

Test Report

For

ANSI/CAN/UL9540A

Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems

[Unit Level]

Report Number: CQES240900090101

Date of issue: 2024-10-25

Total number of pages: 35

Test object / Model: GSL051280A-B-GBP2F

Applicant's name: Shenzhen GSL Energy Co., Ltd.

Address: A 602, Building 1, Tianan Cyber Park, Long Gang Central City, Shenzhen, Guangdong, China



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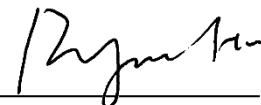
Report Number: CQES240900090101
Manufacturer: Guangdong GSL Energy Tech Co., Ltd.
Address: Floor 8-10, Building 2, No. 58, XinJian Road, Qiuchang Subdistrict, Huiyang District, Huizhou, Guangdong, China
Factory: Same as manufacturer
Address: Same as manufacturer
Test object / Model: GSL051280A-B-GBP2F
Test specifications: ANSI/CAN/UL9540A:2019 Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems Fourth Edition, Dated November 12, 2019
Date of receipt: 2024-09-25
Sample No.: M1 to M3
Test Period: 2024-10-08 to 2024-10-11
Issuing Laboratory: SGS-CEC New Energy Technology (Chongqing) Co., Ltd.
Address: Building 13 & 14, No. 1839, Ranjun Road, Shuangfu Street, Jiangjin District, Chongqing, China
Testing location: SGS-CEC New Energy Technology (Chongqing) Co., Ltd.
 Building 13 & 14, No. 1839, Ranjun Road, Shuangfu Street, Jiangjin District, Chongqing, China
Test Result: Refer to summary of test results page for details.
Remark: Test results reported relate only to the items being tested.
 Strictly Confidential
Confidential level: Private and Confidential
 Public

Tested by / Witness by

Reviewed by

Hanson Wei

Hanson Wei
Project Engineer



Ryan Hu
Report Reviewer



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[Summary of Test results]

Cell Level Test
Cell model:
CB71173204EB
Report No: CN215HG7
002

Cell Design:	CB71173204EB
Thermal Runaway Methodology:	External heating
Cell Surface Temperature at Gas venting:	166.08 °C
Cell Surface Temperature at Thermal Runaway:	299.83 °C
Gas Composition:	Mainly Hydrocarbon, H ₂ , CO, CO ₂
Lower Flammability Limit:	5.7 Vol% at ambient temperature, 4.5 Vol% at 166°C
Burning Velocity:	108.1 cm/s
Pmax:	730 kPa
Thermal Runaway was Induced in the Cell or not:	Induced
Cell Vent Gas is Flammable or not in Air:	Flammable

Module Level Test
Module model: N/A
Report No: N/A

Module Design:	N/A
Thermal Runaway Methodology:	N/A
External Flaming:	N/A
Locations of Flame Venting:	N/A
Flying Debris:	N/A
Peak Smoke Release Rate:	N/A
Gas Generation and Composition:	N/A
Thermal Runaway are Contained by the Module Design or not:	N/A
Cell Vent Gas is Flammable or not:	N/A
Other Description:	N/A
Test Video file:	N/A

Unit Level Test
Unit model:
GSL051280A-B-GBP2F
Report No:
CQES240900090101

Unit Design:	GSL051280A-B-GBP2F
Thermal Runaway Methodology:	External heating using thin film
External Flaming:	No external flaming observed
Locations of Flame Venting:	No flame extension observed
Flying Debris:	No flying debris observed
Explosion or not:	No explosion observed
Max. Surface Temperature of Module in Target BESS Unit:	27.8 °C
Max. Temperature Rise on Wall Surfaces:	21 °C
Thermal Runaway are Contained by the Unit Design or not:	Contained by the Unit Design
Cell Vent Gas is Flammable or not:	Flammable
Heat Flux in the Center of Egress:	N/A
Cheesecloth Indicator Flaming or not:	No flaming or carbonizing
Test Video File:	Archived by Applicant

Remark:

This report only evaluated unit level test which is listed inside the dotted box.



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[Test object Description]

Table 1: Description of component cell

Model:	CB71173204EB	
Manufacturer:	Ruipu Energy Co., Ltd.	
Nominal capacity:	280 Ah	
Nominal voltage:	3.2 V	
Chemistry:	Lithium, LiFePO ₄	
Maximum charge current:	280 A	
Maximum discharge current:	280 A	
Maximum charge voltage:	3.65 V	
Cut-off Voltage:	2.5 V	
Charge temperature range:	0 °C to 60°C	
Discharge temperature range:	-30 °C to 65°C	
External dimensions:	(173.9±1.0) mm x(207.2±1.0) mm x(71.7±1.0) mm	
Weight:	5340±150 g	
UL 1973 compliant:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Reference: Certification No. TU 72210566 01, issued by TUV Rheinland
UL 9540A report provide:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Reference: Report No. CN215HG7 002



Figure 1. View of component cell



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Table 2: Description of battery unit

Model:	GSL051280A-B-GBP2F	
Manufacturer:	Guangdong GSL Energy Tech Co., Ltd.	
Nominal capacity:	280 Ah	
Nominal voltage:	51.2 V	
Module designation:	Lithium, LiFePO ₄	
Maximum charge current:	150 A	
Maximum discharge current:	150 A	
Maximum charge voltage:	56 V	
Cut-off Voltage:	46 V	
Charge temperature range:	0 °C to 55 °C	
Discharge temperature range:	-20 °C to 55 °C	
Unit configuration:	1P16S	
External dimensions:	1050 mm x 700 mm x 200 mm	
Weight:	Approx 139 kg	
Enclosure:	SPCC (thickness 1.5 mm)	
Fire suppression system contain	<input type="checkbox"/> Yes / <input checked="" type="checkbox"/> No	Reference: N/A
UL 1973 compliant:	<input type="checkbox"/> Yes / <input type="checkbox"/> No	Reference: N/A
UL 9540 compliant:	<input type="checkbox"/> Yes / <input type="checkbox"/> No	Reference: N/A
Supplementary information:	GSL051280A-B-GBP2F is battery system consists of 16 cells (model No.: CB71173204EB) in series.	



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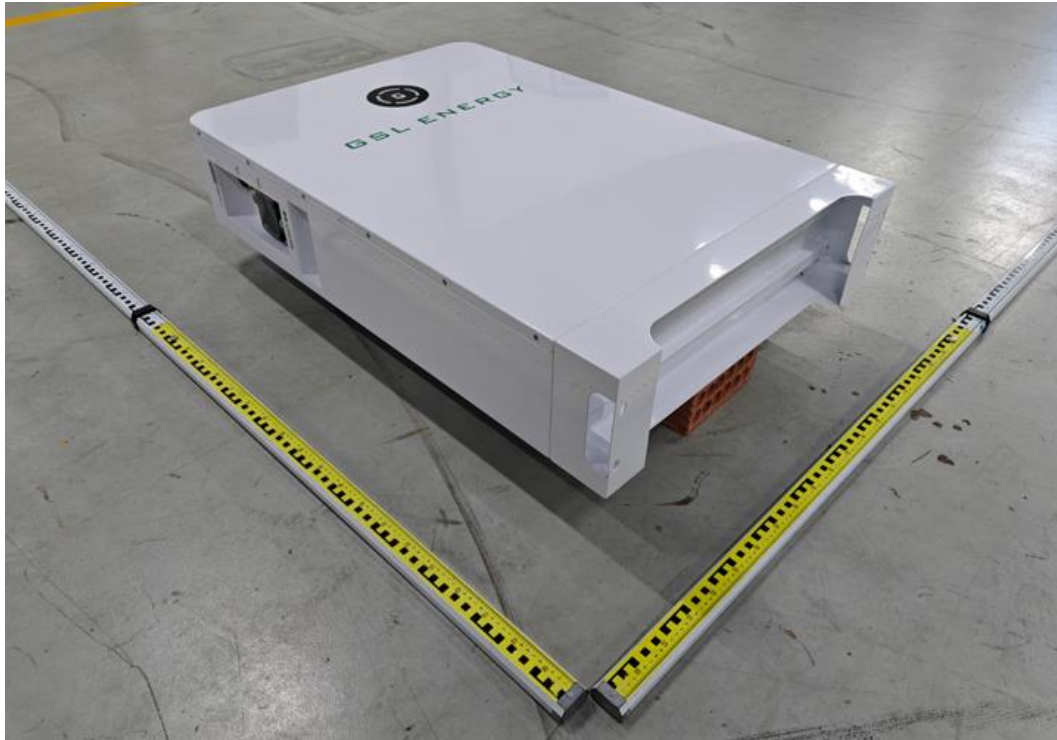


Figure 2. External view 01 of battery system

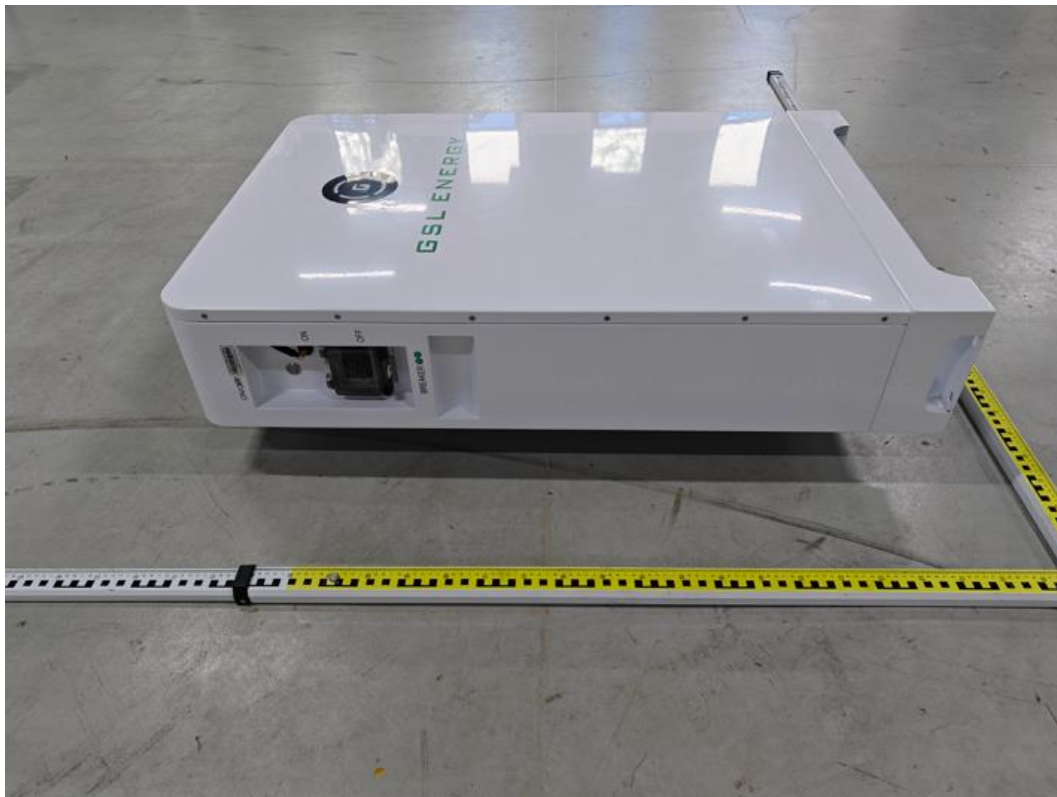


Figure 3. External view 02 of battery system



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Figure 4. External view 03 of battery system

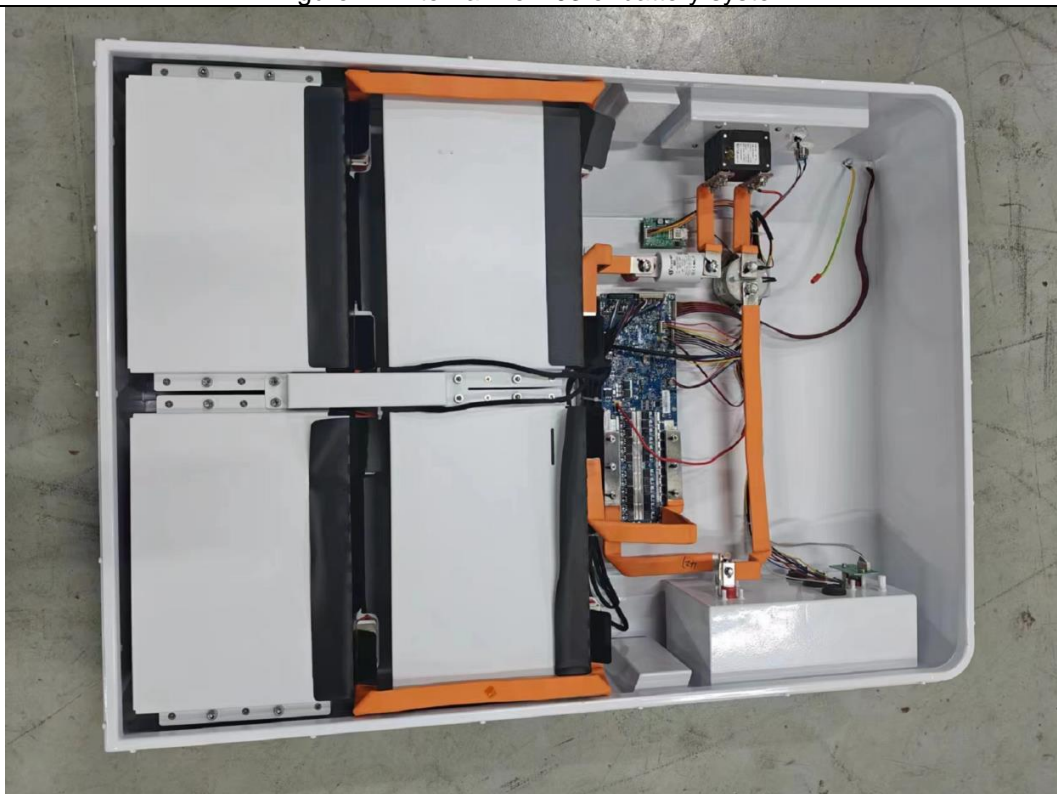


Figure 5. Interview of battery system



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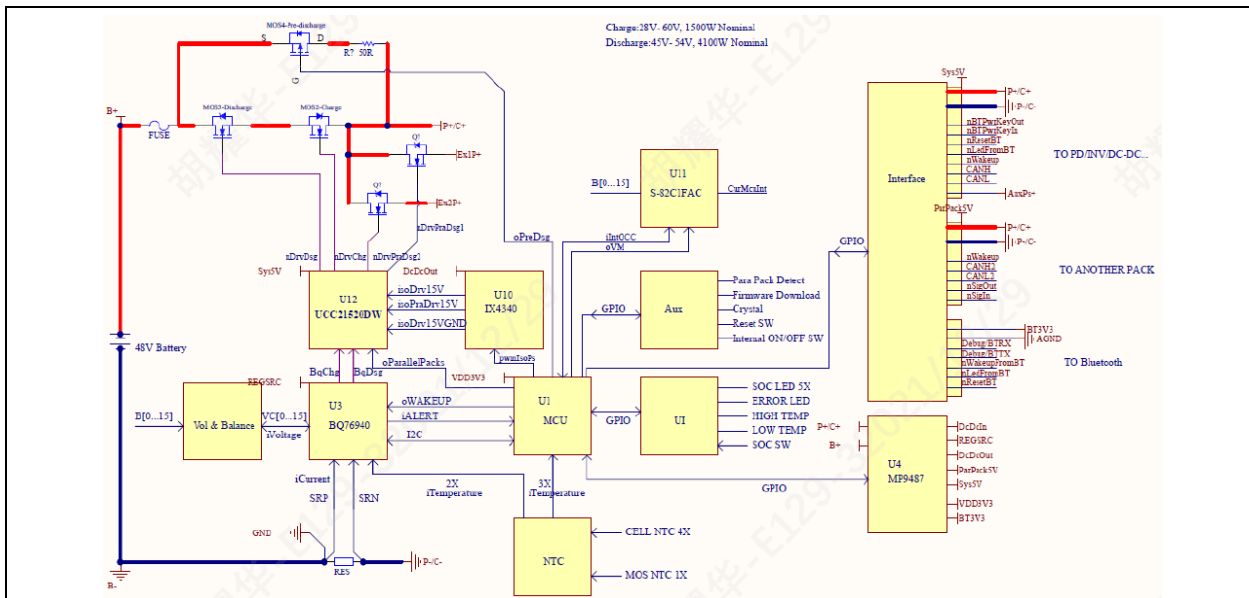


Figure 6. Electrical configuration of battery system



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[Description of thermal runaway methodology]

Sample and test configuration

The unit level test shall be conducted with BESS (Battery Energy Storage System) units installed as described in the manufacturer's instructions and this section.

The unit level test requires one initiating BESS unit in which an internal fire condition in accordance with the module level test is initiated and target adjacent BESS units representative of an installation. Tests conducted for indoor floor mounted installations shall be considered representative of both indoor floor mounted and outdoor ground mounted installations with fire propagation hazards and separation distances between initiating and target units representative of the installation. Tests shall be conducted indoors with fire propagation hazards and separation distances between initiating and target units representative of the installation. The results of such tests shall be considered to also represent an outdoor installation.

Depending upon the configuration and design of the BESS (e.g. the BESS is composed of multiple separate parts within separate enclosures), this testing to determine fire characterization can be done at the battery system level. The suitability of this approach shall be determined based upon the overall design of the BESS and an analysis of the battery system as representative of the overall BESS for fire characterization concerns.

The initiating BESS unit shall contain components representative of a BESS unit in a complete installation. Combustible components that interconnect the initiating and target BESS units shall be included.

Target BESS units shall include the outer cabinet (if part of the design), racking, module enclosures, and components that retain cells components. The target BESS unit module enclosures do not need to contain cells.

The initiating BESS unit shall be at the maximum operating state of charge (MOSOC), in accordance with the manufacturer's specifications, for conducting the tests in this standard. After charging and prior to testing, the initiating BESS shall rest for a maximum period of 8 h at room ambient.

If a BESS unit includes an integral fire suppression system, there is an option of providing this with the DUT. If the BESS unit is provided with an optional integral fire suppression system, the system shall not be provided on the DUT.

Electronics and software controls such as the battery management system (BMS) in the BESS are not relied upon for this testing. This does not include a fire suppression control in accordance with UL 840 that is external to the BESS, but provided as part of an integral fire suppression system.

Table 3: Integral fire suppression system information

Integral fire suppression system information	N/A
Standard or optional	<input type="checkbox"/> Standard / <input type="checkbox"/> optional / <input checked="" type="checkbox"/> N/A
Test with fire suppression or not	<input type="checkbox"/> Yes / <input checked="" type="checkbox"/> No



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Table 4: BESS installations/ Test configurations

Description :N/A		
<input type="checkbox"/>	a) Indoor floor mounted non-residential use BESS	
<input checked="" type="checkbox"/>	b) Indoor floor mounted residential use BESS	
<input type="checkbox"/>	c) Outdoor ground mounted non-residential use BESS	
<input checked="" type="checkbox"/>	d) Outdoor ground mounted residential use BESS	
<input type="checkbox"/>	e) Indoor wall mounted non-residential use BESS	
<input type="checkbox"/>	f) Indoor wall mounted residential use BESS	
<input type="checkbox"/>	g) Outdoor wall mounted non-residential use BESS	
<input type="checkbox"/>	h) Outdoor wall mounted residential use BESS	
<input type="checkbox"/>	i) Rooftop garage non-residential use BESS	
<input type="checkbox"/>	j) Open garage non-residential use BESS	
Test configurations for Indoor floor mounted residential use BESS		
	A	300 mm
	B	300 mm
	C	300 mm
	D	300 mm
	E	300 mm
	F	300 mm
	--	



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Unit level Test method description

Test method – Indoor floor mounted BESS units

Samples and test configurations are in accordance with Table 5. During the test, the test room environment shall be controlled to prevent drafts that may affect test results. At the start of the test, the room ambient temperature shall not be less than 10°C (50°F) nor more than 32°C (90°F).

Any access door(s) or panels on the initiating BESS unit and adjacent target BESS units shall be closed, latched and locked at the beginning and duration of the test.

The initiating BESS unit shall be positioned adjacent to two instrumented wall sections.

Instrumented wall sections shall extend not less than 1.6 ft (0.49 m) horizontally beyond the exterior of the target BESS units.

The surface of the instrumented wall sections shall be covered with 16-mm (5/8-in) gypsum wall board and painted flat black. The initiating BESS unit shall be centered underneath an appropriately sized smoke collection hood of an oxygen consumption calorimeter.

The light transmission in the calorimeter's exhaust duct shall be measured using a white light source and photo detector for the duration of the test, and the smoke release rate shall be calculated.

The chemical and convective heat release rates shall be measured for the duration of the test. The heat release rate measurement system shall be calibrated using an atomized heptane diffusion burner. The calibration shall be performed using flows of 3.8, 7.6, 11.4 and 15.2 L/min (1, 2, 3 and 4 gpm) of heptane.

The convective heat release rate shall be measured using thermopile, a velocity probe, and a Type K thermocouple, located in the exhaust system of the exhaust duct. the convective heat release rate shall be calculated using the following equation:

$$HRR_c = V_e A \frac{353.22}{T_e} \int_{T_o}^T C_p dT$$

The physical spacing between BESS units (both initiating and target) and adjacent walls shall be representative of the intended installation.

Separation distances shall be specified by the manufacturer for distance between:

- The BESS units and the instrumented wall sections; and
- Adjacent BESS units.

Wall surface temperature measurements shall be collected for BESS intended for installation in locations with combustible construction. If the intended installation is composed completely of noncombustible construction in which wall assemblies, cables, wiring and any other combustible materials are not to be present in the BESS installation, then the report should note that the installation shall contain no combustible construction and that surface temperature rises can be deemed not applicable.

Wall surface temperatures shall be measured in vertical array(s) at 152-mm (6-in) intervals for the full height of the instrumented wall sections using No. 24-gauge or smaller, Type-K exposed junction thermocouples. The thermocouples for measuring the temperature on wall surfaces shall be horizontally positioned in the wall locations anticipated to receive the greatest thermal exposure from the initiating BESS unit.



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Thermocouples shall be secured to gypsum surfaces by the use of staples placed over the insulated portion of the wires. The thermocouple tip shall be depressed into the gypsum so as to be flush with the gypsum surface at the point of measurement and held in thermal contact with the surface at that point by the use of pressure-sensitive paper tape.

Heat flux shall be measured with the sensing element of at least two water-cooled Schmidt-Boelter gauges at the surface of each instrumented wall:

- a) Both are collinear with the vertical thermocouple array;
- b) One is positioned at the elevation estimated to receive the greatest heat flux due to the thermal runaway of the initiating module; and
- c) One is positioned at the elevation estimated to receive the greatest heat flux during potential propagation of thermal runaway within the initiating BESS unit.

Heat flux shall be measured with the sensing element of at least two water-cooled Schmidt-Boelter gauges at the surface of each adjacent target BESS unit that faces the initiating BESS unit:

- a) One is positioned at the elevation estimated to receive the greatest heat flux due to the thermal runaway of the initiating module within the initiating BESS; and
- b) One is positioned at the elevation estimated to receive the greatest surface heat flux due to the thermal runaway of the initiating BESS.

For non-residential use BESS, heat flux shall be measured with the sensing element of at least one water-cooled Schmidt-Boelter gauge positioned at the mid height of the initiating unit in the center of the accessible means of egress.

No. 24-gauge or smaller, Type-K exposed junction thermocouples shall be installed to measure the temperature of the surface proximate to the cells and between the cells and exposed face of the initiating module. Each non-initiating module enclosure within the initiating BESS unit shall be instrumented with at least one No. 24-gauge or smaller Type-K thermocouple(s) to provide data to monitor the thermal conditions within non-initiating modules. Additional thermocouples shall be placed to account for convoluted enclosure interior geometries.

For residential use BESS, the DUT shall be covered with a single layer of cheese cloth ignition indicator. The cheesecloth shall be untreated cotton cloth running 26 – 28 m²/kg with a count of 28 – 32 threads in either direction within a 6.45 cm² (1 in²) area.

An internal fire condition in accordance with the module level test shall be created within a single module in the initiating BESS unit:

- a) The position of the module shall be selected to present the greatest thermal exposure to adjacent modules (e.g. above, below, laterally), based on the results from the module level test; and
- b) The setup (i.e. type, quantity and positioning) of equipment for initiating thermal runaway in the module shall be the same as that used to initiate and propagate thermal runaway within the module level test.

Thermal runaway methodology for module level test:

The propensity of the module to exhibit thermal runaway shall be demonstrated by heating the initiating cell with externally applied heaters. With a surface heating rate of 4°C (7.2°F) to 7°C (12.6°F) per minute heating until cell thermal runaway occurs.

The composition, velocity and temperature of the initiating BESS unit vent gases shall be measured within the calorimeter's exhaust duct. Gas composition shall be measured using a Fourier-Transform Infrared Spectrometer with a minimum resolution of 1 cm⁻¹ and a path length of at least 2.0 m(6.6 ft), or equivalent gas analyzer. Composition, velocity and temperature instrumentation shall be collocated with heat release rate calorimetry instrumentation.

The hydrocarbon content of the vent gas shall be measured using flame ionization detection.

The test shall be terminated if:



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- a) Temperatures measured inside each module within the initiating BESS unit return to ambient temperature;
- b) The fire propagates to adjacent units or to adjacent walls; or
- c) A condition hazardous to test staff or the test facility requires mitigation.

For residential use systems, the gas collection data gathered shall be compared to the smallest room installation specified by the manufacturer to determine if the flammable gas collected exceeds 25% LFL in air.



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Test configuration description

Illustration of initial BESS unit	
Description: N/A	
Figure 7. View of initiating unit and target BESS units in testing room	



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Thermal runaway initiation method used including number and locations of cells for initiating thermal runaway

Initiation method:
 External heating method was used for initiating thermal runaway. By controlling the input power of the film heaters, a surface heating rate of 4°C (9°F) to 7°C (12.6°F) per minute was achieved. The max. power of the film heater is 430W.

Number of cells for initiating thermal runaway:
 Single cell 280 Ah

Locations of cells for initiating thermal runaway:
 The battery module consisted of 4 submodules connected in series. Each submodule consists of 4 cells connected in series. Cell 3 inside submodule 1 (SM 1) was selected as the initiating cell (as shown in Figure 8c within red box). Two film heaters are placed on the two large surfaces of cell 3 respectively.

Other description: N/A



Figure 8a. External view of DUT.

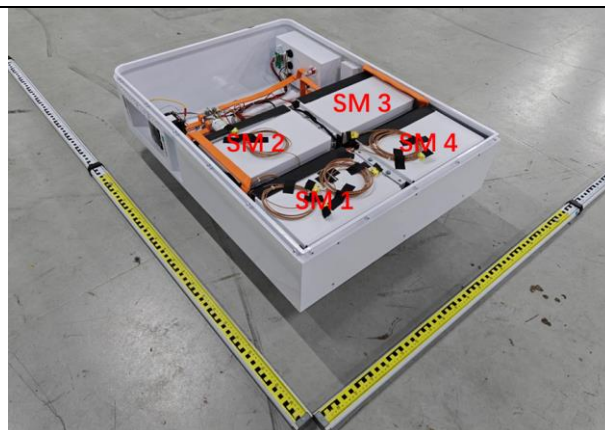


Figure 8b. Internal view of DUT.

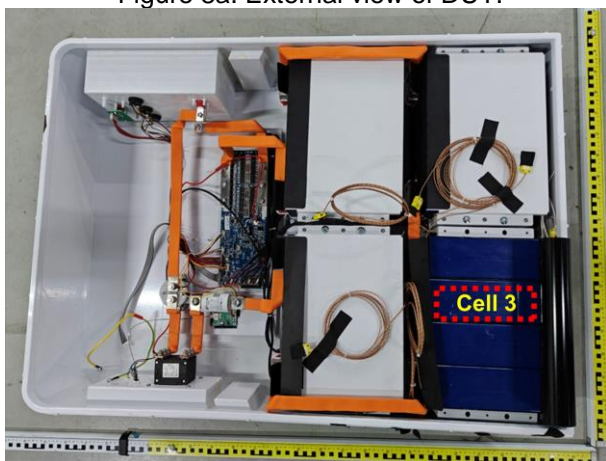


Figure 8c. Location of initiating cell.

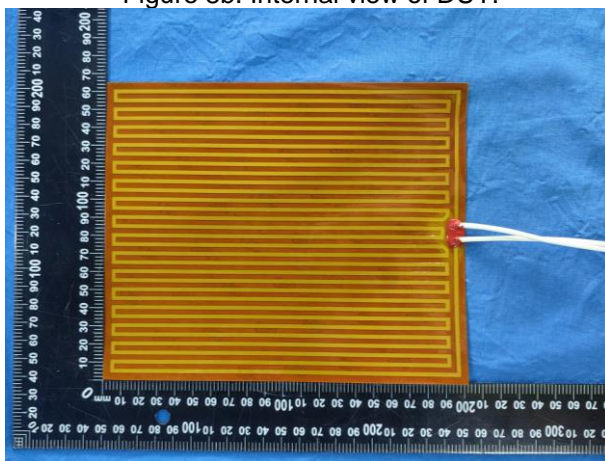


Figure 8d. View of external heater.



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Illustration of external heater and thermocouple location in initial module

Description : N/A

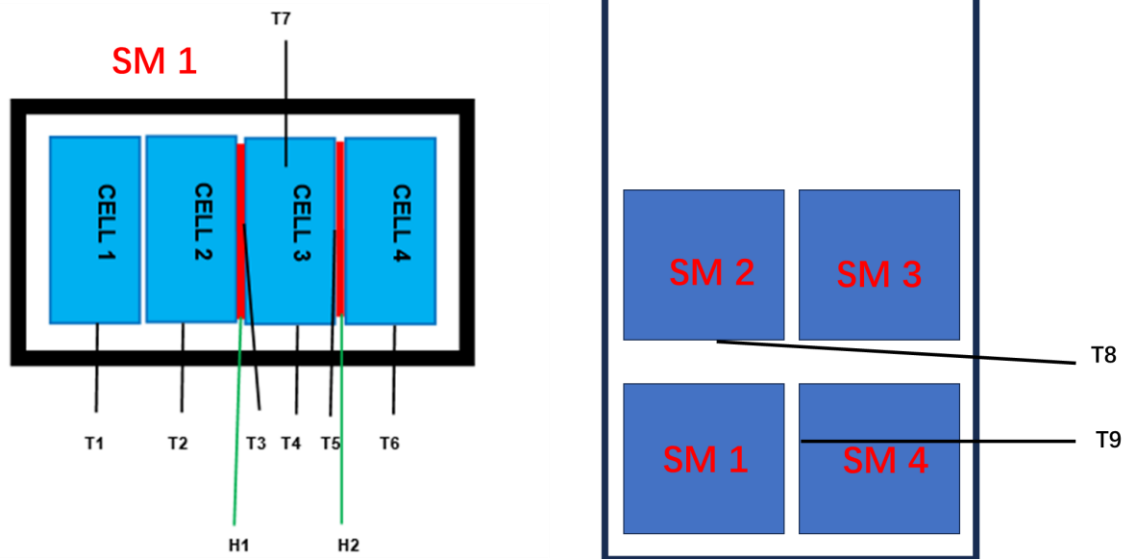


Figure 9. Schematic Illustration of film heaters and thermocouple locations in DUT (T1 to T9 means thermocouples T1 to T9. View from top).



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Positioning of units within testing room
Test Start Time: 2024-10-09 10:45:05
Initial Ambient Test Temperature: 21 °C
Initial Relative Humidity : 55.0%
Description: N/A



Figure 10. View of positioning of BESS units in testing room.



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Table 5: Thermocouple placement

Thermocouple ID	Description of location	Remark
CH2109	Ambient temperature	--
CH3001	No. 1 of Instrumented Wall	IW-1
CH3002	No. 2 of Instrumented Wall	IW-2
CH3003	No. 3 of Instrumented Wall	IW-3
CH3004	No. 4 of Instrumented Wall	IW-4
CH3005	No. 5 of Instrumented Wall	IW-5
CH3006	No. 6 of Instrumented Wall	IW-6
CH3007	No. 7 of Instrumented Wall	IW-7
CH3008	No. 8 of Instrumented Wall	IW-8
CH3009	No. 9 of Instrumented Wall	IW-9
CH3101	No. 10 of Instrumented Wall	IW-10
CH3102	No. 11 of Instrumented Wall	IW-11
CH3103	No. 12 of Instrumented Wall	IW-12
CH3104	No. 13 of Instrumented Wall	IW-13
CH3105	No. 14 of Instrumented Wall	IW-14
CH3106	No. 15 of Instrumented Wall	IW-15
CH3107	No. 16 of Instrumented Wall	IW-16
CH3108	No. 17 of Instrumented Wall	IW-17
CH3109	No. 18 of Instrumented Wall	IW-18
CH3110	No. 19 of Instrumented Wall	IW-19
CH3201	No. 20 of Instrumented Wall	IW-20
CH3202	No. 21 of Instrumented Wall	IW-21
CH3203	No. 22 of Instrumented Wall	IW-22
CH3204	No. 23 of Instrumented Wall	IW-23
CH3205	No. 24 of Instrumented Wall	IW-24
CH3206	No. 25 of Instrumented Wall	IW-25
CH3207	No. 26 of Instrumented Wall	IW-26
CH3208	No. 27 of Instrumented Wall	IW-27
CH3209	No. 28 of Instrumented Wall	IW-28
CH3210	No. 29 of Instrumented Wall	IW-29



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CH3301	No. 30 of Instrumented Wall	IW-30
CH3302	No. 31 of Instrumented Wall	IW-31
CH3303	No. 32 of Instrumented Wall	IW-32
CH3304	No. 33 of Instrumented Wall	IW-33
CH2004	Side surface of Cell 1	T1 In initiating module
CH2005	Side surface of Cell 2	T2 In initiating module
CH2006	Between Cell 3 and Heater 1	T3 In initiating module
CH2007	Side surface of Cell 3	T4 In initiating module
CH2008	Between Cell 3 and Heater 2	T5 In initiating module
CH2009	Side surface of Cell 4	T6 In initiating module
CH2010	Positive electrode of Cell 3	T7 In initiating module
CH2101	Bottom surface of sub module 2	T8 In initiating module
CH2102	Left surface of sub module 4	T9 In initiating module
CH2104	Front surface of initiating unit	In initiating unit
CH2106	Upper surface of initiating unit	In initiating unit
CH2107	Right surface of target unit 1	In target unit 1
CH2108	Left surface of target unit 2	In target unit 2
Thermocouple information: Type K, 24AWG		



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[Description of test results]

Table 6: Overview of test timeline and key events

Time (HH: MM: SS)	Relative Time (HH: MM: SS)	Event ID	Event	Description	Photo Reference
10:45:05	00:00:00	E1	Test Start	--	--
10:45:11	00:00:06	E2	Heaters Energized	--	Figure 16
11:30:00	00:44:55	E3	Initiating Cell Venting	Slight smoke venting observed from DUT enclosure.	Figure 17
11:40:44	00:55:39	E4	Thermal Runaway onset	Smoke venting observed from DUT enclosure. All Heaters de-energized.	Figure 18
11:50:56	01:05:51	E5	Second release	Smoke venting observed from DUT enclosure.	Figure 19
19:45:04	08:59:59	E6	Test Termination	--	--
Test Start Time: 2024-10-09 10:45:05					



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Chemical heat release rate versus time
Description: No flaming combustion observed outside initiating BESS unit.
N/A

Convective heat release rate versus time
Description: N/A

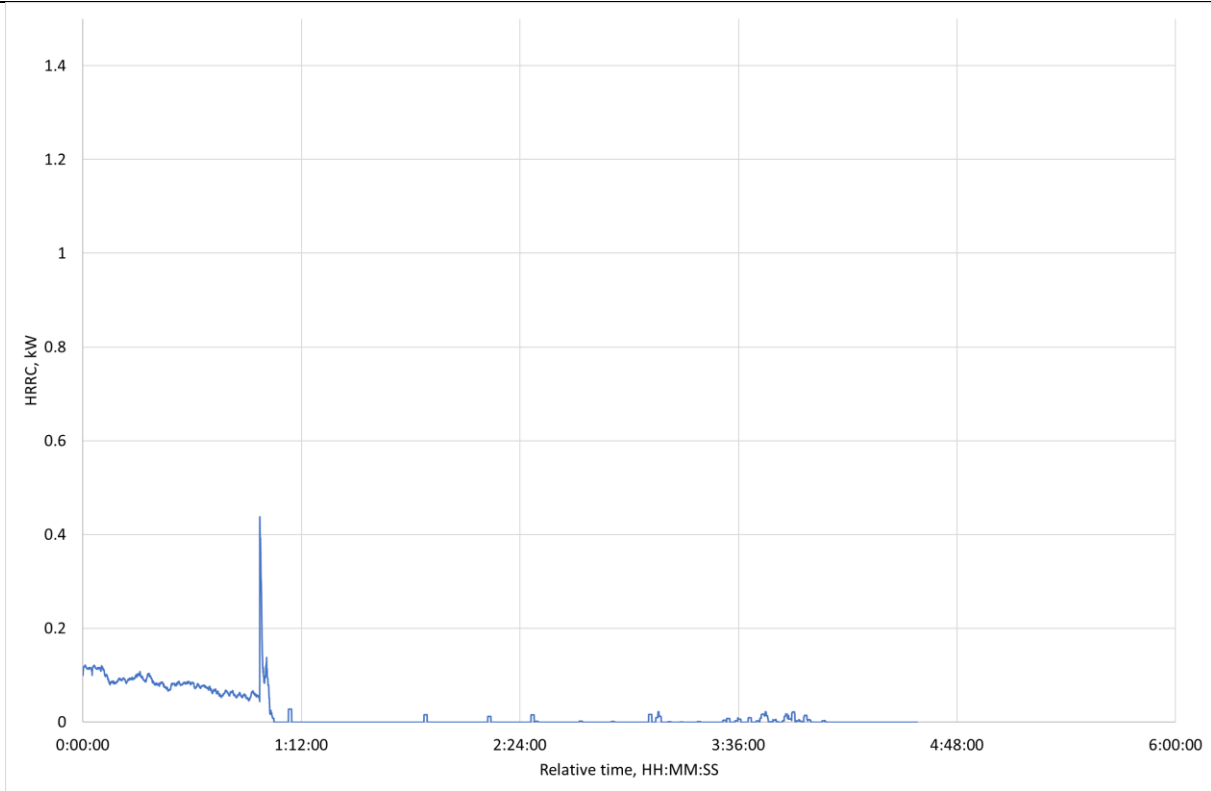


Figure 11. Convective heat release rate versus time



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Maximum incident heat flux on instrumented wall surfaces and target units

Description : N/A

Heat Flux ID	Description of location
CH3503	Surface of instrumented wall, facing the upper rear side of initiating unit
CH3504	Surface of instrumented wall, facing the lower rear side of initiating unit
CH3505	Surface of target unit 1, facing the left of initiating unit
CH3506	Initiating unit 150 mm in front, facing the front of the initiating unit
CH3507	Surface of target unit 2, facing the right of initiating unit

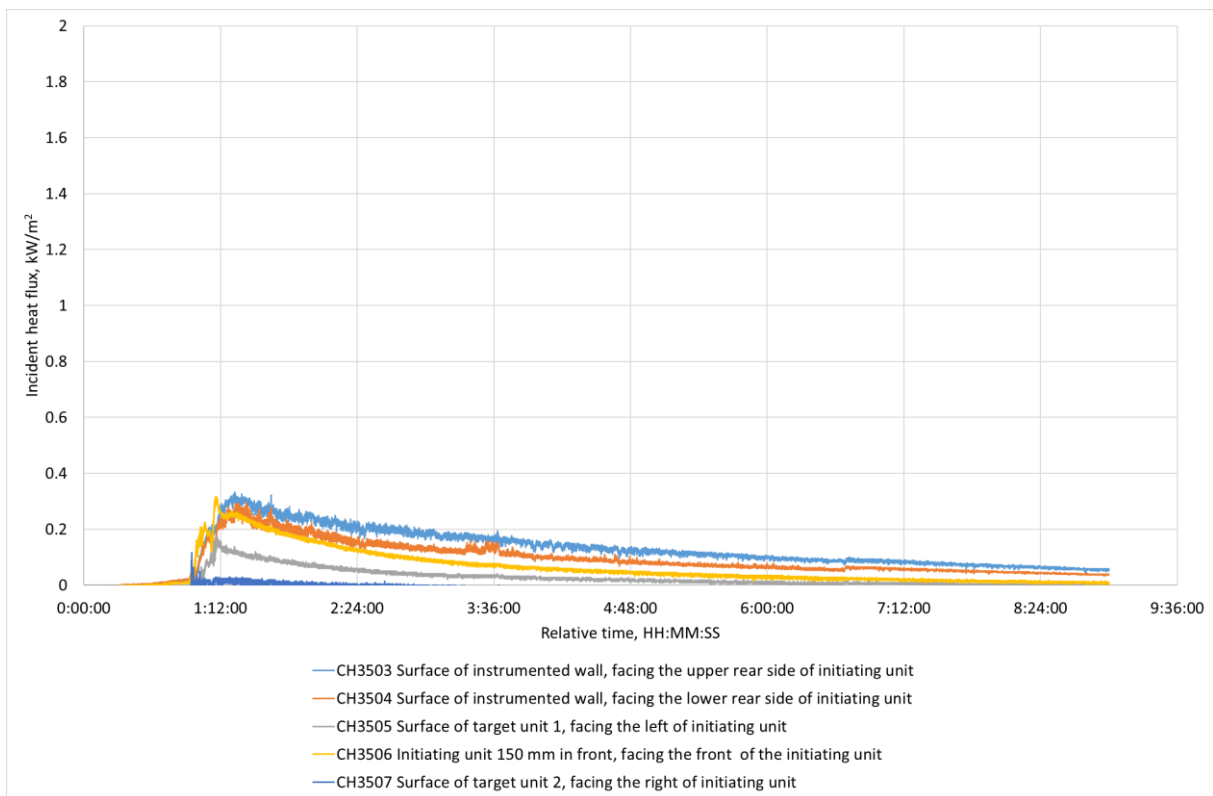


Figure 12. Incident heat flux on instrumented wall surfaces and target units



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Peak smoke release rate and total smoke release data

Description:

Peak smoke release rate is 1.845 m²/s during test.

Total smoke release 507.094 m²

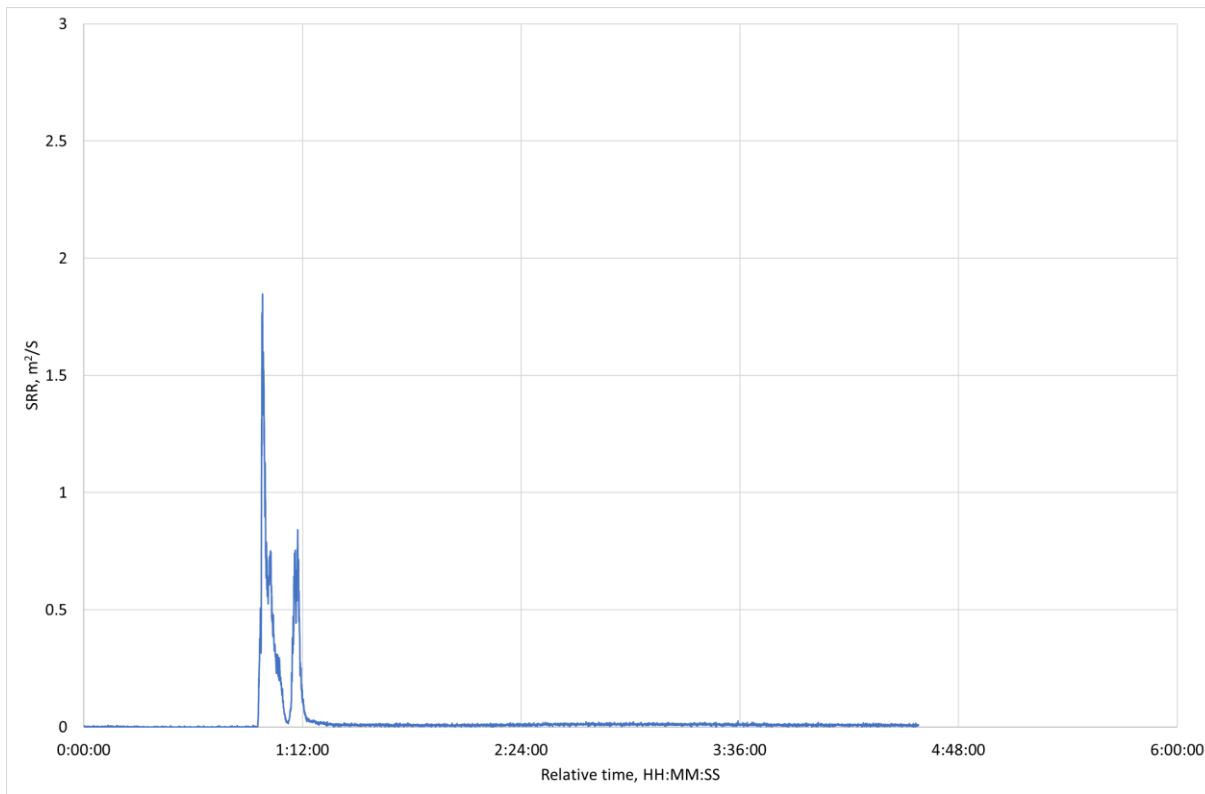


Figure 13. Smoke release rate versus time.



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Flammable gas generation and composition

Flammable gas generation: YES NO

Flammable gas content \geq 25% of LFL or not: No

Description:

1. Total flammable gas generation during test: 609.544 L.
2. Recommend smallest room for installation: 51.730 m³
3. Total volume of Hydrocarbon generation : 2.642 L
4. Total volume of Hydrogen generation: 510.417 L
5. Total volume of Carbon monoxide generation: 96.495 L

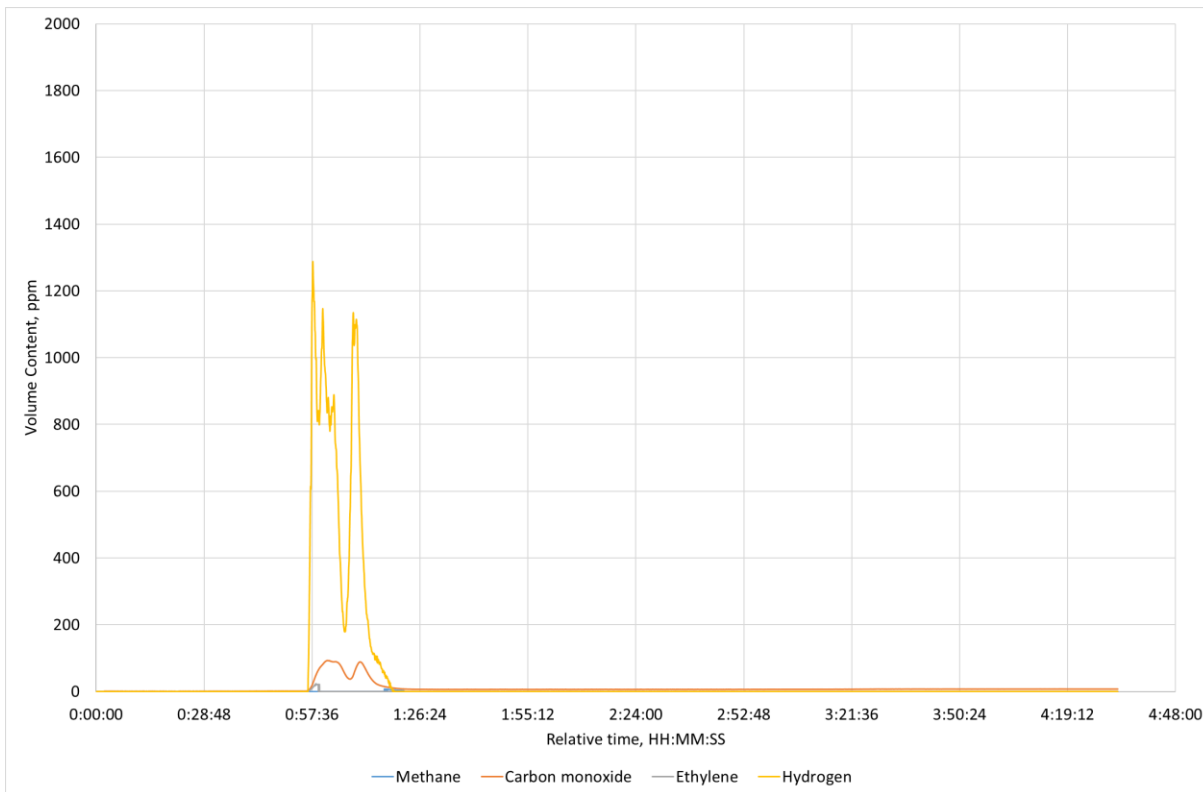


Figure 14. Online flammable gas content measurements during test. (Remark: The content of other hydrocarbons is below the detection limit of the test equipment.)



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Identification/location of module(s) that exhibited thermal runaway within the unit
Module(s) that exhibited thermal runaway: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Description : Total 4 cells exhibited gas venting. 3 cells exhibited thermal runaway.



Figure 15. View of location of module that exhibited thermal runaway within the initiating unit



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Locations and visual estimations of flame extension and duration from the unit
Flame extension : <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Description : No external flaming observed.
N/A

Table 7: Data during test

Module ID	OCV of Battery Module Before Test, (V dc)	OCV of Battery Module After Test, (V dc)	Observation Results
Initiating module	54.900	40.055	Gas and smoke venting observed. No external flaming observed. No explosion observed.
Measured Maximum Temperature Rise of Instrumented Wall Surface			
Thermocouple ID	CH3202		
Measurements (°C)	41.9 (temperature rise: 21 °C)		
Location	Surface of Instrumented Wall, face the rear surface of initiating unit		
Limits: $\Delta T \leq 97^\circ\text{C}$			
Measured Maximum Surface Temperature of Modules within the Target BESS Units			
Thermocouple ID	CH2107		
Measurements (°C)	27.8		
Location	Right surface of target unit 1		
Limits: Tmax. $\leq 166.08^\circ\text{C}$ (Cell surface temperature at gas venting)			
Cheesecloth indicator used or not <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Description of cheesecloth indicator after test: No flaming or carbonizing of the cheesecloth indicator.			
Supplementary information: N/A			



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Figure 16. photo of event (E2) during test



Figure 17. photo of event (E3) during test



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Figure 18. photo of event (E4) during test



Figure 19. photo of event (E5) during test



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Figure 20. Photo of initiating and target BESS Units after test



Figure 21. Photo 01 of initiating BESS Unit after test



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Figure 22. Photo 02 of initiating BESS Unit after test



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Figure 23. Photo 03 of initiating Unit after test



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Figure 24. Photo 04 of initiating Unit after test



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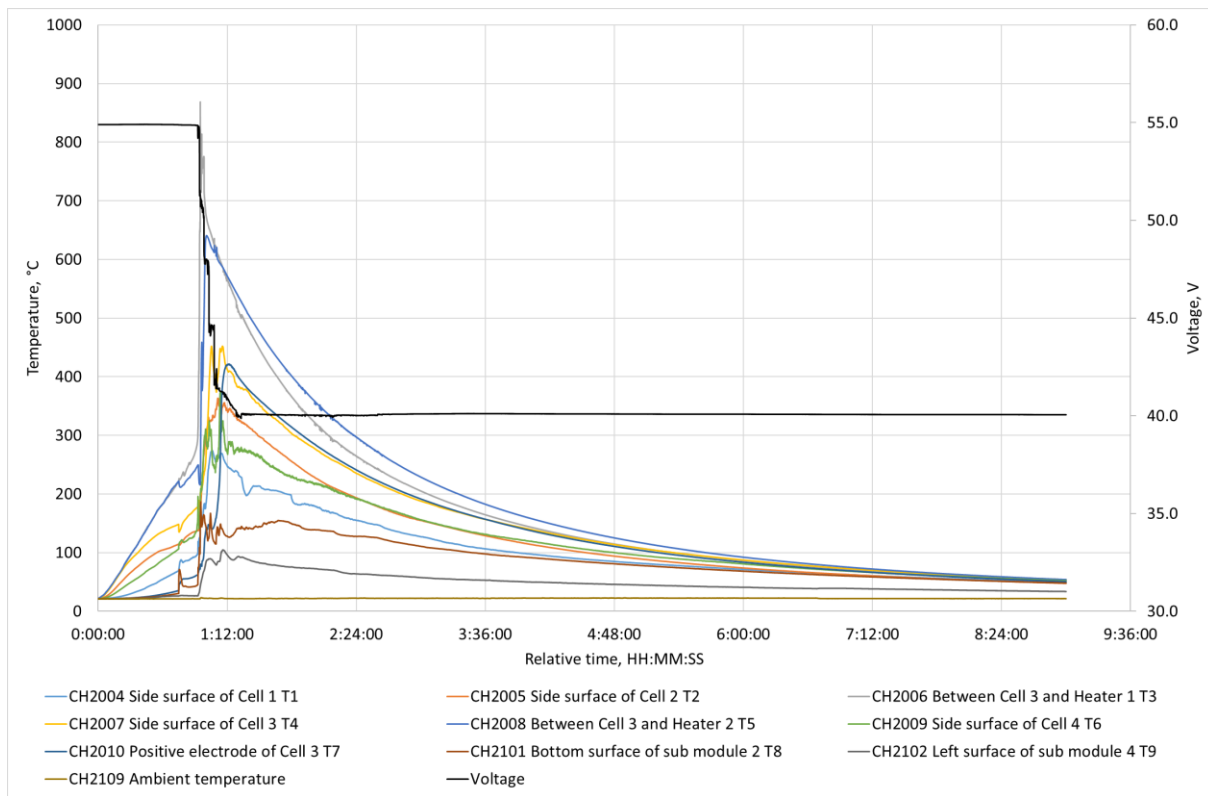


Figure 25. Temperature measurement results on the initiating Unit

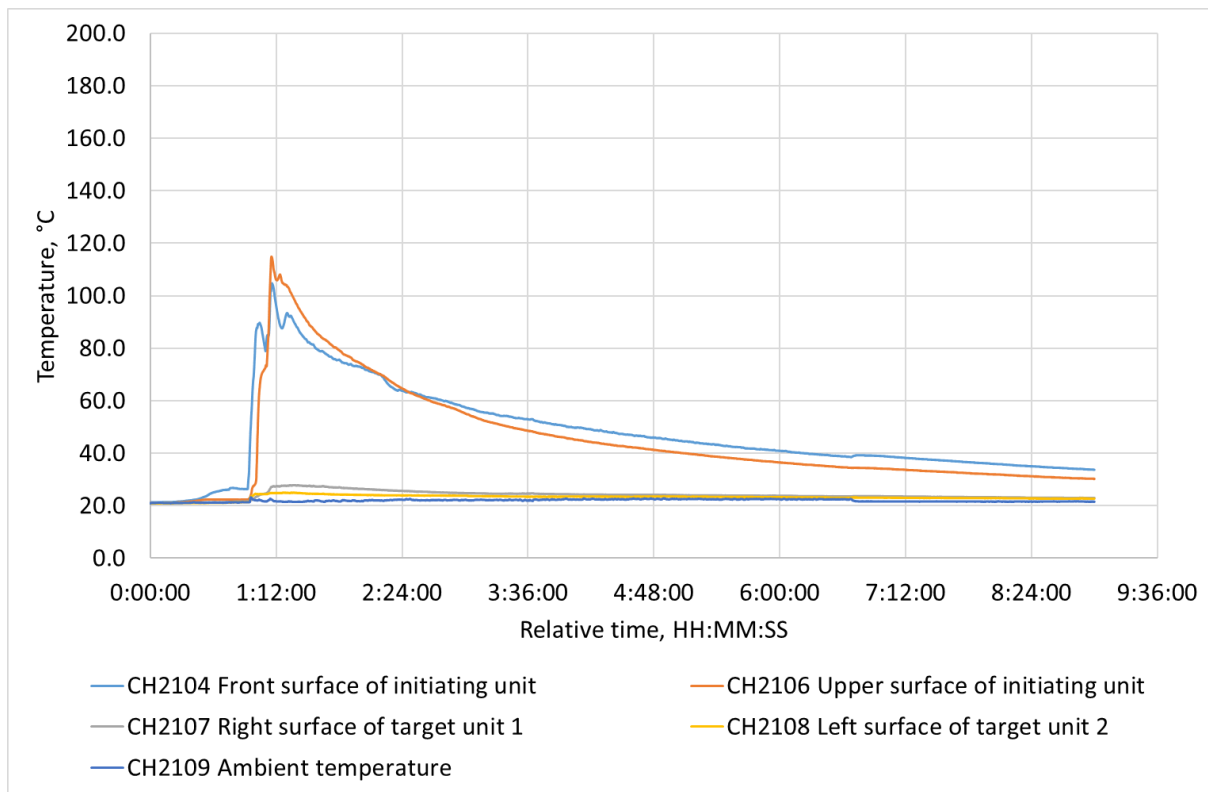


Figure 26. Temperature measurements in initiating BESS unit and target BESS units



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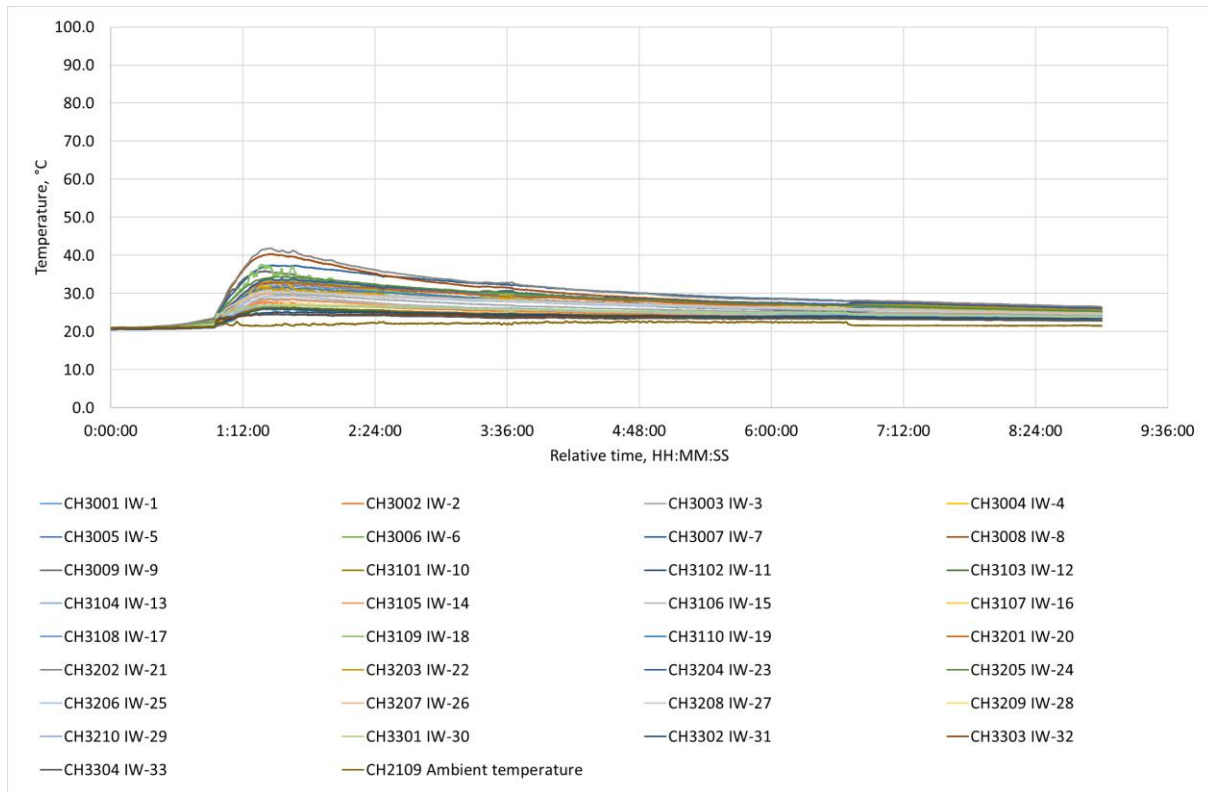


Figure 27. Temperature measurement results on the instrumented wall



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2. According to the standard, instruction sheets and other texts required by the standard should be written in the official language(s) of the country in which the product is to be sold. The applicant should ensure that the product in future production fulfils the receptive standard requirements.
3. The components performed satisfactorily during testing and are considered to be suitable for use in the sample tested.

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