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SIERRACOM INC.

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Domestic Facilities Div
Satellite Radio Branch

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Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In the Matter of the Application of)	
)	
Norris Satellite Communications, Inc.)	File Nos. 54-DSS-P/L-90
)	55-DSS-P-90
For Authority to Construct, Launch and)	
Operate a Communications Satellite in)	
the Domestic Fixed Satellite Service)	

COMMENTS OF SIERRACOM INC.

Sierracom Inc. hereby submits these Comments in support of the above-referenced application. Sierracom is a newly formed corporation dedicated to the emerging infrastructure of information management and distribution for the twenty-first century, including the use of satellites for communications and data distribution. Among these business interests is the satellite distribution of university instructional television. The principals of Sierracom are highly experienced in the development of communication satellites for the commercial sector, for NASA, and for the Department of Defense. Sierracom urges the Commission to grant the application of Norris Satellite Communications, Inc. [hereinafter referred to as Norris]. Implementation of this system would serve the public interest by promoting the use of a new frequency band. This will, in turn, reduce congestion in the C- and Ku-Bands. The employment of Ka-Band will allow the optimization of communications satellite systems with an order of magnitude higher capacity, through exploitation of the wider band frequency allocations available and the greater frequency re-use achievable. Higher capacity systems

will lower costs for satellite services, thereby making them available to a wider set of users, including educational television entities.

Section 151 of the Communications Act of 1934, as amended, calls upon the Federal Communications Commission to "make available, as far as possible, to all the people of the United States a rapid, efficient, Nation-wide and world-wide wire and radio communication service."¹ Granting the Norris application would be consistent with the Commission's statutory mandate as this new licensee would bring to the U.S. market the first commercial satellite operating on these currently unused frequencies.

The United States at present lags behind Japan and Europe in the implementation of Ka-Band satellite communications service, even though the technology has been achievable within this country for some time. The National Aeronautical and Space Administration ("NASA") has taken the research and development lead. It plans to deploy an experimental Ka-Band satellite—the Advanced Communications Technology Satellite (ACTS)—in 1992. However, Norris alone has proposed implementation of a commercial Ka-Band system.

The Commission should approve the Norris application, enabling a private venture to bring this new technology into commercial fruition and initiate the utilization of the new frequencies. This commercial Ka-Band facility can meet the needs of certain users for operation in an interference-free environment and serve as a vehicle for the development of further Ka-Band technology, which can lead to satellites of very high capacity and systems operating at extremely high data rates.

1 Communications Act of 1934, as amended, 47 U.S.C. Sec. 151.

Implementation of the Norris System will initiate an evolution of new systems in Ka-Band with substantially higher capacity, leading to more efficient utilization of the entire spectrum.

The principals of Sierracom have spent careers in the system synthesis and the management of communication satellite developments. These activities have included one of the first comsats (Project Relay for NASA), an advanced Ku-Band satellite for Western Union (Advanced Westar), Ka-Band satellite studies for AT&T, and preliminary design studies for the Japanese Ku-Band direct broadcast (Japanese Broadcast Satellite) and for the Japanese Ka-Band system (Japanese Communications Satellite). We have extensive background in the development and evolution of Ku-Band and Ka-Band throughout the world. Currently Sierracom is initiating entrepreneurial ventures that will exploit Ka-Band to provide for communication needs of the twenty-first century. Presently these include a partnership with the University of Southern California (USC) for synthesizing an instructional television system that will extend their current terrestrial operation to a nationwide system.

Transponder costs for the transmission of television is a major obstacle in the growth of educational programming, for which there is a major nation need. Segments of the educational television offerings are tuition supported, with substantial industrial support, including the current USC terrestrial system. Public education needs, which are even greater, are more economically sensitive. Digital compressed video technology, being implemented in all frequency realms, will favorably impact satellite transmission costs, leading to a large growth in the educational programming available through the school systems. However, the principal need for private and public implementation of increased educational television service is a substantial reduction in satellite transponding costs.

Many of the educational transmission and distribution needs via satellite are multi-point to multi-point, as opposed to the area cover needs of broadcast systems. Ka-Band utilizing the multibeam

technology of ACTS, in conjunction with digital compression, multiplexing, and multiple access techniques, can effect satellite systems that are extremely high capacity and very efficient in the utilization of satellite weight, and therefore, space segment costs to orbit. Such systems can be optimized, through the use of the wider bandwidth, frequency re-use, and multibeam system attributes achievable at Ka-Band, to provide a very low cost nationwide transmission system for educational networks and other networks with similar characteristics.

The system and hardware technologies for implementation of these new generations of communication satellites exist. The satellite industry would benefit greatly from the opening up of Ka-Band in the U.S. for commercial telecommunications. Japan and Europe are farther along this path and have an advantage with respect to international competitions for these system implementations. Norris represents an initial capability in Ka-Band that will be a major step in the evolution toward the next generation of domestic communication satellites within the U.S. Operational users for which Ka-Band represents an appropriate, and much needed, new capability will gravitate toward this new band and the systems that provide service there. This will relieve congestion at C- and Ku-Band, making them available to users for which these lower bands are best suited to their requirements.

The ACTS program, with its experimental phase, provides an initial capability for Ka-Band, permitting users to commence operation on a demonstration basis in 1992. With prompt approval by the Commission of the Norris application, these users can plan for permanent Ka-Band services with increasing potential for greater system capacity and lower costs. The planned existence of the Norris system will reduce the risk and increase the potential benefits of participation in the ACTS experimental program.

The Development and Operational Expansion Of The Norris System Will Enhance This Nation's Technology Base And Its Ability to Compete in Future Satellite Procurements

Ka-Band Satellites will most certainly become a key element of the evolving communication infrastructure of countries throughout the world. The competition for the hardware for these programs, both the space segment and the terminals, will also be international, with the development and manufacturing considered to be highly desirable business. Operational programs in Ka-Band are in place in other parts of the world, including Japan and Europe, partly as a result of joint ventures with U.S. firms. The technological base for Ka-Band development certainly exists domestically, partly from the synergism with military programs, and manufacturing from the Norris program will enhance the competitiveness of the U.S. in this important area.

Sierracom strongly believes that this nation should be leading the world in the development, manufacture, and utilization of communication satellites. Government sponsored research and development in Ka-Band satellites, most notably the ACTS program, and the accompanying experimental activities by industrial and academic entities, will have brought along the technology and the operating experience. Now is the time to initiate the implementation of a commercial system through approval of the Norris application. In fact, the availability of a commercial Ka-Band system in 1994, which Norris represents, will stimulate interest in the ACTS program and increase the number of participants in experiments, thereby enabling the telecommunications industry to reap greater benefits from this government investment of \$500 million.

Recently, the Commission acknowledged the strategic importance of telecommunications to this nation's overall trade posture.² And in the case of aeronautical telecommunications, the Commission recognized that "the need to expeditiously move ahead in view of potential foreign competition" meant that it must

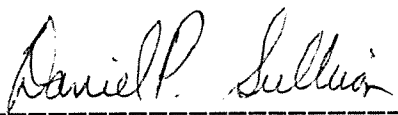
work to "ensure the early introduction of.....services to the U.S. ..."3
Sierracom believes that the Norris application presents the Commission with a timely opportunity to promote the commercial application of government-sponsored research and development. Prompt implementation of a commercial system utilizing the information gained thus far in development of ACTS will help retain this nation's technological and marketplace leadership in satellite communications.

Conclusion

Sierracom Inc. believes that the Commission authorization of the Norris application can abate congestion in the C- and Ku-Bands, promote innovation, enhance consumer welfare, improve this nation's telecommunications equipment balance of trade, and serve the public interest.

For the above reasons, Sierracom urges the Commission to grant the Norris application without delay.

Respectfully submitted,

By: 

Daniel P. Sullivan
President
Sierracom Inc.

November 8, 1990

2 Regulatory Policies and International Telecommunications,
4 FCC Rcd. 7387 (1988).

3 Provision of Aeronautical Services via the Inmarsat System,
CC Docket No. 87-75, 4 FCC Rcd. 6072, 6078 (1989).