

# TEST REPORT

Report No..... : KS2307S3583E  
FCC ID..... : 2A9HH-DT4NEW  
Applicant..... : Shenzhen Xinkeyun Technology Co., Ltd  
Address..... : 8/F, Block C, Han's Innovation Building, Xili Road, Nanshan District, Shenzhen, China  
Manufacturer..... : Shenzhen Xinkeyun Technology Co., Ltd  
Address..... : 8/F, Block C, Han's Innovation Building, Xili Road, Nanshan District, Shenzhen, China  
Product Name..... : Sports smart watch  
Model/Type reference..... : DT4 NEW, DTS Diamond, DTS, DT Ultra mate, DT5 Sport, DT70+  
Standard..... : 47 CFR Part 15.247  
Date of Receipt..... : July 07, 2023  
Date of Test Date..... : July 08, 2023 to July 28, 2023  
Date of issue..... : July 28, 2023  
**Test result..... : Pass**

Prepared by:  
( Printed name + Signature) Chad Lin



Approved by:  
( Printed name + Signature) Sky Dong



**Testing Laboratory Name...: KSIGN(Guangdong) Testing Co., Ltd.**  
Address..... : West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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# 1. TEST SUMMARY

## 1.1. Test Standards

The tests were performed according to following standards:

**47 CFR Part 15.247:** Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

**558074 D01 15.247 Meas Guidance v05r02:** The measurement guidance provided herein is applicable only to Digital Transmission System (DTS) devices operating in the 902-928 MHz, 2400-2483.5 MHz and/or 5725-5850 MHz bands under §15.247 of the FCC rules (Title 47 of the Code of Federal Regulations)

**ANSI C63.10-2020:** American National Standard for Testing Unlicensed Wireless Devices.

## 1.2. Report Version

Revised No.	Date of issue	Description
01	July 28, 2023	Original

### 1.3. Test Description

Test Item	Standard	Requirement	Result
Antenna requirement	47 CFR Part 15.247	47 CFR 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.247	47 CFR 15.207(a)	Pass
Occupied Bandwidth	47 CFR Part 15.247	47 CFR 15.247(a)(2)	Pass
Maximum Conducted Output Power	47 CFR Part 15.247	47 CFR 15.247(b)(3)	Pass
Power Spectral Density	47 CFR Part 15.247	47 CFR 15.247(e)	Pass
Emissions in non-restricted frequency bands	47 CFR Part 15.247	47 CFR 15.247(d)	Pass
Band edge emissions (Radiated)	47 CFR Part 15.247	47 CFR 15.247(d)	Pass
Emissions in restricted frequency bands (below 1GHz)	47 CFR Part 15.247	47 CFR 15.247(d)	Pass
Emissions in restricted frequency bands (above 1GHz)	47 CFR Part 15.247	47 CFR 15.247(d)	Pass

### 1.4. Test Facility

**KSIGN(Guangdong) Testing Co., Ltd.**

West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

The test facility is recognized, certified, or accredited by the following organizations:

**CNAS-Lab Code: L13261**

KSIGN(Guangdong) Testing Co., Ltd. has been assessed and proved to be in Compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

**A2LA-Lab Cert. No.: 5457.01**

KSIGN(Guangdong) Testing Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing

**ISED#: 25693 CAB identifier.: CN0096**

KSIGN(Guangdong) Testing Co., Ltd. has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

**FCC-Registration No.: 294912 Designation Number: CN1328**

KSIGN(Guangdong) Testing Co., Ltd. EMC Laboratory has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

### 1.5. Measurement Uncertainty

Test Items	Measurement Uncertainty
Conducted Emission (150k-30MHz)	± 3.34dB
Output Power, Conducted	± 1.4dB
PSD, Conducted	± 1.0dB
Spurious Emissions, Conducted	± 3.3dB
RSE (1-18GHz)	± 4.68dB
RSE (30-1000MHz)	± 5.7dB
RSE (18-40GHz)	± 5.18dB

The reported uncertainty of measurement  $y \pm U$ , where expended uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

## 2. GENERAL INFORMATION

### 2.1. General Description Of EUT

Test Sample Number:	1-1(Normal Sample), 1-2(Engineering Sample)
Product Name:	Sports smart watch
Model / Type reference:	DT4 NEW, DTS Diamond, DTS, DT Ultra mate, DT5 Sport, DT70+
Model Difference:	The difference between product models is that the dial is different from the color of the strap, and the different model names are for market demand. Other power supply methods, the internal structure, circuit and key components are the same, do not affect the safety and electromagnetic compatibility performance, the main test model is DT4 NEW.
Power Supply:	DC3.8V by battery
Power Adaptor:	DC5V
Operation Frequency:	2402MHz to 2480MHz
Number of Channels:	40
Modulation Type:	GFSK
Antenna Type:	Internal Antenna
Antenna Gain:	-2.09 dBi
Max TX Power:	5.56dBm

### 2.2. Accessory Equipment Information

The EUT was tested as an independent device.

### 2.3. Description of Test Modes

No.	Title	Description of Mode
Test Mode1	TX mode	Keep the EUT connect to AC power line and works in continuously transmitting mode with GFSK modulation.

## 2.4. Measurement Instruments List

Conducted Emission at AC power line				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
LISN	R&S	ENV432	1326.6105.02	2024-02-17
EMI Test Receiver	R&S	ESR	102524	2024-02-17
Manual RF Switch	JS TOYO	/	MSW-01/002	2024-02-17
ISN CAT6	Schwarzbeck	CAT5 8158	227	2024-02-17
Color Signal Generator	Philips	PM5418	672926	2024-02-17
Power Absorbing Clamp	R&S	MDS-21	100925	2024-02-19

Occupied Bandwidth				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Wideband Radio Communication Tester	R&S	CMU200	115297	2024-02-17
Audio Analyzer	R&S	UPL16	100001	2024-02-17
Shielding box	Gxiong	GX-5915A	2201113	2024-02-17
High Pass Filter	COM-MW Technology Co., Ltd	ZHPF-M1.2-9G-1 87	09203403	2024-02-17
Band Stop Filter	COM-MW Technology Co., Ltd	ZBSF6-C820-920 -188	09203401	2024-02-17
Splitter	COM-MW Technology Co., Ltd	ZPD-M1-8-2103	09203407	2024-02-17
Coaxial Cable	BEBES	A40-2.92M2.92F-4.5M	1907021	2024-02-17
Hygrothermograph	Anymetre	JB913	/	2024-02-17
Climate Chamber	Angul	AGNH80L	1903042120	2024-02-17
Spectrum Analyzer	HP	8593E	3831U02087	2024-02-17
Dual Output DC Power Supply	Agilent	E3646A	MY40009992	2024-02-17
RF Control Unit	Tonscend	JS0806-2	/	2024-02-17
Analog Signal Generator	HP	83752A	3344A00337	2024-02-17
Vector Signal Generator	Agilent	N5182A	MY50142520	2024-02-17
Wideband Radio Communication Tester	R&S	CMW500	157282	2024-02-17
Spectrum Analyzer	R&S	FSV40-N	101798	2024-02-17

Maximum Conducted Output Power				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Wideband Radio Communication Tester	R&S	CMU200	115297	2024-02-17
Audio Analyzer	R&S	UPL16	100001	2024-02-17
Shielding box	Gxiong	GX-5915A	2201113	2024-02-17
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Band Stop Filter	COM-MW Technology Co., Ltd	ZBSF6-C820-920 -188	09203401	2024-02-17
Splitter	COM-MW Technology Co., Ltd	ZPD-M1-8-2103	09203407	2024-02-17
Coaxial Cable	BEBES	A40-2.92M2.92F-4.5M	1907021	2024-02-17
Hygrothermograph	Anymetre	JB913	/	2024-02-17

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Climate Chamber	Angul	AGNH80L	1903042120	2024-02-17
Spectrum Analyzer	HP	8593E	3831U02087	2024-02-17
Dual Output DC Power Supply	Agilent	E3646A	MY40009992	2024-02-17
RF Control Unit	Tonscend	JS0806-2	/	2024-02-17
Analog Signal Generator	HP	83752A	3344A00337	2024-02-17
Vector Signal Generator	Agilent	N5182A	MY50142520	2024-02-17
Wideband Radio Communication Tester	R&S	CMW500	157282	2024-02-17
Spectrum Analyzer	R&S	FSV40-N	101798	2024-02-17

Power Spectral Density				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Wideband Radio Communication Tester	R&S	CMU200	115297	2024-02-17
Audio Analyzer	R&S	UPL16	100001	2024-02-17
Shielding box	Gxiong	GX-5915A	2201113	2024-02-17
High Pass Filter	COM-MW Technology Co., Ltd	ZHPF-M1.2-9G-1 87	09203403	2024-02-17
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Coaxial Cable	BEBES	A40-2.92M2.92F-4.5M	1907021	2024-02-17
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Spectrum Analyzer	R&S	FSV40-N	101798	2024-02-17

Emissions in non-restricted frequency bands				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Wideband Radio Communication Tester	R&S	CMU200	115297	2024-02-17
Audio Analyzer	R&S	UPL16	100001	2024-02-17
Shielding box	Gxiong	GX-5915A	2201113	2024-02-17
High Pass Filter	COM-MW Technology Co., Ltd	ZHPF-M1.2-9G-1 87	09203403	2024-02-17
Band Stop Filter	COM-MW Technology Co., Ltd	ZBSF6-C820-920 -188	09203401	2024-02-17
Splitter	COM-MW Technology Co., Ltd	ZPD-M1-8-2103	09203407	2024-02-17
Coaxial Cable	BEBES	A40-2.92M2.92F-4.5M	1907021	2024-02-17
Hygrothermograph	Anymetre	JB913	/	2024-02-17

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Climate Chamber	Angul	AGNH80L	1903042120	2024-02-17
Spectrum Analyzer	HP	8593E	3831U02087	2024-02-17
Dual Output DC Power Supply	Agilent	E3646A	MY40009992	2024-02-17
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Analog Signal Generator	HP	83752A	3344A00337	2024-02-17
Vector Signal Generator	Agilent	N5182A	MY50142520	2024-02-17
Wideband Radio Communication Tester	R&S	CMW500	157282	2024-02-17
Spectrum Analyzer	R&S	FSV40-N	101798	2024-02-17

Band edge emissions (Radiated)				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Color Signal Generator	Philips	PM5418	672926	2024-02-17
Ultra-Broadband logarithmic period Antenna	Schwarzbeck	VULB 9163	1230	2025-02-18
Pre-Amplifier	Schwarzbeck	BBV 9745	9745#129	2024-02-17
Broadcast Television Signal Generator	R&S	SFE100	141038	2024-02-17
Analog Signal Generator	Agilent	8648A	3847M00445	2024-02-17
EMI Test Receiver	R&S	ESR	102525	2024-02-17
Loop Antenna	Beijin ZHINAN	ZN30900C	18050	2024-02-19
Horn Antenna	Schwarzbeck	BBHA 9120 D	2023	2026-02-19
Pre-Amplifier	EMCI	EMC051835SE	980662	2024-02-17
Spectrum Analyzer	Keysight	N9020A	MY46471971	2024-02-17

Emissions in restricted frequency bands (below 1GHz)				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Color Signal Generator	Philips	PM5418	672926	2024-02-17
Ultra-Broadband logarithmic period Antenna	Schwarzbeck	VULB 9163	1230	2025-02-18
Pre-Amplifier	Schwarzbeck	BBV 9745	9745#129	2024-02-17
Broadcast Television Signal Generator	R&S	SFE100	141038	2024-02-17
Analog Signal Generator	Agilent	8648A	3847M00445	2024-02-17
EMI Test Receiver	R&S	ESR	102525	2024-02-17
Loop Antenna	Beijin ZHINAN	ZN30900C	18050	2024-02-19
Horn Antenna	Schwarzbeck	BBHA 9120 D	2023	2026-02-19
Pre-Amplifier	EMCI	EMC051835SE	980662	2024-02-17
Spectrum Analyzer	Keysight	N9020A	MY46471971	2024-02-17

Emissions in restricted frequency bands (above 1GHz)				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Color Signal Generator	Philips	PM5418	672926	2024-02-17
Ultra-Broadband logarithmic period Antenna	Schwarzbeck	VULB 9163	1230	2025-02-18
Pre-Amplifier	Schwarzbeck	BBV 9745	9745#129	2024-02-17

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Broadcast Television Signal Generator	R&S	SFE100	141038	2024-02-17
Analog Signal Generator	Agilent	8648A	3847M00445	2024-02-17
EMI Test Receiver	R&S	ESR	102525	2024-02-17
Loop Antenna	Beijin ZHINAN	ZN30900C	18050	2024-02-19
Horn Antenna	Schwarzbeck	BBHA 9120 D	2023	2026-02-19
Pre-Amplifier	EMCI	EMC051835SE	980662	2024-02-17
Spectrum Analyzer	Keysight	N9020A	MY46471971	2024-02-17

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### 3. Evaluation Results (Evaluation)

#### 3.1. Antenna requirement

Test Requirement:	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.
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##### 3.1.1. Conclusion:

The directional gain of the antenna less than 6dBi. It comply with the standard requirement. In case of replacement of broken antenna the same antenna type must be used. Antenna structure please refer to the EUT internal photographs antenna photo.
--

## 4. Radio Spectrum Matter Test Results (RF)

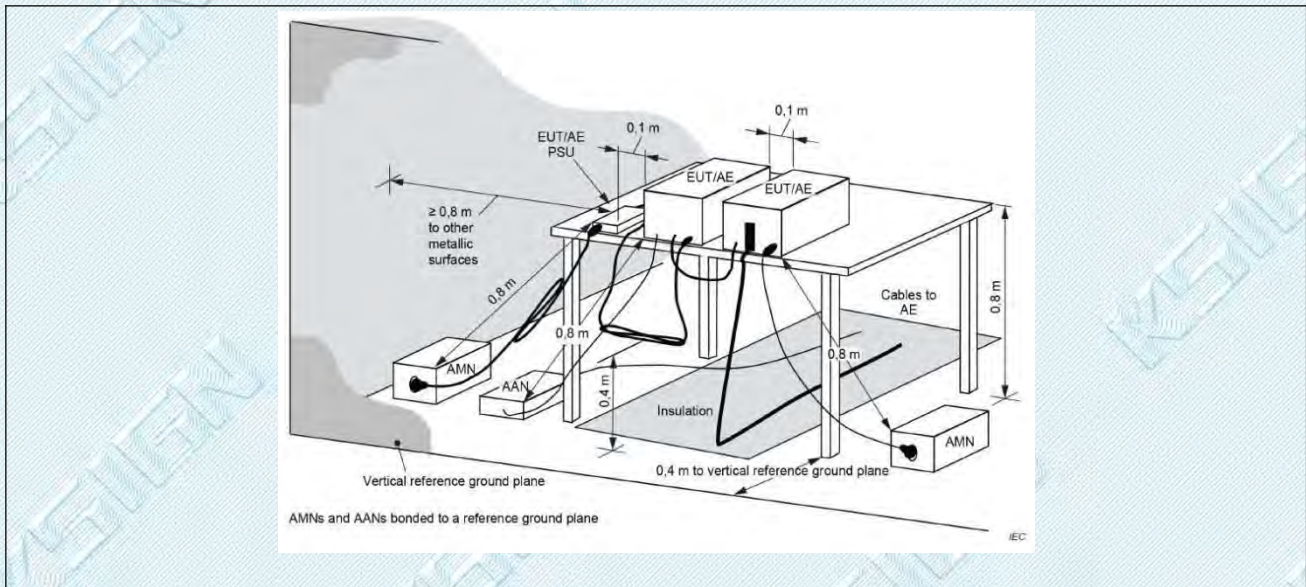
### 4.1. Conducted Emission at AC power line

Test Requirement:	Refer to 47 CFR 15.207(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).		
Test Limit:	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.			

#### 4.1.1. E.U.T. Operation:

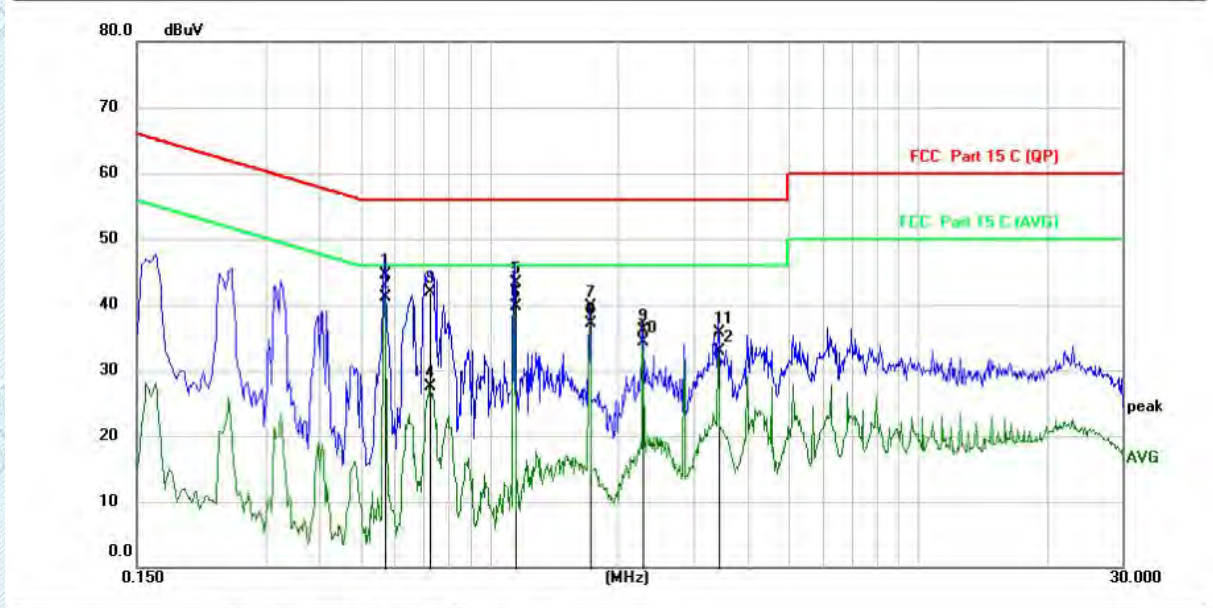
Operating Environment:	
Temperature:	23.4 °C
Humidity:	51.1 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode 1

#### 4.1.2. Test Setup Diagram:



4.1.3. Test Data:

Test Mode1 / Line: Line / Band: 2.4G / BW: 1 / CH: L



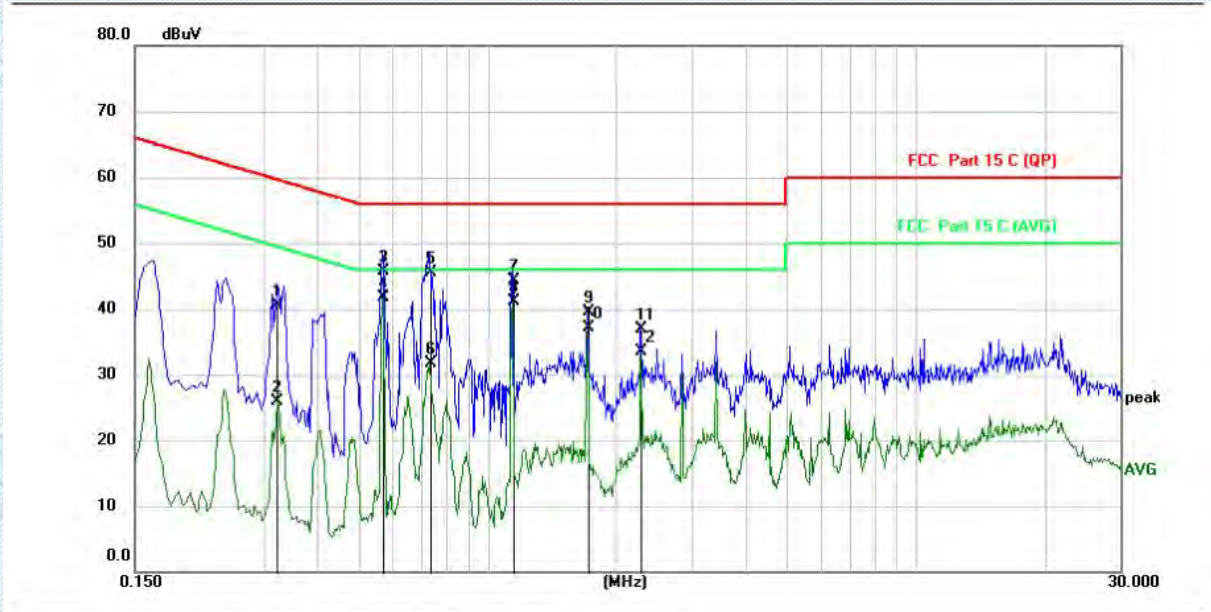
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.5700	33.45	11.01	44.46	56.00	-11.54	QP	
2 *	0.5700	30.04	11.01	41.05	46.00	-4.95	AVG	
3	0.7258	30.89	11.04	41.93	56.00	-14.07	QP	
4	0.7258	16.44	11.04	27.48	46.00	-18.52	AVG	
5	1.1417	32.25	11.07	43.32	56.00	-12.68	QP	
6	1.1417	28.72	11.07	39.79	46.00	-6.21	AVG	
7	1.7100	28.61	11.14	39.75	56.00	-16.25	QP	
8	1.7100	25.94	11.14	37.08	46.00	-8.92	AVG	
9	2.2820	24.87	11.21	36.08	56.00	-19.92	QP	
10	2.2820	23.07	11.21	34.28	46.00	-11.72	AVG	
11	3.4220	24.37	11.36	35.73	56.00	-20.27	QP	
12	3.4220	21.56	11.36	32.92	46.00	-13.08	AVG	

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Test Mode1 / Line: Neutral / Band: 2.4G / BW: 1 / CH: L



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.3220	29.42	11.01	40.43	59.66	-19.23	QP	
2	0.3220	14.93	11.01	25.94	49.66	-23.72	AVG	
3	0.5700	34.66	11.00	45.66	56.00	-10.34	QP	
4 *	0.5700	30.69	11.00	41.69	46.00	-4.31	AVG	
5	0.7338	34.43	11.05	45.48	56.00	-10.52	QP	
6	0.7338	20.65	11.05	31.70	46.00	-14.30	AVG	
7	1.1414	33.30	11.08	44.38	56.00	-11.62	QP	
8	1.1414	30.02	11.08	41.10	46.00	-4.90	AVG	
9	1.7100	28.41	11.14	39.55	56.00	-16.45	QP	
10	1.7100	25.93	11.14	37.07	46.00	-8.93	AVG	
11	2.2820	25.69	11.23	36.92	56.00	-19.08	QP	
12	2.2820	22.35	11.23	33.58	46.00	-12.42	AVG	

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## 4.2. Occupied Bandwidth

Test Requirement:	47 CFR 15.247(a)(2)
Test Limit:	Refer to 47 CFR 15.247(a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02

### 4.2.1. E.U.T. Operation:

Operating Environment:	
Temperature:	23.7 °C
Humidity:	49.8 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode1

### 4.2.2. Test Data:

Please Refer to Appendix for Details.

### 4.3. Maximum Conducted Output Power

Test Requirement:	47 CFR 15.247(b)(3)
Test Limit:	Refer to 47 CFR 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.
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02

#### 4.3.1. E.U.T. Operation:

Operating Environment:	
Temperature:	23.7 °C
Humidity:	49.8 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode1

#### 4.3.2. Test Data:

Please Refer to Appendix for Details.



#### 4.4. Power Spectral Density

Test Requirement:	47 CFR 15.247(e)
Test Limit:	Refer to 47 CFR 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.
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02

##### 4.4.1. E.U.T. Operation:

Operating Environment:	
Temperature:	23.7 °C
Humidity:	49.8 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode1

##### 4.4.2. Test Data:

Please Refer to Appendix for Details.

#### 4.5. Emissions in non-restricted frequency bands

Test Requirement:	47 CFR 15.247(d)
Test Limit:	Refer to 47 CFR 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.
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02

##### 4.5.1. E.U.T. Operation:

Operating Environment:	
Temperature:	23.7 °C
Humidity:	49.8 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode1

##### 4.5.2. Test Data:

Please Refer to Appendix for Details.

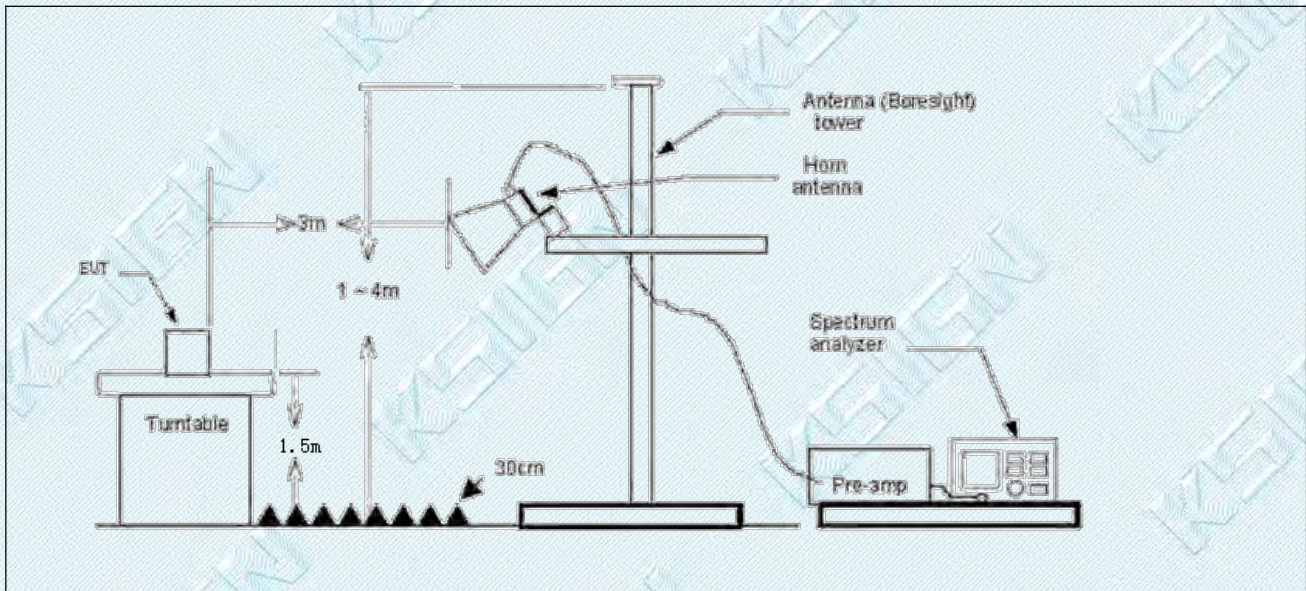
### 4.6. Band edge emissions (Radiated)

Test Requirement:	Refer to 47 CFR 15.247(d), 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)).		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
	** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.		
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02		

#### 4.6.1. E.U.T. Operation:

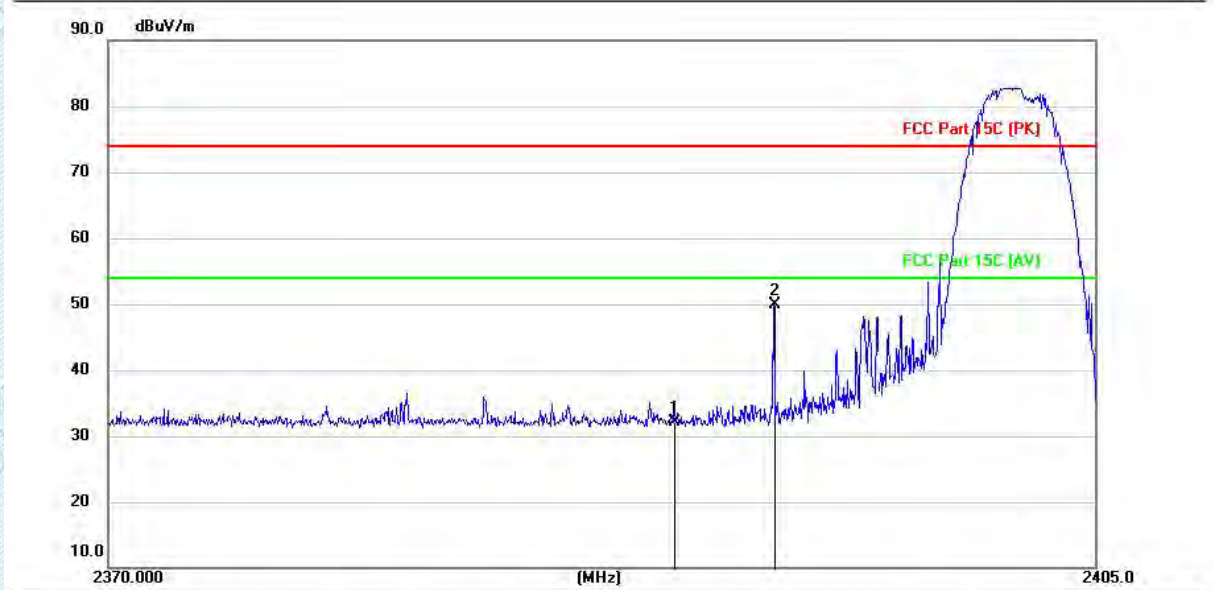
Operating Environment:	
Temperature:	24 °C
Humidity:	46.8 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode 1

#### 4.6.2. Test Setup Diagram:



### 4.6.3. Test Data:

Test Mode1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L



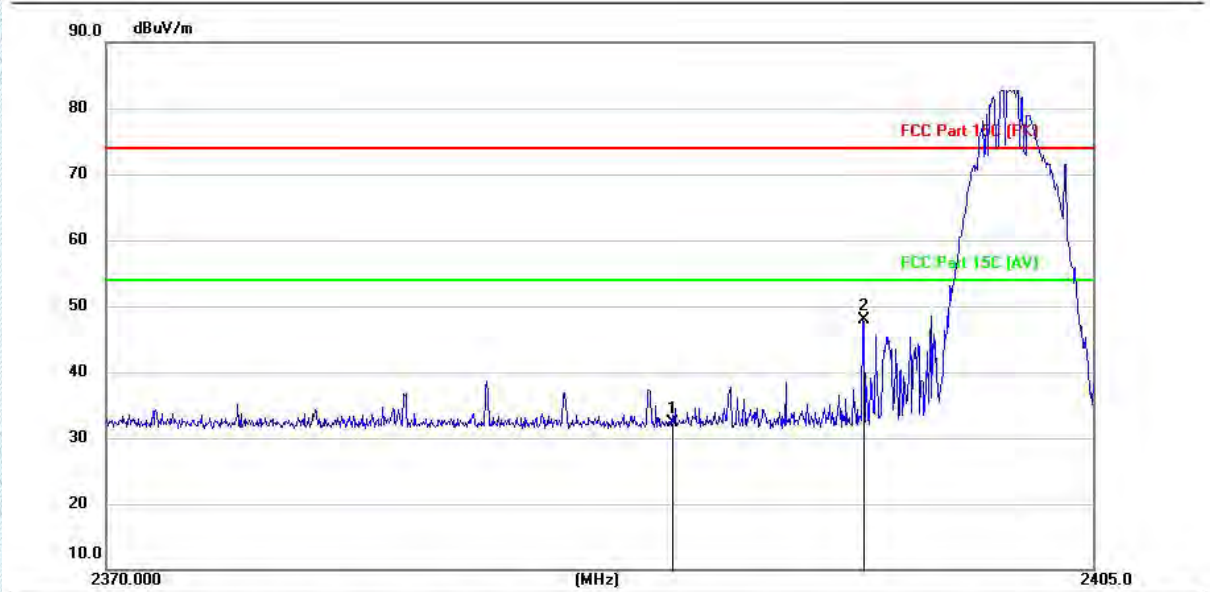
No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		2390.000	42.96	-10.92	32.04	74.00	-41.96	peak
2	*	2393.537	60.79	-10.92	49.87	74.00	-24.13	peak

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

**Test Mode1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L**



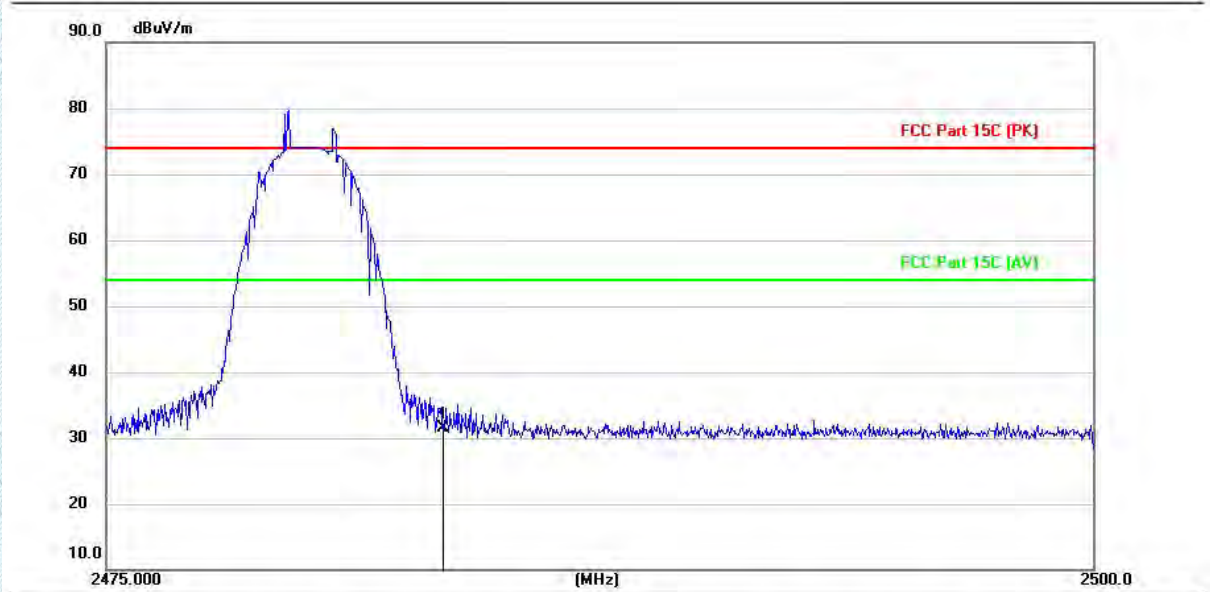
No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		2390.000	43.26	-10.92	32.34	74.00	-41.66	peak
2	*	2396.782	58.92	-10.92	48.00	74.00	-26.00	peak

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

**Test Mode1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: H**



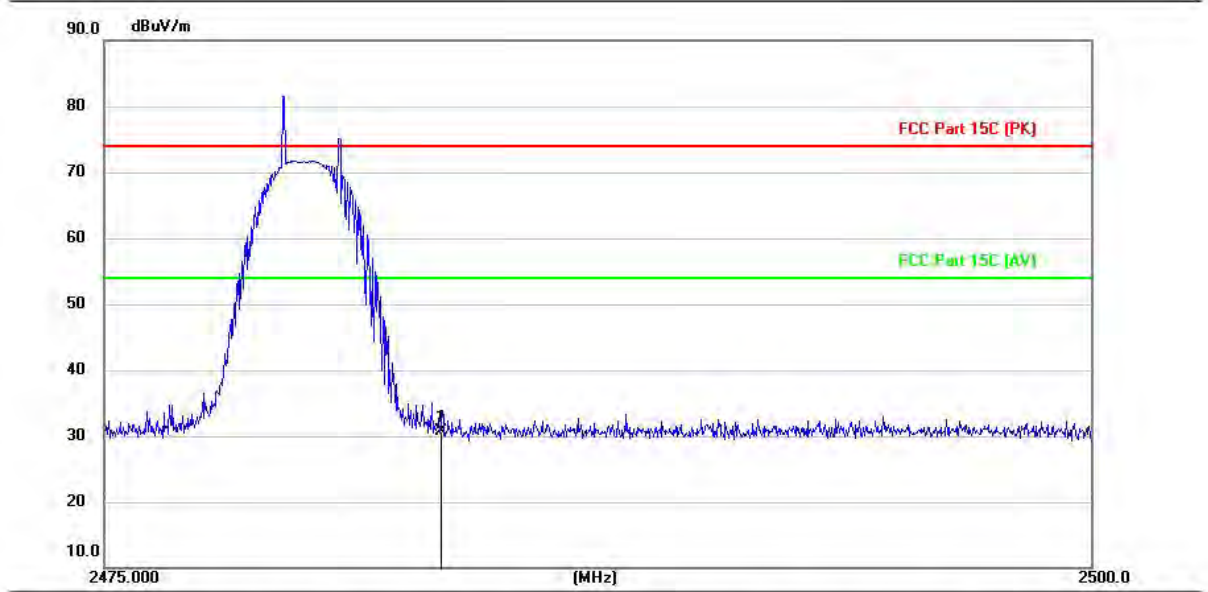
No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1	*	2483.500	42.41	-10.88	31.53	74.00	-42.47	peak

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

**Test Mode1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: H**



No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1	*	2483.500	41.67	-10.88	30.79	74.00	-43.21	peak

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

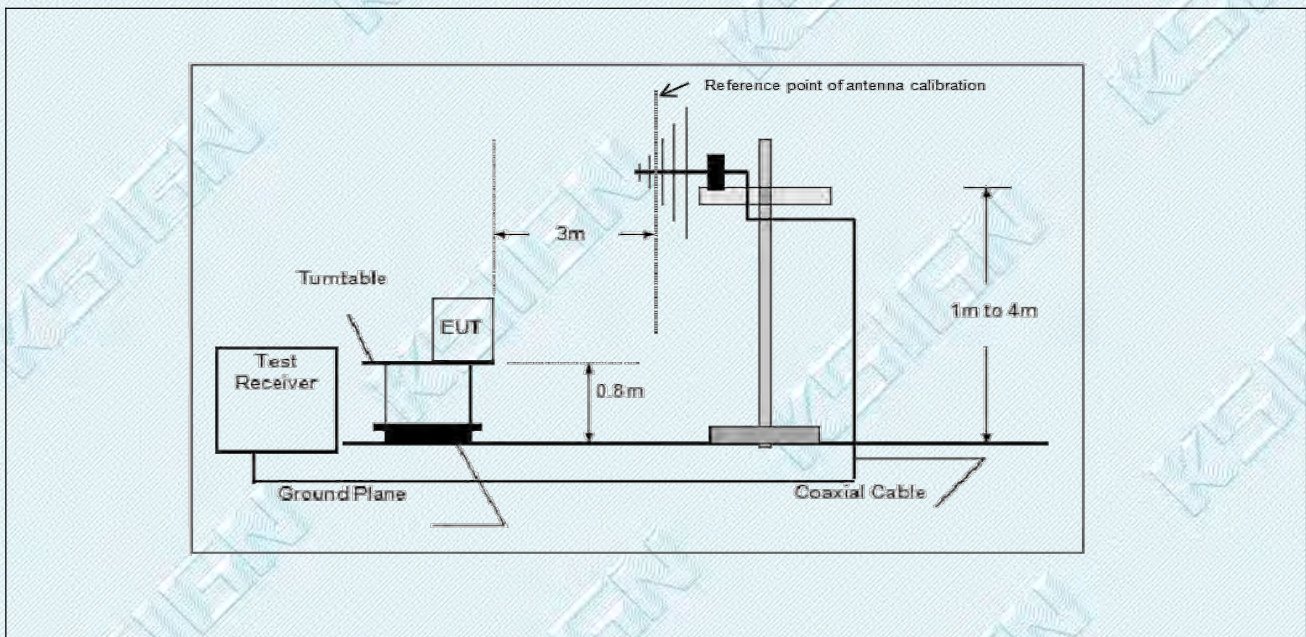
### 4.7. Emissions in restricted frequency bands (below 1GHz)

Test Requirement:	Refer to 47 CFR 15.247(d), 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)).		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
<p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p>			
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02		

#### 4.7.1. E.U.T. Operation:

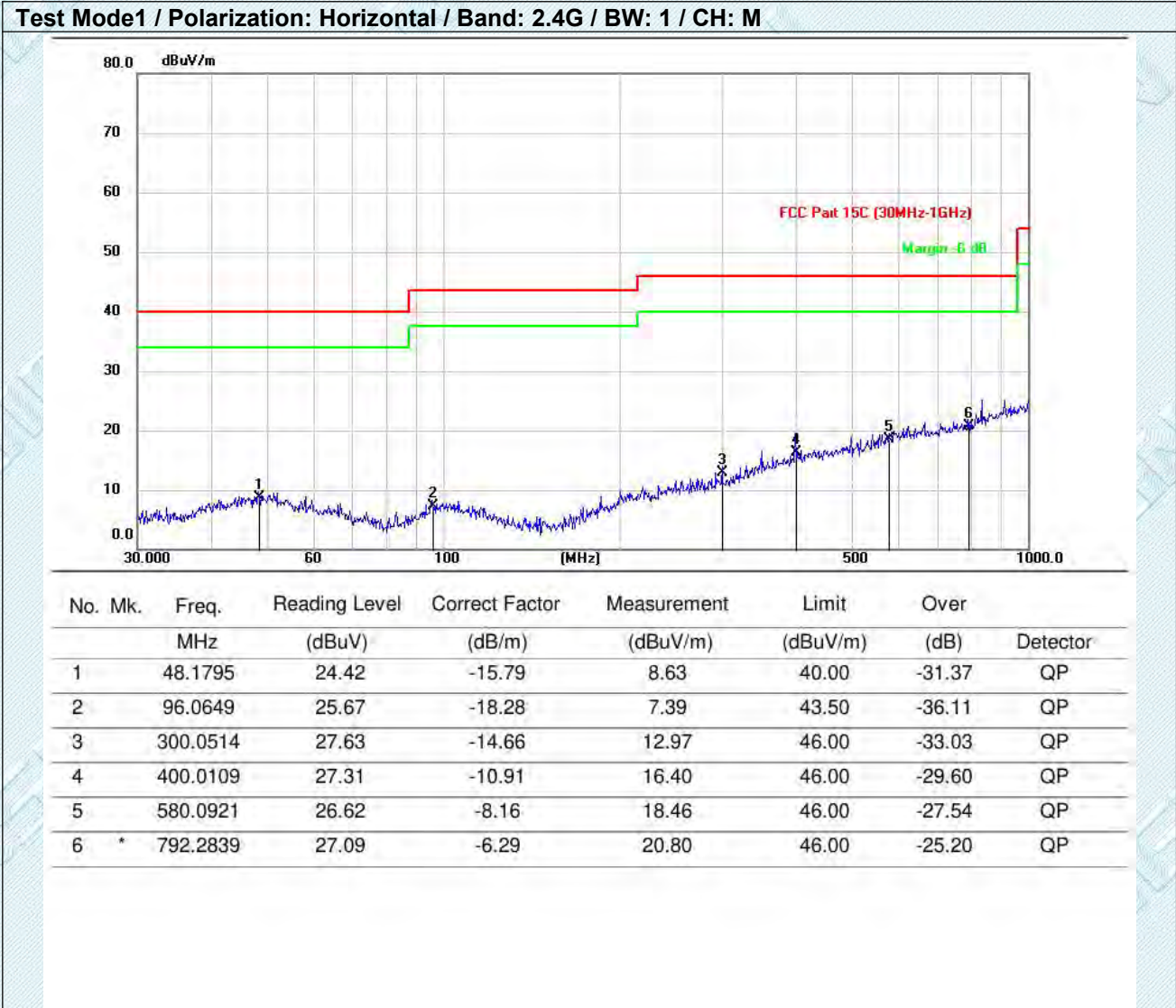
Operating Environment:	
Temperature:	25.8 °C
Humidity:	46.4 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode1

#### 4.7.2. Test Setup Diagram:





4.7.3. Test Data:



TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

**Test Mode1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: M**



No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		56.0007	26.76	-16.87	9.89	40.00	-30.11	QP
2		65.6187	31.26	-18.78	12.48	40.00	-27.52	QP
3		116.6218	26.69	-19.08	7.61	43.50	-35.89	QP
4		300.0514	27.86	-14.66	13.20	46.00	-32.80	QP
5		400.0108	28.18	-10.91	17.27	46.00	-28.73	QP
6	*	766.8635	29.45	-6.44	23.01	46.00	-22.99	QP

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

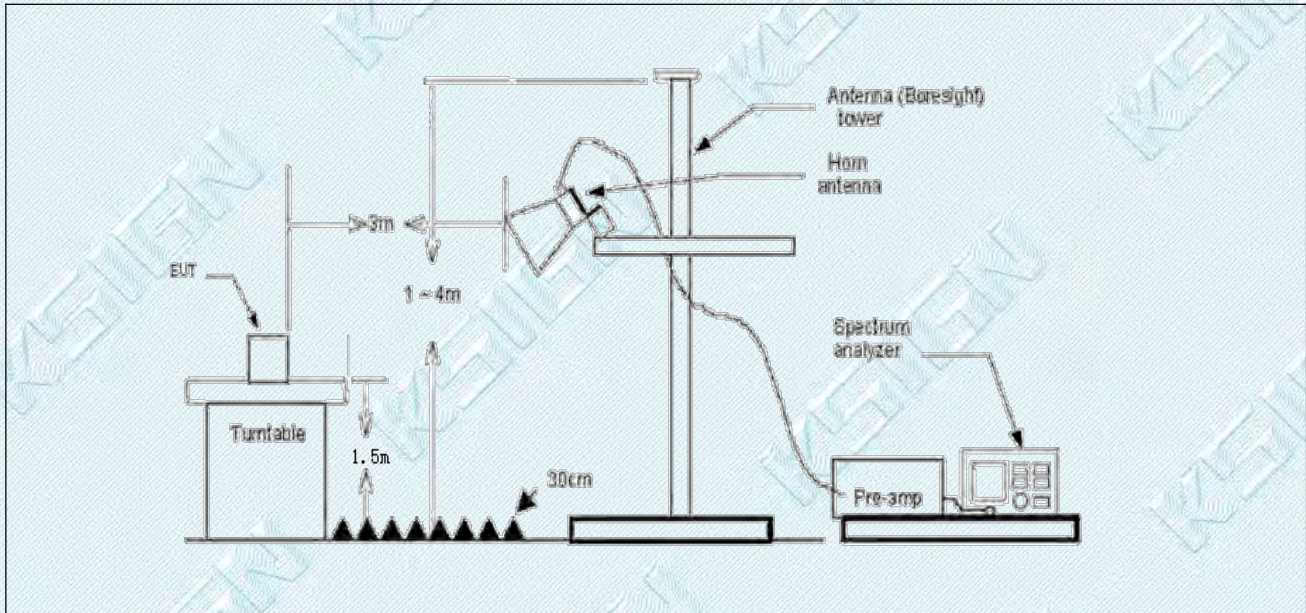
### 4.8. Emissions in restricted frequency bands (above 1GHz)

Test Requirement:	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)).		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
	** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.		
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02		

#### 4.8.1. E.U.T. Operation:

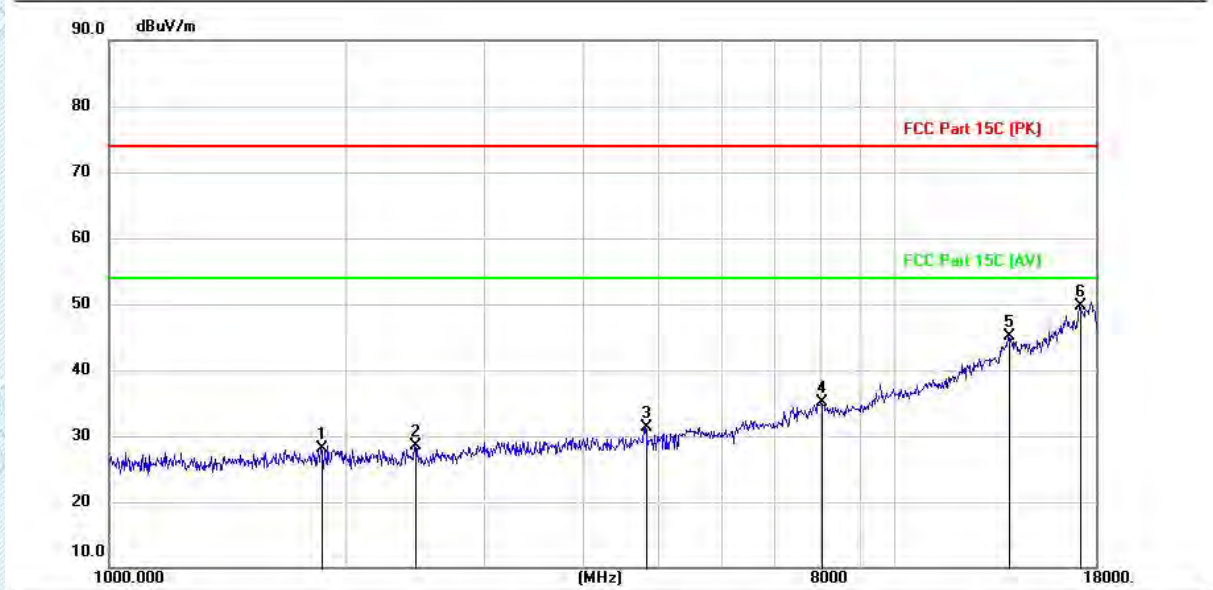
Operating Environment:	
Temperature:	24 °C
Humidity:	46.8 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode 1

#### 4.8.2. Test Setup Diagram:



### 4.8.3. Test Data:

Test Mode1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L



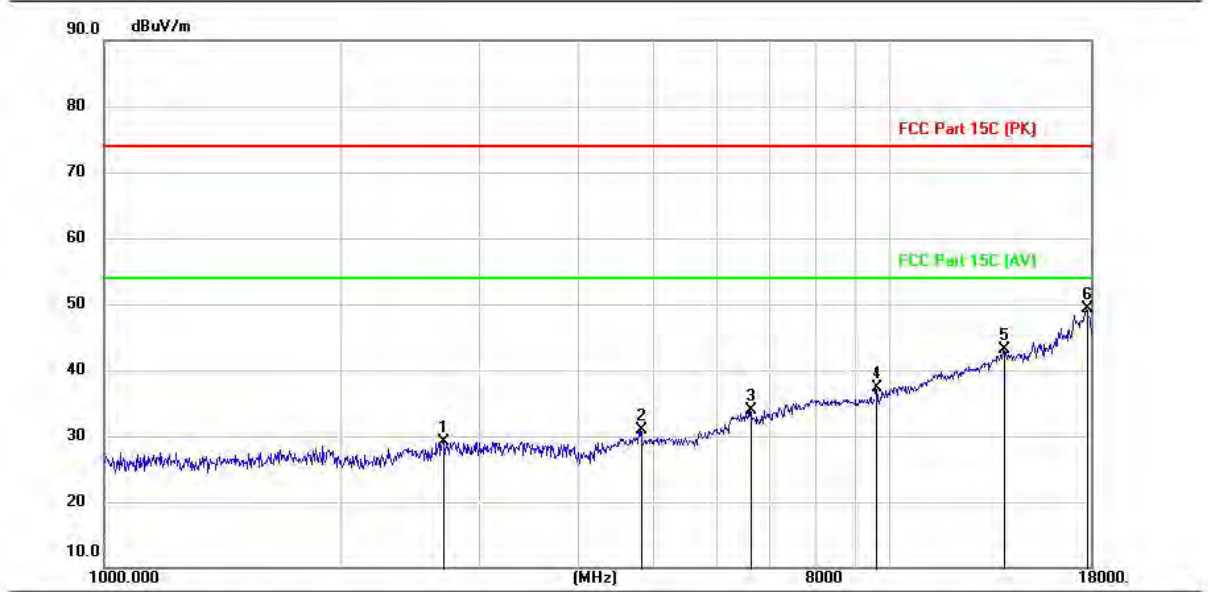
No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		1860.200	39.19	-11.18	28.01	74.00	-45.99	peak
2		2450.100	39.37	-10.90	28.47	74.00	-45.53	peak
3		4804.600	37.30	-5.92	31.38	74.00	-42.62	peak
4		8051.600	33.08	2.05	35.13	74.00	-38.87	peak
5		13930.200	33.97	11.14	45.11	74.00	-28.89	peak
6	*	17175.500	36.59	13.16	49.75	74.00	-24.25	peak

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

**Test Mode1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L**



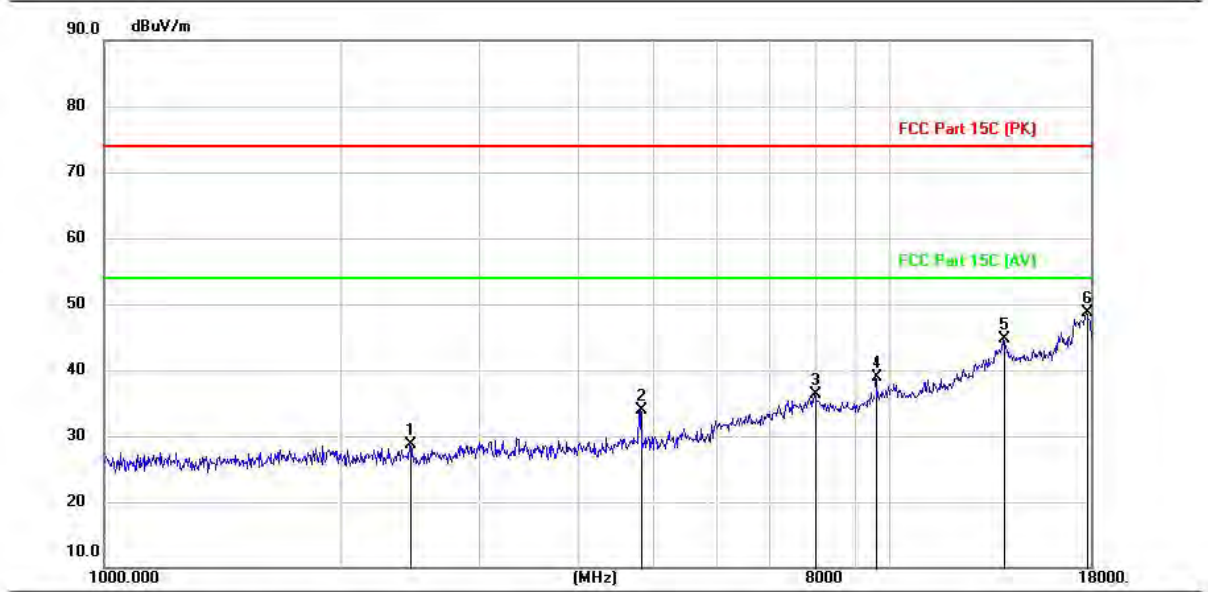
No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		2706.800	39.89	-10.76	29.13	74.00	-44.87	peak
2		4804.600	36.80	-5.92	30.88	74.00	-43.12	peak
3		6621.900	35.57	-1.76	33.81	74.00	-40.19	peak
4		9607.100	34.18	3.20	37.38	74.00	-36.62	peak
5		13930.200	31.97	11.14	43.11	74.00	-30.89	peak
6	*	17755.200	35.74	13.51	49.25	74.00	-24.75	peak

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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**Test Mode1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: M**



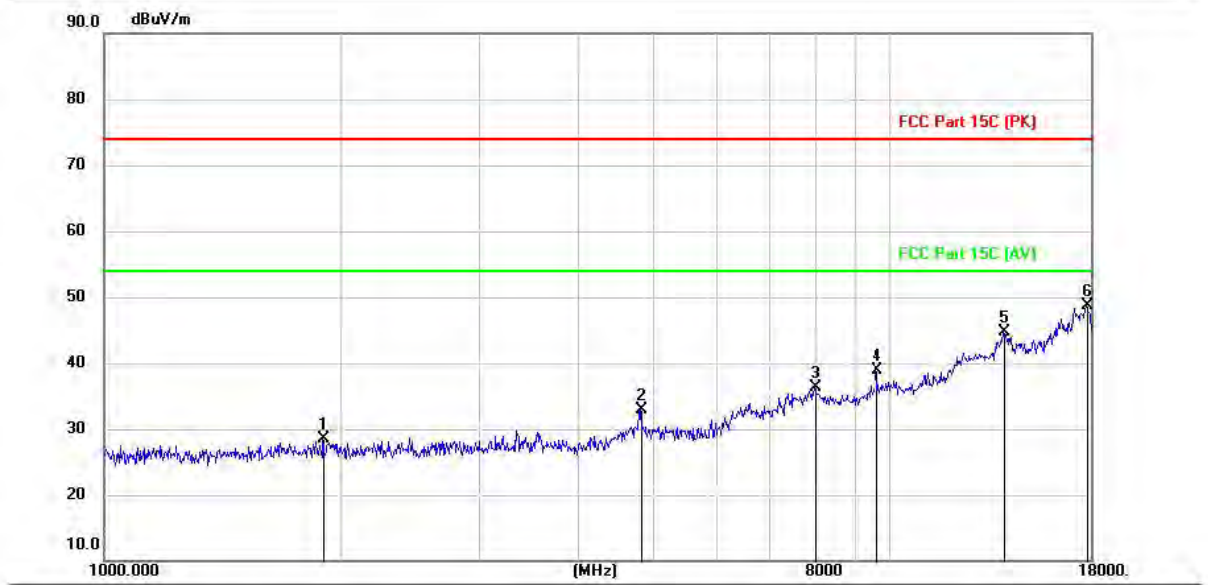
No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		2453.500	39.54	-10.90	28.64	74.00	-45.36	peak
2		4804.600	39.80	-5.92	33.88	74.00	-40.12	peak
3		8000.600	34.22	2.07	36.29	74.00	-37.71	peak
4		9607.100	35.68	3.20	38.88	74.00	-35.12	peak
5		13930.200	33.47	11.14	44.61	74.00	-29.39	peak
6	*	17755.200	35.24	13.51	48.75	74.00	-25.25	peak

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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**Test Mode1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: M**



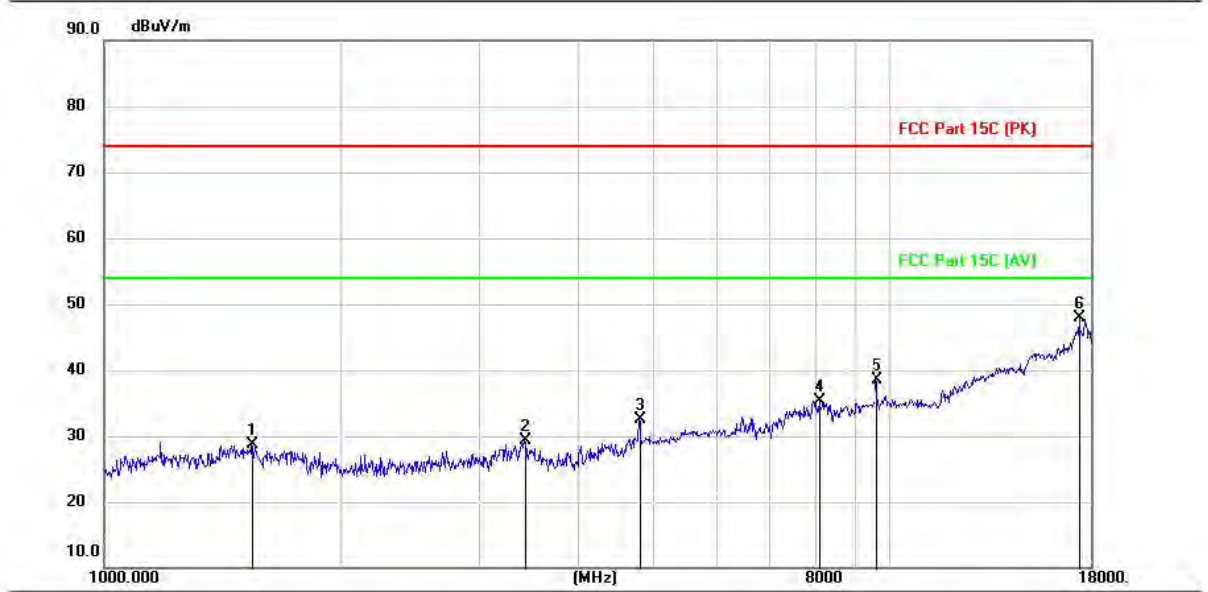
No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		1894.200	39.68	-11.15	28.53	74.00	-45.47	peak
2		4804.600	38.80	-5.92	32.88	74.00	-41.12	peak
3		8000.600	34.22	2.07	36.29	74.00	-37.71	peak
4		9607.100	35.68	3.20	38.88	74.00	-35.12	peak
5		13930.200	33.47	11.14	44.61	74.00	-29.39	peak
6	*	17755.200	35.24	13.51	48.75	74.00	-25.25	peak

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

**Test Mode1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: H**



No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		1542.300	40.32	-11.70	28.62	74.00	-45.38	peak
2		3434.400	39.16	-9.80	29.36	74.00	-44.64	peak
3		4802.900	38.46	-5.92	32.54	74.00	-41.46	peak
4		8107.700	33.36	2.04	35.40	74.00	-38.60	peak
5		9607.100	35.33	3.20	38.53	74.00	-35.47	peak
6	*	17415.200	34.64	13.34	47.98	74.00	-26.02	peak

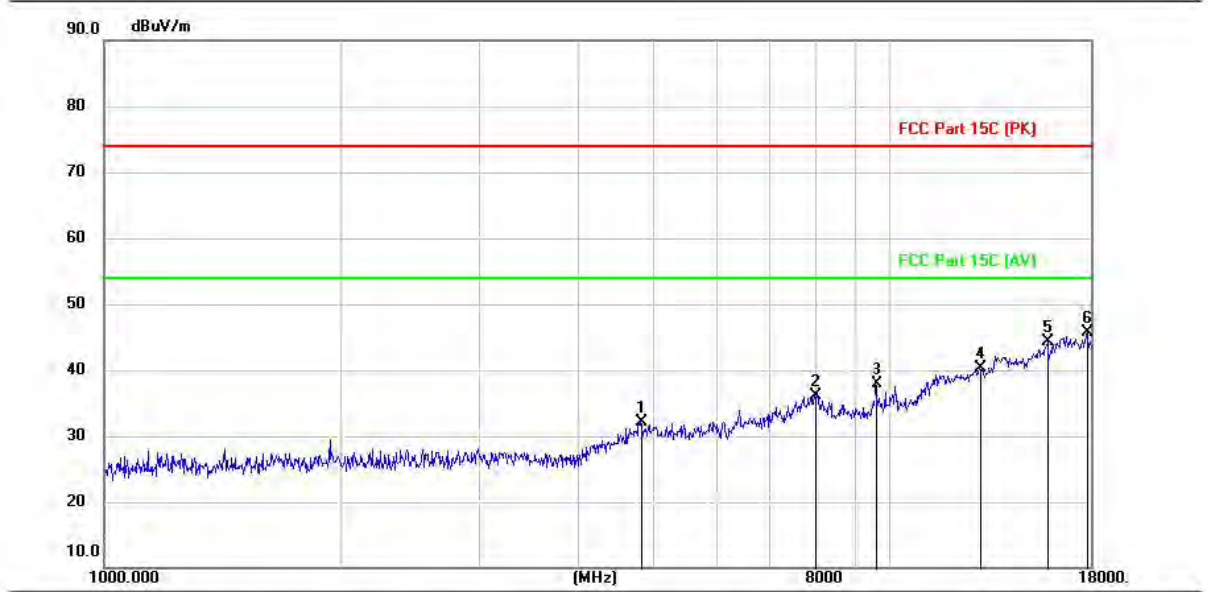
TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com



**Test Mode1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: H**



No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		4804.600	38.07	-5.92	32.15	74.00	-41.85	peak
2		8007.400	34.02	2.06	36.08	74.00	-37.92	peak
3		9607.100	34.63	3.20	37.83	74.00	-36.17	peak
4		12990.100	30.39	9.90	40.29	74.00	-33.71	peak
5		15864.800	31.80	12.46	44.26	74.00	-29.74	peak
6	*	17811.300	32.09	13.54	45.63	74.00	-28.37	peak

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

## 5. EUT TEST PHOTOS

Conducted Emission at AC power line



Emissions in restricted frequency bands (below 1GHz)



TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

Emissions in restricted frequency bands (above 1GHz)

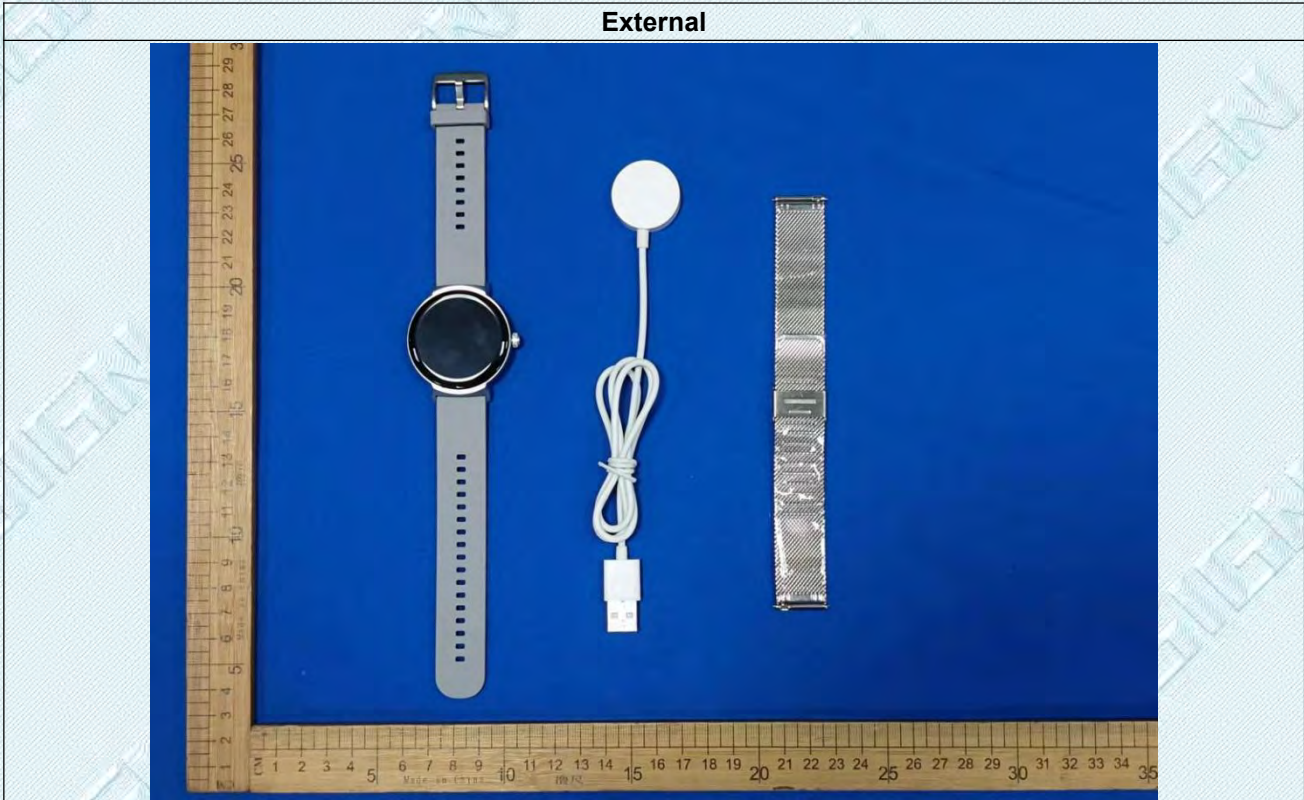


TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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## 6. PHOTOGRAPHS OF EUT CONSTRUCTIONAL



TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com



TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

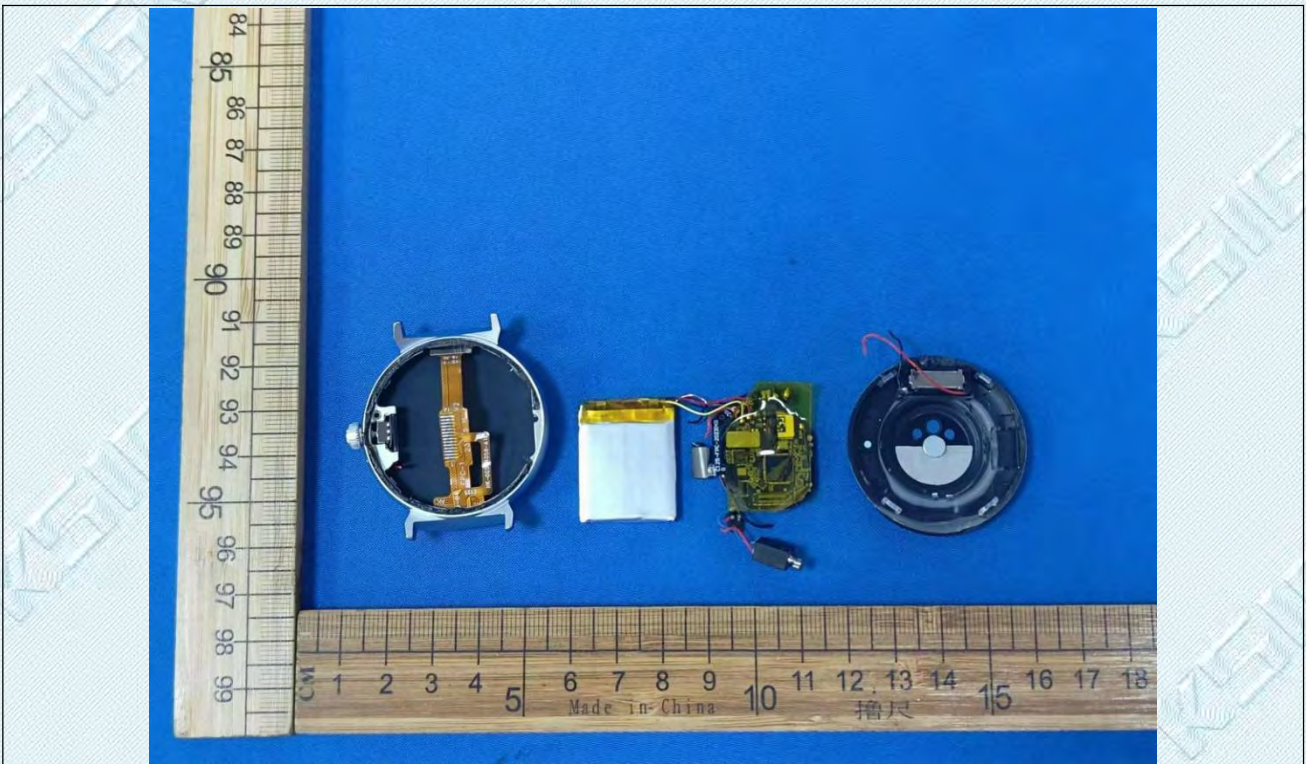
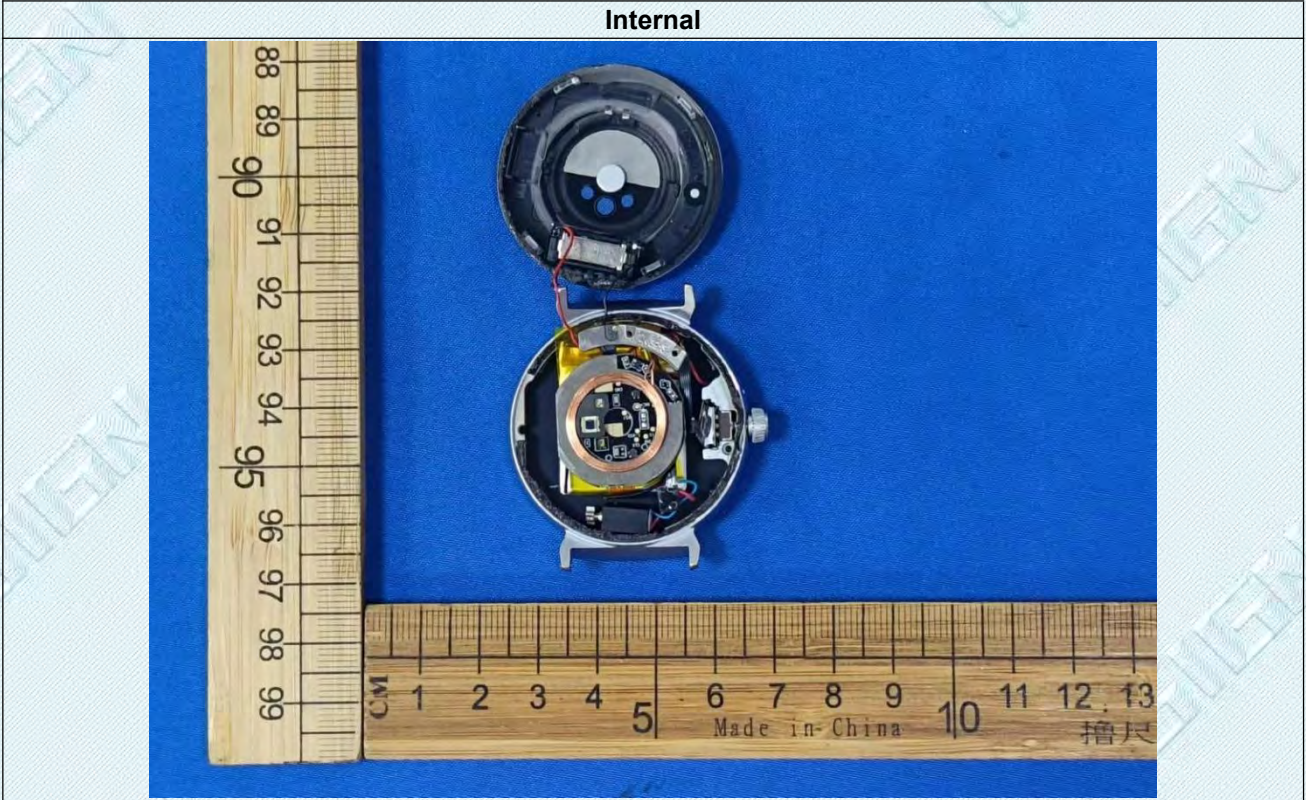


TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

**Internal**

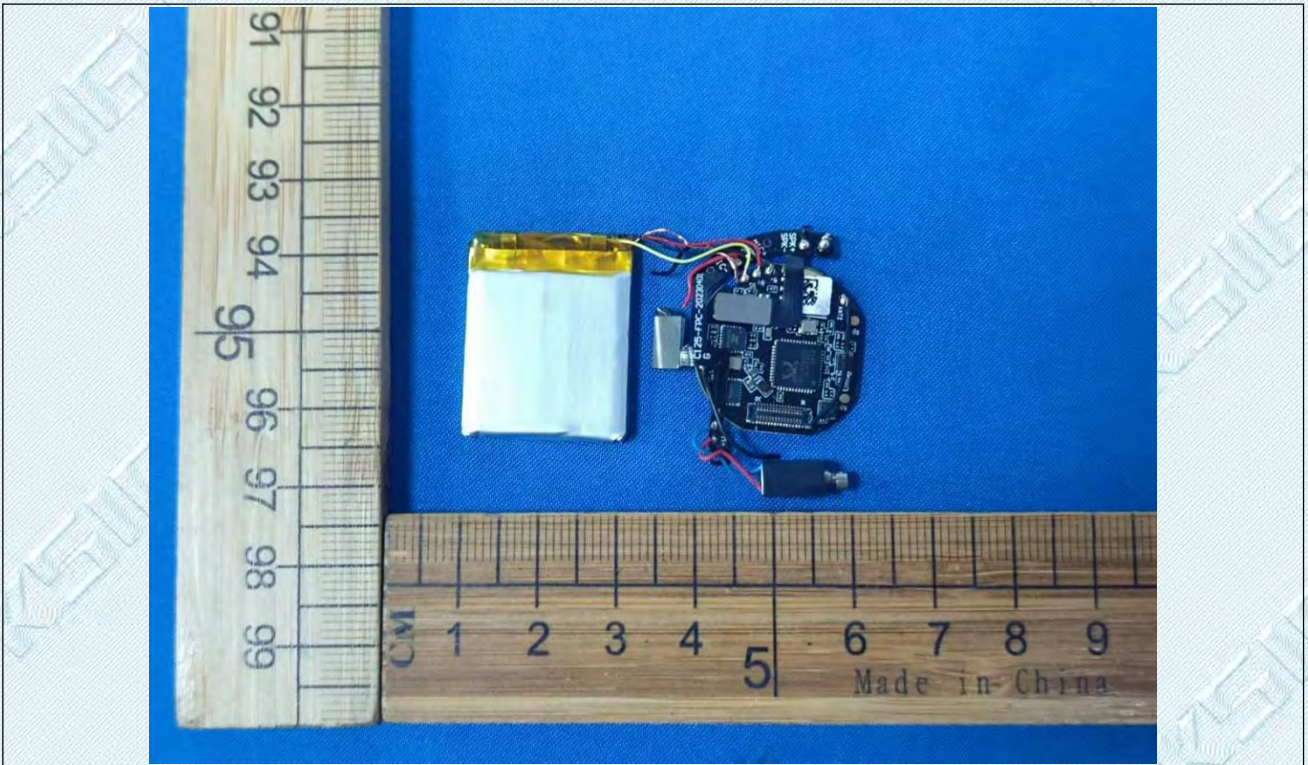
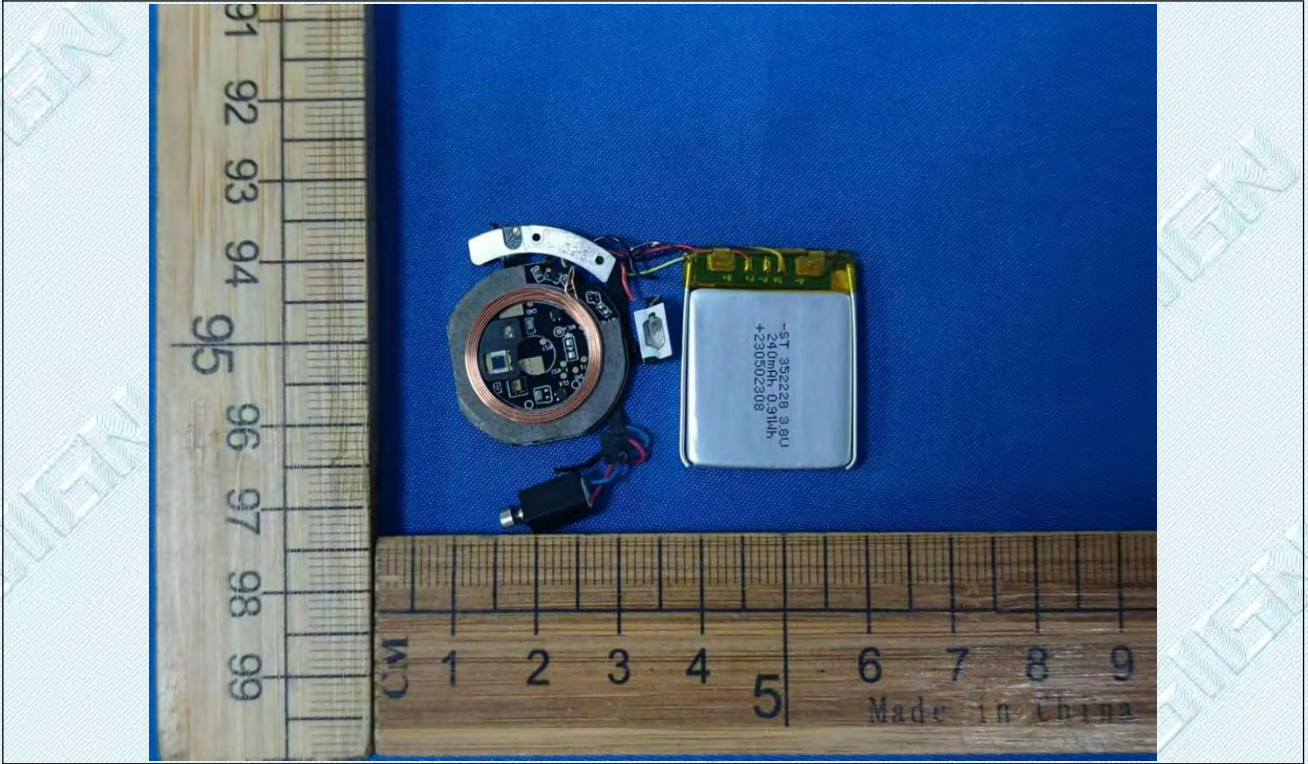


TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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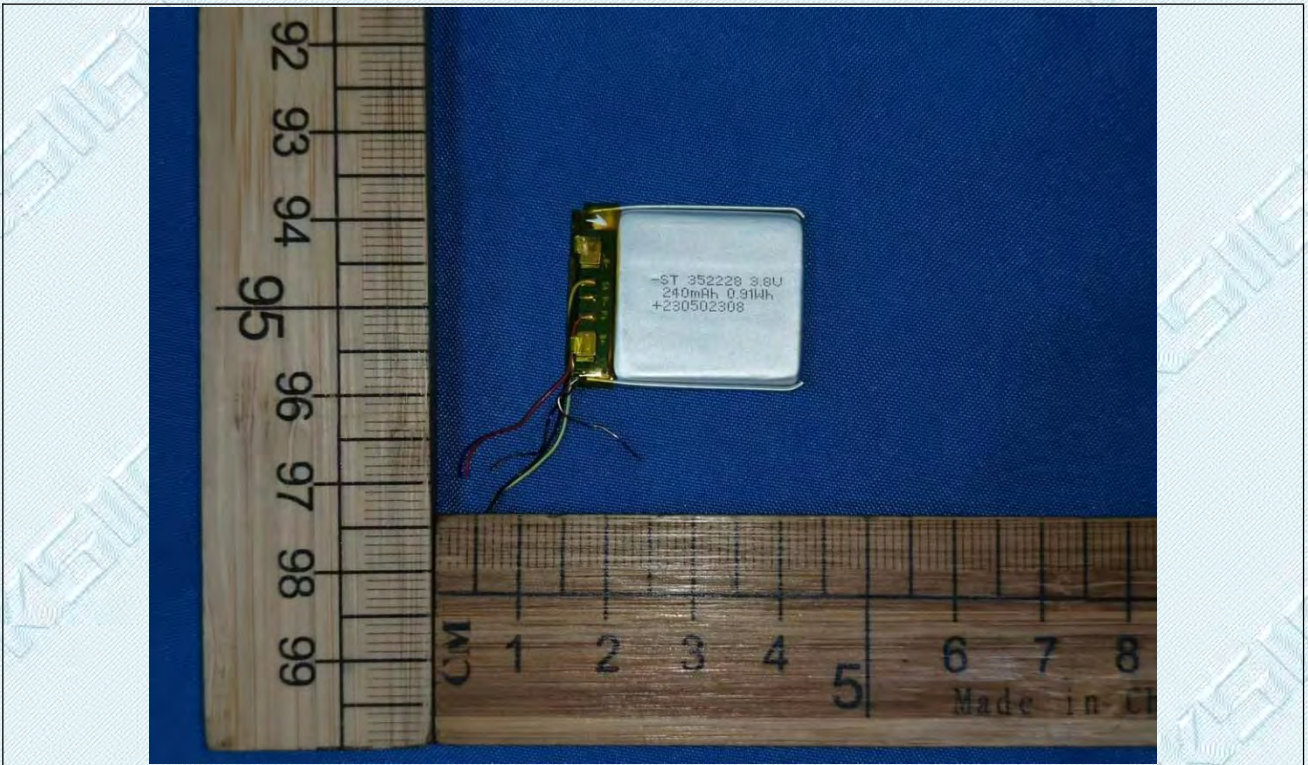
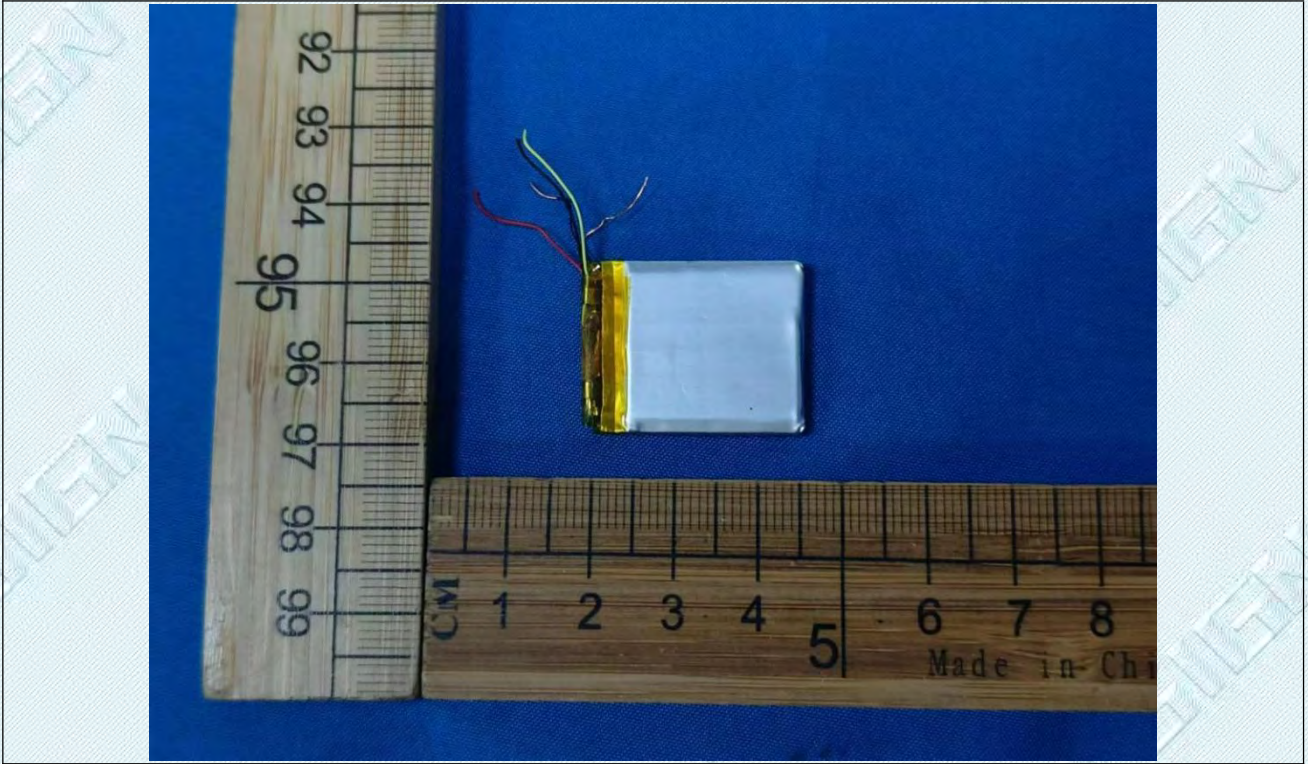




TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

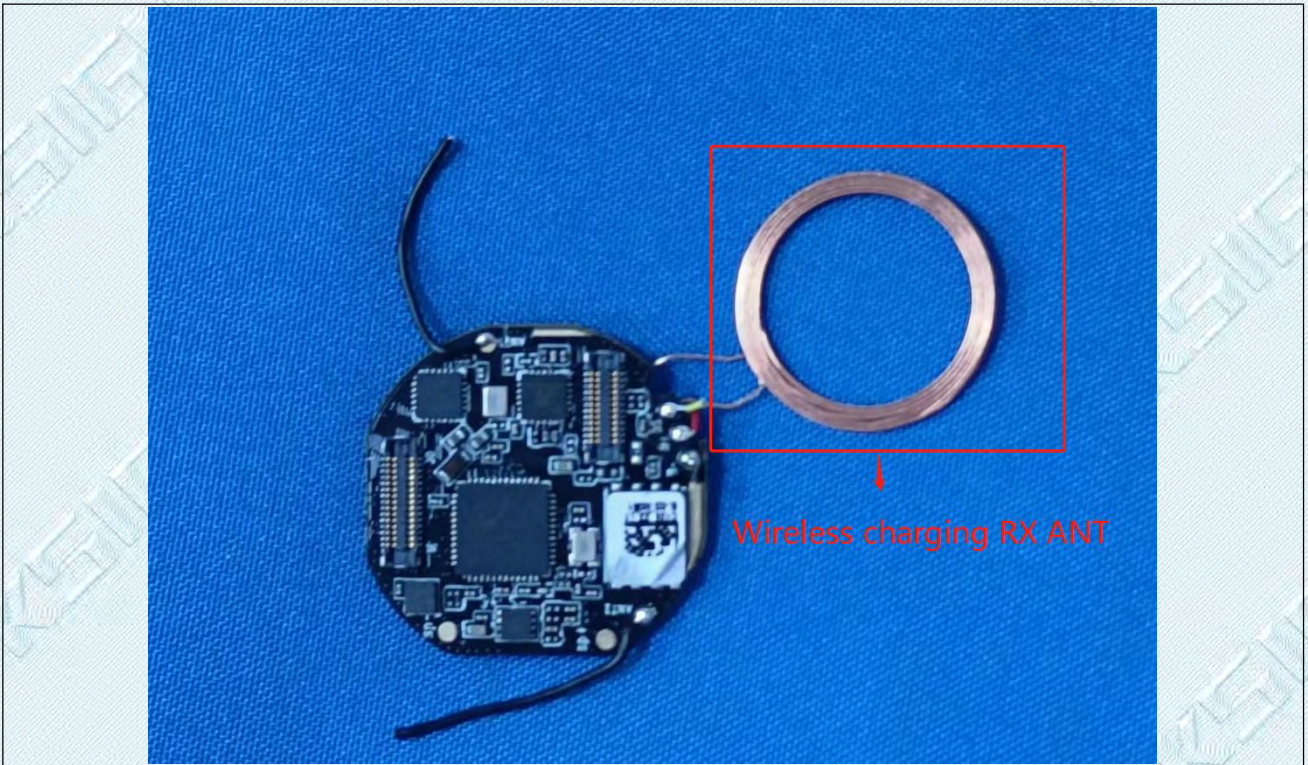
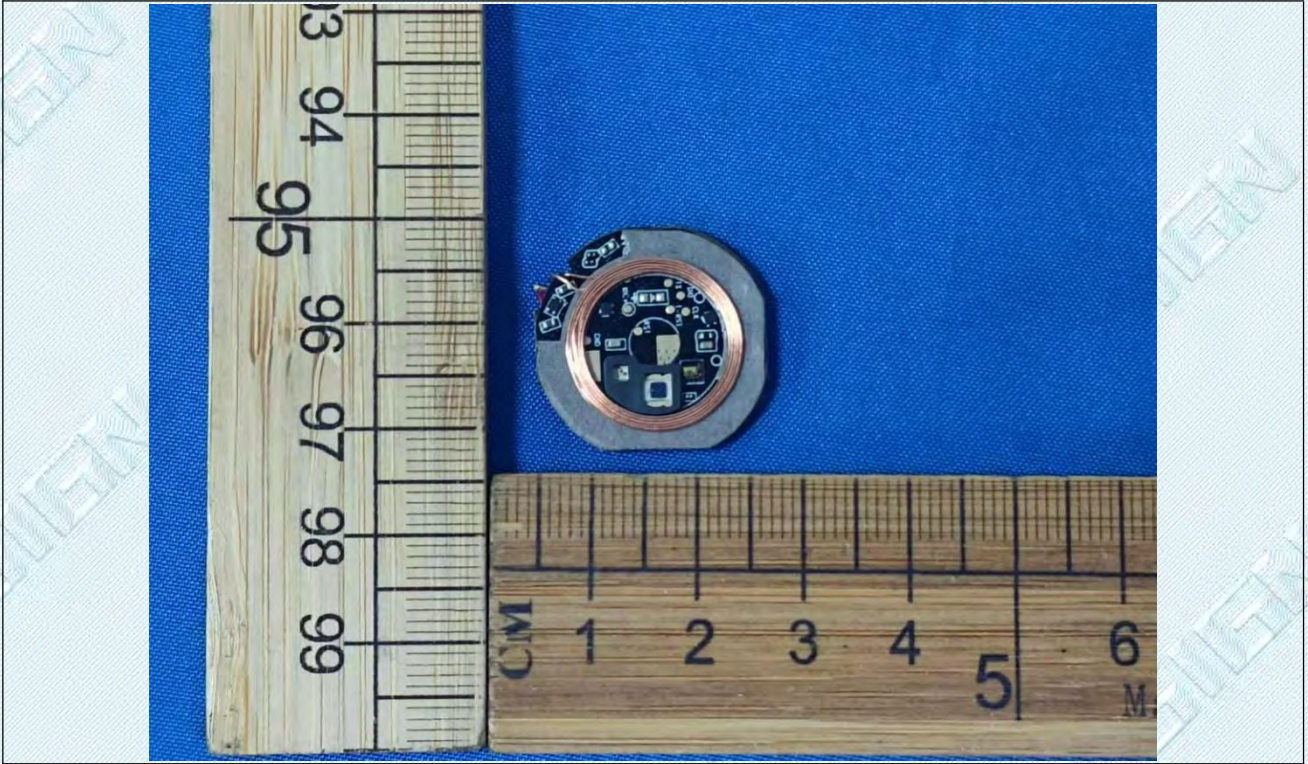
Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

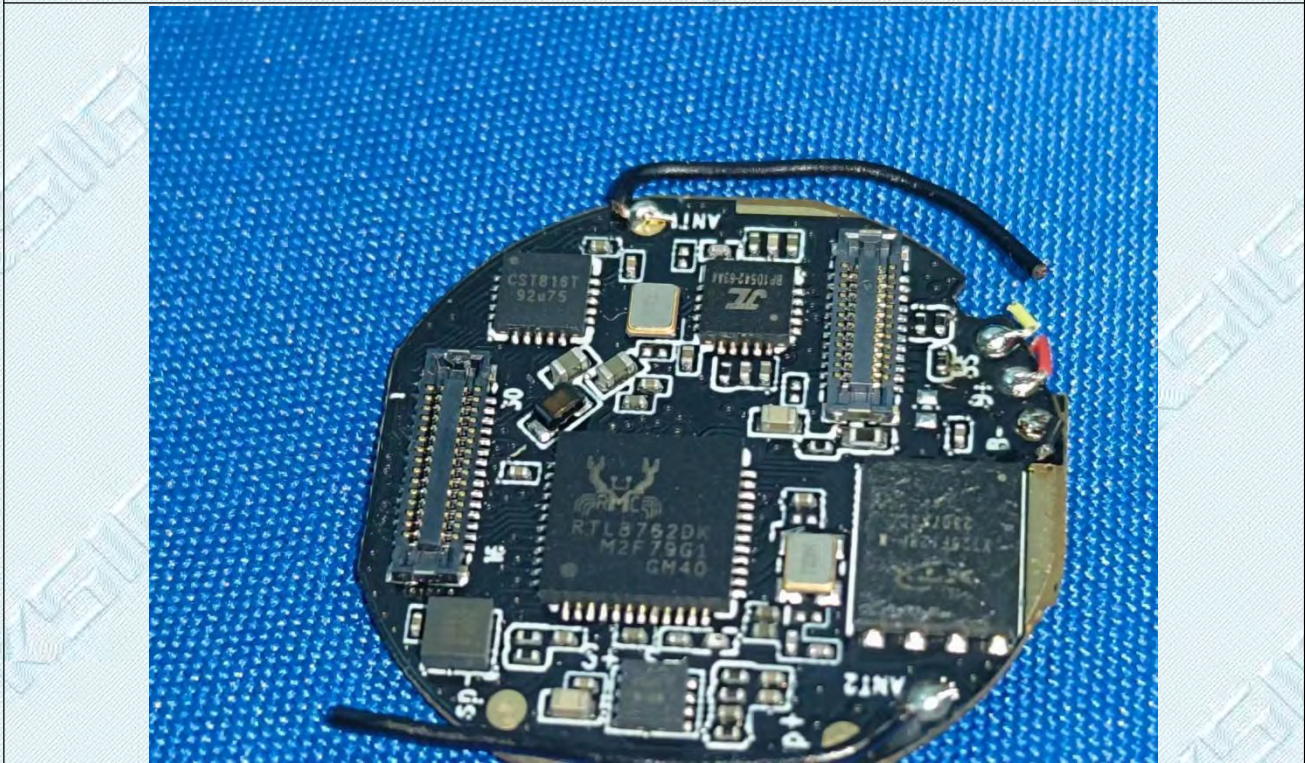
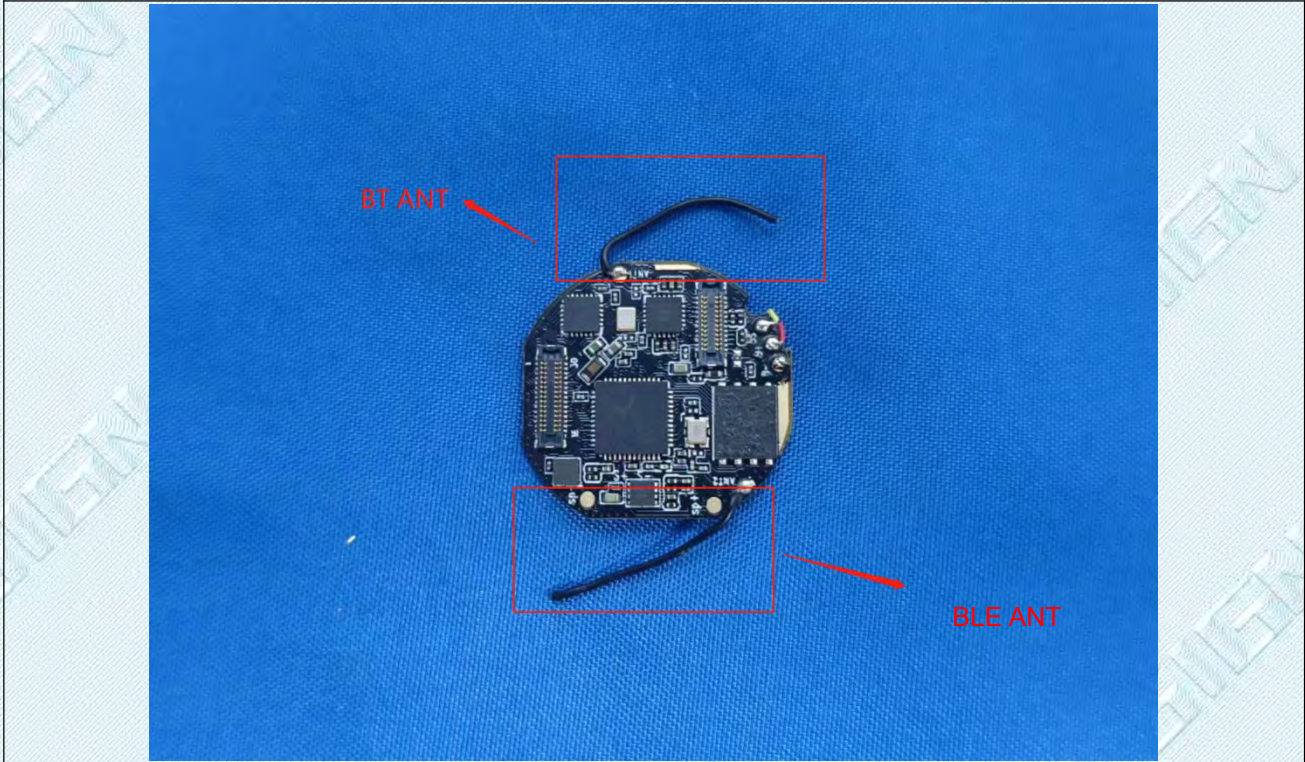


TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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# Appendix

TRF RF\_R1

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## 6.1. Appendix A: DTS Bandwidth

### 6.1.1. Test Result

TestMode	Antenna	Freq[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.77	2401.58	2402.36	0.5	PASS
		2440	0.83	2439.54	2440.36	0.5	PASS
		2480	0.67	2479.70	2480.36	0.5	PASS
BLE_2M	Ant1	2402	1.14	2401.47	2402.60	0.5	PASS
		2440	1.14	2439.47	2440.60	0.5	PASS
		2480	1.14	2479.47	2480.61	0.5	PASS

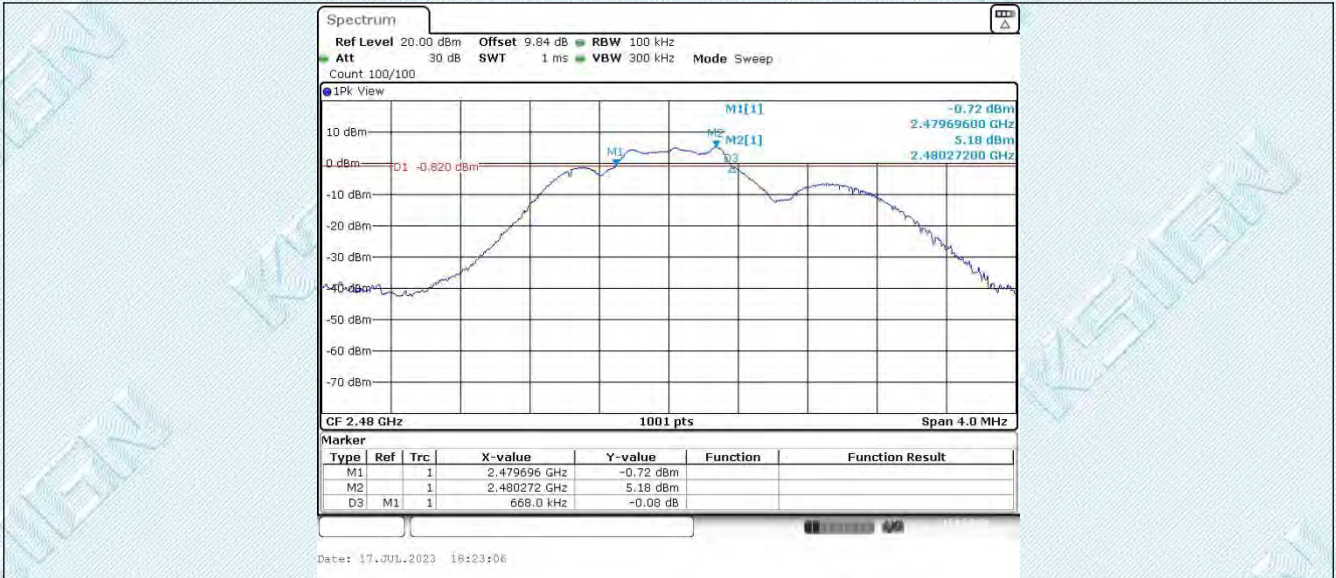
### 6.1.2. Test Graphs



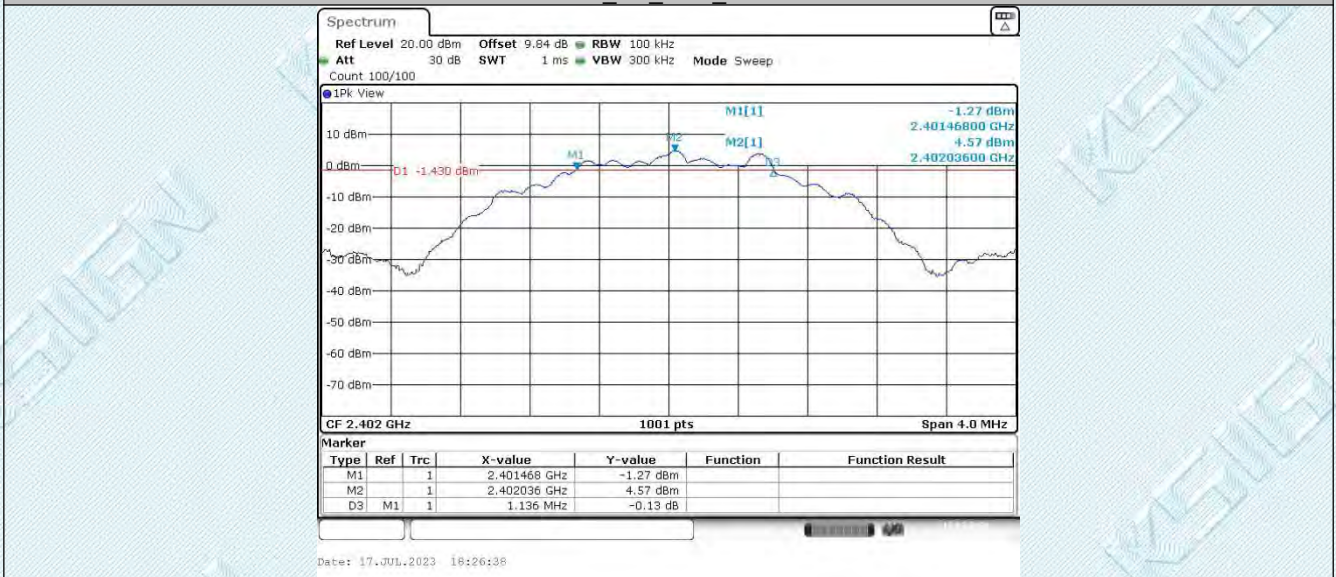
TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

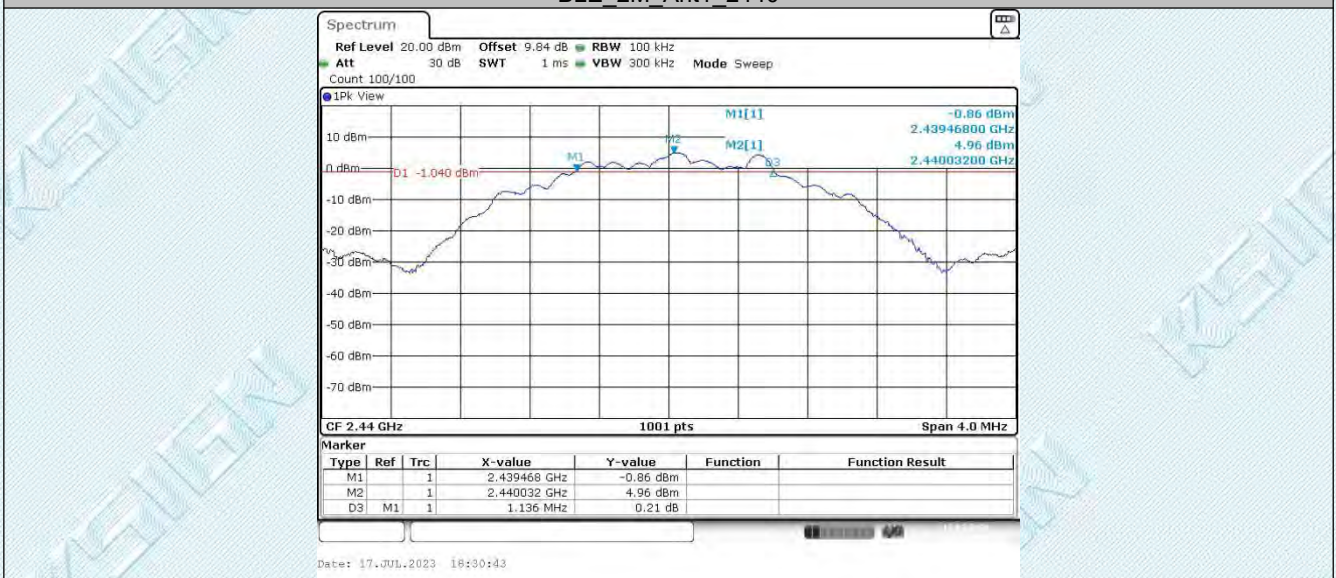
Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com



BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440



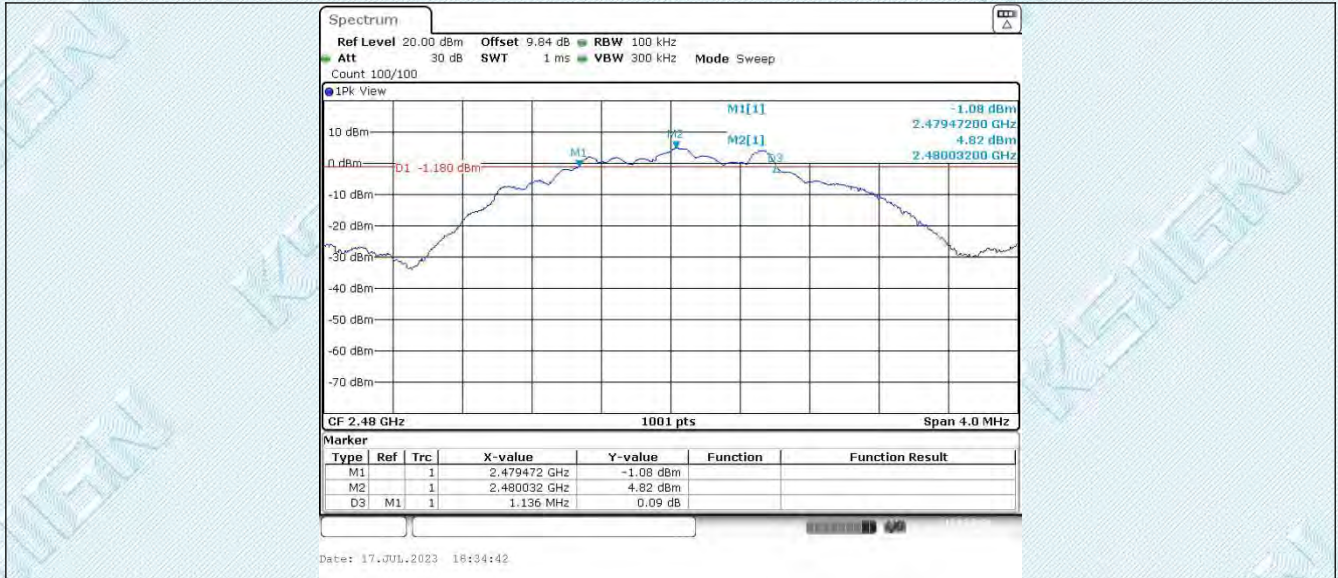
BLE\_2M\_Ant1\_2480

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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## 6.2. Appendix B: Occupied Channel Bandwidth

### 6.2.1. Test Result

TestMode	Antenna	Freq[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.155	2401.508	2402.663	---	PASS
		2440	1.546	2439.409	2440.955	---	PASS
		2480	1.77	2479.333	2481.103	---	PASS
BLE_2M	Ant1	2402	2.034	2401.025	2403.059	---	PASS
		2440	2.046	2439.021	2441.067	---	PASS
		2480	2.106	2479.021	2481.127	---	PASS

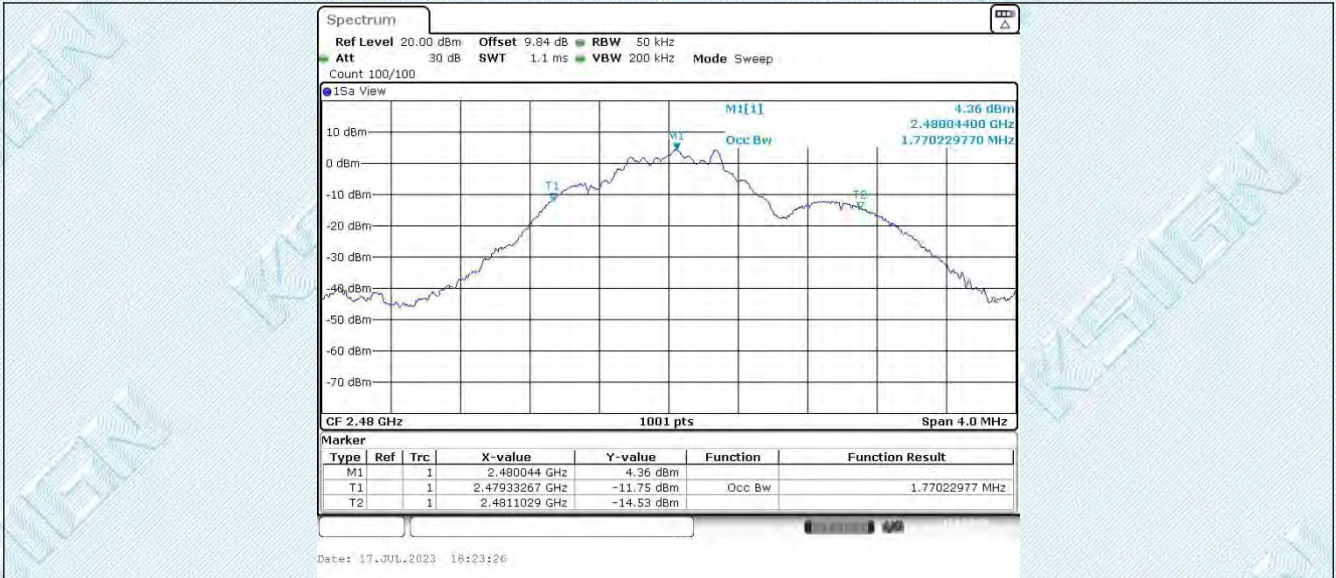
### 6.2.2. Test Graphs



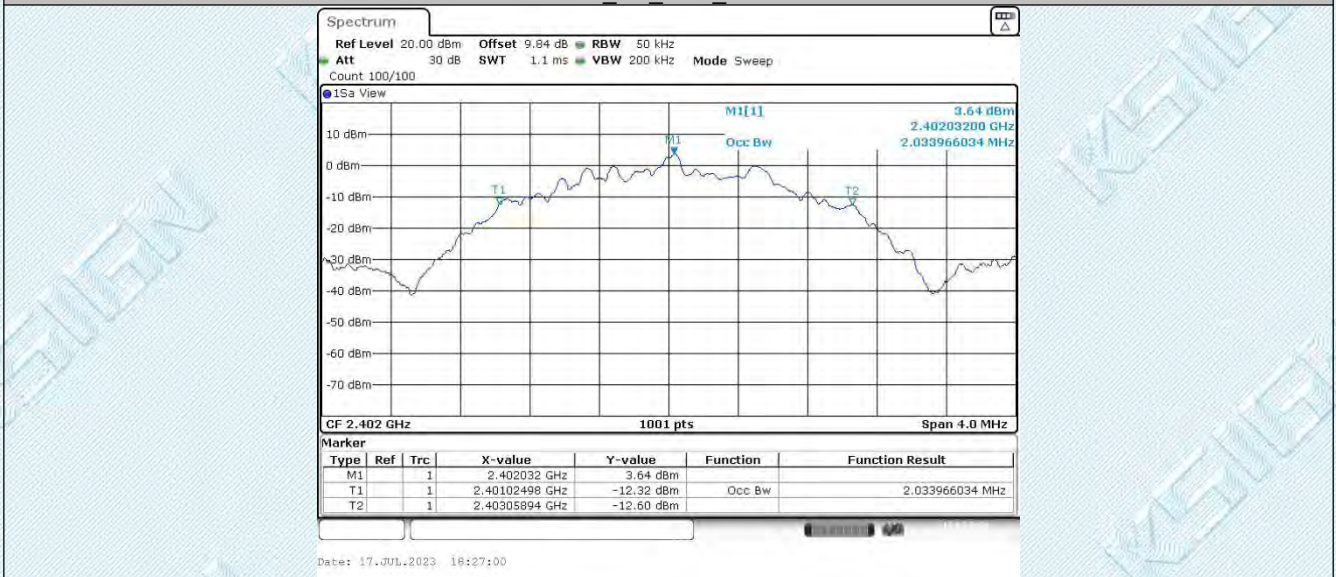
TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

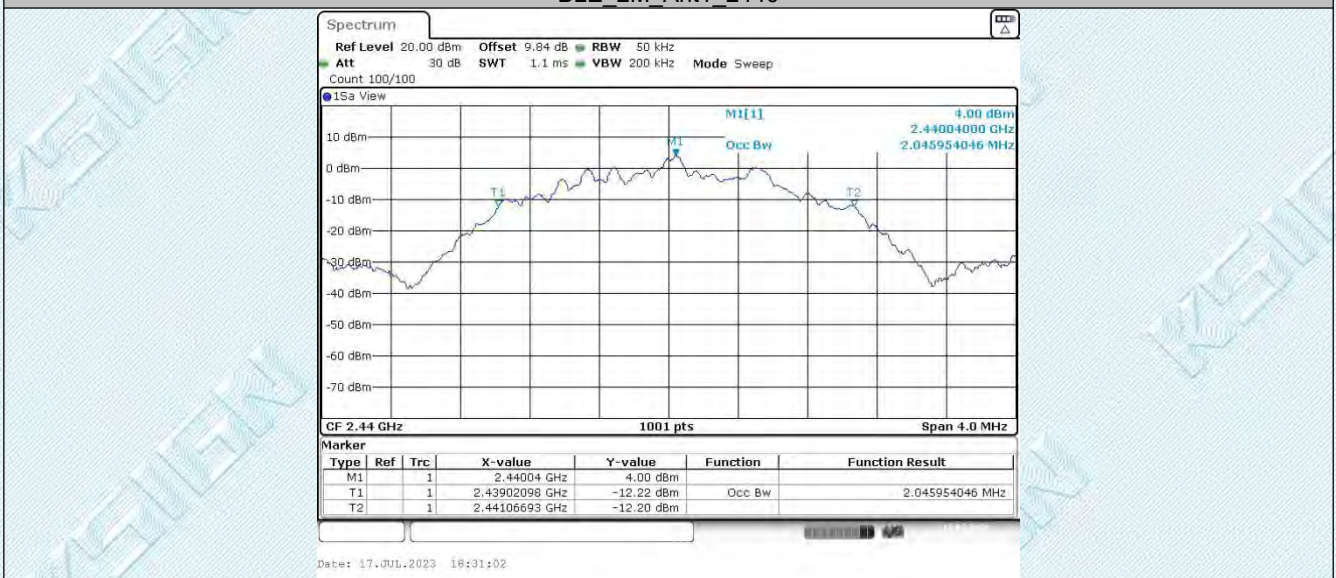
Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com



BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440

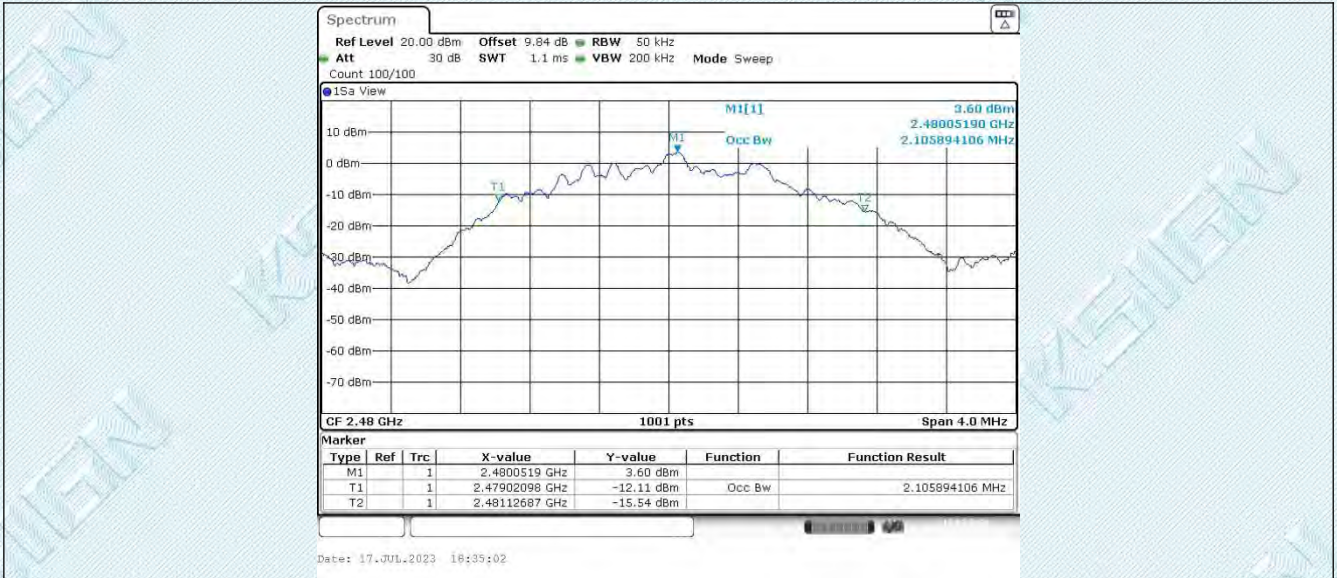


BLE\_2M\_Ant1\_2480

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

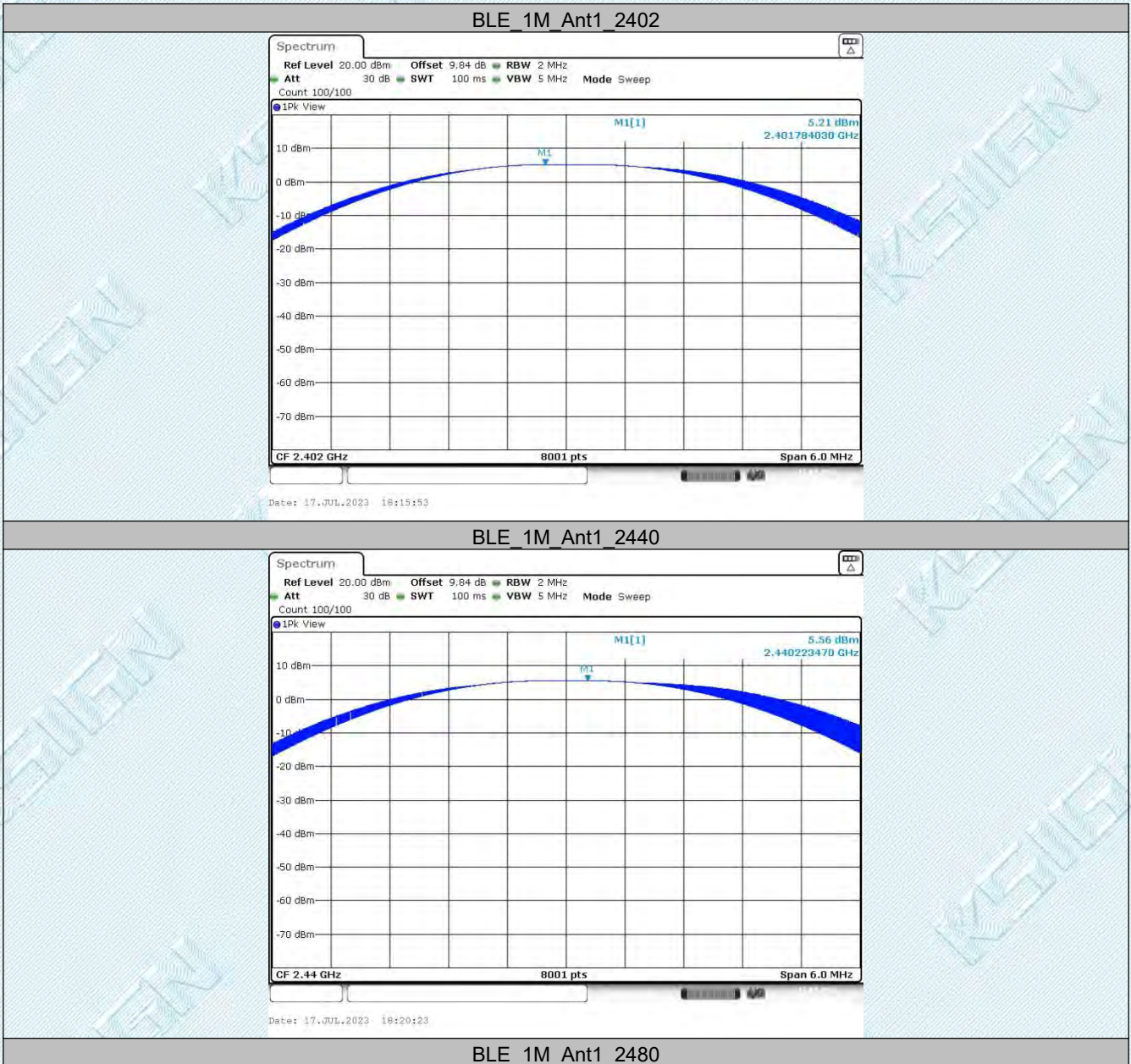
Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

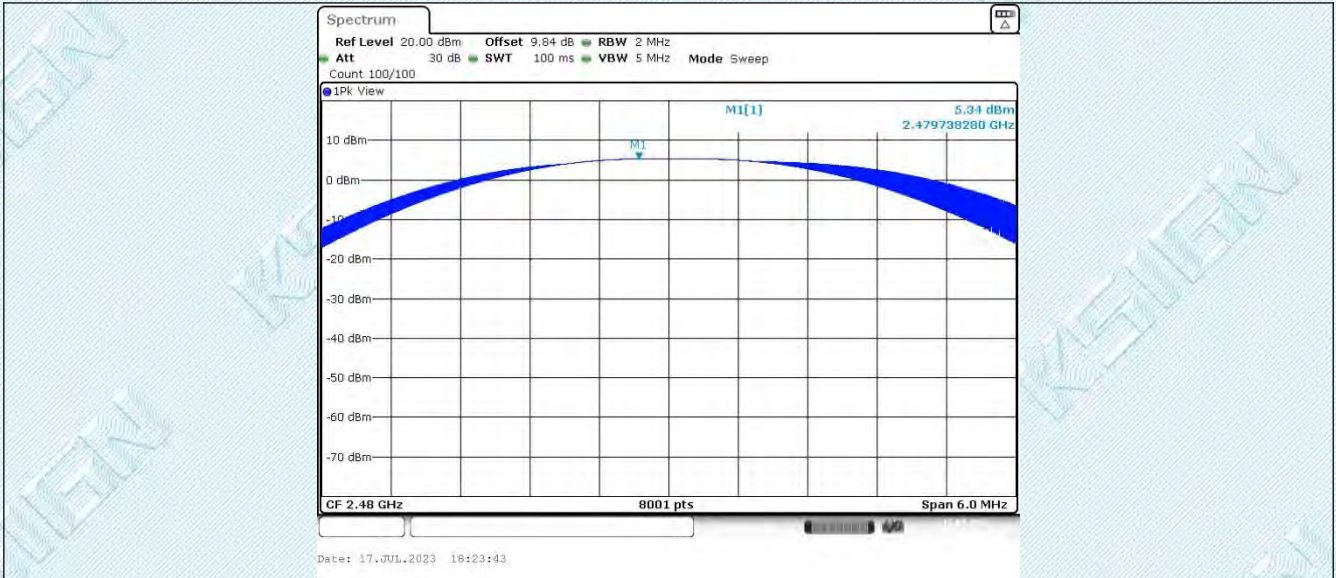
### 6.3. Appendix C: Maximum conducted output power

#### 6.3.1. Test Result Peak

TestMode	Antenna	Freq[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	5.21	≤30	PASS
		2440	5.56	≤30	PASS
		2480	5.34	≤30	PASS
BLE_2M	Ant1	2402	5.17	≤30	PASS
		2440	5.53	≤30	PASS
		2480	5.41	≤30	PASS

### 6.3.2. Test Graphs Peak





BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440



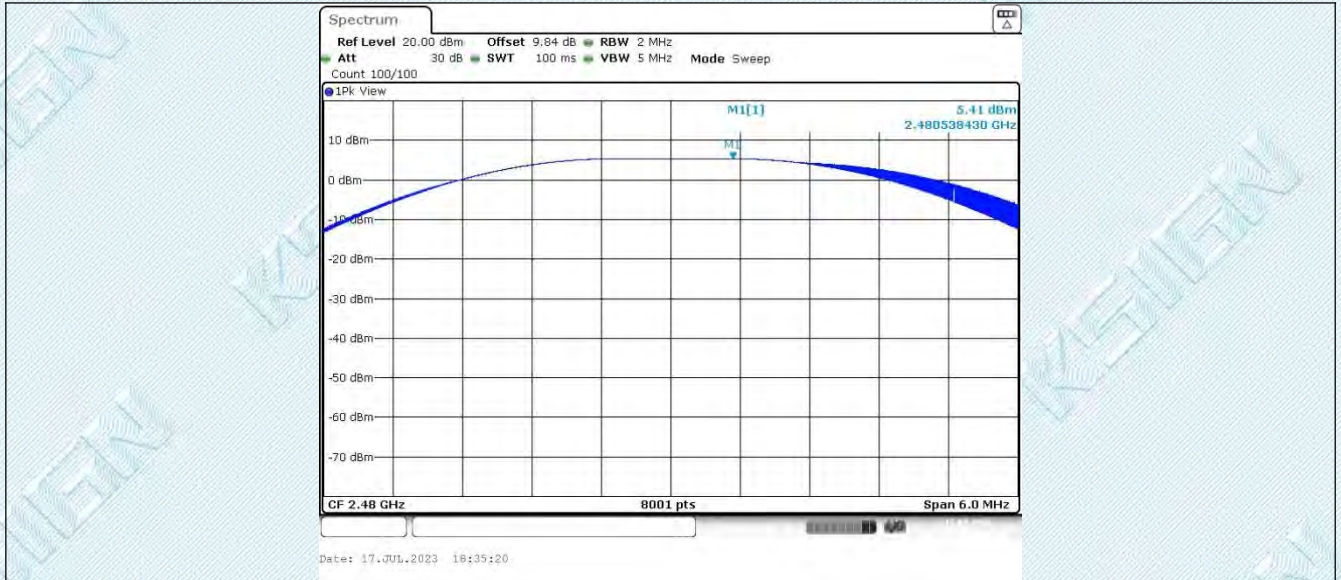
BLE\_2M\_Ant1\_2480

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

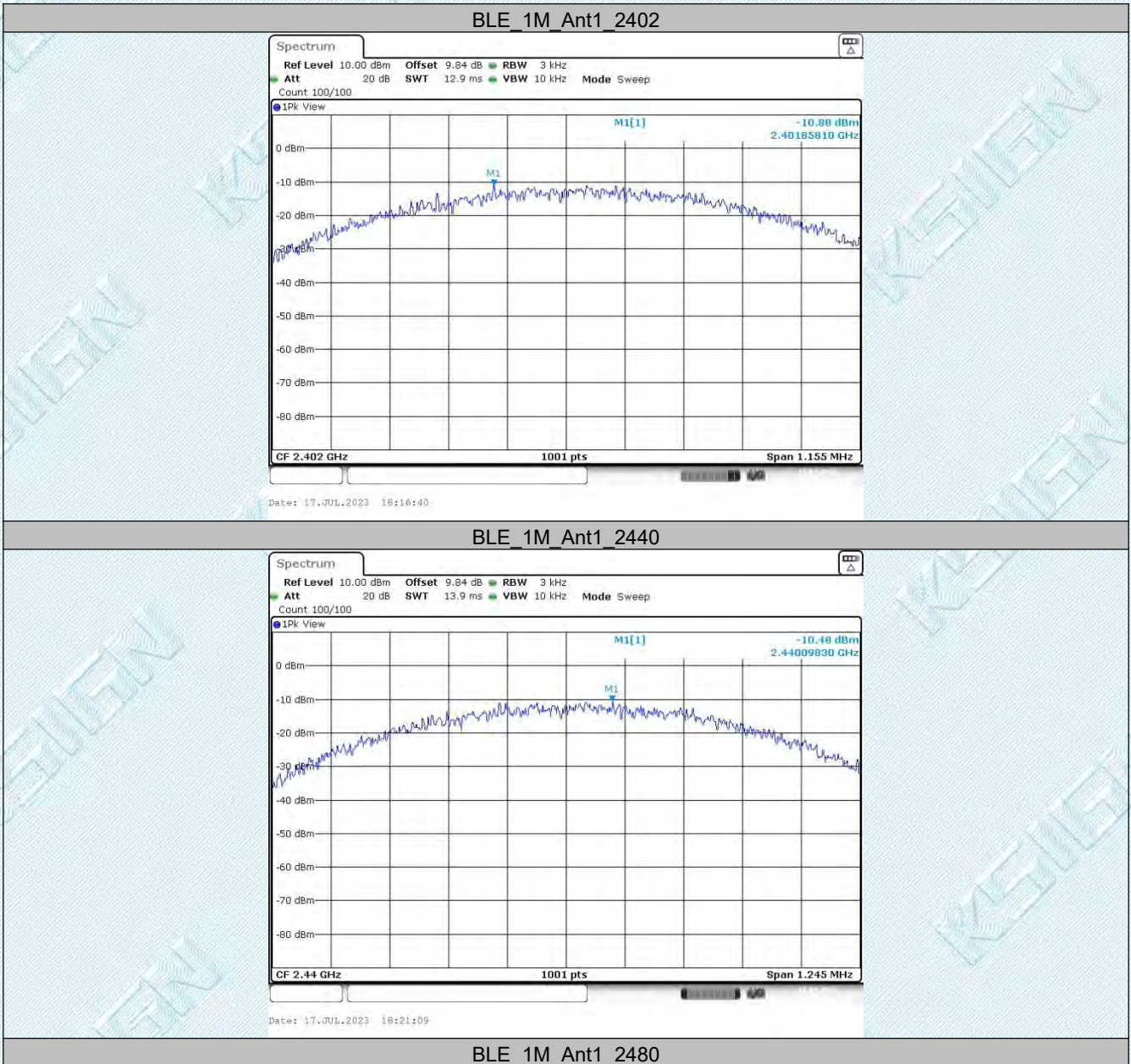
Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

## 6.4. Appendix D: Maximum power spectral density

### 6.4.1. Test Result

TestMode	Antenna	Freq[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-10.88	≤8.00	PASS
		2440	-10.48	≤8.00	PASS
		2480	-10.86	≤8.00	PASS
BLE_2M	Ant1	2402	-12.21	≤8.00	PASS
		2440	-12.58	≤8.00	PASS
		2480	-12.73	≤8.00	PASS

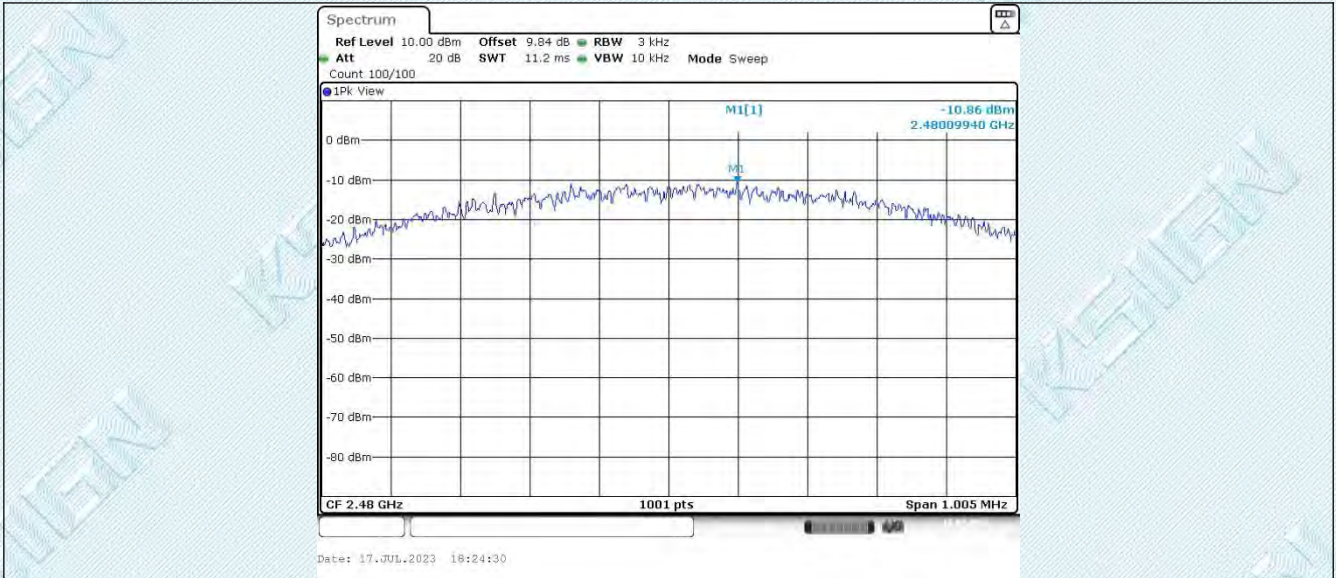
### 6.4.2. Test Graphs



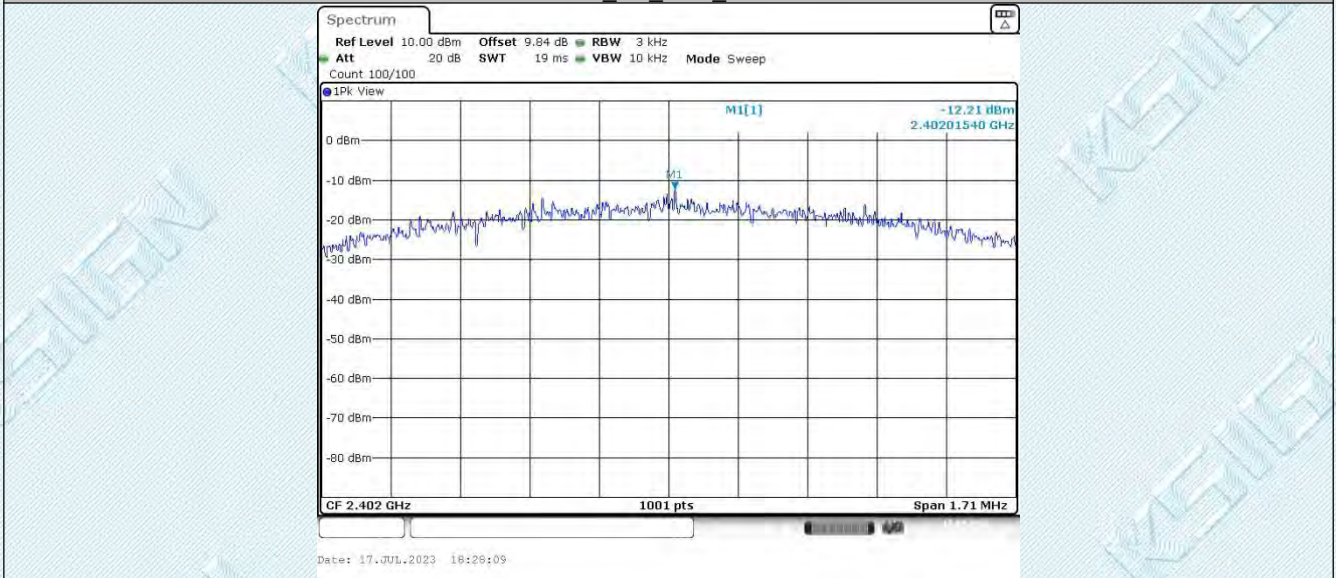
TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

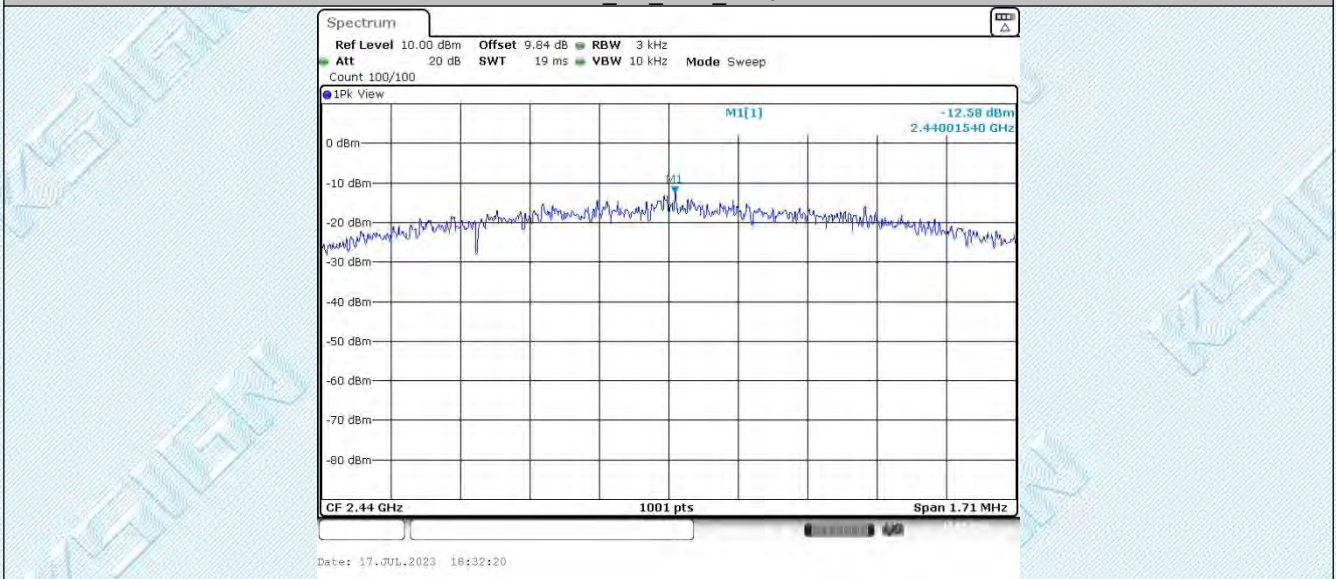
Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com



BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440

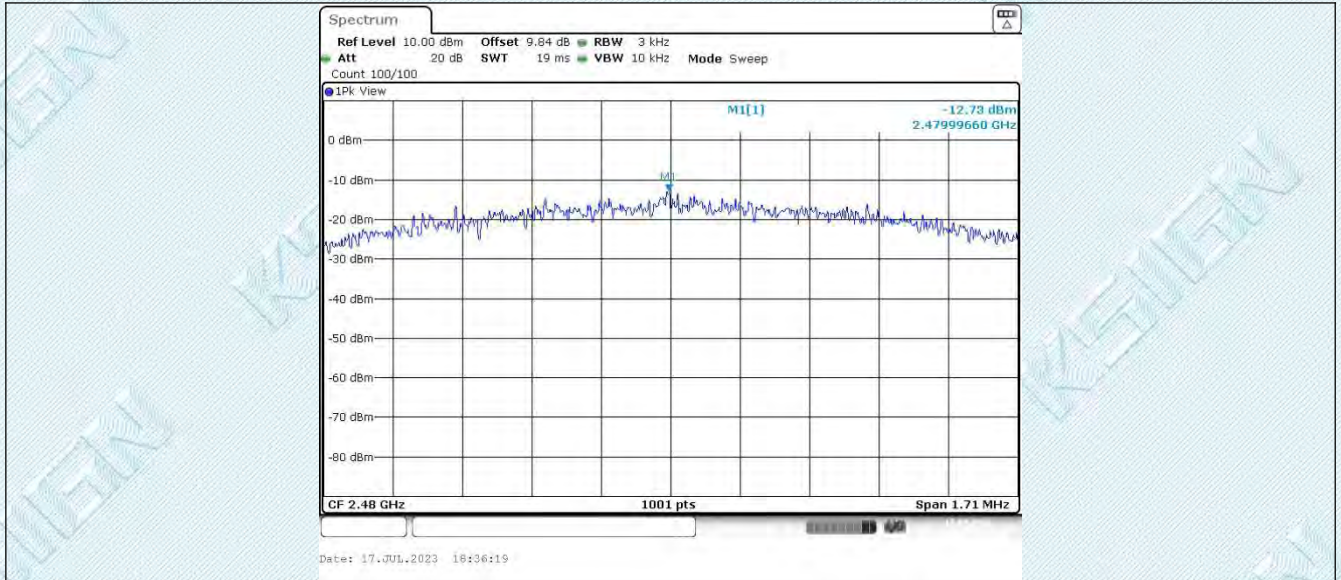


BLE\_2M\_Ant1\_2480

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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## 6.5. ppendix E: Reference level measurement

### 6.5.1. Test Result

TestMode	Antenna	Freq[MHz]	Max.Point[MHz]	Result[dBm]
BLE_1M	Ant1	2402	2402.28	5.03
		2440	2440.27	5.33
		2480	2480.27	5.17
BLE_2M	Ant1	2402	2402.04	4.66
		2440	2440.03	5.01
		2480	2480.03	4.88

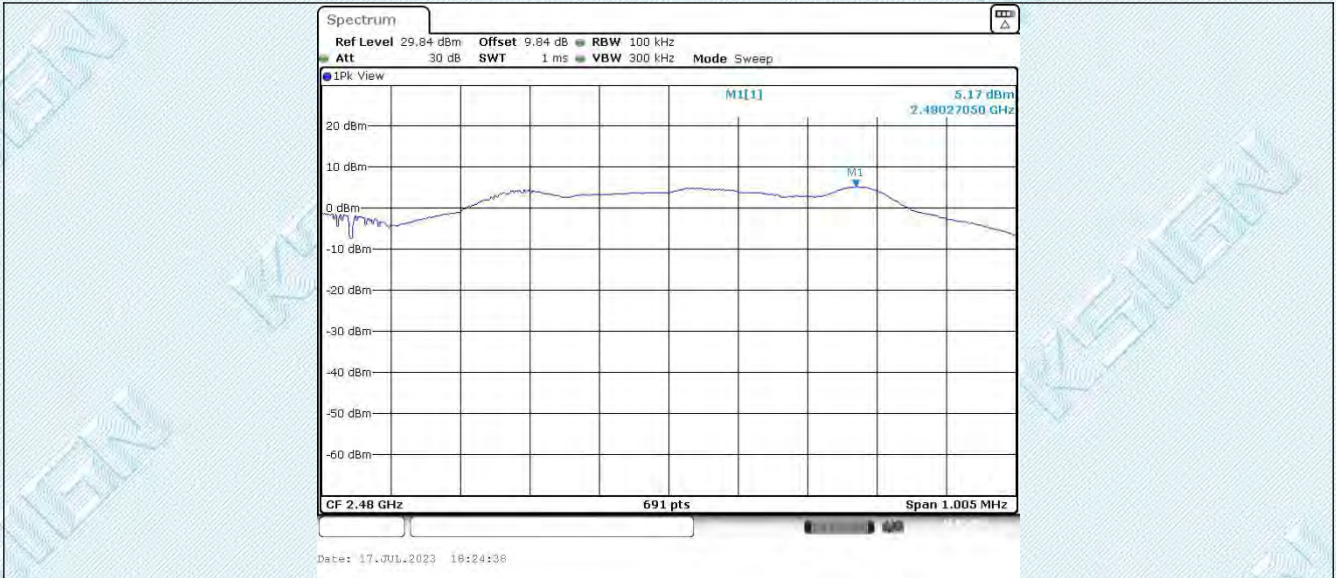
### 6.5.2. Test Graphs



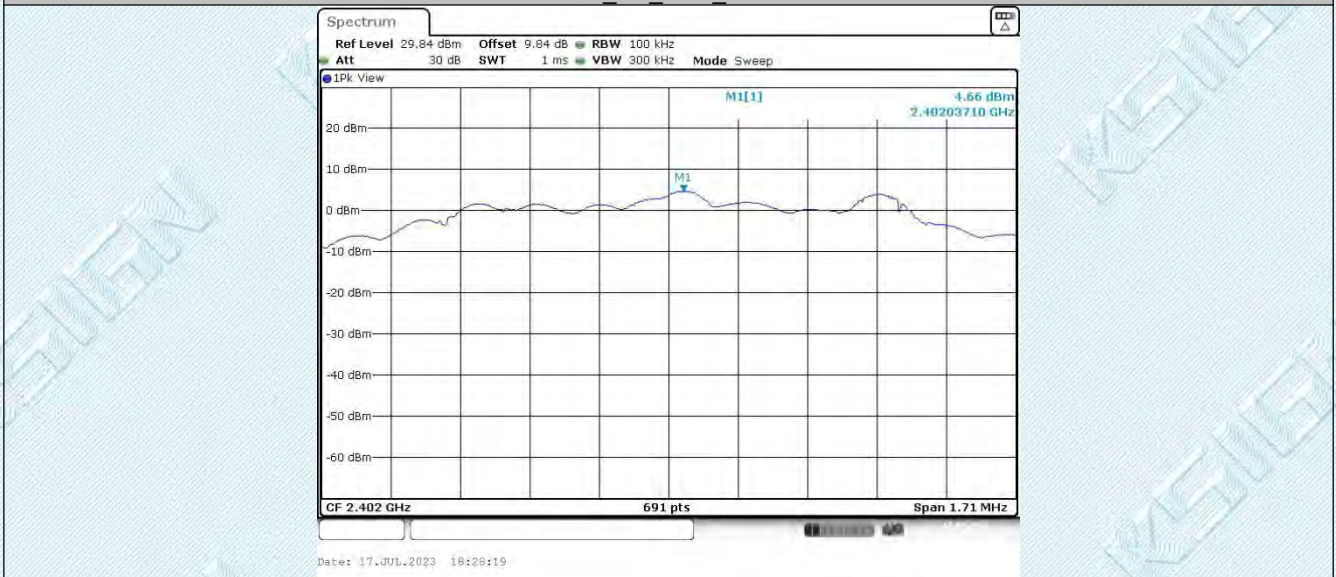
TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

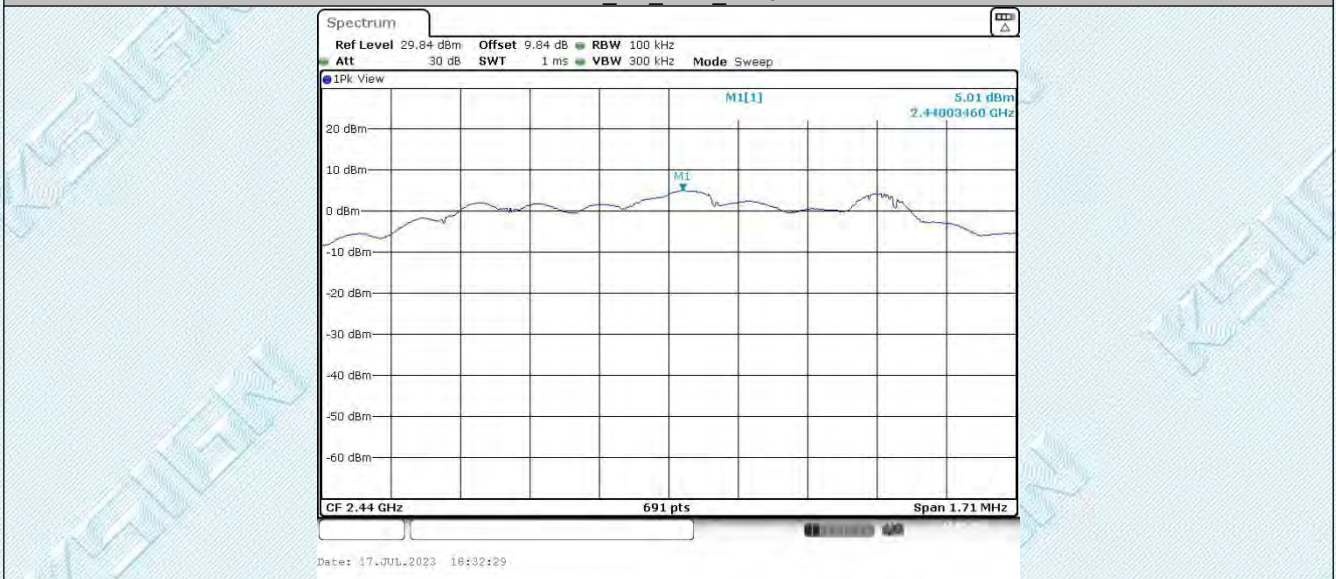
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BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440



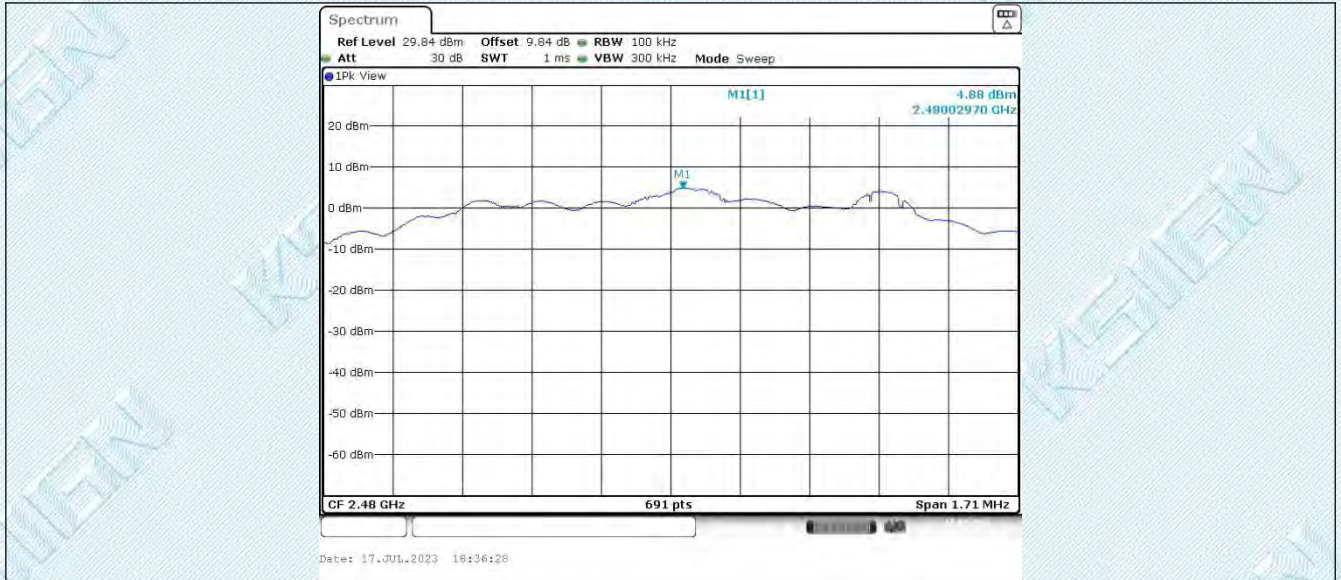
BLE\_2M\_Ant1\_2480

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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TRF RF\_R1

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## 6.6. Appendix F: Band edge measurements

### 6.6.1. Test Result

TestMode	Antenna	ChName	Freq[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	5.03	-40.19	$\leq -14.97$	PASS
		High	2480	5.17	-40.62	$\leq -14.83$	PASS
BLE_2M	Ant1	Low	2402	4.66	-28.99	$\leq -15.34$	PASS
		High	2480	4.88	-40.69	$\leq -15.12$	PASS

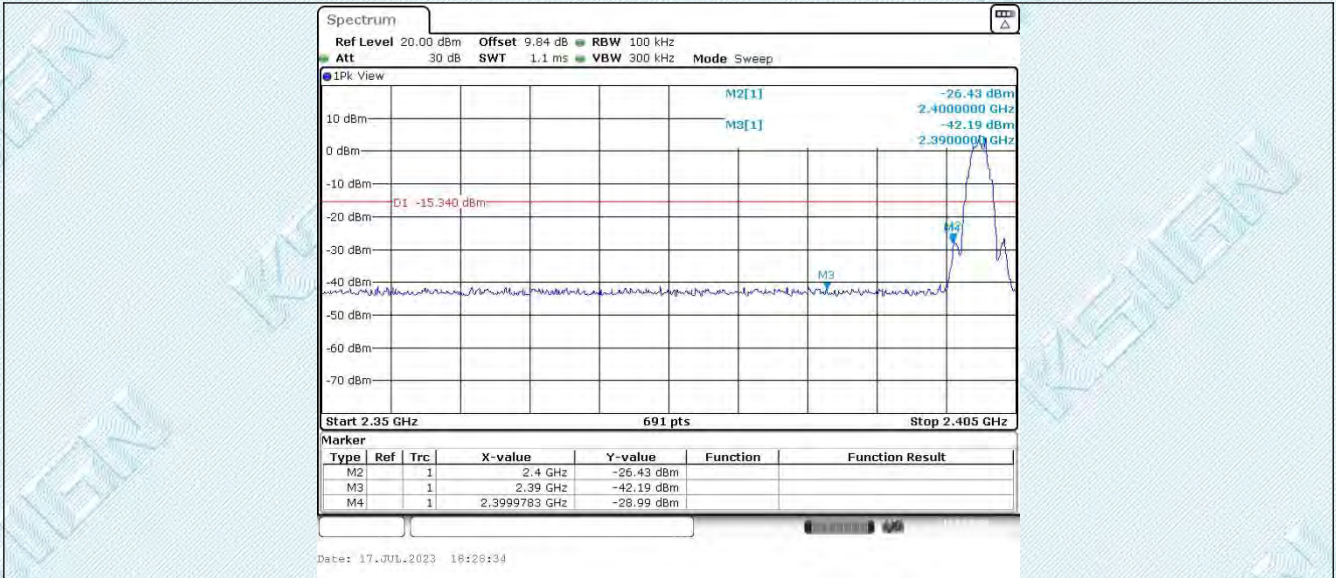
### 6.6.2. Test Graphs



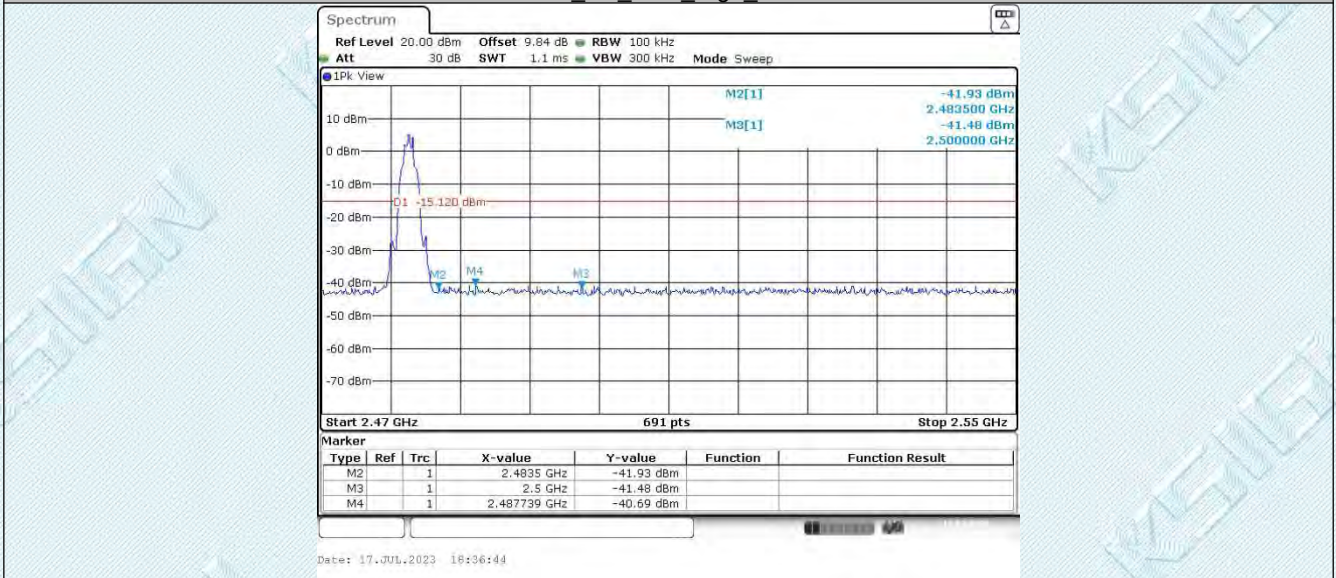
TRF\_RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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BLE\_2M Ant1 High 2480



TRF RF\_R1

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## 6.7. Appendix G: Conducted Spurious Emission

### 6.7.1. Test Result

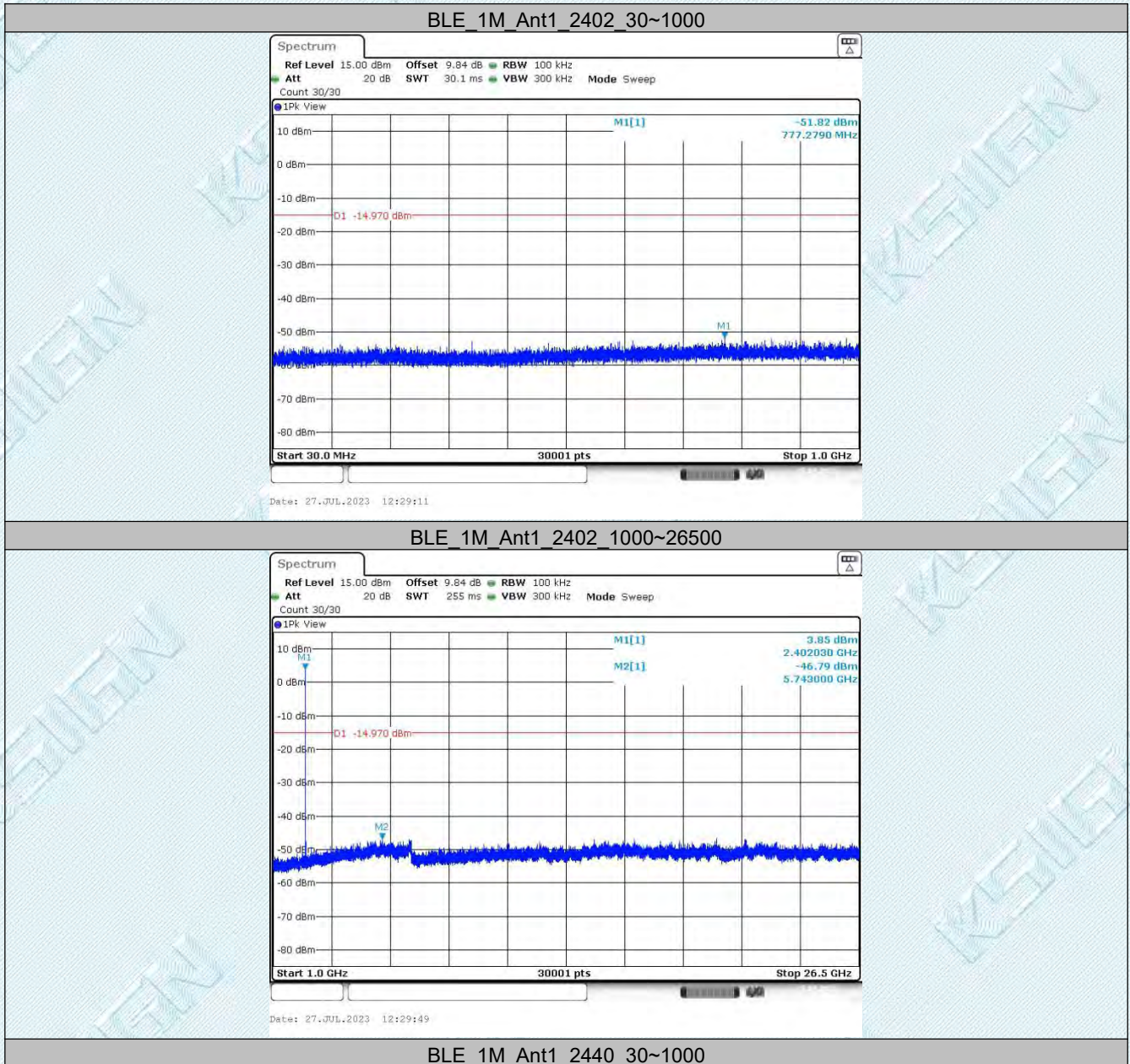
TestMode	Antenna	Freq[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	30~1000	5.03	-51.82	≤-14.97	PASS
			1000~26500	5.03	-46.79	≤-14.97	PASS
		2440	30~1000	5.33	-51.67	≤-14.67	PASS
			1000~26500	5.33	-46.68	≤-14.67	PASS
		2480	30~1000	5.17	-51.63	≤-14.83	PASS
			1000~26500	5.17	-46.36	≤-14.83	PASS
BLE_2M	Ant1	2402	30~1000	4.66	-52.4	≤-15.34	PASS
			1000~26500	4.66	-46.47	≤-15.34	PASS
		2440	30~1000	5.01	-52.13	≤-14.99	PASS
			1000~26500	5.01	-45.64	≤-14.99	PASS
		2480	30~1000	4.88	-51.84	≤-15.12	PASS
			1000~26500	4.88	-46.68	≤-15.12	PASS

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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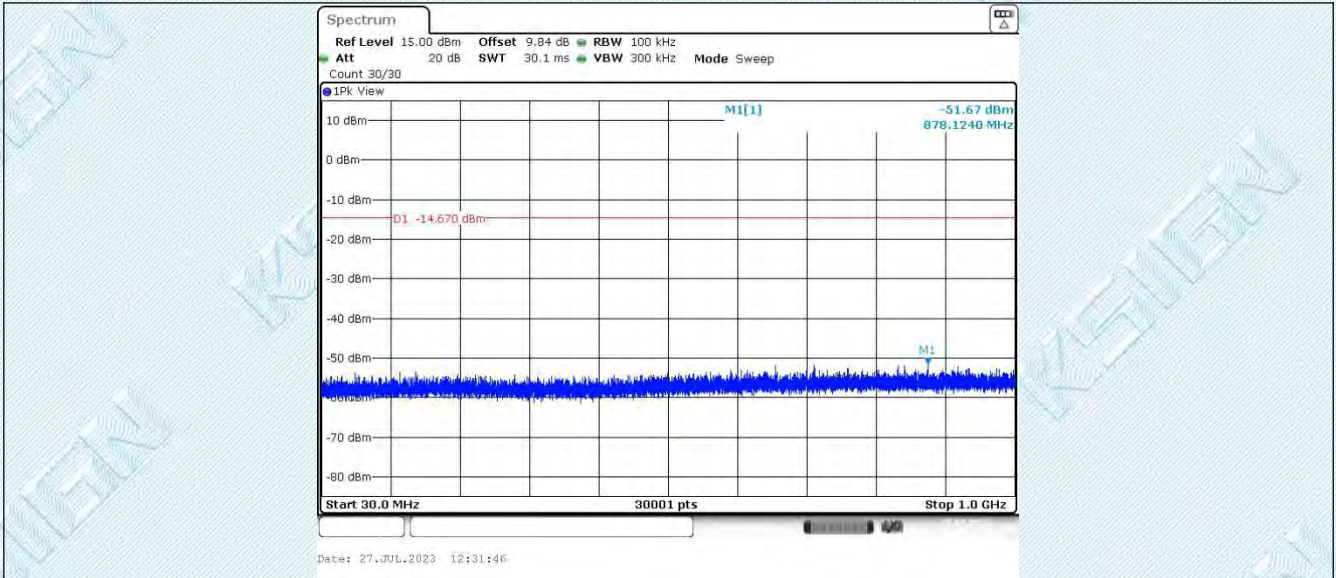
### 6.7.2. Test Graphs



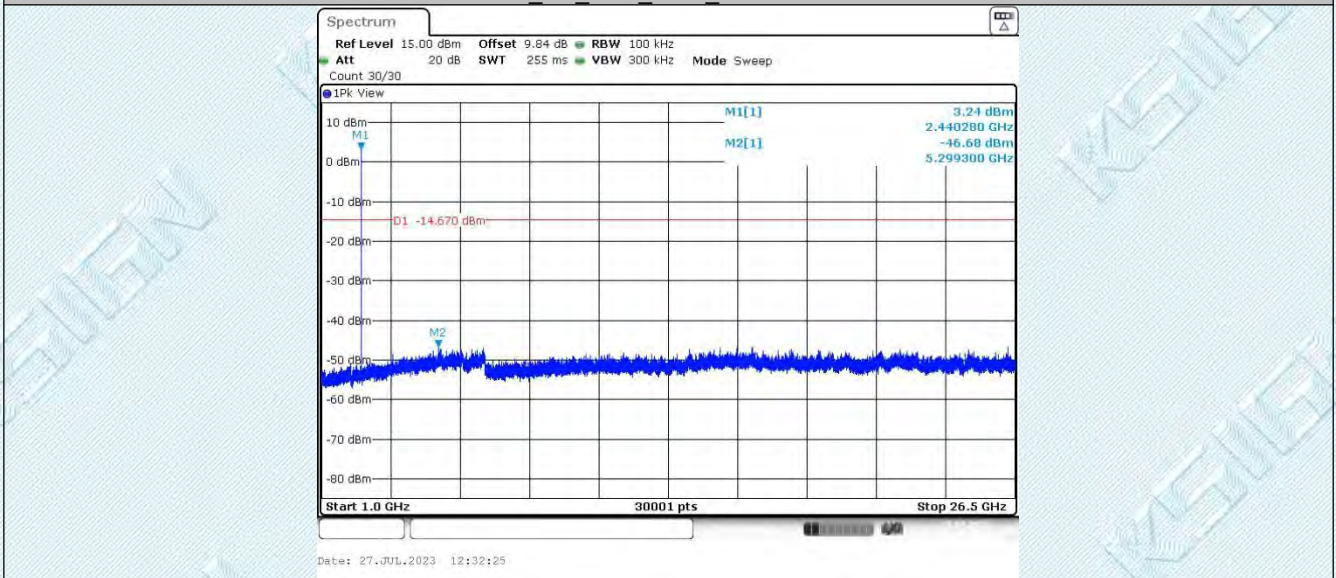
TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

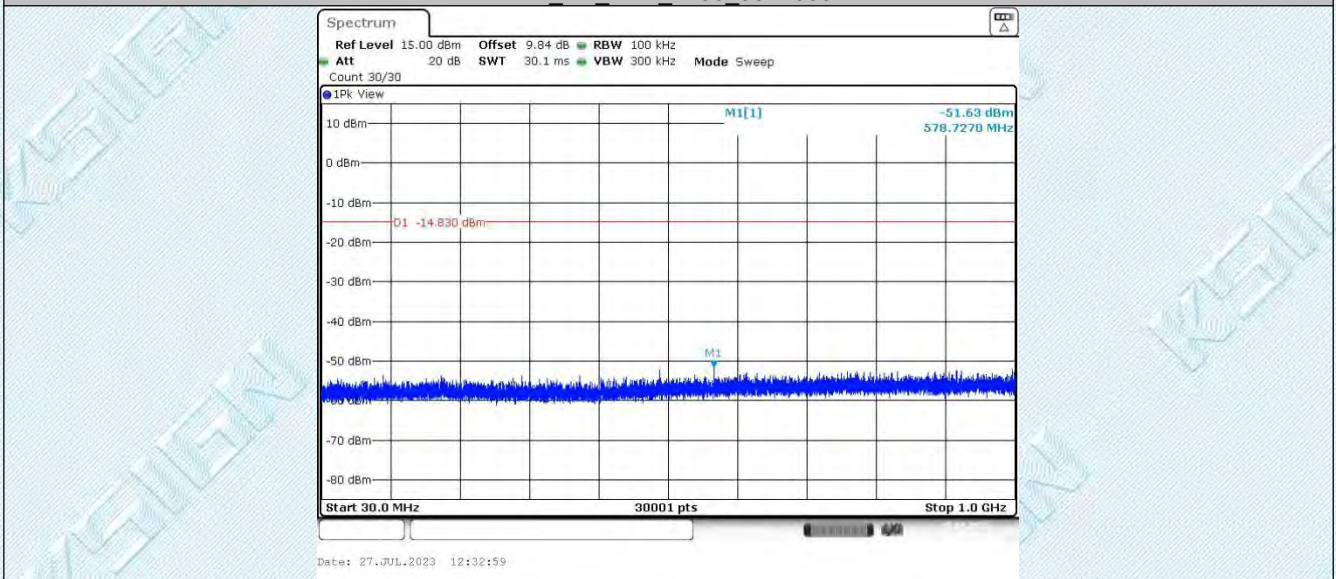
Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com



BLE 1M Ant1 2440 1000~26500



BLE 1M Ant1 2480 30~1000

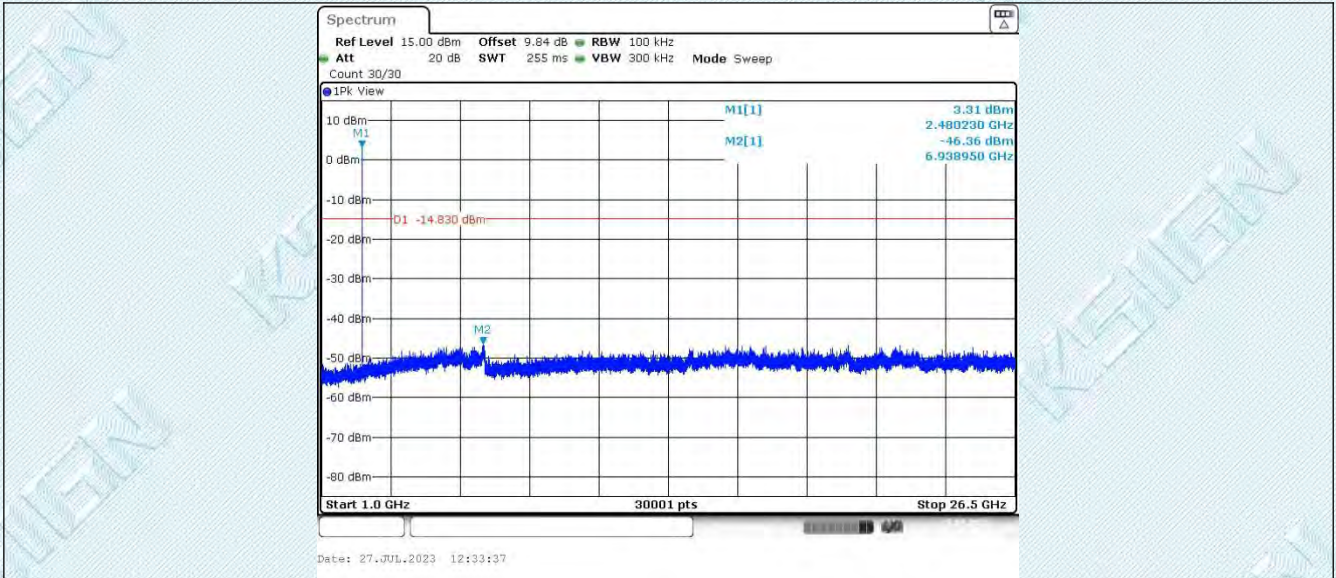


BLE 1M Ant1 2480 1000~26500

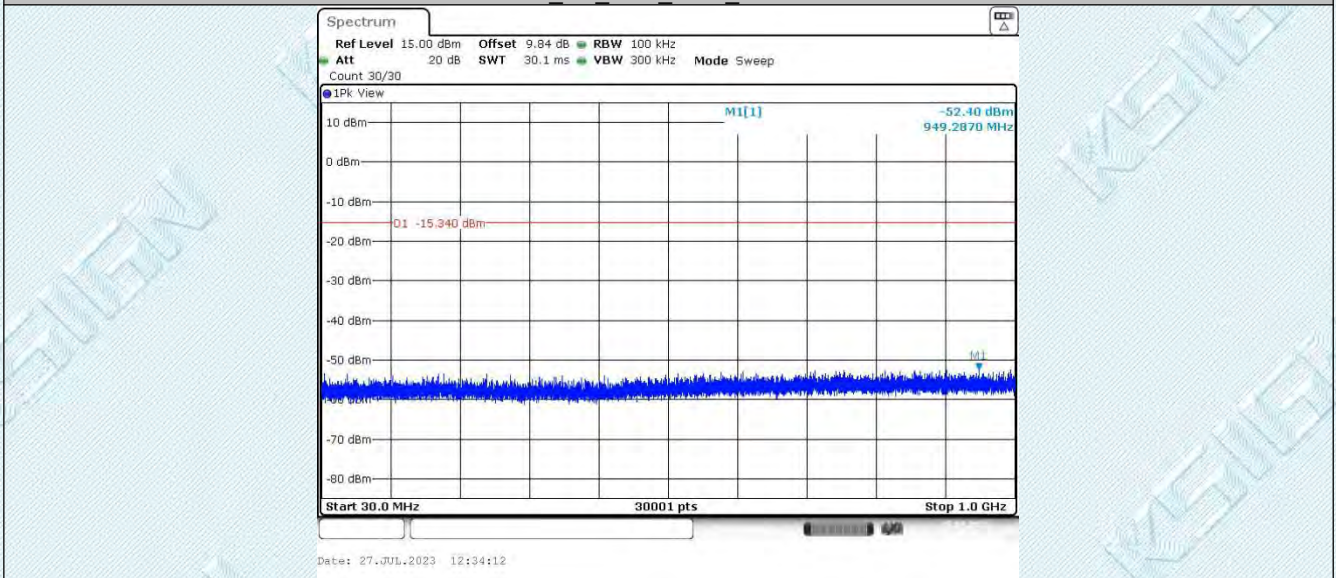
TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

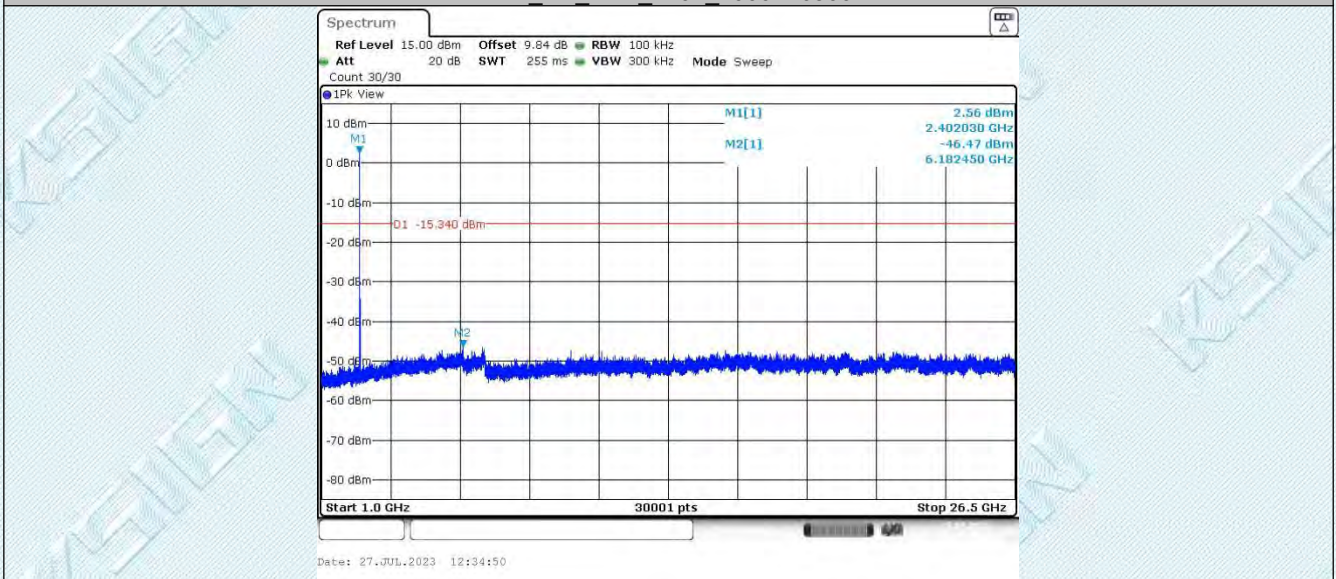
Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com



BLE 2M Ant1\_2402\_30~1000



BLE 2M Ant1\_2402\_1000~26500



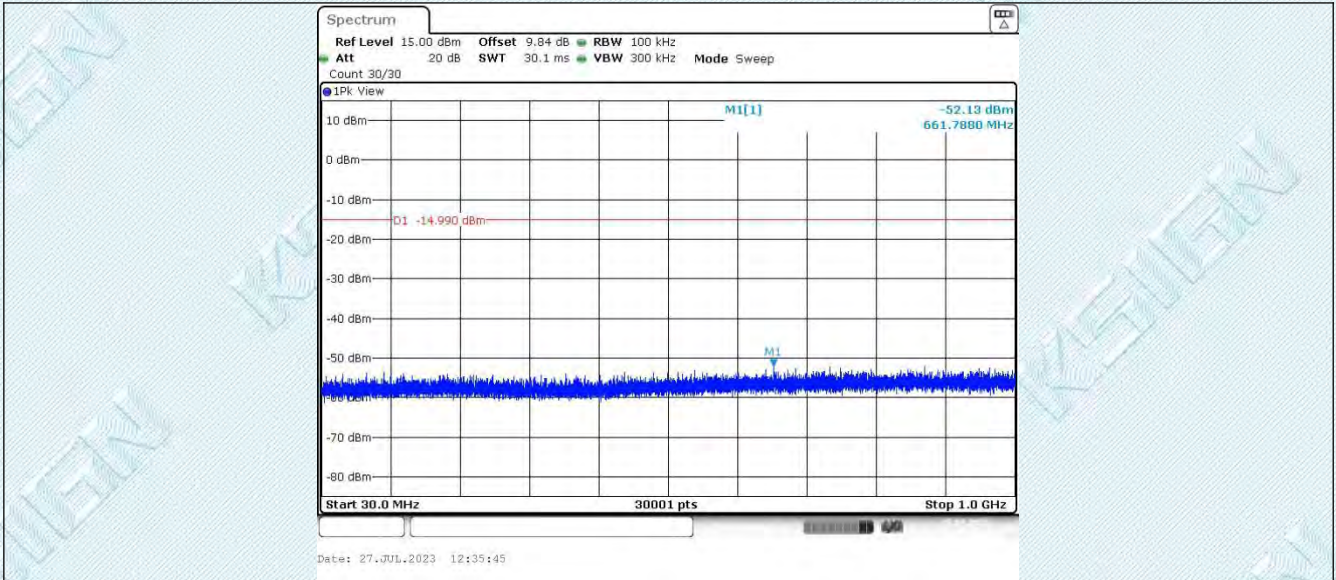
BLE 2M Ant1\_2440\_30~1000

TRF RF\_R1

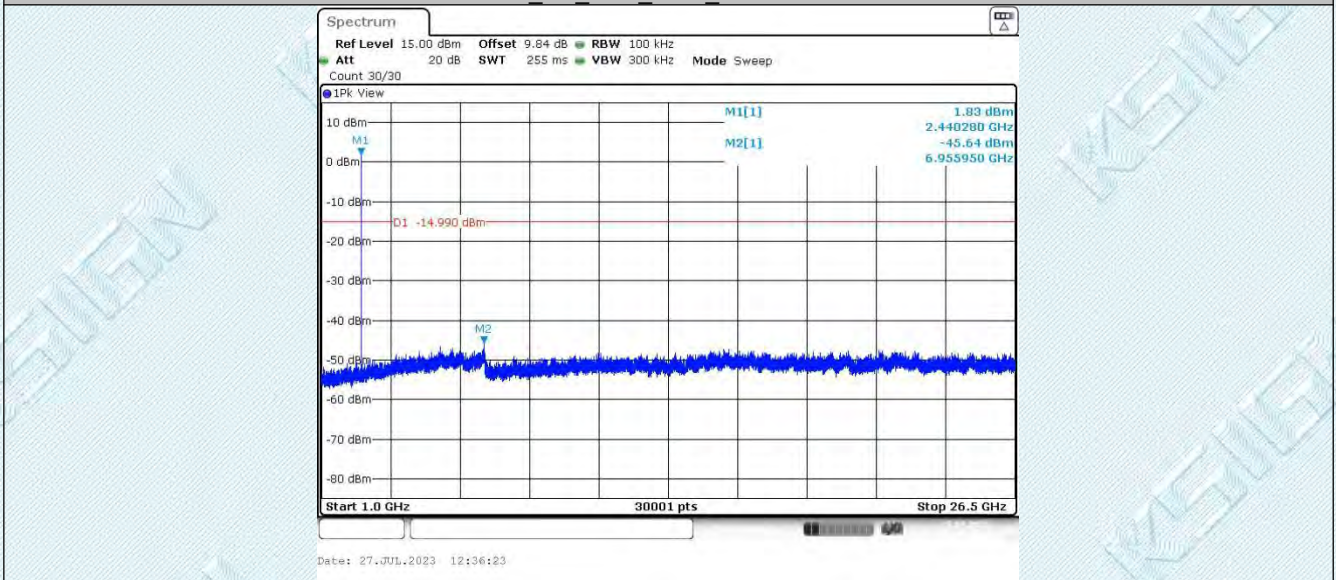
Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com

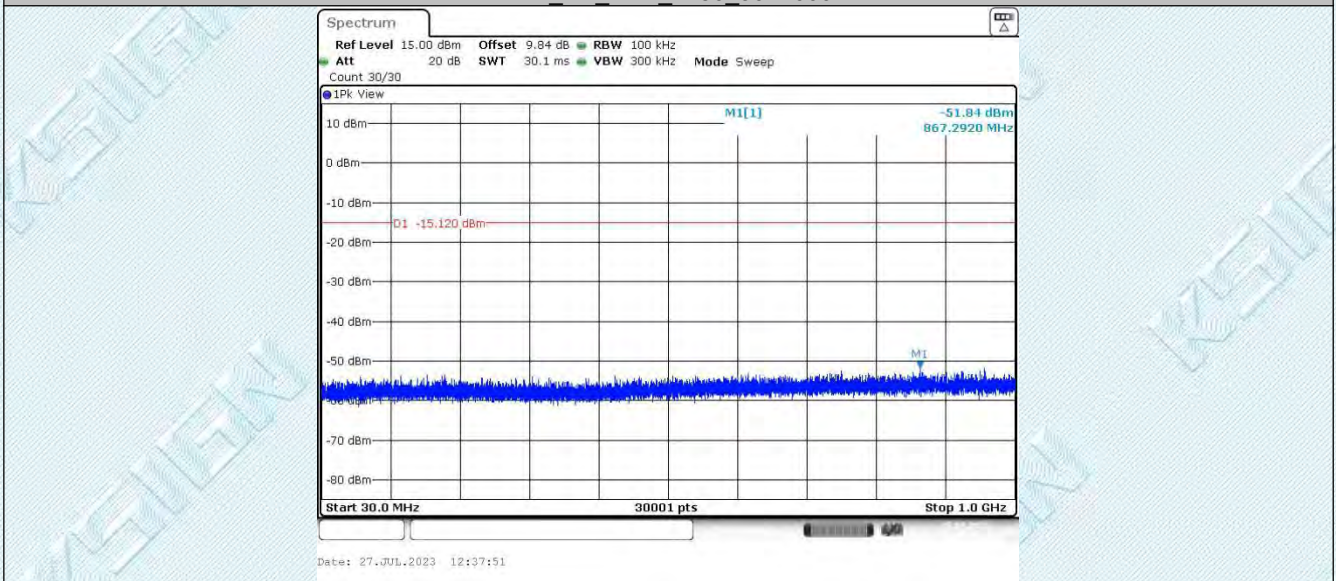




BLE 2M Ant1 2440 1000~26500



BLE 2M Ant1 2480 30~1000

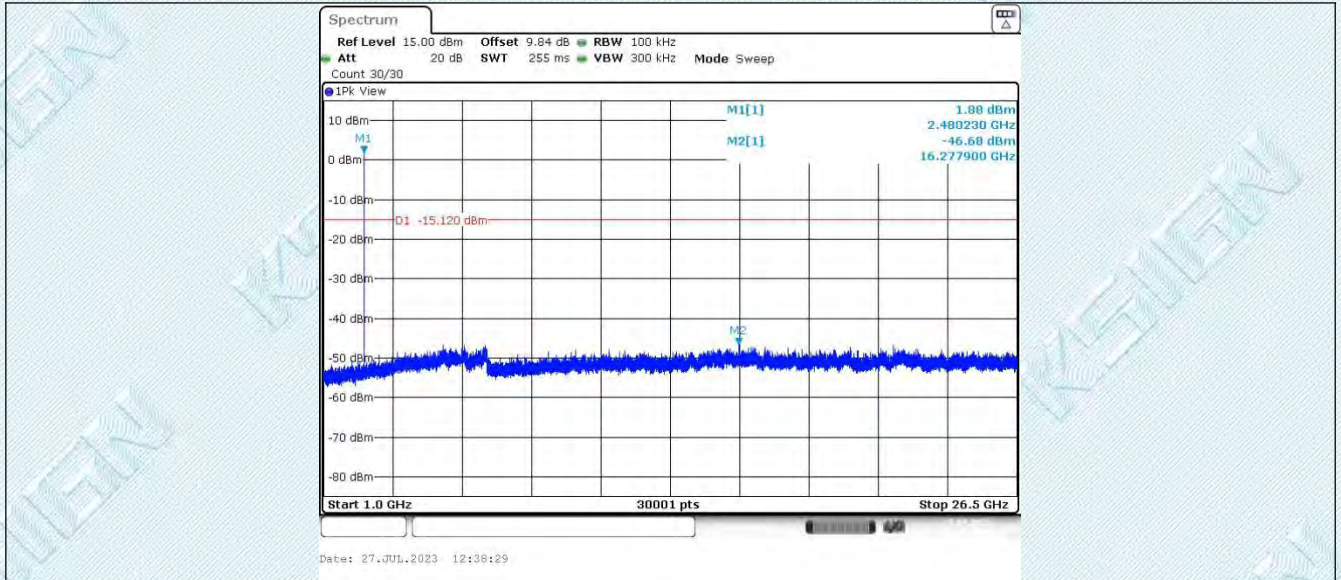


BLE 2M Ant1 2480 1000~26500

TRF RF\_R1

Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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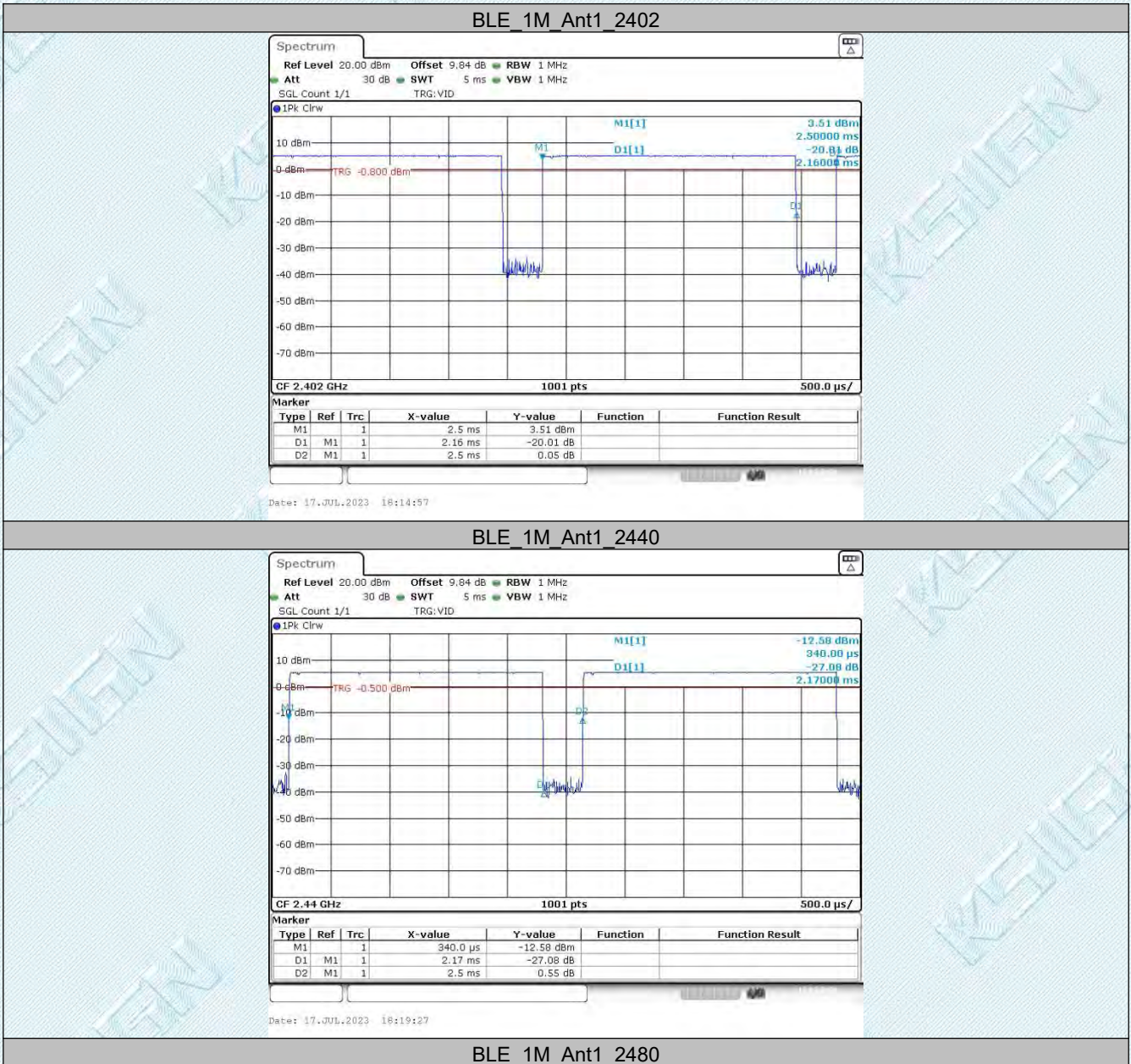
## 6.8. Appendix H: Duty Cycle

### 6.8.1. Test Result

TestMode	Antenna	Freq[MHz]	ON Time [ms]	Period [ms]	DC [%]	Limit	Verdict
BLE_1M	Ant1	2402	2.16	2.50	86.40	---	PASS
		2440	2.17	2.50	86.80	---	PASS
		2480	2.16	2.50	86.40	---	PASS
BLE_2M	Ant1	2402	1.11	1.88	59.04	---	PASS
		2440	1.11	1.88	59.04	---	PASS
		2480	1.11	1.88	59.04	---	PASS

DC=ON Time/Period\*100%

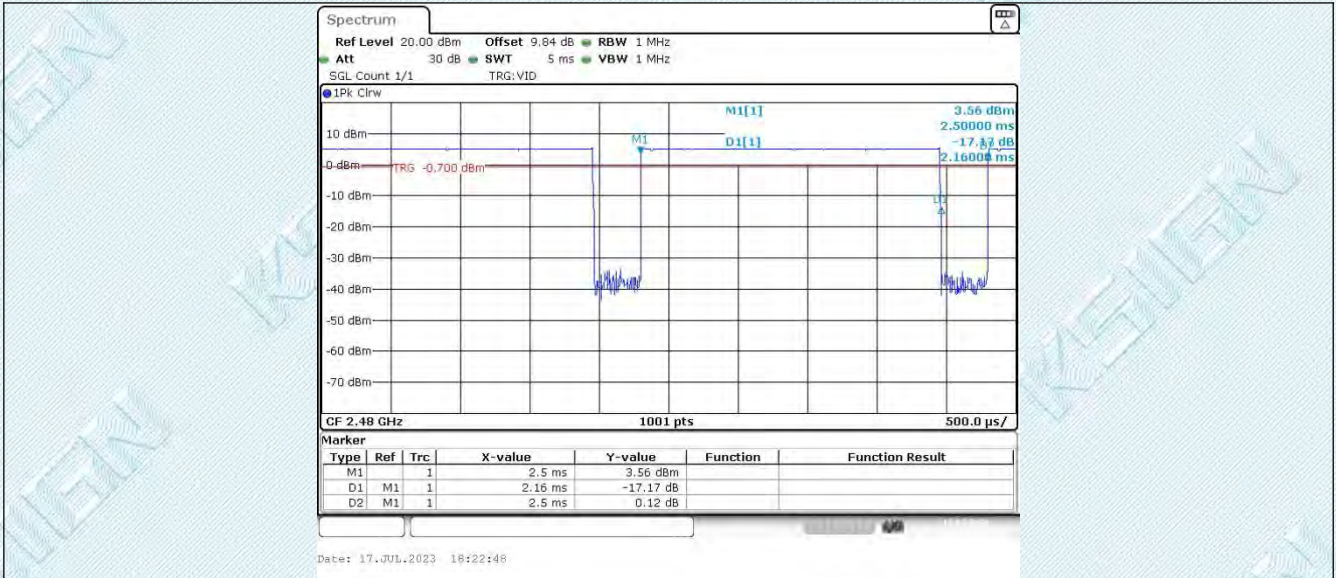
### 6.8.2. Test Graphs



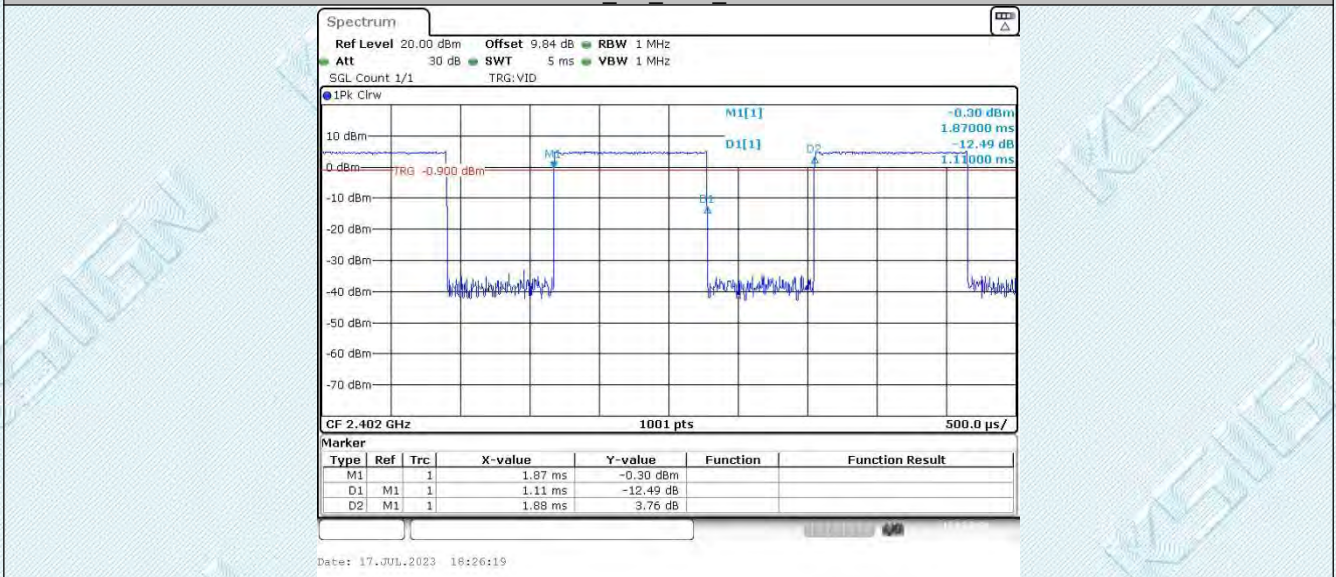
TRF RF\_R1

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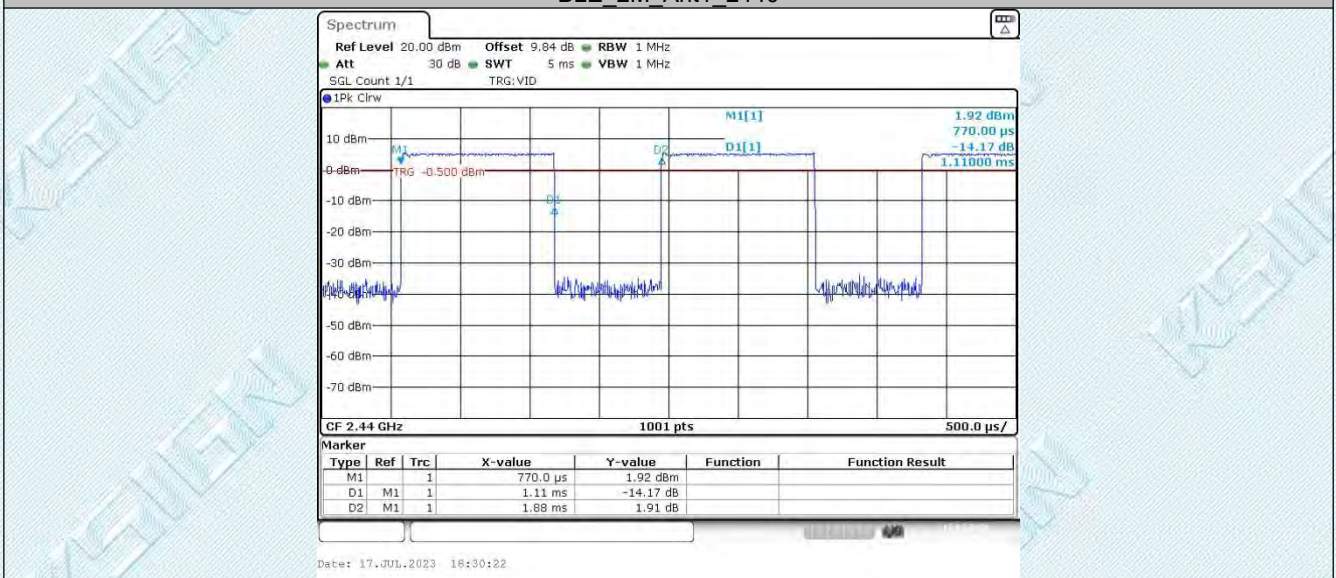
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BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440

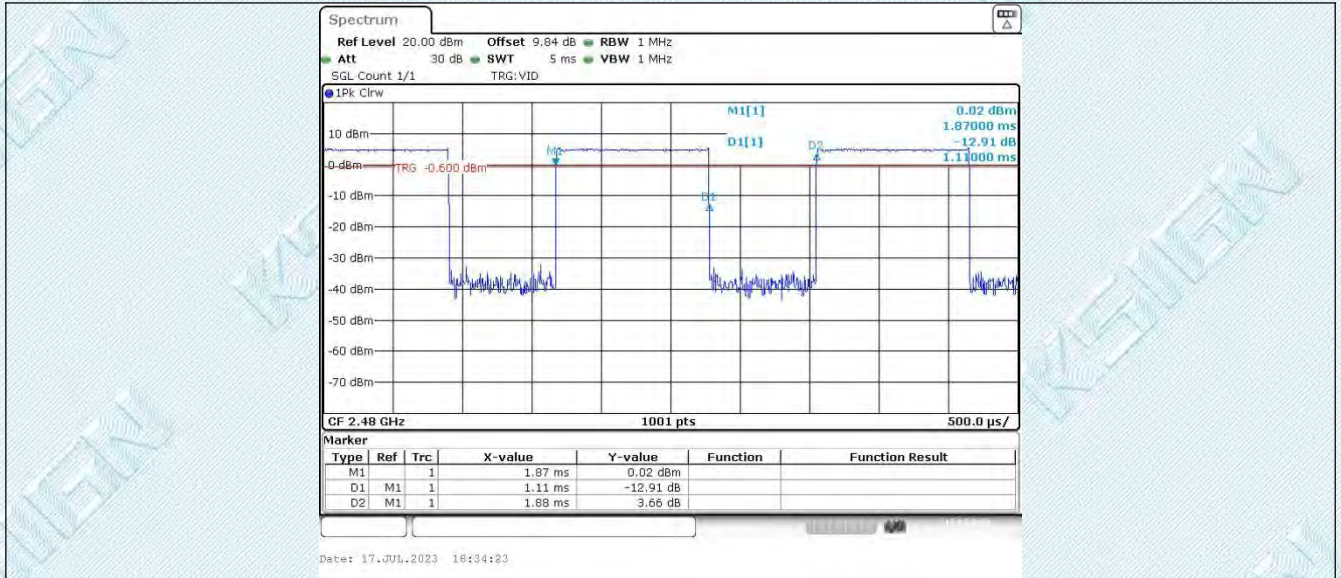


BLE\_2M\_Ant1\_2480

TRF\_RF\_R1

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--THE END--