

N 9 4 - 2 2 7 4 8

U.S. Domestic and International Regulatory Issues

Lon C. Levin, Dennis C. Nash
American Mobile Satellite Corporation
1150 Connecticut Avenue, N.W., 4th Floor
Washington, D.C. 20036 U.S.A.
Phone: 202-331-5858
FAX: 202-331-5861

ABSTRACT

This paper will review the U.S. domestic and international regulatory and policy milestones since 1982, when NASA filed its petition with the Federal Communications Commission (FCC) to establish the U.S. domestic Mobile Satellite Service (MSS).

In 1985, the FCC proposed to establish MSS services and allocate spectrum for such service. In 1986, the FCC allocated L-band spectrum for MSS. In 1987, at the Mobile World Administrative Radio Conference (MOB WARC-87), despite U.S., Canadian, and Mexican efforts, the WARC did not adopt a multi-service, generic MSS allocation. In 1989, the FCC licensed the first MSS system. After two decisions by the U.S. Court of Appeals, the FCC's licensing actions remain intact.

The FCC also has permitted Comsat to provide international aeronautical and land MSS via the Inmarsat system. Inmarsat, however, may not serve the domestic U.S. market.

In 1991, the FCC accepted applications for MSS systems, most of which were non-geostationary proposals, for operation in the Radiodetermination Satellite Service (RDSS) bands, and the VHF and UHF bands. In 1992, the FCC proposed rules for non-geostationary MSS systems and applied a negotiated rulemaking procedure to each.

Also in 1992, the U.S. position for flexibility in existing MSS bands and for additional worldwide MSS allocations was adopted in large part at the 1992 World Administrative Radio Conference (WARC-92).

INTRODUCTION

There is increasing demand for versatile and ubiquitous mobile communication services. MSS is expected to help satisfy these communication needs in the future. MSS is designed to compliment existing terrestrial services by extending service coverage areas via satellite, thereby providing nationwide mobile service. The first of these systems is the AMSC system, which received its license in May 1989. AMSC's first satellite is scheduled to be launched in 1994. The FCC is currently in the process of developing the regulatory structure for other mobile satellite systems, particularly those that propose to use a non-geostationary platform.

This paper will first present an overview of the U.S. regulatory process. It will then provide a discussion of the licensing and allocation proceedings that led to the licensing of AMSC in 1989. It will review the U.S. policy limiting Inmarsat to international MSS services only with regard to North America. MSS activity at the International Telecommunication Union (ITU) will also be reviewed. Finally, other domestic MSS related proceedings will be discussed.

OVERVIEW OF THE U.S. REGULATORY PROCESS

Domestic Process

The FCC is responsible for the allocation of spectrum to the private sector, as well as for the licensing of private entities seeking to use the allocated spectrum.

Generally, the spectrum allocation process is initiated with the filing of a Petition for Rulemaking by an entity seeking to have spectrum allocated for a new service. The FCC places the petition on public notice, thereby triggering a comment period within which the public may provide its views on the proposal. If there is sufficient support for the petition, the FCC will then issue a Notice of Proposed Rulemaking (NPRM), which presents the desired allocation as well as provides tentative ideas on the technical and operational parameters for the use of that spectrum. The NPRM invites public comment on the proposal. After assessing the comments, the FCC issues an order establishing a specific allocation. The FCC order is subject to petitions for reconsideration, to which the FCC must respond. The FCC's decisions are ultimately subject to review by the U.S. Court of Appeals.

The next process involves the licensing of users of the newly allocated spectrum, and the formulation of rules within which the licensees must operate. The FCC follows a path similar to an allocation proceeding, first releasing an NPRM, soliciting comments, and finally issuing an order.

Before actual rules are established, the FCC may invite applications for the provision of the new service. This enables the FCC and the public to review concrete proposals for the use of the spectrum. Petitions to deny and

comments are filed on the individual applications. Once all of the relevant information is gathered, the FCC issues its order.

An FCC order typically establishes financial, technical, and operational standards, in addition to strict construction and implementation milestones for the provision of the new service. The order is subject to petitions for reconsideration and review by the U.S. Court of Appeals.

A recent development in administrative procedure is the negotiated rulemaking. Under this procedure, the FCC requests interested parties, including applicants, to meet under the auspices of the FCC in order to develop mutually acceptable proposals for technical and operational rules that will be used as a basis for the FCC's rules. The underlying theory of this process is that the applicants, as well as other interested parties, can negotiate to establish the rules that are in their best interest.

International Process

ITU decisions have considerable impact on the domestic regulatory process. In particular, the allocations established at a WARC provide the underlying parameters under which a domestic allocation may be made. Typically, the FCC will allocate spectrum consistent with a particular WARC allocation, which are incorporated in the ITU's Radio Regulations. The FCC also takes note of technical and operational standards recommended by the ITU.

THE AMSC PROCEEDING

In 1982, NASA filed a petition for rulemaking to establish a MSS system by allocating spectrum to MSS and selecting one

or more licensees. In 1985, in response to the NASA Petition, the FCC issued an NPRM proposing to use UHF and L-band frequencies for mobile links and proposing a regulatory structure for the new service. The FCC also invited applications.

Twelve applications were filed in response to the NPRM. In 1986, the FCC allocated 28 MHz of the L-band for use by MSS systems for all mobile satellite services. The MOB WARC-87, however, did not adopt U.S. proposals to make the L-band more flexible but, instead, left standing the existing service-specific allocations.

In 1987, the FCC issued rules and regulations regarding the regulatory structure within which the MSS industry would develop. Given the limited amount of spectrum available, the FCC determined that only one licensee would be viable. The FCC, therefore, ordered all qualified applicants to form a single consortium. It also required that each applicant put \$5 million in escrow for use by the consortium. In response to the FCC's order, eight of the twelve applicants formed a consortium in 1988.

In 1989, the FCC issued a license to the consortium and reaffirmed its allocation and regulatory structure orders. Of particular note, the FCC found that its generic allocation was consistent with the service specific allocations of the ITU; because the AMSC system is required to provide aeronautical safety services on a priority and preemptive basis within the allocated bands, the FCC held that AMSC's operations would be consistent with the ITU's Radio Regulations requiring aeronautical safety services (AMS(R)S) to operate on a primary basis in the bands.

AMSC Proceedings After 1989 License Decision

In 1991, the U.S. Court of Appeals upheld the FCC's MSS allocation rulings, finding that the FCC acted in a rational manner in determining that a generic MSS system that provides AMS(R)S on a priority and preemptive access basis is consistent with the international Radio Regulations. The Court, however, reversed the FCC's award of an MSS license to a mandatory consortium.

The Court stated that in order for the FCC to impose a mandatory consortium, it had to first find authority in the Communications Act enabling it to avoid a comparative hearing among mutually exclusive applicants. If such authority existed, then the FCC must articulate compelling circumstances that would justify selecting competing applicants by means other than through a comparative hearing.

In response to the Court's 1991 decision, in 1992, the FCC reaffirmed AMSC's status as the MSS licensee. In so doing, the FCC found that the necessary statutory authority exists under its rulemaking powers to establish a mandatory consortium and that the need to have a licensee participate in the ongoing international spectrum coordination process provided compelling circumstances sufficient to justify a mandatory consortium. The FCC's decision was challenged again in the Court of Appeals, but the Court, in 1993, dismissed the challengers for lack of standing, thereby leaving the FCC's decision intact.

THE AMSC LICENSE

AMSC is authorized to construct, launch, and operate the U.S. domestic mobile satellite system consisting of three satellites using L-

band frequencies for mobile links and Ku-band frequencies for feeder links. The orbital locations assigned to AMSC are 101° W.L. for the central satellite, 62° W.L. for the eastern satellite, and 139° W.L. for the western satellite.

The FCC allocated 28 MHz of L-band spectrum in the bands 1545-1559 MHz and 1646.5-1660.5 MHz for use by the U.S. mobile satellite service system. The FCC concluded that the efficiencies inherent in a single system would assure that aviation safety services would be made available soon. Accordingly, the FCC authorized AMSC to be both the MSS and AMS(R)S licensee.

Rather than adopt a rigid spectrum segmentation plan, the FCC devised an allocation structure that permits all mobile satellite services to be provided across 27 MHz of the allocation, while assuring that AMS(R)S traffic can enjoy additional protection relative to other services. Due to sharing constraints with Radio Astronomy, the remaining 1 MHz is limited to aviation safety and certain one-way services.

The FCC allocated 200 MHz of Ku-band for feeder link use to each of the three satellites. The central satellite at 101° W.L. was allocated 200 MHz of the 11/13 GHz band. The satellites located at 62° W.L. and 139° W.L. were allocated 200 MHz of the 12/14 GHz band.

AMSC will provide space segment on a common carrier basis, providing access to carriers and end users. AMSC's ground segment will be authorized separately. Earth stations accessing the system will be licensed separately. Typically, mobile units will be authorized under blanket licenses.

Services And Coverage Areas

AMSC is licensed to provide the full range of land, maritime, and aeronautical services, including two-way voice, dispatch, and mobile data. Fixed and transportable services may be provided where few alternatives exist. AMSC is authorized to provide service to the U.S. domestic market including all 50 states, Puerto Rico, the Virgin Islands, and U.S. coastal areas up to 200 miles offshore.

In recognition of the need for the AMSC and Telesat Mobile, Inc. (TMI) systems to be capable of mutual back-up and restoration, the FCC authorized AMSC to construct its satellites to cover Canada. AMSC may also construct its satellites to cover Mexico. Authority to operate in Canada and Mexico, as well as the Caribbean, must be obtained by separate application.

Aeronautical Matters

By its authorization, AMSC is required to accord priority and real-time preemptive access to AMS(R)S communications throughout the entire assigned bandwidth. AMSC also must develop arrangements for "hand-off" of aeronautical traffic to other MSS systems, such as the Canadian and Inmarsat systems.

The FCC expects that aeronautical mobile terminals will have certain unique characteristics to meet aviation safety operational requirements. Aeronautical mobile terminals must be type accepted and licensed under the FCC's rules governing aviation communications. The FCC expects the Federal Aviation Administration (FAA), which is the U.S. entity responsible for aviation safety, to be involved in the development of standards and practices in order to assure that aviation safety

satellite services will be of the highest integrity.

MSS EXPANSION BAND RULEMAKING

In 1990, the FCC adopted a NPRM, proposing to reallocate the bands 1530-1544 MHz and 1626.5-1645.5 MHz for domestic generic MSS. These bands are currently allocated domestically to maritime MSS. The FCC proposed that maritime safety services be afforded real-time preemptive priority in the MSS expansion band. AMSC's application seeking permanent authority to operate on these bands for domestic service has been held in abeyance pending completion of the rulemaking.

INTERIM SERVICE

In 1992, the FCC decided that AMSC may provide interim MSS via Inmarsat facilities. The FCC authorized AMSC to operate up to 30,000 mobile terminals. AMSC currently uses the Marisat satellite to provide data service. The FCC stated that others may use the Inmarsat system on an interim basis to provide U.S. domestic service on the condition that those services transition to the AMSC satellite system shortly after its deployment.

USE OF INMARSAT IN THE UNITED STATES

In 1989, the FCC established policies for the provision of international aeronautical services in the U.S. via the Inmarsat system. The FCC determined that Comsat, the U.S. signatory to Inmarsat, will be the sole U.S. provider of Inmarsat space segment for aeronautical services. In addition, the FCC decided that aeronautical services, provided via Inmarsat to aircraft over the U.S., could be offered on a permanent basis only to aircraft in international flight. The FCC defines international flights as those between the U.S.

and foreign points, and those flying over the U.S. between two foreign points. Inmarsat may not provide domestic land mobile service in the U.S. The FCC, however, has permitted Comsat to use Inmarsat facilities to provide international land mobile service outside of North America.

WARC 92

In February 1992, WARC-92 convened in Torremolinos, Spain. Two significant developments occurred at WARC-92. First, the international service limitations imposed upon a significant portion of the existing L-band spectrum were relaxed for the United States, Canada, Mexico, Australia, Brazil, Malaysia, and Argentina. Second, over 100 MHz of additional spectrum between 1-3 GHz were allocated to mobile satellite service for future use on a Region 2 (North and South American) as well as a global basis. To date, this new spectrum has not been allocated to MSS by the FCC, although portions of it are the subject of a number of proceedings.

OTHER SATELLITE-BASED MOBILE SERVICES

In 1986, the Geostar Corporation and two other applicants were authorized to construct, launch, and operate dedicated RDSS systems. Geostar also obtained authority to provide interim RDSS until its dedicated satellites became fully operational. In 1991, however, the Geostar venture ceased operations.

The FCC has licensed other satellite-based mobile communications service providers. In February 1989, Qualcomm, Inc. received authority to operate mobile terminals to provide messaging and tracking services using existing fixed satellite Ku-band space segment.

Soon after WARC-92, the FCC initiated

proceedings to implement additional MSS systems in spectrum allocated at WARC-92. A negotiated rulemaking process has been imposed on each proceeding. The FCC has concluded the allocation process for the data only low earth orbit (LEO) systems, permitting operation in the VHF and UHF bands, and is currently in the midst of the final portion of the licensing process for these "Little LEOs".

For MSS systems proposing operations in frequencies in the RDSS bands, the FCC completed the negotiated rulemaking phase in the first quarter of 1993 and is currently considering allocation and licensing proposals.

The FCC is considering MSS allocations in the 2 GHz bands as well as proposals to share portions of the 1675-1710 band with meteorological satellite operations.