



TEST REPORT

No. 24T04Z102605-001

for

Baicells Technologies Co., Ltd.

NeutrinoE224

MODEL NAME: pBS42020

FCC ID: 2AG32PBS42020

with

Hardware Version: B01

Software Version: BaiBS_QAFA_2.17.5.7.1

Issued Date: 2024-11-20

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
24T04Z102605-001	Rev.0	1 st edition	2024-11-20

Note: the latest revision of the test report supersedes all previous version.

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1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under American Association for Laboratory Accreditation (A2LA) with lab code 7049.01, and is also an FCC accredited test laboratory (CN1349), and ISED accredited test laboratory (CAB identifier:CN0066). The detail accreditation scope can be found on A2LA website.

1.2. Testing Location

Location 1: CTTL(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,
P. R. China100191

Location 2: CTTL(BDA)

Address: No.18A, Kangding Street, Beijing Economic-Technology
Development Area, Beijing, 100176, P. R. China

1.3. Testing Environment

Normal Temperature: 15-35° C

Relative Humidity: 20-75%

1.4. Project data

Testing Start Date: 2024-11-12

Testing End Date: 2024-11-20

1.5. Signature



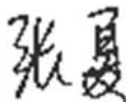
Zhang Ying

(Prepared this test report)



An Hui

(Reviewed this test report)



Zhang Xia

Deputy Director of the laboratory

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name: Baicells Technologies Co., Ltd.
Address: 9-10F, 1stBldg., No.81 Beiqing Road, Haidian District, Beijing, China
City: Beijing
Postal Code: 100094
Country: China
Telephone: 010-62607100
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2.2. Manufacturer Information

Company Name: Baicells Technologies Co., Ltd.
Address: 9-10F, 1stBldg., No.81 Beiqing Road, Haidian District, Beijing, China
City: Beijing
Postal Code: 100094
Country: China
Telephone: 010-62607100
Fax: 010-62607100

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	NeutrinoE224
Model Name	pBS42020

Note: The EUT functions are described in Annex A of this test report. Specifications of the EUT were provided to fulfil the test. Samples undergoing test were selected by the client. Components list, please refer to documents of the manufacturer; it is also included in the original test record of CTTL, Telecommunication Technology Labs, CAICT

3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
UT01a	120200061024ABB0005	B01	BaiBS_QAFA_2.17.5.7.1	2024-11-11

*EUT ID: is used to identify the test sample in the lab internally. The HW and SW version information were provided by the applicant.

3.3. Internal Identification of AE

AE ID*	Description	Note	Manufacturer
AE1	Charger	S24B72-120A200-0K	Shenzhen Gongjin Electronics Co.,Ltd

*AE ID: is used to identify the test sample in the lab internally.

3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	UT01a + AE1	Charger

4. Reference Documents

4.1. Documents supplied by applicant

EUT parameters, referring to Annex A for detailed information, were supplied by the client or manufacturer, which is the basis of testing. CAICT is not responsible for the accuracy of customer supplied technical information that may affect the test results (for example, antenna gain and loss of customer supplied cable).

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices - Unintentional Radiators	2023
ANSI C63.4	American National Standard for Methods of Measurement of Radio- Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2014

Note: The test methods have no deviation with standards.

5. Test Results

Abbreviations used in this clause:		
Verdict Column	P	Pass
	F	Fail
	BR	Re-use test data from basic model report.
	NA	Not applicable
	NM	Not measured

Items	Test Name	Clause in FCC rules	Section in this report	Verdict	Test Location
1	Radiated Emission	15.109(a)	B.1	P	CTTL(huayuan North Road) & CTTL(BDA)
2	Conducted Emission	15.107(a)	B.2	P	CTTL(huayuan North Road)

6. Test Facilities Utilized

Test instruments list:

huayuan North Road:

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	LISN	ENV216	101200	R&S	1 year	2025-05-16
2	Test Receiver	ESCI	100344	R&S	1 year	2025-04-01
3	Test Receiver	ESW44	103023	R&S	1 year	2025-06-06
4	EMI Antenna	3115	00167250	ETS-Lindgren	1 year	2025-04-11

BDA:

SAC 10-4

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESU26	100376	R&S	2 years	2025-0530
2	EMI Antenna	VULB 9163	01223	SCHWARZBE CK	1 year	2025-09-11

Test software list:

Test Item	Test Software	Software Vendor
Conducted emission(huayuan North Road)	EMC32 V8.53.0	R&S
Radiated emission(huayuan North Road)	EMC32 V11.50.00	R&S
Radiated emission(BDA)	ELEKTRA V5.00.2	R&S

7. Measurement Uncertainty

Where relevant, the following measurement uncertainty(worse case) levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Location 1: CTTL(huayuan North Road)

Test item	Frequency ranges	Measurement uncertainty
Radiated Emission	1GHz-18GHz	4.84dB(k=2)
Conducted Emission	150kHz-30MHz	AC Power Line: 3.08dB(k=2)

Location 2: CTTL(BDA)

Test item	Frequency ranges	Measurement uncertainty
Radiated Emission	30MHz-1GHz	5.14dB(k=2)

ANNEX A: EUT parameters

Cellular Bands operate between	<input type="checkbox"/> GSM	Band
	<input type="checkbox"/> CDMA	Band
	<input type="checkbox"/> WCDMA	Band
	<input checked="" type="checkbox"/> LTE	Band 7
	<input type="checkbox"/> L 5G NR SA	Band
Other FCC Part 15B related features	<input type="checkbox"/> FM <input type="checkbox"/> MP3 <input type="checkbox"/> MP4 <input type="checkbox"/> Camera <input type="checkbox"/> USB data <input type="checkbox"/> NFC	

ANNEX B: Detailed Test Results

B.1. Radiated Emission

Reference: FCC Part 15.109(a).

Method of measurement: The field strength of radiated emissions from the unintentional radiator at distances of 3/10 meters (for 30MHz-1GHz) and 3 meters (for above 1GHz) were tested. The test was in accordance with the procedures of ANSI C63.4 – 2014, section 8.3.

The EUT was placed on a non-conductive table. The measurement antenna was placed at the specified distance from the EUT. During the test, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

EUT operating mode: The EUT was operating in the charging mode. During the test, the EUT was connected to a charger in the case of charging mode. The EUT was tested while operating in licensed band Rx mode. Only the worst case emissions are reported. All equipment was placed on the test table top and arranged in a typical configuration in accordance with ANSI C63.4-2014 and manipulated to obtain worst case emissions.

Measurement limit:

Frequency range (MHz)	Field strength limit (μV/m)		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

Note: the above limit is for 3 meters test distance. The limits for 10 meters distance is got by converting: $\text{Limit}(10\text{m}) = \text{Limit}(3\text{m}) + 20[\log(3/10)]$, which is according to FCC 15.109(g)(2)

Test settings:

Frequency range (MHz)	RBW/VBW	Sweep Time (s)	Detector
30-1000	120kHz (IF Bandwidth)	5	Peak/Quasi-peak
Above 1000	1MHz/3MHz	15	Peak, Average

Measurement results:

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss". It includes the antenna factor of receive antenna and the path loss.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{\text{Rpl}} = P_{\text{Mea}} + G_A + G_{\text{PL}}$$

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Note: The measurement results showed as followed are worst cases, and the combinations of different batteries, cables and headsets were considered if applicable.

Function Type:

Setup	Function	Conclusion
Set.1	Charging + RX LTE band 7	Pass

Note: Only the worst case emissions are reported.

Charging + LTE band 7, Set.1

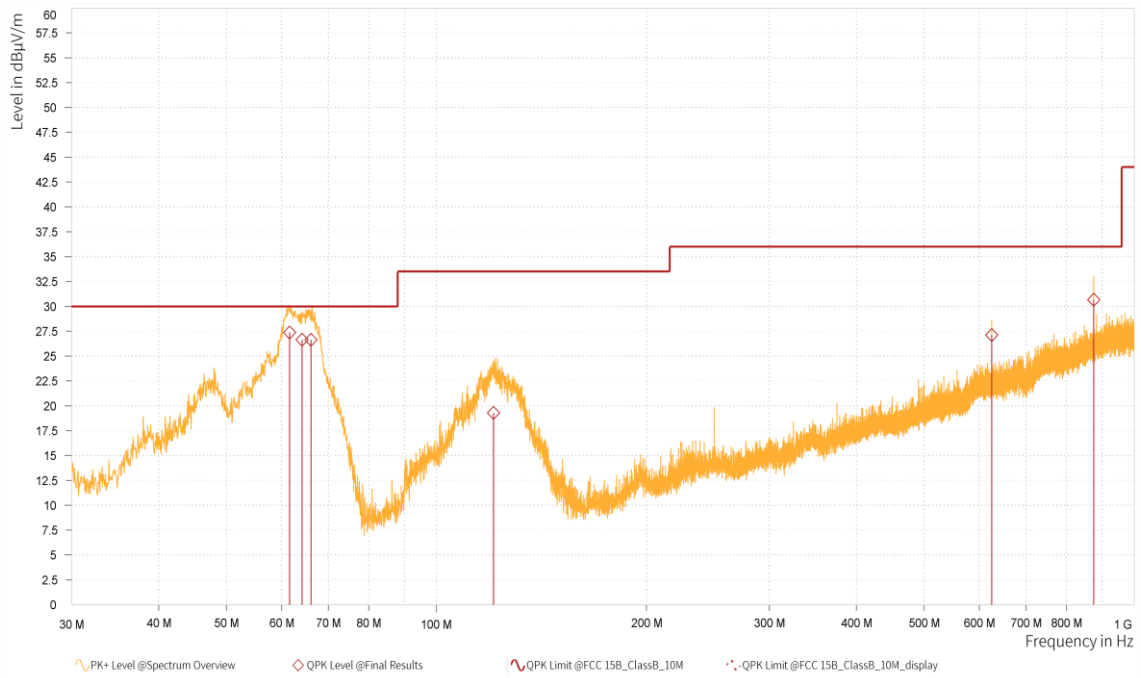


Figure A.1 Radiated Emission from 30MHz to 1GHz

QP detector

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
61.610	27.37	30.00	2.63	2.75	V	91.2
64.181	26.65	30.00	3.35	0.99	V	264.1
66.110	26.63	30.00	3.37	0.99	V	206.8
120.723	19.29	33.50	14.21	0.99	V	43.4
625.014	27.11	36.00	8.89	1.02	H	56
875.016	30.67	36.00	5.33	1.22	H	245.9

Full Spectrum

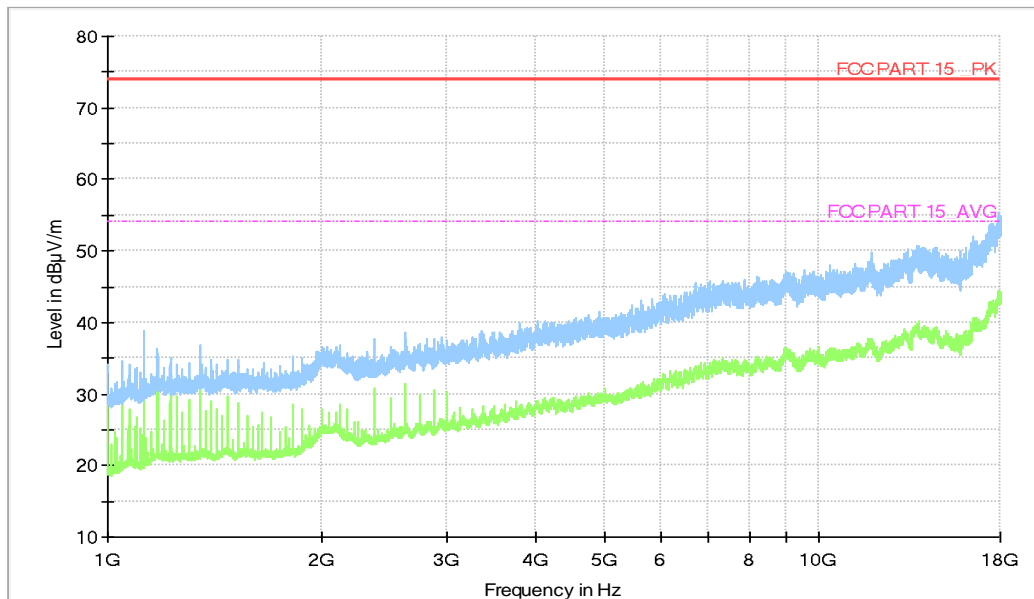


Figure A.2 Radiated Emission from 1GHz to 18GHz

Average detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17933.700	44.5	-26.8	42.3	29.0	54.0	9.5	H
17946.960	44.4	-27.0	42.3	29.1	54.0	9.6	V
17971.780	44.3	-27.2	42.3	29.2	54.0	9.7	H
17954.780	44.2	-27.0	42.3	28.9	54.0	9.8	H
17927.920	44.2	-26.8	42.3	28.7	54.0	9.8	H
17939.820	44.1	-26.8	42.3	28.6	54.0	9.9	V

Peak detector

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17918.060	55.4	-26.9	42.3	40.0	74.0	18.6	H
17958.860	54.9	-27.0	42.3	39.6	74.0	19.1	V
17973.140	54.8	-27.2	42.3	39.7	74.0	19.2	H
17918.400	54.7	-26.9	42.3	39.3	74.0	19.3	H
17935.740	54.7	-26.8	42.3	39.2	74.0	19.3	V
17971.780	54.6	-27.2	42.3	39.5	74.0	19.4	V

B.2. Conducted Emission

Reference: FCC: Part 15.107(a).

Method of measurement: For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 – 2014, section 7.3.

EUT operating mode: The EUT is operating in the charging mode if applicable.

Measurement limit:

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency		

Test Settings:

Voltage(V)	Frequency(Hz)
120	60

RBW/IF bandwidth	Sweep Time(s)
9kHz	1

Measurement results:

The measurement results showed as followed are worst cases, and the combinations of different batteries, cables and headsets were considered if applicable.

Function Type:

Setup	Function	Conclusion
Set.1	Charging + RX LTE band 7	Pass

Note: Only the worst case emissions are reported.

The graphic result is the maximum of the measurements for both phase line and neutral line.

Charging + RX LTE band 7, Set.1

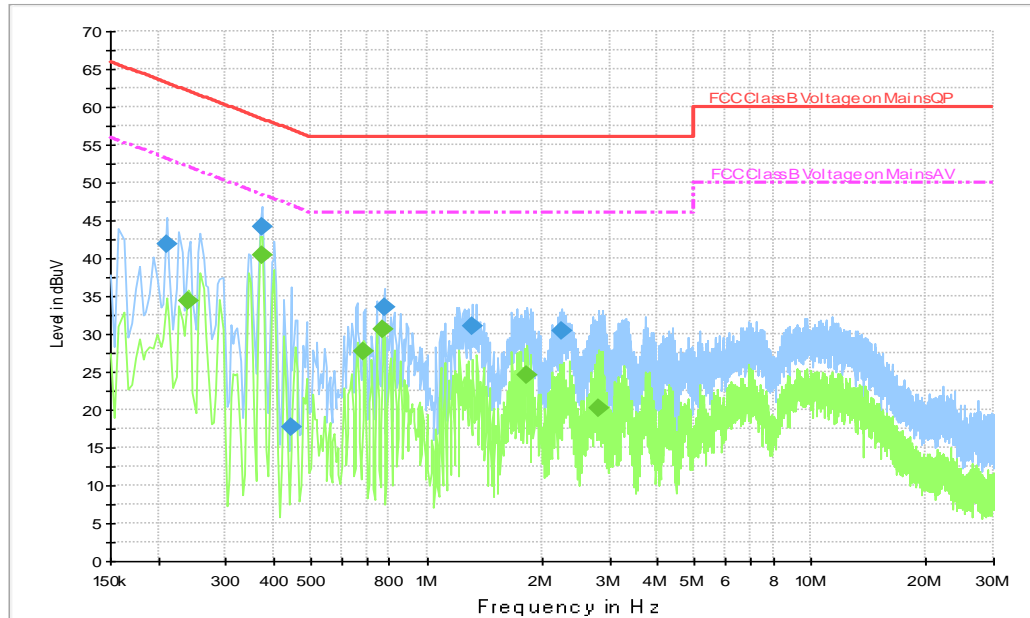


Figure A.3 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.210000	41.8	2000.0	9.000	On	L1	19.8	21.4	63.2
0.374000	44.2	2000.0	9.000	On	L1	19.9	14.3	58.4
0.442000	17.7	2000.0	9.000	On	L1	20.0	39.3	57.0
0.774000	33.6	2000.0	9.000	On	L1	19.9	22.4	56.0
1.318000	31.0	2000.0	9.000	On	L1	19.9	25.0	56.0
2.250000	30.4	2000.0	9.000	On	L1	19.8	25.6	56.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.238000	34.3	2000.0	9.000	On	L1	19.9	17.8	52.2
0.374000	40.3	2000.0	9.000	On	L1	19.9	8.1	48.4
0.686000	27.8	2000.0	9.000	On	L1	20.0	18.2	46.0
0.770000	30.5	2000.0	9.000	On	L1	19.9	15.5	46.0
1.830000	24.6	2000.0	9.000	On	L1	19.8	21.4	46.0
2.806000	20.2	2000.0	9.000	On	L1	19.8	25.8	46.0

ANNEX C: Persons involved in this testing

Test Item	Tester
Radiated Emission	Zhang Tianli & Dong Haowen
Conducted Emission	Li Pengfei

*****END OF REPORT*****