

COP Annexure-I

| Criteria* | COP Required |
|--|--|
| RECD Manufacturer/Importer/Retrofitter | <p>RECDs fitted on engines of all ratings shall be subjected to the verification of CoP once for every 500 units per family or once a year, whichever is earlier</p> <p>Wherever applicable, RECDs fitted on engines of all ratings of engines shall be subjected to the verification of PCD once every CoP-year by PCD family (ies) representative RECD(s). Such demonstration is PCD family dependent and irrespective of combined volumes produced and sold under such family (ies)</p> |

* As Applicable

Annexure-II

| S No | Item Description | Parent RECD Type | | RECD types within the RECD family (if applicable) | |
|------|---|---|--------|---|--------|
| | | Type 1 | Type 2 | Type 1 | Type 2 |
| 1 | Manufacturing Plant address | M/s Chakr Innovation Private Limited, Survey No. 236 & 237, Hissa No.7, Taluka - Mulshi, Rajiv Gandhi Infotech Park, Hinjewadi Phase -1, Pune, Maharashtra - 411057 | | | |
| 2 | Manufacturer's trade name or mark | Chakr Innovation Private Limited | | | |
| 3 | RECD family designation | C2-R12 | | | |
| 4 | RECD type/model designation | C2-CS1800-R12 | | C2-CS1800-R11 | |
| 5 | RECD Category (Domestic/Imported) | Domestic | | | |
| 6 | Class of RECD | Class II | | | |
| 7 | Type Identification of the RECD | Continuous | | | |
| 8 | Location of type ID marking | Refer Specification no. CIPL/TA/C2-CS1800-R12 Rev.001 dtd. 13.11.2024 Clause no 1.8 | | | |
| 9 | Identifying part number(s) of the RECD | C2-CS1800-R12-V2.3 | | C2-CS1800-R11-V2.3 | |
| 10 | Engine/ Engine-Family for which the RECD is intended (application range) | KTA-38-G17 | | | |
| 11 | PM Reduction Efficiency of the RECD | 77.50% | | | |
| 12 | Designed for fitment to an engine meeting the emissions requirements of (Regulation and Stage): | CPCB Stage -II | | | |

| | |
|--------------|----------------------------|
| ICAT Ref No. | 2024-0171; IOCS No: 176260 |
|--------------|----------------------------|

| | |
|--|----------------------------------|
| Base Engine Type Approval Certificate number | ARAI/MoEF/DGTA/CIPL-F30/2018-30" |
|--|----------------------------------|

| | |
|-----------------------|--------------------------------------|
| Test Report Reference | CT0ET 0011 E01 ET0453 dt. 22/11/2024 |
|-----------------------|--------------------------------------|

AUTHORISED SIGNATORY

| | | |
|--|-----------------------------------|----------------|
| | | |
| SITARAM KASHYAP DEPUTY GENERAL MANAGER | SAURABH DALELA DIRECTOR | Page 2 of 4 |

Annexure-III

List of applicable engine(s) as per 771(E) dtd. 11.12.2013 and GSR 232(E) dtd. 31.03.2014 Phase II certified In -Use DG sets for corresponding RECD models of RECD Family.

| S. No. | Manufacturer Name & Address | Engine Family | Engine Model | Rated Gross Mechanical Declared Power | Type Approval Certificate Number |
|--------|--|---------------|----------------|---------------------------------------|---|
| 1 | M/s. Baudouin (Weifang) Power Co. Ltd. Add : No. 197A, Fushou East Street., High-new Technology, Industrial Development Zone, Weifang, Shandong, China. | 6M33D | 6M33D660E310 | 660 kW | ICAT/MoEF/DGTA/IM P/BWPCL-6M33D/M-1736-E01 Dt. 05-06-2018 |
| 2 | | | 6M33D633E310 | 575 kW | |
| 3 | | | 6M33D572E310 | 520 kW | |
| 4 | | 8M21G | 8M21G688/5e3 | 550 kW | ICAT/MoEFCC/DGTA/IMP/BWPCL-8M21G/P-0401 Dt. 28-02-2020 |
| 5 | Caterpillar India Pvt. Ltd 7th Floor, International Tech Park , Taramani Road, Taramani, Chennai, Tamilnadu 600 113 | F12 | CAT-C18-2GP-1 | 540 kW | ARAI/MoEF/DGTA/CIPL-F12/2017-05-E2 Dt. 28-06-2019 |
| 6 | Cummins India Limited Cummins India Office Campus Tower A, 5th Floor Survey No. 21, Balewadi, Pune 411045 | F54 | KTA38-G12 | 797 kW | ARAI/MoEF/DGTA/CILP-F54/2015-24 Dt. 03-12-2015 |
| 7 | | | KTA38-G13 | 736 kW | |
| 8 | Cummins India Ltd. Kothrud, Pune 411038 | F33 | QSK 19-G7 | 618 kW | ARAI/MoEF/DGTA/CILP-F33/2014-07-E1 Dt. 26-03-2015 |
| 9 | | | QSK 19-G6 | 583 kW | |
| 10 | Cummins India Limited Dahanukar Colony, Kothrud, Pune-411038, Maharashtra, India | F57 | KTAA19-G13 | 551 kW | ARAI/MoEF/DGTA/CILP-F57/2017-28-E2 Dt. 07-10-2019 |
| 11 | | | KTAA19-G12 | 532 kW | |
| 12 | | F54 | KTA38-G12 | 736 kW | ARAI/MoEF/DGTA/CIPL-F54/2018-24" |
| 13 | | F30 | KTA38-G17 | 797 kW | ARAI/MoEF/DGTA/CIPL-F30/2018-30" |
| 14 | | F30 | KTA38-G17 | 797 kW | ARAI/MoEF/DGTA/CILP-F30/2018-30-E1 Dt. 28-06-2019 |
| 15 | | | KTA38-G11 | 797 kW | |
| 16 | | | KTA38-G12 | 736 kW | |
| 17 | KTA38-G10 | | 736 kW | | |
| 18 | FMTU power system pvt. Ltd. Gat No. 450/1/B1 & 1/B3 Part, Indospace Industrial Park, Mahalunge Chakan, Maharashtra Pune 410 501. | F6 | 12V1600G80F/3D | 634 kW | ARAI/MoEF/DGTA/FMTU-F6/2021-01 Dt. 07-06-2021 |
| 19 | | | 10V1600G80F/3D | 493 kW | |
| 20 | | | 12V1600G10F/3B | 524 kW | |
| 21 | | | 12V1600G20F/3B | 576 kW | |
| 22 | | | 12V1600G70F/3D | 576 kW | |
| 23 | Kirloskar Oil Engines Ltd. Khadki, Pune | F119 | DV12ETA G11 | 663 kW | ARAI/MoEF/DGTA/KOELF119/2016-19-E2 Dt. 29-01-2019 |
| 24 | | | DV16ETA G2 | 799 kW | |
| 25 | | F115 | DV12TA G2 | 551.6 kW | ARAI/MoEF/DGTA/KOELF115/2014-01-E1 Dt. 11-09-2019 |
| 26 | | | DV12TA G1 | 531.7 kW | |
| 27 | M/s. Shandong Heavy Industry India Pvt. Ltd. Add: Survey No. 280/281, Hinjawadi Phase II, Village Mann, Taluka Mulshi, Pune - 411057, Maharashtra, India | 8M21G | 8M21G688/5e3 | 550 kW | ICAT/MoEFCC/DGTA/SHIPL-8M21G/P-0400 Dt. 28-02-2020 |

AUTHORISED SIGNATORY

| | | |
|---|------------------------------------|----------------|
| | | |
| SITARAM KASHYAP DEPUTY GENERAL MANAGER | SAURABH DALELA DIRECTOR | Page 3 of 4 |

| Annexure-III Cont. | | | | | |
|--------------------|---|---------------|-----------------------|---------------------------------------|--|
| S. No. | Manufacturer Name & Address | Engine Family | Engine Model | Rated Gross Mechanical Declared Power | Type Approval Certificate Number |
| 28 | Perkins India Private Limited 7th Floor, International Tech Park , Taramani Road, Taramani, Chennai- 600113 Tamil Nadu, India | F12 | Perkins-2806DE18TAG1A | 540 kW | ARAI/MoEF/DGTA/PIPL/F12/2017-07-E2 Dt. 28-06-2019 |
| 29 | | F14 | 4006D-E23TAG2S | 732 kW | ARAI/MoEF/DGTA/PEL/F14/2018-08-E2 Dt. 16-05-2019 |
| 30 | | | 4006D-E23TAG2P | 668 kW | |
| 31 | | | 4008D-E30TAG2P | 799 kW | |
| 32 | | | 4008D-E30TAG1P | 720 kW | |
| 33 | Scania Commercial Vehicles India Pvt. Ltd. Plot No.63 (part),64-66,88-97,Narsapur, KIADB Industrial Area, Achhatanahalli Village, Narsapur Hobli, Kolar Taluk, District Kolar, Karnataka, PIN-563 130 | F1 | DC16 071A 480 | 480 kW | ARAI/MoEF/DGTA/IMP/SCANIA-F1/2015-01-E1 Dt. 25-07-2017 |
| 34 | Volvo India Private Limited Volvo Penta. Yalachahaly, Tavarekere Post, Hosakote TQ Bangalore, Karnataka-562 | F12 | TWD1653GE | 564 kW | ARAI/MoEF/DGTA/IMP/VOLVO-F12/2014-02-E1 Dt. 30.06.2015 |
| 35 | | | TED1652GE | 522 kW | |
| 36 | Perkins Engines Company Ltd. Frank Perkins Way, Peterborough, PE1 SFQ, United Kingdom | F13 | 4006D-23TAG2A | 667.8 kW | ARAI/MoEF/DGTA/PEL-F13/2015-05 |

Note: Engine details mentioned above are sourced from : www.cpcb.nic.in

*** END OF DOCUMENT ***

| AUTHORISED SIGNATORY | | |
|--|-----------------------------------|----------------|
| | | |
| SITARAM KASHYAP DEPUTY GENERAL MANAGER | SAURABH DALELA DIRECTOR | Page 4 of 4 |