

Data in support of claim that proposed operation meets off-axis criteria of 1986 Declaratory Order

ID Applicant: Knight Sky

Date of Application:

10/01/08

HEADING

a1	Antenna Manufacturer:	Prodelin	c	main bore gain	42.00	dBi
a2	Antenna Model:	2.4m	d	frequency at which gain was measured	5.85	GHz
a3	Antenna ID:	Ant1	e	maximum input power density (dBw/4KHz)	-10.00	dBw/4KHz
b	Transmit band (b):	5.925 GHz				

1.0 to 5 degrees calculated maximum difference in off-axis eirp density: -0.30 dBw/4KHz

1.0 to 180 degrees calculated maximum difference in off-axis eirp density: -0.30

TABLE

EIRP for Antenna Conforming to 25.209(a) operating at 25.212 power density limits

Gain and EIRP for Antenna Not Conforming to 25.209(a) operating at stated maximum power density

1	2	3	4	5	6	7
Angle (degrees)	25.209 Gain (dBi)	Off-Axis EIRP Density for -2.70 dBw/4Kz	Gain relative to main bore gain (dB)	Actual Gain in dBi	Off-Axis EIRP Density for input of -10.00	Difference in Off-Axis EIRP Density (6) minus (3)
1.00	29.00	26.30	-6.00	36.00	26.00	-0.30
1.25	26.58	23.88	-9.00	33.00	23.00	-0.88
1.50	24.60	21.90	-15.00	27.00	17.00	-4.90
1.75	22.92	20.22	-21.00	21.00	11.00	-9.22
2.00	21.47	18.77	-24.00	18.00	8.00	-10.77
2.25	20.20	17.50	-22.50	19.50	9.50	-8.00
2.50	19.05	16.35	-24.50	17.50	7.50	-8.85
2.75	18.02	15.32	-29.00	13.00	3.00	-12.32
3.00	17.07	14.37	-29.00	13.00	3.00	-11.37
4.50	12.67	9.97	-33.00	9.00	-1.00	-10.97
8.50	5.76	3.06	-40.00	2.00	-8.00	-11.06
11.00	6.00	3.30	-44.00	-2.00	-12.00	-15.30
18.00	0.60	-2.10	-49.00	-7.00	-17.00	-14.90
27.00	-3.78	-6.48	-52.00	-10.00	-20.00	-13.52
36.00	-9.91	-12.61	-52.00	-10.00	-20.00	-7.39
43.00	-8.80	-11.50	-57.00	-15.00	-25.00	-13.50
60.00	-10.00	-12.70	-54.00	-12.00	-22.00	-9.30
82.00	-10.00	-12.70	-46.00	-4.00	-14.00	-1.30
100.00	-10.00	-12.70	-45.00	-3.00	-13.00	-0.30
115.00	-10.00	-12.70	-46.00	-4.00	-14.00	-1.30
160.00	-10.00	-12.70	-47.00	-5.00	-15.00	-2.30
180.00	-10.00	-12.70	-47.00	-5.00	-15.00	-2.30

Data in support of claim that proposed operation meets off-axis criteria of 1986 Declaratory Order

ID Applicant: Knight Sky

Date of Application:

10/01/08

HEADING

a1	Antenna Manufacturer:	Prodelin	c	main bore gain	42.00	dBi
a2	Antenna Model:	2.4m	d	frequency at which gain was measured	6.14	GHz
a3	Antenna ID:	Ant1	e	maximum input power density (dBw/4KHz)	-10.00	dBw/4KHz
b	Transmit band (b):	6.175 GHz				

1.0 to 7 degrees calculated maximum difference in off-axis eirp density: -1.30 dBw/4KHz

1.0 to 180 degrees calculated maximum difference in off-axis eirp density: -1.30

TABLE

EIRP for Antenna Conforming to 25.209(a) operating at 25.212 power density limits

Gain and EIRP for Antenna Not Conforming to 25.209(a) operating at stated maximum power density

1 Angle (degrees)	2 25.209 Gain (dBi)	3 Off-Axis EIRP Density for -2.70 dBw/4Kz	4 Gain relative to main bore gain (dB)	5 Actual Gain in dBi	6 Off-Axis EIRP Density for input of -10.00	7 Difference in Off-Axis EIRP Density (6) minus (3)
1.00	29.00	26.30	-7.00	35.00	25.00	-1.30
1.25	26.58	23.88	-11.50	30.50	20.50	-3.38
1.50	24.60	21.90	-18.00	24.00	14.00	-7.90
1.75	22.92	20.22	-22.50	19.50	9.50	-10.72
2.00	21.47	18.77	-22.00	20.00	10.00	-8.77
2.25	20.20	17.50	-23.00	19.00	9.00	-8.50
2.50	19.05	16.35	-26.00	16.00	6.00	-10.35
2.75	18.02	15.32	-29.50	12.50	2.50	-12.82
3.00	17.07	14.37	-28.00	14.00	4.00	-10.37
4.50	12.67	9.97	-33.00	9.00	-1.00	-10.97
8.50	5.76	3.06	-40.00	2.00	-8.00	-11.06
11.00	6.00	3.30	-44.00	-2.00	-12.00	-15.30
18.00	0.60	-2.10	-49.00	-7.00	-17.00	-14.90
27.00	-3.78	-6.48	-52.00	-10.00	-20.00	-13.52
36.00	-9.91	-12.61	-52.00	-10.00	-20.00	-7.39
43.00	-8.80	-11.50	-57.00	-15.00	-25.00	-13.50
60.00	-10.00	-12.70	-54.00	-12.00	-22.00	-9.30
82.00	-10.00	-12.70	-44.00	-2.00	-12.00	0.70
100.00	-10.00	-12.70	-45.00	-3.00	-13.00	-0.30
120.00	-10.00	-12.70	-52.00	-10.00	-20.00	-7.30
160.00	-10.00	-12.70	-47.00	-5.00	-15.00	-2.30
180.00	-10.00	-12.70	-47.00	-5.00	-15.00	-2.30

Data in support of claim that proposed operation meets off-axis criteria of 1986 Declaratory Order

ID Applicant: Knight Sky

Date of Application:

10/01/08

HEADING

a1	Antenna Manufacturer:	Prodelin	c	main bore gain	42.00	dBi
a2	Antenna Model:	2.4m	d	frequency at which gain was measured	6.25	GHz
a3	Antenna ID:	Ant1	e	maximum input power density (dBw/4KHz)	-10.00	dBw/4KHz
b	Transmit band (b):	6.425 GHz				

1.0 to 5 degrees calculated maximum difference in off-axis eirp density: -1.80 dBw/4KHz

1.0 to 180 degrees calculated maximum difference in off-axis eirp density: -1.80

TABLE

EIRP for Antenna Conforming to 25.209(a) operating at 25.212 power density limits

Gain and EIRP for Antenna Not Conforming to 25.209(a) operating at stated maximum power density

1 Angle (degrees)	2 25.209 Gain (dBi)	3 Off-Axis EIRP Density for -2.70 dBw/4Kz	4 Gain relative to main bore gain (dB)	5 Actual Gain in dBi	6 Off-Axis EIRP Density for input of -10.00	7 Difference in Off-Axis EIRP Density (6) minus (3)
1.00	29.00	26.30	-7.50	34.50	24.50	-1.80
1.25	26.58	23.88	-13.00	29.00	19.00	-4.88
1.50	24.60	21.90	-21.00	21.00	11.00	-10.90
1.75	22.92	20.22	-21.50	20.50	10.50	-9.72
2.00	21.47	18.77	-21.00	21.00	11.00	-7.77
2.25	20.20	17.50	-23.00	19.00	9.00	-8.50
2.50	19.05	16.35	-27.50	14.50	4.50	-11.85
2.75	18.02	15.32	-28.50	13.50	3.50	-11.82
3.00	17.07	14.37	-27.50	14.50	4.50	-9.87
4.50	12.67	9.97	-33.00	9.00	-1.00	-10.97
8.50	5.76	3.06	-40.00	2.00	-8.00	-11.06
11.00	6.00	3.30	-44.00	-2.00	-12.00	-15.30
18.00	0.60	-2.10	-49.00	-7.00	-17.00	-14.90
27.00	-3.78	-6.48	-52.00	-10.00	-20.00	-13.52
36.00	-9.91	-12.61	-52.00	-10.00	-20.00	-7.39
43.00	-8.80	-11.50	-57.00	-15.00	-25.00	-13.50
60.00	-10.00	-12.70	-54.00	-12.00	-22.00	-9.30
82.00	-10.00	-12.70	-44.00	-2.00	-12.00	0.70
100.00	-10.00	-12.70	-45.00	-3.00	-13.00	-0.30
120.00	-10.00	-12.70	-52.00	-10.00	-20.00	-7.30
160.00	-10.00	-12.70	-47.00	-5.00	-15.00	-2.30
180.00	-10.00	-12.70	-47.00	-5.00	-15.00	-2.30

Frequency : 5.845 GHz

File: See Legend
Prodelin 2.4M 4-Pc
Receive / Transmit
Offset Antenna System
C-Band Linear

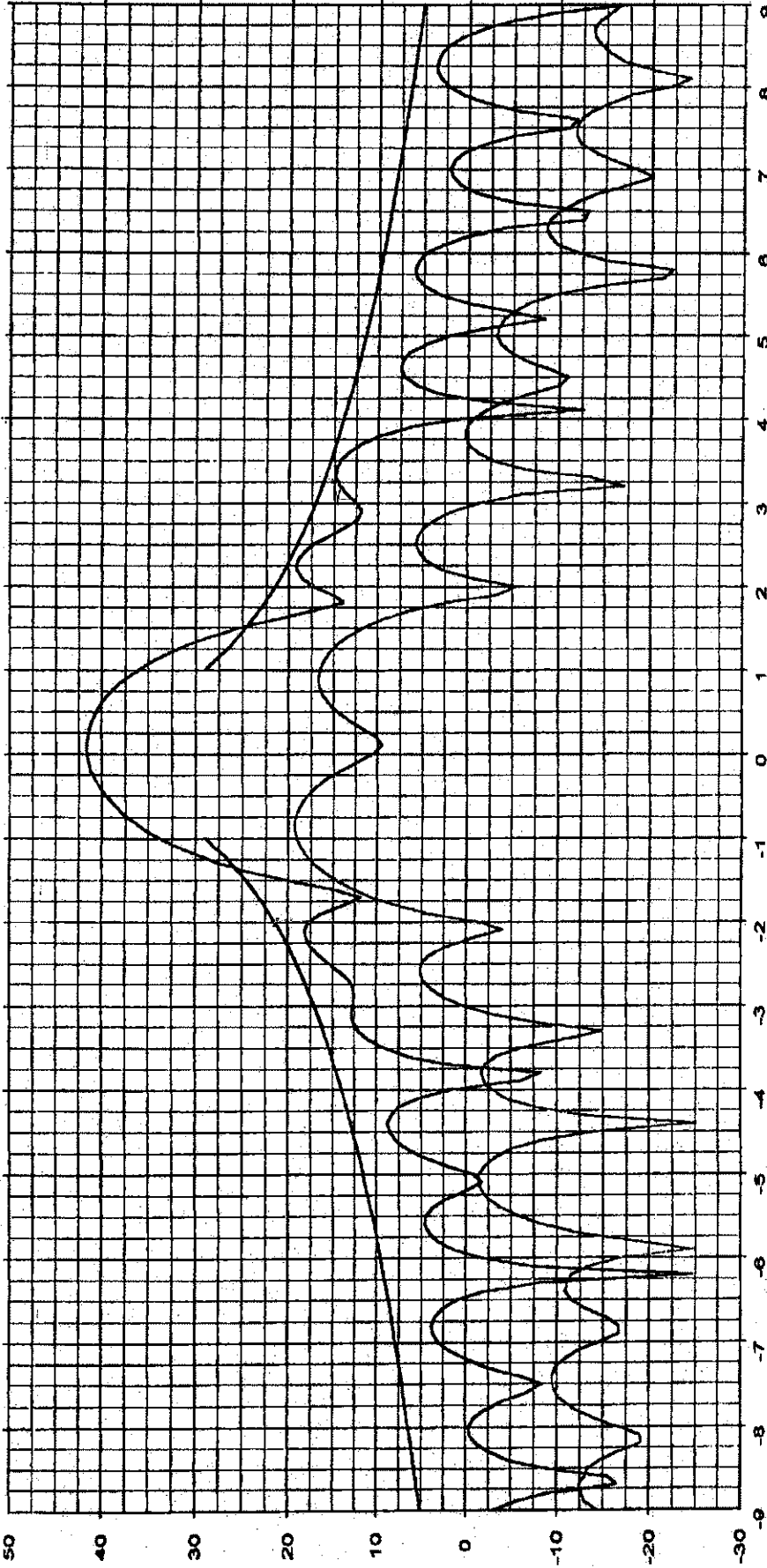
Operator: Ken Poovey

Ser. no.:

Channel: test

Tx pol: Vert

Rx pol: Vert



Sidelobe Envelope: 29-25Log(Theta)~100Lamdc/D to 20 Deg
 -3.5dBi~20 to 26.3 Deg | 32-25Log(Theta)~26.3 to 48 Deg
 -10 dBi~48 to 180 Deg

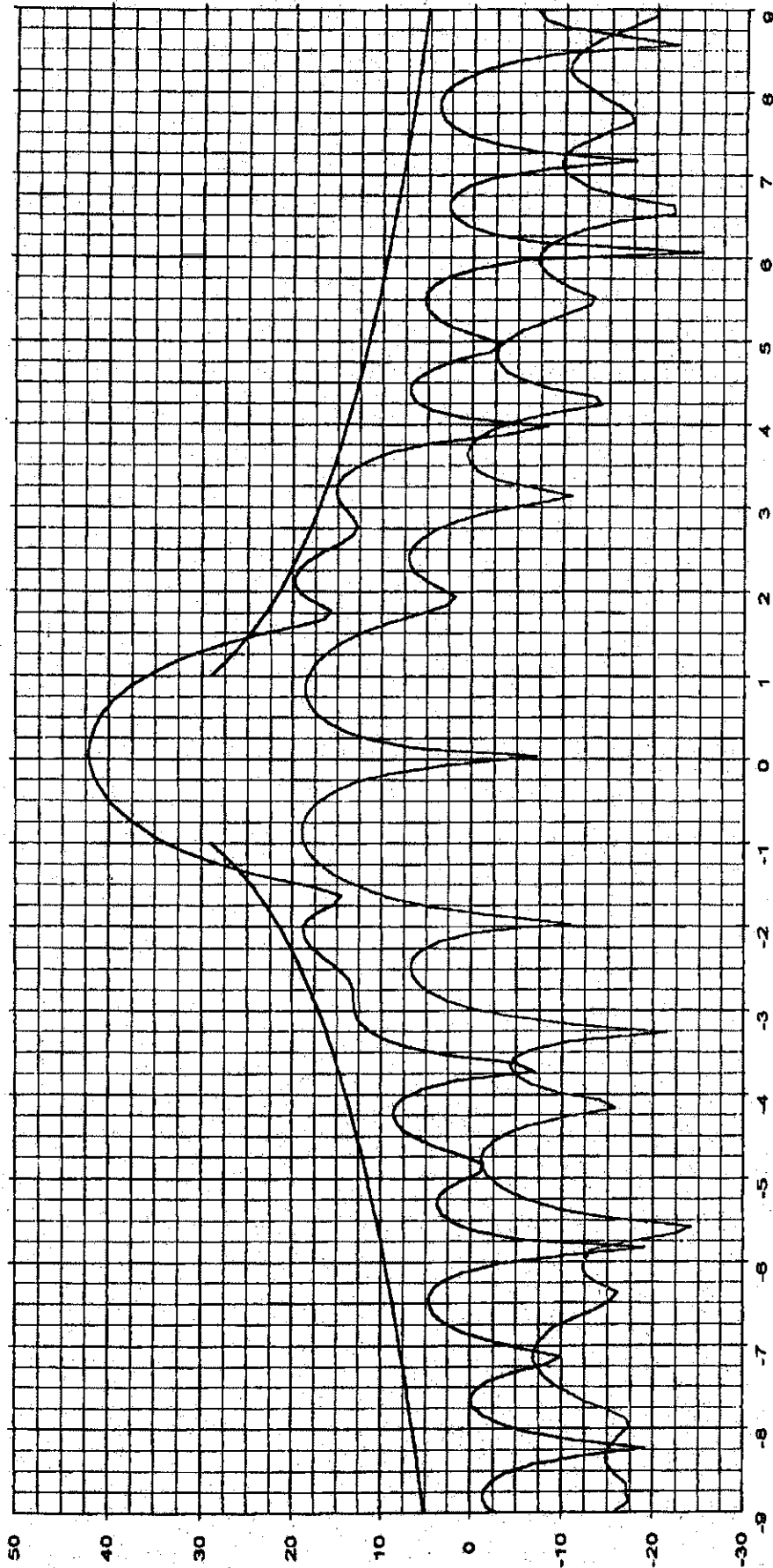
Overlays	Cal. file	units	Beam Peak
064532.DAT-ant_under_test	064532.DAT	dBi	0.10 41.64
064536.DAT-ant_under_test	064536.DAT	dBi	-0.80 19.28

Frequency : 6.138 GHz

Prodelin 2.4M 4-Pc
Receive / Transmit
Offset Antenna System
C-Band Linear

Operator: Ken Poovey
Ser. no.:
Channel: test

Tx pol: Vert. Rx pol: Vert.



Azimuth (Deg)

Beam Peak	units
Deg	dB
0.07	42.14
-0.87	18.92

Sidelobe Envelope: 29-25Log(Theta)~100Lamda/D to 20 Deg
 -3.5dBi~20 to 26.3 Deg | 32-25Log(Theta)~25.3 to 48 Deg
 -10 dBi~48 to 180 Deg

Overlays	Cal. file	units
064532.DAT-ant_under_test	064532.DAT	dBi
064536.DAT-ant_under_test	064536.DAT	dBi

Frequency : 6.425 GHz

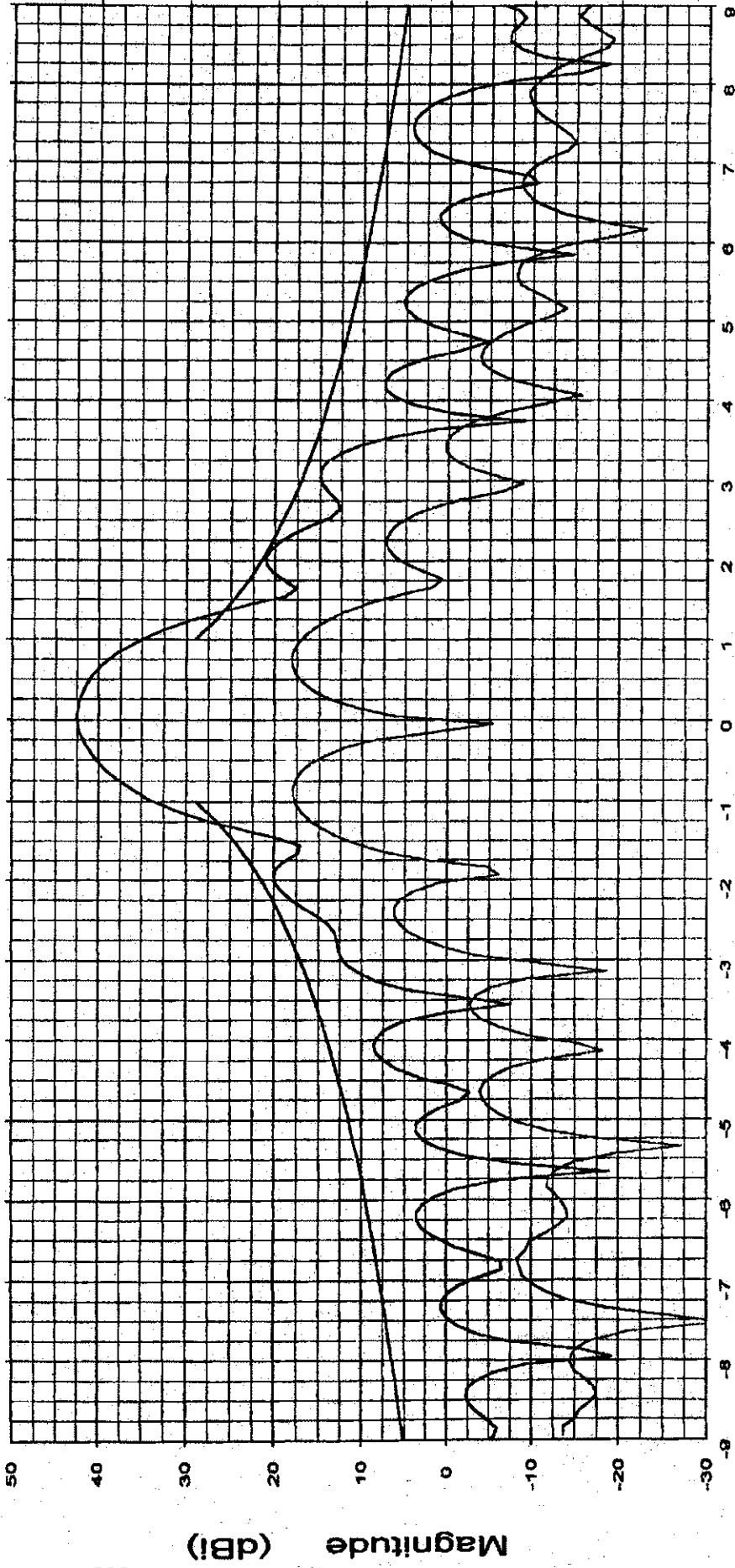
Prodelin 2.4M 4-Pc
Receive / Transmit
Offset Antenna System
C-Band Linear

File: See Legend

Operator: Ken Poovey

Ser. no.:

Channel: test Tx pol: Vert. Rx pol: Vert.



Sidelobe Envelope: 29-25Log(Theta)~100Lambda/D to 20 Deg
 -3.5dBi~20 to 26.3 Deg | 32-25Log(Theta)~26.3 to 48 Deg
 -10 dBi~48 to 180 Deg

Azimuth (Deg)

Beam Peak	units
Deg	0.04
dB	42.49
Deg	0.76
dB	18.02

Overlays
 064532.DAT-ant_under_test
 064536.DAT-ant_under_test

Cal. file units
 064532.DAT dBi
 064536.DAT dBi

Frequency : 5.845 GHz

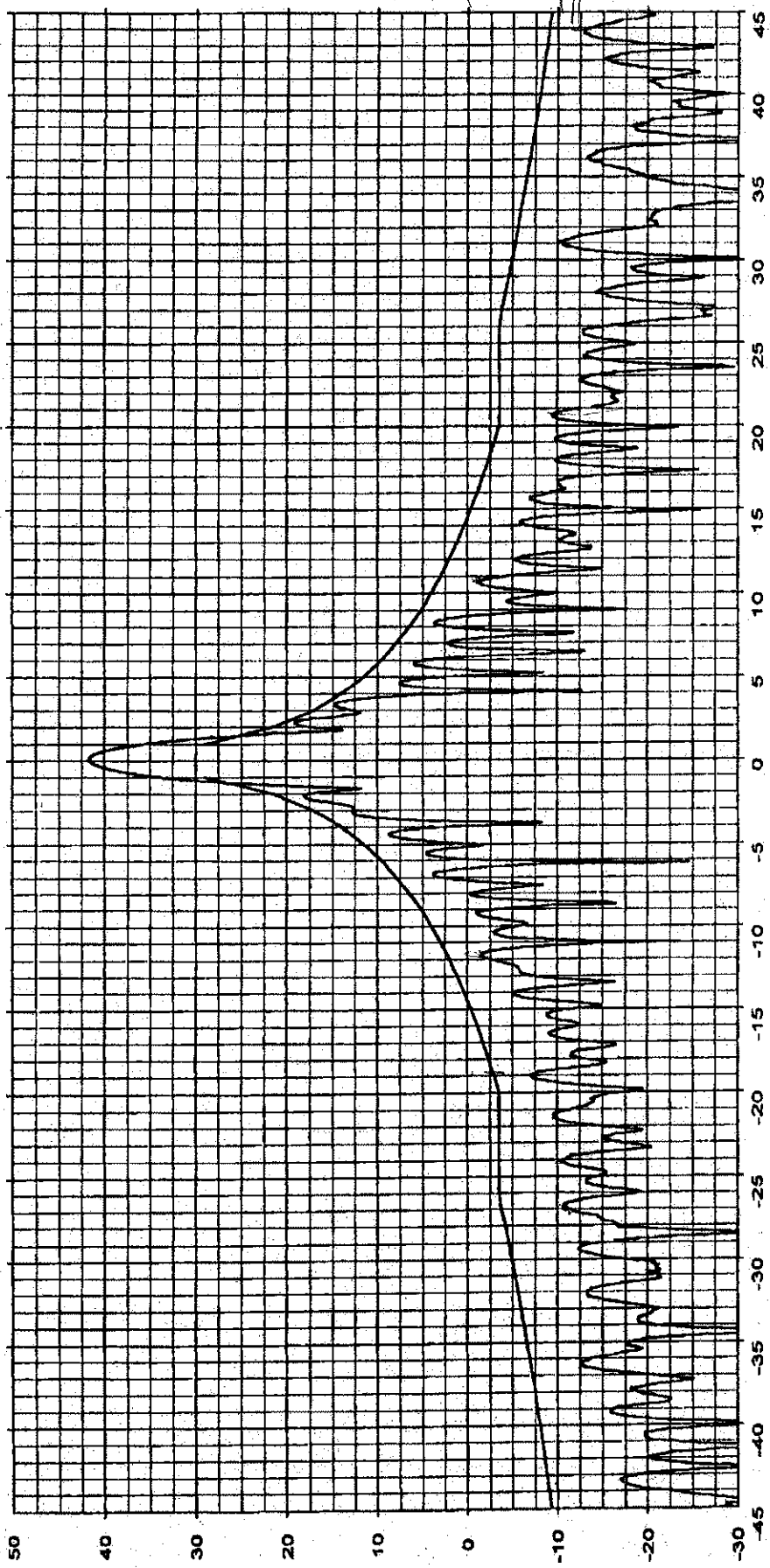
Prodelin 2.4M 4-Pc
Receive / Transmit
Offset Antenna System
C-Band Linear

Operator: Ken Poovey

ser. no.:

Channel: test

Tx pol: Vert Rx pol: Vert



Azimuth (Deg)

Beam Peak	units
0.10	Deg
41.64	dB

Cal. file	units
064532.DAT	dBi

Overlays
064532.DAT-ant_under_test

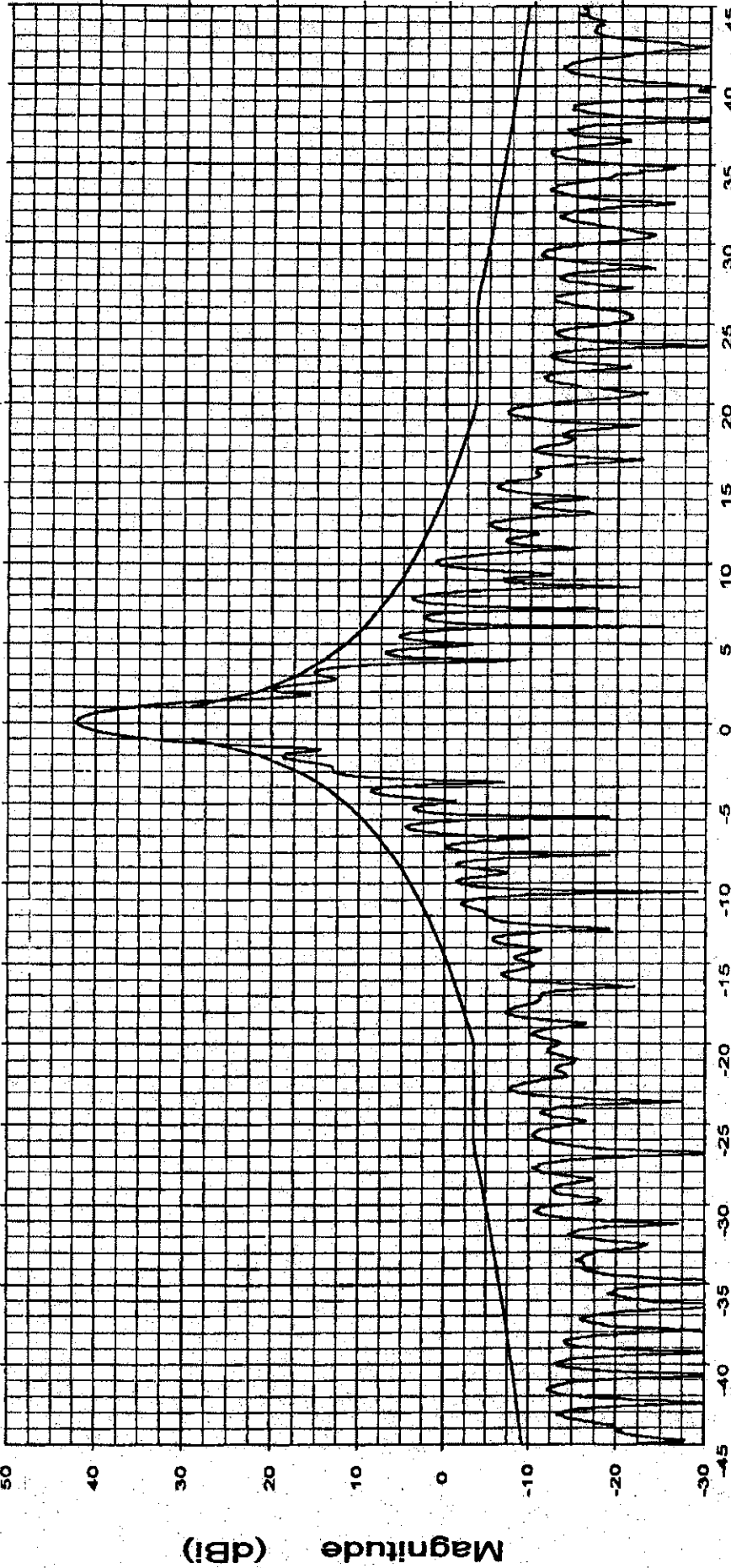
File: See Legend

Frequency : 6.138 GHz

Prodelin 2.4M 4-Pc
Receive / Transmit
Offset Antenna System
C-Band Linear

Operator: Ken Poovey
Ser. no.:
Channel: test

Tx pol: Vert Rx pol: Vert



Azimuth (Deg)

Beam Peak
Deg 0.07 dB 42.14

Sidelobe Envelope: 29-25Log(Theta)~100Lomder/D to 20 Deg
-3.5dB~-20 to 26.3 Deg | 32-25Log(Theta)~26.3 to 48 Deg
-10 dBi~-48 to 180 Deg

Overlays
064532.DAT-ant_under_test----- Cal. file units dBi
064532.DAT 064532.DAT

Frequency : 6.425 GHz

Prodelin 2.4M 4-Pc
Receive / Transmit
Offset Antenna System
C-Band Linear

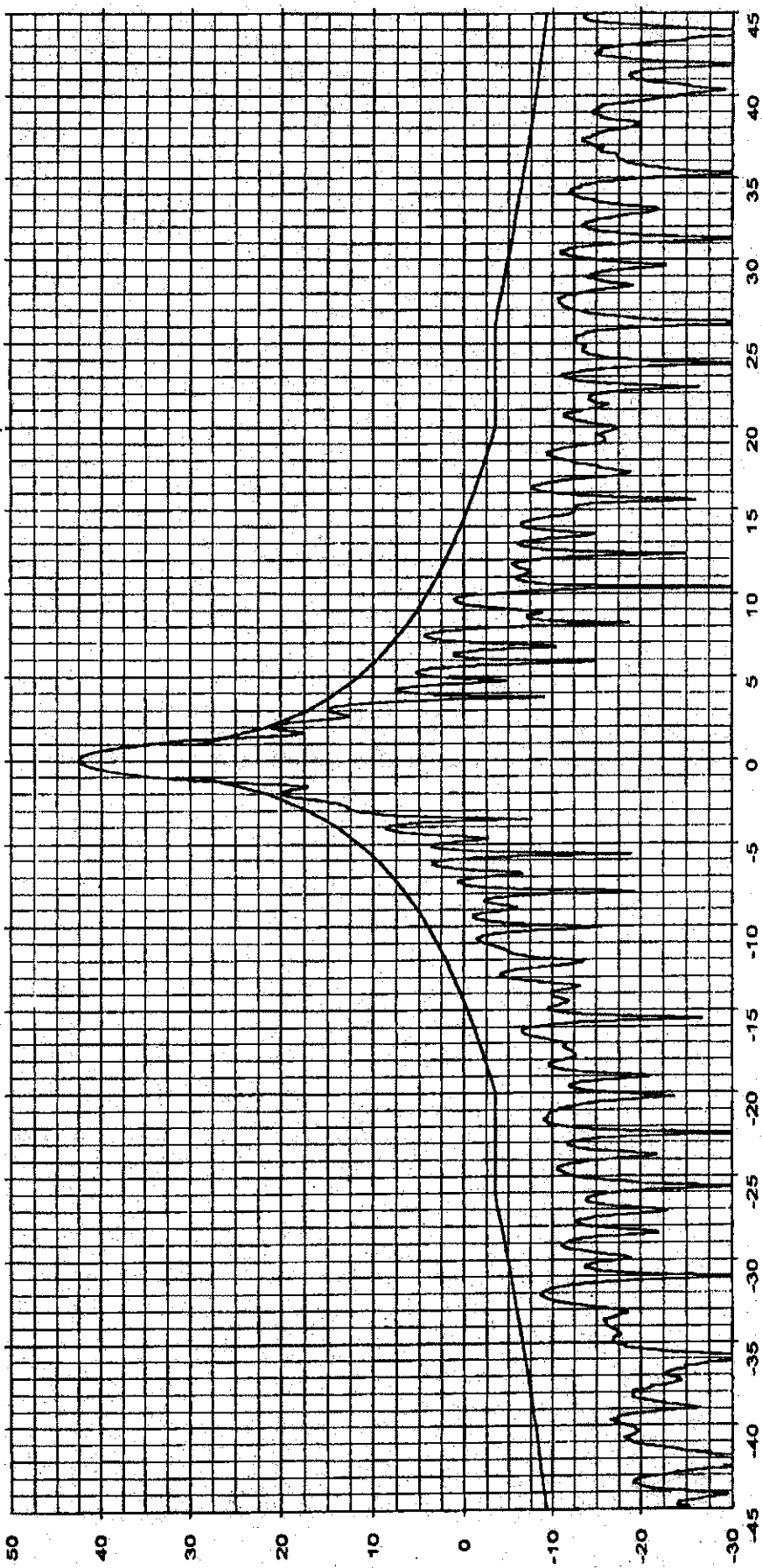
File: See Legend

Operator: Ken Poovey

Ser. no.:

Channel: test

Tx pol: Vert Rx pol: Vert



Sidelobe Envelope: 29--25Log(Theta)~100Lamda/D to 20 Deg
 -3.5dB~-20 to 26.3 Deg | 32--25Log(Theta)~26.3 to 48 Deg
 -10 dB~-48 to 180 Deg

Azimuth (Deg)

Beam Peak
 Deg 0.04 42.49

Overlays
 064532.DAT-ant_under_test----- Cal. file units
 064532.DAT dBi

Frequency : 6.138 GHz

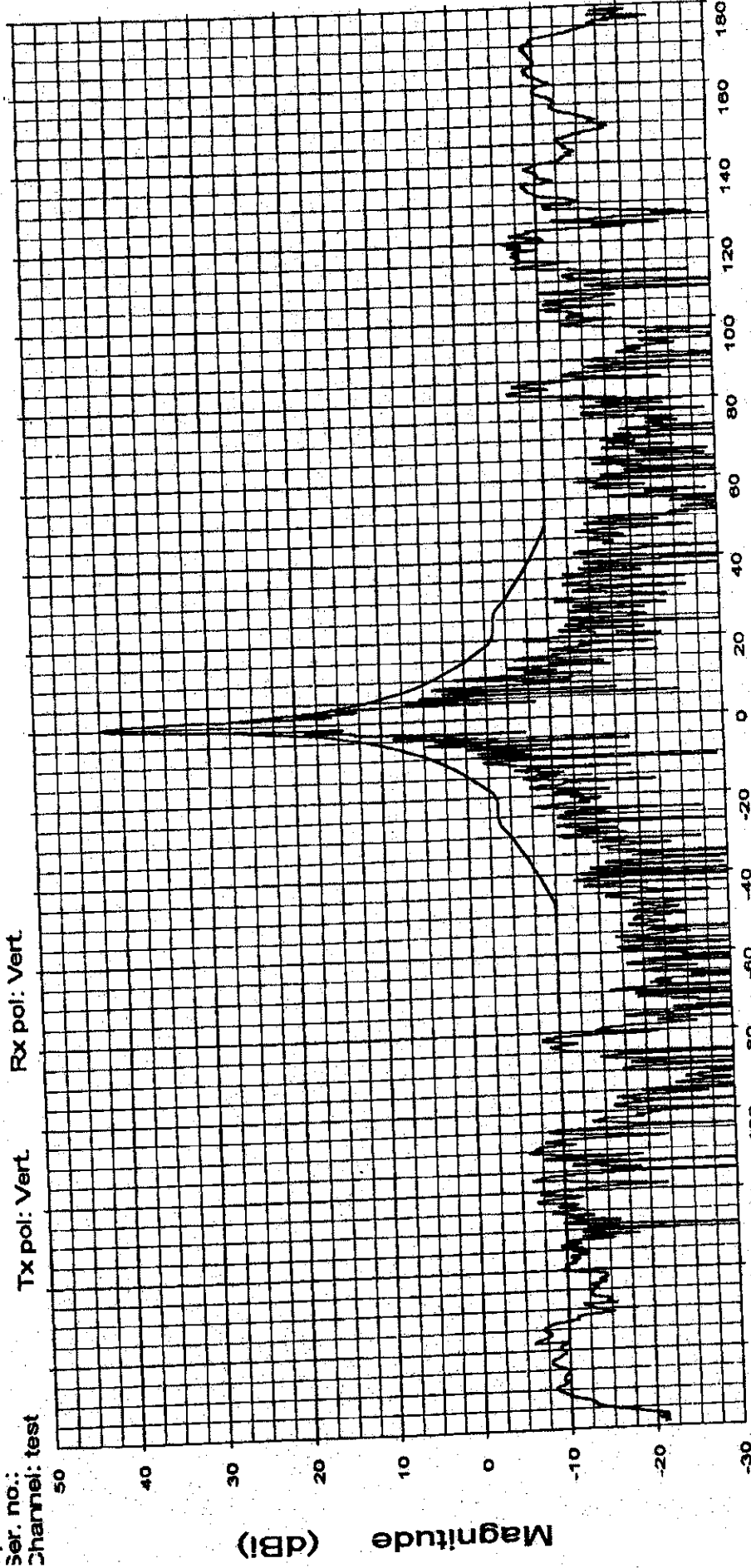
Prodelin 2.4M 4-Pc
Receive / Transmit
Offset Antenna System
C-Band Linear

Operator: Ken Poovey

Tx pol: Vert Rx pol: Vert

Ser. no.:

Channel: test



Azimuth (Deg)

Beam Peak
Deg 0.07
dB 42.14

Sidelobe Envelope: 29-25Log(Theta)~-100Lamda/D to 20 Deg
-3.5dBi~-20 to 26.3 Deg | 32-25Log(Theta)~26.3 to 48 Deg
-10 dBi~-48 to 180 Deg

Cal. file 064532.DAT
units dBi

Overlays 064532.DAT-ant_under_test

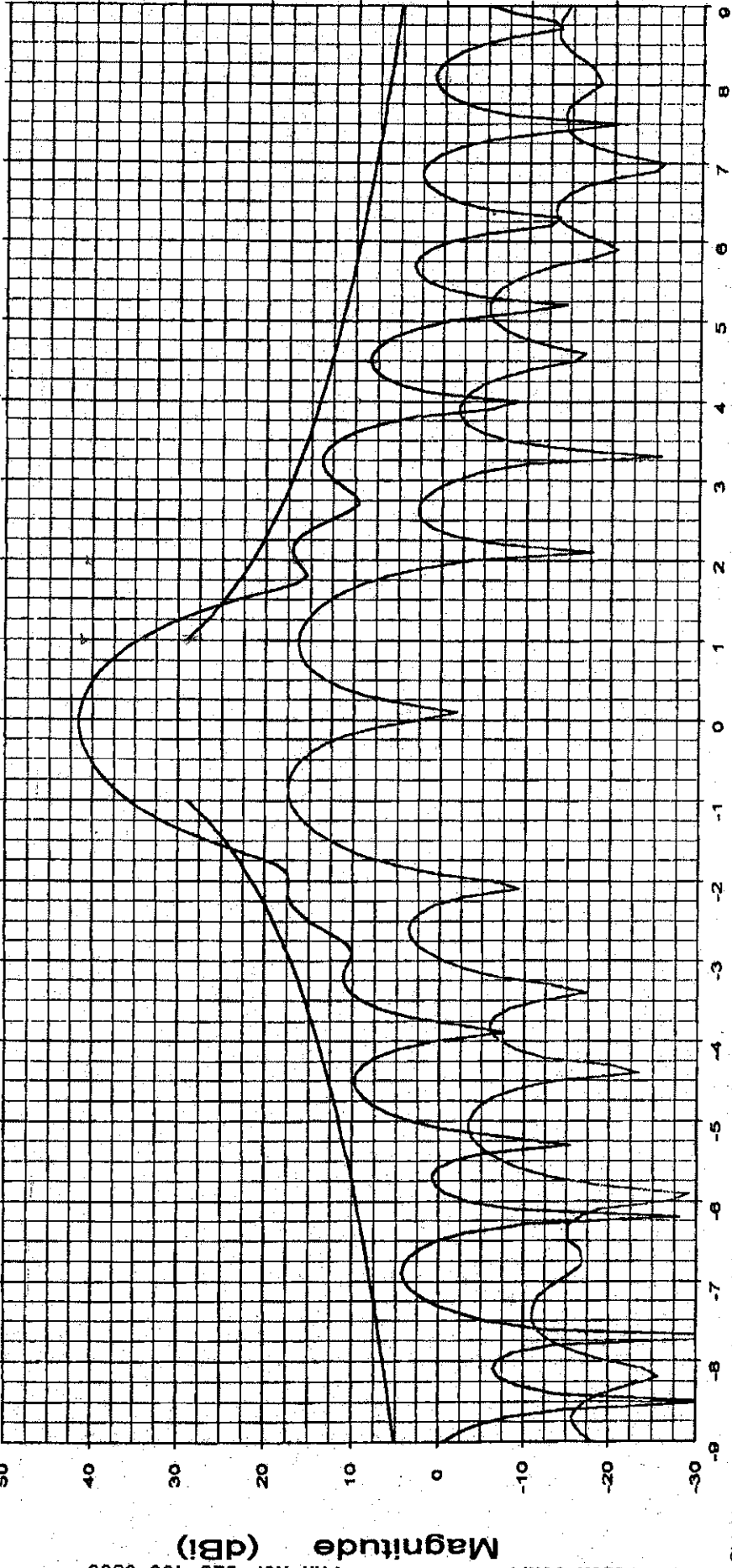
Frequency : 5.845 GHz

Prodelin 2.4M 4-Pc
Receive / Transmit
Offset Antenna System
C-Band Linear

Operator: Ken Poovey

ser. no.:

Channel: test Tx pol: Horiz Rx pol: Horiz



Sidelobe Envelope: 29-25Log(Theta)~100Lmnda/D to 20 Deg
 ~3.5dBi~20 to 26.3 Deg | 32-25Log(Theta)~26.3 to 48 Deg
 ~10 dBi~48 to 180 Deg

Azimuth (Deg)

Beam Peak	
Deg	dB
0.00	41.54
-0.90	17.40

Overlays	Cal. file	units
064539.DAT-ant_under_test	064539.DAT	dB
064542.DAT-ant_under_test	064542.DAT	dB

Frequency : 6.138 GHz

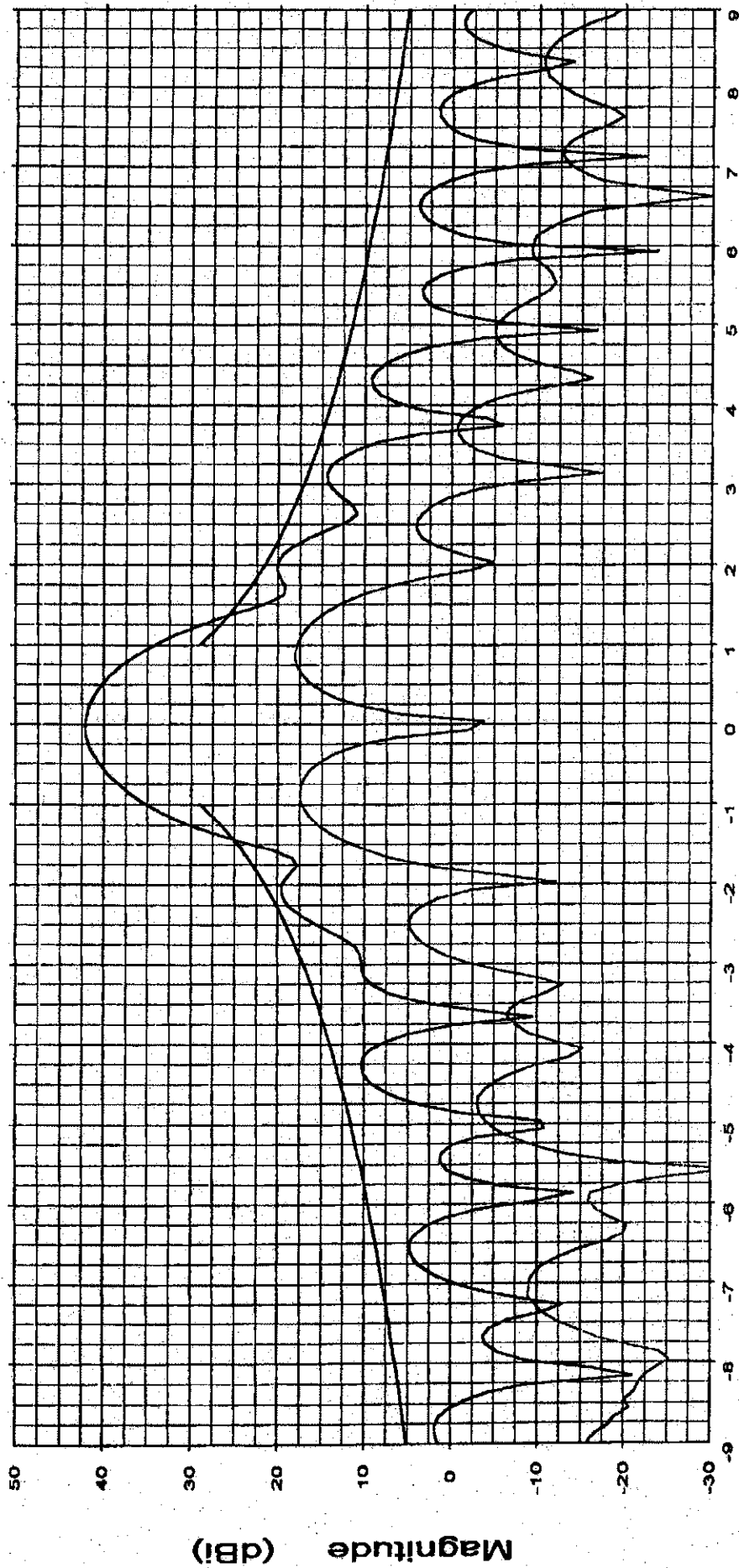
Prodelin 2.4M 4-Pc
Receive / Transmit
Offset Antenna System
C-Band Linear

File: See Legend

Operator: Ken Poovey

Ser. no.:

Channel: test Tx pol: Horiz Rx pol: Horiz



Sidelobe Envelope: 29-25Log(Theta)~100Lamda/D to 20 Deg
 -3.5dBi~20 to 26.3 Deg | 32-25Log(Theta)~26.3 to 48 Deg
 -10 dBi~48 to 180 Deg

Azimuth (Deg)

Beam Peak	
Deg	dB
-0.07	42.06
0.93	17.98

Overlays	Cal. file	units
064539.DAT-ant_under_test	064539.DAT	dBI
064542.DAT-ant_under_test	064542.DAT	dBI

File: See Legend

Prodelin 2.4M 4-Pc
Receive / Transmit
Offset Antenna System
C-Band Linear

Operator: Ken Poovey

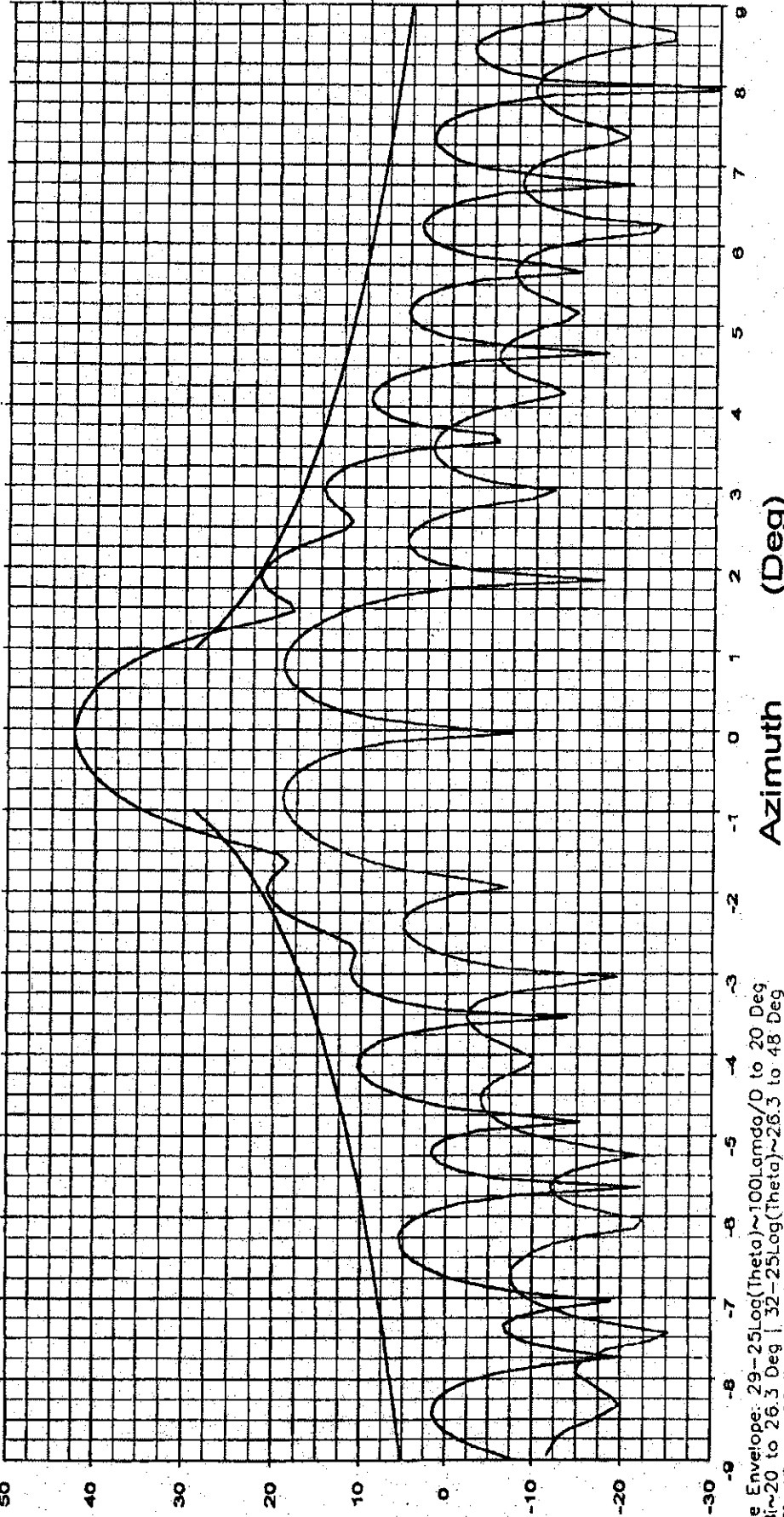
Ser. no.:

Channel: test

Tx pol: Horiz.

Rx pol: Horiz.

Frequency : 6.425 GHz



Sidelobe Envelope: 29-25Log(Theta)~100lamda/D to 20 Deg
 -3.5dB~-20 to 26.3 Deg | 32-25Log(Theta)~26.3 to 48 Deg
 -10 dB~-48 to 180 Deg

Overlays
 064539.DAT-ant_under_test
 064542.DAT-ant_under_test

Cal. file
 064539.DAT
 064542.DAT

units	Beam Peak
dBi	Deg
dBi	-0.04
dBi	-0.84
	42.36
	19.03

Frequency : 5.845 GHz

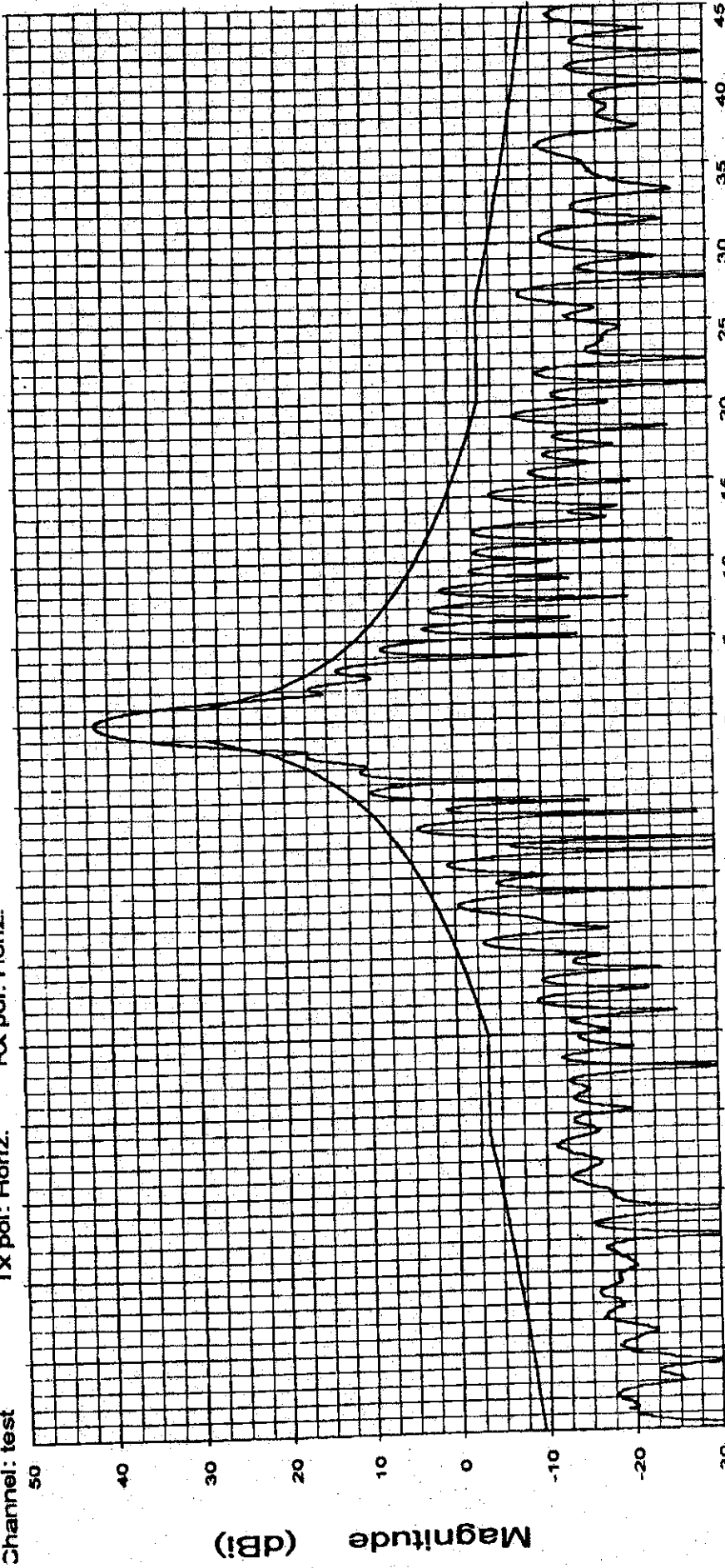
Prodelin 2.4M 4-Pc
Receive / Transmit
Offset Antenna System
C-Band Linear

Operator: Ken Poovey

Ser. no.:

Channel: test

Tx pol: Horiz. Rx pol: Horiz.



Azimuth (Deg)

Beam Peak	Deg	dB
	0.00	41.54

Sidelobe Envelope: 29-25Log(Theta)~100LcmDo/D to 20 Deg
 -3.5dBi~20 to 26.3 Deg | 32-25Log(Theta)~26.5 to 48 Deg
 -10 dBi~48 to 180 Deg

Overlays
 064539.DAT-ant_under_test Cal. file units
 064539.DAT dBi

Frequency : 6.138 GHz

Prodelin 2.4M 4-Pc
Receive / Transmit
Offset Antenna System
C-Band Linear

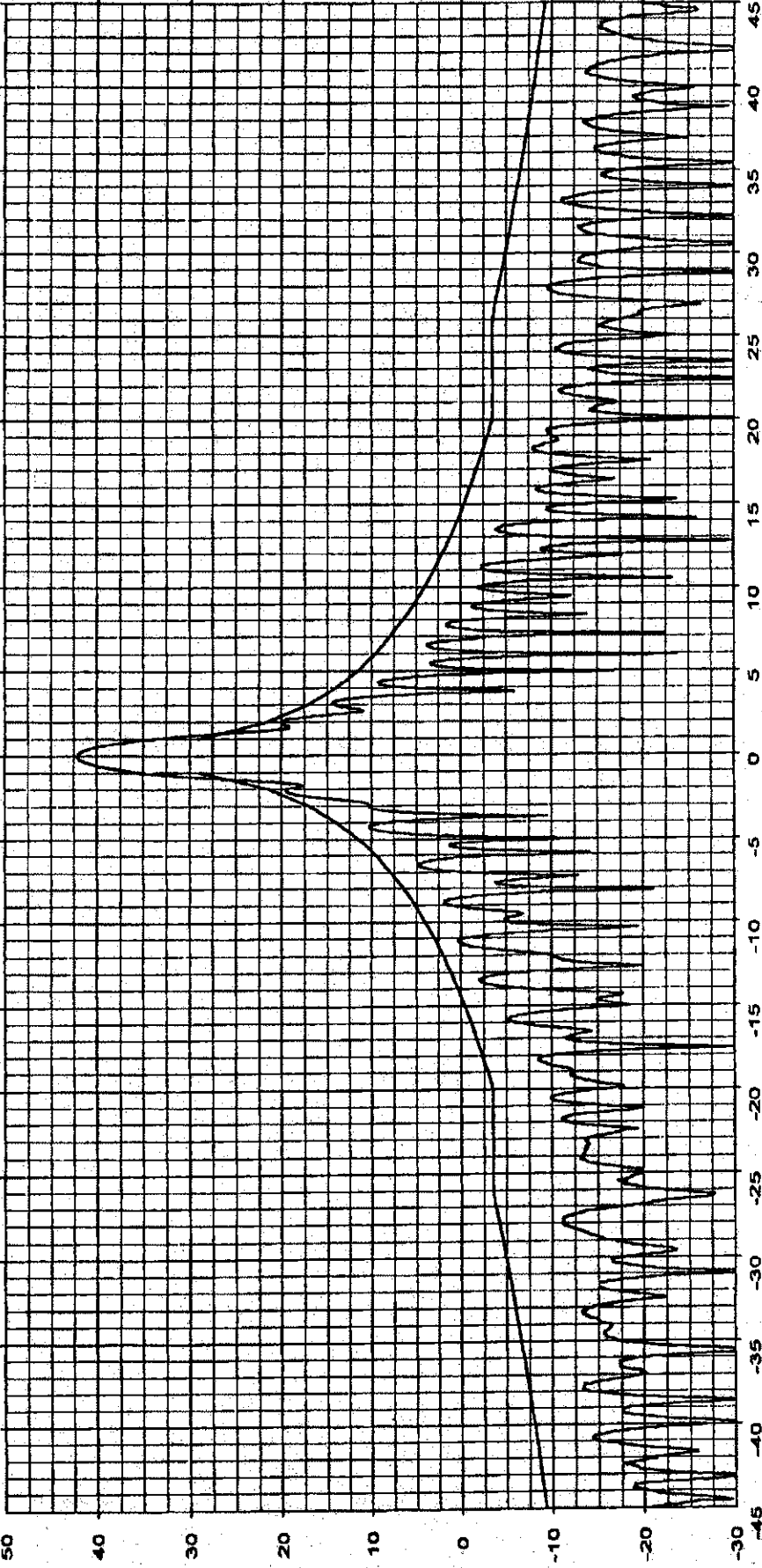
Operator: Ken Poovey

Ser. no.:

Channel: test

Tx pol: Horiz.

Rx pol: Horiz.



Sidelobe Envelope: 29-25Log(Theta)~100Lamda/D to 20 Deg
 -3.5dBi~20 to 26.3 Deg | 32-25Log(Theta)~26.3 to 48 Deg
 -10 dBi~48 to 180 Deg

Azimuth (Deg)

Beam Peak	Deg	dB
-0.07	42.06	

Overlays	Cal. file	units
064539.DAT-ant_under_test	064539.DAT	dBi

064539.DAT-ant_under_test

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT

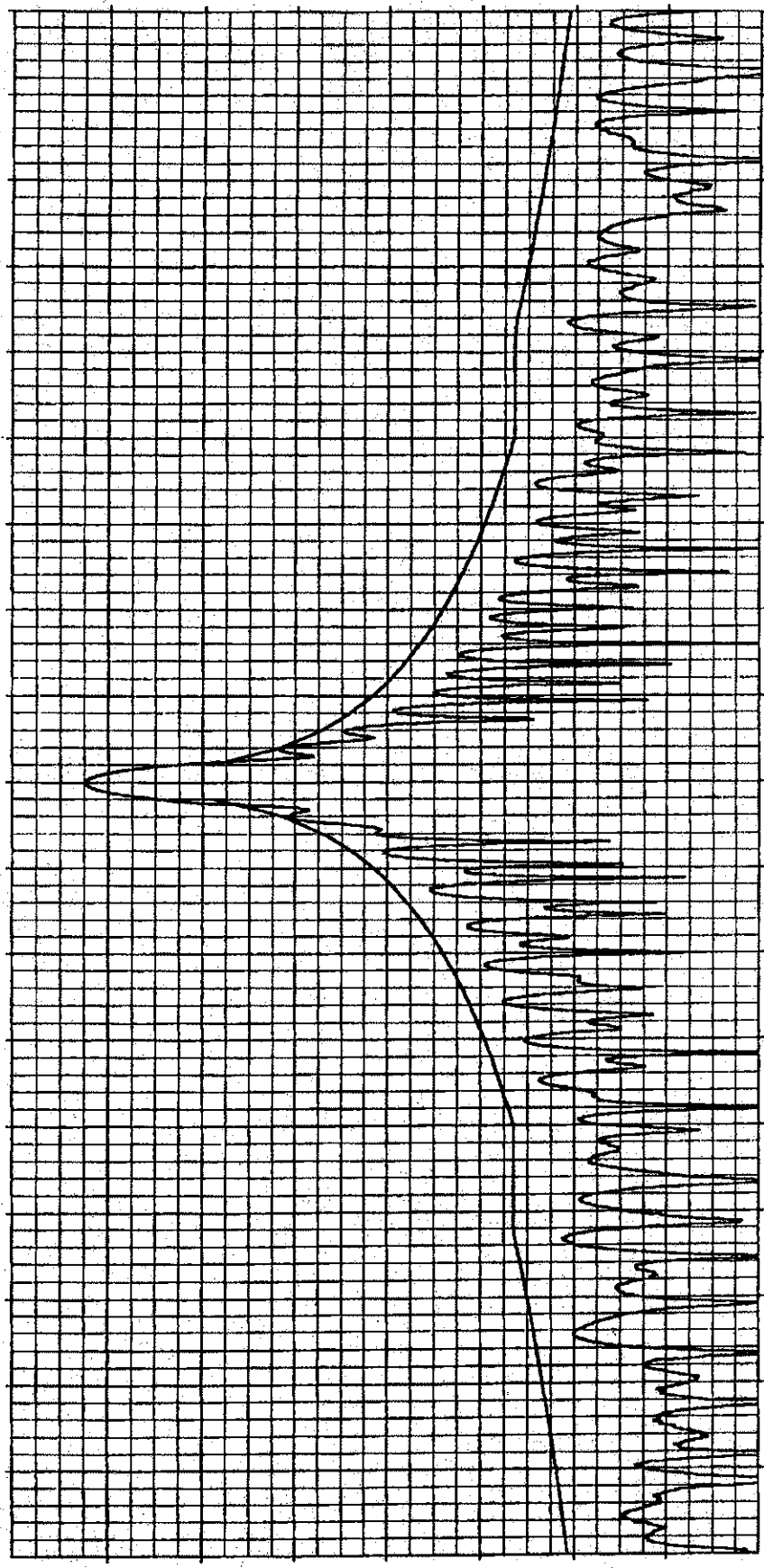
064539.DAT

064539.DAT

064539.DAT

064539.DAT

064539.DAT



Overlays
 064539.DAT-ant_under_test
 Cal. file
 064539.DAT
 units
 dBi

Beam Peak
 Deg
 -0.04
 dB
 42.36

Sidelobe Envelope: 29-25Log(Theta)~100Lamda/D to 20 Deg
 ~3.5cB~-20 to 26.3 Deg | 32-25Log(Theta)~26.3 to 48 Deg
 ~10 cB~-48 to 180 Deg

File: See Legend

Prodelin 2.4M 4-Pc
Receive / Transmit
Offset Antenna System
C-Band Linear

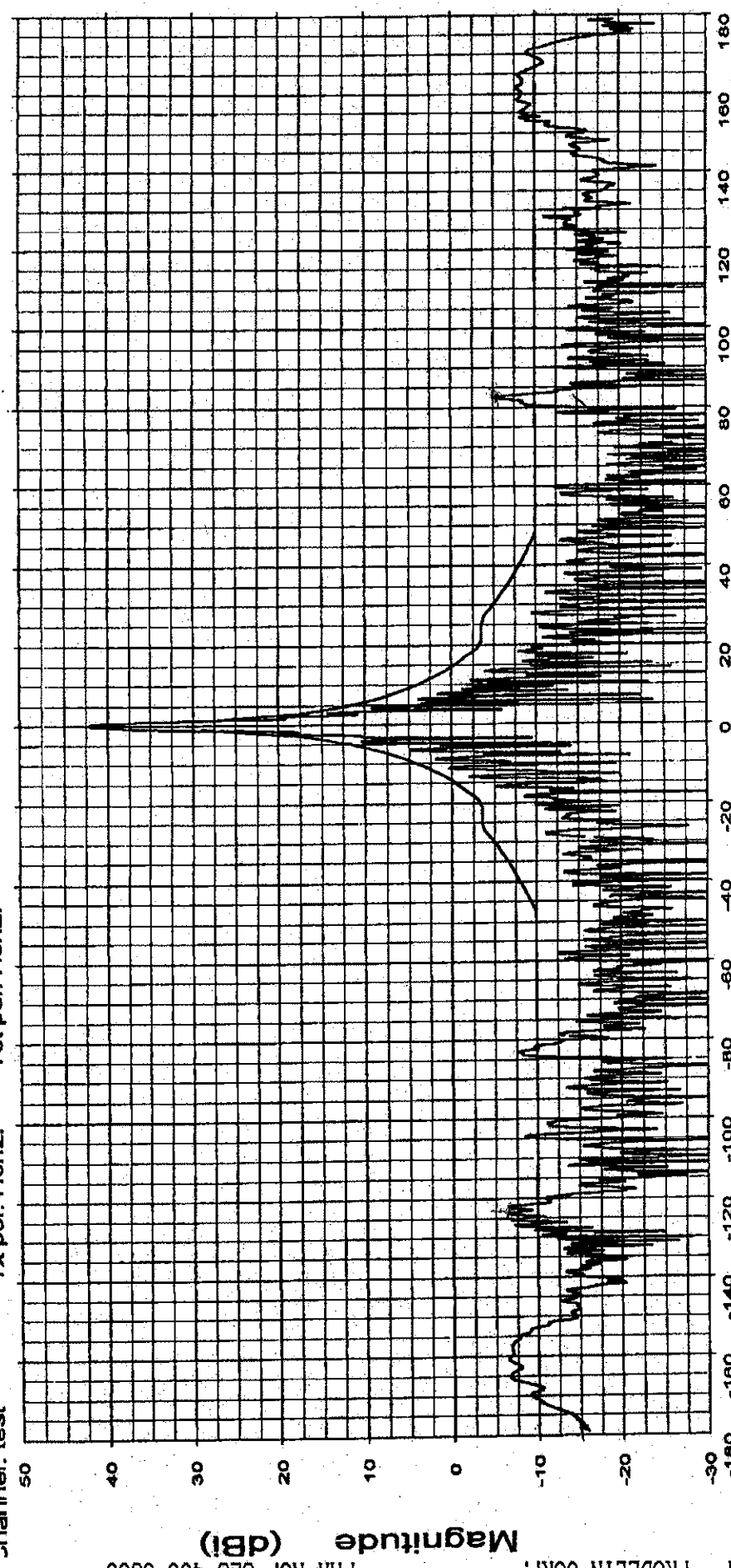
Frequency : 6.138 GHz

Operator: Ken Poovey

Ser. no.:

Channel: test

Tx pol: Horiz. Rx pol: Horiz.



Sidelobe Envelope: 29-25Log(Theta)~100Lamda/D to 20 Deg
 -3.5dBi~-20 to 26.3 Deg | 32-25Log(Theta)~26.3 to 48 Deg
 -10 dBi~48 to 180 Deg

Azimuth (Deg)

Beam Peak
 Deg -0.07
 dB 42.06

Overlays
 064539.DAT-ant_under_test
 Cal. file 064539.DAT
 units dBi

24/49

FAX NO. 828 488 0860

PRODELIN CORP.

JUL-08-1999 THU 01:02 PM

Prodelin Corporation
 Riverbend - 1st Range
 Clmont NC