

ORIGINAL

**Before the
Federal Communications Commission
Washington, DC 20554**

RECEIVED

SEP 1 2000

In the matter of)
)
City of Los Angeles)
)
Application for Airborne Microwave)
Downlink Video Experimental License)

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

File No. 0247-EX-PL-1999
Call Sign WB2XEN

To: Chief
Office of Engineering and Technology

PETITION FOR RECONSIDERATION

Background

The Radio Amateur Satellite Corporation (AMSAT) is a non-profit scientific and educational organization, qualified under Section 501(c)(3) of the Internal Revenue Code, which was chartered in the District of Columbia in 1969.

Among its many activities, AMSAT constructs, tests and obtains launches for satellites for use by the world's licensed radio amateurs. These satellites are available for use by anyone in the world holding a proper license from his or her radio licensing authority on a non-discriminatory, non-compensation basis.

AMSAT was formed to continue the work of an earlier organization, Project OSCAR in carrying out such activity. Since its inception, AMSAT has itself built and launched, or taken part with other overseas like-minded organizations, ten amateur radio spacecraft. Other amateur satellite organizations in The Soviet Union and later Russia, Great Britain, Japan, Korea, Israel, France, Germany, Italy, South Africa, Brazil, Argentina, and Pakistan have built and launched amateur radio satellites. Much of this over-seas activity results directly from the inspiration and assistance which we have provided, and continue to provide.

In addition to its role in satellite construction and launch, AMSAT is active in providing educational materials for both licensed radio amateurs and non-amateurs in the techniques necessary to utilize, all amateur radio satellites, no matter the origin of the group building and

launching them.

AMSAT was also instrumental, along with the American Radio Relay League (ARRL) and NASA, in fostering amateur radio operation from the U.S. Space Shuttle on those missions which included crew members holding amateur radio licenses. AMSAT is currently active on an international committee which is working to bring about the same type of operation from the International Space Station. The first amateur radio equipment to initiate such operation is scheduled to be sent up soon on a Shuttle mission to the Station.

AMSAT's major activity, over the past ten years, has been the construction and testing of Amateur Radio's most ambitious spacecraft, known prior to its launch as Phase 3D. This activity has been carried out in conjunction with a number of overseas amateur satellite organizations with a major role being played by the German group. Construction and testing of Phase 3D is now completed and the spacecraft is currently in Kourou, French Guiana, awaiting launch on an Ariane 5 launch vehicle sometime this fall. Arianespace has manifested Phase 3D on Flight 507. AMSAT has expended nearly two million Dollars on this project and a similar amount was expended by other organization working on the project, a large percentage of that by our German compatriots. Other countries participating in the Phase 3D effort included Great Britain, France, Russia, Hungary, Finland, Belgium, The Czech. Republic, Slovenia, Japan and New Zealand.

Impact of the Los Angeles Experimental License on Amateur Radio

The impact of the subject Los Angeles experimental license on amateur communication, particularly Amateur TV, has been discussed in a number of other petitions (1). AMSAT wishes to augment these pleadings and stress the potential harm this type of operation is likely to cause, on an international scale, to communications supported by the amateur-satellite service. The Petition filed by the American Radio Relay League did mention possible impact on satellite

1. The American Radio Relay League filed a Petition for Reconsideration December 7, 1999. The Amateur Television Network (ATN) filed an Ex-Parte Petition for Reconsideration July 14, 2000. Both petitions ask that the Commission's granting of an Experimental license to the City of Los Angeles to operate airborne television transmitters in the 2400 to 2450 MHz band be reversed.

communication while the one filed by ATN discusses only the impact on Amateur television operations in the area of southern California.

AMSAT wishes to expand on ARRL's reference to satellite communication and call the Commission's attention to specific problems which the intended Los Angeles operation presents to amateur communications, once Phase 3D becomes available.

Capabilities of Phase 3D

The Phase 3D satellite contains broadband receivers for the 21 MHz, 25 MHz, 145 MHz, 435 MHz, 1270 MHz (2), 2.4 GHz (2) and 5.7 GHz bands. It also contains broadband linear transmitters for the 145 MHz, 435 MHz, 2400 MHz (2), 10 GHz (2) and 24 GHz bands. These various receivers are connected to the various transmitters via an IF matrix to form various transponder combinations. Any receiver can be connected to any transmitter via ground command or pre-programed action of the central on-board computer. The only stipulation is that a transmitter and receiver operating in the same band cannot be so connected.

As noted, there are two transmitters and two receivers in the 2400 MHz band installed in Phase 3D. One receiver accepts a band of frequencies from 2400.1 to 2400.6 MHz. and the other accepts a band from 2446.2 to 2446.7 MHz.. The transmitters in this band transmit signals over a ranges of 2400.200 to 2400.950 MHz and 2401.200 to 2401.950 MHz..

The orbit planned for Phase 3D is of the Molniya type with an apogee of approximately 36,000 miles and a perigee of about 2,500 miles. Inclination is to be in the vicinity of 64 degrees with apogee in the Northern Hemisphere. Placement will be such that one apogee will be over North America, one over Europe and one over Asia. Thus, when the satellite is over North America, it will be capable of receiving signals in the aforementioned ranges of frequency originating anywhere in North America, much of South America, western Europe and part of Asia and re-transmitting them over a like area on or more amateur bands from 145 MHz to 24 GHz.. During its Asian apogee, it will be able to do likewise for much of western North America as well as Asia and the Pacific region. Its European apogee covers all of Europe, a substantial portion of

Africa, the Middle East and the western portion of the Eurasian land-mass.

Phase 3D is to be three axes stabilized with antennas always pointing toward Earth. Gains of antennas for the various bands vary according to space available on the spacecraft. The antenna for the 2400.1 to 2400.6 and 2446.2 to 2446.7 MHz receivers and the 2400.200 to 2400.950 MHz transmitter is in the order of 20 dB. The antenna for the 2401.200 to 2401.950 MHz transmitter is approximately 11 dB.

As stated previously, Phase 3D is an international project involving some dozen countries. It has been licensed by the German licensing authority under the callsign, DP0WH.

Conclusions

Clearly, the type of operation contemplated by the City of Los Angeles under the Experimental license granted by the Commission has significant potential for interference to all of North America, much of South America and substantial portions of Asia and western Europe, once Phase 3D becomes operational. In addition to Phase 3D, it is planned that receivers and/or transmitters operating in the 2400 to 2450 MHz band, will ultimately be included in the amateur equipment suit to be installed aboard the International Space Station. Thus, with the extensive use of the 2400 to 2450 MHz band by a licensed service, the amateur-satellite service, it is likely that the U.S. will receive numerous complaints of harmful interference as a result of the City of Los Angeles's operation under the Experimental license the Commission has granted.

In addition, AMSAT views with great alarm the potential for increased and more widespread interference if other municipalities and/or regional governments follow Los Angeles's lead and apply for permission to operate similar systems in the 2400 to 2450 MHz band. We believe that once such operation is begun in a large city like Los Angeles, it will be very difficult for the Commission to not allow it elsewhere.

Recommendation

As Phase 3D is due to be operational soon in a licensed service, the amateur-satellite service; and 2.4 GHz equipment, also operating in that service, expected to be employed on the International Space Station; it is inappropriate for the Commission to grant an Experimental license which has the high potential of causing interference over such wide portions of the Earth.

Accordingly, the Radio Amateur Satellite Corporation requests the Commission to rescind its authorization of the above captioned Experimental license for the City of Los Angeles and grant no similar licenses to that or any other municipality or organization in the 2400 to 2450 MHz range.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Keith Baker", written over the printed name.

Keith Baker KB1SF
President