

Prüfbericht-Nr.: <i>Test report no.:</i>	CN22NMWF 005	Auftrags-Nr.: <i>Order no.:</i>	168384000	Seite 1 von 12 <i>Page 1 of 12</i>
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2022-07-28	
Auftraggeber: <i>Client:</i>	JOYTECH Healthcare Co., Ltd. No. 365, Wuzhou Road, Yuhang Economic Development Zone, Hangzhou City, 311100 Zhejiang, P.R. China			
Prüfgegenstand: <i>Test item:</i>	ECG Blood Pressure Monitor			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	DBP-6677B			
Auftrags-Inhalt: <i>Order content:</i>	FCC and IC approval			
Prüfgrundlage: <i>Test specification:</i>	FCC CFR 47 Part 15: Subpart B ICES-003 Issue 7 October 2020			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2022-08-09	Please refer to Photo Document		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003308900-001~007			
Prüfzeitraum: <i>Testing period:</i>	2022-08-11 – 2022-08-26			
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> 2022-09-07	Ausstellungsdatum: <i>Issue date:</i> 2022-09-07			
Stellung / Position:	Sachverständige(r) / Expert	Stellung / Position:	Sachverständige(r) / Expert	
Sonstiges / Other:	The certified module has been integrated into the EUT. The EUT contains transmitter module JMD1200 (FCC ID: 2AQVU0025 and IC: 28012-JMD1200A).			
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:	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
* Legend:	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
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 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>				

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Test Summary

5.1.1 RADIATED EMISSION
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 of FCC Part 15B & ICES-003

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 Registration No.: 694916

IC Registration No.: 25069 and the CAB identifier is CN0078.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radiated Emission (3m chamber)				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
3m SAC	ETS-Lindgren	SAC3	CT001632-Q1362	2024-04-26
EMI Test Receiver	R&S	ESR7	102111	2022-12-01
Horn Antenna	R&S	HF907	102706	2023-08-08
Preamplifier (1-18GHz)	FIT	SCU-18F	180077	2023-08-01
Trilog-Broadband antenna	SCHWARZBECK	VULB9168	0945	2023-08-08
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

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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Parameter	Uncertainty
Radiated Emission (3m SAC), 30MHz to 1000MHz	± 4.52 dB
Radiated Emission (3m SAC), above 1000MHz	± 4.37 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 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 an Arm-type Fully Automatic ECG Blood Pressure Monitor which supports Bluetooth Low Energy and 802.11b wireless technology.

It contains:

FCC ID: 2AQVU0025

IC: 28012-JMD1200A

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:	ECG Blood Pressure Monitor
Type Designation:	DBP-6677B
Operating Voltage:	Battery operated (4.5Vdc, 3*1.5V AAA)
Classification:	Class B
Technical Specification of Bluetooth LE	
Characteristic	Description
Operating Frequency:	2402.0 MHz to 2480.0 MHz
Type of Modulation:	GFSK
Data Rate:	1Mbps
Antenna Type:	PCB Antenna
Antenna Gain:	1.5dBi
Technical Specification of Wi-Fi	
Characteristic	Description
Operating Frequency:	2412.0 MHz to 2462.0 MHz
Type of Modulation:	802.11b: DSSS (CCK, DQPSK, DBPSK)
Data Rate:	802.11b: 1/2/5.5/11Mbps
Antenna Type:	PCB Antenna
Antenna Gain:	1.5dBi

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Running
- B. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- | | |
|------------------------------|--------------------|
| - User Manual | - Application Form |
| - ID Label and Location Info | - Schematics |
| - Block Diagram | - Parts List |

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

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 C63.4: 2014.

According to clause 3.1, all tests were performed on model DBP-6677B in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 3: Auxiliary Equipment Used during Test

Description	Manufacturer	Model	S/N
NON-INVASIVE BLOOD PRES	FLUKE	BP PUMP-2M	G1817034

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)

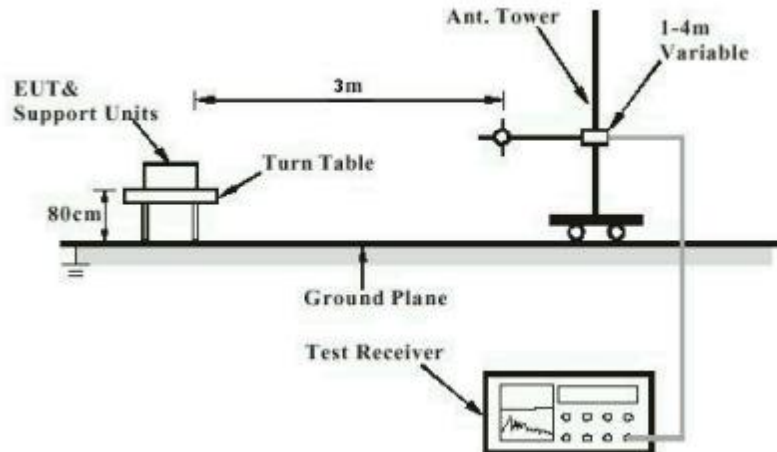
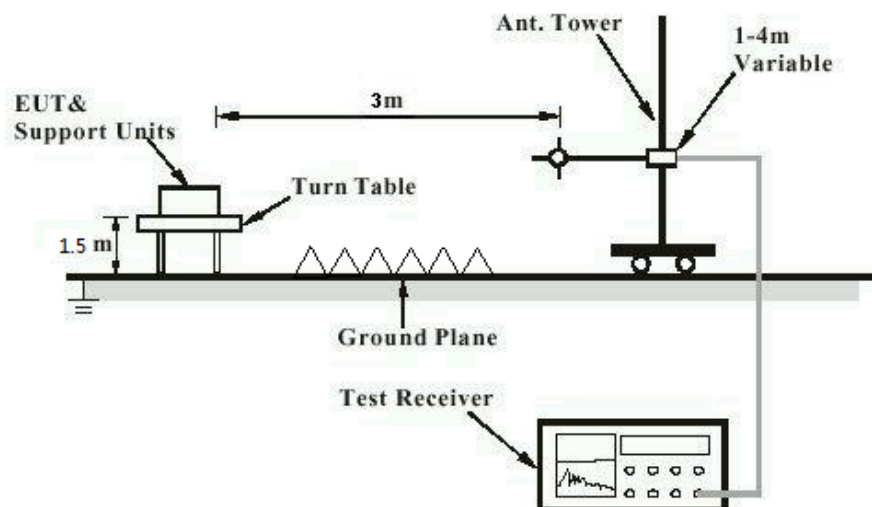


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Radiated Emission

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

Test standard	: FCC Part 15.109(a) ICES-003 Issue 7, Clause 3.2.2
Basic standard	: ANSI C63.4: 2014
Frequency range	: 30MHz to 5 th harmonic of the highest frequency
Classification	: Class B
Limits	: FCC Part 15.109(a) ICES-003 Table 2 & 4
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 2022-08-11 to 2022-08-26
Input voltage	: Battery operated
Operation mode	: A
Ambient temperature	: 24.1 °C
Relative humidity	: 55.3 %
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.

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Appendix A: Test Results of FCC 15B & ICES-003

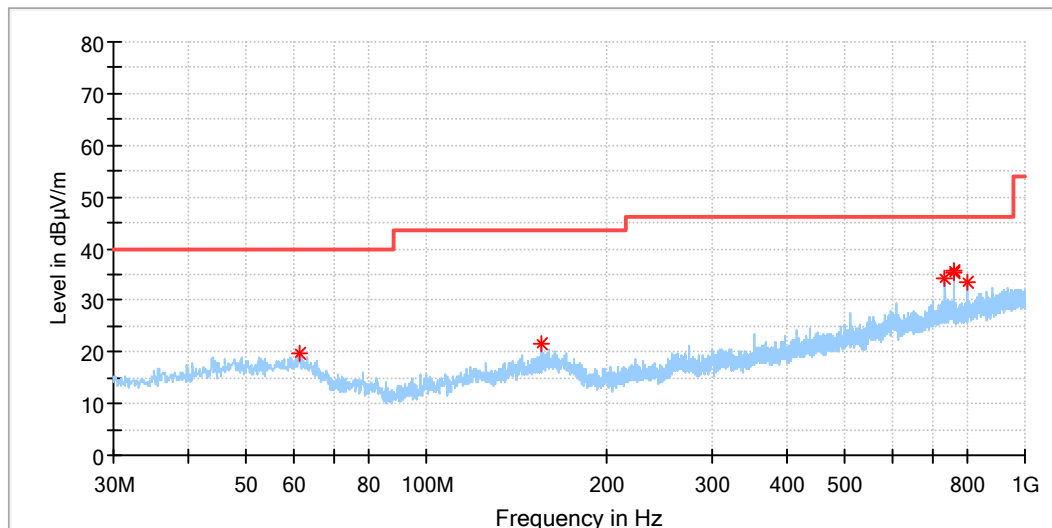
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Appendix A.1: Test Plots of Radiated Emission, Below 1GHz

Note: The following illustration shows the limit that meet the FCC requirements, and these measured value also comply with IC requirements.

EUT Information

EUT Name:	ECG Blood Pressure Monitor
Order No:	168384000
Model:	DBP-6677B
Test Mode:	On, Running
Test Voltage:	DC 4.5V
Standard:	FCC Part 15B
Test By:/Review By:	Charlie Zha / Gary Chen
Tem./Hum./Pressure:	24.1°C/55.3%/101kPa
Remark:	3m chamber

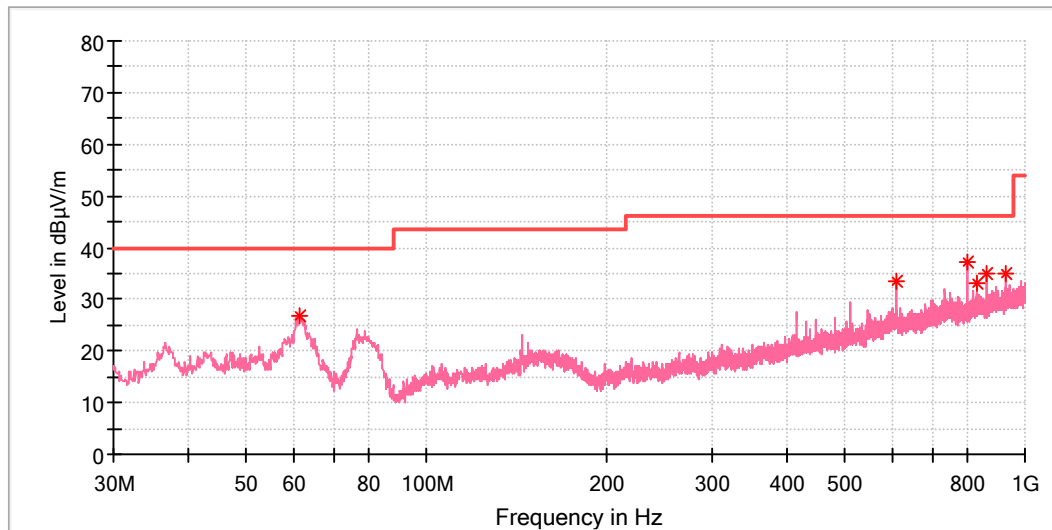


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
61.525000	19.68	40.00	20.32	200.0	H	266.0	20.7
155.809000	21.57	43.50	21.93	100.0	H	195.0	21.5
736.063000	34.17	46.00	11.83	100.0	H	118.0	30.0
759.343000	35.54	46.00	10.46	100.0	H	0.0	29.9
760.022000	35.36	46.00	10.64	100.0	H	0.0	29.9
799.986000	33.54	46.00	12.46	100.0	H	131.0	30.1

EUT Information

EUT Name:	ECG Blood Pressure Monitor
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Standard:	FCC Part 15B
Test By:/Review By:	Charlie Zha / Gary Chen
Tem./Hum./Pressure:	24.1°C/55.3%/101kPa
Remark:	3m chamber



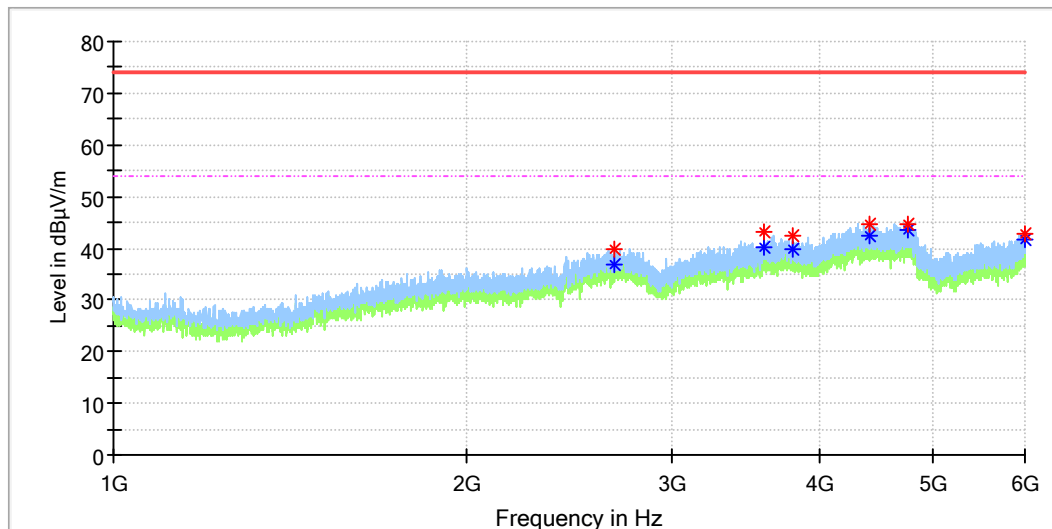
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
928.026000	34.92	46.00	11.08	100.0	V	143.0	31.9
864.006000	35.00	46.00	11.00	100.0	V	167.0	30.7
608.023000	33.50	46.00	12.50	100.0	V	170.0	27.8
61.428000	26.91	40.00	13.09	100.0	V	332.0	20.7
831.996000	33.26	46.00	12.74	200.0	V	155.0	30.9
799.986000	37.14	46.00	8.86	200.0	V	195.0	30.1

Appendix A.2: Test Plots of Radiated Emission, Above 1GHz

EUT Information

EUT Name:	ECG Blood Pressure Monitor
Order No:	168384000
Model:	DBP-6677B
Test Mode:	On, Running
Test Voltage:	DC 4.5V
Standard:	FCC Part 15B
Test By:/Review By:	Charlie Zha / Gary Chen
Tem./Hum./Pressure:	24.1°C/55.3%/101kPa
Remark:	3m chamber

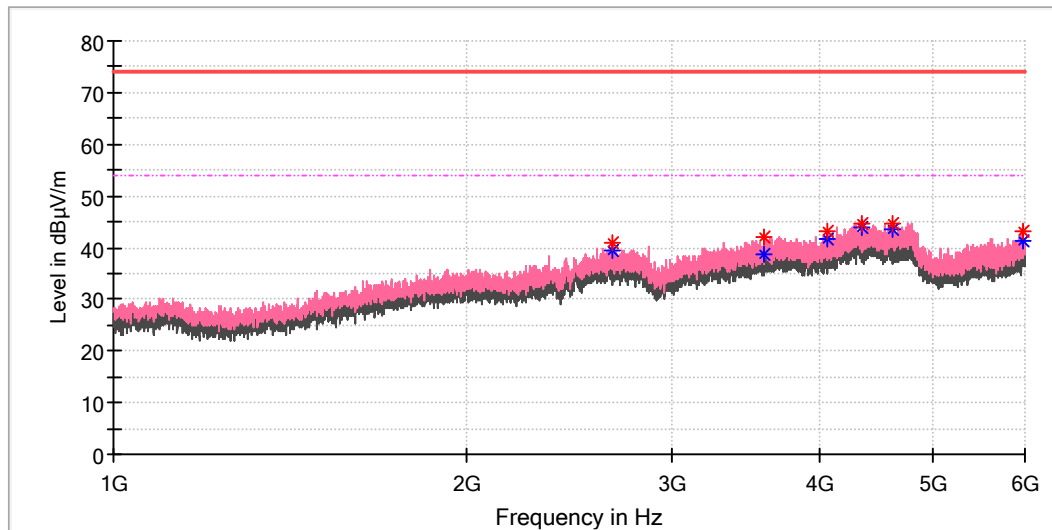


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2679.500000	---	36.68	54.00	17.32	100.0	H	190.0	-3.2
2680.500000	39.83	---	74.00	34.17	100.0	H	0.0	-3.1
3586.000000	43.03	---	74.00	30.97	100.0	H	0.0	-0.7
3586.000000	---	40.08	54.00	13.92	100.0	H	0.0	-0.7
3799.000000	---	39.69	54.00	14.31	100.0	H	205.0	0.0
3799.000000	42.35	---	74.00	31.65	100.0	H	205.0	0.0
4423.500000	---	42.56	54.00	11.44	100.0	H	316.0	1.9
4423.500000	44.83	---	74.00	29.17	100.0	H	316.0	1.9
4767.000000	---	43.49	54.00	10.51	100.0	H	156.0	2.9
4767.000000	44.49	---	74.00	29.51	100.0	H	156.0	2.9
5994.500000	42.86	---	74.00	31.14	100.0	H	10.0	2.4
5994.500000	---	41.86	54.00	12.14	100.0	H	10.0	2.4

EUT Information

EUT Name: ECG Blood Pressure Monitor
Order No: 168384000
Model: DBP-6677B
Test Mode: On, Running
Test Voltage: DC 4.5V
Standard: FCC Part 15B
Test By:/Review By: Charlie Zha / Gary Chen
Tem./Hum./Pressure: 24.1°C/55.3%/101kPa
Remark: 3m chamber



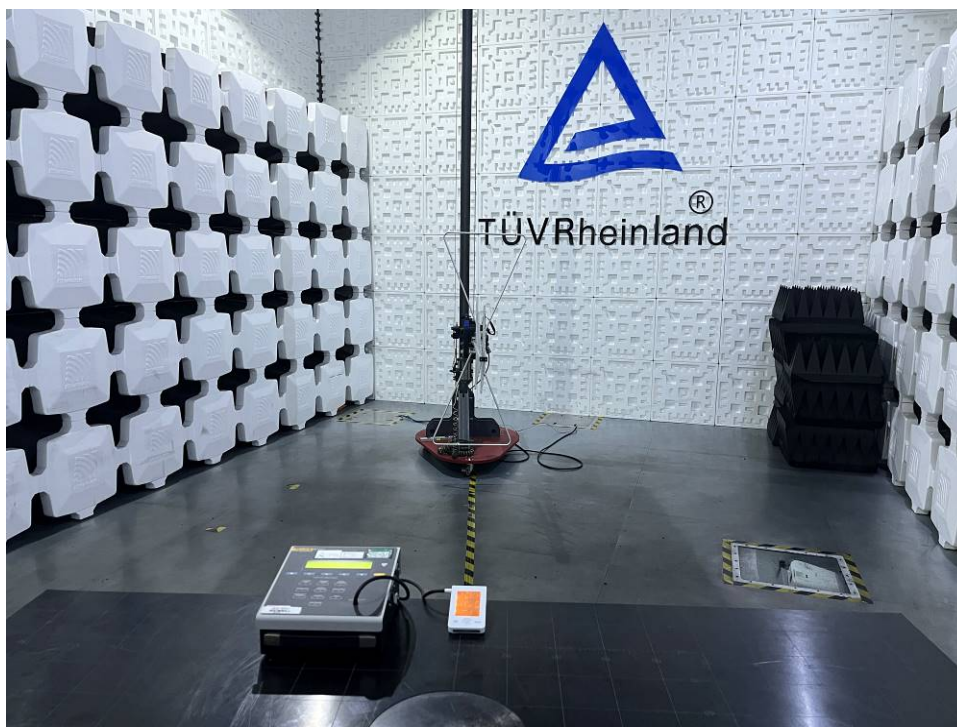
Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2665.500000	40.75	---	74.00	33.25	100.0	V	19.0	-3.3
2665.500000	---	39.50	54.00	14.50	100.0	V	19.0	-3.3
3589.000000	---	38.75	54.00	15.25	100.0	V	8.0	-0.7
3590.000000	42.21	---	74.00	31.79	100.0	V	78.0	-0.7
4069.500000	---	41.66	54.00	12.34	100.0	V	315.0	0.7
4069.500000	43.22	---	74.00	30.78	100.0	V	315.0	0.7
4354.500000	44.51	---	74.00	29.49	100.0	V	166.0	2.2
4354.500000	---	43.72	54.00	10.28	100.0	V	166.0	2.2
4630.000000	---	43.52	54.00	10.48	100.0	V	266.0	2.1
4630.000000	44.64	---	74.00	29.36	100.0	V	266.0	2.1
5980.000000	---	41.48	54.00	12.52	100.0	V	302.0	2.3
5980.000000	43.19	---	74.00	30.81	100.0	V	302.0	2.3

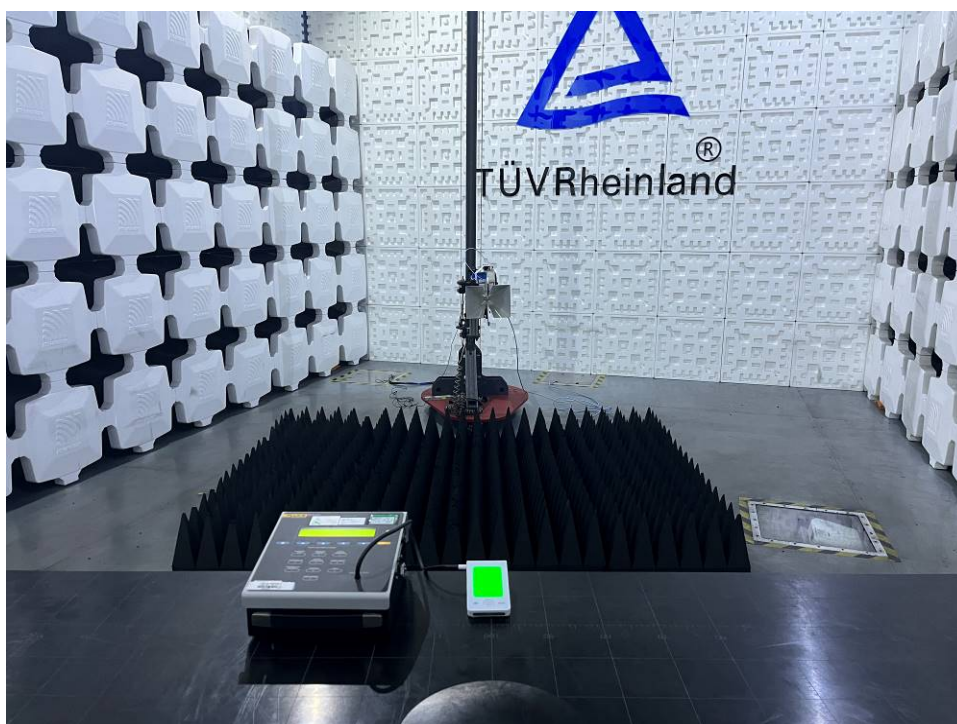
Appendix B: Photographs of the Test Set-Up

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Photograph 1: Set-up photo for Radiated Emission, Below 1GHz



Photograph 2: Set-up photo for Radiated Emission, Above 1GHz



-----END OF THIS REPORT-----