Commission for
Communications Regulation

Mobile Satellite Services with Complementary Ground Component Authorisation Regime

Response to ComReg Consultation Document 17/19 and Final Decision

Response to Consultation and Final Decision

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Contents

1 Introduction and Background

1 This Response to Consultation, together with the accompanying Decision and Regulations, sets out the proposed authorisation scheme in Ireland made by the Commission for Communications Regulation ("ComReg") for the Complementary Ground Component (“CGC”) elements of a Mobile Satellite Service (“MSS”). This provides for Decision 626/2008/EC of the European Parliament and of the Council of 30 June 2008 (the "Authorisation Decision")[1], which set forth a process for the selection and authorisation of systems providing MSS, and required Member States to authorise these operators to provide MSS with CGC in their jurisdictions, and EU Decision 2009/449/EC (the “Selection Decision")[2] which selected Inmarsat and Solaris (now EchoStar Mobile Limited)[3] as the 2 GHz MSS operators, and related EU Decisions[4]. This document is the Response to ComReg Document 17/19 "Mobile Satellite Services with Complementary Ground Component Authorisation Regime - Consultation Document and Draft Decision".

2 The Authorisation Decision requires National Regulatory Authorities such as ComReg to grant to the selected applicants the authorisations necessary for the provision of complementary ground components of mobile satellite systems on their territories. Such a grant is subject to national and European law. The purpose of this Response to Consultation is to assess the responses received and to give effect to the requirement in the Authorisation Decision.

3 MSS are radio communication services provided by an electronic communications network between a mobile earth station and one or more space stations, or between mobile earth stations by means of one or more space stations, or between a mobile earth station and one or more complementary ground component base stations, used at fixed locations. For the purposes of this consultation ComReg seeks to adopt a technology-neutral approach, so far as possible, in accordance with the requirements of the Framework Directive[5]

[1] Decision No. 626/2008/EC of the European Parliament and of the Council of 30 June 2008 on the selection and authorisation of systems providing mobile satellite services
[2] Commission Decision No. 2009/449/EC of 13 May 2009 on the selection of operators of pan-European systems providing mobile satellite services.
[3] EchoStar purchased Solaris Mobile Limited in January 2014, from its then owners SES and Eutelsat: http://spacenews.com/38949echostar-buys-struggling-solaris-s-band-satellite-venture/
[4] Commission Decision No. 2007/98/EC of 14 February 2007 on the harmonised use of radio spectrum in the 2 GHz frequency bands for the implementation of systems providing mobile satellite services.
[5] Article 8(1) of Directive 2002/21/EC: “Member States shall ensure that in carrying out the regulatory tasks specified in this Directive and the Specific Directives …national regulatory authorities take the utmost account of the desirability of making regulations technologically neutral.”

4 The particular frequencies of operation for MSS with CGC are in the 2 GHz MSS frequency band. These are: 1980 MHz - 2010 MHz for the Earth-to-space (E-s) satellite segment and terrestrial uplinks (U/L) and 2170 MHz - 2200 MHz for the space-to-Earth (s-E) satellite segment and terrestrial downlinks (D/L).

1.1 ComReg's role

5 ComReg is the statutory body responsible for the regulation of the electronic communications (telecommunications, radiocommunication and broadcasting networks), postal and premium rate sectors in Ireland in accordance with European Union (EU) and Irish law.

6 ComReg's primary objectives in carrying out its statutory functions in the context of electronic communications are to:

- promote competition[6];
- contribute to the development of the internal market[7];
- promote the interests of users in the Community[8];
- ensure the efficient management and use of the radio frequency spectrum in Ireland in accordance with the direction under Section 13 of the 2002 Act[9]; and
- unless otherwise provided for in Regulation 17 of the Framework Regulations, take utmost account of the desirability of technological neutrality in complying with the requirements of the Specific Regulations[10] in particular those designed to ensure effective competition[11].

[6] Section 12 (1)(a)(i) of the 2002 Act.
[7] Section 12 (1)(a)(ii) of the 2002 Act.
[8] Section 12 (1)(a)(iii) of the 2002 Act.
[9] Section 12(1)(b) of the 2002 Act. Whilst this objective would appear to be a separate and distinct objective in the 2002 Act, it is noted, for the purposes of ComReg's activities in relation to electronic communications networks and services (ECN and ECS), Article 8 of the Framework Directive identifies *"encouraging efficient use and ensuring the effective managements of radio frequencies (and numbering resources)"* as a sub-objective of the broader objective of the promotion of competition.
[10] The "Specific Regulations" comprise collectively the Framework Regulations, the Authorisation Regulations, the European Communities (Electronic Communications Networks and Services)(Access) Regulations 2011 (S.I. No. 334 of 2011), the European Communities (Electronic Communications Networks and Services) (Universal Service and Users' Rights) Regulations 2011 (S.I. 337 of 2011) and the European Communities (Electronic Communications Networks and Services) (Privacy and Electronic Communications) Regulations 2011 (S.I No. 336 of 2011).
[11] Regulation 16 (1) (a) of the Framework Regulations.

7 ComReg notes that with regard to the matter of the authorisation of MSS with CGC in the 2 GHz frequency band its ability to ensure the optimal use of spectrum has been limited by the European Commission's Decision to assign rights of use in this band to two operators for the provision of MSS with CGC. Consequently ComReg's role is necessarily more limited than it would be with regard to normal spectrum assignments made at a national level.

1.2 Outline of document

- This chapter introduces the matter and lays out the framework.
- Chapter 2 deals with the technical and operational conditions.
- Chapter 3 deals with the draft RIA on the procedure to determine the spectrum fees.
- Chapter 4 deals with the fees.
- Chapter 5 deals with other issues raised.
- Chapter 6 set out the final Decision instrument.

1.3 This Response to Consultation, Decision, and Draft Regulations

8 ComReg considers that the Decision set out in Chapter 6 of this Response to Consultation, and the accompanying Regulations (Annex 1), will meet the requirements of Article 8(1) of the Authorisation Decision which provides that Member States shall, in accordance with national and community law, ensure that their competent authorities grant to the applicants selected in accordance with the provisions of the Authorisation Decision the authorisations necessary for the provision of CGCs of mobile satellite systems on their territories.

In accordance with Article 8(1), ComReg has taken account of the selected applicants' compliance with other legal obligations pursuant to the Authorisation Decision. ComReg considers it appropriate to set up a licensing scheme, at this time, but not to license the selected applicants until it is satisfied that the selected applicants have complied with legal obligations imposed pursuant to the Authorisation Decision.

1.4 List of respondents

9 Six responses were received in relation to Document 17/19. These are:

- Deutsche Telekom AG ("DT")
- EchoStar Mobile Limited, (“EchoStar”)
- Eircom Limited and Meteor Mobile Communications Limited ("eir")
- Inmarsat Mobile Ventures Limited, (“Inmarsat”)
- T-Systems Limited ("T-Systems")
- ViaSat Inc. ("ViaSat")

2 Technical and Operational Conditions

2.1 Introduction

10 Chapter 2 of the Consultation Document 17/19 set out ComReg's proposed technical and operational conditions for MSS with CGC systems operating in the spectrum assigned to Inmarsat and EchoStar by the European Commission.

11 In summary, ComReg proposed that:

- licensees must fulfil their technical and operational obligations with respect to the EU regulatory framework as set out in the relevant European Commission Decisions;
- measures must be taken by MSS operators in this band to ensure that there is no harmful interference experienced by users of Primary services in adjacent bands;
- operators take account of the relevant mitigation techniques such as those set out in the Electronic Communications Committee ("ECC") Reports 197 and 233, the relevant European Telecommunications Standards Institute ("ETSI") harmonised standards and the block edge masks set out in the European Conference of Postal and Telecommunications Administrations ("CEPT") Report 39;
- operators insert a 300 kHz guard band within the 1980 – 2010 MHz band at 1980 MHz; and
- aeronautical MSS systems with CGC be developed in full conformance with ECC Report 233 and the relevant ETSI standards.

2.2 Views of respondents

12 The three respondents (DT, Inmarsat and T-Systems) who provided views on the technical and operational conditions proposed in the consultation document were broadly supportive of ComReg's proposed framework for the authorisation of MSS with CGC.

13 Both DT and Inmarsat:

- state that in accordance with Article 3(2) (presumably DT here means Article 8(3)(b) of the Authorisation Decision), the ground stations are an integral part of the satellite mobile radio system and are controlled by the satellite-based resource and network management system of Inmarsat. The ground stations transmit on the same frequencies and in the same signal direction as the satellite system. The frequency requirement of the integrated satellite mobile radio system is not increased by the ground stations; and

- welcome and support ComReg's view that CGC "can be used to provide for increased network capacity with a subsequent decrease in latency in traffic hotspots".

14 DT further:

- states that ComReg's proposed regulatory framework for MSS including aeronautical CGC is suitable and well-balanced; and

- notes that Inmarsat's new system for aeronautical connectivity will be enabled upon final publication of the framework and requests that this is in place by the summer.

15 In addition Inmarsat:

- states that high re-use of the spectrum through the use of innovative technology will result in more efficient use of the radio spectrum;

- welcomes ComReg's proposed 'technology-neutral' approach to authorising MSS with CGC systems, and accepts and agrees with the proposed conditions concerning use of a CGC in the draft Regulations;

- also welcomes and agrees with ComReg's underlying assessment that the EU framework definitions themselves do not preclude the operation of aeronautical services via such systems, and in particular those such as Inmarsat's European Aviation Network ("EAN"); and

- believes that the earlier Harmonisation Decision 2007/98/EC also includes yet further indications that CGCs are not limited to an ancillary role compared to that of the satellite: " ... subject to an appropriate authorisation regime, CGCs could also be utilised even if signals are not transmitted through the satellite components" (Recital 9).

16 T-Systems believes that the proposed regulatory framework covers all the relevant technical standards and procedures that are established in the International Telecommunications Union ("ITU"), CEPT and ETSI and clearly states that the planned aeronautical system is in accordance with them. T-Systems also supports ComReg's view that the CGC "can provide for increased network capacity with a subsequent decrease in latency in traffic hotspots".

ComReg's assessment

17 ComReg notes the general support of DT, Inmarsat and T-Systems for the proposals it outlined in its consultation.

18 ComReg further notes DT's comments in relation to its proposed regulatory framework and timeframe and emphasises that should ComReg proceed to grant any licence on foot of the implementation of the Regulations set out in Annex 1 it will be on a service and technology-neutral basis.

2.3 Potential interference issues, compatibility studies and mitigation measures.

19 ComReg received five responses in relation to the interference issues, compatibility studies and mitigation measures (DT, EchoStar, eir, Inmarsat and T-Systems).

20 DT, Inmarsat and T-Systems:

- confirm that the aeronautical system will fulfil the technical and operational obligations with respect to the EU regulatory framework as set out in the relevant European Commission Decisions; and
- state that measures will be taken to ensure that there is no harmful interference experienced by users of Primary Services in adjacent bands.

21 DT and Inmarsat further:

- note that the ECC and CEPT compatibility studies referred to will be considered and relevant mitigation techniques used such as those in ECC Reports 197 and 233, the relevant ETSI harmonised standards and the block edge mask from CEPT Report 39; and
- state that the network equipment is developed in full conformance with ECC Report 233 and the relevant ETSI standards.

22 DT further states that in accordance with section (9) of the Harmonisation Decision, the MSS service enjoys exclusive protection against interference from other services.

23 In summary Inmarsat also:

- confirms that its EAN CGC network is configured in a way that respects the out-of-block and in-block EIRP power limits; and

- confirms that it accepts the technical conditions in Part 3 of the draft Regulations and will implement all required mitigation measures including disabling the EAN MSS aeronautical terminals below 3000m to ensure that there is no harmful interference caused by the EAN to terrestrial users of Primary Services in adjacent bands.

24 DT, Inmarsat and eir provided views on ComReg's proposal to oblige MSS with CGC licence holders to insert a 300 kHz guard band from their spectrum assignment to protect the terrestrial services in the adjacent band.

25 Both DT and Inmarsat state that the EAN will be configured in a way that respects the 300 kHz guard band within the 1980 – 2010 MHz band at 1980 MHz. They both asked ComReg to consider a frequency arrangement whereby the 300 kHz guard band is positioned below 1980 MHz.

26 In summary, eir:

- believes ComReg needs to consider the implications not only for 3G in the 2100 MHz band but also the implications for the use of other technologies in this band when the band is ultimately liberalised; and
- seeks assurances from ComReg that the responsibility for mitigation of interference arising across neighbouring mobile bands as a result of MSS/CGC deployment will rest with the MSS operators.

27 In summary, EchoStar:

- welcomes ComReg's acknowledgement that any aeronautical system must operate as specified in ECC Report 233;
- notes that the use of CGCs on a service-neutral basis to provide hybrid satellite/terrestrial mobile services was not subject to study in ECC Report 233 and therefore there is no basis for the imposition of the report findings to the hybrid satellite/terrestrial mobile service planned by EchoStar. EchoStar therefore urges ComReg to clarify that the interference mitigation measures captured in ECC Report 233 need only be applied when the CGC component is used to provide the aeronautical service;
- believes that if the operating characteristics of such an aeronautical service were to deviate from those specified in ECC report 233, then additional interference studies would be required to determine the consequential impact to adjacent systems; and

- points out that aeronautical terminals operating in a CGC system may, as ECC Report 233 determined, in some cases, cause interference to Direct-Air-to-Ground ("ATG") ground stations, Electronic Communications Network ("ECN") base stations in adjacent bands, or to conventional CGCs of MSS systems in the 2 GHz MSS band. They therefore request that ComReg requires MSS operators operating the hybrid satellite/terrestrial aeronautical services, to implement only the system characteristics and applicable mitigation measures identified in ECC Report 233 to ensure coexistence between electronic communications services.

ComReg's assessment

28 ComReg notes the statements from DT, Inmarsat and T-Systems that:

- they will be fully compliant with the relevant technical and harmonised standards set out in the relevant European Commission Decisions; and
- measures will be taken to ensure that there is no harmful interference experienced by users of Primary Services in adjacent bands.

29 Notwithstanding the information received in the consultation, ComReg is of the view that the information provided by Inmarsat in its submission to consultation 17/19 and the information provided in its letter of 24 October 2017[12] is not sufficient to enable ComReg to determine that the aeronautical service proposed by Inmarsat satisfies Articles 2 and 8 of the Authorisation Decision. Consequently, and as discussed in greater detail in Chapter 5 of this document, ComReg has written to Inmarsat seeking further details relating to its proposed EAN and its compliance with the Authorisation Decision.

30 ComReg acknowledges that DT and Inmarsat intend to comply with the relevant technical and harmonised standards and mitigation techniques set out in ECC Reports 197 and 233 and CEPT Report 39 as well as all the relevant ETSI standards.

31 In relation to DT's statement that MSS services enjoy exclusive protection against interference from other services, ComReg wishes to make it clear that this only applies to co-channel services[13] and, as set out in Document 17/19. Non-MSS systems using spectrum in the 1980 - 2010 MHz and 2170 – 2200 MHz frequency bands should not cause harmful interference to nor claim protection from systems providing MSS.

[12] This letter and ComReg's response is published alongside the submissions received in ComReg document 17/97a
[13] And not to other established adjacent Primary radio services.

32 With regard to DT's and Inmarsat's comments that the 300 kHz guard band might be placed below 1980 MHz as contained in ECC/DEC (06)01[14] ComReg notes that footnote 3 of this Decision recognises the need to maintain the guard band above 1980 MHz to "*maintain consistency with conditions of some existing authorisations*". ComReg would further note that the authorisations granted in the 1900 – 1980 MHz band were made in 2002 and as such predate ECC/DEC(06)01 and are therefore fully consistent with this Decision.

33 In response to eir's comments regarding the potential for interference to services operating in the adjacent bands, ComReg notes:

- that ECC/DEC(06)01 was revised in 2012 in response to studies carried out by CEPT which are set out in CEPT Report 39[15]. This report considers the least restrictive technical conditions for terrestrial mobile networks looking to deploy technologies other than 3rd Generation/Universal Mobile Telecommunications System ("3G/UMTS"); and

- that the responsibility for mitigation of interference rests with all licensees. However where interference into the 2100 MHz mobile bands is found to be as a result of MSS with CGC deployment then any mitigation measures required would in all probability be the responsibility of the MSS operator. However, all instances of interference are dealt with on a case-by-case basis and on ComReg's assessment of the facts that pertain to a specific case.

34 In relation to EchoStar's comments on the proposed mitigation techniques, ComReg confirms:

- that the mitigation techniques in ECC report 233 are only for aeronautical systems and that hybrid satellite/terrestrial mobile services will not be obliged to implement the mitigation techniques set out in that report, and;

- the out-of-block and in-block EIRP limits in Part 3 of the schedule of the draft Regulations must be respected by all MSS with CGC systems operators. If the system characteristics of a MSS with CGC system change, the operator must ensure that no interference is experienced by services in adjacent bands. This is a condition of any authorisation. Interference from one MSS operator to another is a matter for those operators to deal with and their respective notifying Administrations. As such, this is not a matter for ComReg.

[14] The harmonised utilisation of the bands 1920-1980 MHz and 2110-2170 MHz for mobile/fixed communications networks (MFCN) including terrestrial IMT systems.

[15] Report from CEPT to the European Commission in response to the Mandate to develop least restrictive technical conditions for 2 GHz bands

2.4 Provision of site information to ComReg

35 In its response, eir seeks assurance from ComReg that Regulation 6(6) [of the draft Regulations] empowers ComReg to require that MSS operators provide ComReg with details of sites as they are deployed if a concern is raised by another licence holder in respect of harmful interference.

ComReg's Assessment

36 ComReg notes that Regulation 6(6) of the Draft Regulations published in document 17/19 proposes an annual update of site information in a similar manner to that currently provided by Mobile Network Operators and other Authorised Undertakings. This does not preclude ComReg from requiring the MSS operators provide ComReg with details of sites deployed outside of this annual update should the need arise.

2.5 ComReg's decision

37 In summary, ComReg will proceed with the implementation of its regulatory framework for MSS with CGC as set out in the Decision Instrument in Chapter 6 and the draft Regulations as set out in Annex 1 of this document. Once this framework is in place, Inmarsat and EchoStar will be able to submit applications for the authorisation of any CGC required; any such application will of course be assessed on the merits, and on ComReg being satisfied that all relevant legal obligations have been fulfilled.

38 ComReg expects MSS licensees to fulfil their technical and operational obligations with respect to the EU regulatory framework as set out in the relevant European Commission Decisions. For operation of a MSS system both with and without a CGC element, measures must be taken to ensure that there is no harmful interference experienced by users of Primary Services in adjacent bands.

39 In addition ComReg requires that the ECC and CEPT compatibility studies referred to must be taken into account and relevant mitigation techniques used such as those in ECC Reports 197 and 233, the relevant ETSI harmonised standards, and the block edge mask from CEPT Report 39. Finally ComReg will oblige the MSS with CGC operators to insert a 300 kHz guard band within the 1980 – 2010 MHz band at 1980 MHz.

3 Draft RIA on the Procedure to Determine Spectrum Fees.

3.1 Summary of ComReg's views in Document 17/19

40 Chapter 3 of Document 17/19 sets out ComReg's draft 'RIA on the Procedure to Determine Spectrum Fees for CGC.'

41 Among other things, ComReg noted that its objective to ensure the optimal use of spectrum was already limited by the European Commission's Decision to assign rights of use using a comparative award process. As discussed in Document 17/19 and Document 17/19a, where appropriate, ComReg has previously sought to set licence fees on the basis of opportunity cost, which is typically supportive of efficient spectrum assignment and use. Opportunity cost prices can usually be expected to result from a competitive market-based award process, such as a well-designed auction. However, the EC Decision prohibits this option as the MSS licences have already been assigned with no consideration of opportunity cost, and so ComReg must establish another methodology for setting the fees to be charged for MSS with CGC.

42 In that regard, the main policy issue was to determine a procedure for setting spectrum fees that must reflect the need to ensure the optimal use of the radio spectrum and must also be objectively justified, transparent, non-discriminatory and proportionate where that spectrum has been already assigned through a comparative assessment procedure. The exceptional circumstances arising from the spectrum assignment decisions made by the European Commission necessitate the need for fees to be estimated outside a market mechanism.

43 In light of these considerations, ComReg identified the following regulatory options:

- **Option 1** – A shorter-run opportunity cost approach where all alternative uses that exist are not considered in determining appropriate CGC fees.[16]
- **Option 2** – A longer-run opportunity cost approach where all alternative uses that exist are considered in determining appropriate CGC fees taking into account the alternative value that could have been achieved were ComReg free to assign it at its discretion.[17]

[16] Reflecting the fact that ComReg has no option to assign the spectrum to other users over the course of the duration of the licence.

[17] Whilst the potential benefits of using opportunity cost based pricing to promote efficient use in the short run were lost through the use of a comparative award process (rather than a market based approach), setting fees based on long-run opportunity cost is still relevant in terms of creating long-run

44 In light of the above, ComReg's preference is for Option 2, that consideration of all alternative uses in determining CGC fees represents a reasonable and pragmatic approach to estimating fees that are reflective of opportunity cost (the "Preferred Option").

3.2 Views of respondents

45 ComReg received three responses in relation to the draft 'RIA on the Procedure to Determine Spectrum Fees for CGC' from:

- eir;
- EchoStar Mobile; and
- Inmarsat.

46 Eir agrees with ComReg's Option 2 proposal to apply an opportunity cost approach to the valuation of the MSS spectrum for the purpose of setting licence fees.

47 Inmarsat commends the substantial analysis that ComReg has conducted in arriving at this proposal as outlined in the RIA under Chapter 3, which carefully considers a variety of options based on key information and third party engagement.

48 EchoStar encourages ComReg to reconsider Option 1 and in so doing adopt an administrative pricing model (one that is based on the costs of regulation) for radio spectrum used for CGC. In particular, EchoStar make the following points.

i. Taking account of longer-run opportunity cost and avoiding potential competitive distortions in the mobile markets presumes that the services deployed using MSS with CGC will be comparable in scale and value with existing mobile services;

ii. Accounting for long-run efficiency implies that spectrum will only be efficiently used if deployed for terrestrial mobile;

iii. Setting the fees conservatively (towards the lower end of the range determined by other Member States) does not mean that MSS licensees will not be unduly discouraged from rolling out CGC based services;

iv. Predictability over pricing mechanisms for similar bands in the future should not be a justification for using a flawed approach;

incentives for efficient spectrum use, reducing the risks of competitive distortions, and consistency with ComReg's typical approach to setting spectrum licence fees.

v. If such developments [scale economies] were limited to Ireland then they would not benefit from the pan-European scale economies and as such would be unlikely to lead to structural competition concerns in isolation;

vi. The CGC element of the service cannot and should not be compared with terrestrial mobile services and hence be considered a direct competitor. ComReg seems focussed on avoiding any risk/argument that might as a result of this new service leading to a case for adjusting the existing regulatory framework and charging principles that apply to the mobile service rather than nurturing the introduction of a new service in the market; and,

vii. DotEcon's approach is intended to prevent unfair competition with terrestrial mobile services which suggests that the object of the exercise is to discourage any impact to the regulatory regime of the terrestrial mobile service.

ComReg's assessment

49 ComReg notes Inmarsat's and eir's accord with its Preferred Option (Option 2).

50 ComReg assesses EchoStar's points as summarised above under the following headings:

- Comparability of mobile services to MSS with CGC (Points i, ii, vi & vii above);
- The applicable regulatory regime (Points vi & vii above);
- Incentive to rollout of services (Points iii above);
- Predictability in pricing approach (Point iv above); and
- Structural competition concerns (Point v above).

Comparability of mobile services to MSS with CGC

51 EchoStar's primary concern with the approach taken in the draft RIA relates to the assessment that MSS with CGC is comparable to mobile services.

52 For example, EchoStar notes that:

- the draft RIA "*presumes that the type of service that will be deployed is comparable to today's mobile services in scale and value*"
- the draft RIA "*implies that spectrum will only be efficiently and effectively used if it was deployed for the terrestrial mobile service*"
- "*ComReg seems focused on avoiding any risk/argument that might as a result of this new service lead to a case for adjusting the existing regulatory framework and charging principles that apply to the mobile service rather than nurturing the introduction of a new service in the market*"

- the draft RIA "*suggests that the object of exercise is to discourage any impact to the regulatory regime of the terrestrial mobile service*"; and
- "*The CGC element of the service cannot and should not be compared with the terrestrial mobile service and hence be considered a direct competitor*"

  [Emphasis added throughout]

53 In response to EchoStar's assertions, DotEcon notes that:

- it is relevant to ask what hypothetical alternative use can be made of the spectrum, and consideration of mobile services simply recognises that a possible alternative use of the spectrum is for mobile network capacity or fixed wireless services;
- the fact that MSS licences exist already due to the actions of the EC and alternative short-run uses are precluded does not mean that pricing should be based on short-run opportunity cost which is zero;
- long-term efficiency does not imply that spectrum will only be efficiently used if deployed for terrestrial mobile; it simply recognises that at the point of expiry a possible alternative use of the spectrum is for mobile capacity or fixed wireless services; and
- this approach does not presume that the services offered using MSS/CGC would necessarily be directly comparable to terrestrial mobile but accounts for the possibility (albeit hypothetically) that a MSS licensee could use the spectrum to provide a differentiated service that competes with mobile operators at the margin.

54 ComReg agrees with the views of DotEcon. The draft RIA does not presume a type of service (i.e. terrestrial mobile service) or imply that spectrum used for such a service will only be efficiently and effectively used if it was deployed for that service.

55 Option 2 and the proposed fee structure does not presume such services are comparable "*in scale and value"* to mobile services. Fees were set conservatively in order to ensure that there are incentives to deploy CGC sites. Moreover, ComReg specifically noted that "*this process will result in fees that are set conservatively and will likely be less than the hypothetical market price (on a national and per-base station basis) that would be determined by a competitive award where alternative users could express valuations for the said spectrum through bids*". [Emphasis added]. This approach is necessitated by the exceptional circumstances arising from the spectrum assignment decisions made by the European Commission, which did not allow for the use of a market mechanism to more accurately estimate the market value. Therefore, the assessment of an appropriate level for CGC fees strikes a balance between reflecting long-run opportunity costs of using the spectrum and providing incentives for deployment of CGC sites.

56 ComReg specifically took account of the wide variation in scale of potential uses of the MSS spectrum by proposing charges on a per-site basis, ensuring that CGC applications are viable at a limited scale. This approach is designed to accommodate small scale operations. ComReg noted that "*where a MSS licensee wishes to increase scale, the marginal costs of rollout will increase and it will approach the opportunity cost faced by larger scale operators using similar spectrum (e.g. MNOs)*" [Emphasis added]. Therefore, Option 2 does not presume a similar scale and value as mobile services but allows the selected applicants to reasonably accommodate small scale operations.

57 ComReg's approach has been to use an opportunity cost based methodology to establish a suitable level for the spectrum fees.[18] In that regard, ComReg's assessment concerned the most likely alternative use rather than selecting any particular service (such as mobile) in an ad-hoc manner. Mobile services are considered in the assessment as the spectrum concerned is adjacent to the IMT-2000 terrestrial frequencies and could be a natural candidate for mobile broadband use in FDD and/or TDD systems. Further, the current use of bands for mobile services (e.g. 1800 MHz, 2100 MHz, and 2600 MHz) suggests that the 2 GHz spectrum could be used for mobile network capacity or fixed wireless services.

58 A longer-run view of potential alternative uses of this spectrum is appropriate under this assessment as licence expiry will be the earliest point at which alternative uses could be facilitated (reflecting the fact that ComReg has no option to assign the spectrum to other users over the course of the licence duration). It is currently unclear what will happen at the point of licence expiry, so it is relevant to consider the long run implications of the CGC fees that are set, and the impact they might have on efficient spectrum assignment in the future

[18] The opportunity cost of the radio spectrum is the value associated with the best alternative use that is denied by granting access to one user rather than to the alternative.

59 Further, ComReg's proposed approach does not presume that MSS with CGC would be a "*direct competitor*" with mobile services. On the contrary, it recognises the possibility that MSS with CGC may compete with mobile services at the margin as part of a process for determining a reasonable basis for the setting of CGC fees that avoids creating competitive distortions. In any event, the extent to which either of the selected applicants becomes a direct competitor or competes at the margin with mobile, or not at all, is a matter for the selected applicants.

60 Option 2 results in fees that account for the estimated value of the spectrum to alternative users, and means that large-scale deployment (at a level that would allow competition with mobile services) could only be achieved at a cost that is suitably reflective of the opportunity cost of the spectrum used. The approach taken in Document 17/19 was to provide the correct balance between not discouraging the deployment of CGC while minimising the likelihood of any distortions to competition for any alternative services.

61 Therefore, ComReg agrees with DotEcon's assessment and is of the view that no amendment is required in response to these points raised by EchoStar.

The applicable regulatory regime

62 EchoStar claims that:

- ComReg seems focused on avoiding any risk/argument that might as a result of this new service lead to a case for adjusting the existing regulatory framework and charging principles that apply to the mobile service rather than nurturing the introduction of a new service in the market; and
- The object of the exercise is to discourage any impact to the regulatory regime of the terrestrial mobile service.

63 DotEcon observes that ComReg's approach is not one that demonstrates an excessive focus on consistency with the regulatory framework for mobile spectrum. Rather the proposals have sought to apply consistently ComReg's broad approach to spectrum assignment in general whilst taking account of the specific circumstances pertaining in this case (including the issue of incentives for CGC site deployment).

64 ComReg agrees with the views of DotEcon. In particular, ComReg notes that it does not have a specific regulatory framework and associated charging principles that apply to mobile services only. ComReg notes that it is required to comply with the guiding principles of objectivity, transparency, non-discrimination, and proportionality in carrying out its functions under the 2002 Act and the Common Regulatory Framework. In relation to the current process, ComReg considers that these principles are most relevant in terms of its functions concerning spectrum management and the setting of licence fees. The regulatory regime applies to all types of uses for the radio spectrum including MSS with CGC and mobile services.

65 Therefore, ComReg agrees with DotEcon's assessment and is of the view that no amendment is required in response to this particular point raised by EchoStar.

Incentive to roll out services

66 EchoStar claims that setting fees conservatively (towards the lower end of the range determined by other Member States) does not address the possibility that MSS licensees will be discouraged from rolling out CGC-based services.

67 In response to EchoStar, DotEcon notes that:

- the fee structure recognises the wide range of applications that might need to be provided with a MSS/CGC system and supports the efficient use of spectrum through CGC deployment;
- Option 2 sets the fees conservatively to ensure MSS licensees are not unduly discouraged from rolling out services[19].
- the relevant question is whether there is undue discouragement of deployment given the general benefits of opportunity cost pricing in discouraging inefficient use;
- the fee structure seeks to maximise rollout incentives without favouring MSS licensees in a way that would allow them to compete unfairly on the mobile market; and
- the proposed prices are set well below a reasonable central estimate of the long run opportunity cost of using the spectrum

68 ComReg agrees with the views of DotEcon. In particular, ComReg notes that:

[19] The final RIA has been updated to clarify ComReg's intention.

- the proposed fees have been set using an opportunity cost based methodology and are not based on charges set by other Member States. However, ComReg noted that the level of fees arising from the opportunity cost methodology fell at the lower end of the range of fees charged in other Member States on a similar basis (i.e. per-site);

- Option 1 would provide MSS licensees access to a valuable essential input at a price substantially below the long-run opportunity cost of its use, and with a competitive advantage if either MSS licensee decided to provide services that could compete (directly or at the margin) with those offered by MNOs. Alternatively, Option 2 takes account of the longer-run opportunity cost which provides more appropriate price signals to promote efficient use and avoids creating potential competitive distortions in mobile markets; and

- there is a tension between achieving the benefits of opportunity cost pricing and not discouraging efficient CGC deployment over the course of the current licences. Setting fees therefore requires finding a suitable balance, taking account of the impact on both the short-run and long-run incentives for efficient spectrum use, as well as potential competitive concerns.

69 In light of the above, the proposed fees have been set conservatively (at a value that is likely to be below the market value of the spectrum) on a per-site basis. This recognises the need to avoid unduly discouraging CGC deployment through fees that are too high and also means that the total paid by an operator is proportionate to the number of base stations deployed, so small-scale CGC networks remain viable.[20] At the same time, this approach to setting the CGC fees balances efficient spectrum use in the long-run, and ensures the fees for larger CGC networks approach opportunity cost and so do not provide a competitive advantage to MSS spectrum users potentially competing with the mobile operators. Overall, ComReg agrees with DotEcon's assessment and is of the view that no amendment is required in response to this particular point raised by EchoStar.

Predictability in pricing approach

70 EchoStar notes that while regulatory predictability will inherently create greater certainty it should not be justification for an approach which is inherently flawed. For the reasons stated above, and in Document 17/19, ComReg does not consider its approach to be inherently flawed, and the benefits achieved through the greater certainty it will offer continue to be of relevance. In any case, the approach has been tailored to the specific circumstances applying to CGC as discussed above and the

[20] ComReg notes that the other selected applicant, Inmarsat, considered the proposed per-site fees to be minimally balanced and proportionate when applied to the aeronautical system, which will include a ground network consisting of just 4 CGC sites in Ireland.

various competing considerations in play have been balanced.

71 In particular, DotEcon observes that a predictable regulatory framework that sets prices based on opportunity cost provides long run pricing signals that encourage efficient decision-making about spectrum use and associated investments in network equipment.

72 ComReg agrees with the views of DotEcon that promoting consistency in approaches to spectrum pricing is a benefit. In that regard, this approach provides more predictability for stakeholders about the pricing mechanism that will be used in the future.

73 Therefore, ComReg agrees with DotEcon's assessment and is of the view that no amendment is required in response to this particular point raised by EchoStar.

Structural competition concerns

74 In relation to ComReg's statement that its preferred option would pre-empt any structural competition concerns before they materialise, EchoStar observes that the spectrum rights have been granted on a pan-European basis with the expectation that the services would be able to benefit from the scale economies that result. If such developments were limited to Ireland then they would not benefit from the pan-European scale economies and as such would be unlikely to lead to structural competition concerns in isolation

75 ComReg notes that fees set in line with Option 2 would pre-empt competition concerns before they arise. In particular, Option 1 risks the possibility of distorting competition in the provision of services derived from spectrum services with other parties paying opportunity cost. In contrast, setting CGC fees based on opportunity cost ensures equality of treatment with other spectrum in Ireland and pre-empts potential complaint from other parties. The assignment of rights of use on a pan-European basis is a matter for the European Commission as the body who assigned rights of use in the first instance.

3.3 ComReg's final position

76 ComReg did not receive any other submissions from respondents on the above proposals, nor is ComReg aware of any other information which would warrant an amendment to these proposals.

77 Accordingly, ComReg's final 'RIA on the Procedure to Determine Spectrum Fees for CGC', set out in Section 3.4 below, is substantially the same as that set out in Document 17/19.

3.4 Final 'RIA on the procedure to determine spectrum fees for CGC'

RIA framework

78 In general terms, a RIA is an analysis of the likely effect of a proposed new regulation or regulatory change, and, indeed, of whether regulation is necessary at all. A RIA should help identify the most effective and least burdensome regulatory option and should seek to establish whether a proposed regulation or regulatory change is likely to achieve the desired objectives, having considered relevant alternatives and the impacts on stakeholders. In conducting a RIA, the aim is to ensure that all proposed measures are appropriate, effective, proportionate and justified. The scope of a RIA might be limited by the particular circumstances of the policy proposal concerned, as is the case for this RIA.

Structure of a RIA

79 As set out in ComReg's RIA Guidelines[21], there are five steps in a RIA. These are:

Step 1: Identify the policy issues and identify the objectives.

Step 2: Identify and describe the regulatory options.

Step 3: Determine the impacts on stakeholders.

Step 4: Determine the impact on competition.

Step 5: Assess the impacts and choose the best option.

80 In the following sections ComReg identifies the relevant stakeholder groups, specific policy issues to be addressed and relevant objectives (i.e. Step 1 of the RIA process). This is followed by the identification of fundamental policy issues.

81 ComReg then considers these policy issues in accordance with the four remaining steps of ComReg's RIA process.

[21] See Document 07/56a - Guidelines on ComReg's approach to Regulatory Impact Assessment - August 2007.

Identification of stakeholders

82 The focus of Step 3 is to assess the impact of the proposed regulatory options available to ComReg on stakeholders. A precursor to the subsequent steps in the RIA, therefore, is to identify the relevant stakeholders. Stakeholders consist of two main groups:

- consumers; and
- industry stakeholders.

83 There are a number of key industry stakeholders in relation to the matters considered in this chapter: These are:

- MSS licence holders, namely Inmarsat and EchoStar; and
- alternative spectrum users, particularly Mobile Network Operators (MNOs).

84 The focus of Step 4 is to assess the impact on competition of the proposed regulatory options available to ComReg. In that regard, ComReg notes that it has various statutory objectives, regulatory principles and duties which are relevant to the issue of competition.

85 Of themselves, the various RIA guidelines provide little guidance on how much weight should be given to the positions and views of each stakeholder group (Step 3), or the impact on competition (Step 4). Accordingly, ComReg has been guided by its statutory objectives, which it is obliged to pursue when exercising its functions. ComReg's statutory objectives in managing the radio frequency spectrum include:

- the promotion of competition;
- contributing to the development of the internal market; and
- promoting the interest of users within the Community.

86 In this document, ComReg has adopted the following structure in relation to Step 3 and Step 4 – the impact on industry stakeholders is considered first, followed by the impact on competition, followed by the impact on consumers. The order of this assessment does not reflect any assessment of the relative importance of these issues but rather reflects a logical progression. For example, a measure that safeguards and promotes competition should also, in turn, impact positively on consumers. In that regard, the assessment of the impact on consumers draws substantially upon the assessment carried out in respect of the impact on competition.

Identify the policy issues and identify the objectives (Step 1)

Policy issues

87 Regulation 19 of the Authorisation Regulations permits ComReg to impose fees for rights of use that reflect the need to ensure the optimal use of the radio frequency spectrum.

88 In addition, ComReg is required to ensure that any such fees are objectively justified, transparent, non-discriminatory and proportionate in relation to their intended purpose and take into account the objectives of ComReg as set out in Section 12 of the 2002 Act and Regulation 16 of the Framework Regulations.

89 In this regard, and as set out in Chapter 1, it is useful to note the following European Commission Decisions:

- The 2 GHz frequency band was allocated to MSS in accordance with Commission Decision 2007/98/EC (the "Harmonisation Decision")[22];
- Decision 626/2008/EC (the "Authorisation Decision") set out plans for running a comparative selection procedure for the selection of operators of mobile satellite systems; and
- Decision No. 2009/449/EC[23] confirmed the selection of Inmarsat Ventures Ltd. and Solaris Mobile Ltd. (now EchoStar) as operators for pan-European systems providing Mobile Satellite Services ("MSS") together with the specific frequency bands awarded to each of them.

90 Therefore, Inmarsat and EchoStar, as a result of decisions taken by the European Commission, have rights of use in Ireland and all other EU Member States to use the frequencies 1980 - 2010 MHz (Earth-to-space) and 2170 - 2200 MHz (space-to-Earth) for the provision of MSS services (which includes associated CGC) for a period of 18 years from the selection decision, expiring in May 2027[24].

91 In this context, the assignment of MSS with CGC provision and certain conditions attached to the assigned rights of use were established by the European Commission. This situation is exceptional, as ComReg is required to set fees that ensure the optimal use of spectrum where the rights of use to that spectrum were assigned administratively by a separate entity that did not use a competitive award process.

[22] Systems capable of providing MSS should include at least one or more space station and they could include complementary ground components (CGCs).
[23] EC Decision 2009/449/EC on the selection of operators of pan-European systems providing mobile satellite services (MSS).
[24] Paragraph (d) of Article 8.3 of the MSS Decision provides that "rights of use and authorisations shall be granted for a period of time ending no later than the expiry of the authorisation of the associated mobile satellite system" (eighteen years from the date of the Selection Decision).

92 Efficient spectrum assignment generally requires rights of use to be assigned to those users able to make the best economic use of it, and for the users of the assigned spectrum to make use of it in the way that generates the greatest social benefit. Where demand for spectrum is greater than supply, achieving these objectives is typically supported by use of a market mechanism for assignment[25], such as a well-designed auction with prices set on the basis of opportunity cost, which can help to:

- establish the efficient assignment of spectrum amongst bidders, based on bidders' willingness to pay (which can be expected to represent the economic value they are able to generate[26]); and
- establish the opportunity costs of the assignment, setting suitable spectrum usage fees at a level that represents market value (and could be considered fair) and encourages the winning bidder(s) to utilise the spectrum more efficiently.

93 Use of a market mechanism also removes the burden on ComReg to make complex judgements (based on incomplete information) in relation to assigning the spectrum and the suitable level of fees, as it can better elicit relevant information about the value (and efficient assignment) of the spectrum that is likely not available to ComReg.

94 However, the European Commission did not assign the rights of use to spectrum using a market mechanism, and instead used a comparative award procedure to assign rights of use to two eligible applicants across all Member States. This approach did not assess the opportunity cost of the radio spectrum or bidders' willingness to pay, and it is therefore debatable whether this comparative award was economically efficient from an assignment point of view. ComReg, in Chapter 3 of Document 15/140, has already set out its substantive concerns in relation to the administrative assignment of valuable spectrum[27].

95 Therefore, ComReg's objective to ensure the optimal use of spectrum is already limited by the European Commission's decision to assign rights of use using a comparative award process. As a result, ComReg has no means to establish accurately the opportunity cost through use of a market mechanism such as an auction (as ComReg has tended to use for assignment of other spectrum).

[25] Wherever spectrum is scarce, this implies that there is an 'opportunity cost' associated with distributing the spectrum to particular uses and users. It is likely given the use of similar frequencies for MBB that there would have been a high demand for this spectrum.
[26] This is in the typical case where there are no significant economic externalities leading to market failure.
[27] In summary, this sets out that where demand for spectrum is likely to exceed supply, auctions should produce the most efficient outcome. An auction is economically efficient, ensuring that licences are awarded to those bidders with the highest willingness to pay, which should normally correspond to their ability to generate most economic and social value.

96 A number of issues arise in respect of the selection procedure[28] used by the European Commission that affect the ability of ComReg to set spectrum fees in a way that best ensures the efficient use of spectrum and reflects the need to ensure the optimal use of the radio spectrum. In particular, this selection procedure:

- was based solely on an assessment of whether applicants had demonstrated the required level of technical and commercial development of their respective mobile satellite systems;
- was dependent on the Licensee providing mobile satellite services; and
- did not reveal any information about the participants' valuation of the spectrum assigned.

97 Consequently, ComReg is of the view that the award format chosen by the European Commission may not have assigned the spectrum to the most efficient users of the spectrum. The assignment of spectrum by the European Commission using a comparative award procedure means it did not consider alternative uses/users in determining the efficient assignment and, as a result, the opportunity cost from the use of the spectrum. Therefore, absent a suitable fee structure, the assignees have little incentive to consider that the frequencies administratively assigned to them might be more efficiently used by other users.

98 Absent the option of using a market mechanism, ComReg must establish another methodology for establishing the fees to be charged for MSS with CGC. ComReg notes that setting fees for radio spectrum rights of use more generally where the assignment has already been decided is not straightforward, and could lead to inefficient use and or distortions to competition, since:

- prices that are set too low could lead to unfair competition with others who are paying more for their similar spectrum[29]; or
- prices that are set too high could lead to scarce spectrum (a valuable public resource) being unused, or under-used, e.g. with an operator choosing not to deploy CGC sites at the expense of diminished coverage or service quality.

[28] Commission Decision of 13 May 2009 on the selection of operators of pan-European systems providing mobile satellite services (MSS) (notified under document number C(2009) 3746) (2009/449/EC),

[29] In more normal circumstances with potential alternative users in the short run, there would be additional concerns about the fee being too low and limiting incentives to use spectrum more efficiently (e.g. the need to invest in R&D and/or roll out services to recoup the fees may be diminished).

99 In setting out a procedure for assessing the impacts of setting spectrum fees which reflects its relevant statutory functions, duties and objectives, ComReg does not wish to adversely affect the extent to which certain uses may be precluded or would otherwise be provided for, particularly in light of the assignment decision already made by the European Commission. ComReg also does not wish to reduce incentives to provide such services where the impact would be neutral in terms of any effects on competition, or which may result in more efficient uses of spectrum to the benefit of consumers without having any distortive effect upon competition, particularly in mobile markets.

100 Therefore, the main policy issue assessed in this RIA is to determine a procedure for setting spectrum fees (where that spectrum has already been assigned through a comparative assessment procedure) that must reflect the need to ensure the optimal use of the radio spectrum and must also be objectively justified, transparent, non-discriminatory and proportionate. As noted above, the background to this consultation is exceptional and may necessitate analysis that might not be appropriate for future ComReg spectrum-related consultations.

Objectives

101 Regulation 19 of the Authorisation Regulations requires that spectrum fees must reflect the need to ensure the optimal use of the radio spectrum and must also be objectively justified, transparent, non-discriminatory and proportionate.

102 In addition, the focus of this RIA is to assess the impact of the proposed measure(s) (see regulatory options below) on stakeholders, competition, and consumers. ComReg can then identify and implement the most appropriate and effective means by which to set spectrum fees for 2 GHz spectrum rights of use, while achieving its core statutory objectives under section 12 of the 2002 Act such as promoting competition by, among other things;

- ensuring that users derive maximum benefit in terms of choice, price and quality;
- encouraging efficient use and ensuring effective management of radio frequencies;
- ensuring that there is no distortion or restriction of competition in the electronic communications sector;
- contributing to the development of the internal market; and
- promoting the interest of EU citizens.

Identify and describe the regulatory options (Step 2)

103 An important consideration in setting spectrum fees for the CGC is whether an opportunity cost methodology is appropriate, and, if so, how this approach is implemented and what alternative uses should be considered.

104 ComReg's current approach to setting spectrum fees is set out in Section 7.6 of its Radio Spectrum Strategy Statement (document 16/50) and states in particular, that:

- spectrum fees for rights for Electronic Communications Services ("ECS") are an important tool by which ComReg can ensure the efficient use of such rights; and
- the level of the spectrum fee (and any minimum price) will continue to be determined on a case-by-case basis in light of the relevant circumstances of the spectrum award (such as the particulars of the rights of use/spectrum band, international benchmarks etc.)

Opportunity cost pricing

105 ComReg has previously used opportunity cost pricing as an appropriate method of encouraging the efficient use of the radio spectrum. The opportunity cost of the radio spectrum is the value associated with the best alternative use that is denied by granting access to one user rather than to the alternative.

106 As outlined by ComReg's advisor DotEcon, opportunity cost is supportive of the efficient assignment of spectrum in three main ways:

- If prices are set below opportunity cost there may be competing demands for spectrum that need to be reconciled.
- In the long run, spectrum prices based on opportunity cost provide appropriate price signals to economise on spectrum use and switch between bands in response to scarcity.
- It provides an incentive for an inefficient user of spectrum to return that spectrum to ComReg.

107 Therefore, for the purposes of determining fees for CGC, DotEcon, while recognising the constraints imposed by the assignment of the spectrum in a comparative procedure, recommends that opportunity cost pricing should be the basis on which any associated fees are determined. In particular, DotEcon notes[30] that such an approach for the purpose of determining CGC fees:

- ensures equality of treatment with similar spectrum in Ireland;

[30] Section 2.2 of DotEcon Report 17/19a.

- avoids creating distortions with regard to competition with mobile operators; and
- is in line with a spectrum management policy that considers long run efficiency effects.

108 Where demand exists for similar spectrum, there are likely to be alternative uses of spectrum, and so pricing could arguably be based on the highest value alternative uses. The current use of mobile frequencies (1800 MHz, 2100 MHz, and 2600 MHz) suggests that the 2 GHz spectrum currently being made available for the selected applicants could be used for other services (e.g. mobile network capacity or fixed wireless services) and is therefore likely to be valuable in light of those competing alternative uses. In particular, the spectrum concerned is adjacent to the IMT-2000 terrestrial frequencies and could be a natural candidate for mobile broadband use in FDD and or TDD systems.

109 This is also consistent with ComReg's current approach to the assignment of rights of use where there are likely to be competing demands for spectrum ComReg is of the view that applying a consistent pricing mechanism even where the assignment has already been determined will provide stakeholders with greater predictability about how spectrum rights of use for valuable bands are assigned. In that regard, DotEcon notes that "the fact that spectrum has already been assigned by the EC without applying opportunity cost pricing at the time of award does not mean that ComReg should now make an exception for this spectrum from its typical approach of seeking to set charges based on opportunity cost. Carving out particular spectrum bands or licences for exceptional treatment undermines the benefits of a consistent and predictable regulatory approach to spectrum pricing[31]."

110 Therefore, ComReg is of the view that, in this case, spectrum fees that are reflective of opportunity cost are appropriate for MSS with CGC. In light of the way in which the spectrum has already been assigned, there are two options to consider in terms of the relevant definition of opportunity cost:

- Option 1: A shorter-run opportunity cost approach where all alternative uses that exist are not considered in determining appropriate CGC fees (reflecting the fact that ComReg has no option to assign the spectrum to other users over the course of the licence duration).
- Option 2: A longer-run opportunity cost approach where all alternative uses that exist are considered in determining appropriate CGC fees, taking into account the alternative value that could have been achieved were ComReg free to assign it at its discretion.

[31] DotEcon Report, p13.

Option 1 – Alternative uses not considered in determining CGC fees.

111 Decisions 626/2008/EC and 2009/449/EC require Member States to ensure that the selected applicants have the right to use the radio spectrum identified in the Decisions and have the right to operate a MSS with CGC system. As the MSS with CGC frequency bands have been made available on a pan-European basis in accordance with the applicable EC Decisions, any other use of these bands shall not cause harmful interference to systems providing MSS and may not claim protection from harmful interference caused by systems providing MSS.

112 As a result, the assigned spectrum cannot be used on the same basis with users other than the MSS Licensee. Therefore, over the duration of the licence, there is no alternative user permitted by the assignment decision made by the European Commission other than the MSS Licensee and the opportunity cost over the period is essentially zero. As such, this option would cover administrative charges only which would be collected to cover the spectrum management costs associated with administering each licence[32].

Option 2 – All alternative uses are considered in determining CGC fees.

113 Option 2 considers a broader notion of opportunity cost which includes alternative uses of the radio spectrum not considered in Decision 2007/98/EC. This approach includes all relevant alternative uses in determining spectrum fees and aims to avoid distorting incentives in the shorter run. In terms of longer-run efficiency this approach considers the use of spectrum beyond the expiry of the licence and provides more appropriate price signals to promote efficient use.

114 Longer-run efficiency considerations are important as fees set in such a manner will help to promote efficient assignment of the radio spectrum in the future, including beyond the expiry of current MSS licences. In the long-run, MSS licences will expire and the spectrum will become available for re-assignment. It is important to provide appropriate long-run incentives to facilitate efficient assignment as it is currently unclear what decisions will be taken on expiry.

115 Opportunity cost pricing gives appropriate incentives at the point where the licence expires. On expiry, MSS with CGC services might be expected to make a claim on the use of the spectrum and anticipating the application of opportunity cost pricing gives appropriate incentives at the point that licence expires, particularly given the likelihood of alternative users. In the longer run, prices based on opportunity cost provide appropriate price signals and incentives both to use available spectrum more efficiently and to switch to alternative bands where issues of scarcity arise. ComReg also notes that such incentives are best maintained by generally applying a consistent and predictable approach to pricing spectrum[33].

[32] Article 12 Authorisation Regulations.
[33] Any deviation from this approach for a specific band needs to being justified by there being a sufficient benefit.

116 Given the existence of likely alternative demand, Option 2 involves a non-zero opportunity cost. However, given that the users have already been assigned the rights of use to the radio spectrum, and the fact that fees would only be charged for the CGC part of the network, it is necessary to consider whether the level of charges might unduly discourage efficient use of the option to deploy a CGC. As noted by DotEcon there is "some conflict between trying to ensure that general principles of opportunity cost pricing are applied and at the same time not discouraging efficient use of the CGC. This tension is unavoidable given that the EC did not set an opportunity cost based charge for the MSS licence itself[34]."

117 Therefore, while Option 2 would give fees reflective of opportunity cost, the fees would need to be set conservatively, at a value that is likely to be below the market value of the spectrum. This is necessary to ensure that use of the spectrum assigned by the European Commission is not unduly discouraged, but that, when used, the associated fees encourage users to consider the opportunity cost of its use[35]. This conservative approach is necessary as any attempt by ComReg to estimate the opportunity cost more precisely runs the risk of the two assigned users not deploying the CGC, and ComReg is cognisant of the fact that, for varying stated reasons, no services have as of yet launched in the 7 years since the licences were awarded. As noted above, the background to this consultation is exceptional and requires ComReg to put in place measures that would not be suitable where ComReg had control over the assignment of rights of use in the first instance.

118 Income generated is not an appropriate basis on which to calculate spectrum fees as it essentially acts as a tax on the use of the radio spectrum. In effect, this approach could cause fees to increase where an operator generates more income as a result of the more efficient use of the spectrum. In addition, income generated is likely to vary between operators, with the result that large income generators and potentially more efficient users would pay a higher fee for the same amount of spectrum compared to alternative less efficient users. Further, if an operator generated no income from the use of the radio spectrum, such an operator would have no incentive to return the spectrum to ComReg. Therefore, ComReg does not consider this approach appropriate.

Impact on stakeholders

119 In response to Document 17/19, Inmarsat appears to reaffirm its previously stated position[36] that fees could be calculated on a proportionate number of base stations.

[34] DotEcon Report 17/19a, p13.
[35] For example, fees set at this level should encourage MSS Licensees to consider alternative bands as expiry approaches.
[36] Chapter 3 of the draft RIA noted Inmarsat's views, set out in Inmarsat's 2016 Annual Report to the Member States of the European Union (EU) in compliance with Article 7(d) of EU Decision 626/2008/EC (the MSS Decision) where it notes that:

In particular, "*Inmarsat commends the substantial analysis that ComReg has conducted in arriving at this proposal as outlined in the RIA under Chapter 3, which carefully considers a variety of options based on key information and third party engagement*". As set out in Chapter 4 spectrum fees for the CGC are charged on a per-site basis which converts a national opportunity cost to a per-site basis. Therefore, Inmarsat appears to have a preference for Option 2.

120 Similarly, MNOs would likely prefer Option 2. One MNO, eir, agrees with ComReg's proposal to follow the DotEcon recommendation to apply an opportunity cost approach to the valuation of the MSS spectrum for the purpose of setting licence fees. Option 1 would provide MSS licensees access to similar service and technology-neutral spectrum that is not available to MNOs on a comparable basis. This option would provide MSS licensees with opportunities to provide certain services in competition with MNOs given that the price charged would be at a significantly lower level than similar spectrum currently assigned to the MNOs.

121 Option 2 also provides a predictable regulatory framework such that stakeholders are aware that ComReg in providing for the efficient use of valuable spectrum[37] will use a consistent approach to spectrum pricing. Such an approach reduces the extent to which alternative users of the radio spectrum could be assigned the same or similar spectrum on more preferable terms in any follow up process. In addition, this approach provides more predictability for stakeholders about the pricing mechanism that will be used in the future. In that regard, DotEcon observes that "a predictable regulatory framework in which spectrum users can anticipate that the pricing of future spectrum bands will typically be based on opportunity cost should assist with efficient decision-making about spectrum use and associated investments in network equipment." ComReg is satisfied that this is a reasonable and pragmatic approach given the exceptional circumstances of this award. Therefore, MNOs would likely prefer Option 2.

122 In response to Document 17/19, EchoStar, however, expresses a clear preference for Option 1 and the assignment of spectrum rights of use based on administrative costs. The reasons for this preference and ComReg's views regarding the same are discussed in Sections 3.2 & 3.3 above.

"*Inmarsat has long argued that any fee imposed on the use of the ground segment of the hybrid network should be based on administrative cost recovery or calculated on a proportionate number of base stations (CGC) and/ or income generated in country*." [Emphasis added]

[37] In particular where demand for a particular spectrum band is likely to be strong given the likely uses.

Impact on competition

123 As noted in Chapter 2, the relevant spectrum is adjacent to the 2.1 GHz mobile band with each MSS licensee assigned 2 x 15 MHz of spectrum. In addition, there is terminal equipment available to allow this spectrum to provide services similar to those currently being provided by MNOs[38].

124 A key concern is that CGC should not create an alternative means to deliver services competing unfairly with existing services such as mobile by avoiding paying an opportunity cost-based price for spectrum. As noted by DotEcon, “If a current licensee pays less than the opportunity cost for spectrum, there may be potential to distort competition with services provided by other parties paying opportunity cost[39]."

125 In that regard, Option 1 is likely to have the most detrimental impact on competition and could allow licensees to compete unfairly with alternative users of similar spectrum because:

- the opportunity cost associated with this option is zero and only administrative costs would apply for the full 2 x 15 MHz of spectrum;
- MSS licences could be assigned valuable spectrum at a price likely to be significantly below the opportunity cost of the spectrum;
- alternative mobile users would be paying the full opportunity cost for the use of similar spectrum; and
- it provides opportunities not related to underlying efficiency for MSS licensees to provide competition to mobile services at the margin.

126 Alternatively, Option 2 carries a lower risk of distorting competition because it applies fees that account for the value of the spectrum to alternative users, and means that large-scale deployment (at a level that would allow competition with mobile services) could only be achieved at a cost that is suitably reflective of opportunity cost[40].

[38] DotEcon Report, p14
[39] DotEcon Report, p15.
[40] As set out in Chapter 4 of the DotEcon Report, compared with the annual fees charged for national authorisations in other countries, the proposed fees for Ireland are quite high. This is consistent with the dual objective that aims to ensure operators deploying a network large enough to compete with mobile operators will need to pay fees that approximately represent opportunity cost (to prevent unfair competition), whilst fees for smaller networks are sufficiently low to avoid disincentivising deployment.

127 In addition, under Option 2 spectrum fees for the CGC are set in a manner that will help promote the efficient assignment of spectrum in the future when current MSS licences expire. As noted by DotEcon, spectrum pricing should provide appropriate signals for efficient spectrum use over longer horizons anticipating re-licensing and re-planning of spectrum[41].

128 Under Option 1 spectrum fees set at this level would only cover the administrative cost of assigning the spectrum to MSS licensees. This would also provide MSS licensees access to a valuable essential input substantially below the longer-run opportunity cost of its use, and with a competitive advantage if either MSS licensee decided to provide services that could compete at the margin with those offered by MNOs, for example.

129 ComReg also agrees with DotEcon that despite the implied opportunity cost of zero under Option 1, this spectrum should not as a result be treated differently to other spectrum bands and spectrum charges should be based on a broader notion of opportunity cost. As a result there are likely to be broad benefits in applying a consistent and predicable approach to pricing spectrum.

130 Therefore, for the reasons as set out above ComReg is of the preliminary view that Option 2 would have the most positive impact on competition.

Impact on consumers

131 MSS systems may be used for a variety of telecommunications[42] and broadcasting/multicasting services such as high speed internet or public protection and disaster relief, and may help improve rural broadband coverage within the EU. In addition, the CGC can be used, for example to:

- ensure quality of service in areas where communication with the space station cannot be guaranteed;
- provide additional capacity in traffic hotspots; or
- provide temporary coverage in disaster areas.

132 Therefore ComReg considers that the preferred option should provide adequate incentives to encourage rollout of services in a timely manner without having a distortive effect on competition.

[41] DotEcon Report (Document 17/19a), p10.
[42] DotEcon report, (Document 17/19a) p6.

133 Under Option 1, certain consumers[43] would likely benefit from small scale services. However, it may also provide additional competition in mobile services even where it occurs on the margin. However, this would create competitive distortions in the long run as MSS Licensees would be able to provide these services at a lower cost due to an administrative decision to provide access to similar spectrum resources at a lower price rather than to any underlying efficiency advantages a MSS Licensee may hold.

134 In order for fees to be effective, they should be set at a level that is reflective of, or given the circumstances of this award, approaching the opportunity cost of holding the spectrum. Under Option 2, MSS Licensees would have the correct incentives to ensure the assigned spectrum was used more efficiently and increase the scope for a broader range of services to be provided to consumers.

135 Option 2 is likely to have the most beneficial impact on consumers as it limits the risk of competitive distortions and does not unduly discourage MSS Licensees to provide innovative high value CGC applications. In particular Option 2:

- takes a conservative approach to estimating the opportunity cost as there is some uncertainty due to concerns about the level of fees disincentivising rollout; and
- charging for spectrum on a per-site basis ensures CGC applications are viable where user only a limited number of bases stations plan to be rolled out.

136 Finally, as described above (Impact on competition) Option 2 is not likely to lead to a distortion of competition. Therefore, by extension, Option 2 would be better and more preferable for consumers than Option 1.

ComReg's preferred option

137 The exceptional circumstances arising from the spectrum assignment decisions made by the European Commission, as described above, necessitate the need for fees that are reflective of opportunity cost to be estimated outside a market mechanism.

138 Notwithstanding, and given the specific circumstances pertaining to the assignment of MSS spectrum, ComReg has concluded that Option 2, with consideration of all alternative uses in determining CGC fees represents a reasonable and pragmatic approach to estimating fees that are reflective of opportunity cost, and is the more appropriate regulatory option to adopt in the context of the RIA analytical framework. In particular, Option 2:

[43] Those consumers in regions where MSS Licensees with CGC component may operate a service.

- takes account of longer-run opportunity cost and avoids creating potential competitive distortions in mobile markets;
- would accord with ComReg's statutory objective of encouraging the efficient use and ensuring the effective management of spectrum by taking account of long-run efficiency considerations;
- sets the fees conservatively that are reflective of opportunity cost to ensure MSS Licensees are not unduly discouraged from rolling out services;
- provides greater regulatory predictability about the pricing mechanism ComReg will apply to similar bands in the future;
- would better enable ComReg to prevent anticompetitive effects arising in the market and would therefore better protect the interest of consumers and ensure the efficient rollout of services; and
- is in line with the advice provided by DotEcon.

4 Fees

4.1 Introduction

139 This chapter considers matters raised by respondents in relation to fees that apply to the pricing of the satellite CGC. The main issues raised in the responses received by ComReg relate to the:

- fee structure;
- level of fees; and
- proposed prices.

140 ComReg notes that these matters have also been considered separately by ComReg's economic advisors, DotEcon in Document 17/97b, and to the extent that such considerations are relevant, they are used to inform ComReg's final decision.

4.2 Summary of ComReg's view in Document 17/19

141 ComReg's preferred option in the draft RIA was to use a long-run opportunity cost approach that considered the alternative uses of the 2 GHz spectrum in determining CGC fees. In that regard, ComReg considered the recommendations in the DotEcon report (Document 17/19a) and determined the appropriate structure and level of fees that should apply to the CGC. This included a discussion on the proposed fee structure under the following headings:

- Per-site or lump sum charges;
- Time-profiled and non-linear; and
- Geographical variation in charges.

142 Having considered each of the options available to it, and the views of DotEcon, ComReg set out its preliminary view that:

- a per-base station charge may be appropriate for CGCs;
- that time-profiled or non-linear charging is not necessary in structuring the fees for CGC; and
- a geographic variation in prices is not necessary in pricing CGC fees.

143 In light of its preliminary view, ComReg then considered the level of fees that would potentially apply to rights of uses assigned to MSS licensees Inmarsat and EchoStar.

144 ComReg agreed with DotEcon's benchmarking approach and recommended fees of €0.25 MHz/Pop as likely to be the most relevant for applying a conservative estimate of the opportunity cost of the 2 GHz MSS/CGC spectrum. This implied a national annual fee of €5,054,146 and an annual fee per site[44] of €2,300[45].

4.3 Views of respondents

145 ComReg received four responses in relation to the award format (Inmarsat, EchoStar, DT and eir).

146 Inmarsat welcomes ComReg's proposed spectrum usage fee of €2,300 per site and ComReg's proposed 'per-site' approach, and understands that this option achieves the correct balance between minimising the likelihood of any distortions to competition whilst at the same time not discouraging deployment of CGC networks.

147 DT welcomes ComReg's approach to calculating fees using a EUR/MHz/Pop benchmark and notes that:

- the value for a terrestrial service is calculated in an appropriate way taking into account that the EAN will have just a few base stations compared to terrestrial networks; and
- the site-based costing is a fair solution that is scalable for any kind of service in respect to its site density.

148 EchoStar reiterates its concern that the level of fees will discourage CGC service rollout in Ireland. Separately, EchoStar notes that it would be wholly inappropriate to determine the licence fees for the single Calibration Earth Station ("CES") site in Ireland on the basis of the provision of terrestrial mobile services.

149 Eir supports the proposal to set prices based on opportunity cost. Eir, however, raises a number of concerns, namely that:

- the benchmarking values need to be updated in light of recent developments in spectrum assignment and associated valuations (Benchmarking);
- the position of the MSS spectrum adjacent to the UMTS spectrum band adds further value to the MSS spectrum (Benchmarking); and

[44] Assuming 2200 sites are required to make up a national network, based on the average number of sites deployed by the MNOs in Ireland.
[45] The fee per site will be adjusted annually using the Consumer Price Index (CPI) with a view to ensuring that the value of these fees remains constant in real terms over the term of licence.

- a weighting should be applied such that urban sites are priced above the average and rural sites below the average, to reflect their differing economic values (Geographic variation).

ComReg's assessment

150 EchoStar's concerns in relation to deployment have been addressed in Chapter 3 and are not repeated here. In relation to the CES sites which are used in the calibration of the MSS space segment, ComReg notes that these sites also make use of the radio spectrum assigned by the European Commission. It is therefore appropriate to impose a spectrum usage fee in line with opportunity cost, given that the spectrum used by the CES could be used for alternative purposes.

151 ComReg addresses the issues raised by eir under the following headings:

- Benchmarking; and
- Geographic variation in charges.

Benchmarking

152 In relation to eir's claim that ComReg did not consider the results of the 3.6 GHz Award Process, DotEcon observes that:

- its original advice to ComReg (Document 17/19a) suggested that it would be prudent to exclude this band as a candidate band to benchmark the value for MSS/CGC spectrum;
- the results of the 3.6 GHz Award Process were not available to it prior to publication of Document 17/19a; and
- the 3.6 GHz price translates into a comparable price of €0.035/MHz/Pop, which is significantly below the proposed price level for CGC fees of €0.25/MHz/Pop.

153 ComReg agrees with the views of DotEcon. The original advice to ComReg considered the potential inclusion of the 3.6 GHz band, noting that the supply and demand conditions for this band may affect the value of the spectrum in the band in unpredictable ways. Given the results of the 3.6 GHz award are now available, DotEcon observes that converting the prices achieved in the 3.6 GHz award into a value that can be compared with the proposed CGC fees gives a price point of €0.035/MHz/Pop. This is significantly below the proposed price level for CGC fees of €0.25/MHz/Pop.

154 In that regard, ComReg considers that additional adjustments are not necessary to the proposed fees. The 3.6 GHz price does not provide any evidence to suggest the opportunity cost of the 2 GHz spectrum has been underestimated or that the proposed fees should be increased, the 2100 MHz band is still the most relevant

comparator.

155 Furthermore, the result of the 3.6 GHz award does not suggest that the fees should be lower. ComReg's approach to setting fees has been to use bands that are technically and commercially most comparable to the MSS/CGC frequencies. The results of the 3.6 GHz award and the associated price per pop show that the 3.6 GHz band is not commercially comparable to 2 GHz spectrum (i.e. the benchmarked price is 7 times lower than the conservatively estimated value of the 2 GHz spectrum) and therefore any lowering of the fees is also not justified.

156 ComReg accepts that the fees are set at a value that is likely to be below the market value of the spectrum. This is necessary to ensure that use of the spectrum assigned by the European Commission is not unduly discouraged, but that, when used, the associated fees encourage users to best consider the opportunity cost of its use. This approach is necessary as setting fees closer to the estimated opportunity cost runs the risk of discouraging the use of spectrum already assigned by the European Commission. As noted above, the background to this consultation is exceptional and requires ComReg to put in place measures that would not be suitable where ComReg had control over the assignment of rights of use in the first instance.

Geographic variation

157 In relation to the claim that the approach will not operate to prevent unfair competition in urban areas while adequately encouraging rollout in rural areas, DotEcon:

- recognises that there may in practice be different values associated with deployment on rural/urban sites; and
- agrees that differentiating CGC fees by urban and rural areas has the potential to improve the terms of the trade-off between not disincentivising new services (that might be targeted at rural areas) and avoiding unfair competition with existing mobile services (which might be targeted primarily at urban areas).

158 Notwithstanding this, DotEcon observes that no specific evidence has been provided to suggest that the proposed fees (around the level of the proposed uniform per-site fee) would have adverse effects on either the rollout incentives or the opportunities for unfair competition. Therefore, DotEcon sees little justification for a more complex method of discounting CGC fees in rural areas given the large number of additional parameters that would need to be determined.

159 ComReg agrees with the views of DotEcon. In particular, Document 17/19 set out ComReg's substantive reasons for not including geographic variation in fees, in particular, it noted that:

- taking account of any geographic variation would require a lower price in rural areas and a higher price in urban areas; and
- setting fees at a level lower than an already conservative estimate in rural areas runs the risk of fees that are not reflective of opportunity cost and are at a level that would:
    - fail to promote the efficient assignment of spectrum when current MSS licences expire; and/or
    - create distortions to competition in rural areas.

160 While the particular issues raised by eir have some merit, ComReg again notes that the circumstances of this award are exceptional, given the assignment decisions taken by the European Commission. In that regard, the consideration of additional complexity runs the risk of unduly discouraging deployment or creating distortions to competition in certain areas of the state. Therefore, ComReg considers that a geographic variation in charges is not required at this point.

4.4 ComReg's final decision

161 Accordingly, ComReg's final position is that its original proposal to set a uniform annual per-site fee of €2,300 is appropriate for MSS licensees that wish to deploy one or more CGCs in Ireland, and that no changes are required to either the fee level or the fee structure. The fee per site will be adjusted annually using the Consumer Price Index (CPI) with a view to ensuring that the value of these fees remains constant in real terms over the term of licence.

5 Other Issues Raised

162 A number of additional matters were raised by one respondent, ViaSat, regarding one of the selected operators, namely Inmarsat. They are in summary as follows:

- granting a licence to Inmarsat would be inconsistent with ComReg's statutory functions and objectives;
- granting a licence to Inmarsat would breach EU conditions on the award of S-band spectrum and would reward Inmarsat for its lack of compliance;
- granting Inmarsat's request would breach the EU MSS decisions defining the permitted use of S-band spectrum;
- Inmarsat will not be the entity controlling the ATG system; and
- Inmarsat's ATG system risks foreclosing competition;

5.1 Whether granting a licence to Inmarsat would be inconsistent with ComReg's functions and objectives

163 In summary, ViaSat states;

- any decision to grant an authorisation to Inmarsat would be inconsistent with ComReg's statutory functions and objectives and could do lasting and irreparable damage to competition in the EU in-flight connectivity market, to the detriment of consumers;
- points out that Regulation 9(11) of the Authorisation Regulations provides as follows: "*The Regulator shall ensure that radio frequencies are efficiently and effectively used.," and points out also that Section 17(1)(b) of European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (SI No. 333 of 2011) (the "Framework Regulations") requires ComReg to ensure that its spectrum allocations [sic] are based on "objective, transparent, non-discriminatory and proportionate criteria*".
- that *"the award of spectrum to an undertaking in circumstances where there is no clarity at all that it is to be used [sic} would be very damaging to the public good."*

ComReg's assessment

164 The Authorisation Decision requires National Regulatory Authorities such as ComReg to grant to the selected applicants the authorisations necessary for the provision of CGCs of mobile satellite systems on their territories. Such a grant is subject to national and European law. The purpose of this Response to Consultation is to assess the responses received and to give effect, so far as possible, to the requirement in the Authorisation Decision, whilst taking account of the selected applicants' compliance with other legal obligations pursuant to the Authorisation Decision. For the avoidance of doubt, ComReg is not making any decision to assign spectrum as part of this consultation process. The assignment of spectrum for MSS with CGC in the 2GHz band to Inmarsat and EchoStar was carried out by the European Commission in 2009.

165 Even if ViaSat's concerns are made out, however, there is no obstacle to ComReg proceeding to establish at this stage a licensing framework to enable Inmarsat and EchoStar to apply for rights to use the 2 GHz frequency band pursuant to Article 7(1) of the Authorisation Decision.

5.2 Whether granting a licence to Inmarsat would breach EU conditions on the award of S-band spectrum and would reward Inmarsat for its lack of compliance;

166 In summary, ViaSat:

- notes that Inmarsat failed to meet milestones 6 to 9 of the Authorisation Decision which should have been met by 13 May 2016;
- further notes that Inmarsat also failed to meet the deadline extension date of 1 December 2016 granted by certain Member States to enable it to meet milestones 6 to 9;
- believes ComReg should not grant Inmarsat a CGC authorisation unless and until, among other things, Inmarsat has proven that it has satisfied all milestones and conditions imposed by the Authorisation Decision;
- states that it is incumbent on ComReg to address Inmarsat's failure to comply with all the milestones and other conditions in the MSS Decision; and
- notes that since the HellasSat-3 satellite was still "*in the final stages of production*" in late February 2017, it is apparent that Inmarsat's requisite S-Band MSS satellite capability could not have been launched and brought into service by the aforementioned extension date of 1 December 2016 - even if Inmarsat had arranged suitable launch services by that date.

ComReg's assessment

169 As stated previously Article 7(1) of the Authorisation Decision requires Member States to grant rights of use in national law and states; *"Member States shall ensure that the selected applicants… have the right…."* However, Article 7(2) of the Decision provides that *"the rights covered in paragraph 1 shall be subject to the following common conditions*" (emphasis added).

170 Furthermore Article 9(2) of the Authorisation Decision provides that Member States shall ensure monitoring of compliance with the common conditions and take appropriate measures to address non-compliance. ComReg is concerned about the lawfulness of granting the rights covered in paragraph 1 where it is aware that the conditions to which such rights are subject cannot be fulfilled.

171 ComReg is cognisant of the fact that both Inmarsat and EchoStar have failed to satisfy the common conditions as set out in Article 7(2) and in particular milestones 6 to 9 as set out in the Annex of the Authorisation Decision, by the required date of 13 May 2011. In addition, both selected applicants appear also to have failed to meet the extended deadline of 1 December 2016 granted by Member States, to satisfy the outstanding milestones, i.e. the successful launch of its proposed MSS satellite network and the actual provision of "continuous commercial MSS" within the territories of the Member States[46]. ComReg is not aware of any further extension granted to either party beyond 1 December 2016, to enable them to satisfy the outstanding milestones.

172 Consequently in accordance with Article 7 of the Authorisation Decision and based on the information currently before it, ComReg is not yet in a position to finalise a view on whether it would be consistent with the Authorisation Decision to grant an authorisation to Inmarsat or EchoStar at this juncture.

173 As such, ComReg has written to both selected applicants seeking further information with regard to their compliance with Article 7(2). In addition, ComReg now intends to seek the assistance of COCOM (The European Commission's Communications Committee) with regard as to how ComReg should proceed in the event that Inmarsat and EchoStar cannot provide sufficient evidence to ComReg, with regard to their compliance with the common conditions, to enable ComReg to grant an authorisation to both parties.

[46] ComReg is aware that in June 2017 both EchoStar and Inmarsat successfully launch their S-Band satellites.
https://www.echostar.com/en/Press/Newsandmedia/EchoStar%20XXI%20Satellite%20Successfully%20Launched.aspx.
https://www.inmarsat.com/news/inmarsat-confirms-successful-launch-s-band-satellite/

174 In these circumstances it is proportionate for ComReg to adopt a two stage approach to the authorisation of MSS with CGC in Ireland:

- first, ComReg will proceed with the implementation of the licensing framework for MSS with CGC, as stated earlier in this document and as set out in the Regulations in Annex 1 which will now be put before the Minister for Communications, Climate Action and the Environment for his approval;

- furthermore, ComReg does not intend to move to the second stage, the actual granting of authorisations necessary for the provision of CGCs of mobile satellite systems to a particular selected applicant in accordance with Article 7(1) of the Authorisation Decision, until it is satisfied that the selected applicant concerned has complied with Article 7(2) of the Authorisation Decision; and

- consequently, the Decision Instrument set out in Chapter 6 of this document has been amended to reflect this two stage approach.

5.3 Whether granting Inmarsat's request would breach EU MSS decisions defining the permitted use of S-Band spectrum

175 In summary, ViaSat:

- argues that Inmarsat is proposing to provide a service that does not fall within the scope of Authorisation Decision;

- contends that the antenna located under an airplane's fuselage as part of Inmarsat's aeronautical system would not communicate with the MSS satellite and is therefore not a "mobile earth station";

- states that the acquiescence by ComReg to Inmarsat's intention to use S-band spectrum for in-flight connectivity using an air-to-ground system (possibly supported by satellite), rather than primarily for MSS supported by CGC, would be equivalent to an unjustified release from the obligation to respect the common conditions of the Authorisation Decision;

- states that the majority of the S-band spectral capacity (over 99%) for Inmarsat's aeronautical network would be used to provide terrestrial service and that this would therefore imply that the CGC would not be complementing the MSS network but in fact the MSS network would complement the CGC of the network;

- believes that it is highly questionable whether Inmarsat is using the same spectrum for both air-to-ground and satellite purposes in the same area at the same time (the reason being that the amount of spectrum desired for the air-to-ground component would far outstrip the need for spectrum for the MSS component);
- calls to ComReg's attention that Article 8(3)(c) of the MSS Decision prohibits the independent operation of CGC except in limited circumstances caused by "the failure of the satellite component of the associated mobile satellite system," and even in such a force majeure circumstance, the decision limits such independent operation to a period of no more than eighteen months; and
- states that Inmarsat has expressly proposed at COCOM meetings to be authorised to provide air-to-ground services without the need to install a terminal on each aircraft that communicates with its S-Band MSS satellite.

ComReg's assessment

176 ComReg disagrees that Inmarsat's EAN fails to comply with the definition in Article 2(2)(a) because "a mobile earth station" is not being "used in each communications path" as ViaSat contends.

177 ViaSat itself refers (correctly) to the definition of a "mobile earth station" in its response to the Consultation as being "intended to be used while in motion or during halts at unspecified points", "located on the Earth's surface or within the major portion of the earth's atmosphere", and "intended for communication" with one or more satellites (Articles 1.63, 1.68 of the Radio Regulations of the International Telecommunications Union ("ITU")). The ITU's Radio Regulations are applicable in view of *inter alia* Article 9 of the Framework Directive.

178 On this definition the antenna on top of the aircraft in Inmarsat's arrangement may be a "mobile earth station" since it is "located…within the major portion of the earth's atmosphere" and communicates with the satellite; and the antenna on the underside of the aircraft in Inmarsat's arrangement may be "mobile earth station" since it is "located…within the major portion of the earth's atmosphere" and communicates with the CGC at a fixed location[47].

[47] This may be expressly covered by the ITU's Radio Regulations, which defines an "*aircraft earth station*" as "*a mobile earth station in the aeronautical mobile-satellite service located on board an aircraft*" (Article 1.84) and an "aeronautical mobile-satellite service" as "a *mobile-satellite service in which mobile earth stations are located on board aircraft"* (Article 1.85).

179 In ComReg's view it is possible to create a "mobile satellite system" which satisfies Article 2(2)(a) by combining different systems provided that they are integrated, the CGC is controlled by the resource and network management mechanism of a single system, and the CGC operates on the same portions of frequency band as the satellite components of the system. Support for this interpretation lies in recital (9) to the Harmonisation Decision, which states that, in these circumstances, "CGCs could also be utilised even if signals are not transmitted through the satellite components" (emphasis added).

180 Despite this view, ComReg is still not in a position to confirm if Inmarsat's EAN satisfies Article 2(2)(a) or 2(2)(b) of the Authorisation Decision. Consequently, ComReg has asked Inmarsat to provide ComReg with additional information regarding the operation of its EAN service and how Inmarsat complies with Article 2 of the Authorisation Decision. Once this information is received, ComReg will conduct a thorough assessment of the information provided and make a decision on the suitability of the proposed EAN in due course. ComReg will seek similar information, where relevant, from the other selected applicant, EchoStar.

181 Regarding ViaSat's comments concerning the spectrum use of the different elements of the MSS with CGC network, ComReg notes that it is a requirement as part of Article 8(3)(a) of the Authorisation Decision that the same spectrum is used for both the MSS and CGC elements. Furthermore, ComReg notes that the Authorisation Decision did not specify the quantum of spectrum that must be used to provide a service. In addition ComReg notes that Deutsche Telekom clearly states that ground stations and the satellite stations will *"…. transmit on the same frequencies and in the same signal direction as the satellite system. The frequency requirement of the integrated satellite mobile radio system is not increased by the ground stations."*

5.4 Whether Inmarsat will be the entity controlling the ATG system

182 In summary, ViaSat states that given the nature of the arrangement between Inmarsat and Deutsche Telecom it is not clear that all of the elements of the hybrid satellite/ground network proposed by Inmarsat will be under the control of the MSS network operator as required by the Authorisation Decision. Inmarsat's proposed ATG system and the associated CGC frequencies would, ViaSat argues, be under the control of a third party - Deutsche Telecom.

ComReg's assessment

183 Article 8(3)(b) of the Decision requires that the resource and network management mechanism of the satellite system also controls the CGC[48] and states:

"complementary ground components shall constitute an integral part of a mobile satellite system and shall be controlled by the satellite resource and network management mechanism; they shall use the same direction of transmission and the same portions of frequency bands as the associated satellite components and shall not increase the spectrum requirement of the associated mobile satellite system;".

184 ComReg considers that in this instance the word *"control"* can refer to the operational control of communications, via the MSS operator's Network Management Centre and not solely to the financial control of the physical assets deployed. On this basis, ComReg observes that there is no evidence to suggest that the network will not be under the control of the MSS space segment. Submissions made as part of this consultation process (see ComReg document 17/97a) indicate that Deutsche Telekom and Towercom will build and manage the CGC aspects of the network, but all the elements of the network will be under the control of the MSS network operator, in this case Inmarsat, who would also be the licensee.

185 Indeed, ComReg notes that in its submission Deutsche Telekom states, that in accordance with Article 3(2) (presumably DT here means Article 8(3)(b) of the Authorisation Decision), the ground stations are an integral part of the satellite mobile radio system and are controlled by the satellite-based resource and network management system of Inmarsat.

186 This notwithstanding, ComReg has asked Inmarsat to provide further precise details as to exactly how the requirement of Article 8(3)(b) of the Decision is satisfied.

[48] ComReg notes that in its consultation document it stated in paragraph 2.7 that *"all of the elements of the hybrid satellite/ground network…..must be under the direct control of the MSS network operator……."* The word "direct" is not precisely used in the Authorisation Decision and its use in the consultation document was inexact.

5.5 Whether Inmarsat's ATG system risks foreclosing competition;

187 ViaSat states that any issue of rights to use the spectrum for Inmarsat's proposed air-to-ground system by ComReg would also raise serious competition concerns, and would be entirely at odds with ComReg's statutory objective under section 12(1)(a) of the Communications Act 2002 (as amended), "(i) to promote competition; (ii) to contribute to the development of the internal market, and (iii) to promote the interests of users within the Community."

ComReg's assessment

188 The competition concerns raised by ViaSat arise out of the "Selection Decision" adopted by the European Commission which selected Inmarsat and Solaris (now EchoStar) as the 2 GHz MSS operators, and consequent related EU Decisions. The Authorisation Decision requires Member States to authorise these operators to provide MSS with CGC in their jurisdictions. ComReg again reminds ViaSat that the decision to award spectrum to Inmarsat (and EchoStar) for MSS with CGC was made by the European Commission, and ComReg's discretion in this matter is necessarily limited. ComReg is not *itself* awarding spectrum to Inmarsat and EchoStar but merely setting a framework for granting the necessary authorisations for the use of CGC in accordance with the Authorisation Decision. Therefore, ViaSat's concerns in relation to effect on competition arising from the Decisions, are in practice a matter for the European Commission, as the European Commission is the agency that selected Inmarsat and Solaris by means of a comparative selection procedure as outlined in the Selection Decision, not ComReg.

6 Final Decision Instrument

This chapter sets out a decision document based on the positions set out by ComReg in the preceding chapters and their supporting annexes.

6.1 Definitions and Interpretation

In this Decision, save where the context otherwise admits or requires:

“Act of 1926” means the Wireless Telegraphy Act, 1926 (No. 45 of 1926), as amended;

“Access Regulations” means the European Communities (Electronic Communications Networks and Services) (Access) Regulations 2011, S.I. No. 224 of 2011;

“Authorisation Decision” means the Decision of The European Parliament and of The Council of 30 June 2008 on the selection and authorisation of systems providing mobile satellite services (MSS), Decision 626/2008/EC;

“Authorisation Regulations” means the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations 2011, S.I. No. 335 of 2011;

“CGC” means the Complementary Ground Components of mobile satellite systems shall mean ground-based stations used at fixed locations, in order to improve the availability of MSS in geographical areas within the footprint of the Mobile Satellite System, where communications with one or more space stations cannot be ensured with the required quality;

“Communications Regulation Act 2002” means the Communications Regulation Act, 2002, (No. 20 of 2002), as amended;

“ComReg” means the Commission for Communications Regulation, established under section 6 of the Communications Regulation Act 2002;

“EchoStar” Means EchoStar Mobile Limited;

“EU” means European Union;

“Framework Regulations” means the European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011, S.I. No. 333 of 2011;

"Harmonisation Decision" means Commission Decision of 14 February 2007 on the harmonised use of radio spectrum in the 2 GHz frequency bands for the implementation of systems providing mobile satellite services, Decision 2007/98/EC;

"Inmarsat" means Inmarsat Ventures Limited;

"ITU" means International Telecommunication Union;

"Minister" means the Minister for Communications, Climate Action and Environment;

"Ministerial Policy Directions" means the policy decisions made by Dermot Ahern TD, then Minister for Communications, Marine and Natural Resources, pursuant to section 13 of the Communications Regulation Act 2002 (as amended), dated 21 February 2003 and 26 March 2004;

"Modalities Decision" means the Commission Decision of 10 October 2011 on modalities for coordinated application of the rules on enforcement with regard to mobile satellite services (MSS) pursuant to Article 9(3) of Decision 626/2008/EC, Decision 2011/667/EU;

"MSS" means the Mobile Satellite System and shall mean electronic communications networks and associated facilities capable of providing radio-communications services between a mobile earth station and at least one or more space stations, or between mobile earth stations by means of one or more space stations, or between a mobile earth station and one or more complementary ground components used at fixed locations;

"MSS with CGC Regulations" means the Wireless Telegraphy (Mobile Satellite System with Complementary Ground Component) Regulations 2017, a draft form of which is set out in Annex 2 to ComReg Document 17/19;

"MSS with CGC Spectrum" means the frequency bands 1980 to 2010 MHz (Earth-to-space) and 2170 to 2200 MHz (space-to-Earth);

"RIA" means Regulatory Impact Assessment;

"Selection Decision" means Commission Decision of 13 May 2009 on the selection of operators of pan-European systems providing mobile satellite services (MSS), Decision 2009/449/EC;

6.2 Considering

189 In arriving at its decisions in this document, ComReg has had regard to:

(1) the contents of, and the materials and reasoning referred to in, as well as the materials provided by respondents in connection with, the below-listed ComReg documents:

(a) 17/19 the Consultation Document;

(b) 17/97 the response to Consultation; and

(2) the consultants' reports commissioned[49], and the advice obtained by ComReg in relation to the subject-matter of the documents and materials listed above;

(3) the powers, functions, objectives and duties of ComReg, including, without limitation those under and by virtue of:

(a) the Communications Regulation Act 2002, and, in particular, sections 10, 12 and 13 thereof;

(b) the Framework Regulations, and, in particular, Regulations 12, 13, 16 and 17 thereof;

(c) the Authorisation Regulations, and, in particular, Regulations 9, 10, 11, 12, 15, 16, 17, 18, 19, 21, 23 and 24 thereof;

(d) Regulation 6(1) of the Access Regulations;

(e) the Harmonisation Decision;

(f) the Authorisation Decision;

(g) the Selection Decision;

(h) the Modalities Decision;

(i) Sections 5 and 6 of the Wireless Telegraphy Act, 1926; and

(j) the applicable Ministerial Policy Directions made by the Minister under Section 13 of the Communications Regulation Act 2002, and, noting that it has:

(i) given all interested parties the opportunity to express their views and make their submissions in accordance with Regulation 11 of the Authorisation Regulations and Regulation 12 of the Framework Regulations; and

[49] 17/19a

(ii) evaluated the matters to be decided, in accordance with ComReg's RIA Guidelines (ComReg Document 07/56a) and the RIA Guidelines issued by the Department of An Taoiseach in June, 2009, as set out in the various chapters of Document 17/97 [document to which the final decision will be attached] and their supporting annexes, ComReg has decided:

6.3 Noting

190 That Regulation 12, paragraphs (a) (b) and (c) of the Authorisation Regulations, covers the use of frequency bands that have been harmonised across the European Union and where the selection procedure is in accordance with EU rules then ComReg as the Regulator: '*shall not impose any further conditions, additional criteria or procedures which would restrict, alter or delay the grant of the right of use concerned provided that all the conditions which have been specified by the Regulator to be complied with by the holder of the right of use in the state have been satisfied.* '

191 Furthermore, that according to Article 7 of the Authorisation Decision, Member States, in this case ComReg on behalf of Ireland: *'shall ensure that the selected applicants, in accordance with the time frame and the service area to which the selected applicants have committed themselves, in accordance with Article 4(1)(c), and in accordance with national and Community law*', have the right to use the specific radio frequency identified in the Harmonisation Decision.

6.4 Decides

192 Subject to obtaining the consent of the Minister, to the making of the MSS with CGC Regulations pursuant to section 6 of the Wireless Telegraphy Act 1926, prescribing relevant matters in relation to MSS with CGC, including prescribing the form of the licences concerned, their duration and the conditions and restrictions subject to which they are granted;

6.5 Statutory powers not affected

193 Nothing in this document shall operate to limit ComReg in the exercise of its discretions or powers, or the performance of its functions or duties, or the attainment of objectives under any laws applicable to ComReg from time to time.

Gerry Fahy, Chairperson

The Commission for Communications Regulation, 24th November 2017

Annex: 1 Draft Regulations

The draft Regulations, as presented in draft format, are subject to the Minister providing his consent under section 37 of the Communications Regulation Act 2002, as amended, and therefore in this respect may be subject to further change.

STATUTORY INSTRUMENTS

I. No. of 2018

_____

Wireless Telegraphy (Mobile Satellite Service and Complementary Ground Component) Regulations 2018

(Prn.)

The Commission for Communications Regulation, in exercise of the powers conferred on it by section 6(1) of the Wireless Telegraphy Act, 1926 (No. 45 of 1926) (as substituted by section 182 of the Broadcasting Act 2009 (No. 18 of 2009)), and with the consent of the Minister for Communications, Climate Action and Environment, pursuant to section 37 of the Communications Regulation Act 2002 (No. 20 of 2002), hereby makes the following regulations:

Citation

1. These Regulations may be cited as the Wireless Telegraphy (Mobile Satellite Service and Complementary Ground Component) Regulations 2017.

Interpretation

2. (1) In these Regulations, unless the context otherwise requires:

"Act of 1926" means the Wireless Telegraphy Act, 1926 (No. 45 of 1926);

"Act of 1972" means the Wireless Telegraphy Act, 1972 (No. 5 of 1972);

"Act of 2002" means the Communications Regulation Act, 2002 (No. 20 of 2002);

"Apparatus" in relation to Licences means apparatus for wireless telegraphy as defined in section 2 of the Act of 1926 for the purpose of providing a Mobile Satellite Service with Complementary Ground Component and in relation to a Licence, means apparatus for wireless telegraphy to which the licence relates;

"Authorisation Regulations" means the European Communities (Electronic Communications Networks and Services)(Authorisation) Regulations, 2011 (S.I. 335 of 2011);

"Base Station" means apparatus for wireless telegraphy, used at a fixed location under the control of the associated space station and its network management mechanism as set out in the Schedule to these Regulations;

"Commission" means the Commission for Communications Regulation;

"Complementary Ground Component" means base stations used at fixed locations in order to improve the availability of a Mobile Satellite Service in geographical areas within its footprint, where communications with one or more space stations cannot be ensured with the required quality;

"CPI" means the Consumer Price Index as published from time to time by the CSO;

"CPI Adjustment" means adjustment in accordance with any changes in the CPI that occur following the date of commencement of the licence, where "change in the consumer price index" means the difference between the CPI number last published

before the date of commencement of the licence and the CPI number most recently published on the anniversary of the date of commencement of the licence;

"CSO" means the Central Statistics Office or its successor;

"Decision of 2008" means Decision 626/2008/EC of the European Parliament and of the Council on the selection and authorisation of systems providing mobile satellite services;

"Decision of 2009" means Decision 2009/449/EC of the European Commission on the selection of operators of pan-European systems providing mobile satellite services;

"Decision of 2011" means Decision 2011/667/EU of the European Commission on modalities for coordinated application of the rules on enforcement with regard to mobile satellite services pursuant to Article 9(3) of Decision No. 626/2008/EC of the European Parliament and the Council;

"Earth Station" means a station located either on the Earth's surface or within the major portion of the Earth's atmosphere and intended for communication;

"Electronic Communications Network" and "Electronic Communications Service" have the meanings assigned to them in the Framework Regulations;

"ETSI" means the European Telecommunications Standards Institute;

"Framework Regulations" means the European Communities (Electronic Communications Networks and Services) (Framework) Regulations, 2011 (S.I. 333 of 2011);

"Harmful Interference" has the meaning set out in the Framework Regulations;

"Licence" means a Licence granted under section 5 of the Act of 1926, to keep, have possession of, install, maintain, work and use Apparatus in a specified place in the State;

"Licence Commencement Date" means the date, as specified in the Licence, upon which the Licence comes into effect;

"Licensee" means the holder of a Licence;

"Mobile Earth Station" means an earth station in the Mobile Satellite Service intended to be used while in motion or during halts at unspecified points;

"Mobile Satellite Service" means a radio communications service between mobile earth stations and one or more space stations;

"MVNO" means a Mobile Virtual Network Operator.

"Radiocommunications Service" means a service as defined in the Radio Regulations of the International Telecommunication Union involving the transmission, emission and or reception of radio waves for specific telecommunication purposes;

"Radio Equipment Directive" means Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014, on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC;

"Space Station" means apparatus for wireless telegraphy that is located on an object which is beyond the major portion of the Earth's atmosphere and which is not a high altitude platform;

"Station" means one or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment, necessary at one location for carrying out a Radiocommunications Service;

"Temporary Base Station" means a base station used at a fixed location for a temporary period of time;

"Undertaking" has the meaning set out in the Framework Regulations.

(2) In these Regulations:

(a) a reference to an enactment or regulation shall be construed as a reference to the enactment or regulation as amended or extended by or under any subsequent enactment or regulation;

(b) a reference to a Regulation or a Schedule is to a Regulation of or Schedule to these Regulations unless it is indicated that a reference to some other enactment is intended;

(c) a reference to a paragraph or subparagraph is to the paragraph or subparagraph of the provision in which the reference occurs unless it is indicated that reference to some other provision is intended;

(d) a reference to a Directive of the European Parliament and Council shall be construed as a reference to the Directive as amended or extended by any subsequent Directive; and

(e) a reference to a Decision of the European Commission shall be construed as a reference to the Decision as amended or extended by any subsequent Decision.

(3) A word or expression that is used in these Regulations and that is also used in the Act of 1926 has, unless the context otherwise requires, the same meaning in these Regulations that it has in that Act.

(4) A word or expression that is used in these Regulations and that is also used in the Act of 2002 has, unless the context otherwise requires, the same meaning in these Regulations that it has in that Act.

(5) A word or expression that is used in these Regulations and that is also used in the Framework Regulations or in the Authorisation Regulations has, unless the context otherwise requires, the same meaning in these Regulations that it has in those Regulations.

(6) The Interpretation Act 2005 (No. 23 of 2005) applies to these Regulations.

Licences to which these Regulations apply

3. These Regulations apply to Licences to keep, have possession of, install, maintain, work and use apparatus for wireless telegraphy for the purpose of the provision of a Mobile Satellite Service with Complementary Ground Component ("MSS with CGC"), in the form set out in the Schedule to these Regulations.

Application for Licences and Form of Licences

4. (1) An Application for a Licence shall be made to the Commission and shall be in writing in such form as may be determined by the Commission from time to time.

(2) A person who makes an Application under paragraph (1) of this Regulation shall furnish to the Commission such information as the Commission may reasonably require for the purpose of its functions under these Regulations and, if the person, without reasonable cause, fails to comply with this paragraph, the Commission may refuse to grant a Licence to the person.

(3) The Commission may grant a Licence in accordance with the provisions of Regulation 9 of the Authorisation Regulations.

(4) A Licence shall be in the form specified in the Schedule to these Regulations with such variation (if any) (whether by addition, deletion or alteration) as the Commission may determine from time to time or in any particular case.

Duration of Licences

5. (1) A Licence to which these Regulations apply shall, unless it has been withdrawn by ComReg or surrendered by the Licensee, be in force until 13 May 2027.

(2) A Licence granted under these Regulations shall automatically expire on the expiry of authorisation of the associated mobile satellite system.

Conditions of Licences

6. It shall be a condition of any Licence to which these Regulations apply that the Licensee shall:

(1) ensure that it complies with the conditions contained within the Licence and these Regulations;

(2) ensure that any Apparatus complies with the Decision of 2008, the Decision of 2009, and the Decision of 2011;

(3) ensure that it makes payments of the correct fees as set out in Regulation 8;

(4) ensure that Apparatus installed, maintained, possessed or kept under the Licence is capable of operating within the radio frequency spectrum specified in the Licence concerned;

(5) ensure that where the Apparatus is worked or used, as appropriate, it is worked or used only on such radio frequency spectrum as specified in the Licence concerned;

(6) ensure that in each calendar year in which the Licence is in force, and in any event on or before the anniversary of the Licence Commencement Date of each such year, it submits updated information to the Commission in respect of Part 1 and part 2 of its Licence;

(7) furnish such information and reports as may be requested by the Commission from time to time;

(8) ensure that the Apparatus, or any part thereof, shall be installed, maintained, worked and used so as not to cause Harmful Interference;

(9) ensure that the Apparatus or any part thereof, complies with Article 3 of the Radio Equipment Directive;

(10) upon becoming aware of any event likely to materially affect its ability to comply with these Regulations, or any conditions set out or referred to in any Licence, notify the Commission of that fact in writing within 5 working days;

(11) ensure that if the address of the Licensee or the person to whom the Licence has been assigned changes, the Licensee or assignee shall, as soon as possible, notify the Commission in writing of the change;

(12) comply with any special conditions imposed under section 8 of the Act of 1972 and subject to which this Licence is deemed by subsection (3) of that section to be issued;

(11) not, without the prior consent of the Commission (which shall not be unreasonably withheld) assign the Licence or any of the powers, duties or functions conferred by it or otherwise transfer any of the rights or obligations conferred by it;

(12) where consent is granted, under paragraph 11 of this Regulation, ensure that the assignee is contractually obliged to provide to the assignor such details as the Commission may request from time to time;

(13) comply with all obligations under the relevant international agreements relating to the use of apparatus or the frequencies to which they are assigned;

(16) that where an Undertaking requests MVNO status or Wholesale Access, the Licensee shall not unreasonably refuse the request and shall ensure that any offer made is on reasonable and non-discriminatory terms;

(17) that, where the Commission requests information in regards to any MVNO or Wholesale Access offering made to an undertaking: the Licensee shall supply in full the requested information, in the form requested by the Commission, not later than twenty working days after the receipt of the request;

(18) ensure that it uses the radio spectrum assigned under the Decision of 2008 and the Decision of 2009 for the provision of complementary ground components of mobile satellite systems;

(19) ensure that the complementary ground components shall constitute an integral part of a mobile satellite system and shall be controlled by the satellite resource and network management mechanism;

(20) ensure that the complementary ground components shall use the same direction of transmission and the same portions of frequency bands as the associated satellite components and shall not increase the spectrum requirement of the associated mobile satellite system;

(21) ensure that the Commission is notified within 5 working days of the failure of the satellite component; and

(22) ensure that any independent operation of complementary ground components in case of failure of the satellite component of the associated mobile satellite system shall not exceed 18 months from the date of failure.

Enforcement, Amendment, Withdrawal and Suspension

7. (1) Enforcement by the Commission of compliance by a Licensee with conditions attached to its Licence shall be in accordance with the Authorisation Regulations.

(2) The Commission may amend any Licence from time to time in accordance with the Authorisation Regulations.

(3) Without prejudice to paragraph (2) of this Regulation, at the request of the Licensee, the Commission may, if it considers it appropriate to do so, amend the Licence by adding to, deleting from or altering the radio frequency spectrum specified in the Licence on which the Apparatus may be used; any such amendment shall be effected by notice in writing from the Commission specifying the amendment and given to the Licensee or sent to the Licensee at the address specified in the Licence or notified to the Commission pursuant to the Licence.

(4) A Licence may be suspended or withdrawn by the Commission in accordance with the Authorisation Regulations and where the timescale is exceeded in Regulation 6 (22).

Annual Licence Fees

8. (1) The Licensee shall pay an annual fee of €2,300 per Earth Station, Base Station, temporary or fixed subject to CPI Adjustment;

(2) The fees specified in paragraph (1) of this Regulation shall be payable by the Licensee on commencement of or prior to the grant of a Licence;

(3) The fees specified in paragraph (1) of this Regulation shall be paid to the Commission of Communications Regulation by way of banker's draft or such other means and on such terms (including terms as to the place of payment) as the Commission may decide. Where the date of payment falls on a Saturday, a Sunday or a public holiday payment shall be made on or before the last working day before the date of payment;

(4) An amount payable by a person in respect of a fee under these Regulations may be recovered by the Commission from the person as a simple contract debt in any court of competent jurisdiction;

(5) If a Licence is surrendered, withdrawn, suspended or revoked, the Licensee shall not be entitled to be repaid any part of the fee paid by the Licensee under these Regulations but shall still be liable to pay any sums (including interest) outstanding;

(6) Where payment is not made in due time, then interest shall be payable by the Licensee at the rate per annum standing specified for the time being in section 26 of the Debtors (Ireland) Act, 1840 (1840 c.105), on the fee or part thereof in respect of the period between the date when such fee or part fell due and the date of payment of such fee or part.

Licensee to satisfy all Legal Requirements

9. Licences granted pursuant to these Regulations do not grant to the Licensee any right, interest or entitlement other than the right to keep and have possession of, install, and maintain, and for Licences other than a Mobile Satellite Service Complementary Ground Component Licence, to work and use, at a specified location or locations in the State, Apparatus for wireless telegraphy for terrestrial systems capable of providing Electronic Communications Services.

SCHEDULE

WIRELESS TELEGRAPHY ACT, 1926
WIRELESS TELEGRAPHY (MOBILE SATELLITE SERVICE WITH COMPLEMENTARY GROUND COMPONENT) REGULATIONS 2017
Mobile Satellite Service with Complementary Ground Component Licence, granted under section 5 of the Wireless Telegraphy Act 1926

The Commission for Communications Regulation, in exercise of the powers conferred on it by section 5 of the Wireless Telegraphy Act, 1926 (No. 45 of 1926), hereby grants the following licence to _____ of _____.

The Licensee is hereby authorised to keep, have possession of, install, maintain, work and use apparatus as specified in Part 1 of this Licence subject to the terms and conditions set out in the Wireless Telegraphy (Mobile Satellite Service with Complementary Ground Component) Regulations 2018 (S.I. No.XXX of 2018), including but not limited to, the following:

1. **The Licensee shall ensure that it complies with the conditions as to geographical location, technical conditions, Licensed frequencies and Rollout Plan set out in Parts 1 to 4 inclusive of this Licence; and**
2. **The Licensee shall ensure that it makes payment of all fees as detailed in the Regulations under which this Licence is issued.**

This licence shall come into effect on DD/MM/2018 (the "Licence Commencement Date") and subject to revocation, suspension or withdrawal, expires on DD/MM/2018

Signed:_____

For and on behalf of the Commission for Communications Regulation

Date of Issue:_____

Part 1 Apparatus to which this Licence applies

Index	Manufacturer	Description (Base Station, Temporary Base Station or Earth Station	Equipment Reference

Part 2 Geographical Location of Apparatus.

Equipment Reference	Easting	Northing

Part 3 Technical Conditions

Base station block edge mask out-of-block EIRP limits per antenna

Frequency range of out-of-block emissions	Maximum mean out-of-block EIRP	Measurement bandwidth
–10 to –5 MHz from lower block edge	11 dBm	5 MHz
–5 to 0 MHz from lower block edge	16.3 dBm	5 MHz
0 to +5 MHz from upper block edge	16.3 dBm	5 MHz
+5 to +10 MHz from upper block edge	11 dBm	5 MHz
Other blocks	9 dBm	5 MHz

EIRP: Equivalent Isotropically Radiated Power

A 300kHz guard band must be inserted at 1980 MHz.

Part 4 Licensed Frequencies

Inmarsat: 1980 – 1995 MHz (Uplink) & 2170 – 2185 MHz (Downlink)

EchoStar: 1995 – 2010 MHz & 2185 – 2200 MHz (Downlink)

GIVEN under the official seal of the Commission for Communications Regulation, this

[-] day of [-] 2018

Gerry Fahy

For and on behalf of the Commission for Communications Regulation

The Minister for Communications, Energy and Natural Resources consents to the making of the foregoing Regulations.

GIVEN under the Official Seal of the Minister for Communications, Climate Action and Environment, this

[-] day of [-] 2018

DENIS NAUGHTEN

Minister for Communications, Climate Action and Environment.

EXPLANATORY NOTE

(*This note is not part of the Instrument and does not purport to be a legal interpretation.)*

These Regulations provide for the issue of licences for apparatus for wireless telegraphy for the provision of a mobile satellite service with a complementary ground component, for the regulation of such apparatus and for the payment of fees by persons granted licences for that apparatus. These Regulations are in accordance with relevant provisions of Decision No. 626/2008/EC of the European Parliament and of the Council of 30 June 2008 on the selection and authorisation of systems providing mobile satellite services, and with relevant provisions of related Decisions.

BAILE ÁTHA CLIATH ARNA FHOILSIÚ AG OIFIG AN tSOLÁTHAIR Le ceannach díreach ó FOILSEACHÁIN RIALTAIS, 52 FAICHE STIABHNA, BAILE ÁTHA CLIATH 2 (Teil: 01 - 6476834 nó 1890 213434; Fax: 01 - 6476843) nó trí aon díoltóir leabhar.

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