

TEST REPORT

Report No..... : KS2212S5513E02

FCC ID..... : 2A9HH-DT116

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..... : Smart watch

Trademark..... : DTNO.1

Model/Type reference..... : DT116, DT116 F, DT116 T, DT116 Pro, DT116 Max

Standard..... : 47 CFR Part 15.247

Date of Receipt..... : December 10, 2022

Date of Test Date..... : December 10, 2022 to December 16, 2022

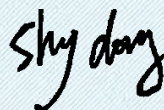
Date of issue..... : December 19, 2022

Test result..... : Pass

Prepared by:
(Printed name + Signature) Pai Zheng



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

This test report may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by KSIGN. The test results in the report only apply to the tested sample. The test report shall be invalid without all the signatures of testing engineers, reviewer and approver. Any objections must be raised to TSTLMS within 15 days since the date when the report is received. It will not be taken into consideration beyond this limit. The test report merely corresponds to the test sample. The report is invalid if it is not stamped with the "Testing Special Stamp" and the "Riding Seam Stamp".

TABLE OF CONTENTS**Page**

1. TEST SUMMARY	3
1.1. Test Standards	3
1.2. Report Version	3
1.3. Test Description	4
1.4. Test Facility	5
1.5. Measurement Uncertainty	6
2. GENERAL INFORMATION	7
2.1. General Description Of EUT	7
2.2. Accessory Equipment Information	7
2.3. Description of Test Modes	7
2.4. Measurement Instruments List	8
3. EVALUATION RESULTS (EVALUATION)	11
3.1. Antenna requirement	11
4. RADIO SPECTRUM MATTER TEST RESULTS (RF)	12
4.1. Conducted Emission at AC power line	12
4.2. Occupied Bandwidth	15
4.3. Maximum Conducted Output Power	16
4.4. Power Spectral Density	18
4.5. Emissions in restricted frequency band	19
4.6. Emissions below 1GHz	24
4.7. Emissions above 1GHz	27
5. EUT TEST PHOTOS	34
6. PHOTOGRAPHS OF EUT CONSTRUCTIONAL	36
6.1. Appendix A: DTS Bandwidth	37
6.2. Appendix B: Occupied Channel Bandwidth	41
6.3. Appendix C: Maximum conducted output power	45
6.4. Appendix D: Maximum power spectral density	49
6.5. ppendix E: Reference level measurement	53
6.6. Appendix F: Band edge measurements	56
6.7. Appendix G: Conducted Spurious Emission	59
6.8. Appendix H: Duty Cycle	61

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

1.2. Report Version

Revised No.	Date of issue	Description
01	December 19, 2022	Original

1.3. Test Description

Test Item	Standard	Requirement	Result
Antenna requirement	47 CFR Part 15.247	Part 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 restricted frequency band	47 CFR Part 15.247	47 CFR 15.247(d)	Pass
Emissions below 1GHz	47 CFR Part 15.247	47 CFR 15.247(d)	Pass
Emissions above 1GHz	47 CFR Part 15.247	15.247(c)&15.209	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)	$\pm 3.34\text{dB}$
Output Power, Conducted	$\pm 1.4\text{dB}$
PSD, Conducted	$\pm 1.0\text{dB}$
RSE (1-18GHz)	$\pm 4.68\text{dB}$
RSE (30-1000MHz)	$\pm 5.7\text{dB}$
RSE (18-40GHz)	$\pm 5.18\text{dB}$

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:	Smart watch
Trademark:	DTNO.1
Model / Type reference:	DT116, DT116 F,DT116 T,DT116 Pro,DT116 Max
Model Difference:	The difference between the product model is only the color and appearance is not the same, the different model name is for the market demand. Other power supply mode, internal structure, circuit and key components are the same, does not affect the safety and electromagnetic compatibility performance.
Power Supply:	The battery supplies 3.7V DC, and the adapter supplies 5V DC
Power Adaptor:	DC 5V
Operation Frequency:	2402MHz to 2480MHz
Number of Channels:	40
Modulation Type:	GFSK
Antenna Type:	Internal Antenna
Antenna Gain:	-2.09 dBi

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	2023-03-04
EMI Test Receiver	R&S	ESR	102524	2023-03-04
Manual RF Switch	JS TOYO	/	MSW-01/002	2023-03-04
ISN CAT6	Schwarzbeck	CAT5 8158	227	2023-03-04
Color Signal Generator	Philips	PM5418	672926	2023-03-04
Power Absorbing Clamp	R&S	MDS-21	100925	2023-03-26

Occupied Bandwidth				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Wideband Radio Communication Tester	R&S	CMU200	115297	2023-03-04
Audio Analyzer	R&S	UPL16	100001	2023-03-04
Shielding box	Gxiong	GX-5915A	2201113	2023-04-23
High Pass Filter	COM-MW Technology Co., Ltd	ZHPF-M1.2-9G-1 87	09203403	2023-03-04
Band Stop Filter	COM-MW Technology Co., Ltd	ZBSF6-C820-920 -188	09203401	2023-03-04
Splitter	COM-MW Technology Co., Ltd	ZPD-M1-8-2103	09203407	2023-03-04
Coaxial Cable	BEBES	A40-2.92M2.92F-4.5M	1907021	2023-03-04
Hygrothermograph	Anymetre	JB913	/	2023-03-07
Climate Chamber	Angul	AGNH80L	1903042120	2023-03-04
Spectrum Analyzer	HP	8593E	3831U02087	2023-03-04
Dual Output DC Power Supply	Agilent	E3646A	MY40009992	2023-03-04
RF Control Unit	Tonscend	JS0806-2	/	2023-03-04
Analog Signal Generator	HP	83752A	3344A00337	2023-03-04
Vector Signal Generator	Agilent	N5182A	MY50142520	2023-03-04
Wideband Radio Communication Tester	R&S	CMW500	157282	2023-03-04
Spectrum Analyzer	R&S	FSV40-N	101798	2023-03-04

Maximum Conducted Output Power				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Wideband Radio Communication Tester	R&S	CMU200	115297	2023-03-04
Audio Analyzer	R&S	UPL16	100001	2023-03-04
Shielding box	Gxiong	GX-5915A	2201113	2023-04-23
High Pass Filter	COM-MW Technology Co., Ltd	ZHPF-M1.2-9G-1 87	09203403	2023-03-04
Band Stop Filter	COM-MW Technology Co., Ltd	ZBSF6-C820-920 -188	09203401	2023-03-04
Splitter	COM-MW Technology Co., Ltd	ZPD-M1-8-2103	09203407	2023-03-04
Coaxial Cable	BEBES	A40-2.92M2.92F-4.5M	1907021	2023-03-04
Hygrothermograph	Anymetre	JB913	/	2023-03-07

TRF EMC_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

Climate Chamber	Angul	AGNH80L	1903042120	2023-03-04
Spectrum Analyzer	HP	8593E	3831U02087	2023-03-04
Dual Output DC Power Supply	Agilent	E3646A	MY40009992	2023-03-04
RF Control Unit	Tonscend	JS0806-2	/	2023-03-04
Analog Signal Generator	HP	83752A	3344A00337	2023-03-04
Vector Signal Generator	Agilent	N5182A	MY50142520	2023-03-04
Wideband Radio Communication Tester	R&S	CMW500	157282	2023-03-04
Spectrum Analyzer	R&S	FSV40-N	101798	2023-03-04

Power Spectral Density				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Wideband Radio Communication Tester	R&S	CMU200	115297	2023-03-04
Audio Analyzer	R&S	UPL16	100001	2023-03-04
Shielding box	Gxiong	GX-5915A	2201113	2023-04-23
High Pass Filter	COM-MW Technology Co., Ltd	ZHPF-M1.2-9G-187	09203403	2023-03-04
Band Stop Filter	COM-MW Technology Co., Ltd	ZBSF6-C820-920-188	09203401	2023-03-04
Splitter	COM-MW Technology Co., Ltd	ZPD-M1-8-2103	09203407	2023-03-04
Coaxial Cable	BEBES	A40-2.92M2.92F-4.5M	1907021	2023-03-04
Hygrothermograph	Anymetre	JB913	/	2023-03-07
Climate Chamber	Angul	AGNH80L	1903042120	2023-03-04
Spectrum Analyzer	HP	8593E	3831U02087	2023-03-04
Dual Output DC Power Supply	Agilent	E3646A	MY40009992	2023-03-04
RF Control Unit	Tonscend	JS0806-2	/	2023-03-04
Analog Signal Generator	HP	83752A	3344A00337	2023-03-04
Vector Signal Generator	Agilent	N5182A	MY50142520	2023-03-04
Wideband Radio Communication Tester	R&S	CMW500	157282	2023-03-04
Spectrum Analyzer	R&S	FSV40-N	101798	2023-03-04

Emissions around the fundamental				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Ultra-Broadband logarithmic period Antenna	Schwarzbeck	VULB 9163	1230	2023-04-12
Pre-Amplifier	Schwarzbeck	BBV 9745	9745#129	2023-03-04
Color Signal Generator	Philips	PM5418	672926	2023-03-04
Broadcast Television Signal Generator	R&S	SFE100	141038	2023-03-04
Analog Signal Generator	Agilent	8648A	3847M00445	2023-03-04
EMI Test Receiver	R&S	ESR	102525	2023-03-04
Horn Antenna	Schwarzbeck	BBHA 9120 D	2023	2023-03-29
Pre-Amplifier	EMCI	EMC051835SE	980662	2023-03-04
Spectrum Analyzer	Keysight	N9020A	MY46471971	2023-03-04

TRF EMC_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

Loop Antenna	Beijin ZHINAN	ZN30900C	18050	2023-03-05
--------------	---------------	----------	-------	------------

Emissions in restricted frequency bands (below 1GHz)

Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Ultra-Broadband logarithmic period Antenna	Schwarzbeck	VULB 9163	1230	2023-04-12
Pre-Amplifier	Schwarzbeck	BBV 9745	9745#129	2023-03-04
Color Signal Generator	Philips	PM5418	672926	2023-03-04
Broadcast Television Signal Generator	R&S	SFE100	141038	2023-03-04
Analog Signal Generator	Agilent	8648A	3847M00445	2023-03-04
EMI Test Receiver	R&S	ESR	102525	2023-03-04
Horn Antenna	Schwarzbeck	BBHA 9120 D	2023	2023-03-29
Pre-Amplifier	EMCI	EMC051835SE	980662	2023-03-04
Spectrum Analyzer	Keysight	N9020A	MY46471971	2023-03-04
Loop Antenna	Beijin ZHINAN	ZN30900C	18050	2023-03-05

Emissions in restricted frequency bands (above 1GHz)

Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Ultra-Broadband logarithmic period Antenna	Schwarzbeck	VULB 9163	1230	2023-04-12
Pre-Amplifier	Schwarzbeck	BBV 9745	9745#129	2023-03-04
Color Signal Generator	Philips	PM5418	672926	2023-03-04
Broadcast Television Signal Generator	R&S	SFE100	141038	2023-03-04
Analog Signal Generator	Agilent	8648A	3847M00445	2023-03-04
EMI Test Receiver	R&S	ESR	102525	2023-03-04
Horn Antenna	Schwarzbeck	BBHA 9120 D	2023	2023-03-29
Pre-Amplifier	EMCI	EMC051835SE	980662	2023-03-04
Spectrum Analyzer	Keysight	N9020A	MY46471971	2023-03-04
Loop Antenna	Beijin ZHINAN	ZN30900C	18050	2023-03-05

TRF EMC_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

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.
-------------------	--

3.1.1. Conclusion:

The antenna gain is -2.09dB, 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)

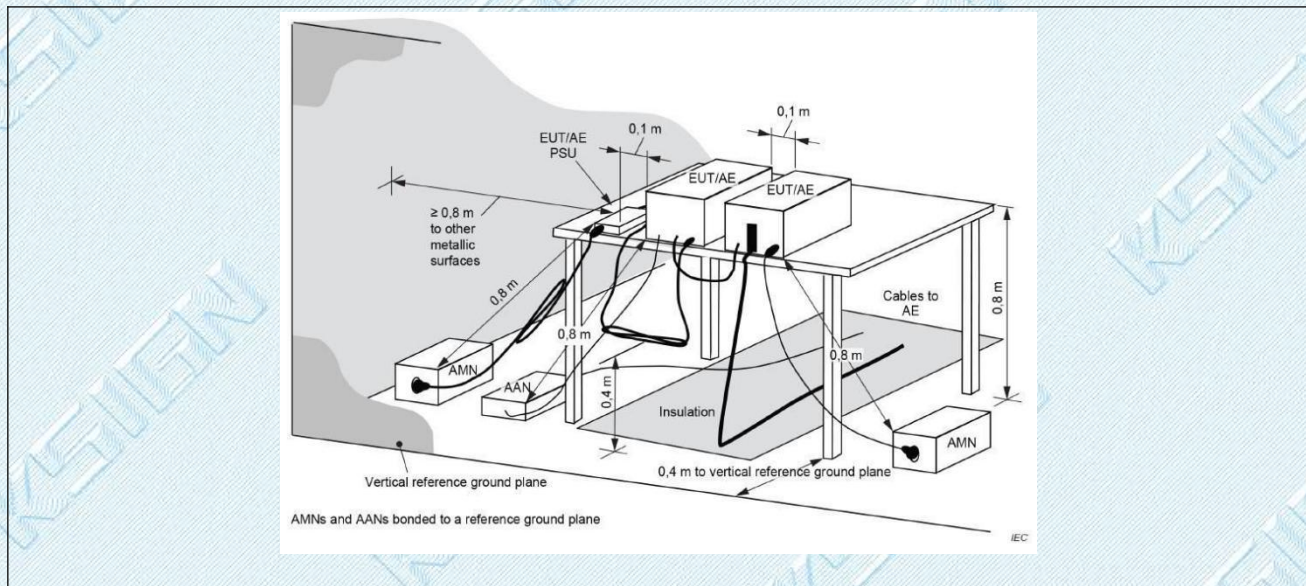
4.1. Conducted Emission at AC power line

Test Requirement:	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 μ H/50 ohms line impedance stabilization network (LISN).		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dB μ 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.			
Test Method:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices		

4.1.1. E.U.T. Operation:

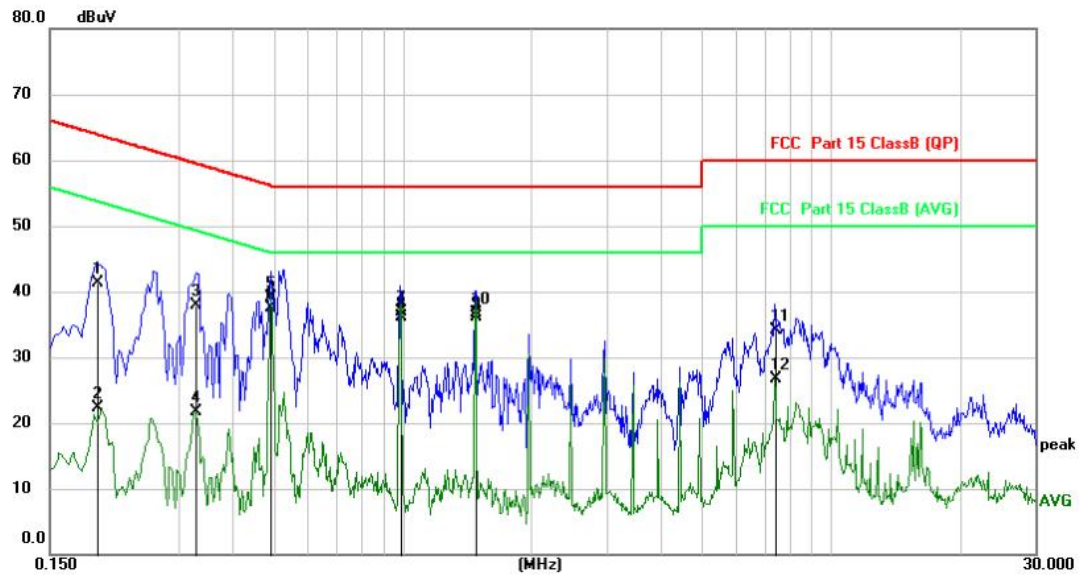
Operating Environment:	
Temperature:	24.7 °C
Humidity:	44.1 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode 1

4.1.2. Test Setup Diagram:



4.1.3. Test Data:

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

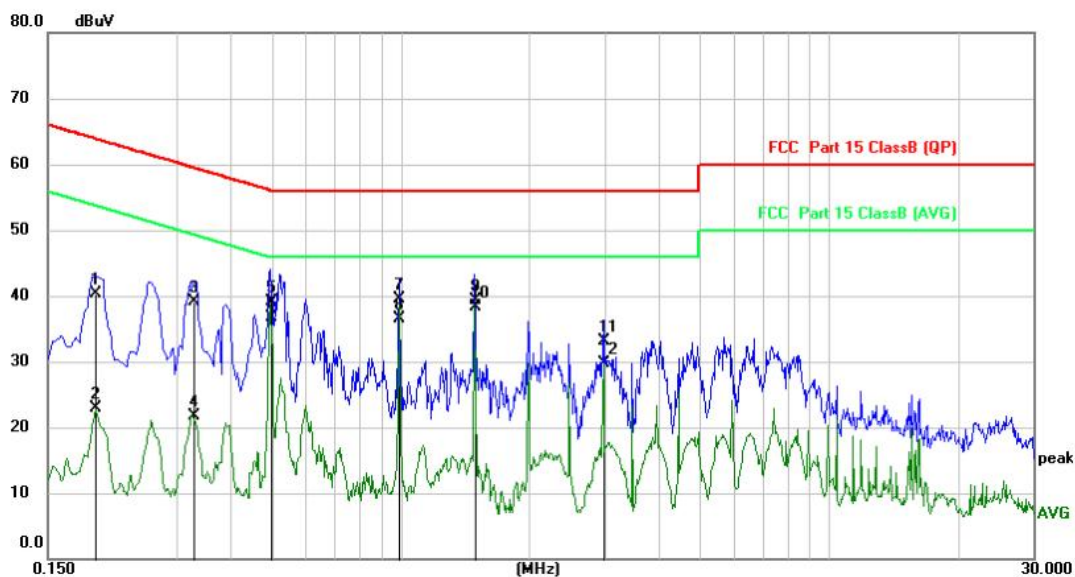


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1940	30.54	10.75	41.29	63.86	-22.57	QP	
2	0.1940	11.64	10.75	22.39	53.86	-31.47	AVG	
3	0.3300	27.34	10.52	37.86	59.45	-21.59	QP	
4	0.3300	11.10	10.52	21.62	49.45	-27.83	AVG	
5	0.4939	28.59	10.52	39.11	56.10	-16.99	QP	
6 *	0.4939	27.03	10.52	37.55	46.10	-8.55	AVG	
7	0.9859	26.38	10.49	36.87	56.00	-19.13	QP	
8	0.9859	25.67	10.49	36.16	46.00	-9.84	AVG	
9	1.4819	25.67	10.50	36.17	56.00	-19.83	QP	
10	1.4819	26.18	10.50	36.68	46.00	-9.32	AVG	
11	7.4058	23.57	10.57	34.14	60.00	-25.86	QP	
12	7.4058	16.15	10.57	26.72	50.00	-23.28	AVG	

TRF EMC_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

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


No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1940	29.47	10.75	40.22	63.86	-23.64	QP	
2	0.1940	12.20	10.75	22.95	53.86	-30.91	AVG	
3	0.3300	28.62	10.54	39.16	59.45	-20.29	QP	
4	0.3300	11.26	10.54	21.80	49.45	-27.65	AVG	
5	0.4979	28.68	10.38	39.06	56.03	-16.97	QP	
6	0.4979	26.40	10.38	36.78	46.03	-9.25	AVG	
7	0.9939	28.92	10.51	39.43	56.00	-16.57	QP	
8	0.9939	26.09	10.51	36.60	46.00	-9.40	AVG	
9	1.4900	28.82	10.42	39.24	56.00	-16.76	QP	
10 *	1.4900	27.95	10.42	38.37	46.00	-7.63	AVG	
11	2.9780	22.47	10.62	33.09	56.00	-22.91	QP	
12	2.9780	19.18	10.62	29.80	46.00	-16.20	AVG	

TRF EMC_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

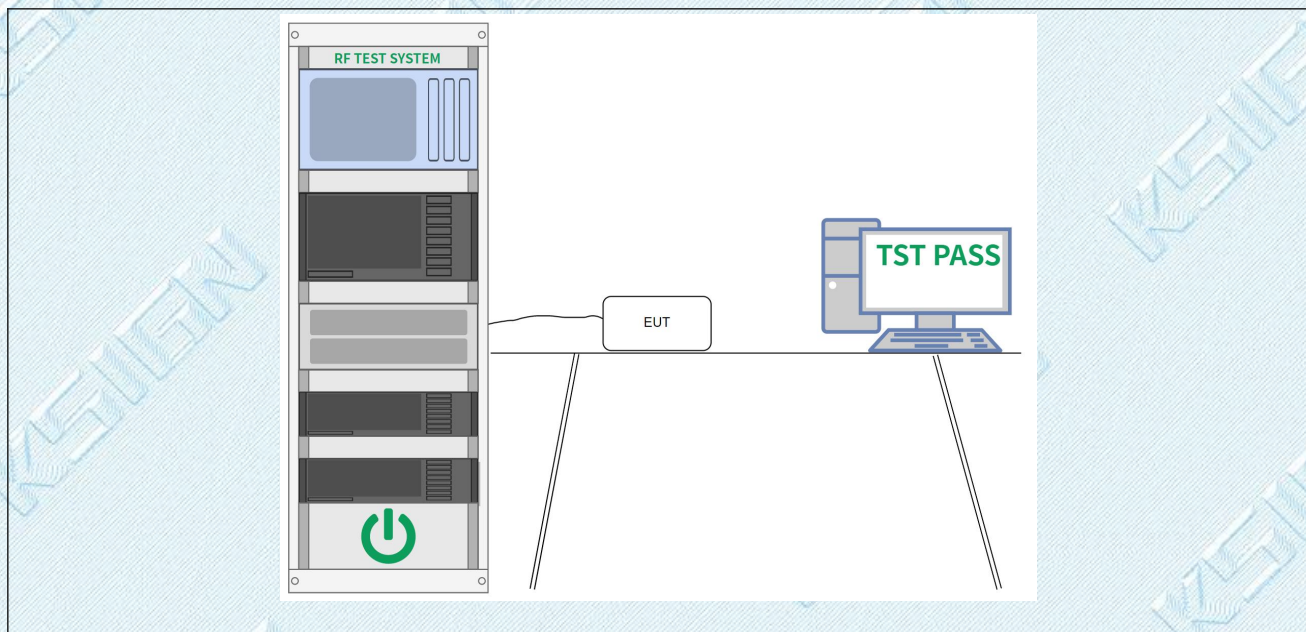
4.2. Occupied Bandwidth

Test Requirement:	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 Limit:	Section (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:	DTS bandwidth
Procedure:	a) Set RBW = 100 kHz. b) Set the 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.

4.2.1. E.U.T. Operation:

Operating Environment:	
Temperature:	24 °C
Humidity:	42.2 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode 1

4.2.2. Test Setup Diagram:



4.2.3. Test Data:

Please Refer to Appendix for Details.

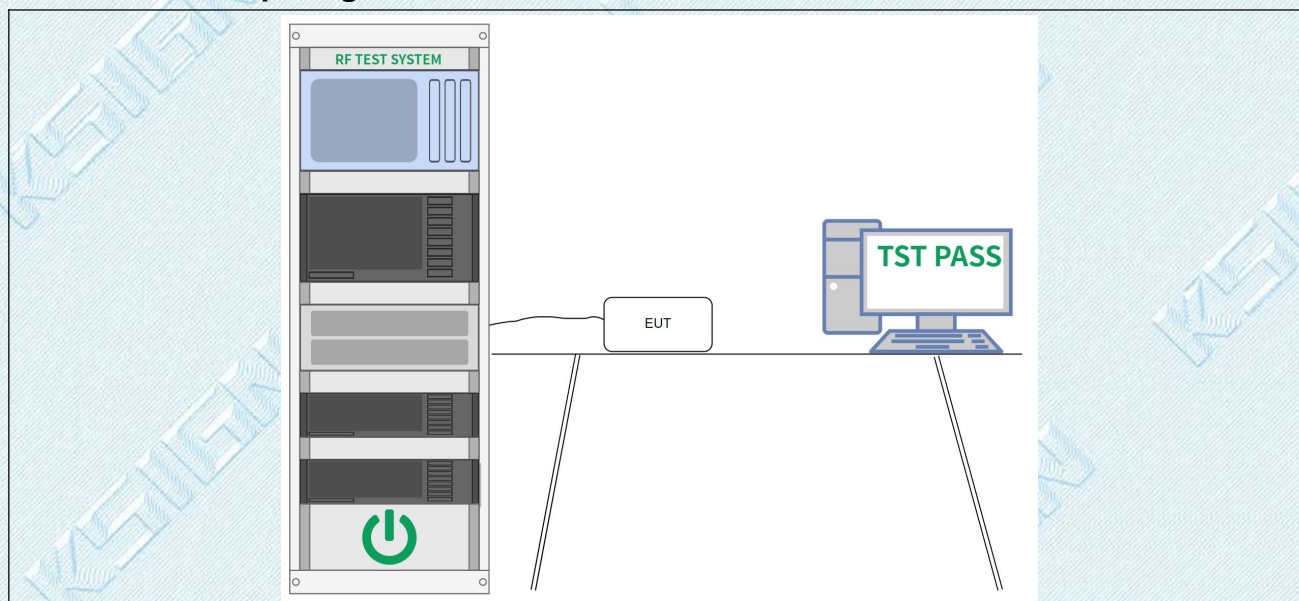
4.3. Maximum Conducted Output Power

Test Requirement:	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 Limit:	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:	Maximum peak conducted output power
Procedure:	ANSI C63.10-2013, section 11.9.1 Maximum peak conducted output power

4.3.1. E.U.T. Operation:

Operating Environment:	
Temperature:	24 °C
Humidity:	42.2 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode 1

4.3.2. Test Setup Diagram:



4.3.3. Test Data:

Please Refer to Appendix for Details.

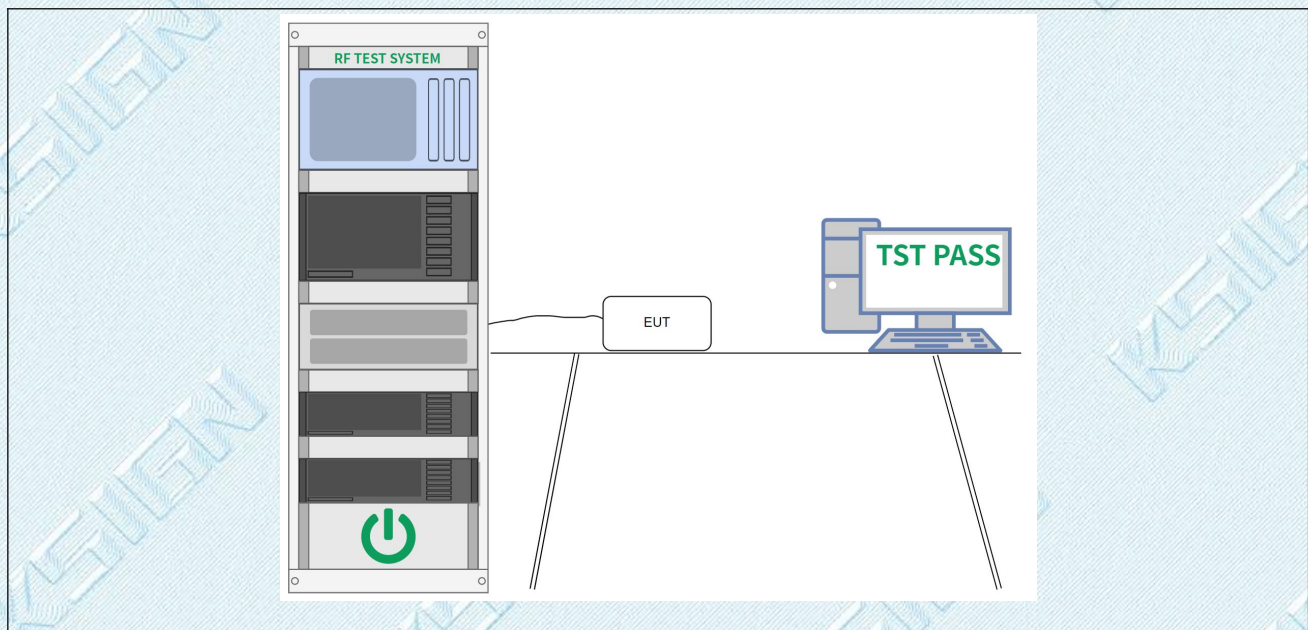
4.4. Power Spectral Density

Test Requirement:	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 Limit:	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:	Maximum power spectral density level in the fundamental emission

4.4.1. E.U.T. Operation:

Operating Environment:	
Temperature:	24 °C
Humidity:	42.2 %
Atmospheric Pressure:	101 kPa
Final test mode:	Test Mode1

4.4.2. Test Setup Diagram:



4.4.3. Test Data:

Please Refer to Appendix for Details.

4.5. Emissions in restricted frequency band

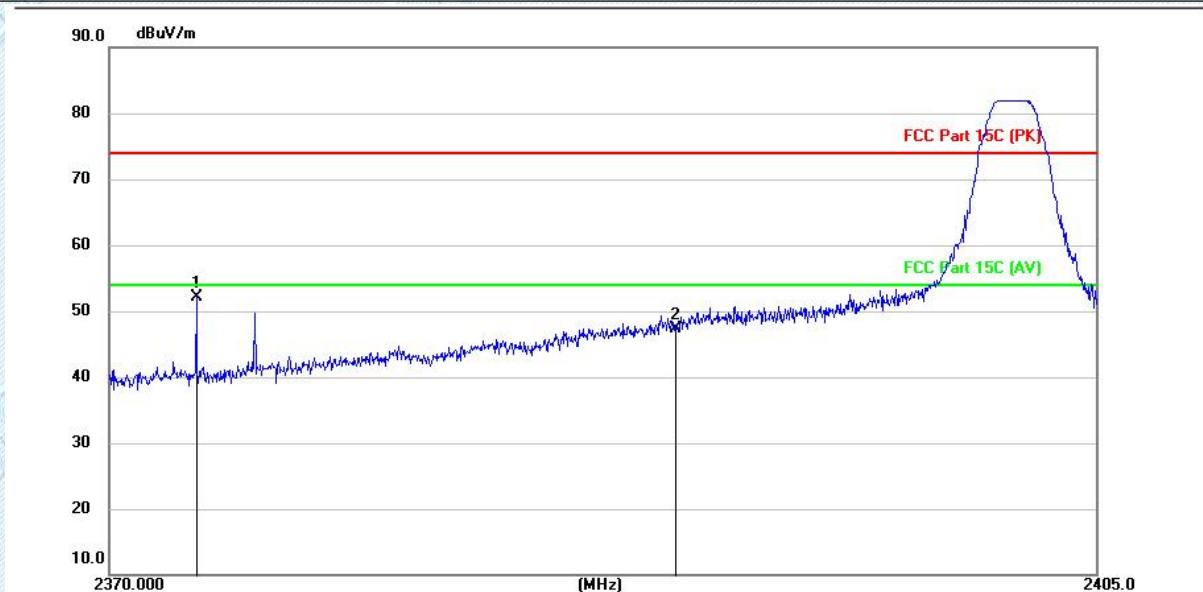
Test Requirement:	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	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:	Radiated emissions tests		
Procedure:	ANSI C63.10-2013 section 6.6.4		

4.5.1. E.U.T. Operation:

Operating Environment:	
Temperature:	24.5 °C
Humidity:	54.3 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode1

4.5.2. Test Data:

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

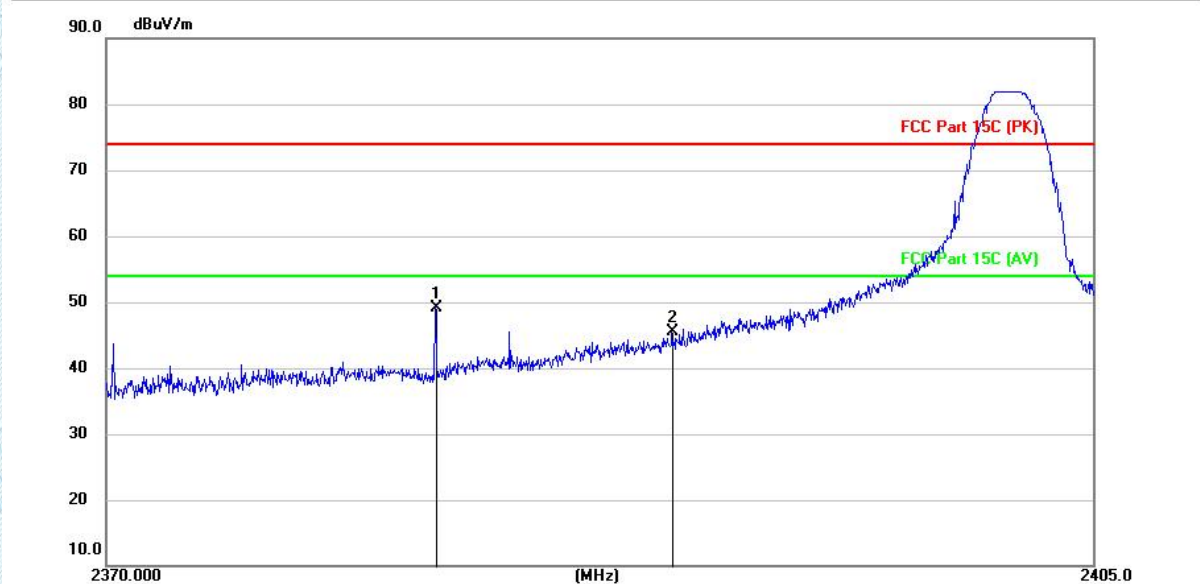


No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1	*	2373.080	63.12	-10.92	52.20	74.00	-21.80	peak
2		2390.000	58.30	-10.92	47.38	74.00	-26.62	peak

TRF EMC_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

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


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1	*	2381.662	60.12	-10.92	49.20	74.00	-24.80	peak
2		2390.000	56.36	-10.92	45.44	74.00	-28.56	peak

TRF EMC_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

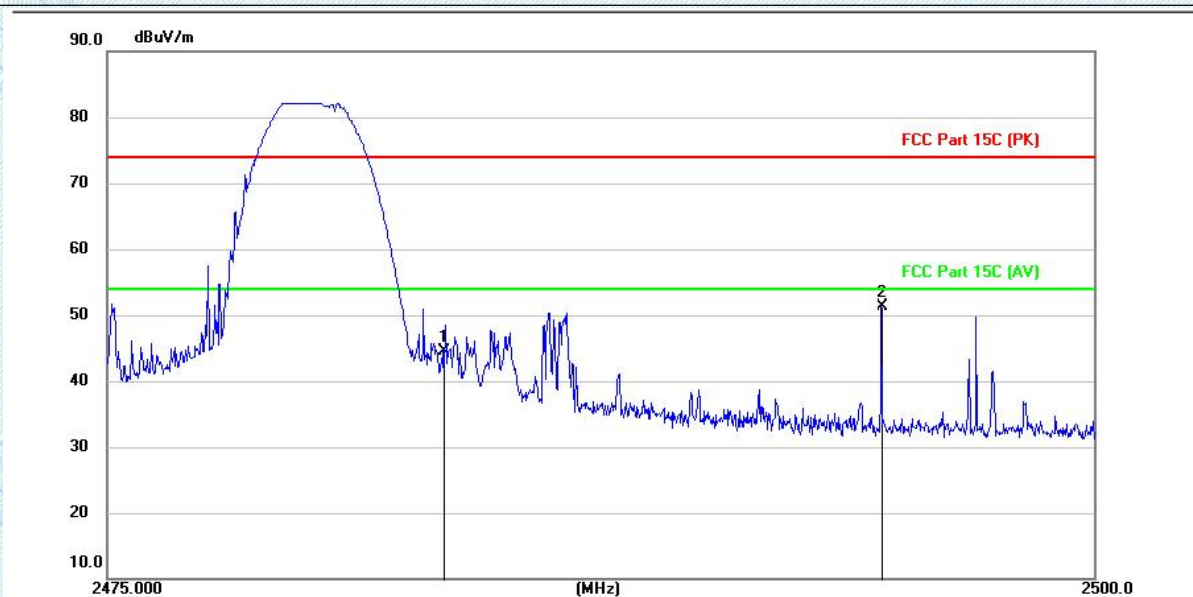
Test Mode1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: H


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1		2483.500	55.68	-10.88	44.80	74.00	-29.20	peak
2	*	2486.440	63.66	-10.88	52.78	74.00	-21.22	peak
3		2492.820	63.15	-10.89	52.26	74.00	-21.74	peak

TRF EMC_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

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	55.40	-10.88	44.52	74.00	-29.48	peak
2	*	2494.628	62.19	-10.87	51.32	74.00	-22.68	peak

Note:

- 1.Measurement = Reading level + Correct Factor
- 2.Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor
- 3.Both modes of BLE 1Mbps and 2Mbps were tested at Low and High channel and recorded worst mode at BLE 1Mbps.

TRF EMC_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

4.6. Emissions below 1GHz

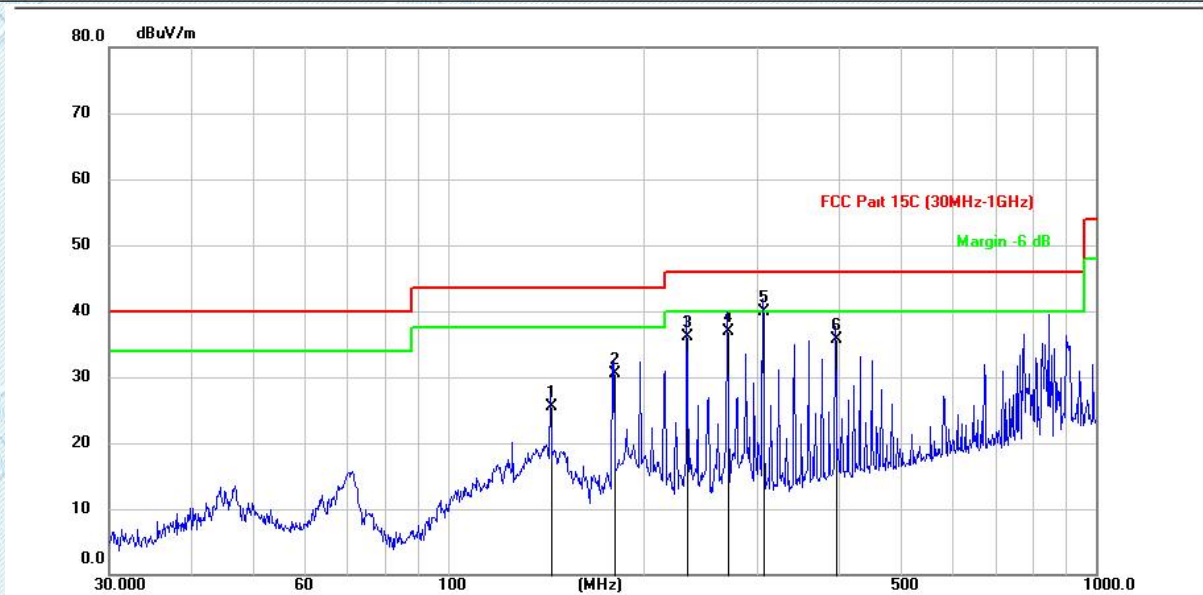
Test Requirement:	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	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:	Radiated emissions tests		
Procedure:	ANSI C63.10-2013 section 6.6.4		

4.6.1. E.U.T. Operation:

Operating Environment:	
Temperature:	24.5 °C
Humidity:	54.3 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode1

4.6.2. Test Data:

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

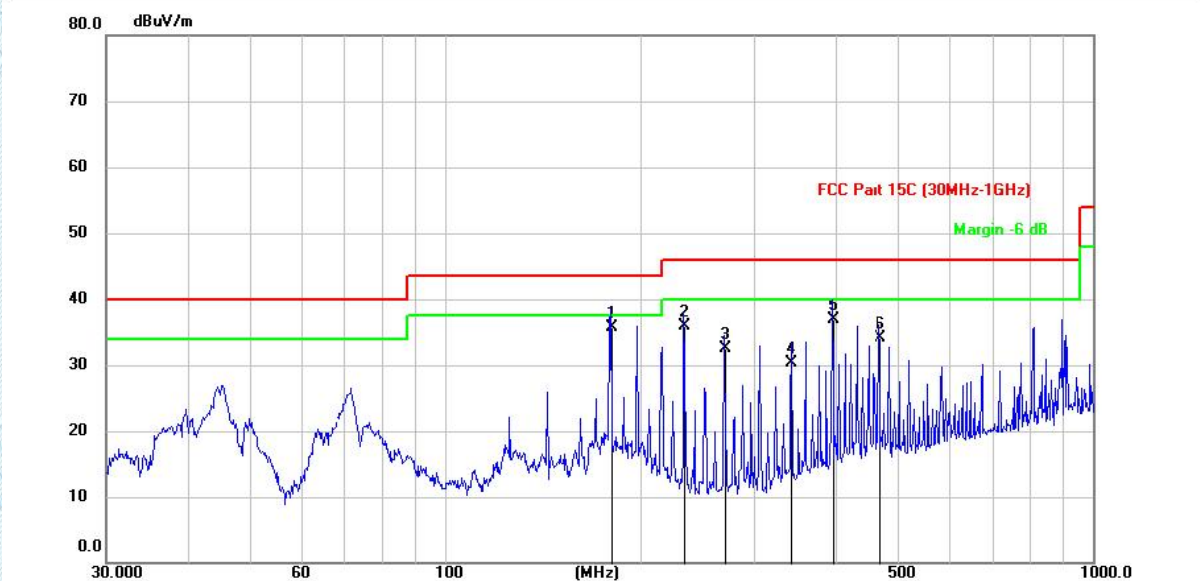


No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		143.9808	46.82	-21.33	25.49	43.50	-18.01	QP
2		180.0165	49.47	-19.05	30.42	43.50	-13.08	QP
3		234.0042	52.58	-16.42	36.16	46.00	-9.84	QP
4		269.9958	52.24	-15.36	36.88	46.00	-9.12	QP
5	*	306.0017	54.29	-14.41	39.88	46.00	-6.12	QP
6		395.9638	46.73	-11.04	35.69	46.00	-10.31	QP

TRF EMC_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

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


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector
1	*	180.0165	54.69	-19.05	35.64	43.50	-7.86	QP
2		234.0042	52.35	-16.42	35.93	46.00	-10.07	QP
3		269.9958	47.85	-15.36	32.49	46.00	-13.51	QP
4		341.9786	43.26	-12.88	30.38	46.00	-15.62	QP
5		396.1026	48.00	-11.04	36.96	46.00	-9.04	QP
6		468.0549	44.31	-10.18	34.13	46.00	-11.87	QP

TRF EMC_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

4.7. Emissions above 1GHz

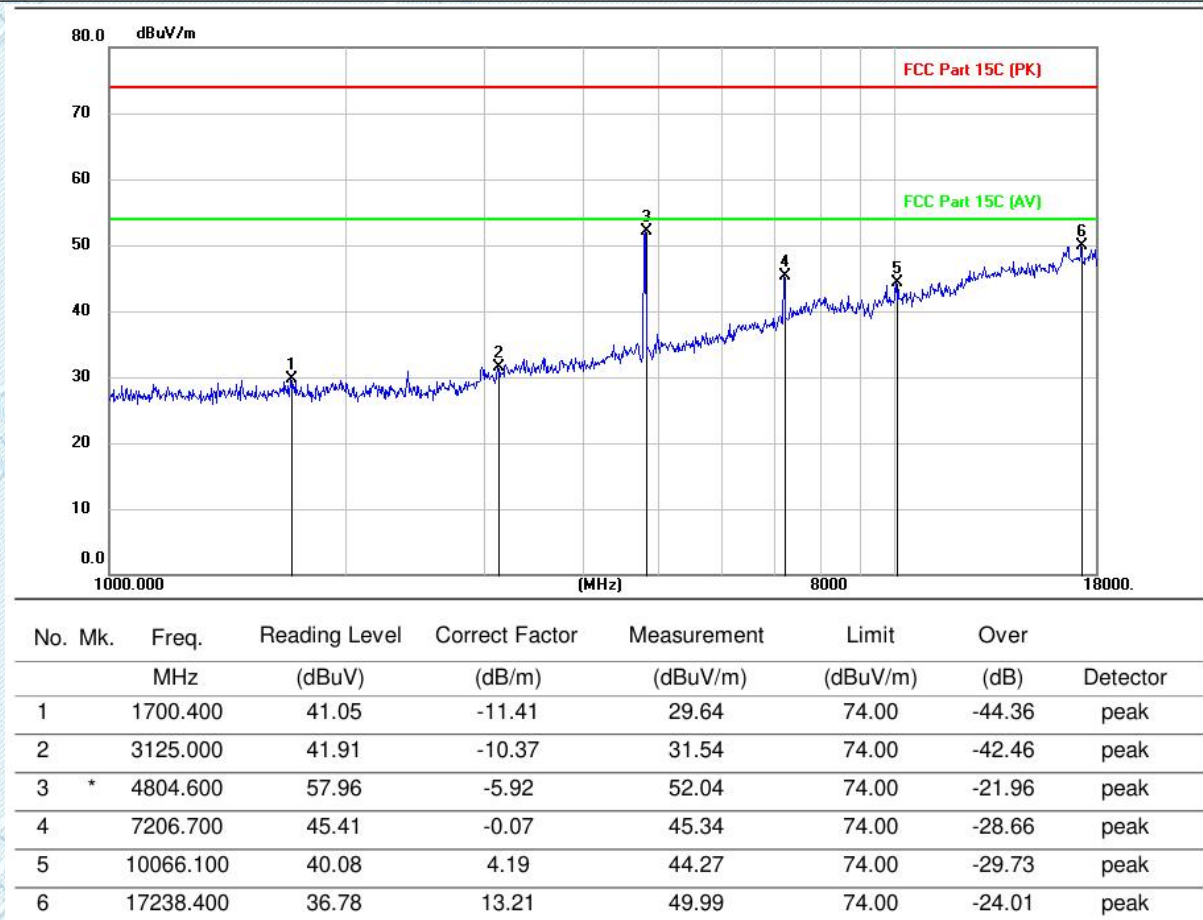
Test Requirement:	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	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:	Radiated emissions tests		
Procedure:	ANSI C63.10-2013 section 6.6.4		

4.7.1. E.U.T. Operation:

Operating Environment:	
Temperature:	24.5 °C
Humidity:	54.3 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode1

4.7.2. Test Data:

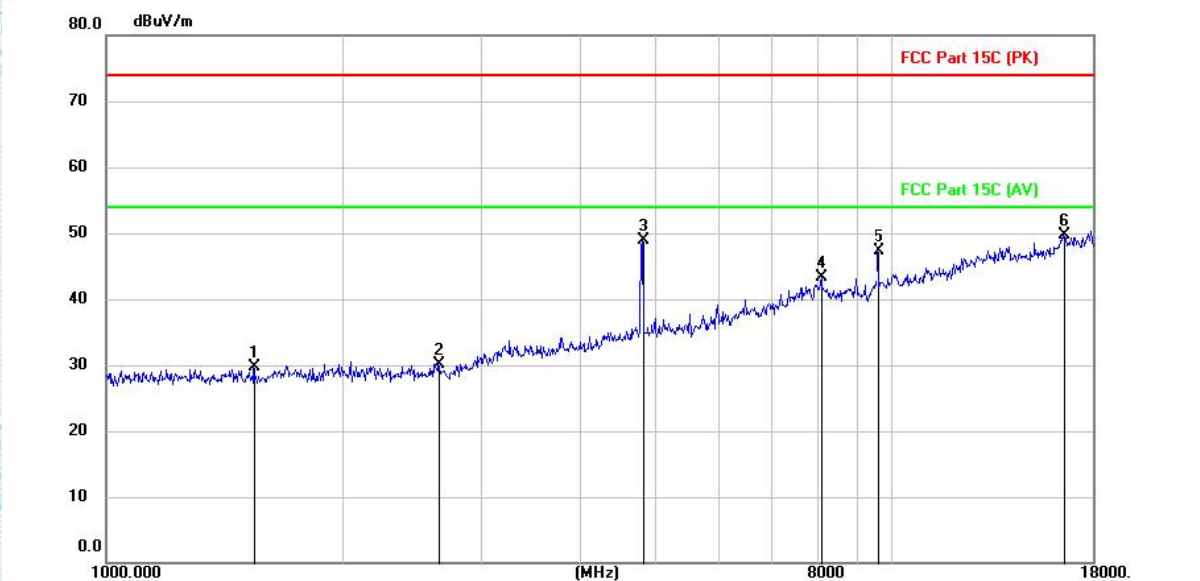
Test Mode1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L



TRF EMC_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

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		1540.600	41.32	-11.69	29.63	74.00	-44.37	peak
2		2650.700	41.00	-10.80	30.20	74.00	-43.80	peak
3		4804.600	54.78	-5.92	48.86	74.00	-25.14	peak
4		8123.000	41.22	2.03	43.25	74.00	-30.75	peak
5		9607.100	44.04	3.20	47.24	74.00	-26.76	peak
6	*	16514.200	35.90	13.79	49.69	74.00	-24.31	peak

TRF EMC_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

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


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1		1715.700	41.36	-11.39	29.97	74.00	-44.03	peak
2	*	4882.800	57.48	-5.71	51.77	74.00	-22.23	peak
3		7322.300	44.84	0.27	45.11	74.00	-28.89	peak
4		9763.500	43.53	3.55	47.08	74.00	-26.92	peak
5		10424.800	46.66	4.78	51.44	74.00	-22.56	peak
6		16378.200	35.64	13.52	49.16	74.00	-24.84	peak

TRF EMC_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

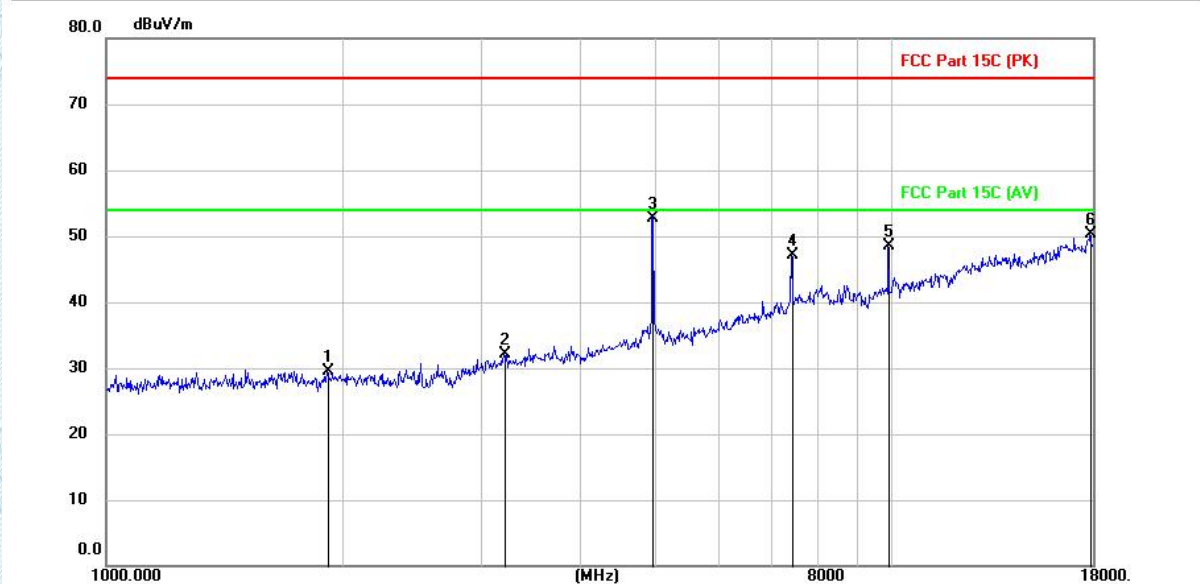
Test Mode1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: M


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1		1418.200	41.42	-11.88	29.54	74.00	-44.46	peak
2		1955.400	41.89	-11.09	30.80	74.00	-43.20	peak
3		3556.800	43.17	-9.53	33.64	74.00	-40.36	peak
4	*	4881.100	53.17	-5.71	47.46	74.00	-26.54	peak
5		8133.200	40.23	2.04	42.27	74.00	-31.73	peak
6		13969.300	36.23	11.19	47.42	74.00	-26.58	peak

TRF EMC_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

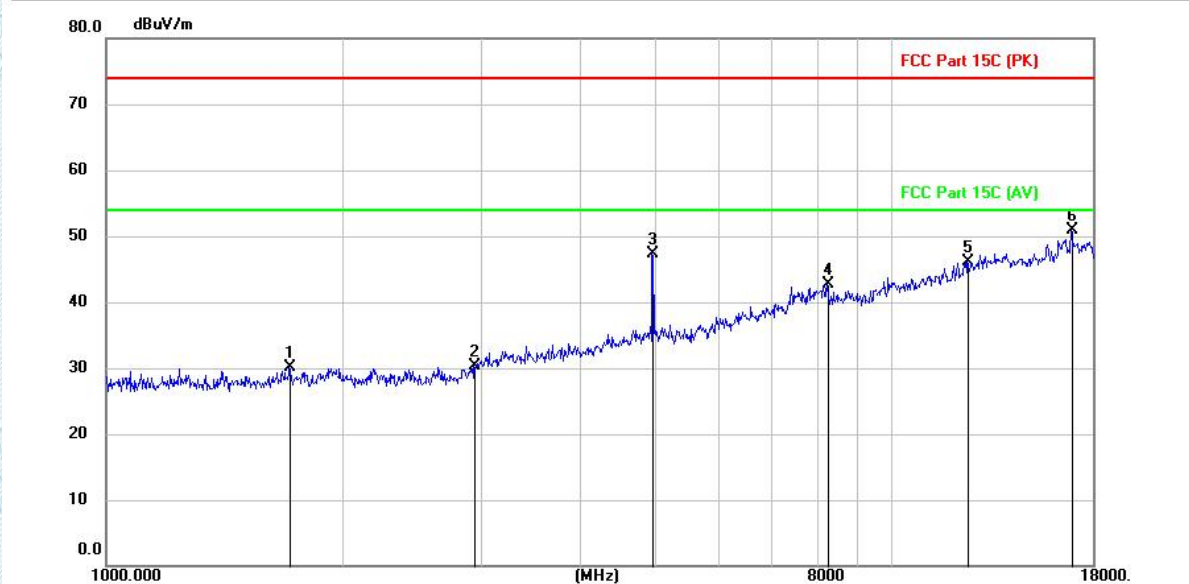
Test Mode1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: H


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1		1909.500	40.73	-11.14	29.59	74.00	-44.41	peak
2		3208.300	42.30	-10.22	32.08	74.00	-41.92	peak
3	*	4959.300	58.29	-5.51	52.78	74.00	-21.22	peak
4		7439.600	46.39	0.64	47.03	74.00	-26.97	peak
5		9919.900	44.53	3.89	48.42	74.00	-25.58	peak
6		17865.700	36.70	13.56	50.26	74.00	-23.74	peak

TRF EMC_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

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


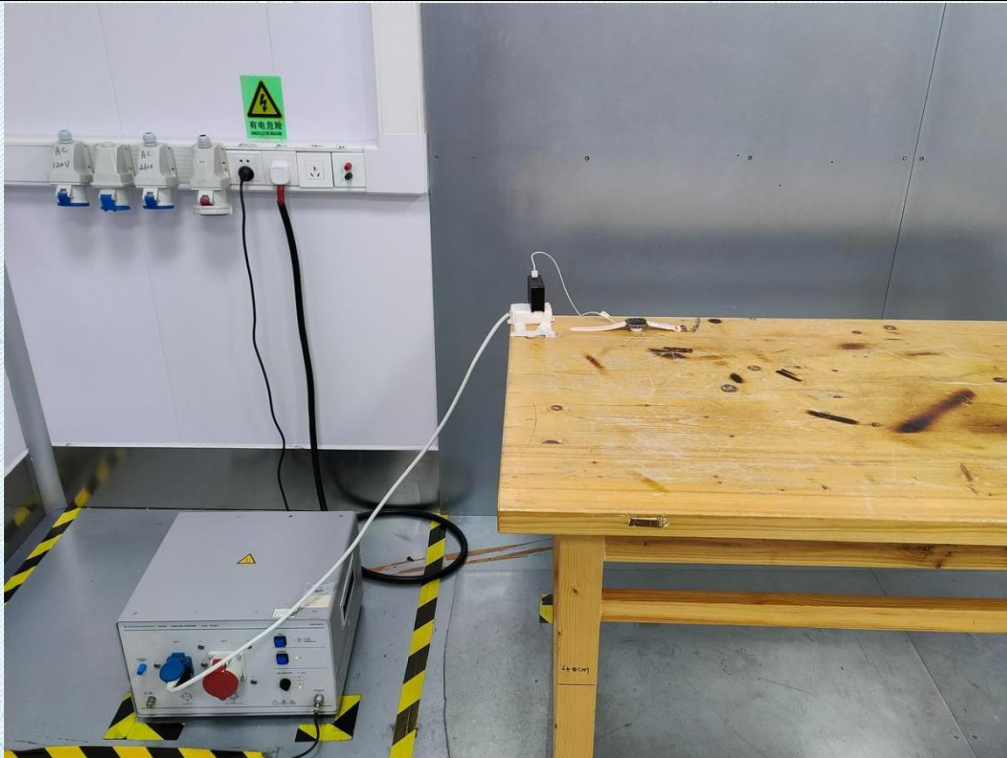
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1		1708.900	41.58	-11.40	30.18	74.00	-43.82	peak
2		2943.100	40.87	-10.63	30.24	74.00	-43.76	peak
3		4959.300	52.91	-5.51	47.40	74.00	-26.60	peak
4		8255.600	40.67	2.00	42.67	74.00	-31.33	peak
5		12476.700	37.28	8.91	46.19	74.00	-27.81	peak
6	*	16930.700	37.83	13.14	50.97	74.00	-23.03	peak

Note:

- 1.From 18GHz to 26.5GHz,the amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
- 2.Since the peak value is less than the limit of the AVG value, there is no AVG data.

5. EUT TEST PHOTOS

Conducted Emission at AC power line



Emissions in restricted frequency bands (above 1GHz)



Emissions in restricted frequency bands (below 1GHz)

TRF EMC_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. PHOTOGRAPHS OF EUT CONSTRUCTIONAL

Please refer to the report Report No.:KS2212S5513E01

Appendix

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	0.67	2401.66	2402.32	0.5	PASS
		2440	0.67	2439.66	2440.32	0.5	PASS
		2480	0.69	2479.64	2480.33	0.5	PASS
BLE_2M	Ant1	2402	1.14	2401.43	2402.57	0.5	PASS
		2440	1.14	2439.43	2440.57	0.5	PASS
		2480	1.14	2479.42	2480.56	0.5	PASS

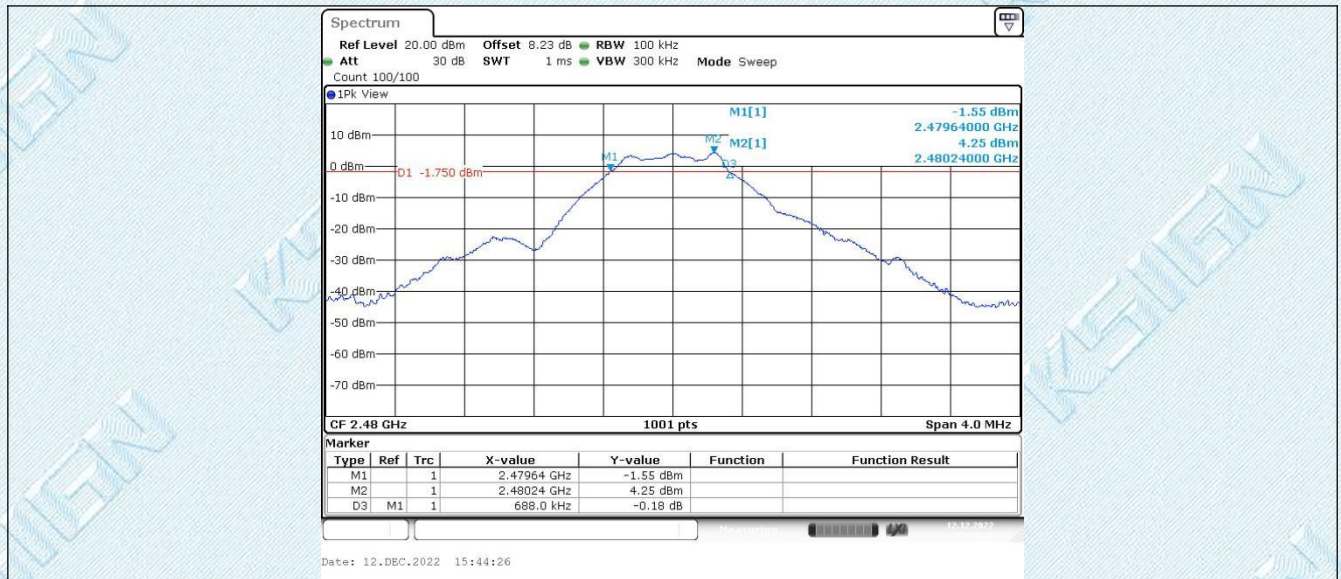
6.1.2. Test Graphs



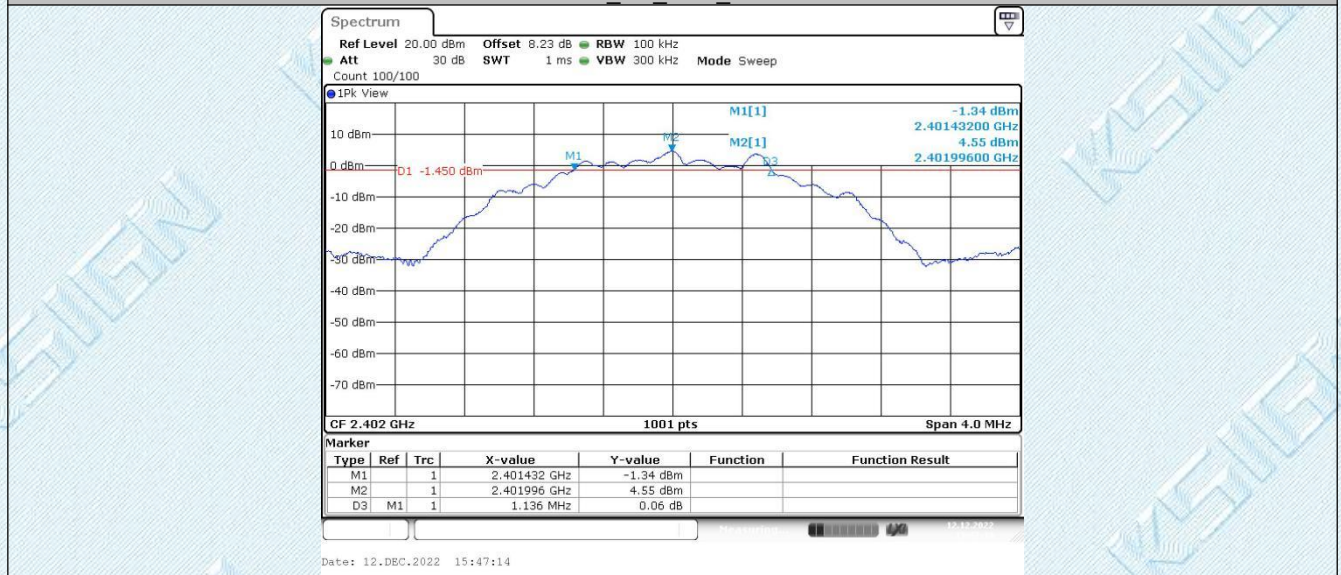
TRF EMC_R1

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

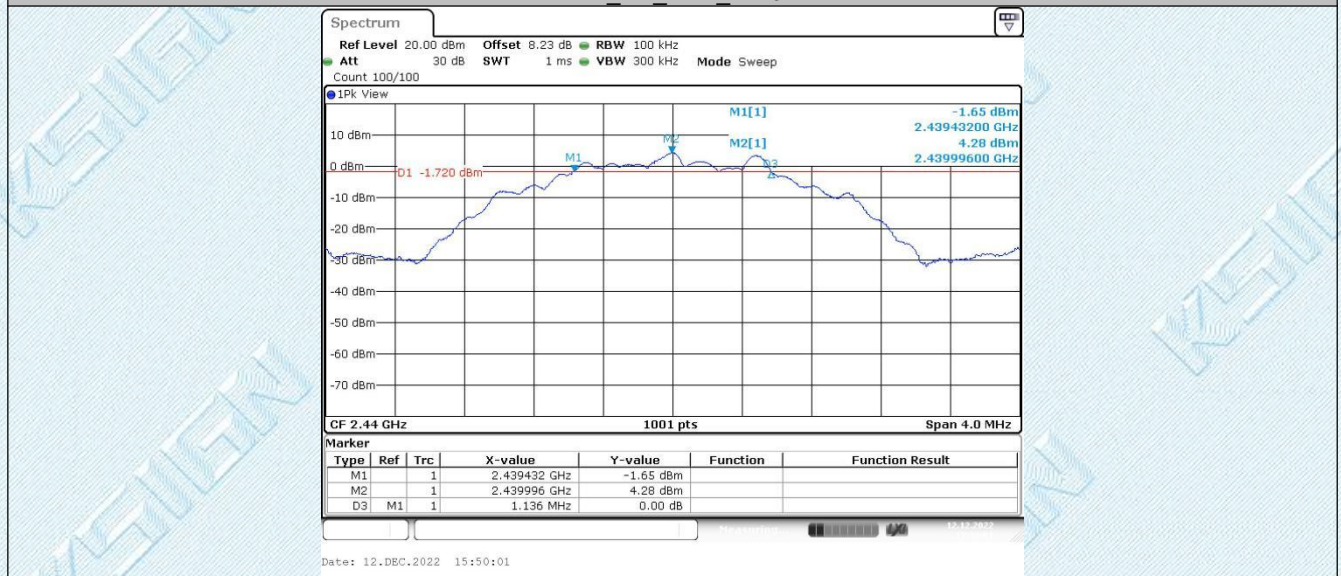
Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdkesign.cn Web: www.gdkesign.com



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

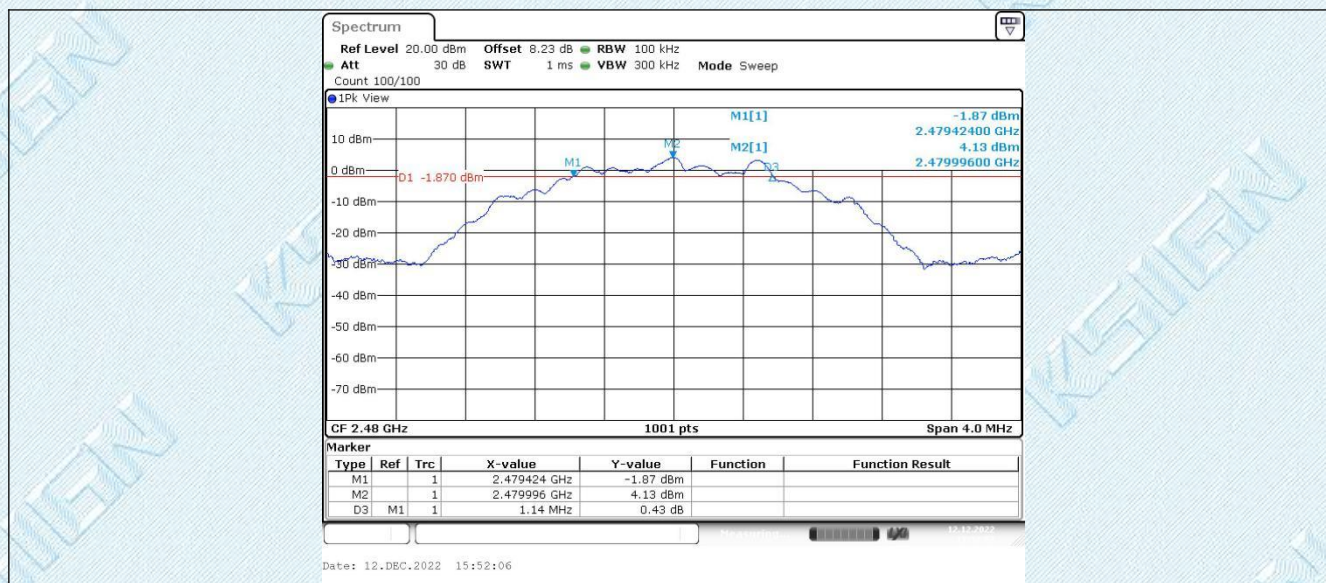


BLE_2M_Ant1_2480

TRF EMC_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 EMC_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

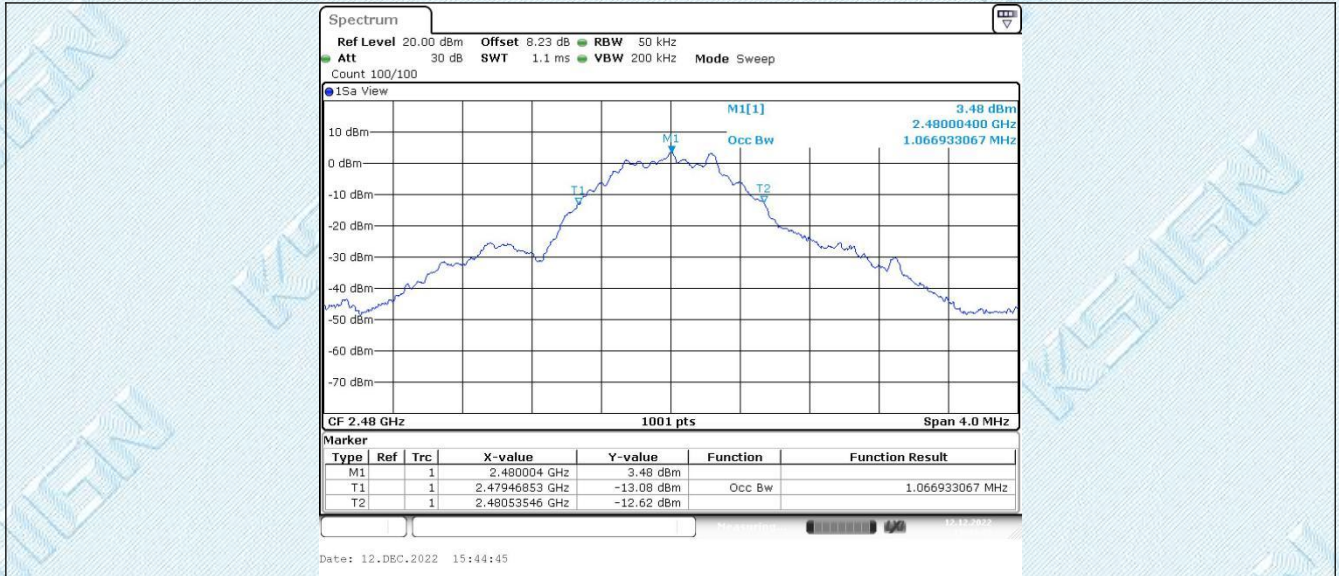
6.2. Appendix B: Occupied Channel Bandwidth

6.2.1. Test Result

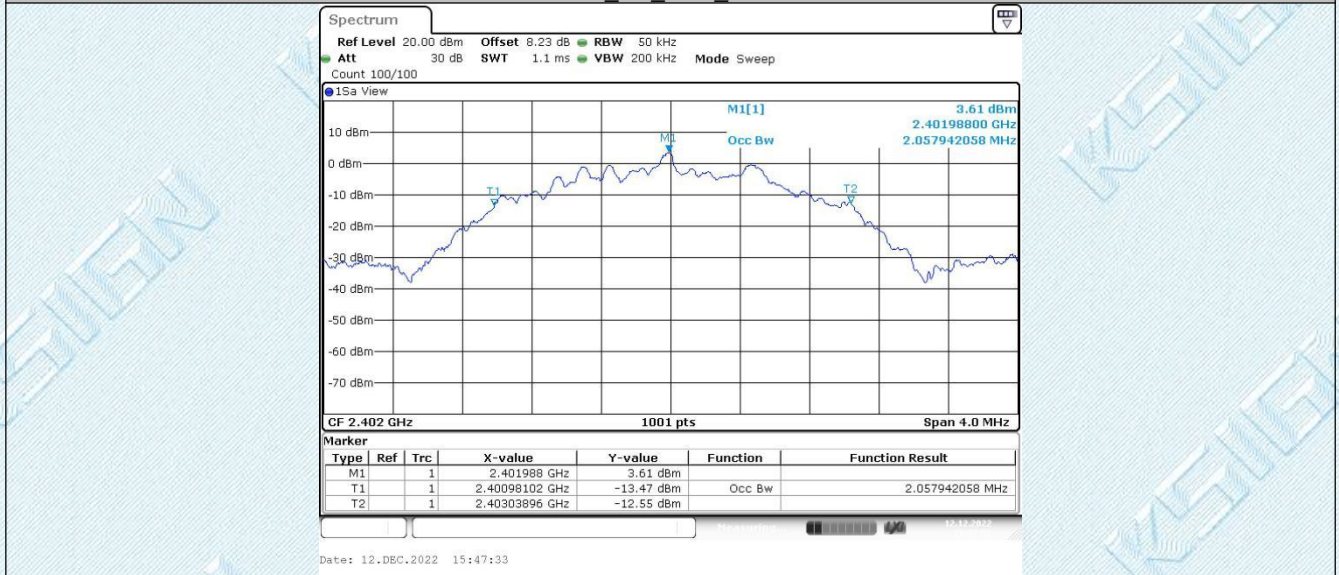
TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.043	2401.473	2402.515	---	PASS
		2440	1.055	2439.469	2440.523	---	PASS
		2480	1.067	2479.469	2480.535	---	PASS
BLE_2M	Ant1	2402	2.058	2400.981	2403.039	---	PASS
		2440	2.066	2438.973	2441.039	---	PASS
		2480	2.07	2478.973	2481.043	---	PASS

6.2.2. Test Graphs

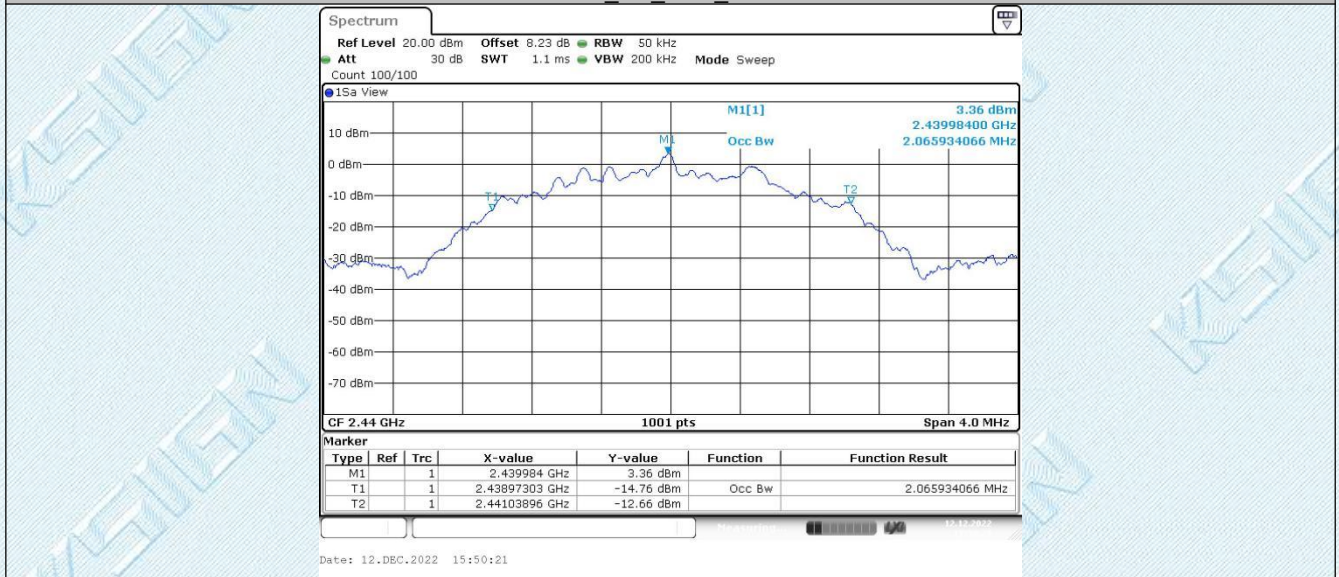




BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

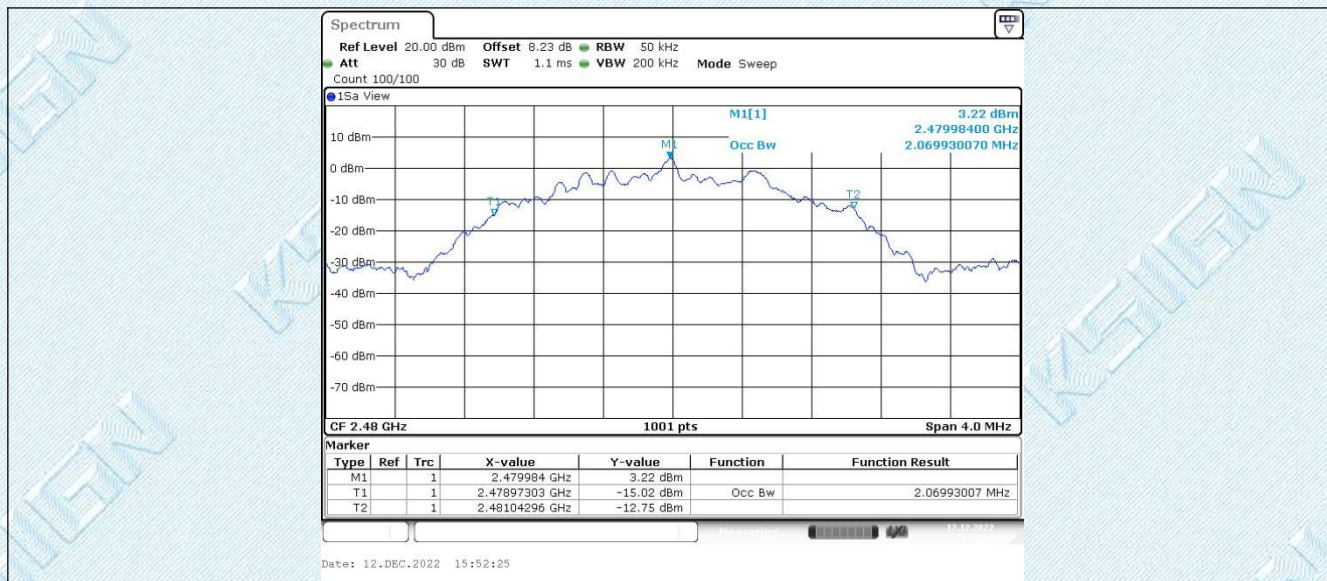


BLE_2M_Ant1_2480

TRF EMC_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

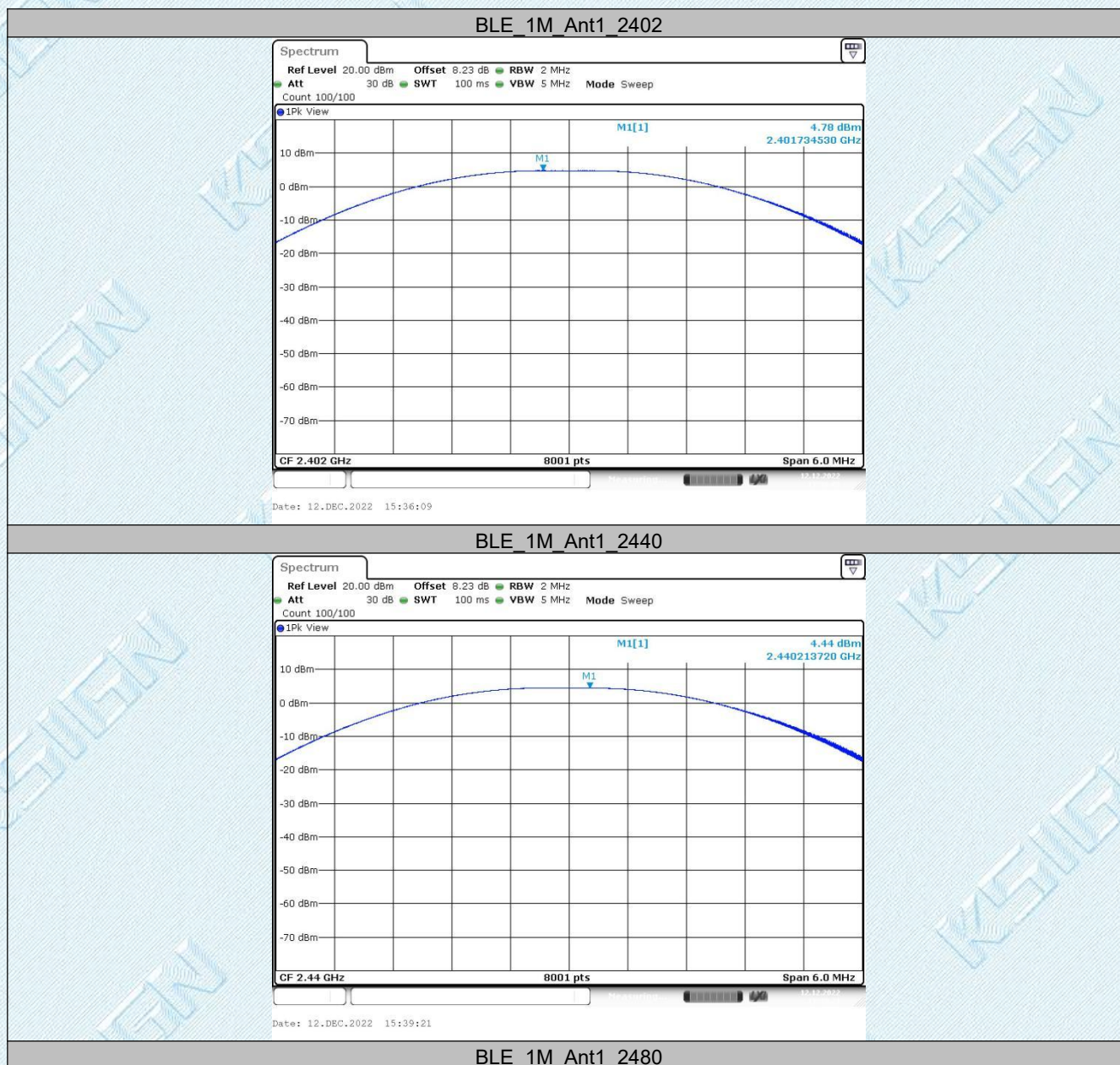


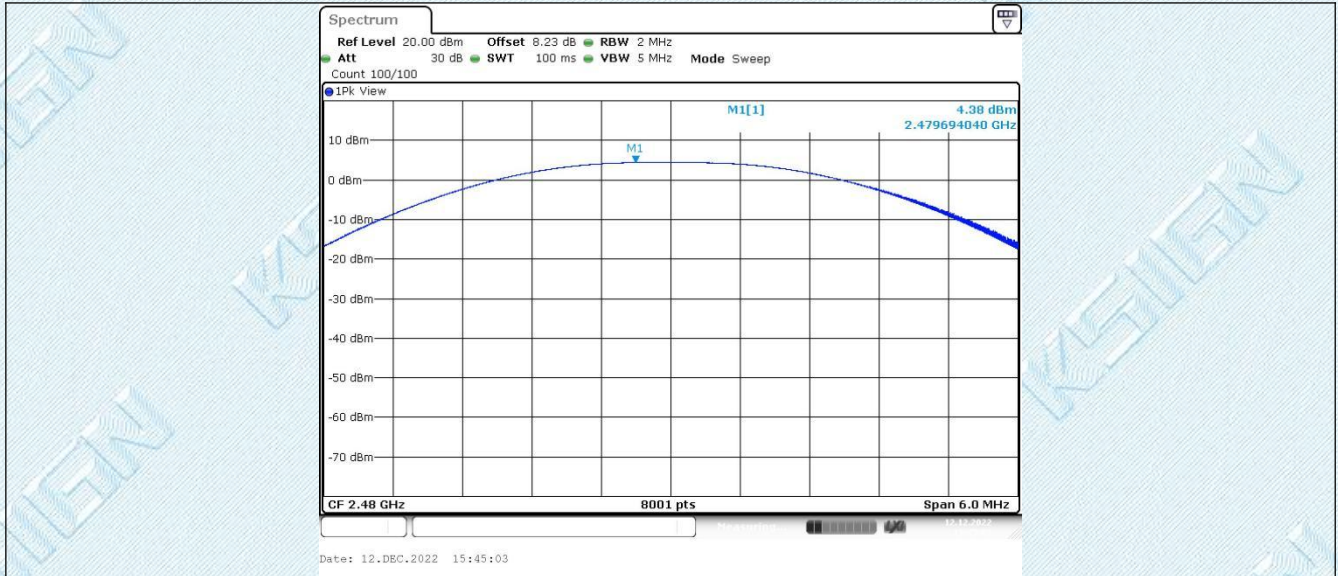
6.3. Appendix C: Maximum conducted output power

6.3.1. Test Result Peak

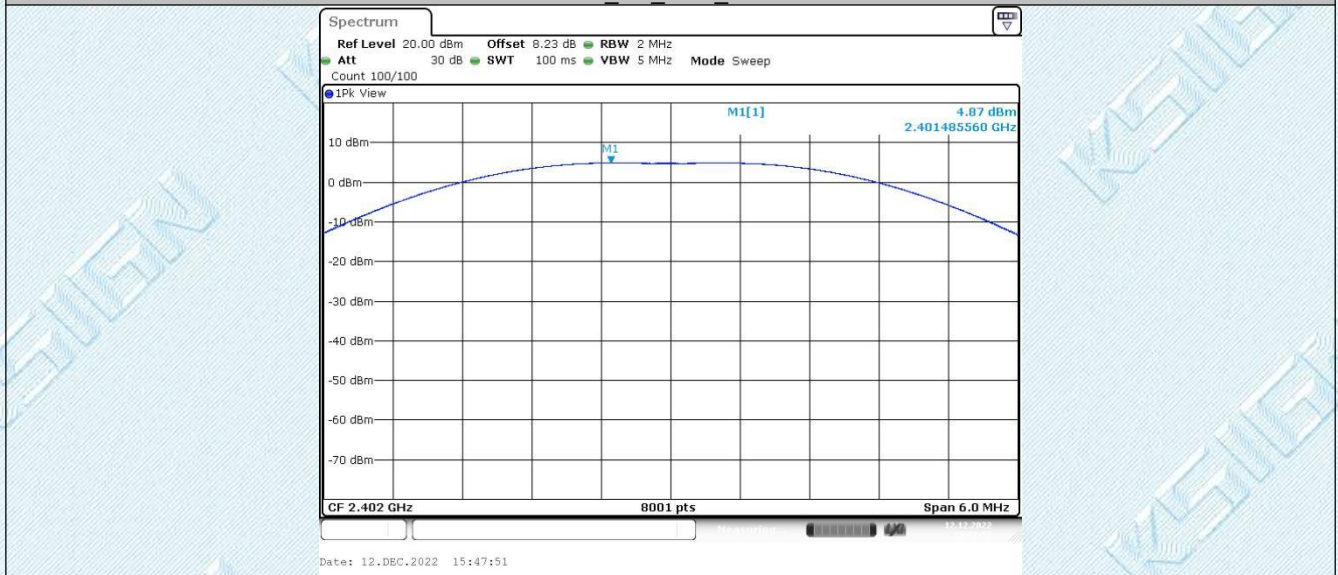
TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	4.78	≤30	PASS
		2440	4.44	≤30	PASS
		2480	4.38	≤30	PASS
BLE_2M	Ant1	2402	4.87	≤30	PASS
		2440	4.56	≤30	PASS
		2480	4.45	≤30	PASS

6.3.2. Test Graphs Peak

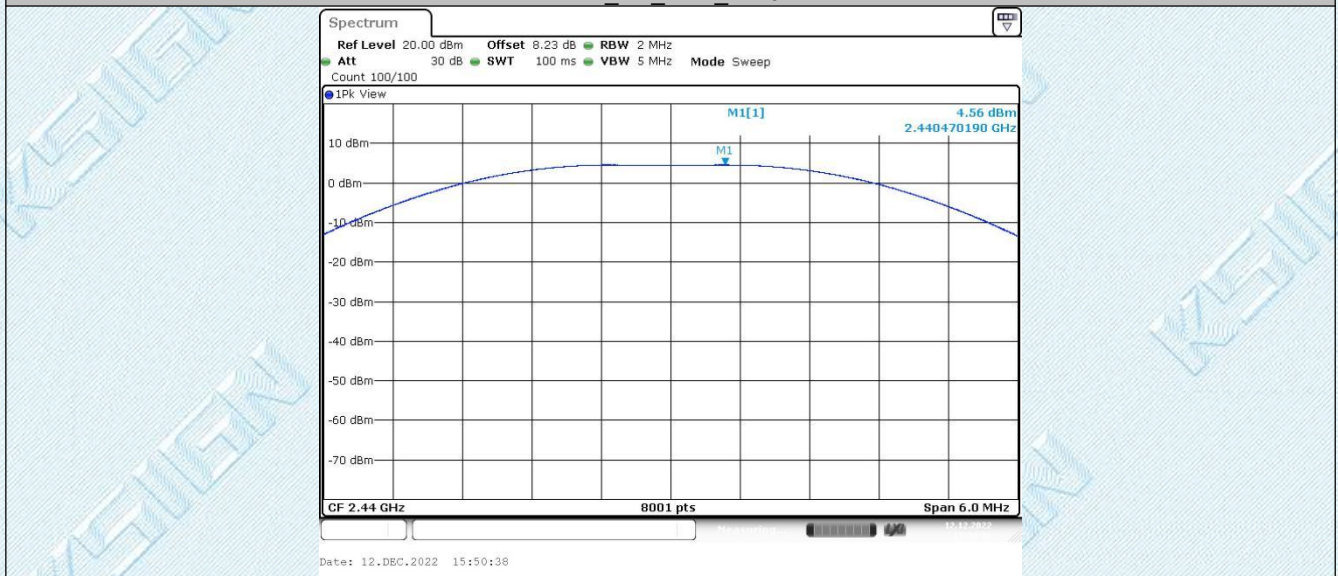




BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

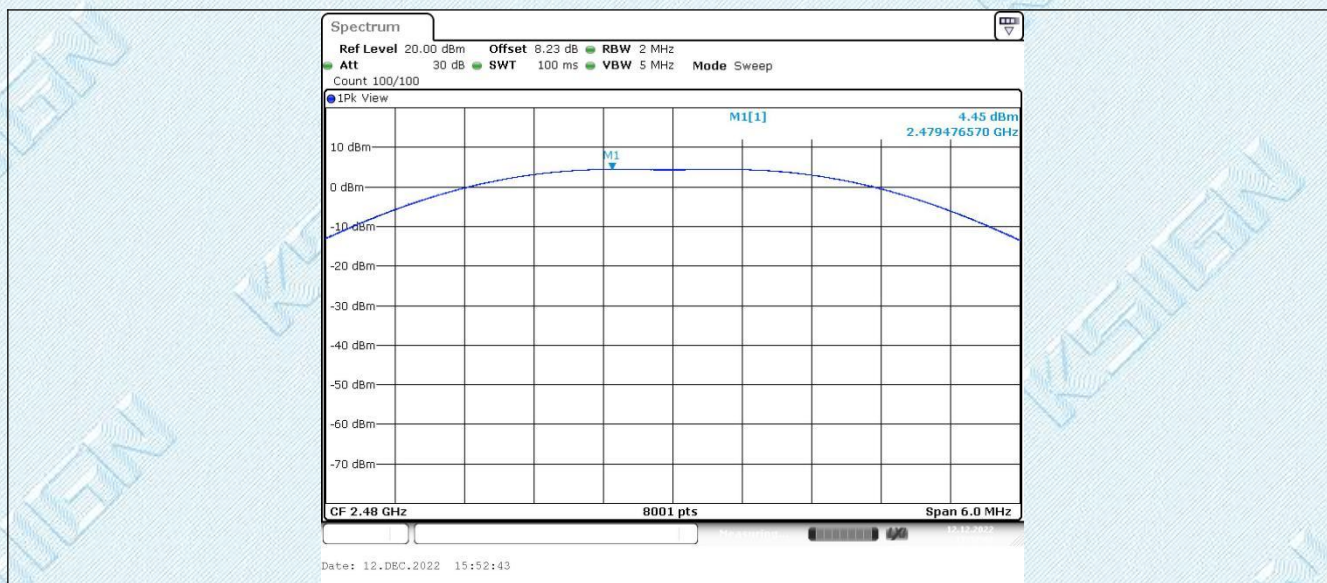


BLE_2M_Ant1_2480

TRF EMC_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 EMC_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

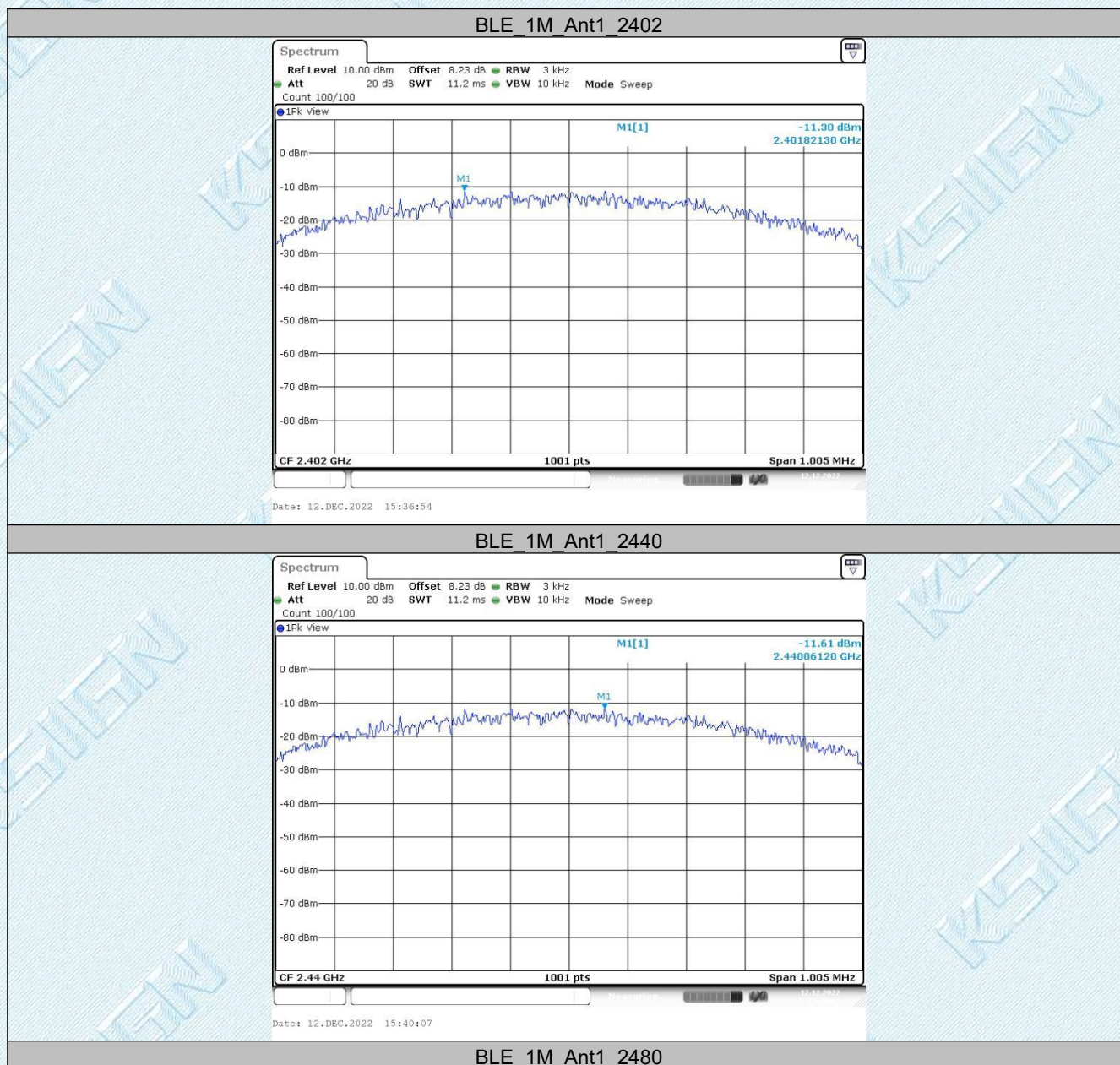
Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com

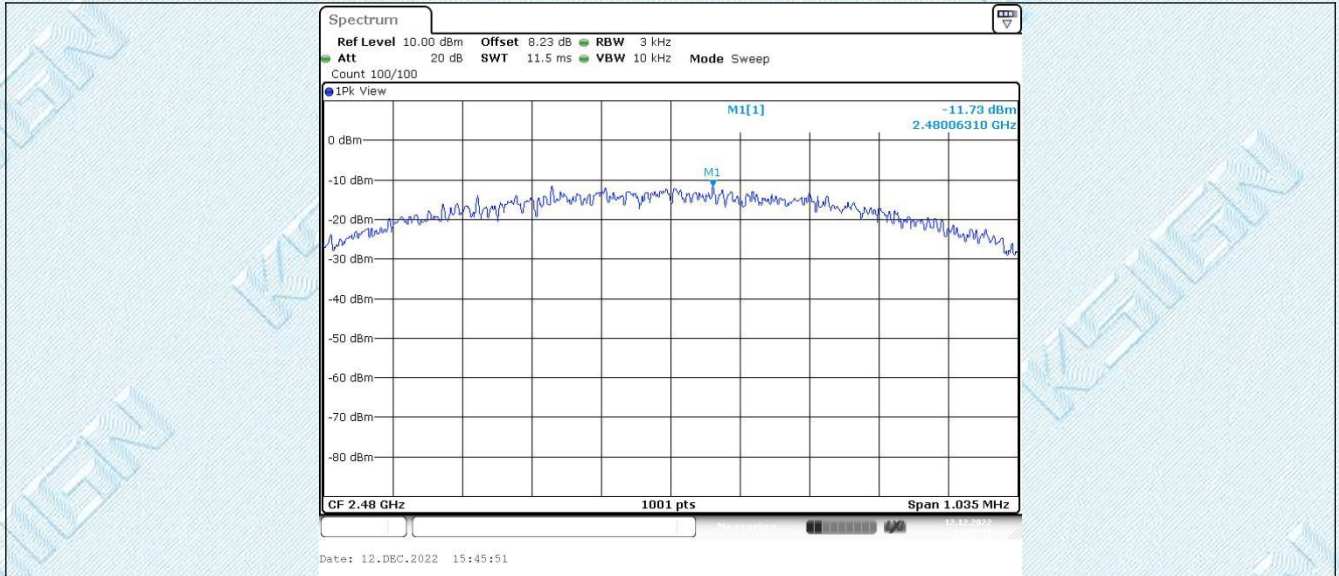
6.4. Appendix D: Maximum power spectral density

6.4.1. Test Result

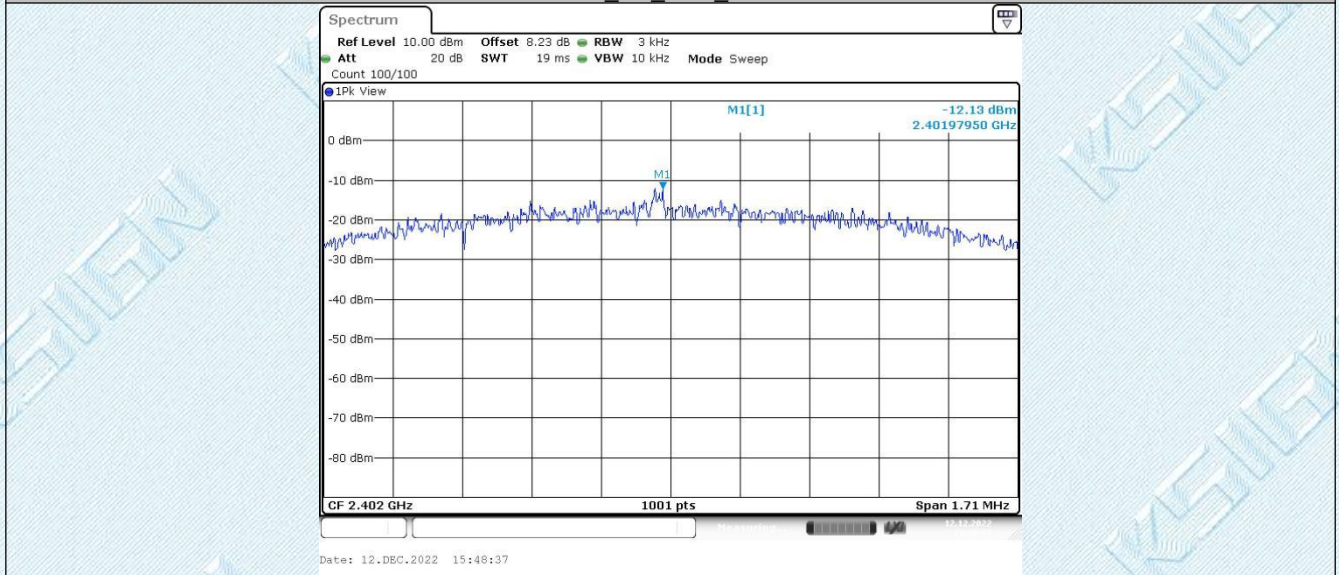
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-11.3	≤8.00	PASS
		2440	-11.61	≤8.00	PASS
		2480	-11.73	≤8.00	PASS
BLE_2M	Ant1	2402	-12.13	≤8.00	PASS
		2440	-12.37	≤8.00	PASS
		2480	-12.7	≤8.00	PASS

6.4.2. Test Graphs

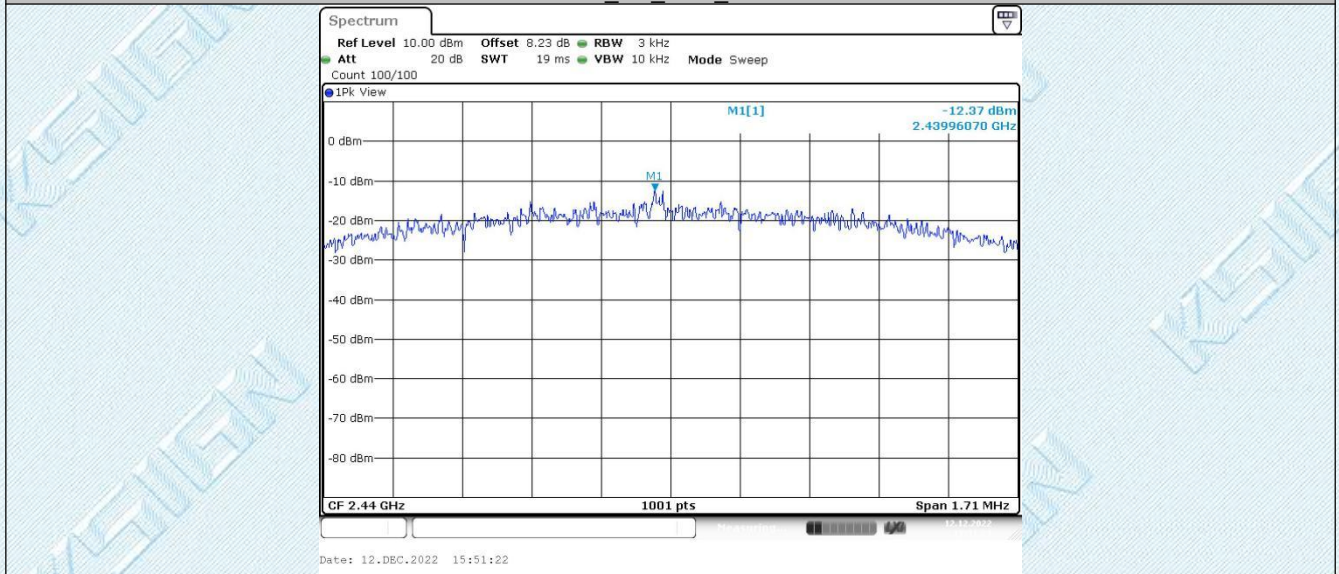




BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

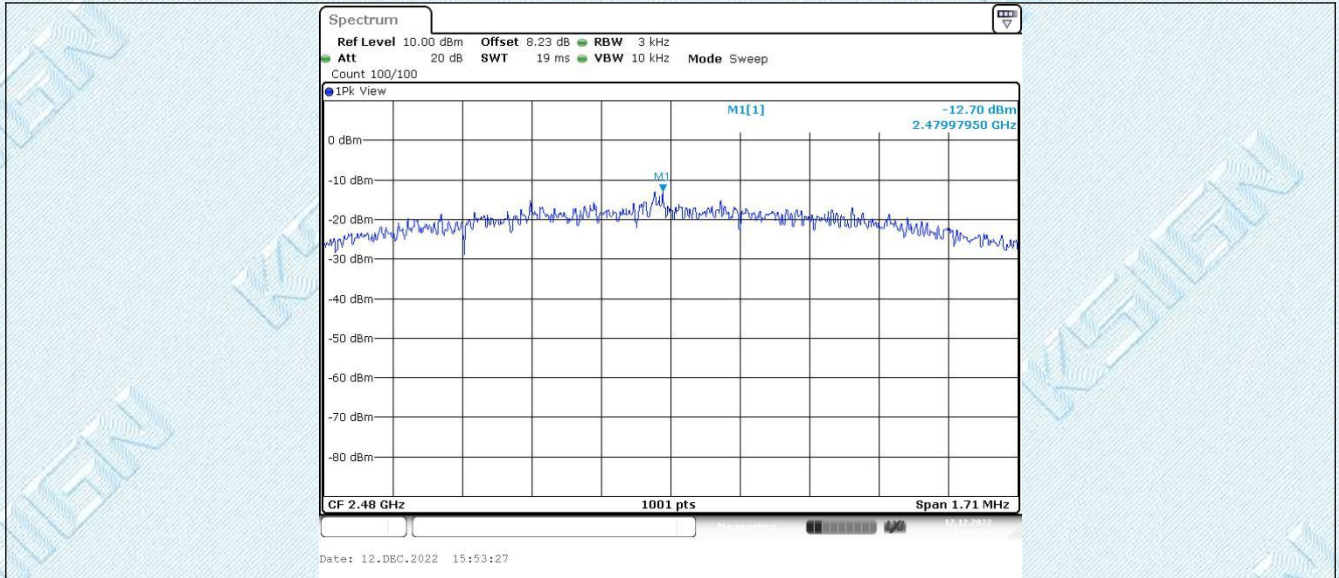


BLE_2M_Ant1_2480

TRF EMC_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 EMC_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

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	2402.24	4.62
		2440	2440.23	4.29
		2480	2480.24	4.23
BLE_2M	Ant1	2402	2402.00	4.55
		2480	2480.00	4.09

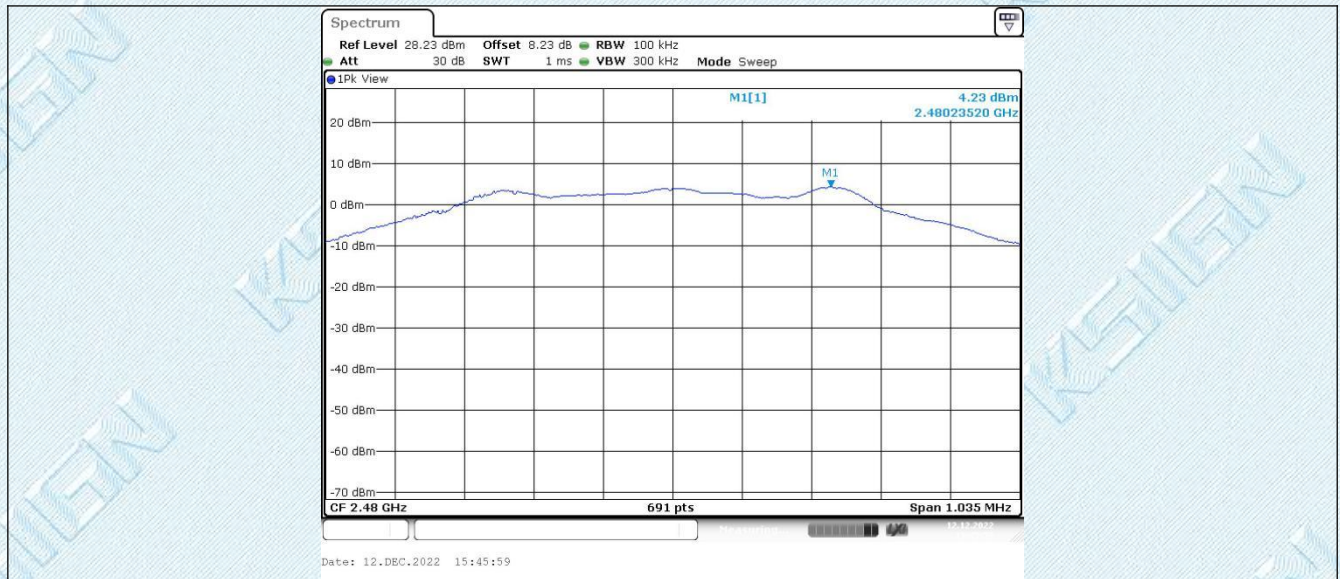
6.5.2. Test Graphs



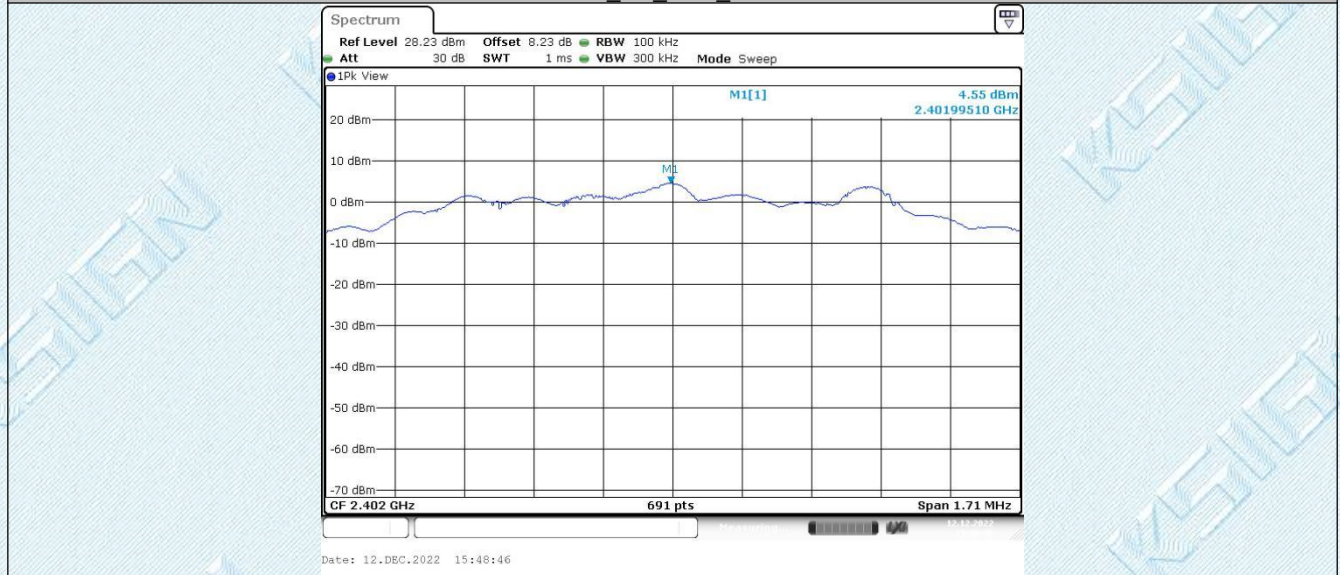
TRF EMC_R1

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

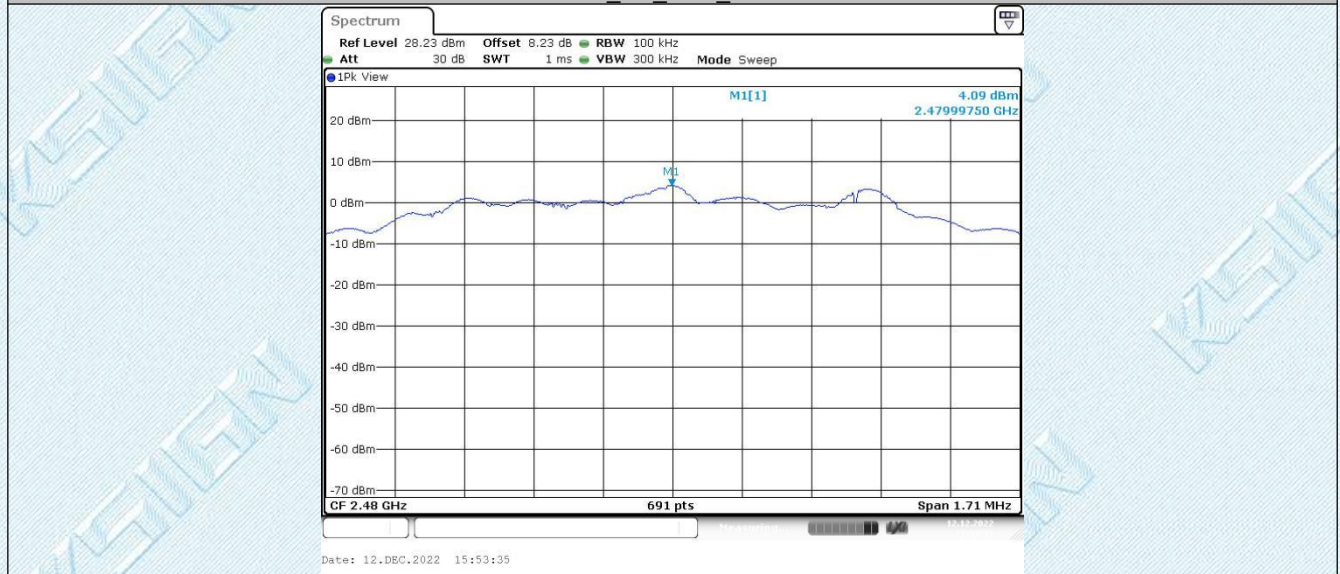
Tel: +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail: info@gdksign.cn Web: www.gdksign.com



BLE_2M_Ant1_2402



BLE_2M_Ant1_2480



TRF EMC_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

6.6. 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	4.62	-41.92	≤-15.38	PASS
		High	2480	4.23	-42.4	≤-15.77	PASS
BLE_2M	Ant1	Low	2402	4.55	-26.34	≤-15.45	PASS
		High	2480	4.09	-42.31	≤-15.91	PASS

6.6.2. Test Graphs





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	2440	30~1000	4.29	-53.75	≤-15.71	PASS
			1000~26500	4.29	-47.83	≤-15.71	PASS

6.7.2. Test Graphs



TRF EMC_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

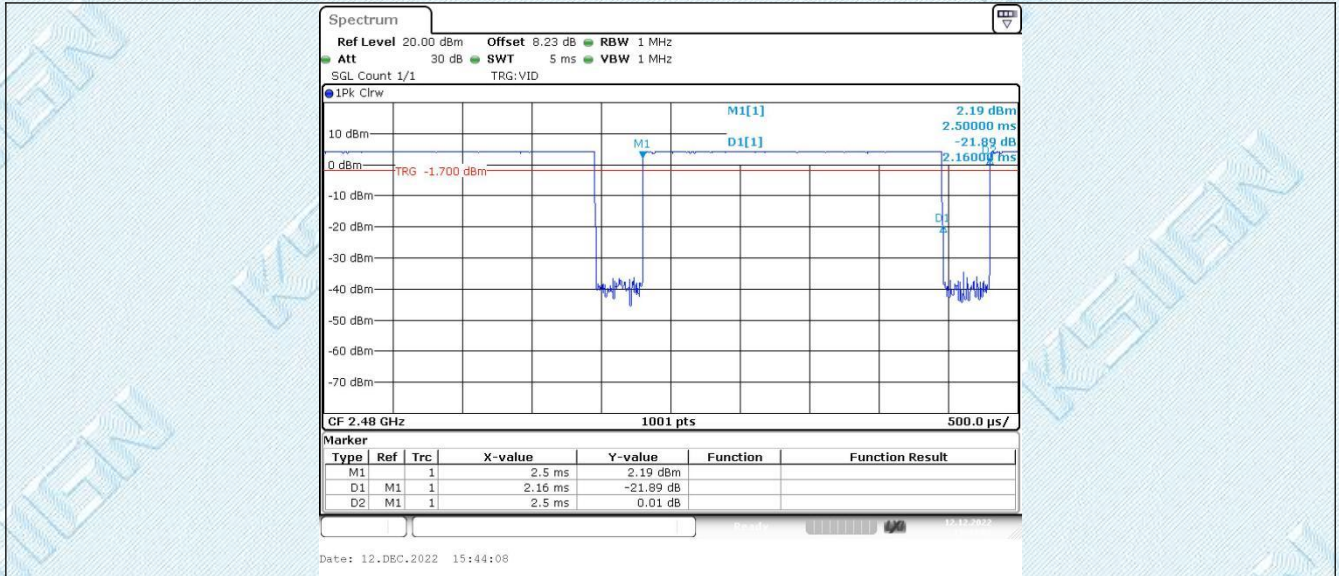
6.8. Appendix H: Duty Cycle

6.8.1. Test Result

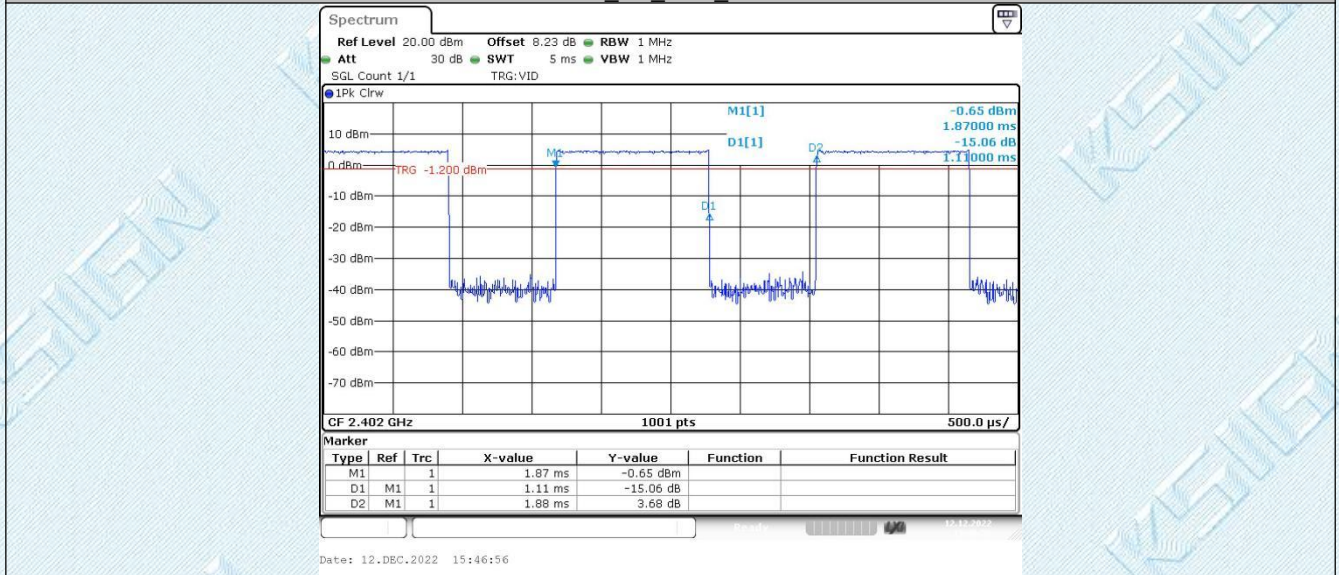
TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	DC [%]	Factor	Limit	Verdict
BLE_1M	Ant1	2402	2.16	2.50	86.40	0.63	---	PASS
		2440	2.16	2.50	86.40	0.63	---	PASS
		2480	2.16	2.50	86.40	0.63	---	PASS
BLE_2M	Ant1	2402	1.11	1.88	59.04	2.29	---	PASS
		2440	1.11	1.88	59.04	2.29	---	PASS
		2480	1.11	1.88	59.04	2.29	---	PASS

6.8.2. Test Graphs

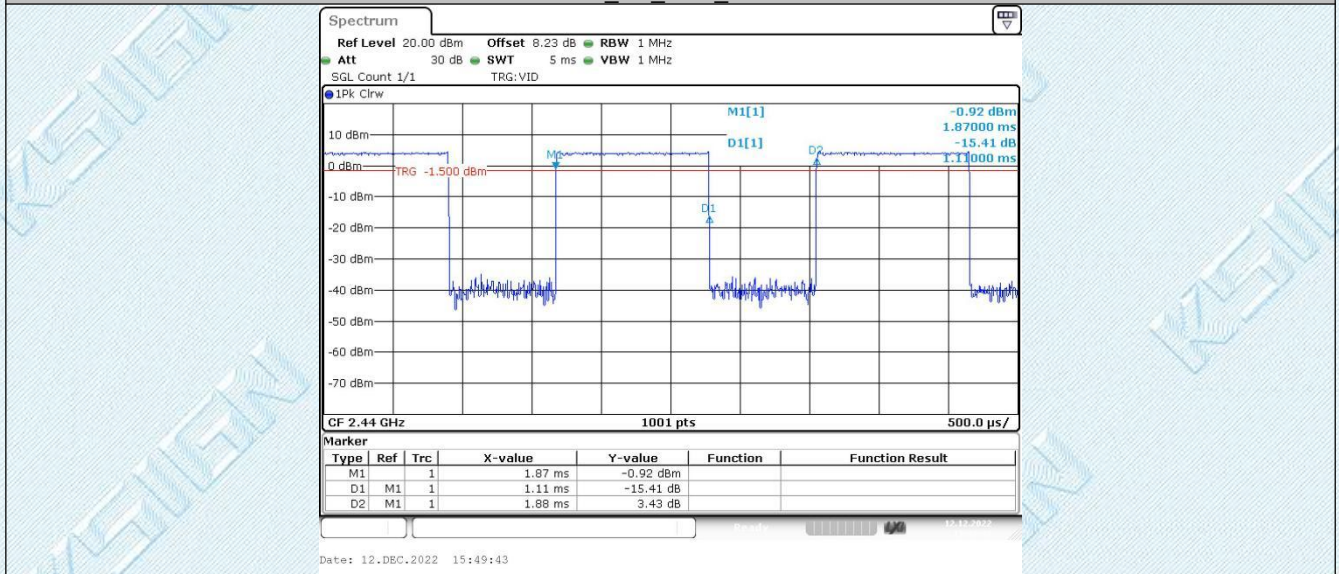




BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

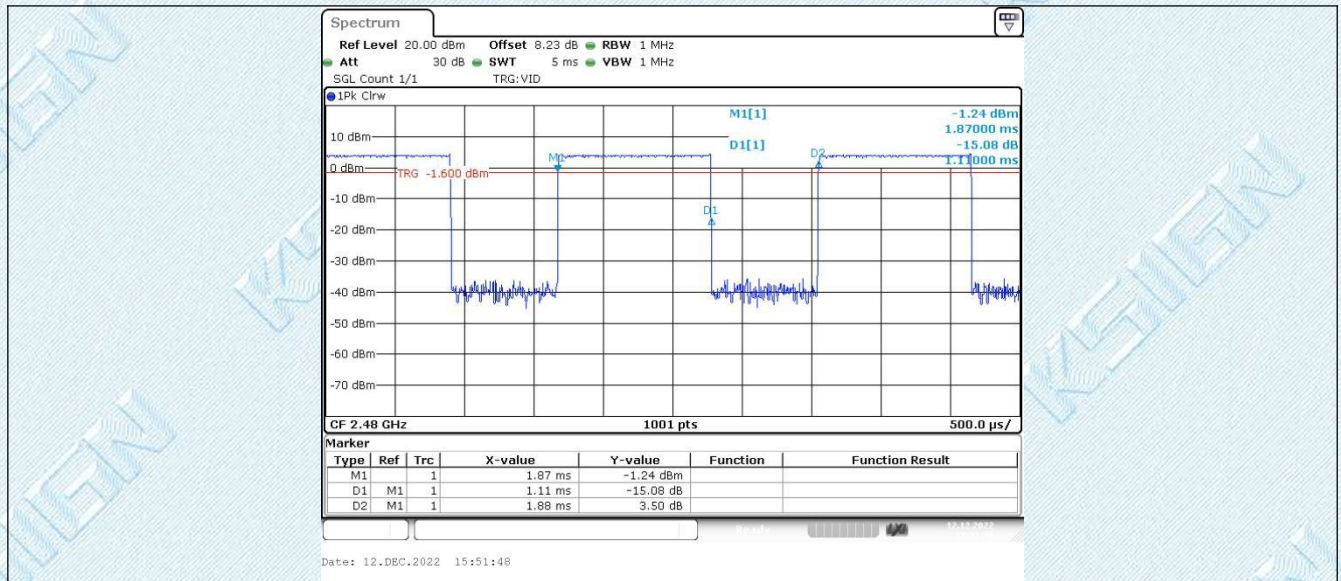


BLE_2M_Ant1_2480

TRF EMC_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



--THE END--