

Briefing to Federal Communications Commission

Sam Feder

Northpoint Technology

November 19, 2002

Sharing Limits Glossary

Type of limit	Where measured	Factors included
EPFD “Effective Power Flux Density”	Measured at the victim system	All factors of both systems
PFD “Power Flux Density”	At any point within the service area	Transmission system characteristics
EIRP “Effective Isotropic Radiated Power”	At the transmitter	Raw power of transmitter only – no system characteristics

Of these, EPFD is the most comprehensive: Guaranteeing a specific protection while affording the greatest flexibility in how to achieve the result.

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 adds 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 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”
 - “the DBS antenna would be northeast or northwest of the MVDDS transmitter, and pointed nearly at the transmit antenna”
- 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

There Are No “Low Look Angles” In the CONUS

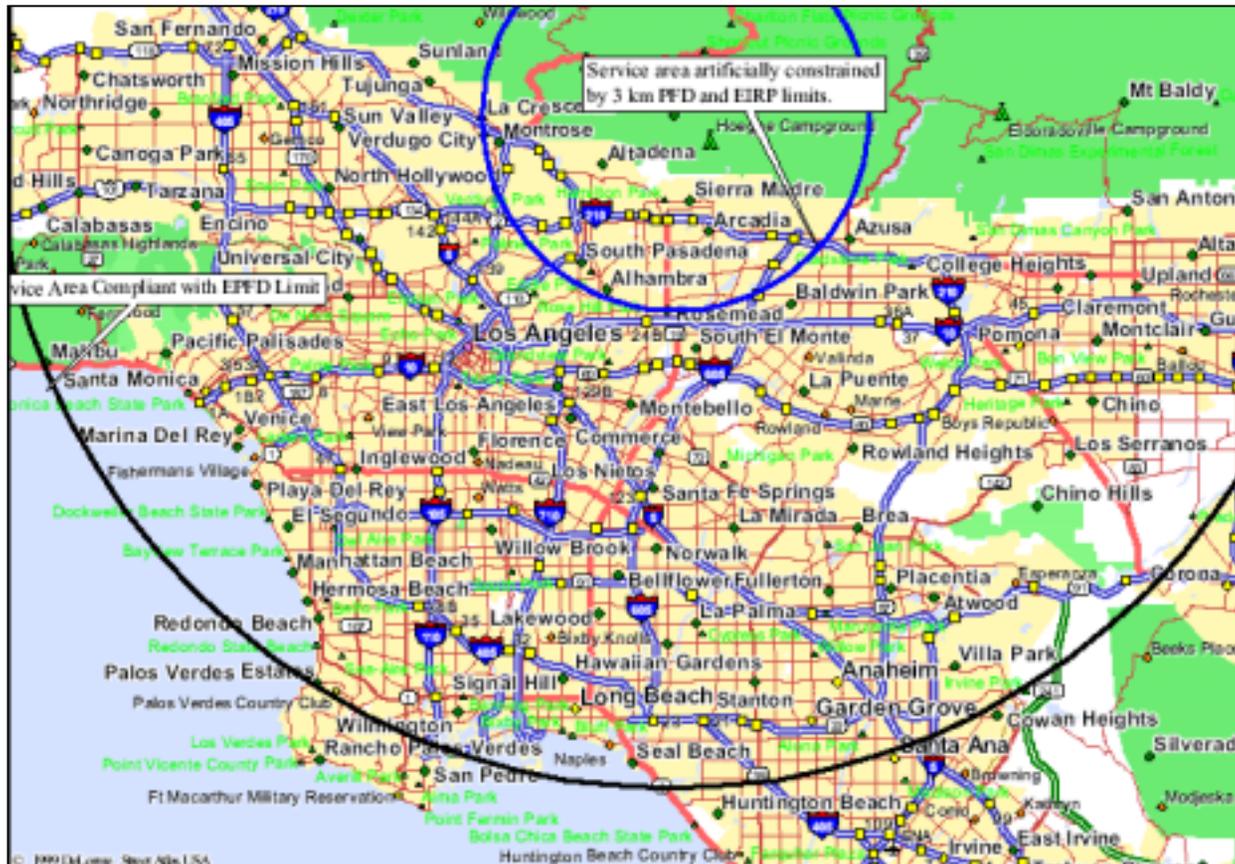


Sat 119 has the lowest CONUS look angle of all DBS satellites.

Impact of Proposed EIRP and PFD Limits

- 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

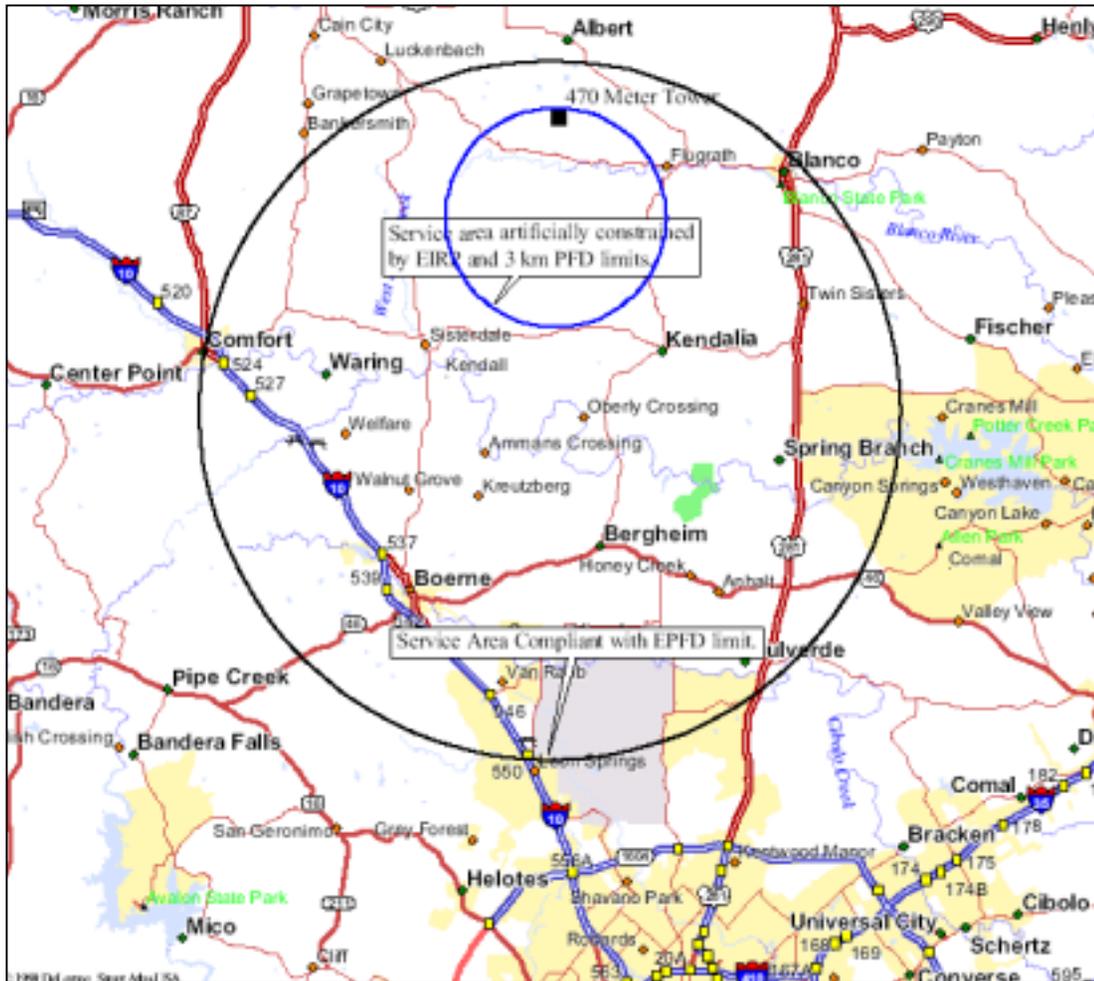
EIRP and PFD Limits Severely Constrain Deployment



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



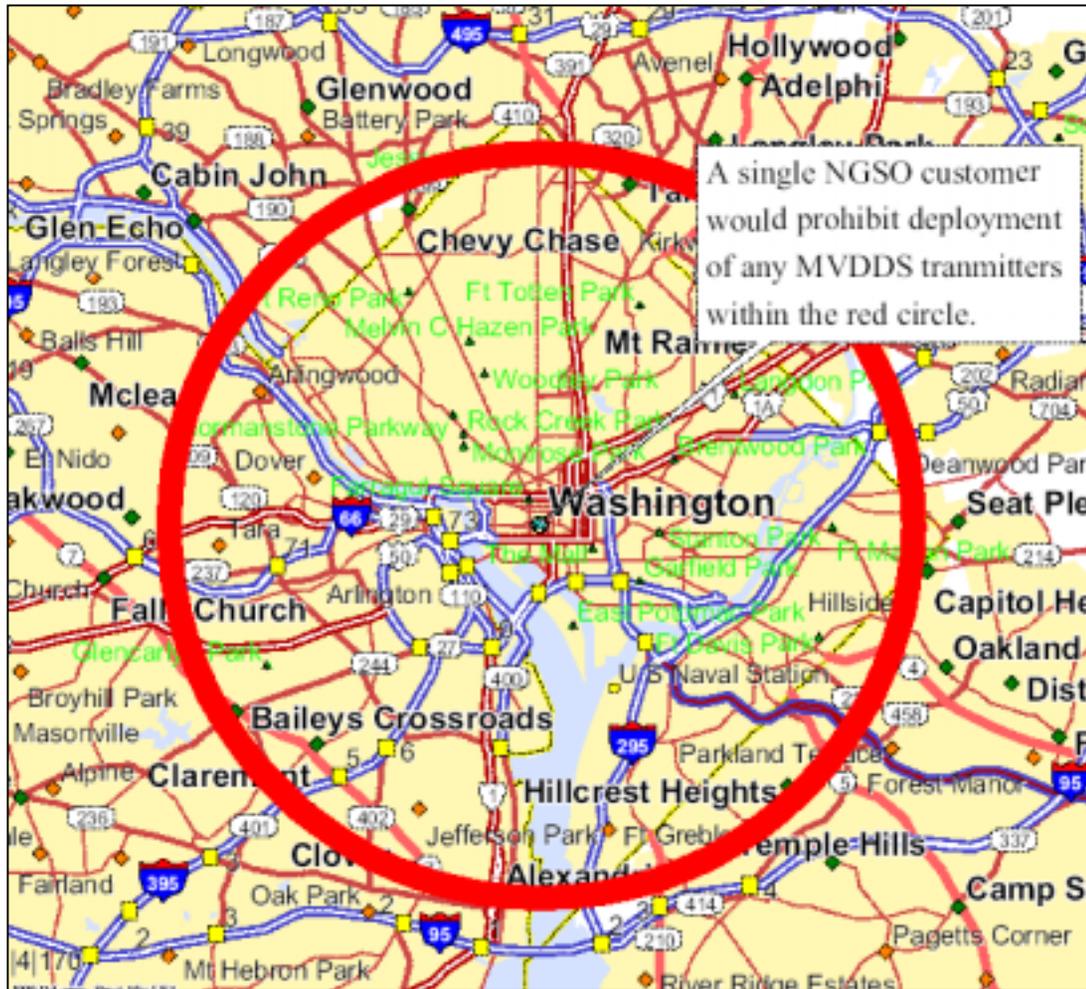
EIRP and PFD limits constrain deployment with no corresponding benefits.

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 in the 12.2 – 12.7 GHz band.
- 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.

Urban Deployment of MVDDS Threatened



The 10 km separation rule could preclude deployment of MVDDS.

NGSO – MVDDS Sharing Overview

- The FCC sharing decision rested strongly on the ability of NGSO systems to use “frequency diversity” to mitigate potential interference from MVDDS systems.
- SkyBridge stated that it needed additional protection from “saturation” of its user terminal even if it used frequency diversity.
- The PFD and separation rules apparently address this request rather than the general case of NGSO-MVDDS sharing.
- 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 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.

Overall Concerns

- 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.