

POLICY AND REGULATORY RISK CONSIDERATIONS FOR SATELLITE COMMUNICATIONS

Proceedings of Seminar IV-I in the Industry & Practitioner Series Risk Associated with Space Activities¹

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Abstract:

The London Institute of Space Policy and Law is presenting a series of seminars on risks associated with space activity and its insurance. Its aim is to foster better understanding of the risks particular to commercial space projects, and to encourage appropriate policy measures.

Seminar IV-I focused on policy and regulatory risk considerations for satellite communications. After an introduction by seminar chair Jeremy Rose, senior consultant at telecommunications consultancy Comsys, Institute Director Sa'id Mosteshar welcomed delegates including Bob Phillips, head of the space services unit at Ofcom. Four speakers then outlined the ideal regulatory framework for satellite communications as well as current regulatory and policy risks at the international, regional and national level, before opening the debate to the floor.

¹ NOTICE: this is the author's version of a work that was accepted for publication in Space Policy. Changes resulting

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1. The ideal regulatory framework

The meeting's first speaker Ann Vandembroucke, Head of Regulatory and Policy Issues at Inmarsat, observed that in terms of commercial risk management the regulatory framework is a critical long-term variable affecting the investment climate, the competitive environment, market access conditions and security of tenure. An ideal regulatory framework should address all these areas and take into account the unique characteristics of communication satellite operations.

Satellite systems have a long design cycle, require a large up-front investment and, once in orbit, are difficult to return or reposition. As a result, the regulatory framework needs to be predictable, proportionate and to provide long-term security of tenure. Furthermore, satellite systems are international in scope and therefore benefit from international coordination and harmonisation of regulation at the international, regional and national levels. Finally, a communication satellite depends on its ability to receive and transmit data to fulfil its function, and interference with its radio spectrum can have disastrous effects. An ideal regulatory framework would guarantee access to internationally harmonised, interference-free spectrum.

2. International Regulatory Framework: Risk Factors in ITU Procedures

The second presenter, Anthony Baker, Head of Spectrum Team at satellite operator SES, addressed “paper satellites” as a risk factor in ITU procedures. These are satellites that exist in ITU databases but do not correspond to any satellite under construction or in operation.³ The term can also refer to over-filing, where national administrations, filing on their own or on behalf of commercial operators, try to register for more orbital slots, more frequency bands or a larger coverage area than required. Both types of paper satellites bypass the cooperative spirit of the ITU Radio Regulations (RR), reduce the efficiency of the ITU system, increase congestion in the skies and lead to business uncertainty and regulatory risk.

There is little incentive for national administrations to stop this practice. First, over-filing increases the chances of getting a good orbit or frequency assignment. Second, the ITU has no enforcement mechanism, instead relying on members' goodwill and cooperation. Third, goodwill can give way to commercial interests when large sums of money are at stake. Fourth, the ITU process only works correctly if the spirit of the RR is universally respected.

³ This could be due to the fact that a) the satellite for which the speculative filing was made was never built or launched; or b) the satellite was not removed from the database when it ceased operation; or c) the satellite was launched but is being used to preserve multiple orbital locations.

Some satellite operators filing through the UK believe they are at a competitive disadvantage at the international level as some other national administrators – albeit complying with ITU rules – do not carry out the same rigorous due diligence as Ofcom.

Possible solutions to end the abuse of ITU procedures could include deregulation or a stronger code of conduct, which adds some measure of enforcement. The former would involve moving from an intergovernmental treaty system to operator-based agreements, founded on verifiable use of orbit and spectrum and thus allowing only real operators to participate. However, such a system would lack the protection and institutional knowledge provided by the existing ITU system, as well as intergovernmental involvement. It would also put at risk the co-operative nature of interference protection.

Drawbacks of a new code of conduct include the need to expand and clarify⁴ the RR and agree on the mandate of the ITU, which could take years and might encourage regional institutions to devise regional coordination procedures for global satellite services. Furthermore, identifying reliable sources of information on satellite spectrum usage is problematic.⁵

Overall, participants favoured a gradual change to the ITU system to make it more effective and transparent. The impetus for change must come from national administrators who should encourage their peers to recognise the benefits of increased efficiency. On this point, it was noted that discussions between Ofcom and other national administrators is already having positive effects.

3. Regional Regulatory Framework: Risks Associated with EU Policies

The third speaker, Kumar Singarajah, Director, Government Affairs at satellite broadband operator Avanti, identified three key policy risk areas at the European level: EU space policy, EU electronic communications policy, and EU competition and state aid policy.

3.1. EU Space Policy

Although space satellite systems could be made a strategic priority interest in the EU – the Lisbon Treaty mentions space as an EU policy objective for the first time – the policy focus does not explicitly address satellite-based electronic communication or the key role which satellite systems can play enabling other EU policies (such as the Broadband Digital Agenda, 2010). This could result in inadequate EU or state policy, legal or regulatory support of the commercial satellite communication sector.

⁴ One seminar participant observed that “putting into use” was not defined by the RR.

⁵ See No 13.6 RR

3.2 European Electronic Communications Policy

The two most controversial aspects of the recently updated EU electronic communications policy⁶ for communications satellite services are the EU's pan-European spectrum allocation process, and the EU's technology and service neutrality approach to spectrum allocation.⁷ The first was designed to implement the common market, and the second aims to make spectrum bands available to all users irrespective of the technology used and the services provided.

3.2.1 Pan-European spectrum allocation process

In May 2009 the EU implemented for the first time a competitive pan-European selection and authorisation process, by which it awarded Inmarsat and Solaris mobile (a joint venture between Astra and Eutelsat) respectively a 2x15 Mhz portion of the S-band for the provision of mobile satellite services (MSS).⁸ This was groundbreaking in that it departs from the selection and licensing of operators as essentially a state's prerogative⁹ allowing divergent national approaches to selection and authorisation.

Recognising the risks to international satellite operators, the EU's 2002 Spectrum Decision¹⁰ established a Community legal framework to ensure that national spectrum allocation policies are coordinated, and where necessary, harmonised.¹¹ Although the Spectrum decision was a significant boon for satellite operators, the jury is still out on the success of the pan European spectrum allocation process. Vandenbroucke noted that although the system was designed to retire regulatory risks, the selected entities often require an additional licence from individual states, unnecessary under a national allocation process. According to Singarajah, pan-European selection and authorisation processes can be time-consuming to establish and run, and are open to legal challenges if a well balanced process is not in place.

⁶ The new EU legislative package for electronic communications was published on 18 December 2009. See <http://eur-lex.europa.eu/JOHtml.do?uri=OJ:L:2009:337:SOM:EN:HTML>

⁷ See Regulatory framework for radio spectrum, http://europa.eu/legislation_summaries/information_society/l24218a_en.htm

⁸ The two companies are allowed two years to start to provide pan-European MSS services for 18 years. Allocated frequencies are 1.98 to 2.01 GHz for Earth to space communications, and from 2.17 to 2.2 GHz for space to Earth communications. See: <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/09/237&format=HTML&aged=0&language=EN&guiLanguage=en>

⁹ RR 1.18

¹⁰ Decision No 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community (Radio Spectrum Decision), [2002-OJ L 108 of 24.4.2002]

¹¹ Commission Decision 2007/98/EC of 14 February 2007 on the harmonised use of radio spectrum in the 2GHz frequency bands for the implementation of systems providing mobile satellite services [2007 OJ L43 of 15.2.2007] further acknowledged the specific characteristics of satellite services in relation to terrestrial providers, thus paving the way for the first competitive pan-European spectrum allocation process.

3.2.2 Technology and service neutrality and flexibility

The concepts of technology neutrality, service neutrality, and flexible spectrum management are poorly defined and open to varying policy-driven interpretations. While the satellite industry favours technology and service neutrality in principle, it considers the neutral allocation and assignment of frequencies unfair as satellites are more suited to specific frequency bands.¹² These bands are finite, and with every frequency allocation lost to terrestrial services,¹³ increasingly less suitable spectrum is available for future satellite deployment. Moreover, it has been proven regarding C-band¹⁴ that the coexistence of terrestrial, especially mobile terrestrial, and satellite services in some frequency bands is very difficult, if not impossible.¹⁵ Introducing flexibility into the management of certain core satellite frequency bands therefore jeopardises existing spectrum rights of satellite operators.

According to final speaker Joanne Wheeler, formerly Senior Associate at Milbank, and now Partner in the TMT group at CMS Cameron McKenna, [*Seems perhaps strange to say where I was without saying where I am*]the same issues regarding technology and service neutrality exist in the UK. Ofcom and the UK Spectrum Strategy Committee (UKSSC), working with the EU, should consider technical constraints to the principle of technology neutrality to avoid harmful interference to satellite services and to protect the quality of their services. [*Already mentioned “working with the EU”*].

3.3. EU competition policy and state aid

Although EC guidelines for state aid are technology neutral, the technical requirements for deploying broadband systems are set at an unrealistically high level, and are thus discriminatory, Singarajah claimed.

4. National Regulatory Framework: Risks within the UK Legal and Policy Framework

In her presentation, Wheeler highlighted the regulatory risks to commercial satellite operators posed by Ofcom’s filing procedures and policies, and by the British National Space Centre’s (BNSC) licensing procedures and policies. She also summarised the most important findings from the UK Space Innovation & Growth Team regulatory study.

¹² E.g. S-band, C-band, Ka and Ku-bands.

¹³ This has already happened for the 1.4GHz BSS(S), S-DAB 2.5/2.6 HZMSS and 3.4-3.8 GZZ FSS frequency bands

¹⁴ ESOA Information paper, http://www.esoa.net/v2/docs/public_markets/200609_CBand_InfoPaper.pdf; see also Commission Decision 2007/98/EC

¹⁵ Earth station receive antennae are very sensitive and therefore susceptible to harmful interference generated by co-frequency transmissions and out of band transmissions from terrestrial services operating in adjacent bands.

4.1 Ofcom

Ofcom aims to submit filings made by national satellite operators and entities based in or filing through the UK to the ITU for orbit and spectrum allocation within 10 working days. This delay poses the risk that other networks could take precedence. Moreover, British overseas territories applicants may be required to complete local duplicate applications which are both lengthy and costly. Although the industry recognise why Ofcom's procedures are in place, unless other ITU national administrations also implement strict due diligence¹⁶ requirements to avoid paper satellites, the UK filing procedures could arguably put UK satellite operators at a disadvantage internationally.

4.2 BNSC

Under the Outer Space Act 1986, the BNSC has licensing and other powers over organisations or individuals in the UK, Overseas Territories or Crown Dependencies launching or procuring the launch of a space object, operating a space object and conducting activities in outer space. Licence applicants must comply with the provisions of the OSA as well as the BNSC's technical requirements. . Satellite operators believe that the OSA, in particular the Section 10 unlimited indemnity requirement for third party liability, should be reviewed and revised to ensure that UK licence applicants are not at a competitive disadvantage.

4.3 IGT Regulatory study - spectrum pricing

The UK Space Innovation and Growth Team (IGT), a government and space industry initiated project to provide a 20-year vision for the UK space sector, produced a regulatory report which was published on February 10, 2010. Broadly speaking, it addressed two main issues: access to spectrum (charges and ITU procedures), and access to space (BNSC and licensing procedures) [*This section should be corrected*]. [*But it was never supposed to – these were only commercial entities – Ofcom and BIS were (and I liaised extensively with BIS) invited to higher level meetings*]. [*Correct – until I pushed my way into the Public Policy group as no-one was dealing with the regulatory aspects – I then liaised with 22 entities to write the regulatory paper*]

Access to the finite spectrum resource is becoming increasingly challenging as more wireless services are introduced. In addition, increasing numbers of commercial satellite operators compete with each other and their terrestrial counterparts to secure suitable slots and spectrum. *Absolutely not!! – this is the crux of the argument about how AIP and auctions cannot be applied to satellite sector – please remove this*

¹⁶ See supra, Para. 2.

According to the IGT regulatory study, the UK satellite industry is concerned about the charges¹⁷ resulting from Ofcom's policy. One area of particular concern is how Ofcom assesses the opportunity cost of satellite spectrum compared to that of terrestrial spectrum. Industry participants stated that spectrum pricing considerations should include the cost of mitigation measures against interference from terrestrial sources.¹⁸ Phillips explained that Ofcom will launch a full review of spectrum pricing this Spring.¹⁹ Seminar participants agreed that the review would be an appropriate forum for the regulator to examine the use of AIP for satellite spectrum, while developing economic models that take into account the unique characteristics of the satellite industry.

Vandenbroucke stressed that internationally harmonised spectrum is a very valuable asset, especially for mobile satellites which are international and must have access to every country in the footprint to be commercially viable. Increased national autonomy and new pricing mechanisms are therefore regulatory risks that could increase commercial pressures on satellite operators.

It was stated that new frequencies are carved from those of existing operators. Vandenbroucke argued that in the case of spectrum shortages, satellite operators' first response tends to be to increase efficiency of an existing satellite, to co-locate, to merge with other operators or to lease spare capacity on other satellites. John Purvis of SES stated that mobile satellite operators have a tolerance for sharing, and that not all spectrum is used efficiently. He gave the example of SES sharing a NASA band used for deep space communication.

Conclusion

As with all risks, regulatory and policy risks affecting the space communication sector are a major component in any commercial space activity. Some are inherent in regulations and policies in place, and others arise from their implementation and procedures adopted. Nevertheless, both types of risk may be reduced by greater cooperation [*between whom?*] and some level of harmonisation.

¹⁷ The regulator prices spectrum to reflect the opportunity cost of spectrum use, through licence fees based on AIP. Where this opportunity cost is considered zero or very low, Ofcom tends to charge a fixed administrative fee.

¹⁸ An example of these pricing issues can be seen in Ofcom's Statement on the licensing of 2GHz MSS CGCs, <http://www.ofcom.org.uk/consult/condocs/cgcs2/summary/>

¹⁹ For updates, see <http://www.ofcom.org.uk/radiocomms/ifi/srsp/>