



**Events and Conditions:**

Items in blue are actions taken by the power supply

**E1: Turn On**

Insert -> LOW && 12V Present  
(BBU Present -> LOW)

**E2: Back to Sleep Mode**

!E1 || E16  
Charge current < 0.2A for 5 minutes (or BBU not being charged)

**E3: Idle State**

FREE

**E4: Charging**

Cell Votlage < 3.9VDC  
Charge\_Enable -> low (close MOSFETs immediately)  
Temperature < 54C  
!(Fail || E6 || E16)  
AC\_OK

**E5: Stop Charge**

Cell voltage 4.0V  
Charge current < 0.4A  
Charge\_Enable-> HIGH (wait 1 seconds before opening the switch)  
!E12  
Sense voltage 52.5VDC  
Charger OCP  
charge current >= 0.4A amount for 4 hrs  
Temprature > 56

**E6: 90s Discharge**

!AC\_OK  
Temperature < 70C  
Cell voltage > 2.6V

**E7: Stop 90s Discharge**

Current Feed/Boost converter timeout || AC\_OK  
!FAIL || !Stop\_Discharge

**E8: Battery Test**

1<sup>st</sup> test: the random number x 2160 is reached  
any test after (randx2160 + 90days)  
AC\_OK  
No SOH in progress in the shelf  
if test in progress -> Queue  
No BBU Failures in the shelf  
if BBU failures -> Queue  
if is Queue long, Charge before then SoH (charge is priority)  
!(E6 && E4 && E15 && Fail && EoL && OFF)

**E9: Battery Test Done**

Adequate discharge per SoH algorithm reached  
cell voltage <= 2.6  
Temperature > 75C  
Interrupted Battery Test (with no failures)

**E10: EoL**

End of life is reached  
Latching signal, BBU may still be charged or discharged

**E11, E12, E13, E19: Fail**

All failures except for Stop Discharge  
All failures are latching failures except for Temperature and Voltage failures  
Temperature > 85C  
Cell voltage <= 2.0V  
Charge Current >= 0.4A for 4 hours

**E14: Stop Discharge**

Temporary Failure during a SoH test

**E15: Stop Discharge**

Temperature failure < 85C (to be cleared once cooled)  
Cell voltage < 2.6V but more than 2.0V (to be cleared once charged)  
Over Current disahrge

**E16: Charger Timeout**

If the Charge current is less than 0.2A for more than 5 minutes