



CERTIFICATE OF PARTICIPATION

Issued by

Underwriters Laboratories Inc.

DETROIT TESTING LABORATORY INC.

27485 GEORGE MERRELLI DR

WARREN, MI 48092 USA

has been assessed and found to be eligible to participate in Underwriters Laboratories Inc.

Third Party Test Data Program (TPTDP)

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Bruce R. Proper
Global Process Owner, Data Acceptance Program
North America Certificate Program Office



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Signatory List RON HOLDER, MR. DAVID PRETTENHOFER, MR. M TROMBLEY

Datasheet ID Revision Numbers None

Program and Program Type None

TCP Files None

Standards and Tests Association

Standard Number(s)	Standard Name(s)	Edition	Clause Number (s)	Test Name(s)
UL 1642	LITHIUM BATTERIES	4	10	SHORT-CIRCUIT
UL 1642	LITHIUM BATTERIES	4	11	ABNORMAL CHARGING
UL 1642	LITHIUM BATTERIES	4	12	FORCED-DISCHARGE
UL 1642	LITHIUM BATTERIES	4	13	CRUSH
UL 1642	LITHIUM BATTERIES	4	14	IMPACT
UL 1642	LITHIUM BATTERIES	4	15	SHOCK
UL 1642	LITHIUM BATTERIES	4	16	VIBRATION
UL 1642	LITHIUM BATTERIES	4	17	HEATING
UL 1642	LITHIUM BATTERIES	4	18	TEMPERATURE CYCLING
UL 1642	LITHIUM BATTERIES	4	19	LOW PRESSURE (ALTITUDE SIMULATION)
UL 1642	LITHIUM BATTERIES	4	20	PROJECTILE
UL 1642	LITHIUM BATTERIES	4	7	CONDITIONING OF SAMPLES
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	10	ABNORMAL CHARGING TEST
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	12	FORCED-DISCHARGE TEST
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	13	LIMITED POWER SOURCE TEST
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	13A	BATTERY PACK COMPONENT TEMPERATURE
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	13B	BATTERY PACK SURFACE TEMPERATURE
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	14	250 LB. CRUSH



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Standard Number(s)	Standard Name(s)	Edition	Clause Number (s)	Test Name(s)
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	15	IMPACT TEST
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	16	SHOCK
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	17	VIBRATION
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	19	250 N STEADY FORCE TEST
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	20	MOLD STRESS RELIEF TEST
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	21	DROP IMPACT TEST
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	22	PROJECTILE TEST
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	23	HEATING TEST
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	24	TEMPERATURE CYCLING
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	9	SHORT CIRCUIT AT 55C
UL 2054	HOUSEHOLD AND COMMERCIAL BATTERIES	2	9	SHORT CIRCUIT AT ROOM TEMPERATURE
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	10	PARTIAL SHORT CIRCUIT TEST
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	11	OVERDISCHARGE TEST
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	12	CHARGE/SYSTEM COMPATIBILITY TEST
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	13	IMBALANCED CHARGING TEST
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	14	REVERSE CHARGE TEST
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	15	DIELECTRIC VOLTAGE WITHSTAND TEST
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	16	INSULATION RESISTANCE TEST
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	19	VIBRATION TEST
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	20	SHOCK TEST
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	21	DROP TEST
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	22	NAIL PENTRATION TEST
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	23	CRUSH TEST
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	24	RESISTANCE TO MOISTURE TEST
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	27	LOW TEMPERATURE TEST



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Standard Number(s)	Standard Name(s)	Edition	Clause Number (s)	Test Name(s)
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	8	OVERCHARGE TEST
UL Subject 2580	Outline of Investigation for Batteries for Use in Electric Vehicles	1	9	SHORT CIRCUIT TEST