

FCC Test Report

Report No.: AGC01820180701FE01

APPLICATION PURPOSE : Original Equipment
PRODUCT DESIGNATION : Smart Watch
BRAND NAME : Golf Buddy
MODEL NAME : WTX+, NEW WTX
CLIENT : DECA System CORP.
DATE OF ISSUE : Jul. 20, 2018
STANDARD(S) : FCC Part 15 Subpart B
REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jul. 20, 2018	Valid	Initial release

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1. VERIFICATION OF CONFORMITY

Applicant	DECA System CORP.
Address	98, Yatap-ro, Bundang-Gu, Seongnam-si, Gyeonggi-do, 13517, Korea
Manufacturer	Shenzhen Universal lot Corporation Limited
Address	3/F-5/F, building 4, Baokun Science and technology, Industrial Park, Dalang Street, Baoan District, Shenzhen, China
Product Designation	Smart Watch
Brand Name	Golf Buddy
Test Model	WTX+
Series Model	NEW WTX
Difference description	All the same except for the model name.
Date of test	Jul. 13, 2018 to Jul.20, 2018
Deviation	None
Condition of Test Sample	Normal
Report Template	AGCRT-US-IT/AC

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. For compliance with the requirements set forth in the FCC Rules and Regulations Part 15, the measurement procedure according to ANSI C63.4:2014. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements. The test results of this report relate only to the tested sample identified in this report.

Tested By




 Jonhen Wang(Wang Yonghuan) Jul. 20, 2018

Reviewed By



 Cool Cheng(Cheng Mengguo) Jul. 20, 2018

Approved By



 Forrest Lei(Lei Yonggang)
 Authorized Officer Jul. 20, 2018

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2. SYSTEM DESCRIPTION

EUT set up procedure:

1. Connect EUT and peripheral devices (PC) through USB port.
2. Power on the EUT, use the software to transfer data between EUT and PC.
3. Make sure the EUT operates normally during the test.

Test Mode

TEST MODE DESCRIPTION		
NO.	TEST MODE DESCRIPTION	WORST
1	Data transmission (USB connection for data transferring)	V
2	Sedentary reminder	
3	GolfBuddy mode	

Note: V means EMI worst mode.

3. MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

- Uncertainty of Conducted Emission, $U_c = \pm 3.2$ dB
- Uncertainty of Radiated Emission, $U_c = \pm 3.2$ dB

4. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.107	Conduction Emission	Compliant
§15.109	Radiated Emission	Compliant

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5. PRODUCT INFORMATION

Housing Type	Plastic and Metal
Voltage	DC 3.8V by battery

I/O Port Information (Applicable Not Applicable)

I/O Port of EUT			
I/O Port Type	Q'TY	Cable	Tested with
USB Port(Charging/data exchange)	1	0	1
Charging Port	1	0	1

6. SUPPORT EQUIPMENT

Device Type	Manufacturer	Model Name	Serial No.	Power Cable
PC	APPLE	A1534	N/A	0
PC	APPLE	A1367	N/A	0
PC Adapter	APPLE	E132068	N/A	2m unshielded 0
USB Cable	N/A	N/A	N/A	1m unshielded

Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

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7. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location 1	1-2F., Bldg.2, No.1-4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Bao'an District, Shenzhen, Guangdong, P.R.China
Location 2	B112-B113, Bldg.12, Baoan Bldg Materials Center, No.1 of Xixiang Inner Ring Road, Baoan District, Shenzhen 518012
Note: The test item conducted emission was tested in the laboratory of the location 1, the others were tested in the laboratory of the location 2.	

8. TEST EQUIPMENT LIST

TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Test Receiver	ROHDE&SCHWARZ	ESCI	100694	July 2, 2018	July 1, 2019
LISN	R&S	ESH3-Z5	838979/009	Mar.01 2018	Feb. 28, 2019

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Jun.20, 2018	Jun.19, 2019
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec.08, 2017	Dec.07, 2018
ANTENNA	SCHWARZBECK	VULB9168	D69250	Sep.28, 2017	Sep.27, 2018
HORN ANTENNA	EM	EM-AH-10180	N/A	Mar.01, 2018	Feb.28, 2019

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9. FCCLINE CONDUCTED EMISSION TEST

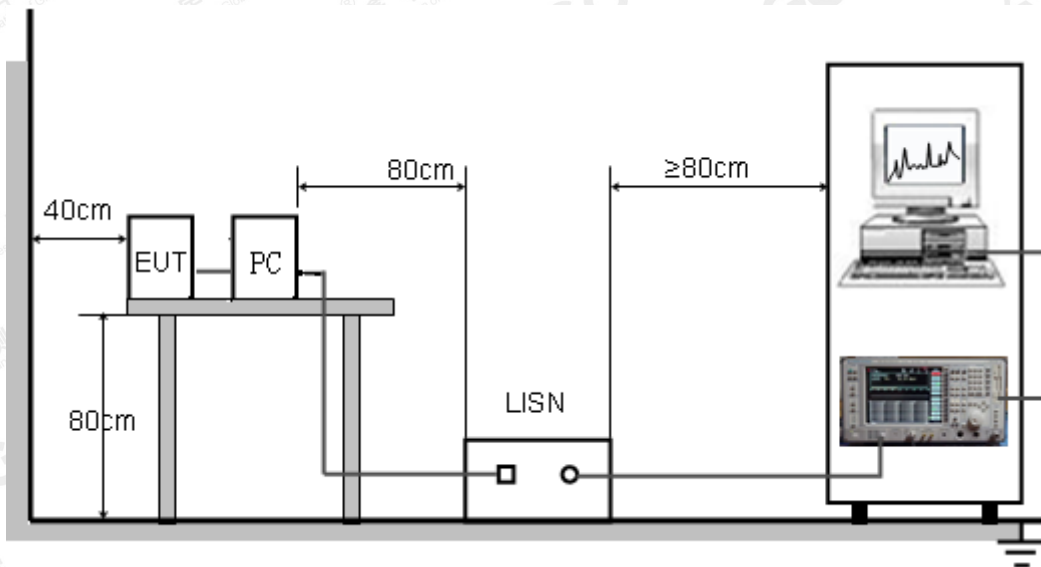
9.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz-500kHz	66-56	56-46
500kHz-5MHz	56	46
5MHz-30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.

9.2. BLOCK DIAGRAM OF TEST SETUP



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9.3. PROCEDURE OF LINE CONDUCTED EMISSION TEST

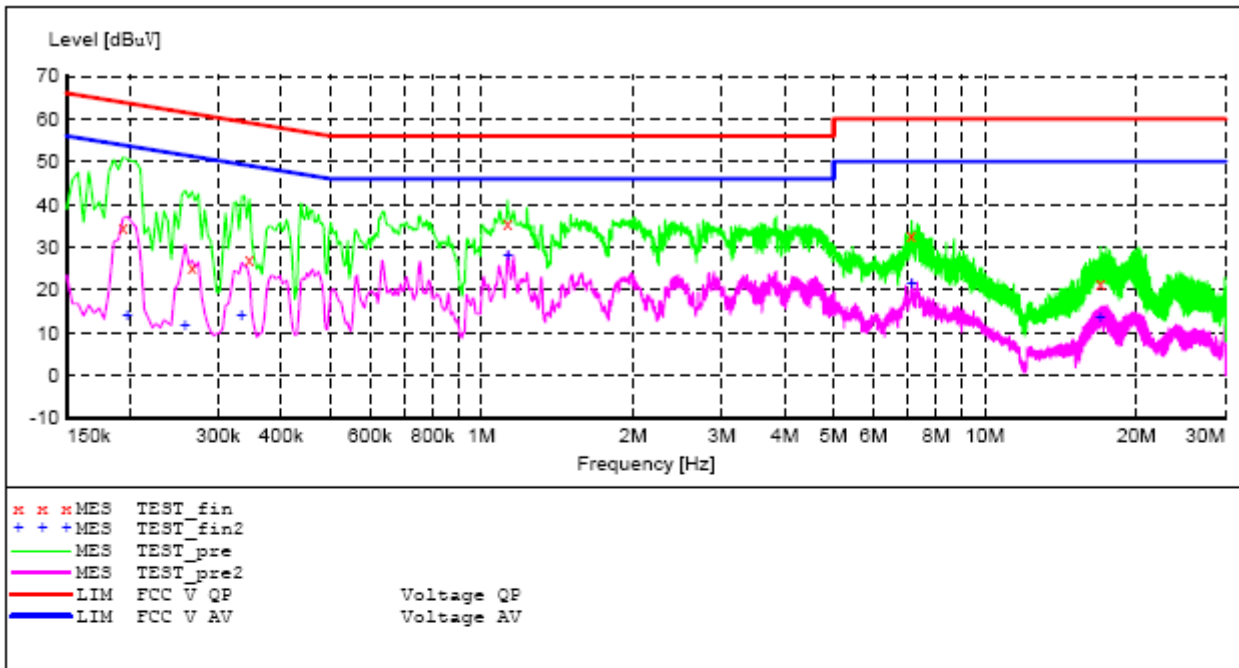
- (1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- (2) Support equipment, if needed, was placed as per ANSI C63.4.
- (3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- (4) The EUT received charging voltage by adapter which receive AC120V/60Hz power from a LISN.
- (5) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- (6) Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- (7) During the above scans, the emissions were maximized by cable manipulation.
- (8) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions.
- (9) Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.

The test data of the worst case condition (mode 1) was reported on the Summary Data page.

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9.4. TEST RESULT OF LINE CONDUCTED EMISSION TEST

LINE CONDUCTED EMISSION TEST-L



MEASUREMENT RESULT: "TEST_fin"

2018/7/20 11:22

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.194000	34.70	10.1	64	29.2	QP	L1	FLO
0.266000	25.50	10.1	61	35.7	QP	L1	FLO
0.346000	27.20	10.0	59	31.9	QP	L1	FLO
1.126000	35.80	10.1	56	20.2	QP	L1	FLO
7.138000	32.70	9.8	60	27.3	QP	L1	FLO
16.946000	21.40	9.5	60	38.6	QP	L1	FLO

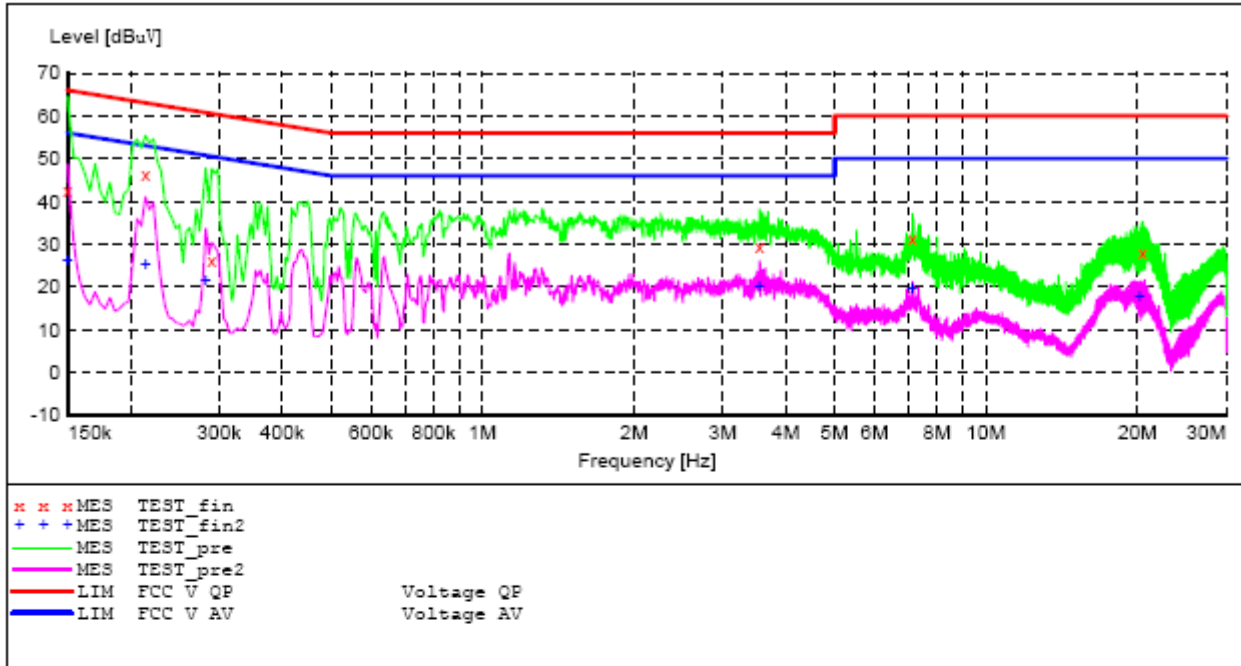
MEASUREMENT RESULT: "TEST_fin2"

2018/7/20 11:22

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.198000	14.00	10.1	54	39.7	AV	L1	FLO
0.258000	11.70	10.1	52	39.8	AV	L1	FLO
0.334000	14.00	10.0	49	35.4	AV	L1	FLO
1.130000	28.20	10.1	46	17.8	AV	L1	FLO
7.146000	21.70	9.8	50	28.3	AV	L1	FLO
16.946000	13.50	9.5	50	36.5	AV	L1	FLO

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LINE CONDUCTED EMISSION TEST-N



MEASUREMENT RESULT: "TEST_fin"

2018/7/20 11:15

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.150000	42.50	10.0	66	23.5	QP	N	FLO
0.214000	46.20	10.1	63	16.8	QP	N	FLO
0.290000	26.10	10.1	61	34.4	QP	N	FLO
3.550000	29.40	10.0	56	26.6	QP	N	FLO
7.142000	31.30	9.8	60	28.7	QP	N	FLO
20.462000	28.20	9.5	60	31.8	QP	N	FLO

MEASUREMENT RESULT: "TEST_fin2"

2018/7/20 11:15

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.150000	26.10	10.0	56	29.9	AV	N	FLO
0.214000	25.10	10.1	53	27.9	AV	N	FLO
0.282000	21.50	10.1	51	29.3	AV	N	FLO
3.550000	20.30	10.0	46	25.7	AV	N	FLO
7.138000	19.70	9.8	50	30.3	AV	N	FLO
20.186000	17.90	9.5	50	32.1	AV	N	FLO

RESULT: PASS

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10. FCC RADIATED EMISSION TEST

10.1. LIMITS OF RADIATED EMISSION TEST

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30~88	3	40.0
88~216	3	43.5
216~960	3	46.0
960~1000	3	54.0
Above 1000	3	Other:74.0 dB(μ V)/m (Peak) 54.0 dB(μ V)/m (Average)

Note: The lower limit shall apply at the transition frequency.

10.1.1 The following table is the setting of spectrum analyzer and receiver:

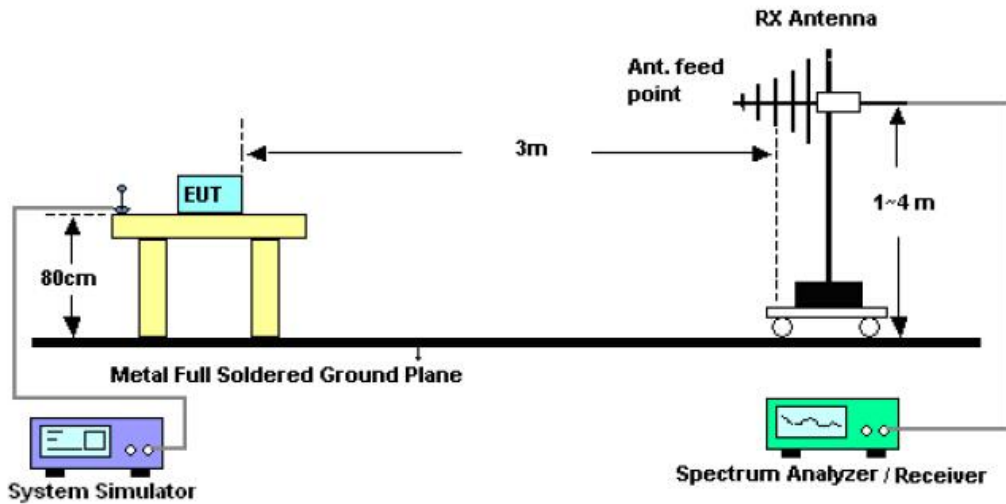
Spectrum Parameter	Setting
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~13GHz RBW 1MHz/ VBW 3MHz for Peak, RBW 1MHz/ VBW 10Hz for Average

Receiver Parameter	Setting
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

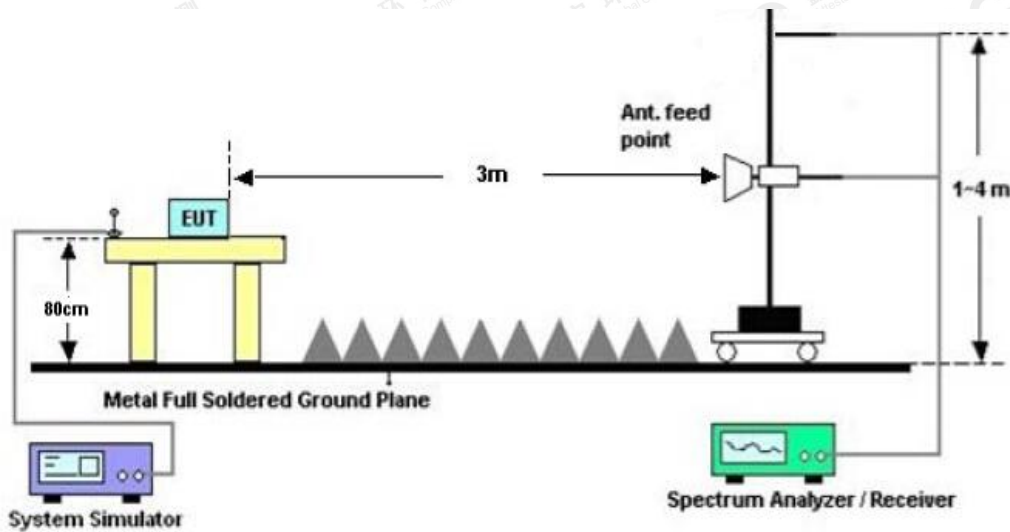
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10.2. BLOCK DIAGRAM OF TEST SETUP

RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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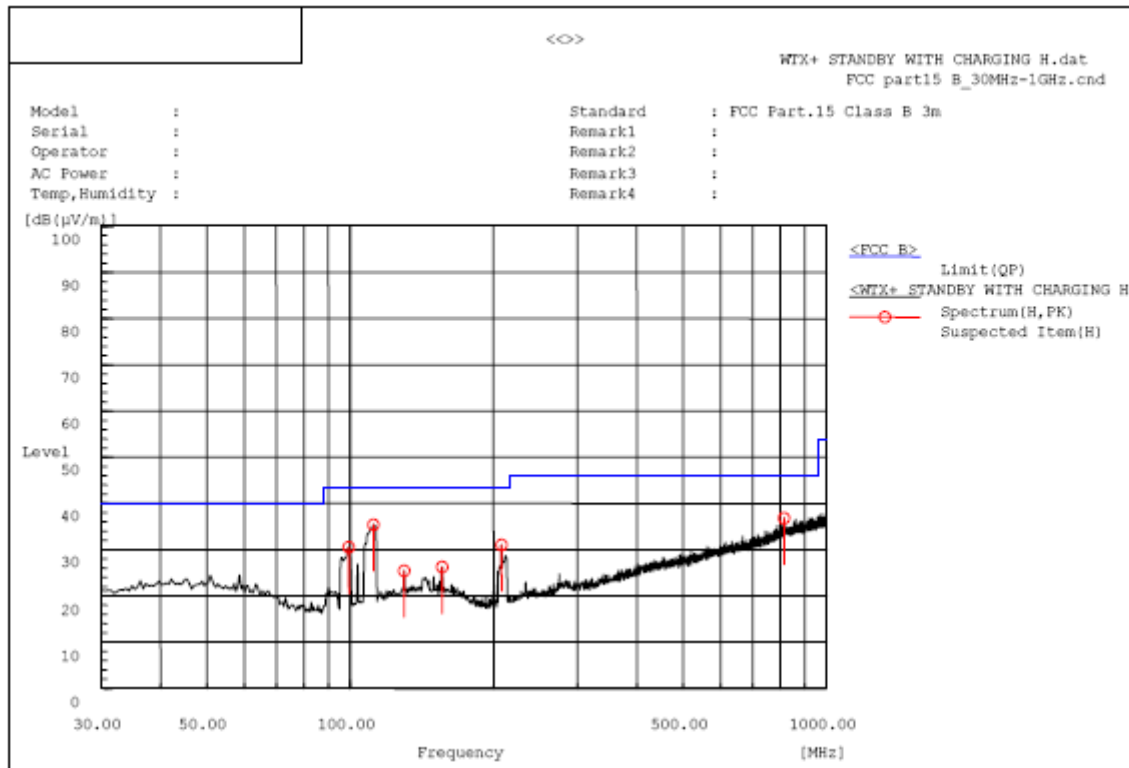
10.3. PROCEDURE OF RADIATED EMISSION TEST

1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.

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10.4. TEST RESULT OF RADIATED EMISSION TEST

Radiated Emission Test at 3m Distance-Horizontal

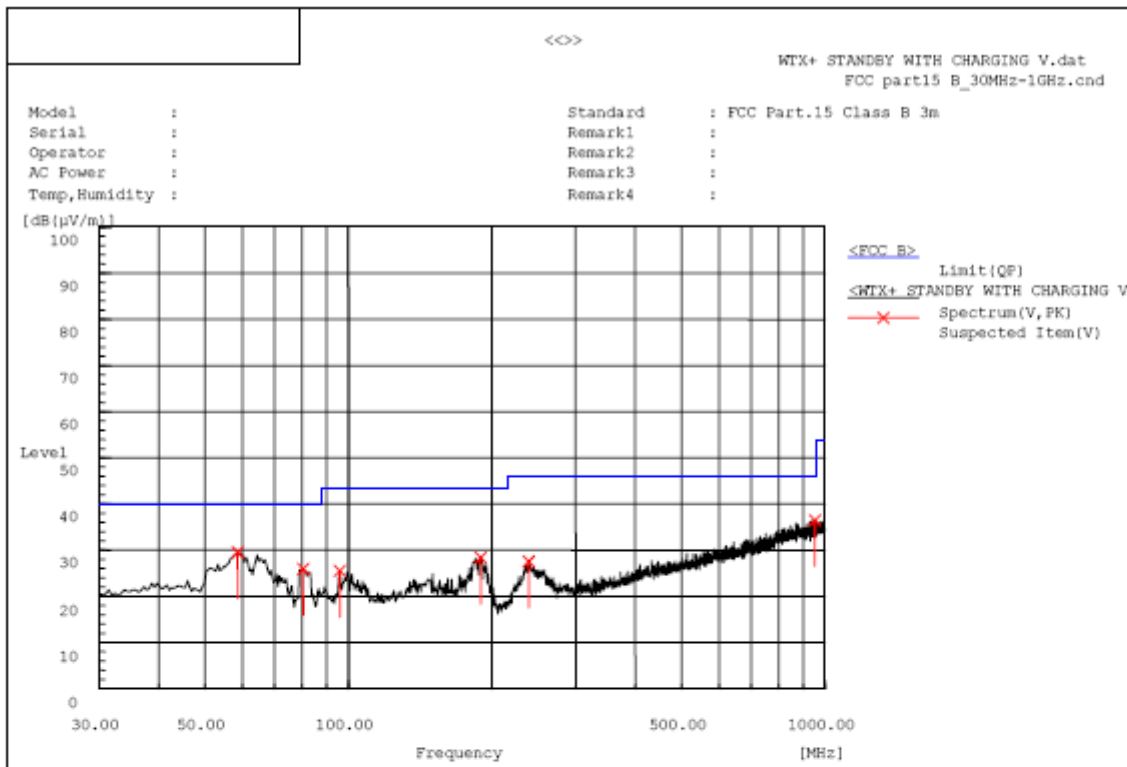


A. Suspected List:

Frequency MHz	Polarization	Reading dB(µV)	Factor dB (1/m)	Level dB(µV/m) PK	Limit dB(µV/m) QP	Margin dB	Pass/Fail	Height cm	Angle deg
99.355	H	17.2	13.3	30.5	43.5	13.0	Pass	200.0	271.5
111.965	H	20.7	14.7	35.4	43.5	8.1	Pass	150.0	250.3
129.910	H	9.2	16.2	25.4	43.5	18.1	Pass	200.0	267.5
156.100	H	9.6	16.6	26.2	43.5	17.3	Pass	150.0	294.7
207.995	H	17.2	13.8	31.0	43.5	12.5	Pass	200.0	124.1
815.215	H	7.8	29.0	36.8	46.0	9.2	Pass	200.0	340.7

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Radiated Emission Test at 3m Distance-Vertical



A. Suspected List:

Frequency MHz	Polarization	Reading dB(uV)	Factor dB (1/m)	Level dB(uV/m) PK	Limit dB(uV/m) QP	Margin dB	Pass/Fail	Height cm	Angle deg
58.615	V	13.2	16.4	29.6	40.0	10.4	Pass	150.0	287.3
80.440	V	13.6	12.3	25.9	40.0	14.1	Pass	150.0	104.6
95.960	V	12.7	12.8	25.5	43.5	18.0	Pass	150.0	251.6
189.565	V	14.6	13.8	28.4	43.5	15.1	Pass	200.0	281.6
239.035	V	11.4	16.2	27.6	46.0	18.4	Pass	200.0	173.1
953.440	V	5.8	30.7	36.5	46.0	9.5	Pass	100.0	208.2

RESULT: PASS

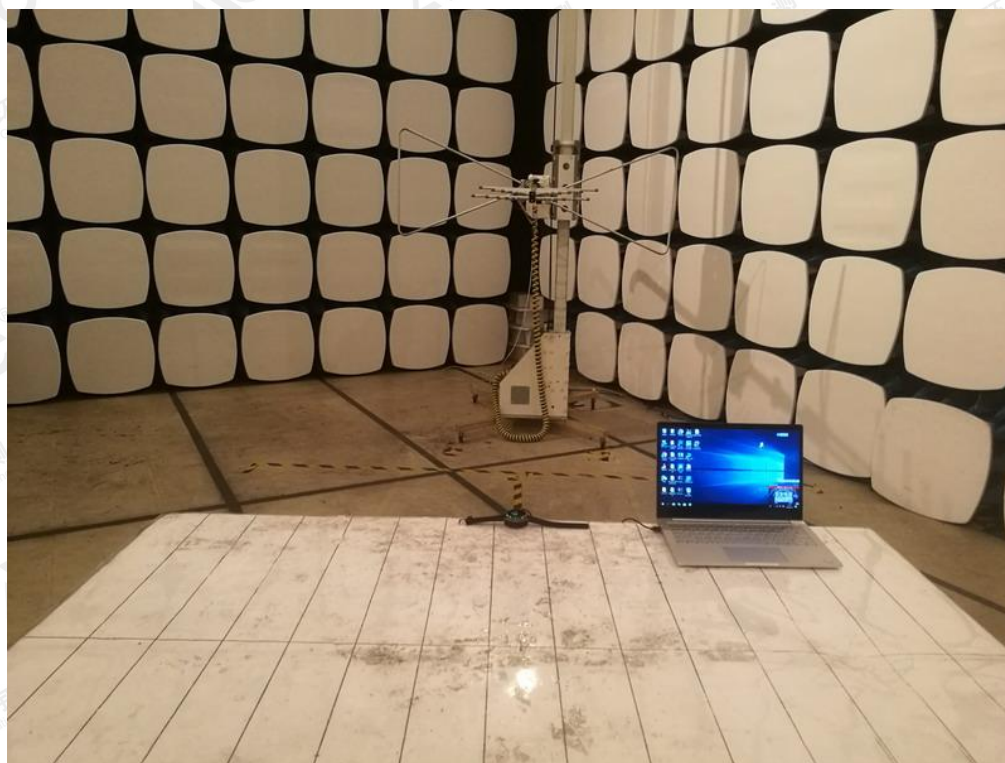
Note: Measurement = Reading + Factor, Over = Measurement – Limit.
1~13GHz at least have 20dB margin. No recording in the test report.

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APPENDIX A: PHOTOGRAPHS OF TEST SETUP
FCC LINE CONDUCTED EMISSION TEST SETUP



FCC RADIATED EMISSION TEST SETUP



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APPENDIX B: PHOTOGRAPHS OF EUT
TOTAL VIEW OF EUT



TOP VIEW OF EUT



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BOTTOM VIEW OF EUT



FRONT VIEW OF EUT



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BACK VIEW OF EUT



LEFT VIEW OF EUT



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RIGHT VIEW OF EUT



VIEW OF EUT (Port)

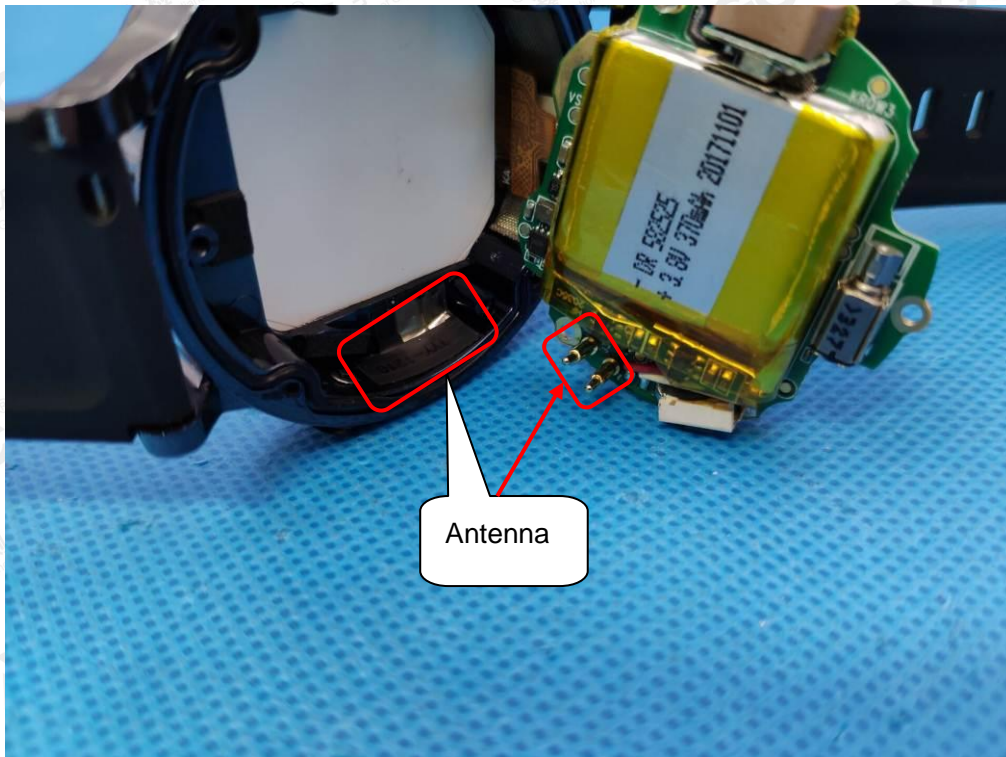


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OPEN VIEW OF EUT-1

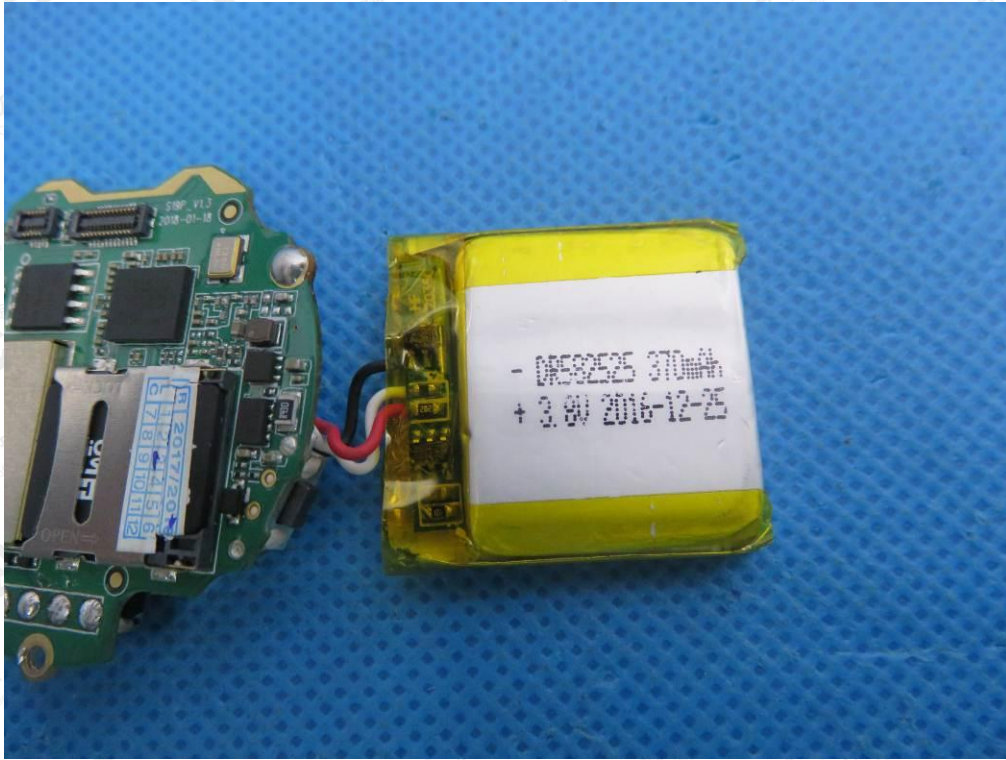


OPEN VIEW OF EUT-2

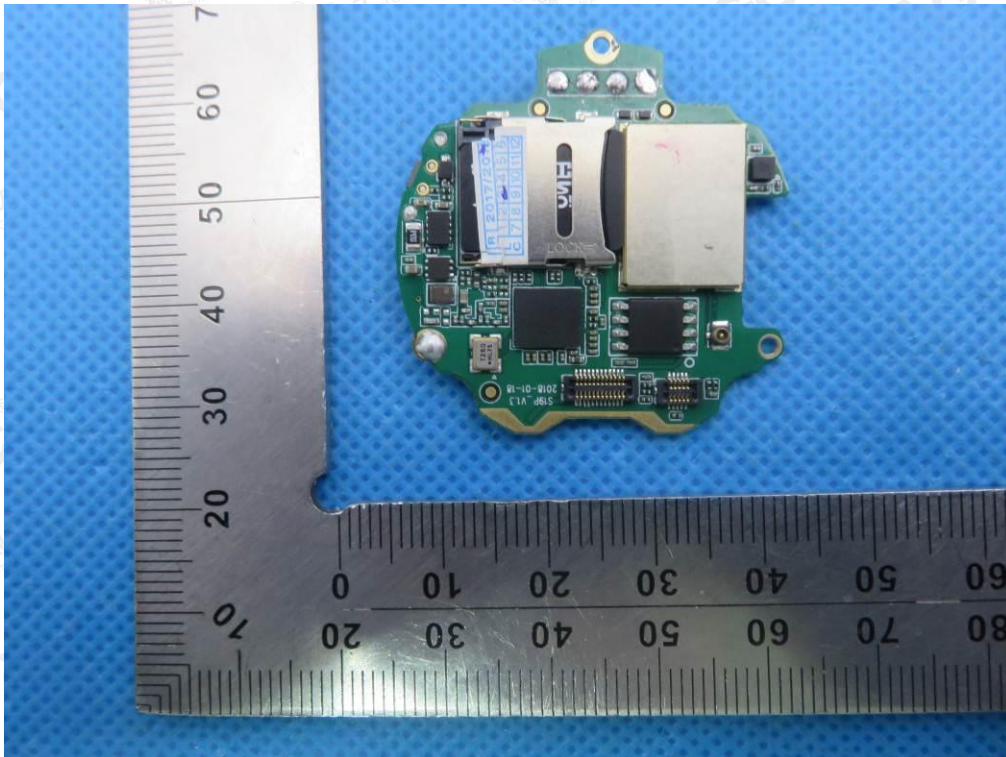


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VIEW OF BATTERY

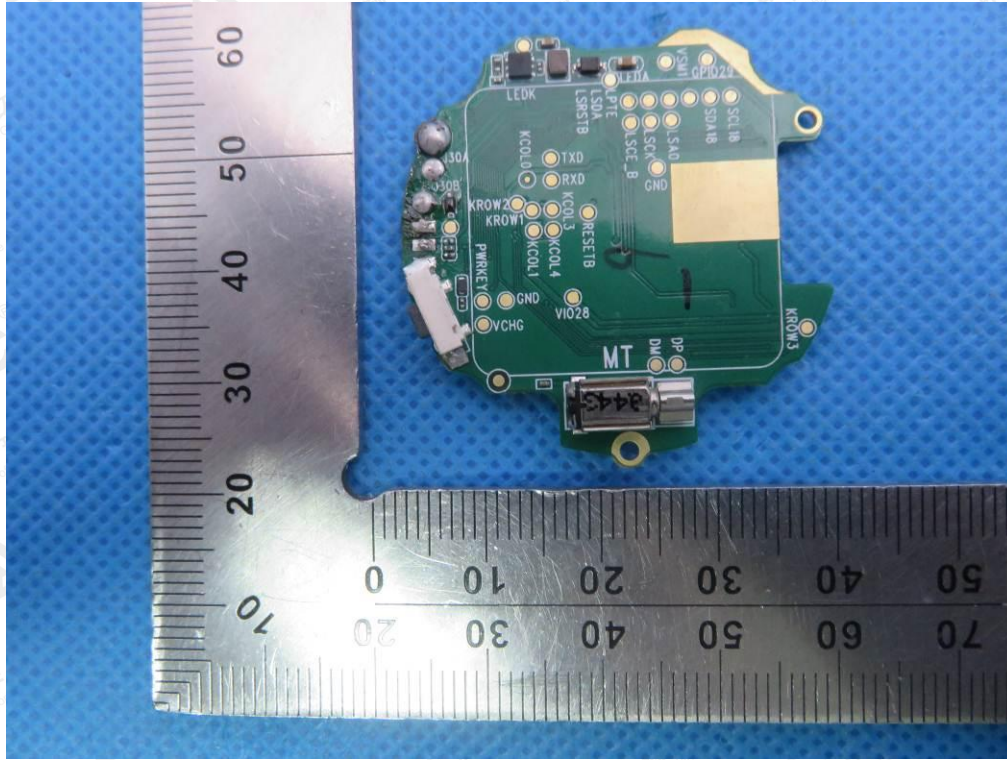


INTERNAL VIEW OF EUT-1

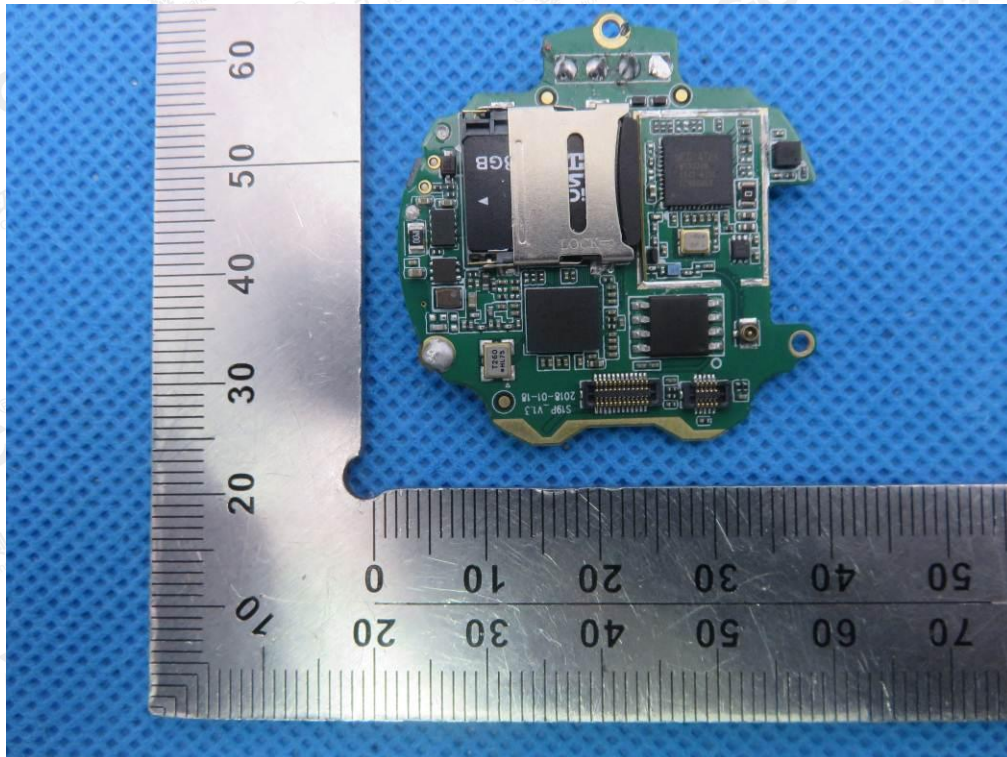


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INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



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INTERNAL VIEW OF EUT-4



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Charging Dock
VIEW OF EUT (port) -1



VIEW OF EUT (port) -2



----END OF REPORT----

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