

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

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

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JUL 19 1991

DOMESTIC FACILITIES DIVISION  
SATELLITE RADIO BRANCH

\_\_\_\_\_  
In the Matter of the Application of )  
 )  
ORBITAL COMMUNICATIONS CORPORATION )  
 )  
For Authority to Construct a )  
Low-Orbit Mobile Satellite System )  
\_\_\_\_\_

File No. 22-DSS-MP-90(20)

REPLY COMMENTS OF ORBITAL COMMUNICATIONS CORPORATION

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Counsel for ORBITAL COMMUNICATIONS  
CORPORATION

Dated: July 17, 1991

## SUMMARY

The record developed in this proceeding overwhelmingly supports expeditious grant of the ORBCOMM application, as amended. The lone petition to deny filed by Leosat in response to the FCC's placing of the Amendment on public notice is defective, in that it is an untimely petition against the application and not addressed to the Amendment. More important, Leosat's petition fails to present any valid arguments that would merit delay or denial of the ORBCOMM application.

ORBCOMM is financially qualified to provide the proposed services. ORBCOMM's parent has demonstrated an ability to raise the necessary funds, and ORBCOMM provided the Commission with all the required financial information. There is likewise no validity to Leosat's attempt to disqualify ORBCOMM by creating a "two satellite limit" on LEO satellite applications, and then claiming that ORBCOMM is violating such a rule. Leosat's effort to further extend this "two satellite limit" into a consortium requirement is impractical and unwise.

Finally, there is no merit to Leosat's attempt to challenge ORBCOMM's public interest showing by constantly invoking inaccurate charges of "monopolization." As the record demonstrates, including the recent support of potential users, the ORBCOMM proposal will well serve the public interest. Wherefore, ORBCOMM respectfully requests that the Leosat petition be dismissed, and the Commission proceed expeditiously with the licensing of the ORBCOMM system.

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For Authority to Construct a )  
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File No. 22-DSS-MP-90(20)

REPLY COMMENTS OF ORBITAL COMMUNICATIONS CORPORATION

Orbital Communications Corporation ("ORBCOMM"), by its attorneys, hereby replies to the comments submitted on its amendment to its application to construct a low-Earth orbiting satellite system ("Amendment").<sup>1/</sup> In the Amendment, ORBCOMM modified its request for authority to construct satellites to be used for a new mobile satellite data communications and position determination service provided over a constellation of small satellites placed into low-Earth orbit ("LEO") by specifying a Dynamic Channel Activity Assignment System ("DCAAS") as a means of operating with the current users in the bands requested. In addition, the Amendment detailed where in the original

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<sup>1/</sup> Orbital Communications Corporation, File No. 22-DSS-MP-90(20), Public Notice Report No. DS-1067, April 23, 1991. ORBCOMM's original application was filed on February 28, 1990, and was placed on public notice over one year ago. Orbital Communications Corporation, File No. 22-DSS-MP-90(20), Public Notice Report No. DS-953, April 11, 1990.

application certain of the information requested by the Commission appeared.<sup>2/</sup>

Leosat Corporation ("Leosat"), itself an applicant for a LEO system, filed a petition to deny grant of the application. In contrast to the isolated opposition of Leosat, numerous potential users advocate grant of the ORBCOMM application, as amended.<sup>3/</sup> Indeed, the overwhelming record developed in this proceeding fully supports the allocation of spectrum and authorization of the ORBCOMM system to provide these vital services.

As an initial matter, ORBCOMM observes that the petition to deny filed by Leosat appears to be grossly tardy, since it does not at all discuss issues related to the amendment filed by ORBCOMM, but instead addresses the original ORBCOMM application. Comments on the ORBCOMM application (as opposed to the Amendment) were due on May 14, 1990, over a year ago.<sup>4/</sup>

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<sup>2/</sup> Public Notice, Report No. DS-982, 5 FCC Rcd 4660 (July 16, 1990).

<sup>3/</sup> Comments urging an expeditious grant of the ORBCOMM application based on the superior technology specified in the Amendment were submitted by the Satellite Communications Group at Virginia Tech, Torrey Science & Technology Corporation, C.A. La Electricidad de Caracas, Kyushu Matsushita Electric Co., Ltd., and Satlantic Corporation. In addition, Ford Motor Company, International Marine Industries, Inc., Sea-Land Service, GOVA, Inc. and Professor Andre Z. Manitius of George Mason University filed comments in support of the ORBCOMM application. Starsys, Inc. ratified its earlier comments asserting that it had already fully supplied the required information in connection with its application.

<sup>4/</sup> Public Notice, Report No. DS-953, April 11, 1990.



Leosat nowhere explains its excessive delay in filing comments on the application or why it could not have submitted its comments on the application earlier. For this reason alone, the Leosat petition should be dismissed. More important, as demonstrated below, the Leosat petition lacks substantive merit, and so should be rejected.

ORBCOMM Is Financially Qualified to Implement  
Its Proposed LEO Satellite System

Leosat attempted to demonstrate that ORBCOMM is financially unqualified by creating a new standard -- according to Leosat, applicants apparently are required to have sufficient cash on hand to construct and operate their proposed LEO satellite system -- and then claiming that ORBCOMM does not meet such a standard.<sup>5/</sup> As shown in its original application, ORBCOMM is financially qualified to be a licensee for its proposed service. In alleging otherwise, Leosat applies an

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<sup>5/</sup> Leosat also asserts that ORBCOMM failed to pay the filing fee for all of its satellites, claiming that such a failure to submit the fee evidences a lack of adequate resources. Leosat Petition at p. 6 and p. 8. There is, however, one major flaw in Leosat's argument -- the predicate is wholly inaccurate. ORBCOMM in fact paid the requisite filing fee for all 22 satellites, but received a refund in light of the fact that the fees were disproportionate to the amount of work involved. Letter from Marilyn McDermott, Associate Managing Director for Operations, August 13, 1990. ORBCOMM does agree, on the other hand, that a company's inability to afford the FCC filing fees can provide evidence of a lack of financial qualification. See n. 13, infra.

incorrect test, and ignores the evidence presented by ORBCOMM in its initial application.<sup>6/</sup>

In its application, ORBCOMM demonstrated that OSC was a substantial, publicly-traded ongoing business that had both successfully raised money in the capital markets and developed new technologies.<sup>7/</sup> ORBCOMM also included a letter from OSC's investment bankers, Alex. Brown & Sons, indicating that OSC would continue to be able to raise funds from the capital markets so as to be able to construct and operate the proposed system.<sup>8/</sup> In fact, subsequent events have borne out this assertion, because OSC continues to have access to multiple sources of capital financing. OSC has successfully made two public offerings of

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<sup>6/</sup> In addition, Leosat included a balance sheet of ORBCOMM's parent corporation, Orbital Sciences Corporation ("OSC"), from March 1991, arguing it showed OSC to be financially unqualified. Attached hereto is a copy of the most recent OSC balance sheet, reflecting a more current picture of OSC's financial condition. Despite Leosat's allegations to the contrary, OSC is in very good financial health. OSC possesses some \$87 million in shareholders' equity, \$35 million in cash and short-term investments (and \$40 million in working capital), and no debt. OSC and ORBCOMM should be contrasted with Leosat, a company formed solely to file its speculative LEO application, possessing minimal assets (\$10,000 before paying any filing fees) and absolutely no operating history, and proposing to fund the construction of the system by pre-selling capacity.

<sup>7/</sup> E.g., ORBCOMM Application at p. 122.

<sup>8/</sup> ORBCOMM Application at Appendix D. Thus, ORBCOMM's application can be distinguished from the Starsys and Leosat applications, both of which propose to rely upon the pre-operational sale of capacity to finance the construction of their systems. Cf., Columbia Communications Corporation, 103 FCC 2d 618 (1985), affirmed Columbia Communications Corporation v. FCC, 832 F.2d 189 (D.C. Cir. 1987).

equity: an initial public offering in April 1990 that took in \$34 million, and a second recent public offering that totalled \$65 million.<sup>9/</sup> OSC also continues to grow as a business; in the last year, OSC has received some \$600 million in new contract awards, and its contract backlog doubled between February and March of this year. These developments are reflected in the confidence of the capital markets in OSC and the increasing share prices for OSC's stock.

ORBCOMM provided the Commission with all the necessary information to establish that it is financially qualified to construct and operate the proposed ORBCOMM system. In its application, ORBCOMM detailed the anticipated system costs (including research and development, space segment, ground segment and operating expenses), forecasted revenues and the timing of the payments. ORBCOMM also discussed the source of funds to meet these expected expenditures. Particularly in light of the absence of an FCC allocation for the service and the novel character of ORBCOMM's proposal,<sup>10/</sup> ORBCOMM demonstrated that it is financially qualified.

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<sup>9/</sup> These public offerings were co-managed by Alex. Brown & Sons, Merrill Lynch and Shearson Lehman. In addition to these public offerings, going back to 1983 OSC had previously procured roughly \$50 million through R&D partnerships, \$38 million in funding from Hercules and Martin-Marietta and \$17 million from a real estate financing, and OSC enjoys a \$27.5 million line of credit at present from large regional banks.

<sup>10/</sup> See generally, Request of Orbital Communications Corporation for a Pioneer's Preference, filed May 22, 1991.

There Is No Merit to Leosat's Claim that ORBCOMM  
Is Legally Unqualified to Provide Service

Leosat attempts to concoct an argument that ORBCOMM is not legally qualified by asserting that FCC regulations prohibit applications for more than two satellites at a time, and then claiming that ORBCOMM's application violates this rule. Leosat Petition at pp. 7-8. There is no such requirement for low-Earth orbit satellite systems. The Commission in the Public Notice establishing a cut-off for additional LEO applications indicated that any such applications needed to include the information required by Appendix B of the Space Station Application Filing Procedures, as appropriate. The Commission has nowhere promulgated rules limiting the number of satellites in a LEO system application.

From the decision addressing filing procedures for geostationary satellites, Leosat tries to create a general FCC policy limiting applicants to two satellites at a time. However, the limit on the number of orbital locations a geostationary satellite applicant can request is irrelevant to LEO systems, which do not (and cannot) request an orbital location since the satellites constantly move relative to the surface of the Earth. Moreover, in order to provide near continuous coverage of the

U.S. using LEO satellites, it is necessary to utilize a constellation of many more than two satellites.<sup>11/</sup>

It is also disingenuous for Leosat to argue that FCC Rules limit a LEO applicant to two satellites at a time. In its application, Leosat sought authority to establish a system of 18 in-orbit satellites and six spares, and its application included a schedule for construction and launch of 24 satellites.<sup>12/</sup> Nowhere in its Application did Leosat discuss an FCC policy limiting applicants to two satellites at a time, and this new argument appears to be merely a post hoc rationalization of its inclusion of only the first two construction applications in its initial filing.<sup>13/</sup>

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<sup>11/</sup> ORBCOMM has determined that a total of 20 satellites in low-Earth orbit will provide the proper degree of coverage for its system, although as the widely differing proposals for LEO systems above 1 GHz demonstrate, there are variations in the required number of satellites depending on coverage, altitude and service characteristics.

<sup>12/</sup> E.g., Leosat Application at pp. 4 and 19. Leosat's original application seeking a 24 satellite system is thus inconsistent with its claim in the Petition to Deny at p. 6 that Leosat proposed a multiple entry service.

<sup>13/</sup> The more likely explanation for Leosat's decision to file initially for only two satellites is the absence of adequate funds for payment of the filing fees for all 24 satellites; prior to submitting its application, Leosat only had \$10,000 in total assets (Leosat Application at p. 22), so that it could not afford to file more than two individual satellite applications without exhausting its meager resources.

Leosat's New Proposal for a Consortium Approach  
to LEO Systems Is Unworkable and Unnecessary

Leosat now suggests an alternative licensing approach where all LEO MSS applicants would be authorized to launch two satellites each initially, and would work through a "Technical Coordination Committee" to ensure interoperability of the terminals in a multiple system environment and to prevent harmful interference between systems. This proposal of Leosat would not be workable or practical for a myriad of reasons. As an initial matter, ORBCOMM observes that such an approach is unnecessary, because as detailed elsewhere, there are no other qualified applicants seeking to provide commercial LEO satellite services below 1 GHz.<sup>14/</sup>

With respect to the Leosat proposal, it is not clear whether Leosat is suggesting a single system with multiple operators, or multiple systems. Assuming Leosat is now proposing that there would be separate LEO satellite systems, under its plan limiting the three system providers to two satellites each a system subscriber would receive only intermittent service, which is inconsistent with many of the emergency offerings proposed by

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<sup>14/</sup> As demonstrated in the ORBCOMM Petition to Deny, Leosat failed to timely file its application, and is financially and technically unqualified to provide service. Orbital Communications Corporation, Petition to Deny the Application of Leosat, filed June 17, 1991. Similarly, ORBCOMM has previously explained that Starsys is not qualified to be a Commission licensee. Orbital Communications Corporation, Comments on the Application of Starsys, filed August 17, 1990.

ORBCOMM.<sup>15/</sup> Second, despite Leosat's assertion that the coordinating committee would "ensure that user terminals are compatible with multiple systems," absent uniformity of service offerings (at equal prices), interconnection of the systems and forced licensing of ORBCOMM's proprietary expertise, then a subscriber reaching a satellite of another provider would not obtain equivalent access to services. Nor is it clear that a "coordinating committee" representing different interests could always reach agreement on technical and business issues. If not, it would impede introduction of vital services. Such an unusual structure, posing substantial risks to the success of the service, should be created only to meet extraordinary requirements -- and Leosat has neither defined these requirements nor established that they exist with respect to ORBCOMM's proposed offering.

In addition, other technical problems abound. Dividing the spectrum requested by ORBCOMM to accommodate multiple systems would greatly diminish spectral efficiencies available to a single larger system, and would also make it difficult to operate with the current users by reducing the efficacy of the DCAAS

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<sup>15/</sup> Nor is it correct to characterize ORBCOMM's plans to launch satellites over time as "such a staged approach." Leosat Petition at p. 11. In fact, because it will take time to construct the satellites, the only way to achieve a "simultaneous" launch of all 20 satellites would be to defer launching any satellites until all were constructed. Such a needless delay makes no sense, particularly because some services could be provided commencing with the initial satellites, where those initial services are not time critical.

spectrum sharing approach. Moreover, given the vastly different satellite system proposals (i.e., operations in different orbits (with and without station keeping capabilities), using different modulation techniques), it is not at all clear that intersystem interference could be avoided.

Given these numerous technical and other problems with multiple systems, it may be more likely that what Leosat is proposing is a single system operated as a consortium. If so, then ORBCOMM strongly objects to such an approach. The Commission's experiences with previous involuntary consortia, including legal challenges, delays and bickering amongst participants, cautions against such an approach here.<sup>16/</sup> ORBCOMM also believes that the public interest would be disserved through rewarding "free-riders" such as Leosat by allowing them to reap the benefits from the pioneering work of ORBCOMM.<sup>17/</sup>

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<sup>16/</sup> E.g., Provision of Aeronautical Services via the INMARSAT System, 4, FCC Rcd 6072, 6080-82 (1989(rejecting consortium approach for international aeronautical services); Aeronautical Radio, Inc. v. F.C.C., 928 F.2d 428 (D.C. Cir. 1991)(remanding FCC's decision to require a consortium for MSS).

<sup>17/</sup> Cf., Establishment of Procedures to Provide a Preference to Applicants Proposing an Allocation for New Services, GEN Docket No. 90-217, FCC 91-112, released May 13, 1991.



There Is No Merit to Leosat's Claim that ORBCOMM's  
Proposal Is Inimical to the Public Interest

Leosat tries to argue that the ORBCOMM system would run counter to the public interest by repeatedly invoking charges of "monopolization." There is no merit to these claims.<sup>18/</sup> First, as detailed in its original Application, ORBCOMM's services will be subject to competition from a range of terrestrial and geostationary satellite service providers. In addition, it appears that ORBCOMM will face competition from foreign-owned LEO systems.<sup>19/</sup> Finally, depending on the amount of spectrum allocated by the Commission, there may be other commercial U.S. licensed LEO systems under 1 GHz (and possibly above 1 GHz as

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<sup>18/</sup> Even more ludicrous is Leosat's assertion that it would better serve the public interest because "LEOSAT's business plan, on the other hand, offers the possibility of free VHF LEO MSS service to the public by bulk-sales of the service to automobile manufacturers, who would then offer the service to car buyers as part of the car's smart car system." Leosat Petition at p. 11. An auto manufacturer's bundling the cost of LEO MSS into other services hardly constitutes "free service," and in addition, ORBCOMM has had extensive discussions with automobile manufacturers and the practice in that industry is to avoid making any commitment such as being bulk purchasers of service. Leosat's argument thus reveals its failure to conduct any significant market research, as well as its apparent ignorance of economics. As Milton Friedman observed, "there is no such thing as a free lunch."

<sup>19/</sup> E.g., Communications Daily, June 27, 1991, "Soviet Low-Earth-Orbit Satellite System Seen Active," describing the planned 1993 launch of the Gonets system. Given the characteristics of LEO satellite systems, a provider will be able to reach nearly any spot on Earth, regardless of which country the satellites are launched or operated from.

well). Thus, there is no validity to Leosat's claim that ORBCOMM will monopolize the provision of service.

Nor is there any basis for Leosat's claim that ORBCOMM will leverage its market presence in mobile services into monopolies in the manufacture or launch of small satellites. The market for small satellites is far broader than merely ORBCOMM's needs, and currently is dominated by large, experienced aerospace companies. Whether or not ORBCOMM ultimately decides to acquire some or all of its small satellite requirements from OSC,<sup>20/</sup> it and its parent will be far from possessing monopoly power in the fiercely competitive small satellite market. As for launch services, ORBCOMM's proposal to use OSC to meet its own launch demand hardly constitutes monopolization, particularly in light of the large expected overall market for such services.<sup>21/</sup> Leosat's claims to the contrary notwithstanding, as ORBCOMM demonstrated in its application, the ORBCOMM system will well serve the public interest.<sup>22/</sup>

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<sup>20/</sup> ORBCOMM did not even propose that OSC manufacture the satellites, but instead indicated that it planned to select an outside manufacturer based on responses to a request for proposals, with OSC possibly supplying some of the components. ORBCOMM Application at p. 113.

<sup>21/</sup> See e.g., Comments of Microsat Launch Systems, Inc. on the Leosat Application, June 17, 1991 at n. 2, indicating a demand of 35 launches per year between now and the year 2000, with occasional surges to 60 per year.

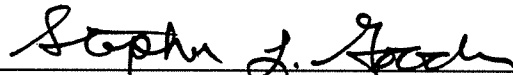
<sup>22/</sup> See generally, ORBCOMM Application at pp. 8-24.

CONCLUSION

The record overwhelmingly supports expeditious grant of the ORBCOMM application, as amended. The lone petition to deny filed by Leosat in response to the FCC's placing of the Amendment on public notice, besides being exceedingly tardy comments on the application, failed to present any valid arguments that would merit delay or denial of the ORBCOMM application. ORBCOMM is fully qualified legally and financially to provide the requested services, and the ORBCOMM proposal will well serve the public interest. Wherefore, ORBCOMM requests that the Leosat petition be dismissed.

Respectfully submitted,

By



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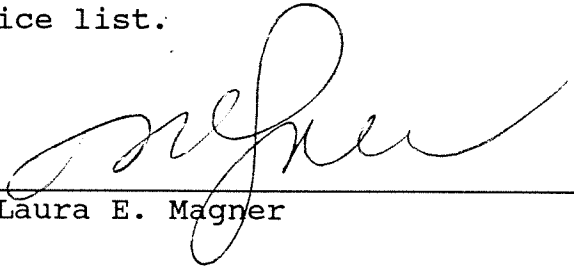
Dated: July 17, 1991

ORBITAL SCIENCES CORPORATION  
CONSOLIDATED BALANCE SHEETS  
(In thousands, except share data)

<u>ASSETS</u>	December 31, 1990	May 31, 1991	Pro-Forma May 31, 1991
<b>CURRENT ASSETS:</b>			
Cash and cash equivalents	\$5,230	\$7,385	\$7,385
Short-term investments	4,008	2,480	28,170
Contract receivables	30,660	39,154	39,154
Components inventory	2,468	2,084	2,084
Other current assets	656	2,842	2,842
Total current assets	43,022	53,945	79,635
<b>PROPERTY, PLANT AND EQUIPMENT, at cost, less accumulated depreciation and amortization of \$6,377 and \$7,558 respectively</b>	20,343	20,843	20,843
<b>EXCESS OF PURCHASE PRICE OVER NET ASSETS ACQUIRED, less accumulated amortization of \$3,443 and \$4,075 respectively</b>	26,718	26,095	26,095
<b>DEPOSITS AND OTHER ASSETS</b>	1,052	1,081	1,081
<b>TOTAL ASSETS</b>	\$91,135	\$101,964	\$127,654
<b><u>LIABILITIES AND STOCKHOLDERS' EQUITY</u></b>			
<b>CURRENT LIABILITIES:</b>			
Current portion of long-term obligations and redeemable preferred stock	\$2,116	\$2,128	\$128
Short-term borrowings	1,087	5,874	0
Accounts payable	21,858	24,224	24,224
Accrued expenses	7,533	6,296	6,296
Deferred revenue	4,103	9,112	9,112
Deferred income taxes	—	—	—
Other current liabilities	101	978	978
Total current liabilities	36,798	48,411	40,737
<b>LONG-TERM OBLIGATIONS, net of current portion</b>	2,725	1,718	218
<b>COMMITMENTS AND CONTINGENCIES</b>			
<b>REDEEMABLE EXCHANGEABLE PREFERRED STOCK</b>			
Series B, par value \$1,000; 6,000 shares authorized.	—	—	—
<b>STOCKHOLDERS' EQUITY:</b>			
Preferred stock, par value \$.01; 10,000,000 shares authorized, no shares issued or outstanding	—	—	—
Common stock, par value \$.01; 40,000,000 shares authorized, 9,482,918 and 9,525,480 shares outstanding, after deducting 15,835 shares held in treasury	95	95	116
Additional paid-in capital	67,625	68,115	102,958
Retained earnings (deficit)	(16,108)	(16,376)	(16,376)
Total stockholders' equity	51,612	51,834	86,698
<b>TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY</b>	\$91,135	\$101,964	\$127,654

CERTIFICATE OF SERVICE

I, Laura E. Magner hereby certify that on the 17th day of July, 1991, a true copy of the foregoing Reply Comments of Orbital Communications Corporation was mailed, postage prepaid, to the parties on the attached service list.

  
\_\_\_\_\_  
Laura E. Magner

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