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Before the
Federal Communications Commission
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
)
 Redesignation of the 17.7-19.7 GHz Frequency)
 Band, Blanket Licensing of Satellite Earth) IB Docket No. 98-172
 Stations in the 17.7-20.2 GHz and 27.5-30.0) RM-9005
 GHz Frequency Bands, and the Allocation of) RM-9118
 Additional Spectrum in the 17.3-17.8 GHz and)
 24.75-25.25 GHz Frequency Bands for)
 Broadcast Satellite-Service Use)

EMERGENCY REQUEST FOR IMMEDIATE RELIEF

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TELECOMMUNICATIONS ASSOCIATION**

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SUMMARY

The Independent Cable & Telecommunications Association, on behalf of private cable and telephony operators, their subscribers and equipment vendors, urges the Commission to immediately lift the proposed September 18, 1998 cut-off for co-primary terrestrial fixed designations in the 18.3-18.55 GHz band. The Commission's proposal has had an immediate negative impact on the private cable industry and it harms the public interest.

Under the Commission's proposal, private cable operators, as secondary users, would be required to demonstrate that their proposed use of the 18.3-18.55 GHz spectrum band would not cause interference to Geostationary Orbit Fixed Satellite Service ("GSO/FSS") operations. Because GSO/FSS earth stations will be ubiquitously deployed and blanket-licensed in the 18.3-18.55 GHz band, the practical effect of this proposed secondary status is that most private cable operations which are subject to the September 18 cut-off will not survive the advent of these satellite services.

The reason, as the Commission recognizes, is that there is no viable method for private cable operators to share the band with blanket-licensed earth stations that are highly interference-sensitive. The prospect of a large number of ubiquitously deployed mobile earth stations will, therefore, impair private cable operators' efforts to start new or expand existing operations. Because of the possibility that an earth station will be turned on at any place and at any time and will likely suffer interference, the Commission's proposal effectively would oust all post-September 18 private cable operations from the 18.3-18.55 GHz band. Without this 250 MHz of spectrum, the remaining portions of the 18.142-18.580 GHz band would be rendered virtually useless for new or expanded private cable operations. Faced with this threat, private cable will pull back from undertaking to expand its service to the public.

The Commission's proposed solution to assign terrestrial fixed operators primary status in the 17.7-18.3 GHz band does nothing to make up for private cable's loss of 450 MHz of contiguous spectrum. *First*, two-thirds of the band (17.7-18.14 GHz) is unavailable for video programming, unchannelized and not vendor supported. *Second*, the remaining one-third of the band (18.14-18.3 GHz) that is video channelized and vendor supported cannot absorb private cable's need for 450 MHz of contiguous spectrum to offer a competing video service. *Third*, private cable's point-to-point systems could not be accommodated in the 17.7-18.3 GHz band where they would have to coordinate with the multitude of other fixed terrestrial service providers already occupying those frequencies.

The harm the Commission's cut-off proposal is having on the private cable industry and competition in the multichannel video marketplace is incalculable. And the proposal is unnecessary. Private cable operators do not file applications in an effort to warehouse spectrum. To the contrary, private cable operators only file after undertaking exhaustive engineering analysis and expending or committing to spend thousands of dollars in marketing and development costs. Consequently, this service is not like other services where the Commission might have been rightly concerned about holding back the floodgates from a torrent of speculative "paper" applications. There is no sound basis for the Commission to create artificial and unnecessary obstacles that will impede private cable's present and growing competitive services. ICTA urges the Commission to eliminate the September 18th cut-off date.

TABLE OF CONTENTS

INTRODUCTION	2
I. THE PROPOSAL TO CUT-OFF PRIVATE CABLE'S CO-PRIMARY STATUS AND ALLOW BLANKET LICENSING IN THE 18.3-18.55 GHZ BAND IS EQUIVALENT TO AN EMBARGO ON NEW PRIVATE CABLE SERVICES.	4
A. SECONDARY PRIVATE CABLE OPERATIONS WILL INTERFERE WITH BLANKET-LICENSED GSO/FSS USERS, AND THEREFORE WILL BE EFFECTIVELY PREVENTED FROM EXPANDING OR INITIATING SERVICE.....	5
B. THE COMMISSION'S PROPOSAL TO DESIGNATE 17.7- 18.3 GHZ TO TERRESTRIAL FIXED OPERATIONS PROVIDES NO RELIEF FOR PRIVATE CABLE.....	6
II. THE PROPOSED SEPTEMBER 18 TH CUT-OFF IS CAUSING SERIOUS INJURY TO THE PRIVATE CABLE INDUSTRY.....	9
III. THE PROPOSED SEPTEMBER 18 TH CUT-OFF IS UNREASONABLE AND UNWARRANTED.	11
CONCLUSION.....	13

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To: The Commission

EMERGENCY REQUEST FOR IMMEDIATE RELIEF

The Independent Cable & Telecommunications Association ("ICTA") hereby requests immediate relief from the Commission's proposed September 18, 1998 cut-off date for co-primary terrestrial fixed service designations in the 18.3-18.55 GHz band.¹ The Commission's proposal would assign secondary status to post-September 18th private cable applications filed in the 18.3-18.55 GHz band and would designate that 250 MHz of spectrum for ubiquitously deployed, blanket licensed satellite earth stations on a co-primary basis with already licensed terrestrial fixed operators. This treatment of post-September 18th private cable applications amounts to a *de facto* freeze on new private cable services and substantially harms the public interest.²

Regardless of whether it is ultimately adopted, the Commission's proposal is interfering with private cable operators' plans to build new systems or expand their existing systems, jeopardizing existing service contracts and diverting critical financing. The proposal

¹ ICTA files this request pursuant to Section 1.41. of the Commission's Rules. See 47 C.F.R. § 1.41 (1997) (requests for informal action).

² ICTA will file comments addressing other aspect of the Commission's Notice of Proposed Rulemaking ("*Notice*") by the new filing deadline of November 19, 1998.

will continue to have this detrimental effect until the requested relief is granted. Because of the expense and lengthy steps needed to be taken before private cable operators file in this band, the Commission need not worry about a flood of applicants. Thus, there is no justification for this untimely blow to one of the few industry sectors providing competition to incumbent cable operators and telephone companies. The Commission should immediately issue a notice permitting private cable operators to continue to apply for and obtain co-primary licenses in the 18.3-18.55 GHz band until the difficult spectrum allocation issues involved in the *Notice* are resolved.³

INTRODUCTION

Private cable operators rely on the 18.142-18.580 GHz band to provide video programming to multiple dwelling units ("MDUs"),⁴ including high- and low-rise apartment buildings, condominiums, co-operatives, planned unit developments, mobile home communities, and colleges and universities.⁵ The Commission opened the 18 GHz band for private cable use to "encourage competition in the video distribution marketplace."⁶ Since the Commission

³ ICTA takes no position on whether other fixed service users in this band should receive similar relief. Private cable applicants (a) have no other spectrum they can resort to, (b) do not warehouse spectrum and (c) would be stymied by continuing the effectiveness of the September 18 cut-off date. Other users may have a similar compelling case for relief.

⁴ Private cable operators utilize the 18.142-18.580 GHz band to distribute analog television signals within a market. In light of the costs associate with installing the necessary microwave equipment, private cable operators serve only MDUs, where a single microwave link can service an entire building. Other uses of this band include traffic control and traffic surveillance.

⁵ Private cable operators do not use public rights-of-way and, therefore, are not required to obtain a franchise before conducting operations. See *Amendment of Part 94 of the Commission's Rules to Permit Private Video Distribution Systems of Video Entertainment Access to the 18 GHz Ban*, Report & Order, 6 FCC Rcd 1270, 1272 (1991) ("*18 GHz R&O*") (clarifying that "electromagnetic radiation, in passing above, across or through a public right-of-way does not 'use' that right-of-way within the meaning of [47 U.S.C.] 522(6)").

⁶ See *18 GHz Order*, 6 FCC Rcd at 1270. According to the Commission, allocating spectrum in the 18 GHz band furthered "the best interest of the public by promoting spectrum efficiency and increasing flexibility of licensees." *Id.* at 1272.

opened the 18 GHz band for private cable operations, private cable systems have become a growing competitive force in the MVPD marketplace.⁷ Today, the private cable industry is composed of approximately 2,300 small and medium sized private cable firms serving approximately 1.75 million subscribers nationwide.⁸

Local video programming markets remain highly concentrated and characterized by substantial barriers to entry by potential MVPDs.⁹ Private cable operators have attracted about 1.6 percent of the local market for the delivery of video programming, while incumbent franchised cable operators control roughly 87 percent.¹⁰ Controlling a disproportionate share of market power in the local MVPD marketplace, franchised cable operators are able to engage in anticompetitive conduct.¹¹ In these circumstances, as the Commission aptly recognizes, the prospect of new competitors "provides the most effective safeguard against the specter of market power abuse."¹²

Private cable represents a dynamic force bringing competition to the local cable and telephone markets. Private cable operators use 18 GHz microwave architecture to provide channel capacity that is equal to, or greater than, the channel capacity provided by franchised "hardwired" cable operators at extremely competitive rates. OpTel, the largest provider of

⁷ See *In the Matter of Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming, Fourth Annual Report*, CS Docket No. 91-141 (rel. Jan. 13, 1998) ("*Competition Report*"), ¶ 83.

⁸ See *Competition Report*, ¶ 84.

⁹ See *id.*, ¶ 126.

¹⁰ *Id.*, ¶ 128. Private cable operators serve approximately 5-6% of the MDUs in the United States.

¹¹ See e.g., *18 GHz R&O*, 6 FCC Rcd at 1271 (noting that "cable systems possess a disproportionate share of market power, and therefore, are capable of engaging in anticompetitive conduct").

¹² *18 GHz Order*, 6 FCC Rcd at 1271.

private cable services, serves over 220,000 video subscribers in twelve major U.S. cities.¹³ OpTel provides video programming to MDUs through 18 GHz building-to-building microwave networks, providing up to 72 channels of programming. Similarly, Cable Plus, another large private cable operator, provides 40 to 60 channels of video programming, delivered by microwave links, to roughly 180,000 customers in eighteen states. In addition to these major players, scores of smaller businesses provide needed services in hundreds of communities.

Private cable operators also are providing much needed competition in other communications sub-markets. Using microwave networks, private cable operators are able to bundle their video service offerings with local telephony, data, Internet access and other enhanced services. Thus, while the franchised cable companies have backed away from their promises to provide full service cable and telephone networks, and the incumbent local exchange carriers have largely abandoned their efforts to compete in the local MVPD markets, the private cable industry is moving forward toward the goal of providing facilities-based competition in every segment of the communications marketplace.

I. THE PROPOSAL TO CUT-OFF PRIVATE CABLE'S CO-PRIMARY STATUS AND ALLOW BLANKET LICENSING IN THE 18.3-18.55 GHZ BAND IS EQUIVALENT TO AN EMBARGO ON NEW PRIVATE CABLE SERVICES.

Proposing to reallocate 250 MHz of spectrum that currently is used by private cable operators to GSO/FSS operators on a primary basis for blanket licensing will arrest the growth of private cable services. For private cable operators, secondary status means no status in a blanket-licensing regime. That is because private cable service operators cannot avoid causing interference to potentially thousands of ubiquitously deployed satellite earth station receivers.

¹³ OpTel provides service in Los Angeles, San Diego, San Francisco, Phoenix, Denver, Houston, Dallas, Atlanta, Miami, Tampa Bay, Indianapolis and Chicago. Within the MDU market, OpTel focuses on MDUs that have 150 or more dwelling units.

Consequently, they will cease growing and deploying new systems. They will proceed, at the risk of having to terminate operations if the Commission's proposal is put into effect, where they have already made too many commitments to pull back, but this is a heavy jeopardy that the *Notice* has unfairly placed on them. These harsh results are not ameliorated by the Commission's proposal to fit terrestrial fixed operators in alternative 18 GHz bands. These bands provide little, if any, relief long term and no relief whatsoever during the freeze period.

A. SECONDARY PRIVATE CABLE OPERATIONS WILL INTERFERE WITH BLANKET-LICENSED GSO/FSS USERS, AND THEREFORE WILL BE EFFECTIVELY PREVENTED FROM EXPANDING OR INITIATING SERVICE.

If private cable operators were assigned secondary status in the 18.3-18.55 GHz band, then these operators would be required to demonstrate that they would not interfere with the operations of blanket-licensed GSO/FSS users in the band. However, as the Commission recognizes, under most circumstances private cable operators will likely to be unable to make such a demonstration.¹⁴

In general, it is very difficult to provide reasonable interference protection to small aperture earth stations.¹⁵ This is particularly so in the case of private cable systems. As detailed in the attached engineering exhibit prepared by Hardin & Associates, Inc., private cable operators can cause interference to satellite operators within a 45-mile oblong area from each private cable transmitter site.¹⁶ Even though these zones are narrow, placement of several private cable links in one area would result in significant interference to potential satellite receive

¹⁴ *Notice*, ¶ 19 ("[I]t appears that blanket licensing would make it impractical for terrestrial fixed service providers to coordinate new operations to avoid interference in shared frequency bands where blanket licensing is allowed.").

¹⁵ *See* Hardin & Associates Inc., Engineering Analysis, Attachment A ("Hardin & Associates Engineering Analysis"), p. 2.

¹⁶ *See id.*

systems.¹⁷ As a matter of practice, where private cable has been launched, its 18 GHz paths usually criss-cross an urban market and, therefore, saturate the market, making it unworkable for private cable operators to protect satellite users.¹⁸

In addition, a blanket licensing scheme would give private cable operators no notice of earth station placement, rendering it virtually impossible for a fixed service operator to design a non-interfering system with any certainty of success or longevity. It defies common sense that private cable operators could protect potentially tens of thousands of new earth stations, at unknown locations. If adopted, the Commission's proposal would, in effect, be tantamount to a reallocation of the entire 18.3-18.55 GHz band, thereby foreclosing any future private cable uses. Realizing this, private cable operators now are stopping or altering their business plans because of the substantial risk that any 18 GHz service they initiate now will almost certainly be forced to go off the air if the Commission's proposals are adopted.

B. THE COMMISSION'S PROPOSAL TO DESIGNATE 17.7- 18.3 GHz TO TERRESTRIAL FIXED OPERATIONS PROVIDES NO RELIEF FOR PRIVATE CABLE.

Without access to the 18.3-18.55 GHz band, private cable operators will lose the heart of their 450 MHz contiguous spectrum band (18.142-18.580 GHz). The Commission's assumption in the *Notice* that this loss can be made up by allocating 17.7-18.3 GHz to terrestrial fixed service operators is flawed.

¹⁷ The microwave community has learned from experience in the 4 GHz band that when an earth station is located in a particular area, its high interference reduction requirements essentially "freeze" the band from further development of fixed microwave in the same geographic area.

¹⁸ Because of the high cost and limited range of an 18 GHz signal, the majority of private cable's links are located in major urban markets where a high density of MDUs are located. It is reasonable to expect satellite operators will concentrate their services in these densely populated locations as well, rendering future private cable services completely stymied.

First, the 17.7-18.14 GHz portion of the band is unworkable for private cable. The band, at present, is not available for transmitting video programming. Although the Commission could take the formal step of making it available and adopting a video channelization scheme for the band, such a plan could take months, if not years, to work through, and it would be a largely hollow gesture. Even assuming the Commission would establish a video channelization plan for the 17.7-18.14 GHz spectrum band, there currently is no vendor support in the band. Based on a survey of equipment manufacturers, it would take at least one year, and hundreds of thousands of research and development dollars, to equip private cable operators with the necessary transmission radios to provide video-programming services in the band.¹⁹ In addition, private cable operators would need to obtain approval from the Commission before using the equipment, build parallel and duplicate transmitters for already developed network hubs, and conduct tests on tower space limits. These formidable challenges effectively inhibit private cable's use of the 17.7-18.14 GHz band. Finally, the band is heavily congested, particularly in urban areas where private cable's spectrum needs are concentrated.²⁰ The band simply cannot also support the spectrum needs of private cable operators.

Second, although the 18.14-18.3 GHz band is video channelized and vendor supported, this band alone is too narrow to meet private cable's need for 450 MHz of contiguous spectrum. Contrary to the Commission's assumption in the *Notice*, private cable operators are generally full-scale providers of video programming. Indeed, they are often obligated by their

¹⁹ Equipment used by private cable operators in the 18.142-18.580 GHz band cannot simply be re-tuned to work in alternative bands. Rather, based on information from potential vendors, private cable's present equipment would have to be completely redesigned. These increased costs naturally would increase private cable's rates to the detriment of consumers and the interest of promoting competition.

²⁰ The 17.7-18.14 GHz band is currently used by a panoply of fixed terrestrial service providers, including electric, gas and water utilities, public safety providers, traffic control systems, natural gas pipelines, broadcast stations and railroad companies.

contracts with MDU owners and ownership associations to provide, and do provide, at least as much programming as incumbent franchised cable operators do.²¹ To fulfill this obligation and deploy a competitive cable service to multiple dwelling units across the United States, private cable services rely on the full 450 MHz of contiguous spectrum currently allocated to them in the 18 GHz band (18.142-18.580 GHz).²² However, under the Commission's proposal, less than 200 MHz of this band (18.14-18.3 GHz) would be available for private cable use on a co-primary basis. Even assuming private cable operators were the only service providers in the band, which they are not under the Commission's proposal, this portion of spectrum is virtually useless unless accompanied by at least another 250 MHz of workable, contiguous spectrum.²³

Third, private cable operators and other fixed service providers would have difficulty coordinating with one another in the entire 17.7-18.3 GHz band. Currently, as the *Notice* recognizes, private cable and other terrestrial systems are licensed in separate parts of the 18 GHz band.²⁴ Despite its cursory treatment in the *Notice*, this separation is absolutely critical. Most private cable operators use a "hub and spoke" configuration to serve two or more receiving stations at various azimuth angles. This type of configuration has difficulty coordinating with point-to-point bi-directional fixed services in a given geographic area.²⁵ Since other fixed terrestrial use is extensive and elaborate, in many cases particularly in densely populated areas where private cable is centered, there is no real possibility that the two groups can share the same spectrum band.

²¹ *Notice*, ¶ 27, n. 48.

²² *See Notice*, ¶ 27 (recognizing need for contiguous spectrum).

²³ The Commission proposes to allow private cable to use 30 MHz of workable spectrum located between 18.55-18.58 GHz. However, because private cable links operate in a block conversion mode, 30 MHz of spectrum at the top of the band is virtually useless without the full block of bandwidth.

²⁴ *Notice*, ¶ 27 ("Due to the difficulties of coordinating these point-to-multipoint operations with typical point-to-point terrestrial fixed service operators, these services have generally been licensed in separate portions of the 17.7-19.7 GHz band.").

²⁵ *See Hardin & Associates Engineering Analysis*, p. 3.

II. THE PROPOSED SEPTEMBER 18TH CUT-OFF IS CAUSING SERIOUS INJURY TO THE PRIVATE CABLE INDUSTRY.

The injury is of two kinds. First, for projects that are sufficiently far back in the pipeline, the cut-off date is causing private cable operators to pull back on their expansion plans – the prudent but painful step to take. With respect to these projects, the cut-off date is a classic freeze. Second, for projects that are too far along in the planning process, private cable operators will proceed but only under the cruel and unfair risk that their substantial costs will be for nought if they have to vacate the frequencies to comply with the secondary status proposed for them in the *Notice*.

The future success of private cable systems as a competitive force in the telecommunications and MVPD markets depends upon their continued ability to construct, operate and upgrade advanced microwave networks using the entire 18.142-18.580 GHz band. Because of its powerful chilling effect, the Commission's proposal to relegate post-September 18th applicants to secondary status in the 18.3-18.55 GHz band stymies private cable's future plans. Absent regulations that enable them to rely on the continuing viability of their operations in this spectrum in the future, private cable operators are reluctant to consummate, much less negotiate, contracts with MDU owners. Investment sources are apprehensive about providing financing. Radio suppliers have ceased manufacturing radios for use in the field. In short, the September 18th proposal amounts to a *de facto* freeze on the development of private cable services.

Smaller businesses will be especially hard hit. For them, the effect of the freeze can be devastating. If they have negotiated various arrangements to expand service to another apartment complex and made what for them constitutes a large investment, the prospect of building 18 GHz facilities that they may have to abandon can be calamitous. For example,

Microwave Satellite Technologies ("MST"), a private cable operator in New York City that serves MDUs with an average of 200 residences, has at least \$100,000 invested in networked properties in Brooklyn to be connected by 10 to 15 links. MST hopes to file applications for these links in the next few months; however, in light of the Commission's September 18th cut-off date, it fears that the licenses it obtains may be of no real or lasting value in the future. MST and other small operators simply cannot afford to risk this amount of capital in systems that could be reduced to secondary status and rendered virtually worthless. ICTA urges the Commission to evaluate the impact of its actions on small businesses that seem to have been ignored.²⁶

Not only do private cable operators risk losing their sunk costs, but post-September 18th private cable applicants risk being unable to fulfill their long-term contractual obligations. This could destroy the goodwill private cable operators have worked tirelessly to build over the last few years. The MDU market is a tight-knit community. If a private cable operator cannot perform as promised, that operator (indeed the industry) can lose its credibility among MDU owners and subscribers, making it virtually impossible for it to secure additional MDU projects. These private cable operators also could be subject to potential liability for service contracts that the new rules would prevent them from performing. In light of these harms, private cable operators have turned down prospective MDU service contracts and shut down early stage negotiations. There is little question that the proposed September 18th cut-off will strand investment and deny customers the benefits of private cable's competitive and innovative services.

Private cable operators will probably proceed, but only at great jeopardy, with some of their new systems and expansion plans that are too late to cancel. Many private cable

²⁶ The Commission has an obligation to evaluate the impact of its actions on small business. *See e.g.*, Flexibility Act of 1980, 5 U.S.C. § 603; Communications Act, § 623(i), 47 U.S.C. § 543(i).

operators, unaware of the September 18th cut-off date for co-primary designations in the 18.3-18.55 GHz band, have already spent hundreds of thousands of dollars and considerable time working on systems for which they have yet to file 18 GHz license applications, or filed applications after the September 18th cut-off date. *See* Attachment B.²⁷ These operators know that if they file applications and the band segmentation plan proposed in the *Notice* is adopted, they will lose their sunk costs, lose their credibility with MDU owners and subscribers, face potential liability for not fulfilling their contractual promises and be prevented from expanding existing systems or building new systems. But these operators are too far along in the process to turn back; they have no choice but to file for 18 GHz licenses in the 18.142-18.580 GHz band and assume these substantial risks.

III. THE PROPOSED SEPTEMBER 18TH CUT-OFF IS UNREASONABLE AND UNWARRANTED.

The *Notice* provides no justification for its proposed September 18th cut-off date. The Commission cannot point to the risk that private cable operators would file mere "paper" applications to create or preserve a spectrum claim. Private cable services are entirely different from some other services where the Commission might have been rightly concerned about licensees filing a deluge of speculative applications.²⁸

Private cable operators, which file just 125 or so applications a year, expend at least six months of time and effort and invest thousands of dollars with respect to each MDU from which they enlist business *before* filing an 18 GHz application. Specifically, prior to filing

²⁷ Attachment B lists some of the private cable operators that have spent considerable sums of money and/or undertaken substantial efforts in preparation for providing service to MDUs and have little choice but to plan to file 18 GHz applications despite the September 18th cut-off date for co-primary status.

²⁸ Private cable operations on their face are distinguishable from other services where the Commission has imposed a freeze to prevent a torrent of speculative applications. *See* Attachment C (summarizing prior freeze decisions).

a license application with the Commission, private cable operators research service rights, lease transmission sites, develop microwave networks, conduct engineering studies, engage in time-consuming frequency coordination tests and negotiate service contracts for every property they seek to serve. This is in stark contrast to other services where operators can easily locate and build inexpensive receive sites and, therefore, can file hundreds of applications within a matter of days after the Commission proposes regulatory action affecting certain frequencies.²⁹ In light of these substantial efforts, the Commission has no basis to worry about private cable operators warehousing spectrum. Private cable operators must invest time, money and other resources in advance of filing and, therefore, are precluded from undertaking this type of spectrum speculation.

There exists no reasoned rationale for the Commission's proposed September 18, 1998 cut-off date for co-primary terrestrial fixed service designations in the 18.3-18.55 GHz band. The Commission's redesignation plan is based on flawed assumptions and lacks a sound engineering basis. Many of the affected parties, including terrestrial fixed and satellite operators, are working to develop a revised band plan for the Commission's consideration.³⁰ With the real likelihood that the Commission's proposal for the 18.3-18.55 band will not be adopted, the Commission's proposed September 18th cut-off date should promptly be eliminated. It serves no purpose but to wreak havoc on the private cable industry in particular, and competition in the MVPD marketplace in general.

²⁹ Private cable operators did not receive any notice and had no opportunity to be heard before the Commission imposed its *de facto* freeze on their operations. While the absence of these procedural protections may be lawful and appropriate in the context of mere paper applications that can be thrown together on a day's notice with less expense or preparation, it is at least unfair and otherwise questionable in the private cable context.

³⁰ See *Motion for Extension of Pleading Cycle*, filed by the 18 GHz Joint Working Group, et. al (October 28, 1998).

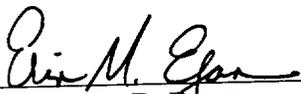
CONCLUSION

The 18.142-18.580 GHz band is critical to private cable's future success in the MVPD marketplace. The Commission's unreasoned and unwarranted proposal to withhold grandfather treatment from post-September 18th applicants in the 18.3-18.55 band and subject them to secondary status has a clear and present impact on private cable operations. ICTA urges the Commission to grant private cable applicants immediate relief from the September 18th cut-off date.

Respectfully Submitted,

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TELECOMMUNICATIONS ASSOCIATION**


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November 5, 1998

Engineering Statement in Support of a Request for Emergency Relief

In the Notice of Proposed Rulemaking, IB Docket No. 98-172 the Commission is proposing to redesignate the 17.7-19.7 GHz band among the various allocated services in an effort to allow a more efficient sharing of the spectrum between terrestrial fixed services and ubiquitously deployed FSS earth stations. As part of this plan, the Commission is proposing to redesignate approximately 57% of the 18.14-18.58 GHz service known as CARS to a GSO/FSS primary service and to redesignate another 7% to a co-primary status between the two services. This redesignation of 64% of the CARS frequencies effectively eliminates the 18.14-18.58 GHz band as a viable bandwidth to accomplish the intended goals of the service. This will effectively cripple future usage of this band for CARS applications and results in a defacto freeze. This frequency band is the only band available to private cable operators ("PCO's") for this type of application and significantly reduces the PCO's ability to compete.

Background

The 18 GHz CARS frequency band is primarily used by PCO's to distribute analog television signals within a market, in a point to multi-point type architecture utilizing an amplitude modulated link ("AML"). In a given system, a transmission site will be established and analog cable RF signals will be delivered from an existing private cable system to a transmitter. An entire block of frequencies available on the cable will be upconverted to the 18 GHz frequency band and transmitted. At the receive site, a similar block conversion of the entire band back to cable frequencies will be performed in preparation for distribution. This type of architecture allows for the most spectrally efficient and economical means of transmitting multiple television channels on microwave frequencies. The existing allocated frequency band will allow for the transmission of up to 72 analog television channels at power levels as high as +55 dBW EIRP.

PCO's typically use 18 GHz CARS links to supply television programming to multiple dwelling units ("MDU's"). In order to justify the cost of installing the microwave equipment, multiple users must be served from a single link. An MDU, such as an apartment building, where a single microwave link can serve the entire building accomplishes the business goal. Therefore, this technology is most advantageous in urban markets where the potential MDU business is large.

Issues

The following issues are present with the Commission's current proposed redesignation scheme.

- 1. The potential for interference from existing and future terrestrial fixed service CARS systems operating in the 18.3 to 18.55 GHz frequency band to the proposed ubiquitously deployed GSO satellite receivers would be severe, thus eliminating this portion of the spectrum for future use by CARS.**

Because future CARS systems operating in this band would be secondary to the GSO satellite systems, all future CARS links would be required to protect GSO receivers. Since ubiquitously deployed GSO receive systems will (1) use small aperture antennas,

(2) be located anywhere and (3) be numerous, it will be virtually impossible for the CARS operator to protect all potential GSO receivers.

A CARS system has the potential to operate with as much as 316 KWatts (+55 dBW) of EIRP per current FCC rules. Although the rules allow use of this power level, current equipment available to the 18 GHz CARS industry places a practical limitation of approximately +30 dBW EIRP per RF channel. Using this EIRP, an interference zone can be determined for the area around a CARS transmit site where satellite receivers will not be capable of operation. The size of this zone will be determined by the EIRP and antenna pattern of the CARS system, the attenuation of the satellite antenna to the undesired CARS signal (discrimination) and the sensitivity of the satellite receiver. The discrimination of the satellite antenna is determined by the look angle to the satellite and the angle between the satellite receive antenna and the CARS transmit antenna. Both the azimuthal and elevational discrimination of the satellite antenna must be considered in the calculation of potential interference. However, the small aperture satellite receive antennas proposed for use in the ubiquitously deployed earth stations will have minimal discrimination capabilities. These small aperture antennas will therefore make it even more difficult for CARS links to give interference protection.

Attached as Exhibit 1 is a detailed technical analysis showing the calculation of the potential interference zone. If we assume interference to the satellite receive system is defined as a 1 dB degradation in the noise floor, a 2 foot diameter CARS transmit antenna, a typical satellite look angle and the +30 dBW EIRP for the CARS system; the length of the interference zone can extend as far as 45 miles from the CARS transmit site. Even though the width of the zones is narrow, placement of several CARS links around an area will result in a significant area of potential interference.

Also shown in Exhibit 1 is a diagram of the potential zone of interference for a single licensee in the Dallas, TX area. There are 132 links from 17 transmit sites shown in the diagram. This represents less than half of the licensed links in the Dallas area. As the diagram clearly shows, the potential exists for significant interference to future satellite receive systems from existing CARS systems. Because of the large area of potential interference from CARS links, it can be inferred from this same diagram that it would be virtually impossible for future CARS systems to protect the ubiquitously deployed satellite systems. Also, by using antenna discrimination based on a typical satellite location we are erring on the side of conservatism in the study. Since GSO proponents would expect protection over the full band of frequencies and the full arc of potential satellite locations, antenna discrimination will not be as powerful a tool for reducing interference as shown in this example. Therefore, the size of the interference zones could grow significantly larger than those shown in this example.

2. The analysis submitted above and in Exhibit 1 does not take into account the increased interference potential to satellite receive systems based on terrain scatter of the CARS signals.

The 18 GHz signals are of sufficiently small wavelength such that many objects will be effective reflectors of the CARS signals. Terrain, buildings and other manmade structures will reflect the CARS signals in a multitude of directions dependent on the angles of incidence. Therefore, the potential will exist for interference to be reflected into a satellite receive system. It is impossible to estimate the extent to which this

interference could occur, since the shape, size and location of the buildings causing the scatter could be almost infinite.

- 3. The bandwidth currently allocated from 18.14-18.58 GHz for private cable allows 72 channels which is necessary for private cable to be competitive with franchised cable.**

The current FCC allocation allows PCO's to offer up to 72 channels of analog video and audio. This requires full utilization of the frequency band to offer this complement of channels. PCO's can be competitive with franchised cable by offering quantity, quality of programming and quality of service.

- 4. 18 GHz CARS usage is currently most heavy in urban markets and future growth is expected to be in these same markets. Satellite installations are expected to be very extensive in these markets as well, further increasing the difficulty for CARS systems to protect satellite services.**

Because of the high cost and limited range of the 18 GHz CARS signal, a majority of the links in use today are located in major urban markets. This trend is expected to continue with continued expansion in almost all major markets. Because of the population density in these markets, it is reasonable to expect the satellite services will concentrate here as well and make the implementation of future CARS systems virtually impossible.

- 5. Placing the 30 MHz of spectrum located between 18.55-18.58 GHz in a co-primary status between GSO/FSS and FS renders this spectrum as ineffective as the 18.3-18.55 GHz band.**

Because the CARS links operate in a block conversion mode, allowing 30 MHz of spectrum to exist at the top of the band does not alleviate the need for bandwidth. This spectrum is virtually useless without the full block of bandwidth available.

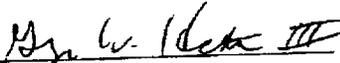
- 6. Relocating the CARS band to the 17.7-18.3 GHz band is not practical because the coordination process to add new CARS links in with existing FS links would be virtually impossible.**

The quantity of existing FS links in the 17.7-18.3 GHz band is large, especially in the urban markets. The configuration on most CARS links follows the hub and spoke architecture, where a single transmit site will serve multiple receive sites. An interference zone can be created around a fixed service receive site showing the area of potential interference from a CARS installation. If we assume the CARS transmit antenna can be pointed at the fixed service receive site and operating with +30 dBW EIRP as was assumed in our previous example, an interference zone can be created. Attached as Exhibit 2 is a diagram showing the interference zone around each of the fixed service receive sites listed in the Dallas, TX area from the FCC on-line database. From this diagram one can immediately see the preclusive effect of the existing fixed service stations.

- 4 -

Statement of Engineer

This statement was prepared by George W. Harter, III, a consulting engineer with the firm of Hardin and Associates, Inc., a professional engineering firm licensed in the state of Virginia and whose credentials are a matter of record with the Commission.


George W. Harter, III

November 5, 1998

Exhibit 1

The thermal noise floor can be calculated from:

$$P_N = kTB$$

where

P_N is the noise spectral density

k is Boltzmann's constant 1.38×10^{-23} Watts/K/Hz

T is the noise temperature which assumed at 293 K

B is Bandwidth

Assuming a 1 MHz reference bandwidth, the above equation gives a noise spectral density of -143.9 dBW/MHz. Assuming the criterion for non-interference to a satellite receiver is to limit the interfering signal such that it will cause no more than a 1 dB increase in the noise spectral density. In order to limit the noise spectral density increase to no more than 1 dB, the interfering signal level must be no more than -149.8 dBW/MHz.

The current FCC proposal would place GSO/FSS receivers ubiquitously throughout the country in the 18.3 to 18.55 GHz range. In footnote 26 of the NPRM, the Commission references applications filed and orbital locations assigned by thirteen applicants for GSO/FSS satellites. These assignments range from 173° east longitude to 148° west longitude.

Satellite look angles can vary dependent on the position of the earth station and the position of the satellite. The look angle to an earth station located in Puerto Rico from satellites in geosynchronous orbit can vary from 3 degrees to 65 degrees based on the location of the satellite in the sky. A geosynchronous satellite can cover approximately 162 degrees of the earth, centered at its position. The look angle as the earth station moves north does not vary as much as it would in Puerto Rico, however the look angle only varies from 2.3 degrees to 35 degrees when you consider an earth station located in Washington State. However, it was assumed that a typical look angle of 30 degrees would be reasonable. This would give a typical elevational antenna discrimination. Also an azimuth attenuation was taken at a discrimination angle of 4 degrees, which is looking just off of boresight to give a significant amount of attenuation. This gave an overall antenna discrimination of 62 dB. (At 2-FT earth station antenna was assumed.)

$$P_R = EIRP + G_E - D_E - D_A - 96.6 - 20 \log(f) - 20 \log(d)$$

where

P_R is the power received at the output of the antenna which is set to -149.8 dBW/MHz

$EIRP$ is the power output from the CARS antenna which is set to +30 dBW or 47.7 dBW/MHz

G_E is the gain of the satellite antenna at boresight which is set to 45 dBi

D_E is the look angle attenuation of the satellite receive antenna which is approximately 40 dB at 30 degrees off of boresight

D_A is the azimuthal attenuation of the satellite receive antenna is approximately 22 dB at 4 degrees off of boresight

$-96.6 - 20 \log(f) - 20 \log(d)$ is free space path loss expression where the frequency is assumed at 18.4 GHz

Solving for distance utilizing +30 dBW, an exclusion zone can be created with a maximum distance of 45 miles. If antenna discrimination is reduced, the exclusion zone will significantly increase. The boundary has the characteristics of a typical CARS antenna. The following figure shows the exclusion zone for one licensee in the Dallas, TX area.

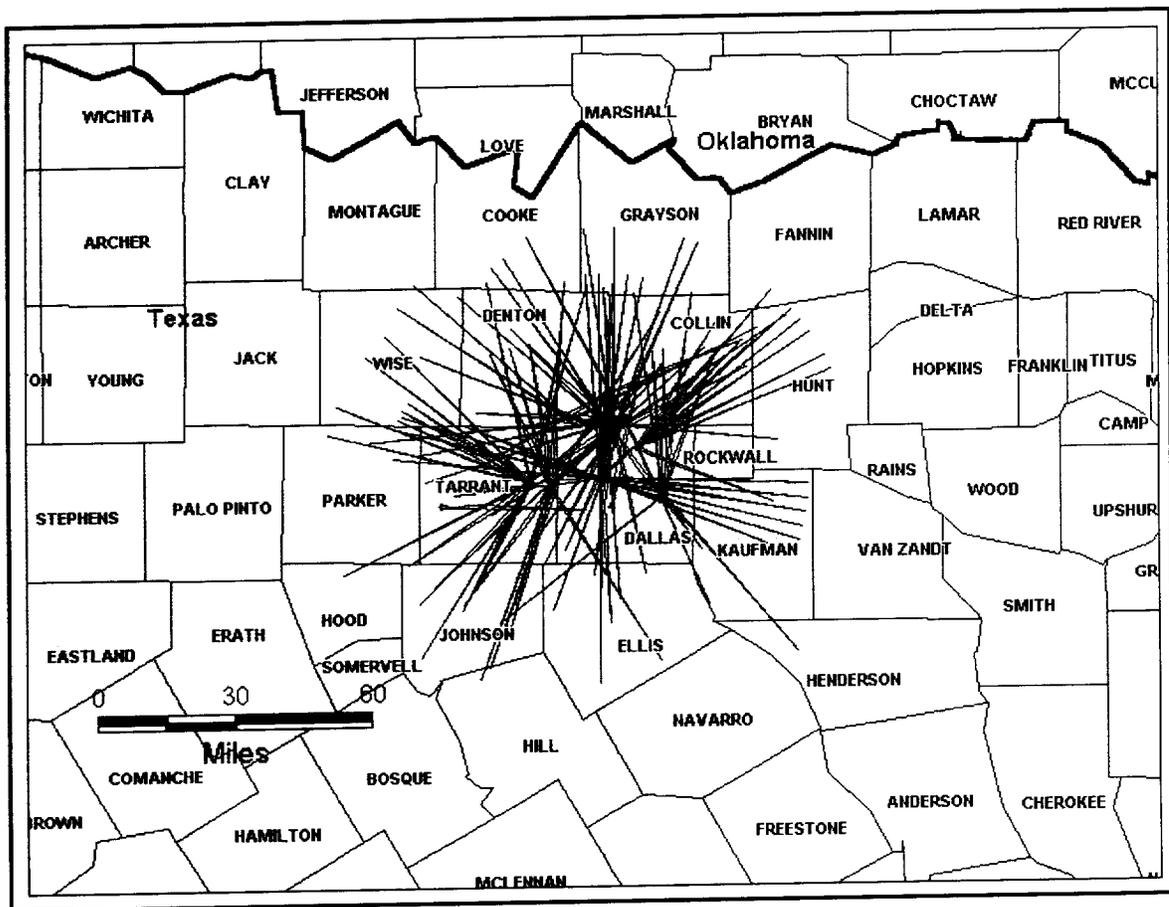
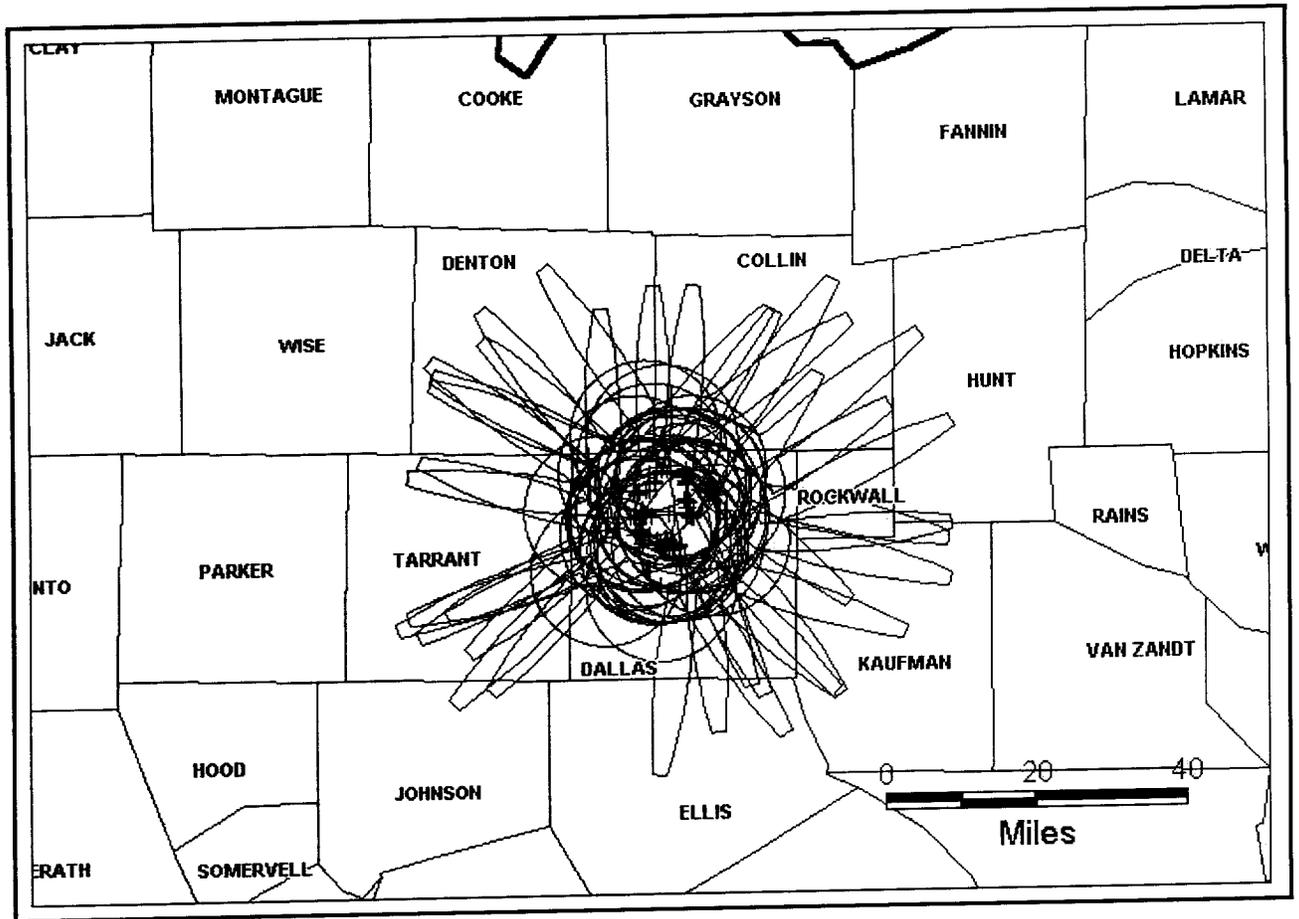


Exhibit 2



B

Examples Of Private Cable Operators Harmed By Proposed September 18th Cut-Off

Many private cable operators, before issuance of the *Notice*, began preparations to file 18 GHz applications. These operators have spend considerable sums of money and/or undertaken substantial efforts in preparation for providing service to MDUs. They have little choice but to finalize their plans and file 18 GHz applications despite the September 18th cut-off date for primary status. These operators have to proceed under the cruel and unfair risk that their costs and effort will be for nought if they have to vacate their 18 GHz frequencies to comply with the secondary status proposed for them in the *Notice*. The following is a list of some of the private operators in this predicament.

1. AESCO SYSTEMS, Inc.

Bryn Mawr, PA

AESCO plans to file 18 GHz applications for 17 properties in the Philadelphia, PA area. These properties cover 8,000 subscribers.

2. Advanced Private Cable, L.L.C.

Clearwater, FL

Advanced Private Cable plans to file 18 GHz applications for one property in Pinellas County, FL. Advanced Private Cable has invested approximately one million dollars to secure MDU properties in the Florida area.

3. Advanced Satellite Systems, Inc. & Advanced Cable Systems

Ormond Beach, FL

Advanced Satellite and Advanced Cable plan to file 18 GHz applications for 29 properties in the Daytona Beach, FL area covering several hundred apartment units. These groups have invested \$1,480,000 in this effort.

4. Cable Plus

Bellevue, WA

Cable Plus plans to file 18 GHz applications for five properties in Detroit, MI, Portland, OR and Fargo, ND covering thousands of subscribers.

5. Campus Televideo

New Castle, DE

Campus Televideo plans to file 18 GHz applications for four properties in Morgantown, WV covering 500 subscribers. Campus Televideo provides service to colleges and universities.

6. Castle Cable
Santa Rosa, CA

Castle Cable expects to file two applications in the next few weeks covering 400 subscribers in San Rafael, and four others covering 2,000 subscribers by the end of the year. Castle Cable has invested over \$2,000,000 in these sites.

7. D.F. Countryman
St. Paul, MN

D.F. Countryman plans to file 18 GHz applications for 2 links from 1 headend transmitter site located in Des Moines, Iowa covering over one hundred subscribers.

8. GST Telecom
Albuquerque, NM

GST Telecom plans to file 18 GHz applications for six properties in Albuquerque and Rio Rancho, NM covering hundreds of subscribers. GST has invested \$4 million dollars in its private cable operations.

9. GTE Media Ventures Incorporated
Irving, TX

GTE Media Ventures plans to file or has filed four 18 GHz applications for the City of Amarillo, TX covering hundreds of subscribers.

10. Intertech Private Cable
Buffalo, New York

Intertech Private Cable plans to file 18 GHz applications for 14 properties in Buffalo and Rochester, NY covering 8,500 subscribers. Intertech has spent over a million dollars in new MDU properties for which it has yet to file applications.

11. KAS Cable TV, Inc.
Fairborn, OH

KAS Cable TV, a family owned business, plans to file 18 GHz applications for four properties in Dayton, Ohio; Fairborn, Ohio; Harveysburg, Ohio and Clarksville, Ohio covering 2,500 subscribers. KAS has invested approximately \$500,000 in these systems.

12. LyncStar
Lakewood, CO

LyncStar plans to file several 18 GHz applications in Texas, Maryland and Florida to serve 3,100 subscribers. This would represent approximately 28% of its business.

13. Magnavision

Wall, NJ

Magnavision primarily serves college campuses and plans to file 18 GHz applications for one property in Rochester, NY covering 1,000 subscribers.

14. OnePoint Communications

Washington, D.C.

OnePoint Communications plans to file 18 GHz applications for 59 properties in Chicago and vicinity covering approximately 24,000 subscribers. It also plans to file 18 GHz applications for 24 microwave paths in Philadelphia covering 4,000 subscribers, and applications for 12 links covering 3,000 subscribers in Washington, D.C.

15. OpTel, Inc.

Dallas, TX

OpTel has prepared and filed fifteen 18 GHz applications since September 18th and expects to file four more applications by mid-November. OpTel has invested hundreds of thousands of dollars in these systems.

16. Private Network Cable

Jamaica, NJ

Private Network Cable plans to file 18 GHz applications for ten properties in Queens and Brooklyn, NY covering 8,000 subscribers.

17. Skyway Partners

Glenmore, PA

Skyway Partners plans to file 18 GHz applications for five properties in Charleston, West VA covering 1,600 subscribers. Skyway has invested roughly \$40,000 in these properties.

18. Summit Communications

Minonk, IL

Summit Communications plans to file 18 GHz applications for 1-10 properties in Bloomington, IL and Normal, IL covering hundreds of subscribers. Summit has invested \$30,000 in these properties.

19. U.S. OnLine Communications, Inc.

Austin, TX

U.S. OnLine Communications plans to file 18 GHz applications for 25 properties in Austin and San Antonio, Texas covering approximately 8,000 subscribers. U.S. Online has invested over \$300,000 in these properties.

20. Viking Communications, Inc.
Morrisville, PA

Viking Communications plans to file 18 GHz applications for six properties in Philadelphia, PA and the surrounding suburbs covering several hundred subscribers.

21. Wilco Electronic System, Inc.
Fort Washington, PA

Wilco, a minority owned company, plans to file 18 GHz applications for ten properties in Philadelphia covering approximately 7,000 residential subscribers. Wilco has invested approximately \$600,000 in these properties.



C



Examples of Prior Freeze Decisions

The following are examples of instances in the past in which the Commission has imposed processing freezes on applications in other services. The circumstances which led the Commission to institute freezes in these examples are not present in the private cable context, and the absence of such circumstances illustrates why the Commission's "de facto" freeze on private cable applications is unwarranted. In the first and last examples, the services were plagued by spectrum speculators. In these instances, the Commission was flooded with applications filed by parties with no bona fide intention to construct and operate the licensed facilities. The investment of time, money and other resources required to prepare private cable applications for filing precludes this type of spectrum speculation in the private cable service. In the second and third examples, the freezes were instituted after the Commission had observed increased numbers of applications in the band, and they affected all of the services utilizing the bands. Thus, these freezes did not advantage certain spectrum users to the detriment of others. In the instant circumstances, the Commission's "de facto" freeze prejudices private cable operators and other current users of the band, and benefits operators of future satellite earth stations.

Other freeze scenarios are similarly distinguishable from the situation presented here. The purpose of the brief sampling below is to highlight that the dangers that have prompted the Commission to impose freezes in the past do not exist in the private cable context.

1. General Category Frequencies in 806-809.75/851-854.750 MHz Bands:
In October 1995, the FCC instituted a freeze on new applications for General Category channels in the 806-809.75/851-854.750 MHz frequency bands. In the freeze order (10 FCC Rcd 13190), the FCC noted that there recently had been "a steep rise in demand for General Category frequencies, especially by SMR applications and licensees, as a result of regulatory actions affecting certain 800 MHz frequencies." Specifically, requests for General Category channels increased after the FCC sought comment on how to structure competitive bidding procedures to choose among mutually exclusive initial SMR applications. With respect to the freeze, the FCC reasoned: "unless we immediately freeze new applications the successful resolution of the spectrum allocation issues raised in PR Docket No. 93-144 could be compromised." The FCC emphasized that the freeze was a "temporary action" to be "of limited duration" to "preserve the current licensing landscape" while the regulatory issues were worked out.

A July 1998 MO&O and Order on Reconsideration (1998 FCC LEXIS 3889) explained in a little more detail the history leading up to the freeze order. Before the FCC instituted the freeze, a number of application preparation companies has "used television commercials and telemarketing solicitations to promote SMR licenses as 'investment opportunities' for individuals with little or no experience in the communications industry." The Order goes on: "In a typical solicitation, the company representative would tout the potential value of SMR licenses, representing that, once obtained, the licenses could be resold for a profit. The representative would then offer to prepare license applications for a substantial fee, usually \$7,000 per application. Typically, the company representative did not disclose obligations and restrictions that the Commission's rules imposed on SMR licensees." Thus, the "steep" increase

in applications seems to have been linked to blatant spectrum speculation encouraged by application preparation companies which took advantage of ignorant investors.

2. Inter-Category Sharing of Private Mobile Radio Frequencies in the 806-821/851-866 MHz Bands: In April 1995, the FCC instituted a freeze on new applications for inter-category sharing of frequencies in the 806-821/851-866 MHz band, allocated to the Public Safety, Industrial/Land Transportation ("I/LT") and Business Radio Services. The FCC noted that pressure from the increased number of SMR applications in the 800 MHz band had caused increasing numbers of Business and I/LT entities to file applications, on an inter-category basis, for 800 MHz Public Safety frequencies. The FCC noted that the freeze was not a final resolution of the matter, but rather was "an action adopted for a limited time in order to prevent compromising the resolution of significant spectrum allocation issues. Rather than causing any irreparable harm to Business or I/LT eligibles, they remain able – as do Public Safety entities – to address their spectrum needs through in-category frequencies. In this respect, all eligibles in these services are treated on an equal basis." In contrast, the "de facto" freeze imposed here advantages one set of users (future satellite earth stations) at the expense of another set (private cable operators and other current users of the band).

3. 39 GHz Licensees in the Common Carrier and Operational Fixed Point-to-Point Microwave Radio Services: In November and December 1995, the FCC instituted an "interim processing freeze" on applicants for certain mutually-exclusive 39 GHz licenses. The freeze was instituted pending resolution of a petition for rulemaking filed by TIA which proposed a channeling plan and technical rules for the 37 and 39 GHz bands intended to better accommodate emerging technologies. The FCC reasoned that "the increasing number of applications (over 2,100 filed from January to November of 1995) constituted a burden on Commission resources and processing them could limit the impact of new technological, operational, and licensing requirements the Commission might ultimately adopt in response to TIA's petition." As in the immediately preceding example and unlike the situation here, the interim processing freeze in the 39 GHz band affected all prospective users of the spectrum similarly.

4. MDS in the 2.1 and 2.5 GHz Band: In April 1992, the FCC adopted an NPRM regarding the use of the 2.1 and 2.5 GHz band, and imposed a "short-term, temporary freeze on the filing of all applications for MDS channels." The FCC determined that "a freeze on new filings is absolutely imperative because it is the only means by which the deluge of incoming applications, which are being filed at the rate of 1000 per month, can be controlled." This "torrent of MDS filings, the majority of which are believed to be speculative," had created a backlog of approximately 20,000 MDS applications. The FCC reported: "Our records reflect that in Fiscal Year 1990 almost 6,000 MDS applications were filed, and that approximately 12,000 applications were filed in Fiscal Year 1991. Applications are currently being filed at the rate of approximately 1,000 per month. The filing of MDS applications appears to be particularly appealing to application mills in part because our existing rules authorize lotteries and settlement groups." As in the SMR context, the freeze on applications in the MDS service was preceded by a high volume of speculative applications generated by so-called "application mills."