

INTERNATIONAL CENTRE FOR AUTOMOTIVE TECHNOLOGY

[A Division of NATRiP Implementation Society (NATIS), Govt. of India]






ULR No-TC536020060000243F

C D O E P 0434

Date – 15/12/2020

DEVELOPMENT TEST REPORT

| | | | | | | | |
|---|--|---------------------------------|--|---|--|--|--|
| Test Sponsored by : | | | | Objective of the Test : | | | |
| M/s Chakr Innovation Private Ltd. 102/9/54, First Floor, D.B. Gupta Road, Nandhari Chamber, Karol Bagh, Central Delhi, Delhi-110005 New Delhi INDIA | | | | To carry out development test as per ISO 8178 D2 5 mode cycle procedure | | | |
| Test Date: 01/12/2020 & 03/12/2020 | | Test Site: ETC-11 | | IOCS No. : 131375 | | | |
| Engine receipt date: 11/11/2020 | | Condition of Engine: OK | | Any deviation from test method: None | | | |
| Engine Make: Caterpillar | | Tested Model: C 13 | | | | | |
| Brief Specification of Engine | | | | | | | |
| Bore (mm): 130 | | Stroke (mm): 157 | | No. of Cylinders: 6 | | | |
| Working Principle: 4-Stroke | | Type: Inline | | Swept Volume (lit.): 12.503 | | | |
| Cooling System: Liquid Cooled | | Aspiration / Injection: TCIC/DI | | Fuel Type: Diesel | | | |
| After treatment system Make: Chakr Innovation | | No. of devices: 1 | | | | | |
| Model No.: DOPF/ OC 1/ HCT 1/ 275-320 | | Nozzle No.: - | | | | | |
| Turbocharger Make: Caterpillar | | Type: HD Turbo | | | | | |
| Test Equipments used | | Make | | Model | | | |
| Engine Dynamometer | | SCHORCH | | D-41238 | | | |
| Exhaust Gas Analysis System | | HORIBA JAPAN | | MEXA-7400D | | | |
| Airflow measurement | | ABB | | SENSYFLOW-P | | | |
| Particulate Measurement | | HORIBA JAPAN | | MDLT-1303TM | | | |
| Opacimeter | | AVL | | 439 | | | |
| Weighing Balance | | Sartorius | | MSU2.7S | | | |
| Fuel Consumption Meter | | CP Engineering ,UK | | ----- | | | |
| Conditioned Air System | | CP Engineering ,UK | | CAHU-2500 | | | |

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| Prepared By | Checked By | Approved By |  Page 1 of 4 [131375] |
|  JASDEEP SINGH Asst. Manager |  MANOHAR MANDAL Sr. Manager |  PAMELA TIKKU Sr. General Manager | |
|  | | | |

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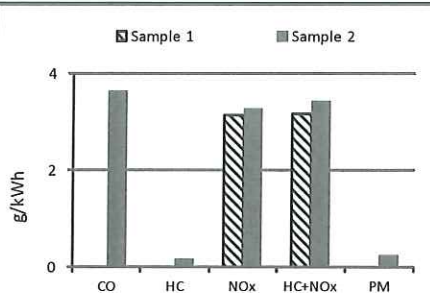
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| Summary of Test Results : | | | Test results are given in Annexure.I & II | | | | |
|---------------------------|--|------|---|------|--------|-------|--|
| Sample No. | Observed Rated Power(kW) | CO | HC | NOx | HC+NOx | PM | |
| 1 | 220.53 (With After treatment system) | 0.00 | 0.03 | 3.12 | 3.15 | 0.009 | |
| 2 | 220.55 (Without After treatment system) | 3.63 | 0.18 | 3.26 | 3.44 | 0.248 | |

Mass Emissions (g/kWh)

| Sample | CO | HC | NOx | HC+NOx | PM |
|----------|------|------|------|--------|-------|
| Sample 1 | 0.00 | 0.03 | 3.12 | 3.15 | 0.009 |
| Sample 2 | 3.63 | 0.18 | 3.26 | 3.44 | 0.248 |






Conclusion : As per Annexures

Remark : Test was carried out with commercial diesel.

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| Prepared By |  | Checked By |
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|  | |  |
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