Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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

OPPOSITION TO PETITION FOR RECONSIDERATION

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EXHIBIT A – Radio Dynamics Study

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

OPPOSITION TO PETITION FOR RECONSIDERATION

The Satellite Industry Association ("SIA") hereby opposes the Petition for Reconsideration and Emergency Request for Immediate Relief filed by the Independent MultiFamily Communications Council ("IMCC").[1] IMCC seeks reconsideration of the *Second Order on Reconsideration* in this proceeding,[2] in which the Commission appropriately concluded that the 18.3-18.58 GHz band shall be designated solely for the fixed satellite service ("FSS") and adopted policies for the migration of terrestrial fixed service ("FS") users from that band over the next ten years. The Commission should dismiss or deny the IMCC Petition because

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1 IMCC Petition for Reconsideration and Emergency Request for Immediate Relief (filed May 8, 2003) ("Petition"). On May 15, 2003, SIA filed an opposition with respect to those aspects of the IMCC Petition that constitute an emergency request for immediate relief, within the period specified in Section 1.45(d) for oppositions to a request for stay or other temporary relief. On June 3, 2003, IMCC filed an unauthorized reply to that SIA opposition to emergency relief. This pleading addresses those aspects of the IMCC Petition that seek reconsideration.

2 *In the Matter of Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use*, Second Order on Reconsideration, 17 FCC Rcd. 24248 (2002) ("*Second Order on Reconsideration*").

IMCC fails to satisfy the Commission's standard for reconsideration, attempts to reinitiate tired debates, and does not carry its burden of showing that the Commission erred in reaching its fundamental conclusions.

I. INTRODUCTION AND SUMMARY

As a result of a number of recent Commission decisions, the private cable operators ("PCOs") that IMCC represents have access to over 1.1 GHz of spectrum – 250% of the spectrum previously available to them. Historically, PCOs had access to only 438 MHz for their video distribution needs – the 18.142 to 18.58 GHz band. This changed in May 2002, when the Commission, with the support of leading PCO operators, eliminated unnecessary eligibility constraints in the 12.7-13.2 GHz band, and thereby opened 500 MHz of that band for PCO licensing.[3] At the same time, the Commission opened the 17.7-18.142 MHz band, thereby making available another 442 MHz for PCO licensing.[4] Moreover, PCOs remain eligible to use the 21.2-23.6 GHz band.[5] Thus, PCOs are now able to be licensed in well over 1.1 GHz of spectrum, and also remain able to use fiber optic links and satellite communications channels, to distribute video programming to their multi-channel video programming distributor ("MVPD") systems.[6]

Based on these facts, the Commission determined in the *Second Order on Reconsideration* that the 18.3-18.58 GHz band now could be designated solely for the geostationary orbit ("GSO") FSS. In so doing, the Commission fulfilled its commitment to make

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3 *In the Matter of: Amendment of Eligibility Requirements in Part 78 Regarding 12 GHz Cable Television Relay Service*, Report and Order, 17 FCC Rcd 9930 (2002) ("*12 GHz Order*").

4 *See id.* at n.69.

5 *See* 47 C.F.R. §§101.101, 101.603.

6 *Second Order on Reconsideration* at n.45.

available a total of 1000 MHz of Ka band spectrum for downlinks from GSO FSS spacecraft.[7] And, as a consequence, the Commission required terrestrial PCO users of the 18.3-18.58 GHz band to vacate that spectrum over the next ten years, and precluded the filing of new applications for terrestrial use of that band.[8] Thus, all of the appropriate steps have been taken to make a paired 1000 MHz of Ka band uplink and downlink spectrum that is suitable for service to ubiquitously-deployed, small earth terminals, increasingly available for GSO FSS systems over the next ten years, and fully available at the end of that ten-year period.

On May 8, 2003, IMCC filed a petition seeking reconsideration of the *Second Order on Reconsideration* and requesting "immediate relief." IMCC argues that the Commission should restore the co-primary allocation for terrestrial users in the 18.3-18.58 GHz band, asserting that 12.7-13.2 GHz and 17.7-18.142 GHz are poor substitutes for the 280 MHz of spectrum that PCOs eventually will lose at 18.3-18.58 GHz.[9] Regardless of whether the

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7 *See Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5 - 29.5 GHz Frequency Band, to Reallocate the 29.5 - 30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services and Suite 12 Group Petition for Pioneer's Preference*, Third Notice of Proposed Rulemaking and Supplemental Tentative Decision, 11 FCC Rcd 53 (1995).

IMCC's slanted characterization of industry negotiations that occurred five years ago between various satellite interests and various terrestrial interests with respect to the 18 GHz band, Petition at 5-6, is wholly irrelevant to the issues at hand. Thus, SIA will not dwell further on this attempted diversion, other than to note that SIA does not agree with IMCC's recollection of the facts.

IMCC is simply wrong when it asserts that GSO FSS satellite licensees argued in this proceeding for access to 1000 MHz of *contiguous* downlink spectrum. Petition at 13. The possibility of 1000 MHz of contiguous GSO FSS downlink spectrum was foreclosed eight years ago by WRC 95's accommodation of MSS feeder links at 19.3-19.7 GHz and NGSO FSS service links at 18.8-19.3 GHz. Whether the GSO FSS could be designated 1000 MHz of contiguous downlink spectrum has never been an issue in this proceeding.

8 *Second Order on Reconsideration* at ¶18.

9 Petition at 18-19.

Commission restores the FS allocation at 18.3-18.58 GHz, IMCC also asks the Commission to allow continued PCO deployment in the 18.3-18.58 GHz band by (i) reinstating all FS applications in that band that were pending on November 19, 2002, and (ii) accepting applications for new and modified FS systems in that band as long as the applicant submits an affidavit that comparable facilities cannot be coordinated and constructed at a comparable cost in another band.[10]

The Commission should dismiss or deny IMCC's Petition because IMCC rehashes old arguments about the respective needs of the GSO FSS and PCO users, and fails to demonstrate why the needs of the PCO community cannot be accommodated in (i) the over 1.1 GHz of spectrum designated for PCO licensing, and/or (ii) the various other means of video distribution available to PCOs. Moreover, IMCC's request to allow continued PCO deployment in the 18.3-18.58 GHz band is fundamentally inconsistent with the basic premises underlying the *Second Order on Reconsideration.* Allowing continued PCO deployment would (i) slow the transition of PCO users out of that band and thereby impede the deployment of ubiquitously deployed GSO FSS earth terminals,[11] and (ii) saddle the GSO FSS industry with compensating relocated PCOs for costs with respect to *new PCO equipment* that, in any event, should be deployed using other frequency bands or technologies.

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10 Petition at 19-20.

11 IMCC's proposal is contradicted by IMCC's own admission that PCO uses of the 18.3-18.58 GHz band "cannot avoid causing interference" to the ubiquitously deployed GSO FSS terminals that the Commission has determined should be accommodated there. *See* Petition at 8.

II. THE COMMISSION SHOULD DISMISS OR DENY THE PETITION.

A. IMCC Fails to Satisfy the Standard for Reconsideration.

As a threshold matter, the Commission should dismiss or deny IMCC's Petition because IMCC fails to meet the standard for seeking reconsideration of a decision in a rulemaking proceeding. Section 405 of the Communications Act of 1934, as amended, and Section 1.429(b)(2) of the Commission's rules, provide that reconsideration of a Commission decision in a rulemaking decision is appropriate when the Commission previously has not had an opportunity to consider the legal arguments presented by the petitioner.[12] To this end, the Commission has clearly stated that "reconsideration will not be granted for the purpose of debating matters on which we have already deliberated and spoken."[13]

IMCC itself acknowledges that "most of the currently relevant issues [raised in its Petition] are repetitious of issues addressed and declined by the FCC."[14] This very admission that its arguments are repetitious should be dispositive. Yet, IMCC persists in asking the Commission to engage in a rebalancing of the respective needs of GSO FSS and PCO users in the 18 GHz band – an issue that has been fully vetted in *two separate* notice and comment cycles and in various *ex parte* presentations over the past five years. Indeed, the prospects for migrating 18 GHz PCOs to the 12.7-13.2 GHz band and to frequencies above 21 GHz were raised five years ago, and well before Hughes mentioned them again in its 2000 reconsideration petition that gave rise to the *Second Order on Reconsideration*.[15] In considering the availability of alternate

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12 47 U.S.C. § 405; 47 C.F.R. § 1.429(b)(2).

13 *In re Application of Eagle Radio, Inc.*, Memorandum Opinion and Order, 12 FCC Rcd 5105, 5107 ¶9 (1997).

14 Petition at 4.

15 *See* Reply Comments of Hughes Electronics, Inc., filed in IB Docket No. 98-172, RM-9005, RM-9118 on Dec. 21, 1998 at 7-8; Comments of the Spectrum & Orbit Utilization

spectrum, the Commission did not find compelling IMCC's (then known as ICTA) previous arguments that "there is simply no substitute for the 18 GHz spectrum band,"[16] and IMCC's argument is no more persuasive today.

To the extent that IMCC presents new information about the suitability of replacement spectrum for PCOs, Commission rules and precedent are dispositive as well. The Commission has clearly established that facts and events known to the parties during a proceeding cannot be raised later as the grounds for reconsideration,[17] and has dismissed reconsideration petitions for this very reason.[18] IMCC has not explained why its new claims about the suitability of the 12.7-13.2 GHz band and the 17.7-18.142 GHz band were not raised before.

For these reasons, the Commission should reject as repetitious and untimely IMCC's request that the Commission countenance yet a third attempt at balancing the equities between FSS users and PCOs.

Section of the Satellite Communications Division of the Telecommunications Industry Association, filed in IB Docket No. 98-172, RM-9005, RM-9118 on Nov. 18, 1998; *see also* Petition for Partial Reconsideration filed by Hughes Electronics Corp. in IB Docket No. 98-172, RM-9005, RM-9118 on Oct. 6, 2000 at 10.

16 Reply Comments of the Independent Cable & Telecommunications Association, filed in IB Docket No. 98-172, RM-9005, RM-9118 on Dec. 21, 1998 at n.18.

17 47 C.F.R. § 1.429(b); *see, e.g., Amendment of Part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218-219 MHz Service*, WT Docket No. 98-169, Third Order on Reconsideration of the Report and Order and Memorandum Opinion and Order, FCC 02-130 at ¶¶ 18-20 (rel. May 8, 2002); *Implementation of the AM Expanded Band Allotment Plan*, Memorandum Opinion and Order, 13 FCC Rcd 21872 at ¶ 7 (1998).

18 *See, e.g., Amendment of Part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218-219 MHz Service*, WT Docket No. 98-169, Third Order on Reconsideration of the Report and Order and Memorandum Opinion and Order, FCC 02-130 (rel. May 8, 2002); *Implementation of the AM Expanded Band Allotment Plan*, Memorandum Opinion and Order, 13 FCC Rcd 21872 (1998).

B. IMCC Fails to Substantiate its Claims.

IMCC had six months following the adoption of the *Second Order on Reconsideration* to develop its case in support of its Petition, yet the IMCC Petition fails to provide any valid factual basis for reversing the Commission's decision. The only new facts that IMCC presents are three letters from Comsearch that attempt to criticize certain analyses performed by the Office of Engineering and Technology ("OET") that are referenced in the *Second Order on Reconsideration*. One of these letters questions the methodology OET used in concluding that only 0.27% of the 18 GHz PCO links studied could not likely be accommodated at either 12.7-13.2 GHz or 17.7-18.142 GHz.[19] In the other two letters, Comsearch itself studies the availability of spectrum in the 17.7-18.142 GHz band to accommodate displaced PCO users.[20] *Significantly, IMCC does not present any analysis indicating that the 12.7-13.2 GHz band, the 21.2-23.6 GHz band, fiber optics or satellite links could not accommodate displaced PCOs.*

1. IMCC Fails to Show That Comparable Facilities Are Not Available for Displaced PCOs.

As an initial matter, IMCC fails to explain why the more than 1.1 GHz of spectrum now available for PCO licensing, coupled with fiber optics networks and satellite distribution facilities,[21] are insufficient to meet the needs of those PCO users who will be displaced over the next ten years, from 280 MHz of spectrum at 18.3-18.58 GHz. As detailed above, PCOs now have available over 2.5 times the spectrum they currently are using in the 18 GHz band. And, as the Commission has confirmed, existing PCO operations cannot be

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19 Petition at Attachment 2 at 3.

20 Petition at Attachments 1 & 2.

21 *Second Order on Reconsideration* at n.45.

displaced before 2012 unless a satellite licensee provides "comparable facilities" and provides certain relocation reimbursements.[22] And in those circumstances where contiguous spectrum may not be available in a given relocation band, PCOs certainly may use a combination of frequencies or technologies to carry the desired number of video channels. Although IMCC claims that there are certain efficiency losses that arise from using non-contiguous spectrum in replacement bands, IMCC has failed to address why those losses could not be (i) overcome through a combination of the greater amount of spectrum now available to PCOs, and/or (ii) compensated through relocation costs.

Moreover, PCOs appear well positioned to utilize the 12.7-13.2 GHz and 17.7-18.142 GHz bands. Consistent with the Commission's desire to increase the efficient use of spectrum, the cable television and satellite industries are continuing their transition to digital technology. Although PCOs traditionally have used analog equipment (which is now outmoded), the expansion of PCOs into new bands provides a unique opportunity for them to follow the cable/satellite industry transition to digital technology. Doing so would provide an "N:1" increase in the effective number of video "channels" available to PCOs, and thereby increase the efficiency with which they use their licensed spectrum. In sum, the ability of PCOs to acquire digital hardware that is now broadly available, coupled with access to more spectrum than any other MVPD has today, provide PCOs a strong platform on which to expand their business.

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22 *Id.* at ¶27.

2. IMCC Fails to Demonstrate Why 12 GHz Is "Unsuitable" for PCOs.

IMCC states without any support that it is "highly questionable" whether the 12.7-13.2 GHz band is suitable for PCO use.[23] As an initial matter, this amounts to an untimely challenge to the *12 GHz Order* and should have been raised in a petition for reconsideration of that order, where the Commission expressly opened the 12.7-13.2 GHz band for PCO licensing.

In any event, IMCC fails to square its bald assertions about the 12 GHz band with prior statements of two leading PCO operators, Optel and RCN, who have explained why 12 GHz is more desirable than 18 GHz for PCO usage in many respects. For example, RCN demonstrated that there are inherent propagation constraints with the 18 GHz band that prohibit PCOs from delivering a signal of sufficient quality over a distance of more than eight miles.[24] The Commission agreed with Optel's and RCN's comparative assessments of the bands, concluding in the *12 GHz Order* that the effective link length in the 12 GHz band is more than twice than the 18 GHz band.[25] As a result, the Commission rightly concluded that the 12 GHz band better serves the needs of the PCO community by providing superior spectrum for video delivery.[26] And in stark contrast to IMCC's unsubstantiated statement that 12 GHz band is unsuitable because PCOs "could not provide the number of channels needed to compete with

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23 Petition at 13; *see also id.* at 9.

24 RCN Comments filed in RM No. 9257 on May 18, 1998 at 1, 3. *Petition for Rulemaking to Amend Eligibility Requirements in Part 78 Regarding 12 GHz Cable Television Relay Service*, Notice of Proposed Rulemaking, 64 FR 41899 (1999) (noting that "Optel maintains that the signal propagation characteristics (e.g., the distance over which the signal remains strong) of the 18 GHz band make it unsuitable for widely distributed systems and limits growth within the PCO industry").

25 *12 GHz Order* at ¶15.

26 *See id.* at ¶13.

MSOs,"[27] the Commission previously has concluded that the 12 GHz band is superior to 18 GHz because the 12 GHz band allows PCOs to increase the number of programming channels from 72 to 82.[28] In sum, IMCC's unsubstantiated assertions about the suitability of the 12 GHz band are belied by the record in other proceedings.

3. IMCC Fails to Show that PCOs Cannot be Accommodated at 12 GHz.

IMCC argues that the Commission's rationale for relocating PCOs from 18.3-18.58 GHz is flawed because the 12 GHz band is heavily congested, and may not be able to accommodate PCOs displaced from 18 GHz. Significantly, IMCC does not offer a shred of evidence to support this claim.

IMCC alludes to the analyses of Comsearch attached to its Petition in support of its arguments about the inadequacy of the 12 GHz band. But Comsearch did not analyze the possibility of accommodating PCOs at 12 GHz. Nor does Comsearch dispute OET's conclusion that, of 1473 PCO links studied, only 10 links could not be accommodated in the 12.7-13.2 GHz band. Thus, IMCC fails to provide new or contrary assertions to the Commission's conclusion that, as to 12.7-13.2 GHz, "sufficient capacity exists in this relocation spectrum to reasonably accommodate most incumbent licensees."[29]

4. IMCC Fails to Show that 17.7 to 18.142 GHz Cannot Accommodate PCOs.

As noted above, the Commission opened 17.7-18.142 GHz for displaced PCOs. Although IMCC questions the availability of this band, it fails to prove its case. IMCC's sole "evidence" regarding the 17.7-18.142 GHz band consists of a Comsearch interference study that

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27 Petition at 10.

28 RCN Comments filed in RM No. 9257 on May 18, 1998 at 4.

29 *Second Order on Reconsideration* at ¶17.

purports to analyze the ability to relocate ten specific PCO links from 18.3-18.58 GHz to the 17.7-18.142 GHz band.[30] Based on this cursory Comsearch study, IMCC asserts that 70% of the links in the 18.3-18.58 GHz band cannot be relocated to 17.7-18.142 GHz.[31] The Comsearch study does not support that assertion.

The Comsearch study cannot be used to establish the likelihood of accommodating displaced PCO systems at 17.7-18.142 GHz. As an initial matter, there is no indication that the ten 18.3-18.58 GHz paths Comsearch analyzed were randomly selected. In fact, the Comsearch analysis neither states how the ten paths were selected, nor explains why only ten paths were selected. Indeed, Comsearch could have selected the worst possible interference cases. The attached study of Radio Dynamics, which analyzes ten different PCO paths, shows that these ten existing PCO paths all can be accommodated at 17.7-18.142 GHz.[32]

Under IMCC's logic, based on the Radio Dynamics study, all PCO links should be accommodated at 17.7-18.142 GHz. But as Radio Dynamics explains, the real point of its study is to demonstrate that analyzing merely ten links does not allow one to reach the conclusions that IMCC has reached.[33] The ten PCO links Comsearch analyzed are but a small sample of the thousands of PCO links in question, and are therefore statistically insignificant. Moreover, the conclusion reached by analyzing ten links stands in stark contrast to that reached

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30 Petition at Attachments 1 & 3. To the extent that the absence of a channelization plan for the 17.7-18.3 band truly is an issue for PCOs, it can be readily resolved, as IMCC acknowledges, through a further Commission proceeding. Petition at 9. In order to support the transition to digital technology, any such new channel plan should be designed for digital transmissions.

31 Petition at 10.

32 Radio Dynamics, Further Analysis of Relocation Possibilities for Multi-Channel Video Systems from the 18.3-18.58 GHz Band, dated July 9, 2003 attached as Exhibit A hereto ("Radio Dynamics Study").

33 *See* Petition at Attachment 2 at 3.

by OET in its study of 1473 links, resulting in the conclusion that almost all PCO links should be able to be accommodated at either 12.7-13.2 GHz or 17.7-18.142 GHz.[34]

As Radio Dynamics further explains, the Comsearch analysis does not employ standard industry procedures, because it bases its computations on a single interference threshold value, instead of using different interference levels depending on whether the interferer is an analog, digital, AM video, or FM video link.[35] Moreover, Comsearch excluded large sections of the band from consideration because of the presence of nearby links in the same band.[36] As Comsearch well understands, such potential conflicts can be overcome through proper system design. Comsearch also appears to have ignored the possibility of using non-contiguous bands of spectrum and using cross-polarized signals to enhance spectral efficiency, as well as the acceptability of interference cases that are within a few dB of standard objective limits.[37] Taking all of these relevant factors into account, Radio Dynamics concludes that each one of the ten Comsearch paths can be accommodated at 17.7-18.142 GHz.[38]

5. IMCC Fails to Demonstrate that the Relocation Rules Are Inadequate.

As noted above, IMCC's Petition is mostly repetitious and simply rehashes previously rejected arguments. Specifically, IMCC makes an assortment of arguments that the relocation of PCOs from 18 GHz will cause them competitive harm, and cites the significant disruption and cost to customers and "the PCO business model" associated with relocation.[39] To the extent that the Commission does consider these renewed arguments about the burdens of

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34 Radio Dynamics Study at 1,4.

35 *Id.* at 1.

36 *Id.* at 1-2.

37 *Id.* at 2.

38 *Id.* at 2-3.

39 *See, e.g.,* Petition at 9, 13, 15-16.

relocating, SIA urges the Commission to reject them because IMCC does specifically demonstrate why the Commission's relocation rules do not address IMCC's concerns. IMCC is well aware that, under the Commission's relocation rules, prior to 2012, PCOs cannot be moved until they are accommodated with "comparable facilities" elsewhere.[40] The Commission adopted this rule in order to "ensure a seamless handoff" from the PCO's existing facilities to its replacement facilities.[41] And displaced PCOs are entitled to reimbursement of certain relocation costs.

In short, IMCC has not shown that the Commission's relocation rules are inadequate to address its stated concerns. And even if it could, the time for reconsideration has passed, with the United States Court of Appeals for the D.C. Circuit recently upholding the Commission's relocation rules and the underlying policies.[42]

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40 *Second Order on Reconsideration* at ¶27.

41 *Id.* at ¶26.

42 *Teledesic, LLC v. FCC*, 275 F.3d 75 (D.C. Cir. 2001).

III. CONCLUSION

For the reasons set forth above, SIA respectfully requests that the Commission dismiss or deny the IMCC Petition.

Respectfully submitted,

Satellite Industry Association

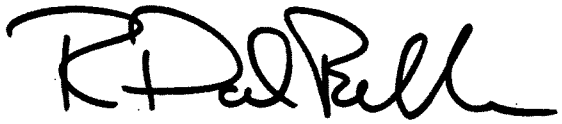

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EXHIBIT A

Radio Dynamics Study

Further Analysis of Relocation Possibilities for Multi-channel Video Systems from the 18.3-18.58 GHz band

July 9, 2003

Overview

The FCC's Second Order on Reconsideration in IB Docket 98-172 indicated that licensees of private cable systems adversely affected by the removal of their primary status in the 18.3-18.58 GHz band could be adequately accommodated in the 12.7-13.25 GHz and 17.7-18.14 GHz bands. Comsearch, in their document titled "Interference Study Multi-channel Video Systems in the 17.7-18.14 GHz Band" (February 5, 2003), and the succeeding clarification letter (May 5, 2003), contends that this is not the case.

First, it should be noted that although they claim otherwise, the Comsearch analysis does not follow the industry standard procedures as given in TIA-TSB 10F. Second, regarding the 17.7-18.14 GHz band, the Comsearch analysis was conducted on a statistically insignificant sample set of data consisting of only 10 paths. In fact, using a different sample set presented below, it is possible to show accommodation of all 10 paths in the 17.7-18.14 GHz band. The point here is not to argue the relative merits of one data set over another, but instead to point out that all such small sample studies should, at best, be regarded as anecdotal and not representative of whole set of affected multi-channel video links.

By contrast, the FCC's PCO relocation analysis was conducted on a much larger sample set of data (over 1400 paths) and used a C/I objective of 60 dB, which is very close to the 63 dB C/I objective that is shown in Equation D-5 of TIA-TSB 10F. Indeed, the FCC analysis shows that just 0.27% of the paths could not be accommodated in either the 12.7-13.25 GHz or 17.7-18.14 GHz bands.

Analysis of the Comsearch Data Set in the 17.7-18.14 GHz Band

First, the Comsearch analysis does not follow the industry standard procedures as given in TIA-TSB 10F. In particular, Comsearch computes a single interference threshold value for the proposed relocated multi-channel video links in the "Methodology" section of their paper. According to Annex D of TIA-TSB 10F, however, for a given carrier level different interference levels should be used depending on the nature of the interfering system. Indeed, equations D-11, D-12, D-13, and D-14 all give different C/I requirements, and therefore different required interference levels depending on whether the interferer is an analog, digital, AM video, or FM video link.

Second, Comsearch studied 10 specific multi-channel video links from the 18.3-18.58 GHz band and determined that 3 of the 10 could be accommodated in the 17.7-18.14 GHz band. Careful analysis of the links, however, shows that with some effort, several of the remaining links can also be accommodated.
In particular, Comsearch excluded large sections of the band for several links simply because

there are nearby links in the same band. While it is true that coordinating such links can be difficult, it is not uncommon in practice to implement such designs. With this restriction removed, a total of 6 out of the 10 paths are seen to have sufficient spectrum. It should be noted that although sufficient spectrum exists at the Shaw Butte location, it might be preferable to use the 12.7-13.25 GHz band to avoid violating the existing high-low frequency plan in the area. Shaw Butte is a well-known site among frequency coordinators since it is a small, high butte with a large number of RF transmission towers, known to be saturated with regards to microwave communications. It is unfortunate that Comsearch chose two of their 10 paths in this exceptionally difficult location.

For the remaining 4 links, it is possible to use discontinuous bands of spectrum and judiciously use cross-polarized equipment to greatly enhance the spectral efficiency of the systems. For example, according to the Comsearch calculations, there is sufficient spectrum available for the Bonaventure – Pear Ridge link. The spectrum is split into 4 blocks, however, so care must be taken to insure that the available spectrum can accommodate the proper number of 6 MHz channels. In this case, there are two 120 MHz blocks and two 40 MHz blocks which can easily handle more 6 MHz channels than the original 280 MHz. Using discontinuous spectrum blocks is a common technique for high bandwidth carriers (like PCOs) in other bands.

Regarding polarization, it can be shown that sufficient spectrum is available for the West Med – Park Place link by switching from vertical to horizontal polarization. Also, by combining vertically and horizontally polarized links in different parts of the spectrum, it is possible to find a total of 300 MHz available for the Fox Plaza – Wilshire SE link. As with the Bonaventure – Pear Ridge link, it is not hard to see that there are a sufficient number of 6 MHz channels in both these cases.

Finally, it is interesting to note that although in the text of the document Comsearch claims that interference cases within 3 dB of standard objective limits are acceptable, their Table 1 shows these cases blocked. In particular, when this is taken into account for the Riverside – Huntersglen link, sufficient clear spectrum can be found for this blocked case.

Analysis of an Alternative Data Set in the 17.7-18.14 GHz Band

Using the FCC Microwave database, Radio Dynamics selected10 multi-channel video links from the 18.3-18.58 GHz band. An effort was made to choose paths from several major cities, including New York, Los Angeles, Chicago, Miami, Dallas, Denver, San Diego, Phoenix, and Philadelphia. The frequency band for these paths was then changed to the 17.7-18.14 GHz band. Path data sheets for these paths are presented in Appendix A. For each of these paths, a point-to-point microwave interference analysis was run using the Radio Dynamics Openlink software to determine the availability of clear frequencies. This analysis computes the interference between the proposed relocated link and all proposed or licensed links currently operating in the area using industry standard objective limits and criteria.

The results of these analyses showed substantial portions of the 17.7-18.14 GHz band were available. In every case, over 280 MHz of spectrum was available using the same polarization. In

most cases, the 280 MHz was contiguous. In many cases, the entire band is available. The results of this study are summarized in Table 1. To determine which frequencies are available, two interference scenarios must be examined: interference from the proposed links into paths that already exist, and interference from the existing paths into the proposed links. For a given frequency to be considered available, interference by the proposed links into existing paths must be less than the industry standard objectives as described in TIA TSB 10F and interference from the existing paths into the proposed links must not violate the industry standard by more than 3 dB. This latter case matches the criteria used by Comsearch. Cases where there were nearby non-interfering transmitters operating in the same band were ignored since no actual interference was predicted. Note that in many cases, a large portion of the band was also available using the opposite polarization. It should also be noted that although sufficient spectrum exists at the Phoenix location, it might be preferable to use the 12.7-13.25 GHz band to avoid violating the existing high-low frequency plan in the area.

Table 1: Interference Results for Proposed Relocated Paths.

Proposed Path	Location	Available Freqs	Contiguous BW	Pol.
WPJF845 Century – 1777 Grand Concourse	New York	17700-18140	440 MHz	H
WPJF845 Century – 5800 Arlington	New York	17700-17950, 18010-18050, 18060-18080, 18090-18130	250 MHz, 40 MHz, 20 MHz, 40 MHz,	H
WPQT813 BH – GP	Los Angeles	17700-18140	440 MHz	H
WPJE782 Mission PKI – Mission PII	San Diego	17700-18130	430 MHz	V
WNTN793 The Village – Hamptons	Denver	17700-18110	410 MHz	H
WNTY540 Arbor Place – Crescent House #3	Miami	17700-18140	440 MHz	H
WPNA242 1415 N Dearborn – 14 W Elm St.[1]	Chicago	17700-17940, 17980-18020, 18060-18130	240 MHz 40 MHz 70 MHz	H
WPRQ902 Chestnut Ha – Astor	Philadelphia	17700-17800, 17810-18140	100 MHz 330 MHz	V
WNTZ720 Shaw Buttes – Sonterra[1]	Phoenix	17700-17820, 17860-17880 17940-18020, 18060-18130	120 MHz 20 MHz 80 MHz 70 MHz	H
WPNC332 NPC3 – Springhill 2	Dallas	17700-18020, 18060-18140	320 MHz 80 MHz	H

[1] In the case of Chicago and Phoenix, substantial bucking with the existing frequency plans may require additional shielding. The high-low plan in Phoenix may make this approach undesirable.

Statistical Significance

In interpreting the results of the limited Comsearch or Radio Dynamics analyses, it is important to realize that neither data set is inherently "better". In fact, both data sets represent miniscule samples of the several thousand links in question. At best, conclusions based on either data set can only be regarded as anecdotal and not representative. Assigning a greater meaning to either set of results constitutes a violation of good statistical practice. In contrast, the FCC study examined 1473 links and found sufficient spectrum to accommodate the vast majority of them.

Conclusions

The analysis results presented here indicate that the Comsearch papers have problems with engineering methodology and are misleading. In particular,

- There are clearly substantial spectral resources available in the 17.7-18.14 GHz band.
- The Comsearch study of the 17.7-18.14 GHz band is overly constrained. With good engineering and careful planning, most of the links in this study can be accommodated in the 17.7-18.14 GHz band. While non-contiguous spectrum usage and polarization changes may require modifications to the conventional design method for AML links, this is standard practice in other bands.
- The Comsearch analysis does not follow the industry standard procedures for interference calculations as given in TIA-TSB 10F.
- The Comsearch study analyzed only 10 links, far too few to be of any statistical significance. Radio Dynamics has provided a similar sample set of 10 links with much more favorable relocation characteristics. In contrast to these small sample set studies, the FCC study analyzed over 1400 links and found that 99.73% could be accommodated in either the 17.7-18.14 GHz or 12.7-13.25 GHz bands.

RADIO DYNAMICS CORP.
6905 ROCKLEDGE DRIVE, SUITE 600
BETHESDA, MD 20817
(301) 493-5171

FREQUENCY COORDINATION DATE(S):
FREQUENCY COORDINATION NUMBER:
OWNER NAME: TRANSMISSION HOLDINGS, INC.

STATION NAME, STATE	SHAW BUTTES, AZ	SONTERRA, AZ
COUNTY	MARICOPA	MARICOPA
CALL SIGN	WNTZ720	
LATITUDE (NAD83)	33-35-39.10N	33-38-45.50N
LONGITUDE (NAD83)	112-05-14.50W	111-58-45.50W
GROUND ELEV (AMSL)	2149.0 ft/655.0 m	1479.7 ft/451.0 m
AZIMUTH TO RX	60.2 deg	240.2 deg
DISTANCE TO RX	7.2 miles/11.6 Km	7.2 miles/11.6 Km
FREE-SPACE LOSS	139.2 dB	139.2 dB
TRANSMIT ANTENNA		
MANUFACTURER	GABRIEL ELECTRONICS, INC	
MODEL NUMBER	SR8-180BSE	
BEAMWIDTH	0.5 deg	
GAIN	50.2 dBi	
CENTER LINE (AGL)	40.0 ft/12.2 m	
TILT ANGLE	-1.0 deg	0.0 deg
LINE LOSS	0.0 dB	
RECEIVE ANTENNA		
MANUFACTURER		CABLEWAVE SYSTEMS
MODEL NUMBER		DA6-190/220
BEAMWIDTH		
GAIN		48.0 dBi
CENTER LINE (AGL)		45.9 ft/14.0 m
LINE LOSS		0.0 dB
RADIO EQUIPMENT		
MANUFACTURER	WESTEC COMMUNICATION	WESTEC COMMUNICATION
MODEL NUMBER	H9HWMT-PC1805	H9HWMT-PC1805
FCC DESIGNATOR	5M75C3F	5M75C3F
MODULATION TYPE	VIDVSB	
MODULATION RATE		
STABILITY	0.0005%	
PAD LOSS	0.0 dB	
POWER		
COORD. TX POWER	-5.8 dBm/0.000 W	
EIRP	44.4 dBm/27.542 W	
RECEIVED LEVEL		-46.8 dBm
TRANSMIT FREQUENCIES	17700H - 18140H MHz	

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FREQUENCY COORDINATION DATE(S):
FREQUENCY COORDINATION NUMBER:
OWNER NAME: TRANSMISSION HOLDINGS, INC.

STATION NAME, STATE	NCP3, TX	SPRINGHILL 2, TX
COUNTY	DALLAS	DALLAS
CALL SIGN	WPNC332	
LATITUDE (NAD83)	32-55-18.90N	32-56-12.00N
LONGITUDE (NAD83)	96-45-59.20W	96-45-35.00W
GROUND ELEV (AMSL)	549.9 ft/167.6 m	569.9 ft/173.7 m
AZIMUTH TO RX	21.0 deg	201.0 deg
DISTANCE TO RX	1.1 miles/1.8 Km	1.1 miles/1.8 Km
FREE-SPACE LOSS	122.8 dB	122.8 dB
TRANSMIT ANTENNA		
MANUFACTURER	CABLEWAVE SYSTEMS	
MODEL NUMBER	DA4-190-220	
BEAMWIDTH		
GAIN	44.5 dBi	
CENTER LINE (AGL)	230.0 ft/70.1 m	
TILT ANGLE	-1.8 deg	0.0 deg
LINE LOSS	0.0 dB	
RECEIVE ANTENNA		
MANUFACTURER		CABLEWAVE SYSTEMS
MODEL NUMBER		DA4-190-220
BEAMWIDTH		
GAIN		44.5 dBi
CENTER LINE (AGL)		31.8 ft/9.7 m
LINE LOSS		0.0 dB
RADIO EQUIPMENT		
MANUFACTURER	BLONDER TONGUE	BLONDER TONGUE
MODEL NUMBER	TX18051	TX18051
FCC DESIGNATOR	5M75C3F	5M75C3F
MODULATION TYPE	VIDVSB	
MODULATION RATE		
STABILITY	0.0020%	
PAD LOSS	0.0 dB	
POWER		
COORD. TX POWER	-16.3 dBm/0.000 W	
EIRP	28.2 dBm/0.661 W	
RECEIVED LEVEL		-50.1 dBm
TRANSMIT FREQUENCIES	17700H - 18140H MHz	

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(301) 493-5171

FREQUENCY COORDINATION DATE(S):
FREQUENCY COORDINATION NUMBER:
OWNER NAME: ADELPHIA CALIFORNIA CABLEVISION, LLC, D

STATION NAME, STATE	MISSION PKI, CA	MISSION PII, CA
COUNTY	SAN DIEGO	SAN DIEGO
CALL SIGN	WPJE782	
LATITUDE (NAD83)	33-08-31.10N	33-08-33.10N
LONGITUDE (NAD83)	117-08-11.60W	117-08-18.10W
GROUND ELEV (AMSL)	678.1 ft/206.7 m	634.8 ft/193.5 m
AZIMUTH TO RX	290.1 deg	110.1 deg
DISTANCE TO RX	0.1 miles/0.2 Km	0.1 miles/0.2 Km
FREE-SPACE LOSS	103.0 dB	103.0 dB
TRANSMIT ANTENNA		
MANUFACTURER	CABLEWAVE SYSTEMS, INC.	
MODEL NUMBER	PA2-190	
BEAMWIDTH		
GAIN	38.9 dBi	
CENTER LINE (AGL)	15.1 ft/4.6 m	
TILT ANGLE	-3.0 deg	4.2 deg
LINE LOSS	0.0 dB	
RECEIVE ANTENNA		
MANUFACTURER		CABLEWAVE SYSTEMS, INC.
MODEL NUMBER		PA2-190
BEAMWIDTH		
GAIN		38.9 dBi
CENTER LINE (AGL)		27.9 ft/8.5 m
LINE LOSS		0.0 dB
RADIO EQUIPMENT		
MANUFACTURER	HUGHES AIRCRAFT COMPANY	HUGHES AIRCRAFT COMPANY
MODEL NUMBER	DOO63QAMLHR18126	DOO63QAMLHR18126
FCC DESIGNATOR	5M75C3F	5M75C3F
MODULATION TYPE	VIDVSB	
MODULATION RATE		
STABILITY	0.0005%	
PAD LOSS	0.0 dB	
POWER		
COORD. TX POWER	-19.1 dBm/0.000 W	
EIRP	19.8 dBm/0.095 W	
RECEIVED LEVEL		-44.3 dBm
TRANSMIT FREQUENCIES	17700V - 18140V MHz	

RADIO DYNAMICS CORP.
6905 ROCKLEDGE DRIVE, SUITE 600
BETHESDA, MD 20817
(301) 493-5171

FREQUENCY COORDINATION DATE(S):
FREQUENCY COORDINATION NUMBER:
OWNER NAME: COMCAST CABLEVISION OF PHILADELPHIA INC

STATION NAME, STATE	CHESTNUT HA, PA	ASTOR, PA
COUNTY	PHILADELPHIA	PHILADELPHIA
CALL SIGN	WPRQ902	
LATITUDE (NAD83)	39-57-18.10N	39-57-13.20N
LONGITUDE (NAD83)	75-12-01.50W	75-11-59.50W
GROUND ELEV (AMSL)	98.1 ft/29.9 m	98.1 ft/29.9 m
AZIMUTH TO RX	162.6 deg	342.6 deg
DISTANCE TO RX	0.1 miles/0.2 Km	0.1 miles/0.2 Km
FREE-SPACE LOSS	101.9 dB	101.9 dB
TRANSMIT ANTENNA		
MANUFACTURER	ANDREW CORPORATION	
MODEL NUMBER	VHP6-180A	
BEAMWIDTH		
GAIN	48.0 dBi	
CENTER LINE (AGL)	146.0 ft/44.5 m	
TILT ANGLE	-11.3 deg	0.0 deg
LINE LOSS	0.0 dB	
RECEIVE ANTENNA		
MANUFACTURER		ANDREW CORPORATION
MODEL NUMBER		VHP4-180A
BEAMWIDTH		
GAIN		44.6 dBi
CENTER LINE (AGL)		42.0 ft/12.8 m
LINE LOSS		0.0 dB
RADIO EQUIPMENT		
MANUFACTURER	BLONDER TOUNGE	BLONDER TOUNGE
MODEL NUMBER	TX18001	TX18001
FCC DESIGNATOR	5M75C3F	5M75C3F
MODULATION TYPE	VIDVSB	
MODULATION RATE		
STABILITY	0.0020%	
PAD LOSS	0.0 dB	
POWER		
COORD. TX POWER	-31.0 dBm/0.000 W	
EIRP	17.0 dBm/0.050 W	
RECEIVED LEVEL		-40.3 dBm
TRANSMIT FREQUENCIES	17700V - 18140V MHz	

RADIO DYNAMICS CORP.
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FREQUENCY COORDINATION DATE(S):
FREQUENCY COORDINATION NUMBER:
OWNER NAME: ONE POINT COMMUNICATIONS C/O COMSEARCH

STATION NAME, STATE	1415 N DEARBORN, IL	14 W ELM, IL
COUNTY	COOK	COOK
CALL SIGN	WPNA242	
LATITUDE (NAD83)	41-54-29.10N	41-54-15.00N
LONGITUDE (NAD83)	87-37-49.10W	87-37-46.00W
GROUND ELEV (AMSL)	595.1 ft/181.4 m	595.1 ft/181.4 m
AZIMUTH TO RX	170.7 deg	350.7 deg
DISTANCE TO RX	0.3 miles/0.4 Km	0.3 miles/0.4 Km
FREE-SPACE LOSS	110.8 dB	110.8 dB
TRANSMIT ANTENNA		
MANUFACTURER	ANDREW CORPORATION	
MODEL NUMBER	VHP2-180A	
BEAMWIDTH		
GAIN	38.7 dBi	
CENTER LINE (AGL)	277.9 ft/84.7 m	
TILT ANGLE	-3.1 deg	0.0 deg
LINE LOSS	18.1 dB	
RECEIVE ANTENNA		
MANUFACTURER		ANDREW CORPORATION
MODEL NUMBER		VHP4-180A
BEAMWIDTH		
GAIN		44.6 dBi
CENTER LINE (AGL)		200.1 ft/61.0 m
LINE LOSS		0.6 dB
RADIO EQUIPMENT		
MANUFACTURER	HUGHES AIRCRAFT COMPANY	HUGHES AIRCRAFT COMPANY
MODEL NUMBER	DO063QAMLHOT18121	DO063QAMLHOT18121
FCC DESIGNATOR	5M75C3F	5M75C3F
MODULATION TYPE	VIDVSB	
MODULATION RATE		
STABILITY	0.0005%	
PAD LOSS	0.0 dB	
POWER		
COORD. TX POWER	0.0 dBm/0.001 W	
EIRP	20.6 dBm/0.115 W	
RECEIVED LEVEL		-46.2 dBm
TRANSMIT FREQUENCIES	17700H - 18140H MHz	

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FREQUENCY COORDINATION DATE(S):
FREQUENCY COORDINATION NUMBER:
OWNER NAME: TRANSMISSION HOLDINGS, INC.

STATION NAME, STATE	ARBOR PLACE, FL	CRESCENT HOUSE #3, FL
COUNTY	MIAMI-DADE	MIAMI-DADE
CALL SIGN	WNTY540	
LATITUDE (NAD83)	25-54-52.30N	25-54-49.30N
LONGITUDE (NAD83)	80-18-39.10W	80-18-23.10W
GROUND ELEV (AMSL)	9.8 ft/3.0 m	9.8 ft/3.0 m
AZIMUTH TO RX	101.7 deg	281.7 deg
DISTANCE TO RX	0.3 miles/0.5 Km	0.3 miles/0.5 Km
FREE-SPACE LOSS	111.1 dB	111.1 dB
TRANSMIT ANTENNA		
MANUFACTURER	CABLEWAVE SYSTEMS	
MODEL NUMBER	DA2-190/220	
BEAMWIDTH		
GAIN	38.7 dBi	
CENTER LINE (AGL)	62.0 ft/18.9 m	
TILT ANGLE	-0.9 deg	0.0 deg
LINE LOSS	0.0 dB	
RECEIVE ANTENNA		
MANUFACTURER		CABLEWAVE SYSTEMS
MODEL NUMBER		DA2-190/220
BEAMWIDTH		
GAIN		38.7 dBi
CENTER LINE (AGL)		38.1 ft/11.6 m
LINE LOSS		0.0 dB
RADIO EQUIPMENT		
MANUFACTURER	AML WIRELESS	AML WIRELESS
MODEL NUMBER	DOO63QAMLMR18125L	DOO63QAMLMR18125L
FCC DESIGNATOR	5M75C3F	5M75C3F
MODULATION TYPE	VIDVSB	
MODULATION RATE		
STABILITY	0.0005%	
PAD LOSS	0.0 dB	
POWER		
COORD. TX POWER	-3.3 dBm/0.000 W	
EIRP	35.4 dBm/3.467 W	
RECEIVED LEVEL		-37.0 dBm
TRANSMIT FREQUENCIES	17700H - 18140H MHz	

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FREQUENCY COORDINATION DATE(S):
FREQUENCY COORDINATION NUMBER:
OWNER NAME: TRANSMISSION HOLDINGS, INC.

STATION NAME, STATE	THE VILLAGE, CO	HAMPTONS, CO
COUNTY	DENVER	JEFFERSON
CALL SIGN	WNTN793	
LATITUDE (NAD83)	39-39-30.90N	39-39-17.90N
LONGITUDE (NAD83)	105-01-53.90W	105-05-40.90W
GROUND ELEV (AMSL)	5419.9 ft/1652.0 m	5480.0 ft/1670.3 m
AZIMUTH TO RX	265.8 deg	85.7 deg
DISTANCE TO RX	3.4 miles/5.4 Km	3.4 miles/5.4 Km
FREE-SPACE LOSS	132.6 dB	132.6 dB
TRANSMIT ANTENNA		
MANUFACTURER	CABLEWAVE SYSTEMS, INC.	
MODEL NUMBER	PA6-190	
BEAMWIDTH		
GAIN	48.2 dBi	
CENTER LINE (AGL)	35.1 ft/10.7 m	
TILT ANGLE	0.2 deg	0.0 deg
LINE LOSS	6.0 dB	
RECEIVE ANTENNA		
MANUFACTURER		CABLEWAVE SYSTEMS, INC.
MODEL NUMBER		PA6-190
BEAMWIDTH		
GAIN		48.2 dBi
CENTER LINE (AGL)		35.1 ft/10.7 m
LINE LOSS		0.6 dB
RADIO EQUIPMENT		
MANUFACTURER	HUGHES AIRCRAFT COMPANY	HUGHES AIRCRAFT COMPANY
MODEL NUMBER	DOO63QAMLOT18120	DOO63QAMLOT18120
FCC DESIGNATOR	5M75C3F	5M75C3F
MODULATION TYPE	VIDVSB	
MODULATION RATE		
STABILITY	0.0005%	
PAD LOSS	0.0 dB	
POWER		
COORD. TX POWER	-3.0 dBm/0.001 W	
EIRP	39.2 dBm/8.318 W	
RECEIVED LEVEL		-45.8 dBm
TRANSMIT FREQUENCIES	17700H - 18140H MHz	

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FREQUENCY COORDINATION DATE(S):
FREQUENCY COORDINATION NUMBER:
OWNER NAME: BRITISH AMERICAN COMMUNICATIONS INC

STATION NAME, STATE	BH, CA	GP, CA
COUNTY	LOS ANGELES	LOS ANGELES
CALL SIGN	WPQT813	
LATITUDE (NAD83)	34-03-26.00N	34-03-10.00N
LONGITUDE (NAD83)	118-15-07.20W	118-15-05.70W
GROUND ELEV (AMSL)	9.8 ft/3.0 m	20.0 ft/6.1 m
AZIMUTH TO RX	175.5 deg	355.5 deg
DISTANCE TO RX	0.3 miles/0.5 Km	0.3 miles/0.5 Km
FREE-SPACE LOSS	111.8 dB	111.8 dB
TRANSMIT ANTENNA		
MANUFACTURER	MILLIFLECT	
MODEL NUMBER	TM1848SA	
BEAMWIDTH		
GAIN	44.7 dBi	
CENTER LINE (AGL)	319.9 ft/97.5 m	
TILT ANGLE	-0.3 deg	0.0 deg
LINE LOSS	0.0 dB	
RECEIVE ANTENNA		
MANUFACTURER		CABLEWAVE SYSTEMS, INC.
MODEL NUMBER		DA6-190
BEAMWIDTH		
GAIN		48.2 dBi
CENTER LINE (AGL)		299.9 ft/91.4 m
LINE LOSS		0.0 dB
RADIO EQUIPMENT		
MANUFACTURER	HUGHES AIRCRAFT COMPANY	HUGHES AIRCRAFT COMPANY
MODEL NUMBER	DOO63QAMLLOT18119	DOO63QAMLLOT18119
FCC DESIGNATOR	5M75C3F	5M75C3F
MODULATION TYPE	VIDVSB	
MODULATION RATE		
STABILITY	0.0005%	
PAD LOSS	0.0 dB	
POWER		
COORD. TX POWER	-12.7 dBm/0.000 W	
EIRP	32.0 dBm/1.585 W	
RECEIVED LEVEL		-31.6 dBm
TRANSMIT FREQUENCIES	17700H - 18140H MHz	

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(301) 493-5171

FREQUENCY COORDINATION DATE(S):
FREQUENCY COORDINATION NUMBER:
OWNER NAME: RCN TELECOM SERVICES, INC.

STATION NAME, STATE	CENTURY, NY	5800 ARLINGTON, NY
COUNTY	BRONX	BRONX
CALL SIGN	WPJF845	
LATITUDE (NAD83)	40-52-42.30N	40-54-26.40N
LONGITUDE (NAD83)	73-54-54.40W	73-54-20.50W
GROUND ELEV (AMSL)	149.9 ft/45.7 m	220.1 ft/67.1 m
AZIMUTH TO RX	13.9 deg	193.9 deg
DISTANCE TO RX	2.1 miles/3.3 Km	2.1 miles/3.3 Km
FREE-SPACE LOSS	128.3 dB	128.3 dB
TRANSMIT ANTENNA		
MANUFACTURER	CABLEWAVE SYSTEMS, INC.	
MODEL NUMBER	PA6-190	
BEAMWIDTH		
GAIN	48.2 dBi	
CENTER LINE (AGL)	396.0 ft/120.7 m	
TILT ANGLE	-0.1 deg	0.0 deg
LINE LOSS	4.0 dB	
RECEIVE ANTENNA		
MANUFACTURER		CABLEWAVE SYSTEMS, INC.
MODEL NUMBER		PA6-190
BEAMWIDTH		
GAIN		48.2 dBi
CENTER LINE (AGL)		309.1 ft/94.2 m
LINE LOSS		1.0 dB
RADIO EQUIPMENT		
MANUFACTURER	HUGHES AIRCRAFT COMPANY	HUGHES AIRCRAFT COMPANY
MODEL NUMBER	DOO63QAMLHOT18121	DOO63QAMLHOT18121
FCC DESIGNATOR	5M75C3F	5M75C3F
MODULATION TYPE	VIDVSB	
MODULATION RATE		
STABILITY	0.0005%	
PAD LOSS	0.0 dB	
POWER		
COORD. TX POWER	-10.0 dBm/0.000 W	
EIRP	34.2 dBm/2.630 W	
RECEIVED LEVEL		-46.9 dBm
TRANSMIT FREQUENCIES	17700H - 18140H MHz	

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(301) 493-5171

FREQUENCY COORDINATION DATE(S):
FREQUENCY COORDINATION NUMBER:
OWNER NAME: RCN TELECOM SERVICES, INC.

STATION NAME, STATE	CENTURY, NY	1777 GRAND CONCOURSE, NY
COUNTY	BRONX	BRONX
CALL SIGN	WPJF845	
LATITUDE (NAD83)	40-52-42.30N	40-50-45.80N
LONGITUDE (NAD83)	73-54-54.40W	73-54-29.90W
GROUND ELEV (AMSL)	149.9 ft/45.7 m	30.5 ft/9.3 m
AZIMUTH TO RX	170.9 deg	350.9 deg
DISTANCE TO RX	2.3 miles/3.6 Km	2.3 miles/3.6 Km
FREE-SPACE LOSS	129.1 dB	129.1 dB
TRANSMIT ANTENNA		
MANUFACTURER	CABLEWAVE SYSTEMS, INC.	
MODEL NUMBER	PA6-190	
BEAMWIDTH		
GAIN	48.2 dBi	
CENTER LINE (AGL)	394.0 ft/120.1 m	
TILT ANGLE	-1.8 deg	0.0 deg
LINE LOSS	0.0 dB	
RECEIVE ANTENNA		
MANUFACTURER		CABLEWAVE SYSTEMS, INC.
MODEL NUMBER		PA6-190
BEAMWIDTH		
GAIN		48.2 dBi
CENTER LINE (AGL)		142.1 ft/43.3 m
LINE LOSS		0.0 dB
RADIO EQUIPMENT		
MANUFACTURER	HUGHES AIRCRAFT COMPANY	HUGHES AIRCRAFT COMPANY
MODEL NUMBER	DOO63QAMLHOT18121	DOO63QAMLHOT18121
FCC DESIGNATOR	5M75C3F	5M75C3F
MODULATION TYPE	VIDVSB	
MODULATION RATE		
STABILITY	0.0005%	
PAD LOSS	0.0 dB	
POWER		
COORD. TX POWER	-14.5 dBm/0.000 W	
EIRP	33.7 dBm/2.344 W	
RECEIVED LEVEL		-47.2 dBm
TRANSMIT FREQUENCIES	17700H - 18140H MHz	

CERTIFICATE OF SERVICE

I hereby certify on this 10th day of July 2003 that a true and correct copy of the foregoing Opposition to Petition for Reconsideration filed by Satellite Industry Association was deposited in the U.S. mail, first-class postage prepaid, addressed to the following:

William J. Burhop
Executive Director
Independent Multifamily Communications Council
3004 Oregon Knolls Drive, N.W.
Washington, D.C. 20015

Cheryl T. Washington

Cheryl T. Washington

DC\605923.3