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Report Template Version: V05

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Test Report

Report No.: CQASZ20211202241E-01

Applicant: Shenzhen DO Intelligent Technology Co., Ltd

Address of Applicant: 11th Floor, 3# Building, Guole Tech Park, Lirong Road, Dalang, Longhua District,

Shenzhen, China

Equipment Under Test (EUT):

Product: Smart Watch

Model No.: GT02

Test Model No.: GT02

Brand Name: IDO

FCC ID: 2AHFT440

Standards: 47 CFR Part 15, Subpart C

Date of Receipt: 2021-12-27

Date of Test: 2021-12-27 to 2022-1-13

Date of Issue: 2022-04-12

Test Result: PASS*

*In the configuration tested, the EUT complied with the standards specified above

Tested By:

(Lewis Zhou)

Reviewed By:

(Rock Huang)

Approved By:

(Jack Ai)





Report No.: CQASZ20211202241E-01

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20211202241E-01	Rev.01	Initial report	2022-04-12





2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203/15.247 (c)	ANSI C63.10 2013	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 2013	PASS
Conducted Peak Output Power	47 CFR Part 15, Subpart C Section 15.247 (b)(3)	ANSI C63.10 2013	PASS
6dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.247 (a)(2)	ANSI C63.10 2013	PASS
Power Spectral Density	47 CFR Part 15, Subpart C Section 15.247 (e)	ANSI C63.10 2013	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 2013	PASS
RF Conducted Spurious Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 2013	PASS
Radiated Spurious Emissions	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2013	PASS



3 Contents

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4 General Information

4.1 Client Information

Applicant:	Shenzhen DO Intelligent Technology Co., Ltd
Address of Applicant:	11th Floor, 3# Building, Guole Tech Park, Lirong Road, Dalang, Longhua District, Shenzhen, China
Manufacturer:	Shenzhen DO Intelligent Technology Co., Ltd
Address of Manufacturer:	11th Floor, 3# Building, Guole Tech Park, Lirong Road, Dalang, Longhua District, Shenzhen, China
Factory:	Shenzhen DO Intelligent Technology Co., Ltd
Address of Factory:	11th Floor, 3# Building, Guole Tech Park, Lirong Road, Dalang, Longhua District, Shenzhen, China

4.2 General Description of EUT

Product Name:	Smart Watch
Model No.:	GT02
Test Model No.:	GT02
Trade Mark:	IDO
Software Version:	V14
Hardware Version:	GT02_MB_V1.3
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.1
Modulation Type:	GFSK
Transfer Rate:	1Mbps/2Mbps
Number of Channel:	40
Product Type:	☐ Mobile ☐ Portable ☐ Fix Location
Test Software of EUT:	EMI_Test_Tool
Antenna Type:	FPC antenna
Antenna Gain:	2.28dBi
EUT Power Supply:	lithium battery:DC3.85V, 300mAh, 1.155Wh, Charge by DC5.0V 0.5A

Note: The #1 and #2 prototypes are only the #1 prototype with Flash, the #2 prototype without.



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Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz
2	2406MHz	12	2426MHz	22	2446MHz	32	2466MHz
3	2408MHz	13	2428MHz	23	2448MHz	33	2468MHz
4	2410MHz	14	2430MHz	24	2450MHz	34	2470MHz
5	2412MHz	15	2432MHz	25	2452MHz	35	2472MHz
6	2414MHz	16	2434MHz	26	2454MHz	36	2474MHz
7	2416MHz	17	2436MHz	27	2456MHz	37	2476MHz
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel (CH0)	2402MHz
The middle channel (CH19)	2440MHz
The highest channel (CH39)	2480MHz

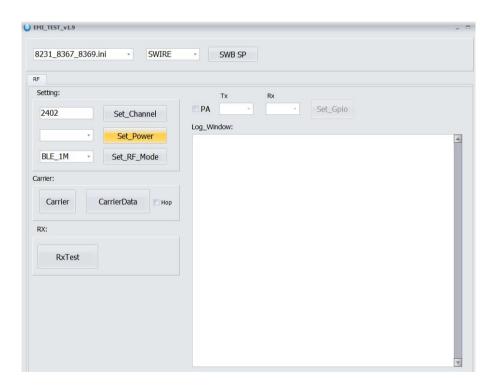


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4.3 Additional Instructions

EUT Test Software Settings:						
Mode:	⊠ Special software is used.	⊠ Special software is used.				
		☐ Through engineering command into the engineering mode. engineering command: *#*#3646633#*#*				
EUT Power level:	Class2 (Power level is built-in set para selected)	Class2 (Power level is built-in set parameters and cannot be changed and selected)				
Use test software to set the le	owest frequency, the middle frequency and	the highest frequency keep				
transmitting of the EUT.						
Mode	Channel	Frequency(MHz)				
	CH0	2402				
GFSK CH19 2440						
	CH39	2480				

Run Software:





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4.4 Test Environment

Operating Environment:	Operating Environment:		
Temperature:	24.3°C		
Humidity:	55% RH		
Atmospheric Pressure:	1009mbar		
Test Mode:	Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.		

4.5 Description of Support Units

The EUT has been tested with associated equipment below.

1) Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
Adapter	HUAWEI	HW-0502000C01	1	CQA
2) Cable				
Cable No.	Description	Manufacturer	Cable Type/Length	Supplied by
,	,	,	,	,





4.6 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CQA laboratory is reported:

No.	Item	Uncertainty	Notes
1	Radiated Emission (Below 1GHz)	5.12dB	(1)
2	Radiated Emission (Above 1GHz)	4.60dB	(1)
3	Conducted Disturbance (0.15~30MHz)	3.34dB	(1)
4	Radio Frequency	3×10 ⁻⁸	(1)
5	Duty cycle	0.6 %	(1)
6	Occupied Bandwidth	1.1%	(1)
7	RF conducted power	0.86dB	(1)
8	RF power density	0.74	(1)
9	Conducted Spurious emissions	0.86dB	(1)
10	Temperature test	0.8℃	(1)
11	Humidity test	2.0%	(1)
12	Supply voltages	0.5 %	(1)
13	Frequency Error	5.5 Hz	(1)

⁽¹⁾This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



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4.7 Test Location

all tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

4.8 Test Facility

• A2LA (Certificate No. 4742.01)

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

• FCC Registration No.: 522263

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

4.9 Deviation from Standards

None.

4.10 Other Information Requested by the Customer

None.



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4.11 Equipment List

Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2021/9/10	2022/9/9
Spectrum analyzer	R&S	FSU26	CQA-038	2021/9/10	2022/9/9
Preamplifier	MITEQ	AMF-6D-02001800-29- 20P	CQA-036	2021/9/10	2022/9/9
Loop antenna	Schwarzbeck	FMZB1516	CQA-060	2021/9/16	2024/9/15
Bilog Antenna	R&S	HL562	CQA-011	2021/9/16	2024/9/15
Horn Antenna	R&S	HF906	CQA-012	2021/9/16	2024/9/15
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2021/9/16	2024/9/15
Coaxial Cable (Above 1GHz)	CQA	N/A	C007	2021/9/10	2022/9/9
Coaxial Cable (Below 1GHz)	CQA	N/A	C013	2021/9/10	2022/9/9
Antenna Connector	CQA	RFC-01	CQA-080	2021/9/10	2022/9/9
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2021/9/10	2022/9/9
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2021/9/10	2022/9/9

Note:

The temporary antenna connector is soldered on the pcb board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.





5 Test results and Measurement Data

5.1 Antenna Requirement

Standard requirement: 47 CFR Part 15C Section 15.203 /247(c)

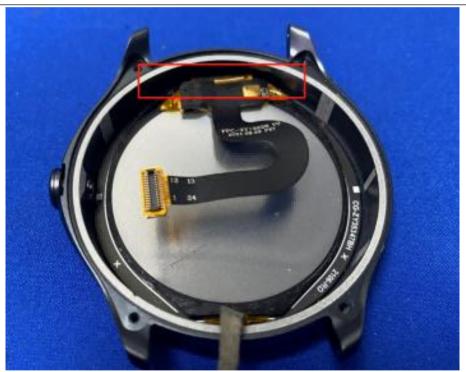
15.203 requirement:

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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:



The antenna is FPC antenna. The best case gain of the antenna is 2.28 dBi.

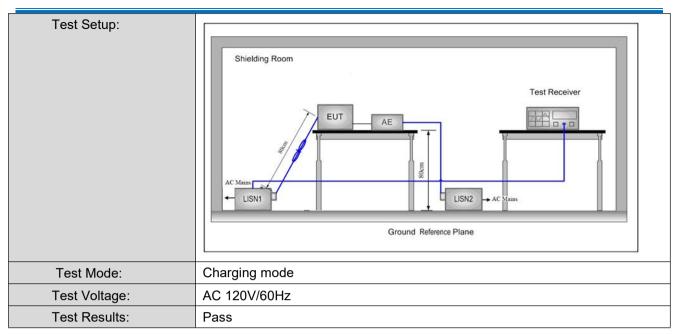


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5.2 Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207				
Test Method:	ANSI C63.10: 2013				
Test Frequency Range:	150kHz to 30MHz				
Limit:	Francisco (MIII-)	Limit (d	lBuV)		
	Frequency range (MHz)	Quasi-peak	Average		
	0.15-0.5	66 to 56*	56 to 46*		
	0.5-5	56	46		
	5-30	60	50		
	* Decreases with the logarithm	n of the frequency.		•	
Test Procedure:	The mains terminal disturt room.	bance voltage test was	s conducted in a shie	elded	
	2) The EUT was connected to	AC power source thro	ough a LISN 1 (Line		
	Impedance Stabilization N	etwork) which provides	a 50Ω/50μH + 5Ω li	near	
	impedance. The power cal				
	connected to a second LIS		-		
	reference plane in the sam	•	•		
	measured. A multiple sock	•	·		
	power cables to a single Ll exceeded.	ISN provided the rating	of the LISN was not		
	3) The tabletop EUT was place	ced upon a non-metalli	c table 0.8m above th	he	
	ground reference plane. A	•	rangement, the EUT	was	
	placed on the horizontal gr				
	4) The test was performed wi	•			
	of the EUT shall be 0.4 m t	•	·	те	
	vertical ground reference p		•	l	
	reference plane. The LISN	•	•	ne	
	unit under test and bonded	•	•		
	mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units				
	the EUT and associated ed				
	5) In order to find the maximu	• •			
	equipment and all of the in		•	to	
	ANSI C63.10: 2013 on con				



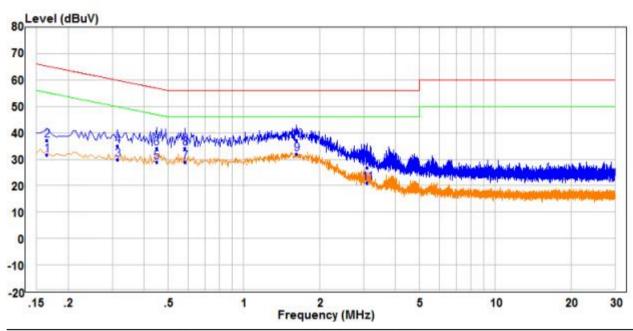




Measurement Data

#1

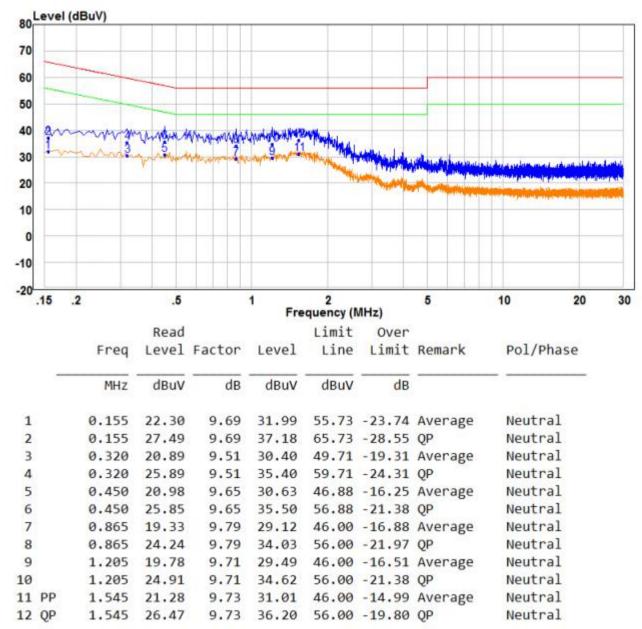
Live line:



	Freq	Read	Factor	Level	Limit Line	Over	Remark	Pol/Phase
	1164	LEVEL	ractor	Level	LINE	CIMIC	Kellidi K	ro1/rilase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.165	22.06	9.67	31.73	55.21	-23.48	Average	Line
2	0.165	27.36	9.67	37.03	65.21	-28.18	QP	Line
3	0.315	20.36	9.51	29.87	49.84	-19.97	Average	Line
4 5	0.315	25.61	9.51	35.12	59.84	-24.72	QP	Line
5	0.450	19.35	9.66	29.01	46.88	-17.87	Average	Line
6	0.450	24.31	9.66	33.97	56.88	-22.91	QP	Line
7	0.585	19.06	9.79	28.85	46.00	-17.15	Average	Line
8	0.585	24.25	9.79	34.04	56.00	-21.96	QP	Line
9 PP	1.625	21.04	11.06	32.10	46.00	-13.90	Average	Line
10 QP	1.625	26.13	11.06	37.19	56.00	-18.81	QP	Line
11	3.100	10.26	10.72	20.98	46.00	-25.02	Average	Line
12	3.100	16.15	10.72	26.87	56.00	-29.13	QP	Line



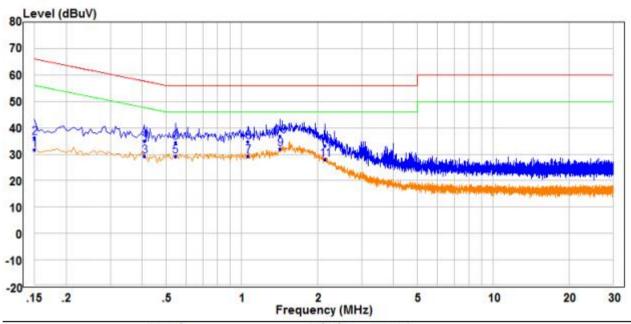
Neutral line:





#2

Live line:

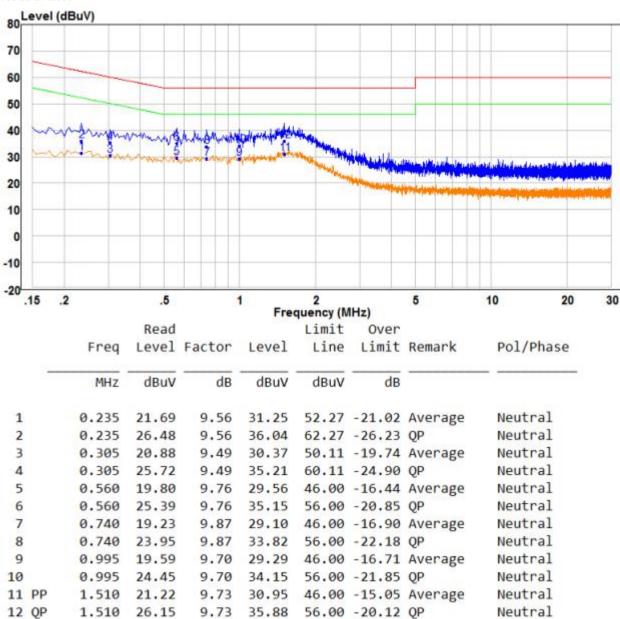


	Read			Limit	Over		
Freq	Level	Factor	Level	Line	Limit	Remark	Pol/Phase
MHz	dBuV	dB	dBuV	dBuV	dB		
.150	22.09	9.70	31.79	56.00	-24.21	Average	Line
0.150	26.60	9.70	36.30	66.00	-29.70	QP	Line
.410	19.49	9.62	29.11	47.65	-18.54	Average	Line
0.410	25.31	9.62	34.93	57.65	-22.72	QP	Line
3.545	19.40	9.75	29.15	46.00	-16.85	Average	Line
.545	24.75	9.75	34.50	56.00	-21.50	QP	Line
1.060	19.43	9.86	29.29	46.00	-16.71	Average	Line
1.060	24.71	9.86	34.57	56.00	-21.43	QP	Line
1.420	21.44	10.68	32.12	46.00	-13.88	Average	Line
1.420	26.23	10.68	36.91	56.00	-19.09	QP	Line
2.145	16.42	11.50	27.92	46.00	-18.08	Average	Line
2.145	21.79	11.50	33.29	56.00	-22.71	QP	Line
	MHz 0.150 0.410 0.410 0.545 0.545 1.060 1.060 1.420 1.420 2.145	MHZ dBuV 0.150 22.09 0.150 26.60 0.410 19.49 0.410 25.31 0.545 19.40 0.545 24.75 1.060 19.43 1.060 24.71 1.420 26.23 2.145 16.42	Hreq Level Factor MHz dBuV dB 0.150 22.09 9.70 0.150 26.60 9.70 0.410 19.49 9.62 0.410 25.31 9.62 0.545 19.40 9.75 0.545 24.75 9.75 0.60 19.43 9.86 0.60 24.71 9.86 0.420 21.44 10.68 0.420 26.23 10.68 0.145 16.42 11.50	Hreq Level Factor Level MHz dBuV dB dBuV 0.150 22.09 9.70 31.79 0.150 26.60 9.70 36.30 0.410 19.49 9.62 29.11 0.410 25.31 9.62 34.93 0.545 19.40 9.75 29.15 0.545 24.75 9.75 34.50 0.60 19.43 9.86 29.29 0.60 24.71 9.86 34.57 0.42 21.44 10.68 32.12 0.42 26.23 10.68 36.91 0.145 16.42 11.50 27.92	Freq Level Factor Level Line MHz dBuV dBuV dBuV dBuV 0.150 22.09 9.70 31.79 56.00 0.150 26.60 9.70 36.30 66.00 0.410 19.49 9.62 29.11 47.65 0.545 19.40 9.75 29.15 46.00 0.545 24.75 9.75 34.50 56.00 1.060 19.43 9.86 29.29 46.00 1.060 24.71 9.86 34.57 56.00 1.420 21.44 10.68 32.12 46.00 1.420 26.23 10.68 36.91 56.00 2.145 16.42 11.50 27.92 46.00	Freq Level Factor Level Line Limit MHz dBuV dB dBuV dBuV dB 0.150 22.09 9.70 31.79 56.00 -24.21 0.150 26.60 9.70 36.30 66.00 -29.70 0.410 19.49 9.62 29.11 47.65 -18.54 0.410 25.31 9.62 34.93 57.65 -22.72 0.545 19.40 9.75 29.15 46.00 -16.85 0.545 24.75 9.75 34.50 56.00 -21.50 1.060 19.43 9.86 29.29 46.00 -16.71 1.060 24.71 9.86 34.57 56.00 -21.43 1.420 21.44 10.68 32.12 46.00 -13.88 1.420 26.23 10.68 36.91 56.00 -19.09 2.145 16.42 11.50 27.92 46.00 -18.08	Head Head





Neutral line:

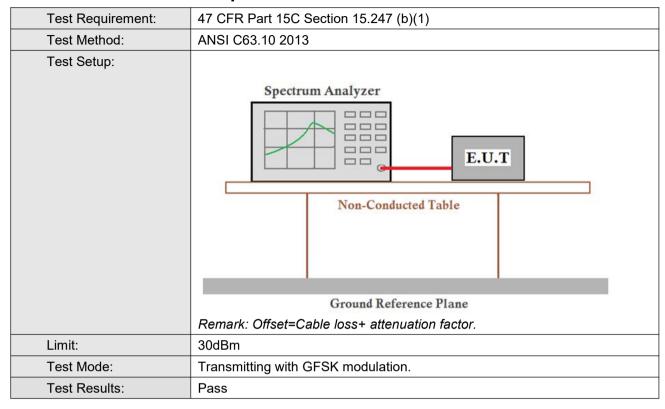


Remark:

- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
- 3. If the Peak value under Average limit, the Average value is not recorded in the report.



5.3 Conducted Peak Output Power

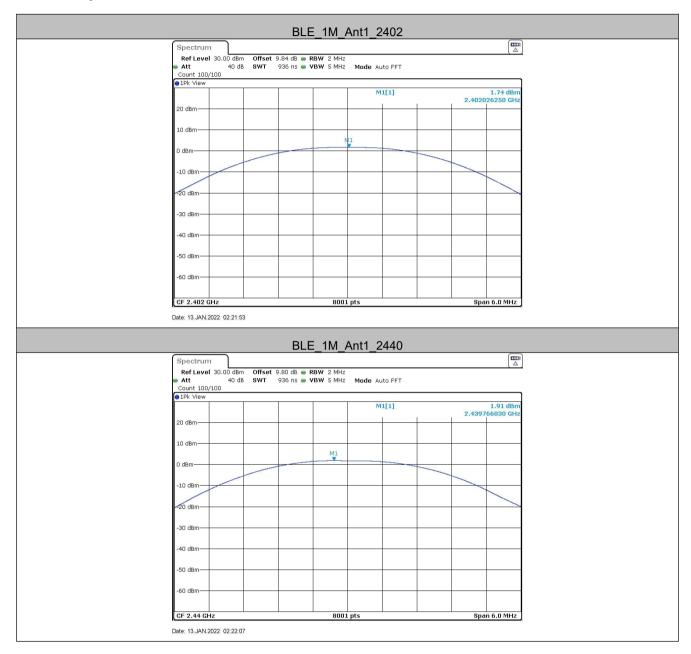


Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
		2402	1.74	≤30	PASS
BLE_1M	Ant1	2440	1.91	≤30	PASS
		2480	0.87	≤30	PASS
		2402	2.08	≤30	PASS
BLE_2M	Ant1	2440	2.06	≤30	PASS
		2480	1.05	≤30	PASS



Test Graphs





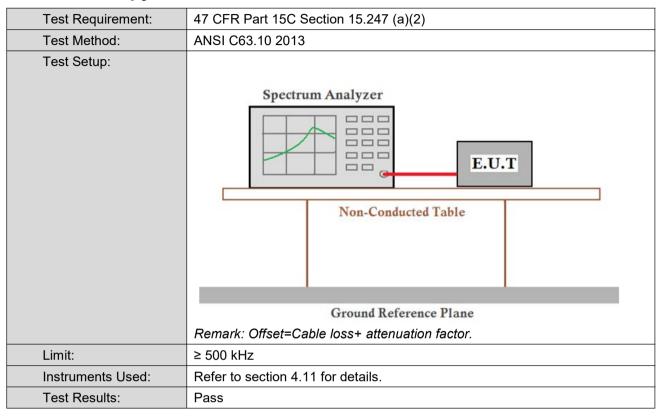








5.4 6dB Occupy Bandwidth

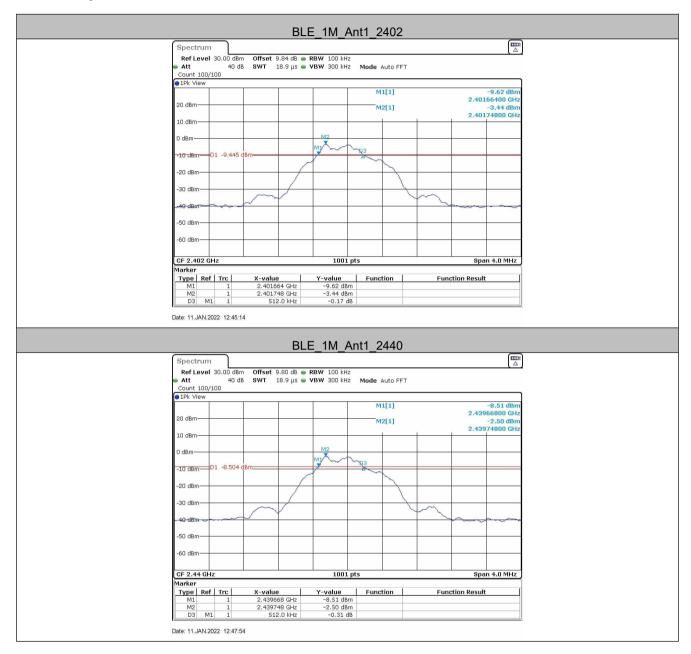


Test Result

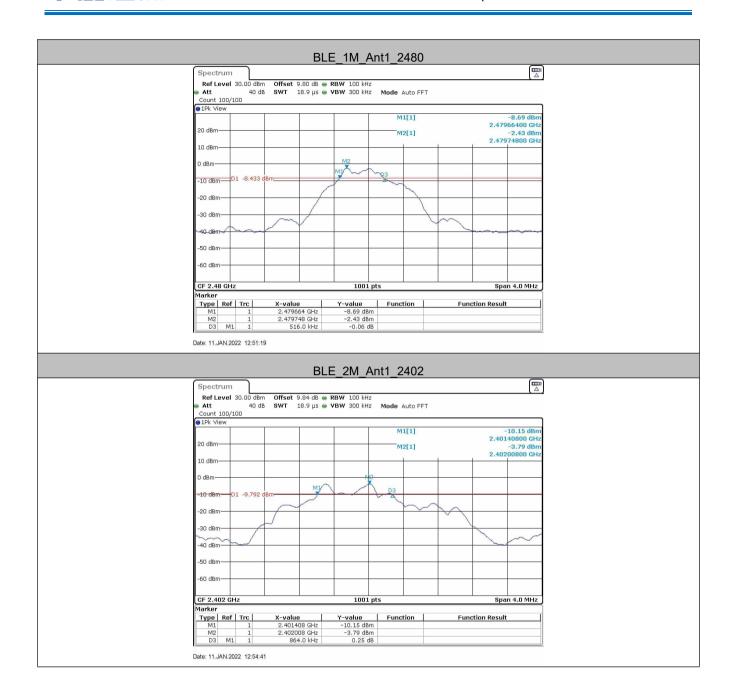
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
		2402	0.512	2401.664	2402.176	0.5	PASS
BLE_1M	Ant1	2440	0.512	2439.668	2440.180	0.5	PASS
		2480	0.516	2479.664	2480.180	0.5	PASS
		2402	0.864	2401.408	2402.272	0.5	PASS
BLE_2M	Ant1	2440	0.856	2439.412	2440.268	0.5	PASS
		2480	0.856	2479.416	2480.272	0.5	PASS



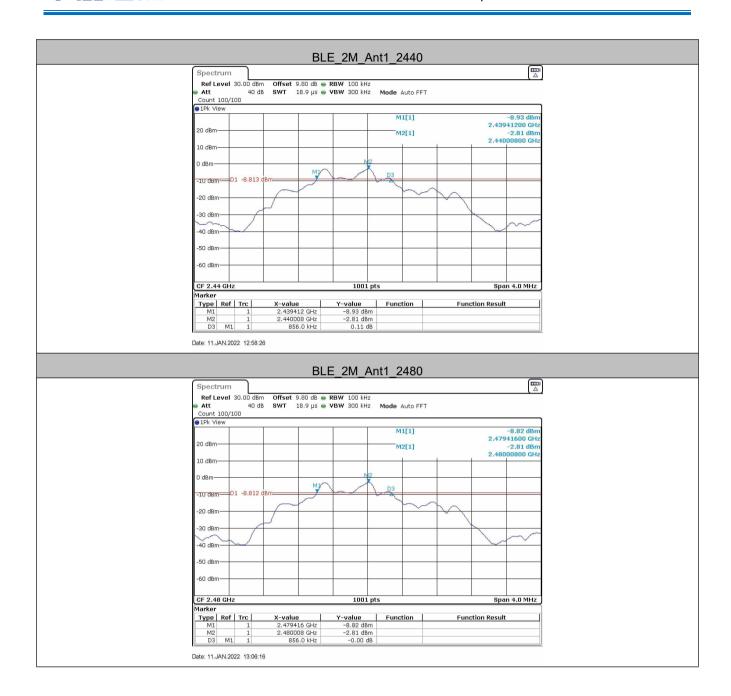
Test Graphs





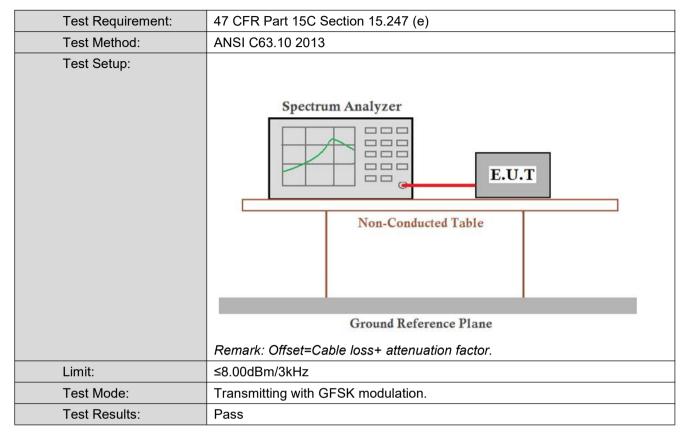








5.5 Power Spectral Density



Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
		2402	-14.43	≤8	PASS
BLE_1M	Ant1	2440	-13.43	≤8	PASS
		2480	-13.49	≤8	PASS
		2402	-15.27	≤8	PASS
BLE_2M	Ant1	2440	-14.43	≤8	PASS
		2480	-14.54	≤8	PASS



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Test Graphs

