



American Mobile Satellite Corporation

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September 26, 1995

William F. Caton, Secretary  
Federal Communications Commission  
1919 M Street, N.W., Room 222  
Washington, D.C. 20554

**Re: AMSC Subsidiary Corporation**  
**Application for Modification of Blanket Authority**  
**Call Sign E930367**

Dear Mr. Caton:

At the request of the Commission staff, AMSC Subsidiary Corporation provides the following clarifications concerning the characteristics of the stationary terminals that are the subject of the above-referenced application for modification of blanket authority, filed September 14, 1995. By that application, AMSC seeks to modify its blanket authority to add specifications for two super high-gain fixed-site antenna types for which it is not currently licensed.

#### **Antenna Pattern**

The staff has requested further information concerning the relationship between signal strength and the angle of elevation of the proposed antennas. The relative power gain in the elevation plane of both antennas described in Attachment A of the modification application is stated as a function of "off-axis angle relative to satellite" (see table below). In other words, the angle stated is measured from the axis of the main beam of the antenna. The pattern is circularly symmetric, so that the gain limits in the table are applicable to both elevation and azimuth.

For example, assume that the local elevation angle to the satellite is 25°, the minimum elevation angle toward AMSC-1 within the contiguous United States. Then the axis of the main beam is 25° above horizontal. Referring to the table, 25° is between 10° and 45°, and the gain of the antenna is between 0 (peak gain) and 13 dB below peak gain. Interpolating between these values, the gain of the antenna, as well as the power density, toward the horizon is approximately 9 dB below the peak gain. Therefore, when these antennas are operating, their gain and radiation toward the horizon will be much less than toward the satellite.

The transmit radiation pattern of each of these antenna types will be at or below the following mask:

**Circular Symmetric Pattern**

<b>Off-Axis Angle Relative to Satellite (<math>\theta</math> degrees)</b>	<b>Maximum Gain Relative to Nominal Peak (dB)</b>
$0 \leq \theta < 10$	0
$10 \leq \theta < 45$	linearly decreasing from 0.0 to -13.0
$45 \leq \theta < 180$	-13.0

**Radiation Exposure**

As indicated in AMSC's radiation hazard analysis attached as Attachment B to its application, calculations performed in accordance with Office of Engineering and Technology Bulletin, No.65, demonstrate that the radiation density near these antennas is below the revised MPE limits established in IEEE/ANSI C95.1-1992 for any separation distance. The explanation for this fortunate condition is twofold:

1. Because of the relatively higher gain of these antennas, the input power to these antennas is lower than for smaller antennas.
2. The power fed to any antenna is spread over the area of that antenna. Because these antennas have a relatively large area for the power to be spread over, the power density is reduced.

The MPE limit may be exceeded in the region between the feed and the reflector, but that is not an area to which a user may be casually exposed. Nonetheless, as discussed below, AMSC will include appropriate warnings both on labels and in operating instructions to minimize the possibility of exposure within this region.

**Installation, Mounting and Labeling**


AMSC anticipates that these antennas will be used primarily for rural telephony,

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providing communications services to isolated locations beyond the service areas of wireline or cellular providers. These antennas will be installed in various fixed locations, including possible roof, wall, and ground mountings. Thus, it is likely that there will be minimal exposure to casual passers-by. Nonetheless, as stated in Footnote 3 of its application, AMSC undertakes to include both antenna labels and instructional manual cautionary explanations for these terminals, and to develop appropriate installation guidelines to ensure that, regardless of their location, these antennas comply with the conditions placed on AMSC's currently authorized fixed-site high-gain antennas, as set forth in the Commission's Order and Authorization granting AMSC authority to employ those terminals (FCC File Nos. 894-DSE-MP/L-95; 1034-DSE-MP/L-95 (August 28, 1995)).

If you have any further questions regarding this matter, please contact the undersigned.

Very truly yours,

  
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Richard O. Evans  
Senior Scientist

cc: Thomas Tycz  
James Talens