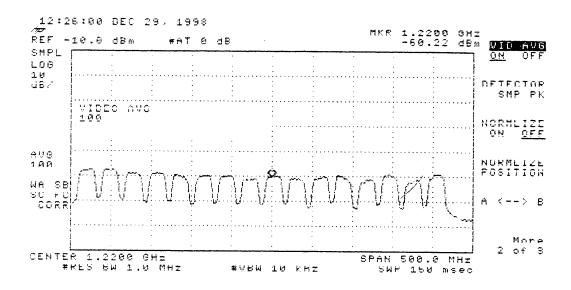
Date: 12-29-98 Site: 16 Set: 1 Tx: Direct TV

Boom a8 feet

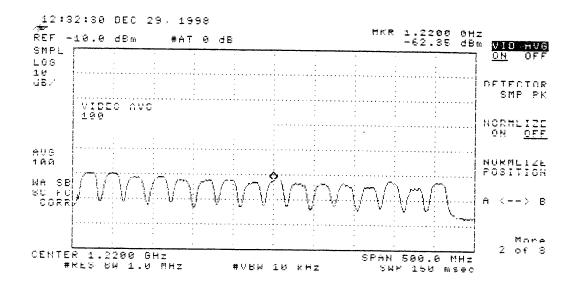
410+10-D



,

Date: 12-29-98 Sate: 10 Sate: 10 Tx. Echostar Boom: 28 feet

Plot 16E



Date: 12-29-98

Site: 16

Set: 1

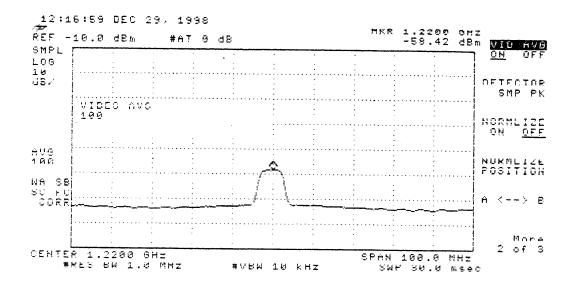
Transmitter: NP

Boom: 28 feet

Picture is good

antinna waspointed through tree

Plot: 16-N



Date: 12-24-98

Site: 16

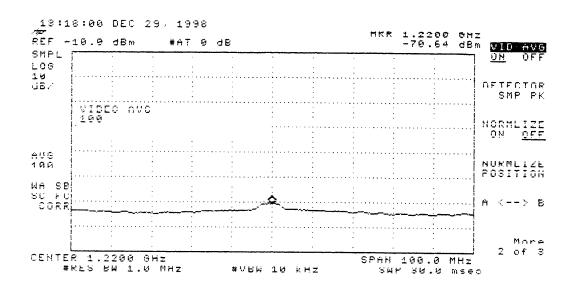
Set: 1

TX; NP

Boom: aaft

Barely see top of bidg thru trees. (1st tree 100 yds away, next 50 ft beyond that.) No picture

Plot 16-NA



Date: 12-29-98

Plot 16-NB

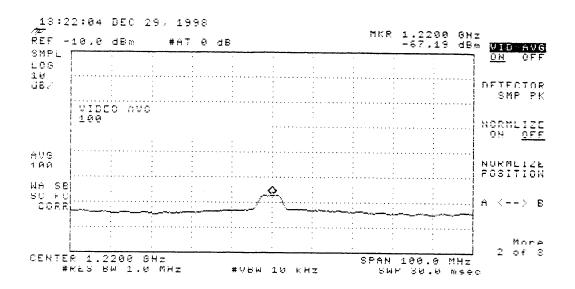
Site: 16

Sel: 1 Tx: NA

Room: as A

Picture intermittent

Same the cordition at Flot 16-NA



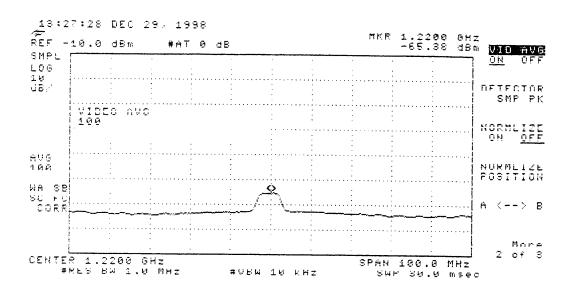
Plot 16 NC

Dati: 12-29-98 Site: 16 Set: 1

TX: NP

Boom 25 A 3 in.

Picture good. Sans true conditions as No NA



COMMENTS FROM SITE 16

Site 16 Davis Ln Hill

- a. Wind moving boom around
- b. NP was pointing through a tree on plot 16-N (boom at 28')
- c. NP plot with boom at 22'. Can barely see top of building through trees. First tree is 100 yards away, next one 50 yards away, no picture
- d. NP plot with boom at 25'. Can barely see top of building through trees. First tree is 100 yards away, next one 50 yards away, picture intermittent
- e. NP plot with boom at 25' 3". Can barely see top of building through trees. First tree is 100 yards away, next one 50 yards away, picture good

		-	Thaxtom					
RxS	Site Data L	<u>og</u>			Rx Si	te No. Set:	17	p1
Re: R	x Condx Ref. 1	No.	2	Date / Time:	12/29/	98 2	: <u>10</u> CST	
Re: T:	x Condx Ref. 1	No.		Operator:	Um	B]
Data :	Measurements	S:			,			
(1)	On arrival	Position GPSObtain inform	Receiver and nation for Rx S	a platform (first a allow to average Site Location Log na toward Tx (ap	during site occ	upation.		
(2)	DBS Signal I	nterference Te	sts – Direc	TV and EchoSi	tar.			
	Turn Tx ON and	ve the monitor for	r the prescribe signal quality.	OFF, point DBS and TV channel (w. Note any changue as needed.	appropriate D	RS Ry) a	nd access cional	analis.
	With the Spectru output for the tw	om Analyzer (SA To Tx states (ON/), observe and OFF). Label t	record the Signal	Power Spectres and mark the	rum and it em with a	s peak value at t n assigned ID co	he LNB de.
	<u>DirecTV</u> –	Tx OFF: OK	S? Y/ N	Т	x ON: OK?	Y <u>X</u> /	N	
		Any behavio	r correlated	with Tx ON/C	OFF ? Y	/ N	•	
		Comments:						
	Signal Power		Tx OFF: -	Peak <u>60</u> - Peak	dBm	Plot II	Code <u> 7 </u>	<u>D</u> .
	- ' ,							
	EchoStar -	Tx OFF: OK	.? Y/ N	T	x ON: OK?	Y/	N	
		Any behavior	r correlated	with Tx ON/O	PFF? Y/	' N		
		Comments: _				· · · · · · · · · · · · · · · · · · ·		·
	Signal Power	Spectrum – Comments:	Tx ON: - Tx OFF: -	Peak <u>- </u>	<u>i∕</u> dBm _dBm	Plot ID	Code 17-	· <u>E</u> .

Site Data Log	Rx Site No. Set:	/ 7 p2								
Northpoint Signal Quality Test -										
With the Tx ON, point the DBS antenna toward the Tx strength. Observe the monitor (w/ NP Rx equipment) a	, while using the NP Rx equipment, and assess the signal quality.	and peak the signal								
NP Signal – OK? YX/N Commer	nts:									
NP Rx Signal Level and Power Spectrum at Rx Site – LNB output										
With the DBS antenna on the NP Tx, and with the Tx (the peak level at the LNB output. Label the spectrum p	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 <u>-59.30</u>	dBm Plot ID Code	17-N								
Comments:		·								
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:		·								
When Rx Site measurements and tests are composition in the Rx Site Location Log. Prepare	pleted, read the GPS Receiver the equipment for movement t	and record the o the next site.								
	Northpoint Signal Quality Test — With the Tx ON, point the DBS antenna toward the Tx strength. Observe the monitor (w/ NP Rx equipment) is NP Signal — OK? Y / N Comment NP Rx Signal Level and Power Spectrum at R With the DBS antenna on the NP Tx, and with the Tx Othe peak level at the LNB output. Label the spectrum p Signal Power Spectrum — Peak — 59.30 Comments: Tx Signal Level and Power Spectrum at Rx Si Using the Precision Antenna and Test Set, observe and at the Rx site. Label the spectrum plot with an assigned Signal Power Spectrum — Peak — Comments: When Rx Site measurements and tests are comments:	Set: Northpoint Signal Quality Test — With the Tx ON, point the DBS antenna toward the Tx, while using the NP Rx equipment, strength. Observe the monitor (w/ NP Rx equipment) and assess the signal quality. NP Signal — OK? Y / N Comments: 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 P the peak level at the LNB output. Label the spectrum plot with an assigned ID Code. Signal Power Spectrum — Peak —								

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

Rx Site Data Log		Rx Site No. 17
	•	Set/
Re: Condx Ref. No.	Date / Time	12/29/98 3:10 CST
Re: Condx Ref. No. 2	Operator:	JMB
	•	LIMITS

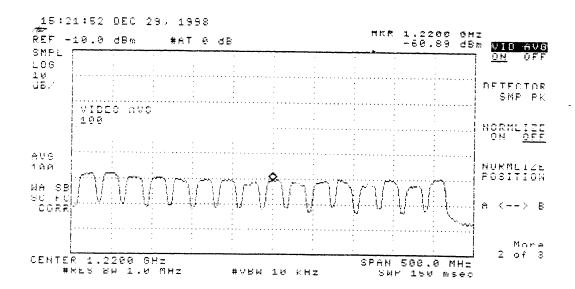
Direct T.V. Signal Strength Readings

Tsp N	lo			Signal	Signal Strength Readings						
16	86	86	86	87	87	86	86	85	85	85	Avg
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 N	0	Signal Strength Readings									Avg
16	94	93	93	93	94	94	94	93	93	93	924
18	93	93	93	93	93	93	93	92	93	73	929
20	95	96	96	96	95	95	96	9.7	95	96	957

Notes: Sunny, windy, clear, about 65°



Date 12 - 29-98

Set: 1

Site: 17

Tx: Direct

Boom: Down

Plot 17-E

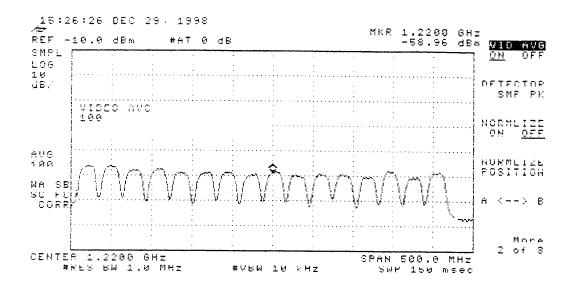
Date: 12-29-98

Set:1

Site: 17

Tx: EchoStar

Boom: Down



PIOH 17-N

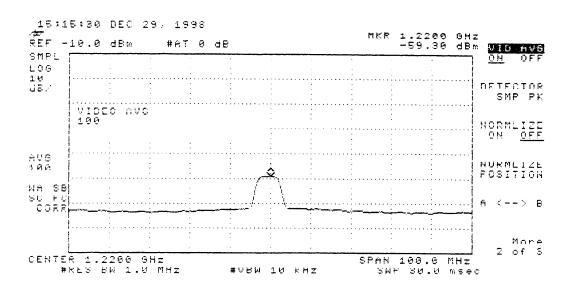
Date: 12-29-98

Set: 1

Site: 17

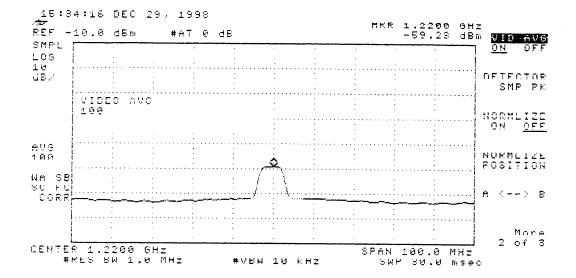
Tx: NP

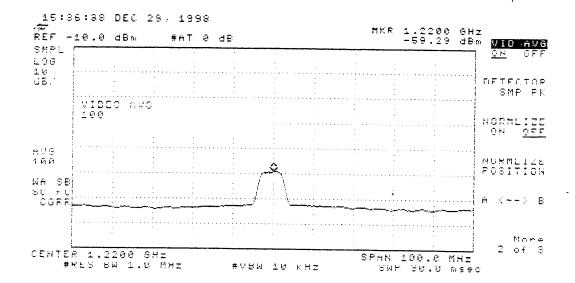
Boom: Down picture good



Data: 12-29-98
Set: 1
Site: 17
TX: NP
BODING 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 Compatibility Test - Austin Test Area Signal Strength Readings

Rx Site Data Log

Rx Site No.

Set _/-/___

Re: Condx Ref. No.

Date / Time

12/29/98 4:05 CST

Re: Condx Ref. No.

Operator:

Chr. R

Direct T.V. Signal Strength Readings

Tsp No Signal Strength Readings Avg A \mathcal{S} 80.4 B

Estar T.V. Signal Strength Readings

Tsp No Signal Strength Readings Avg 84.6

Notes: 650 Clear, Windy

Rx S	ite Data L	<u>og</u>	JUETTEI	^ 0	Rx Site	e No. Set:	18	р1				
Re: Rx	Condx Ref. N	lo.	2	Date / Time:	12 10919	78 <	<u>//:05</u> CST					
Re: Tx	Condx Ref. N	lo.	2	Operator:	Unit	<u> </u>						
Data I	Measurements	•										
(1)	On arrival	Position GPS IObtain information	Receiver and a stion for Rx S	a platform (first at allow to average of Site Location Log- na toward Tx (ap	during site occu	•						
(2)	DBS Signal In	nterference Tes	sts – DirecT	ΓV and EchoSt	ar.							
	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.											
	<u>DirecTV</u> –	Tx OFF: OK	.? Y / N	т	x ON: OK?	Y_X_/	N					
		Any behavior	correlated	with Tx ON/C	OFF ? Y/	N						
		Comments: _					· · · · · · · · · · · · · · · · · · ·					
	Signal Power	•	Tx OFF: -	Peak <u>-61.(</u> - Peak	_dBm	Plot II	O Code <u> 8 - </u> O Code					
	EchoStar -											
		Any behavior	correlated	with Tx ON/O	OFF? Y/	N						
		Comments: _		. ~	4							
	Signal Power	Spectrum –	Tx ON: Tx OFF: -	Peak <u>61.</u> - Peak	<u>l 7</u> dBm _dBm	Plot II Plot II	O Code <u>18 - 6</u> O Code	<u>-</u> .				

Rx	Site Data Log Rx Site No. Set:/								
(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 th	ne space below for added comments and notes. Attach extra pages if necessary.								

Date 12 - 29-98

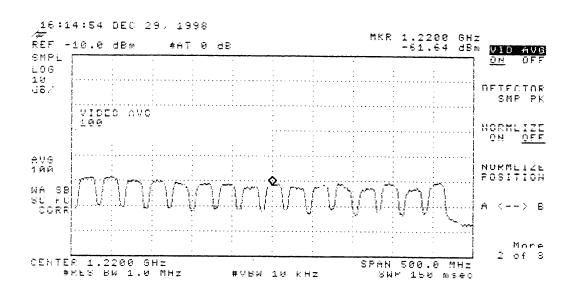
P10+18-D

Se+: 1

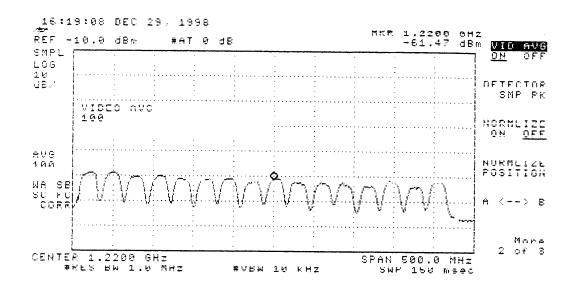
Sita: 18

Tx: Direct

Bosm Davin



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

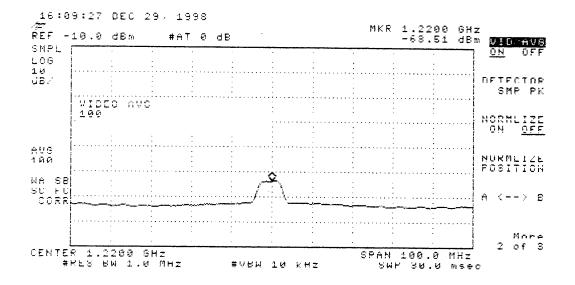


Date:12-29-98

Set: 1 5ite: 18

Tx: NP

Boom: Down Picture Good



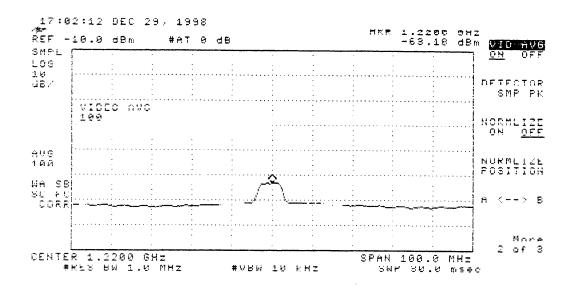
Plot 18N

Plot 19 N

Date 12-29-98

Set: 1 Site: 19 Tx: NP

Boom: Down Picture good



Rx S	ite Data L	<u>og</u>	Glass.	Ŕd	Rx Sit	te No. 19	p1
Re: Rx	Condx Ref. N	No.	2	Date / Time	: 12/29/	98 5:00 CST	
Re: Tx	Condx Ref. N	lo.	2_	Operator:	JMB]
Data N	Measurements	:					
(1)	On arrival	Position GPSObtain inform	Receiver and ation for Rx S	allow to average lite Location Lo	during site occ	upation.	
(2)	DBS Signal Ir	nterference Te	sts – Direc l	V and Echos	Star.		
	strength. Observ	re the monitor for observe the TV :	the prescribe signal quality.	d TV channel (v Note any chan	v/ appropriate D	satellite and peak the signal (BS Rx) and assess signal (ity that is correlated with the state of the signal (as the signal of t	quality
	With the Spectru output for the two	m Analyzer (SA) o Tx states (ON/0), observe and OFF). Label t	record the Sign he Spectrum Pla	al Power Spectro ots and mark the	um and its peak value at th m with an assigned ID cod	e LNB le.
	<u>DirecTV</u> -	Tx OFF: OK	:? Y/ N		Tx ON: OK?	Y_X_/ N	
		Any behavior	correlated	with Tx ON/	OFF ? Y/	N	
		Comments: _					<u> </u>
	Signal Power	Spectrum – Comments: _	Tx OFF: -	- Peak	dBm	Plot ID Code /9 D)
	EchoStar -	Tx OFF: OK	? Y/N		Γx ON: OK?	Y <u>X</u> /N	
		Any behavior	correlated	with Tx ON/	OFF ? Y/	N	
		Comments: _					<u> </u>
	Signal Power	Spectrum – Comments:	Tx ON: -	Peak <u>-56</u> - Peak	∰dBm _dBm	Plot ID Code <u>F9 E</u> Plot ID Code	·

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:								
Strength. Observe the monitor (w/ NP Rx equipment) and assess the signal quality. NP Signal – OK? Y / N Comments:								
NP Rx Signal Level and Power Spectrum at Rx Site _ LNR output								
10 10 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 <u>-63.18</u> dBm Plot ID Code <u>19-10</u>								
Comments:								
Tx Signal Level and Power Spectrum at Rx Site - w/ Precision Ant. and SA.								
Loing 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:								
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.								

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

Rx Site Data Log		Rx Site No. 19
		Set
Re: Condx Ref. No. 2	Date / Time	12/24/58 5:00CST
Re: Condx Ref. No. 2	Operator:	IMP

Direct T.V. Signal Strength Readings

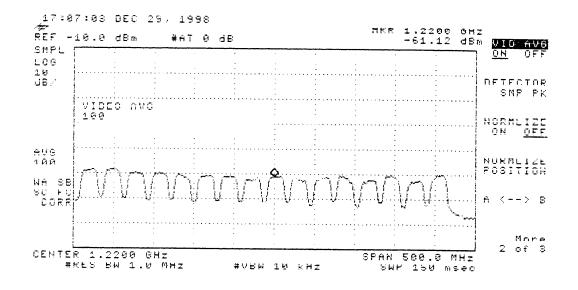
Tsp N	<u>lo</u>			Signal S	Signal Strength Readings						
16	83	82	82	82	82	\$ Z	82	82	81	81	81,9
18	81	81	SO	90	81	8Z	80	80	80	75	80.5
20	83	84	83	83	82	83	83	82	82	83	82.8

Estar T.V. Signal Strength Readings

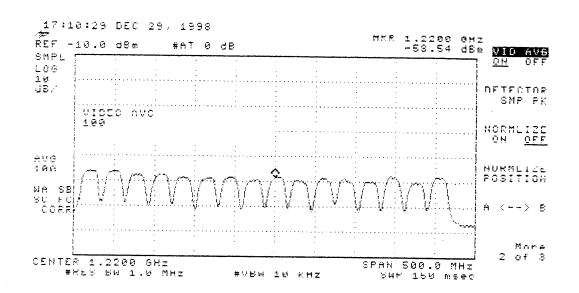
Tsp No Signal Strength Readings								Avg			
16	93	93	94	94	93	93	94	93	93	53	93,3
18	93	93	94	94	93	93	94	93	93	92	93.2
20	96	96	95	96	96	96	96	96	96	94	95,9

Notes:

Date 12+29-98 Sel: 1 Site 19 Tx Direct Boom Down Plot 19D



Dat: 12-29-98 Set: 1 Six: 19 Tx: Echoster Boom: Down



Rx S	ite Data L	<u>og</u>	Fiest	y Shores	Rx Site	e No. 20	2	p1		
Re: Rx	Condx Ref. N	No.	2	Date / Time:	12/30/9	<u>8 11:44</u> c	ST			
Re: Tx	Condx Ref. N	10.		Operator:	MUH					
Data N	Aeasurements	:								
(1)	On arrival	Position GPSObtain inform	Receiver and ation for Rx	a platform (first a allow to average Site Location Log ma toward Tx (ap	during site occu	•				
	DBS Signal In	nterference Te	sts – Direc	TV and EchoSt	tar.					
	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.									
	<u>DirecTV</u> –	Tx OFF: OK	X? Y/ N	TT	x ON: OK?	Y <u>X</u> /N				
	Any behavior correlated with Tx ON/OFF? Y/ N									
		Comments: _						<u></u> -·		
	Signal Power		Tx OFF:	Peak <u>60.7</u> Peak	dBm	Plot ID Code Plot ID Code		<u>D</u> . :		
	EchoStar	Tx OFF: OK		ν τ	x ON: OK?	Y <u>X</u> /N				
				with Tx ON/C						
		Comments:						·		
	Signal Power	Spectrum –	Tx OFF:	Peak <u>58,9</u> Peak	<u>/</u> 8dBm _dBm	Plot ID Code Plot ID Code	20-,	<u>E</u> .		

Rx	Site Data Log Rx Site No. 20 p2 Set: //_							
(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? YX/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 <u>-59.36</u> dBm Plot ID Code <u>20-N</u>							
	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 PeakdBm 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 t	he space below for added comments and notes. Attach extra pages if necessary.							