

Ceiling Cutout: 5 1/8" (130 mm) Dia.

Reflector Trim			Frame-In Kit		Lamp (Ceramic Metal Halide)
C4T4HW	CLW	Specular Clear, White Painted Flange	C420BT5PGJ5E1	Electronic 120V	22W Philips MiniMasterColor
	CLP	Specular Clear, Matching Flange	C420T4GU65EU	Electronic 120V/277V	20W GE ConstantColor
	CCDW	Comfort Clear Diffuse, White Painted Flange	C420T4EU	Electronic 120V/277V	20W T4.5
	CCDP	Comfort Clear Diffuse, Matching Flange	C439T4GU65EU	Electronic 120V/277V	39W Philips MiniMasterColor
	CCZW	Champagne Bronze, White Painted Flange	C439T4E1	Electronic 120V	39W T4.5
	CCZP	Champagne Bronze, Matching Flange	C439T4E2	Electronic 277V	39W T4.5
			C470T4E1	Electronic 120V	70W T4.5
			C470T4E2	Electronic 277V	70W T4.5

Features

- Upper Reflector:** Clear anodized aluminum, 0.040" (16-ga.). Provides wide beam distribution for general illumination.
- Aperture Cone:** Provides 50° visual cut-off to lamp and lamp image; self-flange in painted white or aperture-matching polished flange. Consult factory for other finishes.
- Lamp Shield:** High-temperature glass as required by code; captive during re-lamping. Light diffusion provides exceptionally smooth beam.
- Socket Housing:** Galvanized steel, pre-wired with G8.5 pulse rated socket. Snaps onto upper reflector for secure attachment without tools; unitized construction assures proper optical alignment of lamp to reflector.
- Mounting Frame:** 0.048" (18-ga.) galvanized steel. Vertical adjustment mechanism accommodates mounting to virtually any ceiling system using pre-installed mounting bars, or 1/2" EMT tubing (by others). Single locking feature secures all adjustments. Alignment holes and markings allow fixture to be preset prior to installation.
- Mounting Ring:** 0.048" (18-ga.) galvanized steel. Designed for vertical adjustment from above or below for ceilings from 0" to 2" thick. Center-line notches allow consistent alignment of multiple fixtures.
- Mounting Bars:** 0.048" (18-ga.) Pre-installed, telescoping bars extend to 30" long and lock securely into position. Built-in locking tabs provide positive attachment to common T-bar systems. Self-centering feature simplifies installation in 24" O.C. grid systems. Attaches to steel or wood joists without accessories.
- Trim Retention Springs:** Rust resistant springs simplify reflector removal for accessibility, inspection and maintenance of ballast/junction box assembly.
- Ballast:** Electronic 120V or 277V. Accessible from below for installation, inspection and/or replacement without tools.
- Junction Box:** 0.048" (18-ga.) galvanized steel. UL listed for 8 No. 12 AWG, 90°C through branch circuit conductors; allows inspection from below.
- Thermal Protector:** (Not Shown) Meets NEC and UL requirements. Do not install insulation above nor within 3" (76mm) of any part of the luminaire.

Electrical

Electronic Ballast: 120 or 277V, 50/60 Hz., enclosed, high power factor, T.H.D. <15%, thermally and transient protected, RMI/RFI complies with FCC Part 18 non-consumer limits, shut-down circuit at end of lamp life, sound rating "A", -5°F minimum starting temperature, Type 1 Outdoor rating.

Ballast	ANSI Code	Voltage	Max. Amps	Input Watts
20W MH	M156	120/277	0.21/0.10	23
39W MH	M130	120/277	0.39/0.17	44
70W MH	M139	120/277	0.67/0.29	78

Options and Accessories

Slope Ceiling Adapters: See Specification Sheet SCA.

Chicago Plenum: Consult Factory.

Labels

UL (Suitable for Damp Locations), CSA, I.B.E.W.

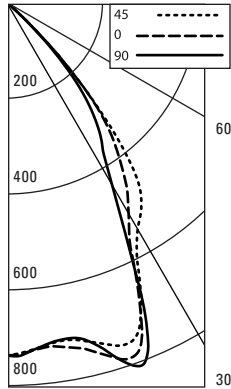
For 70W, install fixtures with minimum spacing between:

- Center-to center of adjacent luminaires: 2 feet.
- Top of luminaire to overhead building member: 1/2 inch.
- Luminaire center to side building member: 1 foot.

Job Information	Type:
Job Name:	
Cat. No.:	
Lamp(s):	
Notes:	

20W T4.5 G.E. MH Lamp, Lumen Rating = 1700 LMS, Electronic Aromat Ballast, CL Finish Trim

CANDLEPOWER DISTRIBUTION



ANGLE	0°	45°	90°
0	737	737	737
5	725	727	725
10	716	731	713
15	736	759	743
20	755	784	808
25	661	643	655
30	547	509	440
35	488	419	342
40	331	310	247
45	128	128	106
50	8	9	7
55	0	0	0
60	0	0	0
65	0	0	0
70	0	0	0
75	0	0	0
80	0	0	0
85	0	0	0
90	0	0	0

LUMINANCE SUMMARY - CD. / SQ. M.			
ANGLE	0°	45°	90°
45	22327	22499	18491
55	0	0	0
65	0	0	0
75	0	0	0
85	0	0	0

ZONAL LUMENS AND PERCENTAGES			
ZONE	LUMENS	% LAMP	% LUMINAIRE
0-30	582	34.27	61.25
0-40	842	49.53	88.54
0-60	951	55.94	100
0-90	951	55.94	100
40-90	108	6.41	11.46
60-90	0	0	0
90-180	0	0	0
0-180	951	55.94	100

Ceiling	Coefficients of Utilization										
	80%		70%		50%		30%				
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal Cavity Method - Effective Floor Cavity Reflectance = 20%										
0	.67	.67	.67	.67	.65	.65	.62	.62	.60	.60	.56
1	.64	.62	.61	.60	.61	.59	.59	.57	.57	.56	.53
2	.61	.59	.57	.55	.58	.54	.56	.53	.54	.52	.50
3	.58	.55	.53	.51	.54	.50	.53	.49	.52	.49	.47
4	.56	.52	.49	.47	.51	.47	.50	.46	.49	.46	.44
5	.53	.49	.46	.43	.48	.43	.47	.43	.46	.43	.41
6	.51	.46	.43	.41	.45	.40	.45	.40	.44	.40	.39
7	.48	.43	.40	.38	.43	.37	.42	.37	.41	.37	.36
8	.45	.40	.37	.35	.40	.35	.39	.35	.39	.34	.34
9	.43	.38	.34	.32	.37	.32	.37	.32	.36	.32	.31
10	.40	.35	.32	.30	.35	.30	.34	.30	.34	.29	.29

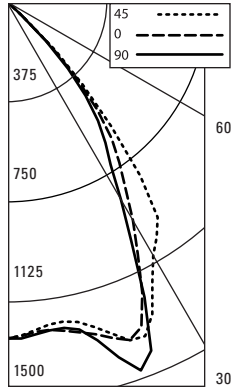
LUMINAIRE INPUT WATTS = 23

EFFICIENCY = 55.9%
SC (0°) = 1.1, SC (90°) = 1.0

CERTIFIED TEST REPORT NO. 2342FR, DATE: NOV 03, 2003
COMPUTED BY LSI PROGRAM **TEST-LITE**

39W T4 Philips MH Lamp, Lumen Rating = 3300 LMS, Electronic Aromat Ballast, CL Finish Trim

CANDLEPOWER DISTRIBUTION



ANGLE	0°	45°	90°
0	1262	1262	1262
5	1235	1242	1251
10	1217	1252	1241
15	1261	1290	1313
20	1350	1349	1470
25	1291	1202	1222
30	1098	946	856
35	986	736	645
40	609	527	460
45	259	230	207
50	26	25	25
55	7	6	6
60	2	2	3
65	1	0	0
70	0	0	0
75	0	0	0
80	0	0	0
85	0	0	0
90	0	0	0

LUMINANCE SUMMARY - CD. / SQ. M.			
ANGLE	0°	45°	90°
45	45196	40293	36329
55	1435	1371	1195
65	237	95	95
75	0	0	0
85	0	0	0

ZONAL LUMENS AND PERCENTAGES			
ZONE	LUMENS	% LAMP	% LUMINAIRE
0-30	1042	31.59	60.34
0-40	1520	46.08	88.01
0-60	1726	52.33	99.96
0-90	1727	52.35	100
40-90	207	6.28	11.99
60-90	0	0.02	0.04
90-180	0	0	0
0-180	1727	52.35	100

Ceiling	Coefficients of Utilization										
	80%		70%		50%		30%				
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal Cavity Method - Effective Floor Cavity Reflectance = 20%										
0	.62	.62	.62	.62	.61	.61	.58	.58	.56	.56	.52
1	.60	.58	.57	.56	.57	.55	.55	.53	.53	.52	.49
2	.57	.55	.53	.51	.54	.51	.52	.50	.51	.49	.47
3	.54	.51	.49	.47	.51	.47	.49	.46	.48	.45	.44
4	.52	.48	.46	.44	.48	.43	.47	.43	.46	.42	.41
5	.49	.45	.42	.40	.45	.40	.44	.40	.43	.40	.38
6	.47	.43	.40	.38	.42	.37	.41	.37	.41	.37	.36
7	.44	.40	.37	.35	.40	.35	.39	.35	.38	.34	.33
8	.42	.37	.34	.32	.37	.32	.36	.32	.36	.32	.31
9	.40	.35	.32	.30	.34	.30	.34	.29	.34	.29	.29
10	.38	.32	.29	.27	.32	.27	.32	.27	.31	.27	.26

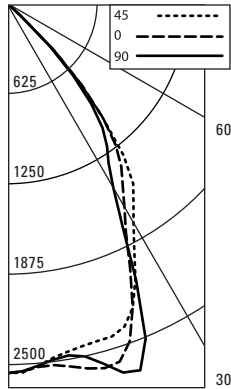
LUMINAIRE INPUT WATTS = 44

EFFICIENCY = 52.4%
SC (0°) = 1.3, SC (90°) = 1.1

CERTIFIED TEST REPORT NO. 2341FR, DATE: FEB 10, 2004
COMPUTED BY LSI PROGRAM **TEST-LITE**

70W T4 Philips MH Lamp, Lumen Rating = 6400 LMS, Electronic Aromat Ballast, CL Finish Trim

CANDLEPOWER DISTRIBUTION



ANGLE	0°	45°	90°
0	2574	2574	2574
5	2532	2540	2531
10	2461	2567	2488
15	2434	2629	2595
20	2395	2503	2717
25	2120	2034	2134
30	1768	1642	1489
35	1539	1396	1224
40	1043	1048	924
45	479	484	430
50	46	51	49
55	10	13	13
60	5	7	7
65	1	3	2
70	0	0	0
75	0	0	0
80	0	0	0
85	0	0	0
90	0	0	0

LUMINANCE SUMMARY - CD. / SQ. M.			
ANGLE	0°	45°	90°
45	83613	84756	75366
55	2124	2843	2843
65	274	964	689
75	0	0	0
85	0	0	0

ZONAL LUMENS AND PERCENTAGES			
ZONE	LUMENS	% LAMP	% LUMINAIRE
0-30	1930	30.16	60.41
0-40	2785	43.53	87.19
0-60	3192	49.88	99.92
0-90	3195	49.92	100
40-90	409	6.4	12.81
60-90	2	0.04	0.08
90-180	0	0	0
0-180	3195	49.92	100

Ceiling	Coefficients of Utilization										
	80%		70%		50%		30%				
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal Cavity Method - Effective Floor Cavity Reflectance = 20%										
0	.59	.59	.59	.59	.58	.58	.55	.55	.53	.53	.50
1	.57	.56	.54	.53	.55	.53	.53	.51	.51	.49	.47
2	.54	.52	.50	.49	.51	.48	.50	.47	.48	.46	.45
3	.52	.49	.47	.45	.48	.45	.47	.44	.46	.43	.42
4	.50	.46	.44	.42	.46	.41	.45	.41	.44	.41	.39
5	.47	.43	.41	.39	.43	.38	.42	.38	.41	.38	.37
6	.45	.41	.38	.36	.40	.36	.40	.36	.39	.35	.34
7	.42	.38	.35	.33	.38	.33	.37	.33	.37	.33	.32
8	.40	.36	.33	.31	.35	.31	.35	.31	.34	.30	.30
9	.38	.33	.30	.28	.33	.28	.33	.28	.32	.28	.27
10	.36	.31	.28	.26	.31	.26	.30	.26	.30	.26	.25

LUMINAIRE INPUT WATTS = 78

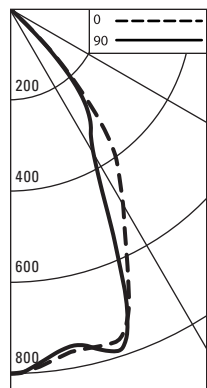
EFFICIENCY = 49.9%
SC (0°) = 1.1, SC (90°) = 1.0

CERTIFIED TEST REPORT NO. 2315FR, DATE: SEP 23, 2003
COMPUTED BY LSI PROGRAM **TEST-LITE**

Job Information **Type:**

22W PGJ5 Philips MiniMastercolor CMH Lamp, Lumen Rating = 1650 LMS, Aromat Electronic Ballast, CL Finish Trim

CANDLEPOWER DISTRIBUTION



ANGLE	0°	45°	90°
0	1389	1389	1389
5	1360	1370	1359
10	1324	1389	1315
15	1308	1397	1336
20	1216	1217	1237
25	967	864	842
30	791	700	590
35	674	625	535
40	464	484	420
45	190	212	174
50	19	23	18
55	4	5	4
60	2	2	2
65	0	0	0
70	0	0	0
75	0	0	0
80	0	0	0
85	0	0	0
90	0	0	0

LUMINANCE SUMMARY - CD. / SQ. M.			
ANGLE	0°	45°	90°
45	15456	16557	13995
55	477	443	398
65	61	0	0
75	0	0	0
85	0	0	0

ZONAL LUMENS AND PERCENTAGES		
ZONE LUMENS	% LAMP	% LUMINAIRE
0-30	933	31.13
0-40	1310	43.68
0-60	1486	49.56
0-90	1487	49.58
40-90	177	5.91
60-90	0	0.02
90-180	0	0
0-180	1487	49.58

Ceiling	Coefficients of Utilization										
	80%		70%		50%		30%		0		
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal Cavity Method - Effective Floor Cavity Reflectance = 20%										
0	.64	.64	.64	.64	.62	.62	.59	.59	.57	.57	.53
1	.61	.60	.59	.58	.59	.57	.56	.55	.54	.53	.51
2	.58	.56	.54	.53	.55	.52	.54	.51	.52	.50	.48
3	.56	.53	.51	.49	.52	.48	.51	.48	.50	.47	.45
4	.53	.50	.47	.45	.49	.45	.48	.45	.47	.44	.43
5	.51	.47	.44	.42	.46	.42	.45	.42	.45	.41	.40
6	.49	.44	.41	.39	.44	.39	.43	.39	.42	.39	.38
7	.46	.42	.39	.37	.41	.36	.41	.36	.40	.36	.35
8	.44	.39	.36	.34	.39	.34	.38	.34	.38	.34	.33
9	.42	.37	.34	.32	.36	.32	.36	.31	.35	.31	.30
10	.39	.34	.31	.29	.34	.29	.34	.29	.33	.29	.28

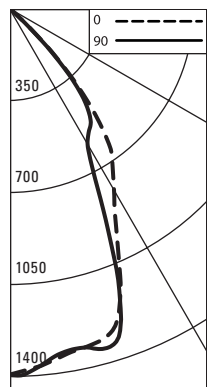
LUMINAIRE INPUT WATTS = 25

EFFICIENCY = 49.6%
SC(0°) = 1.0, SC(90°) = 0.9

CERTIFIED TEST REPORT NO. 3908FR
COMPUTED BY LSI PROGRAM **TEST-LITE**

39W PGJ5 Philips MiniMastercolor CMH Lamp, Lumen Rating = 3000 LMS, Aromat Electronic Ballast, CL Finish Trim

CANDLEPOWER DISTRIBUTION



ANGLE	0°	45°	90°
0	1389	1389	1389
5	1360	1370	1359
10	1324	1389	1315
15	1308	1397	1336
20	1216	1217	1237
25	967	864	842
30	791	700	590
35	674	625	535
40	464	484	420
45	190	212	174
50	19	23	18
55	4	5	4
60	2	2	2
65	0	0	0
70	0	0	0
75	0	0	0
80	0	0	0
85	0	0	0
90	0	0	0

LUMINANCE SUMMARY - CD. / SQ. M.			
ANGLE	0°	45°	90°
45	26150	29306	24021
55	755	805	687
65	32	64	32
75	0	0	0
85	0	0	0

ZONAL LUMENS AND PERCENTAGES		
ZONE LUMENS	% LAMP	% LUMINAIRE
0-30	933	31.13
0-40	1310	43.68
0-60	1486	49.56
0-90	1487	49.58
40-90	177	5.91
60-90	0	0.02
90-180	0	0
0-180	1487	49.58

Ceiling	Coefficients of Utilization										
	80%		70%		50%		30%		0		
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal Cavity Method - Effective Floor Cavity Reflectance = 20%										
0	.59	.59	.59	.59	.58	.58	.55	.55	.53	.53	.50
1	.57	.55	.54	.53	.54	.52	.52	.51	.50	.49	.47
2	.54	.52	.50	.49	.51	.48	.50	.47	.48	.46	.45
3	.52	.49	.47	.45	.48	.45	.47	.44	.46	.43	.42
4	.50	.46	.44	.42	.46	.42	.45	.41	.44	.41	.40
5	.47	.44	.41	.39	.43	.39	.42	.38	.41	.38	.37
6	.45	.41	.38	.36	.41	.36	.40	.36	.39	.36	.35
7	.43	.39	.36	.34	.38	.34	.38	.34	.37	.33	.33
8	.41	.36	.33	.32	.36	.31	.35	.31	.35	.31	.30
9	.38	.34	.31	.29	.34	.29	.33	.29	.33	.29	.28
10	.36	.32	.29	.27	.32	.27	.31	.27	.31	.27	.26

LUMINAIRE INPUT WATTS = 45

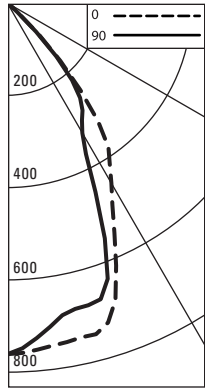
EFFICIENCY = 49.6%
SC(0°) = 1.3, SC(90°) = 1.1

CERTIFIED TEST REPORT NO. 3912FR
COMPUTED BY LSI PROGRAM **TEST-LITE**

Job Information	Type:
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20W GU6.5 GE ConstantColor CMH Lamp, Lumen Rating = 1615 LMS, Aromat Electronic Ballast, CL Finish Trim

CANDLEPOWER DISTRIBUTION



ANGLE	0°	45°	90°
0	761	761	761
5	754	748	729
10	746	746	687
15	743	745	678
20	685	657	636
25	549	478	452
30	451	392	325
35	382	351	284
40	246	261	218
45	97	111	88
50	12	12	10
55	3	3	3
60	2	2	1
65	1	0	1
70	0	0	0
75	0	0	0
80	0	0	0
85	0	0	0
90	0	0	0

LUMINANCE SUMMARY - CD. / SQ. M.

ANGLE	0°	45°	90°
45	13360	15408	12183
55	573	487	478
65	167	84	120
75	0	0	0
85	0	0	0

ZONAL LUMENS AND PERCENTAGES		
ZONE LUMENS	% LAMP	% LUMINAIRE
0-30	509	31.57
0-40	718	44.51
0-60	812	50.33
0-90	813	50.37
40-90	94	5.86
60-90	0	0.05
90-180	0	0
0-180	813	50.37

Coefficients of Utilization

Ceiling	80%				70%		50%		30%		0
	70	50	30	10	50	10	50	10	50	10	
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal Cavity Method - Effective Floor Cavity Reflectance = 20%										
0	.60	.60	.60	.60	.59	.59	.56	.56	.54	.54	.50
1	.58	.56	.55	.54	.55	.53	.53	.52	.51	.50	.48
2	.55	.53	.51	.50	.52	.49	.50	.48	.49	.47	.45
3	.53	.50	.48	.46	.49	.46	.48	.45	.47	.44	.43
4	.50	.47	.45	.43	.46	.42	.45	.42	.44	.41	.40
5	.48	.44	.41	.40	.44	.39	.43	.39	.42	.39	.38
6	.46	.42	.39	.37	.41	.37	.41	.37	.40	.36	.36
7	.43	.39	.36	.34	.39	.34	.38	.34	.38	.34	.33
8	.41	.37	.34	.32	.36	.32	.36	.32	.35	.32	.31
9	.39	.35	.32	.30	.34	.30	.34	.30	.33	.29	.29
10	.37	.32	.30	.28	.32	.28	.32	.27	.31	.27	.27

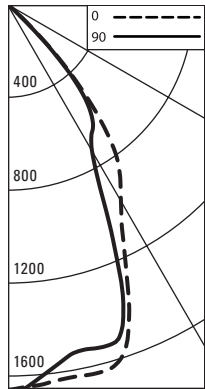
EFFICIENCY = 50.4%
SC(0°) = 1.0, SC(90°) = 0.9

CERTIFIED TEST REPORT NO. 3907FR
COMPUTED BY LSI PROGRAM **TEST-LITE**

LUMINAIRE INPUT WATTS = 25

39W GU6.5 GE Constantcolor CMH Lamp, Lumen Rating = 3400 LMS, Aromat Electronic Ballast, CL Finish Trim

CANDLEPOWER DISTRIBUTION



ANGLE	0°	45°	90°
0	1655	1655	1655
5	1637	1637	1607
10	1623	1651	1528
15	1626	1674	1523
20	1511	1496	1448
25	1191	1075	1031
30	972	862	722
35	823	754	636
40	558	586	500
45	228	253	205
50	25	29	21
55	5	5	4
60	2	1	1
65	0	0	0
70	0	0	0
75	0	0	0
80	0	0	0
85	0	0	0
90	0	0	0

LUMINANCE SUMMARY - CD. / SQ. M.

ANGLE	0°	45°	90°
45	31392	35020	28353
55	809	860	764
65	0	32	32
75	0	0	0
85	0	0	0

ZONAL LUMENS AND PERCENTAGES		
ZONE LUMENS	% LAMP	% LUMINAIRE
0-30	1133	33.33
0-40	1590	46.78
0-60	1802	53.01
0-90	1802	53.02
40-90	212	6.25
60-90	0	0.01
90-180	0	0
0-180	1802	53.02

Coefficients of Utilization

Ceiling	80%				70%		50%		30%		0
	70	50	30	10	50	10	50	10	50	10	
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal Cavity Method - Effective Floor Cavity Reflectance = 20%										
0	.63	.63	.63	.63	.62	.62	.59	.59	.56	.56	.53
1	.61	.59	.58	.57	.58	.56	.56	.54	.54	.53	.50
2	.58	.56	.54	.52	.55	.52	.53	.50	.52	.49	.48
3	.55	.52	.50	.48	.52	.48	.50	.47	.49	.46	.45
4	.53	.49	.47	.45	.49	.45	.48	.44	.47	.44	.42
5	.50	.47	.44	.42	.46	.41	.45	.41	.44	.41	.40
6	.48	.44	.41	.39	.43	.39	.43	.39	.42	.38	.37
7	.46	.41	.38	.36	.41	.36	.40	.36	.40	.36	.35
8	.44	.39	.36	.34	.38	.34	.38	.33	.37	.33	.32
9	.41	.36	.33	.31	.36	.31	.35	.31	.35	.31	.30
10	.39	.34	.31	.29	.34	.29	.33	.29	.33	.29	.28

EFFICIENCY = 53.0%
SC(0°) = 1.3, SC(90°) = 1.1

CERTIFIED TEST REPORT NO. 3913FR
COMPUTED BY LSI PROGRAM **TEST-LITE**

LUMINAIRE INPUT WATTS = 45

Job Information	Type:
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