

Prüfbericht-Nr.: Test report no.:	CN247FS1 001	Auftrags-Nr.: Order no.:	168513747	Seite 1 von 28 Page 1 of 28
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2024-11-14	
Auftraggeber: Client:	Shenzhen Aiper Intelligent Co., Ltd. Units 3201, 3203A and 3205, 32nd Floor, Block C, Phase 2 Galaxy World, Minle Community, Minzhi Street, Longhua District, Shenzhen, Guangdong, China			
Prüfgegenstand: Test item:	CORDLESS ROBOTIC POOL CLEANER			
Bezeichnung / Typ-Nr.: Identification / Type no.:	PRX9			
Auftrags-Inhalt: Order content:	Test Report			
Prüfgrundlage: Test specification:	CFR47 FCC Part 15: Subpart C Section 15.247 RSS-247 Issue 3 August 2023 RSS-Gen Issue 5 February 2021			
Wareneingangsdatum: Date of sample receipt:	2024-11-13	Please refer to Photo Document		
Prüfmuster-Nr.: Test sample no.:	A003867017-001~006 A003872682-001~006 A003916704-001, EMC-001			
Prüfzeitraum: Testing period:	2024-11-15 - 2025-03-07			
Ort der Prüfung: Place of testing:	Refer to section 2.1			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:	☒ <u>Breeze Jiang</u>		genehmigt von: authorized by:	☒ <u>Bell Hu</u>
Datum: Date:	2025-03-18	Signed by: Breeze Jiang	Ausstellungsdatum: Issue date:	2025-03-18
Stellung / Position:	Sachverständige(r)/Expert		Stellung / Position:	Sachverständige(r)/Expert
Sonstiges / Other:	FCC ID: 2BMDV-PRX9 IC: 31793-PRX9, HVIN: PRX9 This report is for Bluetooth dual mode.			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* 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				
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. <i>This test report only relates to the above mentioned 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>				

Prüfbericht-Nr.: CN247FS1 001
Test report no.:

Seite 2 von 28
Page 2 of 28

Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
2	Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. Informationen zur Verifizierung der Authentizität unserer Dokumente erhalten Sie auf folgender Webseite: go.tuv.com/digital-signature <i>As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged. For information on verifying the authenticity of our documents, please visit the following website: go.tuv.com/digital-signature</i>
3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i> <i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>

Prüfbericht - Nr.: CN247FS1 001
Test Report No.:

Seite 3 von 28
Page 3 of 28

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER

RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY

RESULT: Pass

5.1.4 6dB BANDWIDTH

RESULT: Pass

5.1.5 99% BANDWIDTH

RESULT: Pass

5.1.6 20dB BANDWIDTH

RESULT: Pass

5.1.7 CARRIER FREQUENCY SEPARATION

RESULT: Pass

5.1.8 NUMBER OF HOPPING FREQUENCY

RESULT: Pass

5.1.9 TIME OF OCCUPANCY

RESULT: Pass

5.1.10 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHz BANDWIDTH

RESULT: Pass

5.1.11 RADIATED SPURIOUS EMISSION

RESULT: Pass

5.1.12 CONDUCTED EMISSION ON AC MAINS

RESULT: Pass

Contents

1	GENERAL REMARKS	5
1.1	COMPLEMENTARY MATERIALS.....	5
2	TEST SITES.....	6
2.1	TEST FACILITIES	6
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS	6
2.3	TRACEABILITY	7
2.4	CALIBRATION.....	7
2.5	MEASUREMENT UNCERTAINTY	7
2.6	LOCATION OF ORIGINAL DATA	8
2.7	STATUS OF FACILITY USED FOR TESTING	8
3	GENERAL PRODUCT INFORMATION	9
3.1	PRODUCT FUNCTION AND INTENDED USE	9
3.2	RATINGS AND SYSTEM DETAILS.....	9
3.3	INDEPENDENT OPERATION MODES.....	11
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS	11
3.5	SUBMITTED DOCUMENTS.....	11
4	TEST SET-UP AND OPERATION MODES.....	12
4.1	PRINCIPLE OF CONFIGURATION SELECTION	12
4.2	TEST OPERATION AND TEST SOFTWARE	12
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	12
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	12
4.5	TEST SETUP DIAGRAM	13
5	TEST RESULTS	15
5.1	TRANSMITTER REQUIREMENT & TEST SUITES.....	15
5.1.1	<i>Antenna Requirement.....</i>	<i>15</i>
5.1.2	<i>Maximum Peak Conducted Output Power</i>	<i>16</i>
5.1.3	<i>Conducted Power Spectral Density.....</i>	<i>18</i>
5.1.4	<i>6dB Bandwidth</i>	<i>19</i>
5.1.5	<i>99% Bandwidth.....</i>	<i>20</i>
5.1.6	<i>20dB Bandwidth</i>	<i>21</i>
5.1.7	<i>Carrier Frequency Separation</i>	<i>22</i>
5.1.8	<i>Number of Hopping Frequency</i>	<i>23</i>
5.1.9	<i>Time of Occupancy.....</i>	<i>24</i>
5.1.10	<i>Conducted Spurious Emissions Measured in 100 kHz Bandwidth</i>	<i>25</i>
5.1.11	<i>Radiated Spurious Emission</i>	<i>26</i>
5.1.12	<i>Conducted Emission on AC Mains.....</i>	<i>27</i>
6	PHOTOGRAPHS OF THE TEST SET-UP	28
7	LIST OF TABLES.....	28

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 of Bluetooth BR & EDR mode

Appendix B: Test Results of Bluetooth LE

Appendix C: Photographs of the Test Set-up

2 Test Sites

2.1 Test Facilities

1. TÜV Rheinland (Shenzhen) Co., Ltd.

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

FCC Registration No.: CN1260

ISED wireless device testing laboratory: 25069

2. TÜV Rheinland (Suzhou) Co., Ltd.

No.14 building and north half of No.10 workshop building, No.525, Yuewang Lingang South Road, Pingqian (Taicang) Modern Industrial Park, Shaxi Town, Taicang City, Jiangsu Province, China

A2LA accreditation certification number: 4301.04

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

TÜV Rheinland (Shenzhen) Co., Ltd.

Radio Spectrum Testing (SRD-Tonscend)					
Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. until
EXA Signal Analyzer, Multi-touch	Keysight	N9010B	MY60241175	2024-09-26	2025-09-25
MXG X-Series RF Vector Signal Generator	Keysight	N5182B	MY61250137	2024-09-26	2025-09-25
EXG X-Series Microwave Analog Signal Generator	Keysight	N5173B	MY61250141	2024-09-26	2025-09-25
DC power supply	Keysight	E3642A	MY61276100	2024-09-26	2025-09-25
Power Control Unit	Tonscend	JS0806-4ADC	N/A	2024-09-26	2025-09-25
Automation Control Unit	Tonscend	JS0806-2	21C8060396	2024-09-26	2025-09-25
Test Software	Tonscend	JS1120-3	N/A	N/A	N/A
Control PC	Lenovo	TianYi510S-071MB	YLX23JMF	N/A	N/A
Shielding Room	Albatross	SR1	APC17151-SR1	2024-09-14	2027-09-13
Unwanted Emission Testing (TS9975)					
Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	2024-09-29	2025-09-28
Signal Analyzer	R&S	FSV 40	101439	2024-09-29	2025-09-28
System Controller Interface	R&S	SCI-100	S10010038	N/A	N/A
Filterbank	R&S	Wlan	100759	2024-09-29	2025-09-28
OSP	R&S	OSP 120	102040	N/A	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2024-09-29	2025-09-28
Amplifier	R&S	SCU-18F	180070	2024-09-29	2025-09-28

Prüfbericht - Nr.: CN247FS1 001

Seite 7 von 28

Test Report No.:

Page 7 of 28

Amplifier	R&S	SCU40A	100475	2024-09-29	2025-09-28
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2024-09-28	2025-09-27
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2024-09-28	2025-09-27
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2024-09-28	2025-09-27
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2024-09-28	2025-09-27
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	2024-09-14	2027-09-13

TÜV Rheinland (Suzhou) Co., Ltd.

Conducted Emission

Equip.	Description	Model	Manufacturer	Last Date DD.MM.YYYY	Due Date DD.MM.YYYY
9061503	Shielded enclosure	10.055x3.605x3.000	Frankonia	08.11.2023	08.11.2028
9023229	EMI test receiver	ESR3	Rohde&Schwarz	03.08.2024	03.08.2025
G1824248	Dual display multimeter	F45	Fluke	28.06.2024	28.06.2025
9062744	EMI measurement software	EMC32-E+ (10.60.20)	Rohde&Schwarz	NA*	NA*
G1830003	Artificial mains network	ENV432	Rohde&Schwarz	11.10.2024	11.10.2025
G1811378	3m semi-anechoic chamber	SAC3	Frankonia	03.12.2023	03.12.2026
G1811391	EMI test receiver	ESCI	Rohde&Schwarz	17.10.2024	17.10.2025
G1811425	Bilog antenna	CBL 6112D	Teseq	20.04.2023	20.04.2026
9062745	EMI measurement software	EMC32-MEB (10.60.20)	Rohde&Schwarz	NA*	NA*
G1825371	Preamplifier	EMC051845SE	Taiwan EMCI	24.07.2024	24.07.2025
G1822694	Double ridged broadband horn antenna	BBHA 9120 D	Schwarzbeck	24.03.2021	24.03.2026
G1822702	Spectrum analyser	FSV40	Rohde&Schwarz	15.07.2024	15.07.2025

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 and conducted emissions measurements as below table.

Table 2: Measurement Uncertainty

Parameter	Uncertainty
RF output power, conducted	± 0.99 dB
Occupied Channel Bandwidth	± 2.08 %
RF power density, conducted	± 0.99 dB
Unwanted Emissions, conducted	± 0.89 dB
All emissions, radiated	± 4.17 dB
Conducted Emission (150kHz to 30 MHz)	2.33 dB

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B & C 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 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.

The TÜV Rheinland (Suzhou) Co., Ltd. Test facility located at No.14 building and north half of No.10 workshop building, No.525, Yuewang Lingang South Road, Pingqian (Taicang) Modern Industrial Park, Shaxi Town, Taicang City, Jiangsu Province, 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 CORDLESS ROBOTIC POOL CLEANER which supports Bluetooth dual mode, 2.4GHz Wi-Fi and 2.4GHz wireless technologies.

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:	CORDLESS ROBOTIC POOL CLEANER
Type Designation:	PRX9
FCC ID:	2BMDV-PRX9
IC:	31793-PRX9
HVIN:	PRX9
Operating Voltage:	DC 29.4V input via Charging dock DC 25.2V input via internal rechargeable Li-ion battery
Testing Voltage:	AC 120V, 60Hz or Fully charged battery
Operating Temperature Range:	0 °C ~ +40 °C
Technical Specification of Bluetooth (dual mode)	
Operating Frequency:	2402 MHz to 2480 MHz
Type of Modulation:	GFSK, $\pi/4$ -DQPSK, 8DPSK
Channel Number:	BR & EDR mode:79 channels, Low Energy mode:40 channels
Channel Separation:	BR & EDR mode:1MHz, Low Energy mode:2MHz
Data Rate:	BR & EDR mode: 1Mbps, 2Mbps, 3Mbps Low Energy mode: 1Mbps
Antenna Type:	External glue stick antenna
Antenna Gain:	-1.09 dBi (Provided by the Client)

Note: The correctness of all data provided by customer in the test report is ensured and responsible of the customer. Any misjudgment of the test results caused by the use of incorrect data provided by customer shall be borne by the customer.

Table 4: RF Channel and Frequency of Bluetooth BR & EDR

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
0	2402.00	20	2422.00	40	2442.00	60	2462.00
1	2403.00	21	2423.00	41	2443.00	61	2463.00
2	2404.00	22	2424.00	42	2444.00	62	2464.00
3	2405.00	23	2425.00	43	2445.00	63	2465.00
4	2406.00	24	2426.00	44	2446.00	64	2466.00
5	2407.00	25	2427.00	45	2447.00	65	2467.00
6	2408.00	26	2428.00	46	2448.00	66	2468.00
7	2409.00	27	2429.00	47	2449.00	67	2469.00
8	2410.00	28	2430.00	48	2450.00	68	2470.00
9	2411.00	29	2431.00	49	2451.00	69	2471.00
10	2412.00	30	2432.00	50	2452.00	70	2472.00
11	2413.00	31	2433.00	51	2453.00	71	2473.00
12	2414.00	32	2434.00	52	2454.00	72	2474.00
13	2415.00	33	2435.00	53	2455.00	73	2475.00
14	2416.00	34	2436.00	54	2456.00	74	2476.00
15	2417.00	35	2437.00	55	2457.00	75	2477.00
16	2418.00	36	2438.00	56	2458.00	76	2478.00
17	2419.00	37	2439.00	57	2459.00	77	2479.00
18	2420.00	38	2440.00	58	2460.00	78	2480.00
19	2421.00	39	2441.00	59	2461.00		

Test frequencies are lowest channel: 2402 MHz, middle channel: 2441 MHz and highest channel: 2480 MHz for Bluetooth BR & EDR

Table 5: RF Channel and Frequency of Bluetooth LE

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

Test frequencies are lowest channel: 2402 MHz, middle channel: 2440 MHz and highest channel: 2480 MHz for Bluetooth LE

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Bluetooth transmitting mode (BR & EDR mode)
 - 1) Low Channel
 - 2) Middle Channel
 - 3) High Channel
- B. On, Bluetooth transmitting mode (Bluetooth LE mode)
 - 1) Low Channel
 - 2) Middle Channel
 - 3) High Channel
- C. On, Transmitting on Hopping channel
- D. On, Charging and Wireless link
- E. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

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

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 *PRX9* in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 6: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Laptop	Lenovo	T480	PF-16A6N8	N/A
Charging dock	AIPER	CHW1	N/A	DC 29.4V
AC/DC Adapter	GVE	GM95-294300-2FGN	B2407116339	DC 29.4V, 3.0A

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)

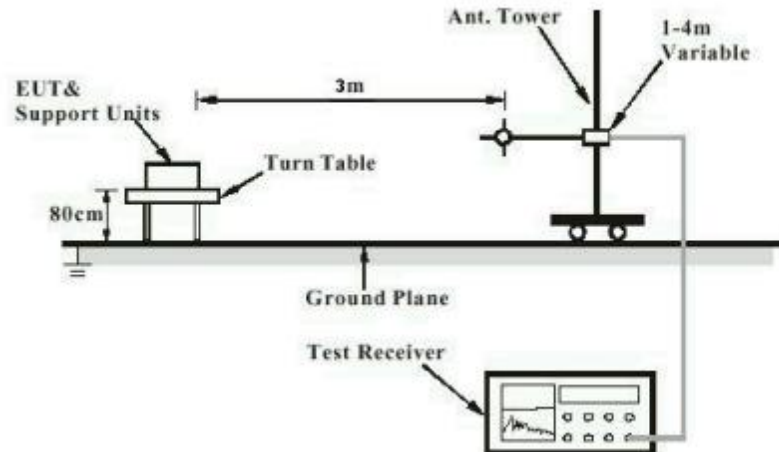


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

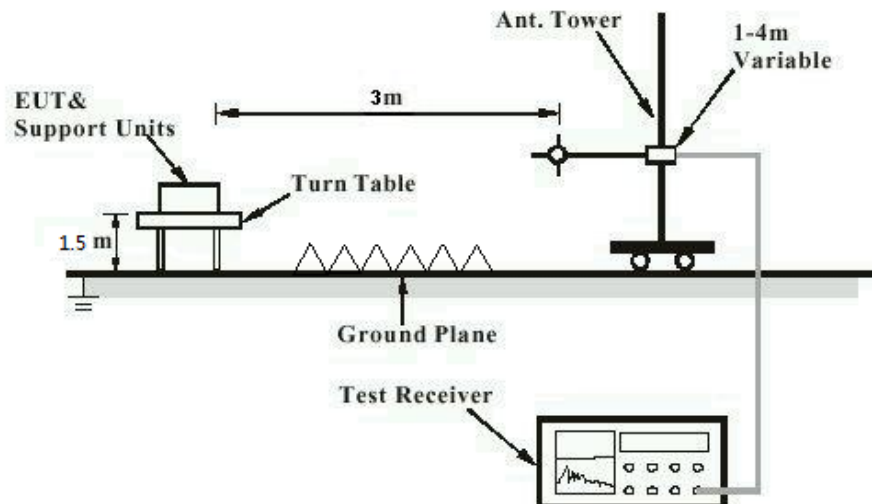


Diagram of Measurement Configuration for Mains Conduction Measurement

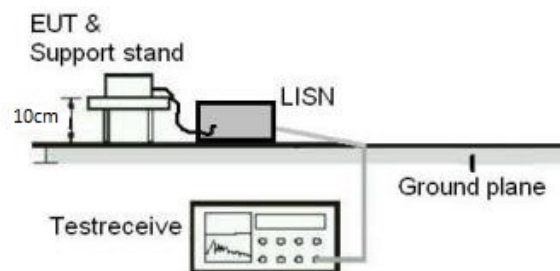
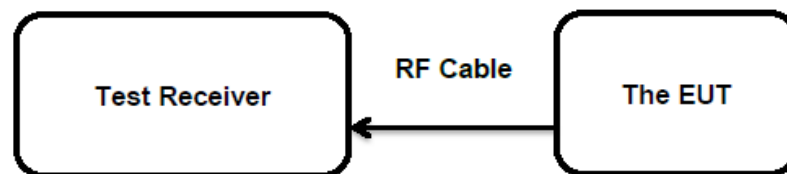


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.247(b)(4) and Part 15.203
RSS-Gen Clause 6.8

According to the manufacturer declared, the EUT has External glue stick antenna, the directional gain of antenna is -1.09dBi, and the antenna connector is designed with 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.: CN247FS1 001

Test Report No.:

Seite 16 von 28

Page 16 of 28

5.1.2 Maximum Peak Conducted Output Power

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.247(b)(1)&(3) RSS-247 Clause 5.4(b)&(d)
Basic standard	: ANSI C63.10: 2013 FHSS < 0.125 Watts, DSSS < 1.0 Watts (Maximum
Limits	: Conducted Peak Power) e.i.r.p. <4W
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2024-12-05 to 2024-12-12
Input voltage	: Fully charged battery
Operation mode	: B, C
Test channel	: Low / Middle / High
Ambient temperature	: 24.8 °C
Relative humidity	: 55 %
Atmospheric pressure	: 101 kPa

For details refer to following test result.

Table 7: Test Result of Maximum Peak Conducted Output Power, BR & EDR

Test Mode	Test Channel (MHz)	Measured Peak Power		Limit (W)
		(dBm)	(W)	
GFSK (BR)	2402.0	4.70	0.0030	< 0.125
	2441.0	4.59	0.0029	
	2480.0	3.83	0.0024	
8DPSK (EDR)	2402.0	5.71	0.0037	
	2441.0	5.81	0.0038	
	2480.0	5.66	0.0037	
Maximum Measured Value		5.81	0.0038	

Max. e.i.r.p.=5.81dBm+(-1.09)dBi=4.72dBm, which is less than 36dBm=4W.

Table 8: Test Result of Maximum Peak Conducted Output Power, Bluetooth LE

Test Mode	Data Rate	Test Channel (MHz)	Measured Peak Power		Limit (W)
			(dBm)	(W)	
Bluetooth LE	1 Mbps	2402	5.56	0.0036	< 1.0
		2440	5.42	0.0035	
		2480	5.24	0.0033	
Maximum Measured Value			5.56	0.0036	

Max. e.i.r.p.=5.56dBm+(-1.09)dBi=4.47dBm, which is less than 36dBm=4W.

Note:

- 1) The cable loss is taken into account in results.
- 2) Antenna gain(G): -1.09 dBi
e.i.r.p.=P_(Peak power)+ G, which is far below the 4 W

Prüfbericht - Nr.: CN247FS1 001
Test Report No.:

Seite 18 von 28
Page 18 of 28

5.1.3 Conducted Power Spectral Density

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.247(e)
RSS-247 Clause 5.2(b)
Basic standard : ANSI C63.10: 2013
Limits : < 8 dBm / 3kHz
Kind of test site : Shielded Room

Test Setup

Date of testing : 2024-12-12
Input voltage : Fully charged battery
Operation mode : B
Test channel : Low / Middle / High
Ambient temperature : 24.8 °C
Relative humidity : 55 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

Prüfbericht - Nr.: CN247FS1 001
Test Report No.:

Seite 19 von 28
Page 19 of 28

5.1.4 6dB Bandwidth

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.247(a)(2)
RSS-247 Clause 5.2(a)
Basic standard : ANSI C63.10: 2013
Limits : > 500 kHz
Kind of test site : Shielded Room

Test Setup

Date of testing : 2024-12-12
Input voltage : Fully charged battery
Operation mode : B
Test channel : Low / Middle / High
Ambient temperature : 24.8 °C
Relative humidity : 55 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

Prüfbericht - Nr.: CN247FS1 001
Test Report No.:

Seite 20 von 28
Page 20 of 28

5.1.5 99% Bandwidth

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.247(a)
RSS-Gen Clause 6.7
Basic standard : ANSI C63.10: 2013
Kind of test site : Shielded Room

Test Setup

Date of testing : 2024-12-05 to 2024-12-12
Input voltage : Fully charged battery
Operation mode : A, B
Test channel : Low / Middle / High
Ambient temperature : 24.8 °C
Relative humidity : 55 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A & B.

Prüfbericht - Nr.: CN247FS1 001
Test Report No.:

Seite 21 von 28
Page 21 of 28

5.1.6 20dB Bandwidth

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.247(a)(1)
RSS-247 Clause 5.1(a)
Basic standard : ANSI C63.10: 2013
Kind of test site : Shielded Room

Test Setup

Date of testing : 2024-12-05
Input voltage : Fully charged battery
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 24.8 °C
Relative humidity : 55 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A.

Prüfbericht - Nr.: CN247FS1 001
Test Report No.:

Seite 22 von 28
Page 22 of 28

5.1.7 Carrier Frequency Separation

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.247(a)(1) RSS-247 Clause 5.1(b)
Basic standard	: ANSI C63.10: 2013
Limits	: $\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth, whichever is greater
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2024-12-05
Input voltage	: Fully charged battery
Operation mode	: C
Ambient temperature	: $24.8\text{ }^{\circ}\text{C}$
Relative humidity	: 55 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

Prüfbericht - Nr.: CN247FS1 001

Test Report No.:

Seite 23 von 28

Page 23 of 28

5.1.8 Number of Hopping Frequency

RESULT:

Pass

Test Specification

Test standard	: FCC part 15.247(a)(1)(iii) RSS-247 Clause 5.1(d)
Basic standard	: ANSI C63.10: 2013
Limits	: ≥ 15 non-overlapping channels
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2024-12-05
Input voltage	: Fully charged battery
Operation mode	: C
Ambient temperature	: 24.8 °C
Relative humidity	: 55 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

Prüfbericht - Nr.: CN247FS1 001
Test Report No.:

Seite 24 von 28
Page 24 of 28

5.1.9 Time of Occupancy

RESULT:

Pass

Test Specification

Test standard : FCC part 15.247(a)(1)(iii)
RSS-247 Clause 5.1(d)
Basic standard : ANSI C63.10: 2013
Limits : < 0.4s
Kind of test site : Shielded Room

Test Setup

Date of testing : 2024-12-05
Input voltage : Fully charged battery
Operation mode : C
Ambient temperature : 24.8 °C
Relative humidity : 55 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A.

Prüfbericht - Nr.: CN247FS1 001

Test Report No.:

Seite 25 von 28

Page 25 of 28

5.1.10 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.247(d) RSS-247 Clause 5.5
Basic standard	: ANSI C63.10: 2013
Limits	: 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2024-12-05 to 2024-12-12
Input voltage	: Fully charged battery
Operation mode	: A, B, C
Test channel	: Low / Middle / High
Ambient temperature	: 24.8 °C
Relative humidity	: 55 %
Atmospheric pressure	: 101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to test plots, and compliance is achieved as well.

For the measurement records, refer to the appendix A & B.

Prüfbericht - Nr.: CN247FS1 001

Test Report No.:

Seite 26 von 28

Page 26 of 28

5.1.11 Radiated Spurious Emission**RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.247(d) & FCC Part 15.205 RSS-247 Clause 3.3 & 5.5
Basic standard	: ANSI C63.10: 2013
Limits	: Refer to 15.209(a) of FCC part 15.247(d) RSS-Gen Section 8.9 & 8.10
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 2024-12-15 to 2025-03-07
Input voltage	: Fully charged battery
Operation mode	: A, B
Test channel	: Low / Middle / High
Ambient temperature	: Refer to test result
Relative humidity	: Refer to test result
Atmospheric pressure	: 101 kPa

Remark:

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 & B.

Prüfbericht - Nr.: CN247FS1 001
Test Report No.:Seite 27 von 28
Page 27 of 28**5.1.12 Conducted Emission on AC Mains****RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.207(a) RSS-Gen Section 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	: 2024-11-15
Input voltage	: AC 120V, 60Hz
Operation mode	: D
Ambient temperature	: 24.0 °C
Relative humidity	: 51.4 %
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 C.

7 List of Tables

Table 1: List of Test and Measurement Equipment.....	6
Table 2: Measurement Uncertainty	8
Table 3: Technical Specification of EUT.....	9
Table 4: RF Channel and Frequency of Bluetooth BR & EDR	10
Table 5: RF Channel and Frequency of Bluetooth LE	10
Table 6: List of Accessories and Auxiliary Equipment.....	12
Table 7: Test Result of Maximum Peak Conducted Output Power, BR & EDR	17
Table 8: Test Result of Maximum Peak Conducted Output Power, Bluetooth LE.....	17