

Exhibit 1
Frequencies & Necessary Bandwidth
Description and Purpose of Test

The purpose of the test is to create a platform for the evaluation of the Primewave 2000, a CDMA fixed wireless loop (FWL) product, developed by L3 Communications Systems West, Salt Lake City, Utah, and to demonstrate its capabilities to potential non-domestic customers. The system will be deployed outside the U.S., but requires verification and acceptance testing prior to shipment. The radio link will be contained within the property limits of STS' facility in Hauppauge, NY (See Exhibit 2). The RF link will be approximately 1500 feet. Each subscriber unit (SU), which includes an antenna, will have an output of 14 dBm; the radio base unit (RBU) will be 0 dBm. Each SU will be mounted on the roof of the STS north building. The RBU antenna will be attached to the roof of the STS south building. As previously stated, the distance between the antennas will be approximately 1500 feet.

The system provides full duplex telephony and x.21 data transmission services, and operates with a forward link near 2648 MHz and a return link near 2529 MHz. The exact frequencies are provided below.

FEL Sub-channel frequencies:

<u>Forward</u>	<u>Reverse</u>
2648.1	2529.1
2650.825	2531.825
2654.325	2535.325
2657.825	2538.825

The transmit power for both links, including antenna gain, will be equal to or less than one (1) watt.

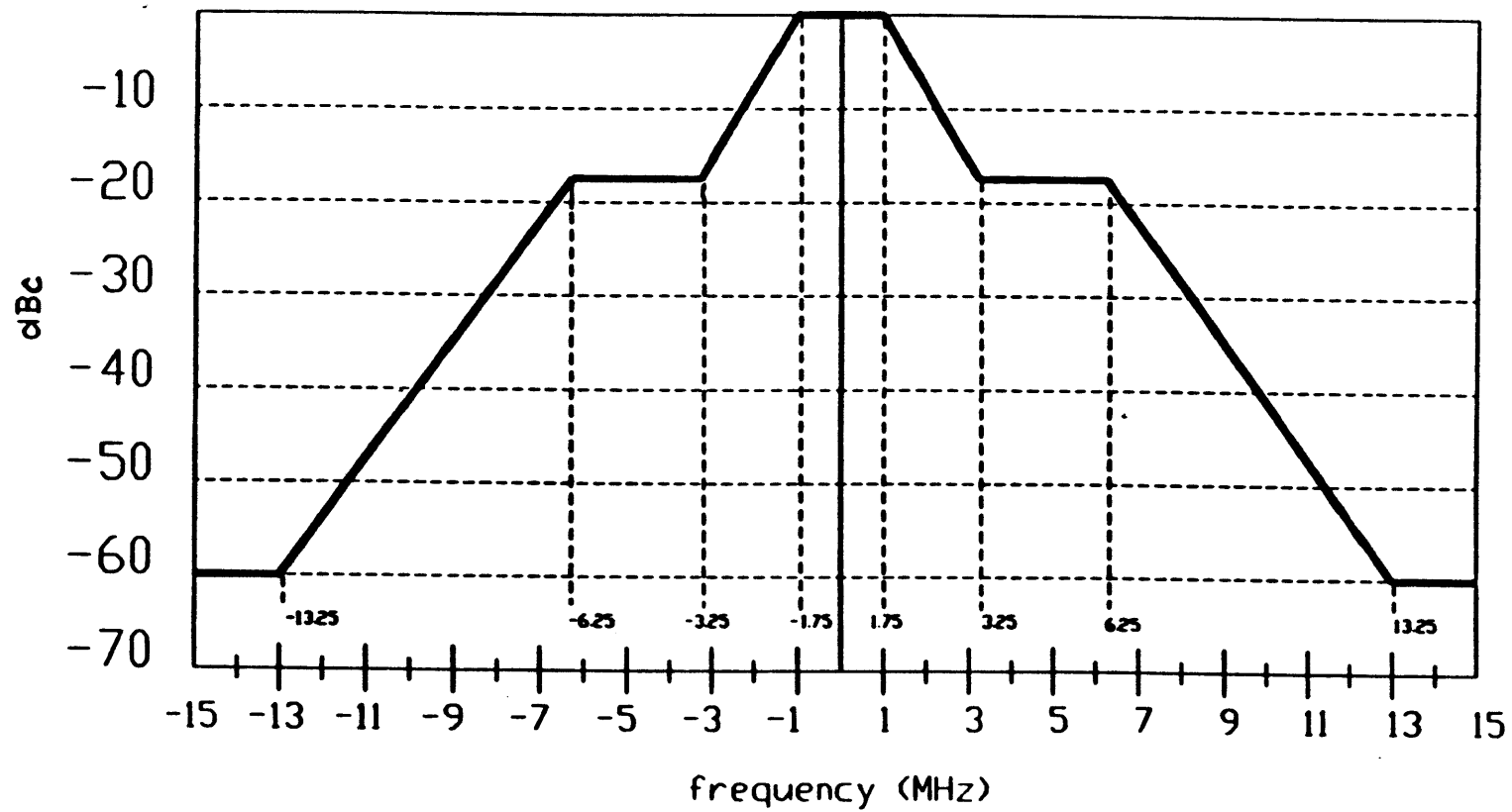
Testing will verify design specifications and demonstrate performance at a system level in a real wireless environment. STS will complete the wireless loop, measuring sensitivity and effects on performance of multiple users and focus on a number of users approaching the system limit.

The CDMA waveform is provided in Attachments 1, 2A, and 2B. The majority of the signal lies within a 3.5 MHz spectral mask as indicated in Attachments 1, 2A, and 2B. This insures STS that the signal will be down a minimum of 18 dBc at frequencies beyond 3.5 MHz for the center band and 60 dBc elsewhere beyond 13.5 MHz from center band. The coding will prevent any interference from affecting STS' signals except for a noise floor increase. STS has observed no interfering signals at its operating frequencies; however, should interference occur, the system has the capability to select another four (4) sub-channel frequencies.

Attachments:

- 1: Spectral Mask Specification for Both Forward and Return Link Transmissions Relative to Peak Power and Center Frequency
- 2A: Measured RBU Spectral Pattern Together with Spectral Mask
- 2B: Measured SU Spectral Patterns Together with Spectral Mask

Attachment 1: Spectral Mask Specification for Both Forward and Return Link Transmissions Relative to Peak Power and Center Frequency



K6U

Attachment 2A: Measured 1 Spectral Pattern Together
Spectral Mas.

2/24/97

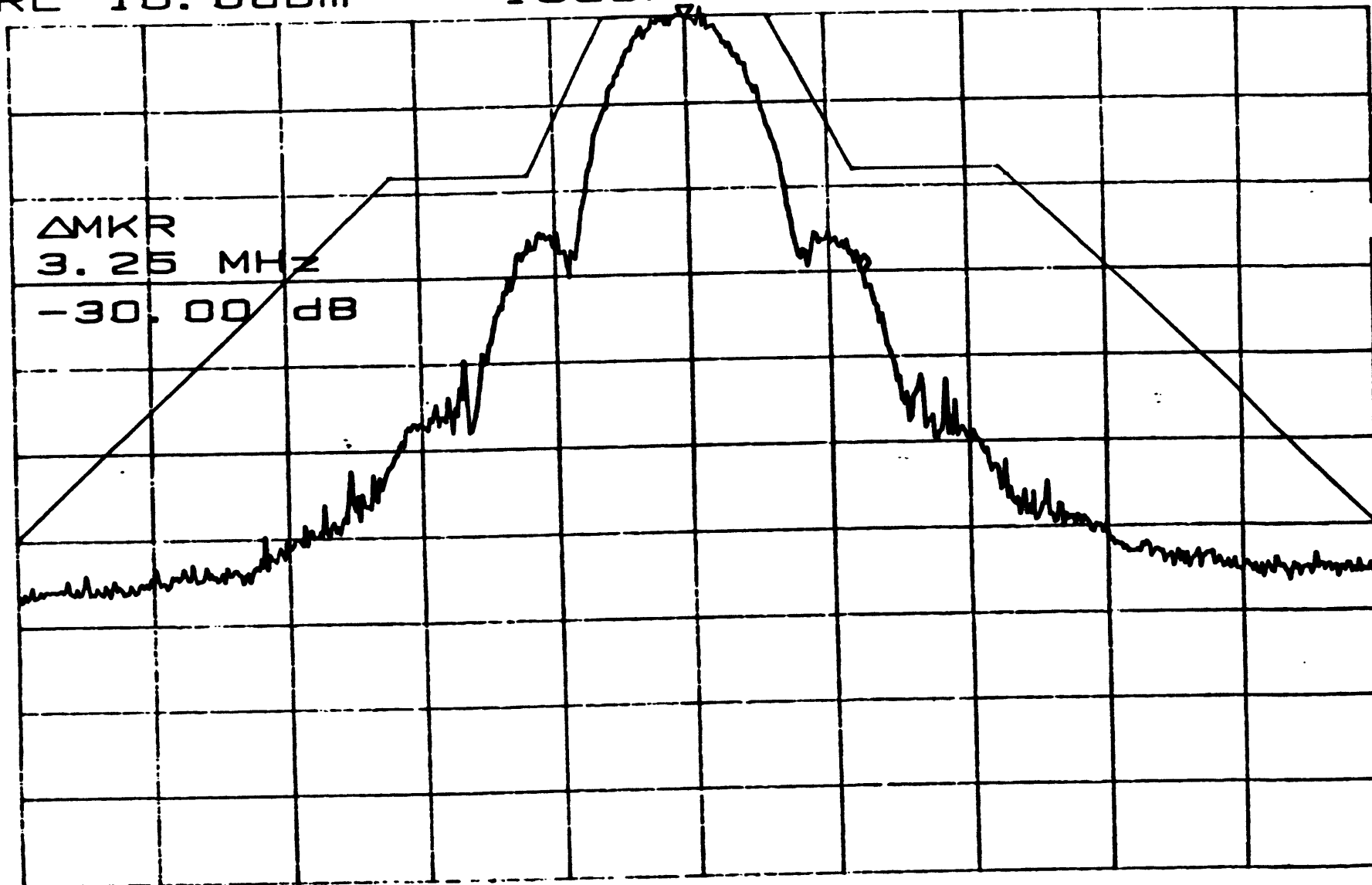
ATTEN 20dB

RL 10.00dBm

$\Delta MKR -30.00dB$

3.25MHz

10dB/



CENTER 2.6481GHz

RBW 300kHz

VBW 300kHz

SPAN 26.00MHz

SWP 50.0ms

2/24/97

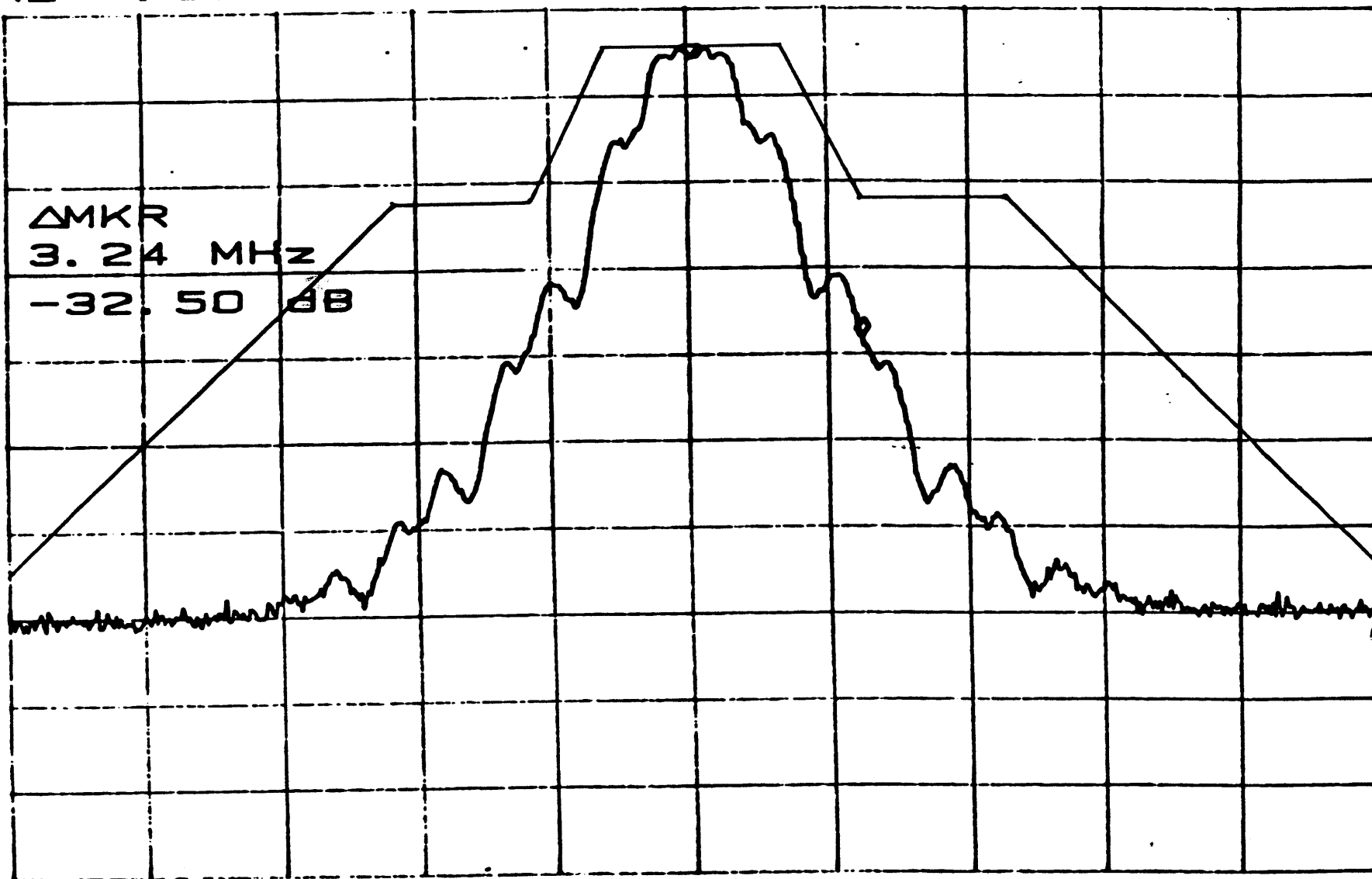
ATTEN 10dB

$\Delta MKR -32.50dB$

RL -.6dBm

10dB/

3.24MHz



CENTER 2.5291 GHz

SPAN 27.00MHz

RBW 300kHz

VBW 300kHz

SWP 50.0ms

Attachment 3:

RBU ANTENNA SPECIFICATIONS

FREQUENCY (GHz): _____ 2.1 TO 2.3 _____ 2.1 TO 2.7
VSWR: _____ 1.5:1 MAX _____ 1.8:1 MAX
 _____ 1.5:1 TYP

GAIN (dBic): _____ 7.75 MIN _____ 7.75 MIN
 8.00 TYP 8.50 TYP

VERTICAL PLANE HPBW: _____ 10° TYP _____ 9° TYP

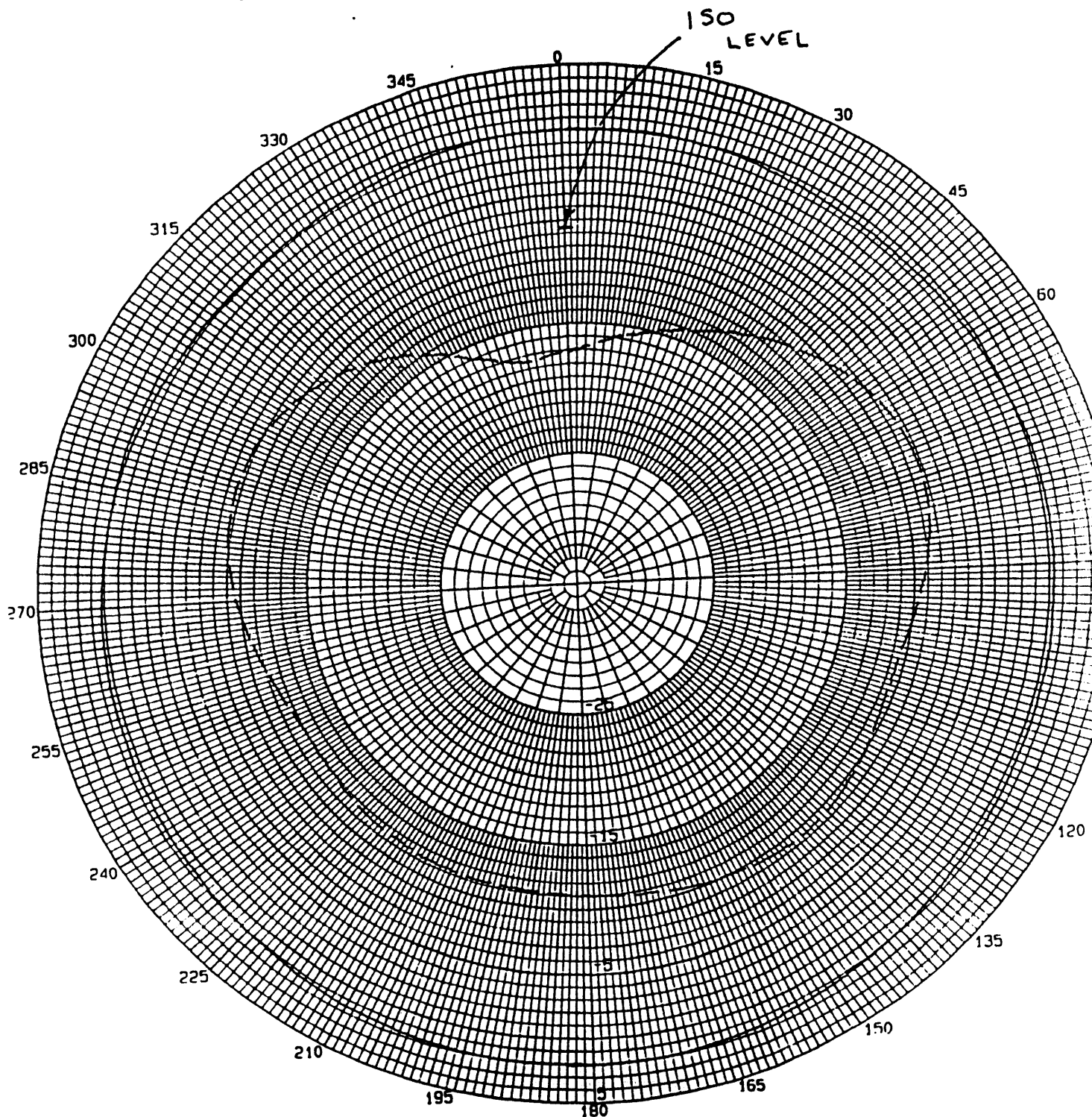
POLARIZATION: _____ RHCP
INPUT IMPEDANCE: _____ 50 OHMS NOM
WEIGHT: _____ 7 LBS APPROX

Attachment 4A: Measured RBU Antenna Pattern vs. Azimuth

RBU ANTENNA

09/18/95 19:02:15
Plot: Channel 1

FILENAME: LORAL.909. 916
FREQ: 2.600 GHz 2.700
POLARIZATION: RHCP
LHCP---



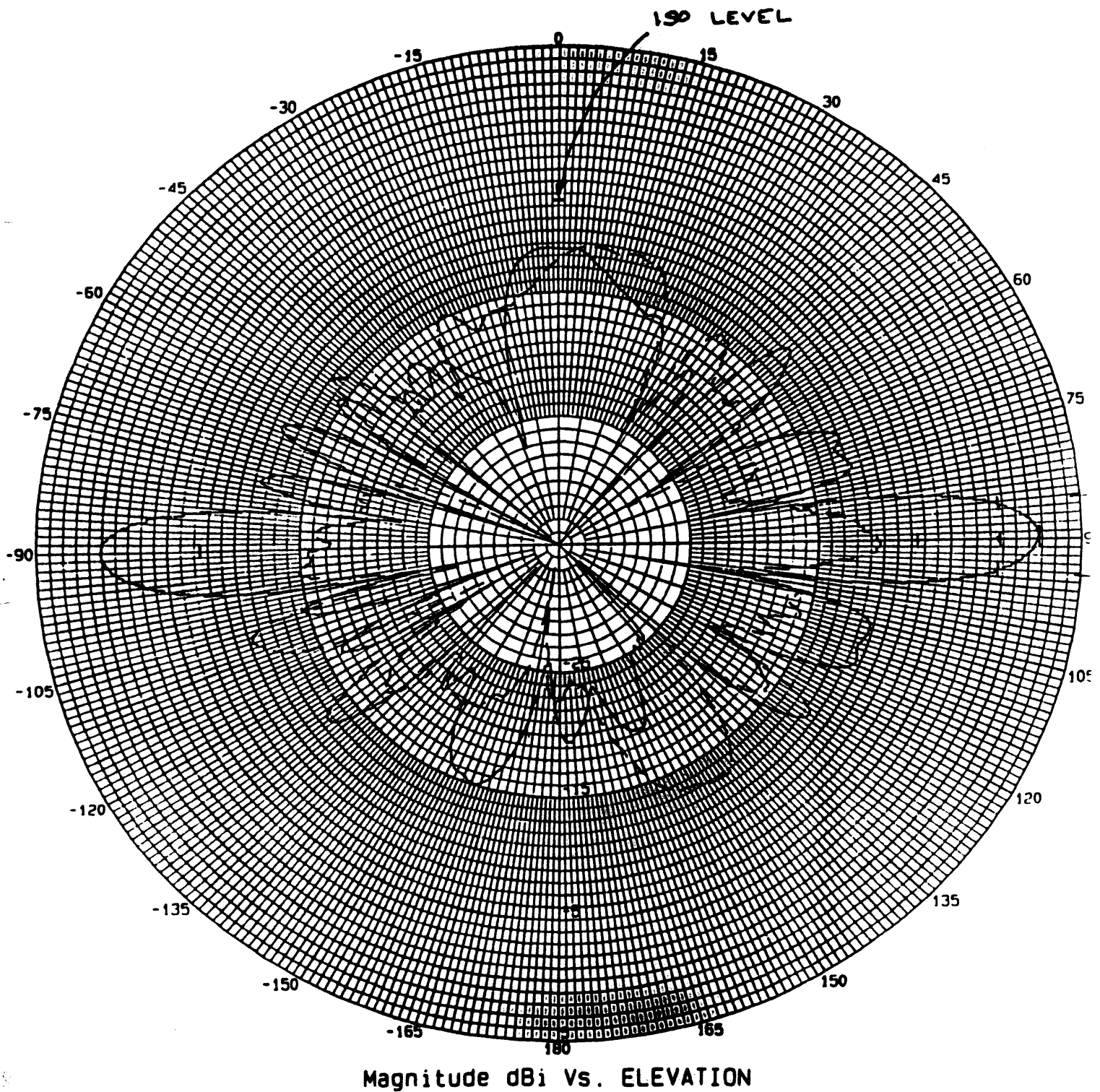
Magnitude dBi Vs. AZIMUTH

Attachment 4B: Measured RBU Antenna Pattern vs. Elevation

RBU ANTENNA

FILENAME: LORAL.902. 923
FREQ: 2.600 GHz. 2.700
POLARIZATION: RHCP ———
LHCP ———

09/18/95 17:54:19
Plot: Channel 1



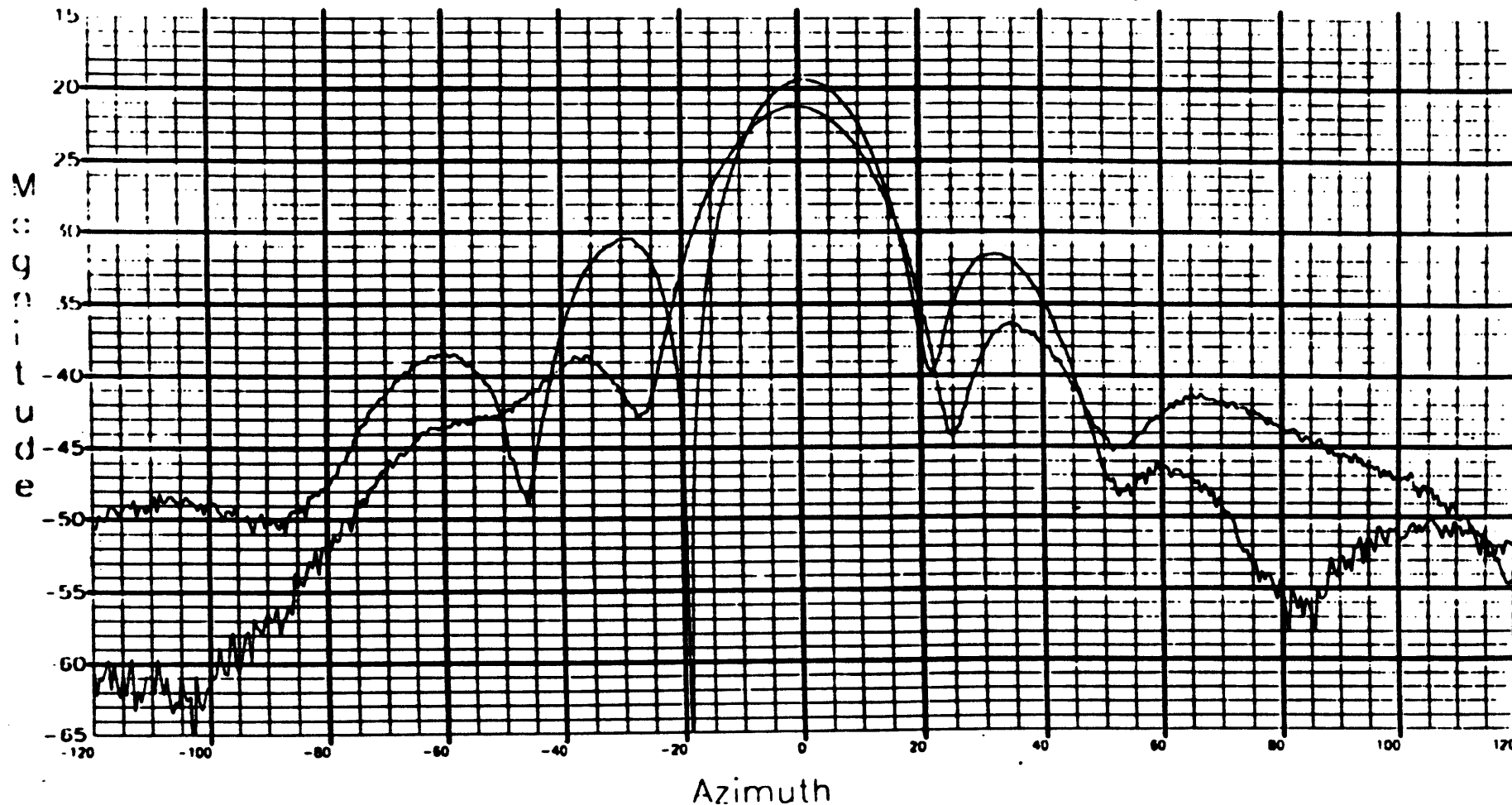
Attachment 5: SU Antenna Pattern vs. Azimuth or Elevation

File: FWR04.DAT
Date: 31-Dec-95
Operator: MJY

FIXED WIRELESS REMOTE ARRAY
CIR SOURCE

Freq: See Legend

SU (CPE) Antenna



Overlays

Freq 2.50GHz—
Freq 2.60GHz---

Beam Peak

-1.43 deg. -21.22 dB
0.61 deg. -19.35 dB

Beam Width

21.27 deg.
17.83 deg.

Side Lobes

-17.26 dB -15.11 dB
-11.08 dB -12.19 dB

Exhibit 2
Geographic Coordinates of Fixed Locations

Field testing will be conducted at two (2) buildings at the STS' facilities located in Hauppauge, NY within the following coordinates and represented graphically by the attached maps.

Longitude: 40° 48' 44"

Latitude: 073° 14' 15"

Exhibit 3
Transmitting Equipment to be Installed

<u>Manufacturer</u>	<u>Model</u>	<u>No. of Units</u>
L-3 Communications Systems - West	SU (subscriber unit)	12
L-3 Communications Systems-West	RBU (radio base unit)	1