

<b>Prüfbericht-Nr.:</b> <i>Test report no.:</i>	<b>CN23WPIZ 001</b>	<b>Auftrags-Nr.:</b> <i>Order no.:</i>	<b>168401566</b>	<b>Seite 1 von 15</b> <i>Page 1 of 15</i>	
<b>Kunden-Referenz-Nr.:</b> <i>Client reference no.:</i>	<b>N/A</b>	<b>Auftragsdatum:</b> <i>Order date:</i>	<b>2022-12-05</b>		
<b>Auftraggeber:</b> <i>Client:</i>	<b>Xiamen R&amp;T Plumbing Technology Co., Ltd.</b> No.18, HouXiang Road, HaiCang District, Xiamen, 361028, China				
<b>Prüfgegenstand:</b> <i>Test item:</i>	Intelligent Toilet				
<b>Bezeichnung / Typ-Nr.:</b> <i>Identification / Type no.:</i>	H01-T (Trademark: R&T)				
<b>Auftrags-Inhalt:</b> <i>Order content:</i>	Test Report				
<b>Prüfgrundlage:</b> <i>Test specification:</i>	FCC CFR Title 47, Part 15, Subpart C, Section 15.249				
<b>Wareneingangsdatum:</b> <i>Date of sample receipt:</i>	2022-12-09	Please refer to Photo Document			
<b>Prüfmuster-Nr.:</b> <i>Test sample no.:</i>	A003383749-001~003				
<b>Prüfzeitraum:</b> <i>Testing period:</i>	2022-12-20 – 2022-12-22				
<b>Ort der Prüfung:</b> <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.				
<b>Prüflaboratorium:</b> <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.				
<b>Prüfergebnis*:</b> <i>Test result*:</i>	Pass				
<b>geprüft von:</b> <i>tested by:</i>		<b>genehmigt von:</b> <i>authorized by:</i>			
<b>Datum:</b> <i>Date:</i>	2023-03-10 <small>Signed by: Chris Chen</small>	<b>Ausstellungsdatum:</b> <i>Issue date:</i>	2023-03-10 <small>Signed by: Lin Lin</small>		
<b>Stellung / Position:</b>	Section Manager	<b>Stellung / Position:</b>	Reviewer		
<b>Sonstiges / Other:</b>	FCC ID: 2AW23-VC390				
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>				
<b>* Legende:</b>	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend N/T = nicht getestet	5 = mangelhaft N/T = nicht getestet
<b>* Legend:</b>	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/T = not tested	5 = poor N/T = not tested
<b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b> <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>					

## **Test Summary**

**5.1.1 ANTENNA REQUIREMENT**

*RESULT: Pass*

**5.1.2 FIELD STRENGTH OF FUNDAMENTAL AND HARMONICS**

*RESULT: Pass*

**5.1.3 20dB AND 99% BANDWIDTH**

*RESULT: Pass*

**5.1.4 BAND EDGE**

*RESULT: Pass*

## Table of Contents

<b>1</b>	<b>GENERAL REMARKS .....</b>	<b>4</b>
<b>1.1</b>	<b>COMPLEMENTARY MATERIALS .....</b>	<b>4</b>
<b>2</b>	<b>TEST SITES .....</b>	<b>5</b>
<b>2.1</b>	<b>TEST FACILITIES .....</b>	<b>5</b>
<b>2.2</b>	<b>LIST OF TEST AND MEASUREMENT INSTRUMENTS.....</b>	<b>5</b>
<b>2.3</b>	<b>TRACEABILITY .....</b>	<b>6</b>
<b>2.4</b>	<b>CALIBRATION .....</b>	<b>6</b>
<b>2.5</b>	<b>MEASUREMENT UNCERTAINTY.....</b>	<b>6</b>
<b>2.6</b>	<b>LOCATION OF ORIGINAL DATA.....</b>	<b>6</b>
<b>2.7</b>	<b>STATUS OF FACILITY USED FOR TESTING.....</b>	<b>6</b>
<b>3</b>	<b>GENERAL PRODUCT INFORMATION .....</b>	<b>7</b>
<b>3.1</b>	<b>PRODUCT FUNCTION AND INTENDED USE.....</b>	<b>7</b>
<b>3.2</b>	<b>RATINGS AND SYSTEM DETAILS .....</b>	<b>7</b>
<b>3.3</b>	<b>INDEPENDENT OPERATION MODES .....</b>	<b>8</b>
<b>3.4</b>	<b>NOISE GENERATING AND NOISE SUPPRESSING PARTS .....</b>	<b>8</b>
<b>3.5</b>	<b>SUBMITTED DOCUMENTS.....</b>	<b>8</b>
<b>4</b>	<b>TEST SET-UP AND OPERATION MODES .....</b>	<b>9</b>
<b>4.1</b>	<b>PRINCIPLE OF CONFIGURATION SELECTION .....</b>	<b>9</b>
<b>4.2</b>	<b>TEST OPERATION AND TEST SOFTWARE.....</b>	<b>9</b>
<b>4.3</b>	<b>SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT .....</b>	<b>9</b>
<b>4.4</b>	<b>COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE.....</b>	<b>9</b>
<b>4.5</b>	<b>TEST SETUP DIAGRAM .....</b>	<b>10</b>
<b>5</b>	<b>TEST RESULTS .....</b>	<b>11</b>
<b>5.1</b>	<b>TRANSMITTER REQUIREMENT &amp; TEST SUITES .....</b>	<b>11</b>
<i>5.1.1</i>	<i>Antenna Requirement .....</i>	<i>11</i>
<i>5.1.2</i>	<i>Field strength of fundamental and harmonics.....</i>	<i>12</i>
<i>5.1.3</i>	<i>20dB and 99% Bandwidth.....</i>	<i>13</i>
<i>5.1.4</i>	<i>Band Edge.....</i>	<i>14</i>
<b>6</b>	<b>PHOTOGRAPHS OF THE TEST SET-UP .....</b>	<b>15</b>
<b>7</b>	<b>LIST OF TABLES.....</b>	<b>15</b>

# 1 General Remarks

## 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-up

Appendix B: Test Results of FCC Part 15C

## 2 Test Sites

### 2.1 Test Facilities

**TÜV Rheinland (Shenzhen) Co., Ltd.**

362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China

FCC Accreditation Designation No.: CN1260

ISED wireless device testing laboratory: 25069

### 2.2 List of Test and Measurement Instruments

**Table 1: List of Test and Measurement Equipment**

<b>Radio Spectrum Testing (TS8997)</b>				
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial No.</b>	<b>Cal. until</b>
Signal Analyzer	R&S	FSV 40	101441	2023-08-01
OSP	R&S	OSP 150	101017	2023-11-21
Control PC	DELL	OptiPlex 7050	FTJZ9P2	N/A
Test Software	R&S	WMS32 (V11.00.00)	N/A	N/A
Power Meter	R&S	NRP2	107105	2023-11-21
Wideband Power Sensor	R&S	NRP-Z81	105677	2023-08-01
Shielding Room 8#	Albatross	SR8	APC17151-SR8	2024-06-22
<b>Unwanted Emission Testing (TS9975)</b>				
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial No.</b>	<b>Cal. until</b>
EMI Test Receiver	R&S	ESR 7	102021	2023-08-02
Signal Analyzer	R&S	FSV 40	101439	2023-08-01
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	2023-08-01
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2023-08-02
Amplifier	R&S	SCU-18F	180070	2023-08-02
Amplifier	R&S	SCU40A	100475	2023-08-02
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2024-08-06
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2024-08-06
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2024-08-27
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2023-08-06
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2024-06-22

## 2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

## 2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions measurements as below table.

Parameter	Uncertainty (k=2)
RF output power, conducted	± 0.99 dB
Occupied Channel Bandwidth	± 2.08 %
Unwanted Emissions, conducted	± 0.89 dB
All emissions, radiated	± 4.17 dB

## 2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

## 2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at 362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

### 3 General Product Information

#### 3.1 Product Function and Intended Use

The EUT is a **Remote Control**, which supports General 2.4GHz transmitter wireless technology.

For details refer to the User Manual, Technical Description and Circuit Diagram.

#### 3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment:	Intelligent Toilet
Type Designation:	H01-T
Trademark:	R&T
FCC ID:	2AW23-VC390
Operating Voltage:	DC 3V(2pcs AAA) battery for Remote Control
Testing Voltage:	Fully battery for Remote Control
Operating Temperature Range:	5 °C ~ 40 °C
<b>Technical Specification of 2.4GHz ( for Remote Control)</b>	
Frequency Range:	2465 - 2480 MHz
Type of Modulation:	GFSK
Channel Number:	4 channels
Channel Separation:	5MHz
Antenna Type:	PCB Layout Antenna
Antenna Gain:	0.00 dBi

### 3.3 Independent Operation Modes

The basic operation modes are:

- A. On, 2.4GHz transmitting mode (Remote Control only)
  - 1. Low channel
  - 2. Middle channel
  - 3. High channel
- B. Off

### 3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

### 3.5 Submitted Documents

- Application Form
- Operation Description
- Schematics
- Parts List
- ID Label and Location Info
- Block Diagram
- PCB Layout



## 4 Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

**Radio Spectrum:** The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

**Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013.

**Table 3: Test environments**

Environment Parameter	Values During Tests		
	Temperature	Voltage (Battery operated)	Relative Humidity
NTNV	25°C±2°C	3.0Vdc	Ambient

**Table 4: Test channel and frequency**

Mode	Test Channels (MHz)	Remark
Transmitting	L/M/H: 2465MHz, 2470MHz, 2480MHz	--

### 4.3 Special Accessories and Auxiliary Equipment

N/A

### 4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

### 4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

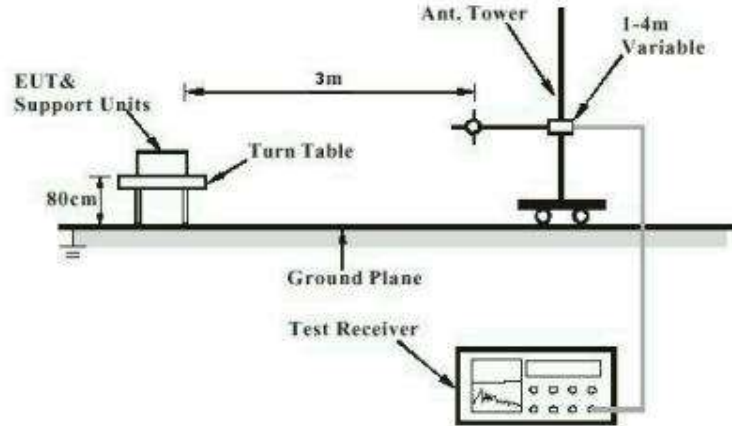


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

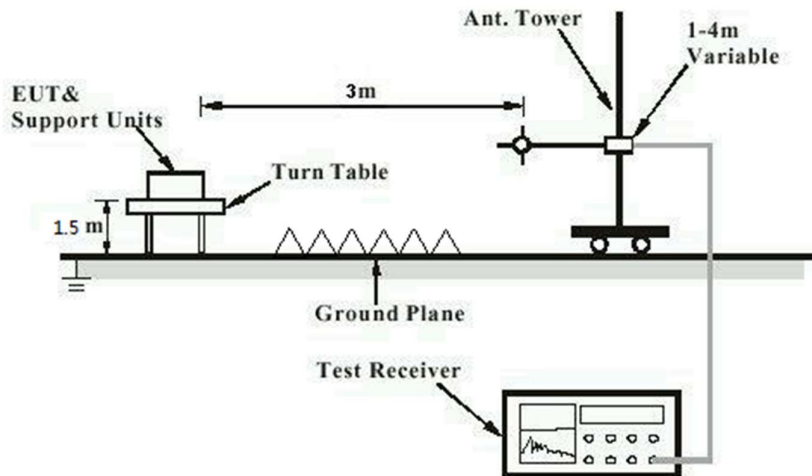
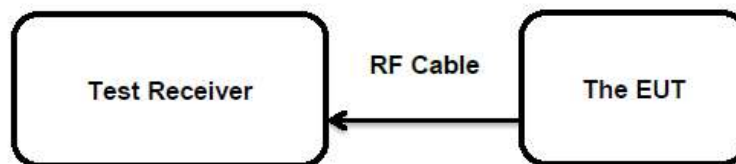


Diagram of Measurement Configuration for Conducted Transmitter Measurement



## 5 Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Antenna Requirement

**RESULT:** **Pass**

**Test Specification**

Test standard : FCC Part 15.203

According to the manufacturer declared, the EUT has a PCB Layout antenna, the gain of antenna is 0.00 dBi, which that permanent attachment and no consideration of replacement.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

Prüfbericht - Nr.: **CN23WPIZ 001**  
Test Report No.:Seite 12 von 15  
Page 12 of 15

## 5.1.2 Field strength of fundamental and harmonics

**RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.249(a) (d) (e)
Basic standard	: ANSI C63.10: 2013
Limits	: FCC Part 15.249(a) (d) (e) & 15.209(a)
Kind of test site	: 3m Semi-anechoic Chamber

**Test Setup**

Date of testing	: 2022-12-20
Input voltage	: Fully battery
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: Refer to test result
Relative humidity	: Refer to test result
Atmospheric pressure	: 101 kPa

Note: Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix B.

### 5.1.3 20dB and 99% Bandwidth

RESULT:

Pass

**Test Specification**

Test standard : FCC Part 15.215  
Basic standard : ANSI C63.10: 2013  
Limits : Within assigned band  
Kind of test site : Shielded Room

**Test Setup**

Date of testing : 2022-12-22  
Input voltage : Fully battery  
Operation mode : A  
Test channel : Low / Middle / High  
Ambient temperature : 23 °C  
Relative humidity : 56 %  
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

## 5.1.4 Band Edge

**RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.249(a) (d) (e) & 15.209 & 15.205
Basic standard	: ANSI C63.10: 2013
Limits	: FCC Part 15.249(a) (d) (e) & 15.209 & 15.205
Kind of test site	: 3m Semi-anechoic Chamber

**Test Setup**

Date of testing	: 2022-12-20
Input voltage	: Fully battery
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: Refer to test result
Relative humidity	: Refer to test result
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B.

## 6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

## 7 List of Tables

Table 1: List of Test and Measurement Equipment.....	5
Table 2: Technical Specification of EUT .....	7
Table 3: Test environments .....	9
Table 4: Test channel and frequency.....	9