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KELLOGG, HUBER, HANSEN, TODD & EVANS, P.L.L.C.

SUMNER SQUARE
1615 M STREET, N.W.
SUITE 400
WASHINGTON, D.C. 20036-3209

(202) 326-7900
FACSIMILE:
(202) 326-7999

MICHAEL K. KELLOGG
PETER W. HUBER
MARK C. HANSEN
K. CHRIS TODD
MARK L. EVANS
STEVEN F. BENZ
NEIL M. GORSUCH
GEOFFREY M. KLINEBERG
REID M. FIGEL
HENK BRANDS

SEAN A. LEV
EVAN T. LEO
ANTONIA M. APPS
MICHAEL J. GUZMAN
AARON M. PANNER
DAVID E. ROSS
SILVIJA A. STRIKIS
WILLIAM J. CONYNGHAM
RICHARD H. STERN, OF COUNSEL
SHANLON WU, OF COUNSEL

August 24, 2001

VIA HAND DELIVERY

EX PARTE

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AUG 24 2001

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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

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 August 22, 2001, Sophia Collier of Northpoint Technology, Ltd. ("Northpoint") met with Paul Margie, Spectrum and International Legal Advisor to FCC Commissioner Michael J. Copps

The purpose of the meeting was to discuss technical issues as represented in the attached written material (PowerPoint presentation). We reviewed the status and timeline of licensing. Northpoint advocated for prompt issuance of Broadwave licenses and analyzed reasons why competitive bidding should not be employed. The enclosed materials served as a basis for discussion at the meeting.

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

Yours sincerely,

J. C. Rozendaal

J. C. Rozendaal
Counsel for Northpoint Technology, Ltd.

No. of Copies rec'd 0+18

Enclosures

cc: Paul Margie

Northpoint Seeks Parity With Other Applicants

Northpoint has demonstrated that it can share spectrum with the two DBS carriers as well as with eight satellite applicants that applied on the same day for the same spectrum. These satellite applicants – which include DirecTV's parent, Hughes, and other industry giants, Boeing and Alcatel – will not be subject to an auction.

FCC Has Statutory Duty to Avoid Mutual Exclusivity

- The auction statute permits the FCC to conduct auctions only if it accepts "mutually exclusive applications," and it explicitly directs the FCC to pursue "engineering solutions" and "other means in order to avoid mutual exclusivity in application and licensing proceedings." (See 47 U.S.C. 309(j)(1) and (6))

Northpoint is Only Terrestrial System to Pass Congressionally-Mandated Independent Test

- Northpoint is the only qualified applicant because it alone submitted its technology for the congressionally-mandated independent demonstration of spectrum sharing capability with DBS satellites. (See Sec. 1012, FY 2001 CJS Appropriations, PL 106-553) MITRE concluded that satellite-terrestrial spectrum sharing is feasible and specifically demonstrated Northpoint's technology can eliminate interference to satellite reception.

Consumer Groups and Broadcasters Oppose Auction in FCC Comments

- Consumer groups say Northpoint "will bring instant competition and rapid deployment of broadband services to the entire country," and caution, "auctions would delay and possibly undermine the expansion of competition to incumbent cable and satellite companies."

- The NAB and well over 100 individual station owners similarly oppose an auction and endorse Northpoint for the competition it would bring to the marketplace and for its carriage of all local television stations.

An Auction Would Delay Service, Penalize Northpoint, and Stifle Future Innovation

- If the FCC were to pursue an auction, it would delay introduction of this new service for perhaps years and inevitably increase the cost to consumers. Moreover, auctions have never facilitated the deployment of service for rural areas.

- An auction would force a start-up to compete for the product of its own patented innovation against deep-pocketed companies, and rises to an unconstitutional taking.

- The FCC should do all it can to encourage innovation that expands the productive use of spectrum. Subjecting Northpoint to an auction -- the very party whose technology made this spectrum available for terrestrial use – would send precisely the wrong message to future innovators.

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S.376

ORBIT Act (Enrolled Bill (Sent to President))

`SEC. 647 . SATELLITE AUCTIONS.

`Notwithstanding any other provision of law, the Commission shall not have the authority to assign by competitive bidding orbital locations or spectrum used for the provision of international or global satellite communications services. The President shall oppose in the International Telecommunication Union and in other bilateral and multilateral fora any assignment by competitive bidding of orbital locations or spectrum used for the provision of such services.

`SEC. 648. EXCLUSIVITY ARRANGEMENTS.

`(a) IN GENERAL- No satellite operator shall acquire or enjoy the exclusive right of handling telecommunications to or from the United States, its territories or possessions, and any other country or territory by reason of any concession, contract, understanding, or working arrangement to which the satellite operator or any persons or companies controlling or controlled by the operator are parties.

`(b) EXCEPTION- In enforcing the provisions of this section, the Commission--

`(1) shall not require the termination of existing satellite telecommunications services under contract with, or tariff commitment to, such satellite operator; but

`(2) may require the termination of new services only to the country that has provided the exclusive right to handle telecommunications, if the Commission determines the public interest, convenience, and necessity so requires.

`Subtitle D--Negotiations To Pursue Privatization

`SEC. 661. METHODS TO PURSUE PRIVATIZATION.

`The President shall secure the pro-competitive privatizations required by this title in a manner that meets the criteria in subtitle B.

`Subtitle E--Definitions

Became Public Law No. 106-553
December 21, 2000

106TH CONGRESS, 2d Session | HOUSE OF REPRESENTATIVES | REPORT 106–1005

MAKING APPROPRIATIONS FOR THE GOVERNMENT OF THE DISTRICT OF COLUMBIA AND OTHER ACTIVITIES CHARGEABLE IN WHOLE OR IN PART AGAINST REVENUES OF SAID DISTRICT FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 2001, AND FOR OTHER PURPOSES

OCTOBER 26 (legislative day, OCTOBER 25), 2000.—Ordered to be printed

---

Mr. ISTOOK, from the committee of conference, submitted the following

CONFERENCE REPORT

[To accompany H.R. 4942]

The committee of conference on the disagreeing votes of the two Houses on the amendment of the Senate to the bill (H.R. 4942) "making appropriations for the government of the District of Columbia and other activities chargeable in whole or in part against revenues of said District for the fiscal year ending September 30, 2001, and for other purposes", having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the House recede from its disagreement to the amendment of the Senate, and agree to the same with an amendment, as follows:

In lieu of the matter stricken and inserted by said amendment, insert:

Section 1. (a) The provisions of the following bills of the 106th Congress are hereby enacted into law:

(1) H.R. 5547, as introduced on October 25, 2000.

(2) H.R. 5548, as introduced on October 25, 2000.

(b) In publishing this Act in slip form and in the United States Statutes at Large pursuant to section 112 of title 1, United States Code, the Archivist of the United States shall include after the date of approval at the end appendixes setting forth the texts of the bills referred to in subsection (a) of this section.

67–407

Communications Act of 1934 (47 U.S.C. 151 et seq.) has the meaning given that term in the Communications Act of 1934.

SEC. 1011. AUTHORIZATIONS OF APPROPRIATIONS.

(a) COST OF LOAN GUARANTEES.—For the cost of the loans guaranteed under this Act, including the cost of modifying the loans, as defined in section 502 of the Congressional Budget Act of 1974 (2 U.S.C. 661(a)), there are authorized to be appropriated for fiscal years 2001 through 2006, such amounts as may be necessary.

(b) COST OF ADMINISTRATION.—There is hereby authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act, other than to cover costs under subsection (a).

(c) AVAILABILITY.—Any amounts appropriated pursuant to the authorizations of appropriations in subsections (a) and (b) shall remain available until expended.

SEC. 1012. PREVENTION OF INTERFERENCE TO DIRECT BROADCAST SATELLITE SERVICES.

(a) TESTING FOR HARMFUL INTERFERENCE.—The Federal Communications Commission shall provide for an independent technical demonstration 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.

(b) TECHNICAL DEMONSTRATION.—In order to satisfy the requirement of subsection (a) for any pending application, the Commission shall select an engineering firm or other qualified entity independent of any interested party based on a recommendation made by the Institute of Electrical and Electronics Engineers (IEEE), or a similar independent professional organization, to perform the technical demonstration or analysis. The demonstration shall be concluded within 60 days after the date of enactment of this Act and shall be subject to public notice and comment for not more than 30 days thereafter.

(c) DEFINITIONS.—As used in this section:

(1) DIRECT BROADCAST SATELLITE FREQUENCY BAND.—The term "direct broadcast satellite frequency band" means the band of frequencies at 12.2 to 12.7 gigahertz.

(2) DIRECT BROADCAST SATELLITE SERVICE.—The term "direct broadcast satellite service" means any direct broadcast satellite system operating in the direct broadcast satellite frequency band.

TITLE XI—ENCOURAGING IMMIGRANT FAMILY REUNIFICATION

SEC. 1101. SHORT TITLE.

This title may be cited as—

(1) the "Legal Immigration Family Equity Act"; or

(2) the "LIFE Act".

FEDERAL COMMUNICATIONS COMMISSION

SALARIES AND EXPENSES

The conference agreement includes a total of $230,000,000 for the salaries and expenses of the Federal Communications Commission (FCC), instead of $207,909,000 as provided in the House bill, and $237,188,000 as proposed in the Senate-reported amendment. Of the amounts provided, $200,146,000 is to be derived from offsetting fee collections, as provided in both the House bill and the Senate-reported amendment, resulting in a net direct appropriation of $29,854,000, instead of $7,763,000 included in the House bill, and $37,042,000 included in the Senate-reported amendment. Receipts in excess of $200,146,000 shall remain available until expended but shall not be available for obligation until October 1, 2001.

The conference agreement directs the Commission to submit, no later than December 15, 2000, a financial plan proposing a distribution of all the funds in this account, subject to the reprogramming requirements under section 605 of this Act.

From within the funds provided, the FCC is urged to support public safety, emergency preparedness and telecommunications functions of the 2002 Olympic Winter Games.

The Senate report included language on public broadcasting stations' access to spectrum. The House included no similar language. The FCC is examining this issue, which is also pending in the Court of Appeals. The conference agreement reflects the belief that this issue can be resolved through the administrative or judicial process, so no legislative action is required at this time. The Chairman of the FCC should report to the House and Senate Committees on Appropriations on any action the Commission takes on this issue by April 1, 2001.

The FCC shall take all actions necessary to complete the processing of applications for licenses or other authorizations for facilities that would provide services covered by the Satellite Home Viewers Improvement Act (Public Law 106–113, 113 Stat. 1501), specifically to deliver multi-channel video services including all local broadcast television station signals and broadband services in unserved and underserved local television markets by November 29, 2000, as required by Public Law 106–113, 113 Stat. 1501.

The Senate report language with respect to a broadcast industry code of conduct for the content of programming is incorporated by reference.

FEDERAL MARITIME COMMISSION

SALARIES AND EXPENSES

The conference agreement includes $15,500,000 for the salaries and expenses of the Federal Maritime Commission, instead of $14,097,000 as proposed in the House bill and $16,222,000 as proposed in the Senate-reported amendment.

Topics in Today's Briefing

- Spectrum sharing - general technical overview
- Appropriate interference criterion for sharing between DBS and Northpoint
  - Northpoint proposal for EPFD based on 20 dB C/I
    - Fully protects DBS and prevents harmful interference
    - Precedents for this proposal
  - DBS proposal (2.86%)
    - Severely constrains Northpoint
    - No corresponding benefit to public

What is Harmful Interference in the Digital Age?

- FCC rules define harmful interference as "serious degradation" or "repeated interruption" to a radiocommunication service. (S 2.1)
- Analog television services - static or snow on the screen.
- Digital technologies are more robust than analog - provide a consistent, high quality user experience over a wider range of operating values.
- Harmful interference to digital services – abrupt failure with a very brief (seconds only) transition time between perfect reception and outage.

Carrier to Interference Ratio (C/I)

- Interference - the signal of one service is sufficiently strong that it overpowers the other signal and causes an outage.
- The relative strength of one signal to another is calculated as a ratio of "Carrier to Interference" ("C/I") using a logarithmic scale called decibels ("dB").
- DBS - outage occurs at C/I ratios between 3.5 – 6.5 dB.
- Northpoint proposes it provide all DBS customers with a minimum 20 dB of protection.
- DBS argues that Northpoint be required to provide a minimum of approximately 28 dB of protection.

The Decibel Scale (dB)	
dB	Ratio
0	1 to 1
3	1 to 2
7	1 to 5
10	1 to 10
17	1 to 50
20	1 to 100
28	1 to 600
30	1 to 1,000
40	1 to 10,000

A scale commonly used to measure the ratio of one signal power to another

All Parties' Technical Filings Agree Northpoint Would Never Cause An Outage in Clear Air

- Heavy rain storms clouds, lightning and large rain drops can cause DBS outages in some cases.
- DBS contends that Northpoint could "increase unavailability" by adding incrementally to the duration of rain outages.

DBS Stated Availability and Unavailability in Washington D.C. (per year)					
Available	Unavailable	Total hours in a year	Total hours unavailable	Annual average television hrs (Nielsen)*	Annual television hours unavailable
99.95%	0.05%	8,768	4.4	2,557	1.28

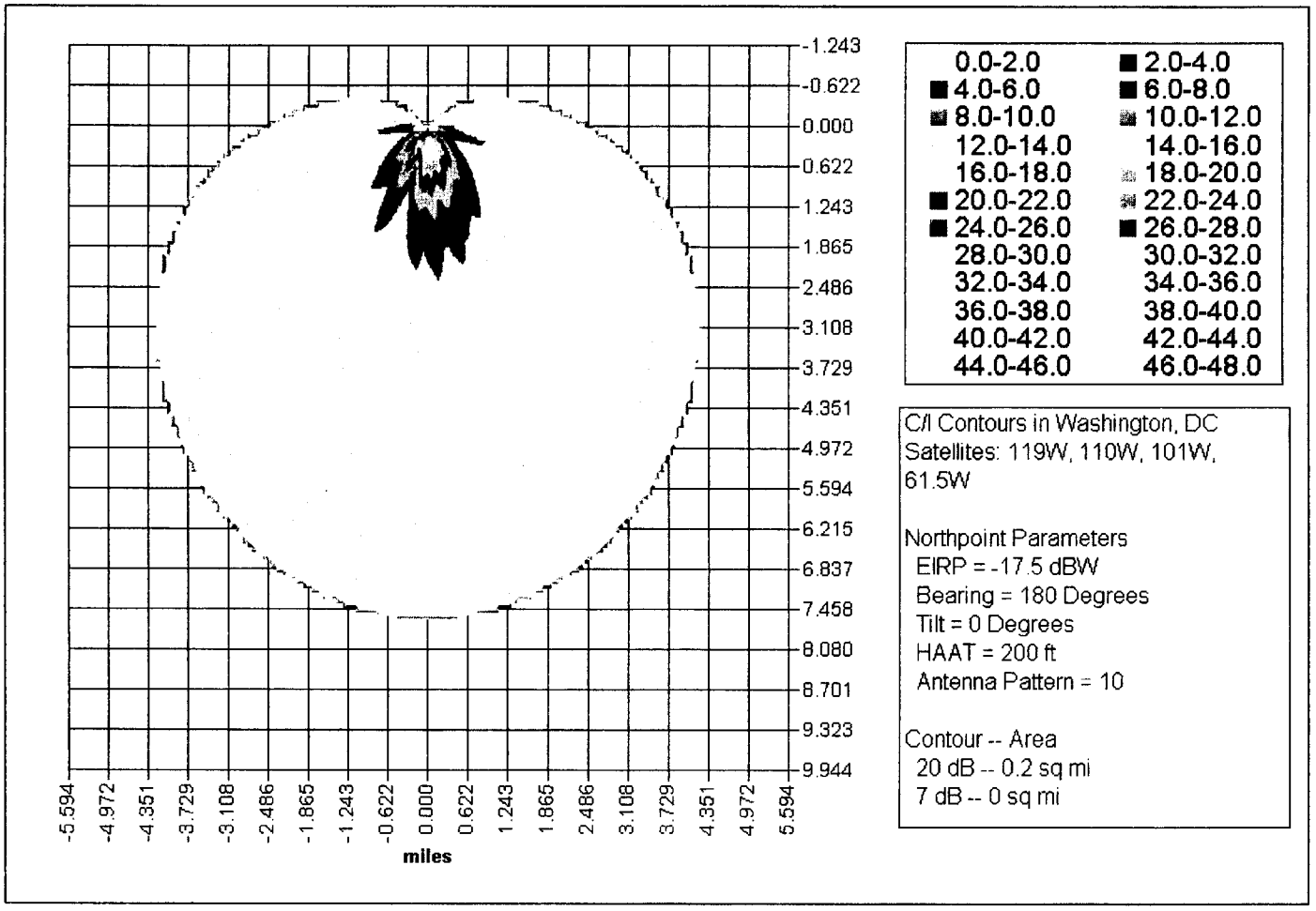
- Availability is a statistical estimate only - based on input assumptions.

* Nielsen studies have shown television is on in the home 7 out of 24 hours (29%)

Contours Define Mitigation Regions in Spectrum Sharing Studies

- "Contour" diagrams plot the degree of overlap between signals and highlight any "mitigation zones" – areas where the overlap exceeds a targeted C/I ratio.
- Contours diagrams account for:
  - Specific system characteristics (transmit and receive antennas etc.)
  - "Free space loss" - the fact that when a radio signal doubles its distance its intensity is quartered
    - Signals near the transmitter are dramatically higher than signals even 100 yards away.
- When spectrum is shared, signals emanate from several sources, each with a different strength due to differences in original power and distance from its source.
- Contour maps make it easy to visualize and understand these factors.

Example of Contour Plot



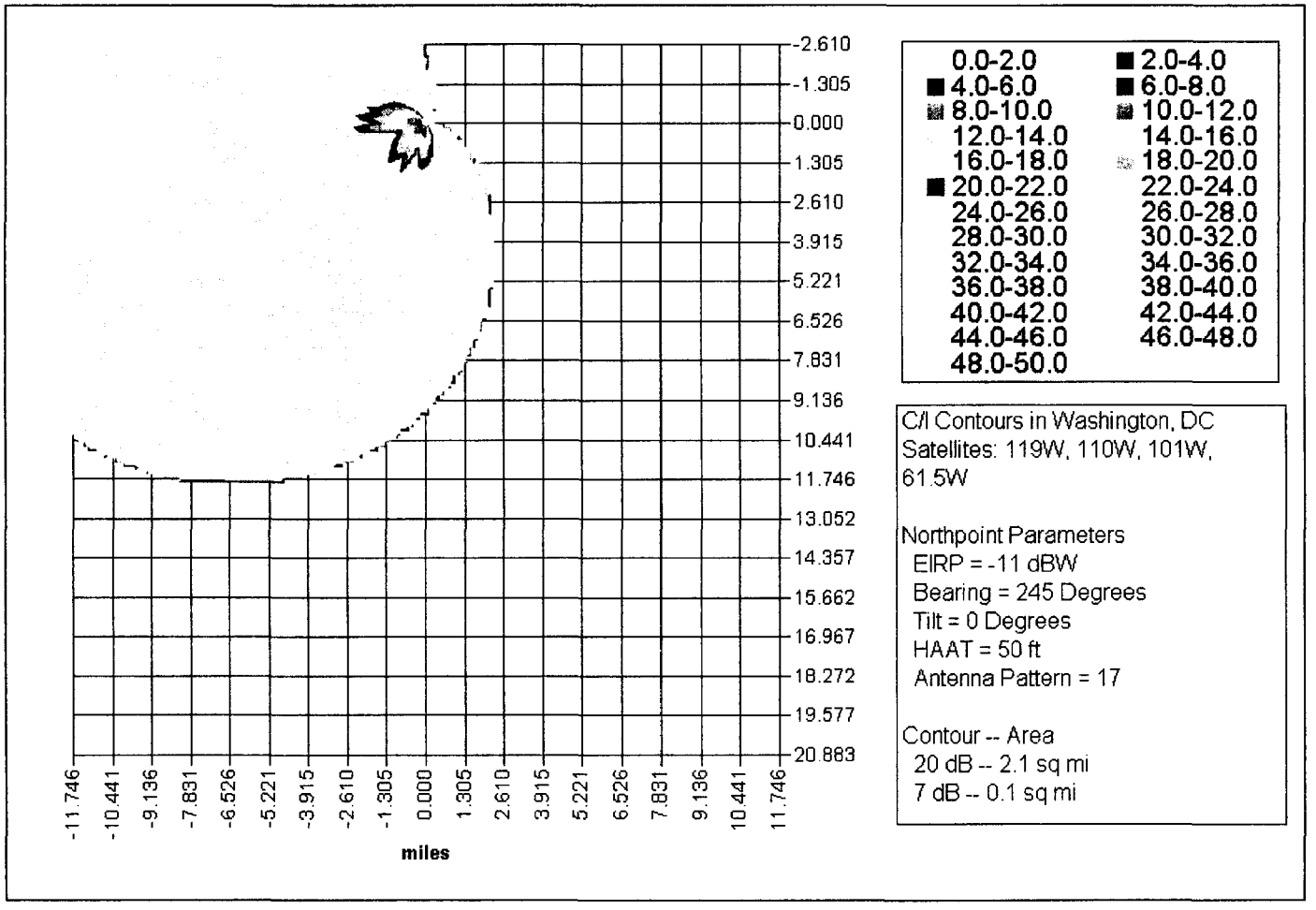
Special Issues In
Satellite and Terrestrial Sharing Contours

- Satellite signals - fairly uniform across a service area.
- Terrestrial signals are much closer to their source transmitter and therefore show a much greater degree of variability across the service area.
- When satellite and terrestrial signals are plotted together, the highest terrestrial power will be in the immediate vicinity of the transmitter.
- Summary of areas of agreement:
  - No interference potential during clear air – potential for concern is on rain days only (increased unavailability).
  - Interference concern is confined to a contour around Northpoint transmitter.

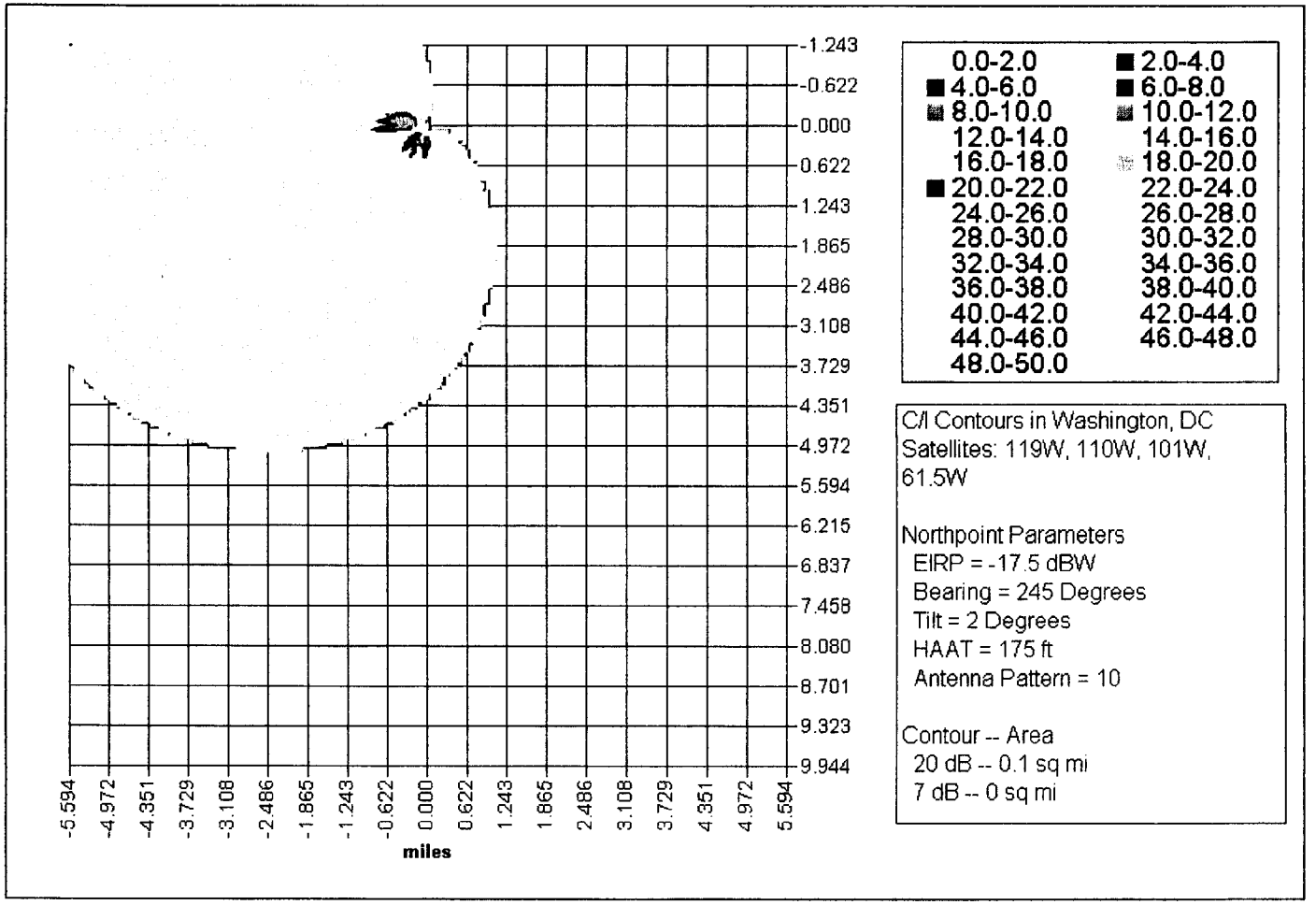
Contour Studies

- Contour studies are used as a design tool when individual cells are planned for an actual deployment.
- Contour studies can also provide a vivid demonstration of how Northpoint technology works:
  - Wide variety of options to design cells.
    - Achieve a substantial, reliable service area for Northpoint customers.
    - Prevent harmful interference to DBS.
- Demonstration – basic cases.

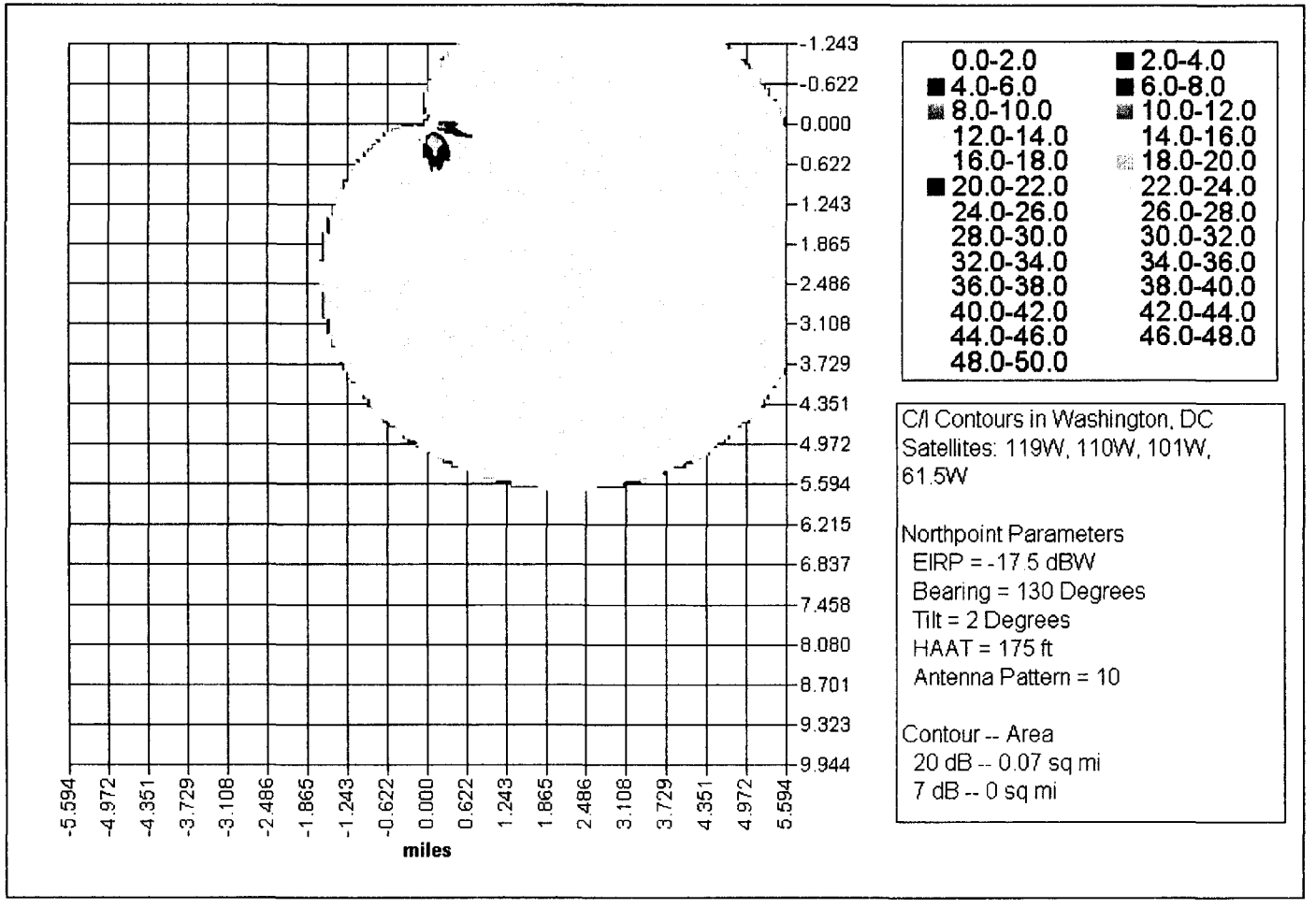
Sample Site 1: Without Northpoint Optimization



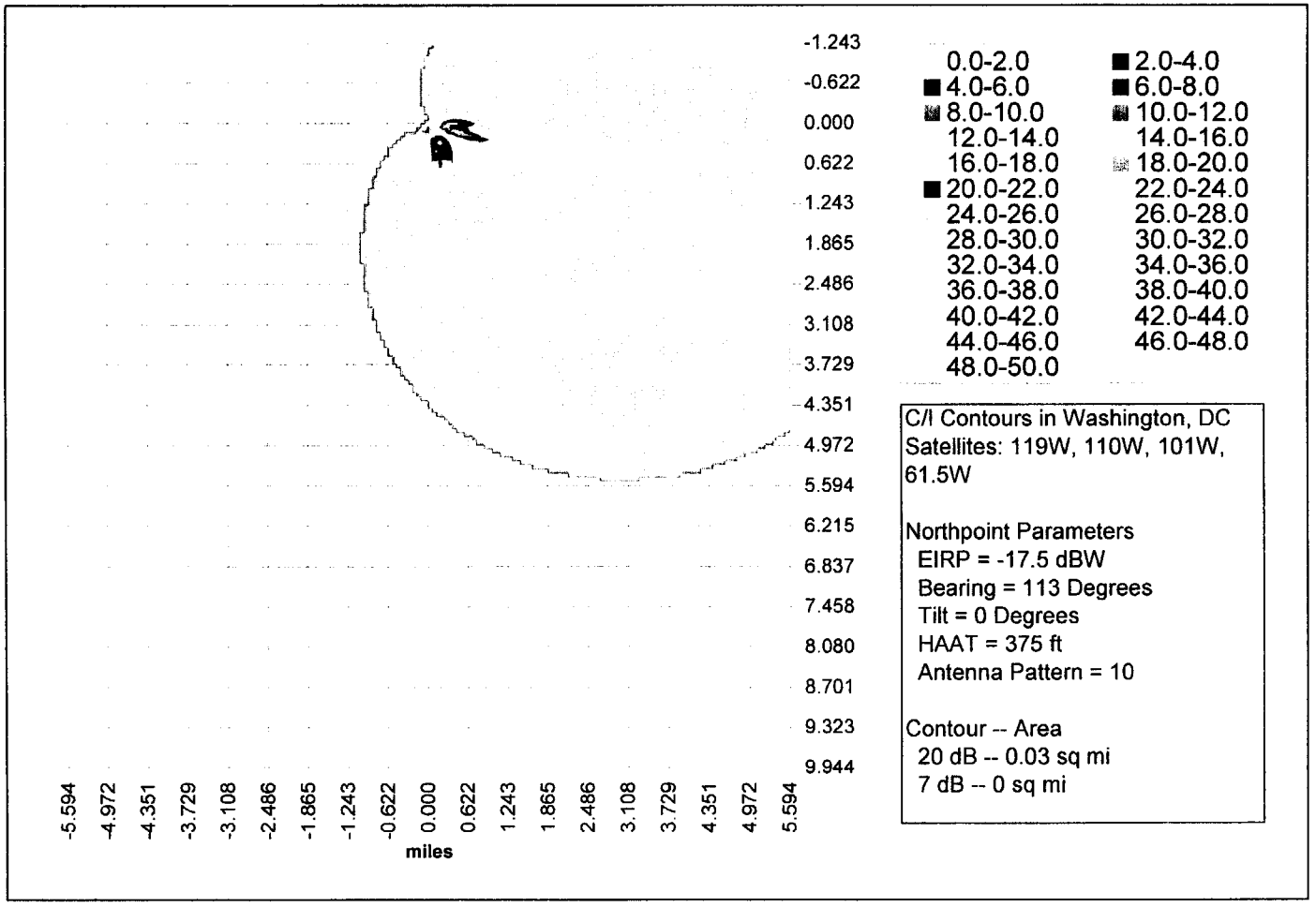
Sample Site 1: With Northpoint Optimizations



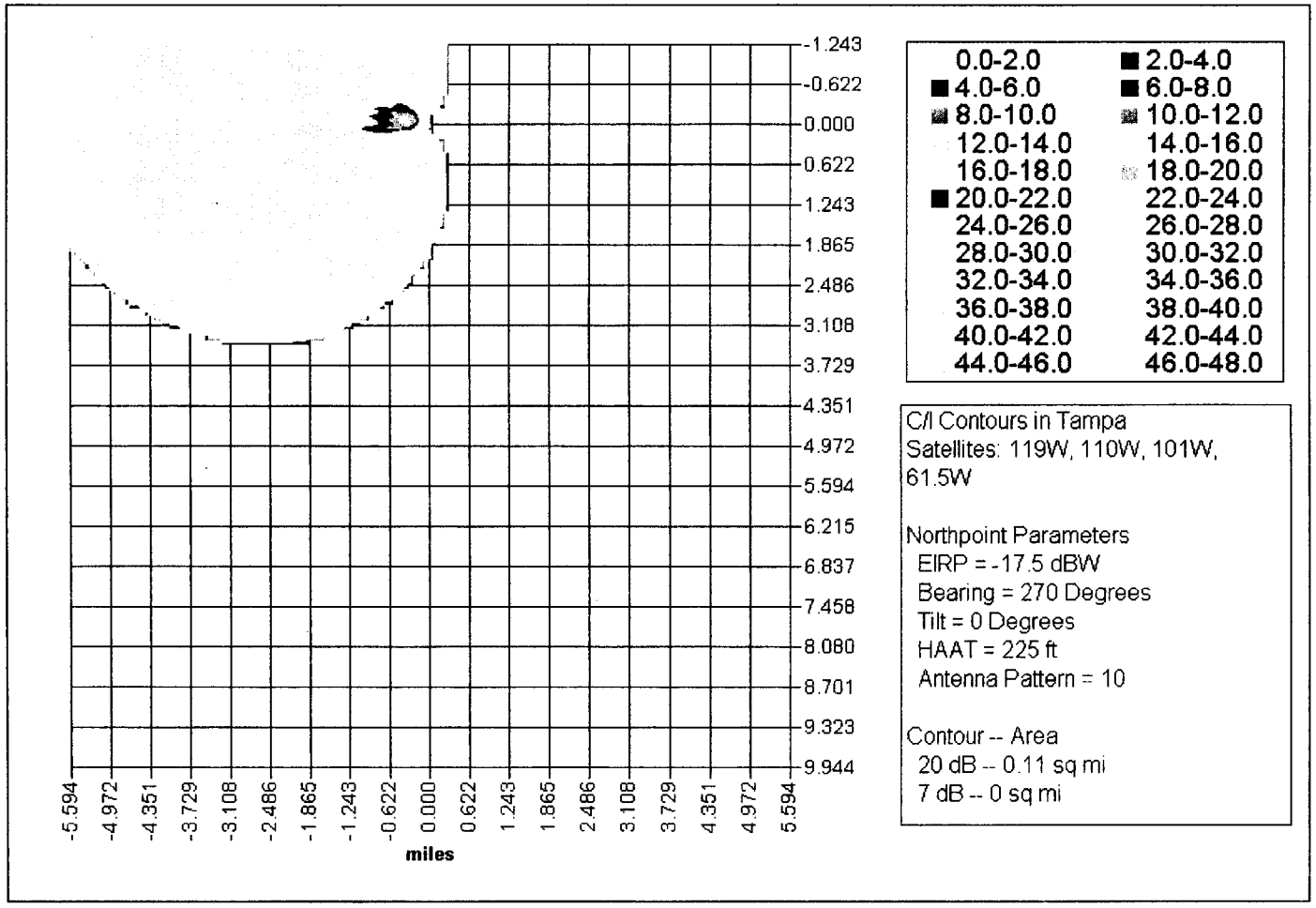
Sample Site 1 – Demonstration of Moving the Mitigation Zone



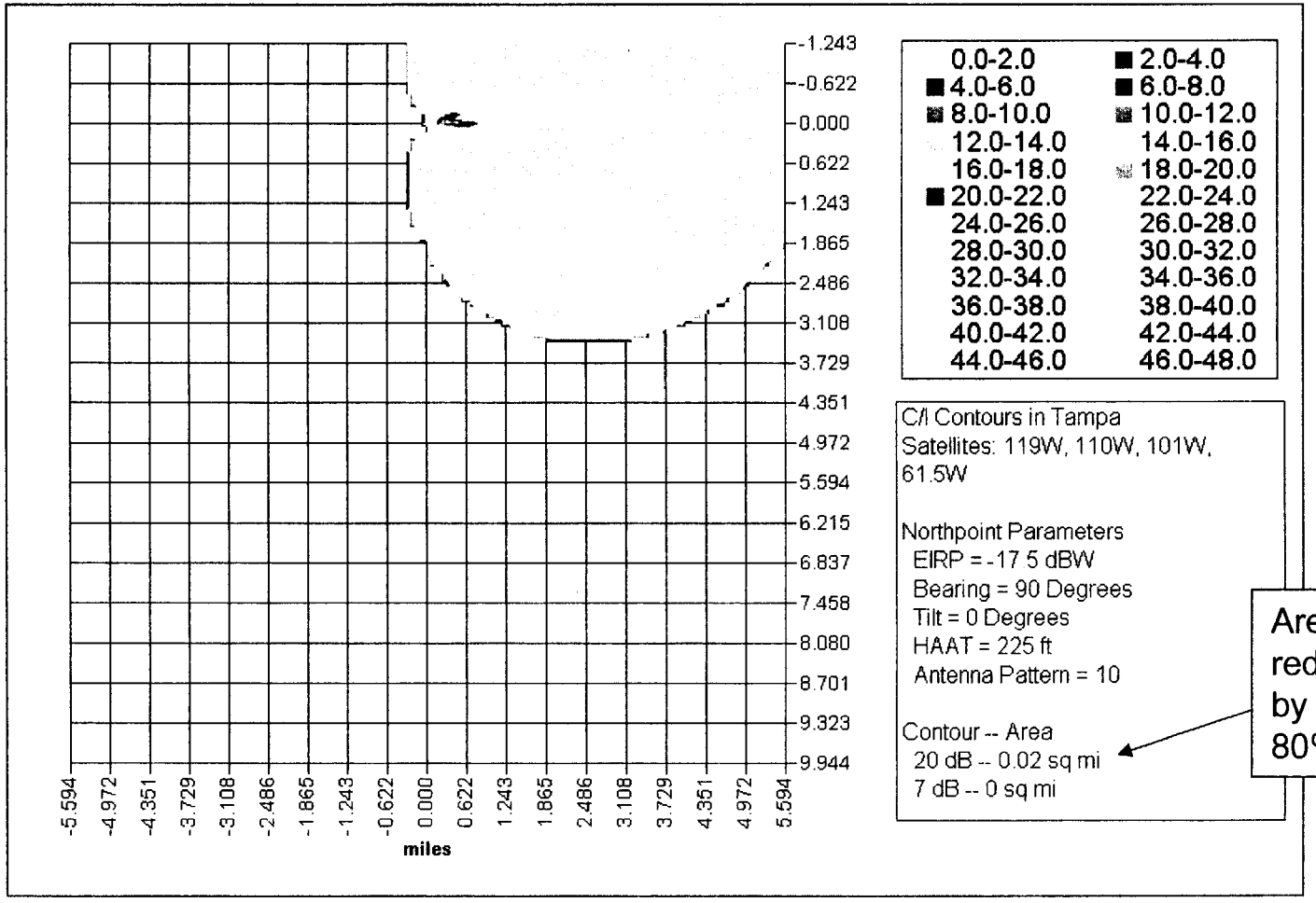
Northpoint Deployment at USA Today During Washington Operations in 1999



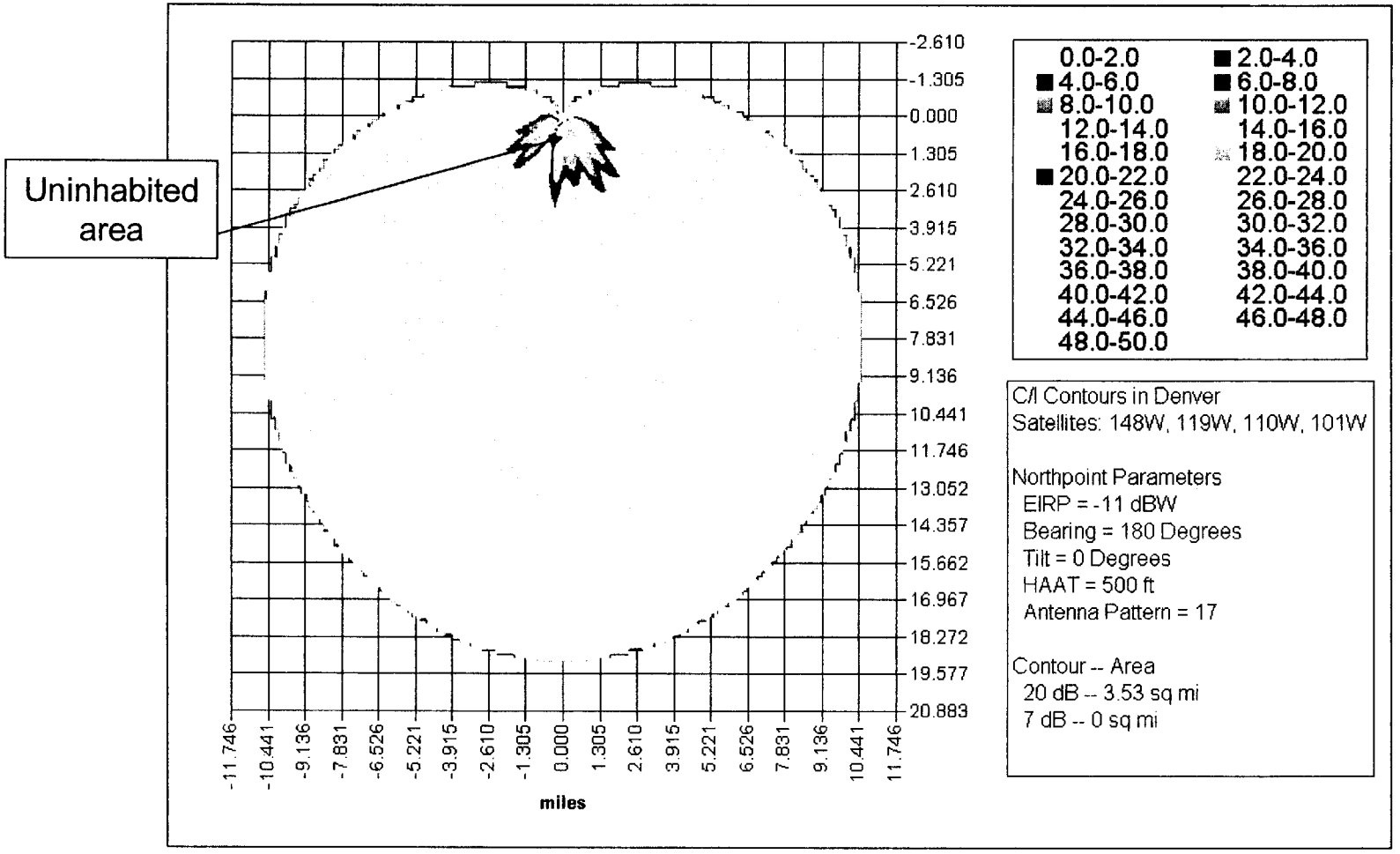
Tampa: Transmitter Bearing = 270 Degrees



Tampa: Transmitter Bearing = 90 Degrees Demonstration of Using Rotation to Reduce Mitigation Zone



Rural Area: Transmission from a Mountain



The Washington Conceptual Deployment

- Conceptual Deployment demonstrates Northpoint principals used in a large area
  - Over 1,300,000 total households in Conceptual Deployment region
  - Over 1,800 square miles in total area
  - 24 Northpoint cells
    - Total households within mitigation zone: 289 households
    - On the average fewer than 20% (58 households) would be likely to have DBS*

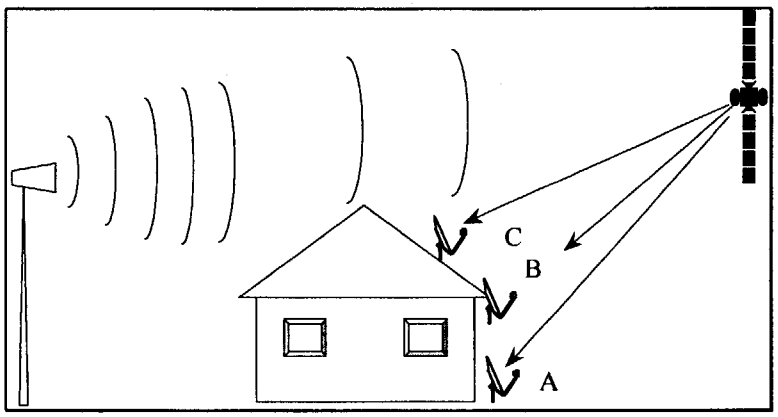
*Actual DBS usage among all households in Washington, D.C. is 8.3% according to Sky Trends 4/01 (9.22% multiplied by a 90% SkyTrend multi-receiver factor)

Natural Shielding – A Real World Factor Present at 86% of All DBS Consumers

- Contour maps are drawn in an idealized way - as if the earth were flat.
  - Real landscapes have natural features that significantly reduce the potential for interference.
- Most DBS dishes are located on porches, chimneys, low points on roofs, etc., with an obstacle between the Northpoint transmitter and the consumer dish.
- A national consumer survey of DBS consumers* conducted for Northpoint in July 1999 showed that 86% of all DBS dishes have natural shielding from a Northpoint signal.

* Bennett, Petis & Blumenthal

86% of satellite dishes are positioned as shown

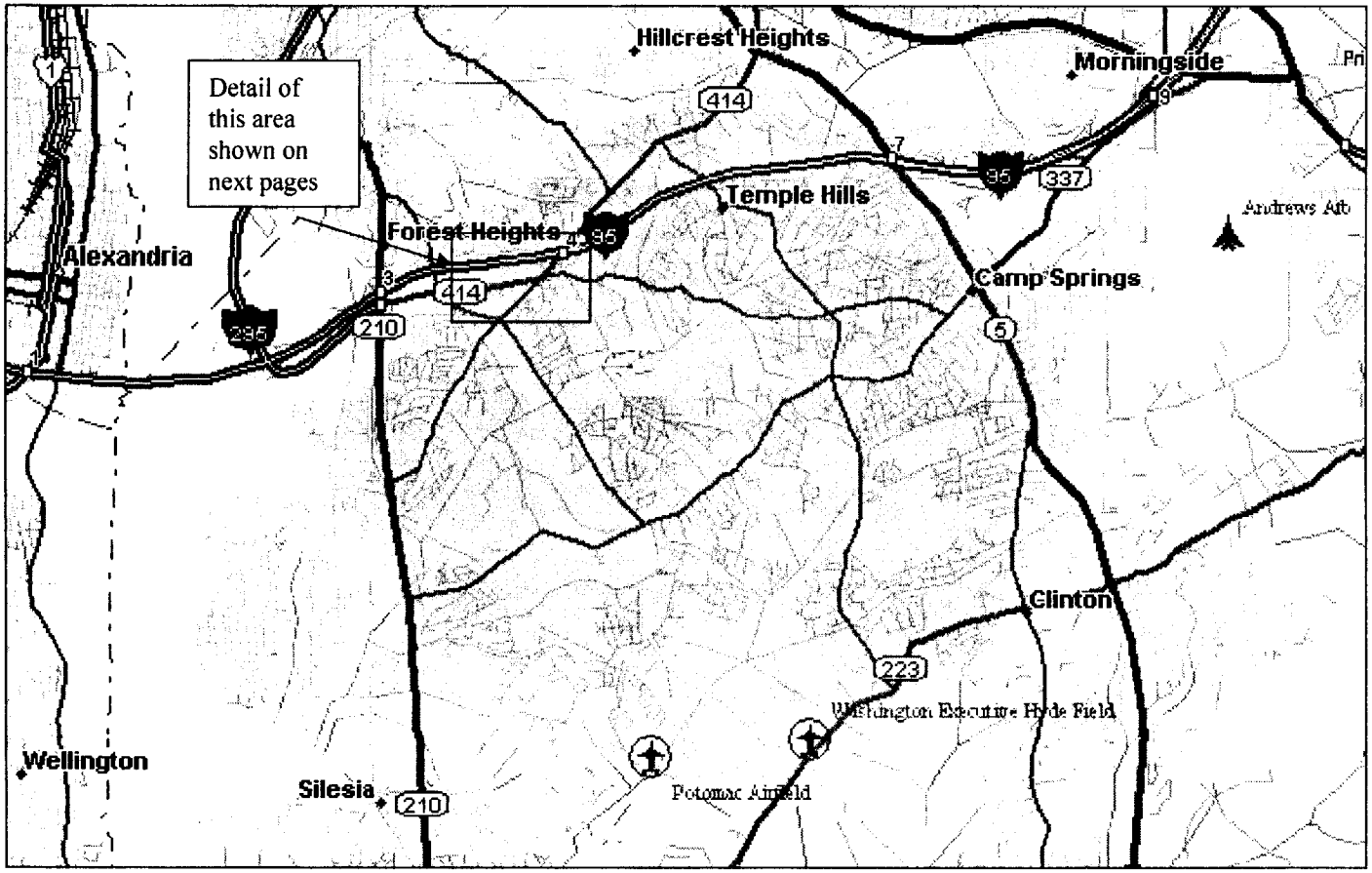


Washington, D.C.	HH Current 8.3% DBS	HH 20% DBS
Total households	1.3M	1.3M
HH within 20 dB contour	289	289
Potential DBS subscribers*	24	58
No natural shielding (14%)	3	8

Examination of a Particular Mitigation Zone

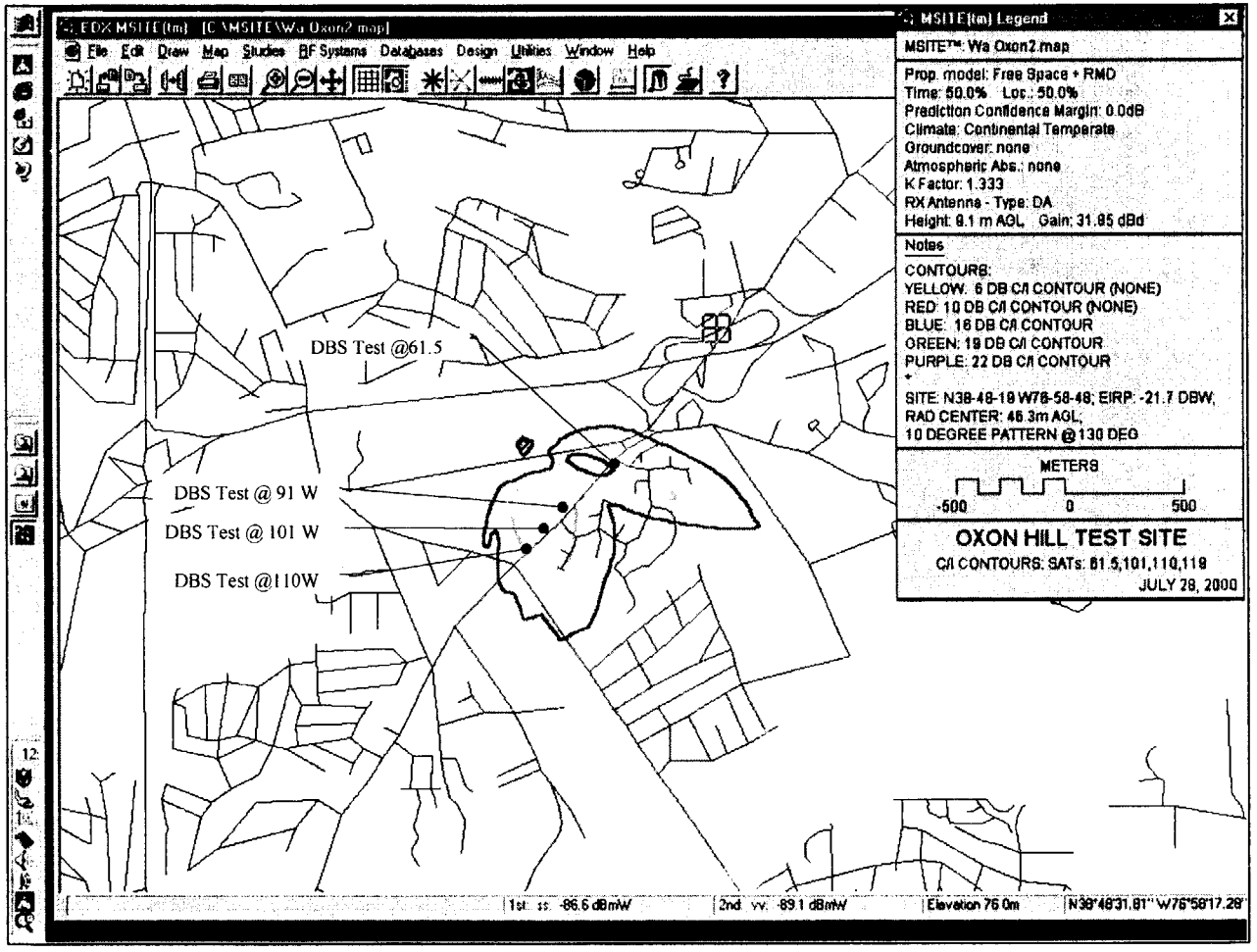
- In 2000 DBS performed its own "tests" and operated its own "Northpoint transmitter" at one of the locations in the Northpoint Conceptual Deployment:
  - Office building in Oxon Hill, Maryland
  - Worst case location in the Conceptual Deployment (highest number of potential households in mitigation area)

The Oxon Hill Service Area



The green area defines the approximate border of the service area of the Oxon Hill cell, an area of approximately 32 square miles.

Oxon Hill Deployment
as Specified by Northpoint



Results of DBS Oxon Hill Operations

- *DBS did not identify even a single DBS customer whose service would be impaired in any way from Northpoint operations at Oxon Hill.*
- DBS readings were taken very near transmitter in parking lots and along the road where no DBS customers could be located.
- In a final effort to show harmful interference from Northpoint, DBS turned up its power approximately 30 times the level specified by Northpoint causing DBS test dishes to fail to receive.
  - Northpoint used DBS test-to-failure transmissions to demonstrate the use of flat panel antennas to mitigate interference.
    - Flat panel never failed even at highest DBS power.
    - Proof that Northpoint has available the means to mitigate even very high power operations.

MITRE Report

- The MITRE report confirms Northpoint filings and Commission Decision.
- Handout

Northpoint Proposal

- Northpoint proposal:
- Adopt a power limit (called an EPFD) as an interference criterion.
  - 20 dB C/I ratio (23 dB for high powered DBS links) to all DBS customers.
  - Analysis shows that 20 dB will ensure that no DBS customer have greater than 10% increase in unavailability and most will have much higher protection as a result of free space loss.
  - 10% is same allowance afforded to NGSO systems in this proceeding.
- Consistent with current FCC proceeding:
  - Northpoint EPFD proposal meets "10 minutes in worst month" Commission proposal found in NFPRM.
  - NGSOs interference criterion is an EPFD based on a 10% increase in unavailability.

There Is Ample FCC Precedent and Other Support for the Northpoint Proposal

- Consistent with digital television rules:
  - DTV rules specify C/I ratios of 21 and 23 dB respectively for analog and digital co-channel operations.[1]
- Consistent with MITRE:
  - Northpoint's criterion is equal to the 10% "increase in outages" standard recommended by MITRE.[2]
- Consistent with the way DBS treats itself and other DBS providers:
  - DBS to DBS interference uses a 20 dB C/I ratio.[3]

1. 47 CFR 73.623
2. MITRE Report at 6-6
3. FCC R&O Appendix G (20.7 dB C/I for DirecTV; 20 dB C/I for EchoStar)

Previous DBS Proposals Were Based on C/I Similar to that Proposed by Northpoint

- DirecTV used a C/I ratio of 19 dB (a 20% increase in unavailability) in "Terrestrial Interference in the DBS Downlink Band." (DirecTV, April 11, 1994)
- "Tempo believes the TI DBS report by DirecTV, which specified a C/I ratio of 19 dB, causing a reduction of 20% availability in subscriber systems is more accurate [as a standard for protection]." (Comments of Tempo Satellite, Inc. in RM 9245, April 20, 1998, paragraph 5a)
- "Echostar estimates that a more acceptable Carrier-to-Interference level would be at least 20 dB (equal to the cross polarization isolation level of the Low Noise Block Down Converter with Integrated Feedhorn)." (Opposition of Echostar Communications Corporation, RM 9245, April 20, 1998, page 9)

What's Wrong With the DBS Proposal?

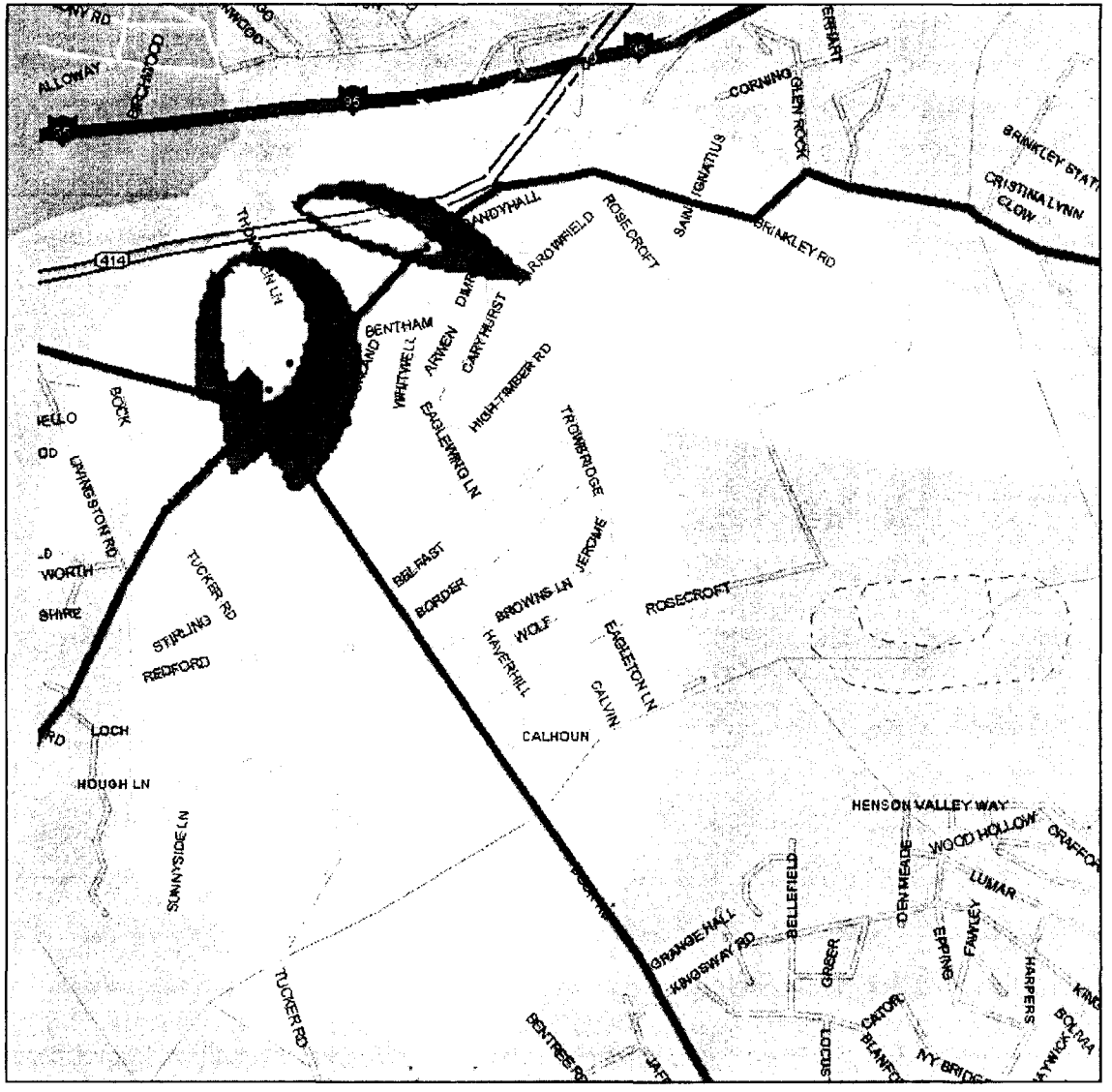
- DBS (DirecTV) latest proposal:
  - EPFD limit based 28 dB C/I
  - Equivalent to 2.86% "increase in unavailability" (DBS estimate)
- Why was 2.86% chosen?
  - Mathematical result of dividing 10% by 3.5!
    - 10% was the negotiated "increase in unavailability" that DBS offered NGSO systems
    - 3.5 was an arbitrary number of NGSOs
- Thus, the 2.86% was not even based on any real *satellite* systems - much less any analysis of the Northpoint *terrestrial* system.
- There is not a single statement in the record that provides any rationale for this specific criterion from a consumer perspective.

DBS Failed to Support 2.86% Proposal at Oxon Hill Tests

Location of DBS Oxon Hill Readings

Yellow region represents the incremental area where DBS proposes that Northpoint mitigate DBS consumers.

DBS did not take a single reading in this incremental area or document any consumer in this area (or in *any* area of Oxon Hill) that would have any impairment whatsoever from Northpoint operations.



The 2.86% DBS Proposal is Arbitrary and Without Precedent

- 2.86% was explicitly rejected by MITRE, the Congressionally mandated independent testing body charged with examining this very issue.
- As MITRE noted when it rejected the 2.86% DBS proposal, "2.86% is very small."
- However, exactly how small bears examination: According to A.C. Nielsen, television is on in the home an average of 7 hours per day (153,300 minutes).

Annual Television Minutes - Washington D.C.					
Available	Unavailable	Current minutes unavailable	2.86% of current minutes	10% of current minutes	Minutes difference
99.95%	0.05%	76.65	2.19	7.66	5.47

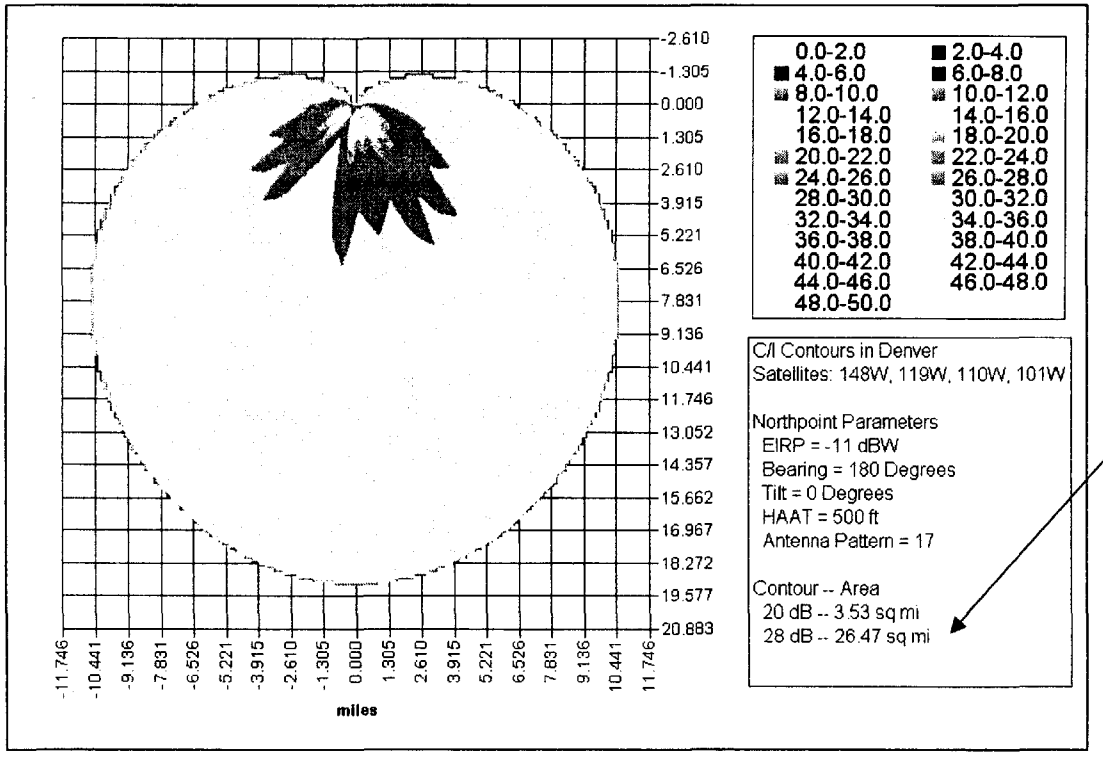
- Remember this amount is the *worst* case: for the few homes near the transmitter that do not have natural shielding. All other consumers have less or no impact.

Difference Between DBS and Northpoint Proposal

- Consumer television experience – no difference
  - No one can detect an incremental 5 minutes (or 1 minute!) out of 153,300 minutes of television viewing; It is certainty not harmful interference.
- Difference between the two is potentially enormous for Northpoint
  - 20 dB contour = 0.0 – 1.0% of service area
  - 28 dB contour = 5 - 10% of service area
  - 14 – 25K cells nationwide 28 dB = over 100,000 sq. mi of additional mitigation
- Increase the cost of every Northpoint deployment throughout the country
  - Northpoint's service would be more expensive for every consumer
  - In some rural areas (particularly in the Southwest) the costs of implementing the proposal could be so significant that deployment could be precluded.
- Northpoint believes the 2.86% proposal is an effort by an incumbent to burden a new competitor with unprecedented obligations that provide no consumer benefit.

* Mitigation estimate is based on 20K cells averaging 70 sq. mi each with an average of 6.5% additional mitigation area

Rural Areas in Southwest: Comparison of DBS and Northpoint Proposals



DBS Proposal would require 23 incremental sq. mi. of mitigation to prevent incremental outages of 66 seconds per year.

Annual Television Minutes - Southwest					
Available	Unavailable	Current minutes unavailable	2.86% of current minutes	10% of current minutes	Minutes difference
99.99%	0.01%	15.3	0.4	1.5	1.1

Commission Proposals Supported by Northpoint

- The Commission has proposed and Northpoint supports:
  - Northpoint's mitigation obligations (regardless of the interference criterion used) be limited to the first 18 months after deployment.
  - Required mitigation based on "consumer complaints" rather than house to house measurement or surveys.

Conclusion

- The 20 dB C/I interference criterion proposed by Northpoint:
  - Consistent with current Commission proposal (10 minutes in worst month option)
  - Provides sufficient protection to DBS customers
  - Does not require an excessively large mitigation region
  - Easily measurable and consistent with the FCC's rules for other services, including broadcast television, DBS and NGSOs.
  - Will enable Northpoint's Broadwave affiliates to deploy throughout the United States, including all of the Southwest.
- Deployment of Northpoint
  - Hasten new services to consumers, including local signals to subscribers of satellite television services and broadband to rural areas.
  - Provide cable competition where there presently is little or none.
- Northpoint is the only applicant to provide MVDDS service before the Commission that has passed the statutory independent testing – Northpoint is ready to go.

CERTIFICATE OF SERVICE

I, Shannon Thrash, hereby certify that on this 24th day of August, 2001, copies of the foregoing were served by hand delivery* or first class United States mail, postage prepaid, on the following:

Magalie Roman Salas*
Secretary
Federal Communications Commission
445 12th Street, SW
Room TW-B204
Washington, D.C. 20554

Paul Margie, Legal Advisor*
Spectrum and International
Office of Commissioner Michael J. Copps
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Antoinette Cook Bush
Northpoint Technology, Ltd.
444 North Capitol Street, N.W.
Suite 645
Washington, D.C. 20001

Nathaniel J. Hardy
Irwin, Campbell & Tannenwald, P.C.
1730 Rhode Island Ave, NW
Suite 200
Washington, D.C. 20036-3101

David C. Oxenford
Shaw Pittman
2300 N. Street, NW
Washington, D.C. 20037

James H. Barker, III
Latham & Watkins
1001 Pennsylvania Ave., NW
Suite 1300
Washington, D.C. 20004-2505

Pantelis Michalopoulos
Steptoe & Johnson LLP
1330 Connecticut Avenue, NW
Washington, D.C. 20036

James W. Olson
Gregory F. Intoccia
Howrey Simon Arnold & White LLP
1299 Pennsylvania Ave., NW
Washington, D.C. 20004

Shannon Thrash