EMC TEST REPORT

ETSI EN 301 489-1 V2.2.3(2019-11)

ETSI EN 301 489-17 V3.2.2(2019-12)

Product：	Magsafe Power Bank
Trade Name：	N/A
Model Name：	R64386
Test date:	Oct, 23,2024 to Oct, 31,2024
Report date:	Oct, 31,2024

Prepared for

Prepared by

LAB-QJRZ (Shenzhen) Co., Ltd.

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Authorized Signatory : Jack Zhang Jack Zhang

TEST RESULT CERTIFICATION

Applicant's name..... :	Cellular Electronic Technology (Hk) Co.,Ltd
Address..... :	3/F. Building 17, NO, 53 Fenghuang Gang Avenue, Tangxia Town Dongguan City, Guangdong province, China 523727
Manufacture's Name..... :	Cellular Electronic Technology (Hk) Co.,Ltd

Address..... : 3/F. Building 17, NO, 53 Fenghuang Gang Avenue, Tangxia Town Dongguan City, Guangdong province, China 523727

Product description

Product name..... : Magsafe Power Bank

Model and/or type reference .: R64386

Serial Model： R64386

Rating(s)..... : Input Type-C: 5V/ 2.4A, 9V/ 2A, 12V/ 1.5A;
Output Type-C: 5V/ 3A, 9V/ 2.22A, 12V/ 1.67A
Wireless Output: 15W/ 10W/ 7.5W/ 5W
Capacity: 5000mAh/ 3.85V 19.25Wh

Standards..... : ETSI EN 301 489-1 V2.2.3(2019-11)
ETSI EN 301 489-17 V3.2.2(2019-12)

This device described above has been tested by LAB-QJRZ, and the test results show that the equipment under test (EUT) is in compliance with the 2014/53/EU RED Directive Art. 3.1(b) requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test

Date (s) of performance of tests..... : Oct,23, 2024 to Oct,31,2024

Date of Issue..... : Oct,31,2024

Test Result..... : **Pass***

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TEST REPORT VERIFICATION

Applicant	:	Cellular Electronic Technology (Hk) Co.,Ltd
Manufacturer	:	Cellular Electronic Technology (Hk) Co.,Ltd
EUT	:	Magsafe Power Bank
Model No.	:	R64386
Input Voltage	:	Input Type-C: 5V/ 2.4A, 9V/ 2A, 12V/ 1.5A

Measurement Procedure Used:
ETSI EN 301 489-1 V2.2.3(2019-11)
ETSI EN 301 489-17 V3.2.2(2019-12)
The device described above is tested by LAB-QJRZ（Shenzhen）Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels that the device can endure and its performance criterion. The measurement results are contained in this test report and LAB-QJRZ（Shenzhen）Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT is technically compliant with the ETSI EN 301 489-1 V2.2.3(2019-11) and ETSI EN 301 489-17 V3.2.2(2019-12) requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of LAB-QJRZ（Shenzhen）Co., Ltd.

1. GENERAL INFORMATION

1.1 Description of Device (EUT)

EUT	:	Magsafe Power Bank
Model Number	:	R64386
Test Model Number	:	R64386
Brand	:	/
Power Supply	:	Input Type-C: 5V/ 2.4A, 9V/ 2A, 12V/ 1.5A; Output Type-C: 5V/ 3A, 9V/ 2.22A, 12V/ 1.67A Wireless Output: 15W/ 10W/ 7.5W/ 5W Capacity: 5000mAh/ 3.85V 19.25Wh
Applicant	:	Cellular Electronic Technology (Hk) Co., Ltd
Address	:	3/F. Building 17, NO, 53 Fenghuang Gang Avenue,Tangxia Town Dongguan City Guangdong Province, China 523727
Manufacturer	:	Cellular Electronic Technology (Hk) Co., Ltd
Address	:	3/F. Building 17, NO, 53 Fenghuang Gang Avenue,Tangxia Town Dongguan City Guangdong Province, China 523727

Remark:--

1.2 Technical Characteristics of Device (EUT)

Bluetooth		
Frequency	:	2400MHz~2483.5MHz
Type of Modulation	:	GFSK, π/4-DQPSK
Type of Antenna	:	Internal Antenna
Antenna Gain	:	0dBi

1.3 Measurement Uncertainty

Parameter	Conditions	Uncertainty
Conduction Emissions	150kHz-30MHz	±1.95dB
Radiation Emissions	30MHz-6GHz	±5.10dB

1.4 Test Standards

The following report is prepared on behalf of the Cellular Electronic Technology (Hk) Co., Ltd in accordance with ETSI EN 301 489-1, Electromagnetic compatibility and Radio spectrum Matters (ERM); Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements, and ETSI EN 301 489-17, Electro Magnetic compatibility and Radio spectrum Matters (ERM); Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wide band transmission systems

and 5 GHz high performance RLAN equipment.

The objective of the manufacturer is to demonstrate compliance with the standards ETSI EN 301 489-1 and ETSI EN 301 489-17.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the emission/immunity should be checked to ensure compliance has been maintained.

1.5 Test Methodology

All measurements contained in this report were conducted with the standard ETSI EN 301 489-1, Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements.

1.6 Performance Criteria for EMC

According to the section 6.1 of ETSI EN 301 489-17, the performance criteria are:

-performance criteria A for immunity tests with phenomena of a continuous nature;
-performance criteria B for immunity tests with phenomena of a transient nature;
-performance criteria C for immunity tests with power interruptions exceeding a certain time.

Table 1: Performance criteria

Criteria	During test	After test
A	Shall operate as intended May show degradation of performance (note 1) Shall be no loss of function Shall be no unintentional transmissions	Shall operate as intended Shall be no degradation of performance (note 2) Shall be no loss of function Shall be no loss of stored data or user programmable functions
B	May show loss of function (one or more) May show degradation of performance (note 1) No unintentional transmissions	Functions shall be self-recoverable Shall operate as intended after recovering Shall be no degradation of performance (note 2) Shall be no loss of stored data or user programmable functions
C	May be loss of function (one or more)	Functions shall be recoverable by the operator Shall operate as intended after recovering Shall be no degradation of performance (note 2)
NOTE 1: Degradation of performance during the test is understood as a degradation to a level not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended. NOTE 2: No degradation of performance after the test is understood as no degradation below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. After the test no change of actual operating data or user retrievable data is allowed. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.		

2. MEASURING DEVICES AND TEST EQUIPMENT

2.1 Test Equipment List and Details

No.	Equipment	Manufacturer	Model No.	S/N	Cal date
1	EMI Test Receiver	R&S	ESCI	100612	2022-07-01
2	EMI Test Receiver	R&S	ESPI	100067	2022-07-01
3	Amplifier	HP	8447D	1937A02415	2022-07-01
4	Single Power Conductor Module	FCC	FCC-LISN-5-50-1-01-CISPR25	07118	2022-07-01
5	TRILOG Broadband Test-Antenna	SCHWARZBECK	VULB9163	9163-387	2022-07-01
6	Horn Antenna		BBHA9120A	B08000991-0021	2022-07-01
7	High Field Biconical Antenna	ELECTRO-METRICS	EM-6913	169	2022-07-01
8	Log Periodic Antenna		EM-6950	818	2022-07-01
9	Remote Active Vertical Antenna		EM-6892	354	2022-07-01
10	Power Clamp	SCHWARZBECK	MDS-21	3898	2022-07-01
11	Single Power Conductor Module	FCC	FCC-LISN-5-50-1-01-CISPR25	07254	2022-07-01
12	Teo Line Single Phase Module	SCHWARZBECK	NSLK8128	D-69124	2022-07-01
13	Positioning Controller	C&C	CC-C-1F	MF7802155	2022-07-01
14	`Electrostatic Discharge Simulator	TESEQ	NSG437	128	2022-07-01
15	Fast Transient Burst Generator	SCHAFFNER	MODULA6150	34587	2022-07-01
16	Fast Transient Noise Simulator	Noiseken	FNS-105AX	31438	2022-07-01
17	Capacitive Coupling Clamp	TESEQ	CDN8014	25115	2022-07-01
18	Color TV Pattern Genenator	PHILIPS	PM5418	TM209966	N/A
19	Power Frequency Magnetic Field Gene	EVERFINE	EMS61000-8K	608085	2022-07-01
20	Triple-Loop Antenna	EVERFINE	LLA-2	607035	2022-07-01
21	10dB attenuator	SCHWARZBECK	MTAIMP-136	R65.90.0009	2022-07-01

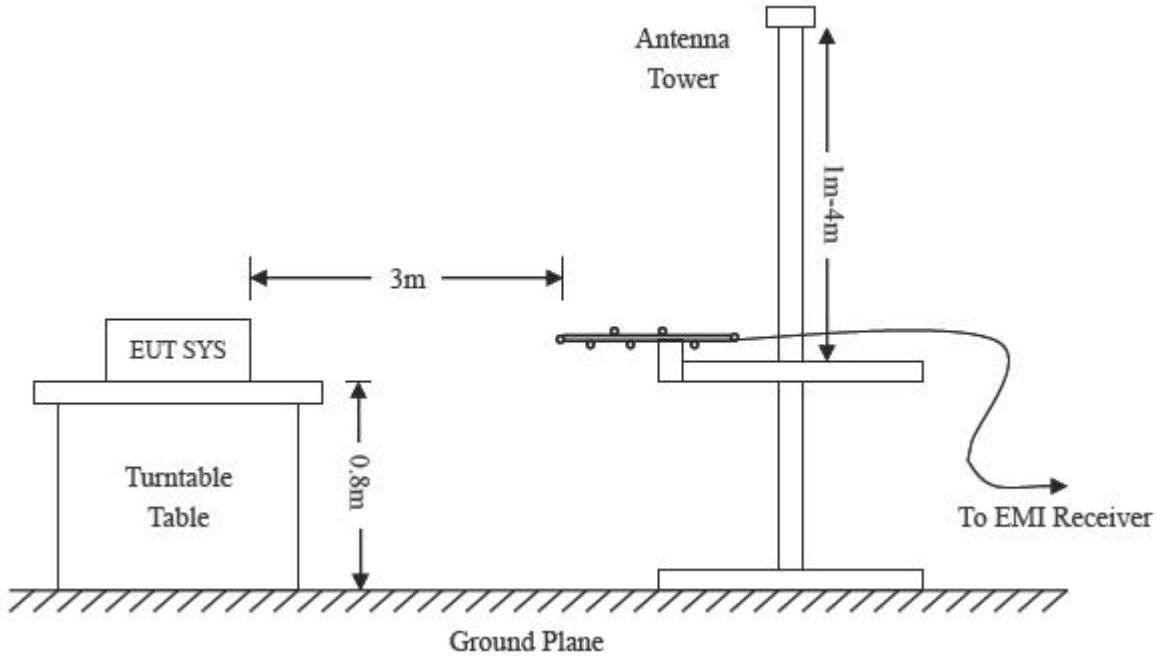
2.2 Test Summary

Standards	Reference	Description of Test Item	Result
ETSI EN 301 489-1 V2.2.3(2019-11)	8.2	Radiated Emissions	P
	8.3	Conducted Emissions for DC Power Port	N/A
	8.4	Conducted Emissions for AC Power Port	N/A
	8.5	Harmonic Current Emissions	N/A
	8.6	Voltage Fluctuations and Flicker	N/A
	8.7	Telecommunication Ports	N/A
	9.2	Radio Frequency Electromagnetic Field	P
	9.3	Electrostatic Discharge	P
	9.4	Fast Transients, Common Mode	N/A
	9.5	Radio Frequency, Common Mode	N/A
	9.6	Transient and Surges in the Vehicular Environment	N/A
	9.7	Voltage Dips and Interruptions	N/A
	9.8	Surges	N/A

P: The EUT complies with the essential requirements in the standard
F: The EUT does not comply with the essential requirements in the standard
N/A: Not appliance

3. RADIATED EMISSIONS

3.1 Block Diagram of Test Setup



(EUT: Magsafe Power Bank)

3.2 Measurement Standard and Limits of Radiated Disturbances

3.2.1 Standard:

ETSI EN 301 489-1 V2.2.3

3.2.2 Limits

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dBμV/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Frequency (MHz)	Distance (Meters)	Field Strengths Limits AV(dBμV/m)	Field Strengths Limits PK(dBμV/m)
1000~3000	3	50	70
3000-6000	3	54	74

Note: (1) The tighter limit shall apply at the edge between two frequency bands.
(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

3.3 Measurement Uncertainty

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ±5.10 dB.

3.4 Test Procedure

Test is conducted under the description of EN5532 Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement.

3.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for Class B device. The equation for margin calculation is as follows:

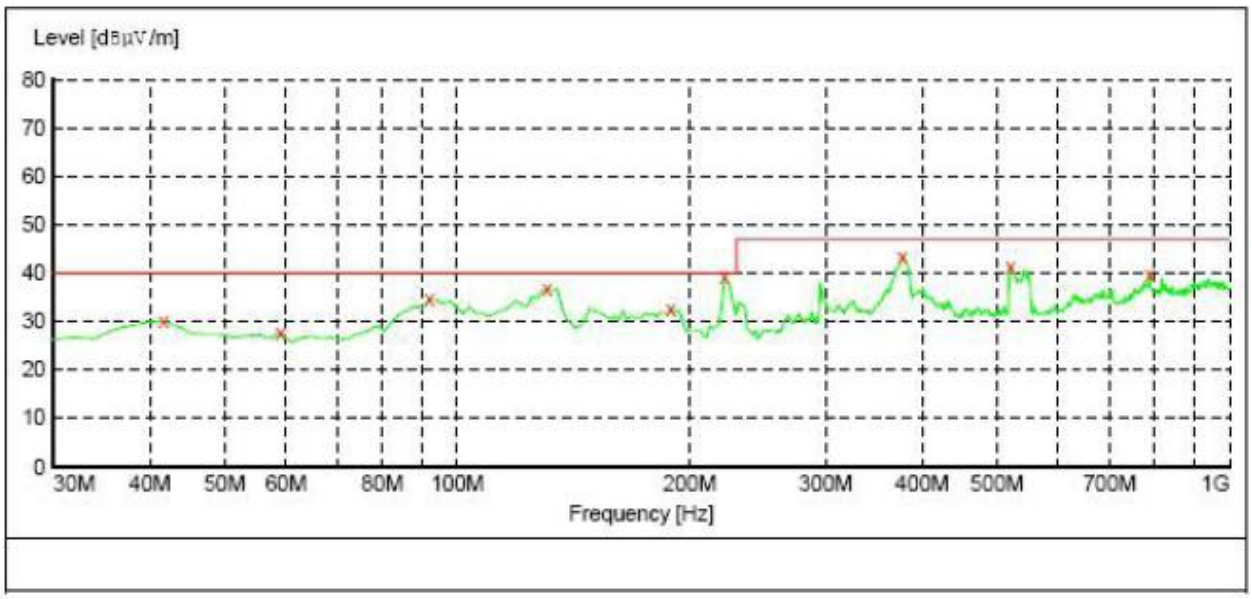
3.6 Measurement Results

PASS.

EUT	:	Magsafe Power Bank	Applicant	:	Cellular Electronic Technology (Hk) Co., Ltd
M/N	:	R64386	Mode	:	Charging
Test Item	:	Radiated Emission	Antenna Polarity	:	Horizontal

SWEEP TABLE: "test (30M-1G)"

Short Description: Start Frequency	Stop Frequency	Detector	Field Strength Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	500.0 ms	100 kHz	VULB9168



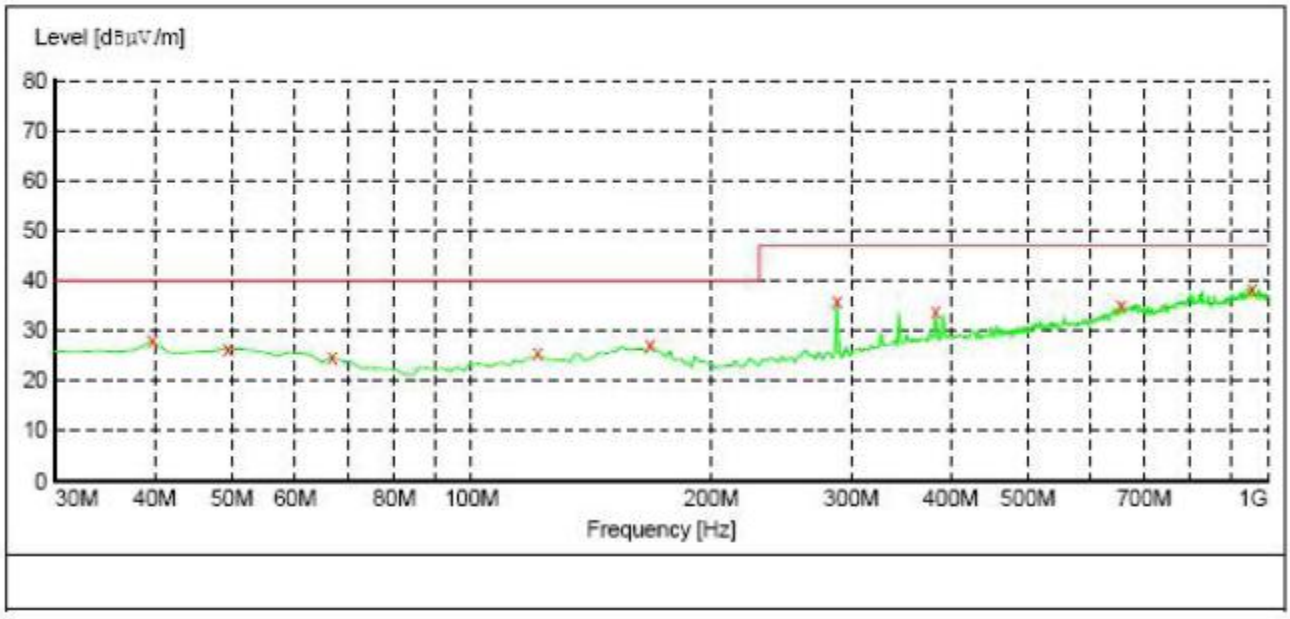
MEASUREMENT RESULT:

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
41.640000	30.10	14.4	40.0	9.9	---	200.0	0.00	HORIZONTAL
59.100000	27.70	13.5	40.0	12.3	---	200.0	0.00	HORIZONTAL
92.080000	34.70	10.5	40.0	5.3	---	200.0	0.00	HORIZONTAL
130.880000	36.90	13.8	40.0	3.1	---	200.0	0.00	HORIZONTAL
189.080000	32.70	11.9	40.0	7.3	---	200.0	0.00	HORIZONTAL
222.060000	39.40	12.3	40.0	0.6	---	100.0	0.00	HORIZONTAL
377.260000	43.20	16.3	47.0	3.8	---	100.0	0.00	HORIZONTAL
520.820000	41.40	19.2	47.0	5.6	---	100.0	0.00	HORIZONTAL
788.540000	39.80	23.6	47.0	7.2	---	100.0	0.00	HORIZONTAL

EUT	:	Magsafe Power Bank	Applicant	:	Cellular Electronic Technology (Hk) Co., Ltd
M/N	:	R64386	Mode	:	Charing
Test Item	:	Radiated Emission	Antenna Polarity	:	Vertical

SWEEP TABLE: "test (30M-1G)"

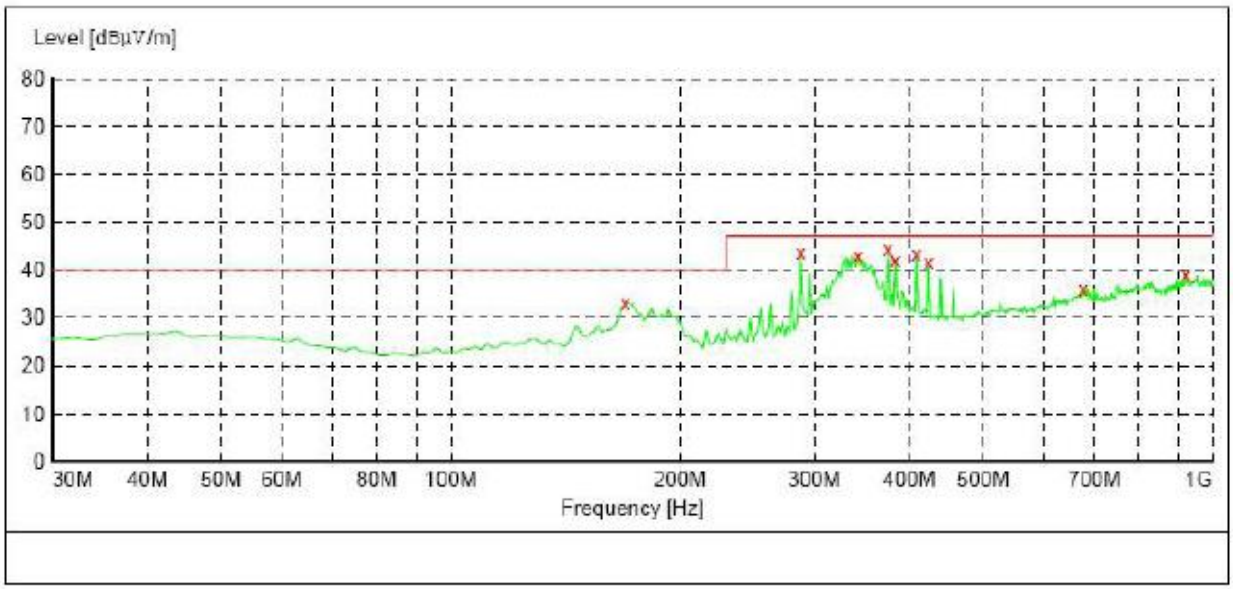
Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	500.0 ms	100 kHz	VULB9168



EUT	:	Magsafe Power Bank	Applicant	:	Cellular Electronic Technology (Hk) Co., Ltd
M/N	:	R64386	Mode	:	Discharging
Test Item	:	Radiated Emission	Antenna Polarity	:	Horizontal

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	500.0 ms	100 kHz	VULB9168



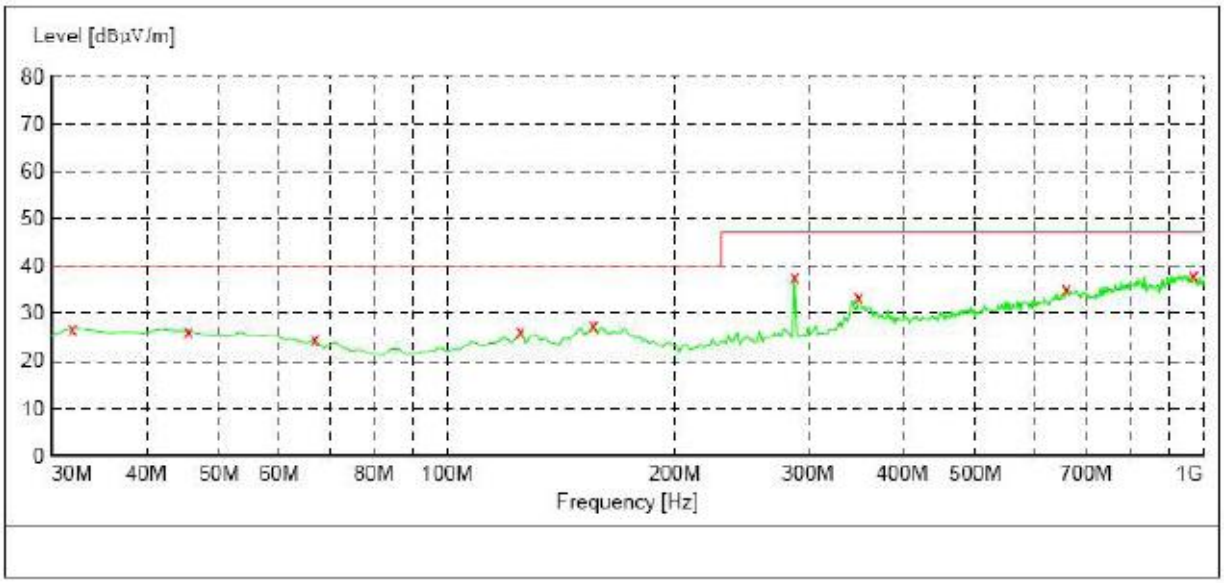
MEASUREMENT RESULT:

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
169.680000	33.20	14.5	40.0	6.8	---	200.0	0.00	HORIZONTAL
288.020000	43.80	14.2	47.0	3.2	---	100.0	0.00	HORIZONTAL
342.340000	42.99	15.5	47.0	4.0	---	100.0	0.00	HORIZONTAL
375.320000	44.30	16.3	47.0	2.7	---	100.0	0.00	HORIZONTAL
383.080000	42.06	16.4	47.0	4.9	---	100.0	0.00	HORIZONTAL
408.300000	43.30	17.0	47.0	3.7	---	100.0	0.00	HORIZONTAL
423.820000	41.80	17.4	47.0	5.2	---	100.0	0.00	HORIZONTAL
676.020000	36.10	22.1	47.0	10.9	---	100.0	0.00	HORIZONTAL
922.400000	39.00	25.0	47.0	8.0	---	100.0	0.00	HORIZONTAL

EUT	:	Magsafe Power Bank	Applicant	:	Cellular Electronic Technology (Hk) Co., Ltd
M/N	:	R64386	Mode	:	Discharing
Test Item	:	Radiated Emission	Antenna Polarity	:	Vertical

SWEEP TABLE: "test (30M-1G)"

Short Description: Start Frequency	Stop Frequency	Detector	Field Strength Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	500.0 ms	100 kHz	VULB9168



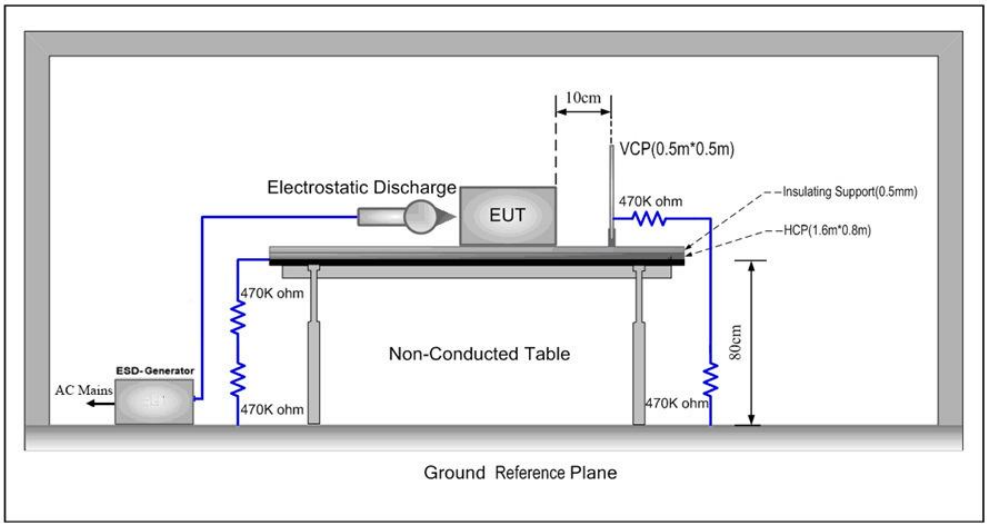
MEASUREMENT RESULT:

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
31.940000	26.90	13.8	40.0	13.1	---	100.0	0.00	VERTICAL
45.520000	26.30	14.2	40.0	13.7	---	100.0	0.00	VERTICAL
66.860000	24.50	12.1	40.0	15.5	---	100.0	0.00	VERTICAL
125.060000	26.20	13.5	40.0	13.8	---	100.0	0.00	VERTICAL
156.100000	27.40	15.3	40.0	12.6	---	100.0	0.00	VERTICAL
288.020000	37.90	14.2	47.0	9.1	---	100.0	0.00	VERTICAL
350.100000	33.50	15.7	47.0	13.5	---	100.0	0.00	VERTICAL
658.560000	35.10	21.8	47.0	11.9	---	100.0	0.00	VERTICAL
970.900000	38.20	25.4	47.0	8.8	---	100.0	0.00	VERTICAL

4. ELECTROSTATIC DISCHARGE TEST

4.1 Block Diagram of Test Setup

Block Diagram of connection between the EUT and simulators



(EUT: Magsafe Power Bank)

4.2 Test Standard

ETSI EN 301 489-1 V2.2.3

4.3 Severity Levels and Performance Criterion

4.3.1 Severity Level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	±2	±2
2.	±4	±4
3.	±6	±8
4.	±8	±15
X	Special	Special

4.3.2 Performance Criterion: A for GPS_CR; A for charging

4.4 Test Results

PASS

Electrostatic discharge immunity test data, Please refer to the following page.

ELECTROSTATIC DISCHARGE TEST

Applicant	:	Cellular Electronic Technology (Hk) Co., Ltd	Test Date	:	Oct , 31,2024
EUT	:	Magsafe Power Bank	Temperature	:	23℃
M/N	:	R64386	Humidity	:	56%
Power Supply	:	Charging /Discharging mode	Criterion	:	B

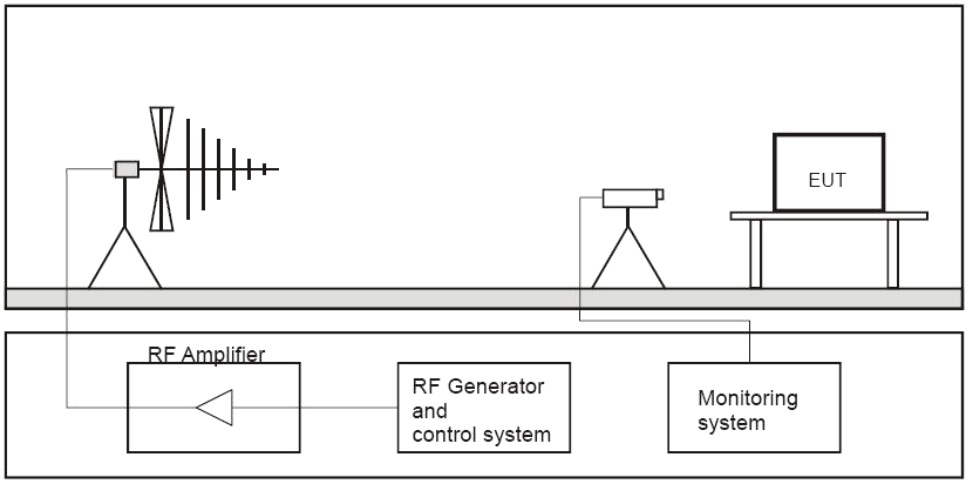
	Test Levels (kV)							
	-2	+2	-4	+4	-6	+6	-8	+8
Air Discharge								
Slots	A	A	A	A	A	A	A	A
Button	A	A	A	A	A	A	A	A
Port	A	A	A	A	A	A	A	A
Contact Discharge								
/	/	/	/	/				

	Test Levels (kV)							
	Indirect Contact Discharge(HCP)				Indirect Contact Discharge(VCP)			
	-2	+2	-4	+4	-2	+2	-4	+4
Front	A	A	A	A	A	A	A	A
Back	A	A	A	A	A	A	A	A
Top	A	A	A	A	A	A	A	A
Left	A	A	A	A	A	A	A	A
Right	A	A	A	A	A	A	A	A

‘

5. RADIO FREQUENCY ELECTROMAGNETIC FIELD TEST

5.1 Block Diagram of Test Setup



(EUT: Magsafe Power Bank)

5.2 Test Standard

ETSI EN 301 489-1 V2.2.3 (EN 61000-4-3)

5.3 Severity Levels and Performance Criterion

5.3.1 Severity Level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X.	Special

5.3.2 Performance Criterion: A for GPS_CR; A for charging

5.4 Test Results

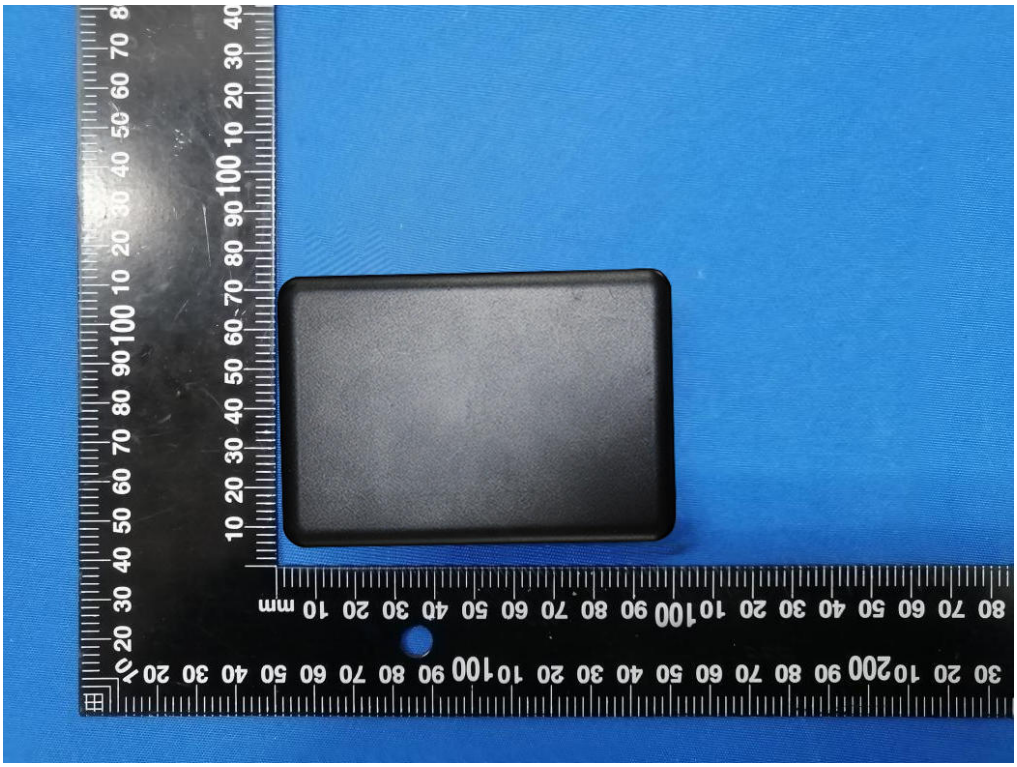
PASS.

Radio Frequency Electromagnetic Field Test

Applicant	:	Cellular Electronic Technology (Hk) Co., Ltd	Test Date	:	Oct,31,2024
EUT	:	Magsafe Power Bank	Temperature	:	23℃
M/N	:	R64386	Humidity	:	56%
Power Supply	:	Charging /Discharging mode	Criterion	:	A

Frequency Range(MHz)	Field (V/m)	Front		Rear		Left Side		Right Side	
		Vert	Hori	Vert	Hori	Vert	Hori	Vert	Hori
80-1000	3	A	A	A	A	A	A	A	A
1400-2700	3	/	/	/	/	/	/	/	/

APPENDIX-Photos of EUT



======End of Report======