Technical Information Service Report

TIS Report: 80298264
Date: May 5, 2026

CLIENT: Lunar Energy, Inc
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Attention: Lauren Del Gallego, Staff Compliance Engineer

Issued by: Chris Reed, Product Safety Engineer II

SUBJECT: Evaluation of CSA Reports 80257877 & 80257878 for compliance to UL 9540A 6th Edition

APPLICABLE REQUIREMENTS:

ANS/CAN/UL 9540A:2026 - 6th Edition	Test Method for Evaluating Thermal Runway Fire Propagation in Battery Energy Storage Systems

ASSESSMENT:
Please supply a copy of this information when filing an application for CSA Certification related to the SUBJECT, as it may aid the investigation.

The purpose of this Technical Information Service is to determine whether the UL 9540A 5th Edition testing performed on Lunar Energy's L2-ESS-20KWH and LE-DC-UNIT under CSA Reports 80257877 and 80257878 is equivalent to UL 9540A 6th Edition requirements, and to evaluate whether installation level large-scale fire testing per section 10 of 6th Edition of UL 9540A is applicable to this product.

A point of clarification- after reports 80257877 and 80257878 were issued, Lunar Energy updated their model nomenclature from L2-ESS-30KWH (as it appears on report 80257877) to L2-ESS-20KWH + (2) LE-DC-UNIT. No constructional changes were involved in this change, and the model number update was handled under CSA TIS Report 80285269.

Under UL 9540A 6th Ed. clause 9.1.1, the Unit level test of the Lunar ESS system is now additionally required for the below applicable conditions, which were covered by the test performed in CSA Reports 80257877 and 80257878:

a) Residential use electrochemical BESS greater than 20 kWh
30 kWh system tested, model L2-ESS-20KWH + (2) LE-DC-UNIT)
b) Residential use electrochemical BESS with less than 0.9 m (3 ft) separation distance between BESS, windows or doors

THIS REPORT DOES NOT AUTHORIZE THE USE OF THE CSA MARK ON THE SUBJECT PRODUCTS.
The completion of this form does not imply certification or approval of the "SUBJECT" product nor any features or components thereof.

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The spacing between adjacent vertical ESS modules/units is fixed by the mechanical interface of wall brackets, no additional spacing is required between vertically installed DC ESS units. 6 inch minimum horizontal clearance is required to other adjacent BESS.

d) Residential use electrochemical BESS with a non-metallic enclosure
Tested including the BESS non-metallic external enclosures.

As part of the update from 5th to 6th Edition, no changes were made to the unit level test methodology. Testing in accordance with Section 9 of 6th Edition is identical to the methodology contained in 5th Edition Section 9. Therefore, the testing in CSA Reports 80257877 and 80257878 is still considered valid to UL 9540A 6th Edition. No further testing would be required.

UL 9540A 6th Edition introduced large-scale fire testing, replacing the previous installation level test described in section 10 of the 5th Edition of the standard. It is primarily applicable to non-residential installations, or as the final stage of testing if a BESS does not meet the performance requirements of unit level testing.
Lunar Energy's system is intended only for residential applications. Per section 9.8.1, reprinted in Figure 1 below, large-scale fire testing is not required for residential installations that meet all of the performance criteria of the unit level test.

Figure 1: Reprinted from UL 9540A 6th Edition

9.8 Performance at unit level testing

9.8.1 The Installation Level – Large Scale Fire Test in Section 10 is not required if the following performance conditions outlined in Table 9.1 are met for residential-use BESS during the unit level test.

Lunar Energy's system met all of the performance criteria of Table 9.1. See performance criteria reprinted from reports 80257877 and 80257878 in Figures 2 and 3 below:

Figure 2: Performance criteria table from Report 80257877

Performance Unit Level Test		
Requirement	**Comments**	**Verdict**
Flaming outside the initiating BESS unit is not observed	No flaming observed	P
Surface temperatures of modules within the target BESS units adjacent to the initiating BESS unit do not exceed the temperature at which thermally initiated cell venting occurs, as determined in 7.3.1.10;	The maximum temperature measured on the surface of Module within target BESS did not exceed the temperature at which thermally initiated cell venting occurs	P
Surface temperature measurements on wall surfaces do not exceed 97 °C (175 °F) of temperature rise above ambient;	The maximum temperature measured on the surface of the wall did not exceed 97°C (175°F) of temperature rise above ambient	P
Explosion hazards are not observed, including deflagration or detonation.	Explosion or deflagration was not observed.	P
Heat flux measured at the minimum distance to a means of egress specified by the manufacturer shall not exceed 1.3 kW/m^2	The maximum heat flux value was 0 kW/m^2 measured at center of egress and did not exceed 1.3 kW/m^2	P
Charring or ignition of the cheesecloth indicator is not observed	No Charring and ignition of the cheesecloth was observed	P
The concentration of flammable gas does not exceed 25 % LFL in air for the smallest specified room installation size.	The flammable gas concentration did not exceed 25% LFL in air for smallest specified room installation size	P
Summary of Result: No further testing is required based on the above performance condition indicated in Section 9.8 of UL 9540A 5th Edition.		

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Figure 3: Performance criteria table from Report 80257878

Performance Unit Level Test		
Requirement	**Comments**	**Verdict**
Flaming outside the initiating BESS unit is not observed	No flaming observed	P
Surface temperatures of modules within the target BESS units adjacent to the initiating BESS unit do not exceed the temperature at which thermally initiated cell venting occurs, as determined in 7.3.1.10;	The maximum temperature measured on the surface of Module within target BESS did not exceed the temperature at which thermally initiated cell venting occurs	P
Surface temperature measurements on wall surfaces do not exceed 97 °C (175 °F) of temperature rise above ambient;	The maximum temperature measured on the surface of the wall did not exceed 97°C (175°F) of temperature rise above ambient	P
Explosion hazards are not observed, including deflagration or detonation.	Explosion or deflagration was not observed.	P
Heat flux measured at the minimum distance to a means of egress specified by the manufacturer shall not exceed 1.3 kW/m^2	No Charring and ignition of the cheesecloth was observed for reference.	N/A
Charring or ignition of the cheesecloth indicator is not observed	No Charring and ignition of the cheesecloth was observed	P
The concentration of flammable gas does not exceed 25 % LFL in air for the smallest specified room installation size.	The flammable gas concentration did not exceed 25% LFL in air for smallest specified room installation size	P
Summary of Result: No further testing is required based on the above performance condition indicated in Section 9.8 of UL 9540A 5th Edition.		

CONCLUSION:
The unit level test did not change between 5th Edition to 6th Edition of UL 9540A. Therefore, the testing conducted under CSA Reports 80257877 and 80257878 is still considered valid to UL 9540A 6th Edition.

Lunar Energy's system is for residential installations only, and it meets the performance criteria of the unit level test. Therefore, per section 9.8.1 of UL 9540A 6th Edition, installation level large-scale fire testing is not necessary, and no further testing is required.

If Lunar Energy intends to market their system for non-residential installations in the future, an Authority Having Jurisdiction (AHJ) may require them to conduct a large-scale fire test before the installation is approved.

---End of Report---

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