

High Speed Two (HS2) Ltd

Additional comments:

HS2 Ltd is developing a new high speed railway line between London and the West Midlands in phase 1 and then extending to Manchester and the North West and Leeds via the East Midlands and Sheffield in phase 2. Radio communications to and from the train are critical to providing a safe and reliable railway.

These comments and responses have been endorsed by the Department for Transport.

Question 1: Do you agree with our proposal to award the 3.4 GHz band in a way that is consistent with an unpaired (TDD-compatible) band plan only, and to make this decision sooner rather than later? If not, please set out your reasons and any evidence for your view.:

Yes, provided that the 2.3GHz band can then be used for FDD.

Question 2: Do you agree with our proposal to vary UK Broadband's licence so that it encompasses the frequencies 3560-3600 MHz instead of 3480-3500 and 3580-3600 MHz?:

No view

Question 3: Do you have any specific interest in the 3560-3580 MHz block in preference to any other 20 MHz block within the available 150MHz? If so please give your reasons and any supporting evidence.:

No

Question 4: Do you have any specific interest in acquiring a licence to use frequencies in either or both of the bands to be awarded?:

Yes to operate trains on the High Speed 2 railway and potential the rest of the GB rail network.

Question 5: How much spectrum would you be interested in acquiring? (What is the minimum and maximum amount of spectrum of interest to you?):

The maximum is 2x10MHz in a paired configuration however if further evidence became available on the robustness of using TDD mode to support data communications at high speed in a railway environment, then this may reduce to 10MHz.

Question 6: Which of the two bands would you be interested in: 2.3 GHz, 3.4 GHz or both?:

We would prefer to use 2.3GHz for the following reasons:

6.1: It requires less sites to provide coverage

6.2: Assuming FDD is required to support high speed rail operations then this would allow TDD to be used in the 3.4GHz band as described in the OFCOM document.

Question 7: Are there specific parts of the bands you are interested in and if so what are they?:

We are interested in parts of the band which can support 2x10MHz in paired configuration for use of LTE in FDD mode and which provides guard bands outside of this allowance.

Question 8: What do you envisage using the spectrum for (e.g. 4G services or other applications)?:

An LTE system to support railway operations.

Question 9: Where would you expect to use the spectrum (Great Britain-wide or in specific geographical areas)?:

Along the routes planned for HS2, please see:

<https://www.gov.uk/government/publications/hs2-revised-line-of-route-maps> and

<https://www.gov.uk/hs2-phase-two-initial-preferred-route-plan-and-profile-maps>

Potentially this could then be extended to cover other railway lines in Great Britain.

Question 10: What types of device would you want to use the spectrum for, and when would they be available?:

The current proposal is to use LTE base stations, handheld devices on trains and trackside and transceivers on trains. LTE equipment is operation in the 2.3GHz band in Asia.

Question 11: When would you expect to make use of the spectrum?:

If trains require to be tested in GB then spectrum required from 2018, otherwise from 2023.

Question 12: Do you have any comments on the method of award, such as combinatorial clock auction?:

[Confidential]

Question 13: Do you have any comments on whether a cap on the amount of spectrum that could be acquired through this award would be appropriate?:

No, provided it does not prevent HS2 obtaining the spectrum required

Question 14: Do you have any preference for spectrum packaging, for example block size?:

No, provided it does not prevent HS2 obtaining the spectrum required.

Question 15: Do you have any views on the non-technical licence conditions discussed in this document, including coverage and roll-out and ?use it or lose it??:

No

Question 16: What do you consider would be the optimal timing for the award?:

Before 2017

Question 17: Are there any reasons why these bands should be assigned for low-power use? Would such uses be appropriate even if purchasing a licence for low-power use would cost the same as for high- power use?:

No

Question 18: Will you use this spectrum for backhaul? If so, please state the minimum contiguous block you would require.:

No