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OFFICE OF THE SECRETARY

March 22, 2000

VIA MESSENGER

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
445 Twelfth Street, SW, Room TW-A425
Washington, DC 20554

Written Ex Parte Presentation

Re: IB Docket 98-172

Dear Ms. Salas:

Enclosed with this letter is a copy of the Comments of Hughes Network Systems and Hughes Communications Galaxy, Inc., which were filed two days ago in the Commission's Notice of Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable And Timely Fashion (CC Docket No. 98-146). Hughes is filing these Comments in the above-reference docket because they further demonstrate the critical need for the Commission to designate sufficient spectrum at 18 GHz for downlink service by GSO FSS operators to small, widely-deployed earth terminals.

Indeed, it would be fundamentally inconsistent with the Commission's currently articulated policies to adopt the Commission's current proposal, which would hamstring the development of broadband satellite systems that promise to promote the reasonable and timely deployment of advanced telecommunications services by providing universal, high-speed access to the Internet to all of America, including rural areas, schools, small businesses, and tribal lands.

An original and one copy of this letter and attachment are enclosed.

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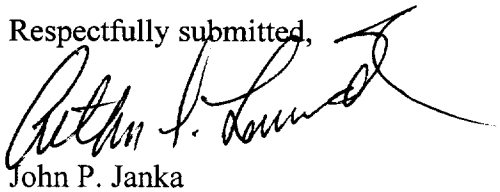
Respectfully submitted,



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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable And Timely Fashion, and Possible Steps To Accelerate Such Deployment Pursuant To Section 706 of the Telecommunications Act of 1996	)	CC Docket No. 98-146

COMMENTS OF HUGHES NETWORK SYSTEMS AND
HUGHES COMMUNICATIONS GALAXY, INC.

Hughes Network Systems, a division of Hughes Electronics, Inc., and Hughes Communications Galaxy, Inc. (together, "*Hughes*") hereby comment on the Notice of Inquiry[1] in the above-referenced proceeding. Hughes has a strong interest in this proceeding because the delivery of satellite-based broadband services is a vitally important part of Hughes's current and future business plans. Hughes currently operates the DIRECPC broadband satellite service, which is the only satellite-delivered broadband service currently available to consumers, and Hughes is also the licensee of the SPACEWAY Ka band geostationary satellite system,[2] which is scheduled for launch in 2002 and will deliver next-generation, interactive broadband communications services.

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1 *Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable And Timely Fashion, and Possible Steps To Accelerate Such Deployment Pursuant To Section 706 of the Telecommunications Act of 1996*; FCC 00-57 (rel. February 18, 2000) ("*NOI*").

In the NOI, the Commission asks for information regarding whether advanced telecommunications capability is being deployed to "all Americans."[3] Noting the apparent widening of the so-called "Digital Divide" between the "information rich" and the "information poor,"[4] the Commission requests data about how and if advanced telecommunications services are being deployed across the nation, and requests commenters to focus specifically on potential differences in services to business versus residential customers[5] or to various geographic areas or demographic groups.[6] Because Hughes's broadband service is and will be available to all Americans, Hughes believes firmly that satellite-delivered broadband services are essential to narrowing the "Digital Divide" for rural and consumer broadband users. Furthermore, satellite-delivered broadband services are vital to the achievement of the four goals for broadband that Chairman Kennard has set forth: fast deployment, ubiquitous deployment, competitive deployment, and open deployment.[7]

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2 *Hughes Communications Galaxy, Inc.*, 13 FCC Rcd. 1351 (1997).

3 NOI at § IV.

4 NOI at ¶¶ 26-27.

5 NOI at ¶¶ 14-21.

6 NOI at ¶¶ 26-30.

7 William E. Kennard, Chairman of the Federal Communications Commission, Remarks at the National Association of Telecommunications Officers and Advisors 19th Annual Conference (September 17, 1999); *see also* Deborah A. Lathen, Chief, Cable Services Bureau of the Federal Communications Commission, Remarks before the National Governors' Association (February 27, 2000) (naming same four goals).

I. SATELLITE-DELIVERED BROADBAND SERVICES WILL BE THE ONLY CHOICE FOR RURAL AND TRIBAL USERS FOR SOME TIME

As Hughes has previously indicated to the Commission,[8] satellite systems present the only practical near-term alternative to provide broadband services in rural, tribal and other unserved areas. Satellite systems have large coverage areas and have the capability to provide high-quality, ubiquitous service to any and all areas within that coverage area as soon as the satellite system is launched and operational. As such, satellite systems offer instantaneous deployment to thin route areas, such as rural areas and tribal lands. In addition, satellites offer ubiquitous service at prices that are distance insensitive, in contrast to the distance-based prices that are characteristic of many terrestrial networks. These characteristics of satellite communications allow satellite operators to provide first- and last-mile connectivity more efficiently and cost-effectively than terrestrial systems, which have historically focused their initial deployment on high-density urban areas.[9] Furthermore, satellite broadband services will achieve a quality of service that matches or beats that of terrestrial systems.

Indeed, Hughes believes that its DIRECPC and SPACEWAY systems – along with other broadband satellite systems – are likely to be the *only* technology available for a significant portion of the small businesses, consumers, and sustainable public access points ("SPAs") in the United States. Recent research shows that terrestrial broadband deployment is

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8 *See* Comments of Hughes Communications Galaxy, Inc., WT Docket No. 99-266 (filed November 9, 1999); Reply Comments of Hughes Communications Galaxy, Inc., WT Docket No. 99-266 (filed March 14, 2000).

9 *See* Extending Wireless Telecommunications Services to Tribal Lands, *Notice of Proposed Rulemaking*, FCC 99-205, WT Docket No. 99-266 (released August 18, 1999) at ¶ 24.

and will be highly focused on larger businesses, metropolitan areas and affluent suburbs.[10] Attached as Exhibit A is a diagram showing the areas of the U.S. that are likely to support terrestrial broadband services. Large portions of the U.S. are likely to remain unserved by terrestrial broadband service providers. Furthermore, even as late at 2010, several consultants have estimated that the metropolitan focus of terrestrial broadband deployment will leave 30 - 40% of U.S. consumers and small businesses without access to terrestrial broadband service. Broadband satellite systems, including DIRECPC and SPACEWAY, will offer the only viable way to serve those users who are and will likely be unserved by terrestrial broadband.

II. THE HUGHES COMMITMENT TO DEPLOYMENT OF SATELLITE-DELIVERED BROADBAND SERVICES

Through DIRECPC, which Hughes first introduced to the market in 1996, and the SPACEWAY system, which is scheduled for launch in 2002, Hughes has made a substantial commitment to providing affordable high-speed broadband digital communications to *all* Americans. Hughes was the first to offer broadband satellite service through its DIRECPC service, which operates at Ku band using small, consumer-friendly antennas, and – as indicated in the NOI – Hughes remains the only satellite-based provider that could be said to be providing broadband services to residential customers.[11] While other broadband technologies, such as DSL and cable, are available in select areas, DIRECPC remains *the only platform* that makes high-

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10 *See, e.g.,* COMMUNICATIONS DAILY, March 20, 2000, at 11 ("While cable operators are rolling out advanced services in larger markets, most small and medium-sized markets won't see such services for at least another 2 years, according to another new study. Report by Cahners In-Stat Group found that most cable operators serving areas outside biggest markets don't intend to launch digital cable, high-speed data or telephone service in the next 24 months.")

11 NOI at Appendix A, ¶ 10.

speed downloading capability available to both business and residential consumers nationwide, and which is accessible from virtually *any* location in the entire United States.[12]

To update the Commission as to the current state of deployment of Hughes's DIRECPC services, as well as its future plans for the service, Hughes notes that as of January 1, 2000 DIRECPC had 50,000 U.S. consumer users and, in addition, provided services to many schools, libraries, and community centers.[13] Hughes expects this number to increase considerably over the next year, both because of its plans to begin offering service in conjunction with America Online and because of consumers' growing awareness of and desire for faster Internet access. By the end of 2002, Hughes estimates that DIRECPC will serve over 1.2 million users across the United States.

Currently, DIRECPC offers asymmetric service with a one-way satellite link, which means that high-speed satellite services are available on the downstream, satellite-to-consumer pathway. This downstream link is offered at a burst speed of up to 400 kbps; the return path is via a standard telephone line capable of supporting between 40 - 56 kbps. However, Hughes intends to introduce the second-generation, high-speed DIRECPC service within the next twelve months, which will provide a two-way satellite link with burst speeds of up to 400 kbps downstream and 128 kbps upstream. To do so, Hughes is making significant investments in DIRECPC's infrastructure and technology, including acquisition of substantial additional space-segment capacity. As part of its strategic alliance with America Online, Hughes

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12 To receive service, subscribers must have an unobstructed view of the satellite that provides the downlink.

13 Hughes does not currently maintain statistics on the type of area in which subscribers are located (*e.g.*, urban, rural, or tribal areas).

also has committed to expanding the content available on DIRECPC. All in all, Hughes is investing hundred of millions of dollars in its DIRECPC service.

Hughes's commitment to providing broadband satellite services to all Americans is further evidenced by its $1.4 billion investment[14] in the SPACEWAY Ka band satellite system, which Hughes is in the process of constructing and which Hughes plans to launch in 2002. Upon successful launch of its first satellite, SPACEWAY will facilitate the expansion of the DIRECPC service and support even larger numbers of end-users across the entire United States on a distance-insensitive basis. The Hughes SPACEWAY system is designed to serve all users, in their homes and offices, regardless of where they live, by providing affordable, high-speed broadband digital service through mass-marketed, ubiquitous subscriber terminals measuring approximately 26" in diameter. Hughes expects that SPACEWAY will serve millions of users at speeds significantly greater than are currently available.

III. SATELLITE SYSTEMS NEED SUFFICIENT SPECTRUM TO FULLY IMPLEMENT THEIR PROMISE

In the NOI, the Commission asks how to accelerate deployment of advanced telecommunications capability to areas where it is not being deployed in a reasonable and timely manner.[15] The single largest "barrier to infrastructure investment"[16] for Hughes and other broadband satellite providers is the lack of sufficient unencumbered Ka band spectrum that is suitable for service to small dish antennas. To provide the broadest base of urban and rural users with affordable, high-speed broadband service, however, Hughes and the other broadband

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14 The first phase of the SPACEWAY system will consist of two satellites and one spare to serve North America.

15 NOI at ¶ 43.

16 NOI at ¶ 42.

satellite providers must have sufficient spectrum for small, widely-deployed earth terminals. Without sufficient spectrum, satellite providers cannot serve those portions of the U.S. population that do not have access to terrestrial broadband alternatives (30 – 40% of the U.S. as late as 2010). These digital "have nots" will not be able to share in the economic growth and other benefits that the terrestrial telecommunications industries will have brought to the rest of the country. Furthermore, lack of spectrum will hamstring satellite providers who seek to provide a viable competitive alternative to terrestrial service in urban and suburban areas, where the largest concentration of subscribers is found. In both rural and urban areas, therefore, it is essential that satellite providers have sufficient spectrum to allow for the competitive and open deployment that the Commission seeks.

Any decrease in bandwidth reduces the capacity, or throughput, of the SPACEWAY system and means that fewer users can be accommodated. In addition, the total bandwidth available to the system is a key determinant of the cost to the user of the SPACEWAY service. The SPACEWAY development and capital costs[17] must be spread across all users of the system and any reduction in the number of customers that can utilize the SPACEWAY system would increase the cost-per-user of the service. Thus, any reduction in available bandwidth for the SPACEWAY system will reduce the number of customers that SPACEWAY can serve while concomitantly increasing the cost of providing SPACEWAY service for the remaining users.

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17 In this regard, the development costs for SPACEWAY and other broadband satellite systems are tremendous because the SPACEWAY Ka band satellites are not the conventional "bent pipe" satellites that are common at C and Ku bands. In order to provide consumer-type services at Ka band, SPACEWAY must design, develop and

From the beginning, when Hughes first applied for the SPACEWAY system in 1993, and based in part on the Commission's decisions in the 28 GHz band plan proceeding,[18] the SPACEWAY system has been built around the availability of a full 1 GHz of spectrum for widely-deployed, ubiquitous earth terminals. Any reduction in the usable Ka band capacity below 1 GHz, such as the Commission's tentative decision in the proceeding relating to the Ka band downlink spectrum[19] to provide SPACEWAY and the other GSO FSS Ka band licensees only 750 MHz of spectrum suitable for use by ubiquitous terminals, will have a material and significant impact on the cost to users of the SPACEWAY system. Markets that have greater sensitivity to increases in service costs, such as rural and tribal communities, will more likely feel the impact of these increased costs. The Commission must ensure that satellite systems have the necessary resources to close the "Digital Divide" for rural and tribal broadband consumers.

IV. CONCLUSION

Through its significant investments in its DIRECPC and SPACEWAY systems, Hughes has made a substantial commitment to provide high quality, high-speed broadband services to all Americans, regardless of where they live. However, in order to ensure that these high-speed broadband services remain affordable to all Americans and competitive with

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implement advanced satellite-switching technology, including a fully regenerative processor, that is not "off the shelf" technology.

18 *In the Matter of Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5 - 29.5 GHz Frequency Band, to Reallocate the 29.5 - 30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services*, 11 FCC Rcd 19005, ¶¶ 57-58, 78 (1996).

19 *Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use*, FCC 98-235, ¶¶ 29-33 (rel. September 18, 1998).

terrestrial alternatives, it remains essential that SPACEWAY and the other broadband satellite licensees have sufficient spectrum. Any Commission action that provides less than 1 GHz of bandwidth for use by ubiquitously deployed small Ka band earth terminals will have a significant adverse impact on the ability of all Americans, but most especially those living in rural and tribal communities, to receive high-speed, fully interactive Internet connectivity. Such Commission action will also impact the competitive alternatives provided by satellite-delivered broadband services, which must be a vital element of the Commission's overall plan for "reasonable and timely" broadband deployment.

Respectfully submitted,

HUGHES NETWORK SYSTEMS
HUGHES COMMUNICATIONS GALAXY, INC.

By: /s/ Arthur S. Landerholm

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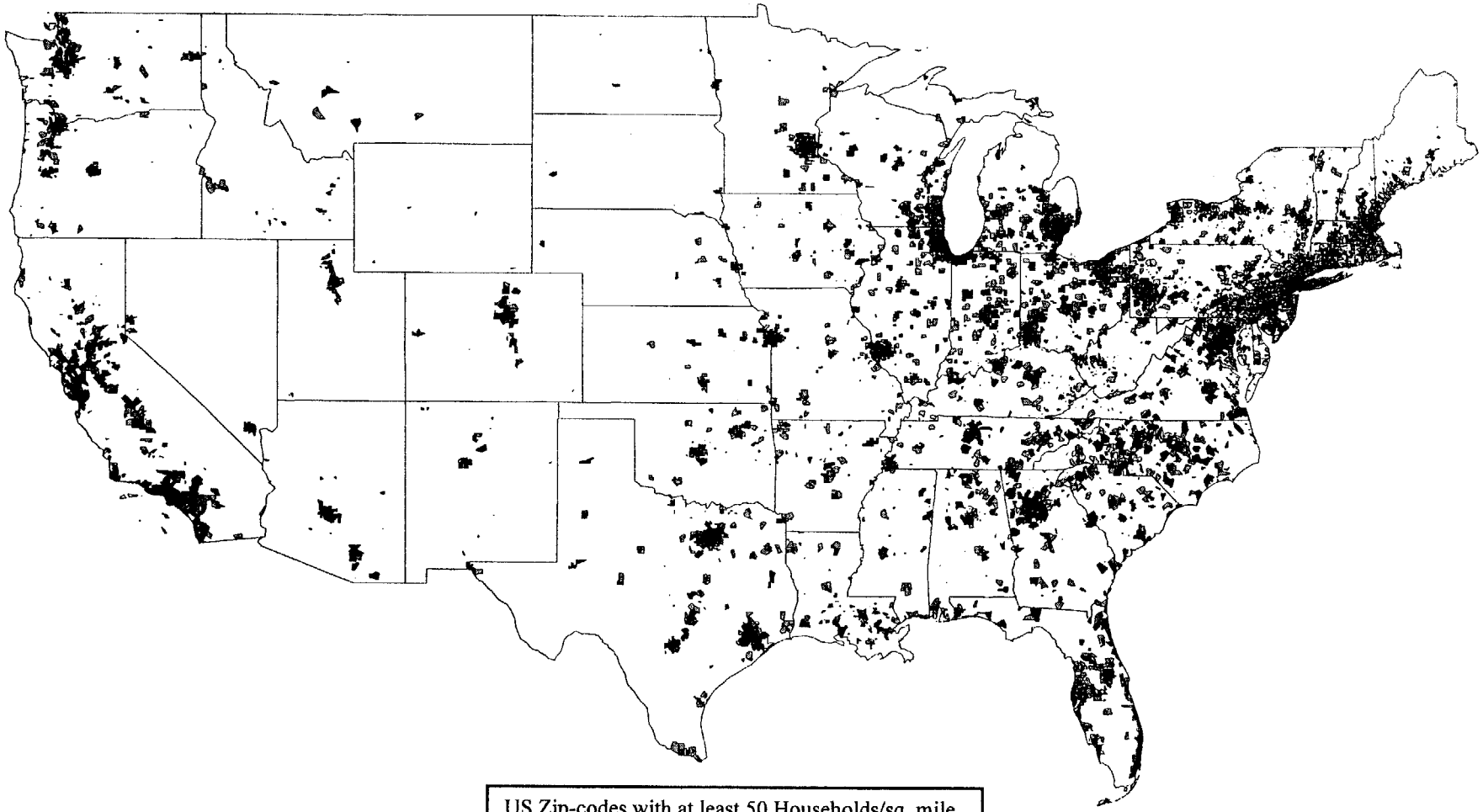
March 20, 2000

Exhibit A



US Zip-codes with at least 50 Households/sq. mile and Annual Income of at least $35k