中认信通
CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)

ACCREDITED
TESTING LABORATORY
CERTIFICATE # 6356.01

TEST REPORT

Applicant: **SP United China**

Address: No.3 LANE 19 QIAN RD KENGKOU VILLAGE TINGSHAN DIST HOUJIE TOWN GUANGDONG PROVINCE China

FCC ID: **2ASMH-PCB022**

Product Name: **BIKE REAR LIGHT**

Standard(s): **47 CFR Part 15, Subpart C(15.247)**
ANSI C63.10-2013
KDB 558074 D01 15.247 Meas Guidance v05r02

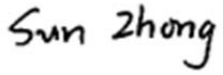
The above device has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: **2503R46675E-RF-00A**

Date Of Issue: **2025/3/28**

Reviewed By: **Calvin Chen**
Title: RF Engineer

Approved By: **Sun Zhong**
Title: Manager



Test Laboratory: **China Certification ICT Co., Ltd (Dongguan)**
No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China

Tel: +86-769-83085888
www.ccttt.com.cn

Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "▲". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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Each test item follows the test standard(s) without deviation.

CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	2503R46675E-RF-00A	Original Report	2025/3/28

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

1.1.1 General

EUT Name:	BIKE REAR LIGHT
EUT Model:	PCB022
Operation Frequency:	2402-2480 MHz
Maximum Peak Output Power (Conducted):	-8.39dBm
Modulation Type:	GFSK
Rated Input Voltage:	3.8Vdc from battery or 5Vdc from adapter
Sample Number:	2ZBW-1 (For RF Conducted Test) 2ZBW-2 (For Radiated Emissions & Conducted Emissions Test)
EUT Received Date:	2025/3/11
EUT Received Status:	Good

1.1.2 Operation Frequency Detail

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	20	2442
1	2404	…	…
…	…	…	…
…	…	…	…
…	…	38	2478
19	2440	39	2480

Per section 15.31(m), the below frequencies were performed the test as below:

Test Channel	Frequency (MHz)
Lowest	2402
Middle	2440
Highest	2480

1.1.3 Antenna Information Detail▲

Antenna Type	input impedance (Ohm)	Frequency Range (MHz)	Antenna Gain (dBi)
FPC	50	2400-2500	-4.12

The Method of §15.203 Compliance:

☒ Antenna was permanently attached to the unit.

☐ Antenna use a unique type of connector to attach to the EUT.

☐ Unit was professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

1.1.4 Accessory Information

Accessory Description	Manufacturer	Model
/	/	/

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

EUT Operation Mode:	The system was configured for testing in Engineering Mode, which was provided by the manufacturer.
Equipment Modifications:	No
EUT Exercise Software:	PhyPlusKit

The software was provided by manufacturer. The maximum power was configured as below, that was provided by the manufacturer▲:

Test Modes	Power Level Setting		
	Lowest Channel	**Middle Channel**	**Highest Channel**
1Mbps	**-5**	**-5**	**-5**

1.2.2 Support Equipment List and Details

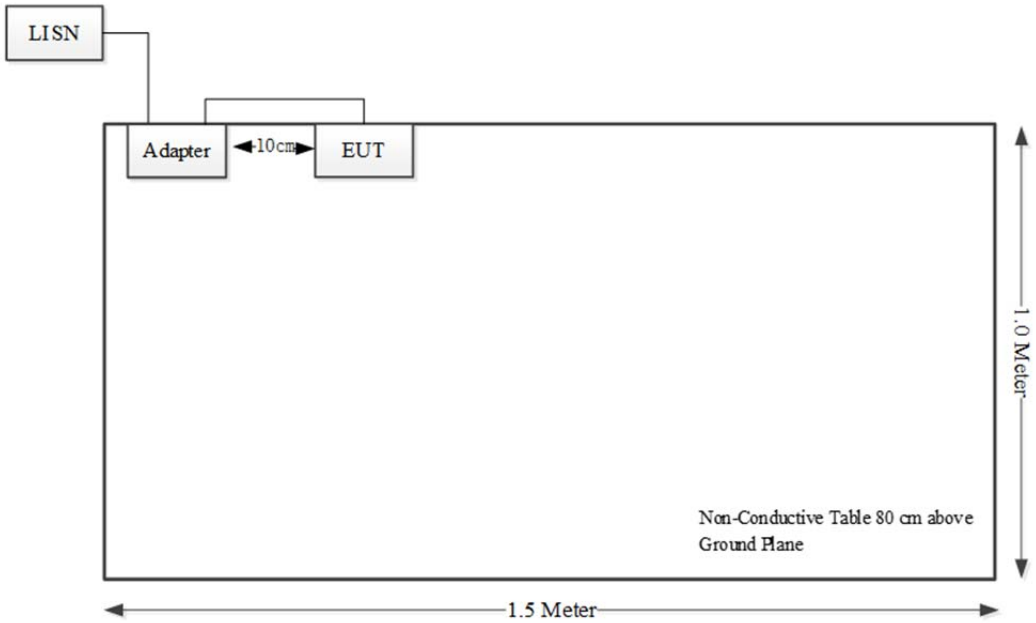
Manufacturer	Description	Model	Serial Number
ZMI	Adapter	HA712	FCHA7122002008197

1.2.3 Support Cable List and Details

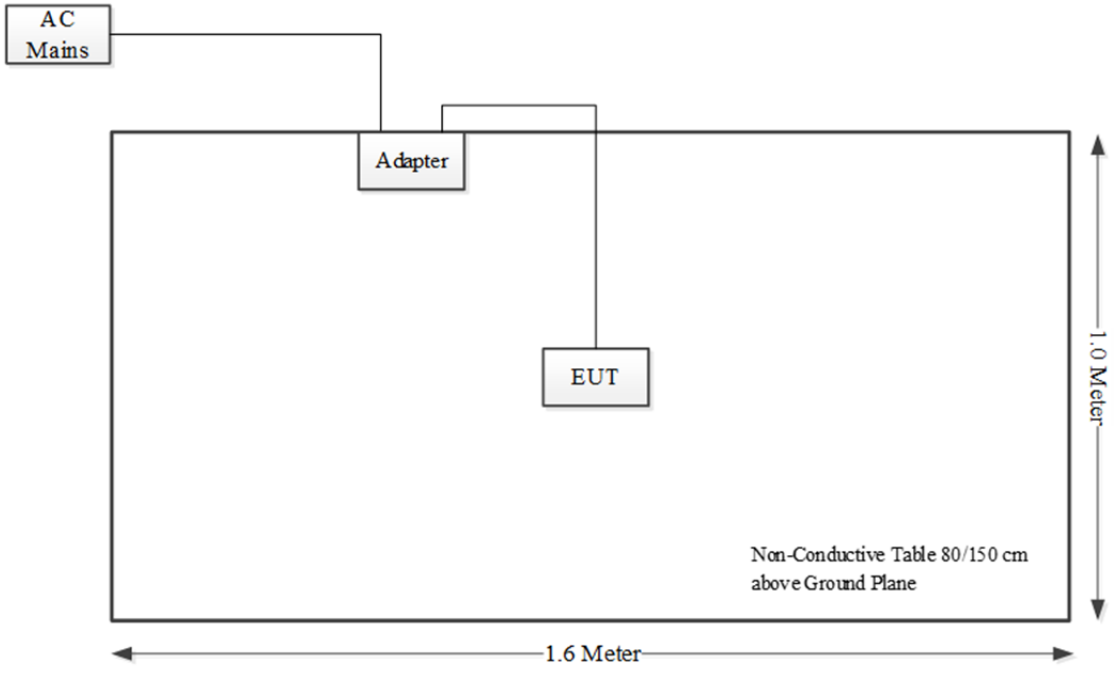
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
USB Cable	No	No	0.75	EUT	Adapter

1.2.4 Block Diagram of Test Setup

AC line conducted emissions:



Spurious Emissions:



1.3 Measurement Uncertainty

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

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	9k~30MHz: 4.12dB, 30M~200MHz: 4.15 dB, 200M~1GHz: 5.61 dB, 1G~6GHz: 5.14 dB, 6G~18GHz: 5.93 dB, 18G~26.5G:5.47 dB, 26.5G~40G:5.63 dB
Unwanted Emissions, conducted	±1.26 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.203	Antenna Requirement	Compliant
FCC §15.207(a)	AC Line Conducted Emissions	Compliant
FCC §15.205, §15.209, §15.247(d)	Radiated Spurious Emission	Compliant
FCC §15.207(a)(2)	6dB Emission Bandwidth	Compliant
FCC §15.247(b)(1)	Maximum Conducted Output Power	Compliant
FCC §15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliant
FCC §15.247(e)	Power Spectral Density	Compliant
C63.10 §11.6	Duty Cycle	Compliant
FCC §1.1307&§2.1091&§15.247 (i)	RF Exposure	Compliant

3. REQUIREMENTS AND TEST PROCEDURES

3.1 AC Line Conducted Emissions

3.1.1 Applicable Standard

FCC §15.207(a).

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

	Conducted limit (dBμV)	
Frequency of emission (MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

(b) The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

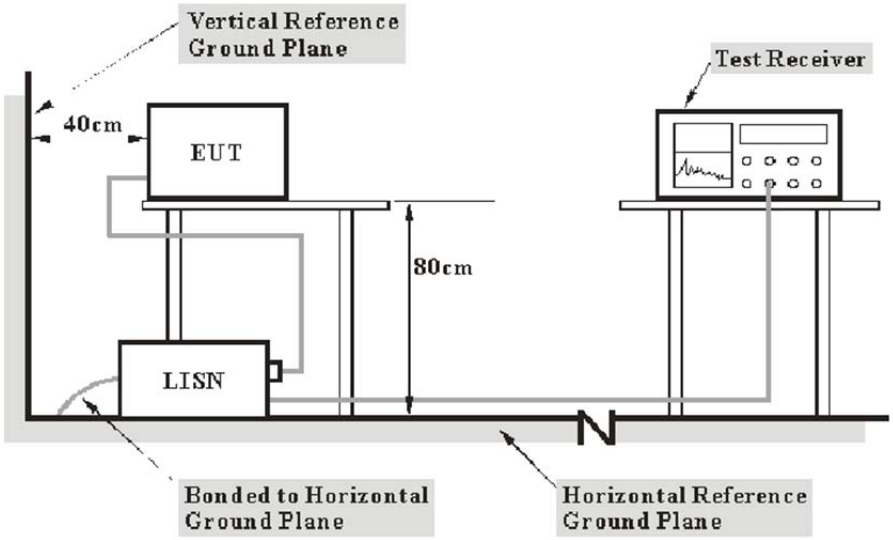
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 μV within the frequency band 535-1705 kHz, as measured using a 50 μH/50 ohms LISN.

(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in §15.205, §15.209, §15.221, §15.223, or §15.227, as appropriate.

(c) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

3.1.2 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 C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

3.1.3 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

3.1.4 Test Procedure

The frequency and amplitude of the six highest ac power-line conducted emissions relative to the limit, measured over all the current-carrying conductors of the EUT power cords, and the operating frequency or frequency to which the EUT is tuned (if appropriate), should be reported, unless such emissions are more than 20 dB below the limit. AC power-line conducted emissions measurements are to be separately carried out only on each of the phase ("hot") line(s) and (if used) on the neutral line(s), but not on the ground [protective earth] line(s). If less than six emission frequencies are within 20 dB of the limit, then the noise level of the measuring instrument at representative frequencies should be reported. The specific conductor of the power-line cord for each of the reported emissions should be identified. Measure the six highest emissions with respect to the limit on each current-carrying conductor of each power cord associated with the EUT (but not the power cords of associated or peripheral equipment that are part of the test configuration). Then, report the six highest emissions with respect to the limit from among all the measurements identifying the frequency and specific current-carrying conductor identified with the emission. The six highest emissions should be reported for each of the current-carrying conductors, or the six highest emissions may be reported over all the current-carrying conductors.

3.1.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor
Factor = attenuation caused by cable loss + voltage division factor of AMN

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

3.2 Radiation Spurious Emissions

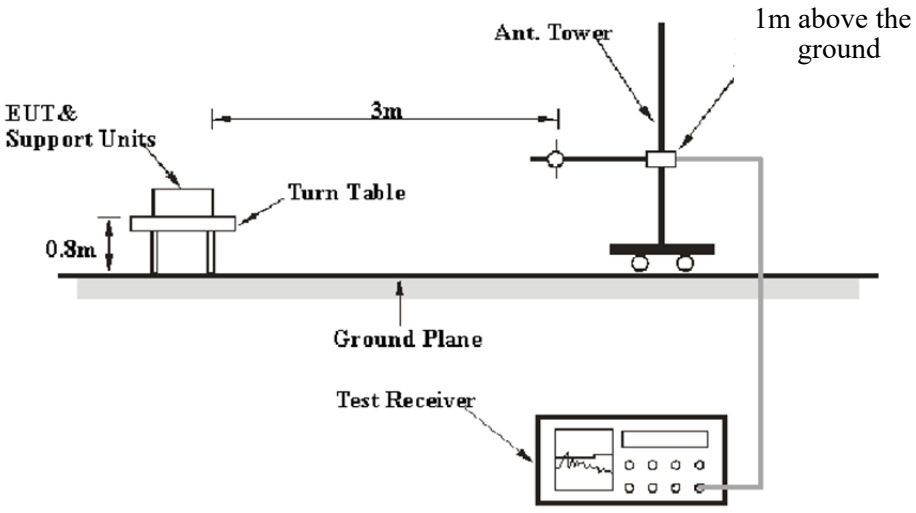
3.2.1 Applicable Standard

FCC §15.247 (d);

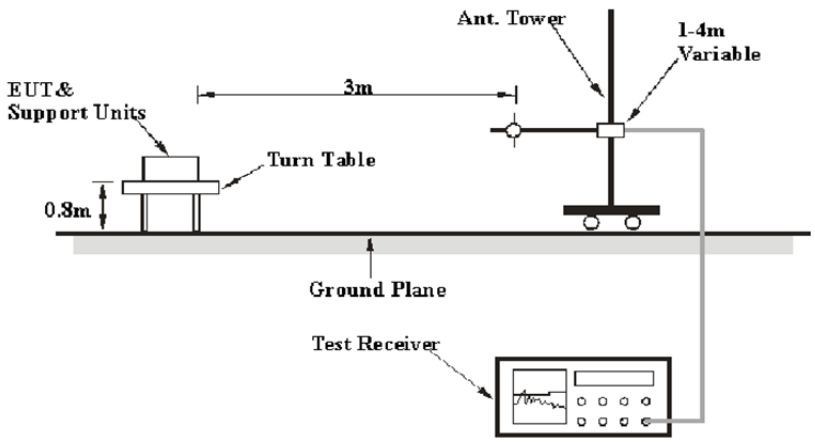
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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)).

3.2.2 EUT Setup

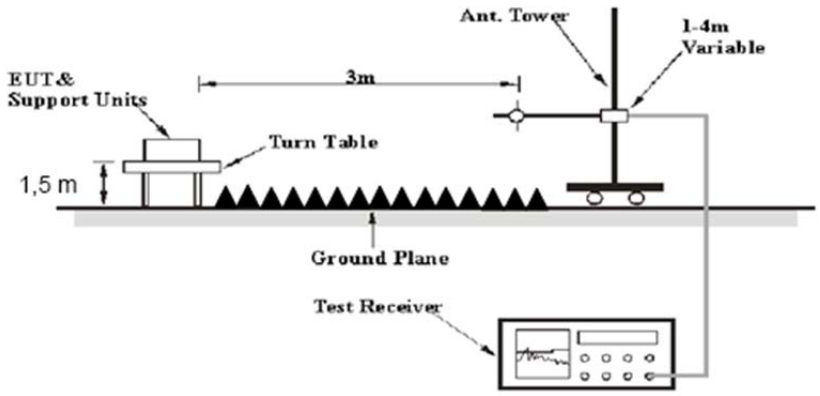
9kHz - 30MHz:



30MHz - 1GHz:



Above 1GHz:



The radiated emissions were performed in the 3 meters distance, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

For 9kHz-30MHz test, the lowest height of the magnetic antenna shall be 1 m above the ground and three antenna orientations (parallel, perpendicular, and ground-parallel) shall be measured.

3.2.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 25 GHz.

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

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

1GHz- 25GHz:
Pre-scan:

Measurement	Duty cycle	RBW	Video B/W	Detector
PK	Any	1MHz	3 MHz	Peak
Ave.	>98%	1MHz	5 kHz	Peak
	<98%	1MHz	≥1/T, not less than 5 kHz	Peak

Note: T is minimum transmission duration

Final measurement for emission identified during the pre-scan:

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

Note: T is minimum transmission duration

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.

The spurious emissions which below the limit more than 20dB was not be recorded.

3.2.4 Test Procedure

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

Data was recorded in Quasi-peak detection mode for frequency range of 9 kHz-1 GHz except 9–90 kHz, 110–490 kHz, employing an average detector, peak and Average detection modes for frequencies above 1 GHz.

All emissions under the average limit and under the noise floor have not recorded in the report.

3.2.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor
Factor = Antenna Factor + Cable Loss- Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

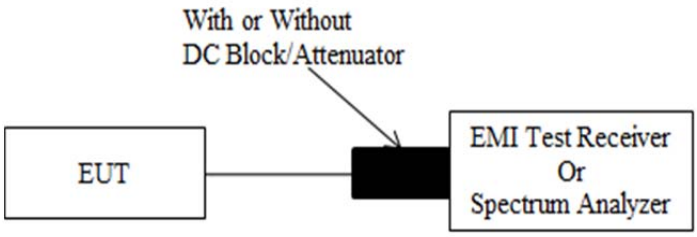
3.3 Minimum 6 dB Bandwidth

3.3.1 Applicable Standard

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.

3.3.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

3.3.3 Test Procedure

According to ANSI C63.10-2013 Section 11.8

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3×RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

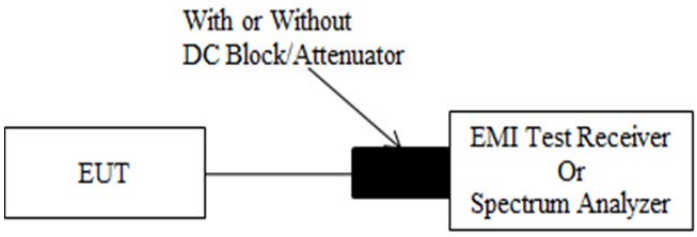
3.4 Maximum Conducted Output Power

3.4.1 Applicable Standard

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.

3.4.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

3.4.3 Test Procedure

According to ANSI C63.10-2013 Section 11.9.1.1

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 = auto couple.
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.

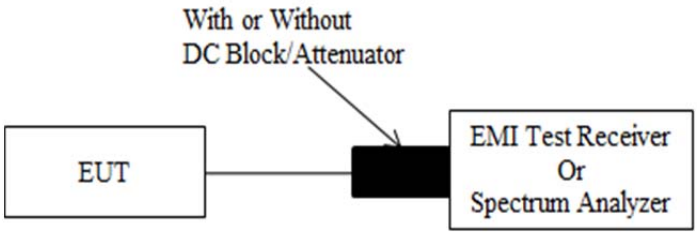
3.5 Maximum Power Spectral Density

3.5.1 Applicable Standard

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.

3.5.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

3.5.3 Test Procedure

According to ANSI C63.10-2013 Section 11.10.2

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to 3 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ [3 × RBW].
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.
j) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

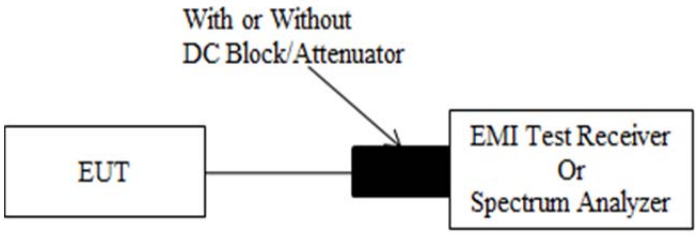
3.6 100 kHz Bandwidth of Frequency Band Edge

3.6.1 Applicable Standard

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)).

3.6.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

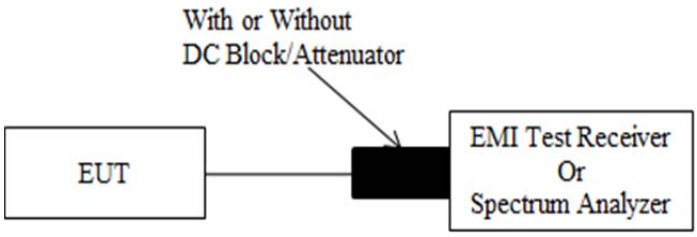
3.6.3 Test Procedure

According to ANSI C63.10-2013 Section 11.11

a) Set the center frequency and span to encompass frequency range to be measured.
b) Set the RBW = 100 kHz.
c) Set the VBW ≥ [3 × RBW].
d) Detector = peak.
e) Sweep time = auto couple.
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.

3.7 Duty Cycle

3.7.1 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

3.7.2 Test Procedure

According to ANSI C63.10-2013 Section 11.6

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.)

3.8 Antenna Requirement

3.8.1 Applicable Standard

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 use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

3.8.2 Judgment

Compliant. Please refer to the Antenna Information detail in Section 1.

4. TEST DATA AND RESULTS

4.1 AC Line Conducted Emissions

Sample Number:	2ZBW-2	Test Date:	2025/3/27
Test Site:	CE	Test Mode:	Transmitting (maximum output power mode, low channel)
Tester:	David Huang	Test Result:	Pass

Environmental Conditions:

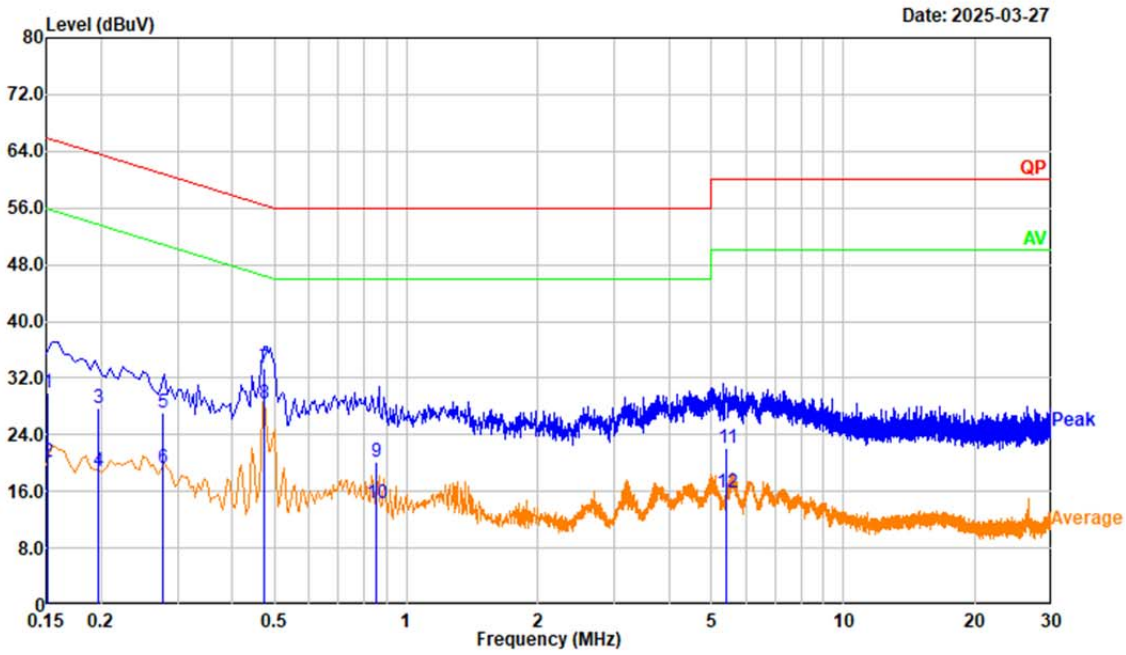
Temperature: (℃)	27.5	Relative Humidity: (%)	57	ATM Pressure: (kPa)	101.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101132	2024/4/1	2025/3/31
R&S	EMI Test Receiver	ESR3	103104	2024/5/10	2025/5/9
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2025/1/6	2026/1/5
Audix	Test Software	E3	191218 (V9)	N/A	N/A

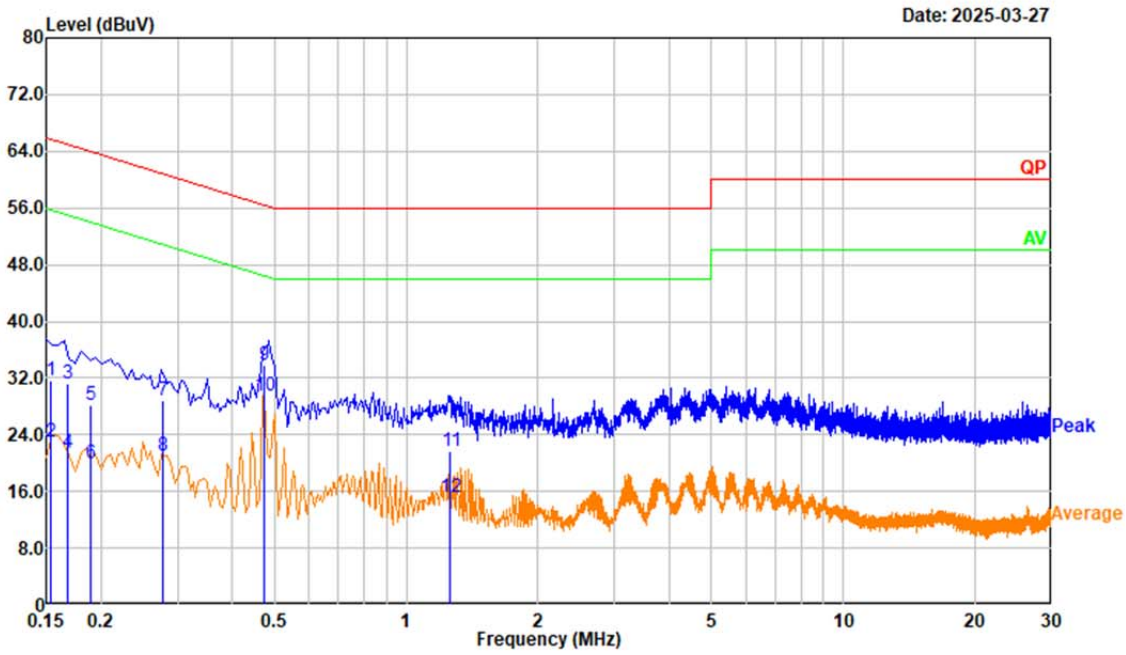
** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Project No.: 2503R46675E-RF
Tester: David Huang
Condition: IFBW:9 kHz Meas Time:0.025sec
Port: Line
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.151	19.51	10.40	29.91	65.93	36.02	QP
2	0.151	9.80	10.40	20.20	55.93	35.73	Average
3	0.197	17.72	10.03	27.75	63.72	35.97	QP
4	0.197	8.86	10.03	18.89	53.72	34.83	Average
5	0.278	16.94	10.14	27.08	60.87	33.79	QP
6	0.278	9.19	10.14	19.33	50.87	31.54	Average
7	0.474	23.01	10.47	33.48	56.44	22.96	QP
8	0.474	17.89	10.47	28.36	46.44	18.08	Average
9	0.857	9.48	10.66	20.14	56.00	35.86	QP
10	0.857	3.62	10.66	14.28	46.00	31.72	Average
11	5.415	11.73	10.45	22.18	60.00	37.82	QP
12	5.415	5.28	10.45	15.73	50.00	34.27	Average

Project No.: 2503R46675E-RF
Tester: David Huang
Condition: IFBW:9 kHz Meas Time:0.025sec
Port: neutral
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.154	21.15	10.49	31.64	65.78	34.14	QP
2	0.154	12.53	10.49	23.02	55.78	32.76	Average
3	0.167	20.79	10.44	31.23	65.08	33.85	QP
4	0.167	11.12	10.44	21.56	55.08	33.52	Average
5	0.190	17.78	10.35	28.13	64.05	35.92	QP
6	0.190	9.55	10.35	19.90	54.05	34.15	Average
7	0.278	18.41	10.36	28.77	60.88	32.11	QP
8	0.278	10.66	10.36	21.02	50.88	29.86	Average
9	0.475	23.22	10.49	33.71	56.43	22.72	QP
10	0.475	19.04	10.49	29.53	46.43	16.90	Average
11	1.263	11.12	10.47	21.59	56.00	34.41	QP
12	1.263	4.61	10.47	15.08	46.00	30.92	Average

4.2 Radiation Spurious Emissions

4.2.1 9 kHz – 1 GHz

Sample Number:	2ZBW-2	Test Date:	2025/3/25
Test Site:	966-2	Test Mode:	Transmitting (maximum output power mode, low channel)
Tester:	Roinin Fu	Test Result:	Pass

Environmental Conditions:					
Temperature: (°C)	25.1	Relative Humidity: (%)	53	ATM Pressure: (kPa)	101.2

Test Equipment List and Details:

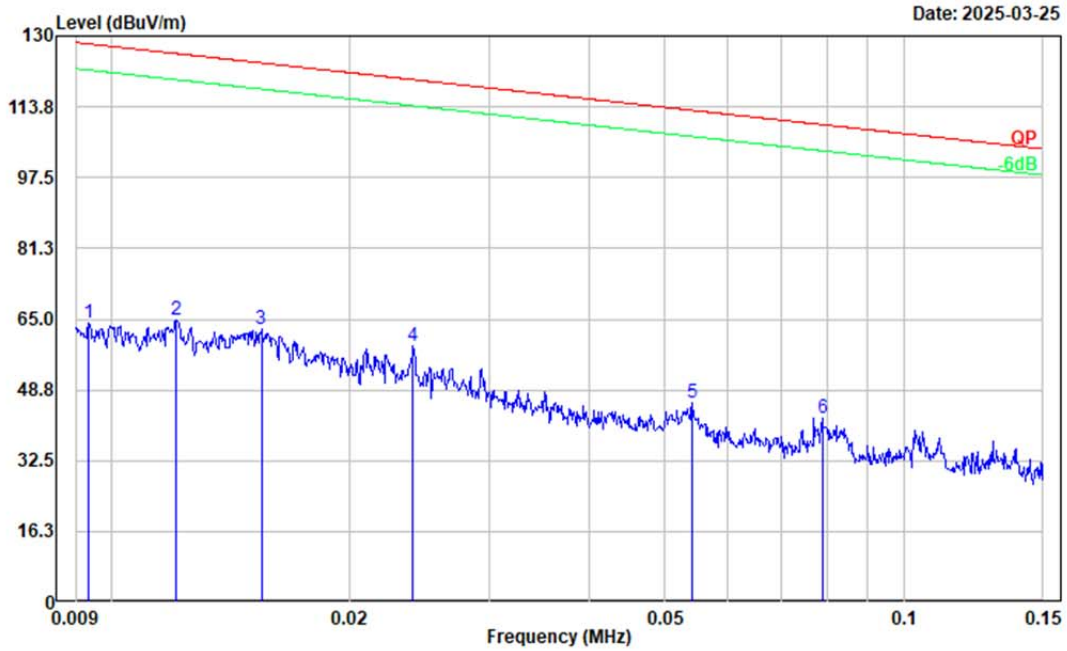
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-5	2023/12/1	2026/11/30
BACL	Loop Antenna	1313-1A	3110611	2023/12/4	2026/12/3
Daruikang	Coaxial Cable	BNC-JJ-RG58	C-0300-01	2025/1/10	2026/1/9
Daruikang	Coaxial Cable	BNC-JJ-RG58	C-0500-01	2025/1/10	2026/1/9
R&S	EMI Test Receiver	ESR3	102724	2025/2/14	2026/2/13
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0100-03	2024/12/3	2025/12/2
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0370-01	2024/12/3	2025/12/2
XQY	Coaxial Cable	XQY-CMR400UF-NJ-NJ-7M	24056379	2024/6/11	2025/6/10
Sonoma	Amplifier	310N	186165	2024/12/3	2025/12/2
Audix	Test Software	E3	191218 (V9)	N/A	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

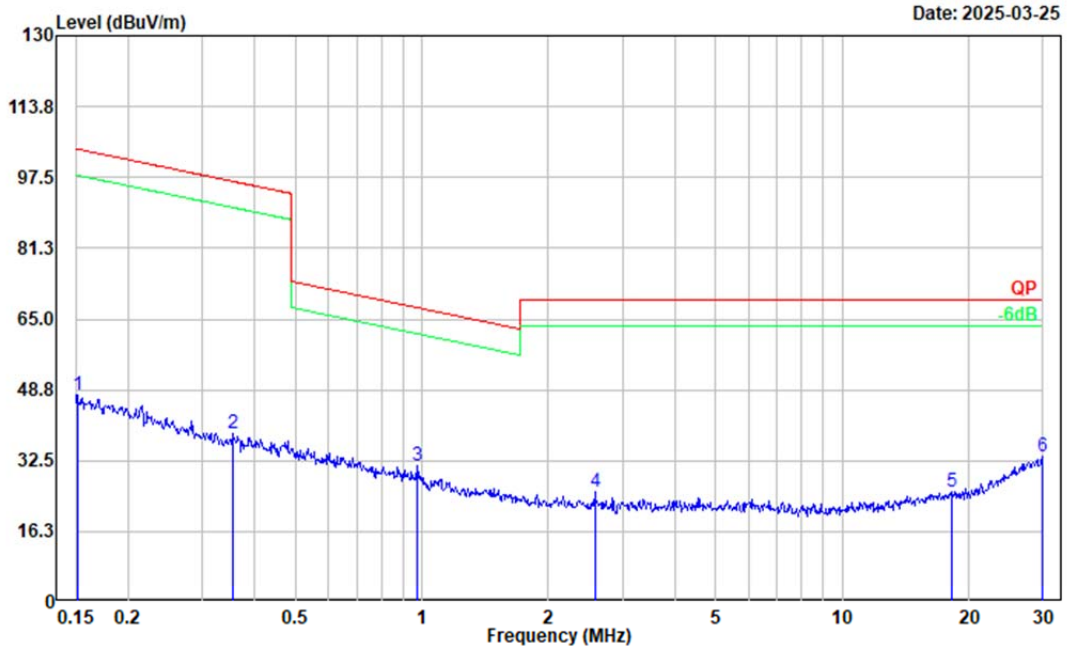
After pre-scan in the X, Y and Z axes of orientation, the worst case is refer to plots.

Project No.: 2503R46675E-RF
Tester: Roinin Fu
Condition: RBW:0.3 kHz VBW:1 kHz SWT:0.1 sec
Polarization: Parallel
Note: Transmitting



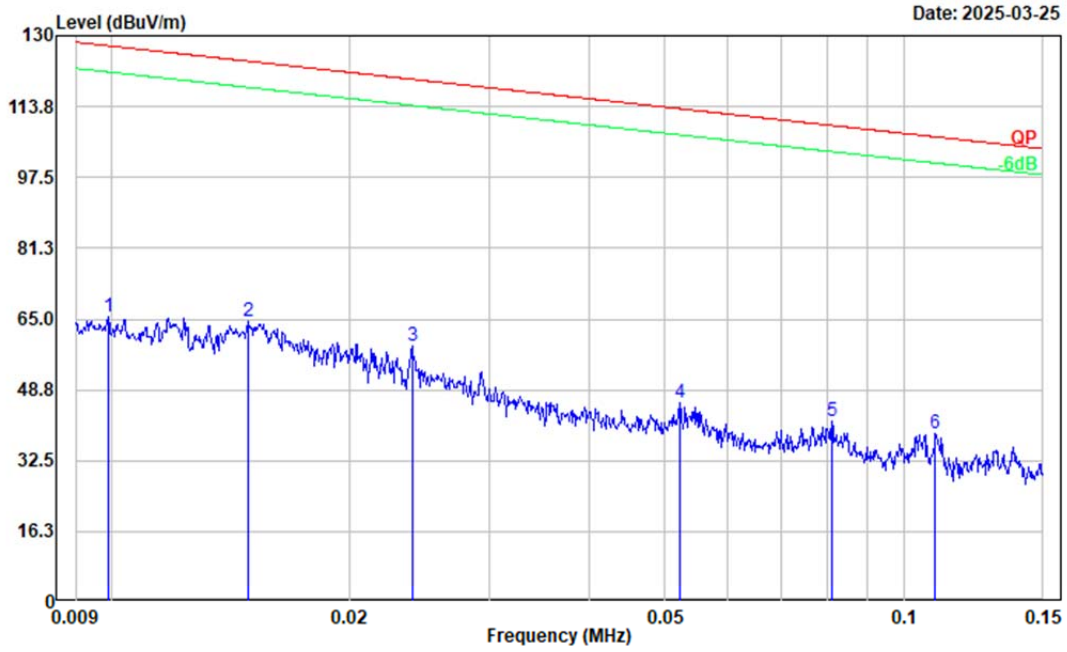
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	0.009	28.99	35.26	64.25	128.18	63.93	Peak
2	0.012	31.49	33.43	64.92	125.98	61.06	Peak
3	0.015	31.04	31.77	62.81	123.83	61.02	Peak
4	0.024	31.23	27.57	58.80	119.99	61.19	Peak
5	0.054	25.82	19.87	45.69	112.93	67.24	Peak
6	0.079	25.90	16.49	42.39	109.65	67.26	Peak

Project No.: 2503R46675E-RF
Tester: Roinin Fu
Condition: RBW:10 kHz VBW:30 kHz SWT:0.1 sec
Polarization: Parallel
Note: Transmitting



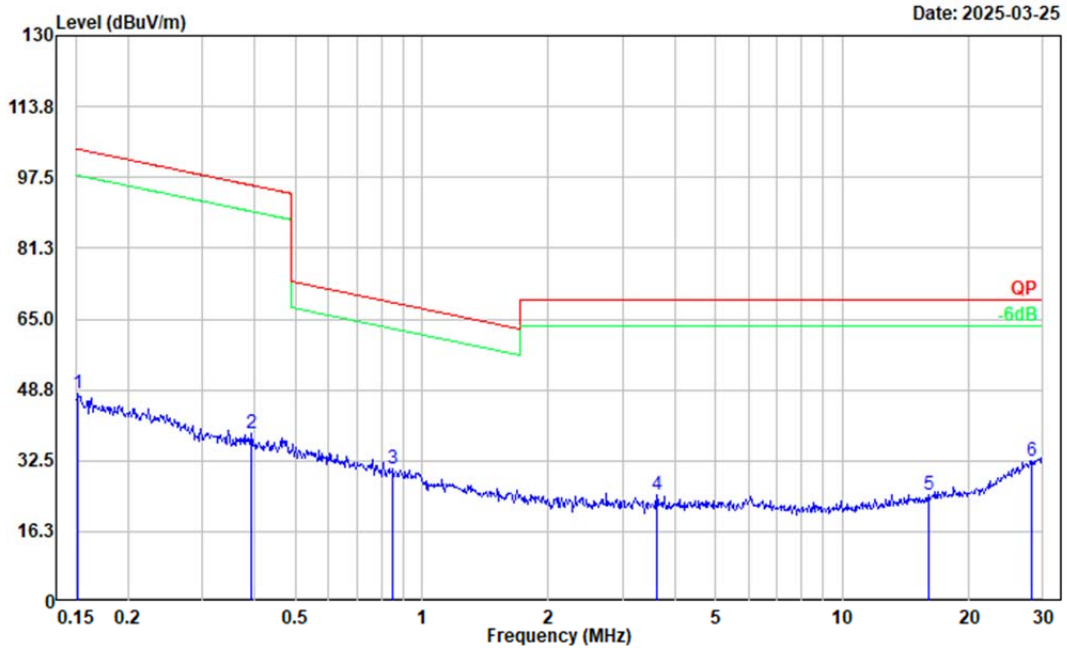
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	0.152	35.46	12.25	47.71	103.99	56.28	Peak
2	0.356	34.68	4.14	38.82	96.58	57.76	Peak
3	0.974	35.42	-3.98	31.44	67.71	36.27	Peak
4	2.581	33.29	-8.07	25.22	69.54	44.32	Peak
5	18.135	33.10	-7.66	25.44	69.54	44.10	Peak
6	29.841	40.64	-7.09	33.55	69.54	35.99	Peak

Project No.: 2503R46675E-RF
Tester: Roinin Fu
Condition: RBW:0.3 kHz VBW:1 kHz SWT:0.1 sec
Polarization: Perpendicular
Note: Transmitting



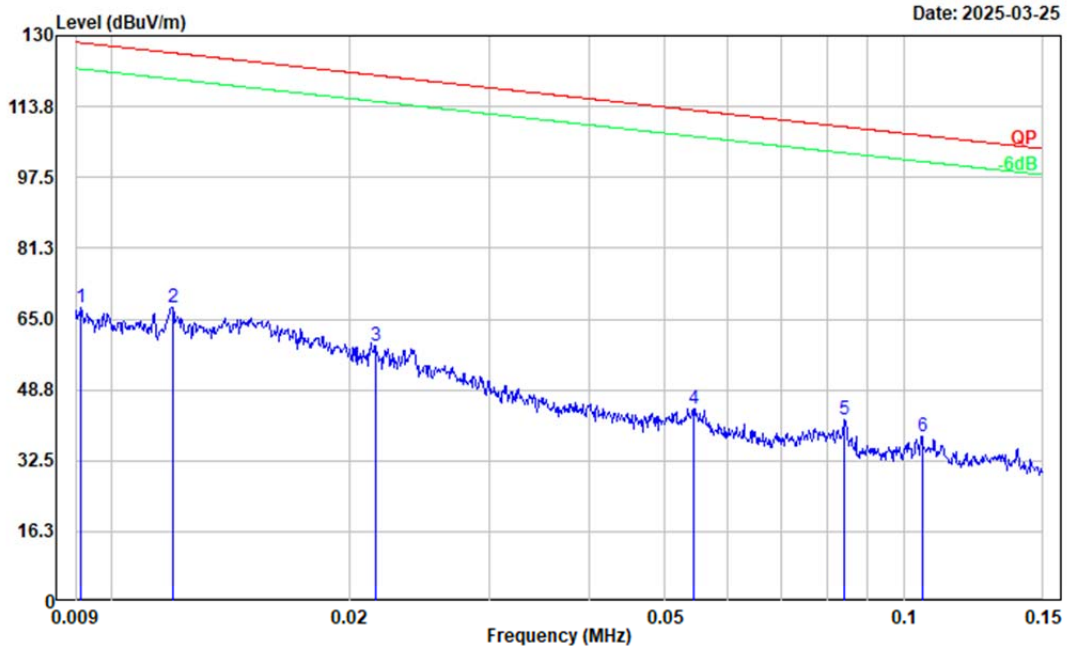
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	0.010	30.91	34.57	65.48	127.69	62.21	Peak
2	0.015	32.51	32.06	64.57	124.17	59.60	Peak
3	0.024	31.36	27.60	58.96	120.02	61.06	Peak
4	0.052	25.78	20.14	45.92	113.25	67.33	Peak
5	0.081	25.33	16.25	41.58	109.41	67.83	Peak
6	0.110	24.45	14.20	38.65	106.79	68.14	Peak

Project No.: 2503R46675E-RF
Tester: Roinin Fu
Condition: RBW:10 kHz VBW:30 kHz SWT:0.1 sec
Polarization: Perpendicular
Note: Transmitting



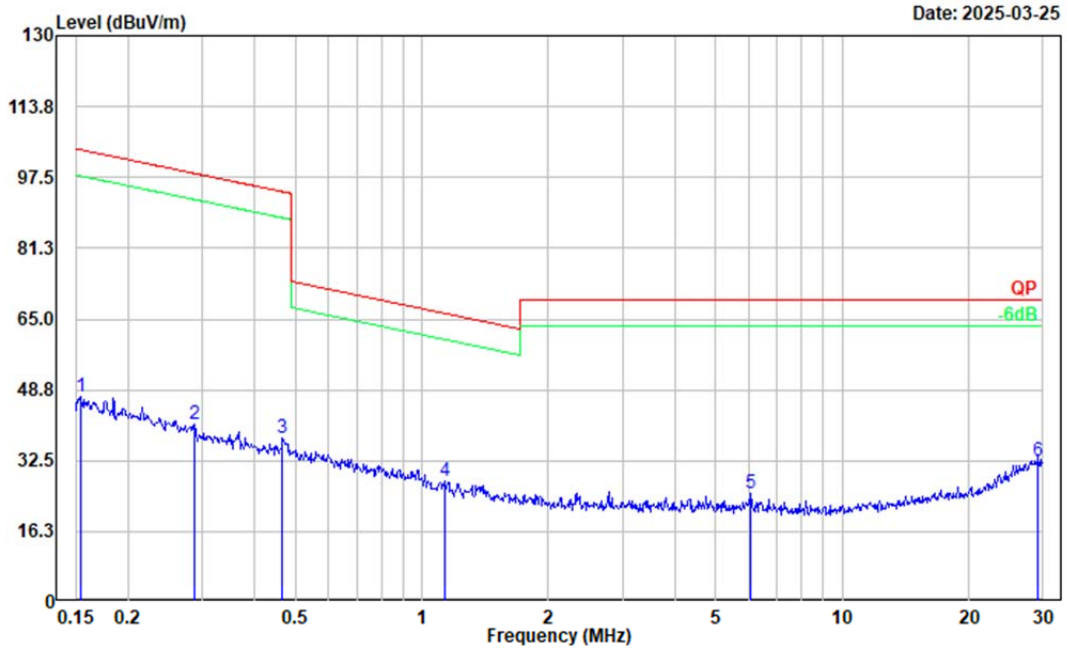
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	0.152	35.56	12.21	47.77	103.94	56.17	Peak
2	0.391	35.47	3.36	38.83	95.75	56.92	Peak
3	0.853	33.61	-2.95	30.66	68.89	38.23	Peak
4	3.623	33.37	-8.65	24.72	69.54	44.82	Peak
5	16.055	32.20	-7.53	24.67	69.54	44.87	Peak
6	28.302	39.78	-7.34	32.44	69.54	37.10	Peak

Project No.: 2503R46675E-RF
Tester: Roinin Fu
Condition: RBW:0.3 kHz VBW:1 kHz SWT:0.1 sec
Polarization: Ground-parallel
Note: Transmitting



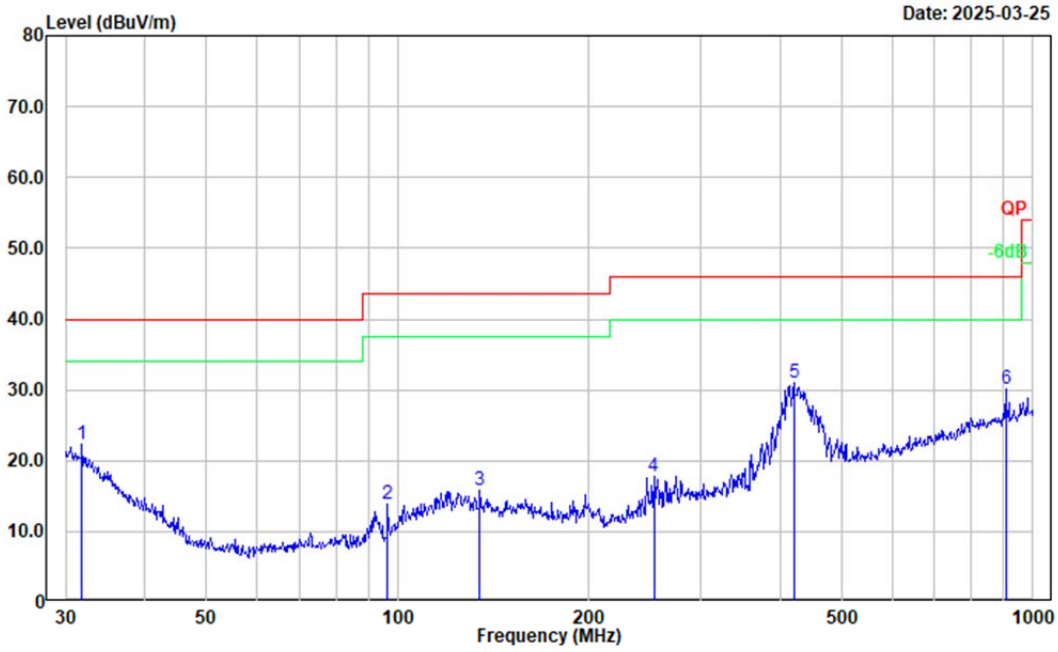
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	0.009	32.05	35.53	67.58	128.37	60.79	Peak
2	0.012	34.29	33.50	67.79	126.08	58.29	Peak
3	0.022	30.08	28.79	58.87	120.94	62.07	Peak
4	0.054	24.52	19.85	44.37	112.90	68.53	Peak
5	0.084	26.01	16.01	42.02	109.12	67.10	Peak
6	0.106	23.81	14.39	38.20	107.14	68.94	Peak

Project No.: 2503R46675E-RF
Tester: Roinin Fu
Condition: RBW:10 kHz VBW:30 kHz SWT:0.1 sec
Polarization: Ground-parallel
Note: Transmitting



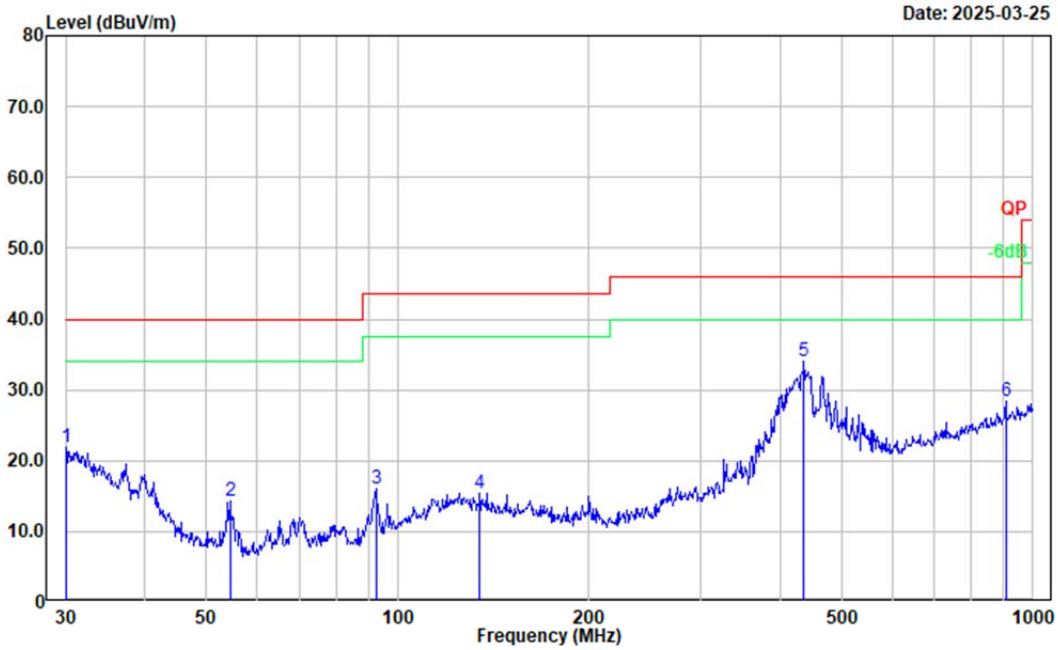
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	0.154	35.18	12.14	47.32	103.85	56.53	Peak
2	0.288	34.79	5.94	40.73	98.42	57.69	Peak
3	0.466	36.11	1.72	37.83	94.23	56.40	Peak
4	1.129	32.33	-4.66	27.67	66.39	38.72	Peak
5	6.024	33.94	-8.90	25.04	69.54	44.50	Peak
6	29.061	39.79	-7.22	32.57	69.54	36.97	Peak

Project No.: 2503R46675E-RF
Tester: Roinin Fu
Condition: RBW:100 kHz VBW:300 kHz SWT:0.1 sec
Polarization: horizontal
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	31.843	27.51	-5.14	22.37	40.00	17.63	Peak
2	96.436	29.34	-15.57	13.77	43.50	29.73	Peak
3	134.559	27.45	-11.58	15.87	43.50	27.63	Peak
4	252.948	30.46	-12.76	17.70	46.00	28.30	Peak
5	420.580	38.73	-7.74	30.99	46.00	15.01	Peak
6	906.482	30.05	0.17	30.22	46.00	15.78	Peak

Project No.: 2503R46675E-RF
Tester: Roinin Fu
Condition: RBW:100 kHz VBW:300 kHz SWT:0.1 sec
Polarization: vertical
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	30.000	25.66	-3.80	21.86	40.00	18.14	Peak
2	54.452	32.04	-17.69	14.35	40.00	25.65	Peak
3	92.462	32.54	-16.53	16.01	43.50	27.49	Peak
4	134.559	26.97	-11.58	15.39	43.50	28.11	Peak
5	435.590	41.21	-7.11	34.10	46.00	11.90	Peak
6	906.482	28.27	0.17	28.44	46.00	17.56	Peak

4.2.2 1 GHz – 25 GHz

Sample Number	2ZBW-2	Test Date:	2025/3/26
Test Site:	966-1	Test Mode:	Transmitting
Tester:	Mack Huang	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	25.1	Relative Humidity: (%)	46	ATM Pressure: (kPa)	101.5

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ETS-Lindgren	Horn Antenna	3115	9912-5985	2023/12/06	2026/12/05
R&S	Spectrum Analyzer	FSV40	101591	2024/04/01	2025/03/31
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2025/01/10	2026/01/09
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2025/01/10	2026/01/09
A.H	Preamplifier	PAM-0118P	628	2025/02/21	2026/02/20
Audix	Test Software	E3	191218 (V9)	N/A	N/A
PASTERNACK	Horn Antenna	PE9852/2F-20	112002	2024/02/04	2027/02/03
Quinstar	Preamplifier	QLW-18405536-JO	15964001005	2025/01/06	2026/01/05
MICRO-COAX	Coaxial Cable	UFB142A-1-2362-200200	235772-001	2025/01/06	2026/01/05
JD	Multiplex Switch Test Control Set	DT7220SCU	DQ77925	2024/08/05	2025/08/04
JD	Filter Switch Unit	DT7220FSU	DQ77928	2024/08/05	2025/08/04

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

After pre-scan in the X, Y and Z axes of orientation, the worst case is below:

BLE 1Mbps:

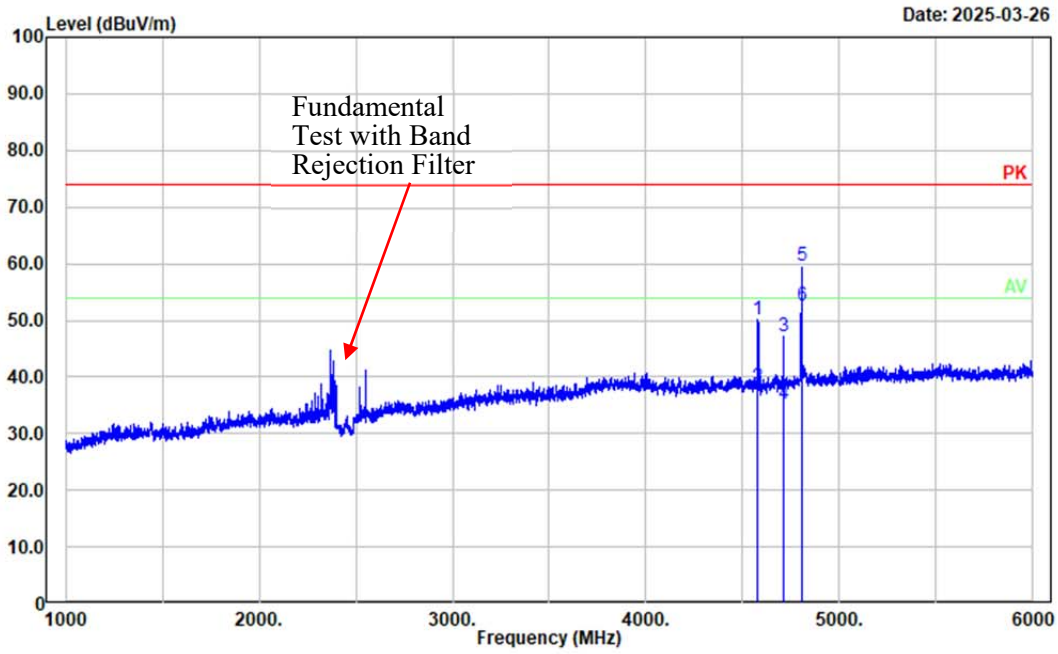
Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Remark					
Low Channel: 2402 MHz							
4804.000	64.83	PK	H	-5.31	59.52	74.00	14.48
4804.000	57.77	AV	H	-5.31	52.46	54.00	1.54
4804.000	61.58	PK	V	-5.31	56.27	74.00	17.73
4804.000	54.61	AV	V	-5.31	49.30	54.00	4.70
7206.000	48.70	PK	H	-2.05	46.65	74.00	27.35
7206.000	36.15	AV	H	-2.05	34.10	54.00	19.90
7206.000	48.96	PK	V	-2.05	46.91	74.00	27.09
7206.000	36.72	AV	V	-2.05	34.67	54.00	19.33
4579.000	56.14	PK	H	-6.11	50.03	74.00	23.97
4579.000	44.22	AV	H	-6.11	38.11	54.00	15.89
4579.000	61.67	PK	V	-6.11	55.56	74.00	18.44
4579.000	49.21	AV	V	-6.11	43.10	54.00	10.90
4711.000	52.85	PK	H	-5.61	47.24	74.00	26.76
4711.000	40.86	AV	H	-5.61	35.25	54.00	18.75
4711.000	56.46	PK	V	-5.61	50.85	74.00	23.15
4711.000	43.86	AV	V	-5.61	38.25	54.00	15.75
Middle Channel: 2440 MHz							
4880.000	62.66	PK	H	-5.28	57.38	74.00	16.62
4880.000	56.54	AV	H	-5.28	51.26	54.00	2.74
4880.000	60.85	PK	V	-5.28	55.57	74.00	18.43
4880.000	54.97	AV	V	-5.28	49.69	54.00	4.31
7320.000	50.67	PK	H	-1.21	49.46	74.00	24.54
7320.000	42.36	AV	H	-1.21	41.15	54.00	12.85
7320.000	50.49	PK	V	-1.21	49.28	74.00	24.72
7320.000	42.18	AV	V	-1.21	40.97	54.00	13.03
4579.000	53.02	PK	H	-6.11	46.91	74.00	27.09
4579.000	41.17	AV	H	-6.11	35.06	54.00	18.94
4579.000	57.53	PK	V	-6.11	51.42	74.00	22.58
4579.000	45.24	AV	V	-6.11	39.13	54.00	14.87
4711.000	50.96	PK	H	-5.61	45.35	74.00	28.65
4711.000	38.78	AV	H	-5.61	33.17	54.00	20.83
4711.000	54.12	PK	V	-5.61	48.51	74.00	25.49
4711.000	42.11	AV	V	-5.61	36.50	54.00	17.50
High Channel: 2480 MHz							
4960.000	61.51	PK	H	-5.33	56.18	74.00	17.82
4960.000	55.36	AV	H	-5.33	50.03	54.00	3.97
4960.000	60.28	PK	V	-5.33	54.95	74.00	19.05
4960.000	54.79	AV	V	-5.33	49.46	54.00	4.54

7440.000	49.44	PK	H	-1.21	48.23	74.00	25.77
7440.000	41.63	AV	H	-1.21	40.42	54.00	13.58
7440.000	49.71	PK	V	-1.21	48.50	74.00	25.50
7440.000	41.08	AV	V	-1.21	39.87	54.00	14.13
4579.000	50.39	PK	H	-6.11	44.28	74.00	29.72
4579.000	38.65	AV	H	-6.11	32.54	54.00	21.46
4579.000	55.22	PK	V	-6.11	49.11	74.00	24.89
4579.000	43.31	AV	V	-6.11	37.20	54.00	16.80
4711.000	49.78	PK	H	-5.61	44.17	74.00	29.83
4711.000	37.12	AV	H	-5.61	31.51	54.00	22.49
4711.000	51.02	PK	V	-5.61	45.41	74.00	28.59
4711.000	38.69	AV	V	-5.61	33.08	54.00	20.92

Worst radiation spurious emissions margin test plots for each mode

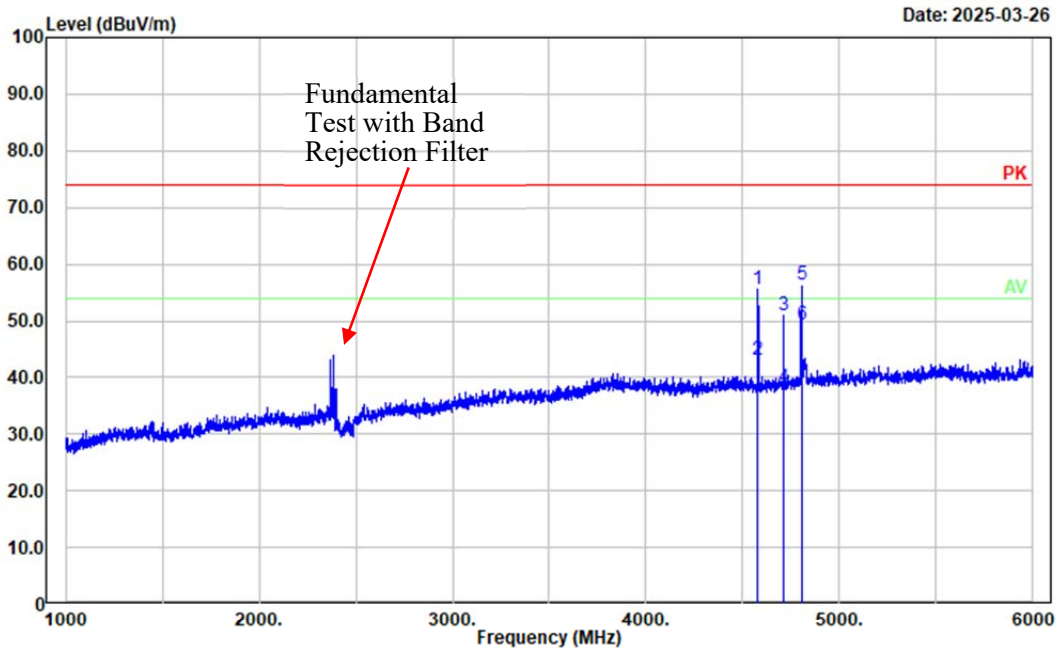
Note: for 18 – 25 GHz range, test was performed on the maximum power mode.

```
Project No.: 2503R46675E-RF
     Tester: Mack Huang
  Condition: PK trace RBW:1MHz; VBW:3MHz; SWT:0.3sec
Polarization: horizontal
       Note: BLE Low Channel 2402MHz
```



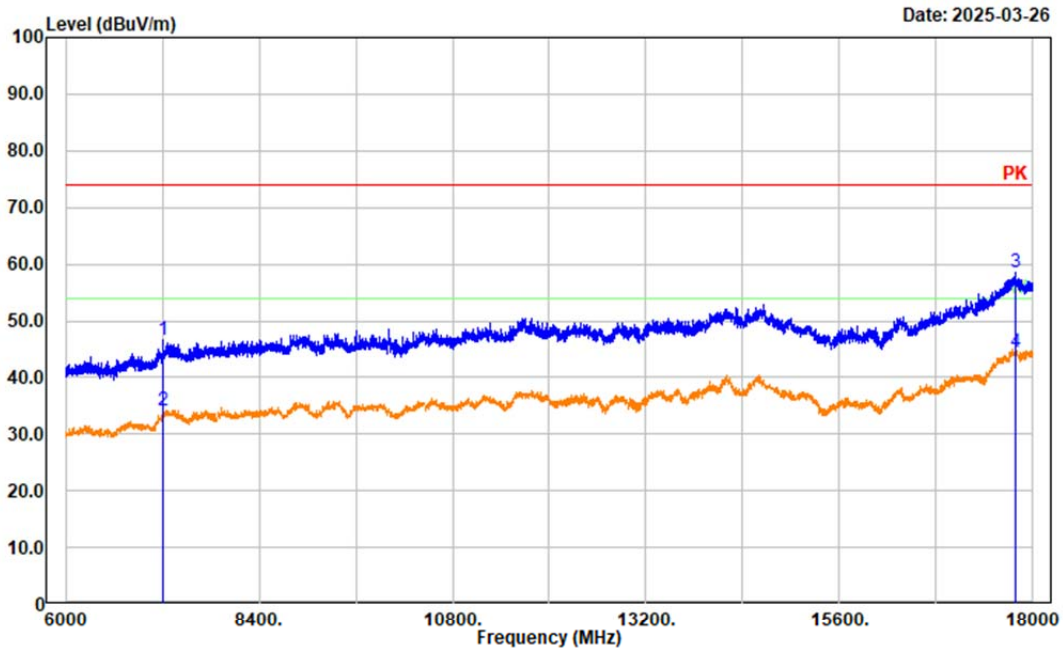
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	4579.000	56.14	-6.11	50.03	74.00	23.97	Peak
2	4579.000	44.22	-6.11	38.11	54.00	15.89	Average
3	4711.000	52.85	-5.61	47.24	74.00	26.76	Peak
4	4711.000	40.86	-5.61	35.25	54.00	18.75	Average
5	4804.000	64.83	-5.31	59.52	74.00	14.48	Peak
6	4804.000	57.77	-5.31	52.46	54.00	1.54	Average

Project No.: 2503R46675E-RF
Tester: Mack Huang
Condition: PK trace RBW:1MHz; VBW:3MHz; SWT:0.3sec
Polarization: vertical
Note: BLE Low Channel 2402MHz



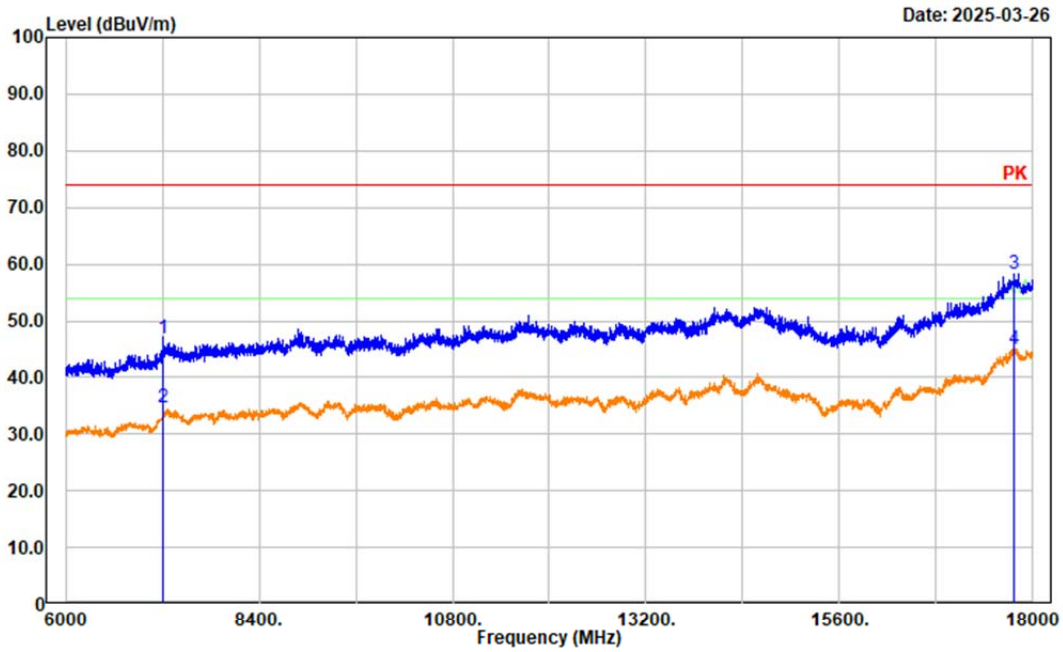
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	4579.000	61.67	-6.11	55.56	74.00	18.44	Peak
2	4579.000	49.21	-6.11	43.10	54.00	10.90	Average
3	4711.000	56.46	-5.61	50.85	74.00	23.15	Peak
4	4711.000	43.86	-5.61	38.25	54.00	15.75	Average
5	4804.000	61.58	-5.31	56.27	74.00	17.73	Peak
6	4804.000	54.61	-5.31	49.30	54.00	4.70	Average

Project No.: 2503R46675E-RF
Tester: Mack Huang
Condition: PK trace RBW:1MHz; VBW:3MHz; SWT:0.3sec AV trace RBW:1MHz; VBW:5kHz; SWT:auto
Polarization: horizontal
Note: BLE Low Channel 2402MHz



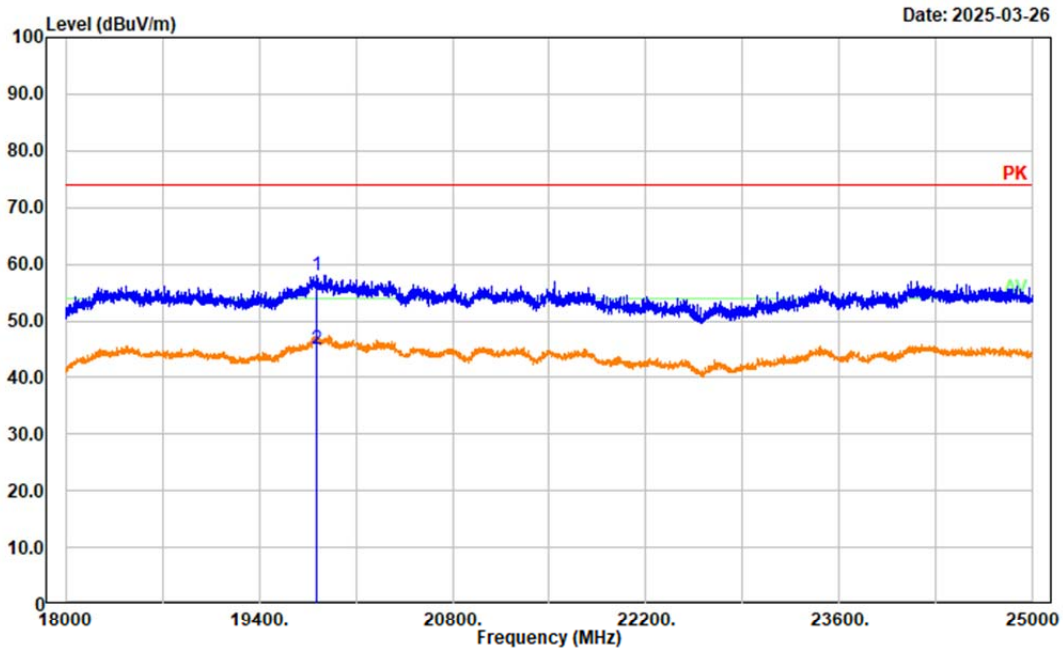
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	7206.000	48.70	-2.05	46.65	74.00	27.35	Peak
2	7206.000	36.15	-2.05	34.10	54.00	19.90	Average
3	17791.200	45.14	13.50	58.64	74.00	15.36	Peak
4	17791.200	30.82	13.50	44.32	54.00	9.68	Average

Project No.: 2503R46675E-RF
Tester: Mack Huang
Condition: PK trace RBW:1MHz; VBW:3MHz; SWT:0.3sec AV trace RBW:1MHz; VBW:5kHz; SWT:auto
Polarization: vertical
Note: BLE Low Channel 2402MHz



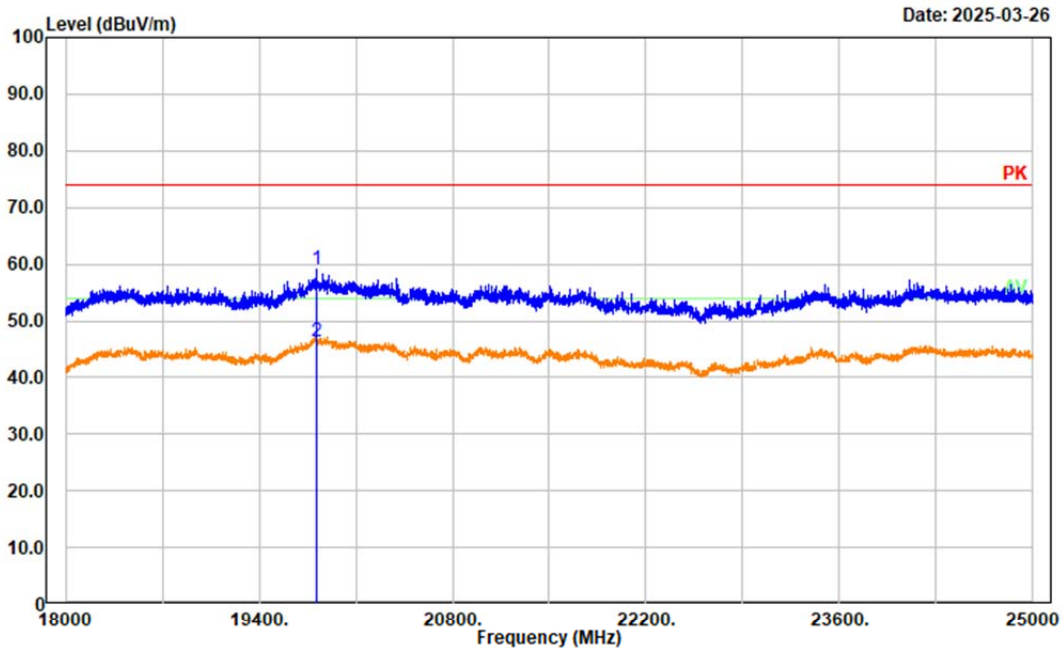
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	7206.000	48.96	-2.05	46.91	74.00	27.09	Peak
2	7206.000	36.72	-2.05	34.67	54.00	19.33	Average
3	17772.000	44.91	13.42	58.33	74.00	15.67	Peak
4	17772.000	31.44	13.42	44.86	54.00	9.14	Average

Project No.: 2503R46675E-RF
Tester: Mack Huang
Condition: PK trace RBW:1MHz; VBW:3MHz; SWT:0.3sec AV trace RBW:1MHz; VBW:5kHz; SWT:auto
Polarization: Horizontal
Note: BLE Low Channel 2402MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	19821.400	50.12	7.95	58.07	74.00	15.93	Peak
2	19821.400	37.06	7.95	45.01	54.00	8.99	Average

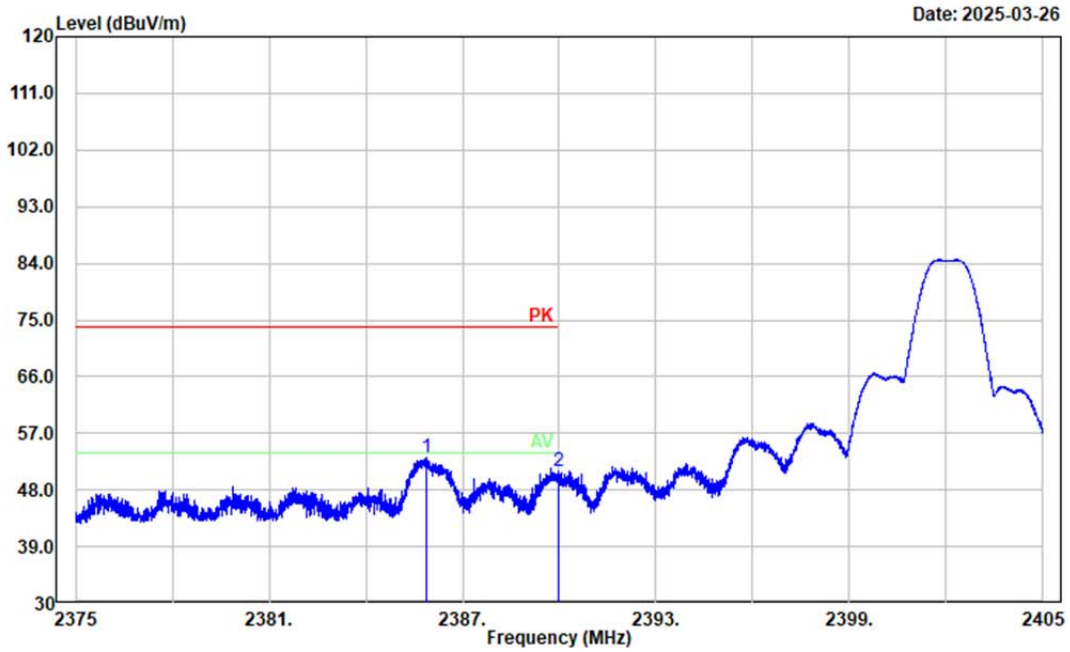
Project No.: 2503R46675E-RF
Tester: Mack Huang
Condition: PK trace RBW:1MHz; VBW:3MHz; SWT:0.3sec AV trace RBW:1MHz; VBW:5kHz; SWT:auto
Polarization: Vertical
Note: BLE Low Channel 2402MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	19813.000	51.16	7.95	59.11	74.00	14.89	Peak
2	19813.000	38.26	7.95	46.21	54.00	7.79	Average

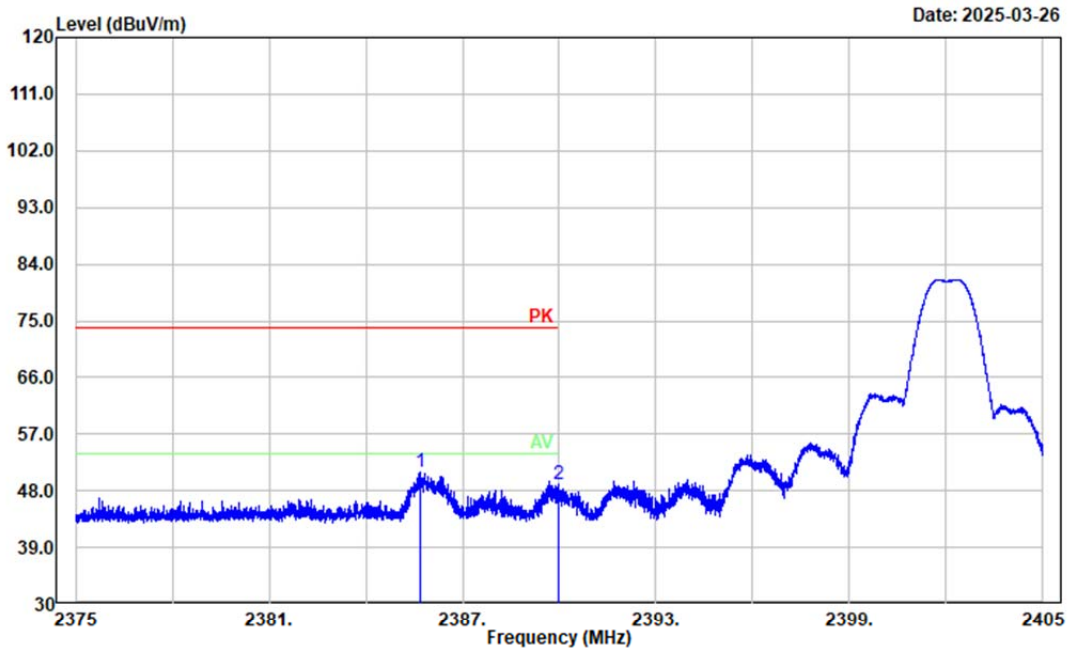
Band edge test plots

```
Project No.: 2503R46675E-RF
     Tester: Mack Huang
  Condition: PK trace RBW:1MHz; VBW:3MHz; SWT:0.3sec
Polarization: Horizontal
       Note: BLE Low Channel 2402MHz
```



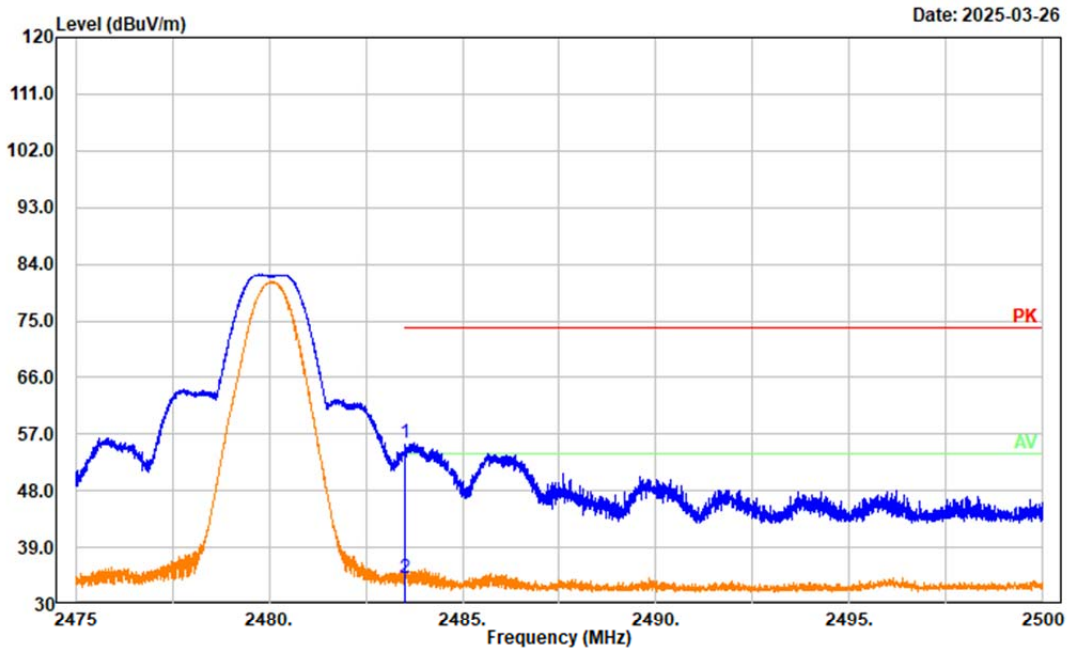
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	2385.860	63.57	-10.34	53.23	74.00	20.77	Peak
2	2390.000	61.35	-10.30	51.05	74.00	22.95	Peak

Project No.: 2503R46675E-RF
Tester: Mack Huang
Condition: PK trace RBW:1MHz; VBW:3MHz; SWT:0.3sec
Polarization: Vertical
Note: BLE Low Channel 2402MHz



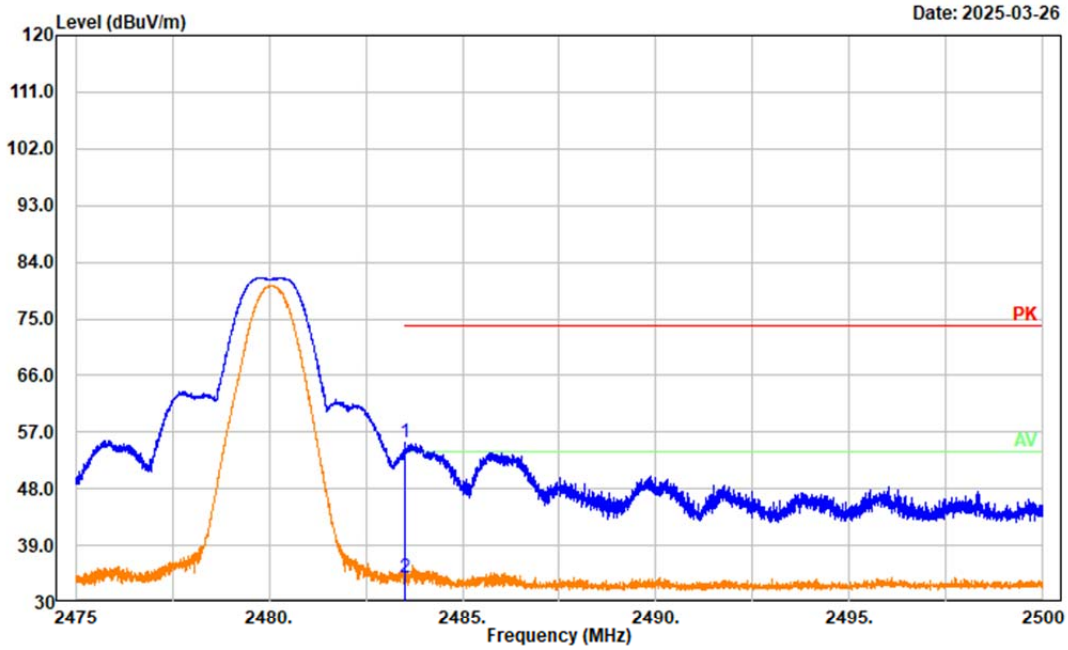
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	2385.692	61.28	-10.34	50.94	74.00	23.06	Peak
2	2390.000	59.27	-10.30	48.97	74.00	25.03	Peak

Project No.: 2503R46675E-RF
Tester: Mack Huang
Condition: PK trace RBW:1MHz; VBW:3MHz; SWT:0.3sec AV trace RBW:1MHz; VBW:5kHz; SWT:auto
Polarization: Horizontal
Note: BLE High Channel 2480MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	2483.500	65.91	-10.40	55.51	74.00	18.49	Peak
2	2483.500	44.50	-10.40	34.10	54.00	19.90	Average

Project No.: 2503R46675E-RF
Tester: Mack Huang
Condition: PK trace RBW:1MHz; VBW:3MHz; SWT:0.3sec AV trace RBW:1MHz; VBW:5kHz; SWT:auto
Polarization: Vertical
Note: BLE High Channel 2480MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	2483.500	65.78	-10.40	55.38	74.00	18.62	Peak
2	2483.500	44.40	-10.40	34.00	54.00	20.00	Average

4.3 6dB Emission Bandwidth

Test Information:

Sample No.:	2ZBW-1	**Test Date:**	2025/3/27
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Leo Li	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	25.9	**Relative Humidity: (%)**	56	**ATM Pressure: (kPa)**	101.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	100147	2024/04/01	2025/03/31
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

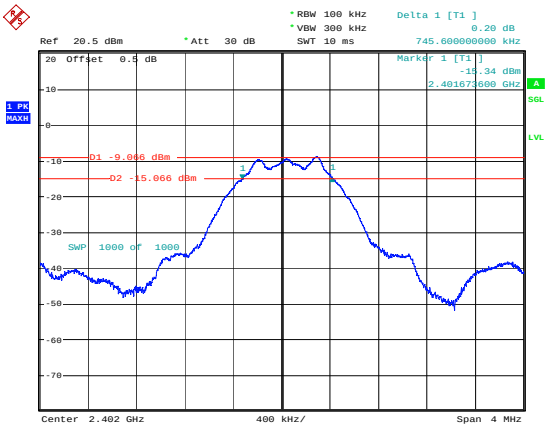
Test Data:

BLE 1M

Channel	Result (MHz)	Limit (MHz)	Verdict
Low	0.746	≥0.5	Pass
Middle	0.749	≥0.5	Pass
High	0.771	≥0.5	Pass

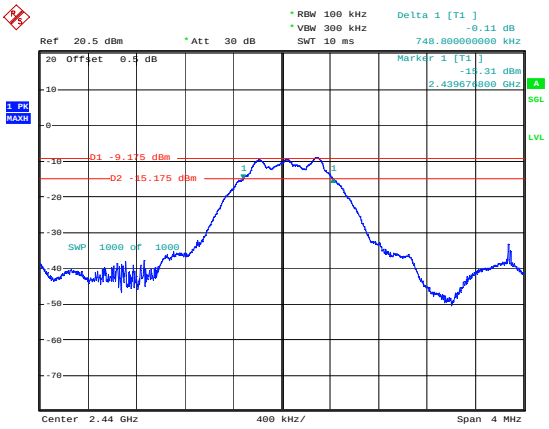
BLE 1M

BLE_1M_Low_Channel



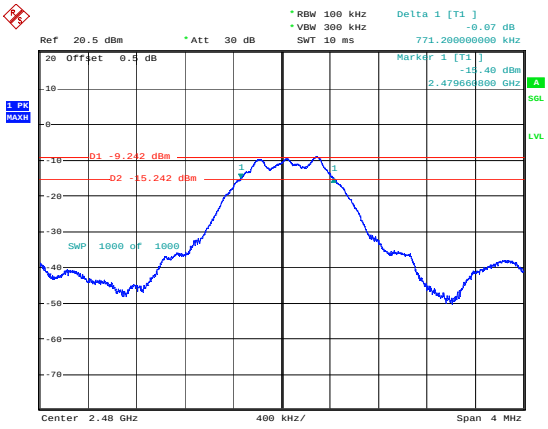
Comment: ProjectNo.:2503R46675E-RF Tester:Leo Li
Date: 27.MAR.2025 09:22:43

BLE_1M_Middle_Channel



Comment: ProjectNo.:2503R46675E-RF Tester:Leo Li
Date: 27.MAR.2025 09:26:02

BLE_1M_High_Channel



Comment: ProjectNo.:2503R46675E-RF Tester:Leo Li
Date: 27.MAR.2025 09:33:22

4.4 99% Occupied Bandwidth

Test Information:

Sample No.:	2ZBW-1	**Test Date:**	2025/3/27
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Leo Li	**Test Result:**	N/A

Environmental Conditions:

Temperature: (°C)	25.9	**Relative Humidity: (%)**	56	**ATM Pressure: (kPa)**	101.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	100147	2024/04/01	2025/03/31
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

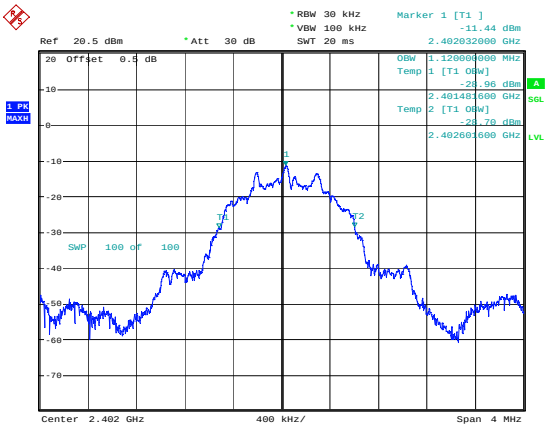
Test Data:

BLE 1M

Channel	99% OBW (MHz)
Low	1.120
Middle	1.133
High	1.139

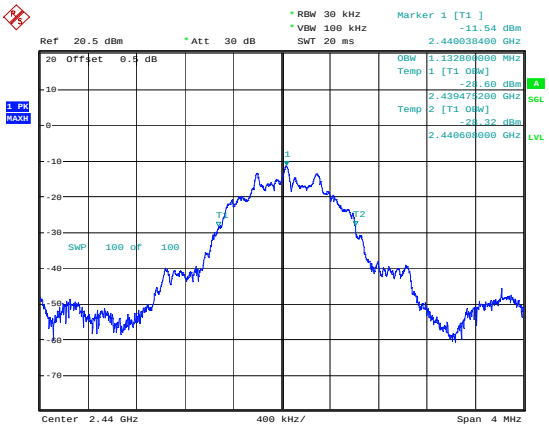
BLE 1M

BLE_1M_Low_Channel



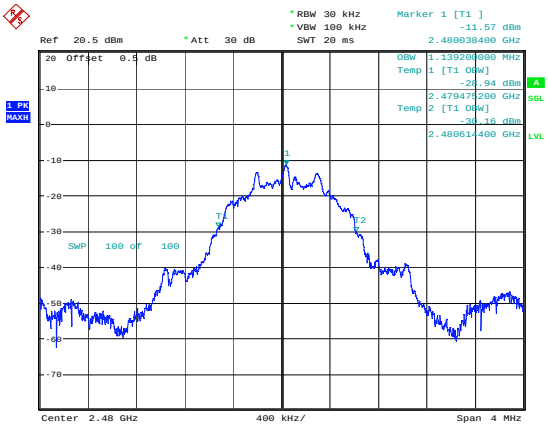
Comment: ProjectNo.:2503R46675E-RF Tester:Leo Li
Date: 27.MAR.2025 09:23:00

BLE_1M_Middle_Channel



Comment: ProjectNo.:2503R46675E-RF Tester:Leo Li
Date: 27.MAR.2025 09:26:17

BLE_1M_High_Channel



Comment: ProjectNo.:2503R46675E-RF Tester:Leo Li
Date: 27.MAR.2025 09:33:39

4.5 Maximum Conducted Output Power

Test Information:

Sample No.:	2ZBW-1	**Test Date:**	2025/3/27
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Leo Li	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	25.9	**Relative Humidity: (%)**	56	**ATM Pressure: (kPa)**	101.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	100147	2024/04/01	2025/03/31
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

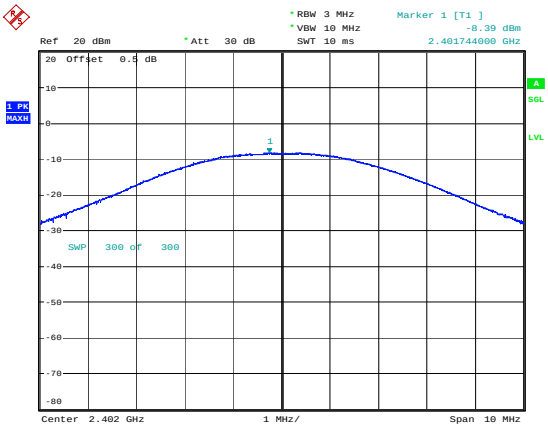
Test Data:

BLE 1M

Channel	Peak Output Power (dBm)	Limit (dBm)	Verdict
Low	-8.39	30.00	Pass
Middle	-8.77	30.00	Pass
High	-8.85	30.00	Pass

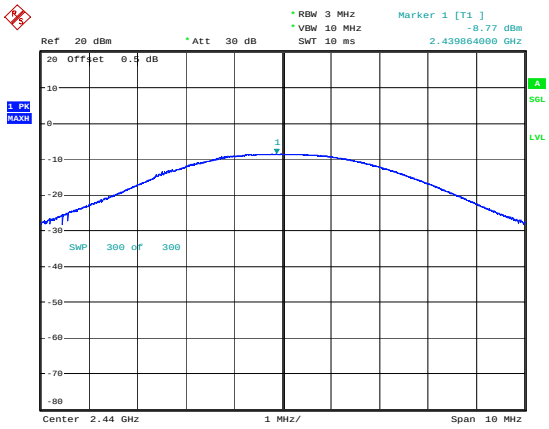
BLE 1M

BLE_1M_Low_Channel



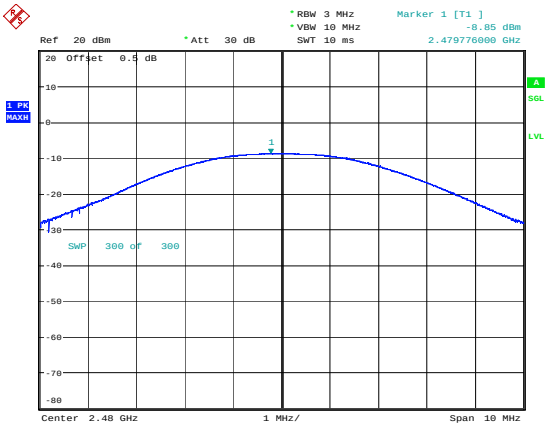
Comment: ProjectNo.:2503R46675E-RF Tester:Leo Li
Date: 27.MAR.2025 09:23:29

BLE_1M_Middle_Channel



Comment: ProjectNo.:2503R46675E-RF Tester:Leo Li
Date: 27.MAR.2025 09:27:13

BLE_1M_High_Channel



Comment: ProjectNo.:2503R46675E-RF Tester:Leo Li
Date: 27.MAR.2025 09:34:36

4.6 Power Spectral Density

Test Information:

Sample No.:	2ZBW-1	**Test Date:**	2025/3/27
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Leo Li	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	25.9	**Relative Humidity: (%)**	56	**ATM Pressure: (kPa)**	101.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	100147	2024/04/01	2025/03/31
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

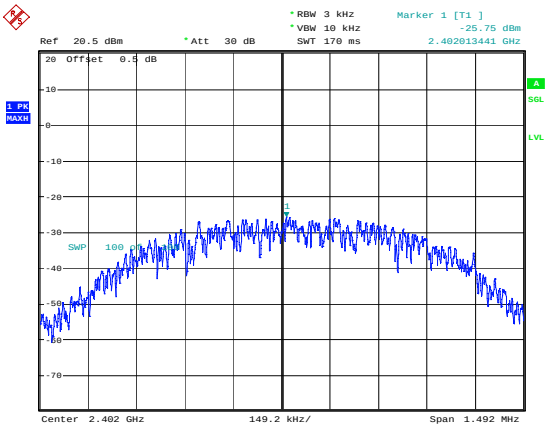
Test Data:

BLE 1M

Channel	Result (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
Low	-25.75	8	Pass
Middle	-26.05	8	Pass
High	-25.98	8	Pass

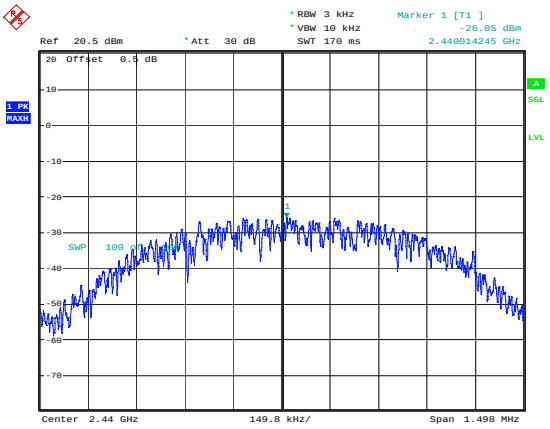
BLE 1M

BLE_1M_Low_Channel



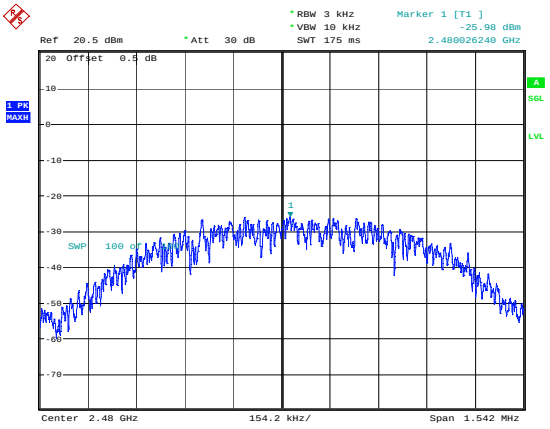
Comment: ProjectNo.:2503R46675E-RF Tester:Leo Li
Date: 27.MAR.2025 09:23:56

BLE_1M_Middle_Channel



Comment: ProjectNo.:2503R46675E-RF Tester:Leo Li
Date: 27.MAR.2025 09:27:41

BLE_1M_High_Channel



Comment: ProjectNo.:2503R46675E-RF Tester:Leo Li
Date: 27.MAR.2025 09:35:04

4.7 100 kHz Bandwidth of Frequency Band Edge

Test Information:

Sample No.:	2ZBW-1	**Test Date:**	2025/3/27
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Leo Li	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	25.9	**Relative Humidity: (%)**	56	**ATM Pressure: (kPa)**	101.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	100147	2024/04/01	2025/03/31
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

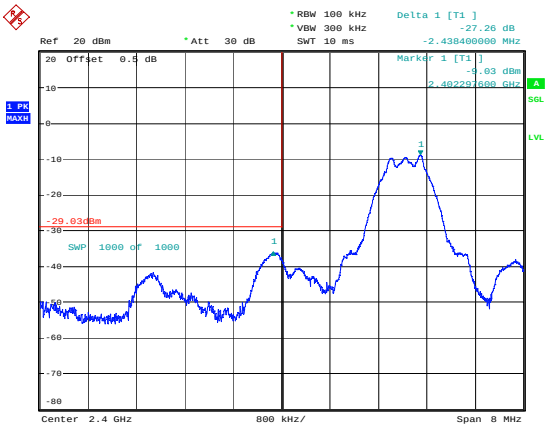
Test Data:

BLE 1M

Channel	Result (dB)	Limit (dB)	Verdict
Low	27.26	20	Pass
High	33.07	20	Pass

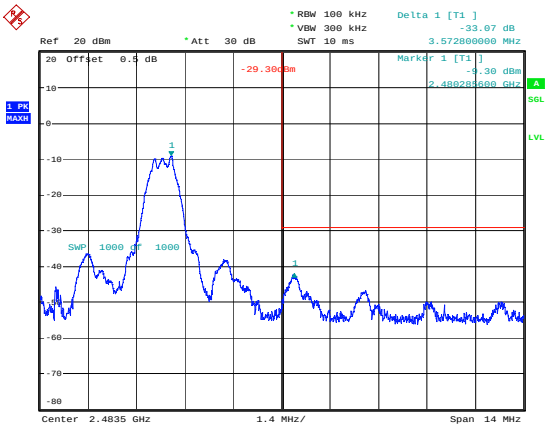
BLE 1M

BLE_1M_Low_Channel



Comment: ProjectNo.:2503R46675E-RF Tester:Leo Li
Date: 27.MAR.2025 09:21:35

BLE_1M_High_Channel



Comment: ProjectNo.:2503R46675E-RF Tester:Leo Li
Date: 27.MAR.2025 09:32:00

4.8 Duty Cycle

Test Information:

Sample No.:	2ZBW-1	**Test Date:**	2025/3/27
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Leo Li	**Test Result:**	N/A

Environmental Conditions:

Temperature: (°C)	25.9	**Relative Humidity: (%)**	56	**ATM Pressure: (kPa)**	101.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	100147	2024/04/01	2025/03/31
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

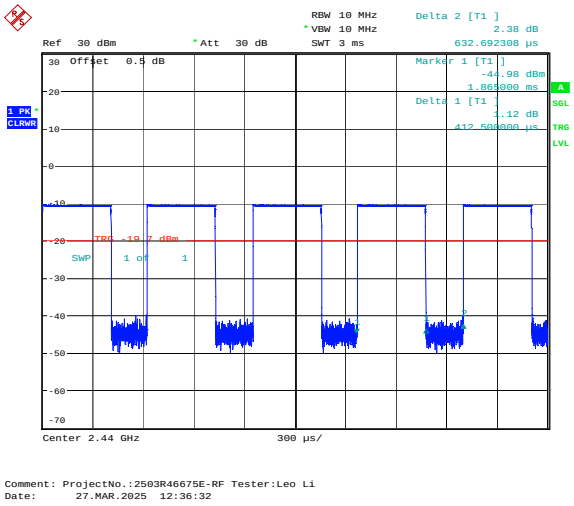
Test Data:

BLE 1M

Channel	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	Duty Cycle Factor(dB)	1/Ton (Hz)	VBW Setting (kHz)
Middle	0.413	0.633	65.24	1.85	2421	3

BLE 1M

BLE_1M_Middle_Channel



5. RF EXPOSURE EVALUATION

5.1 Applicable Standard

§1.1307(b)(3)(i) For single RF sources (*i.e.*, any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if:

(A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

5.2 Measurement Result

Radio	Frequency (MHz)	Conducted output power including Tune-up Tolerance		1-mW Test Exemption
		dBm	mW	
BLE	2402-2480	-8	0.16	Compliant

Note:
The Maximum Conducted Power including Tune-up Tolerance was declared by manufacturer.

Result: Compliant. RF Exposure is exemption**.**

6. EUT PHOTOGRAPHS

Please refer to the attachment 2503R46675E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2503R46675E-RF-INP EUT INTERNAL PHOTOGRAPHS

7. TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2503R46675E-RF-00A-TSP TEST SETUP PHOTOGRAPHS.

===== END OF REPORT ====