AMENDMENT No. 3
TO
Doc. No.: MoRTH/CMVR/ TAP-115/116: Issue No.: 4

Document on Test Methods, Testing Equipment and Related Procedures for Testing Type Approval and Conformity of Production (COP) of Vehicles for Emission as per CMV Rules 115,116 and 126.

Corrected clauses are as follows:

1. Part VI – Amended Part VI (Ref Annexure 1)

2. Part XI

2.1 Chapter 1, Clause no. 8.2.2.8

Substitute following text for existing text:

Table I of Chapter 1 of this part shows values of the pass (A_n) and fail (B_n) decision numbers against current sample number. The test statistic is the ratio $\bar{d}_n / V_n$ and must be used to determine whether the series has passed or failed as follows :

- Pass the series, if $\bar{d}_n / V_n \leq A_n$ for all the pollutants
- Fail the series if $\bar{d}_n / V_n \geq B_n$ for any one of the pollutants.
- Increase the sample size by one, if $A_n < d_n / V_n < B_n$ for any one of the pollutants. When a pass decision is reached for one pollutant, that decision will not be changed by any additional tests carried out to reach a decision for the other pollutants. In extended COP if earlier pass pollutants values are significantly high,then test agency will consider all pollutants for pass fail decision.

- If no pass decision is reached for all the pollutants and no fail decision is reached for one pollutant, a test shall be carried out on another randomly selected sample till a pass or fail decision is arrived at.

2.2 Chapter 4, Clause no. 3.2.2

Substitute following Table II for existing Table :

Sr.No.	Vehicle Type	Drive Mode	Reference Mass	Use of 1.3 factor
1	M1	2WD, Selectable AWD	≤1700 Kg & > 1700 kg	No
2	M2	2WD, Selectable AWD	≤1700 Kg	No
3	M2	2WD, Selectable AWD	> 1700 Kg	Yes
4	M1, M2, N category vehicles	Permanent AWD	≤1700 Kg & > 1700 kg	Yes
5	N category vehicles	Any drive mode	> 1700 Kg	Yes
6	N category vehicles	2WD, Selectable AWD	≤1700 Kg	No

For existing Table:

Sr.No	Vehicle Type	4 Wheel Drive Mode	Reference Mass	Use of 1.3 factor
1	M1, Passenger Vehicle	Selectable	< 1700 Kg	No
2	M1, Passenger Vehicle	Selectable	> 1700 Kg	No
3	M1, Passenger Vehicle	Permanent	> 1700 Kg	Yes
4	N1, Other than passenger veh	Selectable	> 1700 Kg	Yes
5	N1, Other than passenger veh	Selectable	< 1700 Kg	No

3. Part XIII

3.1 Chapter 1, Clause no. 8.3.2.8

Substitute following text for existing text:

Table I of Chapter 1 of this part shows values of the pass (A_n) and fail (B_n) decision numbers against current sample number. The test statistic is the ratio $\bar{d}_n / V_n$ and must be used to determine whether the series has passed or failed as follows :

- Pass the series, if $\bar{d}_n / V_n \leq A_n$ for all the pollutants
- Fail the series if $\bar{d}_n / V_n \geq B_n$ for any one of the pollutants.
- Increase the sample size by one, if $A_n < d_n / V_n < B_n$ for any one of the pollutants. When a pass decision is reached for one pollutant, that decision will not be changed by any additional tests carried out to reach a decision for the other pollutants. In extended COP if earlier pass pollutants values are significantly high, then test agency will consider all pollutants for pass fail decision.
- If no pass decision is reached for all the pollutants and no fail decision is reached for one pollutant, a test shall be carried out on another randomly selected sample till a pass or fail decision is arrived at.

3.2 Chapter 1, Clause no. 8.4.12

Substitute following text for existing text:

When a pass decision is reached for one pollutant, that decision will not be changed by any additional tests carried out to reach a decision for the other pollutants. In extended COP if earlier pass pollutants values are significantly high, then test agency will consider all pollutants for pass fail decision.

4. Part XIV

4.1 Chapter 1, Clause no. 8.6.2.8

Substitute following text for existing text:

Table I of Chapter 1 of this part shows values of the pass (An) and fail (Bn) decision numbers against current sample number. The test statistic is the ratio $\bar{d}_n$ / Vn and must be used to determine whether the series has passed or failed as follows :

- Pass the series, if if $\bar{d}_n / V_n \leq A_n$ for all the pollutants
- Fail the series if $\bar{d}_n / V_n \geq B_n$ for any one of the pollutants.
- Increase the sample size by one, if An < d_n /Vn < Bn for any one of the pollutants. When a pass decision is reached for one pollutant, that decision will not be changed by any additional tests carried out to reach a decision for the other pollutants. In extended COP if earlier pass pollutants values are significantly high, then test agency will consider all pollutants for pass fail decision.
- If no pass decision is reached for all the pollutants and no fail decision is reached for one pollutant, a test shall be carried out on another randomly selected sample till a pass or fail decision is arrived at.

4.2 Chapter 1, Clause no. 8.7.2.14

Substitute following text for existing text:

When a pass decision is reached for one pollutant, that decision will not be changed by any additional tests carried out to reach a decision for the other pollutants. In extended COP if earlier pass pollutants values are significantly high, then test agency will consider all pollutants for pass fail decision.

4.3 Chapter 4, clause no. 3.2.2

Substitute following Table for existing Table:

Sr.No.	Vehicle Type	Drive Mode	Reference Mass	Use of 1.3 factor
1	M1	2WD, Selectable AWD	≤ 1700 Kg & > 1700 kg	No
2	M2	2WD, Selectable AWD	≤1700 Kg	No
3	M2	2WD, Selectable AWD	> 1700 Kg	Yes
4	M1, M2, N category vehicles	Permanent AWD	≤ 1700 Kg & > 1700 kg	Yes
5	N category vehicles	Any drive mode	> 1700 Kg	Yes
6	N category vehicles	2WD, Selectable AWD	≤ 1700 Kg	No

For existing Table:

Sr.No	Vehicle Type	4 Wheel Drive Mode	Reference Mass	Use of 1.3 factor
1	M1, Passenger Vehicle	Selectable	< 1700 Kg	No
2	M1, Passenger Vehicle	Selectable	> 1700 Kg	No
3	M1, Passenger Vehicle	Permanent	> 1700 Kg	Yes
4	N1, Other than passenger veh	Selectable	> 1700 Kg	Yes
5	N1, Other than passenger veh	Selectable	< 1700 Kg	No

Annexure 1

MoRTH/CMVR/ TAP-115/116	**ADMINISTRATIVE PROCEDURE**	
ISSUE NO.4		**PART VI**

PART VI : Administrative Procedure for Type Approval and Conformity of Production for Bharat Stage IV M and N Category Vehicles and Bharat Stage III Two and Three Wheelers and CEV/Tractors/Power tiller engines.

Section	Details
1.	GENERAL
2.	COP TEST AGENCY
3.	COP PERIOD AND SELECTION OF RANDOM SAMPLE
4.	EXEMPTIONS FROM COP
5.	COP TESTING
6.	COP CERTIFICATE
7.	EXTENDED COP TESTS
8.	CONSEQUENCES OF FAILURE

GENERAL

1 The Ministry of Road Transport and Highways is the nodal agency for implementation of emission legislation in both its aspects of Type Approval and Conformity of Production.

2 This procedure contains administrative guidelines for carrying out Conformity of Production tests in implementation of Emission Legislation. This has to be read in conjunction with Part IV, IX & X, XI, XII, XIII, XIII A, XIV, XV,XVI of this Document which contain the technical procedures and guidelines for the implementation.

3 The Standing Committee on implementation of Emission Legislation has been constituted by the MoRTH under the Chairmanship of Joint Secretary - MoRTH, to advise the Nodal agency in such implementation.

4 The functions of Standing Committee are to advise the Nodal Agency on all matters pertaining to the implementation of Emission Legislation in general, and particularly

4.1 To formulate, monitor and control the policy and actions for Type Approval and Conformity of Production Testing System and Procedures.

4.2 To co-ordinate all such activities relating to implementation of the Emission Legislation.

4.3 To deal with certification, withdrawal and restoration of Type Approval.

4.4 To deal with all other technical, administrative or legal matters in this regard.

4.5 A list of members of the Standing committee are circulated by Ministry of Road Transport & Highways from time to time.

5 Manufacturer is responsible for completion of COP before end of COP period for each model produced at different production plant. If manufacturer fails to complete COP in due time Nodal Agency will consider for application of suitable penalty. List of such manufacturer will display on respective test agency's website.

COP TEST AGENCY

6 The test agencies specified in Rule 126(A) of CMVR 1993 will be responsible for carrying out the COP tests in addition to the Type Approval tests.

7 Initially the vehicle/engines Manufacturer has the option of choosing the Test Agency for Type Approval of its specific model from among those listed in Rule 126(A) of CMVR 1993. On completion of first COP by the same test agency, the manufacturer can change the test agency if so desired.

8 In case the vehicle manufacturer desires to change the COP Test Agency, a formal request should be made to the new test agency under intimation to the previous Test Agency and nodal agency. This request should be made at least one month before the

beginning of the next COP period along with all relevant documents concerning type approval/previous COP and also the latest information as per para 17 of the procedure.

9 On receipt of intimation of requests for a change, the previous COP Test Agency will authenticate all the relevant documents of that model and forward to the new test agency. The new test agency will carry out the process of selection & testing of the vehicle/engine for the COP as per the procedure and will consult the previous Test Agency if required about the test findings and results before issuing the final COP Certificate.

10 No change of Test Agency will be allowed in the cases covered by Para 32, until the procedure required under that Rule are finally completed.

COP PERIOD AND SELECTION OF RANDOM SAMPLE

11 a) Bharat Stage II 4 wheeler vehicles and greater than 3500 kg GVW engines : The COP period for vehicle/engine model shall be every Six months viz. April to September and October to March or, production/ Import of 25,000 vehicles/engines in the case of other vehicles (other than 2&3 wheelers) whichever is earlier.

However if production / Import of a model including its variants in a year (i.e. two consecutive COP periods of Six months each) is less than 5,000 in the case of other vehicles (other than 2/3 wheelers) the COP interval shall be one year.

b) For 2 & 3 wheelers (Bharat Stage II & Bharat Stage III) COP frequency and samples:

Sr. No.	Type of Vehicle	Annual Production / Import		COP Frequency
		Exceeding	Upto	
(1)	(2)	(3)	(4)	(5)
1.	Two-wheeler and three wheeler	250 per 6 months	10000 per year	Once every year
2.	Two-wheeler	10000 per year	150000 per 6 months	Once every 6 months
3.	Two-wheeler	150000 per 6 months	---	Once every 3 months
4.	Three wheeler	10000 per year	75000 per 6 months	Once every 6 months
5.	Three wheeler	75000 per 6 months	----	Once every 3 months

c) For 4 wheelers and greater than 3500 kg GVW engines COP frequency is once in a year for Bharat Stage III & Bharat Stage IV compliance (April to March)

d) The period between commencement of production/Import of a new model and beginning of next rationalized COP period is less than 2 months; the same would be merged with the rationalized COP period.

e) COP period for agricultural tractor, power tiller & construction equipment engines.
For agricultural tractor, power tiller & construction equipment with annual production/ Import upto 200 nos., it shall be once in two years per family/model.

For agricultural tractor, power tiller & construction equipment with annual production / Import exceeding 200 nos., it shall be once in every year per family/model.

11.1 For the Vehicles other than those mentioned in clause 11(e) if the number of a specific vehicle model and its variants produced/ Imported are less than 250 in any consecutive period of six months in a year, COP should be carried out as per Chapter 1, Clause 8 of Part XIII and clause 5.3 of Part XIII A for 2/3 Wheeler vehicles, Part XIV for 4 Wheeler vehicles & Chapter 1, Clause 9 of Part XV for Diesel & gas engines.

"Provided that in case the number of vehicles sold in India for a given base model and its variants (manufactured in India or imported to India) are less than 250 in any consecutive period of six months in a year, then such base model and its variants need not be subjected to the above test, if at least one model or its variants manufactured or imported by that manufacturer or importer, as the case may be, is subjected to such tests at least once in a year;

Provided further that, in case the number of base models and its variants manufactured / imported is more than one and if the individual base model and its variants are less than 250 in any consecutive period of six months in a year, then the testing agencies can pick up one of the vehicles out of such models and their variants for respective fuel type once in a year for carrying out such test".

11.2 The Vehicle manufacturer may conduct the COP tests in addition to those conducted by Testing Agency.

11.3 The vehicle manufacturer should have a valid certificate of compliance to ISO 9001-2008 or equivalent for the plant manufacturing that model.

11.4 For COP testing at manufacturer test facility following requirements shall met:-

11.4.1 Their emission test facilities, on which tests are conducted have been approved by one of the test agencies referred to in Rule 126 of CMVR.

11.4.2 Test agency may also use manufacturer's facilities which is accredited for NABL(ISO-IEC 17025.

11.4.3 Manufacturer test facility should be used for COP testing of vehicles/engines for same location.

11.4.4 Their test procedure which is a part of the certified quality system is followed. This procedure should be approved by a test agency referred to in Rule 126 of CMVR , for its adequacy of covering the applicable requirements of the COP test procedure including the procedure of selection of Vehicle, Calibration of test facilities etc.

11.4.5 The test facility to be re-certified within 3 years from the date of issue of approval certificate by the testing agency.

11.4.6 The manufacturer will submit one model per plant every year for COP evaluation at the premises of the testing agencies. The selection of the model will be at the discretion of the test agency.

12 A vehicle is considered to be produced when the vehicle has passed the final inspection stage as declared by the manufacturer.

13 Three random sample of the vehicle/engine model type approved will be selected using random number generating software under the control & supervision of the Head office of test agency for the COP test, before the completion of the COP period defined in Para 11.0. In the case of diesel engines, three engine will be selected both for Part IV and Part X or Part XII, or Part XV tests.
Further, in case of vehicle model and its variants produced less than 250 in any consecutive period of six months in a year, as mentioned in clause 11.1 one vehicle shall be tested.

13.1 During Random number generation for vehicles base model and variant shall be considered, for engines parent and child engines to be considered for particular family.

14 The vehicle/engine manufacturer should inform the Nodal and concerned Test Agency -

14.1 Production/ Import plan for each model including its variants (with respect to the Type Approval Certificates and the previous COP Certificate) in format given at Annexure I for vehicle GVW less than 3500 kg and Annexure II for vehicle GVW more than 3500 kg, Tractor, CEVs, and Power Tiller within 8 weeks from the start of production of type approved vehicle model or resumption of production of a vehicle or start of the COP period for that model.

14.1.1 Notarized/audited actual Production/ Import plan for each model including its variants (with respect to the Type Approval Certificates and the previous COP Certificate) in format given at Annexure I and Annexure II before two months of completion of COP period.

14.2 Any subsequent change in such Production/ Import Plan, which would affect time schedule for random selection referred to in Para 18.

14.3 Likely and approximate last date before which COP will have to be completed, at least one to two months before such a date is likely to arrive.

14.4 Stoppage of production/ Import 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 vehicle/engine can be completed by the test Agency before stoppage of production/ Import.

15 Manufacturer should request the Test Agency when they would like to make random selection of vehicles/engines and to seek their time table for completing the COP test.

16 Manufacturer should provide all the assistance required by the Test Agency for completing the tests.

17 The latest updated technical specifications, procedure of Pre-Delivery Inspection (PDI), running-in and servicing of the vehicle/engine, shall also be submitted

before the vehicle/engine selection, if there has been revisions after the previous COP/Type Approval.

17.1 Make, Identification/Part number, and serial number of Emission related part like FIP,
Fuel Pump, Catalytic Conveter,DPF, EGR, Muffler, ECU, Canister e.t.c shall be clearly visible.

17.2 All emission related part will be verified at time COP selection and during COP test.

18 The Test Agency will inform the vehicle/engine Manufacturer not more than two days in advance, its time schedule for the selection of random sample from manufacturing plant or dealer's location or warehouse. If the vehicle/engine manufacturer has a problem for this time table for reason such as, that particular model is not likely to be scheduled for production at that time, or enough number of vehicles/engines may not be available etc., the time schedule should be modified by test agency based on production data provided by manufacturer.

Vehicle models(2&3 wheelers and < 3.5 tons GVW vehicles) will be selected from dealer's location or warehouse through manufacturer 1 model out of 4 models produced from particular plant per year.

Engines of vehicle GVW more than 3500 kg and industrial vehicle will be selected from production plant.

Selected vehicles/engines should be sealed and dispatched immediately in presence of test agency representative. Wherever immediate dispatch not possible selected vehicle/engines shall be sealed in closed room/container in front of test agency representative. However, selected samples should reach test agency maximum within two weeks.

EXEMPTIONS FROM COP

19 In the following cases, vehicle/engine models are exempted from COP tests :-

19.1 A batch of new/modified vehicles/engines produced for field trials upto a maximum of 500 vehicles/engines. (Not sold to customer)

20 In case of resumption of production of a model, after a stoppage of production, the manufacturer shall inform the test and nodal agencies, within two weeks of the resumption of the production and the COP period shall be as given in Para 11.
If the stoppage of production of the model has been without conducting the COP for that period, the nodal agency may, at the request of the manufacturer, waive COP for that period. In such cases, where COP has been waived, the selection of vehicle for the first COP after resumption shall be carried out within one month of resumption of production.

COP TESTING

21 The sampling size shall be one days average production subject to a minimum of 10 and maximum of 100.

For vehicle model and its variants produced less than 250 in the half yearly period as mentioned in clause 11.1 sample size may be one. Manufacturer can submit vehicle directly to test agency for COP testing.

For selection at dealer's location above sample size is not applicable.

First COP should be completed within three months from start of production.

22 Petrol vehicles and diesel vehicles with Gross Vehicle Weight less than 3500 kg, vehicles type approved on the basis of Chassis Dynamometer tests as per Part IX or Part XI, XIII, XIV, of this Document ,produced in plants of the same manufacturer of different locations are to be considered as an independent unit for COP purposes and offered for COP. The results of the COP will affect only that unit. However, this criteria is exempted for a specific vehicle model and its variants produced less than 250 in the half yearly period as mentioned in clause 11.1 of this part.

22.1 Unladen weight of vehicles selected for COP will be verified with Approved specification, major deviation will be reported to Nodal Agency.

23 In the case of vehicles/engines type approved based on the engine tests as per the requirements of Part IV and X or Part XII OR Part XV of this Document, the plants manufacturing engines of the same manufacturer will be considered as independent units for COP purposes and the engines would be offered for COP. These will be tested with the worst case configurations of the exhaust system of the models of the vehicles/engines type approved, based on this engine.

24 The procedure prescribed in Part IX, XI, IV and X, XII,XIII XIV, XV of this Document shall apply for carrying out COP tests-viz. Para 8.0 Chapter 1of Part IX , para 8 of chapter 1 of Part XI / PART XIII/ PART XIV and para 5.3 of Part XIIIA for Petrol/ Diesel vehicles and para 8.0 of Chapter 1 of Part IV and Para 7.0of Chapter 1 of Part X, XII, XV & 2.10 clause 6 of part XV subpart A for diesel engine.

25 The COP will be determined on the basis of conformity of the make and specifications of the components used in the randomly selected vehicles/engines to those declared in chapter 2 of the relevant Part of this Document , for the vehicle/engine model type approved under Rule 126 of CMVR and tests on vehicles/engines as described below.

26 Pre-delivery inspection 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 test agency from time to time, on the selected vehicles/engines, under the control of the test agency.

27 The running in of the vehicle/engine shall be carried out as per the manufacturer's recommendation submitted during type approval. This should be carried out as amended and intimated to the concerned test agency from time to time, under the control of test agency. After this, the manufacturer will be permitted by the test agency to carry out all the adjustments recommended in his user's/service manual and

as amended and intimated to the concerned test agency from time to time, under the control of test agency.

28 The facilities with the manufacturers or elsewhere, meeting the specified requirements for testing of emissions according to this document, may be used for COP, by the test agency in addition to those with the test agency.

29 In the case of failure of any major component during the running-in or testing, the testing agencies may permit to replace the components, only once, which have failed and which do not affect the performance and emission of engine/vehicle. In the case of components affecting the performance and emissions of the engine/vehicle, random selection should be done once again and the testing will be done. If the randomly selected vehicle/engine or replaced components also fails, it would be reported to the Nodal Agency by the concerned Test Agency and the agency will await instructions from the Nodal Agency for further action.

COP TEST REPORT &CERTIFICATE

30 If the vehicle/engine meets the requirements of COP, the test agency will issue a COP test report & certificate to the manufacturer. The certificate for COP will cover the vehicle/engine model and its variants produced/planned to be produced during the COP interval. The test agency will also send the copies of the COP certificate to other testing and Nodal Agencies. The typical formats of the test report are given at Annexure III for vehicle GVW less than 3500 kg and Annexure IV for vehicle GVW more than 3500 kg, Tractor, CEVs, and Power Tiller. The format for COP certificate is given at Annexure V for vehicle GVW less than 3500 kg and Annexure VI for vehicle GVW more than 3500 kg, Tractor, CEVs, and Power Tiller.

EXTENDED COP TESTS

31 If the test for COP on the vehicle/engine model has to be continued as per para 8.4 of Chapter 1 of part IX for BS II for 4 wheeler vehicles and para 8.2.2.8 of chapter 1 of part XI for BS II and for 2/3 wheeler vehicles for BS III for 4 wheeler vehicles. Para 8.4.11 of chapter 1 of part XIII for BS III for 2/3 wheeler vehicles, part XIV for 4 wheeler vehicles, Para 3.2.1.2 of part XV subpart A for agricultural tractor/construction equipment engines, para 8.2.1 of chapter 1 of part IV, para 7.2.2.5 chapter 1 for BS II diesel engine and para 9.1.1.1.1 and Chapter 1 part XII for BS III diesel engines, Appendix 1 of Chapter 1 of part XV for BSIV engines, the test agency will immediately inform the manufacturers with copies to the Nodal and other Test Agencies about this. All the subsequent tests to this model for COP will be carried out by the same test agency for that COP. If the testing is not completed till the end of the next COP period, then, a sample of the vehicle/engine produced in the next COP period will be selected and taken up for testing after the earlier test has been completed.

32 In the case when action as per para 31.0 has to be taken, the manufacture should offer adequate number(at least two times of sample size referred in para 21) of vehicles/engines for random selection of the above 'n'/10 vehicles/engines, or N/32 vehicles/engines as the case may be, immediately within 2 weeks unless its

production/ Import is not then scheduled. In that event, the samples should be offered for random selection from the first lot of production/ Import within 2 weeks of start of production/ Import without implementing any design/production modifications which would affect emission performance.

33 The test agency should endeavour to complete further testing of the samples of the vehicles/engines selected according to para 31.0 within 6 weeks from the date of selection of the samples. If the vehicle/engine selected as per para 31.0 meet the requirements of COP, the test agency will issue a COP certificate to the manufacturer.

CONSEQUENCES OF FAILURE

34 If the vehicle/engine fails to meet the requirements of COP, the testing agency shall send the copies of the test report to the nodal agency and the manufacturer. The nodal agency will make a decision and convey the same to the manufacturer and test agencies within 4 weeks of the receipt of the failure report of the COP, after calling for a Standing Committee meeting to discuss and advise the nodal agency. The vehicle/engine manufacturer will be given an opportunity to present his case to the committee before advising the nodal agency. Based on the recommendations of the committee, the nodal agency may issue the order for withdrawal of type approval certificate and stop dispatch of the vehicles/engines by the manufactures from his works.

35 In case the type approval certificate has been withdrawn as per Para 34.0 above, the manufacturer can subsequently identify the reason for not meeting the COP and necessary corrective measures. Then they should inform the same to the Nodal and concerned test Agency and offer the rectified vehicle/engine for testing. The test agency will carry out a complete test as per the relevant type approval procedure on this rectified vehicle/engine. If the modifications are only in the production process without involving any model change, it should meet the COP norms. If the modifications call for changes resulting in a model change, it should meet the type approval norms. If the modified vehicle/engine passes the relevant norms, the manufacturer will write to the Nodal and concerned Test Agency which has carried out the test, the modifications which are to be finally carried out on the vehicles/engines to be produced/ Imported in future and the vehicles/engines which require retrofitting/rectifications. Type approval will be restored by the nodal agency subject to Para 38.0. Further, a special COP will be carried out within a month, if a regular COP is not scheduled within that period. If the regular COP is scheduled within that period, a special COP need not be carried out.

36 The manufacturer can also offer the rectified vehicle/engine from serially produced vehicles/engines, for random selection if the changes do not constitute a model change. In case the manufacturer offers serially produced vehicle/engine for random selection instead of a submitted sample, the special COP mentioned above need not be carried out.

37 If a manufacturer identifies the reason for not meeting the COP and the necessary corrective actions (if the corrective measures do not constitute a model change), when actions under Para 31.0 to 36.0 are on-going, the manufacturer should

inform the same to the Nodal and concerned test Agency and request to abort the actions on-going under Para 31.0 to 36.0 and offer the vehicle/engine for carrying out the tests as per Para 35.0 and 36.0. Then the testing agency will carry out the test as per Para 35.0 and 36.0 and report the results to the nodal agency. If the vehicle/engine meets the requirements, then the nodal agency will instruct the test agency to issue the COP certificate along with instructions to the manufacturer to carry out corrective actions, if any, within a stipulated period as per Para 38.0. The COP certificate will be issued by the test agency after the special COP vehicle / engine meets the requirements, if the case calls for it. If the vehicle/engine does not meet the requirements, action under Para 34.0 will follow.

38 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 vehicles / engines produced / dispatched in the period between the dates of which the COP became due as per Para 11.0 and restoration of the type approval by the nodal agency as per Para 35.0 or when the nodal agency has informed the test agency and the manufacturer as per Para 37.0.

Annexure I

Production Plan Format for COP test of Two, Three, Four Wheeler vehicle

Plant Manufacturing Address		Start of Production (SoP) or Date of I[st] CoP	
		Engine cc	
Engine model		Rated Poweer kw @ rpm	
Maximum Torque Nm @ RPM			
	kpa (max.)		
Running-in to be covered for vehicle in km			

Emission related Component Description ***(Please mension all approved Make & part IDs against each component)***

	COMPONENT	MAKE	PART ID		COMPONENT	MAKE	PART ID
1	**ECU**			6	**Muffler (s)**		
2	**Spark plug (s)**			7	**Cat Con (s)**		
3	**Air filter**			8	**EGR**		
4	**Fuel Pump**			9	**Turbocharger**		
5	**Fuel Injector**			10	**Canister**		
11	**DPF**			12			

Sr.No.	Vehicle Models / Variants produced as per CMVR certificate	Latest CMVR Cert. No.	Latest Emission Type approval test report no.		Planned / Actual Production for COP Period First Half (01/04/15 to 30/09/15)							Planned / Actual Production for COP Period Second Half (01/10/15 to 31/03/16)							Actual Production in previous year (01/04/14 to 31/03/15) : Please fill Page 2	Latest COP certificate No. (if any)
					Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Total	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Total		
1	Base			Actual Production days																
				Quantity																
				Avg. Per Production day																
2	Variant 1 :			Actual Production days																
				Quantity																
				Avg. Per Production day																
3	Variant 2 :			Actual Production days																
				Quantity																
				Avg. Per Production day																
4	Variant 3 :			Actual Production days																
				Quantity																
				Avg. Per Production day																

• Later on if there is any change in the production plan, please inform the test agency accordingly also submit separate production plans where ever different combinations of emission components are produced.

Note : During the CoP selection, details for sample size to be offered @ the time of selection (as per TAP 115/116) :The sampling size shall be one days of average production subject to a minimum of 10 and maximum of 100

Annexure I

Production Plan Format for COP test of Two, Three, Four Wheeler vehicle (Page 2)

Sr.No.	Vehicle Models / Variants produced as per CMVR certificate	Latest CMVR Cert. No.	Latest Emission Type approval test report no.		Actual Production for COP Period First Half (01/04/14 to 30/09/14)							Actual ProductionProduction for COP Period Second Half (01/10/14 to 31/03/15)							Latest COP certificate No. (if any)
					Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Total	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Total	
1	Base			Actual Production days															
				Quantity															
2	Variant 1 :			Actual Production days															
				Quantity															
3	Variant 2 :			Actual Production days															
				Quantity															
4	Variant 3 :			Actual Production days															
				Quantity															

• Later on if there is any change in the production plan, please inform the test agency accordingly also submit separate production plans where ever different combinations of emission components are produced.

Note : During the CoP selection, details for sample size to be offered @ the time of selection (as per TAP 115/116) :The sampling size shall be one days of average production subject to a minimum of 10 and maximum of 100

Annexure II

Production Plan Format for COP Test on Automotive Engines

Engine Model		**Running-in to be coverd for engine in hrs :**	
Manufacturer at			
Rated Power			
Maximum Torque			
Exhaust Back Pressure at rated Speed			
Exhaust Volume			
Air In-take Depression at rated speed			

Sr. No.	*Vehicles Models / Variants produced as per CMVR certificate*	*Plant*	*CMVR Certi. No. for BS III/BSIV Norms*	*Emission Type Approval Test Report No.*	*Planned / Actual Production for COP Period First Half (01/04/2015 to 30/09/2015)*								*Planned / Actual Production for COP Period Second Half (01/10/2015 to 31/03/2016)*							*Latest COP Certificate No. (If any)*	*Tentative COP Selection Date*	*Applicable critical component details such as (Fuel pump/Turbocharger /Cat.Con/Spark plugs/Injectors etc)*
						Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Total	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Total			
1					Actual Production Days																	
					Quantity																	
					Avg per production day																	
2					Actual Production Days																	
					Quantity																	
					Avg per production day																	
3					Actual Production Days																	
					Quantity																	
					Avg per production day																	

* **Later on, if there is any change in the production plan, please inform the test agency accordingly.**

Production Plan Format for COP Test on Automotive Engines (Page 2)

Sr. No.	*Vehicles Models / Variants produced as per CMVR certificate*	*Plant*	*CMVR Certi. No. for BS III/BSIV Norms*	*Emission Type Approval Test Report No.*	*Actual Production for previous COP Period First Half (01/04/2014 to 30/09/2014)*								*Actual Production for previous COP Period Second Half (01/10/2014 to 31/03/2015)*							*Latest COP Certificate No. (If any)*	*Tentative COP Selection Date*	*Applicable critical component details such as (Fuel pump/Turbocharger /Cat.Con/Spark plugs/Injectors etc)*
						Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Total	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Total			
1					Actual Production Days																	
					Quantity																	
2					Actual Production Days																	
					Quantity																	
3					Actual Production Days																	
					Quantity																	

Production Plan Format for COP Test on Power Tiller Engine Models

Power Tiller Vehicle Manufacturer		**Plant**	
Power Tiller Engine Manufacturer		**Plant**	
Power Tiller Engine Model		**Rated Power ----------at----------RPM**	
Emission TA Report No. for Bharat (Trem) Stage III Norms			
Running-in to be covered (Hrs)			
Maximum Torque ----------at ----------RPM		**Exhaust Back Pressure at rated speed**	
Air In-take Depression at rated speed		**Exhaust Volume**	

Sr. No.	*Power Tillers Models / Variants produced as per CMVR certificate*	*CFMT&TI, Budni CMVR Certificate No.*	*ARAI Engine CMVR Certificate No. (Trem III)*		*Planned / Actual Production for COP Period First Half (01/04/2015 to 30/09/2015)*							*Planned / Actual Production for COP Period Second Half (01/10/2015 to 31/03/2016)*							*Latest COP Certificate No. (If any)*	*Tentative COP Selection Date*	*Applicable critical component details such as (Fuel pump/Turbocharger /Cat.Con/Spark plugs/Injectors etc)*
					Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Total	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Total			
1				Actual Production Days																	
				Quantity																	
				Avg per Prodn day																	
2				Actual Production Days																	
				Quantity																	
				Avg per Prodn day																	
3				Actual Production Days																	
				Quantity																	
				Avg per Prodn day																	

* **Later on, if there is any change in the production plan, please inform the test agency accordingly.**

* **Please enclose, a copy of CFMT&TI, Budni CMVR Certificate in case of imported engines.**

Production Plan Format for COP Test on Power Tiller Engine Models (Page 2)

Sr. No.	*Power Tillers Models / Variants produced as per CMVR certificate*	*CFMT&TI, Budni CMVR Certificate No.*	*ARAI Engine CMVR Certificate No. (Trem III)*	*Actual Production for previous COP Period First Half (01/04/2014 to 30/09/2014)*								*Actual Production for previous COP Period Second Half (01/10/2014 to 31/03/2015)*							*Latest COP Certificate No. (If any)*	*Tentative COP Selection Date*	*Applicable critical component details such as (Fuel pump/Turbocharger /Cat.Con/Spark plugs/Injectors etc)*
					Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Total	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Total			
1				Actual Production Days																	
				Quantity																	
2				Actual Production Days																	
				Quantity																	
3				Actual Production Days																	
				Quantity																	

PRODUCTION PLAN FORMAT FOR COP TEST ON CONSTRUCTION EQUIPMENT ENGINE (CEV) FOR BS-III NORMS

TABLE-I

Engine Manufacturer Name		Plant address	
Running-in to be covered for engine in hrs :			
Engine family name			

Sr.no.	Engine model	Rated power	Max. torque @ speed	Exhaust back pressure at rated speed	Air intake depression at rated speed	Exhaust system volume
1	Parent					
2	Variant 1					
3	Variant 2					
4	Variant 3					
5	Variant 4					
6	Variant 5					
7	so on					

TABLE-II

Sr.no.	CEV manufacturer & Plant Address	CEV model & variants	Engine family	Engine model fitted on CEV	Engine TA report no.	CMVR Certificate no. for BS-III norms	Planned / Actual Production for COP Period First Half 01.04.2015 to 30.09.2015							Planned / Actual Production for COP Period Second Half 1.10.2015 to 31.03.2016							Latest COP certificate no.	Tentative Date of COP Selection	Applicable critical component details such as (Fuel pump/ Turbocharger/ Cat.Con./Spark plugs / injectors etc)
								Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Total	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Total			
1							Actual Production days																	
							Quantity																	
							Avg per Production day																	
2							Actual Production days																	
							Quantity																	
							Avg per Production day																	
3							Actual Production days																	
							Quantity																	
							Avg per Production day																	

Notes : (1) Later on, if there is any change in the production plan, please inform the test agency accordingly. (2) Please submit separate production plan for each engine family.

PRODUCTION PLAN FORMAT FOR COP TEST ON CONSTRUCTION EQUIPMENT ENGINE (CEV) FOR BS-III NORMS (Page 2)

TABLE-III

Sr.no.	CEV manufacturer & Plant Address	CEV model & variants	Engine family	Engine model fitted on CEV	Engine TA report no.	CMVR Certificate no. for BS-III norms	Actual Production for Previous COP Period First Half 01.04.2014 to 30.09.2014								Actual Production for Previous COP Period Second Half 01.10.2014 to 31.03.2015							Latest COP certificate no.	Tentative Date of COP Selection	Applicable critical component details such as (Fuel pump/ Turbocharger/ Cat.Con./Spark plugs / injectors etc)
								Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Total	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Total			
1							Actual Production days																		
							Quantity																		
2							Actual Production days																		
							Quantity																		
3							Actual Production days																		
							Quantity																		
		Sheets may be added as required to cover all the engine families.																							

PRODUCTION PLAN FORMAT FOR COP TEST ON AGRICULTURAL TRACTOR ENGINE AS PER BHARAT TREM STAGE III A NORMS

TABLE-I

Engine Manufacturer Name		**Plant address**	
Running-in to be covered for engine in hrs :			
Engine family name			

Sr.no.	Engine model		Rated power	Max. torque @ speed	Exhaust back pressure at rated speed	Air intake depression at rated speed	Exhaust system volume
1	Parent						
2	Variant 1						
3	Variant 2						
4	Variant 3						
5	Variant 4						
6	Variant 5						
7	so on						

TABLE-II

Sr.no.	Agri. Tractor manufacturer & Plant Address	Agri. Tractor model & variants	Engine family	Engine model fitted on Agri. Tractor	CFMT&TI Budni CMVR Certificate No.	ARAI ATA Engine CMVR Certificate No. (Trem Stage III A norms)	Engine TA Report Nos. for Bharat Trem Stage III A norms	Planned / Actual Production for COP Period First Half 1.4.2015 to 30.09.2015							Planned / Actual Production for COP Period Second Half 1.10.2015 to 31.03.2016							Latest COP certificate no.	Tentative Date of COP Selection	Applicable critical component details such as (Fuel pump/ Turbocharger/ Cat.Con./Spark plugs / injectors etc)
									Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Total	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Total			
1								Actual Production days																	
								Quantity																	
								Avg per production day																	
2								Actual Production days																	
								Quantity																	
								Actual Production days																	
3								Actual Production days																	
								Quantity																	
								Actual Production days																	

Notes : (1) Later on, if there is any change in the production plan, please inform the test agency accordingly. (2) Please submit separate production plan for each engine family.
(3) Please enclose, a copy of CFMT&TI, Budni CMVR Certificate in case of Imported Engines.

PRODUCTION PLAN FORMAT FOR COP TEST ON AGRICULTURAL TRACTOR ENGINE AS PER BHARAT TREM STAGE III A NORMS (Page 2)

TABLE-III

Sr.no.	Agri. Tractor manufacturer & Plant Address	Agri. Tractor model & variants	Engine family	Engine model fitted on Agri. Tractor	CFMT&TI Budni CMVR Certificate No.	ARAI ATA Engine CMVR Certificate No. (Trem Stage III A norms)	Engine TA Report Nos. for Bharat Trem Stage III A norms	Actual Production for Previous COP Period First Half (01.04.2014 to 30.09.2014)								Actual Production for Previous COP Period Second Half (01.10.2014 to 31.03.2015)								Latest COP certificate no.	Tentative Date of COP Selection	Applicable critical component details such as (Fuel pump/ Turbocharger/ Cat.Con./Spark plugs / injectors etc)
									Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Total	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Total			
1								Actual Production days																	
								Quantity																	
2								Actual Production days																	
								Quantity																	
3								Actual Production days																	
								Quantity																	

Sheets may be added as required to cover all the engine families.

Annexure III

CONFORMITY OF PRODUCTION TEST REPORT

Test Report No.-				**Date : dd/mm/yyyy**	
Manufacturer :			**Objective of the test**		
M/s.			COP Period: SOP to dd/mm/yyyy		
Plant :--			**Rule No.**	Bharat Stage IV,GSR ... (E) dt.	
Test vehicle					
Vehicle Model :					
Test Request			Engine Make / Model		
Test Name	Engine No.		VIN/Chassis No		Odometer reading at the start of test in km
Test 1(Vehicle 1)					
Test 2(Vehicle 2)					
Test 3(Vehicle 3)					
Unladen weight (kg)			Engine Capacity (CC)		
Equivalent Inertia (kg)			Road Load Equation F=N,V=Kph		
Coast down report No.					
Test Fuel					
Spark Plug	Make		Id No		
FIP/Fuel Pump	Make		Id No		
EGR	Make		Id No		
ECU	Make		Id. No.		
			Cal Id No		
Canister	Make		Id No		

Catalytic Converter

Make	Id No	Pt : Rh : Pd..	Cell Density	Total Charge

DPF

Make	Id No	Pt : Rh : Pd..	Cell Density	Total Charge

Test Procedure		
Gear Shift		
Test Equipments	**Make**	**Type**
Chassis Dyno		
Cooling Fan		
Driver Aid		
CVS		
Analysing System		

Test Report No.-						Date : dd/mm/yyyy	
Test Result							
Type I -	**Exhaust Mass Emission Test**						
g / km	**CO**	**HC**	**NOx**	**HC+Nox**	**CO2**	**FC (km/l)**	
Test 1 (Vehicle 1)							
Test 2 (Vehicle 2)							
Test 3 (Vehicle 3)							
Limit((BS IV)) with D.F				--	--	--	
Type II	**(Idle Emission Test) for Petrol vehicles**						
Test Name	**CO(%)**	***HC(ppm)C6**	**RPM**				
Test 1 (Vehicle 1)							
Test 2 (Vehicle 2)							
Test 3 (Vehicle 3)							
Idling Co, HC Limit	**0.3**	**200**	**-----**				
(High Idle Emission Test)							
Test Name	**CO(%)**	**Lambda**	**RPM**				
Test 1 (Vehicle 1)							
Test 2 (Vehicle 2)							
Test 3 (Vehicle 3)							
High Idle CO, Lambda Limit	**0.2**	**1+/-0.03**	**2300-2700**				
Type II	**(Free Acceleration Smoke) for Diesel vehicles**						
Test Name	**Smoke in HSU**	**Fly up Speed (RPM)**	**Idle Speed (RPM)**				
Test 1 (Vehicle 1)							
Test 2 (Vehicle 2)							
Test 3 (Vehicle 3)							
Smoke Limit (HSU)	**50**	**200**	**-----**				

An And Bn pass decision/fail decision threshold have been calculated as per of GSR ... (E) dt. 09/02/2009

Pollutant	Sample No.	dj	dn	Vn	TS	Pass(An) Threshold	Fail(Bn) Threshold	Remarks
CO	1							
	2							
	3							
HC	1							
	2							
	3							
Nox	1							
	2							
	3							
Name								
Designation								

Page 0 of 00

Test Report No.-	Date : dd/mm/yyyy
For Details of Type I and Type II test Please refer Annexure 1 for Vehicle 1, Annexure 2 for Vehicle 2, Annexure 3 for Vehicle 3	
Remarks : 1. Vehicle meets requirement of Mass Emission Test as per Notification No GSR ...(E) dt. 2. Deterioration factor of CO .., HC ... NOX ….was considerred for Petrol/Diesel Vehicle as per note 11 of notification No. GSR ….(E) dt. .. 3. Vehicle meets Idle & High Idle emission/ Free Acceleration Smoke requirement as per GSR 103 (E) dt. 23/02/2012 (Clause) 4. There were no crankcase emissions. 5. Purge test,Leak test,Vent Test confirm the acceptabilty criteria of evaporative emission System, as per Clause No. 7, Annexure 1 of Chapter 11 of MoRTH/CMVR/TAP/-115/116 - Issue 4. **Test Observation :**	
Disclaimer by Test Agency :	

Authorized Signatory		
Name		
Designation		

Annexure IV

CONFORMITY OF PRODUCTION TEST REPORT

Test Report No. :					**DATE: DD/MM/YYYY**
Test Sponsored By :				**Objective of the Test :**	
				COP Period : dd/mm/yyyy to dd/mm/yyyy	
Test Date		dd/mm/yyyy to dd/mm/yyyy		**CMV Rule**	
Type Approval Specifications					
Test Request Reference :					
Engine Model					
		0.00	kW at	0	rev/min
Engine Manufacturer					
Engine Serial Number		ENGINE 1			
		ENGINE 2			
		ENGINE 3			
Fuel pump	**Make**			**Type**	
Injector	**Make**			**INJ. Type**	
	Holder No.			**Nozzle No**	
ECU	**Make**			**ID.No.**	
Turbo Charger	**Make**			**Type**	
EGR	**Make**			**ID.No.**	
CATALYTIC (DOC+POC)	**Make**			**ID.No.**	
Engine Running-in Details		00 Hrs at ----------			
Engine Specification		0	stroke, Turbocharged, Intercooled CRDI Diesel Engine		
		0	mm Bore		
		0	mm Stroke		
Max. Net Power of engine on bench as per clause 2.6 of Chapter 1 of Part IV of MoRTH/ CMVR/ TAP-115/116		00 kW at 0000 rev/min			
TEST PROCEDURE		As per part IV & XII of MoRTH/CMVR/TAP-115/116 -issue 4			
Test Equipment used		**Make**		**Model**	
Dynamometer					
Exhaust Gas Analysis System					
Fuel Consumption Meter					
Airflow measurement					
Particulate Measurement					
Smoke meter/ELR Smoke meter					

Page 0 of 00

Summary of Test Results :	Test Results are given in Annexure 0 to 00		
The Engine developed power in kW (Corr. As per Chapt. 6.Part IV of MoRTH/CMVR/TAP - 115/116) at 0000rev/min. (See Annexure I ,VI,& XI)	ENGINE 1	0.00	kW at 0000 rev/min
	ENGINE 2	0.00	kW at 0000 rev/min
	ENGINE 3	0.00	kW at 0000 rev/min

Net Power was within the specified tolerance as per MoRTH/CMVR/TAP - 115/116.

ABC speed observed was within the +/- 3% of Declared ABC speed (0000,0000,0000)rpm.

Full Load Smoke values were within the specified limit as per MoRTH/CMVR/TAP - 115/116

Random Nox point Deviation was within specified Limit as per MoRTH/CMVR/TAP-115/116 (See Annex. III, VIII & XIII respectively)

ELR Smoke value was within the specified limits as per MoRTH/CMVR/TAP-115/116 (See Annex. IV, IX & XIV respectively)

Free Acceleration Smoke value was within the specified limit as per MoRTH/CMVR/TAP - 115/116.

Mass Emissions in g/kWh (See Annexure II,VII & XI respectively)		**CO**	**HC**	**NOx**	**PM**	**ELR Smoke (m-1)**	**FAS (m-1)**
ENGINE 1	ESC test result in g/kWh					**0.000**	**0.000**
	ESC test result in g/kWh with DF	**0.000**	**0.000**	**0.000**	**0.000**		
ENGINE 2	ESC test result in g/kWh					**0.000**	**0.000**
	ESC test result in g/kWh with DF	**0.000**	**0.000**	**0.000**	**0.000**		
ENGINE 3	ESC test result in g/kWh					**0.000**	**0.000**
	ESC test result in g/kWh with DF	**0.000**	**0.000**	**0.000**	**0.000**		
DF						---	---
COP BS IV Limit		**1.50**	**0.46**	**3.50**	**0.02**	**0.50**	**1.61**

	Pass Fail Criteria as per MoRTH/CMVR/TAP 115								
	CO	ln	dj	dn	(dj-dn)2	Vn	dn/vn	an	bn
1									
2									
3									
COP Limit									

	Pass Fail Criteria as per MoRTH/CMVR/TAP 115								
	HC	ln	dj	dn	(dj-dn)2	Vn	dn/vn	an	bn
1									
2									
3									
COP Limit									

	Pass Fail Criteria as per MoRTH/CMVR/TAP 115								
	Nox	ln	dj	dn	(dj-dn)2	Vn	dn/vn	an	bn
1									
2									
3									
COP Limit									

	Pass Fail Criteria as per MoRTH/CMVR/TAP 115								
	PM	ln	dj	dn	(dj-dn)2	Vn	dn/vn	an	bn
1									
2									
3									
COP Limit									

	Pass Fail Criteria as per MoRTH/CMVR/TAP 115								
	ELR	ln	dj	dn	(dj-dn)2	Vn	dn/vn	an	bn
1									
2									
3									
COP Limit									

ETC Mass Emissions in g/kWh (See Annexure V, X & XV respectively)		CO	HC	NOx	PM
ENGINE 1	ETC test result in g/kWh				
	ETC test result in g/kWh with DF	**0.000**	**0.000**	**0.000**	**0.000**
ENGINE 2	ETC test result in g/kWh				
	ETC test result in g/kWh with DF	**0.000**	**0.000**	**0.000**	**0.000**
ENGINE 3	ETC test result in g/kWh				
	ETC test result in g/kWh with DF	**0.000**	**0.000**	**0.000**	**0.000**
DF		0.00	0.00	0.00	0.00
ETC BS IV Limit		**4.0**	**0.55**	**3.50**	**0.03**

	Pass Fail Criteria as per MoRTH/CMVR/TAP 115								
	CO	ln	dj	dn	(dj-dn)2	Vn	dn/vn	an	bn
1									
2									
3									
COP Limit									

	Pass Fail Criteria as per MoRTH/CMVR/TAP 115								
	HC	ln	dj	dn	(dj-dn)2	Vn	dn/vn	an	bn
1									
2									
3									
COP Limit									

	Pass Fail Criteria as per MoRTH/CMVR/TAP 115								
1									
2									
3									
COP Limit									

	Pass Fail Criteria as per MoRTH/CMVR/TAP 115								
	PM	ln	dj	dn	(dj-dn)2	Vn	dn/vn	an	bn
1									
2									
3									
COP Limit									

Decision : Mass Emissions values were within the specified limits as per notification no. GSR --- dated --- Issued by Ministry of Shipping, Road Transport & Highways, Govt. of India. for notifying the -------Emission norms.

Test Parameters	Measured			Declared
	ENGINE 1	ENGINE 2	ENGINE 3	
Air intake depression (mmH2O)				000+/-00
Exhaust back pressure (mmHg)				0.00
Fly - up Speed (rev/min)				0000 +/- 00
Idle Speed (rev/min)				000 +/- 00
Maximum Torque Speed (rev/min)				0000 +/- 00
Fuel Flow Rate mm ^{3} / stroke @ 0000 rev/min)				000 +/- 00
Atmospheric factor				0.98 to 1.02

NOTE :

Test was carried out with referancel diesel as per Bharat Stage IV fuel specification and with pressurized air conditioning system. (Fuel Batch No.....)

Disclaimer by Test Agency :

Authorized Signatory 1	Authorized Signatory 2

Annexure I to Test Report No.:

ENGINE MANUFACTURER		TEST DATE	dd/mm/yyyyy	SITE	

ENGINE MODEL	ENGINE SR.NO.	NO. OF CYLINDERS	Bore		Stroke		CUBIC CAPACITY		RATED SPEED	
	For engine 1									

Sr No	Speed	Engine Air Inlet			Fa	OBSERVED							CF	Corr. Power	Dec. Power	OBSERVED		CMVR Limit	CATS Press
		Td	T_Fuel	SPH		T_WATER OUT	Torque	P_Ex Back	P_Air Intake	Fuel Flow Rate	Boost Press. Ratio	Power				BSFC	Light Absorbtion Coefficient		
--	RPM	°C	°C	g/kg		°C	Nm			kg/hr		kW		kW	kW	g/kWh	m-1	m-1	kPa
1																			
2																			
3																			
4																			
5																			
6																			

Note:- Average Free acceleration smoke value observed was: 0.00 m-1

AUTHORIZED SIGNATORY 1 **AUTHORIZED SIGNATORY 2**

Annexure II to Test Report No.:

Engine Model	0
Engine Serial No.	For engine 1

Mode	Speed	Load	Torque	Power	THC *	Nox *	CO	CO	HC	Nox	Fuel Flow Rate	T_Air In	Sp. Humidity	AirFlow	CATS Press
--	RPM	%	Nm	kW	ppm	ppm	ppm	g/h	g/h	g/h	Kg/hr	°C	g/Kg	Kg/hr	kPa
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															

* These values are based on Wet Basis Measurement

Weighted Mass Emission g/Kwh					
	Measured	DF	Result	Limit	Unit
CO				1.5	g/kWh
HC				0.46	g/kWh
NOX				3.50	g/kWh
PM				0.02	g/kWh

Particulate Mass		mg
Gedf Weighted		kg/h
Msam Total		g
Power Weighted		kW
Max Filter Temperature		Deg C

AUTHORIZED SIGNATORY 1

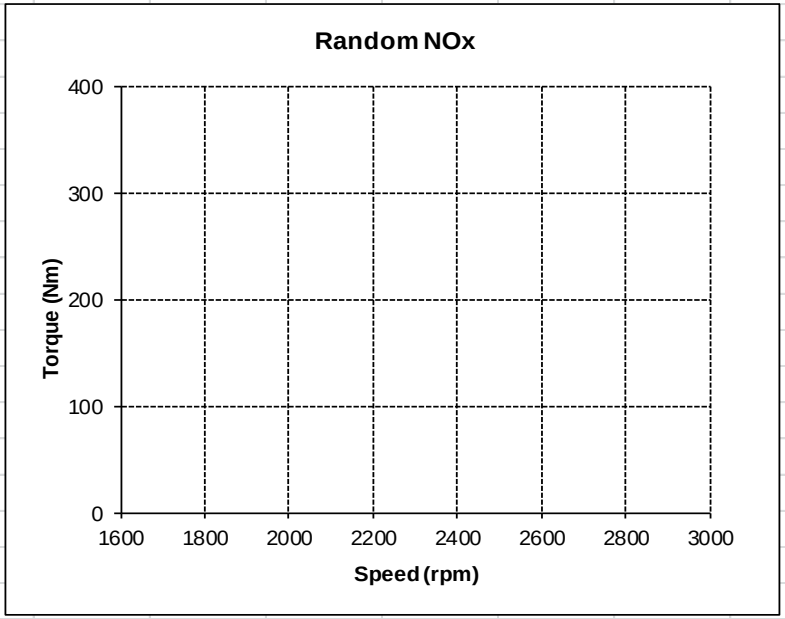
AUTHORIZED SIGNATORY 2

Page 0 of 00

Annexure III toTest Report No.:	

Engine Sr. No.	For engine 1

Sr. No.	Speed	Torque	Power	NOx	NOx	Spe. NOx
	rpm	Nm	kW	ppm	g/hr	g/kWh
1	0	0.00	0.00	0	0.0	0.0
2	0	0.00	0.00	0	0.0	0.0
3	0	0.00	0.00	0	0.0	0.0
4	0	0.00	0.00	0	0.0	0.0
5	0	0.00	0.00	0	0.0	0.0
6	0	0.00	0.00	0	0.0	0.0
7	0	0.00	0.00	0	0.0	0.0
8	0	0.00	0.00	0	0.0	0.0
9	0	0.00	0.00	0	0.0	0.0
10	0	0.00	0.00	0	0.0	0.0
11	0	0.00	0.00	0	0.0	0.0
12	0	0.00	0.00	0	0.0	0.0
1						
2						
3						



Sr. No.	Speed	Torque	Spe_NOx		Dev.	Limit
	rpm	Nm	Interpolated	Measured	%	%
1	0.0	0.00	0.00	0.00		+10
2	0.0	0.00	0.00	0.00		
3	0.0	0.00	0.00	0.00		

AUTHORIZED SIGNATORY 1

AUTHORIZED SIGNATORY 2

Annexure IV to Test Report No.:

Engine No. (For engine 1)									
			cycle 1	cycle2	cycle3	mean	std dev.	Abs. std dev.	Limit(%)
1	Speed A								10% of limit Value
2	Speed B								
3	Speed C								
4	Speed D *								
	FINAL SMOKE VALUE (m-1)								

* Smoke Value at Random Test Speed has not exceed the highest smoke value of the adjacent speeds by more than 20% or by more than 5% of the Limit Value.

AUTHORIZED SIGNATORY 1 **AUTHORIZED SIGNATORY 2**

Page 0 of 00

ETC 1 results

Annexure V to Test Report No.:

Engine Model	
Engine Serial No.	For engine 1

Regression line Analysis / Cycle validation						
Parameter	Speed		Torque		Power	
	Test data	Limit	Test data	Limit	Test data	Limit
Standard error of estimate(SE) of Y on X		Max 100 rpm		13% of maximum engine		8% of Maximum engine power
Slope of the regression Line, m		0.95 to 1.03		0.83 to 1.03		0.89 to 1.03
Co-efficent of determination, r^2		min 0.9700 max 1.00		min 0.8800 max 1.00		min 0.91 max 1.00
Y intercept of the regression line, b		±50 rpm		±20 Nm		±4 kW

Deleted points for Speed		Actual Cycle Work	Demand cycle work	Deviation	Limit
Deleted points for Torque		Kwh	Kwh	%	%
Deleted points for power					-15 / + 5

Test data					
Concentration values		Mass emission values		Particulate data	
CO ppm		CO g		Mtot Kg	
Nox ppm		Nox g		Mass flow exhaust diluted Kg/ hr	
THC ppm		THC g		Filter Mass mg	
CO_2 %		CO_2 g		Temperature filter °C	
Fuel Kg/h					
Actual Cycle work Kwh					

Test Result				
ETC Test Result(Measured)		DF	Result g/Kwh	Limit g/Kwh
CO g/ Kwh				4
Nox g/Kwh				3.5
THC g/kwh				0.55
PM g/Kwh				0.03

Annexure VI to Test Report No.:

ENGINE MANUFACTURER		TEST DATE	dd/mm/yyyyy	SITE	

ENGINE MODEL	ENGINE SR.NO.	NO. OF CYLINDERS	Bore		Stroke		CUBIC CAPACITY		RATED SPEED		
	For engine 2										

Sr No	Speed	Engine Air Inlet			Fa	OBSERVED							CF	Corr. Power	Dec. Power	OBSERVED		CMVR Limit	CATS Press
		Td	T_Fuel	SPH		T_WATER OUT	Torque	P_Ex Back	P_Air Intake	Fuel Flow Rate	Boost Press. Ratio	Power				BSFC	Light Absorbtion Coefficient		
--	RPM	°C	°C	g/kg		°C	Nm			kg/hr		kW		kW	kW	g/kWh	m-1	m-1	kPa
1																			
2																			
3																			
4																			
5																			
6																			

Note:- Average Free acceleration smoke value observed was: 0.00 m-1

AUTHORIZED SIGNATORY 1 **AUTHORIZED SIGNATORY 2**

Page 0 of 00

Annexure VII to Test Report No.:

Engine Model	0
Engine Serial No.	For engine 2

Mode	Speed	Load	Torque	Power	THC *	Nox *	CO	CO	HC	Nox	Fuel Flow Rate	T_Air In	Sp. Humidity	AirFlow	CATS Press
--	RPM	%	Nm	kW	ppm	ppm	ppm	g/h	g/h	g/h	Kg/hr	°C	g/Kg	Kg/hr	kPa
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															

* These values are based on Wet Basis Measurement

Weighted Mass Emission g/Kwh					
	Measured	DF	Result	Limit	Unit
CO				1.5	g/kWh
HC				0.46	g/kWh
NOX				3.50	g/kWh
PM				0.02	g/kWh

Particulate Mass		mg
Gedf Weighted		kg/h
Msam Total		g
Power Weighted		kW
Max Filter Temperature		Deg C

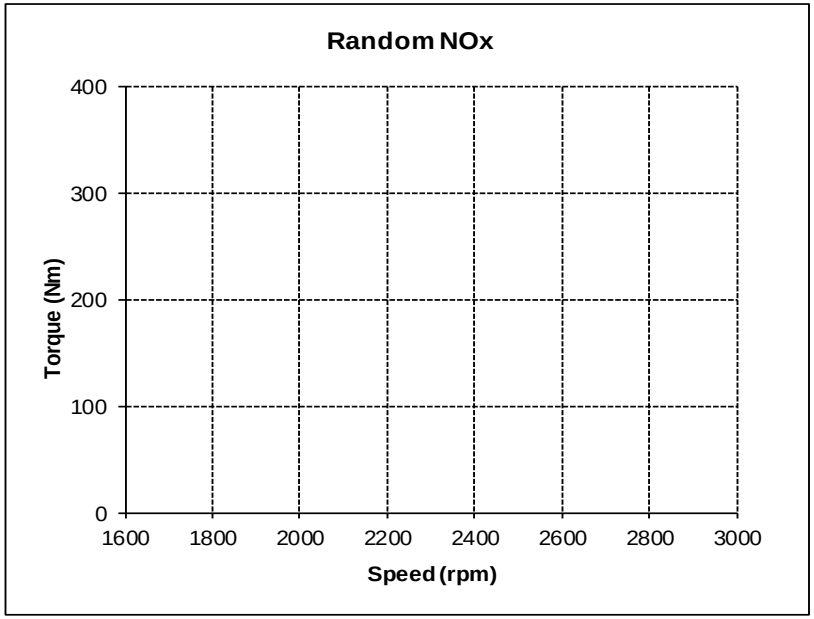
AUTHORIZED SIGNATORY 1

AUTHORIZED SIGNATORY 2

Page 0 of 00

Engine Sr. No.	For engine 2

Sr. No.	Speed	Torque	Power	NOx	NOx	Spe. NOx
	rpm	Nm	kW	ppm	g/hr	g/kWh
1	0	0.00	0.00	0	0.0	0.0
2	0	0.00	0.00	0	0.0	0.0
3	0	0.00	0.00	0	0.0	0.0
4	0	0.00	0.00	0	0.0	0.0
5	0	0.00	0.00	0	0.0	0.0
6	0	0.00	0.00	0	0.0	0.0
7	0	0.00	0.00	0	0.0	0.0
8	0	0.00	0.00	0	0.0	0.0
9	0	0.00	0.00	0	0.0	0.0
10	0	0.00	0.00	0	0.0	0.0
11	0	0.00	0.00	0	0.0	0.0
12	0	0.00	0.00	0	0.0	0.0
1						
2						
3						



Sr. No.	Speed	Torque	Spe_NOx		Dev.	Limit
	rpm	Nm	Interpolated	Measured	%	%
1	0.0	0.00	0.00	0.00		+10
2	0.0	0.00	0.00	0.00		
3	0.0	0.00	0.00	0.00		

AUTHORIZED SIGNATORY 1

AUTHORIZED SIGNATORY 2

Annexure IX to Test Report No.:

Engine No. (For engine 2)									
			cycle 1	cycle2	cycle3	mean	std dev.	Abs. std dev.	Limit(%)
1	Speed A								10% of limit Value
2	Speed B								
3	Speed C								
4	Speed D*								
	FINAL SMOKE VALUE (m-1)								

* Smoke Value at Random Test Speed has not exceed the highest smoke value of the adjacent speeds by more than 20% or by more than 5% of the Limit Value.

AUTHORIZED SIGNATORY 1 **AUTHORIZED SIGNATORY 2**

Page 0 of 00

ETC 2 results

Annexure X to Test Report No.:

Engine Model	
Engine Serial No.	For engine 2

Regression line Analysis / Cycle validation						
Parameter	Speed		Torque		Power	
	Test data	Limit	Test data	Limit	Test data	Limit
Standard error of estimate(SE) of Y on X		Max 100 rpm		13% of maximum engine		8% of Maximum engine power
Slope of the regression Line, m		0.95 to 1.03		0.83 to 1.03		0.89 to 1.03
Co-efficent of determination, r^2		min 0.9700 max 1.00		min 0.8800 max 1.00		min 0.91 max 1.00
Y intercept of the regression line, b		±50 rpm		±20 Nm		±4 kW

Deleted points for Speed		Actual Cycle Work	Demand cycle work	Deviation	Limit
Deleted points for Torque		Kwh	Kwh	%	%
Deleted points for power					-15 / + 5

Test data					
Concentration values		Mass emission values		Particulate data	
CO ppm		CO g		Mtot Kg	
Nox ppm		Nox g		Mass flow exhaust diluted Kg/ hr	
THC ppm		THC g		Filter Mass mg	
CO_2 %		CO_2 g		Temperature filter °C	
Fuel Kg/h					
Actual Cycle work Kwh					

Test Result				
ETC Test Result(Measured)		DF	Result g/Kwh	Limit g/Kwh
CO g/ Kwh				4
Nox g/Kwh				3.5
THC g/kwh				0.55
PM g/Kwh				0.03

AUTHORIZED SIGNATORY 1 AUTHORIZED SIGNATORY 2

Annexure XI to Test Report No.:

ENGINE MANUFACTURER		TEST DATE	dd/mm/yyyyy	SITE	

ENGINE MODEL	ENGINE SR.NO.	NO. OF CYLINDERS	Bore		Stroke		CUBIC CAPACITY		RATED SPEED	
	For engine 3									

Sr No	Speed	Engine Air Inlet			Fa	OBSERVED							CF	Corr. Power	Dec. Power	OBSERVED		CMVR Limit	CATS Press
		Td	T_Fuel	SPH		T_WATER OUT	Torque	P_Ex Back	P_Air Intake	Fuel Flow Rate	Boost Press. Ratio	Power				BSFC	Light Absorbtion Coefficient		
--	RPM	°C	°C	g/kg		°C	Nm			kg/hr		kW		kW	kW	g/kWh	m-1	m-1	kPa
1																			
2																			
3																			
4																			
5																			
6																			

Note:- Average Free acceleration smoke value observed was: 0.00 m-1

AUTHORIZED SIGNATORY 1 **AUTHORIZED SIGNATORY 2**

Engine Model	0
Engine Serial No.	For engine 3

Mode	Speed	Load	Torque	Power	THC *	Nox *	CO	CO	HC	Nox	Fuel Flow Rate	T_Air In	Sp. Humidity	AirFlow	CATS Press
--	RPM	%	Nm	kW	ppm	ppm	ppm	g/h	g/h	g/h	Kg/hr	°C	g/Kg	Kg/hr	kPa
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															

'* These values are based on Wet Basis Measurement

Weighted Mass Emission g/Kwh					
	Measured	DF	Result	Limit	Unit
CO				1.5	g/kWh
HC				0.46	g/kWh
NOX				3.50	g/kWh
PM				0.02	g/kWh

Particulate Mass		mg
Gedf Weighted		kg/h
Msam Total		g
Power Weighted		kW
Max Filter Temperature		Deg C

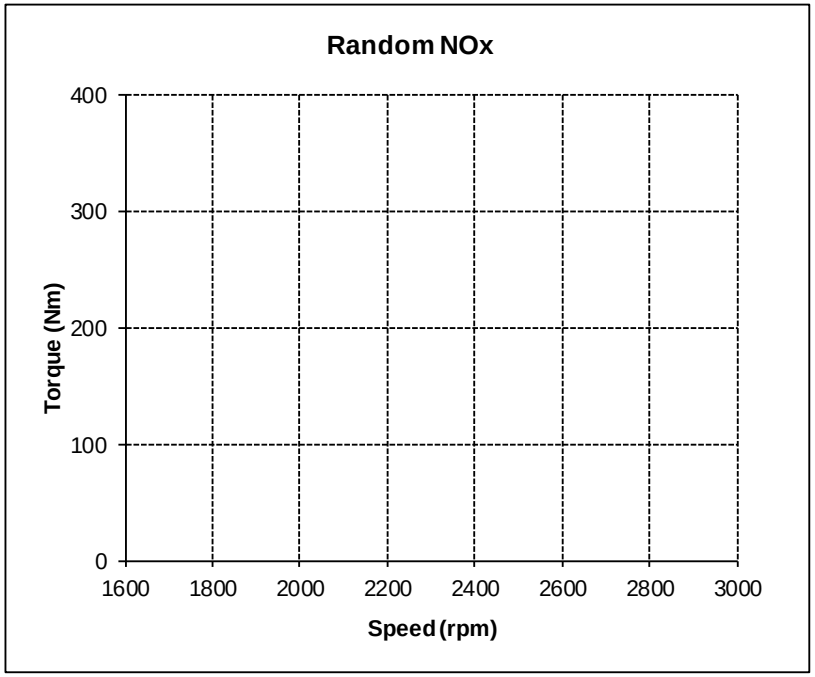
AUTHORIZED SIGNATORY 1

AUTHORIZED SIGNATORY 2

Annexure XIII toTest Report No.:

Engine Sr. No.	For engine 3

Sr. No.	Speed	Torque	Power	NOx	NOx	Spe. NOx
	rpm	Nm	kW	ppm	g/hr	g/kWh
1	0	0.00	0.00	0	0.0	0.0
2	0	0.00	0.00	0	0.0	0.0
3	0	0.00	0.00	0	0.0	0.0
4	0	0.00	0.00	0	0.0	0.0
5	0	0.00	0.00	0	0.0	0.0
6	0	0.00	0.00	0	0.0	0.0
7	0	0.00	0.00	0	0.0	0.0
8	0	0.00	0.00	0	0.0	0.0
9	0	0.00	0.00	0	0.0	0.0
10	0	0.00	0.00	0	0.0	0.0
11	0	0.00	0.00	0	0.0	0.0
12	0	0.00	0.00	0	0.0	0.0
1						
2						
3						



Sr. No.	Speed	Torque	Spe_NOx		Dev.	Limit
	rpm	Nm	Interpolated	Measured	%	%
1	0.0	0.00	0.00	0.00		+10
2	0.0	0.00	0.00	0.00		
3	0.0	0.00	0.00	0.00		

AUTHORIZED SIGNATORY 1

AUTHORIZED SIGNATORY 2

Annexure XIV to Test Report No.:

Engine No. (For engine 3)									
			cycle 1	cycle2	cycle3	mean	std dev.	Abs. std dev.	Limit(%)
1	Speed A								10% of limit Value
2	Speed B								
3	Speed C								
4	Speed D*								

FINAL SMOKE VALUE (m-1)	

* Smoke Value at Random Test Speed has not exceed the highest smoke value of the adjacent speeds by more than 20% or by more than 5% of the Limit Value.

AUTHORIZED SIGNATORY 1 **AUTHORIZED SIGNATORY 2**

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ETC 3 results

Annexure XV to Test Report No.:

Engine Model	
Engine Serial No.	For engine 3

Regression line Analysis / Cycle validation						
Parameter	Speed		Torque		Power	
	Test data	Limit	Test data	Limit	Test data	Limit
Standard error of estimate(SE) of Y on X		Max 100 rpm		13% of maximum engine		8% of Maximum engine power
Slope of the regression Line, m		0.95 to 1.03		0.83 to 1.03		0.89 to 1.03
Co-efficent of determination, r^2		min 0.9700 max 1.00		min 0.8800 max 1.00		min 0.91 max 1.00
Y intercept of the regression line, b		±50 rpm		±20 Nm		±4 kW

Deleted points for Speed		Actual Cycle Work	Demand cycle work	Deviation	Limit
Deleted points for Torque		Kwh	Kwh	%	%
Deleted points for power					-15 / + 5

Test data					
Concentration values		Mass emission values		Particulate data	
CO ppm		CO g		Mtot Kg	
Nox ppm		Nox g		Mass flow exhaust diluted Kg/ hr	
THC ppm		THC g		Filter Mass mg	
CO_2 %		CO_2 g		Temperature filter ^oC	
Fuel Kg/h					
Actual Cycle work Kwh					

Test Result				
ETC Test Result(Measured)		DF	Result g/Kwh	Limit g/Kwh
CO g/ Kwh				4
Nox g/Kwh				3.5
THC g/kwh				0.55
PM g/Kwh				0.03

Annexure V

COP Certificate No.: Date : dd/mm/yyyy

CERTIFICATE

FOR

CONFORMITY OF PRODUCTION

Cert	Report	Spec	Drg	Total
0	00	--	--	00 pgs

1. Based on the verification of documents and trials conducted on the vehicle models **"……. "** manufactured by **M/s. ……..**and randomly selected from their plant at **……..,** it is certified that the following vehicle models, comply with the following provisions of the Central Motor Vehicles Rules, 1989, as amended up-to-date.

Mass Emission Standards	CMV Rule	Effective From	MoRTH Noti. No.	Date
Bharat Stage – .			GSR ..(E)	

2. This certificate covers the following vehicle models, declared by the manufacturer to have been produced / planned to be produced with the following engine, during the stipulated period.

Engine	Plant :	Manufacturer	Engine Power	Cubic Capacity
		M/s.	**kW @ rpm**	**…**

Vehicle Models		Plant :	CMVR Certificate No.	Manufacturing Period	COP Year
Type : Passenger Car – M1/…/..				**SOP** To **dd/mm/yyyy**	**20….to 20….**
1					
2					
3					
4					

Note : Please refer overleaf for **"Disclaimer Clause"**

AUTHORISED SIGNATORY 1 **AUTHORISED SIGNATORY 2**

Ref. COP Test Report No. : …… Dt. ……

Page 0 of 0

Place of Issue: ……..

Disclaimer by Test Agency

1. .....
2. .....

Annexure VI

COP Certificate No.: **Date: dd/mm/yyyy**

Cert	Report	Spec	Drg	Total
Pgs	..pgs	---	---	… pgs

CERTIFICATE

FOR

CONFORMITY OF PRODUCTION

M/s.

1. Based on the verification of documents and trials conducted on the engine model **" ----------"** manufactured by **M/s. ----------** randomly selected from their plant at **,** it is certified that the vehicle models given in Annexure-I, manufactured by ***M/s. ----------***with engine model mentioned in paragraph 2, comply with the following provisions of the Central Motor Vehicles Rules, 1989, as amended up-to-date.

Mass Emission Standards	CMV Rule	Effective From	MoRTH Noti. No.	Date
			GSR …(E)	

2. This certificate covers the vehicle models listed in Annexure-I, declared by the manufacturer to have been produced / planned to be produced with the following engine, during the stipulated period.

Engine	Plant :	Manufacturer	Engine Power	Cubic Capacity

3. **Note :** Please refer overleaf for **"Disclaimer Clause".**

AUTHORIZED SIGNATORY 1 **AUTHORIZED SIGNATORY2**

Place of Issue : .....

Page 0 of 0

Disclaimer by Test Agency

1. .....
2. ……..

ANNEXURE-I (00 pages)

TO

COP CERTIFICATE NO----------DT. ----------

Vehicle Models		Plant: ……	CMVR Certificate No.	Manufacturing Period	COP Year
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

AUTHORIZED SIGNATORY 1 **AUTHORIZED SIGNATORY 2**

Ref: COP Test Report No……Dt……..