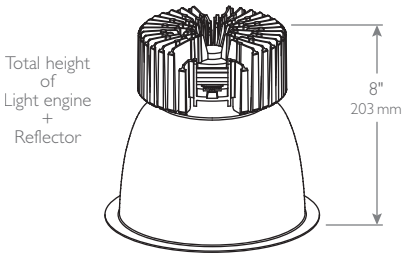
Make
the switch
to LED.

C7L-DL-VB
CALCULITE WHITE LED 7" DOWNLIGHT



PHILIPS LIGHTOLIER, CALCULITE, PROFESSIONAL-GRADE DOWNLIGHTING, WHITE LED 7" ROUND APERTURE DOWNLIGHT, MEDIUM & WIDE 1500/2000/3500LM, C7L-DL-VB

Calculite LED 7" features an LED array of high brightness white light LEDs. The new LED boards in Calculite LED ensure a less than 1-step SDCM color variation between luminaires.

Project:
Location:
Catalog No:
Fixture Type:
Mfg: Lamps: Qty:
Notes:

Frame-in kit

Complete product = Frame-in kit + Trim kit/Light Engine

example: C7L15NUVBZ10V

Series	Lumens	Installation	Input voltage	Version	Dimming	Options[1]
C7L Calculite, 7" aperture, LED luminaire	**15** 1500 lumen	**N** New construction **R** Remodeler	**U** Universal (120/277V)	**VB** Version B	**Z10V** 0-10V dimming **LD** Lutron driver	**EM** Emergency **LC** Chicago Plenum
	20 2000 lumen **35** 3500 lumen	**N** New construction **R** Remodeler[4]	**1** 120V **2** 277V	**VB** Version B	**Z10V** 0-10V dimming **LD** Lutron driver	**EM** Emergency **LC** Chicago Plenum
CUL Calculite, Universal aperture, LED luminaire	**15** 1500 lumen	**J** J-box mount retrofit	**U** Universal (120/277V)	**VB** Version B	**Z10V** 0-10V dimming **LD** Lutron driver	
	20 2000 lumen	**J** J-box mount retrofit	**1** 120V **2** 277V	**VB** Version B	**Z10V** 0-10V dimming **LD** Lutron driver	
	15 1500 lumen **20** 2000 lumen	**S** Screw-in base retrofit	**1** 120V	**VB** Version B	**Z10V** 0-10V dimming **LD** Lutron driver	

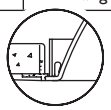
Trim kit

Includes light engine and reflector. Lumen package of the trim and the frame-in kit must match.

example: C7L1520DL35KWCCDPVB

Series	Lumens	Style	CCT	Beam	Reflector finish	Flange	Version	Options[3]
C7L	**1520**	**DL**					**VB**	
C7L Calculite 7" aperture, LED luminaire	**1520** 1500-2000-3500 lumen	**DL** Downlight	**27K** 2700K **30K** 3000K **35K** 3500K **40K** 4000K	**M** Medium, 0.8 s.c. **W** Wide, 1.1 s.c.	**CL** Clear **CCL** Comfort clear **CCD** Comfort clear diffuse **CCZ** Champagne bronze **WH** Painted white	**W** Painted white **P** Aperture-matching/polished **FT** Flush-mount/flangeless[1,2]	**VB** Version B	**EM** Integral emergency test switch

1. Available for new construction (**N**) installation frame-in kits only.
2. Accessory **CA7FMR** required for gypsum applications (minimal ¼" reflector flange).
3. See LED-EM for details and restrictions.
4. Not available for 3500 (**L35**) lumen.

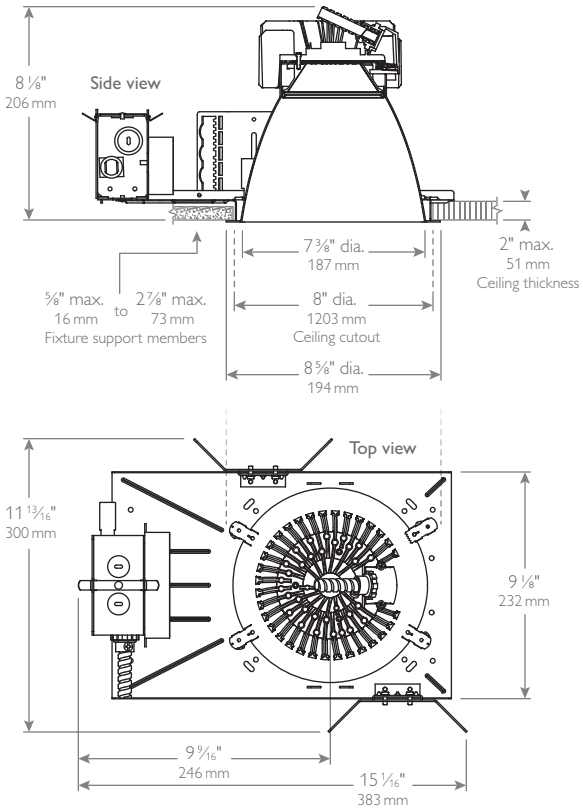


CA7FMR
Flangeless trim with plaster ring accessory.
(Recommended for gypsum installations)

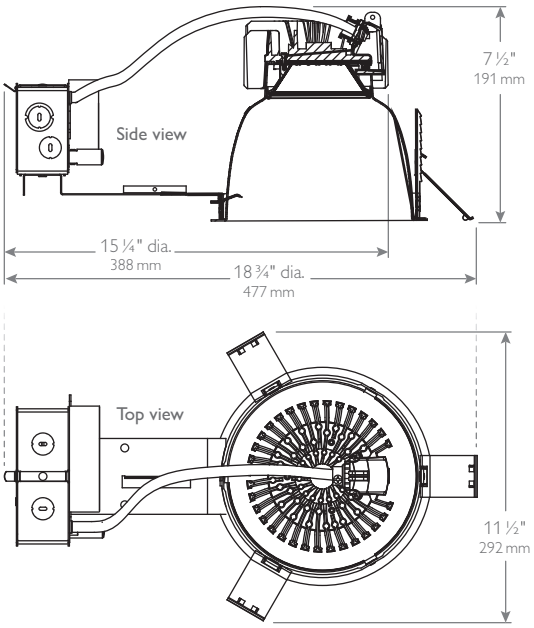
PHILIPS LIGHTOLIER

C7L-DL-VB
CALCULITE WHITE LED 7" DOWNLIGHT

New Construction



Remodeler



Frame-in kits

New construction

Mounting frame: Galvanized stamped steel for dry or plaster ceilings.
Vertical adjustment: Light engine adjusts in frame below ceilings up to 1 1/8".
Mounting brackets: Galvanized Steel. Adjustable through aperture. Use ¾" or 1 ½" lathing channel, ½" EMT or optional mounting bars.

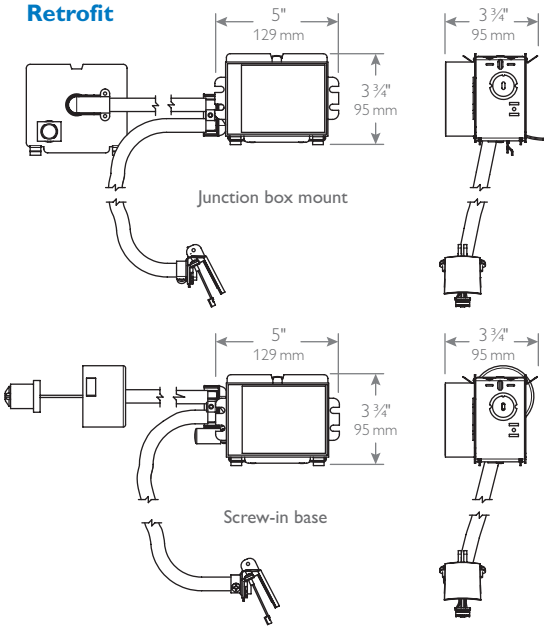
Remodeler

Compatibility: Wide beam flanged downlight only.
Power pack: Swivel junction box for tight plenum spaces. Snap-off covers permits wiring from top.
Spring holder: Galvanized steel. Accepts up to 2 ½" (64mm) ceiling thickness.

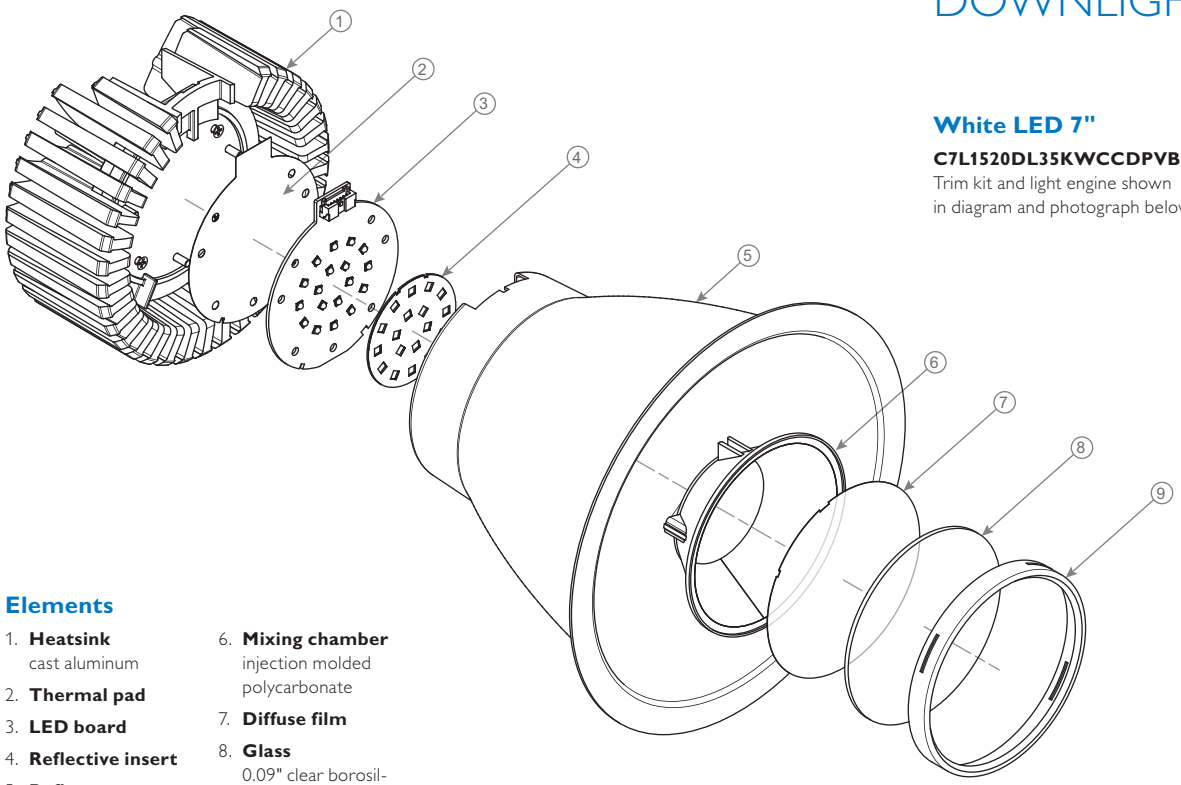
Retrofit

Compatibility: Wide beam downlight only.
Capability: Converts 6" (153mm) or 7" (178mm) Lightolier incandescent frame-in kit without additional wiring using existing Calculite E26 base.
Socket cup support: Spun steel. Holds Calculite incandescent socket cup.
Socket extender: Phenolic E26 base. Connect to existing lampholder.

Retrofit



C7L-DL-VB
CALCULITE WHITE LED 7" DOWNLIGHT



White LED 7"

C7L1520DL35KWCCDPVB
Trim kit and light engine shown in diagram and photograph below

Elements

1. **Heatsink** cast aluminum
2. **Thermal pad**
3. **LED board**
4. **Reflective insert**
5. **Reflector** 0.030" minimum wall thickness anodized or panted aluminum
6. **Mixing chamber** injection molded polycarbonate
7. **Diffuse film**
8. **Glass** 0.09" clear borosil-cate
9. **Retaining ring** 0.040" anodized aluminum

Features

Ceiling cutout: 7" aperture; 8" (203mm) cutout.
Depth: including light engine. See light engine specification sheet for details.
Power connection: Attaches to light engine via push-in connector (on frame). Removable cover provides access.
Junction box: UL listed for 8 No. 12 AWG, 90°C through branch circuit connectors. Allows inspection from below.
Thermal protector: Meets NEC & UL requirements. Do not install insulation above or within 3" of luminaire.
Thermal Management: Heat sink and thermal design along with the clean room assembly process ensures specified performance levels are maintained.

Options and accessories

Dimming capability: 0-10V or Lutron dimming. See LED-DIM specification sheet.
Emergency capability: Inverter; See LED-LMI specification sheet. Integral; Add "EM" suffix. See LED-EM spec sheet.
Sloped ceilings: Compatible with slope ceiling adaptors. See specification sheet SCA.
Mounting bars: 1950-18" (set of 2) 1951-27" (set of 2)
T-Bar anchor clips: 1956 (set of 4), for use with above.

Electrical

Electronic power supply: 120 or 277V, 50/60Hz, encased, overload and short circuit protected, thermal regulation to protect against overheating, sound rating. "A", -20°C minimum starting temperature, 35°C maximum ambient environment.
Rated life: 1500lm and 2000lm are 60,000 hrs at 70% lumen maintenance based on IES LM-80-08 and TM-21-11.

Labels

cULus, I.B.E.W.
Suitable for wet locations.
5 year warranty.

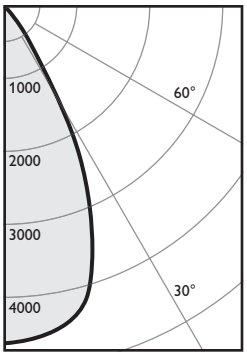
Frame-In kit Electrical specifications	**Input volts**	**Input freq.**	**Input current**	**LED drive current**	**Input power***	**LED power**	**THD factor**	**Power factor**
C_L15__VBZ10V 1500lm w/0-10V dimming	120V	50/60Hz	0.17A	350mA	21W	18W	<20%	>0.9
	277V	50/60Hz	0.08A	350mA	21W	18W	<20%	>0.9
C_L20__VBZ10V 2000lm w/0-10V dimming	120V	50/60Hz	0.26A	520mA	32W	26W	<20%	>0.9
	277V	50/60Hz	0.12A	520mA	33W	26W	<20%	>0.9
C_L35__VBZ10V 3500lm w/0-10V dimming	120V	50/60Hz	0.43A	850mA	51W	41W	<20%	>0.9
	277V	50/60Hz	0.19A	850mA	52W	41W	<20%	>0.9

* +/- 5%

C7L-DL-VB
CALCULITE WHITE LED 7" DOWNLIGHT

50W LED, 3500K, Medium 3500 lumen

Candela Curve



Frame: C7L35N1VBZ10V
Trim: C7L1520DL35KMCLWVB

CCT[1]:	3500K
Output lumens:	3276 lms
Input watts[2]:	50.5 W
Efficacy:	64.9 lm/w
CRI:	80 min
Spacing Crit.:	0.8
Report no[3]:	126GFR

Zonal summary

Zone	Lumens	%Luminaire
0-30	2791	85.2%
0-40	3217	98.2%
0-60	3274	99.9%
0-90	3276	100.0%

Angle	Mean CP	Lumens
0	4648	
5	4592	442
10	4502	
15	4263	1168
20	3597	
25	2702	1181
30	1381	
35	647	425
40	241	
45	46	55
50	6	
55	2	3
60	2	
65	1	1
70	1	
75	1	0
80	0	
85	0	0
90	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	186	4.0'
6'	129	4.8'
7'	95	5.6'
8'	73	6.4'
9'	57	7.2'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	152.2	2.24
6'	99.9	1.47
7'	71.3	1.05
8'	59.4	0.87
9'	47.6	0.70

38'x38'x10' Room, Workplane 2½' above floor, 80/50/20% Reflectances

Finish Adjust. factors

CL	= 100%
CCL	= 95%
CCD	= 87%
CCZ	= 63%
WH	= 87%

CCT Adjust. factors

4000K	= 103%
3500K	= 100%
3000K	= 97%
2700K	= 87%

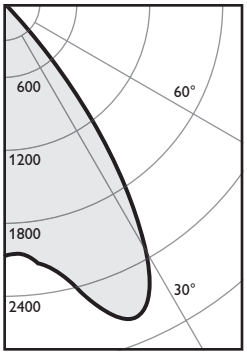
Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%										
0	119	119	119	119	116	116	111	111	106	106	100
1	114	112	109	107	109	106	105	102	102	99	95
2	109	105	101	98	103	97	100	95	97	93	89
3	104	99	94	91	97	90	95	88	92	87	84
4	100	93	88	84	92	84	90	83	88	82	80
5	95	88	83	79	87	78	85	78	84	77	75
6	91	83	78	74	83	74	81	73	80	73	71
7	87	79	74	70	78	70	77	69	76	69	67
8	84	75	70	66	75	66	73	66	73	65	64
9	80	71	66	63	71	62	70	62	69	62	61
10	77	68	63	59	68	59	67	59	66	59	58

Room Cavity Ratio

50W LED, 3500K, Wide 3500 lumen

Candela Curve



Frame: C7L35N1VBZ10V
Trim: C7L1520DL35KWCLWVB

CCT[1]:	3500K
Output lumens:	3276 lms
Input watts[2]:	50.5 W
Efficacy:	64.9 lm/w
CRI:	80 min
Spacing Crit.:	1.1
Report no[3]:	129GFR

Zonal summary

Zone	Lumens	%Luminaire
0-30	2135	65.2%
0-40	3102	94.7%
0-60	3270	99.8%
0-90	3276	100.0%

Angle	Mean CP	Lumens
0	2086	
5	2067	206
10	2191	
15	2446	703
20	2730	
25	2747	1227
30	2343	
35	1596	967
40	750	
45	81	160
50	11	
55	8	7
60	6	
65	4	4
70	3	
75	2	2
80	1	
85	0	0
90	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	83	5.5'
6'	58	6.6'
7'	43	7.7'
8'	33	8.8'
9'	26	9.9'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	148.6	2.24
6'	97.5	1.47
7'	69.7	1.05
8'	58.1	0.87
9'	46.4	0.70

38'x38'x10' Room, Workplane 2½' above floor, 80/50/20% Reflectances

Finish Adjust. factors

CL	= 100%
CCL	= 95%
CCD	= 87%
CCZ	= 63%
WH	= 87%

CCT Adjust. factors

4000K	= 103%
3500K	= 100%
3000K	= 97%
2700K	= 87%

Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%										
0	119	119	119	119	116	116	111	111	106	106	100
1	113	110	108	106	108	104	104	101	100	98	93
2	107	102	98	95	101	94	97	92	94	90	86
3	102	95	90	86	94	85	91	84	88	82	79
4	96	88	82	78	87	78	85	77	83	76	73
5	91	82	76	71	81	71	79	70	78	70	68
6	86	76	70	66	76	65	74	65	73	64	63
7	81	71	65	60	71	60	69	60	68	60	58
8	77	67	60	56	66	56	65	56	64	55	54
9	73	62	56	52	62	52	61	52	60	51	50
10	69	58	52	48	58	48	57	48	56	48	46

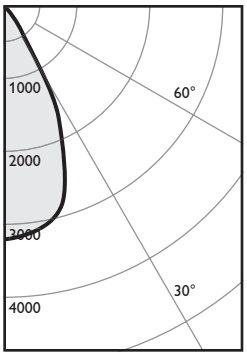
Room Cavity Ratio

1. Correlated Color Temperature within specs as defined in ANSI_NEMA_ANSLG C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.
2. Wattage controlled to within 5%.
3. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.

C7L-DL-VB
CALCULITE WHITE LED 7" DOWNLIGHT

32W LED, 3500K, Medium 2000 lumen

Candela Curve



Frame: C7L20N1VBZ10V
Trim: C7L1520DL35KMCLWVB

CCT[1]:	3500K
Output lumens:	2246 lms
Input watts[2]:	32.3 W
Efficacy:	69.5 lm/w
CRI:	80 min
Spacing Crit.:	0.8
Report no[3]:	125GFR

Zonal summary

Zone	Lumens	%Luminaire
0-30	1913	85.2%
0-40	2204	98.1%
0-60	2245	100.0%
0-90	2246	100.0%

Angle	Mean CP	Lumens
0	3191	
5	3152	304
10	3089	
15	2925	801
20	2465	
25	1850	808
30	942	
35	443	291
40	166	
45	32	38
50	4	
55	3	2
60	2	
65	1	1
70	1	
75	0	0
80	0	
85	0	0
90	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	128	4.0'
6'	89	4.8'
7'	65	5.6'
8'	50	6.4'
9'	39	7.2'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	104.3	1.43
6'	68.5	0.94
7'	48.9	0.67
8'	40.8	0.56
9'	32.6	0.45

38'x38'x10' Room, Workplane 2½' above floor, 80/50/20% Reflectances

Finish Adjust. factors

CL	= 100%
CCL	= 95%
CCD	= 87%
CCZ	= 63%
WH	= 87%

CCT Adjust. factors

4000K	= 103%
3500K	= 100%
3000K	= 97%
2700K	= 87%

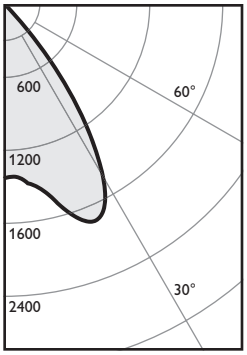
Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%										
0	119	119	119	119	116	116	111	111	106	106	100
1	114	112	109	107	109	106	105	102	102	99	95
2	109	105	101	98	103	97	100	95	97	93	89
3	104	99	94	91	97	90	95	88	92	87	84
4	100	93	88	84	92	84	90	83	88	82	80
5	95	88	83	79	87	78	85	78	84	77	75
6	91	83	78	74	83	74	81	73	80	73	71
7	87	79	74	70	78	70	77	69	76	69	67
8	84	75	70	66	75	66	73	66	73	65	64
9	80	71	66	63	71	62	70	62	69	62	61
10	77	68	63	59	68	59	67	59	66	59	58

Room Cavity Ratio

32W LED, 3500K, Wide 2000 lumen

Candela Curve



Frame: C7L20N1VBZ10V
Trim: C7L1520DL35KWCLWVB

CCT[1]:	3500K
Output lumens:	2257 lms
Input watts[2]:	32.3 W
Efficacy:	69.9 lm/w
CRI:	80 min
Spacing Crit.:	1.1
Report no[3]:	128GFR

Zonal summary

Zone	Lumens	%Luminaire
0-30	1472	65.2%
0-40	2138	94.7%
0-60	2253	99.8%
0-90	2257	100.0%

Angle	Mean CP	Lumens
0	1438	
5	1426	142
10	1511	
15	1687	485
20	1883	
25	1893	845
30	1614	
35	1099	666
40	517	
45	55	110
50	8	
55	6	5
60	4	
65	3	3
70	2	
75	1	1
80	0	
85	0	0
90	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	58	5.5'
6'	40	6.6'
7'	29	7.7'
8'	22	8.8'
9'	18	9.9'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	102.4	1.43
6'	67.2	0.94
7'	48.0	0.67
8'	40.0	0.56
9'	32.0	0.45

38'x38'x10' Room, Workplane 2½' above floor, 80/50/20% Reflectances

Finish Adjust. factors

CL	= 100%
CCL	= 95%
CCD	= 87%
CCZ	= 63%
WH	= 87%

CCT Adjust. factors

4000K	= 103%
3500K	= 100%
3000K	= 97%
2700K	= 87%

Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%										
0	119	119	119	119	116	116	111	111	106	106	100
1	113	110	108	106	108	104	104	101	100	98	93
2	107	102	98	95	101	94	97	92	94	90	86
3	102	95	90	86	94	85	91	84	88	82	79
4	96	88	82	78	87	78	85	77	83	76	73
5	91	82	76	71	81	71	79	70	78	70	68
6	86	76	70	66	76	65	74	65	73	64	63
7	81	71	65	61	71	60	69	60	68	60	58
8	77	67	60	56	66	56	65	56	64	55	54
9	73	62	56	52	62	52	61	52	60	51	50
10	69	58	52	48	58	48	57	48	56	48	46

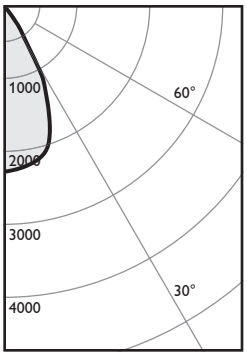
Room Cavity Ratio

1. Correlated Color Temperature within specs as defined in ANSI_NEMA_ANSLG C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.
2. Wattage controlled to within 5%.
3. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.

C7L-DL-VB
CALCULITE WHITE LED 7" DOWNLIGHT

21W LED, 3500K, Medium 1500 lumen

Candela Curve



Frame: C7L15NUVBZ10V
Trim: C7L1520DL35KMCLWVB

CCT[1]:	3500K
Output lumens:	1610 lms
Input watts[2]:	21.4 W
Efficacy:	75.2 lm/w
CRI:	80 min
Spacing Crit.:	0.8
Report no[3]:	124GFR

Zonal summary

Zone	Lumens	%Luminaire
0-30	1371	85.2%
0-40	1580	98.1%
0-60	1609	99.9%
0-90	1610	100.0%

Angle	Mean CP	Lumens
0	2287	
5	2259	218
10	2213	
15	2096	574
20	1767	
25	1327	580
30	675	
35	318	209
40	119	
45	23	27
50	3	
55	2	2
60	1	
65	1	1
70	0	
75	0	0
80	0	
85	0	0
90	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	91	4.0'
6'	64	4.8'
7'	47	5.6'
8'	36	6.4'
9'	28	7.2'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	74.8	0.95
6'	49.1	0.62
7'	35.1	0.44
8'	29.2	0.37
9'	23.4	0.30

38'x38'x10' Room, Workplane 2½' above floor, 80/50/20% Reflectances

Finish Adjust. factors

CL	= 100%
CCL	= 95%
CCD	= 87%
CCZ	= 63%
WH	= 87%

CCT Adjust. factors

4000K	= 103%
3500K	= 100%
3000K	= 97%
2700K	= 87%

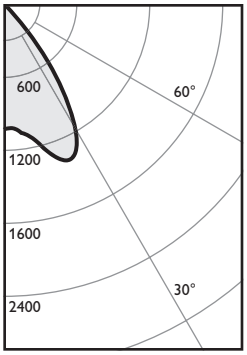
Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%										
0	119	119	119	119	116	116	111	111	106	106	100
1	114	112	109	107	109	105	105	102	102	99	95
2	109	105	101	98	103	97	100	95	97	93	89
3	104	99	94	91	97	90	95	88	92	87	84
4	100	93	88	84	92	84	90	83	88	82	79
5	95	88	83	79	87	78	85	78	84	77	75
6	91	83	78	74	82	74	81	73	80	73	71
7	87	79	74	70	78	70	77	69	76	69	67
8	84	75	70	66	74	66	73	66	72	65	64
9	80	71	66	62	71	62	70	62	69	62	61
10	77	68	63	59	68	59	67	59	66	59	58

Room Cavity Ratio

21W LED, 3500K, Wide 1500 lumen

Candela Curve



Frame: C7L15NUVBZ10V
Trim: C7L1520DL35KWCLWVB

CCT[1]:	3500K
Output lumens:	1615 lms
Input watts[2]:	21.4 W
Efficacy:	75.5 lm/w
CRI:	80 min
Spacing Crit.:	1.1
Report no[3]:	127GFR

Zonal summary

Zone	Lumens	%Luminaire
0-30	1053	65.2%
0-40	1530	94.7%
0-60	1612	99.8%
0-90	1615	100.0%

Angle	Mean CP	Lumens
0	1028	
5	1020	101
10	1081	
15	1206	347
20	1346	
25	1354	605
30	1155	
35	787	477
40	371	
45	39	79
50	6	
55	4	4
60	3	
65	2	2
70	1	
75	1	1
80	0	
85	0	0
90	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	41	5.5'
6'	29	6.6'
7'	21	7.7'
8'	16	8.8'
9'	13	9.9'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	73.3	0.95
6'	48.1	0.62
7'	34.4	0.44
8'	28.6	0.37
9'	22.9	0.30

38'x38'x10' Room, Workplane 2½' above floor, 80/50/20% Reflectances

Finish Adjust. factors

CL	= 100%
CCL	= 95%
CCD	= 87%
CCZ	= 63%
WH	= 87%

CCT Adjust. factors

4000K	= 103%
3500K	= 100%
3000K	= 97%
2700K	= 87%

Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%										
0	119	119	119	119	116	116	111	111	106	106	100
1	113	110	108	106	108	104	104	101	100	98	93
2	107	102	98	95	101	94	97	92	94	90	86
3	102	95	90	86	94	85	91	84	88	82	79
4	96	88	82	78	87	78	85	77	83	76	73
5	91	82	76	71	81	71	79	70	78	70	68
6	86	76	70	66	76	65	74	65	73	64	63
7	81	71	65	60	71	60	69	60	68	60	58
8	77	67	60	56	66	56	65	56	64	55	54
9	73	62	56	52	62	52	61	52	60	51	50
10	69	58	52	48	58	48	57	48	56	48	46

Room Cavity Ratio

1. Correlated Color Temperature within specs as defined in ANSI_NEMA_ANSLG C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.
2. Wattage controlled to within 5%.
3. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.

Philips Lighting Company
200 Franklin Square Drive
Somerset, NJ 08873
Phone: 855-486-2216

Philips Lighting Company
281 Hillmount Road
Markham ON, Canada L6C 2S3
Phone: 800-668-9008