

Global United Technology Services Co., Ltd.

Report No.: GTS16000249E01

FCC Report (Bluetooth)

Applicant: Youngs Watch Co., Ltd.

Address of Applicant: Units 1-12, 10/F, Hope Sea Industrial Centre, No.26, Lam

Hing St., Kowloon Bay, Kowloon, Hong Kong.

Equipment Under Test (EUT)

Product Name: Bluetooth Smart Watch Module

Model No.: MD14322A, MD14336A, MD15352A

FCC ID: 2AE3L-MD14322

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247:2014

Date of sample receipt: February 25, 2016

Date of Test: February 25-29, 2016

Date of report issued: February 29, 2016

Test Result: PASS *

Authorized Signature:

Robinson Lo Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of GTS or testing done by GTS in connection with, distribution or use of the product described in this report must be approved by GTS in writing.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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



2 Version

Version No.	Date	Description
00	February 29, 2016	Original

Prepared By:	Sam. Gao	Date:	February 29, 2016
	Project Engineer		
Check By:	hank. yan Reviewer	Date:	February 29, 2016



3 Contents

			Page
1	CO/	VER PAGE	1
2	VER	RSION	2
3	CON	NTENTS	3
4	TES	ST SUMMARY	4
	4.1	MEASUREMENT UNCERTAINTY	4
5	GEN	NERAL INFORMATION	5
	5.1 5.2	CLIENT INFORMATIONGENERAL DESCRIPTION OF EUT	5
	5.3 5.4	TEST MODE DESCRIPTION OF SUPPORT UNITS	7
	5.5 5.6	TEST FACILITY TEST LOCATION	
6	TES	ST INSTRUMENTS LIST	8
7	TES	ST RESULTS AND MEASUREMENT DATA	9
	7.1	ANTENNA REQUIREMENT	
	7.2 7.2.	Spurious Emission	
8	TES	ST SETUP PHOTO	16
9	EUT	Γ CONSTRUCTIONAL DETAILS	17



4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	N/A
Conducted Output Power	15.247 (b)(3)	N/A
Channel Bandwidth	15.247 (a)(2)	N/A
Power Spectral Density	15.247 (e)	N/A
Band Edge	15.247(d)	N/A
Spurious Emission	15.205/15.209	Pass

Pass: The EUT complies with the essential requirements in the standard.

Remark: Test according to ANSI C63.4:2014

4.1 Measurement Uncertainty

Test Item	Frequency Range Measurement Uncertainty		Notes
Radiated Emission	9kHz ~ 30MHz	± 4.34dB	(1)
Radiated Emission	30MHz ~ 1000MHz	± 4.24dB	(1)
Radiated Emission	1GHz ~ 26.5GHz	± 4.68dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.45dB	(1)
Note (1): The measurement unce	ertainty is for coverage factor of k	=2 and a level of confidence of	95%.

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960



5 General Information

5.1 Client Information

Applicant:	Youngs Watch Co., Ltd.	
Address of Applicant:	Units 1-12, 10/F, Hope Sea Industrial Centre, No.26, Lam Hing St., Kowloon Bay, Kowloon, Hong Kong.	
Manufacturer/Factory:	Dalas Timepiece (ShenZhen) Co., Ltd.	
Address of Manufacturer/Factory:	No.11, YunFeng Rd., QueShan Industrial District, Dalang St., ShenZhen , China	

5.2 General Description of EUT

Product Name:	Bluetooth Smart Watch Module
Model No.:	MD14322A, MD14336A, MD15352A
Operation Frequency:	2402MHz~2480MHz
Channel Numbers:	40
Channel Separation:	2MHz
Modulation Type:	GFSK
Antenna Type:	Integral antenna
Antenna Gain:	1.0dBi
Power Supply:	DC 3.0V Li-ion Battery

Page 5 of 22



Operation Frequency each of channel								
Channel Frequency Channel			Frequency	Channel	Frequency	Channel	Frequency	
1	2402MHz	11	2422MHz	21	2442MHz	31	2462MHz	
2	2404MHz	12	2424MHz	22	2444MHz	32	2464MHz	
• !			. !	• !	• !	• !	•	
9	2418MHz	19	2438MHz	29	2458MHz	39	2478MHz	
10	2420MHz	20	2440MHz	30	2460MHz	40	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	2402MHz
The middle channel	2440MHz
The Highest channel	2480MHz



5.3 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode
Remark: During the test,	the new battery was used.

5.4 Description of Support Units

None

5.5 Test Facility

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

• FCC —Registration No.: 600491

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, June 28, 2013.

• Industry Canada (IC) —Registration No.: 9079A-2

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, June 26, 2013.

5.6 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: Room 301-309, 3th Floor, Block A, Huafeng Jinyuan Business Building, No. 300 Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen 518102

Tel: 0755-27798480 Fax: 0755-27798960



6 Test Instruments list

Rad	Radiated Emission:							
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)		
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 27 2015	Mar. 26 2016		
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A		
3	Spectrum Analyzer	Agilent	E4440A	GTS533	Dec. 03 2015	Dec.02 2016		
4	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June 30 2015	June 29 2016		
5	5 BiConiLog Antenna SCHWAR		VULB9163	GTS214	June 30 2015	June 29 2016		
6	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 26 2015	June 25 2016		
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 27 2015	Mar. 27 2015		
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A		
9	Coaxial Cable	GTS	N/A	GTS213	Mar. 27 2015	Mar. 26 2016		
10	Coaxial Cable	GTS	N/A	GTS211	Mar. 28 2015	Mar. 27 2016		
11	Coaxial cable	GTS	N/A	GTS210	Mar. 28 2015	Mar. 27 2016		
12	Coaxial Cable	GTS	N/A	GTS212	Mar. 28 2015	Mar. 27 2016		
13	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June 30 2015	June 29 2016		
14	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	June 30 2015	June 29 2016		
15	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 26 2015	June 25 2016		
16	Band filter	Amindeon	82346	GTS219	Mar. 28 2015	Mar. 27 2016		

Gen	General used equipment:							
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)		
1	Barometer	ChangChun	DYM3	GTS257	July 07 2015	July 06 2016		



7 Test results and Measurement Data

7.1 Antenna requirement

Standard requirement: FCC Part15 C 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(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

E.U.T Antenna:

The antenna is Integral antenna, the best case gain of the antenna is 1dBi





7.2 Spurious Emission

7.2.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209								
Test Method:	ANSI C63.10:2013								
Test Frequency Range:	30MHz to 25GHz	30MHz to 25GHz							
Test site:	Measurement Di	stance: 3m							
Receiver setup:	Frequency	Detector	RBW	VBW	Value				
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak				
	Above 1GHz	Peak	1MHz	3MHz	Peak				
	Above IGHZ	RMS	1MHz	3MHz	Average				
Limit:	Frequer	ісу	Limit (dBuV	/m @3m)	Value				
	30MHz-88	MHz	40.0	0	Quasi-peak				
	88MHz-216	6MHz	43.5	0	Quasi-peak				
	216MHz-96	0MHz	46.00		Quasi-peak				
	960MHz-1	GHz	54.00		Quasi-peak				
	Above 10	` ⊔-	54.00		Average				
	Above 10	Above 1GHz 74.00							
Test setup:	Below 1GHz Tum Table Ground Plane Above 1GHz	4m		Antenna Tower Search Antenna RF Test Receiver					



	Antenna Tower Horn Antenna Turn Table 1.5m A Im A Amplifier
Test Procedure:	1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
	2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
	3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
	4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
	The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
	6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasipeak or average method as specified and then reported in a data sheet.
	7. The radiation measurements are performed in X, Y, Z axis positioning. And found the Y axis positioning which it is worse case, only the test worst case mode is recorded in the report.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Remark:

Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.



Measurement Data

■ Below 1GHz

	0112							
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
38.48	26.55	15.20	0.65	30.05	12.35	40.00	-27.65	Vertical
74.40	24.43	9.87	0.98	29.83	5.45	40.00	-34.55	Vertical
178.76	25.19	11.62	1.73	29.28	9.26	43.50	-34.24	Vertical
360.45	24.24	16.43	2.67	29.69	13.65	46.00	-32.35	Vertical
517.25	24.41	18.94	3.38	29.30	17.43	46.00	-28.57	Vertical
790.62	24.89	21.96	4.42	29.20	22.07	46.00	-23.93	Vertical
34.04	23.84	14.31	0.60	30.08	8.67	40.00	-31.33	Horizontal
61.35	23.30	14.16	0.87	29.91	8.42	40.00	-31.58	Horizontal
129.47	24.56	11.03	1.43	29.51	7.51	43.50	-35.99	Horizontal
302.48	22.44	15.08	2.37	29.98	9.91	46.00	-36.09	Horizontal
640.61	23.85	20.60	3.87	29.26	19.06	46.00	-26.94	Horizontal
729.36	24.18	21.19	4.19	29.20	20.36	46.00	-25.64	Horizontal



■ Above 1GHz

Test channel	:			Low	est			
Peak value:								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4804.00	35.45	31.78	8.60	32.09	43.74	74.00	-30.26	Vertical
7206.00	30.60	36.15	11.65	32.00	46.40	74.00	-27.60	Vertical
9608.00	30.37	37.95	14.14	31.62	50.84	74.00	-23.16	Vertical
12010.00	*					74.00		Vertical
14412.00	*					74.00		Vertical
4804.00	39.35	31.78	8.60	32.09	47.64	74.00	-26.36	Horizontal
7206.00	32.19	36.15	11.65	32.00	47.99	74.00	-26.01	Horizontal
9608.00	29.62	37.95	14.14	31.62	50.09	74.00	-23.91	Horizontal
12010.00	*					74.00		Horizontal
14412.00	*					74.00		Horizontal

Average value:

Average var	uc.							
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4804.00	24.61	31.78	8.60	32.09	32.90	54.00	-21.10	Vertical
7206.00	19.49	36.15	11.65	32.00	35.29	54.00	-18.71	Vertical
9608.00	18.69	37.95	14.14	31.62	39.16	54.00	-14.84	Vertical
12010.00	*					54.00		Vertical
14412.00	*					54.00		Vertical
4804.00	28.64	31.78	8.60	32.09	36.93	54.00	-17.07	Horizontal
7206.00	21.55	36.15	11.65	32.00	37.35	54.00	-16.65	Horizontal
9608.00	18.26	37.95	14.14	31.62	38.73	54.00	-15.27	Horizontal
12010.00	*					54.00		Horizontal
14412.00	*					54.00		Horizontal

Remark:

^{1.} Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

^{2. &}quot;*", means this data is the too weak instrument of signal is unable to test.



Test channel	:			M	iddle			
Peak value:								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4882.00	35.41	31.85	8.67	32.12	43.81	74.00	-30.19	Vertical
7323.00	30.58	36.37	11.72	31.89	46.78	74.00	-27.22	Vertical
9764.00	30.35	38.35	14.25	31.62	51.33	74.00	-22.67	Vertical
12205.00	*					74.00		Vertical
14646.00	*					74.00		Vertical
4882.00	39.32	31.85	8.67	32.12	47.72	74.00	-26.28	Horizontal
7323.00	32.16	36.37	11.72	31.89	48.36	74.00	-25.64	Horizontal
9764.00	29.60	38.35	14.25	31.62	50.58	74.00	-23.42	Horizontal
12205.00	*					74.00		Horizontal
14646.00	*					74.00		Horizontal
Average val	ue:		,					
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4882.00	24.59	31.85	8.67	32.12	32.99	54.00	-21.01	Vertical
7323.00	19.48	36.37	11.72	31.89	35.68	54.00	-18.32	Vertical
9764.00	18.67	38.35	14.25	31.62	39.65	54.00	-14.35	Vertical
12205.00	*					54.00		Vertical
14646.00	*					54.00		Vertical
4882.00	28.61	31.85	8.67	32.12	37.01	54.00	-16.99	Horizontal
7323.00	21.53	36.37	11.72	31.89	37.73	54.00	-16.27	Horizontal
9764.00	18.25	38.35	14.25	31.62	39.23	54.00	-14.77	Horizontal
12205.00	*					54.00		Horizontal
14646.00	*					54.00		Horizontal

Remark:

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960

^{1.} Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

^{2. &}quot;*", means this data is the too weak instrument of signal is unable to test.



Test channel	l:			H	lighest			
Peak value:								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4960.00	35.24	31.93	8.73	32.16	43.74	74.00	-30.26	Vertical
7440.00	30.46	36.59	11.79	31.78	47.06	74.00	-26.94	Vertical
9920.00	30.25	38.81	14.38	31.88	51.56	74.00	-22.44	Vertical
12400.00	*					74.00		Vertical
14880.00	*					74.00		Vertical
4960.00	39.11	31.93	8.73	32.16	47.61	74.00	-26.39	Horizontal
7440.00	32.03	36.59	11.79	31.78	48.63	74.00	-25.37	Horizontal
9920.00	29.48	38.81	14.38	31.88	50.79	74.00	-23.21	Horizontal
12400.00	*					74.00		Horizontal
14880.00	*					74.00		Horizontal
Average val	ue:							
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4960.00	24.47	31.93	8.73	32.16	32.97	54.00	-21.03	Vertical
7440.00	19.40	36.59	11.79	31.78	36.00	54.00	-18.00	Vertical
9920.00	18.60	38.81	14.38	31.88	39.91	54.00	-14.09	Vertical
12400.00	*					54.00		Vertical
14880.00	*					54.00		Vertical
4960.00	28.47	31.93	8.73	32.16	36.97	54.00	-17.03	Horizontal
7440.00	21.43	36.59	11.79	31.78	38.03	54.00	-15.97	Horizontal
9920.00	18.16	38.81	14.38	31.88	39.47	54.00	-14.53	Horizontal
12400.00	*					54.00		Horizontal
14880.00	*					54.00		Horizontal

Remark:

No. 300 Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen 518102 Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960

^{1.} Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

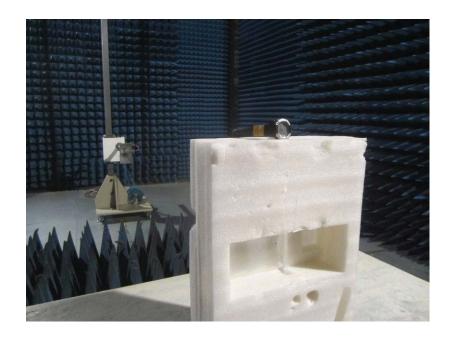
^{2. &}quot;*", means this data is the too weak instrument of signal is unable to test.



8 Test Setup Photo

Radiated Emission









9 EUT Constructional Details

















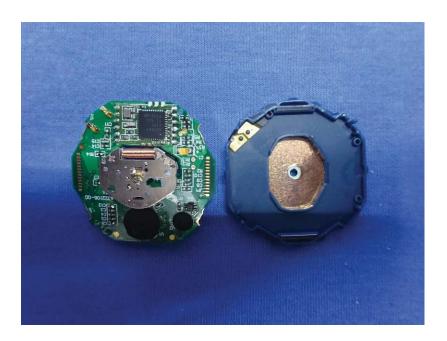






















-----End-----