

SPECTRO-UV

Test Report #1120120776

Rechargeable Lithium-Ion Battery Cell

3.7V/3200 mAh (PN 149828)

3.7V/3600 mAh (PN 149843)

4.2V/5000 mAh (PN RP-B-01)

Name of Sample:	Rechargeable Lithium-Ion Battery Cell 3.7V / 4.2V		
Sample No.:	1120120776		
Manufacturer:	Spectro-UV, LLC		
Test Method:	ST/SG/AC. 10/11/ Rev. 6 Amend. 1 38. 3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC. 10/11/Rev. 6 Amend. 1 Section 38.3		
Criterion:	ST/SG/AC. 10/11/ Rev. 6 Amend. 1 38. 3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC. 10/11/Rev. 6 Amend. 1 Section 38.3		
Appearance:	Blue cylinder plastic film shell		
Accepted Date:	2020-12-31	Test Date	2021-01-06 ~ 2021-02-05
Test Items:	Altitude Simulation, Thermal Test, Vibration, Shock, External Short Circuit, Impact, Forced Discharge		
Conclusion:	ST/SG/AC. 10/11/ Rev. 6 Amend. 1 38. 3. The sample has passed the test items of UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC. 10/11/Rev. 6 Amend. 1 Section 38.3 Date: 2021-02-05		
Comment:	Rechargeable Lithium Cell		

No	Name of Test Items	Standard Requirement or Clause Number of Standard	Test Result	Conclusion
1	Altitude Simulation	ST/SG/AC. 10/11/ Rev. 6 Amend. 1 38.3 T.1 UN Manual of Tests and Criteria ST/SG/AC. 10/11 Rev. 6 Amend. 1 Section 38.3 Test T.1	See Appendix 1	Passed
2	Thermal Test	ST/SG/AC. 10/11/ Rev. 6 Amend. 1 38.3 T.2 UN Manual of Tests and Criteria ST/SG/AC. 10/11 Rev. 6 Amend. 1 Section 38.3 Test T.2	See Appendix 2	Passed
3	Vibration	ST/SG/AC. 10/11/ Rev. 6 Amend. 1 38.3 T.3 UN Manual of Tests and Criteria ST/SG/AC. 10/11 Rev. 6 Amend. 1 Section 38.3 Test T.3	See Appendix 3	Passed
4	Shock	ST/SG/AC. 10/11/ Rev. 6 Amend. 1 38.3 T.4 UN Manual of Tests and Criteria ST/SG/AC. 10/11 Rev. 6 Amend. 1 Section 38.3 Test T.4	See Appendix 4	Passed
5	External Short Circuit	ST/SG/AC. 10/11/ Rev. 6 Amend. 1 38.3 T.5 UN Manual of Tests and Criteria ST/SG/AC. 10/11 Rev. 6 Amend. 1 Section 38.3 Test T.5	See Appendix 5	Passed
6	Impact	ST/SG/AC. 10/11/ Rev. 6 Amend. 1 38.3 T.6 UN Manual of Tests and Criteria ST/SG/AC. 10/11 Rev. 6 Amend. 1 Section 38.3 Test T.6	See Appendix 6	Passed
7	Forced Discharge	ST/SG/AC. 10/11/ Rev. 6 Amend. 1 38.3 T.8 UN Manual of Tests and Criteria ST/SG/AC. 10/11 Rev. 6 Amend. 1 Section 38.3 Test T.8	See Appendix 7	Passed
Test Environment Condition	Ambient Temperature 18°C – 23° C; Ambient humidity : %			

No.	1	Name of Test Items		Altitude Simulation				
Sample No.	Sample Status	Before		After		Mass Loss /%	Residual OCV /%	Note
		Mass /g	OCV /V	Mass /g	OCV /V			
001	1CYC Fully Charged	95.3641	4.17	95.3642	4.17	0.00	100.00	O
002	1CYC Fully Charged	95.1625	4.17	95.1614	4.17	0.00	100.00	O
003	1CYC Fully Charged	95.4544	4.17	95.4529	4.17	0.00	100.00	O
004	1CYC Fully Charged	95.5446	4.17	95.5439	4.17	0.00	100.00	O
005	1CYC Fully Charged	95.0317	4.16	95.0309	4.16	0.00	100.00	O
006	25CYC Fully Charged	95.3443	4.16	95.3444	4.16	0.00	100.00	O
007	25CYC Fully Charged	95.4803	4.17	95.4801	4.17	0.00	100.00	O
008	25CYC Fully Charged	95.4468	4.17	95.4470	4.17	0.00	100.00	O
009	25CYC Fully Charged	95.7906	4.17	95.7899	4.17	0.00	100.00	O
010	25CYC Fully Charged	95.6922	4.17	95.6918	4.17	0.00	100.00	O
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Note: L-Leakage V-Venting D-Disassembly R-Rupture F-Fire O-No Leakage, No Venting, No Disassembly, No Rupture & No Fire.								

No.	2	Name of Test Items		Thermal Test				
Sample No.	Sample Status	Before		After		Mass Loss /%	Residual OCV /%	Note
		Mass /g	OCV /V	Mass /g	OCV /V			
001	1CYC Fully Charged	95.3642	4.17	95.3586	4.13	0.01	99.04	O
002	1CYC Fully Charged	95.1614	4.17	95.1540	4.13	0.01	99.04	O
003	1CYC Fully Charged	95.4529	4.17	95.4480	4.14	0.01	99.28	O
004	1CYC Fully Charged	95.5439	4.17	95.5386	4.13	0.01	99.04	O
005	1CYC Fully Charged	95.0309	4.16	95.0257	4.13	0.01	99.28	O
006	25CYC Fully Charged	95.3444	4.16	95.3369	4.12	0.01	99.04	O
007	25CYC Fully Charged	95.4801	4.17	95.4737	4.13	0.01	99.04	O
008	25CYC Fully Charged	95.4470	4.17	95.4399	4.14	0.01	99.28	O
009	25CYC Fully Charged	95.7899	4.17	95.7845	4.14	0.01	99.28	O
010	25CYC Fully Charged	95.6918	4.17	95.6853	4.14	0.01	99.28	O
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Note: L-Leakage V-Venting D-Disassembly R-Rupture F-Fire O-No Leakage, No Venting, No Disassembly, No Rupture & No Fire.								

No.	3	Name of Test Items		Vibration				
Sample No.	Sample Status	Before		After		Mass loss /%	Residual OCV /%	Note
		Mass /g	OCV /V	Mass /g	OCV /V			
001	1CYC Fully Charged	95.3586	4.13	95.3660	4.13	0.00	100.00	O
002	1CYC Fully Charged	95.1540	4.13	95.1604	4.13	0.00	100.00	O
003	1CYC Fully Charged	95.4480	4.14	95.4553	4.14	0.00	100.00	O
004	1CYC Fully Charged	95.5386	4.13	95.5447	4.13	0.00	100.00	O
005	1CYC Fully Charged	95.0257	4.13	95.0326	4.13	0.00	100.00	O
006	25CYC Fully Charged	95.3369	4.12	95.3444	4.12	0.00	100.00	O
007	25CYC Fully Charged	95.4737	4.13	95.4796	4.13	0.00	100.00	O
008	25CYC Fully Charged	95.4399	4.14	95.4456	4.14	0.00	100.00	O
009	25CYC Fully Charged	95.7845	4.14	95.7913	4.14	0.00	100.00	O
010	25CYC Fully Charged	95.6853	4.14	95.6919	4.14	0.00	100.00	O
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Note: L-Leakage V-Venting D-Disassembly R-Rupture F-Fire O-No Leakage, No Venting, No Disassembly, No Rupture & No Fire.								

No.	4	Name of Test Items		Shock				
Sample No.	Sample Status	Before		After		Mass Loss	Residual OCV /%	Note
		Mass /g	OCV /V	Mass /g	OCV /V			
001	1CYC Fully Charged	95.3660	4.13	95.3663	4.12	0.00	99.76	O
002	1CYC Fully Charged	95.1604	4.13	95.1601	4.13	0.00	100.00	O
003	1CYC Fully Charged	95.4553	4.14	95.4557	4.13	0.00	99.76	O
004	1CYC Fully Charged	95.5447	4.13	95.5442	4.13	0.00	100.00	O
005	1CYC Fully Charged	95.0326	4.13	95.0324	4.12	0.00	99.76	O
006	25CYC Fully Charged	95.3444	4.12	95.3448	4.12	0.00	100.00	O
007	25CYC Fully Charged	95.4796	4.13	95.4792	4.13	0.00	100.00	O
008	25CYC Fully Charged	95.4456	4.14	95.4452	4.14	0.00	100.00	O
009	25CYC Fully Charged	95.7913	4.14	95.7910	4.13	0.00	99.76	O
010	25CYC Fully Charged	95.6919	4.14	95.6915	4.14	0.00	100.00	O
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Note: L-Leakage V-Venting D-Disassembly R-Rupture F-Fire O-No Leakage, No Venting, No Disassembly, No Rupture & No Fire.								

No.	5	Name of Test Items	External Short Circuit
Sample No.	Sample Status	Max. External Temperature /C°	Note
001	1CYC Fully Charged	78.7	O
002	1CYC Fully Charged	82.3	O
003	1CYC Fully Charged	93.5	O
004	1CYC Fully Charged	92.7	O
005	1CYC Fully Charged	90.3	O
006	25CYC Fully Charged	81.4	O
007	25CYC Fully Charged	83.8	O
008	25CYC Fully Charged	89.9	O
009	25CYC Fully Charged	83.1	O
010	25CYC Fully Charged	88.4	O
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Note: D-Disassembly R-Rupture F-Fire O-No Disassembly, No Rupture & No Fire.			

No.	6	Name of Test Items	Impact
Sample No.	Sample Status	Max. External Temperature /C°	Note
011	1CYC 50% Capacity	23.8	O
012	1CYC 50% Capacity	23.0	O
013	1CYC 50% Capacity	23.0	O
014	1CYC 50% Capacity	22.9	O
015	1CYC 50% Capacity	22.3	O
016	25CYC 50% Capacity	21.2	O
017	25CYC 50% Capacity	21.4	O
018	25CYC 50% Capacity	21.5	O
019	25CYC 50% Capacity	21.7	O
020	25CYC 50% Capacity	22.2	O
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Note: D-Disassembly F-Fire 0-No Disassembly & No Fire.			

No.	7	Name of Test Items	Forced Discharge
Sample No.	Sample Status	Note	
021	1CYC Fully Discharged	O	
022	1CYC Fully Discharged	O	
023	1CYC Fully Discharged	O	
024	1CYC Fully Discharged	O	
025	1CYC Fully Discharged	O	
026	1CYC Fully Discharged	O	
027	1CYC Fully Discharged	O	
028	1CYC Fully Discharged	O	
029	1CYC Fully Discharged	O	
030	1CYC Fully Discharged	O	
031	25CYC Fully Discharged	O	
032	25CYC Fully Discharged	O	
033	25CYC Fully Discharged	O	
034	25CYC Fully Discharged	O	
035	25CYC Fully Discharged	O	
036	25CYC Fully Discharged	O	
037	25CYC Fully Discharged	O	
038	25CYC Fully Discharged	O	
039	25CYC Fully Discharged	O	
040	25CYC Fully Discharged	O	
Note: D-Disassembly F-Fire 0-No Disassembly & No Fire.			

