
FCC Test Report

Report No.: AGC09347170201FE01

FCC ID : 2ALG4-WTX
APPLICATION PURPOSE : Original Equipment
PRODUCT DESIGNATION : Smart Watch / WTX
BRAND NAME : Golf Buddy
MODEL NAME : WTX, DSC-WTX-100
CLIENT : DECA System CORP.
DATE OF ISSUE : Apr.06, 2017
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 | / | Apr.06, 2017 | Valid | Original Report |

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2. SYSTEM DESCRIPTION

EUT set up procedure:

1. Connect the EUT with the PC.
2. Make sure the EUT operates normally during the test.

Test Mode

| TEST MODE DESCRIPTION | | |
|------------------------------|-----------------------|-------|
| NO. | TEST MODE DESCRIPTION | WORST |
| 1 | Data transmission | V |
| 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.

Conducted measurement: +/- 2.75dB

Radiated measurement: +/- 3.2dB

Summary Of Test Results

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

4. 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 |
| Charging Port | 1 | 0 | 1 |

5. SUPPORT EQUIPMENT

| Device Type | Manufacturer | Model Name | Serial No. | Power Cable |
|-------------|--------------|------------|------------|-----------------|
| PC | APPLE | A1465 | A.E | N/A |
| Adapter | I PRO | NTR-S01 | A.E | 0.8m unshielded |

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

6. TEST FACILITY

| | |
|-----------------------------|--|
| Site | Dongguan Precise Testing Service Co., Ltd. |
| Location | Building D, Baoding Technology Park, Guangming Road2, Dongcheng District, Dongguan, Guangdong, China, |
| FCC Registration No. | 371540 |
| Description | The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2014. |

7. TEST EQUIPMENT LIST

FOR RADIATED EMISSION TEST (BELOW 1GHz)

| Radiated Emission Test Site | | | | | |
|-------------------------------------|---------------------|--------------|---------------|------------------|-----------------|
| Name of Equipment | Manufacturer | Model Number | Serial Number | Last Calibration | Due Calibration |
| EMI Test Receiver | ROHDE & SCHWARZBECK | ESCI | 101417 | July 4, 2016 | July 3, 2017 |
| Trilog Broadband Antenna (25M-1GHz) | SCHWARZBECK | VULB9160 | 9160-3355 | July 4, 2016 | July 3, 2017 |
| Signal Amplifier | SCHWARZBECK | BBV 9475 | 9745-0013 | July 4, 2016 | July 3, 2017 |
| RF Cable | SCHWARZBECK | AK9515E | 96221 | July 4, 2016 | July 3, 2017 |
| 3m Anechoic Chamber | CHENGYU | 966 | PTS-001 | June 6, 2016 | June 5, 2017 |
| MULTI-DEVICE Positioning Controller | MAX-FULL | MF-7802 | MF780208339 | N/A | N/A |
| Spectrum analyzer | AGILENT | E4407B | MY46185649 | June 6, 2016 | June 5, 2017 |

FOR RADIATED EMISSION TEST (ABOVE 1GHz)

| Radiated Emission Test Site | | | | | |
|-------------------------------------|---------------------|--------------|---------------|------------------|-----------------|
| Name of Equipment | Manufacturer | Model Number | Serial Number | Last Calibration | Due Calibration |
| EMI Test Receiver | ROHDE & SCHWARZBECK | ESCI | 101417 | July 4, 2016 | July 3, 2017 |
| Horn Antenna (1G-18GHz) | SCHWARZBECK | BBHA9120D | 9120D-1246 | July 11, 2016 | July 10, 2017 |
| Spectrum Analyzer | AGILENT | E4411B | MY4511453 | July 4, 2016 | July 3, 2017 |
| Signal Amplifier | SCHWARZBECK | BBV 9718 | 9718-269 | July 7, 2016 | July 6, 2017 |
| RF Cable | SCHWARZBECK | AK9515H | 96220 | July 8, 2016 | July 7, 2017 |
| 3m Anechoic Chamber | CHENGYU | 966 | PTS-001 | June 6, 2016 | June 5, 2017 |
| MULTI-DEVICE Positioning Controller | MAX-FULL | MF-7802 | MF780208339 | N/A | N/A |

| Conducted Emission Test Site | | | | | |
|-------------------------------------|---------------------|---------------------|----------------------|-------------------------|------------------------|
| Name of Equipment | Manufacturer | Model Number | Serial Number | Last Calibration | Due Calibration |
| EMI Test Receiver | ROHDE & SCHWARZBECK | ESCI | 101417 | July 4, 2016 | July 3, 2017 |
| Artificial Mains Network | NARDA | L2-16B | 000WX31025 | July 8, 2016 | July 7, 2017 |
| Artificial Mains Network (AUX) | NARDA | L2-16B | 000WX31026 | July 8, 2016 | July 7, 2017 |
| RF Cable | SCHWARZBECK | AK9515E | 96222 | July 4, 2016 | July 3, 2017 |
| Shielded Room | CHENGYU | 843 | PTS-002 | June 6, 2016 | June 5, 2017 |

8. FCCLINE CONDUCTED EMISSION TEST

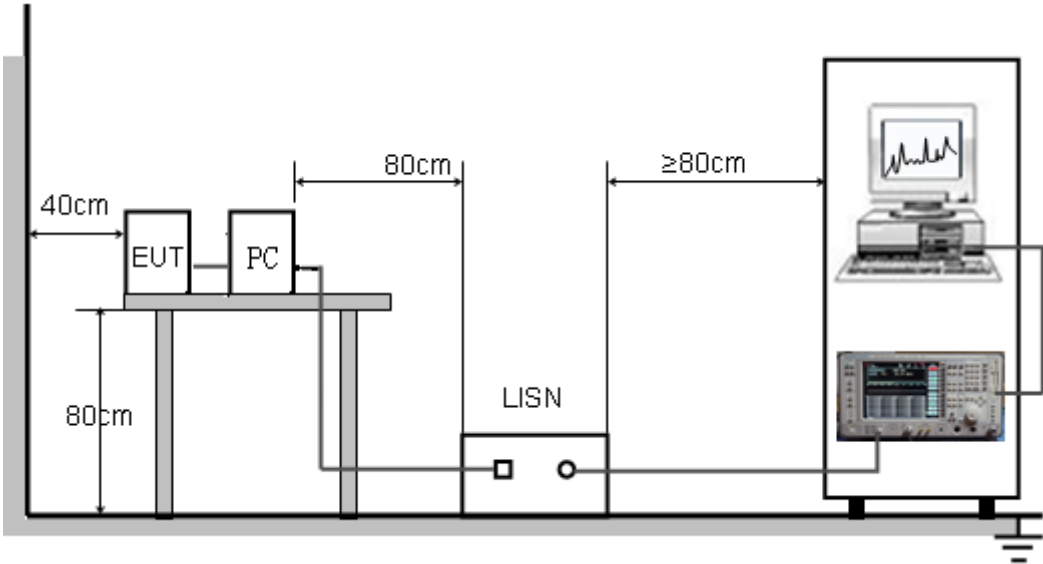
8.1. LIMITS OF LINE CONDUCTED EMISSION TEST

| 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.

8.2. BLOCK DIAGRAM OF TEST SETUP

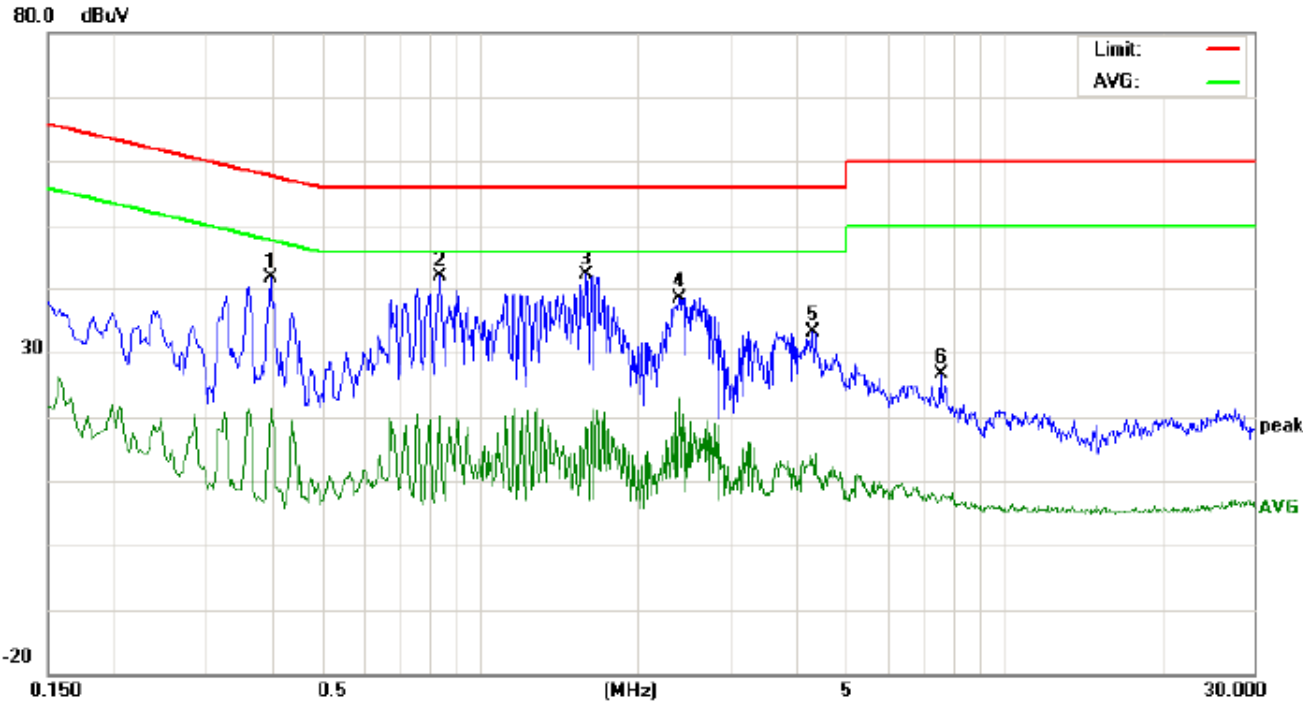


8.3. PROCEDURE OF LINE CONDUCTED EMISSION TEST

- (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 DC charging voltage by PC 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.

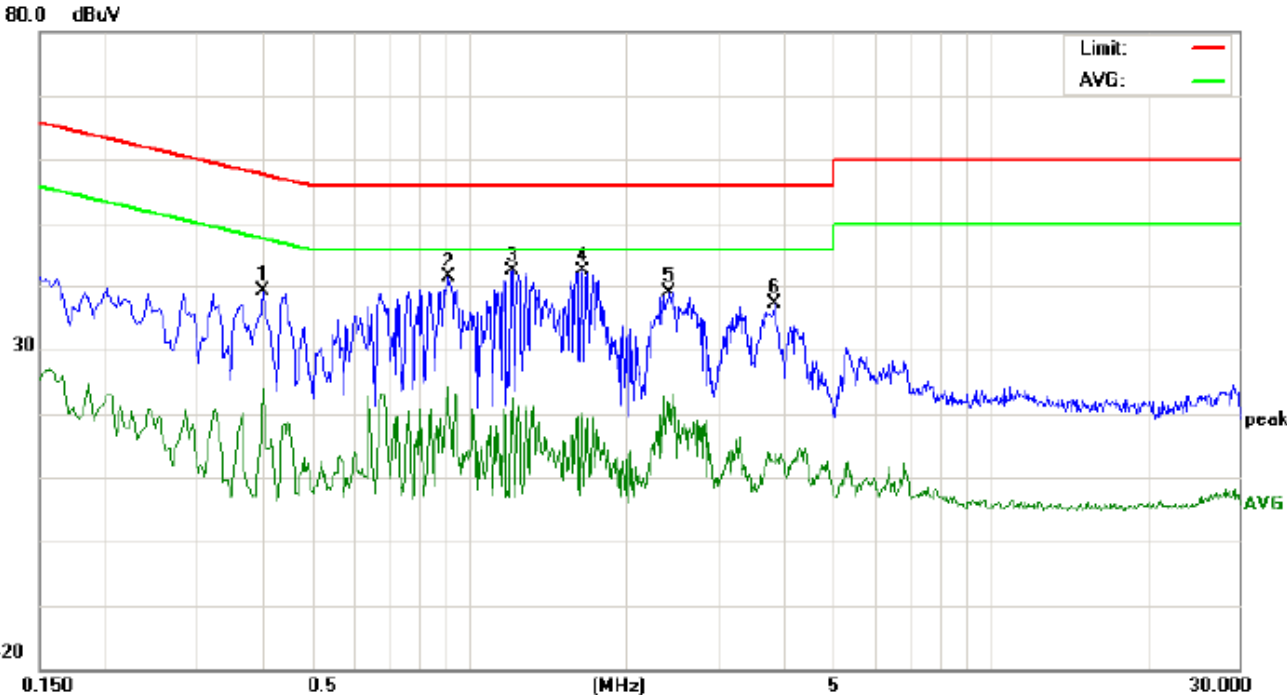
8.4. TEST RESULT OF LINE CONDUCTED EMISSION TEST
 LINE CONDUCTED EMISSION TEST-L



Site: Conduction Phase: *L1* Temperature: 23.1
 Limit: FCC Class B Conduction(QP) Power: Humidity: 55.4 %
 EUT: Smart Watch / WTX
 M/N: WTX
 Mode: Data transmission
 Note:

| No. | Freq. (MHz) | Reading_Level (dBuV) | | | Correct Factor (dB) | Measurement (dBuV) | | | Limit (dBuV) | | Margin (dB) | | P/F | Comment |
|-----|-------------|----------------------|----|-------|---------------------|--------------------|----|-------|--------------|-------|-------------|--------|-----|---------|
| | | Peak | QP | AVG | | Peak | QP | AVG | QP | AVG | QP | AVG | | |
| 1 | 0.3980 | 31.18 | | 11.13 | 10.33 | 41.51 | | 21.46 | 57.89 | 47.89 | -16.38 | -26.43 | P | |
| 2 | 0.8417 | 31.50 | | 9.58 | 10.33 | 41.83 | | 19.91 | 56.00 | 46.00 | -14.17 | -26.09 | P | |
| 3 | 1.5980 | 31.78 | | 8.10 | 10.35 | 42.13 | | 18.45 | 56.00 | 46.00 | -13.87 | -27.55 | P | |
| 4 | 2.4020 | 28.06 | | 12.41 | 10.39 | 38.45 | | 22.80 | 56.00 | 46.00 | -17.55 | -23.20 | P | |
| 5 | 4.3338 | 22.78 | | 3.04 | 10.28 | 33.06 | | 13.32 | 56.00 | 46.00 | -22.94 | -32.68 | P | |
| 6 | 7.5777 | 16.39 | | -3.24 | 10.33 | 26.72 | | 7.09 | 60.00 | 50.00 | -33.28 | -42.91 | P | |

LINE CONDUCTED EMISSION TEST-N



Site: Conduction Phase: **N** Temperature: 23.1
 Limit: FCC Class B Conduction(QP) Power: Humidity: 55.4 %
 EUT: Smart Watch / WTX
 M/N: WTX
 Mode: Data transmission
 Note:

| No. | Freq. (MHz) | Reading_Level (dBuV) | | | Correct Factor (dB) | Measurement (dBuV) | | | Limit (dBuV) | | Margin (dB) | | P/F | Comment |
|-----|-------------|----------------------|----|-------|---------------------|--------------------|----|-------|--------------|-------|-------------|--------|-----|---------|
| | | Peak | QP | AVG | | Peak | QP | AVG | QP | AVG | QP | AVG | | |
| 1 | 0.4020 | 28.91 | | 13.61 | 10.33 | 39.24 | | 23.94 | 57.81 | 47.81 | -18.57 | -23.87 | P | |
| 2 | 0.9180 | 31.07 | | 10.26 | 10.40 | 41.47 | | 20.66 | 56.00 | 46.00 | -14.53 | -25.34 | P | |
| 3 | 1.2096 | 32.03 | | 11.91 | 10.37 | 42.40 | | 22.28 | 56.00 | 46.00 | -13.60 | -23.72 | P | |
| 4 | 1.6495 | 32.00 | | 9.92 | 10.33 | 42.33 | | 20.25 | 56.00 | 46.00 | -13.67 | -25.75 | P | |
| 5 | 2.4219 | 28.55 | | 11.34 | 10.40 | 38.95 | | 21.74 | 56.00 | 46.00 | -17.05 | -24.26 | P | |
| 6 | 3.8580 | 26.68 | | 2.50 | 10.45 | 37.13 | | 12.95 | 56.00 | 46.00 | -18.87 | -33.05 | P | |

RESULT: PASS

9. FCC RADIATED EMISSION TEST

9.1. 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 |

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

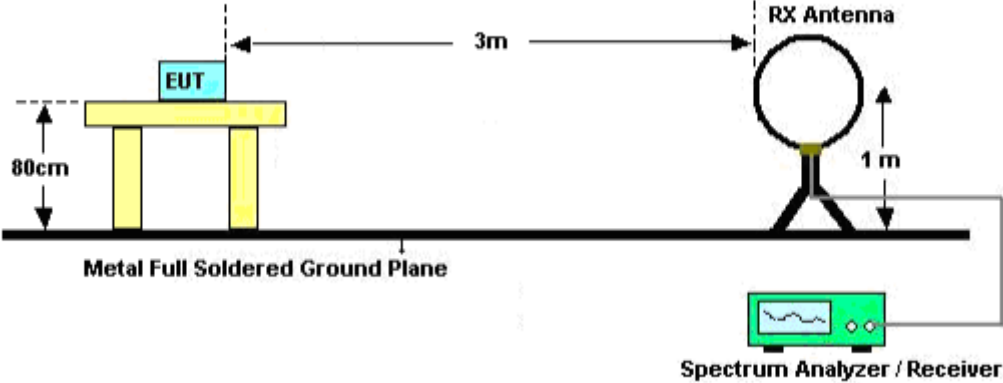
9.1.1 The following table is the setting of spectrum analyzer and receiver:

| Spectrum Parameter | Setting |
|-----------------------|--|
| Start ~Stop Frequency | 9KHz~150KHz/RB 200Hz for QP |
| Start ~Stop Frequency | 150KHz~30MHz/RB 9KHz for QP |
| Start ~Stop Frequency | 30MHz~1000MHz/RB 120KHz for QP |
| Start ~Stop Frequency | 1GHz~6GHz 1MHz/1MHz for Peak, 1MHz/10Hz for Average |

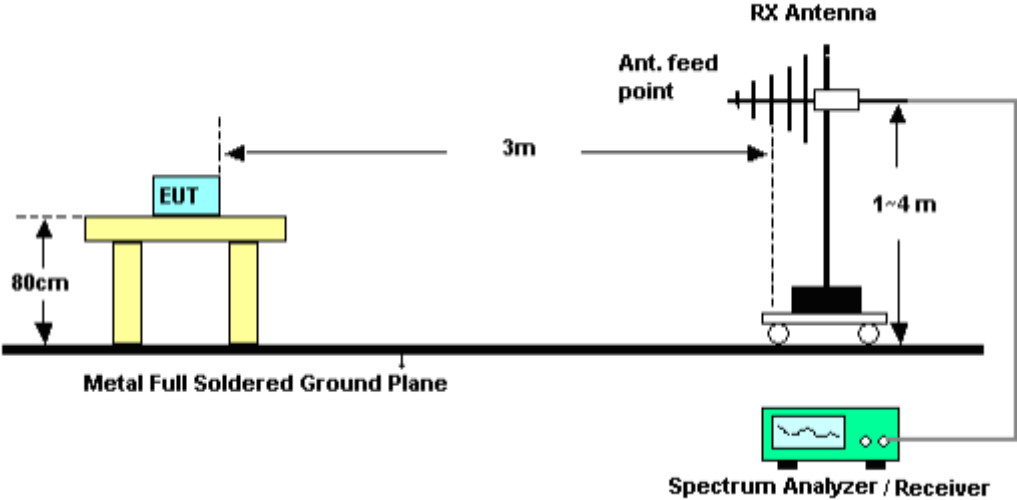
| Receiver Parameter | Setting |
|-----------------------|--------------------------------|
| Start ~Stop Frequency | 9KHz~150KHz/RB 200Hz for QP |
| Start ~Stop Frequency | 150KHz~30MHz/RB 9KHz for QP |
| Start ~Stop Frequency | 30MHz~1000MHz/RB 120KHz for QP |

9.2. BLOCK DIAGRAM OF TEST SETUP

Radiated Emission Test-Setup Frequency Below 30MHz



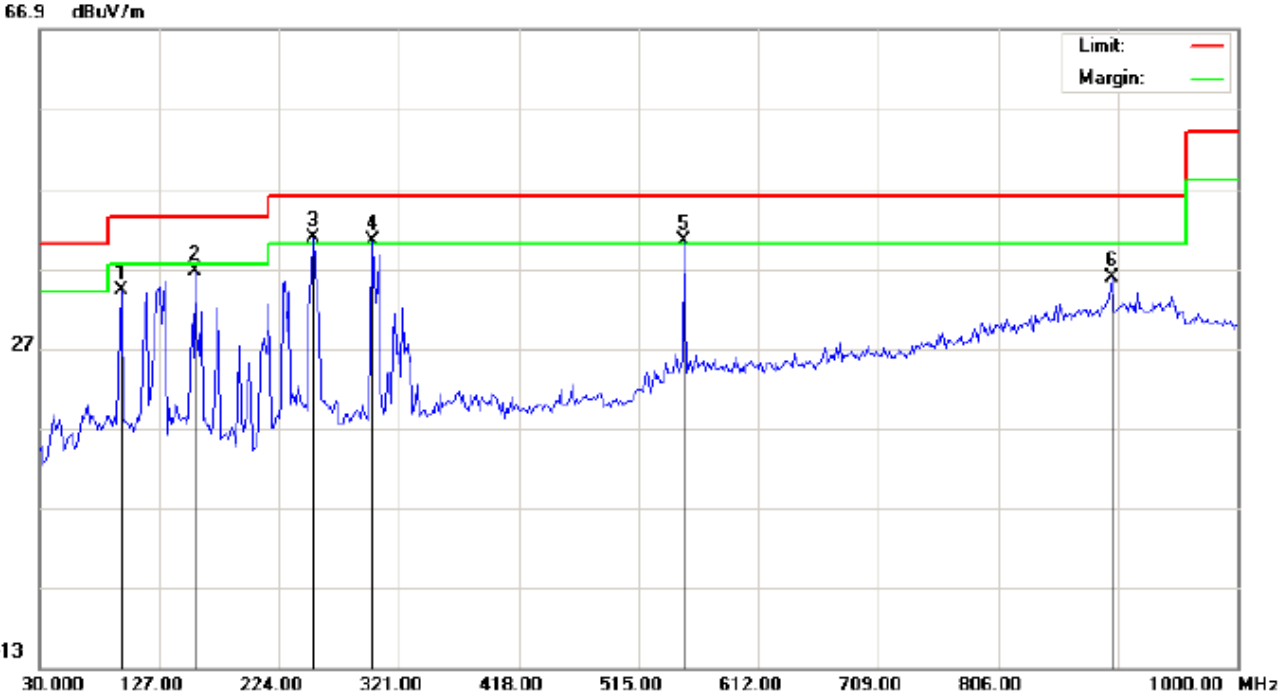
RADIATED EMISSION TEST SETUP 30MHz-1000MHz



9.3. 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. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. 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.

Radiated Emission Test at 3m Distance(Below 1GHz)-Vertical



Site: site #1
 Limit: FCC Class B 3M Radiation
 EUT:Smart Watch / WTX
 M/N:WTX
 Mode:Data transmission
 Note:

Polarization: *Vertical*
 Power:
 Distance:

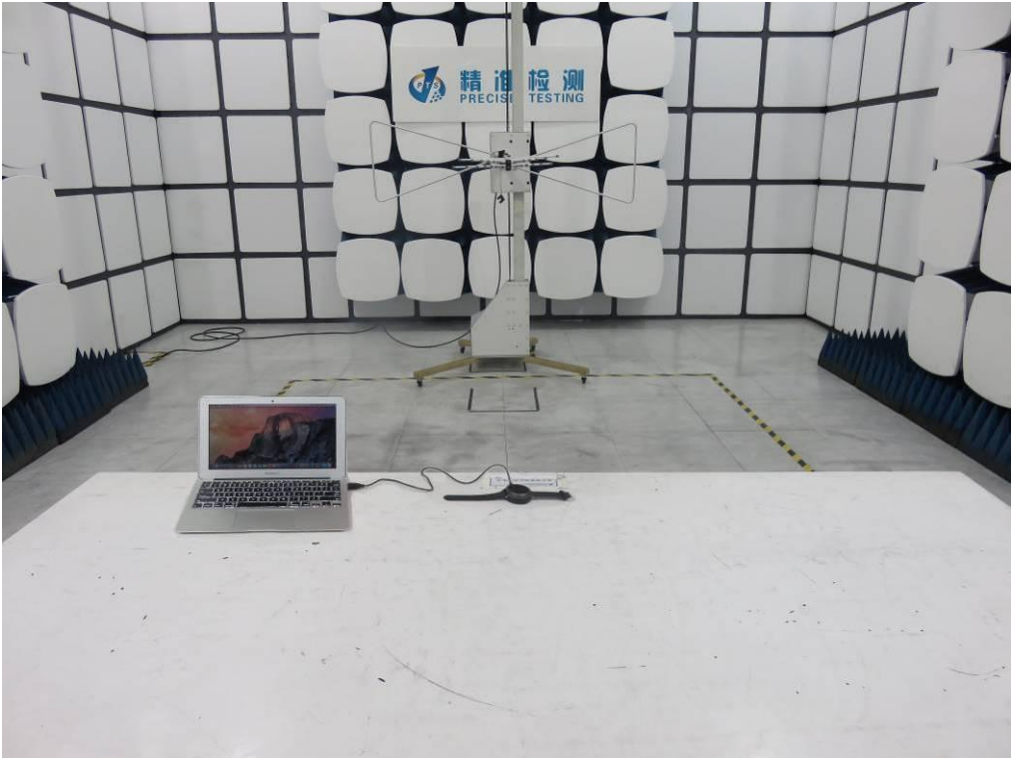
Temperature: 22.9
 Humidity: 53.8 %

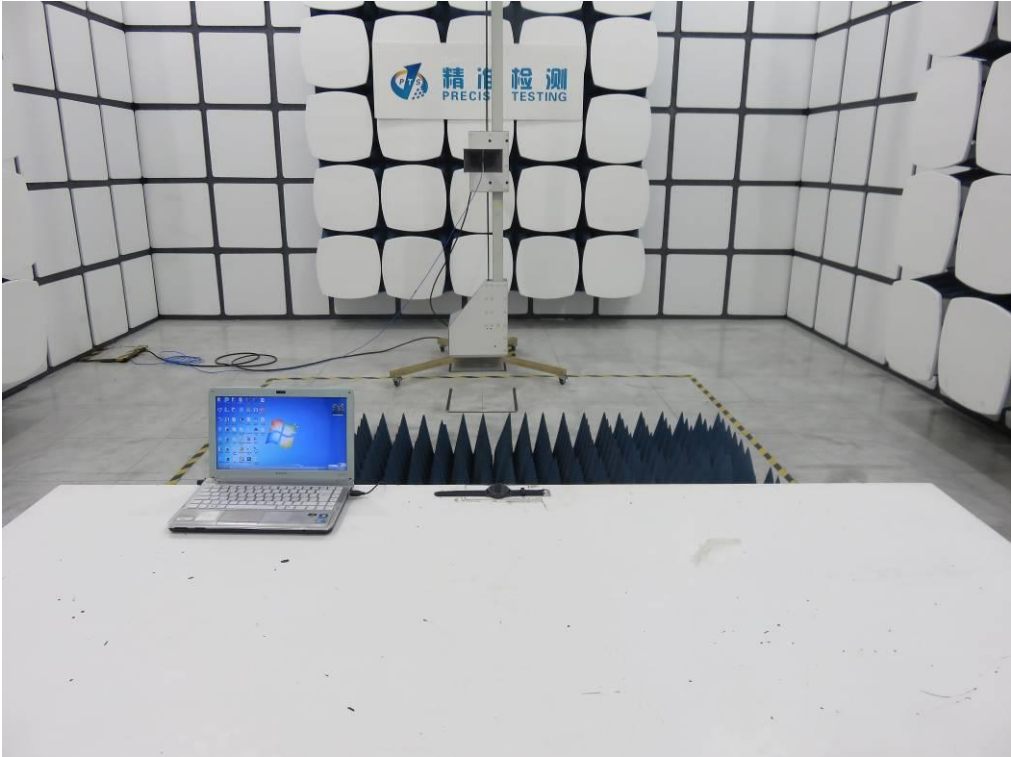
| No. | Mk | Freq. | Reading | Factor | Measurement | Limit | Over | Detector | Antenna Height | Table Degree | Comment |
|-----|----|----------|---------|--------|-------------|--------|--------|----------|----------------|--------------|---------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | cm | degree | |
| 1 | | 96.2831 | 34.20 | 0.05 | 34.25 | 43.50 | -9.25 | peak | | | |
| 2 | | 156.0999 | 21.34 | 15.30 | 36.64 | 43.50 | -6.86 | peak | | | |
| 3 | * | 251.4833 | 26.90 | 13.94 | 40.84 | 46.00 | -5.16 | peak | | | |
| 4 | ! | 299.9832 | 24.92 | 15.41 | 40.33 | 46.00 | -5.67 | peak | | | |
| 5 | ! | 552.1833 | 17.83 | 22.49 | 40.32 | 46.00 | -5.68 | peak | | | |
| 6 | | 898.1499 | 7.26 | 28.56 | 35.82 | 46.00 | -10.18 | peak | | | |

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

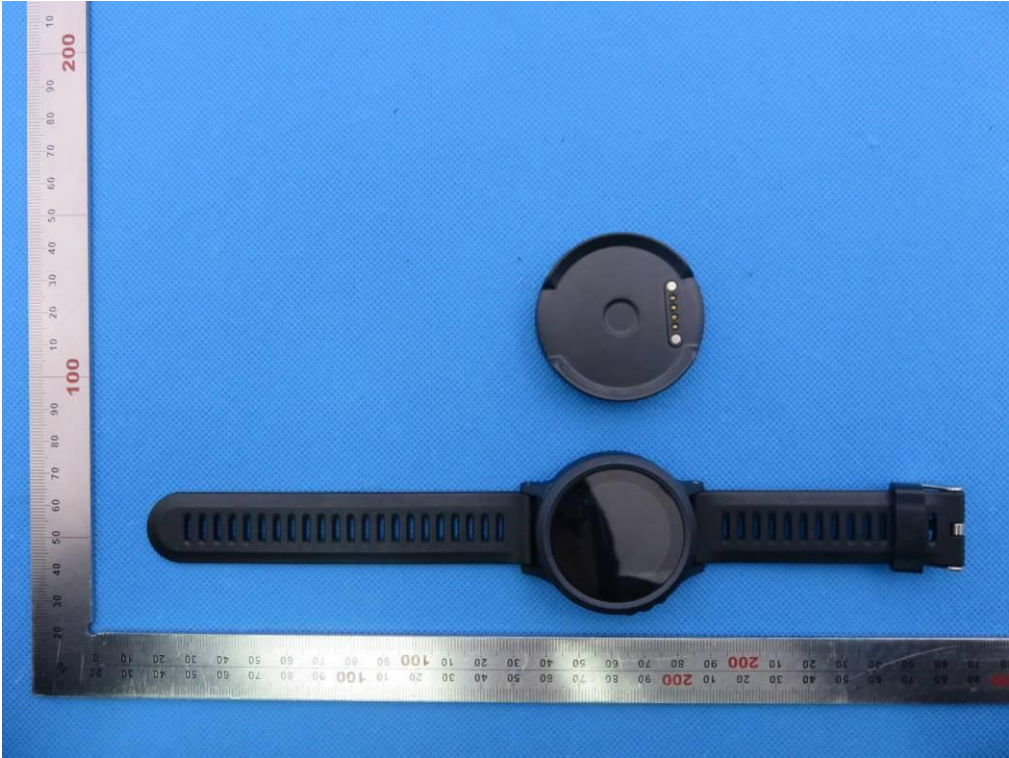


FCC RADIATED EMISSION TEST SETUP

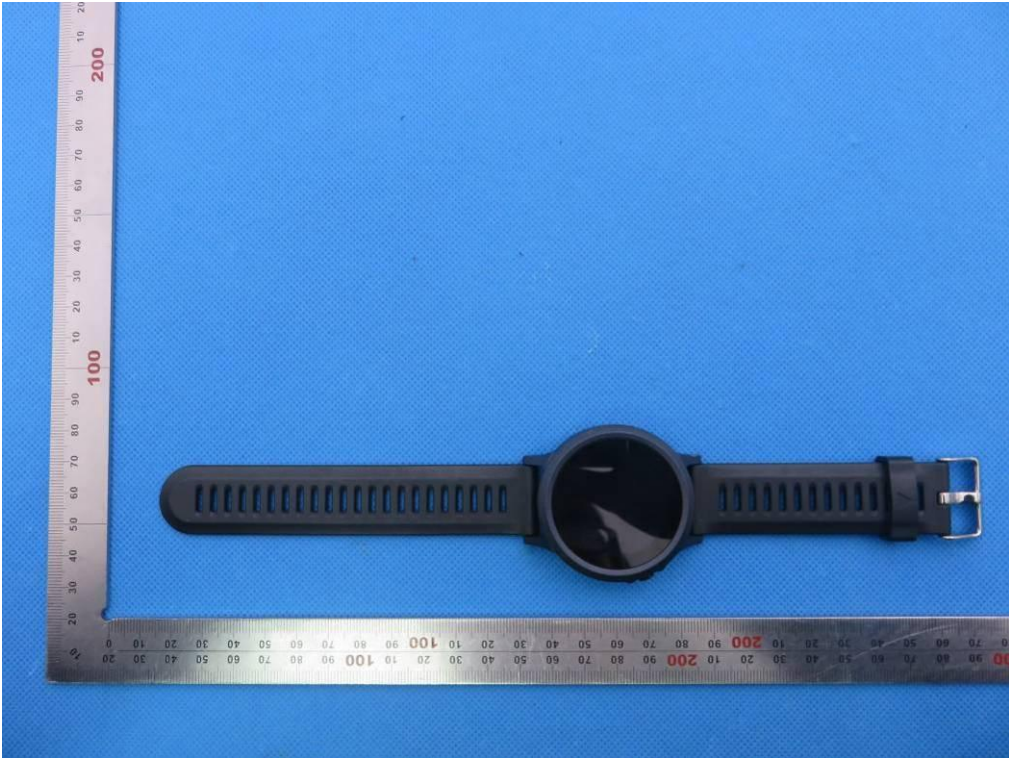




APPENDIX B: PHOTOGRAPHS OF EUT
ALL VIEW OF EUT



TOP VIEW OF EUT



BOTTOM VIEW OF EUT



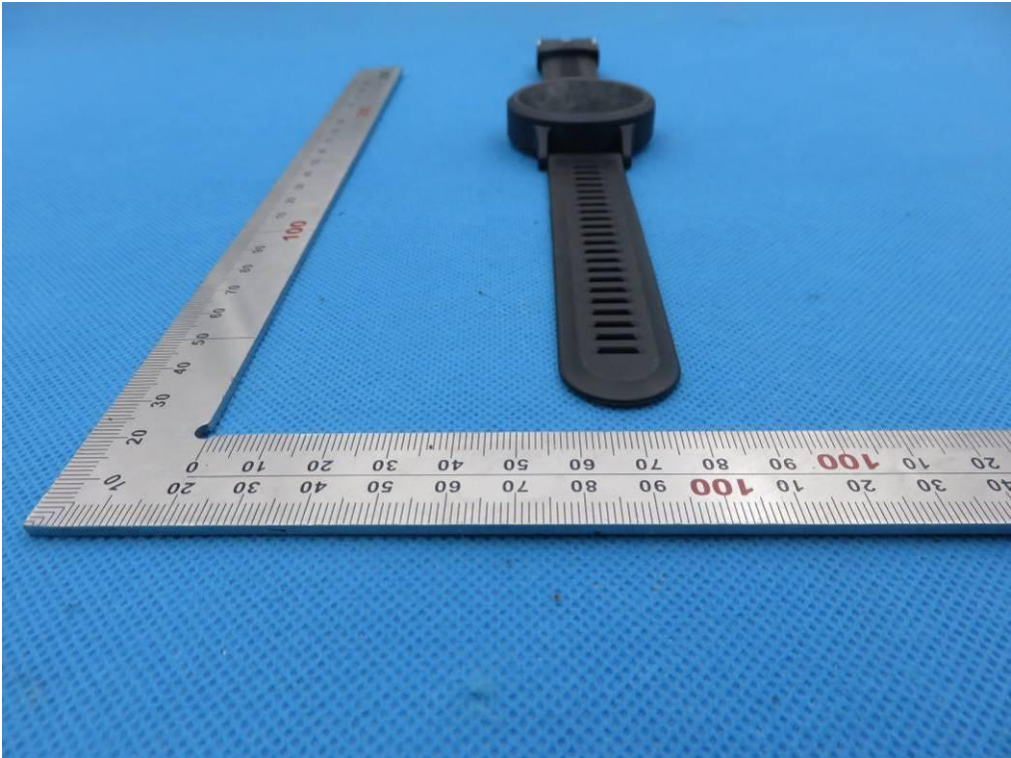
FRONT VIEW OF EUT



BACK VIEW OF EUT



LEFT VIEW OF EUT



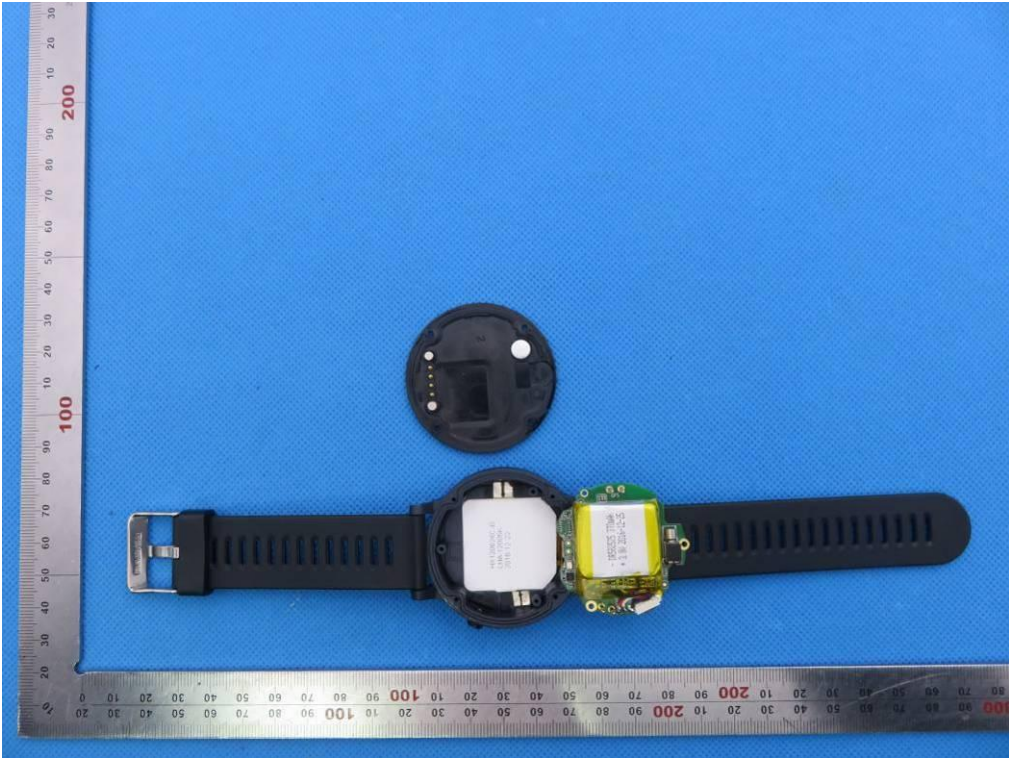
RIGHT VIEW OF EUT



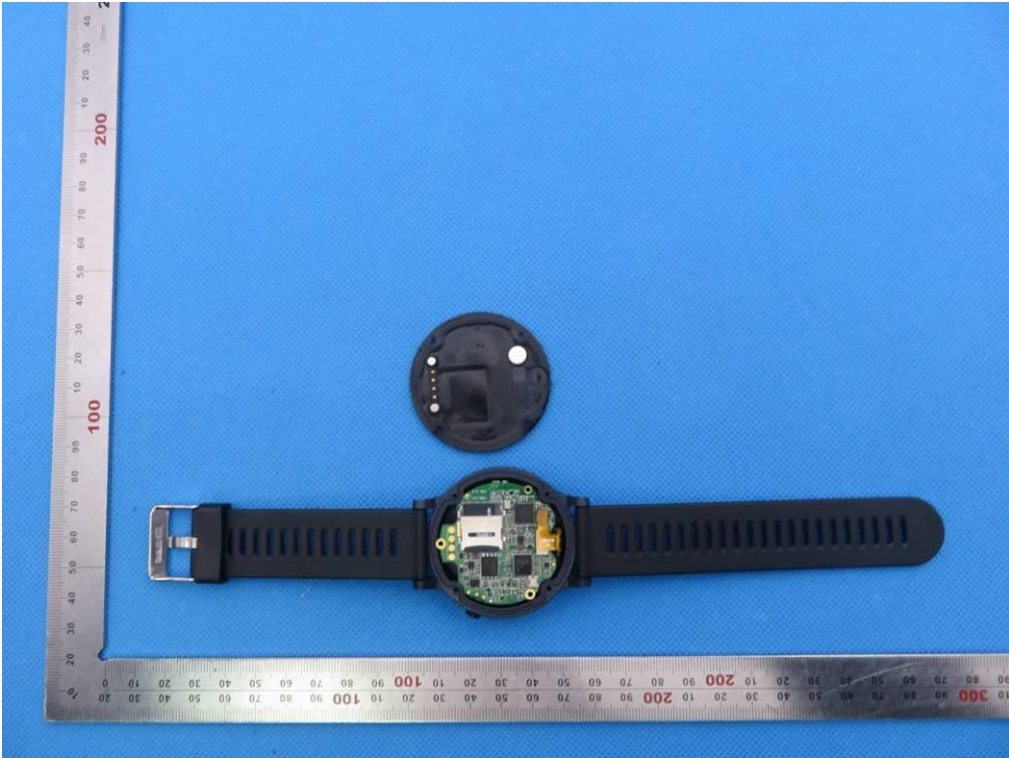
VIEW OF EUT (Port)



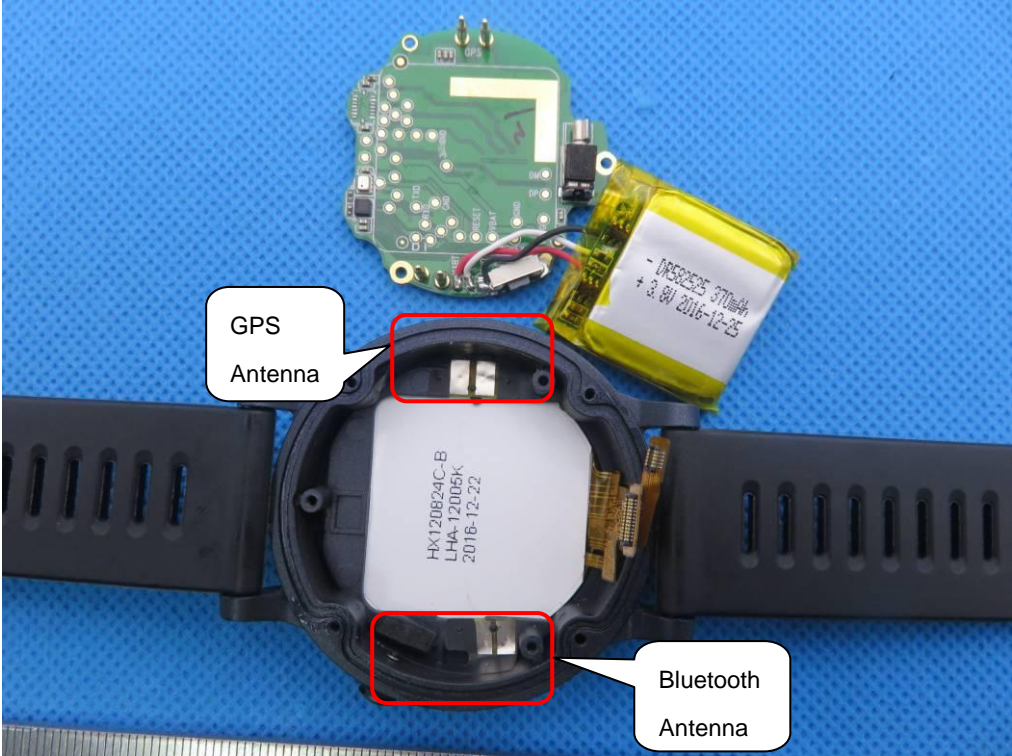
OPEN VIEW OF EUT-1



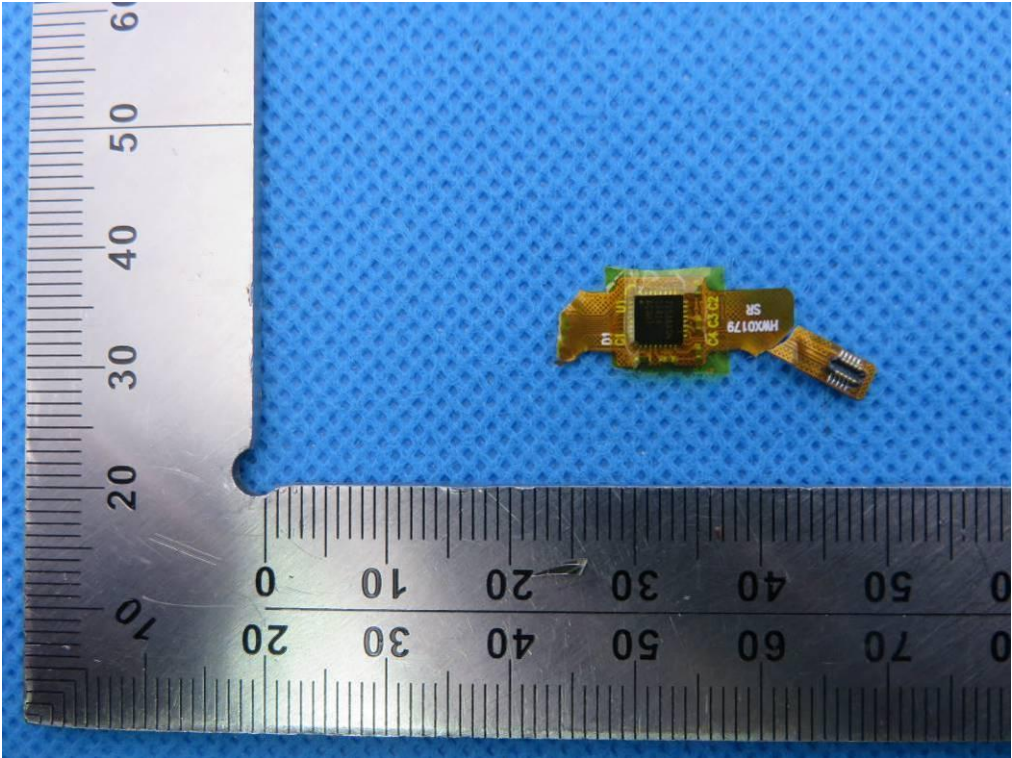
OPEN VIEW OF EUT-2



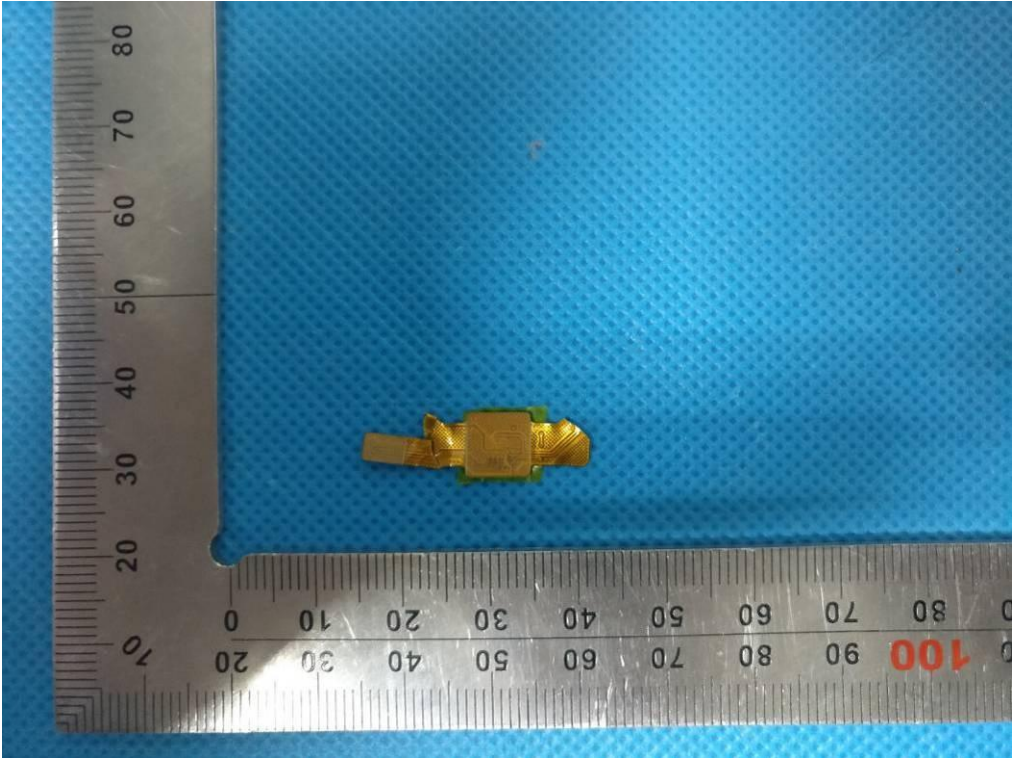
OPEN VIEW OF EUT-3



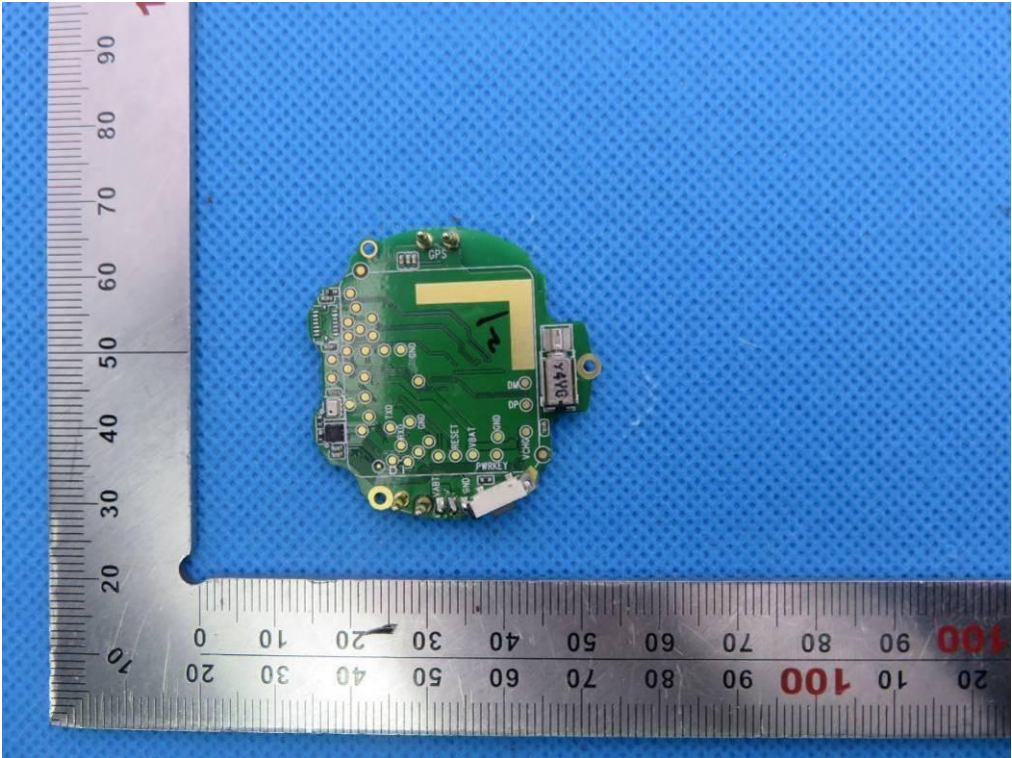
INTERNAL VIEW OF EUT-1



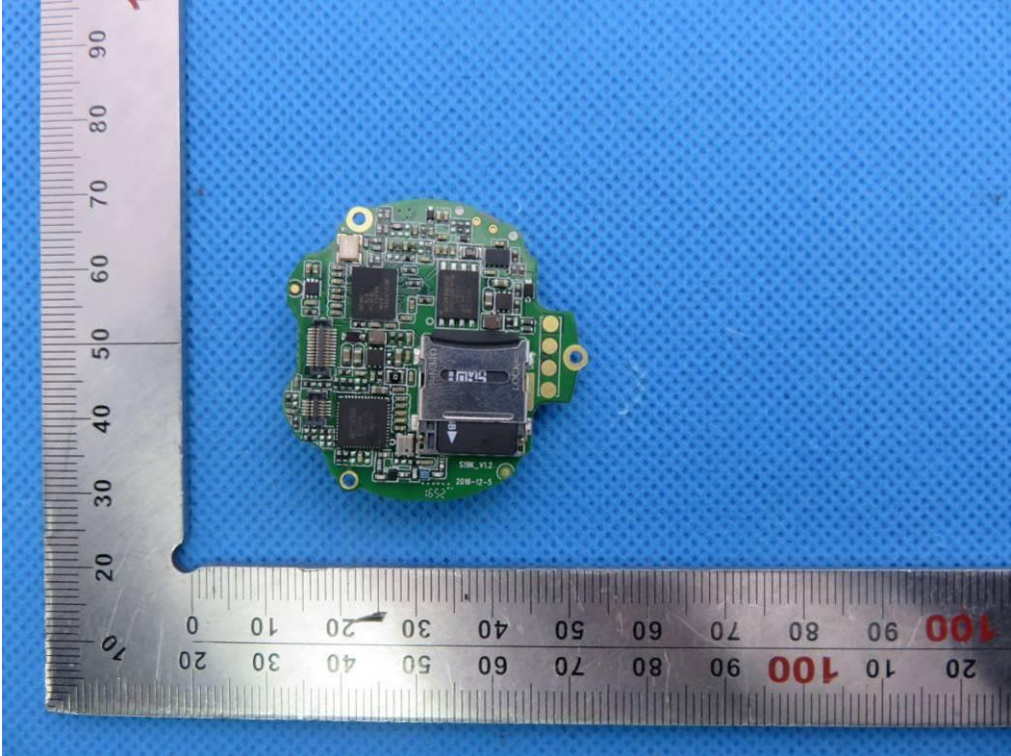
INTERNAL VIEW OF EUT-2



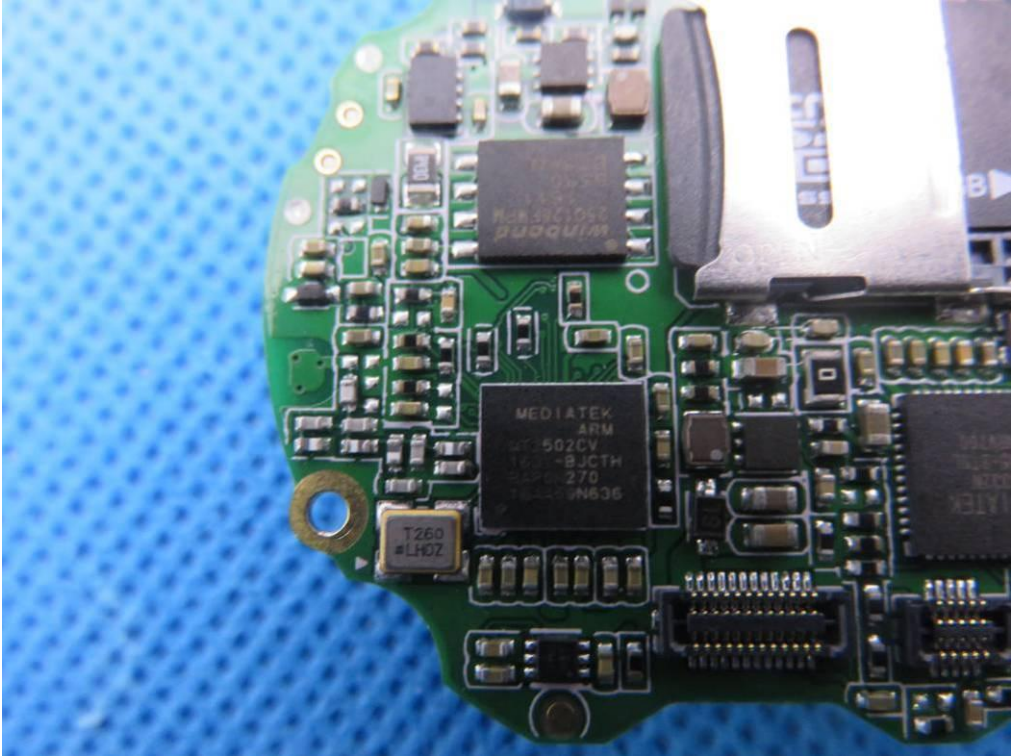
INTERNAL VIEW OF EUT-3



INTERNAL VIEW OF EUT-4



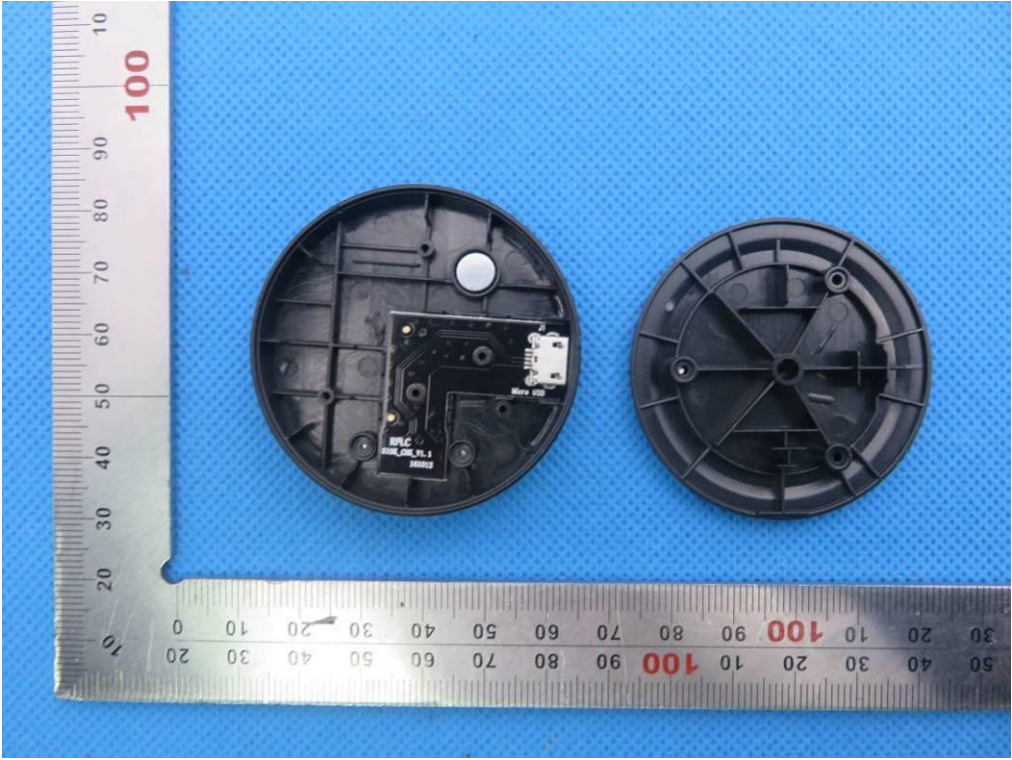
INTERNAL VIEW OF EUT-5



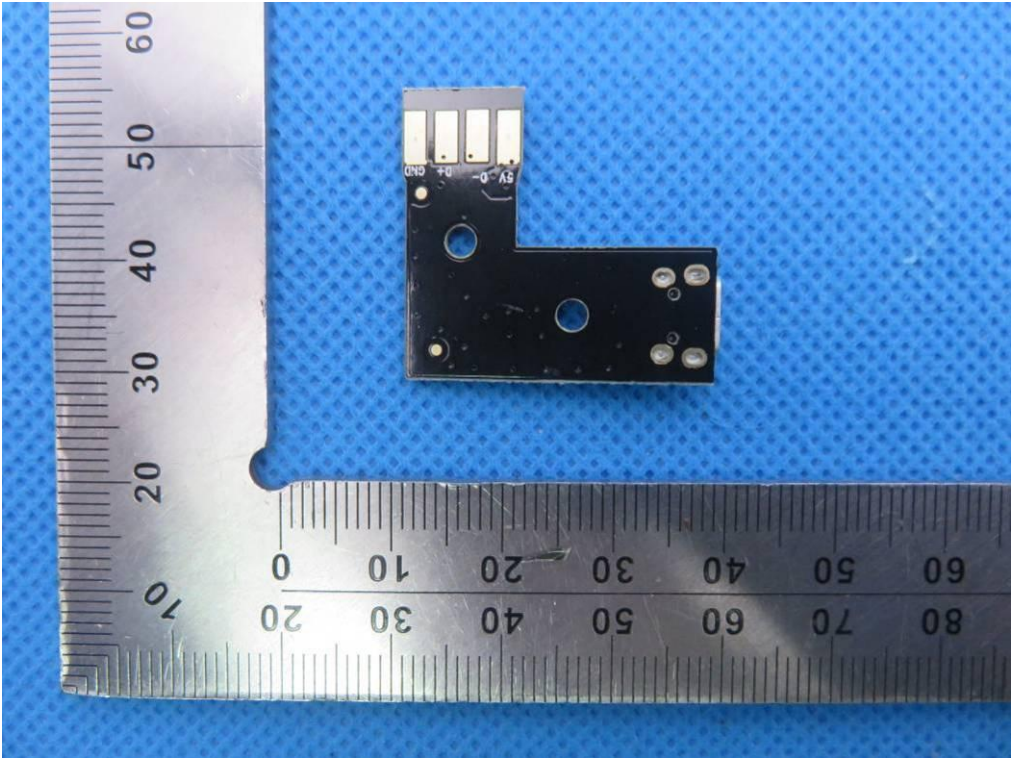
Charging Dock
VIEW OF EUT(Port)



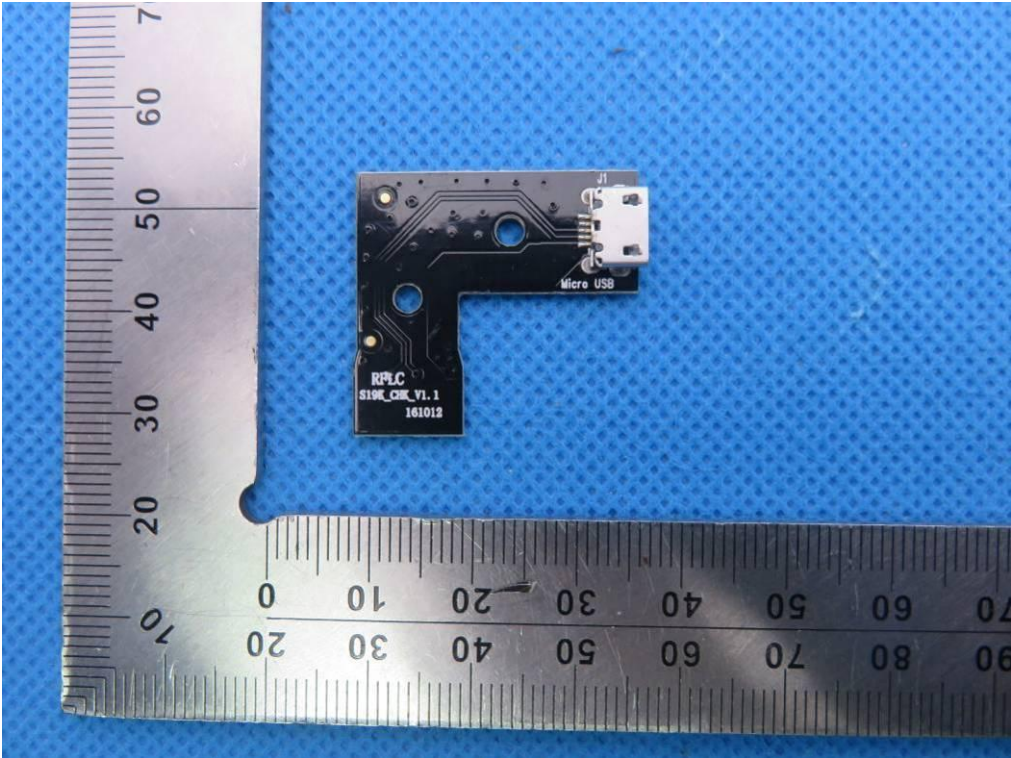
OPEN VIEW OF EUT



INTERNAL VIEW OF EUT-1



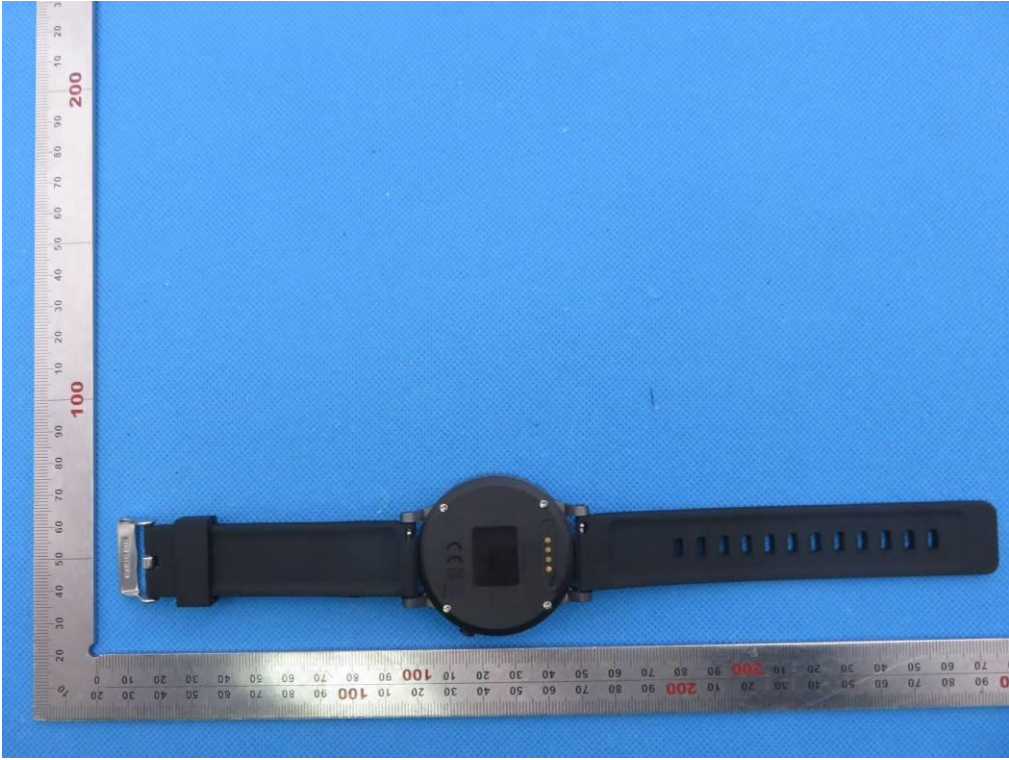
INTERNAL VIEW OF EUT-2



Series Model
TOP VIEW OF EUT



BOTTOM VIEW OF EUT



----END OF REPORT----