

Huw Parry-Jones
Head of Rolling Stock Homologation
Hitachi Rail Ltd
7th Floor
1 New Ludgate
60 Ludgate Hill
London
EC4M 7AW

Your Ref: HRE-EOA-SFA-COR-00001

Case Ref: PRM-IOP-0364

Identification Number: UK/51/2021/0059

Date: 27 September 2021

Contact: Giles Turner

Dear Mr Parry-Jones

**THE RAILWAYS (INTEROPERABILITY) REGULATIONS 2011, AS AMENDED
AUTHORISATION OF HITACHI AT300 CLASS 803/0 FIVE-CAR ELECTRIC MULTIPLE
UNITS 803001 TO 803005 INCLUSIVE**

I refer to your application for authorisation, received on the 31 August 2021. Following review of your application, I can confirm that ORR grants a first authorisation under regulation 4(1)(a) of the Railways (Interoperability) Regulations 2011, as amended. This authorisation is for the placing in service of the Class 803/0 five-car electric multiple unit trains 803001 to 803005 inclusive, composed of individual vehicles numbered in accordance with table 1 below.

Unit		803001	803002	803003	803004	803005
DPTS	EVN	937008410014	937008410022	937008410030	937008410048	937008410055
	GB	841001	841002	841003	841004	841005
MS	EVN	937008420013	937008420021	937008420039	937008420047	937008420054
	GB	842001	842002	842003	842004	842005
MS	EVN	937008430012	937008430020	937008430038	937008430046	937008430053
	GB	843001	843002	843003	843004	843005
MS	EVN	937008440011	937008440029	937008440037	937008440045	937008440052
	GB	844001	844002	844003	844004	844005
DPTS	EVN	937008450010	937008450028	937008450036	937008450044	937008450051
	GB	845001	845002	845003	845004	845005

Table 1 – Class 803/0 unit and vehicle numbers

The restrictions or limitations of use on the structural subsystem are those contained on the declaration of verification dated 31 August 2021 and contained in your technical file, reference HRE-EOA-SFA-CER-0002 Issue 00, and are:

1. When operating with deflated secondary suspension, the units shall be limited to a maximum speed of 75mph.

2. When operating in multiple with more than one pantograph raised, the following speed limits shall be observed:
 - 125mph with pantograph spacing of 216m or above.
 - 100mph with pantograph spacing of between 216m and 129m.
 - 80mph with pantograph spacing of between 129m and 42m.

This is associated with clause 4.2.8.2.9.6 of the LOC & PAS NTSN and clause 4.9.2 of GM/RT2111 Issue 1.

3. In the event of the units being coupled to a different vehicle type which has a compatible mechanical coupler, the electrical coupling head must be retracted. This is associated with clause 2.2.1 of GM/RT2190 Issue 3.
4. The Railway Undertaking shall ensure that a clear policy is in place that, if the second person's seat in the cab is occupied, ensures that the second person will evacuate the cab before the driver. This is associated with clause 4.2.9.1.4 (2) of the LOC & PAS NTSN.
5. The Railway Undertaking shall satisfy itself that the manually-operated visual and audible messages available to the driver within the passenger communication system are appropriate to emergency scenarios (in particular train fire and evacuations), and are logically and quickly accessible by the driver. This is associated with clause 4.2.5.2 of the LOC & PAS NTSN.
6. In accordance with LOC & PAS NTSN Section 4.2.6.1, the units have been assessed for operation in the following environmental conditions:
 - Temperature – LOC & PAS NTSN clause 4.2.6.1.1 climatic zone (T1), and
 - Snow Ice and Hail – LOC & PAS NTSN clause 4.2.6.1.2 'normal' range of snow, ice and hail conditions.
7. The following conditions and limits of use (which do not prevent a barrier to operation in GB) are carried forward from the GSM-R voice Interoperability Constituent certification:
 - EIRENE FRS 11.3.4.2/11.3.4.3 – Registration / deregistration on network changes.

This relates to automatic roaming between EIRENE networks and the reregistration of functional numbers after selection of a new network. This had previously been treated as a network function, however EIRENE FRS 8.0.0 [1200] now specifies this as a cab radio function.

The NR4.0 cab radio does not support these requirements. This has no impact upon operation within GB, however an operation restriction applies to roaming of the cab radio onto other networks.

- EIRENE SRS 12.2.2 – Multi-segment SMS Support.
This relates to support for multi-segment SMS messages, which are not supported by the NR4.0 cab radio. Currently this has no impact upon operation in GB since multi-segment SMS messages are not used.

- EIRENE SRS 14.4.6 – Change of Role while in Shunting Mode.
This relates to the ability to change role in shunting mode. This is not supported by the NR4.0 cab radio which only allows the lead driver to be registered while in shunting mode.
This has no impact upon operation within GB (since the existing behaviour is unchanged), however it presents a potential restriction of use on other networks.

- EIRENE SRS 5A.1 – Aspects of Call Arbitration.
This relates to the priority of public address calls. EIRENE SRS 16.0.0 [1201] introduced a new test specification (O-3001-1) which alters the behaviour of call arbitration. The NR4.0 cab radio has not adopted these revised requirements and maintains the behaviour of NR3.6. This has no impact upon operation within GB as NR4.0 will continue to behave as at present, however it presents a potential restriction for use on other networks.

- Unsupported functions against non-MI (mandatory for Interoperability) requirements are:
 - eREC.
 - Change of IMEI field on SIM following an OTA update.
 - UIC PA (UK PA is used instead).
 - UIC Intercom.
 - Access to on-board conductor via cab radio.
 - Point-to-point call in shunting mode.
 - Closed User Group.
 - Use of Group 555 for Controller-to-All-Trains calls

The rolling stock subsystems authorised by this letter must be operated and maintained in accordance with Regulation 20.

This rolling stock is based on the AT300 platform, other variants of which have experienced stress corrosion cracking and fatigue cracking. Hitachi is developing technical solutions to address the design features that have given rise to the defects. While not a condition of authorisation of the rolling stock, you should ensure that the Class 803/0 vehicles are included in the activities to manage continued safe operation.

You should be aware that any future modifications to the authorised subsystem may constitute a 'renewal' or an 'upgrade' as defined in Regulation 2. If a project entity, in relation to the project, considers that the modification meets either of these definitions they may apply, in accordance with the provisions of Regulation 13, to the Department for Transport (DfT) for a decision on whether a new authorisation will be required. Should DfT decide that an authorisation is not required they must consult with ORR whether authorisation is required on safety grounds.

As the project entity you are responsible for retaining the technical file, keeping it up to date and making it available to ORR in accordance with Regulations 18 and 19.

If you are not the owner of the authorised subsystem you shall within 60 days, in accordance with Regulation 19(3), transfer the technical file, certificate of verification and verification declaration to the owner of the subsystem and the owner shall then be regarded as the project entity. If the owner, in accordance with Regulation 19(4), disposes of his interest in the authorised subsystem, he shall within 60 days of the disposal transfer the technical file, certificate of verification and verification declaration to the person acquiring that interest and that person shall be regarded as the project entity.

Please note that under Regulation 36, the person who applied for the authorisation shall send particulars to the Registration Entity to enable the registration entity to enter the information on the National Vehicle Register. This will include such further information as the registration entity may reasonably require set out in the relevant standard.

The person who applied for the authorisation to place in service may apply to ORR for a determination of type in accordance with Commission Implementing Decision 2018/1614 as amended by Regulation 20 of The Railways (Interoperability) (Miscellaneous Amendments and Revocations) (EU Exit) Regulations 2020.

If you are the operator, may I remind you of the need to have adequate arrangements within your Safety Management System to control the risks associated with this rolling stock subsystem(s). In particular I note that an output of the CSM-RA process is a requirement for the operator to develop procedures for the safe operation of the Level 5 catering area. These procedures should be based on the conclusions of a suitable and sufficient assessment of the risks of using the catering area. The assessment should take into account the other facilities and activities that have the potential to affect the way the catering area is used, such as the adjacent Level 4 catering facilities, and the reasonably foreseeable movement of passengers through the train when the catering equipment is in use.

This decision letter will be published on ORR's website.

Yours sincerely



Steve Fletcher
Deputy Director, Engineering & Asset Management

cc

Ian Jones	Head of Interoperability, Safety and Standards DfT
David Galloway	Head of System Compatibility, Network Rail
James Duncan	Certification Director, TÜV Rheinland
Pete Gracey	ORR Head of Interoperability & Rail Vehicle Engineering
ORR Interoperability	interoperability@orr.gov.uk
Sarah Cairns	ORR HM Principal Inspector of Railways
National Vehicle Register	nvr@networkrail.co.uk