

18.3-18.8 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 28.35-28.6 GHz (Earth-to-space), and 29.25-30.0 GHz (Earth-to-space)

The 4.9 meter antenna proposed in this application is to be constructed on-site and is not a small mass produced antenna. The 4.9 meter antenna will be meticulously constructed and mechanically aligned on-site before any antenna testing begins.

Harris is including with this application, and in compliance with Section 25.138(d), a series of antenna performance verification measurement results from the manufacturer of the same model proposed in this application.

Section 25.132(d), stating that applicants or licensees may measure the radiation patterns of antennas more than 3 meters in diameter that will be assembled on site after installation, rather than prior to filing the application.

The proposed antenna will meet Off-Axis EIRP performance as specified in 25.138(a) when considering the RF transmit power of -19.6 dBW/4 kHz.

Section 25.138 (a) Off-Axis EIRP Performance

Section 25.138 (a) provides that an application for a blanket Ka-band earth station license will be routinely processed if it meets the following requirements:

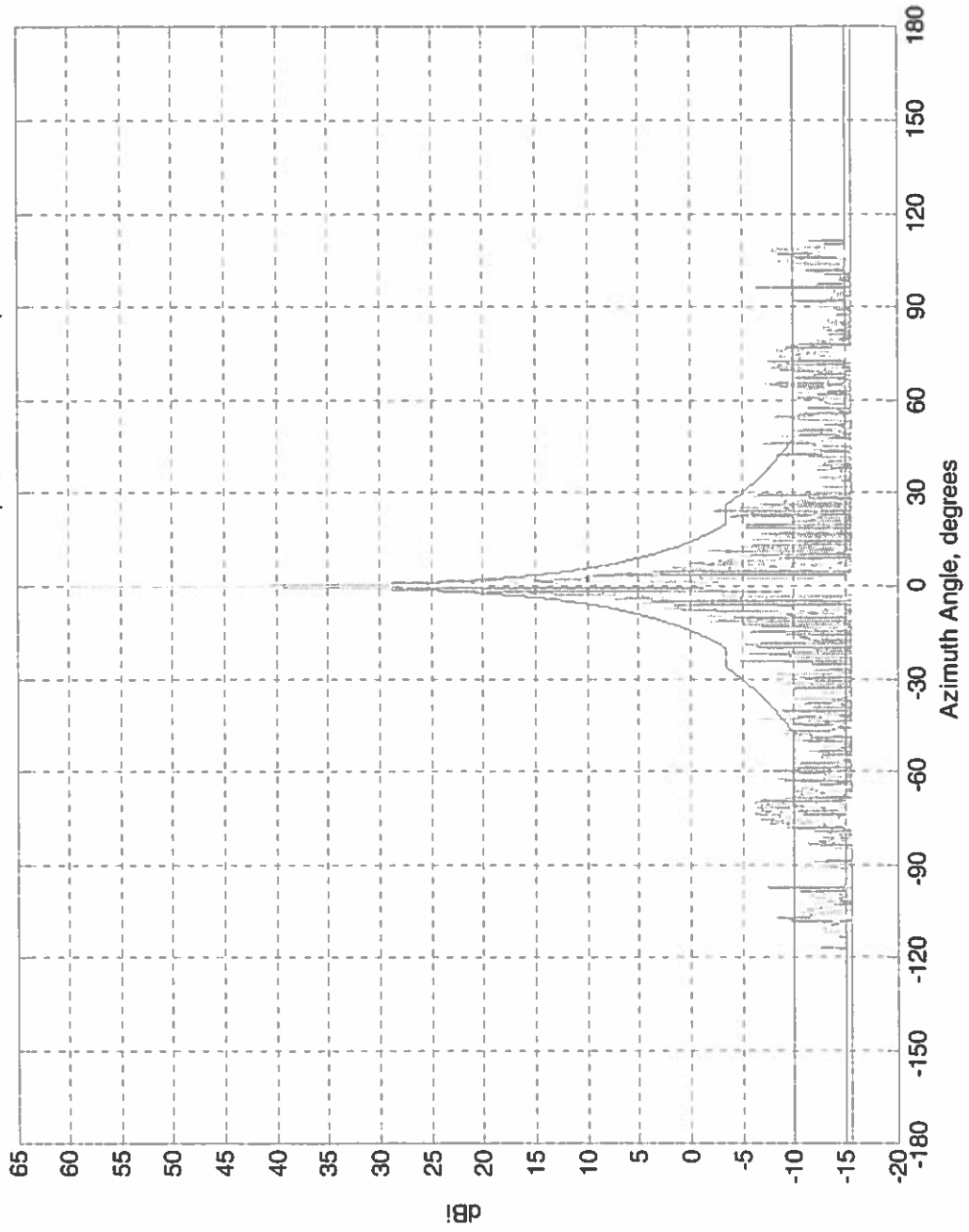
GSO FSS earth station antenna off-axis EIRP spectral density for co-polarized signals shall not exceed the following values, within 3° of the GSO arc, under clear sky conditions:

18.5-25log(theta)-10log(N) dBW/40kHz..... for 2.0° ≤ theta ≤ 7°
-2.63-10log(N)..... dBW/40kHz..... for 7° ≤ theta ≤ 9.23°
21.5-25log(theta)-10log(N) dBW/40kHz..... for 9.23° ≤ theta ≤ 48°
-10.5-10log(N)..... dBW/40kHz..... for 48° ≤ theta ≤ 180°

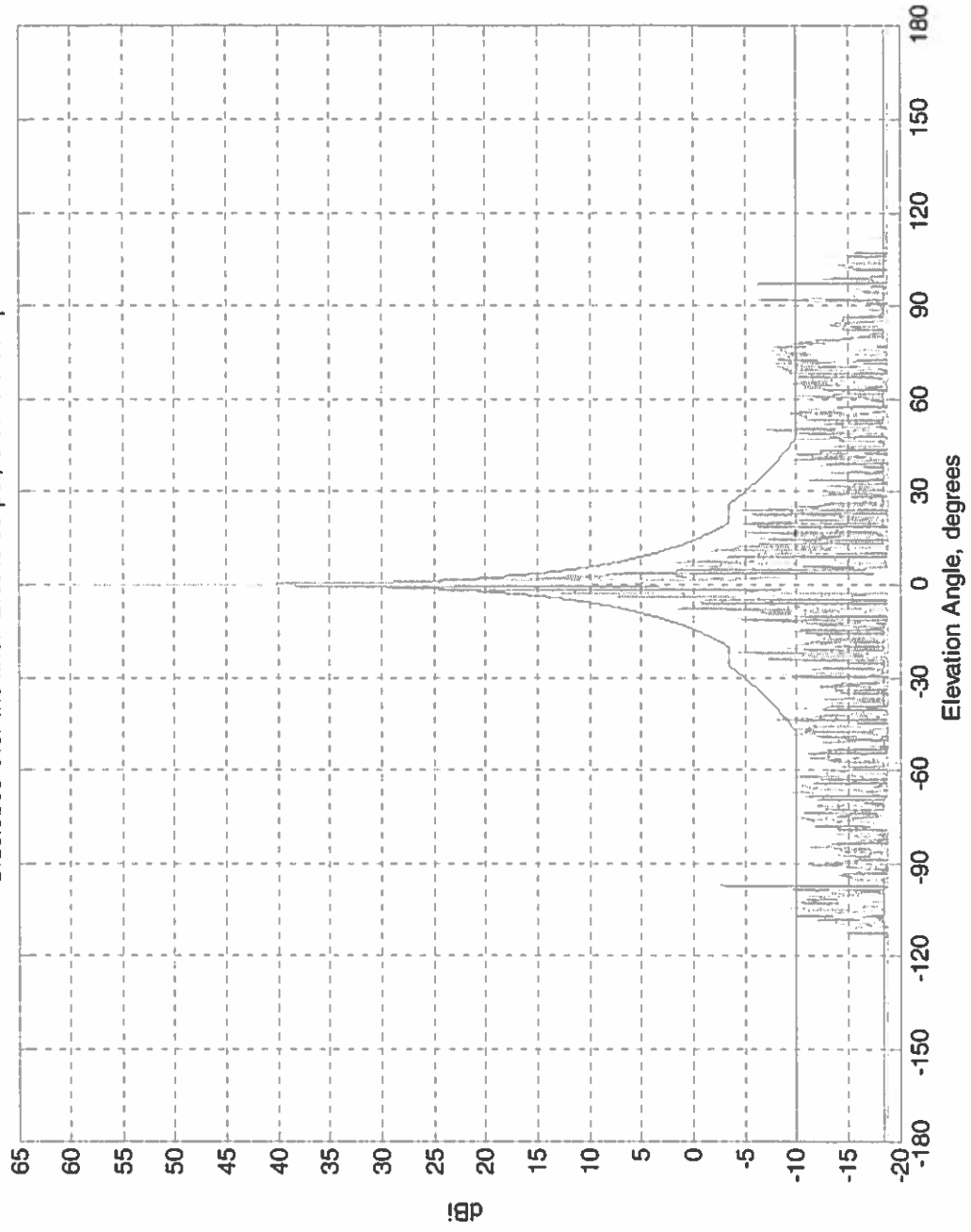
Where:

theta is the angle in degrees from the axis of the main lobe; for systems where more than one earth station is expected to transmit simultaneously in the same bandwidth, e.g., CDMA systems, N is the likely maximum number of simultaneously transmitting co-frequency earth stations in the receive beam of the satellite; N=1 for TDMA and FDMA systems.

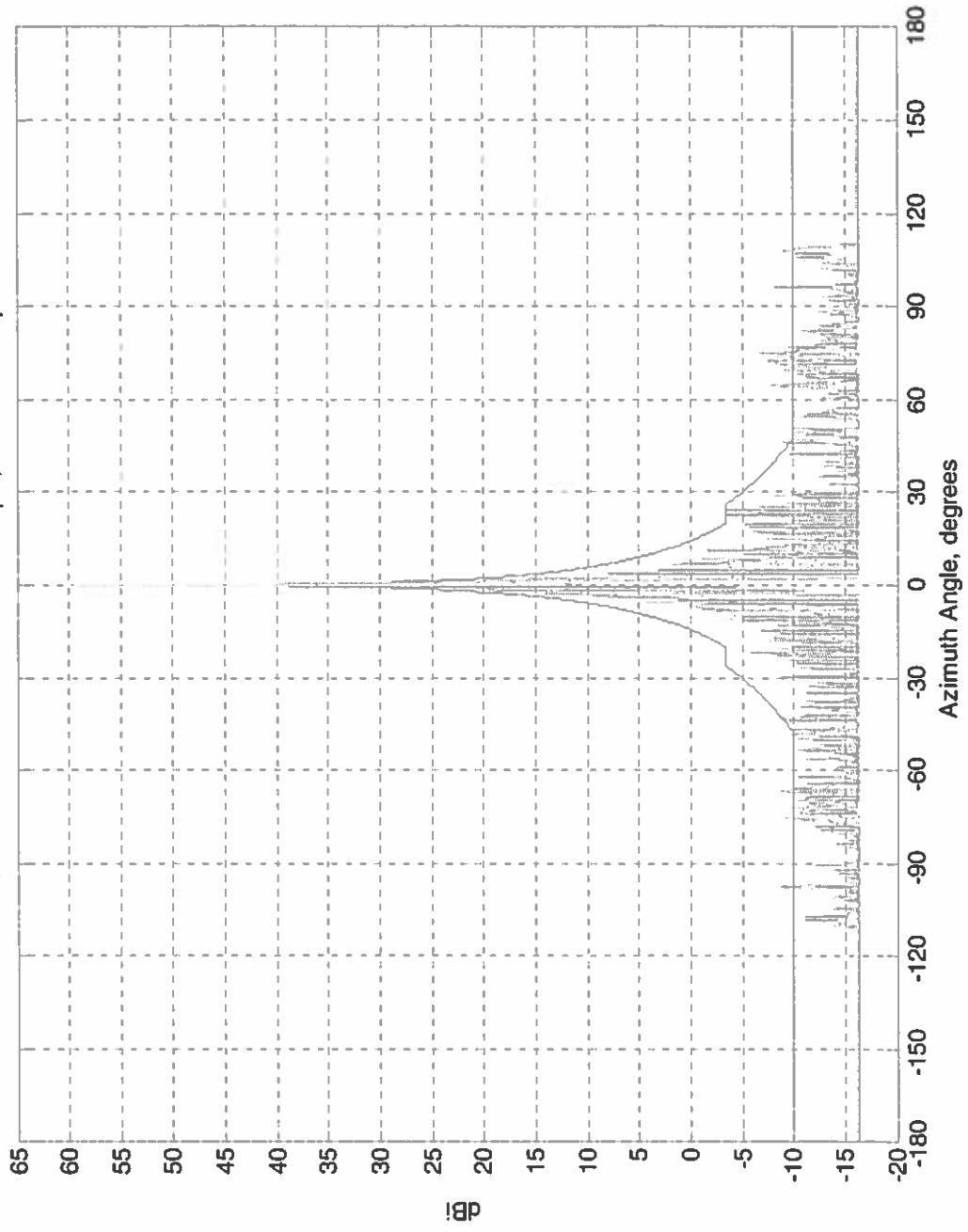
AZ_KATX1(RHCP)_CO_27p500GHz_dBi.txt, Gain = 59.51
Sidelobes over the line: 3.87% co-pol, 1.37% cross-pol



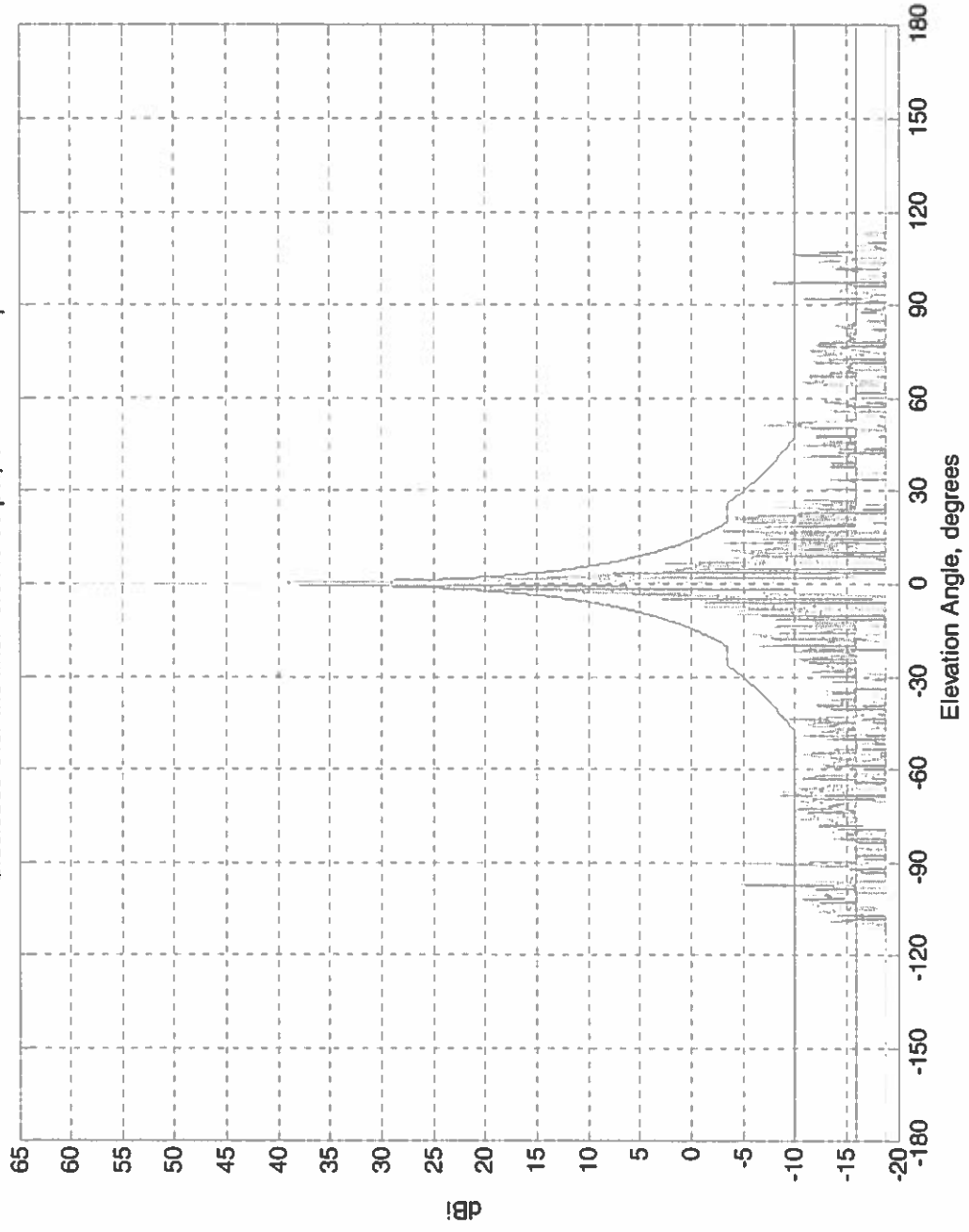
EL_KATX1(RHCP)_CO_27p500GHz_dBi.txt, Gain = 59.51
Sidelobes over the line: 2.09% co-pol, 0.67% cross-pol



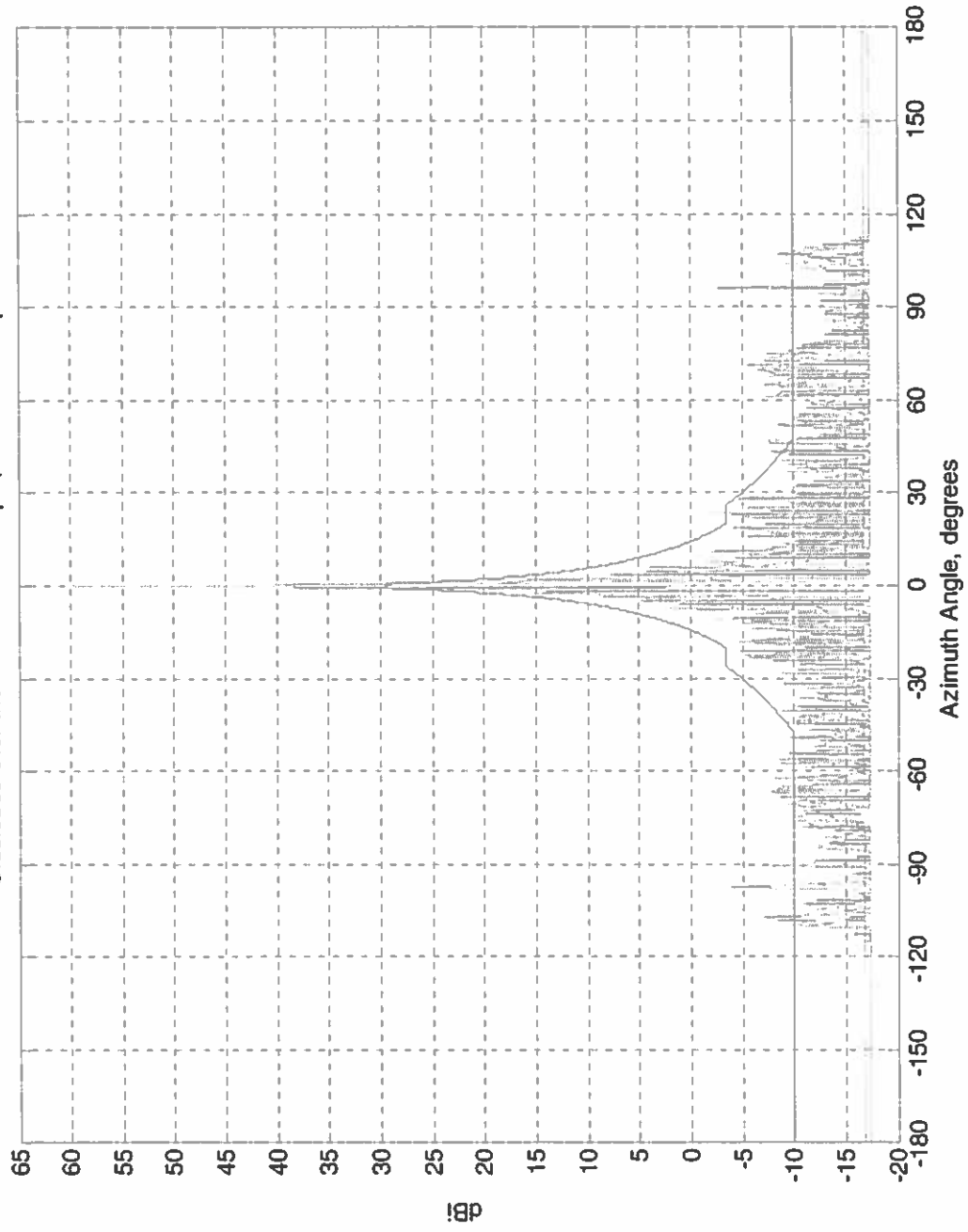
AZ_KATX2(LHCP)_CO_27p500GHz_dBi.txt, Gain = 59.51
Sidelobes over the line: 1.29% co-pol, 0.41% cross-pol



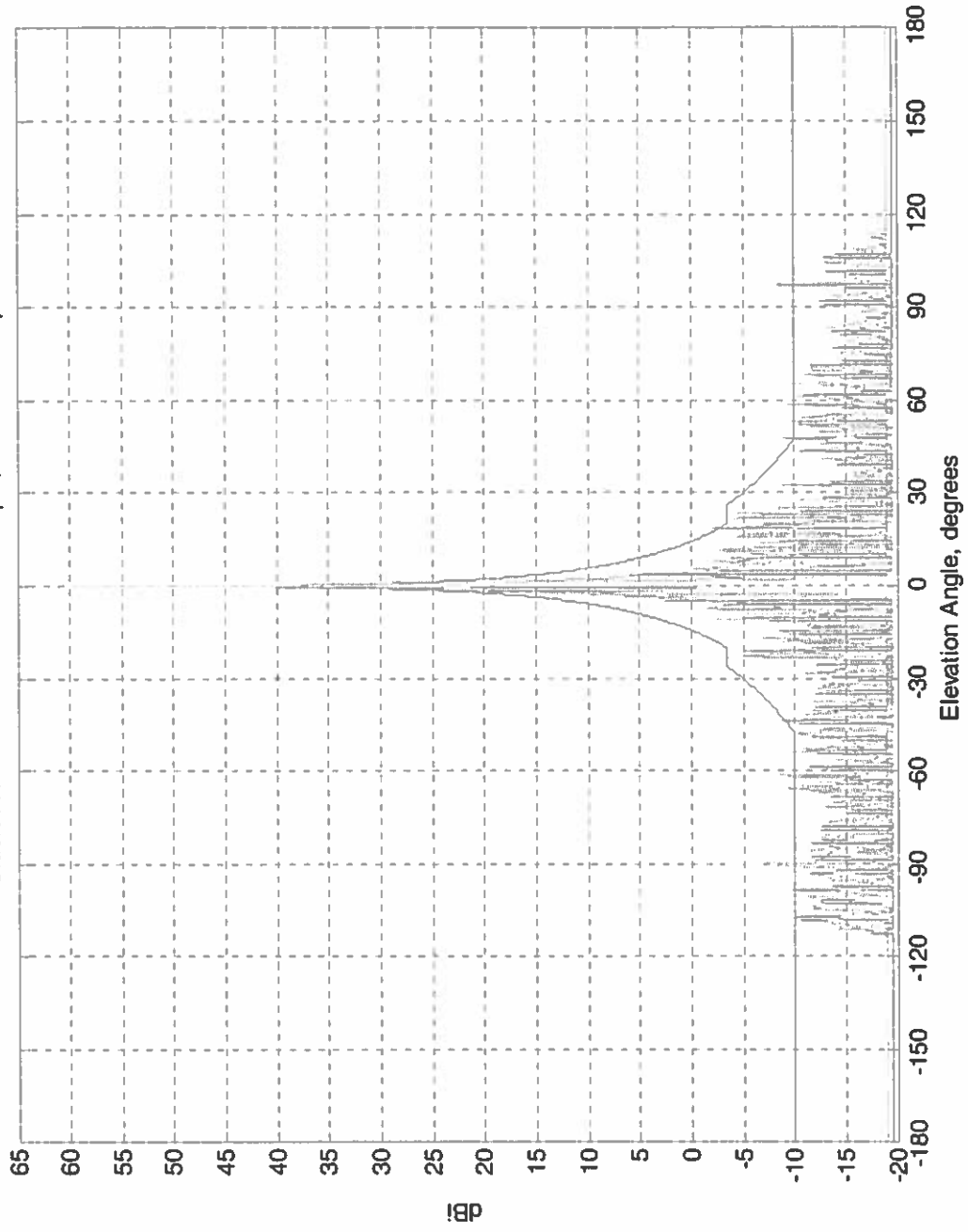
EL_KATX2(LHCP)_CO_27p500GHz_dBi.txt, Gain = 59.51
Sidelobes over the line: 0.61% co-pol, 0.27% cross-pol



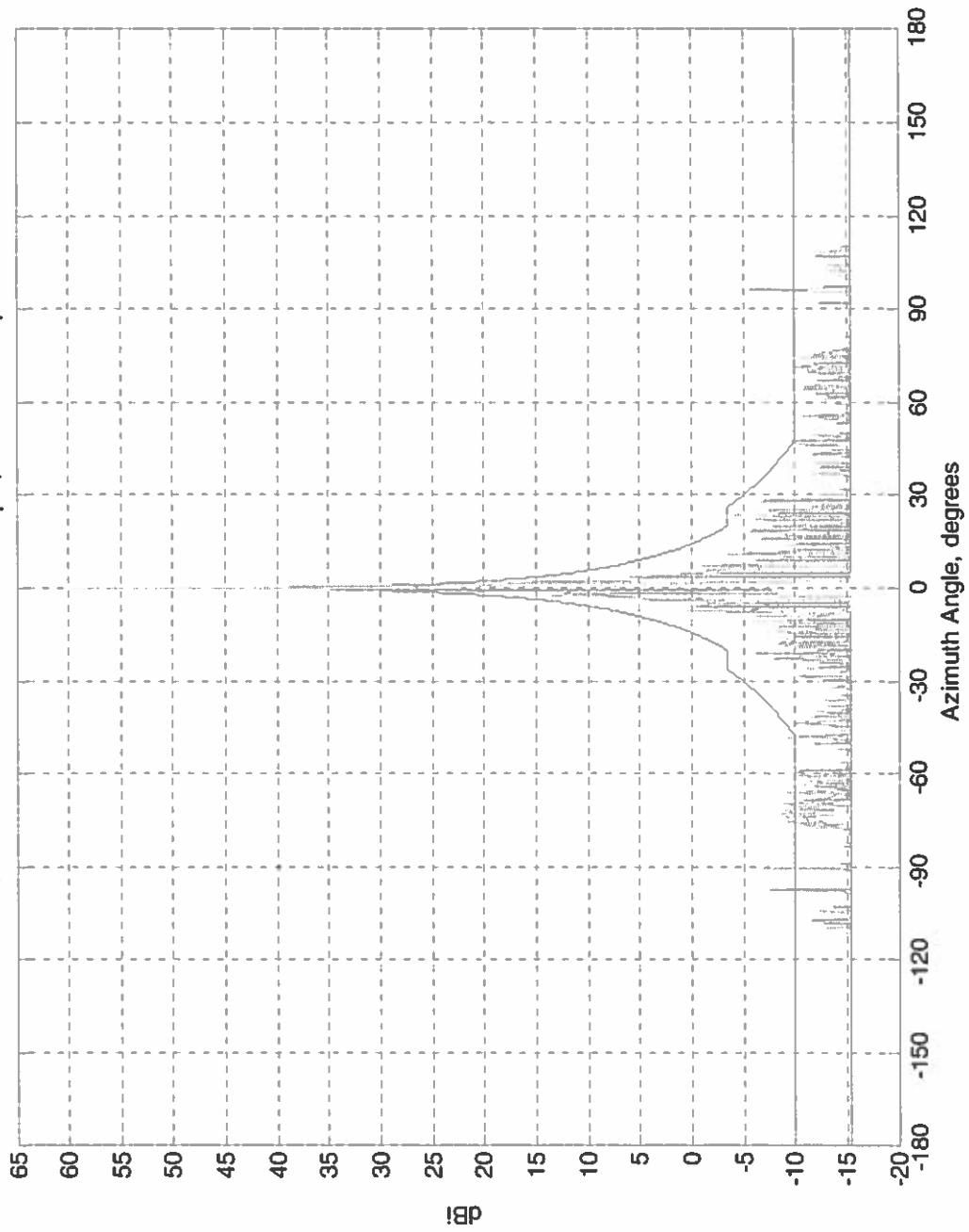
AZ_KA TX1(RHCP)_CO_28p750GHz_dBi.txt, Gain = 59.64
Sidelobes over the line: 2.79% co-pol, 1.20% cross-pol



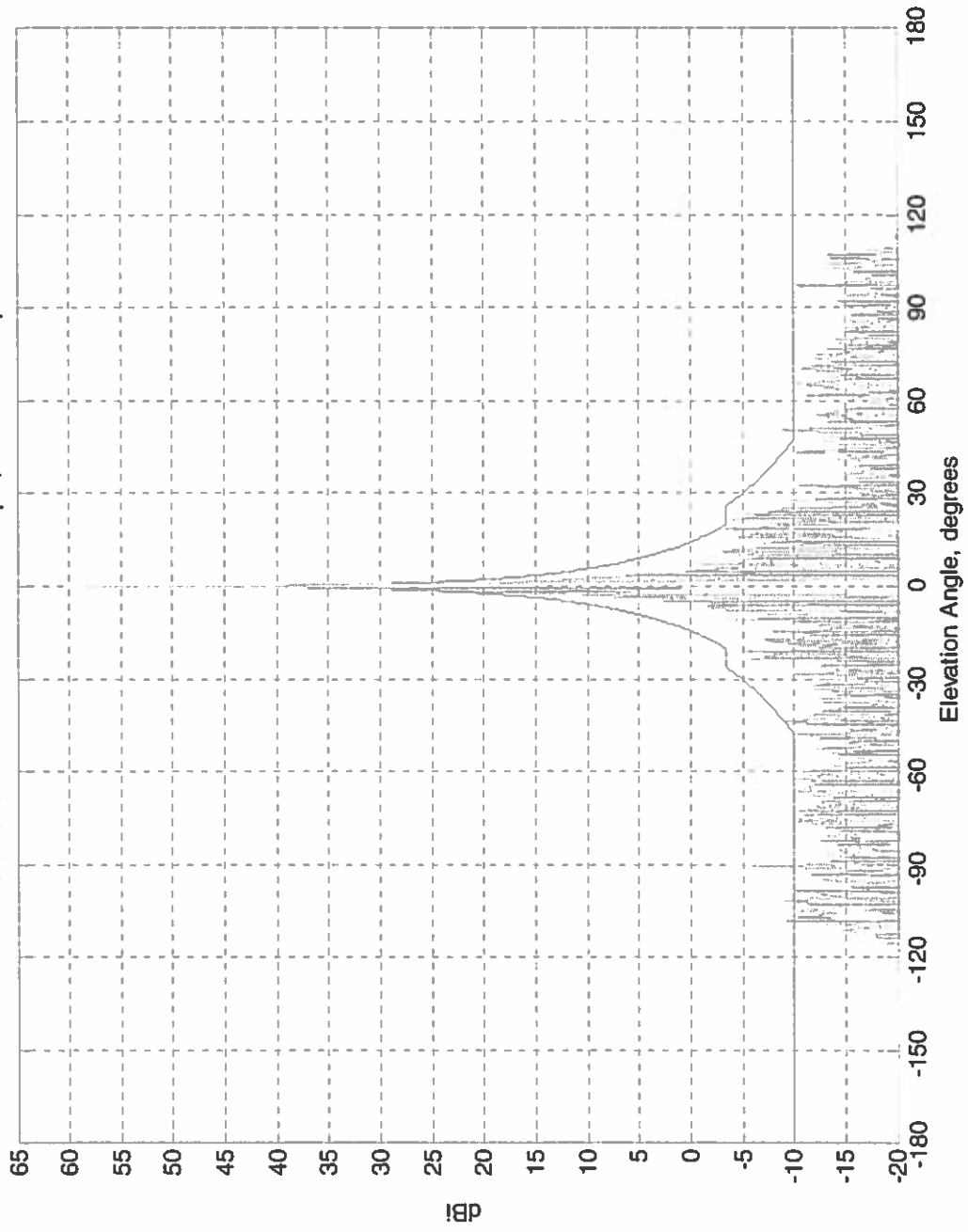
EL_KATX1(RHCP)_CO_28p750GHz_dBi.txt, Gain = 59.64
Sidelobes over the line: 0.54% co-pol, 0.37% cross-pol



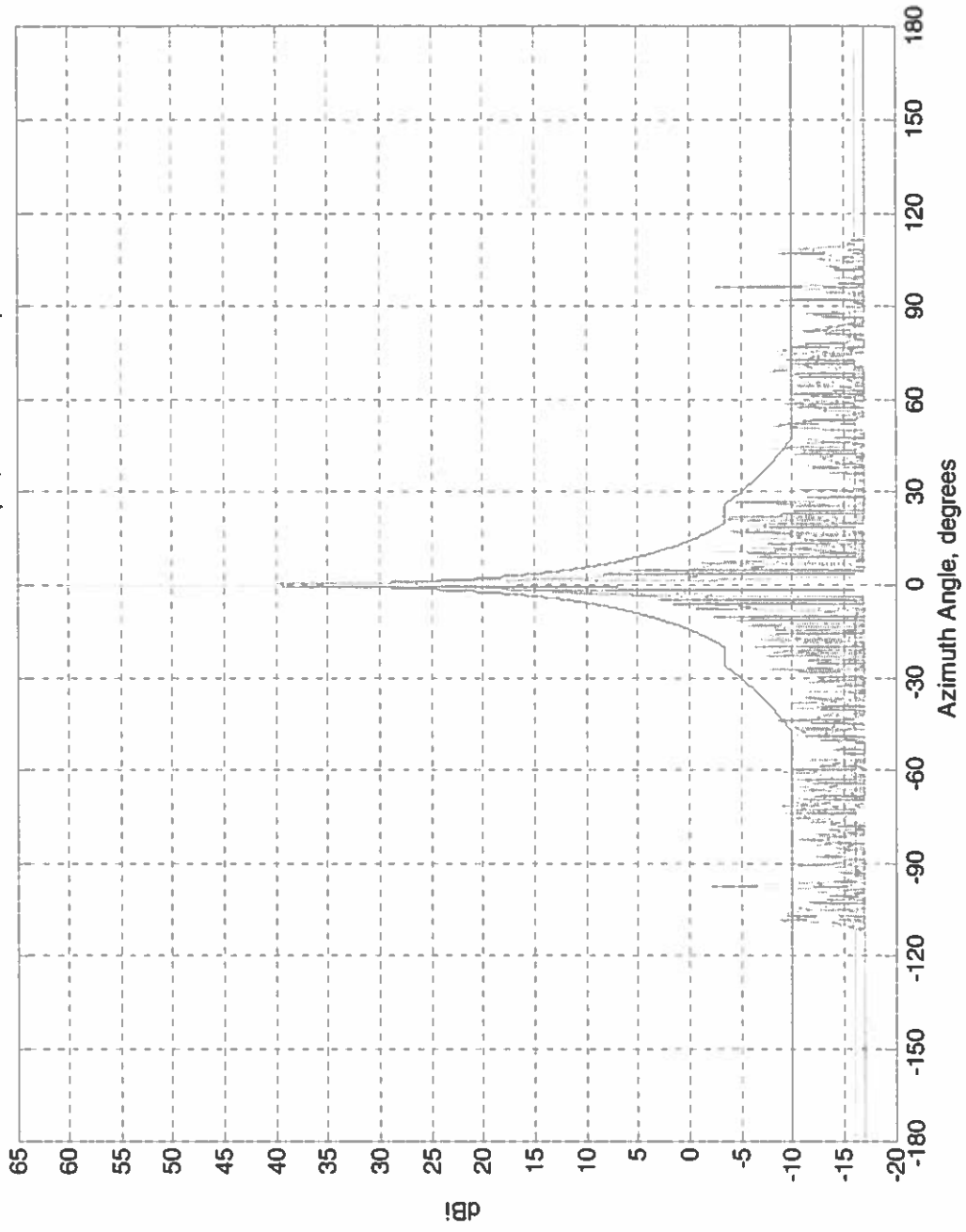
AZ_KATX2(LHCP)_CO_28p750GHz_dBi.txt, Gain = 59.64
Sidelobes over the line: 0.58% co-pol, 0.45% cross-pol



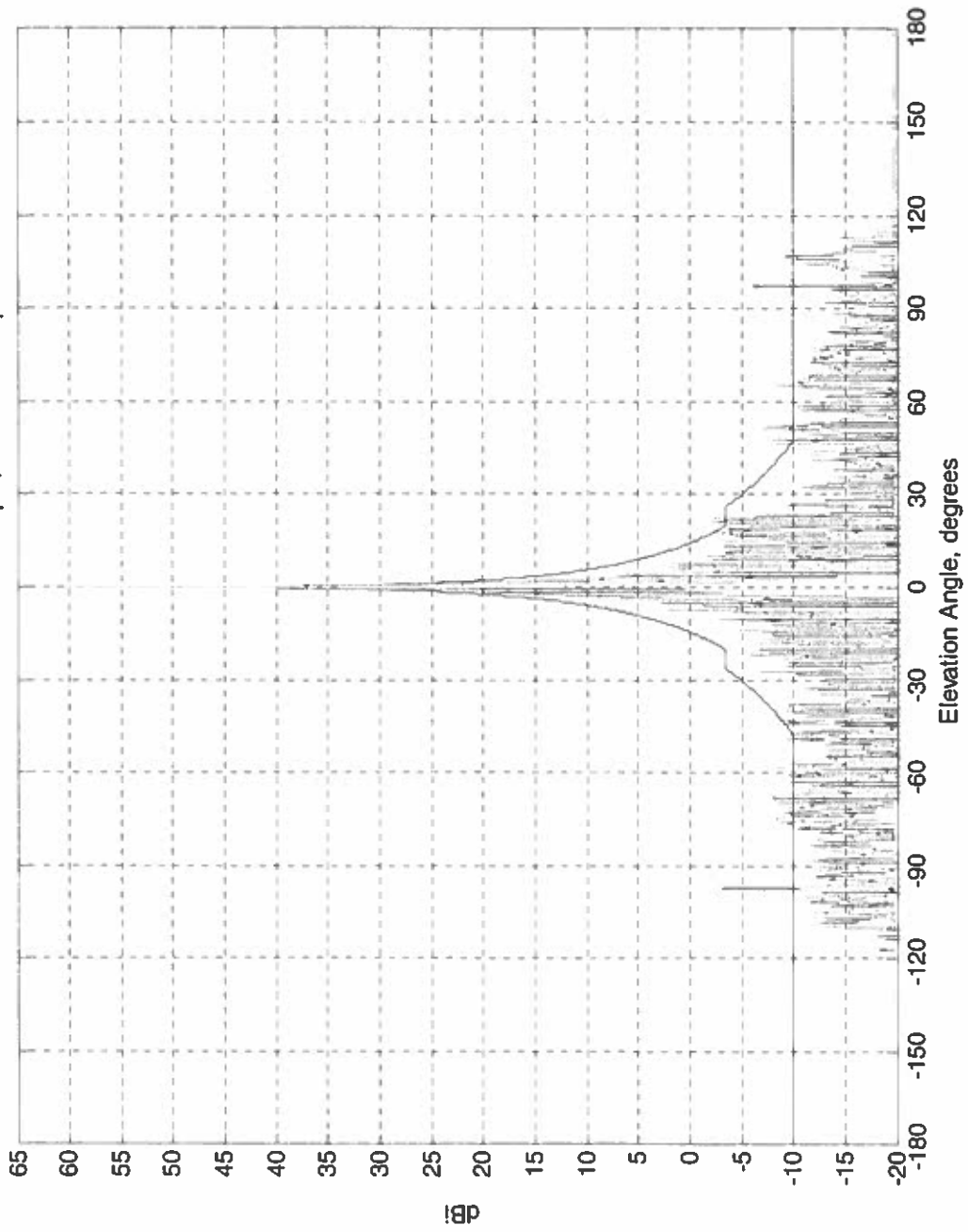
EL_KATX2(LHCP)_CO_28p750GHz_dBi.txt, Gain = 59.64
Sidelobes over the line: 0.13% co-pol, 0.31% cross-pol



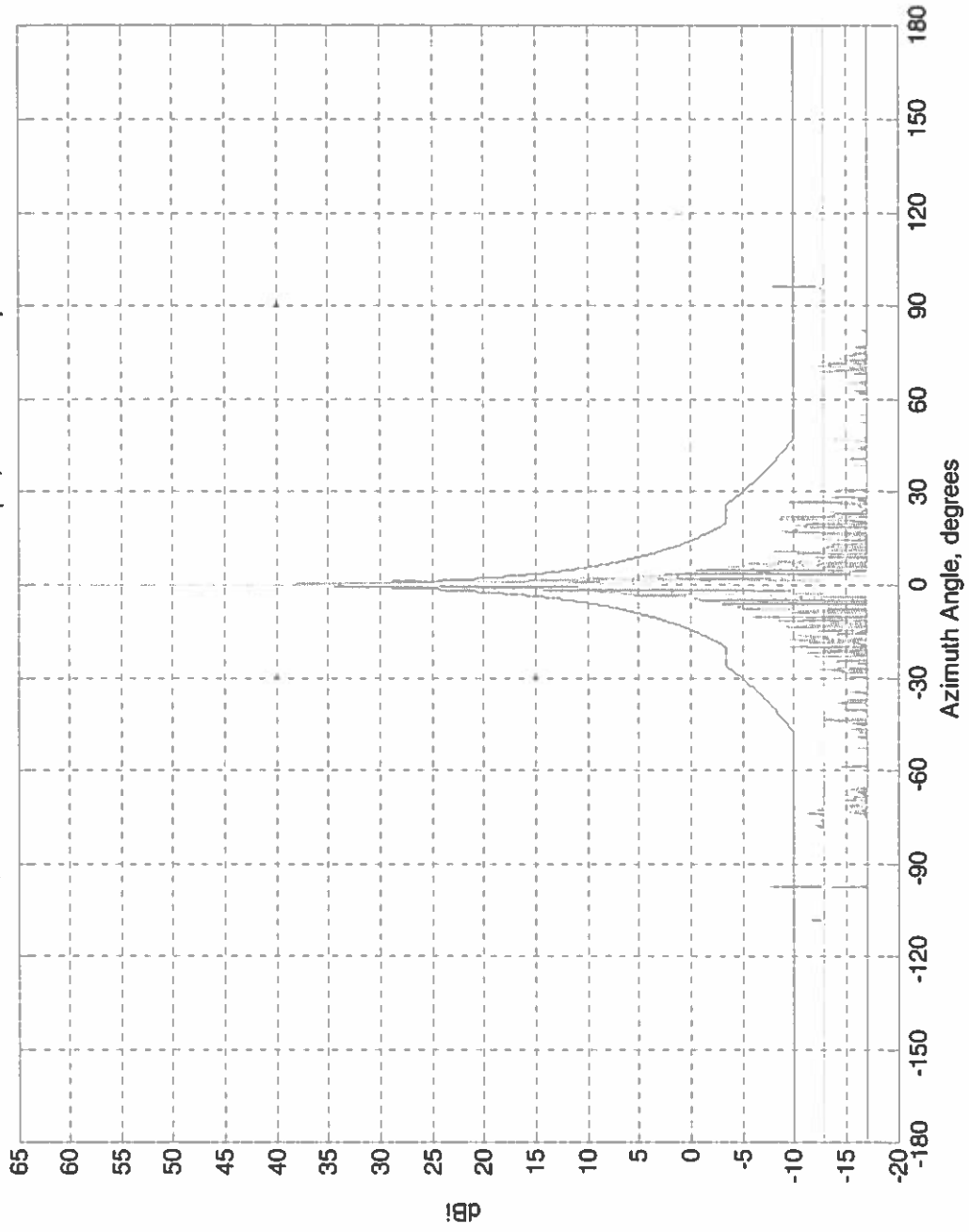
AZ_KATX1(RHCP)_CO_30p000GHz_dBi.txt, Gain = 60.17
Sidelobes over the line: 0.75% co-pol, 1.19% cross-pol



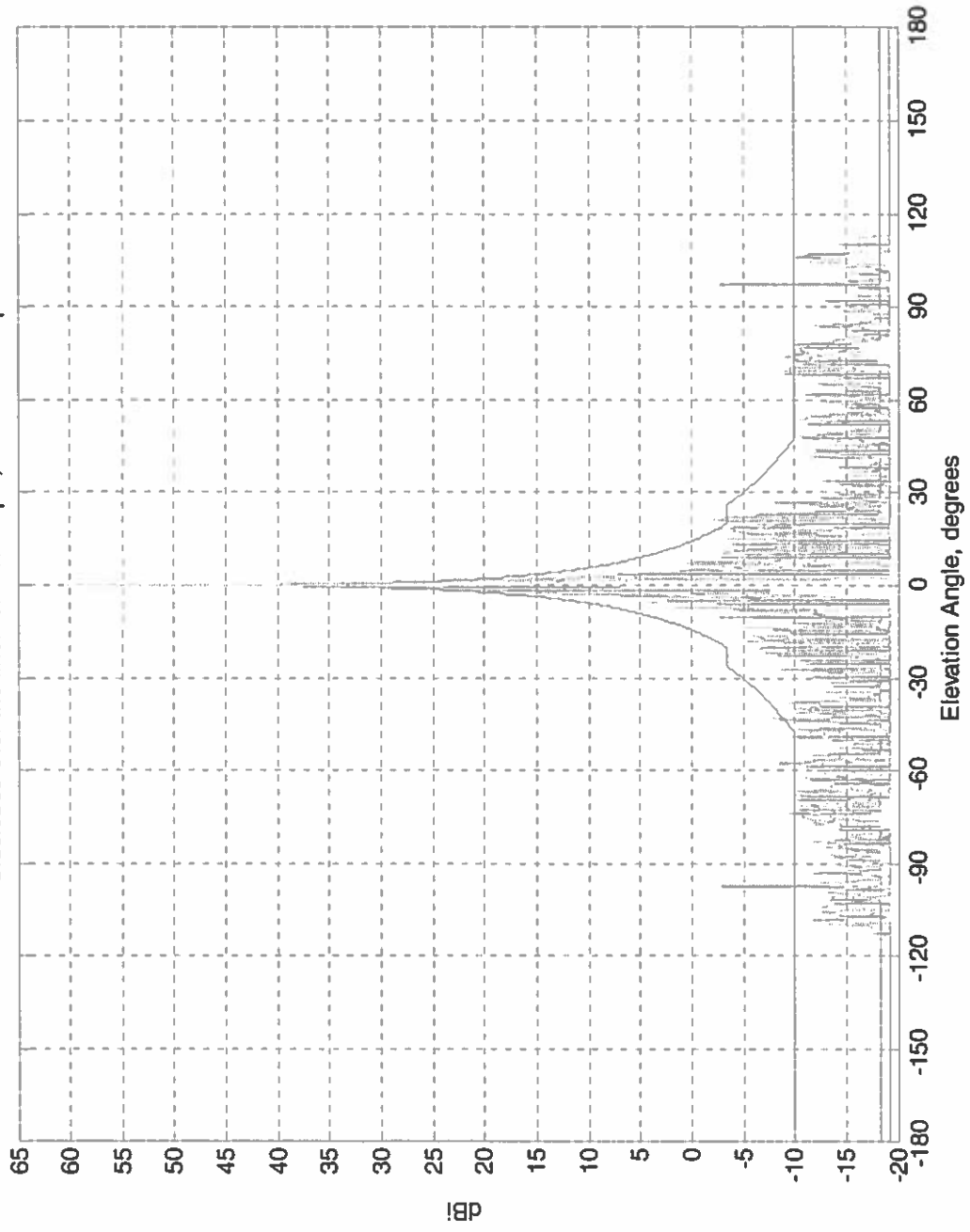
EL_KATX1(RHCP)_CO_30p000GHz_dBi.txt, Gain = 60.17
Sidelobes over the line: 0.91% co-pol, 1.28% cross-pol



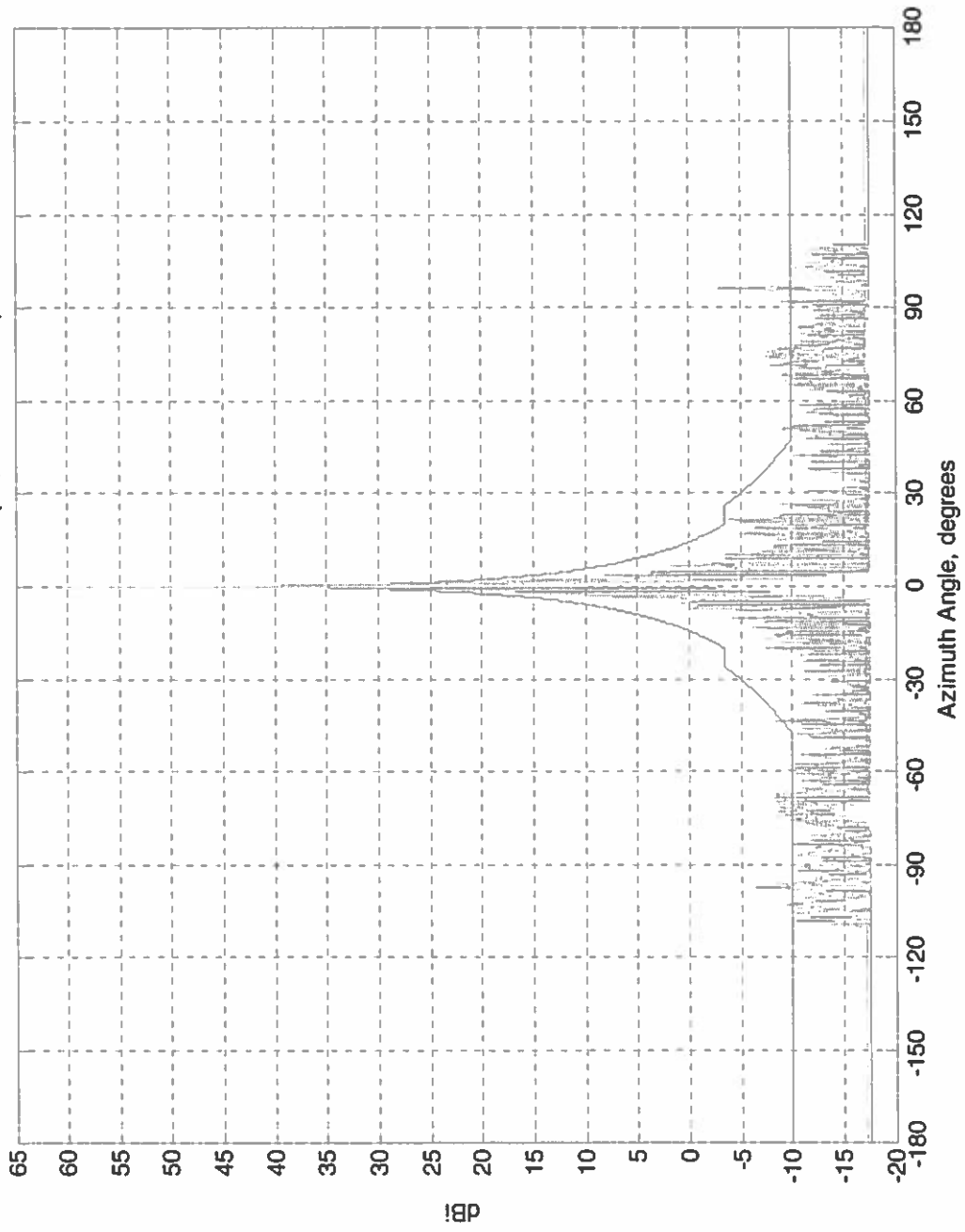
AZ_KATX2(LHCP)_CO_30p000GHz_dBi.txt, Gain = 60.17
Sidelobes over the line: 0.00% co-pol, 0.20% cross-pol



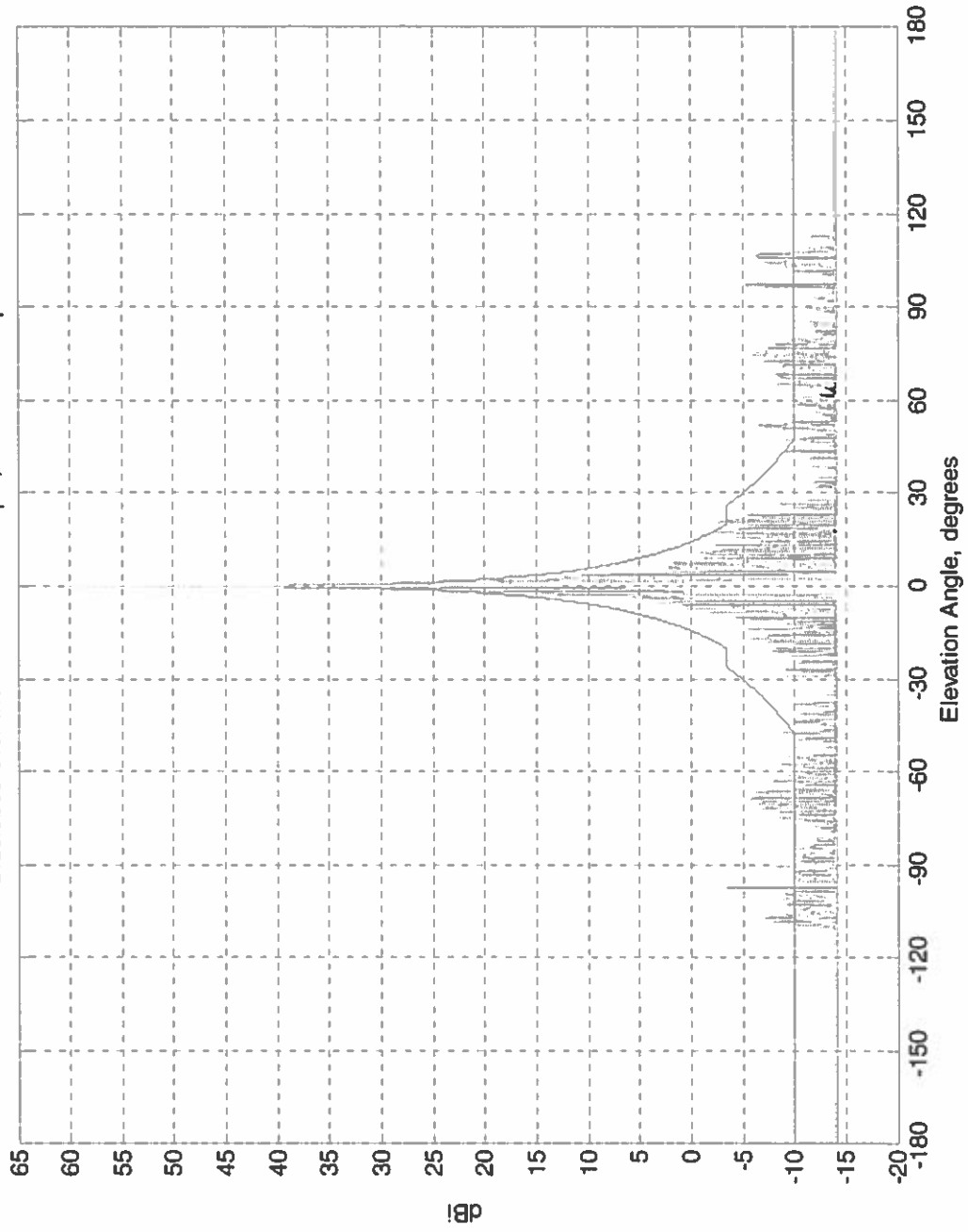
EL_KATX2(LHCP)_CO_30p000GHz_dBi.txt, Gain = 60.17
Sidelobes over the line: 0.71% co-pol, 0.52% cross-pol



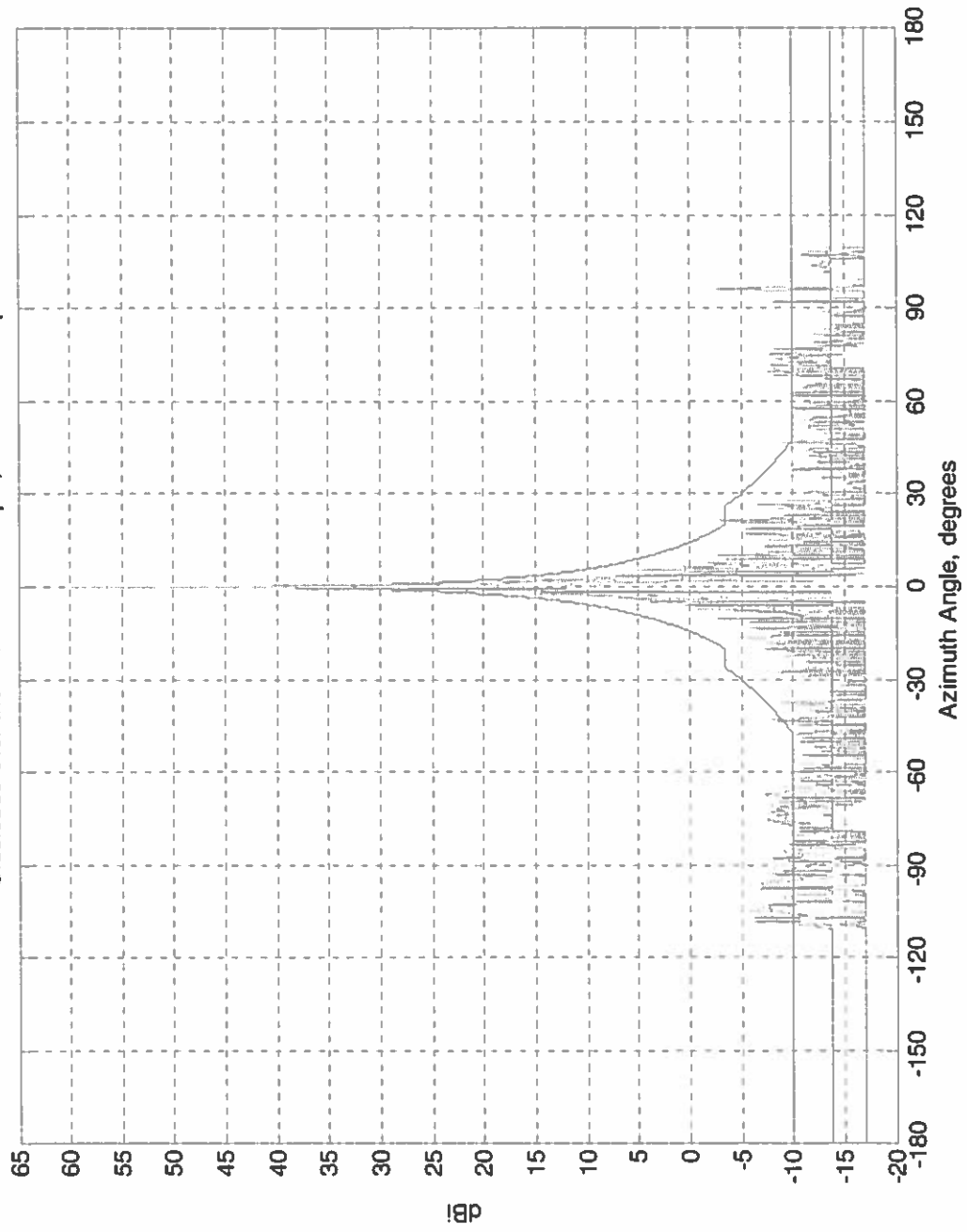
AZ_KATX1(RHCP)_CO_30p500GHz_dBi.txt, Gain = 59.94
Sidelobes over the line: 1.91% co-pol, 0.69% cross-pol



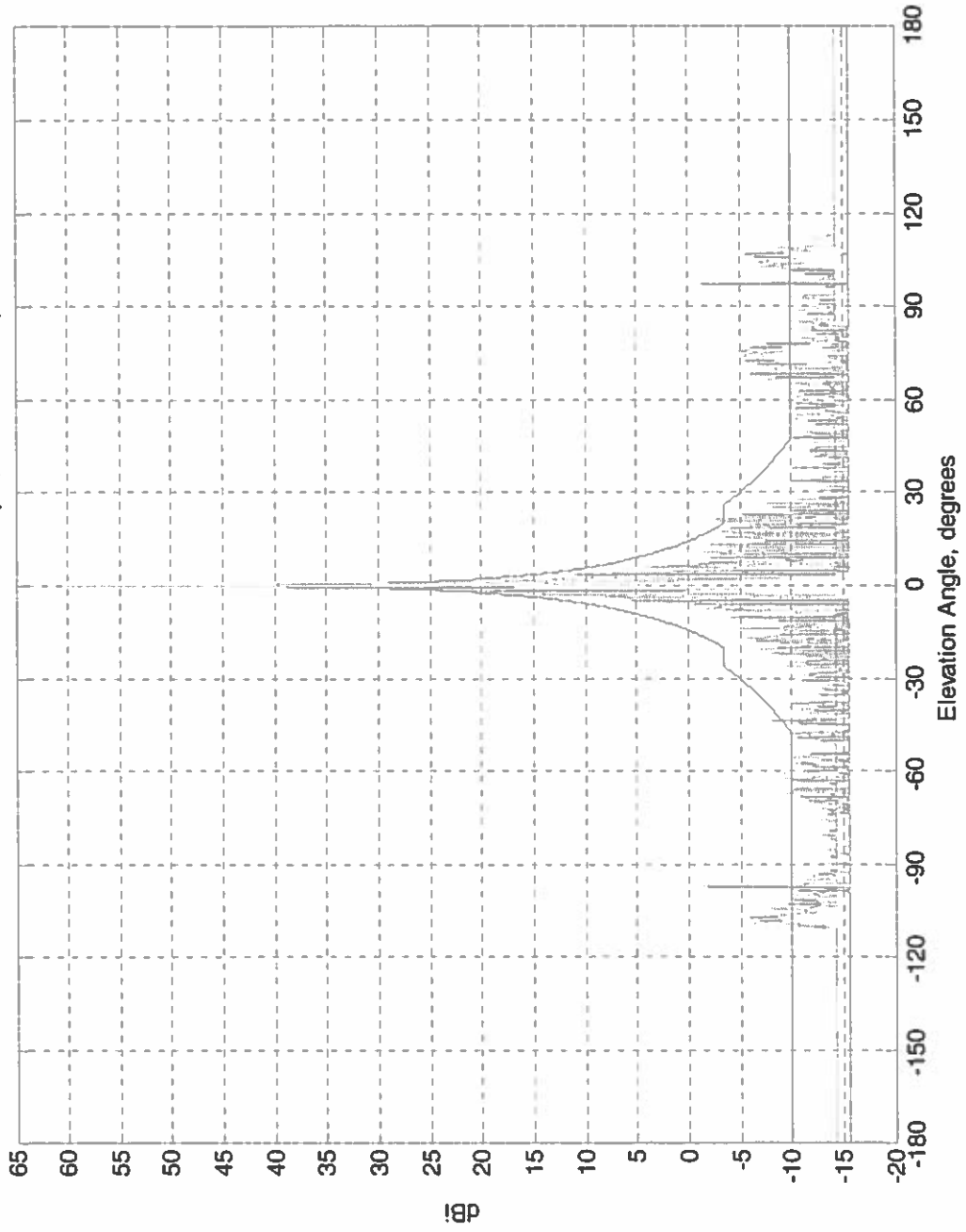
EL_KATX1(RHCP)_CO_30p500GHz_dBi.txt, Gain = 59.94
Sidelobes over the line: 2.48% co-pol, 4.15% cross-pol



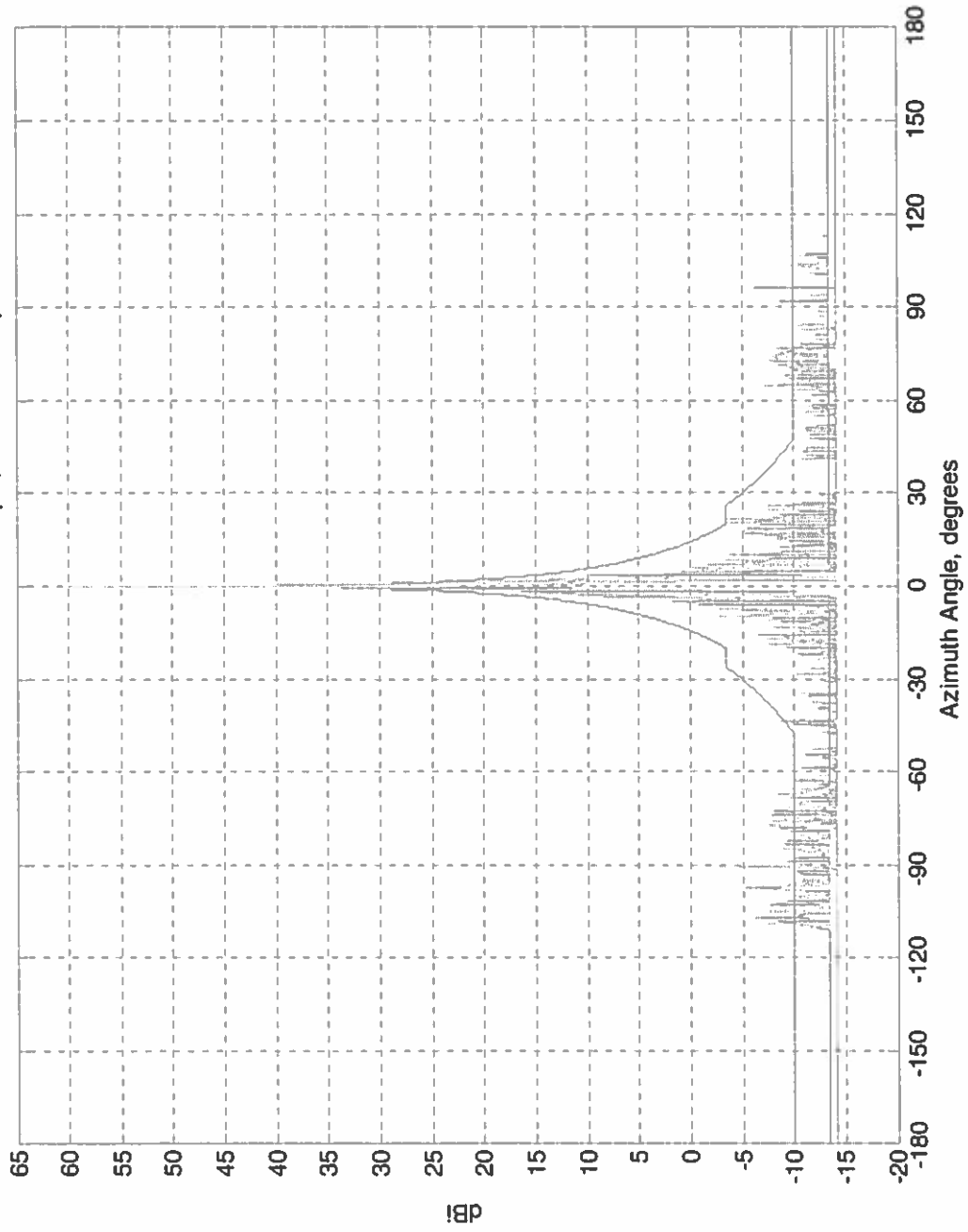
AZ_KATX2(LHCP)_CO_30p500GHz_dBi.txt, Gain = 59.94
Sidelobes over the line: 2.87% co-pol, 4.07% cross-pol



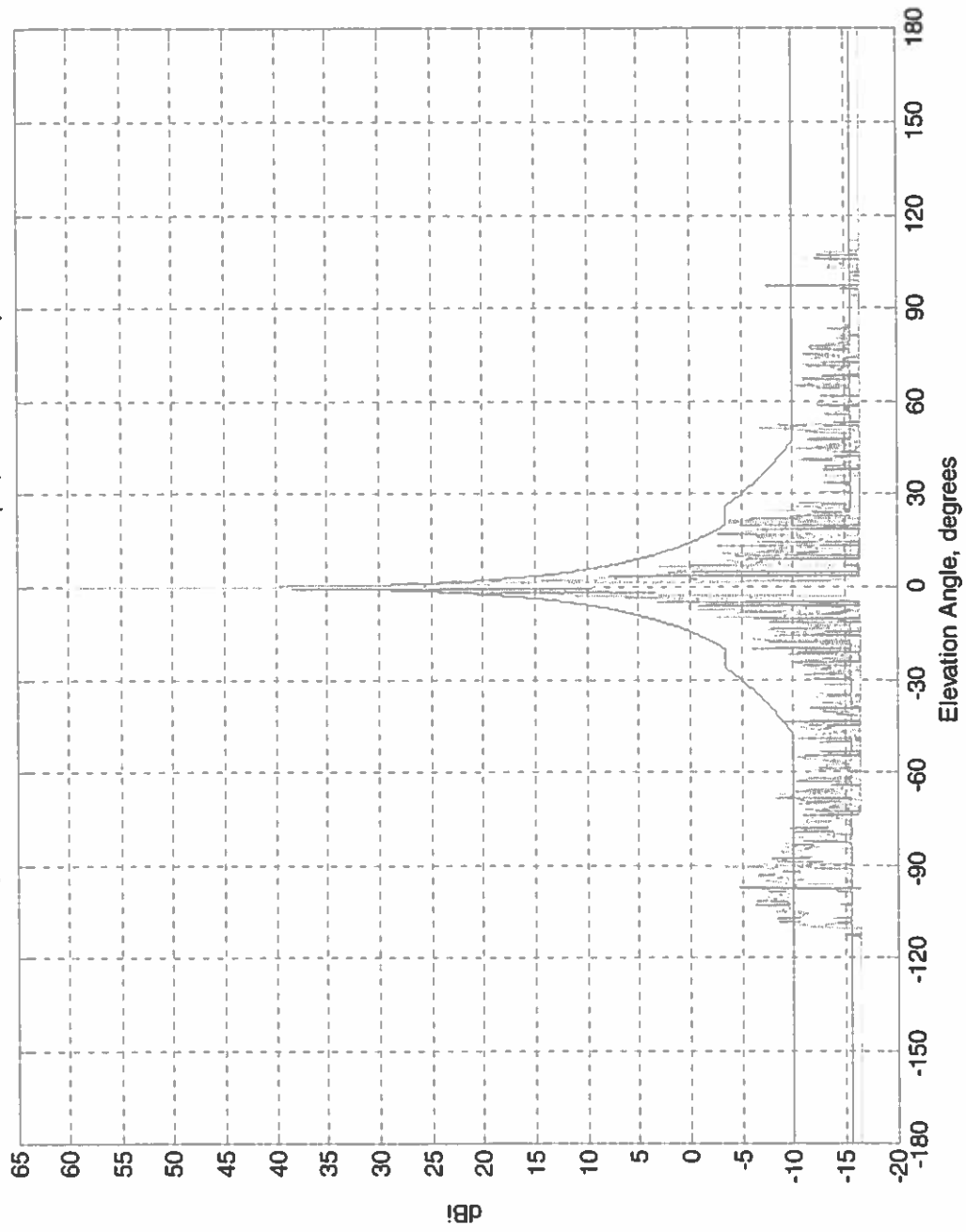
EL_KATX2(LHCP)_CO_30p500GHz_dBi.txt, Gain = 59.94
Sidelobes over the line: 0.45% co-pol, 5.54% cross-pol



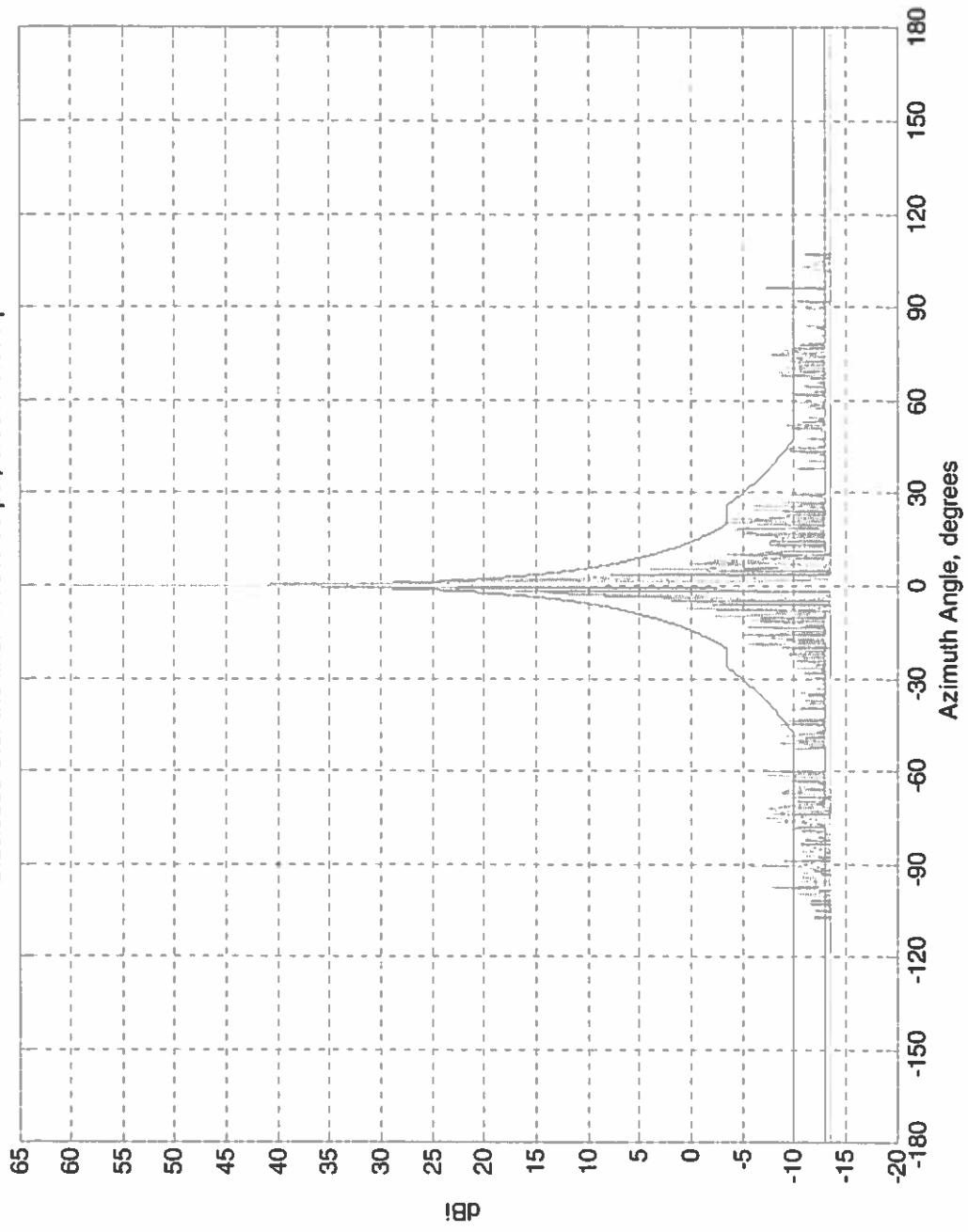
AZ_KATX1(RHCP)_CO_31p000GHz_dBi.txt, Gain = 59.98
Sidelobes over the line: 0.90% co-pol, 3.16% cross-pol



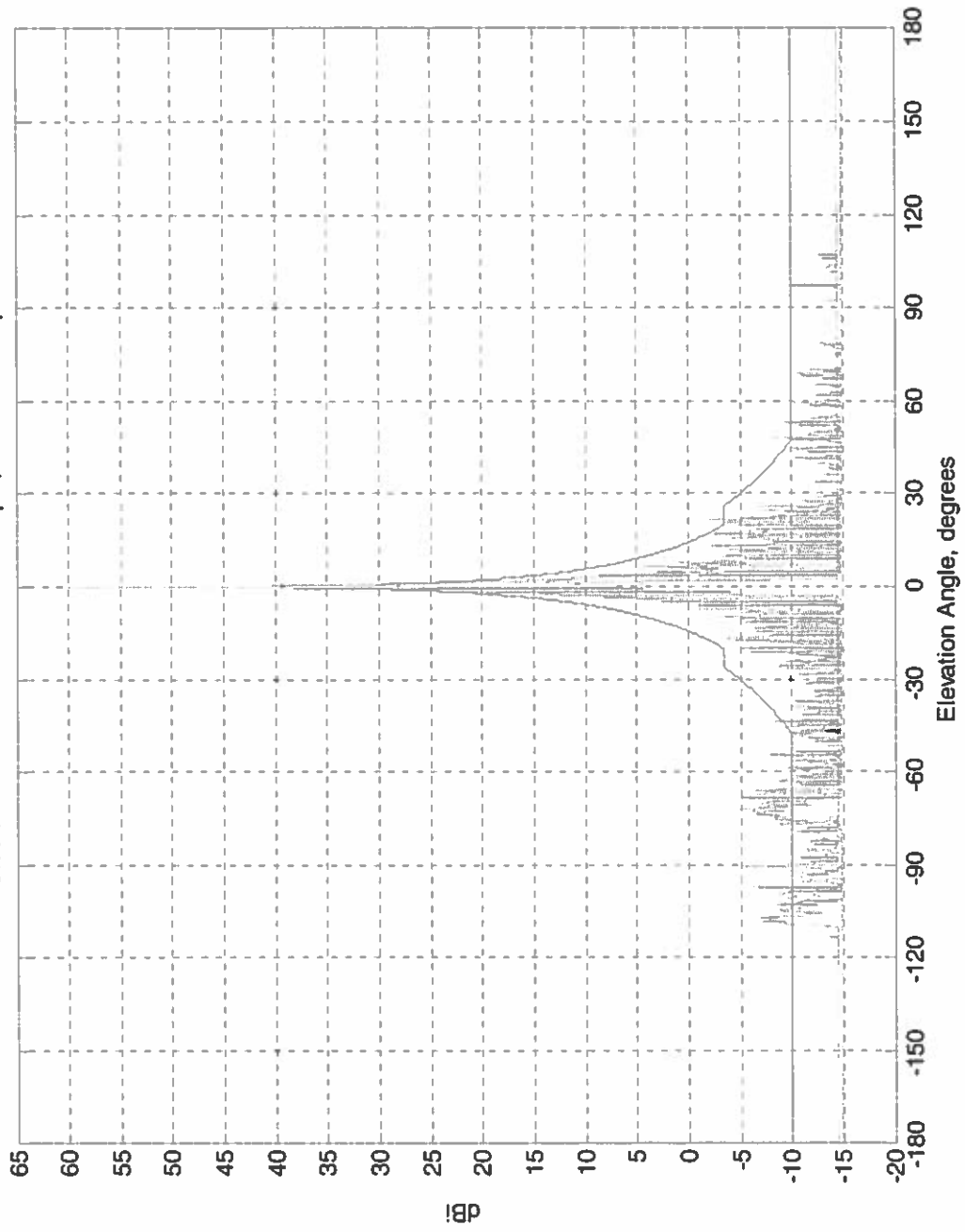
EL_KA TX1(RHCP)_CO_31p000GHz_dBi.txt, Gain = 59.98
Sidelobes over the line: 0.75% co-pol, 5.11% cross-pol



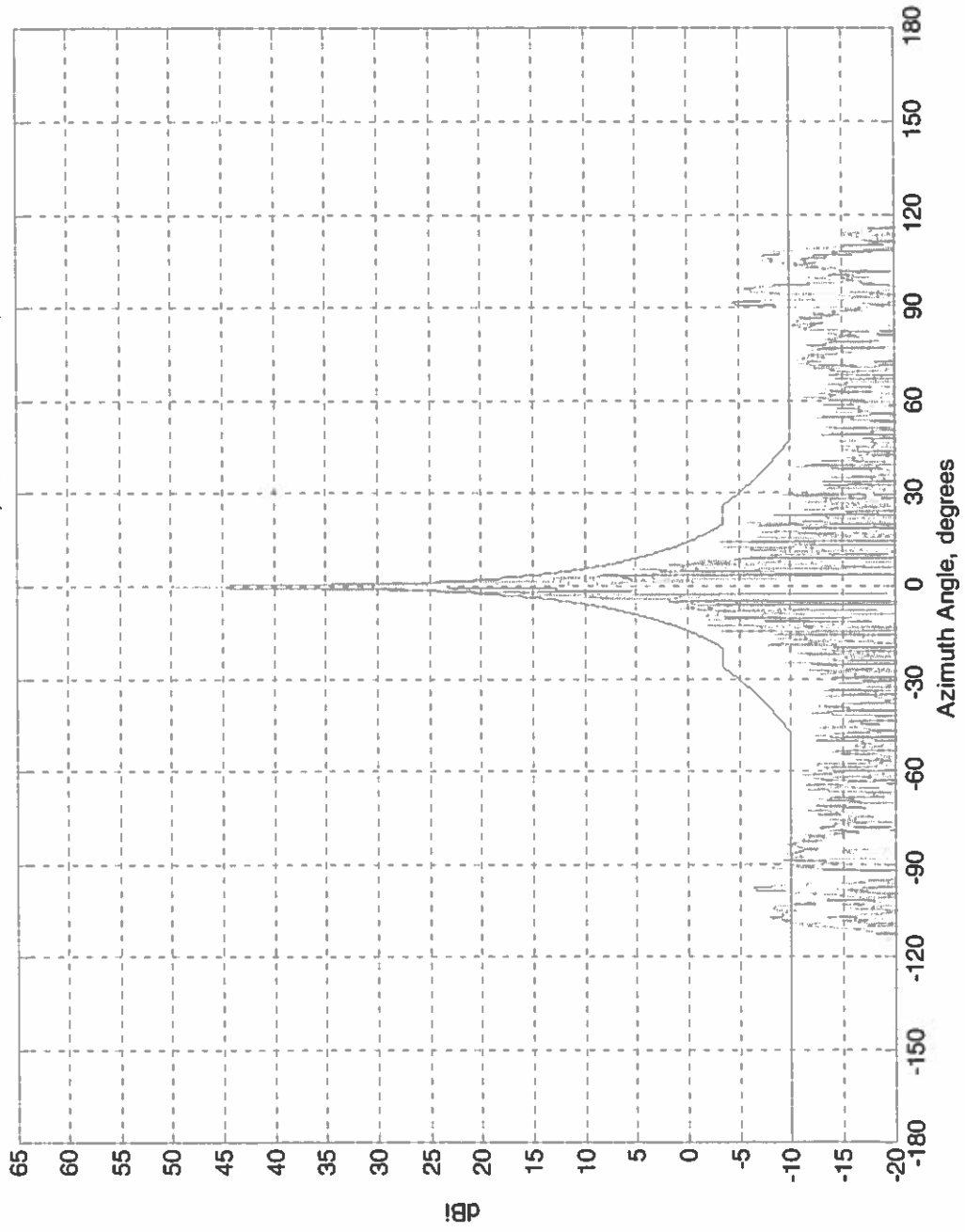
AZ_KATX2(LHCP)_CO_31p000GHz_dBi.txt, Gain = 59.98
Sidelobes over the line: 1.73% co-pol, 0.38% cross-pol



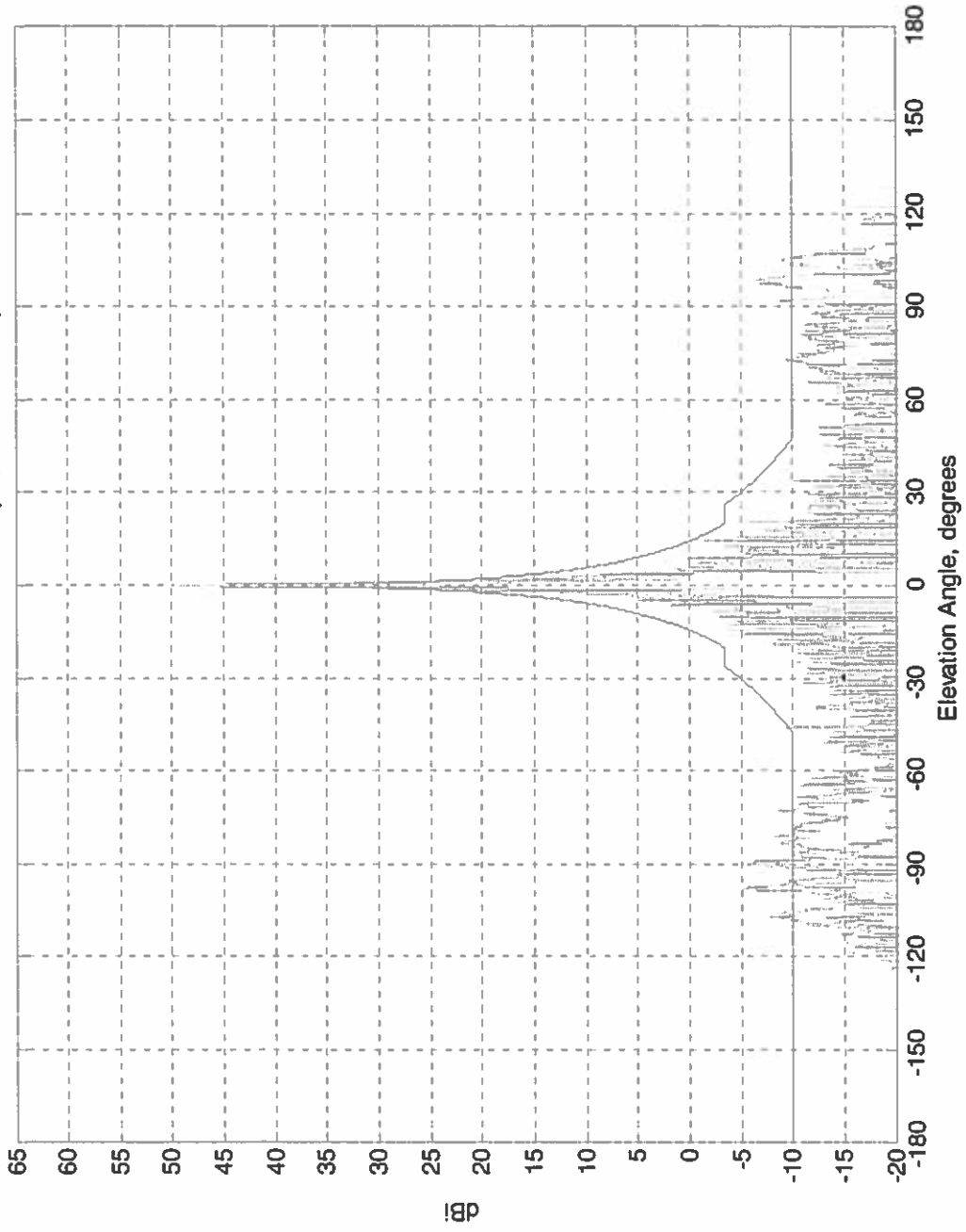
EL_KATX2(LHCP)_CO_31p000GHz_dBi.txt, Gain = 59.98
Sidelobes over the line: 2.64% co-pol, 1.71% cross-pol



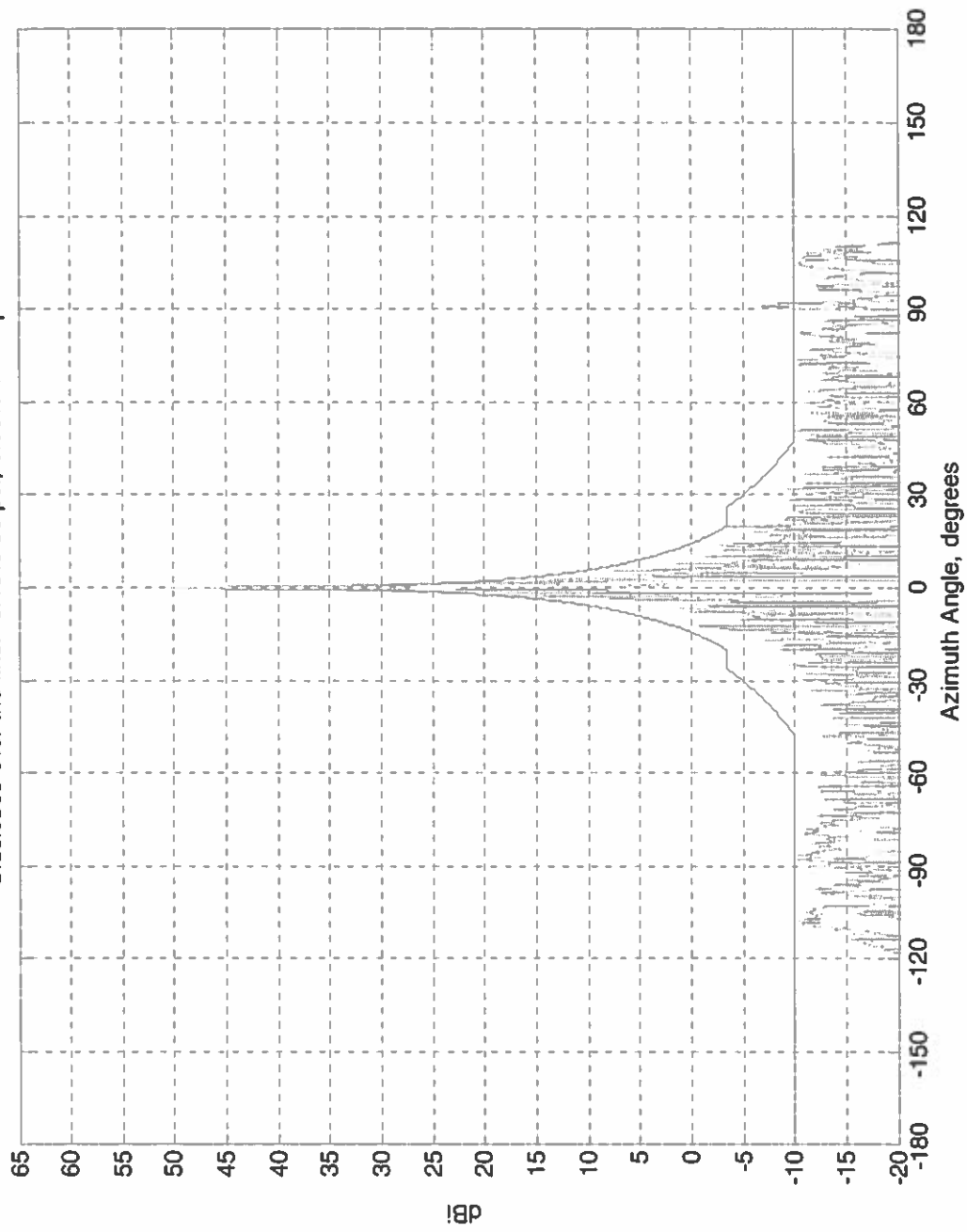
AZ_XX(RHCP)_CO_7p900GHz_dBi.txt, Gain = 49.75
Sidelobes over the line: 0.45% co-pol, 5.07% cross-pol



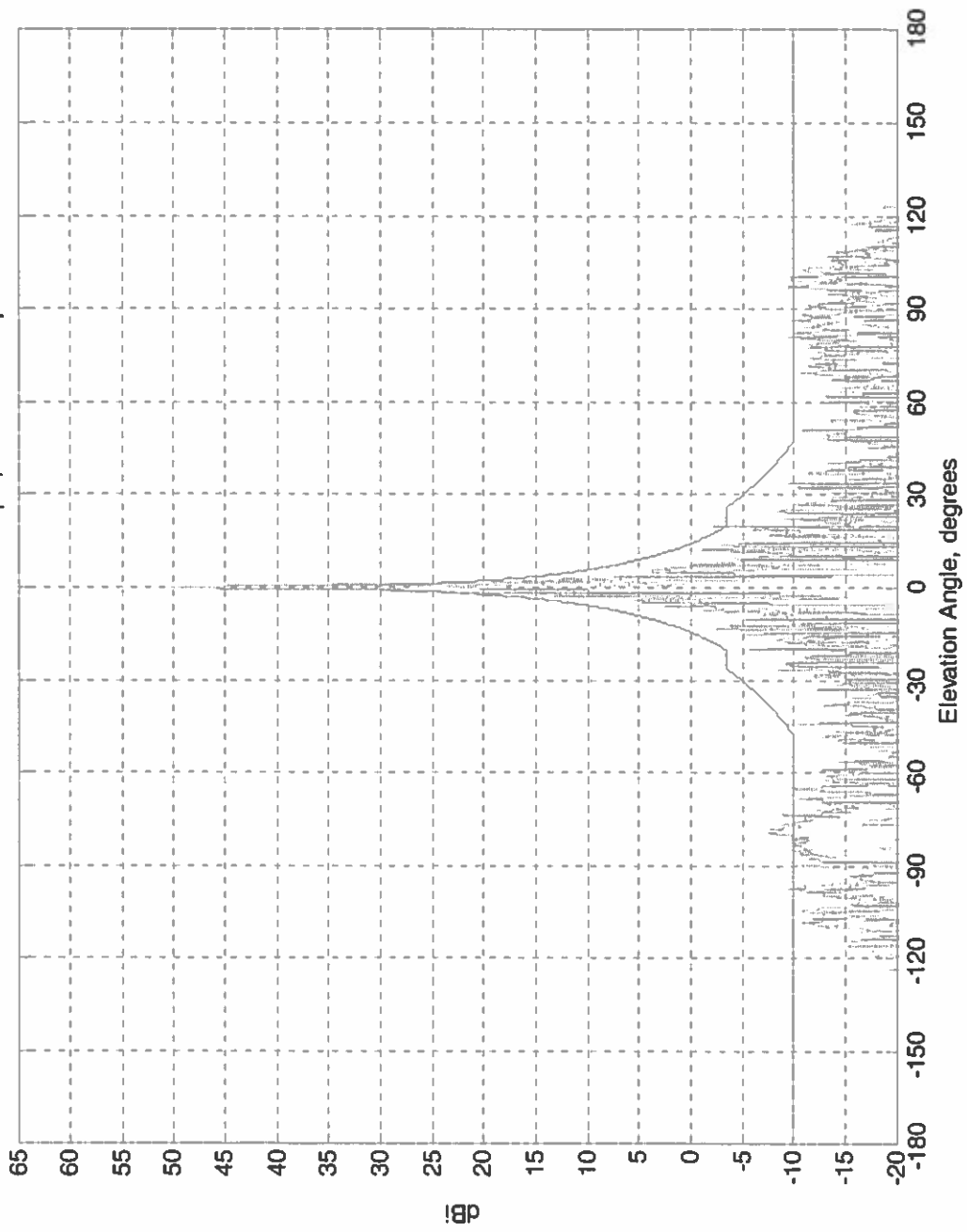
EL_XTX(RHCP)_CO_7p900GHz_dBi.txt, Gain = 49.75
Sidelobes over the line: 2.14% co-pol, 3.27% cross-pol



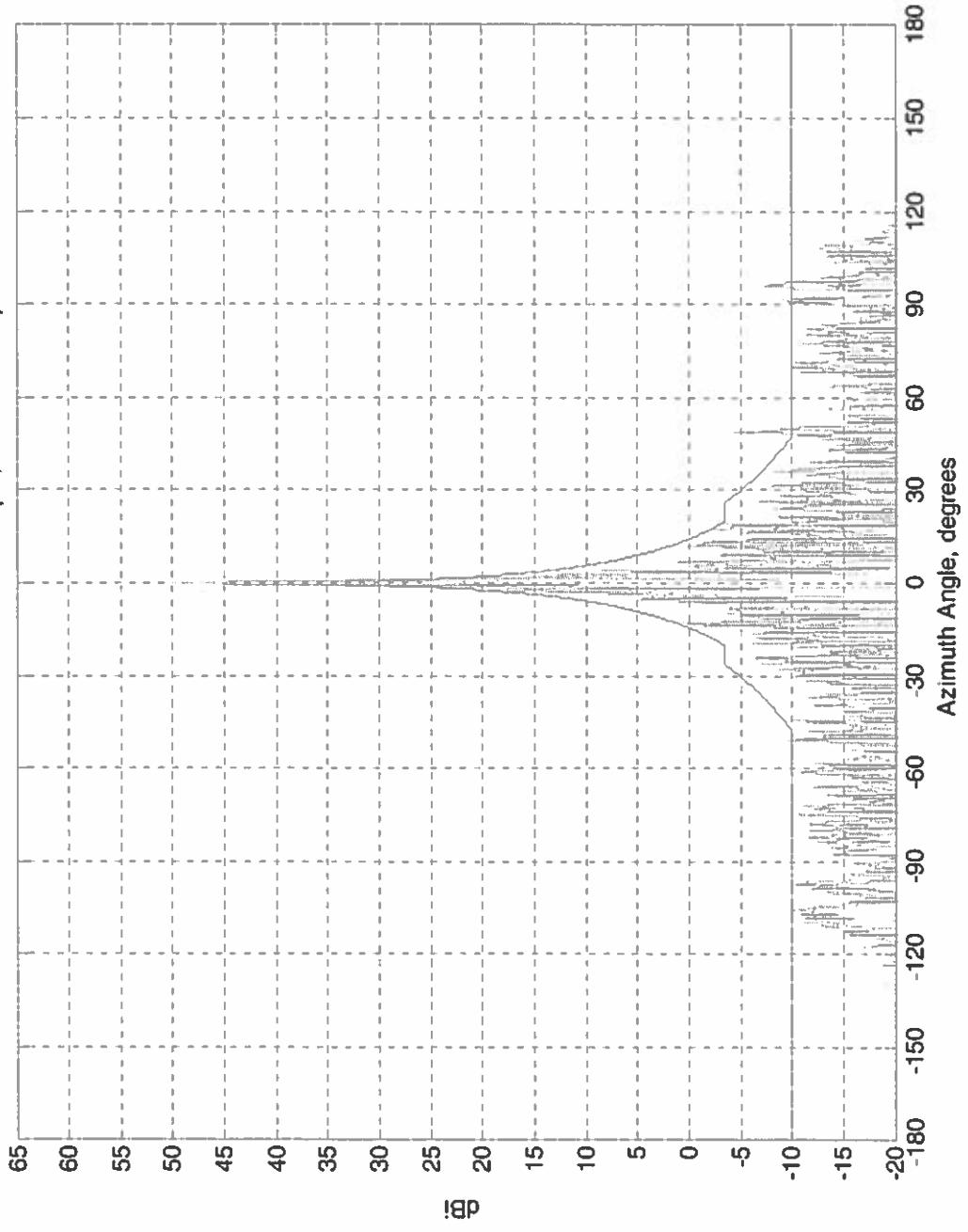
AZ_XX(RHCP)_CO_8p150GHz_dBi.txt, Gain = 50.48
Sidelobes over the line: 0.15% co-pol, 0.53% cross-pol



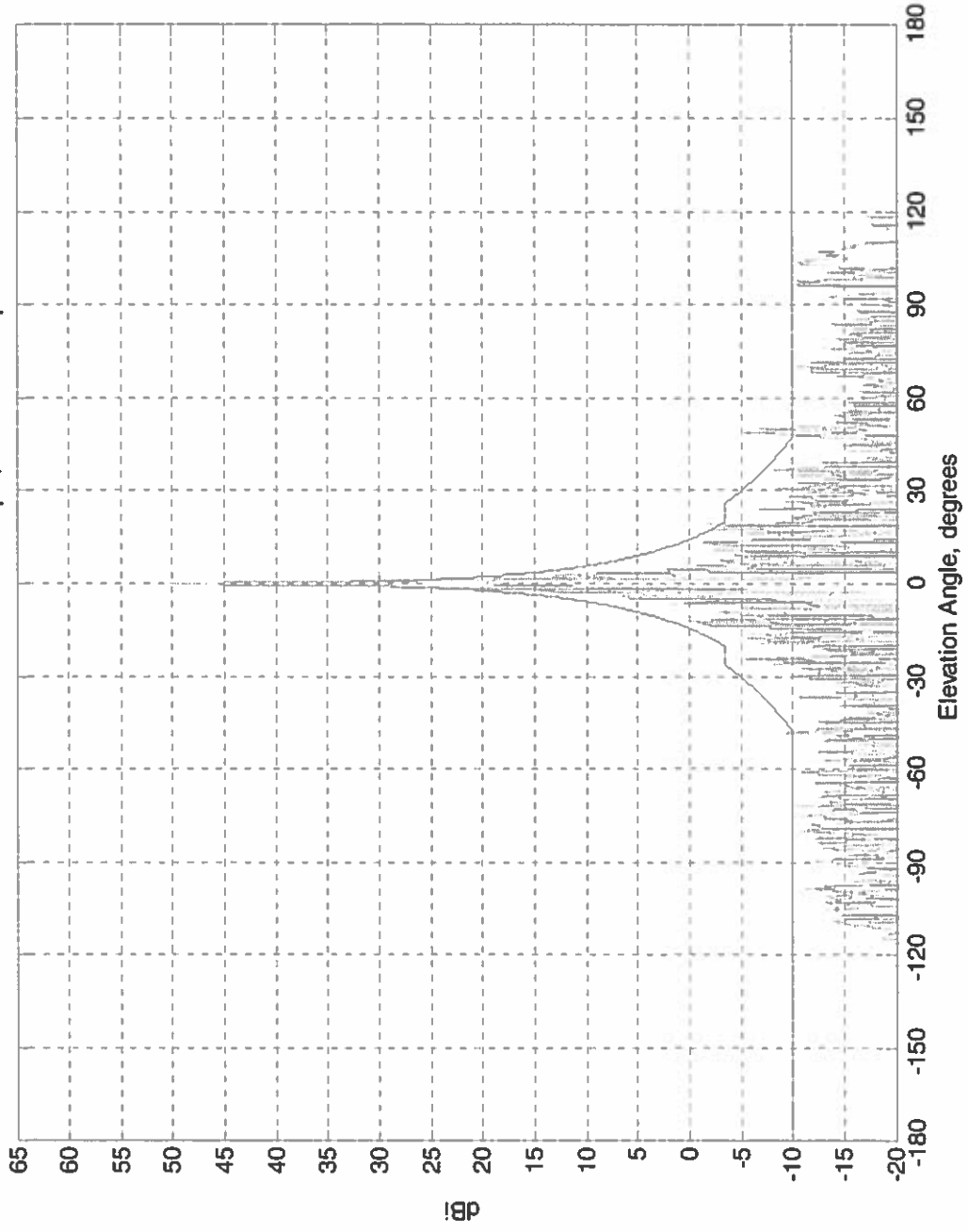
EL_XTX(RHCP)_CO_8p150GHz_dBi.txt, Gain = 50.48
Sidelobes over the line: 1.71% co-pol, 0.42% cross-pol

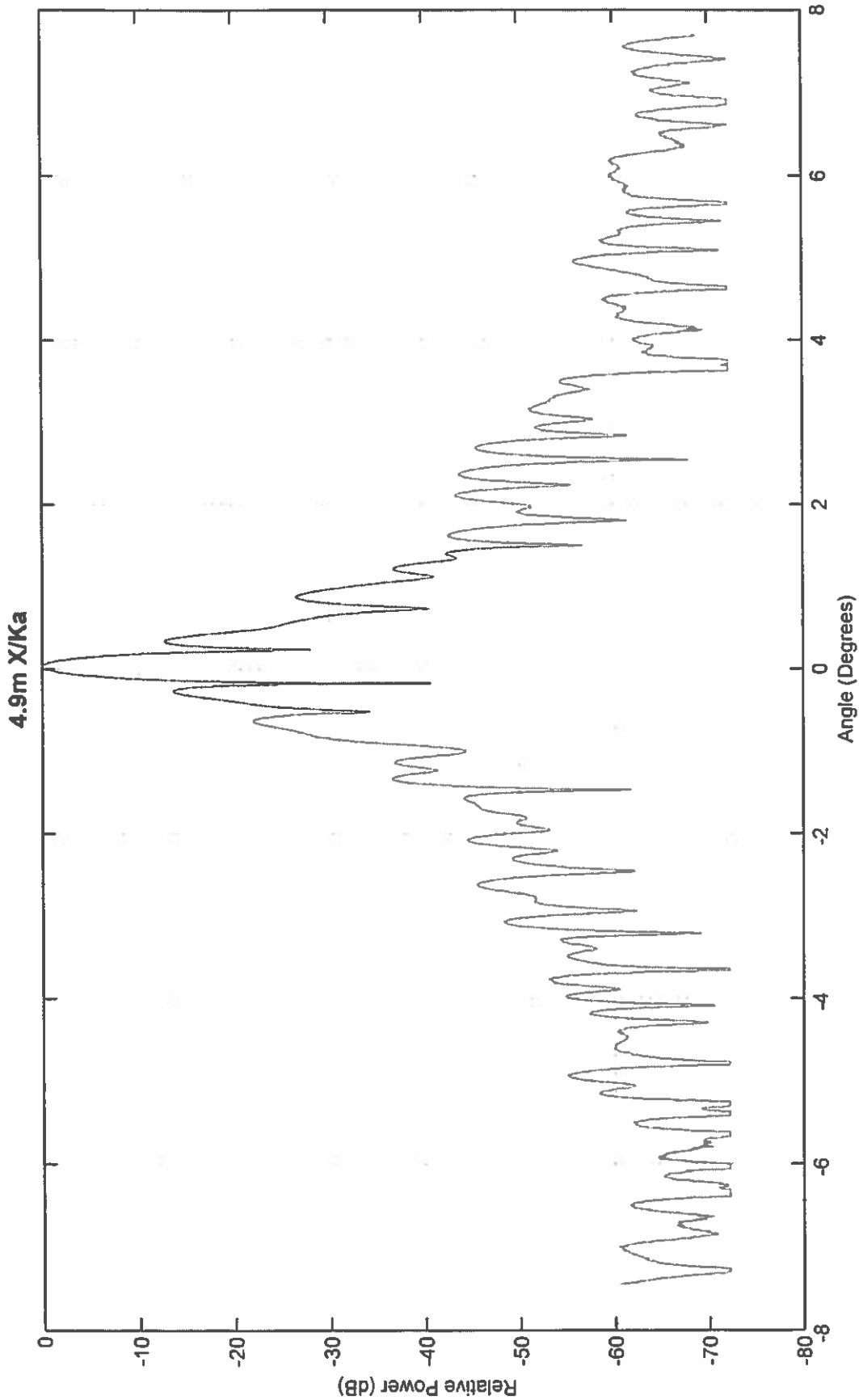


AZ_XTX(RHCP)_CO_8p400GHz_dBi.txt, Gain = 50.35
Sidelobes over the line: 0.57% co-pol, 0.59% cross-pol



EL_XTX(RHCP)_CO_8p400GHz_dBi.txt, Gain = 50.35
Sidelobes over the line: 0.71% co-pol, 0.00% cross-pol

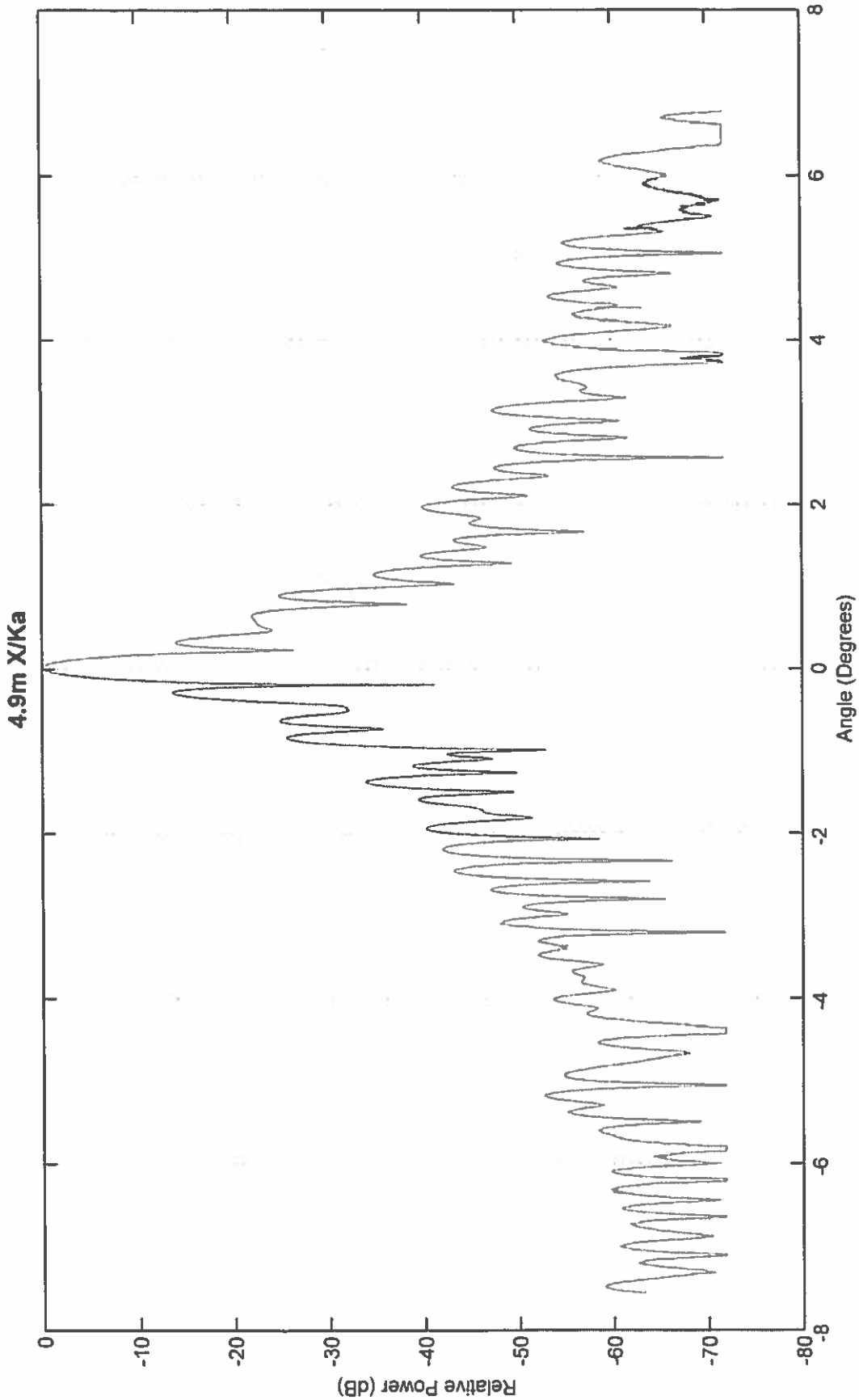




Ka RX2, Azimuth Cut
20.7 GHz
Directivity = 59.0768 dBi

Date: 9/26/2013

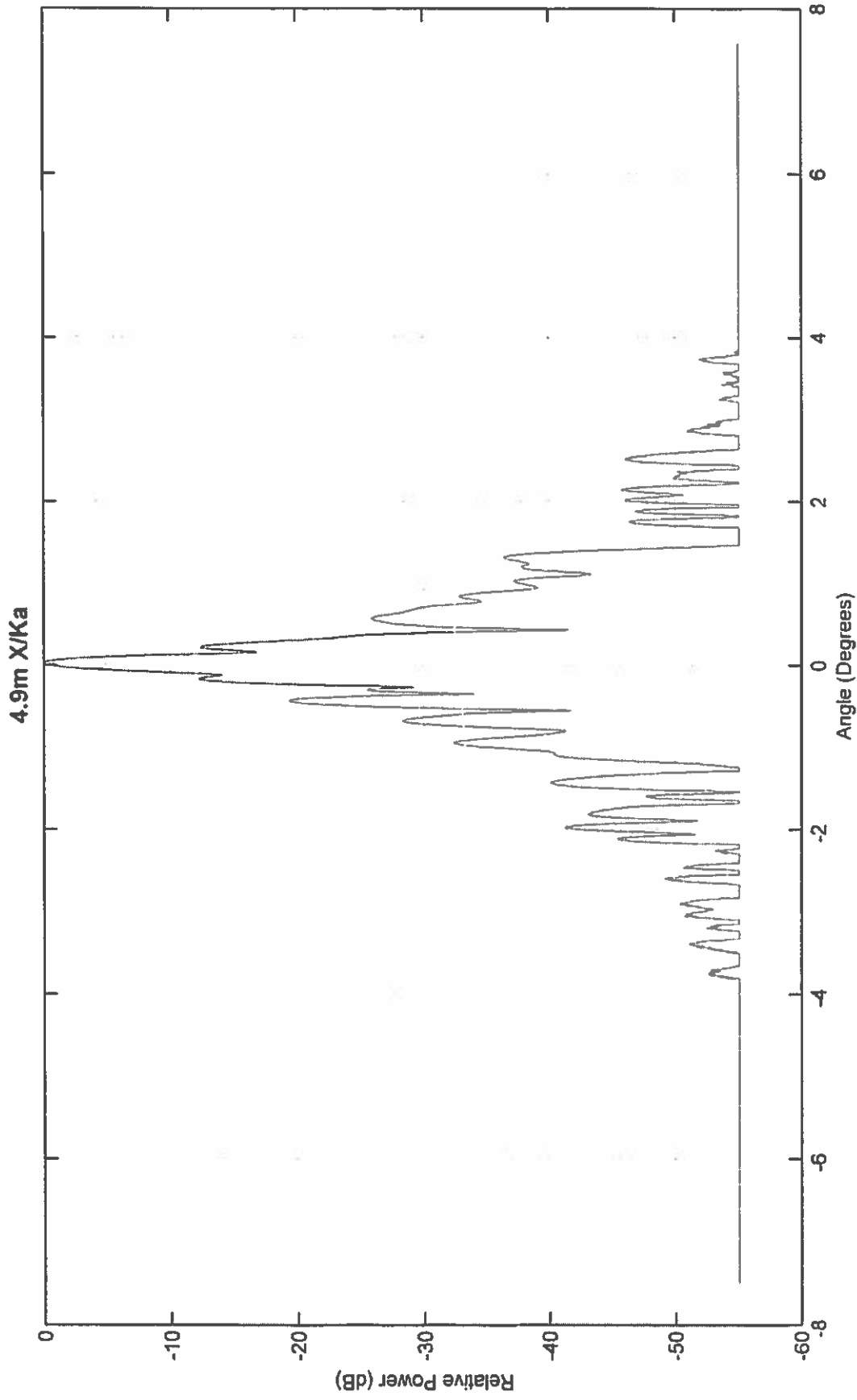




Ka RX2, Elevation Cut
20.7 GHz
Directivity = 59.0961 dBi

Date: 9/26/2013

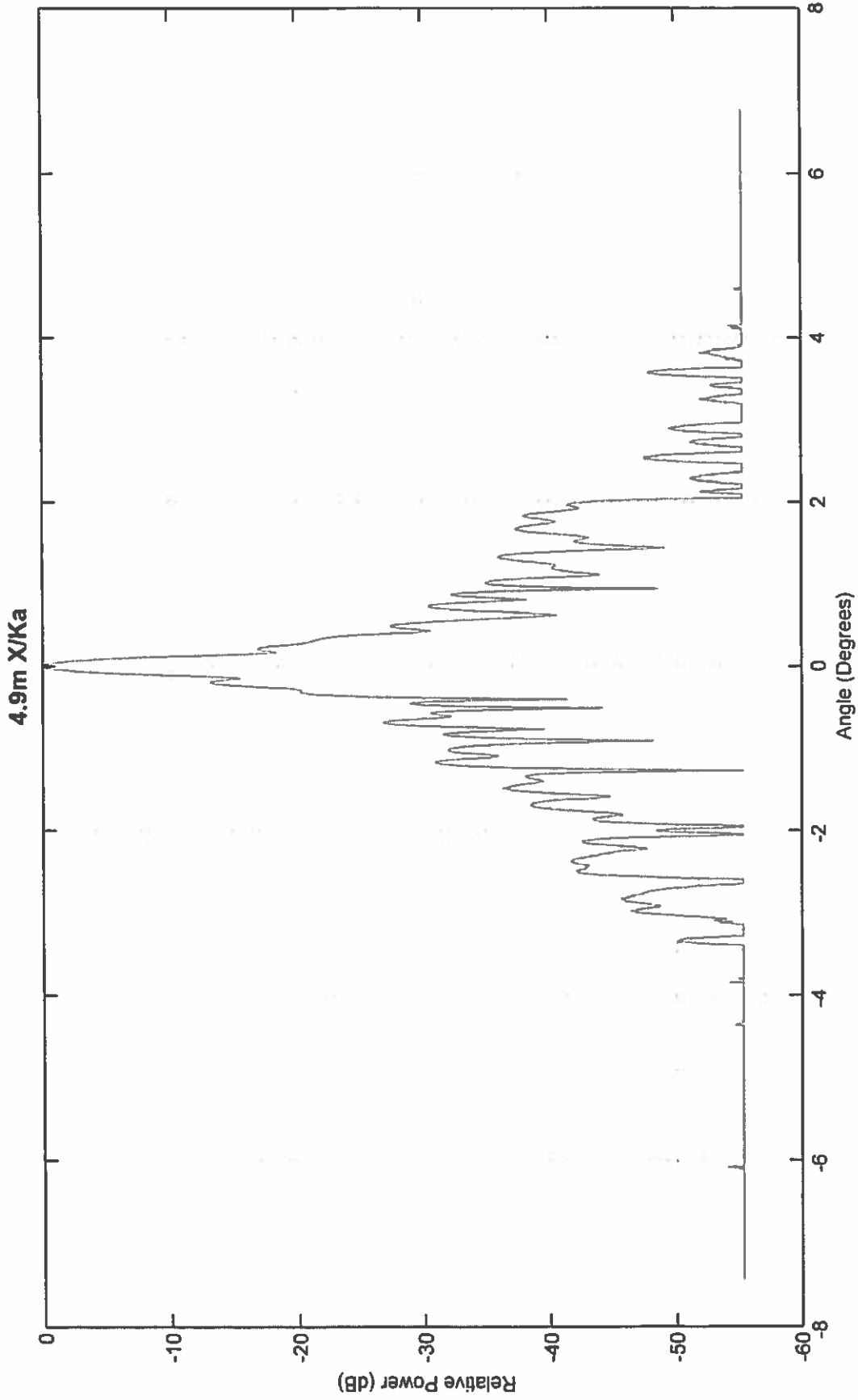




Ka TX2 Port, Azimuth Cut
30.5 GHz
Directivity = 61.7186 dBi

Date: 9/25/2013

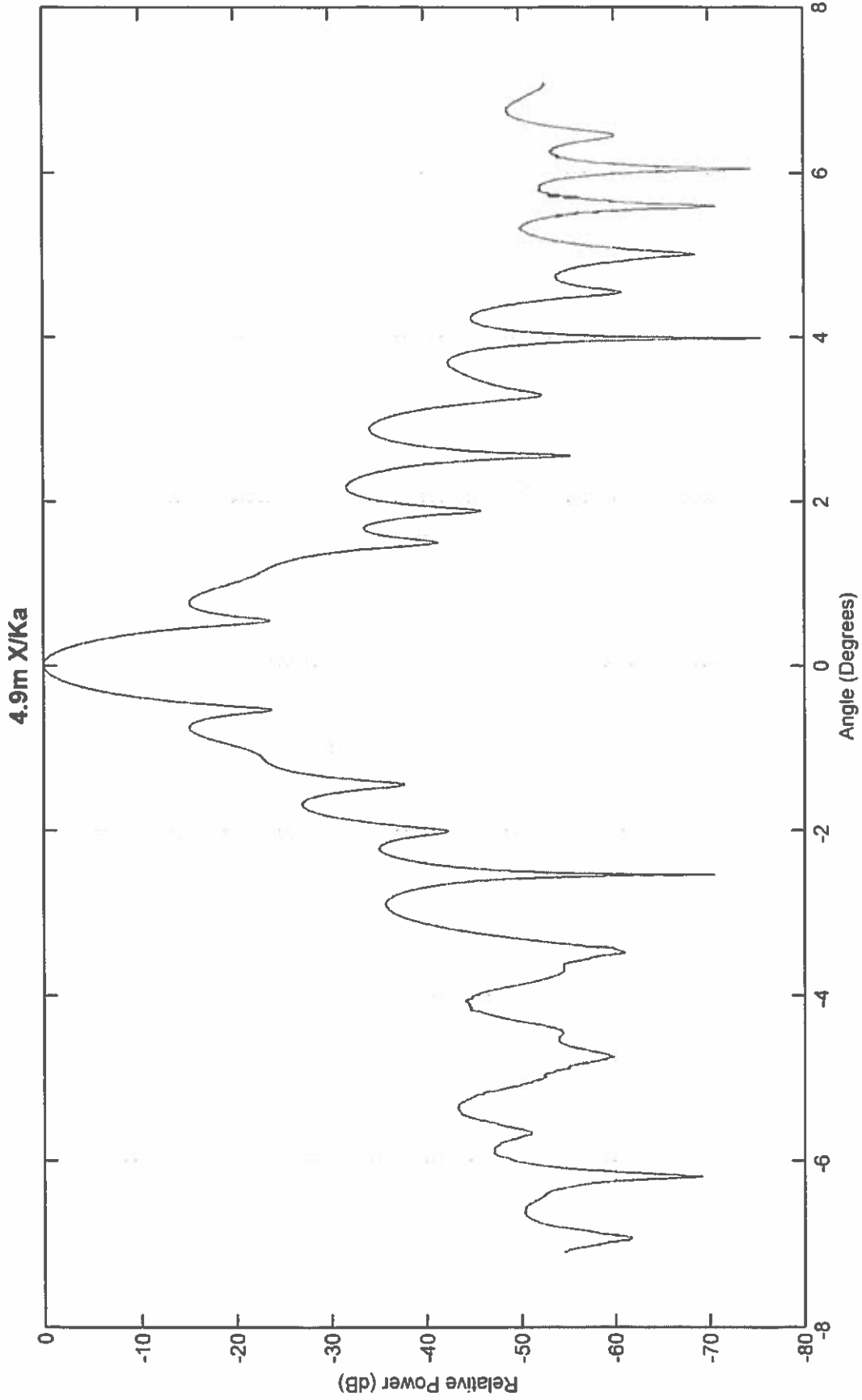




Ka TX2 Port, Elevation Cut
30.5 GHz
Directivity = 61.6867 dBi



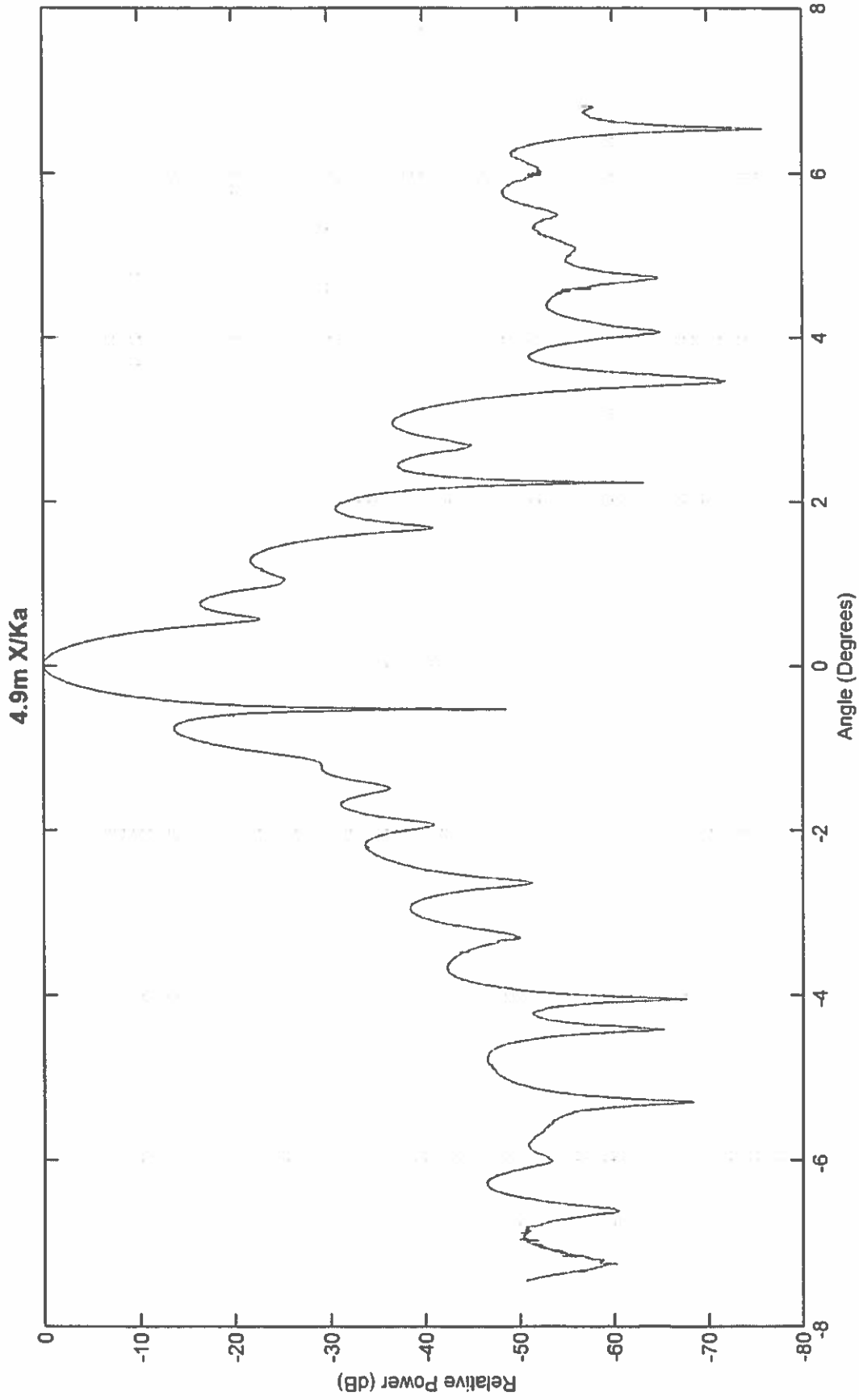
Date: 9/25/2013



X TX Port, Azimuth Cut
8.15 GHz
Directivity = 51.6747 dBi



Date: 9/27/2013



X TX Port, Elevation Cut
8.15 GHz
Directivity = 51.5829 dBi



Date: 9/27/2013