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Before the
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Received

In re Applications of)	File Nos.
)	
E-SAT, INC.)	24-SAT-P/LA-95
)	
FINAL ANALYSIS COMMUNICATION)	25-SAT-P/LA-95
SERVICES, INC.)	
)	
GE AMERICAN COMMUNICATIONS, INC.)	26-SAT-P/LA-95
)	
LEO ONE USA CORPORATION)	57-DSS-P/LA-94(48)
)	27-SAT-AMEND-95
)	
ORBITAL COMMUNICATIONS CORP.)	28-SAT-MP/ML-95
)	
STARSYS GLOBAL POSITIONING, INC.)	31-DSS-AMEND-94
)	32-DSS-LA-94
)	
For Authority to Construct, Launch, and)	
Operate Non-Voice, Non-Geostationary Mobile)	
Satellite Systems)	

APR 27 1995
 Satellite and
 Radiocommunications Division
 International Bureau

**CONSOLIDATED REPLY TO OPPOSITIONS AND
OPPOSITION TO MOTION TO STRIKE**

Submitted by:

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April 25, 1995

SUMMARY

CTA Commercial Systems, Inc. ("CTA") responds herein to the April 10, 1995 Oppositions to CTA's February 24, 1995 Consolidated Petition to Deny with respect to the second-round applications in the Non-Voice, Non-Geostationary Mobile Satellite Service ("NVNG MSS"). In its Consolidated Petition, CTA urged the Commission to dismiss or deny those applications which fail to meet the Commission's threshold licensing criteria in the NVNG MSS. Deficiencies noted by CTA included the following:

- **Final Analysis'** failure to demonstrate sufficient current assets or operating income to meet the estimated construction, launch and operation costs for the first two satellites in its system. On its face, the Final Analysis balance sheet is inadequate.
- **GE Americom's** failure to evidence a management commitment to the proposed satellite system, despite well-established case law precluding the Commission from relying on a company's national reputation in lieu of the requisite financial showing.
- Technical deficiencies in the **E-SAT** system including serious issues regarding the acceptability of service that E-SAT will provide given the nature of the sharing environment and the highly inefficient nature of E-SAT's system which will offer service only four hours per day.
- Failure by **Leo One** and **Final Analysis** to demonstrate ability to share with existing government users in the relevant bands.

- **Orbcomm's** lack of justification for the additional six channels requested in its modification application, despite evidence that Orbcomm's professed objectives can be accomplished more efficiently without using scarce spectrum and the likelihood that Orbcomm will not be able to provide commercial service until 1997.

In addition to seeking denial of the above applications, CTA also urged the Commission to clarify expeditiously the status of STARSYS and VITA, the remaining first-round applicants, in order to define the amount of spectrum that will be available for the second-round applicants.

In the Oppositions filed April 10, 1995, none of the parties assuages or even addresses CTA's bona fide concerns with respect to the basic qualifications of these parties. The deficiencies noted in CTA's Consolidated Petition have not been cured in the Oppositions or elsewhere. While CTA is optimistic that additional spectrum will be allocated to accommodate the new NVNG MSS proponents, the prospect must be faced that there will be more systems than available spectrum. For this reason, it is critically important that the Commission promptly deny unqualified applicants at the outset.

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Operate Non-Voice, Non-Geostationary)	
Mobile Satellite Systems)	

**CONSOLIDATED REPLY TO OPPOSITIONS AND
OPPOSITION TO MOTION TO STRIKE**

CTA Commercial Systems, Inc. ("CTA"), by its attorneys, hereby submits its "Consolidated Reply to Oppositions and Opposition to Motion to Strike" with respect to the above-captioned applications in the Non-Voice, Non-Geostationary Mobile Satellite Service ("NVNG MSS"). CTA responds herein to the April 10, 1995 Oppositions of Orbital Communications Corporation ("Orbcomm"), GE American Communications, Inc. ("GE Americom"), Final

Analysis Communication Services, Inc. ("Final Analysis"), E-SAT, Inc. ("E-SAT"), Leo One USA Corporation ("Leo One") and STARSYS Global Positioning, Inc. ("STARSYS") which oppose, in pertinent part, CTA's February 24, 1995 Consolidated Petition to Deny. As detailed below, none of the Oppositions rebuts CTA's showing that these parties lack the basic threshold qualifications for licensing in the NVNG MSS. For this reason, the applications must be promptly denied in order to ensure that qualified parties can move forward and are not precluded from using the scarce spectrum resource.

I. INTRODUCTION AND SUMMARY

There are seven pending NVNG MSS applications currently before the Commission, including CTA's second-round application to authorize the GEMnet™ satellite system. All of these applications propose to use the currently allocated 137-138, 148-149.9, and 400.15-401 MHz frequency bands. A serious issue exists as to how many additional systems, beyond the three first-round systems, can be accommodated in these bands. Given CTA's assessment that only one additional system can be accommodated, CTA has strongly encouraged the Commission to reallocate additional spectrum below 1 GHz, in the range of 7 to 10 MHz, to accommodate the proposed systems.

CTA has also urged the Commission to vigorously enforce the applicable threshold licensing criteria, and to adopt more stringent standards, if necessary, to ensure that only qualified systems move forward and use the scarce spectrum resource.¹² As demonstrated in CTA's Consolidated Petition, Final Analysis and GE Americom do not meet even the relatively lenient

¹² CTA pointed out in its Consolidated Petition that the Commission has ample authority to deny patently defective applications without a hearing. See Consolidated Petition at 4, and cases cited therein.

financial requirements for the NVNG MSS. Those applications should therefore be promptly denied. Technical deficiencies in the applications of Final Analysis, Leo One, and E-SAT provide further grounds for denial of these applications. Despite wide-spread opposition to Leo One's use of a private trust to shield its ownership and financial information from review, the company continues to avoid the full disclosure required by Commission rules. None of these deficiencies has been cured in the April 10, 1995 Oppositions or elsewhere.

With respect to Orbcomm's modification of its license to add twelve satellites and six new channels, CTA urged the Commission to license new systems before allowing an existing licensee to use all of the remaining spectrum. Licensing of the Orbcomm system was premised on the entry of competing systems and it is disingenuous for Orbcomm to now suggest otherwise. Given the apparent failure of the Orbcomm satellites launched earlier this month, and the likelihood that additional satellites will not be launched until 1997, Orbcomm cannot truthfully argue that its in-orbit capacity is filled.

In their respective Oppositions, each company fails to assuage or even to address the legitimate concerns about threshold qualifications raised by CTA and other parties. Side-stepping CTA's arguments, these companies for the most part address peripheral matters in their Oppositions and try to deflect criticism by attacking CTA on a variety of frivolous grounds. Absent evidence that these companies meet the threshold criteria, their applications must be promptly dismissed.

Finally, while STARSYS has filed a "Motion to Strike Portions of Consolidated Petition to Deny Filed by CTA Commercial Systems, Inc.," that filing totally misses the point of CTA's

comments with respect to STARSYS. CTA is certainly not attempting to re-open the record with respect to STARSYS' prior amendment or application. Nonetheless, it is entirely proper for CTA to seek expeditious action on the STARSYS request for declaratory ruling in order to clarify the status of the company's first-round application which has a bearing on the number of second-round applicants that can be accommodated.^{2/}

II. THE STARSYS MOTION TO STRIKE IS FRIVOLOUS AND SHOULD BE DENIED

STARSYS has filed a Motion to Strike those portions of CTA's Consolidated Petition to Deny that address STARSYS' application. STARSYS claims that the record has closed with respect to its application and that the topics of contention raised by CTA have already been addressed in previous pleadings. As is apparent, CTA's intention was not to argue the merits of the STARSYS application. Rather, CTA merely expressed concern about the length of the delay in Commission action on the STARSYS ruling. This ruling will trigger STARSYS' financial showing which it has still not made.

The status of the STARSYS application is a material factor bearing on the availability of NVNG MSS spectrum for second-round systems. It should be clear why CTA seeks to resolve the present uncertainty. CTA is certainly entitled to express its views as to the need for expeditious action on the STARSYS ruling. It is indisputable that the Commission's consideration of the STARSYS application will affect its decision-making in the second-round processing group,

^{2/} As a result of the spectrum scarcity, it should be apparent why CTA has encouraged the Commission to rule promptly on the pending STARSYS request for declaratory ruling and to clarify the issue of spectrum availability. A ruling by the Commission will begin tolling the period for filing of the STARSYS financial amendment which it has yet to make. Until that amendment is submitted and parties have an opportunity for review and comment, the Commission will not be able to act on the STARSYS application.

and, for this reason, CTA maintains that its appeal to the Commission to act promptly on the STARSYS application is appropriate. The STARSYS Motion to Strike is misguided and must be disregarded.

STARSYS is in the enviable (but inequitable position) of indefinitely postponing its financial showing, even though all of the second-round applicants were required to meet that standard on November 16, 1994. Now that a pressing demand for the spectrum has been shown by other companies, STARSYS should not be permitted to block qualified companies from moving forward while it shops leisurely for financing.

III. FINAL ANALYSIS AND GE AMERICOM STILL HAVE NOT PROVIDED ADEQUATE FINANCIAL INFORMATION

A. Final Analysis Has Not Demonstrated Sufficient Current Assets Under The Commission's Rules

In its Consolidated Petition, CTA demonstrated that neither Final Analysis nor its corporate parent, Final Analysis, Inc., has demonstrated sufficient current assets or external financing to cover construction, launch, and operation of two satellites for one year as required by Commission Rules 25.140 and 25.142. Final Analysis seeks to correct the blatant deficiencies in its financial showing by arguing that FAISAT-1, the experimental satellite launched by Final Analysis in January 1995, should be considered a current asset. This argument is just wrong.

Under well-established accounting principles, adopted by the Commission in other satellite proceedings, "current assets" are those assets which are "readily convertible to cash."²⁴

²⁴ See Licensing Space Stations in the Domestic Fixed-Satellite Service, 58 R.R. 2d (P&F) 1267, 1273 n.24 (1985) (hereinafter "1985 Domsat Order").

Although general accounting principles do include inventory as part of current assets, inventory includes only those items which the company has manufactured and *intends to sell* at a future date.^{4f} An experimental satellite with limited, if any, communications capabilities is not inventory.^{5f} Certainly, an experimental satellite (like FAISAT-1), which reportedly has never worked, has even less value. Even if the satellite were working, it is more appropriately defined as a *fixed asset*, not as a liquid current asset.

Leaving aside accounting principles, it is a matter of common sense that the current assets test is intended to provide a measure of the applicant's access to funds for constructing, launching and operating the proposed satellites. There is no evidence that FAISAT-1 can be sold or otherwise readily converted into the necessary funds. In fact, Final Analysis has not shown that the satellite will be sold or even that the experimental satellite has a fair market value. Valuations provided by KPMG Peat Marwick before the satellite launch, presumably for insurance purposes, are meaningless in light of the subsequent failure of the satellite.

In short, Final Analysis has failed to cure the financial deficiencies in its application. Its application must therefore be dismissed.

^{4f} Inventories "generally consist of the finished goods that a company has manufactured for sale, work-in-progress and the raw materials the company uses in the manufacturing process." Practising Law Institute, Accounting for Lawyers (1994) at 19. Liquidity means the "relative ease and time it takes to convert an asset into cash." Id. at 18.

^{5f} According to Final Analysis' press releases, the satellite carried a communications payload and a secondary military payload for Air Force Phillips Laboratory. It is believed that the communications payload has never been operational. After launch, Final Analysis transferred the military payload to the federal government and there is some question whether Final Analysis even owns the satellite.

B. GE Americom's Financial Showing Remains Unacceptable

In its Petition, CTA pointed out that GE Americom has failed to evidence any management commitment to fund the proposed system and instead relies solely on its status as a prior Commission licensee. GE Americom has not cured this deficiency in its Opposition, and merely calls CTA's assertions "groundless" without providing any evidence that its management is committed to funding the proposed system.

GE Americom apparently believes that its status as a major corporation will be sufficient to meet the Commission's financial requirements. This reliance is misplaced. As CTA noted, the D.C. Circuit has cautioned the FCC about relying solely on the national reputation and size of a large company.⁶² Such a practice effectively grants a waiver of the rules to a large company that is not justified by the public interest.⁷¹ A mere assertion by GE Americom that it "intends to meet the milestone requirements"⁸¹ does not demonstrate sufficient commitment to the project to merit the award of a license. Absent concrete evidence that its management is, in fact, committed to the project, the GE Americom application should be denied.

IV. E-SAT FAILS TO REBUT CONCERNS ABOUT THE INEFFICIENCY OF ITS TECHNICAL DESIGN

In its Petition, CTA provided technical evidence that the E-SAT system is technically flawed because of (1) serious underestimation of the level of terrestrial interference which will

⁶² See Northeast Cellular Telephone Company v. Federal Communications Commission, 897 F.2d 1164 (D.C. Cir. 1990).

⁷¹ Id. at 1165.

⁸¹ GE Americom Opposition at 10.

render the E-SAT uplink unworkable; (2) inefficient spectrum use, i.e., six times less efficient than FDMA systems; and (3) limited service capability as a result of E-SAT's six-satellite design, i.e., service availability only four hours a day. E-SAT fails to address any of these fundamental technical issues in its Opposition.

E-SAT argues that its design is efficient because the satellites are able to maintain the same time schedule each day, and each satellite will use 100% of the visibility time for each satellite pass. The utilization of each satellite, of course, is irrelevant to the broader issue of system efficiency. Efficiency in this context refers to the system's ability to use the spectrum resource in the most highly efficient manner, i.e., to provide the maximum level of service. The critical point is that even when an E-SAT satellite is not visible, other companies must coordinate as if the system is operating at 100% duty cycle. Once a satellite system is licensed to use spectrum, the system must be treated as using the spectrum continuously for coordination purposes regardless of actual satellite visibility. Given the limited spectrum available for NVNG MSS systems, the Commission must deny the inefficient E-SAT design in favor of more efficient systems.

Rather than responding directly to CTA's legitimate concerns, E-SAT apparently decided that the best defense is an offense. E-SAT for the first time criticizes CTA (and Leo One) for proposing to use ALOHA random access protocols, contending that the channel utilization is "inefficient." This criticism is entirely inappropriate and ignores over a decade of engineering precedent. E-SAT should not be allowed to deflect further scrutiny of E-SAT's technical deficiencies in this manner.⁹²

⁹² E-SAT's criticism is apparently based on an erroneous assumption that CTA intends to use ALOHA on all eleven channels. This is not the case. CTA's GEMnet system uses a modified ALOHA protocol on a single uplink

Although E-SAT disagrees with CTA's conclusion that E-SAT will experience interference from terrestrial systems, it fails to elaborate the reasons for its disagreement. As far as CTA can determine, the basis of the disagreement is whether there are terrestrial systems in the relevant bands.¹⁰⁷ CTA's conclusions with respect to existing activity in the bands are based on publicly available documents, including materials provided by NTIA in the negotiated rulemaking proceedings.¹¹⁷ Contrary to E-SAT's contentions, there are, by NTIA's count, more than several hundred transmitters in the United States licensed to transmit at 100 Watts or greater within the 149.0-149.9 MHz subband. Therefore, CTA's calculations of the possibility of terrestrial interference to the E-SAT system are accurate and should be directly addressed by E-SAT.

The Commission should not allow E-SAT's unsubstantiated attacks on CTA and others to obscure the fundamental issues with respect to the unworkability and inefficiency of the E-SAT design.

V. FINAL ANALYSIS AND LEO ONE HAVE FAILED TO CURE TECHNICAL DEFICIENCIES IN THEIR APPLICATIONS

In its Petition, CTA pointed out that Final Analysis and Leo One have failed to take into account government users of the existing bands. In responding to CTA's objection, Final Analysis and Leo One clearly misunderstood the nature of that objection. CTA was merely pointing

channel (one out of eleven) to provide a limited random access service for those applications that require it. The stability characteristics of ALOHA at maximum loading have been recognized as a matter of standard communications engineering for the past decade. In addition, GEMnet's ALOHA protocol incorporates a throttling mechanism to ensure operation in a stable regime. This ALOHA technique allows CTA to provide a multiple access service with numerous ground terminals gaining access to the system independently which is desirable for certain types of services, e.g., paging.

¹⁰⁷ E-SAT Consolidated Reply at 16.

¹¹⁷ See NTIA Report, LEOAC-9, "Federal Use of the 148-149.9 MHz."

out that the Final Analysis and Leo One systems, as proposed, are unlikely to be coordinated by the federal government.

A review of the Orbcomm and VITA systems demonstrates that, in order to coordinate with government users, NTIA has required applicants to modify their system designs to provide for 10 KHz channel bandwidth. The 9.6 kbps channels proposed by Leo One and Final Analysis, which correspond to a 15 KHz channel bandwidth, have to date been found unacceptable by NTIA. Neither system has adequately considered the existing government users in the allocated bands, and the specific channel allocation scheme is irrelevant if the channel bandwidth is wider than 10 KHz. In such cases, according to the government, the system will not only cause interference to terrestrial users in the immediate vicinity of the ground terminals, but will be subject to interference from terrestrial users.

CTA's position with respect to uplink channel bandwidths in the 148-149.9 MHz band is based on over a decade of corporate experience in LEO satellite communications engineering, as well as its review of the Orbcomm and VITA systems that have been coordinated with NTIA. Based on this experience and CTA's understanding of the characteristics of the terrestrial users of the 148.0-149.9 MHz band, 10 KHz is the appropriate channel bandwidth for an FDMA uplink channel bandwidth in the 148.0-149.9 MHz band if coordination with NTIA is required.

Leo One also tries to repudiate CTA's comments by arguing that CTA relied on erroneous data for the Leo One system. This information is accurate but has been misinterpreted by Leo One. Table 1 (148 MHz uplink requirements) and Table 3 (400 MHz requirements) were provided by CTA to demonstrate the total spectrum requirements for all applicants in rounds one

and two. CTA has accurately stated only that Leo One will be using 300 KHz (over the entire 1,145 KHz) at any one time. CTA's point was not to attack any system, but to demonstrate that additional spectrum is required for NVNG MSS: a point of universal agreement.

VI. ORBCOMM HAS NOT JUSTIFIED ITS REQUEST FOR ADDITIONAL SPECTRUM

In its Petition, CTA urged the Commission to deny Orbcomm's modification application on the grounds that Orbcomm has failed to demonstrate need for additional spectrum. Long-standing Commission policies in the satellite field require existing licensees to provide detailed evidence of need for additional spectrum/orbital resources.^{12/} As CTA pointed out, however, Orbcomm's sole justification for adding six 15 KHz channels and twelve satellites to its system is to expand coverage in the polar regions and to prevent intra-system interference within the Orbcomm system. This objective can, however, be accomplished without asking for additional spectrum.

In its Opposition, Orbcomm fails to address CTA's Technical Appendix which identified available techniques for achieving Orbcomm's purported objectives more efficiently, without requiring the additional channels requested. In support of its new spectrum request, Orbcomm argues surprisingly that its modification will serve the public interest, and that the Commission should not blindly elevate the goal of competition. In support of this, Orbcomm cites a 1953 case, RCA Communications v. FCC.^{13/} This precedent is over forty years old, and predates the

^{12/} 1985 Domsat Order at 1275.

^{13/} Consolidated Response of Orbcomm at 6, n. 10 citing FCC v. RCA Communications, Inc., 346 U.S. 86, 94 (1953).

more recent articulations of national policy, by the Commission and the courts, emphasizing the importance of competition in the provision of telecommunications services. It bears emphasis that the primary beneficiary of competition is the consumer, who benefits from reduced costs and greater service offerings. Contrary to Orbcomm's assertions, the Commission strongly encourages competition in the satellite industry. Indeed, Orbcomm's license was premised on the assumption that it would be subject to competition.

While Orbcomm invokes the public interest in defense of its modification application, basic fairness requires new entrants to be considered before a licensed, unbuilt system is given additional spectrum. Clearly, Orbcomm's unbuilt system is not filled. Indeed, in light of the apparent failure of its first two satellites launched earlier this month, Orbcomm may not be able to provide any commercial service until 1997. These circumstances reinforce CTA's position that granting additional spectrum to an existing licensee does not serve the public interest. Orbcomm's modification application should therefore be denied.

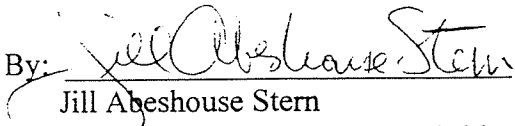
VII. CONCLUSION

For reasons set forth above and in CTA's Consolidated Petition, the Commission should dismiss or deny the applications of Orbcomm, Final Analysis, Leo One, E-SAT, and GE Americom for failure to meet threshold licensing criteria in the NVNG MSS. The Commission should

also move forward expeditiously to clarify the status of the pending first-round applications of STARSYS and VITA.

Respectfully submitted,

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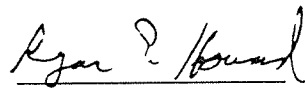
Its Attorneys

April 25, 1995

Declaration

I, Regan E. Howard, hereby certify under penalty of perjury that the following statements are true and correct to the best of my knowledge and belief:

1. I am employed by CTA Commercial Systems, Inc. as Chief Engineer
2. I am the technically qualified person responsible for preparation of the engineering information and analysis contained in the foregoing "Consolidated Reply to Oppositions and Opposition to Motion to Strike".
3. All of the engineering information and analysis contained in the foregoing document is correct to the best of my knowledge, information, and belief.


Regan E. Howard

Dated: 4/25/85

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CERTIFICATE OF SERVICE

I, Felecia G. DeLoatch, do hereby certify that a true and correct copy of the foregoing document was sent by first-class mail, postage prepaid, or hand-delivered, on this 25th day of April, 1995, to the following persons.

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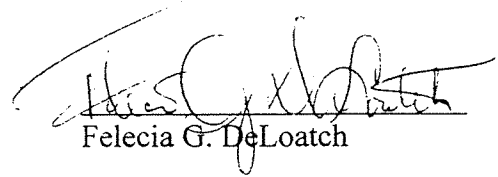
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