

Espirito Limited

Additional comments:

This consultation response is predicated on the use of bandsharing technology postulated by research, articulated in the Cave Audit and demonstrated in subsequent trials.

Straddling the 'sweet spot' of 3 GHz the radar bands at 2.7 - 3.4 GHz enjoy international harmonisation and relatively well known interference characteristics. These radar bands must remain the ultimate candidate for radar and communications sharing. Consequently the 2.3 and 3.4 GHz bands represent the ideal test bed for the sharing technology and safety case proving before stepping into the main radar bands.

Espirito is a company founded to specifically address the opportunities that bandsharing of spectrum afford. Its senior personnel have over a decade of experience with bandsharing technology within the Ministry of Defence (MoD), Ofcom and the private sector.

In this response Espirito draws upon the £20m+ library of research and trials results built up since the creation of the Spectrum Efficiency Scheme and its successors. The liberalisation of the 2.3 GHz and 3.4 GHz bands with their legacy MoD systems and international obligations presents the ideal opportunity to put this knowledge to best use.

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.:

No. The extensive research and trials, all of which is in the public domain, indicates that the less flexibility there is in the band plan the less spectrum efficiency can be gained through different services sharing.

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?:

Espirito are neutral on this topic. A bandsharing solution offers the flexibility needed to make multiple use of whichever sub-band is allocated.

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.:

Espirito has no preference for any 20MHz block of spectrum as we consider the solution lies in the adoption of bandsharing technology.

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. The acquisition of both bands in conjunction with an Automated Monitoring System (AMS) with bandsharing technology will increase the value significantly for sub-letting.

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

Espirito is interested in acquiring both bands in full, so as to allow the maximum use of Dynamic Spectrum Allocation.

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

Espirito is interested in both bands as stated in our response to Question 5 above.

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

Espirito does not have an interest in specific parts of the proposed bands as the monitoring and control technology referred to previously will provide for the maximum efficiency gains where there is an incumbent system that cannot for whatever reason be moved.

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

Espirito envisage bandsharing between radar systems re-farmed from 2.7 - 3.4 GHz and commercial communications services.

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

The ideal locations would be in close geographical proximity to airports, coastguard transmitters and MoD sites where there is already difficulty in using adjacent bands.

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

White space capable, mobile broadband devices would be used in the first instance. Espirito would build an AMS initially in sensitive radar locations and military training areas to reassure the MoD that any potential re-farming programmes could be cancelled and money saved. Then once sharing is implemented national roaming would be established probably based on 4G in the three year time frame.

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

As soon as possible subject to the outcome of trials with incumbent systems and international/NATO users would commence immediately on spectrum award to establish the most cost effective AMS roll-out programme.

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

A 'beauty' contest refereed by HM Treasury to establish which bid makes most efficient use of the spectrum in both business and monetary terms.

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?:

As it is seen as a step along the road to sharing the 2.7 - 3.4 GHz band then no this is the future of spectrum awards and no limits should be placed.

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

This question is irrelevant in the scenario of bandsharing.

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 as this question is irrelevant in the bandsharing context. Bandsharing not only makes efficient use of spectrum in popular areas but allows for cheaper technologies to be used in rural areas where conventional approaches have no lucrative application.

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

As the trials have been done and all principles established the sooner the spectrum is released the better.

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?:

None as this question is irrelevant in the context of bandsharing. The monitoring and control system is sufficiently sensitive to protect highly vulnerable radar receivers from unwanted interference as the worst case. The mutual protection of mixed high and low power devices is relatively simple and with sufficient granularity even the 'hidden node' problems can be overcome.

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

This question is irrelevant in the context of bandsharing. Dynamic Spectrum Allocation and Spectrum Aggregation are both possible and indeed desirable for maximum spectral efficiency. Limiting one or both of these possibilities by specifying block sizes could preclude off-the-wall solutions such as meshing into rural areas to cure not-spots.