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UNITED STATES DEPARTMENT OF COMMERCE  
National Telecommunications and  
Information Administration  
Washington, D.C. 20230  
Received

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Regina Keeney  
Chief, International Bureau  
Federal Communications Commission  
2000 M Street, NW  
Washington, D.C. 20554

Satellite Policy Branch  
International Bureau

Dear Ms. Keeney:

We have reviewed the draft license for Final Analysis (FAI) Non-Voice Non-Geostationary (NVNG) Mobile-Satellite system. We continue to have two concerns: 1) interference to DoD's defense Meteorological Satellite Program (DMSP) at 400 MHz; and 2) FAI's ability to respond in a timely manner to failure of its satellites to avoid causing interference to NOAA satellites in the 137-138 MHz band. In order to address these concerns, we request that the FAI license incorporate the additional conditions described below:

#### Operation at 400 MHz

Final Analysis (FAI) is proposing to operate within the 400.505-400.645 MHz portion of the 400.15-401 MHz band that is situated between the two DMSP channels. The spectrum proposed includes that allocated for use by the first round applicants VITA and STARSYS.

We agreed during the FCC Negotiated Rulemaking in 1992 to the principle of sharing the spectrum between the two DMSP channels with two U.S. mobile satellite systems based on the proposed technical parameters of the first round applicants. In 1994, we agreed to the licensing of VITA and STARSYS systems based on the technical parameters proposed for these systems. The VITA system was specified to have an EIRP of 8 dBW at the horizon. The STARSYS system was specified to have an EIRP of 8.2 dBW in the vicinity of the horizon. FAI's amended application proposes an EIRP of 17.8 dBW at the horizon. This value is 9.6 dB greater than that planned by STARSYS. This value of EIRP substantially increases the interference power received by the DMSP, over that which would have resulted from the STARSYS system.

The FAI application states its power flux-density (pfd) near the horizon (at a 5 degree arrival angle) will be  $-127.8 \text{ dBW/m}^2/4 \text{ kHz}$ . This pfd is low enough to avoid harmful interference to the DMSP. However, the FAI application indicates their system design will use a shaped beam antenna to produce uniform pfd at the surface of the Earth. We are concerned that the amount of antenna beam shaping needed to accomplish this uniform pfd may not be practically achieved once the antenna has been mounted on the spacecraft. In this case, the result could be that the maximum pfd (at higher arrival angles) will be greater than the  $-127.8 \text{ dBW/m}^2/4 \text{ kHz}$  value calculated in the application.

In order to facilitate coordination between Air Force and FAI, the license needs to be conditioned on a pfd levels at any point on the surface of the earth not exceeding -125.0 dBW/m<sup>2</sup>/4 kHz. FAI should also be required in their license to demonstrate through tests on the first completed spacecraft that this pfd value will be met at all arrival angles. These tests should be performed within 120 days after the launch of the first satellite by FAI and monitored by the Air Force. Because pfd levels greater than -125.0 dBW/m<sup>2</sup>/4 kHz could prevent the DMSP from satisfying its mission, the FAI license should clearly state that the license is subject to being revoked unless the pfd limit is met, in practice.

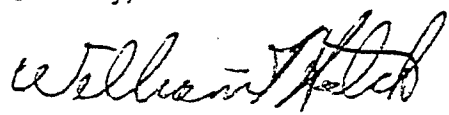
Operation at 137-138 MHz

There is uncertainty about FAI capability to detect problems that could result in interference to NOAA satellite operations due to timesharing violations and, FAI's ability to command shut-off of the malfunctioning FAI satellite. NOAA has stated its desire that FAI be able to detect all timesharing violations within two hours. However, we understand that the specific time periods in which to accomplish failure detection in some cases is dependent on the number and location of FAI ground stations and that initially FAI will have a limited number of ground stations available outside the U.S. Therefore, the FAI license needs to reflect the requirement that any timesharing failures be detected at the first time the satellite is in view of an FAI ground station and in any case in less than four hours.

The NVNG Report and Order requires, in Section 25.259, instantaneous shut down when the timesharing agreement is violated. In some cases this may not be practical. Therefore, if the satellite is not operating in accordance with the timesharing agreement and cannot be commanded to immediately cease or modify its transmissions, it should be done by the first ground station with satellite visibility, but in any case, in less than four hours.

Additionally, since FAI will also be operating in the lower end of the 137-138 MHz band on a non-timeshared basis, it is necessary to further condition the license on successful completion of coordination and an operating agreement between FAI and NOAA concerning FAI out-of-band interference.

Sincerely,



William T. Hatch  
Deputy Associate Administrator  
Office of Spectrum Management