

HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement 2 and
Additional Provision 3 Environmental Statement

Volume 5 | Technical appendices

Electromagnetic interference

EM-001-000

September 2015

SES2 and AP3 ES 3.5.7



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Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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SES2 and AP3 ES Appendix EM-001-000

Environmental topic	Electromagnetic interference	EM
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Contents

1	Electromagnetic interference	1
	1.1 Introduction	1
	1.2 Policy framework	1
	1.3 Assessment scope	1
	1.4 Deletion of the HS1-HS2 Link	2
	1.5 Off-route	2
2	Potentially affected receptors	3
3	References	4

List of tables

Table 1:	Potentially affected receptors for electromagnetic compatibility assessment (equipment immunity).	3
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1 Electromagnetic interference

1.1 Introduction

1.1.1 This appendix provides an update to Appendix EM-001-000 'Affected receptors within 50m of the railway and associated risks and mitigation' from the main Environmental Statement (ES) as a result of amendments assessed as part of the Supplementary Environmental Statement 2 (SES2) and the Additional Provision 3 Environmental Statement (AP3 ES). This update should be read in conjunction with Appendix EM-001-000 from the main ES.

1.2 Policy framework

1.2.1 In June 2013, the European Commission (EC) repealed Directive 2004/40/EC and published Directive 2013/35/EU¹ on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields). The United Kingdom (UK) Government has three years, up to 1 July 2016, to transpose this Directive into UK law.

1.2.2 The revised Directive has no impact on the original electromagnetic interference (EMI) assessment undertaken for the scheme as compliance with the International Commission on Non-Ionising Radiation Protection (ICNIRP)² guidelines will meet the requirements of the Directive.

1.2.3 ICNIRP guidelines set acceptable levels for electromagnetic field (EMF) exposure of the general public and workers to provide protection against known adverse health effects.

1.2.4 All other standards referenced in the main ES have not changed.

1.3 Assessment scope

1.3.1 Experience gained from undertaking the original EMI assessment for the scheme presented within the main ES has shown that there will be no effect on human health as the emissions from the primary source of EMF, the traction power, are insufficient to cause any adverse effects.

1.3.2 Similarly, for any susceptible electrical or electronic equipment the maximum range of potential EMI is less than 20m from the centre of the nearest HS2 track or the boundary of any traction power substation.

1.3.3 For the AP3 revised scheme, a desk based survey of the route was undertaken to identify any potentially sensitive sites within a 20m corridor either side of the centre of the nearest HS2 track, or from the proposed power equipment, such as overhead lines and traction substations.

¹ Directive 2013/35/EU of the European Parliament and of the Council of 26 June 2013 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields) and repealing Directive 2004/40/EC
² ICNIRP, (2010), Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (1Hz to 100kHz), Health Physics, 99 (6): pp. 818-836.

1.4 Deletion of the HS1-HS2 Link

- 1.4.1 Since the submission of the Bill, the Secretary of State has decided not to pursue the HS1-HS2 Link. Therefore, as described in the SES2 and AP3 ES, the proposed Link and associated infrastructure will not be required.
- 1.4.2 All potentially affected receptors identified in Tables 4, 5 and 6 of Appendix EM-001-000 'Affected receptors within 50m of the railway and associated risks and mitigation' from the main ES are no longer at risk from the revised scheme.

1.5 Off-route

- 1.5.1 There are no off-route issues associated with AP3.

2 Potentially affected receptors

2.1.1 Table 1 shows those additional receptors that are within 20m of the centre of the HS2 track as a direct result of the AP₃ changes. Only sensitive electrical and electronic equipment is likely to be affected.

Table 1: Potentially affected receptors for electromagnetic compatibility assessment (equipment immunity).

Amendment reference number	Community forum area (CFA) (name and number)	Approximate railway chainage km + m	Distance from route centreline (m)	Sensitive installation	Receptor	Reference	Limit A/m	Estimated emission level	Is there any credible EMI/ EMC risk? (Y/N)	Mitigation measures	Comments
N/A	Euston Station and Approach CFA ₁	1+280	10m from auto-transformer substation	6 Park Village East	Residential	EMI Technical Note (EMF plots), BS EN 61000-6-1	3	Greater than 3	Yes	Reposition sensitive equipment or replace with less sensitive equipment.	Revised scheme in cutting (rail depth greater than 6m). Undertake another review at detailed design and/or testing and commissioning and replace equipment only then.

3 References

Directive 2013/35/EU of the European Parliament and of the Council of 26 June 2013 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields) and repealing Directive 2004/40/EC

ICNIRP, (2010), Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (1Hz to 100kHz), Health Physics, 99 (6): pp. 818-8.

BS EN 61000-6-1 (2007), Electromagnetic compatibility Part 6.1: Generic standards-immunity for residential, commercial and light industrial environments.

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