

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

FCC ID: 2AWUU68B2701
IC: 26271-68B2701

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Rev.: 01

RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C

INDUSTRY CANADA RSS-247

Test Standard	FCC Part 15.247 IC RSS-247 issue 3 and IC RSS-GEN issue 5
Product name	Outdoor Wi-Fi Gateway
Brand Name	Verkada
Model No.	GW31-E-HW
Test Result	Pass
Statements of Conformity	Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.

The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc.(Wugu Laboratory)

Approved by:



Dally Hong
Sr. Engineer

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	February 26, 2025	Initial Issue	ALL	Peggy Tsai
01	March 6, 2025	See the following Note Rev. (01)	P.13	Peggy Tsai

Note:

Rev. (01)

1. Modify the worst mode of measurement in section 3.2.

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APPENDIX 1 - PHOTOGRAPHS OF EUT

1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	FCC: Verkada Inc 405 E. 4th Ave. San Mateo California United States 94401 IC: Verkada, Inc. 405 E. 4th Ave. San Mateo CA 94401 United States Of America (Excluding The States Of Alaska)
Manufacturer	FCC: Verkada Inc 405 E. 4th Ave. San Mateo California United States 94401 IC: Verkada, Inc. 405 E. 4th Ave. San Mateo CA 94401 United States Of America (Excluding The States Of Alaska)
Equipment	Outdoor Wi-Fi Gateway
Model No. / HVIN	GW31-E-HW
Model Discrepancy	N/A
Trade Name	Verkada
Received Date	January 2, 2025
Date of Test	February 5 ~ 10, 2025
Power Operation	1. Powered from Adapter (APD / DA-80A54) I/P: 100-240Vac, 50-60Hz, 1.5A MAX O/P: 54.0Vdc, 1.48A, 79.92W 2. Powered from PoE (EnGenius / PNA90BGS-54-TG) I/P: 100-240Vac, 1.5A, 50-60Hz O/P: 56Vdc, 1.7A 3. Powered from DC 12V
PMN	GW31-E-HW
EUT Serial #	68B2701-DVT01
HW Version	0.1
FW Version	0.1

Remark:

1. For more details, please refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

1.2 EUT CHANNEL INFORMATION

Frequency Range	2402MHz-2480MHz
Modulation Type	GFSK for BLE 1 Mbps GFSK for BLE 2 Mbps
Number of channel	40 Channels

Remark:

Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 and RSS-GEN Table 1 for test channels

Number of frequencies to be tested		
Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
☐ 1 MHz or less	1	Middle
☐ 1 MHz to 10 MHz	2	1 near top and 1 near bottom
☒ More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

1.3 ANTENNA INFORMATION

Antenna Type	☐ PIFA ☐ PCB ☒ Dipole ☐ Coils
Antenna Brand / Model	Senao / 7102A1338000
Antenna Gain	Gain 2.38dBi

Notes:

1. The antenna(s) of the EUT are permanently attached and there are no provisions for connection to an external antenna. So the EUT complies with the requirements of §15.203 and RSS-GEN 6.8.

1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 2.21 dB
Channel Bandwidth	+/- 2.79 dB
RF output power (Power Meter + Power sensor)	+/- 0.24 dB
Power Spectral density	+/- 2.74 dB
Conducted Bandedge	+/- 2.74 dB
Conducted Spurious Emission	+/- 2.74 dB
Radiated Emission_9kHz-30MHz	+/- 3.492 dB
Radiated Emission_30MHz-200MHz	+/- 3.62 dB
Radiated Emission_200MHz-1GHz	+/- 3.899 dB
Radiated Emission_1GHz-6GHz	+/- 5.063 dB
Radiated Emission_6GHz-18GHz	+/- 5.122 dB
Radiated Emission_18GHz-26GHz	+/- 3.032 dB
Radiated Emission_26GHz-40GHz	+/- 3.271 dB

Remark:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan.

CAB identifier: TW1309

Test site	Test Engineer	Remark
AC Conduction Room	David Li	-
Radiation	Tony Chao	-
RF Conducted	Marco Chan	-

Remark: The lab has been recognized as the FCC accredited lab. under the KDB 974614 D01 and is listed in the FCC pubic Access Link (PAL) database, FCC Registration No. :444940, the FCC Designation No.:TW1309

1.6 INSTRUMENT CALIBRATION

Conducted FCC/IC/NCC (All)					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
PXA Signal Analyzer	Keysight	N9030B	MY62291089	2024-10-04	2025-10-03
Power Sensor	Anritsu	MA2411B	1911387	2024-08-30	2025-08-29
Power Sensor	Anritsu	MA2411B	1911386	2024-07-19	2025-07-18
Power Meter	Anritsu	ML2496A	2136002	2024-07-19	2025-07-18
DC Blocks	Marvelous Microwave	MVE6411	MVE-001	2024-08-08	2025-08-07
Software	Radio Test Software Ver. 21				

966A Radiated					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Signal Analyzer	KEYSIGHT	N9010A	MY52220817	2024-03-15	2025-03-14
Thermo-Hygro Meter	WISEWIND	1206	D07	2024-11-26	2025-11-25
Active Loop Antenna	SCHWARZBEC K	FMZB 1513-60	1513-60-028	2024-12-11	2025-12-10
Bi-Log Antenna	Sunol Sciences	JB3	A030105	2024-07-12	2025-07-11
Preamplifier	EMEC	EM330	060609	2024-02-21	2025-02-20
Cable	Huber+Suhner	104PEA	20995+21000+182330	2024-08-07	2025-08-06
Horn Antenna	ETC	MCTD 1209	DRH13M02003	2024-12-20	2025-12-19
Preamplifier	HP	8449B	3008A00965	2024-12-18	2025-12-17
Cable	EMCI	EMC101G	221011+221012+221213	2024-10-11	2025-10-10
Attenuator	Mini-Circuits	BW-S9W5	BWS9W5-09-966A-01	2024-02-07 2025-02-06	2025-02-06 2026-02-05
High Pass Filters	Titan Microwave	T04H30001800070S01	22011402-4	2024-06-12	2025-06-11
Horn Antenna	SCHWARZBEC K	BBHA9170	1047	2024-12-06	2025-12-05
Pre-Amplifier	EMCI	EMC184045SE	980860	2024-12-02	2025-12-01
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Site Validation	CCS	966A	N/A	2024-08-03	2025-08-02
Software	e3 V9-210616c				

Remark:

- Each piece of equipment is scheduled for calibration once a year.
- N.C.R. = No Calibration Required.



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AC Mains Conduction					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EMI Test Receiver	R&S	ESCI	100064	2024-06-14	2025-06-13
LISN	TESEQ	LN2-16N	22012	2024-02-29	2025-02-27
Cable	Woken	SFL402	185A	2024-07-08	2025-07-07
Software	e3 V6-110812				

Remark:

1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.

1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

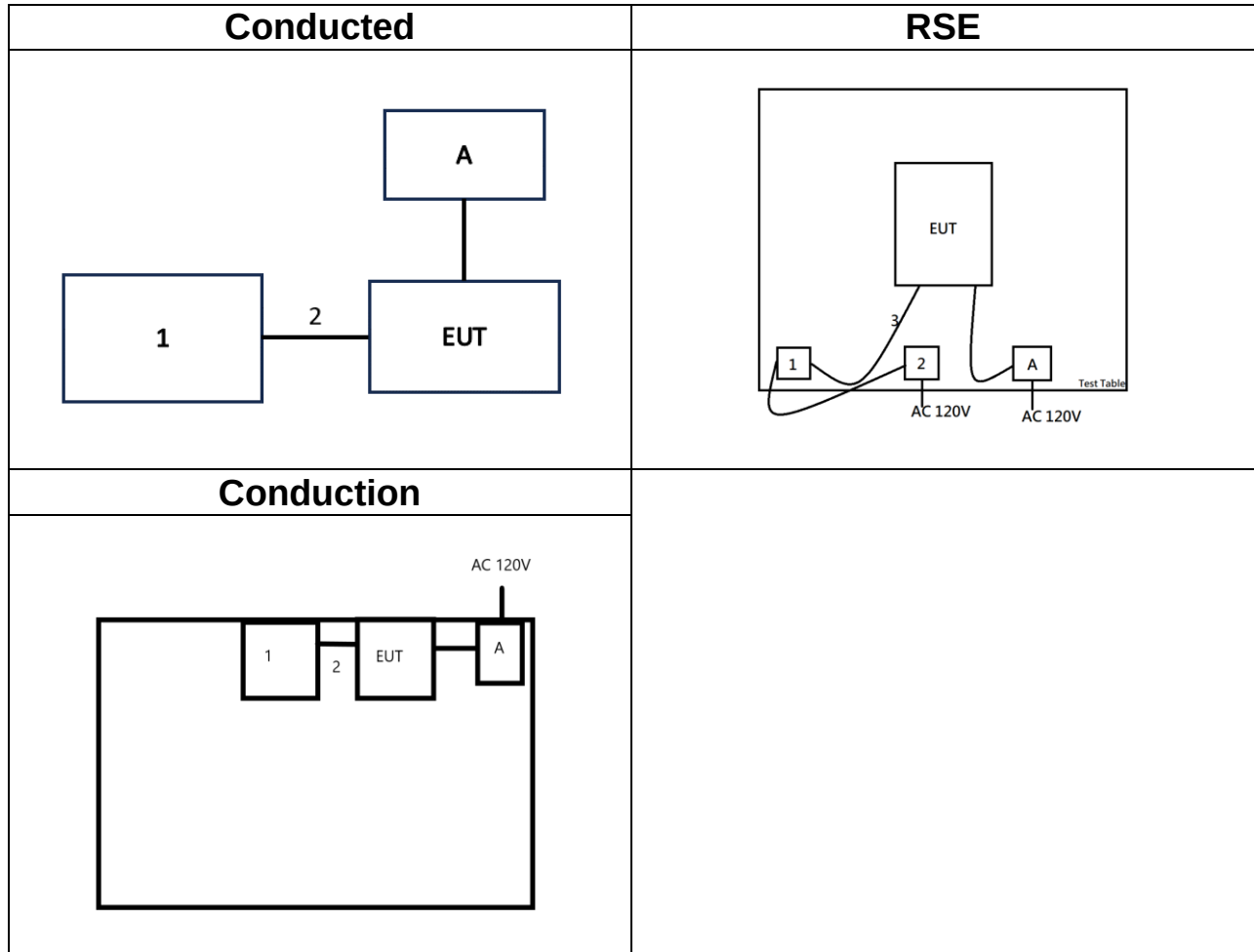
EUT Accessories Equipment						
No.	Equipment	Brand	Model	Series No.	FCC ID	IC
	N/A					

Support Equipment (Conducted)					
No.	Equipment	Brand	Model	Series No.	FCC ID
1	NB(1822)	Lenovo	L480	N/A	N/A
2	Lan Cable	ATAKE	AC6-FL10	N/A	N/A
A	Adapter	APD	DA-80A54	N/A	N/A

Support Equipment (RSE)					
No.	Equipment	Brand	Model	Series No.	FCC ID
1	NB(D)	Lenovo	ThinkPad X260	N/A	N/A
2	Adapter	Lenovo	ADLX45DLC3A	N/A	N/A
3	RJ 45	atake	AC6-FL10	202108270206	N/A
A	Adapter	APD	DA-80A54	S3B01999000025	N/A

Support Equipment (Conduction)					
No.	Equipment	Brand	Model	Series No.	FCC ID
1	NB(D)	Lenovo	ThinkPad X260	N/A	N/A
2	RJ 45	AWM	E189529	N/A	N/A
A	Adapter	APD	DA-80A54	S3B01999000025	N/A

1.8 TEST SET UP DIAGRAM



1.9 TEST PROGRAM

The EUT connection corresponds to the surrounding fixture control board.
This EUT uses "Tera Term" setup command and Fleming.cxtt software to set the frequency, modulation, and power to allow the sample to continuously transmit.

1.10 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.247, KDB 558074, RSS-247 Issue 3 and RSS-GEN Issue 5.

2. TEST SUMMERY

FCC Standard Section	IC Standard Section	Report Section	Test Item	Result
15.203	RSS-Gen 6.8	1.3	Antenna Requirement	Pass
15.207(a)	RSS-GEN 8.8	4.1	AC Conducted Emission	Pass
15.247(a)(2)	RSS-247(5.2)(a)	4.2	6 dB Bandwidth	Pass
-	RSS-GEN 6.7	4.2	Occupied Bandwidth (99%)	Pass
15.247(b)(3)	RSS-247(5.4)(d)	4.3	Output Power Measurement	Pass
15.247(e)	RSS-247(5.2)(b)	4.4	Power Spectral Density	Pass
15.247(d)	RSS-247(5.5)	4.5	Conducted Band Edge	Pass
15.247(d)	RSS-247(5.5)	4.5	Conducted Spurious Emission	Pass
15.247(d) 15.205, 15.209	RSS-GEN 8.9, 8.10	4.6	Radiation Band Edge	Pass
15.247(d) 15.205, 15.209	RSS-GEN 8.9, 8.10	4.6	Radiation Spurious Emission	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	BLE Mode (1Mbps) BLE Mode (2Mbps)
Test Channel Frequencies	1.Lowest Channel : 2402MHz 2.Middle Channel : 2442MHz 3.Highest Channel : 2480MHz

Remark:

1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.

3.2 THE WORST MODE OF MEASUREMENT

AC Power Line Conduction Emission	
Test Condition	AC Power line conduction emission for line and neutral
Power supply Mode	Mode 1: EUT Power by Adapter
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

Radiated Emission Measurement Above 1G	
Test Condition	Radiated Emission Above 1G
Power supply Mode	Mode 1: EUT power by Adapter
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4
Worst Position	☐ Placed in fixed position. ☐ Placed in fixed position at X-Plane (E2-Plane) ☐ Placed in fixed position at Y-Plane (E1-Plane) ☒ Placed in fixed position at Z-Plane (H-Plane)

Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Power supply Mode	Mode 1: EUT power by Adapter Mode 2: EUT power by PoE Mode 3: EUT power by DC 12V
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

Remark:

1. The worst mode was record in this test report.
2. AC power line conducted emission were performed the EUT transmit at the highest output power channel as worse case.
3. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(Z-Plane) were recorded in this report

3.3 EUT DUTY CYCLE

Temperature: 20.6 ~ 22.3°C
Humidity: 48 ~ 50% RH

Test date: February 5 ~ 6, 2025
Tested by: Marco Chan

Mode	Duty Cycle (%) = Ton / (Ton+Toff)	Duty Factor (dB) = 10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
BLE 1M	100.00	0.00	0.00	0.01
BLE 2M	100.00	0.00	0.00	0.01



4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

According to §15.207(a) and RSS-GEN section 8.8,

Frequency Range (MHz)	Limits(dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

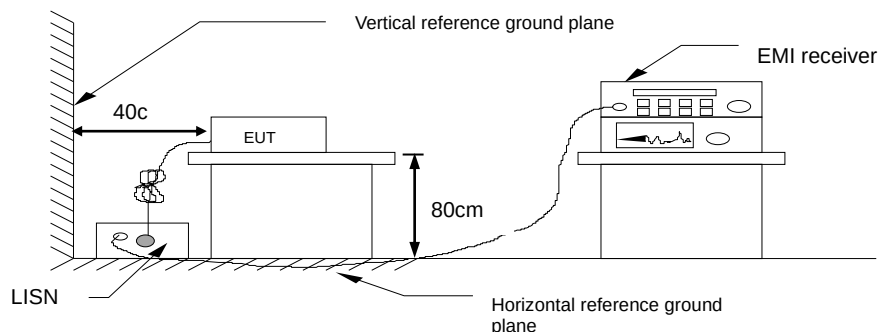
* Decreases with the logarithm of the frequency.

4.1.2 Test Procedure

Test method Refer as ANSI C63.10: 2013 clause 6.2,

1. The EUT was placed on a non-conducted table, which is 0.8m above horizontal ground plane and 0.4m above vertical ground plane.
2. EUT connected to the line impedance stabilization network (LISN)
3. Receiver set RBW of 9kHz and Detector Peak, and note as quasi-peak and average.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. Recorded Line for Neutral and Line.

4.1.3 Test Setup



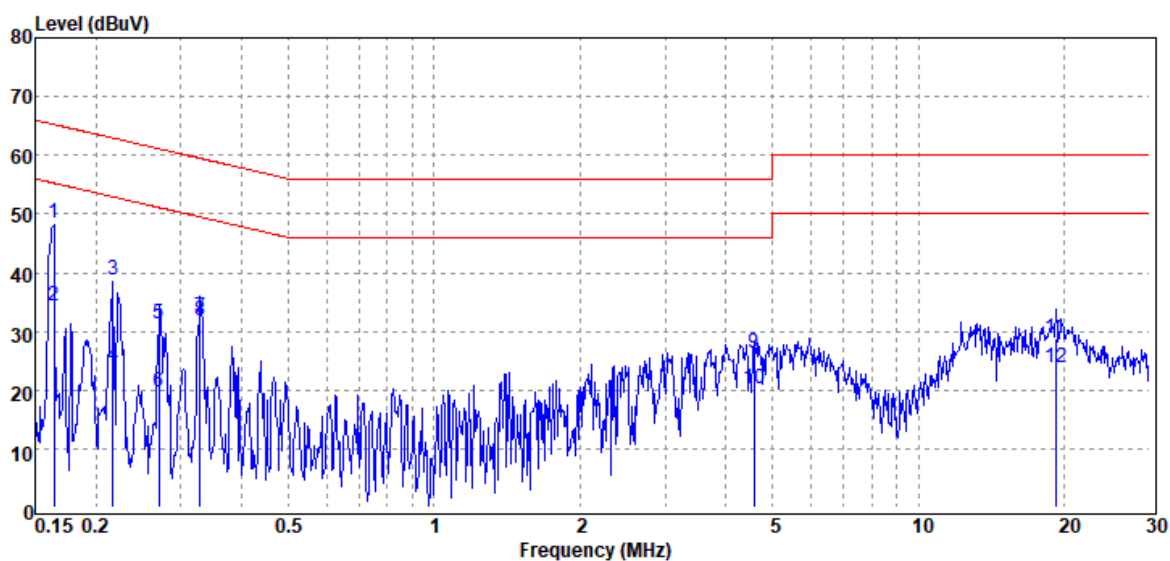
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4.1.4 Test Result

Project No : TM-2412000476P
Operation Mode : BLE
Test Chamber : Conduction
Probe : LINE
Note :

Test Date : 2025-02-10
Temp./Humi. : 23.4°C / 54%
Engineer : David Li
Test Voltage : AC 120V/60Hz



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Read Level dBμV	Factor dB	Actual FS dBμV	Limit dBμV	Margin dB
0.164	QP	48.16	0.21	48.37	65.26	-16.89
0.164	Average	34.01	0.21	34.22	55.26	-21.04
0.217	QP	38.43	0.39	38.82	62.92	-24.10
0.217	Average	23.57	0.39	23.96	52.92	-28.96
0.270	QP	30.80	0.39	31.19	61.10	-29.91
0.270	Average	19.32	0.39	19.71	51.10	-31.39
0.329	QP	31.95	0.38	32.33	59.49	-27.16
0.329	Average	31.58	0.38	31.96	49.49	-17.53
4.580	QP	25.96	0.26	26.22	56.00	-29.78
4.580	Average	19.99	0.26	20.25	46.00	-25.75
19.171	QP	28.22	0.48	28.70	60.00	-31.30
19.171	Average	23.42	0.48	23.90	50.00	-26.10

Note: 1. Actual FS= Spectrum Read Level + Factor

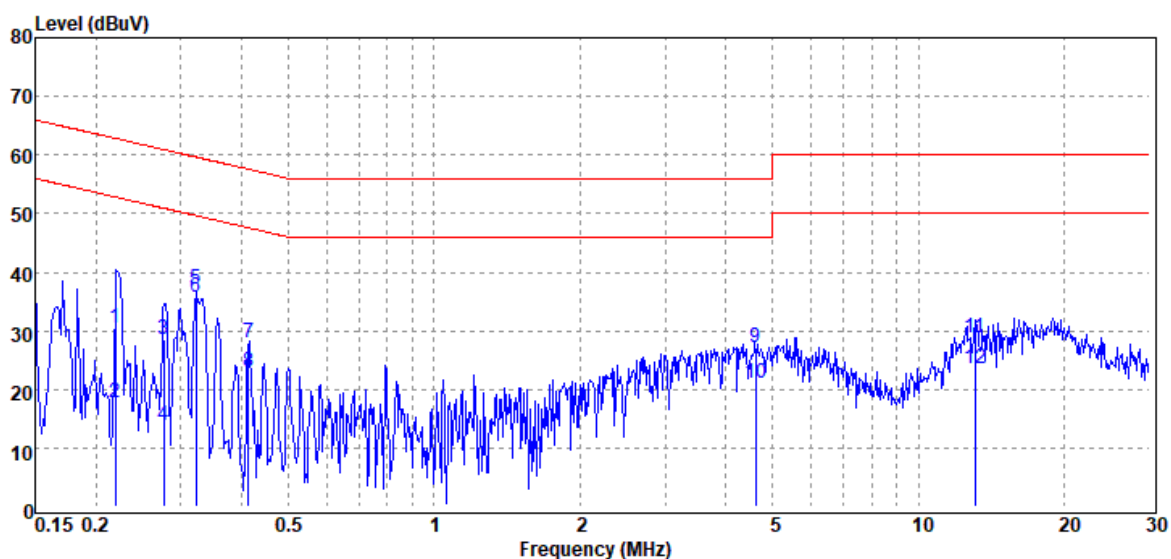
Note: 2. Margin= Actual FS - Limit

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Project No : TM-2412000476P
Operation Mode : BLE
Test Chamber : Conduction
Probe : NEUTRAL
Note :

Test Date : 2025-02-10
Temp./Humi. : 23.4°C / 54%
Engineer : David Li
Test Voltage : AC 120V/60Hz



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Read Level dBμV	Factor dB	Actual FS dBμV	Limit dBμV	Margin dB
0.220	QP	30.03	0.36	30.39	62.82	-32.43
0.220	Average	17.36	0.36	17.72	52.82	-35.10
0.277	QP	28.19	0.36	28.55	60.91	-32.36
0.277	Average	13.48	0.36	13.84	50.91	-37.07
0.323	QP	36.87	0.35	37.22	59.64	-22.42
0.323	Average	35.41	0.35	35.76	49.64	-13.88
0.413	QP	27.63	0.35	27.98	57.59	-29.61
0.413	Average	22.58	0.35	22.93	47.59	-24.66
4.602	QP	26.83	0.23	27.06	56.00	-28.94
4.602	Average	20.75	0.23	20.98	46.00	-25.02
13.089	QP	28.37	0.38	28.75	60.00	-31.25
13.089	Average	23.07	0.38	23.45	50.00	-26.55

Note: 1. Actual FS= Spectrum Read Level + Factor

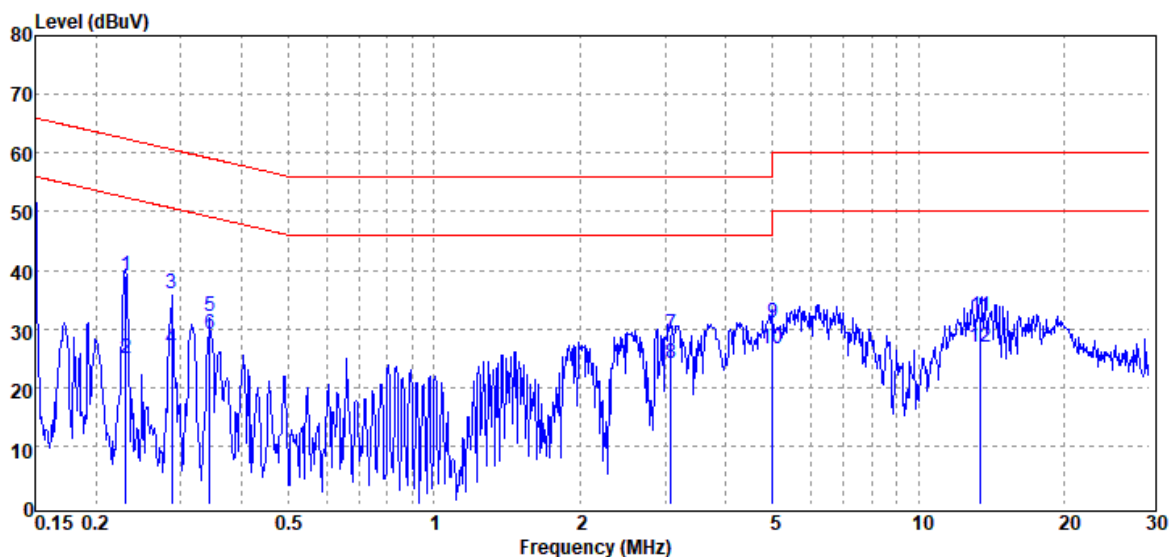
Note: 2. Margin= Actual FS - Limit

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Project No : TM-2412000476P
Operation Mode : BLE
Test Chamber : Conduction
Probe : LINE
Note :

Test Date : 2025-02-10
Temp./Humi. : 23.4°C / 54%
Engineer : David Li
Test Voltage : AC 230V/60Hz



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Read Level dBμV	Factor dB	Actual FS dBμV	Limit dBμV	Margin dB
0.231	QP	38.62	0.39	39.01	62.42	-23.41
0.231	Average	24.53	0.39	24.92	52.42	-27.50
0.288	QP	35.72	0.38	36.10	60.60	-24.50
0.288	Average	26.20	0.38	26.58	50.60	-24.02
0.344	QP	31.73	0.38	32.11	59.10	-26.99
0.344	Average	28.71	0.38	29.09	49.10	-20.01
3.084	QP	28.74	0.22	28.96	56.00	-27.04
3.084	Average	23.81	0.22	24.03	46.00	-21.97
4.998	QP	30.65	0.27	30.92	56.00	-25.08
4.998	Average	26.28	0.27	26.55	46.00	-19.45
13.427	QP	31.82	0.41	32.23	60.00	-27.77
13.427	Average	26.53	0.41	26.94	50.00	-23.06

Note: 1. Actual FS= Spectrum Read Level + Factor

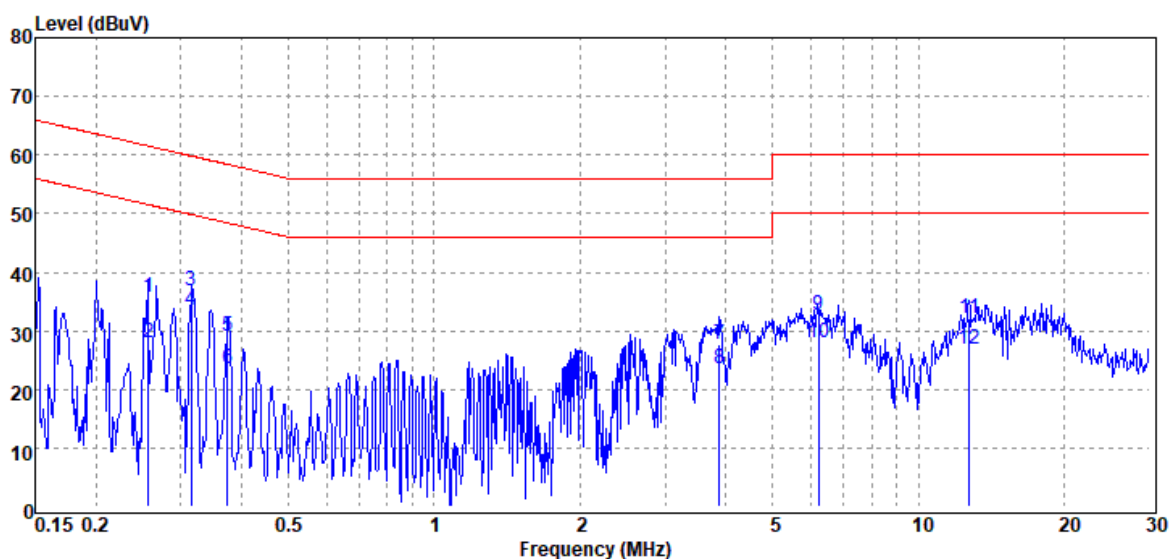
Note: 2. Margin= Actual FS - Limit

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Project No : TM-2412000476P
Operation Mode : BLE
Test Chamber : Conduction
Probe : NEUTRAL
Note :

Test Date : 2025-02-10
Temp./Humi. : 23.4°C / 54%
Engineer : David Li
Test Voltage : AC 230V/60Hz



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Read Level dBμV	Factor dB	Actual FS dBμV	Limit dBμV	Margin dB
0.257	QP	35.43	0.36	35.79	61.52	-25.73
0.257	Average	27.59	0.36	27.95	51.52	-23.57
0.315	QP	36.53	0.35	36.88	59.84	-22.96
0.315	Average	33.16	0.35	33.51	49.84	-16.33
0.374	QP	28.67	0.35	29.02	58.42	-29.40
0.374	Average	23.24	0.35	23.59	48.42	-24.83
3.875	QP	27.36	0.21	27.57	56.00	-28.43
3.875	Average	23.29	0.21	23.50	46.00	-22.50
6.214	QP	32.44	0.27	32.71	60.00	-27.29
6.214	Average	27.62	0.27	27.89	50.00	-22.11
12.752	QP	31.61	0.38	31.99	60.00	-28.01
12.752	Average	26.53	0.38	26.91	50.00	-23.09

Note: 1. Actual FS= Spectrum Read Level + Factor

Note: 2. Margin= Actual FS - Limit

4.2 6dB BANDWIDTH AND OCCUPIED BANDWIDTH(99%)

4.2.1 Test Limit

According to §15.247(a)(2) and RSS-247 section 5.2(a)

6 dB Bandwidth :

Limit	Shall be at least 500kHz
-------	--------------------------

Occupied Bandwidth(99%) : For reporting purposes only.

4.2.2 Test Procedure

Test method Refer as KDB 558074 D01 and ANSI C63.10: 2013 clause 6.9.2.

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 100kHz, VBW = 300kHz and Detector = Peak, to measurement 6 dB Bandwidth.
4. SA set RBW = 1% ~ 5% OBW, VBW = three times the RBW and Detector = Peak, to measurement 99% Bandwidth
5. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

4.2.3 Test Setup

Refer to section 1.8.

4.2.4 Test Result

Temperature: 20.6 ~ 22.3°C

Test date: February 5 ~ 6, 2025

Humidity: 48 ~ 50% RH

Tested by: Marco Chan

6dB BANDWIDTH

BLE 1M mode

Frequency (MHz)	6dB BW (MHz)	Required BW (MHz)	Result
2402	0.7121	≥ 0.5	PASS
2442	0.7194	≥ 0.5	PASS
2480	0.7296	≥ 0.5	PASS

BLE 2M mode

Frequency (MHz)	6dB BW (MHz)	Required BW (MHz)	Result
2402	1.332	≥ 0.5	PASS
2442	1.217	≥ 0.5	PASS
2480	1.280	≥ 0.5	PASS

BANDWIDTH 99%

BLE 1M mode

Frequency (MHz)	99%Bandwidth (MHz)
2402	1.0573
2442	1.0566
2480	1.0679

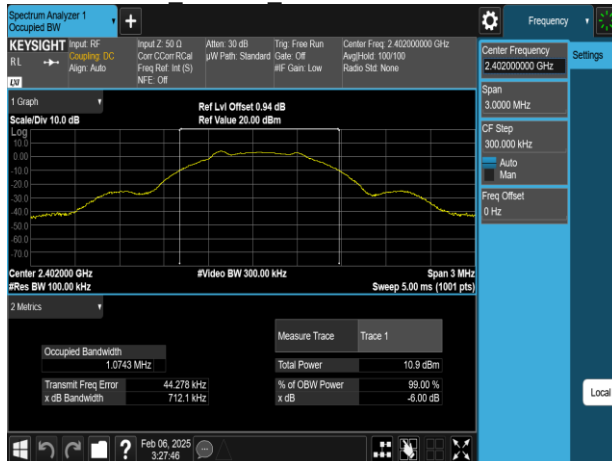
BLE 2M mode

Frequency (MHz)	99%Bandwidth (MHz)
2402	2.0660
2442	2.0678
2480	2.0879

Test Data

6dB BANDWIDTH

OBW BLE 1M LowCH00-2402MHz



OBW BLE 2M LowCH00-2402MHz



OBW BLE 1M MidCH20-2442MHz



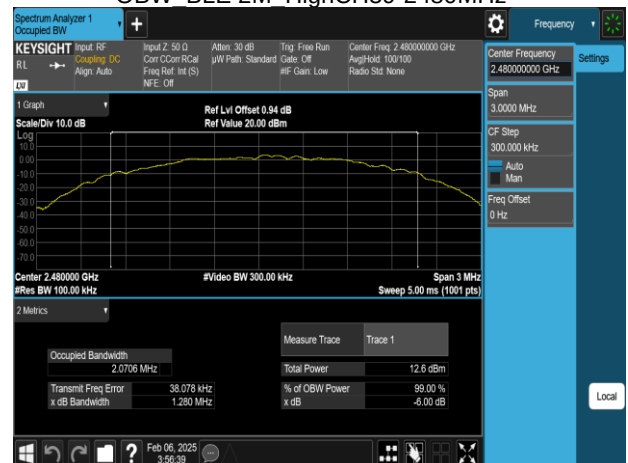
OBW BLE 2M MidCH20-2442MHz



OBW BLE 1M HighCH39-2480MHz

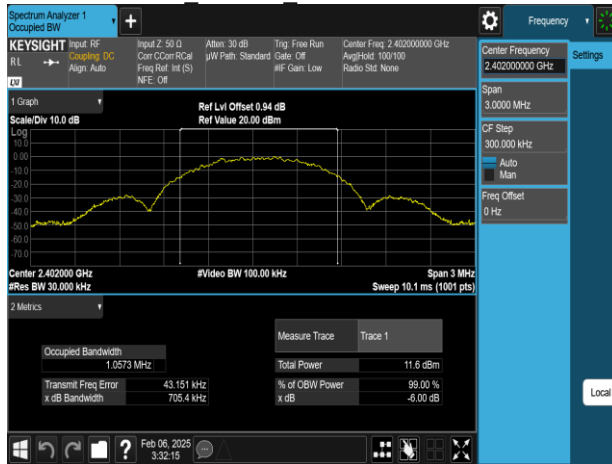


OBW BLE 2M HighCH39-2480MHz

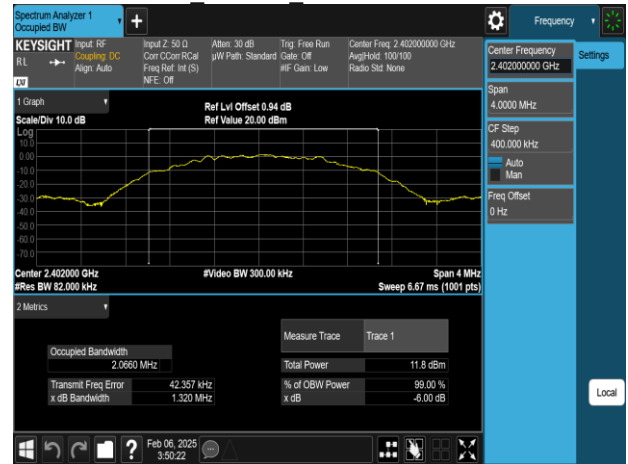


BANDWIDTH 99%

IC OBW BLE 1M LowCH00-2402MHz



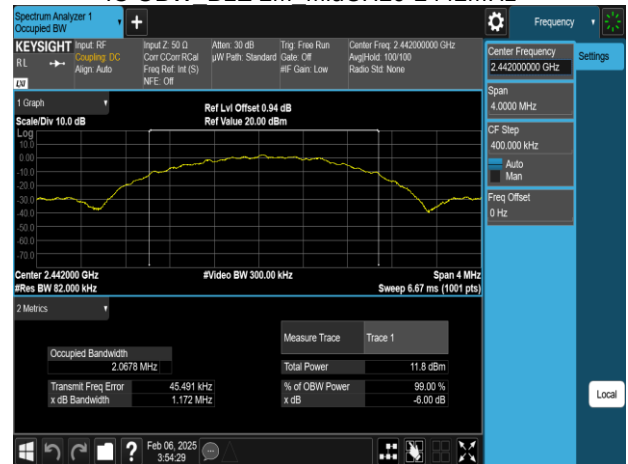
IC OBW BLE 2M LowCH00-2402MHz



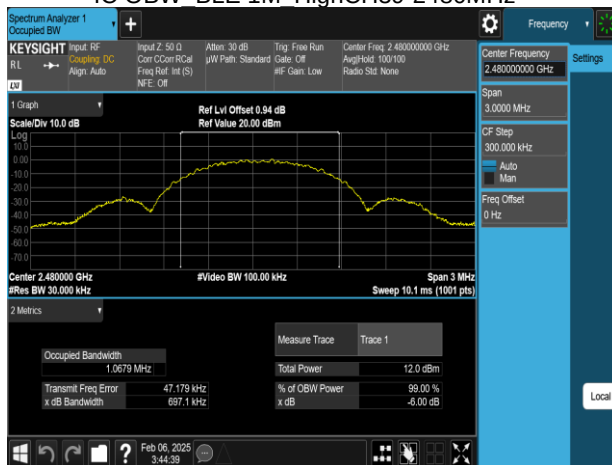
IC OBW BLE 1M MidCH20-2442MHz



IC OBW BLE 2M MidCH20-2442MHz



IC OBW BLE 1M HighCH39-2480MHz



IC OBW BLE 2M HighCH39-2480MHz



4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.247(b)(3) and RSS-247 section 5.4(d)

Peak output power :

FCC

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

IC

For DTSSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e), base on the use of antennas with directional gain not exceed 6 dBi If transmitting antennas of directional gain greater than 6dBi are used the peak output power the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Limit	☒ Antenna not exceed 6 dBi : 30dBm ☐ Antenna with DG greater than 6 dBi [Limit = 30 – (DG – 6)] ☐ Point-to-point operation
-------	---

Average output power : For reporting purposes only.

4.3.2 Test Procedure

Test method Refer as KDB 558074 D01

1. The EUT RF output connected to the power meter by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Peak output power and Average output power. in the test report.

4.3.3 Test Setup

Refer to section 1.8.

4.3.4 Test Result

Temperature: 20.6 ~ 22.3°C
Humidity: 48 ~ 50% RH

Test date: February 5 ~ 6, 2025
Tested by: Marco Chan

Peak & Average output power :

BLE 1M mode:

CH	Frequency (MHz)	Power Setting	Peak Output Power (dBm)	Required Limit (dBm)
0	2402	8	4.29	30
20	2442	8	4.61	30
39	2480	8	4.76	30
CH	Frequency (MHz)	Power Setting	Avg. Output Power (dBm)	Required Limit (dBm)
0	2402	8	4.25	30
20	2442	8	4.56	30
39	2480	8	4.72	30

***Note:**

1.Measured by power meter, cable loss 0.94 dB + Duty cycle factor has been offseted to the power meter for Avg. power and cable loss has been offseted for Peak power measurement.

BLE 2M mode:

CH	Frequency (MHz)	Power Setting	Peak Output Power (dBm)	Required Limit (dBm)
0	2402	8	4.26	30
20	2442	8	4.61	30
39	2480	8	4.74	30
CH	Frequency (MHz)	Power Setting	Avg. Output Power (dBm)	Required Limit (dBm)
0	2402	8	4.22	30
20	2442	8	4.57	30
39	2480	8	4.72	30

***Note:**

1. Measured by power meter, cable loss 0.94 dB + Duty cycle factor has been offsetted to the power meter for Avg. power and cable loss has been offsetted for Peak power measurement.

EIRP:

EIRP BLE 1M mode

CH	Frequency (MHz)	Power Setting	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit
0	2402	8	4.25	2.38	6.63	4W= 36 dBm
20	2442	8	4.56	2.38	6.94	4W= 36 dBm
39	2480	8	4.72	2.38	7.10	4W= 36 dBm

* **Note:** EIRP = Average Power + Gain

EIRP BLE 2M mode

CH	Frequency (MHz)	Power Setting	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit
0	2402	8	4.22	2.38	6.60	4W= 36 dBm
20	2442	8	4.57	2.38	6.95	4W= 36 dBm
39	2480	8	4.72	2.38	7.10	4W= 36 dBm

* **Note:** EIRP = Average Power + Gain

4.4 POWER SPECTRAL DENSITY

4.4.1 Test Limit

According to §15.247(e) and RSS-247 section 5.2(b)

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Limit	☒ Antenna not exceed 6 dBi : 8dBm ☐ Antenna with DG greater than 6 dBi [Limit = 8 – (DG – 6)] ☐ Point-to-point operation :
-------	---

4.4.2 Test Procedure

Test method Refer as KDB 558074 D01

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 3kHz, VBW = 10kHz, Span = 1.5 times DTS Bandwidth (6 dB BW), Detector = Peak, Sweep Time = Auto and Trace = Max hold.
4. The path loss was compensated to the results for each measurement by SA.
5. Mark the maximum level.
6. Measure and record the result of power spectral density. in the test report.

4.4.3 Test Setup

Refer to section 1.8.

4.4.4 Test Result

Temperature: 20.6 ~ 22.3°C
Humidity: 48 ~ 50% RH

Test date: February 5 ~ 6, 2025
Tested by: Marco Chan

BLE 1M mode

Frequency (MHz)	RF Power Density (dBm/3kHz)	Maximum Limit (dBm/3kHz)	Result
2402	-8.32	8	PASS
2442	-8.19	8	PASS
2480	-9.11	8	PASS

***Note:**

1.cable loss as 0.94dB that offsets in the spectrum

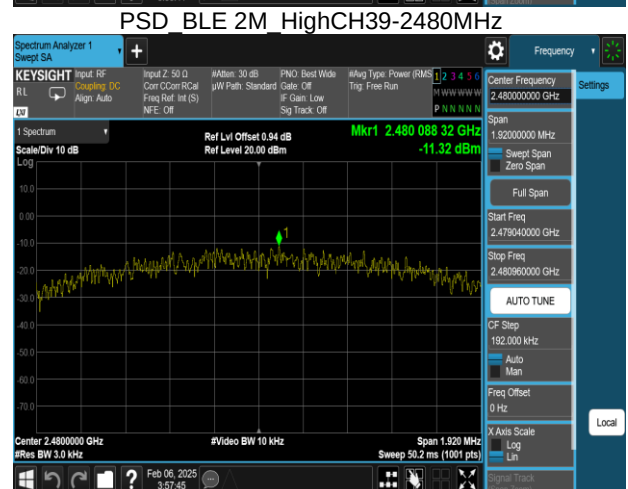
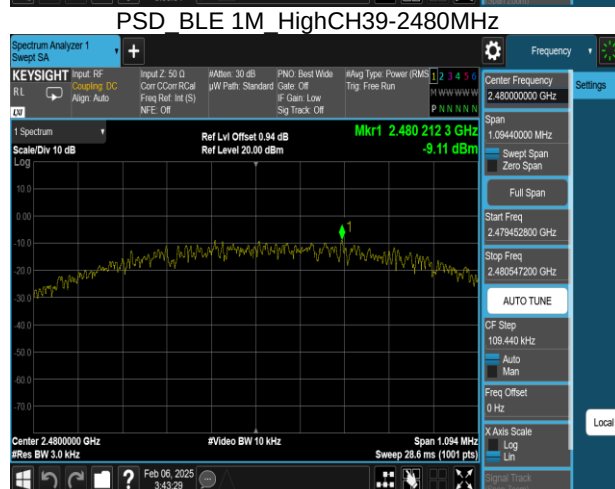
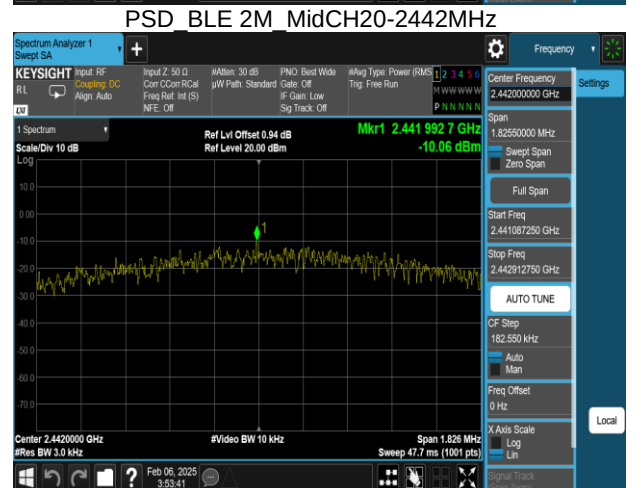
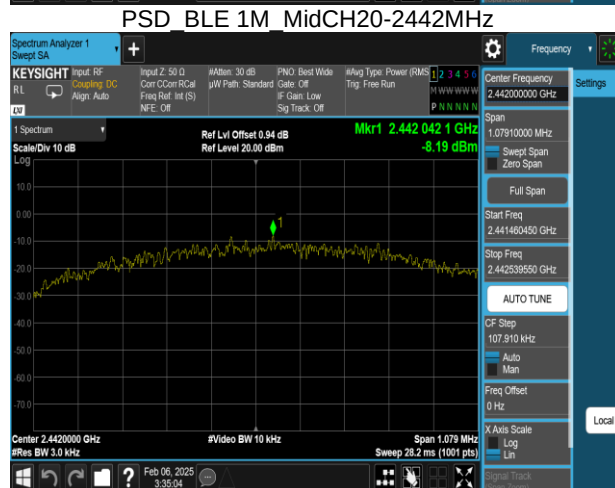
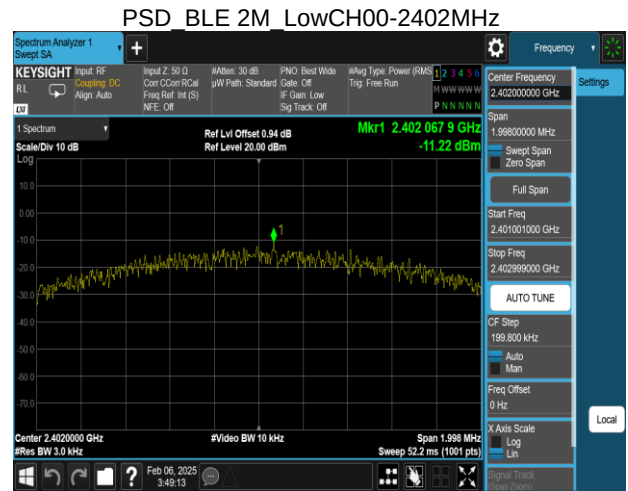
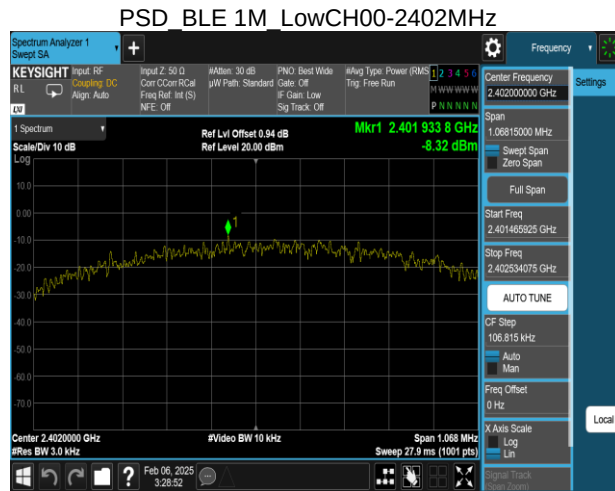
BLE 2M mode

Frequency (MHz)	RF Power Density (dBm/3kHz)	Maximum Limit (dBm/3kHz)	Result
2402	-11.22	8	PASS
2442	-10.06	8	PASS
2480	-11.32	8	PASS

***Note:**

1.cable loss as 0.94dB that offsets in the spectrum

Test Data



4.5 CONDUCTED BAND EDGE AND SPURIOUS EMISSION

4.5.1 Test Limit

According to §15.247(d) and RSS-247 section 5.5,

FCC: In any 100 kHz bandwidth outside the authorized frequency band, Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

IC: 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. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

4.5.2 Test Procedure

Test method Refer as KDB 558074 D01

1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.
2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.
3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when conducted power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

4.5.3 Test Setup

Refer to section 1.8.

4.5.4 Test Result

Temperature: 20.6 ~ 22.3°C

Test date: February 5 ~ 6, 2025

Humidity: 48 ~ 50% RH

Tested by: Marco Chan

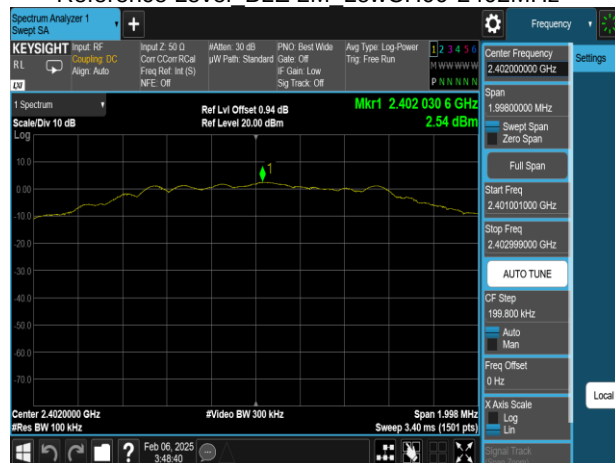
Test Data

Reference Level

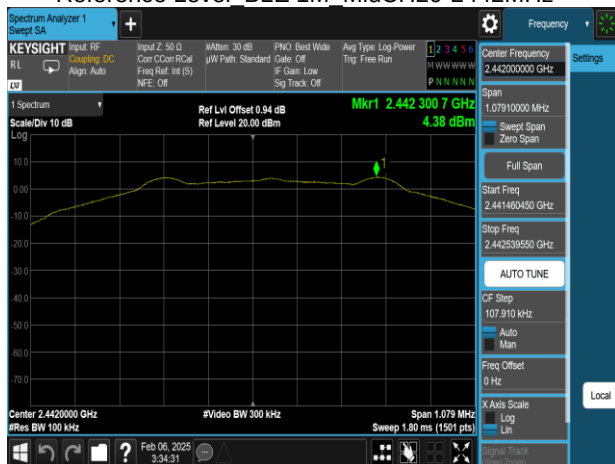
Reference Level BLE 1M LowCH00-2402MHz



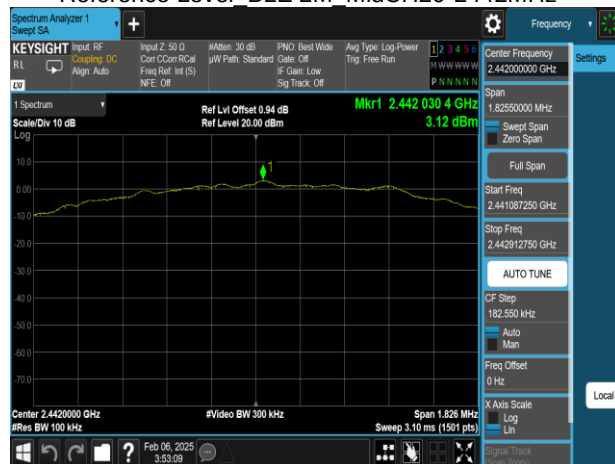
Reference Level BLE 2M LowCH00-2402MHz



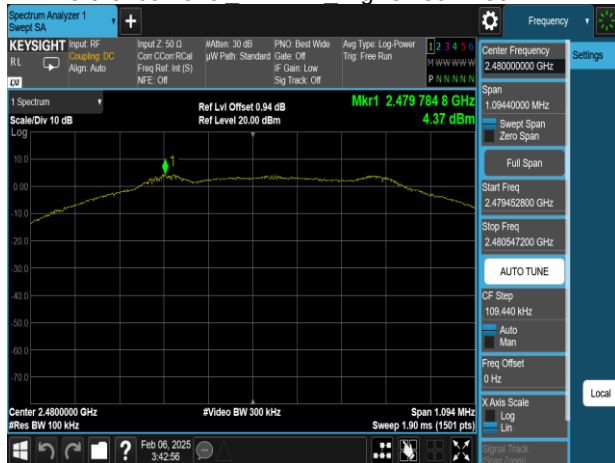
Reference Level BLE 1M MidCH20-2442MHz



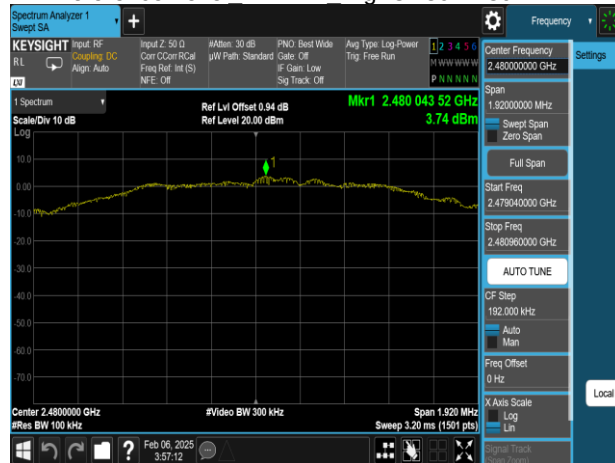
Reference Level BLE 2M MidCH20-2442MHz



Reference Level BLE 1M HighCH39-2480MHz



Reference Level BLE 2M HighCH39-2480MHz

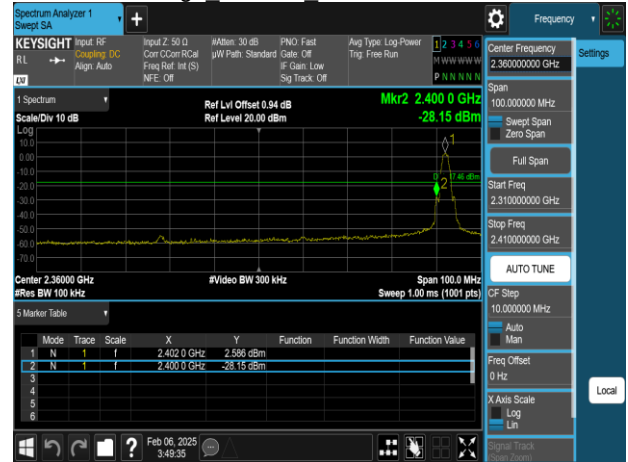


Band Edge

Band Edge BLE 1M LowCH00-2402MHz



Band Edge BLE 2M LowCH00-2402MHz



Band Edge BLE 1M HighCH39-2480MHz



Band Edge BLE 2M HighCH39-2480MHz



Spurious Emission

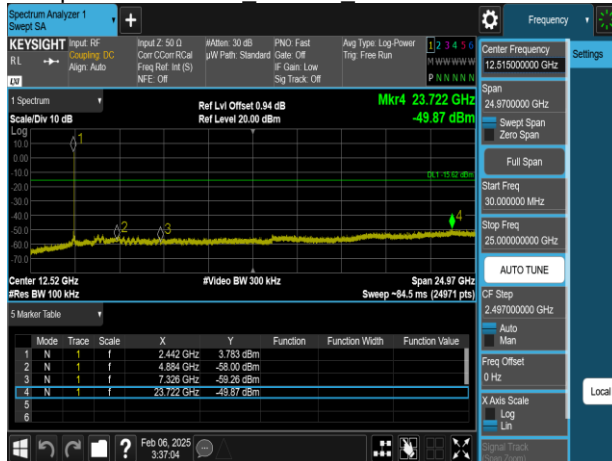
Spurious Emission BLE 1M LowCH00-2402MHz



Spurious Emission BLE 2M LowCH00-2402MHz



Spurious Emission BLE 1M MidCH20-2442MHz



Spurious Emission BLE 2M MidCH20-2442MHz



Spurious Emission BLE 1M HighCH39-2480MHz



Spurious Emission BLE 2M HighCH39-2480MHz



4.6 RADIATION BANDEDGE AND SPURIOUS EMISSION

4.6.1 Test Limit

FCC according to §15.247(d), §15.209 and §15.205,

In any 100 kHz bandwidth outside the authorized frequency band, all harmonic and spurious must be least 20 dB below the highest emission level with the authorized frequency band. Radiation emission which fall in the restricted bands must also follow the FCC section 15.209 as below limit in table.

Below 30 MHz

Frequency	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/F (F in kHz)	300
490-1,705 kHz	24,000/F (F in kHz)	24,000/F (F in kHz)	30
1.705-30 MHz	30	N/A	30

Above 30 MHz

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

Remark:

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open area test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

IC according to RSS-247 section 5.5, RSS-Gen, Section 8.9 and 8.10

RSS-Gen Table 3 and Table 5 – General Field Strength Limits for Transmitters and Receivers at Frequencies Above 30 MHz ^(Note)

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

Note: Measurements for compliance with the limits in table 3 may be performed at distances other than 3 metres, in accordance with Section 6.6.

RSS-Gen Table 6: General Field Strength Limits for Transmitters at Frequencies Below 30 MHz (Transmit)

Frequency	Magnetic field strength (H-Field) (μA/m)	Measurement Distance (m)
9-490 kHz ^{Note}	6.37/F (F in kHz)	300
490-1,705 kHz	63.7/F (F in kHz)	30
1.705-30 MHz	0.08	30

Note: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

4.6.2 Test Procedure

1. The EUT is placed on a turntable, Above 1 GHz is 1.5m and below 1 GHz is 0.8m above ground plane. The EUT Configured un accordance with ANSI C63.10: 2013, and the EUT set in a continuous mode.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. And EUT is set 3m away from the receiving antenna, which is scanned from 1m to 4m above the ground plane to find out the highest emissions. Measurement are made polarized in both the vertical and the horizontal positions with antenna.
3. Span shall wide enough to full capture the emission measured. The SA from 9KHz to 26.5GHz set to the low, Mid and High channels with the EUT transmit.
4. No emission found between lowest internal used/generated frequency to 30MHz (9KHz~30MHz).

Radiated emission below 30MHz is measured in a 9m*6m*6m semi-ane choic chamber, the measurements correspond to those obtained at an open-field test site. There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

5. The SA setting following :

- (1) Below 30MHz :

(1.1) 9KHz-490KHz : RBW=200Hz / VBW=1kHz / Sweep=AUTO

(1.2) 490KHz-30MHz : RBW=10kHz / VBW=30kHz / Sweep=AUTO

- (2) 30MHz to 1GHz : RBW = 100kHz, VBW $\geq$ 3*RBW, Sweep = Auto,

Detector = Peak, Trace = Max hold.

- (3) Above 1GHz :

(3.1) For Peak measurement : RBW = 1MHz, VBW $\geq$ 3 RBW, Sweep = Auto,
Detector = Peak, Trace = Max hold.

(3.2) For Average measurement : RBW = 1MHz, VBW

·If Duty Cycle $\geq$ 98%, VBW=10Hz.

·If Duty Cycle < 98%, VBW=1/T.

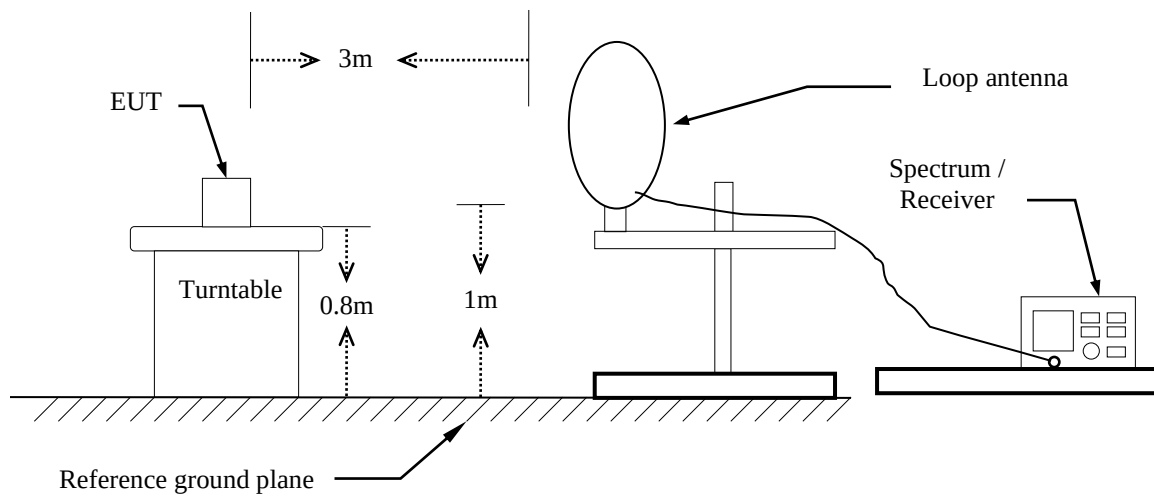
6. Data result :

Actual FS=Spectrum Reading Level + Factor

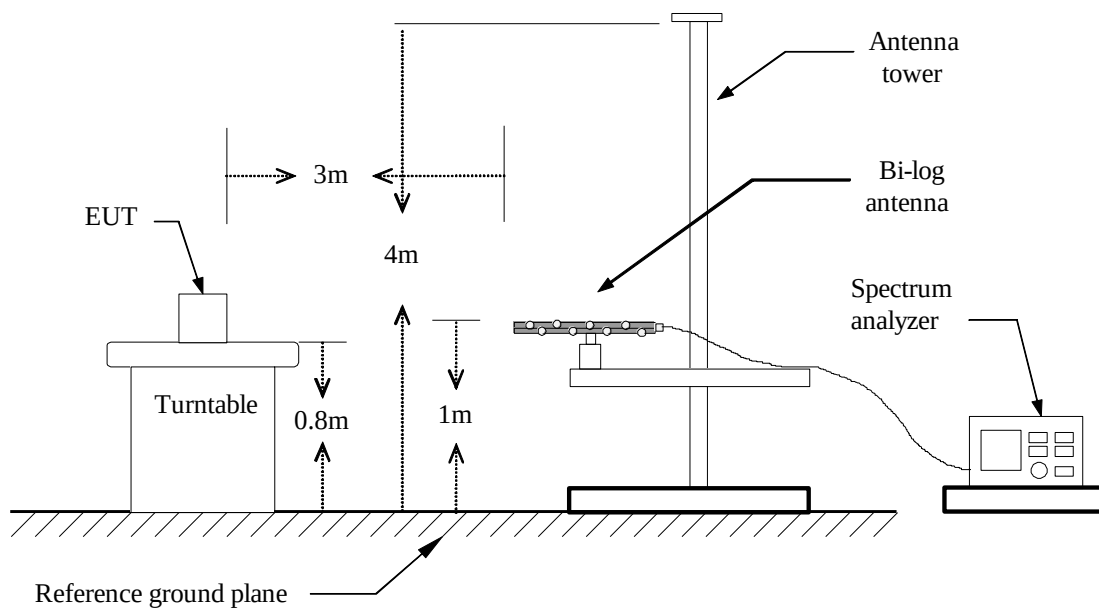
Margin=Actual FS- Limit

4.6.3 Test Setup

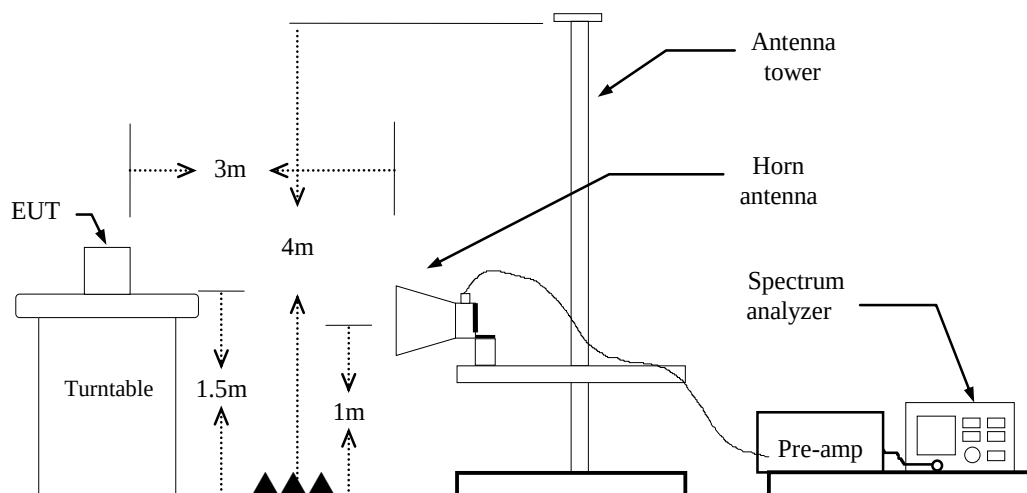
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1 GHz

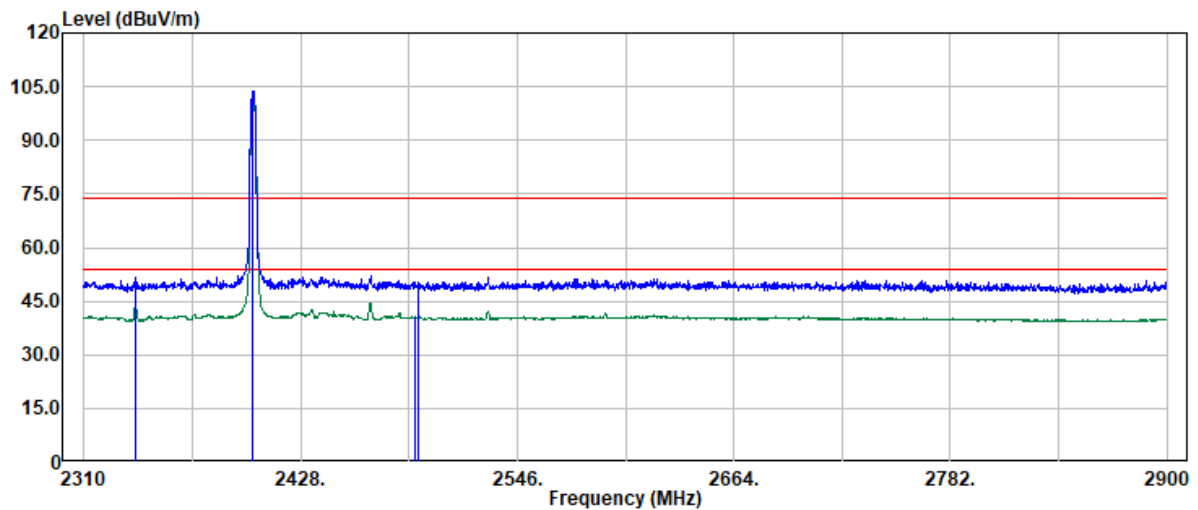


4.6.4 Test Result

Band Edge Test Data

Project No : TM-2412000476P
Operation Band : BLE_1M
Frequency : 2402 MHz
Operation Mode : Bandedge
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : VERTICAL
Engineer : Tony.Chao
Test Chamber : 966A



Trace: 1

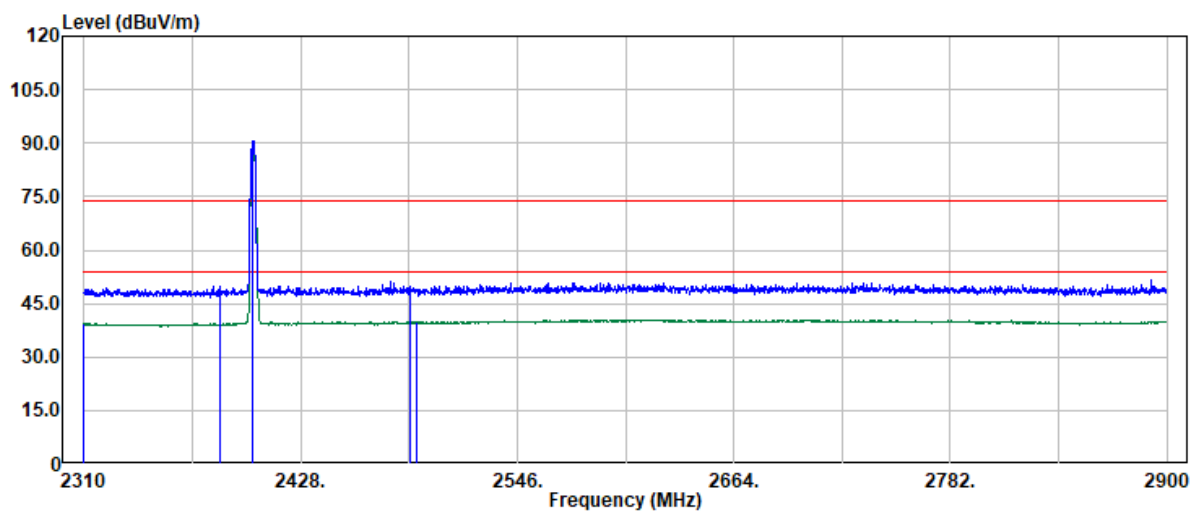
Freq	Read	Factor	Actual	Limit	Margin	Detector
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
2337.96	37.72	6.32	44.04	54.00	-9.96	Average
2338.21	45.40	6.32	51.72	74.00	-22.28	Peak
2402.00	97.37	6.49	103.86	--	--	Peak
2402.00	97.12	6.49	103.61	--	--	Average
2490.27	33.85	6.86	40.71	54.00	-13.29	Average
2492.02	43.49	6.86	50.35	74.00	-23.65	Peak

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev: 01

Project No : TM-2412000476P
Operation Band : BLE_1M
Frequency : 2402 MHz
Operation Mode : Bandedge
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : HORIZONTAL
Engineer : Tony.Chao
Test Chamber : 966A



Trace: 1

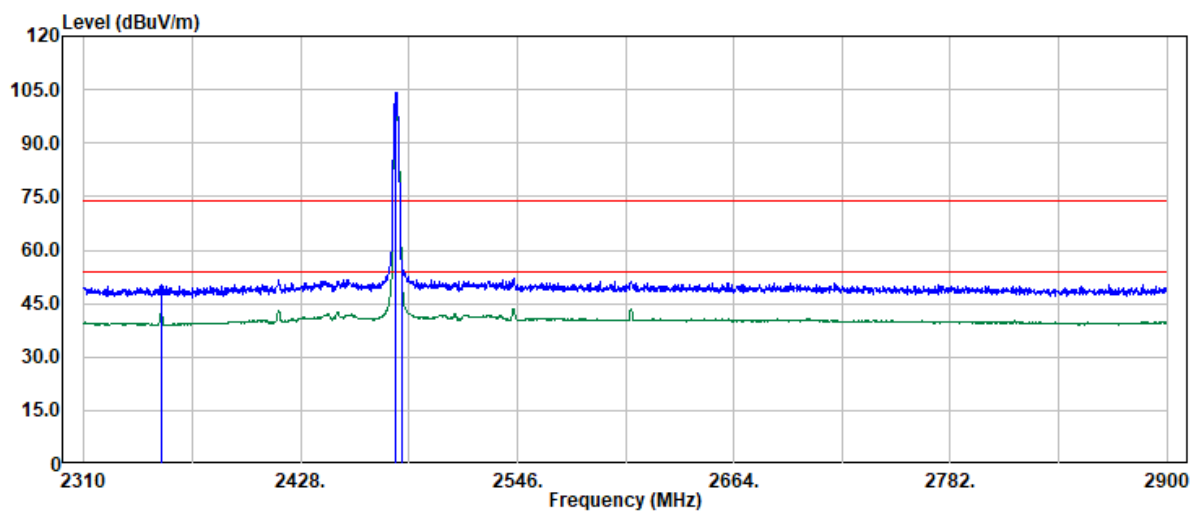
Freq	Read	Factor	Actual	Limit	Margin	Detector
MHz	Level		FS	@3m		Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
2310.00	32.93	6.51	39.44	54.00	-14.56	Average
2383.66	43.46	6.39	49.85	74.00	-24.15	Peak
2402.00	84.15	6.49	90.64	--	--	Peak
2402.00	83.92	6.49	90.41	--	--	Average
2487.52	42.99	6.85	49.84	74.00	-24.16	Peak
2491.02	33.07	6.86	39.93	54.00	-14.07	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev: 01

Project No : TM-2412000476P
Operation Band : BLE_1M
Frequency : 2480 MHz
Operation Mode : Bandedge
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : VERTICAL
Engineer : Tony.Chao
Test Chamber : 966A



Trace: 1

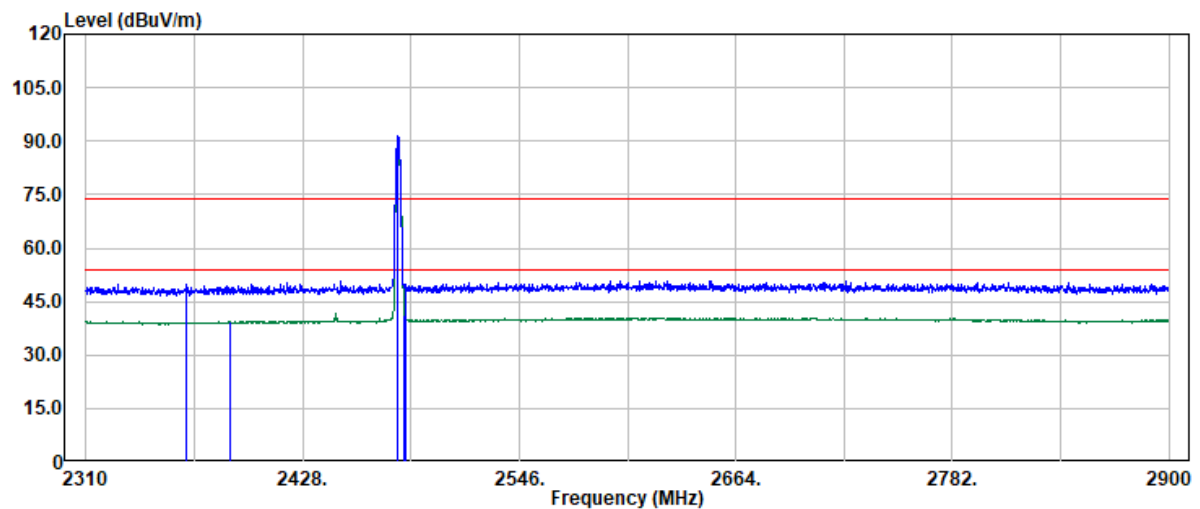
Freq	Read	Factor	Actual	Limit	Margin	Detector
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
2351.95	44.24	6.19	50.43	74.00	-23.57	Peak
2351.95	36.32	6.19	42.51	54.00	-11.49	Average
2480.00	97.37	6.78	104.15	--	--	Peak
2480.00	97.18	6.78	103.96	--	--	Average
2483.53	48.62	6.82	55.44	74.00	-18.56	Peak
2483.53	43.15	6.82	49.97	54.00	-4.03	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev: 01

Project No : TM-2412000476P
Operation Band : BLE_1M
Frequency : 2480 MHz
Operation Mode : Bandedge
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : HORIZONTAL
Engineer : Tony.Chao
Test Chamber : 966A



Trace: 1

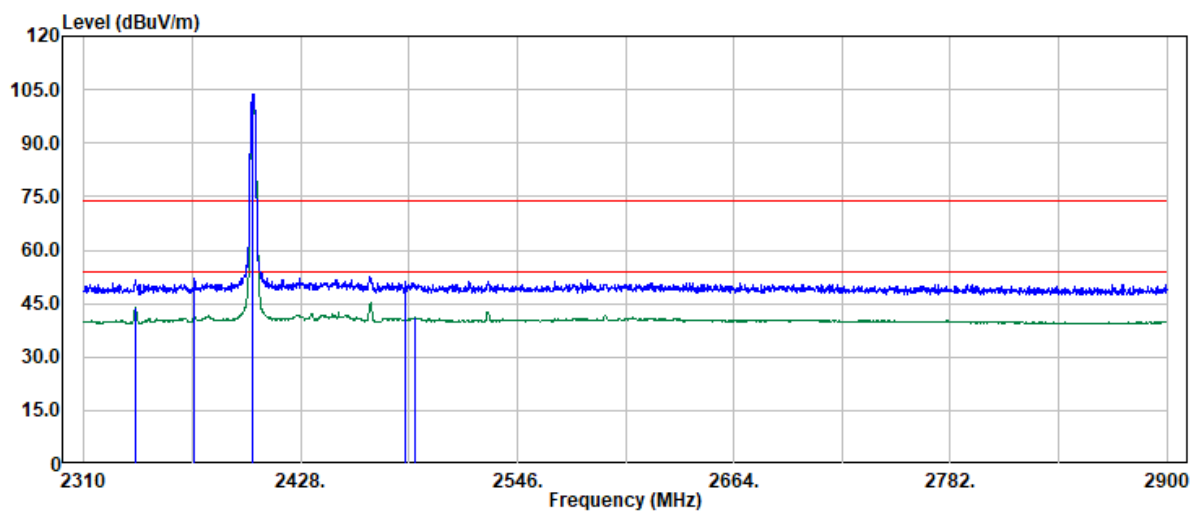
Freq	Read	Factor	Actual	Limit	Margin	Detector
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
2364.93	43.53	6.27	49.80	74.00	-24.20	Peak
2388.15	32.93	6.42	39.35	54.00	-14.65	Average
2480.00	84.49	6.78	91.27	--	--	Peak
2480.00	84.25	6.78	91.03	--	--	Average
2483.53	34.34	6.82	41.16	54.00	-12.84	Average
2484.03	43.00	6.82	49.82	74.00	-24.18	Peak

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev.: 01

Project No : TM-2412000476P
Operation Band : BLE_2M
Frequency : 2402 MHz
Operation Mode : Bandedge
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : VERTICAL
Engineer : Tony.Chao
Test Chamber : 966A



Trace: 1

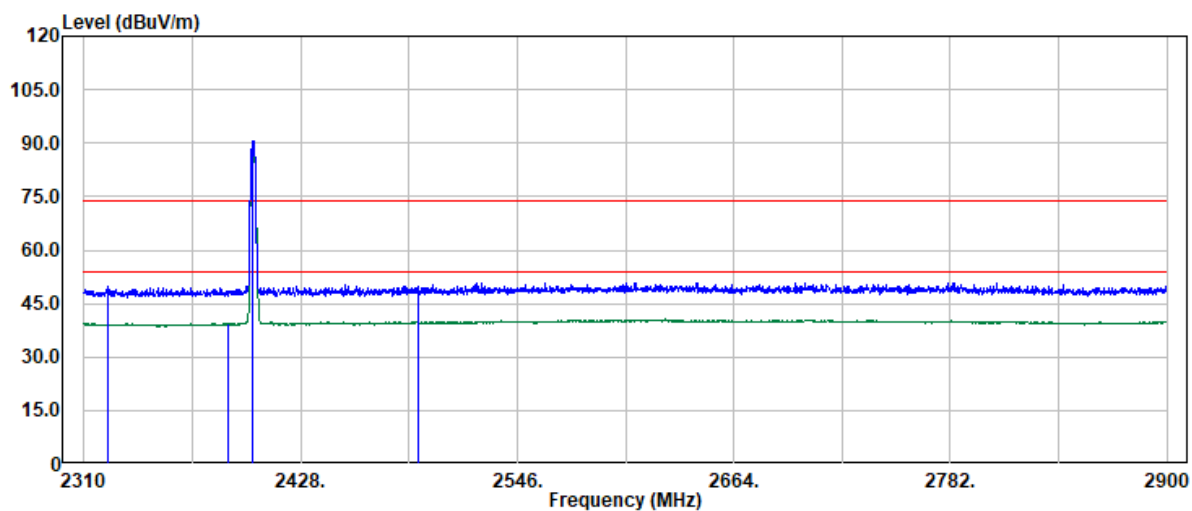
Freq	Read	Factor	Actual	Limit	Margin	Detector
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
2337.96	37.69	6.32	44.01	54.00	-9.99	Average
2370.17	45.78	6.30	52.08	74.00	-21.92	Peak
2402.00	97.21	6.49	103.70	--	--	Peak
2402.00	97.01	6.49	103.50	--	--	Average
2485.03	44.18	6.82	51.00	74.00	-23.00	Peak
2490.77	34.18	6.86	41.04	54.00	-12.96	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev: 01

Project No : TM-2412000476P
Operation Band : BLE_2M
Frequency : 2402 MHz
Operation Mode : Bandedge
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : HORIZONTAL
Engineer : Tony.Chao
Test Chamber : 966A



Trace: 1

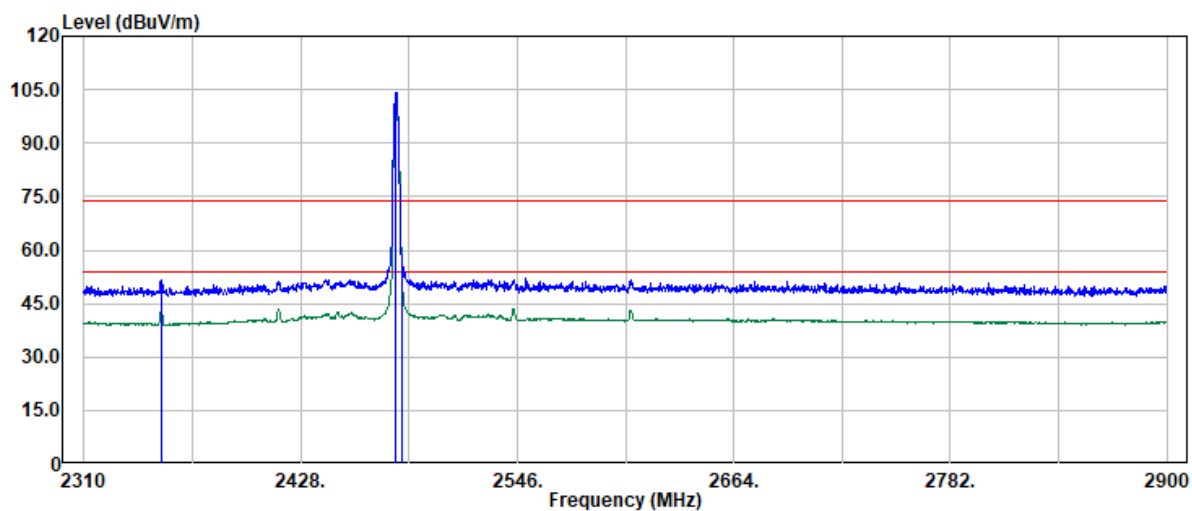
Freq	Read	Factor	Actual	Limit	Margin	Detector
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
2323.23	43.29	6.37	49.66	74.00	-24.34	Peak
2388.90	32.87	6.43	39.30	54.00	-14.70	Average
2402.00	84.01	6.49	90.50	--	--	Peak
2402.00	83.77	6.49	90.26	--	--	Average
2492.02	42.99	6.86	49.85	74.00	-24.15	Peak
2492.27	32.91	6.86	39.77	54.00	-14.23	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev: 01

Project No : TM-2412000476P
Operation Band : BLE_2M
Frequency : 2480 MHz
Operation Mode : Bandedge
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : VERTICAL
Engineer : Tony.Chao
Test Chamber : 966A



Trace: 1

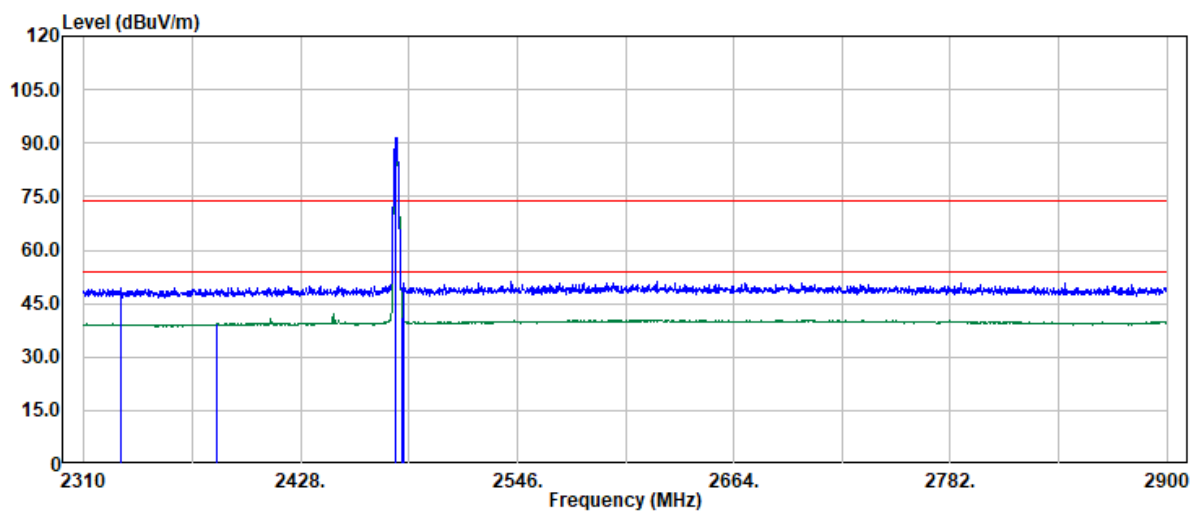
Freq	Read	Factor	Actual	Limit	Margin	Detector
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
2351.95	45.29	6.19	51.48	74.00	-22.52	Peak
2351.95	36.45	6.19	42.64	54.00	-11.36	Average
2480.00	97.44	6.78	104.22	--	--	Peak
2480.00	97.25	6.78	104.03	--	--	Average
2483.53	49.84	6.82	56.66	74.00	-17.34	Peak
2483.53	43.08	6.82	49.90	54.00	-4.10	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Project No : TM-2412000476P
Operation Band : BLE_2M
Frequency : 2480 MHz
Operation Mode : Bandedge
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : HORIZONTAL
Engineer : Tony.Chao
Test Chamber : 966A



Trace: 1

Freq	Read	Factor	Actual	Limit	Margin	Detector
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
2329.98	43.01	6.35	49.36	74.00	-24.64	Peak
2382.66	32.97	6.39	39.36	54.00	-14.64	Average
2480.00	84.63	6.78	91.41	--	--	Peak
2480.00	84.40	6.78	91.18	--	--	Average
2483.53	34.33	6.82	41.15	54.00	-12.85	Average
2483.78	43.74	6.82	50.56	74.00	-23.44	Peak

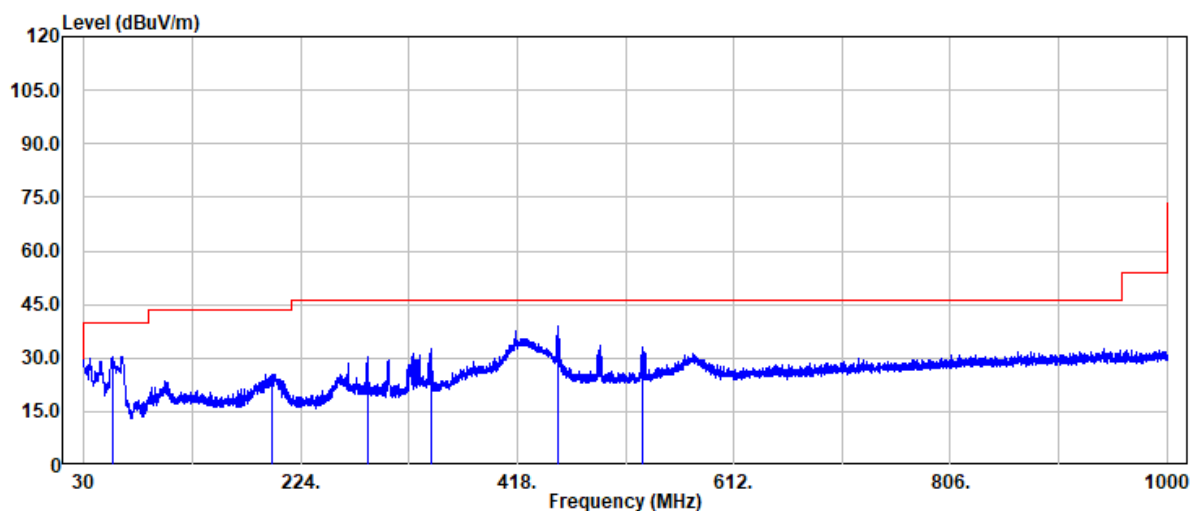
Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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TX Test Data

Project No : TM-2412000476P
Operation Band : BLE_1M
Frequency : 2480 MHz
Operation Mode : TX
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : VERTICAL
Engineer : Tony.Chao
Test Chamber : 966A



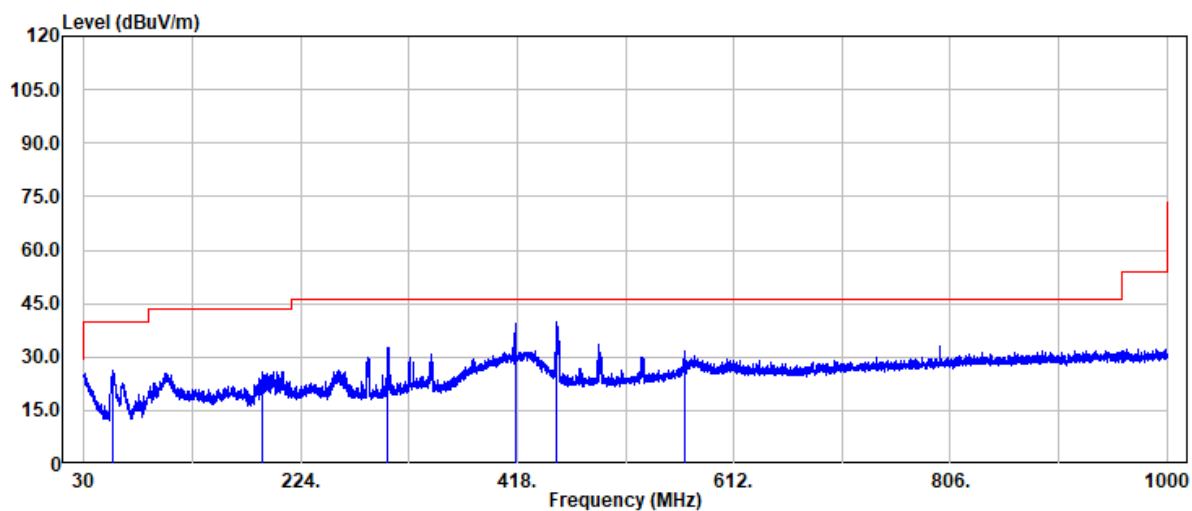
Freq	Read Level	Factor	Actual FS	Limit @3m	Margin	Detector Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
55.46	46.96	-16.55	30.41	40.00	-9.59	Peak
197.81	36.11	-10.58	25.53	43.50	-17.97	Peak
284.75	40.04	-9.55	30.49	46.00	-15.51	Peak
341.01	41.37	-8.64	32.73	46.00	-13.27	Peak
454.62	44.18	-5.30	38.88	46.00	-7.12	Peak
530.64	36.74	-3.90	32.84	46.00	-13.16	Peak

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev.: 01

Project No : TM-2412000476P
Operation Band : BLE_1M
Frequency : 2480 MHz
Operation Mode : TX
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : HORIZONTAL
Engineer : Tony.Chao
Test Chamber : 966A



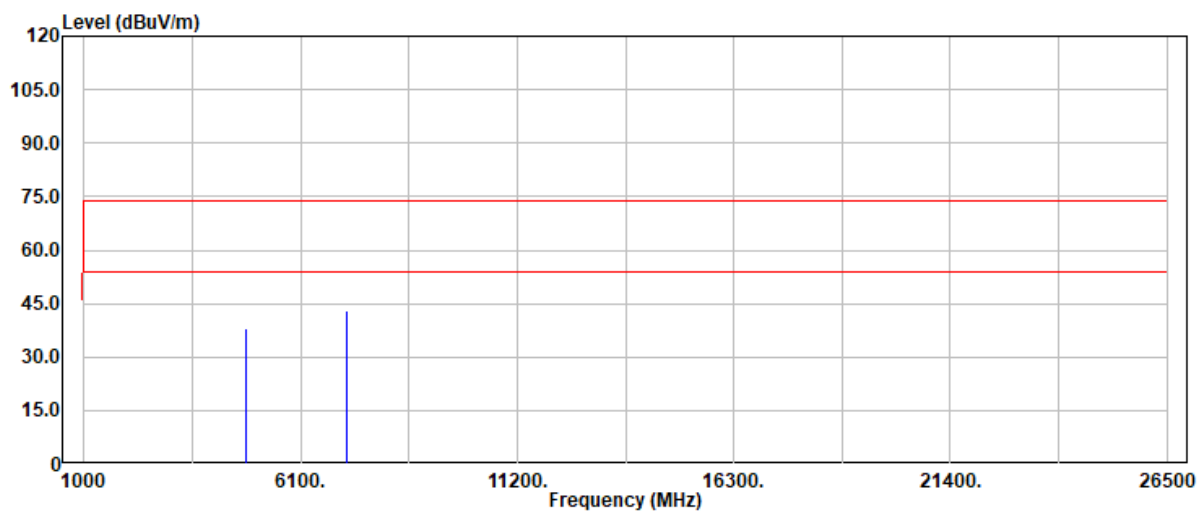
Freq	Read Level	Factor	Actual FS	Limit @3m	Margin	Detector Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
55.83	42.83	-16.50	26.33	40.00	-13.67	Peak
189.08	37.91	-11.99	25.92	43.50	-17.58	Peak
302.21	42.00	-9.29	32.71	46.00	-13.29	Peak
416.79	45.59	-6.24	39.35	46.00	-6.65	Peak
453.16	45.03	-5.32	39.71	46.00	-6.29	Peak
568.35	35.10	-3.25	31.85	46.00	-14.15	Peak

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Project No : TM-2412000476P
Operation Band : BLE_1M
Frequency : 2402 MHz
Operation Mode : TX
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : Vertical
Engineer : Tony.Chao
Test Chamber : 966A



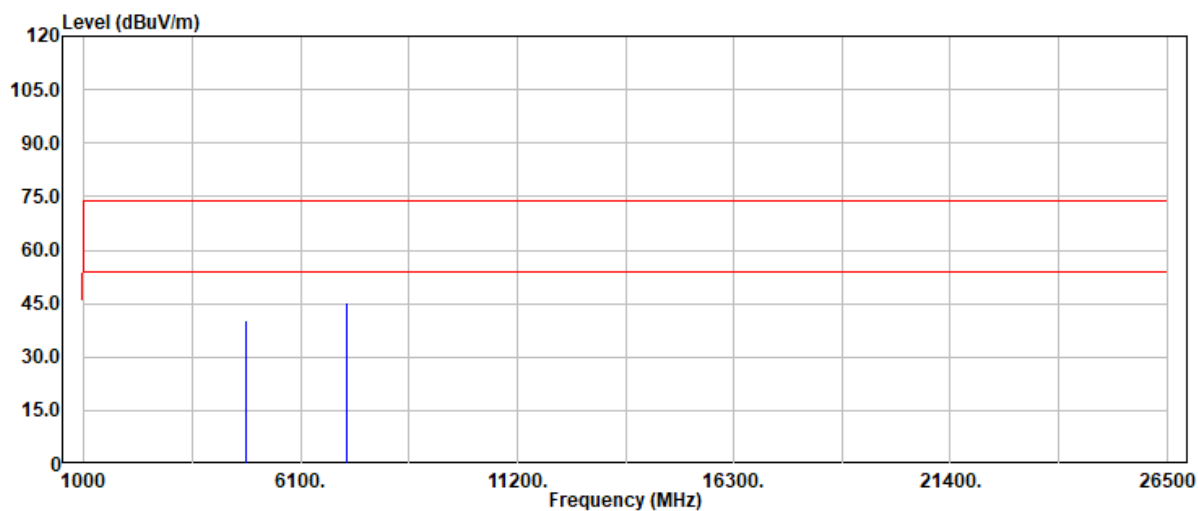
Freq	Read Level	Factor	Actual FS	Limit @3m	Margin	Detector Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
4804.00	36.12	1.98	38.10	74.00	-35.90	Peak
4804.00	29.33	1.98	31.31	54.00	-22.69	Average
7206.00	34.21	8.82	43.03	74.00	-30.97	Peak
7206.00	27.44	8.82	36.26	54.00	-17.74	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev.: 01

Project No : TM-2412000476P
Operation Band : BLE_1M
Frequency : 2402 MHz
Operation Mode : TX
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : Horizontal
Engineer : Tony.Chao
Test Chamber : 966A



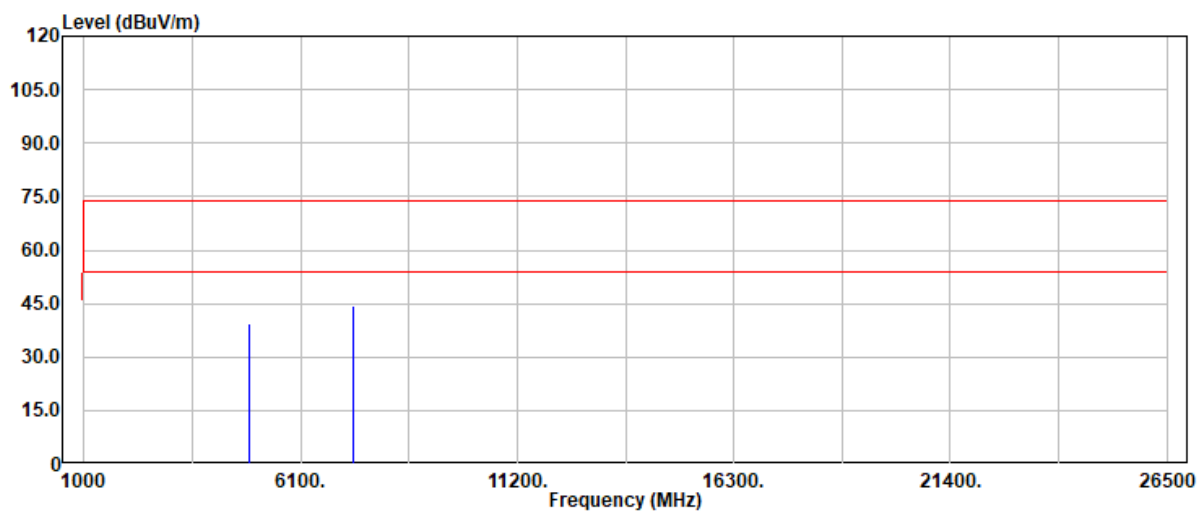
Freq	Read Level	Factor	Actual FS	Limit @3m	Margin	Detector Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
4804.00	38.50	1.98	40.48	74.00	-33.52	Peak
4804.00	29.30	1.98	31.28	54.00	-22.72	Average
7206.00	36.42	8.82	45.24	74.00	-28.76	Peak
7206.00	27.45	8.82	36.27	54.00	-17.73	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev.: 01

Project No : TM-2412000476P
Operation Band : BLE_1M
Frequency : 2442 MHz
Operation Mode : TX
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : Vertical
Engineer : Tony.Chao
Test Chamber : 966A



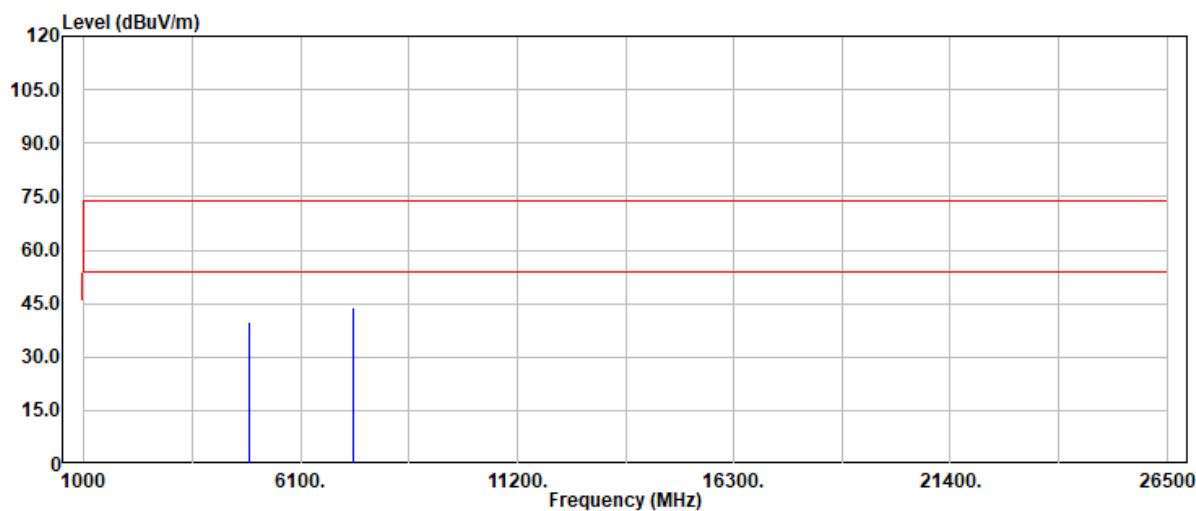
Freq	Read Level	Factor	Actual FS	Limit @3m	Margin	Detector Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
4884.00	36.67	2.69	39.36	74.00	-34.64	Peak
4884.00	29.07	2.69	31.76	54.00	-22.24	Average
7326.00	35.31	9.27	44.58	74.00	-29.42	Peak
7326.00	27.80	9.27	37.07	54.00	-16.93	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev.: 01

Project No : TM-2412000476P
Operation Band : BLE_1M
Frequency : 2442 MHz
Operation Mode : TX
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : Horizontal
Engineer : Tony.Chao
Test Chamber : 966A



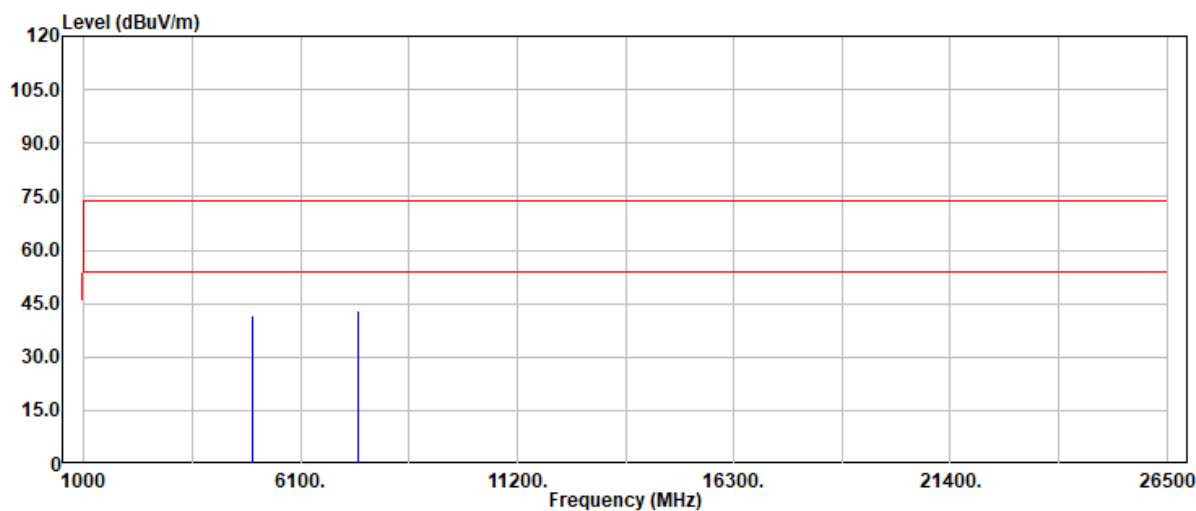
Freq	Read Level	Factor	Actual FS	Limit @3m	Margin	Detector Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
4884.00	37.03	2.69	39.72	74.00	-34.28	Peak
4884.00	29.19	2.69	31.88	54.00	-22.12	Average
7326.00	34.55	9.27	43.82	74.00	-30.18	Peak
7326.00	27.76	9.27	37.03	54.00	-16.97	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev.: 01

Project No : TM-2412000476P
Operation Band : BLE_1M
Frequency : 2480 MHz
Operation Mode : TX
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : Vertical
Engineer : Tony.Chao
Test Chamber : 966A



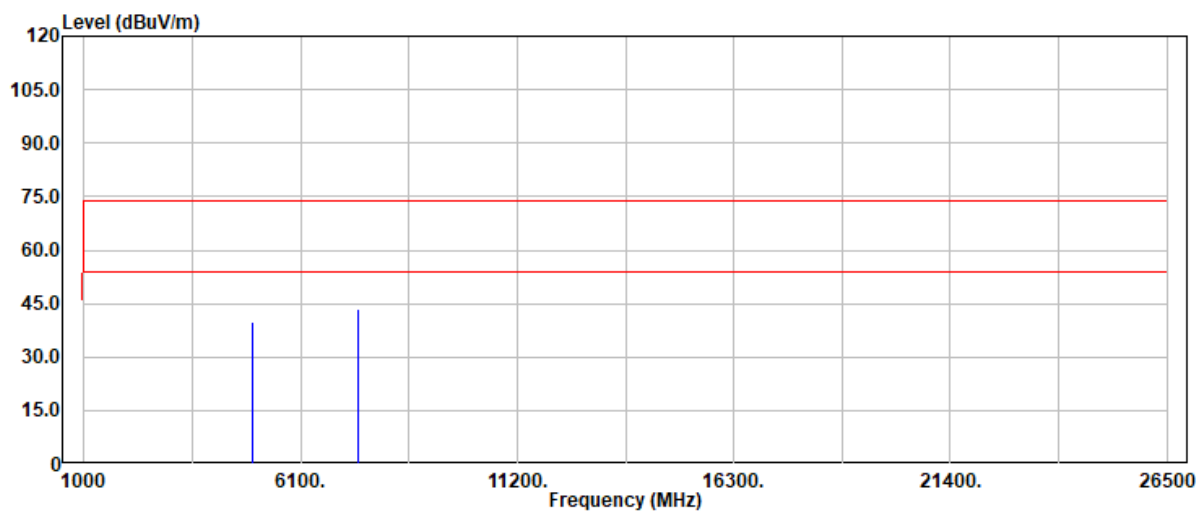
Freq	Read Level	Factor	Actual FS	Limit @3m	Margin	Detector Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
4960.00	37.89	3.71	41.60	74.00	-32.40	Peak
4960.00	28.42	3.71	32.13	54.00	-21.87	Average
7440.00	33.92	9.27	43.19	74.00	-30.81	Peak
7440.00	27.69	9.27	36.96	54.00	-17.04	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev.: 01

Project No : TM-2412000476P
Operation Band : BLE_1M
Frequency : 2480 MHz
Operation Mode : TX
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : Horizontal
Engineer : Tony.Chao
Test Chamber : 966A



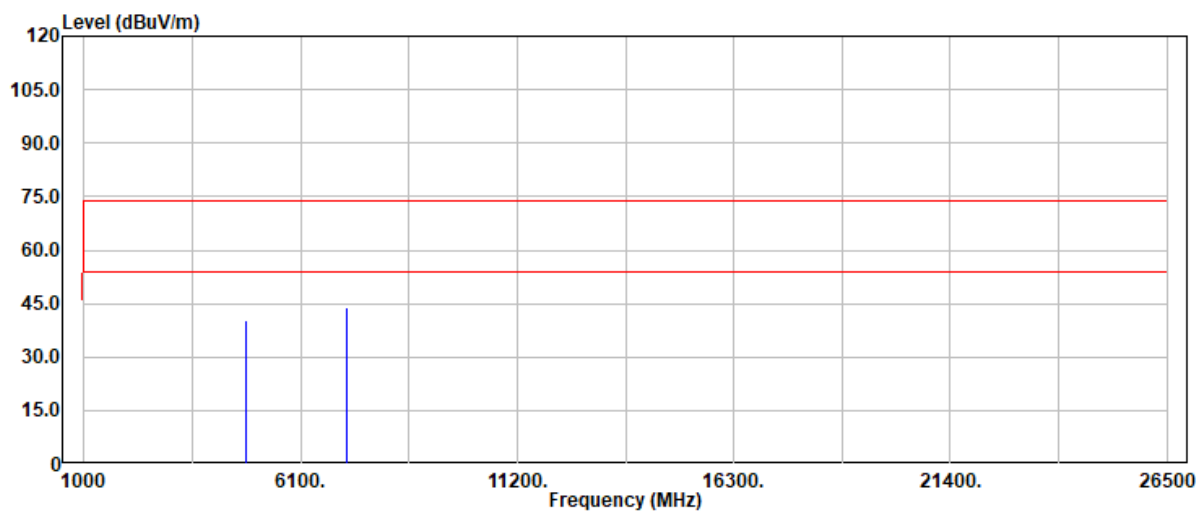
Freq	Read Level	Factor	Actual FS	Limit @3m	Margin	Detector Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
4960.00	35.93	3.71	39.64	74.00	-34.36	Peak
4960.00	28.54	3.71	32.25	54.00	-21.75	Average
7440.00	34.16	9.27	43.43	74.00	-30.57	Peak
7440.00	27.73	9.27	37.00	54.00	-17.00	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Project No : TM-2412000476P
Operation Band : BLE_2M
Frequency : 2402 MHz
Operation Mode : TX
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : Vertical
Engineer : Tony.Chao
Test Chamber : 966A



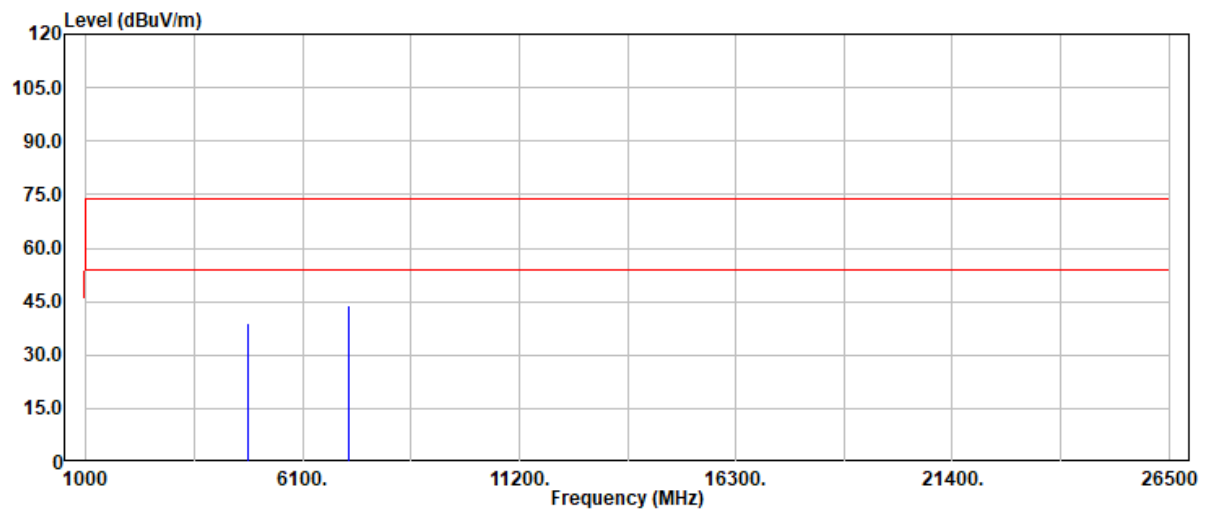
Freq	Read Level	Factor	Actual FS	Limit @3m	Margin	Detector Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
4804.00	38.26	1.98	40.24	74.00	-33.76	Peak
4804.00	29.31	1.98	31.29	54.00	-22.71	Average
7206.00	34.94	8.82	43.76	74.00	-30.24	Peak
7206.00	27.52	8.82	36.34	54.00	-17.66	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev.: 01

Project No : TM-2412000476P
Operation Band : BLE_2M
Frequency : 2402 MHz
Operation Mode : TX
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : Horizontal
Engineer : Tony.Chao
Test Chamber : 966A



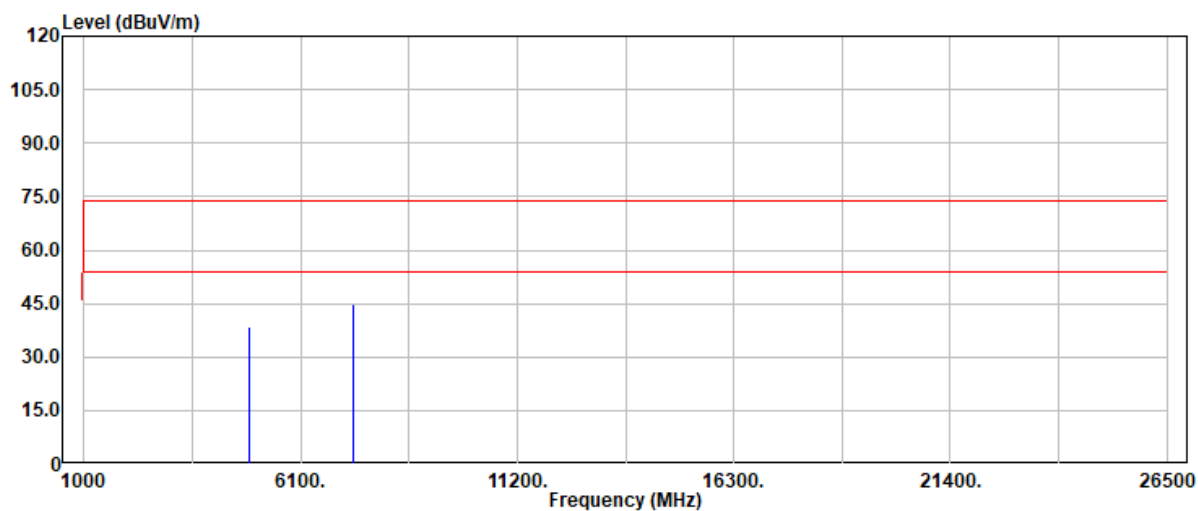
Freq	Read Level	Factor	Actual FS	Limit @3m	Margin	Detector Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
4804.00	36.95	1.98	38.93	74.00	-35.07	Peak
4804.00	29.27	1.98	31.25	54.00	-22.75	Average
7206.00	34.96	8.82	43.78	74.00	-30.22	Peak
7206.00	27.49	8.82	36.31	54.00	-17.69	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Project No : TM-2412000476P
Operation Band : BLE_2M
Frequency : 2442 MHz
Operation Mode : TX
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : Vertical
Engineer : Tony.Chao
Test Chamber : 966A



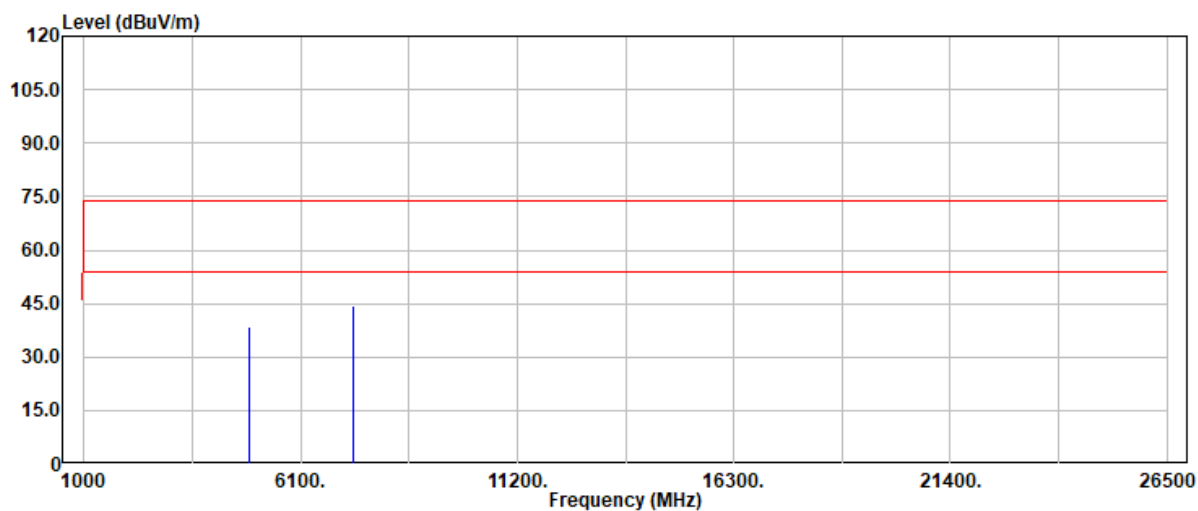
Freq	Read Level	Factor	Actual FS	Limit @3m	Margin	Detector Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
4884.00	35.64	2.69	38.33	74.00	-35.67	Peak
4884.00	29.03	2.69	31.72	54.00	-22.28	Average
7326.00	35.38	9.27	44.65	74.00	-29.35	Peak
7326.00	27.81	9.27	37.08	54.00	-16.92	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Project No : TM-2412000476P
Operation Band : BLE_2M
Frequency : 2442 MHz
Operation Mode : TX
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : Horizontal
Engineer : Tony.Chao
Test Chamber : 966A



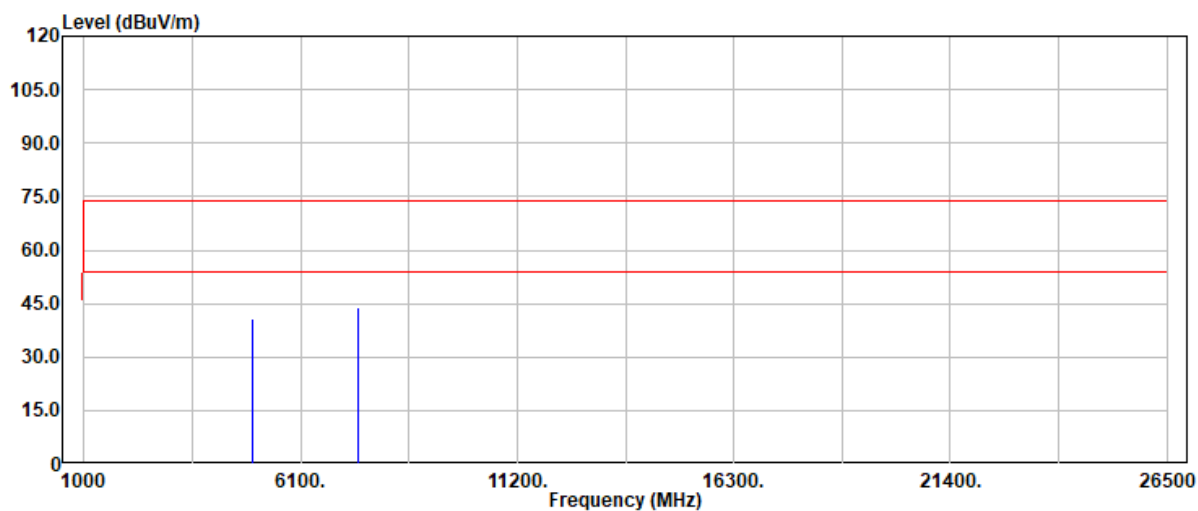
Freq	Read Level	Factor	Actual FS	Limit @3m	Margin	Detector Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
4884.00	36.01	2.69	38.70	74.00	-35.30	Peak
4884.00	29.09	2.69	31.78	54.00	-22.22	Average
7326.00	35.08	9.27	44.35	74.00	-29.65	Peak
7326.00	27.87	9.27	37.14	54.00	-16.86	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev.: 01

Project No : TM-2412000476P
Operation Band : BLE_2M
Frequency : 2480 MHz
Operation Mode : TX
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : Vertical
Engineer : Tony.Chao
Test Chamber : 966A



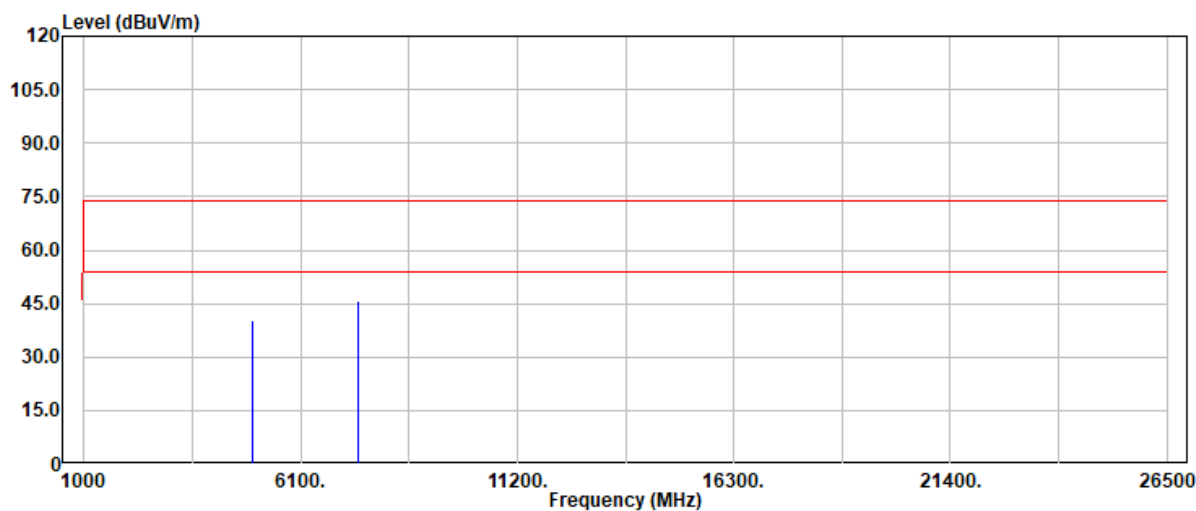
Freq	Read Level	Factor	Actual FS	Limit @3m	Margin	Detector Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
4960.00	36.94	3.71	40.65	74.00	-33.35	Peak
4960.00	28.55	3.71	32.26	54.00	-21.74	Average
7440.00	34.50	9.27	43.77	74.00	-30.23	Peak
7440.00	27.84	9.27	37.11	54.00	-16.89	Average

Project No: TM-2412000476P
Report No.: TMWK2412004835KR

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Rev.: 01

Project No : TM-2412000476P
Operation Band : BLE_2M
Frequency : 2480 MHz
Operation Mode : TX
EUT Pol : H
Setting : 8

Test Date : 2025-02-08
Temp./Humi. : 24.3/57
Antenna Pol. : Horizontal
Engineer : Tony.Chao
Test Chamber : 966A



Freq	Read Level	Factor	Actual FS	Limit @3m	Margin	Detector Mode
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	PK/QP/AV
4960.00	36.52	3.71	40.23	74.00	-33.77	Peak
4960.00	28.51	3.71	32.22	54.00	-21.78	Average
7440.00	36.32	9.27	45.59	74.00	-28.41	Peak
7440.00	27.78	9.27	37.05	54.00	-16.95	Average

- End of Test Report -