1. Basic Information

1.1 Desiree Number: RO-0107.13
1.2 Title: Improvement of railway safety by modernisation of the Romanian railway testing centre
1.3 Sector: Transport
1.4 Twinning Component: N/A
1.5 Location: Romania, Bucharest and Faurei (Braila county)

2. Objectives

2.1. Wider Objective:

- Improve the railway safety

2.2. Purpose of the project:

- Ensure that the testing and checks in the Railway sector are performed with a high level of reliability
- Establish a data bank on the technical characteristics of the rolling stock belonging to the Romanian railway operators as well as of the railway infrastructure in Romania.
- Comply with the conditions imposed by domestic and international regulations, for testing all the vehicles, at a running speed up to 200 km/h;

2.3. Accession Partnership and NPAA priority

AP 1999, medium term priority: “align on the acquis in particular on maritime transport, aviation (in particular air safety and air traffic management), rail, road freight sectors (rules for dangerous goods, safety rules and taxation) and inland waterways (technical requirements for vessels).”
2.4. Contribution to National Development Plan

A component of this project is the modernisation of the railway testing centre located in Faurei (Braila county), which will have a direct impact in terms of employment generation, during the period of works but also for the operation of the modernised facility. The modernisation works of the Faurei centre will involve about 2000 person.months. Further to the modernisation works, it is estimated that about 6 additional staff will be hired locally (in Faurei) and 10 additional staff at the AFER headquarters and laboratories in Bucharest.

3. Description

3.1. Background and justification

Background

The Directive 95/18/EC of the European Council, on the licensing of the railway undertakings, stipulates at Art.3 the obligation of each Member State to designate a body responsible for issuing licences and for carrying out the obligations imposed by the Directive. In that context, the Romanian Railway Authority (AFER) was established in 1998 on the basis of the Governmental Ordinance no. 95/1998 and the Governmental Decision no. 626/1998. AFER is a specialised technical body of the Ministry of Public Works, Transport and Housing, ensuring mainly the state inspection and the register specific activity, the licensing of railway undertakings, the authorisation and the technical survey of domestic suppliers of products and services in the railway field, the examination and certificates granting.

In addition to the requirement of the above mentioned Directive, AFER has been given a responsibility in the technical homologation of the vehicles running in international railway traffic and in the safety control of the railway and subway transport, as the ones mentioned under Annex G, Art.5 of the Convention regarding the International Railway Transport (COTIF). AFER has, as main task, to ensure the compatibility between the national regulations in the field of the railway and the requirements of the European Union in the field of the safety, environmental protection, the rolling stock requirement, equipment and facilities of the railway infrastructure. It also investigates on the railway events and accidents.

Justification

However, due to financial constraints, AFER has not sufficient means to function correctly for performing the technical homologation and the safety control. In order to fulfil these obligations, AFER needs assistance for:

- The acquisition of modern measuring and control equipment, necessary for its own laboratories in order to follow the working procedures mentioned in the European technical regulations in force;
- The modernisation of the testing centre of Faurei, with a view to ensure the necessary requirements for performing the necessary controls for the safety of
the railway vehicles and the infrastructure elements, under the requirements of the European norms and the technical specifications for interoperability;

- The completion of the computer network in its headquarters, as well as that of the testing centre of Faurei, and in data transmission between them, with a view to set up a data bank required for interoperability of the European railway system.

The project will also have a positive impact on the ISPA financed railway projects. Indeed, it will provide the necessary testing infrastructure for testing the rolling stocks that will use the ISPA renovated tracks.

3.2. Linked activities:

Until now, AFER has not directly benefited from international programmes. However, considerable support has been provided to the railway sector, and namely:

- Support to the Romanian Railway Restructuring Plan (Phare 1996 – 3.7 MEUR). This project is co-financed by WB, EBRD, the PHARE Programme and the Romanian Government and aim at implementing a Restructuring Action Plan that was agreed between the Government and the Railways (SNCFR) in 1996. A continuation of this project, financed by the EBRD, was approved at the end of October 1999 and should last till October 2001.
- Romanian Railway Rehabilitation Programme (RRRP), co-financed by WB, EBRD, the PHARE Programme (54 MEUR) and the Romanian Government.
- Rehabilitation and Upgrading of the railway line Bucharest – Brasov, co-financed by the EIB (200 MEUR) and the Romanian Government.
- Rehabilitation and Upgrading of the railway sections Bucharest Baneasa – Fetesti, on the railway line Bucharest - Constanta, co-financed by the European Commission (co-financed by ISPA) and the Romanian Government. Total eligible costs: 309 MEUR.

Moreover, the following programmes are currently being prepared:

- Rehabilitation and upgrading of the railway sections Bucharest North – Bucharest Baneasa and Fetesti – Constanta on the railway line Bucharest – Constanta, with a loan from the Japanese Bank for International Co-operation (JBIC, about 205 MUSD),
- Ticketing and Track and Catenary Maintenance Equipment, with an EIB loan. Total programme value: about 32 MEUR,
- Passengers locomotives rehabilitation, with a JBIC loan of about 100 MUSD equivalent,
- Stations rehabilitation, Inter-city coaches and freight wagons rehabilitation and technical assistance for the freight company CFR Marfa privatisation, with an EBRD loan.

3.3. Results:

- Provide the relevant control body (Romanian Railway Authority, AFER) with an operational testing facility by the modernisation of the Faurei Railway Testing Centre
• Provide AFER with the necessary informatic infrastructure for setting up of a technical data base according to the international regulations in force

• Provide AFER with the necessary testing equipment to be able to operate according to the EU requirements

3.4. Activities:

1- Supply of testing equipment and systems

The first sub-project aims at procuring the following equipment:

- equipment for testing the railway vehicles in laboratory and in traffic, with the aim of their technical homologation and certification, for their admission in traffic;

- equipment for testing the railway infrastructure components in laboratory and in traffic, with a view to certify their conformity with the compulsory requirements for the traffic safety, according to the European norms in force;

- equipment for materials testing of the railway infrastructure and vehicles subassemblies with a view to check their conformity with the compulsory requirements of the traffic safety, according to the European norms in force;

- computerised system for data (documents) processing and transmission in AFER and the creation of a data bank required for the railway interoperability in Europe; This data bank will be established according to the international regulations in force, and accessible for the railway operators and the countries participating in the international traffic.

Most of this equipment will be delivered and used at the AFER laboratories in Bucharest or on dedicated testing vehicles based in Bucharest. The equipment installed on rail vehicles will be used for tests in traffic (on the entire Romanian rail network) and at the Faurei testing centre during the periods of testing.

An indicative list of equipment to be supplied is given in Annex 5.

2- Modernisation of the railway testing centre of Faurei

The railway test centre at Faurei (located at about 150 km NE of Bucharest) has a 14 km and a 2.5 km test ring, which was designed for a maximum speed of 200 km/h but now it can be used only up to 120 km/h. This test centre is used mainly for testing of safety, riding quality and brake of the rolling stock, performances of the locomotives, elements of the track, signalling and traction power supply. The maximum speed on the test ring will be raised from 120 km/h to 200 km/h, which is necessary for performing the tests, according to the European norms in force.

The testing centre is currently functioning, but at lower parameters than it was designed for. For example, due to the speed restrictions on the rings, a number of
tests have to be performed on the Romanian railway network, thus perturbing the rail traffic. The Faurei testing centre is currently employing a number of 20 permanent staff. About 30 additional staff from the AFER headquarters is present on site during the tests periods. Further additional maintenance staff (around 30) will also be employed after completion of the works.

The works will consist of replacing the track elements (rails, concrete slippers, elastic fastenings, switches), remaking the track benches, upgrading of the track ballast prism completion, embankment reinforcement, rail welding, general tamping and dynamic stabilisation, replacement of used components of the electric traction facilities.

3- Supervision of the works

The actual realisation of the works will be supervised according to Phare rules.

4. Institutional Framework

AFER, as a specialised technical body, designated by the Ministry of Public Works, Transport and Housing for the field of railway transports, has the following main duties:

a. to survey the respect of the domestic and international regulations in the field of the railway and subway transport, as regards the traffic safety, transport security, environment protection and quality of public services, in railway and subway transport;

b. to control the observance of the compulsory technical norms in the activities of building, modernising, repairing, operation and maintenance of the railway rolling stock and infrastructure;

c. to work out compulsory specific regulations, in the field of the railway transport, concerning the transport management, as well as the technical requirements to be accomplished in building, upgrading, repairing, operation, maintenance and technical checking of the rolling stock and railway infrastructure;

d. to perform laboratory checks and tests, for establishing the conformity of the services and products, from the point of view of the most important characteristics and parameters for the traffic safety, life and environment protection, specific to the railway transport, subway transport and urban rail transport;

e. to perform the type technical homologation and to attest, from the technical point of view, the rolling stock, for its matriculation and to certify/homologate the materials, components and equipment used for building, repair, maintenance and operation of the rolling stock and railway infrastructure;

f. to attest the specialised personnel who ensure the training, the specialisation and the authorisation of the works in the field of the traffic safety;

g. to license the railway transport undertakings and intermediaries;

h. to investigate the serious events or accidents, occurred in the railway and subway transport;

i. to draw up studies and research works in the railway field, priority to the national research programs for accomplishing the interoperability of the European railway transport activity.
AFER will be the owner of the assets after completion of the project, and will bear all the running costs of the modernised centre. AFER will act as Engineer and will delegate part of its responsibilities to the supervision consultant.

5. Detailed Budget

<table>
<thead>
<tr>
<th>MEUR</th>
<th>Phare Support</th>
<th>Total Phare (=I+IB)</th>
<th>National Cofinancing*</th>
<th>IFI*</th>
<th>TOTAL</th>
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<tbody>
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<td>Investmen t Support</td>
<td>Institutio n Building</td>
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<td>1.60</td>
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<td>6.10</td>
</tr>
</tbody>
</table>

* The co-financing will be ensured by transfers from the National Budget to AFER

6. Implementation Arrangements

6.1. Implementing Agency

The programme will be managed in accordance with the Decentralised Implementation System (DIS) and the Practical Guide to PHARE / ISPA / SAPARD contract procedures. The Implementing Agency will be the Central Finance and Contracts Unit within the Ministry of Public Finances (CFCU). The Implementing Authority will be the Ministry of Public Works, Transport and Housing. The beneficiary of the equipment and modernisation works will be AFER. AFER will prepare the technical specifications for equipment to be purchased and the tender documents for the works.

6.2. Non-standard aspects

The Practical Guide to PHARE / ISPA / SAPARD contract procedures will be strictly followed and this project will be implemented by way of procurement of equipment, works and services, in accordance with the PHARE rules for procurement. Moreover, the works conditions of contract will be based on the FIDIC.
6.3. Contracts

It is intended to have three main contracts:
- supply of equipment (potentially divided into lots), with an estimated value of 1.40 MEUR,
- modernisation works in Faurei, with an estimated value of 4.60 MEUR,
- works supervision services, with an estimated value of 0.1 MEUR.

7. Implementation Schedule

Start of tendering: October 2001
Start of project activity: March 2002
Project Completion: September 2004 (completion of the works)

8. Equal Opportunity

Equal participation in project by women and men will be assured.

9. Environment

The equipment to be procured does not have impact on the environment. The works in Faurei are for modernisation of an existing facility; therefore, the environmental impact is minor.

Moreover, the investment will improve railway safety, reduce the risk of occurrence of accidents or incidents, and therefore promote the use of railway mode of transport, which is an environment friendly mode of transport.

10. Rates of return

N/A

The main objective of this investment project is to comply with the acquis communautaire and improve railway safety. However, it will have some economic impact at the regional level due to the modernisation of the Faurei facility.

AFER has performed a feasibility study (annexed) from which the main results are that the additional revenues of AFER linked with the improvement of the facilities will enable to cover the operation and maintenance costs.
11. Investment criteria

11.1. Catalytic effect:

This investment will be made in parallel with several railway rehabilitation projects (including under Phare and ISPA financing) and will participate in the overall modernisation of the railway sector in Romania.

11.2. Co-financing:

The Romanian Government will ensure the co-financing of this investment project.

11.3. Additionality:

No other donors are likely to finance similar actions.

11.4. Project readiness and Size:

A feasibility study has been prepared by AFER. The detailed technical studies are currently being prepared. The project complies with the minimum 2 MEUR project size.

11.5. Sustainability:

AFER will operate and maintain the modernised facilities. It is estimated that the additional revenues will exceed the operation and maintenance costs (194 000 EUR versus 136 000 EUR – see annex 4).

11.6. Compliance with state aids provisions

AFER is a public body carrying out public services. It is therefore fully eligible for State support.

12. Conditionality and sequencing

1. The Romanian Government will ensure its co-financing commitment on the project.

2. The Romanian Government undertakes to finance any additional cost which may arise in order to ensure timely completion of the project.

3. AFER will commit to finance the running costs for the management of the Faurei Centre

4. The civil works contract will follow the FIDIC Conditions of Contract.

5. The civil works contract will be concluded in EUR.

6. The civil works component will include an adequate independent supervision of projects. The Supervision Consultant will have the role of the Engineer’s representative as defined under the FIDIC Conditions of Contract. He will also approve the working drawings.
7. Works will be tendered to contractors with relevant financial capacity, and technical and FIDIC experience.

**Annexes to Project Fiche**

1. Logical framework matrix in standard format
2. Detailed implementation chart
3. Contracting and disbursement schedule by quarter for full duration of programme
4. Reference to feasibility /pre-feasibility studies
5. Indicative list of equipment to be supplied
Annex 1: Logframe Matrix for project: RO0107.13

**Overall objective**
- Improve the railway safety.

<table>
<thead>
<tr>
<th>Indicators of Achievement</th>
<th>Sources of Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>number of accidents, incidents, due to rolling stock or infrastructure deficiencies, increase of interoperability</td>
<td>APER reports, Romanian railways infrastructure company and operators reports, UIC reports</td>
</tr>
</tbody>
</table>

**Project purpose**
- Ensure that high level of liability of the results of the testing and checks in the Railway sector that are performed with a high level of liability.
- Establish a data bank on the technical characteristics of the rolling stock belonging to the Romanian railway operators as well as of the railway infrastructure in Romania.
- Comply with the conditions imposed by domestic and international regulations, for testing all the vehicles, at a running speed up to 200 km/h;

<table>
<thead>
<tr>
<th>Indicators of Achievements</th>
<th>Sources of Information</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>number of tests performed, number of entries in the data base, testing speeds achieved on the Faurei rings, number of contestations by clients, tests results similar with international results.</td>
<td>APER reports</td>
<td>Adequate enforcement: purchase of compliant rolling stock, repairs and maintenance of existing rolling stock and infrastructure in line with the tests results</td>
</tr>
</tbody>
</table>

**Results**
- Provide the relevant control body (Romanian Railway Authority, APER) with an operational testing facility by the modernisation of the Faurei Railway Testing Centre

<table>
<thead>
<tr>
<th>Indicators of Achievement</th>
<th>Sources of Information</th>
<th>Assumptions</th>
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<tbody>
<tr>
<td>equipment delivered, installed and functional, works performed, completed and handed over, computer system implemented</td>
<td>Hand over certificates, Works supervision consultants reports, APER and MPWTH reports</td>
<td>APER will finance the relevant running costs (operation and maintenance), Adequate use of the</td>
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### Logframe Matrix for project: RO0107.13

<table>
<thead>
<tr>
<th>Activities</th>
<th>Means</th>
<th>Assumptions</th>
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<tbody>
<tr>
<td>• Supply of testing equipment and systems</td>
<td>• Supply contract</td>
<td>• High quality suppliers, contractors and consultants</td>
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<tr>
<td>• Modernisation of the railway testing centre of Faurei</td>
<td>• Civil works contract</td>
<td>• AFER will prepare the technical specifications and design</td>
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<tr>
<td>• Supervision of the works</td>
<td>• Works supervision service</td>
<td>• Availability of co-financing on due time</td>
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<tr>
<td>• Provide AFER with the necessary informatic infrastructure for setting up a technical data base according to the international regulations in force</td>
<td>• Reports from CFCU and Ministry of Public Works, Transport and Housing</td>
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<tr>
<td>• Provide AFER with the necessary testing equipment to be able to operate according to the EU requirements</td>
<td>• AFER staff trained.</td>
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### Improvement of railway safety by modernisation of the Romanian railway testing centre

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<tr>
<th>Components</th>
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<th>2004</th>
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<td>1- Supply of testing equipment and systems</td>
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<td>2- Modernisation of the railway testing centre of Faurei</td>
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<td>3- Works supervision</td>
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<table>
<thead>
<tr>
<th>D = Design/Tender preparation</th>
<th>C = Contracting</th>
<th>I = Implementation/works</th>
<th>R = Review/evaluation</th>
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12
**Annex 3 – Cumulative contracting and disbursement schedule by quarter for project: RO0107.13**

**Improvement of railway safety by modernisation of the Romanian railway testing centre**

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<td>Cumulative contracting schedule by quarter in MEUR (planned)</td>
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<td>Cumulative disbursement schedule by quarter in MEUR (planned)</td>
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Executive Summary

The feasibility study for “Institutional building of the Romanian Railway Authority, AFER, in accordance with the EU accession requirements, Acquisition of equipment and necessary modernisation” has been prepared by AFER in December 2000.

It contains the following elements:

1. General description
2. Requirements of European regulations on railway transport
3. Scope of the feasibility study
4. Present situation
5. Economic analysis
6. Conclusions

and the following annexes:

Annex 1. List of the documents mentioned in the feasibility study
Annex 2. Equipment for testing of railway vehicles in laboratory and in traffic
Annex 3. Equipment for testing the railway infrastructure in laboratory and in traffic
Annex 4. Equipment for mechanical, physical and chemical testings of railway vehicles and infrastructure, as well as of their components
Annex 5. Equipment and endowments of Testing Centre of Faurei (PIF)
Annex 6. List of tests performed by AFER

The study presents the responsibilities of AFER, in the context of EU Accession. It shows that in this regard, and in order to fulfil its responsibilities, AFER needs assistance in:

- Acquisition of modern measuring and control equipment, necessary for its own laboratories,
- Repairing and upgrading the testing centre of Faurei,
- Completing the computer network in its headquarters, as well as the one of the testing centre of Faurei, and data transmission between these.

The analysis of the annual operating expenses and supplementary revenues, presented in the Chapter 5, emphasises the future AFER capability to maintain, by its own
financial funds, the initial functional and technical performances of the investment, to the European requirements.

Beside achieving the investment target, by these endowments, AFER will be able to take part in the international programs of studies and researches ordered by European Union specialised companies or European railway undertakings.

A subsequent positive effect is also the possible impact of this project on the working force of the area were the testing centre PIF-Faurei is located, by:

- creating new jobs during the performance of the respective works;
- increasing the number of jobs for permanent staff, with about 30%;
- the possibility to create connected activities due to the increasing role of PIF -Faurei by developing the access railways and roads, developing new services.

Economic viability of the Railway Testing Centre in Faurei

As part of the feasibility study, the financial impact of the Faurei testing centre modernisation and upgrading has been assessed. The following is an extract of the feasibility study presenting the yearly cash flow of the modernised facility. It appears that the modernisation of the Faurei testing centre will enable a financially sustainable operation of the facilities, even if the initial investment itself cannot be financed out of the AFER funds only.

Annual operating expenses after modernisation: **136,000 EUR**

a) expenses for PIF maintenance and for keeping it within the limit parameters: **80,000 EUR**
- addition of crushed stone 15,000 EUR
- general tamping and dynamic stabilisation 20,000 EUR
- replacing/completing of damaged/broken components 30,000 EUR
- revisions of the stands, equipment, devices 5,000 EUR
- building maintenance 10,000 EUR

b) expenses for performing the tests specific for the testing centre: **36,000 EUR**
- expenses with the staff 20,000 EUR
- expenses with the energy/fuel 12,000 EUR
- expenses with the materials 4,000 EUR

c) annual expenses for the maintenance of laboratory equipment: **20,000 EUR**

Annual revenues after modernisation: **194,000 EUR**
Annex 4: Reference to feasibility / pre-feasibility studies for project: RO0107.13

These revenues are resulting from the investment and are effects of the increase of the work efficiency, by improving the total times for performing the tests:
- decrease of effective duration of the tests, of 5 - 25%
- decrease of the waiting time up to the tests start, of around 30 - 50%
- decrease of the results processing time: 5 - 40%
- decrease of the number of repeated tests, by increasing the measurement accuracy, by 6- 15%

The revenues from the driving rolling stock are estimated as follows:
- basic tests: 2 set of tests x 10,000 EUR/set = 20,000 EUR
- in-depth tests: 1 set of tests x 20,000 EUR/set = 20,000 EUR

The revenues from the tracted rolling stock are estimated as follows:
- basic tests: 4 sets of tests x 9,000 EUR/set = 36,000 EUR
- in-depth tests: 2 set of tests x 17,000 EUR/set = 34,000 EUR

The revenues obtained by diversifying the vehicle testings are estimated at 30,000 EUR.
The revenues obtained by vehicles testings on stands are estimated at 10,000 EUR.

The revenues obtained by laboratory and in situ testings of the art works and the track elements are estimated at 21,000 EUR.
The revenues obtained by the mechanical, physical and chemical testings of vehicles, infrastructure and their components, by diversifying the fields of activity, are estimated at 23,000 EUR.
## Improvement of railway safety by modernisation of the Romanian railway testing centre

<table>
<thead>
<tr>
<th>Endowment denomination</th>
<th>Denomination of utilising activity</th>
<th>Norms requesting activity performance</th>
<th>Main technical characteristics</th>
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<tbody>
<tr>
<td>Equipment for laboratory and track testing of railway infrastructure elements</td>
<td>Testing concerning: - signalling and switching equipment functioning - traction power supply equipment functioning - track, bridges and tunnels parameters</td>
<td>Directive: 96/48 Decision 93/465 Resolution 90/C/10/01 Document 599/PC/617 EN 12146-8 CEI: 1133,77 UIC: 770,778</td>
<td>- data acquisition and processing systems - inductive and resistive transducers - telemetric systems - electric measurements devices (oscilloscope, voltmeter etc.) - energy, power and interference analyser</td>
</tr>
<tr>
<td>Equipment for materials testing for vehicles, infrastructures and their components</td>
<td>Testing concerning: - static strength - fatigue and dynamic resistance - behaviour at controlled temperatures and humidity - chemical and physical properties - non-destructive control</td>
<td>Directive: 96/48 Decision 93/465 Resolution 90/C/10/01 Document 599/PC/617 UIC: 566, 577, 779, 810, 830</td>
<td>- data acquisition and processing systems - tensometric bridges - spectrometer - ultrasonic defectoscope -universal hydraulic equipment for pulsatory forces - climatic enclosure - various laboratory equipment (fleximeters, hardness meters etc.)</td>
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<tr>
<td>AFER data processing and managing</td>
<td>- testing data processing - quality system documents files - railway undertakings files - railway products and suppliers files - certified railway vehicles files</td>
<td>Directives: 95/18, 95/19, 96/48 Decision 93/465 Resolution 90/C/10/01 Document 599/PC/617</td>
<td>- specialised and general software - computing equipment - intranet</td>
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