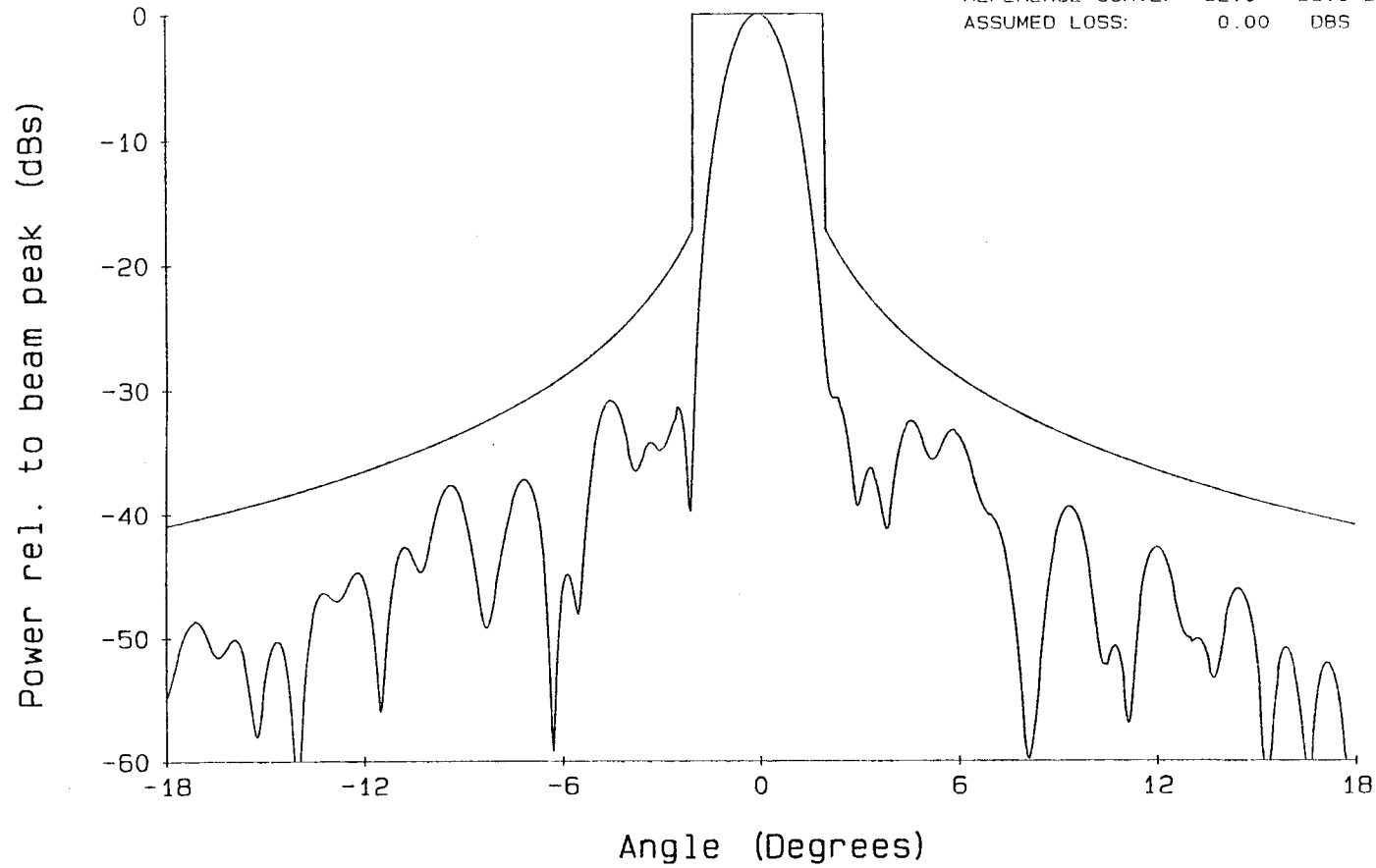
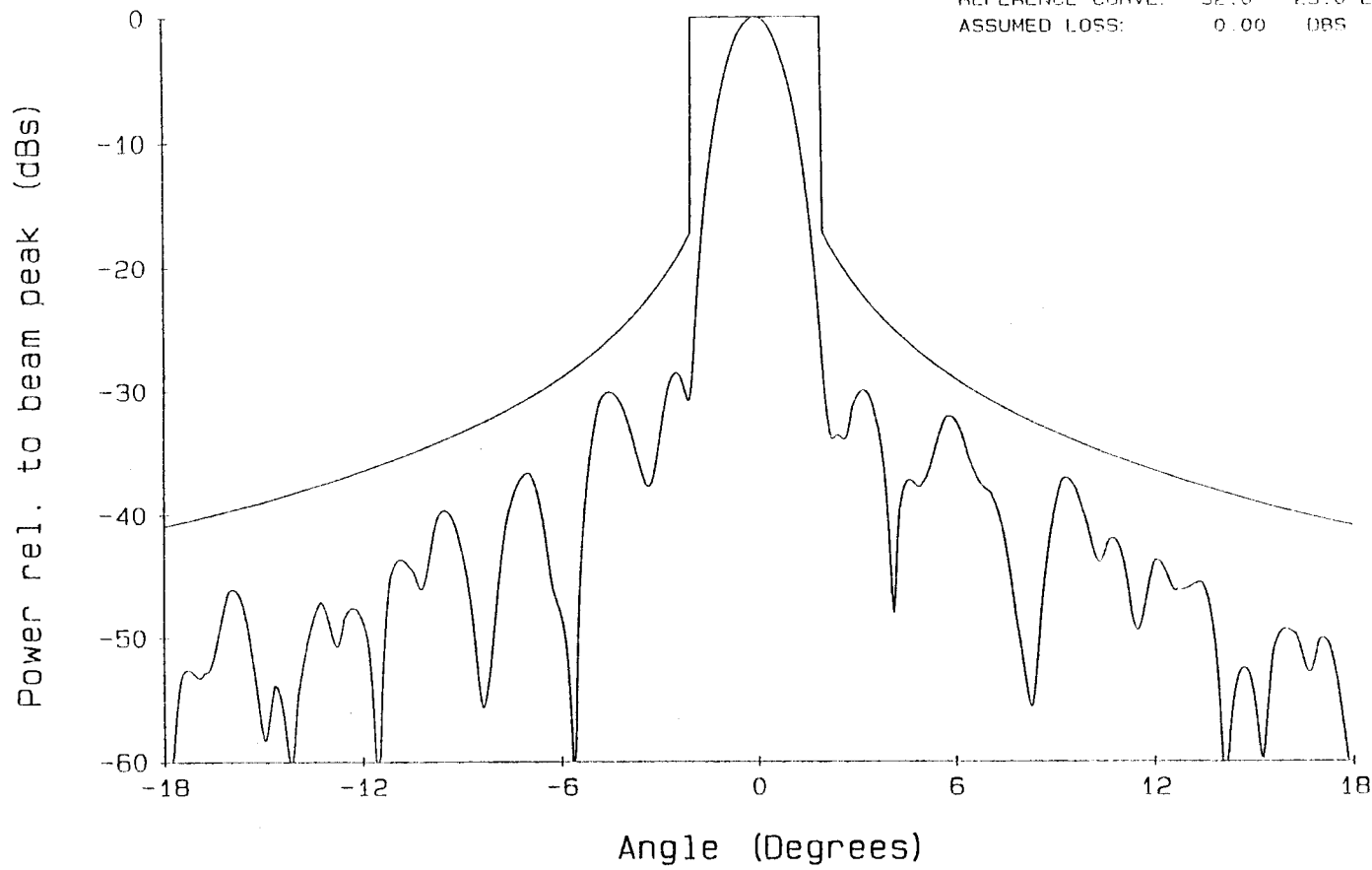


FREQUENCY: 5.850 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 41.5 DBS  
3 dB BEAMWIDTH: 1.52 DEG.  
POLARIZATION: LUDWIG 3 LH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.00 DBS



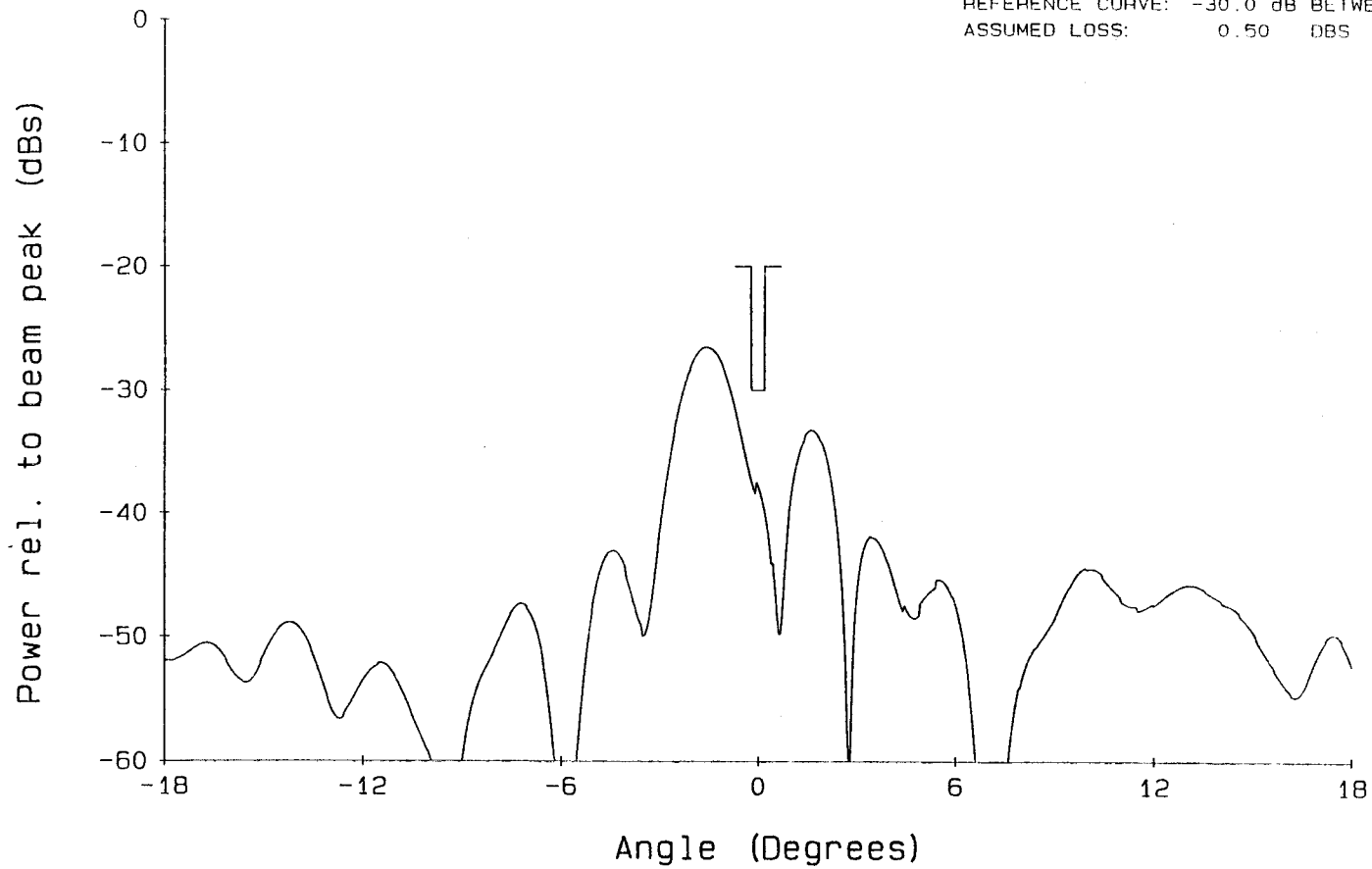
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 5.850 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 41.5 DBS  
3 dB BEAMWIDTH: 1.52 DEG.  
POLARIZATION: LUDWIG 3 LH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.00 DBS



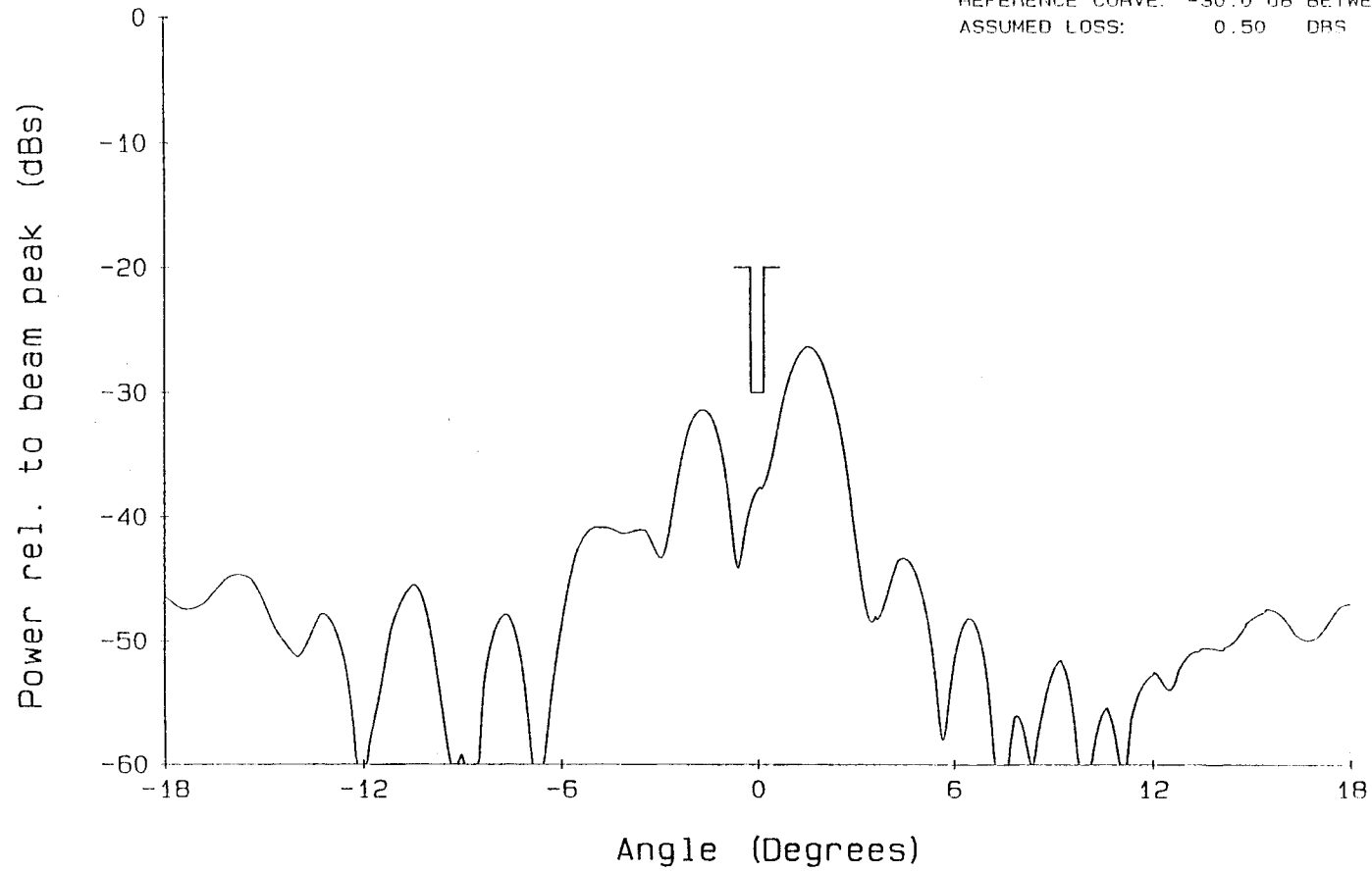
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 5.850 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 15.0 DBS  
3 dB BEAMWIDTH: 1.31 DEG.  
POLARIZATION: LUDWIG 3 RH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -30.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



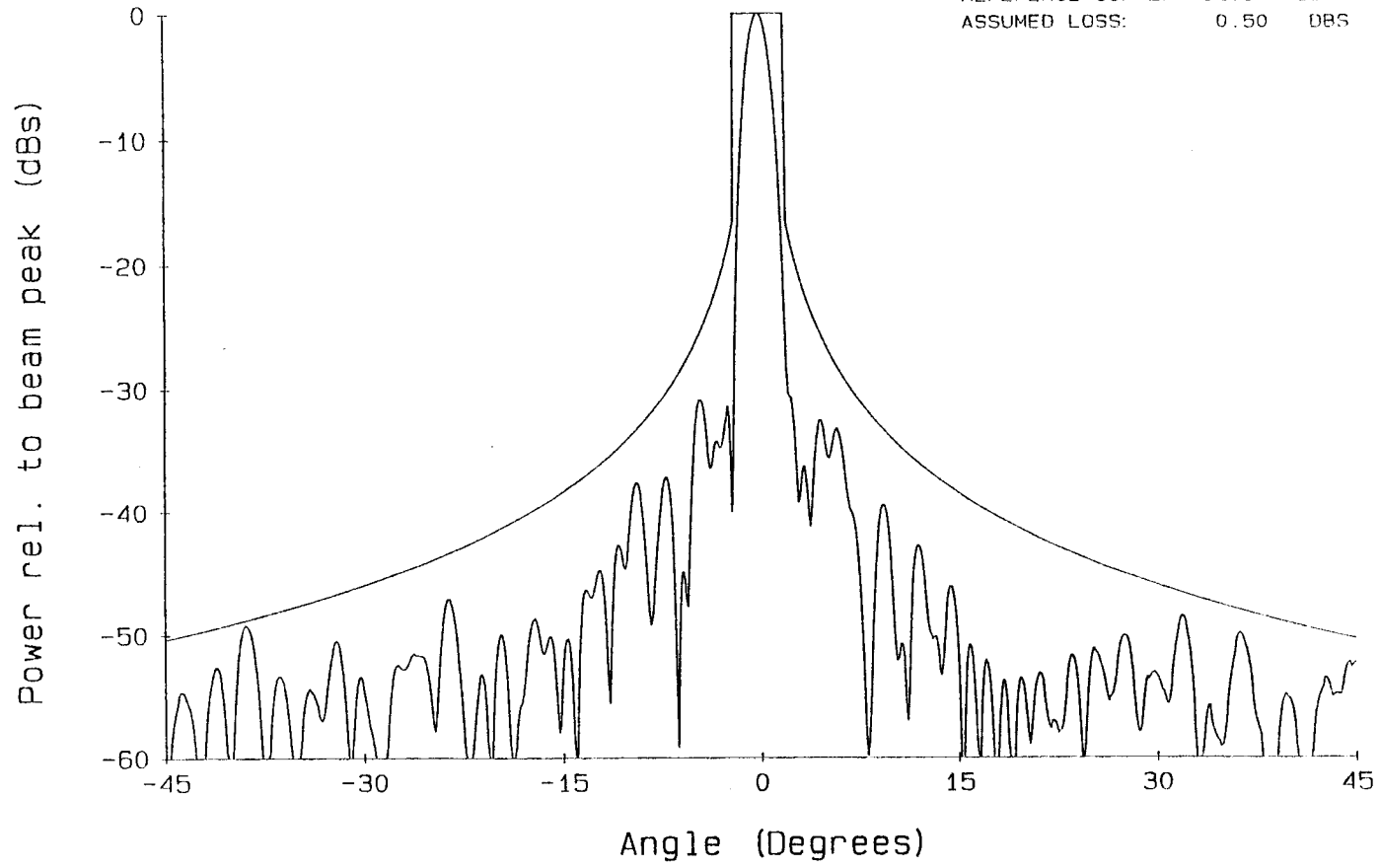
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 5.850 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 15.2 DBS  
3 dB BEAMWIDTH: 1.27 DEG.  
POLARIZATION: LUDWIG 3 RH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -30.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



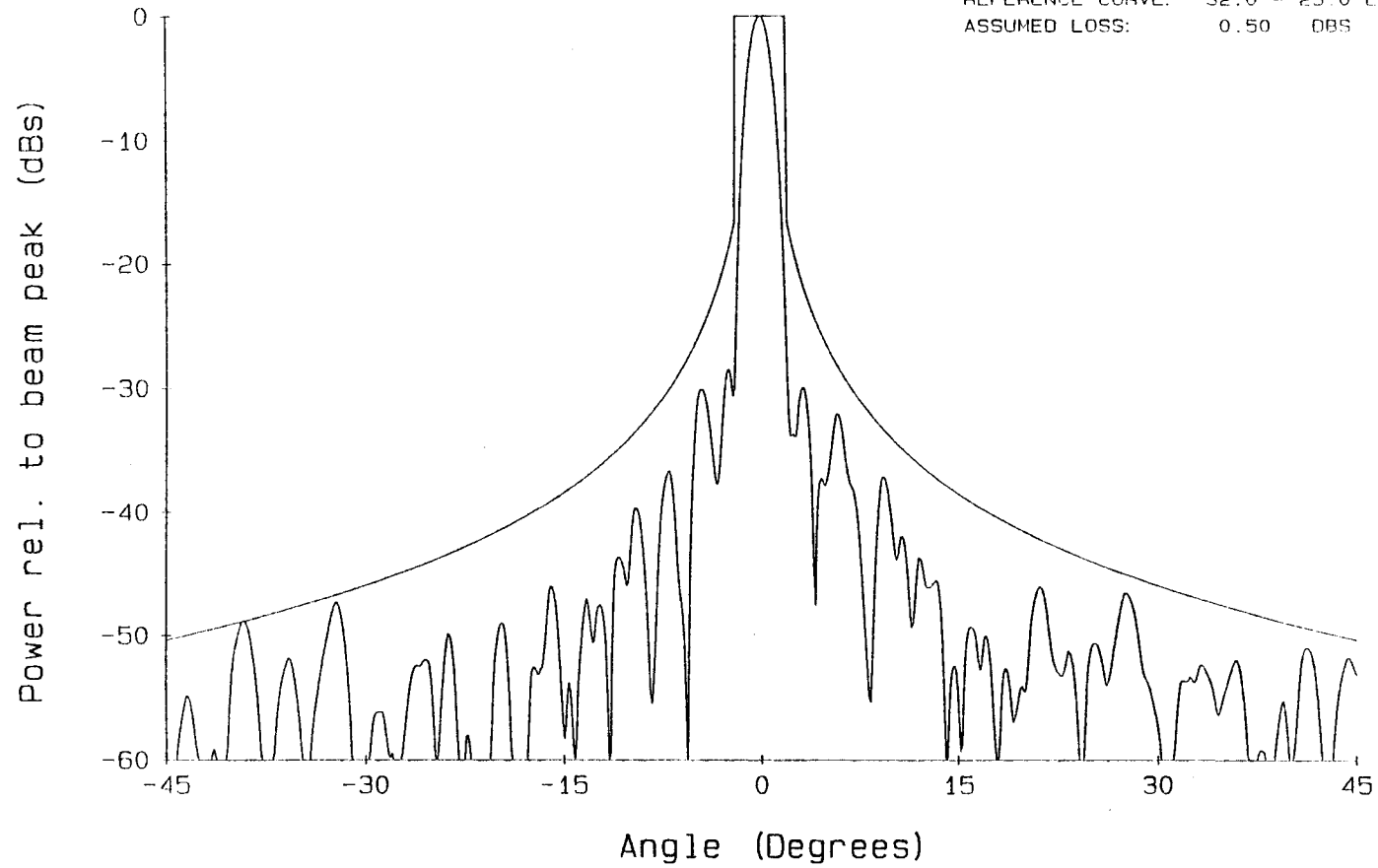
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 5.850 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 41.5 DBS  
3 dB BEAMWIDTH: 1.52 DEG.  
POLARIZATION: LUDWIG 3 LH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



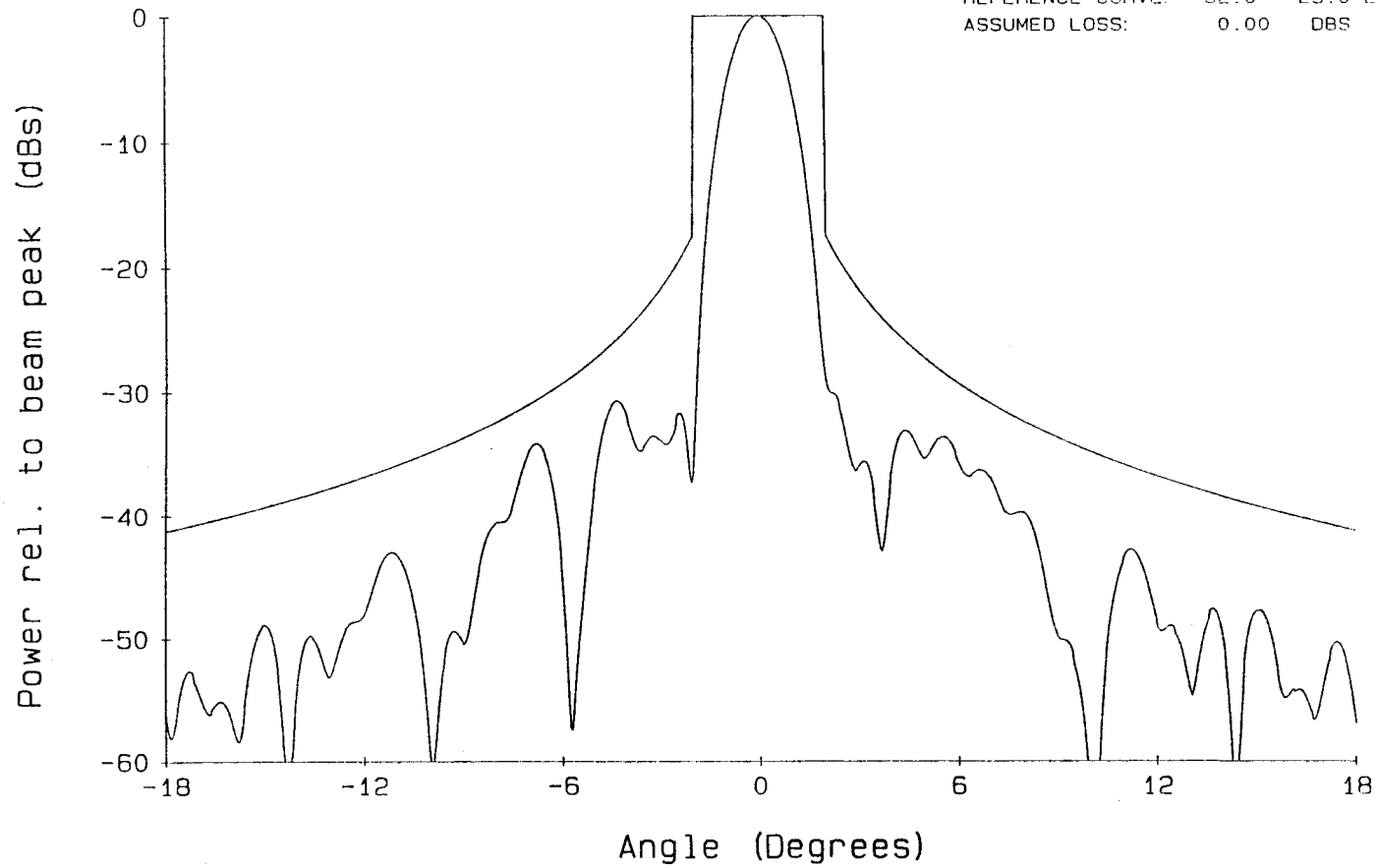
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 5.850 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 41.5 DBS  
3 dB BEAMWIDTH: 1.52 DEG.  
POLARIZATION: LUDWIG 3 LH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



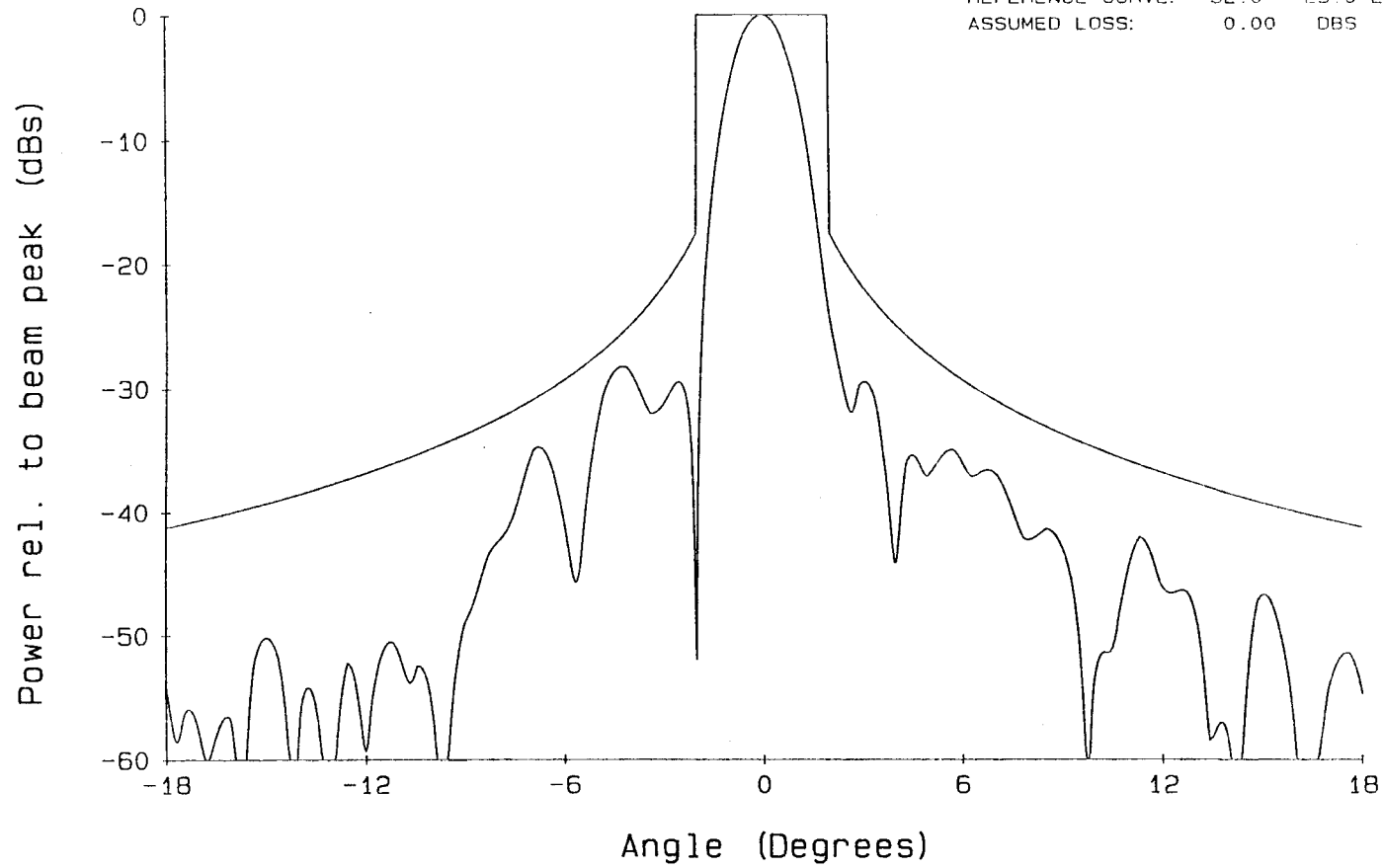
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.152 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 41.9 DBS  
3 dB BEAMWIDTH: 1.46 DEG.  
POLARIZATION: LUDWIG 3 LH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.00 DBS



CYLINDRICAL NEAR FIELD TEST FACILITY

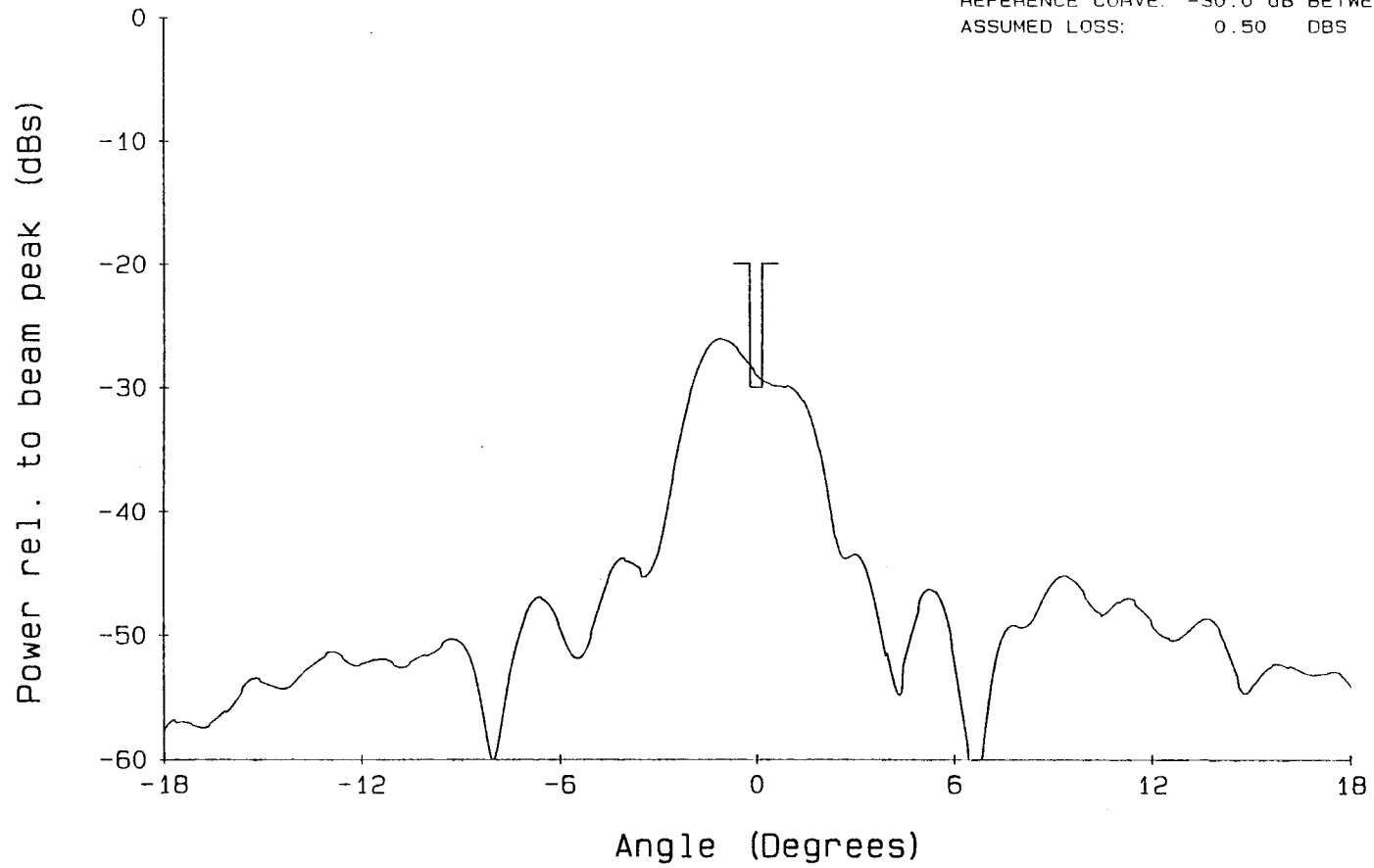
FREQUENCY: 6.152 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 41.9 DBS  
3 dB BEAMWIDTH: 1.49 DEG.  
POLARIZATION: LUDWIG 3 LH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.00 DBS



CYLINDRICAL NEAR FIELD TEST FACILITY

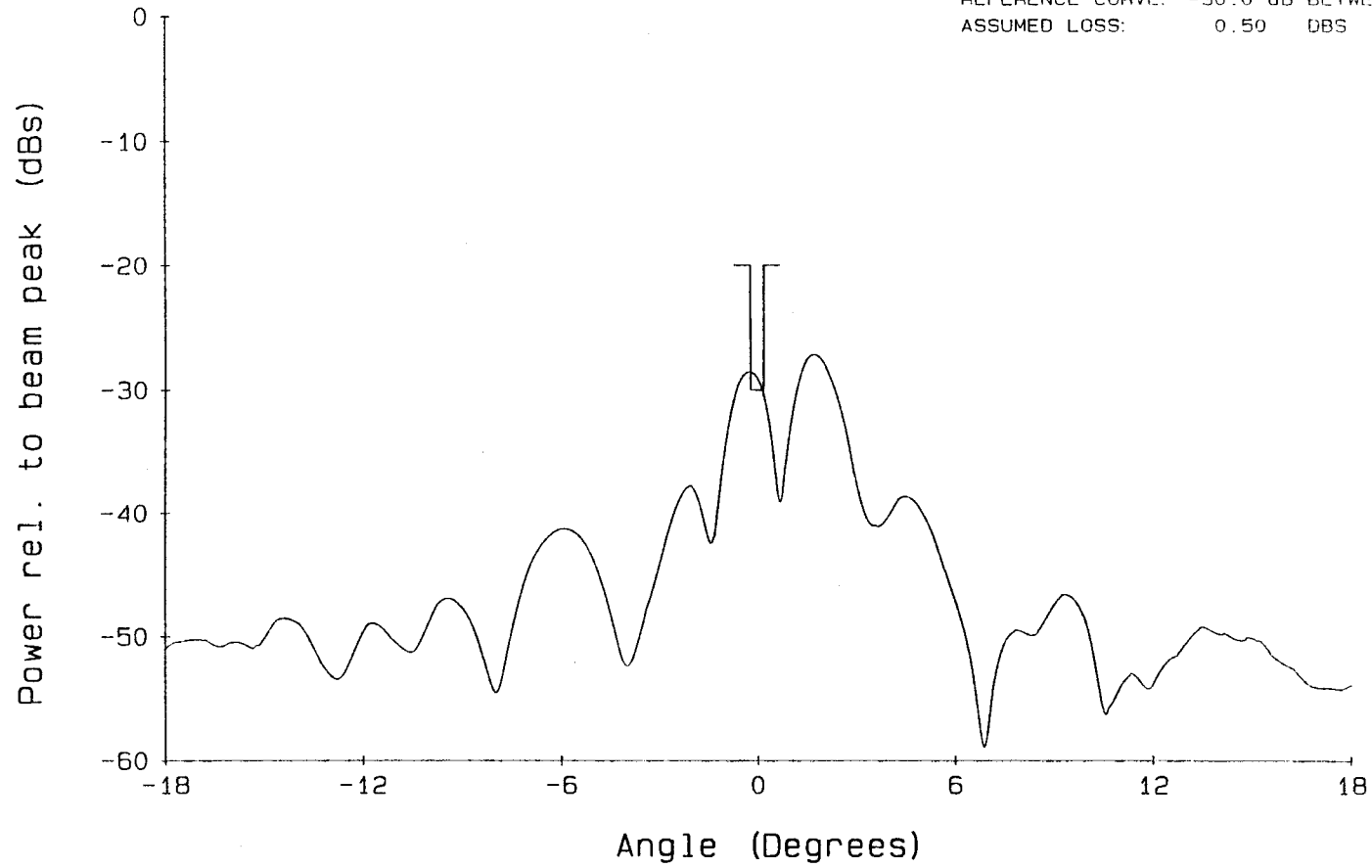


FREQUENCY: 6.152 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 15.8 DBS  
3 dB BEAMWIDTH: 1.88 DEG.  
POLARIZATION: LUDWIG 3 RH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -30.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



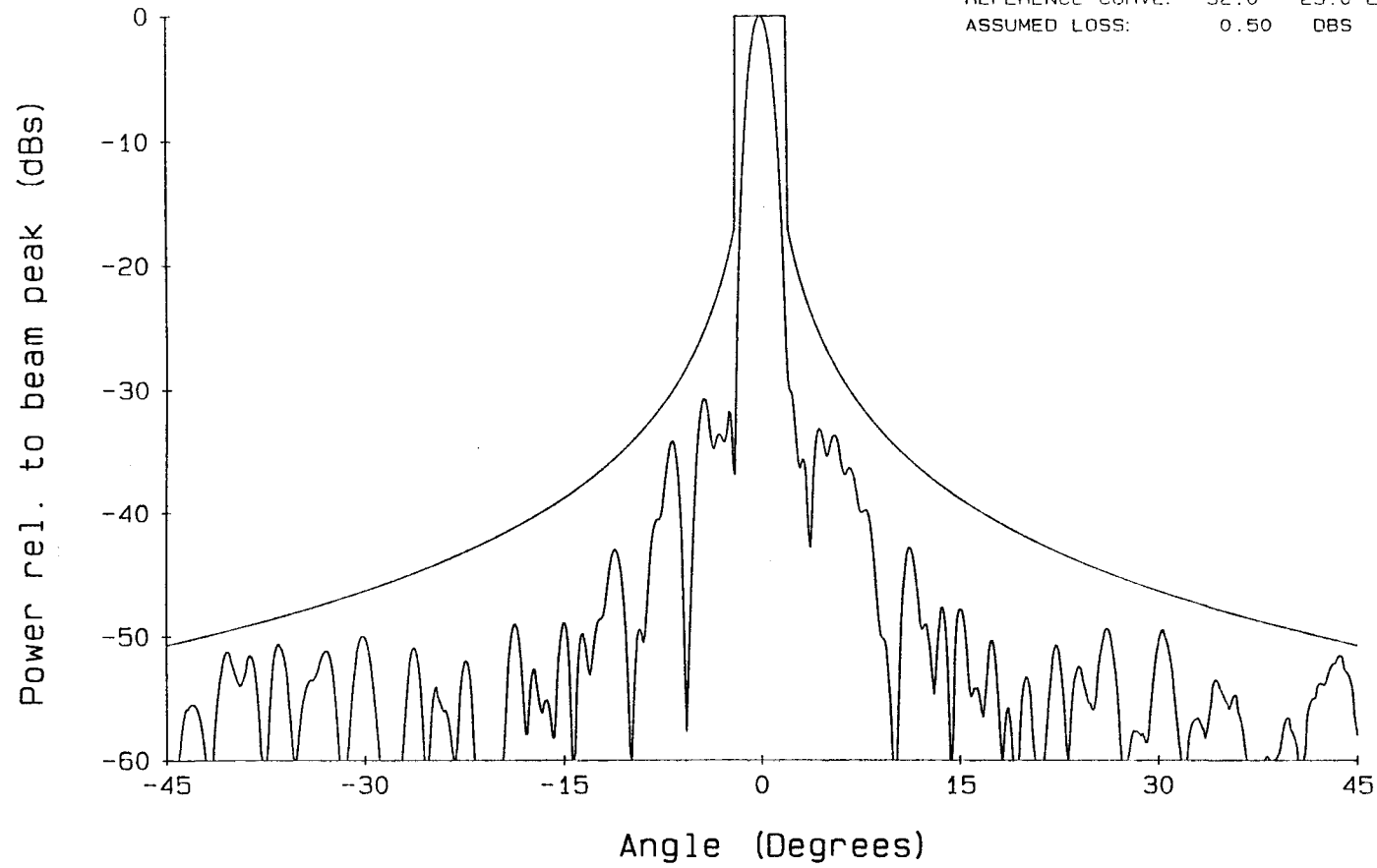
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.152 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 14.7 DBS  
3 dB BEAMWIDTH: 1.18 DEG.  
POLARIZATION: LUDWIG 3 RH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -30.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



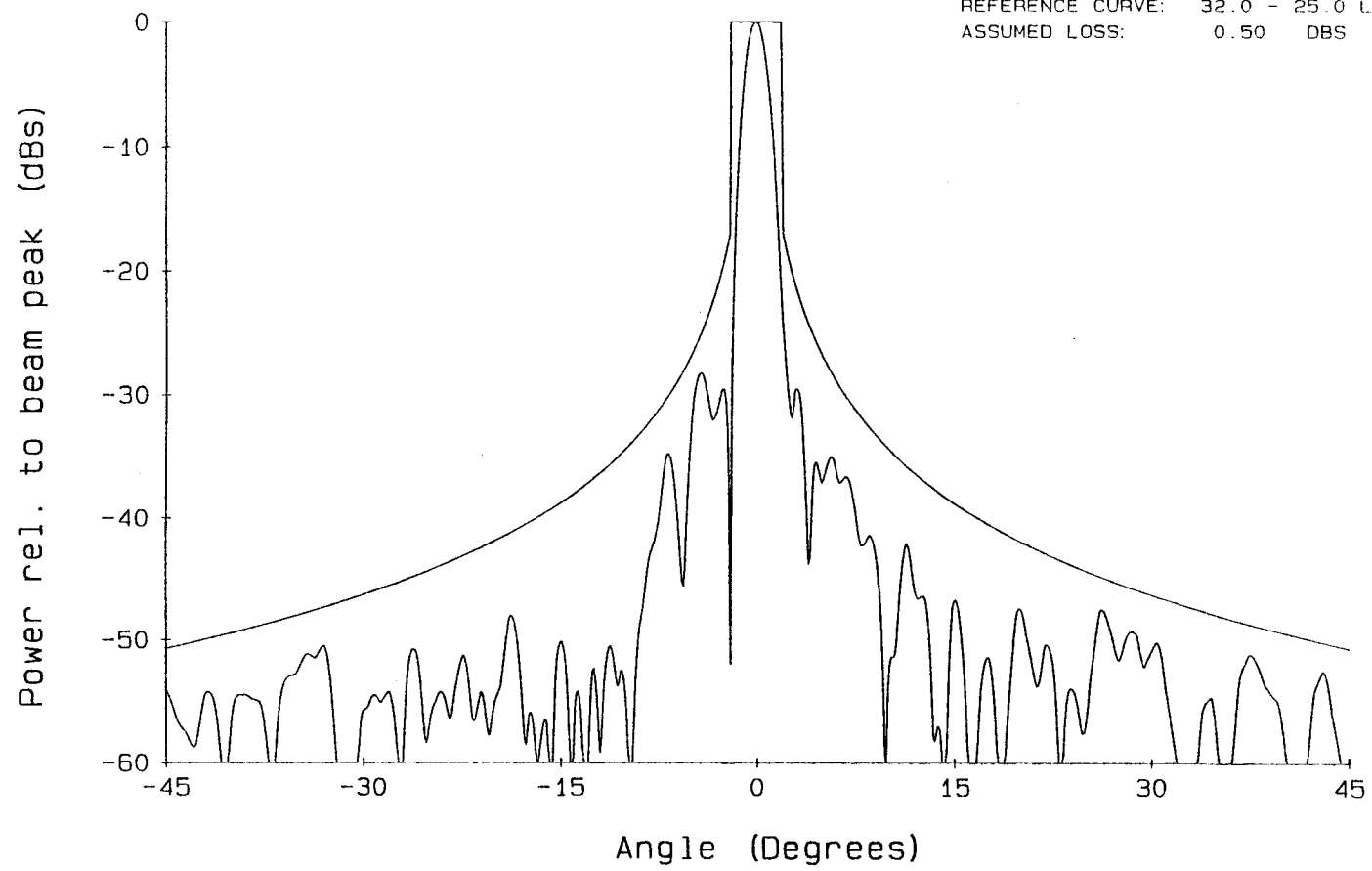
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.152 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 41.9 DBS  
3 dB BEAMWIDTH: 1.46 DEG.  
POLARIZATION: LUDWIG 3 LH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



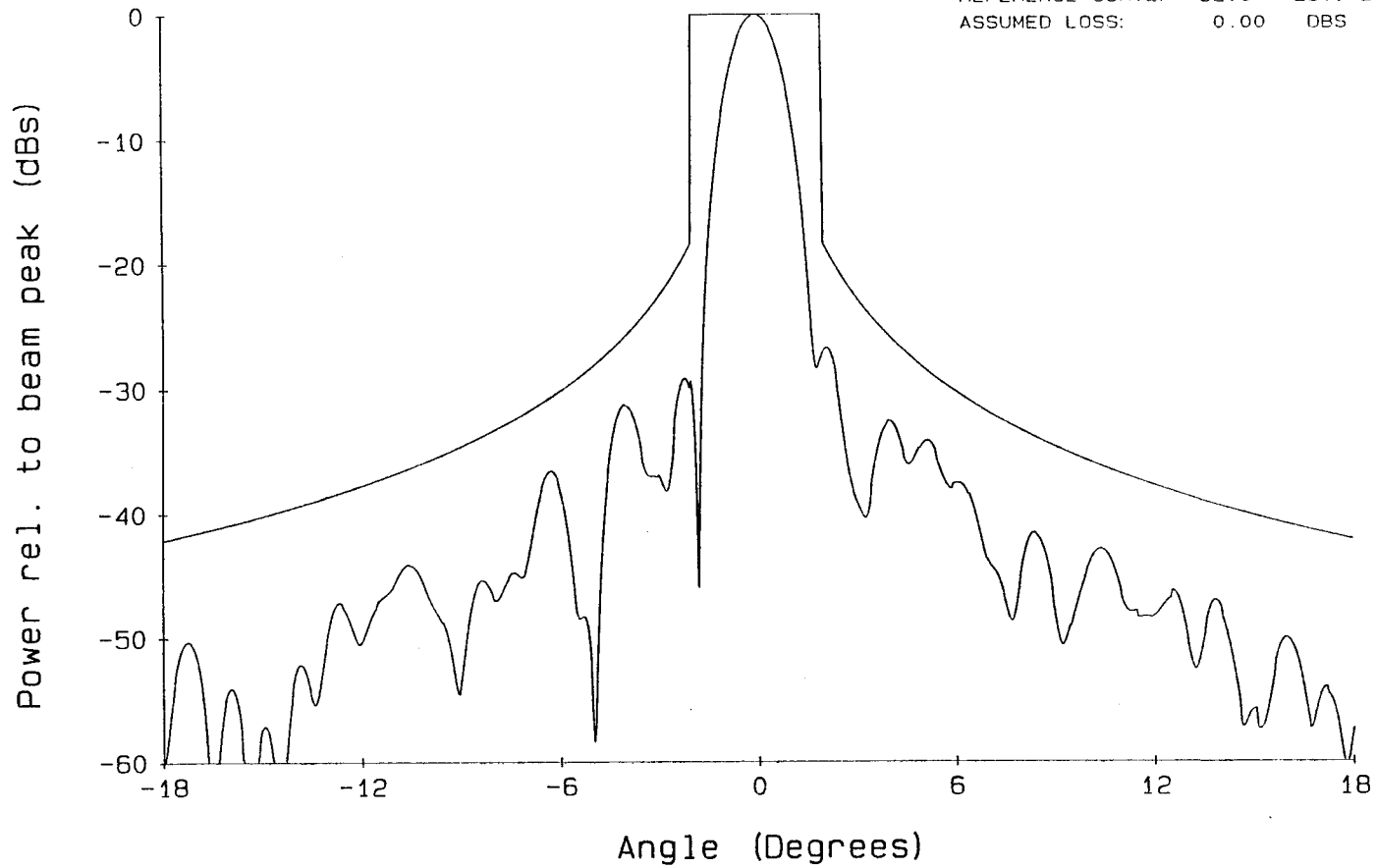
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.152 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 41.9 DBS  
3 dB BEAMWIDTH: 1.49 DEG.  
POLARIZATION: LUDWIG 3 LH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



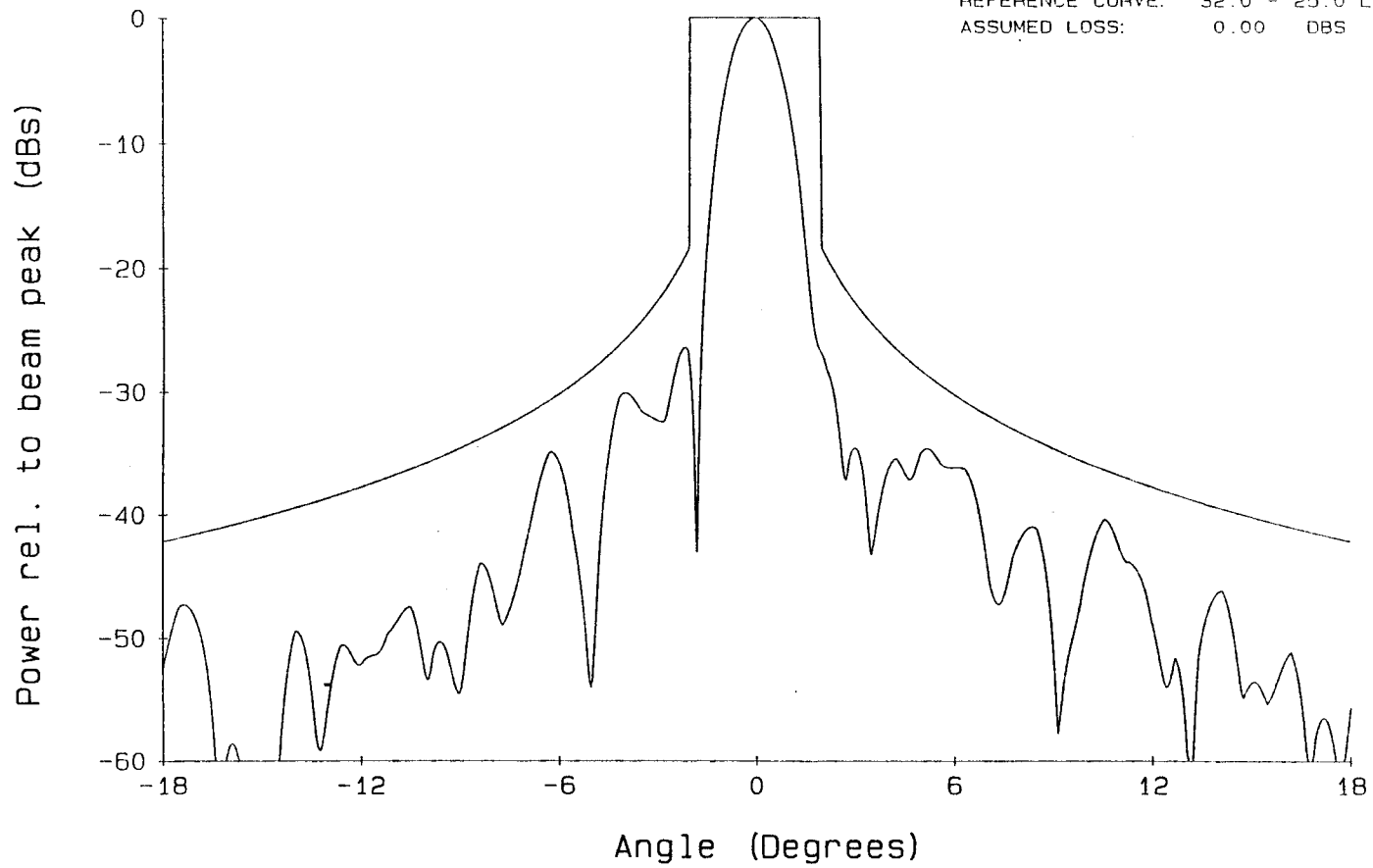
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.650 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 42.8 DBS  
3 dB BEAMWIDTH: 1.33 DEG.  
POLARIZATION: LUDWIG 3 LH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.00 DBS



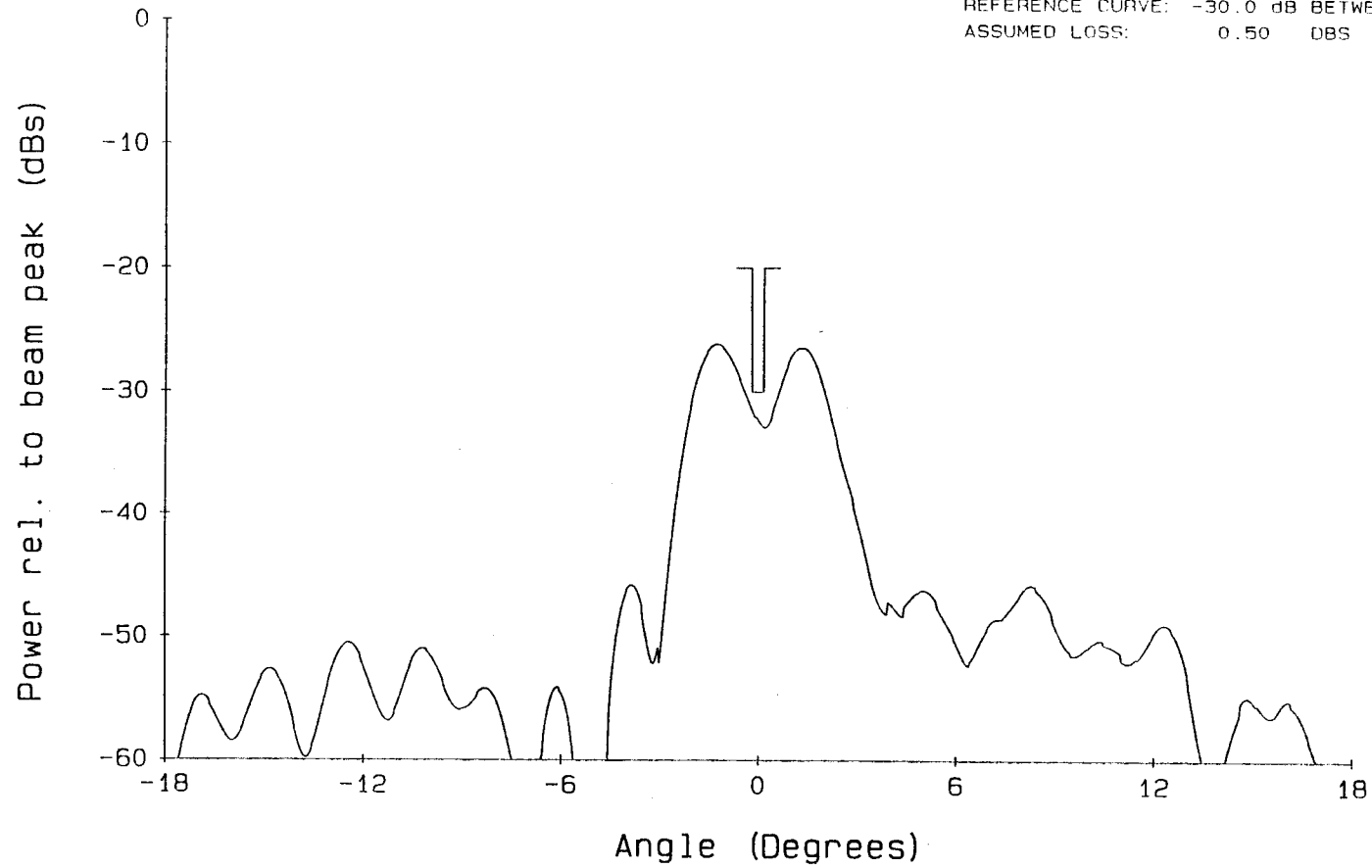
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.650 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 42.8 DBS  
3 dB BEAMWIDTH: 1.35 DEG.  
POLARIZATION: LUDWIG 3 LH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.00 DBS



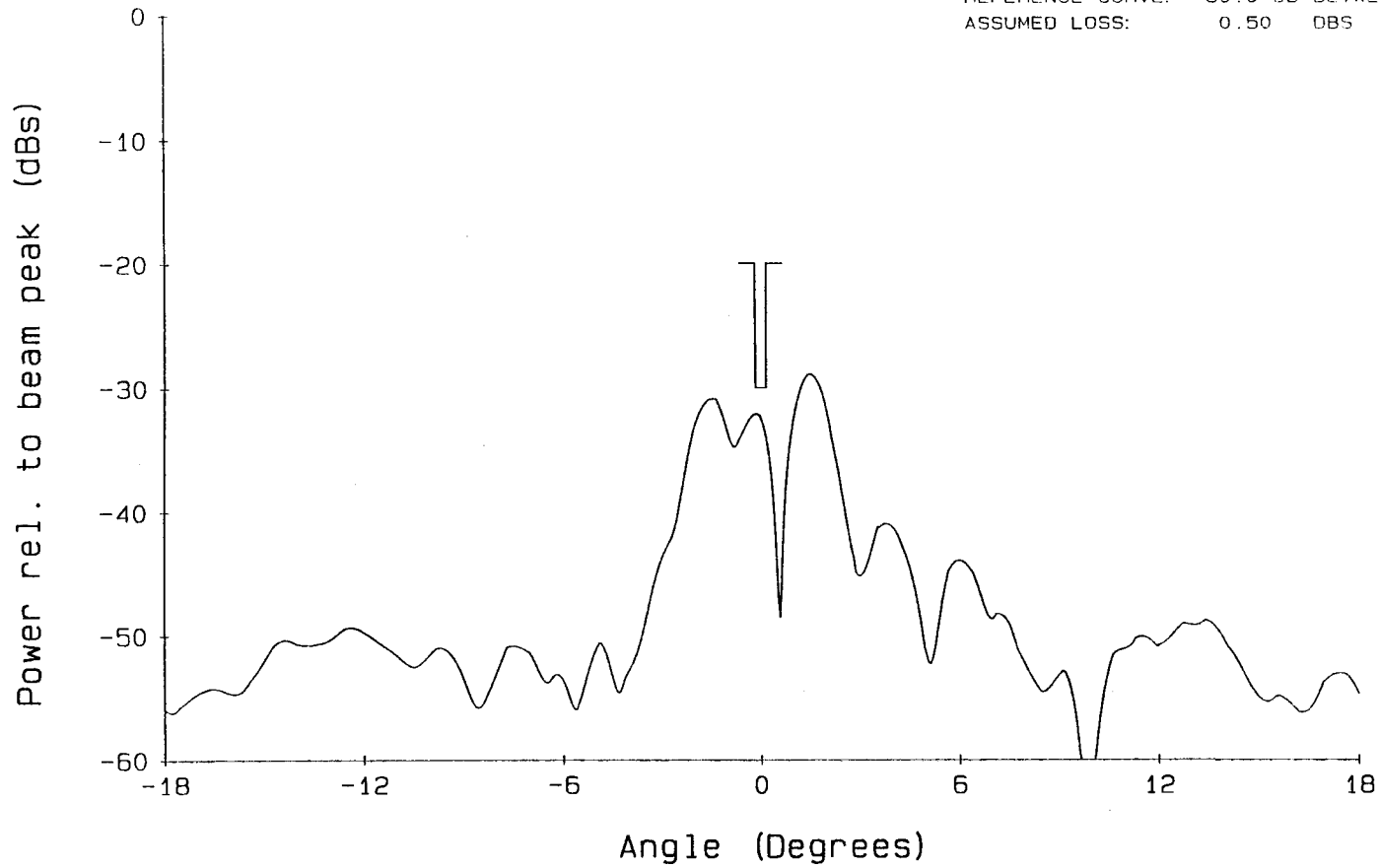
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.650 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 16.6 DBS  
3 dB BEAMWIDTH: 1.35 DEG.  
POLARIZATION: LUDWIG 3 RH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -30.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



CYLINDRICAL NEAR FIELD TEST FACILITY

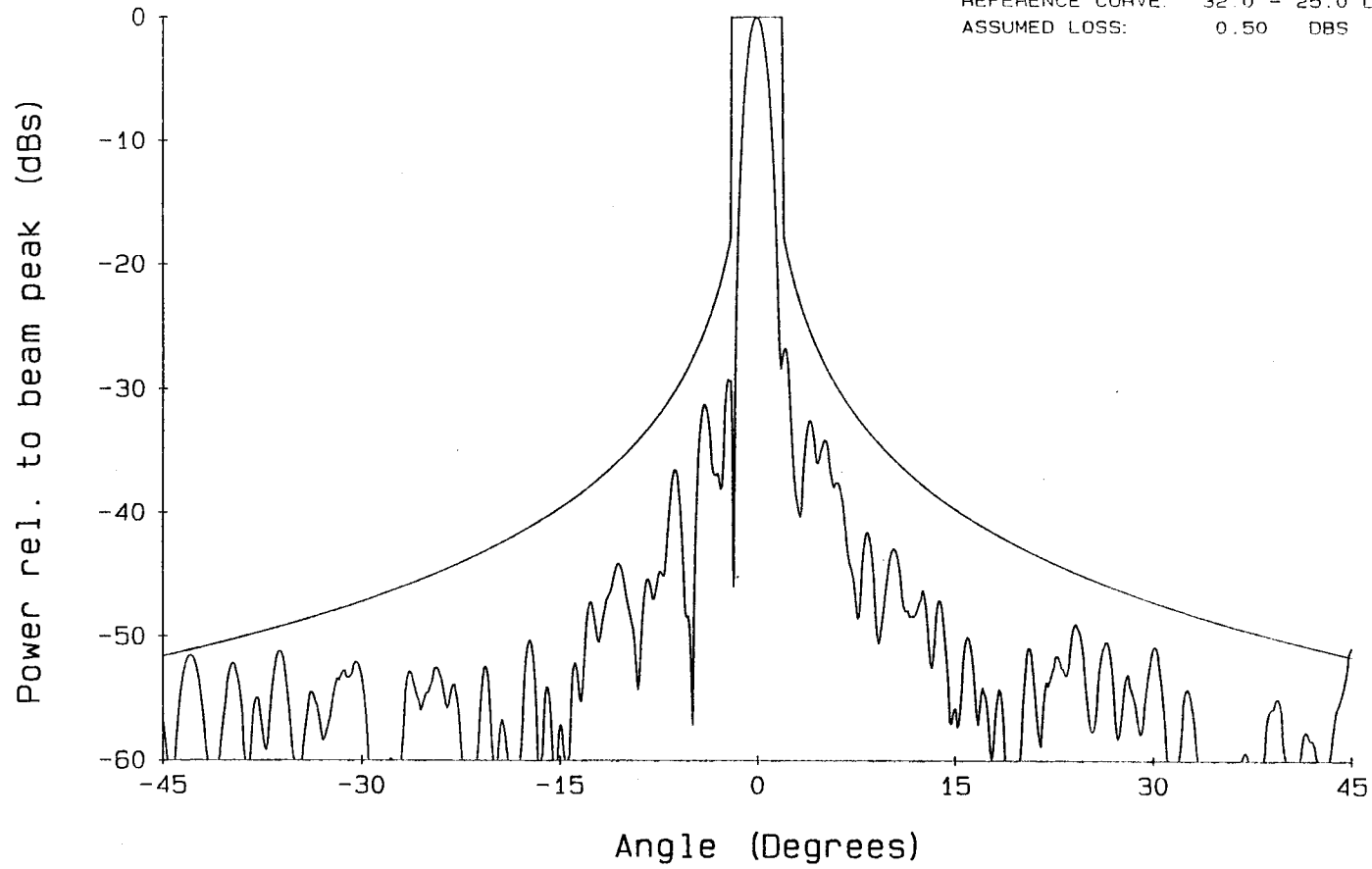
FREQUENCY: 6.650 GHZ  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 13.8 DBS  
3 dB BEAMWIDTH: 0.97 DEG.  
POLARIZATION: LUDWIG 3 RH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -30.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



CYLINDRICAL NEAR FIELD TEST FACILITY

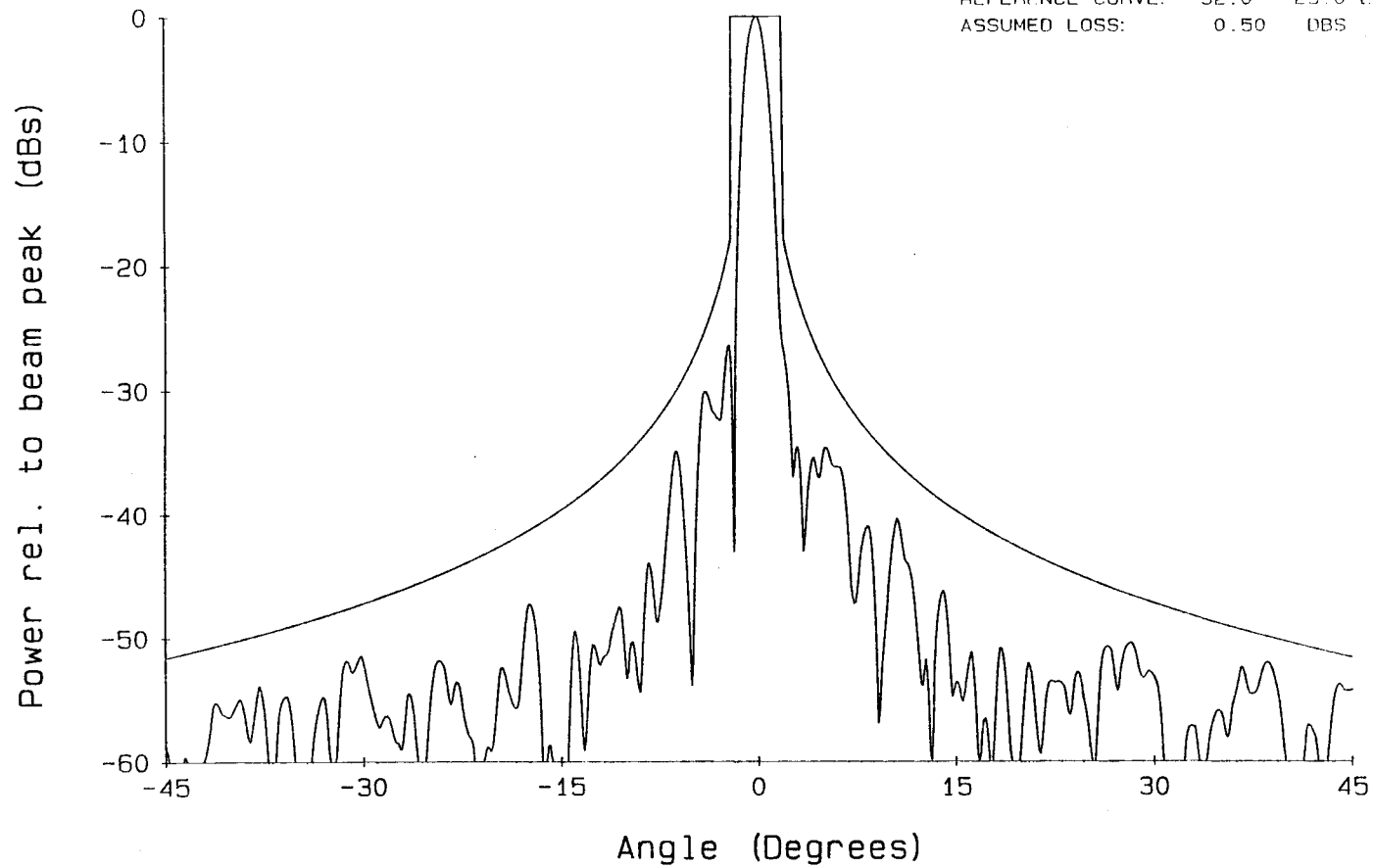


FREQUENCY: 6.650 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 42.8 DBS  
3 dB BEAMWIDTH: 1.33 DEG.  
POLARIZATION: LUDWIG 3 LH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



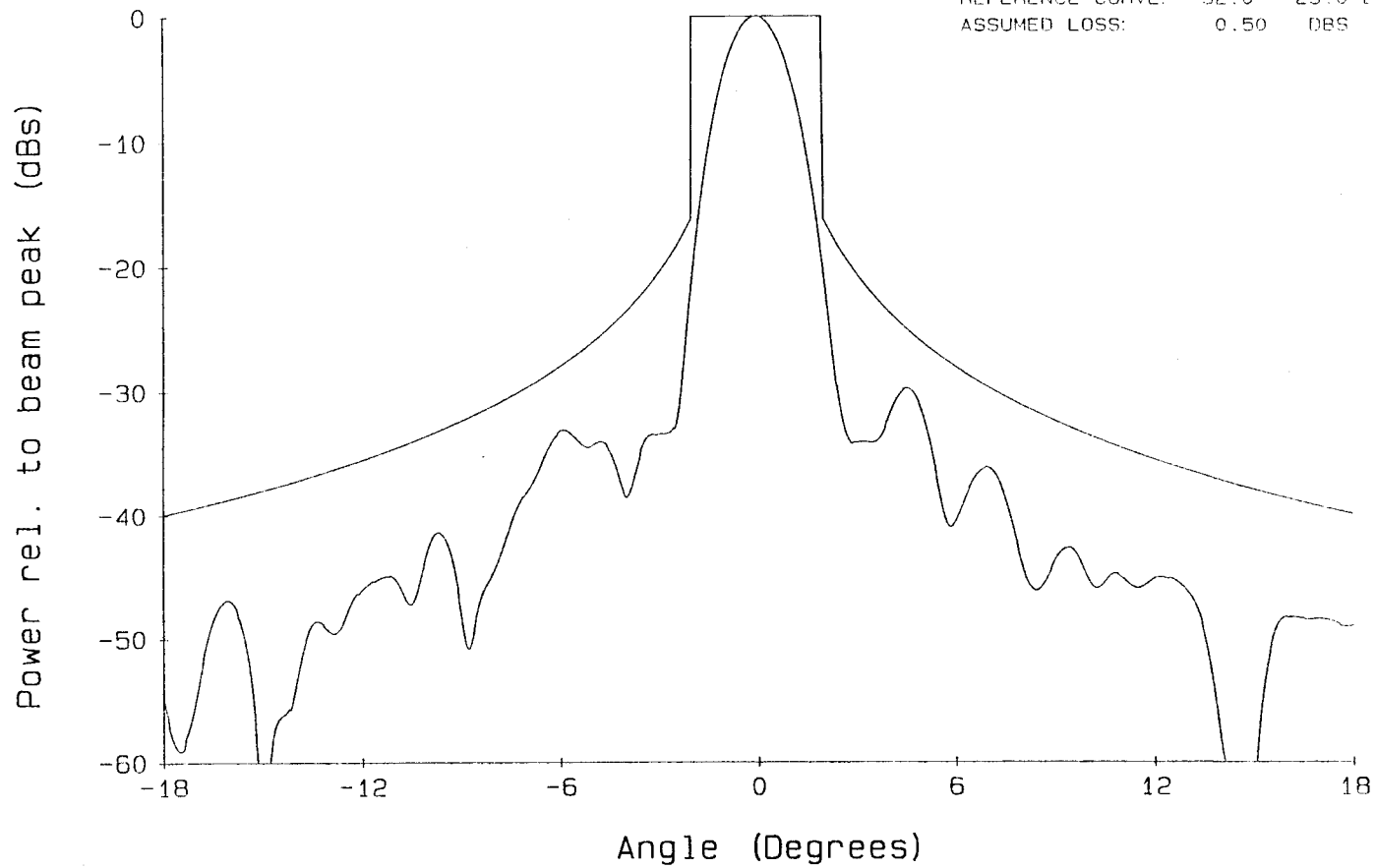
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.650 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 42.8 DBS  
3 dB BEAMWIDTH: 1.35 DEG.  
POLARIZATION: LUDWIG 3 LH CIRCULAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



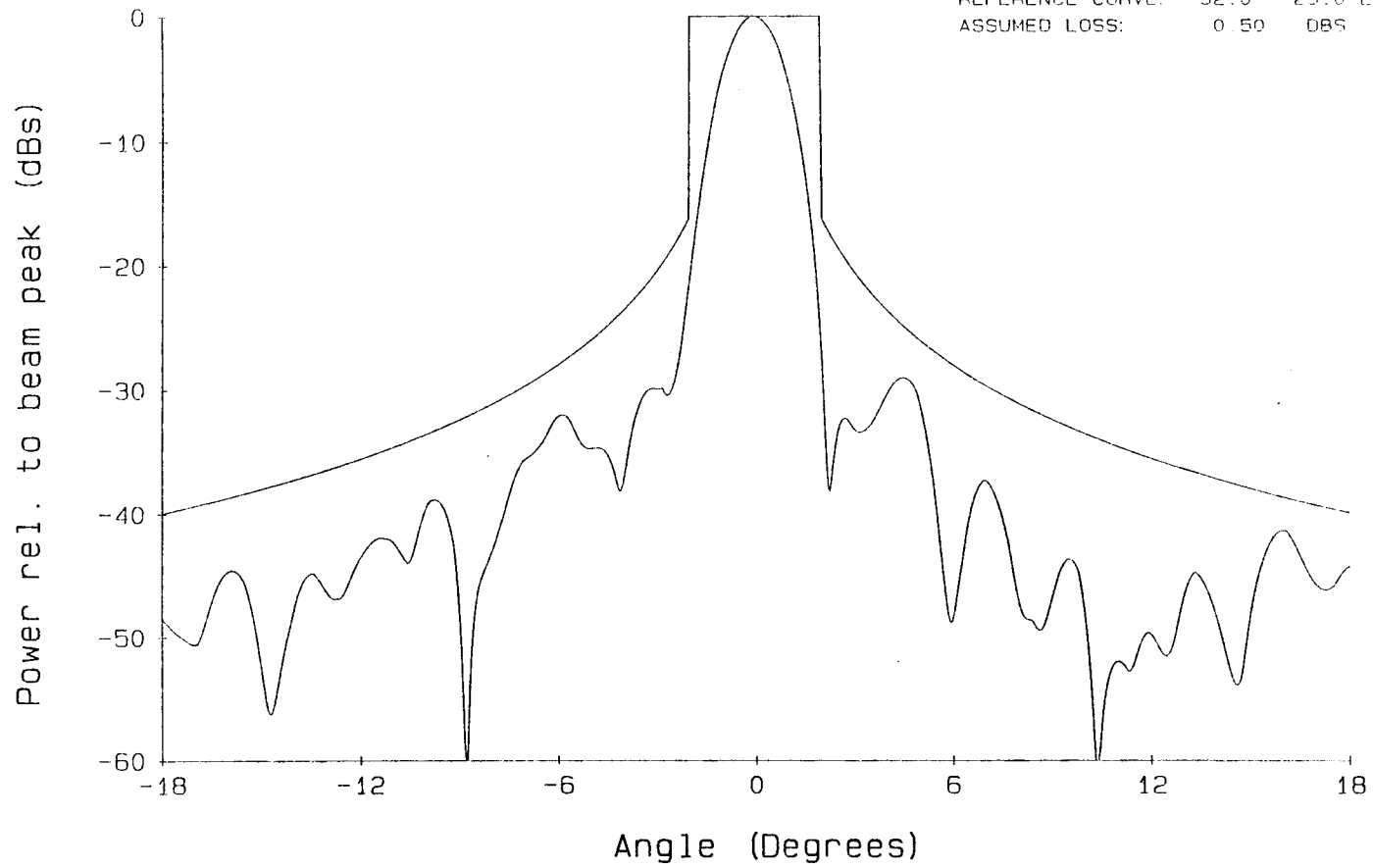
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 5.850 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 41.1 DBS  
3 dB BEAMWIDTH: 1.65 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



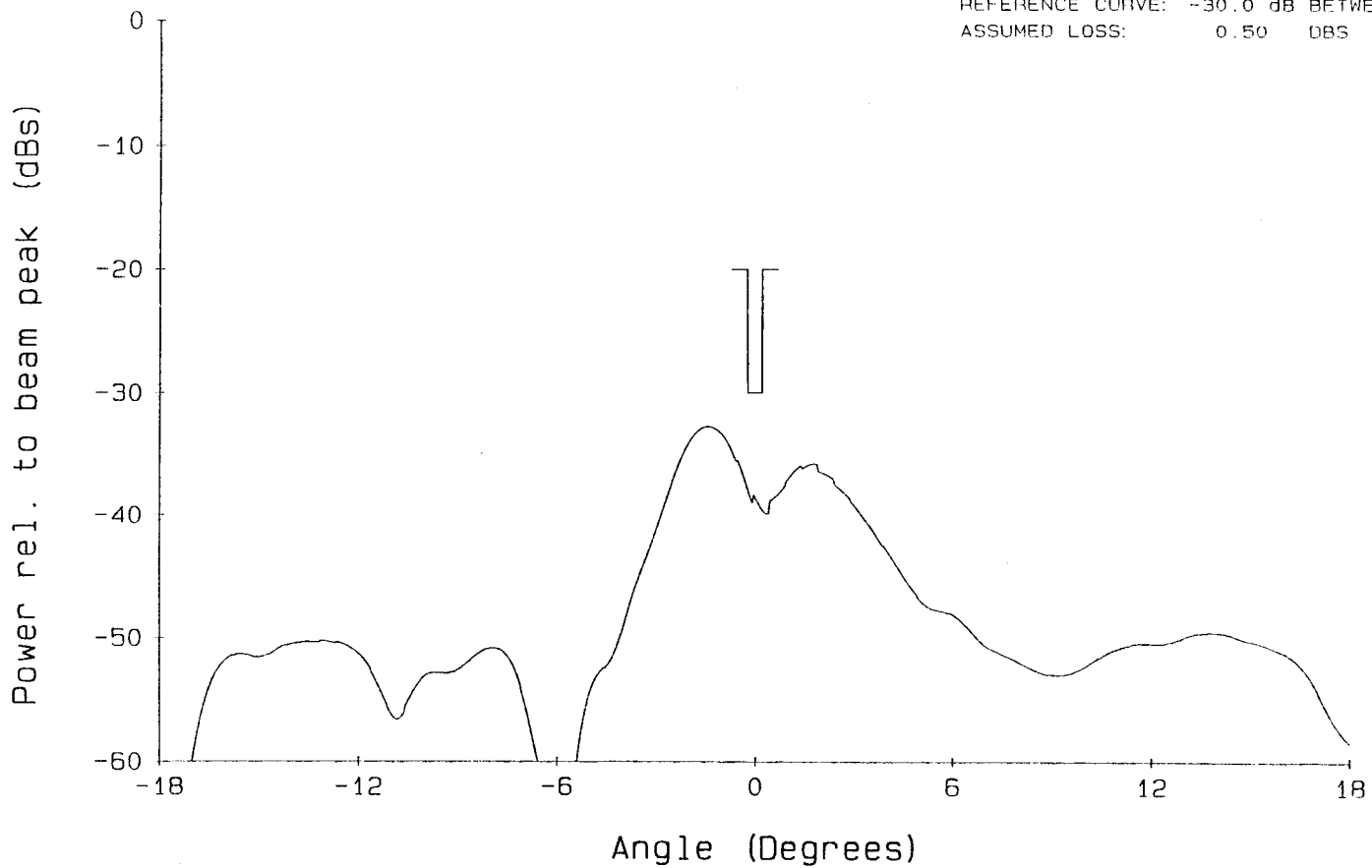
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 5.850 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 41.1 DBS  
3 dB BEAMWIDTH: 1.58 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



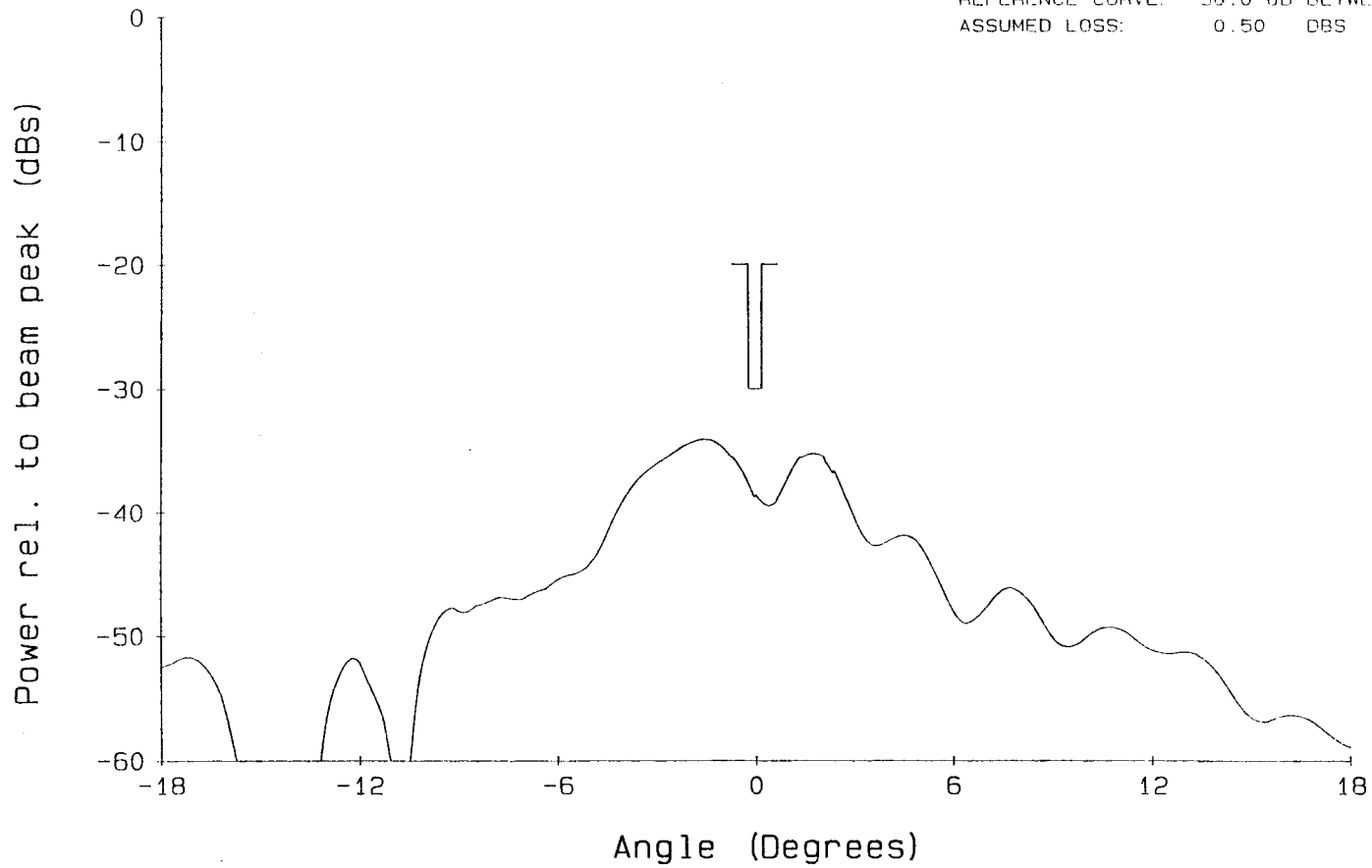
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 5.850 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 8.3 DBS  
3 dB BEAMWIDTH: 1.81 DEG.  
POLARIZATION: LUDWIG 3 LINEAR CROSSPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -30.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



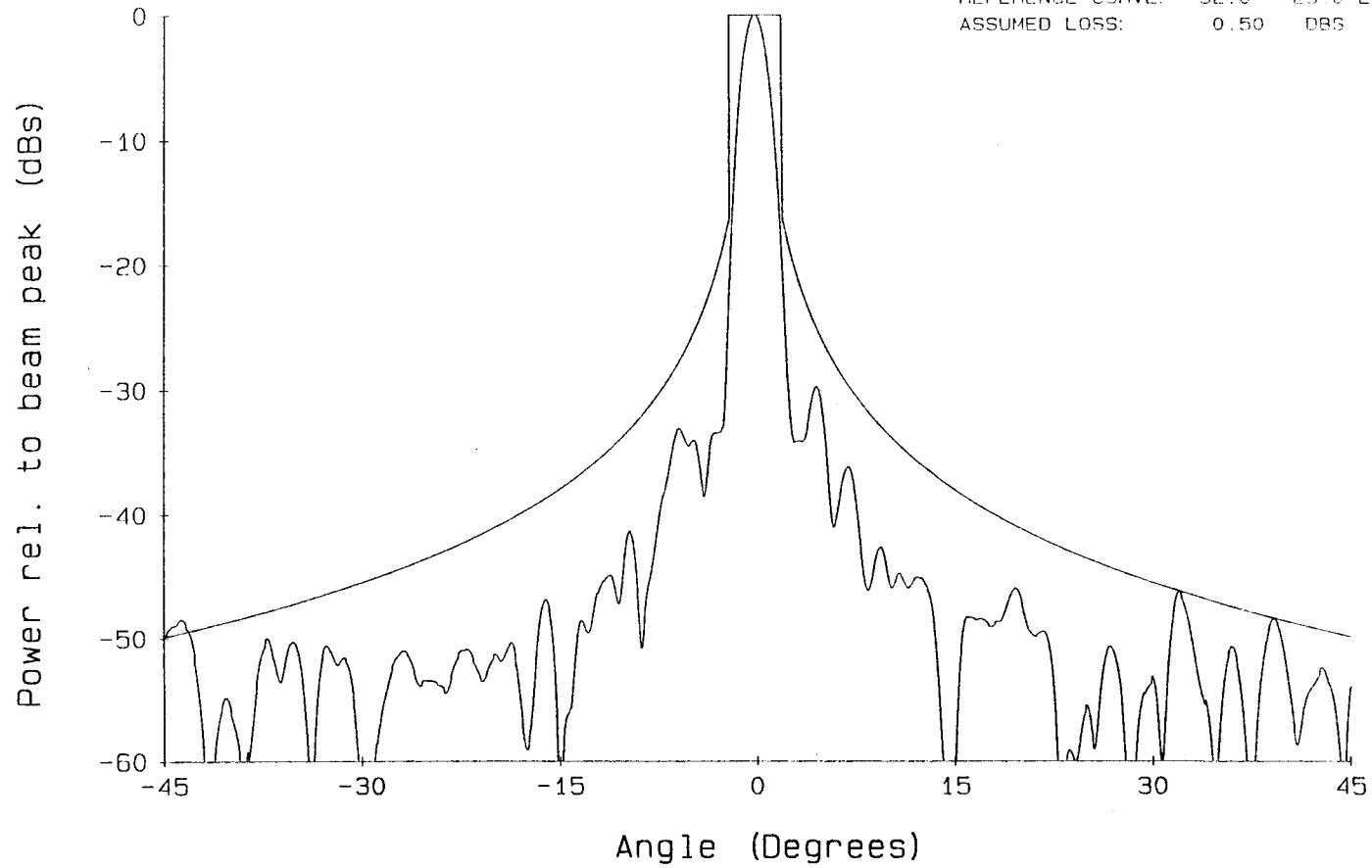
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 5.850 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 7.0 DBS  
3 dB BEAMWIDTH: 3.15 DEG.  
POLARIZATION: LUDWIG 3 LINEAR CROSSPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -30.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



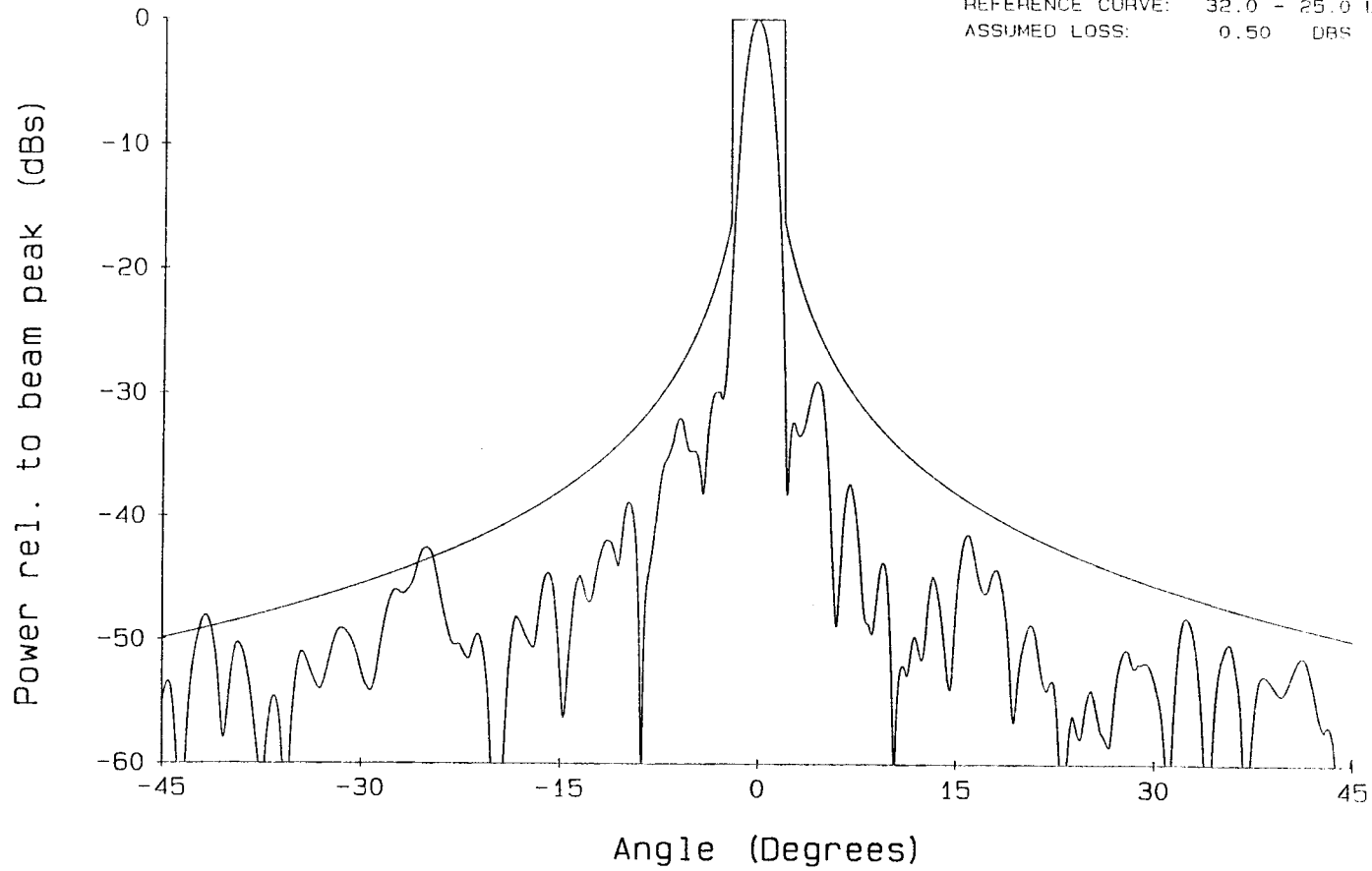
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 5.850 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 41.1 DBS  
3 dB BEAMWIDTH: 1.65 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



CYLINDRICAL NEAR FIELD TEST FACILITY

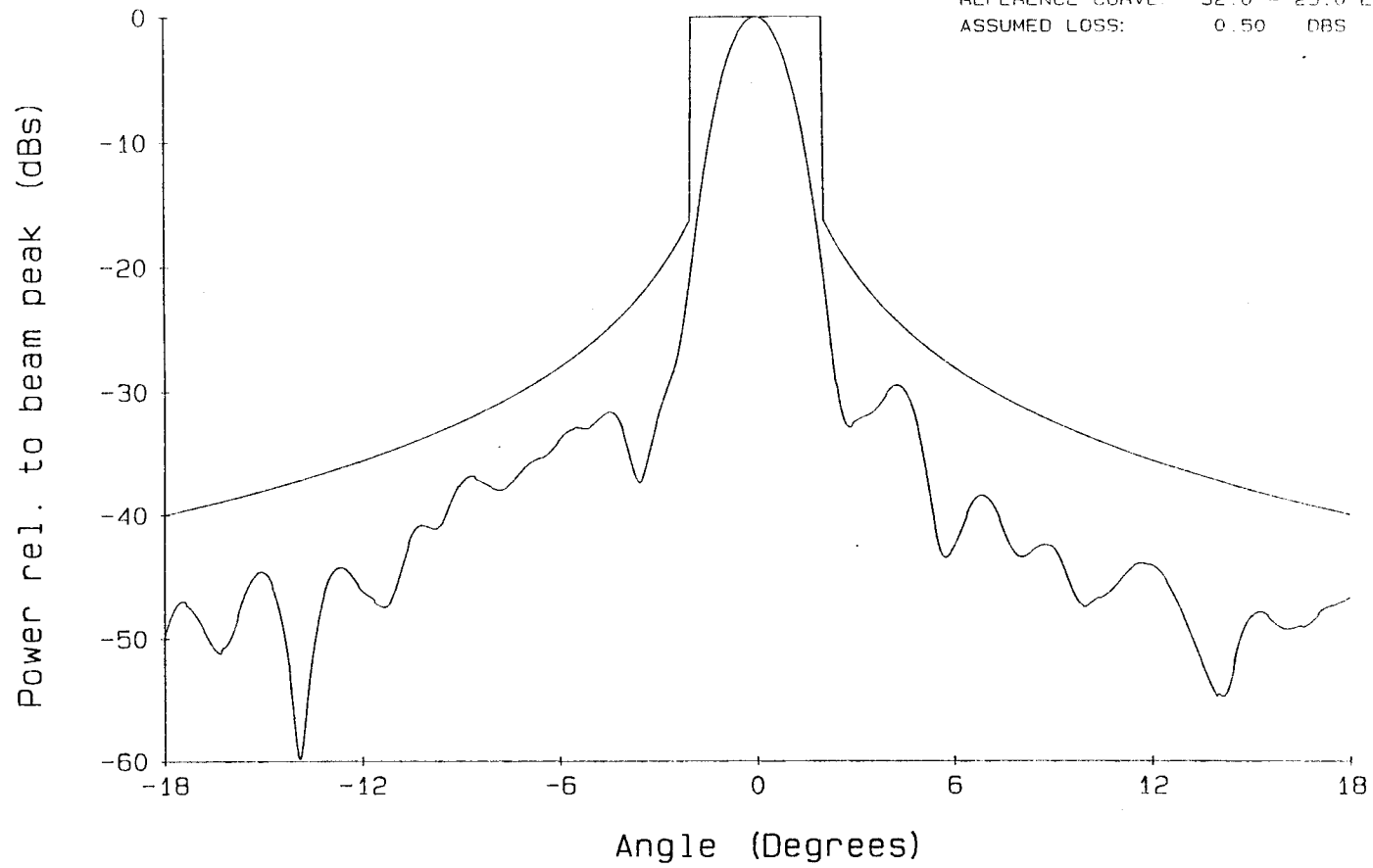
FREQUENCY: 5.850 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 41.1 DBS  
3 dB BEAMWIDTH: 1.58 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



CYLINDRICAL NEAR FIELD TEST FACILITY

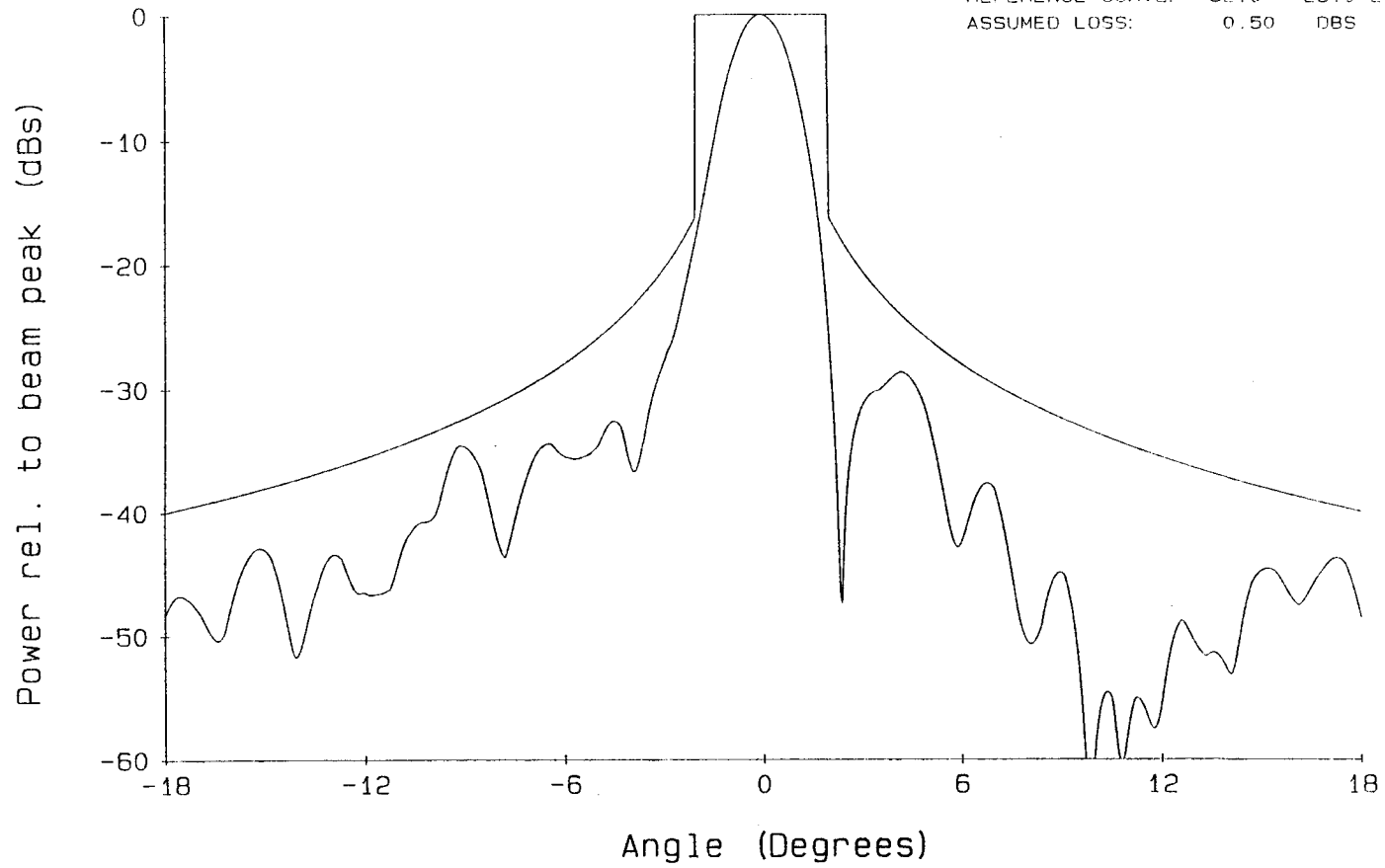


FREQUENCY: 6.152 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 41.1 DBS  
3 dB BEAMWIDTH: 1.62 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



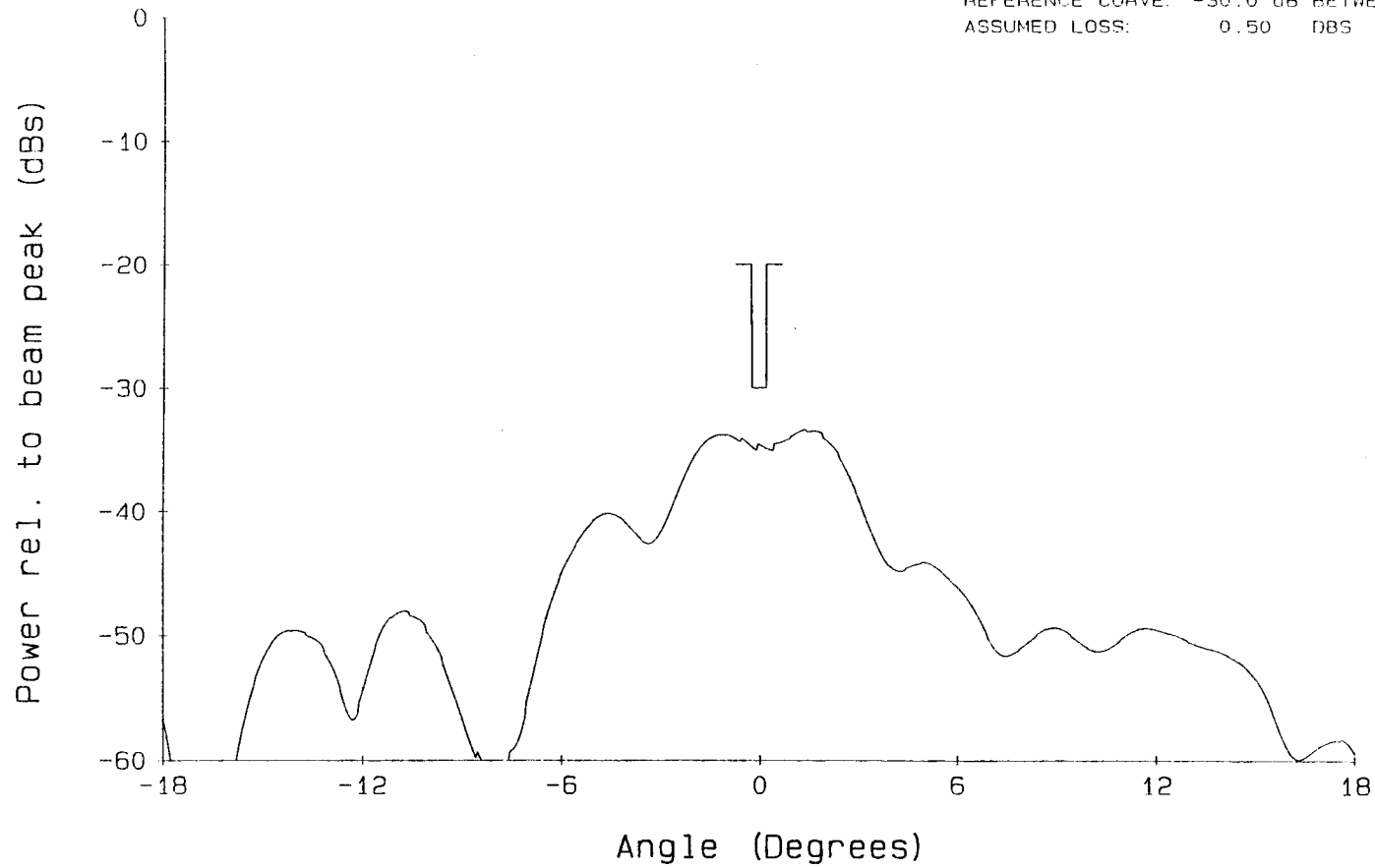
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.152 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 41.1 DBS  
3 dB BEAMWIDTH: 1.56 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THE1A  
ASSUMED LOSS: 0.50 DBS



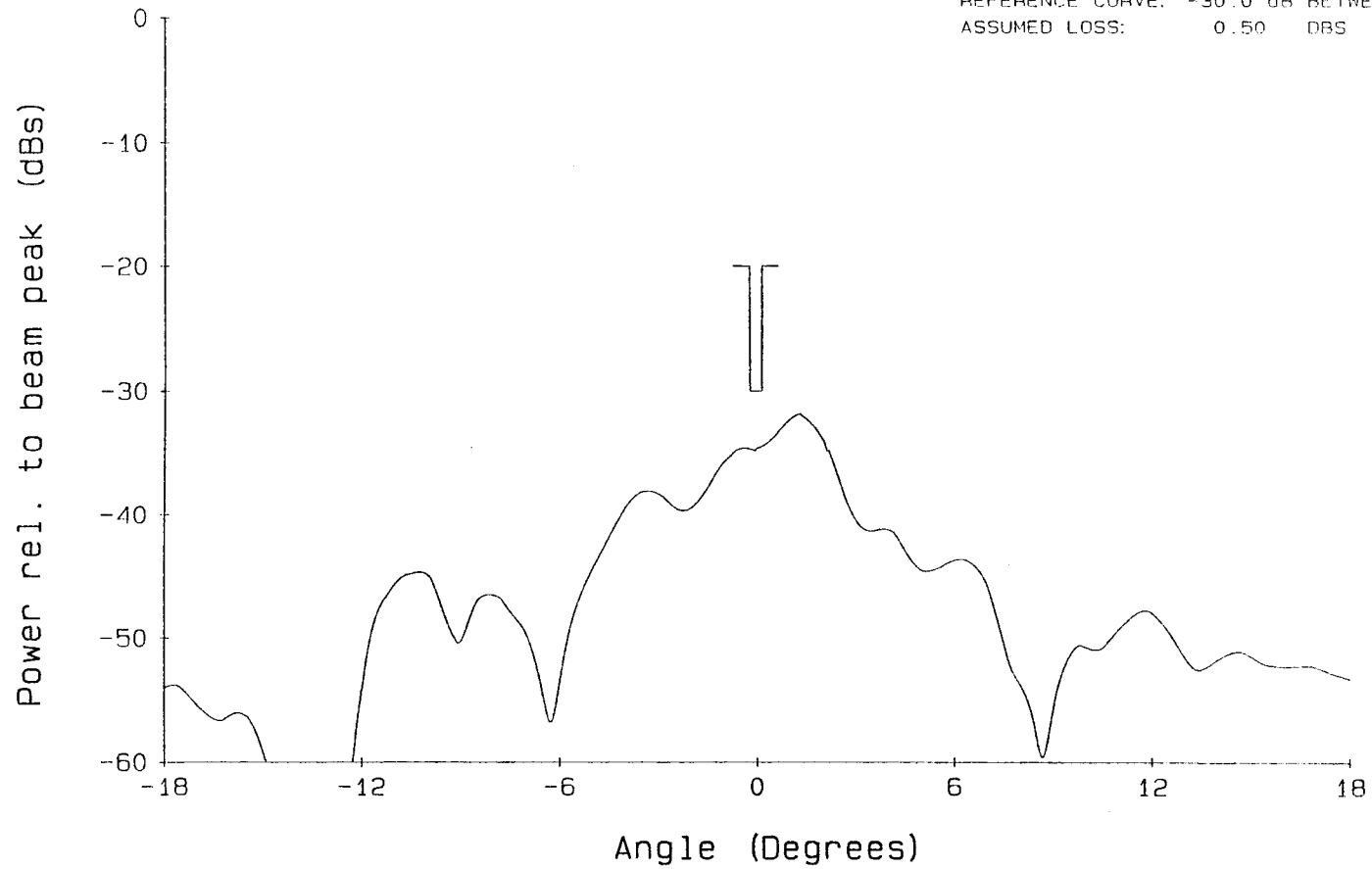
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.152 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 7.7 DBS  
3 dB BEAMWIDTH: 4.69 DEG.  
POLARIZATION: LUDWIG 3 LINEAR CROSSPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -30.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



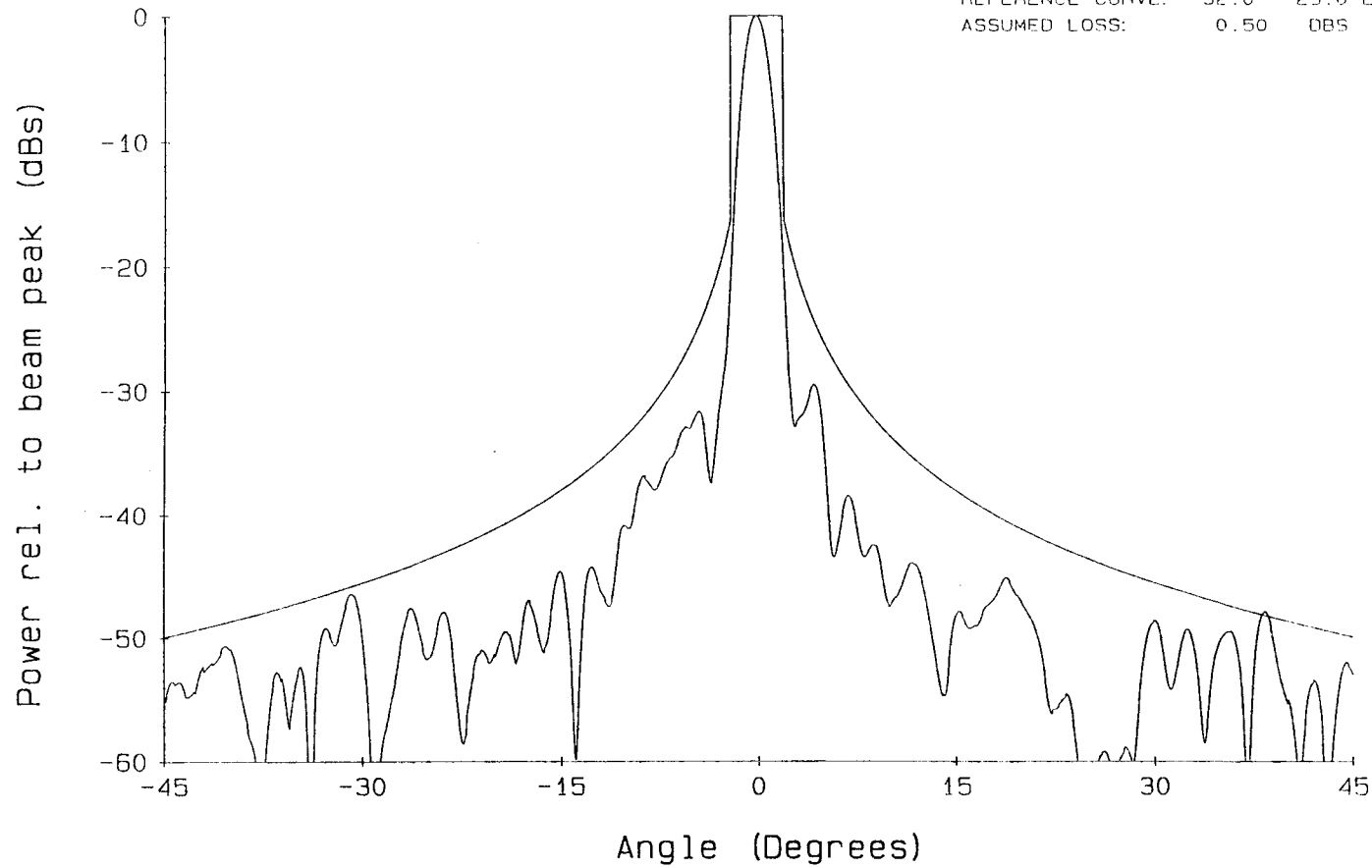
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.152 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 9.2 DBS  
3 dB BEAMWIDTH: 2.87 DEG.  
POLARIZATION: LUDWIG 3 LINEAR CROSSPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -30.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



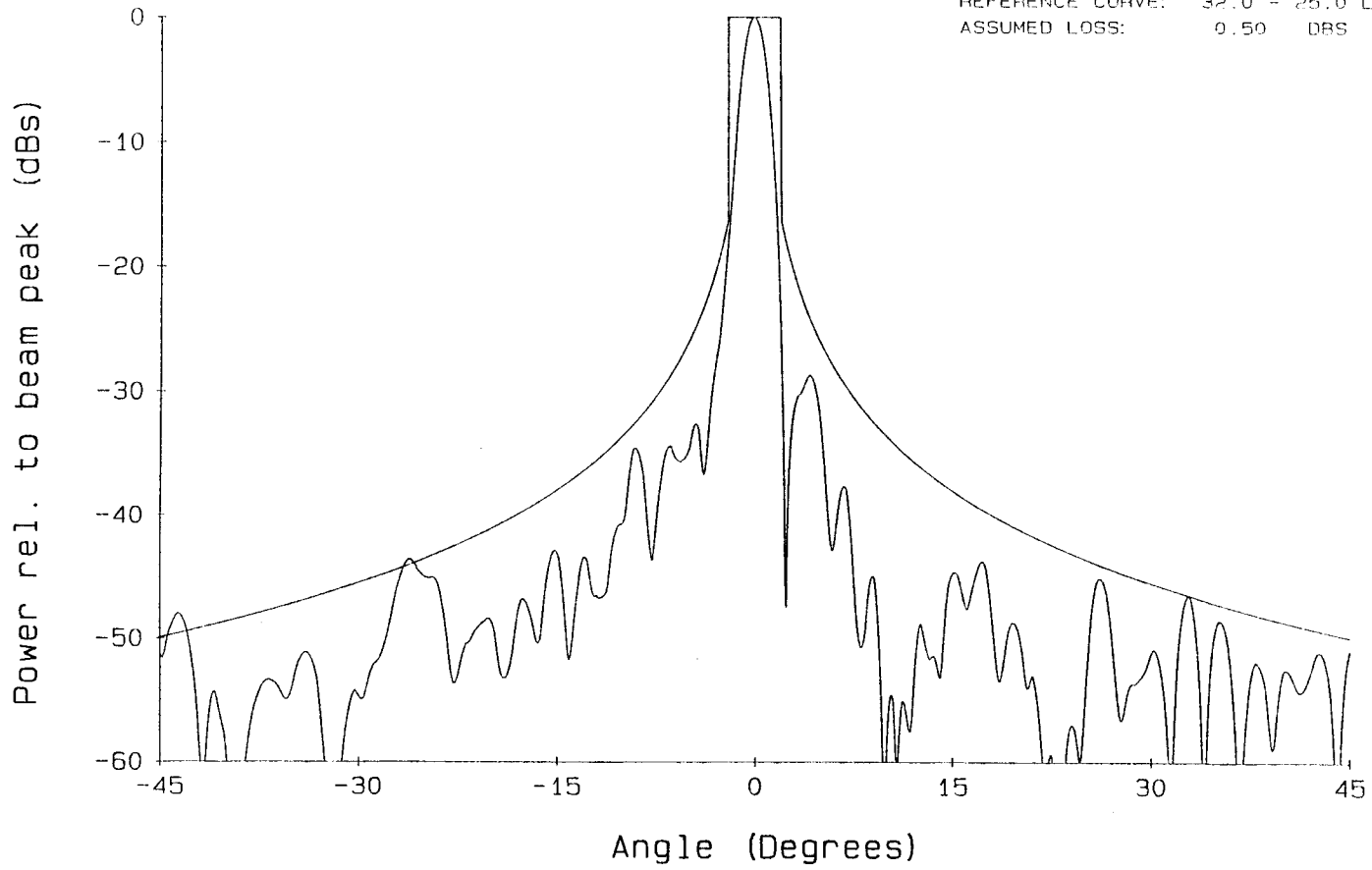
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.152 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 41.1 DBS  
3 dB BEAMWIDTH: 1.62 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



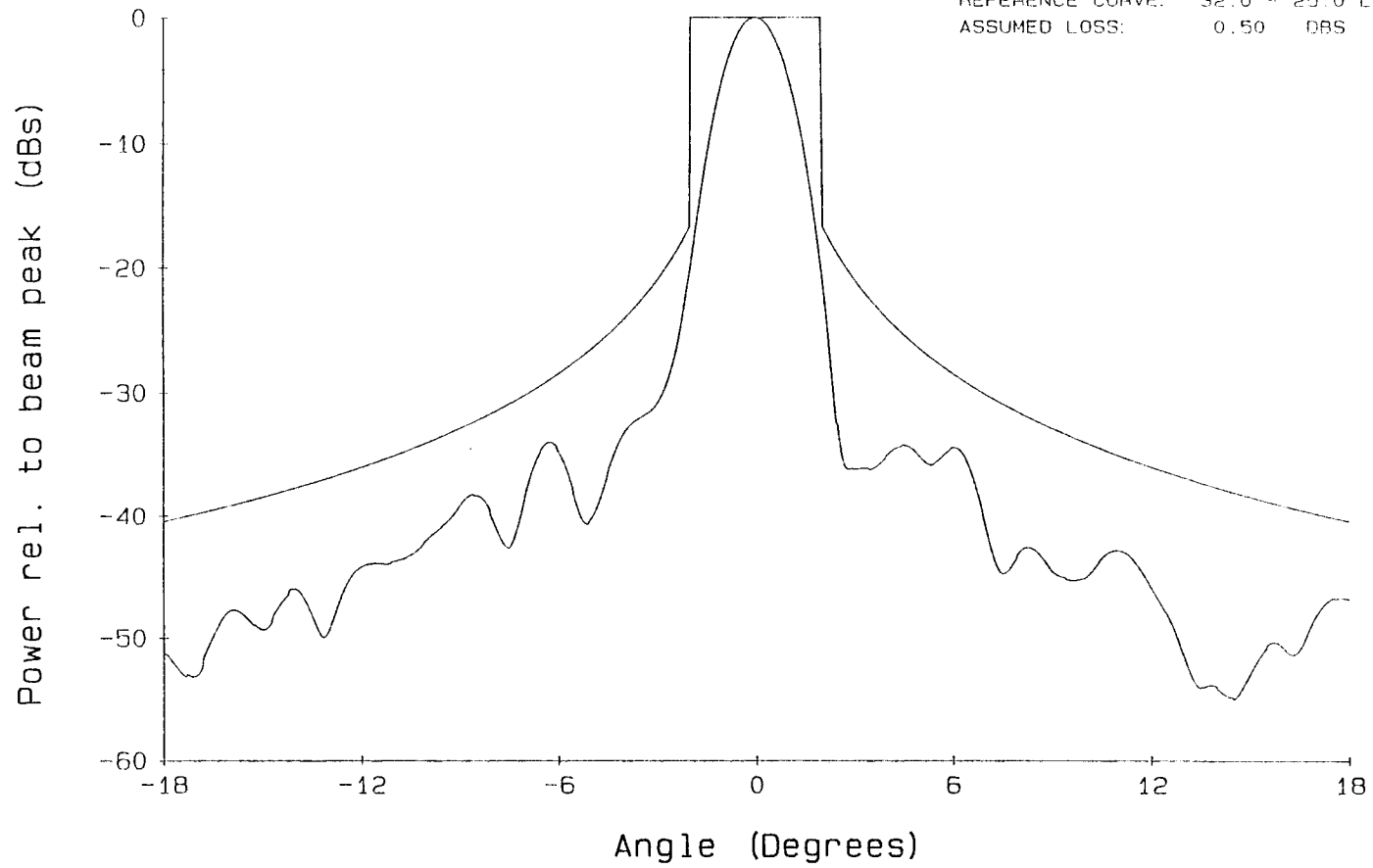
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.152 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 41.1 DBS  
3 dB BEAMWIDTH: 1.56 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



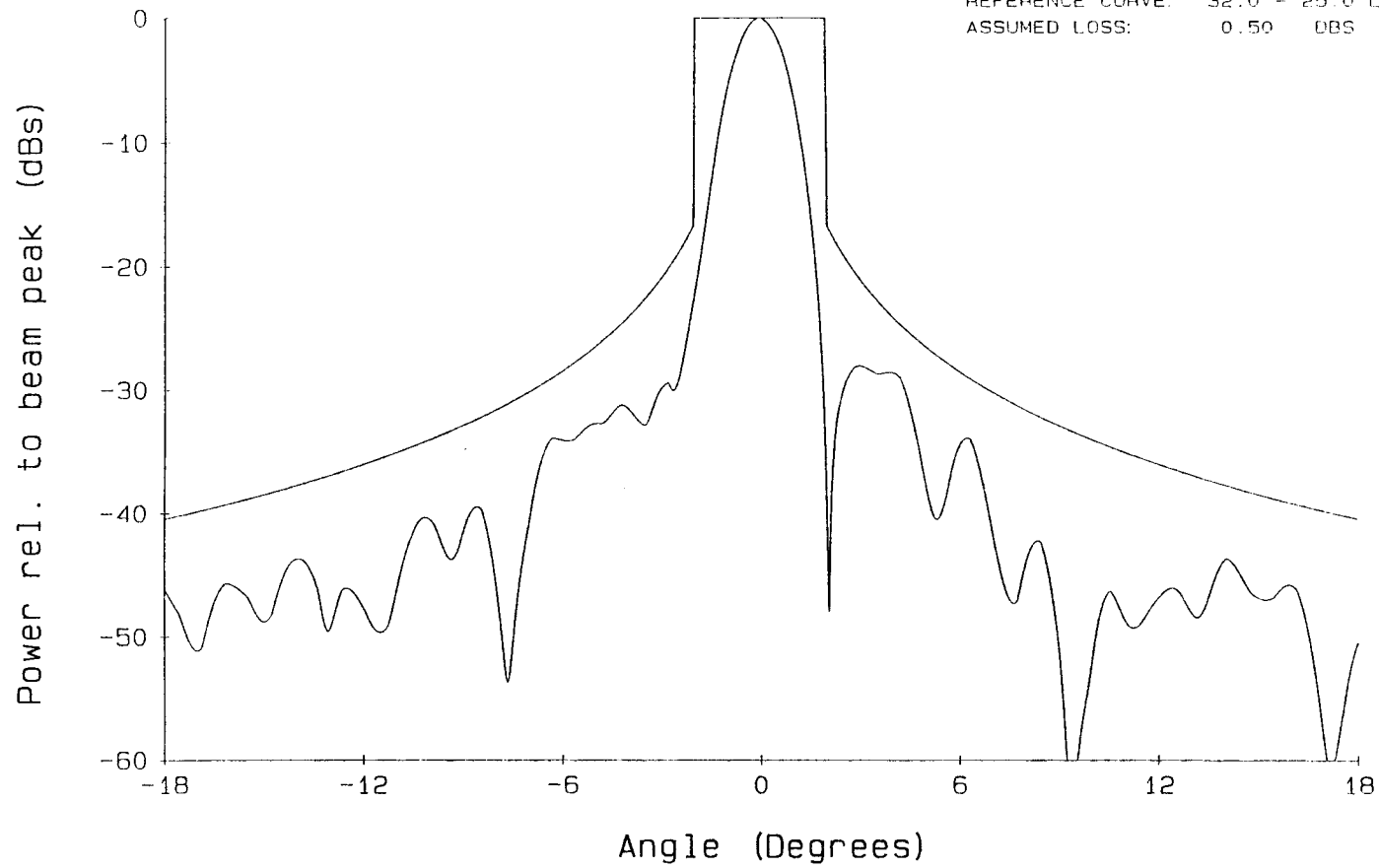
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.650 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 41.6 DBS  
3 dB BEAMWIDTH: 1.60 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



CYLINDRICAL NEAR FIELD TEST FACILITY

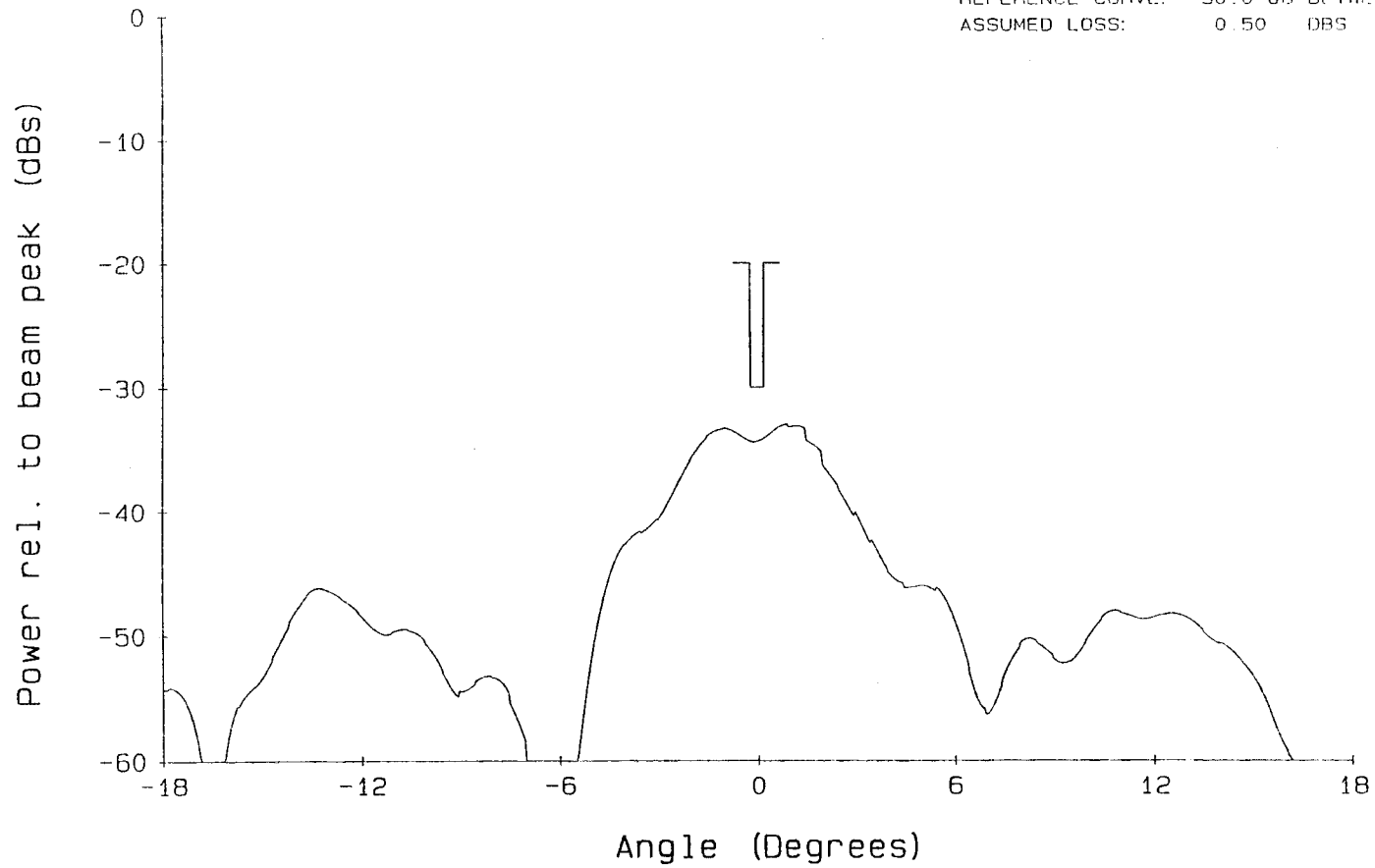
FREQUENCY: 6.650 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 41.6 DBS  
3 dB BEAMWIDTH: 1.43 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



CYLINDRICAL NEAR FIELD TEST FACILITY

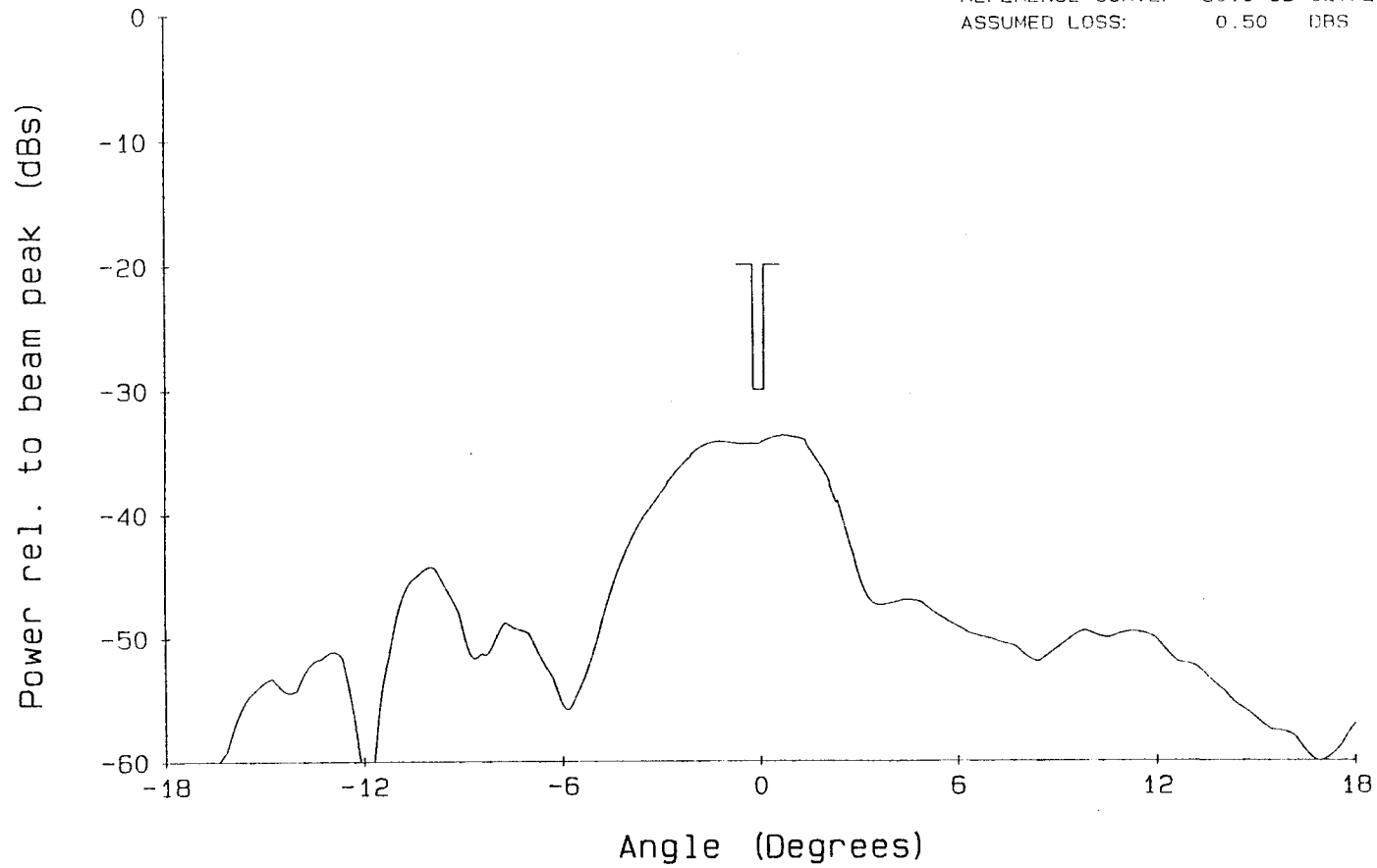


FREQUENCY: 6 650 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 8.6 DBS  
3 dB BEAMWIDTH: 4.03 DEG.  
POLARIZATION: LUDWIG 3 LINEAR CROSSPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -30.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



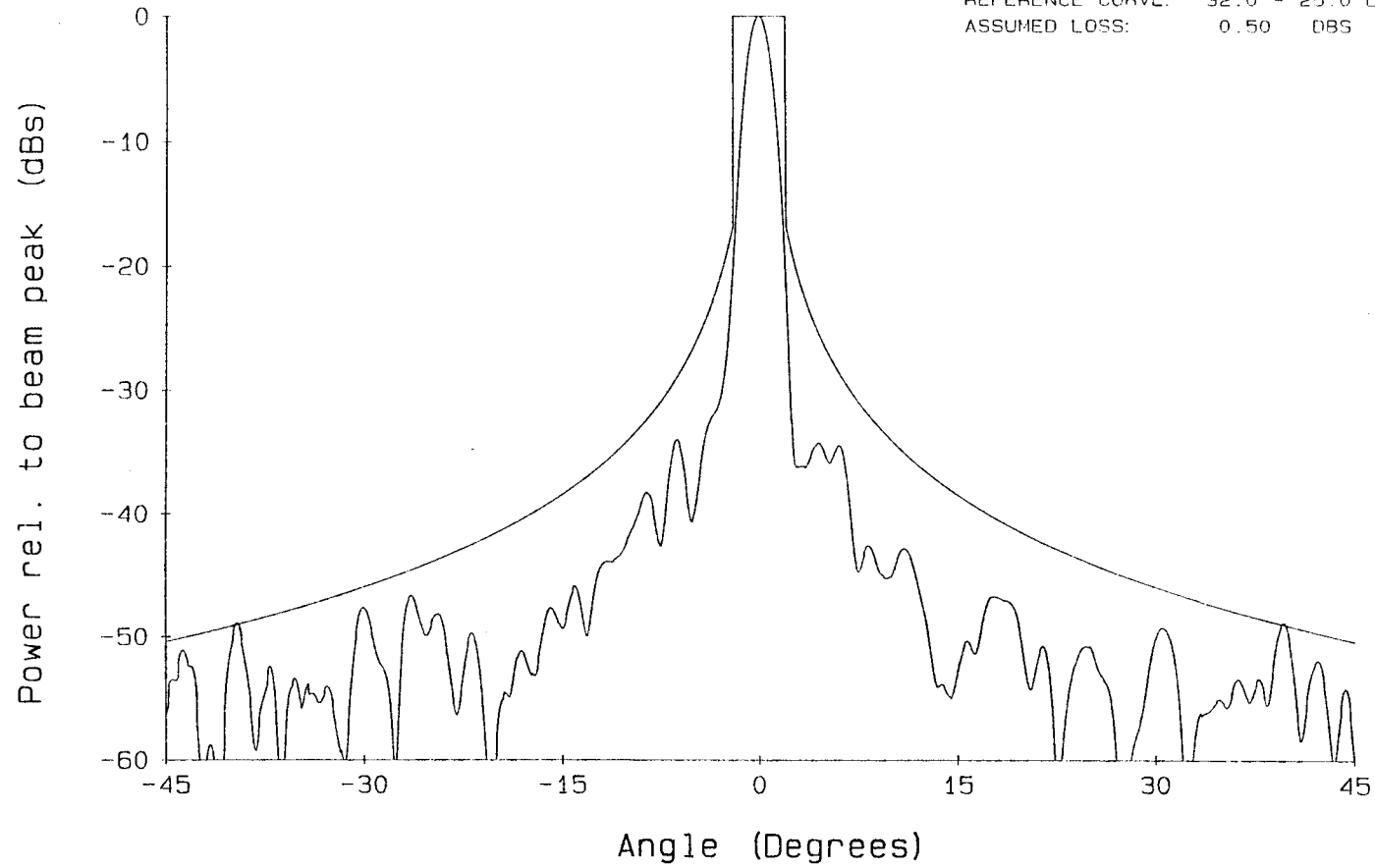
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.650 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 7.9 DBS  
3 dB BEAMWIDTH: 4.56 DEG.  
POLARIZATION: LUDWIG 3 LINEAR CROSSPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -30.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



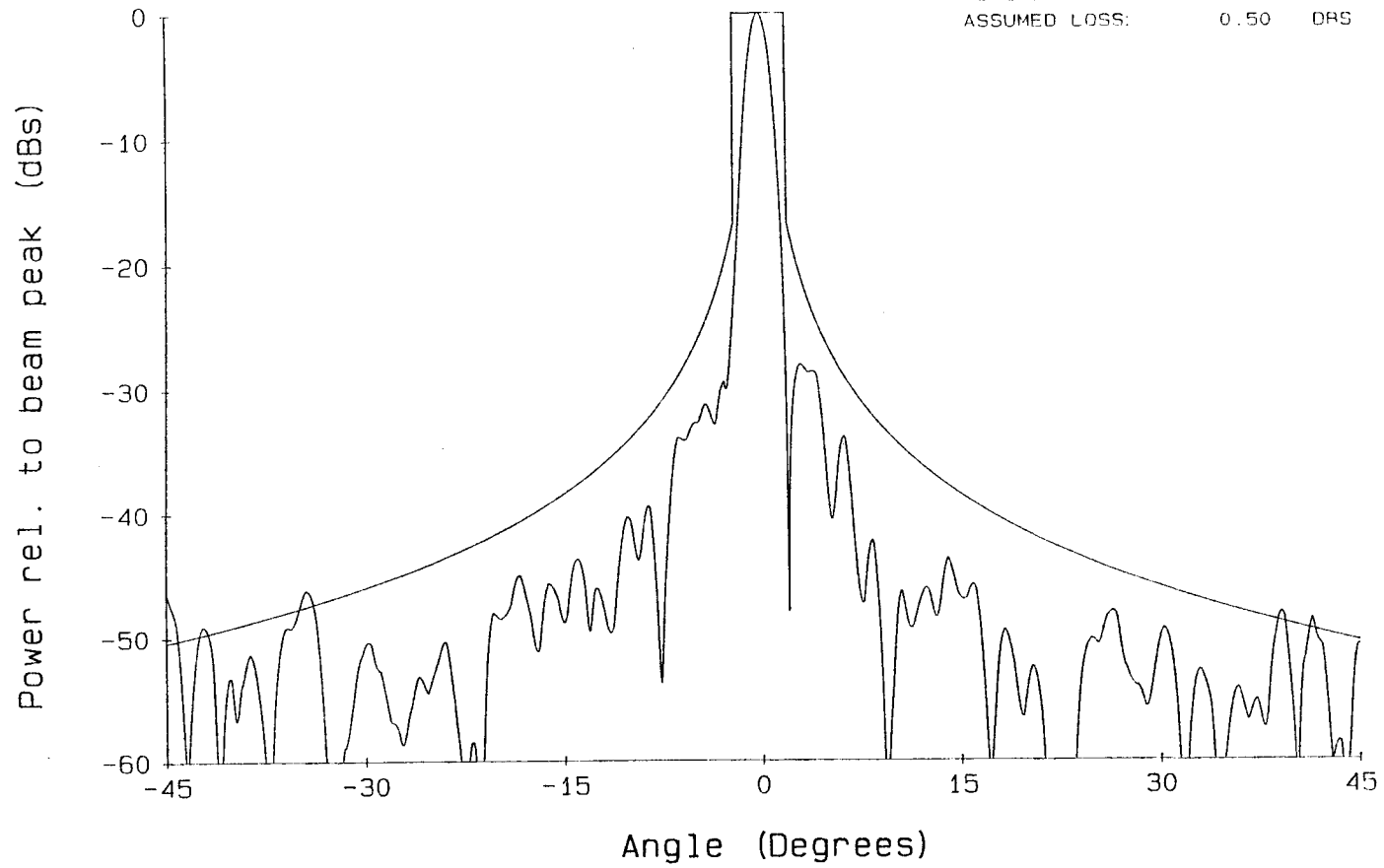
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.650 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 41.6 DBS  
3 dB BEAMWIDTH: 1.60 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



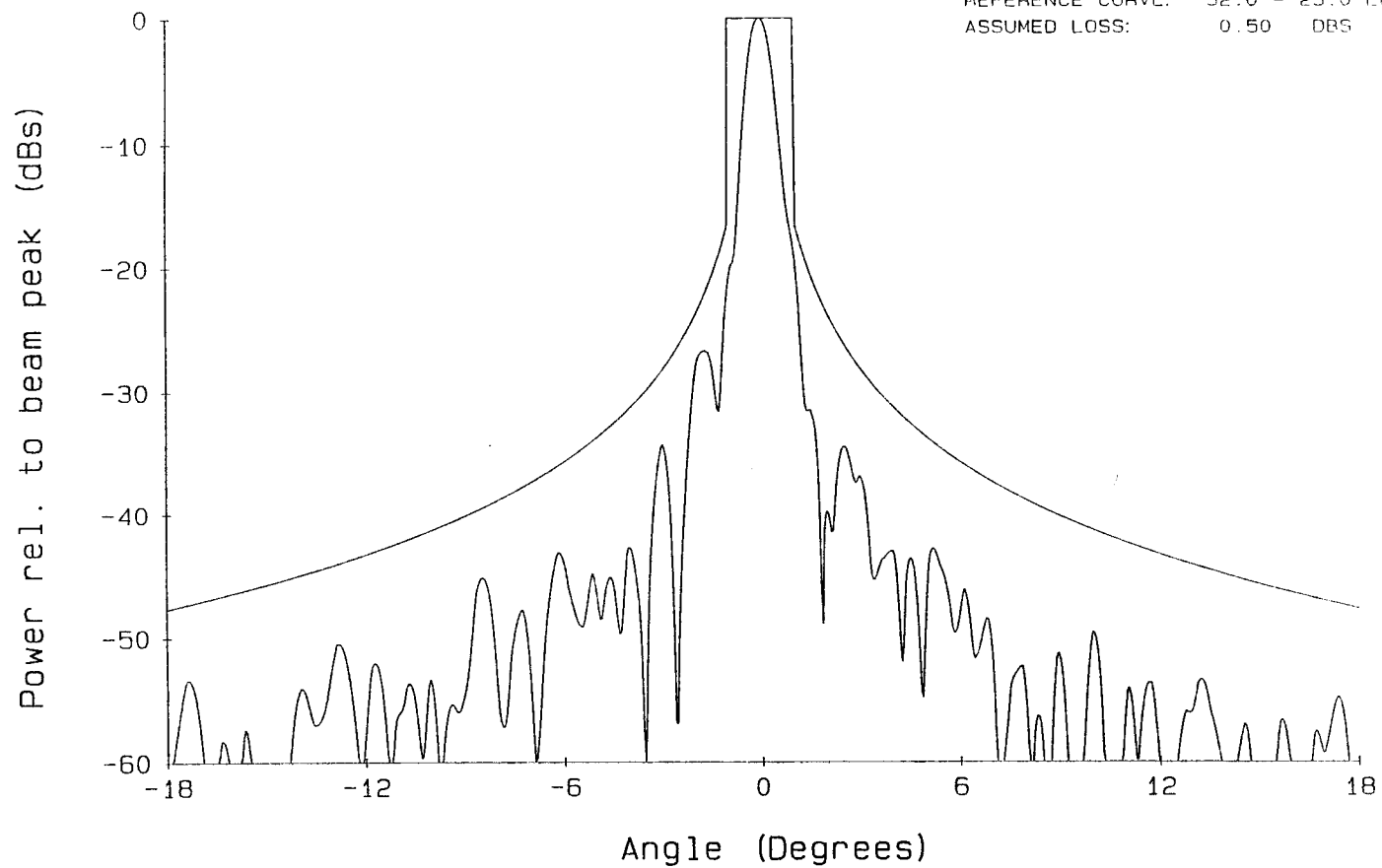
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 6.650 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 41.6 DBS  
3 dB BEAMWIDTH: 1.43 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



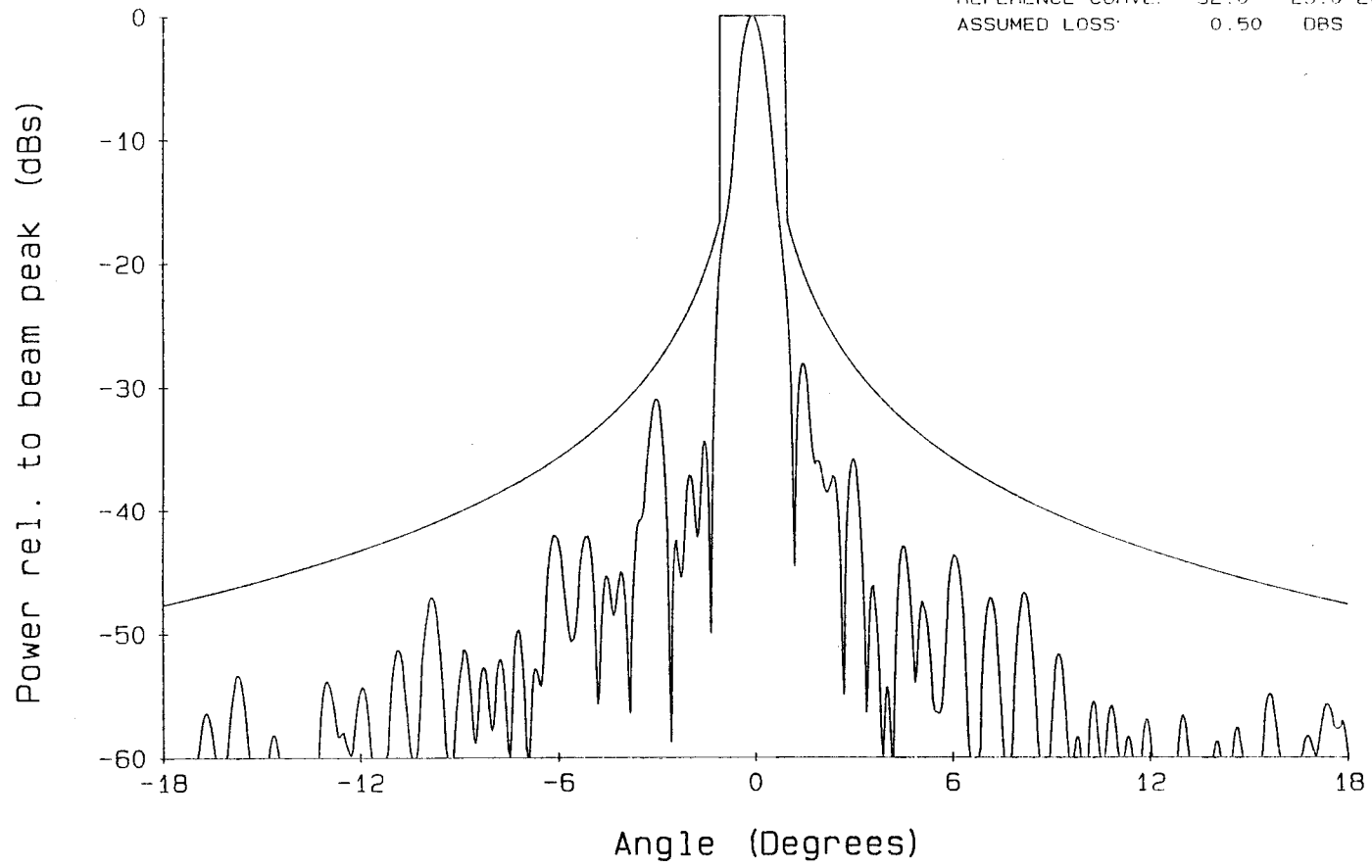
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 13.750 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 48.8 DBS  
3 dB BEAMWIDTH: 0.65 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



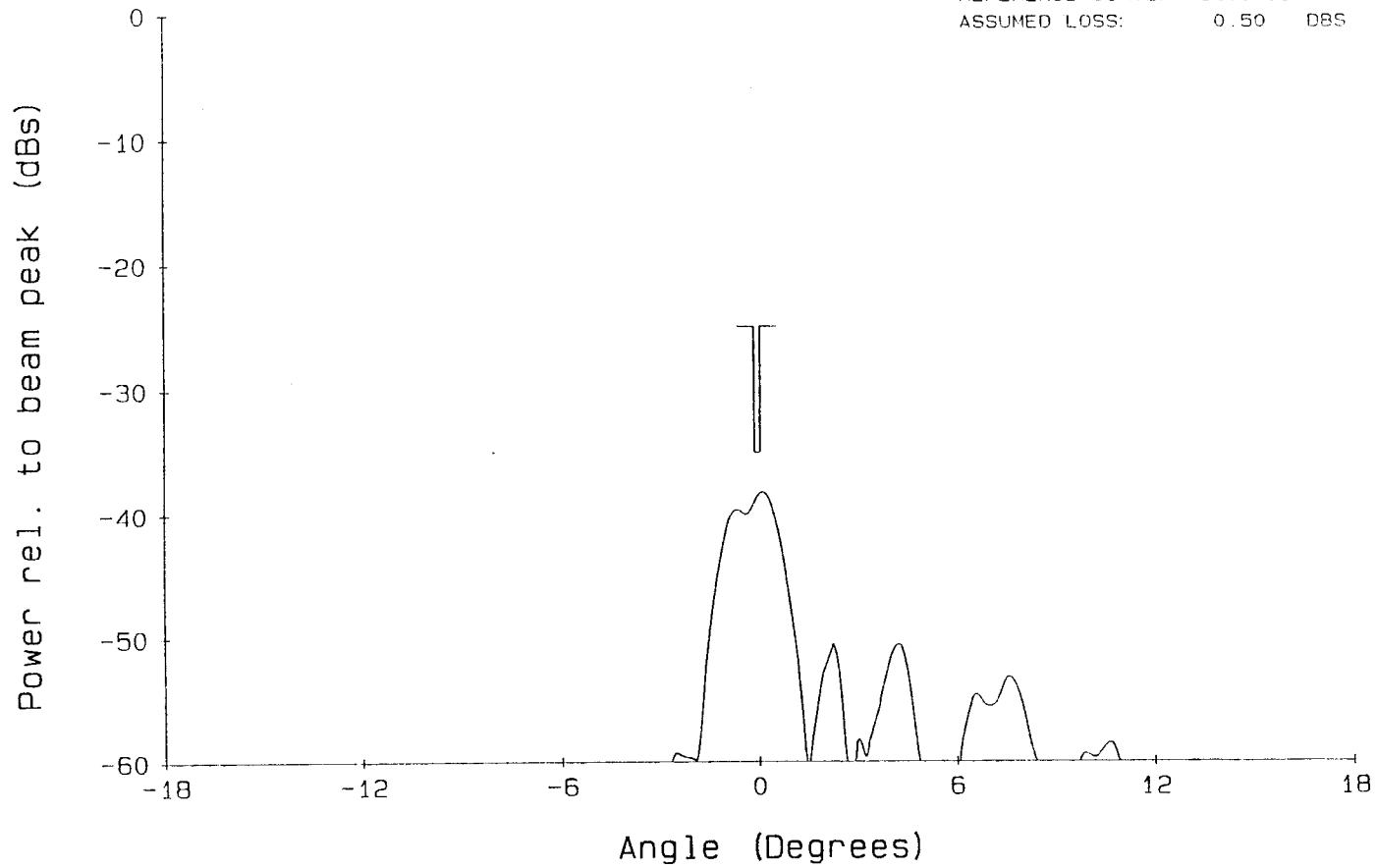
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 13.750 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 48.8 DBS  
3 dB BEAMWIDTH: 0.65 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



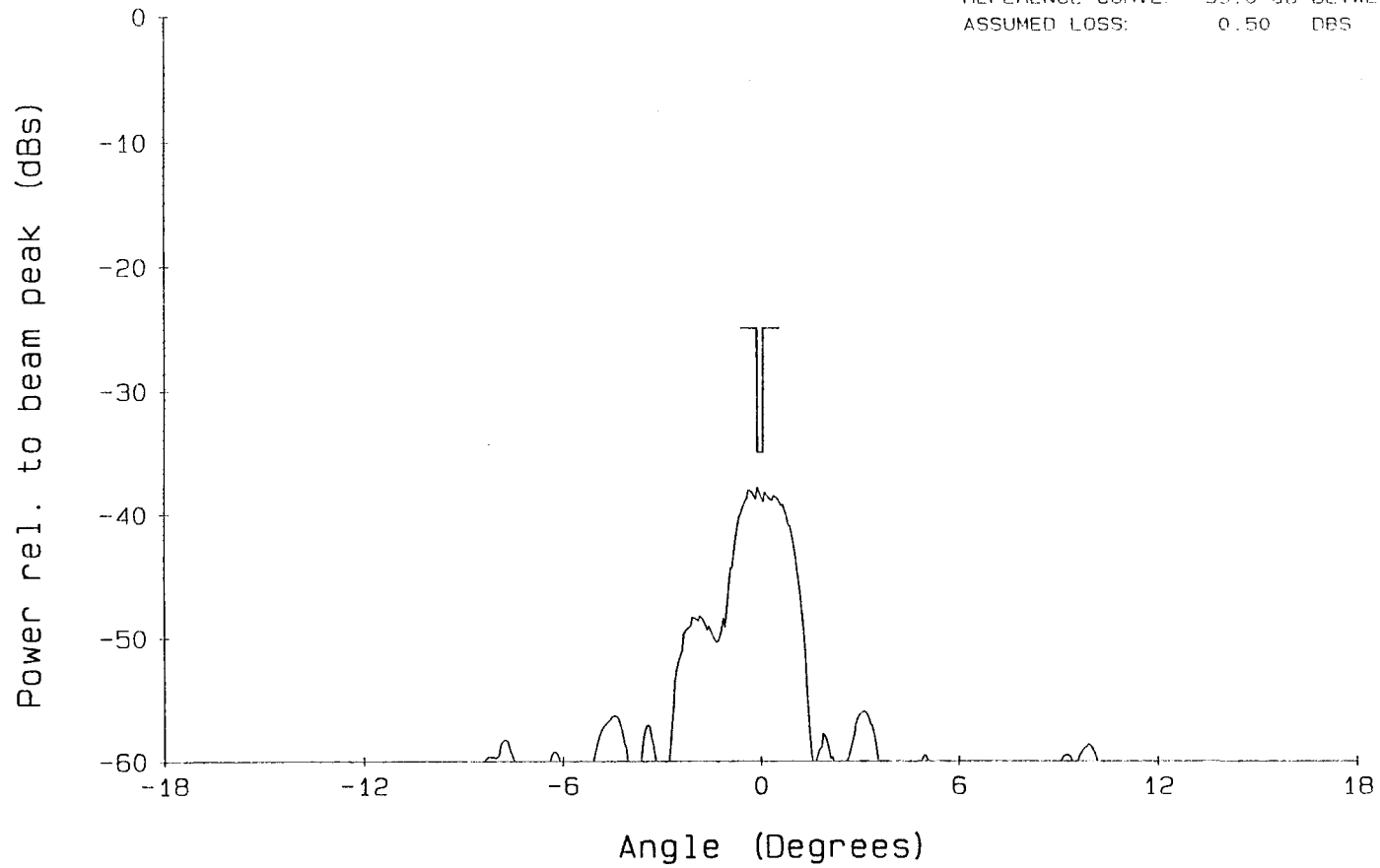
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 13.750 GHz  
ANGLE OF CUT: 0.00 DEG  
DIRECTIVE GAIN: 10.6 DBS  
3 dB BEAMWIDTH: 1.57 DEG.  
POLARIZATION: LUDWIG 3 LINEAR CROSSPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -35.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



CYLINDRICAL NEAR FIELD TEST FACILITY

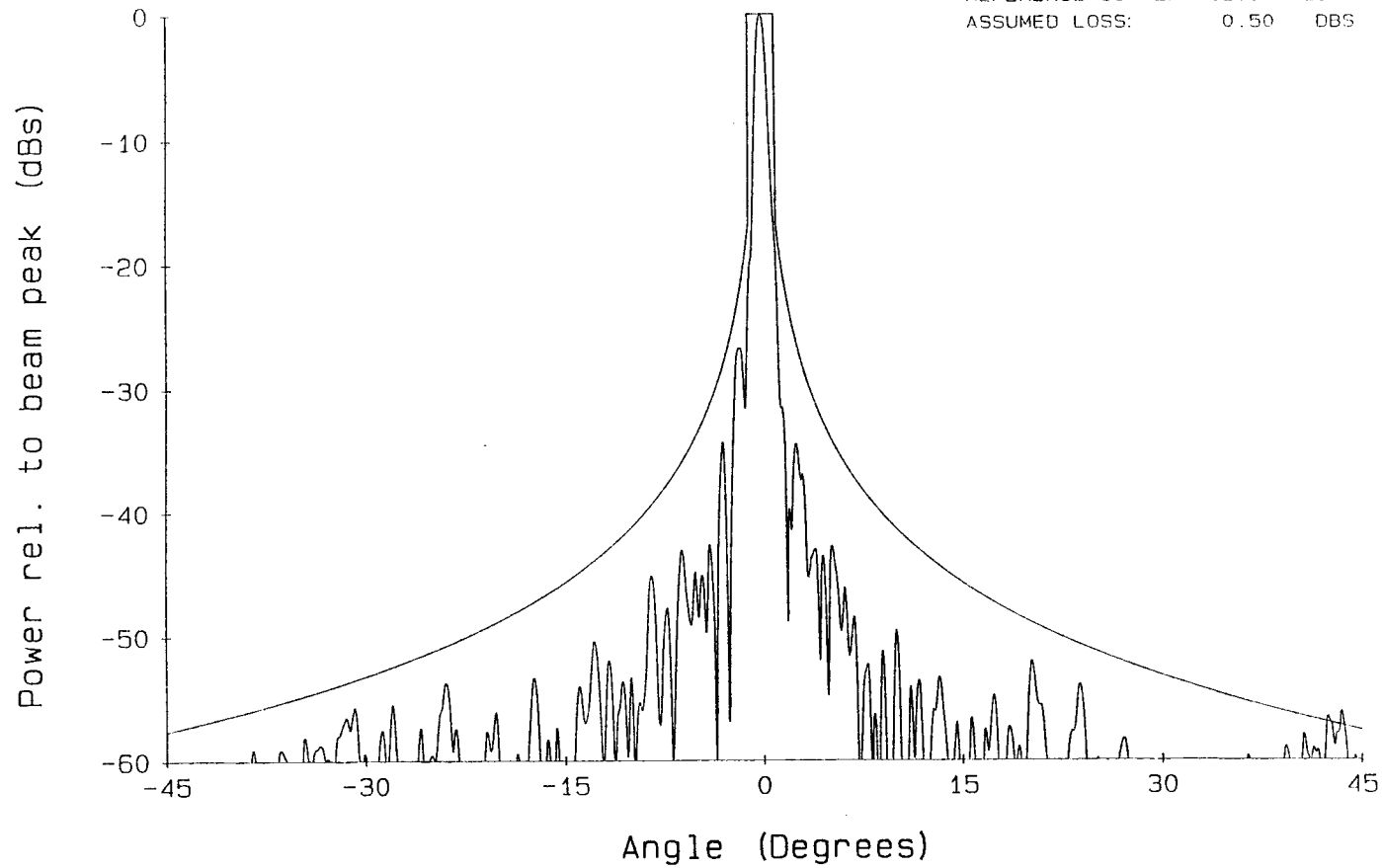
FREQUENCY: 13.750 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 10.9 DBS  
3 dB BEAMWIDTH: 1.53 DEG.  
POLARIZATION: LUDWIG 3 LINEAR CROSSPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG  
REFERENCE CURVE: -35.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



CYLINDRICAL NEAR FIELD TEST FACILITY

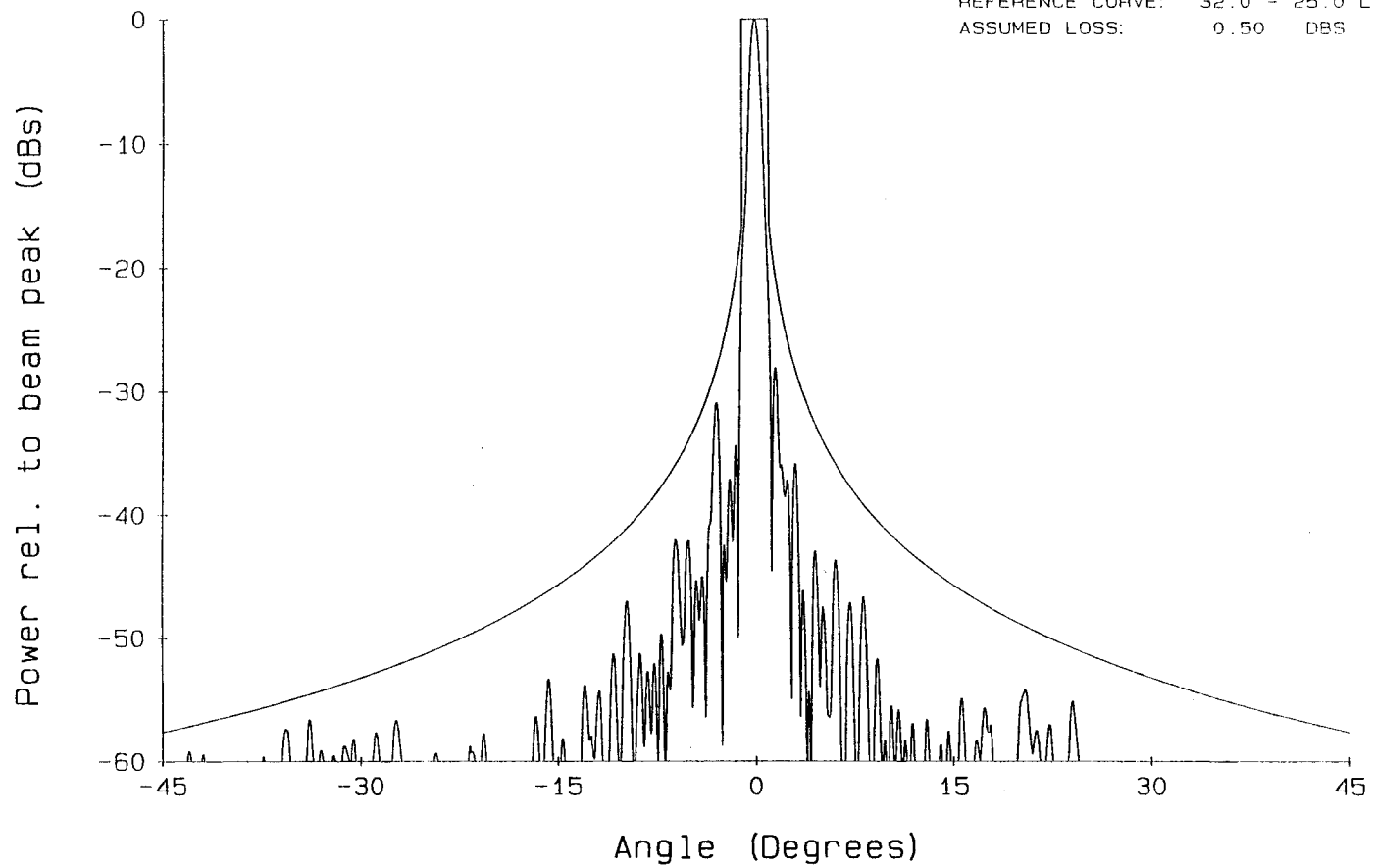


FREQUENCY: 13.750 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 48.8 DBS  
3 dB BEAMWIDTH: 0.65 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



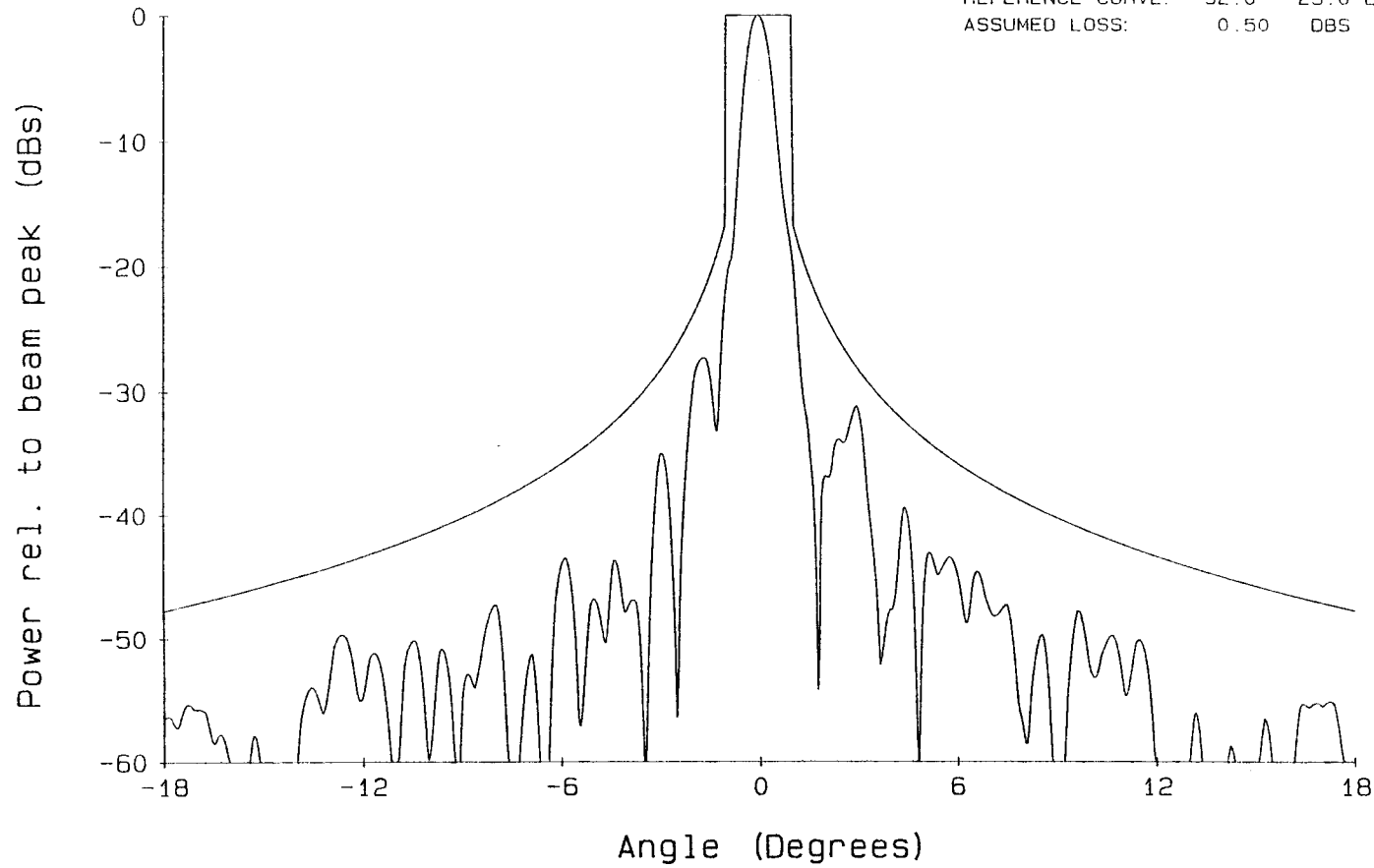
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 13.750 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 48.8 DBS  
3 dB BEAMWIDTH: 0.65 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



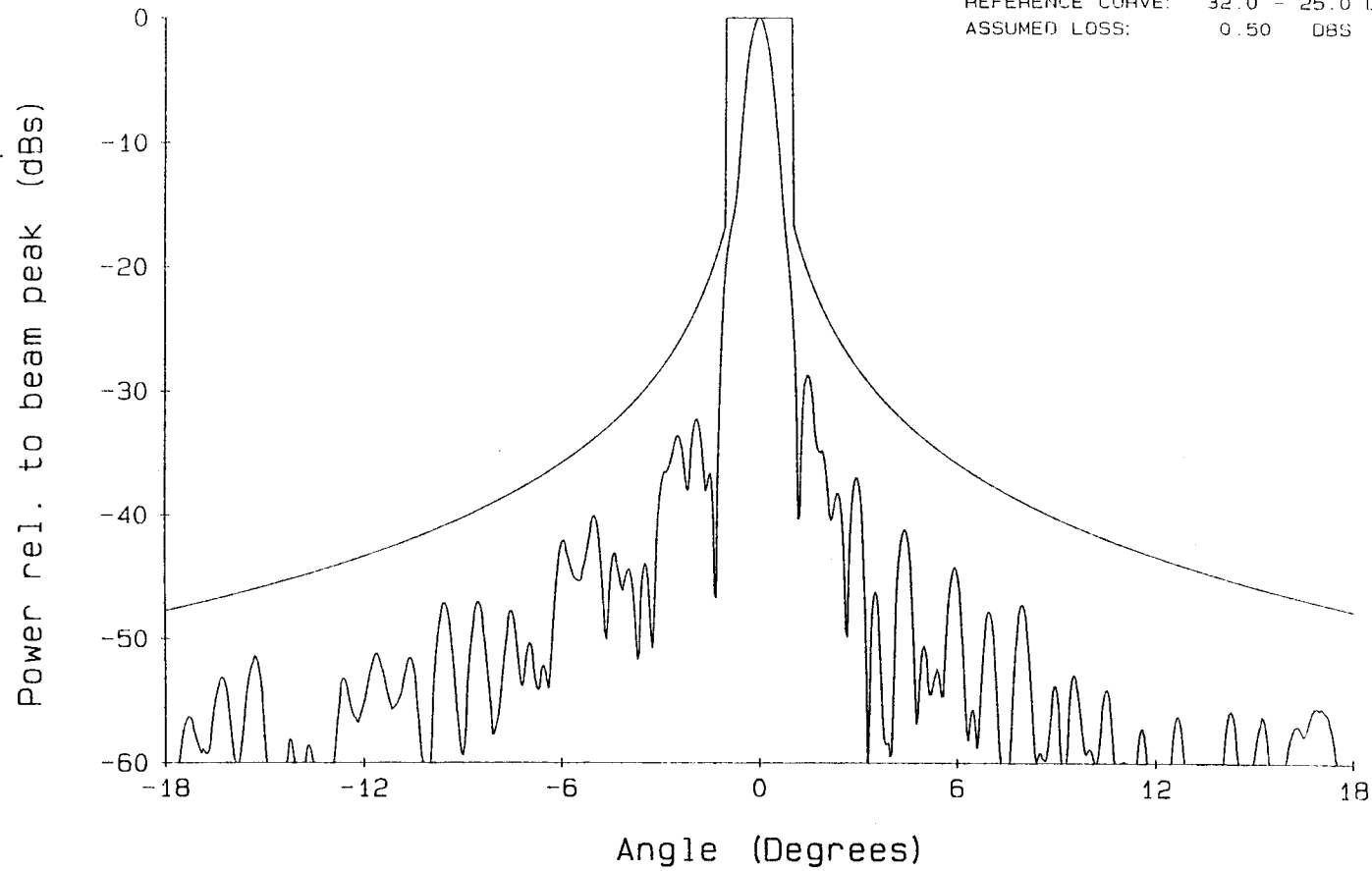
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 14.125 GHZ  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 48.9 DBS  
3 dB BEAMWIDTH: 0.65 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



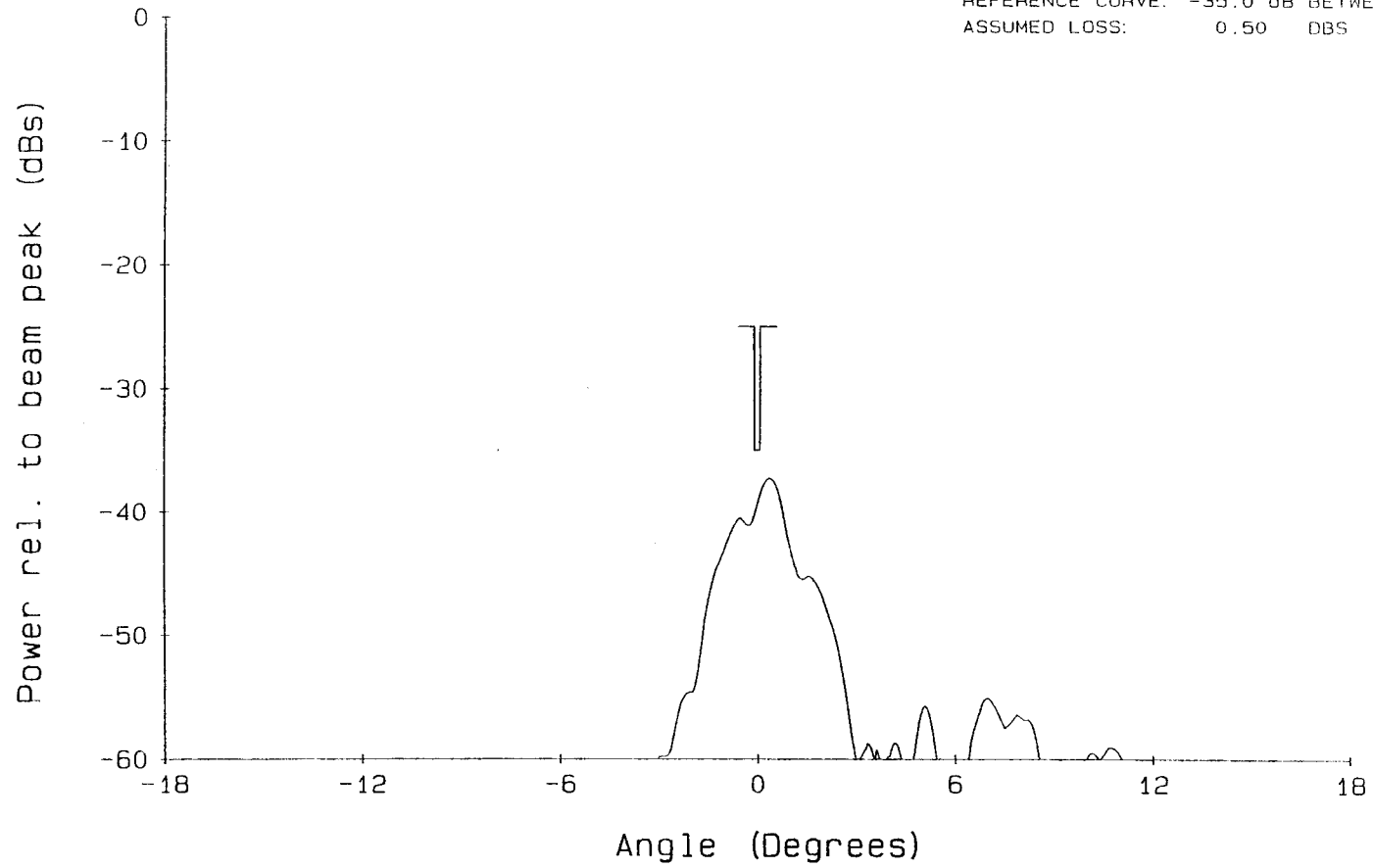
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 14.125 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 48.9 DBS  
3 dB BEAMWIDTH: 0.63 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



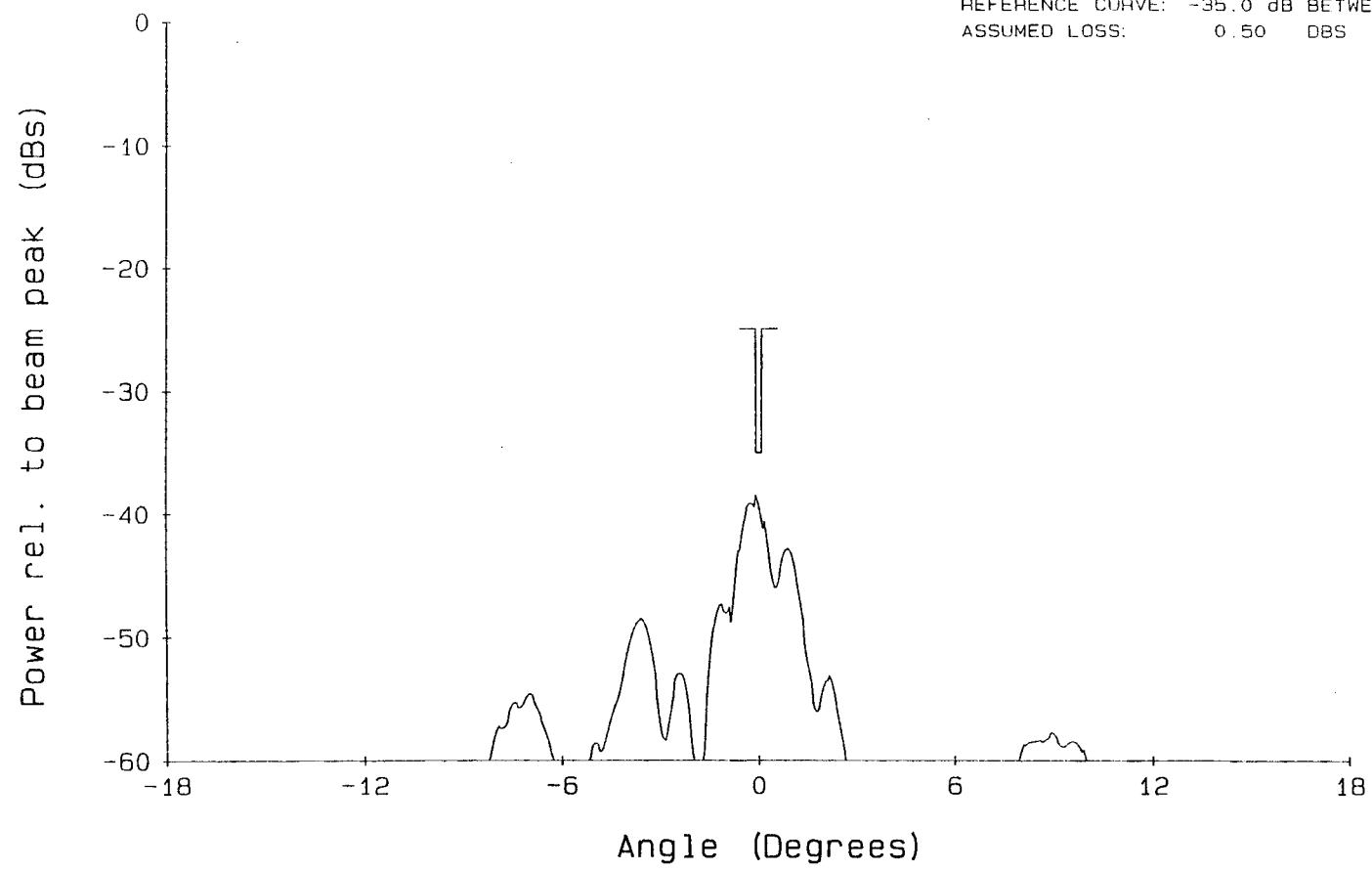
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 14.125 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 11.5 DBS  
3 dB BEAMWIDTH: 0.89 DEG.  
POLARIZATION: LUDWIG 3 LINEAR CROSSPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -35.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



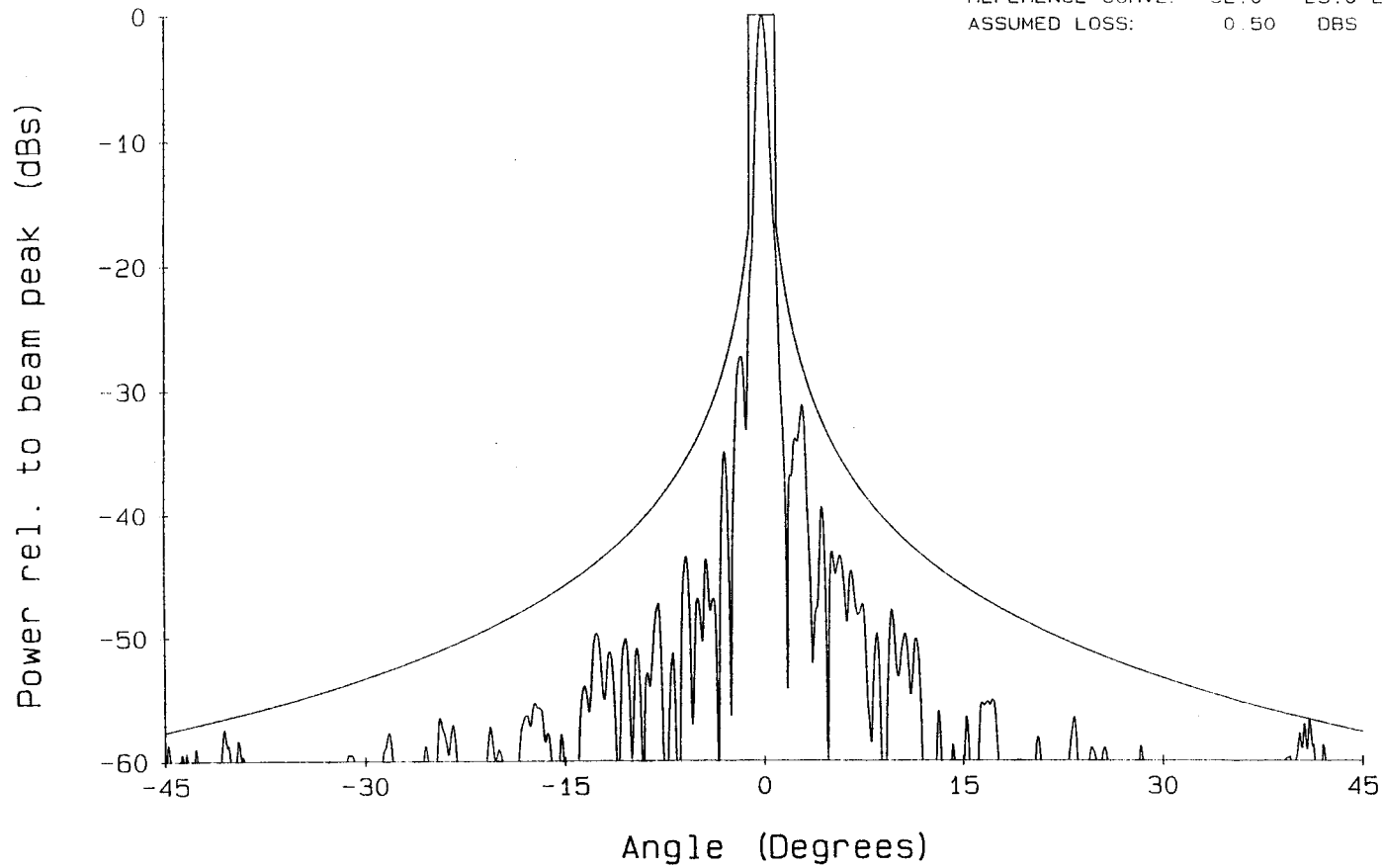
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 14.125 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 10.3 DBS  
3 dB BEAMWIDTH: 0.74 DEG.  
POLARIZATION: LUDWIG 3 LINEAR CROSSPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -35.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



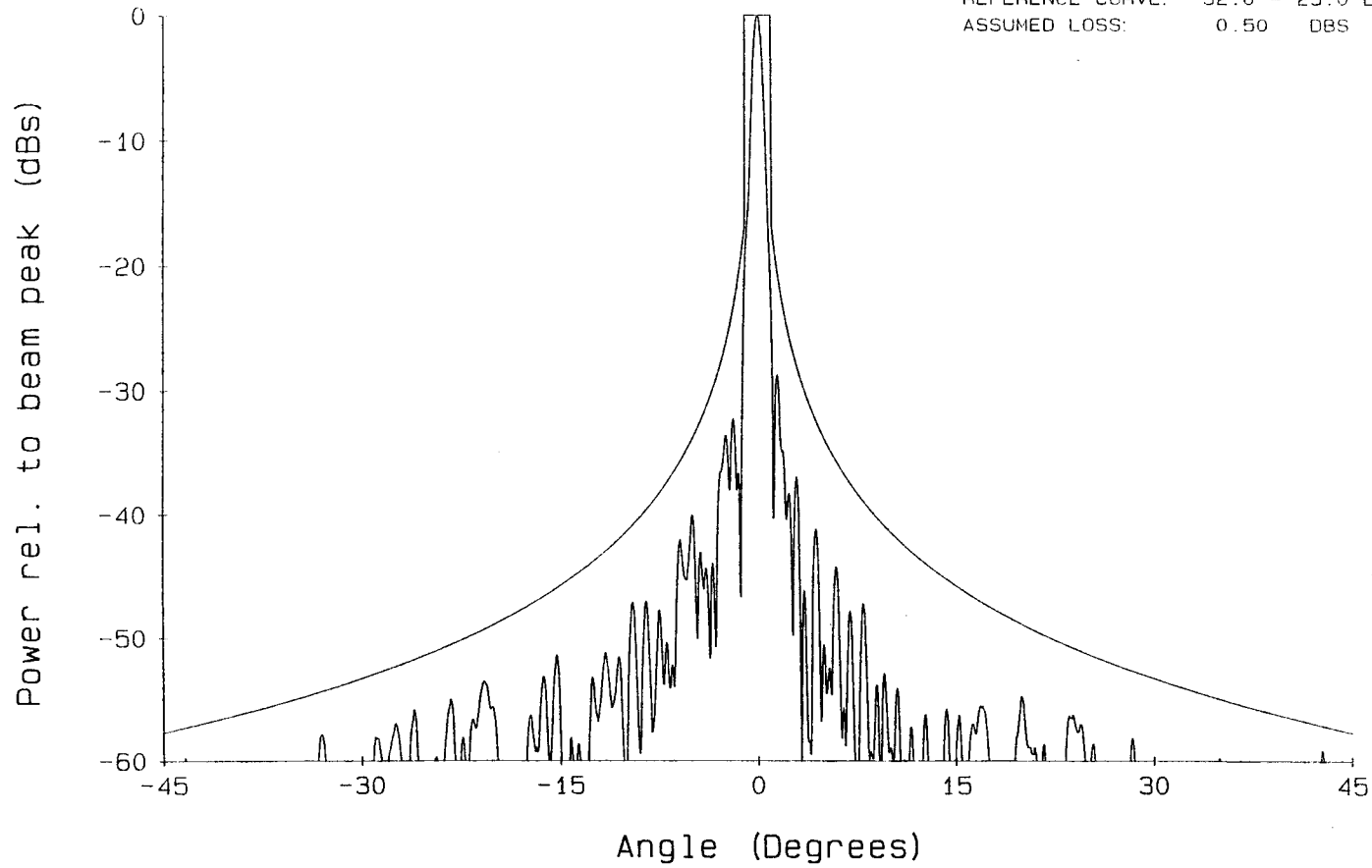
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 14.125 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 48.9 DBS  
3 dB BEAMWIDTH: 0.65 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



CYLINDRICAL NEAR FIELD TEST FACILITY

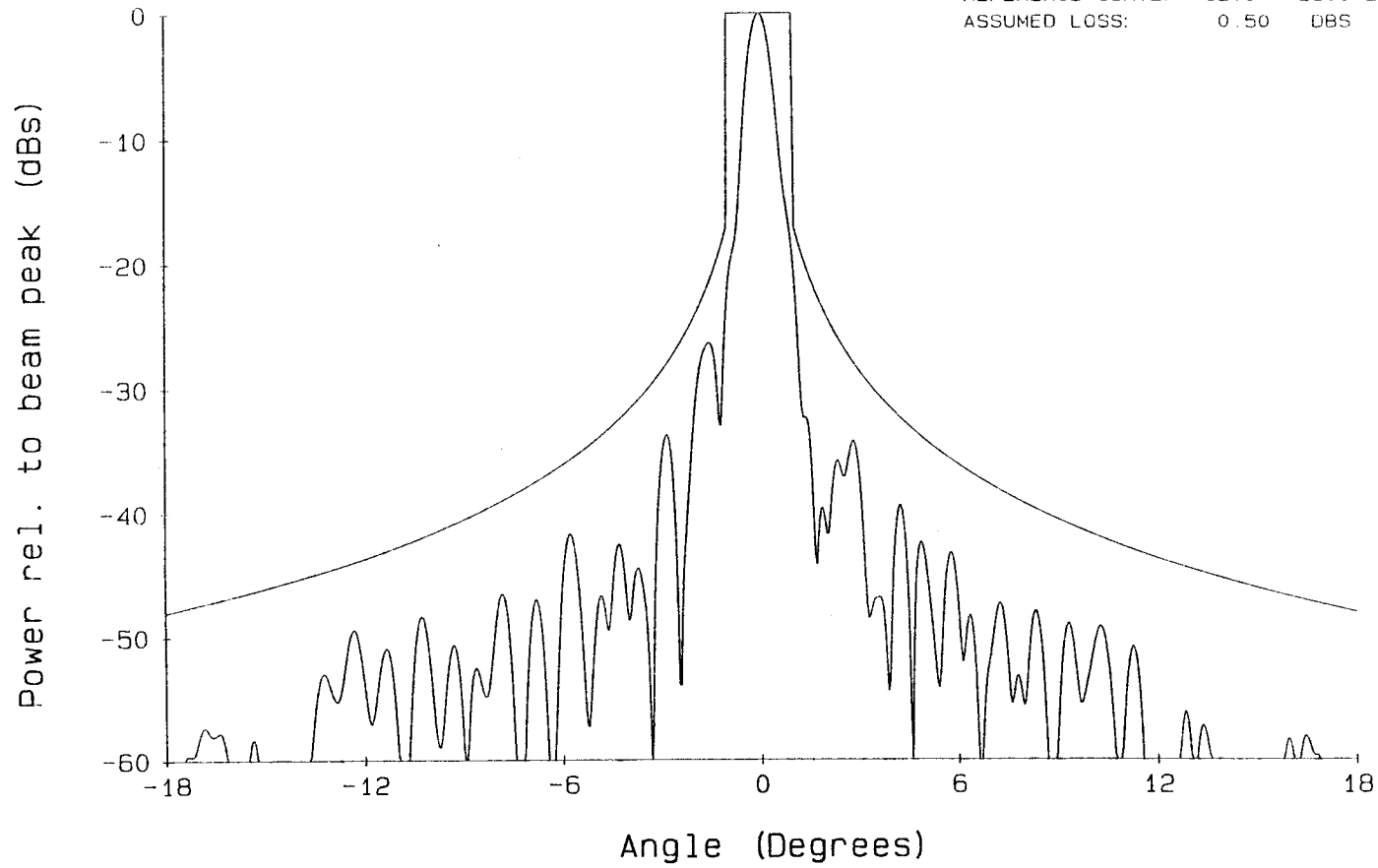
FREQUENCY: 14.125 GHz  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 48.9 DBS  
3 dB BEAMWIDTH: 0.63 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



CYLINDRICAL NEAR FIELD TEST FACILITY

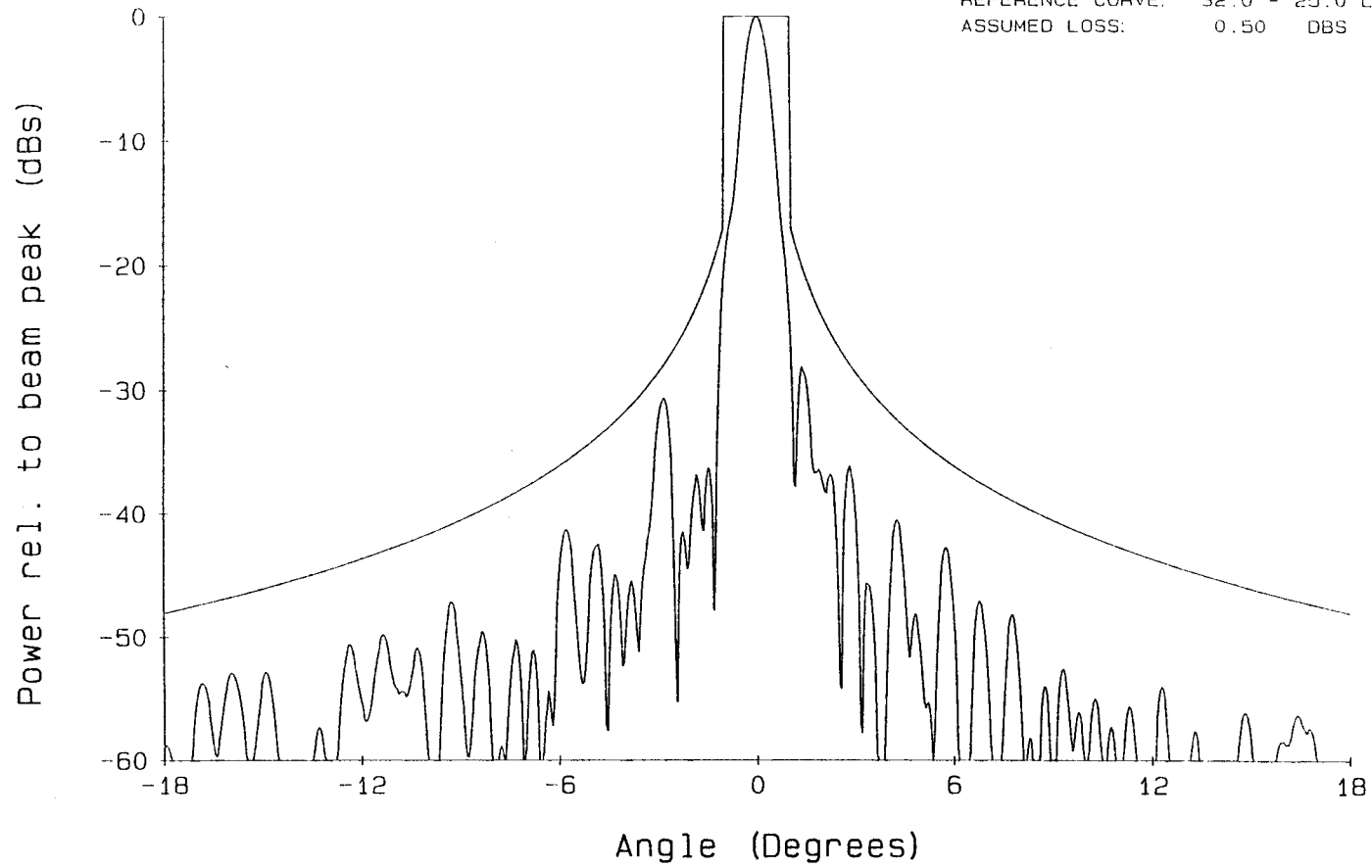


FREQUENCY: 14.500 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 49.2 DBS  
3 dB BEAMWIDTH: 0.61 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



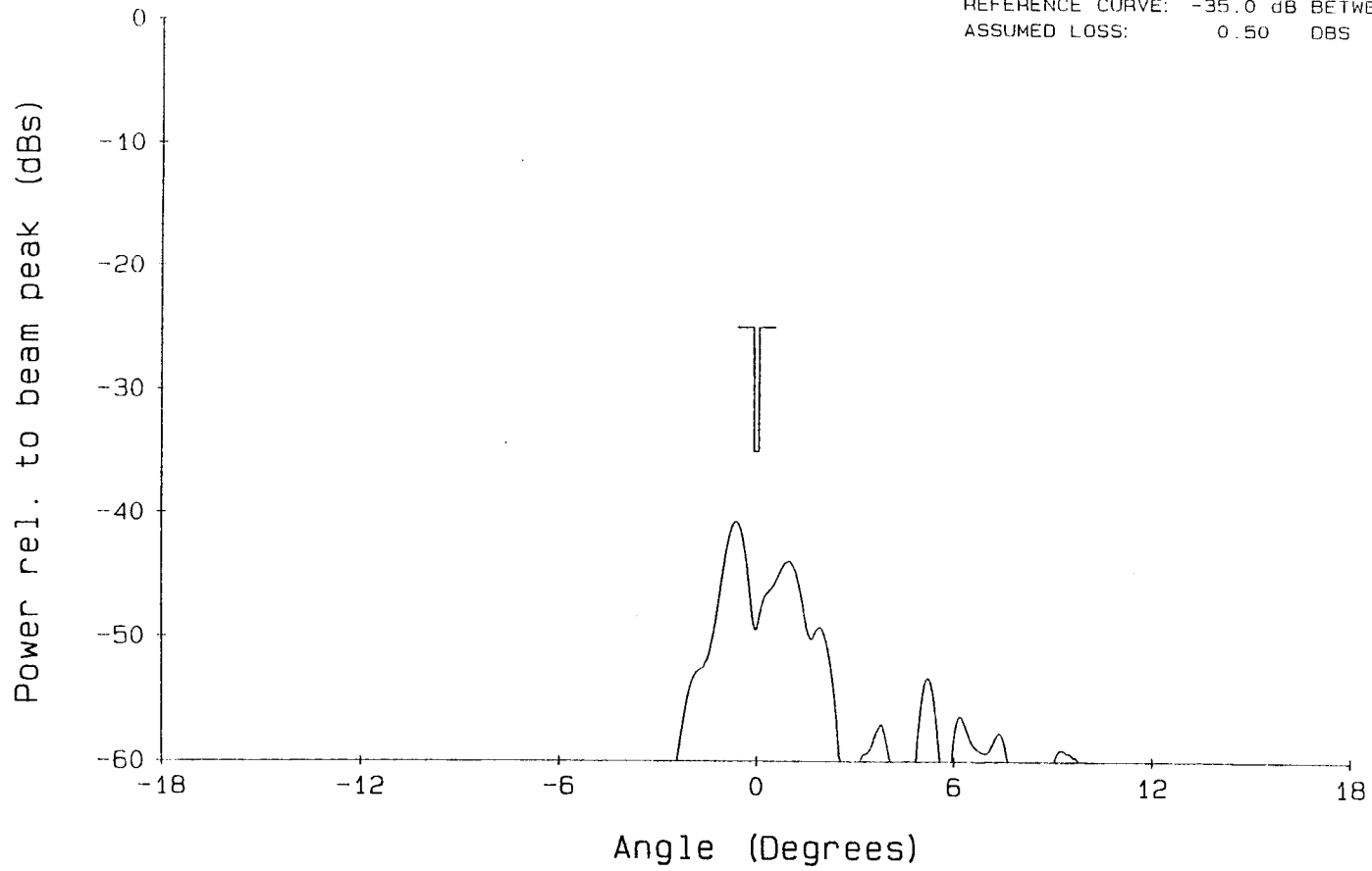
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 14.500 GHZ  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 49.2 DBS  
3 dB BEAMWIDTH: 0.61 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



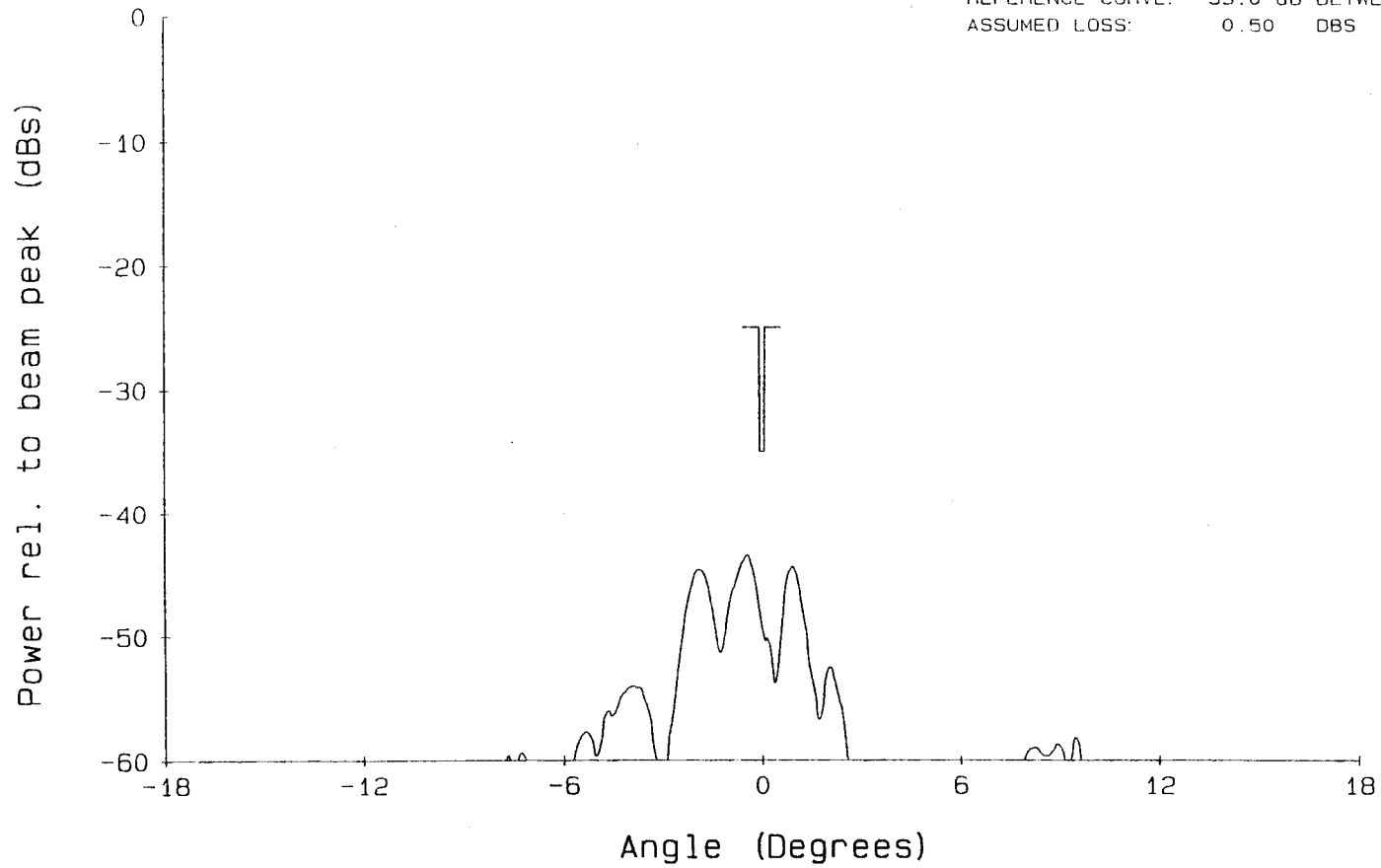
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 14.500 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 8.4 DBS  
3 dB BEAMWIDTH: 0.64 DEG.  
POLARIZATION: LUDWIG 3 LINEAR CROSSPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -35.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



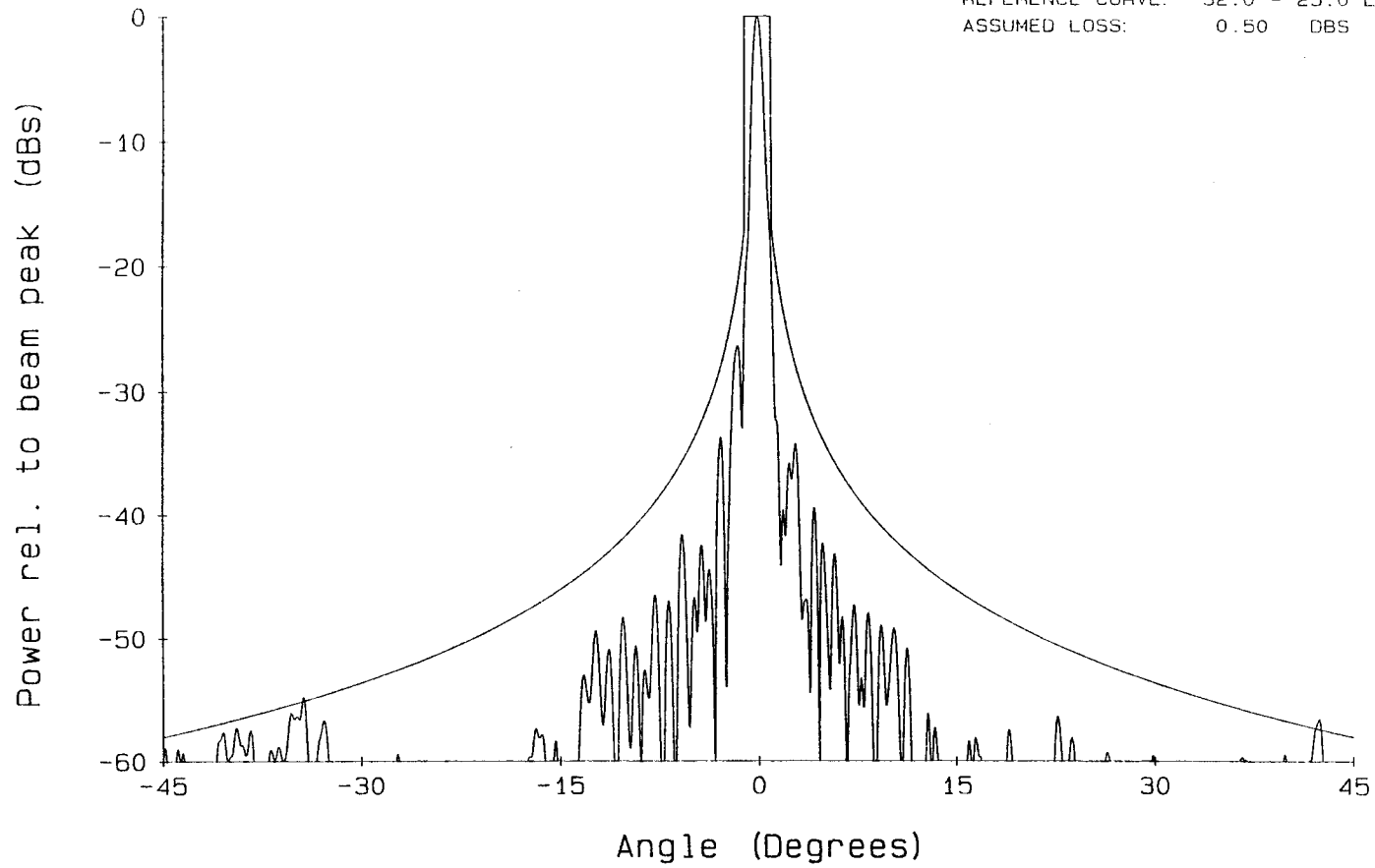
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 14.500 GHZ  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 5.7 DBS  
3 dB BEAMWIDTH: 0.76 DEG.  
POLARIZATION: LUDWIG 3 LINEAR CROSSPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: -35.0 dB BETWEEN -0.2 dB POINTS  
ASSUMED LOSS: 0.50 DBS



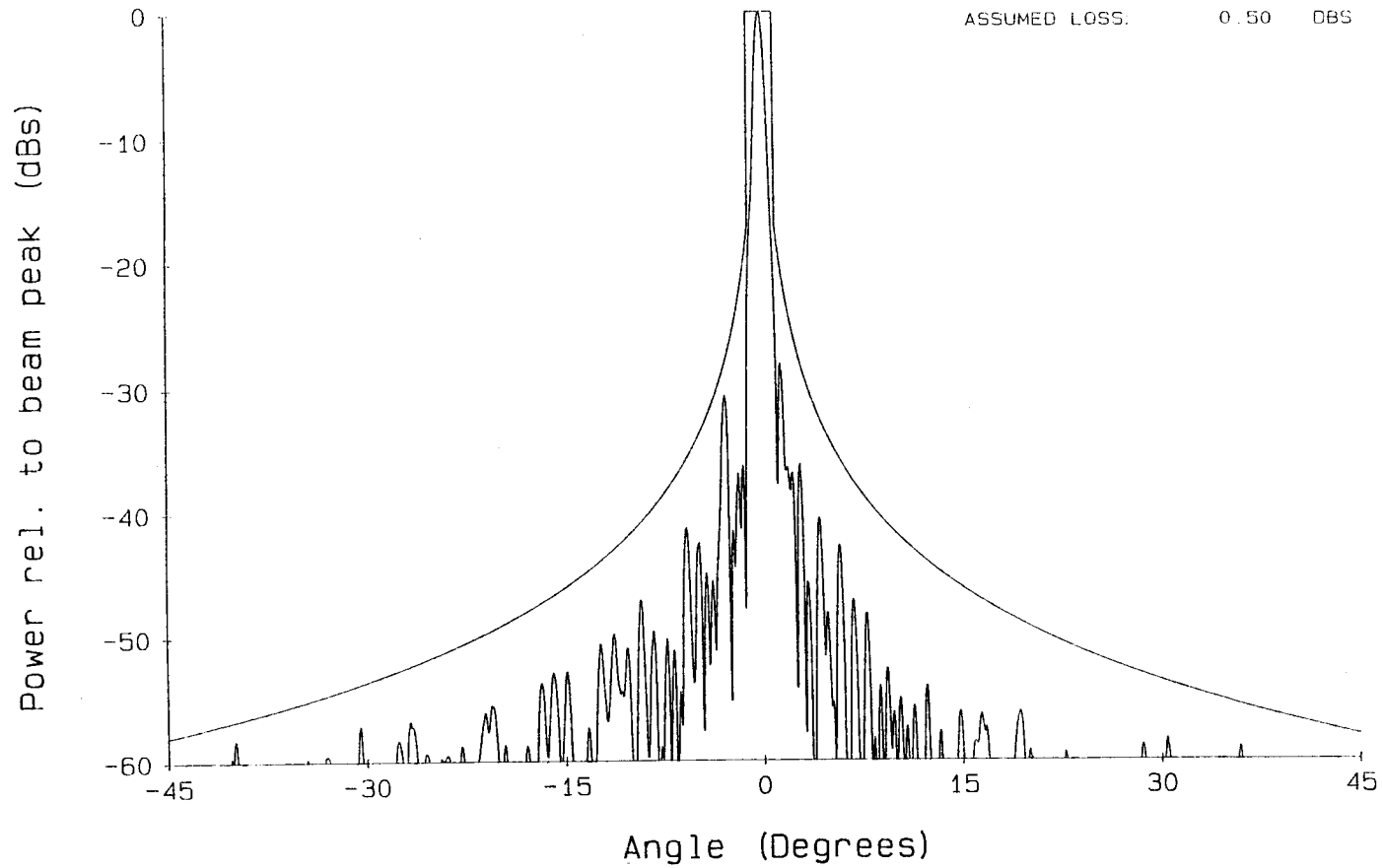
CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 14.500 GHz  
ANGLE OF CUT: 0.00 DEG.  
DIRECTIVE GAIN: 49.2 DBS  
3 dB BEAMWIDTH: 0.61 DEG  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



CYLINDRICAL NEAR FIELD TEST FACILITY

FREQUENCY: 14.500 GHZ  
ANGLE OF CUT: 90.00 DEG.  
DIRECTIVE GAIN: 49.2 DBS  
3 dB BEAMWIDTH: 0.61 DEG.  
POLARIZATION: LUDWIG 3 LINEAR COPOLAR  
EULER ANGLES: 0.00 0.00 0.00 DEG.  
POL REF ANGLES: 0.00 0.00 0.00 DEG.  
REFERENCE CURVE: 32.0 - 25.0 LOG THETA  
ASSUMED LOSS: 0.50 DBS



CYLINDRICAL NEAR FIELD TEST FACILITY

<u>ANTENNA TYPE:-</u>	2.4M Mantis	<u>SERIAL NUMBER:-</u>	
<u>CONTRACT NUMBER:-</u>	SOH - 0001810	<u>DATE:-</u>	03-Mar-08
<u>GAIN / TEMPERATURE</u>	<u>BAND:-</u> Ku	<u>SATELLITE:-</u>	Eutelsat W3A

Reference a known Satellite and measure beacon power levels for the receive band of the LNB/LNX.

Gain / Temperature = Carrier to Noise - Satellite EIRP + Free Space Loss - Boltzmanns Constant  
+ Atmospheric Attenuation

$$G / T = C / N - EIRP + FSL - K + AL$$

**Low Band G / T**

Given that the following factors for **Low Band** are correct

C / N = 63.36 dB/Hz  
 EIRP = 13  
 FSL = 205.14  
 K = 228.6  
 AL = 0.3

then

Gain / Temperature = 27.2 dB/K

**WEATHER CONDITIONS** : - clear

**High Band G / T**

Given that the following factors for **High Band** are correct

C / N = 62 dB/Hz  
 EIRP = 13  
 FSL = 206.09  
 K = 228.6  
 AL = 0.3

then

Gain / Temperature = 26.79 dB/K

**WEATHER CONDITIONS** : - clear

ATTEN 10DB  
RL -35.9DBM

5DB/

$\Delta$ MKR -63.36DB/HZ  
498KHZ  
SOH 1810

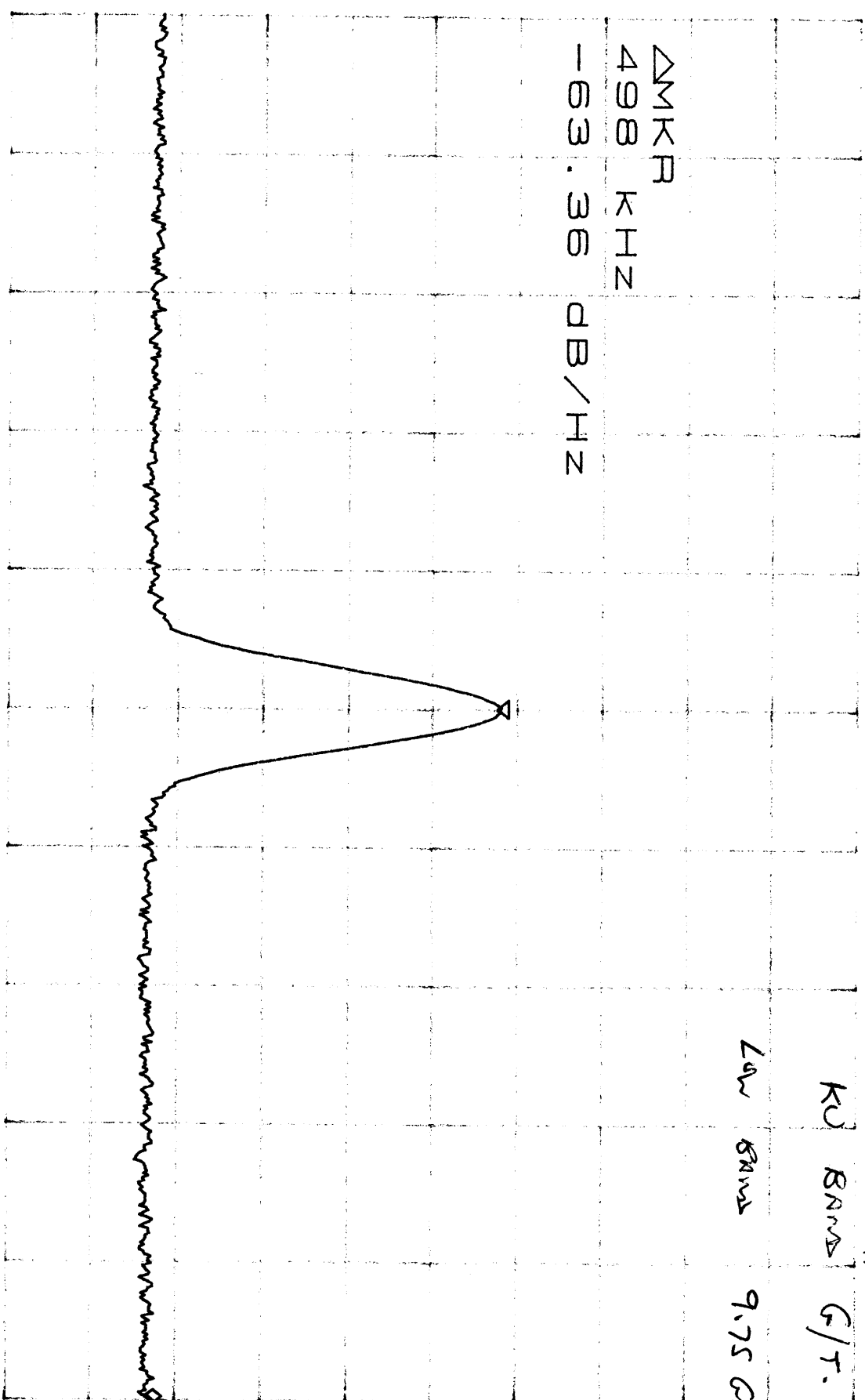
K0 BAND G/T.

LOW BAND 9.75 GHz L.O.

$\Delta$ MKR

498 KHZ

D  
-63.36 DB/HZ



CENTER 1.450015GHZ

SPAN 1.000MHZ

\*RBW 30KHZ \*VBW 30HZ

SWP 2.80SEC



ATTEN 10DB  
RL -35.9DBM

5DB/

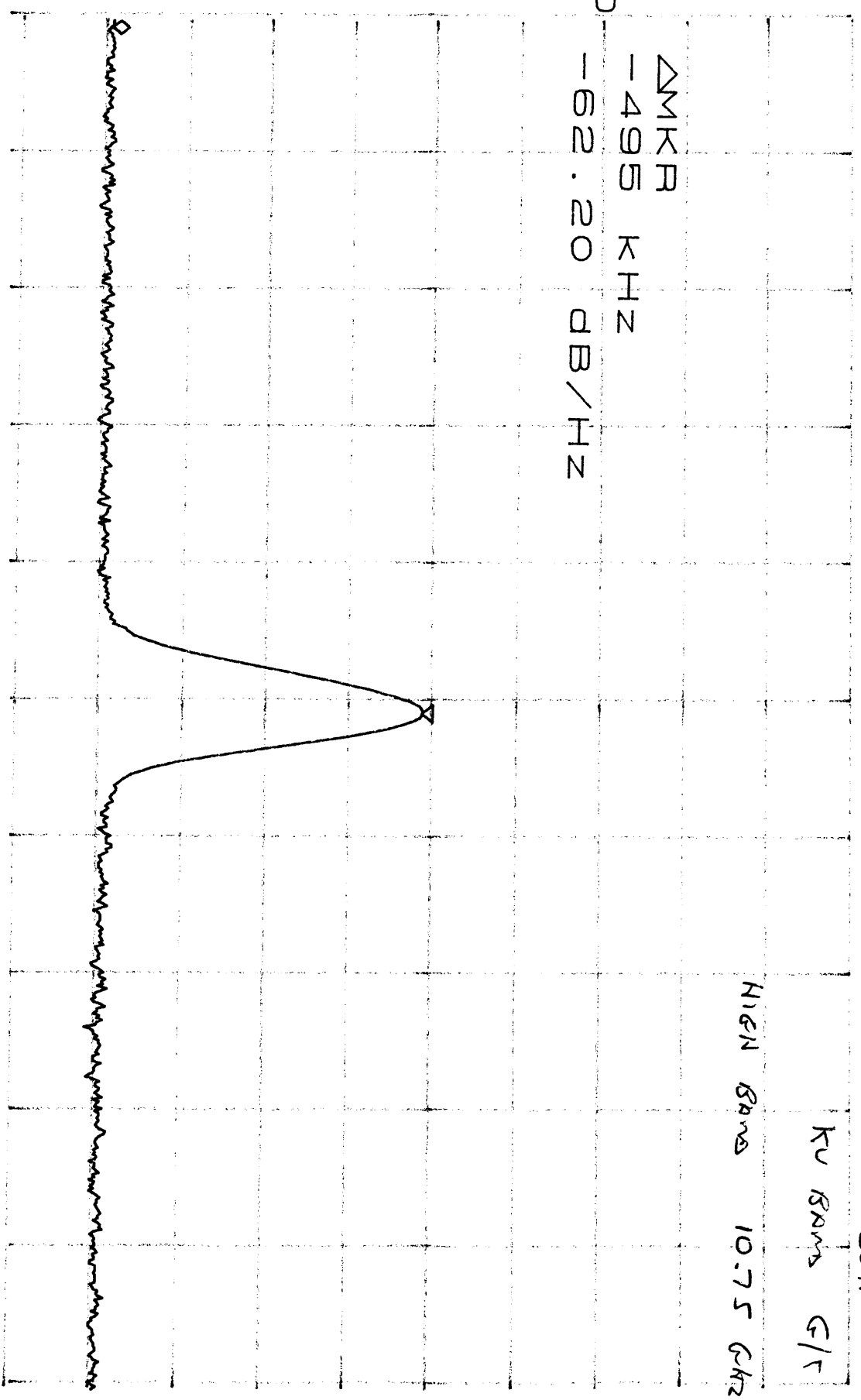
$\Delta$ MKR -62.20DB/HZ  
-495KHZ

SON 1810

KV BAND G/T

HIGH BAND 10.75 GHz L.O.

$\Delta$ MKR  
-495 KHZ  
D  
-62.20 DB/HZ



CENTER 1.750508GHZ

SPAN 1.000MHZ

\*RBW 30KHZ \*VBW 30HZ

SWP 2.80SEC

CONTRACT NUMBER SOH 1810 SATELLITE Intelsat10 02

Antenna type: 2.4 Mantis Date: 03/03/2008

GAIN / TEMPERATURE C Band

Reference a known Satellite and measure beacon power levels for the receive band of the LNB/LNX.

Gain / Temperature = Carrier to Noise - Satellite EIRP + Free Space Loss - Boltzmanns Constant  
+ Atmospheric Attenuation (+ 3dB correction for circular feed).

$$G / T = C / N - EIRP + FSL - K + AL (+ 3dB)$$

Linear G / T

Given that the following factors are correct.

C / N = 56.35  
EIRP = 6.5  
FSL = 196.42  
K = 228.6  
AL = 0.2  
FEED \* 0 \*Enter 0 for Linear feed, Enter 3 for circ feed.

then

Gain / Temperature = 17.87 dB/K

RHCP G / T

Given that the following factors are correct.

C / N = 53.91  
EIRP = 6.5  
FSL = 196.42  
K = 228.6  
AL = 0.2  
FEED \*\* 3 \*\*Enter 0 for circ feed, Enter 3 for linear feed.

then

Gain / Temperature = 18.43 dB/K

LHCP G / T

Given that the following factors are correct.

C / N = n/a  
EIRP = 7  
FSL = 196.09  
K = 228.6  
AL = 0.1  
FEED \*\* \*\*

then

Gain / Temperature = #VALUE! dB/K

Weather: Clear

504 1810 LIVERK

\*ATTEN 0DB

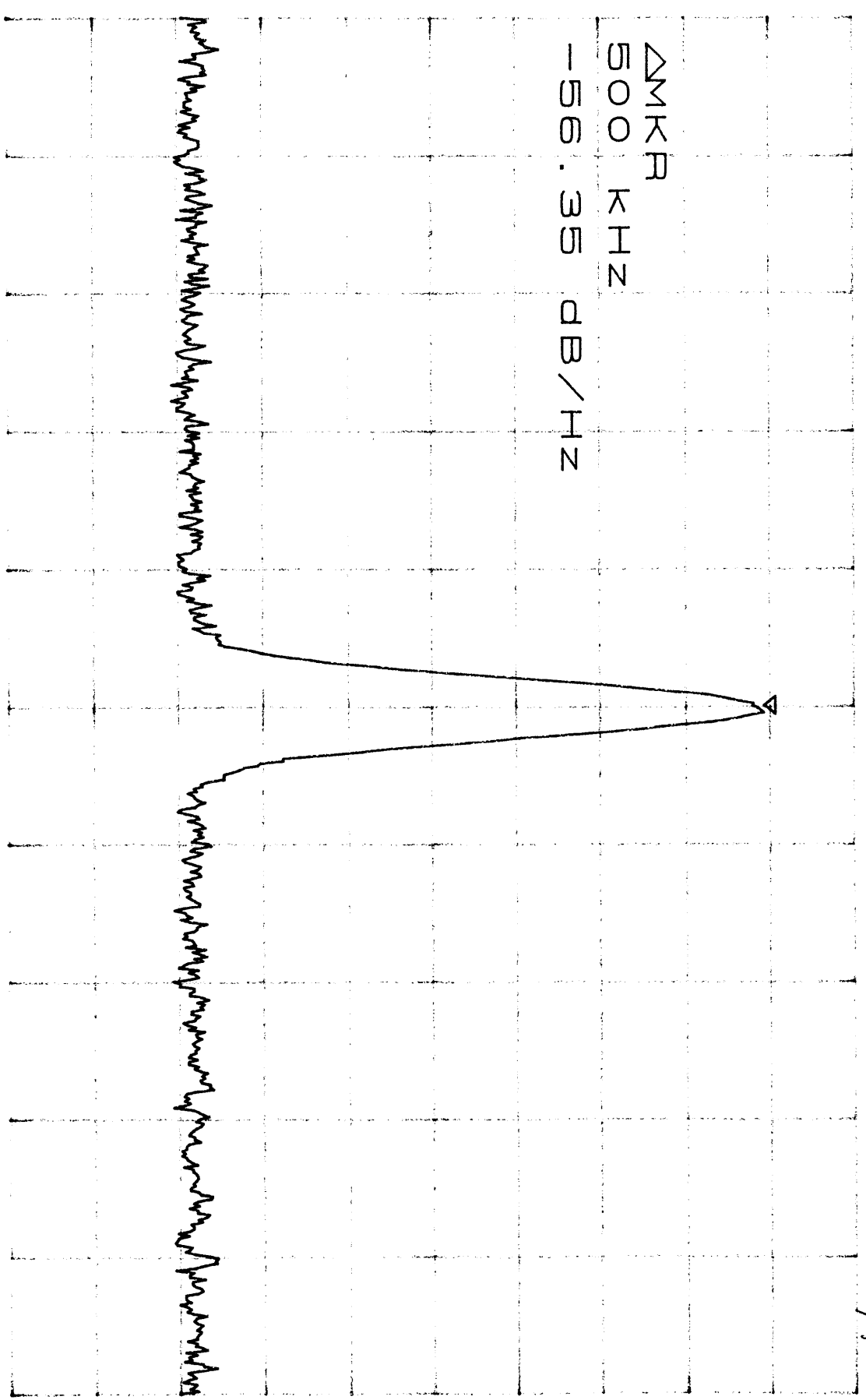
RL -58.0DBm

2DB/

ΔMKR -56.35DB/HZ  
500KHZ C-BAND G/5

D  
-56.35 DB/HZ

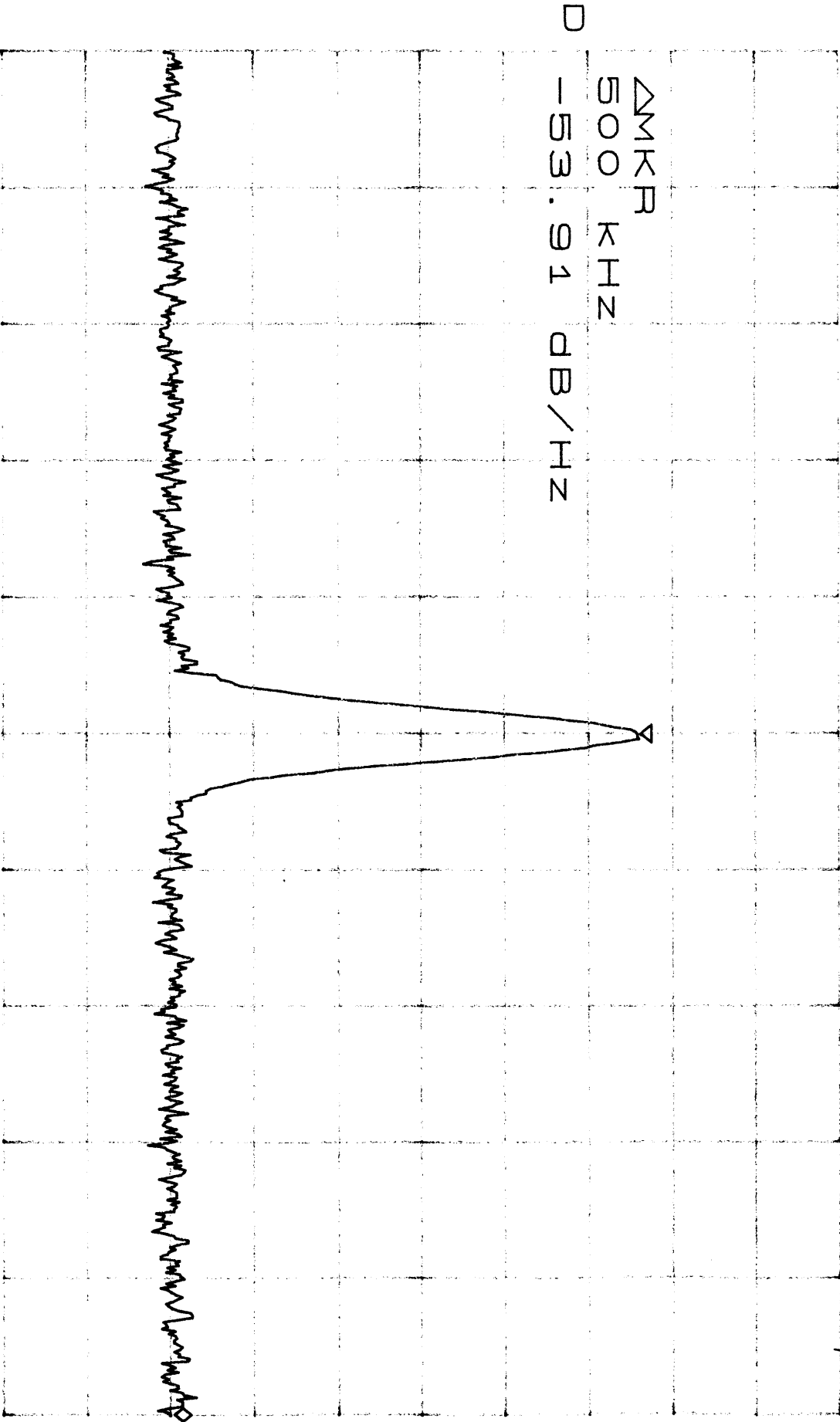
ΔMKR  
500 KHZ



CENTER 1.200000GHZ      SPAN 1.000MHZ  
\*RBW 30KHZ      \*VBW 30HZ      SWP 2.80SEC

50H 1810 CIRCULAR

ATTEN 10DB  
RL -58.0DBm  
2DB/  
500KHZ  
G-BAND  
G/T.



CENTER 1.200002GHZ  
SPAN 1.000MHZ  
\*RBW 30KHZ \*VBW 30HZ  
SWP 2.80SEC

CONTRACT NUMBER SOH-1810

DATE 29-2-08

WORKS ORDER MFG0014188

S/N

ANTENNA TYPE 2.4 MANTIS BAND KU

Using the Microwave Test Set ( Marconi 6200B or equivalent set the Start/Stop frequencies to the correct limits, check contract details if necessary. Set the RF output to +10dBm and connect via a suitable length of rphase to the input of a directional coupler. Connect a detector from port A or B of the analyser to the reflected port of the directional coupler. Calibrate the equipment by using Through Path Cal. Connect the coupler to the transmit waveguide and record the result.

Result -18.63

Specification - 14.0 dB

#### Test Equipment

Microwave Analyser S/N 4098 Cal. Due NOV 08

Detector S/N 4117 Cal. Due NOV 08

Directional Coupler Plant No. 4534

Tested By K. Jinks

Microwave Test Set

10:39 1 Mar 2008

SON 1810

Marconi 6200B

KU BAND

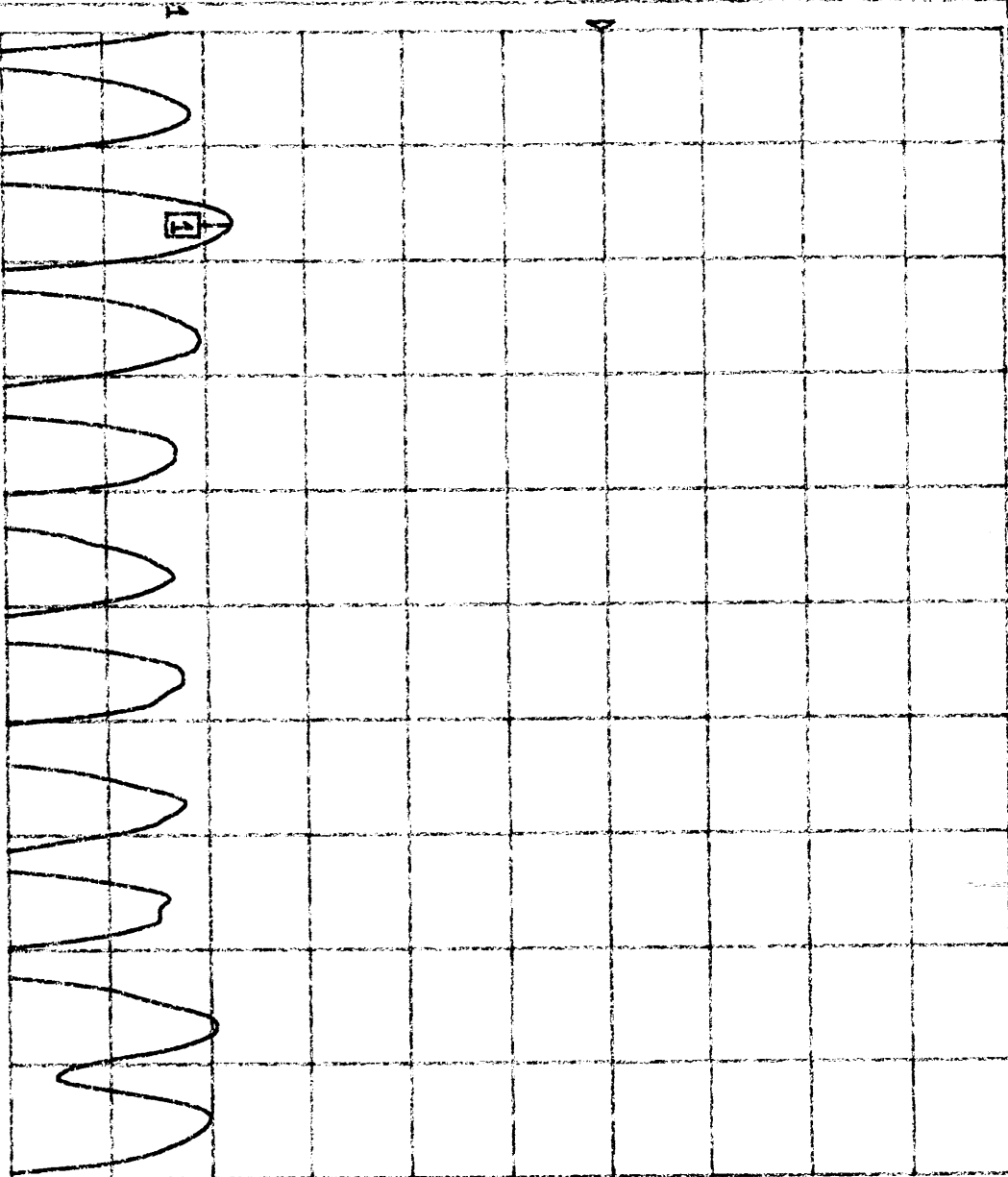
RETURN LOSS

1: B PC1

dB

1 -18.63 dB

0.00 dB 5.00 dB/



Start 13.7500 GHz

1 13.8756 GHz

Stop 14.5000 GHz

MARKER POSITION

1: (dB)

MARKER POSITION

1: (dB)

1 13.8756 GHz

-18.63

CONTRACT NUMBER 504-1810

DATE 29-2-08

WORKS ORDER MF90014188

S/N

ANTENNA TYPE 2.4 MANTIS

BAND C LINEAR

Using the Microwave Test Set ( Marconi 6200B or equivalent set the Start/Stop frequencies to the correct limits, check contract details if necessary. Set the RF output to +10dBm and connect via a suitable length of rrophase to the input of a directional coupler. Connect a detector from port A or B of the analyser to the reflected port of the directional coupler. Calibrate the equipment by using Through Path Cal. Connect the coupler to the transmit waveguide and record the result.

Result - 15.34

Specification - 14.0 dB

#### Test Equipment

Microwave Analyser S/N 4098 Cal. Due NOV 08

Detector S/N 4117 Cal. Due NOV 08

Directional Coupler Plant No. 4451

Tested By K. Jinks

Microwave Test Set

11:05 1 Mar 2008

Marconi 6200B

SON 1810 LINEAR

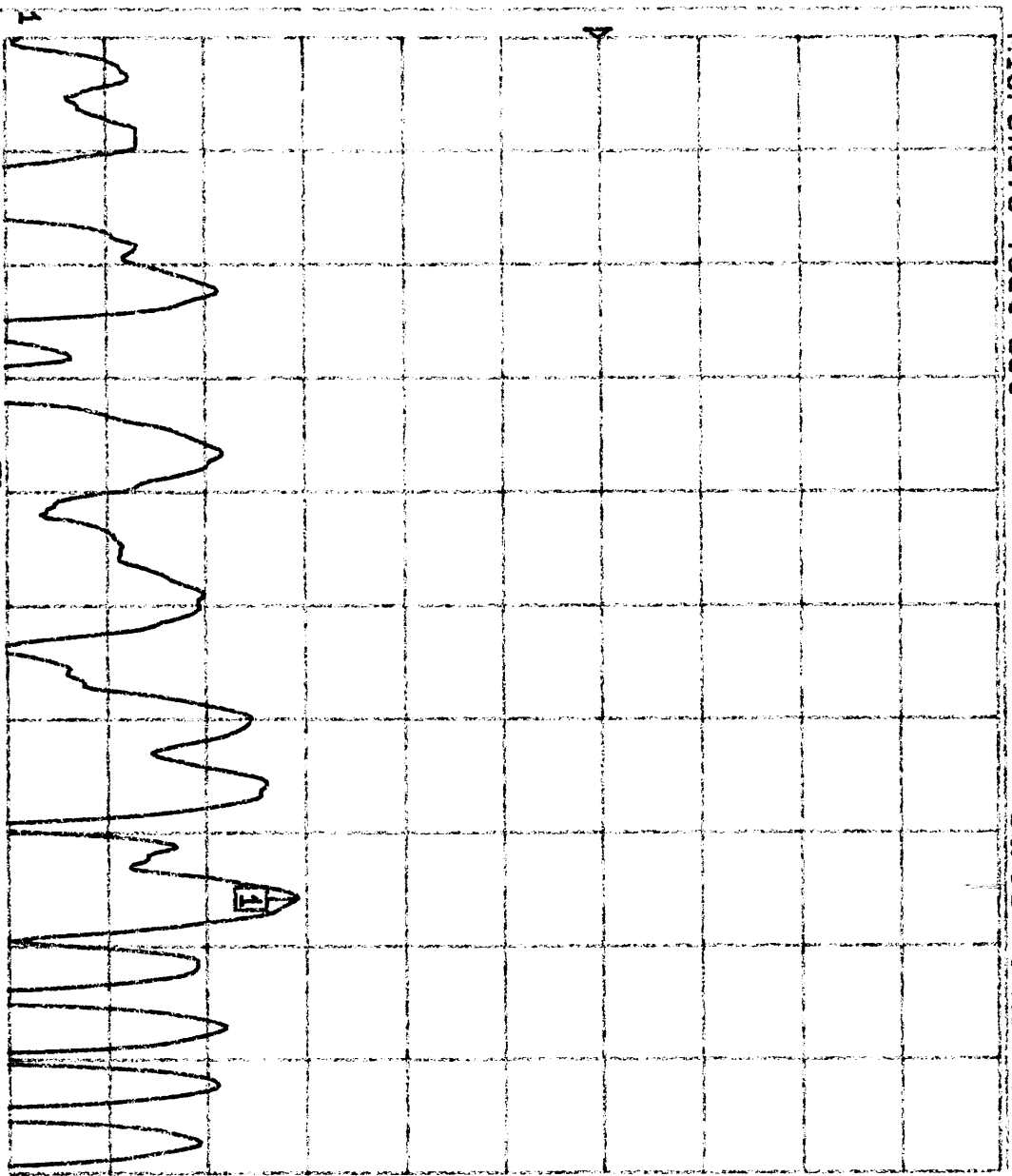
C-SAME RETURN LOSS

1: B PC1

dB

[1] -15.34 dB

▷ 0.00 dB 5.00 dB/



Start 5.85000 GHz

[1] 5.45600 GHz

Stop 6.65000 GHz

MARKER POSITION

1: (dB)

MARKER POSITION

1: (dB)

1 5.45600 GHz

-15.34



CONTRACT NUMBER 504 1810

DATE 29-2-08

WORKS ORDER MF90014188

S/N

ANTENNA TYPE 2.4 MAP 115

BAND

C CIRCULAR

Using the Microwave Test Set ( Marconi 6200B or equivalent set the Start/Stop frequencies to the correct limits, check contract details if necessary. Set the RF output to +10dBm and connect via a suitable length of rhexphase to the input of a directional coupler. Connect a detector from port A or B of the analyser to the reflected port of the directional coupler. Calibrate the equipment by using Through Path Cal. Connect the coupler to the transmit waveguide and record the result.

Result - 16.82

Specification - 14.0 dB

#### Test Equipment

Microwave Analyser S/N 4098 Cal. Due Nov 08

Detector S/N 4117 Cal. Due Nov 08

Directional Coupler Plant No. 4451

Tested By V. Jinks

SON 1810 CIRCULAR

Microwave Test Set

10:57 1 Mar 2008

MARCONI 6200B

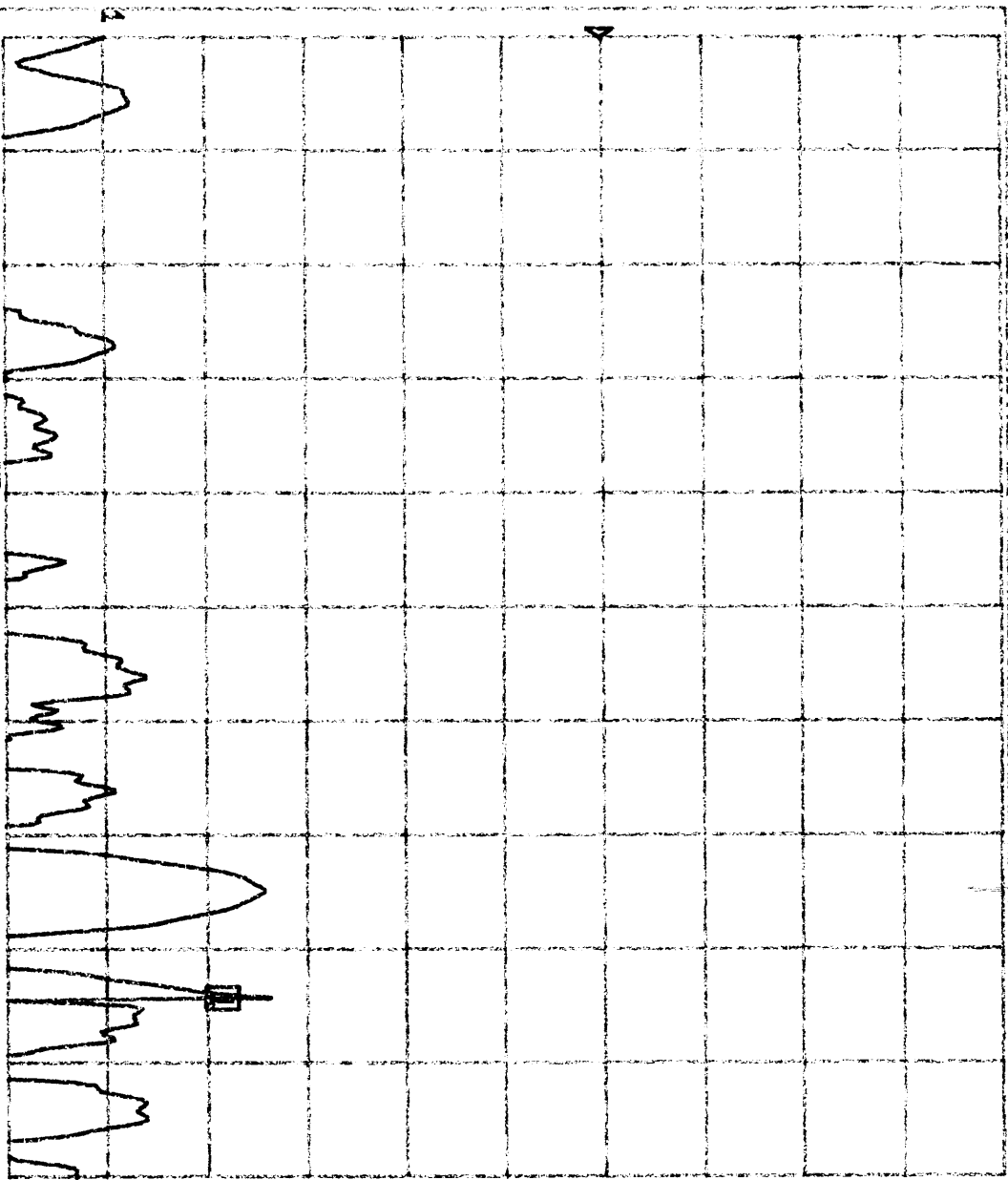
C-BAND RETURN LOSS

1: B PC1

dB

[1] -16.82 dB

▷ 0.00 dB 5.00 dB/



Start 5.85000 GHz

[1] 5.52400 GHz

Stop 6.55000 GHz

MARKER POSITION

1: (dB)

MARKER POSITION

1: (dB)

1 6.52400 GHz

-16.82