ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

EU-Type Examination Certificate

No. E6A 090762 0040 Rev. 00

Holder of Certificate: **Pylon Technologies Co., Ltd.**
No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park
201203 Pudong, Shanghai
PEOPLE'S REPUBLIC OF CHINA

Product: **Batteries**
(Rechargeable Li-ion Battery)

This EU-Type Examination Certificate is issued according to the Directive 2014/30/EU relating to electromagnetic compatibility. It confirms that the listed apparatus complies with such aspects of the requirements of the EMC directive as specified by the manufacturer or his authorized representative in the European Community and applies only to the sample and its technical documentation submitted for testing and certification. This Type Examination does not contain any statements pertaining to the EMC protection requirements governed by other laws which serve to implement EU Directives other than the aforementioned Directive 2014/30/EU. For details see: www.tuvsud.com/ps-cert

Evaluation Report No.: 64.771.21.60091.01-(T)

Date, 2021-07-08

(Volker Albrecht)

TÜV SÜD Product Service GmbH is notified Body to the Directive 2014/30/EU relating to electromagnetic compatibility with the identification number 0123.

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 Munich • Germany

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

EU-Type Examination Certificate

No. E6A 090762 0040 Rev. 00

Model(s): **US5000, US5000-B**

Description of Object:

Basic Parameters	
Rated Energy/Capacity	4.8kWh/100Ah
Nominal Voltage	48V
Charge Voltage	52.5V~ 53.5V
Nominal Current	50A
Maximum Current	100A

Remark: All aspects of the essential requirements were assessed

Tested according to: EN IEC 61000-6-2:2019
EN 61000-6-3:2007/A1:2011

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Product Service

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Product: **Batteries**
(Rechargeable Li-ion Battery)

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Product Service

EU-Type Examination Certificate

No. E6A 090762 0040 Rev. 00

Model(s): **US5000, US5000-B**

Description of Object:

Basic Parameters	
Rated Energy/Capacity	4.8kWh/100Ah
Nominal Voltage	48V
Charge Voltage	52.5V~ 53.5V
Nominal Current	50A
Maximum Current	100A

Remark: All aspects of the essential requirements were assessed

Tested according to: EN IEC 61000-6-2:2019
EN 61000-6-3:2007/A1:2011

TÜV SÜD Product Service GmbH is notified Body to the Directive 2014/30/EU relating to electromagnetic compatibility with the identification number 0123.

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ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

UK CA

TÜV SÜD China

Attestation of Conformity

No. E8AUK 090762 0042 Rev. 00

Holder of Certificate: **Pylon Technologies Co., Ltd.**
No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park
201203 Pudong, Shanghai
PEOPLE'S REPUBLIC OF CHINA

Name of Object: **Batteries**
(Rechargeable Li-ion Battery)

This Attestation of Conformity is issued on a voluntary basis according to the Electromagnetic Compatibility Regulations 2016 relating to electromagnetic compatibility. It confirms that the listed apparatus complies with all essential requirements of the regulation and is based on the technical specifications applicable at the time of issuance. It refers only to the particular sample submitted for testing and certification. For details see: www.tuvsud.com/ps-cert

Test report no.: 64771216009101UK

Date, 2021-07-09

(Tony Liu)

After preparation of the necessary UK regulation technical documentation as well as the UK declaration of conformity the required UKCA marking can be affixed on the product. Other applicable UK regulations have to be observed.

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

UK CA

TÜV SÜD China

Attestation of Conformity

No. E8AUK 090762 0042 Rev. 00

Model(s): **US5000, US5000-B**

Description of Object:

Rated Energy/Capacity:	4.8kWh/100Ah
Nominal Voltage:	48V
Charge Voltage:	52.5 ~ 53.5V
Nominal Current:	50A
Maximum Current:	100A

Tested according to: EN IEC 61000-6-2:2019
EN 61000-6-3:2007/A1:2011

After preparation of the necessary UK regulation technical documentation as well as the UK declaration of conformity the required UKCA marking can be affixed on the product. Other applicable UK regulations have to be observed.

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TÜV SÜD Certification and Testing (China) Co., Ltd. No. 10, Huaxia Rd.(m), Xishan District, Wuxi, Jiangsu, P. R. China

Verification Report No. 64.168.22.60386.01D
Rev.00
Dated 2022-12-02

Applicant:	Pylon Technologies Co., Ltd.
Address:	No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park, Pudong, 201203 Shanghai, P.R. China
Sample Description:	Rechargeable Li-ion Battery excluding cell
Model No.:	Pelio-L-5.12, US5000, US5000-B
Sample Received Date:	2022-11-15
Test Period:	From 2022-11-15 to 2022-12-02
Purpose of examination:	Based on randomly-sampled examination of the evaluated Product, test Lead, Mercury, Cadmium, Chromium VI, Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), DEHP, BBP, DBP and DIBP according to RoHS (Restriction of Hazardous Substances) directive 2011/65/EU and its amendment (EU) 2015/863.
Test Result:	Refer to following page(s)
Remark:	The result relates only to the items tested.

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
TÜV SÜD Group

Prepared by:

Lily Feng
Project Handler

Reviewed by:

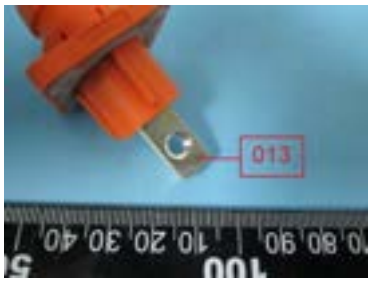
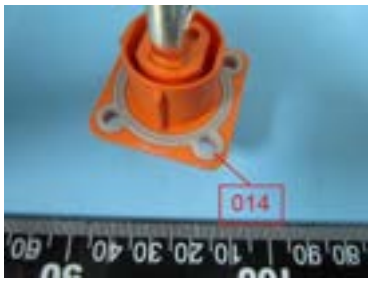
Kevin Zhang
Designated Reviewer

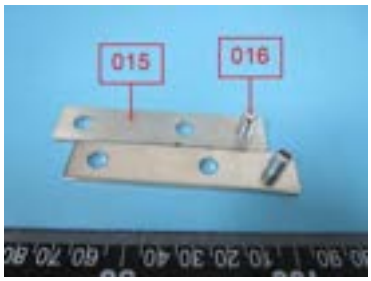
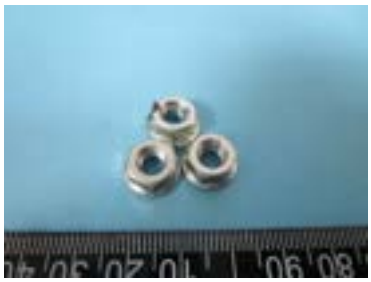
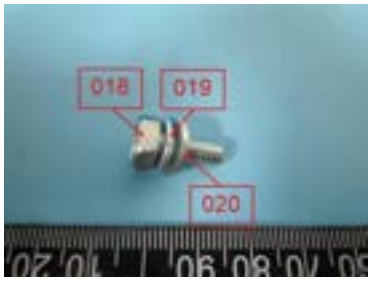
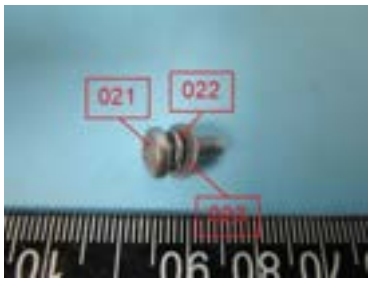
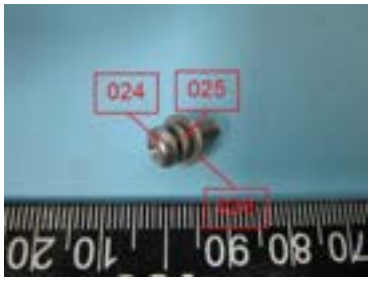
SUMMARY OF TEST RESULTS

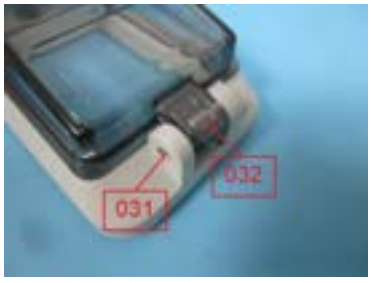
No.	Test Requested	Conclusion	Remarks
1.	Heavy Metal (Pb, Cd, Hg and Cr VI) Content	**PASS**	/
2.	Polybrominated Biphenyls (PBBs) and Polybrominated Diphenyl Ethers (PBDEs) Content	**PASS**	/
3.	Phthalates (DEHP, BBP, DBP and DIBP) Content	**PASS**	/

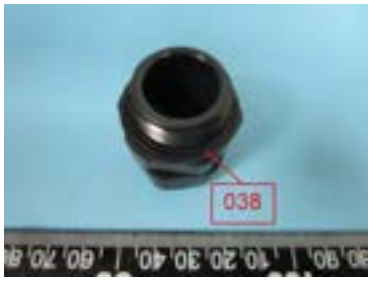
1. TESTED SUBJECT DESCRIPTION

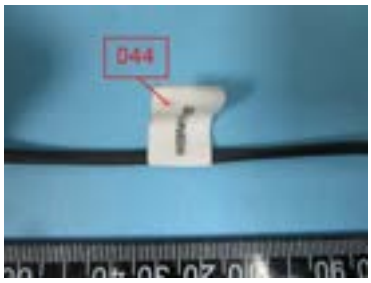
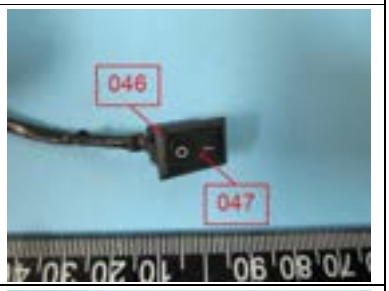
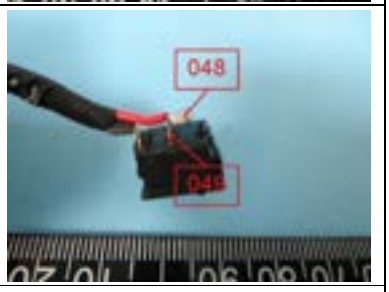
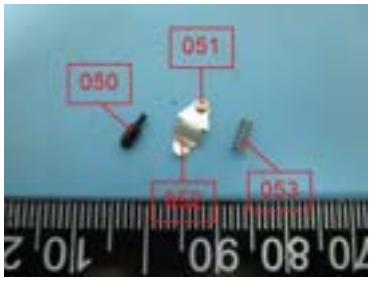
Sample Number	Model No.	Tested Material Description	Photo
001	Pelio-L-5.12	Silvery metal substrate part	
002		White/grey coating on case	
003		Silvery metal substrate case	
004	Pelio-L-5.12	Transparent plastic black/blue printed sticker	
005	Pelio-L-5.12	White plastic black printed sticker	
006	Pelio-L-5.12	Silvery plastic black printed sticker	
007	Pelio-L-5.12	Silvery metal part	

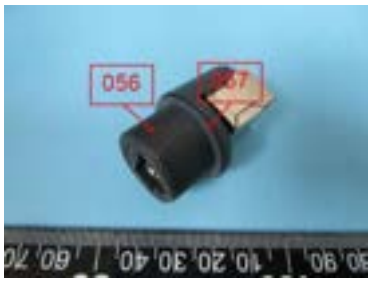
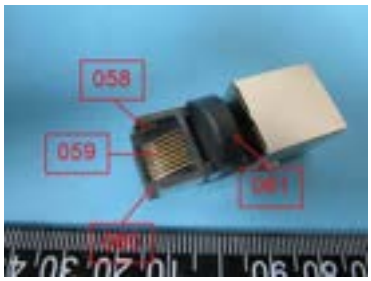
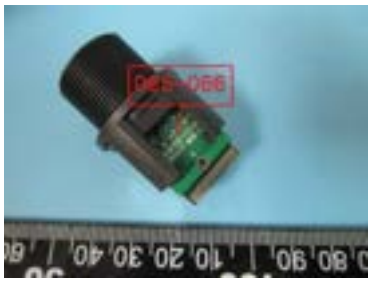
Sample Number	Model No.	Tested Material Description	Photo
008	Pelio-L-5.12	Silvery metal pin	
009	Pelio-L-5.12	Silvery metal screw	
010	Pelio-L-5.12	Orange plastic part	
011		Black plastic part	
012		White plastic part	
013	Pelio-L-5.12	Silvery metal part	
014	Pelio-L-5.12	Grey soft plastic ring	

Sample Number	Model No.	Tested Material Description	Photo
015	Pelio-L-5.12	Silvery metal plate	
016		Blue plated metal screw	
017	Pelio-L-5.12	Blue plated metal nut	
018	Pelio-L-5.12	Blue plated metal screw	
019		Blue plated metal ring	
020		Blue plated metal washer	
021	Pelio-L-5.12	Silvery metal screw	
022		Silvery metal ring	
023		Silvery metal washer	
024	Pelio-L-5.12	Silvery metal screw	
025		Silvery metal ring	
026		Silvery metal washer	

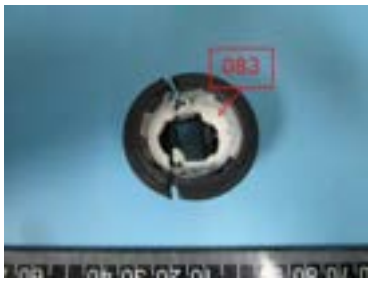
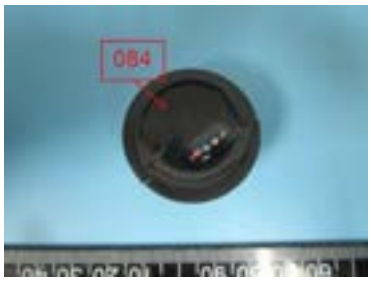
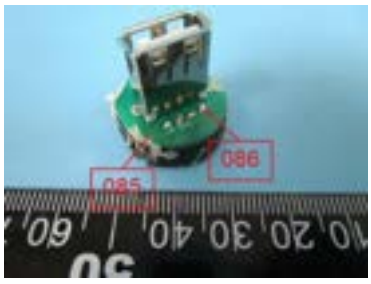
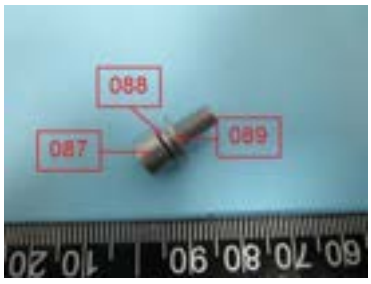
Sample Number	Model No.	Tested Material Description	Photo
027	Pelio-L-5.12	Black foam	
028	Pelio-L-5.12	Transparent grey plastic cover	
029	Pelio-L-5.12	Grey plastic knob	
030		Silvery metal screw	
031	Pelio-L-5.12	Silvery metal axle	
032		Silvery metal spring	
033	Pelio-L-5.12	Black soft plastic ring	
034		Golden metal part	

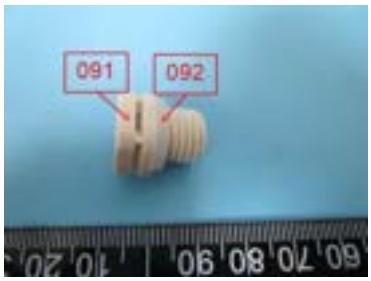
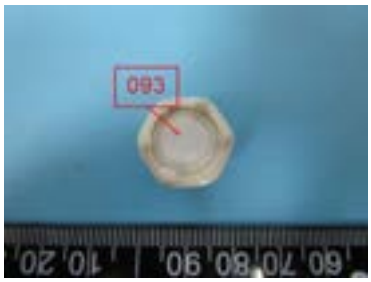
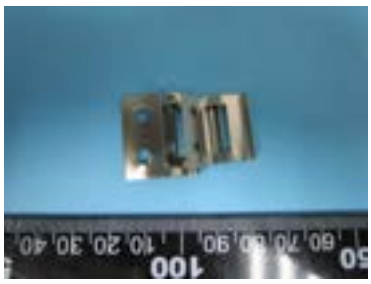
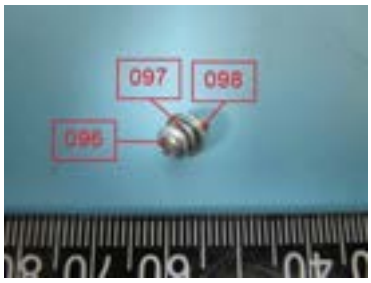
Sample Number	Model No.	Tested Material Description	Photo
035	Pelio-L-5.12	Blue plated metal screw	
036	Pelio-L-5.12	Black plastic part	
037	Pelio-L-5.12	Black soft plastic part	
038	Pelio-L-5.12	Black soft plastic washer	
040	Pelio-L-5.12	Red soft plastic wire jacket (DAOWANG)	
041		Silvery metal wire	
042		White plastic socket	
043		Silvery metal pin	

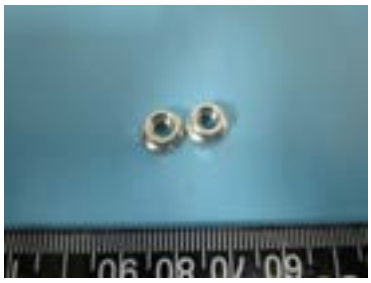
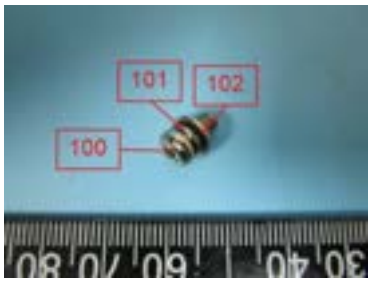
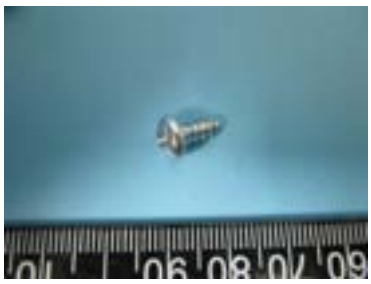
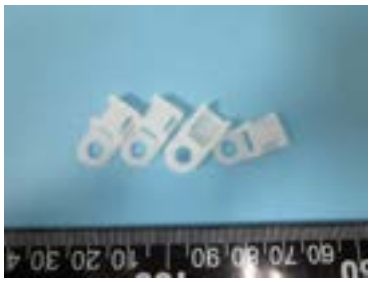
Sample Number	Model No.	Tested Material Description	Photo
044	Pelio-L-5.12	White plastic black printed sticker	
046	Pelio-L-5.12	Black plastic frame	
047		Black plastic white printed button	
048	Pelio-L-5.12	Silvery metal solder	
049		Silvery metal terminal	
050	Pelio-L-5.12	Black plastic pin	
051		Silvery/coppery metal contact	
052		Silvery metal plate	
053		Silvery metal spring	
054	Pelio-L-5.12	Silvery metal part	
055		Silvery metal cover	

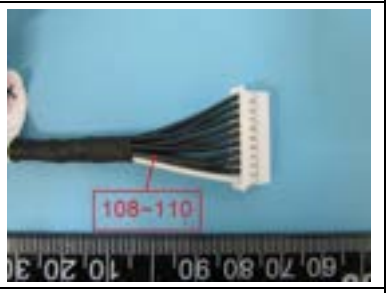
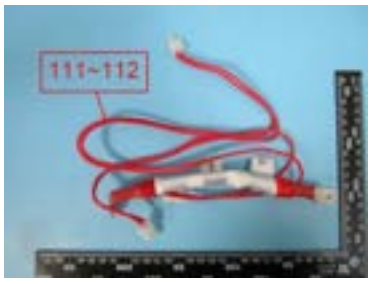
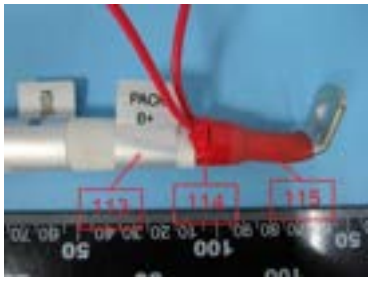
Sample Number	Model No.	Tested Material Description	Photo
056	Pelio-L-5.12	Black plastic part	
057		Grey soft plastic ring	
058	Pelio-L-5.12	Silvery metal plate	
059		Golden metal pin	
060		Black plastic holder	
061		Black glue	
062	Pelio-L-5.12	Silvery metal part	
063		Black plastic holder	
064		Golden metal pin	
065	Pelio-L-5.12	Green PCB	
066		Silvery metal solder	
067	Pelio-L-5.12	Silvery metal screw	

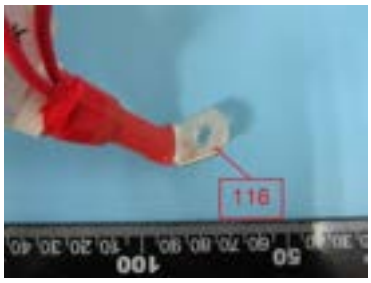
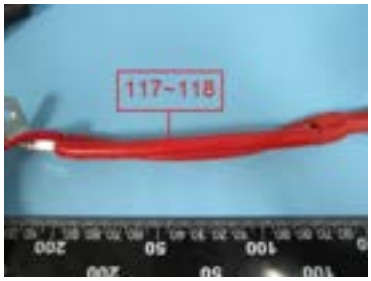
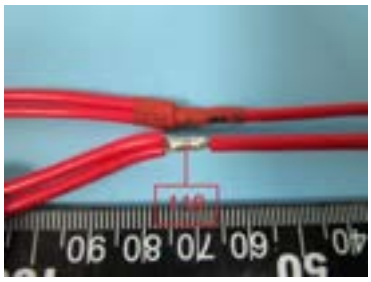
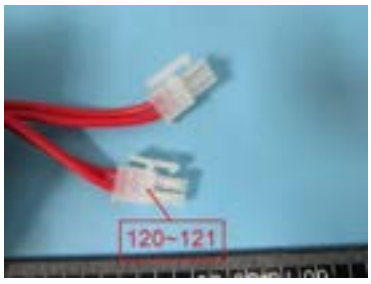
Sample Number	Model No.	Tested Material Description	Photo
068	Pelio-L-5.12	White fiber glass tube	
069	Pelio-L-5.12	Black soft plastic wire jacket (STYLE)	
070		Red soft plastic wire jacket	
071		Brown soft plastic wire jacket	
072		Blue soft plastic wire jacket	
073		Silvery metal wire	
074	Pelio-L-5.12	Black plastic socket	
075		Silvery metal pin	
076	Pelio-L-5.12	Black soft plastic part	
077		Black plastic cover	
078	Pelio-L-5.12	Black plastic part	
079		Silvery metal part (USB)	
080		White plastic holder	
081		Silvery metal pin	
082		Black soft plastic ring	

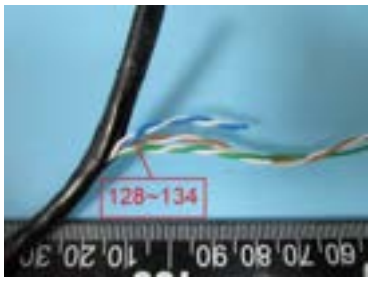
Sample Number	Model No.	Tested Material Description	Photo
083	Pelio-L-5.12	Black plastic base	
084	Pelio-L-5.12	Black plastic base	
085	Pelio-L-5.12	Green PCB	
086		Silvery metal solder	
087	Pelio-L-5.12	Silvery metal screw	
088		Silvery metal ring	
089		Silvery metal washer	
090	Pelio-L-5.12	Silvery metal screw	

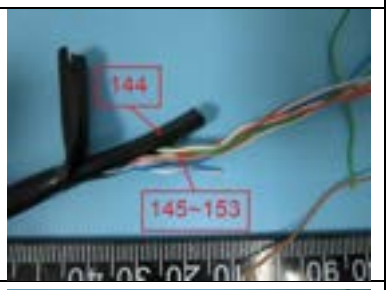
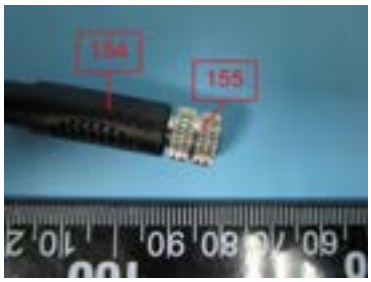
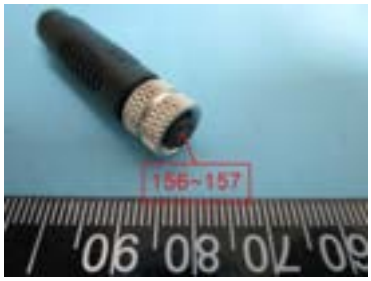
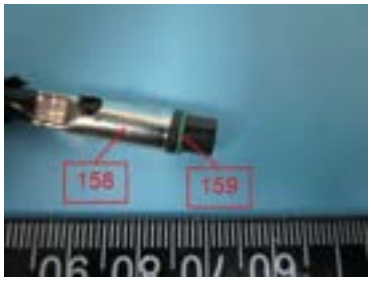
Sample Number	Model No.	Tested Material Description	Photo
091	Pelio-L-5.12	Beige plastic cover	
092		White soft plastic ring	
093	Pelio-L-5.12	White fabric part	
094	Pelio-L-5.12	Grey soft plastic ring	
095	Pelio-L-5.12	Silvery metal plate	
096	Pelio-L-5.12	Blue plated metal screw	
097		Blue plated metal ring	
098		Blue plated metal washer	

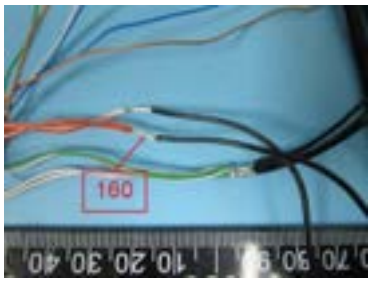
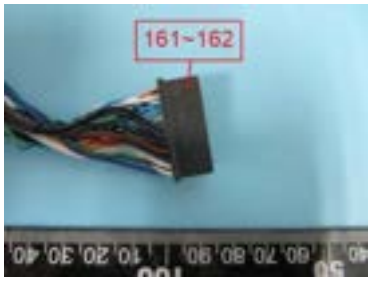
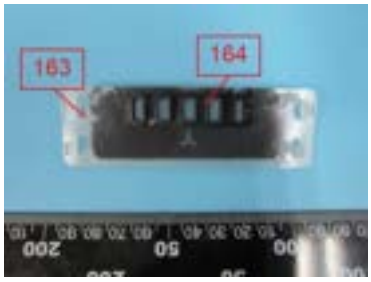
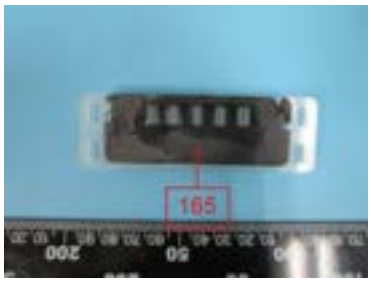
Sample Number	Model No.	Tested Material Description	Photo
099	Pelio-L-5.12	Silvery metal nut	
100	Pelio-L-5.12	Silvery metal screw	
101		Silvery metal ring	
102		Silvery metal washer	
103	Pelio-L-5.12	Blue plated metal screw	
104	Pelio-L-5.12	White plastic buckle	
105	Pelio-L-5.12	White plastic tie	

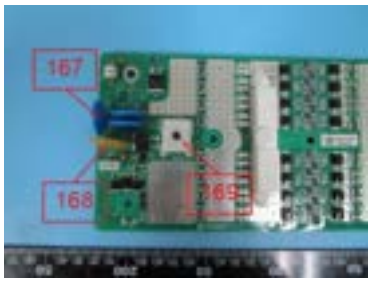
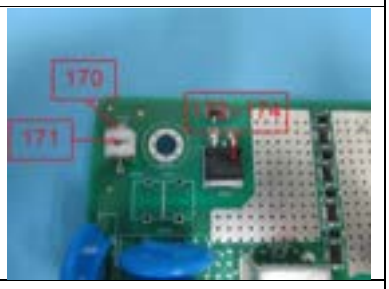
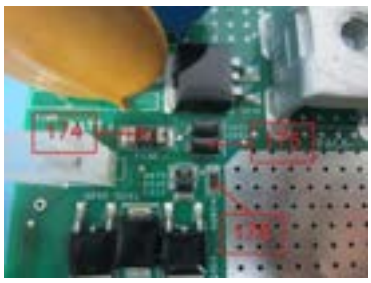
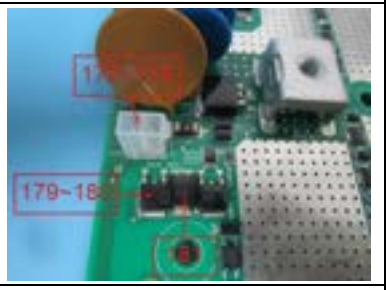
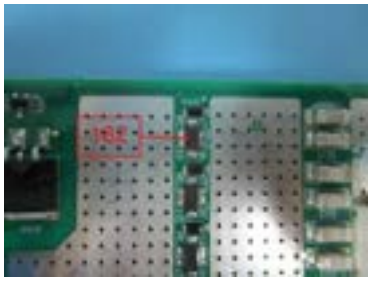
Sample Number	Model No.	Tested Material Description	Photo
106	Pelio-L-5.12	Black adhesive fabric tape	
107	Pelio-L-5.12	Black adhesive plastic tape	
108	Pelio-L-5.12	Black soft plastic wire jacket (JINGFENG-SH)	
109		White soft plastic wire jacket	
110		Silvery metal wire	
111	Pelio-L-5.12	Red soft plastic wire jacket (JINGFENG-SH)	
112		Silvery metal wire	
113	Pelio-L-5.12	Silvery plastic black printed sticker	
114		Red adhesive plastic tape	

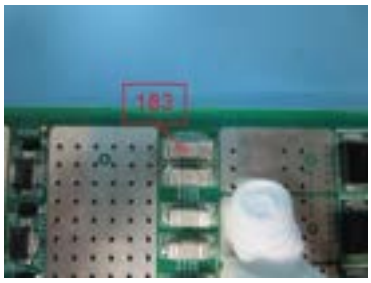
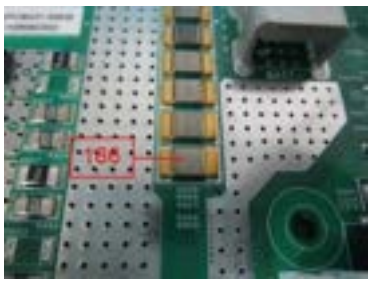
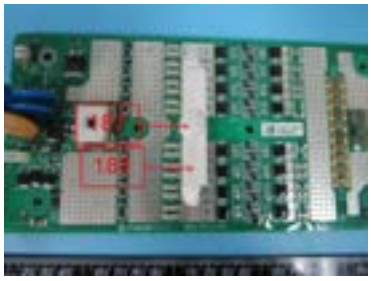
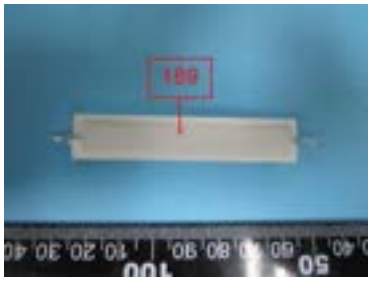
Sample Number	Model No.	Tested Material Description	Photo
116	Pelio-L-5.12	Silvery metal terminal	
118	Pelio-L-5.12	Silvery metal wire	
119	Pelio-L-5.12	Silvery metal solder	
120	Pelio-L-5.12	White plastic socket	
121		Silvery metal pin	
124	Pelio-L-5.12	Black soft plastic cable jacket	

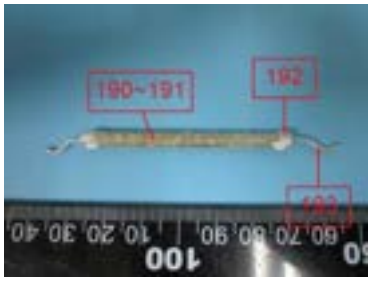
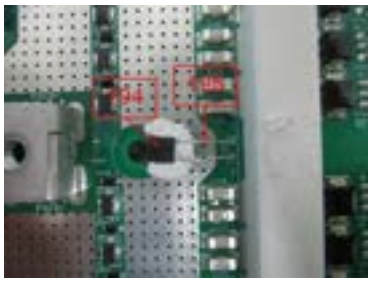
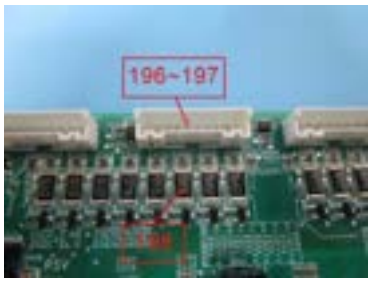
Sample Number	Model No.	Tested Material Description	Photo
125	Pelio-L-5.12	Black plastic part	
126		Transparent plastic socket	
127		Golden metal pin	
128	Pelio-L-5.12	Blue soft plastic wire jacket	
129		White/blue soft plastic wire jacket	
130		Brown soft plastic wire jacket	
131		White/brown soft plastic wire jacket	
132		Green soft plastic wire jacket	
134		Coppery metal wire	
135	Pelio-L-5.12	White soft plastic wire jacket (LONGHUI)	
136		Green soft plastic wire jacket	
137		Red soft plastic wire jacket	
138		Black soft plastic wire jacket	
139		Blue soft plastic wire jacket	
140		Yellow soft plastic wire jacket	
141		Brown soft plastic wire jacket	
142		Coppery metal wire	
143	Pelio-L-5.12	Black soft plastic cable jacket	
144	Pelio-L-5.12	Black soft plastic cable jacket	
145		Blue soft plastic wire jacket	
146		Green soft plastic wire jacket	
147		Brown soft plastic wire jacket	

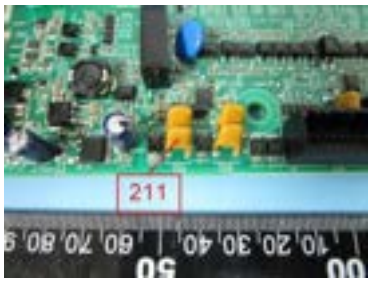
Sample Number	Model No.	Tested Material Description	Photo
148		Orange soft plastic wire jacket	
149	Pelio-L-5.12	White/Blue soft plastic wire jacket	
150		White/Green soft plastic wire jacket	
151		White/Brown soft plastic wire jacket	
152		White/Orange soft plastic wire jacket	
153		White/Coppery metal wire	
154	Pelio-L-5.12	Black soft plastic part	
155		Silvery metal part	
156	Pelio-L-5.12	Black plastic holder	
157		Golden metal pin	
158	Pelio-L-5.12	Silvery metal part	

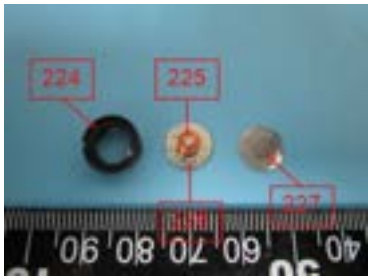
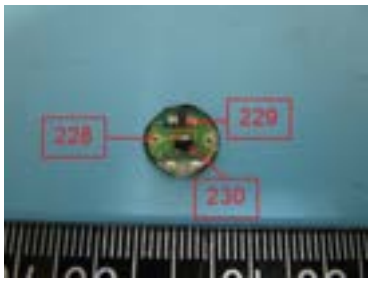
Sample Number	Model No.	Tested Material Description	Photo
160	Pelio-L-5.12	Silvery metal solder	
161	Pelio-L-5.12	Black plastic socket	
162		Silvery metal pin	
163	Pelio-L-5.12	Transparent plastic part	
164		Black plastic part	
165	Pelio-L-5.12	Black adhesive foam	
166	Pelio-L-5.12	Green PCB	

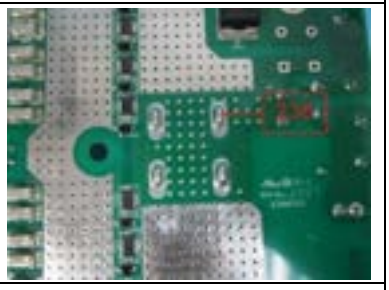
Sample Number	Model No.	Tested Material Description	Photo
167	Pelio-L-5.12	Blue body (Capacitor)	
168		Yellow body (Capacitor)	
169		Silvery metal part	
170	Pelio-L-5.12	Silvery metal cap	
171		White ceramic part	
172		Black body (MOSFET transistor)	
173		Silvery/Coppery metal plate with solder	
174	Pelio-L-5.12	Brown body	
175		Black body	
176		Black printed white body (SMD capacity)	
177	Pelio-L-5.12	White plastic socket	
178		Silvery metal pin	
179		Black body (MOSFET transistor)	
180		Silvery/Coppery metal plate	
181		Black body	
182	Pelio-L-5.12	Black body	

Sample Number	Model No.	Tested Material Description	Photo
183	Pelio-L-5.12	White body	
184	Pelio-L-5.12	White/yellow plastic black printer sticker	
185		Black printed white body (SMD capacity)	
186	Pelio-L-5.12	Silvery metal part	
187	Pelio-L-5.12	White glue	
188		White ceramic shell	
189	Pelio-L-5.12	White power base	

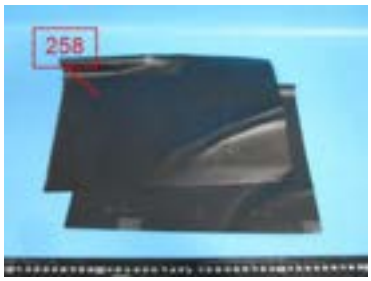
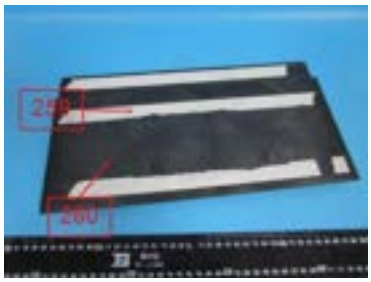
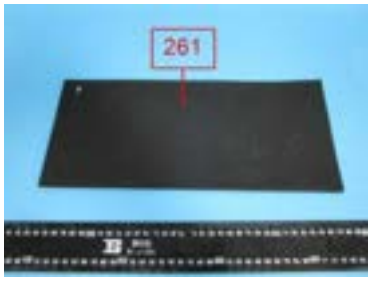
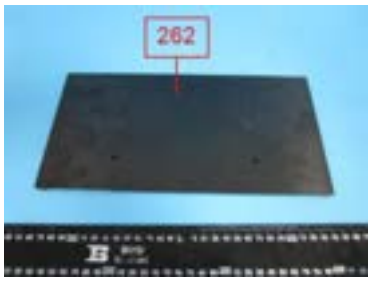
Sample Number	Model No.	Tested Material Description	Photo
190	Pelio-L-5.12	Silvery metal coil	
191		White fiber glass part	
192		Silvery metal cap	
193		Silvery metal pin	
194	Pelio-L-5.12	Black body	
195		Silvery metal pin	
196	Pelio-L-5.12	White plastic port	
197		Silvery metal pin	
198		Black printed white body (SMD capacity)	
199	Pelio-L-5.12	Blue plastic white printed sleeve (Electrolytic capacitor)	
200		Silvery metal shell	
201		Black plastic cap	
202		Brown paper with liquid	
203		Silvery metal foil with pin	
204	Pelio-L-5.12	Black body	
205		Black body	

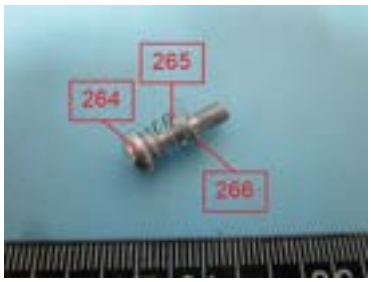
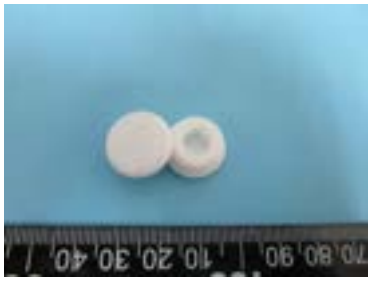
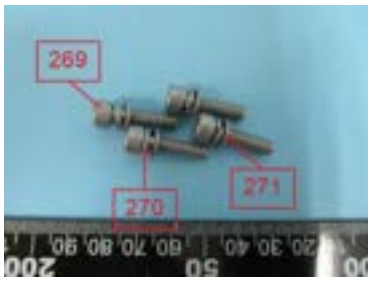
Sample Number	Model No.	Tested Material Description	Photo
206	Pelio-L-5.12	Black magnet	
207		Coppery metal coil	
208		Silvery metal pin	
209	Pelio-L-5.12	Black plastic shell	
210		Green PCB with electronic components	
211	Pelio-L-5.12	Yellow body (Capacitor)	
212	Pelio-L-5.12	Brown/silvery body (SMD resistor)	
213		White/silvery body (SMD resistor)	
214		Black/silvery body (SMD resistor)	
215	Pelio-L-5.12	Black plastic port	
216		Golden metal pin	

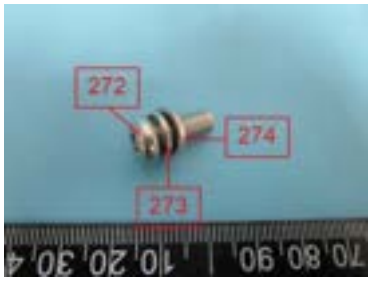
Sample Number	Model No.	Tested Material Description	Photo
217	Pelio-L-5.12	Black plastic shell	
218		Black magnet inner	
219		Red/green/coppery metal coil inner	
220	Pelio-L-5.12	White plastic port	
221		Silvery metal pin	
222		Black plastic shell	
223		Black plastic base	
224	Pelio-L-5.12	Black magnet	
225		Coppery metal coil	
226		Silvery metal part	
227		Silvery metal plate	
228	Pelio-L-5.12	Green PCB	
229		Black/silvery body (SMD resistor)	
230		Black body	
231	Pelio-L-5.12	Black body	
232		Black body	

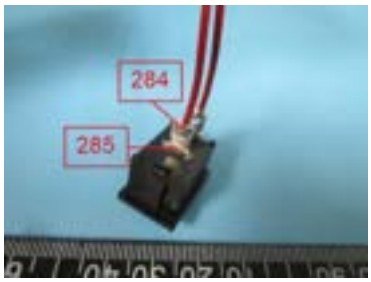
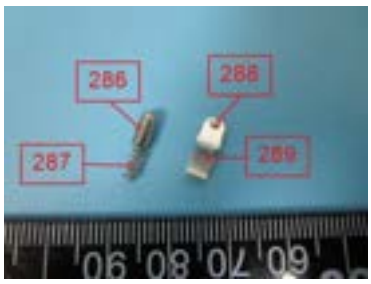
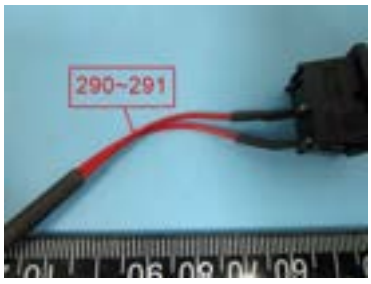
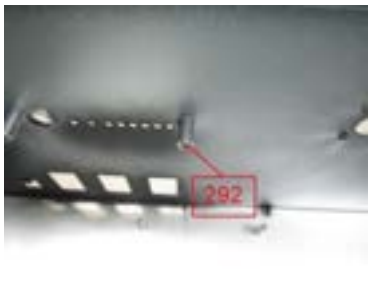
Sample Number	Model No.	Tested Material Description	Photo
233	Pelio-L-5.12	Black body	
234	Pelio-L-5.12	Silvery metal body	
235	Pelio-L-5.12	Black body (MOSFET transistor)	
236		Silvery/Coppery metal plate with solder	
237		Silvery metal pin	
238	Pelio-L-5.12	Silvery metal solder	
239	Pelio-L-5.12	Silvery metal shell	
240		Black plastic holder	
241		Silvery metal pin	

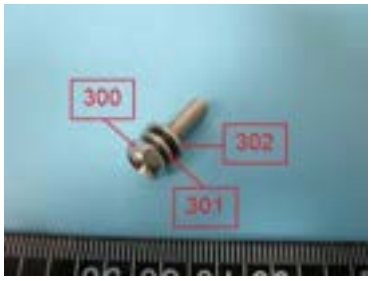
Sample Number	Model No.	Tested Material Description	Photo
242	Pelio-L-5.12	Silvery metal part (USB)	
243		Black plastic holder	
244		Silvery metal pin	
245		Black plastic button (Switch)	
246		Silvery metal plate	
247		Black plastic case	
248		Silvery metal pin	
249		Silvery/coppery metal foil inner	
250		Red plastic shell	
251		White plastic button	
252		Black plastic base	
253		Golden metal pin	
254	Pelio-L-5.12	Black body	
255	Pelio-L-5.12	Transparent LED	
256		Yellow LED	

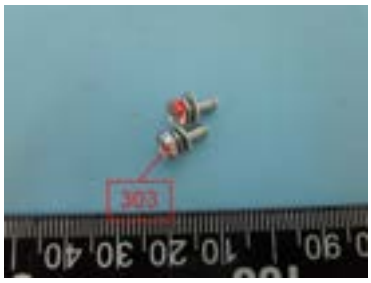
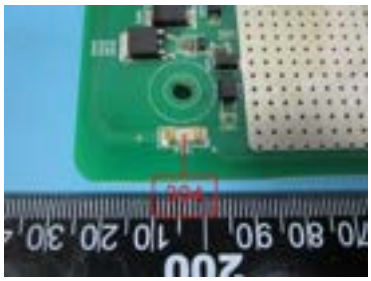
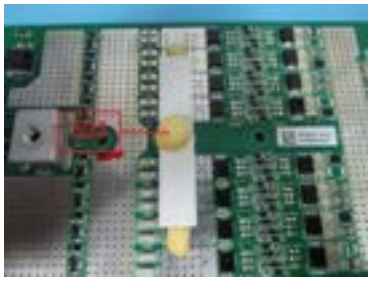
Sample Number	Model No.	Tested Material Description	Photo
257	Pelio-L-5.12	Blue soft plastic part	
258	Pelio-L-5.12	Black plastic sheet	
259	Pelio-L-5.12	White adhesive plastic tape	
260		Black plastic part	
261	Pelio-L-5.12	Black adhesive foam	
262	Pelio-L-5.12	Black plastic part	

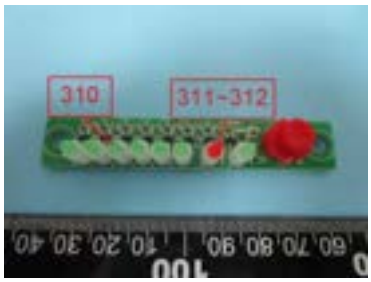
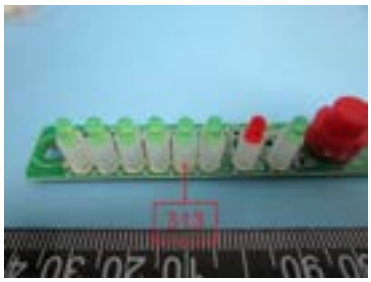
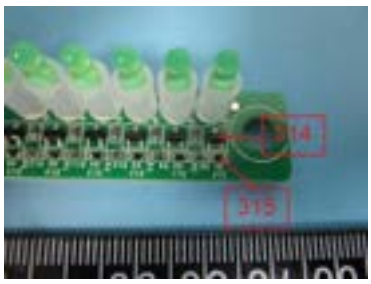
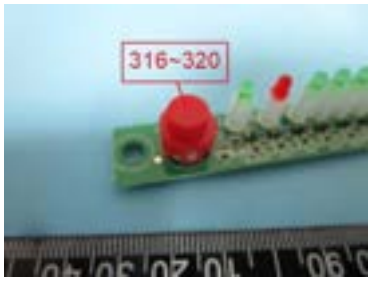
Sample Number	Model No.	Tested Material Description	Photo
263	Pelio-L-5.12	White plastic part	
264	Pelio-L-5.12	Silvery metal screw	
265		Silvery metal spring	
266		Silvery metal washer	
267	Pelio-L-5.12	Black plastic part	
268	Pelio-L-5.12	White soft plastic part	
269	Pelio-L-5.12	Silvery metal screw	
270		Silvery metal ring	
271		Silvery metal washer	

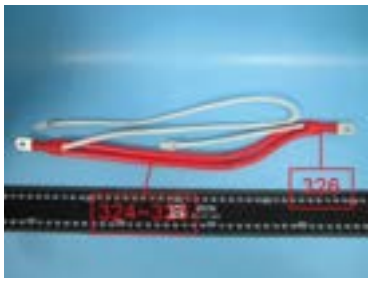
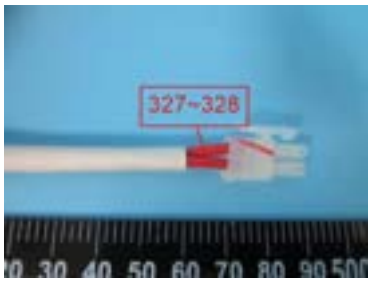
Sample Number	Model No.	Tested Material Description	Photo
272	Pelio-L-5.12	Silvery metal screw	
273		Silvery metal ring	
274		Silvery metal washer	
275	Pelio-L-5.12	Black glue	
276		White glue	
277	US5000	Black coating on part	
278		Silvery metal substrate part	
279		Black plated metal screw	
280	US5000	Silvery metal handle	
281	US5000	Transparent soft plastic cover	

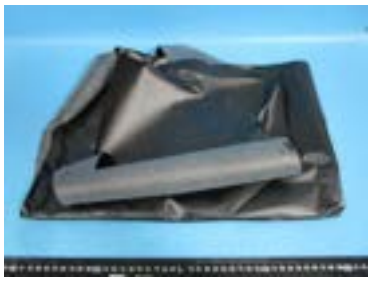
Sample Number	Model No.	Tested Material Description	Photo
282	US5000	Black plastic button	
283		Black plastic shell (HONGJU MR)	
284	US5000	Silvery metal solder	
285		Silvery metal terminal	
286	US5000	Silvery metal pin	
287		Silvery metal spring	
288		Silvery/coppery metal contact	
289		Silvery metal plate	
290	US5000	Red soft plastic wire jacket (WL)	
291		Silvery metal wire	
292	US5000	Blue plated metal part	

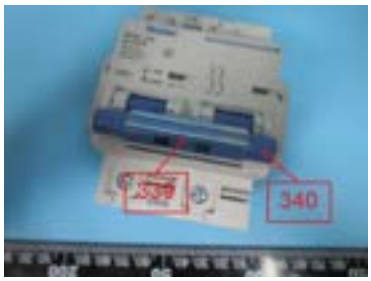
Sample Number	Model No.	Tested Material Description	Photo
293	US5000	Orange plastic part	
294		Black plastic part	
295		White plastic part	
296	US5000	Silvery metal part	
297	US5000	Blue plastic sheet	
298		White plastic blue printed tape	
299	US5000	Silvery metal part	
300	US5000	Silvery metal screw	
301		Silvery metal ring	
302		Silvery metal washer	

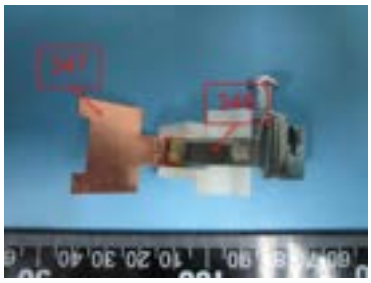
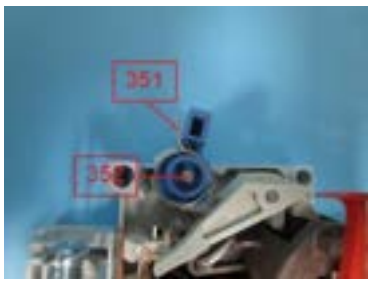
Sample Number	Model No.	Tested Material Description	Photo
303	US5000	Blue plated metal screw	
304	US5000	White body	
305	US5000	White glue yellow printed	
306	US5000	Brown body	
307	US5000	Black plastic white printed sleeve (Electrolytic capacitor)	

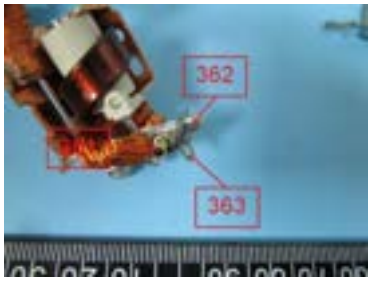
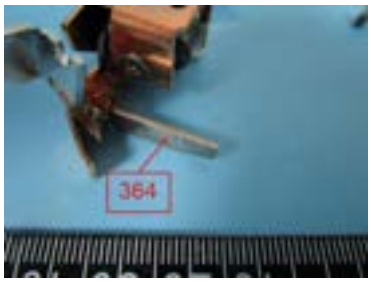
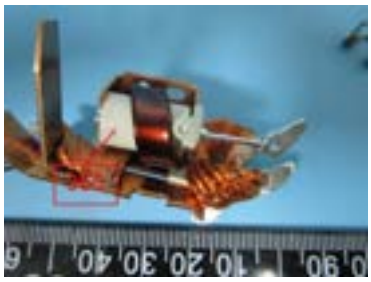
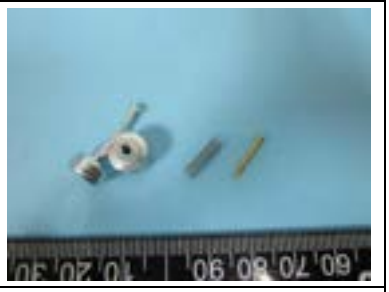
Sample Number	Model No.	Tested Material Description	Photo
308	US5000	Black body	
309		Black body	
310	US5000	Green plastic LED	
311		Red plastic LED	
312		Silvery metal pin	
313	US5000	White plastic tube	
314	US5000	Black body	
315		Black body	
316	US5000	Red plastic button	
317		White plastic shell	
318		Silvery metal plate inner	
319		Silvery metal spring inner	
320		Golden metal pin	

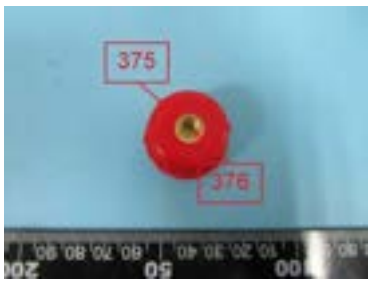
Sample Number	Model No.	Tested Material Description	Photo
321	US5000	Black plastic clip	
322		White plastic port	
323		Golden metal pin	
324	US5000	Red soft plastic wire jacket (WL)	
325		Silvery metal wire	
326		Bright red soft plastic heating shrinkable tube	
327	US5000	Red soft plastic wire jacket (WL)	
328		Silvery metal wire	
329	US5000	Black soft plastic wire jacket (WL)	
330		Black soft plastic wire jacket (STYLE)	
331		Silvery metal wire	
332	US5000	Black soft plastic wire jacket (GUANGDONG HAERKN NEW ENERGY)	
333		Silvery metal wire	

Sample Number	Model No.	Tested Material Description	Photo
334	US5000	Blue adhesive plastic tape	
335	US5000	Black plastic sheet	
336	US5000	Black plastic sheet	
337	US5000-B	White plastic blue/black printed shell	
338	US5000-B	Transparent plastic part	

Sample Number	Model No.	Tested Material Description	Photo
339	US5000-B	Transparent plastic part	
340		Blue plastic button	
341	US5000-B	Grey plastic part	
342		Silvery metal plate	
343	US5000-B	Golden metal rivet	
344	US5000-B	Red paper sheet	
345		Silvery metal plate	
346	US5000-B	White plastic part	

Sample Number	Model No.	Tested Material Description	Photo
347	US5000-B	Coppery metal plate	
348		Silvery metal plate	
349	US5000-B	Blue plated metal screw	
350		Blue plated metal part	
351	US5000-B	Silvery metal spring	
352		Silvery metal axle	
353	US5000-B	White plastic part	
354		Silvery metal part	
355		Brown plastic part	
356		Red plastic green printed part	
357	US5000-B	Coppery metal plate	
358		Coppery metal plate	
359		Silvery metal plate	
360		Coppery metal thread	

Sample Number	Model No.	Tested Material Description	Photo
361	US5000-B	Golden metal tube	
362		Silvery metal spring	
363		Silvery metal part	
364	US5000-B	Silvery metal plate	
365	US5000-B	White plastic shell	
366	US5000-B	Blue plated metal part	
367		Silvery metal spring	
368		Golden metal pin	
369	US5000-B	Blue plated metal screw	
370		Golden metal part	

Sample Number	Model No.	Tested Material Description	Photo
371	US5000-B	Orange soft plastic heating shrinkable tube	
372		Coppery metal plate	
373	US5000-B	Black soft plastic heating shrinkable tube	
374		Silvery metal plate	
375	US5000-B	Red plastic part	
376		Golden metal part	

2. TEST RESULTS

2.1. SCREENING TEST

Test method: With reference to EN 62321-1:2013, EN IEC 62321-2:2021, EN 62321-3-1:2014 and EN 62321-8:2017. For Heavy Metals and Flame Retardants, analyzed by Energy Dispersive X-ray Fluorescence Spectrometers (XRF); for phthalates, analyzed by Gas Chromatography and Mass Spectrometry (GC-MS).

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
001	BL	BL	BL	OL[(a)]	NA	NA	NA	NA	NA
002	BL	BL	BL	BL	BL	BL	BL	BL	BL
003	BL	BL	BL	BL	NA	NA	NA	NA	NA
004	BL	BL	BL	BL	BL	BL	BL	BL	BL
005	BL	BL	BL	BL	BL	BL	BL	BL	BL
006	BL	BL	BL	BL	BL	BL	BL	BL	BL
007	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
008	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
009	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
010	BL	BL	BL	BL	BL	BL	BL	BL	BL
011	BL	BL	BL	BL	BL	BL	BL	BL	BL
012	BL	BL	BL	BL	Inc.[(a)]	BL	BL	BL	BL
013	BL	BL	BL	BL	NA	NA	NA	NA	NA
014	BL	BL	BL	BL	BL	BL	BL	BL	BL
015	BL	BL	BL	BL	NA	NA	NA	NA	NA
016	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
017	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
018	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
019	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
020	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
021	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
022	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
023	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
024	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
025	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
026	BL	Inc.[(a)]	BL	BL	NA	NA	NA	NA	NA
027	BL	BL	BL	BL	BL	BL	BL	BL	BL

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
028	BL	BL	BL	BL	BL	BL	BL	BL	BL
029	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
030	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
031	BL	BL	BL	BL	NA	NA	NA	NA	NA
032	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
033	BL	BL	BL	BL	BL	BL	BL	BL	BL
034	BL	BL	BL	OL[a]	NA	NA	NA	NA	NA
035	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
036	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
037	BL	BL	BL	BL	BL	BL	BL	BL	BL
038	BL	BL	BL	BL	BL	BL	BL	BL	BL
040	BL	BL	BL	BL	BL	BL	BL	BL	BL
041	BL	BL	BL	BL	NA	NA	NA	NA	NA
042	BL	BL	BL	BL	BL	BL	BL	BL	BL
043	BL	BL	BL	BL	NA	NA	NA	NA	NA
044	BL	BL	BL	BL	BL	BL	BL	BL	BL
046	BL	BL	BL	BL	BL	BL	BL	BL	BL
047	BL	BL	BL	BL	BL	BL	BL	BL	BL
048	BL	BL	BL	BL	NA	NA	NA	NA	NA
049	BL	BL	BL	BL	NA	NA	NA	NA	NA
050	BL	BL	BL	BL	BL	BL	BL	BL	BL
051	BL	BL	BL	BL	NA	NA	NA	NA	NA
052	BL	BL	BL	BL	NA	NA	NA	NA	NA
053	BL	BL	BL	BL	NA	NA	NA	NA	NA
054	BL	BL	BL	BL	NA	NA	NA	NA	NA
055	BL	BL	BL	BL	NA	NA	NA	NA	NA
056	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
057	BL	BL	BL	BL	BL	BL	BL	BL	BL
058	Inc.[a]	BL	BL	BL	NA	NA	NA	NA	NA
059	BL	BL	BL	BL	NA	NA	NA	NA	NA
060	BL	BL	BL	BL	BL	BL	BL	BL	BL
061	BL	BL	BL	BL	BL	BL	BL	BL	BL

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
062	BL	BL	BL	BL	NA	NA	NA	NA	NA
063	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
064	BL	BL	BL	BL	NA	NA	NA	NA	NA
065	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
066	Inc.[a]	BL	BL	BL	NA	NA	NA	NA	NA
067	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
068	BL	BL	BL	BL	BL	BL	BL	BL	BL
069	BL	BL	BL	BL	BL	BL	BL	BL	BL
070	BL	BL	BL	BL	BL	BL	BL	BL	BL
071	BL	BL	BL	BL	BL	BL	BL	BL	BL
072	BL	BL	BL	BL	BL	BL	BL	BL	BL
073	BL	BL	BL	BL	NA	NA	NA	NA	NA
074	BL	BL	BL	BL	BL	BL	BL	BL	BL
075	BL	BL	BL	BL	NA	NA	NA	NA	NA
076	BL	BL	BL	BL	BL	BL	BL	BL	BL
077	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
078	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
079	BL	BL	BL	BL	NA	NA	NA	NA	NA
080	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
081	BL	BL	BL	BL	NA	NA	NA	NA	NA
082	BL	BL	BL	BL	BL	BL	BL	BL	BL
083	BL	BL	BL	BL	BL	BL	BL	BL	BL
084	BL	BL	BL	BL	BL	BL	BL	BL	BL
085	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
086	BL	BL	BL	BL	NA	NA	NA	NA	NA
087	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
088	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
089	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
090	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
091	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
092	BL	BL	BL	BL	BL	BL	BL	BL	BL
093	BL	BL	BL	BL	BL	BL	BL	BL	BL

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
094	BL	BL	BL	BL	BL	BL	BL	BL	BL
095	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
096	BL	BL	BL	BL	NA	NA	NA	NA	NA
097	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
098	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
099	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
100	BL	BL	BL	BL	NA	NA	NA	NA	NA
101	BL	BL	BL	BL	NA	NA	NA	NA	NA
102	BL	BL	BL	BL	NA	NA	NA	NA	NA
103	BL	BL	BL	BL	NA	NA	NA	NA	NA
104	BL	BL	BL	BL	BL	BL	BL	BL	BL
105	BL	BL	BL	BL	BL	BL	BL	BL	BL
106	BL	BL	BL	BL	BL	BL	BL	BL	BL
107	BL	BL	BL	BL	BL	BL	BL	BL	BL
108	BL	BL	BL	BL	BL	BL	BL	BL	BL
109	BL	BL	BL	BL	BL	BL	BL	BL	BL
110	BL	BL	BL	BL	NA	NA	NA	NA	NA
111	BL	BL	BL	BL	BL	BL	BL	BL	BL
112	BL	BL	BL	BL	NA	NA	NA	NA	NA
113	BL	BL	BL	BL	BL	BL	BL	BL	BL
114	BL	BL	BL	BL	BL	BL	BL	BL	BL
116	BL	BL	BL	BL	NA	NA	NA	NA	NA
118	BL	BL	BL	BL	NA	NA	NA	NA	NA
119	BL	BL	BL	BL	NA	NA	NA	NA	NA
120	BL	BL	BL	BL	BL	BL	BL	BL	BL
121	BL	BL	BL	BL	NA	NA	NA	NA	NA
124	BL	BL	BL	BL	BL	BL	BL	BL	BL
125	BL	BL	BL	BL	BL	BL	BL	BL	BL
126	BL	BL	BL	BL	BL	BL	BL	BL	BL
127	BL	BL	BL	BL	NA	NA	NA	NA	NA
128	BL	BL	BL	BL	BL	BL	BL	BL	BL
129	BL	BL	BL	BL	BL	BL	BL	BL	BL

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
130	BL	BL	BL	BL	BL	BL	BL	BL	BL
131	BL	BL	BL	BL	BL	BL	BL	BL	BL
132	BL	BL	BL	BL	BL	BL	BL	BL	BL
134	BL	BL	BL	BL	NA	NA	NA	NA	NA
135	BL	BL	BL	BL	BL	BL	BL	BL	BL
136	BL	BL	BL	BL	BL	BL	BL	BL	BL
137	BL	BL	BL	BL	BL	BL	BL	BL	BL
138	BL	BL	BL	BL	BL	BL	BL	BL	BL
139	BL	BL	BL	BL	BL	BL	BL	BL	BL
140	BL	BL	BL	BL	BL	BL	BL	BL	BL
141	BL	BL	BL	BL	BL	BL	BL	BL	BL
142	BL	BL	BL	BL	NA	NA	NA	NA	NA
143	BL	BL	BL	BL	BL	BL	BL	BL	BL
144	BL	BL	BL	BL	BL	BL	BL	BL	BL
145	BL	BL	BL	BL	BL	BL	BL	BL	BL
146	BL	BL	BL	BL	BL	BL	BL	BL	BL
147	BL	BL	BL	BL	BL	BL	BL	BL	BL
148	BL	BL	BL	BL	BL	BL	BL	BL	BL
149	BL	BL	BL	BL	BL	BL	BL	BL	BL
150	BL	BL	BL	BL	BL	BL	BL	BL	BL
151	BL	BL	BL	BL	BL	BL	BL	BL	BL
152	BL	BL	BL	BL	BL	BL	BL	BL	BL
153	BL	BL	BL	BL	NA	NA	NA	NA	NA
154	BL	BL	BL	BL	BL	BL	BL	BL	BL
155	BL	BL	BL	**OL**[(a)]	NA	NA	NA	NA	NA
156	BL	BL	BL	BL	**Inc.**[(a)]	BL	BL	BL	BL
157	BL	BL	BL	**OL**[(a)]	NA	NA	NA	NA	NA
158	BL	BL	BL	**OL**[(a)]	NA	NA	NA	NA	NA
160	**Inc.**[(a)]	BL	BL	BL	NA	NA	NA	NA	NA
161	BL	BL	BL	BL	**Inc.**[(a)]	BL	BL	BL	BL
162	BL	BL	BL	BL	NA	NA	NA	NA	NA
163	BL	BL	BL	BL	BL	BL	BL	BL	BL

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
164	BL	BL	BL	BL	BL	BL	BL	BL	BL
165	BL	BL	BL	BL	BL	BL	BL	BL	BL
166	BL	BL	BL	BL	**Inc.**[(a)]	BL	BL	BL	BL
167	BL	BL	BL	BL	BL	BL	BL	BL	BL
168	BL	BL	BL	BL	BL	BL	BL	BL	BL
169	BL	BL	BL	BL	NA	NA	NA	NA	NA
170	BL	**Inc.**[(a)]	BL	BL	NA	NA	NA	NA	NA
171	BL	BL	BL	BL	BL	BL	BL	BL	BL
172	BL	BL	BL	BL	BL	BL	BL	BL	BL
173	**Inc.**[(a)]	BL	BL	**OL**[(a)]	NA	NA	NA	NA	NA
174	BL	BL	BL	BL	BL	BL	BL	BL	BL
175	BL	BL	BL	BL	BL	BL	BL	BL	BL
176	BL	BL	BL	**OL**[(a)]	BL	BL	BL	BL	BL
177	BL	BL	BL	BL	BL	BL	BL	BL	BL
178	BL	BL	BL	BL	NA	NA	NA	NA	NA
179	BL	BL	BL	BL	BL	BL	BL	BL	BL
180	**Inc.**[(a)]	BL	BL	**OL**[(a)]	NA	NA	NA	NA	NA
181	BL	BL	BL	**OL**[(a)]	BL	BL	BL	BL	BL
182	BL	BL	BL	**OL**[(a)]	BL	BL	BL	BL	BL
183	BL	BL	BL	BL	BL	BL	BL	BL	BL
184	BL	BL	BL	BL	BL	BL	BL	BL	BL
185	BL	BL	BL	BL	BL	BL	BL	BL	BL
186	BL	**Inc.**[(a)]	BL	BL	NA	NA	NA	NA	NA
187	BL	BL	BL	BL	BL	BL	BL	BL	BL
188	BL	BL	BL	BL	BL	BL	BL	BL	BL
189	BL	BL	BL	BL	BL	BL	BL	BL	BL
190	BL	**Inc.**[(a)]	BL	BL	NA	NA	NA	NA	NA
191	BL	BL	BL	BL	BL	BL	BL	BL	BL
192	BL	BL	BL	BL	NA	NA	NA	NA	NA
193	BL	BL	BL	BL	NA	NA	NA	NA	NA
194	BL	BL	BL	BL	BL	BL	BL	BL	BL
195	BL	BL	BL	BL	NA	NA	NA	NA	NA

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
196	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
197	BL	BL	BL	BL	NA	NA	NA	NA	NA
198	BL	BL	BL	OL[a]	BL	BL	BL	BL	BL
199	BL	BL	BL	BL	BL	BL	BL	BL	BL
200	BL	BL	BL	BL	NA	NA	NA	NA	NA
201	BL	BL	BL	BL	BL	BL	BL	BL	BL
202	BL	BL	BL	BL	BL	BL	BL	BL	BL
203	BL	BL	BL	BL	NA	NA	NA	NA	NA
204	BL	BL	BL	BL	BL	BL	BL	BL	BL
205	BL	BL	BL	BL	BL	BL	BL	BL	BL
206	BL	BL	BL	BL	BL	BL	BL	BL	BL
207	BL	BL	BL	BL	NA	NA	NA	NA	NA
208	BL	BL	BL	BL	NA	NA	NA	NA	NA
209	BL	BL	BL	BL	BL	BL	BL	BL	BL
210	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
211	BL	BL	BL	BL	BL	BL	BL	BL	BL
212	Inc.[a]	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
213	Inc.[a]	BL	BL	BL	BL	BL	BL	BL	BL
214	Inc.[a]	BL	BL	BL	BL	BL	BL	BL	BL
215	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
216	BL	BL	BL	BL	NA	NA	NA	NA	NA
217	BL	BL	BL	BL	BL	BL	BL	BL	BL
218	BL	BL	BL	BL	BL	BL	BL	BL	BL
219	BL	BL	BL	BL	NA	NA	NA	NA	NA
220	BL	BL	BL	BL	BL	BL	BL	BL	BL
221	BL	BL	BL	BL	NA	NA	NA	NA	NA
222	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
223	BL	BL	BL	BL	BL	BL	BL	BL	BL
224	BL	BL	BL	BL	BL	BL	BL	BL	BL
225	BL	BL	BL	BL	NA	NA	NA	NA	NA
226	BL	BL	BL	BL	NA	NA	NA	NA	NA
227	BL	BL	BL	BL	NA	NA	NA	NA	NA

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
228	BL	BL	BL	BL	**Inc.[(a)]**	BL	BL	BL	BL
229	BL	**Inc.[(a)]**	BL	BL	BL	BL	BL	BL	BL
230	BL	BL	BL	BL	BL	BL	BL	BL	BL
231	BL	BL	BL	BL	BL	BL	BL	BL	BL
232	BL	BL	BL	BL	BL	BL	BL	BL	BL
233	BL	BL	BL	BL	BL	BL	BL	BL	BL
234	BL	BL	BL	BL	NA	NA	NA	NA	NA
235	BL	BL	BL	BL	BL	BL	BL	BL	BL
236	**Inc.[(a)]**	BL	BL	**OL[(a)]**	NA	NA	NA	NA	NA
237	BL	BL	BL	BL	NA	NA	NA	NA	NA
238	**Inc.[(a)]**	BL	BL	BL	NA	NA	NA	NA	NA
239	BL	BL	BL	BL	NA	NA	NA	NA	NA
240	BL	BL	BL	BL	**Inc.[(a)]**	BL	BL	BL	BL
241	**Inc.[(a)]**	BL	BL	BL	NA	NA	NA	NA	NA
242	BL	**Inc.[(a)]**	BL	BL	NA	NA	NA	NA	NA
243	BL	BL	BL	BL	BL	BL	BL	BL	BL
244	BL	BL	BL	BL	NA	NA	NA	NA	NA
245	BL	BL	BL	BL	BL	BL	BL	BL	BL
246	BL	BL	BL	BL	NA	NA	NA	NA	NA
247	BL	BL	BL	BL	BL	BL	BL	BL	BL
248	BL	BL	BL	BL	NA	NA	NA	NA	NA
249	BL	BL	BL	BL	NA	NA	NA	NA	NA
250	BL	BL	BL	BL	**Inc.[(a)]**	BL	BL	BL	BL
251	BL	BL	BL	BL	**Inc.[(a)]**	BL	BL	BL	BL
252	BL	BL	BL	BL	**Inc.[(a)]**	BL	BL	BL	BL
253	BL	BL	BL	BL	NA	NA	NA	NA	NA
254	BL	BL	BL	BL	BL	BL	BL	BL	BL
255	BL	BL	BL	BL	BL	BL	BL	BL	BL
256	BL	BL	BL	BL	BL	BL	BL	BL	BL
257	BL	BL	BL	BL	BL	BL	BL	BL	BL
258	BL	BL	BL	BL	BL	BL	BL	BL	BL
259	BL	BL	BL	BL	**Inc.[(a)]**	BL	BL	BL	BL

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
260	BL	BL	BL	BL	BL	BL	BL	BL	BL
261	BL	BL	BL	BL	BL	BL	BL	BL	BL
262	BL	BL	BL	BL	BL	BL	BL	BL	BL
263	BL	BL	BL	BL	BL	BL	BL	BL	BL
264	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
265	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
266	BL	BL	BL	BL	NA	NA	NA	NA	NA
267	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
268	BL	BL	BL	BL	BL	BL	BL	BL	BL
269	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
270	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
271	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
272	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
273	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
274	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
275	BL	BL	BL	BL	BL	BL	BL	BL	BL
276	BL	BL	BL	BL	BL	BL	BL	BL	BL
277	BL	BL	BL	BL	BL	BL	BL	BL	BL
278	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
279	BL	BL	BL	BL	NA	NA	NA	NA	NA
280	BL	BL	BL	BL	NA	NA	NA	NA	NA
281	BL	BL	BL	BL	BL	BL	BL	BL	BL
282	BL	BL	BL	BL	BL	BL	BL	BL	BL
283	BL	BL	BL	BL	BL	BL	BL	BL	BL
284	BL	BL	BL	BL	NA	NA	NA	NA	NA
285	BL	BL	BL	BL	NA	NA	NA	NA	NA
286	BL	BL	BL	BL	NA	NA	NA	NA	NA
287	BL	BL	BL	BL	NA	NA	NA	NA	NA
288	BL	BL	BL	BL	NA	NA	NA	NA	NA
289	BL	BL	BL	BL	NA	NA	NA	NA	NA
290	BL	BL	BL	BL	BL	BL	BL	BL	BL
291	BL	BL	BL	BL	NA	NA	NA	NA	NA

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
292	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
293	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
294	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
295	BL	BL	BL	BL	BL	BL	BL	BL	BL
296	BL	BL	BL	BL	NA	NA	NA	NA	NA
297	BL	BL	BL	BL	BL	BL	BL	BL	BL
298	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
299	BL	BL	BL	BL	NA	NA	NA	NA	NA
300	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
301	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
302	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
303	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
304	BL	BL	BL	BL	BL	BL	BL	BL	BL
305	BL	BL	BL	BL	BL	BL	BL	BL	BL
306	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
307	BL	BL	BL	BL	BL	BL	BL	BL	BL
308	BL	BL	BL	BL	BL	BL	BL	BL	BL
309	BL	BL	BL	BL	BL	BL	BL	BL	BL
310	BL	BL	BL	BL	Inc.[a]	BL	BL	BL	BL
311	BL	BL	BL	BL	BL	BL	BL	BL	BL
312	BL	BL	BL	BL	NA	NA	NA	NA	NA
313	BL	BL	BL	BL	BL	BL	BL	BL	BL
314	BL	BL	BL	BL	BL	BL	BL	BL	BL
315	BL	BL	BL	BL	BL	BL	BL	BL	BL
316	BL	BL	BL	BL	BL	BL	BL	BL	BL
317	BL	BL	BL	BL	BL	BL	BL	BL	BL
318	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
319	BL	Inc.[a]	BL	BL	NA	NA	NA	NA	NA
320	BL	BL	BL	BL	NA	NA	NA	NA	NA
321	BL	BL	BL	BL	BL	BL	BL	BL	BL
322	BL	BL	BL	BL	BL	BL	BL	BL	BL
323	BL	BL	BL	BL	NA	NA	NA	NA	NA

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
324	BL	BL	BL	BL	BL	BL	BL	BL	BL
325	BL	BL	BL	BL	NA	NA	NA	NA	NA
326	BL	BL	BL	BL	BL	BL	BL	BL	BL
327	BL	BL	BL	BL	BL	BL	BL	BL	BL
328	BL	BL	BL	BL	NA	NA	NA	NA	NA
329	BL	BL	BL	BL	BL	BL	BL	BL	BL
330	BL	BL	BL	BL	BL	BL	BL	BL	BL
331	BL	BL	BL	BL	NA	NA	NA	NA	NA
332	BL	BL	BL	BL	BL	BL	BL	BL	BL
333	BL	BL	BL	BL	NA	NA	NA	NA	NA
334	BL	BL	BL	BL	BL	BL	BL	BL	BL
335	BL	BL	BL	BL	BL	BL	BL	BL	BL
336	BL	BL	BL	BL	**Inc.**[(a)]	BL	BL	BL	BL
337	BL	BL	BL	BL	**Inc.**[(a)]	BL	BL	BL	BL
338	BL	BL	BL	BL	BL	BL	BL	BL	BL
339	BL	BL	BL	BL	BL	BL	BL	BL	BL
340	BL	BL	BL	BL	BL	BL	BL	BL	BL
341	BL	BL	BL	BL	BL	BL	BL	BL	BL
342	BL	**Inc.**[(a)]	BL	BL	NA	NA	NA	NA	NA
343	BL	BL	BL	BL	NA	NA	NA	NA	NA
344	BL	BL	BL	BL	BL	BL	BL	BL	BL
345	BL	BL	BL	BL	NA	NA	NA	NA	NA
346	BL	BL	BL	BL	BL	BL	BL	BL	BL
347	BL	BL	BL	BL	NA	NA	NA	NA	NA
348	BL	BL	BL	BL	NA	NA	NA	NA	NA
349	BL	**Inc.**[(a)]	BL	BL	NA	NA	NA	NA	NA
350	BL	**Inc.**[(a)]	BL	BL	NA	NA	NA	NA	NA
351	BL	**Inc.**[(a)]	BL	BL	NA	NA	NA	NA	NA
352	BL	**Inc.**[(a)]	BL	BL	NA	NA	NA	NA	NA
353	BL	BL	BL	BL	**Inc.**[(a)]	BL	BL	BL	BL
354	BL	**Inc.**[(a)]	BL	BL	NA	NA	NA	NA	NA
355	BL	BL	BL	BL	BL	BL	BL	BL	BL

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
355	BL	BL	BL	BL	BL	BL	BL	BL	BL
356	BL	BL	BL	BL	BL	BL	BL	BL	BL
357	BL	BL	BL	BL	NA	NA	NA	NA	NA
358	BL	BL	BL	BL	NA	NA	NA	NA	NA
359	BL	BL	BL	BL	NA	NA	NA	NA	NA
360	BL	BL	BL	BL	NA	NA	NA	NA	NA
361	BL	BL	BL	BL	NA	NA	NA	NA	NA
362	BL	**Inc.**[(a)]	BL	BL	NA	NA	NA	NA	NA
363	BL	BL	BL	BL	NA	NA	NA	NA	NA
364	BL	**Inc.**[(a)]	BL	BL	NA	NA	NA	NA	NA
365	BL	BL	BL	BL	**Inc.**[(a)]	BL	BL	BL	BL
366	BL	**Inc.**[(a)]	BL	BL	NA	NA	NA	NA	NA
367	**Inc.**[(a)]	**Inc.**[(a)]	BL	BL	NA	NA	NA	NA	NA
368	BL	BL	BL	BL	NA	NA	NA	NA	NA
369	BL	**Inc.**[(a)]	BL	BL	NA	NA	NA	NA	NA
370	BL	BL	BL	BL	NA	NA	NA	NA	NA
371	BL	BL	BL	BL	**Inc.**[(a)]	BL	BL	BL	BL
372	BL	BL	BL	BL	NA	NA	NA	NA	NA
373	BL	BL	BL	BL	**Inc.**[(a)]	BL	BL	BL	BL
374	**Inc.**[(a)]	BL	BL	BL	NA	NA	NA	NA	NA
375	BL	BL	BL	BL	BL	BL	BL	BL	BL
376	BL	BL	BL	**Inc.**[(a)]	NA	NA	NA	NA	NA

Note:

- "BL" denotes below limit
- "OL" denotes over limit
- "Inc." denotes inconclusive
- "NA" denotes not applicable
- "[(a)]" denotes further confirmation test was conducted, results are listed in 2.2 and 2.3.

— XRF screening limits in mg/kg for regulated elements in various matrices

ELEMENT	POLYMER		
	BL	INCONCLUSIVE	OL
Cd	X<(70-3σ)	(70-3σ)<X<(130+3σ)	X>(130+3σ)
Pb	X<(700-3σ)	(700-3σ)<X<(1300+3σ)	X>(1300+3σ)
Hg	X<(700-3σ)	(700-3σ)<X<(1300+3σ)	X>(1300+3σ)
Br	X<(300-3σ)	X>(300-3σ)	NA
Cr	X<(700-3σ)	X>(700-3σ)	NA

ELEMENT	METAL		
	BL	INCONCLUSIVE	OL
Cd	X<(70-3σ)	(70-3σ)<X<(130+3σ)	X>(130+3σ)
Pb	X<(700-3σ)	(700-3σ)<X<(1300+3σ)	X>(1300+3σ)
Hg	X<(700-3σ)	(700-3σ)<X<(1300+3σ)	X>(1300+3σ)
Cr	X<(700-3σ)	X>(700-3σ)	NA

ELEMENT	COMPLEX MATERIAL		
	BL	INCONCLUSIVE	OL
Cd	X<(50-3σ)	(50-3σ)<X<(150+3σ)	X>(150+3σ)
Pb	X<(500-3σ)	(500-3σ)<X<(1500+3σ)	X>(1500+3σ)
Hg	X<(500-3σ)	(500-3σ)<X<(1500+3σ)	X>(1500+3σ)
Br	X<(250-3σ)	X>(250-3σ)	NA
Cr	X<(500-3σ)	X>(500-3σ)	NA

— Screening limits in mg/kg for regulated phthalates in various matrices

PHTHALATES	BL	INCONCLUSIVE
DEHP	X<600	X≥ 600
BBP	X<600	X≥ 600
DBP	X<600	X≥ 600
DIBP	X<600	X≥ 600

2.2. HEAVY METAL CONTENT

Test method: With reference to EN 62321-4:2014 /A1:2017, EN 62321-5:2014, EN 62321-7-1:2015 and EN 62321-7-2:2017, analyzed by Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES) and UV-Vis spectrophotometer. [Reporting Limit: 2mg/kg for Cadmium; 10mg/kg or 0.10μg/cm^2 for Hexavalent Chromium, 10mg/kg for Lead and Mercury.]

Sample No.	Result				
	Total Cadmium	Hexavalent Chromium	Hexavalent Chromium	Total Mercury	Total Lead
001	--	/	/	--	373
007	--	/	Negative	--	--
008	--	/	Negative	--	--
009	--	/	Negative	--	--
016	--	/	Negative	--	--
017	--	/	Negative	--	--
018	--	/	Negative	--	--
019	--	/	Negative	--	--
020	--	/	Negative	--	--
021	--	/	Negative	--	--
022	--	/	Negative	--	--
023	--	/	Negative	--	--
024	--	/	Negative	--	--
025	--	/	Negative	--	--
026	--	/	Negative	--	--
030	--	/	Negative	--	--
032	--	/	Negative	--	--
034	--	/	--	--	**$2.15\times10^{4(c)}$**
035	--	/	Negative	--	--
058	< 2	/	--	--	--
066	< 2	/	--	--	--
067	--	/	Negative	--	--
087	--	/	Negative	--	--
088	--	/	Negative	--	--

Sample No.	Result				
	Total Cadmium	Hexavalent Chromium	Hexavalent Chromium	Total Mercury	Total Lead
089	--	/	Negative	--	--
090	--	/	Negative	--	--
095	--	/	Negative	--	--
097	--	/	Negative	--	--
098	--	/	Negative	--	--
099	--	/	Negative	--	--
155	--	/	--	--	**$2.51\times10^{4(c)}$**
157	--	/	--	--	**$2.80\times10^{4(c)}$**
160	< 2	/	--	--	--
170	--	/	Negative	--	--
173	< 2	/	--	--	**$4.22\times10^{4(d)}$**
176	--	/	--	--	**$1.31\times10^{3(e)}$**
180	< 2	/	--	--	**$1.49\times10^{4(c)}$**
181	--	/	--	--	**$1.27\times10^{3(e)}$**
182	--	/	--	--	637
186	--	/	Negative	--	--
190	--	/	Negative	--	--
198	--	/	--	--	**$1.75\times10^{3(e)}$**
212	< 2	/	--	--	--
213	< 2	/	--	--	--
214	< 2	/	--	--	--
229	--	<10	/	--	--
236	< 2	/	--	--	**$2.20\times10^{4(d)}$**
238	< 2	/	--	--	--
241	2	/	--	--	--
242	--	/	Negative	--	--
264	--	/	Negative	--	--
265	--	/	Negative	--	--

Sample No.	Result				
	Total Cadmium	Hexavalent Chromium	Hexavalent Chromium	Total Mercury	Total Lead
269	--	/	Negative	--	--
270	--	/	Negative	--	--
271	--	/	Negative	--	--
272	--	/	Negative	--	--
273	--	/	Negative	--	--
274	--	/	Negative	--	--
278	--	/	Negative	--	--
292	--	/	Negative	--	--
300	--	/	Negative	--	--
301	--	/	Negative	--	--
302	--	/	Negative	--	--
303	--	/	Negative	--	--
318	--	/	Negative	--	--
319	--	/	Negative	--	--
342	--	/	Negative	--	--
349	--	/	Negative	--	--
350	--	/	Negative	--	--
351	--	/	Negative	--	--
352	--	/	Negative	--	--
354	--	/	Negative	--	--
362	--	/	Negative	--	--
364	--	/	Negative	--	--
366	--	/	Negative	--	--
367	< 2	/	Negative	--	--
369	--	/	Negative	--	--
374	< 2	/	--	--	--
376	--	/	--	--	**$2.44\times10^{4(c)}$**
Unit	mg/kg	mg/kg	$\mu g/cm^2$	mg/kg	mg/kg

Sample No.	Result				
	Total Cadmium	Hexavalent Chromium	Hexavalent Chromium	Total Mercury	Total Lead
RoHS Requirement	100	1000	Negative#	1000	1000

Note:

- "mg/kg" denotes milligram per kilogram
- "μg/cm^2" denotes micrograms per square centimeter
- "<" denotes less than
- "Negative" denotes the absorbance value of sample is < 0.10 μg/cm^2, the sample is considered to be negative for Hexavalent Chromium.
- "Positive" denotes the absorbance value of sample is > 0.13 μg/cm^2, the sample is considered to be positive for Hexavalent Chromium.
- "Inconclusive" denotes the absorbance value of sample is ≥ 0.10 μg/cm^2 and ≤ 0.13 μg/cm^2, the sample is considered to be Inconclusive for Hexavalent Chromium.
- "#" According to DIRECTIVE 2011/65/EU Article 4(1) and Annex II. While, positive means the presence of CrVI on tested areas and the result(s) was (were) regarded as in conflict with European Parliament and Council Directive 2011/65/EU, Article 4(1) and Annex II.
- "--" denotes tested by XRF, result is listed in 2.1
- "(c)" denotes the exempt item according to DIRECTIVE 2011/65/EU Annex III item 6(c) *"Copper alloy containing up to 4 % lead by weight".*
- "(d)" denotes the exempt item according to DIRECTIVE 2011/65/EU Annex III item 7(a) *"lead in high melting temperature type solder (i. e. lead-based alloy containing 85% by weight or more lead)".*
- "(e)" denotes the exempt item according to DIRECTIVE 2011/65/EU Annex III item 7(c)-I *"Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound"*

2.3. POLYBROMINATED BIPHENYLS (PBBs) AND POLYBROMINATED DIPHENYL ETHERS (PBDEs) CONTENT

Test Method: With reference to EN 62321-6:2015, extracted by toluene and analyzed by Gas Chromatography and Mass Spectrometry (GC-MS). [Reporting Limit: 5 mg/kg]

Test Item		Result [mg/kg]		RoHS Requirement [mg/kg]
		Sample 012+029+091	Sample 036+056+063	
PBBs	Monobromobiphenyl	< 5	< 5	Sum of PBBs 1000
	Dibromobiphenyl	< 5	< 5	
	Tribromobiphenyl	< 5	< 5	
	Tetrabromobiphenyl	< 5	< 5	
	Pentabromobiphenyl	< 5	< 5	
	Hexabromobiphenyl	< 5	< 5	
	Heptabromobiphenyl	< 5	< 5	
	Octabromobiphenyl	< 5	< 5	
	Nonabromobiphenyl	< 5	< 5	
	Decabromobiphenyl	< 5	< 5	
	Sum of PBBs	< 5	< 5	
PBDEs	Monobromodiphenyl Ether	< 5	< 5	Sum of PBDEs 1000
	Dibromodiphenyl Ether	< 5	< 5	
	Tribromodiphenyl Ether	< 5	< 5	
	Tetrabromodiphenyl Ether	< 5	< 5	
	Pentabromodiphenyl Ether	< 5	< 5	
	Hexabromodiphenyl Ether	< 5	< 5	
	Heptabromodiphenyl Ether	< 5	< 5	
	Octabromodiphenyl Ether	< 5	< 5	
	Nonabromodiphenyl Ether	< 5	< 5	
	Decabromodiphenyl Ether	< 5	< 5	
	Sum of PBDEs	< 5	< 5	

Note:

- "mg/kg" denotes miligram per kilogram
- "<" denotes less than

(Continued)

Test Item		Result [mg/kg]		RoHS Requirement [mg/kg]
		Sample 065+085+166	Sample 077+078+080	
PBBs	Monobromobiphenyl	< 5	< 5	Sum of PBBs 1000
	Dibromobiphenyl	< 5	< 5	
	Tribromobiphenyl	< 5	< 5	
	Tetrabromobiphenyl	< 5	< 5	
	Pentabromobiphenyl	< 5	< 5	
	Hexabromobiphenyl	< 5	< 5	
	Heptabromobiphenyl	< 5	< 5	
	Octabromobiphenyl	< 5	< 5	
	Nonabromobiphenyl	< 5	< 5	
	Decabromobiphenyl	< 5	< 5	
	Sum of PBBs	< 5	< 5	
PBDEs	Monobromodiphenyl Ether	< 5	< 5	Sum of PBDEs 1000
	Dibromodiphenyl Ether	< 5	< 5	
	Tribromodiphenyl Ether	< 5	< 5	
	Tetrabromodiphenyl Ether	< 5	< 5	
	Pentabromodiphenyl Ether	< 5	< 5	
	Hexabromodiphenyl Ether	< 5	< 5	
	Heptabromodiphenyl Ether	< 5	< 5	
	Octabromodiphenyl Ether	< 5	< 5	
	Nonabromodiphenyl Ether	< 5	< 5	
	Decabromodiphenyl Ether	< 5	< 5	
	Sum of PBDEs	< 5	< 5	

Note:

- "mg/kg" denotes miligram per kilogram
- "<" denotes less than

(Continued)

Test Item		Result [mg/kg]		RoHS Requirement [mg/kg]
		Sample 156+161+215	Sample 196+240	
PBBs	Monobromobiphenyl	< 5	< 5	Sum of PBBs 1000
	Dibromobiphenyl	< 5	< 5	
	Tribromobiphenyl	< 5	< 5	
	Tetrabromobiphenyl	< 5	< 5	
	Pentabromobiphenyl	< 5	< 5	
	Hexabromobiphenyl	< 5	< 5	
	Heptabromobiphenyl	< 5	< 5	
	Octabromobiphenyl	< 5	< 5	
	Nonabromobiphenyl	< 5	< 5	
	Decabromobiphenyl	< 5	< 5	
	Sum of PBBs	< 5	< 5	
PBDEs	Monobromodiphenyl Ether	< 5	< 5	Sum of PBDEs 1000
	Dibromodiphenyl Ether	< 5	< 5	
	Tribromodiphenyl Ether	< 5	< 5	
	Tetrabromodiphenyl Ether	< 5	< 5	
	Pentabromodiphenyl Ether	< 5	< 5	
	Hexabromodiphenyl Ether	< 5	< 5	
	Heptabromodiphenyl Ether	< 5	< 5	
	Octabromodiphenyl Ether	< 5	< 5	
	Nonabromodiphenyl Ether	< 5	< 5	
	Decabromodiphenyl Ether	< 5	< 5	
	Sum of PBDEs	< 5	< 5	

Note:

- "mg/kg" denotes miligram per kilogram
- "<" denotes less than

(Continued)

Test Item		Result [mg/kg]		RoHS Requirement [mg/kg]
		Sample 210+228	Sample 212+306+310	
PBBs	Monobromobiphenyl	< 5	< 5	Sum of PBBs 1000
	Dibromobiphenyl	< 5	< 5	
	Tribromobiphenyl	< 5	< 5	
	Tetrabromobiphenyl	< 5	< 5	
	Pentabromobiphenyl	< 5	< 5	
	Hexabromobiphenyl	< 5	< 5	
	Heptabromobiphenyl	< 5	< 5	
	Octabromobiphenyl	< 5	< 5	
	Nonabromobiphenyl	< 5	< 5	
	Decabromobiphenyl	< 5	< 5	
	Sum of PBBs	< 5	< 5	
PBDEs	Monobromodiphenyl Ether	< 5	< 5	Sum of PBDEs 1000
	Dibromodiphenyl Ether	< 5	< 5	
	Tribromodiphenyl Ether	< 5	< 5	
	Tetrabromodiphenyl Ether	< 5	< 5	
	Pentabromodiphenyl Ether	< 5	< 5	
	Hexabromodiphenyl Ether	< 5	< 5	
	Heptabromodiphenyl Ether	< 5	< 5	
	Octabromodiphenyl Ether	< 5	< 5	
	Nonabromodiphenyl Ether	< 5	< 5	
	Decabromodiphenyl Ether	< 5	< 5	
	Sum of PBDEs	< 5	< 5	

Note:

- "mg/kg" denotes miligram per kilogram
- "<" denotes less than

(Continued)

Test Item		Result [mg/kg]		RoHS Requirement [mg/kg]
		Sample 222+336+337	Sample 250+251+252	
PBBs	Monobromobiphenyl	< 5	< 5	Sum of PBBs 1000
	Dibromobiphenyl	< 5	< 5	
	Tribromobiphenyl	< 5	< 5	
	Tetrabromobiphenyl	< 5	< 5	
	Pentabromobiphenyl	< 5	< 5	
	Hexabromobiphenyl	< 5	< 5	
	Heptabromobiphenyl	< 5	< 5	
	Octabromobiphenyl	< 5	< 5	
	Nonabromobiphenyl	< 5	< 5	
	Decabromobiphenyl	< 5	< 5	
	Sum of PBBs	< 5	< 5	
PBDEs	Monobromodiphenyl Ether	< 5	< 5	Sum of PBDEs 1000
	Dibromodiphenyl Ether	< 5	< 5	
	Tribromodiphenyl Ether	< 5	< 5	
	Tetrabromodiphenyl Ether	< 5	< 5	
	Pentabromodiphenyl Ether	< 5	< 5	
	Hexabromodiphenyl Ether	< 5	< 5	
	Heptabromodiphenyl Ether	< 5	< 5	
	Octabromodiphenyl Ether	< 5	< 5	
	Nonabromodiphenyl Ether	< 5	< 5	
	Decabromodiphenyl Ether	< 5	< 5	
	Sum of PBDEs	< 5	< 5	

Note:

- "mg/kg" denotes miligram per kilogram
- "<" denotes less than

(Continued)

Test Item		Result [mg/kg]		RoHS Requirement [mg/kg]
		Sample 259+298	Sample 267+293+294	
PBBs	Monobromobiphenyl	< 5	< 5	Sum of PBBs 1000
	Dibromobiphenyl	< 5	< 5	
	Tribromobiphenyl	< 5	< 5	
	Tetrabromobiphenyl	< 5	< 5	
	Pentabromobiphenyl	< 5	< 5	
	Hexabromobiphenyl	< 5	< 5	
	Heptabromobiphenyl	< 5	< 5	
	Octabromobiphenyl	< 5	< 5	
	Nonabromobiphenyl	< 5	< 5	
	Decabromobiphenyl	< 5	< 5	
	Sum of PBBs	< 5	< 5	
PBDEs	Monobromodiphenyl Ether	< 5	< 5	Sum of PBDEs 1000
	Dibromodiphenyl Ether	< 5	< 5	
	Tribromodiphenyl Ether	< 5	< 5	
	Tetrabromodiphenyl Ether	< 5	< 5	
	Pentabromodiphenyl Ether	< 5	< 5	
	Hexabromodiphenyl Ether	< 5	< 5	
	Heptabromodiphenyl Ether	< 5	< 5	
	Octabromodiphenyl Ether	< 5	< 5	
	Nonabromodiphenyl Ether	< 5	< 5	
	Decabromodiphenyl Ether	< 5	< 5	
	Sum of PBDEs	< 5	< 5	

Note:

- "mg/kg" denotes miligram per kilogram
- "<" denotes less than

(Continued)

Test Item		Result [mg/kg]		RoHS Requirement [mg/kg]
		Sample 353+365	Sample 371+373	
PBBs	Monobromobiphenyl	< 5	< 5	Sum of PBBs 1000
	Dibromobiphenyl	< 5	< 5	
	Tribromobiphenyl	< 5	< 5	
	Tetrabromobiphenyl	< 5	< 5	
	Pentabromobiphenyl	< 5	< 5	
	Hexabromobiphenyl	< 5	< 5	
	Heptabromobiphenyl	< 5	< 5	
	Octabromobiphenyl	< 5	< 5	
	Nonabromobiphenyl	< 5	< 5	
	Decabromobiphenyl	< 5	< 5	
	Sum of PBBs	< 5	< 5	
PBDEs	Monobromodiphenyl Ether	< 5	< 5	Sum of PBDEs 1000
	Dibromodiphenyl Ether	< 5	< 5	
	Tribromodiphenyl Ether	< 5	< 5	
	Tetrabromodiphenyl Ether	< 5	< 5	
	Pentabromodiphenyl Ether	< 5	< 5	
	Hexabromodiphenyl Ether	< 5	< 5	
	Heptabromodiphenyl Ether	< 5	< 5	
	Octabromodiphenyl Ether	< 5	< 5	
	Nonabromodiphenyl Ether	< 5	< 5	
	Decabromodiphenyl Ether	< 5	< 5	
	Sum of PBDEs	< 5	< 5	

Note:

- "mg/kg" denotes miligram per kilogram
- "<" denotes less than

3. REMARK

The chemical testing was performed in TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch Chemical lab and the test results were reviewed at TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch.

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APPENDIX I: Summary of Limits and test standards

RoHS requirement according to directive 2011/65/EU and its amendment (EU) 2015/863:

Restricted Substances	Limits
Cadmium (Cd)	0.01% (100 mg/kg)
Hexavalent Chromium (Cr6+)	0.1% (1000 mg/kg)
Mercury (Hg)	0.1% (1000 mg/kg)
Lead (Pb)	0.1% (1000 mg/kg)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000 mg/kg)
Phthalates (DEHP, BBP, DBP, DIBP)	0.1% (1000 mg/kg) each

Test Standards and Reporting limits:

Reference Standards	Testing Items	Analytical instrument	Reporting Limit
EN 62321-1:2013 (IEC 62321-1:2013)	Introduction and overview	---	---
EN IEC 62321-2:2021 (IEC 62321-2:2021)	Disassembly, disjointment and mechanical sample preparation	---	---
EN 62321-3-1: 2014 (IEC 62321-3-1: 2013)	Cadmium (Cd), total Chromium (Cr), Mercury (Hg), Lead (Pb), Bromine (Br)	Energy Dispersive X-ray Fluorescence Spectrometers (XRF)	---
EN 62321-4:2014 /A1:2017 (IEC 62321-4:2013/A1:2017)	Mercury (Hg)	Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES)	10 mg/kg
EN 62321-5:2014 (IEC 62321-5:2013)	Cadmium (Cd)	Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES)	2 mg/kg
	Total Chromium (Cr), Mercury (Hg), Lead (Pb)		10 mg/kg
EN 62321-6:2015 (IEC 62321-6:2015)	Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)	Gas Chromatography and Mass Spectrometry (GC-MS)	100 mg/kg
EN 62321-7-1: 2015 (IEC 62321-7-1:2015)	Hexavalent Chromium (Cr6+)	Ultraviolet–visible spectrophotometer (UV-Vis)	0.10 μg/cm^2
EN 62321-7-2: 2017 (IEC 62321-7-2:2017)	Hexavalent Chromium (Cr6+)		10 mg/kg
EN 62321-8:2017 (IEC 62321-8:2017)	Phthalates (DEHP, BBP, DBP, DIBP)	Gas Chromatography and Mass Spectrometry (GC-MS)	100 mg/kg

APPENDIX II:

Photos of submitted products

		
Pelio-L-5.12	US5000	US5000-B

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

Certificate of Compliance

Certificate:	80075844	**Master Contract:**	274187
Project:	80075844	**Date Issued:**	2022-01-13

Issued To: **Pylon Technologies Co., Ltd.**
No. 73, Lane 887, Zu Chongzhi Road,
Zhangjiang Hi-Tech Park,
Pudong District, Shanghai, 201203
China

Attention: Min Xu

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Issued by: *Peng (Cheney) Chen*
Peng (Cheney) Chen

PRODUCTS

CLASS - C370182 - BATTERY SYSTEM FOR USE IN STATIONARY APPLICATIONS Certified to US Standards
CLASS - C370112 - BATTERY SYSTEM for use in Stationary Applications

Rechargeable Lithium ion Battery for use in stationary application, Model US5000 and US5000-B.

Electrical Ratings:

Certificate: 80075844 **Master Contract:** 274187
Project: 80075844 **Date Issued:** 2022-01-13

Battery Pack Model	Battery Pack Ratings				Battery Module	BMS Model
	Normal Voltage, Vdc	Normal Capacity, Ah/Wh	Battery Pack Configuration*	Enclosure IP Rating		
US5000, US5000-B	48	100Ah/4800Wh	15S	IP20	--	MMCB_U150

Model difference: US5000-B is identical to US5000, expect that US5000-B has the additional circuit breaker and busbar.

Manufacturer's Specified Charging Parameters for Battery Pack

Battery Pack Model	Temperature Range, °C	Normal Charging Voltage, Vdc	Normal Charging Current, A	Maximum Charging Voltage, Vdc	Maximum Charging Current, A
US5000, US5000-B	-10~55	53.5	50	54	25 (-10~0 ºC)
					100 (0~45 ºC)
					50 (45~50 ºC)
					25 (50~55 ºC)

Manufacturer's Specified Discharging Parameters for Battery Pack:

Battery Pack Model	Temperature Range, °C	Normal Discharging Current, A	End-of-discharge voltage, Vdc	Maximum Discharging Power, W	Maximum Discharging Current, A
US5000, US5000-B	-10~55	50	40.5	--	25 (-10~0 ºC)
					100 (0~45 ºC)
					50 (45~50 ºC)
					25 (50~55 ºC)

Conditions of Acceptability:

1. The battery pack including its battery management system has been tested according to the functional-safety requirements of ANSI/CAN/UL-1973:2018, Second Edition. Solid state circuits and software controls relied upon as the primary safety protection, have been evaluated to the Standard for Safety: Automatic Electrical Controls – Part 1, CSA/UL 60730-1. Any change to the software and electronic controls of the BMS may require additional testing.
2. The enclosure was evaluated only to establish an IP rating of IP20 with the Standard for Degrees of Protection Provided by Enclosure (IP Code) IEC 60529.
3. Product is evaluated for indoor use and shall avoid being used in moisture environment, and not being used near marine environments.
4. Further evaluation for Resistance of Moisture and/or Salt Fog shall be required for the battery pack intended to be used in the end product where moisture and/or salt fog condition were applied.

5. For US5000, manual disconnect device shall be required during the installation of the end products.
6. Corrosion due to electrochemical action is to be determined for conductive parts in contact with terminals when subjecting to the installation of the end products.
7. Equipment Application Location: Stationary
8. Access Location: Operator Accessible.
9. The installation was not evaluated. The battery system shall be installed in accordance with NFPA 70 or other applicable installation code.
10. Dielectric Voltage Withstand Test was performed with the test potential of 1000Vac/1414 Vdc, a higher test potential shall be considered in the end product if higher overvoltage category specified.
11. Overvoltage Category(OVC): 2
12. Pollution Degree(PD): 2
13. Altitude for Operation: Up to 4000 m.

APPLICABLE REQUIREMENTS

ANSI/CAN/UL-1973:2018, Second Edition - Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications.

MARKINGS

See CSA report.

Notes:

Products certified under Class C370112, C370182 have been certified under CSA's ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC). www.scc.ca

Supplement to Certificate of Compliance

Certificate: 80075844 **Master Contract:** 274187

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80075844	2022-01-13	Original certification of Rechargeable Lithium ion Battery for use in stationary application, Models US5000, US5000-B. (cCSAus Mark) WMTC_ Initial Qualification Assessment to Dongguan BALUN Testing Technology Co., Ltd.

Ref. Certif. No.

SG PSB-BT-02751

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

CB TEST CERTIFICATE

Product	Batteries (Rechargeable Li-ion Battery)
Name and address of the applicant	Pylon Technologies Co., Ltd. No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park 201203 Pudong, Shanghai PEOPLE'S REPUBLIC OF CHINA
Name and address of the manufacturer	Pylon Technologies Co., Ltd. No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park, 201203 Pudong, Shanghai, PEOPLE'S REPUBLIC OF CHINA
Name and address of the factory	Pylon Technologies Co., Ltd. Plant 8, No.505 Kunkai Road, JinXi Town, 215324 Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA
Ratings and principal characteristics	Nominal voltage: 48Vd.c. Rated capacity: 100Ah
Model/type Ref.	US5000; US5000-B
A sample of the product was tested and found to be in conformity with	IEC 62619:2017
as shown in the Test Report Ref. No. which forms part of this certificate	211-282160090-000

This CB Test Certificate is issued by the National Certification Body

CBS 090762 0045 Rev. 00

Date, 2021-09-09

(Harry Zhang)

TÜV SÜD PSB Pte Ltd 15 International Business Park TÜV SÜD @ IBP Singapore 609937 PSB Singapore

Ref. Certif. No.

SG PSB-BT-02751

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

Trade mark (Image)

PYLONTECH

This CB Test Certificate is issued by the National Certification Body

CBS 090762 0045 Rev. 00

Date, 2021-09-09

(Harry Zhang)

TÜV SÜD PSB Pte Ltd 15 International Business Park TÜV SÜD @ IBP Singapore 609937 PSB Singapore

正本/ORIGINAL

Design Report of Safety Data Sheet

Report No.:HGBZ2206AK02

Issue date:2022/06/13

Product Name:	Rechargeable Li-ion Battery US5000
Applicant:	Pylon Technologies Co., Ltd.
Supplier:	Pylon Technologies Co., Ltd.
Composition of the product:	Lithium Iron phosphate; Graphite; Copper; Aluminium; Poly(vinylidene difluoride); Carbon black; Polyacrylic acid; Lithium hexafluorophosphate; Nickel
Warranty of Design:	GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Ninth revised edition

Design Result of SDS please see next page.

Designer: **Auditor:** **Approver:**

常州合规思远产品安全技术服务有限公司

Changzhou Hegui Siyuan Products Safety Technology Service Co., Ltd.

报告专用章

名 称： 常州合规思远产品安全技术服务有限公司（简称：合规化学）
Name: Changzhou Hegui Siyuan Products Safety Technology Service Co., Ltd.（CRchemical）
地 址： 江苏省常州市新北区太湖东路 9 号 4 幢 1205 室
Add: 4-1205, Creative Industries Park, No.9, East Taihu Road, Xinbei District, Changzhou, 213022, Jiangsu P.R.China.
网址|Web: www.hgmsds.com 电话|Tel: +86-519-8515 0306 邮箱|E-mail: msds@hgmsds.com

Terms of the Using of the Report

1. According to the needs of the report, our company requires the client to provide true and complete samples and information.
2. Information from applicant is the key of this report, our company will not respond for the wrong of applicant.
3. If there is any change in the chemical information submitted by the client, this report will automatically become invalid.
4. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.
5. This report will be effective only after it is signed by the inspector, approver and stamped by our company.
6. Our company guarantees the objectivity and fairness of this report, and carries out confidentiality obligations on business secrets such as business information, technical documents and so on.
7. This report does not consider the differences between countries and operators.
8. The partly duplicating of this report is prohibited without the written approver.
9. The report is invalid when anything of the following happens-illegal transfer, embezzlement, imposture, modification or tampering in any media form.
10. This report is valid before the implementation of the new version of the standard.

名 称： 常州合规思远产品安全技术服务有限公司（简称：合规化学）
Name： Changzhou Hegui Siyuan Products Safety Technology Service Co., Ltd.（CRchemical）
地 址： 江苏省常州市新北区太湖东路 9 号 4 幢 1205 室
A d d： 4-1205, Creative Industries Park, No.9, East Taihu Road, Xinbei District, Changzhou, 213022, Jiangsu P.R.China.
网址|Web: www.hgmsds.com 电话|Tel: +86-519-8515 0306 邮箱|E-mail: msds@hgmsds.com

Safety Data Sheet

Rechargeable Li-ion Battery US5000

Version：V2.0.0.1
Report No.：HGBZ2206AKO2
Creation Date：2022/06/13
Revision Date：2022/06/13

*According to GHS (Ninth Revised Edition)

1 Identification

Product identifier

Product Name	Rechargeable Li-ion Battery US5000
Product Model	US5000
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

Recommended use of the product and restrictions on use

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

Details of the supplier

Applicant Name	Pylon Technologies Co., Ltd.
Applicant Address	No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park, Pudong, Shanghai 201203, China
Applicant Post Code	——
Applicant Telephone	021-51317698
Applicant Fax	021-51317698
Applicant E-mail	li.lanqiang@pylontech.com.cn
Supplier Name	Pylon Technologies Co., Ltd.
Supplier Address	Plant 8, No.505 Kunkai Road, JinXi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA, 215324
Supplier Post Code	211400
Supplier Telephone	+86-21-51317698
Supplier Fax	021-51317697
Supplier E-mail	——

Emergency phone number

Emergency phone number	+86-21-51317699

2 Hazard(s) identification

Hazard classification according to GHS

According to GHS system (9th revised edition), not classified as a hazardous chemical.

GHS Label elements

Hazard pictograms	Not applicable
Signal word	Not applicable

Hazard statements

Hazard statements	Not applicable

Precautionary statements

◆ Prevention

Prevention	Not applicable

◆ Response

Response	Not applicable

◆ Storage

Storage	Not applicable

◆ Disposal

Disposal	Not applicable

Hazard description

◆ Physical and chemical hazards

	No information available

◆ Health hazards

Inhaled	Inhalation of the product may produce adverse health effects or irritation of the respiratory tract following discomfort.
Ingestion	Accidental ingestion of the product may be harmful to the health of the individual.
Skin Contact	Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Eye	This product may cause temporary discomfort following direct contact with the eye.

◆ Environmental hazards

	Please refer to 12th chapter of SDS.

3 Composition/information on ingredients

Substance/mixture

	Mixture

Component	CAS No.	EC No.	Concentration (wt, %)
Lithium Iron phosphate	15365-14-7	604-917-2	Commercial secrets
Graphite	7782-42-5	231-955-3	Commercial secrets
Copper	7440-50-8	231-159-6	Commercial secrets
Aluminium	7429-90-5	231-072-3	Commercial secrets
Poly(vinylidene difluoride)	24937-79-9	607-458-6	Commercial secrets
Carbon black	1333-86-4	215-609-9	Commercial secrets
Polyacrylic acid	9003-01-4	618-347-7	Commercial secrets
Lithium hexafluorophosphate	21324-40-3	244-334-7	Commercial secrets
Nickel	7440-02-0	231-111-4	Commercial secrets

4 First-aid measures

Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off with plenty of soap and water for at least 15 minutes and consult a physician if feel uncomfortable.
Ingestion	Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
Inhalation	Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

Most important symptoms/effects, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Use extinguishing media suitable for surrounding area.
Unsuitable extinguishing media	There is no restriction on the type of extinguisher which may be used.

Specific hazards arising from the substance or mixture

1	Development of hazardous combustion gases or vapor possible in the event of fire.
2	May expansion or decompose explosively when heated or involved in fire.

Special protective equipment and precautions for fire-fighters

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

1	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
2	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
3	Use personal protective equipment,do not breathe dust/fume.

Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

1	Cut off the source of the leak as much as possible.
2	Keep leaks in a ventilated place.
3	Isolation of contaminated areas and restrictions on access.
4	It is recommended that emergency personnel wear dust masks.
5	Collect the spill with a clean shovel and place it in a clean, dry, loosely closed container and move the container away from the leak.
6	Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

7 Handling and storage

Precautions for safe handling

1	Handling is performed in a well ventilated place.
2	Wear suitable protective equipment.
3	Avoid contact with skin and eyes.
4	Keep away from heat/sparks/open flames/ hot surfaces.

Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

8 Exposure controls/personal protection

Control parameters

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m³	ppm	mg/m³
Graphite	USA - OSHA		15		
	South Korea		2		
	Ireland		10		
	Germany (DFG)		4		
	Denmark		2.5		5
	Australia		3 (4)		
Copper	The Netherlands		0.1		
	Poland		0.2		
	Latvia		0.5		1
	Germany (DFG)		0.01		0.02
Aluminium	USA - OSHA		15		

	South Korea		10		
	Ireland		1		
	Germany (DFG)		4		
	Denmark		5		10
	Australia		10		
Carbon black	USA - OSHA		3.5		
	South Korea		3.5		
	Ireland		3.5		7
	France		3.5		
	Denmark		3.5		7
	Australia		3		
Nickel	USA - OSHA		1		
	South Korea		1		
	Ireland		0.5		
	Hungary		0.1		0.1
	Denmark		0.05		0.1
	Australia		1		

◆ Biological limit values

Component	Standard	Biological monitoring index	Biological limits value	Sampling time	Remark
		Fluorine/urine	8mg/L	end of shift	

◆ Monitoring methods

1	EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
2	GBZ/T 300 series standard Determination of toxic substances in workplace air.

Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Use explosion-proof electrical/ventilating/lighting/equipment.
4	Set up emergency exit and necessary risk-elimination area.

Personal protection equipment

General requirement	
Eye protection	In general situation, eye protection is not needed. In the production process, when contacting with vapour or dust, tightly fitting safety goggles.
Hand protection	In general situation, hand protection is not needed.
Respiratory protection	In general situation, respiratory protection is not needed. If exposure limits are exceeded or if irritation or other symptoms are experienced, wear dust proof mask

	or gas defence mask.
Skin and body protection	In general situation, skin and body protection are not needed.

9 Physical and chemical properties and safety characteristics

Physical and chemical properties

Physical state	Solid (see picture)
Colour	Black
Odor	No special odor
Odor threshold	No information available
pH	No information available
Melting point/freezing point(°C)	No information available
Initial boiling point and boiling range(°C)	No information available
Flash point(Closed cup,°C)	Not applicable
Evaporation rate	Not applicable
Flammability	Not flammable
Upper/lower explosive limits[%(v/v)]	Upper limit：No information available；Lower limit：No information available
Vapor pressure	Not applicable
Relative vapour density(Air = 1)	Not applicable
Relative density(Water=1)	No information available
Solubility	Insoluble in water
n-octanol/water partition coefficient	No information available
Auto-ignition temperature(°C)	No information available
Decomposition temperature(°C)	No information available
Kinematic viscosity	Not applicable
Particle characteristics	No information available

10 Stability and reactivity

Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
Possibility of hazardous reactions	No information available.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Metal acetylide, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid. Halogen, interhalogen, strong oxidant, water and acids. Oxidants, halogen, interhalogen and mercury.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

Acute toxicity

Component	LD_{50}(oral)	LD_{50}(dermal)	LC_{50}(inhalation,4h)
Carbon black	> 15400mg/kg(Rat)	> 3000mg/kg(Rabbit)	No information available
Polyacrylic acid	2500mg/kg(Rat)	No information available	No information available

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
Lithium Iron phosphate	Not Listed	Not Listed
Graphite	Not Listed	Not Listed
Copper	Not Listed	Not Listed
Aluminium	Not Listed	Not Listed
Poly(vinylidene difluoride)	Not Listed	Not Listed
Carbon black	Category 2B	Not Listed
Polyacrylic acid	Category 3	Not Listed
Lithium hexafluorophosphate	Not Listed	Not Listed
Nickel	Category 2B	Category R

Others

Rechargeable Li-ion Battery US5000	
Skin corrosion/irritation	Based on available data, the classification criteria are not met
Serious eye damage/irritation	Based on available data, the classification criteria are not met
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	Based on available data, the classification criteria are not met
STOT-single exposure	Based on available data, the classification criteria are not met
STOT-repeated exposure	Based on available data, the classification criteria are not met
Aspiration hazard	Based on available data, the classification criteria are not met
Germ cell mutagenicity	Based on available data, the classification criteria are not met
Reproductive toxicity(additional)	Based on available data, the classification criteria are not met

12 Ecological information

Acute aquatic toxicity

Component	Fish	Crustaceans	Algae
Copper	LC_{50}：0.665mg/L (96h)(Fish)	EC_{50}：0.02mg/L (48h)(Crustaceans)	ErC_{50}：7.9mg/L (96h)(Algae)
Aluminium	LC_{50}：1.55mg/L (96h)(Fish)	No information available	No information available
Nickel	LC_{50}：40mg/L (96h)(Fish)	EC_{50}：1mg/L	No information available

		(48h)(Crustaceans)	

Chronic aquatic toxicity

Chronic aquatic toxicity	No information available

Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Graphite	Low	Low
Nickel	Low	Low

Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Graphite	Low	Log Kow=0.5294
Nickel	Low	Log Kow=-1.38

Mobility in soil

Component	Mobility in soil	Soil Organic Carbon-Water Partitioning Coefficient (Koc)
Graphite	Low	23.74
Nickel	Low	14.3

Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Graphite	Not applicable
Copper	Not applicable
Aluminium	Not applicable
Carbon black	Not PBT/vPvB
Lithium hexafluorophosphate	Not applicable
Nickel	Not applicable

13 Disposal considerations

Disposal considerations

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

14 Transport information

Label and Mark

Transporting Label	

IMDG-CODE

UN number	3480
UN proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Transport hazard class	9
Transport subsidiary hazard class	None
Packing group	Not applicable
Marine pollutant (Yes or no)	No

IATA-DGR

UN number	3480
UN proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Transport hazard class	9
Transport subsidiary hazard class	None
Packing group	Not applicable

UN-ADR

UN number	3480
UN proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Transport hazard class	9
Transport subsidiary hazard class	None
Packing group	Not applicable

15 Regulatory information

International chemical inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AIIC	ENCS
Lithium Iron phosphate	×	√	√	√	×	×	√	×	√
Graphite	√	√	√	√	√	√	√	√	×
Copper	√	√	×	√	√	√	√	√	√
Aluminium	√	√	√	√	√	√	√	√	√
Poly(vinylidene difluoride)	×	√	√	√	√	√	√	√	√
Carbon black	√	√	√	√	√	√	√	√	×
Polyacrylic acid	×	√	√	√	√	√	√	√	√
Lithium hexafluorophosphate	√	√	×	√	×	√	√	√	√
Nickel	√	√	√	√	√	√	√	√	√

[EINECS] European Inventory of Existing Commercial Chemical Substances

[TSCA]	United States Toxic Substances Control Act Inventory
[DSL]	Canadian Domestic Substances List
[IECSC]	China Inventory of Existing Chemical Substances
[NZIoC]	New Zealand Inventory of Chemicals
[PICCS]	Philippines Inventory of Chemicals and Chemical Substances
[KECI]	Korea Existing Chemicals Inventory
[AIIC]	Australia. Inventory of Industrial Chemicals (AIIC)
[ENCS]	Japan Inventory of Existing & New Chemical Substances

Note:

“√”	Indicates that the substance included in the regulations.
“×”	No data or not inlcuded in the regulations.

16 Other information

Information on revision

Creation Date	2022/06/13
Revision Date	2022/06/13
Reason for revision	-

Reference

[1] IPCS: The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home。
[2] IARC, website: http://www.iarc.fr/。
[3] OECD: The Global Portal to Information on Chemical Substances, website: https://www.echemportal.org/echemportal/substancesearch/index.action。
[4] CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple。
[5] NLM: ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp。
[6] EPA: Integrated Risk Information System, website: http://cfpub.epa.gov/iris/。
[7] U.S. Department of Transportation: ERG, website: http://www.phmsa.dot.gov/hazmat/library/erg。
[8] Germany GESTIS-database on hazard substance, website: http://gestis-en.itrust.de/。

Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG	International Maritime Dangerous Goods
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC_{50}	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD_{50}	Lethal Dose 50%	NTP	National Toxicology Program
EC_{50}	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC_X	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P_{OW}	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor		

Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 9th revised edition). The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user’s reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

化学品安全技术说明书（SDS）编制报告

编号：DG2150563C
日期：2021/07/05

样品名称	锂离子电池 US5000 48V 100Ah 4800Wh		
申请单位	上海派能能源科技股份有限公司		
供应商	江苏派能能源科技有限公司		
样品组分	磷酸亚铁锂；石墨；铜；铝；聚偏二氟乙烯；炭黑；聚丙烯酸；六氟磷酸锂；镍		
编制依据	联合国《全球化学品统一分类和标签制度》（GHS）第八修订版		
化学品安全技术说明书(SDS)请参见本报告附件。			
编制		签发	

说明：本报告有效期至联合国 GHS 第九修订版实施之前。

安全数据单

锂离子电池 US5000 48V 100Ah 4800Wh

上海派能能源科技股份有限公司

- 根据 GHS 第八修订版

SDS

第一部分 化学品及企业标识

> 产品标识

产品中文名称	锂离子电池 US5000 48V 100Ah 4800Wh
产品英文名称	Rechargeable Li-ion Battery US5000 48V 100Ah 4800Wh
别名	-
CAS No.	不适用
EC No.	不适用
分子式	不适用

> 产品推荐和限制用途

产品的推荐用途	请咨询生产商。
产品的限制用途	请咨询生产商。

> 安全数据单提供者信息

申请单位名称	上海派能能源科技股份有限公司
申请单位地址	上海市浦东新区张江高科技园区祖冲之路 887 弄 73 号
申请单位邮编	200120
申请单位联系电话	+86-21-51317697
申请单位传真号码	+86-21-51317698
申请单位电子邮箱	wang.zhonghe@pylontech.com.cn
供应商名称	江苏派能能源科技有限公司
供应商地址	江苏省昆山市锦溪镇昆开路 505 号 8 号厂房
供应商邮编	215300
供应商联系电话	+86-21-51317697
供应商传真号码	+86-21-51317698
供应商电子邮箱	wang.zhonghe@pylontech.com.cn

> 企业应急电话

企业应急电话	+86-21-51317699

第二部分 危险标识

按照联合国 GHS（第八修订版）规定，该产品所属危险性类别及标签要素如下：

> GHS 危险性类别

该产品符合“物品”的定义。在全球化学品统一分类和标签制度（GHS）中，美国职业安全和健康管理署“危险公示标准”（29 CFR 1910.1200）或类似定义界定的“物品”，

不属于这一制度的范围。[Rev.8 (2019) Part 1.3.2.1.1]

> GHS 标签要素

象形图 不适用

信号词 不适用

> 危险性说明

不适用

> 防范说明

预防措施

不要打开或拆卸电池。
不要暴露于高温或明火。
不要混合使用不同大小、化学性质或类型的电池。
避免使用外力撞击电池。

事故响应

不适用

安全储存

储存在阴凉、干燥、通风的库房中。

废弃处置

按照地方/区域/国家/国际规章处置内装物/容器。

第三部分 成分/组成信息

组分	含量（质量分数，%）	CAS No.	EC No.
磷酸亚铁锂	商业秘密	15365-14-7	604-917-2
石墨	商业秘密	7782-42-5	231-955-3
铜	商业秘密	7440-50-8	231-159-6
铝	商业秘密	7429-90-5	231-072-3
聚偏二氟乙烯	商业秘密	24937-79-9	200-867-7
炭黑	商业秘密	1333-86-4	215-609-9
聚丙烯酸	商业秘密	9003-01-4	202-415-4
六氟磷酸锂	商业秘密	21324-40-3	244-334-7
镍	商业秘密	7440-02-0	231-111-4

第四部分 急救措施

> 急救措施描述

一般性建议 急救措施通常是需要的，请将本 SDS 出示给到达现场的医生。

眼睛接触 用大量水彻底冲洗至少 15 分钟。如有不适，就医。

皮肤接触 立即脱去污染的衣物。用大量肥皂水和清水冲洗皮肤。如有不适，就医。

食入 禁止催吐，切勿给失去知觉者从嘴里喂食任何东西。立即呼叫医生或中毒控制中心。

吸入 立即将患者移到新鲜空气处，保持呼吸畅通。如果呼吸困难，给于吸氧。如患者食入或吸入本物质，不得进行口对口人工呼吸。如果呼吸停止。立即进行心肺复苏术。立即就医。

急救人员的防护 确保医护人员了解产品的危害特性，并采取自身防护措施，以保护自己和防止污染传播。

> **最重要的症状和影响，急性的和滞后的**

1 有限的证据表明反复或长期职业接触可能会产生涉及器官或生化系统累积性的健康影响。

> **紧急医疗处理和特殊处理的说明**

1 根据出现的症状进行针对性处理。
2 注意症状可能会出现延迟。

第五部分 消防措施

> **灭火介质**

合适的灭火介质 干粉、二氧化碳或耐醇泡沫。

不合适的灭火介质 避免用太强烈的水汽灭火，因为它可能会使火苗蔓延分散。

> **源于此物质或混合物的特别危害**

1 加热时，容器可能爆炸。
2 暴露于火中的容器可能会通过压力安全阀泄漏出内容物。
3 受热或接触火焰可能会产生膨胀或爆炸性分解。

> **对消防人员的建议**

1 灭火时，应佩戴呼吸面具（(符合 MSHA/NIOSH 要求的或相当的)）并穿上全身防护服。
2 在安全距离处、有充足防护的情况下灭火。
3 防止消防水污染地表和地下水系统。

第六部分 泄漏应急处理

> **作业人员防护措施，防护设备和紧急处理程序**

1 保证充分的通风。清除所有点火源。
2 迅速将人员撤离到安全区域，远离泄漏区域并处于上风方向。
3 使用个人防护装备。避免吸入蒸气、烟雾、气体或风尘。

> **环境保护措施**

1 在确保安全的情况下，采取措施防止进一步的泄漏或溢出。
2 避免排放到周围环境中。

> **泄漏化学品的收容、清除方法及所使用的处置材料**

1 少量泄漏时，可采用干砂或惰性吸附材料吸收泄漏物，大量泄漏时需筑堤控制。
2 附着物或收集物应存放在合适的密闭容器中，并根据当地相关法律法规废弃处置。
3 清除所有点火源，并采用防火花工具和防暴设备。

第七部分 操作与储存

> **操作注意事项**

1 在通风良好处进行操作。

2 穿戴合适的个人防护用具。
3 避免接触皮肤和进入眼睛。
4 远离热源、火花、明火和热表面。
5 采取措施防止静电积累。

> 储存注意事项

1 保持容器密闭。
2 储存在干燥、阴凉和通风处。
3 远离热源、火花、明火和热表面。
4 存储于远离不相容材料和食品容器的地方。

第八部分 接触控制/个人防护

> 控制参数

职业接触限值

组分	国家/地区	职业接触限值（8h）		职业接触限值（短时间）	
		ppm	mg/m³	ppm	mg/m³
石墨 7782-42-5	美国-OSHA	-	15	-	-
	韩国	-	2	-	-
	爱尔兰	-	10	-	-
	德国(DFG)	-	4	-	-
	丹麦	-	2.5	-	5
	澳大利亚	-	3 (4)	-	-
铜 7440-50-8	荷兰	-	0.1	-	-
	波兰	-	0.2	-	-
	拉脱维亚	-	0.5	-	1
	德国(DFG)	-	0.01	-	0.02
铝 7429-90-5	美国-OSHA	-	15	-	-
	韩国	-	10	-	-
	爱尔兰	-	1	-	-
	德国(DFG)	-	4	-	-
	丹麦	-	5	-	10
	澳大利亚	-	10	-	-
炭黑 1333-86-4	美国-OSHA	-	3.5	-	-
	韩国	-	3.5	-	-
	爱尔兰	-	3.5	-	7
	法国	-	3.5	-	-
	丹麦	-	3.5	-	7
	澳大利亚	-	3	-	-
镍 7440-02-0	美国-OSHA	-	1	-	-
	韩国	-	1	-	-
	爱尔兰	-	0.5	-	-
	匈牙利	-	0.1	-	0.1

	丹麦	-	0.05	-	0.1
	澳大利亚	-	1	-	

生物限值

组分	来源	生物监测指标	生物限值	采样时间	备注
		氟/尿	8mg/L	工作班末	

监测方法

1 EN 14042 工作场所空气 用于评估暴露于化学或生物试剂的程序指南。

2 GBZ/T 160 工作场所空气有毒物质测定（系列有效标准）以及 GBZ/T 300 工作场所空气有毒物质测定（系列标准）。

> 工程控制

1 保持充分的通风，特别在封闭区内。

2 确保在工作场所附近有洗眼和淋浴设施。

3 使用防爆电器、通风、照明等设备。

4 设置应急撤离通道和必要的泄险区。

> 个人防护装备

眼睛防护 佩戴化学护目镜（符合欧盟 EN 166 或美国 NIOSH 标准）。

手部防护 戴化学防护手套（例如丁基橡胶手套）。建议选择经过欧盟 EN 374、美国 US F739 或 AS/NZS 2161.1 标准测试的防护手套。

呼吸系统防护 如果蒸气浓度超过职业接触限值或发生刺激等症状时，请使用全面罩式多功能防毒面具（US）或 AXBEK 型（EN 14387）防毒面具筒。

皮肤和身体防护 穿阻燃防静电防护服和抗静电的防护靴。

第九部分 物化特性

外观与性状：锂离子电池，单独包装

气味：无资料

气味阈值：无资料

pH 值：无资料

熔点/凝固点(℃)：无资料

初始沸点和沸腾范围(℃)：无资料

闪点(℃)(闭杯)：不适用

蒸发速率：不适用

易燃性（固体或气体）：无资料

爆炸上限 /下限[%(v/v)]：上限：无资料；下限：无资料

蒸汽压力(KPa)：不适用

相对蒸气密度(空气=1)：不适用

相对密度(水=1)：无资料

可溶性：无资料

正辛醇/水分配系数：无资料

自燃温度(℃)：无资料

分解温度(℃)：无资料

运动粘度(mm^2/s)：不适用

颗粒特征：无资料

第十部分 稳定性和反应性

反应性 与不相容物质接触可发生分解或其它化学反应。

化学稳定性 在正确的使用和存储条件下是稳定的。

危险反应的可能性 与金属乙炔化合物的混合物在加热时，发生燃烧或白炽化。与卤素、卤间化合物及其他强氧化剂发生猛烈反应，或引起爆炸。超细粉末在空气室温下就会自燃。

应避免的条件 不相容物质，热、火焰和火花。

不相容材料 金属乙炔化合物、卤素及卤间化合物、卤素的氧化物、硝酸、氧化氮、硝酸盐、亚硝酸

危险的分解产物	盐、卤素含氧酸盐、铬酸盐、高锰酸盐、无机过氧化物、金属氧化物和过氧甲酸。卤素、卤间化合物、强氧化剂、非金属、水和酸。氧化剂、卤素、卤间化合物和无。 在正常的储存和使用条件下，不会产生危险的分解产物。

第十一部分 毒理学信息

> 急性毒性

组分	CAS No.	LD_{50}(经口)	LD_{50}(经皮)	LC_{50}(吸入，4h)
炭黑	1333-86-4	> 15400mg/kg(大鼠)	> 3000mg/kg(兔子)	无资料
聚丙烯酸	9003-01-4	2500mg/kg(大鼠)	无资料	无资料

> 皮肤腐蚀/刺激

无资料

> 严重眼损伤/刺激

无资料

> 皮肤致敏

无资料

> 呼吸致敏

无资料

> 生殖细胞致突变性

无资料

> 致癌性

ID	CAS No.	组分	IARC	NTP
1	15365-14-7	磷酸亚铁锂	未列入	未列入
2	7782-42-5	石墨	未列入	未列入
3	7440-50-8	铜	未列入	未列入
4	7429-90-5	铝	未列入	未列入
5	24937-79-9	聚偏二氟乙烯	未列入	未列入
6	1333-86-4	炭黑	类别2B	未列入
7	9003-01-4	聚丙烯酸	类别3	未列入
8	21324-40-3	六氟磷酸锂	未列入	未列入
9	7440-02-0	镍	类别2B	未列入

> 生殖毒性

无资料

> 生殖毒性附加危害

无资料

> 特异性靶器官系统毒性-单次接触

无资料

> 特异性靶器官系统毒性-反复接触

无资料

> 吸入危害

无资料

第十二部分 生态学信息

> 急性水生毒性

组分	CAS No.	鱼类	甲壳纲动物	藻类/水生植物
铜	7440-50-8	LC_{50}：0.665mg/L (96h)(鱼)	EC_{50}：0.02mg/L (48h)	ErC_{50}：7.9mg/L (96h)
铝	7429-90-5	LC_{50} :1.55mg/L (96h)(鱼)	无资料	无资料
镍	7440-02-0	LC_{50}：40mg/L (96h)(鱼)	EC_{50}：1mg/L (48h)	无资料

> 慢性水生毒性

无资料

> 其他信息

持久性和降解性 无资料

生物富集或生物积累性 无资料

土壤中的迁移性 无资料

PBT 和 vPvB 的结果评价

磷酸亚铁锂不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。
石墨不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。
铜不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。
铝不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。
聚偏二氟乙烯不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。
炭黑不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。
聚丙烯酸不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。
六氟磷酸锂不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。
镍不符合欧盟 (EC) No 1907/2006 法规附件 XIII 中 PBT 和 vPvB 的分类标准。

第十三部分 废弃处置

废弃化学品 处置之前应参阅国家和地方有关法规。建议用焚烧法处置。

污染包装物 包装物清空后仍可能存在残留物危害，应远离热和火源，如有可能返还给供应商循环使用。

废弃注意事项 请参阅废弃化学品和污染包装物部分。

第十四部分 运输信息

运输标签	
海洋污染物	无
联合国危险货物编号（UN No.）	3480
联合国正确运输名称	锂离子电池组（包括聚合物锂离子电池）
运输主要危险类别	9
运输次要危险类别	无
包装类别	包装必须符合Ⅱ类包装性能水平
报告备注	根据联合国《关于危险货物运输的建议书 规章范本》规定，锂电池需通过 UN38.3 测试，才能按照本报告分类结论进行运输。

第十五部分 法规信息

> 国际化学品名录

组分	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AICS	ENCS
磷酸亚铁锂	√	√	√	×	×	×	√	×	×
石墨	√	√	√	√	√	√	√	√	×
铜	√	√	√	√	√	√	√	√	×
铝	√	√	√	√	√	√	√	√	×
聚偏二氟乙烯	×	√	√	√	√	√	√	√	√
炭黑	√	√	√	√	√	√	√	√	×
聚丙烯酸	√	√	√	√	√	√	×	√	√
六氟磷酸锂	√	√	×	√	×	√	√	√	×
镍	√	√	√	√	√	√	√	√	×

【EINECS】 欧洲现有化学物质名录
【TSCA】 美国 TSCA 化学物质名录
【DSL】 加拿大国内化学物质名录
【IECSC】 中国现有化学物质名录
【NZIoC】 新西兰现有暂用的化学物质名录
【PICCS】 菲律宾化学品和化学物质名录
【KECI】 韩国现有化学物质名录
【AICS】 澳大利亚现有化学品物质名录
【ENCS】 日本现有和新化物质名录

注
"√" 表示该物质列入法规
"×" 表示暂无资料或未列入法规

第十六部分 其他信息

编制日期	2021/07/05
修订日期	2021/07/05
修订原因	-

> 免责声明

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Design Report of Safety Data Sheet

Report No.: DG2150563E
Date: 2021/07/05

Name of the sample	Rechargeable Li-ion Battery US5000 48V 100Ah 4800Wh		
Applicant	Pylon Technologies Co., Ltd.		
Supplier	Pylon Technologies Co., Ltd.		
Composition of the sample	Lithium Iron Phosphate；Graphite；Copper；Aluminium；Poly(vinylidene difluoride)；Carbon black；Polyacrylic acid；Lithium hexafluorophosphate；Nickel		
Warranty of Design	GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Eighth revised edition		
Design Result of SDS please see next page.			
Designer		**Approver**	

Notes: This SDS is valid before the implementation of the ninth revised edition GHS.

DG2150S63E

SAFETY DATA SHEET

Rechargeable Li-ion Battery US5000 48V 100Ah 4800Wh

Pylon Technologies Co., Ltd.

- According to GHS (Eighth Revised Edition)

Section 1 Product and Company Identification

> Product Identifier

Product Name	Rechargeable Li-ion Battery US5000 48V 100Ah 4800Wh
Synonyms	-
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

> Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Relevant Identified Uses	Please consult manufacturer.
Uses Advised Against	Please consult manufacturer.

> Details of the Supplier of the Safety Data Sheet

Applicant Name	Pylon Technologies Co., Ltd.
Application Address	No.73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park Pudong, Shanghai 201203, China
Applicant Post Code	200120
Applicant Telephone	+86-21-51317697
Applicant Fax	+86-21-51317698
Applicant E-mail	wang.zhonghe@pylontech.com.cn
Supplier Name	Pylon Technologies Co., Ltd.
Supplier Address	Plant 8, No.505 Kunkai Road, JinXi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA, 215324
Supplier Post Code	215300
Supplier Telephone	+86-21-51317697
Supplier Fax	+86-21-51317698
Supplier E-mail	wang.zhonghe@pylontech.com.cn

> Emergency Phone Number

Emergency Phone Number	+86-21-51317699

Section 2 Hazards Identification

Hazard class and label elements of the product according to GHS (the eighth revised edition):

> GHS Hazard Class

This product meets the definition of an article. Under the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), "Articles" as defined in the Hazard Communication Standard (29 CFR 1910.1200) of the Occupational Safety and Health Administration of the United States of America, or by similar definition, are outside the scope of the system. [Rev.8 (2019) Part 1.3.2.1.1]

> GHS Label Elements

Pictogram Not applicable

Signal Word Not applicable

> Hazard Statements

Not applicable

> Precautionary Statements

Prevention

Do not open or disassemble.
Do not expose to high temperatures or open fire.
Do not mix with batteries of varying sizes, chemistries or types.
Avoid using external impact battery.

Response

Not applicable

Storage

Store under roof in cool, dry, well-ventilated areas.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3 Composition/Information on Ingredients

Component	Concentration (weight percent, %)	CAS No.	EC No.
Lithium Iron Phosphate	Commercial secrets	15365-14-7	604-917-2
Graphite	Commercial secrets	7782-42-5	231-955-3
Copper	Commercial secrets	7440-50-8	231-159-6
Aluminium	Commercial secrets	7429-90-5	231-072-3
Poly(vinylidene difluoride)	Commercial secrets	24937-79-9	200-867-7
Carbon black	Commercial secrets	1333-86-4	215-609-9
Polyacrylic acid	Commercial secrets	9003-01-4	202-415-4
Lithium hexafluorophosphate	Commercial secrets	21324-40-3	244-334-7
Nickel	Commercial secrets	7440-02-0	231-111-4

Section 4 First Aid Measures

> Description of First Aid Measures

General Advice Immediate medical attention is required. Show this safety data sheet (SDS) to

	the doctor in attendance.
Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
Skin Contact	Take off contaminated clothing and shoes immediately. Wash off with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
Ingestion	Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
Inhalation	Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.
Protecting of First-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

> Most Important Symptoms and Effects, both Acute and Delayed

1 Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

> Indication of Any Immediate Medical Attention and Special Treatment Needed

1 Treat symptomatically.

2 Symptoms may be delayed.

Section 5 Fire Fighting Measures

> Extinguishing Media

Suitable Extinguishing Media	Dry chemical, carbon dioxide or alcohol-resistant foam.
Unsuitable Extinguishing Media	Do not use a solid water stream as it may scatter or spread fire.

> Specific Hazards Arising from the Substance or Mixture

1 Containers may explode when heated.

2 Fire exposed containers may vent contents through pressure relief valves.

3 May expansion or decompose explosively when heated or involved in fire.

> Advice for Firefighters

1 As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent)and full protective gear.

2 Fight fire from a safe distance, with adequate cover.

3 Prevent fire extinguishing water from contaminating surface water or the ground water system.

Section 6 Accidental Release Measure

> Personal Precautions, Protective Equipment and Emergency Procedures

1 Ensure adequate ventilation. Remove all sources of ignition.

2 Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

3 Use personal protective equipment. Avoid breathing vapours, mist, gas or dust.

> Environmental Precautions

1 Prevent further leakage or spillage if safe to do so.

2 Discharge into the environment must be avoided.

> Methods and Materials for Containment and Cleaning Up

1 Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.

2 Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

3 Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

Section 7 Handling and Storage

> Precautions for Handling

1 Handling is performed in a well ventilated place.

2 Wear suitable protective equipment.

3 Avoid contact with skin and eyes.

4 Keep away from heat/sparks/open flames/ hot surfaces.

5 Take precautionary measures against static discharges.

> Precautions for Storage

1 Keep containers tightly closed.

2 Keep containers in a dry, cool and well-ventilated place.

3 Keep away from heat/sparks/open flames/ hot surfaces.

4 Store away from incompatible materials and foodstuff containers.

Section 8 Exposure Controls/Personal Protection

> Control Parameters

Occupational Exposure Limit Values

Component	Country/Region	Limit Value - Eight Hours		Limit Value - Short Term	
		ppm	mg/m³	ppm	mg/m³
Graphite 7782-42-5	USA - OSHA	-	15	-	-
	South Korea	-	2	-	-
	Ireland	-	10	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	2.5	-	5
	Australia	-	3 (4)	-	-
Copper 7440-50-8	The Netherlands	-	0.1	-	-
	Poland	-	0.2	-	-
	Latvia	-	0.5	-	1
	Germany (DFG)	-	0.01	-	0.02
Aluminium 7429-90-5	USA - OSHA	-	15	-	-
	South Korea	-	10	-	-
	Ireland	-	1	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	5	-	10
	Australia	-	10	-	-

Carbon black 1333-86-4	USA - OSHA	-	3.5	-	-
	South Korea	-	3.5	-	7
	Ireland	-	3.5	-	
	France	-	3.5	-	
	Denmark	-	3.5	-	7
	Australia	-	3	-	-
Nickel 7440-02-0	USA - OSHA	-	1	-	-
	South Korea	-	1	-	-
	Ireland	-	0.5	-	-
	Hungary	-	0.1	-	0.1
	Denmark	-	0.05	-	0.1
	Australia	-	1	-	-

Biological Limit Values

Component	Source	Biological monitoring index	Biological limits value	Sampling time	remark
		Fluorine/urine	8mg/L	end of shift	

Monitoring Methods

1 EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

2 GBZ/T 160 Determination of toxic substances in workplace air(Series effective standard)and GBZ/T 300 Determination of toxic substances in workplace air(Series standard).

> Engineering Controls

1 Ensure adequate ventilation, especially in confined areas.

2 Ensure that eyewash stations and safety showers are close to the workstation location.

3 Use explosion-proof electrical/ventilating/lighting/equipment.

4 Set up emergency exit and necessary risk-elimination area.

> Personal Protection Equipment

Eye Protection Tightly fitting safety goggles (approved by EN 166(EU) or NIOSH (US).

Hand Protection Wear protective gloves (such as butyl rubber) , passing the tests according to EN 374(EU),US F739 or AS/NZS 2161.1 standard.

Respiratory protection If exposure limits are exceeded or if irritation or other symptoms are experienced, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges.

Skin and Body Protection Wear fire/flame resistant/retardant clothing and antistatic boots.

Section 9 Physical and Chemical Properties

Appearance: Lithium ion Battery , individually packaged

Odor: No information available

Odor Threshold: No information available

pH: No information available

Melting Point/Freezing Point (℃): No information available

Initial Boiling Point and Boiling Range (℃): No information available

Flash Point (℃)(Closed Cup): Not applicable

Evaporation Rate: Not applicable

Flammability: No information available

Upper/lower explosive limits[%(v/v)]: Upper limit : No information available ;Lower limit :No information

available

Vapor Pressure (KPa): Not applicable
Relative Density(Water=1): No information available
n-Octanol/Water Partition Coefficient: No information available
Decomposition Temperature (℃): No information available
Particle characteristics: No information available

Relative Vapour Density(Air = 1): Not applicable
Solubility: No information available
Auto-Ignition Temperature(℃): No information available
Kinematic Viscosity (mm^2/s): Not applicable

Section 10 Stability and Reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical Stability	Stable under proper operation and storage conditions.
Possibility of Hazardous Reactions	Mixtures with metallic acetylene, when heated, cause a fire or incandescence. Reacts severely with halogens, interhalogens or other strong oxidants, or causes a fire. Ultrafine powder will self-ignite in the air at room temperature.
Conditions to Avoid	Incompatible materials, heat, flame and spark.
Incompatible Materials	Metal acetylide, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid. Halogen, interhalogen, strong oxidant, water and acids. Oxidants, halogen, interhalogen and mercury.
Hazardous Decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11 Toxicological Information

> Acute Toxicity

Component	CAS No.	LD_{50}(Oral)	LD_{50}(Dermal)	LC_{50}(Inhalation, 4h)
Carbon black	1333-86-4	> 15400mg/kg(Rat)	> 3000mg/kg(Rabbit)	No information available
Polyacrylic acid	9003-01-4	2500mg/kg(Rat)	No information available	No information available

> Skin Corrosion/Irritation

No information available

> Serious Eye Damage/Irritation

No information available

> Skin Sensitization

No information available

> Respiratory Sensitization

No information available

> Germ Cell Mutagenicity

No information available

> Carcinogenicity

ID	CAS No.	Component	IARC	NTP
1	15365-14-7	Lithium Iron Phosphate	Not Listed	Not Listed
2	7782-42-5	Graphite	Not Listed	Not Listed
3	7440-50-8	Copper	Not Listed	Not Listed
4	7429-90-5	Aluminium	Not Listed	Not Listed
5	24937-79-9	Poly(vinylidene difluoride)	Not Listed	Not Listed
6	1333-86-4	Carbon black	Category 2B	Not Listed
7	9003-01-4	Polyacrylic acid	Category 3	Not Listed
8	21324-40-3	Lithium hexafluorophosphate	Not Listed	Not Listed
9	7440-02-0	Nickel	Category 2B	Not Listed

> Reproductive Toxicity

No information available

> Reproductive Toxicity (Additional)

No information available

> STOT-Single Exposure

No information available

> STOT-Repeated Exposure

No information available

> Aspiration Hazard

No information available

Section 12 Ecological Information

> Acute Aquatic Toxicity

Component	CAS No.	Fish	Crustaceans	Algae
Copper	7440-50-8	LC_{50} : 0.665mg/L (96h)(Fish)	EC_{50} : 0.02mg/L (48h)	ErC_{50} : 7.9mg/L (96h)
Aluminium	7429-90-5	LC_{50} : 1.55mg/L (96h)(Fish)	No information available	No information available
Nickel	7440-02-0	LC_{50} :40mg/L (96h)(Fish)	EC_{50} : 1mg/L (48h)	No information available

> Chronic Aquatic Toxicity

No information available

> Others

Persistence and Degradability	No information available
Bioaccumulative Potential	No information available
Mobility in Soil	No information available
Results of PBT and vPvB Assessment	Lithium Iron Phosphate does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII. Graphite does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII. Copper does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII. Aluminium does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII. Poly(vinylidene difluoride) does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII. Carbon black does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII. Polyacrylic acid does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII. Lithium hexafluorophosphate does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII. Nickel does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

Section 13 Disposal Considerations

Waste Chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated Packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal Recommendations	Refer to Waste chemicals and Contaminated packaging.

Section 14 Transport Information

Transporting Label

Marine pollutant	None
UN Number	3480
UN Proper Shipping Name	LITHIUM ION BATTERIES(including lithium ion polymer batteries)
Transport Hazard Class	9
Transport Subsidiary Hazard Class	NONE

Packing Group	Packagings shall conform to the packing group Ⅱ performance level
Report remarks	According to United Nations Recommendations on the Transports of Dangerous Goods•Model Regulations, Lithium batteries could be transported in accordance with the classification conclusions of this report when meet the requirements of UN38.3 test.

Section 15 Regulatory Information

> International Chemical Inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AICS	ENCS
Lithium Iron Phosphate	√	√	√	×	×	×	√	×	×
Graphite	√	√	√	√	√	√	√	√	×
Copper	√	√	√	√	√	√	√	√	×
Aluminium	√	√	√	√	√	√	√	√	×
Poly(vinylidene difluoride)	×	√	√	√	√	√	√	√	√
Carbon black	√	√	√	√	√	√	√	√	×
Polyacrylic acid	√	√	√	√	√	√	×	√	√
Lithium hexafluorophosphate	√	√	×	√	×	√	√	√	×
Nickel	√	√	√	√	√	√	√	√	×

【EINECS】 European Inventory of Existing Commercial Chemical Substances.
【TSCA】 United States Toxic Substances Control Act Inventory.
【DSL】 Canadian Domestic Substances List.
【IECSC】 China Inventory of Existing Chemical Substances.
【NZIoC】 New Zealand Inventory of Chemicals.
【PICCS】 Philippines Inventory of Chemicals and Chemical Substances.
【KECI】 Existing and Evaluated Chemical Substances.
【AICS】 Australia Inventory of Chemical Substances.
【ENCS】 Existing And New Chemical Substances.

Note
"√" Indicates that the substance included in the regulations
"×" That no data or included in the regulations

Section 16 Additional Information

Creation Date	2021/07/05
Revision Date	2021/07/05
Reason for Revision	-

> Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 8th revised edition). The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user' s reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

Terms of the Using of the Report

1. The report is issued by DPTC according to the information of the chemicals and the information of its shipping provided by the applicant (shipper or his agent).
2. According to the demand of this SDS, DPTC requires the applicant to provide true and exact sample and data.
3. Information from applicant is the key of this Label, so the center will not respond for the wrong of applicant.
4. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.
5. This report will be effective only after it is signed by the inspector, approver and stamped by DPTC.
6. Our center guarantees the objectivity and fairness of this report, and carries out confidentiality obligations on business secrets such as business information, technical documents and so on.
7. The partly duplicating of this report is prohibited without the written approver of DPTC.
8. The report is invalid when anything of the following happens-illegal transfer, embezzlement, imposture, modification or tampering in any media form.
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检测
TESTING
CNAS L2999

UN 38.3

检 测 报 告

Test Report

☐新申请 New Application ■变更 Modification ☐其他: Other:

报告编号: 20220306J07433-2
Report ID

样品名称: 锂离子电池
Sample Name Rechargeable Li-ion Battery

型号规格: US5000
Model/Type 48V 100Ah 4800Wh

委托单位: 上海派能能源科技股份有限公司
Applicant Pylon Technologies Co., Ltd.

中认英泰检测技术有限公司
CQC Intime Testing Technology Co.,Ltd.

检测报告
TEST REPORT

报告编号： Report ID	20220306J07433-2		
样品名称： Sample Name	锂离子电池 Rechargeable Li-ion Battery	商　标： Trade Mark	PYLONTECH
型号规格： Model/Type	US5000 48V 100Ah 4800Wh	样品状态： Sample status	完好 Good
委托单位： Applicant	上海派能能源科技股份有限公司 Pylon Technologies Co., Ltd.		
地址： Applicant Address	上海市浦东新区张江高科技园区祖冲之路887弄73号 No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park Pudong, Shanghai 201203, China		
生产单位： Manufacturer	江苏派能能源科技有限公司 Pylon Technologies Co., Ltd.		
地址： Manufacturer Address	江苏省昆山市锦溪镇昆开路505号8号厂房 Plant 8, No.505 Kunkai Road, JinXi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA		
试验单位： Test Lab	中认英泰检测技术有限公司 CQC Intime Testing Technology Co., Ltd		
地址： Lab Address	苏州吴中经济开发区吴中大道 1368号东太湖科技金融城 East Taihu Technology and Finance City, No.1368 Wuzhong Dadao Rd., Wuzhong Economic Development Zone, Suzhou, Jiangsu.		
试验标准： Standard Specification	《关于危险货物运输的建议书 试验和标准手册》第七版第38.3节 Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, ST/SG/AC.10/11/Rev.7/Section 38.3		
试验项目： Test Item	高度模拟；温度试验；振动；冲击；外部短路；挤压；过充电；强制放电 Altitude Simulation, Thermal Test, Vibration, Shock, External Short Circuit, Crush, Overcharge, Force Discharge		
接样日期：2022-03-31 Receiving Date		完成时间：　2022-04-02 Completing Date	
试验结论　： Conclusion	所检样品符合上述标准要求 The Submitted Sample(s) Meet the Requirement of the Standard.		
检测环境： Test Condition	环境温度：20±5℃ Ambient temperature		
项目： Engineer	侯逢文		
审核： Auditor	王利通		
签发： Approver	赵润生		

CQC/T印章
Seal of CQC/T
签发日期：
Data of issue
2022-04-02

试验样品描述
Description of the sample

测试项目 Test Item	样品编号 Sample No.	样品状态 Sample State
T1~T5	B1~ B2	第1个充放电循环，完全充电状态 At first cycle, in fully charged states
	B3~ B4	第25个充放电循环后，完全充电状态 After 25 cycles ending in fully charged states
T6	C1~C5	第1个充放电循环，50%设计额定容量状态 At first cycle at 50% of the design rated capacity
	C6~C10	第25个充放电循环后，50%设计额定容量状态 After 25 cycles ending at 50% of the design rated capacity
T7	B5~ B6	第1个充放电循环，完全充电状态 At first cycle, in fully charged states
	B7~ B8	第25个充放电循环后，完全充电状态 After 25 cycles ending in fully charged states
T8	C11~C20	第1个充放电循环，完全放电状态 At first cycle, in fully discharged states
	C21~C30	第25个充放电循环后，完全放电状态 After 25 cycles ending in fully discharged states

备注
Remarks

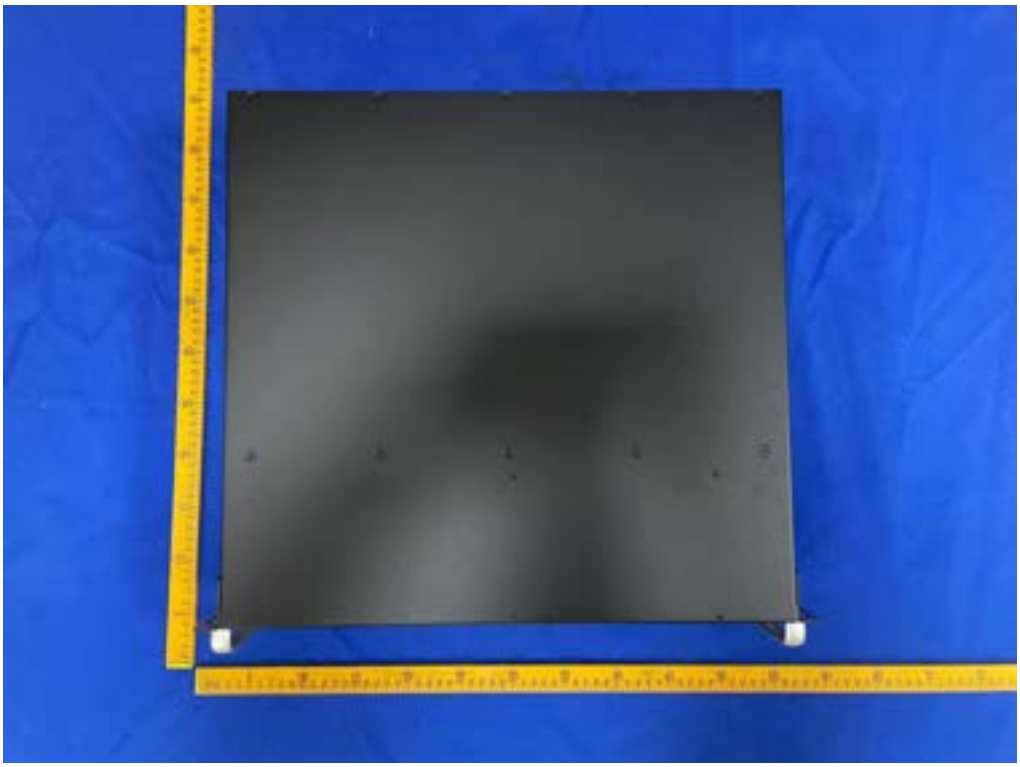
1，本次申请为变更申请，样品底部外壳为了方便检修变更为两段，变更标签样式，详见照片。根据《关于危险货物运输的建议书 试验和标准手册》38.3.2.2条款，不影响其安全性能，无需进行测试。本报告的测试结果和数据引用自编号为20210506J12778-2的报告。
This application is for change. The bottom shell of the sample has been changed to two sections for convenient maintenance. The label style of the product is changed. See the photograph in detail. According to clause 38.3.2.2 of the Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, its safety performance will not be affected and no testing is required. The test result and data of this report is cited from the report No. 20210506J12778-2.

2，该样品为大型电池组
This sample is large battery

样品基本信息 **Sample Fundamental Parameters**			
项目 Item	参数 Parameters	项目 Item	参数 Parameters
额定容量(Ah) Rated capacity(Ah)	100	标称电压(V) Nominal voltage(V)	48
额定瓦特一小时(Wh) Watt-hour rating(Wh)	4800	充电限制电压 (V) Limited charge voltage(V)	54.75
充电电流(A) Charge current(A)	50	最大连续充电电流(A) Maximum continous charging current (A)	120
充电截止电流(mA) End charge current(mA)	5000	放电电流(A) Discharge current(A)	50
放电终止电压(V) End of discharging voltage (V)	40.5	内含电池芯个数(个) Cell numbers(pcs)	15
最大放电电流 (A) Maximum discharge current(A)	120	电池芯型号 Model of cell	A732
电池芯容量(Ah) Capacity of cell(Ah)	100	电池芯排列方式 Permutation of cell	1P15S
电池芯形状 Shape of cell	□圆柱形 Φ≥18mm □圆柱形＜18mm CylindricalΦ≥18mm CylindricalΦ＜18mm □棱柱形 ■袋装电池 □纽扣电池 Prismatic Pouch Cell Button Cell		

样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -1



样品图片 (Sample photograph) -2

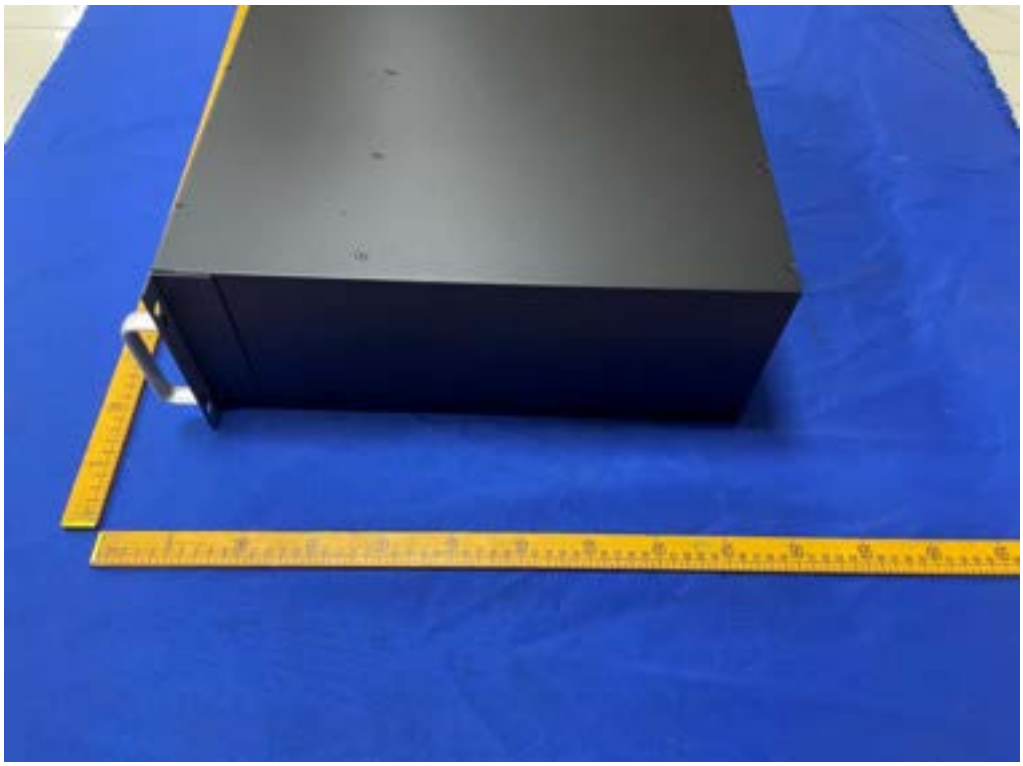
样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -3

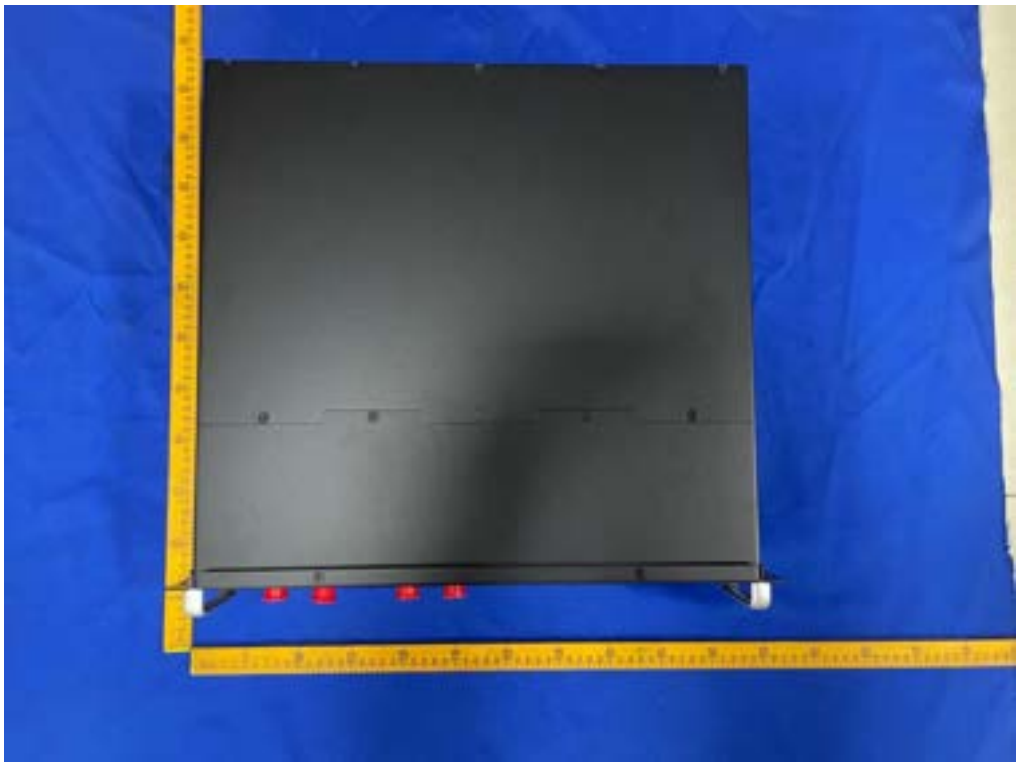
样品图片 (Sample photograph) -4

样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -5



样品图片 (Sample photograph) -6



样 品 照 片
Photos of Sample

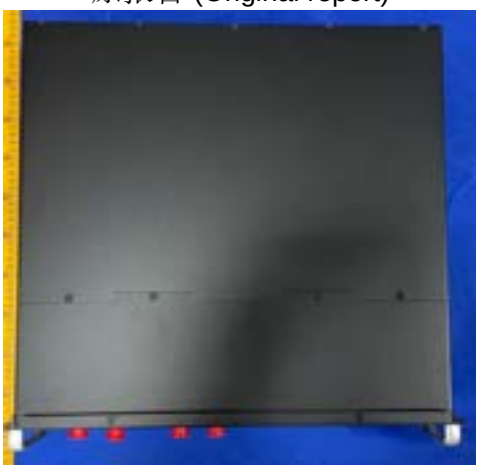
样品图片 (Sample photograph) -7

样品图片 (Sample photograph) -8

样 品 照 片
Photos of Sample

外壳和标签差异 (shell and label difference)

原报告 (Original report)



本报告 (This report)

中认英泰检测技术有限公司
CQC Intime Testing Technology Co.,Ltd
检测报告
Test Report

检测结果
Test results

条款 Clause	**38.3.4.1高度模拟试验** **38.3.4.1 Altitude simulation**
测试步骤 Test Procedure	试验电池和电池组应在压力等于或低于11.6千帕和环境温度(20 ± 5℃)下存放至少6小时。 Test cells and batteries shall be stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature(20±5℃).
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表1 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 1.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.2温度试验** **38.3.4.2 Thermal test**
测试步骤 Test Procedure	试验电池和电池组应先在试验温度等于72 ± 2℃的条件下存放至少6小时，接着再在试验温度等于-40 ± 2℃的条件下存放至少6小时。两个极端试验温度之间的最大时间间隔为30分钟。此程序重复进行，共完成10次，接着将所有试验电池和电池组在环境温度(20 ± 5℃)下存放24小时。 对于大型电池和电池组，暴露于极端试验温度的时间至少应为12小时。 Test cells and batteries are to be stored for at least six hours at a test temperature equal to 72 ± 2℃, followed by storage for at least six hours at a test temperature equal to -40± 2℃. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated until 10 total cycles are complete, after which all test cells and batteries are to be stored for 24 hours at ambient temperature (20± 5℃). For large cells and batteries the duration of exposure to the test temperature extremes should be at least 12 hours.
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表2 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 2.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.3 振动试验** **38.3.4.3 Vibration**
测试步骤 Test Procedure	电池和电池组紧固于振动机平台，但紧固程度不能造成电池变形以致不能准确传递振动。振动应是正弦波形，对数频率扫描从7Hz到200Hz，再回到7Hz，跨度为15分钟。 对电池和小型电池组：从7 Hz开始，保持1gn 的最大加速度，直到频率达到18 Hz。然后将振幅保持在0.8 毫米(总偏移1.6 毫米)，并增加频率直到最大加速度达到8 gn (频率约为50 Hz)。将最大加速度保持在8 gn 直到频率增加到200 Hz。 对大型电池组：从7Hz开始，保持1 gn 的最大加速度，直到频率达到18Hz。然后将振幅保持在0.8 毫米(总偏移1.6 毫米)，并增加频率直到最大加速度达到2 gn (频率约为25 Hz)。将最大加速度保持在2 gn 直到频率增加到200Hz。 这一振动过程须对三个互相垂直的电池安装方位的每一方向重复进行12次，总共为时3小时。其中一个振动方向必须与端面垂直。 Cells and batteries are firmly secured to the platform of the vibration machine without distorting the cells in such a manner as to faithfully transmit the vibration. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. For cells and small batteries: from 7 Hz a peak acceleration of 1 gn is maintained until 18Hz is reached. The amplitude is then maintained at 0.8 mm(1.6 mm total excursion) and the frequency Increased until a peak acceleration of 8 gn occurs (approximately 50 Hz). A peak acceleration of 8 gn is then maintained until the frequency is Increased to 200 Hz For large batteries: from 7HZ to a peak acceleration of 1 gn is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm(1.6 mm total excursion) and the frecuency increaseditil a peak acceleration of 2 gn ocroxmmately 25 Hz). A peak acceleration of 2 gn is then maintained until the frequency is increased to 200Hz This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the teminal face.
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表3 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 3.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.4 冲击试验** **38.3.4.4 Shock**
测试步骤 Test Procedure	试验电池和电池组用坚固支架紧固在试验机上，支架支撑着每个试验电池组的所有安装面。 每个电池须经受最大加速度150 gn 和脉冲持续时间6 毫秒的半正弦波冲击。大型电池须经受最大加速度50 gn 和脉冲持续时间11 毫秒的半正弦波冲击。 小型电池组以峰值为 150gn（或与$\sqrt{(\frac{100850}{mass})}$ 中的较小值）的半正弦的加速度撞击，脉冲持续 6 毫秒，大型电池组须经受最大加速度 50gn（或与$\sqrt{(\frac{30000}{mass})}$ 中的较小值）和脉冲持续时间 11 毫秒的半正弦波冲击。 每个电池或电池组须在三个互相垂直的电池安装方位的正方向经受三次冲击，接着在反方向经受三次冲击，总共经受 18 次冲击。 Test cells and batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery. Each cell shall be subjected to a half-sine shock of peak acceleration of 150 gn and pulse duration of 6 milliseconds. Altematively, large cells may be subjected to a half-sine shock acceleration of 50 gn and pulse duration of 11 milliseconds. Small batteries shall be subjected to a half-sine shock of peak acceleration of 150 gn (or Acceleration(gn)=$\sqrt{(\frac{100850}{mass})}$, which is smaller) and pulse duration of 6 milliseconds. Large batteries shall be subjected to a half-sine of peak acceleration of 50 gn (or Acceleration(gn)=$\sqrt{(\frac{30000}{mass})}$, which is smaller) and pulse duration of 11 milliseconds. Each battery shall be subjected to three shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicular mounting positions of the battery for a total of 18 shocks.
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表4 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 4.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.5 外部短路** **38.3.4.5 External short circuit**
测试步骤 Test Procedure	电池和电池组的外壳温度稳定在57±4℃后，在此温度下对电池进行外部短路，外电路的总阻值应小于0.1Ω，持续短路至样品外壳温度回落到57±4℃后至少再继续短路1 h；对于大型电池组，外壳温度降幅达试验中所观察的的最高温升幅的二分之一并保持低于该数值。电池电池组必须再观察6h结束试验。 The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches 57±4℃and then the cell or battery shall be subjected to a short circuit condition with a total external resistance of less than 0.1 ohm at 57 ±4℃. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to 57±4℃. In the case of the large batteries, has decreased by half of the temperature increase observed during the test and remains below that value. The cell and battery must be observed for a further six hours for the test to be concluded.
技术要求 Test requirement	外壳温度不超过170℃，不解体、不破裂、不着火。 External temperature does not exceed 170℃. No disassembly, no rupture and no fire.
检测结果 Test results	外壳温度不超过170℃，不解体、不破裂、不着火，具体数据详见附表5 External temperature does not exceed 170℃. No disassembly, no rupture and no fire. Test data is shown in Annex 5.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.6 撞击/挤压** **38.3.4.6 Impact/Crush**
测试步骤 Test Procedure	□撞击（适用于直径不小于18.0毫米的圆柱形电池） Impact(applicable to cylindrical cells not less than 18.0 mm in diameter) 将样品电池置于平板上，将一直径为15.8mm±0.1mm的不锈钢棒横放在样品中心，一块9.1Kg±0.1Kg的重锤从61 ± 2.5 cm高度落到试样上。圆柱形电池受撞击时，其长轴应平行于平板并且垂直于放在受检电池中心的直径为 15.8mm的棒。每一试样只经受一次撞击，电池必须再观察6h结束试验。 The sample cell or component cell is to be placed on a flat smooth surface. A 15.8 mm ± 0.1mm diameter stainless steel bar is to be placed across the centre of the sample. A 9.1 kg ± 0.1 kg mass is to be dropped from a height of 61 ± 2.5 cm on to the sample. The test sample is to be impacted with its longitudinal axis parallel to the flat surface and perpendicular to the longitudinal axis of the 15.8 mm ± 0.1mm diameter curved surface lying across the centre of the test sample. Each sample is to be subjected to only a single impact. The battery must be observed for a further six hours for the test to be concluded.
	■挤压(适用于棱柱形、袋装、硬币/纽扣电池和直径小于18.0毫米的圆柱形电池) Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells less than 18.0 mm in diammeter 将试样电池放在两个平面之间挤压，挤压力度逐渐增大，速度大约为1.5cm/s.挤压持续进行，直到出现以下三种情况之一：(a)施加的力量达到13kN±0.78kN;(b)电池的电压下降至少100mV;(c)电池变形达到原始厚度的50%或以上。棱柱形和袋装电池应从最宽的一面施压。硬币/纽扣电池应从平坦表面施压。圆柱形电池应从与纵轴垂直的方向施压。每个试样电池只做一次挤压试验，电池必须再观察6h结束试验。 A cell or component cell is to be crushed between two flat surfaces. The crushing is to be gradual with a speed of approximately 1.5 cm/s at the first point of contact. The crushing is to be continued until the first of the three options below is reached. (a) The applied force reaches 13 kN ± 0.78 kN; (b) The voltage of the cell drops by at least 100 mV; or (c) The cell is deformed by 50% or more of its original thickness. A prismatic or pouch cell shall be crushed by applying the force to the widest side. A button/coin cell shall be crushed by applying the force on its flat surfaces. For cylindrical cells, the crush force shall be applied perpendicular to the longitudinal axis. Each test cell or component cell is to be subjected to one crush only. The battery must be observed for a further six hours for the test to be concluded.
技术要求 Test requirement	外壳温度不超过170℃，不解体、不破裂、不着火。 External temperature does not exceed 170℃.. No disassembly, no rupture and no fire.
检测结果 Test results	外壳温度不超过170℃，不解体、不破裂、不着火，具体数据详见附表6 External temperature does not exceed 170℃. No disassembly, no rupture and no fire. Test data is shown in Annex 6.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.7 过度充电** **38.3.4.7 Overcharge**
测试步骤 Test Procedure	充电电流必须是制造商推荐的最大持续充电电流的两倍。试验的最小电压应为如下：（a）当制造商推荐的充电电压不超过18 V时，试验的最小电压应为2倍于电池的最大充电电压或为22 V二者中较小者；（b）当制造商推荐的充电电压超过18 V时，试验的最小电压应为最大充电电压的1.2倍。该试验应在环境温度下进行。进行试验的时间应为24 小时。在过充电结束后观察被检电池7天。 The charge current shall be the twice the manufactures recommended maximum continuous charge current. The minimum voltage of the test shall be follows:(a)When the manufactures recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V.(b)When the manufactures recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage.Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours. The test sample shall be observed for a further 7 days.
技术要求 Test requirement	不解体、不着火。 No disassembly, no fire.
检测结果 Test results	不解体、不着火，具体数据详见附表7 No disassembly, no fire. Test data is shown in Annex 7.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.8 强制放电** **38.3.4.8 Forced discharge**
测试步骤 Test Procedure	电池在环境温度下与12V 直流电源串联连接，以电池制造商规定的最大持续放电电流作为初始电流强制放电。 将一个大小和功率合适的电阻负载与被检电池以及直流电源串联以获得规定的放电电流。每个电池强制放电的时间应等于其额定容量除以起始试验电流。在强制放电结束后观察被检电池7 天。 Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer. The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell. Each cell shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere). The test sample shall be observed for a further 7 days.
技术要求 Test requirement	不解体、不着火。 No disassembly, no fire.
检测结果 Test results	不解体、不着火,具体数据详见附表8 No disassembly, no fire. Test data is shown in Annex 8.
结论 Pass/Fail Conclusion	P

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附表1 高度模拟试验
Annex 1. Altitude Simulation

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（kg）	试验后 After test OCV_2 (V)	试验后 After test M_2（kg）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	51.12	37.03	50.86	37.03	99.49%	0.000%	-
B2	50.61	37.50	50.45	37.50	99.68%	0.000%	-
B3	50.49	37.25	50.41	37.24	99.84%	0.027%	-
B4	50.51	37.20	50.40	37.20	99.78%	0.000%	-
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附表2温度试验
Annex 2. Thermal test

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（kg）	试验后 After test OCV_2 (V)	试验后 After test M_2（kg）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	50.86	37.03	50.06	37.01	98.43%	0.054%	-
B2	50.45	37.50	50.04	37.49	99.19%	0.027%	-
B3	50.41	37.24	50.06	37.24	99.31%	0.000%	-
B4	50.40	37.20	50.03	37.19	99.27%	0.027%	-
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附表3振动试验
Annex 3. Vibration

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（kg）	试验后 After test OCV_2 (V)	试验后 After test M_2（kg）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	50.06	37.01	50.05	37.01	99.98%	0.000%	-
B2	50.04	37.49	50.02	37.48	99.96%	0.027%	-
B3	50.06	37.24	50.06	37.23	100.00%	0.027%	-
B4	50.03	37.19	50.01	37.19	99.96%	0.000%	-
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附表4冲击试验
Annex 4.Shock

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（kg）	试验后 After test OCV_2 (V)	试验后 After test M_2（kg）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	50.05	37.01	50.04	37.01	99.98%	0.000%	-
B2	50.02	37.48	50.02	37.48	100.00%	0.000%	-
B3	50.06	37.23	50.04	37.23	99.96%	0.000%	-
B4	50.01	37.19	50.01	37.19	100.00%	0.000%	-
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附表5外部短路试验
Annex 5. External short circuit

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
B1	50.04	57.0	57.0	-
B2	50.02	56.8	56.9	-
B3	50.04	56.9	56.9	-
B4	50.01	56.8	56.8	-
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附表6撞击/挤压试验
Annex 6. Impact/Crush

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
C1	3.301	23.8	23.9	-
C2	3.301	23.7	23.7	-
C3	3.300	24.0	24.0	-
C4	3.301	24.1	24.1	-
C5	3.301	23.9	23.9	-
C6	3.301	24.0	24.0	-
C7	3.300	23.8	23.9	-
C8	3.300	23.7	23.8	-
C9	3.301	23.8	23.9	-
C10	3.301	23.9	23.9	-
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附表7过充电试验
Annex 7.Overcharge

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
B5	50.43	23.8	23.8	-
B6	50.38	23.9	24.0	-
B7	50.44	24.2	24.2	-
B8	50.26	24.0	24.0	-
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附表8强制放电试验
Annex 8. Forced discharge

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
C11	2.940	23.8	44.5	-
C12	2.952	23.9	47.6	-
C13	2.948	24.0	47.1	-
C14	2.951	23.8	43.8	-
C15	2.961	23.7	43.1	-
C16	2.977	24.0	44.5	-
C17	2.950	23.9	43.8	-
C18	2.964	24.1	45.2	-
C19	2.967	24.0	45.7	-
C20	2.973	23.9	42.6	-
C21	2.968	23.8	43.8	-
C22	2.937	23.9	43.8	-
C23	2.967	24.2	43.6	-
C24	2.971	23.8	47.2	-
C25	2.965	24.0	44.8	-
C26	2.954	23.8	45.1	-
C27	2.961	24.0	43.9	-
C28	2.955	23.9	43.8	-
C29	2.948	24.0	46.0	-
C30	2.960	24.1	44.6	-
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——报告结束 End——

声明

Statement

1. 未经本机构书面批准不得部分复制本报告，除非全部复制。

Don’t copies the report partly, if you don’t obtain the laboratory allow you to do that, unless you copy the whole report.

2. 检验结果仅对所检样品有效。

The test report is only valid to the sample which has been tested

3. 若对检测结果有异议，请在收到报告后十日内向本机构书面提出。

If you have any objection to the test result, please submit it to the laboratory in writing within 10 days after receiving the report.

4. 受检样品务必在收到检测报告三十日内领取，逾期本机构将作为废弃物自行处理。

The sample must be collected within 30 days after receiving the test report. The overdue sample will be disposed of as waste by the laboratory itself.

5. 此报告仅作为委托方参考，不作为诉讼、仲裁等依据。

This report only as a reference for client, can't be considered as a basis for litigation, arbitration and so on.

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Test Lab.: CQC Intime Testing Technology Co.,Ltd.

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170020122837

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检测
TESTING
CNAS L2999

UN 38.3

检 测 报 告

Test Report

■新申请 New Application　□变更 Modification　□其他: Other:

报告编号: 20210506J12778-2
Report ID

样品名称: 锂离子电池
Sample Name Rechargeable Li-ion Battery

型号规格: US5000
Model/Type 48V 100Ah 4800Wh

委托单位: 上海派能能源科技股份有限公司
Applicant Pylon Technologies Co., Ltd.

中认英泰检测技术有限公司
检测专用章

中认英泰检测技术有限公司

CQC Intime Testing Technology Co.,Ltd

检测报告
TEST REPORT

报告编号： Report ID	20210506J12778-2		
样品名称： Sample Name	锂离子电池 Rechargeable Li-ion Battery	商　标： Trade Mark	PYLONTECH
型号规格： Model/Type	US5000 48V 100Ah 4800Wh	样品状态： Sample status	完好 Good
委托单位： Applicant	上海派能能源科技股份有限公司 Pylon Technologies Co., Ltd.		
地址： Applicant Address	上海市浦东新区张江高科技园区祖冲之路887弄73号 No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park Pudong, Shanghai 201203, China		
制造商： Manufacturer	江苏派能能源科技有限公司 Pylon Technologies Co., Ltd.		
地址： Manufacturer Address	江苏省昆山市锦溪镇昆开路505号8号厂房 Plant 8, No.505 Kunkai Road, JinXi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA		
试验单位： Test Lab	中认英泰检测技术有限公司 CQC Intime Testing Technology Co., Ltd		
地址： Lab Address	苏州吴中经济开发区吴中大道 1368号东太湖科技金融城 East Taihu Technology and Finance City, No.1368 Wuzhong Dadao Rd., Wuzhong Economic Development Zone, Suzhou, Jiangsu.		
试验标准： Standard Specification	《关于危险货物运输的建议书 试验和标准手册》第七版第38.3节 Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, ST/SG/AC.10/11/Rev.7/Section 38.3		
试验项目： Test Item	高度模拟；温度试验；振动；冲击；外部短路；挤压；过充电；强制放电 Altitude Simulation, Thermal Test, Vibration, Shock, External Short Circuit, Crush, Overcharge, Force Discharge		
接样日期：2021-05-25 Receiving Date		完成时间：　2021-06-28 Completing Date	
试验结论　： Conclusion	所检样品符合上述标准要求 The Submitted Sample(s) Meet the Requirement of the Standard.		
检测环境： Test Condition	环境温度：20±5℃ Ambient temperature		
项目： Engineer	侯逢文		
审核： Auditor	杨振荣		
签发： Approver	赵润生		

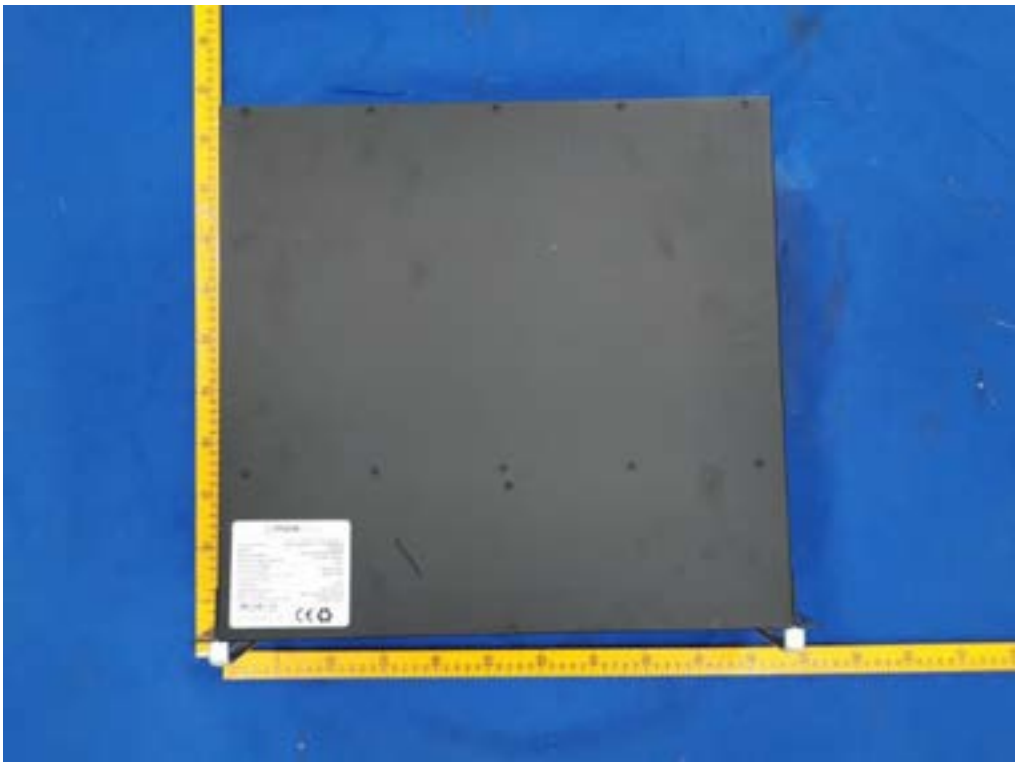
CQC IT印章
Seal of CQC IT
签发日期：
Data of issue
2021-06-28

试验样品描述 Description of the sample		
测试项目 Test Item	样品编号 Sample No.	样品状态 Sample State
T1~T5	B1~ B2	第1个充放电循环，完全充电状态 At first cycle, in fully charged states
	B3~ B4	第25个充放电循环后，完全充电状态 After 25 cycles ending in fully charged states
T6	C1~C5	第1个充放电循环，50%设计额定容量状态 At first cycle at 50% of the design rated capacity
	C6~C10	第25个充放电循环后，50%设计额定容量状态 After 25 cycles ending at 50% of the design rated capacity
T7	B5~ B6	第1个充放电循环，完全充电状态 At first cycle, in fully charged states
	B7~ B8	第25个充放电循环后，完全充电状态 After 25 cycles ending in fully charged states
T8	C11~C20	第1个充放电循环，完全放电状态 At first cycle, in fully discharged states
	C21~C30	第25个充放电循环后，完全放电状态 After 25 cycles ending in fully discharged states
备注 Remarks		
1，该样品为大型电池组 This sample is large battery		

样品基本信息 **Sample Fundamental Parameters**			
项目 Item	参数 Parameters	项目 Item	参数 Parameters
额定容量(Ah) Rated capacity(Ah)	100	标称电压(V) Nominal voltage(V)	48
额定瓦特一小时(Wh) Watt-hour rating(Wh)	4800	充电限制电压 (V) Limited charge voltage(V)	54.75
充电电流(A) Charge current(A)	50	最大连续充电电流(A) Maximum continous charging current (A)	120
充电截止电流(mA) End charge current(mA)	5000	放电电流(A) Discharge current(A)	50
放电终止电压(V) End of discharging voltage (V)	40.5	内含电池芯个数(个) Cell numbers(pcs)	15
最大放电电流 (A) Maximum discharge current(A)	120	电池芯型号 Model of cell	A732
电池芯容量(Ah) Capacity of cell(Ah)	100	电池芯排列方式 Permutation of cell	1P15S
电池芯形状 Shape of cell	□圆柱形 Φ≥18mm □圆柱形＜18mm CylindricalΦ≥18mm CylindricalΦ＜18mm □棱柱形 ■袋装电池 □纽扣电池 Prismatic Pouch Cell Button Cell		

样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -1



样品图片 (Sample photograph) -2

样 品 照 片
Photos of Sample

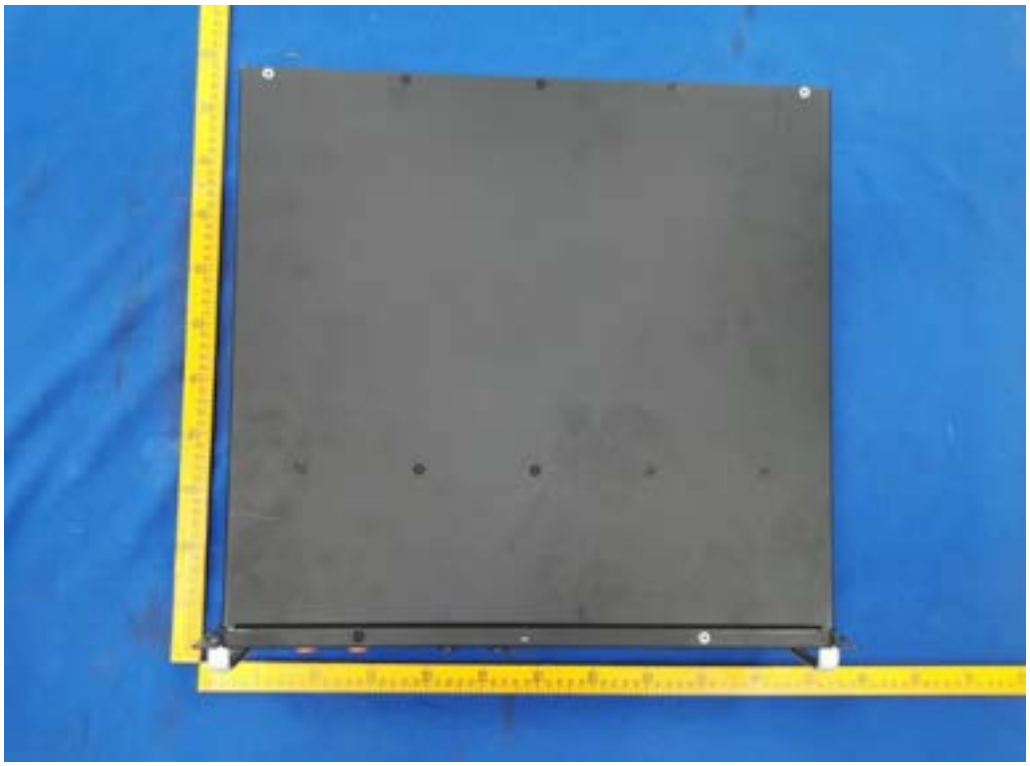
样品图片 (Sample photograph) -3

样品图片 (Sample photograph) -4

样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -5

样品图片 (Sample photograph) -6



样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -7

样品图片 (Sample photograph) -8

中认英泰检测技术有限公司
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检测报告
Test Report

检测结果
Test results

条款 Clause	**38.3.4.1高度模拟试验** **38.3.4.1 Altitude simulation**
测试步骤 Test Procedure	试验电池和电池组应在压力等于或低于11.6千帕和环境温度(20 ± 5℃)下存放至少6小时。 Test cells and batteries shall be stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature(20±5℃).
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表1 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 1.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.2温度试验** **38.3.4.2 Thermal test**
测试步骤 Test Procedure	试验电池和电池组应先在试验温度等于72 ± 2℃的条件下存放至少6小时，接着再在试验温度等于-40 ± 2℃的条件下存放至少6小时。两个极端试验温度之间的最大时间间隔为30分钟。此程序重复进行，共完成10次，接着将所有试验电池和电池组在环境温度(20 ± 5℃)下存放24小时。 对于大型电池和电池组，暴露于极端试验温度的时间至少应为12小时。 Test cells and batteries are to be stored for at least six hours at a test temperature equal to 72 ± 2℃, followed by storage for at least six hours at a test temperature equal to -40± 2℃. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated until 10 total cycles are complete, after which all test cells and batteries are to be stored for 24 hours at ambient temperature (20± 5℃). For large cells and batteries the duration of exposure to the test temperature extremes should be at least 12 hours.
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表2 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 2.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.3 振动试验** **38.3.4.3 Vibration**
测试步骤 Test Procedure	电池和电池组紧固于振动机平台，但紧固程度不能造成电池变形以致不能准确传递振动。振动应是正弦波形，对数频率扫描从7Hz到200Hz，再回到7Hz，跨度为15分钟。 对电池和小型电池组：从7 Hz开始，保持1gn 的最大加速度，直到频率达到18 Hz。然后将振幅保持在0.8 毫米(总偏移1.6 毫米)，并增加频率直到最大加速度达到8 gn (频率约为50 Hz)。将最大加速度保持在8 gn 直到频率增加到200 Hz。 对大型电池组：从7Hz开始，保持1 gn 的最大加速度，直到频率达到18Hz。然后将振幅保持在0.8 毫米(总偏移1.6 毫米)，并增加频率直到最大加速度达到2 gn (频率约为25 Hz)。将最大加速度保持在2 gn 直到频率增加到200Hz。 这一振动过程须对三个互相垂直的电池安装方位的每一方向重复进行12次，总共为时3小时。其中一个振动方向必须与端面垂直。 Cells and batteries are firmly secured to the platform of the vibration machine without distorting the cells in such a manner as to faithfully transmit the vibration. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. For cells and small batteries: from 7 Hz a peak acceleration of 1 gn is maintained until 18Hz is reached. The amplitude is then maintained at 0.8 mm(1.6 mm total excursion) and the frequency Increased until a peak acceleration of 8 gn occurs (approximately 50 Hz). A peak acceleration of 8 gn is then maintained until the frequency is Increased to 200 Hz For large batteries: from 7HZ to a peak acceleration of 1 gn is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm(1.6 mm total excursion) and the frecuency increaseditil a peak acceleration of 2 gn ocroxmmately 25 Hz). A peak acceleration of 2 gn is then maintained until the frequency is increased to 200Hz This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the teminal face.
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表3 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 3.
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条款 Clause	**38.3.4.4 冲击试验** **38.3.4.4 Shock**
测试步骤 Test Procedure	试验电池和电池组用坚固支架紧固在试验机上，支架支撑着每个试验电池组的所有安装面。 每个电池须经受最大加速度150 gn 和脉冲持续时间6 毫秒的半正弦波冲击。大型电池须经受最大加速度50 gn 和脉冲持续时间11 毫秒的半正弦波冲击。 小型电池组以峰值为 150gn（或与$\sqrt{(\frac{100850}{mass})}$ 中的较小值）的半正弦的加速度撞击，脉冲持续 6 毫秒，大型电池组须经受最大加速度 50gn（或与$\sqrt{(\frac{30000}{mass})}$ 中的较小值）和脉冲持续时间 11 毫秒的半正弦波冲击。 每个电池或电池组须在三个互相垂直的电池安装方位的正方向经受三次冲击，接着在反方向经受三次冲击，总共经受 18 次冲击。 Test cells and batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery. Each cell shall be subjected to a half-sine shock of peak acceleration of 150 gn and pulse duration of 6 milliseconds. Altematively, large cells may be subjected to a half-sine shock acceleration of 50 gn and pulse duration of 11 milliseconds. Small batteries shall be subjected to a half-sine shock of peak acceleration of 150 gn (or Acceleration(gn)= $\sqrt{(\frac{100850}{mass})}$, which is smaller) and pulse duration of 6 milliseconds. Large batteries shall be subjected to a half-sine of peak acceleration of 50 gn (or Acceleration(gn)= $\sqrt{(\frac{30000}{mass})}$, which is smaller) and pulse duration of 11 milliseconds. Each battery shall be subjected to three shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicular mounting positions of the battery for a total of 18 shocks.
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表4 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 4.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.5 外部短路** **38.3.4.5 External short circuit**
测试步骤 Test Procedure	电池和电池组的外壳温度稳定在57±4℃后，在此温度下对电池进行外部短路，外电路的总阻值应小于0.1Ω，持续短路至样品外壳温度回落到57±4℃后至少再继续短路1 h；对于大型电池组，外壳温度降幅达试验中所观察的的最高温升幅的二分之一并保持低于该数值。电池电池组必须再观察6h结束试验。 The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches 57±4℃and then the cell or battery shall be subjected to a short circuit condition with a total external resistance of less than 0.1 ohm at 57 ±4℃. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to 57±4℃. In the case of the large batteries, has decreased by half of the temperature increase observed during the test and remains below that value. The cell and battery must be observed for a further six hours for the test to be concluded.
技术要求 Test requirement	外壳温度不超过170℃，不解体、不破裂、不着火。 External temperature does not exceed 170℃. No disassembly, no rupture and no fire.
检测结果 Test results	外壳温度不超过170℃，不解体、不破裂、不着火，具体数据详见附表5 External temperature does not exceed 170℃. No disassembly, no rupture and no fire. Test data is shown in Annex 5.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.6 撞击/挤压** **38.3.4.6 Impact/Crush**
测试步骤 Test Procedure	□撞击（适用于直径不小于18.0毫米的圆柱形电） Impact(applicable to cylindrical cells not less than 18.0 mm in diameter) 将样品电池置于平板上，将一直径为15.8mm±0.1mm的不锈钢棒横放在样品中心，一块9.1Kg±0.1Kg的重锤从61 ± 2.5 cm高度落到试样上。圆柱形电池受撞击时，其长轴应平行于平板并且垂直于放在受检电池中心的直径为 15.8mm的棒。每一试样只经受一次撞击，电池必须再观察6h结束试验。 The sample cell or component cell is to be placed on a flat smooth surface. A 15.8 mm ± 0.1mm diameter stainless steel bar is to be placed across the centre of the sample. A 9.1 kg ± 0.1 kg mass is to be dropped from a height of 61 ± 2.5 cm on to the sample. The test sample is to be impacted with its longitudinal axis parallel to the flat surface and perpendicular to the longitudinal axis of the 15.8 mm ± 0.1mm diameter curved surface lying across the centre of the test sample. Each sample is to be subjected to only a single impact. The battery must be observed for a further six hours for the test to be concluded.
	■挤压(适用于棱柱形、袋装、硬币/纽扣电池和直径小于18.0毫米的圆柱形电池) Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells less than 18.0 mm in diammeter 将试样电池放在两个平面之间挤压，挤压力度逐渐增大，速度大约为1.5cm/s.挤压持续进行，直到出现以下三种情况之一：(a)施加的力量达到13kN±0.78kN;(b)电池的电压下降至少100mV;(c)电池变形达到原始厚度的50%或以上。棱柱形和袋装电池应从最宽的一面施压。硬币/纽扣电池应从平坦表面施压。圆柱形电池应从与纵轴垂直的方向施压。每个试样电池只做一次挤压试验，电池必须再观察6h结束试验。 A cell or component cell is to be crushed between two flat surfaces. The crushing is to be gradual with a speed of approximately 1.5 cm/s at the first point of contact. The crushing is to be continued until the first of the three options below is reached. (a) The applied force reaches 13 kN ± 0.78 kN; (b) The voltage of the cell drops by at least 100 mV; or (c) The cell is deformed by 50% or more of its original thickness. A prismatic or pouch cell shall be crushed by applying the force to the widest side. A button/coin cell shall be crushed by applying the force on its flat surfaces. For cylindrical cells, the crush force shall be applied perpendicular to the longitudinal axis. Each test cell or component cell is to be subjected to one crush only. The battery must be observed for a further six hours for the test to be concluded.
技术要求 Test requirement	外壳温度不超过170℃，不解体、不破裂、不着火。 External temperature does not exceed 170℃.. No disassembly, no rupture and no fire.
检测结果 Test results	外壳温度不超过170℃，不解体、不破裂、不着火，具体数据详见附表6 External temperature does not exceed 170℃. No disassembly, no rupture and no fire. Test data is shown in Annex 6.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.7 过度充电** **38.3.4.7 Overcharge**
测试步骤 Test Procedure	充电电流必须是制造商推荐的最大持续充电电流的两倍。试验的最小电压应为如下：（a）当制造商推荐的充电电压不超过18 V时，试验的最小电压应为2倍于电池的最大充电电压或为22 V二者中较小者；（b）当制造商推荐的充电电压超过18 V时，试验的最小电压应为最大充电电压的1.2倍。该试验应在环境温度下进行。进行试验的时间应为24 小时。在过充电结束后观察被检电池7天。 The charge current shall be the twice the manufactures recommended maximum continuous charge current. The minimum voltage of the test shall be follows:(a)When the manufactures recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V.(b)When the manufactures recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage.Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours. The test sample shall be observed for a further 7 days.
技术要求 Test requirement	不解体、不着火。 No disassembly, no fire.
检测结果 Test results	不解体、不着火，具体数据详见附表7 No disassembly, no fire. Test data is shown in Annex 7.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.8 强制放电** **38.3.4.8 Forced discharge**
测试步骤 Test Procedure	电池在环境温度下与12V 直流电源串联连接，以电池制造商规定的最大持续放电电流作为初始电流强制放电。 将一个大小和功率合适的电阻负载与被检电池以及直流电源串联以获得规定的放电电流。每个电池强制放电的时间应等于其额定容量除以起始试验电流。在强制放电结束后观察被检电池7 天。 Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer. The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell. Each cell shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere). The test sample shall be observed for a further 7 days.
技术要求 Test requirement	不解体、不着火。 No disassembly, no fire.
检测结果 Test results	不解体、不着火,具体数据详见附表8 No disassembly, no fire. Test data is shown in Annex 8.
结论 Pass/Fail Conclusion	P

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附表1 高度模拟试验
Annex 1. Altitude Simulation

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（kg）	试验后 After test OCV_2 (V)	试验后 After test M_2（kg）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	51.12	37.03	50.86	37.03	99.49%	0.000%	-
B2	50.61	37.50	50.45	37.50	99.68%	0.000%	-
B3	50.49	37.25	50.41	37.24	99.84%	0.027%	-
B4	50.51	37.20	50.40	37.20	99.78%	0.000%	-
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附表2温度试验
Annex 2. Thermal test

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（kg）	试验后 After test OCV_2 (V)	试验后 After test M_2（kg）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	50.86	37.03	50.06	37.01	98.43%	0.054%	-
B2	50.45	37.50	50.04	37.49	99.19%	0.027%	-
B3	50.41	37.24	50.06	37.24	99.31%	0.000%	-
B4	50.40	37.20	50.03	37.19	99.27%	0.027%	-
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附表3振动试验
Annex 3. Vibration

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（kg）	试验后 After test OCV_2 (V)	试验后 After test M_2（kg）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	50.06	37.01	50.05	37.01	99.98%	0.000%	-
B2	50.04	37.49	50.02	37.48	99.96%	0.027%	-
B3	50.06	37.24	50.06	37.23	100.00%	0.027%	-
B4	50.03	37.19	50.01	37.19	99.96%	0.000%	-
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附表4冲击试验
Annex 4.Shock

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（kg）	试验后 After test OCV_2 (V)	试验后 After test M_2（kg）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	50.05	37.01	50.04	37.01	99.98%	0.000%	-
B2	50.02	37.48	50.02	37.48	100.00%	0.000%	-
B3	50.06	37.23	50.04	37.23	99.96%	0.000%	-
B4	50.01	37.19	50.01	37.19	100.00%	0.000%	-
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附表5外部短路试验
Annex 5. External short circuit

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
B1	50.04	57.0	57.0	-
B2	50.02	56.8	56.9	-
B3	50.04	56.9	56.9	-
B4	50.01	56.8	56.8	-
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附表6撞击/挤压试验
Annex 6. Impact/Crush

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
C1	3.301	23.8	23.9	-
C2	3.301	23.7	23.7	-
C3	3.300	24.0	24.0	-
C4	3.301	24.1	24.1	-
C5	3.301	23.9	23.9	-
C6	3.301	24.0	24.0	-
C7	3.300	23.8	23.9	-
C8	3.300	23.7	23.8	-
C9	3.301	23.8	23.9	-
C10	3.301	23.9	23.9	-
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附表7过充电试验
Annex 7.Overcharge

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
B5	50.43	23.8	23.8	-
B6	50.38	23.9	24.0	-
B7	50.44	24.2	24.2	-
B8	50.26	24.0	24.0	-
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附表8强制放电试验
Annex 8. Forced discharge

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
C11	2.940	23.8	44.5	-
C12	2.952	23.9	47.6	-
C13	2.948	24.0	47.1	-
C14	2.951	23.8	43.8	-
C15	2.961	23.7	43.1	-
C16	2.977	24.0	44.5	-
C17	2.950	23.9	43.8	-
C18	2.964	24.1	45.2	-
C19	2.967	24.0	45.7	-
C20	2.973	23.9	42.6	-
C21	2.968	23.8	43.8	-
C22	2.937	23.9	43.8	-
C23	2.967	24.2	43.6	-
C24	2.971	23.8	47.2	-
C25	2.965	24.0	44.8	-
C26	2.954	23.8	45.1	-
C27	2.961	24.0	43.9	-
C28	2.955	23.9	43.8	-
C29	2.948	24.0	46.0	-
C30	2.960	24.1	44.6	-
以下空白 Blank below				

——报告结束 End——

声明

Statement

1. 未经本机构书面批准不得部分复制本报告，除非全部复制。

Don’t copies the report partly, if you don’t obtain the laboratory allow you to do that, unless you copy the whole report.

2. 检验结果仅对所检样品有效。

The test report is only valid to the sample which has been tested

3. 若对检测结果有异议，请在收到报告后十日内向本机构书面提出。

If you have any objection to the test result, please submit it to the laboratory in writing within 10 days after receiving the report.

4. 受检样品务必在收到检测报告三十日内领取，逾期本机构将作为废弃物自行处理。

The sample must be collected within 30 days after receiving the test report. The overdue sample will be disposed of as waste by the laboratory itself.

5. 此报告仅作为委托方参考，不作为诉讼、仲裁等依据。

This report only as a reference for client, can't be considered as a basis for litigation, arbitration and so on.

检测机构：中认英泰检测技术有限公司

Test Lab.: CQC Intime Testing Technology Co.,Ltd.

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170020122837

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检测
TESTING
CNAS L2999

UN 38.3

检 测 报 告

Test Report

■新申请 New Application　□变更 Modification　□其他: Other:

报告编号: 20210506J12778-1
Report ID

样品名称: 锂离子电池
Sample Name Rechargeable Li-ion Battery

型号规格: US5000
Model/Type 48V 100Ah 4800Wh

委托单位: 江苏派能能源科技有限公司
Applicant Pylon Technologies Co., Ltd.

中认英泰检测技术有限公司
检测专用章

中认英泰检测技术有限公司

CQC Intime Testing Technology Co.,Ltd

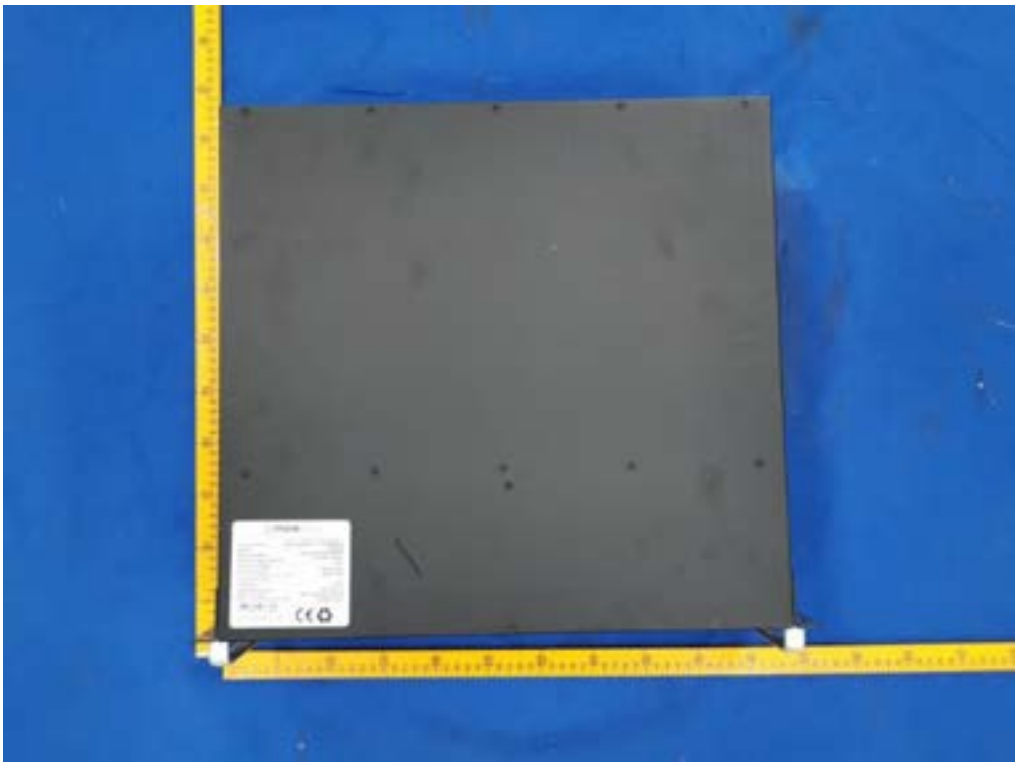
检测报告 TEST REPORT			
报告编号： Report ID	20210506J12778-1		
样品名称： Sample Name	锂离子电池 Rechargeable Li-ion Battery	商　标： Trade Mark	PYLONTECH
型号规格： Model/Type	US5000 48V 100Ah 4800Wh	样品状态： Sample status	完好 Good
委托单位： Applicant	江苏派能能源科技有限公司 Pylon Technologies Co., Ltd.		
地址： Applicant Address	江苏省昆山市锦溪镇昆开路505号8号厂房 Plant 8, No.505 Kunkai Road, JinXi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA		
制造商： Manufacturer	江苏派能能源科技有限公司 Pylon Technologies Co., Ltd.		
地址： Manufacturer Address	江苏省昆山市锦溪镇昆开路505号8号厂房 Plant 8, No.505 Kunkai Road, JinXi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA		
试验单位： Test Lab	中认英泰检测技术有限公司 CQC Intime Testing Technology Co., Ltd		
地址： Lab Address	苏州吴中经济开发区吴中大道 1368号东太湖科技金融城 East Taihu Technology and Finance City, No.1368 Wuzhong Dadao Rd., Wuzhong Economic Development Zone, Suzhou, Jiangsu.		
试验标准： Standard Specification	《关于危险货物运输的建议书 试验和标准手册》第七版第38.3节 Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, ST/SG/AC.10/11/Rev.7/Section 38.3		
试验项目： Test Item	高度模拟；温度试验；振动；冲击；外部短路；挤压；过充电；强制放电 Altitude Simulation, Thermal Test, Vibration, Shock, External Short Circuit, Crush, Overcharge, Force Discharge		
接样日期：2021-05-25 Receiving Date		完成时间：　2021-06-28 Completing Date	
试验结论　： Conclusion	所检样品符合上述标准要求 The Submitted Sample(s) Meet the Requirement of the Standard.		
检测环境： Test Condition	环境温度：20±5℃ Ambient temperature		
项目： Engineer	侯逢文		
审核： Auditor	杨振荣		
签发： Approver	赵润生		CQC IT印章 Seal of CQC IT 签发日期： Data of issue 2021-06-28

试验样品描述 Description of the sample		
测试项目 Test Item	样品编号 Sample No.	样品状态 Sample State
T1~T5	B1~ B2	第1个充放电循环，完全充电状态 At first cycle, in fully charged states
	B3~ B4	第25个充放电循环后，完全充电状态 After 25 cycles ending in fully charged states
T6	C1~C5	第1个充放电循环，50%设计额定容量状态 At first cycle at 50% of the design rated capacity
	C6~C10	第25个充放电循环后，50%设计额定容量状态 After 25 cycles ending at 50% of the design rated capacity
T7	B5~ B6	第1个充放电循环，完全充电状态 At first cycle, in fully charged states
	B7~ B8	第25个充放电循环后，完全充电状态 After 25 cycles ending in fully charged states
T8	C11~C20	第1个充放电循环，完全放电状态 At first cycle, in fully discharged states
	C21~C30	第25个充放电循环后，完全放电状态 After 25 cycles ending in fully discharged states
备注 Remarks		
1，该样品为大型电池组 This sample is large battery		

样品基本信息 **Sample Fundamental Parameters**			
项目 Item	参数 Parameters	项目 Item	参数 Parameters
额定容量(Ah) Rated capacity(Ah)	100	标称电压(V) Nominal voltage(V)	48
额定瓦特一小时(Wh) Watt-hour rating(Wh)	4800	充电限制电压 (V) Limited charge voltage(V)	54.75
充电电流(A) Charge current(A)	50	最大连续充电电流(A) Maximum continous charging current (A)	120
充电截止电流(mA) End charge current(mA)	5000	放电电流(A) Discharge current(A)	50
放电终止电压(V) End of discharging voltage (V)	40.5	内含电池芯个数(个) Cell numbers(pcs)	15
最大放电电流 (A) Maximum discharge current(A)	120	电池芯型号 Model of cell	A732
电池芯容量(Ah) Capacity of cell(Ah)	100	电池芯排列方式 Permutation of cell	1P15S
电池芯形状 Shape of cell	□圆柱形 Φ≥18mm □圆柱形＜18mm CylindricalΦ≥18mm CylindricalΦ＜18mm □棱柱形 ■袋装电池 □纽扣电池 Prismatic Pouch Cell Button Cell		

样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -1



样品图片 (Sample photograph) -2

样 品 照 片
Photos of Sample

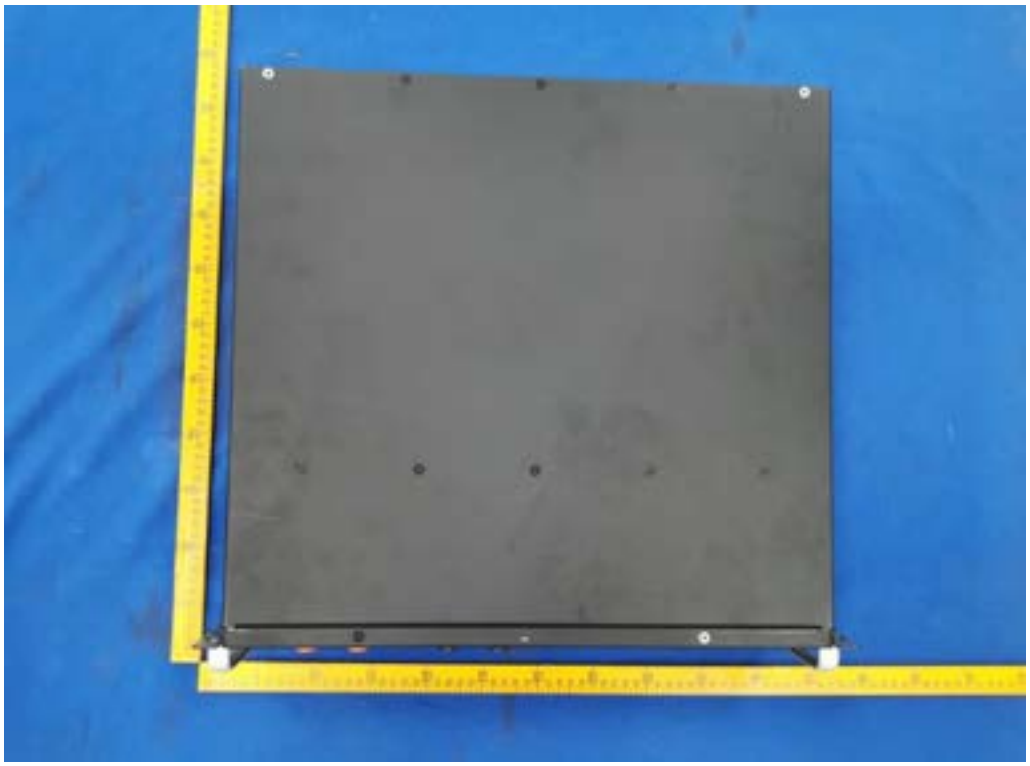
样品图片 (Sample photograph) -3

样品图片 (Sample photograph) -4

样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -5

样品图片 (Sample photograph) -6



样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -7

样品图片 (Sample photograph) -8

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条款 Clause	**38.3.4.1高度模拟试验** **38.3.4.1 Altitude simulation**
测试步骤 Test Procedure	试验电池和电池组应在压力等于或低于11.6千帕和环境温度(20 ± 5℃)下存放至少6小时。 Test cells and batteries shall be stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature(20±5℃).
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表1 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 1.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.2温度试验** **38.3.4.2 Thermal test**
测试步骤 Test Procedure	试验电池和电池组应先在试验温度等于72 ± 2℃的条件下存放至少6小时，接着再在试验温度等于-40 ± 2℃的条件下存放至少6小时。两个极端试验温度之间的最大时间间隔为30分钟。此程序重复进行，共完成10次，接着将所有试验电池和电池组在环境温度(20 ± 5℃)下存放24小时。 对于大型电池和电池组，暴露于极端试验温度的时间至少应为12小时。 Test cells and batteries are to be stored for at least six hours at a test temperature equal to 72 ± 2℃, followed by storage for at least six hours at a test temperature equal to -40± 2℃. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated until 10 total cycles are complete, after which all test cells and batteries are to be stored for 24 hours at ambient temperature (20± 5℃). For large cells and batteries the duration of exposure to the test temperature extremes should be at least 12 hours.
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表2 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 2.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.3 振动试验** **38.3.4.3 Vibration**
测试步骤 Test Procedure	电池和电池组紧固于振动机平台，但紧固程度不能造成电池变形以致不能准确传递振动。振动应是正弦波形，对数频率扫描从7Hz到200Hz，再回到7Hz，跨度为15分钟。 对电池和小型电池组：从7 Hz开始，保持1gn 的最大加速度，直到频率达到18 Hz。然后将振幅保持在0.8 毫米(总偏移1.6 毫米)，并增加频率直到最大加速度达到8 gn (频率约为50 Hz)。将最大加速度保持在8 gn 直到频率增加到200 Hz。 对大型电池组：从7Hz开始，保持1 gn 的最大加速度，直到频率达到18Hz。然后将振幅保持在0.8 毫米(总偏移1.6 毫米)，并增加频率直到最大加速度达到2 gn (频率约为25 Hz)。将最大加速度保持在2 gn 直到频率增加到200Hz。 这一振动过程须对三个互相垂直的电池安装方位的每一方向重复进行12次，总共为时3小时。其中一个振动方向必须与端面垂直。 Cells and batteries are firmly secured to the platform of the vibration machine without distorting the cells in such a manner as to faithfully transmit the vibration. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. For cells and small batteries: from 7 Hz a peak acceleration of 1 gn is maintained until 18Hz is reached. The amplitude is then maintained at 0.8 mm(1.6 mm total excursion) and the frequency Increased until a peak acceleration of 8 gn occurs (approximately 50 Hz). A peak acceleration of 8 gn is then maintained until the frequency is Increased to 200 Hz For large batteries: from 7HZ to a peak acceleration of 1 gn is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm(1.6 mm total excursion) and the frecuency increaseditil a peak acceleration of 2 gn ocroxmmately 25 Hz). A peak acceleration of 2 gn is then maintained until the frequency is increased to 200Hz This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the teminal face.
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表3 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 3.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.4 冲击试验** **38.3.4.4 Shock**
测试步骤 Test Procedure	试验电池和电池组用坚固支架紧固在试验机上，支架支撑着每个试验电池组的所有安装面。 每个电池须经受最大加速度150 gn 和脉冲持续时间6 毫秒的半正弦波冲击。大型电池须经受最大加速度50 gn 和脉冲持续时间11 毫秒的半正弦波冲击。 小型电池组以峰值为 150gn（或与$\sqrt{(\frac{100850}{mass})}$ 中的较小值）的半正弦的加速度撞击，脉冲持续 6 毫秒，大型电池组须经受最大加速度 50gn（或与$\sqrt{(\frac{30000}{mass})}$ 中的较小值）和脉冲持续时间 11 毫秒的半正弦波冲击。 每个电池或电池组须在三个互相垂直的电池安装方位的正方向经受三次冲击，接着在反方向经受三次冲击，总共经受 18 次冲击。 Test cells and batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery. Each cell shall be subjected to a half-sine shock of peak acceleration of 150 gn and pulse duration of 6 milliseconds. Altematively, large cells may be subjected to a half-sine shock acceleration of 50 gn and pulse duration of 11 milliseconds. Small batteries shall be subjected to a half-sine shock of peak acceleration of 150 gn (or Acceleration(gn)= $\sqrt{(\frac{100850}{mass})}$, which is smaller) and pulse duration of 6 milliseconds. Large batteries shall be subjected to a half-sine of peak acceleration of 50 gn (or Acceleration(gn)= $\sqrt{(\frac{30000}{mass})}$, which is smaller) and pulse duration of 11 milliseconds. Each battery shall be subjected to three shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicular mounting positions of the battery for a total of 18 shocks.
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表4 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 4.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.5 外部短路** **38.3.4.5 External short circuit**
测试步骤 Test Procedure	电池和电池组的外壳温度稳定在57±4℃后，在此温度下对电池进行外部短路，外电路的总阻值应小于0.1Ω，持续短路至样品外壳温度回落到57±4℃后至少再继续短路1 h；对于大型电池组，外壳温度降幅达试验中所观察的的最高温升幅的二分之一并保持低于该数值。电池电池组必须再观察6h结束试验。 The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches 57±4℃and then the cell or battery shall be subjected to a short circuit condition with a total external resistance of less than 0.1 ohm at 57 ±4℃. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to 57±4℃. In the case of the large batteries, has decreased by half of the temperature increase observed during the test and remains below that value. The cell and battery must be observed for a further six hours for the test to be concluded.
技术要求 Test requirement	外壳温度不超过170℃，不解体、不破裂、不着火。 External temperature does not exceed 170℃. No disassembly, no rupture and no fire.
检测结果 Test results	外壳温度不超过170℃，不解体、不破裂、不着火，具体数据详见附表5 External temperature does not exceed 170℃. No disassembly, no rupture and no fire. Test data is shown in Annex 5.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.6 撞击/挤压** **38.3.4.6 Impact/Crush**
测试步骤 Test Procedure	□撞击（适用于直径不小于18.0毫米的圆柱形电） Impact(applicable to cylindrical cells not less than 18.0 mm in diameter) 将样品电池置于平板上，将一直径为15.8mm±0.1mm的不锈钢棒横放在样品中心，一块9.1Kg±0.1Kg的重锤从61 ± 2.5 cm高度落到试样上。圆柱形电池受撞击时，其长轴应平行于平板并且垂直于放在受检电池中心的直径为 15.8mm的棒。每一试样只经受一次撞击，电池必须再观察6h结束试验。 The sample cell or component cell is to be placed on a flat smooth surface. A 15.8 mm ± 0.1mm diameter stainless steel bar is to be placed across the centre of the sample. A 9.1 kg ± 0.1 kg mass is to be dropped from a height of 61 ± 2.5 cm on to the sample. The test sample is to be impacted with its longitudinal axis parallel to the flat surface and perpendicular to the longitudinal axis of the 15.8 mm ± 0.1mm diameter curved surface lying across the centre of the test sample. Each sample is to be subjected to only a single impact. The battery must be observed for a further six hours for the test to be concluded.
	■挤压(适用于棱柱形、袋装、硬币/纽扣电池和直径小于18.0毫米的圆柱形电池) Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells less than 18.0 mm in diammeter 将试样电池放在两个平面之间挤压，挤压力度逐渐增大，速度大约为1.5cm/s.挤压持续进行，直到出现以下三种情况之一：(a)施加的力量达到13kN±0.78kN;(b)电池的电压下降至少100mV;(c)电池变形达到原始厚度的50%或以上。棱柱形和袋装电池应从最宽的一面施压。硬币/纽扣电池应从平坦表面施压。圆柱形电池应从与纵轴垂直的方向施压。每个试样电池只做一次挤压试验，电池必须再观察6h结束试验。 A cell or component cell is to be crushed between two flat surfaces. The crushing is to be gradual with a speed of approximately 1.5 cm/s at the first point of contact. The crushing is to be continued until the first of the three options below is reached. (a) The applied force reaches 13 kN ± 0.78 kN; (b) The voltage of the cell drops by at least 100 mV; or (c) The cell is deformed by 50% or more of its original thickness. A prismatic or pouch cell shall be crushed by applying the force to the widest side. A button/coin cell shall be crushed by applying the force on its flat surfaces. For cylindrical cells, the crush force shall be applied perpendicular to the longitudinal axis. Each test cell or component cell is to be subjected to one crush only. The battery must be observed for a further six hours for the test to be concluded.
技术要求 Test requirement	外壳温度不超过170℃，不解体、不破裂、不着火。 External temperature does not exceed 170℃.. No disassembly, no rupture and no fire.
检测结果 Test results	外壳温度不超过170℃，不解体、不破裂、不着火，具体数据详见附表6 External temperature does not exceed 170℃. No disassembly, no rupture and no fire. Test data is shown in Annex 6.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.7 过度充电** **38.3.4.7 Overcharge**
测试步骤 Test Procedure	充电电流必须是制造商推荐的最大持续充电电流的两倍。试验的最小电压应为如下：（a）当制造商推荐的充电电压不超过18 V时，试验的最小电压应为2倍于电池的最大充电电压或为22 V二者中较小者；（b）当制造商推荐的充电电压超过18 V时，试验的最小电压应为最大充电电压的1.2倍。该试验应在环境温度下进行。进行试验的时间应为24 小时。在过充电结束后观察被检电池7天。 The charge current shall be the twice the manufactures recommended maximum continuous charge current. The minimum voltage of the test shall be follows:(a)When the manufactures recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V.(b)When the manufactures recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage.Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours. The test sample shall be observed for a further 7 days.
技术要求 Test requirement	不解体、不着火。 No disassembly, no fire.
检测结果 Test results	不解体、不着火，具体数据详见附表7 No disassembly, no fire. Test data is shown in Annex 7.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.8 强制放电** **38.3.4.8 Forced discharge**
测试步骤 Test Procedure	电池在环境温度下与12V 直流电源串联连接，以电池制造商规定的最大持续放电电流作为初始电流强制放电。 将一个大小和功率合适的电阻负载与被检电池以及直流电源串联以获得规定的放电电流。每个电池强制放电的时间应等于其额定容量除以起始试验电流。在强制放电结束后观察被检电池7 天。 Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer. The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell. Each cell shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere). The test sample shall be observed for a further 7 days.
技术要求 Test requirement	不解体、不着火。 No disassembly, no fire.
检测结果 Test results	不解体、不着火,具体数据详见附表8 No disassembly, no fire. Test data is shown in Annex 8.
结论 Pass/Fail Conclusion	P

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附表1 高度模拟试验
Annex 1. Altitude Simulation

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（kg）	试验后 After test OCV_2 (V)	试验后 After test M_2（kg）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	51.12	37.03	50.86	37.03	99.49%	0.000%	-
B2	50.61	37.50	50.45	37.50	99.68%	0.000%	-
B3	50.49	37.25	50.41	37.24	99.84%	0.027%	-
B4	50.51	37.20	50.40	37.20	99.78%	0.000%	-
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附表2温度试验
Annex 2. Thermal test

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（kg）	试验后 After test OCV_2 (V)	试验后 After test M_2（kg）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	50.86	37.03	50.06	37.01	98.43%	0.054%	-
B2	50.45	37.50	50.04	37.49	99.19%	0.027%	-
B3	50.41	37.24	50.06	37.24	99.31%	0.000%	-
B4	50.40	37.20	50.03	37.19	99.27%	0.027%	-
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附表3振动试验
Annex 3. Vibration

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（kg）	试验后 After test OCV_2 (V)	试验后 After test M_2（kg）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	50.06	37.01	50.05	37.01	99.98%	0.000%	-
B2	50.04	37.49	50.02	37.48	99.96%	0.027%	-
B3	50.06	37.24	50.06	37.23	100.00%	0.027%	-
B4	50.03	37.19	50.01	37.19	99.96%	0.000%	-
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附表4冲击试验
Annex 4.Shock

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（kg）	试验后 After test OCV_2 (V)	试验后 After test M_2（kg）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	50.05	37.01	50.04	37.01	99.98%	0.000%	-
B2	50.02	37.48	50.02	37.48	100.00%	0.000%	-
B3	50.06	37.23	50.04	37.23	99.96%	0.000%	-
B4	50.01	37.19	50.01	37.19	100.00%	0.000%	-
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附表5外部短路试验
Annex 5. External short circuit

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
B1	50.04	57.0	57.0	-
B2	50.02	56.8	56.9	-
B3	50.04	56.9	56.9	-
B4	50.01	56.8	56.8	-
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附表6撞击/挤压试验
Annex 6. Impact/Crush

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
C1	3.301	23.8	23.9	-
C2	3.301	23.7	23.7	-
C3	3.300	24.0	24.0	-
C4	3.301	24.1	24.1	-
C5	3.301	23.9	23.9	-
C6	3.301	24.0	24.0	-
C7	3.300	23.8	23.9	-
C8	3.300	23.7	23.8	-
C9	3.301	23.8	23.9	-
C10	3.301	23.9	23.9	-
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附表7过充电试验
Annex 7.Overcharge

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
B5	50.43	23.8	23.8	-
B6	50.38	23.9	24.0	-
B7	50.44	24.2	24.2	-
B8	50.26	24.0	24.0	-
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附表8强制放电试验
Annex 8. Forced discharge

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
C11	2.940	23.8	44.5	-
C12	2.952	23.9	47.6	-
C13	2.948	24.0	47.1	-
C14	2.951	23.8	43.8	-
C15	2.961	23.7	43.1	-
C16	2.977	24.0	44.5	-
C17	2.950	23.9	43.8	-
C18	2.964	24.1	45.2	-
C19	2.967	24.0	45.7	-
C20	2.973	23.9	42.6	-
C21	2.968	23.8	43.8	-
C22	2.937	23.9	43.8	-
C23	2.967	24.2	43.6	-
C24	2.971	23.8	47.2	-
C25	2.965	24.0	44.8	-
C26	2.954	23.8	45.1	-
C27	2.961	24.0	43.9	-
C28	2.955	23.9	43.8	-
C29	2.948	24.0	46.0	-
C30	2.960	24.1	44.6	-
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——报告结束 End——

声明

Statement

1. 未经本机构书面批准不得部分复制本报告，除非全部复制。

Don’t copies the report partly, if you don’t obtain the laboratory allow you to do that, unless you copy the whole report.

2. 检验结果仅对所检样品有效。

The test report is only valid to the sample which has been tested

3. 若对检测结果有异议，请在收到报告后十日内向本机构书面提出。

If you have any objection to the test result, please submit it to the laboratory in writing within 10 days after receiving the report.

4. 受检样品务必在收到检测报告三十日内领取，逾期本机构将作为废弃物自行处理。

The sample must be collected within 30 days after receiving the test report. The overdue sample will be disposed of as waste by the laboratory itself.

5. 此报告仅作为委托方参考，不作为诉讼、仲裁等依据。

This report only as a reference for client, can't be considered as a basis for litigation, arbitration and so on.

检测机构：中认英泰检测技术有限公司

Test Lab.: CQC Intime Testing Technology Co.,Ltd.

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Statement CN23/00005817

Product Carbon Footprint Verification Statement

The Product Carbon Footprint study of
1 kWh US 5000
which is conducted by

Pylon Technologies Co.,Ltd.

71-72, 5th Floor, Lane 887, Zuchongzhi Road, China (Shanghai) Free Trade Area, Shanghai

has been verified meeting the requirements of

ISO 14067:2018

The carbon footprint of 1 kWh US 5000 is as follow:

97.49 kg CO_2 eq.

For the life cycle stages assessment of product
[Cradle to gate]

Authorized by
David Xin
Sr. Director - Knowledge
Date: 04 December 2023

SGS-CSTC Standards Technical Services Co., Ltd.
16F Century YuHui Mansion, No. 73 Fucheng Road, Beijing, P.R. CHINA 100142
t +86 (0)10 58251188 www.sgsgroup.com.cn

SGS-CSTC Standards Technical Services Co., Ltd. (hereinafter referred to as "SGS") has been commissioned by Pylon Technologies Co.,Ltd. (hereinafter referred to as "PYLON"), 71-72, 5th Floor, Lane 887, Zuchongzhi Road, China (Shanghai) Free Trade Area, Shanghai, for the verification of the life cycle Greenhouse Gas emissions of product as provided by PYLON in accordance with

ISO 14067:2018

Roles and responsibilities

PYLON is responsible for the management of its GHG information system, the development and maintenance of records and reporting procedures in accordance with that system, including the calculation and determination of the life cycle GHG emissions of product information and the reported life cycle GHG emissions of product.

It is SGS's responsibility to express an independent GHG verification opinion on the life cycle GHG emissions of 1 kWh US 5000.

SGS conducted a third-party verification of the provided GHG assertion against the principles of ISO 14067:2018, ISO 14040:2006 and ISO 14044:2006 in the period from 27 Jul 2023 to 28 Jul 2023. The verification was based on the verification scope, objectives and criteria as agreed between PYLON and SGS.

Level of Assurance

The level of assurance agreed is that of reasonable assurance.

Scope

PYLON has commissioned an independent verification by SGS (to report the GHG emission of the manufacture of 1 kWh US 5000 product following the established principle of ISO 14067:2018 outlined below).

This engagement covers verification of emission from partial life cycle of the product of greenhouse gases included within the organization's boundary.

- Title or description activities: GHG verification of the life cycle GHG emissions of 1 kWh US 5000
- Product Category Rule: there was not relevant PCR can be considered
- Functional unit: 1 kWh US 5000

- System boundary: Covers a "Cradle to gate" assessment of the life cycle emissions, from raw material extraction to production completion. The system boundary be clearly defined in accordance with ISO 14040:2006, ISO 14044:2006 and ISO 14067:2018.
- Use phase: Excluded in system boundary
- Retail locations: Excluded in system boundary
- Disposal phase: Excluded in system boundary
- Data resources: The primary data collection from manufacture and own operation phase. The secondary data collection from Ecoinvent 3.8 database.
- Life cycle assessment tool and index using:
  - Software applied SimaPro 9.5.
  - IPCC 2021 GWP values are applied in this inventory.
- Cut-off rules: If the flow is less than 1% of the cumulative mass of the model it would be excluded, providing its environmental relevance is not a concern, a minimum 97% of the total mass for the system is captured.
- Allocation rules:
  - Multi-output: The allocations are based on the changes in the resource consumption and pollutant emissions following the changes in the studied system' s output product, or function or economical relationship.
  - Multi-input: The allocation is based on actual relationship. For example, the manufacturing process's consumption may be affected by the change in recycled resource input.
- Manufacturing locations: 71-72, 5th Floor, Lane 887, Zuchongzhi Road, China (Shanghai) Free Trade Area, Shanghai
- Emissions and removal of the product system included: Please refer to the CFP study reported provided by PYLON.
- Types of GHGs included: CO_2, CH_4, N_2O, Substances controlled by the Montreal Protocol, HFCs, PFCs, Fluorinated ethers, Perfluoropolyether, Hydrocarbons compounds.
- Mitigation: There is no GHG emissions offsetting be used at any point in the life cycle of the product.
- GHG information for the following production period was verified: The data collection period was from 01 January 2022 to 31 December 2022. Emissions covered the particular period.
- Intended user of the verification statement: Private

Objective

The purposes of this verification exercise are, by review of objective evidence, to independently

review:

- Whether the life cycle GHG emissions and removals of product are as declared by the organization' s CFP study report;
- The data reported are accurate, complete, consistent, transparent and free of material error or omission.

Criteria

Criteria against which the verification assessment is undertaken are the principles of ISO 14067:2018.

The IPCC 2021 AR6 GWP values are applied in this assessment of life cycle GHG emissions for the product.

Materiality

The materiality required of the verification was considered by SGS to 5%, based on the needs of the intended user of the GHG Assertion.

Conclusion

PYLON provided the GHG assertion based on the requirements of ISO 14067:2018. The life cycle GHG information of product manufactured in 2022 disclosing carbon emissions, covering a Cradle to Gate system boundary, are verified by SGS to a reasonable level of assurance, consistent with the agreed verification scope, objectives and criteria.

The life cycle GHG emissions of 1 kWh US 5000 are described as below:

According to the communication needs of all parties involved, the function unit of this study is defined as 1 kWh US 5000. The system boundary is defined as "cradle" to "gate", which covers the production process of upstream raw materials (PCB, electronic components, power modules, positive and negative electrode materials), as well as on-site production and processing of the product (energy consumption, waste treatment, etc.). The carbon footprint of 1 kWh US 5000 is 97.49 kg CO_2 e

	Carbon footprint of product / kg CO_2 eq.
Product category for 1 kWh US 5000	97.49

SGS's approach is risk-based, drawing on an understanding of the risks associated with reporting the life cycle GHG emissions of product information and the controls in place to mitigate these. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the organization's reported the life cycle GHG emissions of product.

We planned and performed our work to obtain the information, explanations and evidence that we considered necessary to provide a reasonable level of assurance that the life cycle GHG emissions of 1 kWh US 5000.

We conducted our verification with regard to the GHG assertion of 1 kWh US 5000 which included assessment of GHG information system, monitoring and reporting plan/protocol. This assessment included the collection of evidence supporting the reported data, and checking whether the provisions of the protocol reference, were consistently and appropriately applied

In SGS's opinion the presented GHG assertion

- is materially correct and is a fair representation of the GHG data and information, and
- is prepared in accordance with ISO 14067:2018 on GHG quantification, monitoring and reporting.

The validity of this verification declaration is consistent with the validity of the corresponding carbon footprint study report of 1 kWh US 5000 product. If the carbon footprint of product changes by more than 10% within the validity period of the carbon footprint study report, this certificate will automatically become invalid without SGS reverification.