

PHOTOMETRY FILES

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# SOFTFORM SERIES

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## SQUARE

**REPORT NUMBER:** ITL90614-GONIOPHOTOMETRY

**PAGE**

**ISSUE DATE:** 07/13/18

**PREPARED FOR:** SOFTFORM LIGHTING, LLC

**ADDRESS:** 4539 WELLINGTON ROAD  
BOULDER, CO 80301

**CATALOG NUMBER:** **SFR22** 9/16 HTW HO 40 MVOLT

**LUMINAIRE:** EXTRUDED WHITE PAINTED HOUSING, FABRICATED WHITE PAINTED METAL TOP/REFLECTOR, 4 WHITE CIRCUIT BOARDS EACH WITH 64 LEDS, WHITE FABRIC DIFFUSER.

**LAMPS:** TWO HUNDRED FIFTY-SIX WHITE LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP POSITION.

**INPUT ELECTRICAL:** 120.0 VOLTS, 57.7 WATTS, 0.482 AMPS

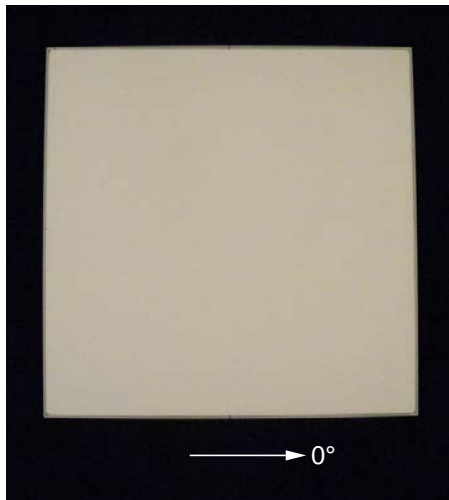
**MOUNTING:** RECESSED

**LED DRIVER:** OSRAM OTi 48/120-277/2A0 DIM L, DRIVER HAS MULTIPLE LEADS, ONLY LINE INPUT AND LED OUTPUT LEADS CONNECTED FOR THIS TEST, CLIENT STATES DRIVER PROGRAMMED FOR 1880mA OUTPUT.

**NOTE:** DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120VAC, 60Hz) TO THE DRIVER.

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.

Approved           C STOUT

**REPORT NUMBER:** ITL90614-GONIOPHOTOMETRY

**PAGE:** 2 OF 6

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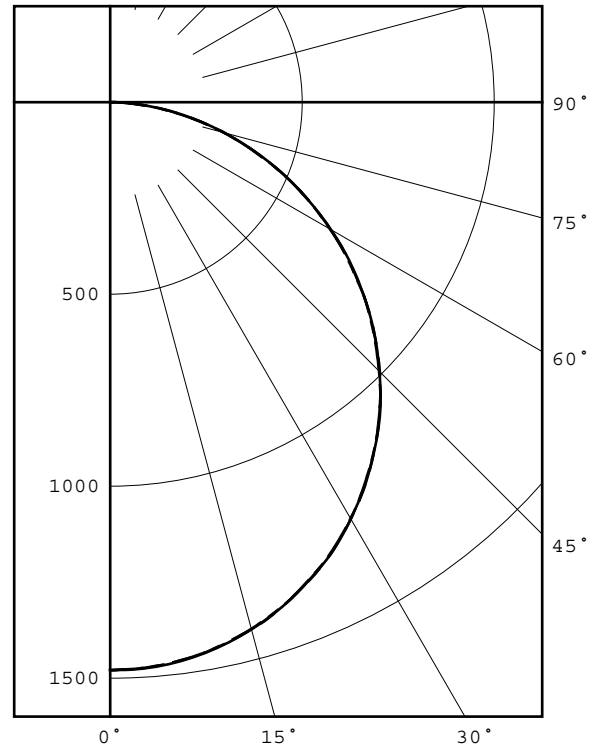
**CATALOG NUMBER:** **SFR22** 9/16 HTW HO 40 MVOLT

CANDELA DISTRIBUTION						FLUX
	0.0	22.5	45.0	67.5	90.0	
0	1479	1479	1479	1479	1479	
5	1472	1473	1474	1473	1472	140
15	1421	1421	1421	1422	1420	401
25	1322	1321	1322	1321	1320	609
35	1176	1175	1175	1175	1173	735
45	993	992	992	991	990	765
55	777	778	780	778	775	696
65	544	545	545	544	546	539
75	306	308	307	307	307	325
85	86	88	86	86	86	98
90	0	0	0	0	0	

ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	1150	26.7
0- 40	1885	43.8
0- 60	3346	77.7
0- 90	4308	100.0
90-180	0	0.0
0-180	4308	100.0

EFFICACY = 74.7 lm/W  
 CIE TYPE - DIRECT  
 PLANE : 0-DEG 90-DEG  
 SPACING CRITERIA : 1.26 1.26  
 BEAM ANGLE (50%) : 113.4 X 113.2 DEGREES  
 FIELD ANGLE (10%) : 164.2 X 164.0 DEGREES  
 LUMINOUS LENGTH : 23.250 23.250

LUMINANCE DATA IN CANDELA/SQ M			
ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	4027.	4023.	4015.
55	3884.	3899.	3874.
65	3691.	3698.	3705.
75	3390.	3401.	3401.
85	2829.	2829.	2829.



LEGEND  
 0-deg - - - - -  
 45-deg = = = = =  
 90-deg - - - - -



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**REPORT NUMBER:** ITL90614-GONIOPHOTOMETRY

**PAGE:** 3 OF 6

**ISSUE DATE:** 07/13/18

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**CATALOG NUMBER:** SFR22 9/16 HTW HO 40 MVOLT

CANDELA DISTRIBUTION  
LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0
0.0	1479	1479	1479	1479	1479
2.5	1477	1478	1479	1478	1477
5.0	1472	1473	1474	1473	1472
7.5	1464	1465	1466	1465	1464
10.0	1453	1454	1454	1453	1453
12.5	1437	1439	1439	1438	1438
15.0	1421	1421	1421	1422	1420
17.5	1401	1401	1401	1400	1399
20.0	1376	1378	1377	1377	1376
22.5	1350	1349	1349	1349	1348
25.0	1322	1321	1322	1321	1320
27.5	1289	1288	1289	1287	1287
30.0	1253	1254	1253	1253	1252
32.5	1216	1216	1216	1214	1214
35.0	1176	1175	1175	1175	1173
37.5	1133	1133	1133	1132	1132
40.0	1088	1090	1090	1087	1087
42.5	1041	1044	1042	1041	1041
45.0	993	992	992	991	990
47.5	941	942	941	941	938
50.0	889	889	889	888	887
52.5	834	836	834	834	834
55.0	777	778	780	778	775
57.5	722	722	723	722	720
60.0	663	664	664	663	661
62.5	603	606	604	603	604
65.0	544	545	545	544	546
67.5	486	485	486	486	485
70.0	423	426	426	427	424
72.5	366	368	368	365	365
75.0	306	308	307	307	307
77.5	249	249	250	250	248
80.0	193	193	193	194	191
82.5	139	138	139	139	137
85.0	86	88	86	86	86
87.5	38	40	39	39	36
90.0	0	0	0	0	0



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**PAGE:** 4 OF 6

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**PREPARED FOR:** SOFTFORM LIGHTING, LLC

**CATALOG NUMBER:** **SFR22** 9/16 HTW HO 40 MVOLT

5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	35
5- 10	105
10- 15	170
15- 20	231
20- 25	283
25- 30	326
30- 35	358
35- 40	378
40- 45	385
45- 50	380
50- 55	362
55- 60	333
60- 65	294
65- 70	246
70- 75	191
75- 80	134
80- 85	76
85- 90	22

10-DEGREE  
ZONAL LUMEN SUMMARY

0- 10	140
0- 20	541
0- 30	1150
0- 40	1885
0- 50	2650
0- 60	3346
0- 70	3885
0- 80	4210
0- 90	4308



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**PREPARED FOR:** SOFTFORM LIGHTING, LLC

**CATALOG NUMBER:** SFR22 9/16 HTW HO 40 MVOLT

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	119	119	119	119	116	116	116	116	111	111	111	111	106	106	106	102	102	102	100
1	108	103	99	95	106	101	97	94	97	94	91	93	90	88	89	87	85	83	83
2	98	90	83	77	96	88	82	76	84	79	74	81	77	73	78	74	71	69	69
3	90	79	70	64	87	77	69	63	74	68	62	71	66	61	69	64	60	58	58
4	82	70	61	54	80	68	60	54	66	59	53	63	57	52	61	56	51	49	49
5	75	62	53	46	73	61	52	46	59	51	46	57	50	45	55	49	45	42	42
6	69	56	47	40	68	55	46	40	53	46	40	51	45	39	50	44	39	37	37
7	64	51	42	36	63	50	41	35	48	41	35	47	40	35	45	39	35	33	33
8	60	46	38	32	58	46	37	32	44	37	31	43	36	31	42	36	31	29	29
9	56	42	34	29	55	42	34	28	41	33	28	40	33	28	39	32	28	26	26
10	52	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	25	24	24

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.

**REPORT NUMBER:** ITL90614-GONIOPHOTOMETRY

**PAGE:** 6 OF 6

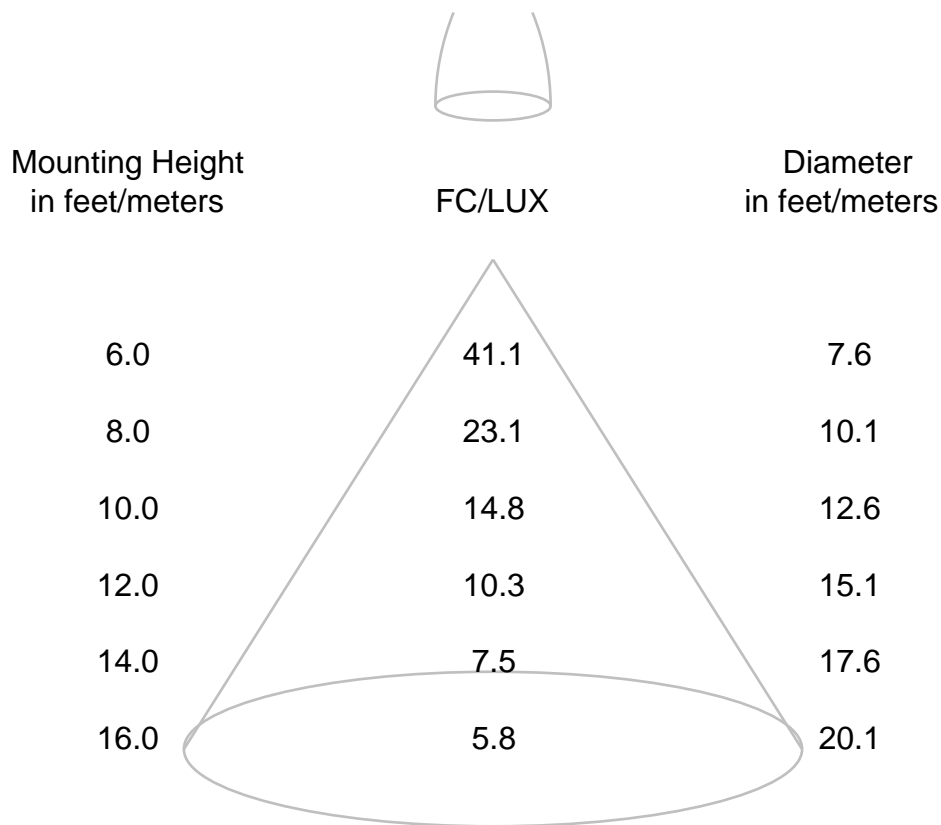
**ISSUE DATE:** 07/13/18

**PREPARED FOR:** SOFTFORM LIGHTING, LLC

**CATALOG NUMBER:** SFR22 9/16 HTW HO 40 MVOLT

## 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.

**REPORT NUMBER:** ITL90617-GONIOPHOTOMETRY

**PAGE**

**ISSUE DATE:** 07/13/18

**PREPARED FOR:** SOFTFORM LIGHTING, LLC

**ADDRESS:** 4539 WELLINGTON ROAD  
BOULDER, CO 80301

**CATALOG NUMBER:** **SFR44** 9/16 HTW HO 40 MVOLT

**LUMINAIRE:** EXTRUDED WHITE PAINTED HOUSING, FABRICATED WHITE PAINTED METAL TOP/REFLECTOR, 24 WHITE CIRCUIT BOARDS EACH WITH 48 LEDS, WHITE FABRIC DIFFUSER.

**LAMPS:** ONE THOUSAND ONE HUNDRED FIFTY-TWO WHITE LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP POSITION.

**INPUT ELECTRICAL:** 120.0 VOLTS, 164.3 WATTS, 1.37 AMPS

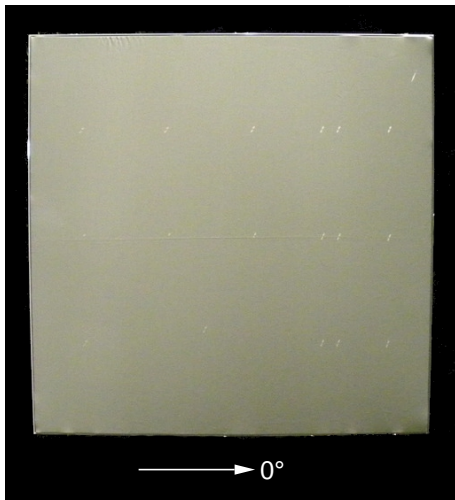
**MOUNTING:** RECESSED

**LED DRIVERS:** TWO OSRAM OTi 85/120-277/2A3 DIM L, DRIVERS HAVE MULTIPLE LEADS, ONLY LINE INPUT AND LED OUTPUT LEADS CONNECTED FOR THIS TEST, CLIENT STATES EACH DRIVER PROGRAMMED FOR 1650mA OUTPUT.

**NOTE:** DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120VAC, 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.

Approved     *C STOUT*



**REPORT NUMBER:** ITL90617-GONIOPHOTOMETRY

**PAGE:** 2 OF 6

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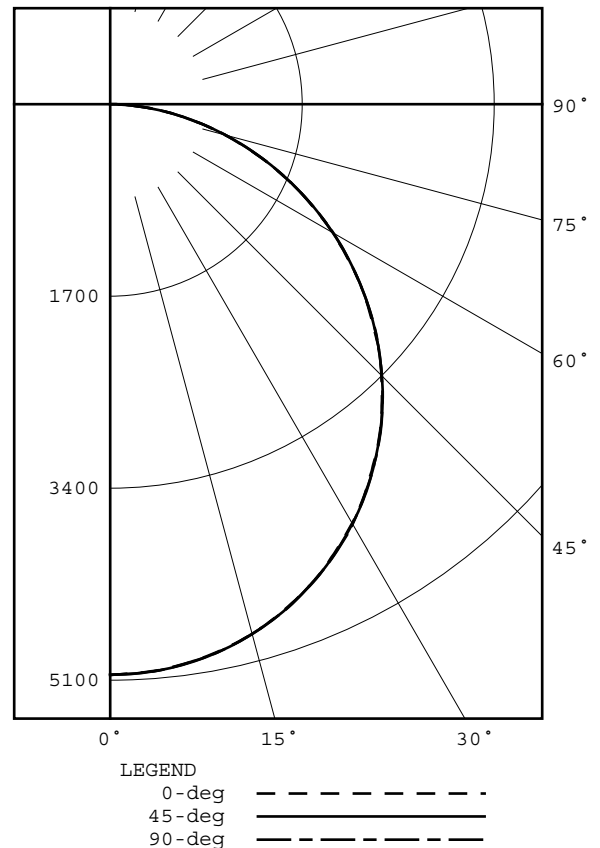
**CATALOG NUMBER:** **SFR44** 9/16 HTW HO 40 MVOLT

CANDELA DISTRIBUTION						FLUX
	0.0	22.5	45.0	67.5	90.0	
0	5052	5052	5052	5052	5052	
5	5029	5034	5030	5033	5031	478
15	4854	4861	4858	4860	4855	1371
25	4512	4520	4518	4521	4517	2082
35	4015	4026	4025	4027	4024	2518
45	3397	3399	3401	3405	3399	2623
55	2670	2667	2670	2674	2669	2386
65	1868	1869	1868	1872	1867	1851
75	1052	1058	1050	1054	1059	1116
85	294	303	297	301	302	338
90	0	0	0	0	0	

ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	3931	26.6
0- 40	6450	43.7
0- 60	11460	77.6
0- 90	14765	100.0
90-180	0	0.0
0-180	14765	100.0

EFFICACY = 89.9 lm/W  
 CIE TYPE - DIRECT  
 PLANE : 0-DEG 90-DEG  
 SPACING CRITERIA : 1.26 1.26  
 BEAM ANGLE (50%) : 113.6 X 113.7 DEGREES  
 FIELD ANGLE (10%) : 164.2 X 164.2 DEGREES  
 LUMINOUS LENGTH : 47.250 47.250

LUMINANCE DATA IN CANDELA/SQ M			
ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	3335.	3339.	3337.
55	3232.	3232.	3231.
65	3069.	3069.	3067.
75	2822.	2817.	2841.
85	2342.	2366.	2406.





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**REPORT NUMBER:** ITL90617-GONIOPHOTOMETRY

**PAGE:** 3 OF 6

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**CATALOG NUMBER:** **SFR44** 9/16 HTW HO 40 MVOLT

CANDELA DISTRIBUTION  
LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0
0.0	5052	5052	5052	5052	5052
2.5	5042	5049	5047	5049	5045
5.0	5029	5034	5030	5033	5031
7.5	5000	5006	5004	5006	4999
10.0	4961	4967	4966	4967	4964
12.5	4913	4918	4916	4919	4915
15.0	4854	4861	4858	4860	4855
17.5	4784	4793	4788	4790	4786
20.0	4702	4710	4707	4710	4708
22.5	4614	4618	4617	4621	4614
25.0	4512	4520	4518	4521	4517
27.5	4399	4409	4405	4409	4410
30.0	4285	4291	4289	4294	4293
32.5	4161	4165	4165	4163	4158
35.0	4015	4026	4025	4027	4024
37.5	3874	3881	3880	3884	3881
40.0	3724	3728	3727	3735	3732
42.5	3561	3566	3571	3571	3569
45.0	3397	3399	3401	3405	3399
47.5	3228	3229	3228	3236	3229
50.0	3038	3045	3047	3047	3052
52.5	2858	2862	2866	2862	2863
55.0	2670	2667	2670	2674	2669
57.5	2469	2472	2475	2482	2477
60.0	2273	2274	2276	2278	2281
62.5	2067	2076	2078	2076	2075
65.0	1868	1869	1868	1872	1867
67.5	1659	1665	1667	1671	1667
70.0	1458	1460	1466	1461	1459
72.5	1249	1261	1257	1257	1258
75.0	1052	1058	1050	1054	1059
77.5	859	856	857	856	856
80.0	661	663	669	667	659
82.5	477	478	479	478	477
85.0	294	303	297	301	302
87.5	132	134	134	135	134
90.0	0	0	0	0	0



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PAGE: 4 OF 6

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CATALOG NUMBER: SFR44 9/16 HTW HO 40 MVOLT

5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	121
5- 10	358
10- 15	583
15- 20	788
20- 25	968
25- 30	1114
30- 35	1225
35- 40	1294
40- 45	1320
45- 50	1303
50- 55	1243
55- 60	1143
60- 65	1008
65- 70	843
70- 75	657
75- 80	459
80- 85	261
85- 90	78

10-DEGREE  
ZONAL LUMEN SUMMARY

0- 10	478
0- 20	1849
0- 30	3931
0- 40	6450
0- 50	9073
0- 60	11460
0- 70	13310
0- 80	14426
0- 90	14765



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**PAGE:** 5 OF 6

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	119	119	119	119	116	116	116	116	111	111	111	111	106	106	106	102	102	102	100
1	108	103	99	95	106	101	97	94	97	94	91	93	90	88	89	87	85	83	83
2	98	90	83	77	96	88	82	76	84	79	74	81	77	73	78	74	71	69	69
3	90	79	70	64	87	77	69	63	74	68	62	71	66	61	69	64	60	58	58
4	82	70	61	54	80	68	60	53	66	59	53	63	57	52	61	56	51	49	49
5	75	62	53	46	73	61	52	46	59	51	45	57	50	45	55	49	44	42	42
6	69	56	47	40	68	55	46	40	53	45	40	51	45	39	50	44	39	37	37
7	64	51	42	36	63	50	41	35	48	41	35	47	40	35	45	39	35	33	33
8	60	46	38	32	58	45	37	32	44	37	31	43	36	31	42	36	31	29	29
9	56	42	34	28	55	42	34	28	41	33	28	40	33	28	39	32	28	26	26
10	52	39	31	26	51	39	31	26	38	30	26	37	30	25	36	30	25	24	24

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.

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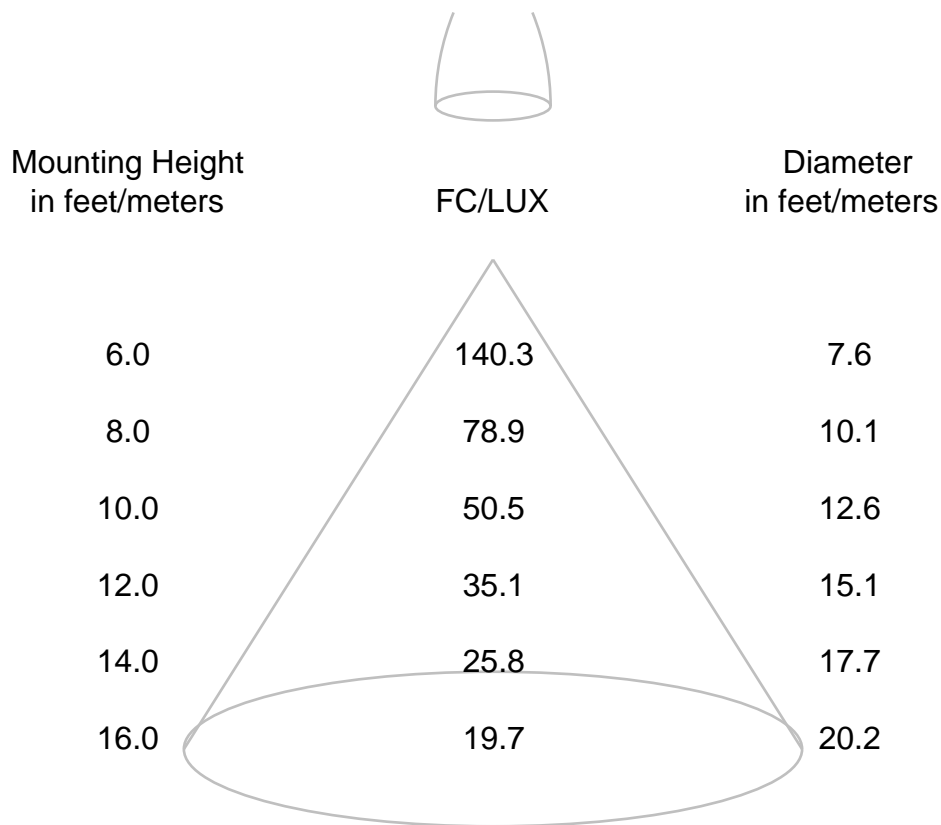
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**CATALOG NUMBER:** **SFR44** 9/16 HTW HO 40 MVOLT

## 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.