Test Report issued under the responsibility of:

eurofins | Electrical & Electronics

TEST REPORT
IEC 62133-2
Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications – Part 2: Lithium systems

Report Number. ..... :	EFSH26030141-IE-01-L02
Date of issue ..... :	2026-11-02
Total number of pages ..... :	98 Pages
Name of CB Testing Laboratory preparing the Report ..... :	Eurofins Electrical Testing Service (Shanghai) Co., Ltd.
Applicant's name ..... :	GlobTek, Inc.
Address ..... :	186 Veterans Drive Northvale, NJ 07647 USA
Test specification:	
Standard ..... :	☐ IEC 62133-2:2017, IEC 62133-2:2017/AMD1:2021 ☒ UL 62133-2: 2020 R5.24 ☒ CSA C22.2 No. 62133-2:20+A1:24
Test procedure ..... :	Test report
Non-standard test method ..... :	N/A
TRF template used ..... :	IECEE OD-2020-F1:2024, Ed.1.7
Test Report Form No. ..... :	IEC62133_2C
Test Report Form(s) Originator .... :	DEKRA Certification B.V.
Master TRF ..... :	Dated 2025-09-26

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General disclaimer:

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Test item description ..... :	Lithium-Ion Battery Pack
Trade Mark(s) ..... :	GlobTek, Inc.
Manufacturer ..... :	GlobTek, Inc. 186 Veterans Drive Northvale, NJ 07647 USA
Model/Type reference ..... :	BL3500C1865*F*(the lst*part denotes for battery packs configuration ,which may be 1S1P,1S2P,1S3P,1S4P,2S1P,2S2P,2S3P,2S4P,3S1P,3S2P, 3S3P,3S4P,4S1P,4S2P,4S3P,4S4P, the 2nd*part denotes the IC type which can be T or S,T - Texas Instruments, S-Sinowealth)
Ratings ..... :	P.8 Table 2

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

☒	**Testing Laboratory:**	Eurofins Electrical Testing Service (Shanghai) Co., Ltd.	
Testing location/ address.....:		Room 102/501/502, Building 18, No.2168, Chenhang Highway, Minhang District, Shanghai, China	
Tested by (name, function, signature).....:		Chenglin Zhai / Project Engineer	Chenglin Zhai
Approved by (name, function, signature)...:		Pengcheng Wang / Project Engineer	Pengcheng WANG
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address.....:			
Tested by (name + signature).....:			
Witnessed by (name, function, signature) .:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Witnessed by (name, function, signature) .:			
Approved by (name, function, signature)...:			
Supervised by (name, function, signature) :			

List of Attachments (including a total number of pages in each attachment):

Attachment I: (United States) NATIONAL DIFFERENCES (2 pages);

Attachment II: CANADA NATIONAL DIFFERENCES (3 pages);

Attachment III: Photos (34 pages)

Summary of testing:

From the result of our inspection and tests on the submitted samples, we conclude they comply with requirements of the standard.

Tests performed:

☐ Clause 5.2 Insulation and wiring

☐ Clause 7.2.1 Continuous charging at constant voltage (cells)

☒ Clause 7.2.2 Case stress at high ambient temperature (battery)

☐ Clause 7.3.1 External short-circuit (cell)

☒ Clause 7.3.2 External short-circuit (battery)

☒ Clause 7.3.3 Free fall

☐ Clause 7.3.4 Thermal abuse (cells)

☐ Clause 7.3.5 Crush (cells)

☒ Clause 7.3.6 Over-charging of battery

☐ Clause 7.3.7 Forced discharge (cells)

☒ Clause 7.3.8.1 Vibration (battery)

☒ Clause 7.3.8.2 Mechanical shock (battery)

☐ Clause 7.3.9 Design evaluation – Forced internal short circuit (cells)

Testing location:

Eurofins Electrical Testing Service (Shanghai) Co., Ltd.

Room 102/501/502, Building 18, No.2168, Chenhang Highway, Minhang District, Shanghai, China

Summary of compliance with National Differences

IECEE Member countries that are also CENELEC members

Compliance with Group Differences evaluated ☐ **yes** ☐ **No** ☒ N/A

IECEE Member countries with published National Differences which were evaluated:

US, CA

US=United States of America

CA=Canada

IECEE Member countries that did not publish any National Differences:

N/A

Use of uncertainty of measurement for decisions on conformity (decision rule):

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other: … (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

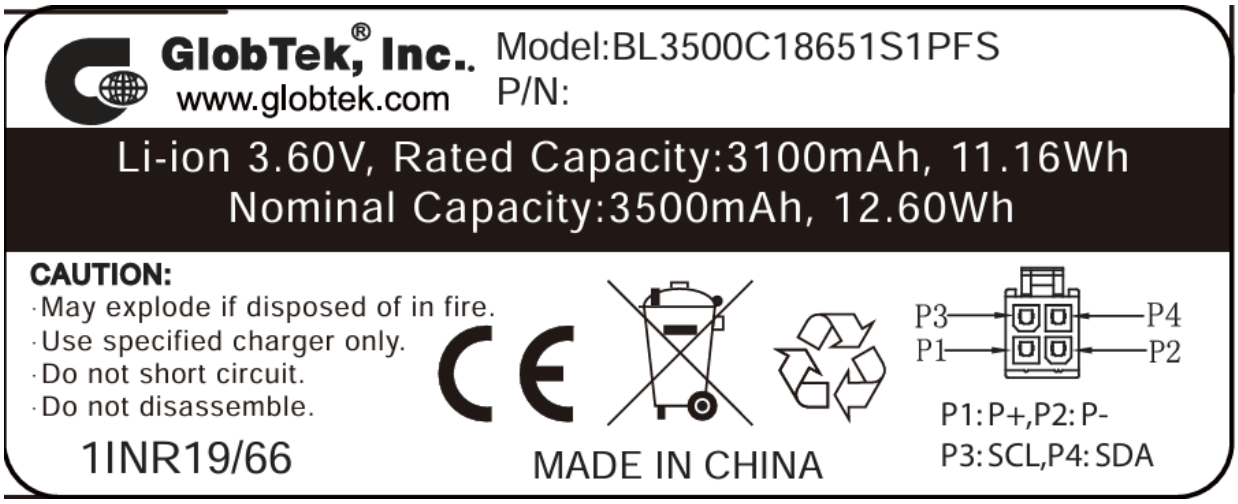
The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



The above examplenameplate for BL3500C18651S1PFS represents the basic format used by all models in this report.

Nameplate differences for models covered in this report：

1. MODEL：BL3500C1865*F*(the lst*part denotes for battery packs configuration ,which may be 1S1P,1S2P,1S3P,1S4P,2S1P,2S2P,2S3P,2S4P,3S1P,3S2P,3S3P,3S4P,4S1P,4S2P,4S3P,4S4P, the 2nd*part denotes the IC type which can be T or S,T - Texas Instruments, S-Sinowealth)

2. Ratings：Refer to P.8 Table 2

3. The number of connector pins, which can be 4, 6, 8 or others, and the corresponding pinout.

4. The battery designation is formatted as *INR19/66-*, The 1st*part denote the number of series connected cells in the battery;The 2nd* part denote the number of parallel connected cells if 2 or greater (-*not shown if value is 1).

Test item particulars.....:	
Classification of installation and use.....:	To be defined in final product
Supply Connection.....:	DC connector
Recommend charging method declared by the manufacturer.....:	CC/CV
Discharge current (0,2 It A).....:	P.8 Table 2
Specified final voltage.....:	P.8 Table 2
Upper limit charging voltage per cell.....:	4.25V
Maximum charging current.....:	P.8 Table 1
Charging temperature upper limit.....:	40℃
Charging temperature lower limit.....:	0℃
Polymer cell electrolyte type.....:	☐ gel polymer ☐ solid polymer ☒ N/A
Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
Testing.....:	
Date of receipt of test item .....:	2026-03-10
Date (s) of performance of tests.....:	2026-03-10 to 2026-07-29

General remarks:

The test results presented in this report relate only to the object tested.

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"(See Enclosure #)" refers to additional information appended to the report.

"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

CTL decisions considered

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) ..... : GlobTek (Suzhou) Co., Ltd.
Building 4, No. 76 JinLing East Road, Suzhou Industrial Park, Suzhou, JiangSu, 215021, China

General product information and other remarks:

This battery pack is constructed with rechargeable Li-ion cell(s) and a PCB containing over-charge, over-discharge, and short- circuit protection circuits.

Table 1：

Model	PCB	Maximum charging current/mA	Configuration	Plastic Housing Type
BL3500C18651S1PFT	PCB1	700	1S1P	A
BL3500C18651S2PFT	PCB1	1400	1S2P	B
BL3500C18651S3PFT	PCB1	2100	1S3P	C
BL3500C18651S1PFS	PCB2	700	1S1P	A
BL3500C18651S2PFS	PCB2	1400	1S2P	B
BL3500C18651S3PFS	PCB2	2100	1S3P	C
BL3500C18651S4PFS	PCB2	2800	1S4P	D
BL3500C18651S4PFT	PCB3	2800	1S4P	D
BL3500C18652S1PFT	PCB3	700	2S1P	B
BL3500C18652S2PFT	PCB3	1400	2S2P	D
BL3500C18652S3PFT	PCB3	2100	2S3P	E
BL3500C18652S4PFT	PCB3	2800	2S4P	F
BL3500C18653S1PFT	PCB3	700	3S1P	C
BL3500C18653S2PFT	PCB3	1400	3S2P	E
BL3500C18653S3PFT	PCB3	2100	3S3P	G
BL3500C18653S4PFT	PCB3	2800	3S4P	H
BL3500C18654S1PFT	PCB3	700	4S1P	D
BL3500C18654S2PFT	PCB3	1400	4S2P	F
BL3500C18654S3PFT	PCB3	2100	4S3P	H
BL3500C18654S4PFT	PCB3	2800	4S4P	I
BL3500C18652S1PFS	PCB4	700	2S1P	B
BL3500C18652S2PFS	PCB4	1400	2S2P	D
BL3500C18652S3PFS	PCB4	2100	2S3P	E
BL3500C18652S4PFS	PCB4	2800	2S4P	F
BL3500C18653S1PFS	PCB4	700	3S1P	C
BL3500C18653S2PFS	PCB4	1400	3S2P	E
BL3500C18653S3PFS	PCB4	2100	3S3P	G
BL3500C18653S4PFS	PCB4	2800	3S4P	H
BL3500C18654S1PFS	PCB4	700	4S1P	D
BL3500C18654S2PFS	PCB4	1400	4S2P	F
BL3500C18654S3PFS	PCB4	2100	4S3P	H
BL3500C18654S4PFS	PCB4	2800	4S4P	I

Plastic Housing Differences:

Plastic housings A through G have similar designs and use the same materials, but are different in size.

Table 2：

Model	Voltage (V)	Rated capacity (mAh)	Rated energy (Wh)	Nominal capacity (mAh)	Nominal energy (Wh)	Discharge current (0,2 It A)/mA	Specified final voltage/V
BL3500C18651S1PFT	3.6	3100	11.16	3500	12.6	620	3

BL3500C18651S2PFT	3.6	6200	22.32	7000	25.2	1240	3
BL3500C18651S3PFT	3.6	9300	33.48	10500	37.8	1860	3
BL3500C18651S1PFS	3.6	3100	11.16	3500	12.6	620	3
BL3500C18651S2PFS	3.6	6200	22.32	7000	25.2	1240	3
BL3500C18651S3PFS	3.6	9300	33.48	10500	37.8	1860	3
BL3500C18651S4PFS	3.6	12400	44.64	14000	50.4	2480	3
BL3500C18651S4PFT	3.6	12400	44.64	14000	50.4	2480	3
BL3500C18652S1PFT	7.2	3100	22.32	3500	25.2	620	6
BL3500C18652S2PFT	7.2	6200	44.64	7000	50.4	1240	6
BL3500C18652S3PFT	7.2	9300	66.96	10500	75.6	1860	6
BL3500C18652S4PFT	7.2	12400	89.28	14000	100.8	2480	6
BL3500C18653S1PFT	10.8	3100	33.48	3500	37.8	620	9
BL3500C18653S2PFT	10.8	6200	66.96	7000	75.6	1240	9
BL3500C18653S3PFT	10.8	9300	100.44	10500	113.4	1860	9
BL3500C18653S4PFT	10.8	12400	133.92	14000	151.2	2480	9
BL3500C18654S1PFT	14.4	3100	44.64	3500	50.4	620	12
BL3500C18654S2PFT	14.4	6200	89.28	7000	100.8	1240	12
BL3500C18654S3PFT	14.4	9300	133.92	10500	151.2	1860	12
BL3500C18654S4PFT	14.4	12400	178.56	14000	201.6	2480	12
BL3500C18652S1PFS	7.2	3100	22.32	3500	25.2	620	6
BL3500C18652S2PFS	7.2	6200	44.64	7000	50.4	1240	6
BL3500C18652S3PFS	7.2	9300	66.96	10500	75.6	1860	6
BL3500C18652S4PFS	7.2	12400	89.28	14000	100.8	2480	6
BL3500C18653S1PFS	10.8	3100	33.48	3500	37.8	620	9
BL3500C18653S2PFS	10.8	6200	66.96	7000	75.6	1240	9
BL3500C18653S3PFS	10.8	9300	100.44	10500	113.4	1860	9
BL3500C18653S4PFS	10.8	12400	133.92	14000	151.2	2480	9
BL3500C18654S1PFS	14.4	3100	44.64	3500	50.4	620	12
BL3500C18654S2PFS	14.4	6200	89.28	7000	100.8	1240	12
BL3500C18654S3PFS	14.4	9300	133.92	10500	151.2	1860	12
BL3500C18654S4PFS	14.4	12400	178.56	14000	201.6	2480	12

Parameters:

Product name	Lithium-Ion Battery Pack			
Type/model	BL3500C18651S1PFT	BL3500C18651S2PFT	BL3500C18651S3PFT	BL3500C18651S1PFS
Nominal capacity (mAh)	3500	7000	10500	3500
Rated capacity (mAh)	3100	6200	9300	3100
Rated voltage/V	3.6	3.6	3.6	3.6
Rated charge current/A	0.275A（0℃~15℃） 0.7A（15℃~40℃）	0.55A（0℃~15℃） 1.4A（15℃~40℃）	0.825A（0℃~15℃） 2.1A（15℃~40℃）	0.275A（0℃~15℃） 0.7A（15℃~40℃）
Rated discharge current/A	0.62A	1.24A	1.86A	0.62A
Maximum charge current/A	0.7A	1.4A	2.1A	0.7A
Maximum discharge current/A	3.5A	3.5A	3.5A	3.5A
Limited Charging Voltage/V	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）
Upper limit charging voltage/V	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~45℃）	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）
Cut-off voltage/V	3V	3V	3V	3V

Charging temperature/℃	0~40℃	0~40℃	0~40℃	0~40℃

Product name	Lithium-Ion Battery Pack			
Type/model	BL3500C18651S2PFS	BL3500C18651S3PFS	BL3500C18651S4PFS	BL3500C18651S4PFT
Nominal capacity (mAh)	7000	10500	14000	14000
Rated capacity (mAh)	6200	9300	12400	12400
Rated voltage/V	3.6	3.6	3.6	3.6
Rated charge current/A	0.55A（0℃~15℃） 1.4A（15℃~40℃）	0.825A（0℃~15℃） 2.1A（15℃~40℃）	1.1A（0℃~15℃） 2.8A（15℃~40℃）	1.1A（0℃~15℃） 2.8A（15℃~40℃）
Rated discharge current/A	1.24A	1.86A	2.48A	2.48A
Maximum charge current/A	1.4A	2.1A	2.8A	2.8A
Maximum discharge current/A	3.5A	3.5A	3.5A	8A
Limited Charging Voltage/V	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）
Upper limit charging voltage/V	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）	4V（0℃~5℃） 4.125V（5℃~35℃） 4V（35℃~40℃）
Cut-off voltage/V	3V	3V	3V	3V
Charging temperature/℃	0~40℃	0~40℃	0~40℃	0~40℃

Product name	Lithium-Ion Battery Pack			
Type/model	BL3500C18652S1PFT	BL3500C18652S2PFT	BL3500C18652S3PFT	BL3500C18652S4PFT
Nominal capacity (mAh)	3500	7000	10500	14000
Rated capacity (mAh)	3100	6200	9300	12400
Rated voltage/V	7.2	7.2	7.2	7.2
Rated charge current/A	0.275A（0℃~15℃） 0.7A（15℃~40℃）	0.55A（0℃~15℃） 1.4A（15℃~40℃）	0.825A（0℃~15℃） 2.1A（15℃~40℃）	1.1A（0℃~15℃） 2.8A（15℃~40℃）
Rated discharge current/A	0.62A	1.24A	1.86A	2.48A
Maximum charge current/A	0.7A	1.4A	2.1A	2.8A
Maximum discharge current/A	3.5A	7A	8A	8A
Limited Charging Voltage/V	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）
Upper limit charging voltage/V	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）
Cut-off voltage/V	6V	6V	6V	6V
Charging temperature/℃	0~40℃	0~40℃	0~40℃	0~40℃

Product name	Lithium-Ion Battery Pack			
Type/model	BL3500C18653S1PFT	BL3500C18653S2PFT	BL3500C18653S3PFT	BL3500C18653S4PFT
Nominal capacity (mAh)	3500	7000	10500	14000
Rated capacity (mAh)	3100	6200	9300	12400
Rated voltage/V	10.8	10.8	10.8	10.8
Rated charge current/A	0.275A（0℃~15℃） 0.7A（15℃~40℃）	0.55A（0℃~15℃） 1.4A（15℃~40℃）	0.825A（0℃~15℃） 2.1A（15℃~40℃）	1.1A（0℃~15℃） 2.8A（15℃~40℃）
Rated discharge current/A	0.62A	1.24A	1.86A	2.48A
Maximum charge current/A	0.7A	1.4A	2.1A	2.8A
Maximum discharge current/A	3.5A	7A	8A	8A
Limited Charging Voltage/V	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）
Upper limit charging voltage/V	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）
Cut-off voltage/V	9V	9V	9V	9V
Charging temperature/℃	0~40℃	0~40℃	0~40℃	0~40℃

Product name	Lithium-Ion Battery Pack			
Type/model	BL3500C18654S1PFT	BL3500C18654S2PFT	BL3500C18654S3PFT	BL3500C18654S4PFT
Nominal capacity (mAh)	3500	7000	10500	14000
Rated capacity (mAh)	3100	6200	9300	12400
Rated voltage/V	14.4	14.4	14.4	14.4
Rated charge current/A	0.275A（0℃~15℃） 0.7A（15℃~40℃）	0.55A（0℃~15℃） 1.4A（15℃~40℃）	0.825A（0℃~15℃） 2.1A（15℃~40℃）	1.1A（0℃~15℃） 2.8A（15℃~40℃）
Rated discharge current/A	0.62A	1.24A	1.86A	2.48A
Maximum charge current/A	0.7A	1.4A	2.1A	2.8A
Maximum discharge current/A	3.5A	7A	8A	8A
Limited Charging Voltage/V	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）
Upper limit charging voltage/V	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）
Cut-off voltage/V	12V	12V	12V	12V
Charging temperature/℃	0~40℃	0~40℃	0~40℃	0~40℃

Product name	Lithium-Ion Battery Pack

Type/model	BL3500C18652S1PFS	BL3500C18652S2PFS	BL3500C18652S3PFS	BL3500C18652S4PFS
Nominal capacity (mAh)	3500	7000	10500	14000
Rated capacity (mAh)	3100	6200	9300	12400
Rated voltage/V	7.2	7.2	7.2	7.2
Rated charge current/A	0.275A（0℃~15℃） 0.7A（15℃~40℃）	0.55A（0℃~15℃） 1.4A（15℃~40℃）	0.825A（0℃~15℃） 2.1A（15℃~40℃）	1.1A（0℃~15℃） 2.8A（15℃~40℃）
Rated discharge current/A	0.62A	1.24A	1.86A	2.48A
Maximum charge current/A	0.7A	1.4A	2.1A	2.8A
Maximum discharge current/A	3.5A	7A	8A	8A
Limited Charging Voltage/V	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）
Upper limit charging voltage/V	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）	8V（0℃~5℃） 8.25V（5℃~35℃） 8V（35℃~40℃）
Cut-off voltage/V	6V	6V	6V	6V
Charging temperature/℃	0~40℃	0~40℃	0~40℃	0~40℃

Product name	Lithium-Ion Battery Pack			
Type/model	BL3500C18653S1PFS	BL3500C18653S2PFS	BL3500C18653S3PFS	BL3500C18653S4PFS
Nominal capacity (mAh)	3500	7000	10500	14000
Rated capacity (mAh)	3100	6200	9300	12400
Rated voltage/V	10.8	10.8	10.8	10.8
Rated charge current/A	0.275A（0℃~15℃） 0.7A（15℃~40℃）	0.55A（0℃~15℃） 1.4A（15℃~40℃）	0.825A（0℃~15℃） 2.1A（15℃~40℃）	1.1A（0℃~15℃） 2.8A（15℃~40℃）
Rated discharge current/A	0.62A	1.24A	1.86A	2.48A
Maximum charge current/A	0.7A	1.4A	2.1A	2.8A
Maximum discharge current/A	3.5A	7A	8A	8A
Limited Charging Voltage/V	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）
Upper limit charging voltage/V	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）	12V（0℃~5℃） 12.375V（5℃~35℃） 12V（35℃~40℃）
Cut-off voltage/V	9V	9V	9V	9V
Charging temperature/℃	0~40℃	0~40℃	0~40℃	0~40℃

Product name	Lithium-Ion Battery Pack			
Type/model	BL3500C18654S1PFS	BL3500C18654S2PFS	BL3500C18654S3PFS	BL3500C18654S4PFS

Nominal capacity (mAh)	3500	7000	10500	14000
Rated capacity (mAh)	3100	6200	9300	12400
Rated voltage/V	14.4	14.4	14.4	14.4
Rated charge current/A	0.275A（0℃~15℃） 0.7A（15℃~40℃）	0.55A（0℃~15℃） 1.4A（15℃~40℃）	0.825A（0℃~15℃） 2.1A（15℃~40℃）	1.1A（0℃~15℃） 2.8A（15℃~40℃）
Rated discharge current/A	0.62A	1.24A	1.86A	2.48A
Maximum charge current/A	0.7A	1.4A	2.1A	2.8A
Maximum discharge current/A	3.5A	7A	8A	8A
Limited Charging Voltage/V	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）
Upper limit charging voltage/V	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）	16V（0℃~5℃） 16.5V（5℃~35℃） 16V（35℃~40℃）
Cut-off voltage/V	12V	12V	12V	12V
Charging temperature/℃	0~40℃	0~40℃	0~40℃	0~40℃

Test List：

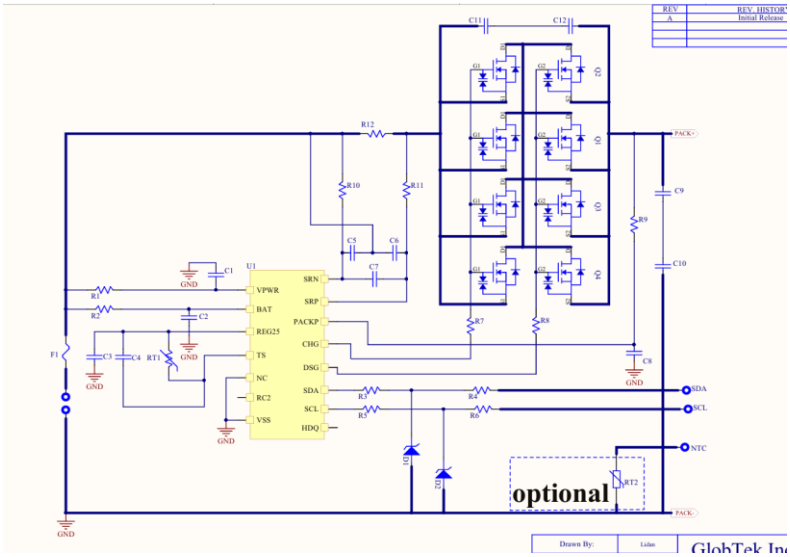
There are 32 models covered by this report. All models are constructed in a similar manner and with similar materials. The models differ according to their series and parallel cell connections and corresponding protection PCB.Tested items are recorded below:

Model	With shrink wrap plastic film				
	Clause 7.3.6	Clause 7.3.2	Clause 7.3.8.1	Clause 7.3.8.2	Clause 7.3.3
BL3500C18651S1PFT	•	•			
BL3500C18651S2PFT					
BL3500C18651S3PFT	•	•			
BL3500C18651S1PFS	•	•	•	•	•
BL3500C18651S2PFS					
BL3500C18651S3PFS			•	•	•
BL3500C18651S4PFS	•	•			
BL3500C18651S4PFT	•	•			
BL3500C18652S1PFT	•	•	•	•	•
BL3500C18652S2PFT					
BL3500C18652S3PFT			•	•	•
BL3500C18652S4PFT	•	•			
BL3500C18653S1PFT	•	•			
BL3500C18653S2PFT					
BL3500C18653S3PFT					
BL3500C18653S4PFT	•	•			
BL3500C18654S1PFT	•	•			
BL3500C18654S2PFT			•	•	•
BL3500C18654S3PFT			•	•	•
BL3500C18654S4PFT	•	•			
BL3500C18652S1PFS	•	•			
BL3500C18652S2PFS			•	•	•

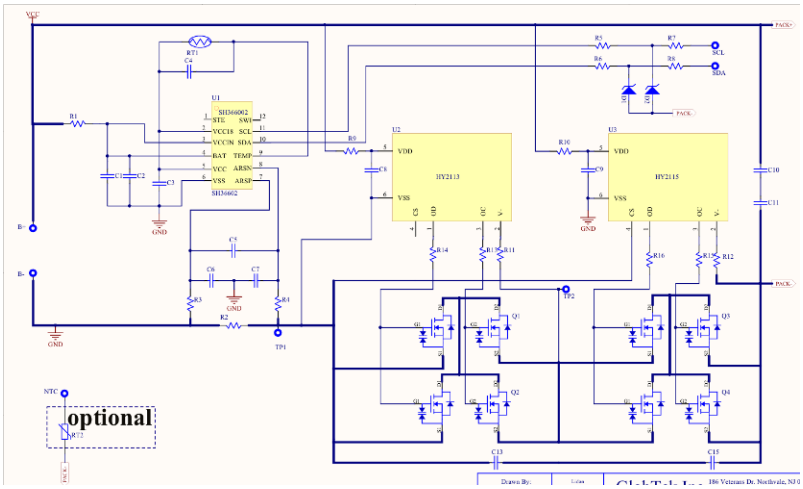
BL3500C18652S3PFS					
BL3500C18652S4PFS	•	•			
BL3500C18653S1PFS	•	•			
BL3500C18653S2PFS					
BL3500C18653S3PFS			•	•	•
BL3500C18653S4PFS	•	•			
BL3500C18654S1PFS	•	•			
BL3500C18654S2PFS					
BL3500C18654S3PFS					
BL3500C18654S4PFS	•	•	•	•	•

Circuit diagram:
In the below circuit diagrams, an optional NTC is shown with the intent of providing an analog temperature signal for external reading . The NTC does not contribute to the functionality of the battery pack. The samples tested in this report did not include the optional NTC. Since the NTC does not impact the testing performed, samples with the NTC included do not need additional testing.

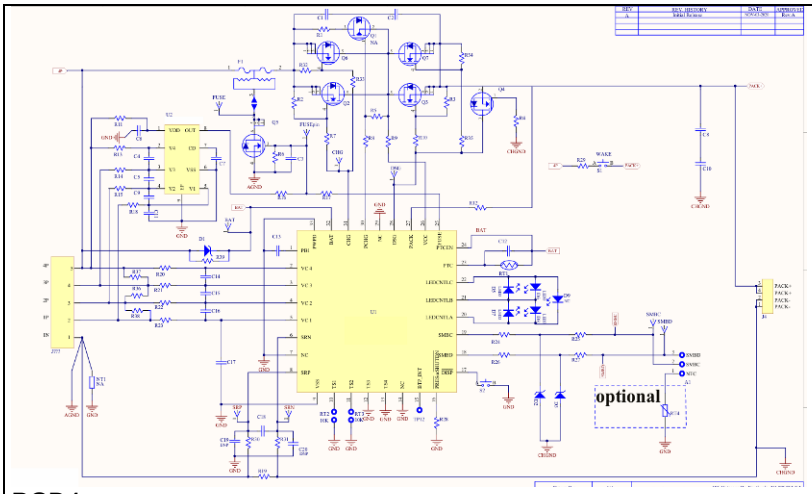
PCB1



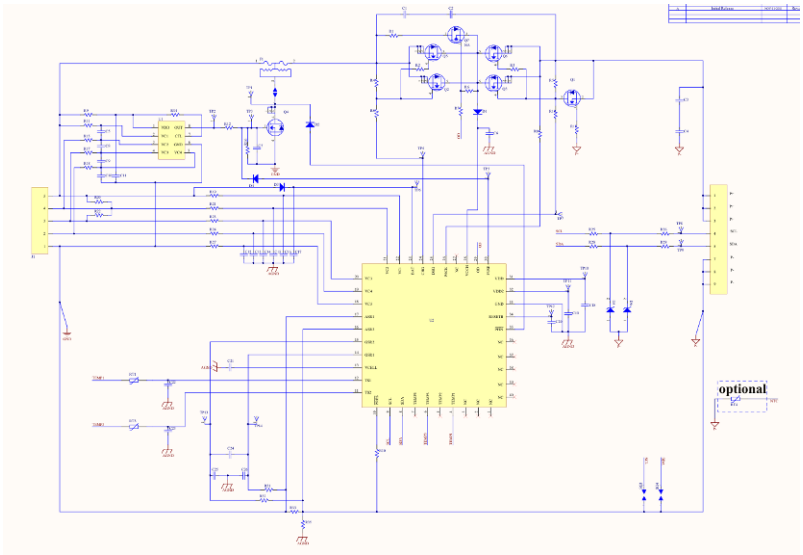
PCB2



PCB3



PCB4



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Clause	Requirement + Test	Result - Remark	Verdict
4	**PARAMETER MEASUREMENT TOLERANCES**		P
	Parameter measurement tolerances	The tolerances of the equipment parameters comply with the requireme	P
5	**GENERAL SAFETY CONSIDERATIONS**		P
5.1	**General**	See below	P
	Cells and batteries so designed and constructed that they are safe under conditions of both intended use and reasonably foreseeable misuse	The battery is safe when used under normal conditions, provided the casing is intact.	P
5.2	**Insulation and wiring**	See below	P
	The insulation resistance between the positive terminal and externally exposed metal surfaces of the battery (excluding electrical contact surfaces) is not less than 5 MΩ	No metal surface exists.	N/A
	Insulation resistance (MΩ) ..... :	No metal surface exists.	—
	Internal wiring and insulation are sufficient to withstand maximum anticipated current, voltage and temperature requirements	The internal wiring and insulation meet the requirements	P
	Orientation of wiring maintains adequate clearances and creepage distances between conductors	There is sufficient clearance and creepage distance between the conductors	P
	Mechanical integrity of internal connections accommodates reasonably foreseeable misuse	The mechanical integrity of the internal connections meets the requirements	P
5.3	**Venting**	See below	P
	Battery cases and cells incorporate a pressure relief mechanism or are constructed so that they relieve excessive internal pressure at a value and rate that will preclude rupture, explosion and self-ignition	The battery casing has a pressure relief port	P
	Encapsulation used to support cells within an outer casing does not cause the battery to overheat during normal operation nor inhibit pressure relief	No such design exists	N/A
5.4	**Temperature, voltage and current management**	See below	P
	Batteries are designed such that abnormal temperature rise conditions are prevented	Overcharge, over discharge, overcurrent and short-circuit proof circuit used in this battery. See tests of clause 7.	P
	Batteries are designed to be within temperature, voltage and current limits specified by the cell manufacturer	The operating temperature, voltage and current limits of the battery are within the ranges specified by the cell manufacturer	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Batteries are provided with specifications and charging instructions for equipment manufacturers so that specified chargers are designed to maintain charging within the temperature, voltage and current limits specified	The charging limits specified in the manufacturer's specification.	P
5.5	**Terminal contacts**	See below	P
	The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current	The terminals can withstand the maximum current from the battery	P
	External terminal contact surfaces are formed from conductive materials with good mechanical strength and corrosion resistance	Terminals are made from conductive materials with good mechanical strength and corrosion resistance	P
	Terminal contacts are arranged to minimize the risk of short circuits	The positive and negative terminals are fitted with insulating sleeves	P
5.6	**Assembly of cells into batteries**	See below	P
5.6.1	General	See below	P
	Each battery has an independent control and protection for current, voltage, temperature and any other parameter required for safety and to maintain the cells within their operating region	Overcharge, over discharge, over current and short-circuit proof circuit used in this battery.	P
	This protection may be provided external to the battery such as within the charger or the end devices	The battery is equipped with a protection function	N/A
	If protection is external to the battery, the manufacturer of the battery provide this safety relevant information to the external device manufacturer for implementation	The battery is equipped with a protection function	N/A
	If there is more than one battery housed in a single battery case, each battery has protective circuitry that can maintain the cells within their operating regions	There is only one battery	N/A
	Manufacturers of cells specify current, voltage and temperature limits so that the battery manufacturer/designer may ensure proper design and assembly	Current, voltage and temperature limits specified by cell manufacturer.	P
	Batteries that are designed for the selective discharge of a portion of their series connected cells incorporate circuitry to prevent operation of cells outside the limits specified by the cell manufacturer	No such design exists	N/A
	Protective circuit components are added as appropriate and consideration given to the end-device application	The battery is equipped with MOS and Fuse protection	P

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Clause	Requirement + Test	Result - Remark	Verdict
	The manufacturer of the battery provide a safety analysis of the battery safety circuitry with a test report including a fault analysis of the protection circuit under both charging and discharging conditions confirming the compliance	See the circuit diagram on page 7	P
5.6.2	Design recommendation	See below	P
	For the battery consisting of a single cell or a single cellblock, it is recommended that the charging voltage of the cell does not exceed the upper limit of the charging voltage specified in Table 2	See table1	N/A
	For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that the voltages of any one of the single cells or single cellblocks does not exceed the upper limit of the charging voltage, specified in Table 2, by monitoring the voltage of every single cell or the single cellblocks	See Parameters	P
	For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that charging is stopped when the upper limit of the charging voltage is exceeded for any one of the single cells or single cellblocks by measuring the voltage of every single cell or the single cellblocks	See Parameters	P
	For batteries consisting of series-connected cells or cell blocks, nominal charge voltage are not counted as an overcharge protection	See Parameters	P
	For batteries consisting of series-connected cells or cell blocks, cells have closely matched capacities, be of the same design, be of the same chemistry and be from the same manufacturer	See Parameters	P
	It is recommended that the cells and cell blocks are not discharged beyond the cell manufacturer's specified final voltage	See Parameters	P
	For batteries consisting of series-connected cells or cell blocks, cell balancing circuitry are incorporated into the battery management system	See Parameters	P
5.6.3	Mechanical protection for cells and components of batteries	See below	P
	Mechanical protection for cells, cell connections and control circuits within the battery are provided to prevent damage as a result of intended use and reasonably foreseeable misuse	Mechanical protection for cell connections and control circuits provided.	P
	The mechanical protection can be provided by the battery case or it can be provided by the end product enclosure for those batteries intended for building into an end product	The mechanical protection is provided by the battery case.	P

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Clause	Requirement + Test	Result - Remark	Verdict
	The battery case and compartments housing cells are designed to accommodate cell dimensional tolerances during charging and discharging as recommended by the cell manufacturer	See below	P
	For batteries intended for building into a portable end product, testing with the battery installed within the end product is considered when conducting mechanical tests	See below	N/A
5.7	**Quality plan**	See below	P
	The manufacturer prepares and implements a quality plan that defines procedures for the inspection of materials, components, cells and batteries and which covers the whole process of producing each type of cell or battery	ISO 9001	P
5.8	**Battery safety components**	See Critical components information	N/A
6	**TYPE TEST AND SAMPLE SIZE**		P
	Tests are made with the number of cells or batteries specified in Table 1 using cells or batteries that are not more than six months old	Considered	P
	The internal resistance of coin cells are measured in accordance with Annex D. Coin cells with internal resistance less than or equal to 3 Ω are tested in accordance with Table 1	Not coin cells	N/A
	Unless otherwise specified, tests are carried out in an ambient temperature of 20 °C ± 5 °C	Considered	P
	The safety analysis of 5.6.1 identify those components of the protection circuit that are critical for short-circuit, overcharge and over discharge protection	Considered	P
	When conducting the short-circuit test, consideration is given to the simulation of any single fault condition that is likely to occur in the protecting circuit that would affect the short-circuit test	See clause 7.3.2.	P
7	**SPECIFIC REQUIREMENTS AND TESTS**		P
7.1	**Charging procedure for test purposes**	See below	P
7.1.1	First procedure	See below	P
	This charging procedure applies to subclauses other than those specified in 7.1.2	See below	P
	Unless otherwise stated in this document, the charging procedure for test purposes is carried out in an ambient temperature of 20 °C ± 5 °C, using the method declared by the manufacturer	See Parameters	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Prior to charging, the battery has been discharged at 20 °C ± 5 °C at a constant current of 0,2 It A down to a specified final voltage	See Parameters	P
7.1.2	Second procedure	Approved cell used.	N/A
	This charging procedure applies only to 7.3.1, 7.3.4, 7.3.5, and 7.3.9	Approved cell used.	N/A
	After stabilization for 1 h to 4 h, at an ambient temperature of the highest test temperature and the lowest test temperature, respectively, as specified in Table 2, cells are charged by using the upper limit charging voltage and maximum charging current, until the charging current is reduced to 0,05 It A, using a constant current to constant voltage charging method	Approved cell used.	N/A
7.2	**Intended use**	Approved cell used.	P
7.2.1	Continuous charging at constant voltage (cells)	Approved cell used.	N/A
	Fully charged cells are subjected for 7 days to a charge using the charging method for current and standard voltage specified by the cell manufacturer	Approved cell used.	N/A
	Results: no fire, no explosion, no leakage.....:	Approved cell used.	N/A
7.2.2	Case stress at high ambient temperature (battery)	Tested complied.	P
	Oven temperature (°C).....:	70 °C	—
	Results: no physical distortion of the battery case resulting in exposure of internal protective components and cells	No physical distortion of the battery casing and connect terminal.	P
7.3	**Reasonably foreseeable misuse**	See below	P
7.3.1	External short-circuit (cell)	Approved cell used.	N/A
	The cells were tested until one of the following occurred:	Approved cell used.	N/A
	- 24 hours elapsed; or	Approved cell used.	N/A
	- The case temperature declined by 20 % of the maximum temperature rise	Approved cell used.	N/A
	Results: no fire, no explosion.....:	Approved cell used.	N/A
7.3.2	External short-circuit (battery)	Tested complied.	P
	The batteries were tested until one of the following occurred:	See below	P
	- 24 hours elapsed; or	24h	P
	- The case temperature declined by 20 % of the maximum temperature rise	24h	N/A
	In case of rapid decline in short circuit current, the battery pack remained on test for an additional one hour after the current reached a low end steady state condition	24h	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	A single fault in the discharge protection circuit is conducted on one to four (depending upon the protection circuit) of the five samples before conducting the short-circuit test	Single fault conducted on 2 samples	P
	A single fault applies to protective component parts such as MOSFET (metal oxide semiconductor field-effect transistor), fuse, thermostat or positive temperature coefficient (PTC) thermistor	See e-circuit	P
	Results: no fire, no explosion ..... :	(See appended table 7.3.2)	P
7.3.3	Free fall	Tested complied.	P
	Results: no fire, no explosion	No fire, no explosion.	P
7.3.4	Thermal abuse (cells)	Approved cell used	N/A
	Oven temperature (°C) ..... :	Approved cell used	—
	Results: no fire, no explosion	Approved cell used	N/A
7.3.5	Crush (cells)	Approved cell used	N/A
	The crushing force was released upon:	Approved cell used	N/A
	- The maximum force of 13 kN ± 0,78 kN has been applied; or	Approved cell used	N/A
	- An abrupt voltage drop of one-third of the original voltage has been obtained	Approved cell used	N/A
	Results: no fire, no explosion ..... :	Approved cell used	N/A
7.3.6	Over-charging of battery	See below	P
	The supply voltage which is:	See Parameters	P
	- 1,4 times the upper limit charging voltage presented in Table A.1 (but not to exceed 6,0 V) for single cell/cell block batteries or	See Parameters	P
	- 1,2 times the upper limit charging voltage resented in Table A.1 per cell for series connected multi-cell batteries, and	See Parameters	P
	- Sufficient to maintain a current of 2,0 It A throughout the duration of the test or until the supply voltage is reached	See Parameters	P
	Test was continued until the temperature of the outer casing:	See below	P
	- Reached steady state conditions (less than 10 °C change in 30-minute period); or	The temperature of the outer case reached steady state conditions.	P
	- Returned to ambient	The temperature of the outer case reached steady state conditions.	N/A
	Results: no fire, no explosion ..... :	(See appended table 7.3.6)	P
7.3.7	Forced discharge (cells)	Approved cell used	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Discharge a single cell to the lower limit discharge voltage specified by the cell manufacturer	Approved cell used	N/A
	The discharged cell is then subjected to a forced discharge at 1 It A to the negative value of the upper limit charging voltage	Approved cell used	N/A
	- The discharge voltage reaches the negative value of upper limit charging voltage within the testing duration. The voltage is maintained at the negative value of the upper limit charging voltage by reducing the current for the remainder of the testing duration	Approved cell used	N/A
	- The discharge voltage does not reach the negative value of upper limit charging voltage within the testing duration. The test is terminated at the end of the testing duration	Approved cell used	N/A
	Results: no fire, no explosion ..... :	Approved cell used	N/A
7.3.8	Mechanical tests (batteries)	See below	P
7.3.8.1	Vibration	Tested complied.	P
	Results: no fire, no explosion, no rupture, no leakage or venting. ..... :	(See appended table 7.3.8.1)	P
7.3.8.2	Mechanical shock	Tested complied.	P
	Results: no leakage, no venting, no rupture, no explosion and no fire ..... :	(See appended table 7.3.8.2)	P
7.3.9	Design evaluation – Forced internal short-circuit (cells)	Approved cell used	N/A
	The cells complied with national requirement for .....:	Approved cell used	—
	The pressing was stopped upon:	Approved cell used	N/A
	- A voltage drop of 50 mV has been detected; or	Approved cell used	N/A
	- The pressing force of 800 N (cylindrical cells) or 400 N (prismatic cells) has been reached	Approved cell used	N/A
	Results: no fire ..... :	Approved cell used	N/A
8	**INFORMATION FOR SAFETY**		P
8.1	**General**	See below	P
	Manufacturers of secondary cells provides information about current, voltage and temperature limits of their products	Information for safety mentioned in manufacturer’s specifications.	P
	Manufacturers of batteries provides information regarding how to minimize and mitigate hazards to equipment manufacturers or end-users	Information for safety mentioned in manufacturer’s specifications.	P
	Systems analyses are performed by device manufacturers to ensure that a particular battery design prevents hazards from occurring during use of a product	No such design exists	P

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Clause	Requirement + Test	Result - Remark	Verdict
	As appropriate, any information relating to hazard avoidance resulting from a system analysis is provided to the end user	No such design exists	P
	Do not allow children to replace batteries without adult supervision	See the instructions	P
8.2	**Small cell and battery safety information**	Not Small battery	N/A
	The following warning language is to be provided with the information packaged with the small cells and batteries or equipment using them:	Not small battery.	N/A
	- Keep small cells and batteries which are considered swallowable out of the reach of children	Not small battery.	N/A
	- Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2 h of ingestion	Not small battery.	N/A
	- In case of ingestion of a cell or battery, seek medical assistance promptly	Not small battery.	N/A
9	**MARKING**		P
9.1	**Cell marking**	Approved cell used.	N/A
	Cells are marked as specified in IEC 61960, except coin cells	Approved cell used.	N/A
	Coin cells whose external surface area is too small to accommodate the markings on the cells show the designation and polarity	Approved cell used.	N/A
	By agreement between the cell manufacturer and the battery and/or end product manufacturer, component cells used in the manufacture of a battery need not be marked	Approved cell used.	N/A
9.2	**Battery marking**	See marking plate on page 5	P
	Batteries are marked as specified in IEC 61960, except for coin batteries	See marking plate on page 5	N/A
	Coin batteries whose external surface area is too small to accommodate the markings on the batteries show the designation and polarity	Not coin batteries.	N/A
	Batteries are marked with an appropriate caution statement	See marking plate on page 5	P
	- Terminals have clear polarity marking on the external surface of the battery, or	See marking plate on page 5	N/A
	- Not be marked with polarity markings if the design of the external connector prevents reverse polarity connections	See marking plate on page 5	P
9.3	**Caution for ingestion of small cells and batteries**	Not coin batteries.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Coin cells and batteries identified as small batteries include a caution statement regarding the hazards of ingestion in accordance with 8.2	Information for safety mentioned on equipment's package.	N/A
	Small cells and batteries are intended for direct sale in consumer-replaceable applications, caution for ingestion is given on the immediate package	Not small battery.	N/A
9.4	**Other information**	See the instructions	P
	The following information are marked on or supplied with the battery:	See the instructions	P
	- Storage and disposal instructions	See the instructions	P
	- Recommended charging instructions	See the instructions	P
10	**PACKAGING AND TRANSPORT**		N/A
	Packaging for coin cells are not be small enough to fit within the limits of the ingestion gauge of Figure 3	Not small battery.	N/A
ANNEX A	**CHARGING AND DISCHARGING RANGE OF SECONDARY LITHIUM ION CELLS FOR SAFE USE**		N/A
A.1	**General**	Approved cell used.	N/A
A.2	**Safety of lithium ion secondary battery**	Approved cell used.	N/A
A.3	**Consideration on charging voltage**	Approved cell used.	N/A
A.3.1	General	Approved cell used.	N/A
A.3.2	Upper limit charging voltage	Approved cell used.	N/A
A.3.2.1	General	Approved cell used.	N/A
A.3.2.2	Explanation of safety viewpoint	Approved cell used.	N/A
A.3.2.3	Safety requirements, when different upper limit charging voltage is applied	Approved cell used.	N/A
A.4	**Consideration of temperature and charging current**	Approved cell used.	N/A
A.4.1	General	Approved cell used.	N/A
A.4.2	Recommended temperature range	Approved cell used.	N/A
A.4.2.1	General	Approved cell used.	N/A
A.4.2.2	Safety consideration when a different recommended temperature range is applied	Approved cell used.	N/A
A.4.3	High temperature range	Approved cell used.	N/A
A.4.3.1	General	Approved cell used.	N/A
A.4.3.2	Explanation of safety viewpoint	Approved cell used.	N/A
A.4.3.3	Safety considerations when specifying charging conditions in the high temperature range	Approved cell used.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
A.4.3.4	Safety considerations when specifying a new upper limit in the high temperature range	Approved cell used.	N/A
A.4.4	Low temperature range	Approved cell used.	N/A
A.4.4.1	General	Approved cell used.	N/A
A.4.4.2	Explanation of safety viewpoint	Approved cell used.	N/A
A.4.4.3	Safety considerations, when specifying charging conditions in the low temperature range	Approved cell used.	N/A
A.4.4.4	Safety considerations when specifying a new lower limit in the low temperature range	Approved cell used.	N/A
A.4.5	Scope of the application of charging current	Approved cell used.	N/A
A.4.6	Consideration of discharge	Approved cell used.	N/A
A.4.6.1	General	Approved cell used.	N/A
A.4.6.2	Final discharge voltage and explanation of safety viewpoint	Approved cell used.	N/A
A.4.6.3	Discharge current and temperature range	Approved cell used.	N/A
A.4.6.4	Scope of application of the discharging current	Approved cell used.	N/A
A.5	**Sample preparation**	Approved cell used.	N/A
A.5.1	General	Approved cell used.	N/A
A.5.2	Insertion procedure for nickel particle to generate internal short	Approved cell used.	N/A
A.5.3	Disassembly of charged cell	Approved cell used.	N/A
A.5.4	Shape of nickel particle	Approved cell used.	N/A
A.5.5	Insertion of nickel particle in cylindrical cell	Approved cell used.	N/A
A.5.5.1	Insertion of nickel particle in winding core	Approved cell used.	N/A
A.5.5.2	Marking the position of the nickel particle on both ends of the winding core of the separator	Approved cell used.	N/A
A.5.6	Insertion of nickel particle in prismatic cell	Approved cell used.	N/A
A.6	**Experimental procedure of the forced internal short-circuit test**	Approved cell used.	N/A
A.6.1	Material and tools for preparation of nickel particle	Approved cell used.	N/A
A.6.2	Example of a nickel particle preparation procedure	Approved cell used.	N/A
A.6.3	Positioning (or placement) of a nickel particle	Approved cell used.	N/A
A.6.4	Damaged separator precaution	Approved cell used.	N/A
A.6.5	Caution for rewinding separator and electrode	Approved cell used.	N/A
A.6.6	Insulation film for preventing short-circuit	Approved cell used.	N/A
A.6.7	Caution when disassembling a cell	Approved cell used.	N/A
A.6.8	Protective equipment for safety	Approved cell used.	N/A
A.6.9	Caution in the case of fire during disassembling	Approved cell used.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
A.6.10	Caution for the disassembling process and pressing the electrode core	Approved cell used.	N/A
A.6.11	Recommended specifications for the pressing device	Approved cell used.	N/A
ANNEX B	**RECOMMENDATIONS TO EQUIPMENT MANUFACTURERS AND BATTERY ASSEMBLERS**		P
ANNEX C	**RECOMMENDATIONS TO THE END-USERS**		P
ANNEX D	**MEASUREMENT OF THE INTERNAL AC RESISTANCE FOR COIN CELLS**		N/A
D.1	**General**	Non-button batteries	N/A
D.2	**Method**	Non-button batteries	N/A
	A sample size of three coin cells is required for this measurement	Non-button batteries	N/A
	Coin cells with an internal resistance greater than 3 Ω require no further testing .....:	(See appended table D.2)	N/A
	Coin cells with an internal resistance less than or equal to 3 Ω are subjected to the testing according to Clause 6 and Table 1	Non-button batteries	N/A
ANNEX E	**PACKAGING AND TRANSPORT**		N/A
ANNEX F	**COMPONENT STANDARDS REFERENCES**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

7.2.1	TABLE: Continuous charging at constant voltage (cells)			N/A
Sample No.	**Recommended charging voltage Vc (Vdc)**	**Recommended charging current I_{rec} (A)**	**OCV before test (Vdc)**	**Results**

Supplementary information:

- No fire or explosion
- No leakage
- Others (please explain)

7.3.1	TABLE: External short circuit (cell)				N/A
Sample No.	**Ambient (°C)**	**OCV at start of test (Vdc)**	**Resistance of circuit (mΩ)**	**Maximum case temperature rise ΔT (K)**	**Results**
Samples charged at charging temperature upper limit					
Samples charged at charging temperature lower limit					

Supplementary information:

- No fire or explosion
- Others (please explain)

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

7.3.2	TABLE: External short circuit (battery)					P
Sample No.	**Ambient T (°C)**	**OCV before test (Vdc)**	**Resistance of circuit (mΩ)**	**Maximum case temperature rise ΔT (K)**	**Component single fault condition**	**Results**
BL3500C18653S4PFS						
BL3500C18653S4PFS #327	21.1	12.30	80	1.5	F1	No fire or explosion
BL3500C18653S4PFS #328	21.1	12.30	80	1.4	Q3	No fire or explosion
BL3500C18653S4PFS #329	21.1	12.31	80	1.1	Q6	No fire or explosion
BL3500C18653S4PFS #330	21.1	12.29	80	1.1	--	No fire or explosion
BL3500C18653S4PFS #331	21.1	12.30	80	1.2	--	No fire or explosion
BL3500C18652S4PFT						
BL3500C18652S4PFT #184	21.2	8.18	80	1.2	F1	No fire or explosion
BL3500C18652S4PFT #185	21.2	8.18	80	1.4	Q3	No fire or explosion
BL3500C18652S4PFT #186	21.2	8.19	80	1.5	--	No fire or explosion
BL3500C18652S4PFT #187	21.2	8.18	80	1.1	--	No fire or explosion
BL3500C18652S4PFT #188	21.2	8.17	80	1.1	--	No fire or explosion
BL3500C18651S1PFT						
BL3500C18651S1PFT #004	21.6	4.11	80	27.7	Q1	No fire or explosion
BL3500C18651S1PFT #005	21.6	4.12	80	55.1	Q2	No fire or explosion
BL3500C18651S1PFT #006	21.6	4.13	80	3.1	--	No fire or explosion
BL3500C18651S1PFT #007	21.6	4.12	80	2.2	--	No fire or explosion
BL3500C18651S1PFT #008	21.6	4.12	80	1.9	--	No fire or explosion
BL3500C18654S4PFS						
BL3500C18654S4PFS #368	21.5	16.28	80	1.1	F1	No fire or explosion

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Clause	Requirement + Test			Result - Remark		Verdict
BL3500C1865 4S4PFS #369	21.5	16.21	80	1.2	Q3	No fire or explosion
BL3500C1865 4S4PFS #370	21.4	16.27	80	1.4	--	No fire or explosion
BL3500C1865 4S4PFS #371	21.5	16.21	80	1.2	--	No fire or explosion
BL3500C1865 4S4PFS #372	21.4	16.25	80	1.1	--	No fire or explosion
BL3500C18652S1PFT						
BL3500C1865 2S1PFT #132	22.1	8.19	80	1.2	F1	No fire or explosion
BL3500C1865 2S1PFT #133	22.1	8.20	80	1.1	Q3	No fire or explosion
BL3500C1865 2S1PFT #134	22.1	8.22	80	1.3	--	No fire or explosion
BL3500C1865 2S1PFT #135	22.1	8.21	80	1.3	--	No fire or explosion
BL3500C1865 2S1PFT #136	22.1	8.21	80	1.4	--	No fire or explosion
BL3500C18651S3PFT						
BL3500C1865 1S3PFT #041	22.1	4.12	80	15.7	Q1	No fire or explosion
BL3500C1865 1S3PFT #042	22.2	4.12	80	10.4	Q3	No fire or explosion
BL3500C1865 1S3PFT #043	22.2	4.13	80	1.2	--	No fire or explosion
BL3500C1865 1S3PFT #044	22.2	4.11	80	2.1	--	No fire or explosion
BL3500C1865 1S3PFT #045	22.1	4.12	80	1.4	--	No fire or explosion
BL3500C18652S4PFS						
BL3500C1865 2S4PFS #286	22.1	8.22	80	16.2	Q3	No fire or explosion
BL3500C1865 2S4PFS #287	22.1	8.22	80	18.3	F1	No fire or explosion
BL3500C1865 2S4PFS #288	22.2	8.23	80	1.2	--	No fire or explosion
BL3500C1865 2S4PFS #289	22.2	8.23	80	1.3	--	No fire or explosion
BL3500C1865 2S4PFS #290	22.1	8.21	80	2.1	--	No fire or explosion
BL3500C18653S1PFS						

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Clause	Requirement + Test			Result - Remark		Verdict
BL3500C18653S1PFS #317	21.4	12.33	80	1.9	F1	No fire or explosion
BL3500C18653S1PFS #318	21.5	12.33	80	2.1	Q3	No fire or explosion
BL3500C18653S1PFS #319	21.9	12.34	80	1.1	--	No fire or explosion
BL3500C18653S1PFS #320	21.6	12.34	80	1.3	--	No fire or explosion
BL3500C18653S1PFS #321	21.9	12.33	80	1.4	--	No fire or explosion
BL3500C18654S1PFS						
BL3500C18654S1PFS #358	21.9	16.43	80	2.1	F1	No fire or explosion
BL3500C18654S1PFS #359	21.7	16.44	80	3.2	Q3	No fire or explosion
BL3500C18654S1PFS #360	21.8	16.44	80	1.4	--	No fire or explosion
BL3500C18654S1PFS #361	21.8	16.44	80	1.9	--	No fire or explosion
BL3500C18654S1PFS #362	21.9	16.44	80	1.1	--	No fire or explosion
BL3500C18654S1PFT						
BL3500C18654S1PFT #235	22.4	16.43	80	2.1	F1	No fire or explosion
BL3500C18654S1PFT #236	22.1	16.43	80	2.3	Q3	No fire or explosion
BL3500C18654S1PFT #237	21.9	16.43	80	1.9	--	No fire or explosion
BL3500C18654S1PFT #238	22.4	16.43	80	2.0	--	No fire or explosion
BL3500C18654S1PFT #239	22.4	16.43	80	1.2	--	No fire or explosion
BL3500C18651S1PFS						
BL3500C18651S1PFS #072	21.4	4.14	80	7.8	Q1	No fire or explosion
BL3500C18651S1PFS #073	21.4	4.14	80	5.6	Q3	No fire or explosion
BL3500C18651S1PFS #074	21.4	4.14	80	1.3	--	No fire or explosion
BL3500C18651S1PFS #075	21.4	4.14	80	1.4	--	No fire or explosion
BL3500C1865	21.4	4.14	80	1.2	--	No fire or

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Clause	Requirement + Test	Result - Remark	Verdict

1S1PFS #076						explosion
BL3500C18652S1PFS						
BL3500C18652S1PFS #276	21.3	8.22	80	2.2	F1	No fire or explosion
BL3500C18652S1PFS #277	21.3	8.22	80	4.3	Q3	No fire or explosion
BL3500C18652S1PFS #278	21.3	8.22	80	1.9	--	No fire or explosion
BL3500C18652S1PFS #279	21.3	8.22	80	1.4	--	No fire or explosion
BL3500C18652S1PFS #280	21.3	8.22	80	1.4	--	No fire or explosion
BL3500C18653S1PFT						
BL3500C18653S1PFT #194	22.2	12.30	80	1.8	F1	No fire or explosion
BL3500C18653S1PFT #195	22.5	12.30	80	2.1	Q3	No fire or explosion
BL3500C18653S1PFT #196	22.3	12.29	80	1.1	--	No fire or explosion
BL3500C18653S1PFT #197	22.5	12.29	80	1.3	--	No fire or explosion
BL3500C18653S1PFT #198	22.6	12.30	80	1.4	--	No fire or explosion
BL3500C18651S4PFT						
BL3500C18651S4PFT #122	22.6	4.12	80	1.3	F1	No fire or explosion
BL3500C18651S4PFT #123	22.6	4.12	80	1.4	Q3	No fire or explosion
BL3500C18651S4PFT #124	22.6	4.12	80	1.1	--	No fire or explosion
BL3500C18651S4PFT #125	22.6	4.11	80	1.3	--	No fire or explosion
BL3500C18651S4PFT #126	22.6	4.12	80	1.3	--	No fire or explosion
BL3500C18654S4PFT						
BL3500C18654S4PFT #245	21.4	16.45	80	2.1	F1	No fire or explosion
BL3500C18654S4PFT #246	21.4	16.45	80	3.7	Q3	No fire or explosion
BL3500C18654S4PFT #247	21.4	16.45	80	2.6	Q7	No fire or explosion
BL3500C1865	21.5	16.46	80	1.9	--	No fire or

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Clause	Requirement + Test	Result - Remark	Verdict

4S4PFT #248						explosion
BL3500C1865 4S4PFT #249	21.4	16.45	80	2.0	--	No fire or explosion
BL3500C18651S4PFS						
BL3500C1865 1S4PFS #091	21.4	4.11	80	2.1	Q1	No fire or explosion
BL3500C1865 1S4PFS #092	21.3	4.11	80	2.6	Q3	No fire or explosion
BL3500C1865 1S4PFS #093	21.5	4.12	80	1.9	--	No fire or explosion
BL3500C1865 1S4PFS #094	21.4	4.11	80	2.0	--	No fire or explosion
BL3500C1865 1S4PFS #095	21.4	4.11	80	2.1	--	No fire or explosion
BL3500C18653S4PFT						
BL3500C1865 3S4PFT #225	21.2	12.35	80	0.7	F1	No fire or explosion
BL3500C1865 3S4PFT #226	21.2	12.35	80	1.1	Q3	No fire or explosion
BL3500C1865 3S4PFT #227	21.2	12.34	80	0.8	--	No fire or explosion
BL3500C1865 3S4PFT #228	21.2	12.34	80	1.0	--	No fire or explosion
BL3500C1865 3S4PFT #229	21.2	12.34	80	0.8	--	No fire or explosion

Supplementary information: The batteries remain on test for 24 h.

- No fire or explosion
- Others (please explain)

7.3.5	**TABLE: Crush (cells)**	N/A

Sample No.	OCV before test (Vdc)	OCV at removal of crushing force (Vdc)	Maximum force applied to the cell during crush (kN)	Results
Samples charged at charging temperature upper limit				
Samples charged at charging temperature lower limit				

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

- No fire or explosion
- Others (please explain)

7.3.6	TABLE: Over-charging of battery- BL3500C18653S4PFT			P
Constant charging current (A) .....:		**24.8**		—
Supply voltage (Vdc) .....:		**15.3**		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18653S 4PFT #230	9.48	60	22.4	No fire or explosion
BL3500C18653S 4PFT #231	9.48	60	22.3	No fire or explosion
BL3500C18653S 4PFT #232	9.49	60	22.4	No fire or explosion
BL3500C18653S 4PFT #233	9.49	60	21.9	No fire or explosion
BL3500C18653S 4PFT #234	9.48	60	22.2	No fire or explosion

Supplementary information: The temperature of the outer case reached steady state conditions.

- No fire or explosion
- Others (please explain)：Charging current turned to be 0 A in 1 min

7.3.6	TABLE: Over-charging of battery- BL3500C18651S4PFS			P
Constant charging current (A) .....:		**24.8**		—
Supply voltage (Vdc) .....:		**5.95**		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18651S 4PFS #099	3.31	60	22.8	No fire or explosion
BL3500C18651S 4PFS #100	3.32	60	22.9	No fire or explosion
BL3500C18651S 4PFS #101	3.31	60	22.7	No fire or explosion
BL3500C18651S 4PFS #102	3.33	60	22.9	No fire or explosion

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Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18651S 4PFS #103	3.32	60	23.2	No fire or explosion

Supplementary information: The temperature of the outer case reached steady state conditions.

- No fire or explosion

- Others (please explain)：Charging current turned to be 0 A in 1 min

7.3.6	**TABLE: Over-charging of battery- BL3500C18654S4PFT**			P
Constant charging current (A) .....:		**24.8**		—
Supply voltage (Vdc) .....:		**20.4**		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18654S 4PFT #253	12.91	60	22.5	No fire or explosion
BL3500C18654S 4PFT #254	12.93	60	22.6	No fire or explosion
BL3500C18654S 4PFT #255	12.94	60	22.7	No fire or explosion
BL3500C18654S 4PFT #256	12.96	60	22.9	No fire or explosion
BL3500C18654S 4PFT #257	12.91	60	23.1	No fire or explosion

Supplementary information: The temperature of the outer case reached steady state conditions.

- No fire or explosion

- Others (please explain)：Charging current turned to be 0 A in 1 min

7.3.6	**TABLE: Over-charging of battery- BL3500C18651S4PFT**			P
Constant charging current (A) .....:		**24.8**		—
Supply voltage (Vdc) .....:		**5.95**		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18651S 4PFT #127	3.19	60	22.9	No fire or explosion
BL3500C18651S 4PFT #128	3.20	60	22.5	No fire or explosion
BL3500C18651S 4PFT #129	3.23	60	22.2	No fire or explosion
BL3500C18651S 4PFT #130	3.25	60	22.1	No fire or explosion
BL3500C18651S 4PFT #131	3.22	60	22.2	No fire or explosion

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information: The temperature of the outer case reached steady state conditions.
- No fire or explosion
- Others (please explain)：Charging current turned to be 0 A in 1 min

7.3.6	TABLE: Over-charging of battery- BL3500C18653S1PFT			P
Constant charging current (A) .....:		**6.2**		—
Supply voltage (Vdc) .....:		**15.3**		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18653S 1PFT #199	9.61	60	25.9	No fire or explosion
BL3500C18653S 1PFT #200	9.61	60	25.5	No fire or explosion
BL3500C18653S 1PFT #201	9.63	60	25.2	No fire or explosion
BL3500C18653S 1PFT #202	9.63	60	24.9	No fire or explosion
BL3500C18653S 1PFT #203	9.61	60	25.2	No fire or explosion

Supplementary information: The temperature of the outer case reached steady state conditions.
- No fire or explosion
- Others (please explain)：Charging current turned to be 0 A in 1 min

7.3.6	TABLE: Over-charging of battery- BL3500C18652S1PFS			P
Constant charging current (A) .....:		**6.2**		—
Supply voltage (Vdc) .....:		**10.2**		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18652S 1PFS #281	6.43	60	22.9	No fire or explosion
BL3500C18652S 1PFS #282	6.42	60	23.1	No fire or explosion
BL3500C18652S 1PFS #283	6.41	60	23.1	No fire or explosion
BL3500C18652S 1PFS #284	6.42	60	22.6	No fire or explosion
BL3500C18652S 1PFS #285	6.43	60	22.5	No fire or explosion

Supplementary information: The temperature of the outer case reached steady state conditions.
- No fire or explosion
- Others (please explain)：Charging current turned to be 0 A in 1 min

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Clause	Requirement + Test	Result - Remark	Verdict

7.3.6	TABLE: Over-charging of battery- BL3500C18651S1PFS			P
Constant charging current (A) .....:		6.2		—
Supply voltage (Vdc) .....:		5.95		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18651S 1PFS #077	3.25	60	22.5	No fire or explosion
BL3500C18651S 1PFS #078	3.26	60	23.3	No fire or explosion
BL3500C18651S 1PFS #079	3.27	60	23.1	No fire or explosion
BL3500C18651S 1PFS #080	3.25	60	22.9	No fire or explosion
BL3500C18651S 1PFS #081	3.23	60	23.1	No fire or explosion
Supplementary information: The temperature of the outer case reached steady state conditions. - No fire or explosion - Others (please explain)：Charging current turned to be 0 A in 1 min				

7.3.6	TABLE: Over-charging of battery- BL3500C18654S1PFT			P
Constant charging current (A) .....:		6.2		—
Supply voltage (Vdc) .....:		20.4		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18654S 1PFT #240	13.19	60	27.4	No fire or explosion
BL3500C18654S 1PFT #241	13.18	60	26.3	No fire or explosion
BL3500C18654S 1PFT #242	13.21	60	27.1	No fire or explosion
BL3500C18654S 1PFT #243	13.21	60	28.5	No fire or explosion
BL3500C18654S 1PFT #244	13.21	60	26.1	No fire or explosion
Supplementary information: The temperature of the outer case reached steady state conditions. - No fire or explosion - Others (please explain)：Charging current turned to be 0 A in 4 min				

7.3.6	TABLE: Over-charging of battery- BL3500C18653S1PFS		P
Constant charging current (A) .....:		6.2	—

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Clause	Requirement + Test	Result - Remark	Verdict

Supply voltage (Vdc) .....:		**15.3**		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18653S 1PFS #322	9.67	60	22.9	No fire or explosion
BL3500C18653S 1PFS #323	9.69	60	22.3	No fire or explosion
BL3500C18653S 1PFS #324	9.67	60	22.9	No fire or explosion
BL3500C18653S 1PFS #325	9.69	60	22.5	No fire or explosion
BL3500C18653S 1PFS #326	9.67	60	22.1	No fire or explosion
Supplementary information: The temperature of the outer case reached steady state conditions. - No fire or explosion - Others (please explain)：Charging current turned to be 0 A in 1 min				

7.3.6	**TABLE: Over-charging of battery- BL3500C18652S4PFS**			P
Constant charging current (A) .....:		**24.8**		—
Supply voltage (Vdc) .....:		**10.2**		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18652S 4PFS #294	6.48	60	22.4	No fire or explosion
BL3500C18652S 4PFS #295	6.47	60	22.1	No fire or explosion
BL3500C18652S 4PFS #296	6.48	60	21.8	No fire or explosion
BL3500C18652S 4PFS #297	6.47	60	22.5	No fire or explosion
BL3500C18652S 4PFS #298	6.47	60	22.9	No fire or explosion
Supplementary information: The temperature of the outer case reached steady state conditions. - No fire or explosion - Others (please explain)：Charging current turned to be 0 A in 1 min				

7.3.6	**TABLE: Over-charging of battery- BL3500C18654S1PFS**			P
Constant charging current (A) .....:		**6.2**		—
Supply voltage (Vdc) .....:		**20.4**		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**

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Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18654S1PFS #363	13.21	60	21.9	No fire or explosion
BL3500C18654S1PFS #364	13.18	60	22.1	No fire or explosion
BL3500C18654S1PFS #365	13.19	60	22.4	No fire or explosion
BL3500C18654S1PFS #366	13.21	60	22.3	No fire or explosion
BL3500C18654S1PFS #367	13.20	60	22.9	No fire or explosion

Supplementary information: The temperature of the outer case reached steady state conditions.

- No fire or explosion

- Others (please explain)：Charging current turned to be 0 A in 1 min

7.3.6	**TABLE: Over-charging of battery- BL3500C18651S3PFT**			P
Constant charging current (A) .....:		**18.6**		—
Supply voltage (Vdc) .....:		**5.95**		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18651S3PFT #049	3.23	60	22.1	No fire or explosion
BL3500C18651S3PFT #050	3.23	60	22.3	No fire or explosion
BL3500C18651S3PFT #051	3.24	60	21.9	No fire or explosion
BL3500C18651S3PFT #052	3.27	60	22.3	No fire or explosion
BL3500C18651S3PFT #053	3.23	60	22.5	No fire or explosion

Supplementary information: The temperature of the outer case reached steady state conditions.

- No fire or explosion

- Others (please explain)：Charging current turned to be 0 A in 1 min

7.3.6	**TABLE: Over-charging of battery- BL3500C18652S1PFT**			P
Constant charging current (A) .....:		**6.2**		—
Supply voltage (Vdc) .....:		**10.2**		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18652S1PFT #140	6.46	60	22.1	No fire or explosion
BL3500C18652S	6.45	60	22.1	No fire or

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Clause	Requirement + Test	Result - Remark	Verdict

1PFT #141				explosion
BL3500C18652S 1PFT #142	6.50	60	22.3	No fire or explosion
BL3500C18652S 1PFT #143	6.48	60	22.8	No fire or explosion
BL3500C18652S 1PFT #144	6.49	60	22.1	No fire or explosion

Supplementary information: The temperature of the outer case reached steady state conditions.

- No fire or explosion
- Others (please explain)：Charging current turned to be 0 A in 1 min

7.3.6	**TABLE: Over-charging of battery- BL3500C18654S4PFS**			P
Constant charging current (A) .....:	**24.8**			—
Supply voltage (Vdc) .....:	**20.4**			—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18654S4PFS #373	12.80	60	22.6	No fire or explosion
BL3500C18654S4PFS #374	12.89	60	22.1	No fire or explosion
BL3500C18654S4PFS #375	12.92	60	22.5	No fire or explosion
BL3500C18654S4PFS #376	12.97	60	22.6	No fire or explosion
BL3500C18654S4PFS #377	12.86	60	22.1	No fire or explosion

Supplementary information: The temperature of the outer case reached steady state conditions.

- No fire or explosion
- Others (please explain)：Charging current turned to be 0 A in 1 min

7.3.6	**TABLE: Over-charging of battery- BL3500C18651S1PFT**			P
Constant charging current (A) .....:	**6.2**			—
Supply voltage (Vdc) .....:	**5.95**			—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18651S 1PFT #012	3.24	60	65.8	No fire or explosion
BL3500C18651S 1PFT #013	3.23	60	73.9	No fire or explosion
BL3500C18651S 1PFT #014	3.23	60	77.8	No fire or explosion

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Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18651S 1PFT #015	3.24	60	69.7	No fire or explosion
BL3500C18651S 1PFT #016	3.22	60	61.3	No fire or explosion

Supplementary information: The temperature of the outer case reached steady state conditions.

- No fire or explosion

- Others (please explain)：Charging current turned to be 0 A in 30min

7.3.6	**TABLE: Over-charging of battery- BL3500C18652S4PFT**			P
Constant charging current (A) .....:		**24.8**		—
Supply voltage (Vdc) .....:		**10.2**		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18652S 4PFT #189	6.56	60	22.2	No fire or explosion
BL3500C18652S 4PFT #190	6.56	60	21.9	No fire or explosion
BL3500C18652S 4PFT #191	6.57	60	22.4	No fire or explosion
BL3500C18652S 4PFT #192	6.54	60	22.7	No fire or explosion
BL3500C18652S 4PFT #193	6.55	60	22.5	No fire or explosion

Supplementary information: The temperature of the outer case reached steady state conditions.

- No fire or explosion

- Others (please explain)：Charging current turned to be 0 A in 1 min

7.3.6	**TABLE: Over-charging of battery- BL3500C18653S4PFS**			P
Constant charging current (A) .....:		**24.8**		—
Supply voltage (Vdc) .....:		**15.3**		—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**
BL3500C18653S 4PFS #332	9.65	60	21.1	No fire or explosion
BL3500C18653S 4PFS #333	9.65	60	21.5	No fire or explosion
BL3500C18653S 4PFS #334	9.65	60	21.7	No fire or explosion
BL3500C18653S 4PFS #335	9.66	60	21.5	No fire or explosion
BL3500C18653S	9.65	60	21.6	No fire or

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Clause	Requirement + Test	Result - Remark	Verdict

4PFS #336				explosion

Supplementary information: The temperature of the outer case reached steady state conditions.

- No fire or explosion
- Others (please explain)：Charging current turned to be 0 A in 1 min

7.3.7	TABLE: Forced discharge (cells)			N/A
Sample No.	**OCV before application of reverse charge (Vdc)**	**Measured reverse charge I_t (A)**	**Lower limit discharge voltage (Vdc)**	**Results**

Supplementary information:

- No fire or explosion
- Others (please explain)

7.3.8.1	TABLE: Vibration				P
Sample No.	**OCV before test (Vdc)**	**OCV after test (Vdc)**	**Mass before test (g)**	**Mass after test (g)**	**Results**
BL3500C18651 S1PFT #017	4.13	4.13	58.9	58.5	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #018	4.12	4.12	59.1	59.1	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #019	4.13	4.13	59.1	59.0	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S3PFT #054	4.12	4.12	155.2	154.7	No fire or explosion. No rupture or leakage. No venting.

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Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18651 S3PFT #055	4.12	4.11	155.2	155.1	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S3PFT #056	4.12	4.12	155.2	155.2	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S1PFT #145	8.24	8.24	112.5	112.5	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S1PFT #146	8.23	8.23	112.5	112.4	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S1PFT #147	8.24	8.24	112.3	112.3	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S3PFT #207	12.31	12.31	455.3	455.3	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S3PFT #208	12.32	12.31	455.3	455.3	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S3PFT #209	12.32	12.31	455.3	455.3	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S4PFS #340	12.30	12.30	455.3	455.3	No fire or explosion. No rupture or leakage. No venting.

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Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18653 S4PFS #341	12.30	12.30	455.1	455.1	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S4PFS #342	12.30	12.30	455.3	455.3	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S4PFS #299	8.22	8.22	403.4	403.4	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S4PFS #300	8.23	8.23	403.4	402.2	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S4PFS #301	8.22	8.22	402.9	402.9	No fire or explosion. No rupture or leakage. No venting.
BL3500C18654 S4PFT #258	16.45	16.45	786.1	786.0	No fire or explosion. No rupture or leakage. No venting.
BL3500C18654 S4PFT #259	16.45	16.44	788.8	788.4	No fire or explosion. No rupture or leakage. No venting.
BL3500C18654 S4PFT #260	16.45	16.45	786.2	786.1	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S4PFS #104	4.12	4.12	203.0	203.0	No fire or explosion. No rupture or leakage. No venting.

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Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18651 S4PFS #105	4.12	4.12	202.9	202.8	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S4PFS #106	4.12	4.12	203.1	203.0	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S3PFT #166	8.25	8.25	310.2	310.2	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S3PFT #167	8.25	8.25	309.9	309.9	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S3PFT #168	8.25	8.25	310.1	309.5	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #026(battery with case)	4.10	4.10	180	180	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #027(battery with case)	4.11	4.10	182	181	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #028(battery with case)	4.11	4.11	182	180	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #035(Add button modes upper and lower ends)	4.11	4.11	57.8	57.8	No fire or explosion. No rupture or leakage. No venting.

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Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18651 S1PFT #036(Add button modes upper and lower ends)	4.10	4.10	57.8	57.6	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #037(Add button modes upper and lower ends)	4.10	4.10	57.6	57.6	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S3PFT #066 (battery with case)	4.10	4.10	424.3	420.9	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S3PFT #067(battery with case)	4.11	4.10	436.1	435.7	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S3PFT #068 (battery with case)	4.11	4.10	437.2	436.4	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFS #085(Add button modes upper and lower ends)	4.11	4.10	57.6	57.6	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFS #086(Add button modes upper and lower ends)	4.11	4.10	57.7	57.6	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFS #087(Add button modes upper and lower ends)	4.11	4.10	57.6	57.6	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S4PFS #116 (battery with case)	4.10	4.10	478	476	No fire or explosion. No rupture or leakage. No venting.

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Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18651 S4PFS #117 (battery with case)	4.09	4.09	474	474	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S4PFS #118 (battery with case)	4.11	4.10	478	476	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S1PFT #157 (battery with case)	8.19	8.19	231.1	231.1	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S1PFT #158 (battery with case)	8.19	8.19	231.1	230.8	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S1PFT #159 (battery with case)	8.19	8.19	232.1	231.6	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S3PFT #178 (battery with case)	8.21	8.19	740	740	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S3PFT #179 (battery with case)	8.22	8.18	738	738	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S3PFT #180 (battery with case)	8.23	8.19	742	741	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S3PFT #219(battery with case)	12.31	12.31	782	782	No fire or explosion. No rupture or leakage. No venting.

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Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18653 S3PFT #220(battery with case)	12.30	12.30	780	780	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S3PFT #221(battery with case)	12.21	12.10	782	782	No fire or explosion. No rupture or leakage. No venting.
BL3500C18654 S4PFT #270 (battery with case)	16.43	16.43	1201	1200	No fire or explosion. No rupture or leakage. No venting.
BL3500C18654 S4PFT #271 (battery with case)	16.43	16.42	1202	1198	No fire or explosion. No rupture or leakage. No venting.
BL3500C18654 S4PFT #272 (battery with case)	16.41	16.41	1200	1199	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S4PFS #311 (battery with case)	8.22	8.22	816	816	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S4PFS #312 (battery with case)	8.22	8.21	816	816	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S4PFS #313(battery with case)	8.20	8.20	816	816	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S4PFS #352(battery with case)	12.33	12.33	1190	1190	No fire or explosion. No rupture or leakage. No venting.

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Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18653 S4PFS #353(battery with case)	12.20	12.20	1196	1196	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S4PFS #354(battery with case)	12.19	12.19	1190	1190	No fire or explosion. No rupture or leakage. No venting.

Supplementary information:

- No fire or explosion
- No rupture
- No leakage
- No venting
- Others (please explain)

7.3.8.2	TABLE: Mechanical shock				P
Sample No.	**OCV before test (Vdc)**	**OCV after test (Vdc)**	**Mass before test (g)**	**Mass after test (g)**	**Results**
BL3500C18651 S1PFT #020	4.13	4.13	58.9	58.5	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #021	4.12	4.12	59.1	59.1	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #022	4.13	4.13	59.1	59.0	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S3PFT #057	4.12	4.12	155.2	154.8	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S3PFT #058	4.12	4.11	155.2	154.9	No fire or explosion. No rupture or leakage. No venting.

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Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18651 S3PFT #059	4.12	4.12	155.2	155.1	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S1PFT #148	8.24	8.24	112.5	112.4	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S1PFT #149	8.23	8.23	112.5	112.4	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S1PFT #150	8.24	8.24	112.3	112.3	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S3PFT #210	12.31	12.31	455.3	455.3	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S3PFT #211	12.32	12.31	455.3	455.3	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S3PFT #213	12.32	12.31	455.3	455.3	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S4PFS #343	12.30	12.30	455.3	455.3	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S4PFS #344	12.31	12.31	455.1	455.1	No fire or explosion. No rupture or leakage. No venting.

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Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18653 S4PFS #345	12.30	12.30	455.3	455.3	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S4PFS #302	8.23	8.22	402.6	402.6	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S4PFS #303	8.23	8.23	403.4	403.4	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S4PFS #304	8.22	8.22	402.9	402.9	No fire or explosion. No rupture or leakage. No venting.
BL3500C18654 S4PFT #261	16.45	16.45	786.1	786.0	No fire or explosion. No rupture or leakage. No venting.
BL3500C18654 S4PFT #262	16.45	16.44	788.8	788.4	No fire or explosion. No rupture or leakage. No venting.
BL3500C18654 S4PFT #263	16.45	16.45	786.2	786.1	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S4PFS #107	4.12	4.12	203.0	203.0	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S4PFS #108	4.12	4.11	202.9	202.8	No fire or explosion. No rupture or leakage. No venting.

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Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18651 S4PFS #109	4.12	4.12	203.0	203.0	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S3PFT #169	8.25	8.25	309.9	309.4	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S3PFT #170	8.25	8.24	309.9	309.9	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S3PFT #171	8.25	8.25	310.1	310.1	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #029(battery with case)	4.11	4.11	181	180	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #030(battery with case)	4.11	4.10	181	181	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #031(battery with case)	4.11	4.11	182	181	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S3PFT #069 (battery with case)	4.10	4.10	426	420	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S3PFT #070(battery with case)	4.10	4.10	435	435	No fire or explosion. No rupture or leakage. No venting.

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Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18651 S3PFT #071(battery with case)	4.11	4.10	437	436	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFS #088(Add button modes upper and lower ends)	4.11	4.10	57.6	57.6	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFS #089(Add button modes upper and lower ends)	4.11	4.10	57.8	57.6	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFS #090(Add button modes upper and lower ends)	4.11	4.10	57.7	57.5	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #038(Add button modes upper and lower ends)	4.11	4.11	57.8	57.8	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #039(Add button modes upper and lower ends)	4.10	4.10	57.8	57.6	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S1PFT #040(Add button modes upper and lower ends)	4.10	4.10	57.6	57.6	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S4PFS #119 (battery with case)	4.11	4.10	478	478	No fire or explosion. No rupture or leakage. No venting.
BL3500C18651 S4PFS #120 (battery with case)	4.09	4.09	476	476	No fire or explosion. No rupture or leakage. No venting.

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18651 S4PFS #121 (battery with case)	4.11	4.10	477	476	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S1PFT #160 (battery with case)	8.19	8.18	232.1	231.8	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S1PFT #161 (battery with case)	8.18	8.17	231.5	231.5	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S1PFT #162 (battery with case)	8.19	8.19	230.8	230.8	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S3PFT #181 (battery with case)	8.21	8.19	740	740	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S3PFT #182 (battery with case)	8.22	8.18	738	738	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S3PFT #183 (battery with case)	8.23	8.19	742	741	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S3PFT #222(battery with case)	12.30	12.30	781	781	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S3PFT #223(battery with case)	12.30	12.30	780	780	No fire or explosion. No rupture or leakage. No venting.

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18653 S3PFT #224(battery with case)	12.21	12.10	782	782	No fire or explosion. No rupture or leakage. No venting.
BL3500C18654 S4PFT #273 (battery with case)	16.40	16.40	1199	1198	No fire or explosion. No rupture or leakage. No venting.
BL3500C18654 S4PFT #274 (battery with case)	16.41	16.40	1201	1200	No fire or explosion. No rupture or leakage. No venting.
BL3500C18654 S4PFT #275 (battery with case)	16.42	16.40	1202	1202	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S4PFS #314(battery with case)	8.22	8.22	816	816	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S4PFS #315(battery with case)	8.22	8.21	816	816	No fire or explosion. No rupture or leakage. No venting.
BL3500C18652 S4PFS #316 (battery with case)	8.20	8.20	816	816	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S4PFS #355(battery with case)	12.33	12.33	1190	1190	No fire or explosion. No rupture or leakage. No venting.
BL3500C18653 S4PFS #356(battery with case)	12.20	12.20	1197	1196	No fire or explosion. No rupture or leakage. No venting.

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

BL3500C18653 S4PFS #357(battery with case)	12.19	12.19	1190	1190	No fire or explosion. No rupture or leakage. No venting.

Supplementary information:

- No fire or explosion
- No rupture
- No leakage
- No venting
- Others (please explain)

7.3.9	TABLE: Forced internal short circuit (cells)				N/A
Sample No.	**Chamber ambient T (°C)**	**OCV before test (Vdc)**	**Particle location [1)]**	**Maximum applied pressure (N)**	**Results**
Samples charged at charging temperature upper limit					
Samples charged at charging temperature lower limit					

Supplementary information:

[1)] Identify one of the following:

1: Nickel particle inserted between positive and negative (active material) coated area.

2: Nickel particle inserted between positive aluminium foil and negative active material coated area.

- No fire
- Others (please explain)

D.2	TABLE: Internal AC resistance for coin cells			
Sample no.	**Ambient T (°C)**	**Store time (h)**	**Resistance Rac (Ω)**	**Results [1)]**

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

[1)] Coin cells with an internal resistance less than or equal to 3 Ω, see test result on corresponding tables according to Clause 6 and Table 1.

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

	TABLE: Critical components information				P
Object / part No.	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Cell	LISHEN	LR1865HC	3.6 Vdc, Rated capacity: 3400 mAh, Nominal capacity: 3500 mAh	IEC 62133-2:2017, IEC 62133-2:2017/AMD1:2021	NL-88136
				UL 1642	UL MH27663
Plastic housing	SABICINNOVATIVEPLASTICS B V	945(GG)	Min. V-0, Min. 120°C, Min. 2.0mm thickness	UL 764	UL E45329
Alternative	SABIC JAPAN L L C	945(GG)	Min. V-0, Min. 120°C, Min. 2.0mm thickness	UL 764	UL E207780
Alternative	SABICINNOVATIVEPLASTICS B V	C2950	Min. V-0, Min. 105°C, Min. 1.5mm thickness	UL 764	UL E45329
Alternative	SABIC JAPAN L L C	C2950	Min. V-1, Min. 85°C, Min. 1.5mm thickness	UL 764	UL E207780
Wire	Suzhou Jiahuishu Electronic Co Ltd	1007	22AWG 300V 80℃	UL 758	UL E353532
Alternative	Interchangeable	Interchangeable	Min. 24AWG, 300V, 80°C	UL 758	UL approved
positve tip cap	Suzhou Industrial Park ZTNY New EnergyTechnologyCo,Ltd.	positve tip	diameter 4.8mm，height 2.25mm，	IEC 62133-2：2017/AMD1:2021	Tested with appliance
PCB1					
PCB	SHUANG MING INDUSTRY CO LTD	T005V0	V-0, 130 ºC	UL 796	UL E78017
Alternative	Interchangeable	Interchangeable	V-0, 130 ºC	UL 796	UL approved
Fuse(F1)	WAYON	S20059F-LP600F	6A/20V	IEC 62133-2：2017/AMD1:2021	Tested with appliance
IC(U1)	TEXAS INSTRUMENTS	BQ27742-G1	VvPWR:-0.3~20V TA: -40~85C	IEC 62133-2：2017/AMD1:2021	Tested with appliance

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

MOSFET (Q1,Q3)	NCEPOWER	NCE2010E	VDS:20V VGS:±12V ID:7A	IEC 62133-2：2017/AMD1:2021	Tested with appliance
PCB2					
PCB	SHUANG MING INDUSTRY CO LTD	T005V0	V-0, 130 ºC	UL 796	UL E78017
Alternative	Interchangeable	Interchangeable	V-0, 130 ºC	UL 796	UL approved
IC (U1)	SinoWealth	SH366002	Vcc：1.7~2V VBAT：2.5~5.5V	IEC 62133-2：2017/AMD1:2021	Tested with appliance
IC (U2)	HYCON	HY2113-FB2B	VDD-VSS：1.5~8V VDD-VCS：1.5~20V	IEC 62133-2：2017/AMD1:2021	Tested with appliance
IC (U3)	HYCON	HY2115-OB9D	VDSOP1：1.5~8V VDSOP2：1.5~20V	IEC 62133-2：2017/AMD1:2021	Tested with appliance
MOSFET (Q1,Q2,Q3，Q4)	NCEPOWER	NCE2010E	VDS:20V VGS:±12V ID:7A	IEC 62133-2：2017/AMD1:2021	Tested with appliance
PCB3					
PCB	Guangde Boya Xinxing Electronic Technology Co Ltd	BY-1	V-0, 130 ºC	UL 796	UL E475783
Alternative	Interchangeable	Interchangeable	V-0, 130 ºC	UL 796	UL approved
IC (U1)	TEXAS INSTRUMENTS	BQ40Z50-R2	Vcc：2.2~26V Topr：-40~85℃	IEC 62133-2：2017/AMD1:2021	Tested with appliance
IC (U2)	TEXAS INSTRUMENTS	BQ294702	Vcc：2.2~26V Topr：-40~85℃	IEC 62133-2：2017/AMD1:2021	Tested with appliance
Fuse(F1(for 1S4P))	WAYON	WPF12A1J	12A/3.0V-4.5V	IEC 62133-2：2017/AMD1:2021	Tested with appliance

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

Fuse (F1(for 2S (1-4)P))	Dexerials	SFJ-0812U	12A/4.0V-9.0V	IEC 62133-2：2017/AMD1:2021	Tested with appliance
Fuse (F1(for 3S (1-4)P))	Dexerials	SFJ-1212U	12A/7.4V-13.8V	IEC 62133-2：2017/AMD1:2021	Tested with appliance
Fuse F1((for 4S (1-4)P))	Dexerials	SFJ-1412U	12A/10.5V-19.6V	IEC 62133-2：2017/AMD1:2021	Tested with appliance
MOSFET (Q2,Q3，Q6,Q7 (for 1S4P&(2-4)S(2-4)P))	NCEPOWER	NCEP3065QU	65A 30V 2mΩ	IEC 62133-2：2017/AMD1:2021	Tested with appliance
MOSFET (Q2,Q3,(for (2-4)S1P))	NCEPOWER	NCEP3065QU	65A 30V 2mΩ	IEC 62133-2：2017/AMD1:2021	Tested with appliance
MOSFET (Q5)	vishay	SI1416EDH-T1-GE3	3.9A 30V 58mΩ	IEC 62133-2：2017/AMD1:2021	Tested with appliance
MOSFET (Q4)	PANJIT	2N7002K	300mA/60V	IEC 62133-2：2017/AMD1:2021	Tested with appliance
PCB4					
PCB	HUANG MING INDUSTRY CO LTD	T005V0	V-0, 130℃	UL 796	UL E78017
Alternative	Interchangeable	Interchangeable	V-0, 130 ºC	UL 796	UL approved
IC (U1)	SinoWealth	SH367202I/008IY-ACA00	VDD：2.5~30V ICC:7μA	IEC 62133-2：2017/AMD1:2021	Tested with appliance
IC (U2)	SinoWealth	SH366006	VDD:-0.3~7V VBAT：5~25V	IEC 62133-2：2017/AMD1:2021	Tested with appliance
Fuse(F1(for 2S (1-4)P))	Dexerials	SFJ-0812U	12A/4.0V-9.0V	IEC 62133-2：2017/AMD1:2021	Tested with appliance

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

Fuse(F1(for 3S (1-4)P)	Dexerials	SFJ-1212U	12A/7.4V-13.8V	IEC 62133-2：2017/AMD1:2021	Tested with appliance
Fuse(F1(for 4S (1-4)P))	Dexerials	SFJ-1412U	12A/10.5V-19.6V	IEC 62133-2：2017/AMD1:2021	Tested with appliance
MOSFET (Q2,Q3,Q5 ,Q6 (for(2-4)S(2-4)P))	NCEPOWER	NCEP3065QU	65A 30V 2mΩ	IEC 62133-2：2017/AMD1:2021	Tested with appliance
MOSFET (Q2,Q3，(for(2-4)S1P))	NCEPOWER	NCEP3065QU	65A 30V 2mΩ	IEC 62133-2：2017/AMD1:2021	Tested with appliance
MOSFET (Q4)	vishay	SI1416EDH-T1-GE3	3.9A 30V 58mΩ	IEC 62133-2：2017/AMD1:2021	Tested with appliance
MOSFET (Q1)	PANJIT	2N7002K	300mA/60V	IEC 62133-2：2017/AMD1:2021	Tested with appliance

Supplementary information:

[1)] Provided evidence ensures the agreed level of compliance. See OD-2039.

[2)] License available upon request.

Attachment I: (United States) NATIONAL DIFFERENCES

ATTACHMENT	
IEC 62133-2:2017/AMD1:2021 **(United States) NATIONAL DIFFERENCES** (Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications – Part 2: Lithium systems)	
Differences according to.....:	National standard ANSI/UL 62133-2-2024
TRF template used: .....:	IECEE OD-2020-F3:2025, Ed. 1.4
Attachment Form No.....:	US_ND_IEC62133_2C
Attachment Originator .....:	Eurofins Electrical and Electronic Testing NA, LLC
Master Attachment.....:	Dated 2026-07-08

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Clause	Requirement + Test	Result - Remark	Verdict
	National Differences		P
---	Foreword		P
	DV.1 DE Modification to add the following to the IEC Foreword: – The numbering system in the standard uses a space instead of a comma to indicate thousands and uses a comma instead of a period to indicate a decimal point. For example, 1 000 means 1,000 and 1,01 means 1.01.	In this report, point is used as the decimal separator	P
1	Scope		P
1DV.1 D1	Modification to add the following paragraph and note to Clause 1: This standard is not, by itself, generally suitable for the evaluation of the safety of end-products, as it lacks specific requirements regarding charging, the effect of normal loads, abnormal conditions that should be considered and the physical and electromagnetic stresses encountered in the anticipated environment of the end-product. NOTE Battery packs with additional features or circuitry, including integral circuitry that facilitates charging, are considered to be end-products.	Not the final product	P
2	Normative References	See below	P
2DV.2 D1	Modification to add the following to Clause 2: UL 94, Tests for Flammability of Plastic Materials for Parts in Devices and Appliances	The product meets the requirements	P
2DV.3 DC	Modification to add the following to Clause 2: UL 1642, Lithium Batteries	UL MH27663	P

<table>
<tr><th>Clause</th><th>Requirement + Test</th><th>Result - Remark</th><th>Verdict</th></tr>
<tr><td>5</td><td>General Safety Consideration</td><td></td><td>P</td></tr>
<tr><td>5.6</td><td>Assembly of cells into batteries</td><td></td><td>P</td></tr>
<tr><td>5.6.1DV D1</td><td>Modification to add the following to Clause 5.6.1:
For products where no end-product standard requirements exist, printed wiring boards and outer moulded battery cases shall be flammability rated a minimum of V-1 in accordance with UL 94.</td><td>The product meets the requirements</td><td>P</td></tr>
<tr><td>5.6.1DV.2 DC</td><td>Modification to add the following to Clause 5.6.1:
Batteries shall be constructed of:
a) Cells meeting the requirements of this standard; or
b) Cells in compliance with the requirements of UL 1642.</td><td>UL MH27663</td><td>P</td></tr>
<tr><td>9</td><td>Marking</td><td></td><td>P</td></tr>
<tr><td>9.2</td><td>Battery Marking</td><td></td><td>P</td></tr>
<tr><td>9.2DV.1 DR</td><td>Modification to add the following after the first paragraph of Clause 9.2:
A symbol may be used in place of the appropriate caution statement if the significance of the symbol is explained in the instructions</td><td>See marking plate on page 5</td><td>N/A</td></tr>
<tr><td>Annex F</td><td>Component Standards References</td><td></td><td>P</td></tr>
<tr><td>Annex DVF DC</td><td>Modification of Annex F to add Clause DVF.1 and replace Table F.1 with
Table DVF.1 and make Annex F (normative):</td><td>See Critical components information</td><td>P</td></tr>
<tr><td>DVF.1</td><td>The following North American standards in Table DVF.1 replace the referenced IEC standards where applicable and provide additional requirements. For undated references, the latest edition of the referenced document (including any amendments) applies.</td><td>See Critical components information</td><td>P</td></tr>
<tr><td>Table DVF.1</td><td>Table DVF.1
Component standards cross reference
<table>
<tr><th rowspan="2">Component</th><th rowspan="2">IEC standard reference</th><th colspan="2">Standards Cross Reference</th></tr>
<tr><th>Canada</th><th>United States</th></tr>
<tr><td>Fuse</td><td>IEC 60127 (all parts), Miniature fuses</td><td>CAN/CSA C22.2 No. 248-1, Low-Voltage Fuses – Part 1, General Requirements
CAN/CSA C22.2 No. 248.14, Low-Voltage Fuses – Part 14: Supplemental Fuses</td><td>UL 248-1, Low-Voltage Fuses – Part 1, General Requirements
UL 248-14 Low-Voltage Fuses – Part 14: Supplemental Fuses</td></tr>
<tr><td>PTC device</td><td>IEC 60738-1, Thermistors – Directly heated positive temperature coefficient – Part 1: Generic specification</td><td>CAN/CSA-E60730-1, Automatic Electrical Controls – Part 1: General Requirements</td><td>UL 1434, Thermistor-Type Devices; or
UL 60730-1, Automatic Electrical Controls – Part 1: General Requirements</td></tr>
<tr><td>Thermal link</td><td>IEC 60691, Thermal-links – Requirements and application guide</td><td>CSA C22.2 No. 60691, Thermal-Links – Requirements and Application Guide</td><td>UL 60691, Thermal Links – Requirements and Application Guide</td></tr>
</table></td><td>See Critical components information</td><td>P</td></tr>
</table>

Attachment II: CANADA NATIONAL DIFFERENCES

ATTACHMENT	
IEC 62133-2:2017, IEC 62133-2:2017/AMD1:2021 **CANADA NATIONAL DIFFERENCES** Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications – Part 2: Lithium systems	
Differences according to.....:	CSA C22.2 NO. 62133-2:20 AMD 1
TRF template used: .....:	IECEE OD-2020-F3:2025, Ed. 1.4
Attachment Form No.....:	CA_ND_IEC62133_2_2017_AMD1_2021C
Attachment Originator .....:	CSA Group
Master Attachment.....:	2026-07-21

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Clause	Requirement + Test	Result - Remark	Verdict
	National Differences		P
---	Foreword		P
DV.1 DE	Modification to add the following to the IEC Foreword: – The numbering system in the standard uses a space instead of a comma to indicate thousands and uses a comma instead of a period to indicate a decimal point. For example, 1 000 means 1,000 and 1,01 means 1.01.	In this report, point is used as the decimal separator	P
1	Scope		P
1DV.1 D1	Modification to add the following paragraph and note to Clause 1: This standard is not, by itself, generally suitable for the evaluation of the safety of end-products, as it lacks specific requirements regarding charging, the effect of normal loads, abnormal conditions that should be considered and the physical and electromagnetic stresses encountered in the anticipated environment of the end-product. NOTE Battery packs with additional features or circuitry, including integral circuitry that facilitates charging, are considered to be end-products.	The product meets the requirements	P
1DV.2 DR	Modification to add the following paragraph to Clause 1 (Canada only): This standard deals with the covered components used in accordance with CAN/CSA-C22.2 No. 0.	The product meets the requirements	P
2	Normative References		P

2DV.1 DR	Modification to add the following to Clause 2 (Canada only): CAN/CSA-C22.2 No. 0 - General Requirements – Canadian Electrical Code, Part II	The product meets the requirements	P
2DV.2 D1	Modification to add the following to Clause 2: CAN/CSA-C22.2 No. 0.17 - Evaluation of Properties of Polymeric Materials UL 94, Tests for Flammability of Plastic Materials for Parts in Devices and Appliances	The product meets the requirements	P
2DV.3 DC	Modification to add the following to Clause 2 (US only): UL 1642, Lithium Batteries	UL MH6091	P
5	General Safety Consideration		P
5.6	Assembly of cells into batteries		P
5.6.1DV D1	Modification to add the following to Clause 5.6.1: For products where no end-product standard requirements exist, printed wiring boards and outer moulded battery cases shall be flammability rated a minimum of V-1 in accordance with CAN/CSA-C22.2 No. 0.17 or UL 94.	The product meets the requirements	P
5.6.1DV.2 DC	Modification to add the following to Clause 5.6.1 (US only): Batteries shall be constructed of: c) Cells meeting the requirements of this standard; or d) Cells in compliance with the requirements of UL 1642.	UL MH6091	P
9	Marking		P
9.2	Battery Marking		P
9.2DV.1 DR	Modification to add the following after the first paragraph of Clause 9.2: A symbol may be used in place of the appropriate caution statement if the significance of the symbol is explained in the instructions	See marking plate on page 5	N/A
9.2DV.2 DR	Modification to add the following after Clause 9.2DV.1 (Canada only): If the appropriate caution statement is provided in text, it shall be in both English and French.	See marking plate on page 5	P
Annex F	Component Standards References		P
Annex DVF DC	Modification of Annex F to add Clause DVF.1 and replace Table F.1 with Table DVF.1 and make Annex F (normative):	See Critical components information	P
DVF.1	The following North American standards in Table DVF.1 replace the referenced IEC standards where applicable and provide additional requirements. For undated references, the latest edition of the referenced document (including any amendments) applies.	See Critical components information	P

<table>
<tr>
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<td>
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Component standards cross reference
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CAN/CSA C22.2 No. 248.14, Low-Voltage Fuses – Part 14: Supplemental Fuses</td><td>UL 248-1, Low-Voltage Fuses – Part 1, General Requirements
UL 248-14 Low-Voltage Fuses – Part 14: Supplemental Fuses</td></tr>
<tr><td>PTC device</td><td>IEC 60738-1, Thermistors – Directly heated positive temperature coefficient – Part 1: Generic specification</td><td>CAN/CSA-E60730-1, Automatic Electrical Controls – Part 1: General Requirements</td><td>UL 1434, Thermistor-Type Devices; or
UL 60730-1, Automatic Electrical Controls – Part 1: General Requirements</td></tr>
<tr><td>Thermal link</td><td>IEC 60691, Thermal-links – Requirements and application guide</td><td>CSA C22.2 No. 60691, Thermal-Links – Requirements and Application Guide</td><td>UL 60691, Thermal Links – Requirements and Application Guide</td></tr>
<tr><td>FET</td><td>IEC 60747-8, Semiconductor devices – Discrete devices – Part 8: Field-effect transistors</td><td>–</td><td>–</td></tr>
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Attachment II: Photos

Photo 1

Battery view-BL3500C18651S1PFT

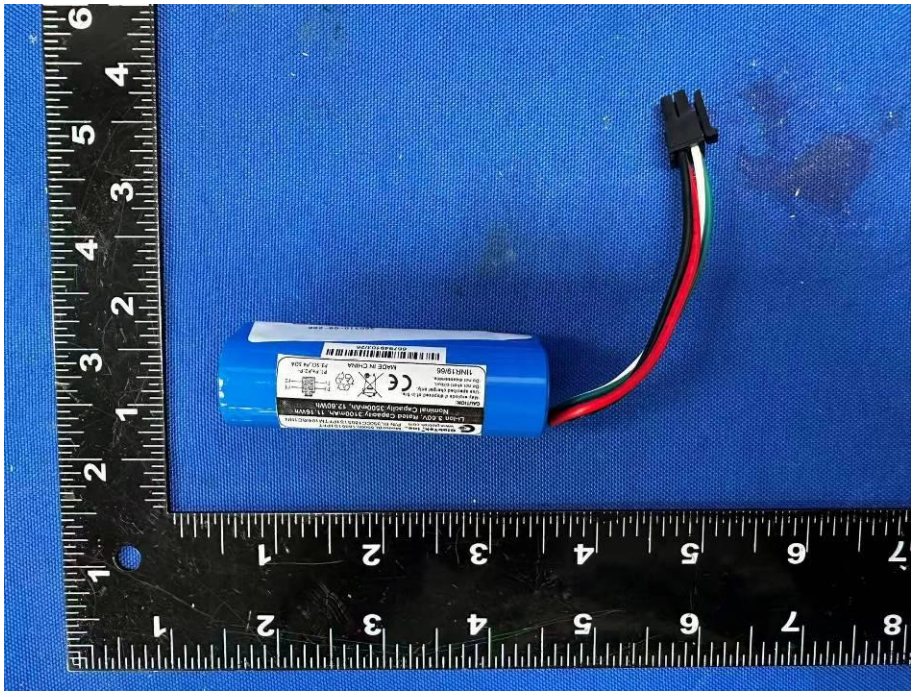


Photo 2

Battery view- BL3500C18651S1PFT

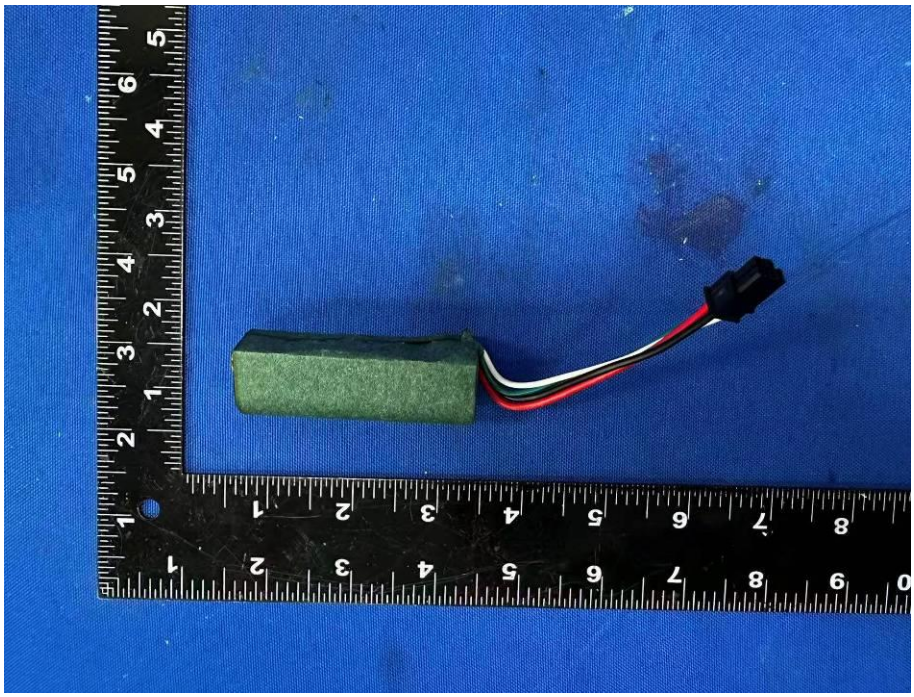


Photo 3
Battery view- BL3500C18651S3PFT

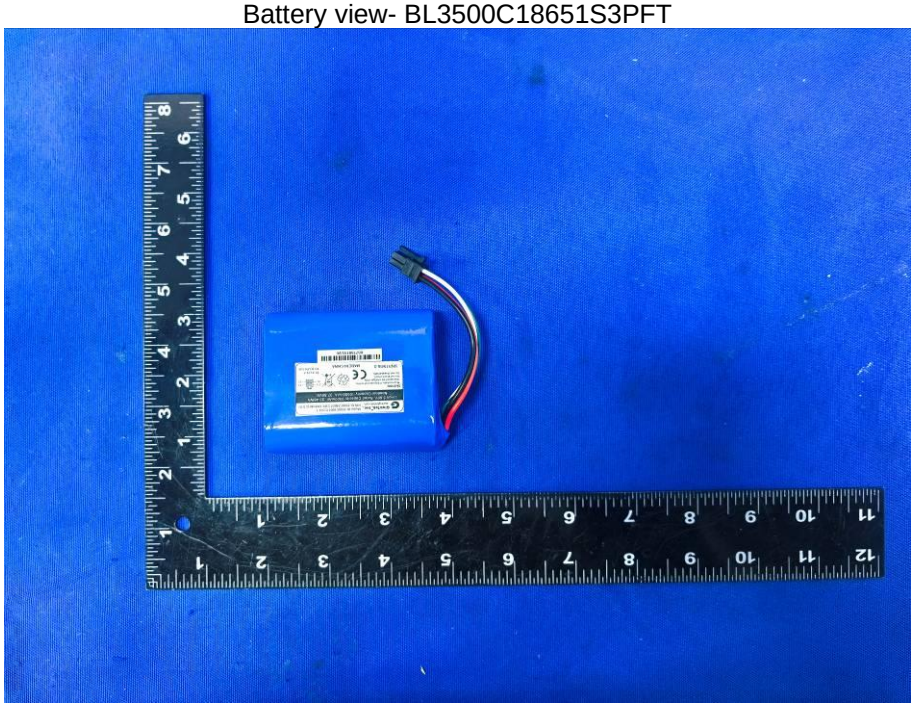


Photo 4
Battery view- BL3500C18651S3PFT

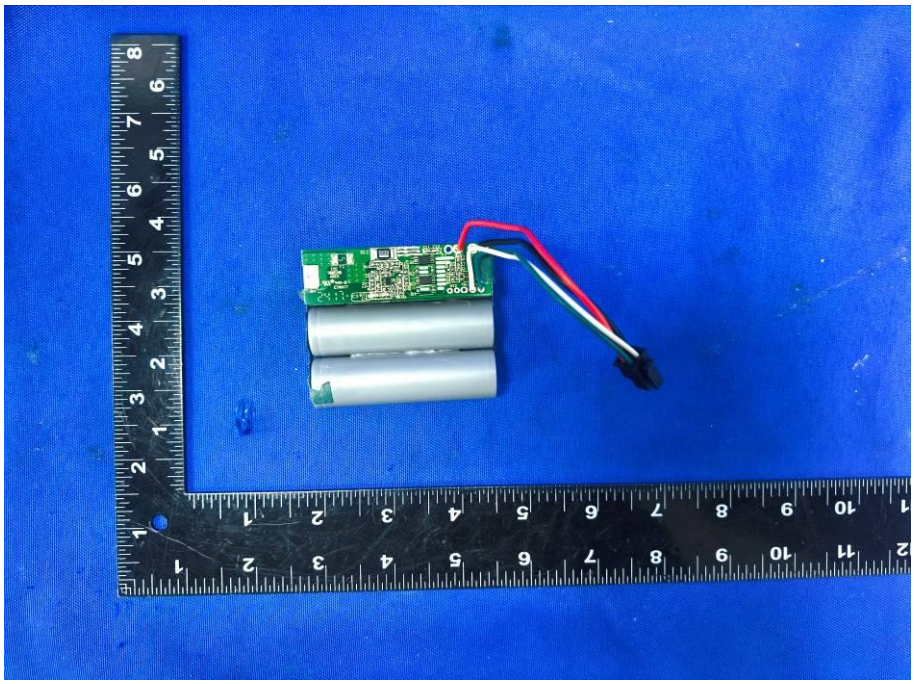


Photo 5
Battery view- BL3500C18651S1PFS

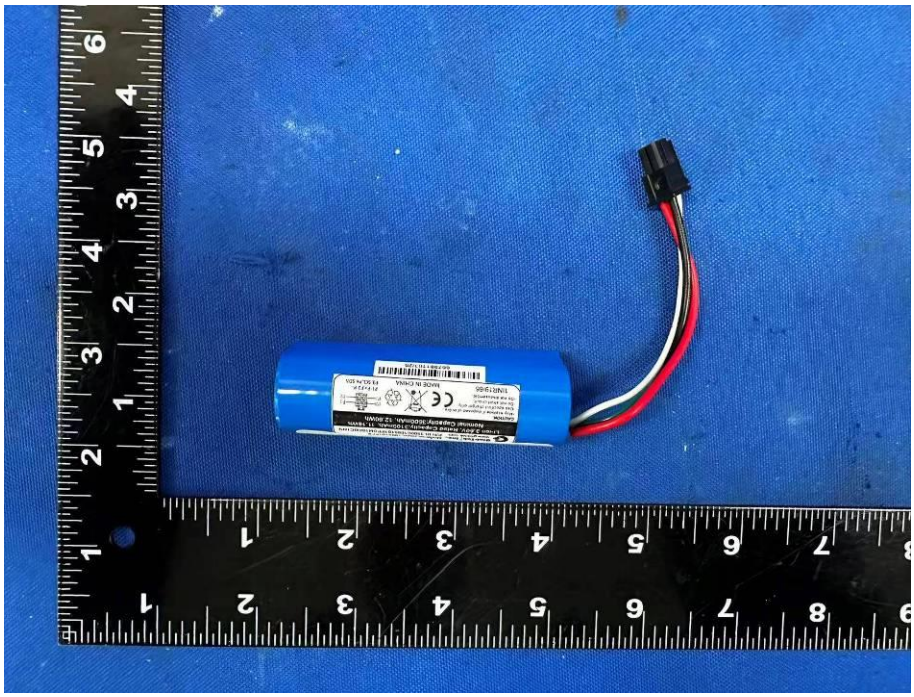


Photo 6

Battery view- BL3500C18651S1PFS

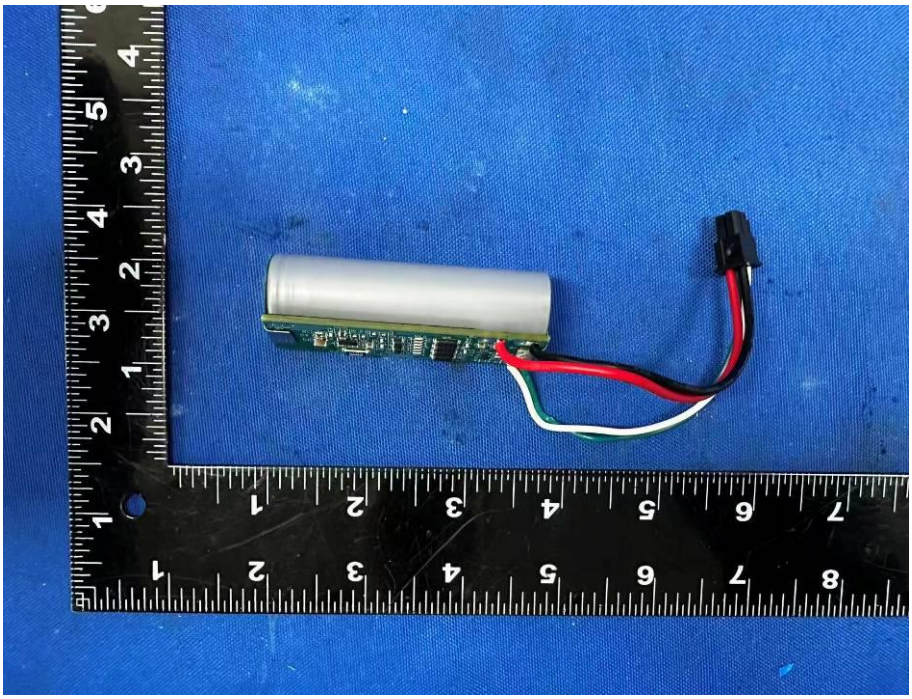


Photo 7

Battery view- BL3500C18651S4PFS

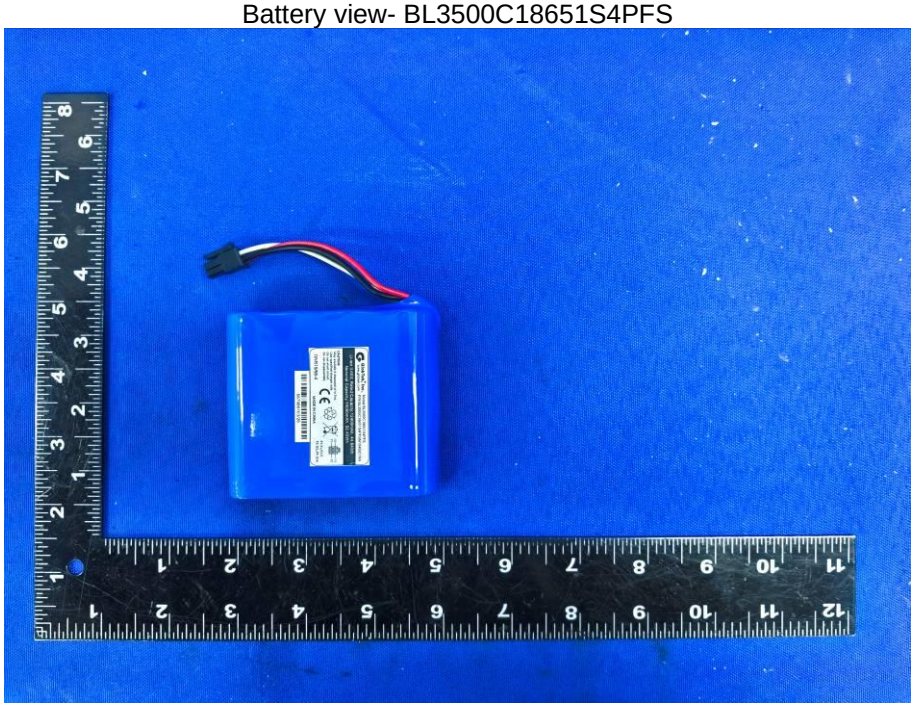


Photo 8

Battery view- BL3500C18651S4PFS

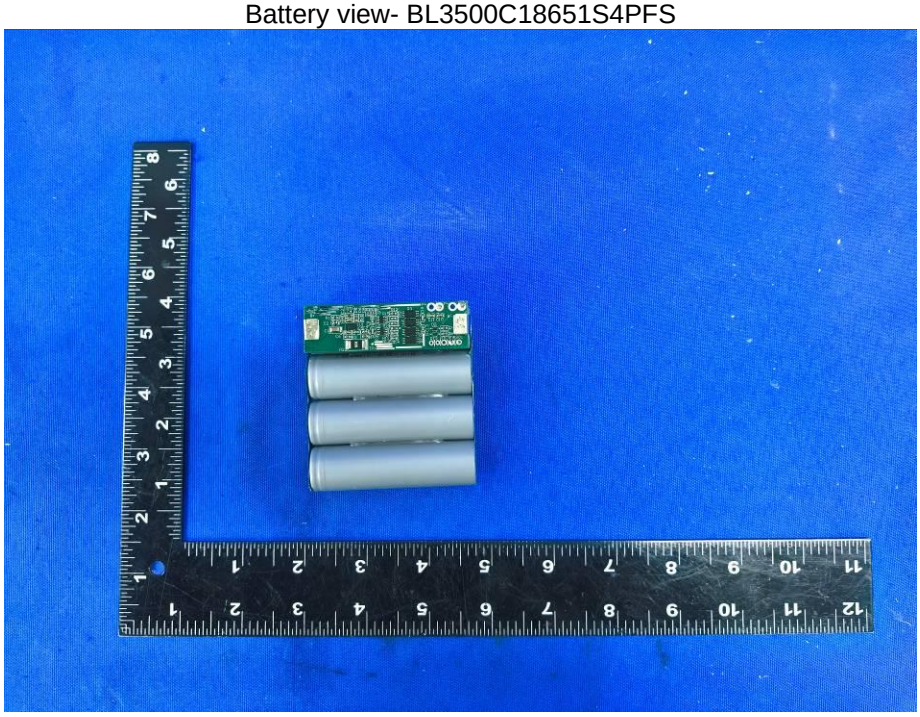


Photo 9

Battery view- BL3500C18651S4PFT



Photo 10

Battery view- BL3500C18651S4PFT

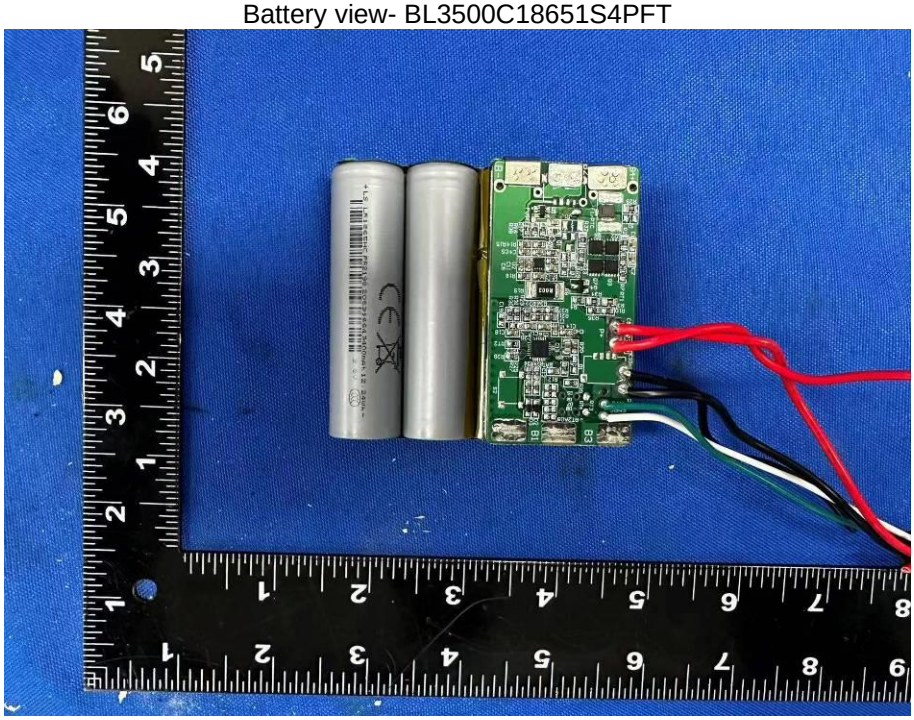


Photo 11

Battery view- BL3500C18652S1PFT

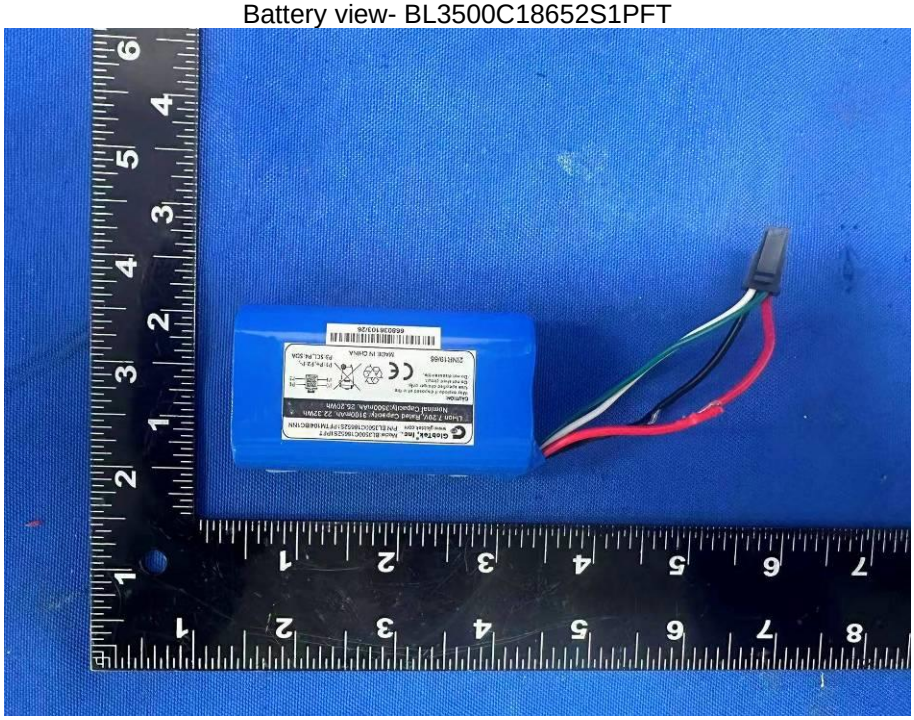


Photo 12

Battery view- BL3500C18652S1PFT

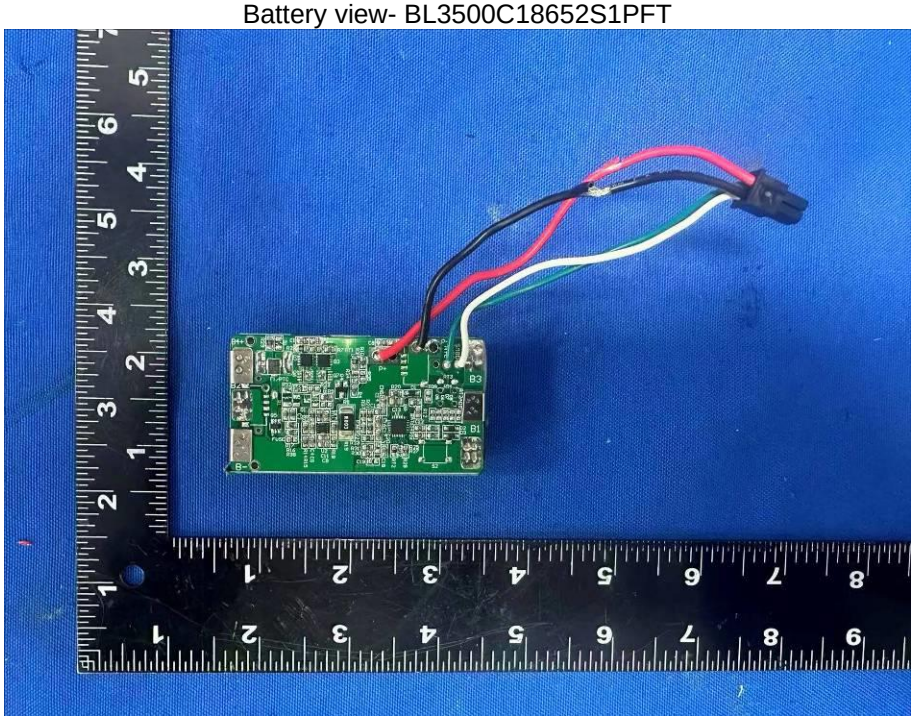


Photo 13

Battery view- BL3500C18652S3PFT



Photo 14

Battery view- BL3500C18652S3PFT

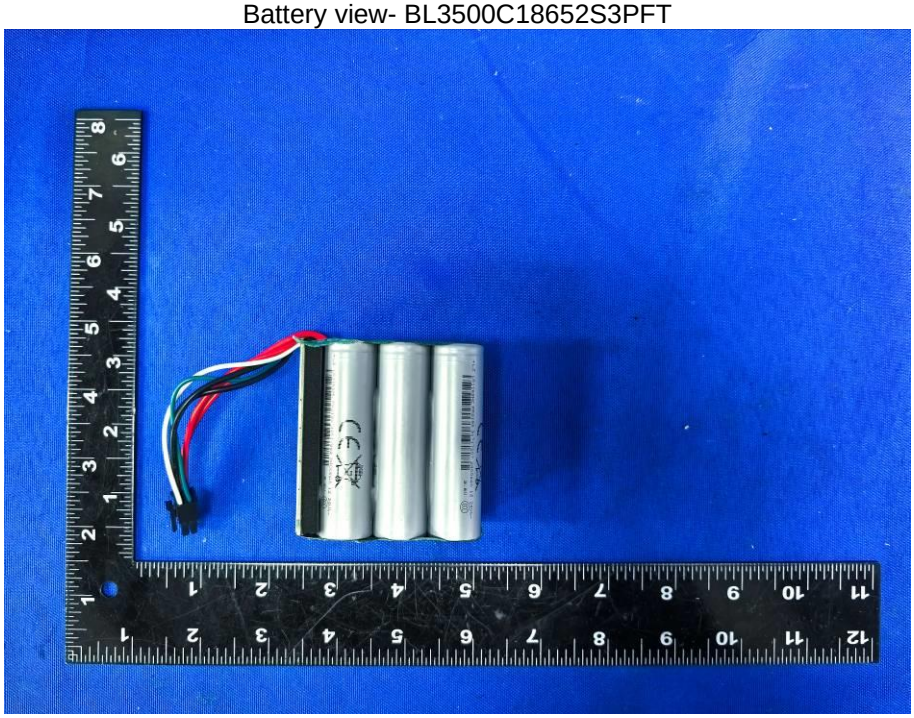


Photo 15

Battery view- BL3500C18652S4PFT

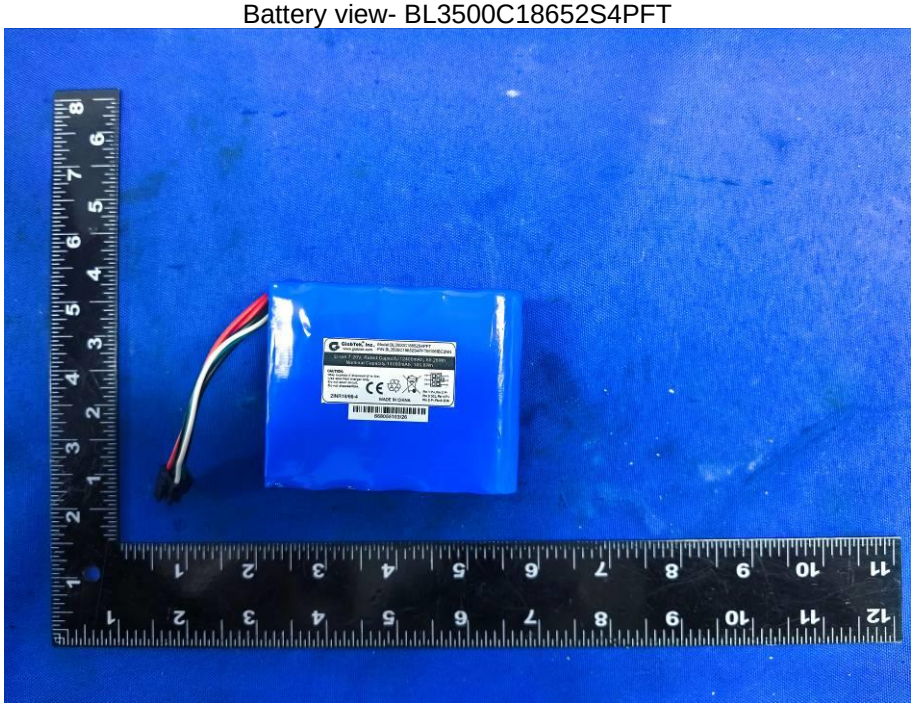


Photo 16

Battery view- BL3500C18652S4PFT

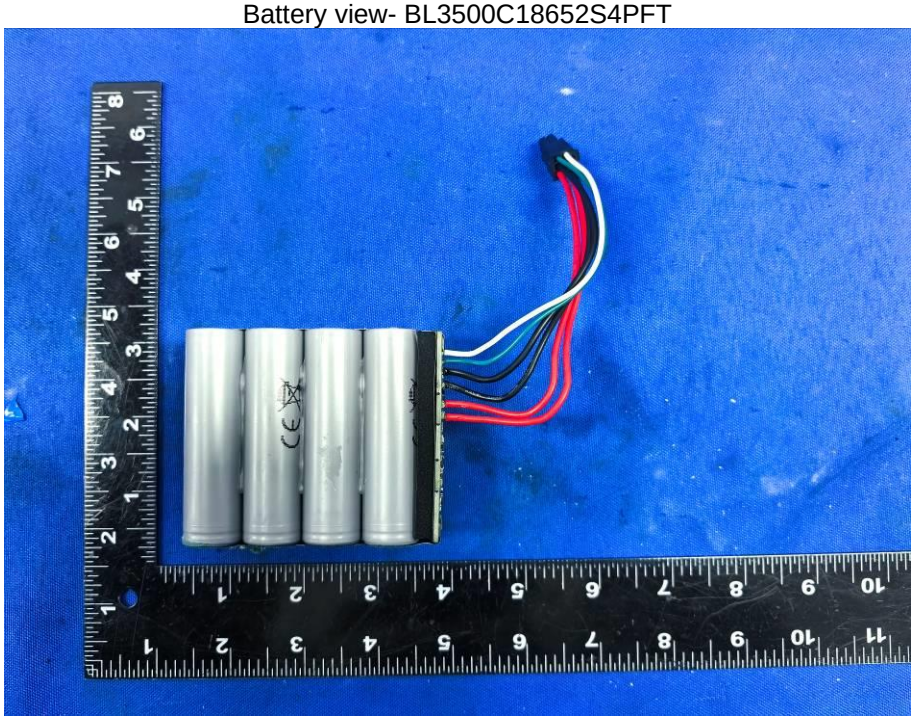


Photo 17

Battery view- BL3500C18653S1PFT

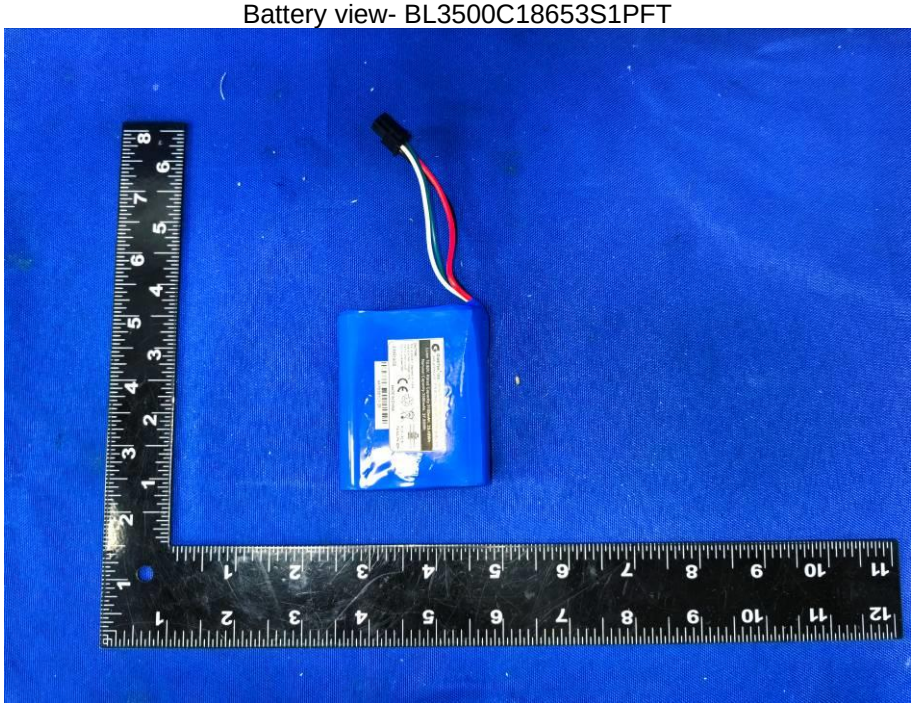


Photo 18

Battery view- BL3500C18653S1PFT

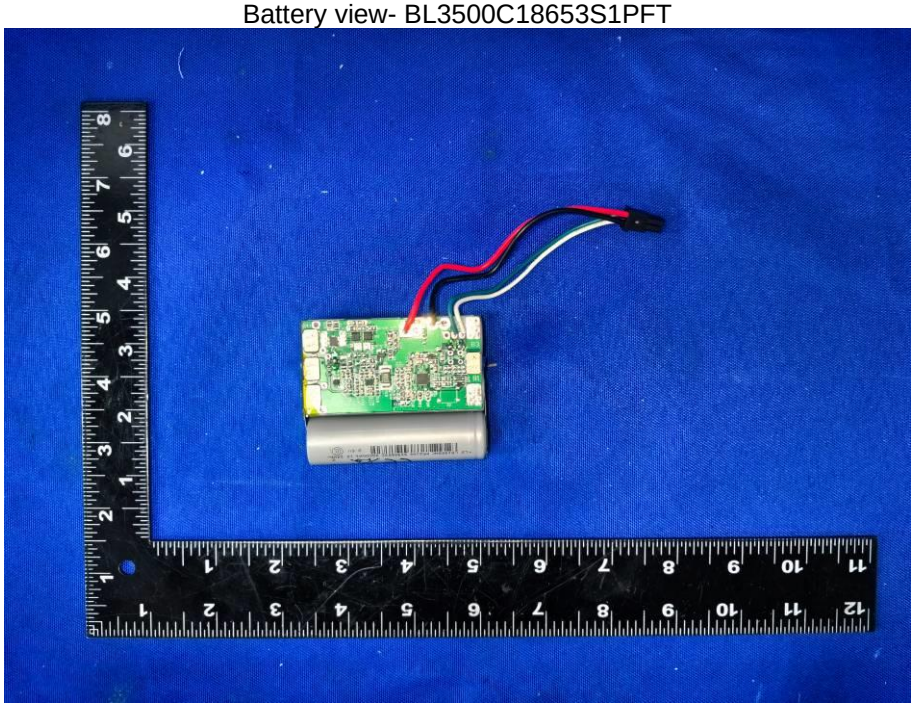


Photo 19

Battery view- BL3500C18653S4PFT

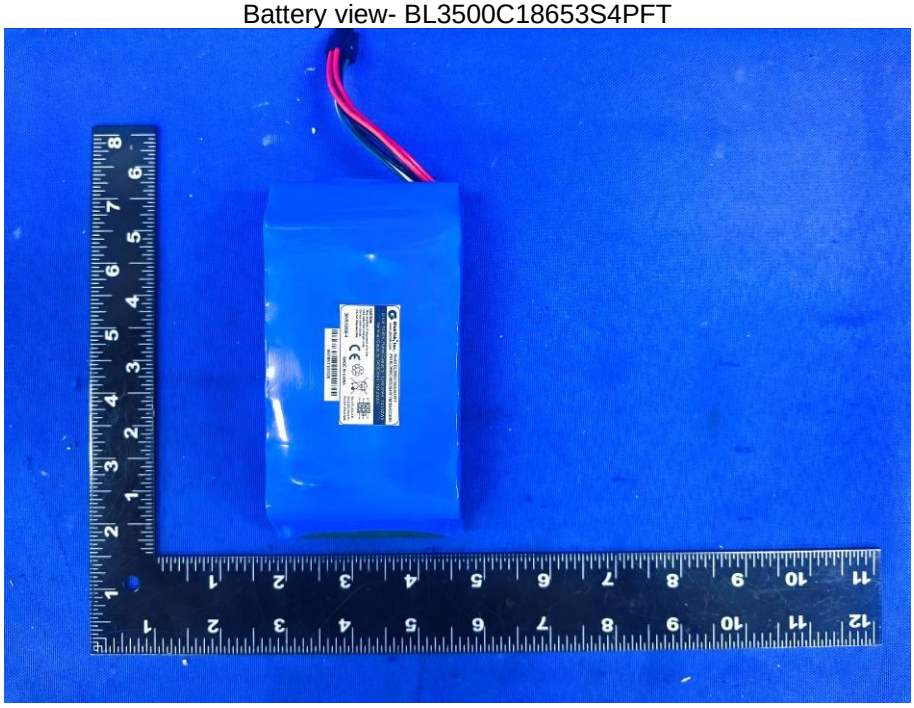


Photo 20

Battery view- BL3500C18653S4PFT

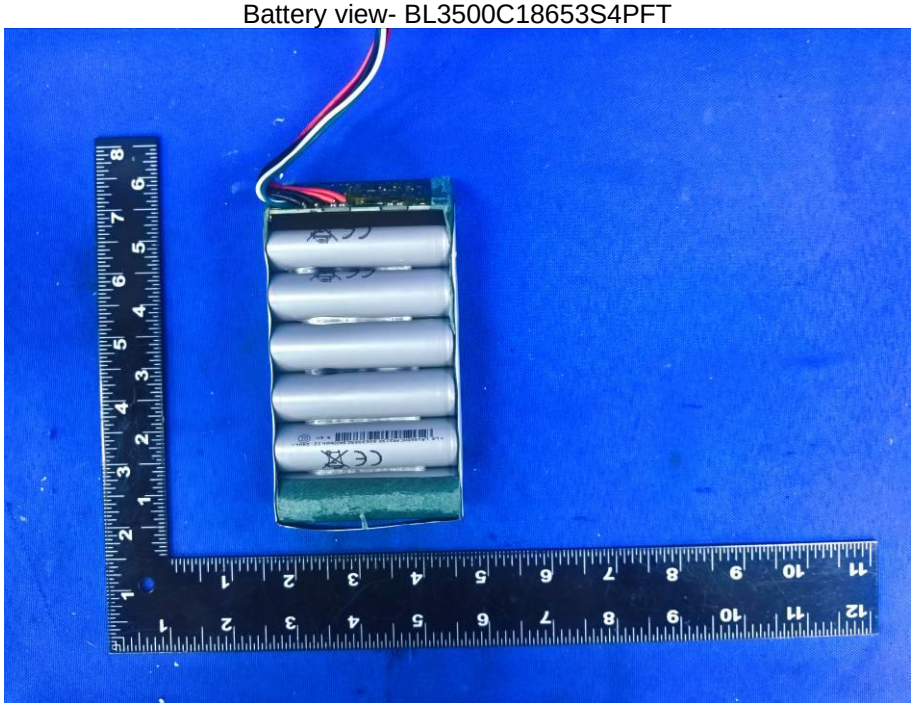


Photo 21

Battery view- BL3500C18654S1PFT

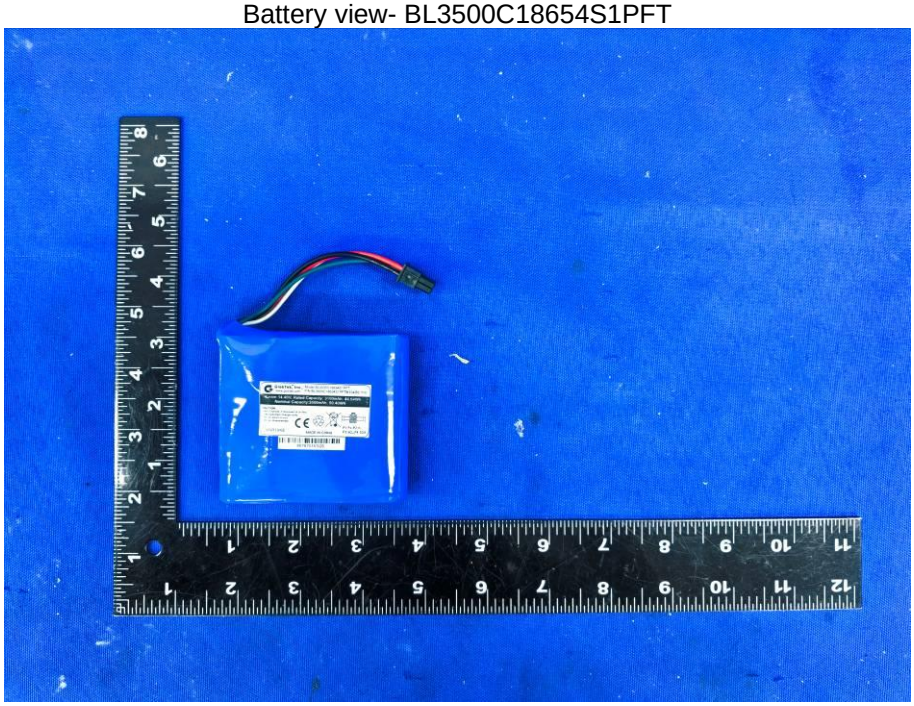


Photo 22

Battery view- BL3500C18654S1PFT

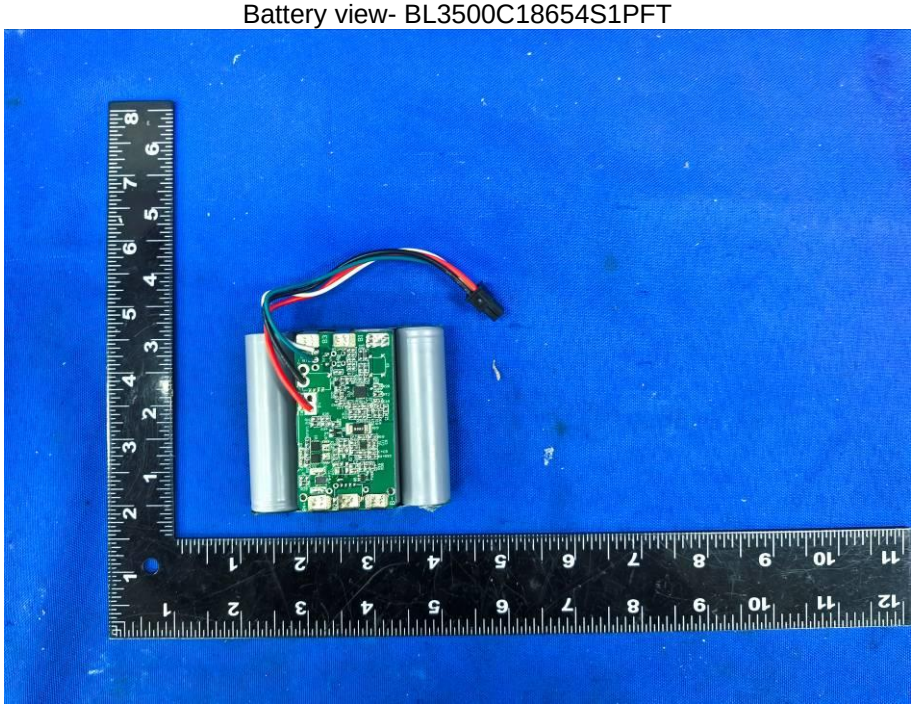


Photo 23

Battery view- BL3500C18654S4PFT

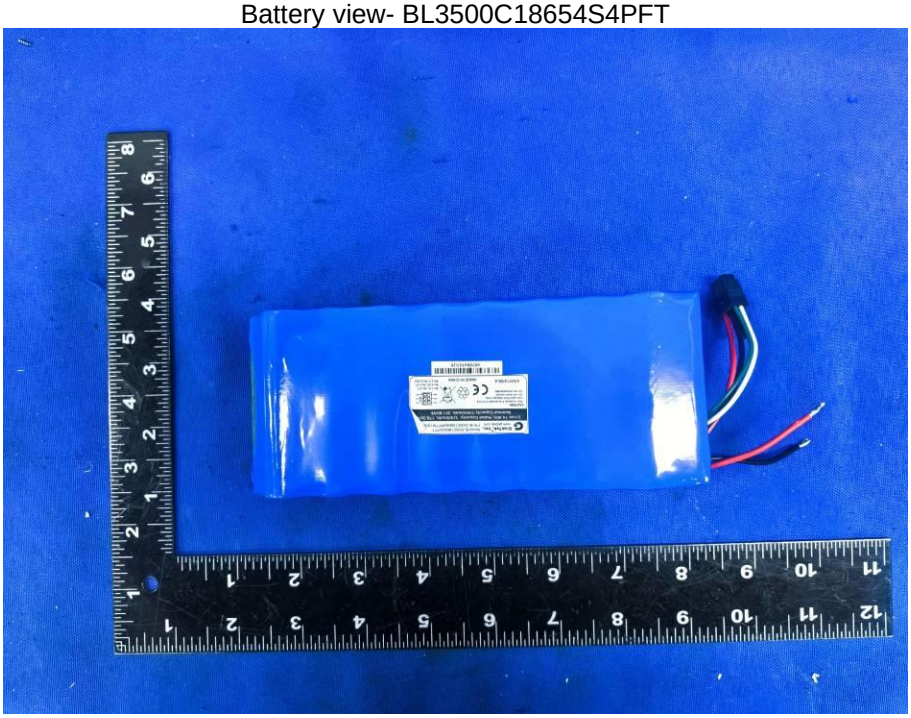


Photo 24

Battery view- BL3500C18654S4PFT



Photo 25

Battery view- BL3500C18652S1PFS

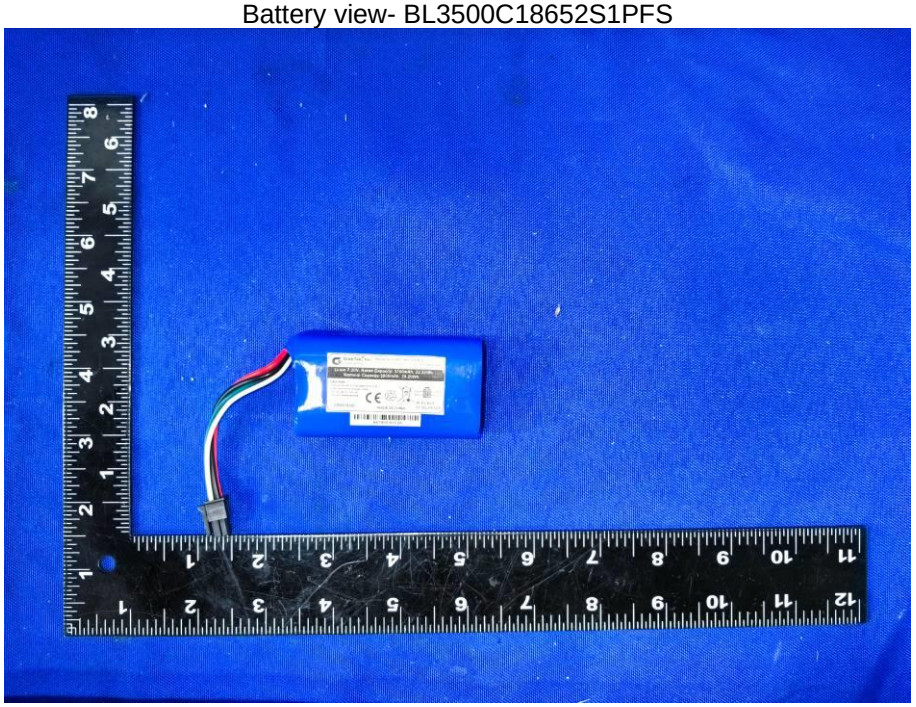


Photo 26

Battery view- BL3500C18652S1PFS

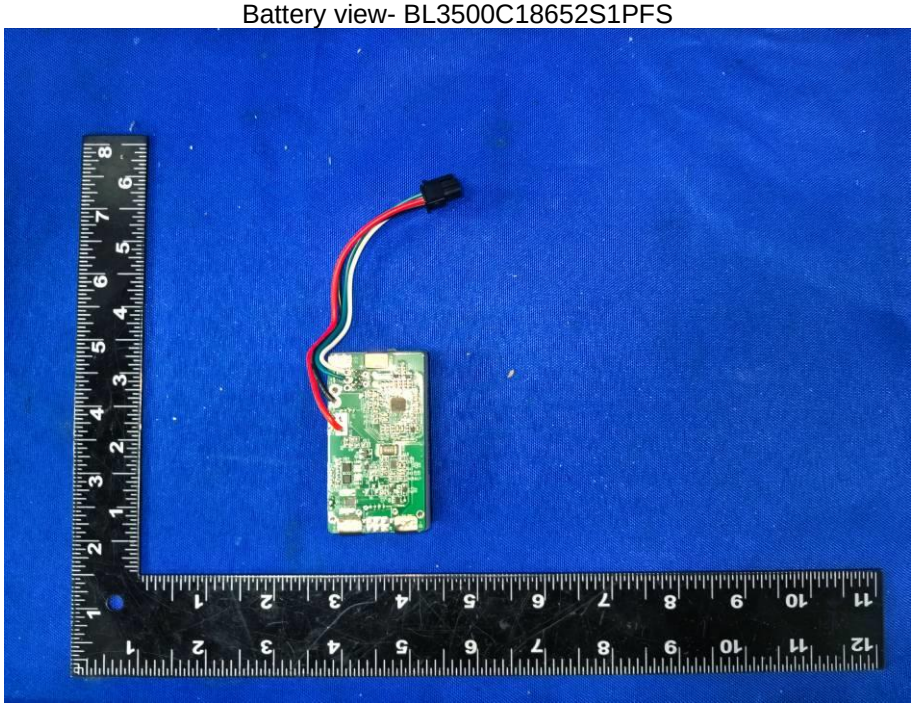


Photo 27

Battery view- BL3500C18652S4PFS



Photo 28

Battery view- BL3500C18652S4PFS

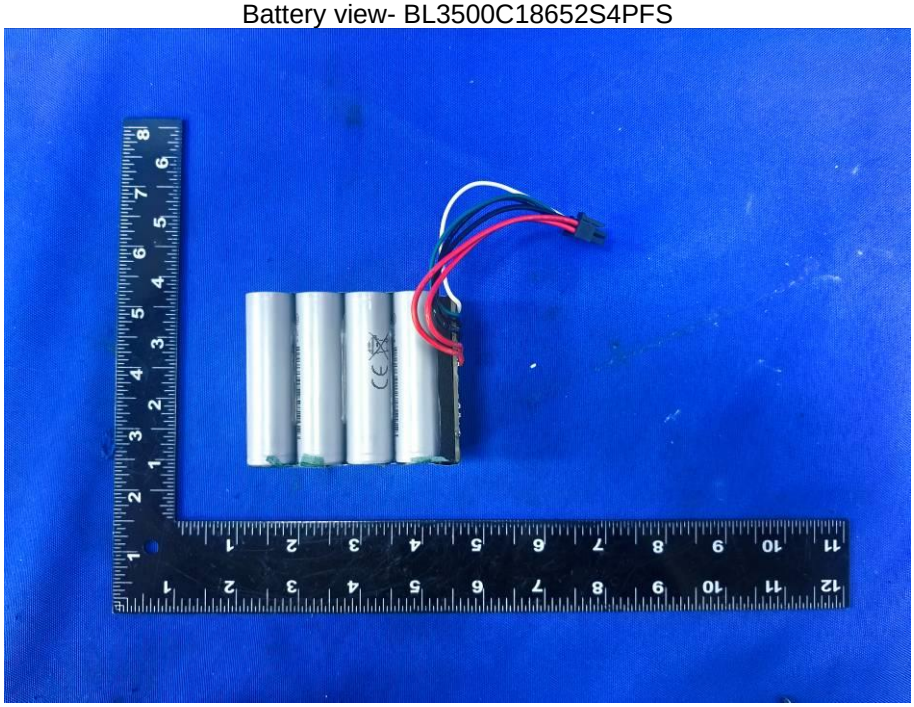


Photo 29

Battery view- BL3500C18653S1PFS

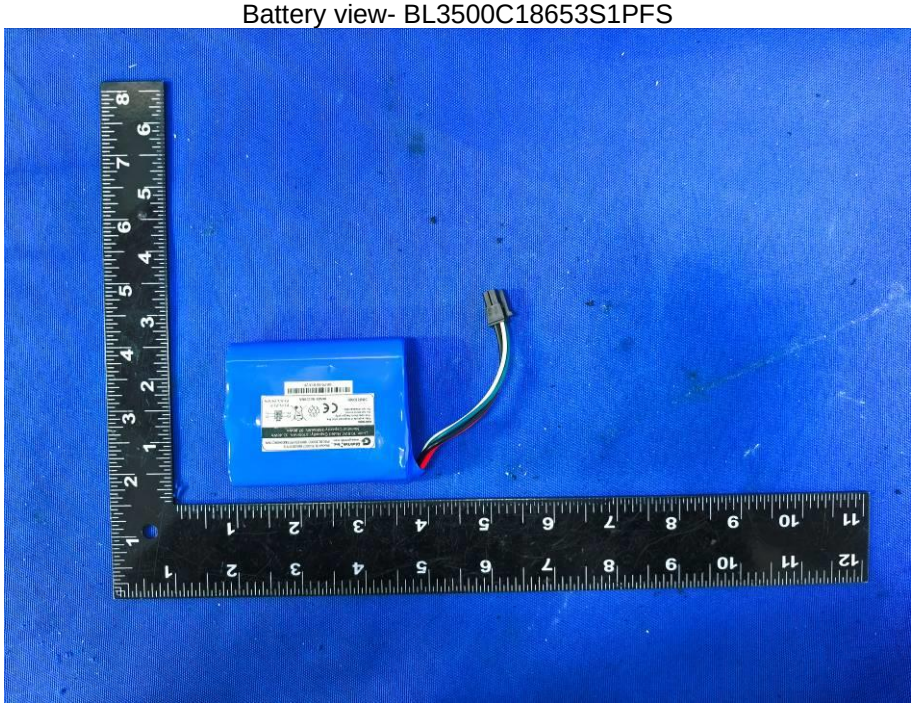


Photo 30

Battery view- BL3500C18653S1PFS

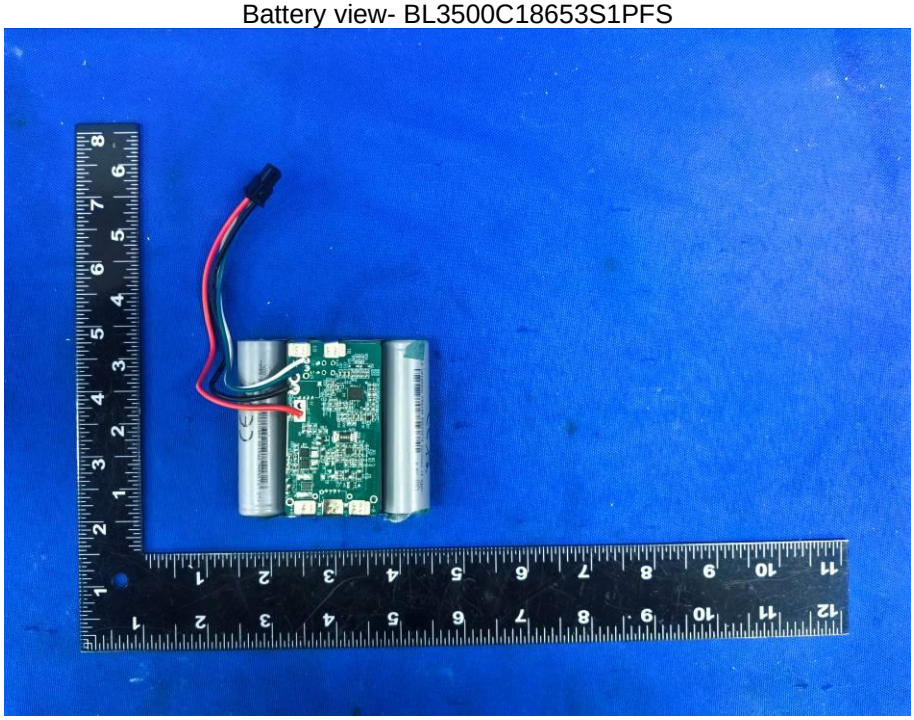


Photo 31

Battery view- BL3500C18653S4PFS

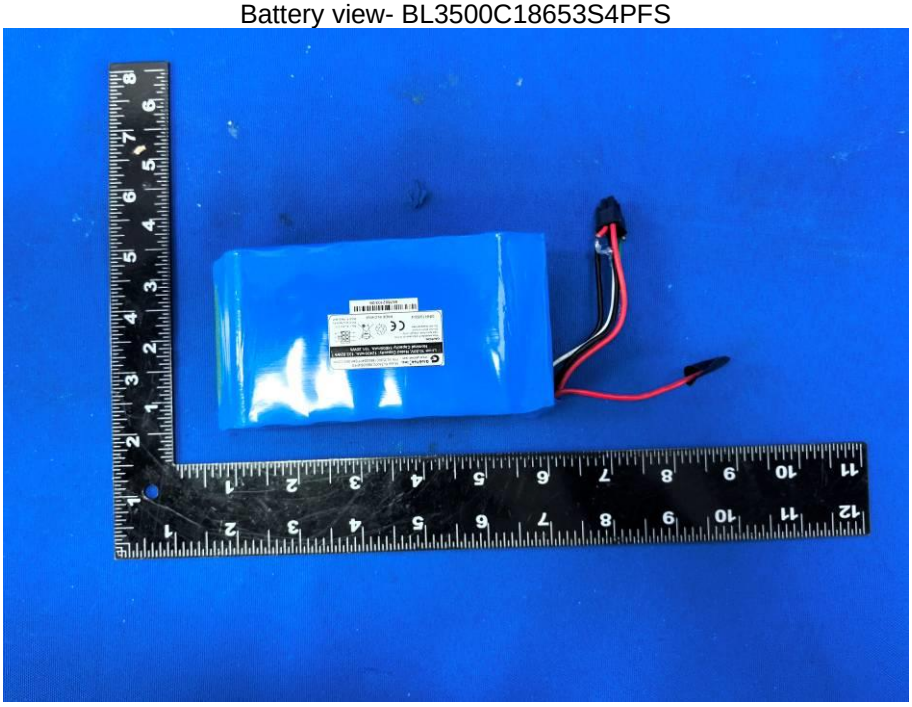


Photo 32

Battery view- BL3500C18653S4PFS

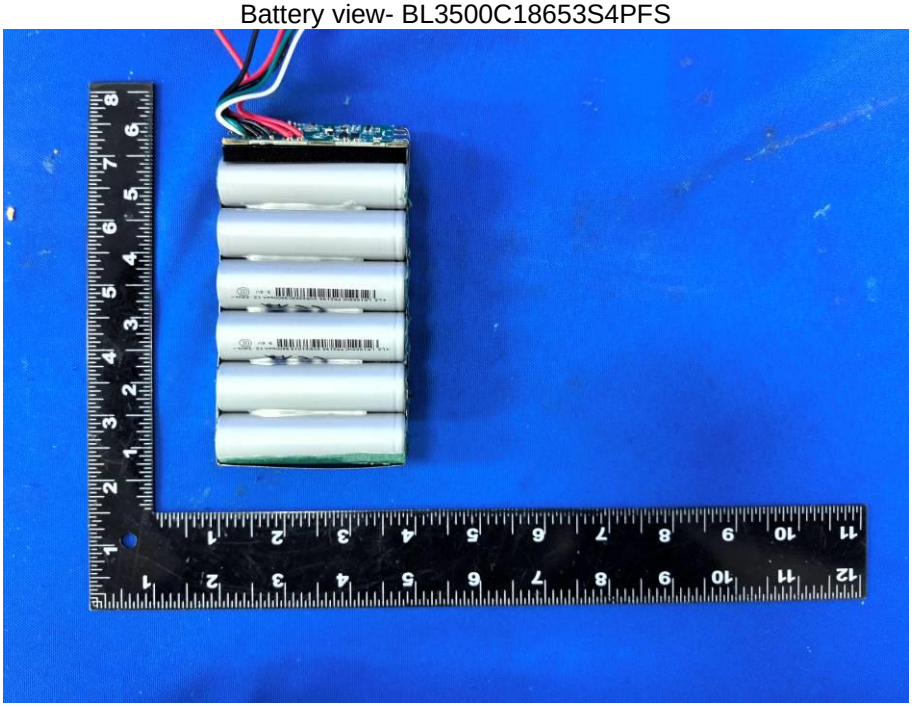


Photo 33

Battery view- BL3500C18654S1PFS



Photo 34

Battery view- BL3500C18654S1PFS

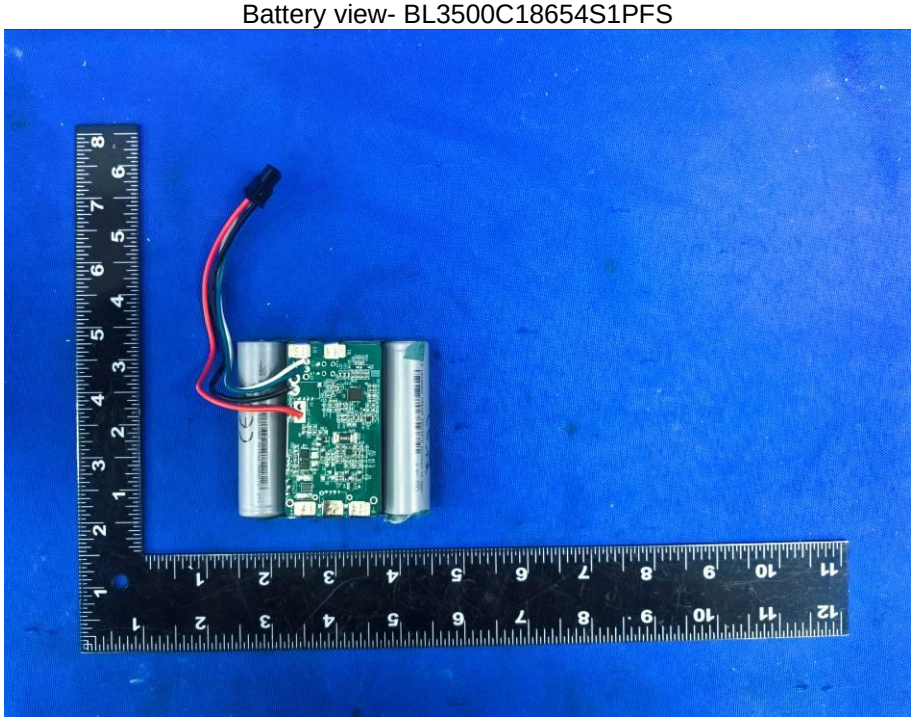


Photo 35

Battery view- BL3500C18654S4PFS



Photo 36

Battery view- BL3500C18654S4PFS

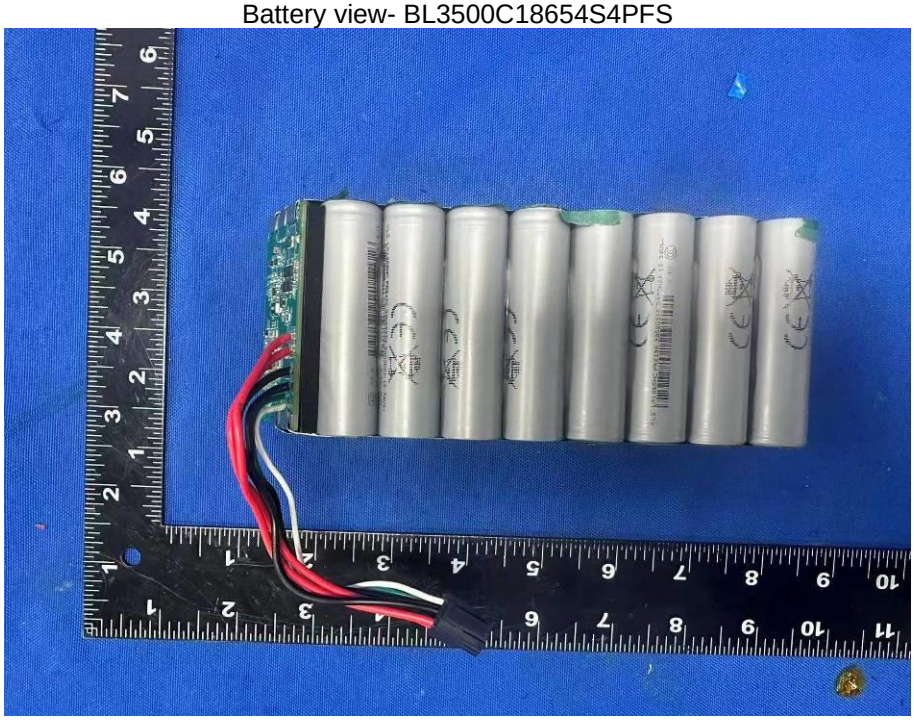


Photo 37

Battery view- BL3500C18651S1PFT(Add button modes upper and lower ends)

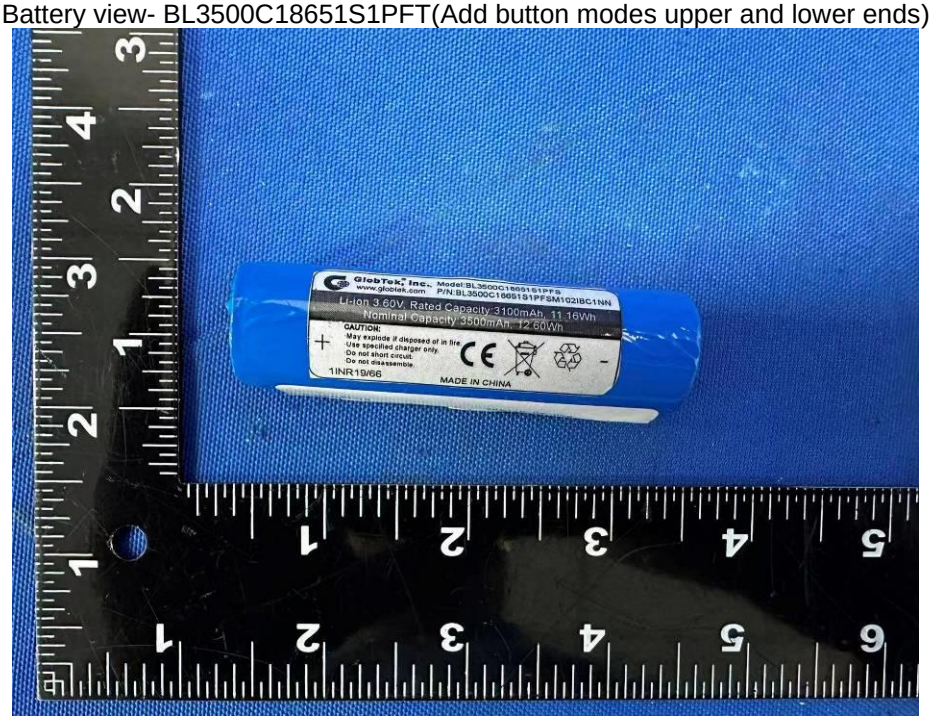


Photo 38

Battery view- BL3500C18651S1PFT(Add button modes upper and lower ends)

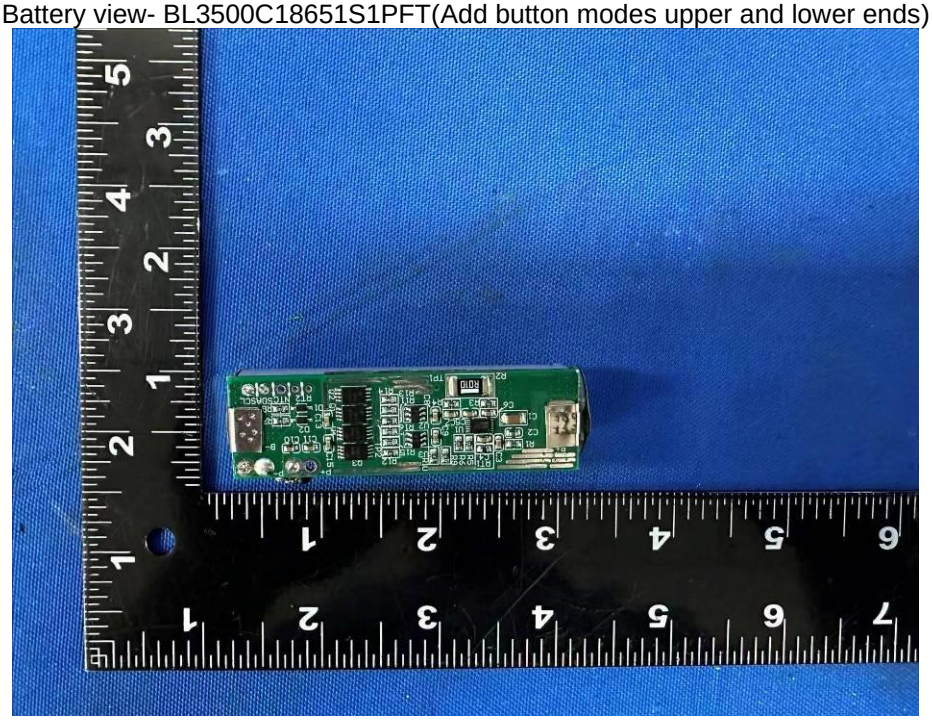


Photo 39

Battery view- BL3500C18651S1PFS ((Add button modes upper and lower ends)



Photo 40

Battery view- BL3500C18651S1PFS (Add button modes upper and lower ends)

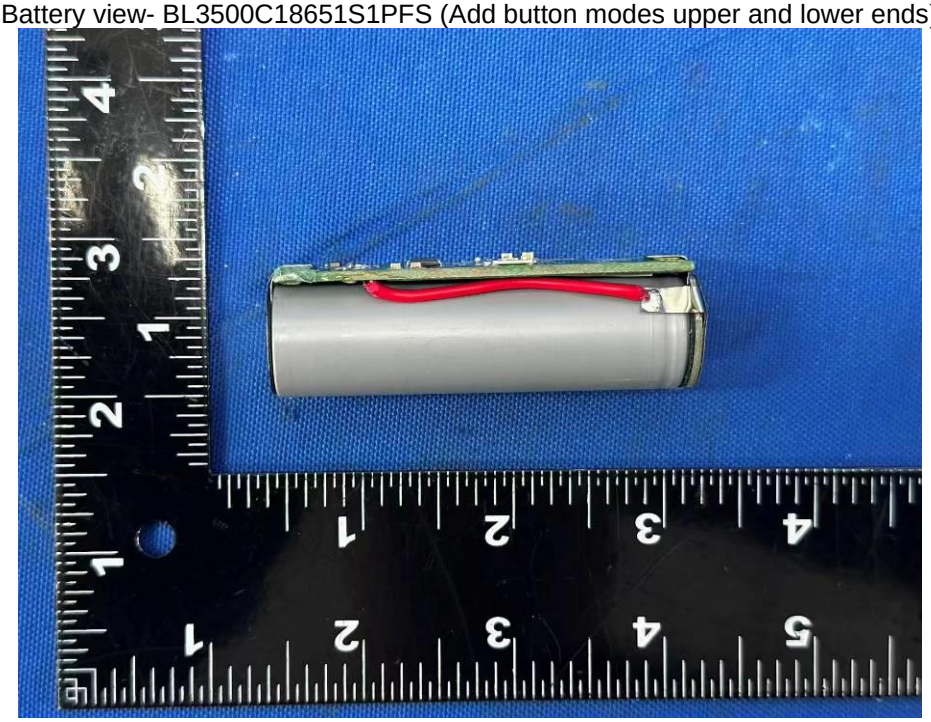


Photo 41

Battery view- BL3500C18651S1PFT (battery with case)



Photo 42

Battery view- BL3500C18651S1PFT (battery with case)

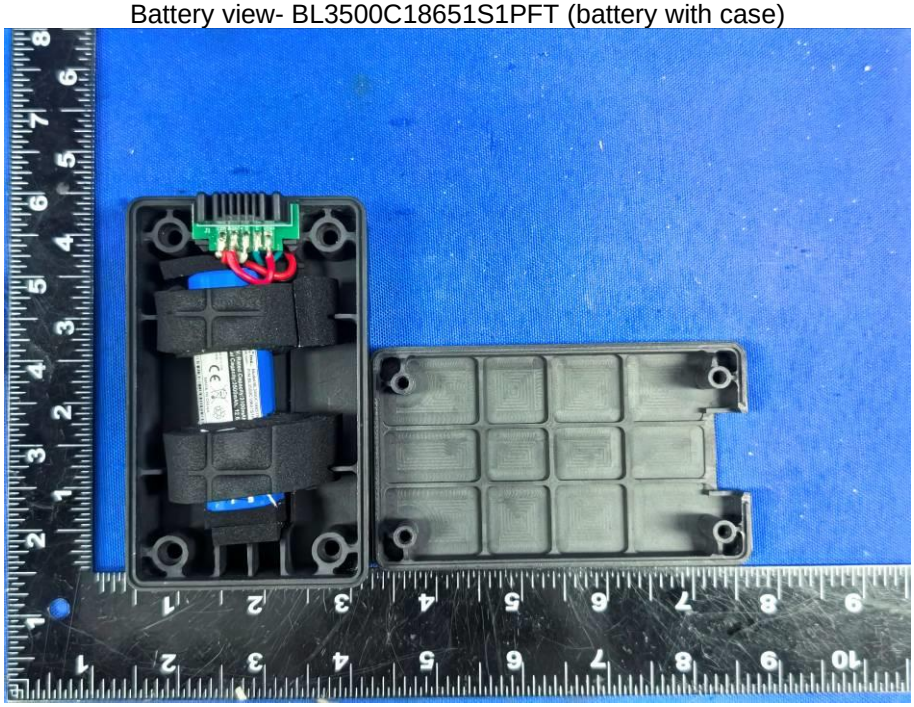


Photo 43

Battery view- BL3500C18651S3PFT (battery with case)



Photo 44

Battery view- BL3500C18651S3PFT (battery with case)

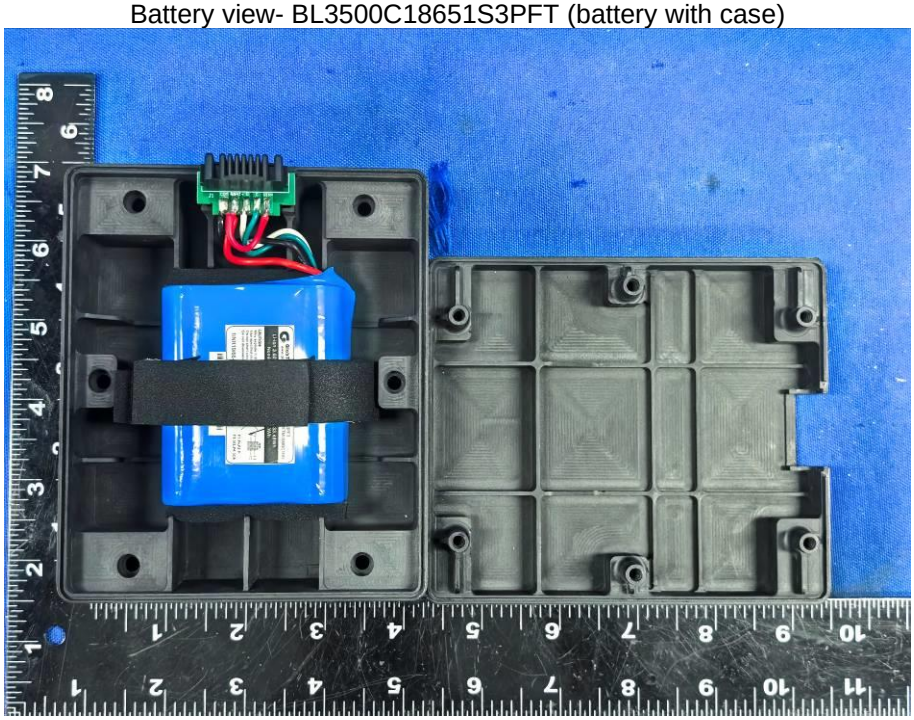


Photo 45

Battery view- BL3500C18651S4PFS (battery with case)



Photo 46

Battery view- BL3500C18651S4PFS (battery with case)

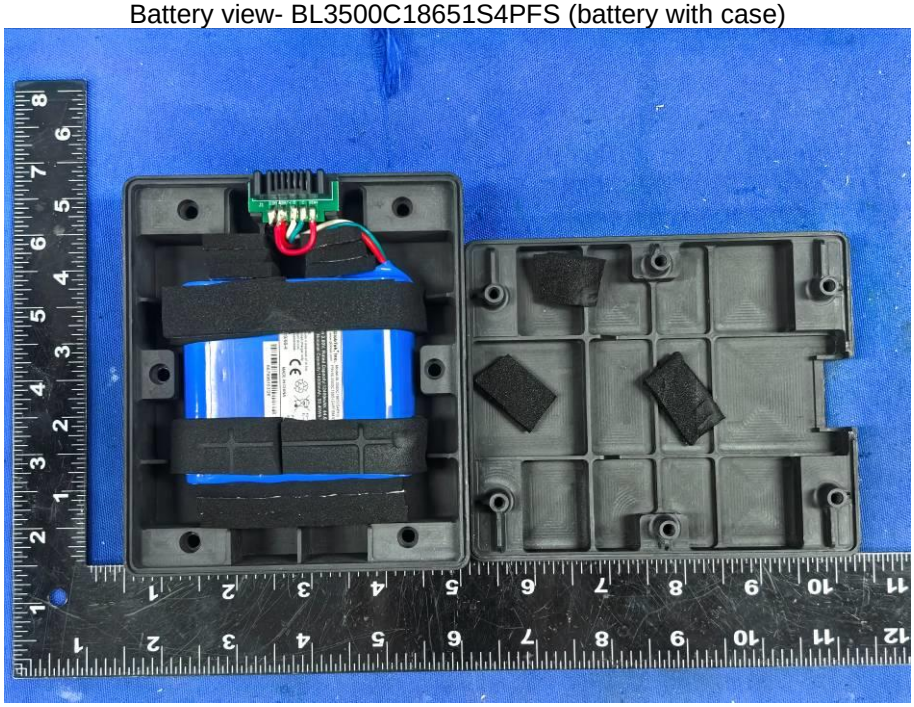


Photo 47

Battery view- BL3500C18652S1PFT (battery with case)



Photo 48

Battery view- BL3500C18652S1PFT (battery with case)

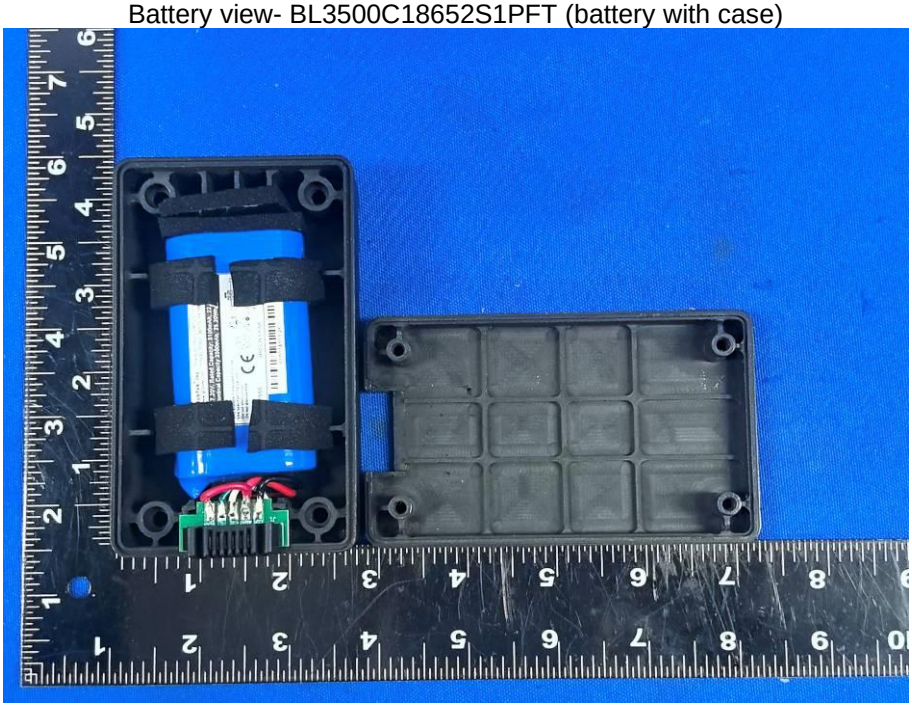


Photo 49

Battery view- BL3500C18652S3PFT (battery with case)



Photo 50

Battery view- BL3500C18652S3PFT (battery with case)

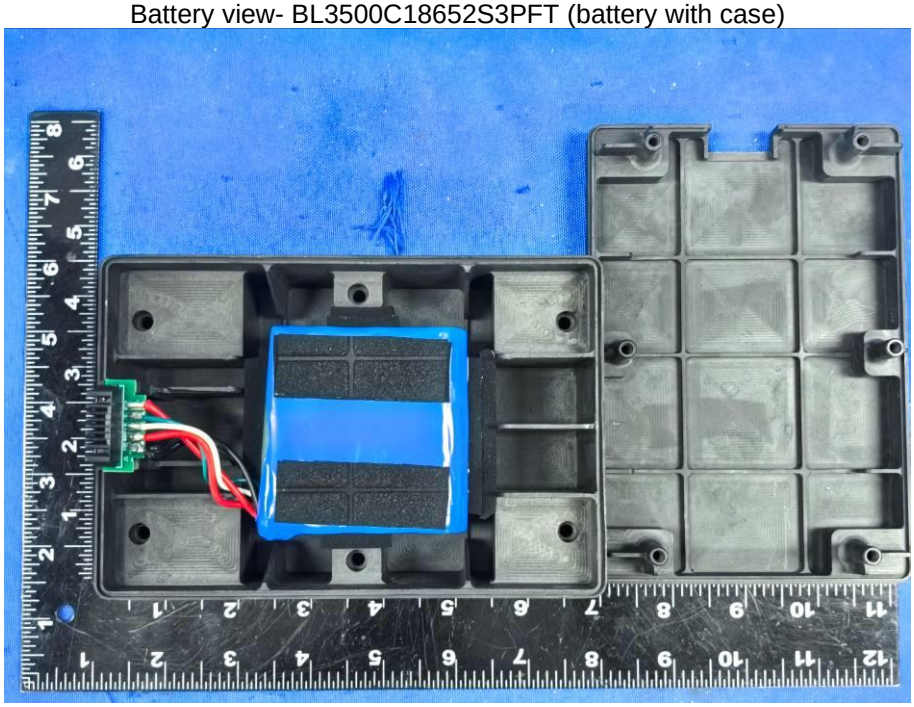


Photo 51

Battery view- BL3500C18653S3PFT (battery with case)



Photo 52

Battery view- BL3500C18653S3PFT (battery with case)

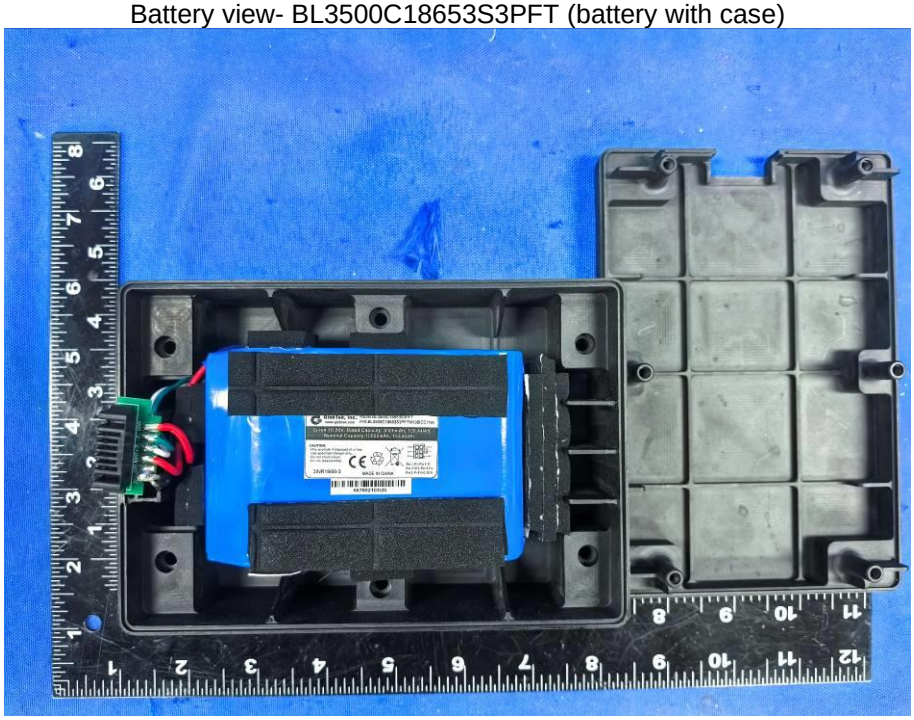


Photo 53

Battery view- BL3500C18654S4PFT (battery with case)



Photo 54

Battery view- BL3500C18654S4PFT (battery with case)

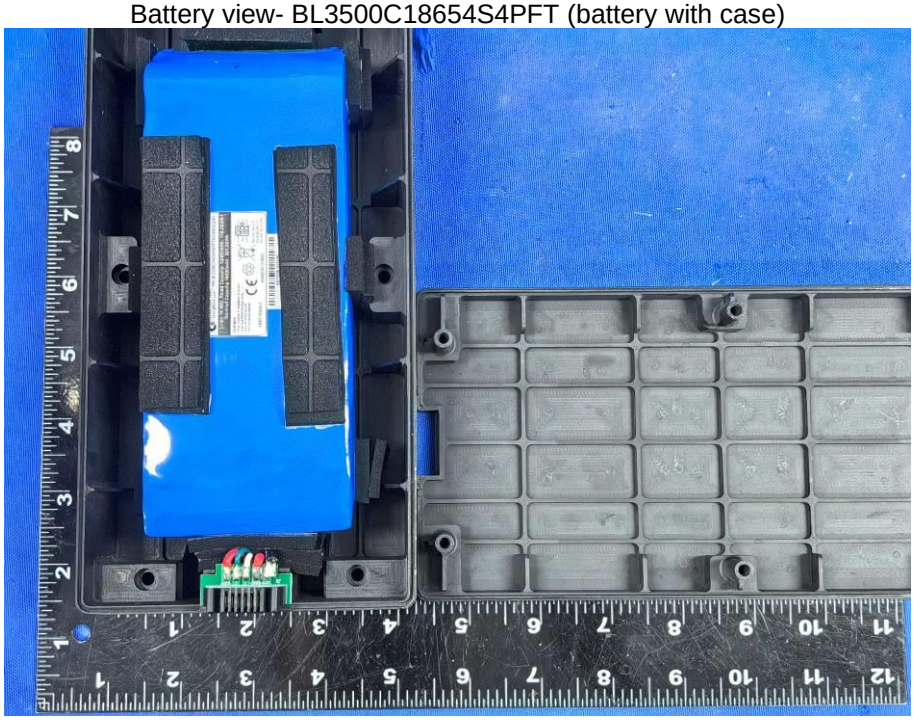


Photo 55

Battery view- BL3500C18653S4PFS (battery with case)

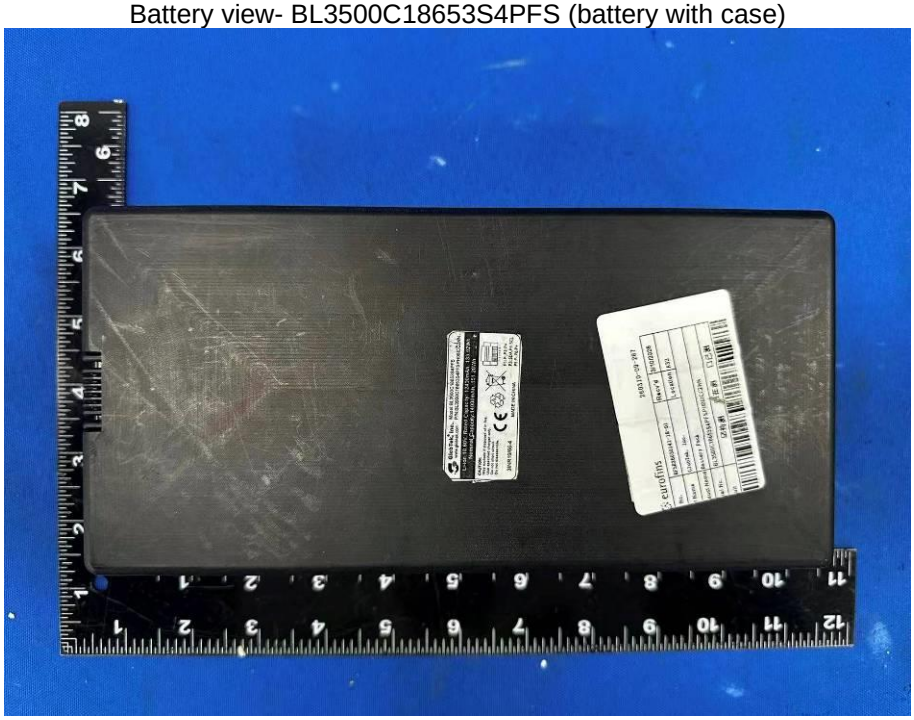


Photo 56

Battery view- BL3500C18653S4PFS (battery with case)

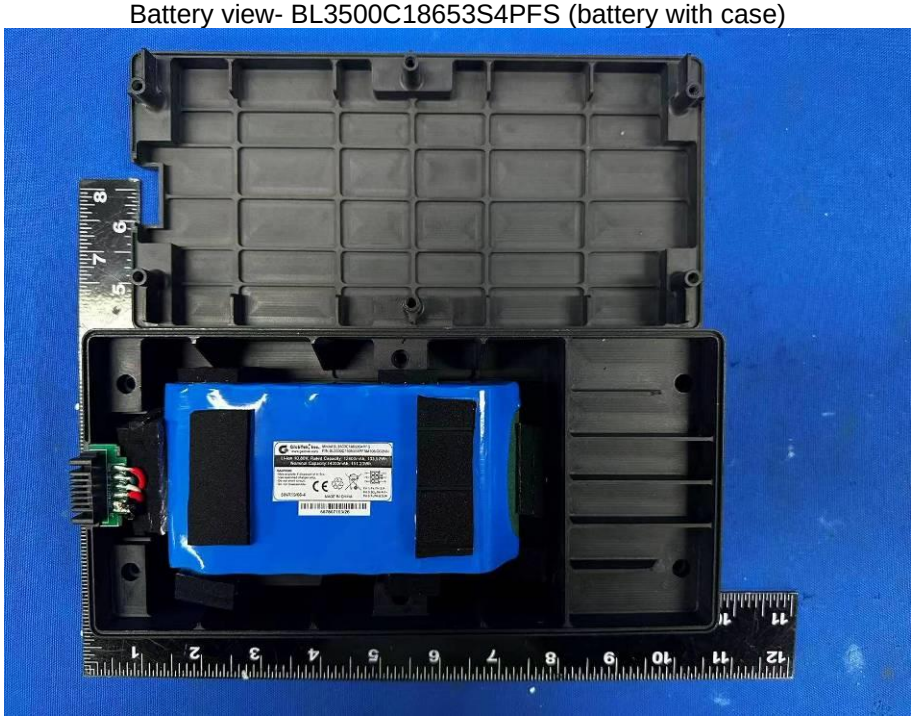


Photo 57

Battery view- BL3500C18652S4PFS (battery with case)

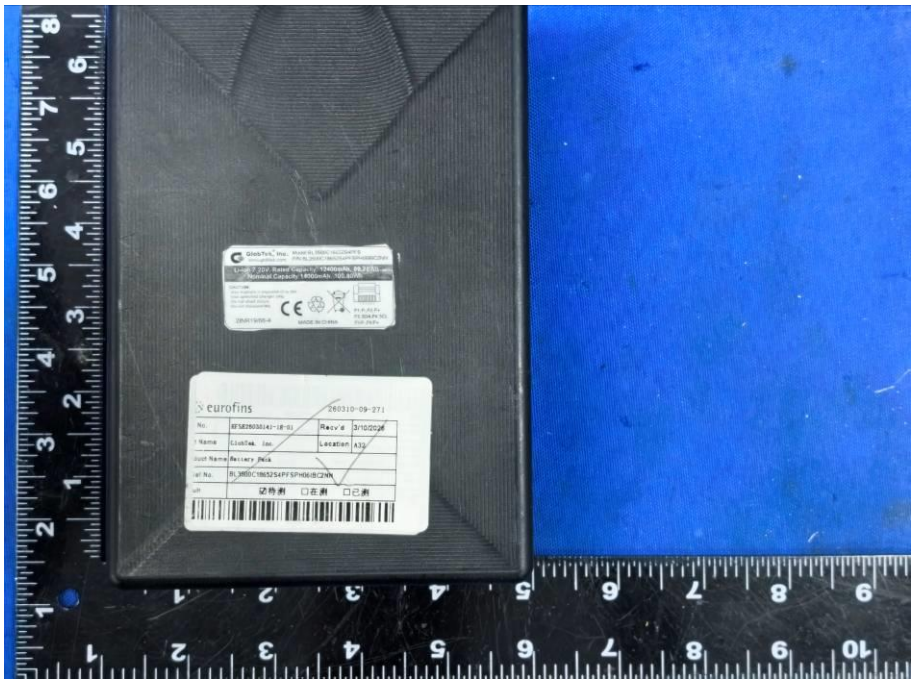


Photo 58

Battery view- BL3500C18652S4PFS (battery with case)

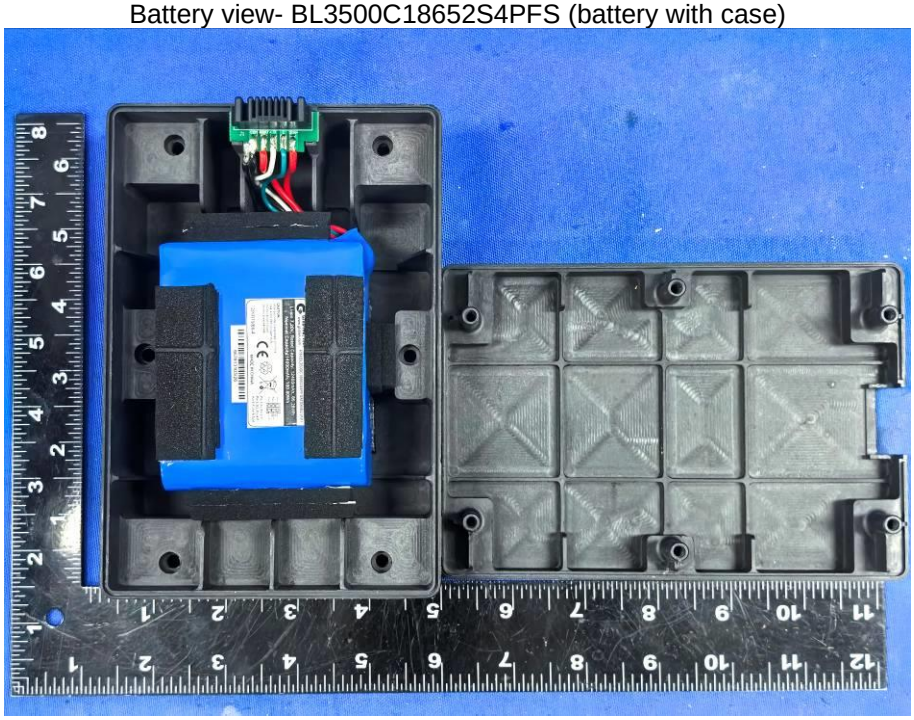


Photo 59

PCB1 view

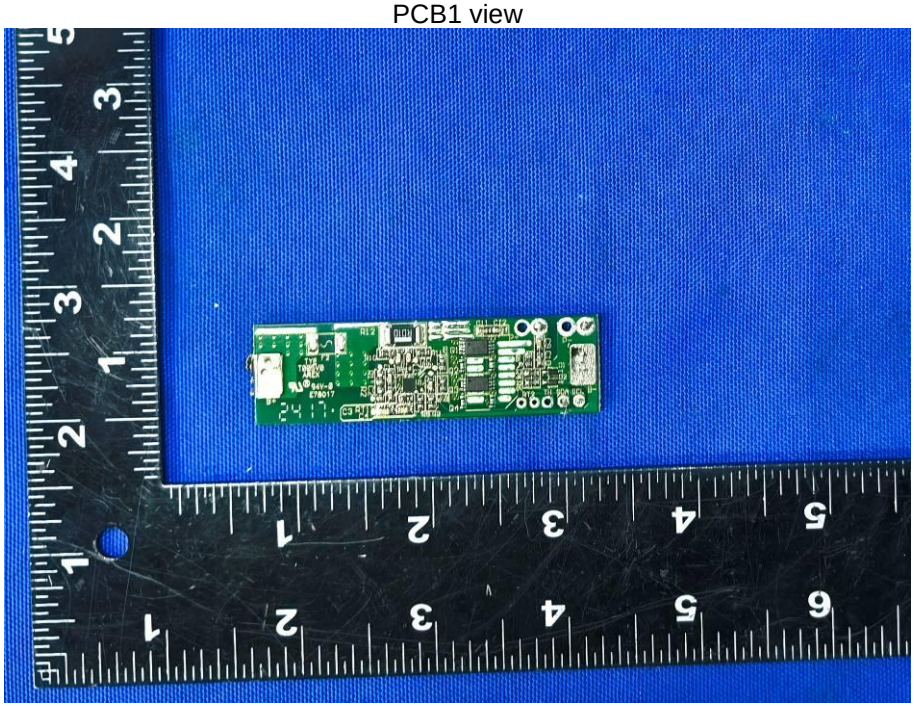


Photo 60

PCB1 view

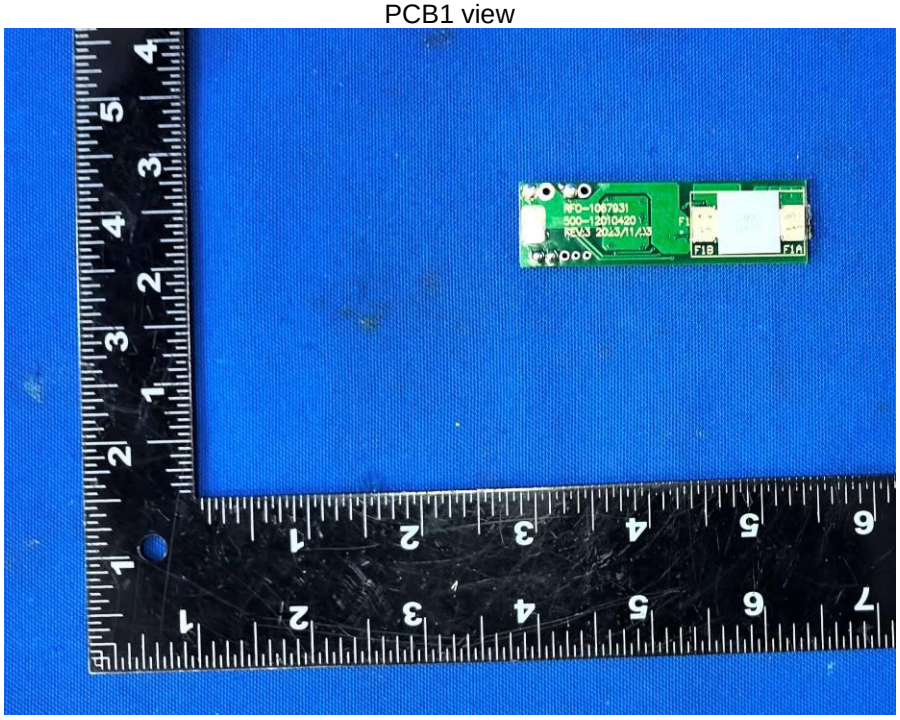


Photo 61

PCB2 view

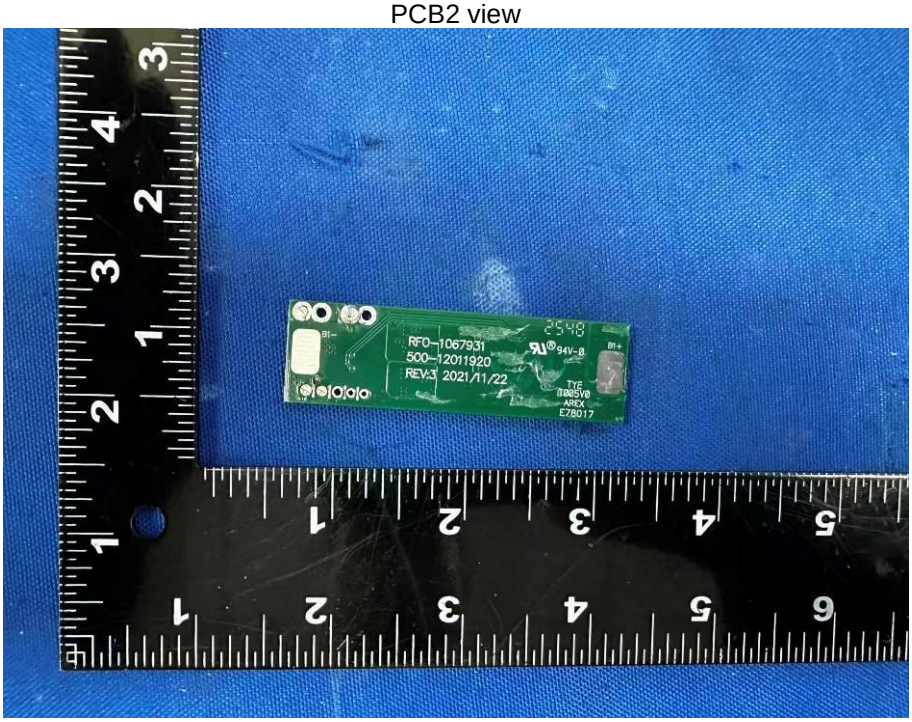


Photo 62
PCB2 view

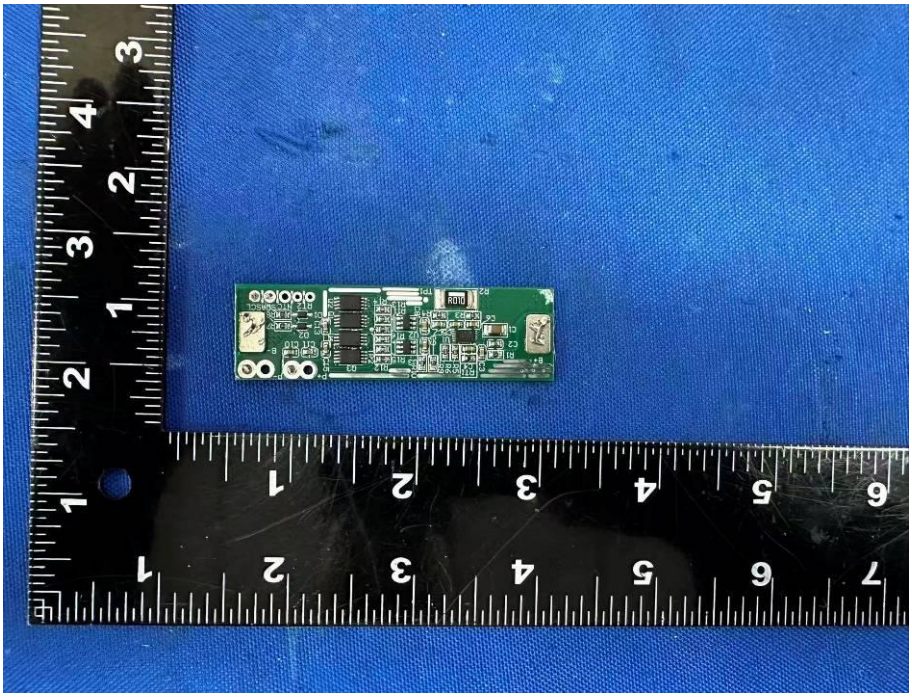


Photo 63
PCB3 view

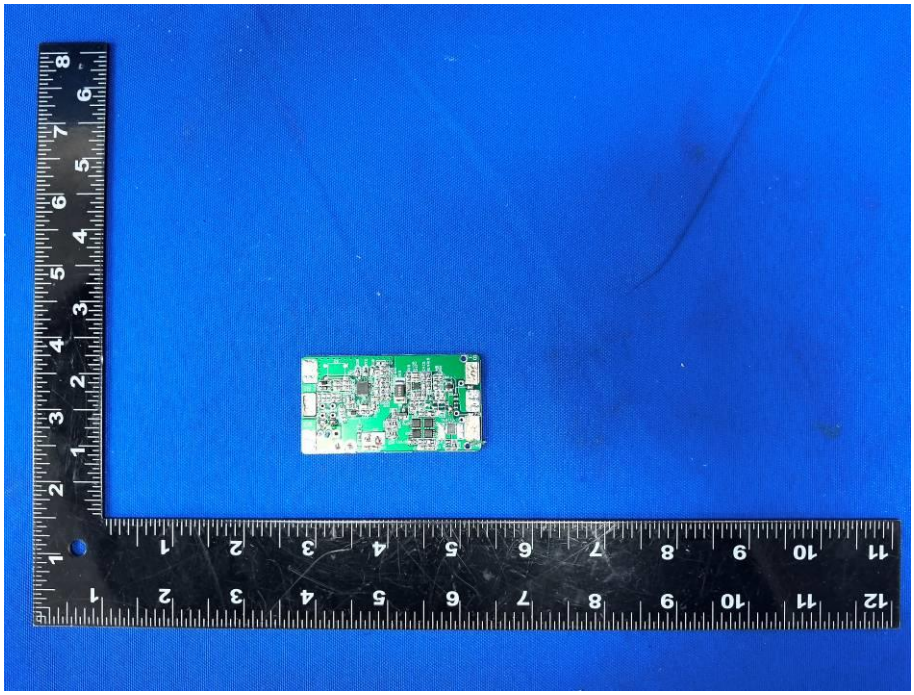


Photo 64
PCB3 view

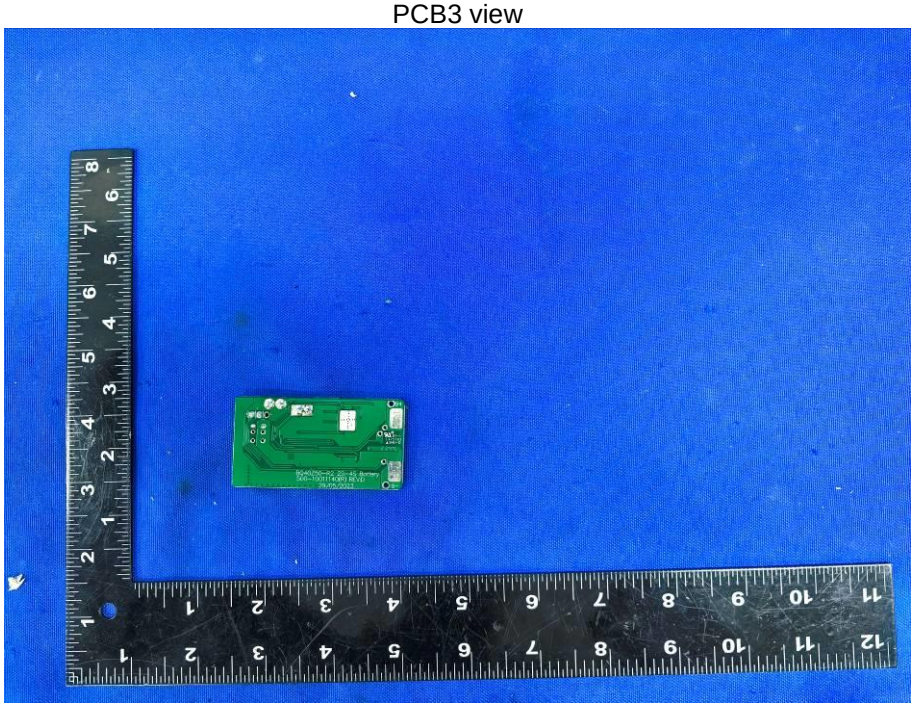


Photo 65
PCB4 view

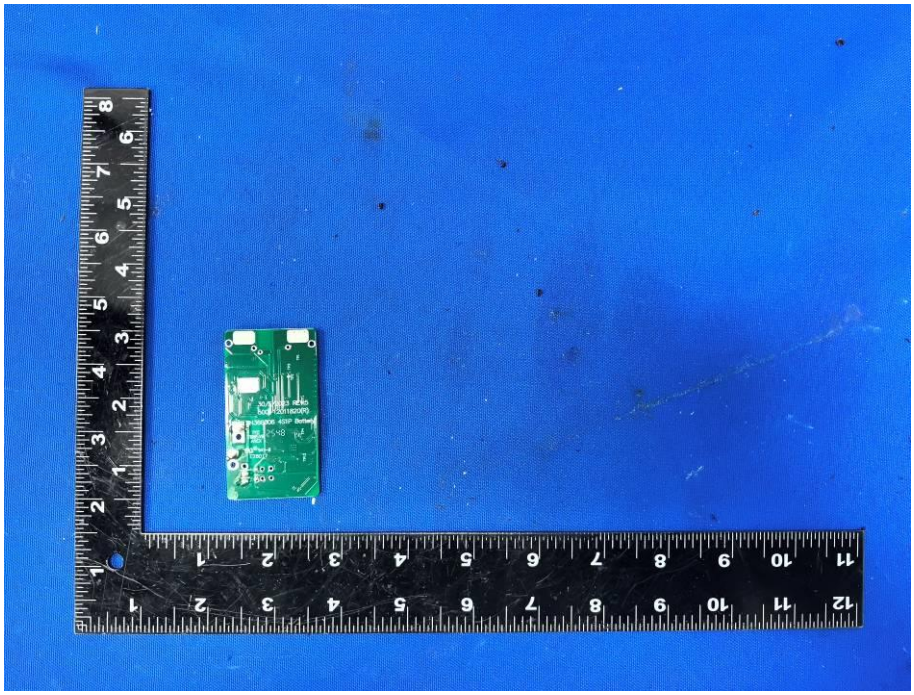


Photo 66
PCB4 view

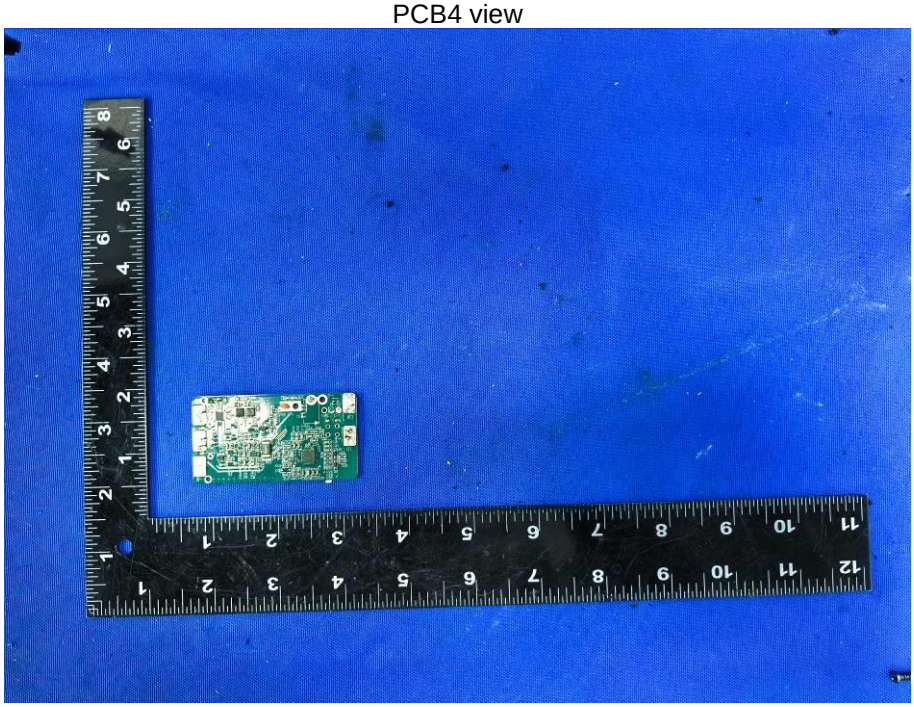
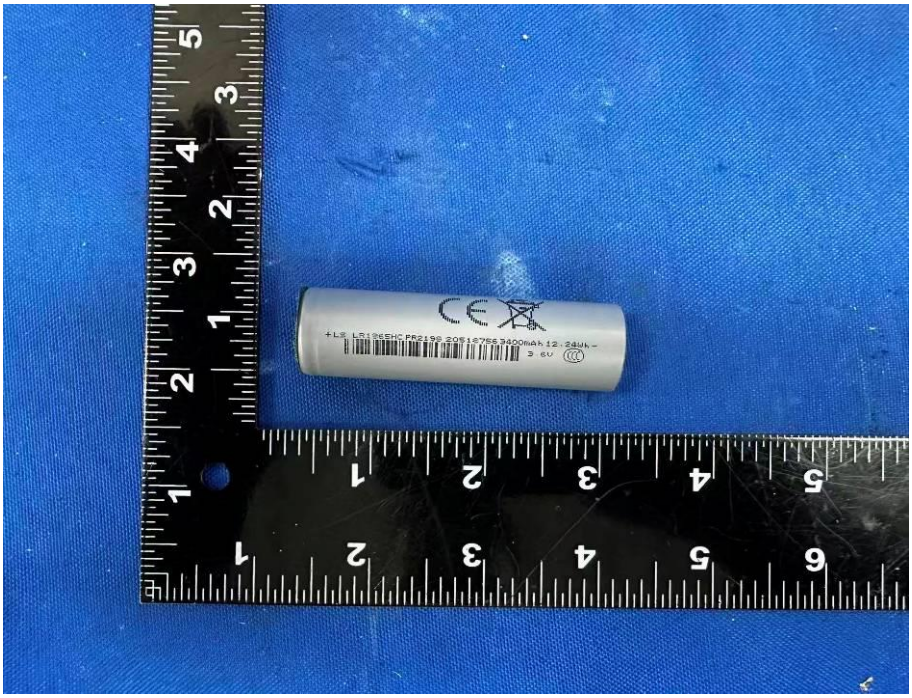


Photo 67
cell view



----- End of Report -----