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June 19, 2001

VIA HAND DELIVERY

RECEIVED

EX PARTE

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

JUN 19 2001

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Re: Ex Parte Communication in ET Docket No. 98-206; RM-9147; RM-9245; Applications of Broadwave USA et al., PDC Broadband Corporation, and Satellite Receivers, Ltd., to provide a fixed service in the 12.2-12.7 GHz Band; Requests of Broadwave USA et al. (DA 99-494), PDC Broadband Corporation (DA 00-1841), and Satellite Receivers, Ltd. (DA 00-2134) for Waiver of Part 101 Rules.

Dear Ms. Salas,

On June 18, 2001, Sophia Collier and Antoinette Cook Bush of Northpoint Technology, Ltd. ("Northpoint) met with Commissioner Michael Copps and Lauren Van Wazen, interim legal advisor to the Commissioner. On June 19, 2001, Ms. Collier and Ms. Bush met with Commissioner Kathleen Abernathy; Bryan Tramont, Senior Legal Advisor to the Commissioner; and Cathy Hilke, a member of the Commissioner's staff.

The purpose of these meetings was to discuss the pending applications of Northpoint's Broadwave USA affiliates for licenses to provide terrestrial service in the 12 GHz band. Northpoint urged the Commission to act quickly in reaching a decision regarding its applications, in order that it can begin providing service that will bring real competition to the markets for MVPD and broadband Internet access. Northpoint also pointed out that several congressional enactments require prompt action by the Commission on its license applications. Furthermore, Northpoint observed that it is the only applicant proven capable, in an independent technical demonstration by the MITRE Corporation, of sharing the 12 GHz band ubiquitously with existing and planned satellite users. Accordingly, it is the only applicant qualified for a license.

The materials attached as exhibit A hereto were distributed at both the June 18 and June 19th meetings. Additional materials provided to Commissioner Copps and his

No. of Copies rec'd 0118
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Ms. Magalie Roman Salas

June 19, 2001

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staff on June 18 are attached as exhibit B. Also provided to Commissioner Copps's staff was the text of the federal statute mandating an independent technical demonstration of any terrestrial service technology proposed by any entity that has filed an application to provide terrestrial service in the 12 GHz band. *See* Launching Our Communities' Access to Local Television Act of 2000, Pub. L. No. 106-553, App. B, Tit. X, § 1012, 114 Stat. 2762, 2762A-128, 2762A-141.

Eighteen copies of this letter are enclosed – two for inclusion in each of the above-referenced files. Please contact me if you have any questions.

Yours sincerely,



J.C. Rozen daal

*Counsel for Northpoint
Technology, Ltd.*

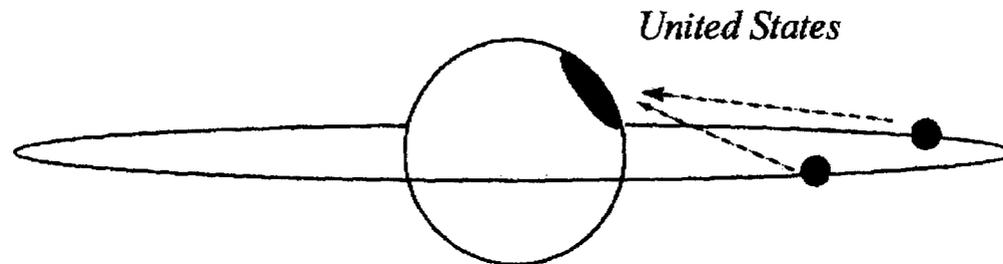
attachments

cc: Commissioner Michael Copps
Commissioner Kathleen Abernathy
Lauren Van Wazen
Bryan Tramont
Cathy Hilke

EXHIBIT A

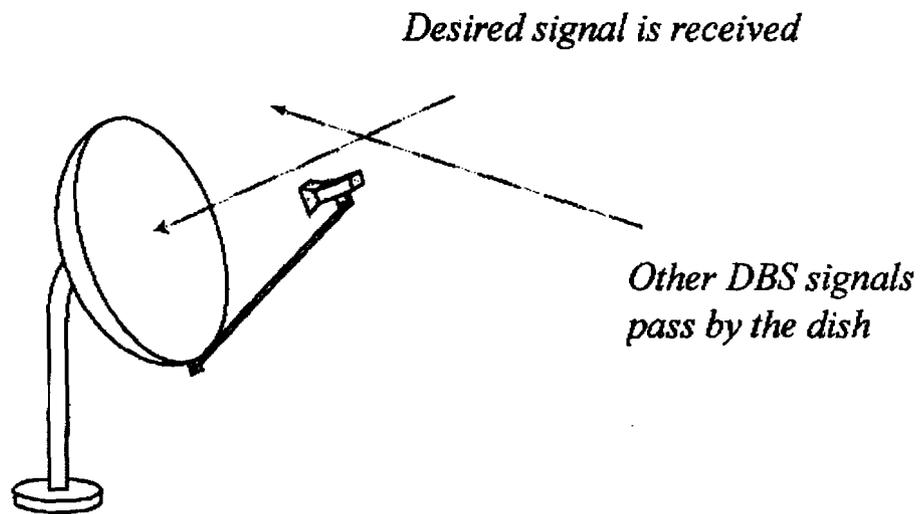
Northpoint Uses Proven Spectrum Sharing Principals

- Northpoint shares spectrum with direct broadcast satellites just as DBS operators currently share with each other.
- Direct broadcast satellites operate in orbital positions over the equator.
- All of these satellites broadcast simultaneously - fully sharing the exact same 500 MHz band located at 12.2 - 12.7 GHz.



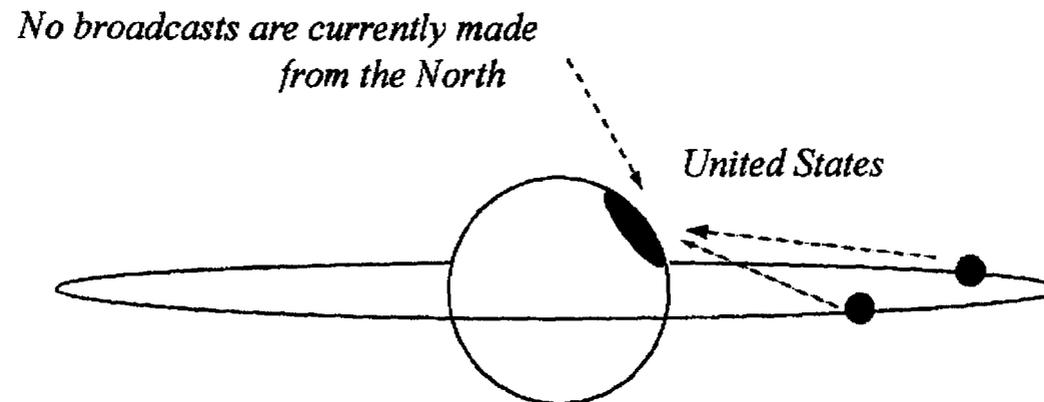
Antenna Equipment

- DBS satellites do not interfere with one another because they are designed to use a highly directional reception dish. The dish must be pointed directly at the satellite in order to receive its signal.



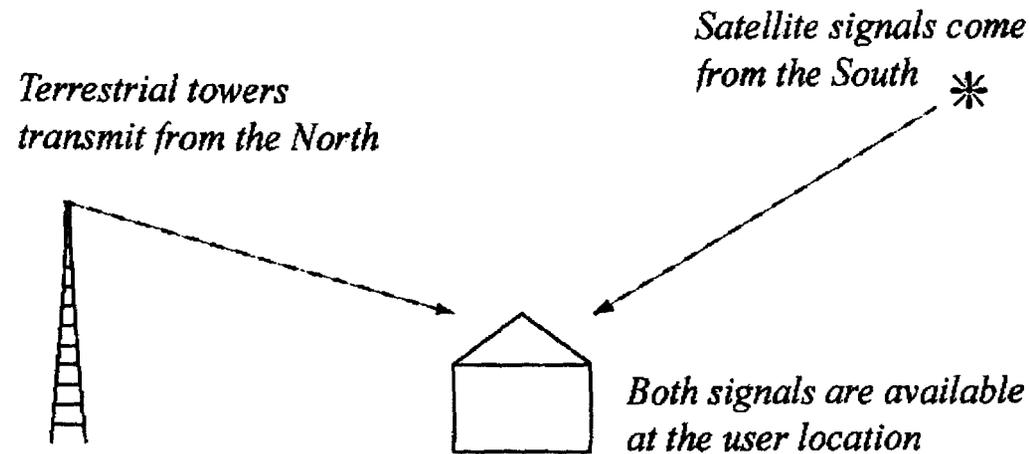
Directionality Creates Opportunity

- Since all direct broadcast satellites are located over the equator, all satellite dishes in North America are pointed in a southerly direction. This means that the northern horizon is currently unused and therefore available for broadcasting.



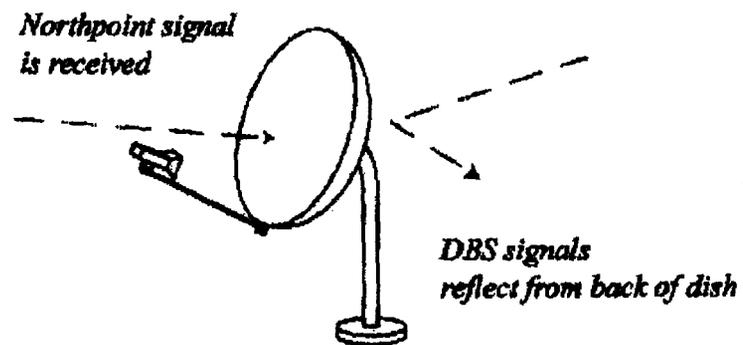
Bringing It Down to Earth

- Northpoint Technology uses this Northern resource: By combining power limitations, specialized equipment and transmissions from terrestrial towers located to the north into directional receive antennas similar to satellite dishes, frequencies can be re-harvested for new uses.



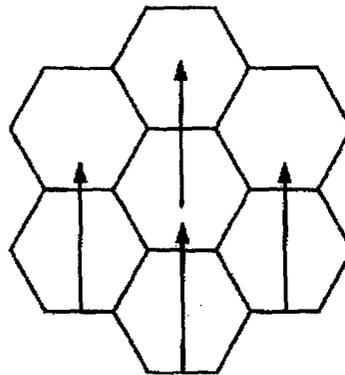
Northpoint Antenna

- Northpoint uses a small dish antenna – just like a satellite dish.

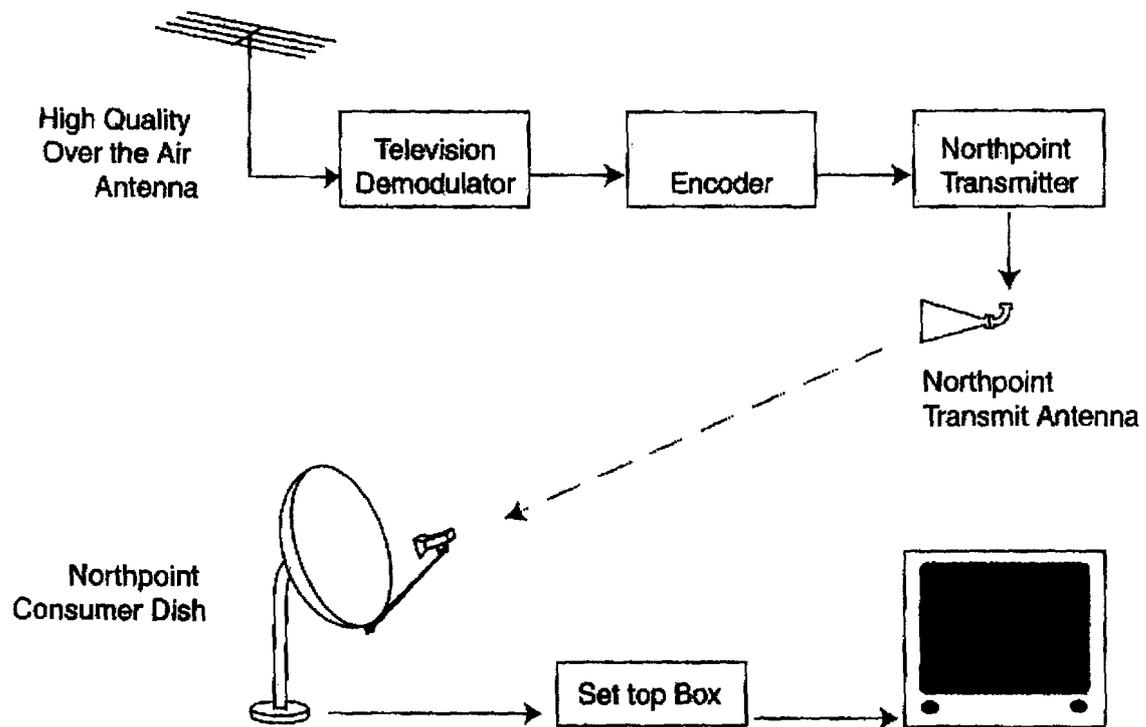


Cascading Cell Architecture

- To ensure good reception throughout the service area, the terrestrial signals will be transmitted over a series of cascading repeater cells, each approximately 100 square miles in size.



HOW NORTHPOINT TECHNOLOGY CREATES DIGITAL TELEVISION



Northpoint's Seven Years Before the FCC

- Northpoint's inventors first came to the FCC in 1994
- First experimental license was issued in 1997.
- Northpoint's local "Broadwave" affiliate network applied for licenses in January 1999 in the same filing window as Skybridge and other Non Geo-Stationary Satellite Operators ("NGSO").
- In November 2000, the FCC issued an order allocating spectrum for terrestrial services and NGSO and issuing a Further Notice of Proposed Rulemaking ("FNPRM").
- In April 2001 "MITRE" testing was completed.
 - FNPRM and MITRE public Comments and Reply Comments cycles are now complete.

Application Status

- **Currently, there are no applications before the Commission that are mutually exclusive with Northpoint's Broadwave affiliate network.**
 - **Commission found Northpoint's affiliates could share spectrum with the eight other companies that applied on the same day to use the same spectrum as Northpoint**
 - **No other terrestrial applicant presented technology to MITRE Corp. for independent testing— a statutory prerequisite for each terrestrial applicant**
 - **Thus, only Northpoint's Broadwave affiliates are qualified applicants.**

Northpoint Can Help Solve “Satellite Home Viewer” Issue

- DBS is headed for a crisis when the “carry one – carry all” mandates of the Satellite Home Viewer Improvement Act (“SHIVA”) legislation become effective on January 1, 2002.
- This legislation requires that DBS carry *all* local television stations in any market where it carries one station.
 - DBS currently provides fewer than 180 local television channels in 41 local markets - out of 1,600 stations in 210 markets.
 - Full SHVIA compliance would require carriage of approximately 575 stations.
 - Likely result: Dozens of markets will lose local programming on New Year’s Day.

THE BOTTOM LINE

“MITRE believes that with implementation of the licensing process described in Section 6.3 and the other policy recommendations outlined above, spectrum sharing between DBS and MVDDS¹ services in the 12.2–12.7 GHz band is feasible.”

Conclusion of MITRE Executive Summary

Analysis of Potential MVDDS Interference to DBS in the 12.2–12.7 GHz Band, MITRE Corporation 4/23/01 (page xxi)

¹ MVDDS is the acronym for Multichannel Video Distribution and Data Service, a new terrestrial service proposed by the FCC in November of 2000. Northpoint Technology was the only company to provide equipment and technology to MITRE for evaluation in order to offer the new service.

Northpoint Technology

**Annotated Version of
MITRE Technical Report – Abstract and Executive Summary**

**Analysis of Potential MVDDS Interference to
DBS in the 12.2-12.7 GHz Band**

April 25, 2001

MTR 01W0000024

MITRE TECHNICAL REPORT

Analysis of Potential MVDDS Interference to DBS in the 12.2–12.7 GHz Band

April 2001

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MITRE

*Text boxes indicate Northpoint comments.
Emphasis added by Northpoint.*

Abstract

Bottomline:

**MITRE
recommends
licensing of
new service.**

The frequency band between 12.2 and 12.7 gigahertz (GHz) is allocated to Fixed and Broadcasting-Satellite radio services on a co-primary basis. In the United States, this band is widely used for direct broadcast satellite (DBS) services. Terrestrial radiocommunication services are also permitted, provided that these do not interfere with the satellite services. In 1999, Broadwave USA, a subsidiary of Northpoint Technologies, filed a petition with the Federal Communications Commission (FCC) seeking an authorization to operate terrestrial stations delivering Multichannel Video Distribution and Data Service (MVDDS) in the 12.2–12.7 GHz band. Since that time, numerous concerns have been raised about the extent and impact of potential interference of MVDDS transmissions on the existing DBS service. This report provides a thorough assessment of MVDDS interference into DBS receivers. It is based on a comprehensive analysis that included extensive laboratory and field measurements. The analysis also made use of modeling and simulation techniques to validate published and measured performance results. Special attention was given to the degradation of system availability in the presence of rain losses. The report also discusses possible interference-mitigation approaches, recommends a process for licensing MVDDS transmitters, and addresses key policy issues.

KEYWORDS: Spectrum sharing, MVDDS, DBS, interference, broadcast satellite, EchoStar, DIRECTV, Dish TV, Northpoint, video quality.

*Text boxes indicate Northpoint comments.
Emphasis added by Northpoint.*

Executive Summary

The frequency band between 12.2 and 12.7 gigahertz (GHz) is allocated to the Fixed and Broadcasting-Satellite radio services on a co-primary basis. International Telecommunications Union (ITU) Footnote S5.490 permits the operation of stations that provide “terrestrial radiocommunication services” in the same band, subject to the restriction that they “shall not cause harmful interference to the space services operating in conformity with the broadcasting satellite Plan for Region 2 contained in Appendix S30.” CFR 47, Part 100 codifies U.S. regulations for Direct Broadcast Satellite (DBS) service in this band.

In 1999, Broadwave USA, a subsidiary of Northpoint Technologies, Inc., filed a petition with the Federal Communications Commission (FCC) seeking an authorization to operate terrestrial stations delivering Multichannel Video Distribution and Data Service (MVDDS) in the 12.2–12.7 GHz band. Subsequently, two other companies, PDC Broadband Corporation and Satellite Receivers, Ltd. filed similar applications with the FCC.

The FCC issued a Notice of Proposed Rulemaking on 24 November 1998, and a First Report and Order (R&O) and a Further Notice of Proposed Rulemaking (NPRM) as ET Docket 98-206 on 8 December 2000. These documents address the issues associated with permitting MVDDS in the band, and conclude that sharing the band between MVDDS and DBS systems is possible, subject to certain precautions that must be taken to prevent interference to DBS systems.

The FCC’s Fiscal Year (FY) 2001 budget authorization contains a requirement that the FCC select an independent engineering firm to perform an analysis to determine whether these two services can share the band without harmful interference to DBS systems. The FCC selected The MITRE Corporation to perform this work. The 19 January 2001 Statement of Work for the project says that “The objective of the tasks is to perform a technical demonstration or analysis of any terrestrial service technology proposed by any entity that has filed an application to provide terrestrial service in the direct broadcast satellite frequency band to determine whether the terrestrial service technology proposed to be provided by that entity will cause harmful interference to any direct broadcast satellite service.”

MITRE Report had two goals:

- 1- Analyzing general issues of sharing between MVDDS and DBS
- 2- Demonstration of specific technologies of Northpoint, Pegasus and Satellite Receivers using equipment provided by the specific company.

MITRE’s effort was divided into tasks in the following areas:

- Equipment measurements
- Satellite receiver simulation
- Propagation and rain-attenuation modeling
- Interference predictions

All measurements for the project were conducted at MITRE’s laboratories in Bedford,

*Text boxes indicate Northpoint comments.
Emphasis added by Northpoint.*

Massachusetts. MITRE measured the radiation patterns of three DBS antennas and two MVDDS antennas in its anechoic chamber, which has been extensively used to make measurements of critical defense systems for several years. DBS receiver susceptibility to MVDDS interference was measured in the laboratory by connecting an MVDDS transmitter to a DBS receiver through an attenuator, and varying the MVDDS signal level to generate a set of susceptibility curves. The DBS receiver was operating with a live signal from the satellite at the time of these measurements. Limited field measurements of the MVDDS signal level at the terminals of the DBS antenna were also made for a variety of DBS antenna orientations. Appendix A contains a detailed description of measurement procedures.

MITRE's Fort Monmouth, New Jersey laboratory used the Signal Processing Workstation (SPW™) software package to model the DBS/MVDDS interference environment in order to provide an independent verification of the laboratory measurements. Runs were made for the combinations of code rate, interleaver length and Reed-Solomon error correction that are in use by DBS vendors. The simulations produced results that were consistent with those derived from the laboratory and field measurements. Details of the simulation can be found in Section 3.1.

The primary propagation mechanism of interest in this analysis is the attenuation of DBS signals by rain, which is the most significant variable in the computation of downlink availability. The amount of attenuation is a function of rain rate, which varies with geographic location. Section 2 provides a discussion of the rain model used in this analysis.

To quantify the effect that MVDDS systems would have on DBS reception, a model was developed that incorporates the measured and simulated susceptibility data, the rain attenuation statistics, and the equipment parameters of the two systems. This model was run for ten locations throughout the contiguous United States to assess the impact of MVDDS operations on DBS reception. The locations were selected to cover the full range of climatic regions and DBS elevation angles. The model produced plots showing areas where the interference-impact criterion (change in unavailability) was exceeded. From these plots, it was possible to determine the feasibility of MVDDS deployment in the band.

Conclusions

The analysis and testing performed by MITRE and described elsewhere in this report have demonstrated that:

**"Generic"
MVDDS can pose
an interference
threat.**

- MVDDS sharing of the 12.2–12.7 GHz band currently reserved for DBS poses a significant interference threat to DBS operation in many realistic operational situations.

*Text boxes indicate Northpoint comments.
Emphasis added by Northpoint.*

Interference can be reduced or eliminated by technology: "mitigation techniques."

- However, a wide variety of mitigation techniques exists that, if properly applied under appropriate circumstances, can greatly reduce, or eliminate, the geographical extent of the regions of potential MVDDS interference impact upon DBS.
- MVDDS/DBS bandsharing appears feasible if and only if suitable mitigation measures are applied. Different combinations of measures are likely to prove "best" for different locales and situations.

The question remains: do the potential costs of applying the necessary mitigatory measures, together with the impact of the residual MVDDS-to-DBS interference that might remain after applying such measures, outweigh the benefits that would accrue from allowing MVDDS to coexist with DBS in this band? To facilitate the FCC's decision, we have assessed the probable effectiveness of available mitigation techniques in reducing the potential impact and geographical extent of MVDDS interference upon DBS operations.

Techniques for preventing or reducing MVDDS interference in DBS receivers fall into three general categories:

- Selection of MVDDS operational parameters
- Possible MVDDS system-design changes
- Corrective measures at DBS receiver locations

Mitigatory techniques in each of these three categories are discussed in detail in Section 6.2. The most important operational parameters that can be adjusted to control interference in existing MVDDS system designs are transmitter power, frequency offset, tower height, elevation tilt, and azimuthal orientation.

Northpoint holds patent on this technique and demonstrated it to MITRE as shown in Appendix A.

Northpoint demonstrated second technique to MITRE, Appendix A.

Northpoint demonstrated this technique in its Washington DC test.

This is a valuable method in some cases. Demonstrated to MITRE by Northpoint.

- *Keeping MVDDS transmitter power as low as possible* without sacrificing coverage requirements is the most basic and obvious means for controlling interference to DBS.
- The use of a *7-MHz frequency offset* between the MVDDS and DBS carriers has been shown through MITRE's testing to reduce effective interference levels by 1.7 dB, and noticeably shrinks the areas in which DBS receivers are potentially affected by MVDDS interference.
- Increasing the MVDDS transmitting antenna height reduces the sizes of the areas susceptible to a given level of interference. However, the simulations of pages B-11 through B-15 indicate that substantial benefits may not accrue unless the tower height is at least 100, or perhaps even 200, meters above the level of the DBS receiving antennas in the surrounding area.
- *Adjusting the elevation tilt* of the MVDDS transmitting antenna may not be particularly effective. Tilting the antenna up 5 reduces the interference-impact area

*Text boxes indicate Northpoint comments.
Emphasis added by Northpoint.*

but shrinks the MVDDS coverage area in roughly the same proportion. This presumably means that more MVDDS towers (creating additional interference-impact areas) would be needed to cover a given geographical region than if the antennas had not been tilted.

Northpoint's patents cover the geometry described in this bullet.

- *Pointing the MVDDS transmitting antennas away from the satellites*, rather than toward them as generally envisioned, could have beneficial effects in many situations. These are indicated by the simulation results of pages B-21 and B-23 and by the outputs of several other simulations in which easterly and northerly MVDDS transmitter boresight azimuths were used. When the satellites are generally to the south and their elevation angle is reasonably high, as in Denver, dramatic improvements in interference protection appear possible when the MVDDS transmitting antenna points north. When satellite elevation angles are somewhat lower (as in Seattle) the geometry is somewhat less favorable, but north-pointing seems to yield significant benefits in all locales where it has been simulated. Further testing to validate this concept is recommended.

Potential MVDDS design changes that might reduce the interference impact on DBS downlinks include real-time power control, multiple narrow transmitting-antenna beams, the use of circular polarization, and increasing the size of MVDDS receiving antennas.

Northpoint owns patent on real time power control.

- *Real-time power control*, which would reduce MVDDS transmitter power as necessary to protect DBS downlinks from degradation during rain, has sometimes been proposed as a technique for controlling MVDDS-to-DBS interference.

Antenna arrays of this nature are anticipated in Northpoint patents.

- The use of *multiple MVDDS transmitting-antenna beams*, each having a much narrower azimuthal beamwidth than the existing sectoral horns, might provide much better flexibility than the present antenna design in directing the interference-impact regions away from areas containing DBS subscribers.

Northpoint patents cover polarization methods described.

- *Circularly polarized MVDDS transmitting antennas*, if they used the same system of alternate senses for adjacent channels that is employed by DBS, might pose a considerably smaller interference threat than the currently planned exclusive use of horizontal polarization, for reasons explained in Section 6.2.2.

Northpoint filing with FCC made in 1997 documented this technique.

- *Larger MVDDS receiving antennas*, recently suggested by Pegasus, would increase their achievable gains and hence the G/T ratios of MVDDS receivers. This in turn would allow an MVDDS system to cover an identical service area with a smaller output power and hence with smaller resultant interference-impact regions.

Corrective measures that can be applied at DBS receiver installations include relocation and retrofitting of existing DBS antennas, the use of alternative antenna designs, and the replacement of older DBS set-top boxes.

*Text boxes indicate Northpoint comments.
Emphasis added by Northpoint.*

Northpoint has committed to move dishes at its own expense.

Northpoint demonstrated this technique to MITRE, see Appendix A.

Good ideas for some cases.

- *Relocation of DBS receiving antennas* to put nearby buildings between them and nearby MVDDS interferers, while still leaving desired satellites in view, is a well-known corrective measure that would undoubtedly be effective in many situations.
- The use of absorptive or reflective *clip-on shielding for existing DBS antennas*, to block any direct lines of sight that might exist between their LNBS (antenna feeds) and potentially interfering MVDDS transmitting antennas, is a technique that worked quite well during MITRE's open-air testing.
- *DBS receiving-antenna replacement* is a relatively expensive but potentially effective mitigatory technique. For example, the simulation of page B-30 has shown the potential benefits of using single-feed 24"x18" antennas instead of the more commonly used 18" dishes.
- *Replacement of older DBS set-top boxes* may prove to be a useful mitigation technique if more recent models are more resistant to in-band interference.

Recommendations

License process proposed.

If licensing of new MVDDS services is to be successful, while preventing significant interference to DBS services, a number of policy issues need to be considered and resolved. These resolutions naturally lead to a licensing and deployment process for new MVDDS services. In Section 6.3, MITRE recommends a procedure for coordinating MVDDS applications to minimize interference to DBS systems.

A number of additional policy issues should also be considered. These issues and questions are discussed below, along with MITRE's recommendation to the FCC.

Northpoint supports recommendation:

Yes

Yes

Yes

- Should future DBS customers be protected and for how long?
Recommendation: Yes, future DBS customers should be protected for as long as the MVDDS transmitter operates. The MVDDS service provider would need to measure C/I values and provide mitigation solutions to these new customers in the interference-mitigation region.
- Test results and analyses have been based on known MVDDS waveforms. Should new waveforms be allowed?
Recommendation: New waveforms create an unknown vulnerability. MITRE recommends that these not be licensed without further study.
- Should the evaluation of sharing consider any DBS satellite in the geostationary arc, or should only existing U.S. satellites be considered? What about new U.S. satellites?
Recommendation: DBS receivers operating with new and different satellites could be at risk in unforeseen ways. MITRE recommends that any satellites not addressed in the current report be studied further.

*Text boxes indicate Northpoint comments.
Emphasis added by Northpoint.*

Northpoint supports recommendation:

Yes

- If changes and improvements are made to any DBS system waveform, how should this impact policy?
Recommendation: Results in this report are based on specific systems with known parameters. MITRE recommends that any new DBS waveforms be subject to further study.

Yes

- Should DBS satellites with weak coverage be protected? If so, how weak can these be and at what level should they be protected? (See examples in Section 5.2.3 and elsewhere.) What is the maximum baseline and degraded unavailability that should be allowed?
Recommendation: Only DBS satellites with baseline unavailabilities of 100 hours/year or less, when operating without MVDDS interference into a DBS antenna with G/T of 11.2 dB/K, should be protected. DBS receivers operating with satellites that do not meet this criterion should not be protected from MVDDS interference when operating with such satellites.

Yes

- How should the advent of new DBS antennas affect the policy for MVDDS licensing?
Recommendation: DBS antennas with G/T performance below 11.2 dB/K could seriously degrade DBS availability in rain. If the MVDDS service provider opts to mitigate MVDDS interference with the use of a different antenna, the replacement antenna should have a G/T at least as great as that of the original antenna.

Unclear what recommendation means.

- Should other causes of unavailability (besides rain and MVDDS interference) be included in the total budget?
Recommendation: Other sources of outage should be considered, if they are significant and if their effect is known and documented. Sun-transit outages are an example.

Northpoint will locate transmitters such that no customers are impacted. Support Recommendation

- MVDDS antenna backlobes can interfere with a DBS antenna main beam. This would typically occur close to the MVDDS transmitter, generally north of the antenna. These regions are typically very small. Should very small regions of interference be exempted because of their small size?
Recommendation: These small regions should not be exempted. All regions of the interference-mitigation region should be considered, regardless of size.

Unclear how FCC would mandate - but Northpoint supports proactive mitigation.

- Should MVDDS mitigation be based solely on customer complaints?
Recommendation: MITRE believes that DBS customers may not know what is causing a particular outage, or the reason for its duration. Consequently, mitigation should not await DBS customer complaints. MITRE believes that mitigation should be done proactively, regardless of the presence or absence of such complaints.
- How much time should the MVDDS service provider be allowed in order to implement mitigation to the DBS receivers?

*Text boxes indicate Northpoint comments.
Emphasis added by Northpoint.*

Northpoint supports this recommendation.

Recommendation: To the maximum extent possible, mitigation should be accomplished prior to a license being granted for MVDDS operation.

MITRE believes that with implementation of the licensing process described in Section 6.3 and the other policy recommendations outlined above, spectrum sharing between DBS and MVDDS services in the 12.2–12.7 GHz band is feasible. However, MITRE recognizes that it is the FCC that must ultimately resolve the various policy issues and the approach to licensing new MVDDS services.

NORTHPOINT SUMMARY

Sharing is feasible when you use Northpoint.

Other waveforms and systems have not been proven – these can pose significant interference risk.

No other company demonstrated technology.

**NET, NET
LICENSE
NORTHPOINT.**

EXHIBIT B

FCC FILINGS IN SUPPORT OF NORTHPOINT

(Contained in FCC Comments and
Reply Comments – ET Docket No. 98-206)

Broadcasters:

National Association of Broadcasters (NAB)
National Association of Black Owned Broadcasters (NABOB)
Local Broadcast Station Owners (130 stations):

Joint Comments:

Benedek Broadcasting Corporation
Corridor Television, LLP
Eagle III Broadcasting, LLC
Granite Broadcasting Corporation
Lin Television Corporation

Separate Comments:

Gray Communications Systems
Paxson Communications Corporation
Second Generation of Iowa

Consumer and Minority Advocacy Groups:

Consumers Union, *et. al.*
Center for Media Education
Consumer Federation of America
Consumers Union
Leadership Conference on Civil Rights
League of United Latin American Citizens
Media Access Project
Minority Media and Telecommunications Council (MMTC)
National Indian Telecommunications Institute (NITI)

Others:

Tom Hazlett (Economist)
*Virtual Geosatellite, LLC (NGSO)

*Comments support spectrum sharing

Northpoint Solves Impending Satellite Must Carry Crisis

A Must Carry Showdown Is Just Months Away

- On January 1, 2002, the Satellite Home Viewer Improvement Act requires DBS carriers to serve local communities with a full set of local signals. No longer can they cherry pick and instead must abide by the rule: "carry one, carry all." Congress extended cable's must carry rule to DBS because local stations provide valuable news, weather and other community-oriented programming, and offer local businesses an effective way to advertise.

Satellites Lack Capacity To Satisfy Must Carry Obligation

- DBS carriers lack capacity to carry all 1,600 local TV stations. DirecTV and EchoStar now carry 183 stations in 42 markets – not even *one* station for each of the 210 local markets! They have generally opted to carry only affiliates of the top four networks (ABC, CBS, FOX, NBC). In these markets, non-carried independent stations and affiliates of UPN, WB and PAX face a significant marketplace disadvantage. Thus, in addition to being unable to deliver *any* local channels to the smaller markets, DBS operators appear ill-equipped to satisfy a must carry requirement in the larger markets they now serve by January 1, 2002.
- *To free up capacity, DBS will have to drop some national channels and/or scale back the number of markets to which they provide local signals.*

Lacking Technical Solution, DBS Seeks To Overturn Must Carry Law

- On September 20, 2000, the DBS carriers filed a lawsuit contesting the constitutionality of the must carry law. The suit betrays their support for passage of the law and reveals a woeful disregard for local communities and TV stations – describing most programming as "of limited interest and viewership, duplicative of other programming . . . or otherwise not in harmony" with DBS objectives.
- Many will recall the deluge of letters and calls from DBS subscribers who decried the court-ordered cutoff of illegally provisioned network signals. A similar torrent of complaints will undoubtedly hit Washington after DBS carriers inform their subscribers they must turn off channels in order to fulfill their statutory obligation.

Northpoint Technology Can Satisfy Must Carry – And At Low Cost

- Northpoint Technology, an innovative locally based, high-capacity technology, is committed to deliver *all* local signals in *all* 210 markets on the first day it begins operations. It will provide subscribers with all local signals, plus other multi-channel video programming for just \$20/month – plus optional high speed Internet service for only another \$20. Ironically, Northpoint's system could help the DBS carriers satisfy their own must carry obligation by enabling their customers to obtain local signals via a complementary Northpoint feed, which would simply require installation of a separate antenna.

Northpoint Technology
An Innovative New Competitor to Cable and DBS

- Northpoint Technology, Ltd. and its local Broadwave affiliates seek to compete with cable and DBS offering multi-channel video programming via locally based wireless networks enabled by Northpoint innovative patented technology. This new service will also provide low cost broadband Internet service in urban and rural areas.
- This new wireless terrestrial technology offers effective, non-regulatory, solutions to a number of policy challenges:
 - *Industry Competition:* Because Northpoint's wireless network can be deployed at a low cost; consumers will be billed at a correspondingly low monthly fee of less than \$20/month for 96 channels of digital television.
 - *Local-into-Local:* Northpoint and its Broadwave affiliates will carry *all* local television stations in the United States, thus ensuring that consumers in even the most rural markets will have access to their local TV stations.
 - *Broadband:* In addition to providing video programming, Northpoint's system will also provide broadband Internet access, which will be particularly beneficial in remote areas not served by cable or DSL.
 - *Service to Rural Areas:* Since Northpoint is a low cost, high capacity technology is it uniquely suited to service rural areas.
- Northpoint's terrestrial network shares spectrum with direct broadcast services (DBS) and uses a small dish antenna for reception. Northpoint service operates on a co-primary basis with other users but has agreed to avoid causing harmful interference to incumbent DBS users.
- Northpoint has operated successfully under three FCC experimental licenses: Kingsville, TX (1997); Austin, TX (1998); and Washington, DC (1999). Independent firms, including Lucent Technologies participated in the design and performance of each of the tests and issued independent analyses verifying the results.
- Northpoint first brought its technology to the FCC in 1994 and since that time has been diligently working for FCC approval. In November 2000, the FCC issued an Order verifying that Northpoint's technology can be used and sought comments on licensing options.
- All of the Broadwave affiliates stand ready to deploy their networks, once they secure regulatory approval from the FCC. The first systems can be operational in 6 months, with nationwide coverage completed within 2 years.

Lucent Technologies, Bell Labs
Advance Technology Center of Excellence
Wireless and Multimedia System Development Group, Arlington VA

Lucent Technologies
Bell Labs Innovations



On Northpoint Field Trial in Washington DC Sept – Oct 1999

Habib Riazi
Lucent Technologies, Bell Labs

Abstract:

Northpoint is proposing to provide terrestrial digital multichannel TV and wideband forward link Internet services using the 12.2-12.7 GHz spectrum that is currently used by Satellite Direct Broadcasting Services (DBS). Northpoint transmission is based on a patented approach similar to Space Division Multiplex (SDM) using directional antennas. There has been an interest on part of FCC as well as, DBS providers, Northpoint, and Lucent Technologies Bell Labs to get a precise understanding of the potential interference to DBS customers located at relatively close ranges to the Northpoint transmitter. During the months of August and September, Northpoint conducted a series of field tests in Washington DC area that provided useful data for this study. In this memorandum, we have provided some insight into the representative real world effects on the operation of the DBS customers at close ranges¹ including one at 0.17 Km from Northpoint transmitter. This analysis shows that for the site located at 0.17 Km from Northpoint Transmitter, measured degradation of received Eb/No for a DBS receiver is less than 0.23 dB with 95% confidence. Further, this reduction corresponds to a C/I of 24 dB under the test conditions. For general applicability, these figures can be scaled to other link conditions in conjunction with the DBS link budget and interpreted with respect to the link availability in terms of percentage of time and places. It is our opinion that for this level of interference the impact on the DBS services is negligible in all weather conditions.

¹ Due to the signal attenuation, the interference at locations beyond a few miles is not a concern.

United States Senate
WASHINGTON, DC 20510

May 23, 2001

Michael K. Powell
Chairman
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Dear Chairman Powell:

Our four states --Montana, Alaska, Hawaii and Massachusetts-- are among the states with markets that receive the least local broadcast service by direct broadcast satellites. Moreover, our states also need greater opportunities for high-speed access to the Internet. For these reasons, we ask you to move expeditiously to determine the license applications of the Broadwave affiliates of Northpoint Technology to deliver local broadcast and high-speed data service.

As you know, when Congress enacted SHVIA to authorize delivery of local signals via satellite and enhance competition to cable, Congress recognized that direct broadcast satellites would be unable to deliver local signals to all 210 television markets. To address this problem, Congress directed the FCC -- by no later than November 29, 2000 -- to "take all actions necessary to make a determination regarding licenses" for services that are capable of delivering local signals into the markets not served by satellites. Northpoint Technology has the potential to provide all local channels in every television market, large and small alike. Moreover, this new service would promote another equally important congressional goal by making high-speed access available to many Americans who today have no such access to the Internet.

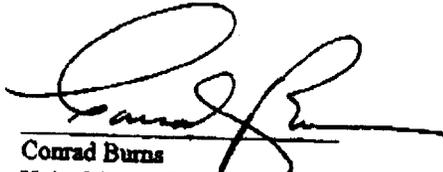
While the FCC missed the November 29, 2000, deadline to make an ultimate "determination" on these applications, we note the FCC did conclude at that time that satellite-terrestrial spectrum sharing was feasible, a finding which was recently reaffirmed by the MITRE Corporation. The FCC should not delay any further its action on Northpoint's license applications, which have been pending for over 28 months.

We also understand that the FCC opened an entirely new proceeding to consider whether to subject these licenses to an auction. As you know, Congress authorized auctions in order to quickly and efficiently distribute licenses and only in cases where there are mutually exclusive applications. Our understanding in this case, however, is that Northpoint's Broadwave affiliates were the only ones to file applications for a terrestrial service by January 8, 1999, the close of the FCC filing window for new service in the 12 GHz band. While two other entities subsequently filed applications for terrestrial services, neither submitted any technology to the Commission or to

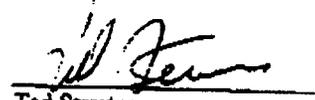
MITRE, the independent organization selected to conduct a congressionally-mandated interference test of any proposed terrestrial service, seeking to operate in the 12 GHz band. We would question the utility of going to an auction if it delays the rollout of service to consumers, and if it does not result in increased competition to cable or additional service to consumers.

Consumers should not have to wait months or years for additional parties who may or may not be able to develop their own technology to compete with Northpoint's patented system. Our constituents need and deserve the same viewing options and broadband services that are available to Americans in more populated regions of the country. Northpoint's terrestrial wireless service can meet the unique needs of our constituents by providing much needed competition to cable service, as well as high speed Internet access. Therefore, we expect the FCC to act expeditiously on the license applications of the Broadwave affiliates.

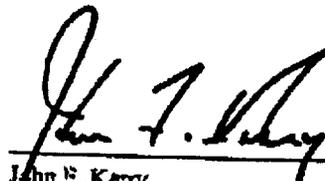
Sincerely,



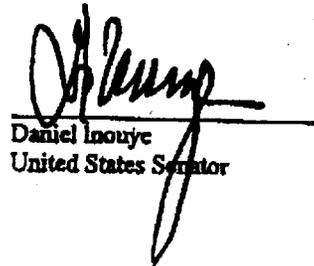
Conrad Burns
United States Senator



Ted Stevens
United States Senator



John F. Kerry
United States Senator



Daniel Inouye
United States Senator

Congress of the United States
Washington, DC 20515

May 1, 2001

The Honorable Michael Powell
Chairman
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Dear Mr. Chairman:

Two years ago many of us from the Texas congressional delegation wrote to your predecessor to call his attention to an innovative wireless technology, developed in Texas by Northpoint Technology, that would provide much-needed competition to cable and DBS incumbents. For Texans in less populated areas, it would provide the only access to local television signals and high-speed Internet service.

Currently, there are a total of 130 television stations operating the 19 local television markets that serve the State of Texas. Northpoint Technology will carry all of those stations on the first day it commences operations. In marked contrast, the DBS carriers have opted to carry a total of only 16 stations and serve only 4 markets, leaving behind the majority of stations in Texas.

Many Texans are unable to get broadband access to the Internet, and those who do often have to pay hefty rates. Northpoint's digital system would enable all Texans to enjoy the same broadband opportunities that are now available only to consumers in more populated centers.

When the delegation wrote to your predecessor, Northpoint's system had been tested twice under experimental licenses, with no reported interference to any DBS subscriber. As the comment period on the relevant rulemaking concluded in the spring of 1999, it seemed reasonable to expect a timely decision on whether to grant licenses to Northpoint's affiliates.

We write to you today to express our concern with the Commission's inaction on this matter. It is our understanding that in the two years that have transpired since the first delegation letter, Northpoint's system could have been fully deployed throughout all of the nation's 210 local television markets.

The Satellite Home Viewer Improvement Act directed the Commission - by no later than November 29, 2000 - to "take all actions necessary to make a determination regarding licenses" for services (such as Northpoint's) that are capable of delivering local signals into markets not

served by DBS. On that deadline date, the Commission concluded Northpoint would not cause harmful interference to DBS.

It appears the Commission is now on a course to actually prolong a decision on the licenses by commencing entirely new rulemaking procedures regarding the allocation of licenses, including seeking comment on holding an auction. While auctions have merit for many services, we do not support them in this case because no company, other than Northpoint, has demonstrated a terrestrial technology that can share the spectrum with DBS. Thus, an auction would not hasten service to the public, but delay it, perhaps indefinitely.

Further, we understand that Northpoint applied to the FCC at the same time as eight satellite applicants, none of whom the Commission plans to subject to an auction. Basic fairness and good public policy dictate that companies who apply on the same day to use the same resources be treated in the same manner.

We hope that the FCC can resolve this long-standing regulatory issue in a matter of weeks. Northpoint first brought its system to the FCC in 1994, and we are confident that you will agree that it is time to clear the regulatory obstacles so that this technology can finally enter the marketplace.

Thank you for your consideration of this matter. We look forward to hearing from you.

Sincerely,

Hyth D. ...

Lamar Smith

...

Max ...

...

...

Wickham

Sheela Jackson Lee

Pom Paul

Jim Turner

Mac Taylor

Larry Corbett

Charlie Stenholm

Butterfield

Eddie Benic Johnson

Ralph M. Hall

Mac Farris

Sal Poy

Ken Brown

RJ Bonilla

Rubina Henajan

Yu Han

Benjamin

Cris D. Hernandez

Sam Johnson

Chf Edwards



107th Congress

Congressional Black Caucus of the United States Congress

1511 Longworth HOB • Washington, DC 20515 • (202) 225-8885 • fax (202) 226-1477
www.house.gov/johnson/cbc

April 25, 2001

OFFICERS

Eddie Bernice Johnson
Chair

Elijah Cummings
First Vice Chair

Shella Jackson Lee
Second Vice Chair

Bobby Rush
Secretary

Gregory Meeks
Whip

The Honorable Michael K. Powell
Chairman
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Dear Chairman Powell:

We, the undersigned members of the Congressional Black Caucus, honoring our commitment to promote diversity of ownership of telecommunications facilities and the deployment of new technologies to unserved and under-served communities throughout this nation, would like to express our support for Broadwave USA.

MEMBERS

*By Seniority in the
US House of Representatives*

- John Conyers, Jr. MI - '68
- Charles E. Rangel NY - '71
- Major R. Owens NY - '82
- Eschelon Townes NY - '82
- John Lewis GA - '87
- Donald M. Payne NJ - '89
- Benjamin Rayburn Norton DC - '91
- William Jefferson LA - '91
- Marlene Waters CA - '91
- Eva Clayton NC - '92
- Benford Bishop GA - '93
- Carline Brown FL - '93
- James E. Clyburn SC - '93
- Alicea Hastings FL - '93
- Earl Hilliard AL - '93
- Eddie Bernice Johnson TX - '93
- Cynthia McKinney GA - '93
- Carle Meek FL - '93
- Bobby Rush IL - '93
- Robert C. Scott VA - '93
- Melvin Watt NC - '93
- Albert Wynn MD - '93
- Bonnie G. Thompson MS - '93
- Shela Foyte PA - '93
- Shela Jackson Lee TX - '93
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- Juanita Wofford-McDonald CA - '96
- Elijah Cummings MD - '98
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- Donna Christian-Christensen VI - '97
- Danny K. Davis IL - '97
- Harold E. Ford, Jr. TN - '97
- Carolyn Kistyle MD - '97
- Gregory W. Meeks NY - '98
- Barbara Lee CA - '98
- Stephanie Tubbs Jones OH - '99
- William Lacy Clay, Jr. MO - '01

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The Broadwave affiliates have applied to the Federal Communications Commission (FCC) to build a digital broadband system throughout the United States using a new technology called Northpoint. African Americans control or significantly participate on over half of Northpoint's Broadwave local affiliates. African Americans are 36% of all participants in Northpoint's local license applicant groups. The proliferation of this technology could result in a significant increase in African American ownership and representation in the telecommunications industry. However, there a number of obstacles impeding the deployment of the local television services being offered by this new technology.

Section 2002 of the Communications Omnibus Reform Act of 1999 (P.L. 106-113) requires the FCC to grant or deny applications such as those submitted by Broadwave by November 29, 2000. The FCC, however, has missed the deadline and we urge the expedition of this decision. The Broadwave applications have been before the Commission for seven years, significantly delaying the deployment of these technologies to under-served areas.

We are also concerned that the auction process being considered by the Commission would cause further delay in the deployment of services. It is our understanding that Northpoint is able to share the 12.2-12.7 Ghz band with eight other applicants. The FCC is only required to auction mutually exclusive applications. Further, Section 309(j)(6)(E) of the Communications Act requires the FCC to explore all available methods to avoid auction. In addition, it has come to our attention that none of the other applications received on the same day to use the same spectrum are being considered for auction. Subjecting Broadwave to auctions would be inconsistent with the above-referenced sections of the Act and subjects them to a more difficult licensing standard than other applicants.

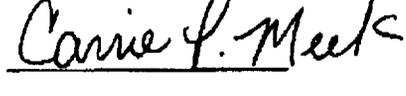
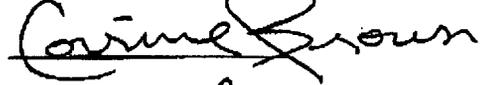
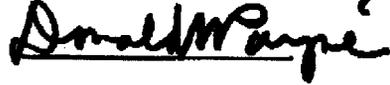
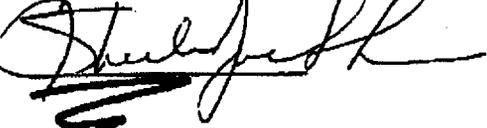
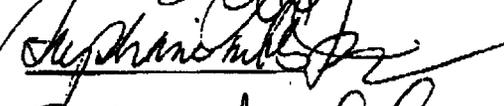
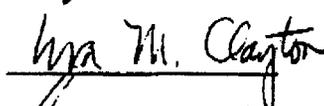
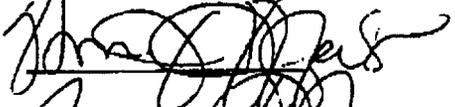
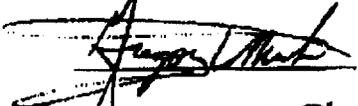
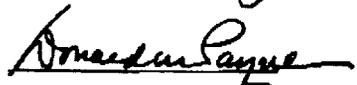
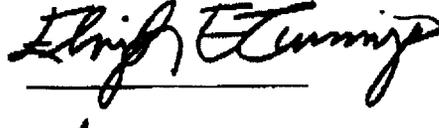
Congress has indicated the importance of getting services to the public as quickly as possible. Broadwave stands ready to offer these much needed services to unserved and under-served communities throughout this nation. We urge you to fulfill this important mandate in an expeditious manner.

Thank you for your consideration of this important matter. We look forward to hearing from you soon.

Sincerely,

Eddie Bernice Johnson
Chair

Elijah Cummings
First Vice Chair



Sanford D. Bishop, Jr.

~~Sumner Millender~~ M. J. Smith

~~Gregory Williams~~

Samuel G. Ford J

Earl F. Gilliland

G. W. King

Congress of the United States

Washington, DC 20515

May 15, 2001

Michael K. Powell
Chairman
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Dear Chairman Powell:

As you are undoubtedly aware, access to digital broadband telecommunications services is an increasingly important economic development issue, particularly in urban and rural areas. The Congressional Black Caucus has always been committed to promoting diversity of ownership of telecommunications facilities and the deployment of new technologies in minority communities across the nation. Today, there are a group of companies, the Broadwave affiliates that have applied to the FCC to build a new, digital broadband system throughout the United States using a new technology called Northpoint.

This technology could also significantly increase African American representation in the ownership of telecommunications properties in the United States because African Americans either control or significantly participate in over half of Northpoint's Broadwave local affiliates.

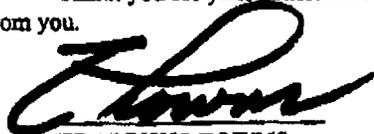
We understand that in a recent Report & Order you concluded that Northpoint Technology can share with satellites and we commend you for that decision. We are concerned, however, that the Commission did not meet the statutory deadline with respect to the Broadwave Affiliate applications and is now considering subjecting this new technology to a spectrum auction.

In an effort to expedite further deployment of local television service to rural areas that are typically unserved or underserved, Congress passed the Intellectual Property and Communications Omnibus Reform Act of 1999 (P.L. 106-113) last year. Section 2002 of this Act required the Commission to grant or deny applications such as those submitted by Broadwave Affiliates by November 29, 2000. The Commission, much to our dismay, has now missed that deadline. We are not going to quibble with you about the plain language of that provision or its intent. Rather we want to impress upon you the importance of completing action on these applications as quickly as possible. The Broadwave applications have been pending at the Commission for over two years and the underlying technology has been before the Commission for seven years. Clearly, enough time has passed for the Commission to act on these applications.

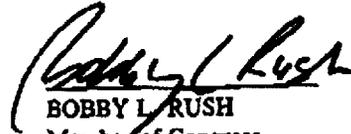
We are also concerned that the Commission is considering subjecting these applicants to an auction process. It is our understanding that Northpoint has demonstrated that it is capable of sharing the 12.2-12.7 GHz band with eight other satellite applicants. We want to remind you that the Commission is only required to auction mutually exclusive applications. Moreover, Section 309(j)(6)(E) of the Communications Act requires that the Commission explore all methods available to avoid an auction. In this case, it appears that subjecting the Broadwave applicants to an auction is inconsistent with the above-referenced sections of the Act and subjects the Broadwave applicants to a more difficult licensing standard than the satellite applicants that applied on the same day to use the same spectrum. Finally, auctions have not facilitated the introduction of broadband to rural areas or cable competition in any part of the United States. We do not support an auction for these services.

Today there are only 330 communities out of 33,000 communities in the United States who have effective cable competition according to the most recent Commission report to Congress. The Broadwave applicants stand ready to offer needed services to our constituents. Congress has previously indicated the importance of getting services such as those proposed by Broadwave to the public as quickly as possible. We urge you to fulfill this important mandate.

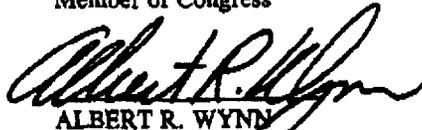
Thank you for your consideration of this important matter. We look forward to hearing from you.



EDOLPHUS TOWNS
Member of Congress



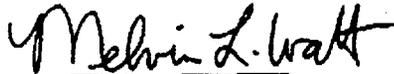
BOBBY L. RUSH
Member of Congress



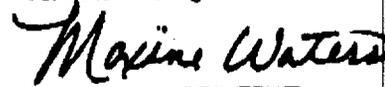
ALBERT R. WYNN
Member of Congress



CHARLES B. RANGEL
Member of Congress



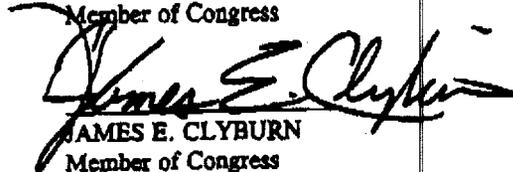
MELVIN L. WATT
Member of Congress



MAXINE WATERS
Member of Congress



ELEANOR HOLMES NORTON
Member of Congress



JAMES E. CLYBURN
Member of Congress

Background on Northpoint Application Process

1994

- Northpoint first came to FCC

1995

- Northpoint filed first experimental license application (King Ranch) with FCC

1996

- Northpoint application pending at FCC

1997

- FCC grants Northpoint's first experimental license
- Skybridge files petition for rulemaking for satellite service

1998

- Jan: Report on King Ranch testing filed with FCC
- Mar: Northpoint files petition for rulemaking for its terrestrial service
- Jul: FCC grants Austin, TX experimental testing license
- Nov: FCC calls for Satellite, but not terrestrial, applications to use DBS band
- Nov: FCC consolidates Skybridge and Northpoint petitions into one proceeding

1999

- Jan: Austin test report filed at FCC
- Jan: Eight satellite applicants and 69 Northpoint "Broadwave" affiliates file applications
- Mar: FCC Public Notice asking for comments on Broadwave applications
- Mar: FCC accepts for filing Satellite applications, **but not the Broadwave applications**
- May: FCC grants experimental license to Northpoint to test in Washington, DC
- Oct: Northpoint files Washington, DC test results
- Nov: Legislation enacted requiring FCC action on Broadwave applications within 1 year
-

2000

- Feb: EchoStar and DirecTV granted license to test Northpoint's technology
- Mar: Northpoint and Virtual Geosatellite agree they can share spectrum
- Mar: Orbit bill enacted prohibiting auctions of satellite spectrum
- Jul: Skybridge files letter saying that it can share with Northpoint
- Jul: DBS submits test results on testing in Washington, DC
- Nov: FCC concludes Northpoint's technology works and that Northpoint can share with both DBS operators and 8 other satellite applicants
- Nov: FCC seeks comment on whether to subject Broadwave applications to auctions
- Dec: Legislation enacted requiring independent testing of Northpoint's technology
- Dec: FCC appropriation language re-affirms deadline for action on Broadwave applications

2001

- Congressionally mandated independent testing report concludes that Northpoint can share and recommends licensing process

CERTIFICATE OF SERVICE

I, Shannon Thrash, hereby certify that on this 19th day of June, 2001, copies of the foregoing were served by hand delivery* or first class United States mail, postage prepaid, on the following:

Magalie Roman Salas*
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Federal Communications Commission
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Room TW-B204
Washington, D.C. 20554

Commissioner Michael Copps
Lauren Van Wazer, Interim Legal Advisor
Federal Communications Commission*
The Portals
445 12th Street, SW
Washington, D.C. 20554

Commissioner Kathleen Abernathy
Bryan Tramont, Legal Advisor
Cathy Hilke, Intern
Federal Communications Commission*
The Portals
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Washington, D.C. 20554

Antoinette Cook Bush, Esq.
Northpoint Technology, Ltd.
400 North Capitol Street, NW
Suite 368
Washington, D.C. 20001

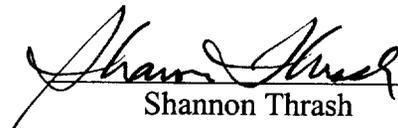
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Shannon Thrash