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Your Ref L-4390/ORR/001 (A0)

Case Ref PRM-IOP-0288

Identification Number  
UK/51/2021/0051

Date 15 July 2021

**Contact: Giles Turner**

Dear Mr Martinez,

**THE RAILWAYS (INTEROPERABILITY) REGULATIONS 2011, AS AMENDED  
FIRST AUTHORISATION OF CLASS 777 MERSEY ELECTRIC MULTIPLE UNITS  
NUMBERED 777001 – 7770052**

I refer to your application for authorisation, received on 18 June 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 777 Electric Multiple Units numbered 777001 – 7770052 inclusive, composed of individual vehicles numbered in accordance with Appendix 1.

The restrictions or limitations of use on the structural subsystem are those referenced on the UK Declaration of Verification UK/00000000101052/2021/000001 dated 18 June 2021 and contained in section 8 of your technical file, reference BU\_4099883a.

Constraints and restrictions:

- 01 The Stadler Mersey units have been assessed for operation on the European Union railway system. Specific cases have been considered for Great Britain only.
- 02 The Stadler Mersey units have been assessed for operation in the predefined formation shown in the following table:

Class	Description	Consist
777	Electric Multiple Unit (EMU)	4 – car

- 03 Class 777 units have been assessed for operation at a maximum speed of 75 mph (120 km/h).
- 04 The Class 777 units have been assessed for rescue operation at a speed of 20mph (30km/h).
- 05 The Class 777 units have been assessed for operation in single unit configuration and for operation in multiple formations of up to two units (8 cars).
- 06 The Class 777 have been assessed for operation with the P8 wheel profile (which is identified in GM/RT2466).
- 07 The Class 777 are intended to operate on 3rd rail electrified infrastructure (so compliance with Clause 5.2 of GM/RT2130 has been assessed).
- 08 In accordance with LOC & PAS TSI Clause 4.1.3, the Class 777 units have been assessed as a:
  - Unit designed to carry passengers.
  - Unit fitted with a driver's cab.
  - Unit fitted with traction equipment.
  - Electric unit, defined as a unit supplied with electric energy by electrification system(s) specified in the Energy TSI (750V DC only).
- 09 In accordance with LOC & PAS TSI Clause 4.1.4, the Class 777 units have been classified as "Category A passenger rolling stock" for fire safety.
- 10 Material properties have been assessed in accordance with LOC & PAS TSI Clause 4.2.10.2.1. The Class 777 units are classified as Operation Category 4 and Design Category N in accordance with EN45545-1. Passenger seats have been assessed in accordance with GMRT2130 and BS6853 (Category 1a).
- 11 In accordance with LOC & PAS TSI Section 4.2.6.1. The Class 777 units have been assessed for operation in the following environmental conditions:
  - Temperature – EN50125-1:2014 Clause 4.3 climatic zone T1.
  - Snow, Ice and hail – EN50125-1:2014 Clause 4.7 (nominal conditions).

The rolling stock subsystem(s) authorised by this letter must be operated and maintained in accordance with Regulation 20.

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 the 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.

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

Yours sincerely



**Ian Prosser**  
**Director, Railway Safety**

cc:

Ian Jones	Head of Interoperability, Safety and Standards DfT
Nigel Bunce	ORR HM Inspector of Railways
Richard Byrne	ORR HM Inspector of Railways
Sarah Cairns	ORR HM Principal Inspector of Railways
Pete Gracey	ORR Head of Interoperability and Rail Vehicle Engineering
Steve Fletcher	ORR Deputy Director Engineering and Asset Management
Interoperability	<a href="mailto:interoperability@orr.gov.uk">interoperability@orr.gov.uk</a>

**Appendix 1: vehicle numbers**

Unit	DTS(B)	DTS(B) EVN	MS(C)	MS(C) EVN	MS(D)	MS(D) EVN	DTS(A)	DTS(A) EVN
777001	427001	947004270015	428001	947004280014	429001	947004290013	430001	947004300010
777002	427002	947004270023	428002	947004280022	429002	947004290021	430002	947004300028
777003	427003	947004270031	428003	947004280030	429003	947004290039	430003	947004300036
777004	427004	947004270049	428004	947004280048	429004	947004290047	430004	947004300044
777005	427005	947004270056	428005	947004280055	429005	947004290054	430005	947004300051
777006	427006	947004270064	428006	947004280063	429006	947004290062	430006	947004300069
777007	427007	947004270072	428007	947004280071	429007	947004290070	430007	947004300077
777008	427008	947004270080	428008	947004280089	429008	947004290088	430008	947004300085
777009	427009	947004270098	428009	947004280097	429009	947004290096	430009	947004300093
777010	427010	947004270106	428010	947004280105	429010	947004290104	430010	947004300101
777011	427011	947004270114	428011	947004280113	429011	947004290112	430011	947004300119
777012	427012	947004270122	428012	947004280121	429012	947004290120	430012	947004300127
777013	427013	947004270130	428013	947004280139	429013	947004290138	430013	947004300135
777014	427014	947004270148	428014	947004280147	429014	947004290146	430014	947004300143
777015	427015	947004270155	428015	947004280154	429015	947004290153	430015	947004300150
777016	427016	947004270163	428016	947004280162	429016	947004290161	430016	947004300168
777017	427017	947004270171	428017	947004280170	429017	947004290179	430017	947004300176
777018	427018	947004270189	428018	947004280188	429018	947004290187	430018	947004300184
777019	427019	947004270197	428019	947004280196	429019	947004290195	430019	947004300192
777020	427020	947004270205	428020	947004280204	429020	947004290203	430020	947004300200
777021	427021	947004270213	428021	947004280212	429021	947004290211	430021	947004300218
777022	427022	947004270221	428022	947004280220	429022	947004290229	430022	947004300226
777023	427023	947004270239	428023	947004280238	429023	947004290237	430023	947004300234
777024	427024	947004270247	428024	947004280246	429024	947004290245	430024	947004300242
777025	427025	947004270254	428025	947004280253	429025	947004290252	430025	947004300259
777026	427026	947004270262	428026	947004280261	429026	947004290260	430026	947004300267
777027	427027	947004270270	428027	947004280279	429027	947004290278	430027	947004300275
777028	427028	947004270288	428028	947004280287	429028	947004290286	430028	947004300283
777029	427029	947004270296	428029	947004280295	429029	947004290294	430029	947004300291
777030	427030	947004270304	428030	947004280303	429030	947004290302	430030	947004300309
777031	427031	947004270312	428031	947004280311	429031	947004290310	430031	947004300317
777032	427032	947004270320	428032	947004280329	429032	947004290328	430032	947004300325
777033	427033	947004270338	428033	947004280337	429033	947004290336	430033	947004300333
777034	427034	947004270346	428034	947004280345	429034	947004290344	430034	947004300341
777035	427035	947004270353	428035	947004280352	429035	947004290351	430035	947004300358
777036	427036	947004270361	428036	947004280360	429036	947004290369	430036	947004300366
777037	427037	947004270379	428037	947004280378	429037	947004290377	430037	947004300374
777038	427038	947004270387	428038	947004280386	429038	947004290385	430038	947004300382
777039	427039	947004270395	428039	947004280394	429039	947004290393	430039	947004300390
777040	427040	947004270403	428040	947004280402	429040	947004290401	430040	947004300408
777041	427041	947004270411	428041	947004280410	429041	947004290419	430041	947004300416
777042	427042	947004270429	428042	947004280428	429042	947004290427	430042	947004300424
777043	427043	947004270437	428043	947004280436	429043	947004290435	430043	947004300432
777044	427044	947004270445	428044	947004280444	429044	947004290443	430044	947004300440
777045	427045	947004270452	428045	947004280451	429045	947004290450	430045	947004300457
777046	427046	947004270460	428046	947004280469	429046	947004290468	430046	947004300465
777047	427047	947004270478	428047	947004280477	429047	947004290476	430047	947004300473
777048	427048	947004270486	428048	947004280485	429048	947004290484	430048	947004300481
777049	427049	947004270494	428049	947004280493	429049	947004290492	430049	947004300499
777050	427050	947004270502	428050	947004280501	429050	947004290500	430050	947004300507
777051	427051	947004270510	428051	947004280519	429051	947004290518	430051	947004300515
777052	427052	947004270528	428052	947004280527	429052	947004290526	430052	947004300523