TerreStar Global Response to Ofcom Consultation

"Authorisation of terrestrial mobile networks complementary to 2 GHz mobile satellite systems"

March 2008

Introduction

TerreStar Global Limited (hereafter "TSG") welcomes this opportunity to respond to the Public Consultation launched by Ofcom on the "Authorisation of terrestrial mobile networks complementary to 2GHz mobile satellite systems" (hereafter "the Consultation Document").

TSG appreciates the work undertaken by Ofcom in trying to establish some clarity in advance of the adoption of the EC Article 95 Decision leading to the pan-European selection and authorisation of Mobile Satellite Services (MSS) providers. Ofcom is amongst the first to address this issue through a consultation, even though other administrations have already given indication of the process they intend to follow.

TSG agrees broadly with Ofcom's proposals to:

- Grant a spectrum access licence but with specific terms and conditions that recognise on the one hand the inherent complementary nature of CGCs to the MSS satellite system and on the other, specify a licence duration and renewal terms that take into consideration the high investments required for satellites. Coherence with the relevant EC instruments is obviously also critical.
- allow only applications of authorisations of CGC base stations to be submitted by those MSS operators selected under the EC administered selection and authorisation process. TSG would simply add that CGC authorisations would obviously only be granted to those MSS operators that have a system that covers the UK, at least in part, and that the footprint of the satellite would determine the area in which CGC would be allowed to be deployed by that MSS operator.
- grant the CGC licences only after completion of the EC administered selection and authorisation process, but with the possibility for MSS operators to bring the CGC into operation in the UK before launch and operation of the associated satellite network.
- grant a UK-wide licence with no coverage obligations, taking into account the fact that CGCs can only be deployed within the footprint of the MSS satellite.
- adopt a service and technology neutral approach and put in place an as flexible as possible framework to allow spectrum trading.

TSG however respectfully disagrees with the principles and methodology used by Ofcom to analyse the possible licence fee to be used in the context of 2 GHz CGC licences, as we consider that:

- the use of AIP is in incorrect in this context of an EC selection and authorisation process;
- even if AIP were deemed to be the appropriate methodology to set the licence fee, which we contest, the opportunity cost would be zero, or at the very least marginal.

We thank you in advance for taking consideration of these views. Feel free to contact Caroline De Cock, by phone +32 474 840515 or email cdc@terrestarglobal.com should you need further information.

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1 Preliminary Remarks

TSG would first like to address a few issues that have not been examined in the Consultation Document or may require further clarification:

- TSG suggests that careful consideration may be needed on the structure of the licence exemption that would be applied to operators. In particular, there is a need for administrations to implement the frequency assignments made by the EC process in national legislation and hence there is a need to clearly and directly associate the successful MSS operator with the specific frequency assignments. In the case of 1.5/1.6 GHz MSS systems, to the contrary, licence exemption has been for the operation of terminals within different systems all associated with the bands 1626.5-1645.5/1646.5-1660.5 MHz and 1525.0-1544.0/1545.0-1559.0 MHz. Such an approach, if taken in the 2 GHz MSS bands may not give the legal certainty successful operators would require. However, the approach taken by Ofcom with regard to systems in the 1.6/2.4 GHz MSS bands, where specific systems are exclusively authorised for specific frequency bands, identified through the interface requirements, may offer a suitable model for the 2GHz MSS case also.
- TSG believes it is critical that Ofcom ensures that any successful licensee at EU level for the 2 GHz spectrum or part of it can benefit from the right to interconnect to the PSTN and have access to the necessary facilities for the purpose of providing services.
- TSG also believes it is important that Ofcom encourages actively the co-location or network infrastructure sharing of terrestrial 2 GHz infrastructure with 2G and 3G infrastructure and/or amongst 2 GHz licensees where technically feasible.[1]

As a final preliminary comment, TSG notes that the current UK licence exemption legislation authorises ICO to operate in parts of the 2 GHz MSS bands: 1997.5-2010.0 MHz and 2187.5-2200.0 MHz. TSG assumes that this authorisation will be removed or revised as necessary to be aligned with the outcome of the EC process and we request that Ofcom clarify its intention in this regard.

2 Answers to questions

Question 1: Do you agree that the CGC licence should be in the form of a spectrum access licence with standard terms and conditions?

TSG agrees that the standard terms and conditions appear to be a reasonable and appropriate starting point.

However, the specific characteristics of the 2 GHz band and its authorisation process requires some additional terms to be added to the standard terms and conditions, namely in two areas:

- **CGC coverage and control constraints**: TSG believes that beside the standard terms and conditions, particular terms should include a reference to the fact that CGC base stations are considered to be integral part of the mobile satellite service[2]

[1] Such sharing has shown in a terrestrial context that it is an option to address environmental concerns, to ease the acquisition of base station sites and to lower capital expenditure when rolling out networks.

[2] For reminder, CGC is defined in the Commission Decision of 14 February 2007 as " an integral part of the mobile satellite system and (…) be controlled by the satellite resource and network management system.".

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and that on the one hand, CGC can only be deployed within the footprint of the satellite of the MSS operator, and on the other, frequencies used by the CGC network need to be managed by the same system that controls the frequencies in the associated MSS system. As a corollary of this, licence terms on the independent functioning of the CGC network need to be made explicit.

- **Licence duration and possibilities of extension/renewal**: as pointed out by Ofcom in the Consultation document, the duration of the licence will need to conform to the duration set in the proposed article 95 Decision and be ultimately linked to the lifetime of the satellite. Moreover, whatever duration is selected, it should be anticipated that the satellite will be replaced towards the end of its life, and service would continue uninterrupted. Taking into account the long lead times for the design of a next-generation satellite and the substantial upfront investment, it is therefore crucial for Ofcom to include the possibility to extend or renew the original term of the licence or even to provide for automatic extension as long as the system operates as a complement to an authorised satellite network. It may even be appropriate for the licences to be indefinite, in accordance with the General Licence Conditions. In any case, we anticipate that the licence will include provisions to ensure that independent operation of complementary ground components in case of failure of the satellite component of the associated mobile satellite system would not exceed 18 months, in accordance with the draft EC Decision.

Question 2: Do you agree that such licences should be awarded on a UK-wide basis?

TSG intends to operate a pan-European S-band satellite and agrees that a UK-wide licence would be appropriate, taking into account the constraints set out in our response to Question 1 above, i.e.:

- The fact that the CGC licence can only be granted to the MSS operator designated by the EU Selection & Authorisation Process;
- The fact that CGC can only be deployed within the footprint of the satellite of the MSS operator, thus implying that if the satellite footprint were to cover only the region of London, even though the CGC licence would be UK-wide, the actual installation of CGCs on UK soil would be limited to the London footprint, and
- The fact that Ofcom would not impose coverage obligations.

Question 3: Do you agree that the CGC licence should authorise the complete set of frequencies assigned under the EC process?

An MSS network employing a CGC may not use all the authorised frequencies for CGC in any one area, and a typical scenario for the UK would see some frequencies used for the satellite part and different frequencies used for CGC in different parts of the UK. Such a splitting of use would however be dynamic in order to maximise efficiency and, for those operators such as TerreStar wishing to respond to the PPDR needs of the UK, in order to be able to allocate maximum capacity to PPDR services in case of need.

However, the MSS operator would need the flexibility to manage the frequency arrangements to meet system requirements and ensure the most efficient use of the spectrum that has been assigned to it .

Therefore, a licence which covers the complete set of assigned frequencies is recommended and TSG fully agrees that the CGC licence should authorise the complete set of frequencies assigned under the EC process, although the measure in which these frequencies are

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effectively used for CGC purposes should be looked at from a licensing fee perspective (see answer to question 9).

Question 4: Do you agree that the initial grant of the CGC licence should made be to the MSS operator only?

TSG fully agrees with this approach.

The EU's Selection and Authorisation process will decide who has access to the spectrum. This will be enforced by an EC Article 95 Decision. TSG therefore fully agrees that the licensees should only be the successful applicants to the EC Selection and Authorisation process.

Authorisations should not be granted to third parties. This is because of the high capital cost of launching the satellite, which will only be recouped if the license is granted solely to the satellite operator, allowing them to make commercial agreements with other operators.

Any third parties, in the form of Mobile Network Operators or other commercial operators wishing to provide MSS 2 GHz services must only be allowed to do so with the express written agreement of the licensee.

Moreover, for a successful applicant to be licensable in the UK for CGC purposes, the applicant's system would need to provide satellite coverage of the UK, at least in part (for more details on the various possible scenarios, please see our response to question 6). We reiterate here that CGC can only be deployed within the footprint of the satellite of the MSS operator, thus implying that if the satellite footprint were to cover only the region of London, even though the CGC licence would be UK-wide, the actual installation of CGCs on UK soil would be limited to the London footprint,

Question 5: Subject to certain safeguards, would it be appropriate to license the CGC in advance of the satellite service coming into operation and if so, what criteria should be applied to determine whether the satellite component of the MSS network is operational and what period of time do you consider would be appropriate?

In section 7.8, Ofcom asks three sub questions, set out below.

> ***5.1. Should Ofcom license the CGC in advance of the EC selection and authorisation procedure?***

At a pre-determined stage of the EU Selection and Authorisation process set out by the EC Article 95 Decision, spectrum scarcity will be assessed. If more applicants reach this stage than there is available spectrum, a second selection phase will be held. The winners of the second selection phase will be provisionally assigned the spectrum, contingent upon the completion of the remaining milestones.

Authorisations should occur at this point, when the selection process has designated the successful applicants, either for lack of scarcity or as an outcome of the second selection phase.

Authorising CGC before, or after this point will disadvantage UK citizens:

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- Member states which authorise CGC before the conclusion of the selection process do so at risk, as the EU selection and authorisation process will dictate those candidates with the ultimate legal rights to provide MSS 2 GHz services on a pan-European basis.
- Licensing too late will hinder those citizens most in need of connectivity by standing in the way of technology that will bridge the digital divide, while it is enjoyed throughout the rest of the EU.

TSG therefore agrees with the licensing of CGC in advance of the finalisation of the EC selection and authorisation procedure, but not sooner then after the process has designated the successful applicants. The basis for allocating such a CGC licence would then have to be the evidence of coverage capability put forward by the successful applicants within the EU Selection & Authorisation Process, as geographic coverage is a substantial criteria in this Process. On that basis, Ofcom would be able to grant a CGC licence to those MSS operators that cover the UK, the roll-out of CGC installations being limited to the satellite footprint as demonstrated in the EU Selection & Authorisation Process.

5.2. Should the CGC be licensed before the satellite component of the MSS system is operational?

TSG agrees that CGC may be licensed in advance of the deployment of the satellite system subject to certain safeguards, which are likely to be in line with the Milestones identified in the EC Article 95 Decision, namely:

- the operator should be required to provide evidence of binding contracts to support the implementation schedule of the satellite part.
- After award of the CGC licence, the operator should be required to show evidence of progress in deploying the satellite part.

The CGC licence would also have to specify that if the satellite were not launched an in service by the dates specified in the EU selection and authorisation process, the CGC licence would be revoked.

5.3. What criteria should Ofcom apply to determine whether the MSS is operational?

The verification of the fact that the Mobile Satellite system of the operator is operational is likely to occur at an EC level, as part of the implementation and enforcement of the Article 95 Decision. It seems contrary to the spirit of this Article 95 Decision, which aims at creating a single market approach, for each Member State to determine at a national level whether the MSS is operational, hence running the risk of different criteria being applied by different regulators. Such an approach would defeat the purpose of adopting a harmonised approach through an Article 95 Decision.

Moreover, if the two first criteria proposed by Ofcom seem appropriate for the evaluation of the operational nature of the MSS at European level, i.e. the fact that the full constellation of satellites has been launched, commissioned and put into commercial operation in the UK and the fact that the Gateway earth stations have been commissioned and brought into commercial use, the third criteria seems to impose a condition on the MSS operator which is not in its control. Even if the MSS operator is likely to work with equipment manufacturers to ensure that appropriate user terminals are developed, their availability for sale in the UK is not in the operators' hands. Moreover, as the MSS spectrum is allocated at pan-European level, and taking into consideration the single market principle of free circulation of goods,

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why would the fact that user terminals are available for sale in the UK be relevant? What if they are not for sale in the UK but are available in France?

TSG therefore considers that it is not up to Ofcom to determine whether the MSS is operational but rather to the body put in place by the EU selection and authorisation process and which is likely to be part of Cocom. **Moreover, in terms of the identified criteria, TSG disagrees with the relevance of the third criteria** for the reasons abovementioned.

Question 6: Do you agree that the CGC licence should not include a coverage obligation?

Two scenarios need to be distinguished:

- either the successful licensee at EU level for the S-band spectrum or part of it provides satellite coverage over the UK or part of it. CGC Coverage should not extend beyond the satellite footprint in the UK (as CGC is an optional element of the MSS network, the EC process actually allowing stand-alone MSS systems) and extension of that footprint through the use of CGC should be expressly prohibited;
- or the successful licensee at EU level for the S-band spectrum or part of it does not provide any satellite coverage over the UK: no CGC installation should be authorised (as CGC can only intervene as a "complement" to the satellite coverage).

TSG thus agrees that the CGC licence should not contain coverage obligations.

Question 7: Do you agree that the CGC licence should be provided on a service and technology neutral basis?

TSG agrees that the CGC licence should be provided on a service and technology neutral basis. This does not preclude Ofcom from taking into consideration the social benefits provided by some licensees, notably in terms of licence fee discounts.

TSG does however think that Ofcom should recognize the inherent technical characteristics of the 2 GHz band, which is a two-way band with symmetric uplink and downlink. The efficient use of both parts of the band should be recognised and taken into account in terms of CGC licensing.

Question 8: Do you agree that it CGC licences should be tradable and, if so, that they should be both totally or partially tradable and both outright or concurrently tradable, that Ofcom's consent should be required for transfers and that the grounds on which Ofcom may withhold consent should be limited as proposed?

TSG agrees that CGC licences should be as flexible as possible and hence be tradable, both totally or partially and both outright or concurrently, and that Ofcom would only be able to withhold its consent within the limits defined in the Consultation Document but also taking into consideration the following constraints:

- the transferee would need to ensure that CGC frequencies were coordinated with the MSS system;
- the CGCs would have to remain within the footprint of the MSS satellite.

Moreover, for TSG, it is critical that the licensing framework put in place by Ofcom at national level is flexible enough to accommodate both wholesale and retail business models.

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Question 9: Do you agree that AIP should be applied to CGC licences at a rate that reflects the associated opportunity cost?

Although TSG is generally supportive of AIP as one of the spectrum management tools available to Ofcom, TSG disagrees with the analysis put forward in the specific context of 2GHz.

TSG specifically regrets that Ofcom, in its Consultation Document, seems to give very little consideration to, on the one hand, the fact that this authorisation process occurs in a very unique context of a pan-European award of spectrum, on the other, the use of cost recovery mechanisms instead of AIP.

TSG would like to expand on both issues before addressing the specific question outlined by Ofcom.

a) <u>This authorisation process occurs in a very unique context of a pan-European award of spectrum</u>

Ofcom's statutory duties:

In Section 3 of the Consultation Document, Ofcom outlines its general duties relevant to wireless telegraphy licensing, stemming from the Communications Act 2003 and Wireless Telegraphy Act 2006.

It also specifies under point 3.10 that in case of conflict between the duties imposed on Ofcom in these two instruments, priority must be given to its duties under the Communications Act 2003.

It is therefore critical for Ofcom in putting in place its CGC licensing framework to take utmost account of its duties under Section 4(4) of the Communications Act 2003 which requires that Ofcom's activities must contribute to the development of the European internal market and Section 4(5) which requires Ofcom to promote the interest of all persons who are citizens of the European Union.
This is more so the case due to the specific EU context in which this MSS spectrum is being authorised.

We will demonstrate in the sections below that some of the principles set out in the Consultation Document are actually in clear contradiction with these statutory duties and that, at the very least, Ofcom has made **no analysis of the EU impact** of its proposed choices in its Impact Assessment as set out in Annex 5 of the Consultation Document.

EU Context:

As pointed out in pg 16-18 of the Consultation Document, competition for access to MSS 2 GHz radio spectrum will be handled and concluded upon at an EC level with CoCom's WG Authorisation and Rights of Use. The EC selection and authorisation process will determine the successful applicants for access to MSS 2 GHz on a pan-European basis.

National Regulatory Authorities will consequently be obliged to authorise only those candidates who are successful in the EC Selection and Authorisation process.

Ofcom's approach to licensing fees, could have substantial consequences at EU level, none of which have been analysed in the Consultation Document:

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- If all NRAs of the 27 member States were to adopt an approach similar to Ofcom's, the CGC licensing fee would be nearly 15m £ per 2*1MHz, implying a licence fee of over 224m £ for an operator granted 2*15 MHz. This fee would obviously have to be charged on top of the high up-front costs paid by that operator to comply with the Milestone Review Process set in place by the EC Article 95 Decision, including the construction and launch of a satellite able to cover a large percentage of EU geography. In such a scenario, it is unlikely that the licensees for 2 GHz will deploy CGCs in Europe, as they can offer services by relying solely on their satellite capabilities. This will be at the detriment of UK and all EU consumers.
- If UK adopts its licence fees as set out in the Consultation document, whilst other NRAs adopt a more moderate approach leading to much mower licence fees, it is likely that the licensee for 2 GHz will deploy CGCs only in those Member States where the licence fees are set in a manner to encourage their deployment. Ofcom will thus have created a two-tiered Europe for consumers, whereby a consumer travelling to the UK or a UK consumer will only benefit from the strengths of signal and capacity offered by the 2 GHz operator off its satellite, whilst those same consumers benefit from more capabilities in other Member States, where CGCs have effectively been deployed.

In both scenarios, one can only wonder how Ofcom would indeed comply with its statutory duties as set out above.

EC Authorisation Directive

Article 13 of the Authorisation Directive makes provision for NRAs to impose fees for rights of use which reflect the need to ensure their optimal use. This is in contrast to the charges that may be levied for general authorisations, which are limited to recovery of the costs associated with the authorisation regime.

However, in this instance, granting the "right of use" of spectrum cannot really be spoken about the at national level, as Member States have delegated that power at EU level to the Commission and Cocom by accepting the S&A process to be conducted through an Article 95 Decision. Therefore, as risks of harmful interference have been removed, the spectrum only being made available to the successful applicants at EU level through the S&A Process, Art. 5 (1) of the Authorisation Directive should apply.[3]

Indeed, in the case of the 2 GHz S-band, optimal use and individual assignment have already been ensured at EC level through the process put in place by the Article 95 Decision. There is therefore no case for a rights of use authorisation, but merely a situation whereby the licensees at EU level for the 2 GHz spectrum require an authorisation to provide services (i.e. not related to the spectrum) to end-users.

Such an authorisation should fall under the general principle of cost recovery.

As regards the terrestrial component referred to as CGC, what is basically needed is an authorisation to install these facilities. There again, taking into consideration the considerable financial investments made by the successful licensees at EU level as regards the needed

[3] Under art 5.1, « Member States shall, where possible, in particular where the risk of harmful interference is negligible, not make use of the radio frequencies subject to the grant of individual rights of use but shall include the conditions for usage of such radio frequencies in the general autorisation ».

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satellite and terrestrial infrastructure, any fees that would go beyond the principle of cost recovery would be in breach of the principle of proportionality, and could be considered as a way to implement barriers to entry and stifle innovation in a given country.

Mechanisms or rules at UK level that would impose administrative fees on the designated licensees at EU level that go beyond cost recovery would therefore:

- **Be in breach of the principle of proportionality**, taking into consideration the already substantial commitments made by the licensees in terms of their compliance with the milestones leading to the second selection phase (financial commitment to satellite manufacturing, launch and gateway contracts) and further compliance after receiving their provisional licence.
- **Create barriers to entry** that are unacceptable under circumstances where Member States have formally indicated their will to have a single market approach to the S-band.
- **Create roll-out delays** because operators do not have the funds for network investment and/or because the cost of financing has risen significantly.
- Create a situation whereby end-users, in the UK and possible indirectly in other Member States, will pay **higher prices** as operators seek to recover excessive administrative fees payments.

It is therefore impractical and inaccurate, following the EU's Selection and Authorisation process, to base CGC licence costs on anything other than a cost recovery basis.

b) Cost recovery Vs. AIP

Choice of method to set CGC licence fees:

When looking at the options available for CGC licence fees under Section 8 of the Consultation Document, Ofcom outlines that it does not propose to grant the licences free of charge or to charge only a fee that recovered its administrative costs, as it fears that this "could lead to a socially sub-optimal level of services and would therefore lead to lower benefits for UK citizens and consumers." Aside from the fact that this highlights the fact that Ofcom has only considered the UK dimension of its approach, this statement is incorrect as regards 2 GHz spectrum and we detail below why this is so.

Tests for using AIP

The Indepen Report of February 2004[4] identifies four tests used to decide which frequency bands and services should be subject to AIP, namely:

1. Is there excess demand for spectrum now or in the near future from existing uses of the spectrum?
2. Can the spectrum be used for another purpose and if so, is there excess demand from other uses?
3. Is it practically feasible to collect AIP fees?
4. Are there any policy or political factors that prohibit the use of AIP?

We do not intend to examine all four questions as we believe that the answer to the second question is sufficient to determine that the application of AIP to 2GHz is not appropriate. We

[4] "An Economic Study To Review Spectrum Pricing" by Indepen, Aegis Systems And Warwick Business School; February 2004, section 6.1.1..

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will also shortly examine the reasons why AIP is not necessary to create incentives for optimal use of spectrum by the MSS operators.

Spectrum Efficiency Relating to 2GHz

AIP is supposed to be used to ensure optimal use of spectrum and Ofcom states in paragraph 8.21 of the Consultation Document that "…the cost of not having any price signal is that this removes an incentive for efficient use of the spectrum".

As set out above, to be selected and authorised to use 2 GHz through the EC process, operators will have to pay high upfront costs including the manufacturing and launch of a satellite. This is not a scenario where an operator pays to acquire a licence giving it right to spectrum, and then still needs to start deploying its network and thus needs to be encouraged to do so in order to avoid either undue delays or hoarding of spectrum.

Indeed, in the case of 2 GHz, it is not apparent what spectrum management objective would be "*incentivised"* by the application of significant fees. Given that the selection and assignment of frequencies will be made at EU level (see sub a) above), the CGC licence fee cannot influence the total quantity of spectrum made available.

Moreover, regardless of the licence fee, any CGC operator will be under natural commercial pressure to maximise the efficient use of the band. Therefore we are doubtful that attempts to increase spectrum efficiency through AIP would be necessary or effective.

Purpose for which 2 GHz can be used

In the Cave Review of March 2002, it has been stated that "for some spectrum uses, the opportunity cost will be zero. This will occur where use of a particular band in the UK has been exclusively defined through international agreements and incumbents have no scope to change their spectrum use".[5] One wonders what Professor Cave would have stated had he envisaged the case where not only the use of band was defined at international or EU level but also the operators allowed to use that band?

Moreover, it is worrying to see that Ofcom states in section 8.3 of the Consultation Document that external factors which might prevent alternative uses such as those arising from international agreements should be disregarded. However, if this approach were to be taken (which is contrary to the Cave Review, the Indepen Report to the Radiocommunications Agency and contrary to the approach previously taken by Ofcom in this regard), it would inevitably lead to the incorrect identification of the alternative application, and in this case would overestimate the opportunity cost.

With regard to the proposal to base fees on the associated opportunity cost, it is necessary to give more thorough consideration to the potential alternative uses. The Indepen Report clearly states that, in order to apply AIP, "judgements are required concerning potential alternative uses of spectrum (…) based on the uses that could realistically use the band over the period between pricing reviews".[6]

[5] Prof. Martin Cave, "Review of Radio Spectrum Management – An independent review for Department of Trade and Industry and HM Treasury", March 2002, par. 66 of the Executive Summary. In par 4.24 of the Cave Review, Prof. Cave also states that "To asses whether the international regulatory framework could constrain application of the opportunity cost approach, it is necessary to consider the impact of ITU, EC, CEPT (ECC) and bilateral agreements and regulations. Of these, EC legislation and bilateral agreements are likely to be the most binding constraints".

[6] Indepen Report, section 6.4.

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In theory, a high AIP based on the opportunity cost for another application might persuade the operator to voluntarily reduce the quantity of spectrum authorised for CGC. However, given the restrictions imposed by the European regulations and the need to protect MSS and MSS/CGC systems operating in the UK and outside of the UK, the released spectrum cannot be used for any alternative use (except, perhaps, very low power use on a secondary basis). Hence, basing the opportunity cost on a service which attracts a high value but cannot realistically be deployed may ultimately result in spectrum being unused giving a net loss to the overall economic efficiency of the spectrum. Moreover, considering that any alternative application in these bands would likely be very low power use, on a secondary basis, the opportunity cost for these bands would in fact be very low.

Question 10: Do you agree that the licence fees should be set at around £554,000 per 2 x 1MHz?

TSG disagrees with this license fee, both as regards the principle used to set it (i.e. the choice of AIP instead of cost recovery) and the methodology used to define it (i.e. the benchmark with 2G).

We have provided our reasons for disagreeing with the use of the AIP principle to set the licence fee and we believe this should be convincing to avoid entering into the methodology used.

However, for the sake of clarity, TSG would like to stress the inherent flaws in the benchmark used by Ofcom to set the licence fee at £554,00 per 2 x 1MHz.
I
Inaccurate Benchmark with 2G fees

TSG does not agree that fees should be set based on comparison with the licence fees paid by GSM operators in the 1.8 GHz band. As indicated above, the opportunity cost for the 2 GHz MSS bands cannot be based on terrestrial cellular networks as the best alternative use, as such systems cannot be deployed under the current regulations. This approach should thus not be used as a basis for setting fees for CGC.

Furthermore, a terrestrial only cellular system and a CGC should not be considered as equivalent for the purpose of setting fees. With MSS systems, the costs of the overall system need to be considered, including the satellites and their associated ground infrastructure – a cost which, naturally, a terrestrial only operator does not have to bear. It must also be recognised that the MSS operator must, under the proposed Article 95 Decision, meet certain social obligations, in particular requirements for pan-European coverage. The same requirements could not apply to a UK based terrestrial operator.

Finally, one could wonder if terrestrial operators seeing the current state of the market would be willing to pay the same amounts as those paid through auctions in the past, in light of the stagnation of their current ARPU and the number of players already present in that market either as MNOs or MVNOs.

Technical Specificity of MSS/CGC

Ofcom must take into account that the bands in question have been designated for MSS systems, with or without CGC. This implies that any system that will be deployed in these

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bands must be primarily an MSS system. This is ensured, for example, under the CEPT agreed conditions for systems employing a CGC[7]:, which require that:

- on the one hand, the frequency band to be used by the CGC of a particular satellite system be accommodated within the same portions of the frequency band used by the satellite component of that satellite system; and
- on the other that the use of CGC shall not increase the spectrum requirement of the satellite component of that particular mobile satellite system.

As a consequence, a CGC will not have the same capacity as a terrestrial only system for the same amount of spectrum. At any time, a portion of the spectrum licensed to the CGC operator will not be usable for CGC but will be used for the satellite part. Such a splitting of use would however be dynamic in order to maximise efficiency and, for those operators such as TerreStar wishing to respond to the PPDR needs of the UK, in order to be able to allocate maximum capacity to PPDR services in case of need.

In summary, the licence fee proposed does not accurately reflect the true opportunity cost of these bands and it should not be considered that CGC systems and terrestrial mobile systems are comparable for the purpose of setting fees.

Other alternatives not considered

We note that there are other cases where Ofcom has not set the licence fee based on the opportunity costs for terrestrial cellular networks. For example Wi-Fi networks are licence exempt (and therefore free of charge), and the fee for the 3.4 GHz BWA operator is equivalent to an annual fee of £69,550 per 2x1MHz[8] - one eighth of the cost suggested by Ofcom for CGC.

TSG therefore believes that, bearing in mind the very limited scope that exists for alternative services and systems in this band, the technical specificities of MSS/CGC systems and the high upfront costs and obligations imposed on MSS operators, AIP should not be applied or the opportunity cost should be zero.

Question 11: If you believe that setting fees at this level would result in CGC systems not being deployed, please provide your reasons and full supporting evidence including a detailed business case.

We refer to our answer to question 9, and more specifically as regards the EU wide consequences of Ofcom's suggested approach.

From a business case point of view, in light of the fact that the 2 GHz spectrum is awarded at an EU level through the EU Selection & Authorisation Process, the UK CGC licence suggested by Ofcom is a pure tax / cost without any substantial benefits attached to it, i.e.:

- the MSS operator does not acquire access to spectrum by paying the CGC licence fee as the right of use for 2 GHz is granted at EU level; and

[7] ECC Decision of 1 December 2006 on the designation of the bands 1980-2010 MHz and 2170-2200 MHz for use by systems in the Mobile-Satellite Service including those supplemented by a Complementary Ground Component (CGC)
(ECC/DEC/(06)09)

[8] £6.955 m for 2x20 MHz for five years.

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- the MSS operator does not acquire the possibility to sell its services in the UK through the UK CGC licence, as it can do so from the satellite system without installing CGCs.

The cost-benefit analysis hence solely looks at improving the quality of service for UK citizens Vs. paying a high upfront licence cost, that adds up to the already substantial high upfront investment required to meet the EU Milestone Review Process and be selected through the EU Selection & Authorisation Process.

In light of this fact, and taking into consideration that any business case considered by an MSS operator will be looking at a pan-European dimension (including, at this stage of the discussions at EU level regarding the Article 95 Decision, an upfront obligation for the satellite system to cover at least 60 % of the European landmass), the excessive level of licence fees proposed by Ofcom is likely to bring about an equally drastic and un-nuanced decision from a business perspective by MSS operators, i.e. a “no go” on deploying CGCs in the UK, if not forever, at least for a considerable time until return on the high satellite investment has been secured.

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ANNEX – ABOUT TERRESTAR

BACKGROUND

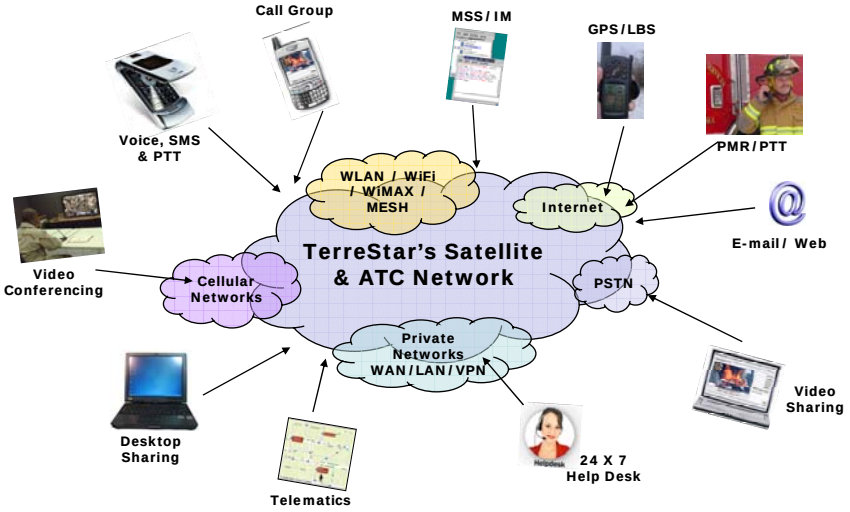
- TerreStar Global is an emerging, European communications company, that plans to develop and operate a 4th Generation (4G) **all-IP** based **integrated** satellite and Complementary Ground Component ("CGC") mobile communications network.

- The network will provide seamless, ubiquitous mobile communications services throughout:

    - **27 EU member states**, comprising 487 million citizens
    - As well as **20 European Conference of Postal and Telecommunications (CEPT) nations** comprising an additional 324 million citizens (includes Russia, Turkey, Ukraine, and Belarus)

- TerreStar Global has created a partnership of **industry-leading global technology** companies including Nokia, EADS, Arianespace, Elektrobit, Cisco, Accenture, CGI, Hughes and Loral to provide these services. This partnership will provide the most cost effective, flexible infrastructure that leverages the best of both next generation wireless and all IP technologies.

TerreStar's all IP Environment Enables Interoperability



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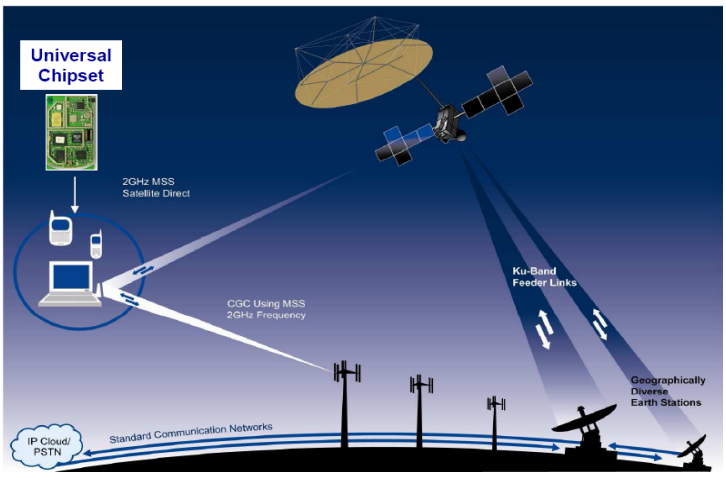
RESPONDING TO A NEED

TerreStar plans to address increasing demand for wireless voice and data communications services **3 market segments** of strategic importance

- **Public Protection and Disaster Relief** – Need for resilient communications platform enabling inter-operable communication between different services.



  - MSS with CGC overcomes this issue, delivering communication where required and when required, to whom it's required removing the traditional Achilles heel of emergency communications.
  - Robust communications during the initial hours of a catastrophe saves lives. TerreStar will deliver cross-service communication (e.g. Ambulance, Fire, Police, Military, Government) and cross-network communication (e.g. MSS/CGC, GSM, 3G, TETRA) and cross-border communication.

- **Digital Divide** – Need for broadband penetration in under-served communities.

  There still exists a broadband service gap between the 'haves' and the 'have nots' in a majority of European states.

- **Advanced Wholesale Services** – Need for additional capacity and coverage to deliver innovative services to anywhere at anytime.

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