

Huw Parry-Jones  
Head of Approvals and Homologation  
Hitachi Rail Limited  
7<sup>th</sup> Floor  
40 Holborn Viaduct  
London  
EC1 2PB

Your Ref

HRE-TPE-SFA-COR-30020

Our Ref

Case Ref PRM-IOP-0335

EIN UK/51/2019/0018

15<sup>th</sup> November 2019

**Contact: Paul Hooper**  
**HM Principal Inspector of Railways**

25 Cabot Square  
Canary Wharf  
London  
E14 4AP

Dear Huw,

**THE RAILWAYS (INTEROPERABILITY) REGULATIONS 2011, AS AMENDED  
AUTHORISATION OF HITACHI AT300 CLASS 802 BI-MODE MULTIPLE UNITS  
SUB-CLASS 802/3 (5, AND 10 CAR FORMATIONS)**

I refer to your application for authorisation reference HRE-TPE-SFA-COR-30020, received on the 6 November 2019 covering both the rolling stock and control command and signalling structural subsystems.

I also refer to your Article 16 Declaration of Control of Risk, reference HRE-TPE-SFA-CER-00010, and Safety Assessment Report, Hitachi TPE\_HT AT300 CSM-REA SAR RTUKR-T37978-002-Issue 2 dated 29 August 2019.

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 following:

Hitachi AT300 Class 802 bi-mode multiple units, sub-class 802/3 (5, and 10 car formations), unit numbers:

Class 802/3 5 car units: 802301 to 802305 and vehicle numbers:

1	2	3	4	5
DPTS	MS	MS	MC	DPTF
831301	832301	833301	834301	835301
831302	832302	833302	834302	835302
831303	832303	833303	834303	835303
831304	832304	833304	834304	835304
831305	832305	833305	834305	835305

I also refer to the EC Declaration of Verification, reference HRE-TPE-SFA-CER-00006 Issue 00, received on 06 November 2019 and the references it contains to the Notified Body TSI Certificates and Designated Body NNTR Certificates. The certificate numbers are:

**Notified Body**

Module SB Type Examination:

1133/1/SB/2019/RST/ENEN/0301

1133/1/SB/2019/CCO/ENEN/0302

Module SD - Quality Management System Approval:

1133/4/SD/2019/RST/ENEN/0303

1133/4/SD/2019/CCO/ENEN/0304

Certificate of Verification:

1133/6/SD/2019/RST/ENEN/0305

1133/6/SD/2019/CCO/ENEN/0306

**Designated Body**

Module SB - Type Examination:

0021/1/SB/2019/RST/ENEN/0307

0021/1/SB/2019/CCO/ENEN/0308

Module SD - Quality Management System Approval:

0021/4/SD/2019/RST/ENEN/0309

0021/4/SD/2019/CCO/ENEN/0310

Certificate of Verification:

0021/6/SD/2019/RST/ENEN/0311

0021/6/SD/2019/CCO/ENEN/0312

The restrictions or limitations of use on the rolling stock structural subsystem are those referenced on the EC Declaration of Verification of subsystems, document

HRE-TPE-SFA-CER-00006 Issue 00, received on 6 November 2019 and Safety Assessment Report, Hitachi TPE\_HT AT300 CSM-REA SAR RTUKR-T37978-002-Issue 2 dated 29 August 2019.

Limitations:

1. Automatic Selective Door Opening (ASDO) functionality must be proven over the Hull Trains operational routes the trains will be used on before passenger service including abnormal scenarios before use. ASDO must not be used until the infrastructure is available and operational rules developed,
2. ETCS equipment is fitted to AT300 but will not be functional at the point of seeking vehicle Authorisation, and so therefore is not assessed as an Interoperability Constituent. The equipment has been considered in the assessment as 'black boxes' (e.g. their structural attachment, material properties etc. have been assessed but ETCS functionality has not). The equipment has some limited functionality, such as providing speed signals to the door system and this functionality has been assessed,
3. The AT300 has been assessed for operation at a maximum speed of 125 mph (200 kph). The design speed of the AT300 is 140 mph (225 kph),
4. The AT300 has been assessed for normal passenger operation either in single unit configuration or for operation in multiple up to a maximum of 10 vehicles and a total unit length of 259.9m,
5. When operating in multiple with more than one pantograph raised, the following speed limits shall be observed:
  - a. 125mph with pantograph spacings of 216m or above,
  - b. 100mph with pantograph spacings of between 216m and 129m,
  - c. 80 mph with pantograph spacings of between 129m and 42m.
6. In the event of the AT300 being coupled to a different vehicle type which has a compatible mechanical coupler, the electrical coupling head must be retracted.
7. When operating with deflated secondary suspension, the units shall be limited to a maximum speed of 75 mph.

Conditions:

1. Condition is met by the Hitachi letter of commitment, reference SE04-C07-2249\_Cover Letter – ORR\_APIIS Letter 25 Feb 2019 and ORR response reference, PRM-IOP-0289 2019 02 27 Condition 1 - Hitachi SET Class 800 5-car and 9-car bi-mode trains for LNER, dated 27 February 2019.

Note:

Condition 1 from is copied from the ORR letters of authorisation addressed to Hitachi and LNER relating to SET 5 and 9 car bi-modes and 9 car electric units. It is reproduced below.

The actions placed on Hitachi through condition 1 above apply to the Hitachi Hull Trains AT300 5-car bi-mode trains.

*Condition 1*

*Based on the content and conclusions of the Health and Safety Laboratory report on the independent review of the Risktec risk assessment of inter-car cable surfing and climbing risk, Hitachi shall, prior to service operation on ECML, provide to ORR a written commitment detailing the engineering and / or other solutions in isolation or combination it proposes to implement on all fleets of Class 800/X trains to reduce the risks of climbing and surfing in the inter-car area to alarp. The surfing and climbing risks are for both an attended, in service train, and unattended not in service or stabled train.*

2. For Hull Trains bi-mode AT300 Class 802/3 trains placed into service before modifications are implemented to address inter-car surfing and climbing risks, the manufacturer must reach agreement with the operator, Hull Trains, on a time-bound plan which provides details of how these risks will be effectively managed and mitigated in the interim whilst modifications are implemented. This conditions applies to both trains in service and those not in service or stabled,
3. The units shall be operated in accordance with S-stage Summary of Rolling Stock / Infrastructure Compatibility (SOC), reference NRSC/0800/137/s or with any updated SOCs,
4. The train operator shall satisfy itself that the before service operation on the Hull Trains operational routes, 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 TSI,
5. Before service on the intended Hull Trains operational routes, the train operator shall have completed a suitable and sufficient risk assessment of the risks related to platform stepping distances in all locations (with reference to guidance in GMRT2173), identified and implemented control measures to reduce the risks to as low as reasonably practicable (ALARP),

6. The train operator shall satisfy itself that the before service operation on the Hull Train routes, the 'operator requirements' and infrastructure requirements' captured by Hitachi in the safety justification (both the operator and infrastructure manager ones) have been fulfilled prior to start of service operation. If the requirements have not been accepted or implemented they will need to be discussed between the relevant parties and alternatives measures to control the risk agreed. Hull Trains will need to satisfy itself that these alternative controls are appropriate.

You should be aware that any future modifications to the authorised subsystems 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 files, keeping it up to date and making it available to the 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 will be issued with a determination of type in accordance with Commission Implementing Decision 2011/665/EC. The person who applied for the authorisation to place in service will receive the type authorisation after providing the data to the Registration Entity in accordance with Annex II of Commission Implementing Decision 2011/665/EC.

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 subsystems.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Steve Fletcher', with a stylized, cursive script.

Steve Fletcher

ORR Deputy Director, Railway Planning and Performance

Cc

Richard Vernon	Fleet Project Engineer, Hull Trains
Ian Prosser	Director, Railway Safety Directorate
Ian Jones	Head of Interoperability, DfT
David Galloway	Head of Vehicle Compatibility, Network Rail
National Vehicle Register	<a href="mailto:nvr@networkrail.co.uk">nvr@networkrail.co.uk</a>
Nigel Bunce	HM Principal Inspector of Railways, ORR
Sarah Cairns	HM Inspector of Railways, ORR
Paul Harborough	Assessment Manager SNC Lavalin