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

Rx Site Data Log **Rx Site No.** 17

Set 1 1

Re: Condx Ref. No. 2 Date / Time 12/29/98 3:10 CST

Re: Condx Ref. No. 2 Operator: JMB

Direct T.V. Signal Strength Readings

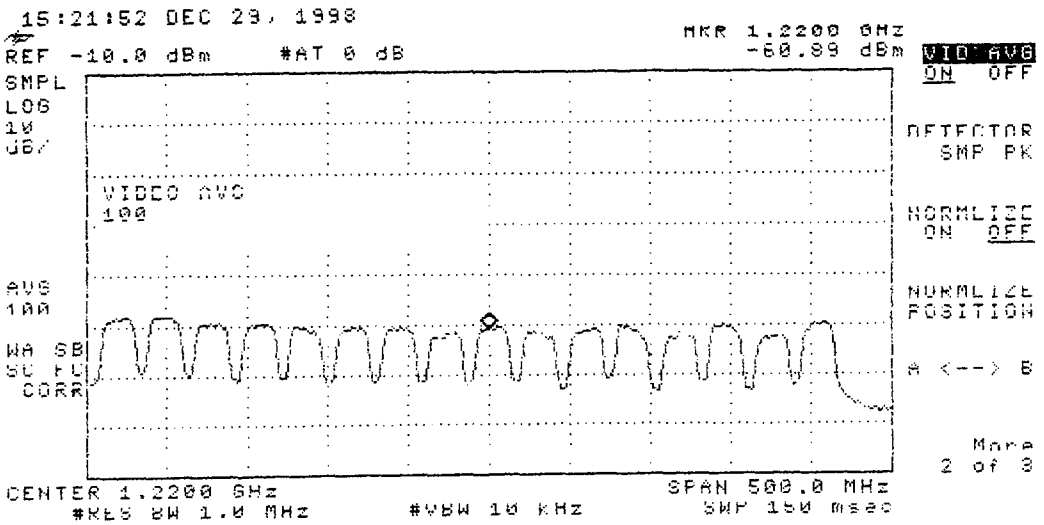
Tsp No	Signal Strength Readings										Avg
16	86	86	86	87	87	86	86	85	85	85	85.9
18	85	85	86	86	85	85	85	85	85	86	85.7
20	86	86	86	85	85	85	86	86	86	86	85.7

Estar T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	94	93	93	93	94	94	94	93	93	93	93.4
18	93	93	93	92	93	93	93	92	93	93	92.9
20	95	96	96	96	95	95	96	97	95	96	95.7

Notes: Sunny, windy, clear, about 65°

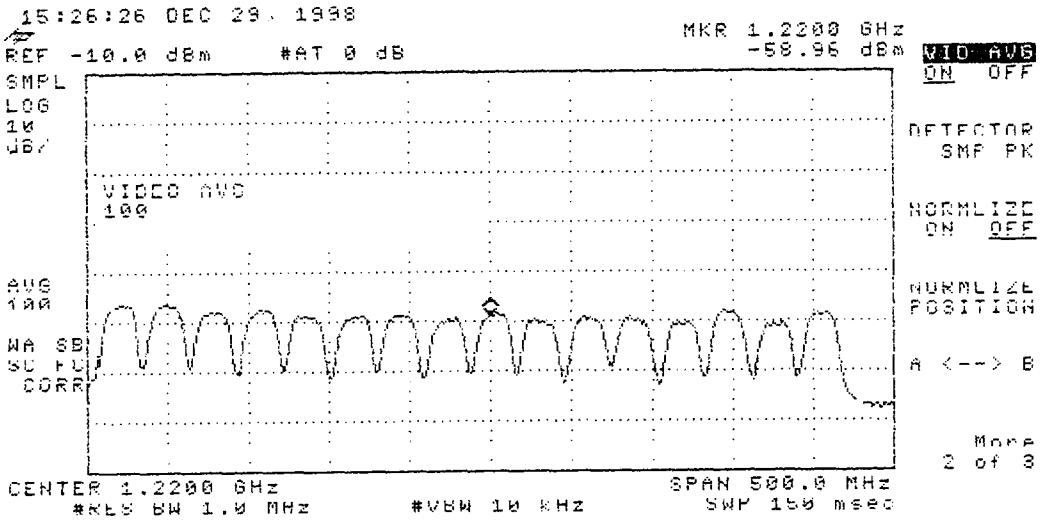
Plot 17-D



Date: 12-29-98
Set: 1
Site: 17
Tx: Direct
Boom: Down

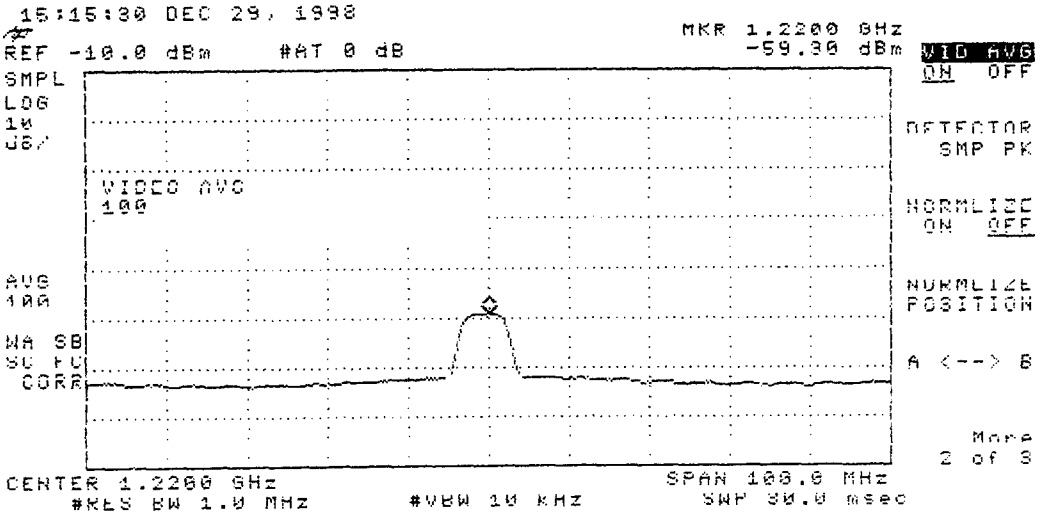
Date: 12-29-98
Set: 1
Site: 17
Tx: EchoStar
Boom: Down

Plot 17-E



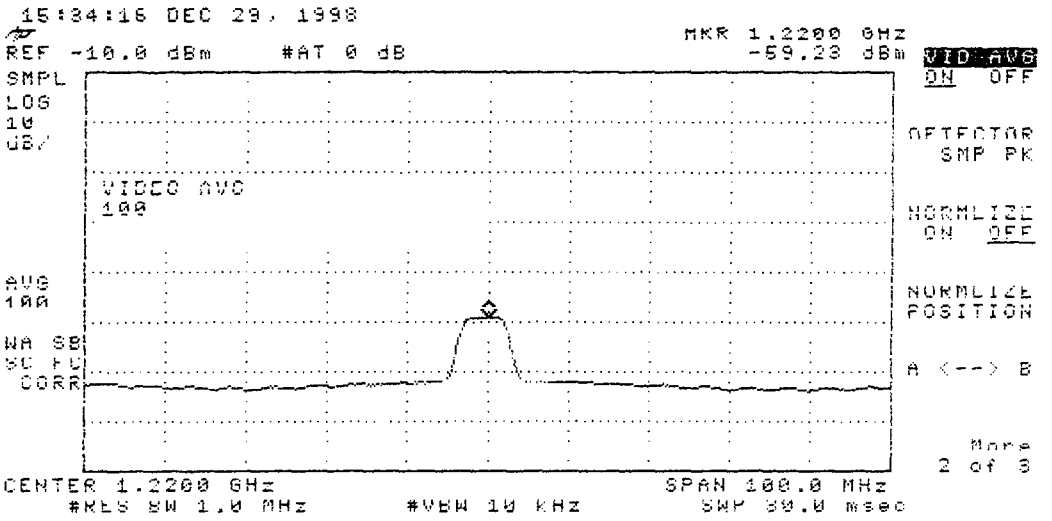
Date: 12-29-98
Set: 1
Site: 17
Tx: NP
Boom: Down
picture good

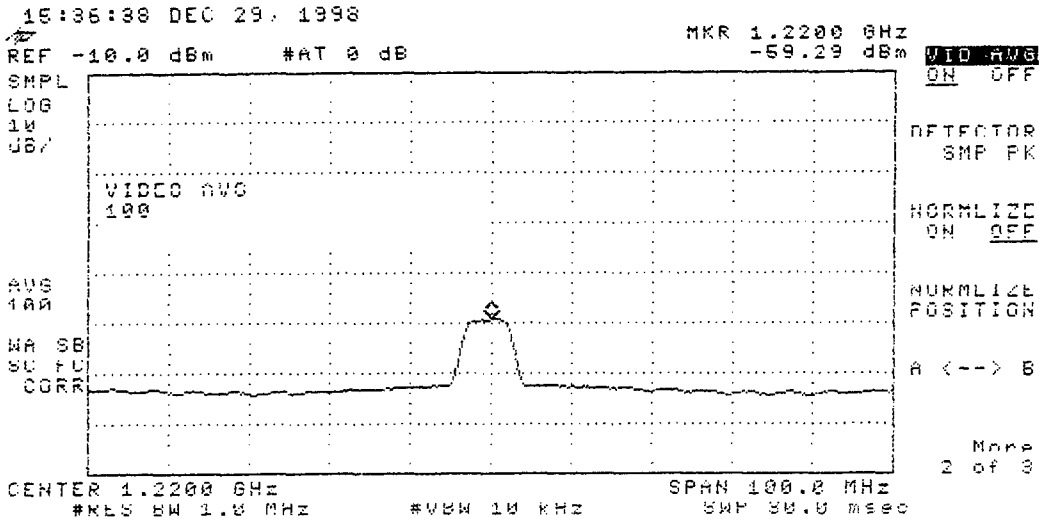
Plot 17-N



Date: 12-29-98
Set: 1
Site: 17
Tx: NP
Boom: Down

Plot 17 - NA





Plot-17 NB

Date: 12-29-98

Set: 1

Site: 17

Tx: NP

Boom: 15ft

COMMENTS FROM SITE 17

Site 17 Thaxtom

a. Have three NP plots

Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Data Log

Guerrero

Rx Site No. 18 p1

Set: 1 / ___

Re: Rx Condx Ref. No. 2 Date / Time: 12/29/98 4:05 CST

Re: Tx Condx Ref. No. 2 Operator: UMB

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 -- -61.64 dBm Plot ID Code 18-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 -- -61.47 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. 18 **p2**
Set: 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 -- ~63.60 dBm Plot ID Code -- 18-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.** 18

Set 1-1

Re: Condx Ref. No. 2 Date / Time 12/29/98 4:05 CST

Re: Condx Ref. No. 2 Operator: Jim

Direct T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	80	80	80	79	79	80	80	80	80	80	79.8
18	80	80	79	79	79	80	80	77	77	78	78.9
20	81	80	80	82	82	80	80	80	80	79	80.4

Estar T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	85	84	85	84	84	85	85	85	84	85	84.6
18	84	84	84	84	83	84	83	84	84	84	83.8
20	86	87	87	87	87	86	86	86	86	86	86.4

Notes: 65°, Clear, Windy

Date: 12-29-98

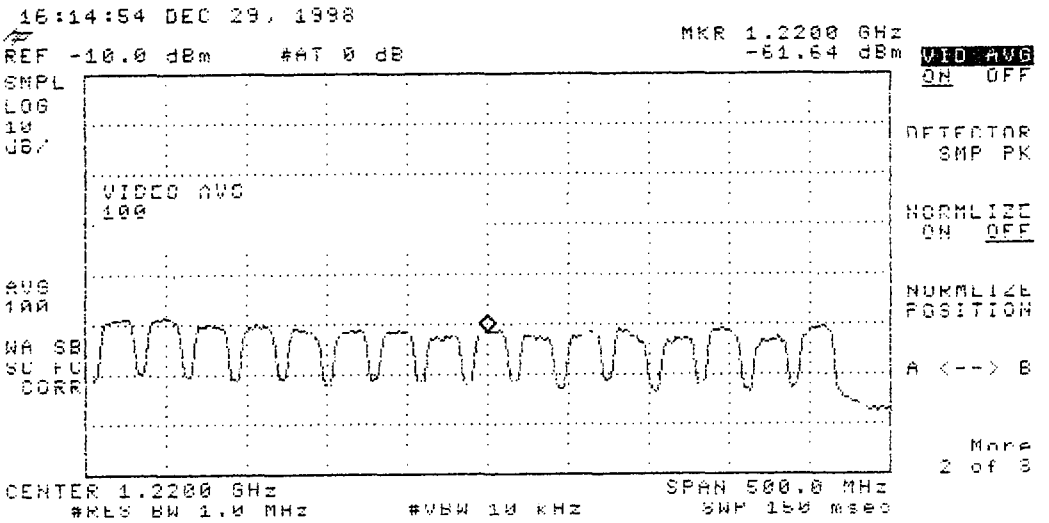
Plot 18-D

Set: 1

Site: 18

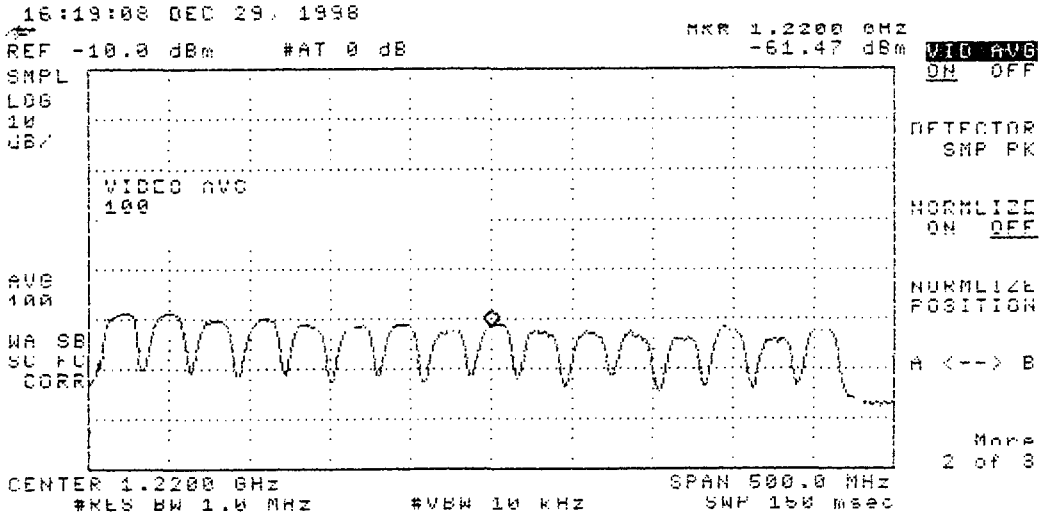
Tx: Direct

Boom: Down



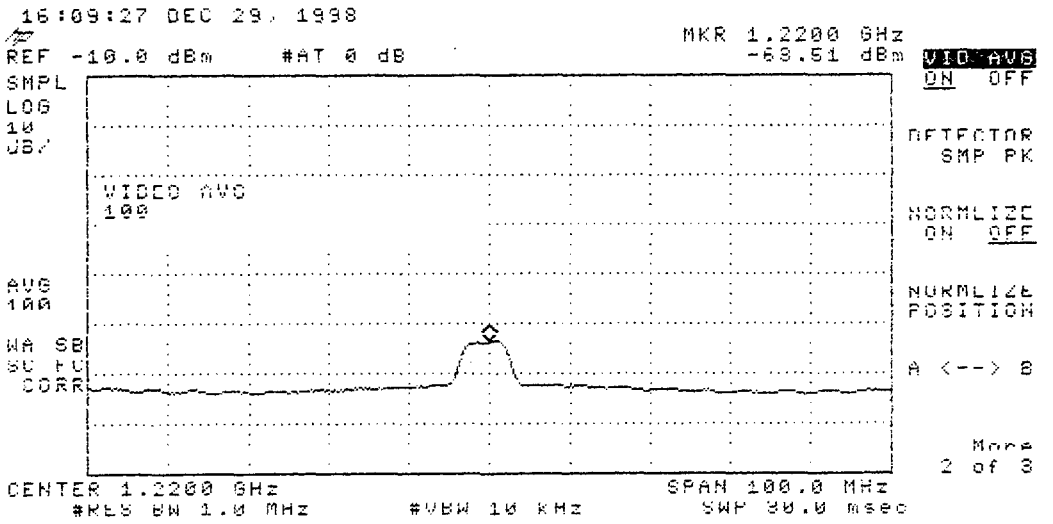
Date: 12-29-98
Set: 1
Site: 18
Tx: Echostar
Boom Down

Plot 18-E



Date: 12-29-98
Set: 1
Site: 18
Tx: NP
Boom: Down
Picture Good

Plot 18N



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Glass Rd

Rx Site Data Log

Rx Site No. 19 p1

Set: 11

Re: Rx Condx Ref. No. 2 Date / Time: 12/29/98 5:00 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 -- -61.12 dBm Plot ID Code 19D.
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 -- -56.94 dBm Plot ID Code 19E.
Tx OFF: – Peak -- ____ dBm Plot ID Code _____.
Comments: _____.

Rx Site Data Log

Rx Site No. 19 **p2**
Set: 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 -- -63.18 dBm Plot ID Code -- 19-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.** 19

Set 1-1

Re: Condx Ref. No. 2 Date / Time 12/25/98 5:00 CST

Re: Condx Ref. No. 2 Operator: JMP

Direct T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	83	82	82	82	82	82	82	82	81	81	81.9
18	81	81	80	80	82	82	80	80	80	79	80.5
20	83	84	83	83	82	83	83	82	82	83	82.8

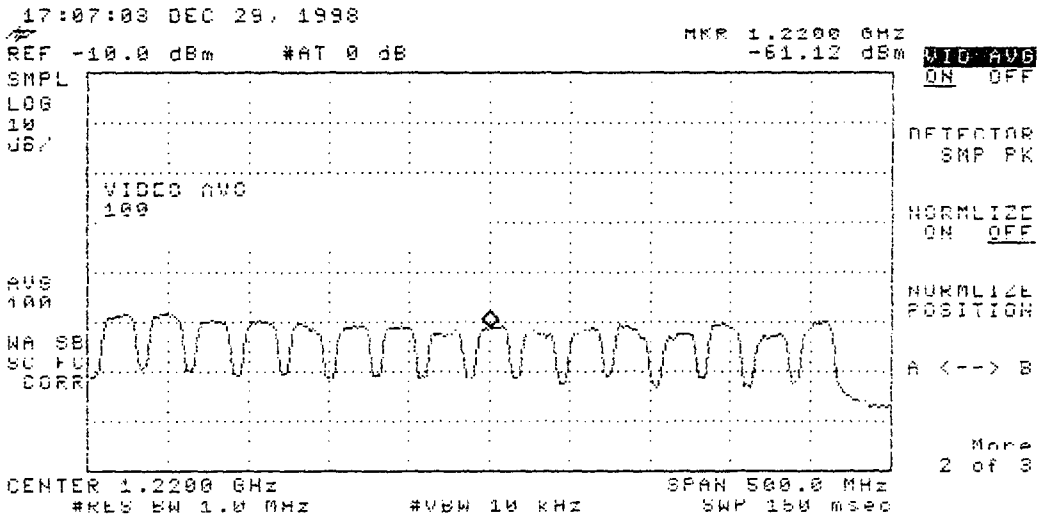
Estar T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	93	93	94	94	93	93	94	93	93	93	93.3
18	93	93	94	94	93	93	94	93	93	92	93.2
20	96	96	95	96	96	96	96	94	96	94	95.9

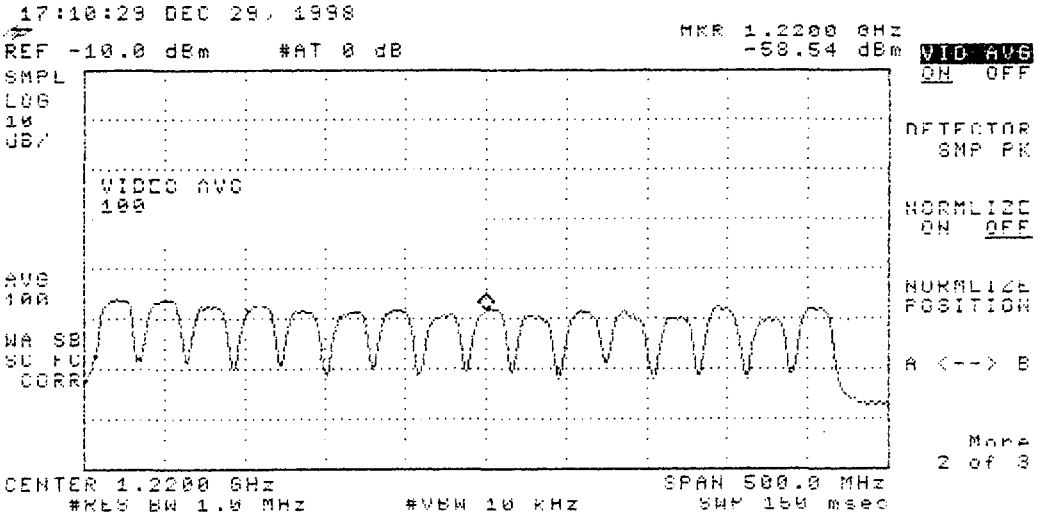
Notes:

Date 12-29-98
Set: 1
Site 19
Tx Direct
Boom Down

Plot 19D

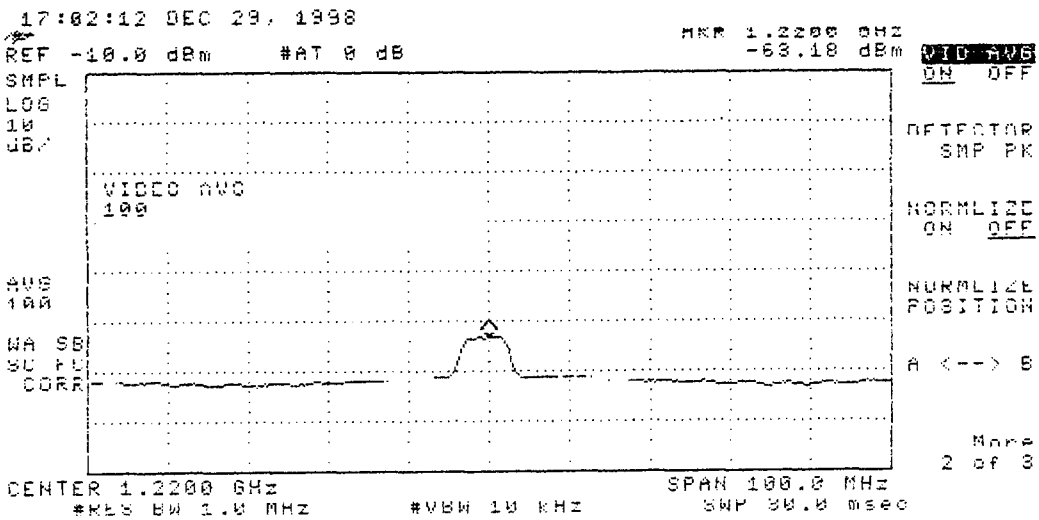


Date: 12-29-98 19 E
Set: 1
Site: 19
Tx: Echostar
Boom: Down



Plot 19N

Date 12-29-98
Set: 1
Site: 19
Tx: NP
Boom: Down
Picture good



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Data Log Fiesta Shores **Rx Site No.** 20 **p1**
Set: 1 1

Re: Rx Condx Ref. No. 2 Date / Time: 12/30/98 11:44 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 -- -60.73 dBm Plot ID Code 20-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 -- -58.98 dBm Plot ID Code 20-E.
Tx OFF: – Peak -- _____dBm Plot ID Code _____.
Comments: _____.

Rx Site Data Log

Rx Site No. 20 **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 -- -59.36 dBm Plot ID Code -- 20-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.** 20

Set 1-1

Re: Condx Ref. No. 2 Date / Time 12/30/98 11:45 CST

Re: Condx Ref. No. 2 Operator: MWH

Direct T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	83	82	82	83	83	82	80	80	83	80	81.8
18	80	81	79	80	78	81	80	79	80	81	79.9
20	81	81	82	82	80	80	80	80	80	80	80.6

Estar T.V. Signal Strength Readings

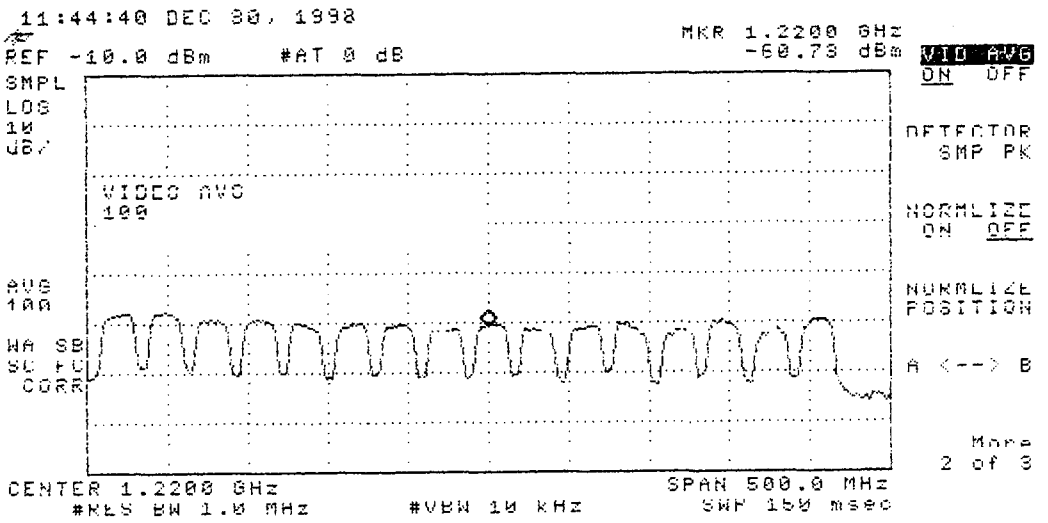
Tsp No	Signal Strength Readings										Avg
16	89	89	88	89	89	89	89	88	89	89	88.8
18	89	89	89	89	89	89	88	88	89	89	88.8
20	91	91	91	91	91	91	91	91	90	90	90.8

Notes: Clear, 65°

1. DTV, 12/30/98, Site-20

2. Boom at 33'

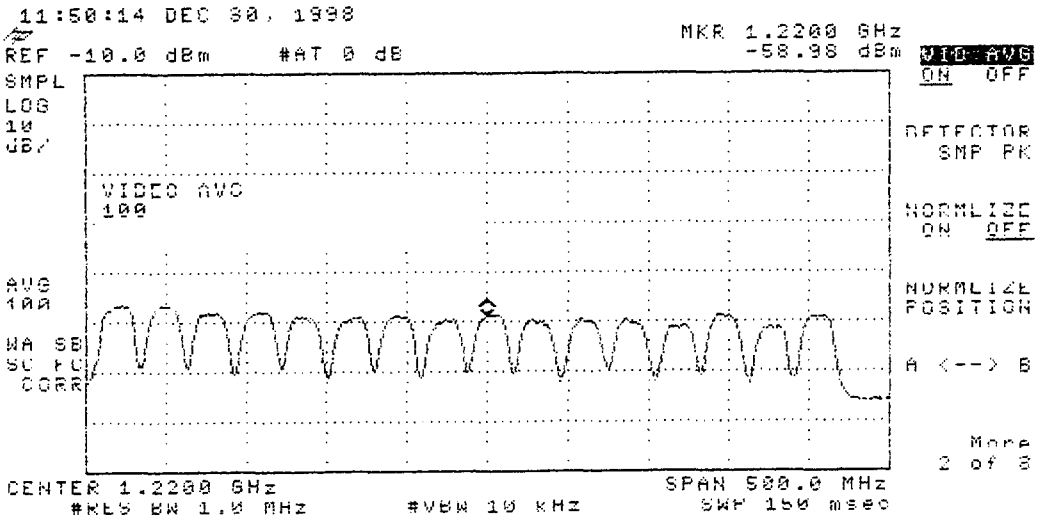
Plot-20-D



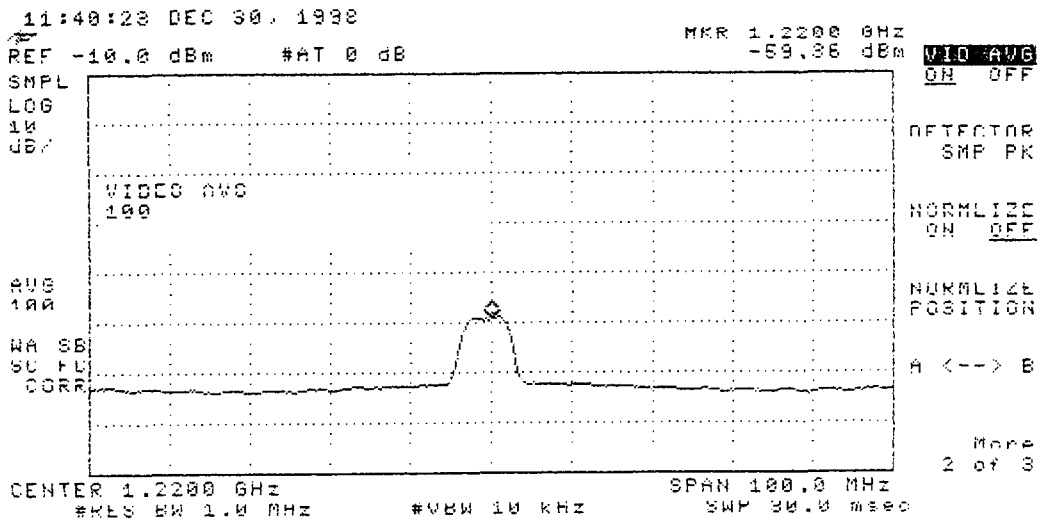
1. Estar, 12/30/98, Site-20

2. Boomat 33'

Plot-20-E



1. Site-20, 12/30/98, N.P. Tx

2. Boom at 33'

Plot-20-N