



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



# TEST REPORT

**Applicant:** SHENZHEN ELEMENT X TECHNOLOGY CO.LTD

Address: Room 1322A01, Haiyuan Innovation Center, No. 8 Fu'an Avenue, Hehua Community, Pinghu Street, Longgang District, Shenzhen, China

**FCC ID:** 2BEDD-RB01

**Product Name:** Desktop Bluetooth Extendable Tripod

**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:** CR240100818-00A

**Date Of Issue:** 2024/3/8

**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: +86-769-82016888

**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.

This report cannot be reproduced except in full, without prior written approval of the Company.

This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

This report may contain data that are not covered by the accreditation scope and shall be marked with an asterisk “★”.

## CONTENTS

<b>DOCUMENT REVISION HISTORY .....</b>	<b>5</b>
<b>1. GENERAL INFORMATION.....</b>	<b>6</b>
<b>1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) .....</b>	<b>6</b>
<b>1.2 DESCRIPTION OF TEST CONFIGURATION.....</b>	<b>7</b>
1.2.1 EUT Operation Condition.....	7
1.2.2 Support Equipment List and Details .....	7
1.2.3 Support Cable List and Details .....	7
1.2.4 Block Diagram of Test Setup.....	7
<b>1.3 MEASUREMENT UNCERTAINTY .....</b>	<b>8</b>
<b>2. SUMMARY OF TEST RESULTS.....</b>	<b>9</b>
<b>3. REQUIREMENTS AND TEST PROCEDURES.....</b>	<b>10</b>
<b>3.1 AC LINE CONDUCTED EMISSIONS.....</b>	<b>10</b>
3.1.1 Applicable Standard.....	10
3.1.2 EUT Setup.....	11
3.1.3 EMI Test Receiver Setup .....	11
3.1.4 Test Procedure .....	12
3.1.5 Corrected Amplitude & Margin Calculation.....	12
<b>3.2 RADIATION SPURIOUS EMISSIONS .....</b>	<b>13</b>
3.2.1 Applicable Standard.....	13
3.2.2 EUT Setup.....	13
3.2.3 EMI Test Receiver & Spectrum Analyzer Setup .....	14
3.2.4 Test Procedure .....	15
3.2.5 Corrected Amplitude & Margin Calculation.....	15
<b>3.3 MINIMUM 6 DB BANDWIDTH.....</b>	<b>16</b>
3.3.1 Applicable Standard.....	16
3.3.2 EUT Setup.....	16
3.3.3 Test Procedure .....	16
<b>3.4 MAXIMUM CONDUCTED OUTPUT POWER.....</b>	<b>17</b>
3.4.1 Applicable Standard.....	17
3.4.2 EUT Setup.....	17
3.4.3 Test Procedure .....	17
<b>3.5 MAXIMUM POWER SPECTRAL DENSITY .....</b>	<b>18</b>
3.5.1 Applicable Standard.....	18
3.5.2 EUT Setup.....	18
3.5.3 Test Procedure .....	18
<b>3.6 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE.....</b>	<b>19</b>
3.6.1 Applicable Standard.....	19
3.6.2 EUT Setup.....	19
3.6.3 Test Procedure .....	19
<b>3.7 DUTY CYCLE .....</b>	<b>20</b>
3.7.1 EUT Setup.....	20
3.7.2 Test Procedure .....	20
<b>3.8 ANTENNA REQUIREMENT.....</b>	<b>20</b>
3.8.1 Applicable Standard.....	20
3.8.2 Judgment.....	20

<b>4. TEST DATA AND RESULTS.....</b>	<b>21</b>
<b>4.1 AC LINE CONDUCTED EMISSIONS .....</b>	<b>21</b>
<b>4.2 RADIATION SPURIOUS EMISSIONS .....</b>	<b>24</b>
<b>4.3 6DB EMISSION BANDWIDTH .....</b>	<b>50</b>
<b>4.4 MAXIMUM CONDUCTED OUTPUT POWER.....</b>	<b>53</b>
<b>4.5 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE.....</b>	<b>56</b>
<b>4.6 POWER SPECTRAL DENSITY .....</b>	<b>58</b>
<b>4.7 DUTY CYCLE .....</b>	<b>61</b>
<b>5. RF EXPOSURE EVALUATION .....</b>	<b>63</b>
<b>5.1 APPLICABLE STANDARD.....</b>	<b>63</b>
<b>5.2 MEASUREMENT RESULT .....</b>	<b>63</b>
<b>6. EUT PHOTOGRAPHS .....</b>	<b>64</b>
<b>7. TEST SETUP PHOTOGRAPHS .....</b>	<b>65</b>

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR240100818-00A	Original Report	2024/3/8

# 1. GENERAL INFORMATION

## 1.1 Product Description for Equipment under Test (EUT)

<b>EUT Name:</b>	Desktop Bluetooth Extendable Tripod
<b>EUT Model:</b>	RB01
<b>Operation Frequency:</b>	2402-2480 MHz
<b>Maximum Peak Output Power (Conducted):</b>	-6.07dBm
<b>Modulation Type:</b>	GFSK
<b>Rated Input Voltage:</b>	DC 5V from USB or DC 3.7V from battery
<b>Serial Number:</b>	2G6W-1 (for RF Conducted Test) 2G6W-2 (for Radiated Emissions Test) 2G6W-3 (for Conducted Emissions Test)
<b>EUT Received Date:</b>	2024/1/4
<b>EUT Received Status:</b>	Good

### 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 to test:			
Test Channel		Frequency (MHz)	
Lowest		2402	
Middle		2440	
Highest		2480	

### Antenna Information Detail▲:

Antenna Type	input impedance (Ohm)	Frequency Range (MHz)	Antenna Gain (dBi)
Chip Antenna	50	2400-2500	-0.45
The Method of §15.203 Compliance:			
<input checked="" type="checkbox"/> Antenna was permanently attached to the unit.			
<input type="checkbox"/> Antenna must use a unique type of connector to attach to the EUT.			
<input type="checkbox"/> Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.			

### Accessory Information:

Accessory Description	Manufacturer	Model	Parameters
Tripod	/	/	/
Mobile Phone Clip	/	/	/
Micro USB Cable	/	/	Unshielded without ferrite, 0.2 Meter

## 1.2 Description of Test Configuration

### 1.2.1 EUT Operation Condition

<b>EUT Operation Mode:</b>	The system was configured for testing in Engineering Mode, which was provided by the manufacturer.		
<b>Equipment Modifications:</b>	No		
<b>EUT Exercise Software:</b>	FCC_assist_1.0.2.2.exe		
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
BLE 1Mbps	Default	Default	Default
BLE 2Mbps	Default	Default	Default

### 1.2.2 Support Equipment List and Details

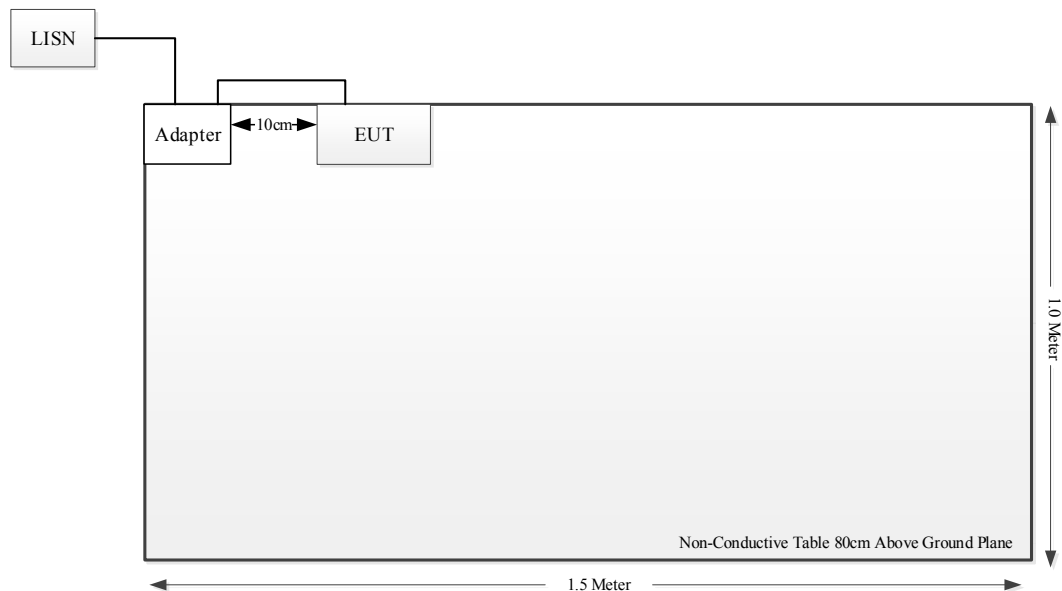
Manufacturer	Description	Model	Serial Number
Fangxin	Adapter	FX2U-050200U	AD220930001

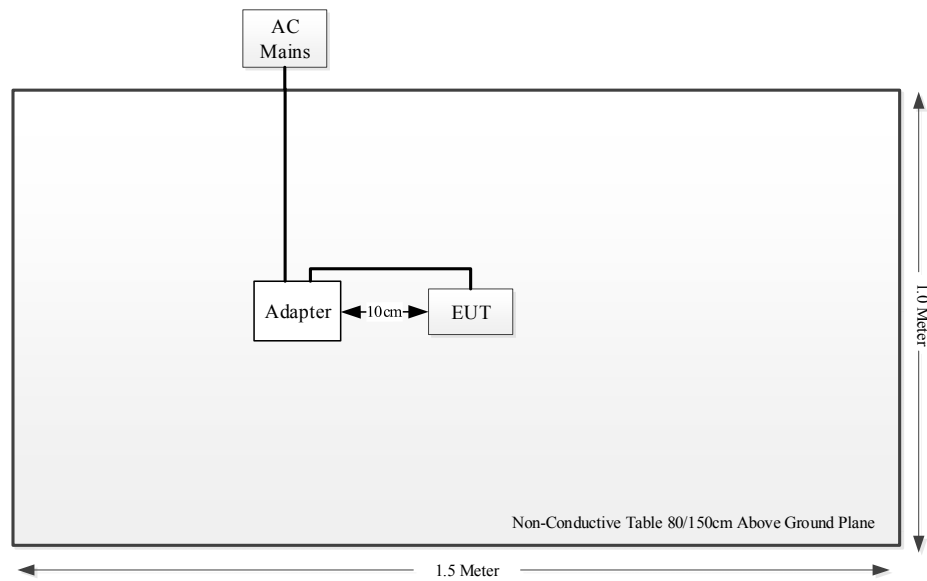
### 1.2.3 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
USB Cable	No	No	0.2	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	$\pm 5\%$
RF output power, conducted	$\pm 0.61\text{dB}$
Power Spectral Density, conducted	$\pm 0.61\text{ dB}$
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	$\pm 1.26\text{ dB}$
Temperature	$\pm 1^\circ\text{C}$
Humidity	$\pm 5\%$
DC and low frequency voltages	$\pm 0.4\%$
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 §15.207(a)	AC Line Conducted Emissions	PASS
FCC §15.205,§15.209,§15.247(d)	Radiated Spurious Emission	PASS
FCC §15.207(a)(2)	6dB Emission Bandwidth	PASS
FCC §15.247(b)(1)	Maximum Conducted Output Power	PASS
FCC §15.247(d)	100 kHz Bandwidth of Frequency Band Edge	PASS
FCC §15.247(e)	Power Spectral Density	PASS
C63.10 §11.6	Duty Cycle	PASS
FCC § 15.247(i) and §1.1310	RF Exposure Evaluation	PASS

### 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  $\mu$ H/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.

Frequency of emission (MHz)	Conducted limit (dB $\mu$ V)	
	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:

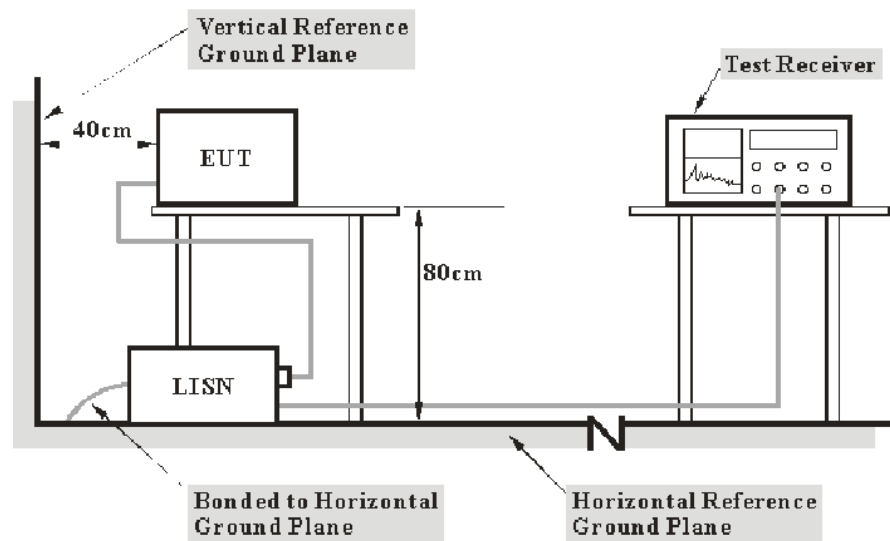
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000  $\mu$ V within the frequency band 535-1705 kHz, as measured using a 50  $\mu$ H/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.

The adapter or EUT was connected to the main LISN with a 120 V/60 Hz AC power source.

### 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

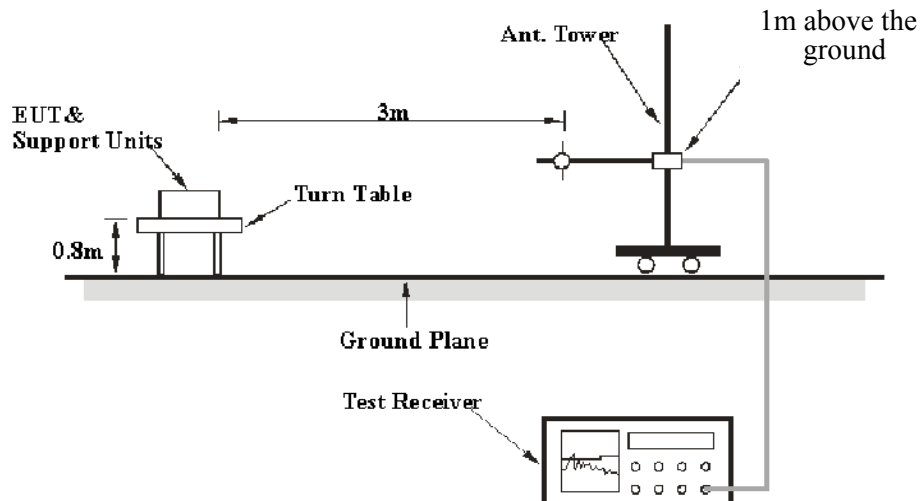
### 3.2.1 Applicable Standard

FCC §15.247 (d);

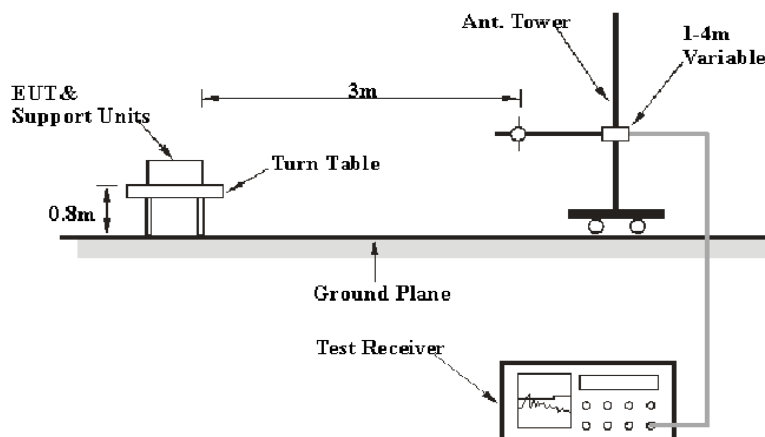
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the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

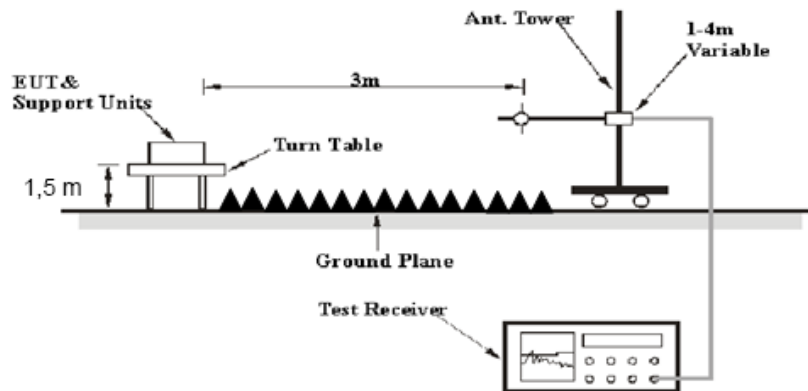
### 3.2.2 EUT Setup

**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**

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	Measurement
9 kHz – 150 kHz	300 Hz	1 kHz	/	PK
	/	/	200 Hz	QP/AV
150 kHz – 30 MHz	10 kHz	30 kHz	/	PK
	/	/	9 kHz	QP/AV
30 MHz – 1000 MHz	100 kHz	300 kHz	/	PK
	/	/	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	AV

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

### 3.2.4 Test Procedure

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

The 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. And for the measurements on frequency band above 1000 MHz, the test results of Peak detector should also be recorded.

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

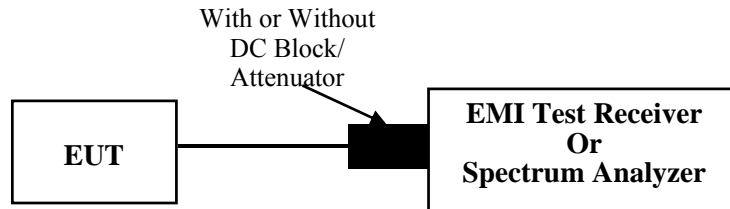
### 3.3 Minimum 6 dB Bandwidth

#### 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



#### 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)  $\geq 3 \times \text{RBW}$ .
- 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.



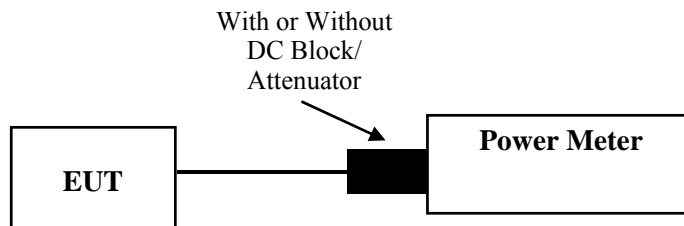
### 3.4 Maximum Conducted Output Power

#### 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



#### 3.4.3 Test Procedure

According to ANSI C63.10-2013 Section 11.9.1.3

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

- Set the EUT in transmitting mode.
- Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to test equipment.
- Add a correction factor to the display.
- Set the power meter to test peak output power, record the result.

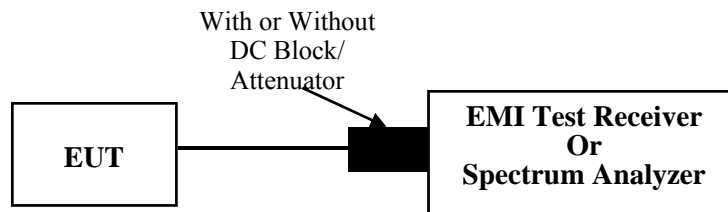
### 3.5 Maximum Power Spectral Density

#### 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



#### 3.5.3 Test Procedure

According to ANSI C63.10-2013 Section 11.10.2

- Set analyzer center frequency to DTS channel center frequency.
- Set the span to 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 = auto couple.
- 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.

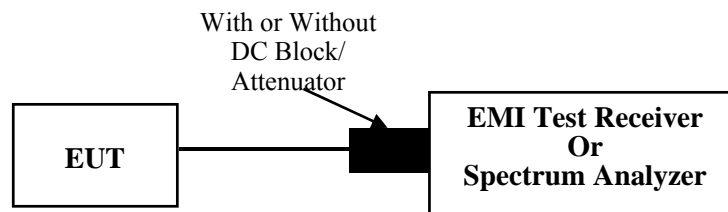
### 3.6 100 kHz Bandwidth of Frequency Band Edge

#### 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



#### 3.6.3 Test Procedure

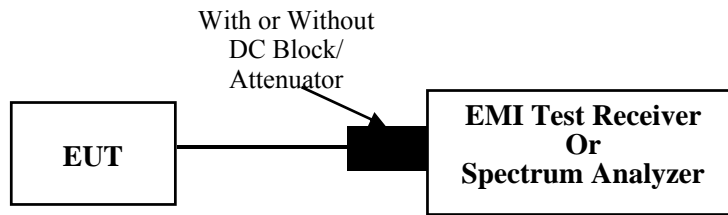
According to ANSI C63.10-2013 Section 11.11

- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 100 kHz.
- c) Set the VBW  $\geq [3 \times \text{RBW}]$ .
- 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



#### 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  $RBW \geq OBW$  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  $T \leq 16.7 \mu s$ .)

### 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

Serial Number:	2G6W-3	Test Date:	2024/1/13
Test Site:	CE	Test Mode:	Transmitting
Tester:	David Huang	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.9	Relative Humidity: (%)	47	ATM Pressure: (kPa)	101.3
----------------------	------	---------------------------	----	------------------------	-------

Test Equipment List and Details:

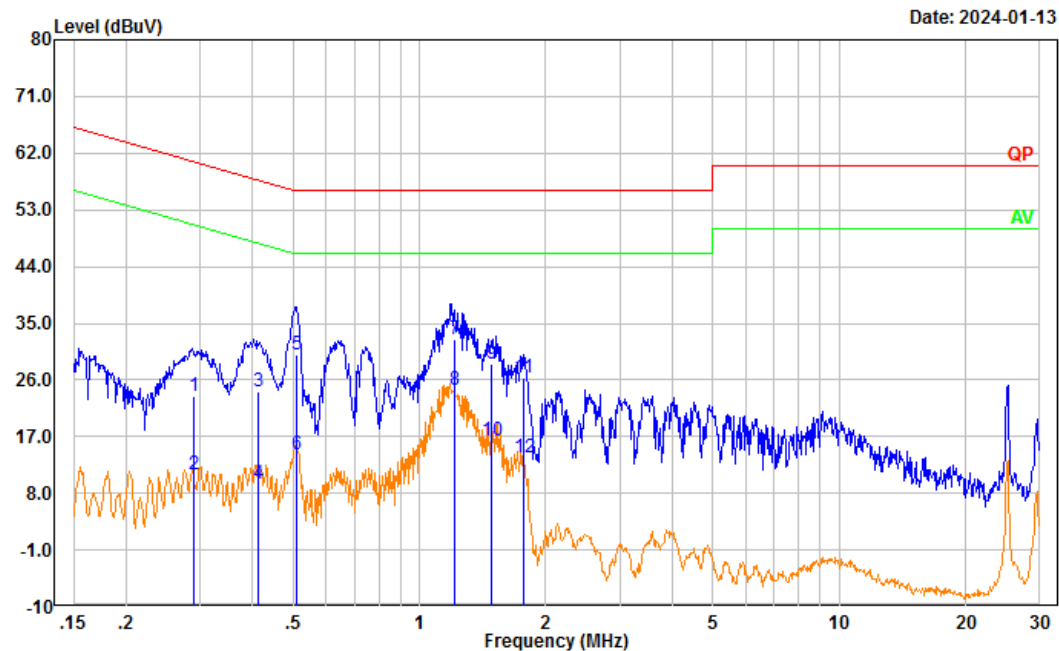
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2023/3/31	2024/3/30
R&S	EMI Test Receiver	ESR3	102726	2023/3/31	2024/3/30
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2023/8/6	2024/8/5
Audix	Test Software	E3	190306 (V9)	N/A	N/A

*\* 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:

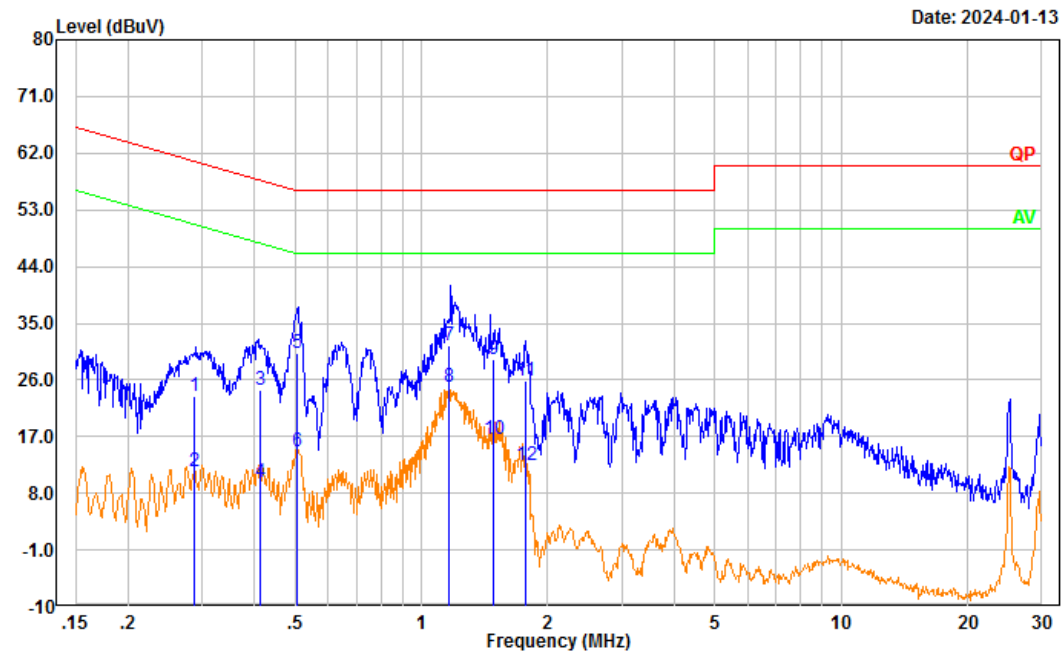
Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data packets and antenna ports (if EUT with antenna diversity architecture). Tested at maximum output power mode from Pre-Scan: **BLE 1Mbps, Middle Channel**.

Project No.: CR240100818-RF  
Tester: David Huang  
Port: Line  
Note: Transmitting(BLE)



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.290	13.70	9.61	23.31	60.54	37.23	QP
2	0.290	1.48	9.61	11.09	50.54	39.45	Average
3	0.413	14.60	9.61	24.21	57.59	33.38	QP
4	0.413	-0.14	9.61	9.47	47.59	38.12	Average
5	0.509	20.41	9.61	30.02	56.00	25.98	QP
6	0.509	4.61	9.61	14.22	46.00	31.78	Average
7	1.214	22.89	9.62	32.51	56.00	23.49	QP
8	1.214	14.67	9.62	24.29	46.00	21.71	Average
9	1.488	18.82	9.62	28.44	56.00	27.56	QP
10	1.488	6.84	9.62	16.46	46.00	29.54	Average
11	1.771	16.82	9.63	26.45	56.00	29.55	QP
12	1.771	4.06	9.63	13.69	46.00	32.31	Average

Project No.: CR240100818-RF  
Tester: David Huang  
Port: neutral  
Note: Transmitting(BLE)



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.288	13.87	9.61	23.48	60.59	37.11	QP
2	0.288	1.86	9.61	11.47	50.59	39.12	Average
3	0.413	14.79	9.61	24.40	57.59	33.19	QP
4	0.413	0.20	9.61	9.81	47.59	37.78	Average
5	0.507	20.51	9.61	30.12	56.00	25.88	QP
6	0.507	5.13	9.61	14.74	46.00	31.26	Average
7	1.164	21.93	9.62	31.55	56.00	24.45	QP
8	1.164	15.33	9.62	24.95	46.00	21.05	Average
9	1.488	19.61	9.62	29.23	56.00	26.77	QP
10	1.488	6.95	9.62	16.57	46.00	29.43	Average
11	1.765	16.24	9.63	25.87	56.00	30.13	QP
12	1.765	2.69	9.63	12.32	46.00	33.68	Average

## 4.2 Radiation Spurious Emissions

### 1) 9kHz-1GHz

Serial Number:	2G6W-2	Test Date:	2024/1/13
Test Site:	966-2	Test Mode:	Transmitting
Tester:	Carl Xue	Test Result:	Pass

#### Environmental Conditions:

Temperature: (°C)	25.2	Relative Humidity: (%)	44	ATM Pressure: (kPa)	101.3
----------------------	------	---------------------------	----	------------------------	-------

#### 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	2024/1/11	2025/1/10
Daruikang	Coaxial Cable	BNC-JJ-RG58	C-0500-01	2024/1/11	2025/1/10
R&S	EMI Test Receiver	ESR3	102724	2023/3/31	2024/3/30
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2023/7/16	2024/7/15
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2023/7/16	2024/7/15
Sonoma	Amplifier	310N	186165	2023/7/16	2024/7/15
Audix	Test Software	E3	201021 (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 Y axis is worse case.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data packets and antenna ports (if EUT with antenna diversity architecture). Tested at maximum output power mode from Pre-Scan: **BLE 1Mbps, Middle Channel**.



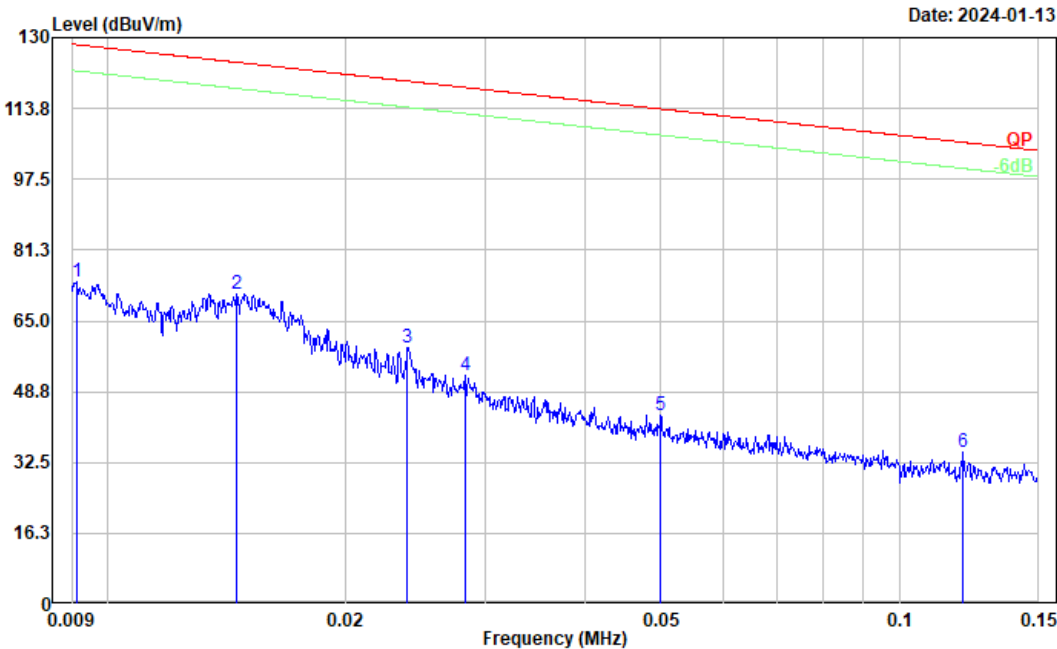
9kHz~30MHz:

Project No.: CR240100818-RF

Tester: Carl Xue

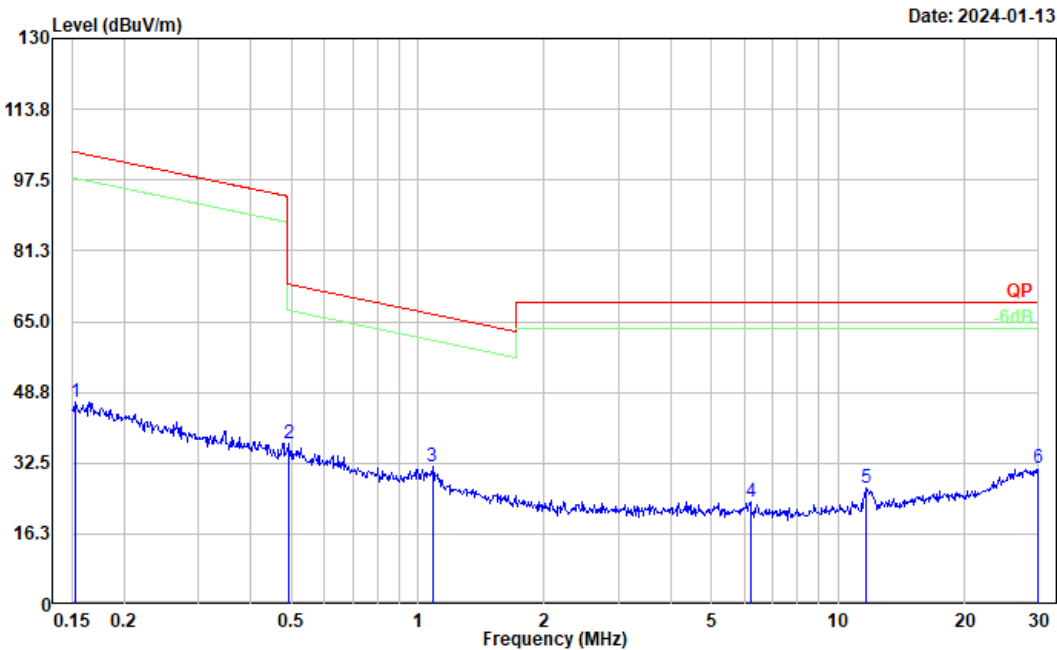
Polarization: Parallel

Note:



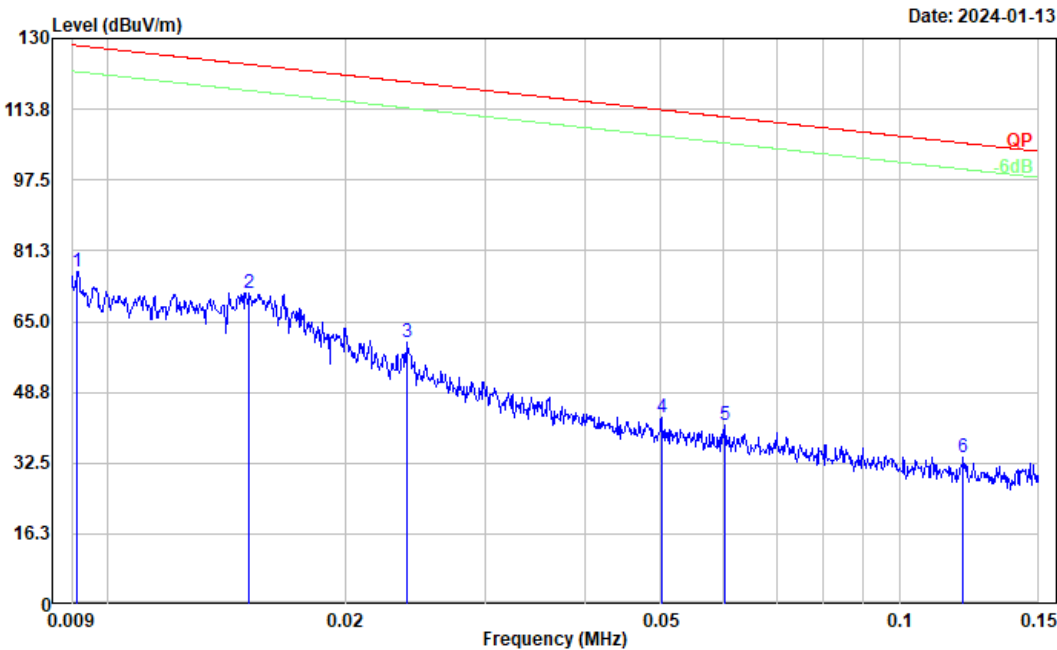
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.009	38.48	35.56	74.04	128.40	54.36	Peak
2	0.015	39.12	32.22	71.34	124.37	53.03	Peak
3	0.024	31.21	27.62	58.83	120.04	61.21	Peak
4	0.028	26.88	25.47	52.35	118.57	66.22	Peak
5	0.050	22.93	20.45	43.38	113.64	70.26	Peak
6	0.120	21.30	13.69	34.99	105.99	71.00	Peak

Project No.: CR240100818-RF  
Tester: Carl Xue  
Polarization: Parallel  
Note:



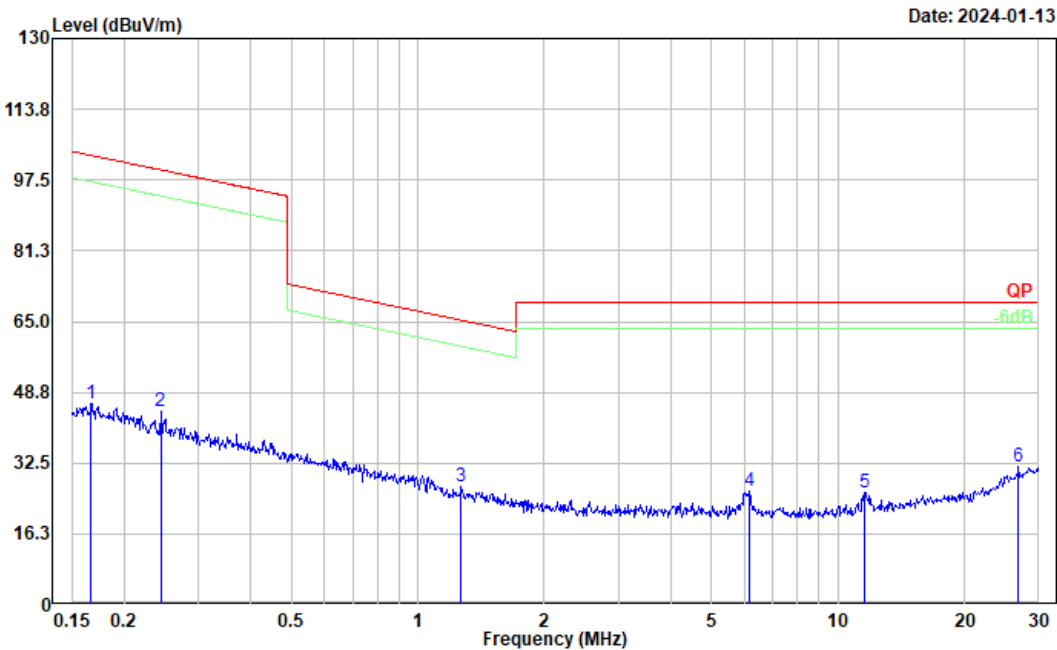
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.153	34.43	12.17	46.60	103.90	57.30	Peak
2	0.491	35.74	1.15	36.89	73.77	36.88	Peak
3	1.082	36.06	-4.51	31.55	66.77	35.22	Peak
4	6.186	32.40	-8.91	23.49	69.54	46.05	Peak
5	11.683	34.90	-7.99	26.91	69.54	42.63	Peak
6	30.000	38.35	-7.11	31.24	69.54	38.30	Peak

Project No.: CR240100818-RF  
Tester: Carl Xue  
Polarization: Perpendicular  
Note:



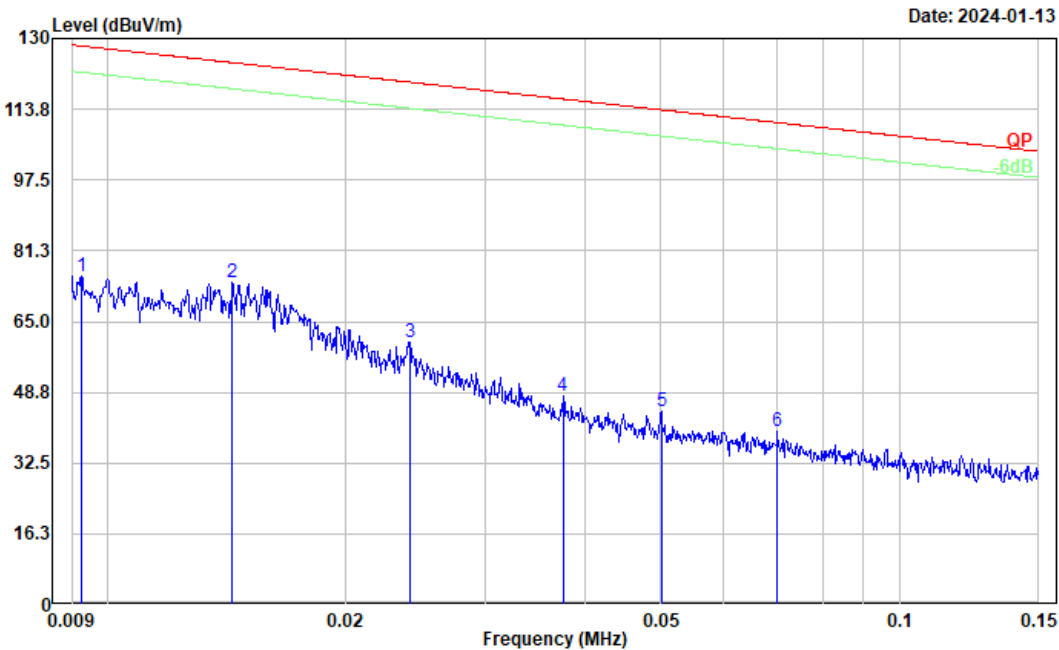
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.009	41.06	35.53	76.59	128.37	51.78	Peak
2	0.015	39.71	31.93	71.64	124.02	52.38	Peak
3	0.024	32.63	27.62	60.25	120.04	59.79	Peak
4	0.050	22.48	20.42	42.90	113.61	70.71	Peak
5	0.060	22.19	19.05	41.24	112.02	70.78	Peak
6	0.120	20.23	13.69	33.92	105.99	72.07	Peak

Project No.: CR240100818-RF  
Tester: Carl Xue  
Polarization: Perpendicular  
Note:



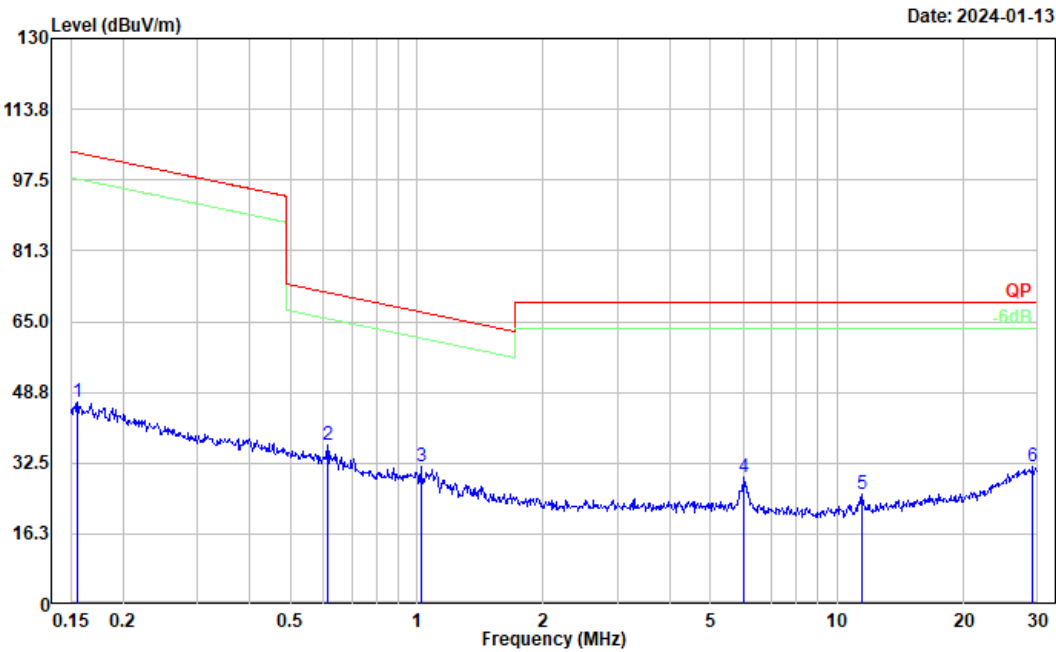
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.167	34.51	11.54	46.05	103.16	57.11	Peak
2	0.244	36.37	7.93	44.30	99.85	55.55	Peak
3	1.269	32.36	-5.17	27.19	65.36	38.17	Peak
4	6.153	34.90	-8.91	25.99	69.54	43.55	Peak
5	11.559	33.70	-8.01	25.69	69.54	43.85	Peak
6	26.841	39.05	-7.51	31.54	69.54	38.00	Peak

Project No.: CR240100818-RF  
Tester: Carl Xue  
Polarization: Ground-parallel  
Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.009	40.13	35.40	75.53	128.28	52.75	Peak
2	0.014	41.62	32.29	73.91	124.46	50.55	Peak
3	0.024	32.82	27.52	60.34	119.97	59.63	Peak
4	0.038	24.95	23.04	47.99	116.11	68.12	Peak
5	0.050	23.98	20.42	44.40	113.61	69.21	Peak
6	0.070	22.29	17.67	39.96	110.68	70.72	Peak

Project No.: CR240100818-RF  
 Tester: Carl Xue  
 Polarization: Ground-parallel  
 Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.156	34.35	12.05	46.40	103.76	57.36	Peak
2	0.614	37.16	-0.36	36.80	71.80	35.00	Peak
3	1.021	36.03	-4.29	31.74	67.29	35.55	Peak
4	5.993	38.28	-8.93	29.35	69.54	40.19	Peak
5	11.438	33.34	-8.03	25.31	69.54	44.23	Peak
6	29.216	39.00	-7.24	31.76	69.54	37.78	Peak

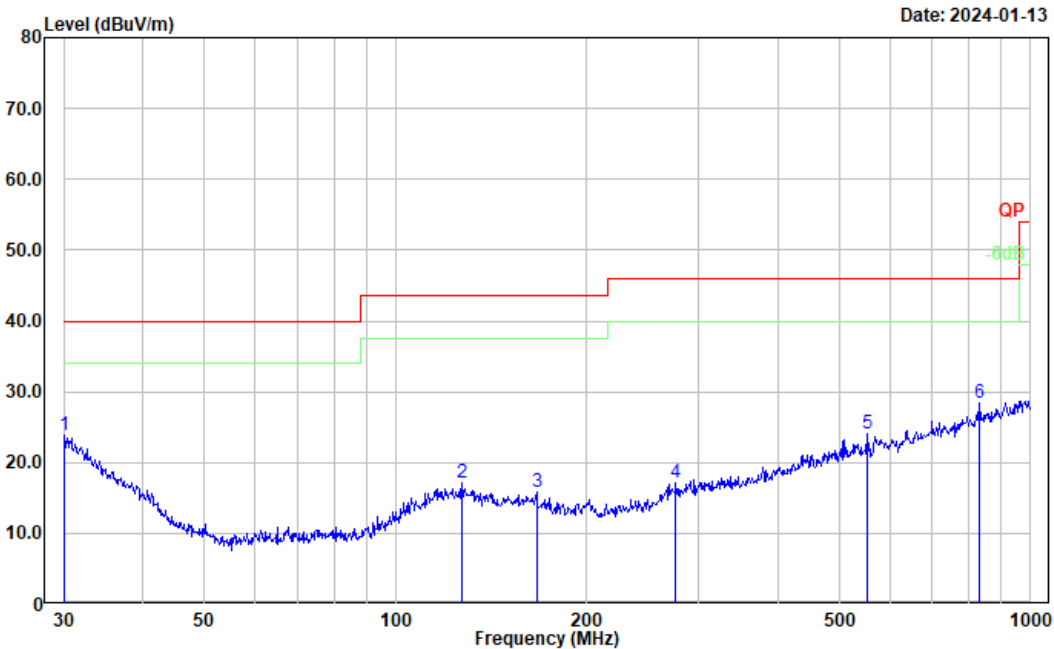
30MHz-1GHz:

Project No.: CR240100818-RF

Tester: Carl Xue

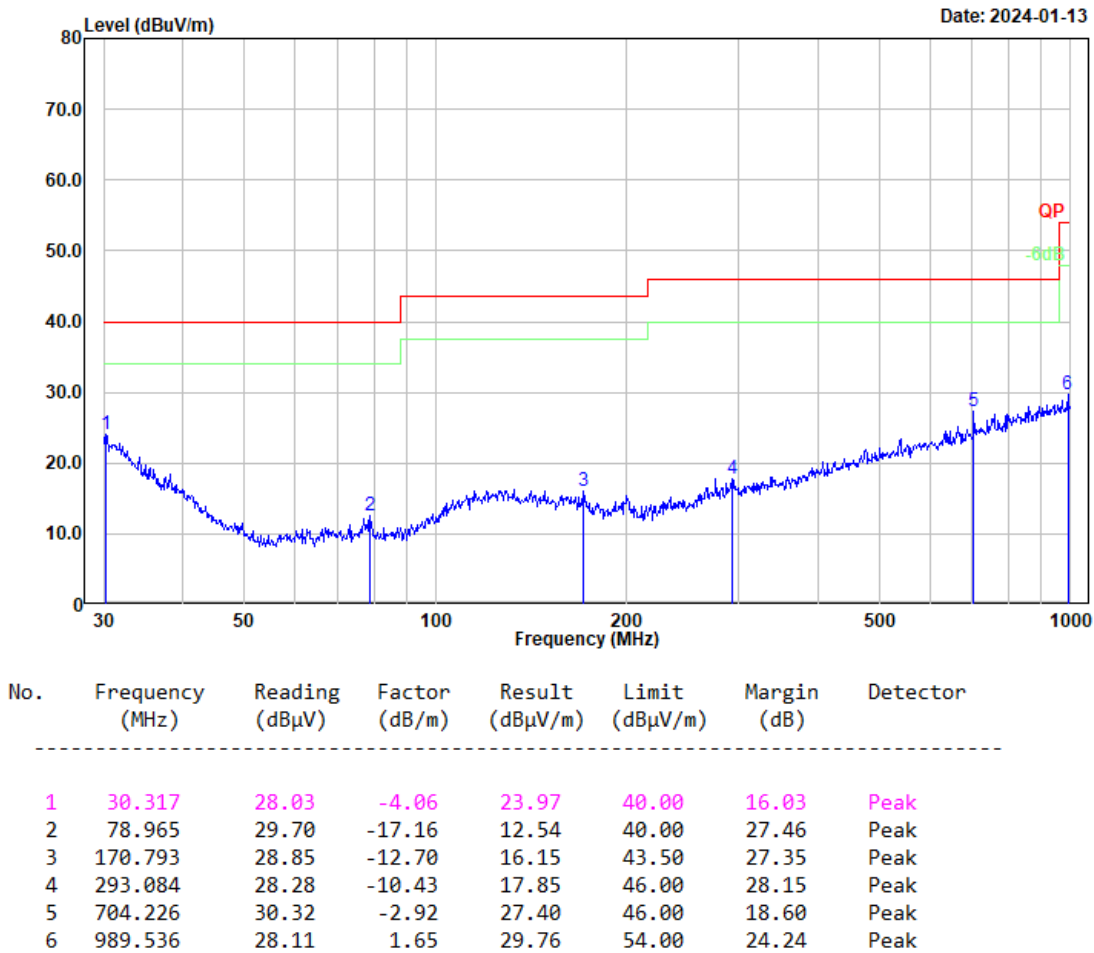
Polarization: horizontal

Note: Transmitting(BLE)



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	30.000	27.71	-3.87	23.84	40.00	16.16	Peak
2	127.218	28.15	-11.10	17.05	43.50	26.45	Peak
3	166.651	28.08	-12.30	15.78	43.50	27.72	Peak
4	276.124	27.97	-10.88	17.09	46.00	28.91	Peak
5	552.883	29.44	-5.43	24.01	46.00	21.99	Peak
6	830.400	29.37	-0.97	28.40	46.00	17.60	Peak

Project No.: CR240100818-RF  
Tester: Carl Xue  
Polarization: vertical  
Note: Transmitting(BLE)





**2) 1-25GHz:**

Serial Number:	2G6W-2	Test Date:	2024/1/12
Test Site:	966-1	Test Mode:	Transmitting
Tester:	Tao Zhu	Test Result:	Pass

**Environmental Conditions:**

Temperature: (°C)	25.7	Relative Humidity: (%)	56	ATM Pressure: (kPa)	101.3
----------------------	------	---------------------------	----	------------------------	-------

**Test Equipment List and Details:**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
AH	Double Ridge Guide Horn Antenna	SAS-571	1394	2023/2/22	2026/2/21
R&S	Spectrum Analyzer	FSV40	101591	2023/3/31	2024/3/30
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2023/8/6	2024/8/5
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2023/8/6	2024/8/5
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2023/11/8	2024/11/7
Audix	Test Software	E3	201021 (V9)	N/A	N/A
PASTERNAK	Horn Antenna	PE9852/2F-20	112002	2021/2/5	2024/2/4
Quinstar	Preamplifier	QLW-18405536-JO	15964001005	2023/9/15	2024/9/14
MICRO-COAX	Coaxial Cable	UFB142A-1-2362-200200	235772-001	2023/8/6	2024/8/5
E-Microwave	Band Rejection Filter	2400-2483.5MHz	OE01902424	2023/8/6	2024/8/5
Mini Circuits	High Pass Filter	VHF-6010+	31119	2023/8/6	2024/8/5

*\* **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 Y axis is worse case. Please refer to below tables and plots.

**BLE 1Mbps:**

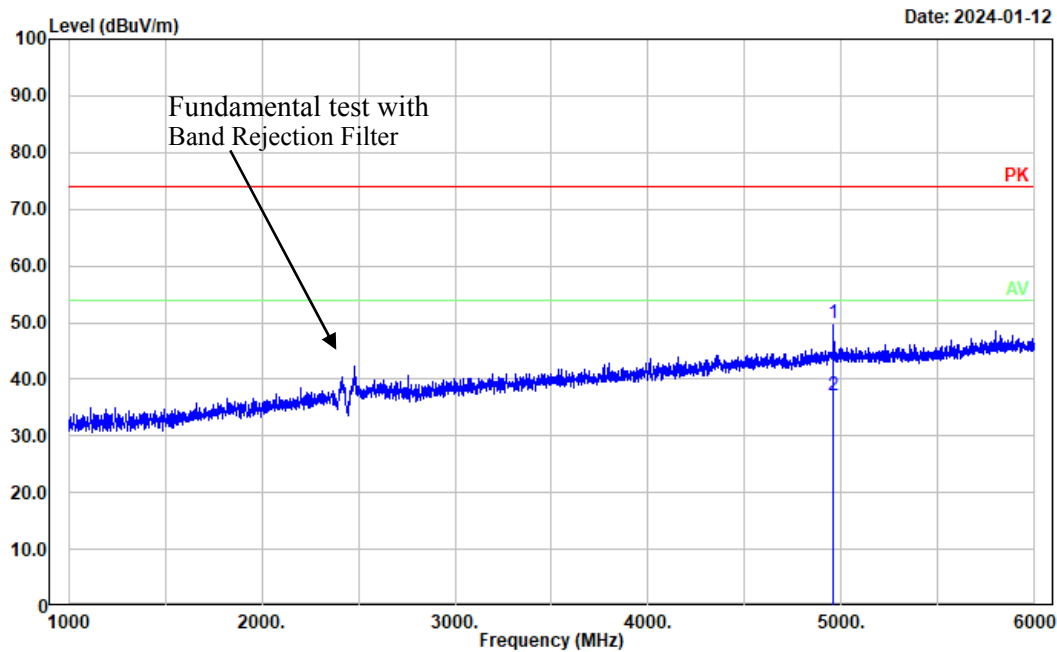
Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel:				2402	MHz		
4804.000	37.52	PK	H	11.19	48.71	74.00	25.29
4804.000	24.77	AV	H	11.19	35.96	54.00	18.04
4804.000	39.69	PK	V	11.19	50.88	74.00	23.12
4804.000	26.82	AV	V	11.19	38.01	54.00	15.99
7206.000	33.23	PK	H	15.03	48.26	74.00	25.74
7206.000	20.17	AV	H	15.03	35.20	54.00	18.80
7206.000	33.63	PK	V	15.03	48.66	74.00	25.34
7206.000	20.25	AV	V	15.03	35.28	54.00	18.72
Middle Channel:				2440	MHz		
4880.000	38.23	PK	H	11.48	49.71	74.00	24.29
4880.000	25.63	AV	H	11.48	37.11	54.00	16.89
4880.000	40.12	PK	V	11.48	51.60	74.00	22.40
4880.000	27.66	AV	V	11.48	39.14	54.00	14.86
7320.000	33.25	PK	H	15.58	48.83	74.00	25.17
7320.000	20.47	AV	H	15.58	36.05	54.00	17.95
7320.000	33.36	PK	V	15.58	48.94	74.00	25.06
7320.000	20.59	AV	V	15.58	36.17	54.00	17.83
High Channel:				2480	MHz		
4960.000	38.12	PK	H	11.77	49.89	74.00	24.11
4960.000	25.28	AV	H	11.77	37.05	54.00	16.95
4960.000	40.20	PK	V	11.77	51.97	74.00	22.03
4960.000	27.39	AV	V	11.77	39.16	54.00	14.84
7440.000	33.58	PK	H	15.98	49.56	74.00	24.44
7440.000	20.22	AV	H	15.98	36.20	54.00	17.80
7440.000	33.67	PK	V	15.98	49.65	74.00	24.35
7440.000	20.53	AV	V	15.98	36.51	54.00	17.49

**BLE 2Mbps:**

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel:				2402	MHz		
4804.000	37.52	PK	H	11.19	48.71	74.00	25.29
4804.000	24.29	AV	H	11.19	35.48	54.00	18.52
4804.000	39.65	PK	V	11.19	50.84	74.00	23.16
4804.000	26.66	AV	V	11.19	37.85	54.00	16.15
7206.000	33.50	PK	H	15.03	48.53	74.00	25.47
7206.000	20.31	AV	H	15.03	35.34	54.00	18.66
7206.000	33.66	PK	V	15.03	48.69	74.00	25.31
7206.000	20.48	AV	V	15.03	35.51	54.00	18.49
Middle Channel:				2440	MHz		
4880.000	37.84	PK	H	11.48	49.32	74.00	24.68
4880.000	24.82	AV	H	11.48	36.30	54.00	17.70
4880.000	39.87	PK	V	11.48	51.35	74.00	22.65
4880.000	26.63	AV	V	11.48	38.11	54.00	15.89
7320.000	33.25	PK	H	15.58	48.83	74.00	25.17
7320.000	20.42	AV	H	15.58	36.00	54.00	18.00
7320.000	33.57	PK	V	15.58	49.15	74.00	24.85
7320.000	20.46	AV	V	15.58	36.04	54.00	17.96
High Channel:				2480	MHz		
4960.000	38.11	PK	H	11.77	49.88	74.00	24.12
4960.000	25.43	AV	H	11.77	37.20	54.00	16.80
4960.000	40.28	PK	V	11.77	52.05	74.00	21.95
4960.000	27.36	AV	V	11.77	39.13	54.00	14.87
7440.000	33.32	PK	H	15.98	49.30	74.00	24.70
7440.000	20.28	AV	H	15.98	36.26	54.00	17.74
7440.000	33.36	PK	V	15.98	49.34	74.00	24.66
7440.000	20.41	AV	V	15.98	36.39	54.00	17.61

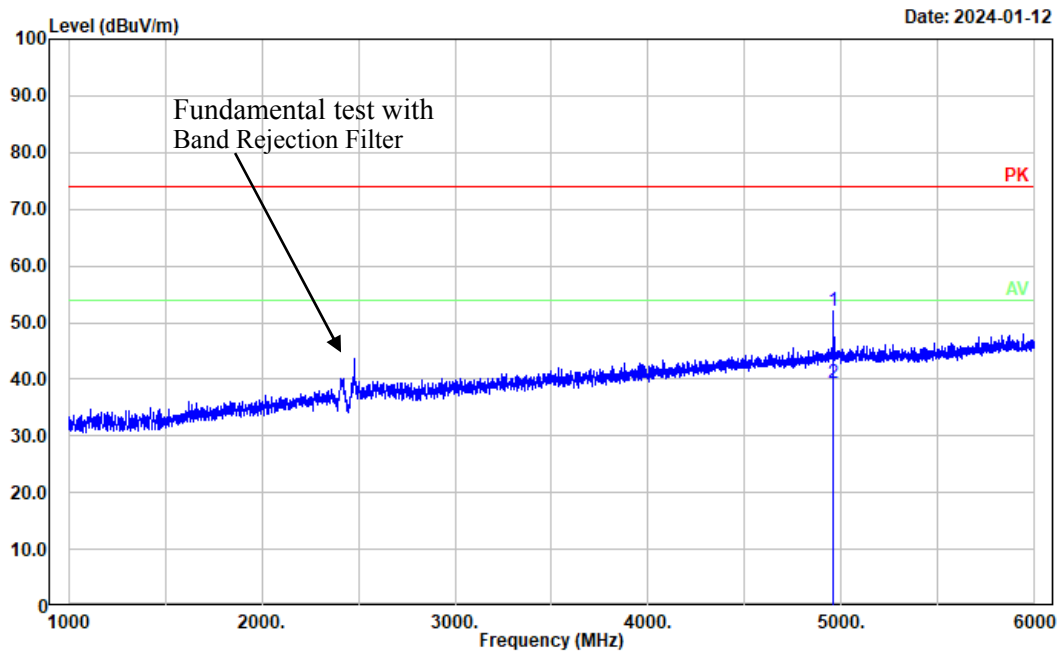
Worst Radiation Spurious Emissions Margin Test Plots  
BLE 1Mbps highest channel was the worst case:

Project No.: CR240100818-RF  
Tester: Tao Zhu  
Polarization: horizontal  
Note:



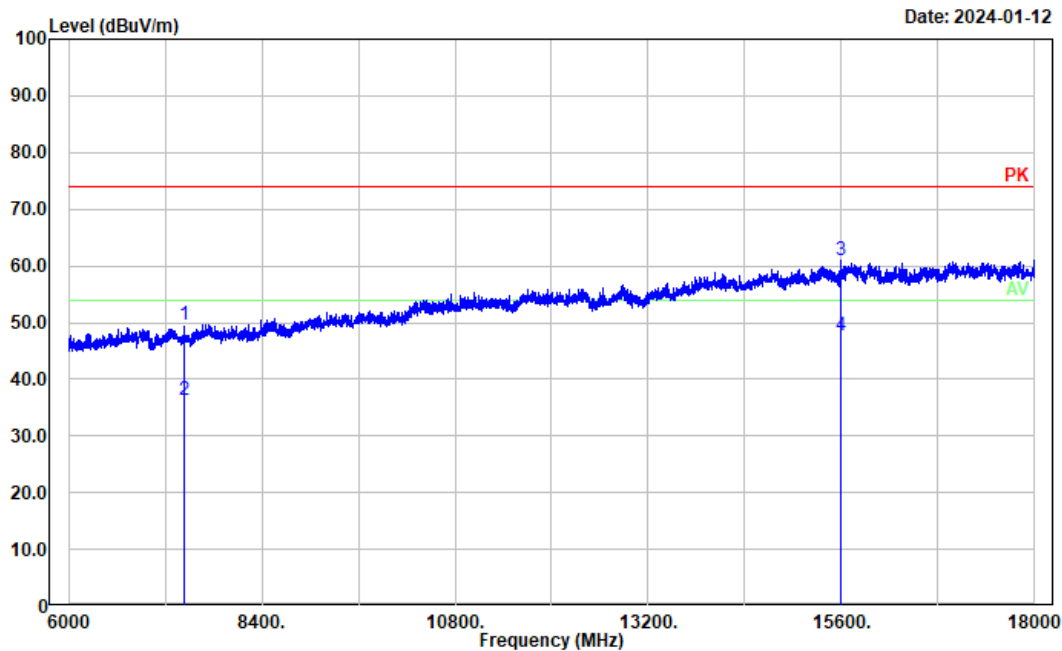
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4960.000	38.12	11.77	49.89	74.00	24.11	Peak
2	4960.000	25.28	11.77	37.05	54.00	16.95	Average

Project No.: CR240100818-RF  
Tester: Tao Zhu  
Polarization: vertical  
Note:



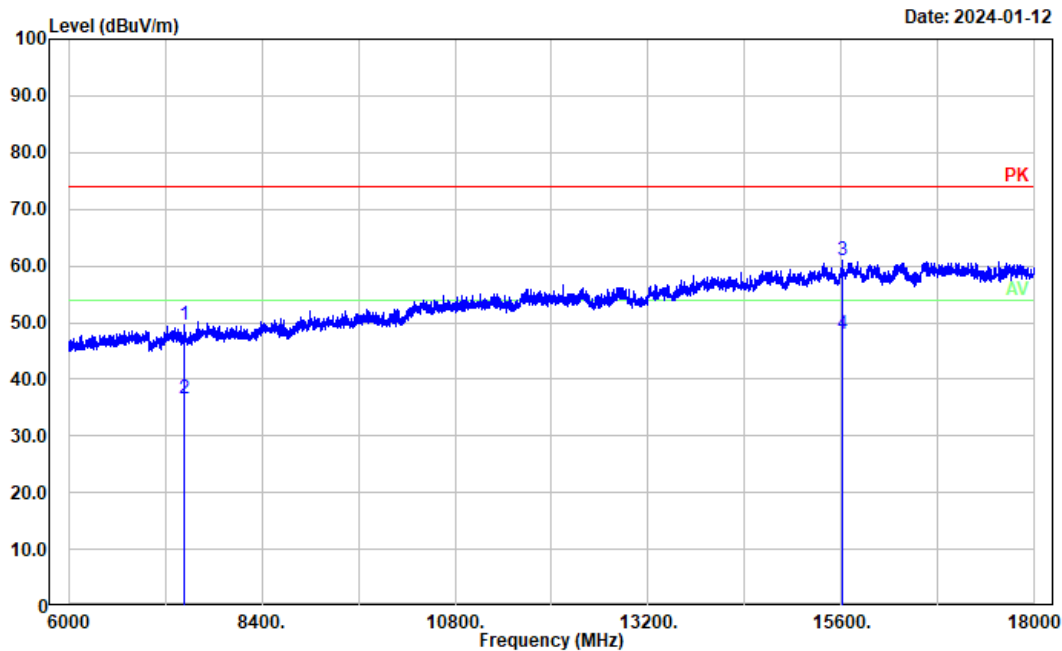
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4960.000	40.20	11.77	51.97	74.00	22.03	Peak
2	4960.000	27.39	11.77	39.16	54.00	14.84	Average

Project No.: CR240100818-RF  
Tester: Tao Zhu  
Polarization: horizontal  
Note:



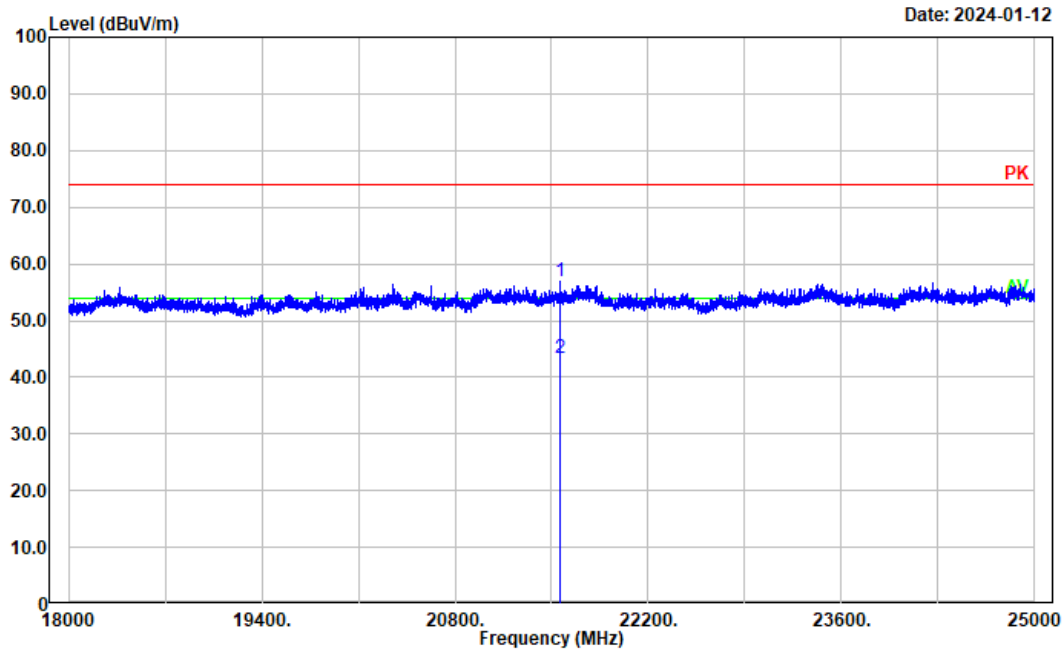
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	7440.000	33.58	15.98	49.56	74.00	24.44	Peak
2	7440.000	20.22	15.98	36.20	54.00	17.80	Average
3	15600.000	36.24	24.71	60.95	74.00	13.05	Peak
4	15600.000	23.11	24.71	47.82	54.00	6.18	Average

Project No.: CR240100818-RF  
Tester: Tao Zhu  
Polarization: vertical  
Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	7440.000	33.67	15.98	49.65	74.00	24.35	Peak
2	7440.000	20.53	15.98	36.51	54.00	17.49	Average
3	15612.000	36.38	24.72	61.10	74.00	12.90	Peak
4	15612.000	23.16	24.72	47.88	54.00	6.12	Average

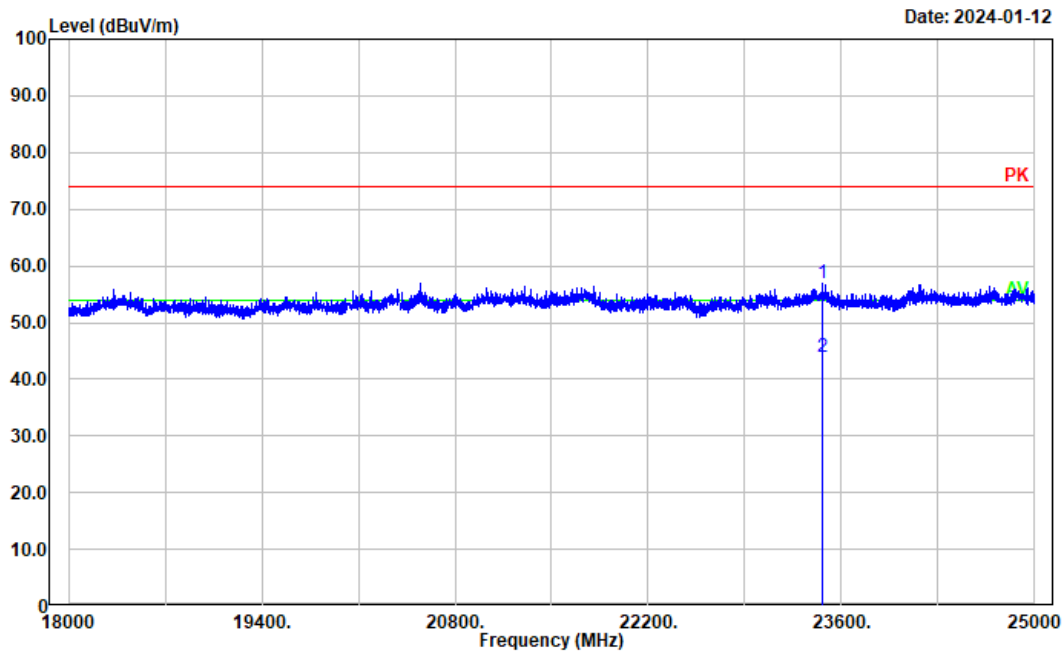
Project No.: CR240100818-RF  
Tester: Tao Zhu  
Polarization: Horizontal  
Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	21561.600	52.24	4.55	56.79	74.00	17.21	Peak
2	21561.600	38.84	4.55	43.39	54.00	10.61	Average



Project No.: CR240100818-RF  
Tester: Tao Zhu  
Polarization: Vertical  
Note:



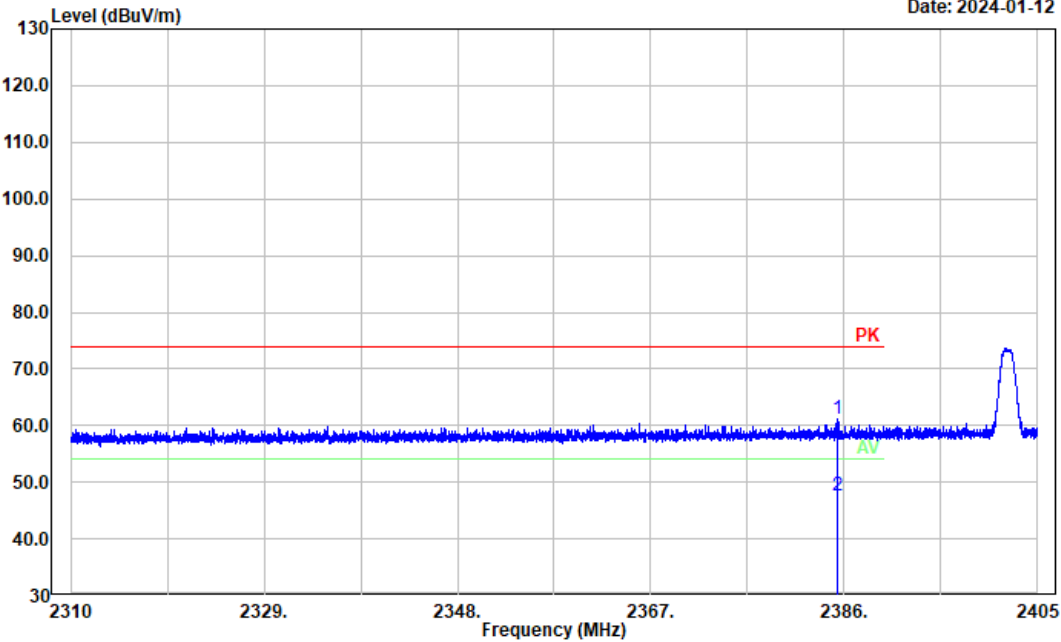
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	23462.800	51.57	5.39	56.96	74.00	17.04	Peak
2	23462.800	38.43	5.39	43.82	54.00	10.18	Average

Radiated Band Edge Test Plots:

BLE 1Mbps\_ Lowest Channel\_ Horizontal

Project No.: CR240100818-RF  
Tester: Tao Zhu  
Polarization: Horizontal  
Note:

Date: 2024-01-12

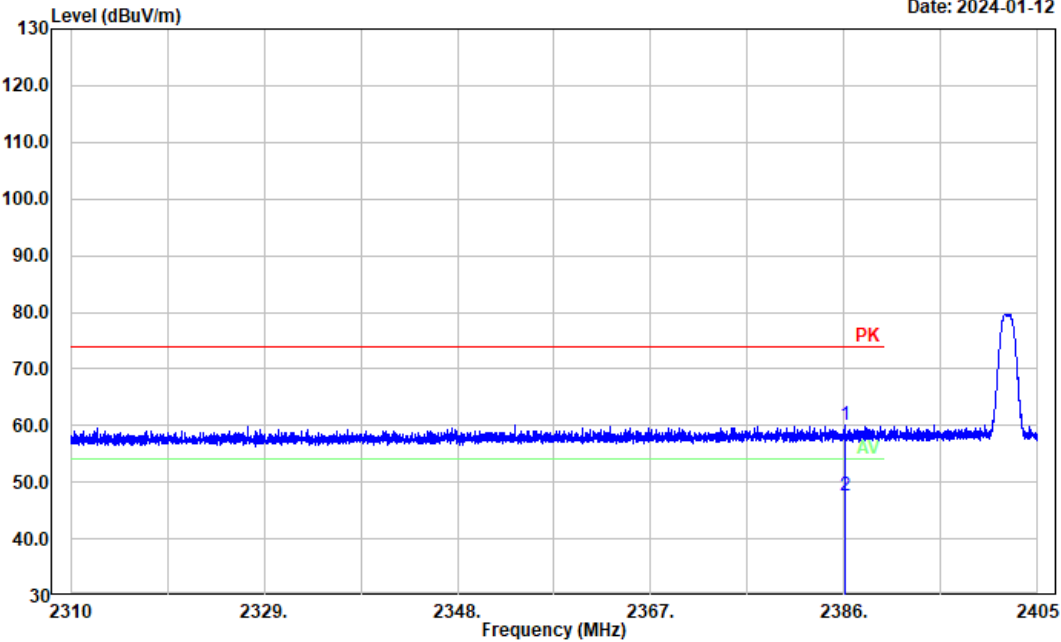


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2385.373	29.43	31.67	61.10	74.00	12.90	Peak
2	2385.373	16.02	31.67	47.69	74.00	26.31	Peak

BLE 1Mbps\_ Lowest Channel\_ Vertical

Project No.: CR240100818-RF  
Tester: Tao Zhu  
Polarization: Vertical  
Note:

Date: 2024-01-12

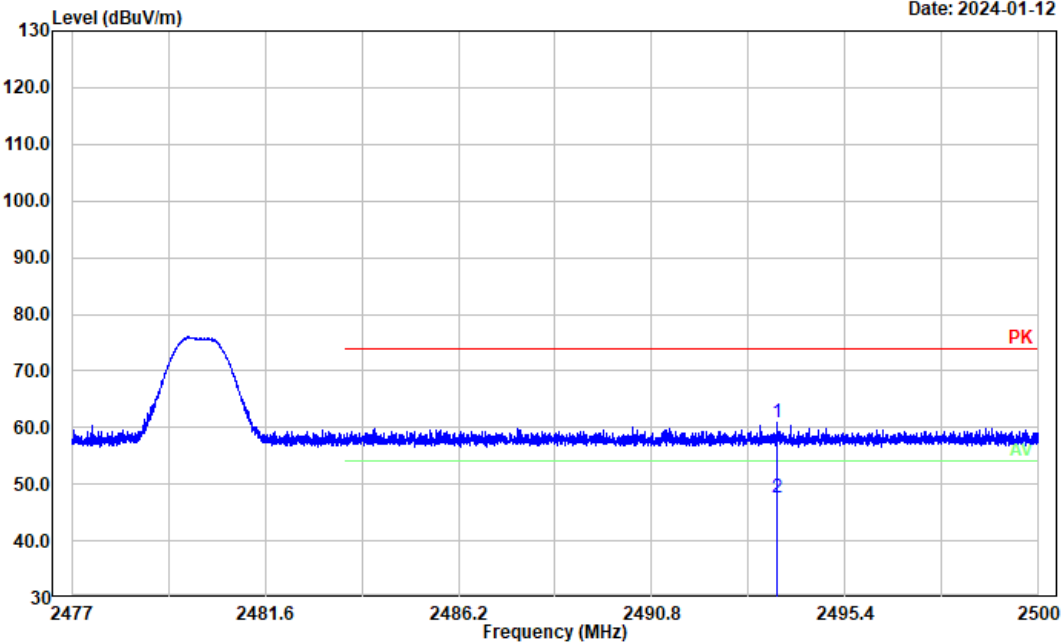


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBUV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2386.114	28.40	31.68	60.08	74.00	13.92	Peak
2	2386.114	15.97	31.68	47.65	54.00	6.35	Average

BLE 1Mbps\_ Highest Channel\_ Horizontal

Project No.: CR240100818-RF  
Tester: Tao Zhu  
Polarization: Horizontal  
Note:

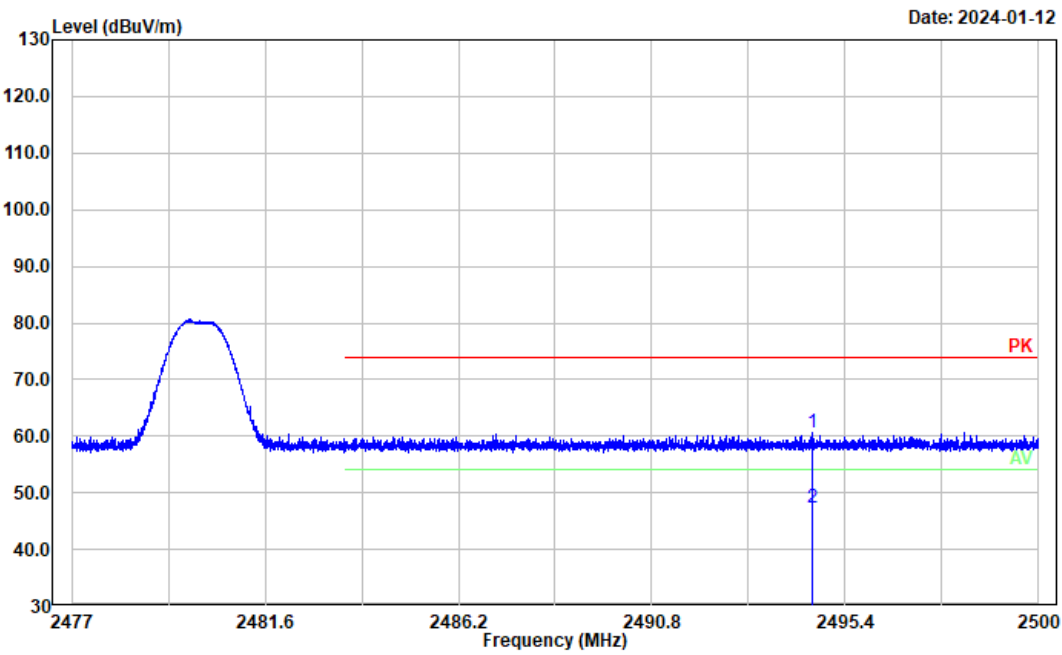
Date: 2024-01-12



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2493.795	28.76	32.23	60.99	74.00	13.01	Peak
2	2493.795	15.31	32.23	47.54	54.00	6.46	Average

BLE 1Mbps\_ Highest Channel\_ Vertical

Project No.: CR240100818-RF  
Tester: Tao Zhu  
Polarization: Vertical  
Note:

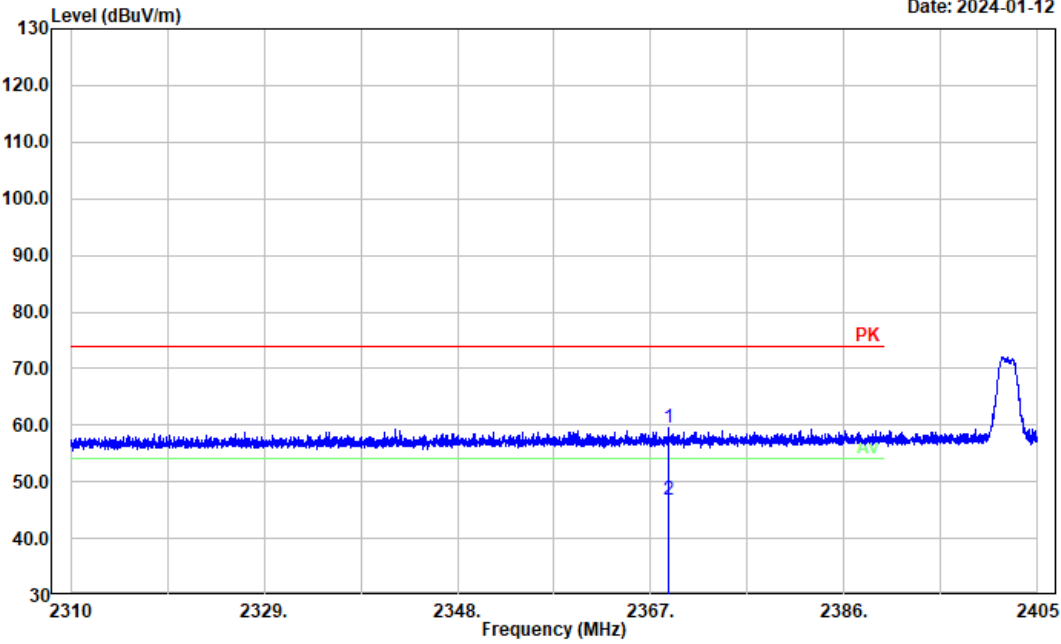


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2494.627	28.49	32.23	60.72	74.00	13.28	Peak
2	2494.627	15.02	32.23	47.25	54.00	6.75	Average

BLE 2Mbps\_ Lowest Channel\_ Horizontal

Project No.: CR240100818-RF  
Tester: Tao Zhu  
Polarization: Horizontal  
Note:

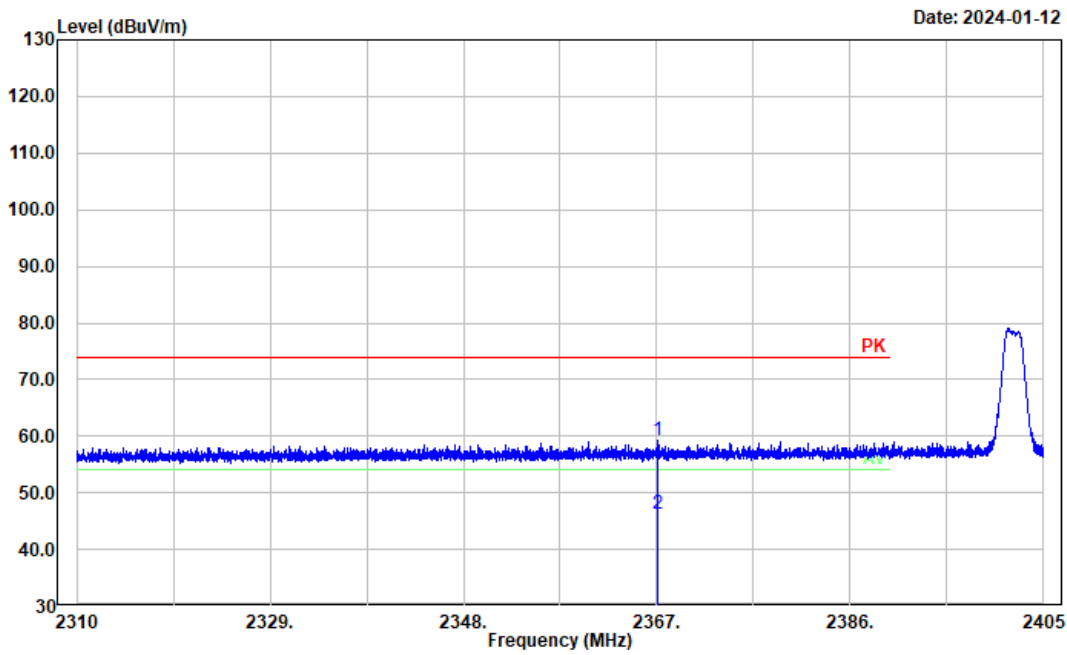
Date: 2024-01-12



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2368.729	27.97	31.56	59.53	74.00	14.47	Peak
2	2368.729	15.21	31.56	46.77	54.00	7.23	Average

BLE 2Mbps\_ Lowest Channel\_ Vertical

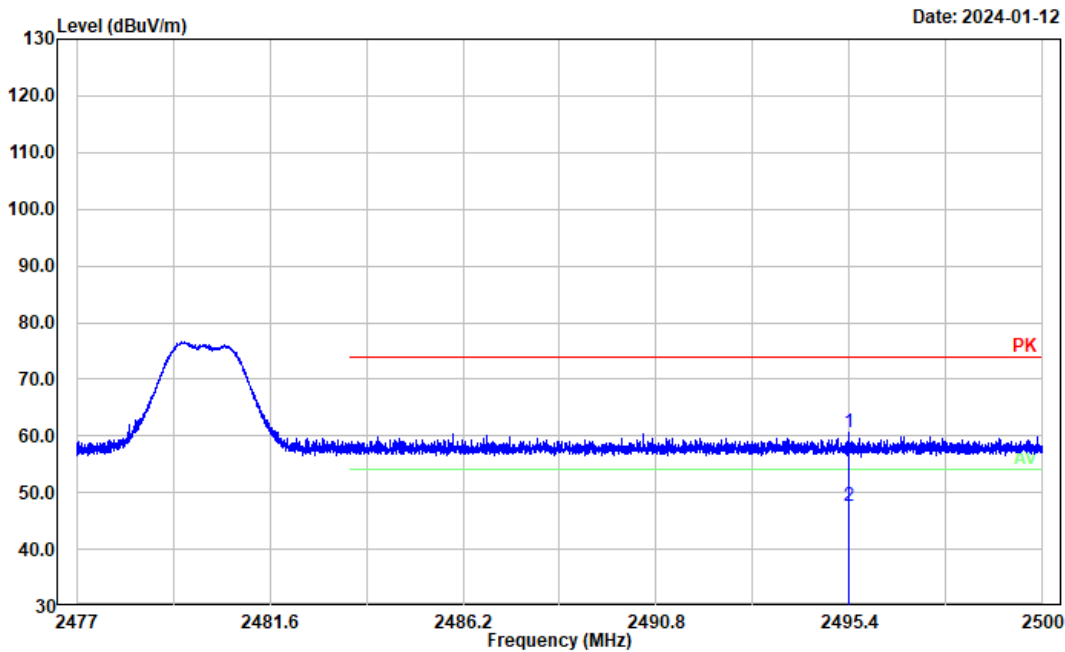
Project No.: CR240100818-RF  
Tester: Tao Zhu  
Polarization: Vertical  
Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
-----							
1	2367.133	27.81	31.54	59.35	74.00	14.65	Peak
2	2367.133	14.82	31.54	46.36	54.00	7.64	Average

BLE 2Mbps\_ Highest Channel\_ Horizontal

Project No.: CR240100818-RF  
Tester: Tao Zhu  
Polarization: Horizontal  
Note:

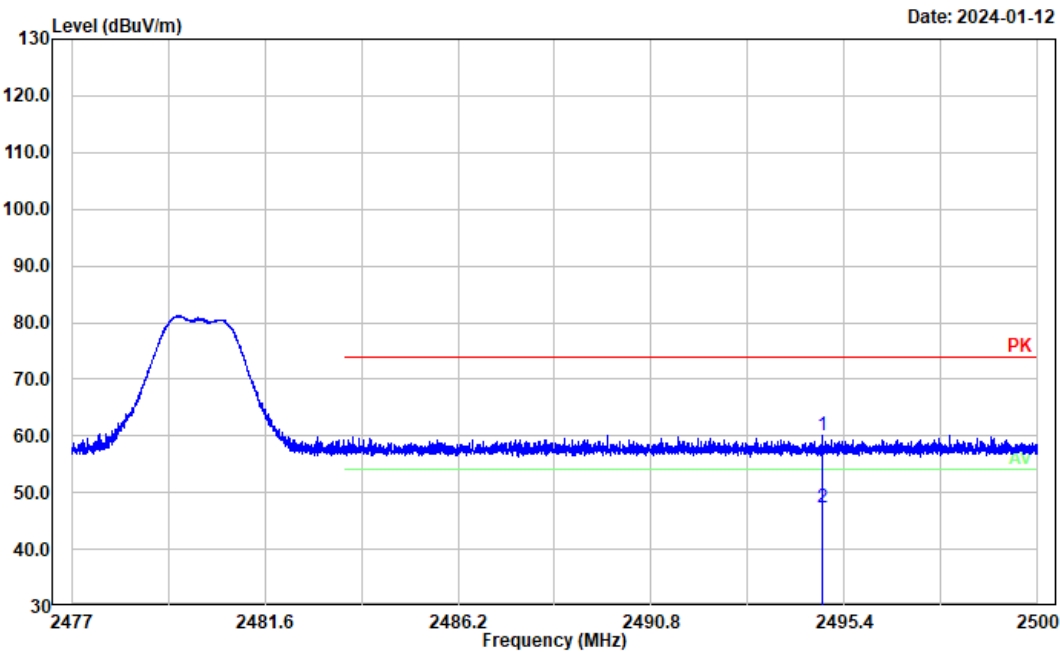


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2495.400	28.46	32.24	60.70	74.00	13.30	Peak
2	2495.400	15.39	32.24	47.63	54.00	6.37	Average



BLE 2Mbps\_ Highest Channel\_ Vertical

Project No.: CR240100818-RF  
Tester: Tao Zhu  
Polarization: Vertical  
Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2494.862	27.86	32.23	60.09	74.00	13.91	Peak
2	2494.862	15.16	32.23	47.39	54.00	6.61	Average

4.3 6dB Emission Bandwidth

Test Information:

Serial No.:	2G6W-1	Test Date:	2024/1/12~2024/1/15
Test Site:	RF	Test Mode:	Transmitting
Tester:	Chin, Lingling Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	23-24.8	Relative Humidity: (%)	52-54	ATM Pressure: (kPa)	101.1-101.5
----------------------	---------	---------------------------	-------	------------------------	-------------

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023-03-31	2024-03-30
R&S	Spectrum Analyzer	FSU26	100147	2023-03-31	2024-03-30
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).

BLE 1Mbps

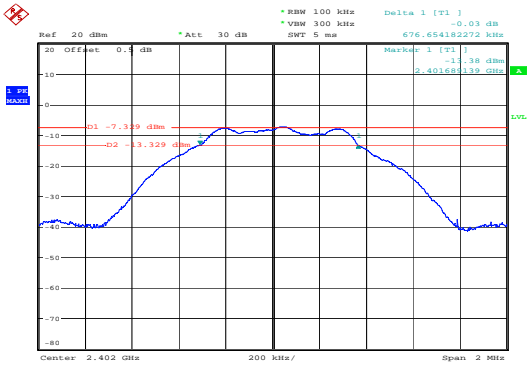
Mode	Value (MHz)	Limit (MHz)	Result
Low	0.677	0.5	Pass
Middle	0.682	0.5	Pass
High	0.682	0.5	Pass

BLE 2Mbps

Mode	Value (MHz)	Limit (MHz)	Result
Low	1.148	0.5	Pass
Middle	1.154	0.5	Pass
High	1.148	0.5	Pass

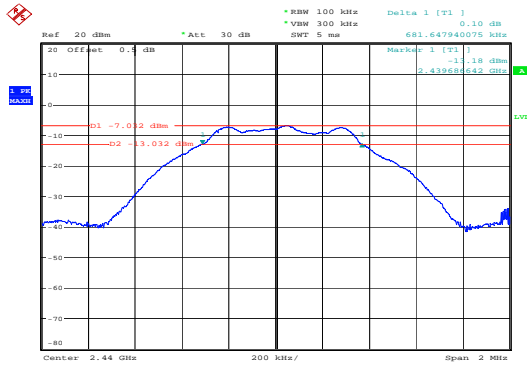
BLE 1Mbps

Low&0.677 MHz



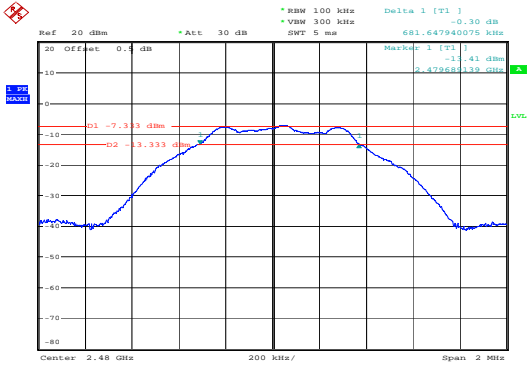
ProjectNo.:CR240100818-RF Tester:Chin  
Date: 15.JAN.2024 14:39:13

Middle&0.682 MHz



ProjectNo.:CR240100818-RF Tester:Chin  
Date: 15.JAN.2024 14:43:12

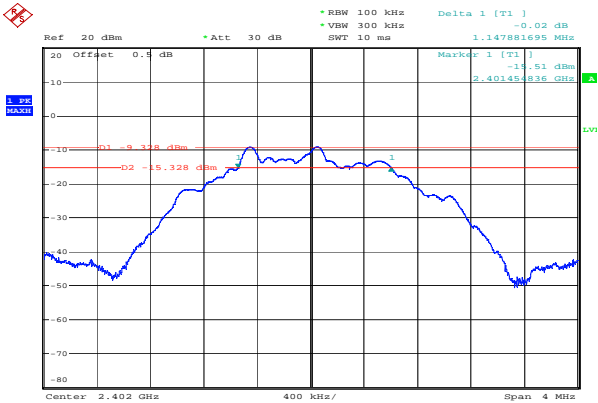
High&0.682 MHz



ProjectNo.:CR240100818-RF Tester:Chin  
Date: 15.JAN.2024 14:46:24

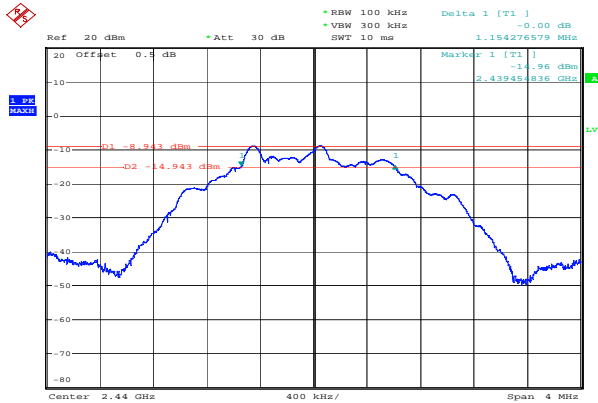
BLE 2Mbps

Low&1.148 MHz



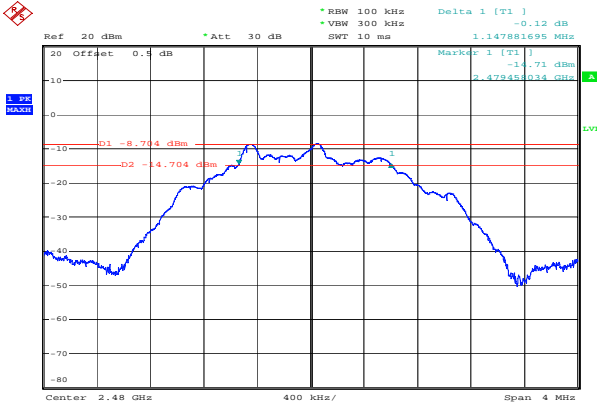
Comment: ProjectNo.:CR240100818-RF Tester:Lingling Li  
Date: 12.JAN.2024 09:20:16

Middle&1.154 MHz



Comment: ProjectNo.:CR240100818-RF Tester:Lingling Li  
Date: 12.JAN.2024 09:23:33

High&1.148 MHz



Comment: ProjectNo.:CR240100818-RF Tester:Lingling Li  
Date: 12.JAN.2024 09:28:18

4.4 Maximum Conducted Output Power  
Test Information:

Serial No.:	2G6W-1	Test Date:	2024/1/12~2024/1/15
Test Site:	RF	Test Mode:	Transmitting
Tester:	Chin, Lingling Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	23-24.8	Relative Humidity: (%)	52-54	ATM Pressure: (kPa)	101.1-101.5
----------------------	---------	---------------------------	-------	------------------------	-------------

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023-03-31	2024-03-30
R&S	Spectrum Analyzer	FSU26	100147	2023-03-31	2024-03-30
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).

BLE 1Mbps

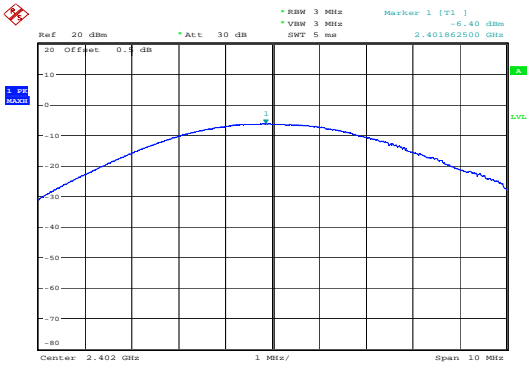
Mode	Value (dBm)	Limit (dBm)	Result
Low	-6.40	30.00	Pass
Middle	-6.07	30.00	Pass
High	-6.55	30.00	Pass

BLE 2Mbps

Mode	Value (dBm)	Limit (dBm)	Result
Low	-8.46	30.00	Pass
Middle	-8.12	30.00	Pass
High	-7.82	30.00	Pass

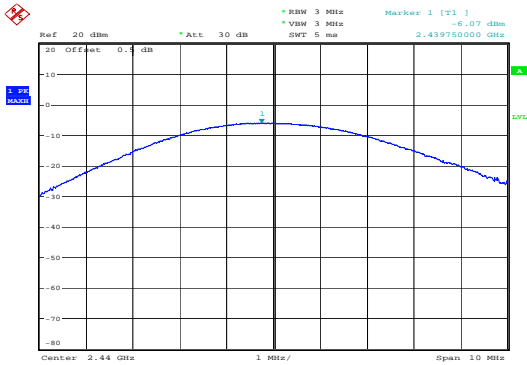
BLE 1Mbps

Low&-6.40 dBm



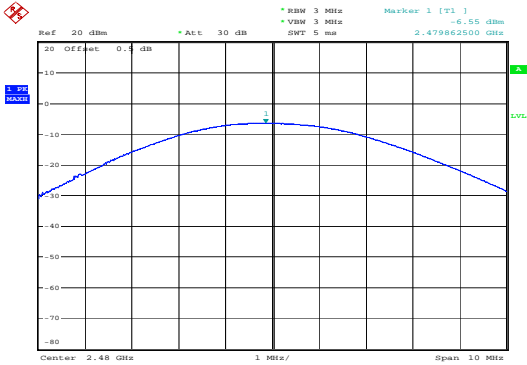
ProjectNo.:CR240100818-RF Tester:Chin  
Date: 15.JAN.2024 14:38:04

Middle&-6.07 dBm



ProjectNo.:CR240100818-RF Tester:Chin  
Date: 15.JAN.2024 14:42:52

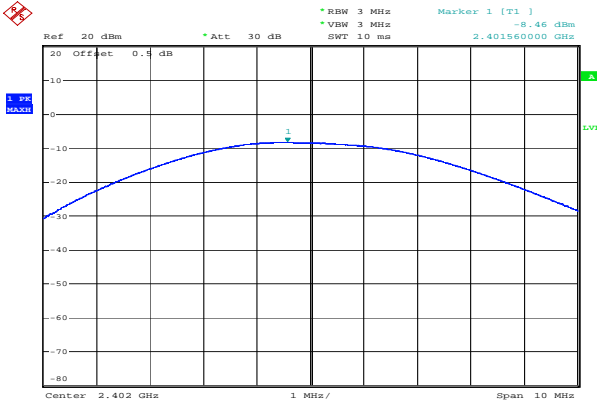
High&-6.55 dBm



ProjectNo.:CR240100818-RF Tester:Chin  
Date: 15.JAN.2024 14:45:11

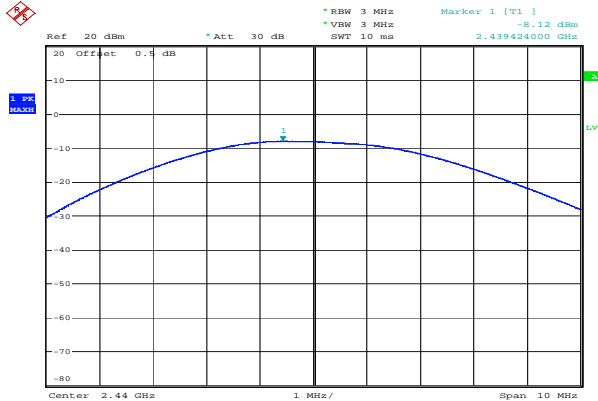
BLE 2Mbps

Low&-8.46 dBm



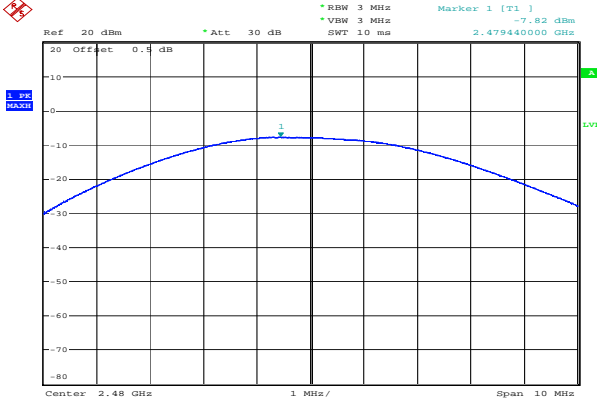
Comment: ProjectNo.:CR240100818-RF Tester:Lingling Li  
Date: 12.JAN.2024 09:18:53

Middle&-8.12 dBm



Comment: ProjectNo.:CR240100818-RF Tester:Lingling Li  
Date: 12.JAN.2024 09:23:07

High&-7.82 dBm



Comment: ProjectNo.:CR240100818-RF Tester:Lingling Li  
Date: 12.JAN.2024 09:26:27

4.5 100 kHz Bandwidth of Frequency Band Edge  
Test Information:

Serial No.:	2G6W-1	Test Date:	2024/1/12~2024/1/15
Test Site:	RF	Test Mode:	Transmitting
Tester:	Chin, Lingling Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	23-24.8	Relative Humidity: (%)	52-54	ATM Pressure: (kPa)	101.1-101.5
----------------------	---------	---------------------------	-------	------------------------	-------------

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023-03-31	2024-03-30
R&S	Spectrum Analyzer	FSU26	100147	2023-03-31	2024-03-30
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).*

BLE 1Mbps

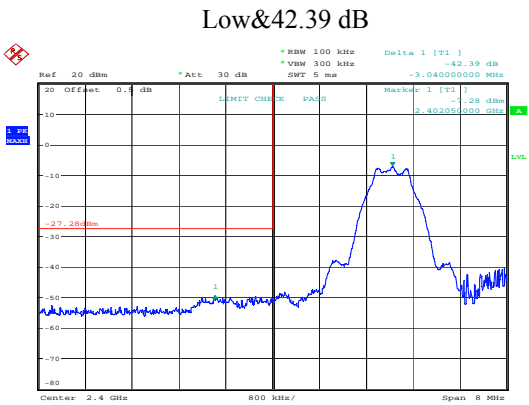
Mode	Value (dB)	Limit (dB)	Result
Low	42.39	20.00	Pass
High	45.09	20.00	Pass

BLE 2Mbps

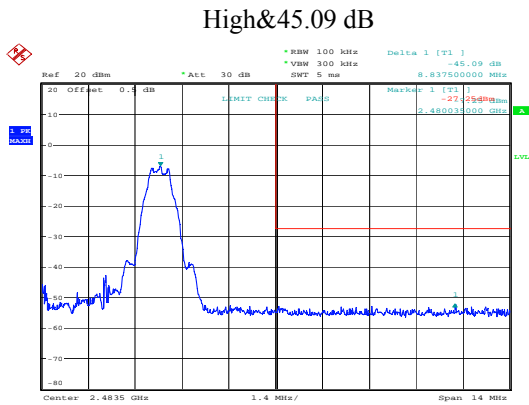
Mode	Value (dB)	Limit (dB)	Result
Low	32.09	20.00	Pass
High	44.08	20.00	Pass



BLE 1Mbps

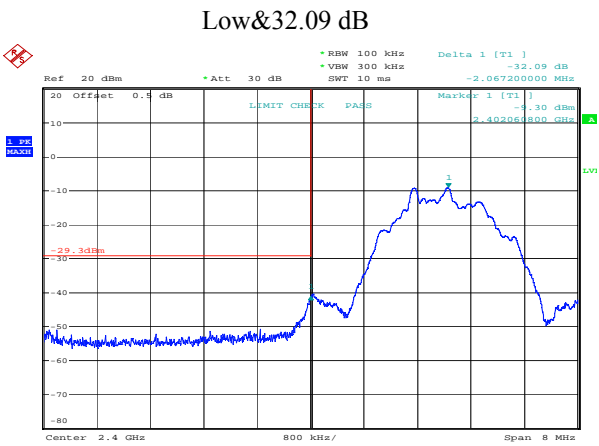


ProjectNo.:CR240100818-RF Tester:Chin  
Date: 15.JAN.2024 14:38:53

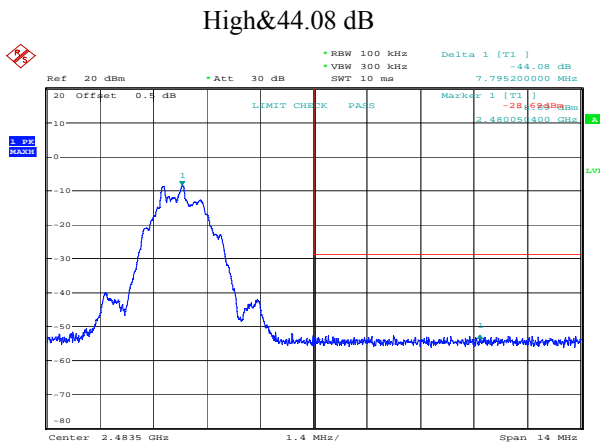


ProjectNo.:CR240100818-RF Tester:Chin  
Date: 15.JAN.2024 14:46:04

BLE 2Mbps



Comment: ProjectNo.:CR240100818-RF Tester:Lingling Li  
Date: 12.JAN.2024 09:19:43



Comment: ProjectNo.:CR240100818-RF Tester:Lingling Li  
Date: 12.JAN.2024 09:27:47

4.6 Power Spectral Density  
Test Information:

Serial No.:	2G6W-1	Test Date:	2024/1/12~2024/1/15
Test Site:	RF	Test Mode:	Transmitting
Tester:	Chin, Lingling Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	23-24.8	Relative Humidity: (%)	52-54	ATM Pressure: (kPa)	101.1-101.5
----------------------	---------	---------------------------	-------	------------------------	-------------

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023-03-31	2024-03-30
R&S	Spectrum Analyzer	FSU26	100147	2023-03-31	2024-03-30
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).

BLE 1Mbps

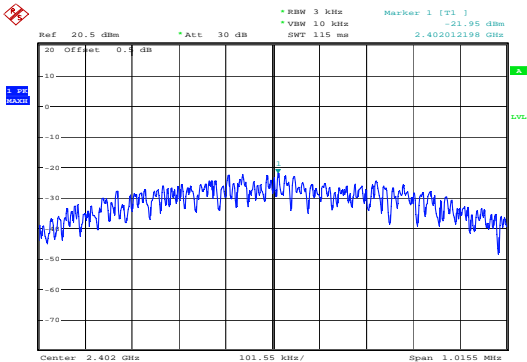
Mode	Value (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low	-21.95	8.00	Pass
Middle	-21.81	8.00	Pass
High	-22.04	8.00	Pass

BLE 2Mbps

Mode	Value (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low	-27.48	8.00	Pass
Middle	-27.11	8.00	Pass
High	-26.86	8.00	Pass

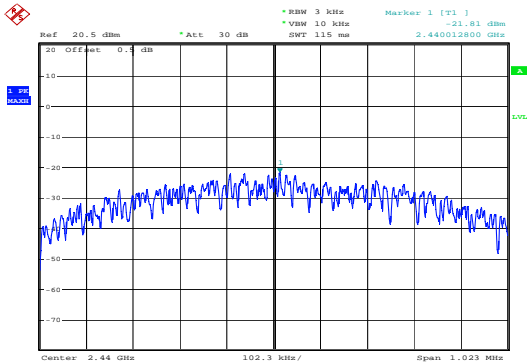
BLE 1Mbps

Low&-21.95 dBm/3kHz



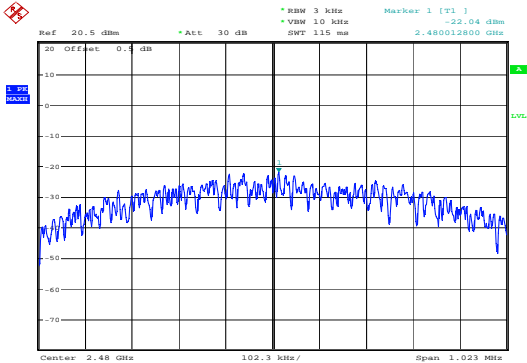
ProjectNo.:CR240100818-RF Tester:Chin  
Date: 15.JAN.2024 14:41:58

Middle&-21.81 dBm/3kHz



ProjectNo.:CR240100818-RF Tester:Chin  
Date: 15.JAN.2024 14:44:37

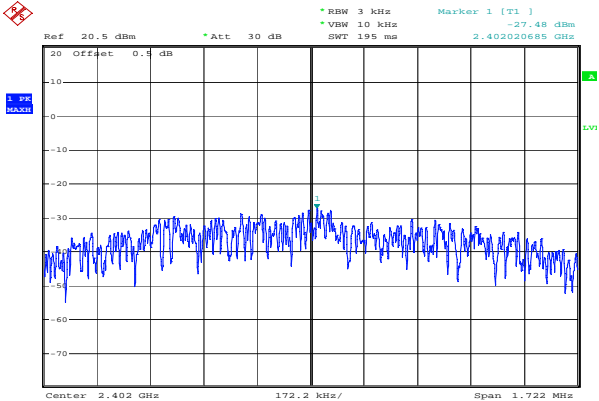
High&-22.04 dBm/3kHz



ProjectNo.:CR240100818-RF Tester:Chin  
Date: 15.JAN.2024 14:48:09

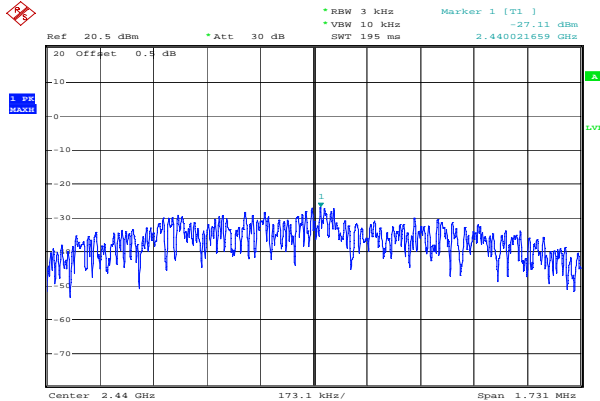
BLE 2Mbps

Low&-27.48 dBm/3kHz



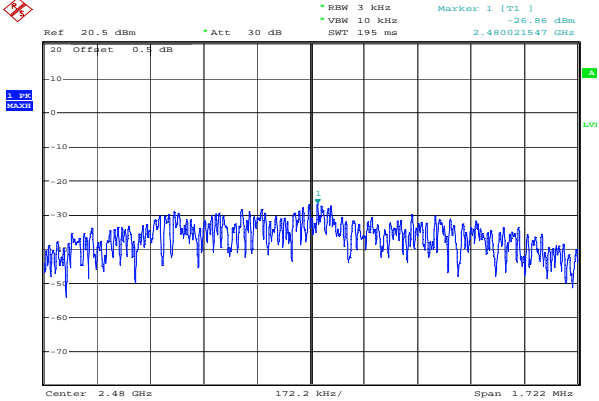
Comment: ProjectNo.:CR240100818-RF Tester:Lingling Li  
Date: 12.JAN.2024 09:22:23

Middle&-27.11 dBm/3kHz



Comment: ProjectNo.:CR240100818-RF Tester:Lingling Li  
Date: 12.JAN.2024 09:25:34

High&-26.86 dBm/3kHz



Comment: ProjectNo.:CR240100818-RF Tester:Lingling Li  
Date: 12.JAN.2024 09:29:49

4.7 Duty Cycle

Test Information:

Serial No.:	2G6W-1	Test Date:	2024/1/12~2024/1/15
Test Site:	RF	Test Mode:	Transmitting
Tester:	Chin, Lingling Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	23-24.8	Relative Humidity: (%)	52-54	ATM Pressure: (kPa)	101.1-101.5
----------------------	---------	---------------------------	-------	------------------------	-------------

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023-03-31	2024-03-30
R&S	Spectrum Analyzer	FSU26	100147	2023-03-31	2024-03-30
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).*

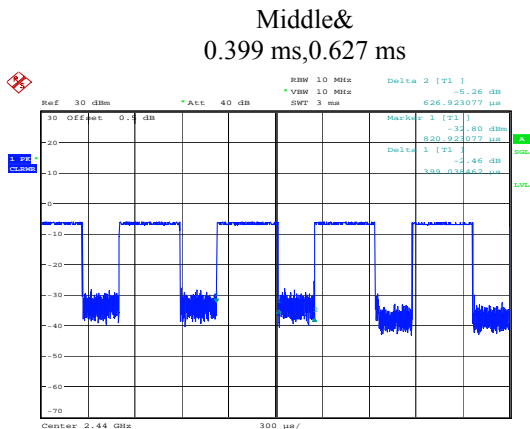
BLE 1Mbps

Mode	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	1/T (Hz)	VBW Setting (kHz)
Middle	0.399	0.627	63.64	2506	3.000

BLE 2Mbps

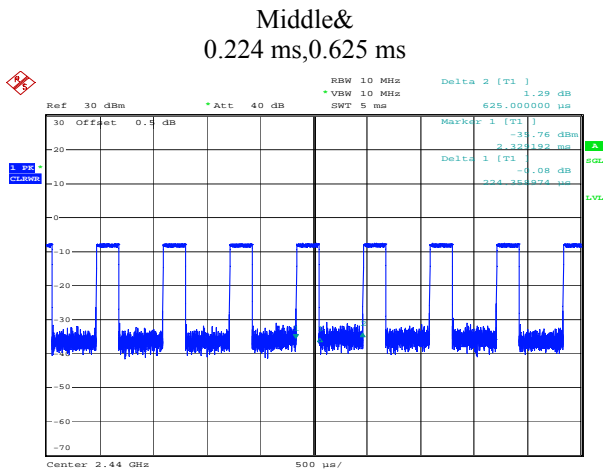
Mode	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	1/T (Hz)	VBW Setting (kHz)
Middle	0.224	0.625	35.84	4464	5.000
Duty Cycle = Ton/(Ton+Toff)*100%					

BLE 1Mbps



ProjectNo.:CR240100818-RF Tester:Chin  
Date: 15.JAN.2024 14:44:17

BLE 2Mbps



Comment: ProjectNo.:CR240100818-RF Tester:Lingling Li  
Date: 12.JAN.2024 09:24:55

## 5. RF EXPOSURE EVALUATION

---

### 5.1 Applicable Standard

According to §15.247(i) and §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB447498 D01 General RF Exposure Guidance v06:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$  for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR, where

- $f(\text{GHz})$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

### 5.2 Measurement Result

The max conducted power including tune-up tolerance is -6.0 dBm (0.25mW).

$[(\text{max. power of channel, mW})/(\text{min. test separation distance, mm})][\sqrt{f(\text{GHz})}]$   
 $= 0.25/5 \cdot (\sqrt{2.480}) = 0.1 < 3.0$

**Result: Compliant. The stand-alone SAR evaluation is not necessary.**

## **6. EUT PHOTOGRAPHS**

---

Please refer to the attachment CR240100818-EXP EUT EXTERNAL PHOTOGRAPHS and CR240100818-INP EUT INTERNAL PHOTOGRAPHS



## **7. TEST SETUP PHOTOGRAPHS**

---

Please refer to the attachment CR240100818-00A-TSP TEST SETUP PHOTOGRAPHS.

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