

TEST REPORT			
Report No:	BAL001Rev3		
Title:	Testing of 52V Balancell P15 lithium-ion battery module		
Date:	23 July 2021	Analyst:	N. Rust

CLIENT INFORMATION	
Company:	Balancell
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SAMPLE INFORMATION				
Sample name:	Date received:	Condition:	Description:	Rated Capacity:
BAL001-Battery 1	11 June 2021	No defects	52V Lithium Iron Phosphate battery	C = 270 Ah

1. 0.2C Discharge at 25 ± 5°C according to IEC62620 (2014) section 6.3.1.

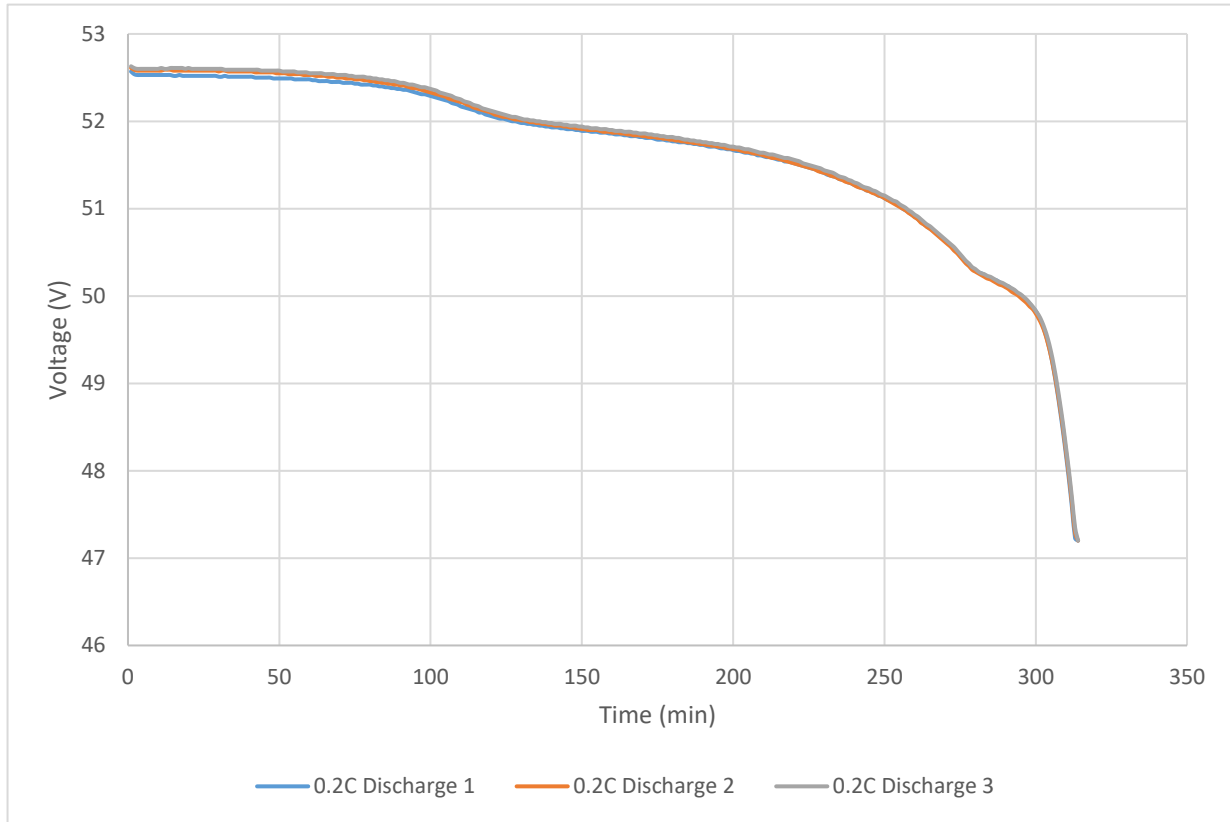


Figure 1: Discharge curves of Balancell 52V P15 battery module at 0.2C (54A).

Table 1: 0.2C Discharge performance at 25 ± 5°C.

Test	Capacity at 0.2C (54A)
1	281.75Ah
2	281.90Ah
3	282.06Ah

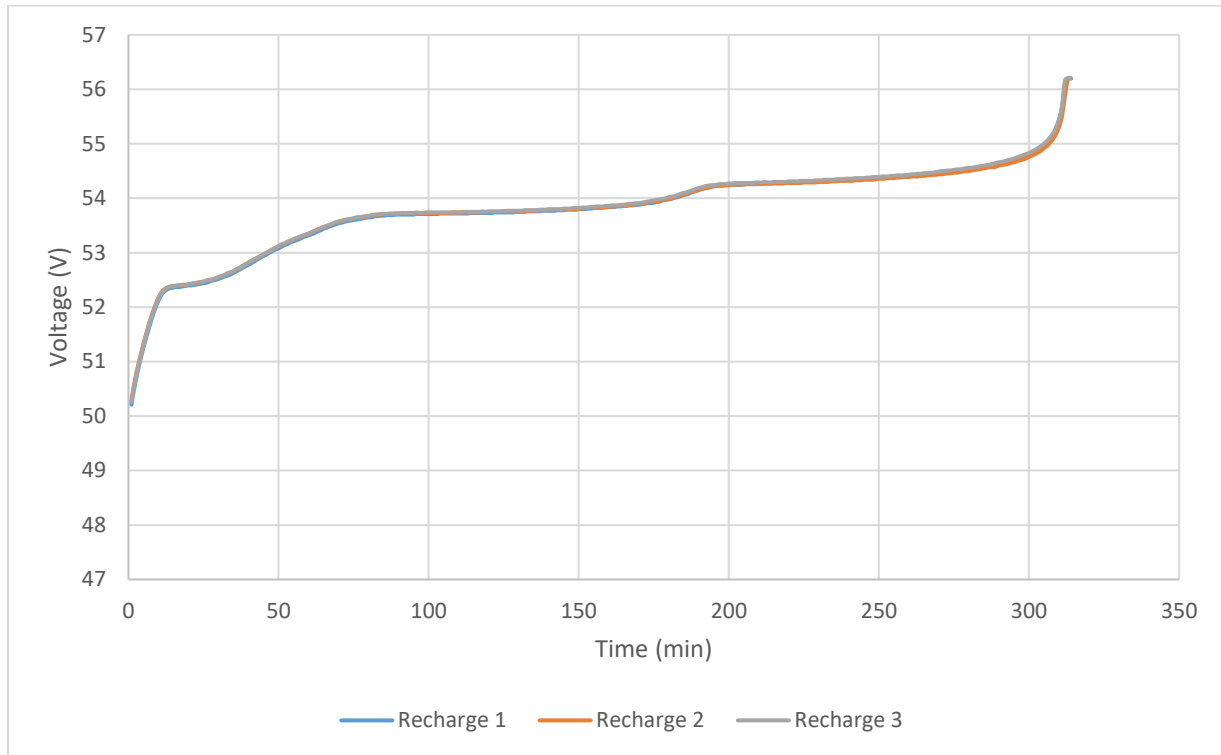


Figure 2: Recharge curves of Balancell 52V P15 battery module at 0.2C (54A).

2. 1C Discharge performance at 25 ± 5°C.

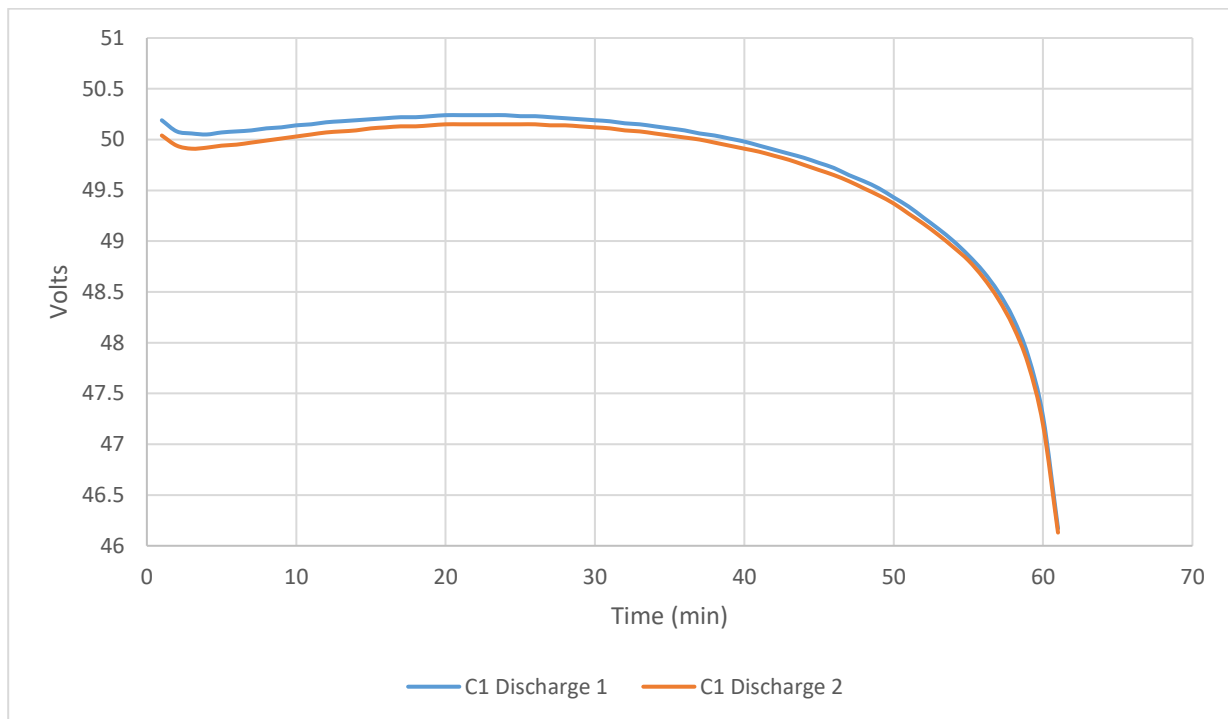


Figure 3: Discharge curves of Balancell 52V P15 battery module at 1C (270A).

Table 2: 1C Discharge performance at 25 ± 5°C.

Test	Capacity at 1C (270A)
1	278.34Ah
2	278.18Ah

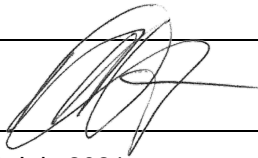
3. DC resistance at 25°C according to IEC62620 (2014) section 6.5.3.

U ₁	U ₂	I ₁	I ₂	DC Resistance = (U ₁ -U ₂)/(I ₂ -I ₁)
51.83V	50.16V	54A	270A	0.00773Ω

NOTES
<ul style="list-style-type: none"> For the 0.2C discharge test, the battery module was recharged using a CC/CV method (Figure 2). The battery was recharged at 0.2C (54A) at constant voltage until a 56.2V voltage limit was reached and then kept at 56.2V until a current limit of 0.05C (13.5A) was reached. For the 1.0C discharge test, the battery was recharged according to the customer's recommendations. The battery was charged at 0.2C to 56V and then charged at 0.2C to 57V. Once the battery management system (BMS) stopped the charge as the module reached 57V, the battery was allowed to rest for 20 min after which the charge at 0.2C to 57V was restarted again until the BMS stopped the charge again. This was repeated another 3 times at 20min intervals. For the 1C discharge the battery was allowed to equilibrate to the 20°C before charging and discharging the module. The individual cell temperatures were checked with the balancell app using a laptop that connected to the battery module, before each charge and discharge was started.

EQUIPMENT	uYilo Number	Calibration/Check Date
Bitrode FTV100	UYL098	27 August 2020

Report compiled by:	N. Rust	Position:	Group specialist – Energy storage
Date:	23 July 2021		

Report approved by the technical signatory:	
Date:	23 July 2021

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