# FCC&IC
# RF Test Report

**Product Name: Smart Watch**

**Model Number: HUAWEI WATCH**

**Report No: SYBH(Z-RF)021112015-2002**

**FCC ID：QISMERCURY**

**IC: 6369A-MERCURY**


**Reliability Laboratory of Huawei Technologies Co., Ltd.**

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| | |
|---|---|
| **Applicant:** | Huawei Technologies Co., Ltd. |
| **Address:** | Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C |

| | |
|---|---|
| **Date of Receipt Sample:** | 2015-11-25 |
| **Start Date of Test:** | 2015-11-26 |
| **End Date of Test:** | 2015-11-30 |

**Test Result:** Pass

| | | | |
|---|---|---|---|
| **Approved by Senior Engineer:** | 2015-11-30 | Liu Chunlin | Liu Chunlin |
| | Date | Name | Signature |

| | | | |
|---|---|---|---|
| **Prepared by:** | 2015-11-30 | Hexiaolin | Hexiaolin |
| | Date | Name | Signature |


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## Modification Record

| No. | Last Report No. | Modification Description |
|---|---|---|
| | | First report |
| | | |
| | | |
| | | |


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# 1 General Information

## 1.1 Applied Standard

| | |
|---|---|
| Applied Rules: | 47 CFR FCC Part 2, Subpart J 2014<br>47 CFR FCC Part 15, Subpart C 2014<br><br>IC RSS-Gen (Issue 4, November 2014)<br>IC RSS-247 (Issue 1, May 2015) |
| Test Method: | FCC PUBLIC NOTICE DA 00-705 Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems (Released March 30, 2000)<br><br>ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.<br>ANSI C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices. |

## 1.2 Test Location

| | |
|---|---|
| Test Location 1: | Reliability Laboratory of Huawei Technologies Co., Ltd. |
| Address: | Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C |

## 1.3 Test Environment Condition

| | |
|---|---|
| Ambient Temperature: | 19.5 to 25 °C |
| Ambient Relative Humidity: | 45 to 55 % |
| Atmospheric Pressure: | Not applicable |


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## 2 Test Summary

| Test Item | FCC Part No. | IC Standard No | Requirements | Test Result | Verdict (NOTE) |
|---|---|---|---|---|---|
| 20dB Emission Bandwidth (EBW) | 15.247(a)(1) | RSS-247, 5.1 | No limit. | Appendix A | SYBH(Z-RF)006052015-2002 |
| Carrier Frequency Separation | 15.247(a)(1) | RSS-247, 5.1 | ≥ MAX {25kHz, IIF{output power ≤125mW, 2/3*20dB EBW, 20dB EBW }}. | Appendix B | SYBH(Z-RF)006052015-2002 |
| Number of Hopping Channel | 15.247(a)(1)(iii) | RSS-247, 5.1 | ≥15 channels. | Appendix C | SYBH(Z-RF)006052015-2002 |
| Time of Occupancy (Dwell Time) | 15.247(a)(1)(iii) | RSS-247, 5.1 | < 0.4s within a period of (0.4s*hopping number). | Appendix D | SYBH(Z-RF)006052015-2002 |
| Maximum Peak Conducted Output Power | 15.247(b)(1) | RSS-247, 5.4 | < 1 W if using ≥75 non-overlapping channels. | Appendix E | SYBH(Z-RF)006052015-2002 |
| Band edge spurious emission | 15.247(d) | RSS-247, 5.5 | < -20 dBr/100 kHz if total peak power ≤ power limit. | Appendix F | SYBH(Z-RF)006052015-2002 |
| Conducted RF Spurious Emission | | | | Appendix G | SYBH(Z-RF)006052015-2002 |
| Radiated Emissions in the Restricted Bands | 15.247(d)<br>15.209 | RSS-247, 5.5<br>RSS-Gen, 6.13 | FCC Part 15.209 field strength limit;<br>RSS-Gen 6.13 field strength limit. | Appendix H | Pass |
| AC Power Line Conducted Emissions | 15.207 | RSS-Gen, 6.13 | FCC Part 15.207 conducted limit;<br>RSS-Gen, 6.13conducted limit. | Appendix I | Pass |
| NOTE1: For the verdict, the “N/A” denotes “not applicable”, the “N/T” denotes “not tested”.<br>NOTE 2:We do not test MERCURY except of RSE,all the test data refer to SYBH(Z-RF)006052015-2002 of MERCURY | | | | | |


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# 3 Description of the Equipment under Test (EUT)

## 3.1 General Description

HUAWEI WATCH is a smart watch based on Android wear OS; it can be communicated with mobile phone via Bluetooth or WiFi . It supports Bluetooth4.1 and wifi IEEE802.11b/g/n 1Tx1Rx . Watch also support speaker playback function, MIC recording function, built-in accelerometer, gyro sensor, intelligent user can judge the state of motion, with the barometric height measurement, with PPG measurement of heart rate, PPG in contact with the skin surface using Corelle glass. With the vibration motor, support IP67 dustproof and waterproof level.

**The Difference of HUAWEI WATCH(added) and HUAWEI WATCH(old) is as below:**

HUAWEI WATCH (added) is added two appearance styles to the old one. HUAWEI WATCH (old) appearance is still available. The same points between HUAWEI WATCH (added) and HUAWEI WATCH (old) are as follows: PCB, cradle, the bottom shelf and software.

The differences between HUAWEI WATCH (added) and HUAWEI WATCH (old) are as follows:

The top shelf: HUAWEI WATCH added “pineapple” stripe on the top shelf, and also added zircon inlay on the top shelf. So its size had been a little change.

HUAWEI WATCH(old):

HUAWEI WATCH(added):


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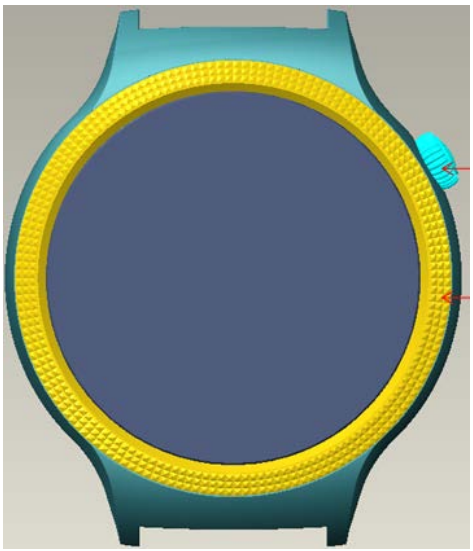

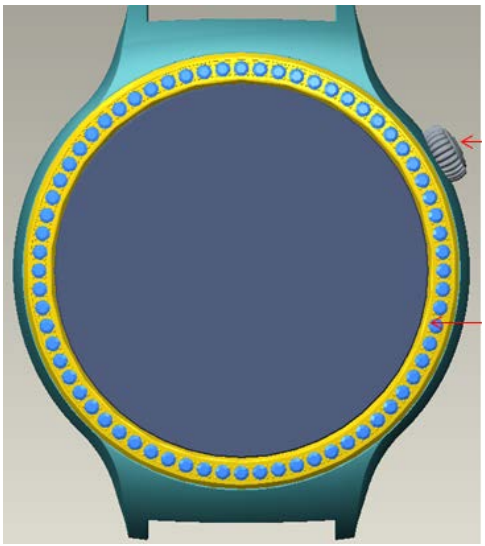

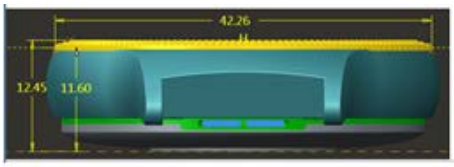


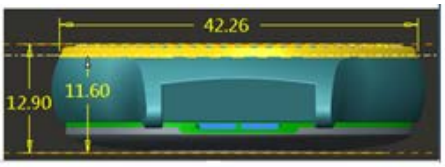


The middle shelf:

The middle shelf of added HUAWEI WATCH is expanded 1mm to be drum-like.

HUAWEI WATCH(old):

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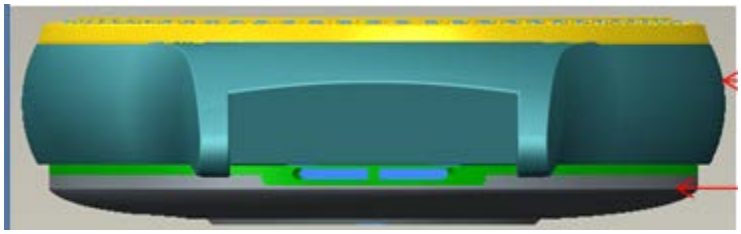
HUAWEI WATCH(added):



## 3.2 EUT Identity

NOTE: Unless otherwise noted in the report, the functional boards installed in the units shall be selected from the below list, but not means all the functional boards listed below shall be installed in one unit.

### 3.2.1 Board

| Board | | |
|---|---|---|
| Description | Hardware Version | Software Version |
| Main Board | EB1MERCURYM VER.B | LCB43B |

### 3.2.2 Sub-Assembly

| Name | Manufacture | Description |
|---|---|---|
| Adapter | Huawei Technologies Co., Ltd. | Model: HW-050100C01<br>Input voltage: 100V~240V AC and 50/60 Hz,0.2A<br>Output voltage: +5V ⎓ 1A |
| Adapter | Huawei Technologies Co., Ltd. | Model: HW-050100U01<br>Input voltage: 100V~240V AC and 50/60 Hz,0.2A<br>Output voltage: +5V ⎓ 1A |
| Adapter | Huawei Technologies Co., Ltd. | Model: HW-050100E01<br>Input voltage: 100V~240V AC and 50/60 Hz,0.2A<br>Output voltage: +5V ⎓ 1A |
| Adapter | Huawei Technologies Co., Ltd. | Model: HW-050100B01<br>Input voltage: 100V~240V AC and 50/60 Hz,0.2A<br>Output voltage: +5V ⎓ 1A |
| Adapter | Huawei Technologies Co., Ltd. | Model: HW-050100A01<br>Input voltage: 100V~240V AC and 50/60 Hz,0.2A<br>Output voltage: +5V ⎓ 1A |
| Adapter | Huawei Technologies Co., Ltd. | Model: HW-050100Z01 |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| | | |
|---|---|---|
| | | Input voltage: 100V~240V AC and 50/60 Hz,0.2A<br>Output voltage: +5V ⎓ 1A |
| Adapter | Huawei Technologies Co., Ltd. | Model: HW-050100R01<br>Input voltage: 100V~240V AC and 50/60 Hz,0.2A<br>Output voltage: +5V ⎓ 1A |
| Adapter | Huawei Technologies Co., Ltd. | Model: HW-050100J01<br>Input voltage: 100V~240V AC and 50/60 Hz,0.2A<br>Output voltage: +5V ⎓ 1A |

### 3.2.3 Battery

| Name | Manufacture | Description |
|---|---|---|
| Li-polymer Battery | Huawei Technologies Co., Ltd. | Battery Model: HB442528EBC<br>Rated capacity: 300mAH<br>Nominal Voltage: ⎓ +3.8V<br>Single Cell,MAX4.4*25*27.2mm |

### 3.2.4 Cable

| Name | Manufacture | Description |
|---|---|---|
| USB Cable | Huawei Technologies Co., Ltd. | Signal Cable,USB data cable,White intermediate high-end ,1m,USB AM,OD3.2,Micro B plug,5V2A,Terminal Dedicated |

### 3.2.5 Dock

| Name | Manufacture | Description |
|---|---|---|
| Dock | Huawei Technologies Co., Ltd. | Serials number: AF30-1<br>Smart Watch Charger Dock |


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### 3.3 Technical Description

| Characteristics | Description | |
|---|---|---|
| TX/RX Operating Range | 2400-2483.5 MHz band | fc = 2402 MHz + N * 1 MHz, where:<br>- fc = “Operating Frequency” in MHz,<br>- N = “Channel Number” with the range from 0 to 78. |
| Modulation Type | Carrier | Frequency Hopping Spread Spectrum (FHSS) |
| | Digital | GFSK, π/4-DQPSK, 8DPSK |
| Emission Designator | GFSK: 1M24GXD<br>π/4-DQPSK: 1M35GXD<br>8DPSK: 1M33GXD | |
| Bluetooth Power Class | Class 1 | |

## 4 General Test Conditions / Configurations

### 4.1 EUT Configurations

#### 4.1.1 General Configurations

| Configuration | Description |
|---|---|
| Test Antenna Ports | Until otherwise specified,<br>- All TX tests are performed at all TX antenna ports of the EUT, and<br>- All RX tests are performed at all RX antenna ports of the EUT. |
| Multiple RF Sources | Other than the tested RF source of the EUT, other RF source(s) are disabled or shutdown during measurements. |

#### 4.1.2 Customized Configurations

| # EUT Conf. | Signal Description | Operating Frequency |
|---|---|---|
| TM1_DH5_Hop | GFSK modulation, package type DH5, hopping on. | --- |
| TM1_DH5_Ch0 | GFSK modulation, package type DH5, hopping off. | Ch No. 0 / 2402 MHz |
| TM1_DH5_Ch39 | GFSK modulation, package type DH5, hopping off. | Ch No. 39 / 2441 MHz |
| TM1_DH5_Ch78 | GFSK modulation, package type DH5, hopping off. | Ch No. 78 / 2480 MHz |
| TM2_2DH5_Hop | π/4-DQPSK modulation, package type 2DH5, hopping on. | --- |
| TM2_2DH5_Ch0 | π/4-DQPSK modulation, package type 2DH5, hopping off. | Ch No. 0 / 2402 MHz |
| TM2_2DH5_Ch39 | π/4-DQPSK modulation, package type 2DH5, hopping off. | Ch No. 39 / 2441 MHz |
| TM2_2DH5_Ch78 | π/4-DQPSK modulation, package type 2DH5, hopping off. | Ch No. 78 / 2480 MHz |
| TM3_3DH5_Hop | 8DPSK modulation, package type 3DH5, hopping on. | --- |
| TM3_3DH5_Ch0 | 8DPSK modulation, package type 3DH5, hopping off. | Ch No. 0 / 2402 MHz |
| TM3_3DH5_Ch39 | 8DPSK modulation, package type 3DH5, hopping off. | Ch No. 39 / 2441 MHz |
| TM3_3DH5_Ch78 | 8DPSK modulation, package type 3DH5, hopping off. | Ch No. 78 / 2480 MHz |


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## 4.2 Test Environments

NOTE: The values used in the test report may be stringent than the declared.

| Environment Parameter | Selected Values During Tests | | |
|---|---|---|---|
| | Temperature | Voltage | Relative Humidity |
| NTNV | Ambient | 3.8 VDC | Ambient |

## 4.3 Antenna requirements

**Excerpt from §15.203 of the FCC Rules/Regulations:**
"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 shall be considered sufficient to comply with the provisions of this section."

The antennas of the **HUAWEI WATCH** are **permanently attached.**
There are no provisions for connection to an external antenna.

**Conclusion:**

**The** Smart Watch **FCC ID: QISMERCURY / IC: 6369A-MERCURY unit complies with the requirement of §15.203.**

**Ch. Frequency (MHz)**

| Ch. | Frequency (MHz) |
|---|---|
| 00 | 2402 |
| . . | . |
| 39 | 2441 |
| . . | . . |
| 78 | 2480 |

**Frequency/ Channel Operations**


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## 4.4 Description of tests

### 4.4.1 Bandwidth measurement

(a) Connect EUT test port to universal communication tester.
(b) Set the EUT to transmit maximum output power at 2.4GHz and switch off frequency hopping function, then set the measuring frequency number, finally test the bandwidth with universal communication tester.

### 4.4.2 Carrier frequency separation measurement

(a) Connect EUT test port to spectrum analyzer and universal communication tester.
(b) Set the EUT to transmit maximum output power at 2.4GHz and switch off frequency hopping function, then set the measured frequency number to two adjacent channels separately and test the carrier frequency separation with spectrum analyzer.

### 4.4.3 Number of hopping channel

(a) Connect EUT test port to spectrum analyzer and universal communication tester.
(b) Set the EUT to transmit maximum output power at 2.4GHz and switch on frequency hopping function, then set enough count time (larger than 5000 times) to get all the hopping frequency channel displayed on the screen of spectrum analyzer.
(c) Count the quantity of peaks to get the number of hopping channels.

### 4.4.4 Time of occupancy

(a) Connect test port of EUT to spectrum analyzer and universal communication tester.
(b) Set the EUT to transmit maximum output power at 2.4GHz and switch on frequency hopping function.
(c) Set the span of spectrum analyzer to 0 Hz, and set the resolution bandwidth to1 MHz and the vedio bandwidth to 1 MHz, then get the time domain measured diagram. and set sweep time to 2 times of one burst occupancy time, and measure the time of occupancy of one burst.
(d) Set the resolution bandwidth to1 MHz and the vedio bandwidth to 3 MHz ,and set the sweep time to a period (0.4 seconds multiplied by the number of hopping channels employed), and count the number of the bursts.
(e) Calculate the time of occupancy in a period with time occupancy of a burst and quantity of bursts

### 4.4.5 Peak output power

(a) Connect EUT test port to spectrum analyzer and universal communication tester.
(b) Set the EUT to transmit maximum output power at 2.4GHz and switch off frequency hopping function.
(c) Then set the EUT to transmit at high, middle and low frequency and measure the conducted output power separately.

### 4.4.6 Band edge spurious emission

(a) Connect EUT test port to spectrum analyzer and universal communication tester


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(b) Set the EUT to transmit maximum output power at 2.4GHz and switch off frequency hopping function.
(c) Then set the EUT to transmit at high, low frequency and measure the conducted band edge spurious separately.
(d) Switch on the frequency hopping function, and repeat above measurement.

### 4.4.7 Conducted RF Spurious

(a) Connect EUT test port to spectrum analyzer and universal communication tester
(b) Set the EUT to transmit maximum output power at 2.4GHz and switch off frequency hopping function.
(c) Then set the EUT to transmit at high, middle and low frequency and measure the conducted spurious separately.
(d) Switch on the frequency hopping function, and repeat the above measurement.

### 4.4.8 Radiated spurious emission & spurious in restricted band

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.10 (2013). The EUT was set-up on insulator 80cm above the Ground Plane. The set-up and test methods were according to ANSI C63.10:2013.The Radiated Disturbance measurements were made using a Rohde and Schwarz Test Receiver and control software.

A preliminary scan and a final scan of the emissions were made by using test script of software; the emissions were measured using a Quasi-Peak Detector below 1GHz, Peak Detector and AV detector above 1GHz. The maximal emission value was acquired by adjusting the antenna height, polarisation and turntable azimuth in accordance with the software setup. Normally, the height range of antenna was 1m to 4m, and the azimuth range of turntable was 0°to 360°.The receive antenna has two polarizations V and H.

A portable or small unlicensed wireless device shall be placed on a non-metallic test fixture or other nonmetallic support during testing. The supporting fixture shall permit orientation of the EUT in each of three orthogonal (x, y, z) axis positions such that emissions from the EUT are maximized.

The EUT communicates with the BTS simulator through Air interface. The EUT transmits maximum output power at 2.4GHz and switch off frequency hopping function.

Measurement bandwidth: 30 MHz - 1000 MHz: 120 kHz
Measurement bandwidth: 1000 MHz - 10$^{th}$ Carrier Frequency: 1 MHz

### 4.4.9 Conducted Emission at Power Port

The Table-top EUT was placed upon a non-metallic table 0.8 m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.10: 2013.

Conducted Disturbance at AC Port measurements were undertaken on the L and N Lines. The emissions were measured using a Quasi-Peak Detector and Average Detector.


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The EUT communicates with the BTS simulator through Air interface, the BTS simulator controls the EUT to transmitter the maximum power which defined in specification of product. The EUT operated on the typical channel.

Measurement bandwidth (RBW) for 150kHz to 30 MHz: 9 kHz;


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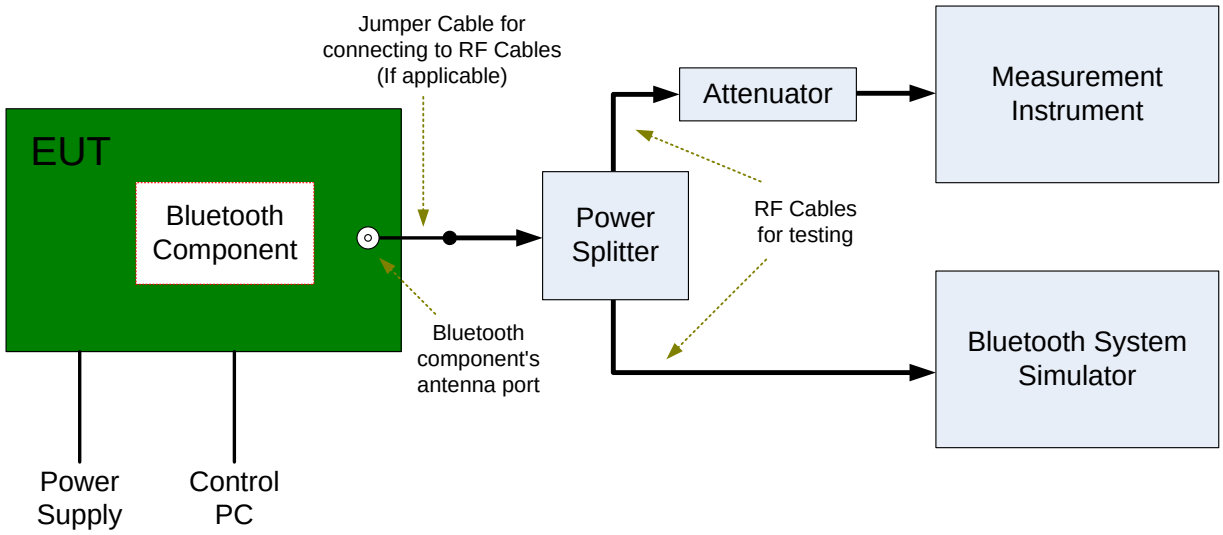
## 4.5 Test Setups

### 4.5.1 Test Setup 1

The Bluetooth component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by Bluetooth System Simulator and/or PC/software to emit the specified signals for the purpose of measurements.




### 4.5.2 Test Setup 2

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.4. The test distance is 3m.The setup is according to ANSI C63.4 and CAN/CSA-CEI/IEC CISPR 22.

The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).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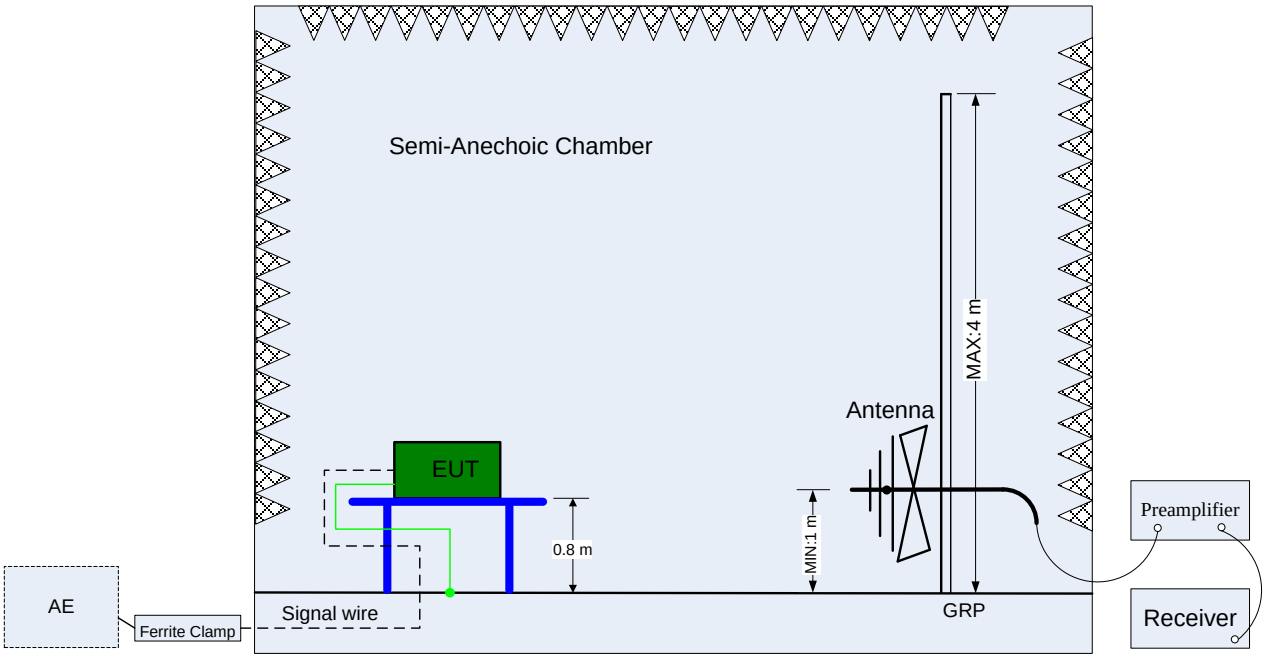


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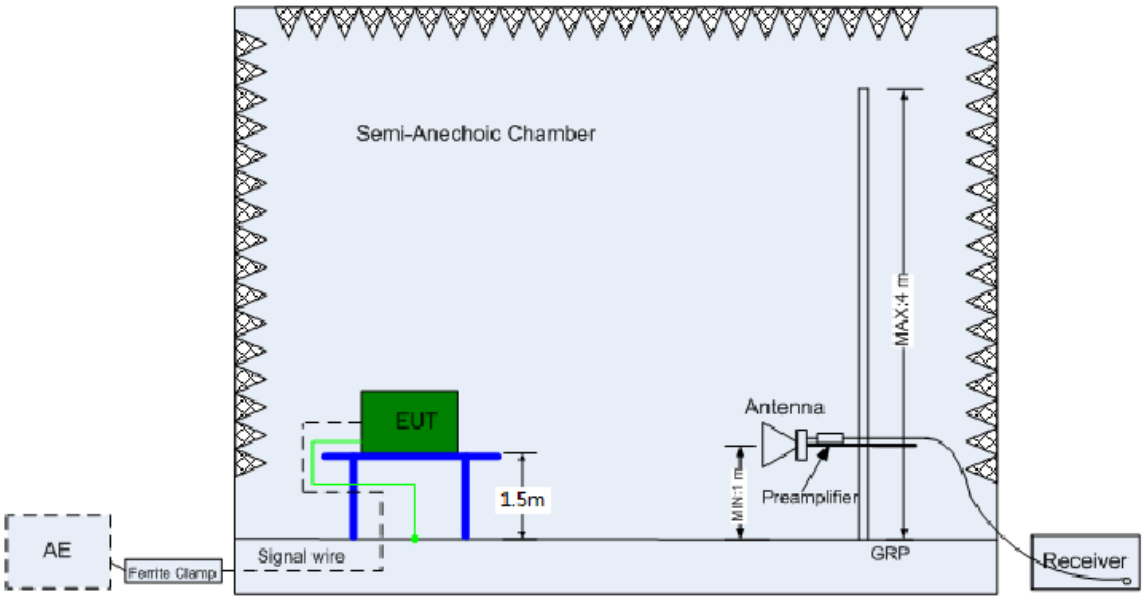


(Above 1 GHz)


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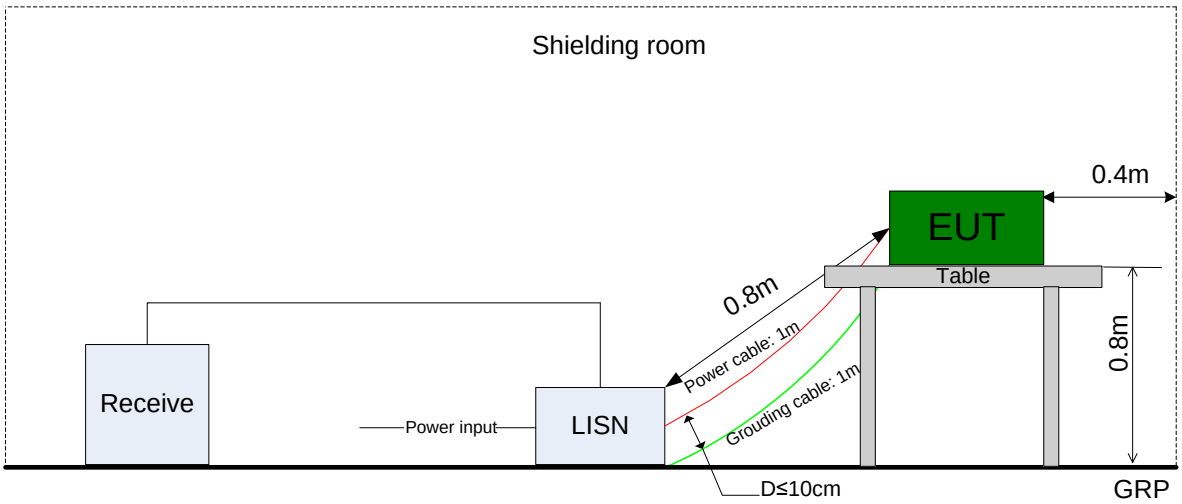
### 4.5.3 Test Setup 3

The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1 m.





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## 4.6 Test Conditions

| Test Case | Test Conditions | |
|---|---|---|
| | Configuration | Description |
| 20dB Emission Bandwidth (EBW) | Meas. Method | DA 00-705 |
| | Test Env. | NTNV |
| | Test Setup | Test Setup 1 |
| | EUT Conf. | TM1_DH5_Ch0, TM1_DH5_Ch39, TM1_DH5_Ch78,<br>TM2_2DH5_Ch0, TM2_2DH5_Ch39, TM2_2DH5_Ch78,<br>TM3_3DH5_Ch0, TM3_3DH5_Ch39, TM3_3DH5_Ch78. |
| Carrier Frequency Separation | Meas. Method | DA 00-705 |
| | Test Env. | NTNV |
| | Test Setup | Test Setup 1 |
| | EUT Conf. | TM1_DH5_Hop,<br>TM2_2DH5_Hop,<br>TM3_3DH5_Hop. |
| Number of Hopping Channel | Meas. Method | DA 00-705 |
| | Test Env. | NTNV |
| | Test Setup | Test Setup 1 |
| | EUT Conf. | TM1_DH5_Hop,<br>TM2_2DH5_Hop,<br>TM3_3DH5_Hop. |
| Time of Occupancy (Dwell Time) | Meas. Method | DA 00-705 |
| | Test Env. | NTNV |
| | Test Setup | Test Setup 1 |
| | EUT Conf. | TM1_DH5_Ch39,<br>TM2_2DH5_Ch39,<br>TM3_3DH5_Ch39. |
| Maximum Peak Conducted Output Power | Meas. Method | DA 00-705 |
| | Test Env. | NTNV |
| | Test Setup | Test Setup 1 |
| | EUT Conf. | TM1_DH5_Ch0, TM1_DH5_Ch39, TM1_DH5_Ch78,<br>TM2_2DH5_Ch0, TM2_2DH5_Ch39, TM2_2DH5_Ch78,<br>TM3_3DH5_Ch0, TM3_3DH5_Ch39, TM3_3DH5_Ch78. |
| Band edge spurious emission | Meas. Method | DA 00-705 |
| | Test Env. | NTNV |
| | Test Setup | Test Setup 1 |
| | EUT Conf. | TM1_DH5_Ch0, TM1_DH5_Ch78,<br>TM2_2DH5_Ch0, TM2_2DH5_Ch78,<br>TM3_3DH5_Ch0, TM3_3DH5_Ch78. |
| Conducted RF Spurious Emission | Meas. Method | DA 00-705 |
| | Test Env. | NTNV |


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| Test Case | Test Conditions | | |
|---|---|---|---|
| | Configuration | Description | |
| | Test Setup | Test Setup 1 | |
| | EUT Conf. | TM1_DH5_Ch0, TM1_DH5_Ch39, TM1_DH5_Ch78,<br>TM2_2DH5_Ch0, TM2_2DH5_Ch39, TM2_2DH5_Ch78,<br>TM3_3DH5_Ch0, TM3_3DH5_Ch39, TM3_3DH5_Ch78. | |
| Radiated Emissions in the Restricted Bands | Meas. Method | DA 00-705, C63.4, C63.10.<br>(1) 30 MHz to 1 GHz:<br>Pre: RBW = 100 kHz; VBW = 300 kHz; Det. = Peak.<br>Final: RBW = 120 kHz; Det. = CISPR Quasi-Peak.<br>(2) 1 GHz to 26.5 GHz:<br>Average: RBW = 1 MHz; VBW = 10 Hz; Det. = Peak; Sweep-time = Auto; Trace = Single.<br>Peak: RBW = 1 MHz; VBW = 3 MHz; Det. = Peak; Sweep-time = Auto; Trace ≥ Max Hold * 100. | |
| | Test Env. | NTNV | |
| | Test Setup | Test Setup 2 | |
| | EUT Conf. | 30 MHz -1 GHz | TM1_DH5_Ch0 (Worst Conf.). |
| | | 1-3 GHz | TM1_DH5_Ch0, TM1_DH5_Ch39, TM1_DH5_Ch78,<br>TM2_2DH5_Ch0, TM2_2DH5_Ch39,<br>TM2_2DH5_Ch78,<br>TM3_3DH5_Ch0, TM3_3DH5_Ch39,<br>TM3_3DH5_Ch78. |
| | | 3-18 GHz | TM1_DH5_Ch0 (Worse Conf.),<br>TM1_DH5_Ch39 (Worse Conf.),<br>TM1_DH5_Ch78 (Worse Conf.). |
| | | 18-26.5 GHz | TM1_DH5_Ch0 (Worst Conf.). |
| AC Power Line Conducted Emissions | Meas. Method | AC mains conducted.<br>Pre: RBW = 10 kHz; Det. = Peak.<br>Final: RBW = 9 kHz; Det. = CISPR Quasi-Peak & Average. | |
| | Test Env. | NTNV | |
| | Test Setup | Test Setup 3 | |
| | EUT Conf. | TM1_DH5_Ch39. | |


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## 5 Main Test Instruments

| Equipment Name | Manufacturer | Model | Serial Number | Cal Date | Cal- Due |
|---|---|---|---|---|---|
| Power supply | KEITHLEY | 2303 | 1342889 | 2015-09-16 | 2017-09-15 |
| Wireless Communication Test set | Agilent | N4010A | MY49081592 | 2015-10-30 | 2016-10-29 |
| Universal Radio Communication Tester | R&S | CMU200 | 123299 | 2015-10-30 | 2016-10-29 |
| Spectrum Analyzer | Agilent | N9020A | MY52090652 | 2015-07-08 | 2016-07-07 |
| Universal Radio Communication Tester | R & S | CMW500 | 126854 | 2015-02-13 | 2016-02-12 |
| Spectrum Analyzer | Agilent | E4440A | MY48250119 | 2015-07-08 | 2016-07-07 |
| Signal Analyzer | R&S | FSQ31 | 200021 | 2015-10-30 | 2016-10-29 |
| Spectrum Analyzer | Agilent | N9030A | MY49431698 | 2015-10-30 | 2016-10-29 |
| Temperature Chamber | WEISS | WKL64 | 56246002940010 | 2015-02-13 | 2016-02-12 |
| Signal generator | Agilent | E8257D | MY49281095 | 2015-10-30 | 2016-10-29 |
| Vector Signal Generator | R&S | SMU200A | 104162 | 2015-10-30 | 2016-10-29 |
| Test receiver | R&S | ESU26 | 100387 | 2015-6-24 | 2016-06-23 |
| Test receiver | R&S | ESCI | 101163 | 2015-6-24 | 2016-06-23 |
| Spectrum analyzer | R&S | FSU3 | 200474 | 2015-06-15 | 2016-06-14 |
| Spectrum analyzer | R&S | FSU43 | 100144 | 2015-06-15 | 2016-06-14 |
| LOOP Antennas(9kHz-30MHz) | R&S | HFH2-Z2 | 100262 | 2015-4-30 | 2017-4-29 |
| LOOP Antennas(9kHz-30MHz) | R&S | HFH2-Z2 | 100263 | 2015-4-30 | 2017-4-29 |
| Trilog Broadband Antenna (30M~3GHz) | SCHWARZBECK | VULB 9163 | 9163-490 | 2015-4-30 | 2017-4-29 |
| Trilog Broadband Antenna (30M~3GHz) | SCHWARZBECK | VULB 9163 | 9163-520 | 2015-4-30 | 2017-4-29 |
| Double-Ridged Waveguide Horn Antenna (1G~18GHz) | R&S | HF907 | 100304 | 2015-4-30 | 2017-4-29 |
| double ridged horn antenna（0.8G-18GHz) | R&S | HF907 | 100305 | 2015-4-30 | 2017-4-29 |
| Pyramidal Horn Antenna(18GHz-26.5GHz) | ETS-Lindgren | 3160-09 | 5140299 | 2015-7-15 | 2017-7-14 |
| Artificial Main Network | R&S | ENV4200 | 100134 | 2015-6-24 | 2016-6-23 |
| Line Impedance Stabilization Network | R&S | ENV216 | 100382 | 2015-6-24 | 2016-6-23 |
| Signal Generator | Agilent | E4438C | MY49071538 | 2015-03-10 | 2016-03-09 |

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