



## QUESTION / CLARIFICATION

### CO-ORDINATION BETWEEN NOTIFIED BODIES

DIRECTIVES 96/48/EC AND 2001/16/EC ON THE INTEROPERABILITY OF THE TRANS-EUROPEAN HIGH-SPEED AND CONVENTIONAL RAILWAY SYSTEMS

**QC-INS-001**

Issue 01

Date: 17/06/2009

Page 1 of 12

### TITLE

Certification of Slab Track for the TEN HS

### ORIGINATOR

SG INS

### SUBJECT RELATED TO

High Speed Infrastructure TSI

### DESCRIPTION AND BACKGROUND EXPLANATION

Specific requirements in case of the application of slab track are written down in a number of chapters in the HS TSI INS, edition 30 May 2002 (chapter 4.3.3.17 track resistance, 4.3.3.22 track stiffness, 5.2.2 rail fastening). However, a general framework for the application of slab track in the trans-European high-speed rail system is missing also in the revision of HS TSI INS, edition 20 December 2007.

In using the TSI Infrastructure the following problems arise

How is slab track defined?

Is slab track an elementary interoperability constituent component or an assembly of interoperability constituents?

3. Which specific criteria should be used in case of application of slab track?

### SUGGESTED RESOLUTION / INTERPRETATION

To 1. Question:

The following definition of slab track can be given:

Non-ballasted track utilising a continuous concrete slab, including paved concrete track and mono block or twin block sleepers embedded in concrete or asphalt.

To 2. Question:

Annex D.2.4.1 of HS INS TSI (2002) indicates that slab track can be used if an EC certificate is available according to the specifications of section 5. Section 5 only mentions track sleepers and bearers, but it is too much of a stretch to classify slab track as a sleeper or bearer.

Chapter 5.3.3 of HS INS TSI (2007) specify apparently only regulations for classical ballast sleepers. The recital (9) for the HS INS TSI states that slab track is defined as novel constituent there an assessment of conformity is required according chapters 6.1.2 and 6.1.5. The German translation defines slab track as innovative constituents there no assessment of conformity is required and only subsystem requirements have to be fulfilled.

The draft of CR INS TSI will define that slab track systems are not yet regulated by INS TSI. The concept of novel constituents will be removed.

Therefore slab track systems or parts of slab track as well as special bearers are not interoperability constituents and do not need until further notice an EC declaration of conformity as well as EC assessments of conformity by Notified Bodies.

EC declarations of conformity are only necessary for the defined interoperability constituents rails, fastenings systems as well as switches and crossings.

Slab track systems will be assessed as a part of the assessment of conformity for the subsystem infrastructure.

To 3. Question:

The use of slab track systems and special bearers will be assessed on the subsystem level according technical specifications which are relevant and defined in chapter 4. The contracting entity have to demonstrate compliance e.g. especially and not limited to chapters:

- 4.2.2 Nominal track gauge,
- 4.2.10 Track geometrical Quality and limits on isolated defects,
- 4.2.11 Rail inclination,
- 4.2.13 Track resistance,
- 4.2.18 Electrical characteristics (normally fulfilled with fastening systems) and
- 4.5.1 Maintenance plan.

**ORGANISATION(S) REQUESTED TO RESPOND (E.G. TSI GROUP, RISC, ERA ETC.)**

RISC and ERA

**DATE OF AGREEMENT AT NB RAIL PLENARY MEETING**

15/10/2008

**Response from Organisation Above**

See document "TECHNICAL OPINION ON NB-RAIL Q&C-INS-001 'CERTIFICATION OF SLAB TRACK FOR THE TEN HS'" attached.



INTEROPERABILITY UNIT	
TECHNICAL OPINION ON NB-RAIL Q&C-INS-001 'CERTIFICATION OF SLAB TRACK FOR THE TEN HS'	
REFERENCE: IU-INF-090511- TO	DOCUMENT TYPE: TECHNICAL OPINION
VERSION: 1.0	
DATE: 11/05/2009	

	Edited by	Reviewed by	Approved by
Name	Maciej SAWICKI Jan-Christian ARMS	Andrzej Harassek	Jean-Charles PICHANT
Position	Project Officer	Adviser	Head of Interoperability Unit
Date & Signat.	11/05/2009		

**AMENDMENT RECORD**

<b>Version</b>	<b>Date</b>	<b>Section number</b>	<b>Modification/description</b>	<b>Author</b>
1.0	11/05/2009		Preparation of version 1.0	Maciej SAWICKI Jan-Christian ARMS

## Table of Contents

1. Introduction .....	4
2. Abbreviations and references .....	5
2.1 Abbreviations .....	5
2.2 References .....	5
3. General comments .....	6
4. The slab track as the subsystem element.....	7
5. Q&C by NB-RAIL .....	7
6. ERA opinion .....	10

## **1. Introduction**

The present document expresses the Agency technical opinion about a question and clarification issued by NB-RAIL. The subject is related to verification assessment of slab track.

## 2. Abbreviations and references

### 1.1. Abbreviations

<b>Abbreviation</b>	<b>Definition</b>
CR	Conventional Rail
HS	High Speed
INF	Infrastructure
INS	Abbreviation for 'Infrastructure' used by NB-RAIL
QC	Question /Clarification
TEN	Trans-European network
TSI	Technical Specification for Interoperability

### 1.2. References

<b>Ref. N°</b>	<b>Document Reference</b>	<b>Last Issue</b>
[1]	2008/217/EC: Commission Decision of 20 December 2007 concerning a technical specification for interoperability relating to the 'infrastructure' sub-system of the trans-European high-speed rail system (notified under document number C(2007) 6440)	19/03/2008
[2]	2002/732/EC: Commission Decision of 30 May 2002 concerning the technical specification for interoperability relating to the infrastructure subsystem of the trans-European high-speed rail system referred to in Article 6(1) of Council Directive 96/48/EC (notified under document number C(2002) 1948)	12/08/2002
[3]	QC-INS-001: Certification of slab track for TEN HS	11/09/2008

### 3. General comments

Interoperability Constituents play a very important role both for providing the conformity with technical requirements for the subsystem and for market of industrial products and services. From the great variety of elements of the infrastructure subsystem, five basic and critical products were selected. These products are well harmonised in Europe and they are responsible for an important part of the costs of a line construction.

Rails, fastenings and sleepers are well defined and described with parameters required for the 'classic' design of ballasted track which includes application of Vignole (flat-bottom) rail fastened to beam concrete sleepers with fastenings providing resistance to longitudinal slip by bearing on the rail foot. And for this design of the track the requirements for Interoperability Constituents have been specified in Chapter 5 of INF HS TSI [1].



#### **4. The slab track as the subsystem element**

The slab track is the concept of the ballastless track where rails are supported on the stiff slab laid down on the soil without the layer of the ballast. The idea of this concept is that slab has to replace both sleepers and the ballast.

The slab is designed in various solutions: as concrete monolith slab cast in situ, as concrete prefabricated plates joined in situ, as concrete sleepers embedded in situ in concrete or asphalt, etc.

The slab track is not a classic ballast track construction, so following the definition of the design for which there are specified requirements for Interoperability Constituents it cannot be understood as an Interoperability Constituent for the subsystem Infrastructure.

## 5. Q&C by NB-RAIL

5.1. The questions raised by NB-RAIL in the QC [3] are:

1. *How is slab track defined?*
2. *Is slab track an elementary interoperability constituent component or an assembly of interoperability constituents?*
3. *Which specific criteria should be used in case of application of slab track?*

5.2. Suggested by NB-RAIL resolutions and interpretations are:

*To Question 1:*

*The following definition of slab track can be given:*

*Non-ballasted track utilising a continuous concrete slab, including paved concrete track and mono block or twin block sleepers embedded in concrete or asphalt.*

*To Question 2:*

*Annex D.2.4.1 of HS INF TSI (2002) [2] indicates that slab track can be used if an EC certificate is available according to the specifications of section 5. Section 5 only mentions track sleepers and bearers, but it is too much of a stretch to classify slab track as a sleeper or bearer.*

*Chapter 5.3.3 of HS INF TSI (2007) [1] specify apparently only regulations for classical ballast sleepers. The recital (9) for the HS INF TSI states that slab track is defined as novel constituent there an assessment of conformity is required according chapters 6.1.2 and 6.1.5. The German translation defines slab track as innovative constituents there no assessment of conformity is required and only subsystem requirements have to be fulfilled.*

*The draft of CR INF TSI will define that slab track systems are not yet regulated by INF TSI. The concept of novel constituents will be removed.*

*Therefore slab track systems or parts of slab track as well as special bearers are not interoperability constituents and do not need until further notice an EC declaration of conformity as well as EC assessments of conformity by Notified Bodies.*

*EC declarations of conformity are only necessary for the defined interoperability constituents rails, fastenings systems as well as switches and crossings.*

*Slab track systems will be assessed as a part of the assessment of conformity for the subsystem infrastructure.*

*To Question 3:*

*The use of slab track systems and special bearers will be assessed on the subsystem level according technical specifications which are relevant and defined in chapter 4. The contracting entity has to demonstrate compliance e.g. especially and not limited to chapters:*

- 4.2.2 Nominal track gauge,*

- 4.2.10 *Track geometrical Quality and limits on isolated defects,*
- 4.2.11 *Rail inclination,*
- 4.2.13 *Track resistance,*
- 4.2.18 *Electrical characteristics (normally fulfilled with fastening systems) and*
- 4.5.1 *Maintenance plan.*

## 6. ERA opinion

ERA fully supports interpretation and proposals of NB-RAIL concerning this item:

- Definition of slab track:  
Non-ballasted track utilising a continuous concrete slab, including paved concrete track and mono block or twin block sleepers embedded in concrete or asphalt.
- Slab track systems or parts of slab track like rails, fastenings as well as special bearers are not interoperability constituents and do not need until further notice an EC declaration of conformity as well as EC assessments of conformity by Notified Bodies.
- EC declarations of conformity are only necessary for the defined interoperability constituents for traditional design of ballasted track: rails, fastenings systems, sleepers as well as switches and crossings.
- Slab track systems will be assessed as a part of the assessment of conformity for the subsystem infrastructure as specified in chapter 4 and chapter 6.