RM-9147

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

DOCKET FILE COPY ORIGINAL

MAY 21 1998

RECEIVED

JUN 3 - 1998

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Mr. Richard Smith
Chief, Office of Engineering and Technology
Federal Communications Commission
Washington, D. C. 20054

Dear Mr. Smith:

Enclosed is an assessment prepared by NASA regarding the potential interference into the TDRS System by the Skybridge application. (FCC File No. 48-SAT-P/LA-97 Amended July 3, 1997).

NTIA has reviewed the NASA assessment and supports its findings. I request that this assessment be entered into the official record on this filing, and its content taken into consideration in the forthcoming decisions made on the Skybridge application.

If you have any questions, please direct them to Edward Davison of my office (Telephone: (202) 482-1164; FAX: (202) 482-2830; e-mail edavison@ntia.doc.gov).

Sincerely,

William T. Hatch
Acting Associate Administrator
Office of Spectrum Management

Enclosure

No. of Copies rec'd 2
List A B C D E OET

FOR AGENDA

Doc. 30429/1-2.8.2.1/4.9.2/6.15

National Aeronautics and
Space Administration

Headquarters
Washington, DC 20546-0001

Reply to Attn of: MG

NOV 19 1997

Mr. William Hatch, Chairman
Interdepartment Radio Advisory Committee (IRAC)
NTIA/Department of Commerce
14th & Constitution Avenue, NW
Washington, DC 20230

Dear Mr. Hatch:

Enclosed are comments on the Skybridge application (FCC File No. 48-SAT-P/LA-97 Amended July 3, 1997), for authority to launch and operate a network of Low Earth Orbit satellites operating in the Fixed-Satellite Service. In this Amendment, Skybridge provides an assessment of interference into the TDRS System. Upon review of this analysis, NASA believes that certain assumptions used by Skybridge in their analysis have led to improper conclusions as to the viability of the services to share the band. The enclosed document provides additional calculations of the interference potential and concludes that unacceptable interference would be experienced by the TDRS System.

Please place this on the IRAC agenda.

Sincerely,

David Struba
NASA IRAC Representative
Office of Space Flight

Enclosure

Review of Skybridge Interference
Into the TDRS System in Ka Band
(November 9, 1997)

1. Introduction

Skybridge L.L.C. has filed an application, and subsequent amendment requesting authority to launch and operate a global network of non-geostationary satellites to provide a wide range of data, voice and video broadband services in the Fixed Satellite Service. Skybridge proposes to operate 64 satellites in two symmetrical 32/8/3 Walker constellations with an inclinations of 55° and 1457 km altitudes. Skybridge also proposes that:

1) Gateway Earth stations will not operate when pointing within ±10° of the GSO.
2) A 5° minimum Earth station elevation is to be used.
3) System operations will not commence until after 1 January 2001.

The application proposes uplinks from gateway Earth stations in the 13.4 - 14.05 GHz band from 4.5 meter (54 dB(i)) and 2.5 meter (48.9 dB(i)) antennas. A total of about 30 gateways will be operated within CONUS.

The 13.75-13.8 GHz portion of the bands proposed in the application are used by NASA's Tracking and Data Relay Satellite System (TDRSS) for forward links to subscriber spacecraft (including the Space Shuttle). The rest of the 13.4-14.05 GHz band is used by NASA for downlinks from the TDRS satellites to White Sands NM.

Systems operating in the 13.75 - 13.80 GHz band must coordinate on a case-by-case basis with the TDRSS per U.S. Table footnote US337. In addition, FSS Earth stations in the 13.75 - 14.0 GHz band are subject to EIRP and antenna diameter limitations.

Skybridge provides an interference analysis vs. TDRS in their FCC File No. 48-SAT-P/LA-97.

to-TDRSS Subscriber backlobe antenna gain of -5 dB(i), results in a 45 dB antenna isolation from the mainbeam. The resulting interference-to-noise density is 29.9 dB (cell D15), an interference level unacceptable to TDRSS operations..

2.2 Skybridge Interference Into TDRSS Downlinks Links in The 13.4 - 14.05 GHz Band

Skybridge proposed use of this band is for uplinks. Skybridge transmitting Earth stations would be prohibited within a reasonable coordination distance about the White Sands Ground Terminal determined from standard ITU procedures.