

Presentation to Wireless Telecommunications Bureau

Northpoint Technology, Ltd.

April 8, 2003

Summary Of Presentation

- Overview of company and technology
- Regulatory timeline
- Reasons auction should be stayed pending appeal
- Issues on reconsideration

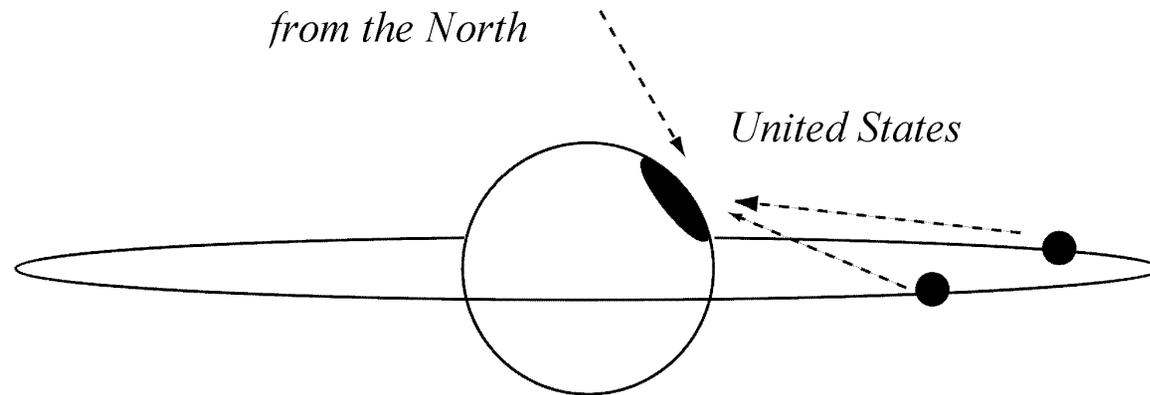
Corporate Background

- Northpoint Technology is the world leader in intellectual property enabling satellite-terrestrial spectrum sharing
- Private company, founded in 1996
- Intellectual property:
 - A set of broad, fundamental methods that enable terrestrial transmissions to be made without harmful interference on frequencies allocated exclusively for satellites
- Patent portfolio:
 - Five issued United States patents, four of which are either issued or pending in up to 35 other countries
 - Additional patent applications are also allowed and pending

What is Northpoint Technology

- “Northpoint” is the first technology to accomplish a “triple play” by enabling spectrum sharing between satellite and terrestrial services at the same time, place and frequency
 - Patented techniques include, among others:
 - Directional transmission: “the path not taken”
 - Power control

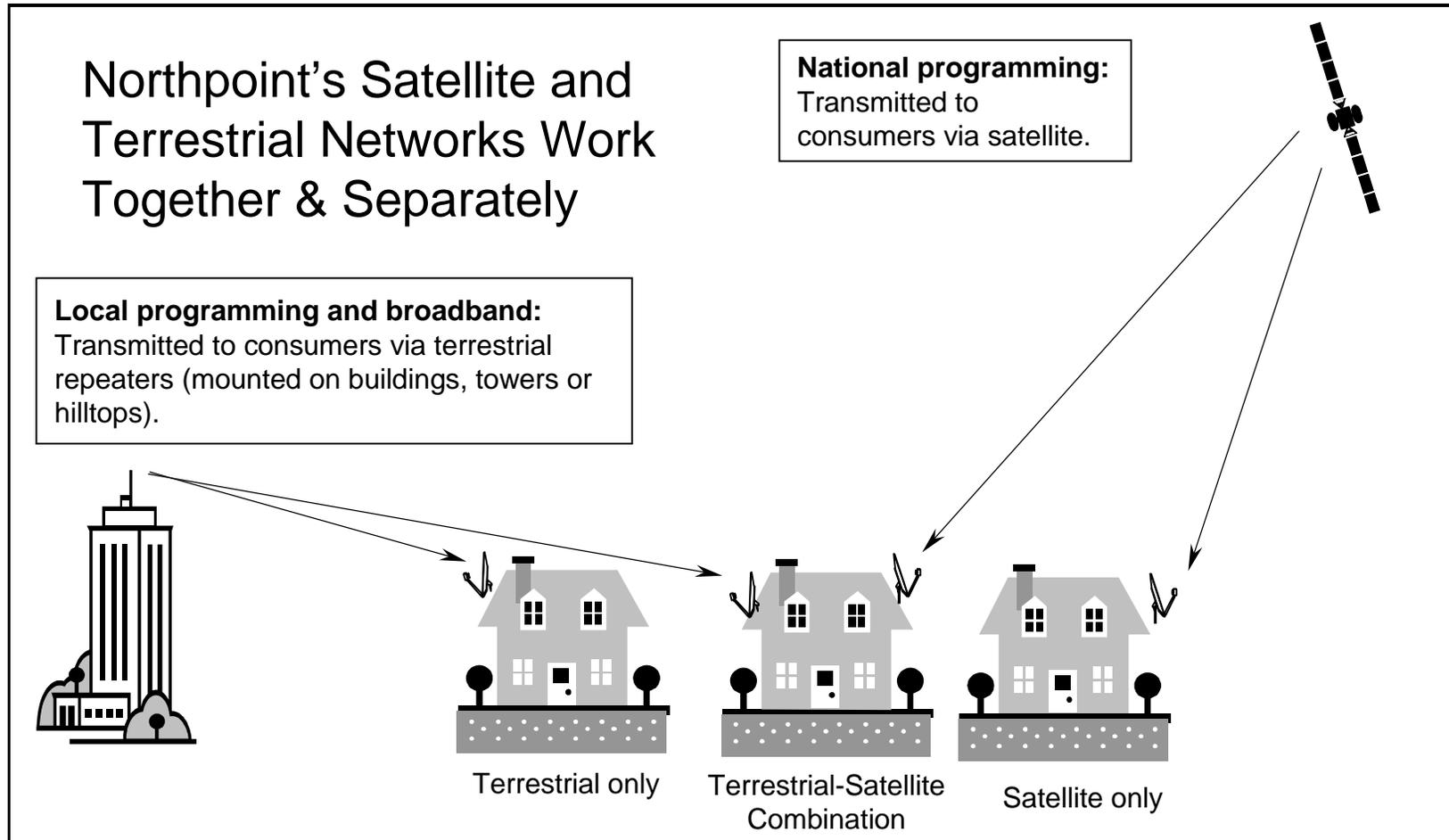
*No broadcasts are currently made
from the North*



Creating Hybrid Terrestrial-Satellite Networks

- Combine satellite assets and Northpoint terrestrial infrastructure to create a new, digital wireless broadband system
- System benefits:
 - Low cost, rapid deployment
 - High network capacity
 - Uses existing dish and set top box technologies to benefit from existing economies of scale
- Deliver high-speed, two-way Internet and digital video, audio and data services at unprecedented price points

An Integrated Satellite and Terrestrial System



The Benefits of Combining a Terrestrial and Satellite System

- Combined satellite-terrestrial system: unprecedented spectrum efficiency:
 - Transmissions are “rightsized” within satellite’s footprints
 - Local content and Internet delivered by terrestrial links
 - National content delivered by satellite links
- Each platform will be used to its highest and best use - neither will be required to perform a task for which it is poorly suited

Northpoint Regulatory Timeline

- 1994: Northpoint first brings its terrestrial technology to the FCC
- 1997: Northpoint is granted first experimental license
- 1998: Northpoint and Skybridge file Petitions to use the DBS band. FCC joins Petitions; calls for satellite, but not terrestrial applications
- 1999: Seven satellite applicants and Northpoint file on same day
- 2000: FCC establishes MVDDS and NGSO satellite service
 - Congress passes ORBIT Act prohibiting auction of spectrum “used for international satellite service;” also requires independent testing of terrestrial applicants
 - FCC determines to grant all satellite applications, but seeks comment on MVDDS auction

Regulatory Timeline, Continued...

- 2001: Northpoint is sole company to provide equipment for mandated independent testing; MITRE confirms Northpoint can share spectrum
 - On 12/25/01 FCC grants without auction Boeing a nationwide license for 800 ground stations using shared satellite spectrum
- 2002: Northpoint files Compass DBS application; FCC issues final technical rules for MVDDS, dismisses Northpoint's terrestrial applications and calls for auction
- 2003: MVDDS Auction scheduled for June 25, 2003; despite 2000 statute, there is no independent testing requirement for applicants; Compass application dismissed, DBS auction scheduled for August 2003

Auction Should Be Delayed Until After Appeal (Timeline)

- June 2002 - Northpoint filed appeal and requested expedited treatment*
- July 26, 2002 - FCC requested appeal be held in abeyance pending completion of reconsideration of auction issue raised by Pegasus – Court grants FCC request
- October 21, 2002 - Northpoint requests that FCC act on Pegasus issue so appeal can proceed
- January 30, 2003 - FCC moves auction date up from August to June 3
- April 8, 2003 - reconsideration still pending

* Appeals to the DC Circuit typically take about one year to complete

FCC Decisions on When to Auction or Not Auction Seem Arbitrary

- MSS Order (2003): Satellite companies given right to use terrestrial portion of satellite spectrum without auction
- Satellite systems (Aug. 2001): 11 companies granted 66,000 MHz of spectrum without auction. No assertion that ORBIT prohibited auction. Licenses given to Hughes, Pegasus, Echostar, et al
- Ground based wireless licenses: Over 11,000 granted in 2001 without auction, primarily to large commercial telecommunications companies such as Nextel, AT&T Wireless, Verizon, et al
- Cable Relay Licenses: Licenses granted without auction
- Northpoint: Auction. Seeks license to operate using 500 MHz of spectrum capacity created through its own technology
 - Will share with the seven systems with whom it applied on the same day, sharing the very same spectrum, offering the same or similar services that will not be subject to auction

Auction Should Be Stayed Pending Appeal

- Public interest not served by holding auction prior to completion of Appeal
- Waste of both parties' and Commission's resources
- Two statutory provisions to be considered by court for the first time (ORBIT Act, 47 U.S.C. Section 765f; testing statute 47 U.S.C. Section 1110)
- Lack of mutual exclusivity
- Procedural fairness, disparate treatment of similarly situated applicants
- As discussed below, technical rules concerning MVDDS/NGSO sharing effectively prejudice MVDDS operators who appeal decision
- Nextwave demonstrates how difficult and costly it is to undo auctions

Reconsideration Issues

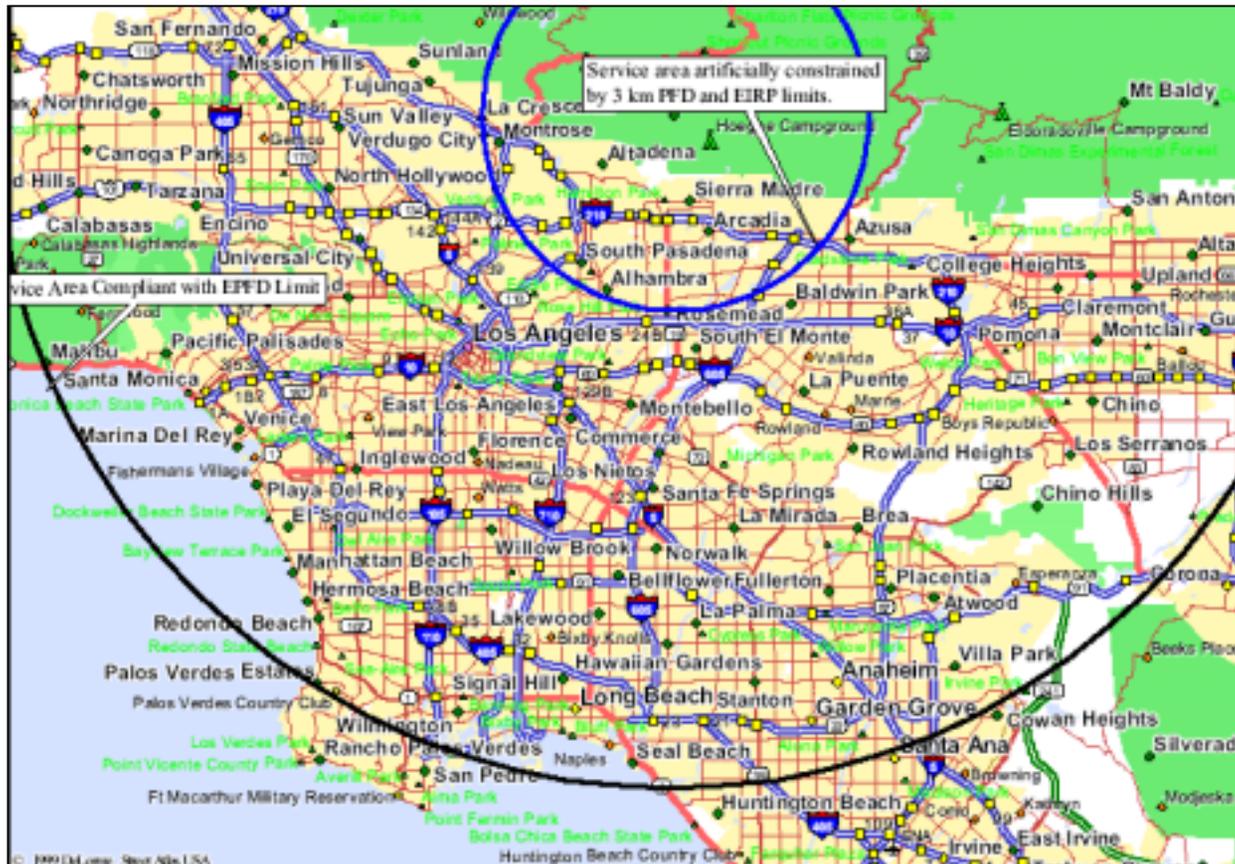
Power Limits Established by Order

- The Commission's established "EPFD" limits, "EIRP" and "PFD" limits.
 - Only EPFD limits are needed
 - Essentially, the EIRP and PFD limits are equivalent – different terms for the same constraint (if you meet one you will meet the other).
- However, these limits add additional risk, not additional protection.
 - The current EIRP limit increases the number of MVDDS transmitters required to cover the country.
 - Severely restricts deployment of Northpoint in both urban and rural areas

EIRP and PFD Limits Should be Eliminated

- Imposition of EIRP and PFD limits (in addition to the existing EPFD limit) severely limits MVDDS deployment with no benefit to DBS or NGSO FSS.
- Current EIRP and PFD limits precludes Northpoint service areas larger than 10 miles.
 - Severely constrains deployment in both urban and rural areas.
 - Far more emitters required
 - System cost and complexity increased

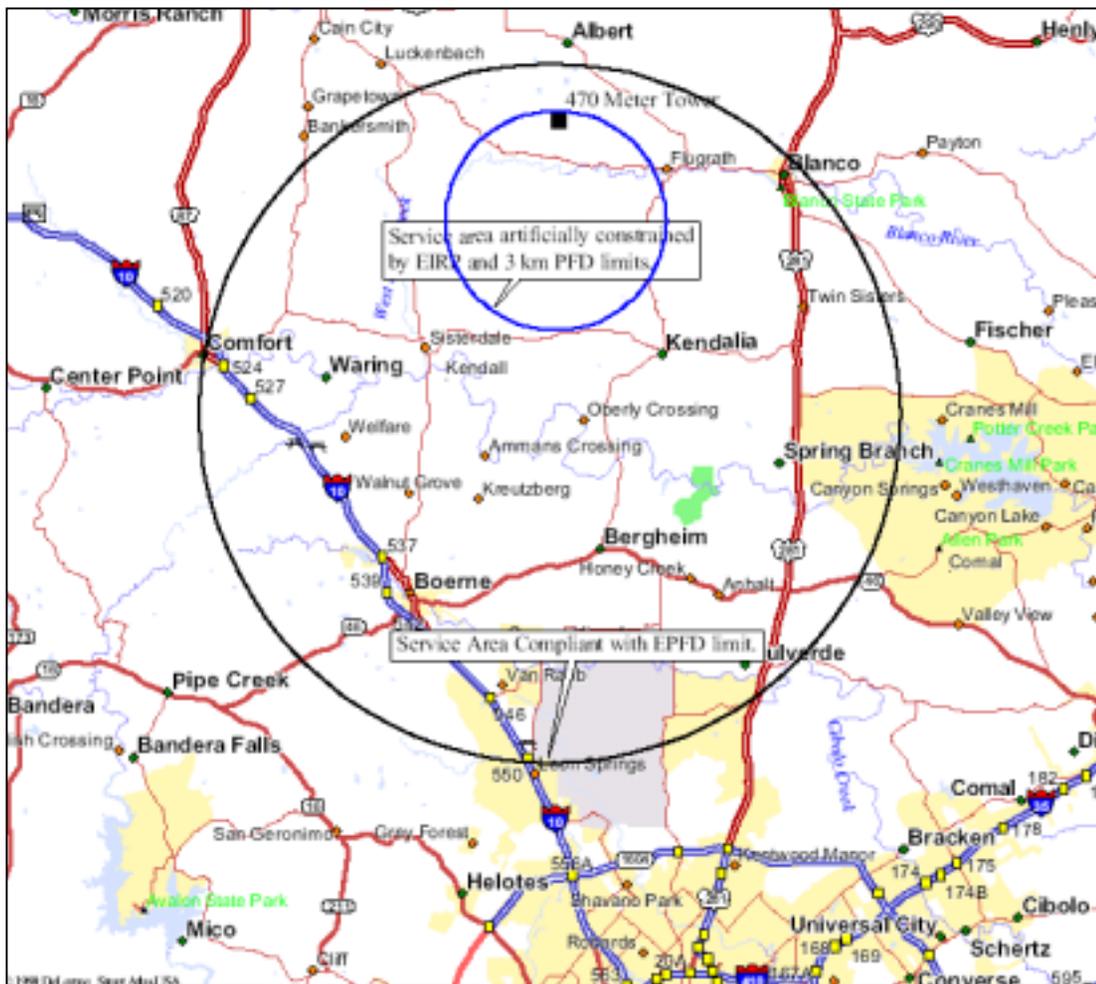
EIRP and PFD Limits Severely Constrain Deployment



EIRP and PFD limits constrain deployment with no corresponding benefits.

At least 20 towers will be needed to cover equivalent service area.

Rural Deployment Threatened



EIRP and PFD limits constrain deployment with no corresponding benefits.

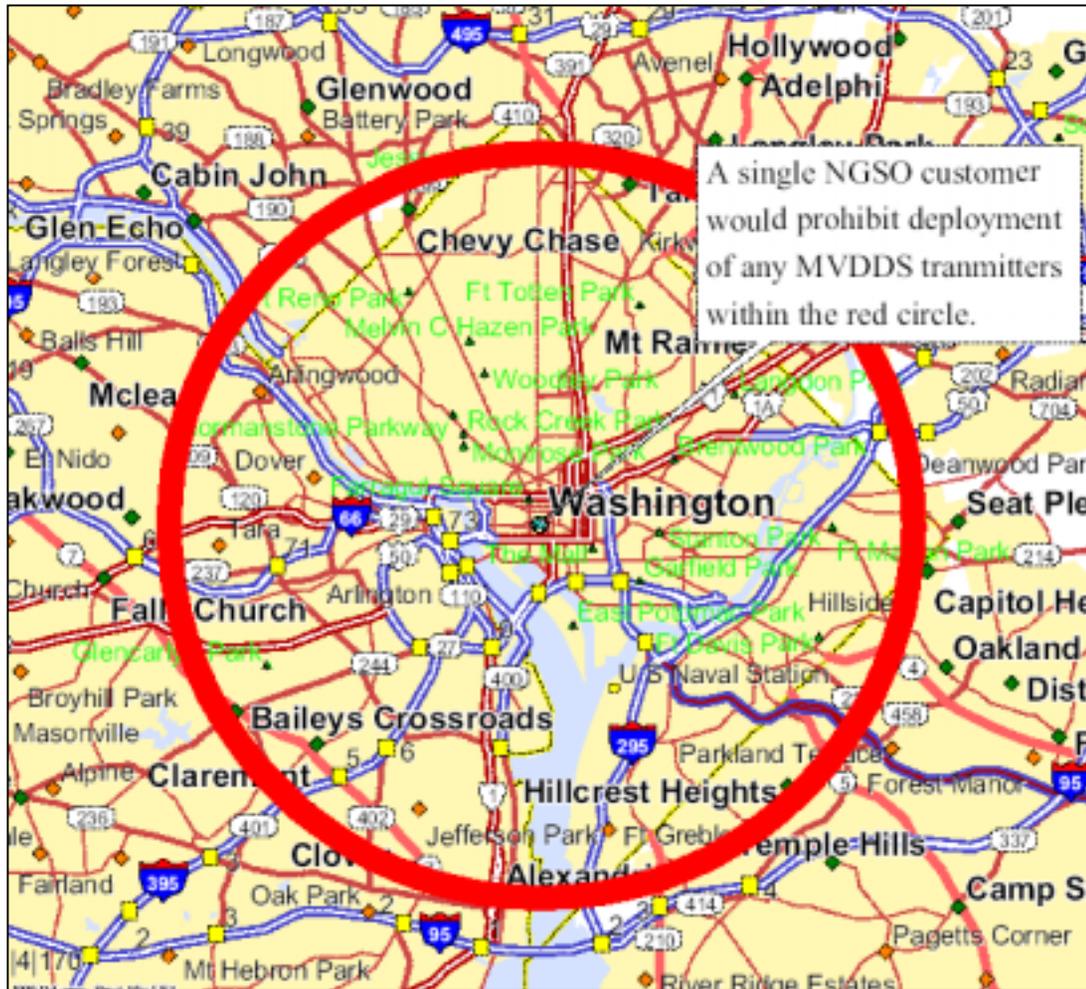
Compliance with rules would require establishing towers in areas that are unpopulated – an uneconomical choice at best.

Sharing With NGSO FSS

- Northpoint supports the Commission's decision to establish NGSO and MVDDS systems as co-primary operators.
- However, two of the additional technical sharing rules are unnecessarily restrictive and should be eliminated:
 - Power Flux Density (PFD) limit of -135 at 3 km.
 - The requirement of a 10 km separation between MVDDS transmitters and NGSO user terminals.
- Current 10 km separation requirement could eliminate possibility of MVDDS service in all major cities.
 - The deployment of a single NGSO user terminal would prevent MVDDS installation in a 10 km radius.

The FCC sharing decision rested strongly on the ability of NGSO systems to use “frequency diversity” to mitigate potential interference from MVDDS systems.

Urban Deployment of MVDDS Threatened



The 10 km separation rule could preclude deployment of MVDDS.

Summary of Reconsideration Issues

- The FCC's 3 km PFD, 10 km separation and 14 dBm EIRP limits are each based on non-public analysis and data or unsupported assertions.
 - In the case of the MITRE “preliminary analysis,” it is unclear that the analysis was even made available to the Commission
 - In each case, the limitation exceeds that which was advocated by any party in the record.
 - In each case, the limitation severely constrains MVDDS deployment without apparent improvement in the sharing environment.
- Commission rules (and good public policy) prohibit Commission reliance on non-public data and analysis.
- These rules should be eliminated.

Back-up slides

EIRP Limit of 14 dBm Is Unsupported in Record

- DBS did not advocate for EIRP limits. DirecTV stated that EIRP limits in addition to EPFD limits are unnecessary. (DirecTV, 3/13/01)
- The mention of a 14 dBm EIRP limit was in the MITRE report referring to a “preliminary analysis” that was never placed in the record.
- MITRE suggests that “backscatter interference” might occur:
 - “when the DBS antenna has a low look angle”
- MITRE’s “preliminary analysis” is clearly flawed.
 - Based upon the look angles of all DBS satellites serving the CONUS such conditions do not and cannot exist

NGSO – MVDDS Sharing Overview

- SkyBridge stated that it needed additional protection from “saturation” of its user terminal even if it used frequency diversity.
- SkyBridge user terminal examined:
 - Claimed performance requirements never substantiated – SkyBridge stated this data was “proprietary.”
 - SkyBridge sought waiver for sub-par terminal.

Claimed Saturation Risk – Not Harmful Interference

- Assuming for argument's sake SkyBridge's assertions, detailed analysis does show:
 - Saturation could only occur in less than 1% of the SkyBridge receivers for less than 0.4% of the time, affecting less than 0.004% of SkyBridge transmissions. (Northpoint Letter, Jan 14, 2002)
- This level of increased outage (0.004%) cannot be considered harmful interference.
- Saturation near the Northpoint transmitter can be easily cured with an LNB (low cost equipment component) swap.
- Existing EPFD limits are completely adequate to provide needed protection – no need for additional PFD and separation limits.