

# **EXTENSION OF ELECTROMAGNETIC COMPATIBILITY LABORATORY WITH A VIEW TO PROVIDING THE CONDITIONS FOR TESTING THE AUTOMOTIVE ELECTRIC AND ELECTRONIC SUB- ASSEMBLIES IN ACCORDANCE WITH THE PROVISIONS OF EUROPEAN DIRECTIVE 2004/104/EC**

## **STAGE 04**

### **Extension of EMC laboratory accreditation and information dissemination**

The fourth ( last ) stage of the project was developed between 01.12.2007 and 31.03.2008 and provided the following activities:

- Drawing up the documents for project result dissemination and organizing a round table with the participation of Romanian companies interested in this field
- Accrediting the new tests

#### **1. Drawing up the documents for project result dissemination and organizing a round table with the participation of Romanian companies interested in this field**

- Within the first activity - drawing up the documents for project result dissemination - the following activities were prepared and carried out:
  - Drawing up and presentation of two scientific papers "Extension of EMC laboratory for automotive field" and "Electromagnetic compatibility in motor vehicle construction"
  - Up-to-dating of the presentation prospectus of EMC Laboratory - ICMET Craiova.
  - Organization of a round table at ICMET registered office, having as subject "Presentation and demonstration (theoretical and practical) of electromagnetic compatibility tests on automotive electric and electronic subassemblies,,
  - The first scientific paper drawn up by the team who worked to this research theme is "Electromagnetic compatibility in motor vehicle construction" and was presented within the **Workshop** called:

"Electromagnetic compatibility in Romania, in the year of adhering to EU".  
Present situation and outlooks of Romanian research in the field"  
organized at SIBIU on 31 October 2007.

A high number of employees from "Continental" Company – Sibiu, having the construction of Automotive Electronic Subassemblies as activity object, participated in this **Workshop**.

The second scientific paper drawn up has the title "Extension of EMC laboratory for automotive field" "and was presented within the Interdisciplinary Symposium on

Electromagnetic Symposium, SICEM 2007, which took place at POLITEHNICA University – Bucharest during 16- 17 November 2007.

The paper - as Word document and also its presentation in Power Point are shown in Annex.

The paper presents in a concise manner the Directive 2004/104/EC, and then the four electromagnetic compatibility tests planned to be performed for ESA.

For each test separately, the provisions from Directive and reference standards, then the way of implementing them in the EMC Laboratory of ICMET Craiova are presented.

The presentation is accompanied by drawings, photos of the test set-ups and graphs with results of the measurements performed in our laboratory on various equipment considered as representatives for their class of products.

- With a view to disseminating the project results, the presentation prospectus of EMC Laboratory - ICMET Craiova was brought up to date, the tests developed in this project (actually those ones with which the laboratory accreditation was extended) being inserted. So, the Automotive Equipment and Subassemblies were specified in the list containing the equipment for which the laboratory is able to perform tests complying with European Directives. . The newly accredited tests were inserted in the list of accredited tests provided by the laboratory, with clear reference to Directive 2004/104/EC and other relevant standards (ISO 737 – 1, 2, 3) mentioned in the Automotive Directive.

This new prospectus of EMC laboratory, ICMET Craiova, is presented in Annex; all the testing and calibration capabilities of our laboratory are specified in this document.

- As a finalization of the result dissemination process, a round table was organized at ICMET registered office, with the title: "Presentation and demonstration( theoretical and practical) of electromagnetic compatibility tests on automotive electric and electronic subassemblies,.. Electromagnetic compatibility specialists from companies which produce automotive electronic subassemblies, in military or civil field, have participated in this round table. The round table was held on 20.02.2008, and after work completion a report was issued and signed by the participants.

At this event, firstly the Directive 2004/104/EC and then the two scientific papers drawn up within the project, referring to EMC tests on Automotive Electric and Electromotive Subassemblies in accordance with the provisions on the new Automotive Directive, were presented.

After that, a presentation of EMC laboratory was done, with a visit to semi-anechoic room and other laboratory facilities.

Further on, the tests specific to automotive field prepared for the accreditation extension were emphasized, a detailed theoretical presentation of each test, also the practical exemplification being carried out

The tests were done on automotive equipment, such as: windscreen viper motor and communication peripheral used as auxiliary equipment in a motor vehicle.

At the end of the round table, the representative of UTI Company-Bucharest was really very interested in testing a product existent in the series production of its company, namely "DK 500-R type Driver's console".

Thus, the company sent in the next period the product "DK 500-R type Driver's console", for preparing the electromagnetic compatibility tests provided in Directive

2004/104/EC, with a view to accrediting them. During the RENAR surveillance visit between 12-14 March 2008, aimed at extending the accreditation, the laboratory could demonstrate its capabilities by performing tests just on this product.

## **2. Accreditation of new tests**

During the second activity, *Accreditation of new tests*, the preparations of the Audit for laboratory accreditation extension with the new tests developed within the project were carried out.

So, on the basis of the request for extending the laboratory accreditation, which was submitted to RENAR, the accreditation contract no. 617/11.12.2007 was drawn up. On the basis of this contract, the fees related to the extension of the laboratory accreditation range were paid and the assessment visit was organized during 12.03.2008 – 14.03.2008.

Within this extension, the following tests were accredited:

- Measurement of radiated emissions produced by electric and electronic subassemblies
- Electromagnetic radiation immunity test
- Measurement of transient voltage emissions produced by electric and electronic subassemblies
- Transient disturbance immunity test

Before RENAR visit, the tests developed within the project were many times resumed both on the equipment offered by UTI Company and on telecommunication equipment, having a very broad range of emission and reception frequencies, being susceptible to the radiated and conducted disturbances existent on motor vehicle.

Within the assessment visit on 12 and 13 March 2008, the tests going to be accredited were presented on the product offered by UTI Company.

As a result of RENAR audit referring to the above mentioned tests, the “Corrective action program” was drawn up and sent to RENAR on 27.03.2008.

The ACCREDITATION CONTRACT and ASSESSMENT PLAN no. nr.1177/03.03.2008, also the Assessment Plan issued by RENAR, on the basis of which the assessment activity was performed with a view to extending EMC laboratory accreditation, are presented in Annex. In this Assessment Plan the tests which are the object of this project are outlined, because RENAR assessment coincided with the laboratory surveillance visit occurred as a result of Laboratory re-accreditation.

The **Test Report** drawn up as a result of the tests performed during the RENAR assessment visit with a view to accrediting them is also presented in Annex.