



Test Certificate No.: 7413218719

In accordance with Clause 12 of the Standards Law – 1953

Details of order:

Name of customer: Afcon contracting and Services LTD
Address: Hatavor Alley 4, Petah Tikva, 4969104, Israel
Date of order: 18/09/2024

Description of sample:

Rechargeable Li-ion Battery
Models: HVM X (X can be replaced by 8.3, 11.0, 13.8, 16.6, 19.3, 22.1)
Manufacturer: Shenzhen BYD Electronics Co., Ltd.
(See additional product information on pages 1-16)

Sampling details:

No sample required

Nature of test:

Review of test reports:

Report number: 50317231 003
Report Standards and Editions: IEC 62619: 2017, EN 62619:2017
Report Issued by: TÜV Rheinland (Shenzhen) Co., Ltd.
Report date: 22.10.2020

Report number: 50317231 002
Report Standards and Editions: IEC 62619: 2017, EN 62619:2017
Report Issued by: TÜV Rheinland (Shenzhen) Co., Ltd.
Report date: 16.06.2020

Report number: 50317231 001
Report Standards and Editions: IEC 62619: 2017, EN 62619:2017
Report Issued by: TÜV Rheinland (Shenzhen) Co., Ltd.
Report date: 19.03.2020

Report number: 50354497 002
Report Standards and Editions: IEC 62040-1:2017
Report Issued by: TÜV Rheinland (Shenzhen) Co., Ltd.
Report date: 16.06.2020

Report number: 50352308 005
Report Standards and Editions: EN IEC 61000-6-1:2019, EN IEC 61000-6-3:2021
EN IEC 61000-6-2:2019, EN IEC 61000-6-4:2019
Report Issued by: TÜV Rheinland (Shenzhen) Co., Ltd.
Report date: 06.06.2023

Report number: 50352308 002
Report Standards and Editions: EN 301 489-1 V2.2.3, EN 301 489-17 V3.2.0 (Draft)
EN 61000-6-1:2007, EN 61000-6-3:2007+A1
Report Issued by: TÜV Rheinland (Shenzhen) Co., Ltd.
Report date: 20.03.2020

This document does not permit marking the product with SII Mark



Test Certificate No.: **7413218719**

In accordance with Clause 12 of the Standards Law – 1953

Report number: 01051900007238-1(E)
Report Standards and Editions: IEC 62040-1:2017
Report Issued by: ST/SG/AC.10/11/Rev.6/Amend.1, 38.3
Report date: 02.01.2020

General product information and other remarks:

The equipment with model name HVM is a Battery-Box Premium module that is storage the electric energy by internal Li-ion battery. It contains a battery and enclosure for protection.

Several Battery-Box Premium modules ($\geq 3, \leq 8$) and a Battery-Box Premium can form an energy storage system (ESS). Battery-Box Premium is in charge of control of charging and discharging. Battery-Box Premium modules are used for electric energy storage.

The Battery-Box Premium with model name HVM 8.3, HVM 11.0, HVM 13.8, HVM 16.6, HVM 19.3, HVM 22, is a Stationary battery energy storage systems with lithium batteries. Referred to as BS.

It contain n Battery-Box Premium modules and a BMS box (n mean to 3-8). BMS box is in charge of control of charging and discharging. Battery-Box Premium modules are used for electric energy storage.

By charging and discharging the battery, the BS store the electric energy from power supply (like PV, Grid etc...) and transfer the electric energy to load through external power converter. The BS shall fix in the manner specified in the installation instructions.

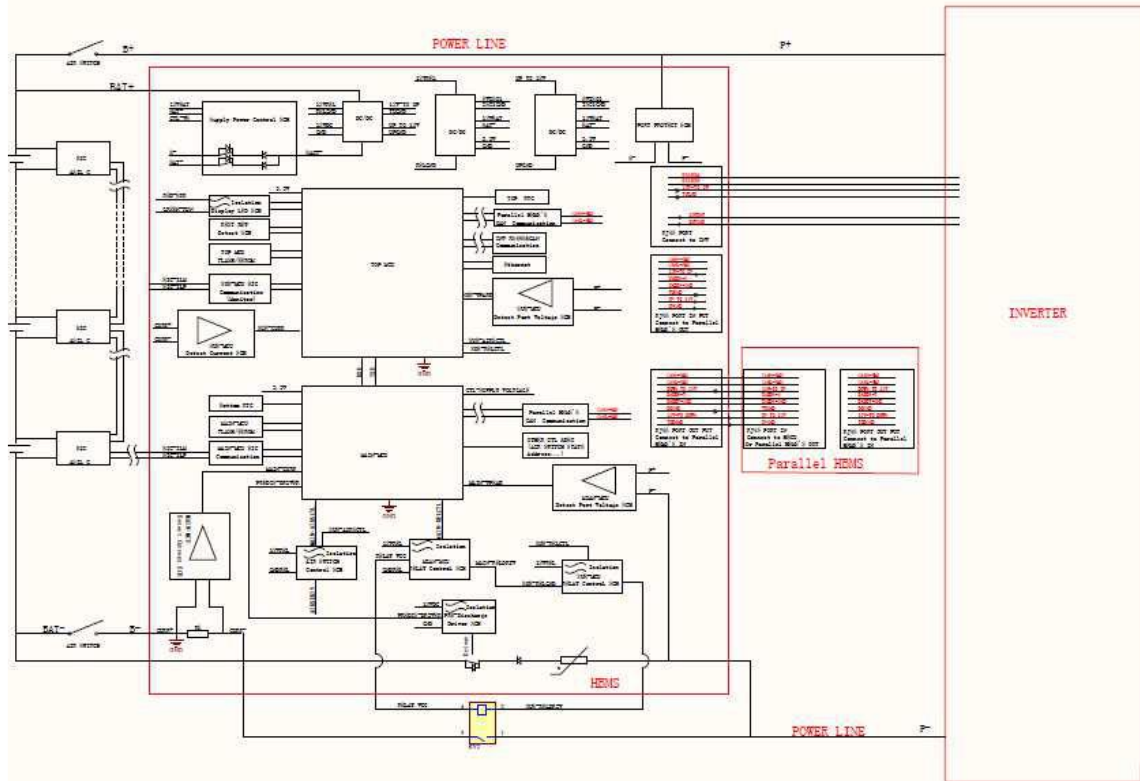
BMS box is used for battery managing in Rechargeable Li-ion Battery storage system. By controlling the charging and discharging of battery. During the charging and discharging process, BMS box collects temperature, voltage, and current information, and communicates with PCS to interact with the charging and discharging requirements. When a fault occurs, the BMS implements a battery protection function.

Original model name	Battery system configuration	New model name
HVM/HVS(Battery -Box Premium),	1 BMS+3 battery modules	HVM 8.3
	1 BMS+4 battery modules	HVM 11.0
	1 BMS+5 battery modules	HVM 13.8
HVM(Battery-Box Premium module)	1 BMS+6 battery modules	HVM 16.6
	1 BMS+7 battery modules	HVM 19.3
	1 BMS+8 battery modules	HVM 22.1

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Test Certificate No.: 7413218719
In accordance with Clause 12 of the Standards Law – 1953

Block Diagram of ESS:



1) Definition of circuits inside of the ESS

I. DC circuits

DC circuits connected to the battery directly and the voltage is below to 500Vdc. Decisive voltage C considered for the DC voltage side.

II. Communication

In normal use, the device should connect to a PCS or upper computer via RS 485 or CAN. The communicate terminal is isolated to battery circuit by reinforce insulation through transformer and isolated IC.

Decisive voltage A2 considered for the communication side of inverter.

2) Isolation used in the product

Protective separation applied between decisive voltage A2 and decisive voltage C with corresponding overvoltage category.

3) Cooling method

Free cooling

4) Isolation between decisive voltage A2 and decisive voltage C

Reinforced insulation or double insulation provided in the product to separate those two parts.

Based on the information provided in the above-mentioned test reports, the above-specified Rechargeable Li-ion Battery **comply** with the Israeli requirements.

This product is used for Energy Storage System.

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Test Certificate No.: 7413218719
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This document contains 16 pages and may be used only in full.

The test results in this report refer only to the item tested.

This document alone is not sufficient for the release of goods from customs.

Test Conclusions:

Matthew Skif
Laboratory Technician
Renewable Energy Section
Mechanic and Hydraulic Laboratory
The Standards Institution of Israel
Date: 22/09/2024

מתן סקיף, הנדסאי בודק
ענף מערכות אנרגיה
המעבדה לטכניקה הידראולית
מכון התקנים הישראלי (מתי)

22/09/2024

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Test Certificate No.: 7413218719
In accordance with Clause 12 of the Standards Law – 1953

Page 1 of 16 pages

ADDITIONAL PRODUCT INFORMATION
Ratings and Principal Characteristics

Battery type	LiFePO ₄					
Model	HVM 8.3	HVM 11.0	HVM 13.8	HVM 16.6	HVM 19.3	HVM 22.1
Group approach	(16S)3S	(16S)4S	(16S)5S	(16S)6S	(16S)7S	(16S)8S
Rated Capacity (Ah)	54					
Usable Energy (kWh)	8.28	11.04	13.8	16.56	19.32	22.08
Rated voltage (Vd.c)	153	204	256	307	358	409
Voltage range (Vd.c)	120-173	160-230	200-288	240-345	280-403	320-460
Enclosure	IP 55					
Cooling method	Free cooling					
Weight (kg)	129	167	205	243	281	319
Size (H*W*D mm)	945×585×298	1178×585×298	1411×585×298	1644×585×298	1877×585×298	2110×585×298
Nominal charge current(A)	25					
Max. continuous charge current (A)	50					
Cell charge cut-off voltage (Vd.c)	3.75					
Nominal Discharge Current(A)	25					
Max. continuous	50					

discharge current (A)	
Cell discharge cut-off voltage (Vd.c)	2.5
Operating temperature (°C)	-10~50
Storage temperature (°C)	-10~50

This document does not permit marking the product with SII Mark

Test Certificate No.: 7413218719
In accordance with Clause 12 of the Standards Law – 1953

Page 2 of 16 pages

The main features of the battery module are shown as below:

Product name	Battery module
Model	HVM
Nominal capacity	54Ah
Nominal voltage	51.2V
Nominal Charge Current	25A
Maximum Charge Current	50A
Nominal Discharge Current	25A
Maximum Discharge Current	50A
Maximum Charge Voltage	60V
Cut-off Voltage	40V
Upper charge temperature	50°C
Lower charge temperature	-10°C
Upper discharge temperature	50°C
Lower discharge temperature	-10°C

The main features of the cell are shown as below:

Product name	LiFePO ₄ Cell
Model	C17
Capacity	55Ah
Nominal voltage	3.2V
Nominal charge current	25A
Maximum continuous charge current	55A
Nominal discharge current	25A
Maximum continuous discharge current	110A
Maximum Charge Voltage	3.8V
Upper charge temperature	50°C
Lower charge temperature	-10°C
Upper discharge temperature	50°C
Lower discharge temperature	-10°C

This document does not permit marking the product with SII Mark

**Test Certificate No.: 7413218719****In accordance with Clause 12 of the Standards Law – 1953**

Page 3 of 16 pages

Recommend charging method declared by the manufacturer	Nominal charge current: 25A constant current charging to 3.8V, voltage up to 3.8V charging cut-off. Maximum continuous charge current: 55A constant current charging to 3.8V, voltage up to 3.8V charging cut-off.
Charging procedure for internal short-circuit test	55A constant current charging to 3.8V, then switch to constant voltage 3.8V till charge current drops to 2.75A
Recommend discharging method declared by the manufacturer	Discharging the cell with 25A constant current to discharge cut-off voltage 2.0V
Nominal mass	1.66±0.04kg
External dimensions (L/W/D)	(120.2-121.5)mm × (172.8-173.2)mm × (45-47)mm

This document does not permit marking the product with SII Mark

Test Certificate No.: **7413218719**

In accordance with Clause 12 of the Standards Law – 1953

Page 4 of 16 pages

BYD

Battery-Box Premium
Model:
 ■ 1)HVS 5.1 ■ 2)HVS7.7 ■ 3)HVS10.2
 ■ 4)HVS12.8
 ■ 5)HVM 8.3 ■ 6)HVM 11.0 ■ 7)HVM 13.8
 ■ 8)HVM 16.6 ■ 9)HVM 19.3 ■ 10)HVM 22.1

Usable energy(kWh):
 1) 5.12 2) 7.68 3) 10.24 4) 12.8
 5) 8.28 6) 11.04 7) 13.8
 8) 16.56 9) 19.32 10) 22.08

Operating voltage(V):
 1) 160-230 2) 240-345 3) 320-460
 4) 400-576 5) 120-173 6) 160-230
 7) 200-288 8) 240-345 9) 280-403
 10) 320-460


Max. continuous current: 25A (HVS)/50A (HVM)
 Operating temperature: -10°C~50°C
 IP class: IP55
 Protective class: I
 Manufacturer: Shenzhen BYD Electronics Co.,LTD.
 Address: No.1, Yan'an Road,
 Kulichong Street, Dapeng New District,
 Shenzhen, 518119, P.R. China
 E-Mail: bboxservice@byd.com
 Website: www.bydbatterybox.com



   




   




MADE IN CHINA

Battery-Box Premium Module
 Model: HVM
 Nominal voltage: 51.2V
 Voltage range: 40~59V
 Max. continuous current: 50A
 Battery type: LiFePO₄
 Usable energy: 2.76kWh
 Rated capacity: 54Ah
 Operating temperature: -10 °C~50 °C
 IP class: IP55



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Test Certificate No.: 7413218719
In accordance with Clause 12 of the Standards Law – 1953
APPENDIX
Documents and Certificates

Page 5 of 16 pages

5.1	TABLE: Critical components information				P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity
Material of Label(on module)	Shenzhen Zhengxinyuan	---	PC, UV resistance,0.65±0.15mm,Adhesive:3M9080A	ISO 4892:2013	Test report No: (2019)委送字 汽车类079(02)
Material of Label(on bms box)	Shenzhen Zhengxinyuan	---	PC, UV resistance,0.8±0.15mm,Adhesive:3M9080A	ISO 4892:2013	Test report No: (2019)委送字 汽车类079(02)
Cell	BYD CO. LTD	C17	3.2V, 55Ah	IEC 62619:2017	Test in appliance
Relay	BYD company Limited	EVRNB80CI	Rated Voltage/ Current: 1000Vdc,80A Coil:12Vdc	EN 60947-4-1:2010+A1	TUV R 50394996
Y capacitor(CO M board)	Dongguan Easy-gather	DCF103MY5V Q7M350	Y2:250VAC 50/60Hz 10000pF -40°C~+125°C	EN/IEC 60384-14	VDE 40015758
Y capacitor(BMS board)-C79	Dongguan Easy-gather	DCF102MY5U Q7PS0	1nF,Y2, :250VA C 50/60Hz	EN/IEC 60384-14	VDE 40015758
Y capacitor(BMS board)-C96,C80,C194	Dongguan Easy-gather	DCF102MY5U G0PS0	1nF,Y2, :250VAC /400VAC,50/60Hz	EN/IEC 60384-14	VDE 40015758
Air Switch	ABB	S802PV-S63-SOR12-AUX	Rated Current:63A Rated Voltage: 800V	IEC/EN 60947-2	CE 2CCC413009 D0201
Air Switch (-alt) *	NADER	NDB2NZ-80	Rated Current:80A Rated Voltage: 600V	EN 60947-2	TUV R 50481524
Air Switch (-alt) *	ABB	S204M-C63UC	Rated Current:63A Rated Voltage: 600V	EN 60947-2	CE Declaration
(-alt)	Projoy electric	PEBS-H	Rated Current:63A Rated Voltage: 1000V	EN 60947-2:2017	TUV R 50426346
CONNECTOR	WAGO	2616-	600V,66A	UL 1059	UL E45172

This document does not permit marking the product with SII Mark

Test Certificate No.: 7413218719
In accordance with Clause 12 of the Standards Law – 1953

Page 6 of 16 pages

(CN1)		3103/020-000		UL 486 UL 60947-7	
Varistor(MOV1)	SHANTOU HIGH-NEW ZONE SONGTIAN ENTERPRISE CO., LTD	STE20D112K1 DN0FQB0FD	Rated Voltage: 1100V 8/20uS:10000A	IEC61051 IEC60950-1:2013	VDE 40023049
MOSFET(Q3/Q33)	ON Semiconductor	FQB4N80TM	Rated Current:3.9A Rated Voltage: 800V	--	Test in appliance
(alt)	ON Semiconductor	FQB6N80TM	Rated Current:5.8A Rated Voltage: 800V	--	Test in appliance
MOSFET(Q1/Q34/Q35/Q36/Q37)	Nexperia	BUK9Y59-60E	Rated Current:16.7A Rated Voltage: 60V	--	Test in appliance
Transformer(T R1)	Dongguan Dazhong electric	DK28C3909	570uH± 10%, Class B	IEC 62619	Test in appliance
Transformer(T R1) (-alt) *	CLICK INTERNATIONAL(HONG KONG)	BCK2801-2943	570uH± 10%, Class B	IEC 62619	Test in appliance
BOBBIN	Sumitomo Bakelite Co.,LTD	PM-9820	150°C V-0	UL 94	E41429
WIRE	TAI-I COPPER (GUANZHOU) CO LTD	UEW	155°C ,MW79-C	UL 1446	E234896
	NINGBO JINTIAN NEW MATERIAL CO LTD	UEW	155°C ,MW79-C	UL 1446	E227047
	ZHUHAI GREE ELECTRIC ENTERPRISES LTD	UEW	155°C ,MW79-C	UL 1446	E151343
TRIPLE INSULATED WIRE	SUZHOU YUSHENG ELECTRONIC CO LTD	FIW-F	155°C	UL 2353	E332529
	E&B TECHNOLOGY CO LTD	E&B-XXXF	155°C	UL 2353	E315265
	XIANGXIANG ELECTRON CO LTD	TKW-F	155°C	UL 2353	E308908
TAPE	PLEO&CO (BC) LTD	1K7170	VTM-0	UL 510A	E126174
TUBE	GREAT HLODING INDUSTRIAL CO LTD	TFT	200°C VW-1	UL 224	E156256
VARNISH	MAOMING YINGDA FINE CHEMICAL CO LTD	MG209	130°C	UL 1446	E336675
Transformer(T R2)	Dongguan Dazhong electric	DK16E3908	40uH±10%, Class B	IEC 62619	Test in appliance

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Test Certificate No.: 7413218719
In accordance with Clause 12 of the Standards Law – 1953

Page 7 of 16 pages

Transformer(T R2) (-alt) *	CLICK INTERNATIONAL(HONG KONG)	BCK1601-2194	40uH±10%, Class B	IEC 62619	Test in appliance
BOBBIN	Sumitomo Bakelite Co.,LTD	PM-9820	150°C V-0	UL 94	E41429
WIRE	TAI-H COPPER (GUANZHOU) CO LTD	UEW	155°C ,MW79-C	UL 1446	E234896
	NINGBO JINTIAN NEW MATERIAL CO LTD	UEW	155°C ,MW79-C	UL 1446	E227047
	ZHUHAI GREE ELECTRIC ENTERPRISES LTD	UEW	155°C ,MW79-C	UL 1446	E151343
TRIPLE INSULATED WIRE	SUZHOU YUSHENG ELECTRONIC CO LTD	FIW-F	155°C	UL 2353	E332529
	E&B TECHNOLOGY CO LTD	E&B-XXXF	155°C	UL 2353	E315265
	XIANGXIANG ELECTRON CO LTD	TKW-F	155°C	UL 2353	E308908
TAPE	PLEO&CO (BC) LTD	1K7170	VTM-0	UL 510A	E126174
TUBE	GREAT HLODING INDUSTRIAL CO LTD	TFT	200°C VW-1	UL 224	E156256
VARNISH	MAOMING YINGDA FINE CHEMICAL CO LTD	MG209	130°C	UL 1446	E336675
Photocouper(U1,U2,U3,U6,U7,U9,U12,U18,U25,U27,U28,U32,U33,U34,U35,U38,U39,U40,U41,U42,U44,U45,U46,U49,U54,U55)	Lite-On Technology Corporation	LTV-816S-TA-C	Isolation Voltage:5000V(A C)	DIN EN 60747-5-5 (0884-5):2015-11	VDE 40015248
-ALT*	Shenzhen Orient Components Co., Ltd	ORPC-817Sx	Isolation Voltage:5000V	DIN EN 60747-5-5 (0884-5):2015-11	VDE 40029733
-ALT *	China Resources Semiconductor (ShenZhen) Limited	PC817X	Isolation Voltage:5000V	DIN EN 60747-5-5 (0884-5):2015-11	VDE:No. 40042139)
(-ALT)	Lite-On Technology Corporation	LTV-1004-TP1-G-DP	Isolation Voltage:5000V	DIN EN 60747-5-5 (0884-5):2015-11	VDE 40015248
IC(U5)	Texas Instruments Deutschland GmbH	ISO7721DWV R	Isolation Voltage:5000V	DIN VDE V 0884-11:2017-01	VDE 40047657
-ALT *	NOVOSENSE	NSi8221	Isolation Voltage:5000V	DIN VDE V 0884-11:2017-01	VDE 40050121
IC(U48)	Texas Instruments Deutschland GmbH	ISO1432BDW R	Isolation Voltage:5000V	DIN VDE V 0884-11:2017-01	VDE 40047657

This document does not permit marking the product with SII Mark

Test Certificate No.: 7413218719
In accordance with Clause 12 of the Standards Law – 1953

Page 8 of 16 pages

-ALT *	NOVOSENSE	NSi83086	Isolation Voltage:5000V	DIN VDE V 0884-11:2017-01	VDE 40050121
IC(U24,U47,U52)	Texas Instruments Deutschland GmbH	ISO1042BDW VR	Isolation Voltage:5000V	DIN VDE V 0884-11:2017-01	VDE 40047657
PCB	SHENZHEN ZHONG LUO ELECTRONICS CO., LTD.	ZL-02	V-0,130°C	UL 94,UL 796	UL E255554
Wire(L4,L5,L6,L7,L8)	DONGGUAN NISTAR TRANSMITTING TECHNOLOGY CO INC	3577	Rated Voltage: 3000V,150 deg C 16mm ²	UL 758	UL E214184
-ALT *	GUANGDONG HAERKN NEW ENERGY CO LTD	3820	125°C 1000V VW-1	UL758	UL E300956
-ALT *	SHENZHEN BAO HING ELECTRIC WIRE & CABLE MFR CO LTD	1015	105°C 600V VW-1	UL758	UL E168141
-ALT *	SHENZHEN YONGGUI TECHNOLOGIES CO LTD	1015	105°C 600V VW-1	UL758	UL E491775
Enclosure(BCU)	BYD CO. LTD	--	297.5*585*175.5 mm,steel	--	--
COVER(BCU)	BYD CO. LTD	--	297*585*70.5mm steel	--	--
Enclosure(BAT)	BYD CO. LTD	--	297*585*233mm steel	--	--
PTC R398,R286	GUANGDONG WELKIN THINKING ELECTRONIC CO.,LTD	PPL19101HA2 C8C7Z	380Vac,-20~+85°C,50ohm	UL 1434	E138827
PTC R390	GUANGDONG WELKIN THINKING ELECTRONIC CO.,LTD	PPL19100HA1 B7CKB	270Vac,-20~+85°C,10ohm	UL 1434	E138827
(alt)	GUANGDONG WELKIN THINKING ELECTRONIC CO.,LTD	PPL19500NA1 C0YTE	300Vac,-20~+85°C,50ohm	UL 1434	E138827
(alt)	Sinochip electronics Co.,Ltd	MZFLY-22D120T101RH	620Vdc -20-85°C 10ohm	--	Test in appliance
(alt)	Sinochip electronics Co.,Ltd	MZFLY-22D120T12RH-350	270Vdc -20-85°C 50ohm	--	Test in appliance
Pluse Transformer	Shenzhen Sunlord Electronics Co.,Ltd	ALTWR-F02TF	Isolation Voltage:4300Vdc	IEC 62619	Test in appliance

Note: The components mark with "*" are newly added components.

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Test Certificate No.: 7413218719

In accordance with Clause 12 of the Standards Law – 1953

Page 9 of 16 pages



Prüfbericht – Produkte
Test report – Products

Prüfbericht-Nr.: Test Report No.:	50317231 003	Auftrags-Nr.: Order No.:	168140718	Seite 1 von 13 Page 1 of 13	
Kunden-Referenz-Nr.: Client Reference No.:	2126951	Auftragsdatum: Order date:	2019.11.13		
Auftraggeber: Client:	Shenzhen BYD Electronics Co., Ltd. Room 301 of BYD A-4 Building, No.1 Yan'an Road, Kuichong Street, Dapeng New District Shenzhen 518119, P. R. China				
Prüfgegenstand: Test item:	Rechargeable Li-ion Battery				
Bezeichnung / Typ-Nr.: Identification / Type No.:	HVM 8.3, HVM 11.0, HVM 13.8, HVM 16.6, HVM 19.3, HVM 22.1				
Auftrags-Inhalt: Order content:	TÜV mark approval				
Prüfgrundlage: Test specification:	IEC 62619: 2017 EN 62619:2017				
Wareneingangsdatum: Date of sample receipt:	N/A				
Prüfmuster-Nr.: Test sample No.:	N/A				
Prüfzeitraum: Testing period:	-				
Ort der Prüfung: Place of testing:	N/A				
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.				
Prüfergebnis*: Test result*:	Pass				
überprüft von: reviewed by:	genehmigt von: authorized by:				
Datum: 2020.10.22 Date:	 Xun Yu		 Corney Zhang		
Stellung / Position	Project Engineer		Technical Certifier		
Sonstiges / Other:	1. This test report is based on the original report 50317231 001 and 50317231 002; 2. The complete test report includes the following documents: - Test report (13 pages); - Attachment 1: Photo documentation (13 pages).				
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged				
* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
Legend:	1 = very good	2 = good	3 = satisfactory	4 = sufficient	5 = poor
	P(ass) = entspricht o.g. Prüfgrundlage(n) P(ass) = passed a.m. test specification(s)		F(all) = entspricht nicht o.g. Prüfgrundlage(n) F(all) = failed a.m. test specification(s)		N/A = nicht anwendbar N/A = not applicable
					N/T = nicht getestet N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>					

TUV Rheinland (Shenzhen) Co., Ltd. 1601 R&D Room, 1602-1604, 17-18F, Building 7 Site C, Vanke Cloud City Phase I, Xingke First Street, Xili Street, Xili Community, Nanshan District, Shenzhen 518052, P.R. China
Mail: info@bi.chn.tuv.com Web: http://www.chn.tuv.com

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Test Certificate No.: 7413218719

In accordance with Clause 12 of the Standards Law – 1953

Page 10 of 16 pages



Prüfbericht – Produkte
Test report – Products

Prüfbericht-Nr.: Test Report No.:	50317231 002	Auftrags-Nr.: Order No.:	168140718	Seite 1 von 24 Page 1 of 24	
Kunden-Referenz-Nr.: Client Reference No.:	2126951	Auftragsdatum: Order date:	2019.11.13		
Auftraggeber: Client:	Shenzhen BYD Electronics Co., Ltd. Room 301 of BYD A-4 Building, No.1 Yan'an Road, Kuichong Street, Dapeng New District Shenzhen 518119, P. R. China				
Prüfgegenstand: Test item:	Rechargeable Li-ion Battery				
Bezeichnung / Typ-Nr.: Identification / Type No.:	HVM 8.3, HVM 11.0, HVM 13.8, HVM 16.6, HVM 19.3, HVM 22.1				
Auftrags-Inhalt: Order content:	TÜV mark approval				
Prüfgrundlage: Test specification:	IEC 62619: 2017 EN 62619:2017				
Wareneingangsdatum: Date of sample receipt:	2019.11.18				
Prüfmuster-Nr.: Test sample No.:	engineering sample				
Prüfzeitraum: Testing period:	2019.11.18 - 2020.03.16				
Ort der Prüfung: Place of testing:	TÜV Rheinland (Shenzhen) Co., Ltd.				
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.				
Prüfergebnis*: Test result*:	Pass				
überprüft von: reviewed by:		genehmigt von: authorized by:			
Datum: 2020.06.16 Date:	Xu Yun Xun Yu	Datum: 2020.06.16 Date:	Corney Zhang Corney Zhang		
Stellung / Position	Project Engineer	Stellung / Position	Reviewer		
Sonstiges / Other:	1. This test report is issued for TÜV mark approval; 2. The complete test report includes the following documents: - Test report (24 pages); - Attachment 1: Photo documentation (13 pages). Click or tap here to enter text.				
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged				
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n) Legend: 1 = very good	2 = gut 2 = good P(ass) = passed a.m. test specification(s)	3 = befriedigend F(all) = entspricht nicht o.g. Prüfgrundlage(n) 3 = satisfactory F(all) = failed a.m. test specification(s)	4 = ausreichend N/A = nicht anwendbar 4 = sufficient N/A = not applicable	5 = mangelhaft N/T = nicht getestet 5 = poor N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.					

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Page 11 of 16 pages



Prüfbericht – Produkte
Test report – Products

Prüfbericht-Nr.: Test Report No.:	50317231 001	Auftrags-Nr.: Order No.:	168140718	Seite 1 von 23 Page 1 of 23
Kunden-Referenz-Nr.: Client Reference No.:	705242	Auftragsdatum: Order date:	2020.03.18	
Auftraggeber: Client:	Shenzhen BYD Electronics Co., Ltd. Room 301 of BYD A-4 Building, No.1 Yan'an Road, Kuichong Street, Dapeng New District Shenzhen 518119, P. R. China			
Prüfgegenstand: Test item:	Rechargeable Li-ion Battery			
Bezeichnung / Typ-Nr.: Identification / Type No.:	HVM/HVS(Battery-Box Premium) HVM(Battery-Box Premium module)			
Auftrags-Inhalt: Order content:	TÜV mark approval			
Prüfgrundlage: Test specification:	IEC 62619: 2017 EN 62619:2017			
Wareneingangsdatum: Date of sample receipt:	2019.11.18			
Prüfmuster-Nr.: Test sample No.:	engineering sample			
Prüfzeitraum: Testing period:	2019.11.18 - 2020.03.16			
Ort der Prüfung: Place of testing:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
überprüft von: reviewed by:	<i>Ryan Hu</i>		genehmigt von: authorized by:	<i>Jacob Lu</i>
Datum: 2020.03.19 Date:	Ryan Hu		Datum: 2020.03.19 Date:	Jacob Lu
Stellung / Position	Project Engineer		Stellung / Position	Technical Certifier
Sonstiges / Other:	1. This test report is issued for TÜV mark approval; 2. The complete test report includes the following documents: - Test report (23 pages); - Attachment 1: Photo documentation (13 pages).			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* Legende:	1 – sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 – gut F(all) = entspricht nicht o.g. Prüfgrundlage(n)	3 – befriedigend N/A = nicht anwendbar	4 – ausreichend N/T = nicht getestet
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(all) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.				

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Page 12 of 16 pages



Produkte
Products

Prüfbericht-Nr.: <i>Test Report No.:</i>	50354497 002	Auftrags-Nr.: <i>Order No.:</i>	168140718	Seite 1 von 93 <i>Page 1 of 93</i>
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	2126951	Auftragsdatum: <i>Order date:</i>	2020.03.18	
Auftraggeber: <i>Client:</i>	Shenzhen BYD Electronics Co., Ltd. Room 301 of BYD A-4 Building, No.1 Yan 'an Road, Kuichong Street, Dapeng New District, Shenzhen P. R. China			
Prüfgegenstand: <i>Test item:</i>	Rechargeable Li-ion Battery			
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	HVM 8.3, HVM 11.0, HVM 13.8, HVM 16.6, HVM 19.3, HVM 22.1			
Auftrags-Inhalt: <i>Order content:</i>	AK certificate			
Prüfgrundlage: <i>Test specification:</i>	IEC 62040-1:2017			
Wareneingangsdatum: <i>Date of receipt:</i>	2019.11.18			
Prüfmuster-Nr.: <i>Test sample No.:</i>	engineering sample			
Prüfzeitraum: <i>Testing period:</i>	2019.11.18-2020.03.16			
Ort der Prüfung: <i>Place of testing:</i>	See page 2			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von / tested by:		kontrolliert von / reviewed by:		
2020.06.16	Xun Yu / PE		2020.06.16	Dean Cao / TC
Datum	Name / Stellung	Unterschrift	Datum	Name / Stellung
<i>Date</i>	<i>Name / Position</i>	<i>Signature</i>	<i>Date</i>	<i>Name / Position</i>
Sonstiges / Other: See the following pages for General product information and comment.				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(all) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend N/T = nicht getestet
Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(all) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

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104

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Page 13 of 16 pages

C E R T I F I C A T E
of Conformity



Registration No.: **AK 50471607 0001**

Report No.: **50354497 002**

Holder: Shenzhen BYD Electronics Co., Ltd.
Room 301 of BYD A-4 Building,
No.1 Yan'an Road, Kuichong Street,
Dapeng New District Shenzhen
518119 Guangdong
P.R. China

Product: Battery
(Rechargeable Li-ion Battery)

Identification: Type Designation : HVM 8.3, HVM 11.0, HVM 13.8
HVM 16.6, HVM 19.3, HVM 22.1
Serial Number : n.a.
Remark(s) : Refer to test report 50354497 002
for details.

Tested acc. to: IEC 62040-1:2017

The certificate of conformity refers to the above mentioned product. This is to certify that the specimen is in conformity with the assessment requirement mentioned above. This certificate does not imply assessment of the production of the product and does not permit the use of TÜV Rheinland mark of conformity.



Date 17.06.2020

A. Chen

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

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Test Certificate No.: 7413218719

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Page 14 of 16 pages

Prüfbericht - Produkte
Test Report – Products



Prüfbericht-Nr.: Test report no.:	50352308 005	Auftrags-Nr.: Order no.:	168399387	Seite 1 von 27 Page 1 of 27
Kunden-Referenz-Nr.: Client reference no.:	2126951	Auftragsdatum: Order date:	17.11.2022	
Auftraggeber: Client:	Shenzhen BYD Electronics Co., Ltd. Room 301 of BYD A-4 Building, No.1 Yan' an Road, Kuichong Street, Dapeng New District Shenzhen 518119 Guangdong P.R. China			
Prüfgegenstand: Test item:	Rechargeable Li-ion Battery			
Bezeichnung / Typ-Nr.: Identification / Type no.:	HVM/HVS(Battery-Box Premium), HVM(Battery-Box Premium module) (Trademark: BYD)			
Auftrags-Inhalt: Order content:	TUV Rheinland - EMC service			
Prüfgrundlage: Test specification:	EN IEC 61000-6-1:2019 EN IEC 61000-6-3:2021 EN IEC 61000-6-2:2019 EN IEC 61000-6-4:2019			
Wareneingangsdatum: Date of sample receipt:	2022-11-01			
Prüfmuster-Nr.: Test sample no.:	SPO2210267-2			
Prüfzeitraum: Testing period:	Refer to test report			
Ort der Prüfung: Place of testing:	Refer to section 2.1			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by: Bella Xu Datum: Date: 2023-06-06 Stellung / Position Senior Project Engineer		genehmigt von: authorized by: Chunli Zheng Ausstellungsdatum: Issue date: 2023-06-06 Stellung / Position Reviewer		
Sonstiges / Other: This report is for approval of alternative construction based on report 50352308 004.				
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:		Prüfmuster vollständig und unbeschädigt Test item complete and undamaged:		
* Legende: 1 - sehr gut 2 - gut 3 - befriedigend 4 - ausreichend 5 - mangelhaft P(pass) - entspricht o.g. Prüfgrundlage(n) F(all) - entspricht nicht o.g. Prüfgrundlage(n) NA - nicht anwendbar NT - nicht getestet Legend: 1 - very good 2 - good 3 - satisfactory 4 - sufficient 5 - poor P(pass) - passed a.m. test specifications(s) F(all) - failed a.m. test specifications(s) NA - not applicable NT - not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.				

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Mail: service@de.tuv.com http://www.tuv.com

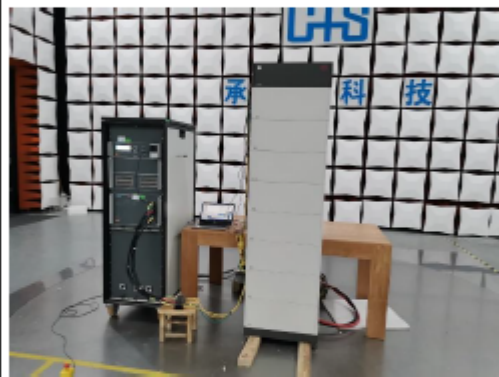
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Page 15 of 16 pages

Produkte Products					
Prüfbericht-Nr.: Test Report No.:	50352308 002	Auftrags-Nr.: Order No.:	168140718	Seite 1 von 25 Page 1 of 25	
Kunden-Referenz-Nr.: Client Reference No.:	N/A	Auftragsdatum: Order date:	08.01.2020		
Auftraggeber: Client:	Shenzhen BYD Electronics Co., Ltd. Room 301 of BYD A-4 Building, No. 1 Yan'an Road, Kuichong Street, Dapeng New District, Shenzhen 518119 P. R. China				
Prüfgegenstand: Test item:	Rechargeable Li-ion Battery				
Bezeichnung / Typ-Nr.: Identification / Type No.:	HVM/HVS(Battery-Box Premium), HVM(Battery-Box Premium module) (Trademark: BYD)				
Auftrags-Inhalt: Order content:	RED approval				
Prüfgrundlage: Test specification:	EN 301 489-1 V2.2.3 EN 301 489-17 V3.2.0 (Draft) EN 61000-6-1:2007 EN 61000-6-3:2007+A1				
Wareneingangdatum: Date of receipt:	08.01.2020				
Prüfmuster-Nr.: Test sample No.:	SPO200068-1				
Prüfzeitraum: Testing period:	08.01.2020 - 04.03.2020				
Ort der Prüfung: Place of testing:	Shenzhen Chengxin Technology Service Co., Ltd.				
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.				
Prüfergebnis*: Test result*:	Pass				
geprüft von / tested by:			kontrolliert von / reviewed by:		
 20.03.2020 Ryan Yang / Assistant Project Manager			 20.03.2020 Winnie Hou / Technical Certifier		
Datum Date	Name/Stellung Name/Position	Unterschrift Signature	Datum Date	Name/Stellung Name/Position	Unterschrift Signature
Sonstiges / Other: The apparatus are intended for use in residential and commercial environments. This report is for Article 3.1b EMC requirements only.					
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:			Prüfmuster vollständig und unbeschädigt Test item complete and undamaged:		
* Legende: 1 - sehr gut 2 - gut 3 - befriedigend 4 - ausreichend 5 - mangelhaft P(ass) - entspricht o.g. Prüfgrundlage(n) F(all) - entspricht nicht o.g. Prüfgrundlage(n) N/A - nicht anwendbar N/T - nicht getestet			Legende: 1 - very good 2 - good 3 - satisfactory 4 - sufficient 5 - poor P(ass) - passed a.m. test specifications(s) F(all) - failed a.m. test specifications(s) N/A - not applicable N/T - not tested		
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.					
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Page 16 of 16 pages

广州海关技术中心

GUANGZHOU CUSTOMS DISTRICT TECHNOLOGY CENTER



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Website: www.lgte.cn Postcode: 510683

No: 01051900007238-1(E)
Date: 2020-01-02
Page: 1 of 14

UN38.3 报告 UN38.3 Test Report

样品名称: 锂离子蓄电池

Sample Name: Battery-Box Premium Module

委托单位: 深圳比亚迪电子有限公司

Applicant: SHENZHEN BYD ELECTRONIC CO.,LTD



广州海关技术中心

GUANGZHOU CUSTOMS DISTRICT TECHNOLOGY CENTER



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Electrical & Electronics Laboratory