

23rd IAA/IISL Scientific-Legal Roundtable Glasgow, UK, October 2nd, 2008

“Paper Satellites” - Problems of Policy, Regulation and Economics

Chairpersons: Luboš Perek (Czech Republic), Kai-Uwe Schrogl (Austria)
Rapporteur: Nicola Rohner-Willsch (Germany)

At the 2008 joint IAA/IISL Roundtable, the issue “Paper Satellites” - Problems of Policy, Regulation and Economics was discussed among lawyers, scientists and engineers. The Roundtable was opened by the IISL President Mrs. Tanja Masson-Zwaan, the IAA Secretary General Dr. Jean-Michel Contant and the Chairman of the IAA/IISL Scientific-Legal Liaison Committee Dr. Kai-Uwe Schrogl.

The term “paper satellites” refers to proposals for space communication networks submitted to the International Telecommunication Union but not yet notified in the Master International Frequency Register. The lively debate about this topic exceeded the topic of paper satellites and touched on the general problem of management of outer space, in particular in the geostationary satellite orbit, GEO.

According to the Convention on Registration of Objects Launched into Outer Space, the launching of all space objects, including those launched into the GEO have to be announced to the United Nations. However, about 15% of objects have not been registered. Improvement of the situation can be expected after the recent UN General Assembly Resolution 62/101 on enhancing the practice of States and international intergovernmental organizations in registering space objects becomes widely used. In order to provide quick and unlimited access to information provided in launching announcements of Member States, The Office of Outer Space Affairs has developed an electronic on-line searchable Index to the Register containing substantial information also on objects not

announced to the UN. The Index assists in locating information contained in governmental announcements and it provides outside complementary information.

The European Space Operation Centre (ESOC) in Darmstadt provides a yearly status report on satellites in and near the GEO. It is based on observations provided by a worldwide network of observatories and listed in the US Space Surveillance Network Catalogue. There are 934 objects in the list, out of which 318 objects are controlled in longitude, 148 objects are in libration orbits, and 462 are drifting above the GEO ring. The internationally accepted recommendation to re-orbit retired objects into disposal orbits was not followed universally. Only 41% were re-orbited properly, 33% were left in orbits too close to the GEO and 26% were abandoned in the GEO. The failure to re-orbit properly will lead to a steady increase in the collision risk of operational spacecraft with inactive objects.

International management of the use of the radio-frequency spectrum and orbits is entrusted to the International Telecommunication Union (ITU). A legal regime, codified in the ITU Constitution and Convention, complemented by the Radio Regulations, contain main principles and regulations governing the registration of space network frequency assignments. Administrations are submitting every year an extremely high number of space networks, including speculative filings, so called “paper satellites”. For a single real network, there could be ten or more filings for different orbital positions. Independent

information on the real use of the orbit/spectrum resource shows some divergence from information submitted by administrations to the ITU.

A Comparative Table of notified space networks (i. e. transmission of information) on one hand and of satellites (i.e. solid space vehicles) on the other hand, at or near a specific orbital position was set up in order to find out the real state of affairs in the GEO. There are about twice as many notified space networks (about 880) than there are active satellites (about 370). There are 165 networks at 83 different orbital positions with no satellites close enough. It means that at least 19% of notified networks do not transmit and that the GEO spectrum/orbit resource is not as much overcrowded as the lists of notified space networks suggest. The opposite case, satellites with no corresponding notified networks, appears in the Comparative Table as well. There are 23 such satellites. If radio stations on these satellites are transmitting, and it is likely that they do, it is contrary to the ITU rules.

The current situation in the orbit/frequency resource is affected by the trend of countries to use their own satellites for their domestic satellite telecommunication system. The GEO is going to be overloaded. New opportunities arise in using slots not used by “veterans of the space club”. Another novelty in using the GEO resource is to place a network in service before the completion of the coordinating process, provided that no harmful interference is caused. It is also possible to use parts of the frequency bands which are not used by the original operator.

The problem of developing countries in establishing new national satellites was raised in the discussion. It is difficult and time consuming to find frequencies and orbital slots which do not interfere with existing space networks, in particular in heavily used geographical longitudes. If requirements of a country allow it, the possibility exists to rent a transponder on an existing commercial satellite.

Authors of Papers	Titles of Papers
Petr Lála	Registration of Geostationary Satellites by the United Nations
Heiner Klinkrad	Status of the Geosynchronous Orbit
Yvon Henri	Long-Term Efficiency of the Space Regulatory Framework: “Paper Satellites” issue
Luboš Perek	Paper Satellites and Space Networks
Victor S. Veshchunov	Statement on behalf of Intersputnik