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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Magalie Roman Salas
Secretary
Federal Communications Commission
The Portals
445 Twelfth Street, S.W.
Washington, DC 20554

Re: ***Notice of Ex Parte Presentation***:
CC Docket 98-172, RM-9005, RM-9118.
CS Docket No. 99-250, RM-9257.
File Nos.187-SAT-P/LA-97(96), SAT-LOA-19970926-00147, SAT-AMD-20001103-00156.
File Nos. 179-SAT-P/LA-97(16), 90-SAT-AMEND-98(20), SAT-LOA-19970926-00149, SAT-AMD-19980318-00021, SAT-AMD-20001103-00159.

Dear Ms. Salas:

On October 16, 2001, Joslyn Read, Assistant Vice President, Regulatory and International Affairs, of Hughes Network Systems, and the undersigned, met with Monica Shah Desai, Legal Advisor to Commissioner Martin. The topics of discussion were those described in the enclosed set of presentation materials, the enclosed pleadings which were delivered, and the Hughes positions of record in these proceedings.

An original and fourteen copies are enclosed.

Respectfully submitted,

John P. Janka

cc: Monica Shah Desai (w/o enc.)

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1

HUGHES
NETWORK SYSTEMS

Presentation to the Federal Communications Commission

16 October 2001

HUGHES NETWORK SYSTEMS

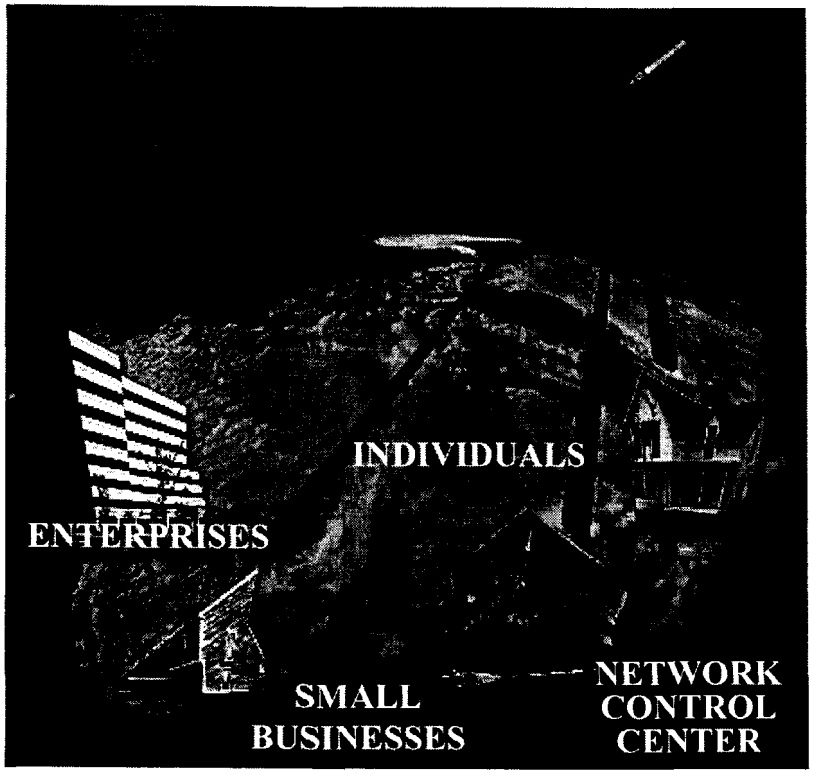
SPACEWAY.

HUGHES SPACEWAY™ Satellite Broadband System

HUGHES NETWORK SYSTEMS

A global IP network providing high-speed bandwidth... on-demand

- High-speed Internet access and interactive digital communications services
- Supports data, multimedia images and graphics, video and voice

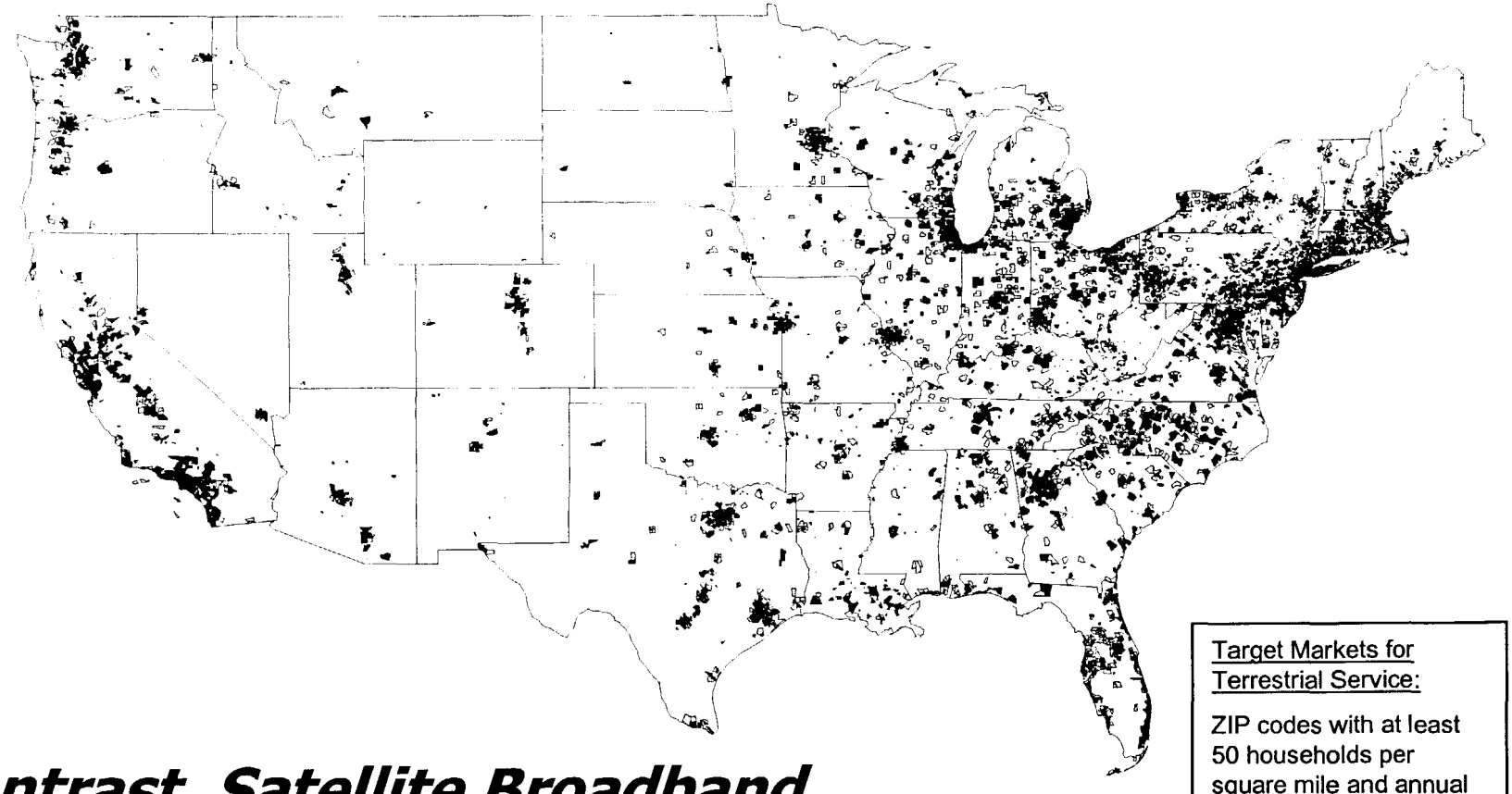


- Powerful, low-cost, small, easy-to-install terminals
- Spot beams and onboard processor allow inter-beam routing - no gateways required
- On-board packet replication for broadcast and multicast services
  - Simultaneous interactive and broadcast services
- Communications rates from low kbps to multiple Mbps
- Services start in early 2003

SPACEWAY.

30-40 Million Households May Never Receive Advanced Services from Terrestrial Providers

HUGHES™ NETWORK SYSTEMS



Target Markets for Terrestrial Service:

ZIP codes with at least 50 households per square mile and annual income of at least $35K

In contrast, Satellite Broadband Offers the Same High-Quality Broadband Services Everywhere

SPACEWAY.

FCC Ka-band Spectrum Decisions

HUGHES
NETWORK SYSTEMS

- In 1993, SPACEWAY filed the first Ka-band broadband satellite system application with the FCC

- FCC's 1996 *28-GHz Band Plan* acknowledged the need for 1000 MHz bi-directional spectrum to be available for GSO/FSS systems to provide advanced broadband service to ubiquitous terminals

- In 1997, Commission licensed the first round Ka-band GSO/FSS companies

- FCC's June 2000 *18-GHz Order* partially reversed the *28-GHz Band Plan*
  - designated only 720 MHz of spectrum for ubiquitous terminals for downlink service
  - required that GSO/FSS systems use remaining 280 MHz of downlink spectrum "judiciously" --- not truly co-primary

- In 2001, the Commission licensed two 2-GHz MSS systems to use Ka-band feeder links without resolving the potential interference to be caused to existing licensed GSO/FSS systems, like SPACEWAY, at 29.25-25.50 GHz

Impact of Spectrum Decisions

HUGHES NETWORK SYSTEMS

- FCC's *18-GHz Order,* by inhibiting access to the lower 500 MHz of downlink spectrum :
  - Reduced GSO/FSS spectrum for ubiquitous terminals by 28%
  - Cut net SPACEWAY system capacity and business plan by 50%
- Reducing capacity available from each licensed orbital location increases pressure on slot allocation and causes inefficiencies in use of orbital resources
  - Since 1993, HUGHES has planned to use 2 satellites with 500 MHz each, for a total of 1000 MHz, at each orbital slot
- FCC has ignored SPACEWAY requests in the 2nd Ka-band GSO Round to compensate for spectrum loss with additional usable orbital slots
- In reliance on its license and the 1000 MHz of spectrum committed in the 28-GHz Band Plan, HUGHES has
  - Committed $1.5 billion for the SPACEWAY GSO/FSS system over North America,
  - Spent close to $1 billion to date
  - Employed more than 1500 people on the spacecraft and ground segment programs
- All the while, terrestrial broadband roll-out is cutting back, yet demand for advanced broadband services is rapid increasing

SPACEWAY

U.S. Spectrum Allocations for Ka-band GSO/FSS Services

HUGHES NETWORK SYSTEMS

- **Uplink:**

28.35-28.6 GHz	GSO FSS/ngso fss	250 MHz
29.25-29.5 GHz	GSO FSS + MSS FL	250 MHz
29.50-30.0 GHz	GSO FSS/ngso fss	500 MHz

- **Downlink:**

18.30-18.58 GHz	GSO FSS + FS	280 MHz *
18.58-18.8 GHz	GSO FSS	220 MHz
19.7-20.2 GHz	GSO FSS/ngso fss	500 MHz

* Not available for blanket-licensed, ubiquitous earth station services

SPACEWAY.

Major Hughes Issues in 18 GHz Reconsideration Proceeding

HUGHES NETWORK SYSTEMS

- Reduction to 720 MHz of spectrum available for ubiquitous GSO FSS terminals
  - unexplained reversal of 28 GHz band plan decision to provide 1000 MHz
  - based on flawed premise that there is only 750 MHz of companion uplink spectrum
  - ignores evidence that all 1000 MHz of GSO FSS uplink spectrum can be used by ubiquitous terminals
  - ignores the GSO FSS/MSS feeder link sharing solution for the 29.25-29.5 GHz band
  - inexplicably fails to impose any burden of spectrum cutback on other satellite users---NGSO FSS (18.8-19.3 GHz) or MSS feeder links (19.3-19.7 GHz)

- Requirement that the GSO FSS alleviate interference into terrestrial incumbents at 18.3-18.8 GHz who do not comply with FCC rules
  - "Legacy List" requirement is antithetical to long-standing rules that terrestrial operators must accept certain "PFD" power levels from satellite downlinks

Major Hughes Issues in 18 GHz Reconsideration Proceeding

HUGHES™
NETWORK SYSTEMS

- Secondary GSO and NGSO allocations at 18.3-18.8 (NGSO) and 18.8-19.3 GHz (GSO) were deleted without explanation
  - not reconciled with 28 GHz decision to allow secondary uses in these bands
  - not reconciled with WRC-2000 GSO/NGSO sharing criteria
  - not reconciled with secondary allocations that remain at 19.7-20.2 GHz, 28.35-29.1 GHz, and 29.5-30.0 GHz

- Earth station blanket licensing rules inexplicably vary from industry recommendations
  - PFD limit made more restrictive only at 18.3-18.8 GHz, not other bands shared between terrestrial users and the NGSO FSS (18.8-19.3 GHz) or MSS feeder links (19.3-19.7 GHz)
  - Section 25.138 should be the routine processing standard for blanket licensing in in *all GSO FSS parts* of the Ka band
  - Section 25.138 rules were not designed to govern individually-licensed terminals

What SPACEWAY Needs

HUGHES
NETWORK SYSTEMS

- Commission needs to honor the 1000 MHz commitment for ubiquitous terminals made years ago as a result of industry negotiations
  - Satellite systems, especially in new frequencies with new technology, require years to design and launch
  - Mid-stream reversals seriously undermine satellite's ability to serve market
- SPACEWAY urgently requests that the Commission:
  - Allow GSO/FSS systems like SPACEWAY to access the 280 MHz (18.3-18.58 GHz) with ubiquitous terminals
    - (see HUGHES' Petition for Reconsideration of the 18 GHz Order)
  - Require 2-GHz MSS systems to coordinate their Ka-band feeder links in 29.25-29.50 GHz with licensed GSO/FSS systems before they are licensed
    - (see HUGHES' Petition for Partial Reconsideration of Boeing's and Iridium's 2-GHz MSS licenses)
- Providing sufficient satellite spectrum is a way to fulfill Section 706 mandate to facilitate the availability of advanced services to all of America

In Sum...

HUGHES
NETWORK SYSTEMS

- Satellite-delivered broadband service is an essential element in reaching a "Connected America" and reducing the Digital Divide
- SPACEWAY will be one of the few licensed Ka-band satellite systems to actually launch
- Need the FCC's active support to ensure success
  - Requested spectrum decisions are mission-critical for SPACEWAY
- If there is no satellite broadband, 30-40 million people and small businesses will be disenfranchised
  - In addition, other communities will not have a competitive broadband alternative

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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

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	)	IB Docket No. 98-172 RM-9005 RM-9118

PETITION FOR PARTIAL RECONSIDERATION

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October 6, 2000

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SUMMARY

Hughes Electronics Corporation petitions for reconsideration of the Commission's Report and Order in this proceeding, in which the Commission took several actions regarding the 17.7 - 19.7 GHz band (the "*18 GHz Band*") and the 19.7 - 20.2 GHz band. Certain of the Commission's decisions in the 18 GHz Order are arbitrary and capricious and were otherwise adopted contrary to the requirements of the Administrative Procedure Act. Furthermore, several of the Commission's decisions in the 18 GHz Order will have extremely damaging effects on the ability of Hughes's SPACEWAY system and other Ka band satellite systems to fulfill their promise of ubiquitous broadband satellite services to every corner of the nation. Thus, those unlawful and unwise Commission decisions must be rescinded and reconsidered on an expedited basis.

The Commission's decision in the 18 GHz Order to designate only 220 MHz (instead of 500 MHz) of additional Ka band downlink spectrum that is suitable for deployment of small, ubiquitously-deployed satellite earth terminals is based on two flawed arguments: (1) that the Commission designated only 750 MHz of unshared primary uplink spectrum to the GSO/FSS in the 28 GHz proceeding and (2) that the Commission's overall band plan for the 18 GHz Band is a balanced accommodation of the various satellite and terrestrial fixed uses of that band. The former argument is illogical and arbitrary because the Commission completely fails to acknowledge or address that 1000 MHz of uplink spectrum in the 28 GHz band is currently, and was intended to be, *available* under the Commission's rules for ubiquitous GSO/FSS earth terminals. The latter argument is incorrect, insufficiently explained and ignores important record evidence in this proceeding. In fact, the 18 GHz Order arbitrarily places a disproportionate burden of its new 18 GHz band plan on the GSO/FSS industry, fails to meet the Commission-

recognized needs of that industry, and entirely spares several other industries any of the burden of the 18 GHz band plan.

The Commission's "Legacy List" policy is an unexplained departure from the Commission's current rules and was adopted without the mandatory notice and comment procedures. The Legacy List policy requires satellite licensees that utilize the 18.3 - 18.8 GHz band to pay to alleviate interference that any existing terrestrial fixed licensee in this band receives from the satellite licensee because the *terrestrial fixed licensee's receiver* is pointed within 2 degrees of the geostationary arc. The 18 GHz Order adopts this policy in spite of the existence, *since at least 1983*, of a specific pfd limit in place in the 18 GHz Band, which was designed to "pre-coordinate" spacecraft transmissions and terrestrial fixed service receivers regardless of the elevation angle and azimuth of the terrestrial receiver. Thus, the Commission's Legacy List policy would bestow a windfall on terrestrial licensees who deployed systems that are not robust enough to operate under long-established terrestrial/satellite sharing rules and would impose an arbitrary and unwarranted penalty on the satellite users of the 18.3 - 18.8 GHz band, who have reasonably relied on the Commission's existing rules and past precedent.

With scant discussion of the Commission's underlying rationale and no reference to any record evidence, the 18 GHz Order arbitrarily deletes the secondary designations for NGSO/FSS in the 18.3 - 18.8 GHz GSO/FSS co-primary and primary bands and the secondary designations for GSO/FSS in the 18.8 - 19.3 GHz NGSO/FSS primary band. This haphazard action leaves the designations for Ka band FSS systems in confusion and disarray. The 18 GHz Order deletes the secondary designation in two of the three FSS downlink band segments (18.3 - 18.8 GHz and 18.8 - 19.3 GHz), but leaves the third FSS downlink band segment, 19.7 - 20.2 GHz, and the corresponding uplink band segments (28.35 - 28.6 GHz, 28.6 - 29.1 GHz, 29.25 -

29.5 GHz and 29.5-30.0 GHz) untouched and unmentioned. Instead, the most appropriate way to deal with the issue of secondary satellite designations in satellite-primary bands at Ka band is to issue a Further Notice of Proposed Rule Making on the topic and to deal comprehensively in that proceeding with the issue for both the Ka band uplink and downlink bands.

The 18 GHz Order takes no action either (i) with respect to blanket licensing of GSO/FSS earth stations in the satellite-only band of 29.25 - 29.5 GHz or (ii) with respect to streamlined licensing or registration of earth stations that would only receive, and not transmit, in the 18.3 - 18.58 GHz band. The 18 GHz Order provides no rationale for the Commission's refusal to establish blanket licensing in the 29.25 - 29.5 GHz band and decides that action on the 18.3 - 18.58 GHz band should be delayed to an unspecified future proceeding. The Commission should not delay action any longer on the 29.25 - 29.5 GHz band, and it should include Hughes's streamlined licensing proposal for the 18.3 - 18.58 GHz band in a prompt Further Notice of Proposed Rule Making in this proceeding, if the Commission does not accept Hughes's proposal to provide a full 1000 MHz for blanket licensed earth stations.

The Commission should reconsider or correct several technical aspects of the Ka band blanket licensing rules. The 18 GHz Order replaces current rule Section 25.208(c) with an amended Section 25.208(c) and adds new Sections 25.208(d), (e) and (f). Specifically with reference to GSO/FSS operations in 18.3 - 18.8 GHz, the Commission's new Section 25.208(d) applies a more stringent pfd limit at certain angles of arrival than the prior rule. The 18 GHz Order does not explicitly provide a rationale for the Commission's amendments to Section 25.208(c) and, more importantly, new Section 25.208(d) fundamentally contradicts the coordination threshold approach to blanket licensing taken by both the Commission and the Blanket Licensing Industry Working Group. Finally, the Commission should make two

technical corrections to its blanket licensing rules: (1) it should correct rule Section 25.138(a)(6) to apply to all GSO/FSS downlink bands in which the Commission permits blanket licensing and (2) it should amend the text of Section 25.138(b) to include the word "blanket" before "earth station license" in the first sentence of that section, which would conform the rule to the proposal of the Blanket Licensing Industry Working Group.

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

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	)	IB Docket No. 98-172 RM-9005 RM-9118

PETITION FOR PARTIAL RECONSIDERATION

Hughes Electronics Corporation ("*Hughes*") hereby petitions for reconsideration of the Commission's Report and Order in the above-captioned proceeding,[1] in which the Commission took several actions regarding the 17.7 - 19.7 GHz band (the "*18 GHz Band*") and the 19.7 - 20.2 GHz band. As set forth below, certain of the Commission's decisions in the 18 GHz Order are arbitrary and capricious and were otherwise adopted contrary to the requirements of the Administrative Procedure Act (the "*APA*").[2] Thus, those unlawful Commission decisions must be rescinded and reconsidered as set forth herein.

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1 *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*, FCC 00-212 (rel. June 22, 2000) (the "*18 GHz Order*").

2 5 U.S.C.A. 500, *et. seq.* (West 1996).

As the parent corporation of Hughes Communications Galaxy, Inc., licensee of the SPACEWAY™ Ka band satellite system,[3] and Hughes Communications, Inc., applicant for the SpacewayEXP and SpacewayNGSO satellite networks in the Commission's second Ka band processing round,[4] Hughes is vitally interested in this proceeding. Indeed, in March 1999, Hughes announced that its Board of Directors had made a $1.4 Billion financial commitment to the development and deployment of the SPACEWAY system. Hughes's Board made this remarkable financial commitment in reliance upon the Commission's order in the 28 GHz proceeding,[5] the Commission-issued license for the SPACEWAY system,[6] and Hughes's expectation that the Commission's decisions in this proceeding would comport with the law.

Shortly after the March 1999 announcement, in June 1999, Hughes announced another important commitment to the SPACEWAY program, namely a $1.5 Billion strategic alliance with America Online, Inc., of which the SPACEWAY system is a critical element. In line with those commitments, Hughes has moved forward rapidly with the construction and deployment of the SPACEWAY system[7] and is currently proceeding quickly toward the planned launch of the first phase of the system in the fourth quarter of 2002.

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3 *Hughes Communications Galaxy, Inc.*, 13 FCC Rcd. 1351 (1997).

4 *See Application of Hughes Communications, Inc. for SPACEWAY EXP*, FCC File No. SAT-LOA-19971222-00201, 205, 207, 209 (filed December 22, 1997); *Application of Hughes Communications, Inc. for SPACEWAY NGSO*, FCC File No. SAT-LOA-19971222-00210 (filed December 22, 1997).

5 *In the Matter of 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*, 11 FCC Rcd 19005 (1996) ("*28 GHz Order*").

6 *Hughes Communications Galaxy, Inc.*, 13 FCC Rcd. 1351 (1997).

7 *See Hughes Communications Galaxy, Inc., Annual Status Report to the Federal Communications Commission* (filed June 30, 2000).

Commensurate with Hughes's strong interest in this proceeding, Hughes participated fully and actively in both the formal comment cycle in this proceeding[8] and by way of written and oral *ex parte* presentations to the Commission, both by itself and with a coalition of Ka band GSO/FSS satellite licensees.[9] Hughes also participated extensively in the Blanket Licensing Industry Working Group, which recommended Ka band blanket licensing rules to the Commission.

Despite Hughes's extensive input, several of the Commission's decisions in the 18 GHz Order will have extremely damaging effects on the ability of SPACEWAY and other Ka band satellite systems to fulfill their promise of ubiquitous broadband satellite services to every corner of the nation. These Commission decisions effectively render (i) 50% of the promised 1000 MHz of spectrum for Ka band satellite systems unusable for the foreseeable future and (ii) 28% of it unusable on a permanent basis. SPACEWAY offers the promise of providing sufficient broadband capacity to all American consumers and businesses -- including those in tribal and rural areas -- namely, high-speed, fully interactive Internet connectivity on a distance-insensitive basis. But the substantial reduction in capacity resulting from this decision will significantly and adversely affect the American consumers and businesses who most need the broadband option offered by SPACEWAY. Moreover, those Commission decisions do not comport with the requirements of the APA.

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8 *See* Comments of Hughes Electronics Corporation in IB Docket 98-172 (filed November 19, 1998) ("*Hughes Comments*"); Reply Comments of Hughes Electronics Corporation in IB Docket 98-172 (filed December 21, 1998) ("*Hughes Reply Comments*").

9 *See, e.g.,* Written *Ex Parte* Presentation of Hughes Network Systems filed in IB Docket 98-172 (May 19, 2000); Notice of *Ex Parte* Presentation by Hughes Electronics Corporation and Hughes Network Systems in IB Docket 98-172 (filed February 29, 2000); Notice of *Ex Parte* Presentation by GE American Communications, et al. in IB Docket 98-172 (filed February 27, 2000).

The APA imposes certain core requirements upon any Commission rulemaking action. In every informal notice and comment rulemaking proceeding, such as the 18 GHz proceeding, the Commission must, in its decision, (i) provide a reasoned basis for its actions, (ii) consider all of the evidence presented to it, and (iii) articulate a rational connection between the facts presented to the Commission and the choice it has made.[10] The Commission's decisions also must be supported by the record[11] and must respond to well-supported arguments that are contrary to the Commission's ultimate decision.[12] Thus, the Commission may not cavalierly dismiss arguments with which it does not agree.[13] Several important decisions in the 18 GHz Order fail to meet these APA requirements and therefore must be rescinded and reconsidered.

I. THE SEGMENTATION OF THE 18 GHZ BAND IS ILLOGICAL AND AN UNEXPLAINED DEPARTURE FROM PREVIOUS COMMISSION DECISIONS

Since 1993, when Hughes proposed the first Ka band commercial satellite system, and at each stage in the development of the Ka band for commercial satellite systems, Hughes has consistently maintained that 1000 MHz of spectrum for small, ubiquitously-deployed earth

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10 *See Motor Vehicle Manufacturers Association of the United States v. State Farm,* 463 U.S. 29, 46-57 (1983); *Sithe/Independence Power Partners, L.P. v. FERC,* 165 F.3d 944, 949-50, 952 (D.C. Cir. 1999) (agency must provide clear explanation of rationale and reveal the data and assumptions underlying its findings); *Schurz Communications v. FCC,* 982 F.2d 1043, 1050 (7th Cir. 1992) (vacating an FCC rule because key concepts were left unexplained and key evidence was overlooked); *Flagstaff Broadcasting Foundation v. FCC,* 979 F.2d 1566 (D.C. Cir. 1992) (the court will set aside an action by the Commission when it fails to provide a reasoned basis for its decision); *Bechtel v. FCC,* 957 F.2d 873, 881 (D.C. Cir. 1992) (Commission must address serious challenges); *see also Action for Children's Television v. FCC,* 821 F.2d 741, 746 (D.C. Cir. 1987).

11 *See Action for Children's Television v. FCC,* 852 F.2d 1332, 1341, 1343 (D.C. Cir. 1988).

12 *Illinois Public Telecommunications Association v. FCC,* 117 F.3d 555, 564 (D.C. Cir. 1997).

13 *Id.*

terminals is essential to the success of commercial Ka band satellite systems.[14] Throughout the 28 GHz proceeding in 1995 and 1996, Hughes reiterated its requirement that 1000 MHz of Ka band spectrum was necessary for ubiquitous deployment of earth terminals. Indeed, in the 28 GHz Order, the full Commission acknowledged the need to designate 1000 MHz of spectrum to support the provision of nationwide broadband services over GSO FSS systems using ubiquitously-deployed, small earth stations.[15]

Likewise, Hughes's submissions in this proceeding have reconfirmed the necessity of 1000 MHz Ka band spectrum for use by small, ubiquitously-deployed earth station terminals.[16] The record also reflects the significant and adverse impact that designating less than 1000 MHz of downlink spectrum (*e.g.* 720 MHz) for ubiquitous deployment will have on Hughes's SPACEWAY system and on the number of consumers -- both in rural and urban areas -- who can use satellite based broadband services.[17]

Despite the consistent position of Hughes and other Ka band satellite-industry companies, the 18 GHz Order designates only 220 MHz of additional Ka band downlink spectrum (for a total of 720 MHz) that is suitable for deployment of small, ubiquitously-deployed satellite earth terminals. At bottom, the Commission bases its decision in the 18 GHz Order to designate only 220 MHz (instead of 500 MHz) for such use on two flawed arguments: (1) that the Commission designated only 750 MHz of unshared primary uplink spectrum to the GSO/FSS in the 28 GHz proceeding and therefore a "similar" designation of downlink spectrum

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14 *See Hughes Communications Galaxy, Inc.*, 13 FCC Rcd. 1351, 1352 (1997).

15 28 GHz Order at ¶¶ 57-58, 78.

16 Hughes Comments at 5-8; Notice of *Ex Parte* Presentation by Hughes Network Systems in IB Docket 98-172 (filed February 8, 2000).

17 *Id.*

is appropriate[18] and (2) that the Commission's overall band plan for the 18 GHz Band is a balanced accommodation of the various satellite and terrestrial fixed uses of that band.[19]

The former argument is illogical and arbitrary and an unexplained break from previous Commission decisions, as a fundamental premise of the compromise 28 GHz Band Plan was ensuring the availability of 1000 MHz of bandwidth for ubiquitously deployed GSO FSS earth stations. The latter argument is incorrect, insufficiently explained and ignores important record evidence in this proceeding. Each of these failings of the Commission's decision provides a separate infirmity under the APA. Therefore, the Commission should reconsider this action and designate the 500 MHz between 18.3 - 18.8 GHz as unshared primary spectrum for satellite downlinks to ubiquitous earth terminals.

A. The Commission's Designation of Spectrum Illogically Provides Unequal Uplink and Downlink Spectrum for GSO/FSS Systems

The 18 GHz Order acknowledges that the FCC generally designates equal amounts of uplink and downlink spectrum for GSO/FSS systems.[20] The reason is that FSS systems, including the Ka band GSO/FSS systems, generally require equal paired capacity for their uplinks and downlinks. The Commission's designation of only an additional 220 MHz of primary spectrum for GSO/FSS (for a total of 720 MHz) is an arbitrary and unexplained departure from both this general principle of pairing uplink and downlink spectrum for GSO/FSS systems and the Commission's decision in the 28 GHz proceeding to afford 1000 MHz of spectrum to GSO/FSS systems utilizing ubiquitous earth terminals.

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18 18 GHz Order at ¶ 59.

19 *See* 18 GHz Order at ¶¶ 30, 33-34, 60.

20 18 GHz Order at ¶ 59.

A fundamental tenet of the Commission's 28 GHz Order was that Ka-band GSO/FSS systems would have access to 1000 MHz of spectrum for ubiquitous earth stations.[21] All relevant parties including Hughes, Motorola/Iridium, GE, Lockheed, Loral, TRW, and other GSO/FSS interests endorsed the band plan and the associated sharing rules that the Commission ultimately adopted in the 28 GHz Order.[22] The Commission is correct when it notes in the 18 GHz Order[23] that 250 MHz (the 29.25-29.50 GHz band) of the 1000 MHz of uplink spectrum designated for GSO/FSS is shared on a co-primary basis with MSS feeder links. However, the Commission completely fails to acknowledge or address that the 29.25-29.50 GHz band is currently, and was intended to be, *available* under the Commission's rules for ubiquitous GSO/FSS earth terminals on a shared basis with MSS feeder links.

In the 28 GHz Order, the Commission adopted the coordination guidelines and sharing rules for the 29.25-29.50 GHz band with the full understanding that ubiquitous earth stations would operate in the band (using SPACEWAY or any of the other twelve licensed or

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21 *See, e.g.*, 28 GHz Order at ¶¶ 17, 58; *see also id.* at ¶¶ 27-25 (concluding that the GSO FSS could not share with LMDS because of the proposed ubiquitous GSO FSS terminals). The NPRM in 28 GHz proceeding also supports the need for 1000 MHz of Ka band spectrum for ubiquitous GSO FSS terminals. *See Third Notice of Proposed Rulemaking*, 11 FCC Rcd. 53, ¶¶ 17, 19, 54 (noting benefits of ubiquitous broadband satellite service and that FCC's proposal to provide 1000 MHz for GSO FSS "matched" Hughes's needs for ubiquitous service from its proposed Spaceway system); *id* at ¶¶ 15, 47 (sharing between GSO FSS and LMDS at Ka band not possible because GSO FSS would deploy ubiquitous terminals).

22 *See* Letter from Cellular Vision USA, Inc., AT&T, Hughes, Teledesic Corporation, Motorola, the University of Texas -- Pan American, Phillips Electronics, Titan Information Systems, Cellular Vision of New York, L.P., M/A COM, Inc., RioVision of Texas, Inc., International CellularVision Association, CellularVision Technology and Telecommunications, L.P. and GE American Communications, Inc. to the FCC, CC Docket No. 92-297 (filed June 3, 1996); Letter from Hughes, AT&T, GE American Communications, Inc., and Motorola to the FCC, CC Docket No. 92-297 (filed June 6, 1996).

23 18 GHz Order at ¶ 59.

future GSO/FSS systems), and that neither the GSO/FSS systems nor the NGSO/MSS feeder link stations would need to "disrupt or alter their transmissions."[24] The sharing criteria adopted for the 29.25-29.50 GHz band are independent of the type, nature or number of GSO/FSS earth stations. The record specifically reflects (1) the need of the GSO/FSS to use this band for ubiquitous terminals, and (2) the technical analysis that demonstrates sharing between an NGSO/MSS feeder link operator and these small, ubiquitous GSO/FSS terminals.[25]

The Commission's incorrect characterization of the ability of GSO/FSS systems to utilize the 29.25-29.50 GHz band for ubiquitously deployed earth stations is even more perplexing in view of Hughes's extensive discussion of this issue in its Comments, which included a separate technical statement on the issue, in its Reply Comments and in *ex parte* submissions in the record in this proceeding.[26] The Commission completely fails to respond to these record documents and to explain the Commission's departure from the principles set forth in its 28 GHz Order. In fact, the Commission's failure in this regard appears to be an impermissible attempt to bootstrap another element of the 18 GHz Order. Namely, the Commission's illogical and arbitrary decision to designate for GSO/FSS a total of only 720 MHz of downlink spectrum that is usable for ubiquitous deployment of earth terminals. That is, the Commission improperly attempts to justify a 720 MHz downlink designation on the flawed conclusion that only 750 MHz of uplink bandwidth is available for the same use.

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24 28 GHz Order at ¶¶ 72-73.

25 *See, e.g.*, FCC staff submission in CC Docket 92-297 (filed February 6, 1996); FCC staff submission in CC Docket 92-297 (filed January 22, 1996).

26 Hughes Comments at 11-13, Technical Appendix A; Hughes Reply Comments at 23-24; Written *Ex Parte* Presentation by Hughes Network Systems in IB Docket 98-172 (filed May 19, 2000).

B. The Commission's 18 GHz Band Plan is Not a Rational Accommodation of All Uses

As the Commission acknowledges, segmentation of the 18 GHz Band into separate terrestrial fixed and satellite uses benefits both industries.[27] It follows then that the burdens that are associated with the benefits of segmentation should also be spread between both terrestrial fixed and satellite industries and equitably within those industries, as well. This concept of spreading the burdens of segmentation is especially appropriate in a case such as the 18 GHz Band where the satellite and fixed service interests have long held an equal claim to, and equal "equities" in, the 18 GHz Band. As Hughes has previously explained,[28] the 18 GHz Band has been a shared satellite/terrestrial band for more than twenty-five (25) years, since 1973, when the Commission opened up this band as a much-needed expansion band for broadband satellite systems.[29]

However, the 18 GHz Order, arbitrarily places a disproportionate burden of the band plan on the GSO/FSS industry, fails to meet the Commission-recognized[30] needs of that industry, and entirely spares several other industries any of the burden of the 18 GHz band plan. For example, while the 18 GHz Order limits the GSO/FSS industry to less than 75% of its needs, the PCO/CARS industry receives an upgraded, exclusive primary designation in 36% (18.14 - 18.3 GHz) of the spectrum that it currently uses on a co-primary basis and retains its existing co-primary rights in the remaining 64% (18.3 - 18.58 GHz) of that spectrum. The Commission

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27 18 GHz Order at ¶ 17.

28 Hughes Reply Comments at 3-6; Written *Ex Parte* Presentation in IB Docket 98-172 at 2-4 (filed February 22, 2000).

29 *See In Re Establishment of Domestic Communication-Satellite Facilities by Non-Governmental Entities*, 25 FCC 2d 718, (¶¶ 1-5) (1970); *In Re Amendment of Part 2 of the Commission's Rules to Conform with Space WARC 1971*, 39 FCC 2d 959 (1973).

bases this decision on the argument that 18 GHz is the only band available for PCO/CARS uses. However, the Commission wholly fails to address Hughes's proposal (as well as that of other Ka band satellite licensees) that at least a portion of the future[31] PCO/CARS uses be accommodated in the 12.7 - 13.2 GHz band, which is currently available for CARS and may become available for PCO use,[32] and/or the 21.2 - 23.6 GHz band, which is available, and used,[33] today for PCO systems.

Similarly, the 18 GHz Order provides the NGSO/FSS and NGSO MSS industries 100% of their stated needs, while limiting the GSO/FSS to 72% of their legitimate needs, without adequate reason for the differential treatment. The Commission appears to base this differential treatment on the unsupported statement that GSO/FSS "commenters failed to demonstrate how existing consumer demand would justify the designation of 1000 MHz of spectrum for exclusive primary use by them."[34]

At the outset, the Commission makes this statement in violation of the APA without any citation to the record in this proceeding and completely fails to explain the basis for the statement. The Commission ignores its decision in the 28 GHz proceeding that the promise of GSO/FSS systems warranted the designation of 1000 MHz for ubiquitous earth terminals.[35] The Commission cannot now change that course without having a rational basis for its decision

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30 28 GHz Order at ¶ 17, 58, 78.

31 Of course, existing PCO/CARS operations in this band are subject to the grandfathering and relocation policies of the 18 GHz Order.

32 *See Petition for Rulemaking to Amend Eligibility Requirements in Part 78 Regarding 12 GHz Cable Television Relay Service*, CS Docket No. 99-250, FCC 99-166 (rel. July 14, 1999).

33 Petition for Rulemaking of OpTel, Inc., RM- 9257, at 2 n.1 (filed April 1, 1998).

34 18 GHz Order at ¶ 60.

and explaining that basis fully. Moreover, this statement is an impermissible post-hoc rationalization because the Commission did not specifically solicit comment in the 18 GHz NPRM on the relative "existing consumer demand" for each of the services in the 18 GHz Band. If it did so, it is unlikely that the floundering PCO industry, or the failed NGSO MSS industry, would have been treated as favorably as the 18 GHz Order treats them.

More importantly, the Commission's assessment of the demand for GSO/FSS services is incorrect. Hughes has fully explained why the strong demand for advanced satellite broadband offerings justifies retaining the 1000 MHz commitment of the 28 GHz band plan.[36] Indeed, if the Commission's basis for allocating the spectrum in the 18 GHz band in this proceeding is now the relative "existing consumer demand" for these services, it is the GSO/FSS that should be accorded 100% of its needs. Unlike the spectacular failure of the one MSS system still licensed to use the 19.3 - 19.7 GHz band[37] and the seemingly perpetually delayed deployment of the one licensed NGSO/FSS system,[38] Hughes is moving forward rapidly with the construction and deployment of its Ka band GSO/FSS system[39] and other Ka band GSO/FSS licensees appear to be making progress with the financing and construction of their systems.[40] Indeed, in other proceedings, the Commission has acknowledged the important role that satellite-delivered broadband services will soon play in providing competition to terrestrial broadband

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35 *See, supra*, note 21.

36 *See, e.g.*, Hughes Comments at 5-8.

37 *See Iridium Blames Motorola For Stopping Sales*, COMMUNICATIONS DAILY, September 5, 2000 (Motorola to deorbit Iridium constellation).

38 *See* Letter to Magalie Roman Salas from Lawrence H. Williams, Vice President, Teledesic (filed June 30, 2000).

39 *See, supra*, note 7.

providers and in extending broadband services to unserved and underserved communities, and in enhancing competition in already-served areas.[41] Thus, the Commission's 18 GHz band plan disproportionately burdens the GSO/FSS industry and therefore, does not effect a fair, rational or balanced segmentation of the 18 GHz band.

II. THE "LEGACY LIST" POLICY IS AN UNEXPLAINED DEPARTURE FROM CURRENT RULES AND WAS ADOPTED WITHOUT MANDATORY NOTICE AND COMMENT PROCEDURES

The 18 GHz Order requires satellite licensees that utilize the 18.3 - 18.8 GHz band to pay to alleviate interference that any existing terrestrial fixed licensee in this band receives from the satellite licensee because the *terrestrial fixed licensee's receiver* is pointed within 2 degrees of the geostationary arc.[42] This rule applies even if the satellite licensee's operations fully comply with the power flux density ("*pfd*") limits set forth in Commission rule Section 25.208, which were adopted (i) as explicit sharing criteria, and (ii) to avoid this very problem with terrestrial receivers. Although the 18 GHz Order is not entirely clear, the Commission's premise in adopting this "Legacy List" rule appears to be that existing terrestrial fixed operators could not have known prior to the 18 GHz Order that satellite downlinks might operate in the 18 GHz band at or above the pfd limits set forth in Section 25.208.[43] The Commission's premise is thoroughly mistaken.

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40 *See Satellite Broadband Strategy Dominates SBCA*, COMMUNICATIONS DAILY, July 24, 2000 (iSKY to begin operations in 2001); *Satellite*, COMMUNICATIONS DAILY, June 9, 2000 (Astrolink lets design and integration contract for satellite constellation).

41 *See Extending Wireless Telecommunications Services To Tribal Lands*, FCC 99-205 ¶ 12 (rel. August 18, 1999).

42 18 GHz Order at ¶¶ 43-47.

43 18 GHz Order at ¶ 44.

As the Commission itself acknowledges,[44] the very purpose of Section 25.208 is to establish the sharing criteria between spacecraft transmissions and terrestrial fixed service receivers. Spacecraft transmissions in these bands must not exceed the required pfd limit. As a result, terrestrial fixed service operators are assured that spacecraft transmissions will not exceed a certain power on the Earth's surface, but must accept any interference occurring below that power level, including interference caused by pointing their terrestrial receivers directly toward the geostationary arc. Indeed, precedent is clear that the specific pfd limit in place *since at least 1983* in the 18 GHz Band was designed to "pre-coordinate" spacecraft transmissions and terrestrial fixed service receivers regardless of the elevation angle and azimuth of the terrestrial receiver.[45] The Commission recently reconfirmed this reading of Section 25.208(c).[46] The absence of a pfd limit in the FSS downlink band at 19.7 - 20.2 GHz, where there is no fixed service allocation, provides further support for this reading.

Thus, since at least 1983, the terrestrial fixed service in the 18 GHz Band has been subject to, and on notice of, the pre-coordination regime incorporated within Section 25.208(c). While there is no explicit restriction against 18 GHz terrestrial users pointing at the geostationary arc, the co-primary sharing regime imposed by Section 25.208(c) clearly requires

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44 18 GHz Order at ¶ 43 (stating that the pfd limit was designed to protect the fixed service from satellite downlinks); *Id.* at ¶ 38 (only GSO/FSS earth stations subject to interference in shared bands).

45 *See Licensing of Space Stations in the Domestic Fixed-Satellite Service*, 88 FCC 2d. 318, ¶ 43 n. 35 (pfd limits in 25.208 sufficient to protect terrestrial stations from in-orbit space station transmissions.)

46 *Teledesic LLC for Minor Modification of License to Construct, Launch and Operate a Non-Geostationary Fixed Satellite System*, 14 FCC Rcd. 2261, ¶21 (1999) ("In any event, in all cases, [Teledesic's] modified PFD limits continue to meet the requirements of Section 25.208(c), . . . of the Commission's Rules. *This limit ensures that there will not be any unacceptable interference to terrestrial receivers in this band.*") (emphasis added).

terrestrial operators to bear the burden of *any* interference from satellite downlinks that comply with Section 25.208(c).

The Commission's argument that terrestrial operators could not have known of this interference risk when they selected their receiver equipment and site[47] is inexplicable. In addition to Section 25.208, the relevant portions of the Commission's terrestrial licensing rules make clear that the band is shared with satellite systems.[48] Furthermore, over seven years ago terrestrial users were placed on clear notice of the impending satellite use of the 18 GHz band when Hughes filed its initial application for the SPACEWAY satellite system, and again in 1995 when the Commission placed twelve other Ka band satellite system applications on public notice. Moreover, four years ago, the Commission's 28 GHz band plan reaffirmed the shared satellite/terrestrial nature of the 18 GHz band,[49] and more than three years ago, fourteen satellite systems, including Hughes' SPACEWAY system, were licensed, without objection from the terrestrial interests, to use portions of the 18 GHz band for downlinks.

The Commission's failure to even acknowledge, much less explain away, the obvious intent and effect of Section 25.208(c) is especially bewildering because Hughes specifically brought this issue to the Commission's attention in the record this proceeding.[50] The Commission's "Legacy List" rule is a dramatic and unexplained departure from its previous policy. The Commission's failure to explain its reasoning and provide a rational basis for this departure is a violation of the APA. In addition, the new rule is itself an arbitrary and

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47 *See* 18 GHz Order at ¶ 44.

48 47 C.F.R. § 101.101 (1999).

49 28 GHz Order at ¶¶ 78, 81.

50 Hughes Reply Comments at 4-5, 12; Written *Ex Parte* Presentation in IB Docket 98-172 at 3 (filed February 22, 2000).

unwarranted penalty on the satellite users of the 18.3 - 18.8 GHz band, who have reasonably relied on the Commission's rules and past precedent. Furthermore, the rule would bestow a windfall on terrestrial licensees who deployed systems that are not robust enough to operate under long-established terrestrial/satellite sharing rules.

Finally, the Commission's "Legacy List" rule does not comply with Section 553(b) of the APA,[51] which requires the Commission to provide adequate notice of, and a meaningful opportunity to comment on, the alternative being considered. The 18 GHz NPRM did not discuss the terms or the substance of such a proposal or provide any notion that the Commission would break from its long-standing interpretation of the existing pfd limits in Section 25.208. In fact, the Commission itself tacitly acknowledges this procedure failing by indicating that it only became aware of this matter in its review of the comments in this proceeding.[52] However, the law is clear that the Commission may not seek to "bootstrap" compliance with the adequate notice requirements APA by referring to the comments in a proceeding.[53]

Moreover, even if it were permissible for comments to provide adequate notice, the comments cited by the Commission do not provide sufficient or reasonable notice of the Commissions "Legacy List" rule. Both the CTIA Comments and the ICTA Comments make only general statements about potential interference between satellite and terrestrial operations in

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51 5 U.S.C.A. § 553(b)(3) (West 1996).

52 18 GHz Order at ¶ 43.

53 *See MCI v. FCC*, 57 F.3d 1136, 1140-42 (DC Cir 1995) (footnotes in a notice and comments from other parties do not constitute adequate public notice of a proposed rule); *American Federation of Labor v. Donovan*, 757 F.2d 330, 340 (D.C. Cir 1985) (Commission cannot bootstrap notice from a comment filed by one party); *Small Ref. Lead Phase-Down Task Force v. US EPA*, 705 F.2d 506, 549-550 (DC Cir 1983) (agency must provide notice itself; it cannot bootstrap notice from comments).

certain circumstances. Neither comment suggests the "Legacy List" rule nor any other relocation payment rule to remedy the cited interference issue. Indeed, Hughes specifically replied to the point raised in the ICTA Comments, indicating that any potential interference into terrestrial receivers from pfd-compliant spacecraft transmissions was solely due to the failure of terrestrial fixed operators to design their systems to take into account the existing satellite-terrestrial sharing rules.[54] *The Commission does not address the merits of Hughes's response, much less even acknowledge that Hughes replied on this issue.* Ultimately, the complete lack of record comment on the "Legacy List" rule or a similar rule demonstrates that the Commission did not provide adequate notice of, and meaningful opportunity to comment on, this proposed rule. This failure of the Commission to comply with the adequate notice provisions of the APA provides a separate and independent basis for rescinding the Legacy List rule.

III. THE DELETION OF SECONDARY SATELLITE DESIGNATIONS IS UNSUPPORTED AND CONTRARY TO MANDATORY NOTICE AND COMMENT PROCEDURES

With scant discussion of the Commission's underlying rationale and no reference to any record evidence, the 18 GHz Order arbitrarily deletes the secondary designations for NGSO/FSS in the 18.3 - 18.8 GHz GSO/FSS co-primary and primary bands and the secondary designations for GSO/FSS in the 18.8 - 19.3 GHz NGSO/FSS primary band.[55] The Commission completely fails to discuss the deletion of the secondary designation in the 18.3 - 18.8 GHz band, including the impact of that decision on the secondary license granted to Teledesic for that

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54 Hughes Reply Comments at 4-5, 12.

55 18 GHz Order at ¶ 28 (band plan chart); *see also* 18 GHz Order at Appendix A, Rule § 2.106, Footnotes NG164 and NG165.