


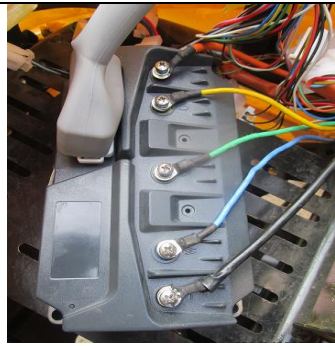


## TYPE APPROVAL TEST REPORT

**ARAI/AED/20222023/3000026440/CT/1510**  
**ULR No. TC508522000001022F**

**Dt. 06-Dec-2022**  
**Discipline: Mechanical**

**CONFIDENTIAL**  
**Group: Performance**

1.0	Name & Address of the Customer	M/s. MECWIN TECHNOLOGIES INDIA PRIVATE LIMITED No 91/1, Seegehalli Magadi Road Kanakadasa Layout, Bengaluru, Karnataka
2.0	Customer Reference	Letter Mecwin/22-23/0001 dated: 14 <sup>th</sup> November 2022
3.0	Test Objective	To measure Net Power and Maximum 30 Minute Power as per the requirements of AIS-041 (Rev. 1)/2015 notified under CMV Rule No.124 vide S.O. 411(E) Dt.9.02.2016.
4.0	Condition of Test Component at Receipt	The test component was received in good condition.
5.0	Test Motor Configuration	
5.1	Motor	<b>Make:</b> Mecwin Technologies India Pvt Ltd <b>Type:</b> BLDC motor <b>Model No.:</b> MWEV12HUB100TO3000Wp
5.2	Controller	<b>Make:</b> Star Engineers Pvt. Ltd. <b>Type:</b> BLDC motor Controller <b>Model No.:</b> MWEV48TO72VUPTO3000Wp <b>Software Version:</b> 20210127 <b>Hardware Version:</b> 100023
6.0	Test Equipment	
6.1	Chassis Dynamometer: BEP-USA make	
7.0	Test Date: 23 <sup>rd</sup> November 2022	
8.0	Test Component Photos (Motor Mounted in Vehicle)	
8.1	Note: The Motor was mounted on the vehicle to perform the motor power test as per AIS-041 rev.1 on chassis dynamometer.	
		
9.0	<b>CONCLUSION:</b>	
9.1	The measured max power of the motor <b>M/s. Mecwin Technologies India Pvt Ltd (Model No.: MWEV12HUB100TO3000Wp)</b> is <b>2.8 kW @ 1010 rpm</b> when tested as per AIS-041 (Rev. 1)/2015 notified under CMV Rule No.124 vide S.O. 411(E) Dt. 9.02.2016.	
9.2	The measured max 30 min power of the motor <b>M/s. Mecwin Technologies India Pvt Ltd (Model No.: MWEV12HUB100TO3000Wp)</b> is <b>1.5 kW @ 870 rpm</b> when tested as per AIS-041 (Rev. 1)/2015 notified under CMV Rule No.124 vide S.O. 411(E) Dt.9.02.2016.	

		
<b>S M SUPNEKAR</b> <b>TEAM LEAD</b>	<b>M M DESAI</b> <b>GENERAL MANAGER</b>	<b>A A DESHPANDE</b> <b>Sr. Dy. DIRECTOR &amp; HoD</b>

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10.0	Test Results																																										
10.1	The vehicle tyres were inflated to the pressure specified by the manufacturer.																																										
10.2	<p><b>Determination of Net Power:</b> Test was performed on full charged battery The test vehicle was driven on chassis dynamometer with accelerator at max position and max power was recorded at various speeds in the range 1089 rpm to 330 rpm. The max power of 2.8 kW was recorded at speed of 1010 rpm.</p> <table><tr><th>Speed (km/h)</th><th>Wheel RPM</th><th>Power (kW)</th></tr><tr><td>62.5</td><td>1089.0</td><td>2.2</td></tr><tr><td>62.0</td><td>1079.1</td><td>2.3</td></tr><tr><td>60.0</td><td>1044.3</td><td>2.7</td></tr><tr><td><b>58.0</b></td><td><b>1010.0</b></td><td><b>2.8</b></td></tr><tr><td>54.0</td><td>939.9</td><td>2.7</td></tr><tr><td>50.0</td><td>870.0</td><td>2.6</td></tr><tr><td>46.0</td><td>800.6</td><td>2.6</td></tr><tr><td>42.0</td><td>731.0</td><td>2.6</td></tr><tr><td>36.0</td><td>626.6</td><td>2.5</td></tr><tr><td>30.0</td><td>522.1</td><td>2.4</td></tr><tr><td>25.0</td><td>435.1</td><td>2.3</td></tr><tr><td>22.0</td><td>382.9</td><td>2.1</td></tr><tr><td>19.0</td><td>330.7</td><td>2.0</td></tr></table>	Speed (km/h)	Wheel RPM	Power (kW)	62.5	1089.0	2.2	62.0	1079.1	2.3	60.0	1044.3	2.7	<b>58.0</b>	<b>1010.0</b>	<b>2.8</b>	54.0	939.9	2.7	50.0	870.0	2.6	46.0	800.6	2.6	42.0	731.0	2.6	36.0	626.6	2.5	30.0	522.1	2.4	25.0	435.1	2.3	22.0	382.9	2.1	19.0	330.7	2.0
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10.3	<p><b>Determination of Max 30 Min Power:</b> The manufacturer has declared max 30 min power of 1.5 kW. It was confirmed that the max power at 30 min power speed of 870 rpm is more than 90% of max power of the vehicle. The test vehicle was driven on the chassis dynamometer at 870 rpm and accelerator position so as to get power of 1.5 kW for 30 min. The test vehicle was able to run at 870 rpm and deliver power of 1.5 kW ± 5% for 30 min.</p>																																										

This test report pertains only to the components / parts / assemblies / vehicles etc. actually tested at ARAI in the presented condition based on the documents / information produced / submitted by the customer. The issuance of this test report alone does not indicate any measure of approval, certification, supervision, control of quality surveillance by ARAI of the product. No extract, abridgement or abstraction from this test report shall be published or used to advertise the product without the written consent of the Director, ARAI, who reserves the absolute right to agree or reject all or any of the details of any items of publicity for which consent may be sought. ARAI is in no way responsible for any misuse of copying of any design / type / system in connection with entire vehicle / components / parts and assemblies. Breach of any statutory provision of Indian laws or laws of other countries, will be the sole responsibility of the customer and ARAI shall not be liable for any claims or damages, made by the party, whatsoever, the customer shall alone be liable for the same, and undertakes to indemnify ARAI in this regard. Further, the ARAI has the right to initiate cancellation / withdrawal of the certificate / report issued, in case of any fraud, misrepresentation, when it surfaces and comes in the knowledge of ARAI. The appropriate local courts at Pune shall have the jurisdiction in respect of any dispute, claim or liability arising out of this report.

**Place of Issue: PUNE**

	
<b>S M SUPNEKAR</b> <b>TEAM LEAD</b>	<b>M M DESAI</b> <b>GENERAL MANAGER</b>