

**Title:**

Mr

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Tom

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Organisation

**Organisation (if applicable):**

Motorola Solutions (MSI)

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**What additional details do you want to keep confidential?:**

Keep part of the response confidential

**If you want part of your response kept confidential, which parts?:**

Those sentences marked as confidential in response

**Ofcom may publish a response summary:**

Yes

**I confirm that I have read the declaration:**

Yes

**Additional comments:**

**Question 1: Do you agree with Aegis's conclusions on congestion of current use of 420-470 MHz spectrum? Are there any other signs or areas of congestion that Aegis have not identified from their review?:**

MSI Response

Motorola as an equipment supplier selling products in the band via channel distribution in the UK can't comment from direct experience. It is clear, however, from numerous conversations with dealers and end users that access to license capacity for UHF spectrum in many busy locations is difficult and in some cases it not possible at all to obtain required licenses for desired projects

For those users with technically assigned licenses MSI is not aware of specific problems with interference. We are aware of complaints about congestion in spectrum subject to Light Licensing in major metropolitan areas.

This is commented on further in the response to question 2 below

**Question 2: Do you agree with Aegis's conclusions on the future demand and use of 420-470 MHz spectrum over the next ten years? Are there any other future uses or areas for future demand that Aegis have not identified from their review?:**

MSI response

Motorola as an equipment supplier only has an indirect view of the market. MSI believes, however, from discussions with the dealer/distributor community and from conversations with end users that the comments from Aegis on the need for more narrowband spectrum over the next ten years in UHF are correct. MSI is observing an overall increase in sales of equipment in UHF.

MSI believes the greater sales of equipment in UHF are driven by a trend for greater use of radios in on-site systems. The in building propagation characteristics of UHF make the band particularly suitable for on-site systems (loosely defined as an area with a diameter of less than 1km). There is also a smaller antenna form factor benefit with UHF devices. There is evidence for this position from the proportion of portable as opposed to mobile devices sold.

The trend for greater on-site use in the UK is backed by data from the sale of trunking system capacity. Motorola has seen significant sales of small trunking systems over the past 5 years in the UK.

Many of the multi-site systems are also for only 2 or 3 sites which might also be being used for on site systems, although we can not specifically confirm this from the available data.

In addition to increasing demand for UHF radios there is a trend for increased use of the radios that are deployed as a wide variety of data applications are now available for digital radios. Even though digital radios are more spectrally efficient for voice this spectral efficiency is offset by data usage. MSI now has a portfolio of over 100 data applications available in for use with digital radios in the UK and anecdotally many sales of digital systems include the integration of an application.

**Question 3: Do you agree with Aegis's conclusions that there is not yet any UK demand for wideband services in the 450-470 MHz band (which could for example, be used to improve rural mobile coverage)? Please provide any supporting evidence for your position.:**

MSI has not seen any significant demand in the market for wideband service and is in agreement with the Aegis findings

**Question 4: Have you experienced degradation in your systems? performance which you consider to be caused by continental interference in the last 12 months? If yes, what approach did you take towards managing and minimising interference?**

**Please provide any supporting evidence which explains the frequency, impact, duration, time, location and cause (whether suspected or investigated) of the interference with respect to your specific sector(s).:**

MSI does not have direct experience of system degradation and therefore no specific data. MSI has not heard from the dealer/distributor community or from users that it has had dialogue with of direct significant reports of system degradation

**Question 5: Is there additional information relevant to the configuration of the 420-470 MHz band that we should consider in developing our approach to its future management? Please provide any evidence to support your views.:**

MSI has reviewed the information in previous studies referenced in the consultation document on the effort that would be required to re-configure the deployed base of radio equipment for a band reversal. MSI does not believe that there has been significant change to the issues that were raised in these earlier studies on the degree and complexity of effort.

**Question 6: Do you agree with the potential solutions Aegis have proposed for managing the 420-470 MHz band to both meet the continued growth in congestion and demand from incumbent spectrum users, and to facilitate the deployment of wideband technologies? Are there any other solutions which you consider we should examine that Aegis have not identified from their review?**

**Please provide any evidence to support your position and reference each solution in your response as appropriate.:**

Of the options discussed by Aegis MSI has the following inputs:

1. Reviewing licensing and assignment arrangements,

Given the change in use profile from wide area systems (e.g. taxis) to more on site systems (e.g. campus management) MSI believes that there is potential scope to drive more use from existing spectrum by for example narrowing the scope of assignments or increasing the sharing factor. MSI believes that this should be a major area of focus.

2. spectrum fees,

MSI does not believe that spectrum fee changes (e.g. increases) should be a major area of focus. Most use cases are operation critical and required for reasons such as health and safety compliance (e.g crowd management at events) or manufacturing production management where the particular characteristics of PMR as distinct from other radio technologies (control, coverage, capacity, freedom from interference) mean that there is no viable alternative. Price increases would thus act as a tax that has to be paid and would not result in a significantly greater availability of spectrum.

3. Prioritizing spectrum access for business critical applications,

MSI believes that there is some merit in exploring this approach, but believes that the area of definitions could be problematic for Ofcom and the industry.

4. Utilizing released Emergency Services spectrum

MSI would fully support investigating this possibility.

**Question 7: Do you have any further comments relevant to how we might manage spectrum between 420-470 MHz? :**

No further inputs

**Question 8: Do you have any comments on our proposed programme of work, the outcomes from which we will use to inform future decisions on how we manage the 420-470 MHz band? Are there any additional areas you consider we should explore?:**

No further inputs