



TEST REPORT

Applicant Name: Shenzhen TCL Smart Home Technology Co., Ltd.
Address: 702, Building G1, TCL International E City, Shuguang Community,
Xili Street, Nanshan District, Shenzhen, China
Report Number: 2604Q29440E-RFA
FCC ID: 2BG9T-TCLD2AM
IC: 34178-TCLD2AM

Test Standard (s)

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

Sample Description

Product Name: D2 Series Smart Door Lock
Model No.: D2 Plus-M
Trade Mark: TCL
Date Received: 2026-02-09
Report Date: 2026-03-29

Test Result:	The EUT complied with the standards above.
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Prepared and Checked By:

Amanda Wei

Amanda Wei
EMC Engineer

Approved By:

Bob. Liao

Bob.Liao
EMC Engineer

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
Rev.00	2604Q29440E-RFA	Original Report	2026-03-29

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product Name	D2 Series Smart Door Lock
Tested Model	D2 Plus-M
HVIN	D2 Plus-M
FVIN	N/A
Voltage Range [#]	DC 3.635V from battery
Note: The device (D2 Series Smart Door Lock) has two parts: Exterior Assembly and Interior Assembly.	

Frequency Range	BLE 1M & 2M: 2402-2480MHz
Data Rate	1Mbps & 2Mbps
Maximum Conducted Output Power(Peak) (actual test result)	-2.16 dBm
Modulation Technique	GFSK
Antenna Specification [#]	PCB Antenna, Gain: 2.7dBi (It is provided by the applicant.)
Sample Serial Number	For RSE Test: 3I3R-1 For RF Conducted Test: 3I3R-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, 15.209 and 15.247 rules; 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; RSS-GEN Issue 5, Feb. 2021 Amendment 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
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 °C
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

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.

Test Mode

Test Mode : BLE Transmitting

EUT Exercise Software and Power Level[#]

Exercise Software:	GRDirect Test Mood Tool
Power Level:	BLE 1M/2M: 0

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

Special Accessories and Equipment Modifications

No special accessories or modifications were used on the device under test (EUT) during the test.

Support Equipment List and Details

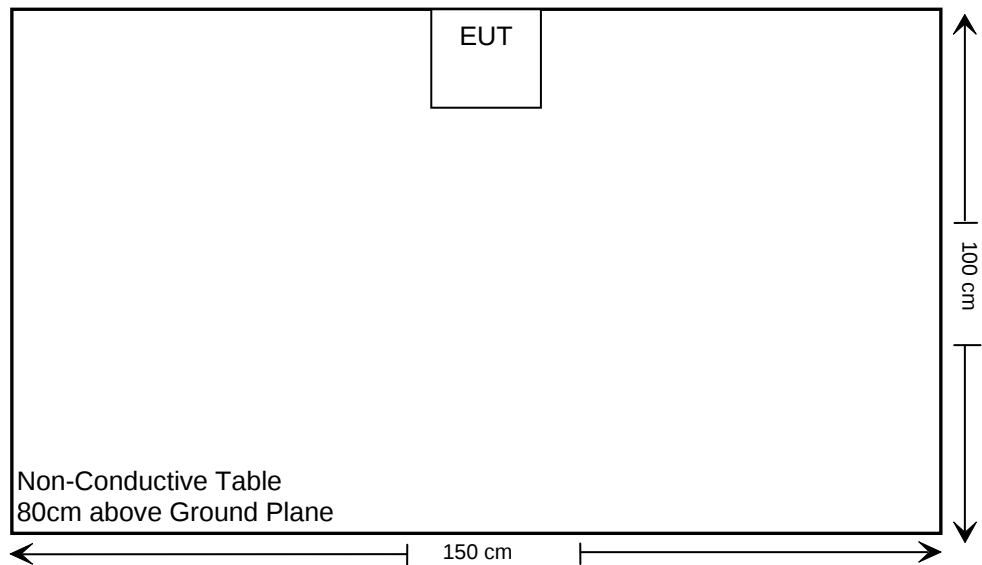
Manufacturer	Description	Model	Serial Number
/	/	/	/

External I/O Cable

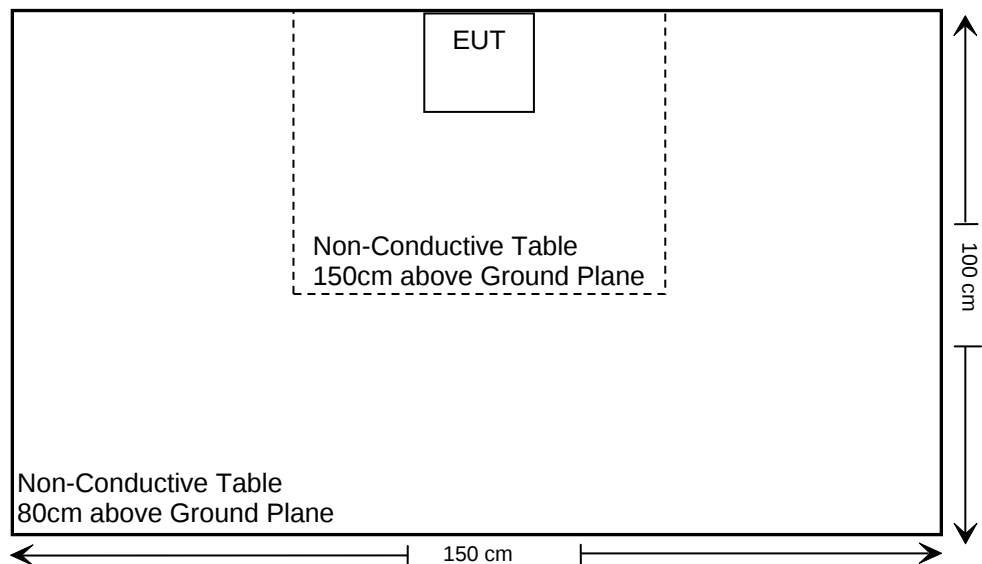
Cable Description	Shielding Type	Length (m)	From Port	To
/	/	/	/	/

Block Diagram of Test Setup

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	Not Applicable
§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	Compliance
§15.247(b)(3)	RSS-247 §6.3.2	Maximum Conducted Output Power	Compliance
§15.247(d)	RSS-247 §6.6	Conducted Spurious Emission	Compliance
§15.247(e)	RSS-247 §6.3.1(b)	Power Spectral Density	Compliance

Not Applicable - The device was powered by battery when operating.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Spurious Emission Test(Below 1GHz)					
Rohde & Schwarz	Test Receiver	ESR	102725	2025/09/18	2026/09/17
SONOMA INSTRUMENT	Amplifier	310N	186131	2026/01/20	2027/01/19
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
A.H. Systems, inc.	Preamplifier	PAM-0118	226	2026/01/20	2027/01/19
Schwarzbeck	Horn Antenna	BBHA9120D	837	2026/01/29	2029/01/30
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-A1840	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	101590	2025/09/17	2026/09/16
WEINSCHL	10dB Attenuator	5324	AU 3842	2026/01/20	2027/01/19
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:

- Antenna must be permanently attached to the unit.
- Antenna must use a unique type of connector to attach to the EUT.
- 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 EUT has one PCB antenna arrangement, which was permanently attached, fulfill the requirement of this section. Please refer to the product photos.

Type	Antenna Gain [#]	Impedance
PCB	2.7 dBi	50Ω

Result: Compliance.

RADIATED SPURIOUS EMISSIONS

Applicable Standard

FCC §15.205; §15.209; §15.247(d)

RSS-GEN §8.10 & RSS-247 §6.6

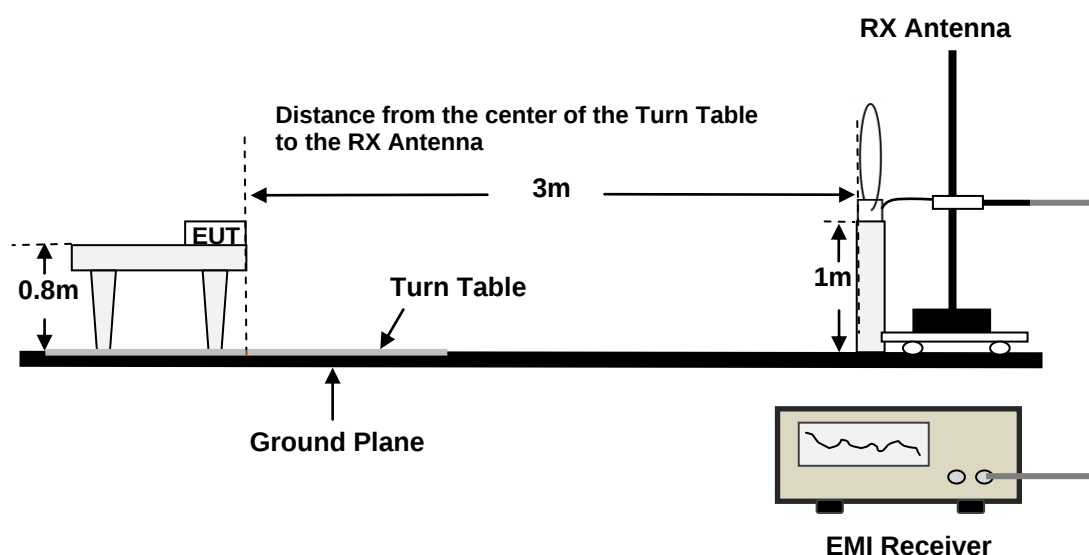
Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to 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.

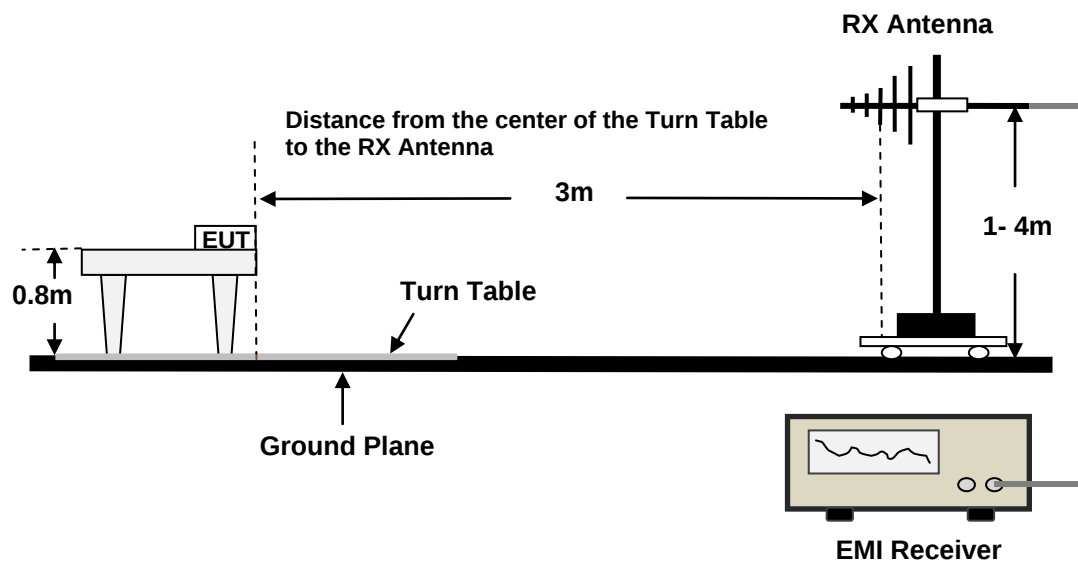
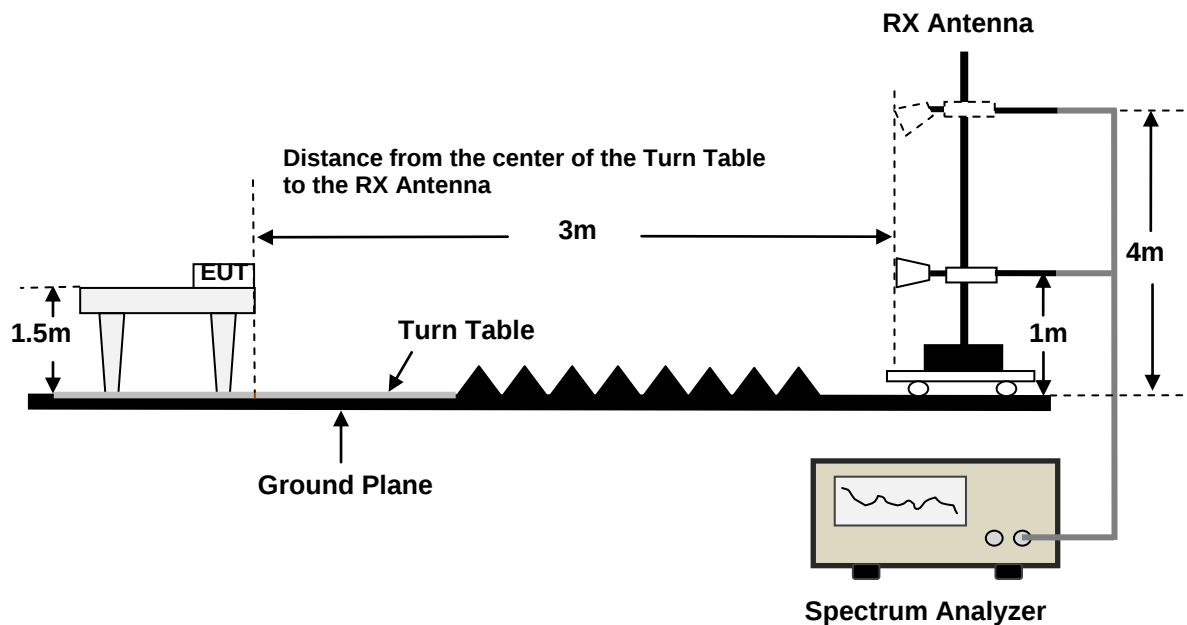
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum device, digitally modulated device, or hybrid system is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired 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 dB μ V/m, so the limit should be added by 51,5 dB from dB μ A/m to dB μ V/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	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 FCC §15.209(e), the provisions in §15.31, 15.33, and 15.35 for measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

According to FCC§15.31 measurement standard (f)(2), at frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). This paragraph (f) shall not apply to Access BPL devices operating below 30 MHz.

For 9kHz-30MHz, test distance is 3m, extrapolation limit shall be calculated using Equation:

$$E_{\text{limit-measure}} = E_{\text{limit-Standard}} + 40 \times \log_{10}\left(\frac{d_{\text{Standard}}}{d_{\text{measure}}}\right)$$

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:

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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:

$$\begin{aligned} \text{Over Limit/Margin} &= \text{Level} / \text{Corrected Amplitude} - \text{Limit} \\ \text{Level} / \text{Corrected Amplitude} &= \text{Read Level} + \text{Factor} \end{aligned}$$

Test Data

For Radiated Spurious Emissions, this device is installed vertically in Y-axes orientation. It was provided by applicant. The Y-axes orientation was tested and recorded in the report.

9kHz-1GHz

Environmental Conditions

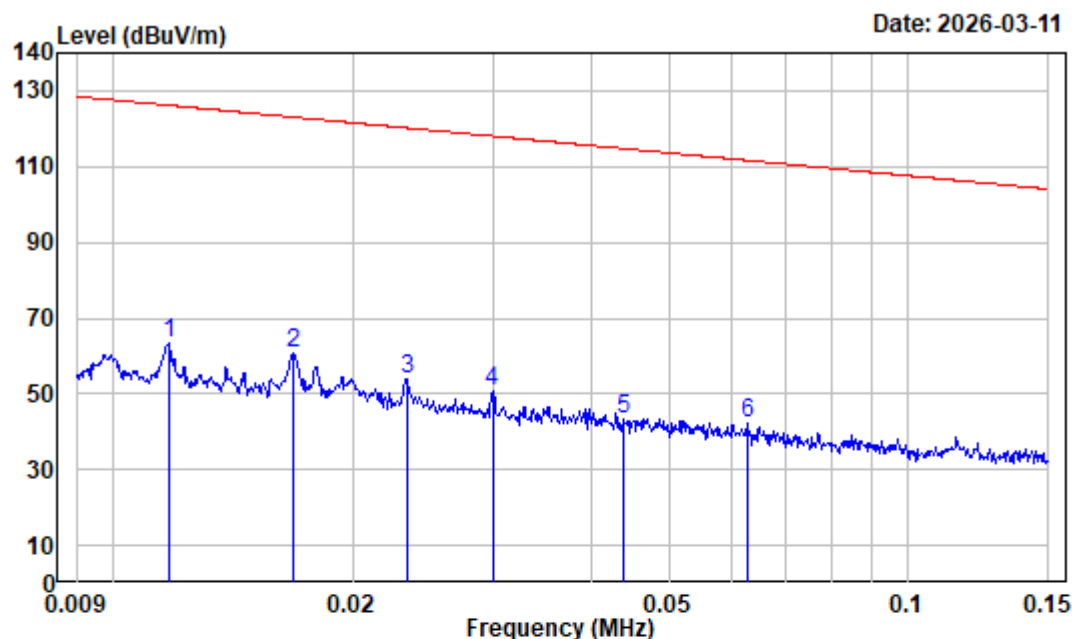
Temperature:	21.6℃
Relative Humidity:	53%
ATM Pressure:	100.4kPa
Test Engineer:	Jayden Luo
Test Date:	2026-3-11
EUT Operation Mode:	BLE Transmitting

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.

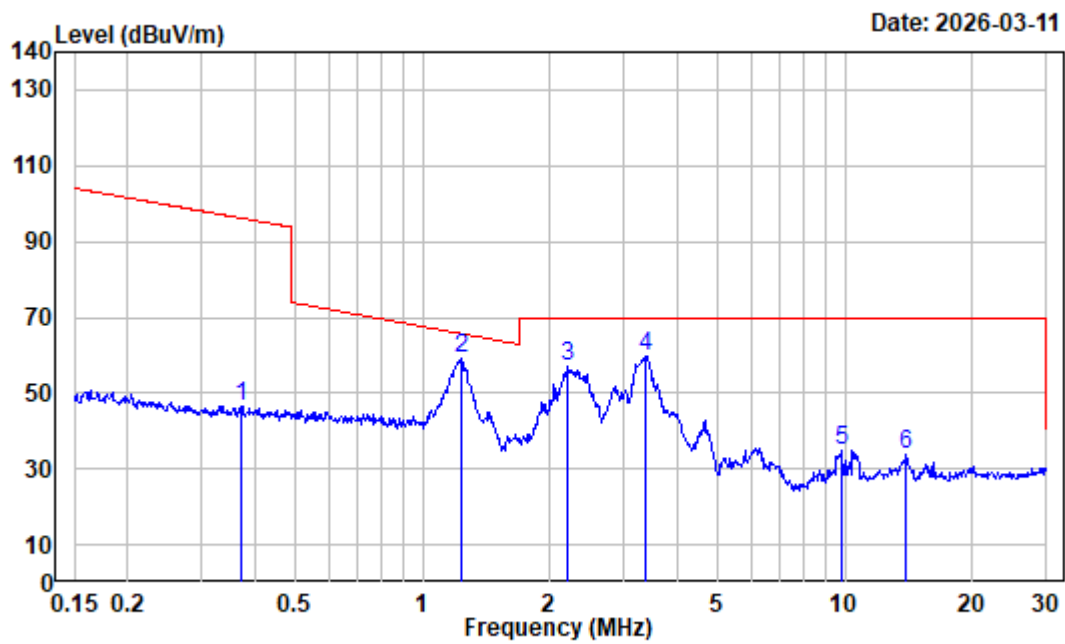
Note 2: The maximum output power mode and channel: BLE 2M High Channel 2480MHz was tested.

9kHz~30MHz:



Site : chamber
 Condition : 3m
 Job No. : 2604Q29440E-RF
 Polarization : Parallel Tester: Jayden Luo
 Test Mode : BLE Transmitting
 Note : Exterior Assembly
 Receiver Setting: RBW:300Hz VBW:1kHz

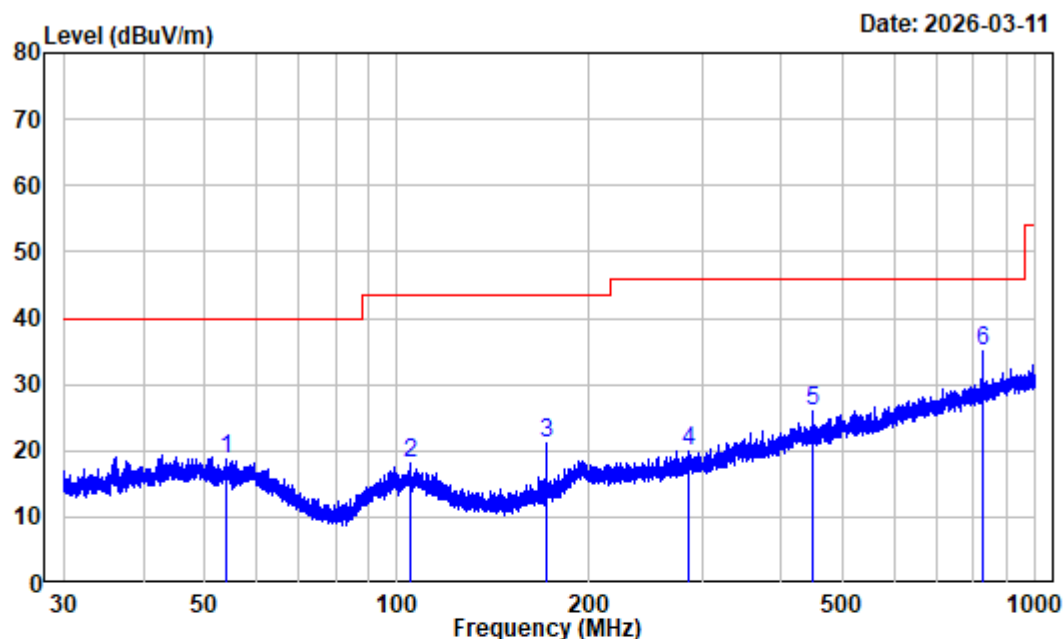
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.012	35.05	28.15	63.20	126.20	-63.00	Peak
2	0.017	32.77	27.86	60.63	123.05	-62.42	Peak
3	0.023	29.87	23.92	53.79	120.21	-66.42	Peak
4	0.030	26.95	23.56	50.51	118.06	-67.55	Peak
5	0.044	24.08	19.30	43.38	114.76	-71.38	Peak
6	0.063	20.97	21.10	42.07	111.63	-69.56	Peak



Site : chamber
Condition : 3m
Job No. : 2604Q29440E-RF
Polarization : Parallel Tester: Jayden Luo
Test Mode : BLE Transmitting
Note : Exterior Assembly
Receiver Setting: RBW:10kHz VBW:30kHz

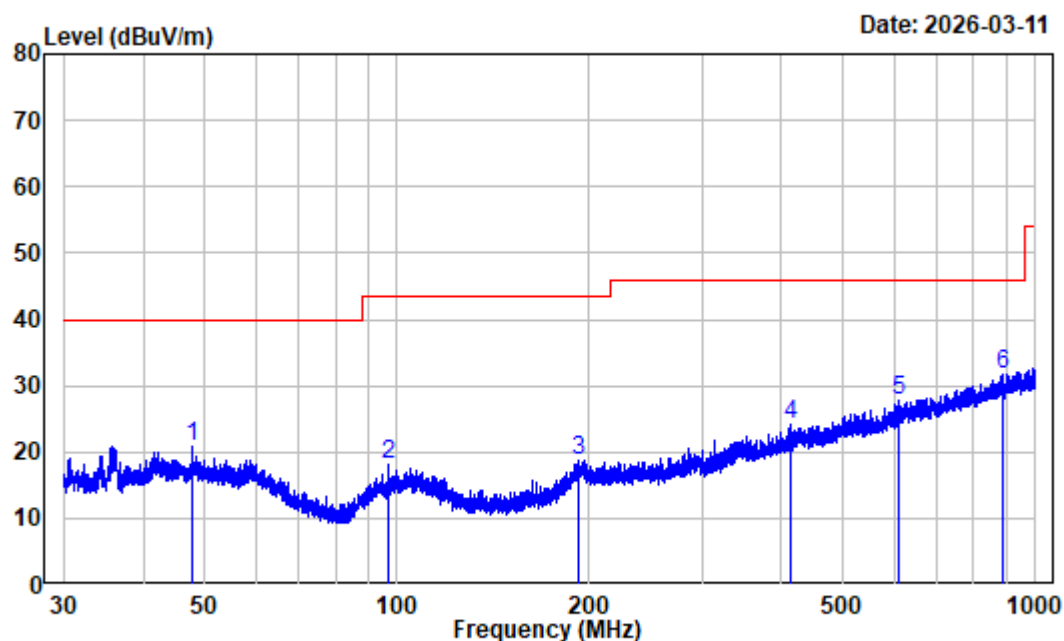
Freq Factor		Read Level	Level	Limit Line	Over Limit	Remark
MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.373	5.81	40.86	46.67	96.17	-49.50 Peak
2	1.236	-2.67	61.69	59.02	65.60	-6.58 Peak
3	2.213	-5.48	62.47	56.99	69.54	-12.55 Peak
4	3.364	-6.00	65.67	59.67	69.54	-9.87 Peak
5	9.809	-5.38	40.48	35.10	69.54	-34.44 Peak
6	13.989	-4.28	37.89	33.61	69.54	-35.93 Peak

30MHz~1GHz:



Site : chamber
 Condition : 3m HORIZONTAL
 Job No. : 2604Q29440E-RF Tester: Jayden Luo
 Test Mode : BLE Transmitting
 Note : Exterior Assembly
 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	54.071	-10.45	29.06	18.61	40.00	-21.39	Peak
2	104.582	-11.14	29.11	17.97	43.50	-25.53	Peak
3	170.868	-13.57	34.77	21.20	43.50	-22.30	Peak
4	285.727	-9.12	29.03	19.91	46.00	-26.09	Peak
5	447.394	-4.89	30.95	26.06	46.00	-19.94	Peak
6	827.493	0.58	34.31	34.89	46.00	-11.11	Peak



Site : chamber
 Condition : 3m VERTICAL
 Job No. : 2604Q29440E-RF Tester: Jayden Luo
 Test Mode : BLE Transmitting
 Note : Exterior Assembly
 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	47.868	-9.82	30.59	20.77	40.00	-19.23	Peak
2	97.072	-12.00	30.10	18.10	43.50	-25.40	Peak
3	193.010	-9.97	28.54	18.57	43.50	-24.93	Peak
4	414.722	-5.36	29.47	24.11	46.00	-21.89	Peak
5	610.457	-1.80	29.59	27.79	46.00	-18.21	Peak
6	888.388	1.58	30.16	31.74	46.00	-14.26	Peak

1GHz-25GHz

Environmental Conditions

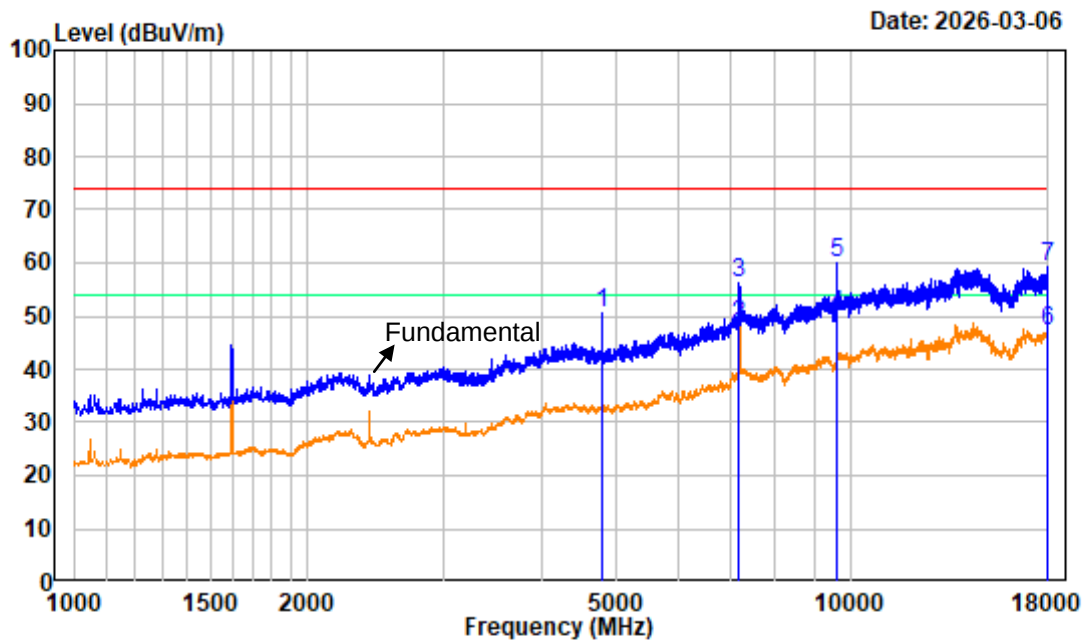
Temperature:	22.5-25.5℃
Relative Humidity:	53-56%
ATM Pressure:	100.4kPa
Test Engineer:	Angel Chen/Max Tao
Test Date:	2026-3-6~2026-3-25
EUT Operation Mode:	Transmitting

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 2M High Channel 2480MHz was tested.

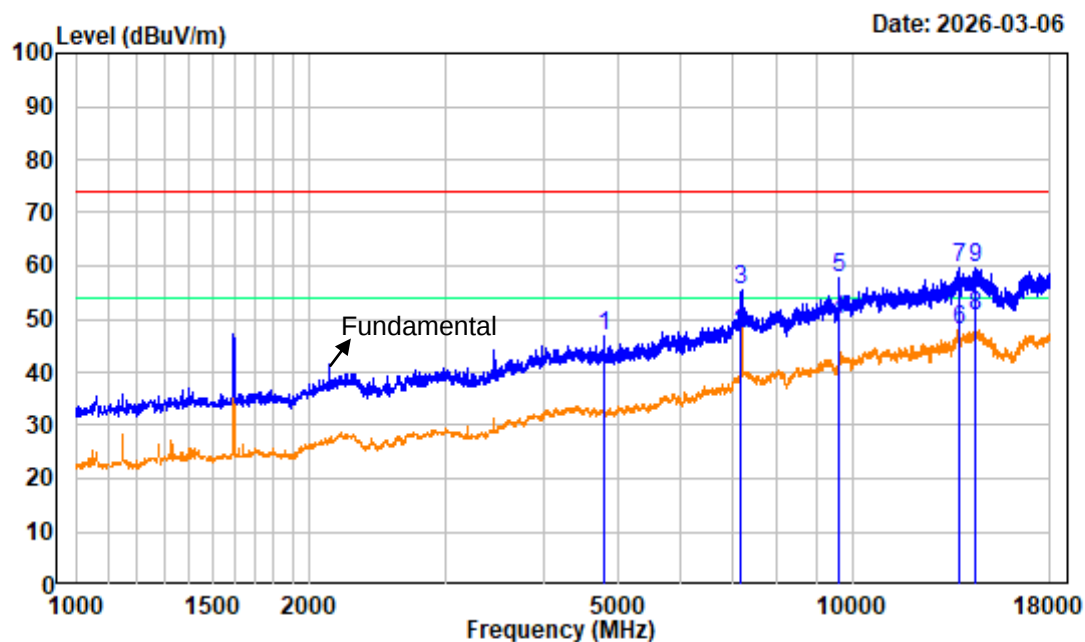
BLE 1M Low Channel 1GHz-18GHz_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
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	4804.000	-6.64	57.38	50.74	74.00	-23.26	Peak
2	7206.000	-1.36	49.58	48.22	54.00	-5.78	Average
3	7206.000	-1.36	57.52	56.16	74.00	-17.84	Peak
4	9608.000	1.68	48.44	50.12	54.00	-3.88	Average
5	9608.000	1.68	58.48	60.16	74.00	-13.84	Peak
6	17942.630	8.18	38.88	47.06	54.00	-6.94	Average
7	17942.630	8.18	50.90	59.08	74.00	-14.92	Peak

BLE 1M Low Channel 1GHz-18GHz_VERTICAL



Site : chamber

Condition : 3m VERTICAL

Project No.: 2604Q29440E-RF

Test Mode : Transmitting

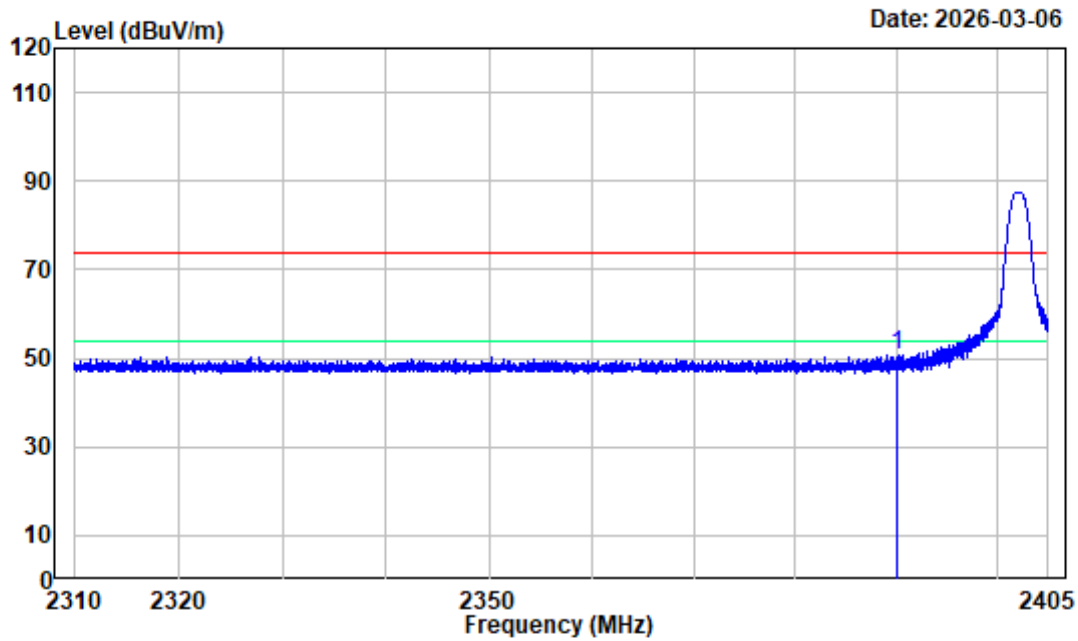
Tester: Angel Chen

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	4804.000	-6.64	53.47	46.83	74.00	-27.17	Peak
2	7206.000	-1.36	48.64	47.28	54.00	-6.72	Average
3	7206.000	-1.36	56.66	55.30	74.00	-18.70	Peak
4	9608.000	1.68	48.00	49.68	54.00	-4.32	Average
5	9608.000	1.68	56.04	57.72	74.00	-16.28	Peak
6	13720.250	7.98	39.79	47.77	54.00	-6.23	Average
7	13720.250	7.98	51.74	59.72	74.00	-14.28	Peak
8	14412.000	8.50	42.21	50.71	54.00	-3.29	Average
9	14412.000	8.50	51.30	59.80	74.00	-14.20	Peak

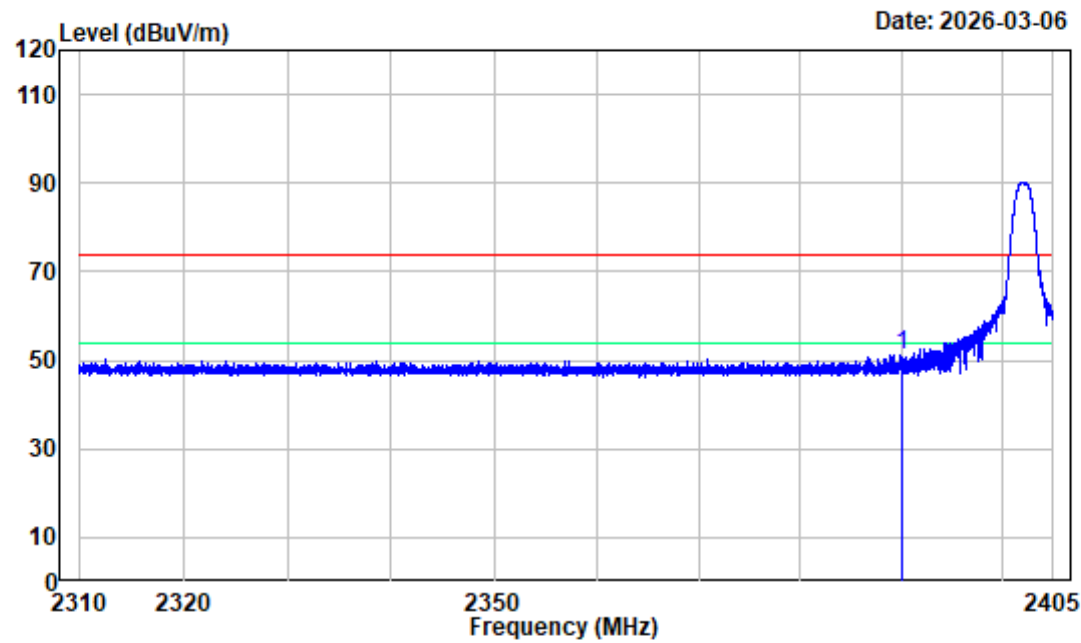
BLE 1M Low Channel Bandedge_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
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	61.06	50.81	74.00	-23.19 Peak

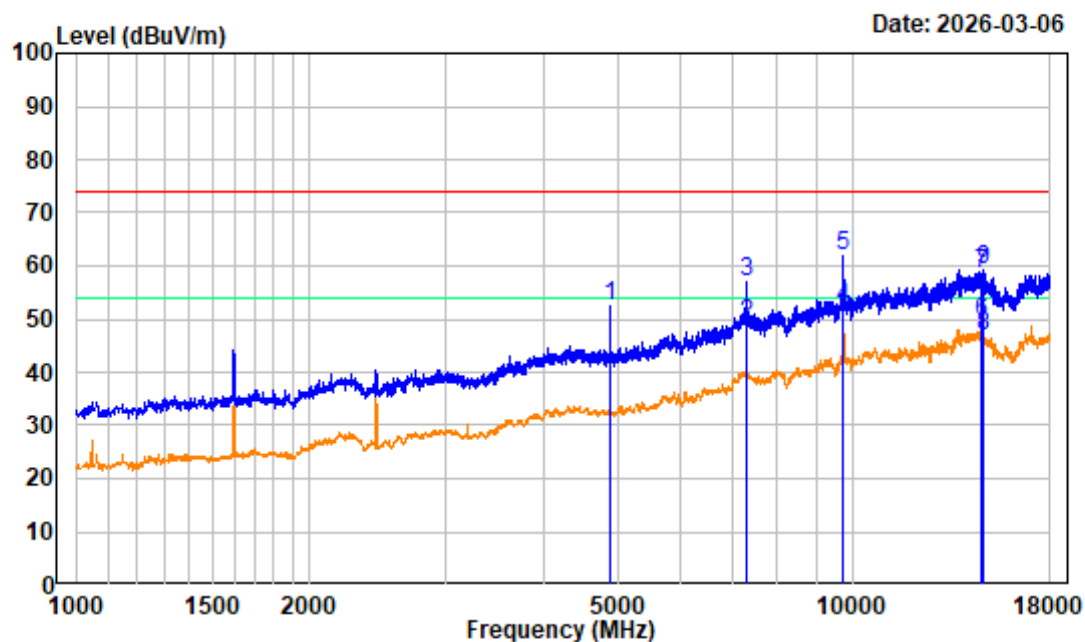
BLE 1M Low Channel Bandedge_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
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	61.46	51.21	74.00	-22.79 Peak

BLE 1M Middle Channel 1GHz-18GHz_HORIZONTAL



Site : chamber

Condition : 3m HORIZONTAL

Project No.: 2604Q29440E-RF

Test Mode : Transmitting

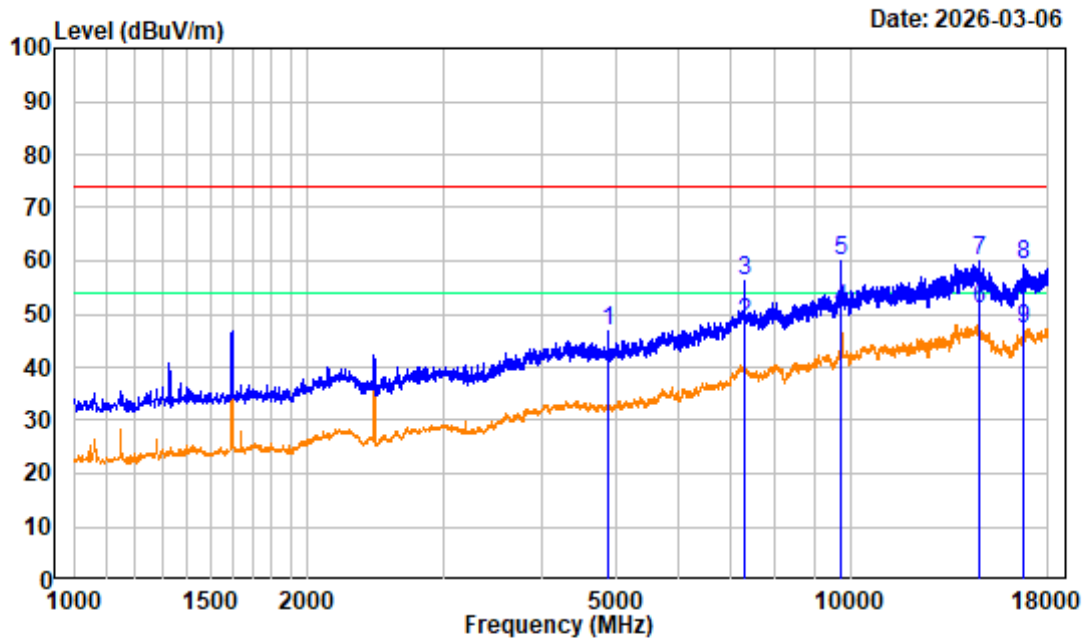
Tester: Angel Chen

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	4880.000	-6.57	59.04	52.47	74.00	-21.53	Peak
2	7320.000	-1.16	50.21	49.05	54.00	-4.95	Average
3	7320.000	-1.16	58.24	57.08	74.00	-16.92	Peak
4	9760.000	1.96	49.98	51.94	54.00	-2.06	Average
5	9760.000	1.96	59.95	61.91	74.00	-12.09	Peak
6	14640.000	8.63	40.90	49.53	54.00	-4.47	Average
7	14640.000	8.63	49.87	58.50	74.00	-15.50	Peak
8	14738.130	8.08	38.79	46.87	54.00	-7.13	Average
9	14738.130	8.08	51.16	59.24	74.00	-14.76	Peak

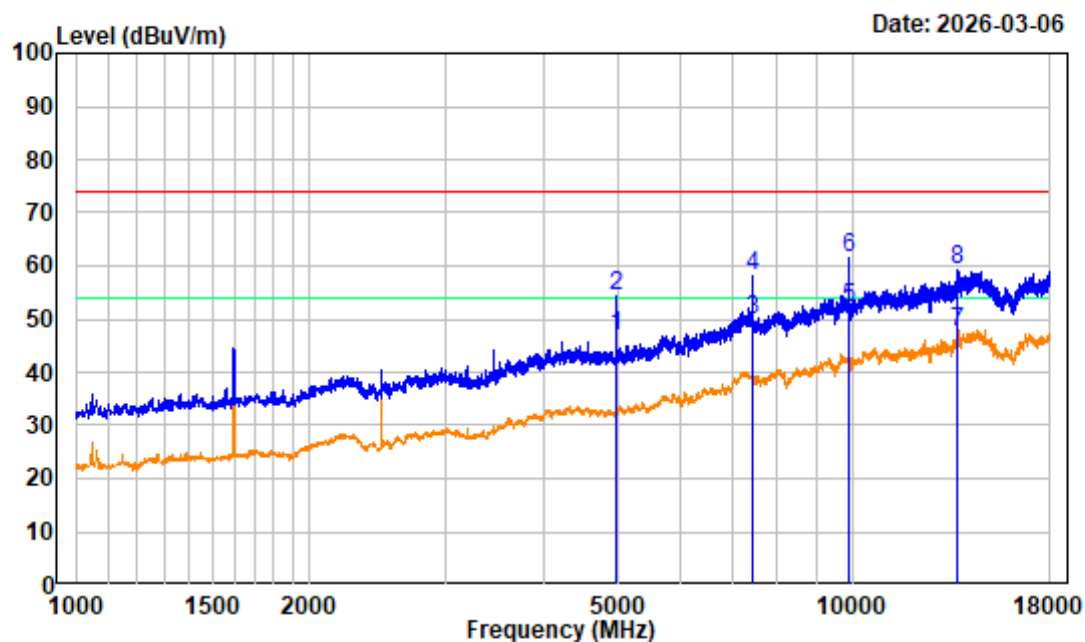
BLE 1M Middle Channel 1GHz-18GHz_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
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	4880.000	-6.57	53.43	46.86	74.00	-27.14 Peak
2	7320.000	-1.16	49.35	48.19	54.00	-5.81 Average
3	7320.000	-1.16	57.44	56.28	74.00	-17.72 Peak
4	9760.000	1.96	49.07	51.03	54.00	-2.97 Average
5	9760.000	1.96	58.09	60.05	74.00	-13.95 Peak
6	14640.000	8.63	42.28	50.91	54.00	-3.09 Average
7	14640.000	8.63	51.30	59.93	74.00	-14.07 Peak
8	16765.380	7.55	51.63	59.18	74.00	-14.82 Peak
9	16765.380	7.55	39.53	47.08	54.00	-6.92 Average

BLE 1M High Channel 1GHz-18GHz_HORIZONTAL



Site : chamber

Condition : 3m HORIZONTAL

Project No.: 2604Q29440E-RF

Test Mode : Transmitting

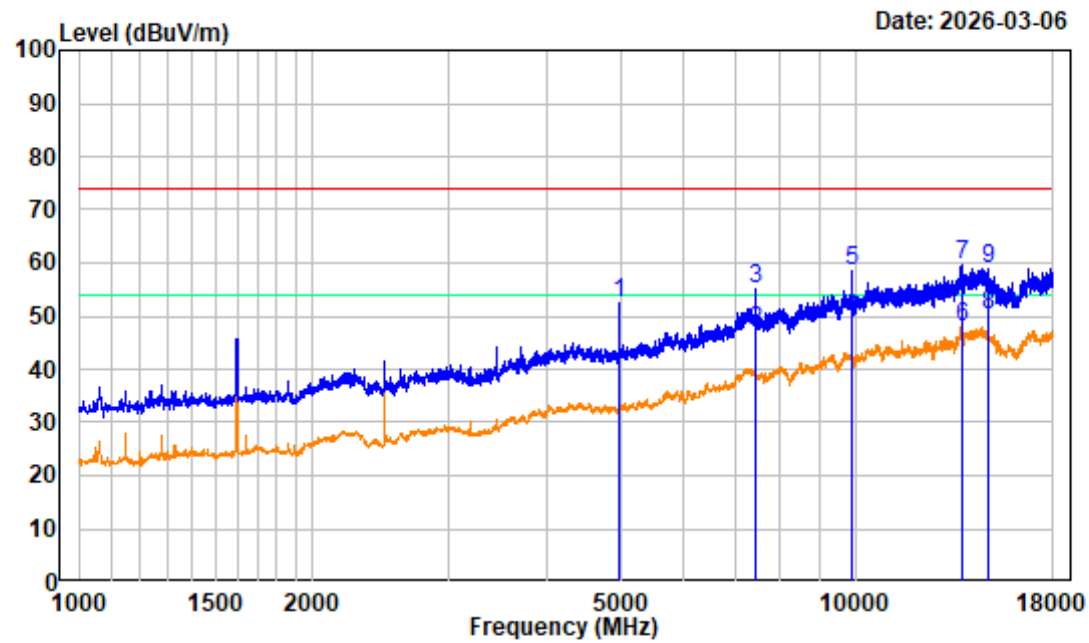
Tester: Angel Chen

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 4960.000	-6.32	53.16	46.84	54.00	-7.16	Average
2 4960.000	-6.32	60.74	54.42	74.00	-19.58	Peak
3 7440.000	-0.97	50.75	49.78	54.00	-4.22	Average
4 7440.000	-0.97	59.02	58.05	74.00	-15.95	Peak
5 9920.000	2.15	50.03	52.18	54.00	-1.82	Average
6 9920.000	2.15	59.27	61.42	74.00	-12.58	Peak
7 13701.130	8.11	39.51	47.62	54.00	-6.38	Average
8 13701.130	8.11	50.95	59.06	74.00	-14.94	Peak

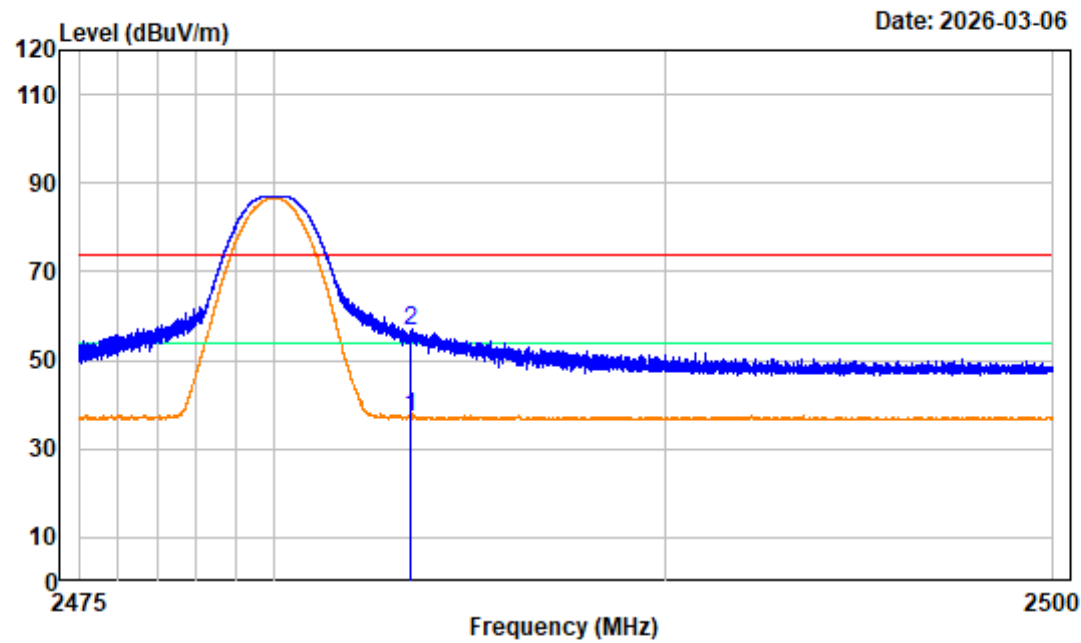
BLE 1M High Channel 1GHz-18GHz_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
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	4960.000	-6.32	58.86	52.54	74.00	-21.46	Peak
2	7440.000	-0.97	48.12	47.15	54.00	-6.85	Average
3	7440.000	-0.97	56.19	55.22	74.00	-18.78	Peak
4	9920.000	2.15	47.10	49.25	54.00	-4.75	Average
5	9920.000	2.15	56.16	58.31	74.00	-15.69	Peak
6	13722.380	7.96	39.82	47.78	54.00	-6.22	Average
7	13722.380	7.96	51.60	59.56	74.00	-14.44	Peak
8	14880.000	7.16	43.00	50.16	54.00	-3.84	Average
9	14880.000	7.16	51.68	58.84	74.00	-15.16	Peak

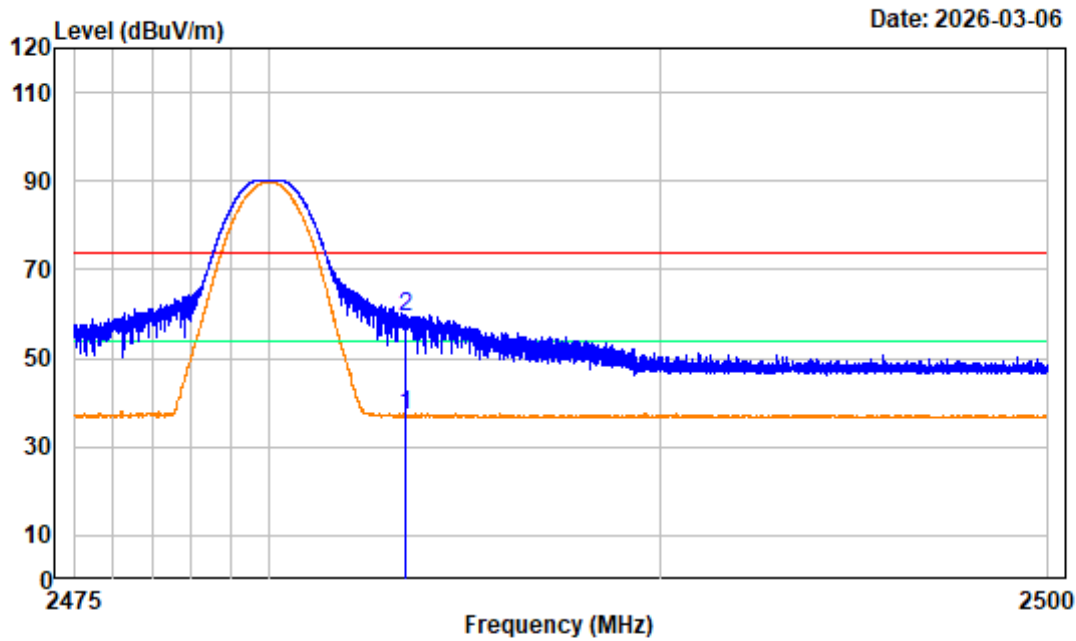
BLE 1M High Channel Bandedge_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
Note : BLE 1M High Channel 2480MHz Bandedge
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	2483.500 -10.23	47.28	37.05	54.00	-16.95	Average
2	2483.500 -10.23	66.82	56.59	74.00	-17.41	Peak

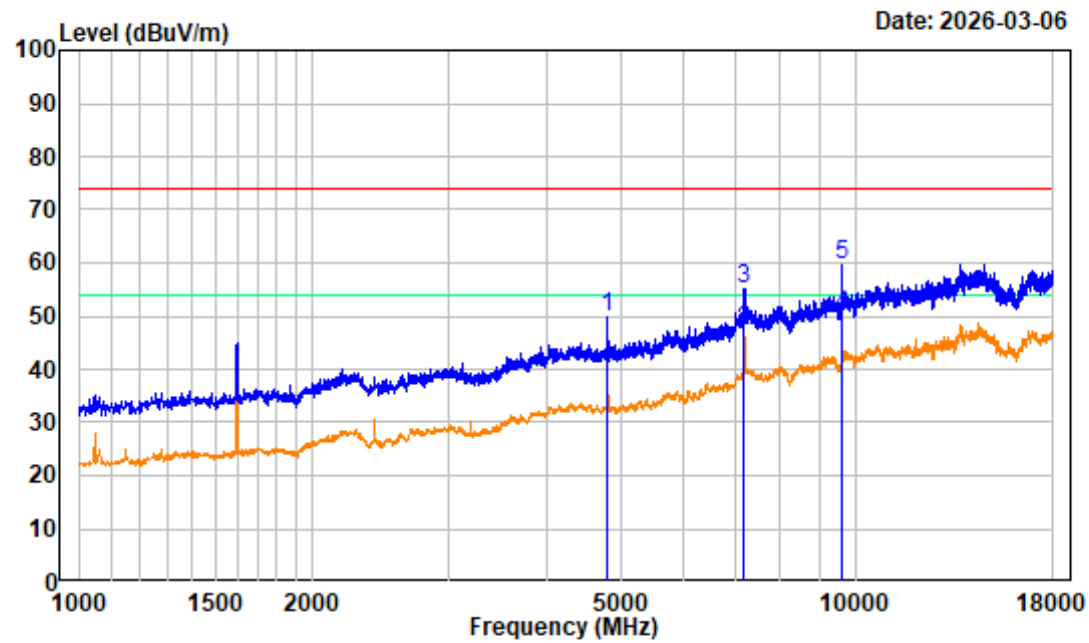
BLE 1M High Channel Bandedge_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
Note : BLE 1M High Channel 2480MHz Bandedge
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	2483.500 -10.23	47.22	36.99	54.00	-17.01	Average
2	2483.500 -10.23	69.73	59.50	74.00	-14.50	Peak

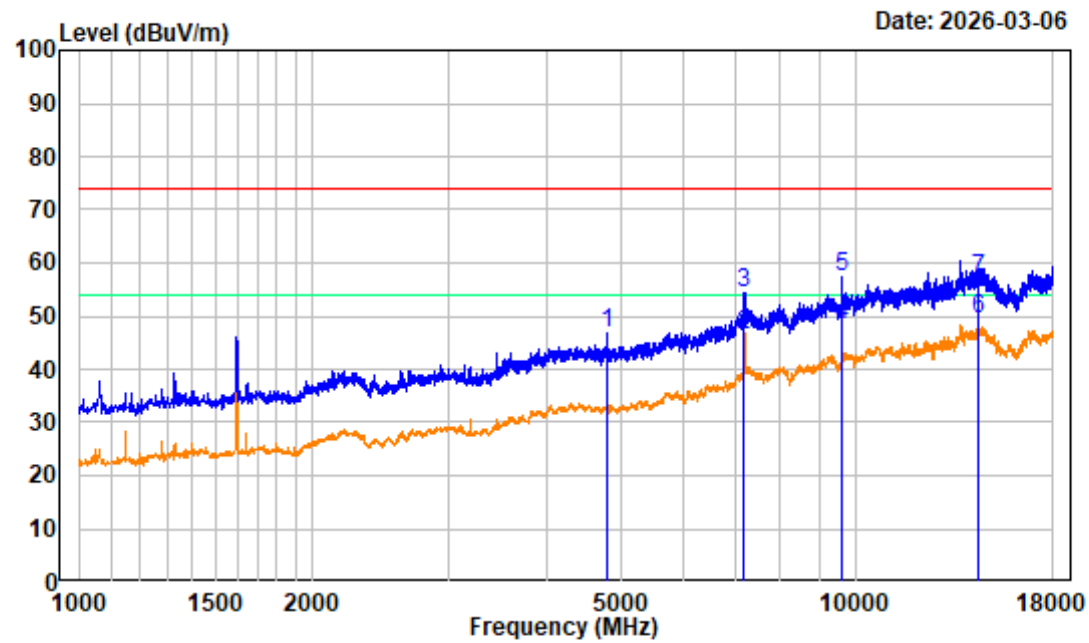
BLE 2M Low Channel 1GHz-18GHz_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
Note : BLE 2M 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	4804.000	-6.64	56.57	49.93	74.00	-24.07 Peak
2	7206.000	-1.36	48.59	47.23	54.00	-6.77 Average
3	7206.000	-1.36	56.56	55.20	74.00	-18.80 Peak
4	9608.000	1.68	48.56	50.24	54.00	-3.76 Average
5	9608.000	1.68	58.13	59.81	74.00	-14.19 Peak

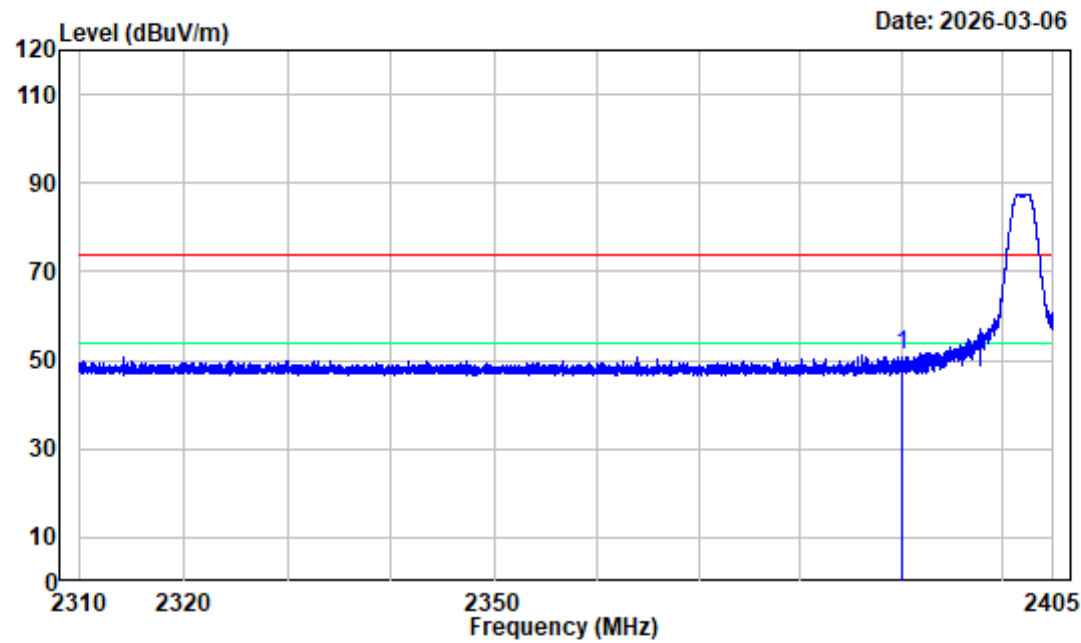
BLE 2M Low Channel 1GHz-18GHz_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
Note : BLE 2M 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	4804.000	-6.64	53.52	46.88	74.00	-27.12 Peak
2	7206.000	-1.36	47.75	46.39	54.00	-7.61 Average
3	7206.000	-1.36	55.77	54.41	74.00	-19.59 Peak
4	9608.000	1.68	46.80	48.48	54.00	-5.52 Average
5	9608.000	1.68	55.81	57.49	74.00	-16.51 Peak
6	14412.000	8.50	40.75	49.25	54.00	-4.75 Average
7	14412.000	8.50	48.52	57.02	74.00	-16.98 Peak

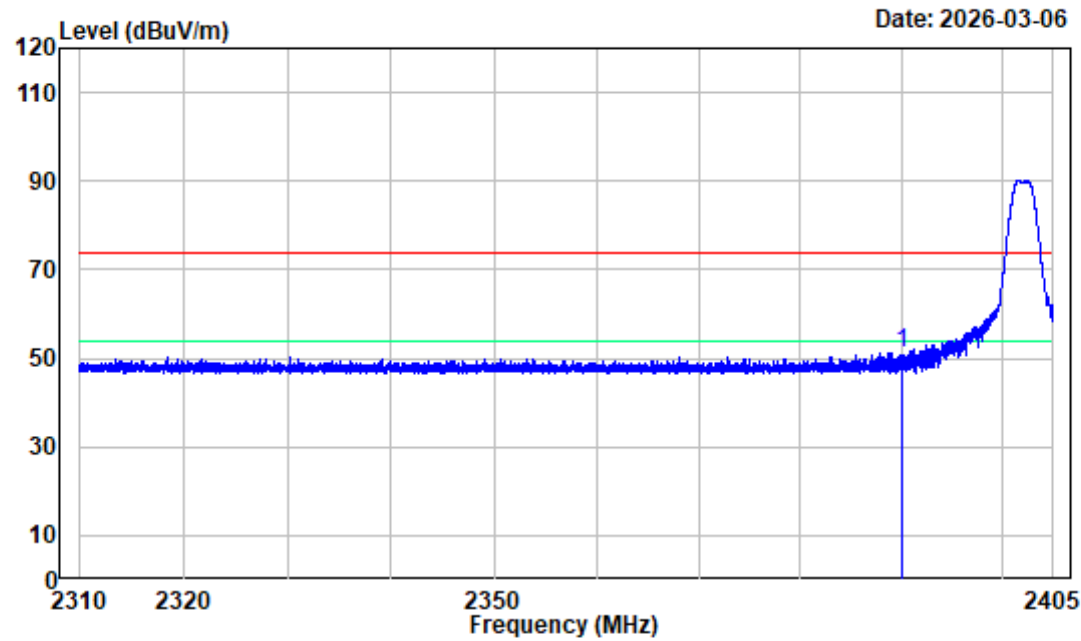
BLE 2M Low Channel Bandedge_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
Note : BLE 2M 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	61.45	51.20	74.00	-22.80 Peak

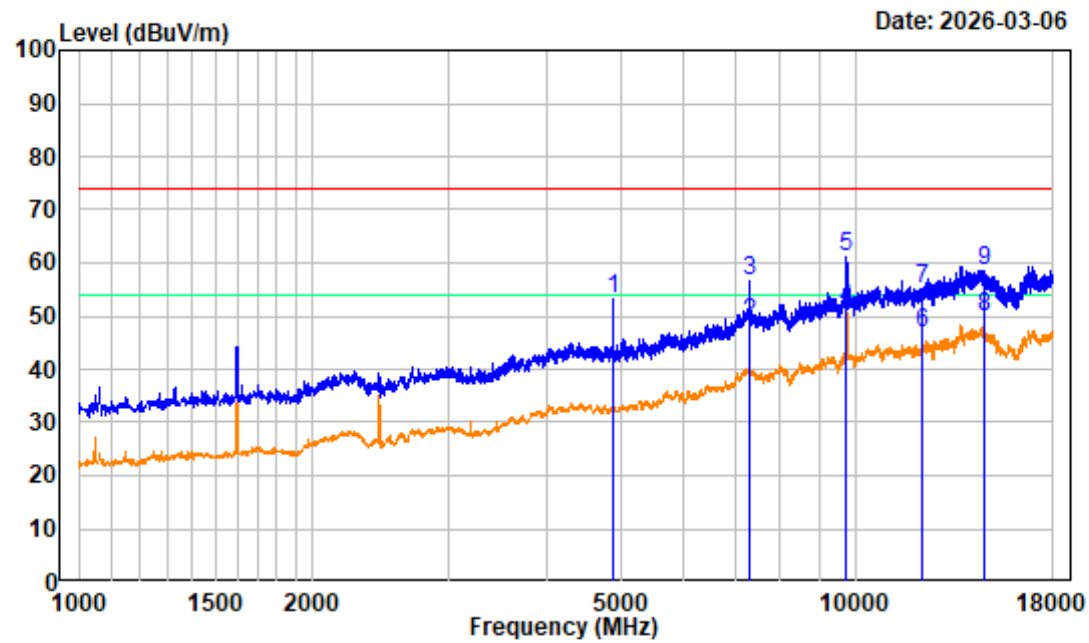
BLE 2M Low Channel Bandedge_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
Note : BLE 2M 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	61.63	51.38	74.00	-22.62 Peak

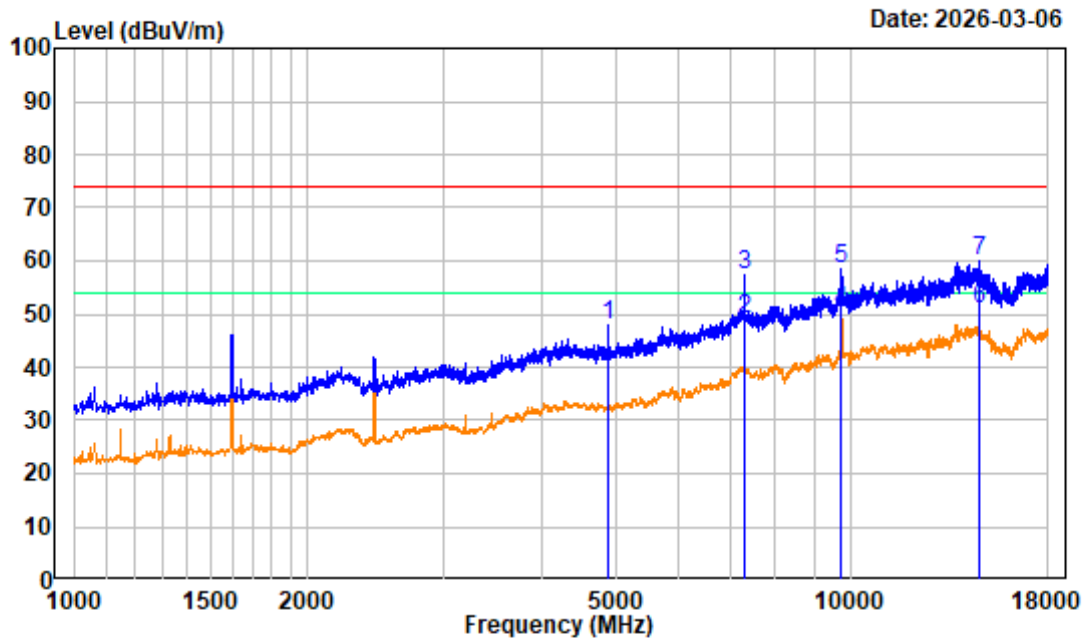
BLE 2M Middle Channel 1GHz-18GHz_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
Note : BLE 2M Middle Channel 2440MHz 1GHz-18GHz
SA setting : Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

	Freq	Factor	Read		Limit	Over	Remark
			Level	Level			
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4880.000	-6.57	59.68	53.11	74.00	-20.89	Peak
2	7320.000	-1.16	49.81	48.65	54.00	-5.35	Average
3	7320.000	-1.16	57.58	56.42	74.00	-17.58	Peak
4	9760.000	1.96	49.20	51.16	54.00	-2.84	Average
5	9760.000	1.96	59.24	61.20	74.00	-12.80	Peak
6	12200.000	5.27	41.52	46.79	54.00	-7.21	Average
7	12200.000	5.27	49.67	54.94	74.00	-19.06	Peak
8	14640.000	8.63	41.21	49.84	54.00	-4.16	Average
9	14640.000	8.63	49.83	58.46	74.00	-15.54	Peak

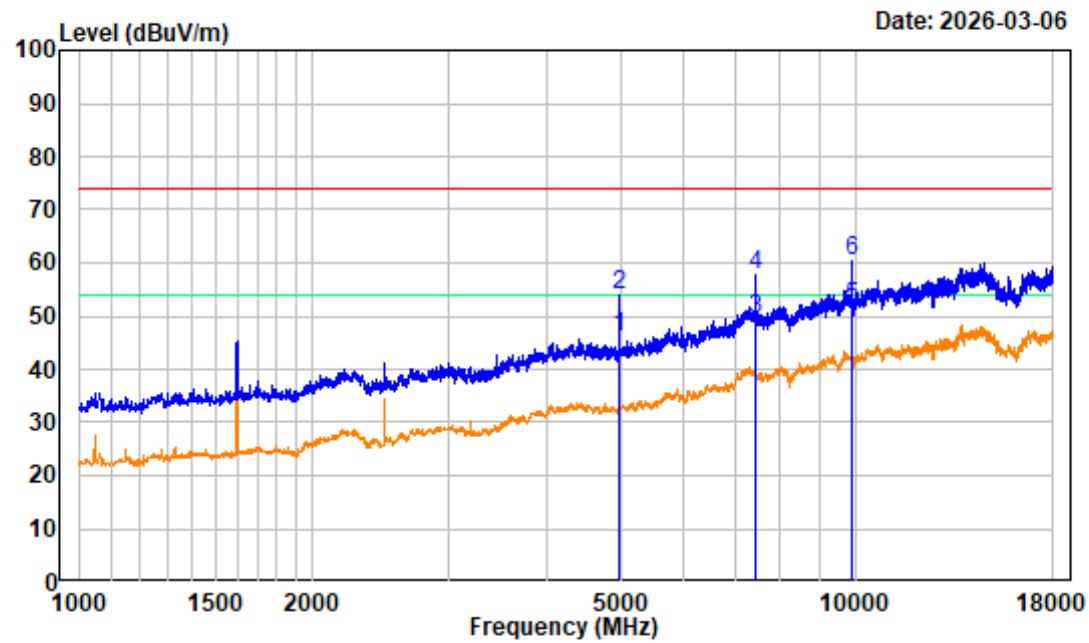
BLE 2M Middle Channel 1GHz-18GHz_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
Note : BLE 2M 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 4880.000	-6.57	54.38	47.81	74.00	-26.19	Peak
2 7320.000	-1.16	50.05	48.89	54.00	-5.11	Average
3 7320.000	-1.16	58.40	57.24	74.00	-16.76	Peak
4 9760.000	1.96	48.62	50.58	54.00	-3.42	Average
5 9760.000	1.96	56.46	58.42	74.00	-15.58	Peak
6 14640.000	8.63	42.33	50.96	54.00	-3.04	Average
7 14640.000	8.63	51.37	60.00	74.00	-14.00	Peak

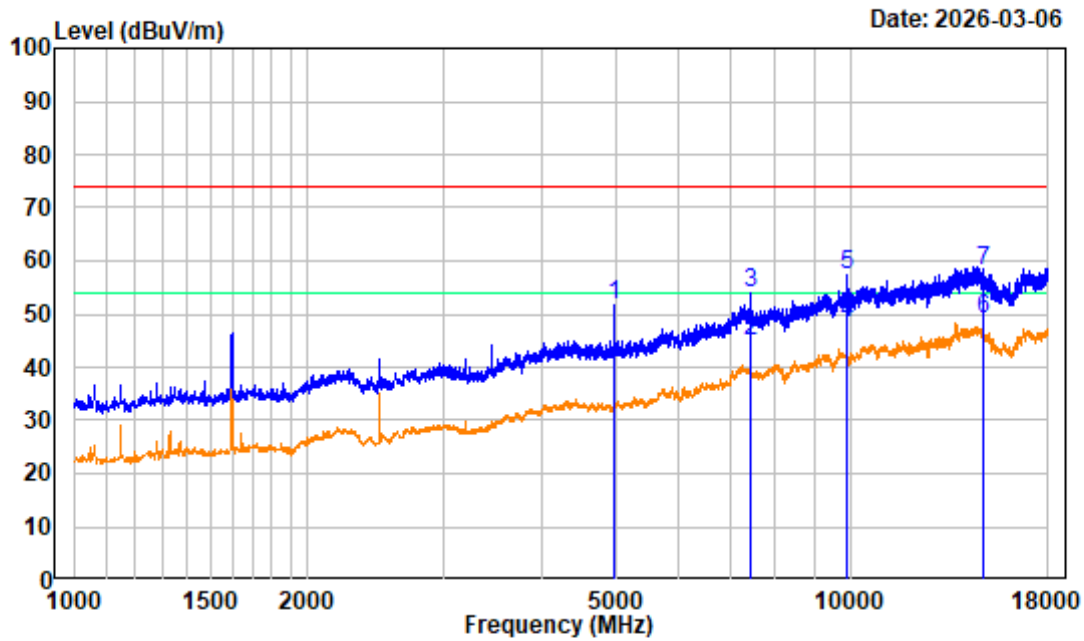
BLE 2M High Channel 1GHz-18GHz_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
Note : BLE 2M 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	4960.000	-6.32	52.46	46.14	54.00	-7.86 Average
2	4960.000	-6.32	60.45	54.13	74.00	-19.87 Peak
3	7440.000	-0.97	50.48	49.51	54.00	-4.49 Average
4	7440.000	-0.97	58.52	57.55	74.00	-16.45 Peak
5	9920.000	2.15	49.70	51.85	54.00	-2.15 Average
6	9920.000	2.15	58.28	60.43	74.00	-13.57 Peak

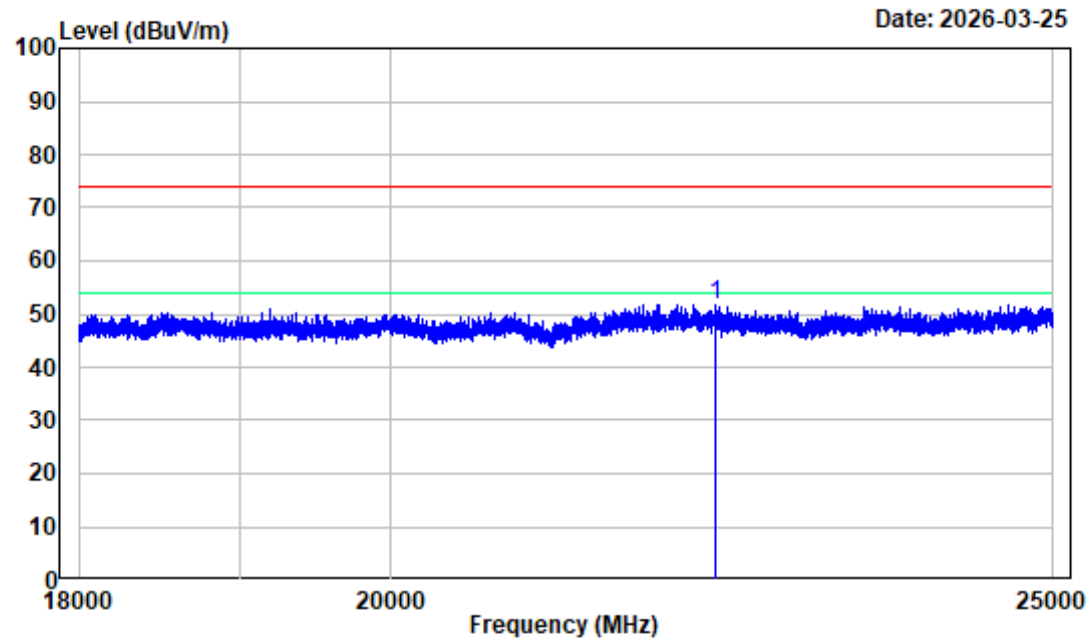
BLE 2M High Channel 1GHz-18GHz_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
Note : BLE 2M 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	4960.000	-6.32	58.00	51.68	74.00	-22.32 Peak
2	7440.000	-0.97	45.78	44.81	54.00	-9.19 Average
3	7440.000	-0.97	55.07	54.10	74.00	-19.90 Peak
4	9920.000	2.15	46.28	48.43	54.00	-5.57 Average
5	9920.000	2.15	55.14	57.29	74.00	-16.71 Peak
6	14880.000	7.16	42.02	49.18	54.00	-4.82 Average
7	14880.000	7.16	51.13	58.29	74.00	-15.71 Peak

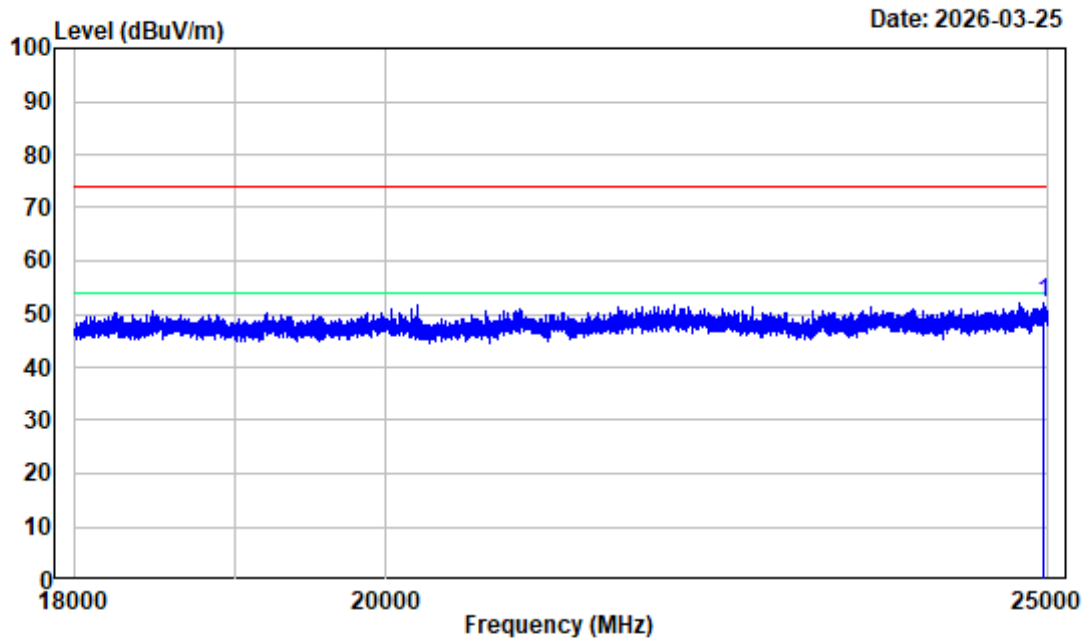
BLE 2M High Channel 18GHz-25GHz_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Max Tao
Note : BLE 2M High Channel 2480MHz 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 22309.380	0.84	50.98	51.82	74.00	-22.18	Peak

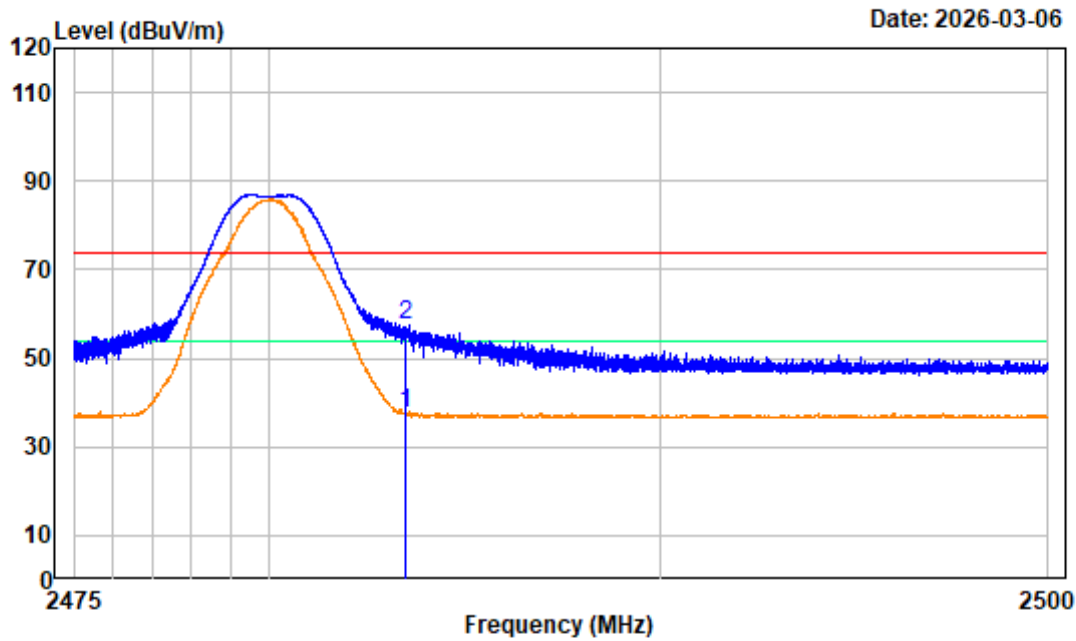
BLE 2M High Channel 18GHz-25GHz_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Max Tao
Note : BLE 2M High Channel 2480MHz 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 24958.000	4.23	47.74	51.97	74.00	-22.03	Peak

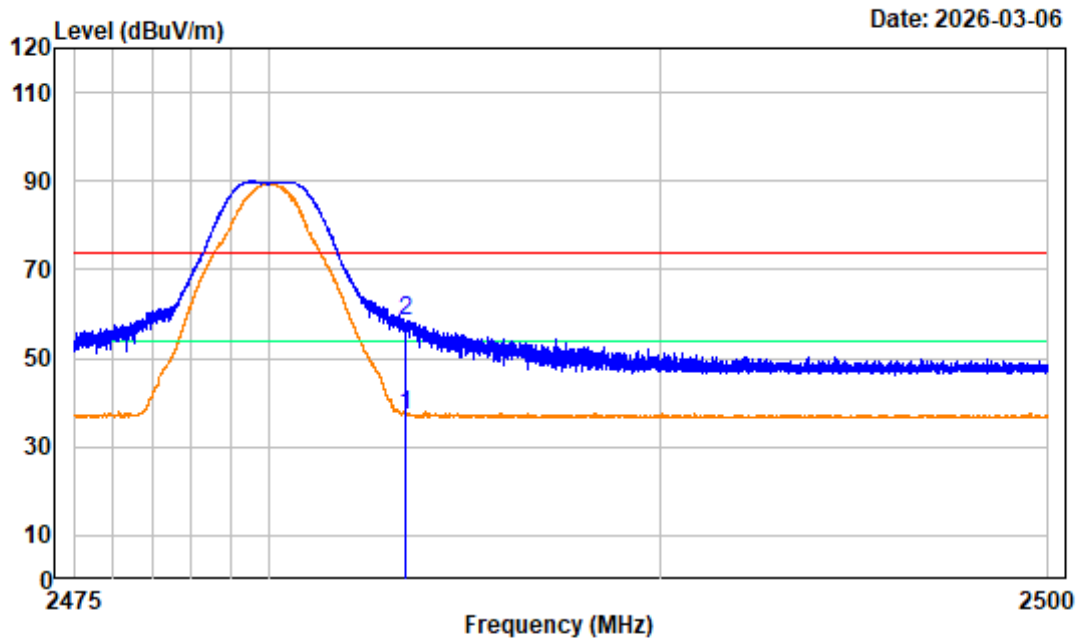
BLE 2M High Channel Bandedge_HORIZONTAL



Site : chamber
Condition : 3m HORIZONTAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
Note : BLE 2M High Channel 2480MHz Bandedge
SA setting : Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

Freq Factor		Read Level	Level	Limit	Over	Remark
MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500 -10.23	47.68	37.45	54.00	-16.55	Average
2	2483.500 -10.23	67.56	57.33	74.00	-16.67	Peak

BLE 2M High Channel Bandedge_VERTICAL



Site : chamber
Condition : 3m VERTICAL
Project No.: 2604Q29440E-RF
Test Mode : Transmitting Tester:Angel Chen
Note : BLE 2M High Channel 2480MHz Bandedge
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	2483.500 -10.23	47.51	37.28	54.00	-16.72	Average
2	2483.500 -10.23	68.44	58.21	74.00	-15.79	Peak

6 dB EMISSION BANDWIDTH & OCCUPIED BANDWIDTH

Applicable Standard

According to FCC §15.247(a)(2):

Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

According to RSS-247 §6.3.1 (a):

The following applies to the bands 902-928 MHz and 2400-2483.5 MHz:

- a. the minimum 6 dB bandwidth shall be 500 kHz.

According to RSS-GEN §6.7:

The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

In some cases, the “6 dB bandwidth” is required, which is defined as the frequency range between two points, one at the lowest frequency below and one at the highest frequency above the carrier frequency, at which the maximum power level of the transmitted emission is attenuated 6 dB below the maximum in-band power level of the modulated signal, where the two points are on the outskirts of the in-band emission.

Test Procedure

According to ANSI C63.10-2020, section 11.8 and section 6.9

The steps for the first option are as follows:

- a) Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz.
- b) Set the VBW $\geq [3 \times \text{RBW}]$.
- c) Detector = peak.
- d) Trace mode = max-hold.
- e) Sweep = No faster than coupled (auto) time.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission by placing two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “–6 dB down amplitude”. If a marker is below this “–6 dB down amplitude” value, then it shall be as close as possible to this value.

According to ANSI C63.10-2020, section 7.8.6 and section 6.9.3

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:

- a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
- b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be at least three times the RBW, unless otherwise specified by the applicable requirement.
- c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (\text{OBW}/\text{RBW})]$ below the reference level. Specific guidance is given in 4.1.6.2.
- d) Step a) through step c) might require iteration to adjust within the specified range.
- e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max-hold mode (until the trace stabilizes) shall be used.
- f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.

- g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
- h) The occupied bandwidth shall be reported by providing spectral plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

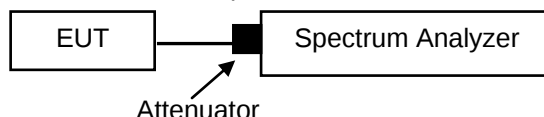
According to RSS-GEN § 6.7,

The following conditions shall be observed for measuring the occupied bandwidth and x dB bandwidth:

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.
- The detector of the spectrum analyzer shall be set to "Sample". However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or "Max Hold") may be necessary to determine the occupied / x dB bandwidth if the device is not transmitting continuously.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in compliance with the above requirement.

For the 99% emission bandwidth, the trace data points are recovered and directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99% emission bandwidth).



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

Test Data

Test Result: Compliance. Please refer to the Appendix.

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 § 6.3.2:

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.

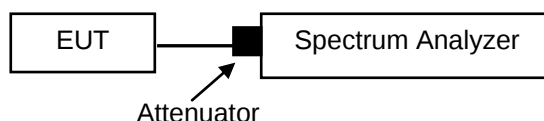
Test Procedure

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:

- Set the RBW $\geq$ DTS bandwidth.
- Set VBW $\geq [3 \times \text{RBW}]$.
- Set span $\geq [3 \times \text{RBW}]$.
- Sweep time = No faster than coupled (auto) time.
- Detector = peak.
- Trace mode = max-hold.
- Allow trace to fully stabilize.
- Use peak marker function to determine the peak amplitude level.



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

Test Data

Test Result: Compliance. Please refer to the Appendix.

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:

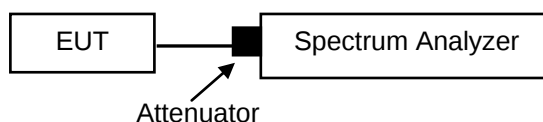
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum device, digitally modulated device, or hybrid system is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired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

- 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
- Set the RBW: 100 kHz
- Set the VBW $\geq [3 \times \text{RBW}]$.
- Detector = peak.
- Sweep time = No faster than coupled (auto) time.
- Trace mode = max-hold.
- Allow trace to fully stabilize.
- 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

Test Result: Compliance. Please refer to the Appendix.

POWER SPECTRAL DENSITY

Applicable Standard

According to FCC §15.247(e):

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. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

According to RSS-247 §6.3.1(b):

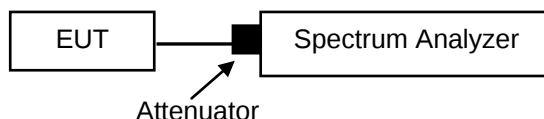
The following applies to the bands 902-928 MHz and 2400-2483.5 MHz:

b. the transmitter power spectral density conducted from the transmitter to the antenna(s) shall not be greater than 8 dBm/3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 6.3.2 The power spectral density shall be determined using the same method as is used to determine the maximum conducted output power.

Test Procedure

According to ANSI C63.10-2020, section 11.10.2

- Set analyzer center frequency to DTS channel center frequency.
- Set the span >1.5 times the DTS bandwidth.
- Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set the VBW $\geq [3 \times \text{RBW}]$.
- Detector = peak.
- Sweep time = No faster than coupled (auto) time.
- Trace mode = max-hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level within the RBW.
- If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.



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

Test Data

Test Result: Compliance. Please refer to the Appendix.

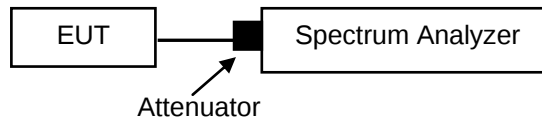
DUTY CYCLE

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 $RBW \geq OBW$ if possible; otherwise, set RBW to the largest available value.
 - 3) Set $VBW \geq RBW$. 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 $T \leq 16.7 \mu s$.)



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

Test Data

Test Result: Compliance. Please refer to the Appendix.

APPENDIX

Test Information:

Sample No.:	3I3R-2	Test Date:	2026/03/09
Test Site:	RF	Test Mode:	Transmitting
Tester:	Benny Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	23.2	Relative Humidity: (%)	48	ATM Pressure: (kPa)	100.4
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6dB Emission Bandwidth

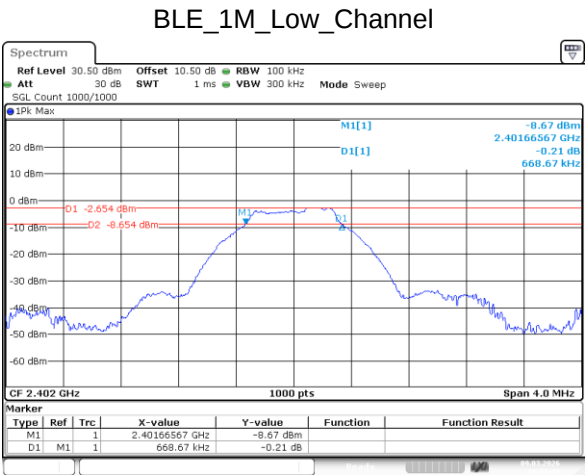
BLE 1M

Channel	Result (MHz)	Limit (MHz)	Verdict
Low	0.669	≥0.5	Pass
Middle	0.665	≥0.5	Pass
High	0.669	≥0.5	Pass

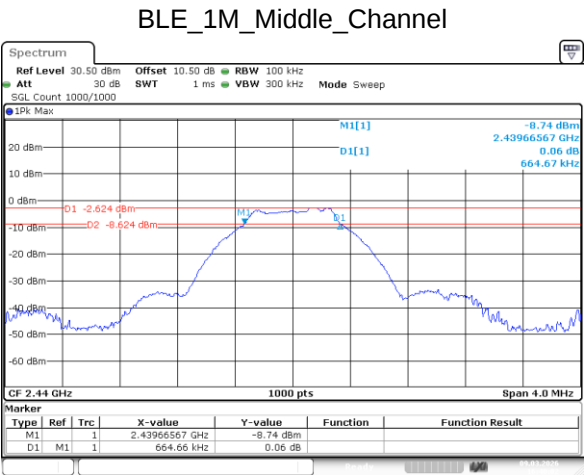
BLE 2M

Channel	Result (MHz)	Limit (MHz)	Verdict
Low	1.129	≥0.5	Pass
Middle	1.129	≥0.5	Pass
High	1.135	≥0.5	Pass

BLE 1M

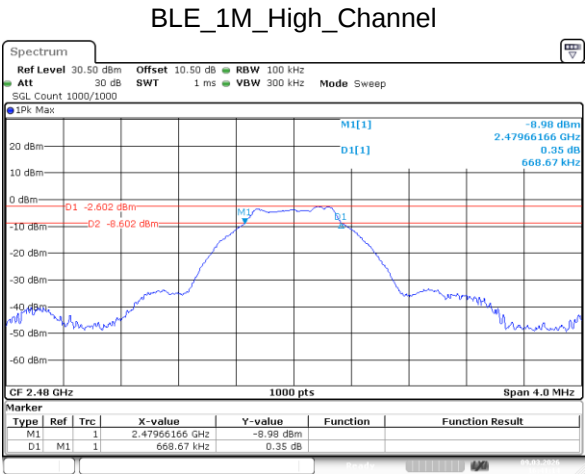


ProjectNo.:2604Q29440E-RFA Tester:Benny Li
Date: 9.MAR.2026 16:38:49

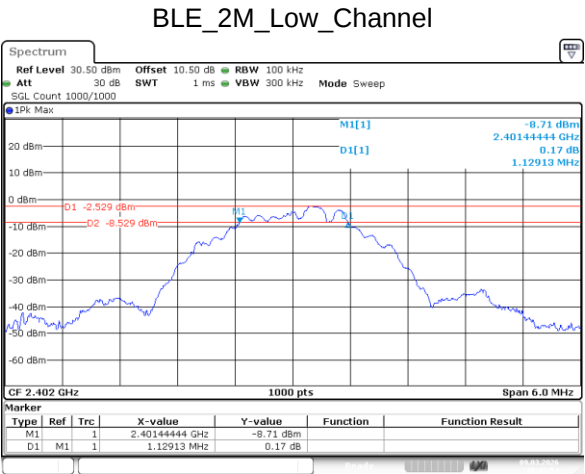


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Date: 9.MAR.2026 16:40:02

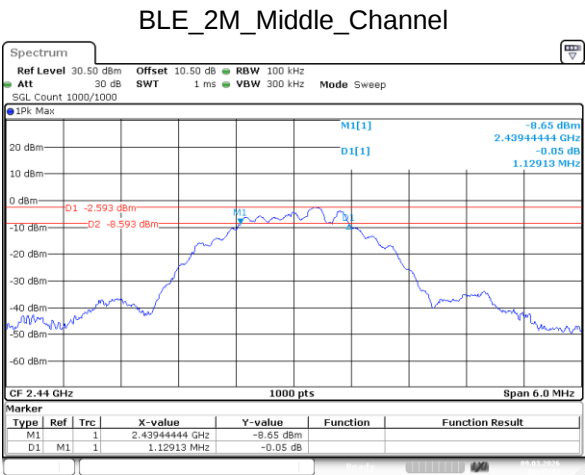
BLE 2M



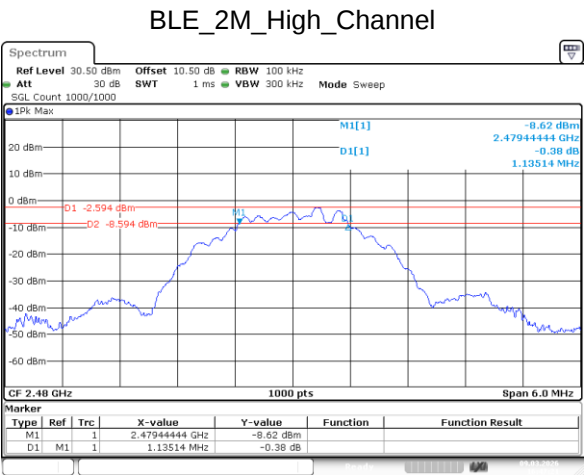
ProjectNo.:2604Q29440E-RFA Tester:Benny Li
Date: 9.MAR.2026 16:41:14



ProjectNo.:2604Q29440E-RFA Tester:Benny Li
Date: 9.MAR.2026 16:42:54



ProjectNo.:2604Q29440E-RFA Tester:Benny Li
Date: 9.MAR.2026 16:45:13



ProjectNo.:2604Q29440E-RFA Tester:Benny Li
Date: 9.MAR.2026 16:47:21

99% Occupied Bandwidth

BLE 1M

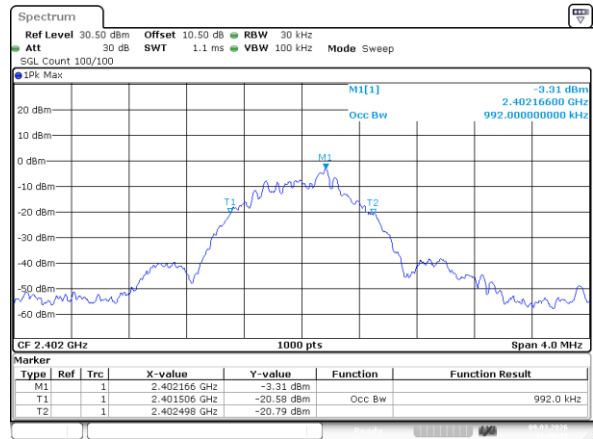
Channel	99% OBW (MHz)
Low	0.992
Middle	1.020
High	1.008

BLE 2M

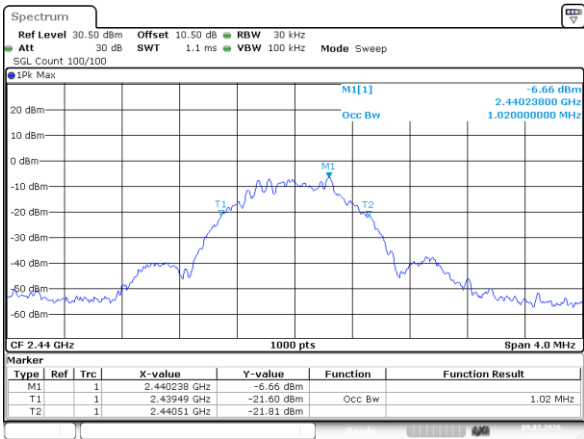
Channel	99% OBW (MHz)
Low	2.016
Middle	2.004
High	2.004

BLE 1M

BLE_1M_Low_Channel



BLE_1M_Middle_Channel

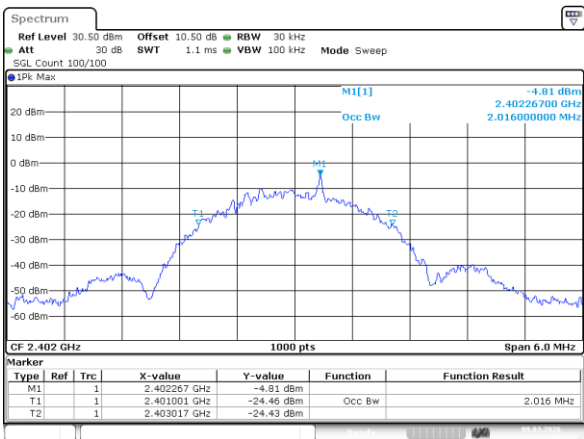


BLE 2M

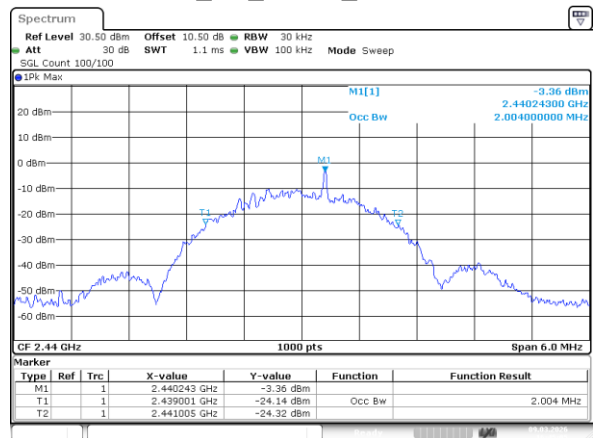
BLE_1M_High_Channel



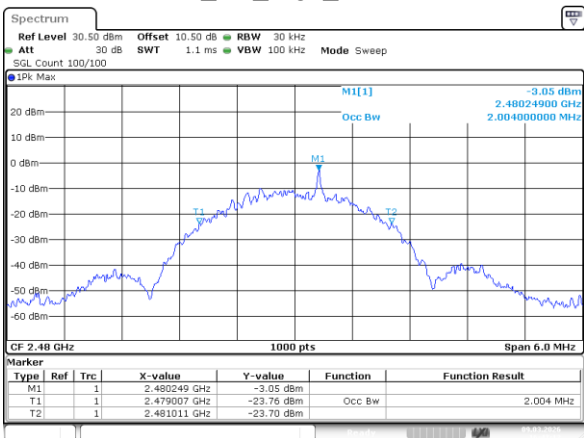
BLE_2M_Low_Channel



BLE_2M_Middle_Channel



BLE_2M_High_Channel



Maximum Conducted Output Power

BLE 1M

Channel	Peak Output Power (dBm)	Limit (dBm)	Verdict
Low	-2.31	30.00	Pass
Middle	-2.29	30.00	Pass
High	-2.24	30.00	Pass

BLE 2M

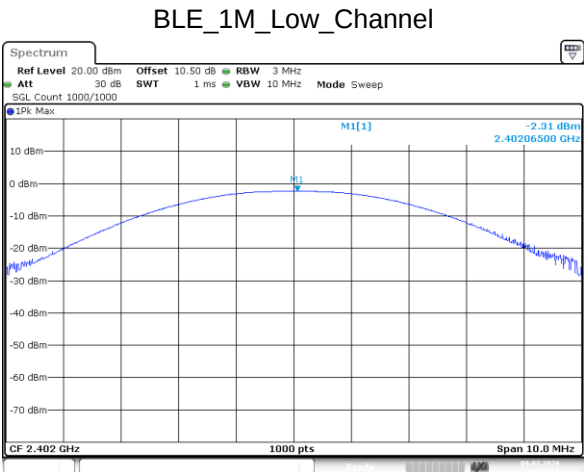
Channel	Peak Output Power (dBm)	Limit (dBm)	Verdict
Low	-2.27	30.00	Pass
Middle	-2.24	30.00	Pass
High	-2.16	30.00	Pass

Note 1: The antenna gain is 2.7dBi[#].

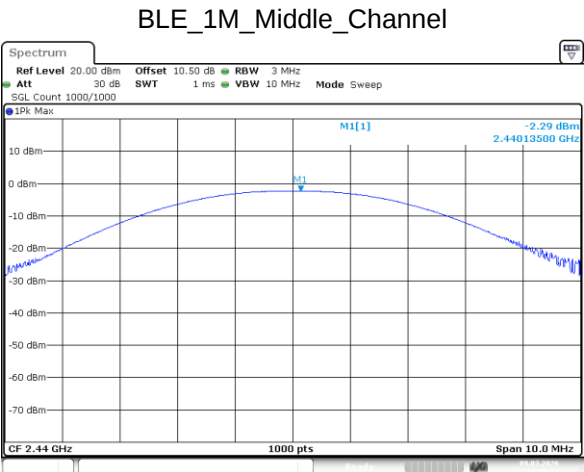
Note 2: EIRP = Conducted Peak Output Power + Antenna Gain

Note 3: The maximum EIRP is -2.16dBm+2.7dBi= 0.54dBm<36dBm, so it's compliance with ISED EIRP limit.

BLE 1M

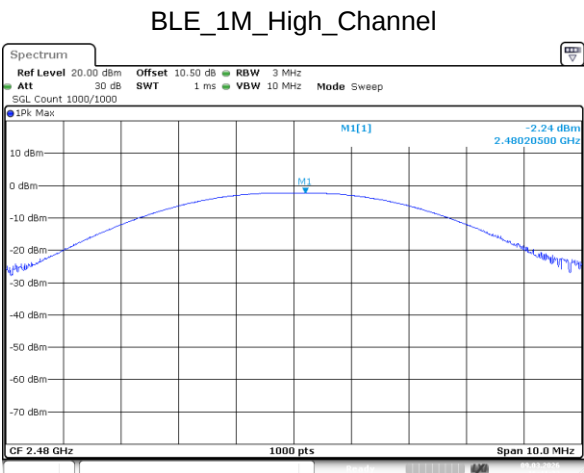


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Date: 9.MAR.2026 16:38:59

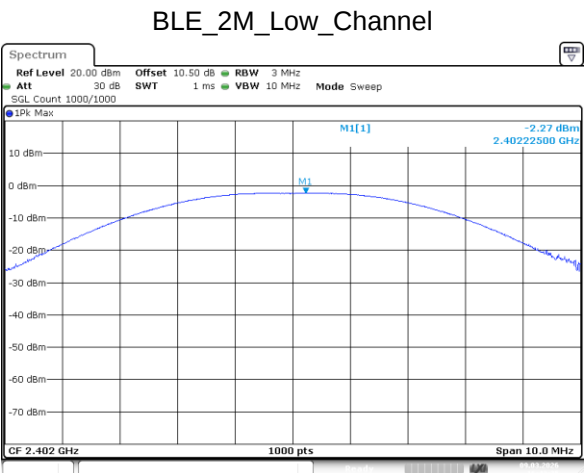


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Date: 9.MAR.2026 16:40:14

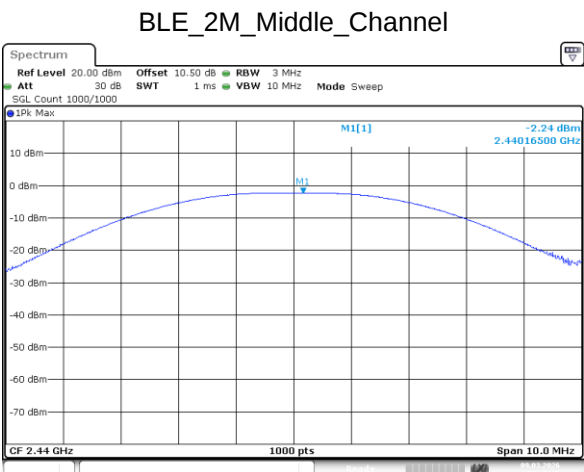
BLE 2M



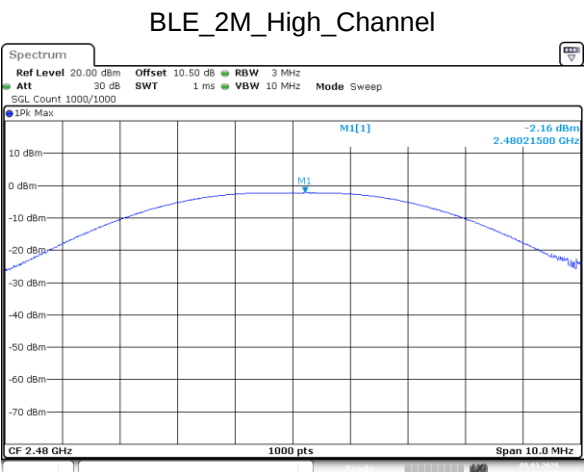
ProjectNo.:2604Q29440E-RFA Tester:Benny LI
Date: 9.MAR.2026 16:41:32



ProjectNo.:2604Q29440E-RFA Tester:Benny LI
Date: 9.MAR.2026 16:43:35



ProjectNo.:2604Q29440E-RFA Tester:Benny LI
Date: 9.MAR.2026 16:45:35



ProjectNo.:2604Q29440E-RFA Tester:Benny LI
Date: 9.MAR.2026 16:47:49

Power Spectral Density

BLE 1M

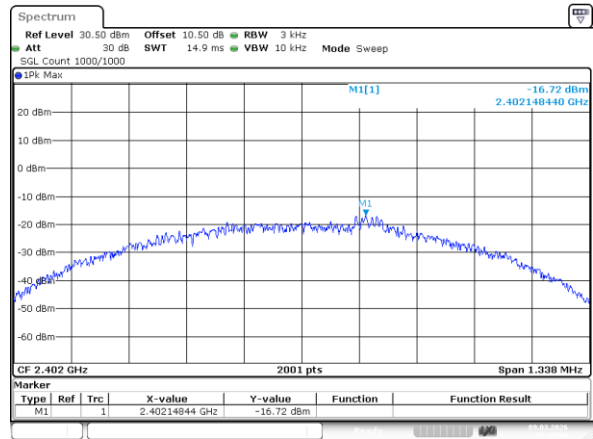
Channel	Result (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
Low	-16.72	8	Pass
Middle	-15.71	8	Pass
High	-16.63	8	Pass

BLE 2M

Channel	Result (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
Low	-16.45	8	Pass
Middle	-16.39	8	Pass
High	-16.02	8	Pass

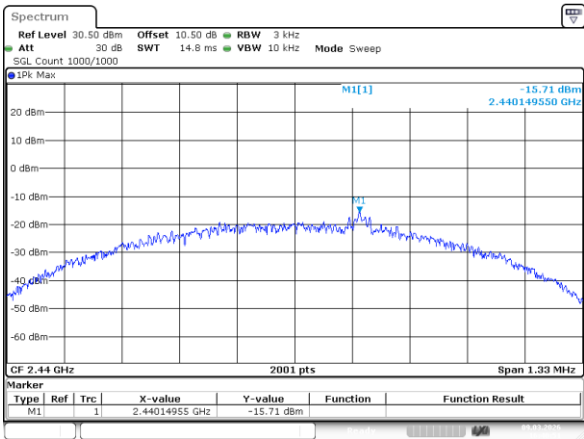
BLE 1M

BLE_1M_Low_Channel



ProjectNo.:2604Q29440E-RFA Tester:Benny Li
Date: 9.MAR.2026 16:39:36

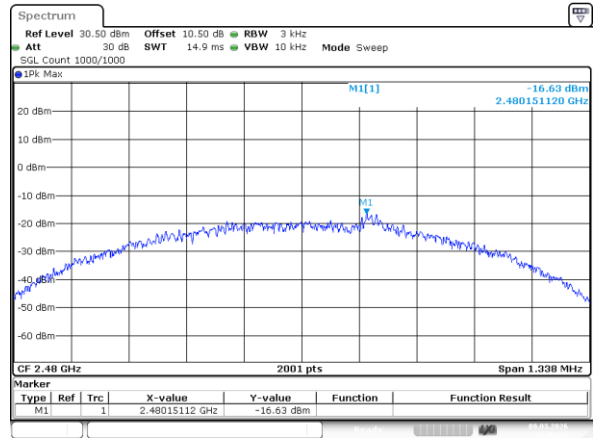
BLE_1M_Middle_Channel



ProjectNo.:2604Q29440E-RFA Tester:Benny Li
Date: 9.MAR.2026 16:40:51

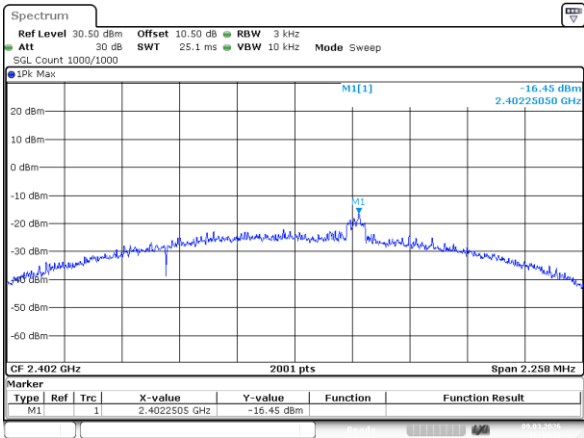
BLE 2M

BLE_1M_High_Channel



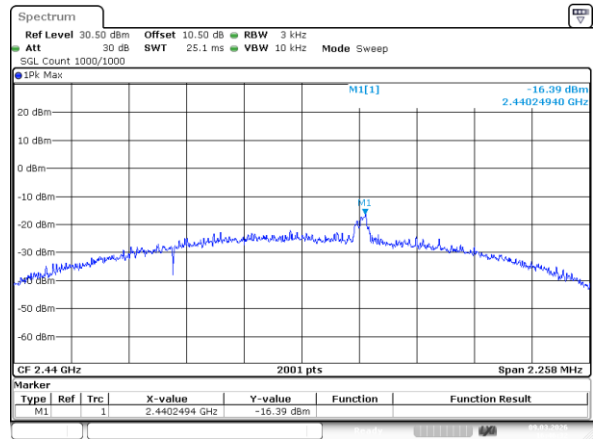
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Date: 9.MAR.2026 16:42:10

BLE_2M_Low_Channel



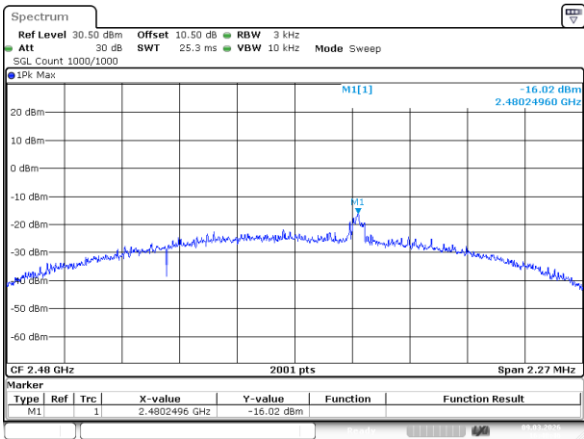
ProjectNo.:2604Q29440E-RFA Tester:Benny Li
Date: 9.MAR.2026 16:44:31

BLE_2M_Middle_Channel



ProjectNo.:2604Q29440E-RFA Tester:Benny Li
Date: 9.MAR.2026 16:46:32

BLE_2M_High_Channel



ProjectNo.:2604Q29440E-RFA Tester:Benny Li
Date: 9.MAR.2026 16:48:46

Duty Cycle

BLE 1M

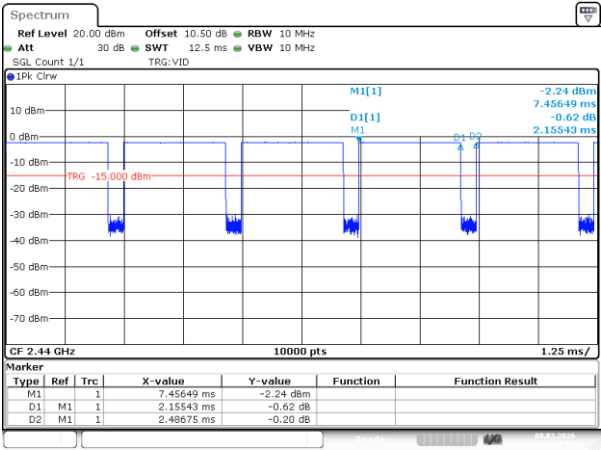
Channel	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	Duty Cycle Factor(dB)	1/Ton (Hz)	VBW Setting (kHz)
Middle	2.155	2.487	86.65	0.62	464	0.500

BLE 2M

Channel	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	Duty Cycle Factor(dB)	1/Ton (Hz)	VBW Setting (kHz)
Middle	1.111	1.870	59.41	2.26	900	1

BLE 1M

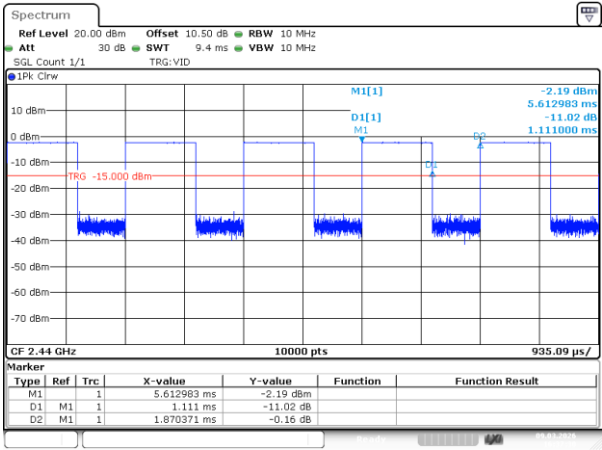
BLE_1M_Middle_Channel



ProjectNo.:2604Q29440E-RFA Tester:Benny LI
Date: 9.MAR.2026 16:37:07

BLE 2M

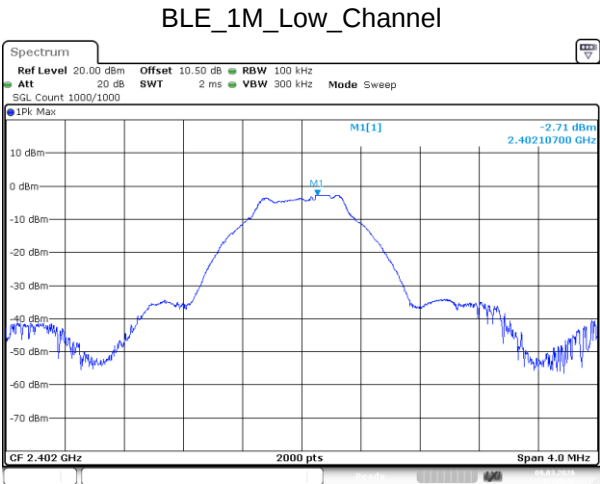
BLE_2M_Middle_Channel



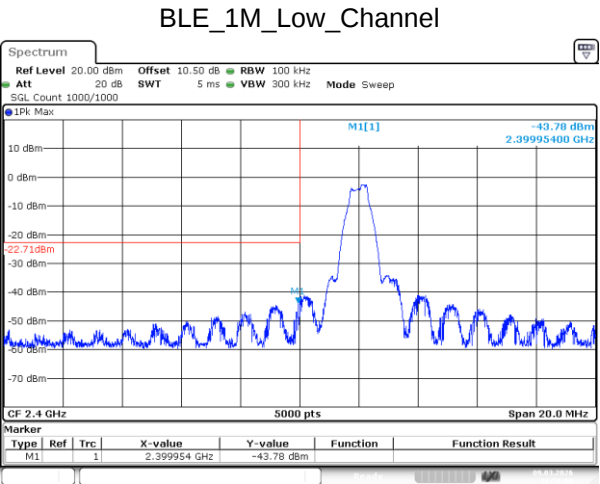
ProjectNo.:2604Q29440E-RFA Tester:Benny LI
Date: 9.MAR.2026 16:37:30

Conducted Spurious Emission

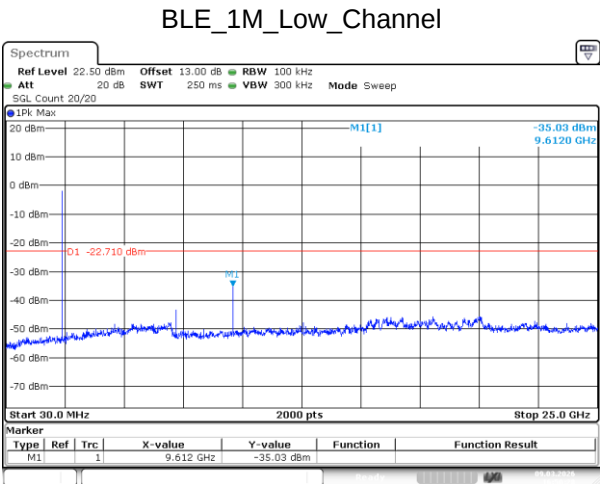
BLE 1M



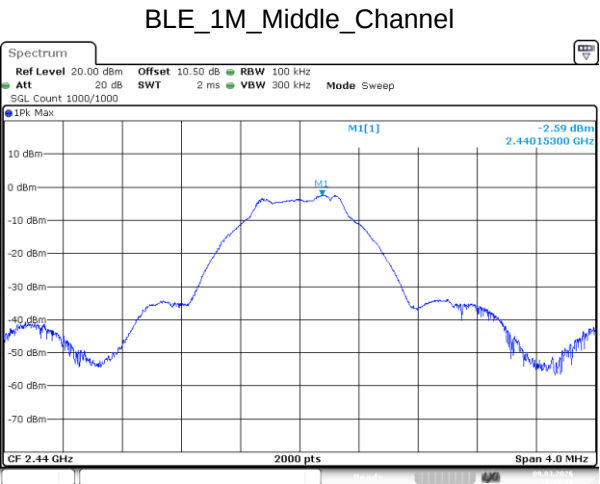
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Date: 9.MAR.2026 16:49:42



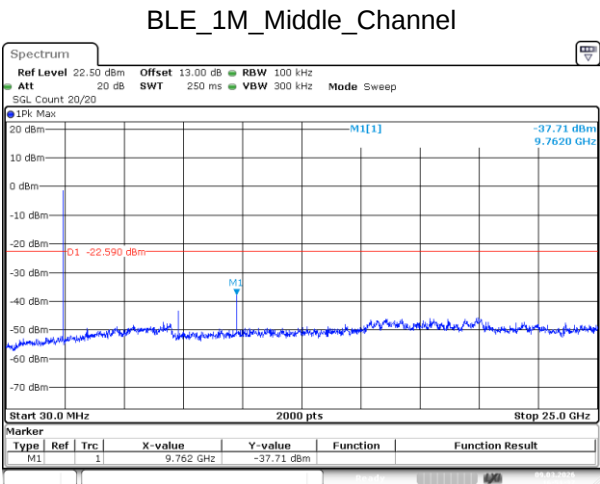
ProjectNo.:2604Q29440E-RFA Tester:Benny LI
Date: 9.MAR.2026 16:50:06



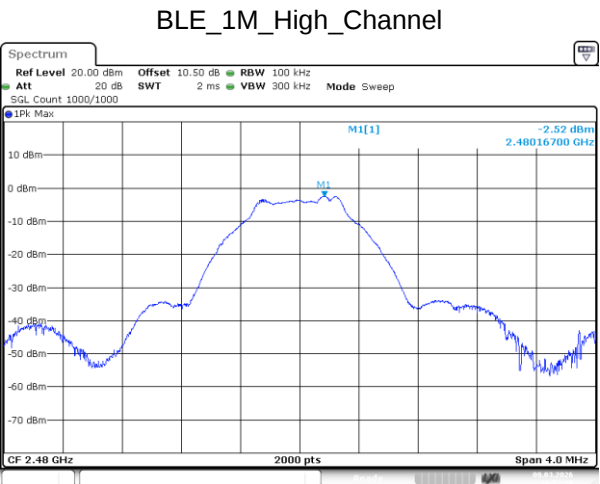
ProjectNo.:2604Q29440E-RFA Tester:Benny LI
Date: 9.MAR.2026 16:50:28



ProjectNo.:2604Q29440E-RFA Tester:Benny LI
Date: 9.MAR.2026 16:51:12

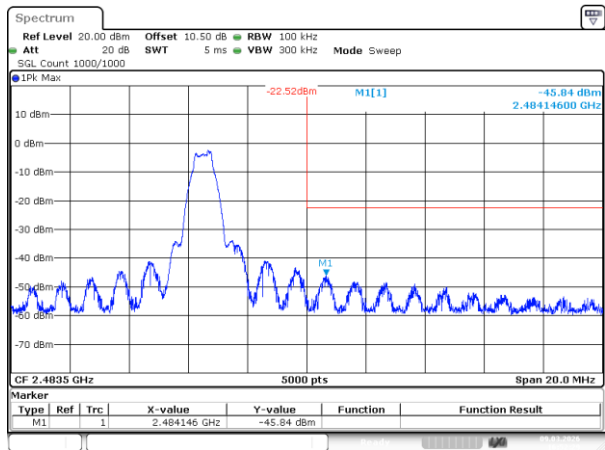


ProjectNo.:2604Q29440E-RFA Tester:Benny LI
Date: 9.MAR.2026 16:51:37



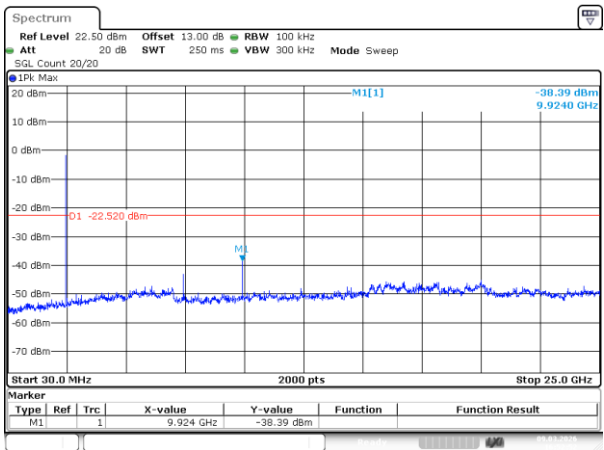
ProjectNo.:2604Q29440E-RFA Tester:Benny LI
Date: 9.MAR.2026 16:52:10

BLE_1M_High_Channel



ProjectNo.:2604Q29440E-RFA Tester:Benny LI
Date: 9.MAR.2026 16:52:29

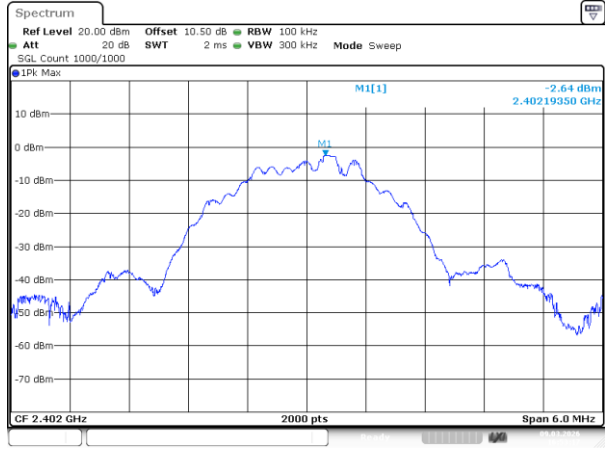
BLE_1M_High_Channel



ProjectNo.:2604Q29440E-RFA Tester:Benny LI
Date: 9.MAR.2026 16:52:52

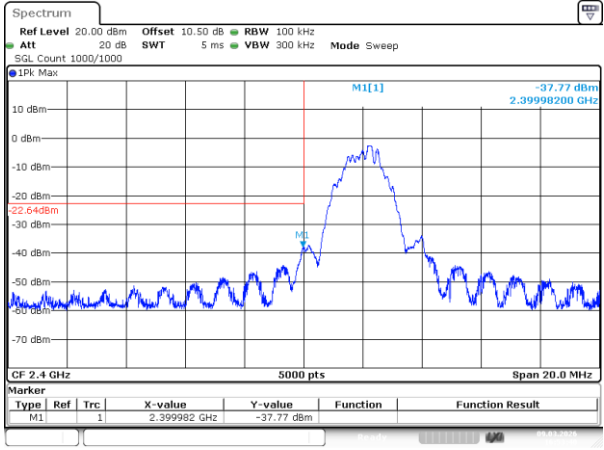
BLE 2M

BLE_2M_Low_Channel



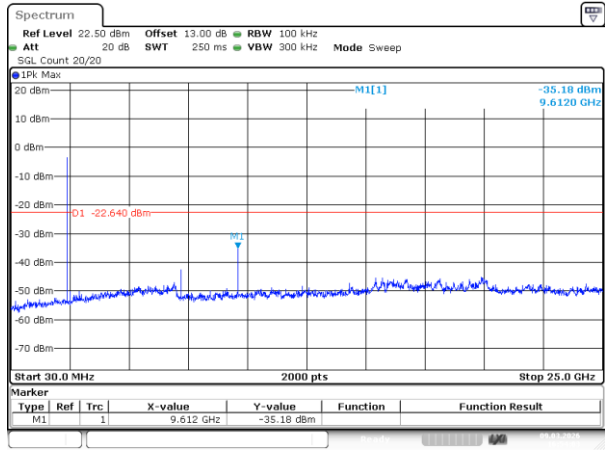
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BLE_2M_Low_Channel



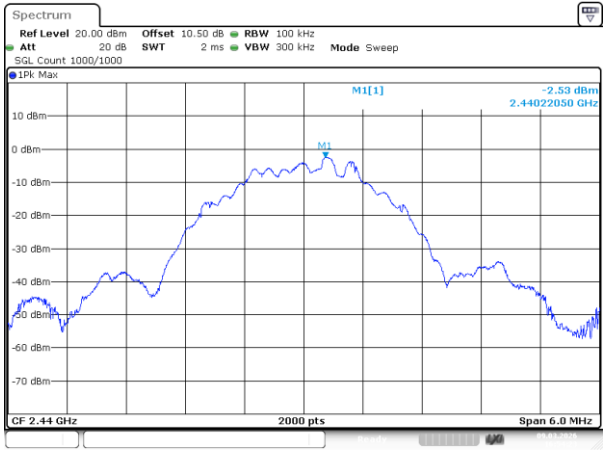
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BLE_2M_Low_Channel



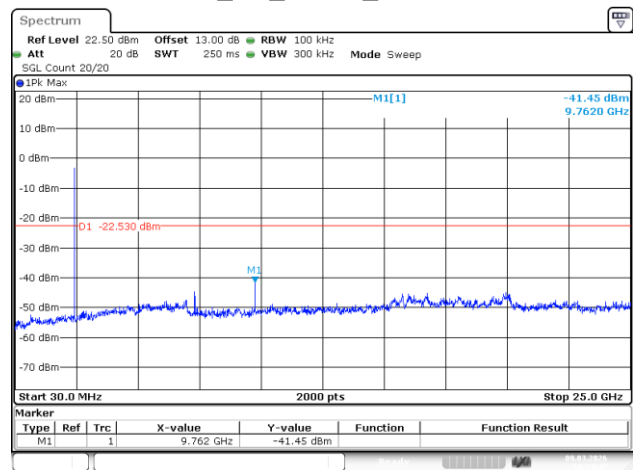
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Date: 9.MAR.2026 16:54:03

BLE_2M_Middle_Channel



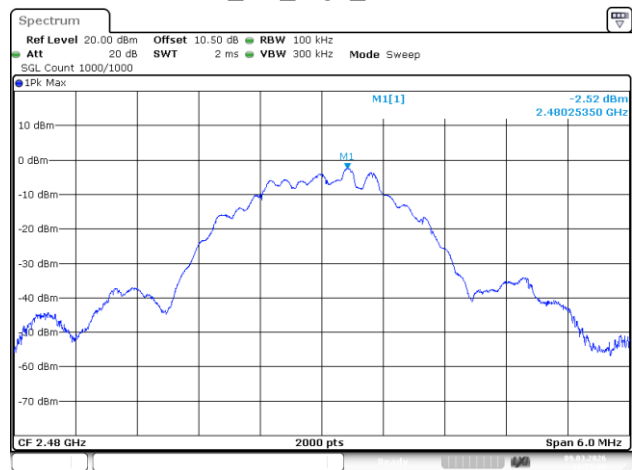
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Date: 9.MAR.2026 16:54:23

BLE_2M_Middle_Channel



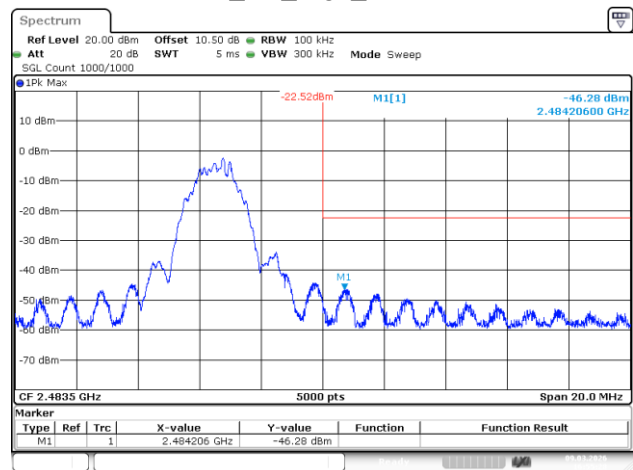
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Date: 9.MAR.2026 16:54:47

BLE_2M_High_Channel



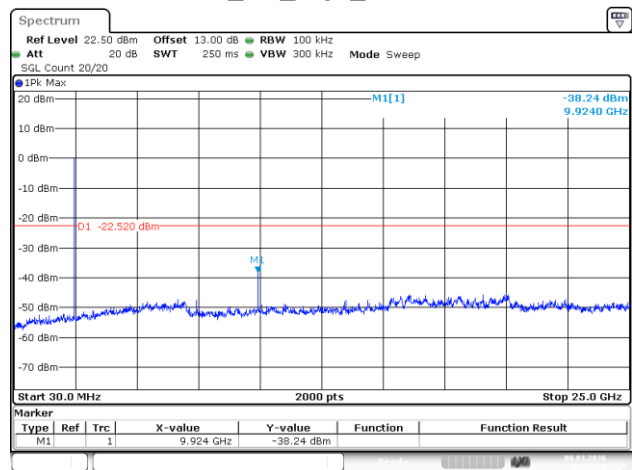
ProjectNo.:2604Q29440E-RFA Tester:Benny Li
Date: 9.MAR.2026 16:55:08

BLE_2M_High_Channel



ProjectNo.:2604Q29440E-RFA Tester:Benny Li
Date: 9.MAR.2026 16:55:28

BLE_2M_High_Channel



ProjectNo.:2604Q29440E-RFA Tester:Benny Li
Date: 9.MAR.2026 16:55:50

EXHIBIT A-EUT PHOTOGRAPHS

Please refer to the Attachment No.1 2604Q29440E-RF EUT External Photos and Attachment No.2 2604Q29440E-RF EUT Internal Photos.

EXHIBIT B-TEST SETUP PHOTOGRAPHS

Please refer to the Attachment No.3 2604Q29440E-RFA Test Photos.

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