ARAI/TA(HC)/INDUS/PEA 201/2004-20 3 September 2004

CERTIFICATE

FOR COMPLIANCE TO THE CENTRAL MOTOR VEHICLES RULES

M/s Indus Scientific Pvt Ltd.
112 B, Hennur Main Road
Hennur Bande
BANGALORE 560 043

Exhaust Gas Analyzer Model PEA 201 from M/s Indus Scientific Pvt Ltd., Bangalore, was type approved for CO part vide ARAI Certificate dated 18th November 1999. The same gas analyser model was additionally examined and tested for HC part as per the revised test procedure specified in MoRTH / CMVR / TAP-115/116, Issue No. 2, Part VIII.

Based on the above, it is certified that the Exhaust Gas Analyzer Model PEA 201 manufactured and marketed by M/s Indus Scientific Pvt Ltd., Bangalore meets the requirements of the provisions of **Rule 116(3)** of the Central Motor Vehicles Rules 1989, as amended up-to-date, for the exhaust gas analyzer.

The 2-Gas Analyser Model PEA 201 is suitable for measurement of idling CO and HC of in-use 2 and 3-wheeler vehicles fitted with SI engines, as per CMVR 115(2), subject to following conditions :

i. For the instruments already supplied in the field, the supplier shall calibrate HC channel along with CO channel and issue a compliance certificate based on which the Transport Authorities concerned will grant extension of validity to the respective PUC Test Centre for the purpose of PUC testing as per revised test procedure.
ii. The name of the model will be included by ARAI in the approved list of PUC Equipment only on compliance to (i) above by the supplier.
iii. The supplier shall abide by the Code of Practice attached herewith as Annexure-A. The supplier has already submitted an affidavit to this effect.
iv. The supplier shall enter into AMC agreement on annual basis with the authorized PUC Test Centres to whom this model is supplied. The AMC terms shall be as per the Code of Practice referred in (iii) above.

This Type Approval certificate is valid for the period of 5 years from the date of its issue or any amendment in the test procedure, whichever is earlier.

The last Conformity of Production (COP) was carried out for the supply of units manufactured till 17h November 2001. The manufacturer has discontinued production and supply of this model. Hence, this certificate is valid for the units already supplied in the field on or before 17th November 2001.

Authorised Signatory

A.B. Komawar
Dy. Director

B. Bhanot
Director

Ref :

i) ARAI Type approval certificate No.ARAI/CMVR/Indus/PEA201/B/R 116(3)/99-06 dated 18th November 1999 (for CO part of the analyser.)

ii) ARAI type approval Test Report No. AED/TR/SPR 080/2004-2005/Indus-Bangalore/2004-104 dated 3 September 2004 (for HC part of the analyser).

ANNEXURE - A

CODE OF PRACTICE FOR PUC EQUIPMENT MANUFACTURER / SUPPLIER

1. PUC equipment manufacturer / supplier should include the description of the test procedure described in Part I or Part II, whichever is applicable, amended from time to time of the document MOST/CMVR/TAP 115/116 in the user's manual of the PUC equipment. PUC equipment manufacturer / supplier shall keep PUC operator informed about the changes in the test procedure in future.

2. PUC equipment manufacturer/ supplier shall supply copy of type- approval certificate with date of validity along with the PUC equipment.

3. The validity of the type approval certificate of the PUC equipment shall be 5 years, after the expiry of which the PUC equipment manufacturer/ supplier shall get it re-validated from the test agency.

4. PUC equipment manufacturer / supplier shall provide the status of production/ supply of PUC equipment at a regular interval of 1 year to the test agency from where the equipment has been certified.

5. PUC equipment manufacturer / supplier shall submit the equipment for COP as per procedure mentioned above.

6. PUC equipment manufacturer / supplier shall enter into AMC on annual basis with the authorised PUC test agency based on charges as approved and finalized in EECG meeting as per Annexure-4. This AMC contract shall include 3 visits and equipment calibration as per field calibration procedure given in Annexure-1. PUC equipment manufacturer/ supplier shall provide calibration certificate as per format given in the Annexure-2.

7. PUC equipment manufacturer / supplier shall train minimum 3 operators of PUC test agency and shall provide training certificate as per format given in Annexure 3.

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ANNEXURE – 1 TO ANNEXURE – A

FIELD CALIBRATION PROCEDURE FOR TESTING OF

GAS ANALYSERS

1.0 INTRODUCTION

This procedure has to be carried out on gas analysers after they are commissioned in the field and for the subsequent calibration.

2.0 TESTING

The test procedure for gas analysers is as follows:

i) Check that the power supply is as per specifications of the manufacturer and electrical earthing is proper.

ii) Check that all the accessories as per manufacturer are available and are functioning properly.

iii) Check the span and zero calibration using sample gas of suitable value for CO as well as HC.

iv) Check the electrical calibration.

v) Check that the sampling system is leak proof.

vi) The printer is working correctly and the print out details are correct.

vii) Checking of 1 no. of vehicle for idling emission measurement using this analyzer.

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ANNEXURE – 1 TO ANNEXURE – A (contd…..)

FIELD CALIBRATION PROCEDURE FOR TESTING OF

SMOKE METERS

1.0 INTRODUCTION

This procedure has to be carried out on meters after they are commissioned in the field and for the subsequent calibration.

2.0 TESTING

The test procedure for smoke meters is as follows:

i) After the warm-up of the meter, the calibration of the meter has to be checked at zero and midscale point with the neutral density filter available. The value must lie within 0.1 m^{-1}.

ii) The meter shall have the standard accessories as specified by the manufacturer. It shall be checked that the sample hose, internal pipes etc are not deteriorated or damaged to ensure that there is no leakage.

iii) The functionality of oil temperature and RPM sensor.

iv) The heating system for the optical chamber is functioning.

v) The purge air system is working correctly.

vi) Visual displays are functioning correctly.

vii) The printer is working correctly and the printout details are correct.

viii) The instrument casing is proper and has proper electrical earthing.

ix) Free acceleration test is carried out using a vehicle and the print out details are checked.

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ANNEXURE – 2 TO ANNEXURE - A

CALIBRATION CERTIFICATE FORMAT

1.0	Component: PUC equipment model: Sr. No.	
2.0	PUC Center Registration No.:	
3.0	Objective of the test: To carry out Physical check and calibration of gas Analyser / Smoke meters as per the test procedure specified in Annexure 1 of CMVR / TAP 115-116 Part-8.	
4.0 4.1 4.2	Detailed Observations Checking of supply/ earthing Checking of accessories: Details of accessories checked.	
4.3	Span Calibration 1. Details of span gas concentration_____% 2. Calibration gas cylinder No.: _____ 3. Calibration gas cylinder make:_____ 4. Calibration gas validity date:_____ OR 5. Details of Natural Density filters used for mid point calibration	
4.4	Electrical Calibration OK/ Not OK	
4.5	Leak test:	Passed/ Failed
5.0	One no of petrol / diesel vehicle checked for idling Emission / Free acceleration, measurement	
6.0	Conclusion:	
7.0	Next Calibration Due Date:	

Signature & Seal of manufacturer/ Supplier

ANNEXURE – 3 TO ANNEXURE - A

TRAINING CERTIFICATE

PUC Operator Photograph

It is to certify that Mr. / Mrs. _____ has attended the training and knows all required operation of the smoke meter / Gas Analyser model _____ to perform PUC tests.

Training is given in the following areas:
Understanding of procedure for testing of Idling emission/ free acceleration smoke as CMVR/ TAP/ 115/116 procedure.

1. Normal thermal condition of the vehicle
2. Actual testing procedure
3. Procedural understanding of issue of PUC certificate

Operation of smoke meter / Gas analyzer

1. Vehicle testing mode
2. Zero Calibration
3. Span calibration
4. Electronic calibration
5. Leak test

Maintenance

1 Replacement of filters
2 General maintenance

Authorized Signature & seal of manufacturer / supplier

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ANNEXURE-4 TO ANNEXURE-A

AMC CHARGES

Sr. No.	Details	4 Gas Analyser	2 Gas Analyser	Smoke Meter
1.	Maintenance done at centralized station of PUC equipment manufacturer	Rs.5,700/- + Rs.750/- per calibration	Rs.3,750/- + Rs.750/- per calibration	Rs.4,500/-
2.	Maintenance done at PUC center's place	Rs.9,500/- + Rs.1,500/- per calibration	Rs.6,250/- + Rs.1,500/- per calibration	Rs.7,500/-

Note:

1. For 2/4-gas anlyser, PUC equipment manufacturer shall provide the calibration gases required for calibration.
2. For smoke meter, the AMC charges include calibration with neutral density filter (NDF) by PUC equipment manufacturer.

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