

Prüfbericht-Nr.: <i>Test report no.:</i>	CN24UQ52 002	Auftrags-Nr.: <i>Order no.:</i>	168472630	Seite 1 von 18. Page 1 of 18.
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2024-03-06	
Auftraggeber: <i>Client:</i>	Shenzhen PICEA Intelligent Technology Co., Ltd Floor 10, Block A, Han's Innovation Building, No. 9018, Beihuan Avenue, North District, High-tech Park, Nanshan District, Shenzhen, Guangdong, P.R. China			
Prüfgegenstand: <i>Test item:</i>	3i Intelligent Cat Litter Box M10			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	HOME-M10 (Trademark: 3i)			
Auftrags-Inhalt: <i>Order content:</i>	Test Report			
Prüfgrundlage: <i>Test specification:</i>	FCC CFR Title 47, Part 15, Subpart C, Section 15.245 RSS-210 Issue 10 April 2020 RSS-Gen Issue 5 February 2021			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2024-03-07	Please refer to Photo Document		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003668801-007~008 A003688785-001			
Prüfzeitraum: <i>Testing period:</i>	2024-03-18 - 2024-04-25			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>	genehmigt von: <i>authorized by:</i>			
Datum: <i>Date:</i> 2024-07-11	Ausstellungsdatum: <i>Issue date:</i> 2024-07-11			
Stellung / Position:	Sachverständige(r)/Expert	Stellung / Position:	Sachverständige(r)/Expert	
Sonstiges / <i>Other:</i>	FCC ID: 2BGN6-SCZN0527 IC: 32482-SCZN0527 HVIN: HOME-M10			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet * Legend: P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
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Anmerkungen
Remarks

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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 CONDUCTED EMISSION ON AC MAINS

RESULT: Pass

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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: Test Results

Appendix B: Photographs of the Test Set-up

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China.

FCC Accreditation Designation No.: 694916

ISED Wireless Device Testing Laboratory: 25069

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radio Spectrum Testing (TS8997)					
Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. until
Signal Analyzer	R&S	FSV 40	101441	2023-07-26	2024-07-25
OSP	R&S	OSP 150	101017	2023-11-14	2024-11-13
Control PC	DELL	OptiPlex 7050	FTJZ9P2	N/A	N/A
Test Software	R&S	WMS32 (V11.00.00)	N/A	N/A	N/A
Power Meter	R&S	NRP2	107105	2023-11-14	2024-11-13
Wideband Power Sensor	R&S	NRP-Z81	105677	2023-07-26	2024-07-25
Shielding Room 8#	Albatross	SR8	APC17151-SR8	2021-06-22	2024-06-22
Unwanted Emission Testing (TS9975)					
Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	2023-07-26	2024-07-25
Signal Analyzer	R&S	FSV 40	101439	2023-07-26	2024-07-25
System Controller Interface	R&S	SCI-100	S10010038	N/A	N/A
Filterbank	R&S	Wlan	100759	2023-07-26	2024-07-25
OSP	R&S	OSP 120	102040	N/A	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2023-07-26	2024-07-25
Amplifier	R&S	SCU-18F	180070	2023-07-26	2024-07-25
Amplifier	R&S	SCU40A	100475	2023-07-26	2024-07-25
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2022-08-07	2024-08-06
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2022-08-07	2024-08-06
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2022-08-28	2024-08-27
MM-Wave Frequency Conversion	Tonscend	MMFC-R190-L0F0	202305240001	2023-11-01	2024-10-29

Receiving Unit (Above 40 GHz)					
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2022-08-07	2024-08-06
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2021-06-22	2024-06-22

Conducted Emission				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
EMI Test Receiver	R&S	ESR3	102428	2024-07-30
Artificial Mains Network	R&S	ENV216	102333	2024-07-31
EMC32 test software	R&S	EMC32(Ver.10.50.00)	N/A	N/A

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.

Table 2: Measurement Uncertainty

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
Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz)	± 3.70 dB / ± 3.30 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.

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2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. 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 product is 3i Intelligent Cat Litter Box M10 which supports Bluetooth, 2.4GHz Wi-Fi, 5GHz Wi-Fi and 10.525GHz Radar functions, this report is for 10.525GHz Radar test only.
The Bluetooth, 2.4GHz Wi-Fi and 5GHz Wi-Fi contains FCC ID: 2AHMR-BW16.

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

3.2 Ratings and System Details

Table 3: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment:	3i Intelligent Cat Litter Box M10
Type Designation:	HOME-M10
Trademark:	3i
FCC ID:	2BGN6-SCZN0527
IC:	32482-SCZN0527
HVIN:	HOME-M10
Operating Voltage:	DC 20V@2.4A input via AC/DC Adapter
Testing Voltage:	AC 120V, 60Hz
Operating Temperature Range:	-10 °C ~ +40 °C
AC/DC Adapter:	Model: SAW48C-200-2400G Input: 100-240V, 50/60Hz, 1.3A Output: 20V, 2.4A
Technical Specification of 10GHz Radar	
Frequency Range:	10.50GHz to 10.55 GHz
Operation Frequency:	10.525GHz
Type of Modulation:	FMCW
Channel Number:	1 channel
Antenna Type:	PCB Antenna
Antenna Gain:	3.78dBi (Provided by the Client)

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, 10GHz radar transmitting mode
- B. On, Normal operation
- C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- | | |
|----------------------------------|-------------------------|
| - Application Form | - Operation Description |
| - FCC/IC Label and Location Info | - Block Diagram |
| - Schematics | - 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.

According to clause 3.1, all tests were performed on model *HOME-M10* in this report.

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)

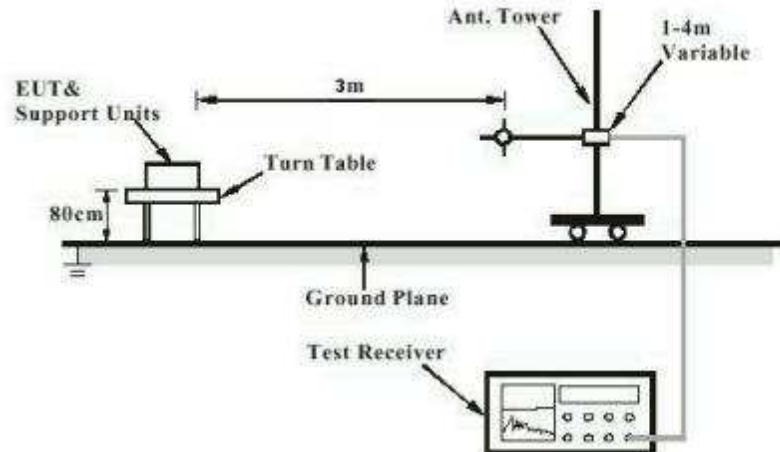


Diagram of Measurement Configuration for Radiation Test (1GHz-18GHz)

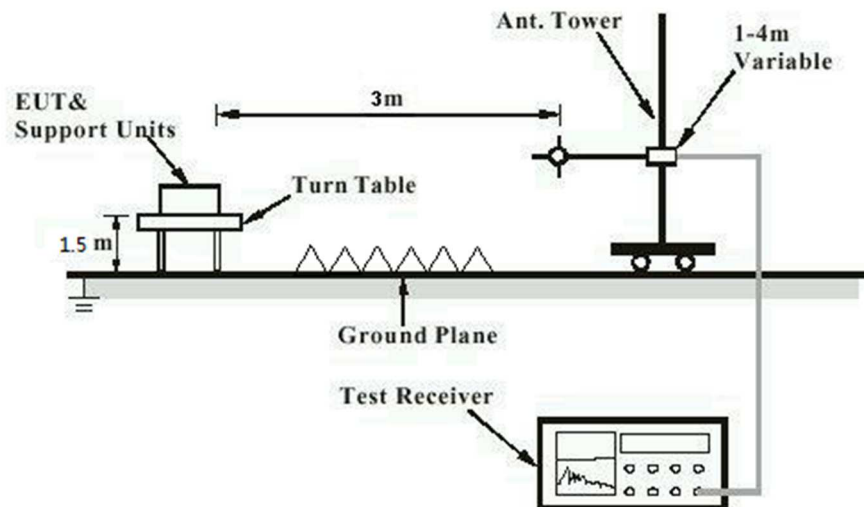


Diagram of Measurement Configuration for Radiation Test (above 18GHz)

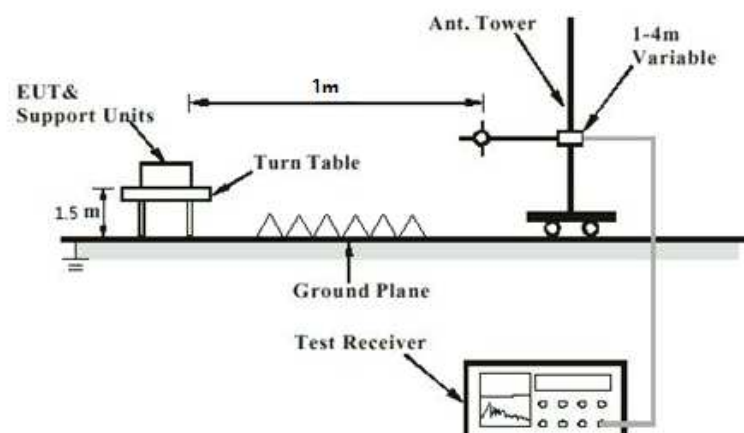


Diagram of Measurement Configuration for Mains Conduction Measurement

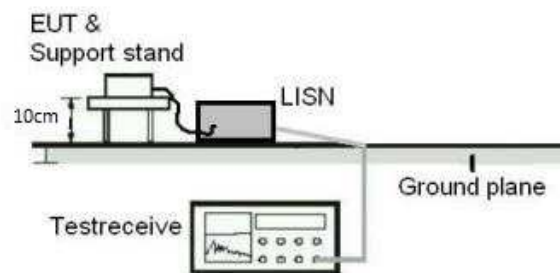
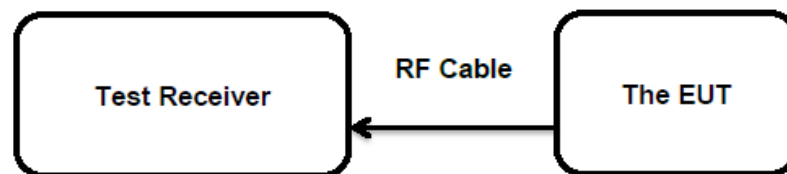


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.203
RSS-Gen Section 6.8

According to the manufacturer declared, the EUT has a PCB antenna, the gain of antenna is 3.78dBi, 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.

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5.1.2 Field strength of fundamental and harmonics

RESULT: Pass

Test Specification

- Test standard : FCC Part 15.245(b)
RSS-210 Annex F.1
- Basic standard : ANSI C63.10: 2013
- Limits : FCC Part 15.245(b) & 15.209
RSS-210 Table F1
- Kind of test site : 3m Semi-anechoic Chamber

Test Setup

- Date of testing : 2024-04-19 to 2024-04-25
- Input voltage : AC 120V, 60Hz
- Operation mode : A
- Test channel : 10.525GHz
- 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 A.

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Test standard	:	FCC Part 15.215 RSS-Gen Section 8.8
Basic standard	:	ANSI C63.10: 2013
Limits	:	Within assigned band
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2024-04-18
Input voltage	:	AC 120V, 60Hz
Operation mode	:	A
Test channel	:	10.525GHz
Ambient temperature	:	23.6 °C
Relative humidity	:	51 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A.

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5.1.4 Conducted Emission on AC Mains

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

Test standard	: FCC Part 15.207(a) RSS-Gen Clause 8.8
Basic standard	: ANSI C63.10: 2013
Frequency range	: 0.15 – 30MHz
Limits	: FCC Part 15.207(a) RSS-Gen Table 4
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2024-03-18
Input voltage	: AC 120V, 60Hz
Operation mode	: B
Ambient temperature	: 23.3 °C
Relative humidity	: 51.1 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

6 Photographs of the Test Set-Up

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

7 List of Tables

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