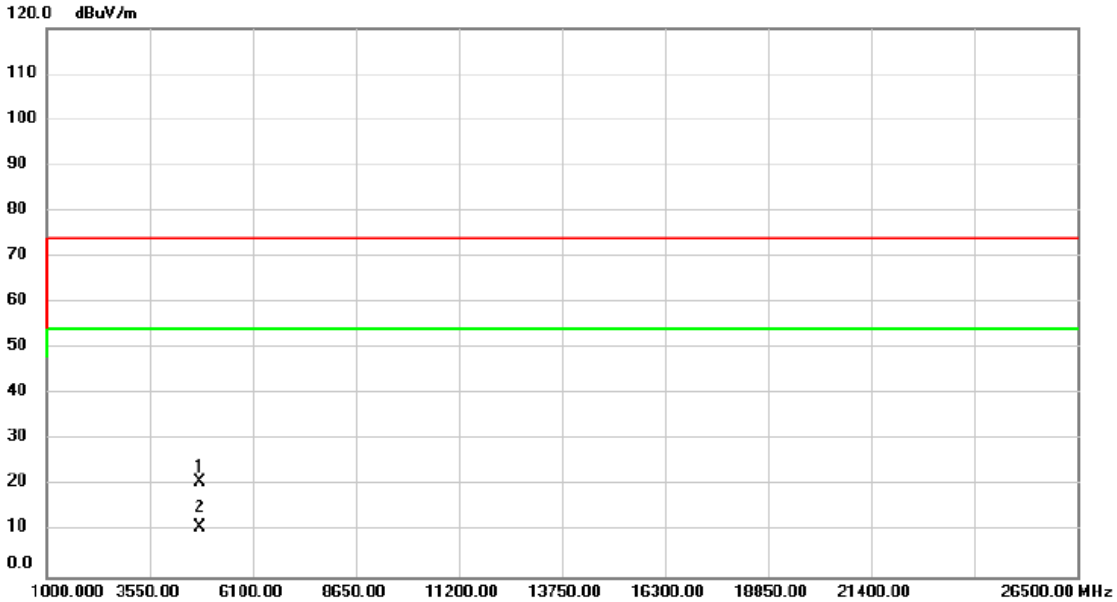
Test Mode	BLE (125kbps(S8))	Test Date	2024/4/26
Test Frequency	2402MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4774.000	32.63	-8.70	23.93	74.00	-50.07	peak			
2	*	4774.000	23.32	-8.70	14.62	54.00	-39.38	AVG			

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

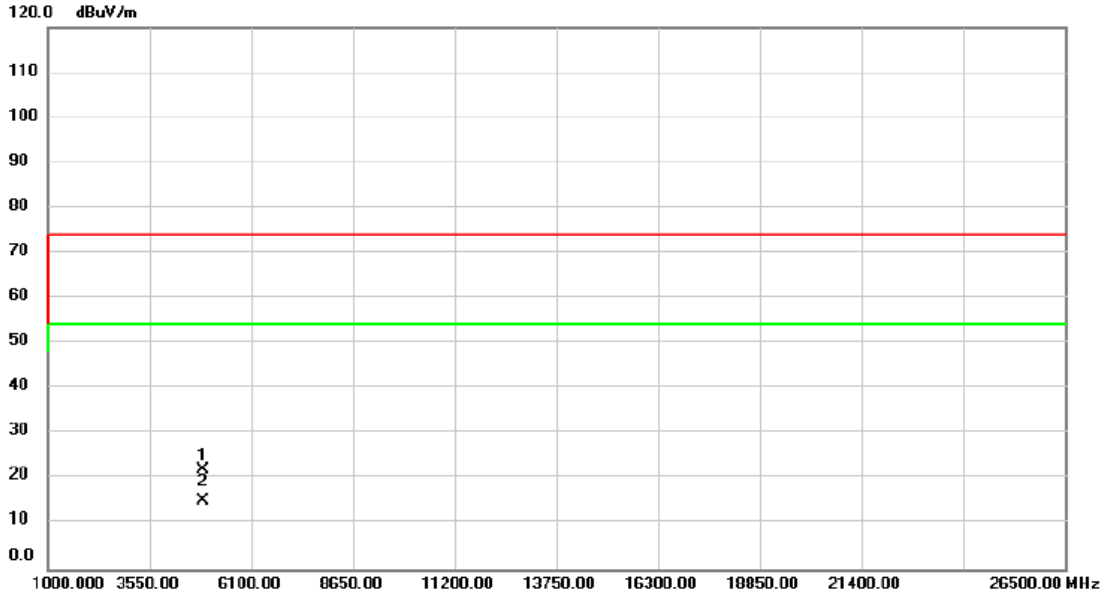
Test Mode	BLE (125kbps(S8))	Test Date	2024/4/26
Test Frequency	2402MHz	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4804.000	29.49	-8.62	20.87	74.00	-53.13	peak			
2	*	4804.000	19.51	-8.62	10.89	54.00	-43.11	AVG			

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

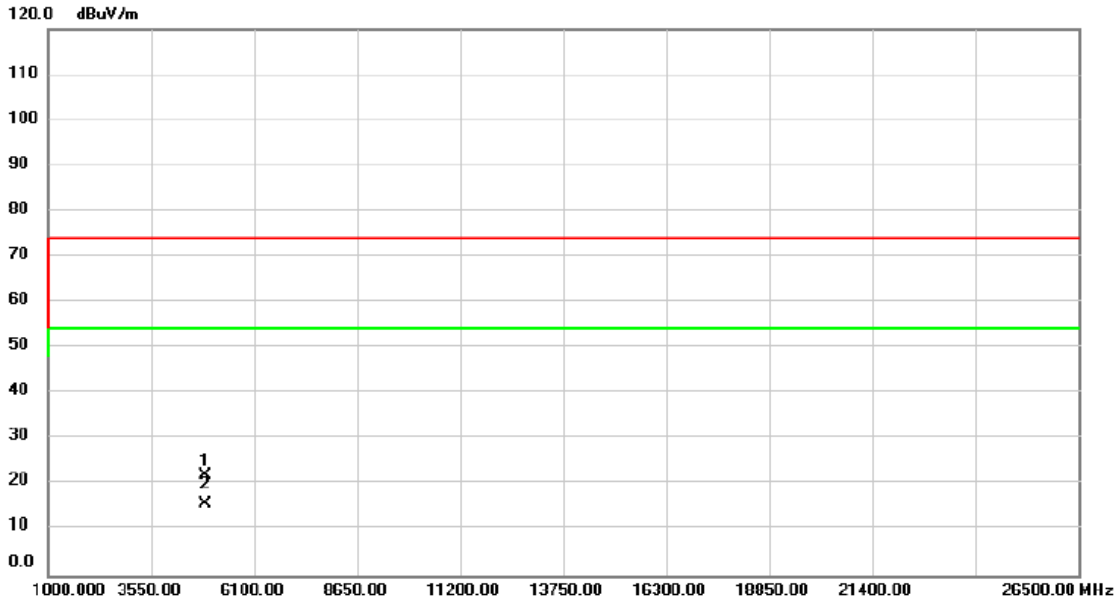
Test Mode	BLE (125kbps(S8))	Test Date	2024/4/26
Test Frequency	2440MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4880.000	30.39	-8.43	21.96	74.00	-52.04	peak			
2	*	4880.000	23.48	-8.43	15.05	54.00	-38.95	AVG			

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

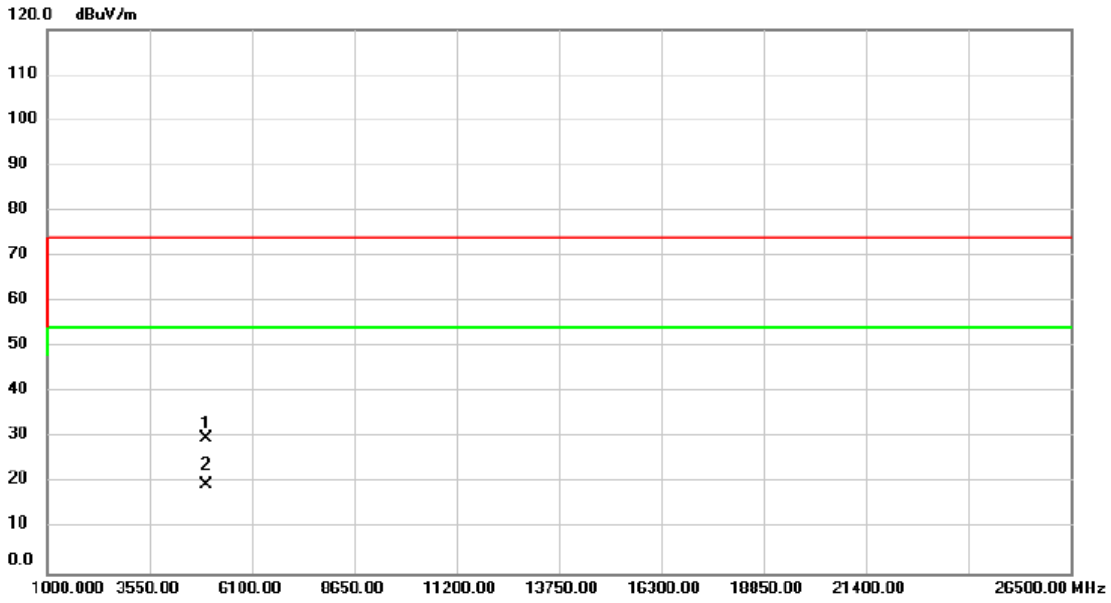
Test Mode	BLE (125kbps(S8))	Test Date	2024/4/26
Test Frequency	2440MHz	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4880.000	30.55	-8.43	22.12	74.00	-51.88	peak			
2	*	4880.000	24.23	-8.43	15.80	54.00	-38.20	AVG			

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

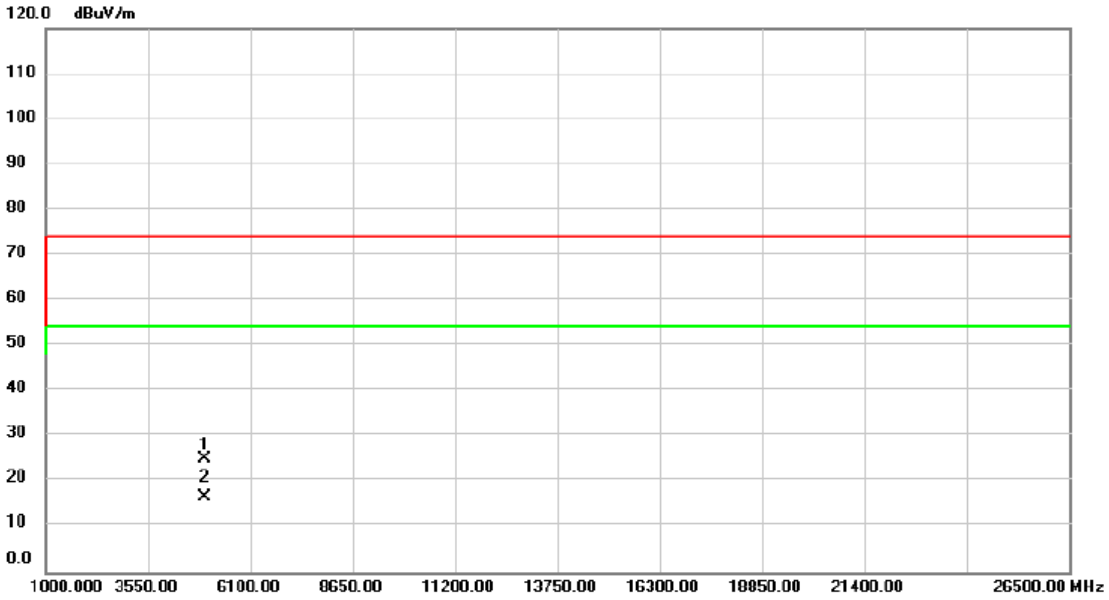
Test Mode	BLE (125kbps(S8))	Test Date	2024/4/26
Test Frequency	2480MHz	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4960.000	38.13	-8.23	29.90	74.00	-44.10	peak			
2	*	4960.000	28.02	-8.23	19.79	54.00	-34.21	AVG			

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

Test Mode	BLE (125kbps(S8))	Test Date	2024/4/26
Test Frequency	2480MHz	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4960.000	33.32	-8.23	25.09	74.00	-48.91	peak			
2	*	4960.000	24.97	-8.23	16.74	54.00	-37.26	AVG			

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

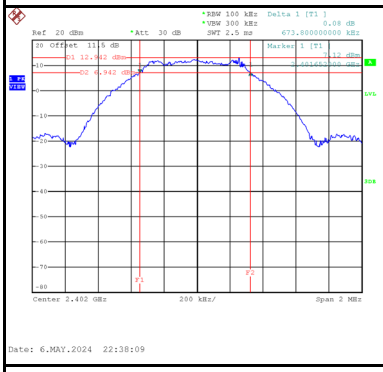
APPENDIX D BANDWIDTH

Test Mode:	1Mbps

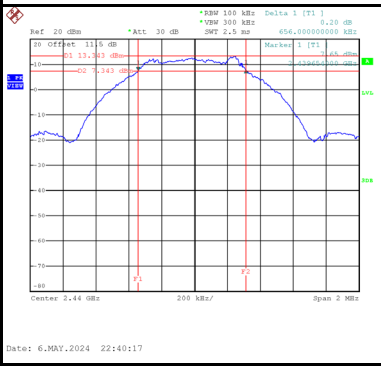
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2402	0.674	1.028	500	Pass
2440	0.656	1.028	500	Pass
2480	0.670	1.024	500	Pass

6dB Bandwidth

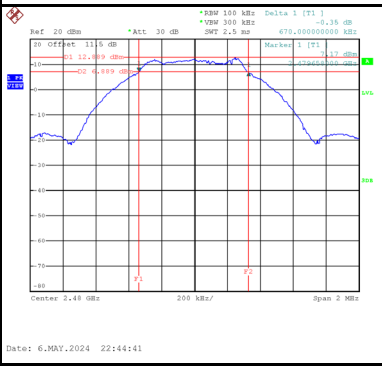
2402 MHz



2440 MHz

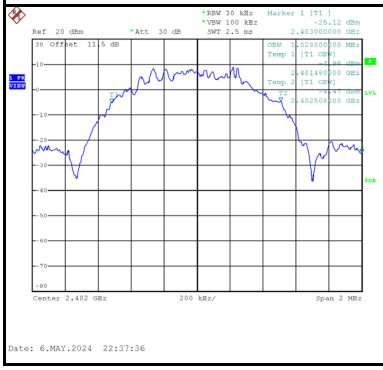


2480 MHz

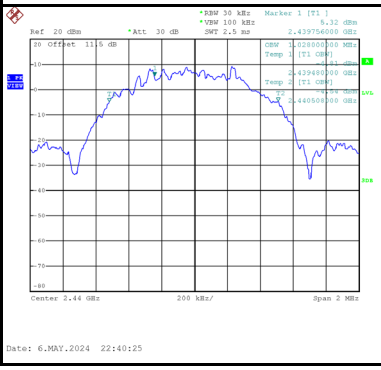


99% Occupied BW

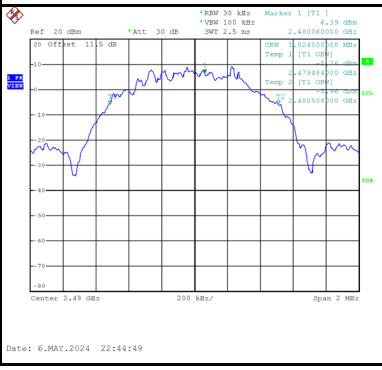
2402 MHz



2440 MHz



2480 MHz

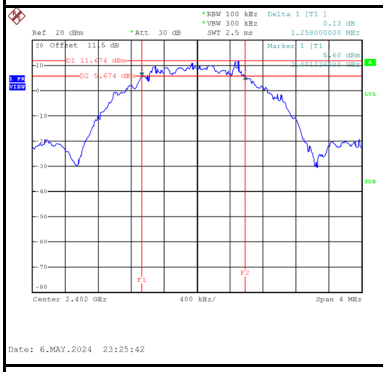


Test Mode:	2Mbps

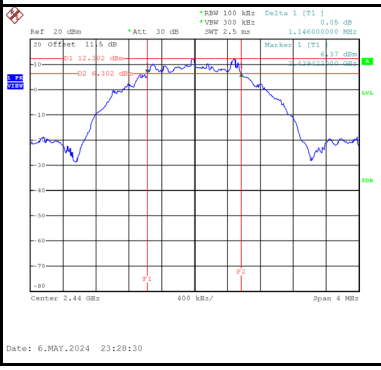
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2402	1.258	2.040	500	Pass
2440	1.146	2.040	500	Pass
2480	1.242	2.048	500	Pass

6dB Bandwidth

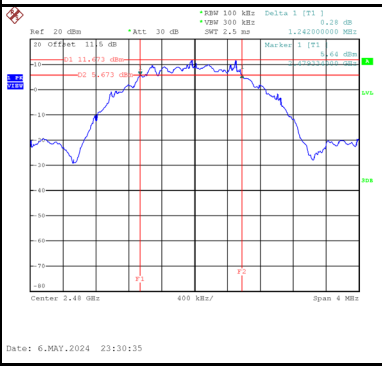
2402 MHz



2440 MHz

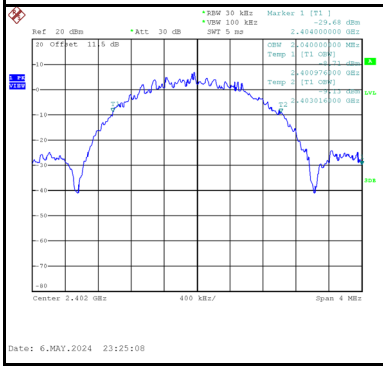


2480 MHz

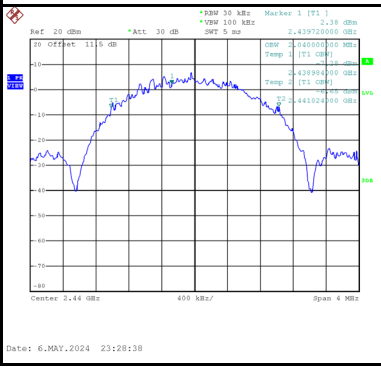


99% Occupied BW

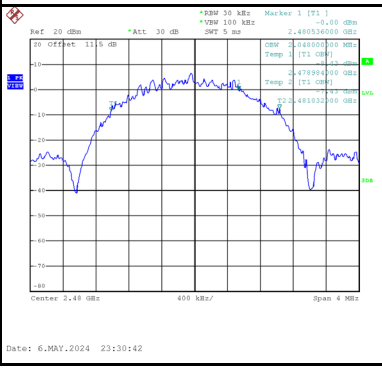
2402 MHz



2440 MHz



2480 MHz

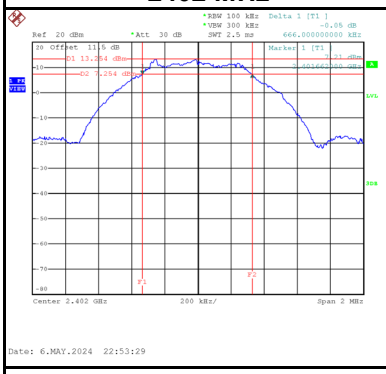


Test Mode:	500kbps(S2)

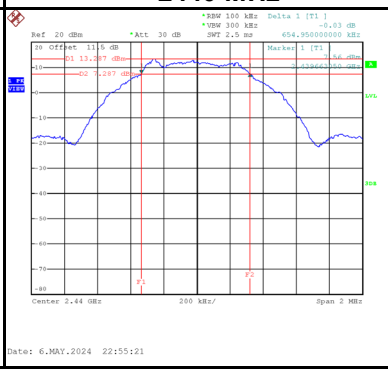
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2402	0.666	1.012	500	Pass
2440	0.655	1.004	500	Pass
2480	0.656	1.016	500	Pass

6dB Bandwidth

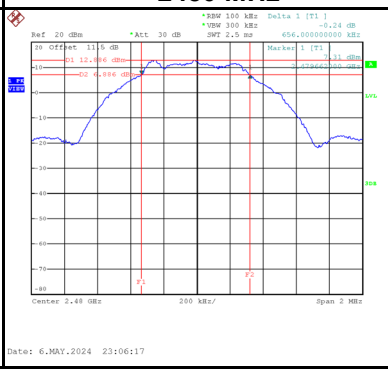
2402 MHz



2440 MHz

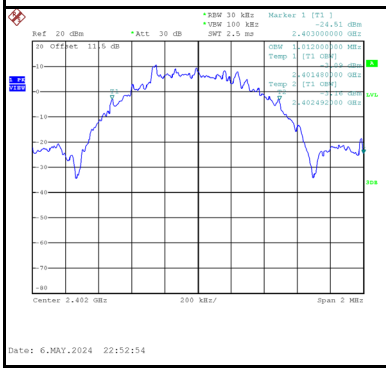


2480 MHz

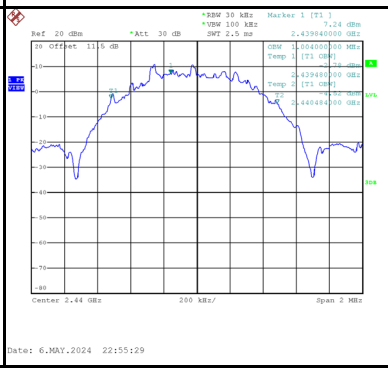


99% Occupied BW

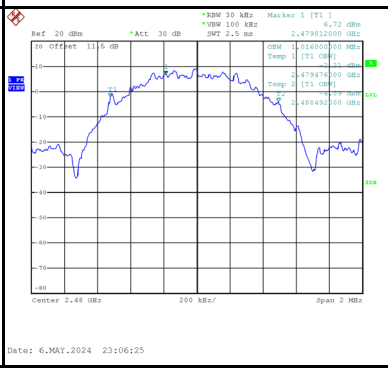
2402 MHz



2440 MHz



2480 MHz

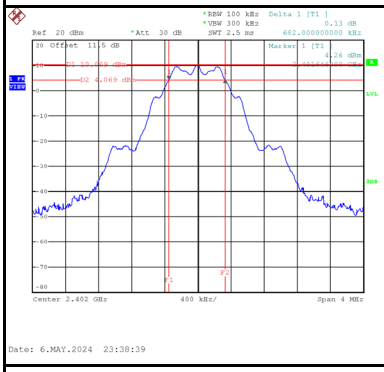


Test Mode:	125kbps(S8)

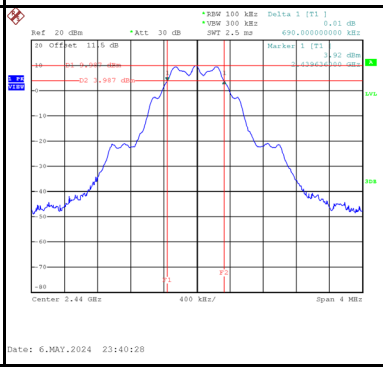
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2402	0.682	1.048	500	Pass
2440	0.690	1.040	500	Pass
2480	0.678	1.040	500	Pass

6dB Bandwidth

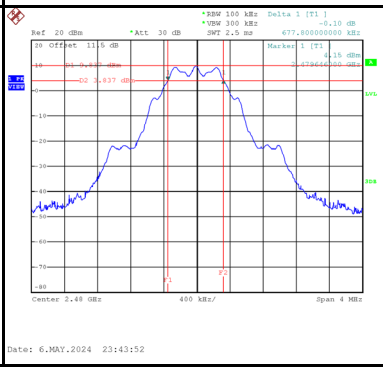
2402 MHz



2440 MHz

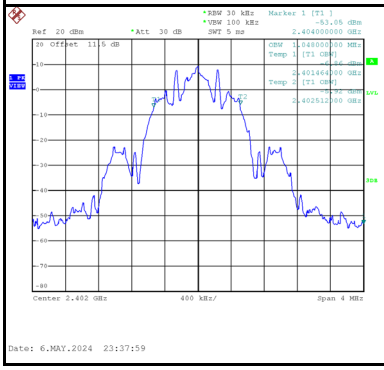


2480 MHz

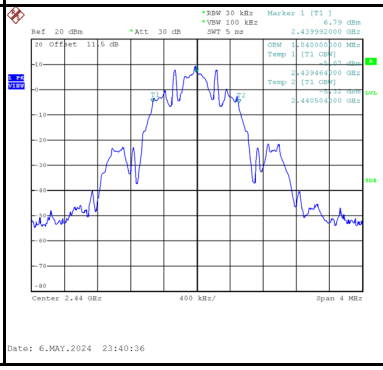


99% Occupied BW

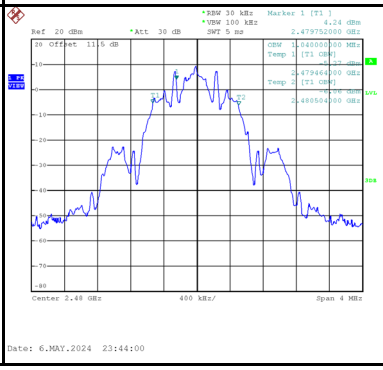
2402 MHz



2440 MHz



2480 MHz



APPENDIX E OUTPUT POWER

Test Mode :	1Mbps	Tested Date	2024/5/6

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	13.43	0.0220	30.00	1.0000	Pass
2440	13.38	0.0218	30.00	1.0000	Pass
2480	13.06	0.0202	30.00	1.0000	Pass

Test Mode :	2Mbps	Tested Date	2024/5/6

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	13.16	0.0207	30.00	1.0000	Pass
2440	13.40	0.0219	30.00	1.0000	Pass
2480	12.88	0.0194	30.00	1.0000	Pass

Test Mode :	500kbps(S2)	Tested Date	2024/5/6

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	13.38	0.0218	30.00	1.0000	Pass
2440	13.45	0.0221	30.00	1.0000	Pass
2480	13.19	0.0208	30.00	1.0000	Pass

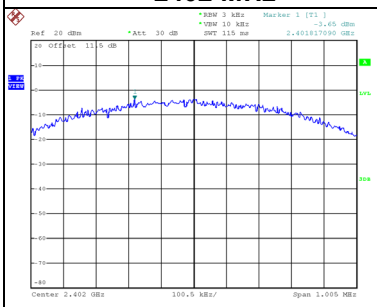
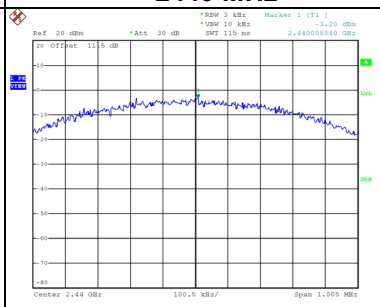
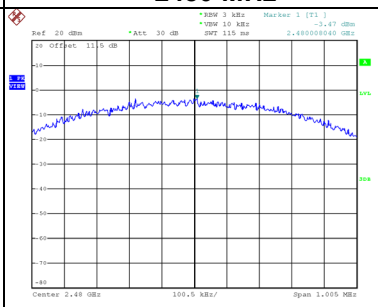
Test Mode :	125kbps(S8)	Tested Date	2024/5/6

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	13.24	0.0211	30.00	1.0000	Pass
2440	13.31	0.0214	30.00	1.0000	Pass
2480	12.76	0.0189	30.00	1.0000	Pass

APPENDIX F POWER SPECTRAL DENSITY TEST

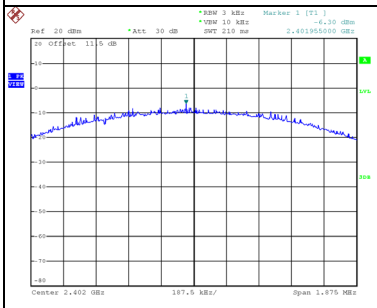
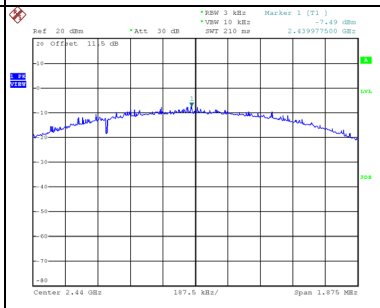
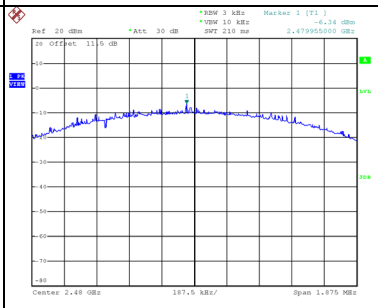
Test Mode :	1Mbps

Frequency (MHz)	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Test Result
2402	-3.65	8	Pass
2440	-3.20	8	Pass
2480	-3.47	8	Pass

2402 MHz	2440 MHz	2480 MHz
		

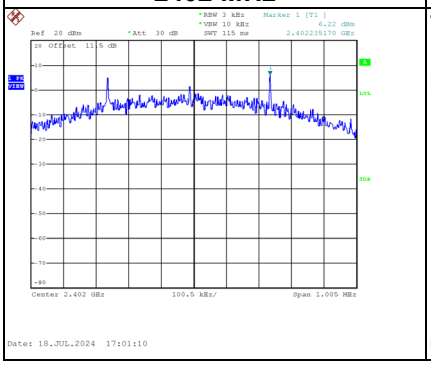
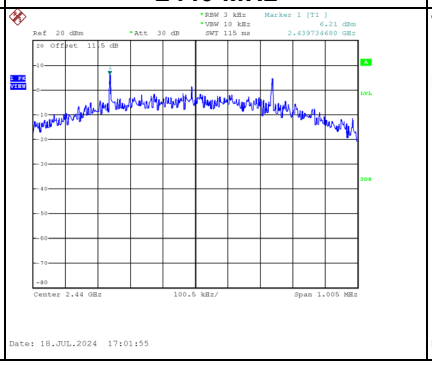
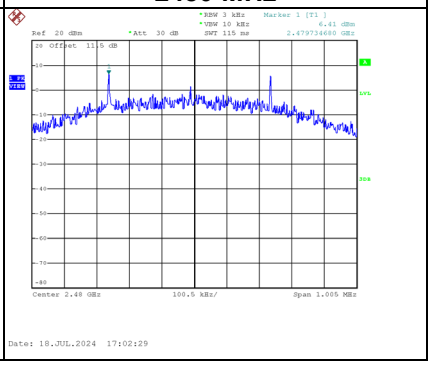
Test Mode :	2Mbps

Frequency (MHz)	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Test Result
2402	-6.30	8	Pass
2440	-7.49	8	Pass
2480	-6.34	8	Pass

2402 MHz	2440 MHz	2480 MHz
		

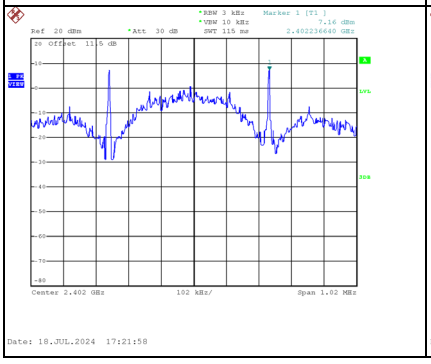
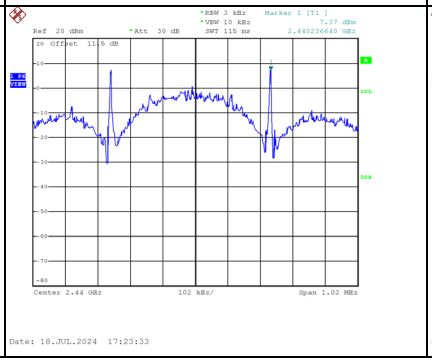
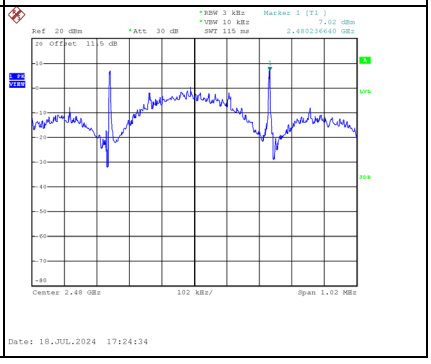
Test Mode :	500kbps(S2)

Frequency (MHz)	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Test Result
2402	6.22	8	Pass
2440	6.21	8	Pass
2480	6.41	8	Pass

2402 MHz	2440 MHz	2480 MHz
		

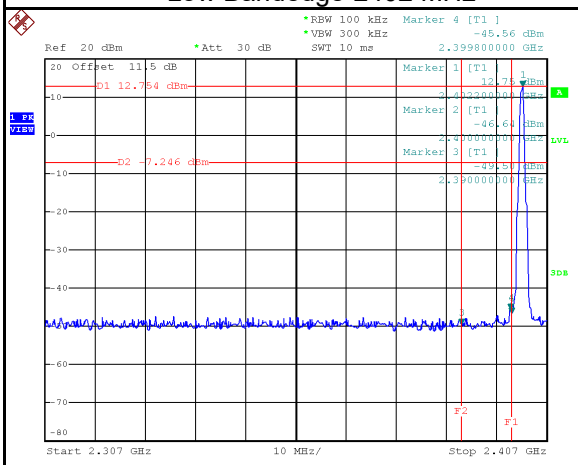
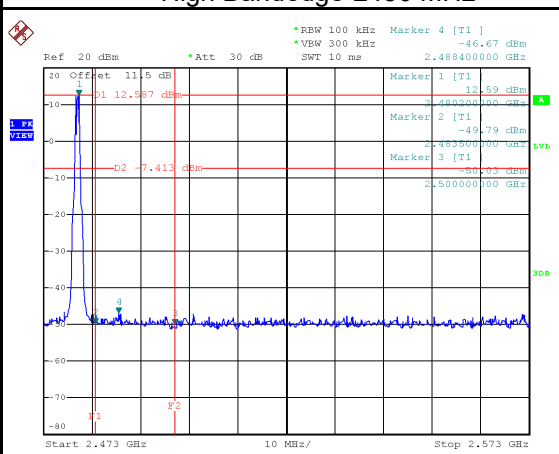
Test Mode :	125kbps(S8)

Frequency (MHz)	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Test Result
2402	7.16	8	Pass
2440	7.37	8	Pass
2480	7.02	8	Pass

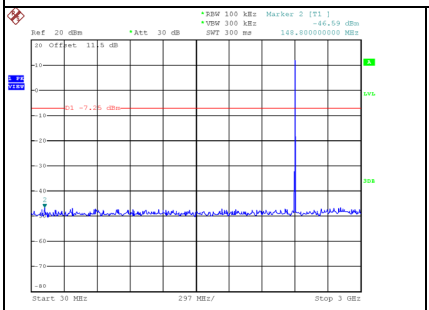
2402 MHz	2440 MHz	2480 MHz
		

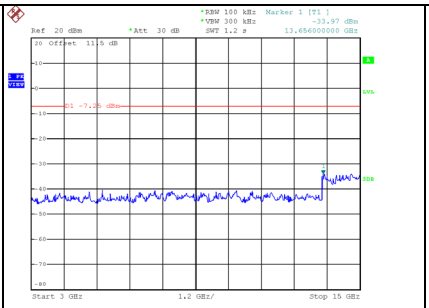
APPENDIX G ANTENNA CONDUCTED SPURIOUS EMISSION

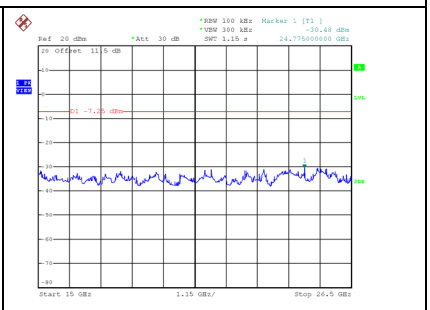
Test Mode :	1Mbps

Low Bandedge-2402 MHz	High Bandedge-2480 MHz
	
Date: 6.MAY.2024 22:38:18	Date: 6.MAY.2024 22:44:58

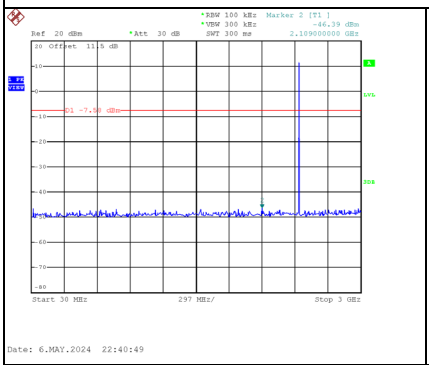
2402 MHz – 10th Harmonics

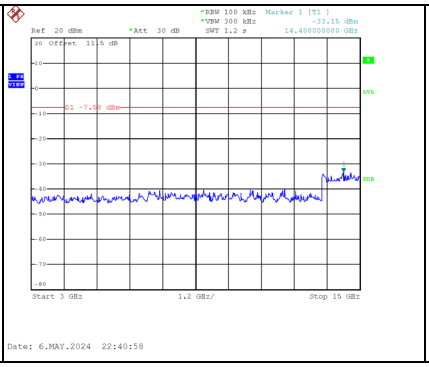


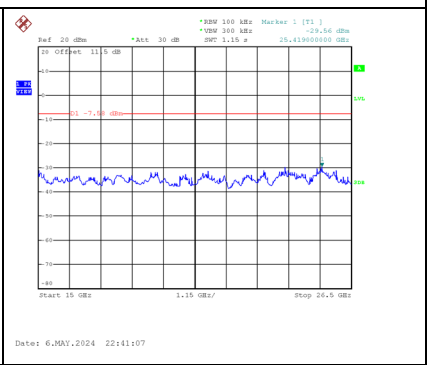




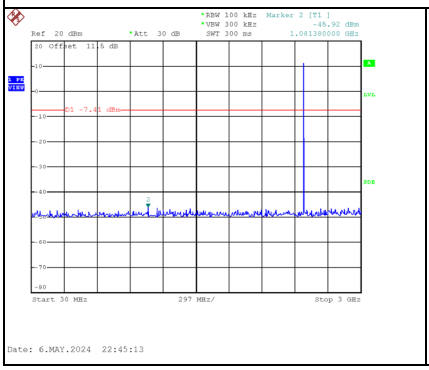
2440 MHz – 10th Harmonics

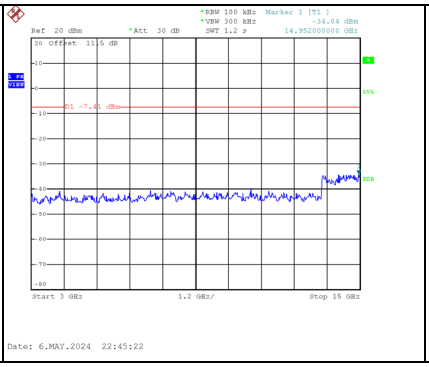


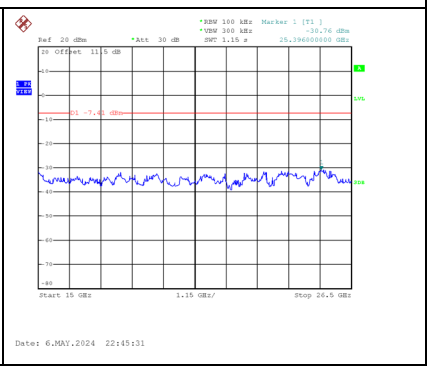




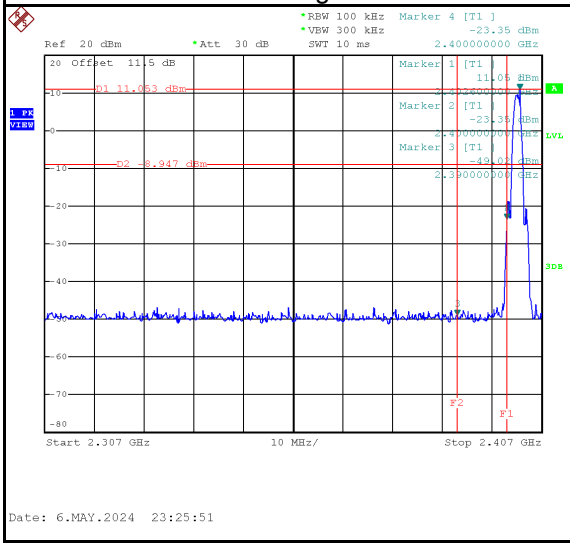
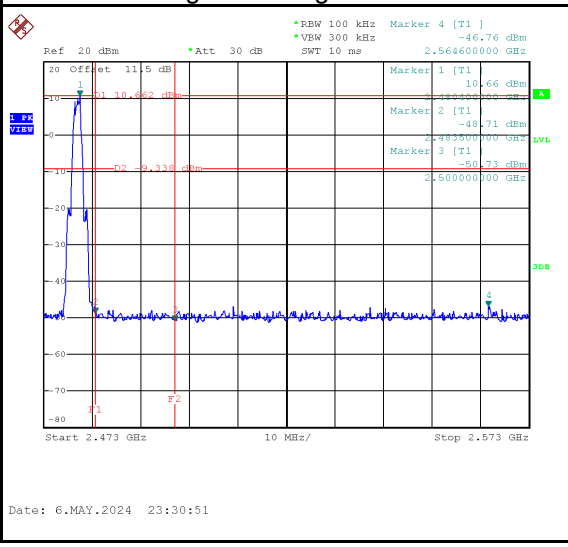
2480 MHz – 10th Harmonics



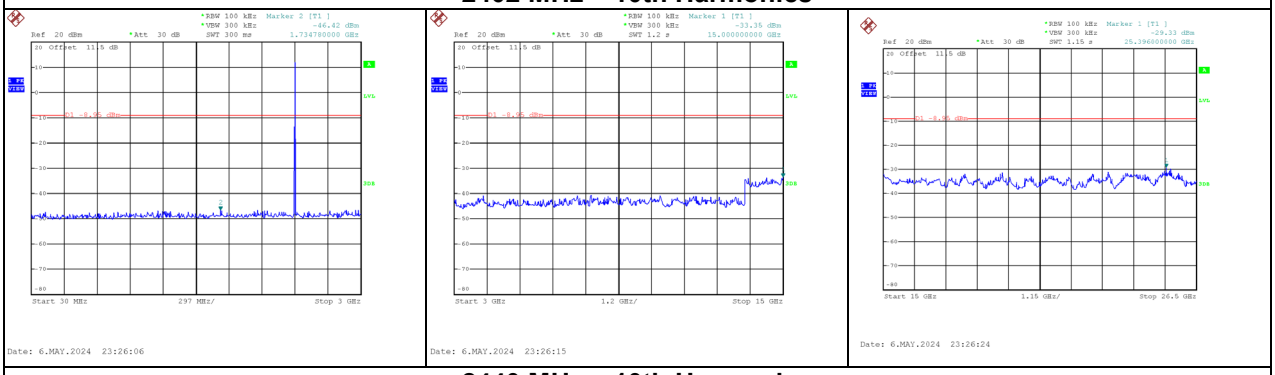




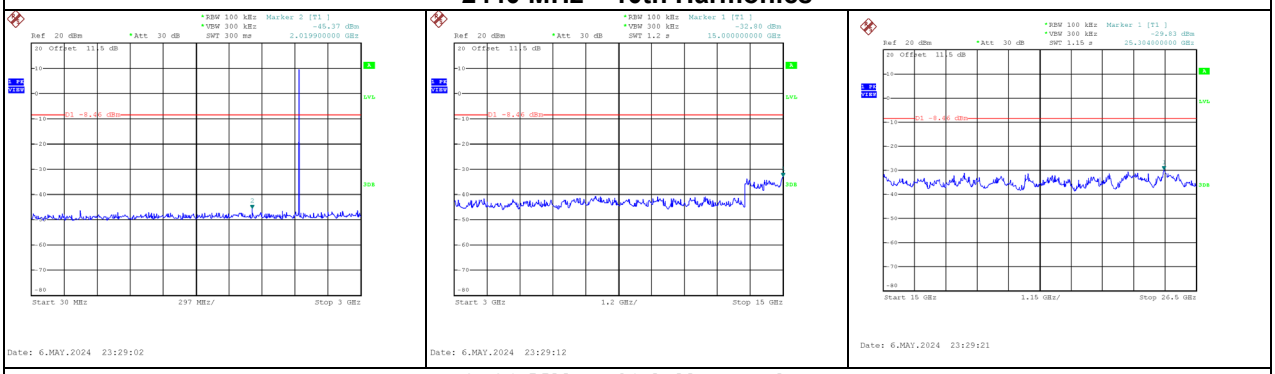
Test Mode :	2Mbps

Low Bandedge-2402 MHz	High Bandedge-2480 MHz
	

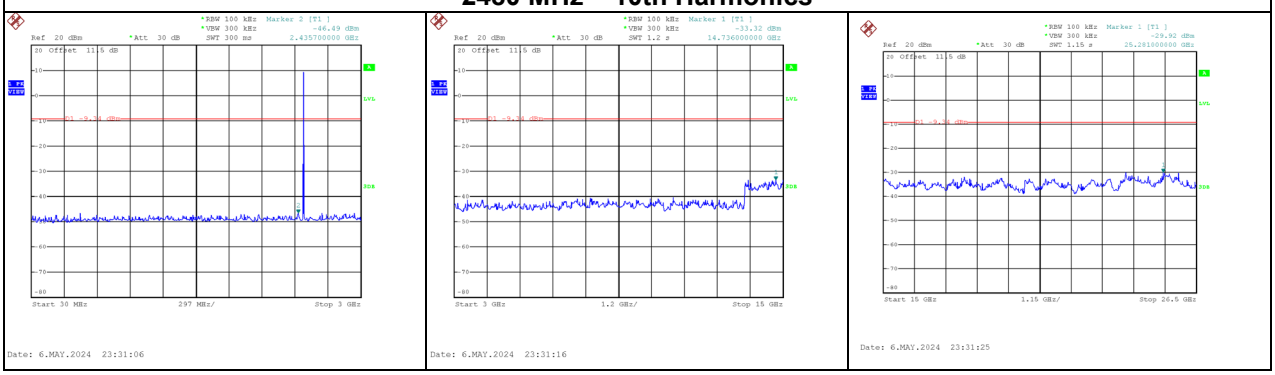
2402 MHz – 10th Harmonics



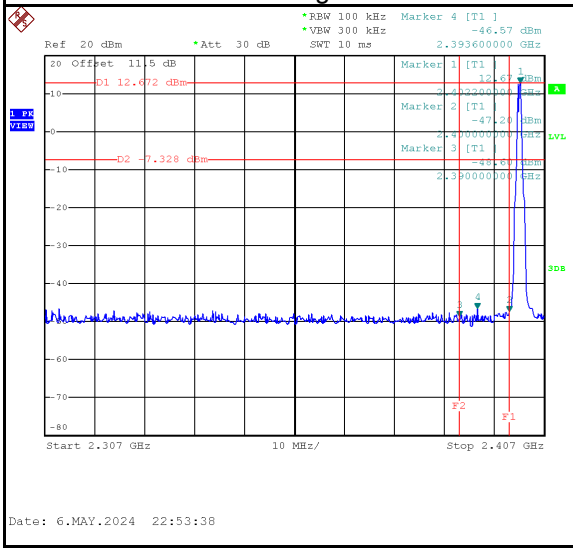
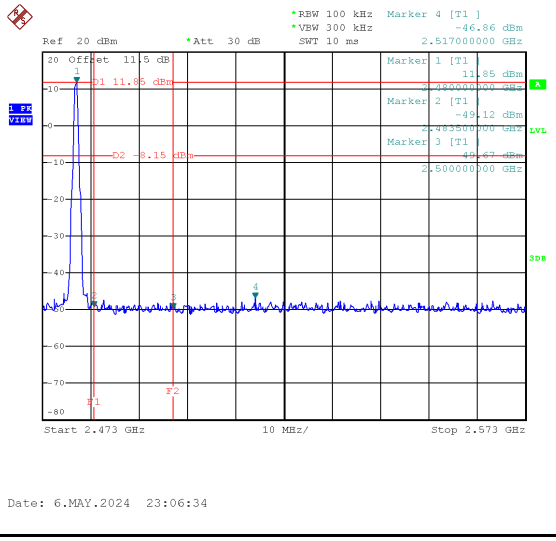
2440 MHz – 10th Harmonics



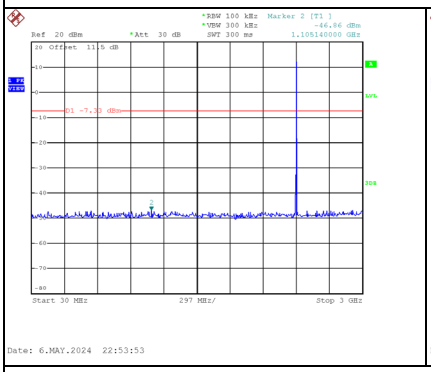
2480 MHz – 10th Harmonics

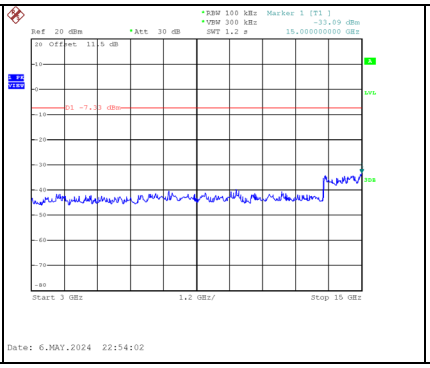


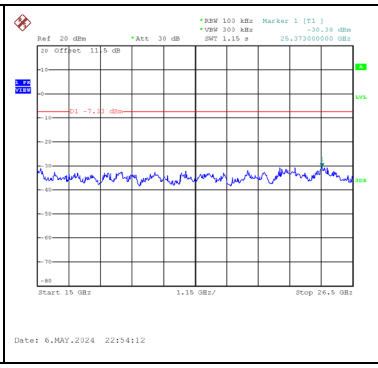
Test Mode :	500kbps(S2)

Low Bandedge-2402 MHz	High Bandedge-2480 MHz
	

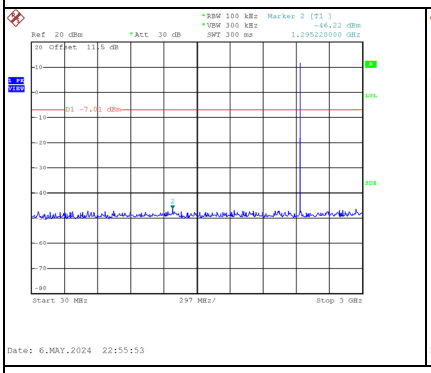
2402 MHz – 10th Harmonics

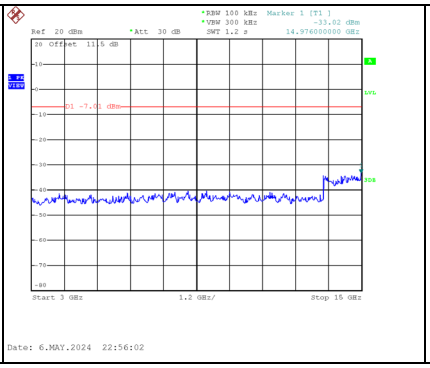


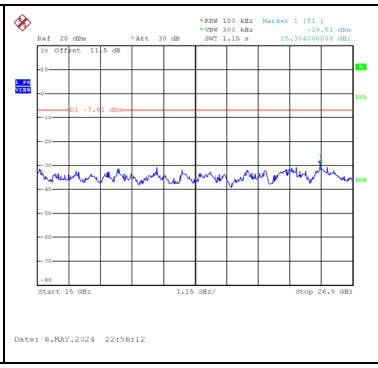




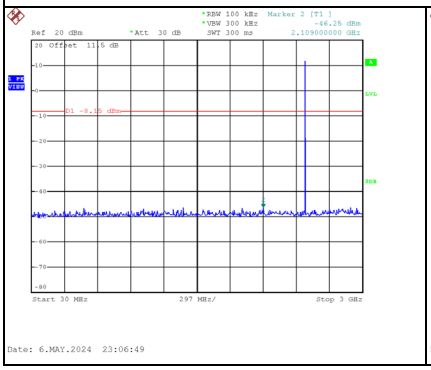
2440 MHz – 10th Harmonics

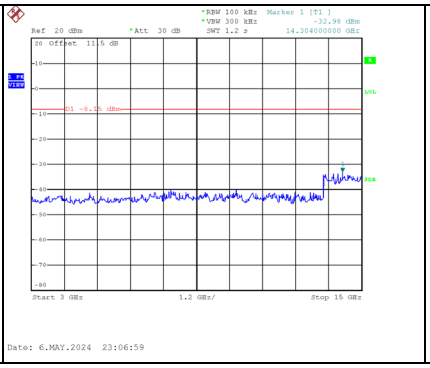


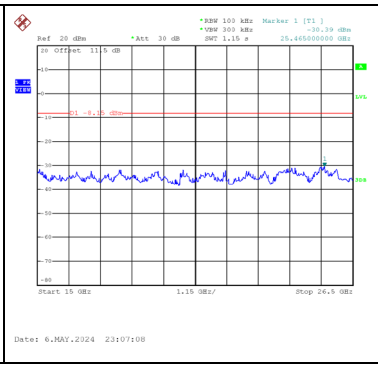




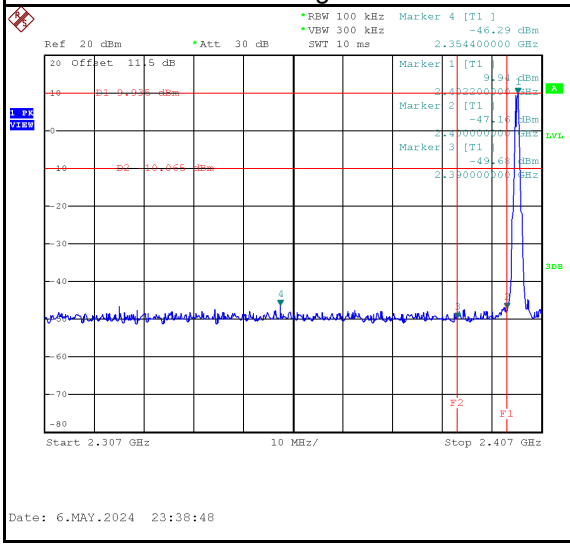
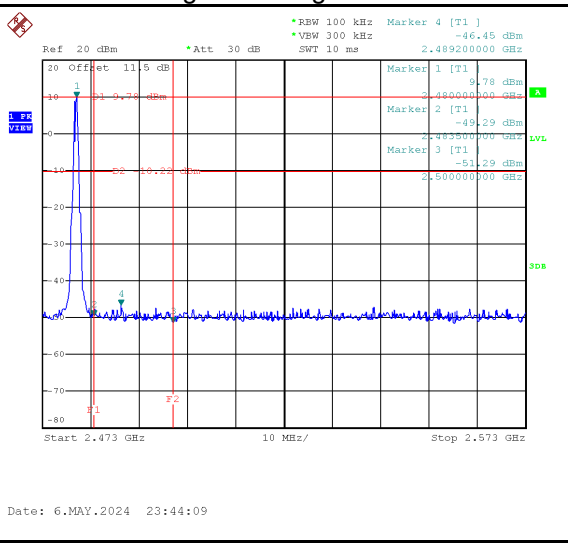
2480 MHz – 10th Harmonics



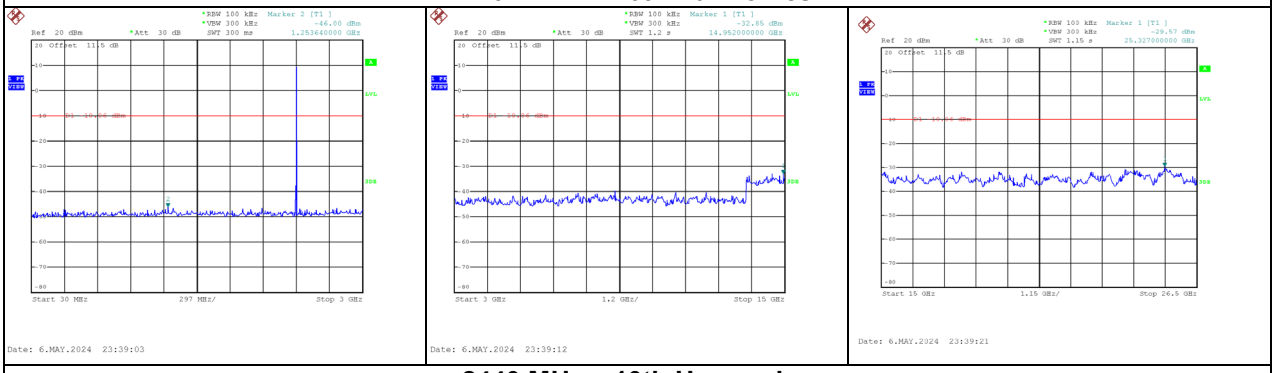




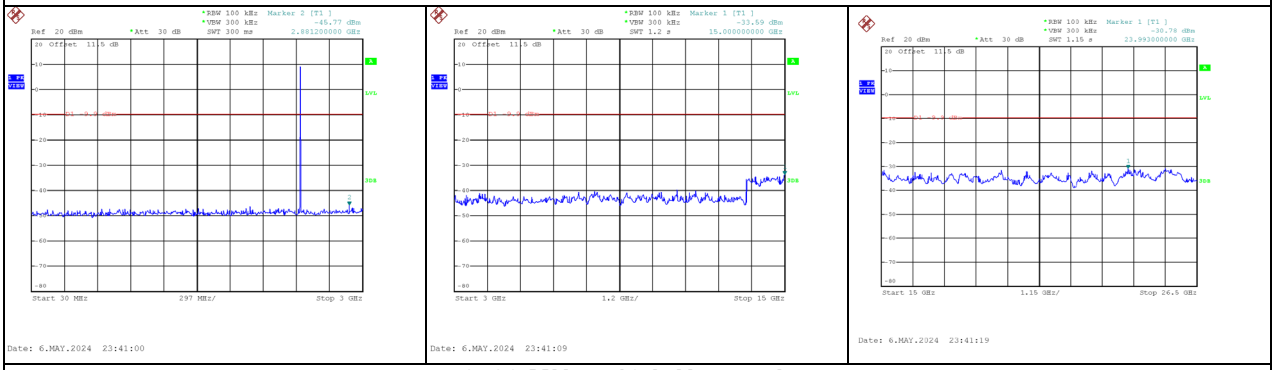
Test Mode :	125kbps(S8)

Low Bandedge-2402 MHz	High Bandedge-2480 MHz
	

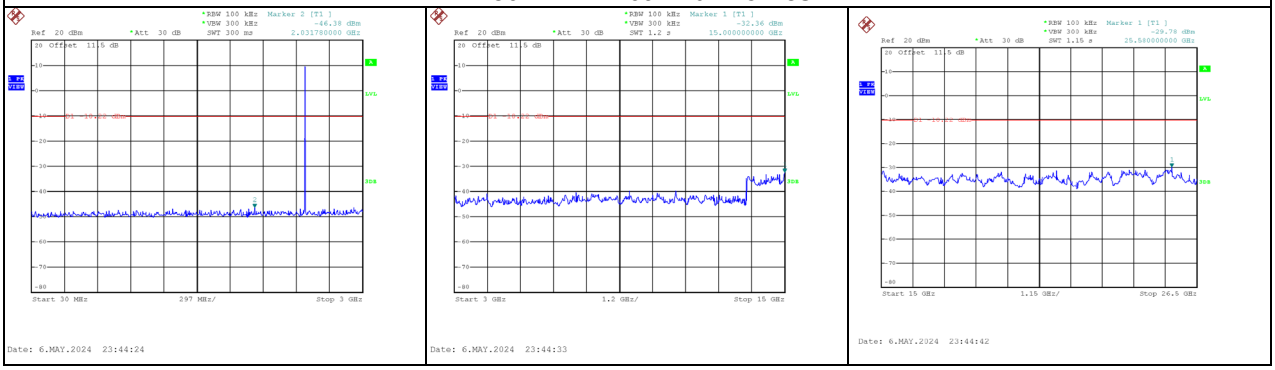
2402 MHz – 10th Harmonics



2440 MHz – 10th Harmonics



2480 MHz – 10th Harmonics



End of Test Report