LIST OF MANUFACTURERS OF NATURAL GAS DRIVEN GENSET ENGINES (UPTO 800 KW) WHO HAVE OBTAINED TYPE APPROVAL / CONFORMITY OF PRODUCTION VERIFICATION CERTIFICATES (COP) FOR ENGINE EMISSION COMPLIACNE

1. As per general condition 5.3 of the Govt. Of India notification GSR 281(E), dated 07.03.2016 and its amendments, at serial number 95A, 95B and 95C,

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 and the COP for the genset sold on or after 1st July, 2017.

2. The list of manufacturers of Natural Gas driven Genset engines (upto 800 KW) who have obtained Conformity of Production Verification for Emission Compliance is given below.

COP Year: 1st July of a calendar year to 30th June of the succeeding calendar year

EMISSION STANDARDS

"**95A. Genset run on dedicated Natural Gas (NG) or Liquefied Petroleum Gas (LPG):-**

Emission Limits.-

- The emission limits for dedicated NG or LPG driven engine for genset application or genset (above 400cc & upto 800 kW) shall be effective from 1st July, 2016 as specified in the Table below subject to the general conditions contained therein, namely:-

TABLE 1

Power Category	Emission Limits (g/kW-hr)	
	NO_X + NMHC Or NO_X + RHC	**CO**
Upto 19 kW	≤ 7.5	≤ 3.5
More than 19 kW upto 75 kW	≤ 4.7	≤ 3.5
More than 75 kW upto 800 kW	≤ 4.0	≤3.5

95B. Genset run on Bi Fuel Petrol or Natural Gas (NG)/Liquefied Petroleum Gas (LPG):-
Emission Limits.- The emission limits for Bi Fuel Petrol or Natural Gas (NG)/Liquefied Petroleum Gas (LPG) (upto 19 kW) powered by SI engine (upto 400 cc displacement) (hereinafter referred to as Genset) shall be effective from the 1st August, 2016 as specified in the following Table:-

TABLE 2

Class	Engine Displacement (cc)	CO (g/kWh)	NO_X + THC/ NO_X + NMHC / NO_X + RHC (g/kWh)
1	Upto 99	≤ 250	≤ 12
2.	>99 and upto 225	≤ 250	≤ 10
3.	≥ 225 ≤ 400	≤ 250	≤ 8

95C. Genset run on Dual Fuel - Diesel and Natural Gas (NG) or Diesel and Liquefied Petroleum Gas (LPG):-

Emission Limits.-

The emission limits for Dual Fuel - Diesel and NG or Diesel and LPG driven engine (upto 800 kW) for generator set (hereinafter referred to as Genset) application shall be effective from the 1st July, 2016 as specified in the

Table below, subject to the general conditions specified therein, namely:-

TABLE 3

Power Category	Emission Limits (g/kW-hr)			Smoke Limit (light absorption coefficient, m-1)
	NO_X + THC Or NO_X + NMHC or RHC	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.- The abbreviations used in the Table shall mean as under:

1. NO_X - Oxides of Nitrogen; CO – Carbon Monoxide; PM – Particulate Matter; NMHC – Non-Methane Hydrocarbon; THC – Total Hydrocarbon and RHC – Reactive Hydrocarbon.
2. Dedicated NG or LPG genset engine shall mean a mono-fuel engine starting and operating with only one fuel, i.e., NG or LPG.
3. A bi-fuel (Petrol and NG) genset means a genset powered by an SI engine started and operating either on any one type of fuel at a time i.e. Petrol or NG
4. Portable genset means an SI engine (upto 19 kW mechanical power and engine displacement upto 400 cc) coupled with an alternator and housed in a canopy.
5. Dual fuel engine operation shall mean a two – fuel system having diesel as a primary combustion fuel and NG or LPG as supplementary fuel, both in a certain proportion, throughout the engine operating zone. Such dual fuel genset engine may operate on diesel stand-alone mode in absence of gaseous fuel i.e. NG or LPG.

6. NO_X + NMHC or NO_X + RHC shall be measured in case of dedicated NG or LPG genset engine. NMHC shall be equal to 0.3×Total Hydrocarbon (THC) in case of NG, and RHC is equal to 0.5×THC in case of LPG.
7. NOX + THC shall be measured as emission while diesel alone is used as fuel. NOX + NMHC or NOX + RHC shall be measured in case of diesel and NG or diesel and LPG dual fuel operation respectively. NMHC shall be equal to 0.3 × THC in case of NG and RHC as 0.5 × THC in case of LPG.
8. These norms shall be applicable to Original Equipment Manufacturer (OEM) built dedicated NG or LPG genset engines. Conversion or retro fitment of the existing diesel engines to run on dual fuel- diesel and NG or diesel and LPG shall not be permitted.
9. The above mentioned emission limits shall be applicable for Type Approval and Conformity of Production (COP) carried out by authorised agencies. For Type Approval and COP for dual fuel - diesel and NG or diesel and LPG dual fuel operation engines, the emission and smoke limits prescribed in above Table shall be met in diesel alone or diesel and NG or diesel and LPG dual fuel mode separately.
10. Stack height (in metres), for genset shall be governed as per Central Pollution Control Board (CPCB) guidelines NOX + THC shall be measured as emissions from diesel alone in bi-fuel fuel mode of operation. NOX + NMHC or NOX +RHC shall be measured in case of petrol and NG or petrol and LPG fuel mode of operation, respectively.
11. The emission standards for smoke and particulate matter shall be applicable, when diesel is used as fuel. Smoke limit prescribed in above Table shall not exceed throughout the operating load points of the test cycle.

Certification Agency

1. Automotive Research Association of India (ARAI) (Click to view details)

2. International Centre for Automotive Technologies (ICAT) (Click to view details)

3. Vehicle Research Development Establishment (VRDE)

4. Indian Institute of Petroleum (IIP)

For Type Approval and COP data click any of the above