



1. ARAI Expands its EMC Test Facility

2. Seminar on Tyres – Technology and Regulations

ARAI Expands its EMC Test Facility

Establishment of 2nd EMC Chamber



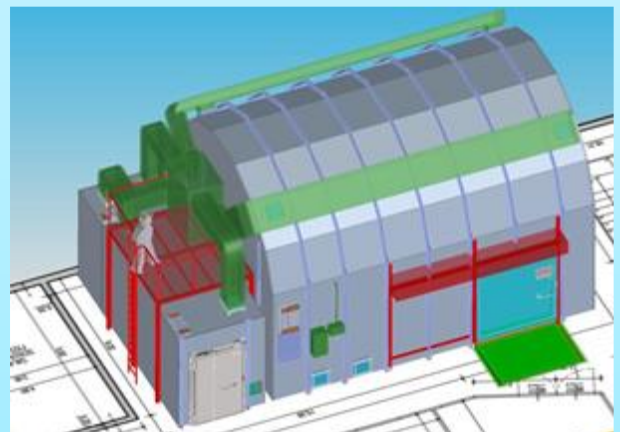
Capable of Testing

- Automotive Electronics Components
- 2-wheelers / 3-wheeler
- Industrial Electronics
- Defence Electronics
- Wireless Technologies
- Medical Devices

Accredited to ISO/IEC 17025

- Dimensions (L X W X H): 8.8m X 6.5m X 6.2m
- Turn Table: 1.5m diameter
- Antenna Mast: 1 to 4m Antenna height scans
- Optical converters for CAN, LIN, RS-232, RS-485, USB
- Audio / Video monitoring of Device Under Test

Shortened Lead Time



ARAI has “Under One Roof” facility for evaluation testing of automotive electronics. ARAI can assist industry by providing services at various stages of product development cycle.

1. Capturing Customer Requirement

- Consultancy for applicability and Design Verification Plan
- Customized Load-Box

2. Design Validation EMC

With Automotive domain knowledge and experience of 1000 man-months, ARAI can offer consultancy for




- Design Improvements
- Identification of potential Failures
- EMC Audit of PCB layout

3. Design Validation Environmental

- Design Improvements
- Identification of potential Failures
- Thermal Audit of PCB layout

4. Failure Analysis

Detailed failure analysis can be done using tools such as EMI Scan Tool, Thermography, Stereo Microscope, Material Analysis, etc.

<p><i>Thermal Imaging Camera</i></p> 	<p>Application: Thermal imaging or thermography, detects heat patterns or temperature change in objects / assemblies. This helps to identify hot spot / defective components or heat generating sources from the entire assembly.</p> <p>Example Printed Circuit Board, Enclosure, Exhaust System, etc.</p>
<p><i>Digital Stereo Microscope</i></p> 	<p>Digital stereo microscope is used to perform high magnification Inspection of various parts and assemblies with microscope and Digital camera integrated.</p> <p>Non-destructive inspection essential in failure analysis (cracks, breaks, discontinuities, etc.) can be accomplished by means of varied zoom level.</p> <p>Zoom Range: 10x-80x using 1x objective and up to 160x using 2x objective.</p>
<p><i>EMI Scan Tool</i></p> 	<p>Application: Near field measurements for printed circuit boards, other electronic parts and wirings thus taking care of EMI problems at design stage itself.</p> <ul style="list-style-type: none"> ❑ Frequency Range : 150 kHz – 3000 MHz ❑ Scanning Area : 300 x 350 mm ❑ Scanning Resolution : 1mm x 1mm

5. Design Modification



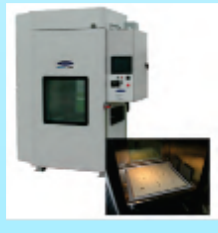

Based on failure analysis, recommendation for design modification such as PCB re-layout, enclosure modification, component selection for EMI suppression / filters, etc.

6. Validation Trials

ARAI can offer its state-of-the-art testing facility on utilization basis to customers for perform Validation trials.

7. Product Validation and Compliance Testing

- All facilities are under-one-roof
- Automotive Domain Knowledge
- MOU with International Authorities for certification support
- Accreditation as per ISO/IEC 17025
- State-of-the-art test facility
- Trained engineers

EMC Test Facility			
Radiated Emission (RE) Test	Radiated Immunity (RI)-Antenna Method		
Radiated Immunity (RI)-TEM cell method	Radiated Immunity (RI)-BCI method		
Radiated Immunity (RI)-Strip line method	Immunity against Handheld Radio Transmitters		
Magnetic field Immunity	Copper shielded room for Conducted Emission		
Conducted Transient Immunity	Conducted Transient Emission		
EMI/EMC testing on industrial Electronics	Electrostatic Discharge (ESD)		
Electrical Safety Analyser	EMI Scan Tool		
Environmental Test Facility			
HALT/HASS Facility	Combined Temperature & Vibration		
Universal Oven	Thermal Shock		
Sine/Shock/ Random Vibration	Thermal Imaging Camera		
			

□ Seminar on Tyres – Technology and Regulations

Seminar on Tyres – Technology and Regulations on 7th August 2015 was greeted with enthusiastic response and participation from practicing engineers, scholars and students in engineering discipline.

The event, presided over by the Mrs. Rashmi Urdhwareshe, Director – ARAI, was inaugurated by Mr. S. S. Mugali, Director, BIS – Pune, witnessed presence of renowned speakers from tyre and allied industries.

- Mr. Vinay Vijayvargia, Secretary, ITTAC, India
- Dr. Thomas Becherer, Continental Reifen Deutschland GmbH, Germany
- Dr. Stephan Koehne, Testing Services, Germany
- Mr. Mario Calvitti, APTC – Bridgestone, Thailand
- Mr. Ashutosh Jha, Michelin, India
- Mr. Steve Sattler, MTS, USA
- Mr. J. H. Kim, China Certificates Technology, South Korea



Inauguration: (From left) Shri. Vinay Vijayvargia, Shri. A. V. Mannikar, Shri. S. S. Mugali, Mrs. Rashmi Urdhwareshe

The technical sessions started with the inaugural address by Shri. S. S. Mugali, Director – BIS Pune, which focused on role of BIS in standardization and certification of tyres in India. The talk titled – “Role & Functioning of ITTAC in Tyre Standards and related Aspects” by Mr. Vinay Vijayvargia, Secretary, ITTAC, was an account of Indian tyre industry and the responsibilities of Indian Tyre Technical Advisory Committee in tyre standardization. He also spoke about the publications and tyre safety campaigns introduced by ITTAC for the benefit of consumers.

Dr. Stephan Koehne, Founder – Testing Services GmbH educated the audience about tyre testing requirements as per ECE R 117. He also elucidated tyre labelling requirements established in Europe. Dr. Thomas Becherer, Manager (Standards & Regulations EMEA) enlightened the listeners on the requirements, relevance and consequences of ECE R 117. In his presentation he covered the need for laboratory alignment in rolling resistance measurement and analyzed various aspects of wet grip braking test.

Mr. Ashutosh Jha, Product Category Manager for Africa India and Middle East, Michelin, deliberated the relevance and contribution of rolling resistance in the fuel consumption of road vehicles. He described the efforts and studies initiated by Michelin towards progress in this regard. Mr. Mario Calvitti, Asia Pacific Technical Centre – Bridgestone, Thailand presented Next Generation Ecology Tire Technology developed by Bridgestone. The objectives credited to this initiative are – low CO₂ emissions, Ultra low rolling resistance coefficient and aero drag reduction.

Mr. Steve Sattler, MTS – USA, gripped the participants with testing capabilities of various machines and equipment developed by MTS. Videos depicting fascinating world of tyre testing aided Mr. Steve Sattler to reach out the audience. Mr. J. H. Kim, President, China Certificates Technology, Korea elaborated global certification requirements for tyres with glimpses of certification process in China, Taiwan, Brazil, Indonesia, Vietnam, Mexico, South Africa and Philippines as he progressed through the presentation.

Presentations by various ARAI Executives, addressed the variety of activities carried out in the field of tyres – Technology and Regulations in nutshell. Mr. N. B. Dhande, Sr. Deputy Director, (Business Development and Corporate Planning), ARAI, introduced the activities of ARAI to the audience. This was followed by presentation by Mr. N. V. Karanth, Sr. Deputy Director, NVH - ARAI on the activities of NVH lab in tyre testing. The Presentation by Mr. P. R. Pawar, Dy. General Manager, Structural Dynamics Lab, described the activities and capabilities of Structural Dynamics Laboratory at ARAI in the field of tyre and vehicle dynamics.

Mr. Abdullah Jamal, Deputy Manager, Vehicle Evaluation Lab (VEL), ARAI, presented on-field test possibilities offered by VEL and Mr. Thomas Cherian, Deputy Manager, Safety & Homologation Lab (SHL), ARAI, encompassed in his presentation, tyre homologation services offered by ARAI.

Panel Discussion on “Significance of Rolling Resistance, Wet Grip Adhesion, Tyre Noise Regulations and Tyre Labelling in India” was a much sought-after session of the event. The Panel members:

Mr. A. Akbar Badusha, Deputy Director, VEL-ARAI-Moderator

Dr. P. Chattaraj, NATRAX

Dr. Thomas Becherer, Continental

Mr. Ashutosh Jha, Michelin

Mr. Mario Calvitti, Bridgestone

Mr. Manoj Jacob John, MRF Tyres



Panel Discussion: (From left)- Manoj Jacob John, Dr. Thomas Becherer, A Akbar Badusha, Dr. P Chattaraj, Mario Calvitti, Ashutosh Jha

Panel discussion started with the address by the moderator, Mr. Akbar Badusha, who introduced the topic and set the tone for discussion. Panel Members presented their views on the topic and responded to the queries from the moderator and the audience, resulting in an interactive session. Panel highlighted the requirements and benefit of rolling resistance of tyres. Tyre labelling, comprising of rolling resistance, wet grip and noise is a mandatory requirement in many countries. Panel debated on the readiness of Indian tyre manufacturers for tyre labeling. Eying export market, very few manufacturers have started this activity. Presently no test facilities related to tyre labelling are available in India and test outside India is expensive and time consuming. The topic of rolling resistance requirements is under discussion in one of the BIS committees, viz. TED 6. Panel highlighted that - before making these requirements mandatory, focused assessment of road quality is necessary because rolling resistance mainly depends on the road quality.

The gathering of over 120 participants at the seminar constituted practicing engineers of tyre manufacturing companies, regulatory agencies, researchers and students. The participants visited Tyre Testing Lab of ARAI.





Tyre Testing Facilities

The event concluded with the Valedictory Function and Vote of Thanks by Mr. B. V. Shamsundara, General Manager, SHL - ARAI. Inspired by the overwhelming response, tentative date of the seminar for next year was announced 18 – 19 August 2016.

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The Automotive Research Association of India

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