TEST REPORT
IEC 60896-21
Stationary lead-acid batteries-Part 21: Valve regulated types-Method of test
IEC 60896-22
Stationary lead-acid batteries-Part 22: Valve regulated types Requirements
DIN 40471-1
Lead-acid batteries-Stationary valve regulated batteries with positive grid plates and immobilized electrolyte for industrial application - Rated capacities, main dimensions,weights

Report Number. .....:	CTK20200410001
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Address .....:	Road No.6, An Phuoc IP, An Phuoc ward, Long Thanh District, Dong Nai Province, Viet Nam
Manufacture's Name .....:	**SAITE POWER SOURCE (VIETNAM) CO.,LTD**
Address .....:	Road No.6, An Phuoc IP, An Phuoc ward, Long Thanh District, Dong Nai Province, Viet Nam
Factory Name.....:	**SAITE POWER SOURCE (VIETNAM) CO.,LTD**
Address .....:	Road No.6, An Phuoc IP, An Phuoc ward, Long Thanh District, Dong Nai Province, Viet Nam
Test specification .....:	
Standard .....:	IEC 60896-21:2004+IEC 60896-22:2004+DIN 40471-1: 1999
Test procedure.....:	IEC
Non-standard test method.....:	N/A
Test Report Form No.....:	**IEC60896E**
TRF Originator .....:	Certitek.
Master TRF.....:	Dated 2006-03
Test item description .....:	Lead Acid Sealed Battery
Trade Mark .....:	N/A
Model/Type reference .....:	See page 3
Ratings .....:	See page 3

Test item particulars:

Classification of installation and use .....: Portable

Supply connection .....: By terminal

Quautity of test items .....: 6

Samples identification .....: 1#~6#

Possible test case verdicts:

- test case does not apply to the test object .....: N/A (Not Applicable)

- test object does meet the requirement .....: P (Pass)

- test object does not meet the requirement .....: F (Fail)

Testing:

Date of receipt of test item .....: 2020-04-01

Date (s) of performance of tests .....: From 2020-04-01 to 2020-04-20

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

General product information:

The product is VRLA.

Summary of testing:

1. The lead acid sealed battery submitted by SAITE POWER SOURCE (VIETNAM) CO.,LTD are tested according to IEC 60896-21:2004 Stationary lead-acid batteries- valve regulated types- Methods of test and IEC 60896-22:2004 Stationary lead-acid batteries- valve regulated types-Requirements and DIN 40471-1: 1999 Lead-acid batteries-Stationary valve regulated batteries with positive grid plates and immobilized electrolyte for industrial application- Rated capacities, main dimensions,weights

2. The test clauses are Gas emission, High current tolerance, Short circuit current and d.c. internal resistance, Internal ignition from external spark sources, Protection against ground short propensity, Content and durability of required markings, Material identification, Valve operation, Flammability rating of materials, Intercell connector performance, Discharge capacity, Charge retention during storage, Float service with daily discharge, Recharge behaviour, Impact of stress temperature of 55℃ or 60℃,Abusive over-discharge, Thermal runaway sensitivity, Low temperature sensitivity, Dimensional stability at elevated internal pressure and temperature, and Stability against mechanical abuse of units during installation.

3. The samples tested comply with the requirements of IEC 60896-21:2004 ,IEC 60896-22:2004 and DIN 40471-1: 1999

Models List:

4V series:
BT-4M3.5AC(4V3.5Ah), BT-4M4.0AC(4V4.0Ah), BT-4M4.5AC(4V4.5Ah), BT-4M4.8AC(4V4.8Ah)
BT-4M5.0AC(4V5Ah), BT-4M6.0AC(4V6AH), BT-4M8.0AC(4V8.0Ah)

6V Series:
BT-6M1.0AT(6V1.0Ah), BT-6M1.2AC(6V1.2Ah), BT-6M1.3AC(6V1.3Ah), BT-6M2.3AC(6V2.3Ah)
BT-6M2.5AC(6V2.5Ah), BT-6M2.6AC(6V2.6Ah), BT-6M2.8AC(6V2.8Ah), BT-6M3.0AC(6V3.0Ah)
BT-6M3.2AC(6V3.2Ah), BT-6M3.3AC(6V3.3Ah), BT-6M3.5AC(6V3.5Ah), BT-6M3.7AC(6V3.7Ah)
BT-6M4.0AC(6V4.0Ah), BT-6M4.1AC(6V4.1Ah), BT-6M4.2AC(6V4.2Ah), BT-6M4.5AC(6V4.5Ah)
BT-6M4.8AC(6V4.8Ah), BT-6M5.0AT(6V5.0Ah), BT-6M5.5AC(6V5.5Ah), BT-6M6.0AC(6V6.0Ah)
BT-6M6.5AC(6V6.5Ah), BT-6M7.0AC(6V7.0Ah), BT-6M7.2AC(6V7.2Ah), BT-6M7.5AC(6V7.5Ah)
BT-6M8.0AC(6V8.0Ah), BT-6M10AC(6V10Ah), BT-6M12AC(6V12Ah), BT-HSE-100-6(6V100Ah)
BT-HSE-110-6(6V110Ah), BT-HSE-120-6(6V120Ah), BT-HSE-135-6(6V135Ah)
BT-HSE-150-6(6V150Ah), BT-HSE-180-6(6V180Ah), BT-HSE-200-6(6V200Ah)
BT-HSE-210-6(6V210Ah), BT-HSE-225-6(6V225Ah), BT-HSE-240-6(6V240Ah),
BT-HSE-300-6(6V300Ah), BT-HSE-350-6(6V350Ah)

8V series:

BT-HSE-160-8(8V160Ah), BT-HSE-170-8(8V170Ah), BT-HSE-180-8(8V180Ah)

10V series:
BT-10M0.8AC(10V0.8Ah), BT-10M1.3AC(10V1.3Ah)

12V series:
BT-12M0.8AC(12V0.8Ah), BT-12M1.2AT(12V1.2Ah), BT-12M1.3AT(12V1.3Ah), BT-12M1.7AC(12V1.7Ah)
BT-12M2.0AT(12V2.0Ah), BT-12M2.2AT(12V2.2Ah), BT-12M2.3AC(12V2.3Ah), BT-12M2.5AC(12V2.5Ah)
BT-12M2.6AC(12V2.6Ah), BT-12M2.8AC(12V2.8Ah), BT-12M2.9AC(12V2.9Ah), BT-12M3.2AT(12V3.2Ah)
BT-12M3.3AT(12V3.3Ah), BT-12M3.5AC(12V3.5Ah), BT-12M3.6AC(12V3.6Ah), BT-12M3.7AC(12V3.7Ah)
BT-12M4.0AC(12V4.0Ah), BT-12M4.1AC(12V4.1Ah), BT-12M4.2AC(12V4.2Ah), BT-12M4.5AC(12V4.5Ah)
BT-12M4.7AC(12V4.7Ah), BT-12M4.8AC(12V4.8Ah), BT-12M5.0AC(12V5.0Ah), BT-12M5.5AC(12V5.5Ah)
BT-12M6.0AT(12V6.0Ah), BT-12M6.3AT(12V6.3Ah), BT-12M6.5AT(12V6.5Ah), BT-12M7.0AT(12V7.0Ah)
BT-12M7.2AT(12V7.2Ah), BT-12M7.5AC(12V7.5Ah), BT-12M8.0AC(12V8.0Ah), BT-12M8.5AC(12V8.5Ah)
BT-12M9.0AC(12V9.0Ah), BT-12M10AC(12V10Ah), BT-12M12AC(12V12Ah), BT-12M14AC(12V14Ah)
BT-12M15AC(12V15Ah), BT-12M16AC(12V16Ah), BT-12M17AC(12V17Ah), BT-12M18AC(12V18Ah)
BT-12M20AC(12V20Ah), BT-12M21AC(12V21Ah), BT-12M22AC(12V22Ah), BT-12M24AT(12V24Ah)
BT-12M24AC(12V24Ah), BT-12M25AT(12V25Ah), BT-12M26AT(12V26Ah), BT-12M28AC(12V28Ah)
BT-12M30AC(12V30Ah), BT-12M31AC(12V31Ah), BT-12M32AC(12V32Ah), BT-12M33AC(12V33Ah)
BT-12M34AC(12V34Ah), BT-12M35AC(12V35Ah), BT-HSE-35-12(12V35Ah), BT-HSE-36-12(12V36Ah)
BT-HSE-38-12(12V38Ah), BT-HSE-40-12(12V40Ah), BT-HSE-42-12(12V42Ah), BT-HSE-45-12(12V45Ah)
BT-HSE-46-12(12V46Ah), BT-HSE-50-12(12V50Ah), BT-HSE-55-12(12V55Ah), BT-HSE-60-12(12V60Ah)
BT-HSE-65-12(12V65Ah), BT-HSE-70-12(12V70Ah), BT-HSE-73-12(12V73Ah), BT-HSE-75-12(12V75Ah)
BT-HSE-80-12(12V80Ah), BT-HSE-85-12(12V85Ah), BT-HSE-90-12(12V90Ah), BT-HSE-95-12(12V95Ah)
BT-HSE-100-12(12V100Ah), BT-HSE-105-12(12V105Ah), BT-HSE-110-12(12V110Ah)
BT-HSE-120-12(12V120Ah), BT-HSE-125-12(12V125Ah), BT-HSE-130-12(12V130Ah)
BT-HSE-135-12(12V135Ah), BT-HSE-140-12(12V140Ah), BT-HSE-145-12(12V145Ah)
BT-HSE-150-12(12V150Ah), BT-HSE-155-12(12V155Ah), BT-HSE-160-12(12V160Ah)
BT-HSE-165-12(12V165Ah), BT-HSE-170-12(12V170Ah), BT-HSE-180-12(12V180Ah)
BT-HSE-190-12(12V190Ah), BT-HSE-200-12(12V200Ah), BT-HSE-210-12(12V210Ah)

BT-HSE-220-12(12V220Ah), BT-HSE-230-12(12V230Ah), BT-HSE-240-12(12V240Ah)
BT-HSE-250-12(12V250Ah), BT-HSE-260-12(12V260Ah), BT-HSE-270-12(12V270Ah)
BT-FT-50-12(12V50Ah), BT-FT-55-12(12V55Ah), BT-FT-70-12(12V70Ah), BT-FT-75-12(12V75Ah)
BT-FT-100-12(12V100Ah), BT-FT-105-12(12V105Ah), BT-FT-110-12(12V110Ah)
BT-FT-120-12(12V120Ah), BT-FT-150-12(12V150Ah), BT-FT-155-12(12V155Ah)
BT-FT-170-12(12V170Ah), BT-FT-180-12(12V180Ah), BT-FT-190-12(12V190Ah)
BT-FT-200-12(12V200Ah)

2V series:
BT-MSE-50(2V50Ah), BT-MSE-55(2V55Ah), BT-MSE-60(2V60Ah), BT-MSE-100(2V100Ah)
BT-MSE-150(2V150Ah), BT-MSE-200(2V200Ah), BT-MSE-250(2V250Ah), BT-MSE-300(2V300Ah)
BT-MSE-350(2V350Ah), BT-MSE-400(2V400Ah), BT-MSE-450(2V450Ah), BT-MSE-500(2V500Ah)
BT-MSE-550(2V550Ah), BT-MSE-600(2V600Ah), BT-MSE-610(2V610Ah), BT-MSE-650(2V650Ah),
BT-MSE-700(2V700Ah), BT-MSE-800(2V800Ah), BT-MSE-850(2V850Ah), BT-MSE-900(2V900Ah),
BT-MSE-1000(2V1000Ah), BT-MSE-1200(2V1200Ah), BT-MSE-1400(2V1400Ah),
BT-MSE-1500(2V1500Ah),BT-MSE-1800(2V1800Ah), BT-MSE-2000(2V2000Ah),
BT-MSE-2200(2V2200Ah),BT-MSE-2300(2V2300Ah), BT-MSE-2500(2V2500Ah),
BT-MSE-3000(2V3000Ah),BT-MSE-4550(2V4550Ah)

Remark:
1. 4V series, 6V series, 10V series, 12V series and 2V series are similar except the voltage and Ah.
2. The first digitals before “-” in models mean Ah, The second digitals after “-” in models mean voltage.

IEC 60896-21& IEC 60896-22			
Clause	Requirement + Test	Result - Remark	Verdict
6	**SAFE OPERATION REQUIREMENTS**		P
6.1	GAS emission ..... :		P
	The test methods are according to clause 6.1.1 to 6.1.14 which are stated in the standard IEC 60896-21.		P
	Requirement and application: At the rated float charge voltage; State data for all applications: ml gas per cell, h and Ah at 20° or 25 °C; Requirement and application: At 2,40 V pc overcharge voltage conditions; State data for all applications: ml gas per cell, h and Ah at 20° or 25 °C.	See appended table A	P
6.2	High current tolerance		P
	The test methods are according to clause 6.2.1 to 6.2.6 which are stated in the standard IEC 60896-21.		P
	Requirement and application: Measure unit voltage, inspect and document the status of the top-lead and terminals of each unit after 30 s current flow . Pass for all applications: Voltage of unit >2,0 V pc Show evidence of no incipient melting or of no loss of electrical continuity after 30 s of high current flow (value to be stated). After the completion of the specified discharge duration, the test shall stand for 5 minutes in open circuit and their voltage measured and reported.	The discharge current: 2000A:BT-4M8.0AC(4V8.0Ah) 3000A: BT-HSE-225-6(6V225Ah) 2000A:BT-MSE-4550(2V4550Ah) 3000A:BT-HSE-250-12(12V250Ah) (which is specified by the manufacturer). After 30s of high current flow the samples showed no incipient melting or of no loss of electrical continuity. For data of voltage, see appended table B.	P
6.3	Short circuit current and d.c. internal resistance		P
	The test methods are according to clause 6.3.1 to 6.3.6 which are stated in the standard IEC 60896-21.		P
	Requirement and application: Define prospective short-circuit value I sc and internal resistance R i of all units of a type range State data for all applications: Short-circuit current (I sc) in A; Internal resistance (R i) in ohms	See appended table C	P
6.4	Protection against internal ignition from external spark sources		P
	The test methods are according to clause 6.4.1 to 6.4.6 which are stated in the standard IEC 60896-21.		P

IEC 60896-21& IEC 60896-22			
Clause	Requirement + Test	Result - Remark	Verdict
	Requirement and application: Induce sparks near representative valve/barrier assemblies during gas emission Pass for all applications: No evidence of rapid combustion or explosion beyond valve/barrier assemblies	No evidence of rapid combustion, no explosion beyond valve/barrier assemblies	P
6.5	Protection against ground short propensity		P
	The test methods are according to clause 6.5.1 to 6.5.10 which are stated in the standard IEC 60896-21.		P
	Requirement and Application: Operate units in different orientations and apply d. c. gradient Pass for all applications: No evidence of ground short and leakage phenomena	No evidence of ground short, no leakage.	P
6.6	Content and durability of required markings		P
	The durability of the marking shall be tested, consistent with 1.7.13 of IEC 60950-1		P
	Requirement and application: see Table 9 and Table 10 in the standard IEC 60896-22	The markings and following information are readable after rubbed 15s with water, petroleum, solution of sodium carbonate, and 40% in weight of H_2SO_4 in water respectively.	P
6.7	Material identification		P
	The test methods are according to clause 6.7.1 to 6.7.4 which are stated in the standard IEC 60896-21.		P
	Requirement and application: Inspect case and/or cover for ISO 1043-1 materials symbol. Expose to chemicals Pass for all applications: ISO symbol present on the outside of the cover or/and case Symbol shall remain readable after exposure to chemicals and remain in place	The ISO marking would be shown if it is required. ABS material	P
6.8	Valve operation		P
	The test methods are according to clause 6.8.1 to 6.8.3 which are stated in the standard IEC 60896-21.		P
	Requirement and application: Overcharge units and detect gas flow from the valve Pass all substances for all applications: Gas release detected before and after stress temperature impact test	Open: 19kPa Closed: 12kPa	P
6.9	Flammability rating of materials		P
	The test methods are according to clause 6.9.1 to 6.8.4 which are stated in the standard IEC 60896-21.		P

IEC 60896-21& IEC 60896-22			
Clause	Requirement + Test	Result - Remark	Verdict
	Requirement and application: Determine flammability rating of case and cover material State data for all applications: State the flammability rating level for samples of thickness equivalent to that of case and cover	Flammability rating level: UL 94V-0	P
6.10	Intercell connector performance		P
	The test methods are according to clause 6.10.1 to 6.10.2 which are stated in the standard IEC 60896-21.		P
	Requirement and application: Measure and report maximum intercell connector temperature reached State data for all applications: State maximum temperature reached	Maximum temperature: 59℃	P
6.11	Discharge capacity		P
	The test methods are according to clause 6.11.1 to 6.11.12 which are stated in the standard IEC 60896-21.		P
	Requirement and application: Determine actual capacity Ca; Ca to be at least X % of Crt with all units at all rates shown below; 10 h 1,80Vpc | 8 h 1,75Vpc | 3 h 1,70 Vpc | 1 h 1,60 Vpc | 0.25 h 1,60 Vpc Comply for all applications: Ca ≥ 95 % Crt	See appended table D	P
6.12	Charge retention during storage		P
	The test methods are according to clause 6.12.1 to 6.12.7 which are stated in the standard IEC 60896-21.		P
	Requirement and application: Determine charge retention factor Crt after 6 months of storage; Comply for all applications: Crt≥ 70 %	See appended table E	P
6.13	Float service with daily discharges		P
	The test methods are according to clause 6.13.1 to 6.13.5 which are stated in the standard IEC 60896-21.		P
	Requirement and application: see Table 9 and Table 17 in the standard IEC 60896-22	See appended table F	P
6.14	Recharge behavior		P
	The test methods are according to clause 6.14.1 to 6.14.2 which are stated in the standard IEC 60896-21.		P

IEC 60896-21& IEC 60896-22			
Clause	Requirement + Test	Result - Remark	Verdict
	Requirement and application: Determine capacity after recharge Comply for all applications: Rbf24h≥90 % Rbf168h≥98 %	See appended table G	P
6.15	Service life at an operating temperature of 40℃		N/A
	The test methods are according to clause 6.15.1 to 6.15.5 which are stated in the standard IEC 60896-21.		N/A
	Requirement and application: Brief duration exposure time: ≥500 days; Medium duration exposure time: ≥750 days; Long duration exposure time: ≥1100 days; Very long duration exposure time: ≥1700 days.		N/A
6.16	Impact of a stress temperature of 55℃ or 60℃		P
	The test methods are according to clause 6.16.1 to 6.16.8 which are stated in the standard IEC 60896-21.		P
	Requirement and service environment: At 55 capacity monitored with 3h rate discharge test; Brief duration exposure time ≥150 days; Medium duration exposure time ≥250 days; Long duration exposure time ≥350 days; Very long duration exposure time ≥500 days.	Duration=168 days	P
6.17	Abusive over-discharge		P
	The test methods are according to clause 6.17.1 to 6.17.15 which are stated in the standard IEC 60896-21.		P
	Requirement and service environment: Determine capacity ratio Caod, Unbalanced string over-discharge capacity Caod Caod≥0,80 (for the string)	Unbalanced string over-discharge capacity C_{aod}: C_{aod} =0.86$C_{rt(3h\ rate)}$	P
	Requirement and service environment: Determine capacity ratio Caoc, cyclic over-discharge capacity Caoc Caoc≥0,90 (for the string)	Cyclic over-discharge capacity C_{aoc}:$_{Caoc}$ =0.93 $C_{rt(3h\ rate)}$	P
6.18	Thermal runaway sensitivity		P
	The test methods are according to clause 6.18.1 to 6.18.14 which are stated in the standard IEC 60896-21.		P

IEC 60896-21& IEC 60896-22			
Clause	Requirement + Test	Result - Remark	Verdict
	Requirement and application: Determine temperature evolution of units with the duration of charge at 2,45 Vpc Determine temperature evolution of units with the duration of charge at 2,60 Vpc Comply for all applications: Achieve at least 1 week below 60 °C at 2,45 Vpc and at least 24 h below 60 °C at 2,60 Vpc Show ultimate time to 60 °C or ultimate temperature after 168 h at 2,45 Vpc and 2,60 Vpc.	210 h at 2,45 Vpc, 31h at 2.60Vpc	P
6.19	Low temperature sensitivity		P
	The test methods are according to clause 6.19.1 to 6.19.13 which are stated in the standard IEC 60896-21.		P
	Requirement and application: show abusive low temperature service capacity (Cals) of all unit and report eventual freezing induced damages	C_{als} =0.97 $C_{rt(3h\ rate)}$ No mechanical damages	P
6.20	Dimensional stability at elevated internal pressures and temperatures		P
	The test methods are according to clause 6.20.1 to 6.20.6 which are stated in the standard IEC 60896-21.		P
	Requirement and application: Show dimensional change in percentage and in mm.	Max dimensional change: Length<0.5mm, Width<0.5mm, Height<0.5mm.	P
6.21	Stability against mechanical abuse of units during installation		P
	The test methods are according to clause 6.21.1 to 6.21.6 which are stated in the standard IEC 60896-21.		P
	Requirement and application: Show leakage inspection results; No leakage detectable after two times two drops.	No fracture or leakage detectable after two times two drops	P

DIN 40741-1			
Clause	Requirement + Test	Result - Remark	Verdict
3	**Masse, Bezeichnung**		
	Die Batterien brauchen der bildichen Darstellung nicht zu entsprechen, nur die angegebenen Masse sind einzuhalten		P
4	**Werkstoff der Blockkaesten**		
	Kunstoff nach Wahl des Herstellers		P
5	**Ausfuehrung**		
	Die Zellen dieser Blockbatterien sind mit positiven und negativen Gitterplatten, deren Nennkapazitaet C10 18 Ah oder 32 Ah betraegt, ausgeruestet.		
	- Der Elektrolytist festgelegt		P
	- Blockkasten und Blockdeckel sind elektrolytdicht miteinander verbunden		P
	- Die Endpole sind als Schraubanschluss ausgefuehrt		P
	- Im Deckel eingebaute Sicherheitsventile sind selbsttaetig oeffnend und schliessend, sie schuetzen die Batteried vor eventuell auftretendem Ueberdruck.		P
	- In den Batterien findet ein innerer Sauerstoffverzehr statt		P
	- Der Antimongehalt der positiven Elektroden ist <3%		P
6	**Pruefung**		
	Die Batterien dieser Norm sind nach DIN EN 60896-2 zu pruefen	EN 60896-2 has been replaced by EN 60896-21 and EN 60896-22	P
7	**Kennzeichnung**		
	Die Batterien muessen mit folgenden Angaben dauerhaft versehen sein:		
	Bezeichnung(mit Nennspannung und Nennkapazitaet		P
	Polaritaetszeichen an beiden Polen		P
	Hersteller		P
	Datum der Herstellung		P
	Erhaltungsladespannung		P

Table A: 6.1 Gas emission								
Type	BT-4M8.0AC(4V8.0Ah)				BT-MSE-3000(2V3000Ah)			
Uflo(V)=2.25ml /(Ah.h.cell)	The 1st	The 2nd	The 3rd	The 4th	The 1st	The 2nd	The 3rd	The 4th
	0.0032	0.0034	0.0030	0.0029	0.0034	0.0035	0.0032	0.0030
at 2.40 Vpc overcharge ml/(Ah.h.cell)	0.016				0.017			
Type	BT-HSE-225-6(6V225Ah)				BT-HSE-250-12(12V250Ah)			
Uflo(V)=2.25ml /(Ah.h.cell)	The 1st	The 2nd	The 3rd	The 4th	The 1st	The 2nd	The 3rd	The 4th
	0.0043	0.0045	0.0041	0.0040	0.0045	0.0047	0.0044	0.0046
at 2.40 Vpc overcharge ml/(Ah.h.cell)	0.021				0.023			

Table B: 6.2 High current tolerance						
Type	BT-4M8.0AC(4V8.0Ah)			BT-MSE-3000(2V3000Ah)		
The discharge current	2000A			2000A		
No.	1#	2#	3#	1#	2#	3#
(voltage after the test)	12.86	12.88	12.87	12.78	12.80	12.81
Type	BT-HSE-225-6(6V225Ah)			BT-HSE-250-12(12V250Ah)		
The discharge current	3000A			3000A		
No.	1#	2#	3#	1#	2#	3#
(voltage after the test)	2.15	2.18	2.17	2.20	2.19	2.19

Table C: 6.3 Short circuit current and d.c. internal resistance						
Type	BT-4M8.0AC(4V8.0Ah)			BT-MSE-3000(2V3000Ah)		
No.	1#	2#	3#	1#	2#	3#
Short-circuit:(A)	4825	4900	4914	4907	4878	4886
Resistance:(Ω)	0.058	0.057	0.048	0.058	0.052	0.050
Type	BT-HSE-225-6(6V225Ah)			BT-HSE-250-12(12V250Ah)		
No.	1#	2#	3#	1#	2#	3#
Short-circuit:(A)	8375	8400	8414	8407	8378	8386

Resistance: (Ω)	0.052	0.051	0.046	0.054	0.050	0.051

Table D: 6.11 Discharge capacity

Type	BT-4M8.0AC(4V8.0Ah)					BT-MSE-4550(2V4550Ah)				
C / No.	C_{10} (Ah)	C_8 (Ah)	C_5 (Ah)	C (Ah)	$C_{0.25}$ (Ah)	C10 (Ah)	C8 (Ah)	C5 (Ah)	C (Ah)	C0.25 (Ah)
Crt	250	246	227	176	96.8	251	243	218	171	95.2
1#	259	246	226	176	96.5	257	243	219	171	96.3
2#	260	245	226	175	96.4	262	245	220	172	95.4
3#	260	245	227	176	96.5	260	242	219	173	96.1
4#	259	246	227	175	96.5	259	242	219	170	96.2
5#	260	246	226	175	96.7	260	244	220	171	95.8
6#	261	246	226	176	96.5	260	241	220	172	95.4
% of Crt										
Type	BT-HSE-225-6(6V225Ah)					BT-HSE-250-12(12V250Ah)				
C / No.	C_{10} (Ah)	C_8 (Ah)	C_5 (Ah)	C (Ah)	$C_{0.25}$ (Ah)	C10 (Ah)	C8 (Ah)	C5 (Ah)	C (Ah)	C0.25 (Ah)
Crt	3000	2703	2342	1865	1108	3000	2712	2328	1842	1099
1#	3086	2708	2326	1876	1142	3076	2713	2325	1827	1084
2#	3082	2689	2328	1866	1156	3078	2692	2323	1824	1096
3#	3080	2715	2337	1823	1096	3088	2719	2309	1815	1092
4#	3078	2706	2327	1836	1098	3066	2708	2315	1816	1090
5#	3069	2710	2336	1842	1085	3075	2712	2327	1818	1083
6#	3058	2693	2329	1838	1105	3064	2698	2316	1820	1087
% of Crt										

Table E: 6.12 Charge retension during storage

Type	BT-4M8.0AC(4V8.0Ah)	BT-MSE-4550(2V4550Ah)	BT-HSE-225-6(6V225Ah)	BT-HSE-250-12(12V250Ah)
Ca (Ah)	243	244	2924	2935
Crt(Ah)	207	205	2552	2514
Crf(%)	88.2	84.0	87.3	85.6

Table F: 6.13 Float service with daily discharges

Type	BT-4M8.0AC(4V8.0Ah)	BT-MSE-4550(2V4550Ah)	BT-HSE-225-6(6V225Ah)	BT-HSE-250-12(12V250Ah)
Number of cycles	265	265	265	265
Caf	95%	95%	95%	95%
Cab	99%	98.5%	98.5%	98.7%

Table G: 6.14 Recharge behavior				
Type	BT-4M8.0AC(4V8.0Ah)	BT-MSE-4550(2V4550Ah)	BT-HSE-225-6(6V225Ah)	BT-HSE-250-12(12V250Ah)
Rbf24h	94.3%	93.8%	95.2%	94.7%
Rbf168h	100.1%	100.2%	100%	99%
Cab	99%	99.1%	98.8%	98.9%

Appendix I: Photo documentation

Fig.1 General View

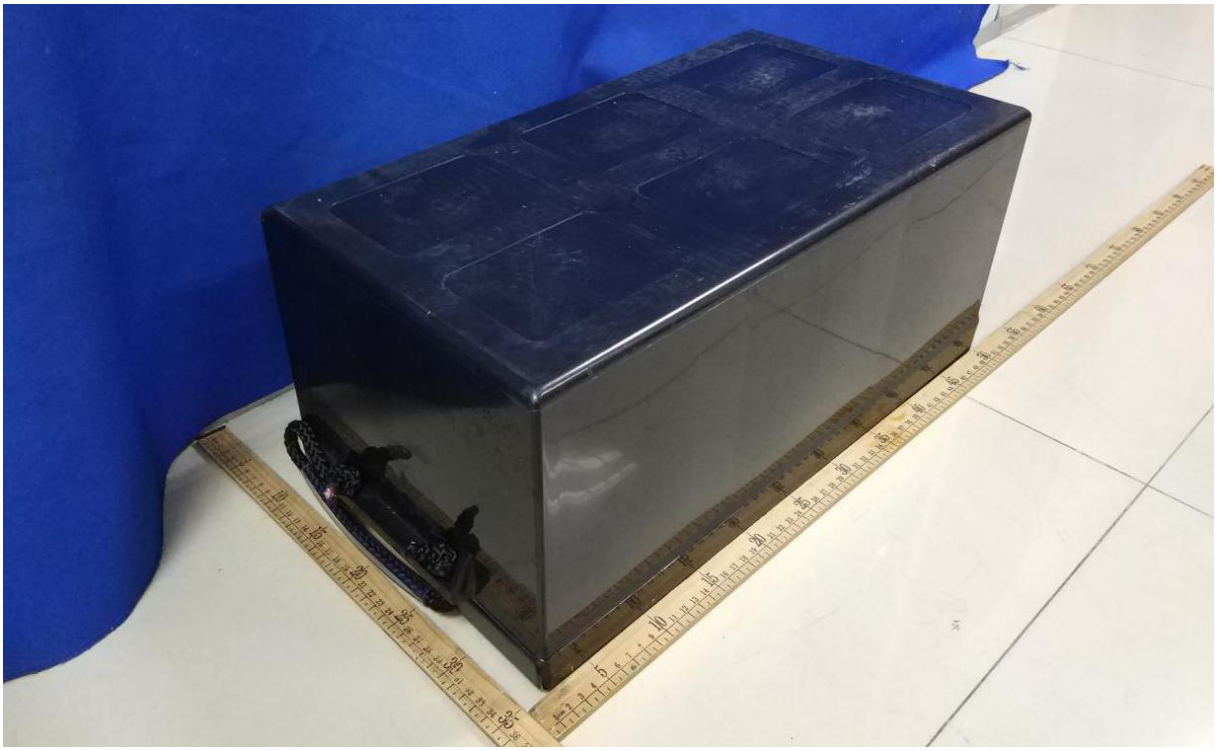

Fig. 2 General View

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