BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In re the Applications of	)	
	)	
FINAL ANALYSIS, INC.	)	File Nos. 4682-EX-PL-95
	)	4680-EX-PL-95
For Authority to Establish a Low-Earth Orbit Satellite, to Modify a Fixed Ground Station, and to Establish 9.240 Remote Mobile Terminals in the Experimental Radio Services	)	4683-EX-PL-95

To: Chief Engineer

COMMENTS OF STARSYS GLOBAL POSITIONING, INC.

STARSYS Global Positioning, Inc. ("STARSYS"), by its attorneys, hereby comments on the above-captioned applications of Final Analysis, Inc. ("Final Analysis") for authority to establish and operate an experimental satellite system comprised of a low-Earth orbit ("LEO") space station designated to operate at an orbit altitude of 1,000 kilometers, a "master ground station" to be located in Utah, and 9,240 "remote mobile terminals" for use at any location(s) within the United States. As explained below, STARSYS urges the Commission to deny the Final Analysis applications as presently constituted.

STARSYS is a first-round applicant for authority to establish a satellite system in the new Non-Voice, Non-Geostationary Mobile Satellite Service ("NVNG MSS"). STARSYS's NVNG MSS system will use the 148.0-148.905 MHz band and 50 kHz of spectrum at 149.9-150.05 MHz for uplinks to its LEO satellites, and will use spectrum at 137-138 MHz and 400.595-400.645 MHz for space-to-Earth links. A subsidiary of Final Analysis is an applicant for a second-round NVNG MSS system.

STARSYS and others have petitioned to deny the application of Final Analysis's subsidiary on a number of technical and other basic qualification grounds, and the Commission has stated that second-round NVNG MSS applications will not be processed until after the three first-round applications (including STARSYS's) have been finally resolved.

The United States, in its preparations for the 1995 World Radiocommunication Conference ("WRC-95"), has endorsed a position calling for the allocation of up to 10 megahertz of additional spectrum for NVNG MSS-type uses, and demand studies generated by STARSYS and others support the allocation of still more spectrum for NVNG MSS use. As a general proposition, Final Analysis's stated desire to examine the suitability of frequency bands between 100 and 500 MHz (in this case, the 153-162 MHz band) for use by NVNG MSS systems is commendable. For the reasons identified below, however, STARSYS is compelled to object to the experimental program that Final Analysis has quietly unleashed through the Commission's Office of Engineering and Technology.

As an initial matter, STARSYS finds it curious that Final Analysis has limited its assessment to just one band -- a band whose use for satellite purposes has been vehemently protested by elements of the land mobile community. If the band proves to be unacceptable for satellite use, no alternatives are to be considered. This situation, and the other inconsistencies identified herein as to the timing of the program and the number of remote terminals, give rise to the realization that what Final Analysis has in mind for its proposed experimental system is a specific commercial use that is not fully disclosed in its application.

With respect to what is on file, STARSYS has two major difficulties. First, as a policy matter, STARSYS is concerned that the Final Analysis program is not an "experiment" at all, but instead is intended to short-circuit the regulatory processes of the Commission (as administered by the International Bureau) that will necessitate a waiting period before any second-round NVNG MSS applications can be processed through to grant. Second, Final Analysis's proposal to establish more than 9,000 remote terminals betrays an undeniably commercial motivation, as it is not necessary to use even one "remote user terminal" in order to perform a characterization of the band -- Final Analysis's stated research objective. The Commission should refuse to countenance such an effort to commercialize the Experimental Radio Services, and should ensure that any legitimate experimental objectives Final Analysis seeks to pursue are pursued through appropriately circumscribed facilities.

I. Final Analysis's Experimental Program Is Inconsistent With The Commission's Policy On Experimental Satellites.

Contrary to Final Analysis's unsubstantiated assertions, its experimental program is not consistent with the Commission's 1992 policy statement on experimental satellite applications. See Policy Statement on Experimental Satellite Applications, 7 FCC Rcd 4586 (1992) ("Policy Statement"). The program would cause unacceptable interference to STARSYS's NVNG MSS system. Moreover, the scope of the "experiment" is such that the program appears intended more to get a

jump on the NVNG MSS competitors of Final Analysis's subsidiary than to conduct legitimately-limited technical feasibility studies.

At the outset, Final Analysis's specification of a launch date of August 1995 for its experimental satellite is problematic. There is no way that any experiments conducted after August 1995 could be digested and evaluated in time to be considered at WRC-95. Moreover, as the Commission is no doubt aware, the question of premature and unauthorized construction of so-called experimental satellites by NVNG MSS applicants was recently brought to a head in the confrontation over the plans of Volunteers in Technical Assistance, Inc. ("VITA"); several parties, including STARSYS, have accused VITA and CTA Incorporated of constructing an experimental "NVNG MSS" satellite completely without authorization, and then lying to the Commission and otherwise abusing the Commission's processes in an unsuccessful attempt to cover their tracks. The Commission has not yet decided what to do about the VITA/CTA machinations -- or what impact the charged transgressions will have on each entity's basic qualifications to be a Commission licensee. In specifying a launch date just five months after the initial application is filed, Final Analysis raises the specter that it too has engaged or is engaging in the premature construction of the proposed spacecraft -- a prospect that would, or course, have ramifications for Final Analysis's subsidiary in the NVNG MSS proceedings.

STARSYS continues to be both alarmed and dismayed by the strength of the linkage that has developed between the NVNG MSS service and the Experimental Radio Services over the last few years. Entities such as Orbital Communications Corporation, VITA, and even Final Analysis itself have planned experimental

spacecraft that would ostensibly be "converted" to operational NVNG MSS spacecraft, or proposed experimental systems that are of such a grand scale as to effectively be commercially viable in and of themselves. Here, Final Analysis would be establishing what appears to be a commercial system in a frequency band that has no restrictions on satellite uses (because it is not allocated to satellite use), and would be gaining not only a head start over competing NVNG MSS operators, but would also be doing so in a manner that is relatively unconstrained.

Despite the objections of STARSYS and others to such developments, the Commission and the affected Bureaus have yet even to acknowledge the linkage, much less step in to ensure that the charged abuses are brought to a halt. Before any consideration can be given to Final Analysis's latest "experimental" program, the Commission should demand that Final Analysis prove that it is not in violation of Section 319 of the Communications Act, and determine that the program is not intended to enable Final Analysis to get an undeserved and impermissible leg up on its NVNG MSS competitors. Neither finding can be made on the present record.

Turning to the Commission's Policy Statement, one of the guidelines set forth therein specifies that "[g]rant of the application should be consistent with [the Commission's] general policy to protect against harmful interference to licensed stations." Policy Statement, 7 FCC Rcd at 4586. Final Analysis's proposed experimental satellite violates this guideline in two ways.

As noted above, STARSYS is one of the three initial NVNG MSS applicants, and it expects to be licensed in the next few months pursuant to a spectrum sharing plan that the Commission has already implemented. See Orbital

Communications Corporation, 9 FCC Rcd 6476 (1994). Under the spectrum sharing plan, STARSYS would use the 50 kHz band segment at 400.595-400.645 MHz for space-to-Earth communications. Final Analysis, in its space station application, also proposes to employ this specific 50 kHz segment. In its application, Final Analysis claims that it can co-exist with existing users (including users of frequencies proximate to the 400 MHz band), but fails to mention STARSYS at all. See Final Analysis Application at Exhibit 1, p.12. Because there is no showing whatsoever that Final Analysis's use of the 400.595-400.645 MHz band is compatible with STARSYS's use -- indeed, such a use by Final Analysis would cause harmful interference to STARSYS -- this portion of Final Analysis's application must be denied.

In addition, Final Analysis's specification of an orbit altitude of 1,000 kilometers for its proposed experimental satellite also poses an interference threat to STARSYS's NVNG MSS system. STARSYS satellites will operate at an orbit altitude of 1,000 kilometers. Recently, concerns have been expressed to the Commission about the prospect of collisions and other collateral damage from spacecraft that share orbit altitudes. See Comments of Motorola Satellite Communications, Inc., File Nos. 23-SAT-P/LA-95, et al., at 3-4 (filed February 24, 1995). Until the issue raised by Motorola is resolved, the Commission should not authorize any experimental satellites that would share the 1,000 kilometer orbit altitude with full-service systems such as STARSYS's NVNG MSS system.

II. Final Analysis Does Not Need 9,240 User Terminals To Conduct Its Experiment; The Motivation Here Is Obviously Commercial.

Final Analysis's request for 9,240 user terminals for its experimental program is excessive. There is no support for its contention that "[w]ithout high numerical concentrations of [remote user terminals] in heavy-use areas, reliable real-world data would be difficult if not impossible to obtain." See Final Analysis Application, Exhibit 1 at 8. In fact, Final Analysis's proposal to distribute large numbers of user terminals simultaneously throughout several geographic regions, rather than to undertake the sequential testing of a few terminals in each region over a period of time, effectively confirms that Final Analysis has a commercial objective (and the curious numbers of terminals probably reflect the stated requirements of an identified potential or even actual customer).

If Final Analysis sought only to determine the level to which the subject frequency bands are now being used, it would not need even one "remote user terminal." All it would have to do is listen to the desired channels or frequency band segments. As for the claim that the regional concentrations of terminals are needed to secure access to real world data, this too is fallacious. The data from the characterization of the band would be more than sufficient for this purpose; at the very least, simultaneous deployment of 9,240 terminals (and presumably 9,240 operators) would not be part of a reasoned experimental design.

For its part, Final Analysis provides no information whatsoever as to how its 9,240 terminals would be used, nor does it state the character of their use. The ambiguity of its filing in this regard, and the absence of any rational nexus to

legitimate experimental or developmental objectives, again seem intended to conceal the commercial objectives that Final Analysis is apparently pursuing.

In short, the Commission should recognize the user terminal portion of Final Analysis's "experimental" program as a thinly-veiled attempt to jump into the market for NVNG MSS services in a premature manner. If the Commission is to allow Final Analysis's program to go forward at all, it should limit the applicant to a maximum of 100 user terminals -- a number that is arguably itself in excess of what is required -- and reject the unjustified request for authorization of 9,240 stations.

III. Final Analysis's Ground Station Modification Request Would Violate The Conditions Of The Underlying License.

As a final matter, STARSYS notes that there are several unexplained discrepancies in Final Analysis's "master ground station" application. Unlike the other two components of the proposed experimental program, which contemplate the establishment of new facilities, Final Analysis would be modifying an authorized facility to implement the "master ground station" proposal. Final Analysis was issued a license for Experimental Fixed Station KE2XGU on December 28, 1994 (see Attachment hereto), and was authorized to transmit on a frequency of 141.775 MHz. The license specified, as a "special condition," that:

> This authorization is issued for the express purpose of conducting experimental operations described in the related application and required by NASA CENTER FOR SPACE POWER Contract No. LETTER 10-10-94 & U.S. AIR FORCE - PHILLIPS LABORATORY Contract No. LETTER 10-11-94. The use of this radio station in any other manner or for any other purpose will constitute a violation of the privileges herein authorized.

> Except as subsequently authorized by the Commission, this radio station shall not be operated after the expiration date of the contract designated in the related application and enumerated above.

License KE2XGU at 2. The license expired on March 31, 1995. Id. at 1.

It is by no means clear that Final Analysis has secured the necessary contractual permission to use Station KE2XGU in the manner requested, and it has not sought a waiver or other relaxation of the special conditions on its license. Indeed, in its application for authority to modify Station KE2XGU, Final Analysis does not mention the operating restriction at all.

Moreover, and despite the fact that Final Analysis states in its response to Question 7 on the FCC Form 442 modification application that the modification is to be used to fulfill the requirement of a government contract with an agency of the United States Government, Exhibit 1 to Final Analysis's experimental program contains no mention whatsoever of a government contract to operate at 153-157.5 MHz. Final Analysis has apparently misstated the case as to Government requirements for its proposed modified "master ground station" facility.

Finally, STARSYS notes that Final Analysis's proposal to employ a high-power (22 dBW) ground station transmitter with a high gain antenna at low satellite angles of incidence (and in a 50 kHz bandwidth) in the 153-157.5 MHz band is likely to cause substantial interference to existing fixed and mobile radio and television broadcasters, state and local police and fire departments, and national law enforcement agencies. To the extent that such a blunderbuss approach could prejudice eventual experiments that seek to use the same frequencies in a more reasonable

manner -- i.e., with lower power and shorter duration transmitting mobile terminals or with dynamically selected channels in the downlink direction -- Final Analysis should be required to come up with a more temperate proposal.

CONCLUSION

On the basis of the foregoing discussion, STARSYS submits that the experimental program now being pursued by Final Analysis cannot be granted in its present form. The Commission should require Final Analysis to conform its proposal to the applicable technical and policy requirements, and to explain the substantial discrepancies that pervade the proposals. Only when and if this is done can the Commission grant Final Analysis authority to conduct an appropriately-circumscribed experiment in the remaining requested bands.

Respectfully submitted,

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April 5, 1995

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ATTACHMENT

7500 GREENWAY CENTER, SUITE 1240, GREENBELT, MD 20770

United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
RADIO STATION CONSTRUCTION PERMIT
AND LICENSE

EXPERIMENTAL
(Nature of Service)

K E 2 X G U
(Call Sign)

XC FX
(Class of Station)

4097-EX-PL-94
(File Number)

NAME FINAL ANALYSIS INC.

LOGAN, (CACHE) UT - NL 41-38-15; WL 111-48-49
(Location of Station)

Subject to the provisions of the Communications Act of 1934, subsequent acts, and treaties, and all requlations heretofore or hereafter made by this Commission, and further subject to the conditions and requirements set forth in this license, the licensee hereof is hereby authorized to use and operate the radio transmitting facilities hereinafter described for radio communications.

Frequency MHz	Class Stn	Emission Designator	Authorized Power watts
141.77500	FX	25K0F1D	200W (ERP)

Frequency Tolerance: 0.005%

Operation: In accordance with Sec. 5.202(b) of the Commission's Rules.

Special Conditions:

See Attached Page 2

This authorization effective December 28, 1994 and will expire 3:00 A.M. EST March 31, 1995

FEDERAL COMMUNICATIONS COMMISSION

Special Conditions:

(1) This authorization is issued for the express purpose of conducting experimental operations described in the related application and required by NASA CENTER FOR SPACE POWER Contract No. LETTER 10-10-94 & U.S. AIR FORCE - PHILLIPS LABORATORY Contract No. LETTER 10-11-94. The use of this radio station in any other manner or for any other purpose will constitute a violation of the privileges herein authorized. Except as subsequently authorized by the Commission, this radio station shall not be operated after the expiration date of the contract designated in the related application and enumerated above.

(2) The station identification requirements of Section 5.152 of the Commission's Rules are waived.

(3) Licensee is required to file a PROGRESS REPORT every 3 months from the date of grant. This progress report shall be filed with FCC, Experimental Licensing Branch, Suite 230, 2000 M St., Washington, D.C. 20554.

(4) The frequencies 141.775 and 399.8375 MHz shall be limited to controlling and monitoring health of satellite and telemetering data from Phillips Lab experiment. These frequencies are not to be used for mobile satellite service experimentation.

CERTIFICATE OF SERVICE

I, Katharine B. Squalls, do hereby certify that a copy of the foregoing "Comments of STARSYS Global Positioning, Inc." was mailed by United States first-class postage prepaid this 5th day of April 1995, to the following:

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