



Report No.: 23CST120011M01

Test Report

Applicant: QINGDAO DONGMING YOUPIN INTERNATIONAL TRADE CO., LTD

Address of Applicant: ROOM 603 YUYUAN BUILDING B NO.75 HONGKONG WEST ROAD, QINGDAO CHINA

Manufacturer : Dongguan Suoweiren Electronics Co., LTD

Address of Manufacturer : 2 Floor Building ,Yueneng Industrial Park, Fumin Road,Houjie District Dongguan Guangdong China

Factory : Dongguan Suoweiren Electronics Co., LTD

Address of Factory: 2 Floor Building ,Yueneng Industrial Park, Fumin Road,Houjie District Dongguan Guangdong China

Equipment Under Test (EUT)

Product Name: Bluetooth handle

Model No.: 2322/3C2M638

Trade Mark -

Applicable standards: Article 2 paragraph 1 item 19
Notice No.88 Annex 43

Date of sample receipt: Dec.05,2023

Date of Test: Dec.05-11,2023

Date of report issued: Dec.11,2023

Test Result : PASS *

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

Authorized Signature:



David Zhong

Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.



2 Version

Version No.	Date	Description
00	Dec.11,2023	Original

Prepared By:

Project Engineer

Date:

Dec.11,2023

Check By:

Reviewer

Date:

Dec.11,2023



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4 Test Summary

Test Item	Result
Frequency Error	Pass
Antenna Power	Pass
Tolerances for antenna power	Pass
Transmission rate	Pass
99% Occupied Bandwidth	Pass
Spread Spectrum Bandwidth	Pass
Spurious Emissions Intensity	Pass
Limit of Secondary Radiated Emissions	Pass
Interference Suppression	Pass

Pass: The EUT complies with the carrier sense capability and radio interference prevention capability.

5 General Information

5.1 General Description of EUT

Product Name:	Bluetooth handle
Model No.:	2322/3C2M638
Operation Frequency:	2402MHz~2480MHz
Channel Numbers:	40
Channel Separation:	2MHz
Modulation Type:	GFSK
Rated Power:	0.44mW
Antenna Type:	PCB antenna
Antenna Gain:	0dBi
Hardware Version:	N/A
Software Version:	N/A
Power supply:	Power Supply: DC 5V



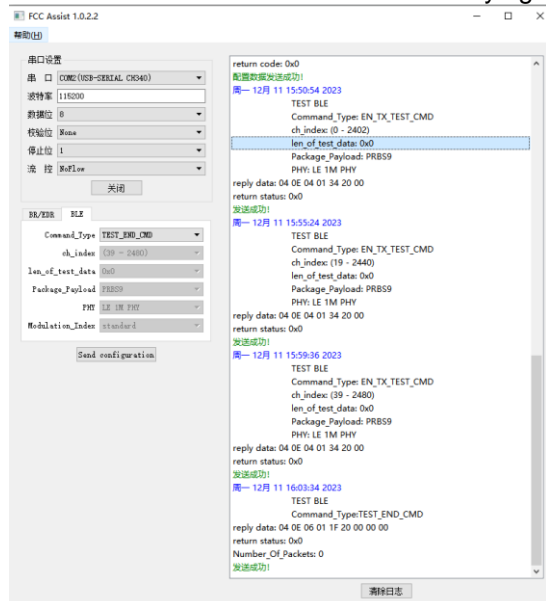
5.2 Channel list

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
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz

Test Channel	Frequency(MHz)
Lowest channel	2402.00
Middle channel	2440.00
Highest channel	2480.00

5.3 Test mode

Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed.



POWER	Frequency		
	2402MHz	2440MHz	2480MHz
	Default	Default	Default

5.4 Test condition

During the input supply voltage to the EUT from the external power source is varied by +/-10%, EUT only operated in normal, High and Low voltage to test all regulations.

External power supply	RF IC power supply	Deviation from normal	Deviation
Normal voltage: DC 5.0V	3.70V	-	-
High voltage: DC 5.5V	4.01V	-	-
Low voltage: DC 4.5V	3.30V	-	-
Temperature:	25 °C		
Humidity:	52%		
Atmospheric Pressure	1010mbar		

5.5 Test Location

All tests were performed at:

Shenzhen CST Testing Co., Ltd

Address: Room 202-203, Floor 2st, Building B, Baoan Zhigu Technology Park, Xixiang Street, Baoan District, Shenzhen, China. 518101

Tel: 0755-27907627

Fax: 0755-27907627

5.6 Other Information Requested by the Customer

None.

5.7 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Radio Test Software	TST	V2	CST210	Oct. 15, 2023	Oct. 14, 2024
2	TST PASS RF control box V2	TST	V2	CST210	Oct. 15, 2023	Oct. 14, 2024
3	Power measuring unit	TST	V2	CST210	Oct. 15, 2023	Oct. 14, 2024
4	Automatic path switching module	TST	V2	CST210	Oct. 15, 2023	Oct. 14, 2024
5	Spectrum Analyzer	Agilent	N9020A	CST001	Oct. 15, 2023	Oct. 14, 2024
6	Signal Generator	Agilent	N5182A	CST211	Oct. 15, 2023	Oct. 14, 2024
7	Signal Generator	Agilent	N5181A	CST212	Oct. 15, 2023	Oct. 14, 2024
8	UNIVERSAL RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMW200	CST002	Oct. 15, 2023	Oct. 14, 2024
9	Splitter	Agilent	11636B	CST213	Oct. 15, 2023	Oct. 14, 2024
10	Power Attenuator	BTI	30dB/250W	CST216	Oct. 15, 2023	Oct. 14, 2024
11	Power Attenuator	BTI	20dB	CST217	Oct. 15, 2023	Oct. 14, 2024
12	D.C. Power Supply	Gwinstek	GPC-3060D	CST018	Oct. 15, 2023	Oct. 14, 2024
13	Coaxial Cable	CST	N/A	CST219	Oct. 15, 2023	Oct. 14, 2024
14	Coaxial Cable	CST	N/A	CST220	Oct. 15, 2023	Oct. 14, 2024
15	Coaxial cable	CST	N/A	CST222	Oct. 15, 2023	Oct. 14, 2024
16	Coaxial Cable	CST	N/A	CST223	Oct. 15, 2023	Oct. 14, 2024
17	Temperature and humidity box	ATOINSTRUMENT	ATH-2254-CP	CST026	Oct. 15, 2023	Oct. 14, 2024
18	Temperature and humidity meter	GEMLEAD	STH130	CST042	Oct. 15, 2023	Oct. 14, 2024
19	oscilloscope	Tektronix	TDS3032B	B031533	Oct. 15, 2023	Oct. 14, 2024

Remark: All above equipments were calibrated by CEPREI calibration and testing center.

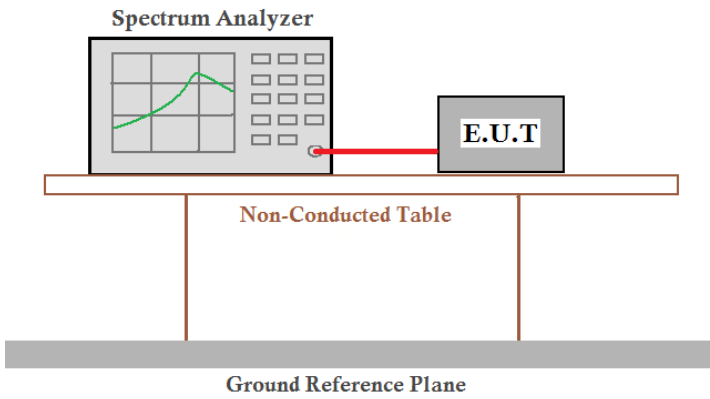
5.8 Measurement uncertainty

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with TR100028-1 [2] and shall correspond to an expansion factor (coverage factor) K=1.96 or K=2 (which provide confidence levels of respectively 95% and 95.5% in the case where the distributions characterizing the actual measurement uncertainties are normal).

Parameter	Uncertainty
RF frequency	$\pm 6 \times 10^{-7}$
Total RF power, conducted	$\pm 0.8\text{dB}$
Spurious emissions, conducted	$\pm 0.8\text{dB}$
DC and low frequency voltages	$\pm 3\%$
Humidity	$\pm 5\%$
Temperature	$\pm 1^\circ\text{C}$

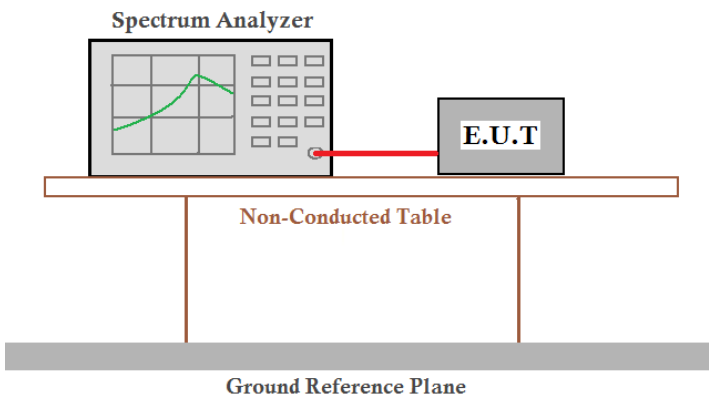
6 Test results and Measurement Data

6.1 Frequency Error

Test condition:	Without modulation, continuously transmitting.
Spectrum set:	Test Frequency: test channel, RBW=VBW=10KHz, Span=1MHz, Sweep time=Auto, Detector mode=Positive peak
Limit:	50ppm
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.8 for details
Test results:	Pass

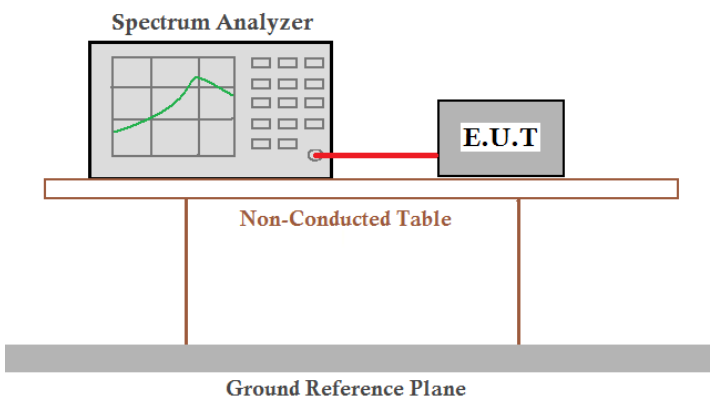
Measurement Data: The detailed test data see Appendix I

6.2 Antenna Power

Test condition:	Test diffusion code and modulate with standard coding test signal
Spectrum set:	Measurement procedure <ol style="list-style-type: none"> Search Frequency of Peak Power Test Frequency: test channel, RBW=VBW\geqOBW, Span\geqOBW, Sweep time=Auto, Detector mode =Positive peak Measure of average burst power Test Frequency: frequency of peak power RBW=VBW\geqOBW, Span=0Hz, Sweep time=Auto, Detector mode=Positive peak Antenna power= average burst power
Limit:	10mW
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table, which is supported by two vertical legs. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.8 for details
Test results:	Pass

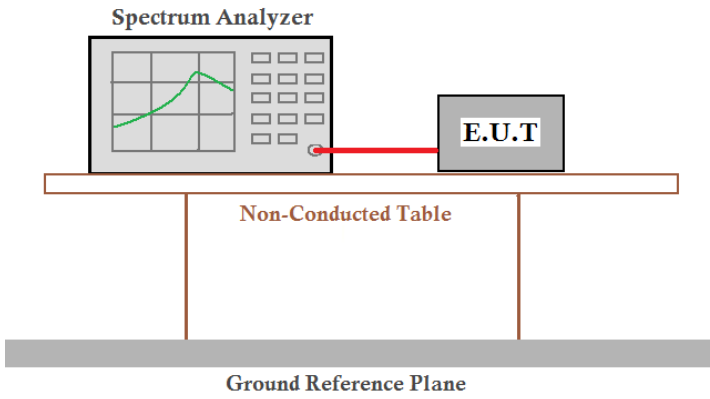
Measurement Data: The detailed test data see Appendix I

6.3 Occupy Bandwidth (99%)

Test condition:	Test diffusion code and modulate with standard coding test signal
Spectrum set:	Test Frequency: test channel, RBW=VBW=300KHz, Span=3MHz, Sweep time=Auto, Detector mode=Positive peak
Limit:	26MHz or less
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table. The table is supported by two vertical legs. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.8 for details
Test mode:	Transmitting mode
Test results:	Pass

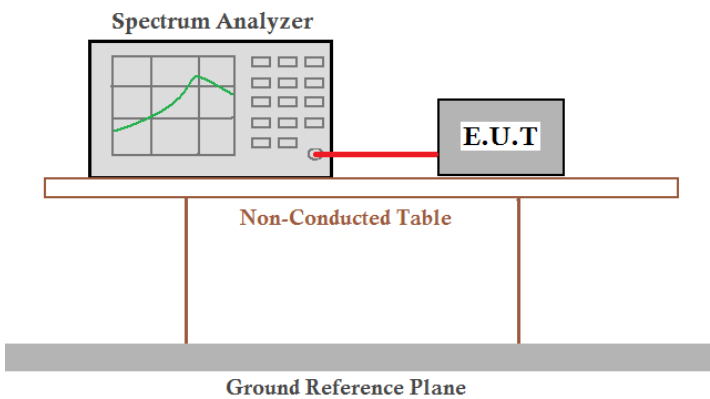
Measurement Data: The detailed test data see Appendix I

6.4 Spread Spectrum Bandwidth (90%)

Test condition:	Test diffusion code and modulate with standard coding test signal
Spectrum set:	Test Frequency: test channel, RBW=VBW=300KHz, Span=3MHz, Sweep time=Auto, Detector mode=Positive peak
Limit:	500KHz or more
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.8 for details
Test mode:	Transmitting mode
Test results:	Pass

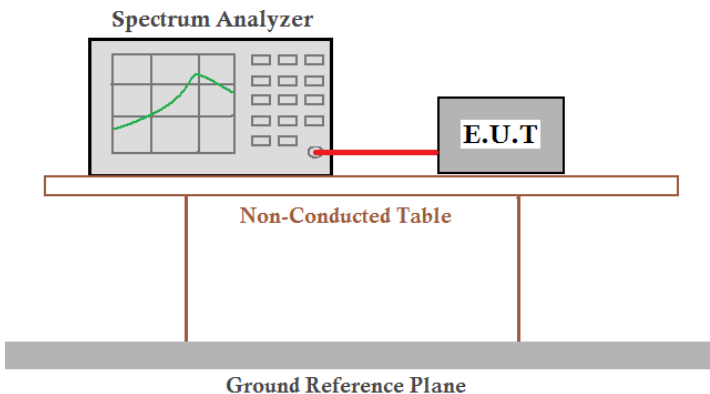
Measurement Data: The detailed test data see Appendix I

6.5 Spurious emission intensity

Test condition:	Test diffusion code and modulate with standard coding test signal
Measurement procedure:	Step 1 All spurious are measured from 30MHz to 13GHz by peak mode. Step 2 If the value measured by Step1 is 3dB or less to the limit, measure in average mode.
Spectrum set:	Step 1: Test Frequency: test channel, RBW=VBW=1MHz, Sweep time=Auto, Detector mode=Positive peak Step 2: Test Frequency: spurious frequency RBW=VBW=1MHz, Sweep time=Auto, Detector mode=Sample, Span=0Hz
Limit:	Below 2387 MHz: 2.5 μ W/MHz or less 2387 to 2400 MHz: 25 μ W/MHz or less 2483.5 through 2496.5 MHz: 25 μ W/MHz or less Over 2496.5 MHz: 2.5 μ W/MHz or less
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.8 for details
Test results:	Pass

Measurement Data: The detailed test data see Appendix I

6.6 Secondary radiated emissions

Test condition:	Receiving mode
Measurement procedure:	Step 1 All spurious are measured from 30MHz to 13GHz by peak mode. Step 2 If the value measured by Step1 is 3dB or less to the limit, measure in average mode.
Spectrum set:	Step 1: Test Frequency: test channel, Below 1GHz, RBW=VBW=100KHz; Above 1GHz, RBW=VBW=1MHz, Sweep time=Auto, Detector mode=Positive peak Step 2: Test Frequency: spurious frequency Test Frequency: test channel, Below 1GHz, RBW=VBW=100KHz; Above 1GHz, RBW=VBW=1MHz, Sweep time=Auto, Detector mode=Sample, Span=0Hz
Limit:	Below 1GHz: 4.0nW or less Above 1GHz: 20nW or less
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by two vertical legs. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.8 for details
Test results:	Pass

Measurement Data: The detailed test data see Appendix I

6.7 Interference suppression

Measurement procedure:	(1) The radio equipment with automatic transmitting function of identification code a) Transmit the assigned identification code from the radio equipment. b) Confirm the identification code received by the demodulator. (2) The radio equipment with automatic receiving function of identification code a) Transmit the assigned identification code from the opposite equipment. b) Confirm that the usual communication is available. c) Transmit the identification code distinct from the assigned one from the opposite equipment. d) Confirm that the radio equipment is stopped or an indication is displayed as the identification code is different.		
Test setup:	Radio equipment	Dummy load Attenuator)	Demodulator
Test Instruments:	Refer to section 5.8 for details		
Test results:	Pass		

Measurement data:

Identification function:	Good; The MAC address is 04:0E:04:01:34:20:00
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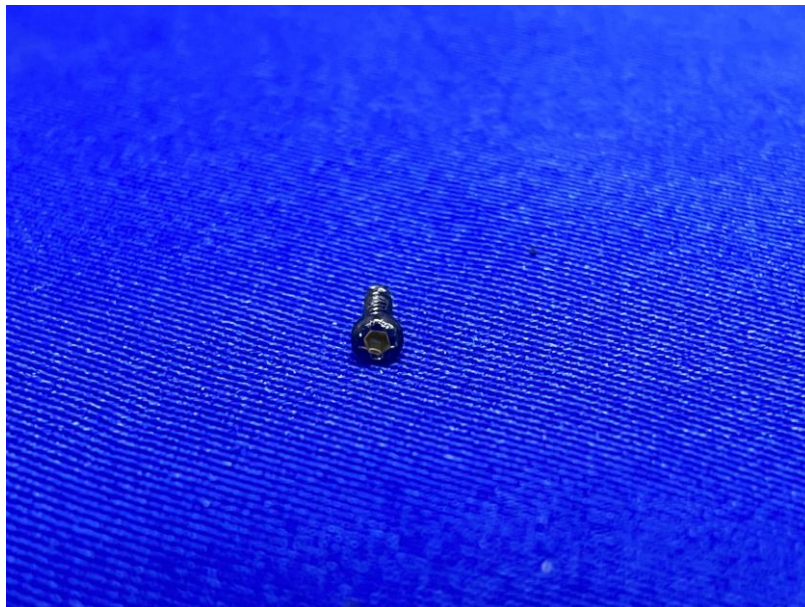
6.8 Construction Protection Confirmation

Limit

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily.

Confirmation Method

The shell is locked by screws and is not easy to open



7 Test Setup Photo

Reference to the **Test Photo** for details

8 EUT Constructional Details

Reference to the **External Photos** and **Internal Photos** for details

-----End-----