Three's response to Ofcom's consultation on Award of 1492-1517 MHz spectrum for mobile services

Non-Confidential

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Introduction

Three welcomes the opportunity to comment on Ofcom's proposals to award the 1492-1517 MHz spectrum for mobile services.

This response answers Ofcom's questions relating to technical conditions (questions 1-15) and coexistence, with which we largely agree. A supplementary response in the timelines requested by Ofcom will provide our views on the award proposal (questions 16-19). Our response to the specific Consultation questions is provided in the section below.

Response to Ofcom's specific questions (1-15)

Question 1: *Do you agree with our proposal that 'Phase 1' protections would be required to avoid the potential for significant disruption at ports and airports?*

Three agrees that measures as included in the "Phase 1" proposal will be necessary in the vicinity of airports and ports to ensure Inmarsat receivers are protected from interference.

Question 2: *Do you agree with the list of airports we propose to protect, in Annex A8?*

Three agrees with the list of airports presented in Annex A8.

Question 3: *Do you have any comments on the two options we have proposed for the ports which would require protection, noting the further detail (and requests for specific evidence) in Annex A7?*

Question 4*: Do you agree with our preference to reduce these restrictions to 'Phase 2' levels over a shorter timeline than the natural lifecycle of the terminals?*

Three agrees with Ofcom in its view that Option A is the best approach to ensure an efficient use of the spectrum while ensuring enough time is provided to satellite operators to upgrade their equipment. A number of factors support this approach.

First, satellite operators have known that the 1492-1517 MHz band would be assigned to mobile operators for a decade, i.e. since WRC-15 when the band was identified globally for IMT.

Second, looking at international examples, we note how other countries have adopted more balanced approaches.

- Denmark has awarded the band with power flux density (PFD) limits around airports, but not ports – as this would have disproportionately impacted the whole country and given that maritime vessels have alternative procedures in case of MSS terminal failure.

- Japan has allowed significant mobile deployments in the band (with over 50,000 base stations, most of them in the 1495-1510 range) without reported issues from MSS terminals at ports. This suggests that the CEPT studies informing Ofcom's view are somehow overly cautious.

Third and finally, we note how imposing 20-year restrictions, as proposed in Option B, would place significant constraints on MNOs throughout the entire licence duration. This would affect both the practical deployment and commercial value of the spectrum, despite operators making substantial investments.

Question 5: *Taking into account the further detail in Annexes A7 and A8, please provide any evidence:*

- *that a shorter period, around five years, for the relevant receivers to be replaced or upgraded is not technically or practically feasible; or*
- *of the impact that a longer period of up to 20 years may have on the ability of MNOs to use the spectrum and the benefits to consumers and citizens that would be foregone.*

Three does not have any visibility of the technical and/or practical feasibility of replacing or upgrading Inmarsat receivers. Nevertheless, international experience, as in the case of Japan, suggests that the number of receivers in need of replacement could be less than what foreseen in the CEPT study.

With regards to the impact that a longer period of up to 20 years may have on the ability of MNOs to use the spectrum, extending Phase 1 to twenty years would have a considerable impact in terms of spectrum deployment.

The need to limit deployment on a macro-layer basis and/or to operate at reduced power in the vicinity of the identified ports and airports will result in a *de facto* pause in the spectrum deployment. While non-optimal, Three believe that this will be manageable for five-years, but not for a twenty-year period.

Question 6*: Do you agree with our proposal not to put in place restrictions on IMT use of this spectrum to protect:*
(a) land terminals;
(b) potential future uses of the 1.5 GHz spectrum; or
(c) PMSE users.

Three agrees with the proposal not to protect the applications listed in a),b),c) above.

Alternative technologies, including terrestrial mobile networks and future D2D satellite technology, will ensure that critically important applications will be served in case of a failure of an Inmarsat receiver.

Question 7: *Are you able to provide any evidence on the likelihood of audio links suffering interference from IMT use of 1492-1517 MHz?*

Three is unaware of any evidence of potential interference.

Question 8*: Do you agree with our proposed approach to coordination?*

Three agrees with Ofcom's proposed approach, which ensures protection of adjacent users while minimising the impact on network rollout in the proposed band.

***Question 9**: Do you agree with our proposal to define PFD limited zones as complex polygons? Would defining them as a set of points, rather than an entire boundary, make coordination calculations easier for licensees?*

Three agrees with Ofcom's proposal to define PFD limited zones as complex polygons, as this will result in the most efficient utilisation of spectrum, by limiting coordination to areas that strictly require it. Our preference is for the provision of shapefile data setting out the entire boundary in order to minimise the risk of misunderstanding.

***Question 10:** Do you agree with our provisional view that not defining coordination zones around ports may be simpler for licensees than complying with multiple different coordination zones, particularly while Phase 1 PFD limits are in place?*

Three agrees with Ofcom's provisional view so far Phase 1 duration is set at 5 years.

***Question 11**: Do you have any feedback on the coordination procedures (as set out in Annex A10) or the specific parameters proposed?*

No feedback.

***Question 12:** How difficult would you find it to comply with our proposed coordination requirements? In particular, we are interested in information from potential licensees on how the proposed coordination zones would affect their deployment processes and decisions.*

As discussed in Three's response to question 5, the proposed coordination zones and associated restrictions foreseen during Phase 1 will result in Three refraining from deploying the band in the coordination zones on a macro basis and only deploying in congestion areas – although avoiding sectors facing the relevant port/airport.

***Question 13:** Do you have any comments on our proposal that licensees should carry out their own coordination, on the basis of coordination parameters set by Ofcom?*

Three has expertise in carrying out similar coordination in other spectrum bands, so we are comfortable that should we be awarded a licence to utilise the spectrum, we could implement Ofcom's required procedures.

Question 14: Do you have any comments on our proposed technical licence conditions?

No comment.

Question 15: Do you have any comments on the non-technical licence conditions that we propose to include in the award licences?

No comment.