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Date : 12<sup>th</sup> May 2023

C O S G 0504 V01

## TYPE APPROVAL CERTIFICATE

FOR

Retro-fit Emission Control Devices (RECD) Compliance

Cert	Report	Specs	Drg	Total
04	---	01	---	05 pgs

1. Based on the verification of documents & trials conducted on RECD model "Chakr Shield 2.0\_C2-CS1800-R10-V2" (Family designation C2-R10) for below mentioned manufacturer and it is certified that the following RECD model complies with the provisions of Type Approval of CPCB System Procedure for Retro-fit Emission Control Devices (RECD) Compliance to Diesel Power Generating Set Engines Up to Gross Mechanical Power 800 kW, as per NGT Order/report "Report filed in O.A. No. 681/2018 dated 6.08.2019".

Documental Reference		RECD Manufacturer					
COSG 0504 dtd. 10.05.2023		M/s.Chakr Innovation Pvt Ltd S.NO 236,Hissa No.7 & S.NO 237, Taluka Mulish, Hinjewadi, Phase 1, Pune - 411 057, Maharashtra Plant : Hinjewadi, Pune					
RECD Family Designation		Engine Manufacturer			RECD Model		
C2-R10		M/s. Caterpillar Inc.			Chakr Shield 2.0_C2-CS1800-R10-V2		
Tested Engine Model			Engine Cubic Capacity		Gross Engine Power		
C15-2GP-1			15200 cm <sup>3</sup>		454 kW @ 1500 rpm		
Engine Baseline emissions	CPCB Stage -II	Class of RECD	Class II	Engine Manufacturing Date		September 2017	
S. No.	Item Description	Parent RECD Type	RECD types within the RECD family (if applicable)				
		Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
Annexure-II						Annexure-III	
RECD suitable for Phase II Certified Diesel Generator engine / engine families							

2. Validity of the Certificate

This Type Approval Certificate is valid for Genset engine CPCB Stage-II effective from 01.07.2014 to 30.06.2023.	a.	As per System and procedure for Emission Compliance of Retro-fit Emission Control Devices(RECD) for Diesel Power Generating Set Engines up to Gross Mechanical power 800kW as per NGT Order/report "Report filed in O.A. No. 681/2018 dated 06.08.2019 or until further amendment in the MoEFCC rule, whichever is earlier.
	b.	No change in specified RECD technical specification.

3. It is certified that the above RECD Model (Details listed in Annexure-II) comply with the emission limits for Retro-fit Emission Control Devices (RECD) to Diesel Power Generating Set Engines having Gross Mechanical Power 454 kW, as prescribed under the following rules, notified by Ministry of Environment, Forest and Climate Change (MoEFCC), Govt. of India:

Rule No.	Description	Date
CPCB-PCLS/12/2021-22	System and procedure for Emission Compliance of Retro-fit Emission Control Devices(RECD) for Diesel Power Generating Set Engines up to Gross Mechanical power 800kW as per NGT Order/report "Report filed in O.A. No. 681/2018 dated 6.08.2019	01.02.2022

4. COP : COP shall be completed by 30.06.2024 as per CPCB Procedure, for details refer COP Annexure-I.

AUTHORISED SIGNATORY			
SITARAM KASHYAP DEPUTY GENERAL MANAGER		MADHUSUDAN JOSHI DEPUTY GENERAL MANAGER	
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