

PUBLIC REFERENCE COPY

RECEIVED

RECEIVED

NOV 5 - 1990

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

Federal Communications Commission
Office of the Secretary

NOV 6 1990

Domestic Facilities Division
Satellite Radio Branch

_____)
In the Matter of:)
)
GEOSTAR POSITIONING CORP.)
)
)
For Modification of its)
RDSS Space Station)
Authorizations.)
_____)

File Nos.
43 thru 45-DSS-MP/ML-90;
46, 48-DSS-P/LA-90;
51 thru 53-DSS-EXT-90;
CSS-90-012 thru 015(ML)

COMMENTS of MOTOROLA, INC.

Motorola, Inc., by its attorneys, hereby comments on the above-captioned applications of Geostar Positioning Corporation ("Geostar") to modify its authorizations in the Radiodetermination Satellite Service (RDSS), and to extend the deadlines for construction and launch of its dedicated satellite system.^{1/} These applications reflect Geostar's latest effort to keep its satellite authorizations alive while it attempts to obtain financing and identify a market for its RDSS service. To

^{1/} These comments are being filed timely within the 60-day period prescribed by Section 25.392(b) of the Commission's rules. 47 C.F.R. § 25.392(b). The above-captioned applications were placed on Public Notice by the Chief of the Common Carrier Bureau in Report No. DS-999, DA 90-1156, released September 4, 1990. In that Public Notice, the Bureau did not accept for filing Geostar's application for authority to construct, launch and operate an RDSS transmit/receive communications payload on an unidentified "host satellite." See File No. 47-DSS-P/LA-90. Motorola reserves its right to further comment, petition or otherwise file an application in response to a public notice.

date, Geostar has only been able to offer "interim" RDSS-like service to a small number of users. Further extensions of time and delays merely lock up valuable frequency spectrum which could otherwise be used for more economic and spectrally efficient satellite-based mobile services.

I. MOTOROLA IS AN INTERESTED PARTY

As the Commission is well aware, Motorola is one of the world's leading manufacturers of electronic equipment, systems, and components. Its products are distributed worldwide and include two-way radios, pagers, cellular telephone systems, integrated circuits, and data and information processing and handling equipment. Motorola also is in the forefront of research and development of new and improved mobile communications equipment and systems.

This past June, Motorola announced the development of its IRIDIUM satellite system which envisions the use of 77 low earth orbit satellites to provide worldwide cellular personal communications services. Subscribers to this system will use portable or mobile transceivers with low profile antennas to reach a constellation of satellites. These satellites will be interconnected to one another as they traverse the globe in polar orbits. Principles of cellular diversity are used to provide continuous line-of-sight coverage from and to virtually any point

on the earth's surface, with spot beams providing substantial frequency reuse.^{2/}

Motorola's interest in Geostar's applications is predicated upon a desire to have the Commission utilize the limited frequency spectrum available for mobile satellite communications in a spectrally efficient manner and not to have one licensee tie up valuable bandwidth.

II. GEOSTAR'S RDSS SYSTEM CONCEPT IS NOT VIABLE

As recent history aptly demonstrates, Geostar's concept of a domestic fixed satellite system designed primarily to provide radiodetermination services to mobile users is not economically viable. It has now been more than seven years since Geostar first proposed a dedicated RDSS system and requested the Commission to reallocate a portion of the L-band for this service. Geostar's dedicated RDSS system is no closer to reality today than when it was first proposed. A brief review of recent events is instructive for purposes of demonstrating how far removed Geostar's current concept of RDSS is from the one which it presented to the Commission in 1983.

In its Report and Order, 58 R.R. 2d 1416 (1985), reconsideration 104 FCC 2d 637 (1986) (Allocation Order), allocating 33 MHz of spectrum to RDSS, the Commission noted the apparent need for a private radiodetermination service, including

^{2/} Utilizing Doppler frequency shift measurement techniques, such a low earth orbit satellite system can provide accurate radiodetermination service.

specific applications for safety of life, law enforcement, aviation, navigation, transportation, and resource management. In addition, the Commission indicated that the proposed RDSS offering would provide certain capabilities that were not then available by means of other radio services.

One year later, the Commission released its Second Report and Order, 104 FCC 2d 650, 60 R.R. 2d 298 (1986) (Licensing Order), establishing licensing policies and procedures for RDSS. At that time, the Commission had before it four applications for fixed satellite system authorizations, three of which were based upon Geostar's wide-band spread spectrum design using dedicated RDSS satellites, and Omninet's narrow-band frequency division multiple access proposal which envisioned both RDSS (employing the GPS) and other thin-route mobile satellite services (including two-way voice). In keeping with its multiple entry policies in the domestic satellite field,^{3/} the Commission chose to accept Geostar's concept based upon the perceived demand for a dedicated RDSS service.^{4/} The Commission also questioned the accuracy and cost of a GPS based radiodetermination system. The Commission was told by Geostar that its spread spectrum

^{3/} The Commission stated that "[a] design permitting only one system to operate would have to be unquestionably superior to justify a departure from this [open entry] policy." Licensing Order, 104 FCC 2d at 654.

^{4/} The Commission did not prohibit "auxiliary or incidental" message services from being provided over these RDSS systems; however, it indicated that primary messaging, paging or other non-voice mobile services "would be inconsistent with our allocation for RDSS and would impede meaningful competition in the provision of RDSS." Licensing Order, 104 FCC 2d at 662-63. See also, 47 C.F.R. § 25.392(d) ("may not render other services except as ancillary to the radiodetermination service.")

concept could accommodate up to twelve separate fixed satellite systems in the allotted bandwidth. Licensing Order, 104 FCC 2d at 663 n.44. All future applicants for new RDSS systems were required "to demonstrate compatibility with licensed RDSS systems." Id. at 667. And finally, in order to ensure that authorized RDSS systems would be implemented in a timely manner, strict construction and launch milestones were established as conditions to each satellite license. Id. at 665. Licensees were reminded that the "[f]ailure to fulfill these conditions will render the authorization null and void" Id.

Soon thereafter, the Commission licensed Geostar to construct, launch and operate four satellites to be located at 70 degrees W.L., 100 degrees W.L. and 130 degrees W.L., with one satellite to be used as an in-orbit spare.^{5/} Geostar Corp., 60 R.R. 2d 1725 (1986). This authorization was conditioned upon the standard RDSS construction and launch milestones, which required completion of Geostar's first satellite by August 1990, and full system implementation by August 1992. Id. In 1989, the Commission granted Geostar a one year extension of its milestone requirements due to modifications to the Shuttle launch manifest.

As demonstrated by the above-captioned applications, it is obvious that Geostar's original concept of launching three satellites in geosynchronous orbit for the primary purpose of providing radiodetermination services has not found a market. The current proposed modifications are substantial with radical

^{5/} Geostar subsequently relinquished its authorization for an in-orbit spare when it chose not to begin construction by the required milestone date.

changes to system design and vastly reduced transmission capacity. For example, Geostar proposes to reduce the number of original spacecraft spot beams from eight to one which will result in a significant decrease in frequency reuse. Geostar concedes as much when it states that its proposed modifications are "a financially prudent approach to system implementation that better matches in-orbit capacity with actual market development."^{5/} Such downsizing of Geostar's system concept, combined with the requested further extension of construction and launch milestones, raises serious questions as to Geostar's technical approach to radiodetermination and long term viability. Indeed, as demonstrated by QUALCOMM in its petition in this proceeding, Geostar's short term survival appears to be in doubt.

Nor should the Commission accept, as implied in these applications,^{7/} that Geostar's interim authorizations are equivalent to full RDSS system implementation or are otherwise indicative of the viability of its authorized system concept. Geostar's interim operations hardly resemble the dedicated RDSS system concept proposed in its original application, as amended, and approved by the Commission. The two L-band payloads currently operating on GTE Spacenet satellites merely relay LORAN-C/GPS data from user terminals inbound to subscriber central control points.^{8/} Neither L-band payload, however, uses

^{5/} Applications, at 8.

^{7/} Applications, at 7.

^{8/} GTE Spacenet Corp., 1 FCC Rcd. 1163 (1986); GTE Satellite Corp., Mimeo Nos. 5175 & 1181 (released June 16, 1986, and December 2, 1985, respectively).

the propagation characteristics of the radio systems themselves to determine the location of mobile units as contemplated by the Commission in its Licensing Order and the RDSS rules.^{9/}

Moreover, both payloads are highly spectrally inefficient with severe capacity limitations. Geostar also provides outbound links to receive only mobile units using C-band transponders on Spacenet III.^{10/} Such use of the C-band is not in conformity with the Commission's Table of Allotments.

This is not the first time that Geostar has attempted to convert an interim authorization into more permanent status. In 1987, Geostar applied for authority to substitute its proposed transmit/receive payload on GSTAR IV for its first dedicated RDSS satellite.^{11/} The Commission rejected that portion of Geostar's application, finding that:

The payload's basic characteristics differ substantially from the proposed dedicated RDSS satellites. The payload's traffic loading capacity will be much more restricted than a dedicated RDSS satellite.... Furthermore, both Geostar and GTE Spacenet have represented that this will be an interim system pending completion of the dedicated RDSS system.

GTE Spacenet Corp., 2 FCC Rcd. 5312, 5314 (1987). The same finding is equally applicable today.

^{9/} Licensing Order, 104 FCC 2d at 650 n.1; 47 C.F.R. § 2.1.

^{10/} GTE Spacenet Corp., 4 FCC Rcd. 4538 (1989).

^{11/} See File No. 1705-DSS-MP/ML-87.

III. THE COMMISSION SHOULD CONTINUE TO
PROCESS VIABLE RDSS SYSTEM APPLICATIONS

RDSS has not developed to the extent that the Commission hoped when it allocated bandwidth for this new service. Satellite radiodetermination, however, can become a reality in this decade with some fine-tuning of the Commission's procedures and a willingness to waive certain portions of the rules. Such relatively minor modifications will provide the needed flexibility for processing future applications which are based on today's emerging technologies (such as Motorola's IRIDIUM system) rather than those put forth at the time the Commission was establishing its guidelines for RDSS.

The Commission no longer should require that all future RDSS applicants demonstrate their system compatibility with other licensed systems. Geostar is the only remaining RDSS licensee and it has failed for the past seven years to bring its system concept to the market. In fact, to Motorola's knowledge, Geostar has taken no concrete action to construct and operate an RDSS system which remotely resembles its licensed facilities. Under such circumstances, there no longer is any basis for considering Geostar's system as the model or baseline for future coordination. Of course, should the Commission deny Geostar's pending applications and cancel its authorizations, no coordination would be required under the Commission's rules, and future applicants could receive primary status.

The Commission also should consider waiving its technical rules to allow applicants to propose L-band utilization schemes which are more spectrally efficient than those contemplated when the rules were adopted. For example, Motorola believes that if sufficient flexibility were to be introduced into the RDSS rules, its IRIDIUM technology could provide greatly enhanced RDSS services to tens of thousands of users, employing only a portion of the RDSS allocation, the 1610 MHz to 1626.5 MHz band.^{12/} Such an approach would free the 2483.5 MHz to 2500 MHz band for other primary uses.

Motorola submits that such flexibility would more closely serve the original intent of the Commission when it allocated spectrum for RDSS; i.e., increased capacity, multiple entry and spectrum efficiency. These modifications also will provide the appropriate incentive for Motorola and possibly others to expend the tremendous energy and financial resources needed to make RDSS a reality.

IV. CONCLUSION


For the foregoing reasons, Motorola respectfully requests that the Commission no longer use Geostar's RDSS system as the baseline for future coordination, and that should the

^{12/} Of course, this limited bandwidth would pose certain capacity limitations on the overall IRIDIUM system which could be met by allocations elsewhere in the L-band.

Commission deny Geostar's pending applications, it declare that future applicants will have primary status in the allotted band.

Respectfully submitted,

MOTOROLA, INC.

By: 
Philip L. Malet
Stephoe & Johnson
1330 Connecticut Avenue, N.W.
Washington, D.C. 20036
(202) 429-6239

Its Attorneys

November 5, 1990

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

_____)
In the Matter of:)
)
GEOSTAR POSITIONING CORP.) File Nos.
) 43 thru 45-DSS-MP/ML-90;
) 46, 48-DSS-P/LA-90;
) 51 thru 53-DSS-EXT-90;
) CSS-90-012 thru 015(ML)
For Modification of its)
RDSS Space Station)
Authorizations.)
_____)

City of Washington)
) ss:
District of Columbia)

AFFIDAVIT

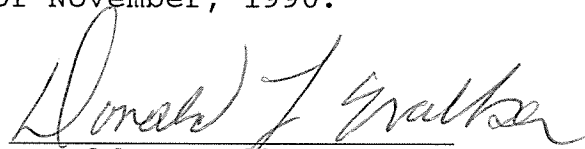
I, Donald L. Walker, hereby declare under penalty of perjury as follows:

1. That I am the Director, Technical Programs, for Motorola, Inc., and have over thirty years of experience as a radio communications engineer.

2. That the attached Comments of Motorola to the pending applications of Geostar Positioning Corporation were reviewed either by myself or under my supervision.

3. That all of the facts contained in said Comments are true and correct to the best of my knowledge, information and belief.

Dated this 5th day of November, 1990.


Donald L. Walker

CERTIFICATE OF SERVICE

I, Philip L. Malet, hereby certify that copies of the foregoing Comments of Motorola, Inc. have been served via first-class mail, postage prepaid, on this 5th day of November, 1990, to the following parties:

Robert D. Briskman
General Manager
Geostar Positioning Corporation
1001 22nd Street, NW, Suite 500
Washington, DC 20037

Michael Yourshaw, Esq.
Wiley, Rein and Fielding
1776 K Street, NW
Washington, DC 20006

Veronica M. Ahern
Albert Shuldiner
Nixon, Hargrave, Devans & Doyle
One Thomas Circle, NW, Suite 800
Washington, DC 20005

Richard M. Firestone
Chief, Common Carrier Bureau
Federal Communications Commission
1919 M Street, NW, Room 500
Washington, DC 20554

James R. Keegan
Chief, Domestic Facilities Division
Common Carrier Bureau
Federal Communications Commission
2025 M Street, NW, Room 6010
Washington, DC 20554

Cecily C. Holiday
Chief, Satellite Radio Branch
Common Carrier Bureau
Federal Communications Commission
2025 M Street, NW, Room 6324
Washington, DC 20554

Fern J. Jarmulnek
Satellite Radio Branch
Federal Communications Commission
2025 M Street, NW, Room 6324
Washington, DC 20554