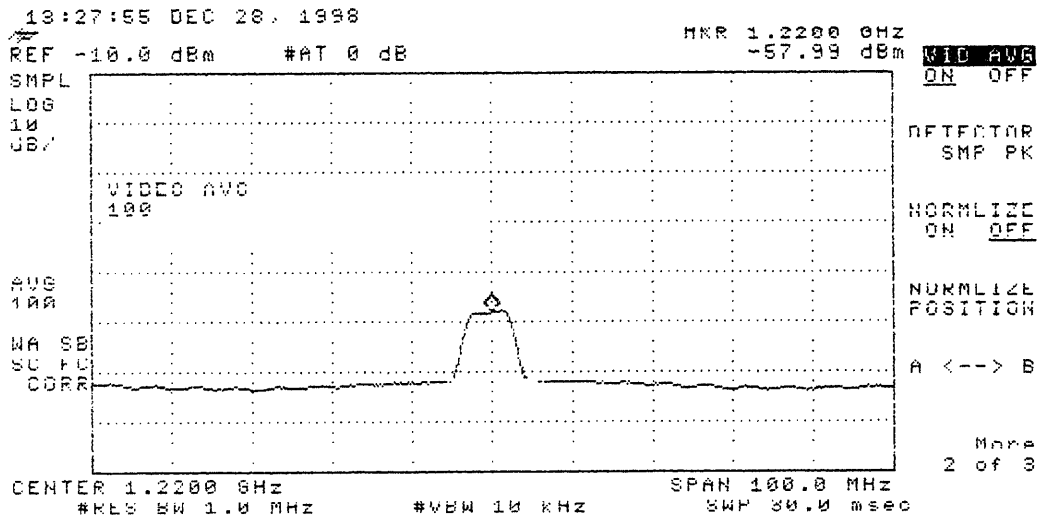


1. Site-13q, N.P. Tx, 12/28/98
2. Picture Good on T.V.
3. Boom Down, H.A. 8591E

P/ot 13-q-N



COMMENTS FROM SITE 13a

Site 13a Barton Creek Mall

- a. Estar is pointing right through a tree

Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Data Log

Barton Creek Mtn (site 13A) p13-9-2

Rx Site No.

13-9-2

p1

Set:

1

Re: Rx Condx Ref. No.

2

Date / Time:

12/30/98 10:45 CST

Re: Tx Condx Ref. No.

2

Operator:

MWH

Data Measurements:

- (1) On arrival --
 - Position and deploy antenna platform (first at ground level).
 - Position GPS Receiver and allow to average during site occupation.
 - Obtain information for Rx Site Location Log.
 - Point Precision Horn Antenna toward Tx (approx. direction).

- (2) DBS Signal Interference Tests – DirecTV and EchoStar.

For each satellite case (one at a time), with Tx OFF, point DBS Antenna to the satellite and peak the signal strength. Observe the monitor for the prescribed TV channel (w/ appropriate DBS Rx) and assess signal quality. Turn Tx ON and observe the TV signal quality. Note any change in signal quality that is correlated with the Tx ON/OFF condition. Repeat Tx ON/OFF sequence as needed.

With the Spectrum Analyzer (SA), observe and record the Signal Power Spectrum and its peak value at the LNB output for the two Tx states (ON/OFF). Label the Spectrum Plots and mark them with an assigned ID code.

DirecTV – Tx OFF: OK? Y___ / N___ Tx ON: OK? Y~~X~~ / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____

Signal Power Spectrum – Tx ON: --Peak -- 60.37 dBm Plot ID Code 13-9-2-D
Tx OFF: – Peak -- _____ dBm Plot ID Code _____

Comments: _____

EchoStar – Tx OFF: OK? Y___ / N___ Tx ON: OK? Y~~X~~ / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____

Signal Power Spectrum – Tx ON: --Peak -- 58.48 dBm Plot ID Code 13-9-2-E
Tx OFF: – Peak -- _____ dBm Plot ID Code _____

Comments: _____

Northpoint Technology – DBS Compatibility Test – Austin Test Area

Rx Site Data Log

Rx Site No.

13-9-2

p2

Set:

1/1

(3) Northpoint Signal Quality Test –

With the Tx ON, point the DBS antenna toward the Tx, while using the NP Rx equipment, and peak the signal strength. Observe the monitor (w/ NP Rx equipment) and assess the signal quality.

NP Signal – OK? Y X / N

Comments: _____

(4) NP Rx Signal Level and Power Spectrum at Rx Site – LNB output --

With the DBS antenna on the NP Tx, and with the Tx ON, observe and record the Signal Power Spectrum and the peak level at the LNB output. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- -50.78 dBm

Plot ID Code -- 13-9-2-N

Comments: _____

(5) Tx Signal Level and Power Spectrum at Rx Site – w/ Precision Ant. and SA.

Using the Precision Antenna and Test Set, observe and record the Tx Signal Power Spectrum and the peak value at the Rx site. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- _____ dBm

Plot ID Code -- _____

Comments: _____

(6) When Rx Site measurements and tests are completed, read the GPS Receiver and record the position in the Rx Site Location Log. Prepare the equipment for movement to the next site.

Use the space below for added comments and notes. Attach extra pages if necessary.

Northpoint Technology – DBS Compatibility Test – Austin Test Area
Signal Strength Readings

Rx Site Data Log

Rx Site No. 13-a-2

Set 1-1

Re: Condx Ref. No. 2

Date / Time 12/30/98 10:50 CST

Re: Condx Ref. No. 2

Operator: MWH

Direct T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	86	87	86	86	86	86	87	85	86	86	86.1
18	86	86	86	85	84	85	85	85	86	86	85.4
20	86	85	86	87	87	86	86	87	88	87	86.5

Estar T.V. Signal Strength Readings

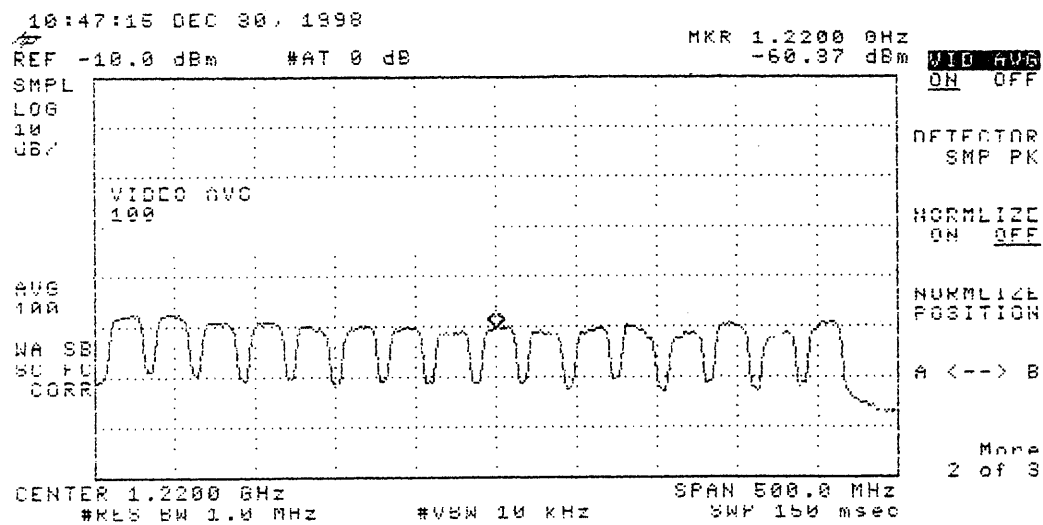
Tsp No	Signal Strength Readings										Avg
16	91	91	91	92	91	92	91	91	91	91	91.2
18	91	91	91	91	91	91	91	91	91	91	91
20	94	94	94	94	94	94	94	94	94	93	93.9

Notes: 1. Clear, 65°

2. Estar point right through a tree (little one)

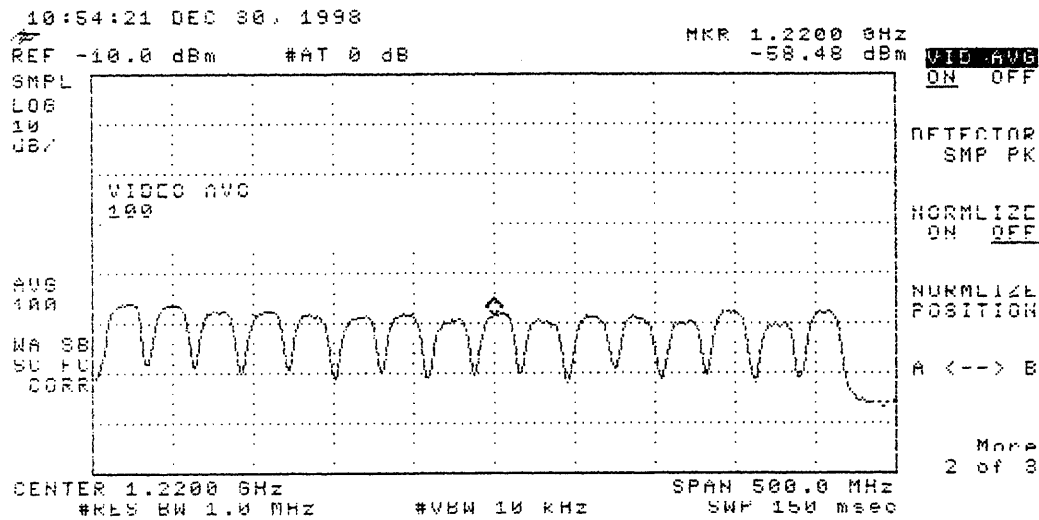
1. DTV, 12/30/98, Site -13-9-2
2. Boom Down

P10+-13-9-2-D



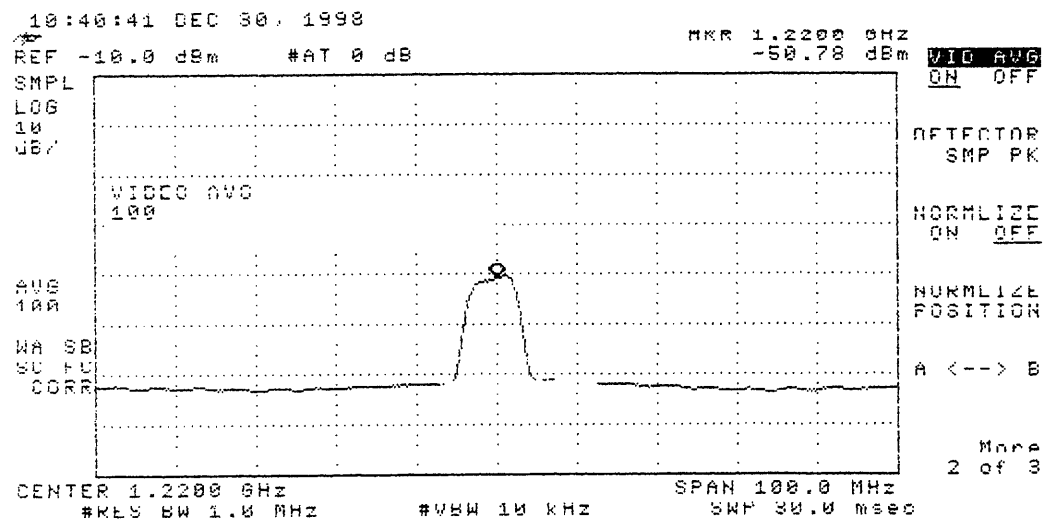
1. Estar, 12/30/98, Site-13-g-2,
2. Boom Down

Plot 13-g-2-E



1. N.P. Tx, 12/30/98, Site -13-q-2
2. Boom Down
3. Picture Good on T.V.

Plot-13-q-2-N



COMMENTS FROM SITE 13-a-2

Site 13-a-2 Barton Creek Mall

- a. Estar is pointing right through a little tree

Northpoint Technology – DBS Compatibility Test – Austin Test Area

Rx Site Data Log

Acc Pinnacle

Rx Site No. 14
Set: 1/1

p1

Re: Rx Condx Ref. No.

2

Date / Time:

12/28/98 2:30 CST

Re: Tx Condx Ref. No.

2

Operator:

SMH

Data Measurements:

- (1) On arrival --
- Position and deploy antenna platform (first at ground level).
 - Position GPS Receiver and allow to average during site occupation.
 - Obtain information for Rx Site Location Log.
 - Point Precision Horn Antenna toward Tx (approx. direction).

- (2) DBS Signal Interference Tests – DirecTV and EchoStar.

For each satellite case (one at a time), with Tx OFF, point DBS Antenna to the satellite and peak the signal strength. Observe the monitor for the prescribed TV channel (w/ appropriate DBS Rx) and assess signal quality. Turn Tx ON and observe the TV signal quality. Note any change in signal quality that is correlated with the Tx ON/OFF condition. Repeat Tx ON/OFF sequence as needed.

With the Spectrum Analyzer (SA), observe and record the Signal Power Spectrum and its peak value at the LNB output for the two Tx states (ON/OFF). Label the Spectrum Plots and mark them with an assigned ID code.

DirecTV – Tx OFF: OK? Y___ / N___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____

Signal Power Spectrum – Tx ON: --Peak -- -60.11 dBm Plot ID Code 14-D
Tx OFF: – Peak -- _____ dBm Plot ID Code _____

Comments: _____

EchoStar – Tx OFF: OK? Y___ / N___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____

Signal Power Spectrum – Tx ON: --Peak -- -60.17 dBm Plot ID Code 14-E
Tx OFF: – Peak -- _____ dBm Plot ID Code _____

Comments: _____

Northpoint Technology – DBS Compatibility Test – Austin Test Area

Rx Site Data Log

Rx Site No.

14

p2

Set:

11

(3) Northpoint Signal Quality Test –

With the Tx ON, point the DBS antenna toward the Tx, while using the NP Rx equipment, and peak the signal strength. Observe the monitor (w/ NP Rx equipment) and assess the signal quality.

NP Signal – OK? Y X / N _____ Comments: _____

(4) NP Rx Signal Level and Power Spectrum at Rx Site – LNB output --

With the DBS antenna on the NP Tx, and with the Tx ON, observe and record the Signal Power Spectrum and the peak level at the LNB output. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- -62.07 dBm Plot ID Code -- 14-N

Comments: _____

(5) Tx Signal Level and Power Spectrum at Rx Site – w/ Precision Ant. and SA.

Using the Precision Antenna and Test Set, observe and record the Tx Signal Power Spectrum and the peak value at the Rx site. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- _____ dBm Plot ID Code -- _____

Comments: _____

(6) When Rx Site measurements and tests are completed, read the GPS Receiver and record the position in the Rx Site Location Log. Prepare the equipment for movement to the next site.

Use the space below for added comments and notes. Attach extra pages if necessary.

① No Reflection off of Bid.

Northpoint Technology – DBS Compatibility Test – Austin Test Area
Signal Strength Readings

Rx Site Data Log

Rx Site No.

14

Set

1-1

Re: Condx Ref. No.

2

Date / Time

12/28/98 2:49 CST

Re: Condx Ref. No.

2

Operator:

MWH

Direct T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	86	85	85	86	85	87	86	84	85	87	84.8
18	84	83	84	83	83	83	85	84	83	85	83.7
20	86	86	86	87	86	86	85	86	86	86	86

Estar T.V. Signal Strength Readings

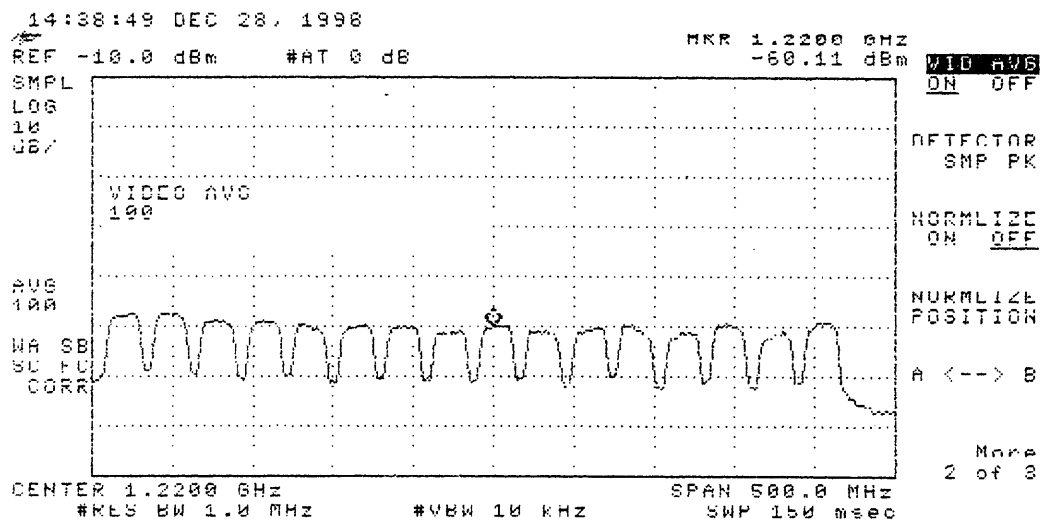
Tsp No	Signal Strength Readings										Avg
16	89	89	89	89	89	89	90	89	90	89	89.2
18	88	88	87	88	87	88	88	88	89	87	87.8
20	91	91	93	91	91	91	91	91	91	91	91.2

Notes: 1. Estar, Edge of West end of Bld. in way

2. Partly Cloudy, 70°

1. DTV, 12/28/98, Site-14, Set-1
2. Boom Down, H.P. 8591E

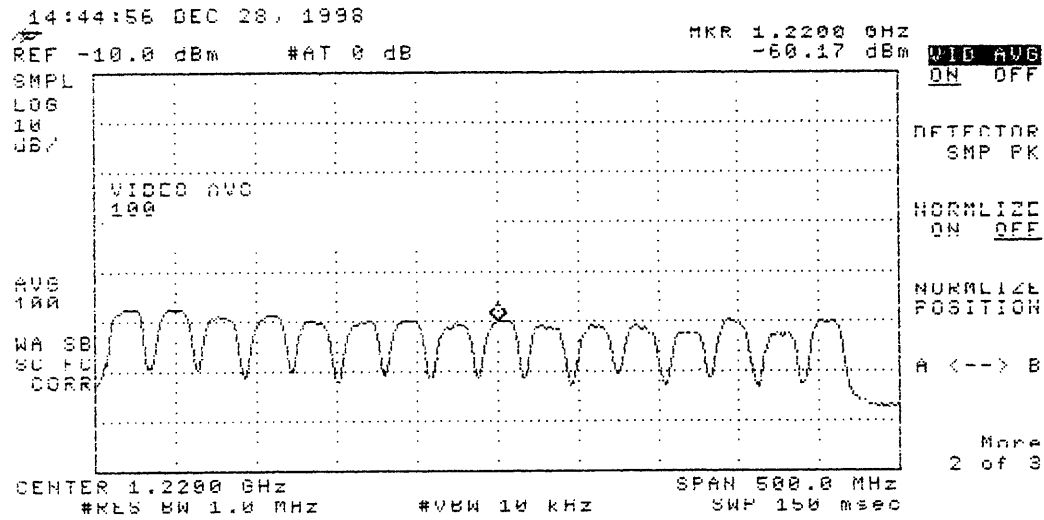
Plot -14-D



1. Estar, 12/28/98, Site-14, Set-1

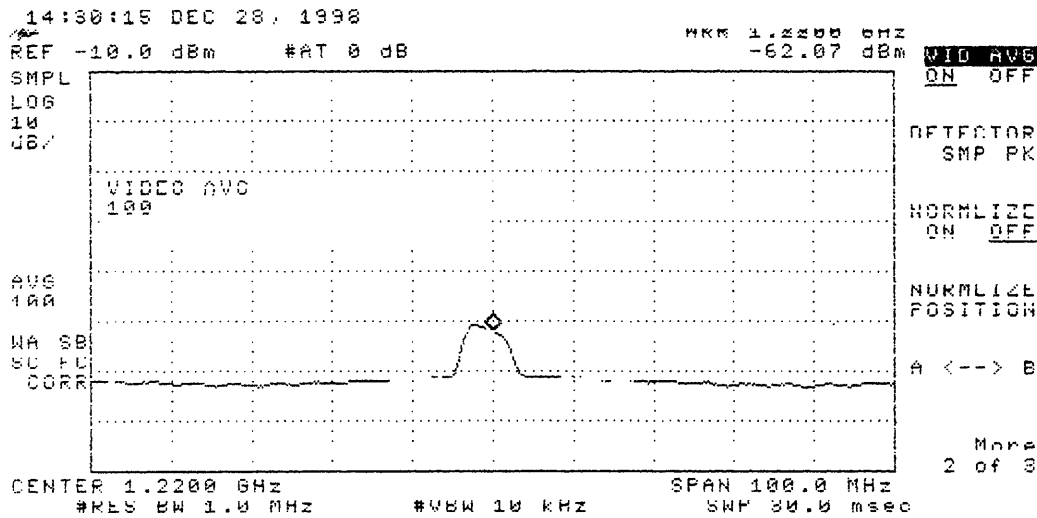
2. Boom Down, HP 8591E

Plot-14-E



1. N.P Tx, 12/28/98, Site-14, Set-1
2. Picture good on T.V.

Plot-14-N



COMMENTS FROM SITE 14

Site 14 Acc Pinnacle

- a. No reflection off of the pinnacle
- b. Estar had edge of west end of build in its way

Northpoint Technology – DBS Compatibility Test – Austin Test Area

Rx Site Data Log

South E-35 Wind.

Rx Site No. 15 p1
Set: 1/1

Re: Rx Condx Ref. No.

2

Date / Time:

12/28/98 4:50 CST

Re: Tx Condx Ref. No.

2

Operator:

MLW

Data Measurements:

- (1) On arrival --
- Position and deploy antenna platform (first at ground level).
 - Position GPS Receiver and allow to average during site occupation.
 - Obtain information for Rx Site Location Log.
 - Point Precision Horn Antenna toward Tx (approx. direction).

- (2) DBS Signal Interference Tests – DirecTV and EchoStar.

For each satellite case (one at a time), with Tx OFF, point DBS Antenna to the satellite and peak the signal strength. Observe the monitor for the prescribed TV channel (w/ appropriate DBS Rx) and assess signal quality. Turn Tx ON and observe the TV signal quality. Note any change in signal quality that is correlated with the Tx ON/OFF condition. Repeat Tx ON/OFF sequence as needed.

With the Spectrum Analyzer (SA), observe and record the Signal Power Spectrum and its peak value at the LNB output for the two Tx states (ON/OFF). Label the Spectrum Plots and mark them with an assigned ID code.

DirecTV – Tx OFF: OK? Y___ / N___ Tx ON: OK? Y~~X~~ / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____

Signal Power Spectrum – Tx ON: --Peak -- -61.10dBm Plot ID Code 15-D
Tx OFF: -- Peak -- _____dBm Plot ID Code _____

Comments: _____

EchoStar – Tx OFF: OK? Y___ / N___ Tx ON: OK? Y~~X~~ / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____

Signal Power Spectrum – Tx ON: --Peak -- -58.88dBm Plot ID Code 15-E
Tx OFF: -- Peak -- _____dBm Plot ID Code _____

Comments: _____

Northpoint Technology – DBS Compatibility Test – Austin Test Area

Rx Site Data Log

Rx Site No.

15

p2

Set:

11

(3) Northpoint Signal Quality Test –

With the Tx ON, point the DBS antenna toward the Tx, while using the NP Rx equipment, and peak the signal strength. Observe the monitor (w/ NP Rx equipment) and assess the signal quality.

NP Signal – OK? Y ☒ / N ☐

Comments: _____

(4) NP Rx Signal Level and Power Spectrum at Rx Site – LNB output --

With the DBS antenna on the NP Tx, and with the Tx ON, observe and record the Signal Power Spectrum and the peak level at the LNB output. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- -61.62 dBm

Plot ID Code -- 15-N

Comments: _____

(5) Tx Signal Level and Power Spectrum at Rx Site – w/ Precision Ant. and SA.

Using the Precision Antenna and Test Set, observe and record the Tx Signal Power Spectrum and the peak value at the Rx site. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- _____ dBm

Plot ID Code -- _____

Comments: _____

(6) When Rx Site measurements and tests are completed, read the GPS Receiver and record the position in the Rx Site Location Log. Prepare the equipment for movement to the next site.

Use the space below for added comments and notes. Attach extra pages if necessary.

Northpoint Technology – DBS Compatibility Test – Austin Test Area
Signal Strength Readings

Rx Site Data Log

Rx Site No.

15

Set

1-1

Re: Condx Ref. No.

2

Date / Time

12/28/98 5:05 CST

Re: Condx Ref. No.

2

Operator:

MCH

Direct T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	85	85	83	84	84	84	83	83	85	84	84
18	81	82	83	82	82	82	82	83	82	83	82.2
20	85	85	85	86	87	85	87	85	86	85	85.6

Estar T.V. Signal Strength Readings

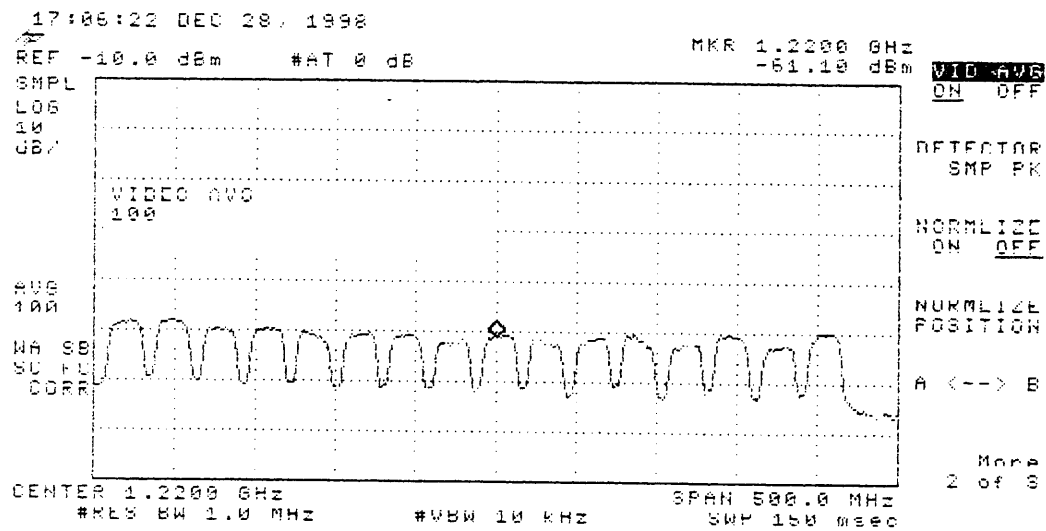
Tsp No	Signal Strength Readings										Avg
16	91	92	92	91	92	92	92	91	91	91	91.5
18	91	91	91	91	91	91	91	91	91	91	91
20	93	93	94	93	94	94	94	94	93	93	93.5

Notes: Partly Cloudy, 70°

1. DTV, Site-15, 12/28/98

2. Boom Down H.P. 859/E

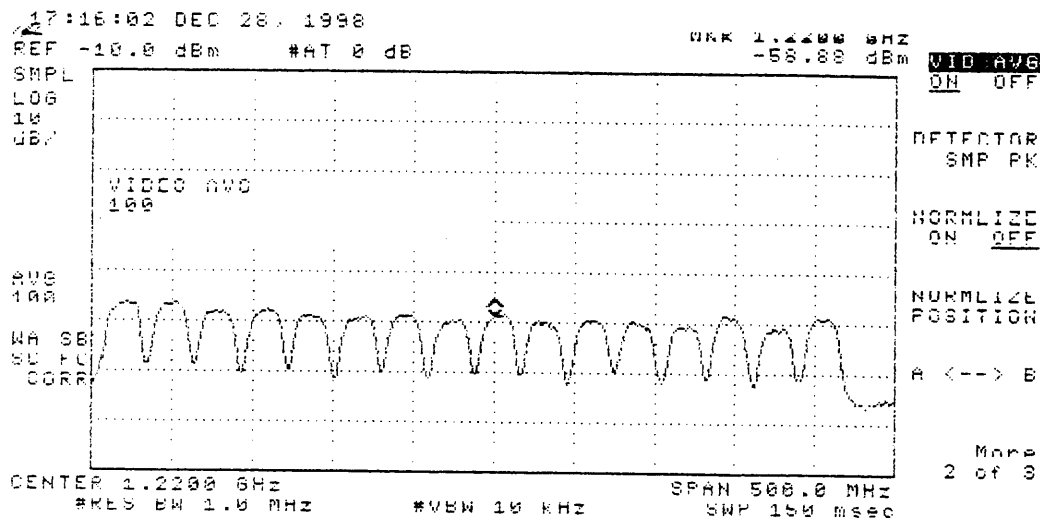
Plot 15-D



1. Estgr, Site-15, 12/28/98

2. Boom Down, H.A. 8591E

P10 + 15-E

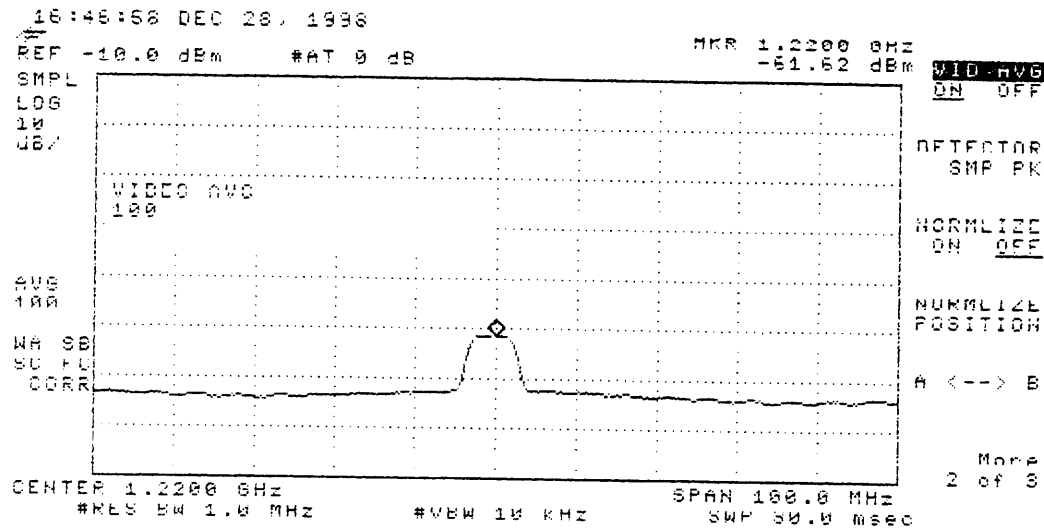


1. N.P. Tx., Site-15, Set-1, 12/28/98

2. Picture Good on T.V.

3. Boom Down, H.A. 8591E

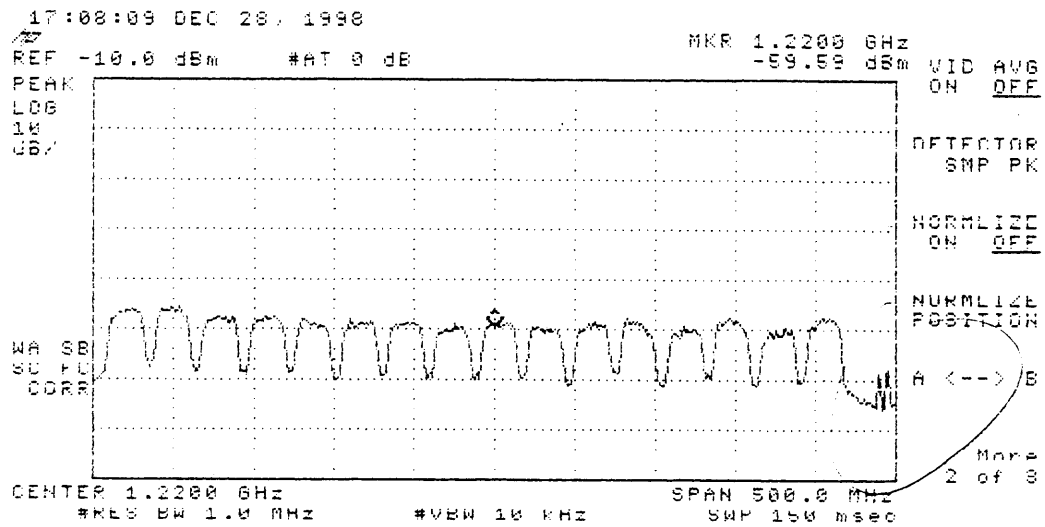
Plot-15-N



1. DTV with spikes

2. 12/28/98 Boom Down

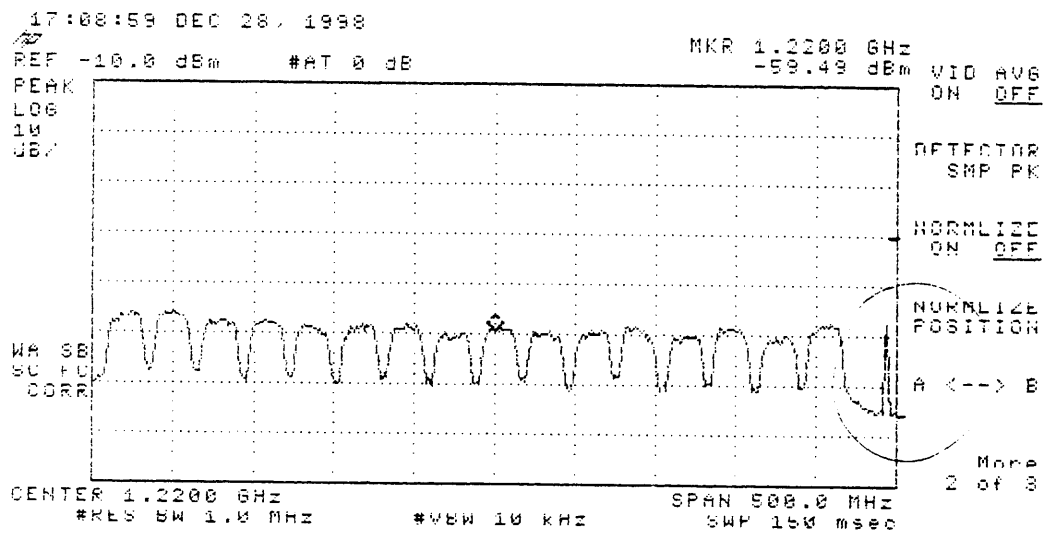
Plot 15-D-S1



1. DTV with Spikes (12/28/98)

2. Site-15, Boom Down

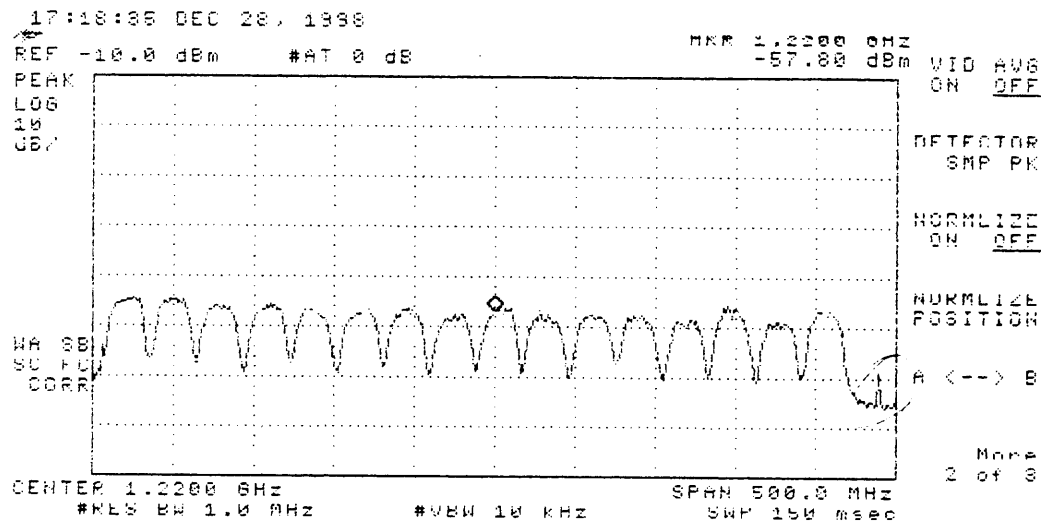
plot 15-0-52



1. Spike can go as high as 34dB

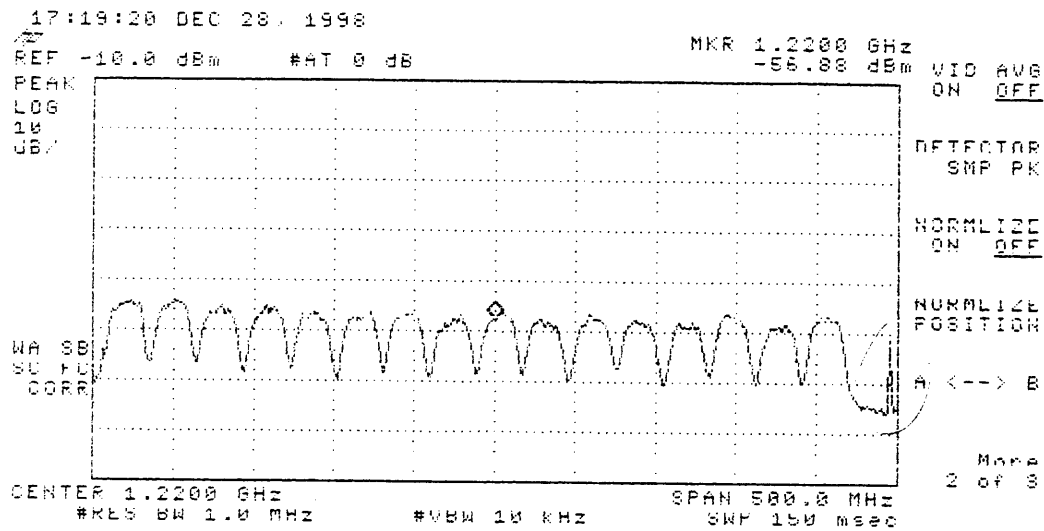
1. Site-15, Estar with Spikes.
2. 12/28/98 Boom Down.

15-E-S2



1, Site-15, Ester with Spikes
2, 12/28/98 Boom Down

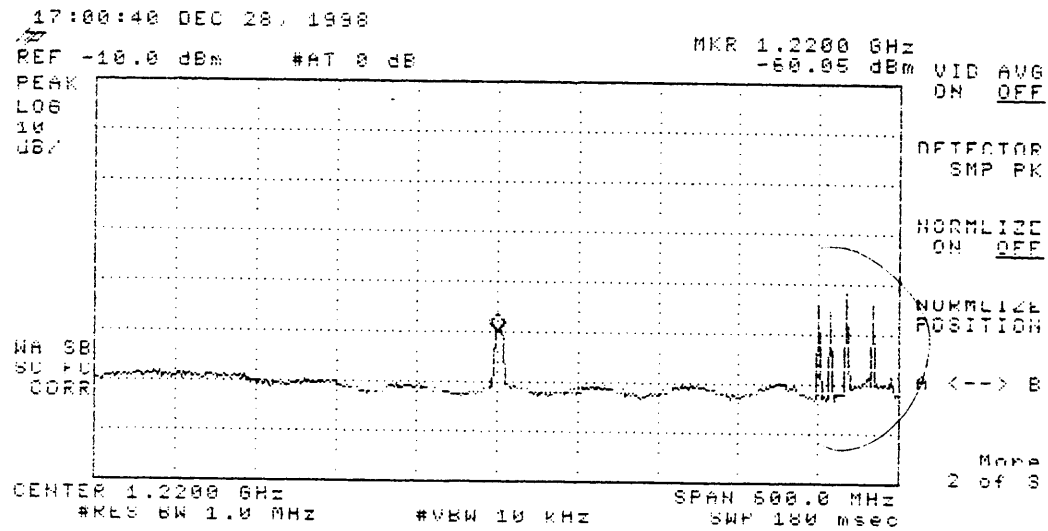
Plot 15-E-S1



1. Site-15 (Taken For Spikes)

2. N.P. Tx

Plot 15-N-5



COMMENTS FROM SITE 15

Site 15 South I-35

- a. Have five plots of spikes in the ~ 1.2450 GHz range
Can be seen on all three plots NP, DTV, and Estar

Northpoint Technology – DBS Compatibility Test – Austin Test Area

Rx Site Data Log

Davis Ln Hill

Rx Site No.

16 Davis Ln pl

Set:

11

Re: Rx Condx Ref. No.

2

Date / Time:

12/29/98 12:45 CST

Re: Tx Condx Ref. No.

2

Operator:

JMB

Data Measurements:

- (1) On arrival --
- Position and deploy antenna platform (first at ground level).
 - Position GPS Receiver and allow to average during site occupation.
 - Obtain information for Rx Site Location Log.
 - Point Precision Horn Antenna toward Tx (approx. direction).

- (2) DBS Signal Interference Tests – DirecTV and EchoStar.

For each satellite case (one at a time), with Tx OFF, point DBS Antenna to the satellite and peak the signal strength. Observe the monitor for the prescribed TV channel (w/ appropriate DBS Rx) and assess signal quality. Turn Tx ON and observe the TV signal quality. Note any change in signal quality that is correlated with the Tx ON/OFF condition. Repeat Tx ON/OFF sequence as needed.

With the Spectrum Analyzer (SA), observe and record the Signal Power Spectrum and its peak value at the LNB output for the two Tx states (ON/OFF). Label the Spectrum Plots and mark them with an assigned ID code.

DirecTV – Tx OFF: OK? Y___ / N___ Tx ON: OK? Y~~X~~/N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____

Signal Power Spectrum – Tx ON: --Peak -- *-60.2* dBm Plot ID Code *14-D*
Tx OFF: -- Peak -- _____ dBm Plot ID Code _____

Comments: _____

EchoStar – Tx OFF: OK? Y___ / N___ Tx ON: OK? Y~~X~~/N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____

Signal Power Spectrum – Tx ON: --Peak -- *-62.35* dBm Plot ID Code *18-E*
Tx OFF: -- Peak -- _____ dBm Plot ID Code _____

Comments: _____

Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Data Log

Rx Site No.

16

p2

Set:

11

(3) Northpoint Signal Quality Test –

With the Tx ON, point the DBS antenna toward the Tx, while using the NP Rx equipment, and peak the signal strength. Observe the monitor (w/ NP Rx equipment) and assess the signal quality.

NP Signal – OK? Y X / N

Comments: _____

(4) NP Rx Signal Level and Power Spectrum at Rx Site – LNB output --

With the DBS antenna on the NP Tx, and with the Tx ON, observe and record the Signal Power Spectrum and the peak level at the LNB output. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- -58.47 dBm

Plot ID Code -- 16-N

Comments: _____

(5) Tx Signal Level and Power Spectrum at Rx Site – w/ Precision Ant. and SA.

Using the Precision Antenna and Test Set, observe and record the Tx Signal Power Spectrum and the peak value at the Rx site. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- _____ dBm

Plot ID Code -- _____

Comments: _____

(6) When Rx Site measurements and tests are completed, read the GPS Receiver and record the position in the Rx Site Location Log. Prepare the equipment for movement to the next site.

Use the space below for added comments and notes. Attach extra pages if necessary.

Northpoint Technology – DBS Compatibility Test – Austin Test Area
Signal Strength Readings

Rx Site Data Log

Rx Site No.

16

Set

1 / 1

Re: Condx Ref. No.

6

Date / Time 12/21/78 12:15 CST

Re: Condx Ref. No.

2

Operator:

JMP

Direct T.V. Signal Strength Readings

Tsp Tx No	Signal Strength Readings										Avg
16	88	89	89	89	87	87	87	89	89	87	88.1
18	84	87	88	88	86	86	87	86	86	86	86.4
20	87	89	89	87	87	89	89	87	87	88	88.9

Estar T.V. Signal Strength Readings

Tsp Tx No	Signal Strength Readings										Avg
16	81	81	82	82	81	80	80	80	80	80	80.7
18	79	79	78	80	80	80	80	81	80	80	79.8
20	83	83	83	83	83	84	83	82	83	83	82

Notes: Sunny, windy, clear, 65°

Wind moves boom around