

Prüfbericht-Nr.: <i>Test report no.:</i>	CN232M0R 001	Auftrags-Nr.: <i>Order no.:</i>	168442177	Seite 1 von 22 Page 1 of 22
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	2140584	Auftragsdatum: <i>Order date:</i>	2023-09-04	
Auftraggeber: <i>Client:</i>	Hamedata Technology Co., Limited 1-3F & 6-8F, BLDG#A, Changfang Industrial Park, No.2 Guihua 5th Road, Pingshan District, Shenzhen, 518118 Guangdong, P.R. China			
Prüfgegenstand: <i>Test item:</i>	Extra battery			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	B2200, P2500, P2500H, P2500-D, P2500-K, 10183, BP-P2500, BC-P2500, 10174, HEMERA-PLUS			
Auftrags-Inhalt: <i>Order content:</i>	TUV Rheinland - EMC service			
Prüfgrundlage: <i>Test specification:</i>	EN 55032:2015+A11+A1 EN 55035:2017+A11			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2023-10-08 & 2024-01-10			
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003552277-001 A003619708 -003			
Prüfzeitraum: <i>Testing period:</i>	Refer to test report			
Ort der Prüfung: <i>Place of testing:</i>	Refer to section 2.1			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
erstellt von: <i>created by:</i>	Guanhua Zeng	genehmigt von: <i>authorized by:</i>	Chunli Zheng	
Datum: <i>Date:</i>	2024-03-01	Ausstellungsdatum: <i>Issue date:</i>	2024-03-01	
Stellung / Position:	Engineer	Stellung / Position:	Reviewer	
Sonstiges / <i>Other:</i>				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	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 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>				



Anmerkungen
Remarks

1	<p>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.</p> <p><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></p>
2	<p>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 über folgenden Link: Einführung in digitale Signaturen</p> <p><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 link: Introduction to Digital Signature</i></p>
3	<p>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.</p> <p><i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report. Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i></p>
4	<p>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.</p> <p><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></p>

TEST SUMMARY

5.1.1 AC MAINS TERMINAL CONTINUOUS DISTURBANCE VOLTAGE

RESULT: *Not Applicable*

5.2.1 RADIATED EMISSION(BELOW 1GHZ)

RESULT: *Pass*

5.2.2 RADIATED EMISSION(ABOVE 1GHZ)

RESULT: *Not Applicable*

6.2.1 RADIO FREQUENCY ELECTROMAGNETIC FIELD (RS SWEPT TEST)

RESULT: *Pass*

6.2.2 RADIO FREQUENCY ELECTROMAGNETIC FIELD (RS SPOT TEST)

RESULT: *Pass*

6.2.3 POWER-FREQUENCY MAGNETIC FIELDS

RESULT: *Pass*

6.3.1 ELECTROSTATIC DISCHARGE (ESD)

RESULT: *Pass*

CONTENTS

1.	GENERAL REMARKS	6
1.1	COMPLEMENTARY MATERIALS	6
2.	TEST SITES	6
2.1	TEST FACILITIES	6
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS	7
3.	GENERAL PRODUCT INFORMATION	8
3.1	PRODUCT FUNCTION AND INTENDED USE	8
3.2	RATINGS AND SYSTEM DETAILS	8
3.3	INDEPENDENT OPERATION MODES	8
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS	9
3.5	SUBMITTED DOCUMENTS	9
4.	TEST SET-UP AND OPERATION MODES	10
4.1	PRINCIPLE OF CONFIGURATION SELECTION	10
4.2	TEST OPERATION AND TEST SOFTWARE	10
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	10
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	10
5.	TEST RESULTS EMISSION	11
5.1	EMISSION IN THE FREQUENCY RANGE UP TO 30 MHz	11
5.1.1	<i>AC Mains Terminal Continuous Disturbance Voltage</i>	<i>11</i>
5.2	EMISSION IN THE FREQUENCY RANGE ABOVE 30 MHz	12
5.2.1	<i>Radiated Disturbance (Below 1GHz)</i>	<i>12</i>
5.2.2	<i>Radiated Disturbance (Above 1GHz)</i>	<i>13</i>
6.	TEST RESULTS IMMUNITY	14
6.1	CLASSIFICATION OF APPARATUS	14
6.2	CONTINUOUS DISTURBANCES	15
6.2.1	<i>Continuous RF electromagnetic Field Disturbances, swept test</i>	<i>15</i>
6.2.2	<i>Continuous RF electromagnetic Field Disturbances, spot test</i>	<i>16</i>
6.2.3	<i>Power-frequency Magnetic Fields</i>	<i>17</i>
6.3	TRANSIENT DISTURBANCES	18
6.3.1	<i>Electrostatic Discharges (ESD)</i>	<i>18</i>
7.	PHOTOGRAPHS OF THE TEST SET-UP	19
8.	LIST OF TABLES	22

Prüfbericht - Nr.: CN232M0R 001
Test Report No.

Seite 5 von 22
Page 5 of 22

9.	LIST OF PHOTOGRAPHS	22
-----------	----------------------------------	-----------

1. General Remarks

1.1 Complementary Materials

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

Appendix 1: Test result

Appendix 2: Measurement uncertainties

2. Test Sites

2.1 Test Facilities

EMTEK (Shenzhen) Co., Ltd.
Building 69, MaJiaLong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

The tests at the test site has been conducted under the supervision of a TÜV engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
Radiated Emission (3m Chamber) (EMTEK 3m 2#)				
EMI Test Receiver	Rohde & Schwarz	ESCI	101414	2024-10-23
Bilog Antenna	Schwarzbeck	VULB9163	141	2024-07-24
Radiated Emission (3m Chamber) (EMTEK 3m 3#)				
EMI Test Receiver	Rohde & Schwarz	ESU 26	100154	2024-05-13
Bilog Antenna	Schwarzbeck	VULB9163	661	2025-05-13
Radio-Frequency Electromagnetic Field Amplitude Modulated (RS) (EMTEK)				
Power Amplifier	MILMEGA	AS0102-55	1018770	2024-05-12
RF Power Meter. Dual Channel	BOONTON	4232A	10539	2024-05-12
Log.-Per. Antenna	SCHWARZBECK	STLP 9129-7/16	3050	N/A
Signal Generator	Agilent	N5181A	MY50145187	2024-05-12
50ohm Diode Power Sensor	BOONTON	51011EMC	36164	2024-05-12
Field Strength Meter	DARE	RSS1006A	10I00037SNO22	2024-05-18
Multi-function interface system	DARE	CTR1009B	12I00250SNO72	N/A
Automatic switch group	DARE	RSW1004A	N/A	N/A
Power Amplifier	MILMEGA	AS1860-50	1059346	2024-05-12
Power Amplifier	Vectawave	VBA 1000-600C	133627	2024-10-22
Directional Coupler	BONN	BDC 0810-50/1500	2229689	2024-10-22
ESD (EMTEK)				
ESD Tester	EMTEST	Dito	CR46527B	2024-10-19
Magnetic Field Immunity (EMTEK)				
Magnetic Field Tester	HAEFELY	MAG100	250040.1	2024-05-09

3. General Product Information

3.1 Product Function and Intended Use

The **EUTs** (Equipments Under Test) are Extra battery used for multimedia equipment.

According to the client's declaration, all models have identical circuit design and layout, only different in model name, output port position and indicator lights.

According to section 3.1, full tests were applied on model B2200, additional RE and ESD tests were applied to model P2500.

For more information refer to the Circuit Diagram & Instruction Manual.

3.2 Ratings and System Details

Rated Battery Capacity:	50000mAh (44.8V)
Input	DC 42-50.4V / 47.6A 2000W Max.
Output	DC 42-50.4V / 2400W Max.
Protection class:	III(DC input)
*Highest internal frequency:	Fx < 108MHz

3.3 Independent Operation Modes

The basic operation modes are:

- A. On
 - 1. Charging
 - 2. Discharging
- B. Off

Prüfbericht - Nr.: CN232M0R 001
Test Report No.

Seite 9 von 22
Page 9 of 22

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Rating Label
- PCB Layout
- Circuit Diagram
- User Manual

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.

Immunity: The equipment under test (EUT) was configured to have its highest possible susceptibility against the tested phenomena. 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 section 5 & 6.

Pre-test in all modes and find out the worst case for compliance test.

4.3 Special Accessories and Auxiliary Equipment

The EUT was tested as an independent unit with the following accessories/auxiliary equipment:

Product Type	Manufacturer	M/N	S/N
Digital multimeter	FLUKE	15B	11671372

4.4 Countermeasures to achieve EMC Compliance

The test samples, which have been tested, contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

5. Test Results EMISSION

5.1 Emission in the Frequency Range up to 30 MHz

5.1.1 AC Mains Terminal Continuous Disturbance Voltage

RESULT: **Not Applicable**

Date of testing	:	---
Test standard	:	EN 55032:2015+A11+A1
Frequency range	:	0.15 - 30MHz
Classification	:	Class B
Limits	:	Table A.10
Kind of test site	:	Shielded room
Tested Port	:	AC Mains

Prüfbericht - Nr.: CN232M0R 001

Test Report No.

Seite 12 von 22

Page 12 of 22

5.2 Emission in the Frequency Range above 30 MHz

5.2.1 Radiated Disturbance (Below 1GHz)

RESULT:**Pass**

Date of testing : Refer to Appendix 1
Test standard : EN 55032:2015+A11+A1
Frequency range : 30 - 1000MHz *
Classification : Class B
Limits : Table A.4 of EN 55032:2015+A11+A1
Kind of test site : 3m Semi-Anechoic Chamber
Tested Port : Enclosure

Test setup

Input Voltage : DC 50.4V
Operation Condition : According to clause 7.3 of CISPR 16-2-3:2010+A1 and Annex D of EN 55032:2015+A11+A1
Operation mode : A
Earthing : Not connected
Ambient temperature : Refer to Appendix 1
Relative humidity : Refer to Appendix 1
Atmospheric pressure : 101kPa

Refer to attached Appendix 1.

* Remark: The highest internal source of an EUT is defined as the highest frequency generated or used within the EUT or on which the EUT operates or tunes, details refer to section 3.2.

- Highest frequency is less than 108MHz, measurement shall only be made up to 1GHz
 Highest frequency is between 108 & 500MHz, measurement shall only be made up to 2GHz
 Highest frequency is between 500 & 1GHz, measurement shall only be made up to 5GHz
 Highest frequency is above 1GHz, measurement shall be made up to 5 times the highest frequency or 6GHz, whichever is less

Method: Measurements were made in a 3-meter semi-anechoic chamber or Open Area Test Site that complies to CISPR 16. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3 meter below 1GHz and 3 meter above 1GHz. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (quasi-peak detector below 1GHz) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 m. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.

Prüfbericht - Nr.: CN232M0R 001

Test Report No.

Seite 13 von 22

Page 13 of 22

5.2.2 Radiated Disturbance (Above 1GHz)

RESULT:**Not Applicable**

Date of testing : ---
Test standard : EN 55032:2015+A11+A1
Frequency range : 1 - 6 GHz *

*Remark: The highest internal source of an EUT is defined as the highest frequency generated or used within the EUT or on which the EUT operates or tunes, details refer to section 3.2.

- Highest frequency is less than 108MHz, measurement shall only be made up to 1GHz
- Highest frequency is between 108 & 500MHz, measurement shall only be made up to 2GHz
- Highest frequency is between 500 & 1GHz, measurement shall only be made up to 5GHz
- Highest frequency is above 1GHz, measurement shall be made up to 5 times the highest frequency or 6GHz, whichever is less.

Method: Measurements were made in a 3-meter semi-anechoic chamber or Open Area Test Site that complies to CISPR 16. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3 meter below 1GHz and 3 meter above 1GHz. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (average detector above 1GHz) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 m. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.

6. Test Results IMMUNITY

6.1 Classification of apparatus

According to EN 55035:2017+A11 , the EUT shall be tested in accordance with clause 4 & 5, and comply with the performance criterion in table 1 & 4 of clause 5.

Continuous Disturbance

Continuous RF electromagnetic field disturbances swept test, spot test	Criterion A
Radio-Frequency Continuous Conducted	Criterion A
Power Frequency Magnetic Fields *	Criterion A

Transient Disturbance

Fast Transients (EFT)	Criterion B
Surge	Criterion B
Electrostatic Discharges (ESD)	Criterion B

Power supply Alterations

Voltage Dips, >95% reduction, 0.5 period	Criterion B
30% reduction, 25 periods at 50Hz	Criterion C
30% reduction, 30 periods at 60Hz	Criterion C
Voltage Interruptions, >95% reduction, 250 periods at 50Hz	Criterion C
>95% reduction, 300 periods at 60Hz	Criterion C

Remark:

* The length of DC power cable will not exceed 3m according to the manufacturer's functional specification, therefore CS test, EFT test and Surge test are not applicable to the DC power port of EUT.

*The EUT don't contain devices susceptible to magnetic fields, therefore the Power-Frequency Magnetic Fields test is not necessary.

6.2 Continuous Disturbances

6.2.1 Continuous RF electromagnetic Field Disturbances, swept test

RESULT: **Pass**

Date of Testing : 2023-12-26
 Test Specification : EN 55035:2017+A11
 Basic Standard : IEC 61000-4-3: 2006+A1+A2
 Criterion : A
 Frequency Range : 80 - 1000MHz
 Test Level : 3V/m (unmodulated, r.m.s.)
 Modulation : AM 80%, 1kHz sine-wave
 Tested Port : Enclosure

Test setup

Input Voltage : DC 50.4V
 Operation Mode : A
 Earthing : Not connected
 Ambient temperature : 24°C
 Relative humidity : 45% RH
 Atmospheric pressure : 101 kPa

Test results:

Polarization	Frequency Range	Test Level	Criterion	Description	Conclusion
H/V	80MHz to 1000MHz	3V/m	A	Operating as intended, no failure detected	Pass

Prüfbericht - Nr.: CN232M0R 001
Test Report No.
Seite 16 von 22
Page 16 of 22

6.2.2 Continuous RF electromagnetic Field Disturbances, spot test

RESULT: Pass

Date of Testing : 2023-12-26
 Test Specification : EN 55035:2017+A11
 Basic Standard : IEC 61000-4-3: 2006+A1+A2
 Criterion : A
 Frequency Range : 1800MHz, 2600MHz, 3500MHz, 5000MHz
 Test Level : 3V/m (Unmodulated, r.m.s.)
 Modulation : AM 80%, 1kHz sine-wave

Test setup

Input Voltage : DC 50.4V
 Operation Mode : A
 Earthing : Not connected
 Ambient temperature : 24°C
 Relative humidity : 45% RH
 Atmospheric pressure : 101 kPa

Test results:

Polarization	Frequency Range	Test Level	Criterion	Description	Conclusion
H/V	1800MHz, 2600MHz, 3500MHz, 5000MHz	3V/m	A	Operating as intended, no failure detected	Pass

Prüfbericht - Nr.: CN232M0R 001
Test Report No.
Seite 17 von 22
Page 17 of 22

6.2.3 Power-frequency Magnetic Fields

RESULT:
Pass

Date of testing : 2023-12-26
 Test Specification : EN 55035:2017+A11
 Basic Standard : IEC 61000-4-8:2009
 Criterion : A
 Test Frequency : 50/60Hz
 Test level : 1A/m
 Tested Port : Enclosure

Test setup

Input Voltage : DC 50.4V
 Operation Mode : A
 Earthing : Not connected
 Ambient temperature : 22°C
 Relative humidity : 43% RH
 Atmospheric pressure : 101 kPa

Test results:

Ports	Test Level	Testing Duration	Coil Orientation	Criterion	Description	Conclusion
Enclosure	1A/m	5 mins	X	A	Operating as intended, no failure detected	Pass
Enclosure	1A/m	5 mins	Y	A	Operating as intended, no failure detected	Pass
Enclosure	1A/m	5 mins	Z	A	Operating as intended, no failure detected	Pass

Prüfbericht - Nr.: CN232M0R 001
Test Report No.
Seite 18 von 22
Page 18 of 22

6.3 Transient Disturbances

6.3.1 Electrostatic Discharges (ESD)

RESULT:
Pass

Date of testing : 2023-12-26
 Test Standard : EN 55035:2017+A11
 Basic Standard : IEC 61000-4-2:2008
 Criterion : B
 Test level : $\pm 2.0\text{kV}$, $\pm 4.0\text{kV}$, $\pm 8\text{kV}$ (air discharge)
 : $\pm 2.0\text{kV}$, $\pm 4.0\text{kV}$ (contact discharge)
 Number of discharges : >10
 Tested Port : Enclosure

Test Setup

Input Voltage : DC 50.4V
 Operation Mode : A
 Earthing : Not connected
 Ambient temperature : 22°C
 Relative humidity : 43% RH
 Atmospheric pressure : 101 kPa

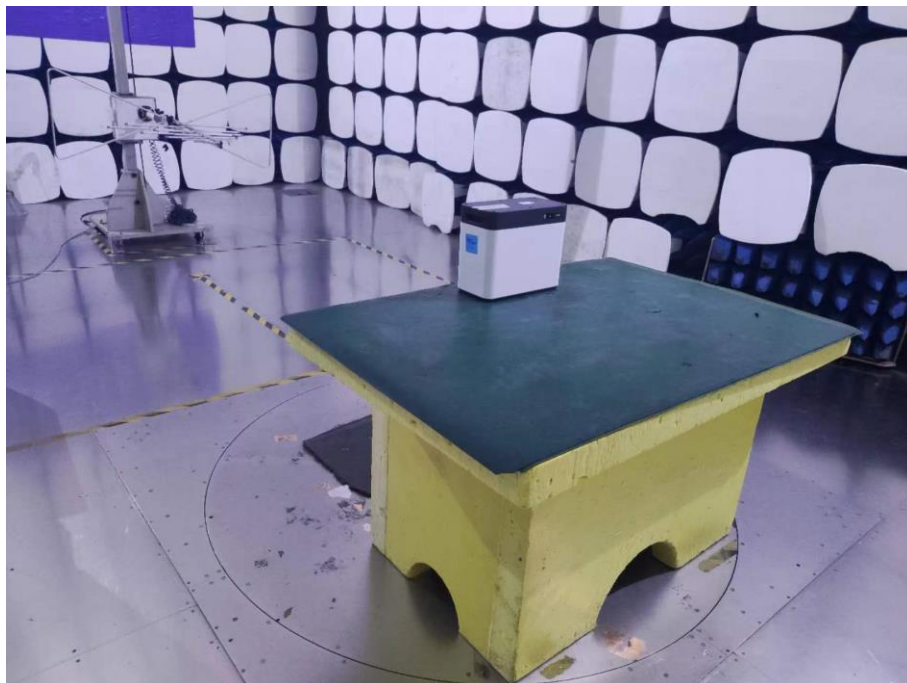
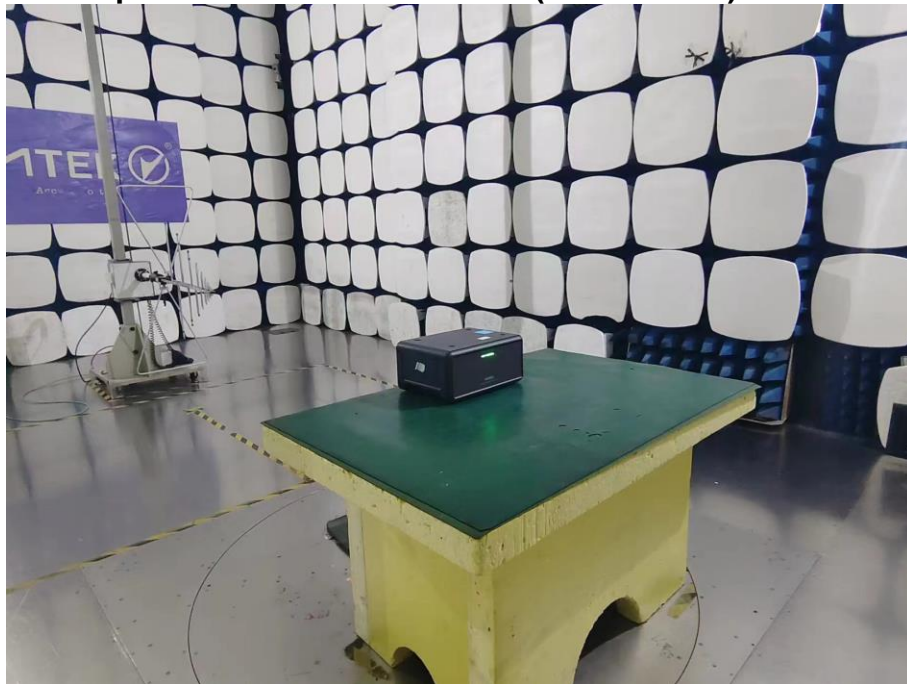
Test Results:

Test Point	Test Mode	Test Level(kV)	Criterion	Description	Conclusion
HCP	C	± 2 , ± 4	B	No failure detected	Pass
VCP	C	± 2 , ± 4	B	No failure detected	Pass
Metallic enclosure	C	± 2 , ± 4	B	No failure detected	Pass
LED & Button	A	± 2 , ± 4 , ± 8	B	No failure detected	Pass

Note: A-Air Discharge; C-Contact Discharge; Horizontal Coupling Plane (HCP) ; VCP-Vertical Coupling Plane

7. Photographs of the Test Set-Up

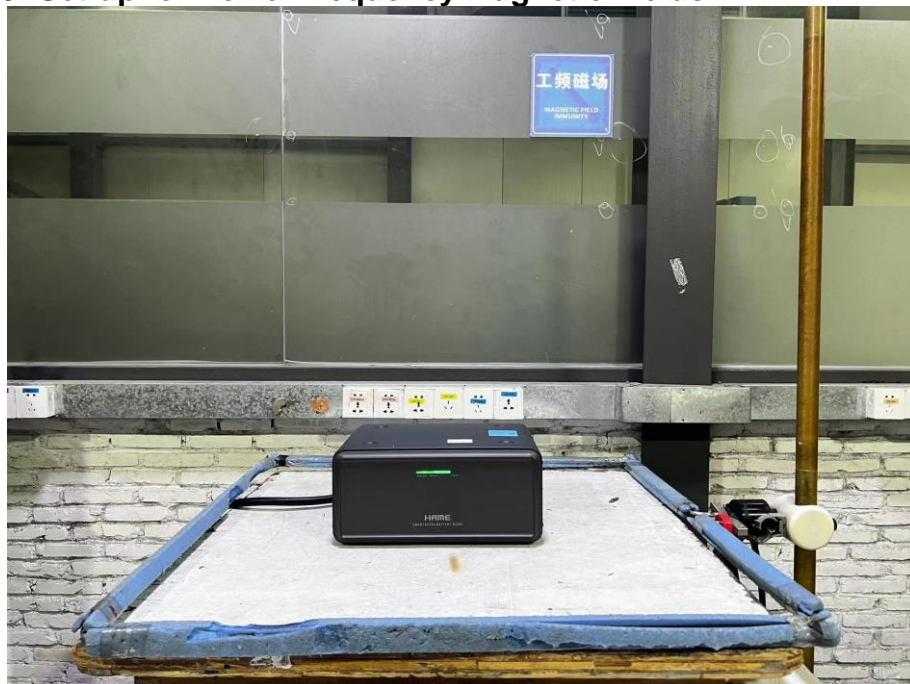
Photograph 1: Set-up for Radiated Disturbance (30-1000MHz)



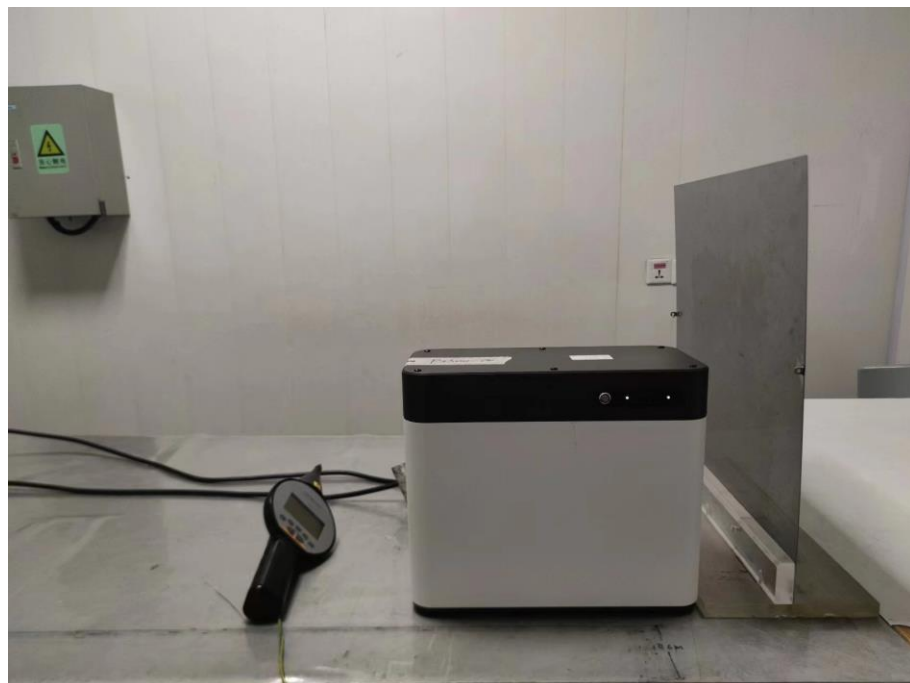
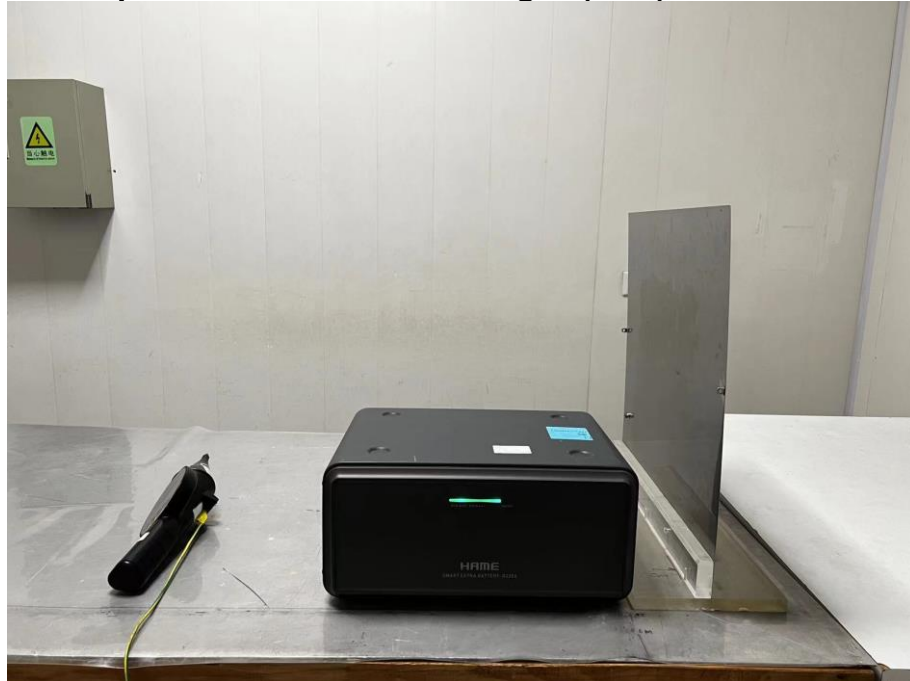
Photograph 2: Set-up for Radio-Frequency Electromagnetic Field (RS)
Swept test & Spot test:



Photograph 3: Set-up for Power-frequency Magnetic Fields



Photograph 4: Set-up for Electrostatic Discharges (ESD)



8. List of Tables

Table 1: List of Test and Measurement Equipment7

9. List of Photographs

Photograph 1: Set-up for Radiated Disturbance (30-1000MHz)19
Photograph 2: Set-up for Radio-Frequency Electromagnetic Field (RS)20
Photograph 3: Set-up for Power-frequency Magnetic Fields20
Photograph 4: Set-up for Electrostatic Discharges (ESD)21

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P. R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



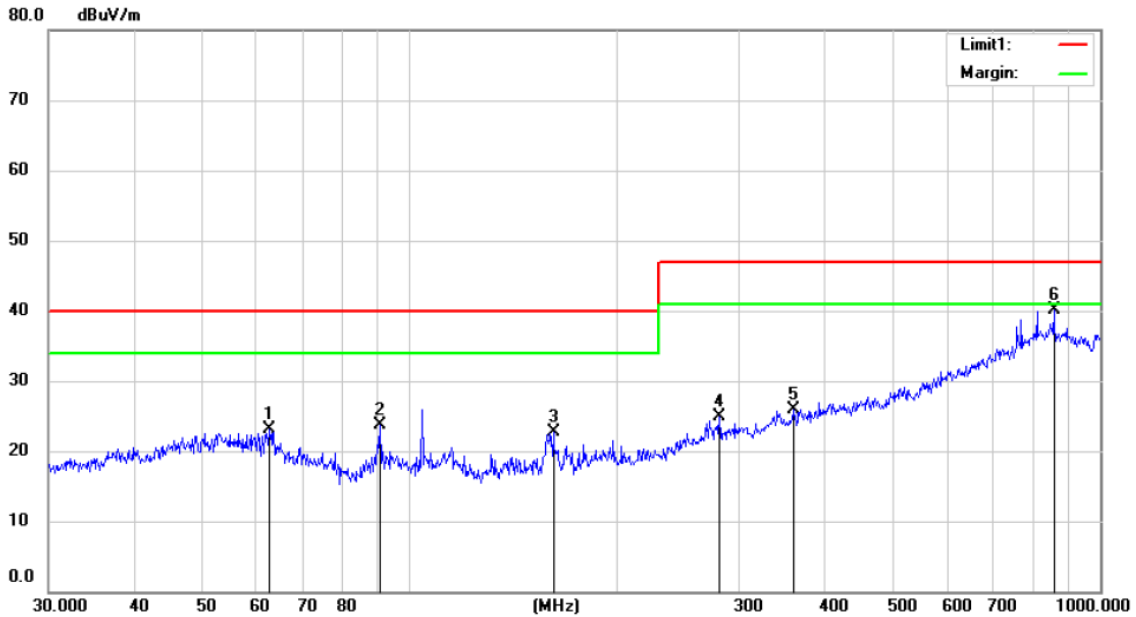
Radiated Emission Measurement

File :laiyin

Data :#4010

Date: 23/10/17/

Time: 9/46/34



Site 3m Chamber #3

Polarization: **Vertical**

Temperature: 23.7 C

Limit: (RE)EN55032 class B

Power: DC 50.4V

Humidity: 59 %

EUT: Extra Battery

M/N: B2200

Mode: Discharging mode

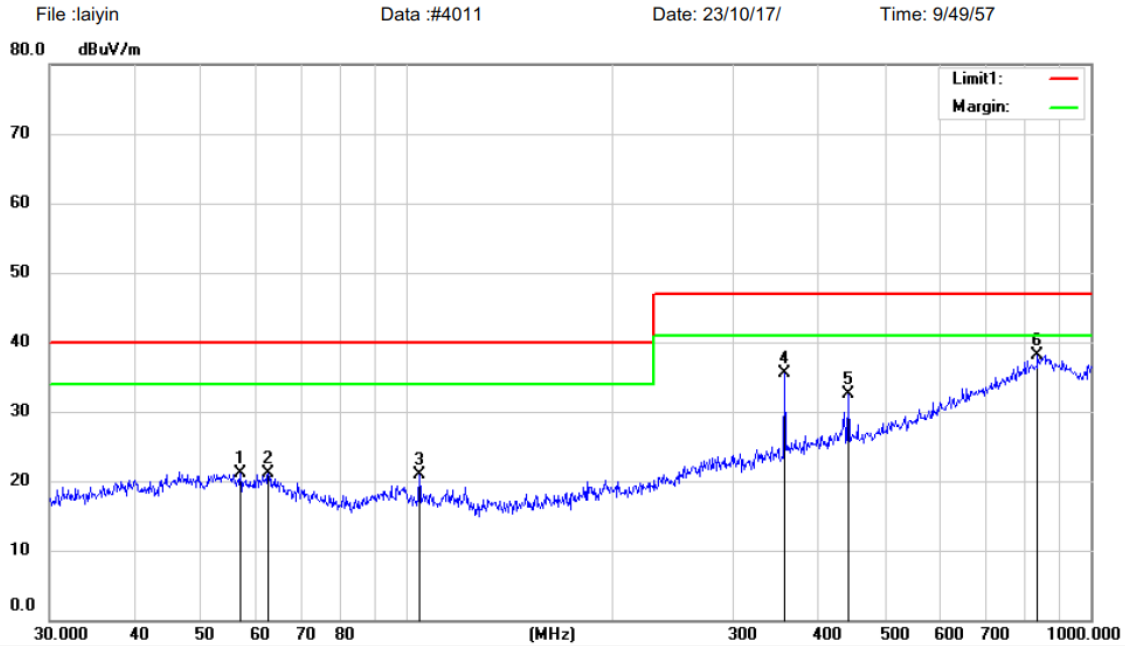
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		62.6506	31.87	-8.79	23.08	40.00	-16.92	QP		
2		90.5374	35.24	-11.54	23.70	40.00	-16.30	QP		
3		161.4740	33.88	-11.25	22.63	40.00	-17.37	QP		
4		281.0074	30.92	-6.10	24.82	47.00	-22.18	QP		
5		359.1860	29.54	-3.57	25.97	47.00	-21.03	QP		
6	*	857.0246	31.21	8.92	40.13	47.00	-6.87	QP		

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P. R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Radiated Emission Measurement



Site 3m Chamber #3

Polarization: **Horizontal**

Temperature: 23.7 C

Limit: (RE)EN55032 class B

Power: DC 50.4V

Humidity: 59 %

EUT: Extra Battery

M/N: B2200

Mode:Discharging mode

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		56.9912	29.68	-8.63	21.05	40.00	-18.95	QP		
2		62.6506	29.83	-8.79	21.04	40.00	-18.96	QP		
3		104.1701	31.43	-10.44	20.99	40.00	-19.01	QP		
4		356.6758	39.20	-3.73	35.47	47.00	-11.53	QP		
5		441.7425	34.34	-1.89	32.45	47.00	-14.55	QP		
6	*	836.2443	28.94	9.20	38.14	47.00	-8.86	QP		

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P. R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



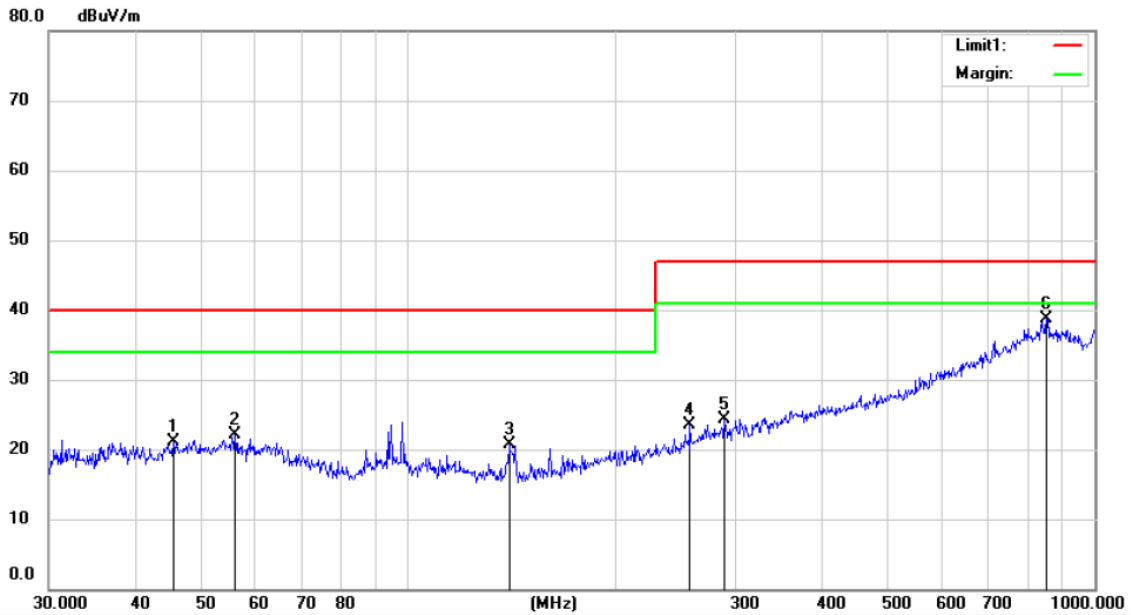
Radiated Emission Measurement

File :laiyin

Data :#4012

Date: 23/10/17/

Time: 9/56/51



Site 3m Chamber #3

Polarization: **Horizontal**

Temperature: 23.7 C

Limit: (RE)EN55032 class B

Power: DC 50.4V

Humidity: 59 %

EUT: Extra Battery

M/N: B2200

Mode: Charging mode

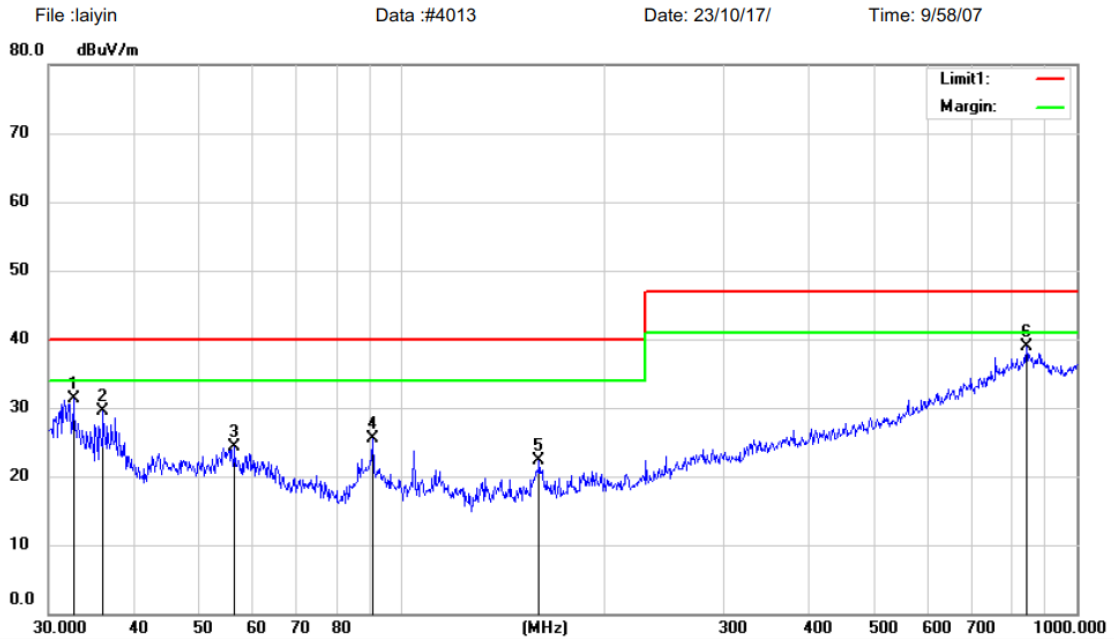
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	
1		45.5348	29.99	-8.85	21.14	40.00	-18.86	QP		
2		56.0007	30.68	-8.53	22.15	40.00	-17.85	QP		
3		140.3421	32.44	-11.69	20.75	40.00	-19.25	QP		
4		257.4222	30.78	-7.23	23.55	47.00	-23.45	QP		
5		289.0021	30.25	-5.95	24.30	47.00	-22.70	QP		
6	*	851.0353	29.29	9.48	38.77	47.00	-8.23	QP		

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P. R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



Radiated Emission Measurement



Site 3m Chamber #3 Polarization: **Vertical** Temperature: 23.7 C
Limit: (RE)EN55032 class B Power: DC 50.4V Humidity: 59 %
EUT: Extra Battery
M/N: B2200
Mode: Charging mode
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		32.6340	41.99	-10.71	31.28	40.00	-8.72	QP		
2		36.1272	39.18	-9.72	29.46	40.00	-10.54	QP		
3		56.5930	32.92	-8.59	24.33	40.00	-15.67	QP		
4		90.5374	37.04	-11.54	25.50	40.00	-14.50	QP		
5		159.7844	33.64	-11.28	22.36	40.00	-17.64	QP		
6	*	842.1296	29.49	9.44	38.93	47.00	-8.07	QP		

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P. R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



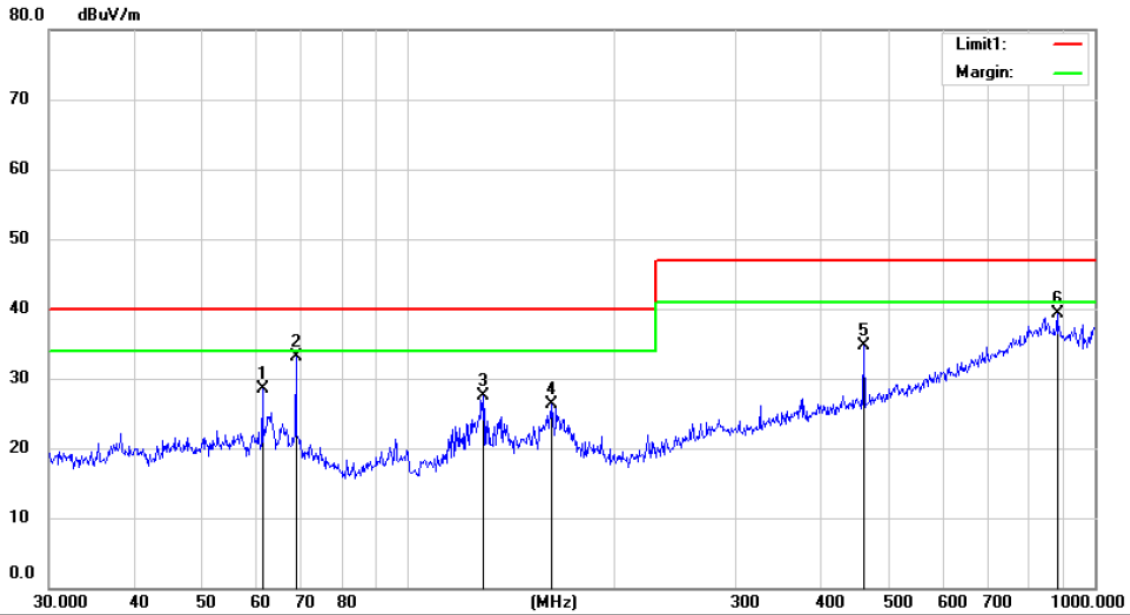
Radiated Emission Measurement

File :laiyin

Data :#4515

Date: 2024/01/18

Time: 5:13:42



Site 3m Chamber #3

Polarization: *Horizontal*

Temperature: 23.7 C

Limit: (RE)EN55032 class B

Power: DC 50.4V

Humidity: 59 %

EUT: Extra Battery

M/N: P2500

Mode: Charging mode

Note:

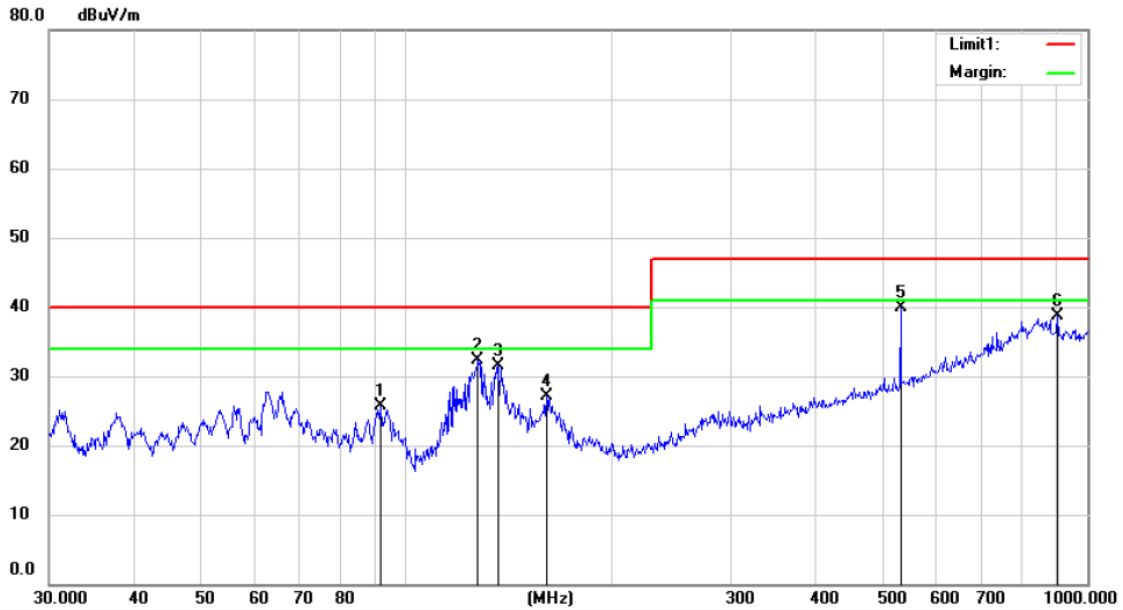
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		61.3463	37.09	-8.61	28.48	40.00	-11.52	QP		
2	*	68.6310	42.91	-9.87	33.04	40.00	-6.96	QP		
3		128.5630	38.99	-11.49	27.50	40.00	-12.50	QP		
4		162.0413	37.50	-11.14	26.36	40.00	-13.64	QP		
5		460.7271	36.19	-1.49	34.70	47.00	-12.30	QP		
6		881.4067	30.53	8.68	39.21	47.00	-7.79	QP		

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P. R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Radiated Emission Measurement

File :laiyin Data :#4516 Date: 2024/01/18 Time: 5:14:56



Site 3m Chamber #3 Polarization: **Vertical** Temperature: 23.7 C
 Limit: (RE)EN55032 class B Power: DC 50.4V Humidity: 59 %
 EUT: Extra Battery
 M/N: P2500
 Mode: Charging mode
 Note:

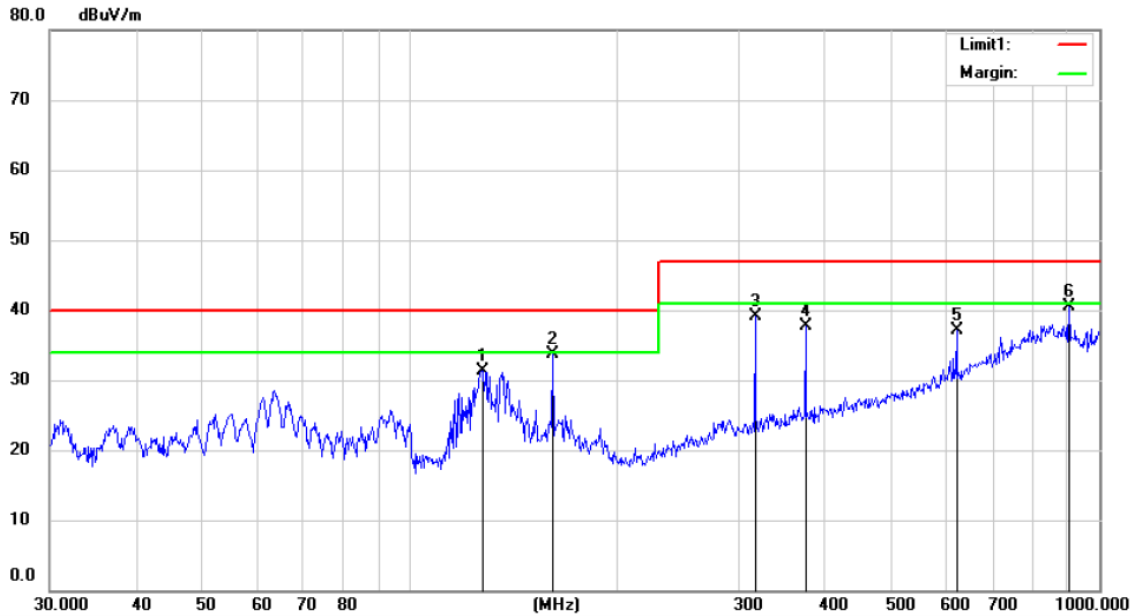
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		91.8163	36.99	-11.27	25.72	40.00	-14.28	QP		
2		127.6645	43.81	-11.51	32.30	40.00	-7.70	QP		
3		136.9391	42.95	-11.51	31.44	40.00	-8.56	QP		
4		160.9090	38.33	-11.16	27.17	40.00	-12.83	QP		
5	*	531.9634	39.74	0.20	39.94	47.00	-7.06	QP		
6		903.3094	30.62	8.17	38.79	47.00	-8.21	QP		

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P. R. China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282



Radiated Emission Measurement

File :laiyin Data :#4517 Date: 2024/01/18 Time: 5:18:15



Site 3m Chamber #3 Polarization: **Vertical** Temperature: 23.7 C
 Limit: (RE)EN55032 class B Power: DC 50.4V Humidity: 59 %
 EUT: Extra Battery
 M/N: P2500
 Mode: Discharging mode
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		127.2176	42.81	-11.54	31.27	40.00	-8.73	QP		
2	*	160.9090	44.90	-11.16	33.74	40.00	-6.26	QP		
3		316.5890	44.58	-5.46	39.12	47.00	-7.88	QP		
4		374.6225	40.71	-3.02	37.69	47.00	-9.31	QP		
5		620.7096	34.13	3.01	37.14	47.00	-9.86	QP		
6		903.3093	32.38	8.17	40.55	47.00	-6.45	QP		

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P. R. China
www.emtek.com.cn Tel:+86-755-2695 4280 Fax:+86-755-2695 4282



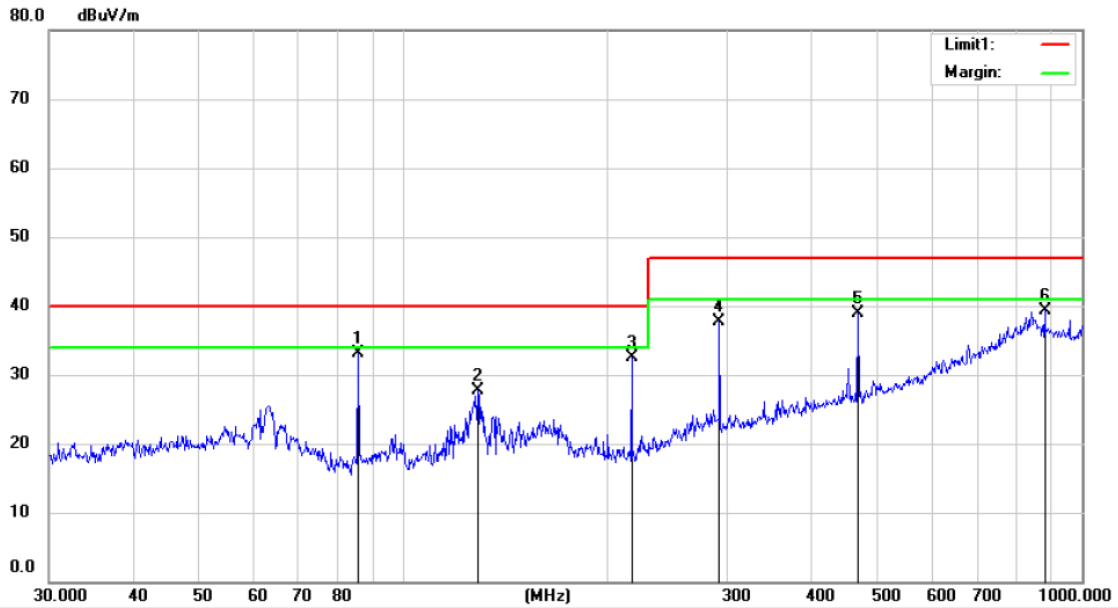
Radiated Emission Measurement

File :laiyin

Data :#4518

Date: 2024/01/18

Time: 5:19:44



Site 3m Chamber #3

Polarization: **Horizontal**

Temperature: 23.7 C

Limit: (RE)EN55032 class B

Power: DC 50.4V

Humidity: 59 %

EUT: Extra Battery

M/N: P2500

Mode: Discharging mode

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	85.5976	44.76	-11.73	33.03	40.00	-6.97	QP		
2		128.5630	39.28	-11.49	27.79	40.00	-12.21	QP		
3		216.7828	41.87	-9.42	32.45	40.00	-7.55	QP		
4		292.0583	43.39	-5.76	37.63	47.00	-9.37	QP		
5		467.2350	40.01	-1.20	38.81	47.00	-8.19	QP		
6		881.4067	30.56	8.68	39.24	47.00	-7.76	QP		

Measurement Uncertainties

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%.

Table 1: Measurement Uncertainty levels

Test	Parameters	Expanded uncertainty (U_{lab})	Expanded uncertainty (U_{cispr})
Radiated Emission 3m SAC 2#	Level accuracy (30MHz to 1000MHz)	$\pm 4.46\text{dB}$ (30M~1GHz Polarize: H) $\pm 5.04\text{dB}$ (30M~1GHz Polarize: V)	$\pm 6.3\text{ dB}$
Radiated Emission 3m SAC 3#	Level accuracy (30MHz to 1000MHz)	$\pm 4.40\text{dB}$ (30M~1GHz Polarize: H) $\pm 5.04\text{dB}$ (30M~1GHz Polarize: V)	$\pm 6.3\text{ dB}$

As U_{lab} in all applicable tests listed above are less than U_{cispr} according to CISPR 16-4-2:2011+A1:2014+A2:2018,

- compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.