

FCC/MELLON SEP 26 1997

ORIGINAL

READ INSTRUCTIONS CAREFULLY
BEFORE PROCEEDINGFEDERAL COMMUNICATIONS COMMISSION
REMITTANCE ADVICE

APPROVED BY OMB 3060-0589

(1) LOCKBOX #

PAGE NO 1 OF 1

SPECIAL USE

FCC USE ONLY

SECTION A - PAYER INFORMATION

(2) PAYER NAME (if paying by credit card, enter name exactly as it appears on your card)

Halprin, Temple, Goodman & Sugrue

(3) TOTAL AMOUNT PAID (dollars and cents)

\$ 18,220.00

(4) STREET ADDRESS LINE NO. 1

1100 New York Avenue, N.W. - Suite 650 East

(5) STREET ADDRESS LINE NO. 2

(6) CITY

Washington

(7) STATE

DC

(8) ZIP CODE

20005

(9) DAYTIME TELEPHONE NUMBER (include area code)

202/371-9100

(10) COUNTRY CODE (if not in U.S.A.)

IF PAYER NAME AND THE APPLICANT NAME ARE DIFFERENT, COMPLETE SECTION B
IF MORE THAN ONE APPLICANT, USE CONTINUATION SHEETS (FORM 159-C)

SECTION B - APPLICANT INFORMATION

(11) APPLICANT NAME (if paying by credit card, enter name exactly as it appears on your card)

Orbital Communications Corporation

(12) STREET ADDRESS LINE NO. 1

21700 Atlantic Boulevard

(13) STREET ADDRESS LINE NO. 2

(14) CITY

Dulles

(15) STATE

VA

(16) ZIP CODE

20166

(17) DAYTIME TELEPHONE NUMBER (include area code)

703/406-5000

(18) COUNTRY CODE (if not in U.S.A.)

COMPLETE SECTION C FOR EACH SERVICE IF MORE BOXES ARE NEEDED USE CONTINUATION SHEETS (FORM 159-C)

SECTION C - PAYMENT INFORMATION

(19A) FCC CALL SIGN/OTHER ID

(20A) PAYMENT TYPE CODE (PTC)

C

G

W

(21A) QUANTITY

1

(22A) FEE DUE FOR (PTC) IN BLOCK 20A

\$ 18,220.00

FCC USE ONLY

(23A) FCC CODE 1

(24A) FCC CODE 2

(19B) FCC CALL SIGN/OTHER ID

(20B) PAYMENT TYPE CODE (PTC)

(21B) QUANTITY

(22B) FEE DUE FOR (PTC) IN BLOCK 20B

FCC USE ONLY

(23B) FCC CODE 1

(24B) FCC CODE 2

(19C) FCC CALL SIGN/OTHER ID

(20C) PAYMENT TYPE CODE (PTC)

(21C) QUANTITY

(22C) FEE DUE FOR (PTC) IN BLOCK 20C

FCC USE ONLY

(23C) FCC CODE 1

(24C) FCC CODE 2

(19D) FCC CALL SIGN/OTHER ID

(20D) PAYMENT TYPE CODE (PTC)

(21D) QUANTITY

(22D) FEE DUE FOR (PTC) IN BLOCK 20D

FCC USE ONLY

(23D) FCC CODE 1

(24D) FCC CODE 2

SECTION D - TAXPAYER INFORMATION (REQUIRED)

(25)

PAYER TIN

0 5 2 1 7 6 4 2 7 9

(26) COMPLETE THIS BLOCK ONLY IF APPLICANT NAME IN B-11 IS DIFFERENT FROM PAYER NAME IN A-2

APPLICANT TIN

0 5 2 1 7 6 4 2 7 9

SECTION E - CERTIFICATION

(27) CERTIFICATION STATEMENT

I, Stephen L. Goodman

(PRINT NAME)

Certify under penalty of perjury that the foregoing and supporting information

are true and correct to the best of my knowledge, information and belief.

SIGNATURE

Stephen L. Goodman

SECTION F - CREDIT CARD PAYMENT INFORMATION

(28)

MASTERCARD/VISA ACCOUNT NUMBER:

MASTERCARD

VISA

I hereby authorize the FCC to charge my VISA or MASTERCARD

for the services/authorization(s) herein described.

AUTHORIZED SIGNATURE

EXPIRATION DATE:

MONTH YEAR

DATE

JAN 1997

NOTICE TO INDIVIDUALS REQUIRED BY THE
PRIVACY ACT OF 1974 AND THE PAPERWORK
REDUCTION ACT

The solicitation of the personal information requested in this form is authorized by the Communications Act, Sections 8 & 9, and other debts under the Debt Collection Improvement Act of 1996, P.L. 104-134. The form will be used primarily to capture information to maintain required accounts receivable, and collect fines and debts due the Commission. As part of the Debt Collection Improvement Act, agencies are authorized to refer specific Taxpayers Identification information which includes Employer Identification Numbers and Social Security Numbers to the Department of Treasury for further investigation and possible enforcement of a statute, rule, regulation or order. If we believe there may be a violation or potential violation of a FCC statute, regulation, rule or order, your application may be referred to the Federal, state, or local agency responsible for investigating, prosecuting, enforcing or implementing the statute, rule, regulation or order. In certain cases, the information in your application may be disclosed to the Department of Justice or a court or adjudicative body when (a) the FCC; or (b) any employee of the FCC; or (c) the United States Government, is a party to a proceeding before the body or has an interest in the proceeding. If information requested on the form is not provided, processing of the application/filing may be delayed or returned without action pursuant to Commission rules.

If you owe a past due debt to the Federal Government, the taxpayer identification number (such as your social security number) and other information you provide may also be disclosed to the Department of the Treasury, Financial Management Service, other federal agencies, or your employer to offset your salary, IRS tax refund or other payments to collect that debt. The FCC may also provide this information to these agencies through the matching of computer records when authorized

We have estimated that each response to this collection of information will take, on average, 30 minutes. Our estimate includes the time to read the instructions, look through

existing records, gather and maintain required data, and actually review and complete the form. If you have any comments on this estimate, or on how we can improve the collection of this data to reduce the burden it causes you, please write the Federal Communications Commission, AMD-PERM, Washington, DC 20554, Paperwork Reduction Project (3060-0589). We will also accept your comments via the Internet if you send them to jboley@fcc.gov. Please DO NOT SEND COMPLETED APPLICATION FORMS TO THIS ADDRESS.

Remember -- You are not required to respond to a collection of information sponsored by the Federal government, and the government may not conduct or sponsor this collection, unless it displays a currently valid OMB control number or if we fail to provide you with this notice. This collection has been assigned an OMB control number of 3060-0589.

This notice is required by the Privacy Act of 1974, Public Law 93-579, December 31, 1974, 5 U.S.C. Section 552a(e) (3) and the Paperwork Reduction Act of 1995, Public Law 104-13, October 1, 1995, 44 U.S.C. 3507.

HALPRIN, TEMPLE, GOODMAN & SUGRUE

1100 NEW YORK AVENUE, N.W., SUITE 650 EAST
WASHINGTON, D.C. 20005
(202) 371-9100 TELEFAX: (202) 371-1497
HTTP://WWW.HTGS.COM

ALBERT HALPRIN
RILEY K. TEMPLE
STEPHEN L. GOODMAN
MELANIE HARATUNIAN
WILLIAM F. MAHER, JR.

THOMAS J. SUGRUE
JOEL BERNSTEIN
J. RANDALL COOK

September 26, 1997

Via Overnight Mail

Federal Communications Commission
Satellite and Radiocommunication Division
P.O. Box 358210
Pittsburgh, PA 15251-5210

Re: Modification of ORBCOMM's NVNG License

Dear Sirs/Madams:

Enclosed please find the original plus nine copies of ORBCOMM's request for modification of its NVNG Satellite Service license, Forms 159 and 312, and a check for \$18,220.00. In addition, enclosed is a copy for "Stamp and Return" purposes so that we can verify the receipt of the filing.

ORBCOMM also requests expedited treatment of this minor modification request in light of the imminent launch of its satellites. It is not clear whether Public Notice is required,^{1/} but the need for resolution prior to the launches scheduled in the next two months renders the application within Section 25.151(b)'s provisions allowing for a special public notice "where speed is of the essence." ORBCOMM thus requests a shortened Public Notice period to the extent the Commission deems it necessary to provide Public Notice of this modification request.^{2/}

1 The Commission's Rules indicate that "major modifications" are to be placed on Public Notice (47 C.F.R. § 25.151(a)(3)), but the Rules do not define what constitutes a "major modification." By analogy, however, the definition of a "major amendment" refers to increases in the potential for interference (47 C.F.R. § 25.117(b)(1)), and as demonstrated in the modification request, the change will not result in any increase in potential interference.

2 ORBCOMM also observes that the entities most likely to be directly affected -- Iridium and NOAA -- have been informed of ORBCOMM's proposed modification in advance of filing in an effort
(continued...)

Federal Communications Commission
September 26, 1997
Page 2

Should you have any questions concerning this material,
please contact me at (202) 371-9100.

Sincerely,

A handwritten signature in blue ink, appearing to read "Stephen L. Goodman".

Stephen L. Goodman
Counsel for ORBCOMM

cc: Tom Tycz
Cecily Holiday
Cassandra Thomas
Harold Ng
Alext Roytblat
Dan Connors
Karl Kensinger
Philip L. Malet
Dick Barth

2(...continued)
to reach agreement on this issue, and also are being served with
copies of this filing. Thus, they will not be prejudiced by a
compressed comment cycle. Indeed, ORBCOMM had delayed the filing
of this modification request while those discussions took place,
which accounts for the somewhat short period between submission
of the request and the scheduled launch of the satellites.

September 26, 1997

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Room 222
Washington, D.C. 20554

Re: Request for Expedited Modification of ORBCOMM's
License for an NVNG Mobile Satellite System

Dear Mr. Caton:

Orbital Communications Corporation ("ORBCOMM"), pursuant to Section 25.117(d) of the Commission's Rules, hereby submits a request for expedited modification of its authorization to construct, launch and operate a Non-Voice, Non-Geostationary Mobile-Satellite System ("License").^{1/} ORBCOMM seeks to make two minor changes to its satellite constellation, namely (i) increasing the altitude of the satellites to approximately 815 km from the currently licensed altitude of approximately 775 km,^{2/} and (ii) changing the inclination of one of the two high-inclination planes from 70 degrees to 108 degrees.^{3/} As explained in greater detail in the attached analysis, the slight increase in altitude will enhance the reliability of ORBCOMM's satellite services and reduce the likelihood of any collisions with the Iridium system. At the same time, the increase in altitude will not create any additional potential for harmful interference to terrestrial services or to other satellite systems. The second modification -- a change in the inclination

^{1/} Orbital Communications Corporation, 9 FCC Rcd 6476 (1994), recon. denied, 10 FCC Rcd 7801 (1995).

² Orbital Communications Corporation, 10 FCC Rcd 6572 (1995) at ¶ 4; see also ORBCOMM Amendment filed December 21, 1993 at p. 14: "The ORBCOMM system will employ satellites at an orbit altitude of approximately 775 km (482 statute miles) ..."

³ ORBCOMM's constellation includes two planes of satellites in a high inclination. The satellites in the other high inclination plane have already been launched and have been providing service. ORBCOMM also notes that, consistent with the needs of the primary military payload on the launch, the two satellites in the high inclination plane to be launched at an inclination of 108 degrees will be inserted into an elevation of approximately 780 km.

Mr. William F. Caton
September 26, 1997
Page 2

of the other high inclination plane -- will allow ORBCOMM to take advantage of a launch opportunity as a more efficient "piggy-back" launch.

ORBCOMM is proposing to make this change in altitude in order to enhance compatibility with other licensed low-Earth orbit systems and to additionally increase system reliability.^{4/} The change in inclination of one of the high-inclination planes will allow ORBCOMM to launch those two satellites more rapidly and at a lower cost than the original plan. ORBCOMM thus believes the proposed modification will well serve the public interest.

The attached technical appendix includes an interference analysis concluding that the proposed modifications will not adversely impact the other first round NVNG licensee or the meteorological satellites operating in this band. Because the modification will not increase the power flux density ("PFD") for the ORBCOMM system, there will not be any greater chance of harmful interference as a result of the change.^{5/} The technical appendix additionally demonstrates that the increase in altitude will decrease the risk of collision to other LEO systems.^{6/} Likewise, the change in inclination will not adversely affect coordination with the other satellite systems.

4 Increasing the elevation will reduce potential problems resulting from higher atmospheric density during solar maximum, a recurring phenomenon. It is projected that the change in elevation will reduce the potential adverse effects of this phenomenon, and thereby improve service reliability.

5 ORBCOMM is not required to predict the impact of its modification on the second round NVNG applicants (47 C.F.R. § 25.142(b)(3)), and indeed cannot precisely calculate the potential impact in light of the uncertainty of what spectrum will be licensed to the new entrants and their system designs. Because the modification will not increase the PFD of the ORBCOMM system, however, it does not believe that the proposed change will create any increased risk of harmful interference to the new NVNG satellite systems to be licensed in the second processing round.

6 ORBCOMM has initiated discussions concerning this change with Iridium, the LEO licensee that proposes to operate nearest to ORBCOMM. ORBCOMM anticipates successful resolution of these discussions with Iridium in light of the reduced risk of collision that will result from the change. ORBCOMM will keep the Commission apprised of the status of these talks.

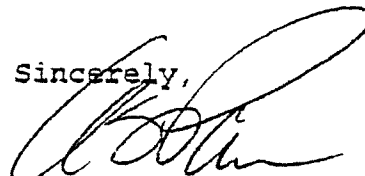
Mr. William F. Caton
September 26, 1997
Page 3

Finally, ORBCOMM observes that the proposed modifications to the ORBCOMM system will further the public interest. The requested changes will enhance the satellite services' reliability, thereby ensuring that ORBCOMM's beneficial services remain available to the public. The change in inclination will also reduce ORBCOMM's costs. As a result of these changes, ORBCOMM will have a more competitive satellite system. The modifications will thus facilitate export opportunities and enhance economic efficiency, which will lead to an increased number of jobs in the United States.

Also appended to this filing are the required certifications: an engineering certificate and an anti-drug abuse certification. Other than the change in elevation and inclination, the other parameters for the ORBCOMM system remain unchanged from the previously granted ORBCOMM authorization, and thus will not be repeated in this modification request.¹⁷

In sum, ORBCOMM believes that the public interest will be well served by the proposed modifications. ORBCOMM will be able to operate more efficiently and more reliably, and the risk of collision with Iridium will be reduced. WHEREFORE, ORBCOMM respectfully requests that the Commission expeditiously issue a modification of the ORBCOMM NVNG satellite system license as described herein.

Sincerely,



Alan L. Parker
Executive Vice-President
Orbital Communications
Corporation

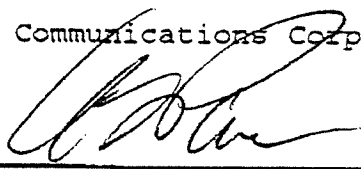
¹⁷ ORBCOMM thus certifies that the remaining information with respect to its authorized system is not changing. See 47 C.F.R. § 25.117(d).

CERTIFICATION

Orbital Communications Corporation certifies that it is not subject to denial of Federal benefits that include Federal Communications Commission benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988.

Orbital Communications Corporation

By:



Alan L. Parker
Executive Vice-President

Dated: September 26, 1997

ENGINEERING CERTIFICATE

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this proposed modification, that I am familiar with Part 25 of the Commission's Rules, that I have reviewed the engineering information submitted in this proposed modification, and that it is complete and accurate to the best of my knowledge.

Dated this 25th day of September, 1997.

By:



Paul A. Locke
Senior Director
Systems Engineering and Spectrum Management
Orbital Communications Corporation

Technical Appendix

Reduction of Collision Potential and Interference Analysis

1. Constellation position management for the reduction of collision potential

Throughout the design and development of the IRIDIUM and ORBCOMM systems, Motorola and Orbital have shared concerns regarding collision avoidance and the reduction of orbital debris generation. In the interest of mutual system survival and preservation of the orbital environment, Motorola initiated a Memorandum of Understanding (MOU) with ORBCOMM for the cooperative, periodic exchange of satellite position information. The proposed MOU is a proactive step in the absence of regulatory guidance in the area of position management for LEO constellations, and it represents a welcome opportunity for cooperation and mutual benefit. However, ORBCOMM believes that implementation of the current MOU does not adequately address and reduce the collision risk. Consequently, ORBCOMM proposes that the main ORBCOMM constellation targeted for 775 km be retargeted for 815 km.

At a mean altitude of 775 km, natural orbital perturbations will result in an actual operational altitude range for ORBCOMM of approximately 764 - 786 km. From recent two-line element sets available from Goddard, it appears that IRIDIUM's operational mean altitude and altitude range are approximately 778 +/-3 km, which are consistent with the design orbit filed with the FCC. Therefore, the two constellations will overlap completely in altitude, with IRIDIUM residing entirely within ORBCOMM's altitude range.

The probability that a collision will occur between the two constellations is on the order of 3.5×10^{-4} per year, or about one chance in 3,000 per year. This represents about 10% of the overall annual collision risk for IRIDIUM (considering the entire USSPACECOM catalog), whereas it constitutes a significantly larger portion of ORBCOMM's total collision risk.⁽¹⁾

The chief difficulties with the current position management plan are as follows:

1. At a mean altitude of 775 km, operational factors will require ORBCOMM to counteract atmospheric decay and maintain 775 km. Therefore, IRIDIUM (775 - 781 km) and ORBCOMM (764 - 786 km) will be in a perpetual state of overlap throughout the lives of both constellations and will be exposed to this elevated collision risk not only for first-generation satellites, but presumably for subsequent generations as well.
2. ORBCOMM and IRIDIUM will not have sufficiently accurate information (individually, nor collectively) to perform collision avoidance analyses and maneuvers. State vector uncertainties and propagation errors prevent keep-out zones from being defined tight enough to warrant disruption of constellation formation, making collision avoidance maneuvers infeasible in the event of a predicted close encounter.

⁽¹⁾ Because of the smaller number of ORBCOMM satellites and their smaller size, the risk from other resident space objects is smaller for ORBCOMM than for IRIDIUM.

3. Without this active avoidance component, the effort described in the MOU is effectively reduced to one of passive monitoring. The collision risk associated with being coorbital remains unmitigated.

ORBCOMM therefore proposes moving the ORBCOMM constellation to a mean altitude of 815 km. The advantages of this arrangement are three-fold.

1. **The collision potential between the two constellations is eliminated for the entire operational lives of the first generations of both systems.** The attached plot shows ORBCOMM's anticipated orbital decay profile. With an initial mean altitude of 815 km (and corresponding range of ~805 - 825 km), the altitude regimes of the two constellations do not begin to overlap until at least the year 2005.
2. **The long-term collision probability between the two constellations is greatly reduced.** The timing of the 11 year solar cycle and the choice of 815 km together result in a rapid decay of ORBCOMM's initial satellite constellation through IRIDIUM's operational altitude regime. The total overlap time is only 5-7 years, as compared to the perpetual overlap which would occur by targeting the current ORBCOMM constellation, and all subsequent generations, at 775 km.
3. **The need for the daily exchange of state vector information is eliminated.** The time and cost associated with these coordination efforts is also saved.

In addition, ORBCOMM intends to employ a more active means of end-of-life disposal in the design of next-generation satellites.

2. Interference impact on other first round licensees

The other first round licensee, VITA, does not operate co-frequency with ORBCOMM, and so will not be affected by the inclination or altitude modification.

3. PFD produced by the ORBCOMM system

ORBCOMM will continue to meet the pfd limit of -125 dB W/m^2 in 4 kHz. The increase in altitude will have a small effect on the PFD incident at the Earth's surface for different angles of elevation. Figure 2 illustrates these variations with the new pfd shown as a dashed line. The satellite transmit power has been set to produce the maximum pfd of -125 dB W/m^2 . As can be seen in the figure, the PFD curves for 775 km and 815 km altitude orbits are nearly coincident. Since ORBCOMM continues to meet the PFD limit, there will be no interference to terrestrial receivers.

4. Compatibility with Meteorological-satellite systems operating in the 137 - 138 MHz band

ORBCOMM and NOAA are in the final stages of discussions with respect to maintaining compatibility between the ORBCOMM system and the current and planned Meteorological-satellite systems operating in the 137 - 138 MHz band. The proposed minor changes of altitude and inclination will be considered in that agreement. ORBCOMM is confident that an agreement will be reached.

5. Affects of the change in inclination angle

The change in inclination angle for one of the two high-inclination planes is a very minor change. The 108° inclination is equivalent to -72° inclination, and so the dynamic interference statistics will nearly identical to those for the 70° inclination case. The orbit will not be synchronous with either the Earth or the Sun since it will precess by 0.22° per day (80° per year).

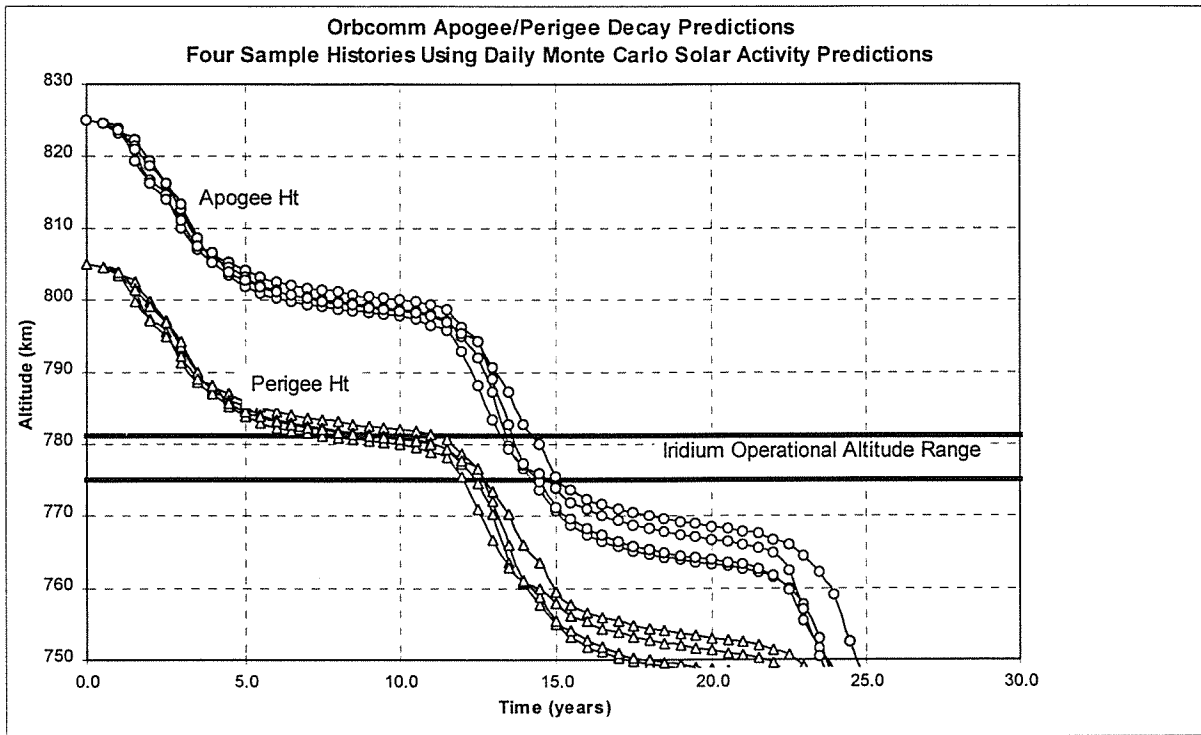


Figure 1. ORBCOMM Decay predictions

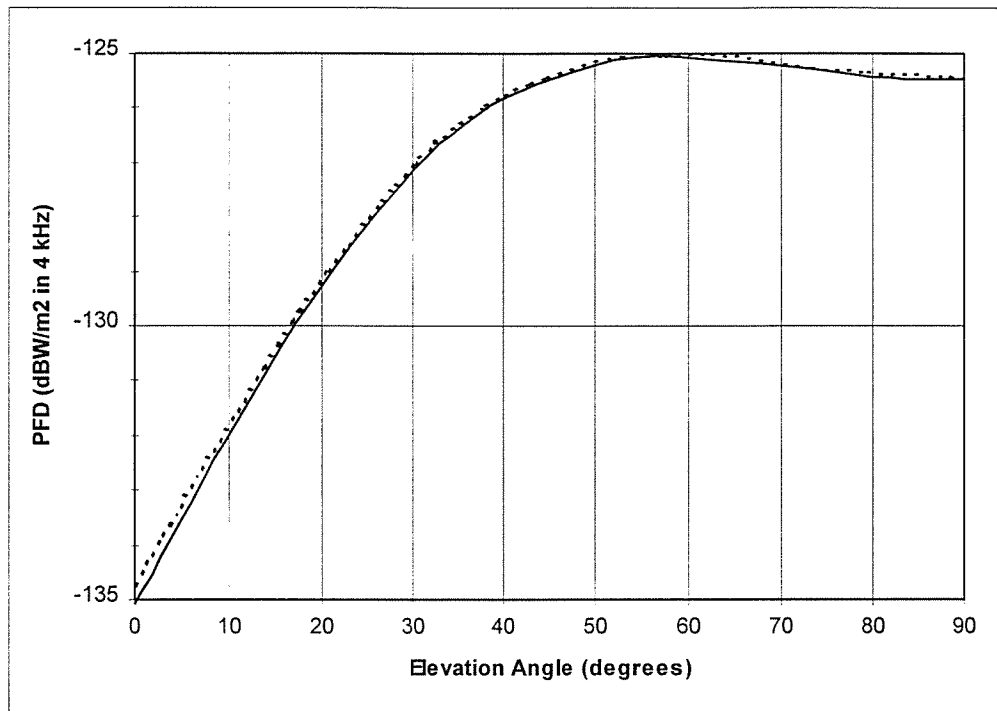


Figure 2. PFD versus angle of Elevation for 775 and 815 km altitude orbits

FCC 312

Main Form

FEDERAL COMMUNICATIONS COMMISSION

APPLICATION FOR SATELLITE SPACE AND EARTH STATION AUTHORIZATIONS

Approved by OMB
3060-0678
Est. Avg. Burden Hours
Per Response: 10 Hrs.

FCC Use Only
File Number
Call Sign

PAYOR AND FILING FEE INFORMATION

a. Payor Name Halprin, Temple, Goodman & Sugrue		b. Daytime Telephone Number 202/371-9100	
c. Mailing Street Address or P.O. Box 1100 New York Avenue, N.W. - Suite 650 East		d. FCC Account Number 0521764279	
e. City Washington	f. State DC	g. Zip Code 20005	
i. Payment Type Code CGW	j. Quantity 1	k. Fee Due for Payment Type Code in (i) 18,220	l. Total Amount Paid 18,220
m. FCC Use Only		h. Country Code (if not U.S.A.)	

APPLICANT INFORMATION

1. Legal Name of Applicant Orbital Communications Corporation		2. Voice Telephone Number 703/406-5300	
3. Other Name Used for Doing Business (if any) ORBCOMM		4. Fax Telephone Number 703/406-3508	
5. Mailing Street Address or P.O. Box 21700 Atlantic Blvd.		6. City Dulles VA	7. State / Country (if not U.S.A.) VA
ATTENTION: Alan Parker		8. Zip Code 20166	
9. Name of Contact Representative (if other than applicant)		10. Voice Telephone Number	
11. Firm or Company Name		12. Fax Telephone Number	
13. Mailing Street Address or P.O. Box ATTENTION:		14. City	15. State / Country (if not U.S.A.)
		16. Zip Code	

CLASSIFICATION OF FILING

17. Place an "X" in the box next to the classification that applies to this filing for both questions a. and b. Mark only one box for 17a and only one box for 17b.			
☐ a1. Earth Station ☒ a2. Space Station		☐ b1. Application for License of New Station ☒ b2. Application for Registration of New Domestic Receive-Only Station ☐ b3. Assignment of License or Registration ☐ b4. Modification of License or Registration ☐ b5. Assignment of License or Registration ☐ b6. Notification of Minor Modification ☐ b7. Transfer of Control of License or Registration ☐ b8. Other (Please Specify):	
18. If this filing is in reference to an existing station, enter: Call sign of station: Satellite license granted at 9 FCC Rcd 6476 (1994)		19. If this filing is an amendment to a pending application enter: (a) Date pending application was filed: (b) File number of pending application:	

TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Place an "X" in the box(es) next to all that apply.

☐ a. Fixed Satellite ☐ b. Mobile Satellite ☐ c. Radiodetermination Satellite ☐ d. Earth Exploration Satellite ☒ e. Other (please specify) Non-Voice Non-Geostationary MSS

21. STATUS: Place an "X" in the box next to the applicable status. Mark only one box.

☐ a. Common Carrier ☒ b. Non-Common Carrier

22. If earth station applicant, place an "X" in the box(es) next to all that apply.

☐ a. Using U.S. licensed satellites ☐ b. Using Non-U.S. licensed satellites

23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Mark only one box. Are these facilities:

☐ a. Connected to the Public Switched Network ☐ b. Not connected to the Public Switched Network

24. FREQUENCY BAND(S): Place an "X" in the box(es) next to all applicable frequency band(s).

☐ a. C-Band (4/6 GHz) ☒ b. Ku-Band (12/14 GHz) ☒ c. Other (Please specify) 137-138 MHz; 148 149.9 MHz; 400 MHz

TYPE OF STATION

25. CLASS OF STATION: Place an "X" in the box next to the class of station that applies. Mark only one box.

☐ a. Fixed Earth Station ☐ b. Temporary-Fixed Earth Station ☐ c. 12/14 GHz VSAT Network ☐ d. Mobile Earth Station ☐ e. Space Station ☐ f. Other (Specify) _____

If space station applicant, go to Question 27.

26. TYPE OF EARTH STATION FACILITY Mark only one box.

☐ a. Transmi/Receive ☐ b. Transmi-Only ☐ c. Receive-Only

PURPOSE OF MODIFICATION OR AMENDMENT

27. The purpose of this proposed modification or amendment is to: Place an "X" in the box(es) next to all that apply.

- | | |
|-------------------------------------|---|
| ☐ | a -- authorization to add new emission designator and related service |
| ☐ | b -- authorization to change emission designator and related service |
| ☐ | c -- authorization to increase EIRP and EIRP density |
| ☐ | d -- authorization to replace antenna |
| ☐ | e -- authorization to add antenna |
| ☐ | f -- authorization to relocate fixed station |
| ☐ | g -- authorization to change assigned frequency(ies) |
| ☐ | h -- authorization to add Points of Communication (satellites & countries) |
| ☐ | i -- authorization to change Points of Communication (satellites & countries) |
| ☒ | j -- authorization for facilities for which environmental assessment and radiation hazard reporting is required |
| ☒ | k -- Other (Please Specify) |

Modify LEO Constellation

ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. §§ 1.1308 and 1.1311, as Exhibit A to this application.

☐ YES ☒ NO

A Radiation Hazard Study must accompany all applications as Exhibit B for new transmitting facilities, major modifications, or major amendments. Refer to OET Bulletin 65.

ALIEN OWNERSHIP

29. Is the applicant a foreign government or the representative of any foreign government? ☐ YES ☒ NO
30. Is the applicant an alien or the representative of an alien? ☐ YES ☒ NO
31. Is the applicant a corporation organized under the laws of any foreign government? ☐ YES ☒ NO
32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country? ☐ YES ☒ NO
33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country? ☐ YES ☒ NO
34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as Exhibit C an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote.

BASIC QUALIFICATIONS

35. Does the applicant request any waivers or exemptions from any of the Commission's Rules?
If Yes, attach as Exhibit D, copies of the requests for waivers or exceptions with supporting documents. ☐ YES ☒ NO
36. Has the applicant or any party to this application had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as Exhibit E, an explanation of the circumstances. ☐ YES ☒ NO
37. Has the applicant, or any party to this application, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? ☐ YES ☒ NO
38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition? ☐ YES ☒ NO
39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? ☐ YES ☒ NO
40. By checking Yes, the undersigned certifies, that neither the applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes. ☒ YES ☐ NO

41. Description. (Summarize the nature of the application and the services to be provided).

ORBCOMM seeks to modify its LEO satellite constellation to increase the altitude of the non-high inclination planes from approximately 775 km to approximately 815 km, and to change the inclination of one of the high inclination planes from 70-degrees to 108 degrees

CERTIFICATION

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

42. Applicant is a (an): (Place an "X" in the box next to applicable response.)

☐ a. Individual ☐ b. Unincorporated Association ☐ c. Partnership ☒ d. Corporation ☐ e. Governmental Entity ☐ f. Other

(Please specify) _____

44. Title of Person Signing

Alan L. Parker

Executive Vice President

43. Signature



46. Date

September 26, 1997

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION (U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).