



An Coimisiún um
Rialáil Cumarsáide
Commission for
Communications Regulation

DotEcon Report

Review of the Satellite Earth Station Licensing Regime

Consultant Report

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Commission for Communications Regulation

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ComReg SES licensing review

DotEcon assessment of responses to the Draft Decision

1 Introduction

In March 2023 ComReg published:

- its response to consultation and Draft Decision in relation to its review of the satellite earth station licensing regime in Ireland (ComReg document 23/32); and
- DotEcon's assessment of the responses received and recommendations (ComReg document 23/32a).

In response to these, ComReg received comments from three stakeholders. Amazon Kuiper and the National Space Centre (NSC) were supportive of the Draft Decision and highlighted features of ComReg's proposals that they particularly welcomed. SpaceX set out its remaining concerns in relation to:

- the proposed fees; and
- access to spectrum in the 70/80 GHz band (the E-band) and bands above 100 GHz.

In this note, we provide our assessment of the issues raised by SpaceX.

2 Fees

2.1 Views of SpaceX

SpaceX would, as per its submission to the previous consultation, still prefer a flat fee for each licence, but acknowledges and appreciates that the revised fee formula would lead to the marginal price per MHz decreasing in total bandwidth licensed (which we refer to as a *concave* fee structure). However, it submits that even with the revised fee formula, and especially if spectrum in the Q/V and E bands is opened to SES:

- there is a risk of significant over-recovery of administrative costs as operators increase their bandwidth usage; and

- fees for large bandwidths, although lower than under the previous version of the formula, would still be a barrier for many operators.

Therefore, SpaceX suggests that “...as these new bands are made available for SES, a reevaluation of the fee formula should be initiated”.

Both Amazon Kuiper and the NSC have offered support for the new fee structure in their responses. In particular:

- NSC considers that the new fees achieve balance between maintaining Ireland’s commercial competitiveness and recovering ComReg’s administrative costs; and
- Amazon Kuiper considers that the updated fee formula will support ComReg’s efforts to promote competition and facilitate deployment by satellite operators.

2.2 Assessment and recommendation

First, we note that all three respondents agree that the use of a concave fee formula would at least partially achieve the objective of limiting over-recovery of revenue without pricing off different types of SES operator. While SpaceX would like ComReg to further lower the fees for high bandwidth operators by charging a flat fee to all licensees, we remain of the view that this would not be appropriate because of the resulting significant increase in fees for small-bandwidth licences and the risk of pricing off low-value operators. SpaceX has not provided any evidence (or even argued at the level of principle) that these concerns can be discounted, that the principles behind the proposed fee structure are inappropriate, or that that a flat fee would not be a problem for low-bandwidth users. Neither has SpaceX provided any evidence why the fees for larger bandwidths would be prohibitive to high bandwidth users. SpaceX’s views contrast with those of Amazon Kuiper and NSC which both submit that the new fee formula strikes an appropriate balance.

We agree with SpaceX that if very large bandwidths in the Q/V and E-bands are used in future, this could lead to over-recovery of administrative costs even under the concave fee formula. However, this potential was discussed in our previous report and has already been taken into consideration when establishing the fee recommendations. The fee structure was designed to balance:

- the risks of over- or under- recovery of costs, which are reduced under a more concave fee curve (as the fee is more sensitive to the bandwidth at high bandwidths) versus;
- concerns over pricing off low-value users, as more concave fee curves necessarily increase fees at low bandwidths to maintain overall recovery of ComReg's administrative costs.

We have not been presented with any substantive arguments or evidence to suggest that the proposed fee structure is inappropriate and, in particular, there should be greater concavity in the fees as a function of licence bandwidth. SpaceX's argument for a flat fee irrespective of bandwidth has no merit, as it does not consider the adverse impact on low bandwidth users.

ComReg could, and is likely to, review and potentially rebase the fees (maintaining the structure, but changing the level of all fees) at appropriate times in the future in response to significant changes in bandwidth licensed. This would help to avoid sustained over-recovery of costs if total bandwidths in use by operators continues to grow as anticipated.

Our understanding is that this is broadly what SpaceX is asking for, although it appears to tie (initial) re-evaluations of the fees to the timing of new bands being made available. To be clear, whilst the effect of opening new bands is a relevant factor when it comes to ComReg's general monitoring of the SES licensing regime, we do not recommend that it is a trigger for automatically reviewing the fees (or indeed that ComReg commits to any particular timing for revising the fees). It may, for example, take some time for demand for new bands in Ireland to emerge and stabilise to the extent that fees could be adjusted with reasonable certainty that they could then remain stable for some time after. Reviewing them at a time of considerable, yet unresolved, uncertainty about demand for licences would be difficult and run risks of subsequent under- or over-recovery of costs. Therefore, ComReg should retain discretion over when the fees are reviewed, allowing it to judge the most appropriate time taking into account all relevant factors and prevailing circumstances.

Overall, we do not see any need to update the new fees set out in the Draft Decision considering the comments received.

3 High frequency bands

3.1 Views of SpaceX

SpaceX supports the proposal to make spectrum in the Q/V bands available to SES, but urges ComReg to also open spectrum in the E-band, as it has requested previously. SpaceX highlights that the E-band is assigned on a co-primary basis to the fixed satellite service (FSS) by the ITU and CEPT and argues that coexistence with fixed links in the band is straightforward because of the technical characteristics of those links. SpaceX also reiterates that the E-band will form an important part of its second-generation constellation.

Furthermore, SpaceX recommends that ComReg begins the process of authorising the bands above 100 GHz that are assigned to the FSS on a co-primary basis. It points to Ofcom's view that these bands have strong potential for high-capacity SES and that an approach of 'spectrum sharing by default' could be appropriate for the bands. SpaceX submits that coexistence with fixed links will again be straightforward in these bands and should be managed by a 'uniform light licensing approach' with a transparent database of stations in the two services.

Amazon Kuiper does not comment specifically on the opening of new bands to SES, but it does stress the importance of aligning with international standards and the relevant European decisions, which is the principle on which ComReg typically bases its decisions to open new frequency bands.

3.2 Assessment and recommendation

SpaceX has not presented any new, convincing evidence as to why ComReg should depart from its general policy of implementing CEPT harmonisation measures and instead provide early access to E-band spectrum. To the best of our knowledge, there are not yet CEPT recommendations or decisions on use of the band for FSS in Europe, and the CEPT recommendation¹ that ComReg applies in its licensing of 80

¹ ECC/REC/(05)07

GHz fixed links does not cover coexistence with FSS.² In addition, while the ITU allocation SpaceX points to does suggest the band could be opened to SES in the future (as we have recognised in our previous reports), it does not provide comprehensive technical guidelines (for all of the relevant spectrum) that would serve as an effective substitute for the CEPT/ECC measures ComReg usually relies on.

As set out in our previous report, allowing early access to the spectrum for SES deployments could lead to complications for implementing harmonisation measures developed subsequently if there were a conflict with existing usage. SpaceX argues that coexistence with terrestrial services (fixed links) would be straightforward, with only minor adjustments to the existing terrestrial licensing process needed. We accept that this may well be the case. However, use of the band for fixed links is changing, with increasing demand for high bandwidths and developments in technology and network configurations, especially due to 5G. Therefore, it is prudent to wait for the results of technical studies into use of the band, which will have been able to consider this issue in detail, to ensure that ComReg is able to apply the most appropriate measures in line with international guidelines/recommendations.

Moreover, even if SpaceX's second-generation constellation is both reliant on high frequency spectrum and technically ready for deployment soon, we expect that it would require access to relevant spectrum in other countries, not just Ireland.

Widespread availability of spectrum naturally follows from international harmonisation measures being in place and, therefore, it is not obvious that Ireland jumping ahead of other jurisdictions would be of significant benefit to the satellite communications industry (or consumers).

For similar reasons, we do not believe ComReg should offer early access to the bands above 100 GHz. In addition, it may be possible to take a different approach to licensing, as considered by SpaceX and Ofcom, in these new bands, given their physical characteristics and lack of incumbent users. However, this would

² This contrasts with the 40.5 – 43.5 GHz part of the Q/V band (which ComReg is planning to open for SES) where, although there is no CEPT recommendation/decision in relation to use of the frequencies for the FSS, the CEPT has published detailed technical guidelines for deployment of terrestrial MFCN services in a way that allows coexistence with the FSS.

need to be considered at the relevant time and is beyond the scope of this review.