



Govt. of India
Ministry of Electronics & I.T., STQC Directorate
ELECTRONICS TEST AND DEVELOPMENT CENTRE, MOHALI
B-108, Industrial area, Phase- VIII, Mohali (PB)-160071



TEST REPORT

Report No.	Unique Lab Report No.	Dated	Page No.
ETDC(MH)/T&M/154	ULR-TC5465181000000020P	24-10-2018	1 of 7

1. Indentor's Address : M/s Okaya Power Pvt. Ltd.
D-7, Udyog Nagar, Rohtak Road
(Near Peeragarhi Metro Station)
New Delhi - 110041
(SRF No. 17763 dt. 20.02.2018)
2. Description of item(s)
 - 2.1 Nomenclature : SMF / VRLA Battery (12V/42Ah)
 - 2.2 Make/Model : Okaya/ OB-42-12
 - 2.3 Sr. No. : Sample No.1 to 6 (Refer remarks 1)
 - 2.4 Manufactured by : Okaya Power Pvt.Ltd.
 - 2.5 Quantity : Six
3. Sample(s) received on : 20.02.2018
4. Condition of sample(s) on receipt : Good
5. Date(s)/Period item(s) tested : 22.02.2018 to 24.10.2018
6. Location where test(s) carried out (With name and address) : ETDC Mohali
7. Reference of test method(s) used : JIS C 8702 -1: 2009 and Indentor's.
8. Applicable product specification(s) : JIS C 8702 -1: 2009 and Indentor's.
9. Deviation(s), exclusion(s), addition(s) in test method(s) : Nil
10. Environmental conditions
 - 10.1 Temperature : 25°C ± 10°C
 - 10.2 Humidity : 45% to 70%
11. Statement with regard to compliance : Refer to test results (Test Data)
12. Statement on uncertainty in measurement : Not Applicable.
13. Major Equipment Used

S. no.	Nomenclature	Make	Model	Cal. Validity
1.	Electronic Load	Digitronics	750W	May, 2019
2.	Multimeter (Digital)	Rishabh	15S	April, 2019
3.	Vibration Machine	Sarwati Dynamic	SEV 100	July, 2019
4.	Clamp meter	Meco	3600	Nov, 2018
5.	Measuring Tape	Freemans	15M	Nov, 2018
6.	Weighting Scale	Modern Business	SNEW-100	July, 2019
7.	Stop Watch	Timeter	J-23	Feb, 2019

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14. RESULTS SUMMARISED:

Test Stage	Test Requirements (Cl. Ref. of specs.)	Test Condition	Test Data	Pass/Fail (Qty.)	Uncertainty (Where applicable)														
1. Visual Examination	JIS 8702-1	There shall not be any deformation of body and cracks / corrosion on the terminals of the sample (Sealed Lead Acid Battery).	No defects observed.	Pass	-														
2. Marking																			
2.1 Polarity (Cl: 4.4)	JIS-C 8702-2 (Cl. 6.1) and JIS 8702-1 (Cl. 4.4)	Positive and negative terminals of the sample shall be marked with symbols (+) and (-) respectively.	Positive: (+) with Red colour Negative: (-) with Black colour	Pass	-														
2.2 Designation (Cl: 4.3)	JIS 8702-2 (Cl. 6.2) and JIS C 8702-1 (Cl. 4.3)	The sample shall be marked with relevant details : a) Type Designation b) Nominal Voltage (n x 2.0 V) c) Rated Capacity (20 Hr. rate) d) Manufacturer.	SMF / VRLA Battery 12V (6x2V) 42Ah Okaya Power Pvt. Ltd.	Pass Pass Pass Pass	-														
2.3. Additional Information	JIS C 8702-1 (Cl.4.3)	Following parameters shall be determined in respect of the sample: a) Mass (Kg) b) Dimension (LxWxH) c) Charging Current / Voltage	<table border="1"> <thead> <tr> <th>Sample No</th> <th>Mass(Kg)</th> </tr> </thead> <tbody> <tr><td>1.</td><td>14.44 kg</td></tr> <tr><td>2.</td><td>14.40 kg</td></tr> <tr><td>3.</td><td>14.44 kg</td></tr> <tr><td>4.</td><td>14.48 kg</td></tr> <tr><td>5.</td><td>14.46 kg</td></tr> <tr><td>6.</td><td>14.42 kg</td></tr> </tbody> </table> L : 195 mm W: 165 mm H : 180 mm Standby Use: 13.5 V to 13.8 V Initial current: 8.4 A Cycle use: 14.6 V to 14.8 V	Sample No	Mass(Kg)	1.	14.44 kg	2.	14.40 kg	3.	14.44 kg	4.	14.48 kg	5.	14.46 kg	6.	14.42 kg	- - - -	- - -
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14. RESULTS SUMMARISED:

Test Stage	Test Requirements (Cl. Ref. of specs.)	Test Condition	Test Data	Pass/Fail (Qty.)	Uncertainty (Where applicable)								
3. Classification of Battery	JIS C 8702-2 (Cl. 7)	The sample shall either be Prismatic or Cylindrical.	Prismatic.	Pass	-								
4. Capacity Test (20Hrs.)	JIS C 8702-1 (Cl. 5.1 & 7.1)	The Fully charged sample shall be discharged by at a constant current of 2.1 A \pm 2 % at an ambient temperature of 25°C \pm 2°C till an end point terminal voltage of 10.5V (6 x 1.75V). The capacity shall be 42 Ah or more.	<table border="1" style="display: inline-table; border-collapse: collapse;"> <thead> <tr> <th>Sample No.</th> <th>Capacity</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>45.1Ah</td> </tr> <tr> <td>2</td> <td>45.2Ah</td> </tr> <tr> <td>3</td> <td>44.5Ah</td> </tr> </tbody> </table>	Sample No.	Capacity	1	45.1Ah	2	45.2Ah	3	44.5Ah	Pass	-
Sample No.	Capacity												
1	45.1Ah												
2	45.2Ah												
3	44.5Ah												
5. High Rate Discharge Test (Sample No.1)	JIS C 8702-1 (Cl. 5.2 & 7.2)	Fully charged sample shall be discharged at a constant current of 42A (20 x I ₂₀) upto an end point terminal voltage of 9.6V (6x1.6V). The discharge duration shall be 27 minutes or more.	Discharge time: 31 minutes	Pass	-								
6. Resistance to Vibration (Sample No. 3)	JIS C 8702-1 Cl.5.9	The sample shall be subjected to the following conditions: Frequency : 16.7Hz Amplitude :4mm (peak to peak) Duration : 1 Hr continuous Direction : Vertical, Longitudinal and lateral (X, Y & Z) State of sample: Fully charged. After the above test, there shall not be any deformation, mechanical damage, breaking on the sample	Conducted. No visual defects deformation, mechanical damage, breaking on the sample observed.	Pass	-								

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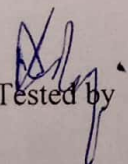


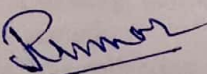
TEST REPORT

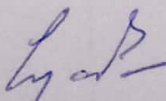
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14. RESULTS SUMMARISED:

Test Stage	Test Requirements (Cl. Ref. of specs.)	Test Condition	Test Data	Pass/ Fail (Qty.)	Uncertainty (Where applicable)
7. Resistance to Shock (Sample No. 1)	JIS C 8702-1 Cl 5.10	The fully charged sample shall be given three falls from a height of 20cm with bottom facing downward on a flat hard wooden plate of 10 mm or more in thickness. There shall not be any deformation, mechanical damage, breaking on the sample	Conducted. No visual defects deformation, mechanical damage, breaking on the sample observed.	Pass	-
8. Max. Permissible Current (Sample No.3)	JIS C 8702-1 (Cl. 5.5)	Fully charged sample shall be discharged at a constant current 200 A (40 x I ₂₀) for 300sec. After the discharge, sample shall be recharged and it shall be discharged at a constant current of 200 A (40*(I ₂₀)) upto an end point terminal voltage of 8.04 V (6*1.34 V). The discharge duration shall not be less than 150 sec.	Conducted 803 sec	- Pass	- -
9. Storage Characteristics (Sample No.2)	JIS C 8702-1 (Cl. 5.4 & 7.4)	Fully charged sample shall be stored for 120 days. After the period, the capacity test shall be performed at a constant discharge current of 2.1A(I ₂₀) upto an end point terminal voltage of 10.5V. The capacity shall not be less than 75% of the rated capacity	Capacity: 88.75%	Pass	-


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14. RESULTS SUMMARISED:

Test Stage	Test Requirements (Cl. Ref. of specs.)	Test Condition	Test Data	Pass/Fail (Qty.)	Uncertainty (Where applicable)
10. Capacity Test After Charge Acceptance After Deep Discharge	JIS C 8702- 1 Cl. 5.6	A suitable load resistor which can draw a current of 84 A $\pm 10\%$ ($40 \times I_{20}$) shall be connected across the fully charged sample and it shall be stored for 360Hrs. After the storage period, the load resistor shall be disconnected from the sample and sample shall be recharged at constant voltage (UC) as per 6.1A for a period of 48Hrs with Initial charging current between 16.8 A ($6 \times I_{20}$ to $10 \times I_{20}$). After the charging period, the sample shall remain open circuited for 5 to 24Hrs and then shall be discharged at 5 A (C_{20}). The observed capacity of the sample shall not be less than 75% of the rated capacity.	Capacity: 102%	Pass	-
11. Gas Recombinating Characteristics	JIS C 8702- 1:2009 Cl. 5.10 & 7.9	The sample shall be tested as under: State of Battery: Fully Charged Charging condition: Battery shall be charged continuously at a constant current of $2 \times I_{20}$ for 48 Hrs. A gas collecting device shall be installed as specified and within one hour of completion of charging as above, the battery shall be charged at a constant current of $0.1 \times I_{20}$ continuously Immediately after lapse of 24 hr from current passing, collection of gas shall be started. Duration of gas collection : 5 Hrs.	Conducted Efficiency of Gas Recombination: 99.4%	Pass	-

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15. Additional Remarks:

1. Serial Number of the samples-

Sample No	Serial No
1	IAAHS02201051714
2	IAAHS02201051716
3	IAAHS02201051717
4	IAAHS02201051718
5	IAAHS02201051719
6	IAAHS02201051720

2. Device Under Test (DUT) photograph enclosed as Annexure-1.

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जगदीश कुमार / JAGDISH KUMAR
वैज्ञानिक 'डी' / Scientist 'D'
संचार एवं सूचना प्रौद्योगिकी मंत्रालय
Ministry of Comm. & Info. Technology
भारत सरकार, एल.टी.डी. कॉम्प्लेक्स, इंदौर रोड, मोहाली (पंजाब)
Govt of India, STQC Directorate Centre, ETDC, Mohali (Pb.)



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Annexure-I

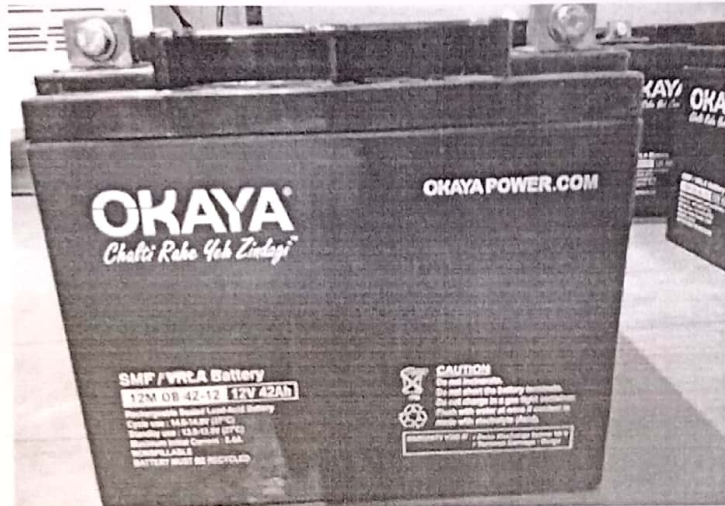


Figure-I

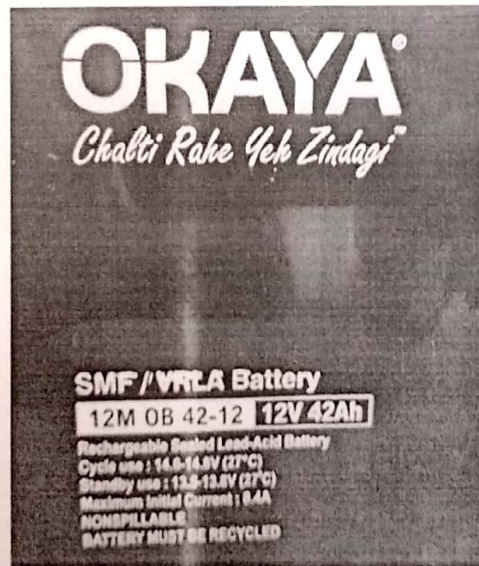
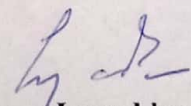


Figure-II


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