



EUROPEAN COMMISSION

# Memorandum of Understanding (MoU)

**Between the European Commission and the  
European Railway Associations (CER – UIC –  
UNIFE – EIM – GSM-R Industry Group – ERFA)  
concerning the strengthening of cooperation  
for speeding up the deployment of ERTMS**

**July 2008**



*The Voice  
of European  
Railways*



European Rail  
Infrastructure Managers





## **Preamble**

1. On 17 March 2005, the European Commission and the rail industry (manufacturers, infrastructure managers and rail undertakings) signed a Memorandum of Understanding establishing the basic principles of an EU deployment strategy for the European Rail Traffic Management System (ERTMS).
2. The main objective of that Memorandum of Understanding was to define the contribution of the actors in order to ensure the progressive setting up of an ERTMS equipped network within 10-12 years.
3. In order to facilitate the implementation of that Memorandum of Understanding, the European Commission appointed Mr. Karel Vinck in July 2005 to act as ERTMS and rail corridor coordinator.
4. The European coordinator promoted an approach based on the coordinated deployment of ERTMS along important freight corridors and key high speed lines. In particular, six freight corridors were subject to further analysis. The importance of implementing ERTMS on the whole TEN-T network and thus achieving its maximal positive impact at EU level was also highlighted.
5. While this new Memorandum of Understanding focuses on the swift deployment of ERTMS along corridors (including stations, access to marshalling yards, terminals etc.), the analyses of the functioning of the corridors have shown that two additional complementary types of actions are needed to further promote the development of rail freight transport:
  - (a) Infrastructure measures, such as removing bottlenecks or adapting the infrastructure to "standard trains" with specific length, axle load, speed.
  - (b) Harmonisation of operational rules related to ERTMS and improvement of the coordination between administrations.

These three types of measure need to be considered globally.

6. This new MoU also recognises that there are now significant plans for ERTMS deployment in member States that are in addition to the freight corridors in order to protect the investment stabilised and complete specifications (the associated subsets in line with SRS) are necessary.

7. Funding, in particular as regards aligning specification documents with the SRS version 3, testing of baseline 3 (including testing GSM-R), upgrades to 2.3.0d and to subsequent versions when legally adopted and implementing of ETCS and GSM-R, will speed up the successful implementation of the MoU.
8. To that end, the European Coordinator will issue recommendations before the 15.09.2008. These recommendations will be discussed in the MoU Steering Committee and will be used as an input for the Commission Work Programme laying down the priorities for the next ERTMS call due to be published early 2009 in the framework of the TEN-T programme.
9. This new MoU complements the Memorandum of Understanding establishing the basic principles of an EU deployment strategy for the European Rail Traffic Management System (ERTMS) signed on 17 March 2005, which remains in force.

## **1. PRINCIPLES AND OBJECTIVES**

10. The SRS 2.3.0, as adopted by the European Commission on 23 April 08, and known as "2.3.0d" constitutes currently the unique and interoperable technical reference to ensure the interoperability of all ETCS equipment deployed in Europe.
11. However, a number of infrastructure managers and rail undertakings requested the introduction of new functionalities, in particular with a view to facilitating the swift deployment of ETCS on existing conventional lines. As regards GSM-R, the parties fully support the on going work by ERA to review the existing "EIRENE options" with a view to ensure that they cannot be required as track access conditions.
12. To that end, the Technical Specification for Interoperability will be amended by 2012 in order to include these additional functionalities in a new baseline of the specifications called baseline 3. Trains equipped with baseline 3 shall be able to run on lines equipped with SRS version 2.3.0d without any additional technical or operational restrictions caused by ERTMS/ETCS. This implies the harmonisation of all ERTMS related operational requirements.
13. Through this MoU, the European Commission and the railway sector decide to deepen their cooperation in order to further promote a swift and coordinated deployment of ERTMS in Europe.
14. To that end, the MoU has the following specific objectives
  - (a) To foster coordination and collaboration in order to ensure the compatibility of existing lines. This compatibility shall be based on the SRS version 2.3.0d and the relevant GSM-R specifications (EIRENE 7/15).

- (b) To foster coordination and collaboration with a view to ensuring that, by 2012, an error free, tested and legalised baseline 3 of the ETCS specifications is available.
- (c) To clarify which specification baseline is to be used in tenders and as track access conditions.
- (d) To improve the efficiency and the cost effectiveness of the existing testing and certification procedures, for both ETCS and GSM-R.
- (e) To streamline the current procedure of testing and approvals in order to progressively reach a point where all procedures related to testing and approval of ETCS and GSM-R on board units can be completed following a common, unique and efficient procedure.
- (f) To lay down the agreement of the sector on a number of measures aimed at speeding up the deployment of the ETCS.

## **2. COMPATIBILITY OF EXISTING LINES WITH THE 2.3.0D**

- 15. The Parties note that some existing ETCS lines may need to be upgraded in order to ensure that "2.3.0d trains" can operate on these lines.
- 16. The Parties note that, by 31.12.2008, Member States shall notify to the Commission the time by which "2.3.0d trains" can operate on each of their ETCS lines. To that end:
  - (a) Taking into account their respective contractual obligations, the manufacturers will give fair support to the infrastructure managers in order to accurately identify the incompatibilities between their applications and "2.3.0d trains". Infrastructure managers will supply this information in writing to the European Railway Agency before 30.09.2008.
  - (b) Infrastructure managers and railway undertakings will liaise with the European Rail Agency in order to assess this information. The infrastructure managers will also inform the ERA about any upgrade needed or planned for reasons falling outside the scope of the ERTMS/ETCS interoperability specifications.
- 17. ERTMS/ETCS being software based, it cannot be excluded that new adjustments to 2.3.0d appear necessary to cover new situations. In such a case:
  - (a) All Parties commit themselves to report the issue immediately to the European Railway Agency (ERA) and to address it in the frame of the Change Control Management Process established by the ERA.
  - (b) As part of the future tendering processes, railway undertakings and infrastructure managers will require that such adjustments are included in the contracts via appropriate clauses.

- (c) To that end an appropriate generic clause will be proposed by the industry before 30.09.2008 and discussed within the framework of the ERTMS MoU Steering Committee.

### **3. OBTAINING A TESTED AND LEGALISED BASELINE 3 BY 2012**

- 18. The Technical Specifications for Interoperability, as adopted on the 23.04.2008, by the European Commission, ensure interoperability, but a number of infrastructure managers requested the introduction of new functionalities, in particular with a view to facilitating the swift deployment of ETCS on existing conventional lines. National and cross-border interoperability could be hampered without the adoption of appropriate measures.
- 19. Taking the above into account, the European Rail Agency is working on the next baseline of the ETCS Specifications, called baseline 3. Trains equipped with baseline 3 shall be able to run on lines equipped with SRS version 2.3.0d without any additional technical or operational restrictions caused by ERTMS/ETCS. This implies the harmonisation of all ERTMS related operational requirements.
- 20. The Parties note that, in December 2007, after an impact analysis, the European Railway Agency has set up a first list of additional functions, known as “Functional Change Requests” as candidates for inclusion in baseline 3.
- 21. The Parties note that, by the end of March 2008, most of these Functional Change Requests lacked a detailed technical solution.
- 22. With a view to ensuring the swift availability of the SRS for baseline 3, the Parties agree that manufacturers, infrastructure managers or railway undertakings that have a specific interest in a given Functional Change Request should propose to ERA a detailed technical solution.
- 23. The detailed technical solutions should preferably be proposed via the representative sector organisations and be dealt with within the established ERA change control management process. However, the detailed technical solutions can also be handed over directly to the ERA if this is deemed necessary to meet the deadlines laid down in the present MoU.
- 24. The Parties therefore support the decision taken by the European Commission and the European Railway Agency to only maintain in baseline 3 the Functional Change Requests for which a draft detailed technical solution will have been provided, either directly by the ERA or by the sector, by 31.07.2008. The detailed technical solution should be finalised by 30.09.2008 at the latest.
- 25. The Parties fully support the methodology and the decision process decided by ERA in order to deal with these important functional changes.

26. As regards the Functional Change Request related to braking curves,
- (a) the Parties agree that, under the aegis of ERA a consensus on a solution should be reached between the organisations representative of the rail sector by 30.06.2008.
  - (b) the Parties note that, if no consensus is reached, the ERA will provide its own solution by 31.08.2008.
27. In the particular case of Limited Supervision, a similar procedure shall be adopted with a view to mitigating the risk on the timely availability of the SRS (31/12/08). The ERA will also ensure that the opportunity to include modifications to baseline 3 specifications in order to use GPRS or another packet switched solution at the time horizon of 2017 is addressed.
28. Taking due account of the previous statements, the Parties agree on the following timetable. The ERA is responsible to implement the most efficient process and to make all efforts to shorten the timeframe where appropriate. The sector organisations will make all efforts to support ERA activities in this frame.
- (a) The final list of Functional Change Requests due to be included in baseline 3 of the specification will be published by ERA on 30.09.2008, together with the list of the corresponding detailed technical solutions.
  - (b) The draft System Requirements Specifications version 3 will be published by ERA on 31.12.2008 and be subject to a technical opinion of the Article 21 Committee.
  - (c) A test campaign shall be carried out with focus on the validation of the SRS baseline 3 against operational scenarios of the railways and on the compatibility between baseline 3 and baseline 2.3.0 d.
  - (d) Moreover, feedback from the cross border projects using SRS 2.3.0 or 2.3.0d as a basis will be collected by ERA. This feedback will strengthen the SRS baseline 3 consolidation process.
  - (e) The ERA should send in due time to the Commission a recommendation to amend the TSI in order to introduce the new set of documents corresponding to the SRS baseline 3.
  - (f) As of 31.12.2012, this new tested and legalised baseline of the TSI should be in force.
  - (g) A detailed planning ensuring that this deadline is reached will be agreed in the frame of the ERTMS MoU steering committee before 31.12.2008 on the basis of a proposal made by ERA in cooperation with the sector.

#### **4. TENDERING ON BASELINE 3 OF THE SPECIFICATIONS**

29. All Parties recommend to tendering on the basis of version 2.3.0d with an option for upgrade to version 3 when necessary.
30. The Parties recognise that:
- (a) it is very likely that, during the test and validation phases of this baseline 3, errors and ambiguities could be detected and could therefore lead to minor adjustments in the specifications. The contracts signed as a result of such tenders should take this into account, for example by way of appropriate upgrade clauses.
  - (b) Such errors or ambiguities will be reported immediately to the European Railway Agency (ERA) and will be addressed in the frame of the Change Control Management Process established by the ERA.
  - (c) before the entry into force of the new baseline 3 TSI, functions not included in version 2.3.0 cannot be requested as track access conditions. Non-compliant implementations are illegal and will be handled as such.
31. The Parties welcome the decision taken by the ERA to post on its web site the Change Requests due to be included in baseline 3 as well as the detailed technical solution as soon as they are available. The Parties fully support the initiative of the European Commission to ask early 2009 the technical opinion of the Article 21 Committee on the SRS version 3 that will include Limited Supervision and Braking curves.
32. Based on the tested and legalised baseline 3, the suppliers confirm the placing into service of baseline 3 equipment at the latest in 2015.

#### **5. IMPROVING TESTING PROCEDURES**

33. Testing procedures are a fundamental factor to successfully implement ERTMS. The Parties acknowledge and welcome the efforts made by the suppliers in the field of interoperability testing between different suppliers in-lab, on site or in dedicated test facilities.
34. In order to achieve ERTMS cross-acceptance, interoperability between suppliers and countries, the Parties will take the following actions:
- (a) Definition of a specific process for testing, acceptance and reduction of national and cross-border versions;
  - (b) Definition of the respective responsibilities of the different Parties involved;
  - (c) Definition of the test requirements;



- (d) Definition of the necessary test specifications and test references.
- (e) Definition of the necessary measures to be taken in order to reduce the number of versions.

To this end, a working group involving the Parties will be created, under the chairmanship of the European Railway Agency.

- 35. The Parties recognise the need for a European GSM-R Test laboratory and for an European ETCS Test Laboratory.
- 36. The Parties ask ERA, in cooperation with the sector, to draw up a list of criteria to be fulfilled by laboratories or test centres so that they could be used as “reference laboratories”. Such laboratories or test centres should be able to provide an appropriate platform to test on board ETCS and GSM-R equipment.
- 37. Under the leadership of ERA, a mechanism will be put in place before end 2010 to ensure that it is possible to test an on board ETCS unit against all test sequences included in the TSI and against the functional scenarios drawn up at national level and corresponding to specific lines. This may imply the constitution of a “growing” data base.
- 38. The Parties fully support the initiative taken by the European Commission to address Notified bodies and National Safety Authorities so that they do not request to do again tests carried out in one of the above mentioned laboratories.
- 39. The Parties fully support the initiative taken by the European Commission to address Notified bodies so that they only request additional laboratories tests in duly justified cases. These cases should be reported to the European Railway Agency.
- 40. The Parties fully support the initiative of the European Commission to ensure that, as soon as possible, the assessment of conformity or suitability for use of ERTMS on board equipment includes running the full sequence in one of the above mentioned laboratories.
- 41. In order to limit the differences between scenarios drawn up at national level, the rail sector would welcome an initiative by ERA to harmonise engineering rules and to reduce “operational specificities” in particular as regards the entrance in ETCS areas. ERA will make a proposal before 31.12.2009 for trackside engineering rules. Engineering rules for on boards are urgently needed and a proposal should be made available at the earliest opportunity, but before the end of June 2009.
- 42. Running the full test sequences on a single on board ETCS unit currently takes six months. Without the adoption of appropriate measures as described in paragraph 44, this time is likely to increase drastically with the introduction of baseline 3, as a result of the additional functions and as a result of the need to test the backward compatibility with baseline 2.3.0.

43. Better use of the above mentioned laboratories should be made in the framework of the certification of on board ETCS equipment.
44. In this context, UNIFE takes note and the other European railway associations support the request made by the European Commission to the ERA to issue a recommendation related to the inclusion of standard test interfaces. These standard test interfaces should be used for the test and validation in-lab of version 3.
45. The Parties under ERA leadership are committed to improve the efficiency of testing procedures and note that possibilities related to making the best use of laboratories, test centres, trial sites and tests on sites should be better explored in order to minimise the on-site tests.

## **6. SPEEDING UP THE ERTMS DEPLOYMENT**

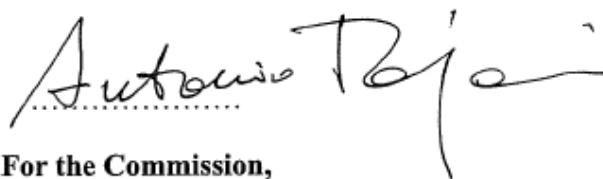
46. Important progress has been achieved since the signature of the first Memorandum of Understanding on 17.03.2005.
47. The Parties recognise that a first structure of a European ETCS-equipped network will already be available by 2012.
48. The Parties recognise that reducing migration periods is of crucial importance to ensure ERTMS success. With this view, the European Commission will present a European deployment plan.
49. The railway undertakings note that "gaps" in this ETCS network weaken the economical case. The European Commission in cooperation with Member States and the railway sector seeks to find viable solutions based on a cost benefit analysis.
50. Along a given corridor, most of the benefits linked to the deployment of ERTMS arise only when the whole corridor is equipped. The Parties recognise therefore that binding commitments regarding the equipment of ERTMS and the related time planning are needed.
51. In order to increase the standardisation of locomotives and further reduce the costs related to ERTMS equipment, the design of all new models of freight rolling stock should include ERTMS as standard equipment. Models designed for specific purposes, such as shunting locomotives or rolling stock exclusively for national service, may be exempted.

## **7. WORKING PRINCIPLES AND ARRANGEMENTS**

52. The Steering Committee appointed under the MoU establishing the basic principles of an EU deployment strategy for ERTMS will ensure the governance of this MoU. To that end, its composition will be extended to include representatives from the GSM-R industry group.

53. The European Commission also signs this MoU on behalf of the European Railway Agency.
54. The Steering Committee is chaired by the European Coordinator or, in his absence, by the European Commission. The Steering Committee will, in general, ensure that the objectives of the MoU are fulfilled. More particularly, it will:
- (a) Review the progress of the corridors;
  - (b) Monitor the progress made towards the definition, the testing and the validation of baseline 3 of the specification;
  - (c) Be a forum of discussion for any matter related to the deployment of ERTMS;
  - (d) Ensure that all Parties fully fulfil their obligations under the MoU.

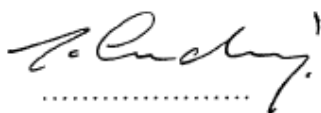
**Done at Rome, 4 July 2008.**



**For the Commission,**

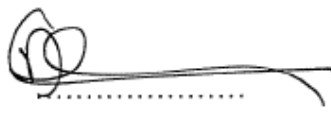
**Antonio Tajani**

Vice-President of the European Commission with responsibility for transport



**Johannes Ludewig**

**CER**  
Executive Director



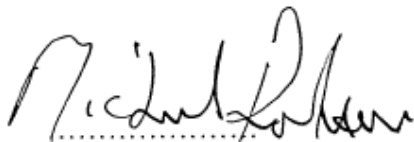
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