

SYSTEM & PROCEDURE

FOR

COMPLIANCE TO EMISSION LIMITS FOR DIESEL ENGINES
(UP TO GROSS MECHANICAL POWER 800 kWm)

FOR

GENSET APPLICATIONS



CENTRAL POLLUTION CONTROL BOARD
(Ministry of Environment & Forests)

FOREWORD

Ministry of Environment, Forests and Climate Change (MoEF & CC) had notified emission limits for Genset diesel engines vide GSR 371(E) dated 17th May 2002 but these have now been revised vide GSR 771(E) dated 11th December 2013. As per this notification, CPCB is the Nodal Agency and is mandated to prepare compliance and testing procedure to settle disputes and technical difficulties in execution of these rules.

Existing “System & Procedure for Compliance to Emission Limits for Diesel Engines (upto gross mechanical power 800 kWm) for Genset Applications” is more than 10 years old. In consonance with the changes in the emission limits, this document needs to be modified. The document has accordingly been modified and is added with new sections to overcome the difficulties witnessed by the stakeholders.

The document is divided in three parts. The first part is notification incorporating its amendments from time to time by the Ministry of Environment & Forests. The Second part is Certification System & Procedure. This part is basically an administrative part to regulate the emission limits of new Genset engines at manufacturing stage. On compliance of the specified limit, Type Approval Certificate (TA) is issued by the Certification Agency (Specified in the notification in Part – I of this document) to an industry for its complied family / model Genset engines. After obtaining TA, the industry has to obtain Conformity of Production Certificate (COP) during every COP year (1st July to 30th June of the subsequent year). The third part of the document is the description of equipments and procedures to be adopted in compliance testing process. This part is to be executed by the Certification Agencies.

The document has been revised on recommendation of the “Standing Committee on Emission for off Road Vehicles and Construction Equipments” in consultation with Certification Agencies (ARAI & ICAT) and Indian Diesel Engine Manufacturers association (IDEMA).

I hope the document will help all the manufacturers of Genset Diesel engines and Certification Agencies in obtaining / issuing TA and COP certificates more systematically and scientifically.

(Susheel Kumar)
Chairman

Central Board Team

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OVERALL REQUIREMENTS

1. SCOPE

This document lays down the applicability and requirements; system & procedure for compliance to the rules vide notification no. GSR 771(E) dated 11th Dec 2013 and its amendment vide GSR 232(E) dated 31-Mar-2014, at Serial no. "95. Emission limits for new diesel engine up to 800 kW for generator set (Genset) application." issued by Ministry of Environment and Forests, Government of India. The details are covered as under:

- Part I - Emission Limits, Applicability and Other Requirements
- Part II - Certification System and Procedures
- Part III - Test Equipment and Procedures

2. DEFINITION & ABBREVIATIONS

For the purposes of this document following definitions shall apply

- 2.1 Approval of an engine (engine family) means the approval of an engine type with regard to the level of the emission of gaseous, particulate and smoke pollutants.
- 2.2 Auxiliary emission control strategy means any element of design that senses temperature, engine RPM, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system
- 2.3 Base emission control strategy is active throughout the speed and load operating range of engine unless Auxiliary emission control is activated, but not limited to engine timing map, EGR map, SCR catalyst reagent dosing map
- 2.4 Combined de NOx- particulate filter means an exhaust after treatment system designed to reduce emissions of oxides of nitrogen (NOx) and particulate pollutants.
- 2.5 Continuous regeneration means the regeneration process of an exhaust after treatment system that occurs either permanently or at least once; such a process will not require a special test procedure.
- 2.6 Declared power (kWm) means rated gross mechanical power declared by manufacturer for type approval.
- 2.7 Diesel engine means an engine, which works on the compression-ignition principle.
- 2.8 Emissions-related defect means a deviation from normal production tolerances in design, materials, system or assembly that affects any parameter, specification or component belonging to the emission control system. A missing component may be considered to be an emission-related defect.
- 2.9 Emission control system means the exhaust after treatment system, the electronic management controllers of the engine system and any emission related component of the engine system in the exhaust which supplies an input to or receives an output from these controllers and when applicable the communication interface between the engine system electronic control unit (ECU) and any other power train with respect to emissions management.
- 2.10 Engine system means the engine, the emission control system and the communication interface (hardware and messages) between the engine system electronic control unit (ECU) and any other power train.

- 2.11 Engine family means a manufacturers grouping of engine systems which, through their design have similar exhaust emission characteristics, all members of the family must comply with the applicable emission limit values. Refer ISO 8178-7:.
- 2.12 Parent engine means an engine selected from an engine family in such a way that its emissions characteristics will be representative for that engine family. Refer also ISO 8178-7:.
- 2.13 Engine type means a category of engines, which do not differ in such essential respects as engine characteristics.
- 2.14 Exhaust after treatment system means 'a catalyst (oxidation or 3-way), particulate filter, deNO_x system, combined deNO_x particulate filter or any other emission-reducing device that is installed downstream of the engine. This definition excludes exhaust gas recirculation, which, where fitted is considered an integral part of the engine system'.
- 2.15 High idle speed means 'the speed achieved by the engine under the specified test conditions at full throttle condition with no external load applied on the engine flywheel'
- 2.16 Periodic regeneration means the regeneration process of an emission control device that occurs periodically in less than 100 hours of normal engine operation. During cycles where regeneration occurs, emission standards may be exceeded (in which case cycle may need repetition).
- 2.17 Power generating set means any equipment which is used for electric power generation
- 2.18 Gaseous pollutants means carbon monoxide, hydrocarbons and oxides of nitrogen (expressed in nitrogen dioxide (NO₂) equivalent).
- 2.19 Opacity meter means an instrument used to measure the opacity of smoke particles by means of the light absorption principle.
- 2.20 Particulate after treatment device means an exhaust after treatment system designed to reduce emissions of particulate pollutants through a mechanical, aerodynamic, diffusion or inertial separation.
- 2.21 Particulate pollutants means any material collected on a specified filter medium after diluting exhaust gases with clean, filtered air to a temperature of greater than 315 K (42 °C) and less than or equal to 325 K (52°C), as measured at a point immediately upstream of the primary filter.
- 2.22 Percent load means the fraction of available torque at a rated engine speed. Also refer ISO 8178-4:.

- 2.23 Smoke means particles suspended in the exhaust stream of a diesel engine which absorb, reflect, or refract light. Also refer ISO 8178-3:.
- 2.24 Test Cycle means a sequence of test points each with a defined speed and torque to be followed by the engine under steady state operating conditions. Also refer ISO 8178-4:.
- 2.25 For Domestic products, Date of Manufacture means the date on which the engine is invoiced.
- 2.26 For Imported products, Date of Import means the date of payment of custom duties applicable to the engine / genset.
- 2.27 Manufacturer means engine/ genset manufacturer, importer or, assembler (as noted in notification).

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PART I

EMISSION LIMITS, APPLICABILITY AND OTHER REQUIREMENTS

The Environment (Protection) Third amendment Rules, 2013 vide notification no. GSR 771(E) dated 11th Dec 2013 and its amendment vide GSR 232(E) dated 31-Mar-2014, at Serial no. "95. Emission limits for new diesel engine up to 800 kW for generator set (Genset) application", issued by Ministry of Environment and Forests, Government of India. The notification is reproduced here as such.

95. Emission limits for new diesel engine up to 800 kW for generator set (Genset) application.

The emission limits for new diesel engine upto 800 kW for generator set (hereinafter referred to as Genset) application shall be effective from 1st July, 2014 as specified in the Table below subject to the general conditions contained therein, namely:-

TABLE

Power Category	Emission Limits (g/kW-hr)			Smoke Limit (light absorption coefficient, m ⁻¹)
	NOx+HC	CO	PM	
Upto 19 kW	≤ 7.5	≤ 3.5	≤ 0.3	≤ 0.7
More than 19 kW upto 75 kW	≤ 4.7	≤ 3.5	≤ 0.3	≤ 0.7
More than 75 kW upto 800 kW	≤ 4.0	≤ 3.5	≤ 0.2	≤ 0.7

Notes:

1. The abbreviations used in the Table shall mean as under: NOx – Oxides of Nitrogen; HC – Hydrocarbon; CO – Carbon Monoxide; and PM – Particulate Matter.
2. Smoke shall not exceed above value throughout the operating load points of the test cycle.
3. The testing shall be done as per D2 – 5 mode cycle of ISO: 8178- Part 4.
4. The above mentioned emission limits shall be applicable for Type Approval and Conformity of Production (COP) carried out by authorized agencies.
5. Every manufacturer, importer or, assembler (hereinafter referred to as manufacturer) of the diesel engine (hereinafter referred to as 'engine') for genset application manufactured or imported into India or, diesel genset (hereinafter referred to as 'product'), assembled or imported into India shall obtain Type Approval and comply with COP of their product(s) for the emission limits which shall be valid for the next COP year or, the date of implementation of the revised norms specified above, whichever earlier.
Explanation - The term 'COP year' means the period from 1st July of a calendar year to 30th June of the following year.
6. Stack height (in metres), for genset shall be governed as per Central Pollution Control Board (CPCB) guidelines.

General Conditions

1. Applicability.-

These conditions shall apply to all new engines for genset application and products manufactured, assembled or, imported into India, as the case may be :

Provided that these rules, shall not apply to, -

- (a) any engine or, product, assembled or manufactured or imported, as the case may be, for the purpose of export outside India, or;
- (b) any engine or product intended for the purpose of sample limited to **four** in number and to be exported back **within three months**, and not for sale in India.

2. Requirement of certification.-

Every manufacturer of engine or product, as the case may be, shall have valid certificate(s) of Type Approval and COP for each COP year for all engine models being manufactured or, for all engine or product models being imported, after the effective date for the emission limits, as specified above and the COP for the genset sold on or after 1st July, 2014 shall be effective and in force as per revised emission norms with effect from 1st July, 2015.

3. Sale, import or use of engine or product not complying with these rules.-

No person shall sell, import or use an engine for genset application or, a product which is not having a valid Type Approval certificate and certificate of COP referred to in condition 2.

4. Requirement of conformance labeling.-

- (1) All the engines, individually or as part of the product shall be clearly engraved 'Genset Engine' on the cylinder block.
- (2) the engine or the product shall be affixed with a conformance label meeting the following requirements, namely:-
 - (a) the label shall be durable and legible;
 - (b) the label shall be affixed on a part necessary for normal operation of the engine or the product and not normally requiring replacement during the life of the engine or the product.
- (3) The conformance label shall contain the following information, namely:-
 - (a) Name and address of the manufacturer of engine or product, as the case may be;
 - (b) Statement that the engine or product conforms to the Environment (Protection) Rules,1986;
 - (c) Type Approval certificate number;
 - (d) Date of manufacture of engine and the product or in case of import, the date of import of the engine and the product; and
 - (e) Rated speed and corresponding gross power in kW.

5. Nodal Agency.-

- (1) The Central Pollution Control Board shall be the nodal agency for implementation of these rules.
- (2) In case of any dispute or difficulty in implementation of these rules, the matter shall be referred to the nodal agency.
- (3) The nodal agency shall constitute a Committee to advise it on all matters, including the disputed matters, related to the implementation of these rules.

6. Authorised agencies for certification.-

The following institutions are authorised to carry out such tests as they may deem necessary, for giving certificates of Type Approval and Conformity of Production tests for diesel engines or products and to give such certificates, namely:-

- (i) the Automotive Research Association of India, Pune (Maharashtra);
- (ii) the International Centre for Automotive Technology, Manesar (Haryana);
- (iii) the Indian Oil Corporation, Research and Development Centre, Faridabad (Haryana);
- (iv) the Indian Institute of Petroleum, Dehradun (Uttarakhand); and
- (v) the Vehicle Research Development Establishment, Ahmednagar (Maharashtra).

7. Compliance and testing procedure.-

- (1) The Compliance and Testing Procedure, as published by the Central Pollution Control Board shall be followed by all concerned.
- (2) The authorized agencies for certification shall submit the testing and certification details in respect of the emission to the Central Pollution Control Board annually.

8. Fuel Specification.-

The specification of commercial fuel applicable for diesel gensets shall be the same as applicable for commercial High Speed Diesel applicable for diesel vehicles in the area where product would be operated, from time to time, as per policy of Government of India.

9. Engine component or parts identification.-

All the details of engine components or parts responsible for the emission performance shall be clearly marked in English language".

PART II

CERTIFICATION SYSTEM & PROCEDURE

1.0 MODEL FAMILY

1.1

For the purpose of type approval and conformity of production certification, the manufacturer engine range shall be divided into model families, consisting of parent engine model and its variant(s).

(In case of import of complete genset, all the provisions of this document shall be applicable to the engine which form part of the genset)

1.2 The determination of an engine family and the decision regarding parent engine shall be taken according to the guidelines given in ISO 8178 –7 (Reciprocating internal combustion engines – exhaust emission measurement – part 7 : engine family determination). However, the decision of selection of parent engine and family classification by the authorized agency shall be final.

1.3 For the purpose of identification, the supplier shall designate the families as F1, F2, F3 Fn.

2.0 SELECTION OF CERTIFICATION AGENCY

2.1 One supplier shall submit application for Type Approval to only one certification agency for all its families / models out of those prescribed in the Rule 6 of the GSR 771(E), dated 11th December 2013 and its amendment vide GSR 232(E) dated 31-Mar-2014 for all of its product models.

2.2 The same certification agency shall also be responsible for carrying out the verification of Conformity of Production (COP) for that manufacturer.

2.3 For any reason if any supplier wants to change the certification agency, he shall apply to the nodal agency well in advance with justifiable reasons. The nodal agency, after consultation with the existing certification agency / standing committee, may approve the change, if found justified. If approved, the nodal agency shall inform to all the parties concerned.

2.4 On receipt of information for change in certification agency, from the nodal agency, the previous certification agency shall authenticate all the relevant documents of the models (type approvals as well as COP verification) and forward the same to the new certification agency. The new certification agency shall be responsible for carrying out the type approval testing and COP verification for the supplier, in future.

2.5 Till the nodal agency gives approval for change in the certification agency, the previous certification agency will continue to carry out type approval and COP tests for the said supplier.

3.0 APPLICATION FOR TYPE APPROVAL

3.1 The application shall be made in the format prescribed in **annexure V & II** and must be complete in all respects. Annexure –V shall be submitted to Nodal Agency and on its written acceptance, annexure-II is to be submitted to the certification agency.

The manufacturer shall submit the details of the parent model and its variants for considering them as a family, with justification, to the certification agency.

Test results, if any, of the emission test done in accordance with the requirement of this document may also be submitted along with the application.

3.2. For each engine model, the manufacturer must submit an application to the certification agency, selected as above.

3.3. The application must be signed and sealed by the authorized representative of the manufacturer.

4.0 TYPE APPROVAL

4.1 The certification agency shall decide the family, the parent model and its variant(s) depending on the information provided by the manufacturer.

4.2 Testing of the parent model, as defined in clause 1.0 of this part, shall, normally, be sufficient for type approval of the family. The certification agency has the option to carry out the testing of more than one model in the family to satisfy itself.

4.3 At later stage if the manufacturer submits the application for type approval of a model, the certification agency shall ascertain whether the model can be classified as belonging to a family of model(s) already certified.

If the model does not belong to a family already certified, the certification agency shall proceed with the testing of the model for type approval.

If the model belongs to a family already certified, the certification agency shall decide whether the specific testing of the model is required. In case the specific testing of the model is not required, the type approval certificate for the family may be extended to include the model. The Certification Agency should intimate the extension to the Nodal Agency

- 4.4 The certification agency shall intimate its decision to the applicant within a fortnight of receipt of the application, indicating need and plan (schedule) of testing for type approval endorsing a copy to the Nodal Agency.
- 4.5 The manufacturer shall submit an engine for testing, as intimated by the certification agency.
- 4.6 The testing shall be done as per the procedure and specifications given in Part III of this document.
- 4.7 The engine sample shall be deemed to have passed the test if the emission levels of all the species do not exceed their respective limits.

However, if the engine sample fails to complete the test or meet the acceptance criteria, as above, the supplier has the option to repair, modify or replace the same. If the design modifications reflect changes in the specifications given in the application, a revised application shall be submitted.

If the manufacturer is unable to repair, modify or replace the sample within a period of 3 months, the application for certification shall be deemed as withdrawn and a fresh application shall have to be submitted.

5.0 CERTIFICATE OF TYPE APPROVAL

- 5.1 After verification / testing for type approval, the certification agency shall issue a type approval report to the manufacturer, within one month from the date of testing, indicating acceptance or rejection decision and reasons thereof. If it is accepted, the certification agency shall issue the certificate of type approval for the model / family as per the format prescribed in **annexure – III** along with the report. Copy of the certificate as well as the report shall also be forwarded to the nodal agency.
- 5.2 The certificate shall be deemed to be valid for the model(s) included therein, unless explicitly withdrawn through a separate written order by the nodal agency.
- 5.3 The Type Approval certificate issued for an engine family to a diesel engine manufacturer shall be valid for the same model manufactured at any other plant of the same manufacturer. The nodal agency or authorised certification agency will visit the new plant to verify the adequacy of the infrastructure.

- 5.4 After the issue of Type Approval certificate of a family, the same shall be valid
- 5.4.1.1 Till the engine specifications change as mentioned in Annexure-II and
 - 5.4.1.2 Till further amendments to the notification.
 - 5.4.1.3 Till COP is not missed
- 5.5 All the Type Approval tests shall be conducted in the test agency laboratory. In case the required test facilities are accredited by the test agency, the Type Approval / COP tests can be carried out at manufacturer's laboratory also if reasons call for. In case the test is to be carried out in any overseas test facilities, the same shall be informed to the Nodal Agency by the Certification agency. The Certification Agency will submit a copy of the accreditation letter highlighting the details of test facilities available in the manufacturer's laboratory to the Nodal Agency.
- 5.6 In case of the manufacturer approaches the test agency for the first time, such manufacturer should complete the COP test/s within three months from the commencement of commercial production or importation of 100 units, whichever is earlier.

6.0 MODIFICATIONS IN THE ENGINE MODEL

- 6.1 Every modification in the characteristics or parameters of the engine model, which has been declared by the supplier as per **annexure II**, shall be intimated by the manufacturer to the certification agency, which is responsible for carrying out TA & COP for that supplier. The certification agency may either
- 6.1.1 Consider that the engine with the modifications made may still comply with the requirements. In this case, the certification agency shall extend the type approval covering the modified specifications.
 - 6.1.2 Consider that the engine with the modifications proposed require a further test to ensure compliance. In case the engine with the modifications complies with the requirements on testing as per part III of this document, the certification agency shall extend the type approval.

7.0 VERIFICATION OF CONFORMITY OF PRODUCTION (COP)

- 7.1 Each manufacturer shall subject its engine model range to the verification of COP, every year. For this, the year shall mean the period from 1st July of a calendar year to 30th June of the succeeding calendar year.

7.2 COP of domestically manufactured engine families upto 19 kW

7.2.1 In case of engines up to 19 kW power rating, the verification of COP shall be done once in a year as per the following plan [Table –1]

TABLE –1

No. of families to be tested for verification of COP for domestic manufacturers (for engines up to 19 kW)

Total no. of Families of the Domestic Manufacturer	No. of Families to be Tested per Year
1~3	1
4~7	2
8~11	3
12~15	4
>15	5

- 7.3 Domestically manufactured engines of more than 19 kW rated output and imported engines of all ratings shall be subjected to the verification of COP, once for every 1000 units or once in a year, whichever is earlier.
- 7.4 In case of engines defined in clauses 7.2 and 7.3 above, testing shall be done on sample(s) randomly selected by the certification agency, from the production line / import units of one model for each family selected for COP.
- 7.5 In case of domestically manufactured engines up to 19 kW power rating, a minimum quantity of 10 nos. or one day's average production of the engine model selected by certification agency, whichever is more, shall be made available for random selection.
- 7.6 In case of domestically manufactured engines of more than 19 kW power rating, a minimum quantity of one day's average production of each model shall be made available for random selection subject to minimum of 3. This limit shall not be applicable in case of imports of all ratings.
- 7.7 If the manufacture is not of Indian origin, the manufacturer should establish a base office in India, which is to be declared in the initial application submitted to Nodal Agency in Annexure –V(A) and Annexure –V(B). This base office will be responsible for Type Approval and COP compliance.
- 7.8 The manufacturer shall request the certification agency when they would like to make random selection of engine(s) and to seek their time table for completing the COP test.

- 7.9 COP verification shall be carried out for each plant of the indigenous manufacturer. For imported engines, the COP testing shall be carried out on the engines manufactured for each country of origin.
- 7.10 The certification agency shall intimate to the manufacturer the schedule (month) for sampling / testing. The manufacturer shall inform the production / import plan, for the month in which the certification agency wants to carry out the COP, to the certification agency. If the manufacturer has a problem with this time table for reason such as the particular model is not likely to be scheduled for production/import at that time, or enough number of engines may not be available etc., the time schedule may be modified based on mutual convenience of the manufacturer and the certification agency.
- 7.11 The manufacturer shall complete all the COP activities (such as random selection, initial running-in, emission testing & documentation/certification) at least one month before the end of COP year. The COP certificate shall not be issued in case of non-adherence of the above schedule.

Following table gives the deadline for the respective COP year for the COP activities. However manufacturer can take early action on each activity.

Sr. No	Activity	Last date
1	Submission of Production/Import Plan/actual Details to test agency	1 st march
2	Random Selection	1 st April
3	Submission of engines & Emission testing (Including extended COP if any)	31 st May
4	Completion of Documentation and Certificate issuance.	30 th June

- 7.12 The manufacturer shall inform the certification agency regarding the stoppage of production of a specific model, in case this has not been anticipated at the start of the COP period. This should be intimated well in advance so that COP selection of engine can be completed by the certification agency before stoppage of production.
- 7.13 The manufacturer shall provide all the assistance required by the certification agency for completing the tests.
- 7.14 The latest updated technical specifications, procedure of pre-delivery inspection (PDI), running –in and servicing of the engine, shall also be submitted before the engine selection, if there has been revisions after the previous COP/type approval.

- 7.15 Pre-delivery inspection, as per owners' instruction manual / service manual, will be carried out by the manufacturer as per the procedure declared at the time of type approval, and as amended and intimated to the concerned certification agency from time to time, on the selected engine(s) model, under the control of the certification agency.
- 7.16 The running-in of the engine(s) shall be carried out as per the manufacturer's recommendation submitted during the type approval and as amended and intimated to the concerned certification agency from time to time, under the control of the certification agency. The running-in may also be carried in engine suppliers place under the control of test agency. After this, the supplier will be permitted by the certification agency to carry out all the adjustments recommended in his user's / service manual and as amended and intimated to the concerned certification agency from time to time, under the control of the certification agency.
- 7.17 In case of failure of any major component during the running-in or testing, the certification agency may permit to replace the component, only once, which has failed and which do not affect the performance and the emission of engine. In case of failure of components affecting the performance and emissions of the engine, random selection and testing should be done once again. If the randomly selected engine or replaced component fails again, it shall be reported to the nodal agency by the concerned certification agency and the agency shall await instructions from the nodal agency for further action.
- 7.18 The manufacturer shall submit the randomly selected engines to test agency within four weeks (8 weeks in case of import subject to last date as mentioned in clause 7.11) of completion of running-in/selection for the emission compliance tests.
- 7.19 The test agency should endeavor to complete the further testing of selected samples within 4 weeks after the submission of engines.
- 7.20 The testing shall be done as per the procedure and specifications given in Part III of this document.
- 7.21 COP Discontinuity
- 7.21.1- If there is no production/import of particular family/models for two consecutive years immediately after obtaining Type Approval and the COP test/s is requested for the third year, then the supplier shall approach Nodal Agency to obtain approval for the extension of the validity of Type Approval. This is applicable only for a new manufacturer.
- 7.22 The conformance label shall comply with the requirements as mentioned in **clause no. 4 of Part-1** of this document. In addition, letters 'G' shall be engraved on the conformance label. The letter(s) should have a minimum size of 7 mm.

7.23 Exemption from COP

In the following cases, the engines shall be exempted from COP

7.23.1 If Type approval obtained in the last quarter of the COP year. This clause is not applicable to the manufacturers as mentioned in clause no. 5.6

7.23.2 In case of No production/import, the manufacturer shall submit a declaration to test agency and Nodal Agency for no production/import of a particular family models for every COP year.

The COP test shall be conducted by test agency for the next COP year, upon receipt of declaration by the manufacturer that there was no production/import during previous COP year.

Declaration in this regard should be submitted before the end of 2nd quarter of the COP year.

7.23.3 Any genset engine manufactured for purpose of export outside India.

7.23.4 Any domestically manufactured genset engine intended for the purpose of sample (Max number of 4 units of each family) only and not for sale in India.

7.23.5 Any genset engine imported for the purpose of sample testing, bench marking, or intended not for any commercial sale (Max number of 4 units per year).

7.23.6 Any genset engine imported for the round robin/Lab co-relation tests. Such engines shall be exported back within 3 months (refer page 8 – General Conditions) from date of import.

7.23.7 For obtaining the exemption for Sr. no. 7.23.4, 7.23.5; and 7.23.6 the manufacturer shall obtain approval from Nodal Agency.

8 SAMPLE SIZE & DECISION CRITERIA FOR VERIFICATION OF COP

Sampling plan – I is applicable to domestically manufactured engines upto 19 kW rated output whereas sampling plan – II is applicable to domestically manufactured engines of rating above 19 kW as well as for imported engines of all ratings (imported as engine or as genset).

8.1 Sampling plan I

- 8.1.1 The number of samples to be tested shall be minimum as necessary, as given in Table 2 to arrive at a decision on whether the production units comply with the applicable emission limits.
- 8.1.2 A sample is said to have failed for particular specie if the test result of the sample for the specie exceeds the applicable emission limits.
- 8.1.3 The production units of all models in the family shall be deemed to comply with the emission limits if the number of failed samples as defined in 8.1.2 above for each specie is less than or equal to the pass decision no., appropriate to the cumulative no. of samples tested for that specie, as given in the Table -2.

The production units of all models in the family shall be deemed to be non-complying with the emission limits if the number of failed samples as defined in 8.1.2 above for any specie is more than or equal to the fail decision no., appropriate to the cumulative no. of samples tested, as given in the Table -2.

TABLE – 2

Sampling plan I and decision criteria for verification of COP of the engines

Cumulative Samples	Pass No. (No. of failures)	Fail No. (No. of failures)	Cumulative Samples	Pass No. (No. of failures)	Fail No. (No. of failures)
1	(¹)	(²)	16	6	11
2	(¹)	(²)	17	7	12
3	(¹)	(²)	18	7	12
4	0	(²)	19	8	13
5	0	(²)	20	8	13
6	1	6	21	9	14
7	1	7	22	10	14
8	2	7	23	10	15
9	2	8	24	11	15
10	3	8	25	11	16
11	3	8	26	12	16
12	4	9	27	12	17
13	5	10	28	13	17
14	5	10	29	14	17
15	6	11	30	16	17

(¹) : Series not able to pass at this stage

(²) : Series not able to fail at this stage

8.1.4 Once a compliance or non-compliance decision is made for particular specie, the result of testing of subsequent samples for that specie shall not influence the decision.

8.2 Sampling plan II

8.2.1 One engine sample, selected randomly, shall be tested as per part – III of this document.

8.2.2 If the engine sample, as tested above, fails to comply with the emission limits, the manufacturer may ask for measures to be performed on a sample of engines taken from the series and including the engine originally taken. The manufacturer shall specify the size n of the sample subject to 'n' being minimum 2 and maximum 10, including the engine originally taken.

8.2.3 The production/import units of all models in the family shall be deemed to comply with the emission limits if the following condition is met, for each specie (except smoke limit):

$$\bar{x} + k \cdot S < L$$

Where

\bar{x} = arithmetic mean of the results of the tests conducted on n no. of samples, for a particular specie

S = Standard deviation of the results of the tests conducted on n no. of samples, for the specie = $[\sum (x - \bar{x})^2 / (n - 1)]^{1/2}$

x = results of the tests conducted on n no. of samples, for the specie.

L = the emission limit for the specie

k = a statistical factor dependent on n and as given in the Table–3.

TABLE -3

Values of statistical factor (k) w.r.t. n

N	2	3	4	5	6	7	8	9	10
K	0.973	0.613	0.489	0.421	0.376	0.342	0.317	0.296	0.279

9 CERTIFICATE OF CONFORMITY OF PRODUCTION

9.1 After verification / testing for COP, the certification agency shall issue a COP verification report to the supplier, within one month from the date of testing & verification of engine specifications/documents, indicating compliance or non-compliance. In case of compliance, the certification agency shall issue a COP certificate to the supplier as per format at **annexure-IV** along with the report. Copy of the certificate as well as the report shall also be forwarded to the nodal agency.

10 CONSEQUENCES OF NON-COMPLIANCE

- 10.1 If the COP verification report of the certification agency for a model family indicates non-compliance, the manufacturer must stop the manufacturing.
- 10.2 Further, the manufacturer must analyse the reasons for non-compliance, plan to take corrective actions in design, production line and units already produced and submit a report to the nodal agency with a Copy to the concerned certification agency, within four weeks of the receipt of the COP verification report.
- 10.3 If the manufacturer is unable to diagnose the reasons for non-compliance within the stipulated time, this shall be clearly stated in the report.
- 10.4 Based on the diagnosis and corrective action plan submitted by the manufacturer, the nodal agency, in consultation with the standing committee, may take any of the following actions:
 - 10.4.1 Allow continuation of production / import of all models in the family if it is satisfied with the corrective actions planned / taken by the manufacturer and meet the emission norms.
 - 10.4.2 Allow continuation of production / import of some or all other models of the family if it determines that the reasons for non-compliance of the tested model are not relevant to these models, with or without additional verification of COP in due course.
 - 10.4.3 Stop production / import of any or all the models in the family till compliance is demonstrated by the supplier, through a re-verification of COP. In case of imported model, the non compliant Genset should be sent back to the original destination.
- 10.5 The manufacturer shall be given an opportunity to explain its views before taking a final decision.
- 10.6 It is the responsibility of the manufacturer to ensure at his cost that the modifications / modified components are carried out / retrofitted, within a period specified by the nodal agency, on all the products produced / dispatched in the period between the dates from which the COP became due and re-verification of COP or as decided by the nodal agency, in consultation with the standing committee.

PART III

TEST EQUIPMENT & PROCEDURES

1.0 The test facility to be used shall be of the certification agencies or any other facility approved by these certification agencies. The tests shall be carried out under the control of the certification agencies.

2.0 Test equipment, setup, procedure, calculation method and other relevant technical details to be used shall be as per following standards, except where it is mentioned, specifically, in this document.

(a) ISO 8178 – 1 :

Reciprocating internal combustion engines – Exhaust emission measurement

Part –1 : Test bed measurement of gaseous and particulate exhaust emissions

(b) ISO 8178 – 3 :

Reciprocating internal combustion engines – Exhaust emission measurement

Part –3 : Definitions & methods of measurement of exhaust gas smoke under steady state conditions.

The smoke shall be measured at all specified mode points of the test cycle.

3.0 The testing shall be done on engines with the engine dynamometer. In case of import of complete genset, the engine shall be decoupled to test with the engine dynamometer. The testing shall be done as per the following 5-mode cycle.

Mode No.	Engine speed	% Load	Weighting Factor
1	Rated speed	100	0.05
2	Rated speed	75	0.25
3	Rated speed	50	0.30
4	Rated speed	25	0.30
5	Rated speed	10	0.10

4.0 Testing shall be done with reference diesel fuel as per the specification given in **annexure I**. The fuel inlet temperature shall be maintained at 38 ± 5 Deg C throughout the test.

- 5.0 Single & two cylinder engines shall be tested with the engine air intake system. All the other engines shall be tested with either air intake system or applying maximum declared air intake depression.
- 6.0 Running in of the engine, for COP, shall be as per clause 7.13 of part II of this document.
- 7.0 Gross observed power shall be the criteria for adjusting dynamometer load as well as calculating specific emission values.
- 8.0 The declared rated gross power shall be verified and corrected as mentioned below.
- 9.0 Power Corrections Factors:

Definition: The power correction factor is the coefficient by which the measured power must be multiplied to determine the engine power under the reference atmospheric conditions specified as below

$$P_o = \alpha P$$

Where:

P_o is the corrected power (i.e. power under reference atmospheric conditions);

α is the correction factor

P is the measured power (test power)

Reference atmospheric conditions:

Temperature (T): 298°K

Dry pressure (P_{so}): 99kPa

Note: The dry pressure is based on a total pressure of 100 kPa and a water vapour pressure of 1kPa.

Test atmospheric conditions:

The atmospheric conditions during the test shall be the following:

Temperature (T) : Between 283 K and 313 K

Pressure (P) : Between 80 kPa and 110 kPa

Determination of correction factor:

(The tests may be carried out in air -conditioned tests rooms where the atmospheric conditions may be controlled.)

The power correction factor α for diesel engines at constant fuel delivery is obtained by applying the formula :

$$\alpha = f_a^{f_m}$$

where

f_a – the atmospheric factor

f_m - the characteristic parameter for each type of engine and adjustment

Atmospheric factor (f_a)

This factor indicates effect of environmental conditions (pressure, temperature and humidity) on the air drawn in by the engine. The atmospheric factor differs according to the type of the engines.

Naturally aspirated and mechanically pressure charged engines:

$$f_a = (99/P_s) * (T/298)^{0.7}$$

Turbocharged engines with or without cooling of charge air :

$$f_a = (99/P_s)^{0.7} * (T/298)^{1.5}$$

Engine Factor (f_m)

f_m is a function of Q_c (fuel flow corrected) as follows:

$$f_m = 0.036 Q_c - 1.14$$

where

Q_c – Q/r and

Q – the fuel delivery in milligrams/cycle per liter of engine swept volume (mg/1.cycle)

r is the pressure ratio of compressor outlet and compressor inlet ($r = 1$ for naturally aspirated engines)

This formula is valid when Q_c is $40 \leq Q_c \leq 65$

For Q_c values lower than 40, a constant value of f_m equal to 0.3 ($f_m=0.3$) will be taken.

For Q_c values higher than 65, a constant value of f_m equal to 1.2 ($f_m=1.2$) will be taken, as given below:

- 10.0 The gross declared corrected power of the engine shall be measured on a test bench at rated speed of the engine. The measured power and speed may differ from the power and speed specified by the supplier as specified below:

Declared rated corrected Power

- (i) For Type Approval:

- For single cylinder engines, $\pm 5\%$ at the rated power point
- For all other engines, $\pm 4\%$ at the rated power point

- (ii) For Conformity of Production:

- For single cylinder engines, at rated power point, $\pm 6\%$ of the type approved figure
- For all other engines, at rated power point, $\pm 5\%$ of the type approved figure

Declared rated Speed at rated power point shall vary within $\pm 1\%$

- 11.0 For verifying the conformity of production, if the selected engine does not meet the smoke limits as applicable, another 2 engines will be taken from the series at random and shall be tested as per this part. The selected two engines should meet the limit values specified.
- 12.0 For verifying the conformity of production, for the selected engine, if the gross power and rated speed does not meet the limits as per the clause 10.0 of this part, two more engines shall be tested for the rated gross power and rated speed.
- 13.0 The two selected engines shall meet the limits for the rated gross power and speed, out of the two engines, one engine shall be subjected to the emission test for the conformance of production as mentioned in this part.
- 14.0 The engine shall be tested with the maximum exhaust back pressure values declared by the manufacturer.
- In case of engines fitted with exhaust after treatment devices and external EGR system, the supplier shall declare exhaust back pressure values at all five test points. The engine will be tested with the declared exhaust back pressure values set at laboratory conditions with a tolerance of $\pm 10\%$ at rated load. At part load points the tolerance shall be as low as possible in the test laboratory conditions.
- 15.0 The no load speed or high idle speed shall be verified and documented against value specified by the supplier
- 16.0 If the engine is fitted with the after treatment devices to reduce the engine out emissions, the system adapted shall meet the requirements as specified in Annexure–VI. This Annexure-VI shall be prepared and published separately

ANNEXURE – I**TEST FUEL SPECIFICATIONS**

Sl. No.	Parameters	Unit	Min.	Max.
1	Cetane Number	-	52	54
2	Density at 15°C	kg/cm ³	833	837
3	Distillation			
	- 50 % point	°C	245	-
	- 95% point	°C	345	350
	- Final boiling point	°C	-	370
4	Flash point	°C	55	-
5	CFPP	°C	-	-5
6	Viscosity 40°C	mm ² /s	2.5	3.5
7	Sulphur content	mg/kg	-	300
8	Copper corrosion		-	1
9	Conradson carbon residue (10% DR)	% m/m	-	0.2
10	Ash content	% m/m	-	0.01
11	Water content	% m/m	-	0.05
12	Neutralisation (Strong acid) number	mg KOH/g	-	0.02
13	Oxidation stability	mg/ml	-	0.025

ANNEXURE – II

Ref.: System and procedure for compliance to emission limits for diesel engines
(upto 800 kW) for Genset applications.)

Part - 1

Brief Technical Data & Specifications of Diesel Engines Used for Genset Application (for Family / Parent engine selection as per ISO 8178 Part – 7)

Please fill separate sheet for each family identified

A	ENGINE CATEGORY	INDEGINOUS <input type="checkbox"/>	IMPORTED <input type="checkbox"/>
B	Type of End Application	Constant Speed Genset <input type="checkbox"/>	Variable Speed genset <input type="checkbox"/>
1	Engine Manufacturer's Name		
2	Engine Manufacturing Plant/s		
3	Engine Supplier's/Importer's Name		
3.1	Office Address in India (In Case of overseas supplier)		
4	Engine family identified		
5	Engine Model		
6	Engine layout (inline / V)		
7	Working principle : 2 / 4 stroke		
8	Bore x Stroke (mm)		
9	Cylinder number		
10	Total swept volume (ltr)		
11	Displacement / cyl. (ltr / cyl)		
12	Rated speed (rpm)		
13	Rated Gross power (kW)		
14	Power / cylinder (kW / cyl)		
15	BMEP at rated power (bar)		
16	Combustion type : DI / IDI		
17	Type of combustion chamber		
18	Cooling type (Air cooled / water cooled)		
19	Compression ratio		
20	No. of valves : 2 / 4 valves		
21	a).Aspiration : Naturally Aspirated / Turbocharged / Turbocharged - inter-cooled		
	b)Turbocharger – make		
	c) Inter cooler (air – air / water – air/Jacket water cooled)		
	d)Intake air pressure in inlet manifold (kPa)		
	e) Intake air temp. in inlet manifold (Deg C)		
22	a)Fuelling details		
	b)mm ³ / stroke at rated load		
	c)BSFC (g / kW-hr)		

Test Agency :	Manufacturer	Document No. (indicating also revision status)
Signature	Signature	
Name	Name	
Designation	Designation	Revision date
Date	Date	Sheet No.

23	Injection system details				
	a)Type : (inline / rotary / PF / Common Rail/other)				
	b)Fuel pump make				
	c)Static injection timing (deg. BTDC)				
	d)Injectors : Make / Type				
	e)Injector hole No. x size (mm)				
	f)Type of timing advance device				
24	Exhaust Gas Recirculation (EGR) type				
24	After treatment device, if any				
25	Parent Engine Identified by Test Agency				

Test Agency :	Manufacturer	Document No. (indicating also revision status)
Signature	Signature	
Name	Name	
Designation	Designation	Revision date
Date	Date	Sheet No.

Part – 2

APPLICATION FOR TYPE APPROVAL

A	ENGINE CATEGORY(Domestic/Imported)		
B	GENSET CATEGORY(Constant Speed/Variable Speed)		
1.0	NAME AND ADDRESS OF THE ENGINE SUPPLIER/IMPORTER (Type Approval Certificate Owner)		
1.1	OFFICE ADDRESS IN INDIA (In Case of overseas supplier)		
2.0	NAME AND ADDRESS OF THE ENGINE MANUFACTURER		
3.0	ADDRESS OF THE MANUFACTURING PLANT/S		
4.0	ENGINE MODEL NAME		
5.0	BRAND NAME		
6.0	ENGINE FAMILY IDENTIFIED/ PARENT ENGINE DESIGNATED		
7.0	DESCRIPTION OF THE ENGINE		
7.1	Engine Type (DI/IDI)		
7.2	Engine Layout (SINGLE CYLINDER/INLINE/V)		
7.3	Working principle (Four-Stroke/Two-Stroke)		
7.4	Bore (mm)		
7.5	Stroke (mm)		
7.6	Number of Cylinders		
7.7	Firing Order		
7.8	Engine Displacement (l)		
7.9	Type of Aspiration	Naturally Aspirated/Turbocharged/ Turbocharged & Intercooled	
7.10	Gross Rated Power (kW)		
7.11	Rated Speed (RPM)		
7.12	Over load Speed (RPM)		
7.13	Compression Ratio (With Tolerance)		
Test Agency :		Manufacturer	Document No. (indicating also revision status)
Signature		Signature	
Name		Name	
Designation		Designation	Revision date

Date	Date	Sheet No.							
7.14	Valve details								
7.15	No. of intake valves per cylinder								
7.16	Intake valve seat dia								
7.17	No. of exhaust valves per cylinder								
7.18	Exhaust valve seat dia								
7.19	Cooling System : Liquid / Air Cooling								
7.20	Temperature Permitted by the Manufacturer								
	a) Liquid Cooling: Max. Temp. at Engine Outlet								
	b) Max. Inlet Manifold air temperature (temperature after Inter-cooler in case of exteranl EGR engines) Deg C								
	c) Lubricant Temperature Deg C	Min. Max.							
8.0	ADDITIONAL POLLUTION CONTROL DEVICES								
8.1	Oxidation Catalyst								
	a) Make								
	b) Type(Ceramic/Metallic, Precious metal Type								
	c) Substrate Dimension								
	d) ID No.								
8.2	Exhaust Gas Recirculation (EGR) System								
	a) Make								
	b) Type (Internal/External/cooled/uncooled/progressiv OON-OFF/Electrical/Vacuum based/Other)								
	c) ID No.								
8.3	Other Pollution Control Device (DeNOx/SCR/DPF) etc)								
	a) Make								
	b) Type (Give Complete Details of the system with necessary drawings)								
	c) ID No								
9.0	AIR INTAKE AND FUEL FEED								
	Air Filter	Make:							
	Type:	ID No:							
9.1	Maximum Permitted Depression of Intake kPa								
9.2	Turbocharger Details, if applicable Turbocharger: Make Turbocharger: Part No.								
<table border="1"> <tr> <td>Test Agency :</td> <td>Manufacturer</td> <td rowspan="3">Document No. (indicating also revision status)</td> </tr> <tr> <td>Signature</td> <td>Signature</td> </tr> <tr> <td>Name</td> <td>Name</td> </tr> </table>			Test Agency :	Manufacturer	Document No. (indicating also revision status)	Signature	Signature	Name	Name
Test Agency :	Manufacturer	Document No. (indicating also revision status)							
Signature	Signature								
Name	Name								

Designation	Designation	Revision date
Date	Date	Sheet No.
9.3	Fuel Injection System Description	
9.4	Fuel Pump	
	d) Make	
	e) Type	
	f) ID No.	
	g) Static Injection Timing	
	h) Injection timing advance device	
9.5	Injectors	
	a) Make	
	b) Type	
	c) Holder No.	
	d) Nozzle No.	
	e) No. of holes	
	f) Size of holes (mm)	
	g) Hydraulic Through Flow (cc/30 sec at 100 ba	
	h) Nozzle Opening Pressure (bar)	
	i) Injection Piping <ul style="list-style-type: none"> • Length • Internal Diameter 	
9.6	Governor/ECU/Controller	
	a) Make	
	b) Type, Mechanical/Electronic/Hydraulic)	
	c) ID No.	
10	VALVE TIMING (Above ramps/before ramps/at defined valve lift	
10.1	<ul style="list-style-type: none"> • Maximum Lift of inlet valve (mm) • Maximum lift of exhaust valve (mm) <ul style="list-style-type: none"> • Valve timing angles : IVO IVC EVO EVC 	
11.0	EXHAUST SYSTEM	
11.1	Specify the Back Pressure (kPa) at rated power (This data to be mentioned for the engines without EGR)	

Test Agency :	Manufacturer	Document No. (indicating also revision status)
Signature	Signature	
Name	Name	
Designation	Designation	Revision date
Date	Date	Sheet No.
Notes:		
1) <i>In addition to the names of the suppliers of items mentioned above, the suppliers shall inform the concerned certification agency, the names of new alternate suppliers for these items as and when they are being introduced.</i>		
12.0	Settings and limits declared by the Manufacturer	
12.1	Max. Temperature of Engine Coolant Deg C	
12.2	Lubricating Oil Temperatures Deg C Minimum Maximum	
12.3	Max. Air Intake Depression kPa	
12.4	Max. Intake Manifold Temperature in case of TCIC Deg C	
12.5	Max. Exhaust Back Pressure kPa (This data is required for the engines with External EGR)	100% Load 75% Load 50% Load 25% Load 10% Load
13.0 Attachments to be Enclosed		
13.1	Combustion Chamber (Piston Crown) Drawing	
13.2	Valve Timing Diagram	
13.3	Oxidation Catalyst Layout and drawing along with specifications	
13.4	Exhaust Gas Recirculation (EGR) Layout and drawing along with specifications	
13.5	Air Intake system layout (from air-filter to intake manifold)	

To the best my knowledge, the details and specifications of the engine declared as above in this document (Annexure – II Part -1 and Part – 2) are correct to true. Undersigned is solely responsible for the accuracy.

Test Agency :	Manufacturer	Document No. (indicating also revision status)
Signature	Signature	
Name	Name	
Designation	Designation	Revision date
Date	Date	Sheet No.

SPECIMEN COPY

Certificate No.

Date:

**CERTIFICATE
OF
TYPE APPROVAL**

M/s.,

Based on the verification of documents and trials conducted on the engine model(s)_____ conforming to family designation _____, manufactured / imported by _____, submitted by _____, it is certified that the following engine model(s) comply with the provisions of the The Environment (Protection) Third amendment Rules, 2013 vide notification no. GSR 771(E) dated 11th Dec 2013, at Serial no. "95. Emission limits for new diesel engine up to 800 kW for generator set (Genset) application", issued by Ministry of Environment and Forests, Government of India. The notification is reproduced here as such.

S. No.	Family	Model	Imported/Manufactured

Authorised Signatory,

**(HEAD)
CERTIFICATION LABORATORY**

**(HEAD)
CERTIFICATION AGENCY**

SPECIMEN COPY

Certificate No.

Date:

**CERTIFICATE
OF
CONFORMITY OF PRODUCTION FOR THE COP YEAR ----**

M/s. _____

*Based on the verification of documents and trials conducted on the engine models manufactured / imported by-----, submitted by -----, it is certified that the following engine models as per **annexure V** comply with the provisions of the The Environment (Protection) Third amendment Rules, 2013 vide notification no. GSR 771(E) dated 11th Dec 2013, at Serial no. "95. Emission limits for new diesel engine up to 800 kW for generator set (Genset) application", issued by Ministry of Environment and Forests, Government of India. The notification is reproduced here as such.*

This certificate covers the engine families and its models as listed in **annexure - A**, declared by the manufacturer to have been produced during the stipulated period _____.

Next COP for the above engine models becomes due for period _____ to _____.

Authorised Signatory,

**(HEAD)
CERTIFICATION LABORATORY**

**(HEAD)
CERTIFICATION AGENCY**

ANNEXURE IV (contd.)

ANNEXURE - A

TO CERTIFICATE NO. _____

S.No.	Family	Model	Manufactured/ Imported	Manufacturing /Import Period	COP Year
1.				_____	_____
2.				To	To
3.				_____	_____

Authorised
Signatory,

(HEAD)
CERTIFICATION LABORATORY

(HEAD)
CERTIFICATION AGENCY

ANNEXURE – V
Part - A

NOTARISED AFFIDAVIT ON NON-JUDICIAL STAMP PAPER OF Rs.10/-
[To be submitted to the Nodal Agency by a supplier approaching for the first time for TA]

I,, Chairman / President / Managing Director / Partner / CEO / COO / Proprietor of M/s, having Registered Office at engaged in manufacturing / import of Genset diesel engines / Diesel Generator sets with manufacturing facilities / ware house at:

- i).....
- ii).....

am authorized to swear this affidavit for and on behalf of the above named Company. I do hereby solemnly affirm and declare as under:

1. That the deponent is well conversant with the facts and competent to swear this affidavit.
2. That the deponent declares that M/s are manufacturer / importer of Genset diesel engines in the brand name
 - i)
 - ii)(Strike out if not applicable)
3. That the deponent declares that M/s are importer of diesel generator sets from M/s (ii) M/s
(Complete address)
(Strike out if not applicable)
4. That the deponent declares that M/s will obtain Type Approval / Conformity of Production verification only from (Name of the Certification Agency)..... and will not approach any other Certification Agency for Type Approval / Conformity of Production verification for any of their Genset diesel engines models, without prior permission from the nodal agency.
5. That the deponent declares that none of the Chairman, Managing Director, Partner, Director, Proprietor, Board Member in M/s has been involved with a Company / Firm which has manufactured and sold non-compliant Genset diesel engines.
6. That the deponent declares that M/s will manufacture / import and sell only compliant Genset diesel engines in the brand name only.

(Name & signature with Co. stamp)
(DEPONENT)

VERIFICATION

Verified aton thisof,20.... that the contents of the above affidavit are true and correct to the best of my knowledge and belief and nothing has been concealed therein.

Place:.....
Date:.....

(Name & Signature with Co. Seal)
(DEPONENT)

ANNEXURE – V
Part - B

FORMAT FOR SUBMISSION OF PROFILE AND DETAILS OF THE SUPPLIER

A. COMPANY DETAILS

- Name of the Company
- Type of Company: Proprietor / Partnership / Private Ltd / Public Ltd
- Name of the Proprietor / Partners / Directors (submit relevant documents)
- Importer / manufacturer
- Registered Office Address with phone number
- Contact Address with phone number, fax number, email etc.
- Name and designation of the authorized person for submission of documents and to deal with the certification agency
- Plant addresses and contact details, in case of manufacturer
- Ware house address, in case of importer
(This cannot be changed without prior intimation to Nodal Agency and Certification Agency)
- Name of the company from whom to import and its contact details , in case of importer
 - Plant details, from where to import
- Authenticated Copies of following documents to be submitted
 - i) Manufacturing License from Directorate of Industries / Department of Industry (in case of Manufacturer), IEC Code (in case of importer)
 - iii) VAT and CST/GST Registration
 - iv) Excise Registration, in case of manufacturer
 - v) Consent from State Pollution Control Board / Pollution Control Committee
- No. of employees
- Engineers (if any)
- Last year Turn-over

- Any other business

B. Details of Genset engine (Proposed) manufactured / assembled / imported

	Model Names	Nos. produced /imported in current year	Nos. expected to be produced / imported in the next year
a)			
b)			
c)			
d)			

C. Details of Infrastructure

D. Land : Owned / Rented

Area (m²):

E. Covered Area

F. Machinery for manufacture

a)

b)

c)

d)

G. Testing facility equipments

a)

b) Load bank type and capacity

c) Measuring Instruments

d) Any other

H. Quality Control

1. Quality Control Incharge
2. Quality Procedure:

ISO Certified since when
(enclose a Copy of Operating Procedure)
3. Pre-delivery Inspection Procedure
On Gensets (including records
Maintained)
4. System of serial numbering and marking on
Genset and their sub-systems – e.g. all
Enclosures, etc.)
5. Any other

Date :

Place :

(SIGNATURE OF THE

Chairman /President / Managing Director
/ Partner / CEO / COO / Proprietor)

SEAL OF THE COMPANY