

APPENDICES OF COMPUTER SIMULATION EVALUATION OF  
VISIBILITY DISTANCES PROVIDED BY THREE HEADLAMP  
SYSTEMS (C, D, E)

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## Appendix A

Intensity (Candela) Values, Reduced from Minimum  
and Maximum Iso-candela Diagrams,  
for Beams Used in Systems C, D and E

DIAM PATTERN NO. 3 FOR TYPE 3 LOW MINIMUM

TABLE A.1  
2/19/73

HORIZONTAL ANGLE	VERTICAL ANGLES											
	-4.0	-5.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5		
-2.0	44.4	82.5	176.6	499.2	1169.0	2000.0	1563.0	857.0	382.4	166.1	69.1	24.7
-1.5	69.0	113.2	210.4	500.0	1309.0	2432.0	2000.0	933.3	397.2	177.0	93.3	28.3
-1.0	108.9	176.6	280.5	548.3	1567.0	3013.0	2393.0	1167.0	500.0	210.2	124.5	40.7
-0.5	177.0	266.7	440.6	924.7	2000.0	3664.0	2857.0	1629.0	641.6	293.6	164.6	50.0
0.0	226.5	474.2	639.5	2000.0	3076.0	4672.0	3467.0	2115.0	1141.0	495.3	211.2	70.0
0.5	300.0	627.9	1660.0	3261.0	5458.0	6392.0	5297.0	2917.0	1449.0	734.0	467.7	100.0
1.0	374.4	1168.0	2472.0	5321.0	8110.0	10568.0	9705.0	5009.0	1753.0	1067.3	661.6	100.0
1.5	679.2	1339.0	3491.0	6743.0	10592.0	12502.0	11324.0	7379.0	2244.0	1342.3	774.3	100.0
2.0	1000.0	1824.0	3661.0	7534.0	11376.0	15000.0	12246.0	10000.0	3026.0	1350.0	635.0	100.0
2.5	1000.0	1624.6	3802.0	7430.0	11376.0	13243.0	11660.0	6709.0	3661.0	1419.0	647.2	100.0
3.0	1000.0	1766.0	3548.0	6775.0	10257.0	11561.0	10339.0	6592.0	2917.0	1366.0	620.3	100.0
3.5	1000.0	1683.0	2966.0	5420.0	7943.0	10209.0	8995.0	5600.0	2661.0	1066.0	601.7	100.0
4.0	777.2	1437.0	2606.0	3904.0	5000.0	6209.0	5000.0	3639.0	2300.0	1239.0	570.7	100.0
4.5	656.0	1261.0	2213.0	3162.0	3837.0	4266.0	3811.0	2972.0	2000.0	1127.0	531.1	100.0
5.0	433.3	1211.0	1811.0	2500.0	3027.0	3289.0	2992.0	2449.0	1629.0	1000.0	490.6	100.0
5.5	403.6	1094.0	1500.0	2000.0	2410.0	2580.0	2421.0	2000.0	1350.0	620.4	460.6	100.0
6.0	461.0	957.2	1227.0	1574.0	1879.0	2000.0	1858.0	1517.0	1100.0	435.0	402.3	100.0

HEAM PATTERN NO. 4 FOR TYPE 3 LOW MAXIMUM

TABLE A.2

2/19/73

HORIZONTAL ANGLE	VERTICAL ANGLES											
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5	1.0	1.5
-3.0	2000.0	3034.0	4603.0	6808.0	6368.0	4046.0	2844.0	2000.0	1413.0	1000.0	500.0	310.0
-2.0	2188.0	3162.0	4654.0	7175.0	6823.0	4295.0	2531.0	2000.0	1413.0	1000.0	500.0	310.0
-2.0	2278.0	3412.0	5006.0	7586.0	7311.0	4603.0	3034.0	2000.0	1413.0	1000.0	500.0	310.0
-1.0	2200.0	3581.0	5565.0	7958.0	7632.0	5000.0	3162.0	2000.0	1413.0	1000.0	500.0	310.0
-1.0	2270.0	3890.0	6252.0	8433.0	8414.0	6134.0	3664.0	2000.0	1413.0	1000.0	500.0	310.0
-0.5	2274.0	4560.0	6928.0	8852.0	9016.0	7534.0	5321.0	3013.0	1679.0	1000.0	500.0	310.0
0.0	2162.0	5000.0	7416.0	9376.0	9461.0	9226.0	7245.0	5000.0	2000.0	1213.6	612.0	376.1
0.5	2110.0	6067.0	8759.0	9800.0	14520.0	20000.0	10000.0	6577.0	3162.0	1679.0	1690.0	732.0
1.0	5700.0	7345.0	9772.0	20000.0	22439.0	25177.0	22233.0	10000.0	5000.0	2279.0	1346.0	507.0
1.5	5770.0	9915.0	14417.0	24205.0	20515.0	31705.0	24491.0	15417.0	7211.0	3221.0	1782.0	1000.0
2.0	7074.0	11472.0	22010.0	25915.0	32310.0	40000.0	28249.0	20000.0	5035.0	4603.0	2000.0	1000.0
2.0	7074.0	11472.0	22010.0	25915.0	32310.0	40000.0	28249.0	20000.0	5035.0	4603.0	2000.0	1000.0
2.5	7514.0	13804.0	21211.0	25765.0	30549.0	36644.0	28249.0	20000.0	11220.0	5000.0	2000.0	1000.0
3.0	10000.0	14889.0	20741.0	24547.0	28774.0	33574.0	26303.0	20000.0	11220.0	5000.0	2000.0	1000.0
3.5	10715.0	15171.0	20674.0	23605.0	27040.0	30761.0	25003.0	20000.0	11220.0	5000.0	2000.0	1000.0
4.0	10715.0	15171.0	20417.0	22303.0	23968.0	28249.0	23768.0	20000.0	11220.0	5000.0	2000.0	1000.0
4.0	11200.0	14862.0	20000.0	21670.0	23906.0	20002.0	22439.0	17947.0	10914.0	5000.0	2000.0	1000.0
5.0	11117.0	14521.0	18450.0	21032.0	22491.0	23023.0	21281.0	16293.0	10641.0	5000.0	2000.0	1000.0
5.0	10471.0	13274.0	16366.0	20104.0	21135.0	21827.0	20000.0	14125.0	10000.0	5000.0	2000.0	1000.0
6.0	10220.0	12190.0	14421.0	17332.0	20000.0	20000.0	16331.0	12589.0	10000.0	5000.0	2000.0	1000.0

BEAM PATTERN NO. 5 FOR TYPE 3 HIGH MINIMUM  
 2/19/73  
 TABLE A.3

HORIZONTAL ANGLE	VERTICAL ANGLES										
	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5	1.0	1.5
-6.0	229.0	392.0	670.0	1067.0	1354.0	1716.0	1965.0	1807.0	1410.0	1063.0	638.0
-5.5	247.0	429.0	744.0	1136.0	1470.0	1907.0	2298.0	2123.0	1595.0	1140.0	700.0
-5.0	261.0	469.0	842.0	1222.0	1636.0	2136.0	2698.0	2458.0	1843.0	1265.0	800.0
-4.5	278.0	513.0	946.0	1324.0	1792.0	2467.0	3111.0	2744.0	2110.0	1578.0	900.0
-4.0	304.0	561.0	1035.0	1424.0	1958.0	2871.0	3671.0	3228.0	2303.0	1858.0	950.0
-3.5	344.0	616.0	1103.0	1530.0	2147.0	3209.0	4248.0	3540.0	2611.0	1751.0	1000.0
-3.0	394.0	681.0	1170.0	1651.0	2392.0	3667.0	5010.0	4063.0	2849.0	1993.0	1000.0
-2.5	466.0	758.0	1234.0	1752.0	2581.0	4089.0	5290.0	4507.0	3036.0	2066.0	1125.0
-2.0	528.0	824.0	1295.0	1818.0	2747.0	4346.0	5597.0	4706.0	3182.0	2159.0	1180.0
-1.5	615.0	904.0	1334.0	1854.0	2875.0	4564.0	5911.0	4879.0	3290.0	2216.0	1190.0
-1.0	720.0	1000.0	1377.0	1927.0	2992.0	4802.0	6265.0	5000.0	3350.0	2272.0	1210.0
-0.5	751.0	1011.0	1399.0	1973.0	3083.0	5000.0	6604.0	5000.0	3371.0	2293.0	1221.0
0.0	707.0	1000.0	1414.0	2000.0	3162.0	5000.0	7000.0	5000.0	3400.0	2311.0	1231.0
0.5	664.0	988.0	1406.0	2022.0	3168.0	5000.0	6616.0	5000.0	3387.0	2282.0	1212.0
1.0	670.0	964.0	1388.0	1977.0	3111.0	5000.0	6237.0	5000.0	3360.0	2264.0	1177.0
1.5	644.0	894.0	1345.0	1927.0	3015.0	4749.0	5902.0	4751.0	3239.0	2203.0	1132.0
2.0	529.0	829.0	1299.0	1856.0	2685.0	4512.0	5577.0	4599.0	3125.0	2143.0	1082.0
2.5	481.0	775.0	1249.0	1782.0	2705.0	4251.0	5279.0	4449.0	3000.0	2060.0	1014.0
3.0	471.0	749.0	1190.0	1673.0	2517.0	3773.0	4563.0	4016.0	2639.0	1544.0	957.0
3.5	387.0	602.0	1132.0	1577.0	2296.0	3271.0	4280.0	3662.0	2624.0	1743.0	892.0
4.0	362.0	623.0	1072.0	1478.0	2106.0	2907.0	3681.0	3160.0	2378.0	1537.0	815.0

TABLE A.4

FLARE PATTERN NO. 6 FOR TYPE 3 HIGH MAXIMUM

2/19/73

HORIZONTAL ANGLE	VERTICAL ANGLES											
	-4.5	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5	1.0
-6.0	534.4	741.7	1400.0	2146.0	2861.0	3432.0	4012.0	4565.0	5060.0	4874.0	4012.0	3000.0
-5.5	543.5	805.8	1642.0	2500.0	3337.0	4156.0	5000.0	5748.0	6295.0	5748.0	5000.0	4100.0
-5.0	690.4	1025.0	1921.0	2903.0	3975.0	5000.0	5890.0	7010.0	7943.0	7010.0	5890.0	3600.0
-4.5	777.5	1100.0	2200.0	3295.0	4691.0	5765.0	7006.0	8586.0	10000.0	8586.0	7006.0	5000.0
-4.0	833.7	1308.0	2500.0	3731.0	5267.0	6663.0	8513.0	10612.0	11693.0	10612.0	8513.0	5000.0
-3.5	935.8	1408.0	2699.0	4440.0	5939.0	7691.0	10000.0	12514.0	14158.0	12514.0	10000.0	6000.0
-3.0	1152.0	1628.0	2914.0	5000.0	6504.0	8806.0	11560.0	14444.0	16019.0	14444.0	11560.0	7000.0
-2.5	1243.0	1740.0	3146.0	5240.0	7120.0	10000.0	13341.0	16520.0	20000.0	16520.0	13341.0	10000.0
-2.0	1569.0	2000.0	3313.0	5370.0	7770.0	11262.0	17223.0	20249.0	20612.0	20249.0	17223.0	11000.0
-1.5	1458.0	2273.0	3469.0	5661.0	8451.0	12667.0	20000.0	20502.0	2166.0	20502.0	20000.0	10000.0
-1.0	1541.0	2500.0	3655.0	5824.0	9150.0	13791.0	20319.0	21507.0	22601.0	21507.0	20319.0	10000.0
-0.5	1541.0	2700.0	3954.0	5995.0	10000.0	14632.0	20763.0	22279.0	23906.0	22279.0	20763.0	10000.0
0.0	1541.0	2900.0	3972.0	6095.0	10000.0	16406.0	21057.0	22940.0	25000.0	22940.0	21057.0	10000.0
0.5	1541.0	2500.0	3812.0	5995.0	10000.0	14532.0	20763.0	22279.0	23906.0	22279.0	20763.0	10000.0
1.0	1541.0	2500.0	3653.0	5624.0	9150.0	13791.0	20399.0	21537.0	22661.0	21537.0	20399.0	10000.0
1.5	1439.0	2221.0	3469.0	5661.0	8451.0	12667.0	20000.0	20902.0	21668.0	20902.0	20000.0	9000.0
2.0	1369.0	2000.0	3313.0	5370.0	7770.0	11262.0	17223.0	20249.0	20912.0	20249.0	17223.0	7700.0
2.5	1243.0	1840.0	3146.0	5248.0	7120.0	10000.0	13341.0	16920.0	20000.0	16920.0	13341.0	7100.0
3.0	1152.0	1628.0	2914.0	5000.0	6504.0	8806.0	11580.0	14444.0	16819.0	14444.0	11580.0	6500.0
3.5	935.8	1408.0	2699.0	4440.0	5939.0	7691.0	10000.0	12314.0	14158.0	12314.0	10000.0	5000.0
4.0	833.7	1308.0	2500.0	3731.0	5267.0	6663.0	8513.0	10612.0	11693.0	10612.0	8513.0	5000.0

TABLE A.5  
2/19/73

BEAM PATTERN NO. 7 FOR TYPE 4 MIDDLE MINIMUM

HORIZONTAL ANGLE	VERTICAL ANGLES							
	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5	
-2.0	750.0	792.5	799.6	750.0	534.6	217.3	83.8	
-1.5	816.6	891.3	937.6	813.1	750.0	232.8	122.7	
-1.0	935.4	1122.0	1203.0	1148.0	853.1	301.5	169.7	
-0.5	1148.0	1496.0	1656.0	1626.0	1000.0	530.0	252.3	
0.0	1334.0	2000.0	2831.0	3681.0	1644.2	790.0	331.9	
0.5	2000.0	4064.0	6776.0	10000.0	5000.0	1146.0	750.0	
1.0	2538.0	6031.0	15000.0	16030.0	11460.0	1746.0	796.2	
1.5	3972.0	8166.0	15700.0	17910.0	15000.0	3083.0	1107.0	
2.0	5000.0	10000.0	16250.0	20000.0	15000.0	5000.0	1524.0	
2.5	5000.0	10000.0	15610.0	18260.0	15000.0	5943.0	2000.0	
3.0	5010.0	10000.0	15310.0	16710.0	15000.0	5943.0	2000.0	
3.5	5000.0	8872.0	13180.0	15200.0	11530.0	5741.0	2000.0	
4.0	5000.0	7326.0	10850.0	12500.0	10000.0	5463.0	1811.0	
4.5	4064.0	6653.0	9073.0	10000.0	7709.0	5000.0	1641.0	
5.0	2311.0	5661.0	7345.0	8414.0	6124.0	3681.0	1426.0	
5.5	2435.0	5272.0	6310.0	7079.0	5333.0	2612.0	1346.0	
6.0	2000.0	4256.0	5470.0	5943.0	5000.0	2000.0	1219.0	
								1.0
								1.0
								17.3
								35.4
								67.4
								122.2
								224.6
								315.5
								603.9
								397.2
								500.0
								644.2
								905.7
								1000.0
								1122.0
								750.0
								750.0
								1104.0
								1000.0
								677.0
								524.7
								612.4
								553.4
								795.0

TABLE A.6

2/19/73

GRAPH PATTERN NO. 3 FOR TYPE 4 MIDDLE MAXIMUM

HORIZONTAL ANGLE	VERTICAL ANGLES											
	-4.5	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5	
-5.5	665.9	667.2	1140.0	1452.0	1782.0	1977.0	1977.0	1475.0	883.1	626.1	500.0	1.0
-5.0	765.6	930.4	1491.0	1710.0	2307.0	2965.0	2992.0	2339.0	1117.0	647.1	500.0	1.0
-4.5	853.0	1151.0	1462.0	1954.0	3076.0	4207.0	4936.0	3243.0	1675.0	610.5	300.0	1.0
-4.0	931.7	1279.0	1671.0	2472.0	4121.0	4699.0	5284.0	4446.0	2377.0	734.5	500.0	1.0
-1.5	1117.0	1445.0	1862.0	3221.0	4716.0	5039.0	6471.0	5297.0	3126.0	575.0	500.0	1.0
-1.0	1259.0	1629.0	2259.0	4159.0	6095.0	7047.0	8222.0	6563.0	4269.0	1803.0	590.4	177.0
-0.5	1400.0	1807.0	2951.0	5047.0	6871.0	6810.0	10020.0	7610.0	5433.0	2649.0	500.0	1.0
0.0	1428.0	2000.0	3750.0	6540.0	9528.0	14355.0	17725.0	14825.0	7993.0	3688.0	1697.9	1.0
0.5	1618.0	2443.0	4257.0	9247.0	15453.0	23875.0	29444.0	24378.0	11429.0	4101.0	2427.0	1.0
1.0	1811.0	3147.0	6637.0	12362.0	22235.0	32734.0	39264.0	38019.0	17600.0	6486.0	1700.0	1.0
1.5	1745.0	4207.0	9662.0	15631.0	24946.0	36308.0	43652.0	45704.0	27733.0	2704.0	2200.0	1.0
2.0	2312.0	5565.0	11455.0	17742.0	27479.0	40000.0	43752.0	50003.0	40000.0	10000.0	4831.0	1.0
2.5	2767.0	7176.0	12756.0	19167.0	26540.0	40037.0	43853.0	46132.0	40365.0	12162.0	5224.0	1.0
3.0	3221.0	8170.0	15168.0	20324.0	30000.0	40000.0	43152.0	44662.0	40365.0	14256.0	6653.0	1.0
3.5	3639.0	9931.0	14335.0	21135.0	30549.0	37757.0	42267.0	43351.0	40000.0	15205.0	7211.0	1.0
4.0	4000.0	10000.0	14394.0	21627.0	30620.0	36392.0	41210.0	41679.0	37239.0	15696.0	7430.0	1.0



TABLE A.7  
2/19/73

BEAM PATTERN NO. 9 FOR TYPE 5 HIGH MINIMUM

HORIZONTAL ANGLE	VERTICAL ANGLES									
	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5	1.0	1.5	
-6.0	1567.0	2051.0	2500.0	2838.0	3000.0	2748.0	2254.0	1479.0	639.5	
-5.5	1648.0	2153.0	2723.0	3296.0	3690.0	3000.0	2371.0	1622.0	907.2	
-5.0	1714.0	2273.0	3000.0	3464.0	4603.0	3581.0	2523.0	1735.0	979.5	
-4.5	1749.0	2421.0	3319.0	4446.0	5725.0	4457.0	2704.0	1820.0	1020.0	
-4.0	1832.0	2552.0	3622.0	5000.0	7379.0	5598.0	2894.0	1910.0	1057.0	
-3.5	1896.0	2665.0	3873.0	5950.0	9204.0	6387.0	3516.0	2000.0	1089.0	
-3.0	1872.0	2746.0	4055.0	6202.0	11272.0	6960.0	3637.0	2000.0	1094.0	
-2.5	1973.0	2838.0	4230.0	7447.0	13274.0	7396.0	4018.0	2000.0	1099.0	
-2.0	1945.0	2877.0	4426.0	8492.0	15031.0	7745.0	4199.0	2000.0	1102.0	
-1.5	1963.0	2917.0	4529.0	9231.0	16403.0	7910.0	4275.0	2000.0	1099.0	
-1.0	1977.0	2965.0	4560.0	9204.0	21677.0	8166.0	4285.0	2000.0	1094.0	
-0.5	2000.0	3000.0	4656.0	9790.0	25468.0	8166.0	4246.0	2000.0	1037.0	
0.0	2000.0	3000.0	4627.0	10000.0	30000.0	8241.0	4150.0	2000.0	1072.0	
0.5	2000.0	3000.0	4634.0	10000.0	25351.0	8241.0	4130.0	2000.0	1067.0	
1.0	2000.0	3000.0	4571.0	9268.0	21577.0	8128.0	4130.0	2000.0	1074.0	
1.5	1982.0	3090.0	4493.0	8810.0	19450.0	7930.0	4027.0	2000.0	1075.0	
2.0	1972.0	3000.0	4406.0	8110.0	19596.0	7745.0	3864.0	2000.0	1076.0	
2.5	1908.0	2939.0	4266.0	7921.0	13397.0	7499.0	3750.0	2000.0	1097.0	
3.0	1945.0	2793.0	4095.0	5668.0	11298.0	6966.0	3443.0	2000.0	1094.0	
3.5	1914.0	2655.0	3811.0	5929.0	9594.0	6266.0	3206.0	2000.0	1074.0	
4.0	1882.0	2523.0	3459.0	5000.0	6745.0	5346.0	2951.0	1523.0	1037.0	

TABLE A.8

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PEAK PATTERN NO. 10 FOR TYPE 5 HIGH MAXIMUM

ELEVATION	VERTICAL ANGLES										
	-3.5	-5.0	-7.5	-10.0	-12.5	-15.0	-17.5	-20.0	-22.5	-25.0	
-6.0	2762.0	4429.0	5823.0	7227.0	8691.0	12662.0	15638.0	12628.0	8579.0	1.0	1.5
-5.5	3251.0	5247.0	6496.0	8106.0	9880.0	16020.0	19770.0	14658.0	9230.0	6951.0	5448.0
-5.0	3804.0	5727.0	7265.0	9067.0	14381.0	22166.0	25046.0	21325.0	10000.0	7704.0	5583.0
-4.5	4422.0	6259.0	8207.0	11802.0	21330.0	27258.0	31496.0	26057.0	20413.0	1613.0	6007.0
-4.0	4799.0	6940.0	9735.0	17952.0	25752.0	34349.0	40000.0	32406.0	24377.0	12352.0	7300.0
-3.5	5046.0	7349.0	11755.0	21684.0	30653.0	40511.0	44535.0	36447.0	27977.0	15447.0	7915.0
-3.0	5000.0	7040.0	10705.0	20057.0	30658.0	45193.0	50000.0	43130.0	30477.0	21301.0	6001.0
-2.5	5000.0	6415.0	10045.0	27669.0	41222.0	49000.0	54877.0	47805.0	34224.0	25020.0	9479.0
-2.0	5000.0	5600.0	17403.0	59101.0	43150.0	52627.0	60000.0	52447.0	37905.0	24544.0	1072.0
-1.5	5000.0	9223.0	18589.0	32444.0	45042.0	56843.0	63253.0	58738.0	40000.0	26206.0	12922.0
-1.0	5000.0	10000.0	20000.0	33239.0	46458.0	58454.0	67100.0	57652.0	41930.0	27288.0	15020.0
-0.5	5000.0	10000.0	20313.0	33649.0	47034.0	59661.0	70727.0	59122.0	43052.0	27642.0	16014.0
0.0	5000.0	10000.0	20511.0	33549.0	47224.0	60000.0	75000.0	60000.0	44164.0	26580.0	17007.0
0.5	5000.0	10000.0	20228.0	33450.0	46717.0	59878.0	71000.0	58202.0	43538.0	26407.0	15919.0
1.0	5000.0	10000.0	20000.0	33090.0	46165.0	59271.0	67070.0	57297.0	42940.0	26450.0	16000.0
1.5	5000.0	6823.0	10045.0	30511.0	44942.0	57049.0	63512.0	59144.0	41950.0	27509.0	15000.0
2.0	5000.0	6219.0	10000.0	29660.0	43026.0	53168.0	60000.0	51865.0	40000.0	26720.0	14400.0
2.5	5000.0	5547.0	10024.0	27356.0	40771.0	49597.0	55324.0	48930.0	36952.0	29113.0	12001.0
3.0	5000.0	4554.0	7751.0	24947.0	36191.0	45514.0	50851.0	44221.0	33192.0	23318.0	10000.0
3.5	4182.0	7140.0	12734.0	22432.0	30935.0	41446.0	45277.0	40000.0	29703.0	21401.0	8255.0
4.0	3792.0	6421.0	10591.0	19269.0	26334.0	33890.0	40000.0	33762.0	25684.0	17720.0	6464.0

// END 10 FEB 73 11.803 HRS

Appendix B

Intensity (Candela) Values for  
6014 Low and High Beams

TABLE B.1

BEAM PATTERN NO. 1 FOR G.E. 6014 LOW BEAM (NO.2 PH.0)

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HORIZONTAL ANGLE	VERTICAL ANGLES										DOWN										UP									
	-4.5	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0								
-20.0	978	1120	1108	1040	884	662	449	384	331	284	236	176	169	149	136	126	112	98	85	66										
-19.5	1073	1241	1257	1176	1014	748	505	426	363	301	249	186	173	153	139	130	116	99	86	67										
-19.0	1161	1371	1371	1306	1129	839	564	467	390	322	266	238	195	157	142	135	120	102	86	67										
-18.5	1247	1480	1501	1439	1274	949	638	511	423	337	275	247	204	184	161	146	135	121	105	88	70									
-18.0	1333	1572	1608	1587	1433	1073	742	561	449	355	289	251	215	190	168	142	139	123	106	100	91	70								
-17.5	1401	1655	1705	1711	1584	1191	833	629	491	381	306	267	233	199	155	141	126	109	101	93	72									
-17.0	1454	1740	1808	1853	1726	1318	934	691	535	414	325	281	247	213	185	161	149	131	111	102	93	73								
-16.5	1492	1814	1921	1944	1803	1433	1028	765	576	440	340	290	263	226	189	167	149	131	111	103	95	74								
-16.0	1528	1879	2015	2051	1953	1545	1132	839	615	470	352	299	271	234	195	171	154	132	112	103	96	75								
-15.5	1566	1933	2104	2136	2074	1661	1232	904	659	508	366	313	278	239	202	176	158	134	115	106	98	77								
-15.0	1602	2009	2181	2207	2181	1767	1321	966	694	548	381	325	287	240	204	178	159	135	118	109	101	79								
-14.5	1637	2057	2252	2284	2269	1838	1371	1008	721	523	396	337	296	247	208	181	163	141	121	113	106	81								
-14.0	1678	2125	2329	2411	2346	1900	1433	1043	751	541	411	349	301	252	212	183	168	144	126	116	108	82								
-13.5	1690	2190	2382	2473	2423	1995	1504	1093	774	558	428	366	307	259	218	186	172	149	131	119	111	86								
-13.0	1729	2275	2494	2612	2538	2077	1581	1144	801	564	431	375	310	266	223	191	176	154	135	123	113	84								
-12.5	1791	2367	2609	2775	2662	2193	1677	1206	836	582	443	375	327	270	228	197	180	158	140	126	118	90								
-12.0	1835	2467	2760	2943	2837	2320	1755	1285	875	612	461	390	325	276	233	201	186	162	144	129	119	90								
-11.5	1897	2553	2899	3100	2952	2438	1847	1345	919	635	485	402	346	282	240	208	189	169	147	132	121	92								
-11.0	1938	2618	2982	3310	3073	2559	1947	1410	963	662	502	414	361	293	247	214	195	174	152	134	125	94								
-10.5	1989	2668	3073	3457	3221	2680	2033	1469	993	683	523	428	375	306	259	223	202	175	155	138	126	94								
-10.0	2030	2716	3132	3605	3457	2878	2163	1540	1025	709	547	443	387	307	270	232	209	181	163	142	131	96								
-9.5	2042	2781	3280	3989	4048	3516	2509	1711	1147	765	550	485	423	343	298	241	222	194	171	151	138	102								
-9.0	2077	2881	3635	4403	4432	4255	2784	1853	1256	819	600	499	452	366	316	268	241	208	182	166	150	110								
-8.5	2116	3079	3841	4610	4669	4462	2911	2006	1315	857	615	511	461	390	331	280	249	215	190	173	161	116								
-8.0	2184	3280	4019	4817	4905	4698	3162	2122	1374	940	621	529	464	399	340	288	258	223	198	179	167	121								
-7.5	2157	3457	4226	5083	5260	4994	3339	2231	1472	940	621	529	464	399	340	288	258	223	198	179	167	121								
-7.0	2320	3635	4432	5408	5585	5319	3487	2346	1557	984	683	544	479	408	343	291	264	230	210	188	175	126								
-6.5	2382	3753	4551	5644	5910	5437	3694	2473	1652	1049	715	558	488	411	349	290	267	234	215	192	181	131								
-6.0	2408	3812	4728	5940	6206	5940	3901	2621	1758	1111	748	573	502	420	325	290	271	241	222	197	186	134								
-5.5	2426	3901	4905	6176	6383	6146	4078	2790	1873	1179	742	585	520	428	355	301	281	250	230	204	193	138								
-5.0	2479	4048	5053	6383	6678	6353	4373	2999	1974	1241	824	619	541	387	358	307	284	254	235	208	199	143								
-4.5	2571	4137	5260	6708	7181	6590	4905	3635	2154	1315	666	638	564	434	363	313	289	260	240	214	206	150								
-4.0	2662	4285	5496	7328	8008	7506	5614	4107	2402	1433	910	659	645	446	375	316	292	263	246	220	210	156								
-3.5	2804	4551	5880	8185	8895	8422	6383	4698	2784	1608	778	694	606	464	390	325	299	268	249	233	214	158								
-3.0	3005	4462	6649	9101	9722	9249	7181	5378	3398	1835	1064	730	624	473	399	340	278	277	256	217	216	161								
-2.5	3339	5703	7890	10874	11584	10815	8510	6294	3930	2113	1229	786	653	488	405	346	298	284	262	231	220	164								
-2.0	3989	6974	9958	13445	14450	13652	10845	8067	4905	2541	1412	848	686	505	420	361	304	293	271	240	226	168								
-1.0	4610	8451	11968	16489	17907	17316	10845	8067	4905	2541	1412	848	686	505	420	361	304	293	271	240	226	168								
0.0	5349	9663	13770	18764	21749	22547	19946	15336	8510	4432	2068	1070	792	564	461	393	334	313	288	256	249	182								
0.5	6235	10668	14893	21099	26595	29225	26950	22162	13032	6412	2713	1250	866	603	485	411	346	301	277	246	236	173								
1.0	7033	11554	16607	23906	31559	36497	32180	20508	9101	3537	1401	960	644	514	428	363	337	275	256	230	228	195								
1.5	7801	12381	18262	26359	35117	40115	37307	25265	11229	4048	1528	1002	677	564	443	363	337	275	256	230	228	195								
2.0	8244	13091	19237	27038	35740	42354	37370	25467	11850	4314	1637	1058	709	547	449	369	337	275	256	230	228	195								
2.5	8244	13002	18823	25915	33320	37224	36834	21897	11111	4196	1655	1073	712	553	458	381	366	275	256	230	228	195								
3.0	7801	11879	16666	22694	29254	33107	31323	18469	9486	3782	1560	1025	683	541	458	381	366	278	256	230	228	195								
3.5	7210	10815	14539	19414	20595	31027	29550	28663	16134	8008	3369	1439	960	650	529	449	372	295	272	256	230	199								
4.0	6767	9840	12766	17346	24467	28959	27186	24142	14686	7328	2985	1300	895	615	514	434	361	297	281	263	249	194								
4.5	6412	9131	11465	15041	21099	25413	25117	22724	14568	6856	2719	1182	848	612	499	426	352	337	286	275	258	194								
5.0	6146	8599	10697	13623	18705	22783	23433	21158	13829	6294	2532	1105	813	591	493	417	349	334	283	269	257	197								
5.5	5821	8156	9958	12677	16814	20330	20744	18410	12086	5694	2269	1064	780	570	411	343	325	274	263	255	245	187								
6.0	5526	7683	9279	11584	15041	17966	17789	15750	10283	5230	2145	981	762	556	455	396	334	271	256	245	235	183								
6.5	5289	7269	8658	10490	12559	14745	14923	12943	8717	4669	1745	889	742	544	449	390	340	271	256	245	235	183								

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TABLE B.2  
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BEAM PATTERN NO. 2 FOR G.L.L. 6014 HIGH BEAM (NO.2 PH)

Az. Elev	VERTICAL ANGLES										Down	Up							
	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5	1.0			1.5	2.0	2.5	3.0	3.5	4.0	4.5
-17.0	4.0	5.3	7.4	9.10	12.15	14.80	17.32	19.17	18.34	16.1	13.65	10.32	6.09	7.15	5.73	4.34	4.52	3.06	2.62
-16.5	4.91	5.91	7.81	9.66	13.03	16.10	18.73	19.30	19.96	17.70	14.64	11.02	6.95	7.95	5.97	4.67	3.93	3.10	2.47
-16.0	5.17	6.15	7.99	10.14	13.71	17.11	19.98	20.83	21.16	18.26	15.37	11.55	7.60	8.61	6.12	4.93	4.01	2.80	2.33
-15.5	5.76	6.72	8.42	10.58	14.92	18.92	21.89	22.81	22.81	19.49	16.34	12.28	8.44	9.41	6.38	5.08	4.17	2.90	2.40
-15.0	6.41	7.37	9.07	11.02	15.60	19.99	23.02	24.05	24.20	21.31	17.29	13.09	10.40	10.40	6.88	5.23	4.26	3.01	2.64
-14.5	6.63	7.59	9.29	11.21	16.34	21.31	25.29	26.57	26.57	22.61	18.41	13.74	10.93	10.93	7.00	5.38	4.40	3.15	2.76
-14.0	7.12	8.08	9.74	11.74	17.29	22.61	27.07	27.07	27.07	23.61	19.44	14.60	11.44	11.44	7.24	5.50	4.52	3.20	2.80
-13.5	7.62	8.58	10.21	12.28	18.42	24.05	28.10	28.10	28.10	24.76	21.3	15.42	12.28	12.28	7.43	5.65	4.67	3.31	2.91
-13.0	8.14	9.10	10.68	12.77	19.55	25.49	29.35	29.35	29.35	26.02	22.13	16.24	13.09	13.09	7.62	5.79	4.82	3.42	3.01
-12.5	8.66	9.63	11.17	13.26	20.60	26.94	30.58	31.11	31.11	27.32	22.96	17.05	13.90	13.90	7.81	5.93	4.96	3.53	3.11
-12.0	9.18	10.14	11.65	13.75	21.69	28.49	31.79	32.32	32.32	28.51	23.75	17.84	14.71	14.71	8.00	6.09	5.12	3.64	3.21
-11.5	9.70	10.62	12.13	14.24	22.73	29.99	32.99	33.52	33.52	29.64	24.54	18.62	15.52	15.52	8.19	6.25	5.28	3.75	3.31
-11.0	10.22	11.10	12.61	14.73	23.72	31.44	34.54	35.07	35.07	30.72	25.33	19.44	16.34	16.34	8.38	6.46	5.49	3.86	3.41
-10.5	10.74	11.58	13.09	15.22	24.67	32.84	35.99	36.52	36.52	31.79	26.12	20.25	17.15	17.15	8.57	6.67	5.70	3.97	3.51
-10.0	11.26	12.06	13.57	15.71	25.58	34.19	37.34	38.31	38.31	32.94	26.91	21.06	17.96	17.96	8.76	6.88	5.91	4.08	3.61
-9.5	11.78	12.54	14.05	16.20	26.45	35.49	38.74	39.78	39.78	34.09	27.70	21.87	18.77	18.77	8.95	7.09	6.12	4.19	3.71
-9.0	12.30	13.02	14.53	16.69	27.28	36.74	40.13	41.21	41.21	35.24	28.49	22.68	19.58	19.58	9.14	7.30	6.33	4.30	3.81
-8.5	12.82	13.50	15.01	17.18	28.07	37.94	41.42	42.50	42.50	36.39	29.28	23.49	20.39	20.39	9.33	7.51	6.54	4.41	3.91
-8.0	13.34	13.98	15.49	17.67	28.82	39.14	42.71	43.79	43.79	37.54	30.07	24.30	21.20	21.20	9.52	7.72	6.75	4.52	4.01
-7.5	13.86	14.46	15.97	18.16	29.53	40.29	43.96	44.96	44.96	38.69	30.86	25.11	22.01	22.01	9.71	7.93	6.96	4.63	4.11
-7.0	14.38	14.94	16.45	18.65	30.20	41.44	45.11	46.11	46.11	39.84	31.65	25.92	22.82	22.82	9.90	8.14	7.17	4.74	4.21
-6.5	14.90	15.42	16.93	19.14	30.83	42.59	46.26	47.16	47.16	40.99	32.44	26.73	23.63	23.63	10.09	8.35	7.38	4.85	4.31
-6.0	15.42	15.90	17.41	19.63	31.42	43.74	47.41	48.31	48.31	42.14	33.23	27.54	24.44	24.44	10.28	8.56	7.59	4.96	4.41
-5.5	15.94	16.38	17.89	20.12	32.07	44.89	48.56	49.46	49.46	43.29	34.02	28.35	25.25	25.25	10.47	8.77	7.80	5.07	4.51
-5.0	16.46	16.86	18.37	20.61	32.68	46.04	49.71	50.61	50.61	44.44	34.81	29.16	26.06	26.06	10.66	8.98	8.01	5.18	4.61
-4.5	16.98	17.34	18.85	21.10	33.27	47.19	50.86	51.76	51.76	45.59	35.60	30.07	26.87	26.87	10.85	9.19	8.22	5.29	4.71
-4.0	17.50	17.80	19.33	21.59	33.86	48.34	52.01	53.11	53.11	46.74	36.39	30.88	27.68	27.68	11.04	9.40	8.43	5.40	4.81
-3.5	18.02	18.27	19.81	22.08	34.45	49.50	53.16	54.26	54.26	47.89	37.18	31.69	28.49	28.49	11.23	9.61	8.64	5.51	4.91
-3.0	18.54	18.75	20.29	22.57	35.04	50.65	54.31	55.36	55.36	49.04	37.97	32.50	29.30	29.30	11.42	9.82	8.85	5.62	5.01
-2.5	19.06	19.23	20.77	23.06	35.63	51.80	55.46	56.51	56.51	50.19	38.76	33.31	30.11	30.11	11.61	10.03	9.06	5.73	5.11
-2.0	19.58	19.71	21.25	23.55	36.22	52.95	56.60	57.65	57.65	51.34	39.55	34.12	30.92	30.92	11.80	10.24	9.27	5.84	5.21
-1.5	20.10	20.19	21.73	24.04	36.81	54.10	57.75	58.80	58.80	52.49	40.34	34.93	31.73	31.73	12.00	10.45	9.48	5.95	5.31
-1.0	20.62	20.67	22.21	24.53	37.40	55.25	58.84	59.94	59.94	53.64	41.13	35.74	32.54	32.54	12.19	10.66	9.69	6.06	5.41
-0.5	21.14	21.16	22.69	25.02	38.00	56.40	60.09	61.09	61.09	54.79	41.92	36.55	33.35	33.35	12.38	10.87	9.90	6.17	5.51
0.0	21.66	21.66	23.17	25.51	38.59	57.55	61.24	62.14	62.14	55.94	42.71	37.36	34.16	34.16	12.57	11.08	10.11	6.28	5.61
0.5	22.18	22.18	23.65	26.00	39.18	58.70	62.39	63.19	63.19	57.09	43.50	38.17	34.97	34.97	12.76	11.29	10.32	6.39	5.71
1.0	22.70	22.70	24.13	26.49	39.77	59.85	63.54	64.19	64.19	58.24	44.29	38.98	35.78	35.78	12.95	11.50	10.53	6.50	5.81
1.5	23.22	23.22	24.61	26.98	40.36	61.00	64.69	65.19	65.19	59.39	45.08	39.79	36.59	36.59	13.14	11.71	10.74	6.61	5.91
2.0	23.74	23.74	25.09	27.47	40.95	62.15	65.74	66.19	66.19	60.54	45.87	40.60	37.40	37.40	13.33	11.92	10.95	6.72	6.01
2.5	24.26	24.26	25.57	27.96	41.54	63.30	66.79	67.19	67.19	61.69	46.66	41.41	38.21	38.21	13.52	12.13	11.16	6.83	6.11
3.0	24.78	24.78	26.05	28.45	42.13	64.45	67.84	68.19	68.19	62.84	47.45	42.22	39.02	39.02	13.71	12.34	11.37	6.94	6.21
3.5	25.30	25.30	26.53	28.94	42.72	65.60	68.89	69.19	69.19	63.99	48.24	43.03	39.83	39.83	13.90	12.55	11.58	7.05	6.31
4.0	25.82	25.82	27.01	29.43	43.31	66.75	69.94	70.19	70.19	65.14	49.03	43.84	40.64	40.64	14.09	12.76	11.79	7.16	6.41
4.5	26.34	26.34	27.49	29.92	43.90	67.90	71.09	71.19	71.19	66.29	49.82	44.65	41.45	41.45	14.28	12.97	12.00	7.27	6.51
5.0	26.86	26.86	27.97	30.41	44.49	69.05	72.14	72.19	72.19	67.44	50.61	45.46	42.26	42.26	14.47	13.18	12.21	7.38	6.61
5.5	27.38	27.38	28.45	30.90	45.08	70.20	73.19	73.19	73.19	68.59	51.40	46.27	43.07	43.07	14.66	13.39	12.42	7.49	6.71
6.0	27.90	27.90	28.93	31.39	45.67	71.35	74.24	74.24	74.24	69.74	52.19	47.08	43.88	43.88	14.85	13.60	12.63	7.60	6.81
6.5	28.42	28.42	29.41	31.88	46.26	72.50	75.29	75.29	75.29	70.89	53.04	47.89	44.69	44.69	15.04	13.81	12.84	7.71	6.91

RIGHT

LEFT

## Appendix C

Computer Simulation Predictions of Visibility Distance  
As A Function of Longitudinal Separation Distance Between  
Opposing Vehicles, for Each Beam and Target Location

## List of Figures for Appendix C

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- Figure C.2. Low beam (system C) maximum, right target.
- Figure C.3. Mid beam (system C) minimum, right target.
- Figure C.4. Mid beam (system C) maximum, right target.
- Figure C.5. High beam (system C) minimum, right target.
- Figure C.6. High beam (system C) maximum, right target.
- Figure C.7. Low beam (system C) minimum, center target.
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- Figure C.16. High beam (system D) maximum, right target.
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- Figure C.21. Low beam (system E) minimum, right target.
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- Figure C.29. Mid beam (system E) minimum, center target.
- Figure C.30. Mid beam (system E) maximum, center target.
- Figure C.31. High beam (system E) minimum, center target.
- Figure C.32. High beam (system E) maximum, center target.

SYSTEM C



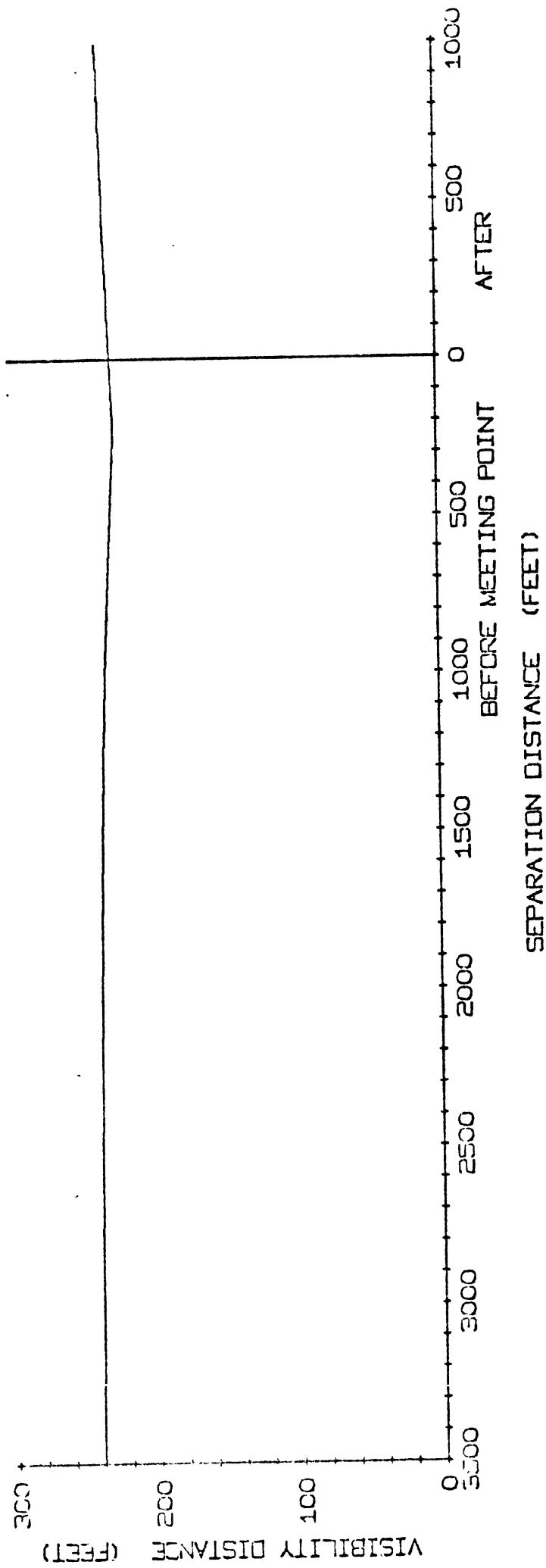


Figure C.1. Low beam (system C) minimum, right target.

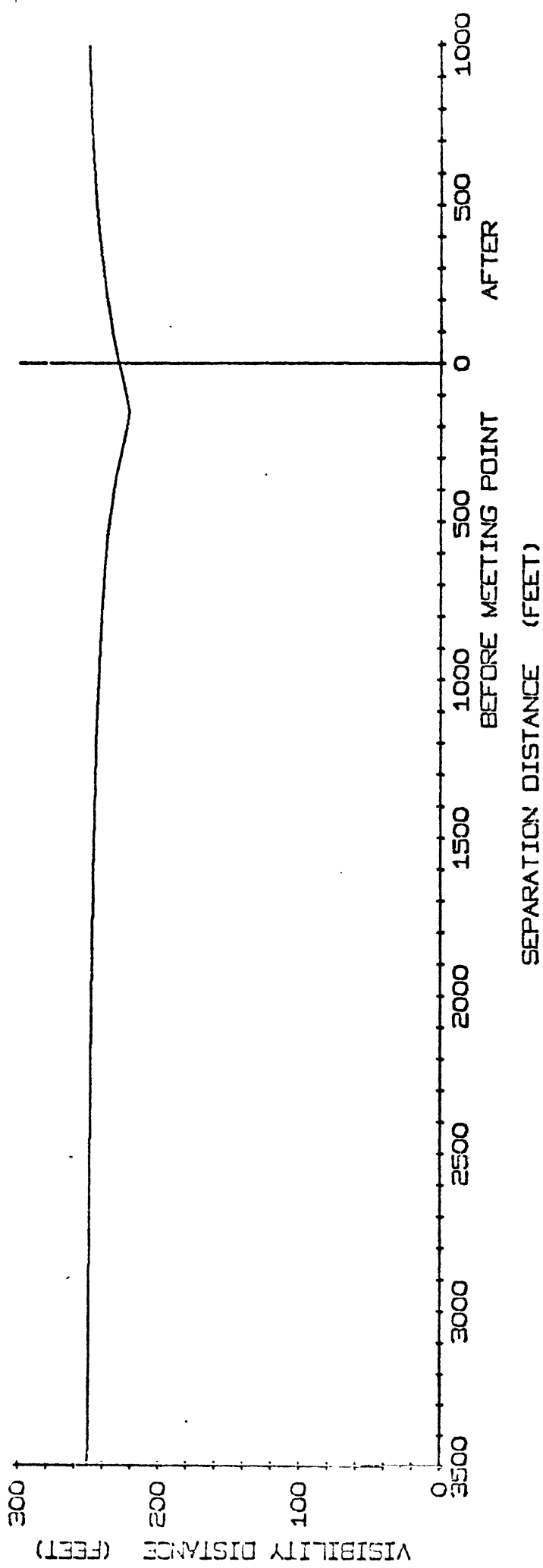


Figure C.2. Low beam (system C) maximum, right target.

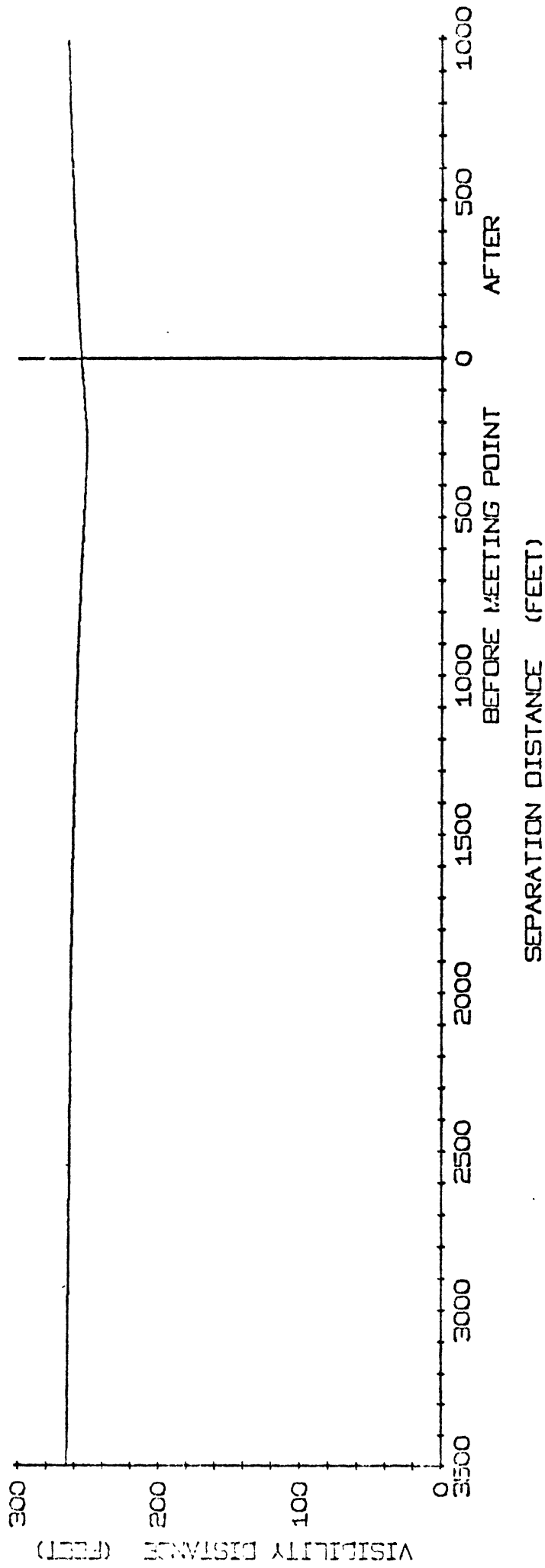


Figure C.3. Mid beam (system C) minimum, right target.

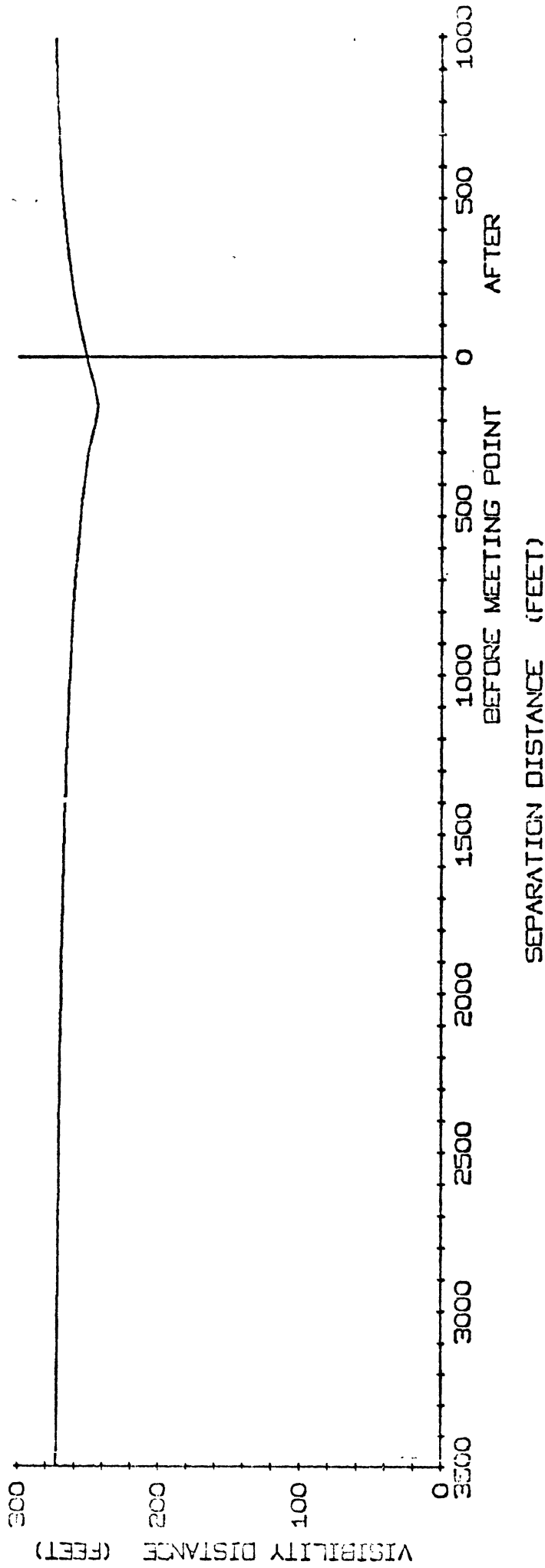


Figure C.4. Mid beam (system C) maximum, right target.

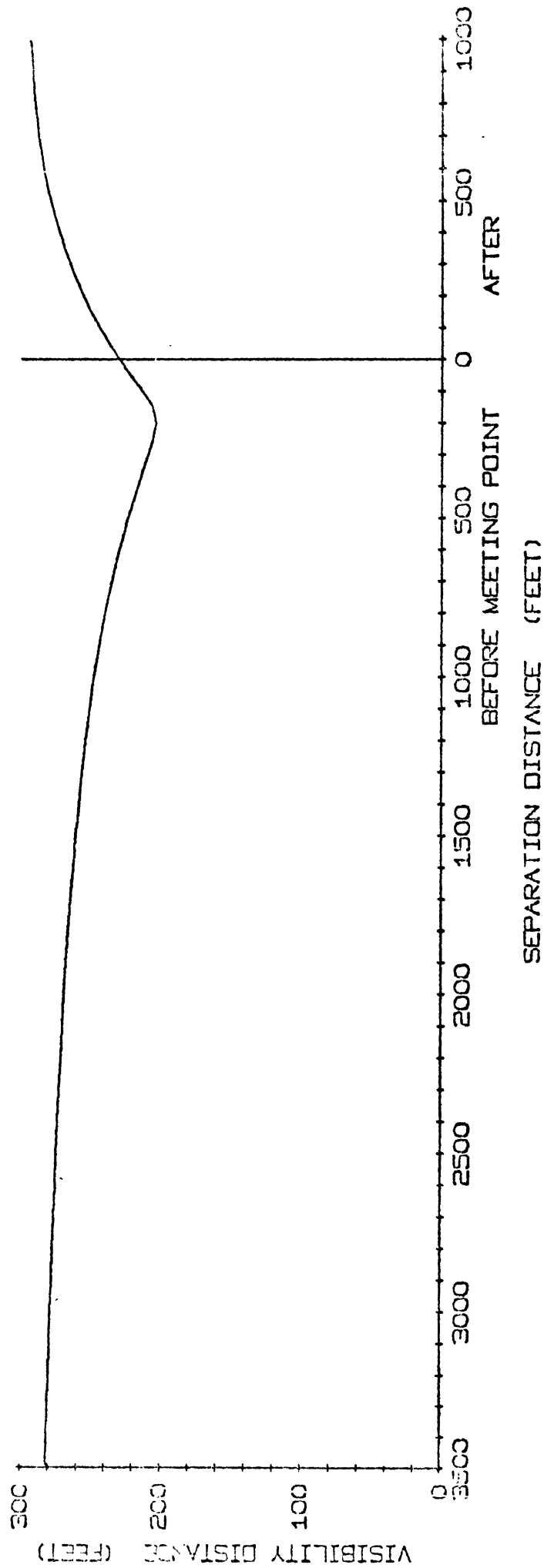


Figure C.5. High beam (system C) minimum, right target.

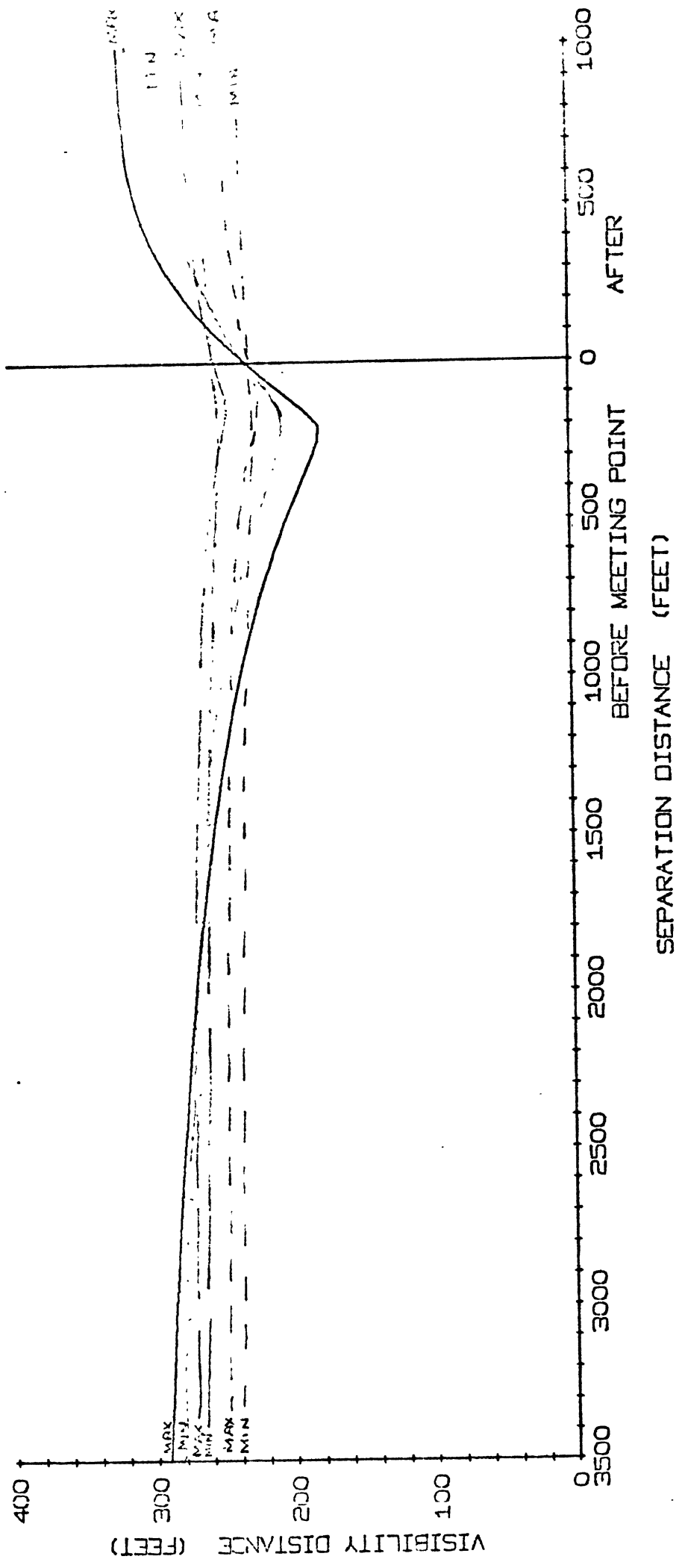


Figure C.6. High beam (system C) maximum, right target.

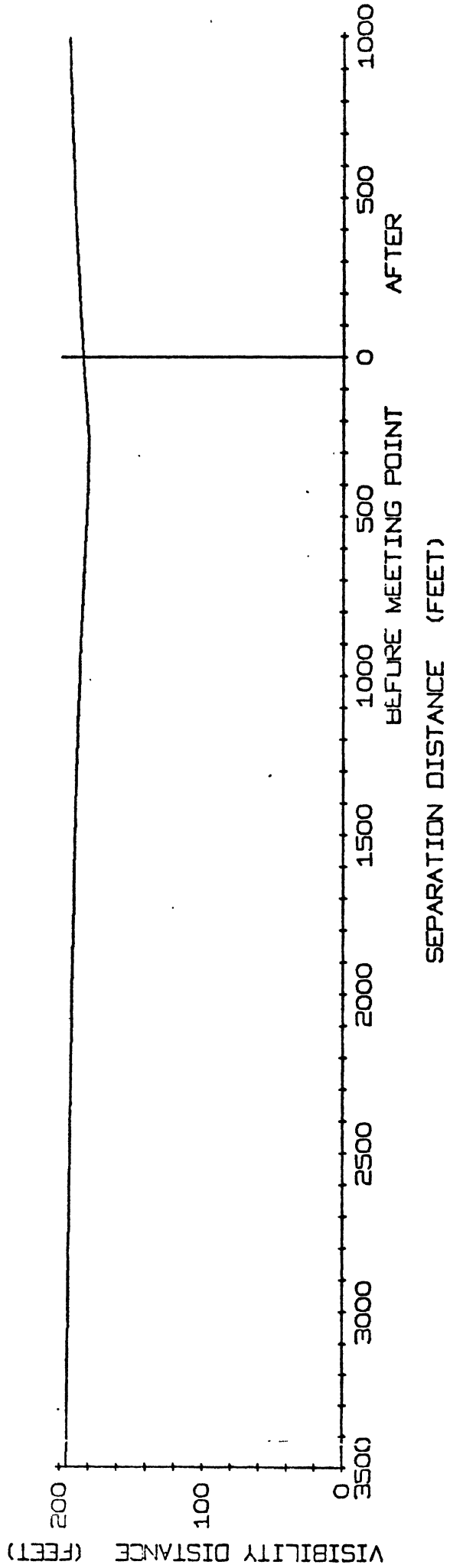


Figure C.7. Low beam (system C) minimum, center target.

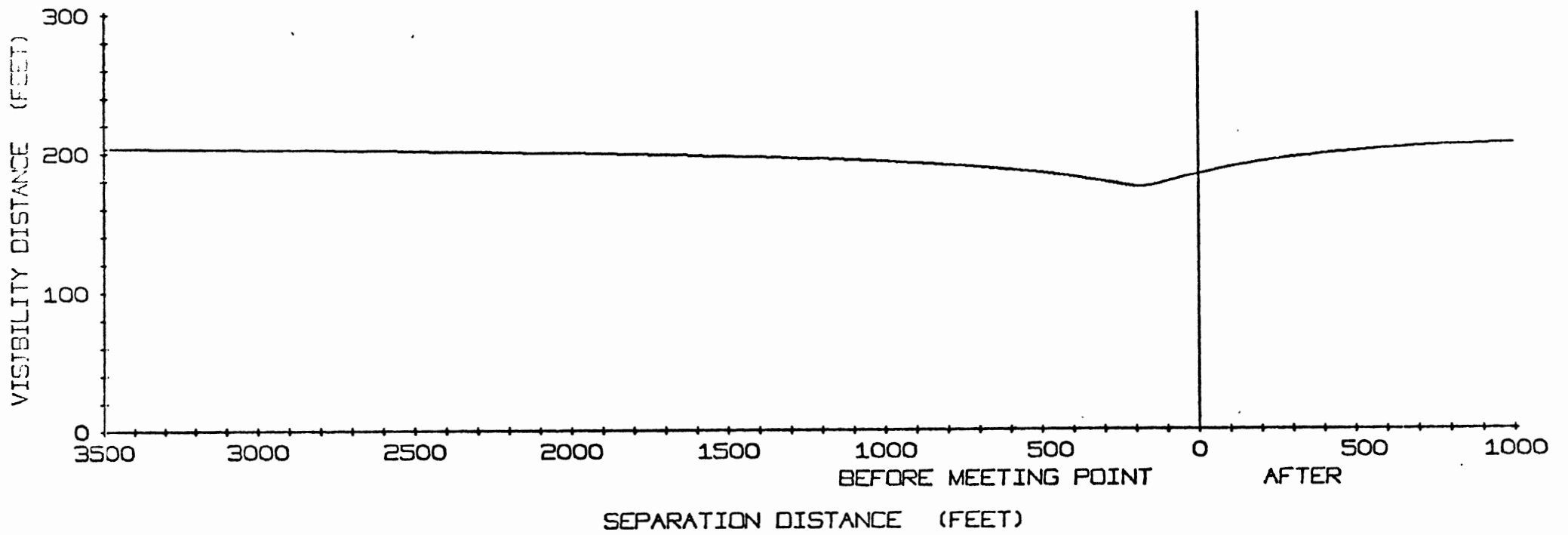


Figure C.8. Low beam (system C) maximum, center target.



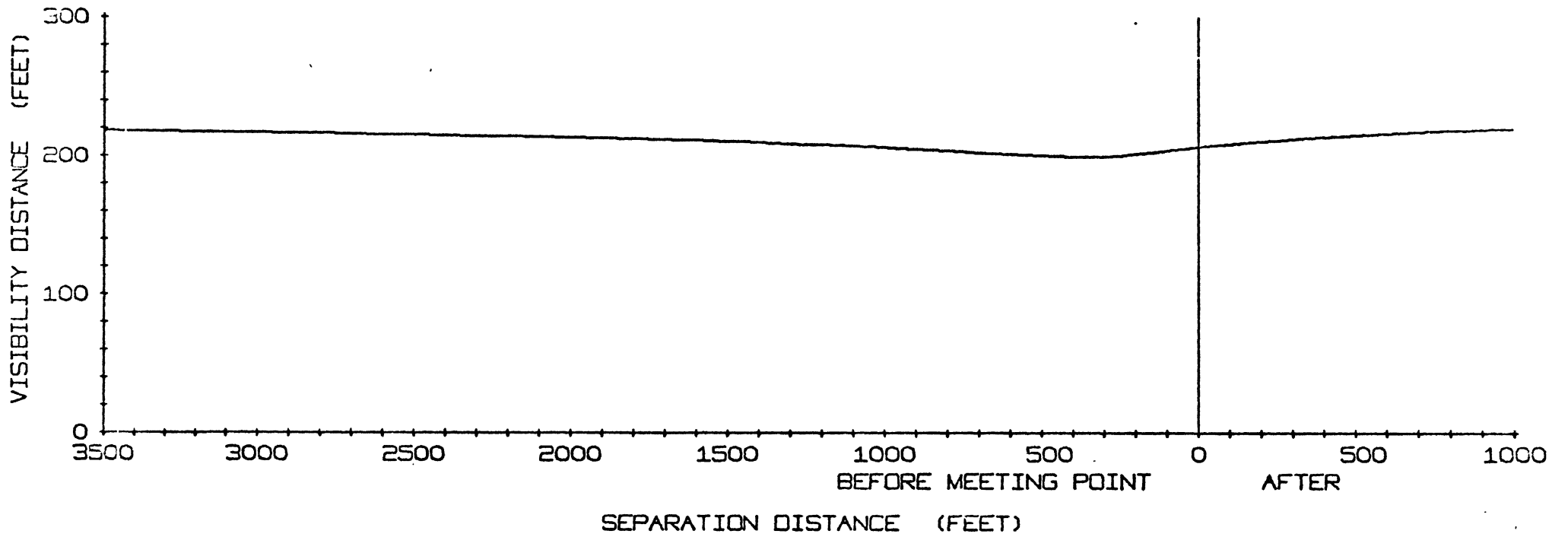


Figure C.9. Mid beam (system C) minimum, center target.

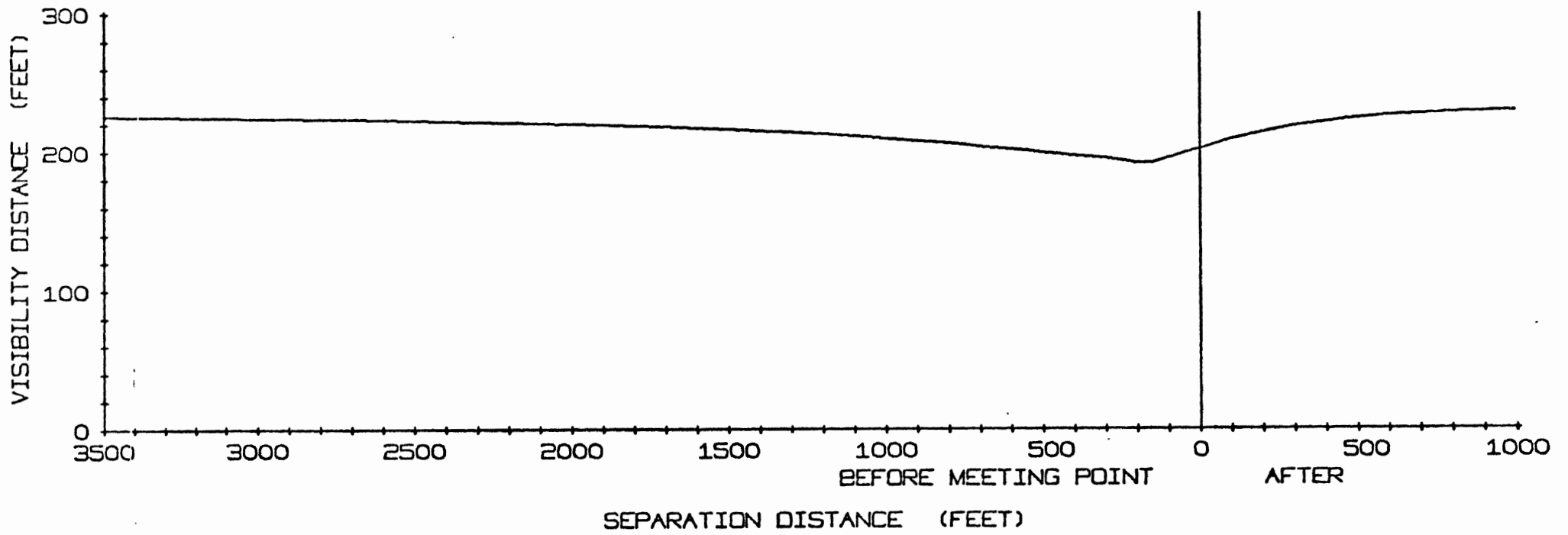
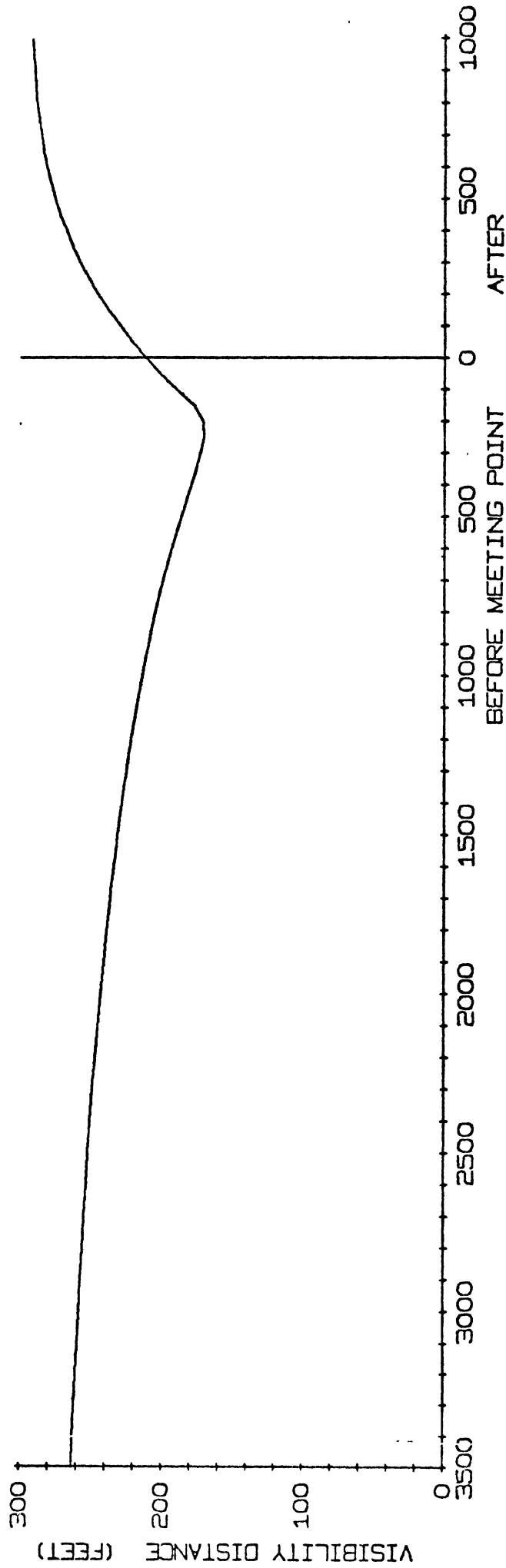


Figure C.10. Mid beam (system C) maximum, center target.



SEPARATION DISTANCE (FEET)

Figure C.11. High beam (system C) minimum, center target.

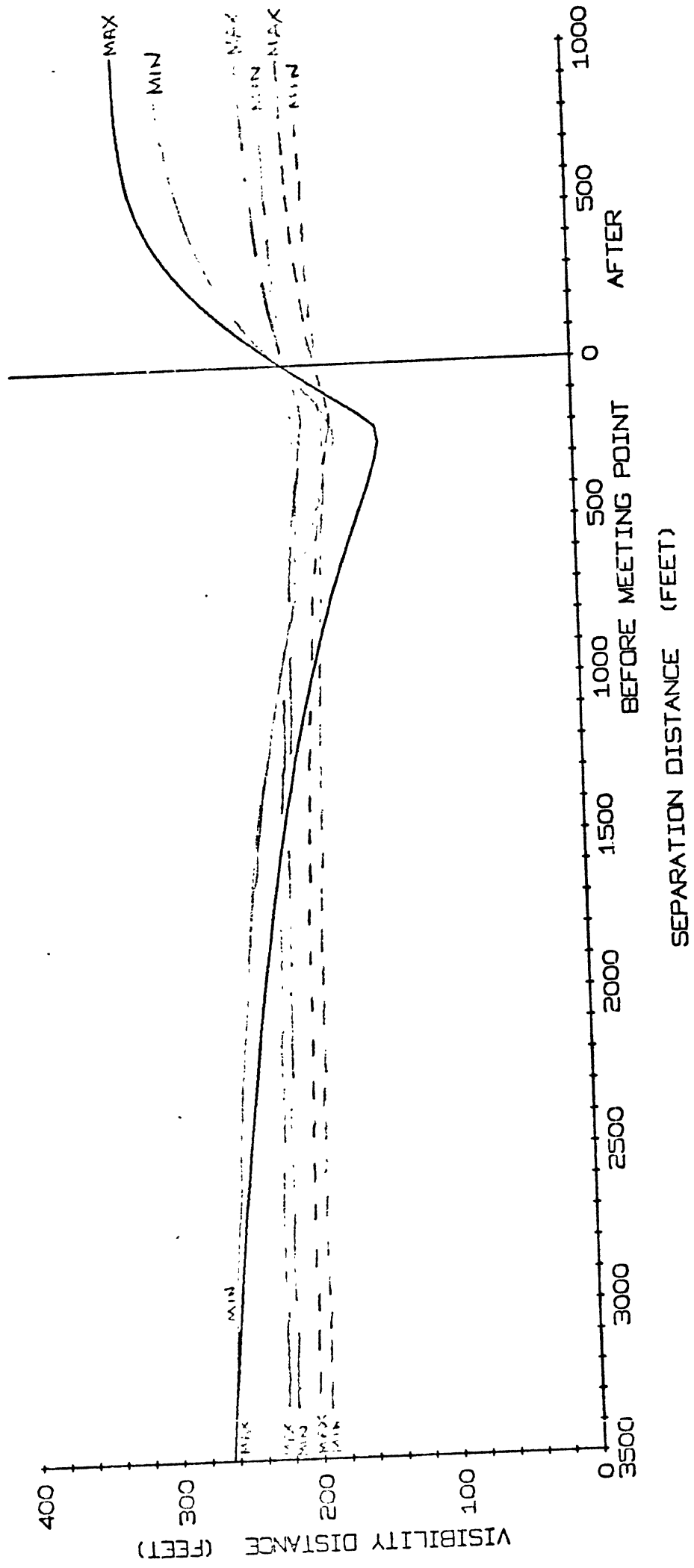


Figure C.12. High beam (system C) maximum, center target.

SYSTEM D

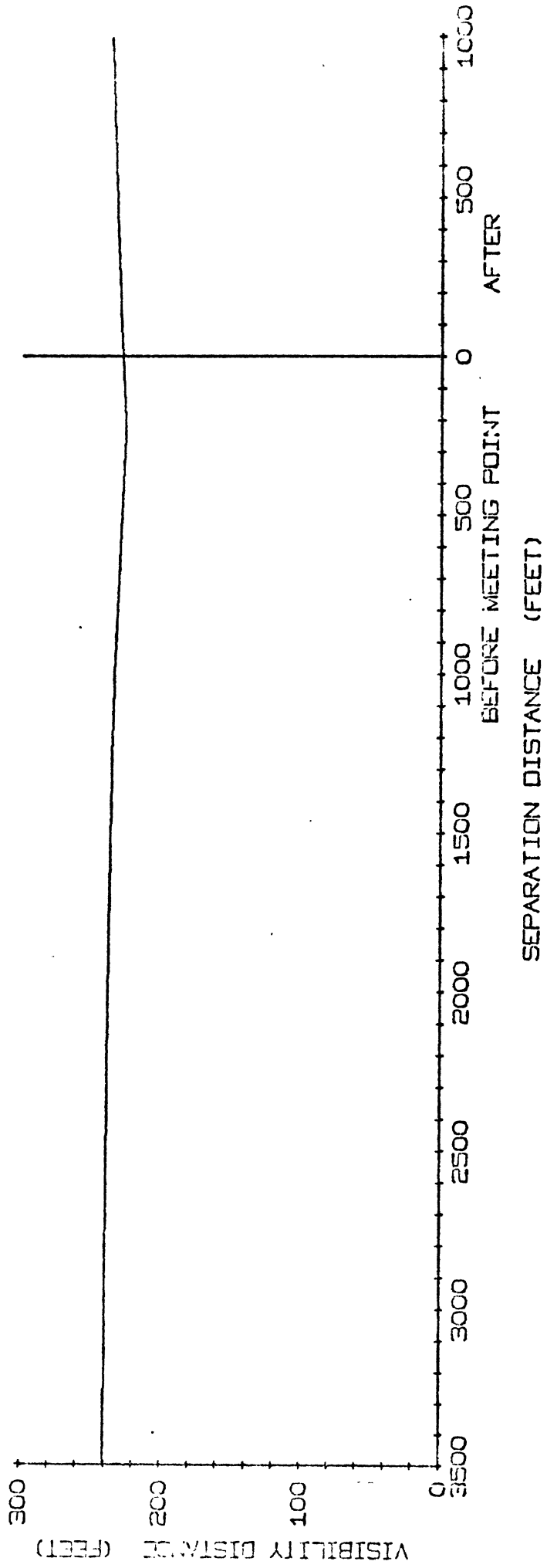


Figure C.13. Low beam (system D) minimum, right target.

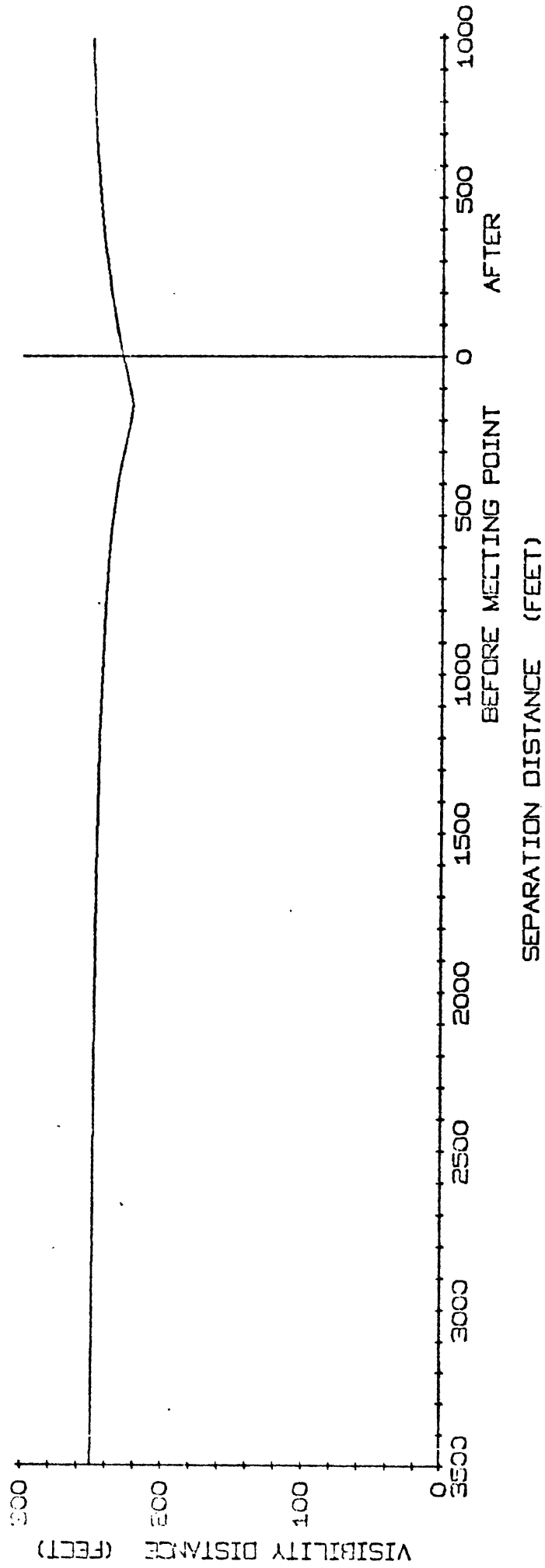


Figure C.14. Low beam (system D) maximum, right target.

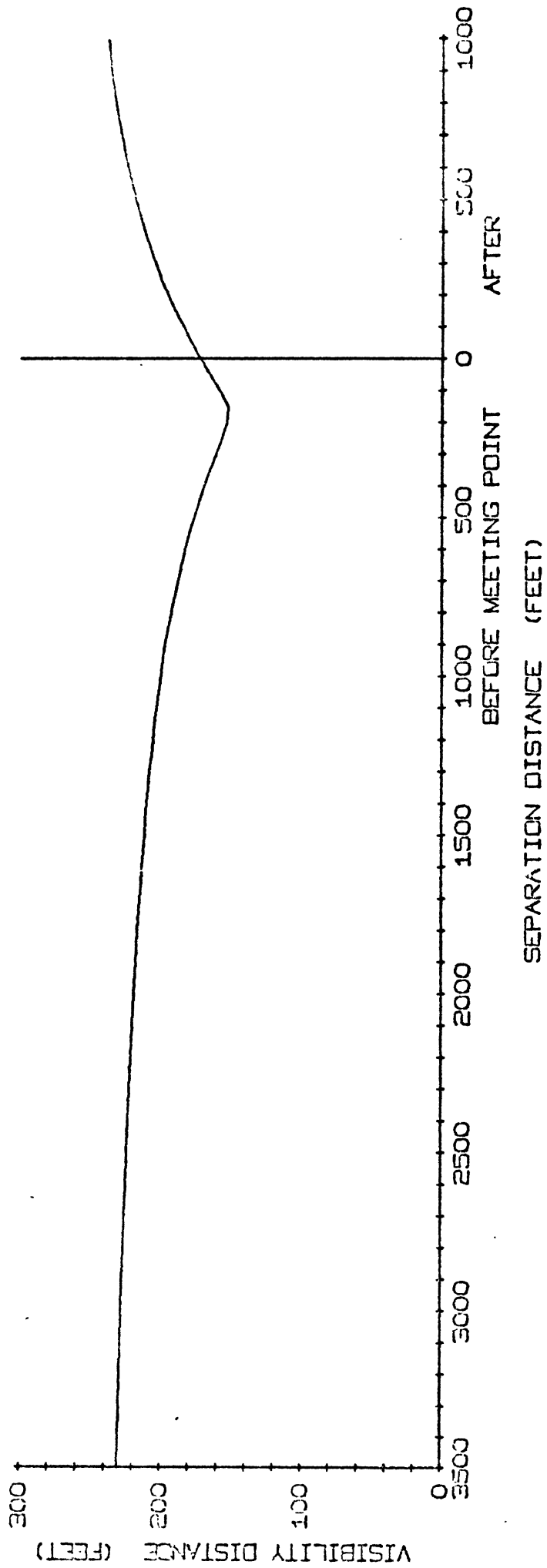


Figure C.15. High beam (system D) minimum, right target.



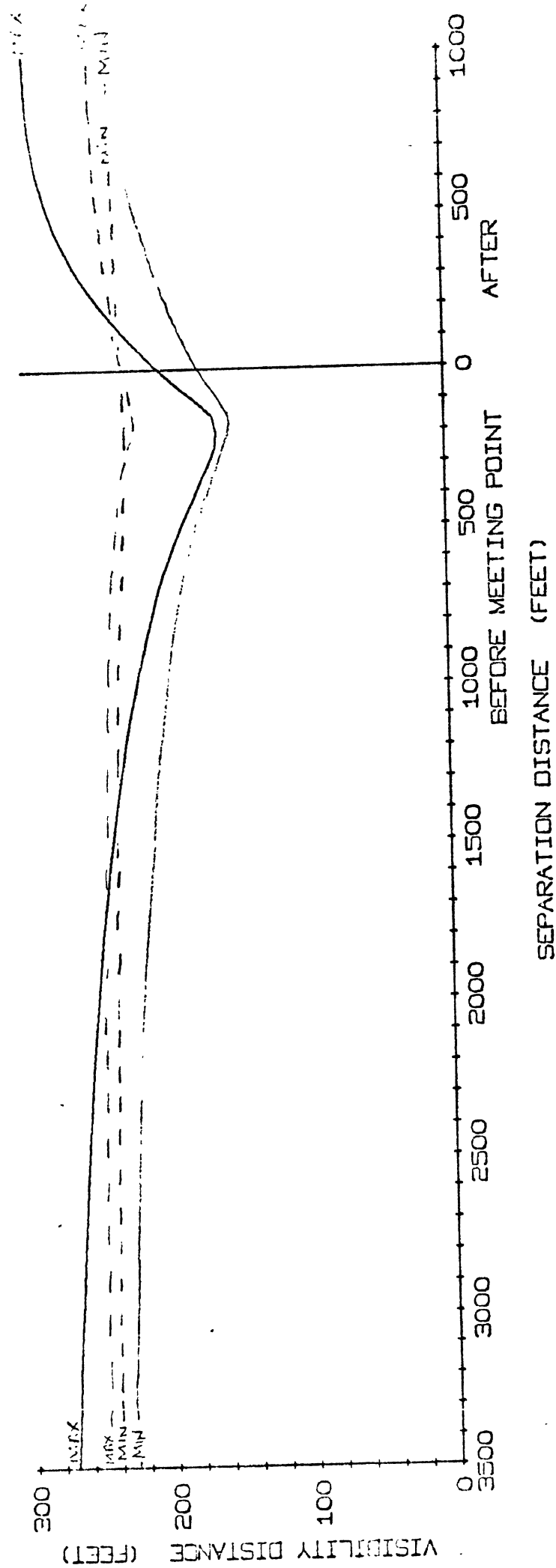


Figure C.16. High beam (system D) maximum, right target.

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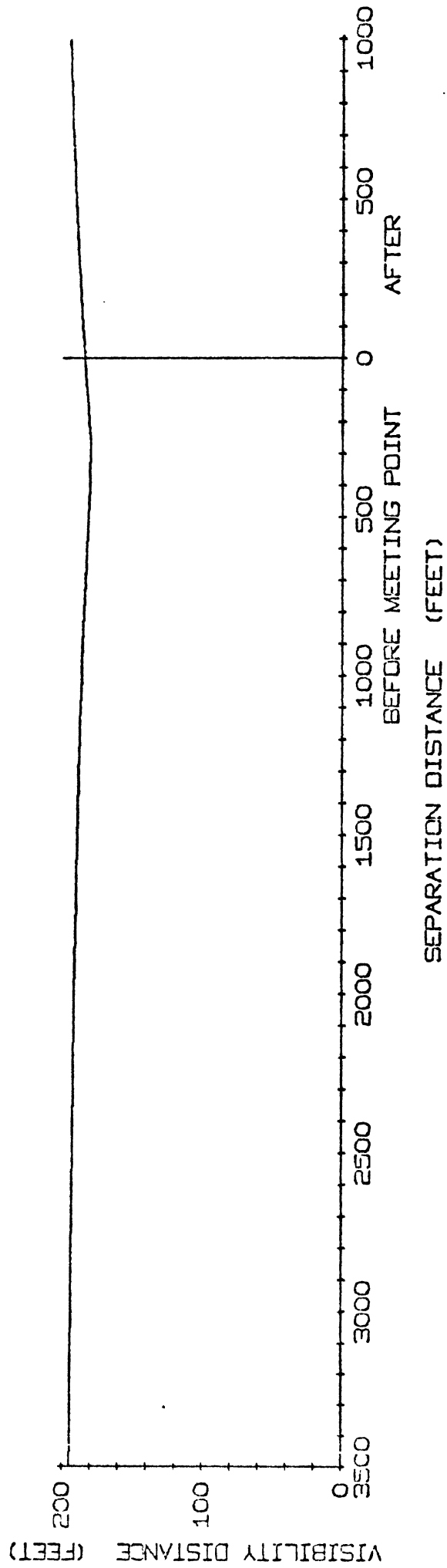


Figure C.17. Low beam (system D) minimum, center target.

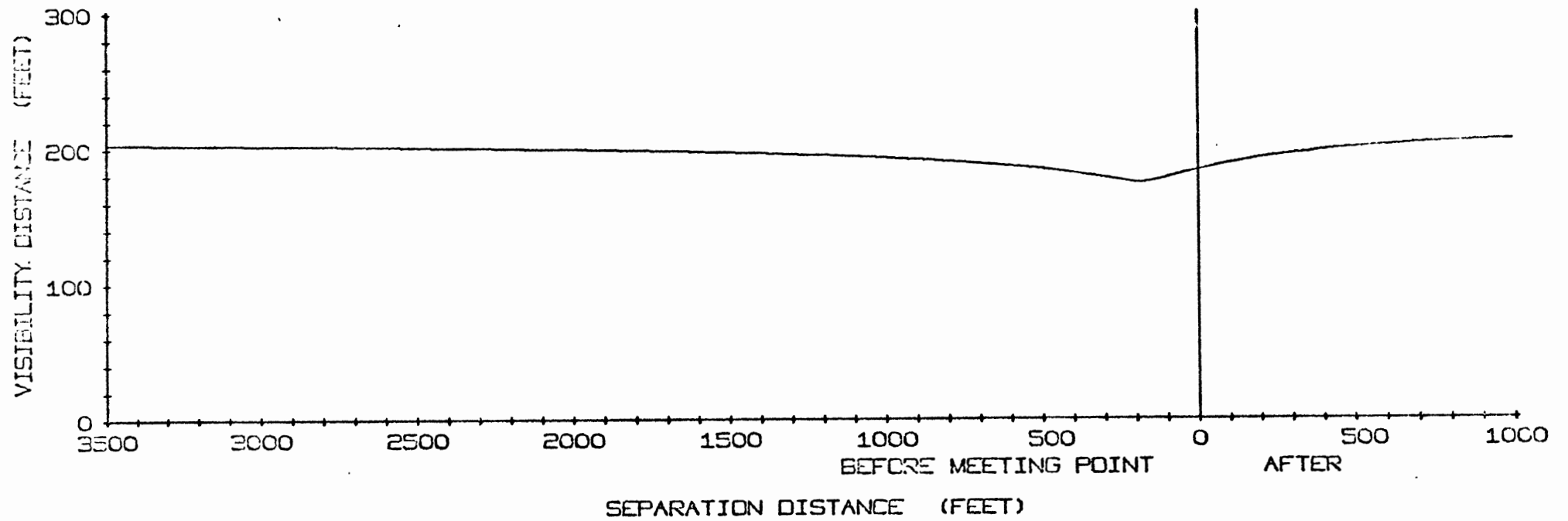


Figure C.18. Low beam (system D) maximum, center target.

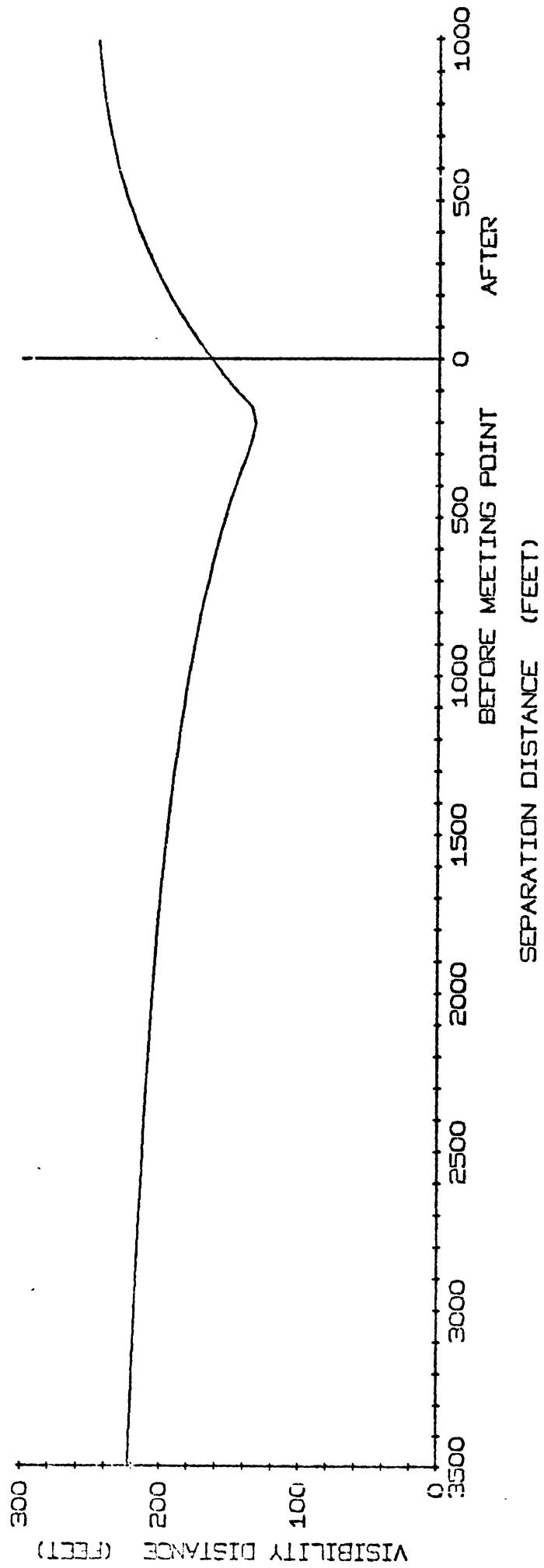


Figure C.19. High beam (system D) minimum, center target.

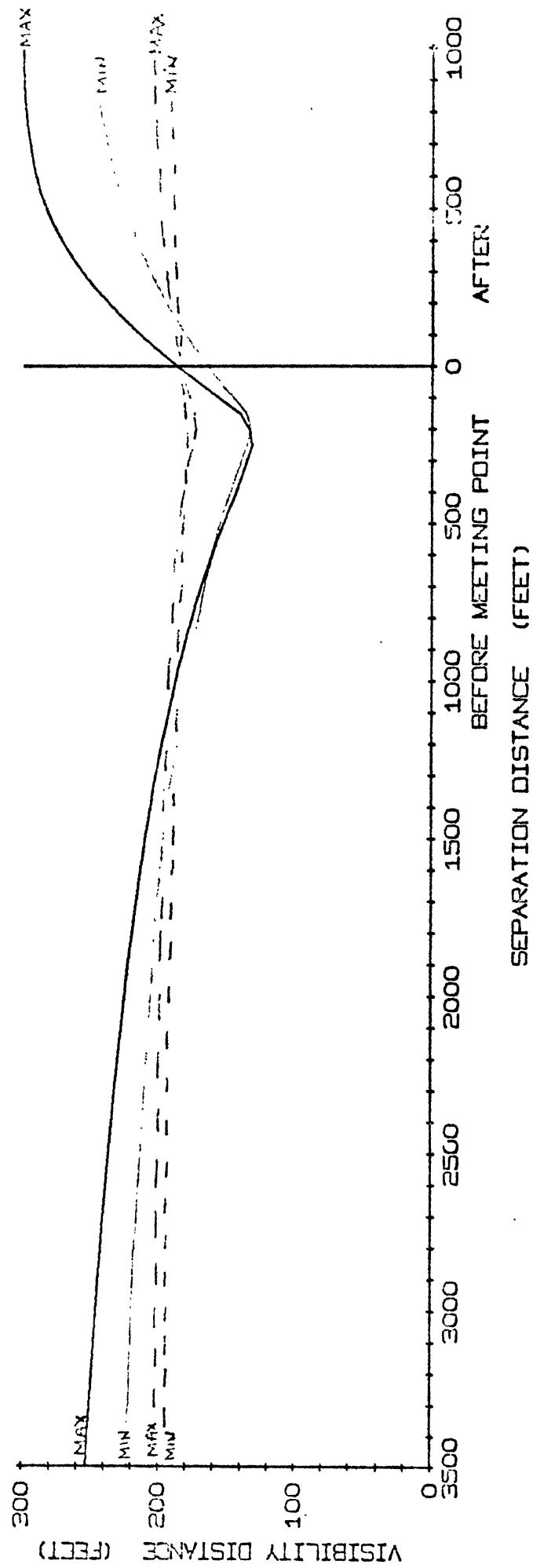


Figure C.20. High beam (system D) maximum, center target.

SYSTEM E

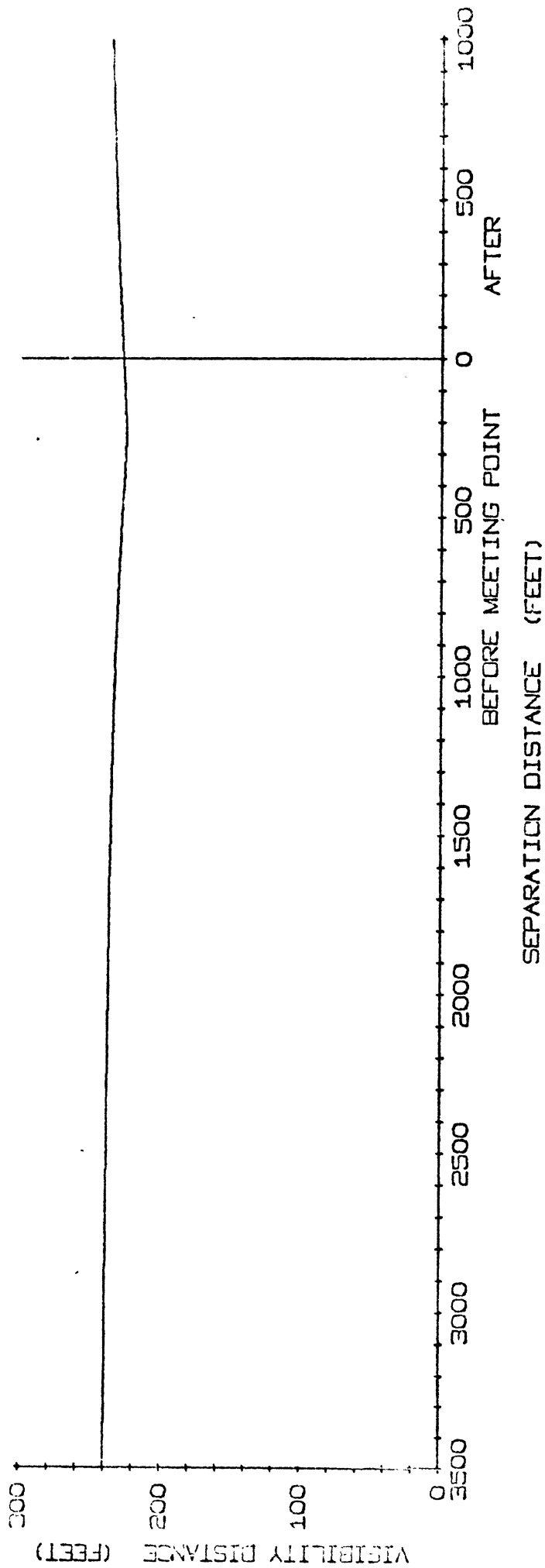


Figure C.21. Low beam (system E) minimum, right target.

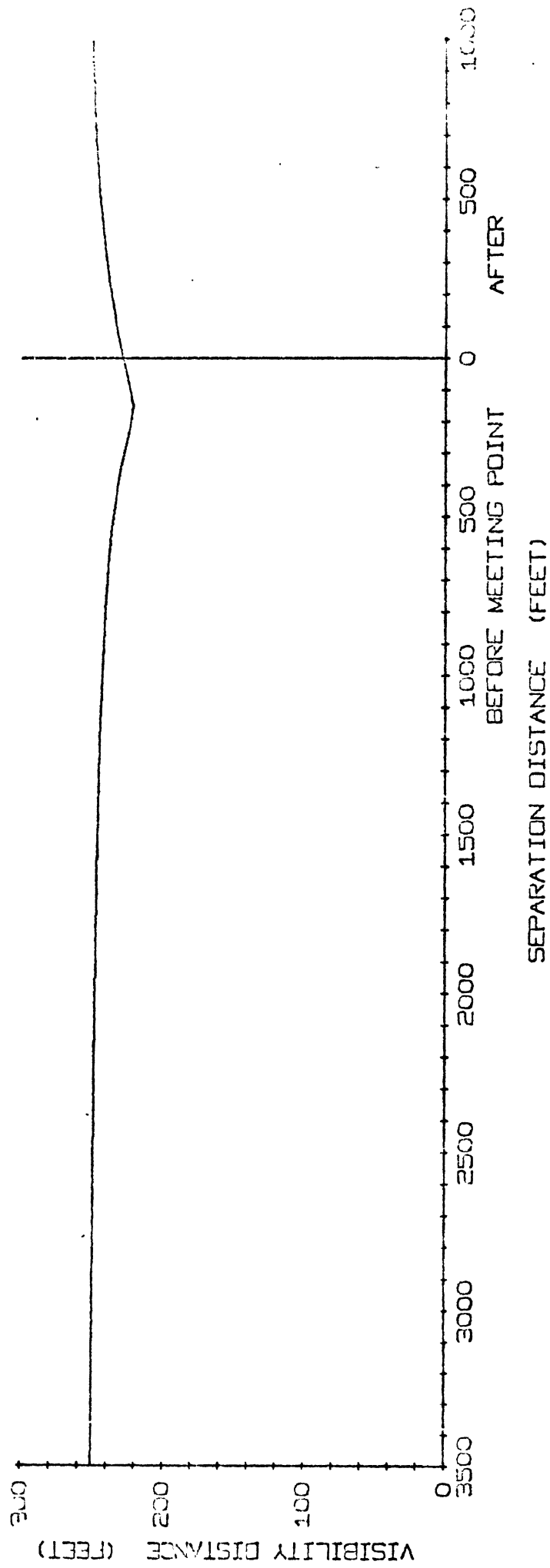


Figure C.22. Low beam (system E) maximum, right target.



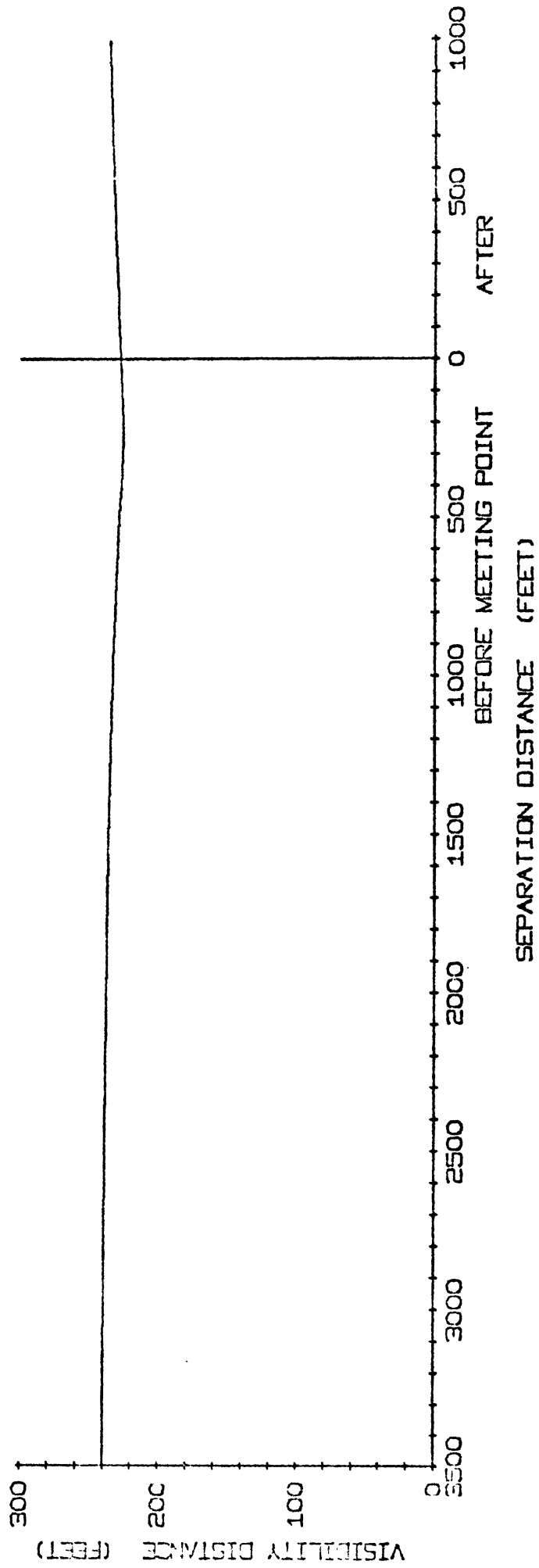


Figure C.23. Mid beam (system E) minimum, right target.

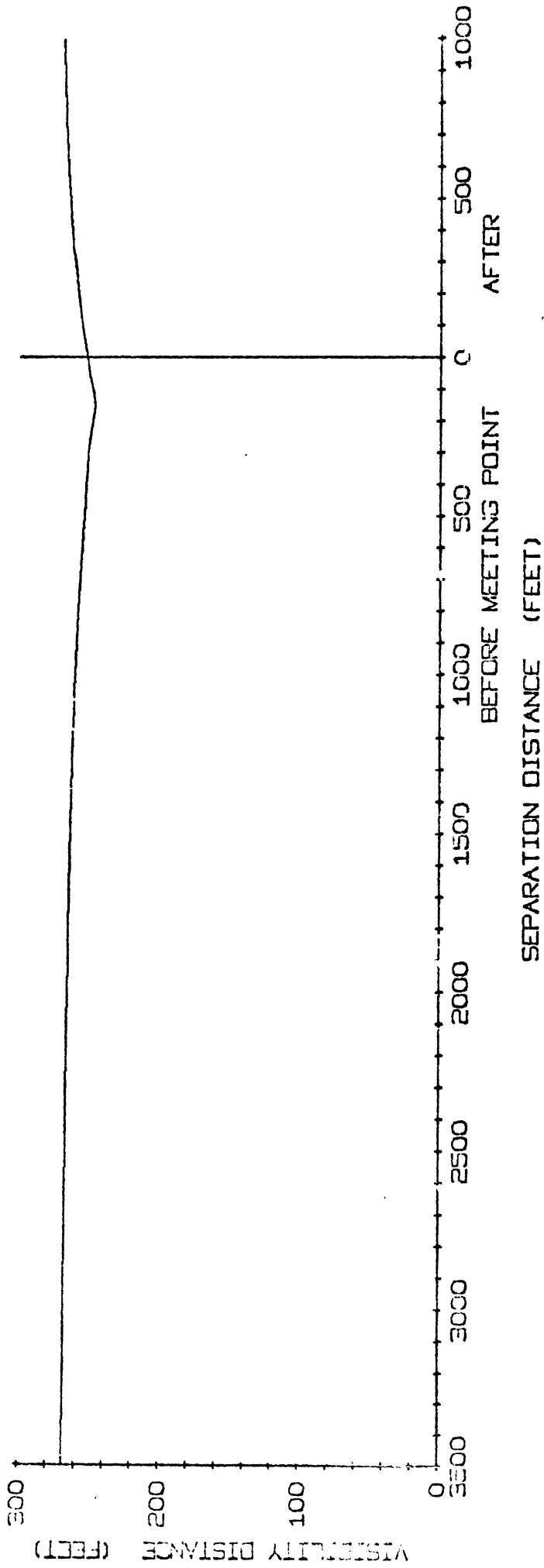


Figure C.24. Mid beam (system E) maximum, right target.

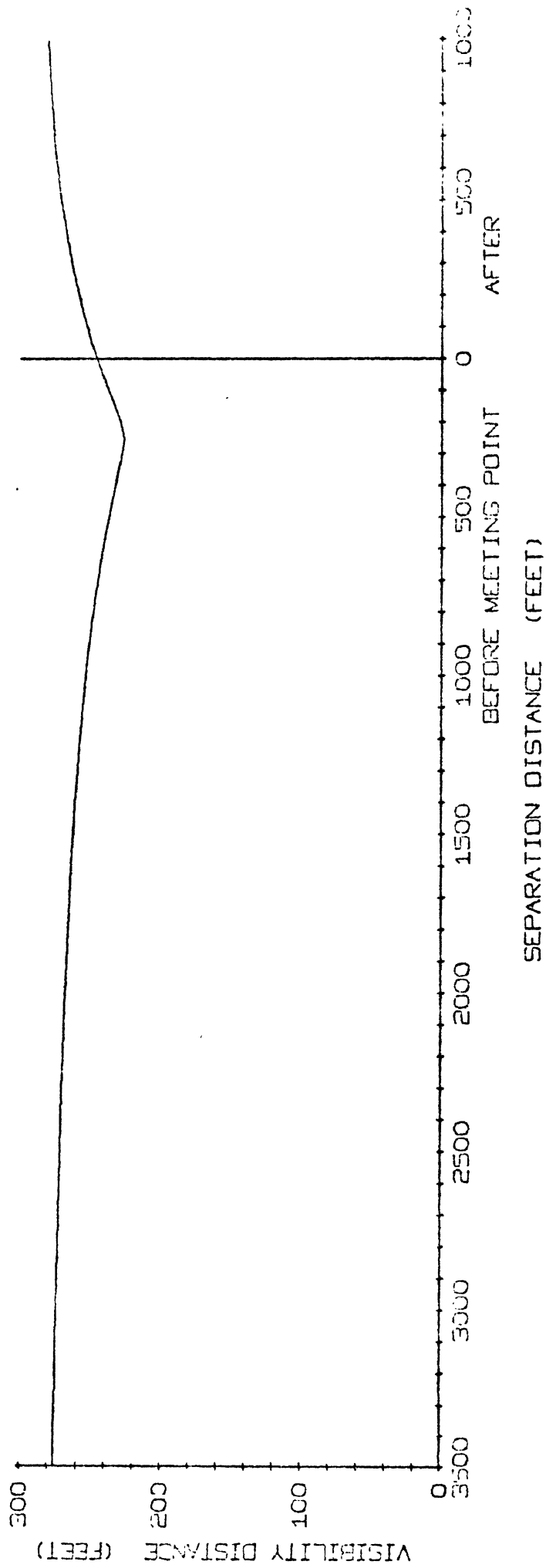


Figure C.25. High beam (system E) minimum, right target.

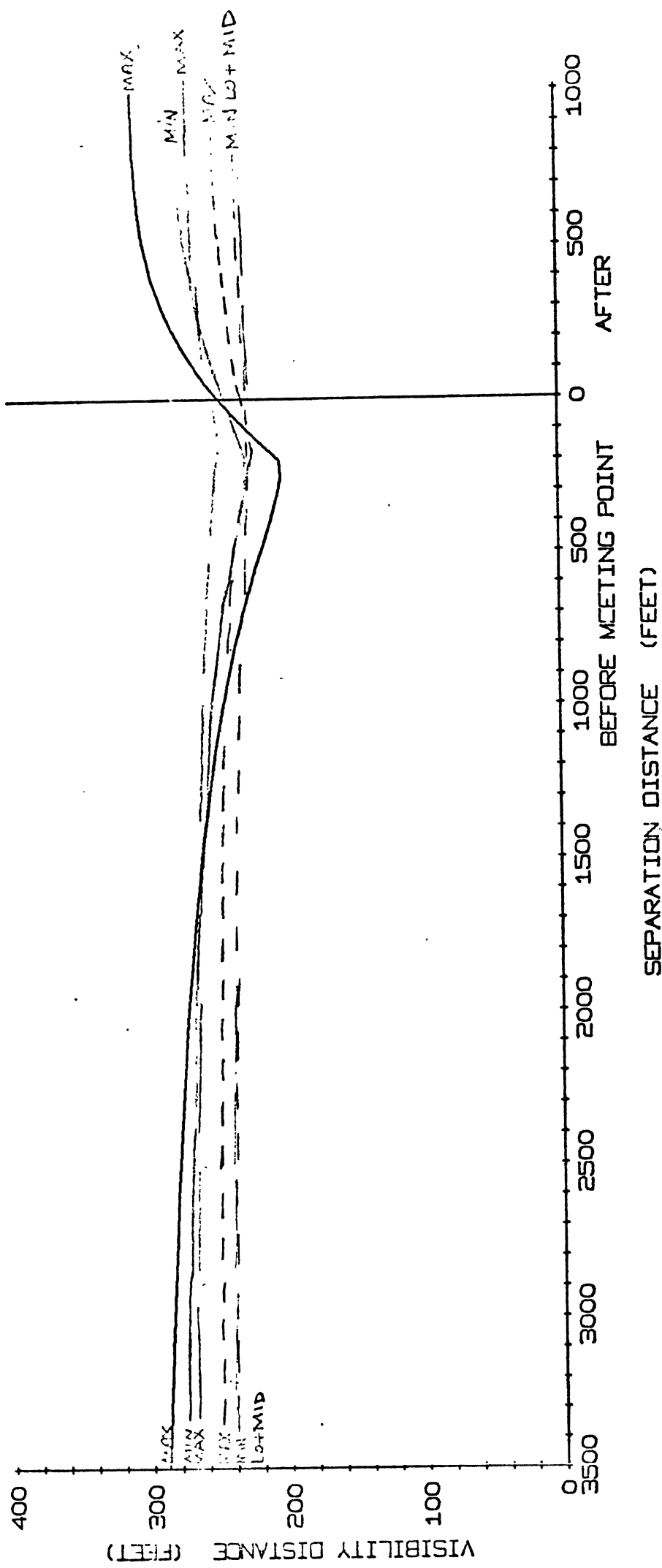


Figure C.26. High beam (system E) maximum, right target.

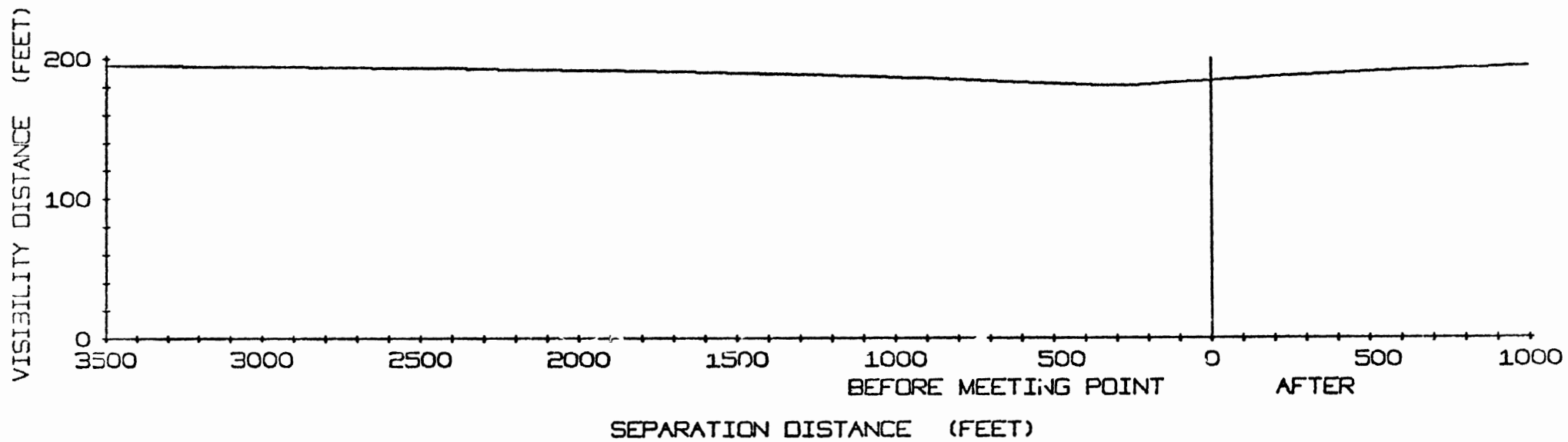


Figure C.27. Low beam (system E) minimum, center target.

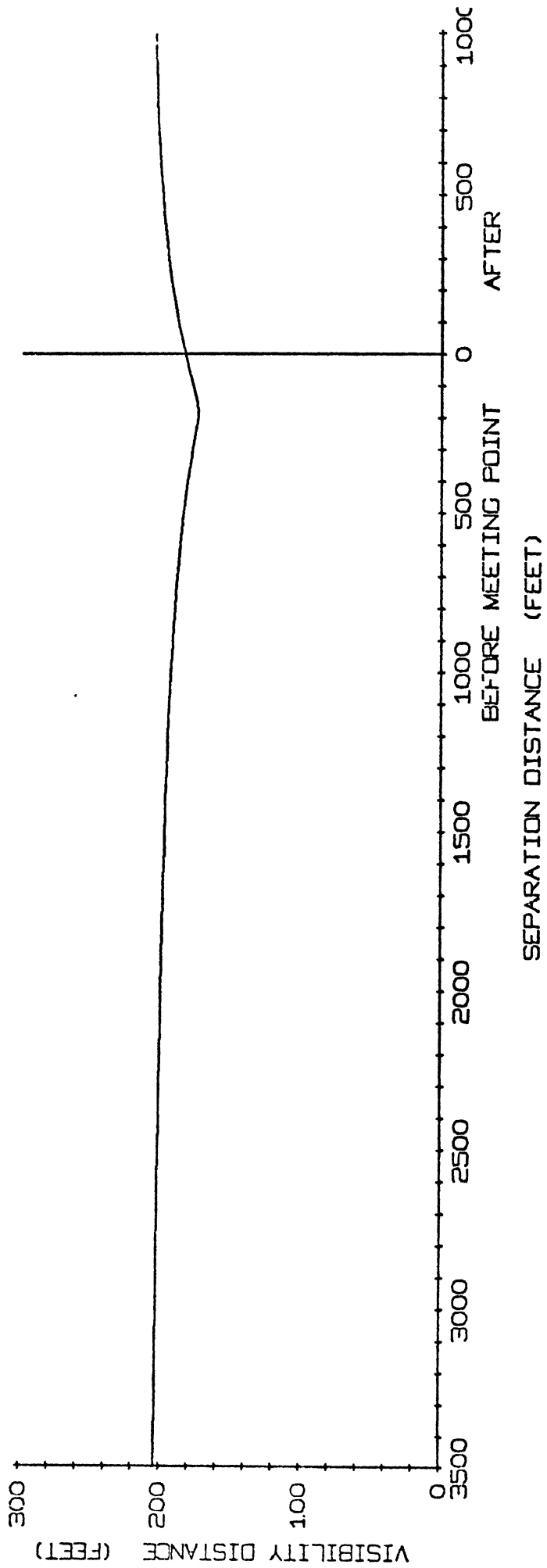


Figure C.28. Low beam (system E) maximum, center target.

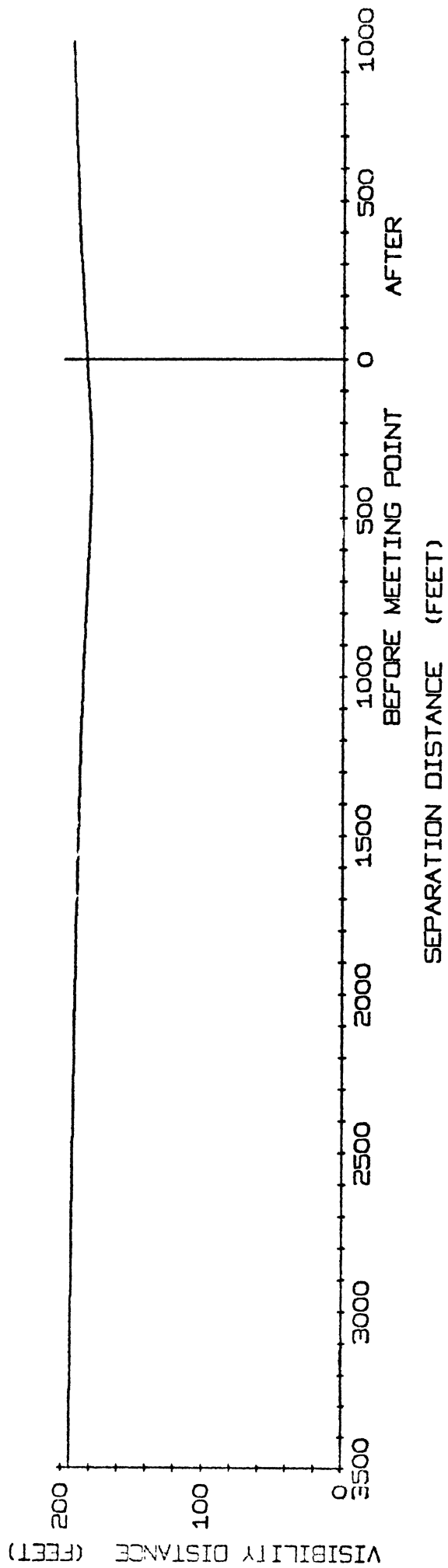


Figure C.29. Mid beam (system E) minimum, center target.

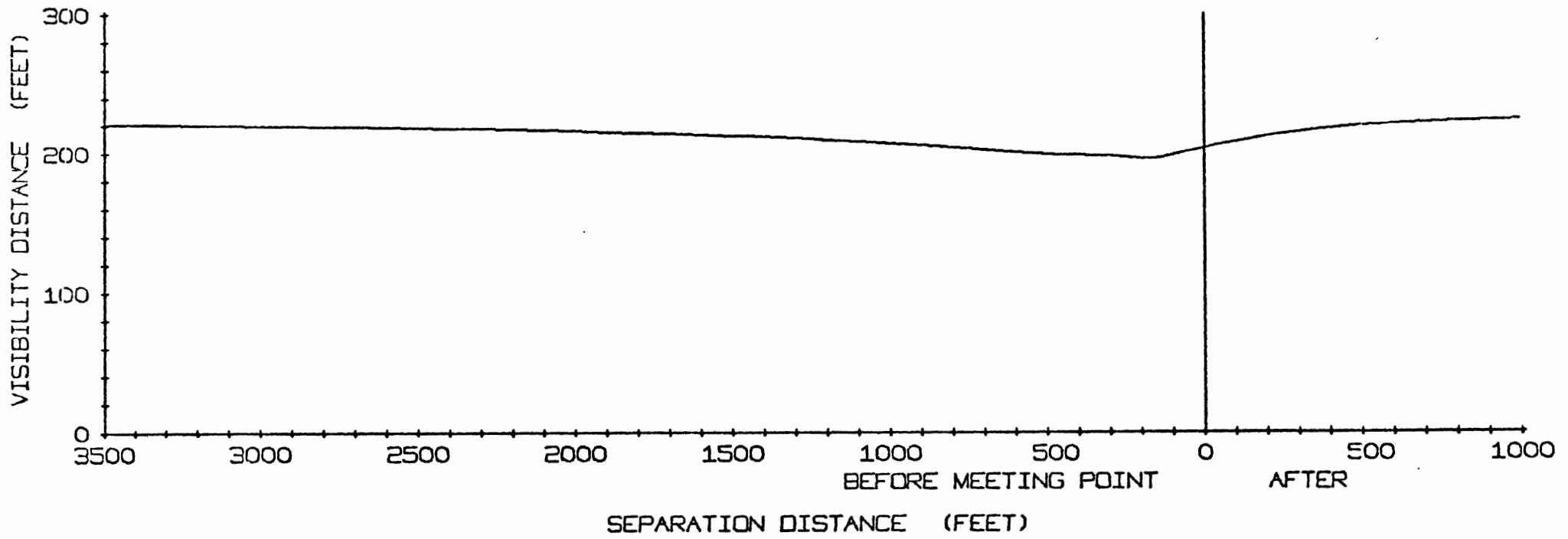


Figure C.30. Mid beam (system E) maximum, center target.



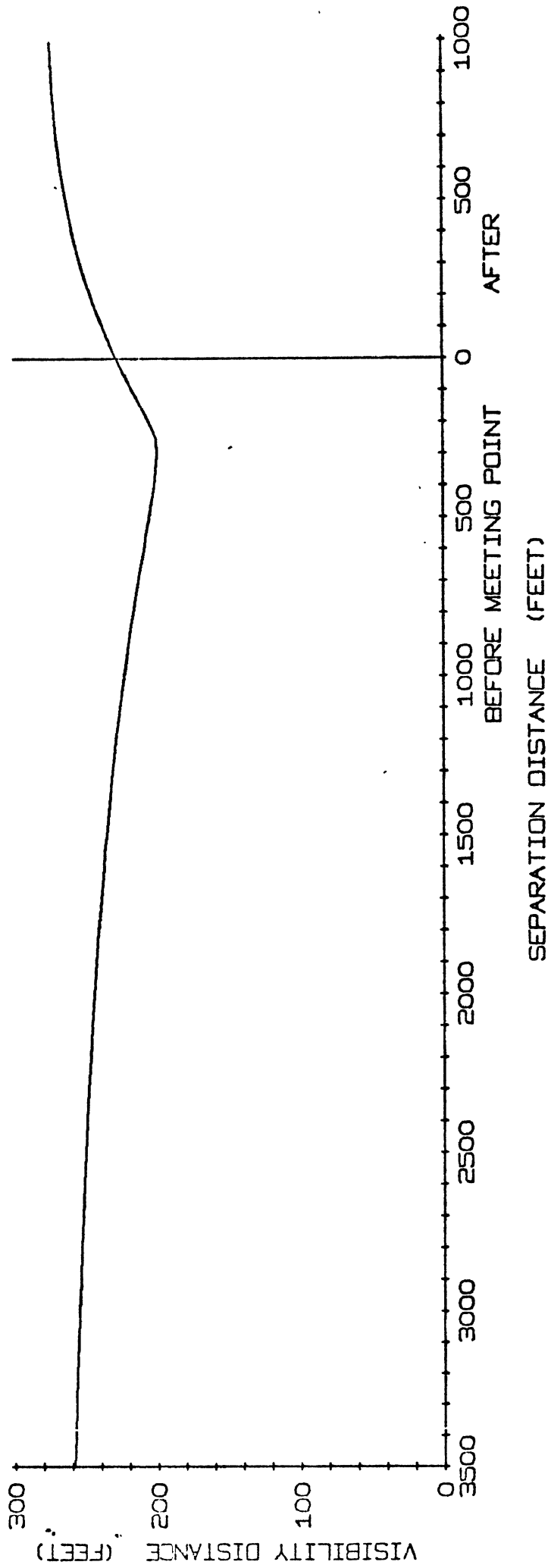


Figure C.31. High beam (system E) minimum, center target.

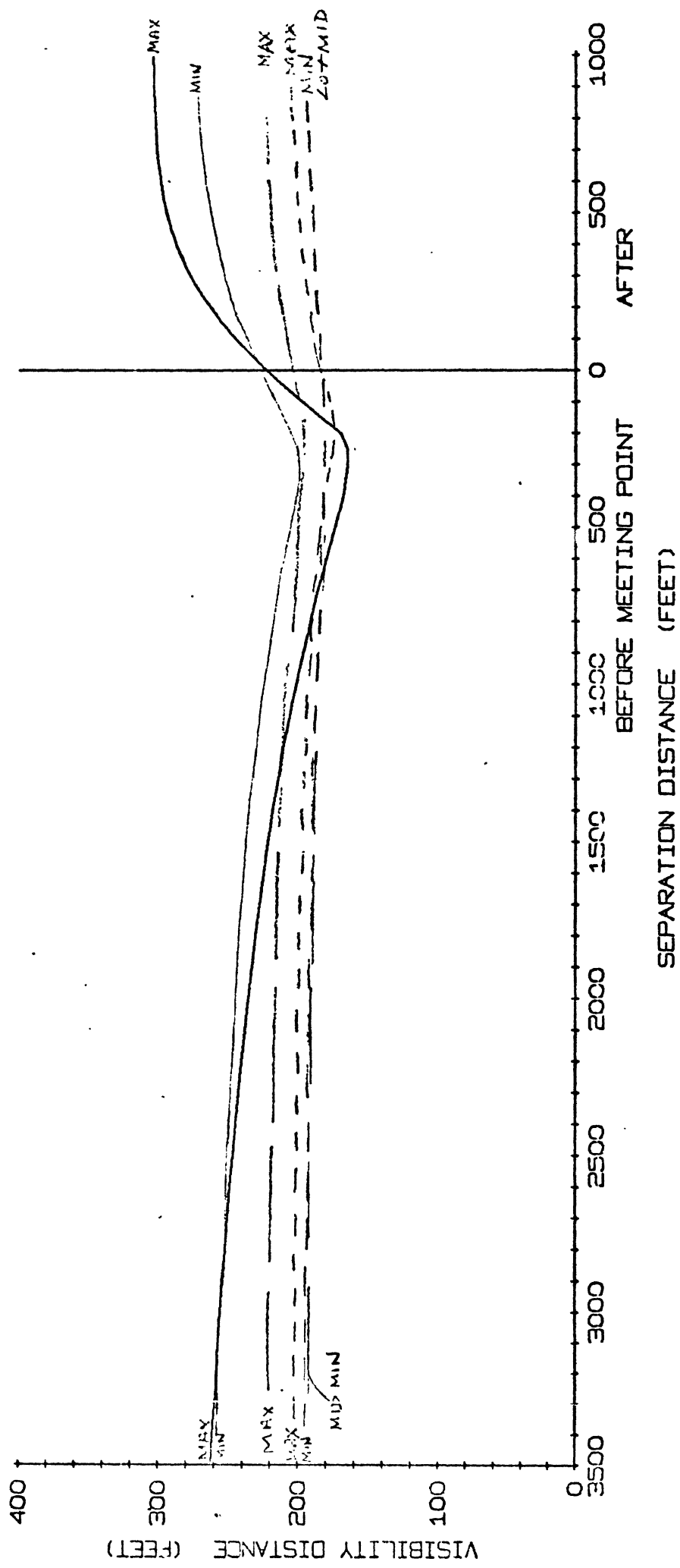


Figure C.32. High beam (system E) maximum, center target.