d

Test Results

d1 Oxon Hill Results

d2 FCC Demonstration

d3 Optional

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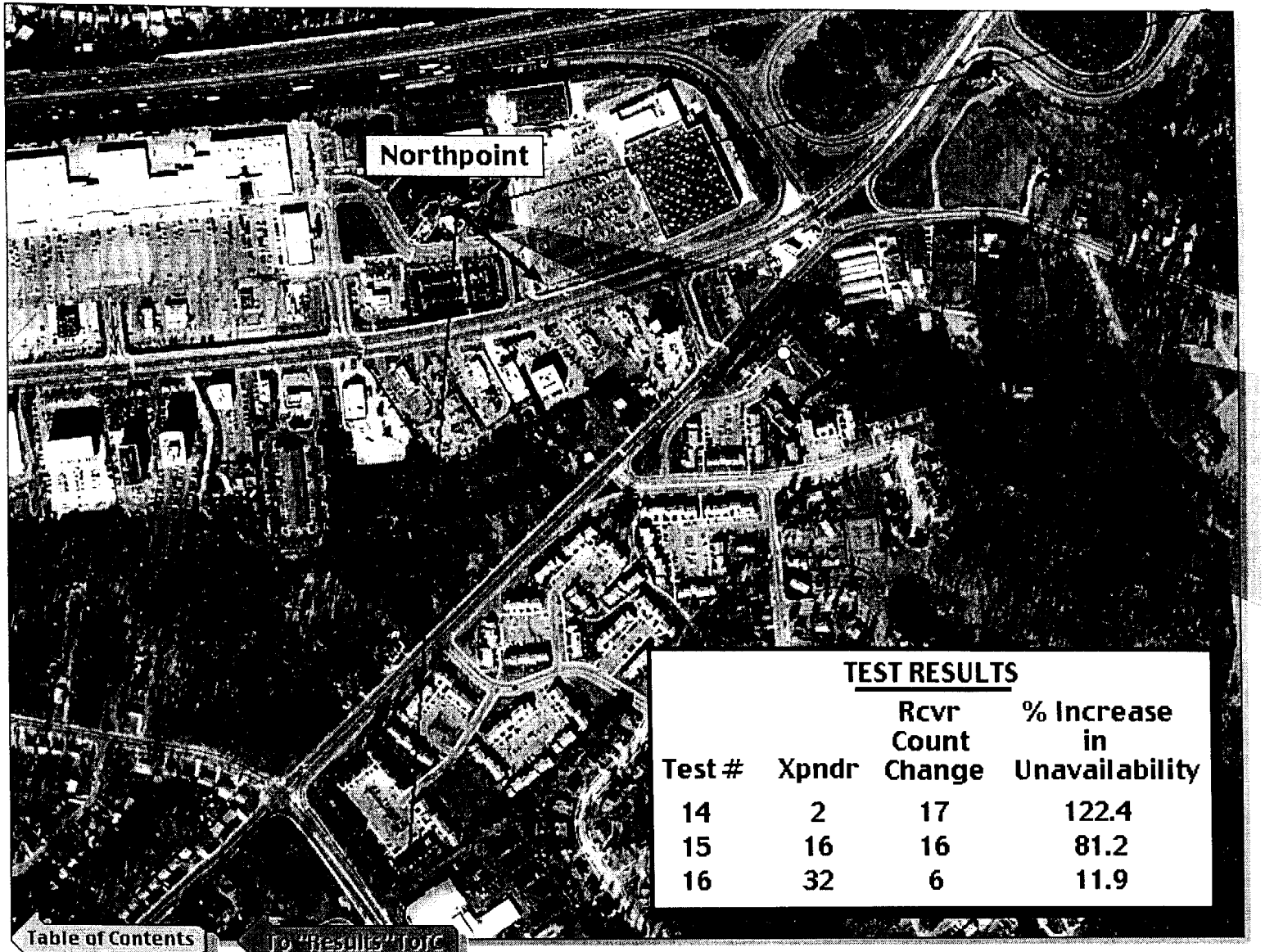
d1

Oxon Hill, MD



61.5°

91°

101°

110°

119°

All

TEST RESULTS

Test #	Xpndr	Rcvr Count Change	% Increase in Unavailability
14	2	17	122.4
15	16	16	81.2
16	32	6	11.9

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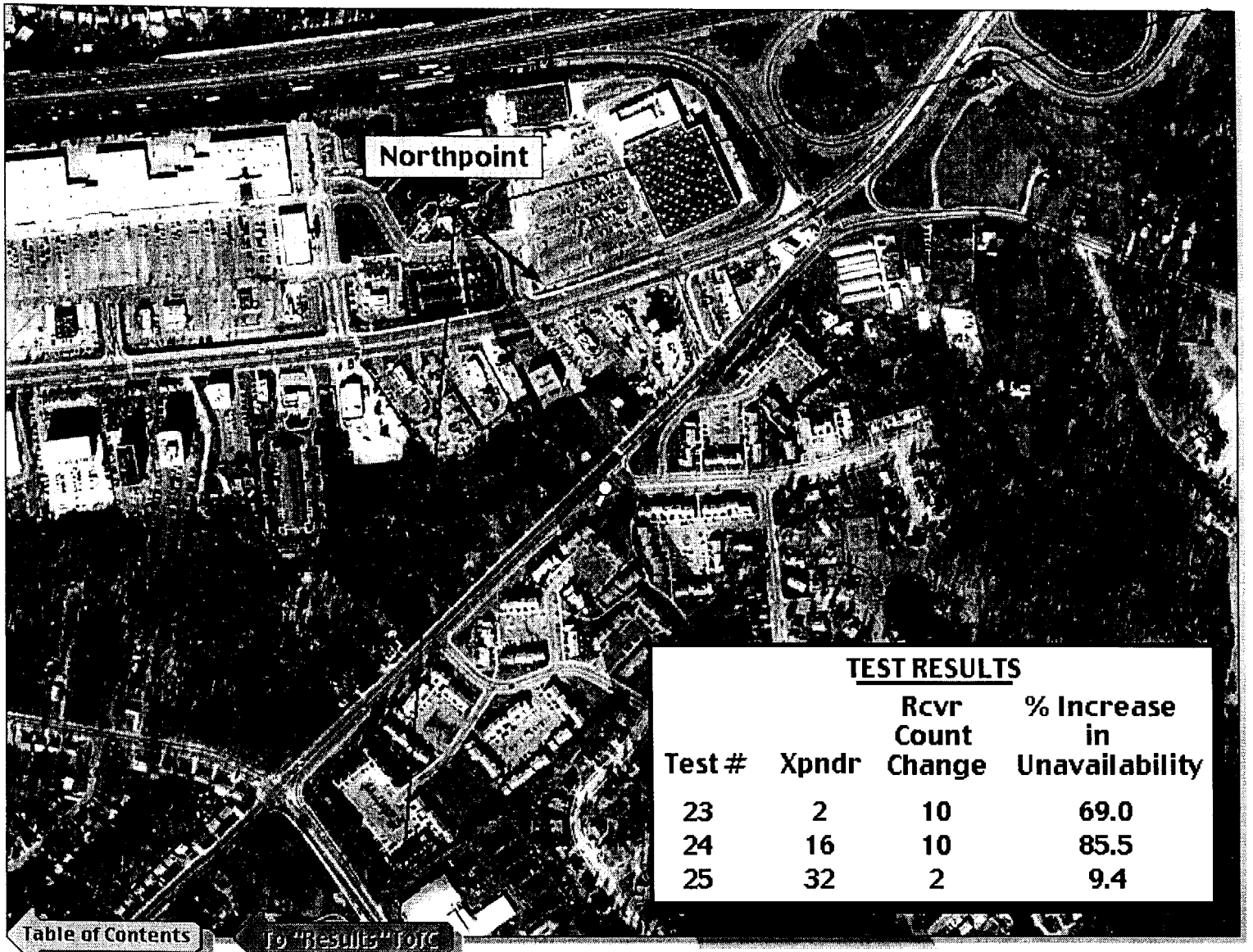
To "Results" TOC

d1

Oxon Hill, MD



61.5°

91°

101°

110°

119°

All

TEST RESULTS

Test #	Xpndr	Rcvr Count Change	% Increase in Unavailability
23	2	10	69.0
24	16	10	85.5
25	32	2	9.4

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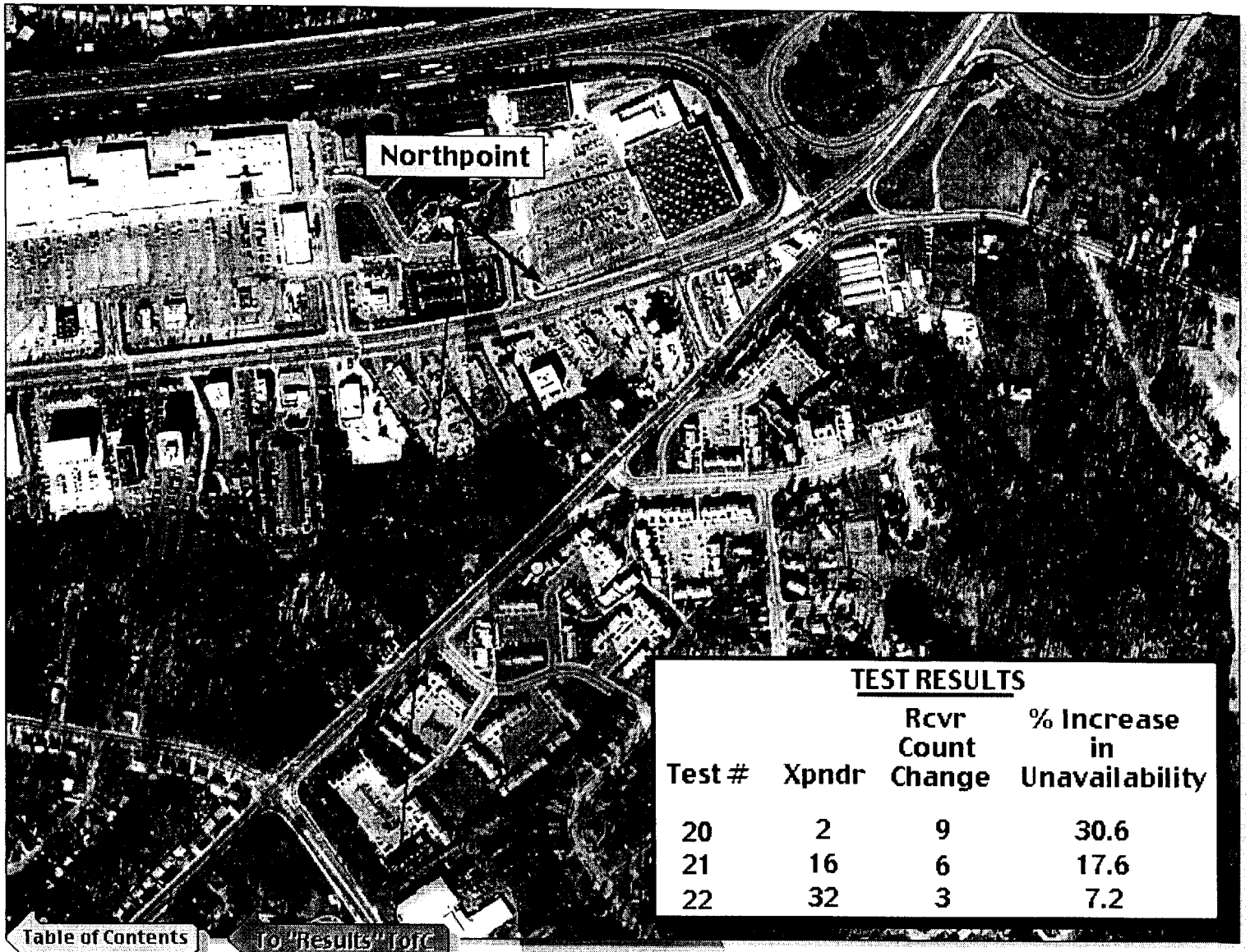
To "Results" TOC

d1

Oxon Hill, MD



61.5°

91°

101°

110°

119°

All

TEST RESULTS

Test #	Xpndr	Rcvr Count Change	% Increase in Unavailability
20	2	9	30.6
21	16	6	17.6
22	32	3	7.2

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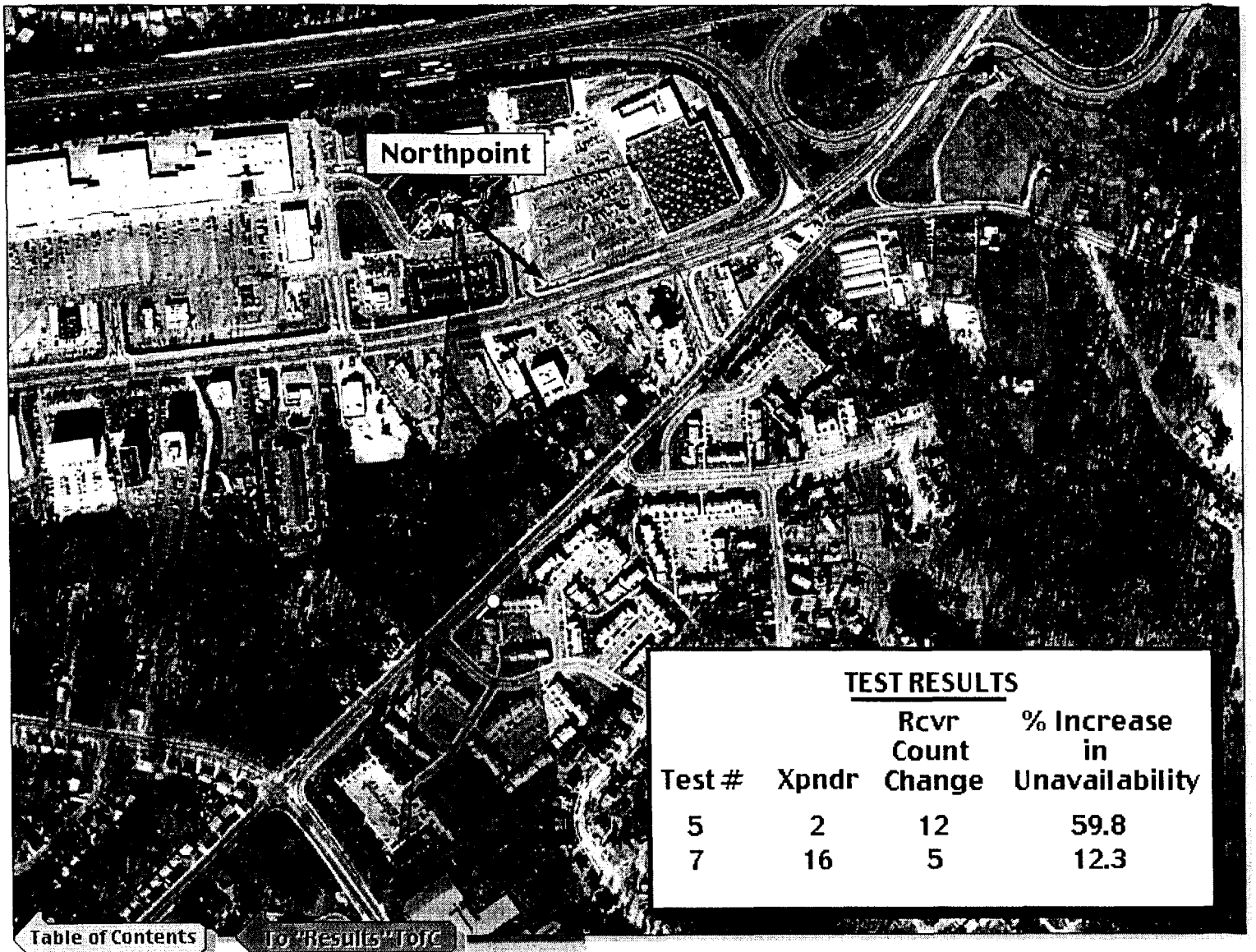
To "Results" Top

d1

Oxon Hill, MD



61.5°

91°

101°

110°

119°

All

TEST RESULTS

Test #	Xpndr	Rcvr Count Change	% Increase in Unavailability
5	2	12	59.8
7	16	5	12.3

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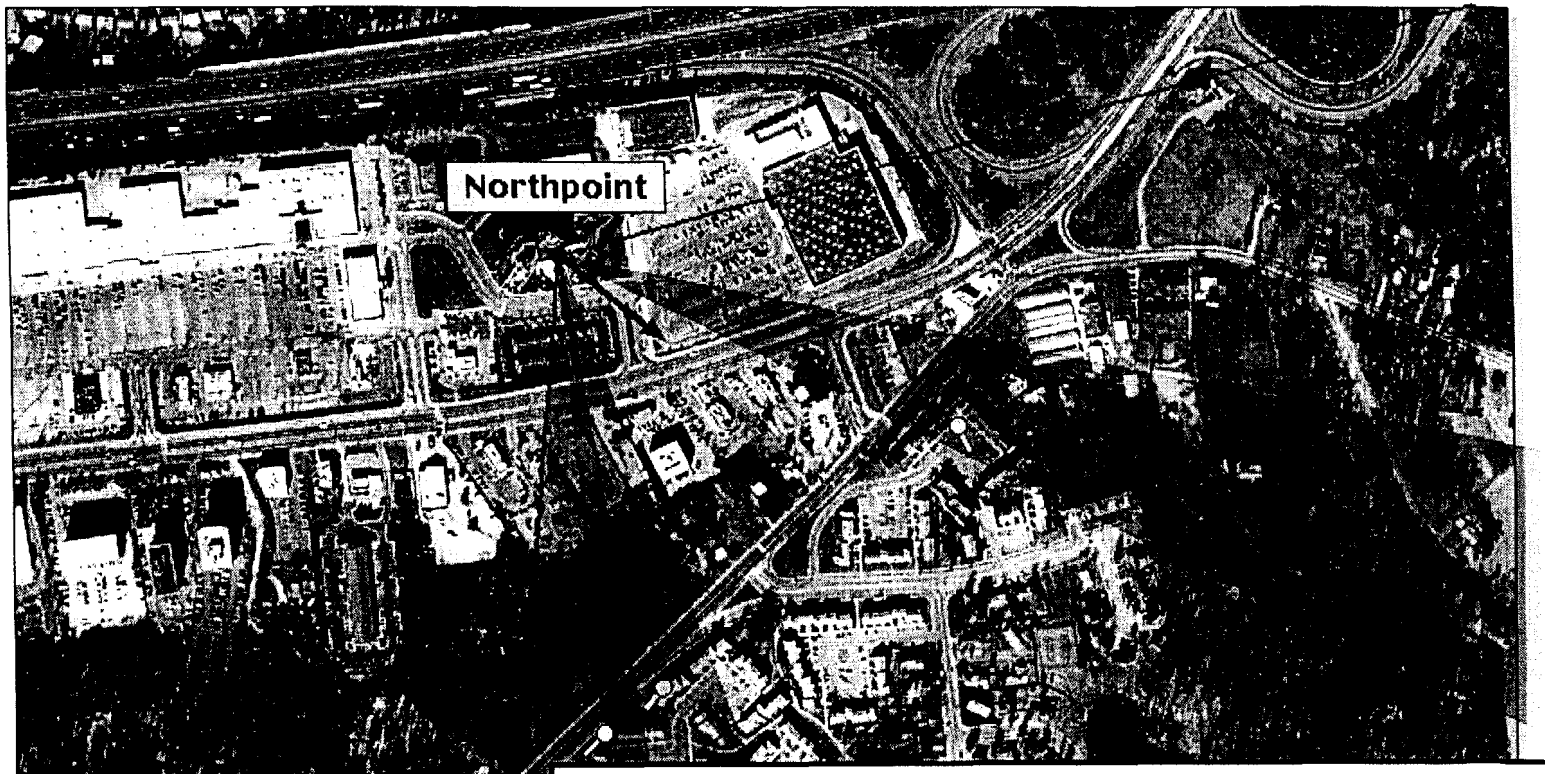
To "Results" TofC

d2

FCC Demonstration



DBS System	Test	Xpndr	Receiver Count Drop	Calculated C/I due to NP Interference dB	Resulting Increase in Unavailability %
Echostar-61.5°	30	2	15	12.2	84.2
Echostar-110°	31	2	8	14.4	39.1
DIRECTV-101°	32	2	10	16.5	28.9

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To "Results" TofC

e

Conclusions

- The Oxon Hill tests are valid. Show Details
- Northpoint USA Today tests are misleading. Show Details
- DIRECTV/Echostar tests prove serious degradation from Northpoint. Show Details
- An increase in NP transmit power of only 7dB was sufficient to cause a complete loss of picture for Echostar/61.5 on a clear day. Show Details
- Even more interference can be expected from transmit azimuths in a more southerly direction Show Details

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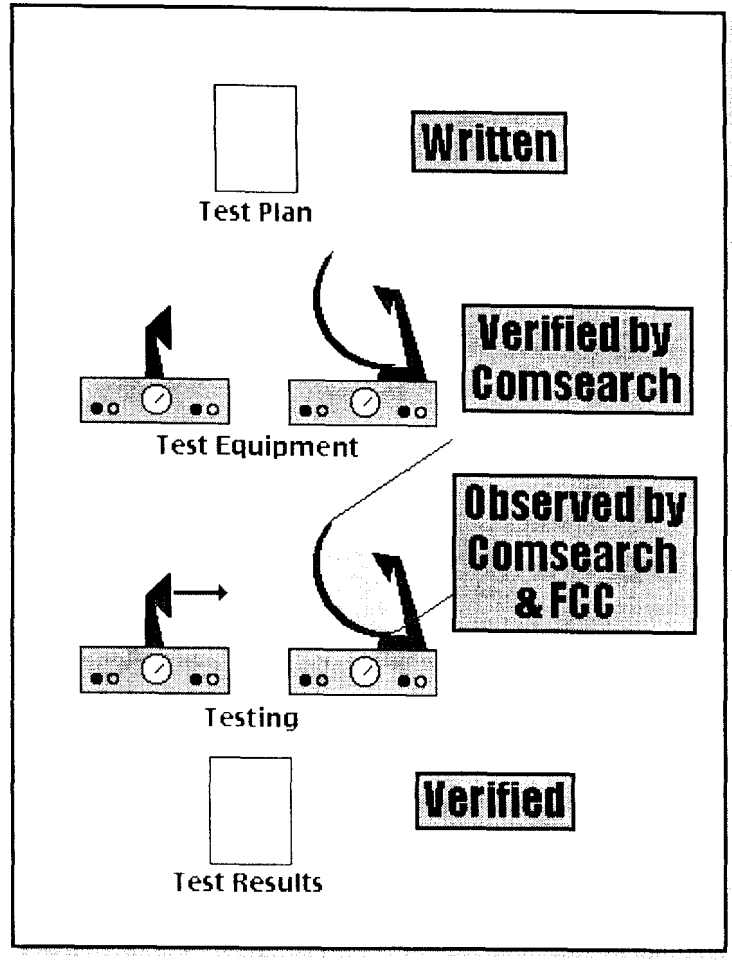
e1



Hide Details

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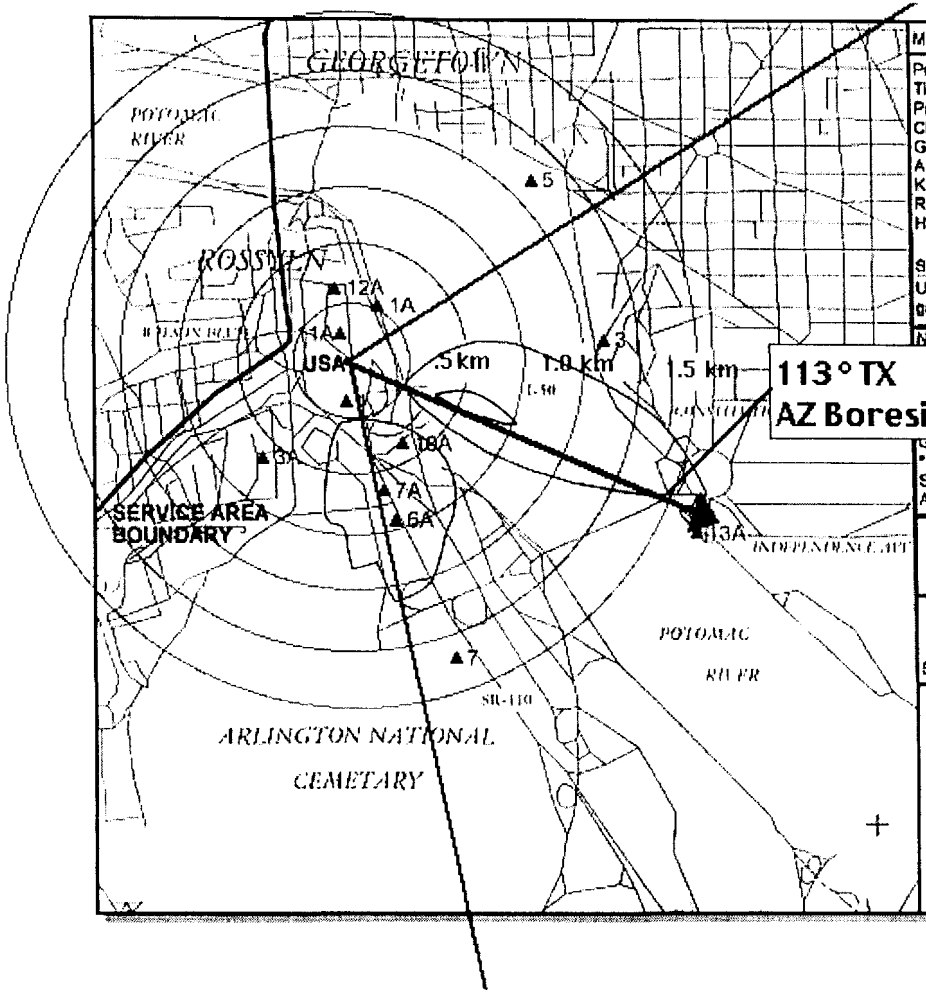
e2.1

Hide Details



MSITE™: Wash f2.map

Prop. model: Free Space + RMD
Time: 50.0% Loc.: 50.0%
Prediction Confidence Margin: 0.0dB
Climate: Continental Temperate
Groundcover: none
Atmospheric Abs.: none
K Factor: 1.333
RX Antenna - Type: DA
Height: 9.1 m AGL Gain: 31.65 dBd

Site	Ant. Elev. AMSL (m)	ERPd (dBW)	Ant. Type/Orient.	Coordinates
USA	116.9	-19.65	DA-H	N38°53'36.00"
group: 1	12500.0000 MHz		113.0	W77°04'07.00"

Notes
RS:
6 DB C/I MITIGATION ZONE (NONE)
DB C/I MITIGATION ZONE (NONE)
DB C/I MITIGATION ZONE
GREEN: 20 DB C/I MITIGATION ZONE

Site: N38-53-36; W77-04-07; EIRP:-17.5 dBW
Antenna Rad. Center: 100m AGL (119m AMSL)

METERS
-500 0 500

FIGURE I-2
NEAR IN REGION, USA TODAY
SATs:61,5,101,110,119 991007

" From October 1999 Progress Report, WAZXMY, Northpoint-DBS Compatibility Tests, Washington, D.C."

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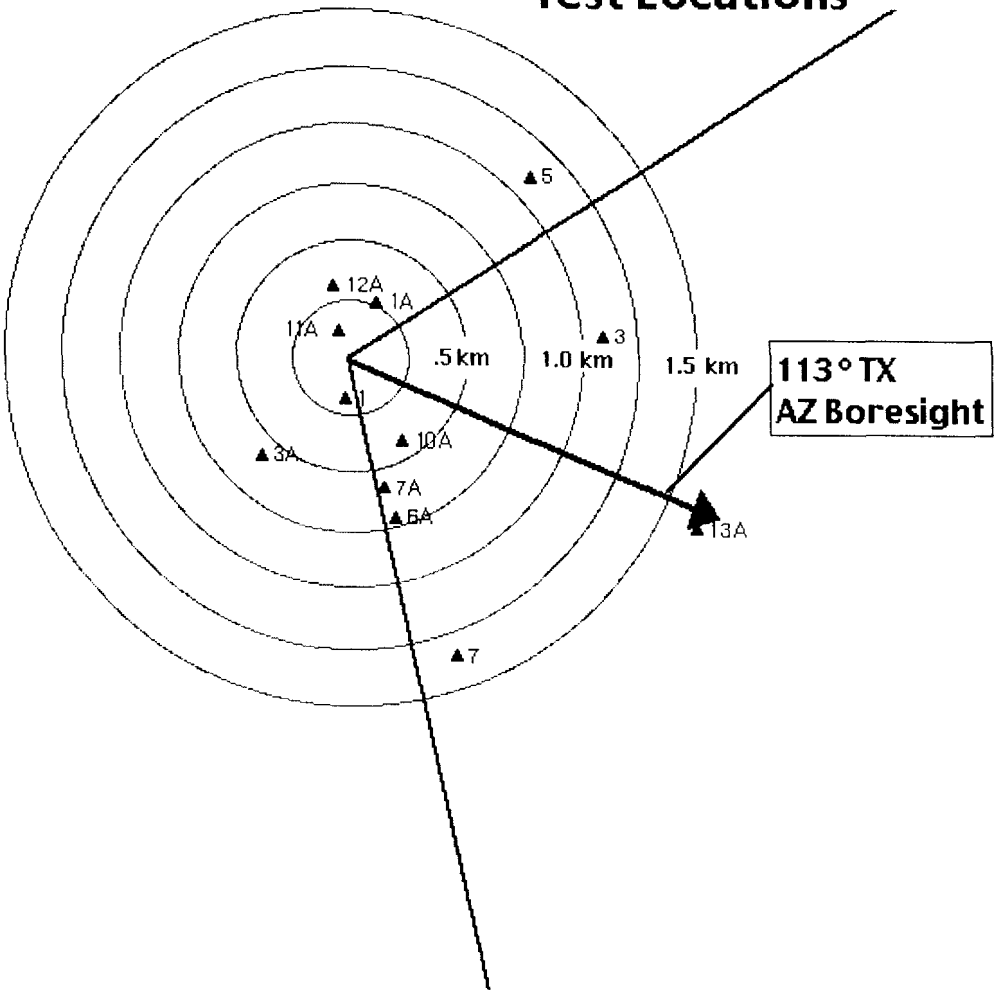
Continue

e2.2

Northpoint USA Today Test Locations

Hide Details



61.5°

101°

110°

119°

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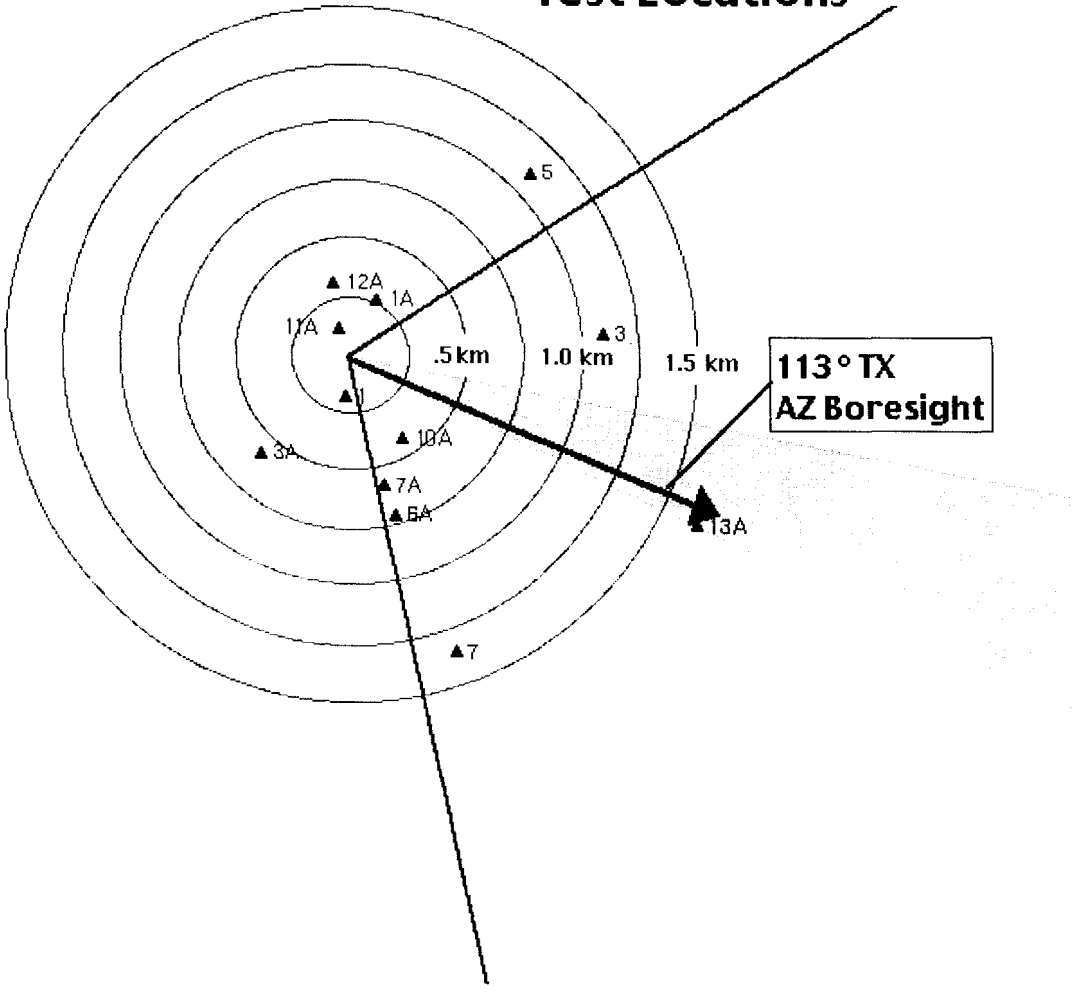
Continue

e2.2

Northpoint USA Today Test Locations



Hide Details

61.5°

You are here

101°

110°

119°

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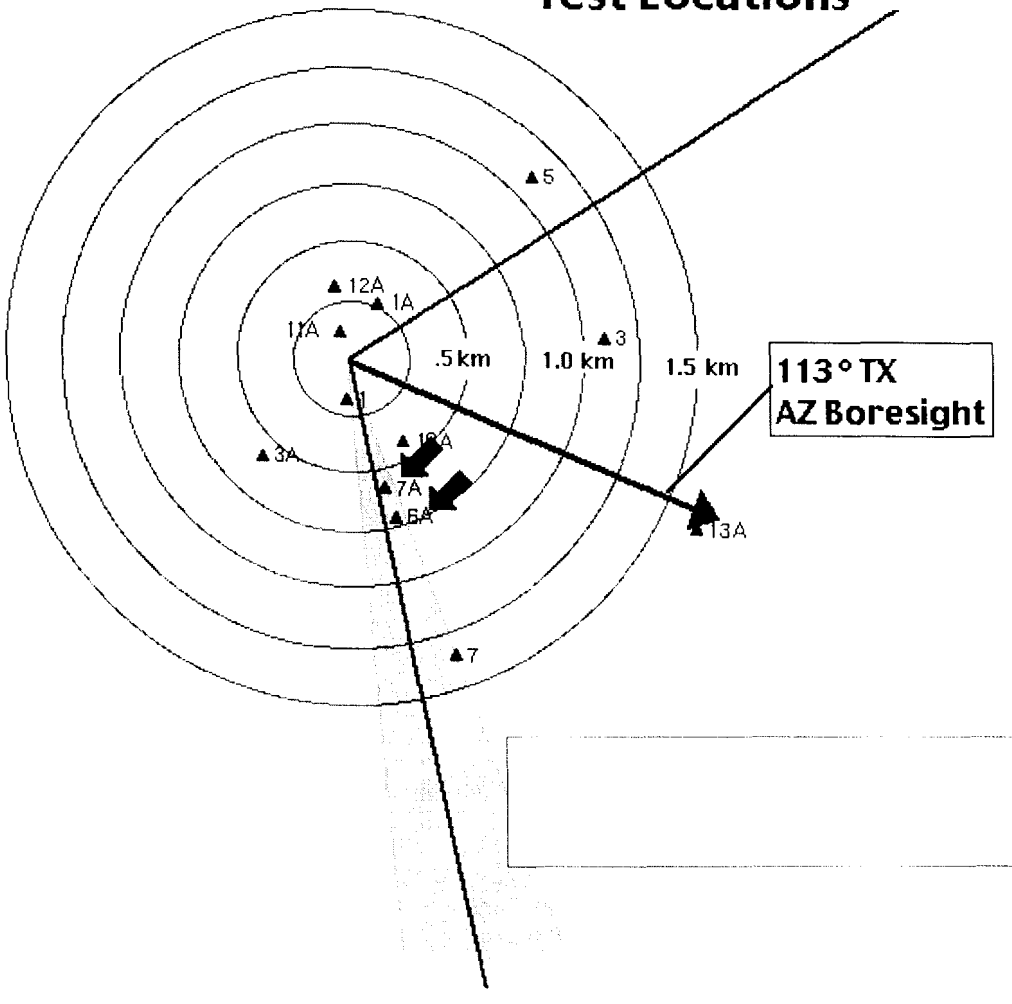
Continue

e2.2

Northpoint USA Today Test Locations

Hide Details



61.5°

101° You are here

110°

119°

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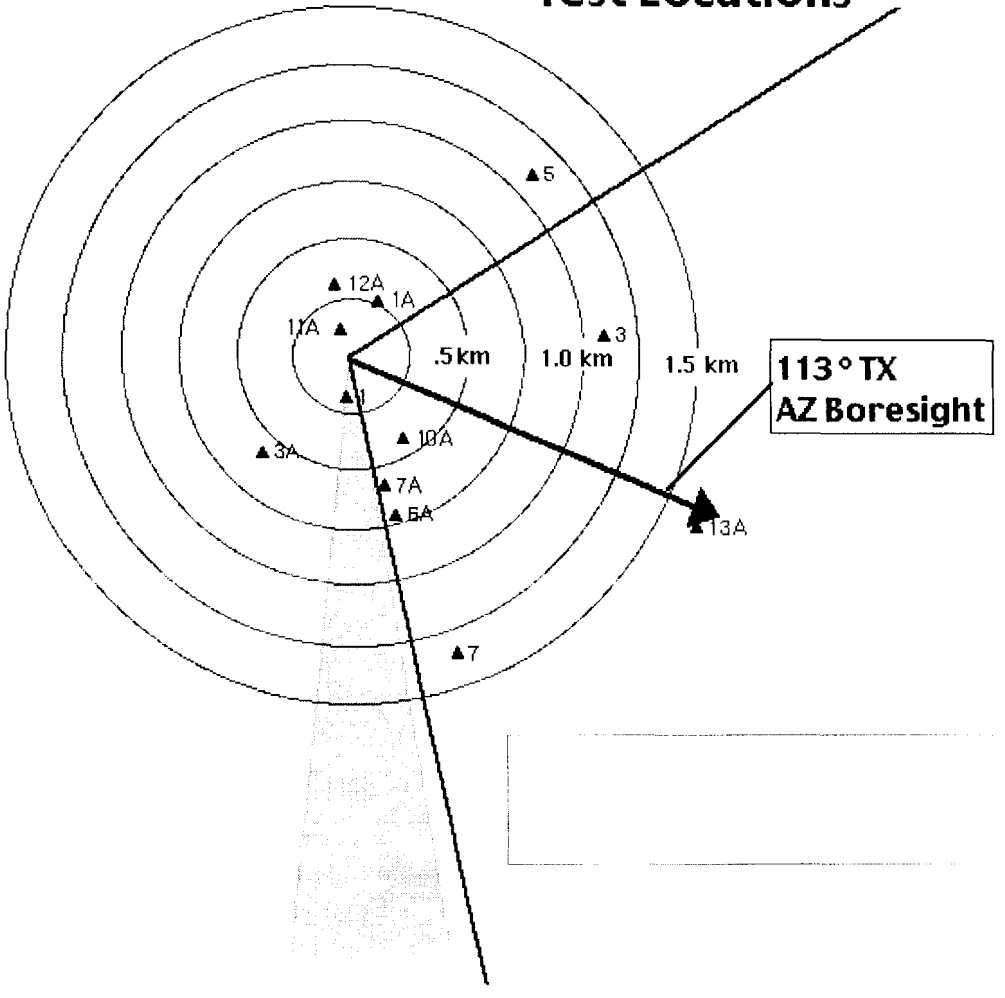
Continue

e2.2

Northpoint USA Today Test Locations

Hide Details



61.5°

101°

110° You are here

119°

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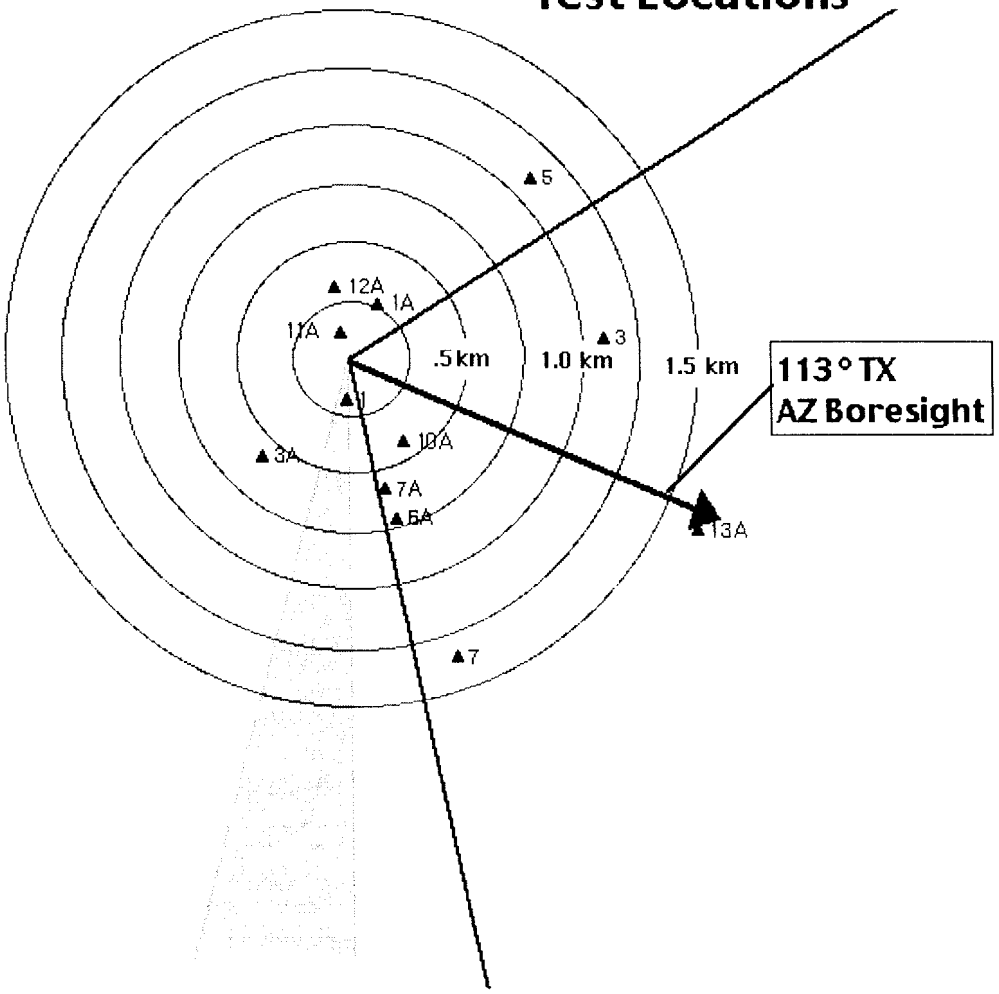
Continue

e2.3

Northpoint USA Today Test Locations



Hide Details

61.5°

101°

110°

119°

You are here

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Continue

e3

Oxon Hill Tests Prove Serious Degradation From Northpoint

Hide Details

TEST RESULTS

Sat/Loc	Test #	Xpndr	Rcvr Count Decrease	% Increase in Unavailability	Greater than 1 NGSO	Greater than all NGSO
Echo/110	5	2	12	59.8	✓	✓
Echo/110	7	16	5	12.3	✓	✓
Echo/61.5	14	2	17	122.5	✓	✓
Echo/61.5	15	16	16	81.2	✓	✓
Echo/61.5	16	32	6	11.9	✓	✓
ExpressVu/91	23	2	10	69.0	✓	✓
ExpressVu/91	24	16	10	85.5	✓	✓
ExpressVu/91	25	32	2	9.4	✓	
DTV/101	20	2	9	30.6	✓	✓
DTV/101	21	16	6	17.6	✓	✓
DTV/101	22	32	3	7.2	✓	

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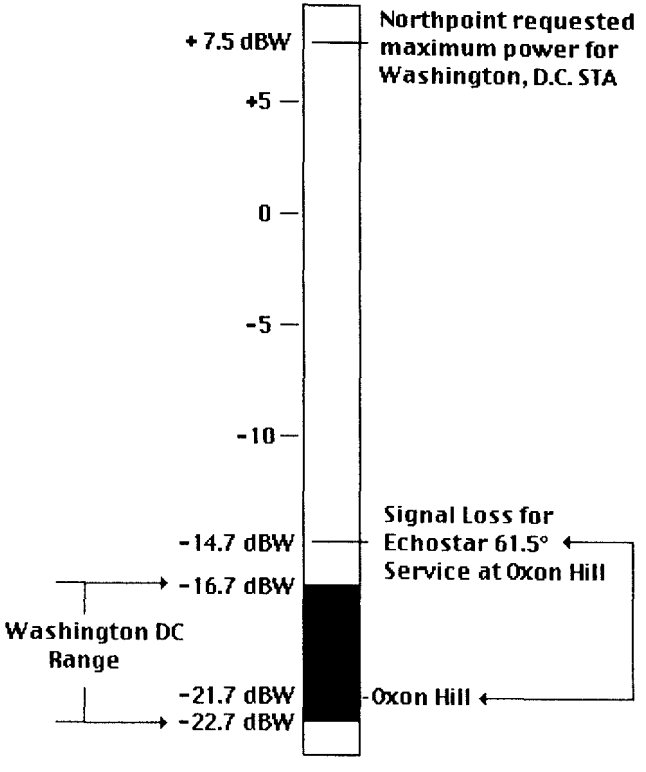
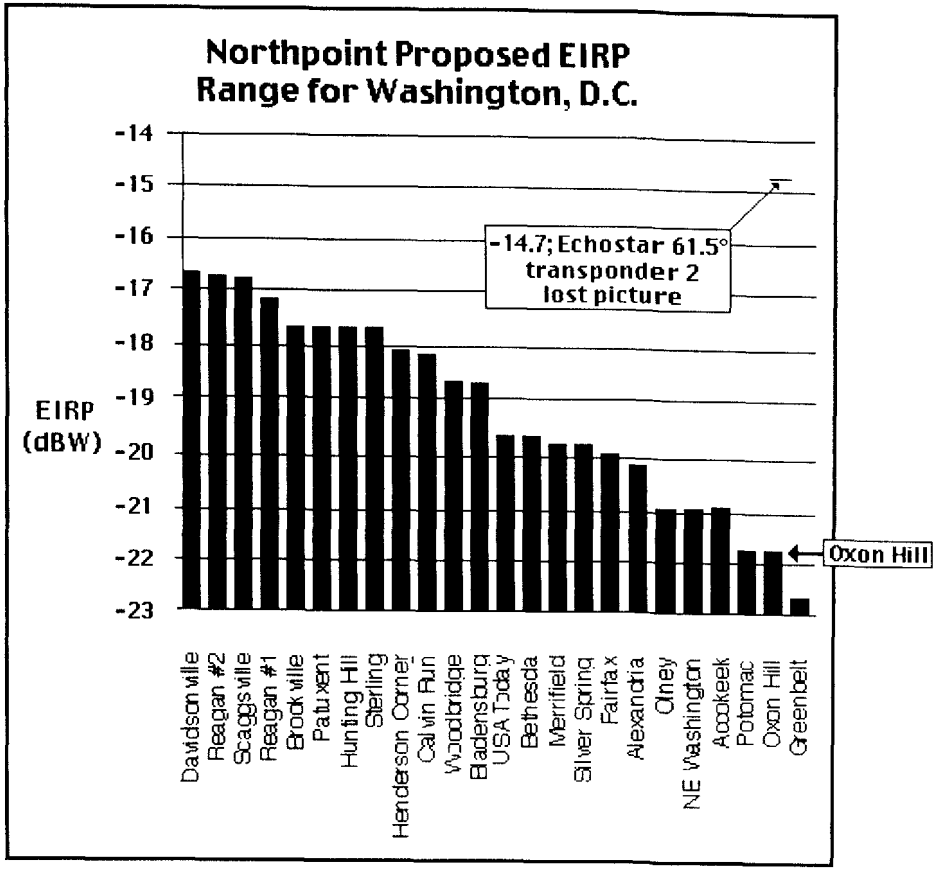
Variations in Northpoint Transmission Power

EIRP

Hide Details

Hide Chart





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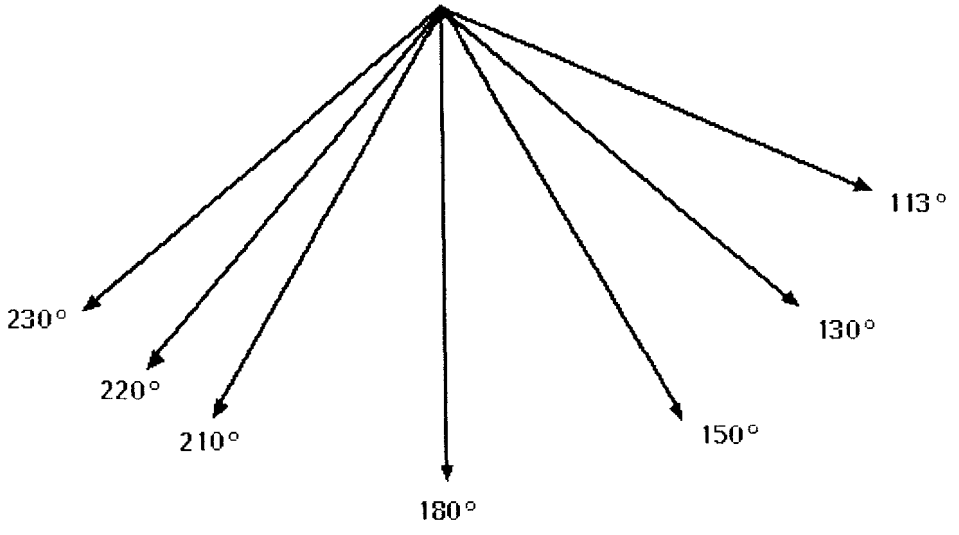
Northpoint Transmit Azimuths in the Washington, DC Area

Hide Details



113°

130°

150°

180°

210°

220°

230°

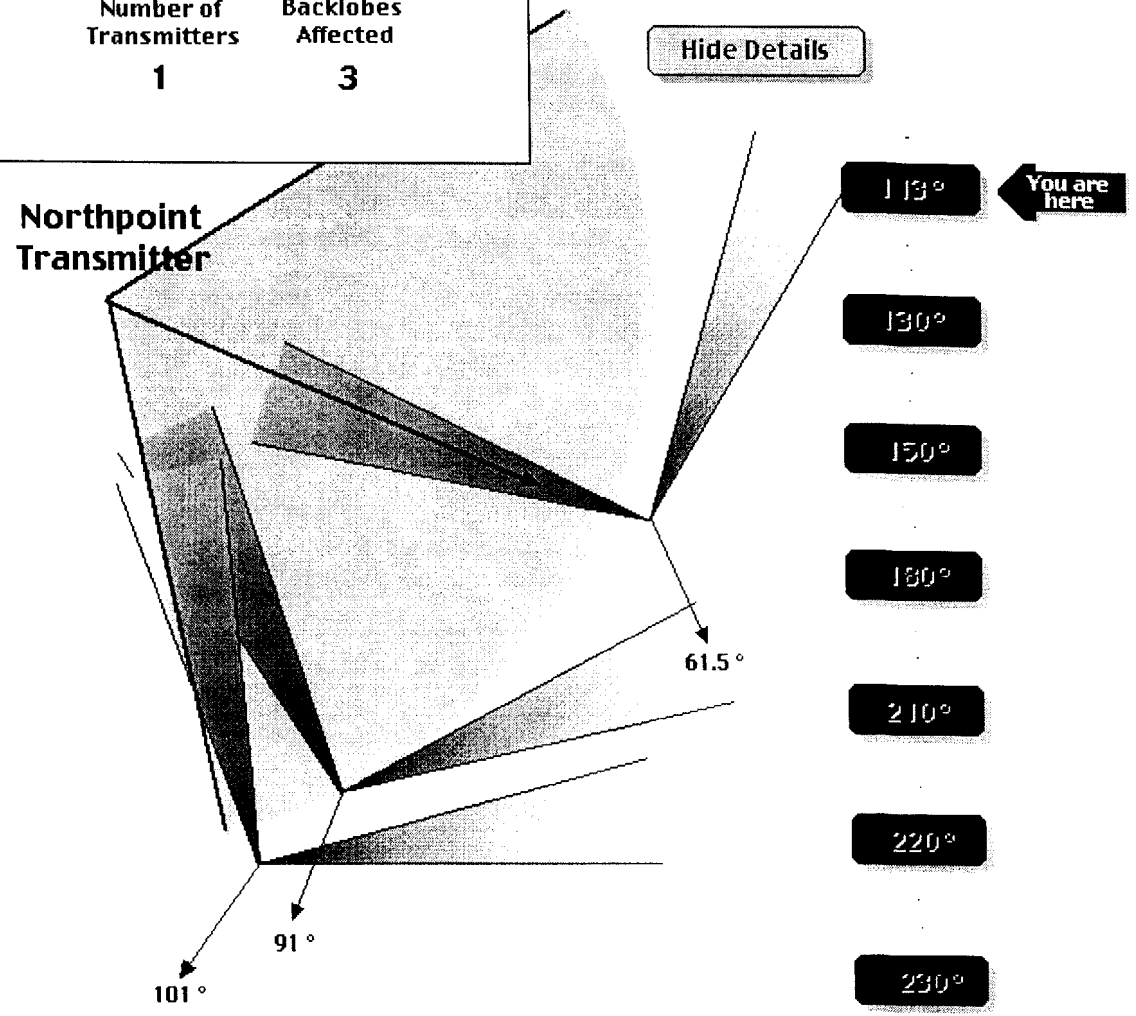
Total

Table of Contents

e5

Number of Transmitters	Total Number Backlobes Affected
1	3

Hide Details



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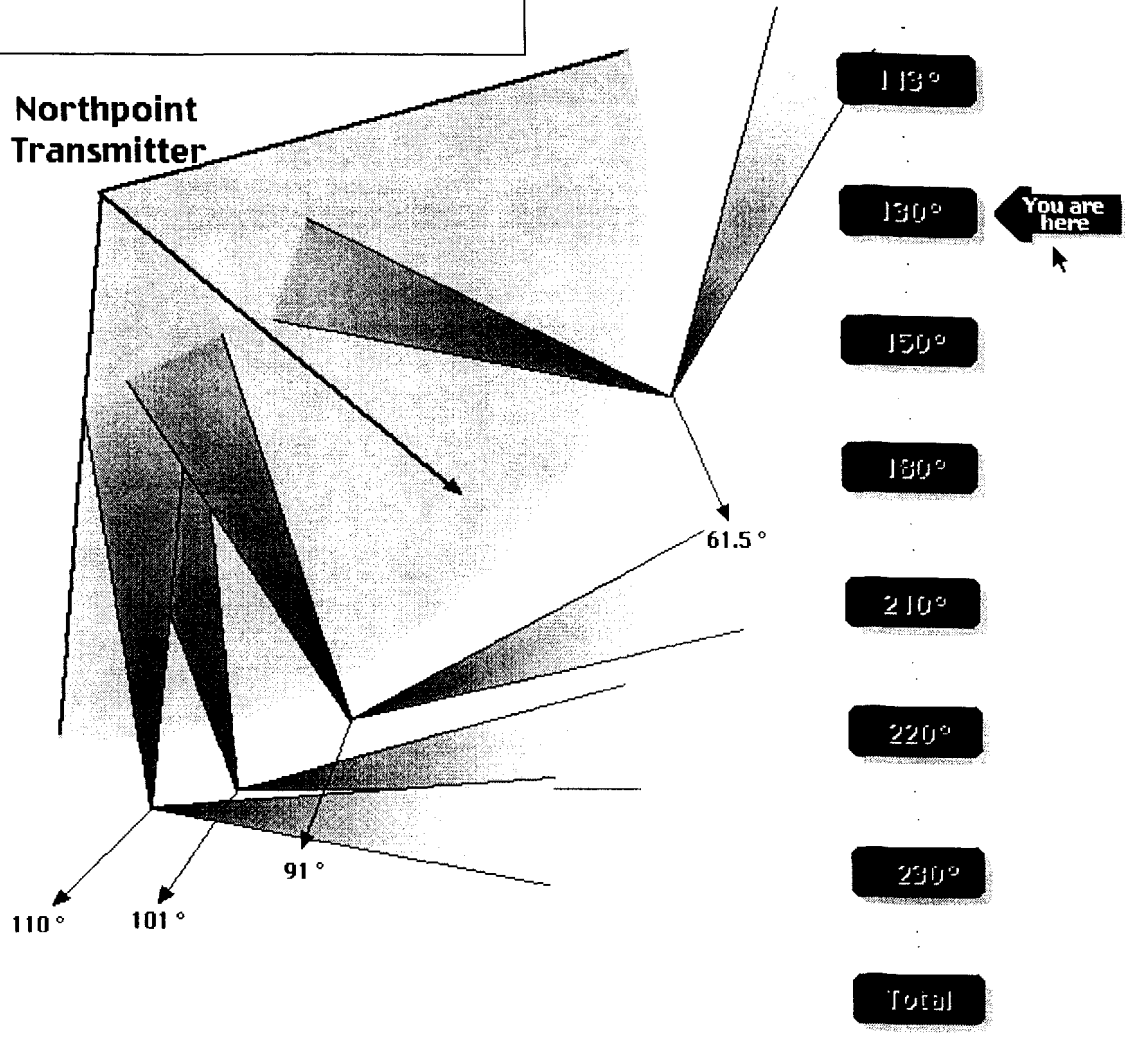
e5

Number of Transmitters	Total Number Backlobes Affected
7	28

Hide Details



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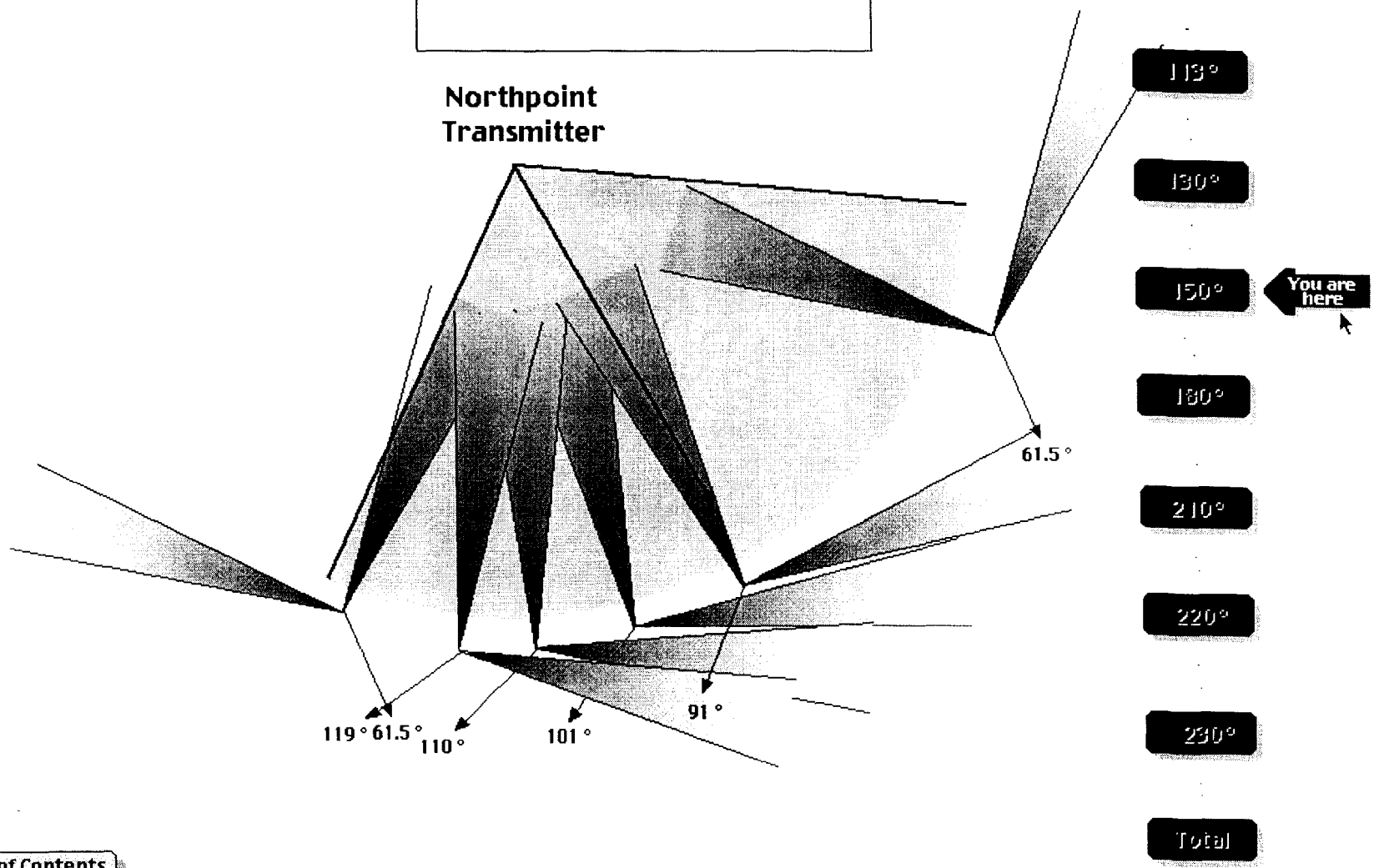
e5

Number of Transmitters	Total Number Backlobes Affected
3	18

Hide Details



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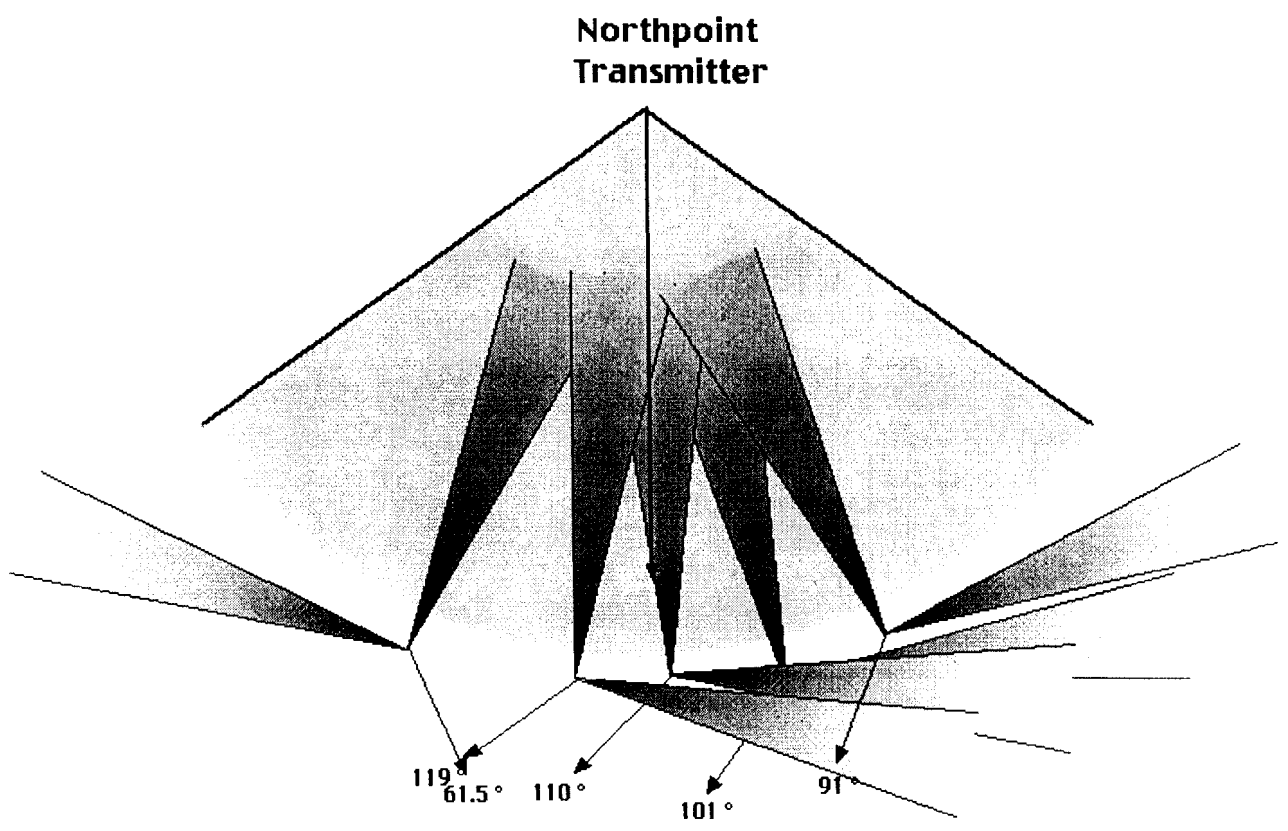
e5

Number of Transmitters	Total Number Backlobes Affected
4	20

Hide Details



113°

130°

150°

180° You are here

210°

220°

230°

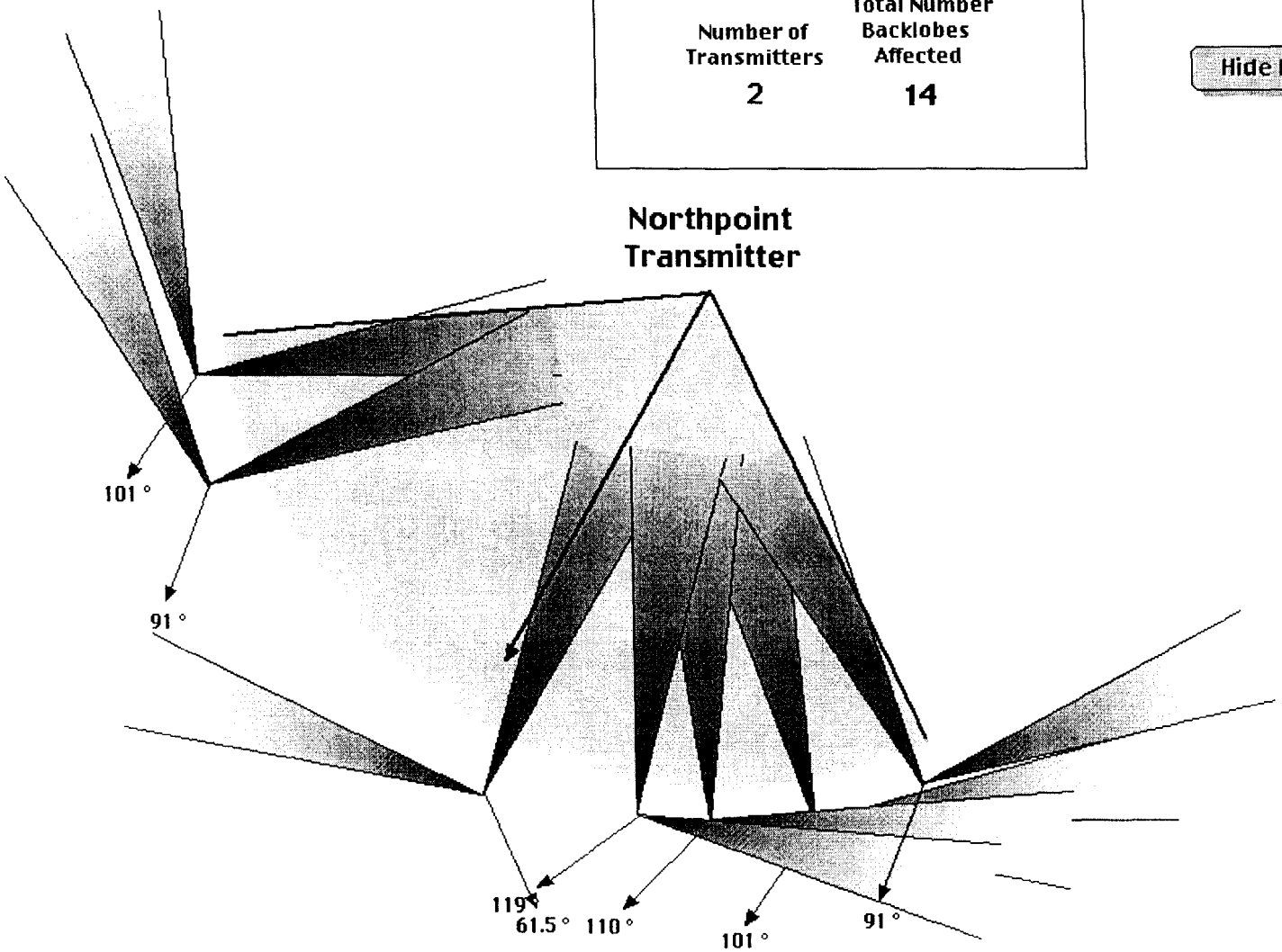
Total

Table of Contents

e5

Number of Transmitters	Total Number Backlobes Affected
2	14

Hide Details



113°

130°

150°

180°

210°

You are here

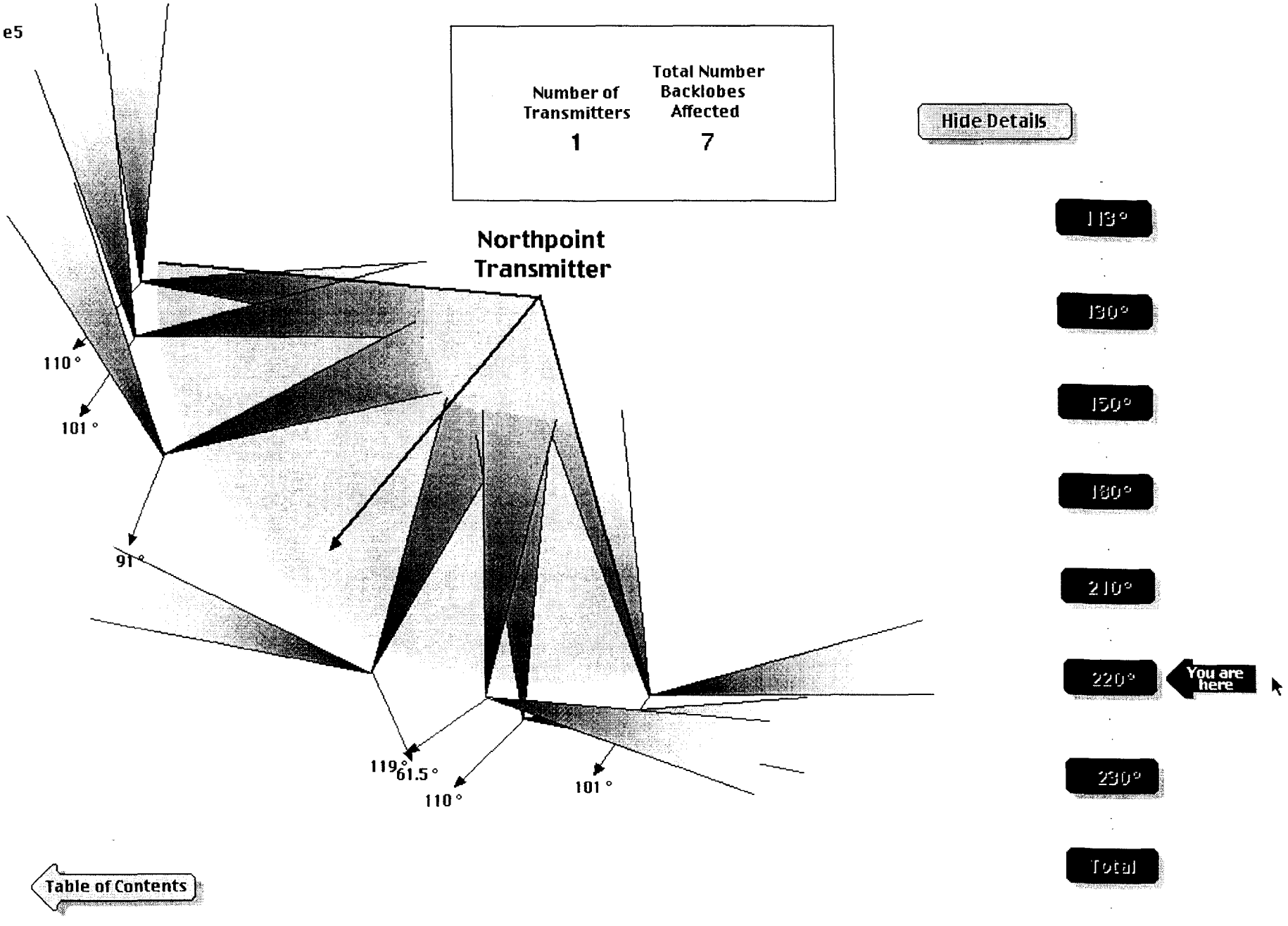
220°

230°

Total

Table of Contents

e5

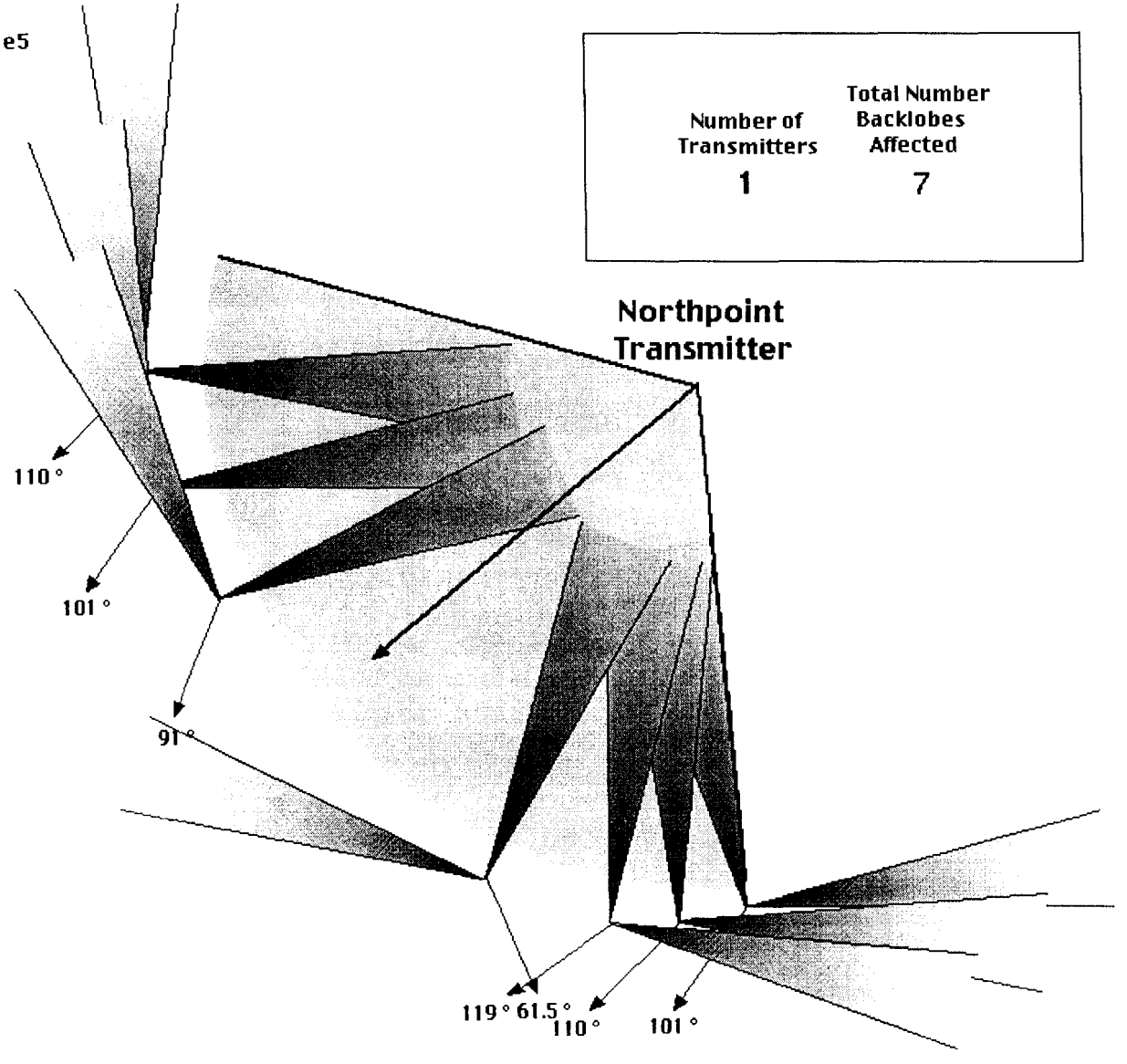


Number of Transmitters
1
Total Number Backlobes Affected
7
Hide Details
Northpoint Transmitter
110°
101°
91°
119°
61.5°
110°
101°
113°
130°
150°
180°
210°
220°
You are here
230°
Total
Table of Contents

e5

Number of Transmitters	Total Number Backlobes Affected
1	7

Hide Details



113°

130°

150°

180°

210°

220°

230° You are here

Total

Table of Contents

Hide Details

Number of Transmitters	Total Number Backlobes Affected
24	127

113°

130°

150°

180°

210°

220°

230°

Total

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Hide Details

- Northpoint technology cannot be authorized at 12 GHz unless the Commission can conclude with certainty that Northpoint's service will not cause harmful interference to DBS operations.

- The Oxon Hill tests provide additional evidence that Northpoint operations will in fact cause harmful interference into DBS service.

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Rebuttal to Northpoint's Comments of July 25, 2000

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Continue

g

Northpoint States:

- g1 No need for more testing — Rebuttal
- g2 DBS used "test to failure" methodology — Rebuttal
- g3 Use a planar array in disrupted areas — Rebuttal
- g4 Tests produced no new data — Rebuttal
- g5 Potential interference limited to 1500 ft. surrounding transmitter — Rebuttal

Conclusion

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No need for more testing

Hide Details

TEST RESULTS

Sat/Loc	Test #	Xpndr	Rcvr Count Decrease	% Increase in Unavailability	Greater than 1 NGSO	Greater than all NGSO
Echo/110	5	2	12	59.8	✓	✓
Echo/110	7	16	5	12.3	✓	✓
Echo/61.5	14	2	17	122.5	✓	✓
Echo/61.5	15	16	16	81.2	✓	✓
Echo/61.5	16	32	6	11.9	✓	✓
ExpressVu/91	23	2	10	69.0	✓	✓
ExpressVu/91	24	16	10	85.5	✓	✓
ExpressVu/91	25	32	2	9.4	✓	
DTV/101	20	2	9	30.6	✓	✓
DTV/101	21	16	6	17.6	✓	✓
DTV/101	22	32	3	7.2	✓	

Need to test under rain conditions and in cities with low dBS power.

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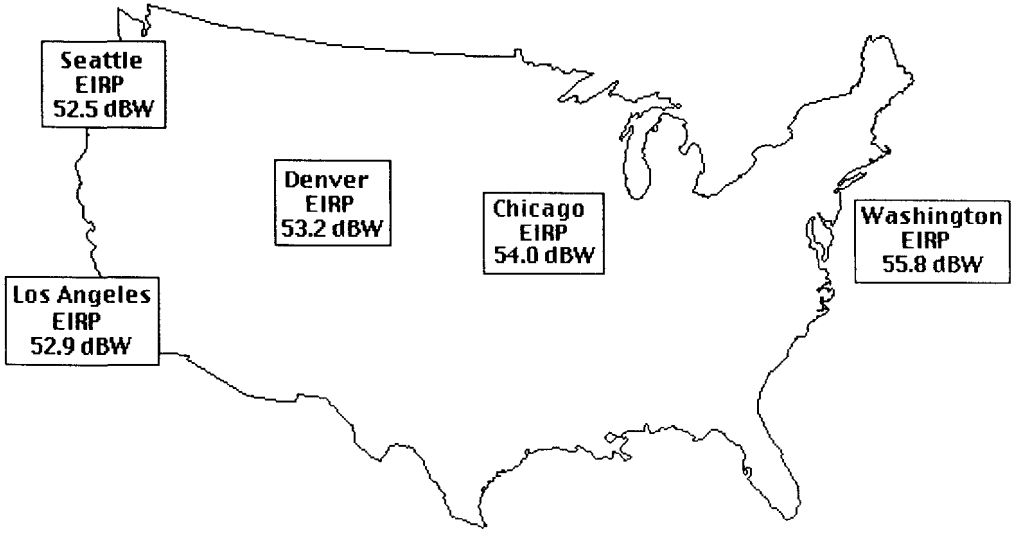
Continue

g2

- No need for more testing

Hide Details



Need to test in cities with lower DBS satellite power

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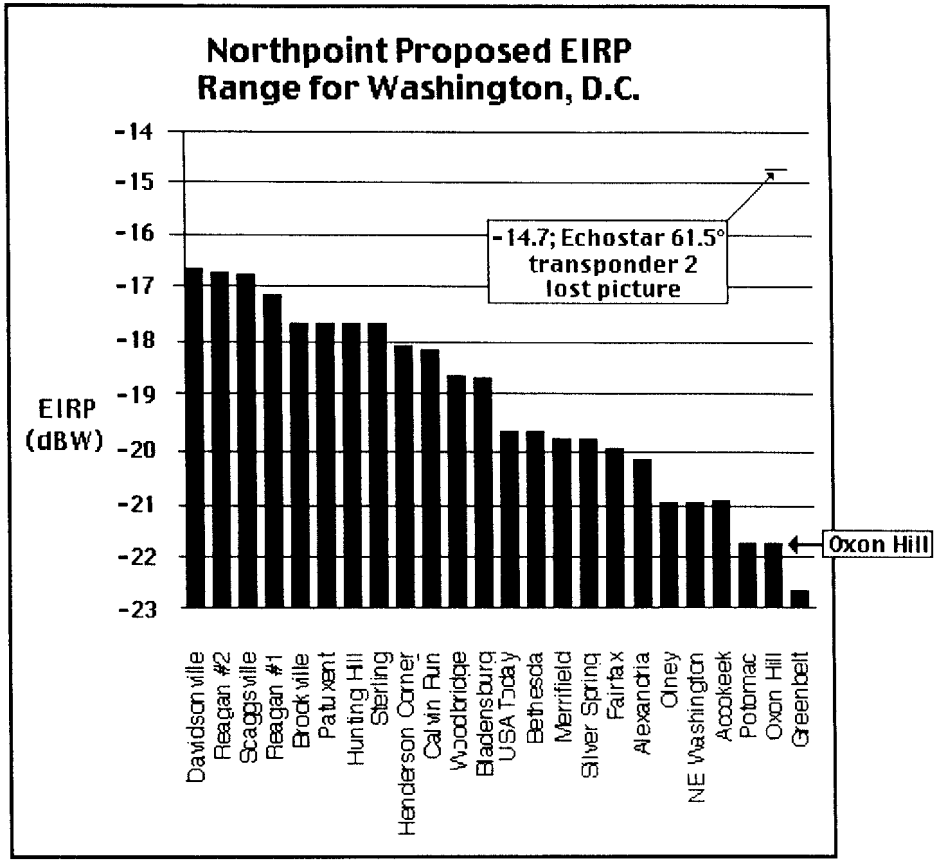
g2

- **DBS used "test to failure" methodology**

Hide Details



- **Tests were performed at NP stated EIRP for Oxon Hill**
- **Also tested for NP transmit power sufficient to loss of DBS receiver lock under clear-sky**

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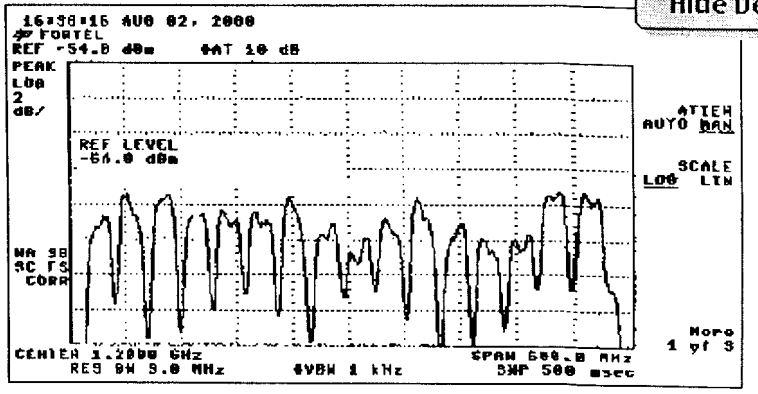
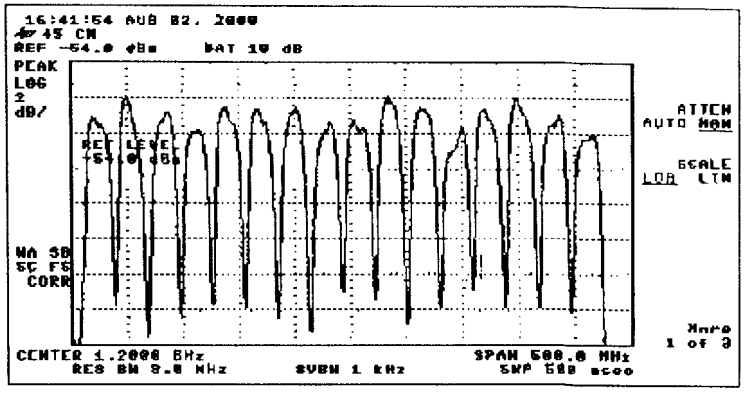
Use a planar array in disrupted areas

- DIRECTV has been actively evaluating flat antennas for a number of years.
- In general, performance remains significantly below parabolic antennas.
- Measured clear-sky margin 7dB less than parabolic antenna.

Hide Details



DIRECTV 101 ° Satellite Spectrum on Fortel Antenna Model CP-3 1998 DIRECTV test



DIRECTV 101 ° Satellite Spectrum on 45 cm Antenna

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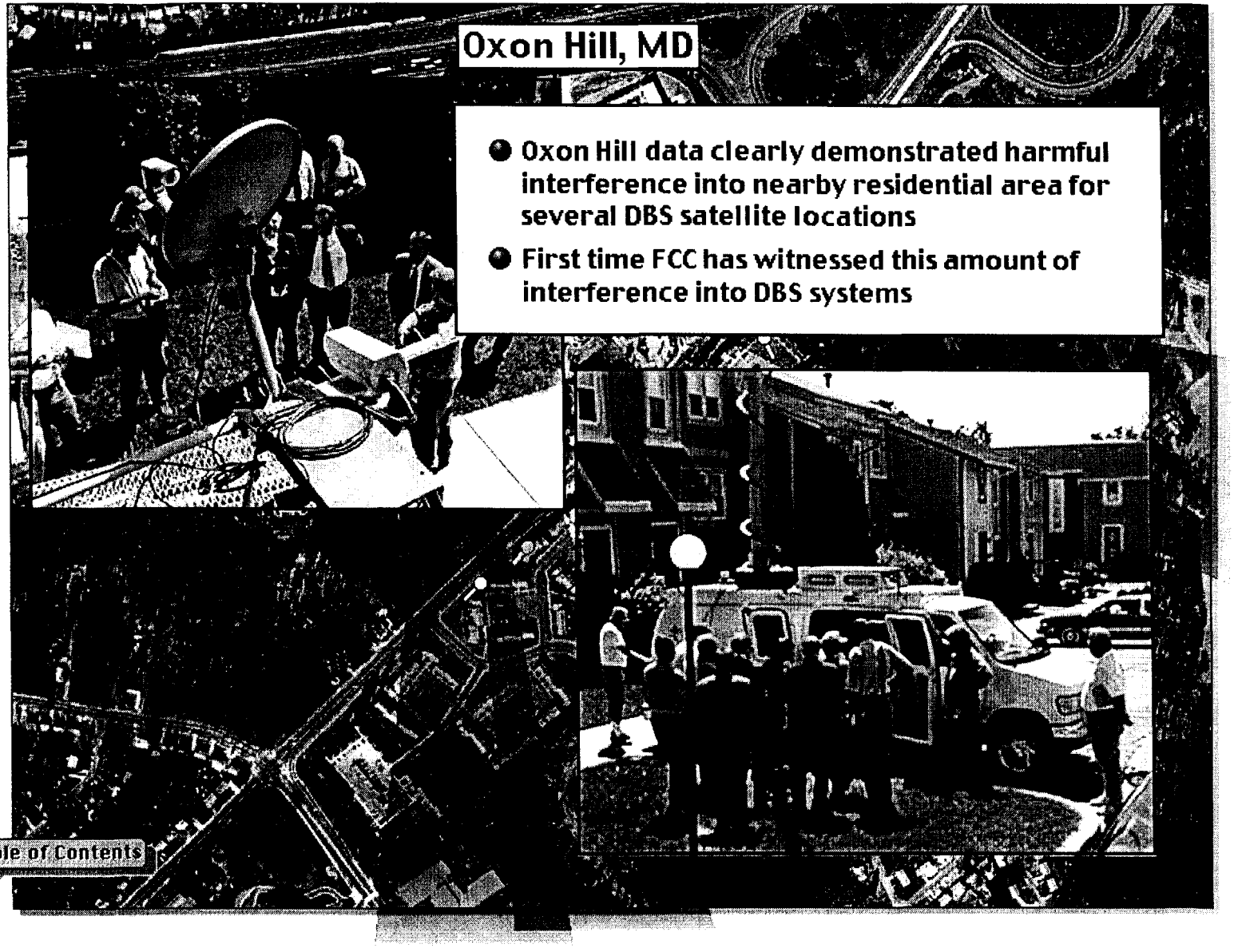
Tests produced no new data



- Oxon Hill data clearly demonstrated harmful interference into nearby residential area for several DBS satellite locations
- First time FCC has witnessed this amount of interference into DBS systems

Hide Details

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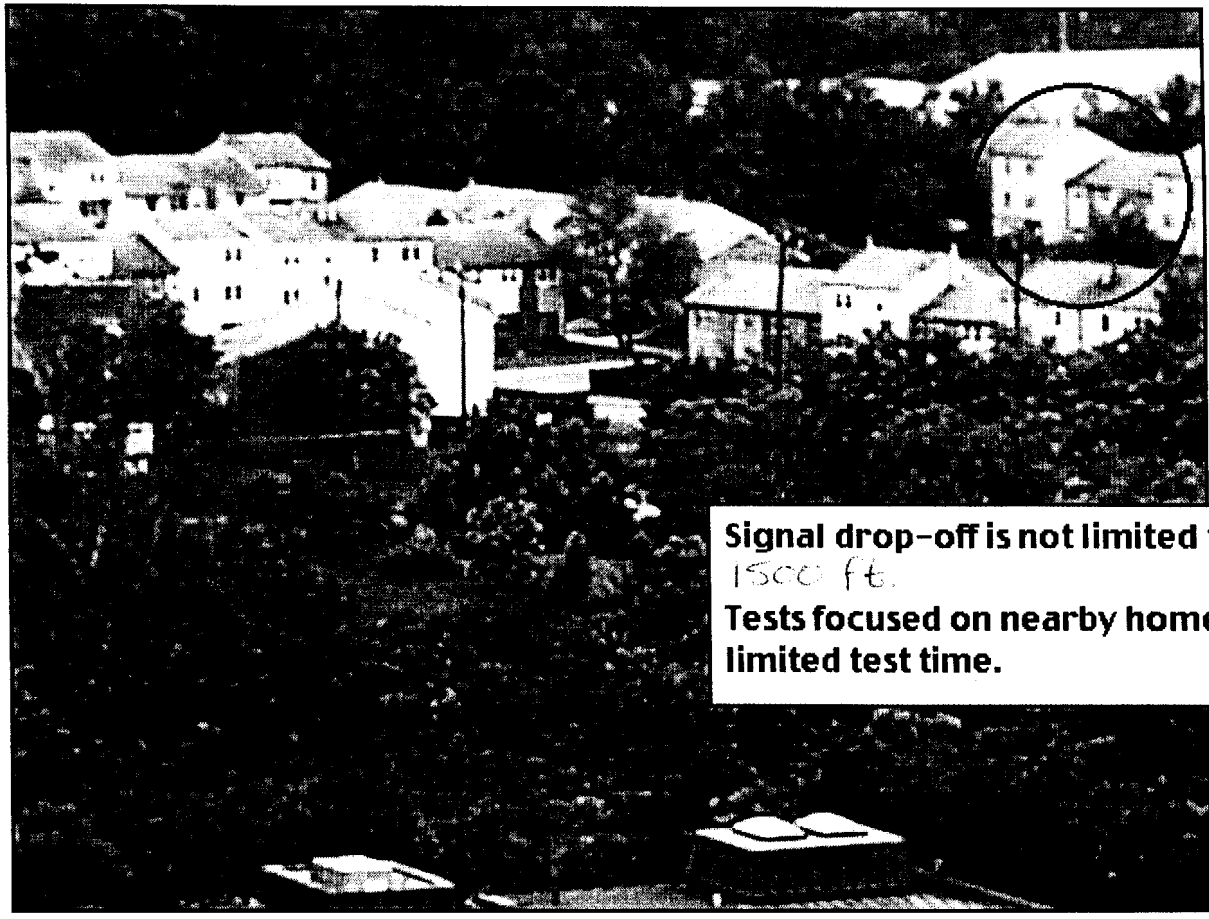
g5

- **Potential interference limited to 1500 ft. surrounding transmitter**

Hide Details



Signal drop-off is not limited to [redacted]
1500 ft.
Tests focused on nearby homes due to limited test time.

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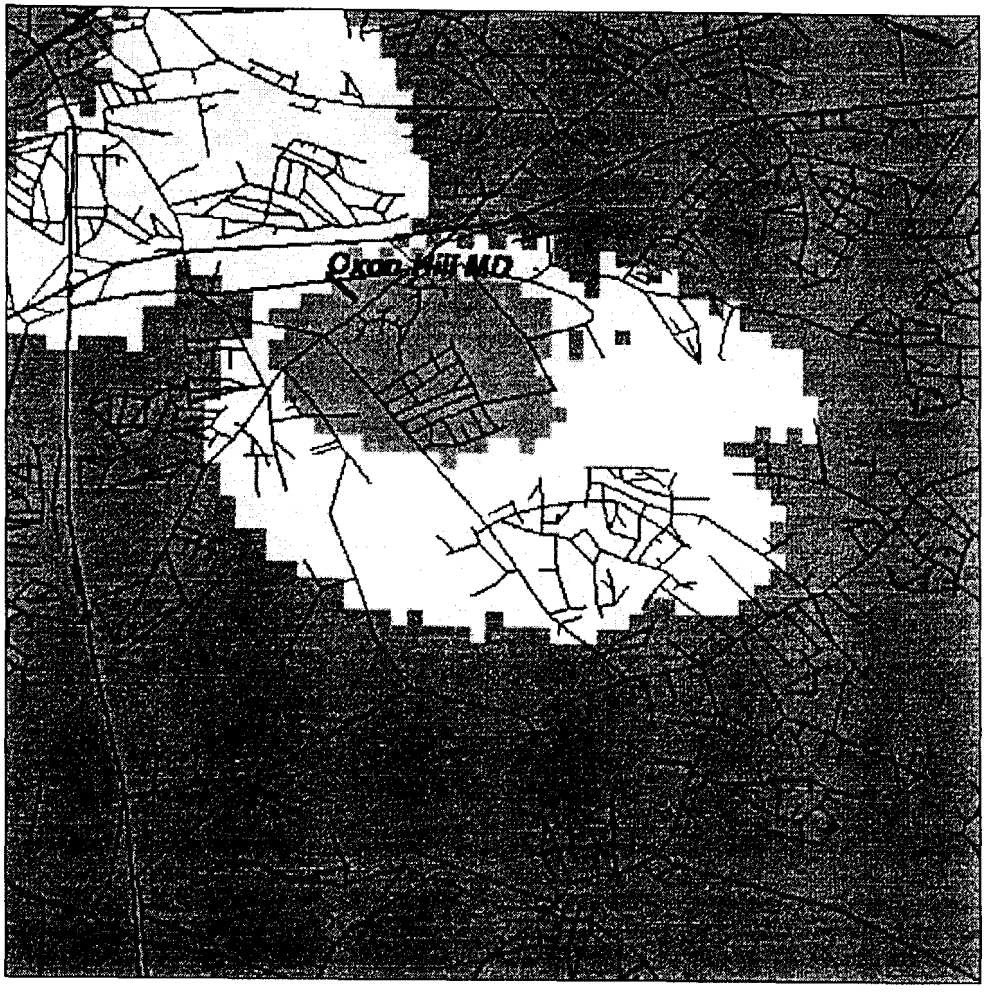
d3

Oxon Hill Affected Zone



More interference than ALL NGSO

More interference than 1 NGSO

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To "Results" Torc

Hide Details

- Northpoint technology cannot be authorized at 12 GHz unless the Commission can conclude with certainty that Northpoint's service will not cause harmful interference to DBS operations.

- The Oxon Hill tests provide additional evidence that Northpoint operations will in fact cause harmful interference into DBS service.

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