

REPORT NUMBER: ITL89988-GONIOPHOTOMETRY

PAGE: 1 OF 10

ISSUE DATE: 11/16/17

PREPARED FOR: FINELITE, INC.

ADDRESS: 30500 WHIPPLE ROAD

UNION CITY, CA 94587

CATALOG NUMBER: HP-4-ID-4ft-V-V-835-F-ASY

LUMINAIRE: EXTRUDED WHITE PAINTED METAL HOUSING WITH WHITE PAINTED FLAT METAL END CAPS AND 2 DISTINCT OPTICAL COMPARTMENTS, TOP OPTICAL COMPARTMENT CONSISTS OF: 2-PIECE FORMED WHITE PAINTED METAL REFLECTOR/CIRCUIT BOARD MOUNT, 2 WHITE CIRCUIT BOARDS EACH WITH 80 LEDS, EXTRUDED 4-PIECE FROSTED LINEAR PRISMATIC PLASTIC LENS. BOTTOM COMPARTMENT CONSISTS OF FORMED WHITE PAINTED METAL REFLECTOR/CIRCUIT BOARD MOUNT, 4 CIRCUIT BOARDS EACH WITH 40 LEDS, EXTRUDED FROSTED PLASTIC DIFFUSER. DIFFUSER FROSTED BOTH SIDES, LENS FROSTED BOTH SIDES WITH PRISMS OUT AND PARALLEL WITH THE LENGTH OF HOUSING.

LAMPS: THREE HUNDRED TWENTY WHITE LIGHT EMITTING DIODES (LEDs), 160 VERTICAL BASE-UP POSITION, 160 VERTICAL BASE-DOWN POSITION.

INPUT ELECTRICAL: 277.0 VOLTS, 74.9 WATTS, 0.281 AMPS

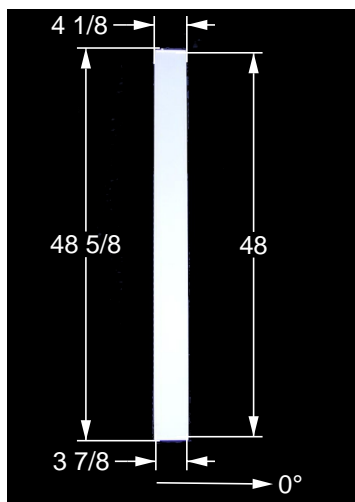
MOUNTING: SUSPENDED

LED DRIVERS: TWO OSRAM OTi 50/120-277/1A4 DIM L, DRIVERS HAVE MULTIPLE LEADS, ONLY LINE INPUT AND LED OUTPUT LEADS CONNECTED FOR THIS TEST, CLIENT STATES DRIVERS PROGRAMMED FOR 700mA OUTPUT.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (277VAC, 60Hz) TO THE DRIVERS.

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 35.0 FEET



THIS REPORT WITH THE USE OF THE NVLAP LOGO SHALL NOT BE USED BY THE CLIENT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE FEDERAL GOVERNMENT.

Checked M KLOPF

Approved N WHITE

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PREPARED FOR: FINELITE, INC.

CATALOG NUMBER: HP4ID-4'-V-V-835-F-ASYM-WSO-X-X-X-X (ENHANCED VERSION)

CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0
0	1434	1434	1434	1434	1434
5	1427	1427	1426	1425	1426
15	1361	1363	1363	1360	1358
25	1230	1235	1235	1234	1227
35	1054	1063	1063	1060	1050
45	860	866	867	864	856
55	648	654	657	654	647
65	439	444	444	442	437
75	245	244	243	240	238
85	68	67	67	66	66
90	0	0	0	0	0
95	142	146	57	141	175
105	582	647	207	294	355
115	1335	1134	369	414	493
125	1861	1288	545	504	620
135	1803	1318	724	574	667
145	1657	1367	909	644	668
155	1581	1432	1084	783	706
165	1537	1446	1220	1009	910
175	1401	1366	1293	1225	1196
180	1302	1302	1302	1302	1302

FLUX

135
383
567
662
665
584
438
255
75
147
431
692
797
745
642
513
345
123

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	1086	13.2
0- 40	1748	21.3
0- 60	2998	36.5
0- 90	3766	45.9
90-120	1270	15.5
90-130	2067	25.2
90-150	3454	42.1
90-180	4436	54.1
0-180	8202	100.0

EFFICACY (277) = 109.5 lm/W

EFFICACY (120) = 111.1 lm/W **

** THE EFFICACY AT 120 VOLTS IS BASED ON THE LUMENS FROM THIS REPORT AND THE WATTAGE MEASURED AT 120 VOLTS FROM ITL REPORT NUMBER ITL89988-THD.

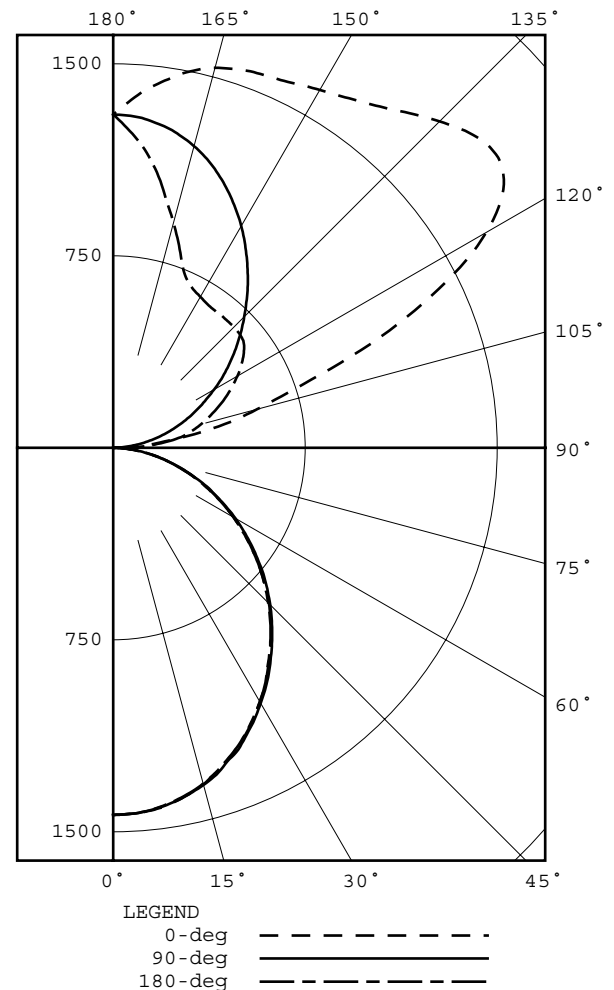
CIE TYPE - GENERAL DIFFUSE

PLANE : 0-DEG 90-DEG 180-DEG

SPACING CRITERIA : 1.19 1.20 1.19

BEAM ANGLE (50%) : 83.4 X 82.4 DEGREES

FIELD ANGLE (10%) : 168.0 X 155.7 DEGREES





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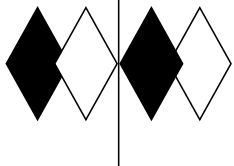
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CATALOG NUMBER: HP4ID-4'-V-V-835-F-ASYM-WSO-X-X-X-X (ENHANCED VERSION)

PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 3.875 48.000

LUMINANCE DATA IN CANDELA/SQ M			
ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 90-DEG	AVERAGE 180-DEG
45	10135.	10218.	10088.
55	9415.	9545.	9400.
65	8656.	8755.	8617.
75	7888.	7824.	7663.
85	6502.	6406.	6311.



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CATALOG NUMBER: HP4ID-4'-V-V-835-F-ASYM-WSO-X-X-X-X (ENHANCED VERSION)

CANDELA DISTRIBUTION
LATERAL ANGLE

	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	90.0	95.0	112.5	135.0
0.0	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434
2.5	1432	1432	1432	1432	1432	1432	1432	1431	1432	1432	1432	1432	1432	1432
5.0	1427	1427	1427	1427	1427	1427	1427	1426	1426	1427	1426	1427	1426	1425
7.5	1418	1417	1417	1417	1417	1417	1416	1415	1415	1415	1416	1416	1415	1413
10.0	1403	1403	1406	1405	1405	1403	1404	1399	1399	1400	1402	1402	1398	1399
12.5	1384	1384	1387	1388	1389	1386	1385	1379	1379	1381	1384	1383	1377	1381
15.0	1361	1360	1364	1367	1368	1363	1363	1356	1356	1360	1363	1361	1352	1360
17.5	1331	1331	1334	1339	1341	1337	1337	1330	1335	1336	1339	1338	1326	1333
20.0	1300	1301	1303	1308	1309	1306	1312	1298	1298	1302	1304	1302	1293	1302
22.5	1267	1266	1269	1273	1276	1276	1275	1264	1267	1273	1276	1274	1260	1272
25.0	1230	1228	1230	1235	1238	1235	1237	1233	1228	1232	1235	1233	1224	1234
27.5	1189	1189	1190	1195	1202	1195	1198	1190	1189	1194	1196	1195	1185	1194
30.0	1146	1146	1147	1152	1156	1154	1153	1148	1147	1151	1152	1152	1144	1153
32.5	1103	1103	1103	1109	1111	1110	1109	1105	1107	1108	1109	1110	1101	1107
35.0	1054	1056	1056	1064	1065	1063	1062	1059	1061	1062	1063	1059	1055	1060
37.5	1008	1009	1008	1013	1019	1016	1015	1014	1015	1015	1014	1012	1007	1013
40.0	961	959	959	963	967	965	967	965	967	967	966	964	959	964
42.5	911	910	908	913	916	916	917	915	918	917	917	915	910	915
45.0	860	860	860	863	865	866	864	865	867	867	867	866	860	864
47.5	807	808	808	811	813	814	813	813	815	815	816	815	808	812
50.0	754	756	757	757	760	762	762	759	764	763	765	763	756	760
52.5	701	704	704	704	708	710	709	707	712	711	710	711	704	707
55.0	648	652	652	651	655	654	656	654	658	658	657	656	652	654
57.5	595	599	600	601	602	601	603	602	605	606	604	602	599	601
60.0	542	546	548	548	549	551	550	549	551	553	551	549	547	548
62.5	491	493	496	496	494	498	497	496	499	501	497	498	494	495
65.0	439	441	444	444	442	444	443	444	444	445	444	445	441	442
67.5	388	390	391	393	391	394	391	389	392	393	396	392	387	390
70.0	338	339	341	340	341	342	339	339	340	341	343	340	337	339
72.5	289	290	291	291	291	292	289	289	290	291	292	289	287	290
75.0	245	242	242	243	243	244	240	240	240	241	243	240	238	240
77.5	198	195	198	195	196	197	193	193	191	193	195	192	191	194
80.0	153	150	152	151	150	152	149	150	148	147	150	147	148	148
82.5	109	107	109	109	107	108	106	107	107	107	107	107	106	106
85.0	68	66	68	66	66	67	65	67	66	67	67	66	66	66
87.5	31	31	31	30	28	29	28	28	29	28	28	28	27	28
90.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92.5	67	66	69	67	64	58	60	62	58	42	22	30	58	91
95.0	142	142	147	144	141	146	159	156	128	83	57	60	92	141
97.5	224	219	234	240	254	272	273	239	187	122	93	91	122	186
100.0	347	342	359	369	390	398	376	317	247	162	130	124	155	223
102.5	469	465	483	495	524	520	474	396	302	202	169	157	188	263
105.0	582	578	601	635	664	647	577	476	352	243	207	194	219	294
107.5	717	712	754	807	819	780	683	548	399	282	247	231	247	324
110.0	903	898	956	986	977	907	782	608	444	322	287	268	275	355
112.5	1129	1122	1160	1163	1134	1032	862	659	487	363	328	305	302	386
115.0	1335	1327	1351	1337	1277	1134	923	705	527	405	369	344	330	414
117.5	1528	1518	1529	1487	1389	1206	968	743	569	448	410	385	359	440
120.0	1683	1674	1667	1598	1465	1250	1000	780	609	491	455	428	390	463
122.5	1795	1789	1756	1670	1505	1275	1029	816	652	537	501	472	420	485
125.0	1861	1855	1810	1701	1521	1288	1052	850	693	582	545	515	449	504
127.5	1884	1878	1824	1703	1520	1296	1075	883	736	627	590	558	479	522
130.0	1874	1868	1811	1687	1511	1302	1100	918	777	671	634	600	508	539
132.5	1843	1839	1782	1663	1500	1309	1125	954	821	717	679	644	537	557
135.0	1803	1800	1746	1637	1489	1318	1151	990	864	763	724	689	571	574
137.5	1762	1760	1709	1611	1480	1329	1177	1029	908	809	770	734	608	592
140.0	1721	1719	1674	1589	1475	1341	1203	1067	953	855	817	780	648	609
142.5	1685	1682	1646	1572	1474	1354	1231	1106	996	901	863	824	690	626
145.0	1657	1653	1621	1559	1474	1367	1260	1144	1039	947	909	871	731	644
147.5	1633	1630	1603	1550	1475	1383	1289	1181	1081	992	955	916	773	666

THIS REPORT IS BASED ON PUBLISHED INDUSTRY PROCEDURES. FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE.



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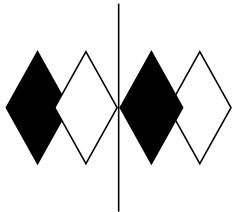
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CATALOG NUMBER: HP4ID-4'-V-V-835-F-ASYM-WSO-X-X-X-X (ENHANCED VERSION)

CANDELA DISTRIBUTION
LATERAL ANGLE

	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	90.0	95.0	112.5	135.0
150.0	1614	1609	1588	1542	1479	1400	1318	1216	1121	1036	1001	962	818	694
152.5	1597	1592	1575	1536	1484	1417	1341	1247	1158	1078	1043	1007	866	734
155.0	1581	1578	1563	1534	1491	1432	1364	1274	1193	1117	1084	1050	917	783
157.5	1572	1569	1557	1533	1496	1443	1381	1298	1224	1154	1123	1091	969	836
160.0	1565	1562	1553	1532	1498	1450	1394	1318	1252	1188	1159	1130	1019	890
162.5	1552	1553	1545	1525	1495	1451	1402	1333	1275	1219	1192	1165	1068	946
165.0	1537	1537	1530	1510	1484	1446	1403	1344	1294	1245	1220	1196	1113	1009
167.5	1512	1513	1507	1490	1466	1433	1397	1349	1307	1265	1244	1223	1154	1069
170.0	1480	1482	1476	1462	1443	1416	1386	1350	1316	1281	1265	1247	1192	1126
172.5	1440	1443	1439	1428	1413	1392	1370	1346	1319	1293	1280	1267	1225	1178
175.0	1401	1399	1396	1390	1380	1366	1352	1336	1319	1301	1293	1284	1255	1225
177.5	1351	1351	1350	1346	1342	1334	1329	1320	1311	1303	1299	1295	1280	1265
180.0	1302	1302	1302	1302	1302	1302	1302	1302	1302	1302	1302	1302	1302	1302



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CANDELA DISTRIBUTION
LATERAL ANGLE

	157.5	180.0
0.0	1434	1434
2.5	1432	1432
5.0	1424	1426
7.5	1414	1414
10.0	1401	1399
12.5	1384	1381
15.0	1361	1358
17.5	1334	1330
20.0	1302	1298
22.5	1269	1265
25.0	1230	1227
27.5	1191	1187
30.0	1147	1145
32.5	1103	1102
35.0	1056	1050
37.5	1009	1004
40.0	961	956
42.5	910	907
45.0	859	856
47.5	807	805
50.0	754	754
52.5	702	701
55.0	649	647
57.5	597	595
60.0	545	542
62.5	493	490
65.0	439	437
67.5	388	386
70.0	338	336
72.5	289	286
75.0	240	238
77.5	193	197
80.0	148	151
82.5	107	108
85.0	65	66
87.5	27	28
90.0	0	0
92.5	109	116
95.0	167	175
97.5	224	235
100.0	270	286
102.5	305	321
105.0	344	355
107.5	378	388
110.0	413	423
112.5	447	459
115.0	480	493
117.5	513	527
120.0	542	560
122.5	571	592
125.0	593	620
127.5	611	645
130.0	622	660
132.5	630	665
135.0	636	667
137.5	642	667
140.0	647	667
142.5	652	667
145.0	659	668
147.5	669	673



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CANDELA DISTRIBUTION
LATERAL ANGLE

	157.5	180.0
150.0	680	681
152.5	694	690
155.0	715	706
157.5	751	732
160.0	807	780
162.5	870	844
165.0	933	910
167.5	1001	978
170.0	1077	1059
172.5	1144	1132
175.0	1204	1196
177.5	1254	1250
180.0	1302	1302



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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	34
5- 10	101
10- 15	164
15- 20	219
20- 25	266
25- 30	301
30- 35	325
35- 40	337
40- 45	338
45- 50	327
50- 55	307
55- 60	277
60- 65	241
65- 70	198
70- 75	151
75- 80	104
80- 85	58
85- 90	17
90- 95	38
95-100	109
100-105	181
105-110	251
110-115	320
115-120	372
120-125	398
125-130	399
130-135	384
135-140	361
140-145	336
145-150	307
150-155	275
155-160	239
160-165	197
165-170	148
170-175	92
175-180	31

10-DEGREE
ZONAL LUMEN SUMMARY

0- 10	135
0- 20	519
0- 30	1086
0- 40	1748
0- 50	2413
0- 60	2998
0- 70	3436
0- 80	3691
0- 90	3766
0-100	3913
0-110	4344
0-120	5036
0-130	5833
0-140	6578
0-150	7221
0-160	7734
0-170	8079
0-180	8202



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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	46
1	97	92	89	85	89	85	82	79	71	69	66	58	56	55	46	45	44	39
2	88	81	75	69	81	74	69	64	62	58	55	51	48	46	41	39	37	32
3	80	71	64	58	73	65	59	54	55	50	46	45	42	39	36	34	31	27
4	73	63	55	49	67	58	51	46	49	43	39	40	36	33	32	29	27	23
5	67	56	48	42	62	52	44	39	43	38	34	36	32	29	29	26	24	20
6	62	50	42	36	57	46	39	34	39	34	29	32	28	25	26	23	21	18
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	21	18	16
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14
9	49	37	30	25	45	35	28	23	30	24	21	25	21	18	20	17	15	13
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	14	12

ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS TEST SAMPLE.

NOTE: THE ZONAL CAVITY CALCULATION TECHNIQUE IS ACCURATE WHEN LUMINAIRES WITH SYMMETRIC CANDELA DISTRIBUTIONS ARE EMPLOYED AND WHEN THE LUMINAIRES ARE LOCATED SYMMETRICALLY THROUGHOUT THE ROOM. THIS UNIT HAS SPECIAL CHARACTERISTICS AND THEREFORE THESE COEFFICIENTS SHOULD BE USED WITH CAUTION.



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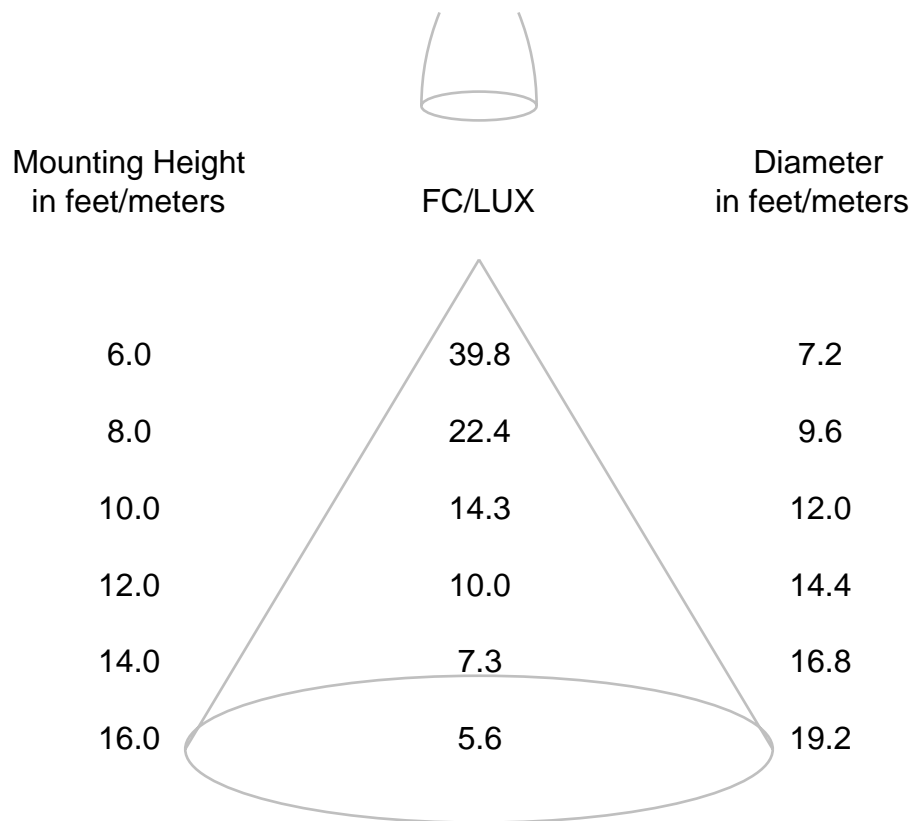
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PREPARED FOR: FINELITE, INC.

CATALOG NUMBER: HP4ID-4'-V-V-835-F-ASYM-WSO-X-X-X-X (ENHANCED VERSION)

CONE OF LIGHT DIAGRAM

(diameter shown is where fc/lux value is half the fc/lux at nadir)



If distances are feet, results are footcandles.
If distances are meters, results are lux.

Note: The candela values used to generate this diagram were obtained by averaging the photometric data into a single plane.