



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

Report No: L041706602



Report No: L041706602

Issue Date: 4/28/2017

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

Model Number: ES2-130H-MV-NW-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: 4/25/17 - 4/26/17

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:	ES2-130H-MV-NW-FT-DB-450	
Driver Model Number:	INVENTRONICS EUD-200S490DT	
Total Lumens:	19625.20	
Input Voltage (VAC/60Hz):	120.00	
Input Current (Amp):	1.54	
Input Power (W):	183.89	
Input Power Factor:	1.00	
Current ATHD @ 120V(%):	5%	
Current ATHD @ 277V(%):	13% (0.69A, 179.06W, 0.94PF)	
Efficacy:	107	
Color Rendering Index (CRI):	73	
Correlated Color Temperature (K):	3950	
Chromaticity Coordinate x:	0.3859	
Chromaticity Coordinate y:	0.3898	
Ambient Temperature (°C):	25.0	
Stabilization Time (Hours):	0:45	
Total Operating Time (Hours):	3:40	

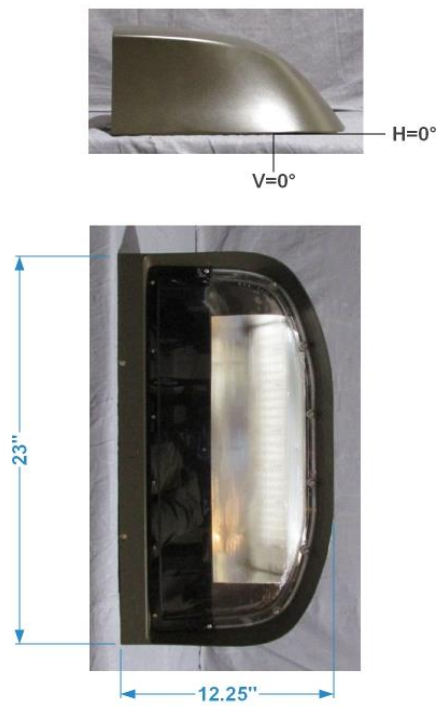
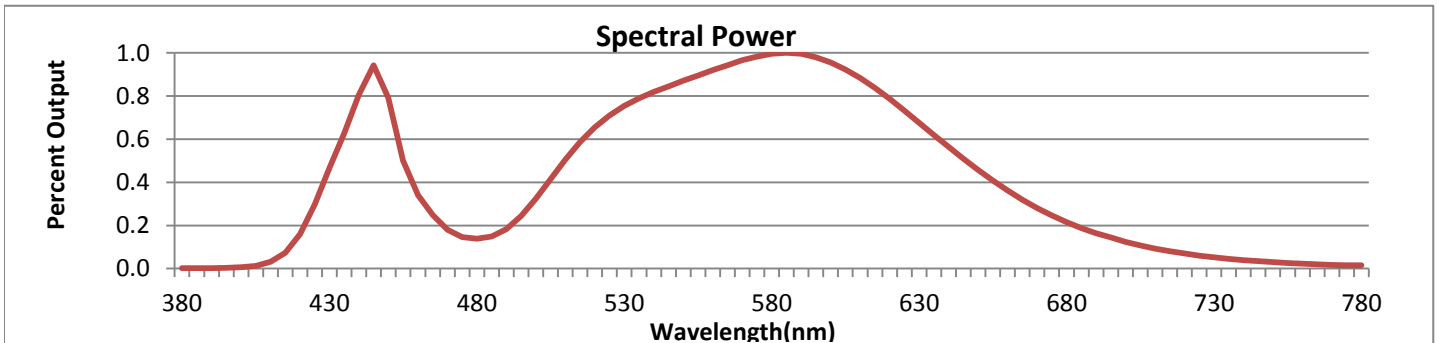


FIG. 1 LUMINAIRE



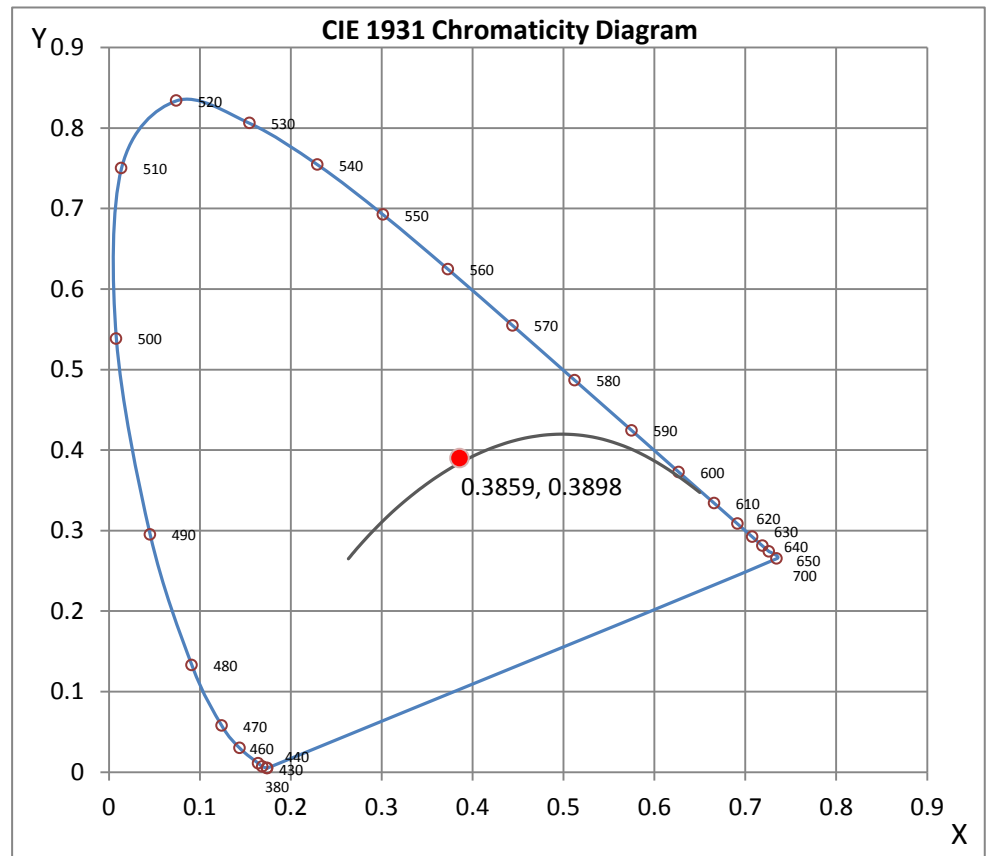
Wavelength	W/m ² nm	440	0.8070	510	0.5057	580	0.9965	650	0.4572	720	0.0695
380	0.0015	450	0.7913	520	0.6556	590	0.9962	660	0.3629	730	0.0520
390	0.0020	460	0.3403	530	0.7537	600	0.9565	670	0.2816	740	0.0392
400	0.0058	470	0.1795	540	0.8196	610	0.8841	680	0.2156	750	0.0296
410	0.0312	480	0.1386	550	0.8715	620	0.7872	690	0.1632	760	0.0225
420	0.1595	490	0.1826	560	0.9201	630	0.6764	700	0.1231	770	0.0173
430	0.4668	500	0.3237	570	0.9660	640	0.5642	710	0.0925	780	0.0152

CRI & CCT

x	0.3859
y	0.3898
u'	0.2235
v'	0.5080
CRI	72.90
CCT	3950
Duv	0.00444

R Values

R1	70.29
R2	77.81
R3	84.71
R4	73.92
R5	69.83
R6	69.39
R7	81.65
R8	55.77
R9	-21.99
R10	48.16
R11	70.85
R12	46.62
R13	70.91
R14	90.97



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 : L041706602.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L041706602
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 4/28/2017
[MANUFAC] Leotek Electronics USA, LLC
[LUMCAT] ES2-130H-MV-NW-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, 183.89W
[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	19625
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	107
Total Luminaire Watts	183.89
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Maximum Candela	12376
Maximum Candela Angle	10H 56V
Maximum Candela (<90 Degrees Vertical)	12376
Maximum Candela Angle (<90 Degrees Vertical)	10H 56V
Maximum Candela At 90 Degrees Vertical	0 (0.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	2434 (12.4% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

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LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	964.7	N.A.	4.9
FM - Front-Medium (30-60)	5460.4	N.A.	27.8
FH - Front-High (60-80)	4545.0	N.A.	23.2
FVH - Front-Very High (80-90)	270.4	N.A.	1.4
BL - Back-Low (0-30)	1988.4	N.A.	10.1
BM - Back-Medium (30-60)	5324.3	N.A.	27.1
BH - Back-High (60-80)	1040.2	N.A.	5.3
BVH - Back-Very High (80-90)	31.9	N.A.	0.2
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
Total	19625.3	N.A.	100.0
BUG Rating	B4-U0-G3		

ZONAL LUMEN SUMMARY

Zone	%
0-20	6.6
0-30	15
0-40	28
0-60	70
0-80	98.5
0-90	100
10-90	98.3
20-40	21.5
20-50	40
40-70	61.4
60-80	28.5
70-80	9.1
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	3477	3477	3477	3477	3477	3477	3477	3477	3477	3477
0.5	3288	3286	3297	3305	3321	3345	3360	3374	3387	3398
1.0	3224	3227	3239	3249	3264	3279	3293	3313	3319	3331
1.5	3172	3175	3182	3190	3203	3208	3240	3256	3278	3299
2.0	3122	3119	3141	3156	3173	3187	3197	3205	3225	3249
2.5	3092	3100	3112	3109	3124	3137	3159	3181	3195	3203
3.0	3072	3077	3087	3098	3106	3118	3124	3128	3150	3169
3.5	3100	3101	3110	3115	3114	3111	3112	3113	3126	3143
4.0	3062	3067	3081	3097	3109	3117	3118	3112	3108	3114
4.5	3005	3012	3030	3049	3063	3083	3109	3118	3105	3095
5.0	2961	2967	2978	2997	3012	3037	3059	3085	3113	3098
5.5	2923	2928	2941	2952	2961	2982	3011	3037	3070	3099
6.0	2868	2875	2892	2907	2930	2945	2961	2985	3018	3048
6.5	2771	2786	2805	2833	2859	2889	2926	2954	2983	3017
7.0	2740	2744	2746	2756	2779	2825	2874	2923	2949	2995
7.5	2697	2707	2719	2742	2751	2756	2808	2862	2922	2954
8.0	2634	2645	2657	2684	2716	2733	2742	2799	2863	2918
8.5	2582	2592	2608	2622	2643	2691	2726	2735	2803	2873
9.0	2518	2528	2538	2559	2587	2616	2675	2719	2739	2822
9.5	2459	2470	2485	2507	2529	2568	2621	2687	2727	2774
10.0	2426	2434	2438	2453	2481	2510	2553	2609	2690	2722
10.5	2360	2369	2388	2410	2425	2460	2514	2580	2657	2715
11.0	2316	2325	2348	2361	2383	2415	2465	2520	2603	2690
11.5	2297	2306	2316	2321	2341	2368	2413	2471	2537	2624
12.0	2255	2267	2273	2286	2309	2335	2383	2421	2494	2566
12.5	2211	2220	2233	2243	2267	2301	2346	2401	2468	2538
13.0	2163	2174	2189	2201	2222	2260	2311	2361	2421	2500
13.5	2116	2125	2137	2154	2179	2221	2277	2333	2395	2473
14.0	2083	2092	2096	2112	2133	2182	2231	2301	2358	2431
14.5	2045	2051	2059	2077	2088	2130	2192	2257	2326	2404
15.0	2026	2022	2030	2037	2059	2091	2152	2220	2299	2376
15.5	2011	2013	2012	2002	2019	2060	2106	2179	2255	2337
16.0	1996	1982	1987	1982	1984	2022	2079	2142	2221	2312
16.5	1981	1972	1973	1948	1963	1985	2042	2109	2201	2291
17.0	1962	1951	1962	1957	1938	1964	2011	2069	2159	2253
17.5	1935	1928	1926	1920	1930	1937	1982	2023	2109	2214
18.0	1922	1907	1912	1900	1912	1914	1953	1994	2073	2183
18.5	1885	1878	1893	1876	1877	1897	1931	1967	2042	2150
19.0	1857	1855	1854	1845	1855	1861	1920	1936	1999	2102
19.5	1836	1837	1826	1812	1828	1847	1892	1925	1980	2092
20.0	1823	1819	1809	1794	1785	1823	1859	1898	1960	2072
20.5	1811	1810	1799	1779	1764	1774	1832	1879	1957	2047
21.0	1798	1799	1787	1768	1754	1758	1803	1855	1925	2007
21.5	1792	1790	1776	1755	1740	1739	1754	1828	1921	2003
22.0	1792	1780	1771	1740	1726	1724	1733	1820	1890	1988
22.5	1781	1775	1761	1736	1714	1712	1723	1780	1872	1978
23.0	1781	1772	1752	1724	1709	1697	1708	1745	1853	1971
23.5	1783	1767	1748	1722	1698	1690	1700	1732	1851	1946
24.0	1786	1774	1754	1720	1697	1681	1695	1725	1811	1933
24.5	1783	1776	1754	1723	1697	1680	1685	1712	1792	1899
25.0	1781	1771	1758	1731	1702	1679	1681	1705	1780	1902
25.5	1777	1771	1761	1739	1711	1687	1681	1705	1775	1882
26.0	1781	1771	1765	1747	1720	1696	1681	1698	1766	1845

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CANDELA TABULATION - (Cont.)

26.5	1779	1779	1771	1751	1729	1701	1693	1702	1756	1819
27.0	1784	1779	1785	1765	1741	1717	1704	1703	1753	1807
27.5	1794	1793	1792	1782	1757	1731	1712	1708	1745	1792
28.0	1805	1799	1802	1794	1773	1739	1723	1725	1747	1783
28.5	1815	1812	1821	1813	1788	1750	1730	1727	1744	1774
29.0	1817	1823	1840	1838	1810	1777	1742	1730	1739	1773
29.5	1832	1838	1851	1859	1831	1793	1753	1740	1740	1753
30.0	1855	1862	1881	1879	1858	1811	1764	1739	1745	1743
30.5	1882	1895	1913	1917	1883	1830	1775	1738	1741	1743
31.0	1935	1950	1957	1954	1917	1850	1782	1738	1737	1740
31.5	2030	2042	2037	2014	1960	1881	1802	1745	1736	1743
32.0	2135	2149	2127	2109	2016	1917	1820	1746	1724	1747
32.5	2236	2289	2273	2219	2097	1950	1826	1746	1716	1742
33.0	2386	2433	2399	2359	2182	2014	1863	1754	1707	1735
33.5	2523	2591	2527	2491	2324	2088	1893	1760	1706	1725
34.0	2657	2682	2666	2649	2458	2164	1915	1765	1700	1713
34.5	2849	2864	2831	2774	2592	2305	1983	1787	1696	1705
35.0	2988	3018	2988	2923	2764	2420	2045	1797	1700	1696
35.5	3119	3159	3131	3038	2855	2527	2129	1828	1703	1682
36.0	3274	3308	3292	3204	3000	2702	2250	1908	1722	1680
36.5	3464	3479	3455	3377	3153	2786	2381	1951	1738	1674
37.0	3630	3625	3601	3497	3272	2904	2500	2068	1775	1676
37.5	3955	3933	3855	3689	3431	3067	2604	2162	1819	1672
38.0	4251	4225	4115	3917	3623	3240	2715	2265	1884	1682
38.5	4428	4396	4337	4153	3834	3364	2814	2390	1983	1709
39.0	4660	4664	4598	4368	4023	3517	3007	2575	2099	1772
39.5	4902	4909	4835	4596	4200	3709	3161	2665	2159	1786
40.0	5163	5170	5103	4853	4433	3884	3292	2805	2339	1863
40.5	5468	5460	5387	5143	4716	4153	3511	2941	2441	1950
41.0	5767	5745	5646	5391	4926	4389	3710	3105	2558	2012
41.5	6121	6085	5970	5707	5137	4570	3866	3270	2753	2136
42.0	6439	6417	6306	6013	5515	4867	4138	3437	2835	2239
42.5	6719	6670	6554	6255	5752	5131	4394	3645	2954	2323
43.0	7023	6993	6875	6588	6014	5365	4620	3868	3167	2498
43.5	7423	7388	7237	6932	6378	5686	4920	4059	3318	2600
44.0	7886	7811	7583	7225	6628	5959	5184	4271	3416	2673
44.5	8290	8219	8004	7600	6915	6217	5430	4570	3753	2882
45.0	8762	8711	8468	8016	7374	6614	5791	4850	3907	3027
45.5	9267	9223	8954	8442	7726	6955	6092	5104	4030	3105
46.0	9615	9593	9384	8932	8152	7312	6394	5437	4391	3367
46.5	9935	9916	9775	9442	8742	7773	6742	5756	4540	3471
47.0	10170	10167	9998	9758	9120	8181	7074	5932	4764	3636
47.5	10345	10322	10189	10030	9606	8735	7569	6415	5149	3934
48.0	10674	10642	10431	10154	9808	9143	8025	6888	5365	4088
48.5	10992	10954	10763	10430	9990	9452	8419	7104	5686	4355
49.0	11183	11194	11056	10738	10280	9778	8941	7545	5999	4605
49.5	11253	11301	11229	10966	10532	10010	9293	7959	6202	4737
50.0	11301	11335	11307	11146	10776	10217	9517	8350	6691	5099
50.5	11388	11425	11375	11222	11025	10514	9816	8711	7106	5363
51.0	11550	11599	11502	11276	11113	10731	10050	8989	7323	5630
51.5	11661	11710	11649	11419	11191	10874	10254	9315	7889	5985
52.0	11767	11791	11743	11550	11312	11026	10491	9645	8241	6339
52.5	11796	11872	11824	11645	11453	11133	10649	9838	8365	6602
53.0	11880	11930	11887	11733	11544	11201	10726	9927	8717	6911
53.5	11973	12011	11948	11788	11651	11367	10888	10170	8960	7226
54.0	12089	12135	12038	11839	11726	11474	11015	10243	9053	7507

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CANDELA TABULATION - (Cont.)

54.5	12207	12261	12186	11955	11778	11538	11093	10366	9295	7725
55.0	12266	12327	12289	12060	11870	11644	11246	10548	9454	7946
55.5	12283	12361	12363	12159	11974	11719	11289	10598	9492	8105
56.0	12270	12337	12376	12222	12061	11773	11368	10705	9668	8198
56.5	12243	12317	12352	12227	12159	11913	11504	10808	9687	8176
57.0	12211	12278	12308	12211	12170	11935	11511	10886	9804	8402
57.5	12190	12247	12269	12165	12170	12013	11617	10984	9930	8430
58.0	12169	12222	12222	12132	12157	12029	11684	10981	9978	8493
58.5	12122	12191	12227	12111	12124	12000	11678	11023	10035	8551
59.0	12032	12114	12199	12049	12078	11999	11723	11108	10168	8594
59.5	11941	12053	12145	12005	12042	11956	11696	11077	10105	8631
60.0	11857	11903	12020	11955	11981	11924	11675	11074	10097	8529
60.5	11714	11762	11833	11824	11914	11888	11671	11113	10114	8653
61.0	11508	11577	11621	11684	11830	11815	11601	11031	10085	8647
61.5	11245	11326	11381	11476	11713	11756	11583	11006	9943	8496
62.0	10855	10953	11136	11221	11508	11635	11515	10956	9987	8582
62.5	10467	10596	10773	11011	11353	11504	11416	10900	10011	8542
63.0	10114	10192	10369	10617	11106	11351	11251	10826	9836	8490
63.5	9728	9813	9953	10238	10793	11158	11139	10795	9868	8411
64.0	9372	9454	9612	9850	10424	10938	10943	10611	9699	8321
64.5	8996	9068	9237	9488	10023	10569	10800	10483	9668	8177
65.0	8545	8663	8838	9077	9632	10215	10598	10307	9473	8077
65.5	8303	8374	8525	8732	9272	9858	10243	10125	9407	7977
66.0	7972	8041	8168	8381	8941	9550	9955	9943	9172	7873
66.5	7694	7751	7869	8097	8597	9244	9652	9718	9119	7824
67.0	7460	7511	7600	7793	8277	8874	9303	9401	8838	7701
67.5	7208	7251	7337	7484	7972	8505	8920	9105	8654	7560
68.0	6949	6983	7069	7231	7673	8196	8599	8782	8383	7405
68.5	6717	6751	6815	6965	7384	7879	8244	8453	8056	7143
69.0	6475	6501	6546	6669	7065	7578	7928	8128	7831	7049
69.5	6233	6264	6336	6459	6835	7280	7637	7783	7579	6800
70.0	6041	6061	6106	6206	6604	7002	7278	7409	7197	6527
70.5	5776	5804	5862	5979	6332	6710	6959	7082	6931	6285
71.0	5538	5563	5619	5741	6090	6462	6699	6769	6600	6045
71.5	5327	5362	5399	5527	5866	6221	6391	6432	6244	5720
72.0	5142	5152	5181	5315	5600	5977	6120	6091	5933	5506
72.5	4910	4925	4968	5090	5406	5734	5858	5814	5633	5240
73.0	4721	4732	4758	4860	5213	5503	5591	5508	5286	4969
73.5	4494	4513	4543	4657	4959	5273	5368	5260	5010	4685
74.0	4279	4288	4338	4456	4761	5065	5130	5001	4715	4435
74.5	4104	4113	4131	4227	4484	4788	4868	4718	4442	3937
75.0	3891	3896	3918	4018	4291	4575	4649	4463	4173	3788
75.5	3670	3672	3693	3781	4074	4362	4422	4231	3820	3688
76.0	3468	3473	3493	3594	3850	4113	4193	3857	3691	3445
76.5	3243	3252	3275	3378	3632	3883	3922	3740	3454	3216
77.0	3022	3038	3061	3167	3423	3659	3708	3541	3226	2971
77.5	2834	2843	2862	2947	3232	3446	3513	3339	3006	2776
78.0	2630	2637	2659	2741	3019	3223	3292	3130	2799	2571
78.5	2440	2439	2460	2548	2793	3014	3072	2895	2576	2358
79.0	2261	2263	2281	2366	2580	2790	2852	2679	2395	2180
79.5	2084	2084	2098	2178	2384	2581	2632	2497	2229	2002
80.0	1902	1908	1924	1997	2196	2377	2434	2291	2038	1820
80.5	1732	1735	1749	1834	2018	2186	2239	2102	1862	1670
81.0	1582	1582	1592	1664	1836	1996	2044	1925	1705	1509
81.5	1433	1433	1443	1505	1667	1813	1859	1735	1525	1345
82.0	1294	1293	1304	1365	1503	1637	1679	1558	1366	1209

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82.5	1161	1158	1162	1213	1346	1469	1507	1401	1224	1063
83.0	1014	1014	1031	1083	1208	1307	1344	1246	1078	932
83.5	899	897	902	941	1046	1150	1177	1088	937	817
84.0	777	778	783	819	914	996	1018	932	797	683
84.5	662	662	667	702	781	857	870	788	668	576
85.0	553	553	558	586	653	713	722	657	553	469
85.5	453	453	456	476	533	579	583	520	435	365
86.0	359	358	361	377	419	455	454	404	333	281
86.5	273	272	273	284	315	339	337	303	247	202
87.0	194	194	194	201	222	237	236	207	164	134
87.5	127	126	126	130	141	151	149	128	101	82
88.0	70	70	70	70	75	77	74	61	47	36
88.5	28	28	28	28	29	29	26	20	14	11
89.0	4	4	5	5	5	6	6	6	5	5
89.5	3	3	3	3	3	4	4	4	5	5
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	3477	3477	3477	3477	3477	3477	3477	3477	3477	3477
0.5	3405	3405	3402	3404	3417	3428	3449	3479	3502	3511
1.0	3369	3381	3393	3402	3405	3415	3436	3470	3499	3508
1.5	3317	3340	3370	3388	3397	3402	3423	3457	3489	3498
2.0	3272	3292	3327	3362	3386	3396	3413	3447	3479	3487
2.5	3226	3247	3286	3325	3366	3387	3394	3430	3470	3477
3.0	3184	3191	3235	3277	3330	3365	3374	3413	3462	3463
3.5	3164	3163	3180	3228	3285	3345	3360	3394	3447	3449
4.0	3133	3153	3165	3211	3266	3317	3351	3355	3422	3441
4.5	3103	3122	3145	3171	3234	3300	3341	3353	3431	3431
5.0	3085	3089	3126	3144	3209	3279	3331	3337	3427	3416
5.5	3078	3072	3094	3129	3170	3241	3317	3325	3413	3409
6.0	3079	3056	3069	3109	3137	3215	3310	3321	3413	3409
6.5	3051	3057	3050	3085	3122	3196	3280	3303	3391	3397
7.0	3031	3048	3030	3058	3097	3157	3240	3291	3367	3391
7.5	2996	3033	3027	3027	3076	3113	3214	3280	3362	3382
8.0	2957	2993	3023	3006	3052	3097	3201	3262	3347	3369
8.5	2920	2965	3004	2996	3026	3080	3177	3252	3330	3361
9.0	2892	2938	2981	2990	3004	3059	3160	3237	3315	3356
9.5	2853	2895	2949	2987	2984	3044	3130	3226	3288	3339
10.0	2805	2866	2917	2980	2971	3027	3097	3217	3294	3364
10.5	2760	2849	2893	2959	2953	3006	3072	3201	3267	3348
11.0	2718	2823	2872	2945	2942	2991	3050	3180	3241	3310
11.5	2696	2756	2852	2924	2938	2979	3032	3176	3255	3347
12.0	2662	2701	2828	2888	2934	2958	3039	3164	3246	3357
12.5	2643	2692	2795	2859	2921	2931	2990	3126	3211	3309
13.0	2606	2677	2771	2845	2914	2907	2964	3104	3186	3291
13.5	2557	2659	2719	2832	2896	2895	2948	3088	3167	3290
14.0	2528	2638	2694	2808	2874	2880	2929	3071	3150	3270
14.5	2501	2603	2664	2779	2839	2863	2911	3043	3131	3251
15.0	2456	2546	2648	2749	2825	2848	2891	3016	3106	3213
15.5	2431	2526	2638	2717	2806	2839	2876	2999	3090	3207
16.0	2412	2506	2617	2685	2787	2823	2849	2968	3065	3184
16.5	2387	2473	2590	2647	2769	2808	2813	2920	3018	3160
17.0	2359	2441	2558	2632	2750	2793	2793	2901	2994	3124
17.5	2321	2415	2513	2624	2728	2777	2778	2889	2986	3092

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18.0	2294	2394	2487	2613	2711	2759	2761	2867	2951	3078
18.5	2274	2376	2474	2594	2683	2737	2740	2829	2934	3051
19.0	2235	2343	2449	2570	2649	2731	2725	2823	2920	3020
19.5	2211	2336	2437	2553	2606	2706	2703	2770	2883	2986
20.0	2192	2324	2430	2532	2595	2686	2686	2737	2865	2964
20.5	2173	2301	2409	2503	2589	2676	2670	2732	2839	2938
21.0	2130	2255	2388	2481	2579	2659	2657	2708	2819	2909
21.5	2104	2239	2366	2461	2558	2642	2641	2680	2804	2894
22.0	2090	2220	2354	2450	2558	2638	2632	2662	2777	2866
22.5	2067	2217	2351	2447	2541	2614	2615	2640	2744	2839
23.0	2046	2184	2328	2432	2533	2612	2602	2620	2734	2822
23.5	2040	2159	2314	2423	2520	2587	2596	2601	2698	2798
24.0	2033	2156	2307	2420	2485	2579	2582	2581	2674	2778
24.5	2019	2134	2284	2415	2483	2568	2573	2563	2667	2767
25.0	2007	2120	2275	2409	2475	2560	2563	2550	2634	2727
25.5	1998	2128	2273	2400	2472	2544	2562	2532	2602	2698
26.0	1982	2122	2252	2396	2470	2536	2567	2519	2578	2698
26.5	1962	2099	2239	2396	2477	2540	2544	2510	2574	2676
27.0	1942	2122	2245	2393	2486	2537	2546	2491	2557	2661
27.5	1925	2110	2226	2393	2500	2540	2540	2483	2529	2635
28.0	1892	2111	2230	2400	2510	2542	2542	2468	2505	2610
28.5	1875	2095	2231	2381	2501	2541	2540	2453	2497	2600
29.0	1880	2086	2235	2389	2514	2537	2525	2435	2468	2564
29.5	1849	2059	2244	2400	2520	2531	2522	2419	2440	2538
30.0	1838	2029	2244	2374	2505	2524	2512	2400	2430	2530
30.5	1828	1997	2220	2371	2514	2520	2493	2377	2400	2508
31.0	1825	1983	2221	2381	2512	2514	2489	2363	2369	2479
31.5	1806	1964	2215	2378	2507	2508	2474	2334	2357	2458
32.0	1791	1927	2197	2369	2505	2499	2453	2314	2325	2439
32.5	1788	1922	2168	2359	2489	2498	2434	2287	2292	2405
33.0	1778	1902	2144	2343	2477	2480	2409	2260	2281	2400
33.5	1771	1866	2104	2333	2468	2457	2371	2233	2253	2386
34.0	1763	1867	2083	2308	2434	2440	2347	2203	2221	2354
34.5	1760	1839	2043	2293	2393	2415	2319	2177	2199	2350
35.0	1752	1804	2011	2282	2359	2370	2274	2156	2166	2334
35.5	1736	1795	1984	2247	2316	2332	2238	2116	2137	2301
36.0	1719	1782	1950	2218	2277	2290	2192	2084	2117	2298
36.5	1705	1758	1912	2163	2234	2233	2135	2059	2082	2281
37.0	1688	1748	1873	2119	2187	2182	2093	2022	2074	2268
37.5	1664	1731	1828	2085	2136	2119	2042	1990	2054	2261
38.0	1650	1716	1808	2035	2085	2062	1989	1970	2018	2221
38.5	1640	1700	1781	1972	2046	2011	1946	1935	2010	2235
39.0	1626	1667	1747	1921	1985	1948	1898	1903	1997	2261
39.5	1626	1639	1708	1836	1926	1885	1851	1872	1971	2207
40.0	1627	1624	1677	1797	1885	1830	1811	1846	1970	2217
40.5	1655	1588	1654	1733	1829	1770	1763	1821	1947	2242
41.0	1663	1572	1615	1681	1782	1723	1728	1789	1936	2223
41.5	1714	1559	1582	1627	1732	1670	1691	1776	1942	2222
42.0	1762	1560	1543	1573	1667	1621	1656	1751	1915	2235
42.5	1807	1553	1514	1523	1613	1582	1629	1723	1907	2230
43.0	1916	1561	1478	1480	1573	1543	1599	1718	1915	2199
43.5	1985	1605	1454	1443	1524	1506	1569	1702	1888	2231
44.0	2069	1617	1432	1404	1459	1470	1542	1668	1876	2230
44.5	2183	1649	1417	1371	1416	1440	1523	1671	1897	2204
45.0	2283	1740	1424	1344	1390	1425	1504	1661	1859	2224
45.5	2389	1767	1431	1316	1342	1396	1480	1641	1877	2223

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46.0	2520	1854	1427	1293	1318	1373	1461	1630	1868	2230
46.5	2595	1921	1478	1285	1280	1362	1457	1638	1844	2233
47.0	2757	1982	1502	1271	1256	1349	1423	1604	1861	2227
47.5	2878	2051	1504	1256	1239	1329	1405	1596	1851	2220
48.0	2978	2175	1593	1276	1212	1314	1407	1608	1829	2221
48.5	3177	2280	1654	1285	1191	1287	1375	1578	1851	2220
49.0	3347	2392	1683	1292	1182	1275	1358	1564	1835	2208
49.5	3507	2437	1752	1309	1165	1249	1350	1561	1812	2197
50.0	3687	2548	1815	1333	1154	1236	1333	1543	1804	2168
50.5	3875	2729	1880	1368	1153	1231	1316	1524	1791	2199
51.0	4074	2776	1959	1401	1146	1213	1299	1513	1810	2193
51.5	4307	2898	2042	1444	1144	1193	1283	1495	1776	2148
52.0	4532	3018	2114	1493	1158	1173	1265	1472	1786	2165
52.5	4725	3249	2186	1538	1161	1153	1242	1452	1740	2146
53.0	4966	3311	2276	1587	1170	1131	1222	1425	1719	2094
53.5	5223	3461	2364	1644	1192	1111	1203	1403	1727	2117
54.0	5490	3734	2448	1703	1203	1099	1184	1383	1669	2074
54.5	5721	3783	2542	1763	1211	1075	1158	1345	1669	2059
55.0	5847	3990	2649	1824	1241	1066	1141	1336	1640	2030
55.5	6208	4310	2754	1885	1292	1054	1114	1289	1586	2005
56.0	6370	4212	2765	1890	1289	1049	1086	1257	1580	1983
56.5	6380	4470	2926	1968	1310	1038	1068	1245	1544	1947
57.0	6705	4809	3055	2022	1375	1040	1046	1197	1490	1919
57.5	6738	4813	3083	2020	1371	1035	1024	1165	1484	1897
58.0	6825	5014	3234	2101	1382	1025	1004	1151	1442	1855
58.5	6884	5130	3336	2147	1447	1027	984	1113	1396	1817
59.0	6794	4379	3452	2204	1472	1042	982	1094	1380	1802
59.5	6962	4471	3530	2256	1482	1020	969	1044	1315	1765
60.0	6867	4521	3617	2301	1504	1036	953	997	1277	1684
60.5	7010	4958	3683	2345	1511	1008	942	980	1236	1642
61.0	7022	4633	3860	2376	1463	999	933	950	1197	1596
61.5	6887	5019	3789	2424	1470	990	922	905	1133	1544
62.0	7003	5033	3820	2462	1481	982	915	884	1111	1492
62.5	6985	4563	3835	2490	1533	998	911	856	1093	1474
63.0	6818	5027	3732	2507	1528	962	882	821	1041	1405
63.5	6763	4903	3720	2530	1510	969	879	793	997	1382
64.0	6763	4919	3758	2588	1564	988	777	755	960	1298
64.5	6699	4871	3745	2501	1501	983	764	727	903	1217
65.0	6620	4500	3805	2576	1491	944	737	706	881	1190
65.5	6536	4440	3656	2541	1480	957	731	670	826	1111
66.0	6440	4371	3702	2439	1468	976	721	646	805	1084
66.5	6282	4295	3557	2412	1462	937	699	617	771	1059
67.0	6187	4267	3539	2330	1470	949	697	596	731	983
67.5	6177	4274	3468	2369	1458	919	612	568	690	938
68.0	6060	4264	3489	2317	1377	907	597	546	659	880
68.5	5832	4164	3399	2263	1351	924	593	521	616	835
69.0	5808	4164	3243	2208	1371	909	566	500	596	790
69.5	5568	4066	3159	2152	1341	919	563	482	577	767
70.0	5522	3956	3077	2086	1297	891	536	459	537	708
70.5	5380	3926	2985	2023	1263	872	522	437	518	683
71.0	5195	3898	2973	1958	1176	851	507	420	483	629
71.5	4647	3775	2796	1887	1136	854	504	403	451	590
72.0	4537	3734	2700	1815	1127	827	476	384	438	562
72.5	4114	3605	2589	1740	1101	864	466	366	412	524
73.0	4011	3422	2456	1639	1019	835	450	351	390	492
73.5	3884	3311	2413	1557	970	805	423	332	367	457

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74.0	3792	3155	2309	1484	960	659	416	318	341	418
74.5	3691	2999	2197	1456	941	628	399	304	320	394
75.0	3468	2827	2027	1335	929	538	381	285	304	366
75.5	3250	2673	1906	1305	903	524	363	268	283	337
76.0	3084	2492	1826	1210	875	484	345	256	261	312
76.5	2886	2388	1763	1137	828	451	323	240	244	286
77.0	2662	2194	1606	1064	831	436	313	229	224	262
77.5	2505	2056	1500	990	610	400	289	211	211	242
78.0	2321	1909	1393	919	570	384	271	197	195	222
78.5	2120	1777	1296	852	527	358	260	187	178	202
79.0	1962	1669	1201	786	471	325	236	171	163	184
79.5	1782	1508	1103	721	447	308	220	155	150	167
80.0	1623	1379	1013	658	407	282	207	147	135	149
80.5	1480	1268	921	596	357	252	186	132	122	135
81.0	1320	1122	827	537	333	233	169	117	109	119
81.5	1180	1003	740	479	291	206	153	108	97	104
82.0	1052	895	663	416	258	184	137	94	85	92
82.5	923	785	582	363	234	165	121	82	74	80
83.0	805	681	505	327	196	141	105	73	64	68
83.5	694	587	434	271	169	121	90	61	54	58
84.0	585	494	365	226	142	105	76	52	45	49
84.5	489	406	299	193	117	85	63	43	37	40
85.0	389	323	236	152	96	68	50	34	30	33
85.5	303	249	181	112	72	53	40	27	24	26
86.0	230	187	132	85	53	38	28	20	18	20
86.5	159	127	89	57	37	26	19	14	13	15
87.0	105	81	56	35	21	16	12	9	9	11
87.5	62	48	32	19	11	8	7	6	6	7
88.0	28	20	15	10	6	5	5	4	4	4
88.5	9	7	7	5	4	4	4	3	3	3
89.0	5	5	5	4	3	3	3	2	2	2
89.5	5	5	5	4	3	3	2	2	2	2
90.0	0	0	0	0	0	0	0	0	0	0

Vert. Angles	Horizontal Angles									
	100	105	110	115	120	125	130	135	140	145
0.0	3477	3477	3477	3477	3477	3477	3477	3477	3477	3477
0.5	3511	3503	3501	3511	3534	3566	3602	3625	3640	3646
1.0	3502	3494	3506	3545	3593	3625	3645	3645	3632	3609
1.5	3488	3489	3539	3598	3631	3628	3605	3584	3580	3592
2.0	3478	3505	3582	3630	3613	3580	3568	3593	3637	3670
2.5	3478	3544	3618	3615	3577	3566	3616	3663	3691	3700
3.0	3481	3569	3614	3579	3564	3611	3667	3686	3696	3712
3.5	3494	3587	3587	3554	3591	3652	3675	3689	3723	3775
4.0	3485	3590	3554	3571	3632	3658	3681	3752	3810	3852
4.5	3502	3595	3539	3578	3647	3662	3729	3809	3854	3891
5.0	3515	3561	3526	3618	3642	3678	3770	3828	3879	3927
5.5	3534	3526	3541	3625	3645	3729	3803	3872	3921	3972
6.0	3536	3499	3558	3620	3662	3754	3815	3883	3943	4020
6.5	3516	3492	3562	3605	3688	3777	3848	3917	4011	4119
7.0	3503	3476	3570	3613	3734	3801	3880	4014	4120	4169
7.5	3502	3474	3571	3667	3762	3840	3935	4067	4146	4207
8.0	3474	3488	3564	3670	3766	3855	3966	4092	4173	4240
8.5	3447	3495	3548	3672	3776	3868	4032	4117	4203	4283
9.0	3419	3486	3556	3680	3787	3902	4055	4141	4232	4376

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9.5	3394	3492	3569	3695	3793	3960	4074	4183	4321	4488
10.0	3365	3482	3577	3699	3827	4001	4108	4213	4395	4512
10.5	3354	3469	3588	3715	3877	4015	4134	4294	4467	4498
11.0	3342	3464	3597	3725	3903	4037	4154	4401	4468	4486
11.5	3350	3459	3588	3719	3928	4042	4202	4414	4452	4464
12.0	3365	3452	3602	3738	3919	4035	4251	4417	4440	4464
12.5	3355	3454	3620	3767	3934	4063	4327	4407	4428	4583
13.0	3321	3437	3595	3773	3953	4161	4349	4378	4463	4683
13.5	3339	3456	3601	3805	3935	4179	4337	4356	4550	4715
14.0	3318	3440	3599	3818	3958	4226	4319	4360	4646	4736
14.5	3316	3436	3597	3826	4011	4248	4283	4476	4669	4730
15.0	3305	3433	3600	3810	4015	4236	4265	4520	4671	4735
15.5	3283	3408	3590	3815	4042	4225	4269	4561	4671	4796
16.0	3267	3396	3598	3817	4113	4208	4384	4597	4687	4858
16.5	3250	3414	3616	3810	4115	4198	4477	4594	4730	4896
17.0	3219	3388	3630	3860	4110	4185	4493	4583	4774	4887
17.5	3210	3370	3618	3813	4083	4189	4486	4606	4818	4882
18.0	3179	3352	3607	3869	4079	4232	4501	4641	4816	4936
18.5	3157	3341	3580	3893	4072	4334	4492	4700	4802	4969
19.0	3128	3370	3609	3894	4047	4334	4477	4732	4829	5027
19.5	3109	3332	3601	3909	4030	4360	4522	4745	4877	5112
20.0	3094	3320	3565	3895	4032	4387	4588	4744	4944	5151
20.5	3071	3349	3612	3863	4047	4367	4623	4779	5003	5216
21.0	3056	3326	3597	3868	4112	4356	4637	4804	5038	5299
21.5	3043	3330	3589	3877	4153	4381	4651	4846	5099	5336
22.0	3018	3329	3654	3860	4163	4376	4663	4917	5197	5372
22.5	2996	3291	3632	3855	4207	4437	4684	4975	5272	5431
23.0	2982	3275	3611	3847	4220	4487	4713	5016	5291	5464
23.5	2967	3276	3631	3839	4211	4484	4761	5118	5335	5534
24.0	2937	3229	3620	3891	4212	4527	4787	5143	5352	5612
24.5	2942	3236	3589	3859	4193	4532	4865	5209	5427	5710
25.0	2920	3222	3597	3867	4200	4541	4929	5257	5493	5800
25.5	2883	3184	3603	3965	4279	4601	4973	5289	5542	5861
26.0	2907	3227	3580	3951	4287	4640	5036	5317	5642	5897
26.5	2893	3220	3586	3975	4322	4649	5094	5358	5713	6026
27.0	2874	3202	3587	3988	4356	4736	5134	5423	5761	6143
27.5	2858	3189	3583	3982	4351	4724	5172	5499	5820	6225
28.0	2843	3183	3584	3985	4391	4810	5190	5587	5900	6366
28.5	2839	3190	3574	3988	4409	4882	5213	5612	5990	6439
29.0	2811	3205	3582	3998	4393	4873	5279	5671	6125	6490
29.5	2797	3151	3575	4000	4435	4945	5352	5727	6225	6633
30.0	2789	3153	3556	4005	4449	5002	5380	5772	6280	6701
30.5	2774	3170	3585	4020	4452	4994	5401	5835	6337	6821
31.0	2748	3133	3584	4036	4530	5005	5483	5947	6411	6960
31.5	2726	3113	3536	4041	4558	5062	5525	6046	6531	7016
32.0	2719	3148	3591	4055	4589	5054	5533	6107	6617	7092
32.5	2680	3078	3559	4088	4653	5104	5582	6179	6734	7209
33.0	2707	3102	3562	4063	4633	5113	5617	6218	6783	7221
33.5	2696	3126	3582	4095	4671	5144	5746	6285	6844	7224
34.0	2655	3088	3545	4092	4680	5185	5770	6328	6939	7249
34.5	2670	3084	3554	4077	4671	5243	5832	6470	6969	7302
35.0	2661	3128	3601	4147	4732	5256	5893	6508	6985	7378
35.5	2628	3085	3537	4135	4710	5294	5932	6573	6954	7375
36.0	2639	3096	3585	4161	4718	5278	5935	6617	6968	7363
36.5	2634	3090	3588	4181	4731	5329	6041	6650	7074	7435
37.0	2623	3057	3548	4192	4796	5440	6094	6658	7075	7452

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CANDELA TABULATION - (Cont.)

37.5	2655	3091	3607	4200	4771	5424	6075	6638	7077	7467
38.0	2639	3083	3615	4221	4786	5457	6129	6663	7115	7465
38.5	2602	3047	3568	4215	4837	5512	6217	6654	7133	7477
39.0	2618	3093	3641	4233	4795	5474	6179	6626	7152	7456
39.5	2618	3101	3655	4246	4819	5516	6170	6680	7184	7419
40.0	2610	3062	3619	4254	4848	5612	6172	6683	7150	7341
40.5	2620	3073	3669	4249	4861	5577	6112	6638	7117	7291
41.0	2637	3092	3652	4247	4875	5589	6145	6698	7140	7264
41.5	2608	3062	3655	4264	4912	5604	6143	6711	7065	7219
42.0	2659	3159	3708	4275	4933	5602	6156	6681	7020	7161
42.5	2660	3128	3669	4220	4882	5583	6182	6679	6970	7094
43.0	2628	3093	3664	4258	4940	5563	6109	6592	6879	7016
43.5	2680	3185	3722	4272	4955	5530	6100	6555	6833	6937
44.0	2690	3163	3699	4238	4905	5514	6116	6532	6798	6869
44.5	2667	3130	3731	4262	4915	5469	6100	6461	6711	6799
45.0	2691	3198	3731	4265	4899	5458	6046	6410	6633	6738
45.5	2698	3171	3735	4265	4879	5470	5995	6342	6545	6669
46.0	2702	3179	3727	4266	4847	5397	5929	6249	6457	6576
46.5	2706	3185	3727	4269	4819	5364	5884	6232	6405	6496
47.0	2700	3182	3723	4266	4794	5362	5829	6167	6338	6366
47.5	2692	3182	3717	4252	4760	5280	5777	6068	6246	6239
48.0	2694	3180	3715	4232	4726	5234	5714	6008	6181	6117
48.5	2695	3182	3712	4213	4681	5229	5636	5938	6092	5957
49.0	2680	3171	3701	4192	4646	5143	5552	5844	5963	5803
49.5	2677	3161	3691	4170	4607	5087	5488	5787	5838	5643
50.0	2645	3126	3693	4135	4560	5043	5418	5704	5717	5508
50.5	2666	3143	3676	4123	4519	4955	5349	5573	5564	5352
51.0	2656	3132	3629	4063	4443	4891	5273	5491	5411	5231
51.5	2607	3074	3627	4059	4426	4827	5166	5364	5271	5062
52.0	2615	3080	3594	4018	4377	4770	5083	5220	5105	4937
52.5	2591	3058	3531	3951	4296	4639	4975	5078	4928	4775
53.0	2540	3006	3542	3929	4269	4561	4873	4951	4829	4650
53.5	2554	3020	3499	3875	4203	4476	4768	4788	4682	4514
54.0	2511	2976	3467	3825	4130	4374	4646	4629	4552	4354
54.5	2485	2950	3395	3780	4056	4303	4525	4482	4432	4222
55.0	2457	2915	3389	3733	3975	4194	4393	4335	4291	4072
55.5	2429	2879	3345	3667	3893	4101	4267	4224	4173	3910
56.0	2404	2839	3270	3606	3810	4015	4132	4097	4045	3775
56.5	2368	2797	3252	3540	3721	3913	3985	3973	3879	3611
57.0	2343	2759	3204	3469	3636	3810	3860	3863	3761	3471
57.5	2316	2717	3122	3390	3540	3714	3754	3751	3636	3377
58.0	2281	2670	3084	3315	3453	3598	3621	3614	3489	3242
58.5	2242	2623	3013	3231	3369	3475	3498	3477	3350	3093
59.0	2225	2597	2938	3155	3297	3382	3393	3361	3235	3007
59.5	2156	2519	2852	3076	3208	3266	3277	3236	3103	2875
60.0	2106	2490	2794	2980	3108	3159	3154	3125	2977	2763
60.5	2087	2430	2738	2912	3032	3054	3046	3009	2861	2663
61.0	2006	2373	2650	2826	2943	2958	2927	2899	2723	2501
61.5	1977	2309	2577	2744	2843	2851	2803	2761	2591	2379
62.0	1918	2269	2513	2668	2732	2731	2695	2655	2490	2294
62.5	1859	2179	2431	2585	2635	2626	2585	2534	2367	2171
63.0	1789	2100	2343	2496	2537	2510	2478	2412	2250	2085
63.5	1730	2030	2268	2415	2445	2406	2372	2303	2156	1986
64.0	1668	1960	2190	2329	2349	2293	2262	2173	2039	1884
64.5	1607	1909	2124	2240	2252	2194	2162	2070	1938	1775
65.0	1545	1820	2045	2149	2156	2095	2054	1954	1857	1698

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65.5	1484	1773	1967	2058	2058	1989	1949	1845	1743	1577
66.0	1421	1685	1876	1963	1962	1891	1843	1754	1663	1498
66.5	1383	1615	1801	1871	1863	1803	1755	1679	1589	1415
67.0	1301	1544	1709	1778	1762	1708	1648	1585	1487	1325
67.5	1242	1474	1633	1691	1671	1619	1550	1492	1394	1230
68.0	1172	1409	1544	1602	1578	1530	1469	1412	1316	1169
68.5	1128	1338	1460	1516	1491	1450	1378	1320	1221	1090
69.0	1068	1265	1381	1425	1397	1363	1296	1246	1163	1036
69.5	1009	1191	1294	1344	1319	1287	1224	1174	1088	979
70.0	936	1112	1211	1268	1243	1213	1154	1104	1025	926
70.5	893	1053	1143	1191	1167	1131	1072	1025	950	861
71.0	837	990	1066	1112	1091	1058	1012	969	895	812
71.5	782	916	997	1039	1022	993	943	906	843	759
72.0	736	858	929	971	956	928	883	849	789	716
72.5	675	791	859	904	892	861	822	791	740	667
73.0	627	733	801	840	833	801	763	736	690	613
73.5	591	683	737	779	776	749	715	686	645	573
74.0	537	631	684	720	721	696	666	640	598	525
74.5	497	579	633	667	668	644	617	592	555	480
75.0	464	538	584	616	620	597	574	550	513	446
75.5	421	491	535	567	572	552	533	511	475	411
76.0	387	451	494	521	528	511	491	472	437	373
76.5	355	418	452	480	487	472	455	435	400	344
77.0	327	381	416	439	446	435	419	400	364	312
77.5	299	349	383	402	408	399	384	367	335	283
78.0	273	318	349	367	372	366	351	337	307	258
78.5	248	290	316	333	339	335	321	307	277	237
79.0	225	266	290	304	309	305	293	280	249	213
79.5	204	238	261	275	279	277	264	253	227	192
80.0	183	215	235	246	251	249	239	228	201	173
80.5	164	193	211	221	225	225	215	206	184	157
81.0	145	171	188	197	201	201	192	183	162	140
81.5	128	152	167	174	179	178	171	162	143	123
82.0	114	133	146	152	157	157	151	144	127	110
82.5	97	115	126	133	137	138	133	126	112	97
83.0	83	100	109	114	119	120	116	110	97	85
83.5	72	85	93	98	102	103	100	95	85	75
84.0	60	71	78	83	86	88	85	81	73	65
84.5	49	59	65	69	72	74	72	69	62	55
85.0	40	48	53	56	60	61	60	57	52	48
85.5	32	38	42	46	48	50	48	46	43	40
86.0	25	30	33	36	39	39	37	36	34	33
86.5	18	22	25	28	29	29	27	28	28	27
87.0	13	16	18	20	21	20	20	21	22	22
87.5	8	11	12	13	13	14	15	17	19	19
88.0	5	6	7	9	10	11	13	15	16	17
88.5	4	4	5	7	8	10	12	14	15	16
89.0	3	4	5	6	8	10	12	13	15	15
89.5	3	4	5	6	8	10	12	13	15	15
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	3477	3477	3477	3477	3477	3477	3477
0.5	3644	3636	3628	3621	3617	3606	3592

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CANDELA TABULATION - (Cont.)

1.0	3592	3581	3574	3571	3569	3568	3559
1.5	3609	3625	3637	3644	3649	3648	3638
2.0	3685	3685	3684	3681	3679	3674	3661
2.5	3693	3700	3717	3736	3748	3750	3743
3.0	3738	3778	3803	3832	3833	3828	3820
3.5	3817	3855	3868	3870	3875	3885	3883
4.0	3873	3902	3919	3929	3935	3937	3948
4.5	3923	3948	3961	3974	3989	3991	4001
5.0	3954	3990	4036	4073	4105	4122	4138
5.5	4032	4096	4149	4176	4192	4202	4226
6.0	4112	4173	4210	4241	4256	4268	4281
6.5	4182	4226	4263	4286	4301	4333	4340
7.0	4226	4276	4313	4353	4357	4380	4399
7.5	4266	4313	4373	4436	4481	4517	4540
8.0	4314	4416	4509	4556	4583	4602	4620
8.5	4408	4534	4585	4594	4593	4597	4616
9.0	4514	4567	4581	4572	4571	4563	4578
9.5	4547	4554	4559	4540	4532	4537	4555
10.0	4537	4537	4521	4548	4600	4648	4673
10.5	4513	4512	4576	4662	4727	4760	4791
11.0	4486	4584	4711	4780	4811	4814	4824
11.5	4531	4711	4792	4818	4830	4839	4856
12.0	4641	4779	4807	4823	4813	4838	4856
12.5	4741	4791	4814	4817	4836	4863	4887
13.0	4766	4789	4823	4864	4913	4946	4959
13.5	4776	4803	4872	4965	4975	4999	5016
14.0	4775	4858	4966	4985	4967	4976	4972
14.5	4815	4936	4981	4953	4958	4986	4984
15.0	4865	4953	4946	5010	5057	5077	5079
15.5	4940	4935	5018	5090	5126	5146	5146
16.0	4926	4976	5084	5153	5195	5212	5209
16.5	4920	5034	5140	5215	5233	5248	5237
17.0	4981	5103	5213	5248	5295	5329	5319
17.5	5030	5181	5254	5335	5419	5436	5433
18.0	5104	5225	5342	5470	5483	5485	5475
18.5	5177	5290	5455	5490	5505	5523	5508
19.0	5203	5385	5488	5514	5589	5628	5626
19.5	5289	5449	5517	5606	5676	5699	5696
20.0	5381	5473	5600	5684	5732	5753	5757
20.5	5418	5528	5681	5748	5823	5879	5896
21.0	5451	5628	5743	5862	5942	6006	6024
21.5	5508	5687	5833	5956	6036	6070	6073
22.0	5563	5747	5919	6047	6102	6167	6180
22.5	5634	5876	6026	6123	6231	6312	6347
23.0	5724	5948	6083	6266	6410	6472	6484
23.5	5825	5994	6200	6402	6541	6577	6593
24.0	5884	6106	6364	6584	6683	6714	6730
24.5	5930	6236	6477	6669	6771	6853	6877
25.0	6042	6368	6610	6757	6887	6977	7004
25.5	6158	6476	6673	6866	7065	7186	7231
26.0	6255	6562	6756	7058	7253	7331	7353
26.5	6389	6644	6945	7234	7343	7382	7425
27.0	6489	6761	7157	7326	7419	7472	7526
27.5	6534	6898	7230	7405	7520	7593	7640
28.0	6658	7100	7309	7500	7630	7689	7715
28.5	6814	7194	7428	7615	7689	7709	7753

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29.0	6947	7232	7508	7662	7704	7770	7818
29.5	7067	7325	7597	7673	7796	7891	7945
30.0	7136	7421	7613	7771	7938	7996	8019
30.5	7183	7470	7663	7873	7984	7998	7993
31.0	7305	7496	7768	7910	7968	8018	8014
31.5	7380	7556	7853	7894	8009	8081	8094
32.0	7380	7634	7853	7928	8086	8158	8177
32.5	7407	7734	7858	8014	8139	8189	8197
33.0	7438	7713	7942	8100	8157	8197	8197
33.5	7537	7706	7989	8110	8159	8157	8164
34.0	7587	7807	8037	8118	8128	8144	8145
34.5	7574	7837	8043	8097	8094	8154	8158
35.0	7640	7892	8038	8056	8105	8153	8145
35.5	7696	7907	7983	8058	8088	8076	8056
36.0	7718	7898	7946	8038	7983	7938	7941
36.5	7724	7845	7956	7951	7872	7850	7848
37.0	7768	7810	7925	7835	7795	7783	7770
37.5	7746	7799	7828	7749	7725	7703	7673
38.0	7685	7777	7723	7675	7659	7653	7618
38.5	7646	7694	7650	7605	7599	7592	7555
39.0	7611	7602	7574	7539	7516	7509	7486
39.5	7579	7532	7515	7475	7437	7414	7380
40.0	7494	7458	7445	7403	7373	7341	7301
40.5	7403	7400	7367	7329	7272	7207	7172
41.0	7337	7339	7289	7234	7113	7045	7010
41.5	7267	7262	7205	7116	6979	6920	6900
42.0	7201	7197	7099	6962	6796	6716	6715
42.5	7119	7123	6977	6789	6605	6498	6471
43.0	7032	6982	6803	6640	6478	6405	6395
43.5	6967	6926	6705	6498	6330	6260	6254
44.0	6877	6783	6512	6362	6198	6128	6119
44.5	6776	6632	6379	6232	6070	5993	5976
45.0	6679	6494	6243	6076	5913	5856	5847
45.5	6552	6312	6074	5933	5794	5751	5747
46.0	6411	6154	5946	5817	5702	5642	5641
46.5	6295	6039	5829	5690	5564	5494	5466
47.0	6098	5882	5682	5583	5439	5363	5315
47.5	5937	5759	5576	5469	5305	5215	5165
48.0	5828	5647	5468	5299	5089	4996	4936
48.5	5683	5506	5284	5104	4889	4781	4725
49.0	5545	5369	5153	4952	4742	4626	4557
49.5	5422	5237	4990	4752	4550	4438	4384
50.0	5281	5082	4773	4554	4349	4241	4180
50.5	5136	4913	4619	4401	4201	4091	4026
51.0	5032	4770	4463	4181	3976	3876	3818
51.5	4834	4550	4240	4018	3831	3706	3666
52.0	4682	4377	4076	3855	3700	3609	3561
52.5	4534	4231	3928	3720	3565	3481	3437
53.0	4381	4065	3771	3596	3449	3366	3327
53.5	4249	3912	3640	3461	3332	3248	3217
54.0	4067	3739	3494	3339	3216	3130	3087
54.5	3913	3592	3372	3227	3102	3007	2956
55.0	3777	3466	3268	3100	2967	2869	2820
55.5	3610	3332	3139	2966	2820	2720	2662
56.0	3468	3215	3019	2842	2692	2599	2548
56.5	3344	3104	2896	2716	2577	2490	2451

IES ROAD REPORT
PHOTOMETRIC FILENAME : L041706602.IES

CANDELA TABULATION - (Cont.)

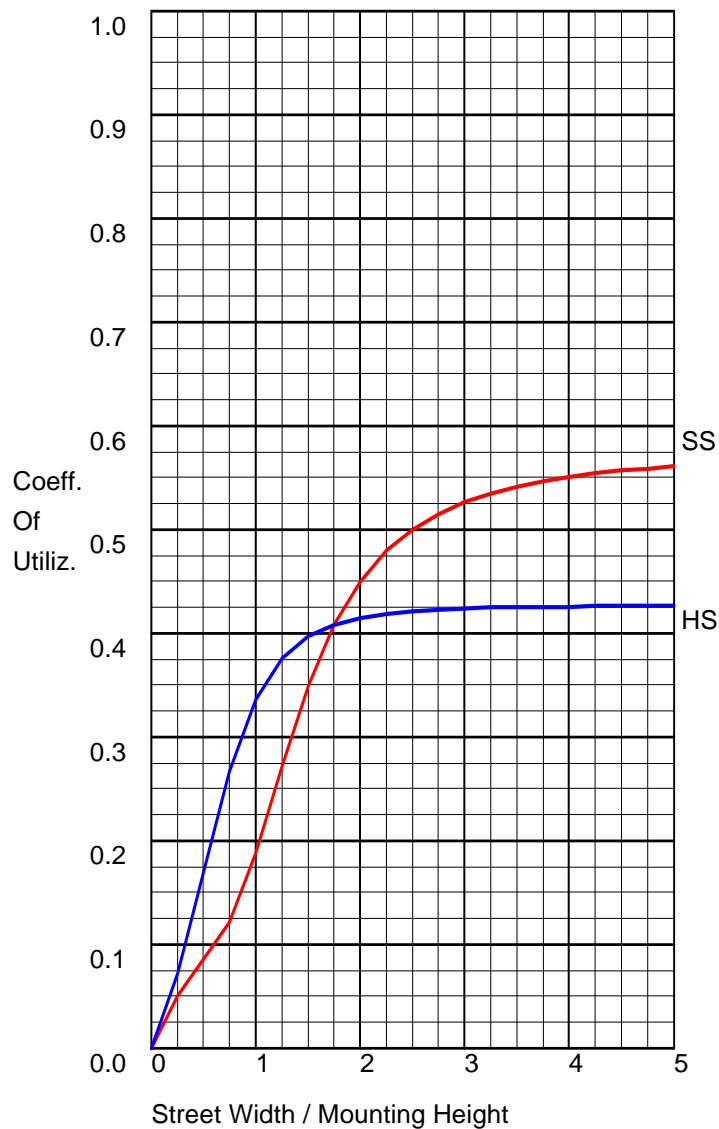
57.0	3216	2979	2767	2584	2455	2374	2321
57.5	3108	2859	2643	2468	2341	2258	2209
58.0	3005	2756	2526	2363	2231	2149	2108
58.5	2859	2607	2410	2242	2122	2045	1994
59.0	2750	2500	2304	2136	2015	1932	1886
59.5	2616	2380	2198	2030	1912	1843	1799
60.0	2520	2267	2075	1908	1791	1734	1699
60.5	2423	2167	1986	1815	1696	1627	1598
61.0	2278	2049	1850	1698	1607	1552	1532
61.5	2189	1966	1781	1613	1518	1462	1445
62.0	2088	1848	1668	1529	1442	1379	1368
62.5	1965	1743	1576	1438	1359	1308	1297
63.0	1874	1645	1486	1361	1289	1233	1221
63.5	1755	1553	1404	1285	1212	1164	1152
64.0	1652	1463	1318	1206	1137	1099	1083
64.5	1570	1384	1250	1139	1071	1029	1019
65.0	1482	1323	1189	1063	997	963	949
65.5	1375	1233	1111	1007	946	910	896
66.0	1311	1174	1045	945	882	853	841
66.5	1232	1102	984	882	827	798	781
67.0	1172	1028	917	820	778	749	738
67.5	1095	977	870	775	730	707	697
68.0	1043	927	816	724	680	661	652
68.5	973	862	764	678	640	623	615
69.0	932	815	718	630	597	580	573
69.5	873	765	665	589	561	532	525
70.0	804	699	612	545	522	504	497
70.5	770	667	575	512	482	463	456
71.0	711	613	534	475	443	424	418
71.5	660	576	499	437	410	390	383
72.0	620	525	458	405	377	357	351
72.5	567	485	420	374	345	325	319
73.0	523	447	391	343	316	297	292
73.5	489	418	360	315	287	270	264
74.0	446	381	331	287	261	244	238
74.5	408	355	306	261	238	223	218
75.0	380	323	277	240	217	202	197
75.5	346	293	252	218	196	182	177
76.0	317	272	229	198	177	164	159
76.5	293	251	208	180	159	149	145
77.0	265	226	188	162	143	133	130
77.5	241	207	172	144	129	121	118
78.0	219	186	154	131	116	109	106
78.5	203	170	138	115	103	96	94
79.0	180	150	125	105	94	88	86
79.5	164	136	112	94	84	79	78
80.0	148	122	100	85	75	71	70
80.5	134	109	89	76	68	64	63
81.0	118	97	79	68	61	58	57
81.5	105	86	71	61	54	52	51
82.0	94	76	63	54	49	46	46
82.5	82	68	56	48	44	42	41
83.0	72	60	50	43	39	38	37
83.5	64	53	44	38	35	34	34
84.0	55	47	39	34	32	31	30
84.5	48	41	34	31	28	28	27

IES ROAD REPORT
PHOTOMETRIC FILENAME : L041706602.IES

CANDELA TABULATION - (Cont.)

85.0	42	36	30	27	26	25	24
85.5	36	31	27	24	23	22	22
86.0	30	27	24	22	21	20	20
86.5	26	24	21	20	19	18	18
87.0	22	20	19	18	17	17	17
87.5	19	18	17	17	16	15	15
88.0	17	17	16	16	15	14	14
88.5	16	16	15	15	14	14	14
89.0	16	16	15	15	14	14	14
89.5	16	16	15	15	14	14	14
90.0	0	0	0	0	0	0	0

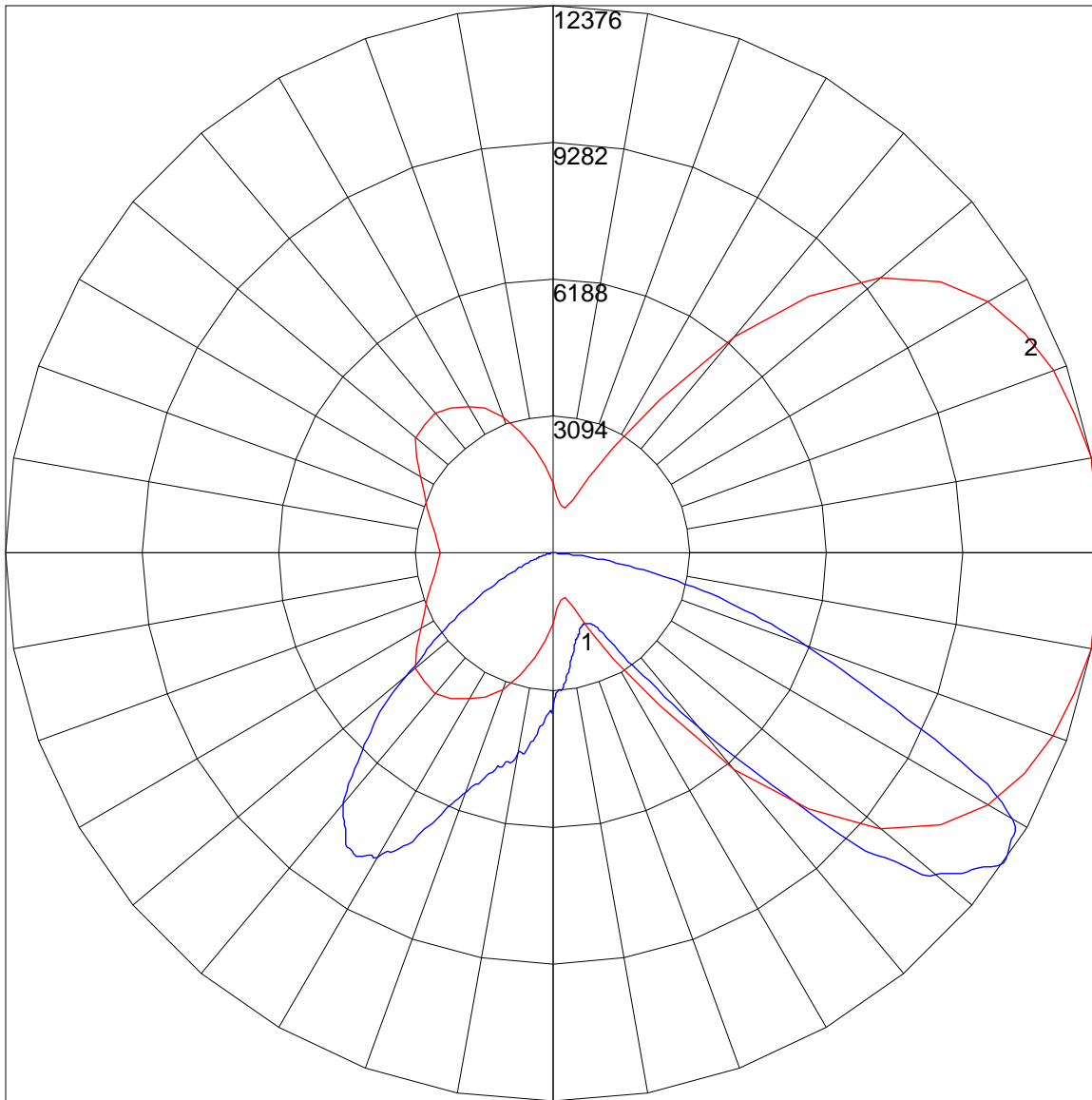
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

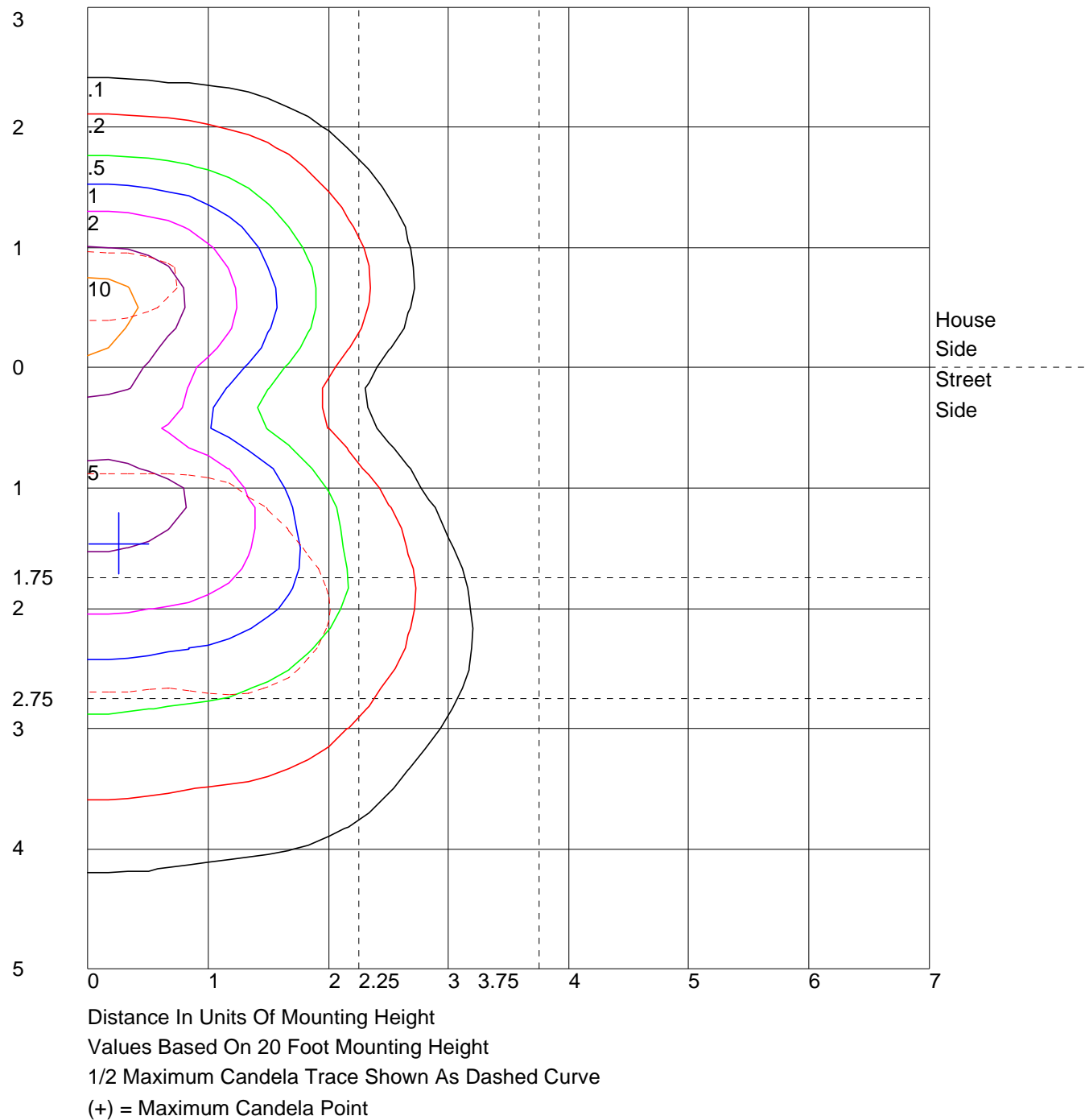
	Lumens	Percent Of Luminaire
Downward Street Side	11240.4	57.3
Downward House Side	8384.8	42.7
Downward Total	19625.2	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	19625.2	100.0

POLAR GRAPH

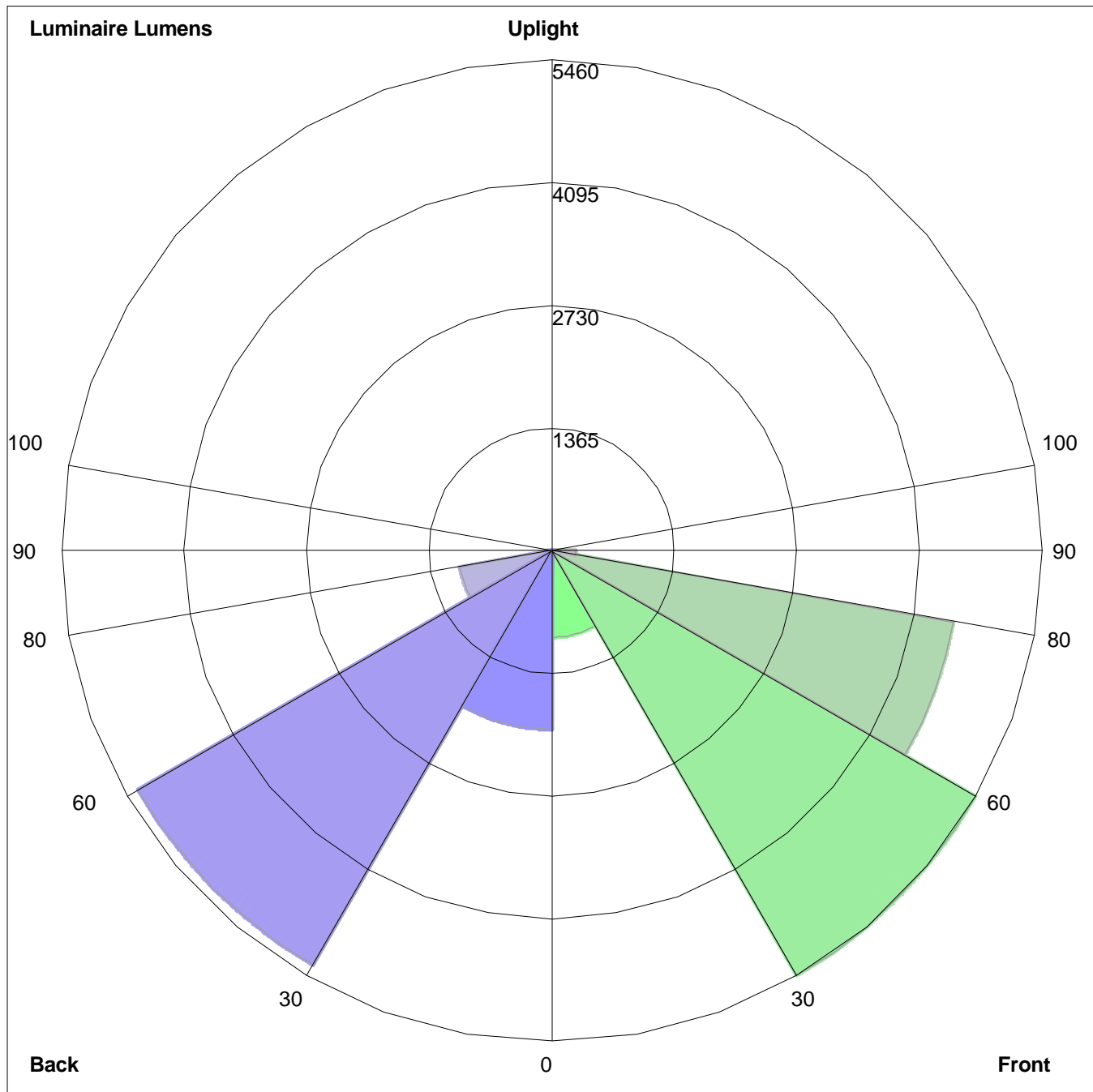


Maximum Candela = 12376 Located At Horizontal Angle = 10, Vertical Angle = 56
1 - Vertical Plane Through Horizontal Angles (10 - 190) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (56) (Through Max. Cd.)

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=964.7, Medium=5460.4, High= 4545.0, Very High=270.4
Back: Low=1988.4, Medium=5324.3, High=1040.2, Very High=31.9
Uplight: Low=0.0, High=0.0

BUG Rating : B4-U0-G3