

7.0 VERIFICATION OF CONFORMITY OF PRODUCTION (COP)

7.1 Each supplier 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 up to 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 25 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. This limit shall not be applicable in case of imports of all ratings.

7.7 If the manufacturer is not of Indian origin, the importer 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 supplier 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 supplier the schedule (month) for sampling / testing. The supplier 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 supplier 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 supplier 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 supplier 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 supplier shall submit the randomly selected engines to test agency within four weeks (8 week 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 System & Procedurefor Genset Application.
- 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 / importer or assembler.

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 suppliers as mentioned in clause No. 5.6

7.23.2 In case of No production/import, the supplier 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 supplier 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 month 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 supplier shall obtain approval from Nodal Agency.

8.0 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 supplier may ask for measures to be performed on a sample of engines taken from the series and including the engine originally taken. The supplier 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

9.0 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.

10.0 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 supplier 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 supplier 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 supplier, 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 supplier 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 original destination
- 10.5 The supplier shall be given an opportunity to explain its views before taking a final decision.
- 10.6 It is the responsibility of the supplier 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.

Reference:

“System & Procedure for Compliance to Emission Limit for Genset Application (Up to gross mechanical power 800kWm)”, published by Central Pollution Control Board, Ministry of Environment & Forests, Govt. of India