

BEFORE THE  
Federal Communications Commission  
WASHINGTON, D. C.

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of )

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)  
Amendment of Parts 2, 21, 25 and )  
94 of the Commission's Rules To )  
Accommodate Common Carrier and )  
Private Op-Fixed Microwave )  
in Bands Above 3 GHz )

RM-8004

ORIGINAL  
FILE

TO: The Commission

STATEMENT OF HOME BOX OFFICE

HOME BOX OFFICE  
A Division of TIME WARNER  
ENTERTAINMENT COMPANY, L.P.

Benjamin J. Griffin  
Robert J. Aamoth

REED SMITH SHAW & McCLAY  
1200 18th Street, N.W.  
Washington, D.C. 20036  
(202) 457-6100

Its Attorneys

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## SUMMARY

Home Box Office ("HBO"), a division of Time Warner Entertainment Company, L.P., opposes the proposal by Alcatel Network Systems, Inc. ("Alcatel") to reallocate 80 MHz of the C-band satellite downlink spectrum at 4 GHz. HBO has attached a technical report demonstrating that the Alcatel proposal would eliminate four full downlink transponders at 4 GHz on all C-band domestic satellites. The Alcatel proposal would reduce the downlink spectrum available to C-band satellite users by 16%.

There is no justification for such a massive reduction in the spectrum allocated to the fixed-satellite service, which has proven time and again that it utilizes the orbital and spectrum resources allocated to it with equal or greater efficiency than other radio-based services. The Commission's close and flexible regulation of the fixed-satellite industry from the 1980s onward has ensured that the C-band frequencies are used with maximum efficiency to provide cost-based services to consumers in a competitive environment.

The Alcatel proposal would have an especially severe and unwarranted impact upon the television distribution industry, which relies heavily upon C-band spectrum. That dependency is increasing, not declining, as new C-band satellites are planned or launched and new cable television networks are introduced for distribution over such satellites. Even more C-band spectrum will be needed when high definition television becomes a commercial reality in the U.S.

Alcatel has failed to do even the most basic homework to support its reallocation and rechannelization proposals. Alcatel has not shown any need for the targeted spectrum to accommodate relocated 2 GHz users, and actually admits that its relocation would give the relocated users a spectrum windfall. Nor has Alcatel provided any record basis for taking spectrum away from the fixed-satellite service to give to 2 GHz microwave users. Alcatel has not undertaken a comparative analysis of frequencies above 2 GHz to determine which could be reallocated to fixed microwave users with the least harm to the public interest. Alcatel has not even explained why or how it chose 80 MHz of C-band downlink spectrum for reallocation to fixed-satellite users on a secondary basis. The Alcatel proposal, therefore, should be rejected summarily.

The Alcatel proposal also contradicts Commission policy. In its Notice of Proposed Rulemaking in ET Docket No. 92-9 as well as the underlying OET study, the Commission made crystal clear that it would not take spectrum away from existing users of the frequencies above 2 GHz. Rather, the 2 GHz users would be relocated to higher suitable bands with excess capacity subject to all existing technical requirements and coordination procedures. The Alcatel proposal is fundamentally incompatible with those policies. If the C-band frequencies do not have sufficient available capacity or 2 GHz users cannot use them in a compatible manner with existing users, then such frequencies should be removed from the relocation plan.

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TO: The Commission

STATEMENT OF HOME BOX OFFICE

Home Box Office ("HBO"), a division of Time Warner Entertainment Company, L.P., by its attorneys and pursuant to Section 1.405 of the Commission's rules and the Commission's Public Notice of June 2, 1992 (DA 92-705), hereby submits this statement in opposition to certain proposals contained in the "Petition for Rule Making" [hereinafter "Petition"] filed in the above-captioned matter by Alcatel Network Systems, Inc. ("Alcatel") on May 22, 1992.

Specifically, HBO opposes Alcatel's proposal to reallocate 80 MHz of the 3.7-4.2 GHz band by making the fixed-satellite service secondary to the fixed microwave service for those frequencies. See Petition at 4. There is no justification for effectively eliminating 16% of the downlink spectrum available to the domestic C-band satellite industry -- which is one of the most

efficient users of spectrum today. The Alcatel proposal would have a serious detrimental impact on operators and users of C-band satellites and in particular on the television distribution business, which touches almost every consumer household in the United States. Therefore, the Commission should not propose the reallocation of any C-band spectrum to the fixed-satellite service on a secondary basis.

#### INTEREST OF HBO

HBO is a major user of domestic C-band communications satellites. HBO provides satellite transmissions of two time zone feeds of each of its major pay television program networks, HBO and Cinemax.<sup>1</sup> Since August, 1991, HBO has been testing a new concept for its pay television program services, called multiplexing. Multiplexing involves the offering of separate schedules of the HBO and Cinemax services, transmitting different programs on different transponders at the same time. For example, an HBO multiplex subscriber has access to as many as three HBO programs at all times of the day. A Cinemax multiplex subscriber has access to up to two programs throughout the day. The initial response to multiplexing has been overwhelmingly favorable, and

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<sup>1</sup> HBO currently has approximately 24 million subscriptions to its HBO and Cinemax program services. Most of the subscriptions are provided through HBO's cable television and other affiliates. These affiliates employ approximately 17,000 satellite antennas to receive the HBO and Cinemax services from C-band satellites. Included in the total number of subscriptions above are several hundred thousand HBO and Cinemax subscribers served by "backyard" C-band satellite reception equipment.

HBO plans to move the concept from the test phase to a nationwide offering in the very near future.

In addition to the HBO and Cinemax program services, HBO, either directly or through affiliated companies, has interests in several other cable television program services that are distributed via C-band satellite, including Comedy Central, Court TV, Black Entertainment Television, E! Entertainment Television, Inc., and the services of Turner Broadcasting System, Inc. (e.g., CNN, TNT).

For the HBO and Cinemax services, including the multiplexed transmissions, HBO currently uses the following C-band satellite transponders: two transponders on Satcom IR; two transponders on Galaxy I; three transponders on Galaxy V; and four transponders on Telstar 302. HBO has rights to acquire up to six transponders on Galaxy IR to be launched later this year. In addition to these transponders, HBO is the owner or customer of record of the following transponders which it in turn provides to other cable program services: two transponders on Satcom IR, and two transponders on Galaxy I.

**ALCATEL'S PROPOSAL IS UNSUPPORTED  
AND CONTRARY TO COMMISSION POLICY**

At the outset, HBO would like to underscore its support for the Commission's proposal in ET Docket No. 92-9 to establish a spectrum band for new telecommunications technologies.<sup>2</sup> Further,

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<sup>2</sup> See Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, 7 FCC Rcd 1542 (1992) (Notice of Proposed Rulemaking) [hereinafter "Notice"].

HBO recognizes the need to minimize the impact upon those users who must be relocated to accommodate the new spectrum band. Nor does HBO object to the Commission's proposal that relocated microwave users be permitted to become eligible users of, and to share, available capacity in the 3.7-4.2 GHz band with fixed-satellite users on a co-primary basis subject to existing technical requirements and the coordination procedures currently followed by satellite users and common carrier microwave licensees. Notice, 7 FCC Rcd at 1545. HBO's objection is limited to Alcatel's proposal to go far beyond -- and indeed to contradict -- the FCC's relocation plan by having fixed microwave users effectively oust the fixed-satellite service as primary users of 80 MHz of the 3.7-4.2 GHz band.

The Commission should reject the Alcatel proposal because Alcatel has failed to provide any justification for such an extraordinary remedy. In particular, Alcatel has failed to demonstrate that such a reallocation is necessary for existing fixed microwave users to have adequate spectrum for their services upon relocation from the 2 GHz band. To the contrary, Alcatel concedes that the Commission's relocation plan would give fixed microwave users access on a co-primary basis to far more spectrum than they use under the current spectrum allocation. See Petition at 4, 16 & Att. at 14. Absent a compelling demonstration of need, the Alcatel proposal should be rejected out of hand.

Further, Alcatel does not seek to find any additional 80 MHz for fixed-satellite users. Rather, Alcatel's proposal would simply seize 80 MHz for the exclusive benefit of fixed microwave

users and leave fixed-satellite users with 16% less spectrum than they currently use.<sup>3</sup> Yet Alcatel has not even begun to compile the record necessary for the Commission to conduct a public interest inquiry to determine whether the needs of one group of users are so compelling that they justify a net reduction in available spectrum for other services. Nor has Alcatel conducted a systematic search of all suitable frequencies above 2 GHz to determine which ones could be reallocated to fixed microwave users with the least adverse impact upon existing users and the public interest. Alcatel has failed even to provide any explanation for why or how it chose the two 40 MHz segments in the 3.7-4.2 GHz band. Alcatel's back-of-the-napkin proposal ignores so many essential factual and public policy issues that it warrants no further consideration by the Commission.

The Alcatel proposal also contradicts Commission policy. In targeting the 3.7-4.2 GHz band, Alcatel relies upon the Commission's Notice and the technical study undertaken by the Office of Engineering and Technology.<sup>4</sup> Yet the Notice and the OET Study do not contemplate that relocated 2 GHz users would oust

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<sup>3</sup> Alcatel's oft-repeated complaint that the Commission has decided to take spectrum away from 2 GHz users without proposing specific rules for relocating them, e.g., Petition at 2, rings hollow in light of Alcatel's proposal that fixed-satellite users lose spectrum without any relocation at all. Of course, any relocation of the fixed-satellite service with respect to the 80 MHz in question would be completely infeasible, which provides a further basis to reject the Alcatel proposal.

<sup>4</sup> See "Creating New Technology Bands for Emerging Telecommunications Technology," OET/TS 92-1, January, 1992 [hereinafter "OET Study"].

other users of frequencies above 2 GHz. The Notice states (7 FCC Rcd at 1544) that the higher frequency bands were chosen because they have "adequate capacity" to handle existing users and fixed microwave users. Applying that policy, the Commission held that the ENG bands are not suitable for relocation due to the current "heavy use" and likely future congestion in those bands. Id. at 1544. The Notice leaves no doubt that the Commission does not favor ousting current users to accommodate 2 GHz users when it states (id. at 1545) that "[t]he technical rules and coordination procedures currently applicable to each of the higher frequency bands . . . will apply." The OET Study states repeatedly that a primary criterion for selecting potential relocation bands is currently available capacity to serve additional users. E.g., OET Study at 12, 13, 24, 25, & 28. These policy statements are consistent with the Commission's historic policy (from which fixed microwave users stand to benefit) of minimizing disruption when orbital or spectrum relocation proves necessary.<sup>5</sup>

Alcatel's assertion (Petition at 19) that coordination difficulties limit the availability of the 3.7-4.2 GHz spectrum is unavailing. If in fact there is no excess capacity in that spectrum band for 2 GHz users, then it should be excluded from the relocation plan altogether under the Commission's established selection criteria and impact minimization policy. If the Commission is correct that sufficient spectrum capacity is available for further sharing on those frequencies, then there is

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<sup>5</sup> See, e.g., Assignment of Orbital Locations, 3 FCC Rcd 6972, 6972 (1988); id., 5 FCC Rcd 179, 181 (1990).

no need to oust fixed-satellite users with respect to 80 MHz. Either way, the Alcatel proposal is defective and should be rejected.

**THE ALCATEL PROPOSAL WOULD SERIOUSLY HARM  
FIXED-SATELLITE USERS AND THE GENERAL PUBLIC**

The Alcatel proposal would eliminate 16% of available C-Band downlink spectrum (80 MHz of 500 MHz total). Alcatel itself admits that its proposal, if adopted, would effectively remove "the satellite transponders at the edge of the 4 GHz band." Petition, Att. at 23. HBO has prepared a technical report (see Attachment) which confirms Alcatel's statement. The Alcatel proposal would have the effect of eliminating four C-band downlink transponders representing 16% of total C-band downlink spectrum.

A bandwidth reduction of this magnitude is entirely unwarranted for the fixed-satellite service, which has a singular and exemplary track record for spectrum and orbital efficiency. Fixed-satellite users encountered spectrum constraints far sooner than many other spectrum users, and as a result they have already been forced to bear substantial costs in satellite relocation, earth station adjustments and equipment replacement. In order to maximize the efficient use of scarce public resources and foster facilities-based competition, the FCC established a 2° spacing regime, required full frequency reuse, specified detailed coordination procedures, and adopted antenna performance, transponder polarization, and other technical standards governing

satellites and earth stations.<sup>6</sup> Since the early 1980s, this regulatory regime has ensured that the 80 MHz which Alcatel has targeted for reallocation is used with maximum efficiency by the fixed-satellite service.

The Commission's fixed-satellite policies have delivered extraordinary benefits to the U.S. and the world. As the Commission has recognized,

The U.S. domestic satellite industry is not static. Since its beginnings in the 1970's, the industry has developed as technology has progressed. The Commission has encouraged the use of the latest in satellite technology to promote a more competitive marketplace and the provision of diverse, efficient and cost-effective service to the public. Over the years, satellite service providers have filed applications for new satellite systems that have incorporated the latest in available technology to enhance their new satellite's operating characteristics, improving on the previous generations of satellites.<sup>7</sup>

More recently, the Commission observed that its policies and regulations have corresponded to the "development of new and innovative equipment and services offered by an increasing number of entrepreneurs in the industry."<sup>8</sup> The Commission noted:

In the past, new and innovative satellite services have been introduced at C-band as technology has developed and we have no reason to believe that this trend will not continue.<sup>9</sup>

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<sup>6</sup> See, e.g., Reduced Orbital Spacing, 54 RR 2d 577 (1983); id., 99 FCC 2d 737 (1985); 47 C.F.R. Part 25.

<sup>7</sup> RCA American Communications, Inc., 64 RR 2d 506, 508 (1988).

<sup>8</sup> Amendment of C-Band Satellite Orbital Spacing Policies, 7 FCC Rcd 456, 456 (1992).

<sup>9</sup> Id. at 459.

Chairman Sikes recently lauded the satellite industry for "mak[ing] an incalculable contribution to our global economy, to the information choices we have available, and to our overall quality of life."<sup>10</sup> Fixed-satellite service is one of the "defining technologies" of our age<sup>11</sup> which should not be compromised through the ad hoc frequency reallocation suggested by Alcatel.

The Alcatel proposal would have an especially severe impact on the television distribution industry which serves 92 million television households in the United States. Television distribution is one of the major uses of C-band satellites, and, contrary to Alcatel's suggestion (Petition, Att. at 24), it is not "migrating" to higher frequency (Ku-band) satellites or to fiber optic technology. Between Hughes Communications Galaxy, Inc. ("Hughes") and GE American Communications, Inc. ("GE Americom"), there have been, or within the next year will be, launches of six C-band satellites designed to serve cable television programmers into the twenty-first century. Four satellites, Galaxy V, Galaxy IR, Satcom C-3 and Satcom C-4, will be primary cable program satellites. Almost the entire 24 transponder capacity of each of these satellites has been sold or leased. In addition,

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<sup>10</sup> See "Remarks of Alfred C. Sikes, Chairman, FCC, Before the International Small Satellite Organization Industry Conference, May 8, 1992."

<sup>11</sup> See "Remarks of Alfred C. Sikes, Chairman, FCC, Before the Satellite Broadcasting and Communications Association of America Las Vegas Trade Exposition, Jan. 22, 1990."

Galaxy VI and Satcom C-1, launched last year, will serve as backup satellites for the primary cable satellites and other spacecraft in the Hughes and GE Americom fleets.

C-band satellites are also workhorses for nationwide distribution of most of the broadcast television networks. CBS, ABC and PBS have committed to next generation C-band capacity for both primary network distribution and program "backhaul" purposes. Many other services, including regional sports networks, broadcast special networks and news services also rely on C-band satellites.

The Alcatel proposal would disrupt many of these services. In HBO's case alone, two of HBO's transponders, plus two transponders used by other services in which Time Warner has an interest, would fall within the frequencies which Alcatel would reallocate to microwave users. Even accepting the transition period offered by Alcatel, the fact remains that HBO and many other users would be forced to find alternative frequencies or satellites for their services.

There is unlikely to be any diminution in demand for C-band transponders by television distributors over the next decade. In fact, in HBO's view, demand will increase. Even in the face of a slow economy, new cable television networks are launching (e.g., SciFi Channel, the Cartoon Channel, the Games Network), and new pay-per-view concepts are being offered (e.g., NBC's Olympics Triplecast), all of which will rely on C-band satellites. Moreover, given the Commission's goals regarding the rapid

implementation of high definition television ("HDTV") in the United States, more C-band capacity will be needed to distribute the HDTV offerings of cable and broadcast networks.

Although video compression will enable programmers to make more efficient use of their satellite capacity, compression technology is unlikely to stifle the demand for C-band satellite transponders by television distributors. With the success of HBO's multiplex experiment, other program services are rushing to implement similar offerings.<sup>12</sup> With this growing trend, plus the other transponder-demanding television services described above, it would be a serious mistake to rely on video compression to ease demand for C-band satellite capacity and to justify the reallocation of a significant portion of the C-band satellite spectrum. Instead, video compression will be yet another technology employed by satellite users to utilize more efficiently the orbit and spectrum resources assigned to them.

#### CONCLUSION

The Commission's goal of providing more consumer choice in television, both from a technology and a programming standpoint, will require a high capacity, reliable "interstate highway system" for diverse program distribution in multiple television technical formats. C-band satellites are uniquely suited to fulfill this function, as has been proven over the last 20 years. To even suggest that this progress might be halted or reversed by reallocating critical C-band frequencies is irresponsible.

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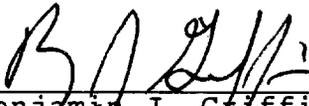
<sup>12</sup> Showtime and MTV also have announced multiplexing plans.

Accordingly, the Commission should not propose to make the fixed-satellite service secondary to fixed microwave users for any portion of the 3.7-4.2 GHz band.

Respectfully submitted,

**HOME BOX OFFICE**  
A Division of **TIME WARNER**  
**ENTERTAINMENT COMPANY, L.P.**

By:

  
\_\_\_\_\_  
Benjamin J. Griffin  
Robert J. Aaroth  
**REED SMITH SHAW & McCLAY**  
1200 18th Street, N.W.  
Washington, D.C. 20036  
(202) 457-6100

Its Attorneys

July 2, 1992

7/1/92

**TECHNICAL COMMENTS ON ALCATEL'S PROPOSAL  
FOR RE- CHANNELIZATION OF THE 4 GHZ BAND**

Domestic C-Band satellite television transmission in the Fixed Satellite Service (FSS) operate from 5,925 MHz to 6,425 MHz for uplinking to the satellite and 3,700 to 4,200 MHz for downlinking to receive earth stations. Within these 500 MHz bands, most U.S. domestic satellites utilize 24 independent television channels that are 36 MHz wide and separated by 4 MHz of guardband from each other. Efficient use of C-Band frequencies is made possible by a common technique called frequency reuse, wherein two sets of 12 channels are transmitted separately using one polarization sense and another set of 12 channels are transmitted in an orthogonal polarization sense. Both sets of 12 channels are sufficiently isolated from one another.

As depicted in Figure 1, the entire 500 MHz band of the downlink C-Band is divided into twelve odd-numbered transponders and transmitted horizontally polarized while the same 500 MHz band is simultaneously occupied by another twelve even-numbered transponders that are transmitted in the vertical polarization. Interference between channels is reduced to acceptable levels because of guardband spacing, frequency offset and cross-polarization isolation.

Alcatel proposes to transmit low-capacity digital channels that occupy either 0.4 or 0.8 MHz each, stacked with medium-capacity digital channels occupying either 5 or 10

MHz each, totally occupying 40 MHz from 3700 to 3740 and another 40 MHz from 4160 to 4200 MHz. The shaded blocks in Figure 1 show the conglomeration of low and medium-capacity channel blocks occupying 40 MHz each as proposed. It can be seen that these signals essentially superimpose two homogenous interfering signals that affect two transponders at the lower border of C-Band and two transponders at the upper border of the 3.7 to 4.2 GHz band.

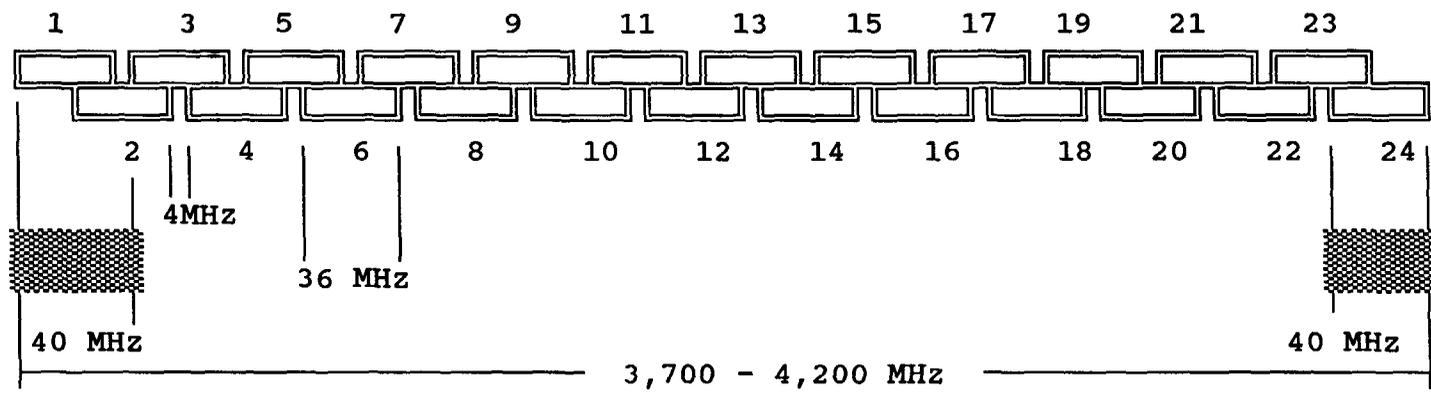
## CONCLUSION

Alcatel's rechannelization proposal for the 4 GHz band could render four downlink transponders unusable. This would result in about 16 % reduction of channel capacity for FSS downlink services.

**EXAMPLE: Galaxy V downlink channelization**

T#	Center Freq	Polarization	Occupied Frequencies
1	3720	Horizontal	3702 to 3738 *
2	3740	Vertical	3722 to 3758 *
3	3760	Horizontal	3742 to 3778
4	3780	Vertical	3762 to 3798
5	3800	Horizontal	3782 to 3818
6	3820	Vertical	3802 to 3838
7	3840	Horizontal	3822 to 3858
8	3860	Vertical	3842 to 3878
9	3880	Horizontal	3862 to 3898
10	3900	Vertical	3882 to 3918
11	3920	Horizontal	3902 to 3938
12	3940	Vertical	3922 to 3958
13	3960	Horizontal	3942 to 3978
14	3980	Vertical	3962 to 3998
15	4000	Horizontal	3982 to 4018
16	4020	Vertical	4002 to 4038
17	4040	Horizontal	4022 to 4058
18	4060	Vertical	4042 to 4078
19	4080	Horizontal	4062 to 4098
20	4100	Vertical	4082 to 4118
21	4120	Horizontal	4102 to 4138
22	4140	Vertical	4122 to 4158
23	4160	Horizontal	4142 to 4178 *
24	4180	Vertical	4162 to 4198 *

Note: \* Denotes the transponders affected by the Alcatel proposal.



**FIG. 1 : C-BAND DOWNLINK CURRENT vs. PROPOSED CHANNELIZATION PLAN**

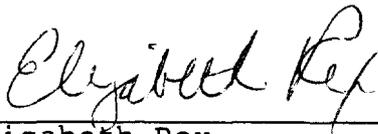
CERTIFICATE OF SERVICE

I, Elizabeth Rex, hereby certify that a copy of the foregoing "Statement of Home Box Office" was sent by first-class United States mail on this 2nd day of July, 1992 to the following:

Robert J. Miller  
Gardere & Wynne, L.L.P.  
A Registered Limited Liability Partnership  
1601 Elm Street, Suite 3000  
Dallas, Texas 75201

Counsel to Alcatel Network Systems, Inc.

\*Mr. Tom Mooring  
Office of Engineering and Technology  
Federal Communications Commission  
2025 M Street, N.W., Room 7330  
Washington, D.C. 20554

  
\_\_\_\_\_  
Elizabeth Rex

\*hand-delivery