TEST REPORT

Applicant Name:	LEEDARSON LIGHTING CO., LTD.
Address:	Xingda Road, Xingtai Industrial Zone, Changtai County, Zhangzhou, Fujian, China
Report Number:	2504Z39804E-RFA-A2
FCC ID:	2AB2Q-LA02305
IC:	10256A-LA02305

Test Standard (s)

FCC PART 15.247
RSS-GEN ISSUE 5, FEBRUARY 2021 AMENDMENT 2
RSS-247 ISSUE 4, JULY 24, 2025

Sample Description

Product Name:	Wireless Module
Model No.:	LA02305
Trade Mark:	LEEDARSON
Date Received:	2025-11-06
Report Date:	2025-12-18

Test Result:	The EUT complied with the standards above.

Prepared and Checked By:

Amanda Wei

Amanda Wei
EMC Engineer

Approved By:

Bob. Liao

Bob.Liao
EMC Engineer

TABLE OF CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
Rev.00	2504Z39804E-RFA-A2	Class II Permissive Change Report	2025-12-18

Note#: This is Class II permissive change application based on the original device(model: LA02305, FCC ID: 2AB2Q-LA02305, IC: 10256A-LA02305), which was tested by Bay Area Compliance Laboratories Corp. (Dongguan).

The change between the original equipment and the current equipment is stated and guaranteed by the applicant, as following:

1. Add an additional option for the external antenna.
2. Upgraded Standard:
   "RSS-247 Issue 3, August 2023" to "RSS-247 Issue 4, July 24, 2025"
   "ANSI C63.10-2013" to "ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+ErratatoC63.10a-2024▲"

Per Spot check with RF output power, the RF parameters are identical with the original device. The RF data from the original report conforms to the new standards. Therefore, AC line conducted emissions/Radiated Spurious Emissions/ Conducted Spurious Emission was tested based on the change.

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product Name	Wireless Module
Tested Model	LA02305
HVIN	LA02305W
Voltage Range#	DC 3.3V

Frequency Range	BLE 1M: 2402-2480MHz
Data Rate	1Mbps
Maximum Conducted Output Power(Peak) (actual test result)	8.78 dBm
Modulation Technique	GFSK
Antenna Specification#	External Antenna, Gain: 2.89 dBi (It is provided by the applicant.)
Sample Serial Number	For CE&RSE Test: 3CFU-3 For RF Conducted Test: 3CFU-2 (Assigned by ATC, Shenzhen)
Sample/EUT Status	Good condition

Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commission rules, RSS-GEN Issue 5, Feb. 2021 Amendment 2 and RSS-247 Issue 4, July 24, 2025 of the Innovation, Science and Economic Development Canada rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 rules. And RSS-GEN Issue 5, Feb. 2021 Amendment 2 and RSS-247 Issue 4, July 24, 2025.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2020+Cor. 1-2023+ C63.10a-2024+Errata to C63.10a-2024▲, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices, KDB 558074 D01 15.247 Meas Guidance v05r02 and RSS-GEN Issue 5, Feb. 2021Amendment 2 and RSS-247 Issue 4, July 24, 2025.

Unless otherwise stated there are no any additions to, deviations, or exclusions from the method.

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the Floor 1, KuMaKe Building, Dongzhou Community, Guangming Street, Guangming District, Shenzhen, Guangdong, China.

Accredited by American Association for Laboratory Accreditation (A2LA).The Certificate Number is 4297.01.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements. The Registration Number is 30241.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5 %
RF Frequency		$0.064*10^{-7}$
RF output power, conducted		0.3 dB
Unwanted Emission, conducted		1.2 dB
AC Power Lines Conducted Emissions		2.7 dB
Radiated Spurious Emissions	9kHz - 30MHz	2.1 dB
	30MHz - 1GHz	4.3 dB
	1GHz - 18GHz	4.9 dB
	18GHz - 26.5GHz	5.2 dB
Temperature		1 ℃
Humidity		7 %
Supply voltages		0.4 %

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user).

For BLE, 40 channels are provided to testing:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

EUT was tested with Channel 0, 19 and 39.

EUT Exercise Software and Power Level#

Exercise Software:	EspRFtestTool
Power Level:	8

Note: The information in the above table is provided by the applicant.

Special Accessories

No special accessory.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

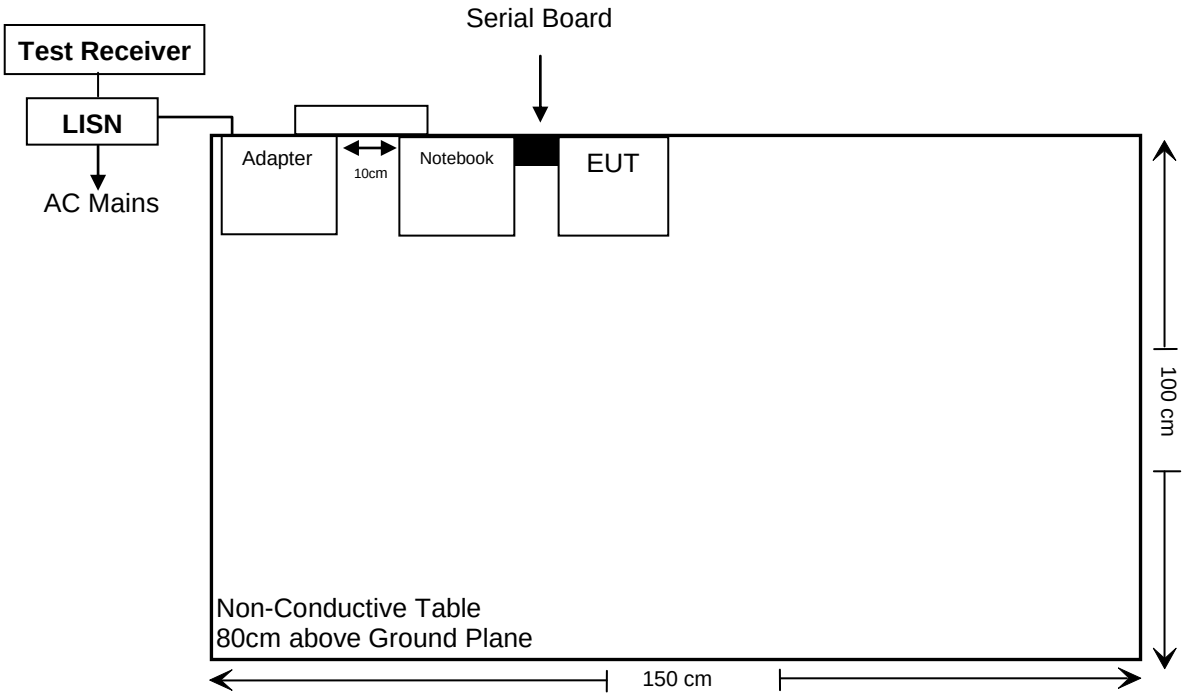
Manufacturer	Description	Model	Serial Number
Lenovo	Notebook	ThinkPad T470	PF-17P19A
Unknown	Serial Board	Unknown	Unknown

External I/O Cable

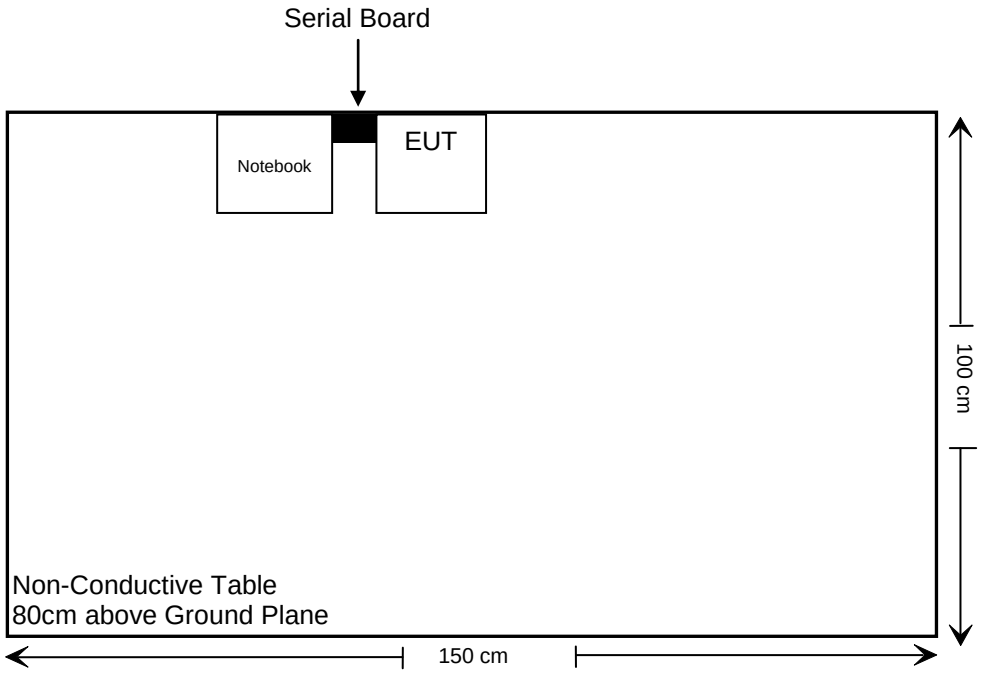
Cable Description	Shielding Type	Length (m)	From Port	To
USB Cable	NO	1.3	Serial Board	Notebook
DC Power Cable	NO	1.5	Notebook	Adapter

Block Diagram of Test Setup

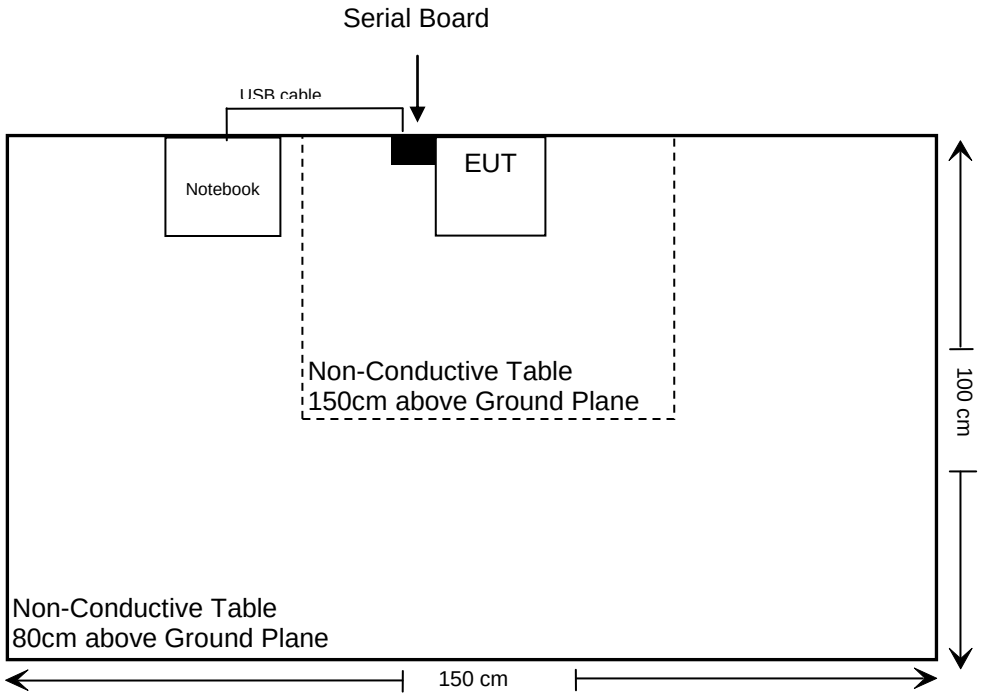
For Conducted Emission:



For Radiated Emission Below 1GHz:



For Radiated Emission Above 1GHz:



SUMMARY OF TEST RESULTS

FCC Rules	ISED Rules	Description of Test	Result
§15.203	RSS-Gen §6.8	Antenna Requirement	Compliance
§15.207(a)	RSS-Gen §8.8	AC Line Conducted Emissions	Compliance
§15.205, §15.209 §15.247(d)	RSS-Gen §8.10 RSS-247 §6.6	Radiated Spurious Emissions	Compliance
§15.247(a)(2)	RSS-Gen §6.7 RSS-247 §6.3.1(a)	6 dB Emission Bandwidth & Occupied Bandwidth	See Note
§15.247(b)(3)	RSS-247 §6.3.2	Maximum Conducted Output Power	Reporting
§15.247(d)	RSS-247 §6.6	Conducted Spurious Emission	Compliance
§15.247(e)	RSS-247 §6.3.1(b)	Power Spectral Density	See Note

Note: The changes not affect this item, the test data and related details for them please refer to the original report: XMTN1240328-16268E-RF-00AA1.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emissions Test					
Rohde & Schwarz	EMI Test Receiver	ESCI	100784	2025/09/17	2026/09/16
Rohde & Schwarz	L.I.S.N.	ENV216	101314	2025/09/17	2026/09/16
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2025/09/18	2026/09/17
Rohde & Schwarz	Pulse Limiter	ESH3-Z2	100312	2025/05/30	2026/05/29
Unknown	RF Coaxial Cable	No.17	N0350	2025/05/30	2026/05/29
Test Software: e3 191218 (V9)					
Radiated Spurious Emission Test (Below 1GHz)					
Rohde & Schwarz	Test Receiver	ESR	102725	2025/09/18	2026/09/17
SONOMA INSTRUMENT	Amplifier	310N	186131	2025/03/26	2026/03/25
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2024/08/08	2027/08/07
Unknown	RF Coaxial Cable	No.12	N040	2025/05/30	2026/05/29
Unknown	RF Coaxial Cable	No.13	N300	2025/05/30	2026/05/29
Unknown	RF Coaxial Cable	No.14	N800	2025/05/30	2026/05/29
BACL	LOOP ANTENNA	1313-1A	3110711	2024/01/16	2027/01/15
Test Software: e3 191218 (V9)					
Radiated Spurious Emission Test (Above 1GHz)					
Rohde & Schwarz	Spectrum Analyzer	FSV40	101949	2025/09/17	2026/09/16
Decentest	Filter Switch Unit	DT7220FSU	DQ77927	2025/09/18	2026/09/17
Decentest	Multiplex Switch Test Control Set	DT7220CSU	DQ77924	2025/09/18	2026/09/17
A.H. Systems, inc.	Preamplifier	PAM-0118	226	2025/03/20	2026/03/19
Schwarzbeck	Horn Antenna	BBHA9120D	837	2023/02/22	2026/02/21
Unknown	RF Coaxial Cable	No.10	N050	2025/05/30	2026/05/29
Unknown	RF Coaxial Cable	No.11	N1000	2025/05/30	2026/05/29
Unknown	RF Coaxial Cable	No.19	N500	2025/05/30	2026/05/29
Schwarzbeck	HORN ANTENNA	BBHA9170	9170-359	2023/12/12	2026/12/11
BACL	Amplifier	BACL-1313-A1 840	4012521	2025/05/30	2026/05/29
Unknown	RF Coaxial Cable	No.15	N600	2025/05/30	2026/05/29
Unknown	RF Coaxial Cable	No.16	N650	2025/05/30	2026/05/29
Test Software: e3 191218 (V9)					
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSV-40	101948	2025/09/18	2026/09/17
WEINSCHEL	10dB Attenuator	5324	AU 3842	2025/03/26	2026/03/25
Test Software: JDAutoTestSystem V1.0.0					

*** Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

ANTENNA REQUIREMENT

Applicable Standard

According to FCC § 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.
c. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to RSS-GEN §6.8:

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

For licence-exempt equipment with detachable antennas, the user manual shall also contain the following notice in a conspicuous location:

This radio transmitter [enter the device's ISED certification number] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.

Antenna Connector Construction

The tested device (EUT) has two antenna configurations. One uses the built-in PCB antenna, and the other uses a PCB antenna connected via an extension cable. The built-in PCB antenna is an internal antenna arrangement permanently installed on the EUT. The external PCB antenna with unique (non-standard) connector, which is connected via an extension cable, is an external antenna arrangement and is connected to the EUT through a unique coupling method. Please refer to the photo of the EUT. Internal and external antennas meet fulfill the requirement of this section.

/	Type	Antenna Gain#	Impedance
External antenna	PCB	2.89dBi	50Ω
Internal antenna	PCB	4.0dBi	50Ω

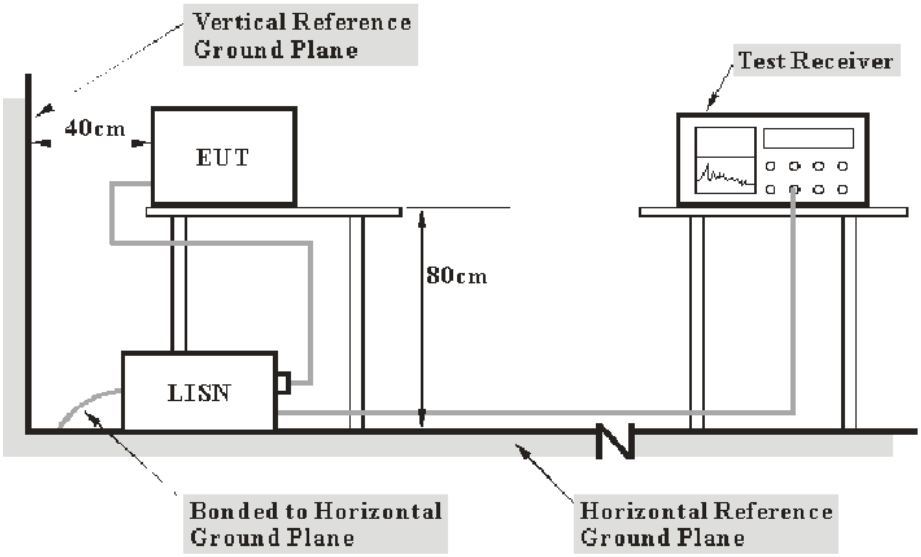
Result: Compliance.

AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a). RSS-GEN §8.8

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2020 measurement procedure. The specification used was with the FCC Part 15.207 and RSS-Gen limits.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Calculation

The factor is calculated by adding LISN VDF (Voltage Division Factor) and Cable Loss. The basic equation is as follows:

Factor = LISN VDF + Cable Loss + 10dB Attenuation(Limiter)

The "**Over limit**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an over limit of -7 dB means the emission is 7 dB below the limit. The equation for calculation is as follows:

Over Limit = Level - Limit
Level = Read Level + Factor

Test Data

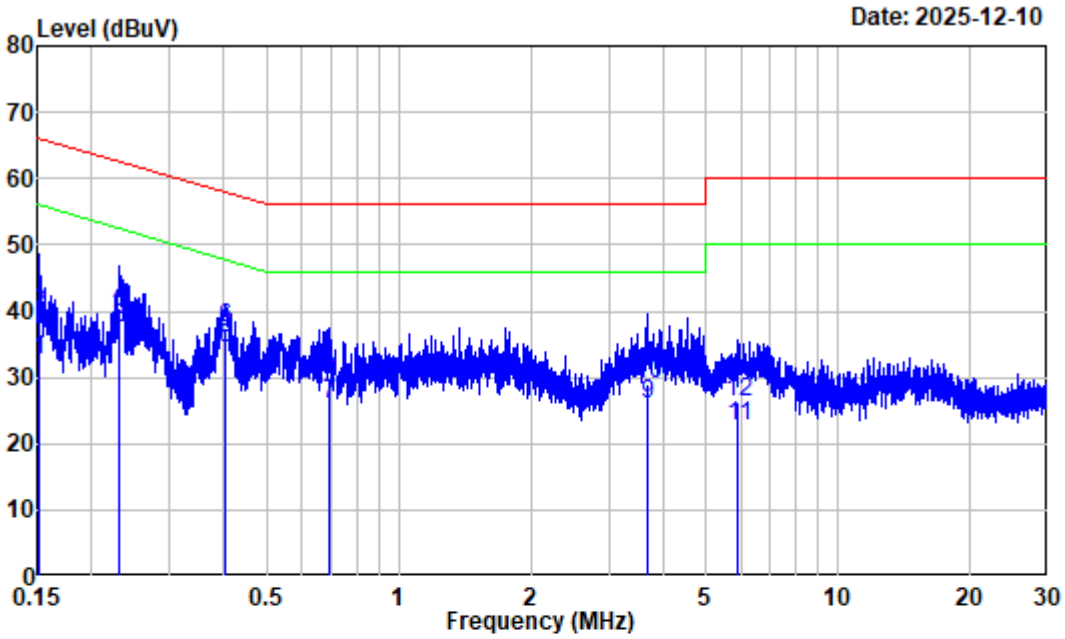
Environmental Conditions

Temperature:	24.0 ℃
Relative Humidity:	52 %
ATM Pressure:	100.9 kPa
Test Engineer:	Jason Fan
Test Date:	2025-12-10
EUT Operation Mode:	BLE Transmitting

Test Result: Compliance, please refer to the below data.

Note: The maximum output power mode and channel: BLE 1M Middle Channel 2440MHz was tested.

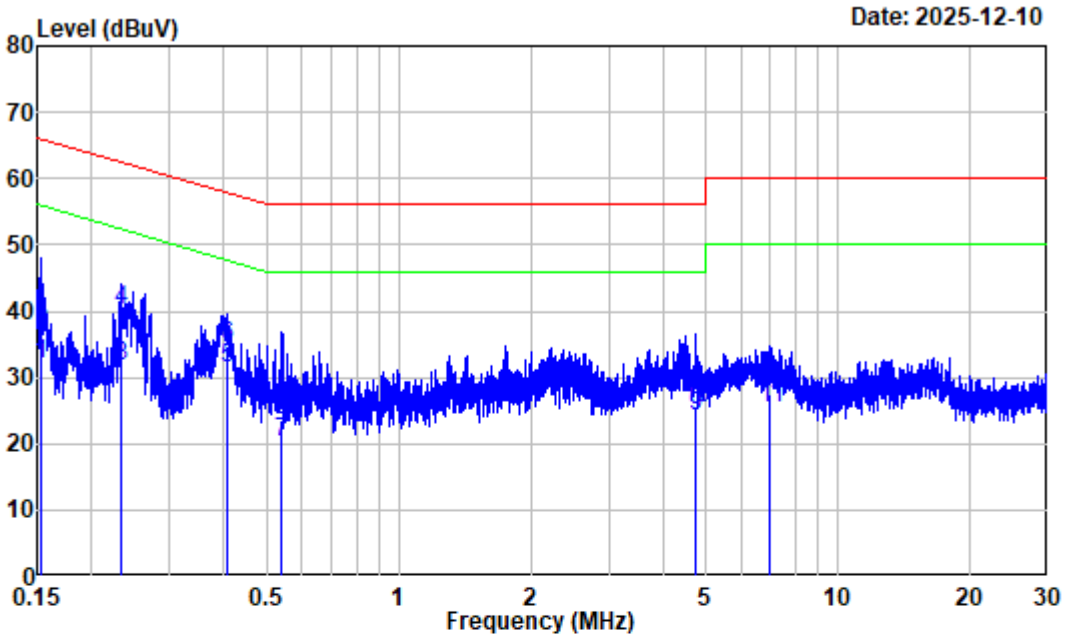
AC 120V/60Hz, Line:



Site : Shielding Room
Condition : Line
Job No. : 2504Z39804E-RFA2
Test Mode : BLE Transmitting
Tester : Jason Fan
Receiver Setting: IF B/W 9kHz PK/AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.152	19.76	12.77	32.53	55.89	-23.36	Average
2	0.152	19.76	19.71	39.47	65.89	-26.42	QP
3	0.230	19.88	17.69	37.57	52.44	-14.87	Average
4	0.230	19.88	20.67	40.55	62.44	-21.89	QP
5	0.402	19.87	14.52	34.39	47.80	-13.41	Average
6	0.402	19.87	17.58	37.45	57.80	-20.35	QP
7	0.695	19.92	5.89	25.81	46.00	-20.19	Average
8	0.695	19.92	9.79	29.71	56.00	-26.29	QP
9	3.676	21.02	4.83	25.85	46.00	-20.15	Average
10	3.676	21.02	8.05	29.07	56.00	-26.93	QP
11	5.921	21.21	1.38	22.59	50.00	-27.41	Average
12	5.921	21.21	4.98	26.19	60.00	-33.81	QP

AC 120V/60Hz, Neutral:



Site : Shielding Room
Condition : Neutral
Job No. : 2504Z39804E-RFA2
Test Mode : BLE Transmitting
Tester : Jason Fan
Receiver Setting: IF B/W 9kHz PK/AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.153	19.92	12.04	31.96	55.85	-23.89	Average
2	0.153	19.92	16.96	36.88	65.85	-28.97	QP
3	0.233	19.93	11.72	31.65	52.36	-20.71	Average
4	0.233	19.93	20.27	40.20	62.36	-22.16	QP
5	0.405	19.91	11.55	31.46	47.74	-16.28	Average
6	0.405	19.91	14.78	34.69	57.74	-23.05	QP
7	0.540	19.96	0.31	20.27	46.00	-25.73	Average
8	0.540	19.96	3.45	23.41	56.00	-32.59	QP
9	4.728	21.16	2.91	24.07	46.00	-21.93	Average
10	4.728	21.16	4.20	25.36	56.00	-30.64	QP
11	6.992	21.25	4.18	25.43	50.00	-24.57	Average
12	6.992	21.25	6.15	27.40	60.00	-32.60	QP

RADIATED SPURIOUS EMISSIONS

Applicable Standard

FCC §15.205; §15.209; §15.247(d)

RSS-GEN §8.10 & RSS-247 §6.6

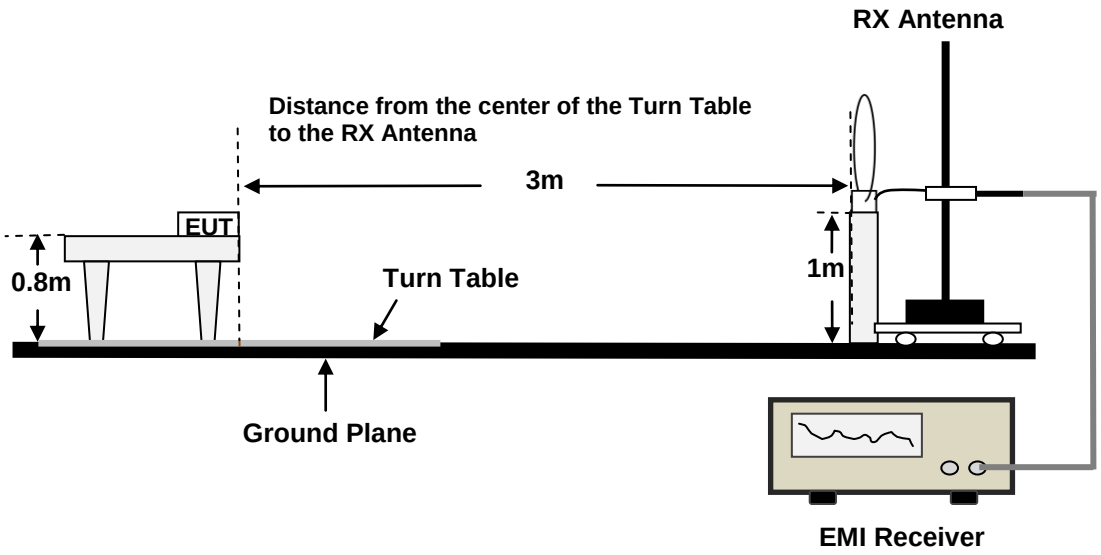
Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:(a) The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287, Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD).(b) Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.(c) Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum device, digitally modulated device, or hybrid system 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 6.3.2, 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.

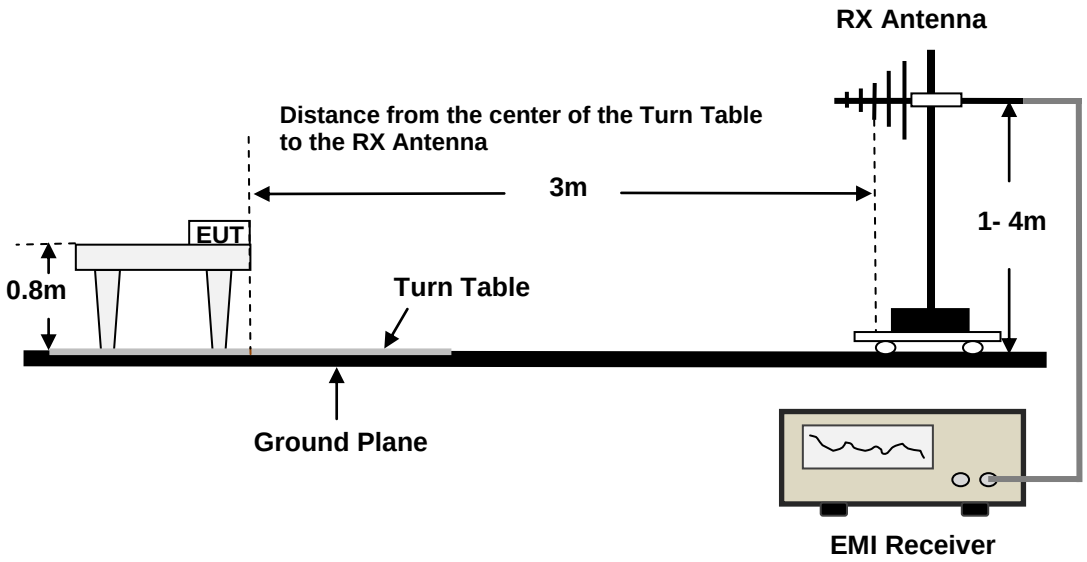
For the spurious emission below 30MHz, the unit of final result on the test plots are dBμV/m, so the limit should be added by 51,5 dB from dBμA/m to dBμV/m.

EUT Setup

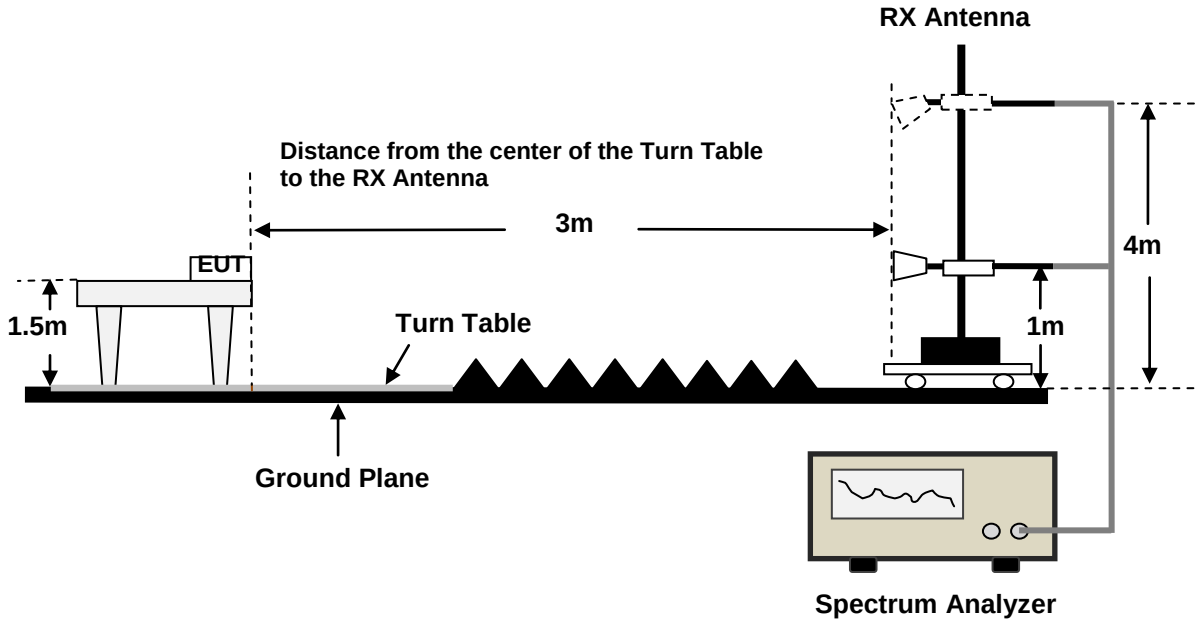
9kHz - 30MHz:



30MHz - 1GHz:



Above 1GHz:



The radiated emission performed in the 3 meters, using the setup accordance with the ANSI C63.10-2020. The specification used was the FCC 15.209, FCC 15.247, RSS-GEN and RSS-247 limits.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9kHz to 25GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

9kHz - 1000MHz:

Frequency Range	Measurement	RBW	Video B/W	IF B/W	Detector
9kHz - 150kHz	PK	0.3kHz	1kHz	/	PK
	QP/AV	/	/	200Hz	QP/AV
150kHz - 30MHz	PK	10kHz	30kHz	/	PK
	QP/AV	/	/	9kHz	QP/AV
30MHz - 1000MHz	PK	100kHz	300kHz	/	PK
	QP	/	/	120kHz	QP

1GHz - 25GHz:
Pre-scan:

Measurement	Detector	Duty cycle	RBW	Video B/W
PK	Peak	Any	1MHz	3MHz
Ave.	Peak	>98%	1MHz	3kHz/5kHz
		<98%	1MHz	≥1/T, no less than 3kHz

Final measurement for emission identified during the pre-scan:

Measurement	Detector	Duty cycle	RBW	Video B/W
PK	Peak	Any	1MHz	3MHz
Ave.	Peak	>98%	1MHz	10Hz
		<98%	1MHz	≥1/T

Note 1: T is minimum transmission duration
Note 2: The 1GHz-18GHz testing use the notch filter.
Note 3: The band edge testing use 10dB attenuator.
Note 4: The filters and attenuators are all integrated within the filter switch unit.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

According to ANSI C63.10-2020, 9.2: For field strength measurements made at other than the distance specified by the limit, extrapolate the measured field strength to the field strength at the distance specified by the limit using an inverse distance correction factor (20 dB/decade of distance).

$$E_{SpecLimit} = E_{Meas} + 20\log\left(\frac{D_{Meas}}{D_{SpecLimit}}\right)$$

where

$E_{\mathrm{SpecLimit}}$ is the field strength of the emission at the distance specified by the limit, in dBuV/m
E_{Meas} is the field strength of the emission at the measurement distance, in dBuV/m
D_{Meas} is the measurement distance, in m
$D_{\mathrm{SpecLimit}}$ is the distance specified by the limit, in m

Note 1: If the maximized peak measured value is under the QP/Average limit by more than 6dB, then it is unnecessary to perform an QP/Average measurement.
Note 2: For above 1GHz, the test result of peak was 20dB below to the limit of peak, which can be compliant to the average limit, so just peak value was recorded.

Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

Factor = Antenna Factor + Cable Loss - Amplifier Gain

The "**Over Limit/Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an over limit/margin of -7dB means the emission is 7dB below the limit. The equation for calculation is as follows:

Over Limit/Margin = Level / Corrected Amplitude – Limit
Level / Corrected Amplitude = Read Level + Factor

Test Data

For Radiated Spurious Emissions, after pre-scan testing in the X, Y and Z axes of orientation, the worst case as setup photos was recorded.

9kHz-1GHz

Environmental Conditions

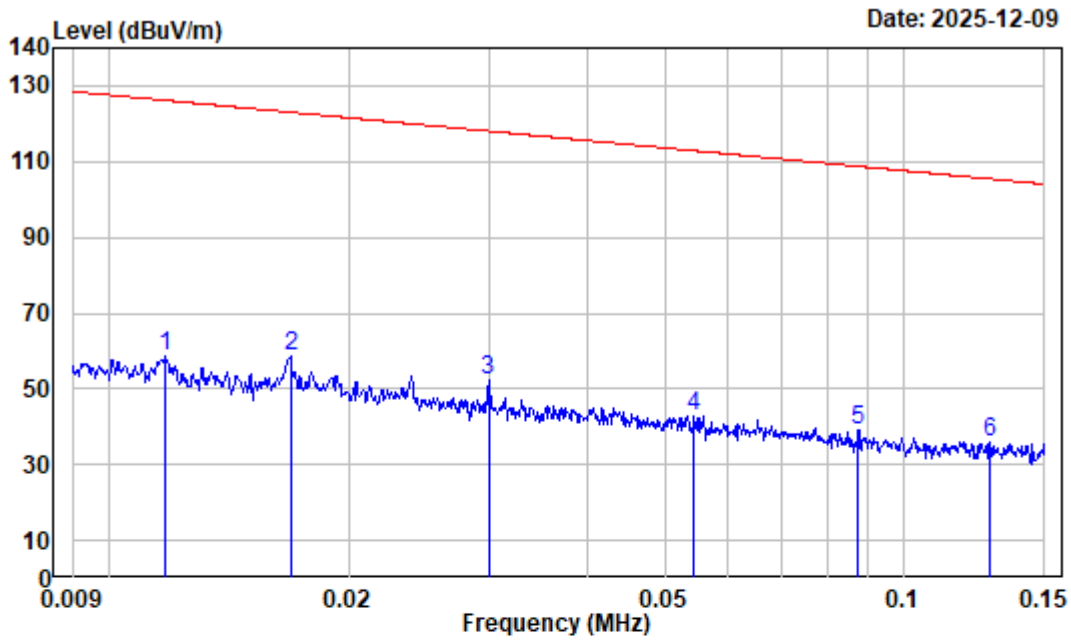
Temperature:	24.2 ℃
Relative Humidity:	50 %
ATM Pressure:	100.9 kPa
Test Engineer:	Colin Lin
Test Date:	2025-12-9
EUT Operation Mode:	BLE Transmitting

Test Result: Compliance, please refer to the below data.

Note 1: The Loop Antenna were tested in parallel, perpendicular, and ground-parallel. The worst orientation was parallel and the data was recorded in report.

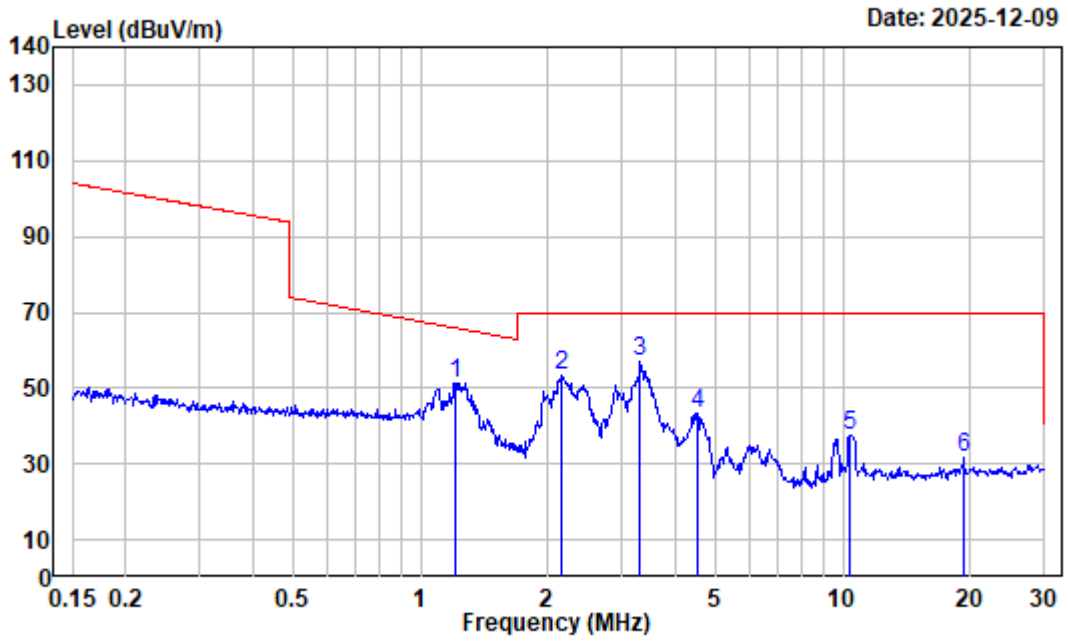
Note 2: The maximum output power mode and channel: BLE 1M Middle Channel 2440MHz was tested.

9kHz~30MHz:



Site : chamber
Condition : 3m
Job No. : 2504Z39804E-RFA2
Polarization : Parallel Tester: Colin Lin
Test Mode : BLE Transmitting
Receiver Setting: RBW:300Hz VBW:1kHz

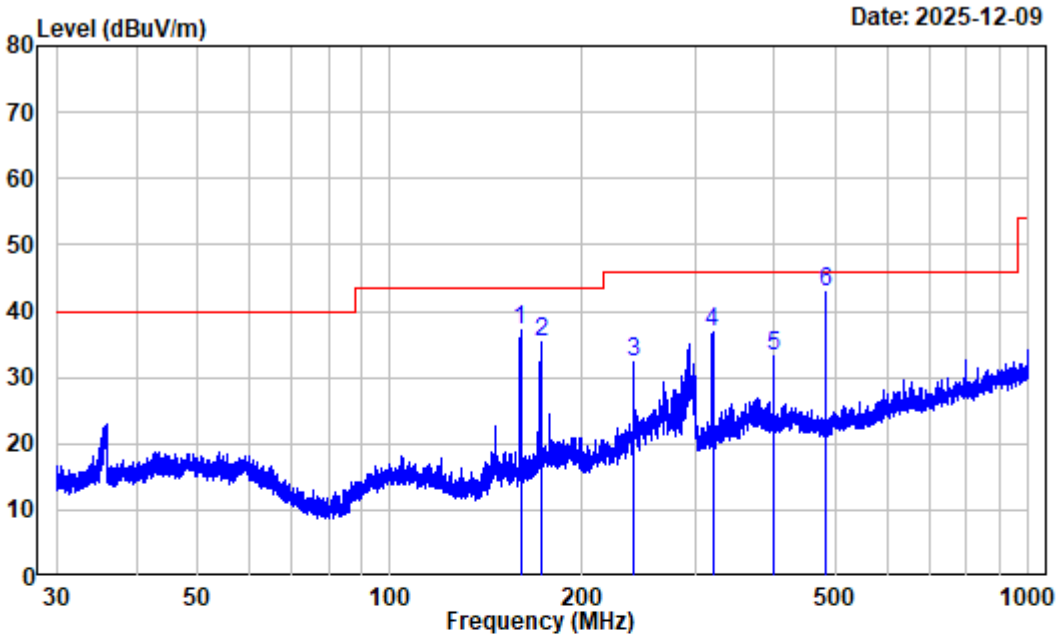
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.012	35.03	23.55	58.58	126.17	-67.59	Peak
2	0.017	32.75	25.74	58.49	123.02	-64.53	Peak
3	0.030	26.95	25.28	52.23	118.06	-65.83	Peak
4	0.054	22.17	20.59	42.76	112.88	-70.12	Peak
5	0.087	17.75	21.47	39.22	108.77	-69.55	Peak
6	0.128	15.18	20.94	36.12	105.48	-69.36	Peak



Site : chamber
Condition : 3m
Job No. : 2504Z39804E-RFA2
Polarization : Parallel Tester: Colin Lin
Test Mode : BLE Transmitting
Receiver Setting: RBW:10kHz VBW:30kHz

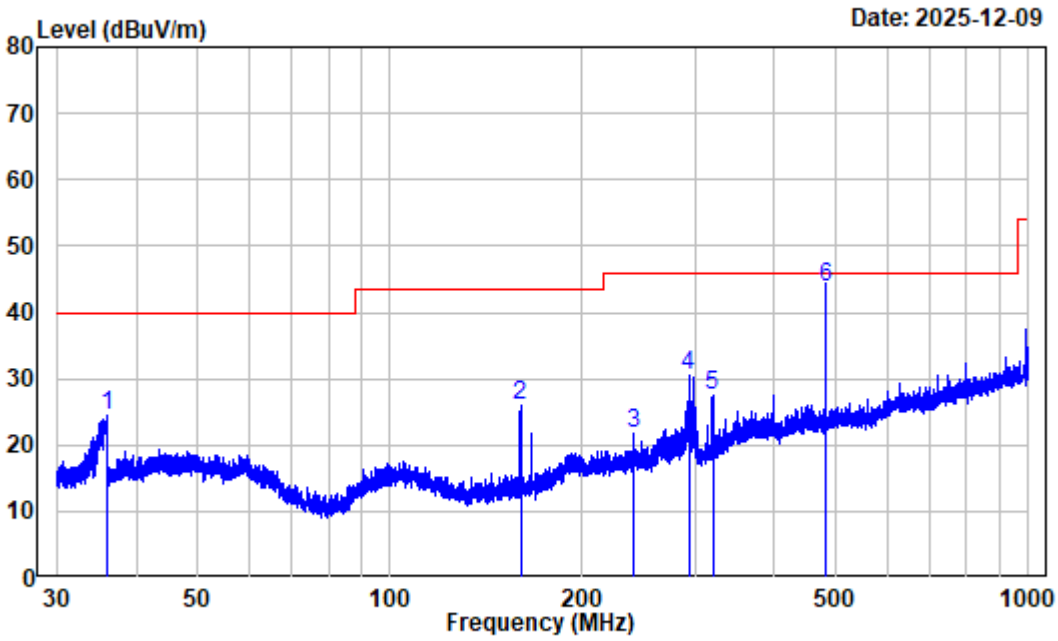
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1.210	-2.58	54.04	51.46	65.78	-14.32	Peak
2	2.167	-5.45	58.85	53.40	69.54	-16.14	Peak
3	3.310	-5.98	62.81	56.83	69.54	-12.71	Peak
4	4.549	-6.30	49.56	43.26	69.54	-26.28	Peak
5	10.397	-5.25	42.93	37.68	69.54	-31.86	Peak
6	19.326	-3.51	35.15	31.64	69.54	-37.90	Peak

30MHz~1GHz:



Site : chamber
Condition : 3m HORIZONTAL
Job No. : 2504Z39804E-RFA2 Tester: Colin Lin
Test Mode : BLE Transmitting
Receiver Setting: RBW:100kHz VBW:300kHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	159.995	-14.01	51.05	37.04	43.50	-6.46	Peak
2	172.070	-13.46	48.67	35.21	43.50	-8.29	Peak
3	239.987	-10.06	42.21	32.15	46.00	-13.85	Peak
4	320.077	-8.37	45.07	36.70	46.00	-9.30	Peak
5	400.081	-6.05	39.21	33.16	46.00	-12.84	Peak
6	480.107	-4.39	47.36	42.97	46.00	-3.03	QP



Site : chamber
Condition : 3m VERTICAL
Job No. : 2504Z39804E-RFA2 Tester: Colin Lin
Test Mode : BLE Transmitting
Receiver Setting: RBW:100kHz VBW:300kHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	36.016	-11.46	35.91	24.45	40.00	-15.55	Peak
2	159.995	-14.01	39.82	25.81	43.50	-17.69	Peak
3	240.093	-10.06	31.67	21.61	46.00	-24.39	Peak
4	293.470	-8.92	39.31	30.39	46.00	-15.61	Peak
5	320.077	-8.37	35.86	27.49	46.00	-18.51	Peak
6	480.107	-4.39	48.20	43.81	46.00	-2.19	QP

1GHz-25GHz

Environmental Conditions

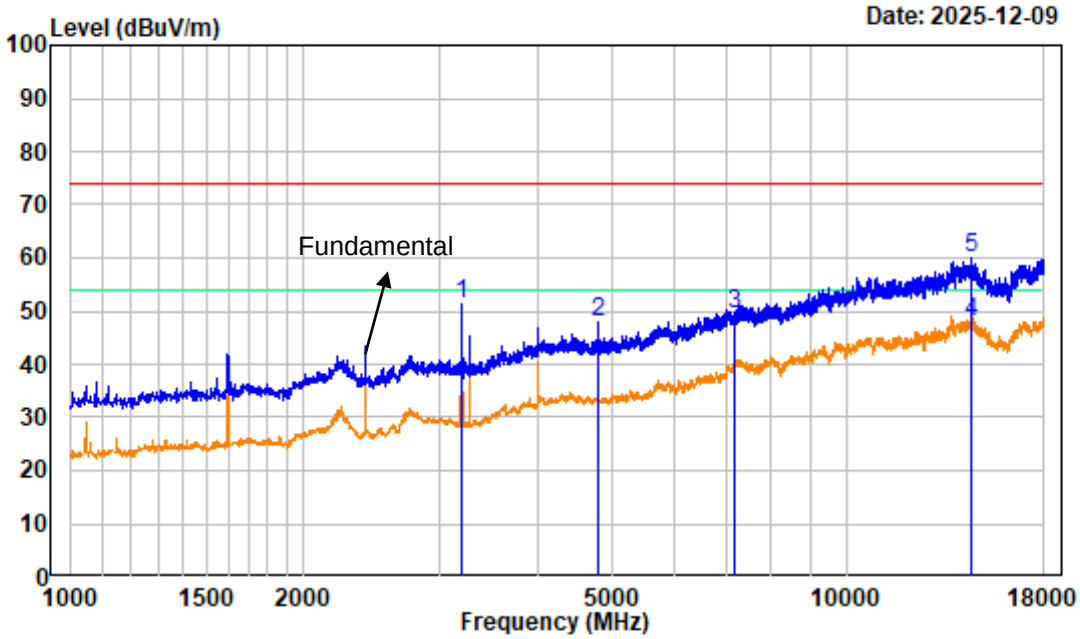
Temperature:	23.5 to 24.3 ℃
Relative Humidity:	50 to 55 %
ATM Pressure:	100.9 to 101.1 kPa
Test Engineer:	Roger Ling/Kevin Lv
Test Date:	2025-11-26 to 2025-12-12
EUT Operation Mode:	Transmitting

Test Result: Compliance, please refer to the below data.

Note 1: For 1GHz-18GHz, the fundamental with band reject filter.

Note 2: For 18GHz-25GHz, the maximum output power mode and channel: BLE 1M Middle Channel 2440MHz was tested.

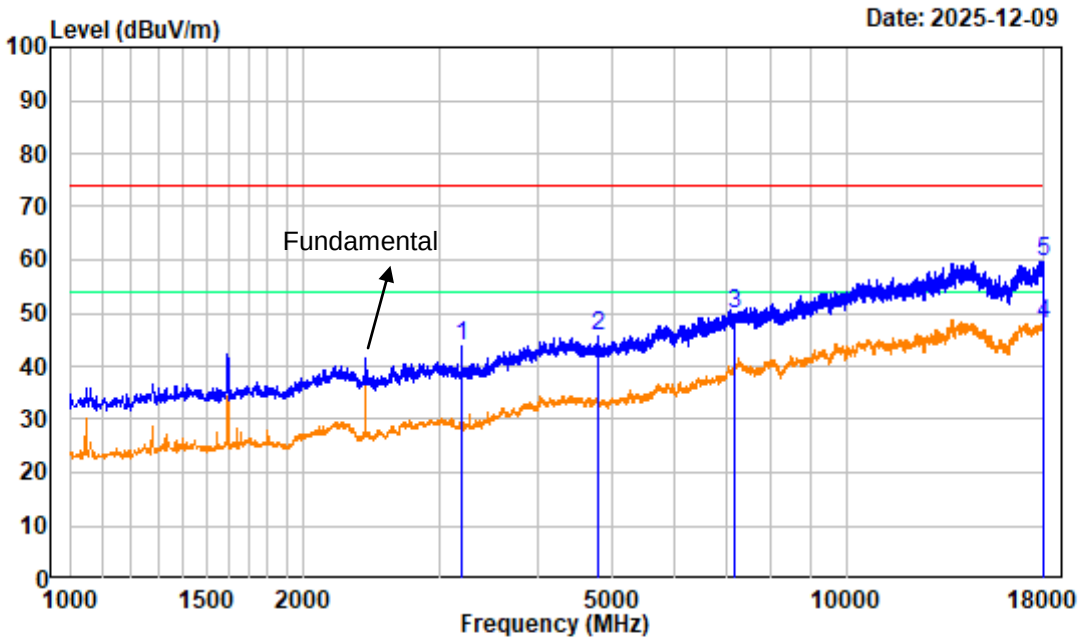
BLE 1M Low Channel 1GHz-18GHz_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2504Z39804E-RFA2
Test Mode : Transmitting Tester:Roger Ling
Note : BLE 1M Low Channel 2402MHz 1GHz-18GHz
SA setting : Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3201.500	-10.24	61.45	51.21	74.00	-22.79	Peak
2	4804.000	-6.64	54.49	47.85	74.00	-26.15	Peak
3	7206.000	-1.36	50.76	49.40	74.00	-24.60	Peak
4	14525.630	8.69	39.08	47.77	54.00	-6.23	average
5	14525.630	8.69	51.36	60.05	74.00	-13.95	peak

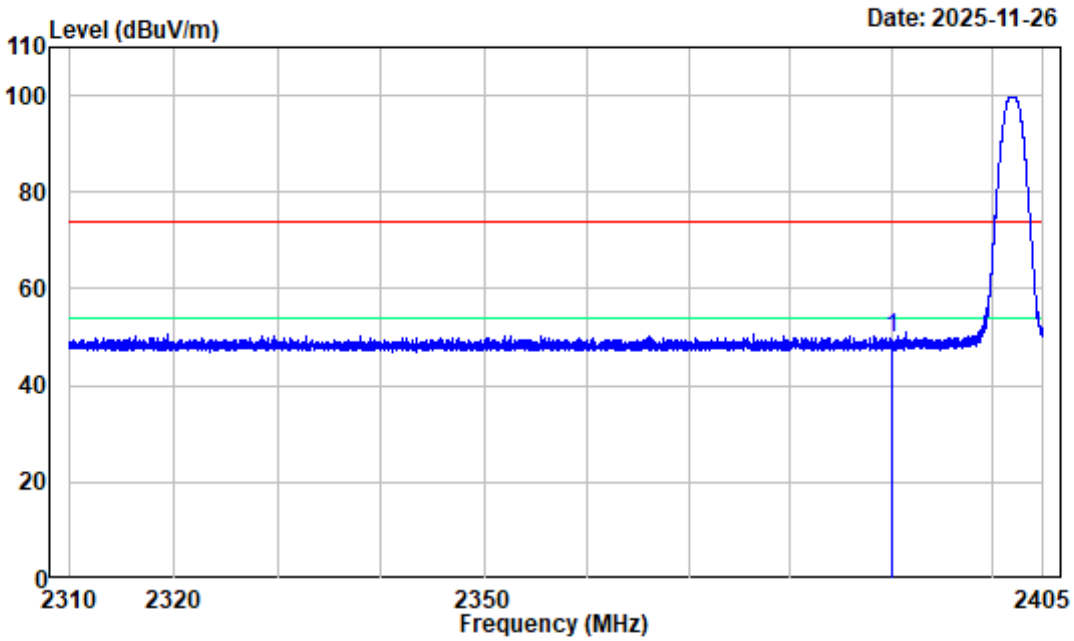
BLE 1M Low Channel 1GHz-18GHz _VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2504Z39804E-RFA2
Test Mode : Transmitting Tester:Roger Ling
Note : BLE 1M Low Channel 2402MHz 1GHz-18GHz
SA setting : Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3201.500	-10.24	54.19	43.95	74.00	-30.05	Peak
2	4804.000	-6.64	52.35	45.71	74.00	-28.29	Peak
3	7206.000	-1.36	51.08	49.72	74.00	-24.28	Peak
4	17970.250	8.28	39.46	47.74	54.00	-6.26	average
5	17970.250	8.28	51.51	59.79	74.00	-14.21	peak

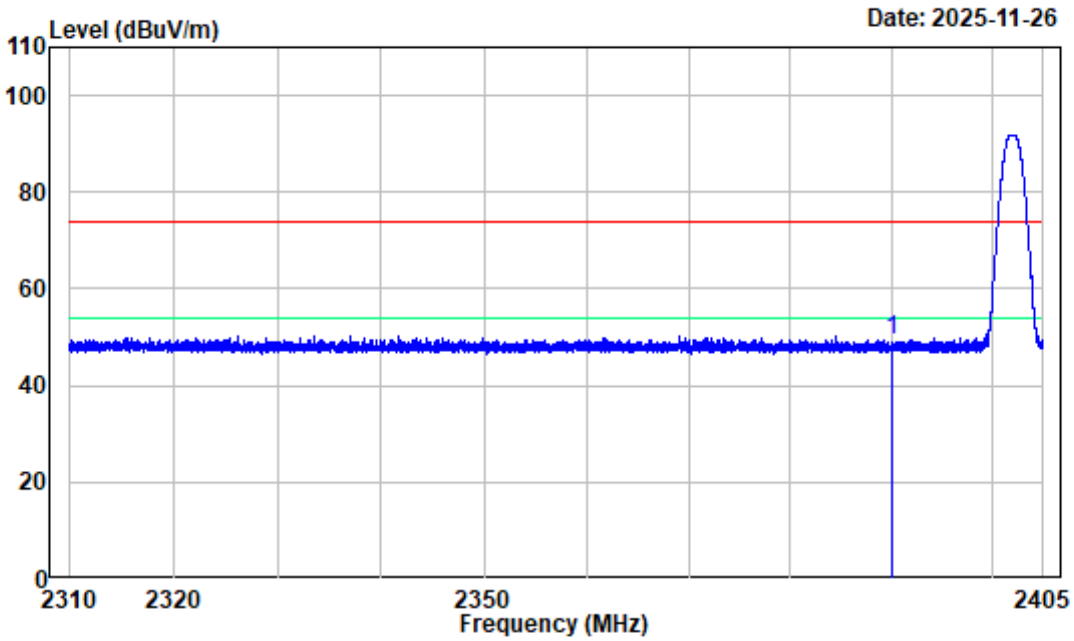
BLE 1M Low Channel Bandedge_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2504Z39804E-RFA2
Test Mode : Transmitting Tester:Roger Ling
Note : BLE 1M Low Channel 2402MHz Bandedge
SA setting : Peak:RBW:1MHz,VBW:3MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	-10.25	60.26	50.01	74.00	-23.99	peak

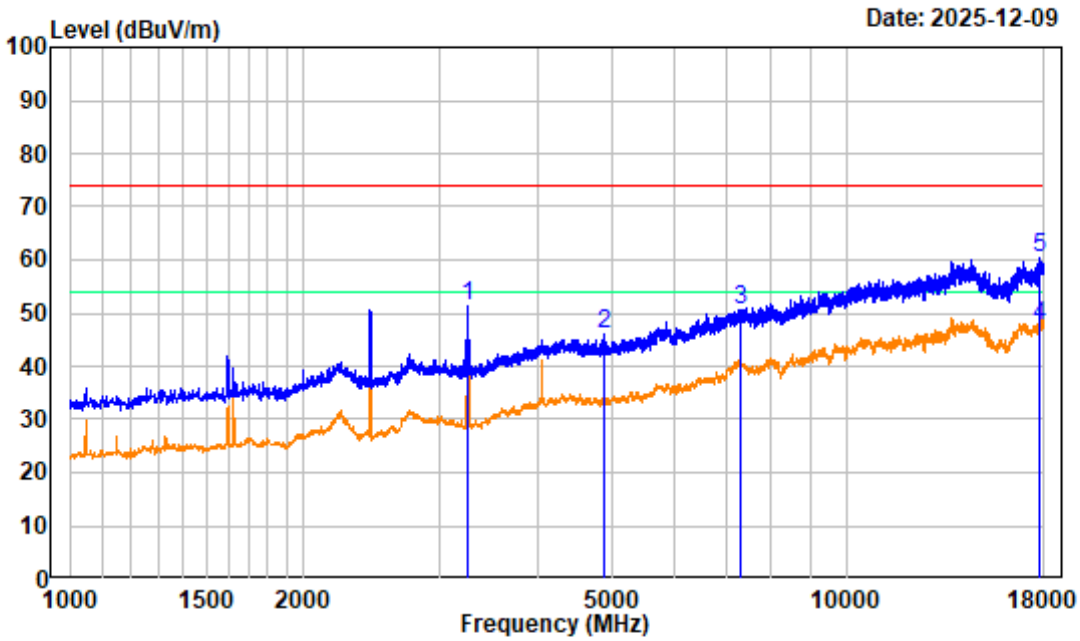
BLE 1M Low Channel Bandedge_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2504Z39804E-RFA2
Test Mode : Transmitting Tester:Roger Ling
Note : BLE 1M Low Channel 2402MHz Bandedge
SA setting : Peak:RBW:1MHz,VBW:3MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	-10.25	59.81	49.56	74.00	-24.44	peak

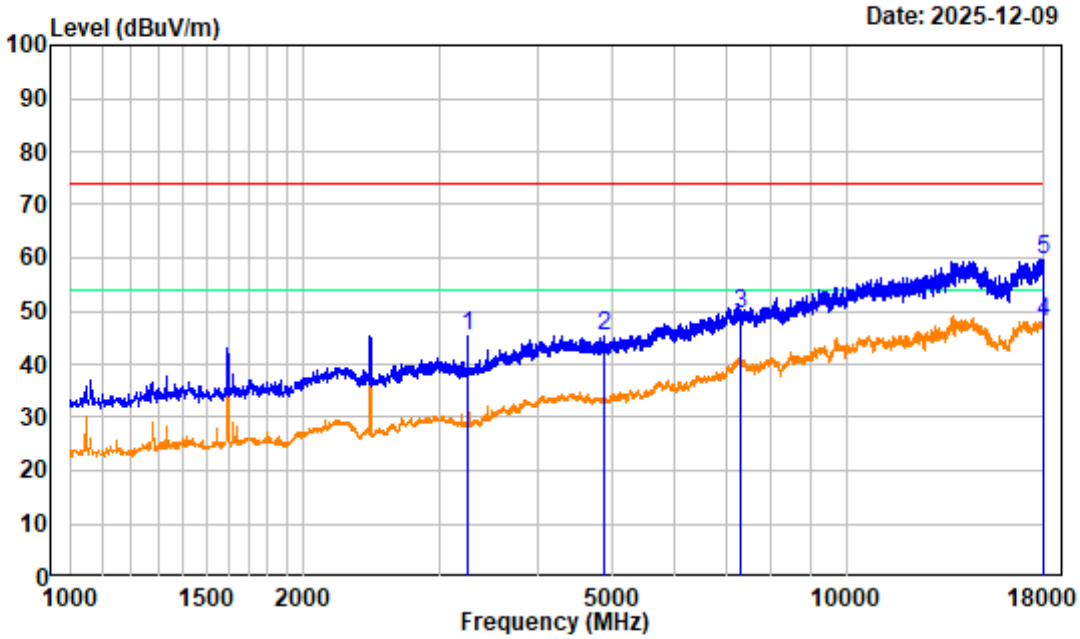
BLE 1M Middle Channel 1GHz-18GHz_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2504Z39804E-RFA2
Test Mode : Transmitting Tester:Roger Ling
Note : BLE 1M Middle Channel 2440MHz 1GHz-18GHz
SA setting : Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3252.500	-9.87	61.36	51.49	74.00	-22.51	Peak
2	4880.000	-6.57	52.43	45.86	74.00	-28.14	Peak
3	7320.000	-1.16	51.81	50.65	74.00	-23.35	Peak
4	17713.130	7.68	40.04	47.72	54.00	-6.28	average
5	17713.130	7.68	52.56	60.24	74.00	-13.76	peak

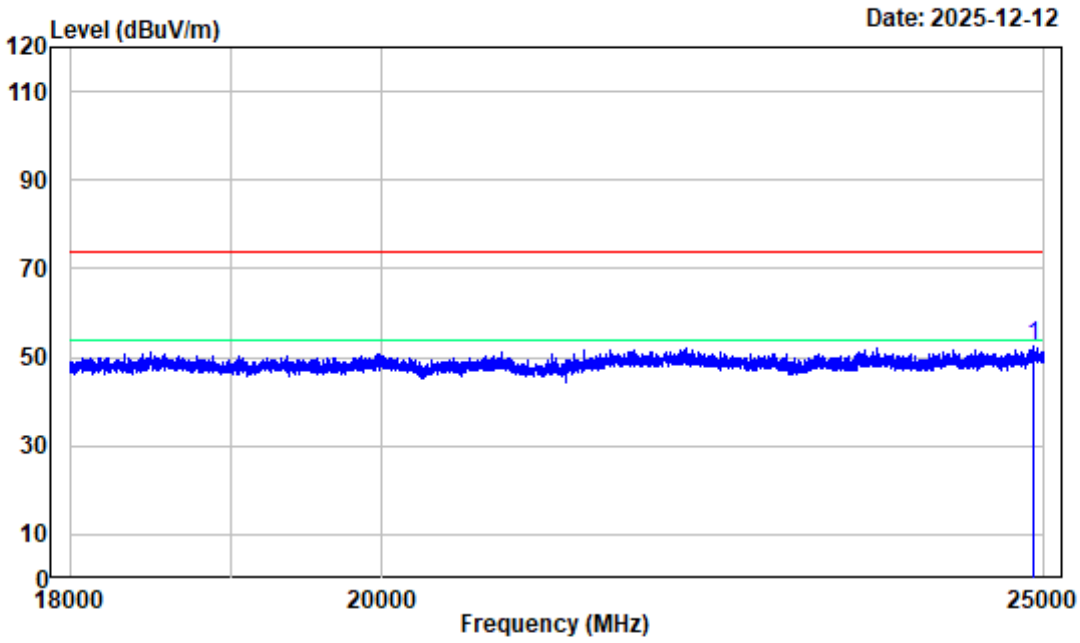
BLE 1M Middle Channel 1GHz-18GHz_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2504Z39804E-RFA2
Test Mode : Transmitting Tester:Roger Ling
Note : BLE 1M Middle Channel 2440MHz 1GHz-18GHz
SA setting : Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3252.500	-9.87	55.26	45.39	74.00	-28.61	Peak
2	4880.000	-6.57	51.90	45.33	74.00	-28.67	Peak
3	7320.000	-1.16	50.61	49.45	74.00	-24.55	Peak
4	17991.500	8.40	39.37	47.77	54.00	-6.23	average
5	17991.500	8.40	51.34	59.74	74.00	-14.26	peak

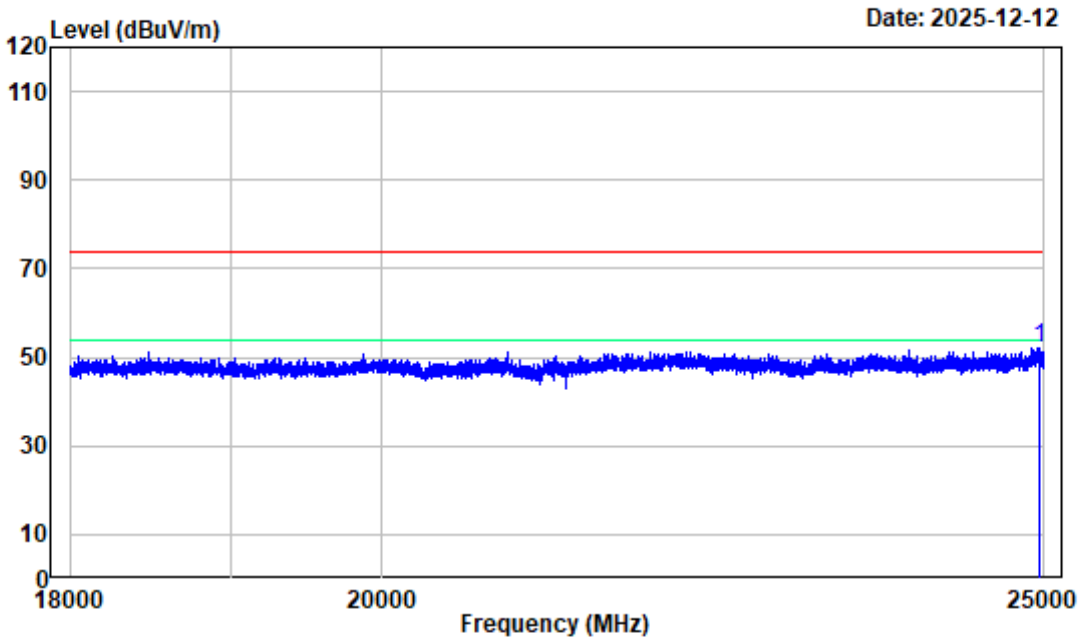
BLE 1M Middle Channel 18GHz-25GHz_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2504Z39804E-RFA2
Test Mode : Transmitting Tester:Kevin Lv
Note : BLE 1M Middle Channel 2440MHz 18GHz-25GHz
SA setting : Peak:RBW:1MHz,VBW:3MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	24916.880	4.14	48.42	52.56	74.00	-21.44	Peak

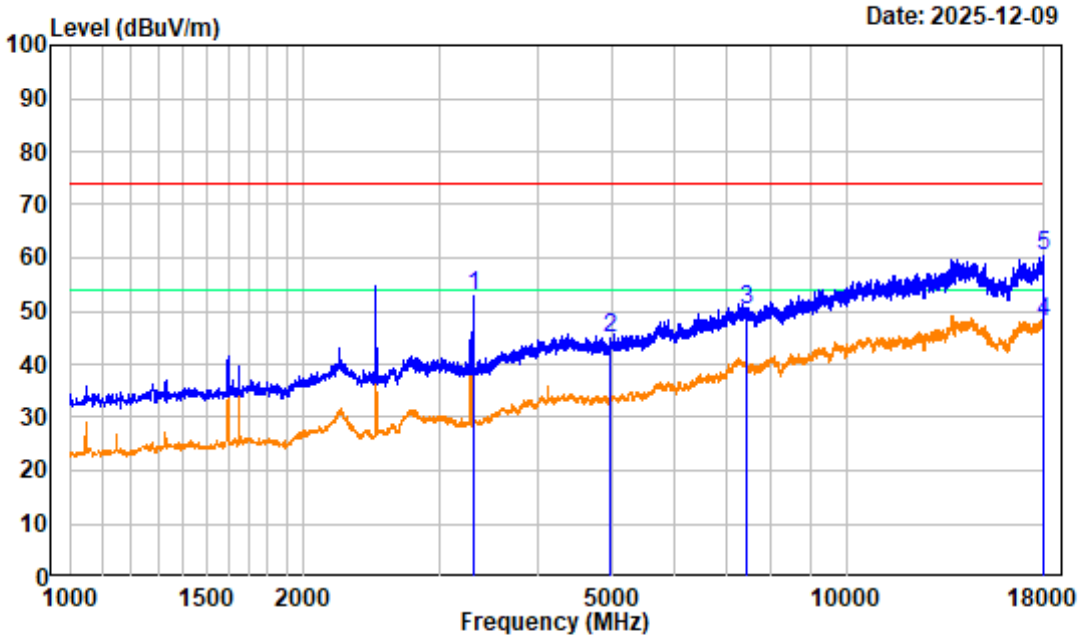
BLE 1M Middle Channel 18GHz-25GHz_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2504Z39804E-RFA2
Test Mode : Transmitting Tester:Kevin Lv
Note : BLE 1M Middle Channel 2440MHz 18GHz-25GHz
SA setting : Peak:RBW:1MHz,VBW:3MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	24967.630	4.25	47.79	52.04	74.00	-21.96	Peak

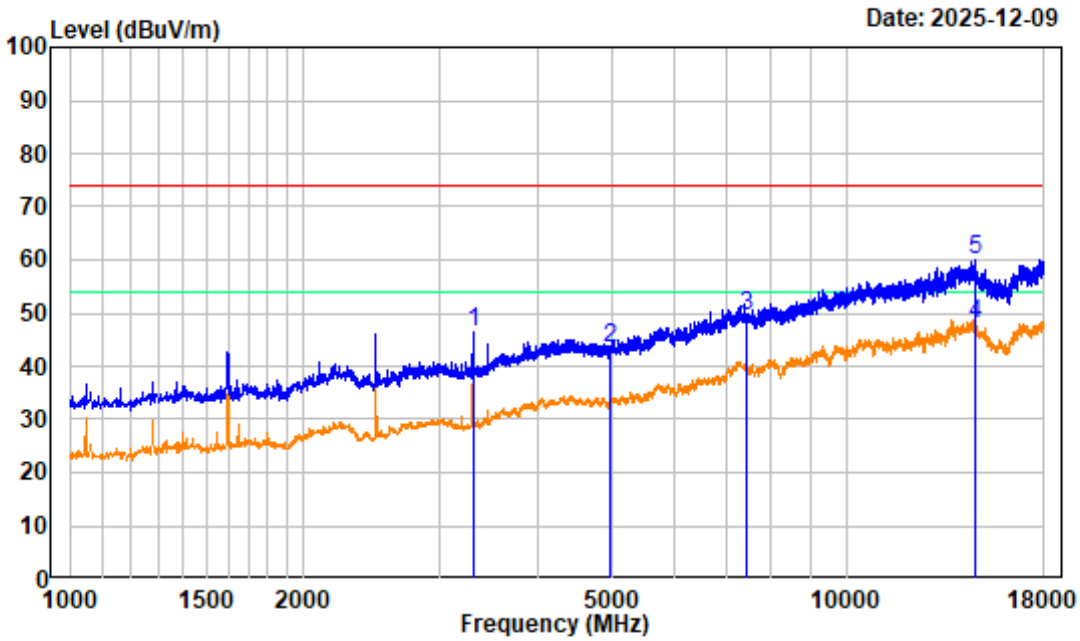
BLE 1M High Channel 1GHz-18GHz_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2504Z39804E-RFA2
Test Mode : Transmitting Tester:Roger Ling
Note : BLE 1M High Channel 2480MHz 1GHz-18GHz
SA setting : Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3305.625	-10.07	63.00	52.93	74.00	-21.07	Peak
2	4960.000	-6.32	51.19	44.87	74.00	-29.13	Peak
3	7440.000	-0.97	51.02	50.05	74.00	-23.95	Peak
4	17946.880	8.16	39.64	47.80	54.00	-6.20	average
5	17946.880	8.16	52.35	60.51	74.00	-13.49	peak

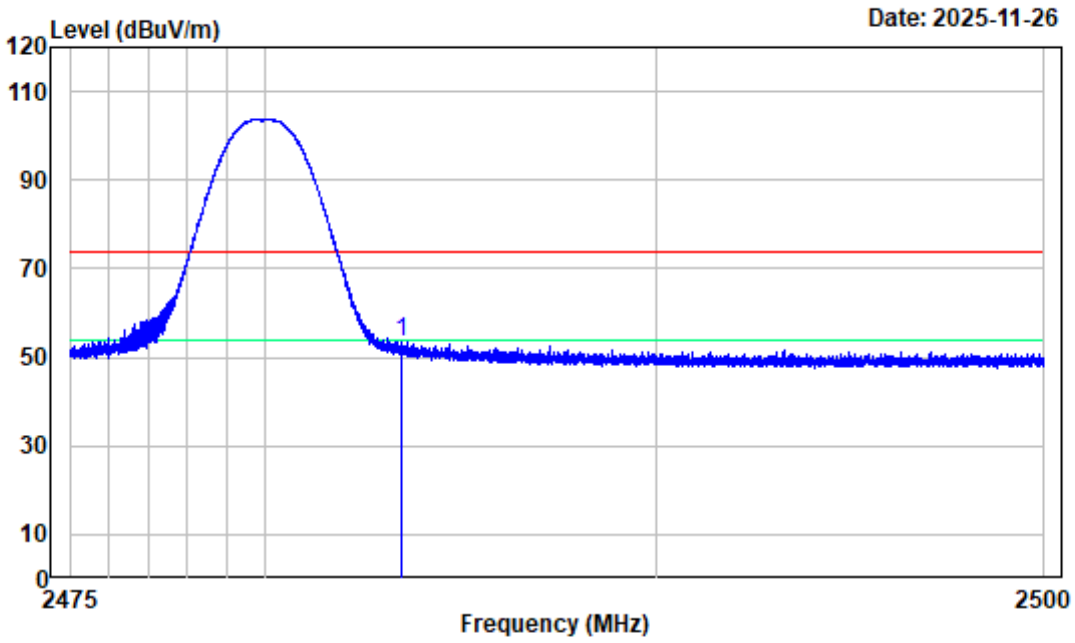
BLE 1M High Channel 1GHz-18GHz_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2504Z39804E-RFA2
Test Mode : Transmitting Tester:Roger Ling
Note : BLE 1M High Channel 2480MHz 1GHz-18GHz
SA setting : Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3305.625	-10.07	56.44	46.37	74.00	-27.63	Peak
2	4960.000	-6.32	49.67	43.35	74.00	-30.65	Peak
3	7440.000	-0.97	50.30	49.33	74.00	-24.67	Peak
4	14651.000	8.73	39.04	47.77	54.00	-6.23	average
5	14651.000	8.73	51.39	60.12	74.00	-13.88	peak

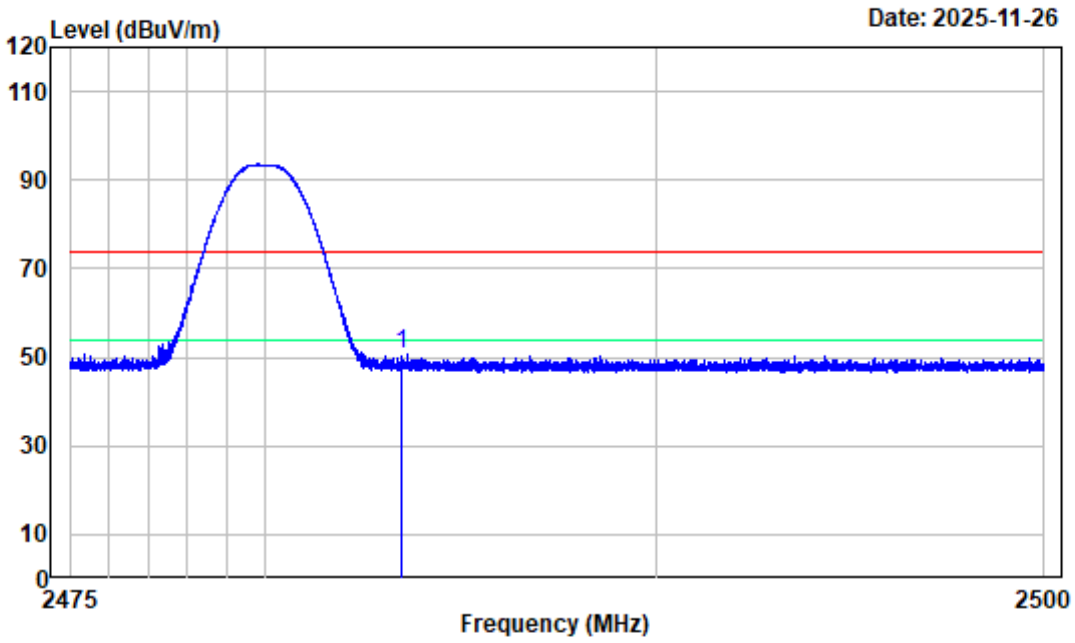
BLE 1M High Channel Bandedge_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2504Z39804E-RFA2
Test Mode : Transmitting Tester:Roger Ling
Note : BLE 1M High Channel 2480MHz Bandedge
SA setting : Peak:RBW:1MHz,VBW:3MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-10.23	63.73	53.50	74.00	-20.50	peak

BLE 1M High Channel Bandedge_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2504Z39804E-RFA2
Test Mode : Transmitting Tester:Roger Ling
Note : BLE 1M High Channel 2480MHz Bandedge
SA setting : Peak:RBW:1MHz,VBW:3MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-10.23	60.88	50.65	74.00	-23.35	peak

MAXIMUM CONDUCTED OUTPUT POWER

Applicable Standard

According to FCC §15.247(b)(3):

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

According to RSS-247 §5.4(d):

For DTS operating in the band 902-928 MHz, the maximum peak conducted output power shall not exceed 1W, and the e.i.r.p. shall not exceed 4 W.

For DTS operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W, and the e.i.r.p. shall not exceed 4 W, except as provided in section 6.5 a) and b).

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power.

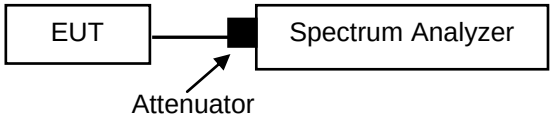
Test Procedure

According to ANSI C63.10-2020, section 11.9.1.1

- Measurement using a spectrum analyzer (SA)

The following procedure shall be used when an instrument with a resolution bandwidth that is greater than the DTS bandwidth is available to perform the measurement:

a) Set the RBW ≥ DTS bandwidth.
b) Set VBW ≥ [3 × RBW].
c) Set span ≥ [3 × RBW].
d) Sweep time = No faster than coupled (auto) time.
e) Detector = peak.
f) Trace mode = max-hold.
g) Allow trace to fully stabilize.
h) Use peak marker function to determine the peak amplitude level.



Note: Offset = RF cable loss(0.5dB#) + Attenuator(10dB)

Test Data

Please refer to the Appendix for spot check data.

CONDUCTED SPURIOUS EMISSION

Applicable Standard

According to FCC §15.247(d):

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator 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 the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions 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) (see §15.205(c)).

According to RSS-247 §6.6:

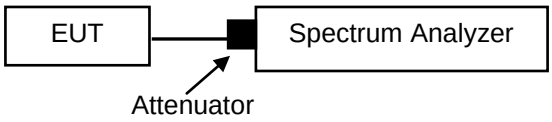
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum device, digitally modulated device, or hybrid system is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired 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 6.3.2, 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.

Test Procedure

According to ANSI C63.10-2020, section 11.11

a) Set the center frequency and span to encompass frequency range to be measured. Note that the frequency range might need to be divided into multiple frequency ranges to retain frequency resolution.
NOTE—the number of points can also be increased for large spans to retain frequency resolution
b) Set the RBW: 100 kHz
c) Set the VBW ≥ [3 × RBW].
d) Detector = peak.
e) Sweep time = No faster than coupled (auto) time.
f) Trace mode = max-hold.
g) Allow trace to fully stabilize.
h) Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.



Note: Offset = RF cable loss(0.5dB#/3.0dB#) + Attenuator(10dB)
The cable loss of 0.5dB# has been added into test result, except for test result of frequencies from 30 MHz to 25 GHz, where a maximum cable loss of 3.0dB# has been added.

Test Data

Please refer to the Appendix.

DUTY CYCLE

Test Procedure

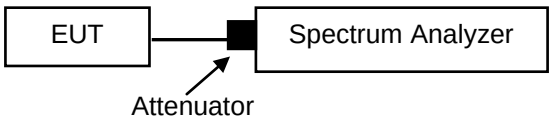
According to ANSI C63.10-2020 Section 11.6

Measurements of duty cycle and transmission duration shall be performed using one of the following techniques:

a) A diode detector and an oscilloscope that together have a sufficiently short response time to permit accurate measurements of the ON and OFF times of the transmitted signal.

b) The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:

1) Set the center frequency of the instrument to the center frequency of the transmission.
2) Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value.
3) Set VBW ≥ RBW. Set detector = peak or average.
4) The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if T ≤ 16.7 μs.)



Note: Offset = RF cable loss(0.5dB[#]) + Attenuator(10dB)

Test Data

Please refer to the Appendix.

APPENDIX

Test Information:

Sample No.:	3CFU-2	Test Date:	2025/11/28~2025/12/17
Test Site:	RF	Test Mode:	Transmitting
Tester:	Cayde Hou	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	22.0~23.6	Relative Humidity: (%)	37~50	ATM Pressure: (kPa)	100.9~101.1

Spot Check with Maximum Conducted Output Power

BLE 1M

Channel	Peak Output Power (dBm)	Limit (dBm)	Verdict
Low	8.61	30.00	Pass
Middle	8.78	30.00	Pass
High	8.13	30.00	Pass

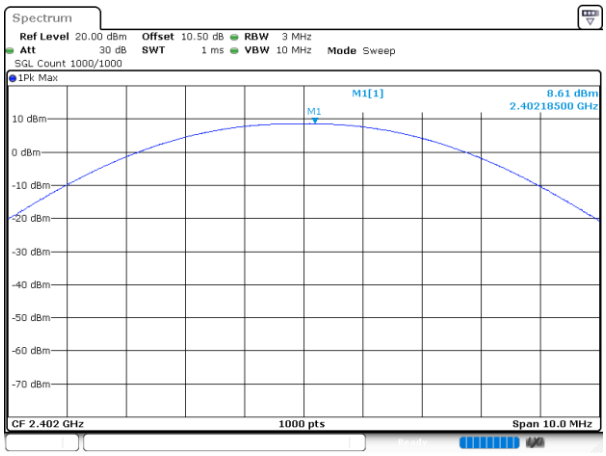
Note 1: The antenna gain is 2.89dBi[#].

Note 2: EIRP = Conducted Output Power + Antenna Gain

Note 3: The maximum EIRP is 8.78dBm+2.89dBi=11.67dBm<36dBm, so it's compliance with ISEDC EIRP limit.

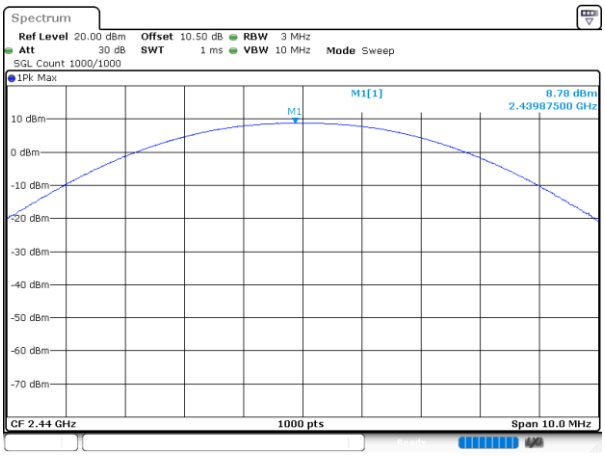
BLE 1M

BLE_1M_Low_Channel



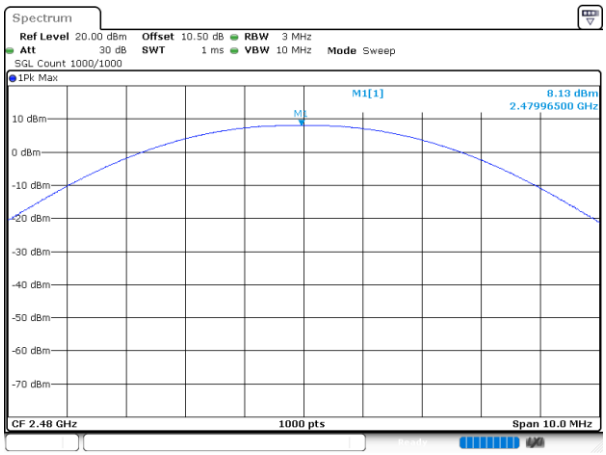
ProjectNo.:2504Z39804E-RFA2 Tester:Cayde Hou
Date: 28.NOV.2025 11:13:46

BLE_1M_Middle_Channel



ProjectNo.:2504Z39804E-RFA2 Tester:Cayde Hou
Date: 28.NOV.2025 11:16:06

BLE_1M_High_Channel

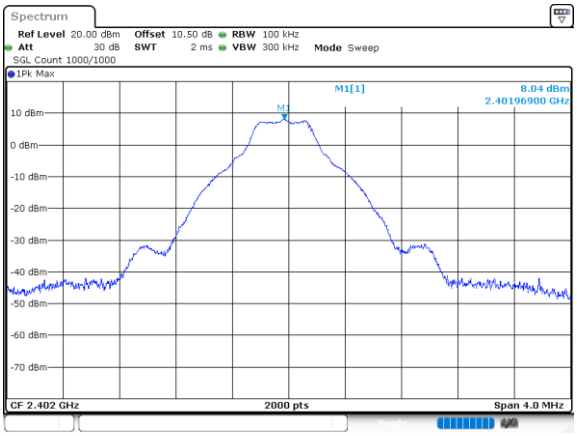


ProjectNo.:2504Z39804E-RFA2 Tester:Cayde Hou
Date: 28.NOV.2025 11:16:15

Conducted Spurious Emission

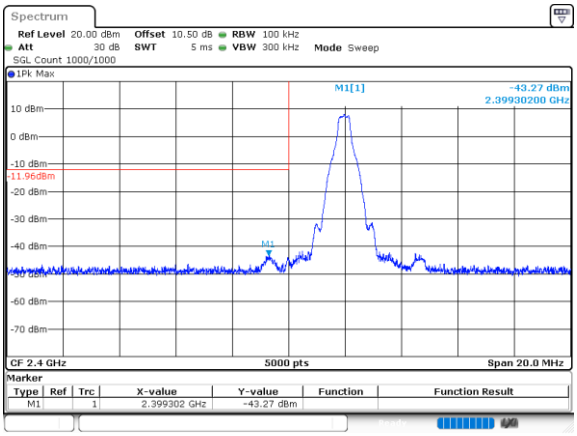
BLE 1M

BLE_1M_Low_Channel



ProjectNo.:2504Z39804E-RFA2 Tester:Cayde Hou
Date: 17.DEC.2025 15:18:07

BLE_1M_Low_Channel



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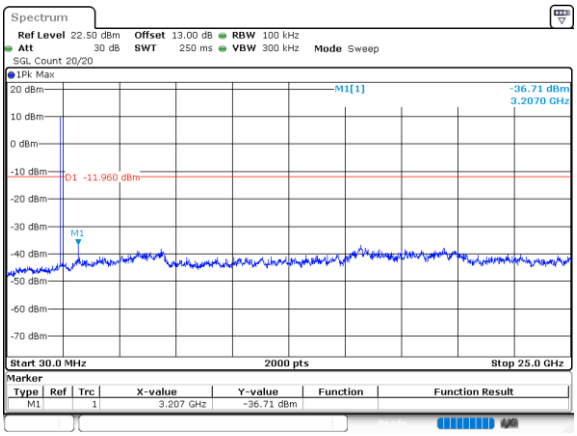
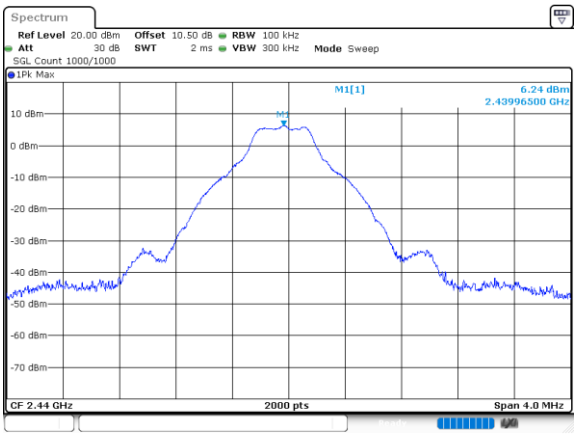
Date: 17.DEC.2025 15:18:30

BLE_1M_Low_Channel



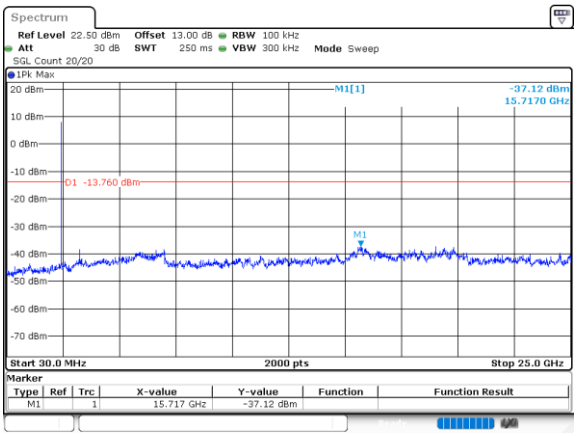
ProjectNo.:2504Z39804E-RFA2 Tester:Cayde Hou
Date: 17.DEC.2025 15:18:56

BLE_1M_Middle_Channel



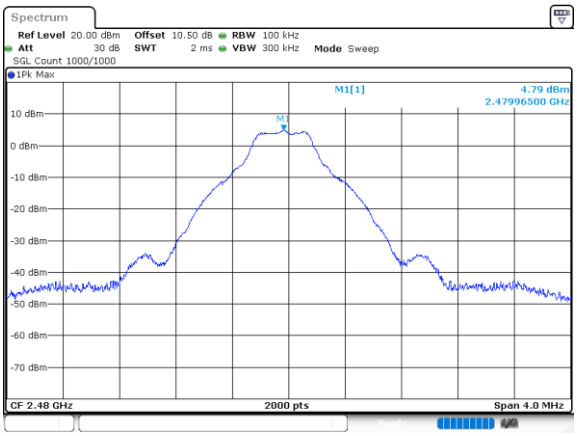
ProjectNo.:2504Z39804E-RFA2 Tester:Cayde Hou
Date: 17.DEC.2025 15:19:28

BLE_1M_Middle_Channel



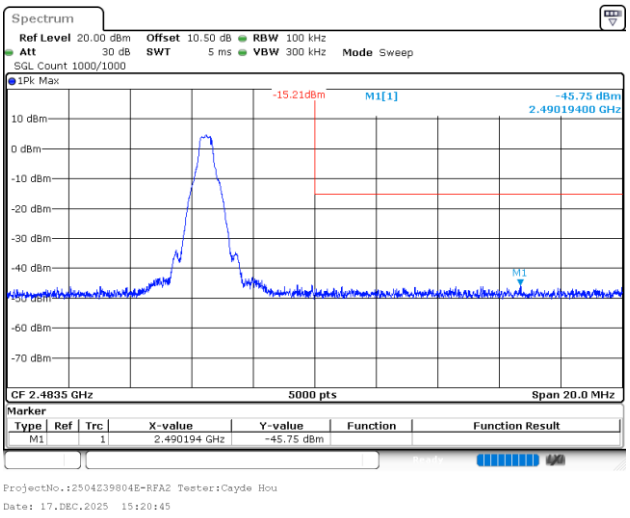
ProjectNo.:2504Z39804E-RFA2 Tester:Cayde Hou
Date: 17.DEC.2025 15:19:57

BLE_1M_High_Channel



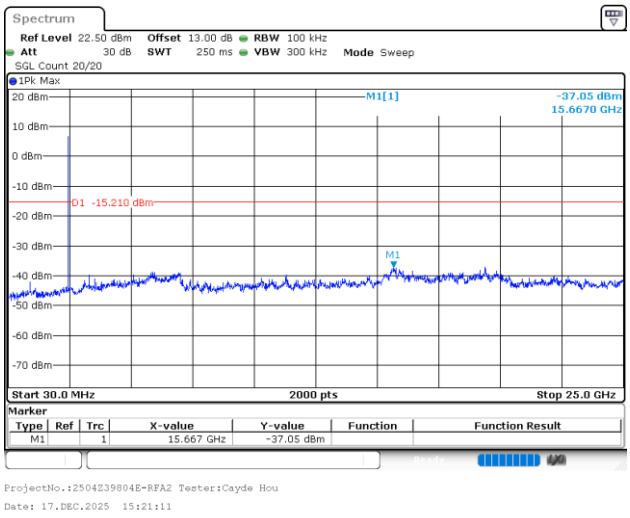
ProjectNo.:2504Z39804E-RFA2 Tester:Cayde Hou
Date: 17.DEC.2025 15:20:27

BLE_1M_High_Channel



ProjectNo.:2504Z39804E-RFA2 Tester:Cayde Hou
Date: 17.DEC.2025 15:20:45

BLE_1M_High_Channel



ProjectNo.:2504Z39804E-RFA2 Tester:Cayde Hou
Date: 17.DEC.2025 15:21:11

Duty Cycle

BLE 1M

Channel	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	Duty Cycle Factor(dB)	1/Ton (Hz)	VBW Setting (kHz)
Middle	2.077	2.485	83.58	0.78	481	0.500

BLE 1M

BLE_1M_Middle_Channel

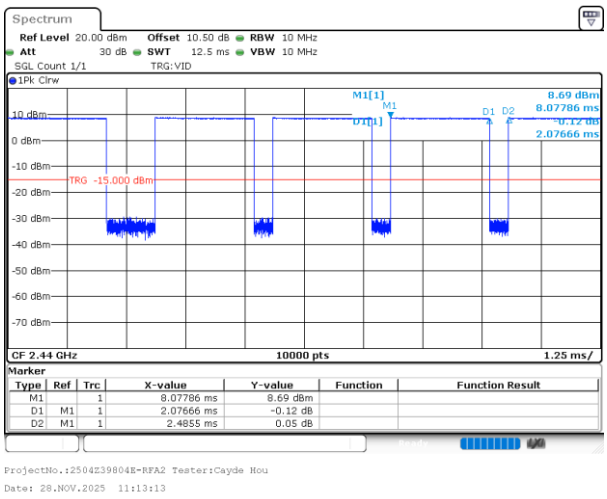


EXHIBIT A-EUT PHOTOGRAPHS

Please refer to the Attachment No.1 2504Z39804E-RFA2 EUT External Photos and Attachment No.2 2504Z39804E-RFA2 EUT Internal Photos.

EXHIBIT B-TEST SETUP PHOTOGRAPHS

Please refer to the Attachment No.3 2504Z39804E-RFA2 Test Photos.

******* END OF REPORT *******