

Battery Pack Test Report (UN38.3)

Customer: Lenovo

Pack Model: L18C3P71

Nominal voltage: 11.52V

Nominal capacity: 4255mAh 49Wh/

4385mAh 51Wh

Configuration: 3S1P

Customer P/N: SB10K97648

Celxpert P/N: 921300208

Cell Type: Coslight CA467973G-Q1

4255mAh/4385mAh

Dec. 19 2018

Approved by_

Reviewed by_

Prepared by



1. Figure photo of the pack.







PS:此報告僅針對送檢樣品有效

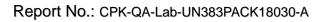
The test report is valid for the tested samples only.



| 2. UN38.3 Test Report | | | | | | | | | | |
|-----------------------|--------------|-------------|------------|------------------------------|-----------------------|--|--|--|--|--|
| Test Period | 2018/07/06~2 | 2018/07/24 | Test Spec. | ST/SG/AC.10/11/Rev.6/Amend.1 | | | | | | |
| Parts Name | Battery Pack | Application | NB | Quantity | Pack 16PCS/Cell 30pcs | | | | | |

2.1 Test Summary

| Item | Test Item | Test Result | Details |
|------|-------------------------------------|-------------|---------|
| T1 | Altitude simulation test (UN38.3-1) | Pass | Page 5 |
| T2 | Thermal test (UN38.3-2) | Pass | Page 6 |
| Т3 | Vibration test (UN38.3-3) | Pass | Page 7 |
| T4 | Shock test (UN38.3-4) | Pass | Page 8 |
| T5 | Short Circuit test (UN38.3-5) | Pass | Page 9 |
| T6 | Impact Test (UN38.3-6) | Pass | Page 9 |
| T7 | Overcharge test (UN38.3-7) | Pass | Page 10 |
| T8 | Forced discharge test (UN38.3-8) | Pass | Page 11 |
| | | | |
| | | | |
| | | | |





| No. | Pack S/N | Test item | No. | Cell Num. | Test item |
|-----|-----------------|-----------|-----|-------------------------------|-----------|
| 1 | Sample No:1/16 | 38.3.1~5 | 1 | Coslight CA467973G-Q1 4255mAh | 38.3.6 |
| 2 | Sample No:2/16 | 38.3.1~5 | 2 | Coslight CA467973G-Q1 4255mAh | 38.3.6 |
| 3 | Sample No:3/16 | 38.3.1~5 | 3 | Coslight CA467973G-Q1 4255mAh | 38.3.6 |
| 4 | Sample No:4/16 | 38.3.1~5 | 4 | Coslight CA467973G-Q1 4255mAh | 38.3.6 |
| 5 | Sample No:5/16 | 38.3.1~5 | 5 | Coslight CA467973G-Q1 4255mAh | 38.3.6 |
| 6 | Sample No:6/16 | 38.3.1~5 | 6 | Coslight CA467973G-Q1 4255mAh | 38.3.6 |
| 7 | Sample No:7/16 | 38.3.1~5 | 7 | Coslight CA467973G-Q1 4255mAh | 38.3.6 |
| 8 | Sample No:8/16 | 38.3.1~5 | 8 | Coslight CA467973G-Q1 4255mAh | 38.3.6 |
| 9 | Sample No:9/16 | 38.3.7 | 9 | Coslight CA467973G-Q1 4255mAh | 38.3.6 |
| 10 | Sample No:10/16 | 38.3.7 | 10 | Coslight CA467973G-Q1 4255mAh | 38.3.6 |
| 11 | Sample No:11/16 | 38.3.7 | 11 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| 12 | Sample No:12/16 | 38.3.7 | 12 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| 13 | Sample No:13/16 | 38.3.7 | 13 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| 14 | Sample No:14/16 | 38.3.7 | 14 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| 15 | Sample No:15/16 | 38.3.7 | 15 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| 16 | Sample No:16/16 | 38.3.7 | 16 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| | | | 17 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| | | | 18 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| | | | 19 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| | | | 20 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| | | | 21 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| | | | 22 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| | | | 23 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| | | | 24 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| | | | 25 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| | | | 26 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| | | | 27 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| | | | 28 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| | | | 29 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |
| | | | 30 | Coslight CA467973G-Q1 4255mAh | 38.3.8 |

2.3 Test result

| Item | Test Item | Test specification | Judge criteria | Sample(s) |
|------|-----------|--------------------|----------------|-----------|
|------|-----------|--------------------|----------------|-----------|





| T1 | Altitude Simulation (UN38.3-1) | i \ 1-2.E 0 4 1-3.\ | coatteries ar n fully char weight is moatteries vorecorded. Batteries slof 11.6Kpa at ambient vacuum is measured. | 4 packs are fully charged (Pack#1~4) 4 packs are cycled ending charged stat #5~8) | I 25 times g in fully | | | | | | |
|-----------|--------------------------------------|------------------------------------|---|---|--|---------------|--------------------------|--------|-------------|--|--|
| Test Peri | iod | Star | t: 2018/0 | 07/06 | End: | 2018/07/0 | 6 | | | | |
| Test Equ | ipment | | t位電表 Q153, 電子天平 Q090, 真空烘箱 Q0443 | | | | | | | | |
| - | · | 女 12 | EA GIO | O, 电 1 /C | Q000 , 共3 | L /// /FI QUI | 10 | | | | |
| Major Pr | | | | | | | | | | | |
| Warning | | | | | | | | | | | |
| Recomm | nendation | The | packs pa | ass the tes | St. | | | | | | |
| | | | Altitude Simulation Test on Charged Packs Before After voltage residue mass loss | | | | | | | | |
| | | No. | OCV | Weight | OCV | Weight | Volt | Weight | other event | | |
| | | | (V) | (g) | (V) | (g) | (%) | (%) | | | |
| | | 1 | 13.152 | 204.27 | 13.150 | 204.26 | 99.98% | 0.00% | 0 | | |
| | | 3 | 13.149 13.156 | 204.36 204.36 | 13.148 13.155 | 204.35 | 99.99% | 0.00% | 0 | | |
| | | 4 | 13.143 | 204.16 | 13.140 | 204.33 | 99.98% | 0.00% | 0 | | |
| | | 5 | 12.924 | 204.56 | 12.922 | 204.55 | 99.98% | 0.00% | 0 | | |
| | | 6 | 12.935 | 204.76 | 12.932 | 204.75 | 99.98% | 0.00% | 0 | | |
| | | 7 | 12.946 | 204.85 | 12.945 | 204.84 | 99.99% | 0.00% | 0 | | |
| Rav | w Data | 8 | 12.945 | 204.17 | 12.941 | 204.16 | 204.16 99.97% 0.00% | | | | |
| | | | | | sembly ; R-Rupture Disassembly , No | | 2 | | | | |
| | | | | | | | | | | | |
| Item | Test Item | | Т | est specificati | on | Judg | Judge criteria Sample(s) | | | | |





| Т2 | Thermal test (UN38.3-2) | 2-2.F | Packs are st followed by s The maximu temperatu Repeat 2-1 fo packs at amb weight are m voltage are r | - | ing in fully | | | | | | | | |
|----------|----------------------------|-------|--|-------------------|------------------|--------------|-------------|------------------|--------|-------------|--|--|--|
| Test Per | iod | Star | tart: 2018/07/09 End: 2018/07/16 | | | | | | | | | | |
| Test Equ | ipment | 數位 | 位電表 Q153, 電子天平 Q090, 冷熱衝擊機 Q0446 | | | | | | | | | | |
| Major Pr | | - | | | | | | | | | | | |
| Warning | | _ | | | | | | | | | | | |
| | nendation | | nacka na | ass the tes | .4 | | | | | | | | |
| | | | Thermal Test on Charged Packs Before After voltage residue mass loss | | | | | | | | | | |
| | | No. | OCV | Weight | ocv | Weig | | Volt | Weight | other event | | | |
| | | | (V) | (g) | (V) | (g) | | (%) | (%) | | | | |
| | | 2 | 13.150 13.148 | 204.26 | 13.081 | 204.2 | | 99.48% | 0.01% | 0 | | | |
| | | 3 | 13.155 | 204.35 | 13.080 | 204.3 | | 99.43% | 0.01% | 0 | | | |
| | | 4 | 13.140 | 204.15 | 13.066 | 204.1 | 4 | 99.44% | 0.01% | 0 | | | |
| | | 5 | 12.922 | 204.55 | 12.851 | 204.5 | | 99.45% | 0.01% | 0 | | | |
| | | 7 | 12.932 12.945 | 204.75 204.84 | 12.857 12.877 | 204.7 | | 99.42% 99.47% | 0.01% | 0 | | | |
| | | 8 | 12.941 | 204.16 | 12.866 | 204.1 | | 99.42% | 0.01% | 0 | | | |
| Rav | w Data | Note: | L-Leakage ; V-V | enting; D-Disass | embly ; R-Rup | ture ; F-Fir | e | | | | | | |
| | | | O-No Leakage, | No Venting , No [| Disassembly , | No Ruptur | e , No Fire | | | | | | |
| | | | | | | | | | | | | | |
| Item | Test Item | | | Test speci | fication | Judge crit | eria | Sample(s) | | | | | |





| тз | Vibration test (UN38.3-3) | 3-2 | -1. Packs are firmly secured to the platform of the vibration machine without distorting the packs in such a manner as to faithfully transmit the vibration. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 and 200 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12 times for a total of 3 hours for each of 3 mutually perpendicular to the terminal face. -2. The logarithmic frequency sweep is as follows: 7-18 Hz → 1gn 18-50 Hz → 0.8mm amplitude 50-200 Hz → 8gn -3. All packs weight are measured. The charged packs voltage are measured and recorded. Start: 2018/07/17 End: 2018/07/18 | | | | | | | | | |
|--|------------------------------|---------------------|--|-----------------------------|--------------------------|--------------------------|------|--|----------------------------|--|--|--|
| Test Per | | | itart: 2018/07/17 End: 2018/07/18 位電表 Q153, 電子天平 Q090, 振動測試機 Q300 | | | | | | | | | |
| Test Equ | • | | 1 電表 Q15 | 3, 電子大 | 半 Q090, | 振動測試 | t機 Q | 300 | | | | |
| Major Pr | | - | | | | | | | | | | |
| Warning | | - | | | | | | | | | | |
| Recomm | nendation | The | packs pa | ass the te | est. | | | | | | | |
| Do | w Data | No. 1 2 3 4 5 6 7 8 | OCV Weight (v) OCV (g) Weight (%) Voit (%) 1 13.081 204.24 13.074 204.22 99.95% 2 13.072 204.33 13.065 204.31 99.95% 3 13.080 204.33 13.072 204.32 99.94% 4 13.066 204.14 13.058 204.12 99.94% 5 12.851 204.53 12.843 204.51 99.94% 6 12.857 204.73 12.851 204.71 99.95% | | | | | yolt (%) 99.95% 99.95% 99.94% 99.94% 99.94% 99.95% | 0 0 0 0 0 0 | ss loss /eight (%) .01% .01% .01% .01% .01% .01% .01% .01% | other event O O O O O O O O O O O O O O O O O O | |
| Rav | w Data | | 12.866 L-Leakage ; V-\ | 204.14 /enting ; D-Disas | 12.859 ssembly ; R-Ru | 204.12 pture ; F-Fire | | 33.3370 | | .0170 | 0 | |
| Note: L-Leakage; V-Venting; D-Disassembly; R-Rupture; F-Fire O-No Leakage, No Venting, No Disassembly, No Rupture, No Fire | | | | | | | | | | | | |
| Item | Test Item | | | Test specific | ation | | J | udge criteria | | Sar | mple(s) | |



| Test Period Start: 2018/07/19 End: 2018/07/19 Test Equipment 教位電表 Q153、電子天平 Q090、衝擊測試機 Q154 Major Problem - Warning Point - Recommendation The packs pass the test. | T4 | Shock test (UN38.3-4) | 4-2. 4-2. t t t 4-3. / | -1. Packs shall be secured to the testing machine by means of a rigid mount, which will support all mounting surfaces. -2. Packs shall be subjected to a half-sine shock of peak acceleration 150gn and pulse duration of 6 milliseconds. Each pack shall be subjected to 3 shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicularly mounting positions of the pack for a total of 18 shocks. -3. All batteries weight are measured and recorded. Each 2018/07/19 No mass loss (<0.1%), no leakage, no venting, no disassembly, no rupture and no fire. Battery voltage drop < 10%. 4 packs are first cycle in fully charged (Pack#1~4) 4 packs are 25 times cycled ending in fully charged state (Pack #5~8) | | | | | | | | | |
|--|---|--------------------------|---|---|------------|--------|--------|--------|-------|-------------|--|--|--|
| Major Problem | Test Per | iod | Star | | | | | | | | | | |
| Shock Test on Charged Packs Shock Test on Charged Packs Shock Test on Charged Packs | Test Equ | ipment | 數位 | t位電表 Q153, 電子天平 Q090, 衝擊測試機 Q154 | | | | | | | | | |
| Shock Test on Charged Packs Shock Test on Charged Packs Shock Test on Charged Packs | Major Pr | oblem | - | | | | | | | | | | |
| Shock Test on Charged Packs Before After Voltage residue mass loss Other event OCV Weight (V) (g) (V) (g) (%) | | | - | | | | | | | | | | |
| Shock Test on Charged Packs Before After Voltage residue mass loss OCV Weight (V) (g) (V) (g) (%6 | | | The | packs pa | ass the te | st. | | | | | | | |
| No. OCV Weight OCV Weight Volt Weight (V) (g) (V) (g) (%) (%) (%) 1 13.074 204.22 13.068 204.22 99.95% 0.00% O 2 13.065 204.31 13.060 204.30 99.96% 0.00% O 3 13.072 204.32 13.067 204.31 99.96% 0.00% O 4 13.058 204.12 13.052 204.11 99.95% 0.00% O 5 12.843 204.51 12.839 204.50 99.97% 0.00% O 6 12.851 204.71 12.844 204.70 99.95% 0.00% O 7 12.868 204.79 12.862 204.79 99.95% 0.00% O Raw Data Note: L-Leakage; V-Venting; D-Disassembly; R-Rupture; F-Fire | | | | | | | | | | | | | |
| (V) (g) (V) (g) (%) (%) 1 13.074 204.22 13.068 204.22 99.95% 0.00% O 2 13.065 204.31 13.060 204.30 99.96% 0.00% O 3 13.072 204.32 13.067 204.31 99.96% 0.00% O 4 13.058 204.12 13.052 204.11 99.95% 0.00% O 5 12.843 204.51 12.839 204.50 99.97% 0.00% O 6 12.851 204.71 12.844 204.70 99.95% 0.00% O 7 12.868 204.79 12.862 204.79 99.95% 0.00% O 8 12.859 204.12 12.854 204.11 99.96% 0.00% O Raw Data | | | No. | | | | | | | other event | | | |
| 2 13.065 204.31 13.060 204.30 99.96% 0.00% O 3 13.072 204.32 13.067 204.31 99.96% 0.00% O 4 13.058 204.12 13.052 204.11 99.95% 0.00% O 5 12.843 204.51 12.839 204.50 99.97% 0.00% O 6 12.851 204.71 12.844 204.70 99.95% 0.00% O 7 12.868 204.79 12.862 204.79 99.95% 0.00% O 8 12.859 204.12 12.854 204.11 99.96% 0.00% O Note: L-Leakage; V-Venting; D-Disassembly; R-Rupture; F-Fire | | | | | _ | | _ | | _ | | | | |
| 3 13.072 204.32 13.067 204.31 99.96% 0.00% 0 4 13.058 204.12 13.052 204.11 99.95% 0.00% 0 5 12.843 204.51 12.839 204.50 99.97% 0.00% 0 6 12.851 204.71 12.844 204.70 99.95% 0.00% 0 7 12.868 204.79 12.862 204.79 99.95% 0.00% 0 8 12.859 204.12 12.854 204.11 99.96% 0.00% 0 Note: L-Leakage; V-Venting; D-Disassembly; R-Rupture; F-Fire | | | | | | | | | _ | | | | |
| 4 13.058 204.12 13.052 204.11 99.95% 0.00% O 5 12.843 204.51 12.839 204.50 99.97% 0.00% O 6 12.851 204.71 12.844 204.70 99.95% 0.00% O 7 12.868 204.79 12.862 204.79 99.95% 0.00% O 8 12.859 204.12 12.854 204.11 99.96% 0.00% O RAW Data Note: L-Leakage; V-Venting; D-Disassembly; R-Rupture; F-Fire | | | | | | | | | _ | | | | |
| 6 12.851 204.71 12.844 204.70 99.95% 0.00% O 7 12.868 204.79 12.862 204.79 99.95% 0.00% O 8 12.859 204.12 12.854 204.11 99.96% 0.00% O Raw Data Note: L-Leakage ; V-Venting ; D-Disassembly ; R-Rupture ; F-Fire | | | | | | | | | + | | | | |
| 7 12.868 204.79 12.862 204.79 99.95% 0.00% O 8 12.859 204.12 12.854 204.11 99.96% 0.00% O Raw Data Note: L-Leakage ; V-Venting ; D-Disassembly ; R-Rupture ; F-Fire | | | 5 | 12.843 | 204.51 | 12.839 | 204.50 | 99.97% | 0.00% | 0 | | | |
| 8 12.859 204.12 12.854 204.11 99.96% 0.00% O Raw Data Note: L-Leakage; V-Venting; D-Disassembly; R-Rupture; F-Fire | | | | | | | | | _ | | | | |
| | | | | | | | | | | | | | |
| O-No Leakage , No Venting , No Disassembly , No Rupture , No Fire | Rav | v Data | Note: | | | | | | | | | | |
| Item Test Item Test specification Judge criteria Sample(s) | O-No Leakage , No Venting , No Disassembly , No Rupture , No Fire | | | | | | | | | ola/a) | | | |





| Т5 | Short Circuit Test (UN38.3-5) | ext 5-2.Wh sho wir 5-4. The | 5-1.Packs are placed in to a $(57\pm4)^{\circ}\mathbb{C}$ oven, and exterior packs temperature are monitored 5-2.When packs exterior reach $(57\pm4)^{\circ}\mathbb{C}$, they are shorted by connecting terminals with a copper wire of resistance less than 100m Ohm. 5-4. The short was continued for more than 1hour or the cell temperature return to $57^{\circ}\mathbb{C}$. The packs are observed for a further 6 hours. No rupture, no disassembly, no explosion, no fire, no smoke. Packs exterior peak temperature $<170^{\circ}\mathbb{C}$. | | | | | | | | |
|--------------------|-------------------------------------|--|--|---|---|--|-----|---|---------------|--|--|
| Test Peri | iod | Start: | 2018/07/23 | End: 2 | 018/07/2 | <u></u> 24 | | | | | |
| Test Equ | ipment | | 表 Q153, 資料收 | | | | | | | | |
| Recomm | endation | The p | acks pass the te | est. | | | | | | | |
| | | SI | hort Circuit Test on Ch | arged Packs | | | | | | | |
| | | No. | Max. Temp.(°C) | Other event | | | | | | | |
| | | 1 | 55.36 | О | | | | | | | |
| | | 2 | 56.26 | O | | | | | | | |
| | | 3 | 55.49 | О | | | | | | | |
| Do | w Data | 4 | 56.17 | 0 | | | | | | | |
| Kal | w Dala | 5 | 54.59 | 0 | | | | | | | |
| | | | 6 55.38 O | | | | | | | | |
| | | 7 8 | 55.18 56.24 | 0 | | | | | | | |
| | | 0 | 30.24 | U | | | | | | | |
| | | | Disassembly ; R-Rupture ; | | | | | | | | |
| | | 0- | - No Disassembly , No Ru | pture , No Fire | | | | | | | |
| Item | Test Item | | Test spec | cification | | Judge criteri | а | Sample(s) | | | |
| Т6 | Impact test (UN38.3-6) | 6-1.Cell's diameter > 18mm, Execution impact test. (A 9.1 Kg mass is to be dropped from a height of (61±2.5)cm onto the sample.) 6-2.Cell's diameter < 18mm, Execution crush test (The cells are crushed with a 13 KN with the crush tester. Once the force is obtained it is to be released.) External temperature of cell does not exceed 170°C and there is no disassembly and no fire within 6 hours of the test. (Pack#1~5) 5 cells are first cycle in charged states to 50%. | | | | | | | ed r ng | | |
| | | | | | | | | | .63 | | |
| Test Peri | iod | Start: | 2018/07/06 | End: 2 | 018/07/0 | 06 | | to 50%. | | | |
| | | | | | | | | to 50%. (Pack #6~10) | | | |
| Test Equ | | 數位電 | 電表 Q153, 資料收 | 、集器 Q152, 扬 | | | | to 50%. (Pack #6~10) | | | |
| Test Equ | ipment | 數位電 | 電表 Q153,資料收 Cells pass the tes | .集器 Q152, 掉 st. | ^{齊壓試驗} | 幾 Q437/撞擊測 | | to 50%. (Pack #6~10) | | | |
| Test Equ | ipment | 數位電 The C | 意表 Q153, 資料收 Cells pass the tes | 集器 Q152,掉 st. Crush Test on | ^{齊壓試驗} | 幾 Q437/撞擊測 arged Cells | 試機(| to 50%. (Pack #6~10) | | | |
| Test Equ | ipment | 數位電 The C No. | 竞表 Q153,資料收 Cells pass the tes (Max. Temp.(℃) | 集器 Q152, 核 st. Crush Test on a Other ever | 齊壓試驗/ 50% Ch nt No. | 機 Q437/撞擊測 arged Cells Max. Temp.(° | 試機(| to 50%. (Pack #6~10) Q231 Other event | | | |
| Test Equ | ipment | 數位電The C | 意表 Q153,資料收 Cells pass the tes (Max. Temp.(℃) 21.36 | 集器 Q152,掉 st. Crush Test on | 季壓試驗/ 50% Ch nt No. 6 | 幾 Q437/撞擊測 arged Cells | 試機(| to 50%. (Pack #6~10) | | | |
| Test Equ Recomm | ipment nendation | 數位電 The C No. | 竞表 Q153,資料收 Cells pass the tes (Max. Temp.(℃) | 集器 Q152, 核 st. Crush Test on a Other ever | 齊壓試驗/ 50% Ch nt No. | 機 Q437/撞擊測 arged Cells Max. Temp.(° | 試機(| to 50%. (Pack #6~10) Q231 Other event | | | |
| Test Equ Recomm | ipment | 數位電The C | 意表 Q153,資料收 Cells pass the tes (Max. Temp.(℃) 21.36 | 集器 Q152, 核 st. Crush Test on : Other ever O | 季壓試驗/ 50% Ch nt No. 6 | 機 Q437/撞擊測 arged Cells Max. Temp.(° 20.48 | 試機(| to 50%. (Pack #6~10) Q231 Other event O | | | |
| Test Equ Recomm | ipment nendation | 數位電 The C No. 1 2 3 | 意表 Q153,資料收 Cells pass the tes ((Max. Temp.(°C) 21.36 20.56 21.35 | 集器 Q152, 擅st. Crush Test on and Other ever O | 李壓試驗/ 50% Ch nt No. 6 7 | 機 Q437/撞擊測 arged Cells Max. Temp.(° 20.48 21.59 20.66 | 試機(| to 50%. (Pack #6~10) Q231 Other event O O | | | |
| Test Equ Recomm | ipment nendation | 數位電 The C No. 1 2 | 意表 Q153,資料收 Cells pass the tes (Max. Temp.(℃) 21.36 20.56 | 集器 Q152, 擅st. Crush Test on and Other ever O O | 序壓試驗/ 50% Ch nt No. 6 7 8 | 機 Q437/撞擊測 arged Cells Max. Temp.(° 20.48 21.59 | 試機(| to 50%. (Pack #6~10) Q231 Other event O O O | | | |
| Test Equ Recomm | ipment nendation | 數位電 The C No. 1 2 3 4 5 | E表 Q153, 資料收 Cells pass the test (Max. Temp.(℃) 21.36 20.56 21.35 20.48 | 集器 Q152, 核st. Crush Test on and Other ever O O O O O O O O O O O O O O O O O O O | 李壓試驗/ 50% Ch nt No. 6 7 8 9 | 機 Q437/撞擊測 arged Cells Max. Temp.(° 20.48 21.59 20.66 20.14 21.79 | 試機(| 0 0 0 0 | | | |



| | corporation | | | | | | | | | |
|----------|----------------------------------|--|--|---------------------|--|--|---|--|--|--|
| Т7 | Overcharge test (UN38.3-7) | rectors rector | ommended maximum minimum voltage of the her the Spec's recorder than 18V, the minimum or 22V. Then the Spec's recorder the the Spec's recorder 18V, the minimum on the the maximum ches the maxi | ted at ambient temp | ge current. s follows: voltage is not e test shall be ge voltage of the voltage is more shall be 1.2 | No disassembly no fire within seven days of the test. | y, 4 packs are first cycle in fully charged (Pack#9~12) 4 packs are 25 times cycled ending in fully charged state (Pack #13~16) | | | |
| Test Per | iod | Start: 2 | 2018/07/09 | End: 201 | 18/07/11 | | | | | |
| Test Equ | pment | 數位電 | 效位電表 Q153, 資料收集器 Q078,電源供應器 Q148/Q150/Q0236 | | | | | | | |
| Major Pi | oblem | - | | | | | | | | |
| Warning | | - | - | | | | | | | |
| | nendation | The p | The packs pass the test. | | | | | | | |
| | | No. | No. Charge Charge Charge Max. Temp.(°C) Other e | | | | | | | |
| | | 9 | , cange () | | 20.36 | 3 | 0 | | | |
| | | 10 | | | 20.1 | | 0 | | | |
| | | 11 | | | 21.49 | | 0 | | | |
| | | 12 | | | 21.58 | | 0 | | | |
| | | 13 | 22.0 V | 8.5 | 20.38 | | 0 | | | |
| | | 14 | | | 20.48 | | 0 | | | |
| | | 15 | | | 20.19 | | 0 | | | |
| Rav | w Data | 16 | | | 21.76 | | 0 | | | |
| | | Note: | D-Disassemb | ly ; F-Fire / O- | No Disasse | mbly ,No Fi | re | | | |
| | | | | | | | | | | |

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| Lilety | corporation | | | | | | | | | | | |
|----------|--|----------------------|--|-------------------------------|----------|----------------------|---------------|-------------|--|--|--|--|
| Т8 | Forced discharge test (UN38.3-8) | conne initial | Cell shall be forced discharged at ambient temperature by connecting it in series with a 12 V D.C. power supply at an initial current equal to the maximum discharge current Specified by the manufacturer. Start: 2018/07/16 No disassembly, no fire within seven days after the test. (Pack# 10 cells 25 cycl in fully discharge current contains the seven days after the test.) Start: 2018/07/16 End: 2018/07/17 | | | | | | | | | |
| Test Per | iod | Start | : 2018/07/16 | End: 2 | 018/0 | 7/17 | | , | | | | |
| Test Equ | iipment | 數位 | 電表 Q153, | 資料收集器 Q160, | 電源 | 供應器 Q0474 | /Q0475/0 | Q0476 | | | | |
| Major Pr | oblem | - | | | | | | | | | | |
| Warning | Point | - | | | | | | | | | | |
| | nendation | The | packs pass | the test. | | | | | | | | |
| | | No. | ed discharge are fi Max. Temp.(°C) 51.23 | Other event | No. | Max. Temp.(°C) 48.26 | 25 cycles end | Other event | | | | |
| | | 12 | 52.48 | 0 | 22 | 43.56 | | 0 | | | | |
| | | 13 49.63 14 47.25 | | 0 | 23 24 | 51.48 52.48 | | 0 | | | | |
| | | 15 45.23 | | 0 | 25 | 55.49 | | 0 | | | | |
| | | 16 | 52.25 | 0 | 26 | 53.76 | | 0 | | | | |
| | | 17 18 | 51.59 52.36 | 0 | 27 28 | 51.85 49.26 | | 0 | | | | |
| | | 19 | 55.14 | 0 | 29 | 48.35 | | 0 | | | | |
| | | 20 | 49.36 | 0 | 30 | 43.58 | | 0 | | | | |
| Rav | w Data | Note:D | -Disassembly ; F-Fi | re / O-No Disassembly , No Fi | ire | | | | | | | |