



16 July 2021

ALF 2021 team
Ofcom
Riverside House
2A Southwark Bridge Road
London SE1 9HA
ALF2021@Ofcom.org.uk

Ref.: Public Consultation on Setting licence fees for 412 MHz

Motorola Solutions appreciates the opportunity to provide these comments in response to the questions raised in the above-referenced public consultation.

Please let me know if I can provide any further information or clarification.

Yours sincerely,

On behalf of Motorola Solutions,

A handwritten signature in blue ink, appearing to read 'Daniel Hamadeh'.

Daniel Hamadeh
Regional Director, Gov. Affairs, EMEA
Spectrum and Regulatory Policy
Motorola Solutions
[✂]

No of Pages: 9 including cover letter

Attachments:

- *Response to selected questions + full narrative response*
- *Annex – Confidentiality response for consultation response template*



Motorola Solutions (MSI) General Comments and those to selected questions:

Introduction:

Motorola Solutions ("MSI") hereby files these comments in response to Ofcom's **Public Consultation on "Setting licence fees for 412 MHz."**

Our responses to the specific questions in the Consultation are presented below.

Question 1: *Do you agree with our provisional conclusion that there is likely to be excess demand for the 412MHz band in future and that therefore an AIP fee is appropriate? Please provide any evidence to support your position.*

MSI does not agree with the provisional conclusion that there is likely to be excess demand for the 412 MHz band in the future. Therefore, we do not believe that an AIP fee is appropriate. While the UK 400 MHz is among the highest populated bands for PMR/Business radio users, the 410-430 MHz sub-band represents lower economic value than the 450 – 470 MHz when wider blocks greater than 1.5 MHz are made available on a technology neutral basis that are suitable for narrowband as well as some wideband deployments. Despite having similar bandwidth and duplex arrangements and enjoying similar propagation, the higher band (450-470 MHz) which is not subject to this study, presents a higher value based on awards issued in the countries that we studied.

We refer in our analysis to a study conducted by an engineering and consulting firm [EICON](#), a summary of which is presented below. This analysis shows that the value of spectrum in the 410-430 MHz is much less (250 to 313 percent) than that paid for spectrum blocks in the 450 – 470 MHz (UHF2) even when the bands are considered high demand and offered in a competitive process. The UHF2 band is used here as reference because of the commonalities both bands share, and the fact that they both represent the only remaining harmonized bands for narrowband PMR. Most PMR devices support both subbands as part of a common wider tuning range.

When considering some of the emerging wideband technologies in the 410-430 MHz, there is currently limited ecosystem and chipset vendor support and the perceived value of spectrum by PMR users is considered stable. Hence, it appears that there is limited basis for increasing the value of spectrum administratively from when it was awarded in 2006 in an auction and received much less value than that being considered using AIP fees for Business Radio. While the spectrum fees are paid against channel bandwidth and not specific technology, developments of new technologies may create a higher perceived value for those applicants in the future. The study that we present below confirms that a benchmark for the UHF 2 band would provide closer figures to that proposed by Ofcom (Ofcom fees are still 7-14 percent more than the benchmark). The same study concludes that spectrum in the 410-430 MHz is less valuable than that of the 450-470 MHz and should be approximately 70 percent less than that proposed by Ofcom.



Question 2: Do you agree with our provisional conclusion that UK-wide exclusive Business Radio is the highest value alternative use for the 412MHz band? Please provide any evidence to support your position.

Motorola does not agree with the provisional conclusion that UK-wide Business Radio is the highest value alternative for the 412MHz band. There is limited evidence to suggest that the congestion in other bands prevented PMR users or access to Business Radio spectrum. As stated by Ofcom, there are no cases of Business Radio spectrum applicants having been rejected due to lack of channels. In the long term, there could be other users switching to substitute applications or some spectrum given up as a result of changing business models. We are not aware whether all the users are mandated to use digital PMR or continue to use analogue. Mandating digital or narrowbanding of channels (2 voice channels per 12.5 kHz equivalent) could result in additional channels being made available and improve spectrum utilization rather than increasing the fees payable in the 410-412/420-422 MHz band.

Question 3: Do you agree with our provisional conclusion to set the annual licence fee for 412 MHz equal to the Business Radio UK-wide fee for high usage bands? Please provide any evidence to support your position.

MSI does not agree with the provisional conclusion to set the annual licence fee for the 412MHz equal to the Business Radio UK-wide fee for high usage bands. Hence, we recommend that Ofcom consider spectrum pricing based on a benchmark of award values in the band 410-430 MHz as an alternative method to develop the AIP fees for the band. There are historical reasons why the price of £9900 was set for a 2x12.5 kHz channel nationwide but that should not necessarily reflect the economic value or perceived value for this band in the future.

The value that was paid via a market based approach in 2006 resulted in Arqiva paying a fraction of the AIP set value for the band for nationwide business radio license. This suggests that the price of spectrum administratively set is higher than the perceived economic value that was the result of a market driven competitive process. The £9900 is not based on the Smith-NERA study of 1996, but is a further reduced value which was set administratively by Ofcom. Hence, the basis for setting a price for this band should consider the perceived economic value.

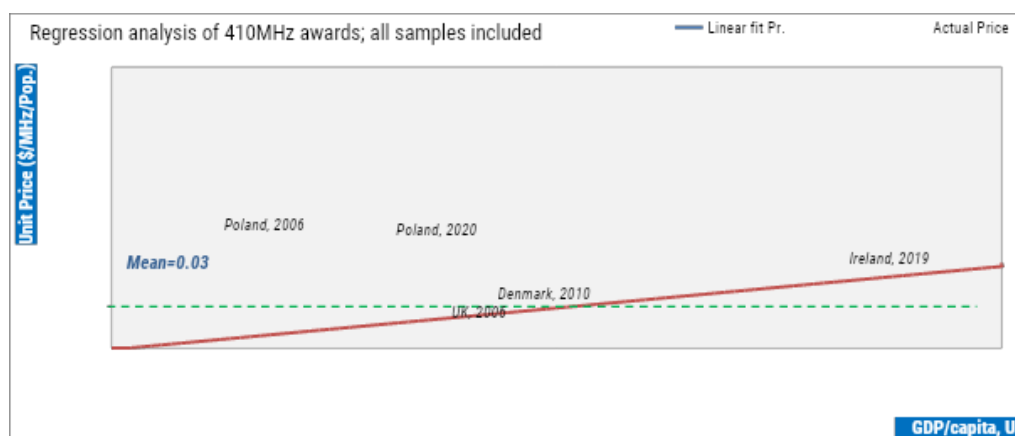
The study used by MSI shows that the prices set by Ofcom are closer to the perceived economic value paid if the band under consideration is the UHF 2 band. For the UHF 1 under consideration, the perceived value is multiple folds lower than that of the higher band. There are, of course, a number of reasons why the perceived value of the UHF 2 is higher than the UHF 1 when awarded on wide contiguous block assignments compared to a single/multiple channel of 12.5 kHz. The ecosystem of other emerging technologies is more developed in higher mobile bands and that is evident in the very limited number of devices supporting emerging technologies such as LTE/NB-IoT in the UHF 400 MHz. The UHF2 band has a different international regulatory status being also among the identified IMT bands (Radio Regulations Footnote 5.286AA) and having been awarded to a variety of users and providers across more countries whereas the UHF 1 band continues to be widely used for smaller PMR networks.

UHF 1 410-430 MHz band data presented in the tables below are based on five-awards over the years 2006-2020; all are unique awards in different years across multiple countries in Europe.

In addition, there are more mobile bands becoming available and broadband technologies supporting Push-to-Talk over LTE/5G and that would over time complement some of the current users of PMR in the 400 MHz and could result in lower demand for this band over time.

Country	Operator	Month	Year	Band	Exch. Rate	Price, \$M	Term, Yrs	Total MHz
Poland	PolishcellcoPlus	Nov	2020	410	0.264	5.73	15	5.00
Ireland	ESB Networks (ESB Group)	Dec	2019	410	1.120	1.23	15	8.00
Denmark	Nordisk Mobiltelefon International	Dec	2010	410	0.178	0.84	14	7.20
Poland	Nordisk Polska	May	2006	410	0.322	5.18	14	5.00
United Kingdom	Arqiva Limited	Oct	2006	410	1.84	2.76	15	4.00

Analysis of the 410 -430 MHz data

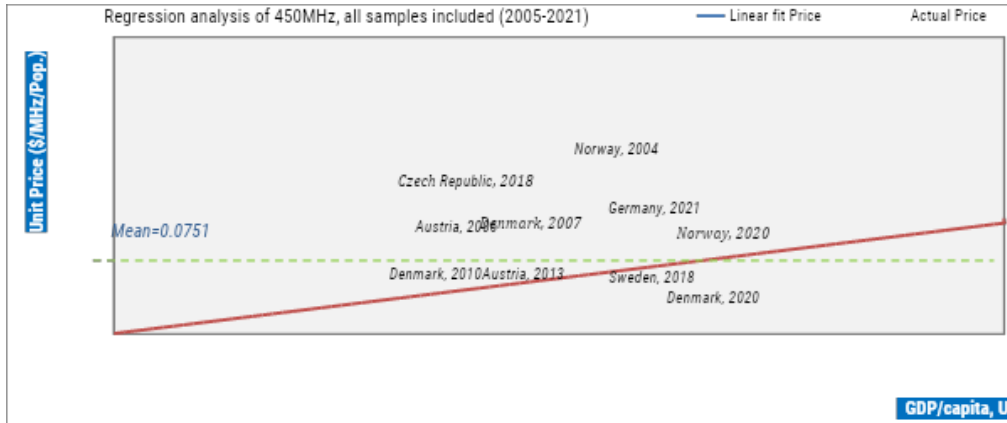


UHF 2 450-470 MHz band data presented in the tables below are based on 12-awards over the years 2004-2021; all are unique awards in different years across multiple countries in Europe. Two of which are within the same process, hence effectively have resulted in 10 unique awards with prices considered.

Country	Operator	Month	Year	Band	Exch. Rate	Price, \$M	Term, Yrs	Total MHz
Germany	450connect GmbH	Mar	2021	450	1.142	129.91	20	9.48
Denmark	Ice Danmark	Jun	2020	450	0.153	0.85	16	9.00
Norway	ICE	May	2020	450	0.116	6.96	20	10.00
Czech Republic	O2	Feb	2018	450	0.046	9.66	15	9.00
Sweden	Net1	Feb	2018	450	0.115	4.60	25	10.00
Austria	Schrack MEDIACOM GmbH	Jun	2013	450	1.330	0.28	17	5.00
Austria	Kapsch CarrierCom AG	Jun	2013	450	1.330	0.20	17	3.88
Denmark	Nordisk Mobiltelefon International	Dec	2010	450	0.178	0.86	11	6.10
Denmark	Nordisk Mobiltelefon Denmark	Jan	2007	450	0.184	4.16	15	6.53
Austria	Green Network AB	Apr	2006	450	1.260	6.14	15	5.68
Austria	T-Mobile Austria GmbH	Apr	2006	450	1.260	1.39	15	3.20
Norway	Nordisk Mobiltelefon	Jun	2004	450	0.148	8.26	15	9.00



Analysis of the 450 -470 MHz data



Summary of the results with the UK population and GDP/Capita data regression analysis (10 Year License used):

REGRESSION ANALYSIS FOR UK (10Y license) 410-430 MHz	
Country:	UK
Date of award:	2021
Population:	67.6
GDP/capita:	47,693
Price in \$/MHz/pop	0.0222
Price in £/MHz/pop	0.0161

The 410 -430 MHz UHF 1 Analysis for annualized licensed fees compared to Ofcom proposed ALF fees

PRICING COMPARISON	£/MHz/year	
Proposed Ofcom AIP for High Usage bands	£396,000	
Mean of benchmarks	£148,638	-62%
From Regression	£108,725	-73%

The 450 -470 MHz UHF 2 Analysis compared to Ofcom fee formula

PRICING COMPARISON	£/MHz/year	
Proposed Ofcom AIP for High Usage bands	£396,000	
Mean of benchmarks	£367,262	-7%
From Regression	£339,714	-14%

Based on the above, we recommend that Ofcom revise the annual license fee (ALF) and not apply the overall AIP rate of £9,900 per 2 x 12.5 kHz channel nationwide for high usage bands or even that of the lower usage bands of £3300 per 2 x 12.5 kHz channel nationwide. Instead, we recommend that Ofcom adopt a value that is lower than or closer to the benchmark value from Regression and propose a formula that would not result in more than 108,725 £/MHz/year for the UK wide license or £2720 per 2 x 12.5 kHz channel nationwide. Annual fees can be adjusted annually with a factor representing the discounted value to inflation.

Notes

(A) Details of awards used in this analysis are as follows:

(1) Awards for 410MHz band are separated from 450MHz band

(2) Only awards with full details are included (details are: Price, MHz, and Terms)

(3) 410MHz: 5-awards over 2006-2020 ; all are unique awards in different years and different countries

(4) 450MHz: 12-awards over 2004-2021, two of which are within the same process, hence effectively have 10 awards with prices

B) For pricing, the following is applied:

(5) Prices are a sum of upfront payments and discounted annual spectrum fees which are discounted at 5% per annum.

(6) Prices are converted to USD using market exchange rate at award date

(7) To account for difference in license term between awards, prices are converted to a 10-year common term license

(8) Prices are adjusted to US inflation (from award date to valuation date) and by the PPP conversion factor

(9) For UK analysis an exchange rate is used at 1£/\$ =1.383

Question 4: Do you agree with our provisional conclusion that fees set based on our estimate of market value will best meet our statutory duties?

For the reasons explained above, MSI does not agree with the provisional conclusion that fees set based on Ofcom's current estimate of market value will best meet Ofcom's statutory duties. MSI recommends a value that represents the actual value of the band being a Less Popular band and having been awarded across multiple administrations resulting in a much lower benchmark mean or benchmark regression. We propose that Ofcom considers applying fees based on benchmark (regression analysis) equivalent to 108,725 £/MHz per year or a figure based on Less Popular Bands fee to be used as an annual price for a nationwide business radio spectrum fee for the proposed band.

Question 5: Are there any other comments that you wish to make in respect of the proposals that we make in this consultation?

No further comments

Conclusions:

In summary, even though MSI does not agree with the underlying arguments that the band is congested, hence the need to use AIP fees for Business Radio License in "highly popular bands," if an annual licensing scheme is to be introduced for the 410-412/420-422 MHz band, MSI



MOTOROLA SOLUTIONS

proposes a more appropriate pricing approach for the calculation of fees. We propose that Ofcom sets a fee that would result in a value for spectrum not higher than the figures from the benchmark for the band 410 -430 MHz regression analysis which are closer yet lower than that of AIP fees for Business Radio License in "less popular bands."

End of Document

Annex

Consultation response form

Please complete this form in full and return to ALF2021@ofcom.org.uk.

Consultation title	Proposal to apply Administered Incentive Pricing for the 412–414 MHz, paired with 422–424 MHz, frequency bands
Full name	Daniel Hamadeh
Contact phone number	
Representing (delete as appropriate)	Organisation
Organisation name	Motorola Solutions UK Ltd.
Email address	

Confidentiality

We ask for your contact details along with your response so that we can engage with you on this consultation. For further information about how Ofcom handles your personal information and your corresponding rights, see [Ofcom's General Privacy Statement](#).

Your details: We will keep your contact number and email address confidential. Is there anything else you want to keep confidential? Delete as appropriate.	None
Your response: Please indicate how much of your response you want to keep confidential. Delete as appropriate.	None
For confidential responses, can Ofcom publish a reference to the contents of your response?	Yes

Your response



Question	Your response
<p>Question 1: Do you agree with our provisional conclusion that there is likely to be excess demand for the 412MHz band in future and that therefore an AIP fee is appropriate? Please provide any evidence to support your position.</p> <p>Question 2: Do you agree with our provisional conclusion that UK-wide exclusive Business Radio is the highest value alternative use for the 412MHz band? Please provide any evidence to support your position.</p>	<p>Confidential? – N</p> <p>Confidential? –N</p>
<p>Question 3: Do you agree with our provisional conclusion to set the annual licence fee for 412 MHz equal to the Business Radio UK-wide fee for high usage bands? Please provide any evidence to support your position.</p>	<p>Confidential? –N</p>
<p>Question 4: Do you agree with our provisional conclusion that fees set based on our estimate of market value will best meet our statutory duties?</p>	<p>Confidential? –N</p>
<p>Question 5: Are there any other comments that you wish to make in respect of the proposals that we make in this consultation?</p>	<p>Confidential? –N</p>

End of Document