



8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

Report No: L041706612



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Issue Date: 5/2/2017

Report Prepared For: Leotek Electronics USA, LLC
1955 Lundy Ave, San Jose, 95131

Model Number: ES2-88H-MV-CW-FT-DB-450

Test: Electrical and Photometric tests

Standards Used: Appropriate part or all test guidelines were used for test performed:
IESNA LM79: 2008 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products
ANSI C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 4/18/17

Date of Tests: 4/28/17 - 5/1/17

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	11/28/17
ITECH	IT6122	PS-DC03-S1	11/28/17
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/28/17
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

Test Summary

Manufacturer:	Leotek Electronics USA, LLC	
Model Number:	ES2-88H-MV-CW-FT-DB-450	
Driver Model Number:	INVENTRONICS EUD-200S490DT	
Total Lumens:	13943.20	
Input Voltage (VAC/60Hz):	120.00	
Input Current (Amp):	1.07	
Input Power (W):	127.78	
Input Power Factor:	1.00	
Current ATHD @ 120V(%):	5%	
Current ATHD @ 277V(%):	18% (0.51A, 125.77W, 0.89PF)	
Efficacy:	109	
Color Rendering Index (CRI):	75	
Correlated Color Temperature (K):	4849	
Chromaticity Coordinate x:	0.3507	
Chromaticity Coordinate y:	0.3653	
Ambient Temperature (°C):	25.0	
Stabilization Time (Hours):	0:30	
Total Operating Time (Hours):	3:40	

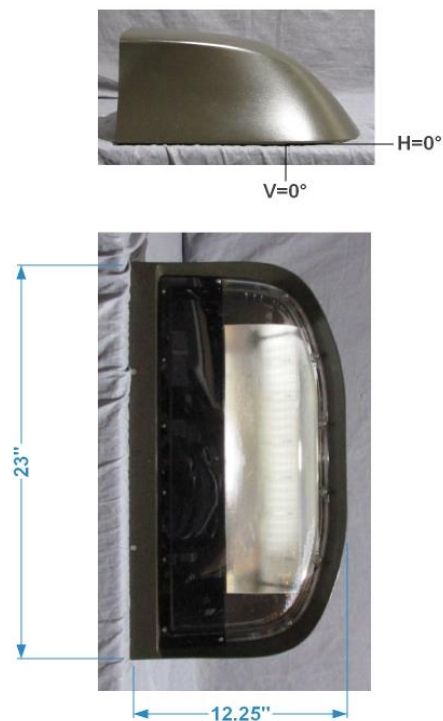
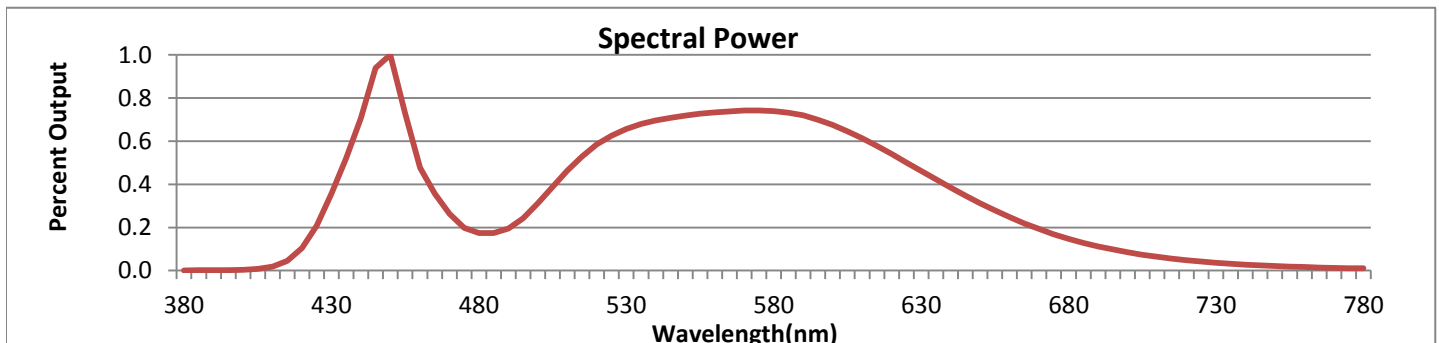


FIG. 1 LUMINAIRE



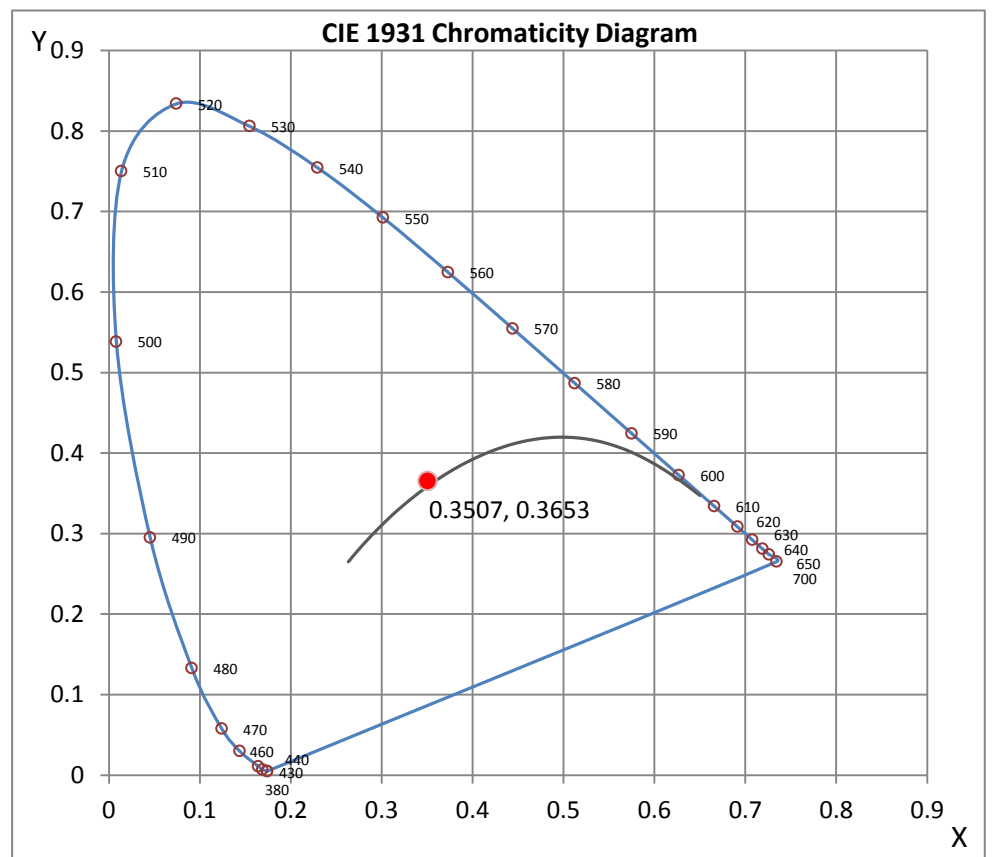
Wavelength	W/m ² nm	440	0.7064	510	0.4637	580	0.7402	650	0.3125	720	0.0483
380	0.0010	450	1.0000	520	0.5844	590	0.7197	660	0.2482	730	0.0365
390	0.0016	460	0.4774	530	0.6565	600	0.6755	670	0.1928	740	0.0275
400	0.0038	470	0.2631	540	0.6967	610	0.6140	680	0.1479	750	0.0211
410	0.0184	480	0.1742	550	0.7191	620	0.5406	690	0.1120	760	0.0162
420	0.1037	490	0.1955	560	0.7335	630	0.4614	700	0.0847	770	0.0124
430	0.3564	500	0.3114	570	0.7418	640	0.3843	710	0.0640	780	0.0109

CRI & CCT

x	0.3507
y	0.3653
u'	0.2099
v'	0.4920
CRI	74.70
CCT	4849
Duv	0.00457

R Values

R1	72.03
R2	78.81
R3	84.03
R4	75.42
R5	72.09
R6	70.71
R7	83.78
R8	60.59
R9	-17.38
R10	49.59
R11	72.34
R12	46.27
R13	72.86
R14	90.59



Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Jeff Ahn

Test Report Released by:



Jeff Ahn
Engineering Manager

Test Report Reviewed by:



Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 24*



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Photometric Test Report

IES ROAD REPORT

PHOTOMETRIC FILENAME : L041706612.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L041706612
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 5/2/2017
[MANUFAC] Leotek Electronics USA, LLC
[LUMCAT] ES2-88H-MV-CW-FT-DB-450
[LUMINAIRE] outdoor wall lighting product
[BALLASTCAT] INVENTRONICS EUD-200S490DT
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 127.78W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

IES Classification	Type III
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	13943
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	109
Total Luminaire Watts	127.78
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Maximum Candela	9492
Maximum Candela Angle	25H 58V
Maximum Candela (<90 Degrees Vertical)	9492
Maximum Candela Angle (<90 Degrees Vertical)	25H 58V
Maximum Candela At 90 Degrees Vertical	0 (0.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	1795 (12.9% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

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LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	688.7	N.A.	4.9
FM - Front-Medium (30-60)	4046.5	N.A.	29.0
FH - Front-High (60-80)	3496.1	N.A.	25.1
FVH - Front-Very High (80-90)	196.4	N.A.	1.4
BL - Back-Low (0-30)	1446.4	N.A.	10.4
BM - Back-Medium (30-60)	3499.9	N.A.	25.1
BH - Back-High (60-80)	551.5	N.A.	4.0
BVH - Back-Very High (80-90)	17.7	N.A.	0.1
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
Total	13943.2	N.A.	100.0
BUG Rating	B3-U0-G2		

ZONAL LUMEN SUMMARY

Zone	%
0-20	6.8
0-30	15.3
0-40	28.2
0-60	69.4
0-80	98.5
0-90	100
10-90	98.3
20-40	21.4
20-50	39.4
40-70	61.1
60-80	29
70-80	9.2
80-90	1.5
90-110	0
90-120	0
90-130	0
90-150	0
90-180	0
110-180	0
0-180	100

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CANDELA TABULATION

Vert. Angles	Horizontal Angles									
	0	5	10	15	20	25	30	35	40	45
0.0	2536	2536	2536	2536	2536	2536	2536	2536	2536	2536
0.5	2403	2410	2418	2423	2424	2427	2432	2440	2444	2448
1.0	2349	2358	2369	2377	2383	2399	2413	2425	2428	2430
1.5	2293	2297	2305	2309	2316	2317	2360	2374	2391	2414
2.0	2230	2239	2254	2259	2265	2278	2294	2319	2349	2370
2.5	2219	2226	2239	2242	2246	2251	2255	2265	2288	2314
3.0	2213	2213	2221	2225	2231	2235	2242	2235	2253	2260
3.5	2199	2199	2205	2212	2218	2221	2220	2225	2236	2243
4.0	2218	2213	2220	2214	2209	2204	2211	2218	2217	2232
4.5	2195	2193	2204	2213	2217	2216	2208	2205	2210	2209
5.0	2151	2150	2162	2177	2189	2197	2211	2213	2200	2200
5.5	2102	2098	2112	2122	2138	2158	2178	2204	2209	2191
6.0	2085	2084	2086	2088	2096	2112	2134	2163	2186	2194
6.5	2032	2026	2037	2053	2074	2085	2097	2125	2154	2185
7.0	1951	1949	1962	1988	2026	2062	2080	2093	2129	2157
7.5	1934	1933	1938	1943	1958	1990	2035	2070	2094	2133
8.0	1921	1921	1927	1933	1934	1937	1973	2014	2067	2086
8.5	1863	1870	1882	1896	1912	1919	1918	1962	2020	2065
9.0	1808	1813	1821	1829	1846	1886	1910	1916	1977	2045
9.5	1757	1760	1767	1783	1805	1826	1877	1908	1935	2008
10.0	1738	1744	1749	1754	1762	1796	1821	1879	1908	1947
10.5	1702	1702	1706	1713	1731	1752	1797	1849	1902	1928
11.0	1676	1673	1687	1691	1699	1718	1741	1788	1854	1906
11.5	1653	1659	1667	1668	1672	1693	1715	1746	1805	1876
12.0	1624	1628	1632	1648	1650	1676	1696	1723	1763	1843
12.5	1594	1597	1605	1614	1624	1644	1680	1714	1753	1821
13.0	1565	1575	1578	1585	1593	1619	1649	1691	1735	1801
13.5	1530	1536	1544	1555	1566	1592	1628	1667	1709	1762
14.0	1495	1501	1510	1520	1538	1567	1602	1646	1689	1737
14.5	1471	1475	1479	1486	1498	1535	1575	1621	1669	1727
15.0	1447	1451	1453	1455	1467	1495	1544	1584	1642	1687
15.5	1421	1429	1430	1428	1434	1469	1511	1564	1618	1675
16.0	1400	1404	1400	1399	1410	1437	1488	1548	1604	1671
16.5	1386	1389	1383	1378	1375	1404	1459	1517	1576	1642
17.0	1379	1381	1374	1365	1357	1381	1425	1481	1545	1604
17.5	1384	1384	1365	1351	1343	1355	1392	1444	1509	1588
18.0	1379	1373	1363	1348	1330	1336	1366	1417	1483	1566
18.5	1373	1365	1360	1338	1320	1320	1346	1396	1452	1541
19.0	1365	1362	1354	1333	1312	1309	1325	1361	1426	1516
19.5	1341	1338	1334	1322	1305	1302	1312	1343	1409	1501
20.0	1325	1323	1318	1302	1294	1288	1302	1332	1379	1465
20.5	1325	1322	1308	1285	1276	1282	1288	1309	1351	1451
21.0	1320	1316	1303	1277	1262	1277	1280	1288	1338	1414
21.5	1312	1307	1293	1271	1251	1247	1270	1279	1332	1414
22.0	1305	1301	1285	1262	1246	1236	1255	1266	1317	1386
22.5	1297	1294	1278	1252	1238	1226	1231	1268	1304	1371
23.0	1285	1284	1267	1245	1230	1218	1216	1259	1296	1370
23.5	1282	1277	1257	1236	1221	1211	1209	1237	1286	1355
24.0	1280	1275	1252	1225	1213	1202	1205	1219	1274	1342
24.5	1276	1270	1250	1224	1204	1196	1201	1211	1272	1334
25.0	1278	1273	1253	1224	1204	1192	1196	1213	1262	1322
25.5	1278	1274	1256	1225	1205	1186	1193	1208	1245	1313
26.0	1280	1271	1257	1230	1207	1191	1187	1206	1242	1305

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CANDELA TABULATION - (Cont.)

26.5	1276	1268	1258	1239	1216	1196	1186	1200	1235	1288
27.0	1278	1269	1260	1241	1224	1202	1190	1196	1229	1270
27.5	1276	1274	1266	1245	1232	1210	1198	1197	1230	1260
28.0	1289	1282	1274	1257	1239	1221	1205	1199	1217	1248
28.5	1297	1290	1287	1275	1250	1226	1211	1200	1213	1244
29.0	1312	1306	1301	1292	1269	1237	1222	1207	1208	1237
29.5	1324	1316	1316	1310	1289	1250	1225	1211	1205	1225
30.0	1343	1337	1336	1325	1302	1268	1230	1214	1207	1214
30.5	1367	1363	1365	1355	1326	1286	1240	1220	1206	1206
31.0	1404	1403	1403	1391	1347	1300	1251	1217	1205	1199
31.5	1447	1459	1445	1433	1388	1327	1262	1215	1201	1197
32.0	1543	1506	1510	1476	1431	1356	1276	1220	1202	1194
32.5	1619	1625	1583	1555	1466	1382	1292	1225	1195	1193
33.0	1708	1715	1685	1638	1535	1427	1313	1226	1187	1195
33.5	1805	1838	1786	1757	1596	1477	1342	1235	1185	1187
34.0	1882	1935	1913	1873	1704	1535	1368	1244	1178	1183
34.5	1984	2037	2003	2008	1828	1608	1405	1252	1178	1178
35.0	2089	2122	2092	2103	1968	1691	1452	1283	1181	1167
35.5	2188	2209	2183	2166	2058	1782	1524	1310	1188	1158
36.0	2299	2310	2291	2246	2146	1931	1600	1334	1192	1157
36.5	2413	2424	2396	2352	2215	2007	1677	1393	1218	1159
37.0	2512	2515	2482	2438	2300	2054	1807	1472	1248	1153
37.5	2660	2662	2620	2545	2396	2155	1893	1522	1267	1159
38.0	2904	2880	2806	2698	2500	2226	1963	1591	1324	1173
38.5	3047	3012	2947	2813	2608	2364	2062	1710	1369	1190
39.0	3209	3190	3126	2957	2730	2441	2119	1842	1471	1220
39.5	3396	3383	3309	3138	2886	2566	2218	1941	1532	1254
40.0	3588	3579	3499	3332	3056	2711	2327	2017	1592	1275
40.5	3803	3797	3704	3517	3235	2874	2446	2116	1743	1345
41.0	4035	4019	3914	3716	3417	3047	2596	2182	1844	1426
41.5	4296	4255	4144	3935	3613	3227	2748	2287	1914	1460
42.0	4512	4477	4378	4158	3826	3416	2917	2460	2059	1580
42.5	4711	4682	4583	4381	4051	3626	3118	2586	2144	1678
43.0	4970	4941	4831	4616	4293	3842	3290	2740	2238	1728
43.5	5311	5285	5143	4904	4492	3915	3522	2929	2383	1846
44.0	5629	5584	5428	5125	4769	4084	3748	3103	2516	1942
44.5	5925	5869	5705	5398	5023	4495	3849	3277	2628	2060
45.0	6345	6282	6058	5701	5305	4792	4008	3545	2834	2151
45.5	6814	6747	6508	6114	5619	5056	4152	3758	2944	2254
46.0	7161	7100	6883	6462	5966	5341	4488	3904	3158	2396
46.5	7498	7470	7269	6898	6376	5707	4973	4001	3354	2494
47.0	7635	7618	7515	7290	6842	6083	5308	4196	3473	2605
47.5	7730	7708	7620	7487	7172	6500	5684	4286	3789	2850
48.0	7915	7879	7757	7626	7414	6865	6037	4844	3986	2973
48.5	8160	8118	7941	7766	7597	7172	6367	5338	4064	3168
49.0	8389	8365	8185	7958	7763	7457	6805	5751	4210	3353
49.5	8475	8472	8377	8189	7957	7660	7118	6092	4290	3551
50.0	8499	8500	8456	8340	8153	7858	7319	6345	4494	3684
50.5	8572	8552	8501	8422	8337	8058	7576	6643	4987	3883
51.0	8697	8660	8573	8493	8464	8262	7773	6907	5641	4035
51.5	8808	8785	8688	8566	8537	8407	7937	7169	6001	4156
52.0	8901	8904	8824	8694	8621	8516	8099	7445	6256	4342
52.5	8974	8968	8924	8815	8733	8627	8267	7595	6584	4487
53.0	8996	9018	8980	8912	8838	8695	8342	7691	6700	4598
53.5	9048	9055	9009	8981	8974	8812	8492	7902	6992	5212
54.0	9122	9118	9057	9022	9059	8939	8582	8010	7065	5726

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CANDELA TABULATION - (Cont.)

54.5	9240	9227	9150	9086	9115	9057	8667	8045	7201	5805
55.0	9320	9313	9251	9174	9169	9144	8814	8169	7327	6108
55.5	9364	9348	9313	9272	9245	9213	8880	8281	7451	6171
56.0	9379	9374	9356	9346	9325	9250	8921	8367	7460	6275
56.5	9368	9376	9373	9385	9415	9333	9012	8456	7633	6471
57.0	9337	9346	9370	9391	9451	9380	9039	8522	7722	6469
57.5	9282	9287	9325	9386	9450	9461	9127	8587	7760	6574
58.0	9217	9225	9254	9338	9443	9492	9134	8571	7807	6634
58.5	9151	9157	9191	9287	9422	9480	9197	8600	7761	6580
59.0	9088	9097	9116	9225	9383	9456	9166	8626	7860	6731
59.5	9021	9020	9051	9144	9308	9445	9193	8681	7941	6756
60.0	8932	8940	8971	9054	9274	9392	9146	8636	7870	6772
60.5	8863	8873	8898	9008	9174	9335	9114	8618	7946	6781
61.0	8730	8751	8793	8884	9073	9267	9112	8591	7863	6762
61.5	8549	8578	8645	8767	8985	9201	9070	8604	7754	6646
62.0	8328	8357	8462	8631	8867	9116	8995	8526	7790	6699
62.5	8025	8064	8228	8446	8734	8975	8909	8522	7802	6657
63.0	7736	7767	7905	8174	8605	8849	8763	8434	7664	6618
63.5	7437	7478	7619	7901	8348	8696	8620	8355	7679	6570
64.0	7189	7210	7347	7613	8048	8491	8519	8254	7546	6501
64.5	6871	6921	7055	7335	7811	8262	8389	8116	7464	6391
65.0	6564	6592	6740	7022	7507	8002	8211	7998	7387	6314
65.5	6344	6368	6487	6753	7229	7734	7969	7842	7327	6329
66.0	6083	6116	6235	6512	6971	7506	7759	7669	7161	6160
66.5	5824	5850	5975	6238	6699	7205	7480	7522	7061	6112
67.0	5586	5614	5739	5994	6437	6937	7235	7276	6906	5919
67.5	5361	5393	5507	5752	6175	6663	6952	7062	6665	5882
68.0	5159	5185	5282	5503	5894	6404	6685	6816	6499	5762
68.5	4955	4978	5076	5310	5698	6161	6445	6563	6285	5623
69.0	4774	4791	4871	5094	5480	5918	6183	6304	6053	5472
69.5	4612	4627	4701	4889	5264	5645	5886	6030	5830	5284
70.0	4454	4455	4532	4708	5061	5418	5656	5767	5574	5026
70.5	4273	4276	4342	4508	4850	5200	5410	5524	5349	4881
71.0	4091	4103	4156	4300	4651	4990	5184	5285	5113	4672
71.5	3957	3964	4005	4144	4453	4796	4960	5019	4866	4461
72.0	3818	3820	3862	3978	4262	4587	4735	4767	4615	4039
72.5	3655	3658	3701	3809	4060	4367	4512	4540	4388	3893
73.0	3510	3513	3549	3664	3910	4167	4286	4292	4072	3800
73.5	3340	3341	3380	3504	3746	3984	4087	4091	3810	3637
74.0	3178	3183	3225	3335	3586	3806	3888	3817	3712	3474
74.5	3048	3051	3090	3175	3395	3617	3685	3643	3473	3249
75.0	2884	2884	2916	3012	3239	3446	3504	3438	3263	3044
75.5	2725	2724	2756	2850	3082	3280	3312	3238	3056	2872
76.0	2573	2569	2597	2681	2900	3102	3129	3035	2853	2683
76.5	2412	2406	2432	2512	2709	2917	2955	2851	2668	2494
77.0	2254	2251	2275	2358	2559	2745	2779	2672	2493	2320
77.5	2091	2091	2114	2190	2386	2575	2606	2496	2307	2149
78.0	1923	1927	1950	2031	2213	2400	2442	2331	2144	1985
78.5	1775	1779	1803	1880	2066	2236	2274	2167	1966	1828
79.0	1647	1648	1669	1730	1916	2066	2103	1996	1816	1675
79.5	1504	1510	1532	1589	1743	1906	1950	1865	1672	1538
80.0	1375	1375	1399	1464	1616	1752	1795	1708	1524	1408
80.5	1248	1249	1273	1328	1493	1612	1641	1558	1396	1274
81.0	1129	1128	1151	1203	1334	1460	1496	1427	1265	1149
81.5	1014	1016	1038	1090	1217	1323	1356	1287	1141	1031
82.0	909	908	929	973	1104	1194	1217	1152	1018	914

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82.5	797	800	818	859	964	1066	1095	1042	899	801
83.0	698	700	720	760	867	948	969	907	800	708
83.5	612	613	626	655	745	825	845	794	690	608
84.0	526	526	539	570	648	713	733	677	578	505
84.5	444	445	455	481	549	607	618	568	486	421
85.0	369	370	376	396	450	502	509	465	393	339
85.5	298	297	303	320	365	402	407	369	310	263
86.0	231	231	235	247	283	311	311	281	233	195
86.5	172	172	174	182	205	227	227	203	166	136
87.0	119	118	120	125	141	153	153	137	111	87
87.5	73	73	74	76	84	91	90	79	62	49
88.0	36	36	36	36	39	41	39	32	25	19
88.5	10	10	9	9	10	11	10	8	7	5
89.0	2	2	2	2	2	2	3	3	3	3
89.5	1	2	2	2	2	2	2	3	3	3
90.0	0	0	0	0	0	0	0	0	0	0

Vert. Angles	Horizontal Angles									
	<u>50</u>	<u>55</u>	<u>60</u>	<u>65</u>	<u>70</u>	<u>75</u>	<u>80</u>	<u>85</u>	<u>90</u>	<u>95</u>
0.0	2536	2536	2536	2536	2536	2536	2536	2536	2536	2536
0.5	2452	2462	2471	2483	2505	2515	2524	2531	2529	2526
1.0	2448	2451	2456	2467	2487	2509	2525	2531	2526	2521
1.5	2430	2442	2446	2451	2468	2492	2515	2523	2518	2517
2.0	2395	2420	2437	2441	2448	2474	2504	2516	2511	2517
2.5	2340	2371	2409	2427	2432	2455	2488	2508	2508	2523
3.0	2281	2319	2361	2404	2422	2433	2473	2501	2500	2524
3.5	2255	2268	2314	2369	2408	2418	2457	2492	2496	2515
4.0	2240	2254	2297	2345	2392	2404	2418	2473	2483	2503
4.5	2223	2231	2257	2309	2367	2392	2405	2463	2466	2495
5.0	2201	2219	2228	2275	2339	2381	2390	2453	2458	2508
5.5	2192	2196	2212	2247	2316	2373	2384	2445	2454	2512
6.0	2179	2184	2198	2219	2294	2364	2378	2442	2449	2528
6.5	2177	2179	2183	2201	2256	2334	2366	2402	2446	2504
7.0	2181	2165	2167	2192	2214	2300	2355	2382	2439	2479
7.5	2163	2158	2158	2176	2195	2272	2340	2373	2430	2502
8.0	2122	2150	2141	2158	2183	2262	2341	2383	2420	2515
8.5	2097	2138	2141	2142	2169	2233	2323	2384	2409	2512
9.0	2066	2118	2144	2139	2153	2212	2311	2349	2398	2505
9.5	2046	2091	2137	2119	2138	2194	2295	2325	2386	2491
10.0	2023	2050	2111	2113	2124	2171	2280	2318	2375	2485
10.5	2005	2034	2100	2112	2113	2152	2244	2307	2368	2471
11.0	1967	2026	2080	2104	2109	2149	2244	2297	2360	2463
11.5	1906	1992	2032	2101	2102	2139	2233	2288	2351	2448
12.0	1896	1959	2024	2089	2092	2123	2217	2282	2339	2426
12.5	1893	1926	2014	2064	2088	2095	2163	2270	2331	2411
13.0	1879	1907	2010	2056	2078	2084	2136	2249	2317	2417
13.5	1845	1896	1985	2033	2076	2073	2133	2234	2292	2391
14.0	1808	1887	1952	2017	2072	2059	2112	2215	2282	2374
14.5	1784	1873	1918	2003	2057	2051	2087	2201	2272	2356
15.0	1747	1828	1880	1990	2042	2035	2075	2181	2245	2326
15.5	1742	1816	1879	1973	2024	2023	2052	2164	2225	2301
16.0	1726	1793	1873	1950	2011	2011	2034	2148	2218	2300
16.5	1704	1765	1853	1923	1992	1998	2020	2131	2201	2276
17.0	1685	1741	1836	1886	1972	1989	2015	2125	2188	2249
17.5	1663	1729	1810	1865	1956	1980	1996	2105	2165	2231

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18.0	1643	1716	1779	1863	1947	1973	1984	2089	2140	2210
18.5	1630	1703	1765	1851	1935	1965	1962	2069	2124	2189
19.0	1604	1680	1745	1838	1920	1955	1956	2044	2104	2170
19.5	1592	1671	1740	1827	1899	1945	1939	2024	2082	2154
20.0	1576	1654	1729	1815	1873	1939	1917	2005	2068	2132
20.5	1551	1646	1722	1807	1863	1935	1913	1986	2059	2112
21.0	1517	1617	1703	1786	1843	1924	1899	1980	2043	2114
21.5	1504	1602	1694	1752	1823	1901	1887	1952	2024	2094
22.0	1480	1586	1678	1743	1820	1895	1869	1920	1997	2061
22.5	1468	1580	1671	1734	1810	1882	1868	1919	1990	2060
23.0	1447	1562	1663	1731	1803	1872	1855	1890	1968	2032
23.5	1425	1533	1645	1728	1800	1868	1848	1870	1951	2013
24.0	1414	1521	1640	1726	1790	1860	1839	1874	1943	2018
24.5	1402	1504	1627	1723	1784	1849	1837	1849	1922	1990
25.0	1392	1486	1622	1718	1775	1843	1828	1828	1899	1984
25.5	1390	1483	1614	1712	1756	1826	1828	1819	1891	1966
26.0	1377	1473	1601	1704	1744	1813	1831	1799	1866	1944
26.5	1358	1454	1588	1703	1747	1817	1817	1789	1853	1944
27.0	1355	1455	1581	1700	1748	1807	1814	1788	1844	1922
27.5	1344	1450	1566	1699	1754	1805	1812	1767	1816	1898
28.0	1331	1444	1565	1702	1763	1801	1810	1762	1812	1910
28.5	1326	1436	1549	1684	1770	1802	1810	1743	1795	1883
29.0	1320	1433	1546	1680	1776	1802	1803	1729	1769	1862
29.5	1294	1420	1551	1685	1780	1800	1796	1715	1759	1855
30.0	1285	1395	1527	1668	1766	1787	1786	1701	1750	1835
30.5	1274	1384	1521	1659	1763	1788	1782	1691	1725	1819
31.0	1265	1382	1523	1660	1763	1775	1772	1675	1710	1804
31.5	1261	1369	1514	1649	1756	1769	1765	1661	1696	1784
32.0	1244	1352	1502	1639	1754	1761	1749	1640	1673	1778
32.5	1235	1336	1485	1623	1743	1748	1735	1624	1663	1758
33.0	1221	1316	1464	1609	1737	1744	1724	1612	1633	1743
33.5	1203	1296	1449	1597	1726	1731	1699	1587	1631	1733
34.0	1197	1285	1436	1585	1703	1718	1678	1567	1612	1715
34.5	1192	1265	1412	1568	1685	1714	1665	1557	1568	1702
35.0	1186	1245	1392	1554	1657	1687	1636	1529	1568	1689
35.5	1174	1223	1368	1535	1634	1662	1609	1508	1558	1683
36.0	1168	1207	1346	1518	1607	1632	1584	1497	1524	1663
36.5	1154	1187	1316	1490	1575	1599	1550	1468	1510	1665
37.0	1143	1174	1285	1446	1534	1564	1514	1447	1487	1643
37.5	1130	1158	1257	1416	1505	1513	1472	1432	1485	1635
38.0	1122	1141	1245	1397	1465	1475	1440	1411	1465	1641
38.5	1123	1126	1209	1361	1430	1435	1404	1388	1442	1623
39.0	1115	1113	1178	1321	1384	1387	1365	1369	1447	1618
39.5	1113	1096	1159	1291	1343	1345	1329	1345	1437	1634
40.0	1111	1086	1130	1252	1305	1302	1293	1323	1410	1593
40.5	1120	1082	1106	1213	1264	1262	1263	1307	1420	1604
41.0	1163	1066	1086	1173	1225	1223	1230	1288	1396	1615
41.5	1168	1053	1057	1134	1193	1186	1203	1265	1385	1591
42.0	1193	1052	1033	1096	1156	1150	1182	1262	1398	1615
42.5	1258	1064	1017	1065	1123	1122	1156	1243	1378	1624
43.0	1290	1068	998	1038	1086	1093	1132	1222	1368	1600
43.5	1382	1084	984	1003	1051	1065	1112	1217	1379	1622
44.0	1444	1107	970	977	1019	1038	1094	1205	1378	1631
44.5	1500	1139	963	970	999	1017	1076	1190	1363	1619
45.0	1606	1176	969	950	971	995	1067	1191	1363	1625
45.5	1666	1246	973	947	950	978	1048	1175	1359	1629

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46.0	1745	1267	975	934	923	965	1036	1170	1339	1635
46.5	1851	1352	1003	929	909	955	1032	1172	1356	1637
47.0	1926	1404	1041	921	890	950	1008	1149	1351	1631
47.5	2001	1426	1044	917	874	940	995	1143	1327	1633
48.0	2131	1537	1077	911	856	936	994	1151	1346	1633
48.5	2206	1620	1155	904	841	928	972	1131	1346	1636
49.0	2386	1653	1171	914	825	891	967	1119	1314	1629
49.5	2522	1780	1218	913	827	880	964	1123	1322	1654
50.0	2601	1824	1266	930	822	860	929	1094	1318	1607
50.5	2816	1971	1361	930	895	851	926	1096	1309	1604
51.0	2983	2067	1429	955	891	835	913	1084	1302	1598
51.5	3085	2112	1449	987	890	821	894	1057	1295	1593
52.0	3352	2277	1513	1016	891	813	889	1060	1286	1604
52.5	3425	2317	1576	1056	894	788	866	1042	1294	1595
53.0	3728	2374	1656	1114	898	778	858	1023	1257	1557
53.5	3846	2566	1726	1154	902	762	836	1025	1265	1572
54.0	3944	2776	1799	1200	899	753	830	990	1235	1537
54.5	4023	2822	1931	1245	914	744	810	963	1195	1496
55.0	4166	3028	1979	1326	882	735	801	957	1197	1505
55.5	4344	3176	1995	1333	904	754	777	921	1155	1461
56.0	4370	3293	2133	1416	922	840	760	897	1150	1464
56.5	4405	3319	2143	1410	946	755	743	889	1127	1468
57.0	4440	3584	2325	1465	944	854	723	866	1104	1427
57.5	4489	3702	2421	1566	968	853	710	828	1059	1405
58.0	4580	3854	2541	1579	976	845	697	816	1050	1380
58.5	4556	3845	2546	1623	1037	860	677	774	994	1328
59.0	5068	3935	2623	1659	1054	847	664	763	987	1317
59.5	5007	3904	2702	1699	1072	842	649	740	981	1319
60.0	5468	3969	2777	1744	1093	854	634	714	930	1262
60.5	5077	4003	2833	1775	1107	845	618	691	923	1259
61.0	5502	4040	2977	1816	1074	852	604	668	874	1199
61.5	5394	4061	2928	1845	1128	830	590	635	825	1188
62.0	5487	4070	3040	1871	1093	858	574	620	812	1123
62.5	5377	3981	2976	1898	1136	847	560	601	802	1111
63.0	5435	3976	2983	1916	1139	852	544	576	763	1058
63.5	5305	3960	2981	1930	1116	834	531	557	731	1040
64.0	5304	3985	3014	1980	1119	837	513	529	702	976
64.5	5248	4036	3078	1913	1112	824	503	509	657	913
65.0	4918	3981	2974	1907	1104	827	485	495	643	891
65.5	4849	3859	2861	1891	1097	813	477	469	600	849
66.0	4781	3882	2903	1946	1141	830	471	455	585	809
66.5	4752	3821	2784	1858	1082	834	453	431	557	789
67.0	4339	3881	2851	1863	1048	793	435	416	530	729
67.5	4349	3813	2794	1839	1037	792	427	397	497	675
68.0	4350	3749	2671	1801	1064	790	416	381	473	663
68.5	4248	3598	2614	1764	1052	807	414	367	447	612
69.0	4138	3521	2557	1721	1026	821	403	349	433	579
69.5	4107	3510	2495	1676	1006	772	384	333	401	560
70.0	4079	3424	2500	1627	937	763	374	320	381	514
70.5	3960	3330	2430	1526	951	615	364	305	360	483
71.0	3940	3164	2297	1525	958	600	354	293	341	463
71.5	3773	3051	2224	1477	927	604	354	279	322	425
72.0	3677	2950	2138	1420	926	511	342	266	307	403
72.5	3557	2885	2052	1364	878	471	319	255	285	375
73.0	3401	2778	2052	1322	873	470	317	245	269	343
73.5	3189	2577	1908	1220	865	453	297	231	257	325

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74.0	3070	2409	1780	1159	864	434	294	222	242	301
74.5	2862	2329	1740	1144	847	429	283	209	226	279
75.0	2688	2200	1632	1036	627	397	264	198	208	253
75.5	2517	2066	1535	983	593	378	251	188	197	234
76.0	2372	1939	1432	948	570	369	253	177	184	219
76.5	2252	1852	1376	890	517	336	231	168	170	198
77.0	2095	1708	1254	829	503	327	219	159	159	183
77.5	1945	1600	1173	772	470	307	207	148	146	168
78.0	1803	1521	1090	718	424	281	196	138	134	155
78.5	1655	1385	1015	663	406	262	184	130	125	141
79.0	1516	1279	943	613	376	245	172	120	114	127
79.5	1387	1191	863	562	345	227	160	111	104	117
80.0	1264	1068	788	512	315	209	148	103	95	105
80.5	1139	968	715	464	286	192	137	94	86	94
81.0	1023	882	641	417	258	175	125	85	77	84
81.5	913	774	572	372	233	158	113	77	69	75
82.0	809	689	497	321	201	141	102	69	61	65
82.5	702	600	445	290	182	122	87	59	53	57
83.0	617	520	385	251	158	109	78	53	46	49
83.5	528	446	320	208	132	94	68	46	40	42
84.0	438	371	274	180	112	78	56	38	34	36
84.5	363	302	222	146	95	68	48	33	28	30
85.0	289	242	173	115	74	54	39	27	23	25
85.5	222	181	131	88	59	42	30	21	19	20
86.0	160	130	94	64	43	32	23	16	15	16
86.5	111	89	62	43	29	21	16	12	11	12
87.0	69	53	38	27	18	13	10	8	8	9
87.5	38	29	22	15	9	7	6	5	6	6
88.0	16	13	11	7	4	3	3	4	4	4
88.5	5	4	5	4	3	3	3	2	2	2
89.0	3	3	3	3	2	2	2	1	1	2
89.5	3	3	3	2	2	2	2	1	1	2
90.0	0	0	0	0	0	0	0	0	0	0

Vert. Angles	Horizontal Angles									
	<u>100</u>	<u>105</u>	<u>110</u>	<u>115</u>	<u>120</u>	<u>125</u>	<u>130</u>	<u>135</u>	<u>140</u>	<u>145</u>
0.0	2536	2536	2536	2536	2536	2536	2536	2536	2536	2536
0.5	2531	2543	2566	2598	2625	2640	2645	2645	2638	2625
1.0	2532	2568	2605	2634	2641	2631	2616	2602	2596	2599
1.5	2550	2602	2638	2641	2616	2595	2594	2612	2649	2674
2.0	2562	2621	2643	2614	2593	2607	2652	2687	2700	2703
2.5	2580	2634	2622	2591	2602	2651	2689	2693	2691	2698
3.0	2598	2635	2599	2600	2650	2689	2685	2688	2710	2754
3.5	2612	2608	2585	2631	2682	2682	2683	2725	2771	2798
4.0	2602	2587	2597	2656	2673	2681	2733	2779	2794	2804
4.5	2601	2571	2592	2660	2664	2702	2766	2787	2809	2866
5.0	2593	2548	2613	2651	2661	2736	2776	2791	2855	2896
5.5	2581	2544	2635	2640	2684	2754	2773	2851	2890	2916
6.0	2562	2546	2635	2634	2699	2745	2791	2870	2915	2987
6.5	2543	2551	2623	2656	2725	2761	2852	2901	2999	3093
7.0	2536	2537	2609	2684	2718	2810	2867	2975	3083	3120
7.5	2506	2573	2600	2686	2727	2825	2926	3053	3103	3152
8.0	2485	2579	2620	2682	2764	2834	2932	3063	3106	3162
8.5	2480	2566	2610	2677	2780	2855	3012	3070	3121	3205
9.0	2477	2558	2632	2677	2785	2893	3041	3077	3154	3284

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9.5	2468	2546	2634	2701	2795	2951	3052	3109	3228	3357
10.0	2469	2531	2630	2723	2812	2982	3062	3147	3295	3344
10.5	2460	2524	2616	2739	2872	3010	3082	3237	3323	3341
11.0	2464	2524	2608	2738	2909	3007	3112	3275	3307	3350
11.5	2485	2524	2608	2728	2910	2997	3120	3276	3318	3326
12.0	2480	2528	2627	2755	2926	3012	3206	3262	3302	3332
12.5	2466	2531	2638	2779	2933	3053	3226	3265	3281	3420
13.0	2458	2541	2660	2833	2930	3100	3214	3244	3329	3511
13.5	2443	2527	2652	2839	2920	3138	3214	3227	3395	3519
14.0	2427	2513	2642	2844	2943	3143	3213	3241	3448	3514
14.5	2415	2501	2642	2837	2971	3140	3185	3331	3469	3508
15.0	2394	2480	2649	2834	2992	3118	3158	3369	3459	3495
15.5	2382	2460	2636	2819	3009	3128	3159	3390	3455	3548
16.0	2366	2457	2645	2807	3058	3108	3283	3406	3464	3607
16.5	2362	2489	2694	2839	3042	3089	3326	3397	3499	3610
17.0	2342	2469	2675	2838	3022	3088	3329	3379	3535	3599
17.5	2322	2463	2671	2852	3002	3087	3329	3384	3561	3605
18.0	2296	2454	2660	2868	3000	3134	3323	3412	3544	3617
18.5	2282	2434	2636	2865	2976	3200	3306	3479	3535	3645
19.0	2275	2453	2639	2876	2958	3194	3286	3492	3552	3706
19.5	2261	2448	2628	2860	2955	3217	3306	3473	3577	3746
20.0	2238	2420	2603	2832	2995	3217	3367	3479	3625	3738
20.5	2228	2440	2619	2824	2979	3197	3366	3503	3687	3787
21.0	2221	2435	2622	2830	3002	3184	3393	3496	3686	3845
21.5	2201	2418	2619	2818	3071	3188	3399	3543	3699	3880
22.0	2191	2423	2657	2808	3078	3205	3391	3617	3805	3854
22.5	2169	2412	2656	2798	3087	3237	3400	3610	3824	3877
23.0	2155	2391	2639	2786	3084	3291	3431	3622	3816	3949
23.5	2142	2396	2655	2834	3067	3295	3445	3691	3823	3992
24.0	2141	2374	2632	2847	3058	3295	3483	3719	3845	4018
24.5	2122	2364	2626	2818	3057	3302	3515	3753	3903	4080
25.0	2108	2379	2633	2889	3086	3319	3537	3759	3945	4173
25.5	2110	2358	2604	2920	3133	3336	3586	3768	3981	4215
26.0	2107	2359	2609	2906	3137	3368	3613	3807	4047	4255
26.5	2104	2382	2620	2920	3165	3379	3649	3825	4095	4298
27.0	2089	2347	2600	2923	3179	3444	3674	3875	4137	4353
27.5	2078	2368	2604	2906	3198	3455	3683	3929	4182	4445
28.0	2093	2323	2600	2900	3213	3476	3694	3950	4190	4491
28.5	2063	2334	2586	2911	3220	3546	3728	4018	4279	4572
29.0	2044	2361	2627	2927	3218	3574	3775	4043	4359	4645
29.5	2056	2318	2629	2932	3231	3599	3801	4067	4378	4693
30.0	2038	2330	2616	2939	3241	3621	3867	4133	4458	4763
30.5	2029	2341	2652	2972	3287	3611	3907	4187	4539	4856
31.0	2022	2326	2659	2997	3319	3614	3928	4228	4540	4865
31.5	1993	2297	2659	3001	3345	3658	3971	4303	4633	4920
32.0	1993	2308	2666	3013	3371	3668	3997	4357	4708	4996
32.5	1983	2294	2666	3033	3416	3722	4035	4405	4734	5060
33.0	1980	2287	2633	3003	3402	3714	4091	4471	4772	5141
33.5	1971	2280	2645	3018	3435	3751	4097	4492	4772	5147
34.0	1961	2266	2642	3024	3435	3779	4150	4552	4837	5120
34.5	1949	2263	2621	3009	3415	3782	4245	4619	4973	5131
35.0	1944	2259	2659	3063	3455	3839	4233	4610	4980	5158
35.5	1942	2260	2634	3051	3443	3835	4303	4653	4973	5194
36.0	1926	2239	2638	3063	3451	3841	4343	4690	4940	5168
36.5	1942	2256	2612	3077	3459	3875	4340	4718	4933	5172
37.0	1917	2226	2641	3084	3474	3908	4391	4783	4990	5221

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CANDELA TABULATION - (Cont.)

37.5	1912	2223	2649	3082	3490	3976	4400	4780	4999	5215
38.0	1923	2251	2656	3094	3506	3977	4384	4746	4986	5197
38.5	1903	2248	2658	3091	3514	3991	4427	4754	5040	5198
39.0	1905	2226	2630	3081	3498	4032	4437	4759	5045	5183
39.5	1931	2261	2667	3080	3509	4022	4422	4745	5040	5149
40.0	1905	2264	2671	3076	3525	4039	4436	4756	5038	5083
40.5	1909	2239	2646	3077	3531	4071	4434	4755	5010	5024
41.0	1928	2286	2691	3079	3542	4027	4399	4730	4985	4980
41.5	1936	2266	2665	3059	3522	4018	4416	4769	4951	4937
42.0	1942	2278	2663	3085	3554	4011	4424	4741	4900	4887
42.5	1949	2308	2684	3056	3555	3995	4404	4706	4854	4819
43.0	1956	2286	2664	3044	3522	3986	4382	4672	4783	4732
43.5	1963	2302	2682	3102	3576	3978	4363	4612	4719	4649
44.0	1981	2317	2695	3115	3568	3965	4373	4578	4676	4573
44.5	1970	2310	2714	3097	3538	3825	4353	4537	4607	4474
45.0	2008	2349	2719	3065	3515	3842	4287	4472	4522	4411
45.5	1991	2331	2718	3086	3485	3828	4267	4397	4424	4337
46.0	1998	2369	2716	3084	3465	3819	4211	4332	4344	4243
46.5	2027	2376	2720	3082	3445	3808	4060	4257	4251	4173
47.0	2003	2347	2716	3090	3437	3785	4030	4197	4164	4052
47.5	1999	2376	2718	3074	3420	3752	3898	4125	4088	3904
48.0	2023	2382	2716	3054	3384	3715	3852	4048	3996	3795
48.5	2000	2356	2711	3036	3356	3706	3829	3964	3902	3672
49.0	1991	2385	2704	3024	3322	3642	3793	3842	3767	3476
49.5	2012	2378	2699	3007	3294	3588	3707	3791	3659	3369
50.0	1975	2364	2683	2999	3258	3535	3645	3711	3539	3250
50.5	1992	2349	2673	2963	3210	3451	3564	3589	3374	3118
51.0	1981	2358	2684	2956	3179	3385	3484	3489	3261	3032
51.5	1970	2319	2648	2909	3142	3328	3404	3372	3136	2913
52.0	1953	2309	2627	2891	3112	3255	3304	3263	3036	2793
52.5	1938	2289	2613	2864	3052	3164	3208	3142	2901	2692
53.0	1897	2252	2573	2834	3015	3076	3114	3029	2813	2612
53.5	1908	2262	2581	2795	2951	2993	3027	2928	2726	2511
54.0	1873	2226	2540	2762	2885	2909	2928	2797	2620	2418
54.5	1857	2230	2532	2720	2820	2825	2834	2677	2508	2298
55.0	1835	2181	2496	2671	2751	2743	2731	2568	2423	2215
55.5	1819	2177	2467	2629	2674	2672	2639	2477	2321	2093
56.0	1796	2125	2415	2575	2596	2587	2523	2377	2232	2000
56.5	1804	2095	2376	2528	2516	2509	2426	2296	2139	1892
57.0	1759	2070	2341	2463	2448	2430	2328	2210	2045	1807
57.5	1733	2038	2308	2405	2378	2354	2233	2121	1949	1703
58.0	1712	2025	2259	2345	2308	2261	2144	2020	1851	1631
58.5	1681	1990	2205	2281	2243	2177	2056	1922	1744	1536
59.0	1644	1922	2146	2215	2169	2087	1968	1836	1674	1461
59.5	1635	1902	2094	2149	2091	1993	1891	1749	1583	1394
60.0	1581	1842	2031	2080	2021	1918	1807	1674	1518	1336
60.5	1543	1815	1987	2023	1959	1851	1726	1602	1428	1243
61.0	1525	1786	1940	1956	1885	1773	1642	1527	1346	1180
61.5	1486	1722	1878	1890	1816	1704	1539	1435	1265	1086
62.0	1421	1674	1821	1820	1731	1613	1478	1381	1201	1031
62.5	1397	1621	1764	1754	1665	1533	1400	1295	1125	968
63.0	1344	1564	1704	1689	1585	1459	1337	1223	1057	914
63.5	1298	1530	1649	1620	1521	1390	1277	1158	990	859
64.0	1252	1463	1589	1555	1455	1320	1208	1073	931	808
64.5	1222	1426	1524	1484	1385	1253	1152	1007	872	748
65.0	1156	1360	1461	1416	1314	1175	1088	938	832	712

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CANDELA TABULATION - (Cont.)

65.5	1109	1308	1401	1350	1248	1118	1010	875	782	664
66.0	1061	1253	1333	1289	1174	1050	952	826	741	622
66.5	1015	1197	1267	1215	1121	1003	902	788	707	579
67.0	966	1141	1204	1151	1054	937	830	733	651	534
67.5	920	1095	1138	1086	994	889	784	692	601	486
68.0	879	1033	1072	1024	936	831	724	653	568	457
68.5	819	968	1011	967	876	781	681	611	532	422
69.0	774	911	950	909	820	731	637	578	493	391
69.5	741	861	892	853	772	687	594	542	456	367
70.0	695	809	835	804	730	644	562	499	411	332
70.5	651	754	778	751	679	600	528	463	378	307
71.0	607	702	722	694	625	558	494	434	359	286
71.5	557	648	674	655	581	518	461	402	326	263
72.0	522	603	625	605	547	488	430	377	305	241
72.5	484	559	579	562	509	454	401	342	278	221
73.0	449	520	537	521	472	422	376	313	253	197
73.5	414	477	496	482	438	389	346	290	237	184
74.0	382	440	458	444	406	364	319	268	220	166
74.5	351	405	422	409	374	334	293	242	198	150
75.0	327	374	388	377	349	313	275	220	182	137
75.5	296	344	357	346	323	290	253	209	167	125
76.0	272	314	328	319	296	266	229	188	151	113
76.5	249	290	301	291	274	247	213	172	137	102
77.0	228	264	276	267	252	227	195	157	125	93
77.5	205	239	252	243	230	208	177	143	113	84
78.0	190	221	230	222	210	191	159	130	104	77
78.5	172	199	209	203	193	174	145	118	92	69
79.0	154	180	191	185	175	159	133	109	85	60
79.5	141	164	172	167	158	144	118	96	76	57
80.0	127	147	155	150	144	130	108	88	68	50
80.5	112	131	139	135	129	118	96	78	60	47
81.0	101	117	124	121	115	105	86	70	54	43
81.5	89	104	110	107	102	93	77	63	49	38
82.0	78	91	97	94	90	83	68	56	43	35
82.5	68	79	84	82	79	73	60	50	39	32
83.0	58	68	73	71	69	63	53	44	35	29
83.5	50	58	62	61	60	55	46	38	31	27
84.0	42	50	53	52	51	48	40	34	28	24
84.5	35	41	44	44	43	40	35	30	25	22
85.0	29	34	36	37	36	34	30	26	22	20
85.5	24	28	30	30	30	28	25	22	20	19
86.0	19	22	24	24	24	22	20	19	18	17
86.5	14	17	18	19	19	17	16	16	16	15
87.0	10	12	14	14	14	13	13	14	14	14
87.5	7	8	9	9	9	10	11	12	13	13
88.0	5	5	6	6	7	8	10	11	12	13
88.5	3	3	4	5	6	8	9	11	12	12
89.0	2	3	4	5	6	8	9	10	11	12
89.5	2	3	4	5	6	8	9	10	11	12
90.0	0	0	0	0	0	0	0	0	0	0

Vert. Angles **Horizontal Angles**

	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0.0	2536	2536	2536	2536	2536	2536	2536
0.5	2613	2602	2597	2593	2591	2586	2584

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CANDELA TABULATION - (Cont.)

1.0	2609	2618	2630	2638	2640	2643	2643
1.5	2692	2699	2698	2694	2689	2686	2682
2.0	2698	2693	2692	2695	2699	2700	2698
2.5	2718	2744	2767	2782	2789	2791	2791
3.0	2787	2804	2813	2808	2801	2796	2793
3.5	2805	2810	2825	2845	2867	2876	2875
4.0	2841	2881	2901	2914	2916	2922	2920
4.5	2905	2922	2926	2935	2941	2960	2962
5.0	2921	2957	3002	3045	3075	3102	3107
5.5	2983	3072	3126	3141	3149	3159	3162
6.0	3088	3147	3160	3180	3193	3204	3203
6.5	3134	3161	3182	3207	3223	3259	3249
7.0	3162	3205	3233	3280	3271	3292	3295
7.5	3182	3239	3294	3352	3382	3407	3415
8.0	3226	3323	3395	3419	3423	3431	3437
8.5	3311	3400	3412	3404	3415	3434	3437
9.0	3384	3396	3405	3421	3430	3427	3433
9.5	3374	3411	3420	3406	3408	3414	3427
10.0	3383	3404	3389	3423	3470	3509	3533
10.5	3372	3378	3431	3513	3571	3606	3621
11.0	3347	3435	3559	3616	3631	3636	3636
11.5	3404	3553	3608	3614	3617	3623	3637
12.0	3490	3589	3593	3613	3607	3635	3652
12.5	3552	3579	3590	3606	3628	3666	3684
13.0	3548	3569	3601	3647	3695	3724	3734
13.5	3543	3572	3651	3726	3731	3736	3747
14.0	3537	3630	3709	3717	3711	3716	3720
14.5	3577	3680	3699	3695	3719	3746	3744
15.0	3604	3665	3688	3738	3765	3786	3779
15.5	3648	3653	3716	3770	3819	3874	3874
16.0	3631	3679	3748	3828	3870	3884	3885
16.5	3634	3714	3822	3876	3866	3856	3862
17.0	3665	3780	3859	3855	3888	3934	3933
17.5	3697	3824	3838	3915	4013	4015	4028
18.0	3759	3806	3910	4019	4001	4001	4009
18.5	3790	3859	3996	3996	3982	4005	4022
19.0	3776	3944	3975	3987	4049	4114	4133
19.5	3839	3957	3975	4061	4147	4161	4178
20.0	3919	3939	4052	4146	4172	4179	4192
20.5	3913	3990	4128	4150	4209	4270	4304
21.0	3900	4077	4130	4215	4329	4379	4403
21.5	3945	4112	4174	4321	4405	4443	4449
22.0	4023	4113	4271	4398	4443	4490	4492
22.5	4042	4213	4359	4438	4507	4560	4593
23.0	4072	4302	4404	4501	4618	4666	4698
23.5	4174	4331	4454	4594	4713	4748	4767
24.0	4231	4397	4549	4714	4793	4851	4870
24.5	4266	4490	4648	4794	4893	4950	4957
25.0	4322	4539	4725	4857	4950	5010	5016
25.5	4402	4616	4787	4934	5044	5106	5121
26.0	4468	4680	4845	5016	5130	5180	5197
26.5	4556	4750	4939	5110	5180	5221	5262
27.0	4621	4825	5048	5158	5235	5314	5365
27.5	4671	4895	5086	5203	5343	5444	5485
28.0	4757	4991	5130	5313	5463	5521	5544
28.5	4838	5027	5236	5444	5498	5509	5534

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CANDELA TABULATION - (Cont.)

29.0	4907	5050	5328	5462	5486	5518	5548
29.5	4967	5149	5413	5440	5531	5597	5622
30.0	4998	5262	5391	5489	5638	5678	5683
30.5	5039	5315	5388	5561	5654	5662	5656
31.0	5172	5307	5451	5580	5615	5628	5620
31.5	5262	5306	5523	5542	5603	5653	5658
32.0	5251	5363	5517	5534	5647	5692	5707
32.5	5227	5442	5491	5575	5671	5704	5704
33.0	5230	5428	5514	5615	5668	5687	5690
33.5	5306	5392	5541	5606	5663	5666	5667
34.0	5316	5441	5548	5601	5642	5639	5645
34.5	5306	5456	5547	5596	5608	5628	5628
35.0	5319	5477	5544	5558	5580	5612	5614
35.5	5357	5468	5508	5526	5551	5547	5536
36.0	5368	5475	5464	5499	5464	5435	5424
36.5	5360	5435	5438	5434	5353	5341	5338
37.0	5358	5380	5402	5311	5259	5256	5247
37.5	5359	5340	5324	5234	5186	5160	5142
38.0	5309	5309	5229	5164	5113	5079	5054
38.5	5273	5236	5146	5065	5008	4981	4959
39.0	5227	5144	5064	4970	4910	4884	4881
39.5	5178	5068	4976	4890	4835	4806	4803
40.0	5104	5001	4894	4810	4758	4726	4706
40.5	5023	4913	4801	4729	4658	4612	4586
41.0	4951	4832	4716	4626	4541	4473	4439
41.5	4868	4751	4632	4523	4392	4337	4306
42.0	4789	4651	4531	4384	4221	4161	4138
42.5	4694	4556	4400	4231	4074	3976	3967
43.0	4593	4468	4253	4078	3941	3879	3870
43.5	4523	4370	4152	3969	3832	3772	3755
44.0	4437	4255	4009	3844	3708	3655	3634
44.5	4340	4124	3863	3714	3586	3528	3502
45.0	4248	3984	3733	3584	3450	3390	3365
45.5	4119	3832	3602	3456	3317	3280	3258
46.0	3987	3693	3476	3321	3211	3166	3152
46.5	3869	3560	3349	3209	3114	3051	3034
47.0	3693	3454	3237	3110	3018	2956	2940
47.5	3543	3317	3124	3007	2913	2847	2820
48.0	3443	3198	3027	2898	2777	2717	2670
48.5	3306	3110	2932	2790	2642	2578	2529
49.0	3185	2985	2828	2682	2545	2474	2419
49.5	3099	2894	2724	2566	2417	2337	2289
50.0	2982	2814	2607	2437	2273	2200	2156
50.5	2880	2701	2487	2311	2165	2104	2060
51.0	2804	2604	2368	2167	2037	1980	1941
51.5	2696	2471	2211	2051	1926	1868	1833
52.0	2580	2318	2087	1943	1856	1799	1768
52.5	2479	2232	2003	1868	1777	1728	1694
53.0	2364	2100	1894	1777	1702	1654	1631
53.5	2253	2012	1812	1705	1630	1579	1562
54.0	2167	1918	1727	1624	1554	1499	1487
54.5	2040	1808	1651	1550	1486	1426	1407
55.0	1955	1730	1585	1466	1398	1335	1309
55.5	1861	1639	1504	1394	1308	1235	1203
56.0	1739	1567	1424	1307	1213	1151	1120
56.5	1653	1489	1350	1229	1132	1073	1042

IES ROAD REPORT
PHOTOMETRIC FILENAME : L041706612.IES

CANDELA TABULATION - (Cont.)

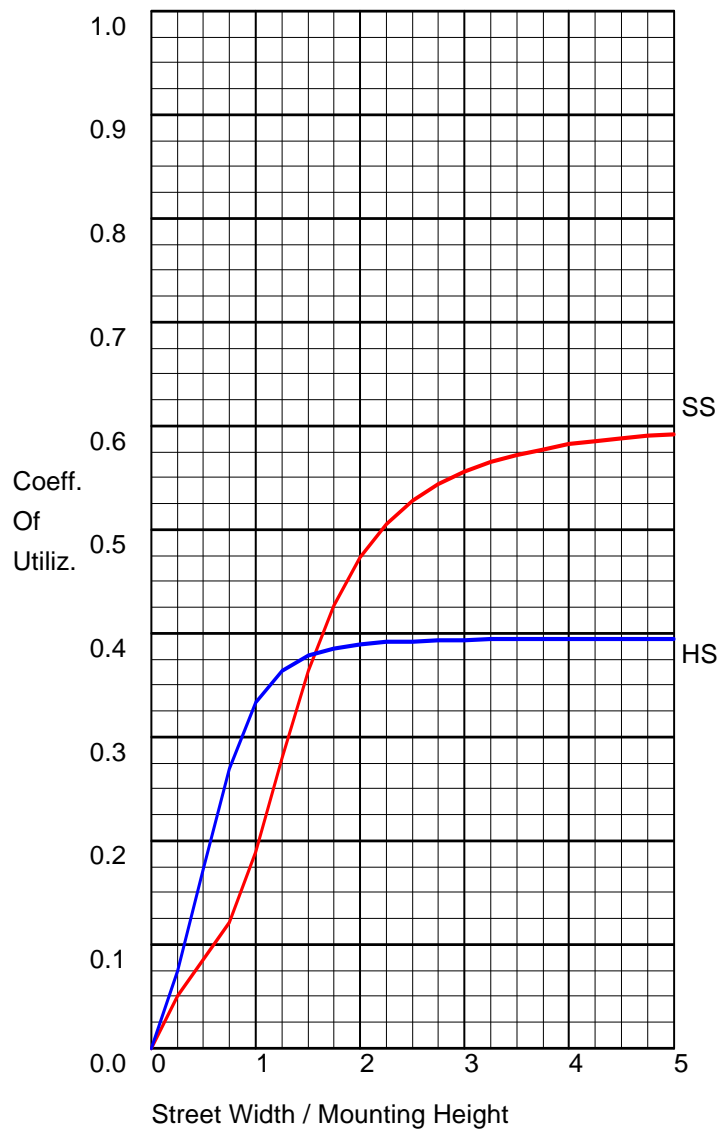
57.0	1597	1416	1259	1133	1039	982	962
57.5	1510	1334	1174	1047	970	918	893
58.0	1446	1264	1092	988	904	857	834
58.5	1367	1182	1020	919	837	795	771
59.0	1276	1093	954	847	773	733	711
59.5	1204	1018	889	793	725	686	668
60.0	1120	949	826	733	667	640	623
60.5	1058	891	760	678	629	602	586
61.0	999	825	716	636	589	573	562
61.5	925	771	669	600	557	540	532
62.0	877	720	626	570	532	507	502
62.5	811	670	589	536	499	474	470
63.0	757	627	548	497	460	438	435
63.5	715	585	520	466	428	402	400
64.0	669	556	489	427	391	370	368
64.5	616	515	449	394	357	340	337
65.0	582	487	414	362	327	313	309
65.5	533	447	383	333	303	289	283
66.0	505	409	348	301	274	262	258
66.5	465	385	325	277	252	239	236
67.0	436	360	298	254	230	218	215
67.5	398	327	272	231	209	198	197
68.0	374	305	252	208	190	180	179
68.5	339	274	226	191	174	166	165
69.0	316	246	201	171	157	150	151
69.5	289	231	187	157	143	138	138
70.0	264	208	165	142	132	129	130
70.5	245	193	154	132	123	121	122
71.0	220	172	139	122	115	114	115
71.5	203	154	126	113	108	108	109
72.0	181	142	116	105	102	102	103
72.5	168	130	108	98	96	97	98
73.0	149	117	100	93	92	92	93
73.5	139	109	93	88	87	87	88
74.0	123	98	87	83	82	83	84
74.5	112	90	82	79	78	79	79
75.0	103	84	77	74	74	75	75
75.5	95	78	73	70	70	70	70
76.0	86	72	68	66	66	67	67
76.5	79	68	65	62	62	63	63
77.0	72	64	61	59	58	59	59
77.5	65	59	57	55	55	55	56
78.0	61	56	54	52	52	52	53
78.5	56	52	50	48	48	48	49
79.0	51	48	47	45	45	46	46
79.5	48	45	44	42	42	42	43
80.0	44	42	41	39	39	40	40
80.5	41	39	38	37	36	37	37
81.0	38	36	35	34	34	34	34
81.5	35	34	32	32	31	31	31
82.0	32	31	30	29	29	29	29
82.5	30	29	28	27	26	27	26
83.0	27	26	26	25	25	24	24
83.5	25	24	24	23	23	22	22
84.0	23	23	22	21	21	21	21
84.5	22	21	20	20	19	19	19

IES ROAD REPORT
PHOTOMETRIC FILENAME : L041706612.IES

CANDELA TABULATION - (Cont.)

85.0	20	19	19	18	18	17	17
85.5	18	18	17	17	16	16	16
86.0	17	17	16	16	15	15	15
86.5	16	15	15	14	14	14	14
87.0	14	14	14	13	13	13	12
87.5	13	13	13	12	12	12	11
88.0	13	12	12	12	11	11	11
88.5	12	12	11	11	11	10	10
89.0	12	11	11	10	10	10	10
89.5	12	12	11	11	10	10	10
90.0	0	0	0	0	0	0	0

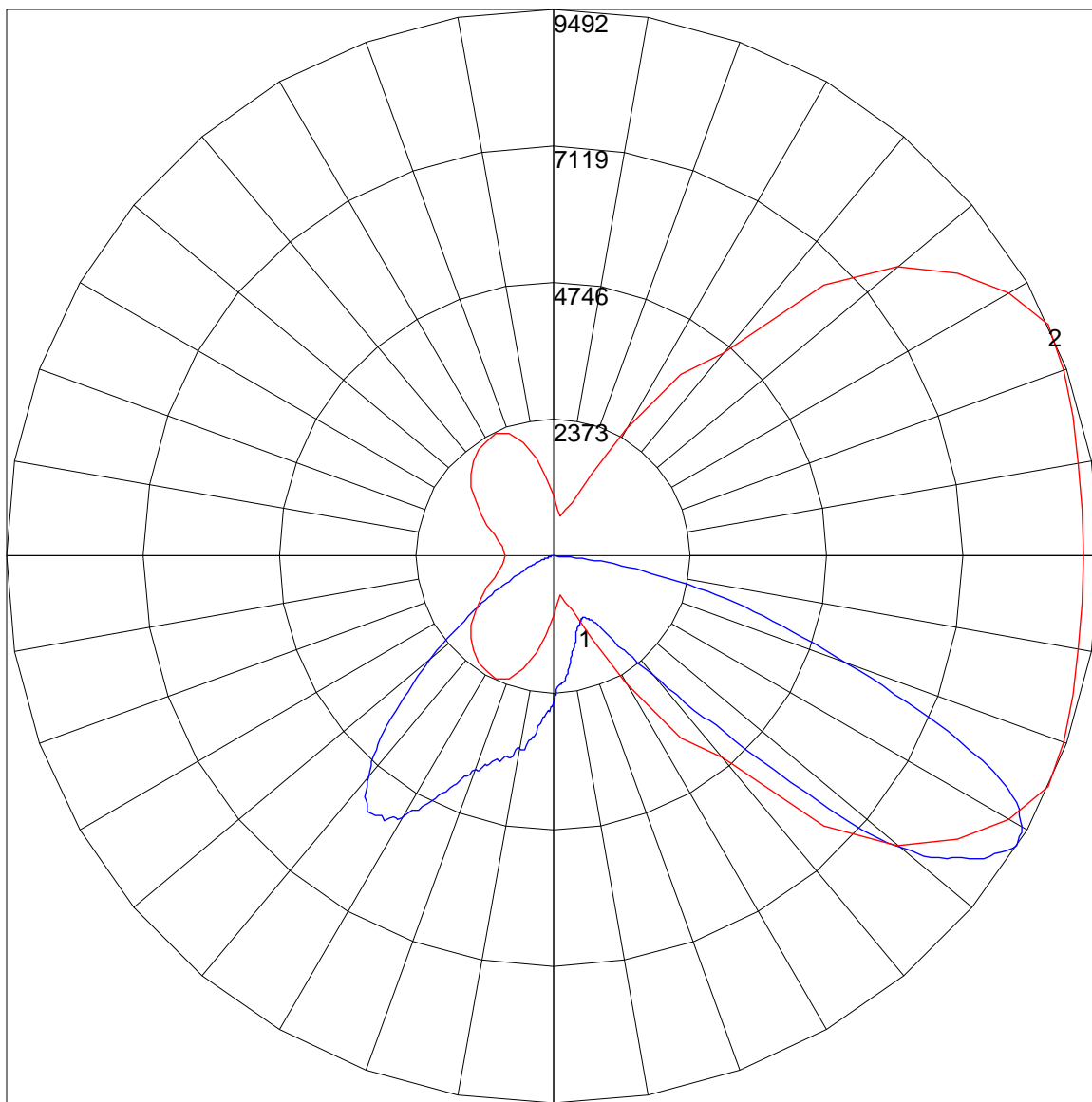
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

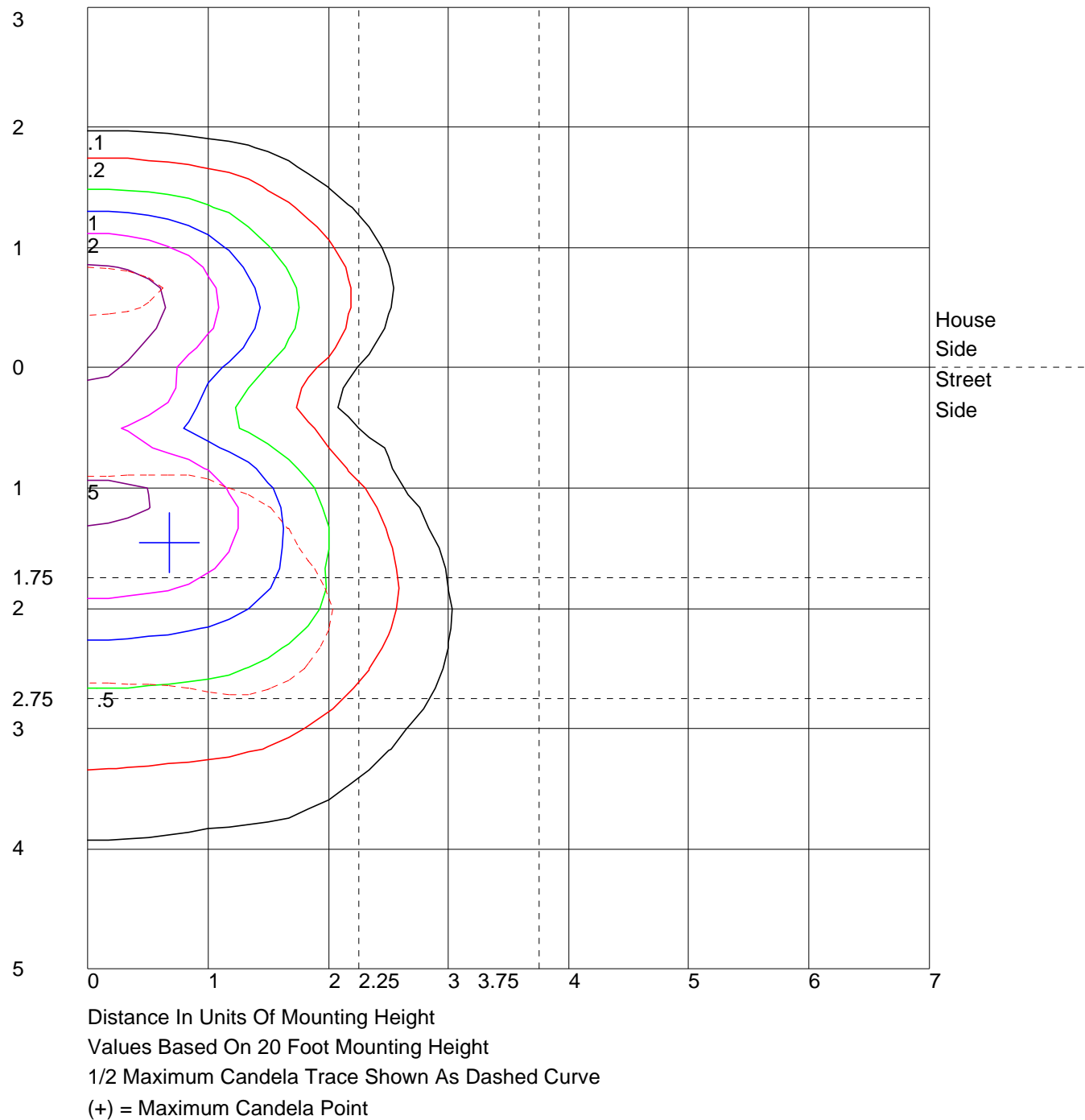
	Lumens	Percent Of Luminaire
Downward Street Side	8427.6	60.4
Downward House Side	5515.6	39.6
Downward Total	13943.2	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	13943.2	100.0

POLAR GRAPH

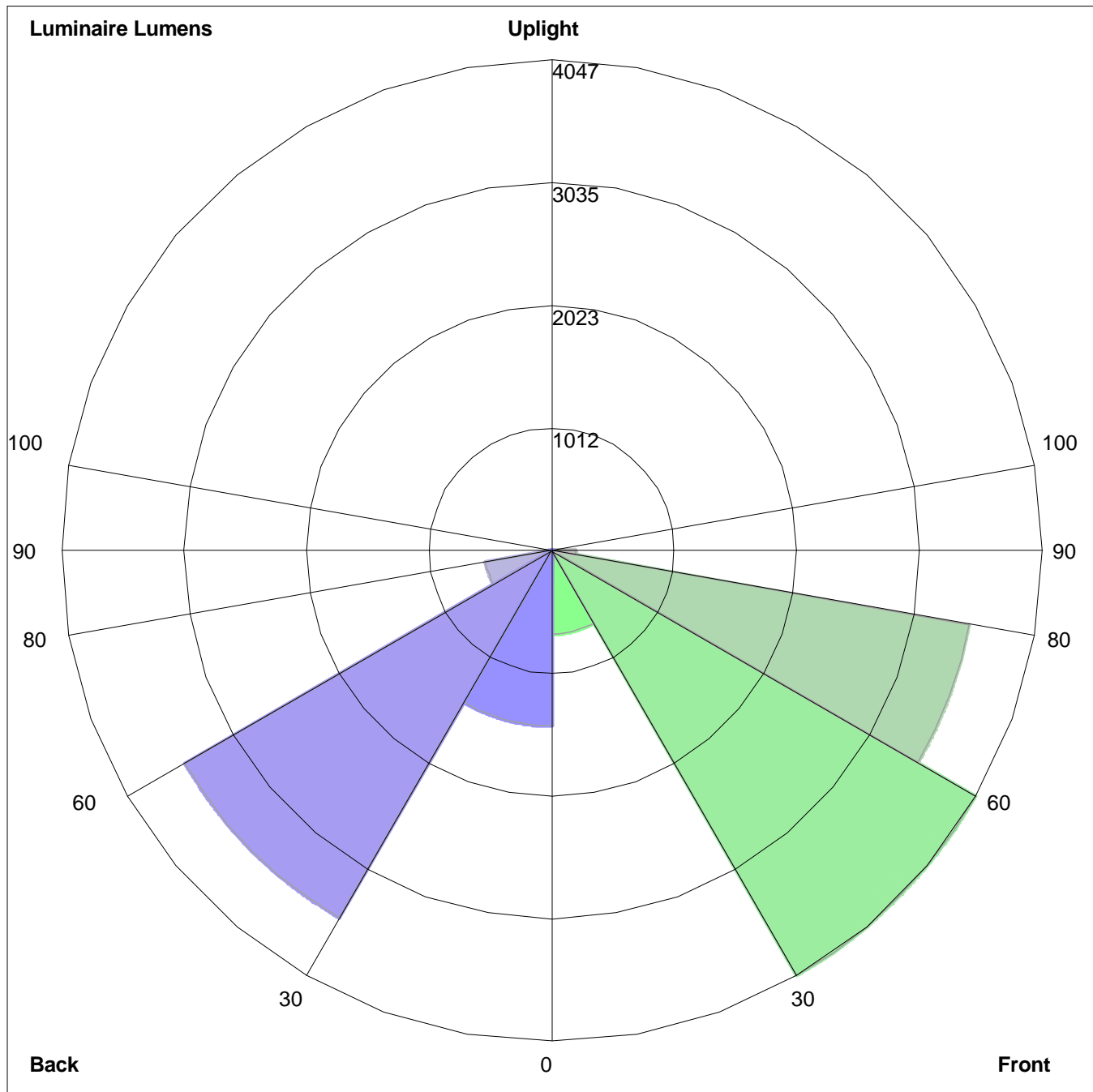


Maximum Candela = 9492 Located At Horizontal Angle = 25, Vertical Angle = 58
1 - Vertical Plane Through Horizontal Angles (25 - 205) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (58) (Through Max. Cd.)

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=688.7, Medium=4046.5, High=3496.1, Very High=196.4
Back: Low=1446.4, Medium=3499.9, High=551.5, Very High=17.7
Uplight: Low=0.0, High=0.0

BUG Rating : B3-U0-G2