WITNESS TEST REPORT

Product Testing Laboratory, Pune *Date of Issue: 19/02/2020*

Test Report No:	TUV/PTL/19-20/SFTY-WT/0049
Applicant's Name and Address :	EASTMAN AUTO & POWER LTD 315/242/1-4, VILL:- RAKHRAM SINGH, KIRPALPUR, NALAGARH-PINJORE HIGHWAY, NH21-A, NALAGARH, DISTT:- SOLAN(HP)-174101
Manufacturer's Name and Address :	315/242/1-4, VILL:- RAKHRAM SINGH, KIRPALPUR, NALAGARH-PINJORE HIGHWAY, NH21-A, NALAGARH, DISTT:- SOLAN(HP)-174101
Witnessing Laboratory/Location with Address:	EASTMAN AUTO & POWER LTD 315/242/1-4, VILL:- RAKHRAM SINGH, KIRPALPUR, NALAGARH-PINJORE HIGHWAY, NH21-A, NALAGARH, DISTT:- SOLAN(HP)-174101
Witnessing Agency Name & address	**TUV India Pvt. Ltd.** Anjani Palladium, 203 & 204, Second Floor And Mezzanine Floor,104b, Survey No.126/1, Baner Main Road, Baner, Pune 411045, Maharashtra, India.
EUT Description :	Tall Tubular Battery for Solar use
Date of Sample receipt:	N/A
Condition of sample on receipt	Good(Condition of sample during witness)
Date of Witnessing:	15/07/2019 to 27/01/2020
Test specifications Standard /Guidelines :	As per IEC 61427-1:2013
Witness Observation:	The observation meets / ~~do not meets~~ the requirements of above standards / Guidelines

Witnessed & Prepared By:	**Approved by**	**Issued by:**
(Name / Designation) Navnath Korekar/ Test Engineer	(Name / Designation) Sagar Darbar/Sr.Engineer	(Name / Designation) Sneha Mandve/Jr.officer
Date:19/02/2020	Date: 19/02/2020	Date: 19/02/2020

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EUT Description :	Tall Tubular Battery for Solar use
Sample No	N/A
Serial No :	N/A
Product Code/Model No:	EM150D (150Ah @ C20 / 135Ah @ C10) EM200D (200 Ah @ C20 / 180 Ah @ C10) EM220D(220Ah @ C20 / 200 Ah @ C10)
Trademark:	EASTMAN
Ratings:	12 V 150Ah 12 V 200Ah 12 V 220Ah
Other aspects (If any)	Nil

Disclaimer:

1. Test results are based on & related only to the particular sample tested.
2. This Report cannot be re-produced without the written permission from TUV India Pvt. Ltd., Product testing laboratory.
3. This report reflects our findings at the time and place of testing.
4. This Report, in full or in part, shall not be used to make any misleading claims or for any legal purposes.
5. This Report is issued based on the tests witnessed in accordance with the standard/customer requirements. It is the sole Responsibility of the manufacturer to comply with any statutory and regulatory requirements applicable on product.
6. If any discrepancy found in the test report should be brought to the notice of TUV India Pvt. Ltd., product testing laboratory Within 2 weeks from the date of issue.

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Marking Plate:

EM150D

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EM200D

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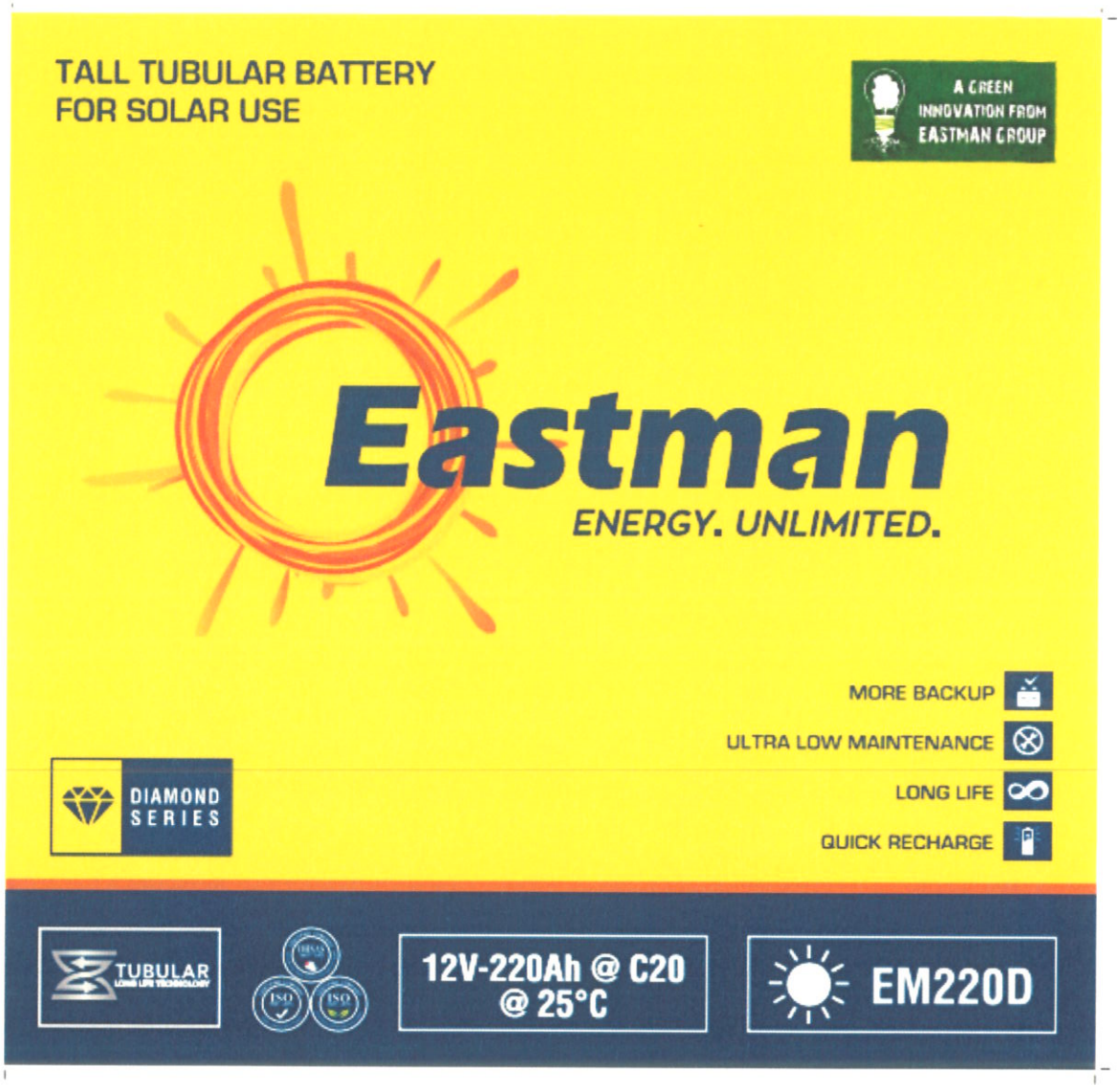
EM220D



Back side Label for all Models

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General product information: Provided by manufacturer#

A) EM150D(12V,150Ah@C20)

Technical Specifications:

Nominal Voltage	Rated Capacity 20 Hr@27°C(Ah)	Dimensions in mm			Filled Battery Weight (Kg) (±3%)
		Length(±3mm)	Width(±3mm)	Height(±3mm)	
12	150	502	190	402	55.45

Electrical Parameter's & Charging Profile:

Battery Specified Capacity Test @27° C					
C20 @ 10.5V	C10@10.5V	C7@10.5V	C5@10.5V	C3@10.5V	C1@10.5V
150	135	124	112	97	68
Ah & Wh Efficiency					
Ah Efficiency		>90%	Wh Efficiency		>75%

B) EM200D(12V,200Ah@C20)

Technical Specifications:

Nominal Voltage	Rated Capacity 20 Hr@27°C(Ah)	Dimensions in mm			Filled Battery Weight (Kg) (±3%)
		Length(±3mm)	Width(±3mm)	Height(±3mm)	
12	200	502	190	402	61.5

Electrical Parameter's & Charging Profile:

Battery Specified Capacity Test @27° C					
C20 @ 10.5V	C10@10.5V	C7@10.5V	C5@10.5V	C3@10.5V	C1@10.5V
200	180	165	150	129	90
Ah & Wh Efficiency					
Ah Efficiency		>90%	Wh Efficiency		>75%

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C) EM220D(12V,220Ah@C20)

Technical Specifications:

Nominal Voltage	Rated Capacity 20 Hr@27°C(Ah)	Dimensions in mm			Filled Battery Weight (Kg) (±3%)
		Length(±3mm)	Width(±3mm)	Height(±3mm)	
12	220	502	190	402	68.0

Electrical Parameter's & Charging Profile:

Battery Specified Capacity Test @27° C					
C20 @ 10.5V	C10@10.5V	C7@10.5V	C5@10.5V	C3@10.5V	C1@10.5V
220	200	184	166	143	100
Ah & Wh Efficiency					
Ah Efficiency		>90%	Wh Efficiency		>75%

1) Differences between the models:

All 12V models incorporate cells of same series. All cells have similar construction and belong to same series .After evaluation, throughout this report EM220D, EM200D; EM150D is tested as typical models. Other models have similar label Except model name and ratings

Model No. tested with-in the family series: EM220D,EM200D,EM150D

2) Options:

The equipment was tested without any optional accessory installed. Hence, this report does not cover parameters that are influenced by the installation of optional accessory that might affect safety in the meaning of this standard.

#As Declared by M/s. EASTMAN AUTO & POWER LTD.

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IEC 61427:2005			
Clause	Requirement + Test	Result - Remark	Verdict
4	Conditions of use		P
4.1	This clause specifies the particular operating conditions experienced by secondary batteries in photovoltaic applications during their use.		P
4.2	Photovoltaic energy system		P
	The photovoltaic energy system with secondary batteries referred to in this standard can supply a constant, variable, or intermittent energy to the connected equipment. This system may include hybrid or grid-connected systems. The connected equipment's may be pumps, refrigerators, lighting systems, communication systems, etc.		P
4.3	Secondary cells and batteries		P
	Secondary cells and batteries mainly used in photovoltaic energy systems are of the following types:		--
	--vented (flooded);	Vented	P
	--valve-regulated, including those with partial gas recombination;		N/A
	--gastight sealed (nickel-cadmium only).		N/A
	The cells and batteries can normally be delivered in the following conditions:		--
	discharged and drained (nickel-cadmium batteries only);		N/A
	--charged and filled;	Charged & filled	P
	--dry charged and unfilled (lead-acid batteries only);		N/A
	--discharged and filled (nickel-cadmium batteries only).		N/A
	For optimum service life, the battery manufacturer's instructions for initial charge of the battery shall be followed.		P
4.4	General operating conditions		P
	Batteries in a typical PV system operating under average site weather conditions may be subjected to the following conditions:		--
4.4.2	Autonomy time		P
	The battery is designed to supply energy under specified conditions for a period of time, typically from 3 days to 15 days, with or without solar irradiation.		P
4.4.3	Typical charge and discharge currents		P
	The charge current generated by the photovoltaic generator and the discharge current determined by the load are shown in Table 1.	For EM 150D; I20=7.5 I50=3.4	P

		I120=1.7 For EM 200D; I20=10 I50=4.5 I120=2.3 For EM 220D; I20=11 I50=5 I120=2.5	
4.4.4	Daily cycle		N/A
	The battery is normally exposed to a daily cycle as follows:		--
	a) charging during daylight hours;		N/A
	b) discharging during night-time hours.		N/A
4.4.5	Seasonal cycle		N/A
	The battery may be exposed to a seasonal cycle of state of charge. This arises from varying average-charging conditions as follows:		--
	--periods with low solar irradiation, for instance during winter causing low energy production. The state of charge of the battery (available capacity)can go down to 20 % of the rated capacity or less;		N/A
	--periods with high solar irradiation, e.g. in summer, which will bring the battery up to the fully charged condition, with the possibility that the battery could be overcharged.		N/A
4.4.6	Period of high state of charge		N/A
	During summer for example, the battery will be operated at a high state of charge (SOC), typically between 80 % and 100 % of rated capacity.		N/A
	A voltage regulator system normally limits the maximum battery voltage during the recharge period.		N/A
	The system designer normally chooses the maximum charge voltage of the battery as a compromise allowing to recover to a maximum state of charge (SOC) as early as possible in the seasons other than the monsoon but without substantially overcharging the battery		N/A
	The overcharge increases the gas production resulting in water consumption in vented cells.		N/A
	In valve regulated lead acid cells the overcharge will cause a lesser increase of water consumption and the battery internal temperature there by reduction in battery life		N/A
	Typically the maximum charge voltage is 2.4V/cell for lead acid batteries and 1.55V per cell for vented nickel-cadmium (refer manufacturers recommendations) these valves are applicable for the reference temperature specified by the manufacturer.		N/A

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	The expected life time of a battery in a PV system even kept regularly at a high state of charge may be considered less than the published life of the battery used under continuous float charge.		N/A
4.4.7	Period of sustained low state of charge		N/A
	During period of low solar radiation, the energy produced by photovoltaic array may not be sufficient to fully recharge the battery.		N/A
4.4.8	Electrolyte stratification		P
	Electrolyte Stratification may occur in lead-acid batteries		P
	In vented lead-acid batteries electrolyte Stratification can be avoided by electrolyte agitation/recirculation or periodic overcharge whilst in service.		P
	In Valve regulated lead-acid (VRLA) batteries, electrolyte stratification can be avoided by design or by operating them according to the manufacture instructions.		N/A
4.4.9	Storage	See below	P
	Manufacturers' recommendations for storage shall be observed. In the absence of such information, the storage period may be estimated according to the climatic conditions as shown in Table2.	See operating Manual	P
4.4.10	Operating temperature	See operating Manual -20° C to +55° C	P
4.4.11	Charge control		P
4.4.12	Physical protection		P

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IEC 61427:2005			
Clause	Requirement + Test	Result - Remark	Verdict
5	General requirements		P
5.1	Mechanical endurance		P
	Batteries for photovoltaic application shall be designed to withstand mechanical stresses during normal transportation and handling. Additional packing or protection shall be used for off-road conditions.	Considered by manufacturer	P
	Particular care shall be taken while handling unpacked batteries. Manufacturer's instructions shall be observed.	See above	P
	In case of specific requirements regarding mechanical stresses, such as earthquakes, shock and vibration, these shall be individually specified or referred to the relevant standard.	See above	P
5.2	Charge efficiency		P
	The charge efficiency is the ratio between the quantity of electricity delivered during the discharge of a cell or battery and the quantity of electricity necessary to restore the initial state of charge under specified conditions (see IEV 482-05-39).	See table 5.2	P
	Where no data are available from the battery manufacturer, the following efficiencies as given in Table 4 may be assumed.	See table 5.2	P
5.3	Deep discharge protection		P
	Lead-acid batteries shall be protected against deep discharge to avoid capacity loss due to irreversible sulphation. This could be achieved by using a system which monitors the battery voltage and automatically disconnects the battery before it reaches its maximum depth of discharge (see manufacturer's recommendations).	Considered by manufacturer	P
	Nickel-cadmium batteries do not normally require this type of protection.		N/A
5.4	Marking	See Attached Marking Labels	P
	Cells or Monobloc batteries shall follow the instructions of the applicable standards defined in clause 7.2.	See Above	P
5.5	Safety	See operating Manuals	P
	Refer to applicable local regulations and the manufacturer's instructions for procedures to be observed during installation, commissioning, operation, taking out of service, and disposal.	See above	P
5.6	Documentation		P

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	Refer to the manufacturer's documentation for transport and storage, commissioning, putting into service, operation and maintenance.	See operating Manuals	P
	The manufacturer shall advise if there are special considerations for the initial charging of batteries with only the photovoltaic array available as the power source.	See above	P

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IEC 61427:2005			
Clause	Requirement + Test	Result - Remark	Verdict
6	Functional characteristics		P
	The batteries shall be characterized by their:		--
	– rated capacity (see 8.1);	See below cl.no. 8.1	P
	– endurance in cycling (see 8.2);	See below cl.no. 8.2	P
	– charge retention (see 8.3);	See below cl.no. 8.3	P
	– cycling endurance in photovoltaic application (extreme conditions) (see 8.4).	See below cl.no. 8.4	P

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Clause	Requirement + Test	Result - Remark	Verdict
7	General test conditions		P
7.1	Accuracy of measuring instruments		P
	When testing batteries, the parameters and accuracy values shall be in accordance with relevant clauses of the IEC standards listed in 7.2.	Complied	P
	The accuracy of the measuring instruments shall be in compliance with the relevant IEC standard listed in 7.2.	complied	P
7.2	Preparation and maintenance of test samples		P
	Test samples shall be prepared in accordance with the following established procedures in the following standards:		--
	-IEC 60896-11 for stationary lead-acid batteries (vented types);	Complied	P
	-IEC 60896-21 for stationary lead-acid batteries (valve-regulated types);		NA
	-IEC 61056-1 for portable lead-acid batteries (valve- regulated types);		NA
	-IEC 60622 for sealed nickel-cadmium batteries;		NA
	-IEC 60623 for vented nickel-cadmium batteries;		NA
	-IEC 62259 for nickel cadmium prismatic rechargeable single cells with partial gas recombination.		NA

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IEC 61427:2005			
Clause	Requirement + Test	Result - Remark	Verdict
8	Test method		
8.1	Capacity test	See table 8.1	P
	Test samples shall be set up in accordance with the applicable standards in 7.2. Tests to verify the rated capacity shall be performed using a current of I10(A) for lead-acid batteries and It/5(A) for nickel- cadmium batteries according to the relevant clauses in the IEC standards listed in7.2.	Capacity test in C10 have been checked.	P
	For the capacity test using a current of I120 (A) for lead-acid batteries or It/120 for nickel cadmium batteries, the discharge shall be in accordance with parameters stated in Table 5 and the charging procedure shall be carried out according to the relevant clauses in the IEC standards listed in 7.2	Capacity test in C120 have been checked.	P
8.2	Endurance in cycle test		P
	Test samples shall be cycled according to the applicable standards described in 7.2.		P
8.3	Charge retention test	See table 8.3	P
	Test samples shall follow the procedures of the applicable standards described in 7.2.	After test, No hazards.	
8.4	Cycle endurance test in photovoltaic application (extreme conditions)	See table 8.4 50 cycles with the phase A & 100 Cycles with the Phase B	P
	In photovoltaic applications the battery will be exposed to a large number of shallow cycles but at different states of charge. The cells or batteries shall therefore comply with the requirements of the test below, which is a simulation of the photovoltaic energy system operation.		P
	The cycle endurance test is an accelerated simulation in extreme conditions of the battery operation in a photovoltaic energy system and shall be conducted by submitting the cells or monobloc batteries to a period of 150 cycles (50 cycles with the phase A and 100 cycles with the phase B).	See above	P
	Test samples shall be set up in accordance with the applicable standards listed in 7.2 after control of the capacity test in 8.1.	complied	P
	Start the test with the battery fully charged. Bring the battery to a temperature of 40 °C ± 3 °C and stabilize for 16 h. Maintain the battery at 40°C ±3 °C Throughout the test.	40 °C for 16 h stabilized. 40 °C throughout the test.	P
8.4.1	Phase A: shallow cycling at low state of charge		P

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	Lead-acid batteries		P
	a) Discharge the battery with a current I10 (A) during 9 h or until 1,75 V/cell is reached.		P
	b) Recharge 3 h with a current 1,03 I10 (A)		P
	c) Discharge 3 h with a current I10 (A).		P
	Nickel-cadmium batteries		N/A
	a) Discharge the battery with a current It /10 (A) during 9 h or until 1,00 V/cell is reached.		N/A
	b) Recharge 3 h with a current 1,03 It /10 (A)		N/A
	c) Discharge 3 h with a current It /10 (A)		N/A
	For both battery types, repeat b) and c) 49 times. Recharge the battery to the fully charged condition according to the manufacturer recommendations and continue the phase B. Phase A is summed up in Table 6.	b) And c) repeated 49 times.	P
8.4.2	Phase B: shallow cycling at high state of charge		P
	Lead-acid batteries		P
	a) Discharge the battery for 2 h with a current 1,25 I10 (A)		P
	b) Recharge 6 h with a current I10 (A). The charge voltage shall be limited to 2,40 V/cell, unless otherwise specified by the manufacturer.		P
	Nickel-cadmium batteries		--
	a) Discharge the battery for 2 h with a current 1,25 It /10 (A)		N/A
	b) Recharge for 6 h with a current It /10 (A). The charge voltage shall be limited to 1,55 V/cell unless otherwise specified by the manufacturer.		N/A
	For both batteries, repeat a) and b) 99 times and then perform a capacity determination according to 8.4.3. Phase B is summed up in Table 7.	b) And c) repeated 49 times.	P
8.4.3	Capacity check		P
	After the phase B, the battery is cooled down to the temperature defined in the relevant standard as described in 7.2 and stabilized at this value for 16 h. The capacity test (C10 for lead-acid batteries and C5 for nickel-cadmium batteries) is carried out according to the relevant standard as described in 7.2.		P
8.4.4	End of test condition		P
	Capacity is checked after each period of 150 cycles (phases A + B).		P
	The value of actual capacity determined in 8.4.3 shall be recorded.		P
	The cycle life shall be expressed in number of 150 cycle (A+B) sequences completed.		P
	The test is finished:		

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	-During the phase A: when the cell voltage measured in discharge is lower than 1,5 V/cell for lead acid batteries and 0,8 V/cell for nickel-cadmium batteries.		P
	-After the phase B: when the checked capacity measured in 8.4.3 is lower than 80 % of the rated capacity.		P
8.4.5	Water consumption of flooded battery types and cells with partial gas recombination		P
	During the cycle endurance test, vented type cells or Monoblocs may be topped up with water. The amount of water added shall be measured and reported.		P
8.4.6	Requirements		P
	The number of complete cycle sequences (150 cycles) achieved at the end of the test shall be not less than the value stated by the manufacturer.		P

IEC 61427:2005			
Clause	Requirement + Test	Result - Remark	Verdict
9	Recommended use of tests		P
9.1	Type test		P
	Type tests are:		P
	– the rated capacity test and the charge retention test;		P
	– the endurance test in cycling;		P
	– the cycling endurance test in photovoltaic application (extreme conditions).		P
	The minimum number of cells or monobloc batteries shall be as specified in the relevant standards listed in 7.2.		P
	The cycling endurance test in photovoltaic application shall be performed with a minimum of six cells or 2 monobloc batteries.		P
9.2	Acceptance test		P
9.2.1	Factory test		P
	The acceptance test shall be agreed between the customer and the supplier. Compliance to marking, labelling or to the rated capacity may be verified.		P
9.2.2	Commissioning test		P
	A commissioning test is recommended to prove the integrity of the installed battery system by means of a capacity test.		P

Table 5.2: Charge efficiency

Table 5.2	Charge efficiency	P
State of charge(SOC %)	**Efficiency lead-acid cell % (Measurement)**	**Efficiency lead-acid cells% (Limit)**
90	95.39%	>85

Table 8.1:

1. Capacity Test: C10

A) EM150D:

Sr.No.	Nominal Capacity @ C20(Ah)	Nominal Capacity @ C10(Ah)	Discharging Current (Amp)	Final Voltage (ECV)	Capacity Observed
1	150	135	13.5	10.80	146.3
2			13.5	10.80	145.7
3			13.5	10.80	146.1
4			13.5	10.80	145.7
5			13.5	10.80	148.0

B) EM200D:

Sr.No.	Nominal Capacity @ C20(Ah)	Nominal Capacity @ C10(Ah)	Discharging Current (Amp)	Final Voltage (ECV)	Capacity Observed
1	200	180	18.0	10.80	192.2
2			18.0	10.80	188.6
3			18.0	10.80	187.3
4			18.0	10.80	187.3
5			18.0	10.80	191.1

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C) **EM220D:**

Sr.No.	Nominal Capacity @ C20(Ah)	Nominal Capacity @ C10(Ah)	Discharging Current (Amp)	Final Voltage (ECV)	Capacity Observed
1	220	200	20.0	10.80	212.8
2			20.0	10.80	222.3
3			20.0	10.80	218.6
4			20.0	10.80	216.8
5			20.0	10.80	221.3

2. Capacity Test: C120

A) **EM150D:**

Sr.No.	Nominal Capacity @ C20(Ah)	Nominal Capacity @ C10(Ah)	Discharging Current (Amp)	Final Voltage (ECV)	Capacity Observed
1	150	135	1.68	11.10	209.3
2			1.68	11.10	209.2
3			1.68	11.10	209.9
4			1.68	11.10	208.8
5			1.68	11.10	208.9

B) **EM200D:**

Sr.No.	Nominal Capacity @ C20(Ah)	Nominal Capacity @ C10(Ah)	Discharging Current (Amp)	Final Voltage (ECV)	Capacity Observed
1	200	180	2.25	11.10	281.4
2			2.25	11.10	280.0
3			2.25	11.10	280.8
4			2.25	11.10	280.2
5			2.25	11.10	280.3

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C) **EM220D:**

Sr.No.	Nominal Capacity @ C20(Ah)	Nominal Capacity @ C10(Ah)	Discharging Current (Amp)	Final Voltage (ECV)	Capacity Observed
1	220	200	2.50	11.10	313.0
2			2.50	11.10	312.7
3			2.50	11.10	312.0
4			2.50	11.10	311.3
5			2.50	11.10	312.0

3. Capacity Test: C5

A) **EM150D:**

Sr.No.	Nominal Capacity @ C20(Ah)	Nominal Capacity @ C10(Ah)	Discharging Current (Amp)	Final Voltage (ECV)	Capacity Observed
1	150	135	22.49	10.80	123.6
2			22.49	10.80	126.5
3			22.49	10.80	125.6
4			22.49	10.80	127.0
5			22.49	10.80	127.7

B) **EM200D:**

Sr.No.	Nominal Capacity @ C20(Ah)	Nominal Capacity @ C10(Ah)	Discharging Current (Amp)	Final Voltage (ECV)	Capacity Observed
1	200	180	29.88	10.80	173.2
2			29.88	10.80	170.3
3			29.88	10.80	166.6
4			29.88	10.80	163.1
5			29.88	10.80	174.9

C) EM220D:

Sr.No.	Nominal Capacity @ C20(Ah)	Nominal Capacity @ C10(Ah)	Discharging Current (Amp)	Final Voltage (ECV)	Capacity Observed
1	220	200	33.32	10.80	190.3
2			33.32	10.80	203.7
3			33.32	10.80	199.2
4			33.32	10.80	199.8
5			33.32	10.80	204.4

Table 8.3: Charge Retention Test

A) EM150D:

Sr.No.	1	2	3	4	5	6
Ca(Ah)	148.5	147.32	148.29	143.74	151.4	146.93
Cast(Ah)	131.76	126.15	130.38	134.5	134.33	130.61
Crf%	89	86	88	94	89	89

B) EM200D:

Sr.No.	1	2	3	4	5	6
Ca(Ah)	176	175.26	175.59	176.01	175.44	174.9
Cast(Ah)	155.05	153.32	148.21	157.72	159.1	156.68
Crf%	88	87	84	90	91	90

C) EM220D:

Sr.No.	1	2	3	4	5	6
Ca(Ah)	223.7	227.6	228.7	227.7	228.8	228.6
Cast(Ah)	195.29	194.68	197.28	199.11	203.42	197.22
Crf%	87	86	86	87	89	86

Table 8.4: Cycle endurance test in Photovoltaic application (Extreme Conditions):

A) EM150D

Sr.No.	Test	Nominal Capacity @C20(Ah)	Nominal Capacity @C10(Ah)	Unit No	Capacity Ah out after unit End	Spec for test termination after unit end
1	C10	150	135	0	144.2	0.00
2				1	128.0	108.00
3				2	113.0	108.00
4				3	111.4	108.00
5				4	117.3	108.00
6				5	108.4	108.00
7				6	112.9	108.0
8				7	122.1	108.0
9				8	112.5	108.0

B) EM200D

Sr.No.	Test	Nominal Capacity @C20(Ah)	Nominal Capacity @C10(Ah)	Unit No	Capacity Ah out after unit End	Spec for test termination after unit end
1	C10	200	180	0	182.5	0.00
2				1	172.7	144.00
3				2	152.9	144.00
4				3	151.8	144.00
5				4	156.8	144.00
6				5	156.1	144.00
7				6	146.5	144.00
8				7	147.3	144.00
9				8	145.0	144.00

C) EM220D

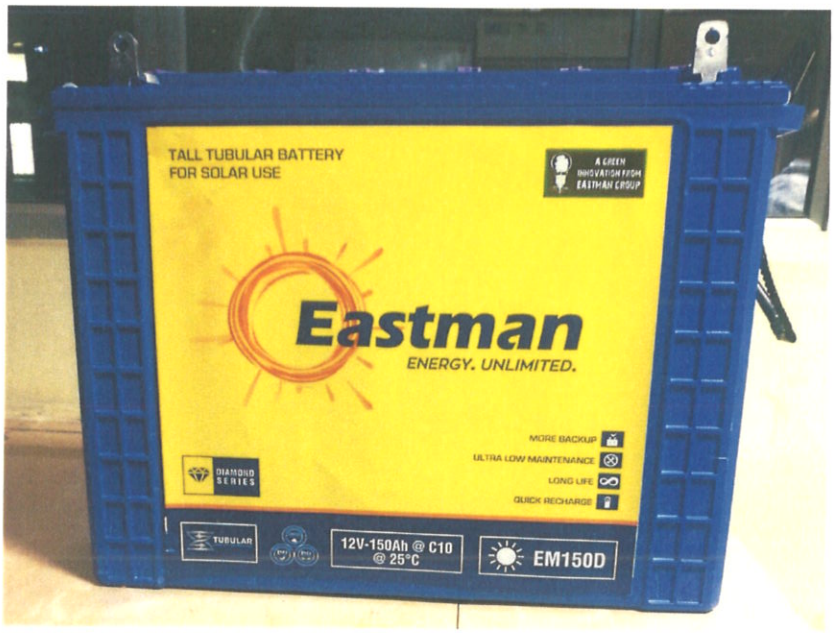
Sr.No.	Test	Nominal Capacity @C20(Ah)	Nominal Capacity @C10(Ah)	Unit No	Capacity Ah out after unit End	Spec for test termination after unit end
1	C10	220	200	0	215.5	0.00
2				1	200.1	160.00
3				2	168.9	160.00
4				3	172.3	160.00
5				4	175.4	160.00
6				5	176.1	160.00
7				6	176.2	160.00
8				7	180.6	160.00
9				8	164.6	160.00

Date: 19/02/2020

Photographs

A) EM150D:

FRONT VIEW



REAR VIEW

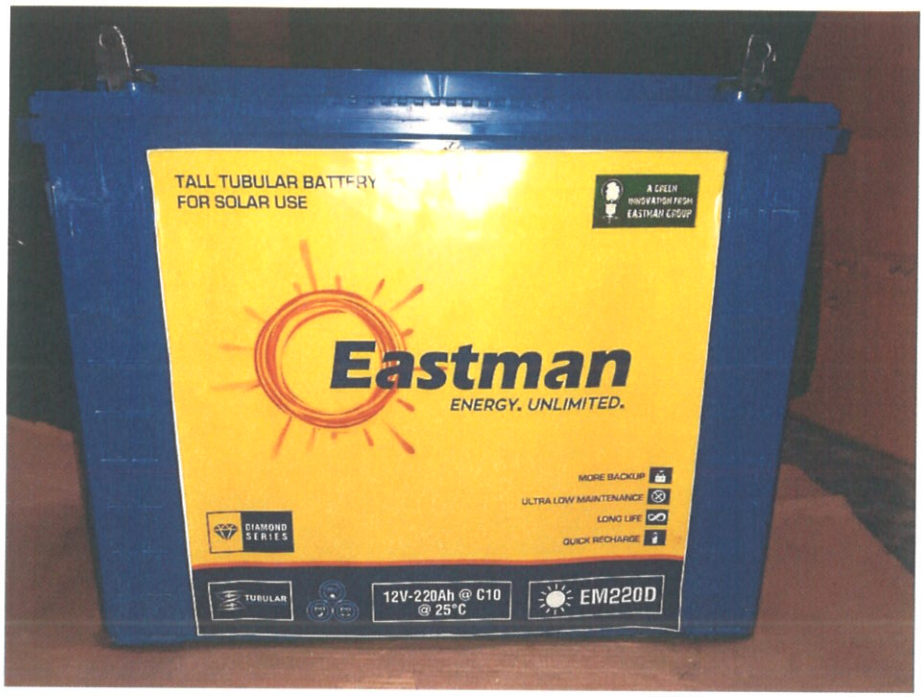
B) EM200D

FRONT VIEW

REAR VIEW

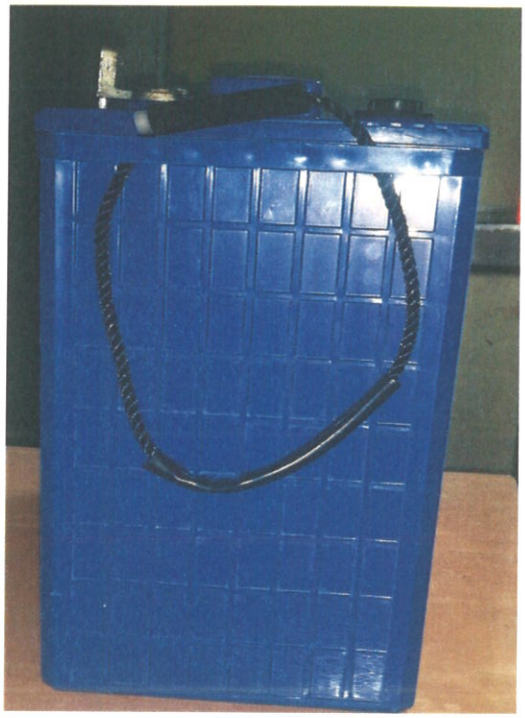
C) EM220D

FRONT VIEW



REAR VIEW

SIDE VIEW 1



SIDE VIEW 2

XXXXXXXXXX END OF REPORT XXXXXXXXX