



RECOMMENDATION FOR USE

CO-ORDINATION BETWEEN NOTIFIED BODIES

DIRECTIVE 2008/57/EC AND SUBSEQUENT AMENDMENTS
ON THE INTEROPERABILITY OF THE RAIL SYSTEM WITHIN
THE UNION

RFU-RST-027

Issue: 02

Date: 05/10/2011

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TITLE

ASSESSMENT OF CONFORMITY CONCERNING NOISE

ORIGINATOR

SCONRAIL LTD.

SUBJECT RELATED TO

APPLICATION OF TSI NOISE 2006/66/EC
AND TSI NOISE 2011/229/EU

ADDENDUM TO VALIDITY OF THIS RFU

09/09/2011

As the rules for platform assessment are included in the TSI NOISE 2011/229/EU, the section 3) of this RFU is not valid in combination with the TSI NOISE 2011/229/EU. The other sections are valid for the application of the revised TSI NOISE 2011/229/EU.

For the application of the TSI NOISE 2006/66/EC this RFU remains valid in its entirety.

DESCRIPTION AND BACKGROUND EXPLANATION

Scope

This proposal covers conformity assessment concerning noise emitted by railway vehicles. It is applicable in the process of module SB, SD and SF of TSI NOISE.

Introduction

Assume, a type-examination certificate was issued for one vehicle of a series.

To prove compliance with TSI NOISE for another vehicle of the series, conformity to the type-examined vehicle has to be declared.

TSI NOISE doesn't give any further information, how to check this conformity. This could be interpreted by requiring a full conformity.

It is obvious, that a lot of characteristics and constituents of a vehicle do not have any influence to the noise behaviour. Therefore, for those characteristics and constituents, no conformity is required and the noise behaviour still is unchanged compared to the one of the type-examined vehicle.

Just a few characteristics and constituents define the noise behaviour. Those characteristics and constituents have to be identical with the characteristics and constituents of the type-examined vehicle to declare a conformity concerning noise.

Constituents are devices or vehicle parts which define noise directly (as the brake block material for block braked vehicles, the horn, ...). Characteristics are properties which influence the noise behaviour (as rotational speed of ventilators, operating conditions of air-conditioning systems, the location of the horn, ...).

As it is nearly impossible to find out within the process of the conformity assessment, which characteristics and constituents are relevant for the noise behaviour, this work should be done during the type examination procedure, where an in-depth examination of the vehicle is carried out. It is proposed, that during the preparation of the type

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examination of a vehicle (within module SB), in a first step a list of noise-relevant characteristics and constituents is generated. In a second step, the list is completed with drawing numbers and possibly additional documents which define the noise-relevant characteristics and constituents of the type-examined vehicle in detail.

Conformity can be confirmed for a vehicle as long as all listed characteristics and constituents are identical compared to the type-examined vehicle.

The applicant is responsible to generate this list of noise-relevant characteristics and constituents for the type-examined vehicle.

Motivation

A) Supporting the Notified Bodies in the module SD by providing the information, which characteristics and constituents are relevant for the noise behaviour of a certain type. This is especially important, as today and probably for a longer time, the TSI NOISE is the only TSI for several vehicle types.

The steps 1 and 2 of the RFU proposal are supporting this motivation A).

B) Enabling a simplified approval for vehicle families (e.g. freight locomotives, freight wagons and passenger wagons) to support interoperability.

Example:

- locomotive type A is type tested (module SB)
- locomotive type B is based on type A, but with another train control system and train radio system
- it shall be enabled, that a type examination certificate for type B can be provided by the Notified Body on basis of the acoustically equivalent type A.

The steps 1 and 3 of the RFU proposal are supporting this motivation B).

List of noise-relevant characteristics and constituents (neither exhaustive nor complete):

Constituent Characteristics	Description of properties of the characteristics and constituents which have to remain unchanged for a conform noise behaviour
Wheel disc	Diameter, shape of the wheel disc, wheel noise absorbers
Bogie	Type, shape and geometry, type and stiffness suspension systems (vertical, lateral and longitudinal), interface to the car body
Brake disc	Shape, mounting location (wheel mounted or axle mounted), mounting itself
Braking systems	Installation of additional mechanical braking systems or modification of existing



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	ones which act to the wheel running surface (as cleaning block brake, block brake, etc.)
Diesel engine	Type, power rating, shape, mounting, control (e.g. definition of rpm for a TSI operating condition)
Generator	Type, power rating, shape, mounting, operation in a TSI operating condition (mainly rpm's)
Traction motor	Type, shape, mounting, rpm, if self ventilated also cooling system (fan wheel and shape, shape of channel, inlet, outlet, grilles, filters, bellows, ...)
Gear box	Type, cogging, gear tooth forming, gear ratio, shape of housing externally and internally, mounting
Hydraulic system constituents	Type, power rating, shape, mounting, operation in a TSI operating condition (mainly rpm's)
Hydraulic system piping	Pipe types (hoses, pipes), shape, mounting
Power converter	Type, topology, power rating, all elements in the main current path, operation in a TSI operating condition, pulse pattern and frequency, effective values of current and voltage to the traction motors
Supply of auxiliaries	Type, topology, power rating, operation in a TSI operating condition, pulse pattern and frequency
Cooling systems (e.g. for traction motors, converters, generator, diesel engine, ...)	Types, operation in a TSI operating condition (mainly rpm's), all elements in the air path (fan wheel and shape, shape of channel, inlet, outlet, grilles, filters, bellows, shape of cooler register, absorption, ...)
Pumps (water, oil, ...)	Type, power rating, operation in a TSI operating condition (mainly rpm's)
Exhaust system	Type, external and internal shape, location mounting, introduction or removing of a particle-filter
Brake resistor system	Type, operation in a TSI operating condition (mainly rpm's), all elements in the air path (fan wheel and shape, shape of channel, inlet, outlet, grilles, filters, shape of resistor register, ...) (applicable only if the forced cooling of the brake resistor can be operated at stand still)
Air conditioning system	Type, Operation in a TSI operating condition (mainly rpm's), all elements in the air path (fan wheel and shape, shape of channel, inlet, outlet, grilles, filters, bellows, shape of cooler register, shape of heating registerabsorption, ...), compressor (type, rpm's, pressure, ...)
Driver's cab	Geometry, materials (surfaces, absorption and damping materials, ...), damping (floor, roof, front, external walls, doors, windows, wall and door to machine compartment, sealings...)
Horn or other signal devices	Type, mounting location, mounting, dust-/snow protection
Car body noise attenuation and insulation in case of noise sources in the interior of this car body	Car body structure and anti-vibration measures, interior insulation and sound attenuation
Operational speed	Reduction of maximum speed reduces the noise emission, speed increase does not
Tools to fix the load, attached parts, rod arrangement, superstructure	No additional generation of clapping or drumming noise (to be handled like an additional noise source, see below)
Allocation of the	Mounting location, mounting, shielding

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above listed systems and constituents	
Additional noise sources (already assessed operating condition)	An additional noise source or additional noise sources of any kind provided that they produce a noise level less than 10 dB(A) lower than the noise level without this source or these sources (at measuring locations and operating conditions as defined in TSI NOISE)
Additional noise sources (additional operating condition to be assessed)	An additional noise source or additional noise sources of any kind which is active in a particular operating condition of the TSI NOISE which was not assessed without this source or sources (adding a cooling system to a freight wagon. Without cooling system only pass-by-noise had to be assessed, with cooling system, standstill noise has to be assessed too)
Aerodynamic noise sources	(normally not relevant within the speed range of the TSI NOISE for the conventional rail system)



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RFU PROPOSAL

Within Module SB

1) The applicant is responsible that a list of noise-relevant characteristics and constituents of the type tested vehicle is generated. It describes the actual vehicle condition during type examination by documenting the noise-relevant characteristics and constituents with drawing numbers and additional documents (if required).

Within Module SD (or SF)

2) The list of noise-relevant characteristics and constituents supports the Notified Body during the Module SD (or SF) activities.

Within Module SB of a different type

3) The Notified Body provides a type examination certificate for a different type of vehicle without performing a type test, when evidence is provided that all listed characteristics and constituents are identical compared to the ones of the previously type-examined vehicle.

Remark:

For conformity assessment of different versions of one type, Annex B.1, point 3 of TSI Noise Conventional Rail is applied. The list of noise-relevant characteristics and constituents supports the Notified Body during the module SB activities.

DATE OF AGREEMENT AT NB RAIL PLENARY MEETING

05/10/2011

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