

TCP's LED Direct Troffer Luminaires feature back-lit technology with a robust construction that still offers a slim, low-profile with beautiful full-panel diffusion and superior uniformity.

These energy efficient troffers offer a cost-effective solution to maximize energy savings and take advantage of potential utility rebates where applicable.

Applications: T-bar Grid Ceilings

## Reasons to choose the LED Direct Troffer Luminaires from TCP

- Superior energy efficiency compared to fluorescent alternatives, providing instant energy savings and potential rebate ability
- Long 50,000 hour rated life significantly reduces maintenance labor and material costs
- Excellent color consistency and high CRI enhance color of focal point while maintaining uniformity throughout lighting installation
- Mercury-free construction is great for all environments
- Fits standard 1" and 9/16" T-bar grid ceilings
- Utilizes back-lit technology for full diffusion with excellent uniformity
- Slim, low-profile design and lightweight for easy handling

## **Ideal Applications**

- Office
- Retail Stores

- Schools
- Hospitality

- Restaurants
- Healthcare



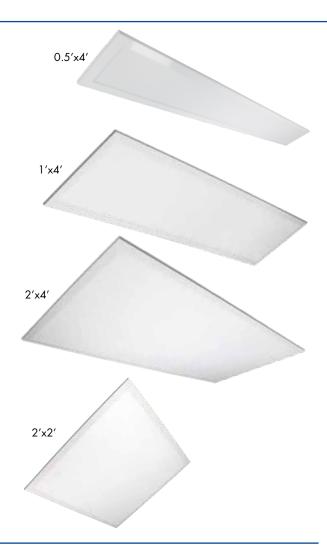






## **Specifications**

Input Line Voltage Input Line Frequency (Hz) Wattage (W)	120-277 VAC 50/60Hz
	23W
	23W/29W/38W
	29W/39W/46W
Lumens (L)	, ,
0.5′x4′	2100L
	2600L/3200L/4200L
2'x2'	2600L/3200L/4200L
2'x4'	3300L/4400L/5100L
	>110 LPVV
Rated Life	50,000 hours
	20°C
Maximum Operating Temperature	40°C
CRI	>80
	>90%
THD	<20%
Ratings U	L/cUL damp location rated, IC rated,
	IP20, DLC Standard 5.1
Controls	0-10V dimming (standard)



## Replacement Strategy

SYSTEM	BALLAST FACTOR	LUMENS	INPUT WATTS*	LED ENERGY SAVINGS
TCP LED Direct Troffer - 1x4, 2x2	_	3200	29	_
2 Lamp 34W T12 U-Bend 2 Lamp 32W T8 U-Bend 2 Lamp 24W T5HO	0.88 0.88 1.0	4420 4275 3145	72 59 64	60% 51% 55%
TCP LED Direct Troffer - 2x4	_	5100	46	_
4 Lamp 32W T8 3 Lamp 32W T8 HBF 3 Lamp 32W T8 NBF 2 Lamp 32W T8 HBF 2 Lamp 28W T5 2 Lamp 32W T8 NBF	- 1.18 0.88 1.18 1.0 0.88	9251 6938 5174 4626 4060 3450	112 89 89 59 64 59	59% 48% 48% 22% 28% 22%

<sup>\*</sup>Actual wattage may differ by  $\pm$ -5%, when operating between 120-277V  $\pm$ -10%.

NOTE: Charts show system lumens (delivered lumens), NOT straight lamp lumen output. This is calculated as follows:

System lumens = mean lumens x # lamps x ballast factor x luminaire efficiency factor









## **Applications**

TCP LED Direct Troffer Luminaires are cost-effective, high-efficiency alternatives to traditional T5, T8 and T12 linear fluorescent troffers. Featuring a slim, low-profile design, our LED Direct Troffers use back-lit technology to deliver full panel diffusion and superior uniformity that meets or exceeds the output from edge-lit panels. Applications include offices, schools, retail locations, healthcare, hospitality and other T-grid and commercial ceilings.

#### Construction

- Rectangular white frame
- · Lens: frosted white diffuser
- IP20 rated
- IC rated for direct contact with insulation
- Designed for easy drop into T-bar grid ceilings

#### Electrical

- UL/cUL damp location rated
- 0-10V dimming driver (standard)
- LED driver with integrated junction box
- System rated for long 50,000 hour life

#### **Optics**

- Back-lit technology provides even, uniform lighting
- 120° beam angle
- Frosted diffuser for reduced glare and aesthetic appeal
- Meets or exceeds the look and performance of edge-lit panels



#### Listings

UL/cUL Listed IC Rated RoHS Compliant DLC 5.1 Standard

#### **Lumen Maintenance**

L70 > 54,000 hours

#### Warranty

Five year limited warranty against defects in manufacturing.

#### Catalog Ordering Matrix Example: DTF405UZD2341K

FAMILY	LENS TYPE	SIZE	VOLTAGE	DIMMING	WATTAGE <sup>1,2</sup>	COLOR TEMPERATURE	OPTIONS
<b>DT</b> = Direct Back-Lit Troffer	<b>F</b> = Frosted	<b>405</b> = 0.5' x 4'	<b>U</b> = 120V-277V	<b>ZD</b> = 0-10V Dimming	<b>23</b> = 2100 Lumens	<b>27K</b> = 2700K*** <b>30K</b> = 3000K <b>35K</b> = 3500K	
			<b>H</b> = 120V-347V	<b>ZD</b> = 0-10V Dimming		<b>41K</b> = 4100K <b>50K</b> = 5000K <b>65K</b> = 6500K***	

<sup>&</sup>lt;sup>1</sup>Approximate lumen output. Actual performance may vary based on CCT, options selected and end user application.

#### Accessories:

Item Number	Description
YHANGER6PK	Y FIT CABLE HANGER 6 PACK







<sup>&</sup>lt;sup>2</sup>Actual wattage may differ by +/- 5%; when operating between 120-277V +/- 10%.

\*\*\*2700K and 6500K are special order. Please contact your TCP representative for lead times.\*\*\*



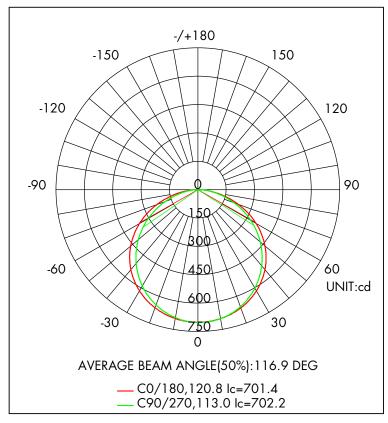
## Dimensions and Mounting Data

#### **Back-lit Direct Troffer Edge-lit Flat Panel** 2.75" (69.85mm) 1.75" -(45mm) \_ □ 47.76" 48" (1213mm) (1219.2mm) . οΘ. 2.75" (69.85mm) 6" (152.4mm)

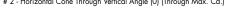
## Photometric Report

Based on photometric data for TCP Item # DTF405UZD2341K

## **Polar Graph**



 $\label{eq:maximum Candela = 1407.6 Located At Horizontal Angle = 0, Vertical Angle = 0 \\ \#\ 1 \cdot Vertical Plane Through Horizontal Angles (0 \cdot 180) [Through Max. Cd.) \\ \#\ 2 \cdot Horizontal Cone Through Vertical Angle (0) [Through Max. Cd.) \\ \end{aligned}$ 











## **Applications**

TCP LED Direct Troffer Luminaires are cost-effective, high-efficiency alternatives to traditional T5, T8 and T12 linear fluorescent troffers. Featuring a slim, low-profile design, our LED Direct Troffers use back-lit technology to deliver full panel diffusion and superior uniformity that meets or exceeds the output from edge-lit panels. Applications include offices, schools, retail locations, healthcare, hospitality and other T-grid and commercial ceilings.

#### Construction

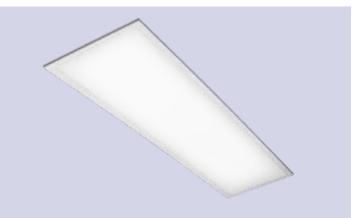
- Rectangular white frame
- Lens: frosted white diffuser
- IP20 rated
- IC rated for direct contact with insulation
- Designed for easy drop into T-bar grid ceilings

#### Electrical

- UL/cUL damp location rated
- 0-10V dimming driver (standard)
- LED driver with integrated junction box
- System rated for long 50,000 hour life

#### **Optics**

- Back-lit technology provides even, uniform lighting
- 120° beam angle
- Frosted diffuser for reduced glare and aesthetic appeal
- Meets or exceeds the look and performance of edge-lit panels



#### Listings

UL/cUL Listed IC Rated RoHS Compliant DLC 5.1 Standard

#### **Lumen Maintenance**

L70 > 54,000 hours

#### Warranty

Five year limited warranty against defects in manufacturing.

Catalog Ordering Matrix Example: DTF1UZD2341K									
FAMILY	LENS TYPE	SIZE	VOLTAGE	DIMMING	WATTAGE <sup>1,2,3</sup>	COLOR TEMPERATURE	OPTIONS		
<b>DT</b> = Direct Back-Lit Troffer	<b>F</b> = Frosted	1 = 1' x 4'	<b>U</b> = 120V-277V	<b>ZD</b> = 0-10V Dimming	<b>23</b> = 2600 Lumens <b>29</b> = 3200 Lumens	<b>27K</b> = 2700K*** <b>30K</b> = 3000K	BLANK = None EB = Battery Back-up		
			<b>H</b> = 120V-347V	<b>ZD</b> = 0-10V Dimming	38 = 4200 Lumens (Wattage Selectable to 38W/29W/23W)	35K = 3500K 41K = 4100K 50K = 5000K 65K = 6500K***	CP = Chicago Plenum		

- <sup>1</sup>Approximate lumen output. Actual performance may vary based on CCT, options selected and end user application.

- <sup>3</sup> 23W and 29W are permanently fixed; 38W is adjustable to 29W or 23W.

  \*\*\*2700K and 6500K are special order. Please contact your TCP representative for lead times.\*\*\*

#### Accessories:

Item Number	Description
YHANGER6PK	y fit Cable Hanger 6 Pack (Hangs 2 Units)
DTSK1	SURFACE MOUNT KIT FOR 1X4 TROFFERS AND PANELS
DTFLK1	recess mount flange kit for 1.X4 troffers and panels

For the most up-to-date specs and warranty information, please visit www.tcpi.com









2.75"

(69.85<sub>mm</sub>)

# 1'x4' LED DT Series Luminaires

## Dimensions and Mounting Data

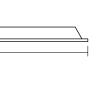
48"

(1219.2mm)

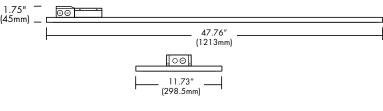
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— 12" — (304.5mm)

#### **Back-lit Direct Troffer**







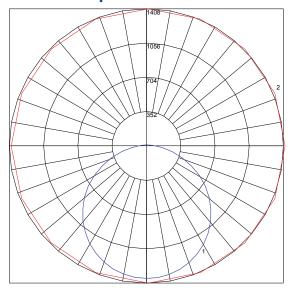
## Photometric Report

2.75"

(69.85mm)

Based on photometric data for TCP Item # DTF1UZD3830K (38W)

#### **Polar Graph**



Maximum Candela = 1407.6 Located At Horizontal Angle = 0, Vertical Angle = 0 # 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.) # 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)

## Average Luminance candelas/square meter (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3631	3602	3585
55	3506	3474	3437
65	3292	3239	3179
75	2892	2795	2680
8.5	2165	1083	1746

## **Spacing Criterion**

(0-180): 1.28, (90-270): 1.28

#### Coefficients of Utilization – Zonal Cavity Method

Effective Floor	Cavity	Reflectance 0.20
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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	106	106	106	102	102	102	100
1	109	104	100	96	106	102	98	94	97	94	91	93	91	88	90	88	86	84
2	99	90	84	78	96	89	82	77	85	80	75	82	77	73	79	75	72	69
3	90	79	71	64	87	78	70	64	75	68	63	72	66	62	69	65	61	58
4	82	70	61	55	80	69	61	54	66	59	53	64	58	53	62	56	52	50
5	76	63	54	47	73	62	53	47	59	52	46	57	51	46	56	50	45	43
6	70	56	47	41	68	55	47	41	54	46	40	52	45	40	50	44	40	38
7	65	51	42	36	63	50	42	36	49	41	36	47	40	35	46	40	35	33
8	60	47	38	32	59	46	38	32	45	37	32	43	37	32	42	36	31	29
9	56	43	34	29	55	42	34	29	41	٠.	29	40	33	28	39	33	28	26
10	53	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	26	24

#### **Zonal Lumen Summary**

Zone	Lumens	%Lamp	%Fixt
0-20	493.60	N.A.	12.71
0-30	1095.31	N.A.	27.02
0-40	1722.30	N.A.	44.34
0-60	3056.50	N.A.	78.68
0-80	3808.40	N.A.	98.04
0-90	3881.50	N.A.	99.92
10-90	3910.96	N.A.	96.70
20-40	1281.49	N.A.	31.70
20-50	2010.58	N.A.	49.70
40-70	1887.56	N.A.	46.70
60-80	782.93	N.A.	19.40
70-80	283.30	N.A.	7.00
80-90	76.63	N.A.	1.90
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.01	N.A.	0.00
90-180	0.76	N.A.	0.00
110-180	0.76	N.A.	0.00
0-180	3884.70	N.A.	100.00

Total Luminaire Efficiency = N.A.%









#### **Applications**

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#### Construction

- Rectangular white frame
- · Lens: frosted white diffuser
- IP20 rated
- IC rated for direct contact with insulation
- Designed for easy drop into T-bar grid ceilings

#### Electrical

- UL/cUL damp location rated
- 0-10V dimming driver (standard)
- LED driver with integrated junction box
- System rated for long 50,000 hour life

#### **Optics**

- Back-lit technology provides even, uniform lighting
- 120° beam angle
- Frosted diffuser for reduced glare and aesthetic appeal
- Meets or exceeds the look and performance of edge-lit panels



Catalog Ordering Matrix Example: DTF2UZD2341K								
FAMILY	LENS TYPE	SIZE	VOLTAGE	DIMMING	WATTAGE <sup>1,2,3</sup>	COLOR TEMPERATURE	OPTIONS	FRAME OPTIONS
<b>DT</b> = Direct Back-Lit Troffer	F = Frosted P = Prismatic	<b>2</b> = 2' x 2'	<b>U</b> = 120V-277V	<b>ZD</b> = 0-10V Dimming	23 = 2600 Lumens 29 = 3200 Lumens	<b>27K</b> = 2700K*** <b>30K</b> = 3000K	BLANK = None EB = Battery	BLANK = White Frame
			<b>H</b> = 120V-347V	<b>ZD</b> = 0-10V Dimming	38 = 4200 Lumens (Wattage Selectable to 38W/29W/23W)	35K = 3500K 41K = 4100K 50K = 5000K 65K = 6500K***	Back-up <b>CP =</b> Chicago Plenum	BLK = Black Frame

<sup>&</sup>lt;sup>1</sup>Approximate lumen output. Actual performance may vary based on CCT, options selected and end user application.

#### **Accessories:**

Item Number	Description
YHANGER6PK	y fit cable hanger 6 pack (hangs 3 units)
DTSK2	SURFACE MOUNT KIT FOR 2X2 TROFFERS AND PANELS
DTFLK2	RECESS MOUNT FLANGE KIT FOR 2X2 TROFFERS AND PANELS

For the most up-to-date specs and warranty information, please visit www.tcpi.com







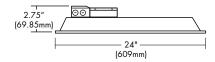
 $<sup>^2</sup>$  Actual wattage may differ by +/- 5%; when operating between 120-277V +/- 10%.

<sup>&</sup>lt;sup>3</sup> 23W and 29W are permanently fixed; 38W is adjustable to 29W or 23W. \*\*\*2700K and 6500K are special order. Please contact your TCP representative for lead times.\*\*\*

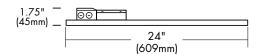


## **Dimensions and Mounting Data**

#### **Back-lit Direct Troffer**



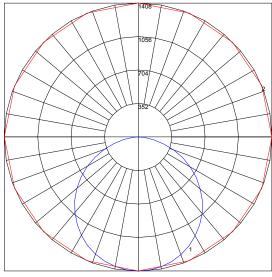
#### **Edge-lit Flat Panel**



## Photometric Report

Based on photometric data for TCP Item # DTF2UZD3830K (38W)

#### **Polar Graph**



Maximum Candela = 1407.6 Located At Horizontal Angle = 0, Vertical Angle = 0 # 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.) # 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)

## Average Luminance candelas/square meter (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3631	3602	3585
55	3506	3474	3437
65	3292	3239	3179
_ 75	2892	2795	2680
8.5	2165	1983	17/16

## **Spacing Criterion**

(0-180): 1.28, (90-270): 1.28

Specifications and dimensions subject to change without notice.

## 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	106	106	106	102	102	102	100
1	109	104	100	96	106	102	98	94	97	94	91	93	91	88	90	88	86	84
2	99	90	84	78	96	89	82	77	85	80	75	82	77	73	79	75	72	69
3	90	79	71	64	87	78	70	64	75	68	63	72	66	62	69	65	61	58
4	82	70	61	55	80	69	61	54	66	59	53	64	58	53	62	56	52	50
5	76	63	54	47	73	62	53	47	59	52	46	57	51	46	56	50	45	43
6	70	56	47	41	68	55	47	41	54	46	40	52	45	40	50	44	40	38
7	65	51	42	36	63	50	42	36	49	41	36	47	40	35	46	40	35	33
8	60	47	38	32	59	46	38	32	45	37	32	43	37	32	42	36	31	29
9	56	43	34	29	55	42	34	29	41	٠.	29	40	33	28	39	33	28	26
10	53	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	26	24

#### **Zonal Lumen Summary**

Zone	Lumens	%Lamp	%Fixt
0-20	515.20	N.A.	12.70
0-30	1095.31	N.A.	27.10
0-40	1796.69	N.A.	44.40
0-60	3184.62	N.A.	78.70
0-80	3967.55	N.A.	98.10
0-90	4044.17	N.A.	100.00
10-90	3910.96	N.A.	96.70
20-40	1281.49	N.A.	31.70
20-50	2010.58	N.A.	49.70
40-70	1887.56	N.A.	46.70
60-80	782.93	N.A.	19.40
70-80	283.30	N.A.	7.00
80-90	76.63	N.A.	1.90
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.01	N.A.	0.00
90-180	0.76	N.A.	0.00
110-180	0.76	N.A.	0.00
0-180	4044.93	N.A.	100.00

Total Luminaire Efficiency = N.A.%









## **Applications**

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#### Construction

- Rectangular white frame
- Lens: frosted white diffuser
- IP20 rated
- IC rated for direct contact with insulation
- Designed for easy drop into T-bar grid ceilings

#### Electrical

- UL/cUL damp location rated
- 0-10V dimming driver (standard)
- LED driver with integrated junction box
- System rated for long 50,000 hour life

#### **Optics**

- Back-lit technology provides even, uniform lighting
- 120° beam angle
- Frosted diffuser for reduced glare and aesthetic appeal
- Meets or exceeds the look and performance of edge-lit panels



Catalog Ordering Matrix Example: DTF4UZD2941K										
FAMILY	LENS TYPE	SIZE	VOLTAGE	DIMMING	WATTAGE <sup>1,2,3</sup>	COLOR TEMPERATURE	OPTIONS	FRAME OPTIONS		
<b>DT</b> = Direct Back-Lit Troffer	<b>F</b> = Frosted <b>P</b> = Prismatic	<b>4</b> = 2' x 4'	<b>U</b> = 120V-277V	<b>ZD</b> = 0-10V Dimming	<b>29</b> = 3300 Lumens <b>39</b> = 4400 Lumens	<b>27K</b> = 2700K*** <b>30K</b> = 3000K	BLANK = None EB = Battery	BLANK = White Frame		
			<b>H</b> = 120V-347V	<b>ZD</b> = 0-10V Dimming	46 = 5100 Lumens (Wattage Selectable to 46W/39W/29W)	35K = 3500K 41K = 4100K 50K = 5000K 65K = 6500K***	Back-up CP = Chicago Plenum	BLK = Black Frame		

<sup>&</sup>lt;sup>1</sup>Approximate lumen output. Actual performance may vary based on CCT, options selected and end user application.

#### **Accessories:**

Item Number	Description
YHANGER6PK	Y FIT CABLE HANGER 6 PACK
DTSK4	SURFACE MOUNT KIT FOR 2X4 TROFFERS AND PANELS
DTFLK4	RECESS MOUNT FLANGE KIT FOR 2X4 TROFFERS AND PANELS

For the most up-to-date specs and warranty information, please visit www.tcpi.com







<sup>&</sup>lt;sup>2</sup> Actual wattage may differ by +/- 5%; when operating between 120-277V +/- 10%.

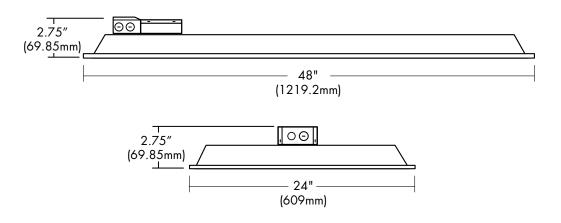
<sup>&</sup>lt;sup>3</sup> 29W and 39W are permanently fixed; 46W is adjustable to 39W or 29W.

<sup>\*\*\*2700</sup>K and 6500K are special order. Please contact your TCP representative for lead times.\*\*\*

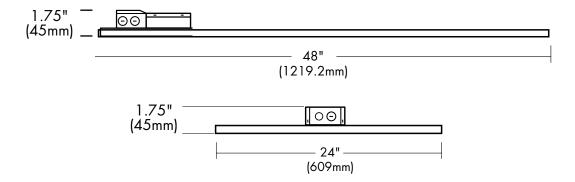


## **Dimensions and Mounting Data**

#### **Back-lit Direct Troffer**



## **Edge-lit Flat Panel**





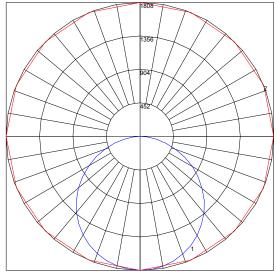




## Photometric Report

Based on photometric data for TCP Item # DTF4UZD4630K (46W)

#### **Polar Graph**



Maximum Candela = 1808.2 Located At Horizontal Angle = 0, Vertical Angle = 0 # 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.) # 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)

## Average Luminance candelas/square meter (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	2333	2317	2318
55	2254	2237	2229
65	2125	2092	2083
75	1904	1866	1822
85	1499	1470	1394

## **Spacing Criterion**

(0-180): 1.28, (90-270): 1.28

Specifications and dimensions subject to change without notice.

## 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	106	106	106	102	102	102	100
1	109	104	99	95	106	101	97	94	97	94	91	93	91	88	90	87	85	83
2	99	90	83	78	96	88	82	77	85	79	75	81	77	73	78	75	71	69
3	90	79	71	64	87	78	70	64	75	68	63	72	66	61	69	64	60	58
4	82	70	61	54	80	69	60	54	66	59	53	64	58	52	62	56	52	50
5	76	63	53	47	73	61	53	46	59	52	46	57	51	45	55	50	45	43
6	70	56	47	41	68	55	47	41	53	46	40	52	45	40	50	44	39	37
7	65	51	42	36	63	50	42	36	49	41	36	47	40	35	46	40	35	33
8	60	46	38	32	59	46	38	32	44	37	32	43	36	31	42	36	31	29
9	56	43	34	29	55	42	34	29	41	34	29	40	33	28	39	33	28	26
10	53	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	26	24

#### **Zonal Lumen Summary**

Zone	Lumens	%Lamp	%Fixt		
0-20	661.93	N.A.	12.70		
0-30	1407.56	N.A.	26.90		
0-40	2309.2	N.A.	44.20		
0-60	4094.49	N.A.	78.40		
0-80	5115.44	N.A.	97.90		
0-90	5222.48	N.A.	100.00		
10-90	5051.35	N.A.	96.70		
20-40	1647.27	N.A.	31.50		
20-50	2584.72	N.A.	49.50		
40-70	2431.84	N.A.	46.60		
60-80	1020.95	N.A.	19.50		
70-80	374.40	N.A.	7.20		
80-90	107.04	N.A.	2.00		
90-110	0.62	N.A.	0.00		
90-120	0.62	N.A.	0.00		
90-130	0.62	N.A.	0.00		
90-150	0.67	N.A.	0.00		
90-180	1.55	N.A.	0.00		
110-180	0.94	N.A.	0.00		
0-180	5224.04	N.A.	100.00		

Total Luminaire Efficiency = N.A.%







# TECHNOLOGY CAST IN A BEAUTIFUL LIGHT

For over 20 years, TCP has been designing, developing and delivering energy-efficient lighting into the market. Thanks to our cutting-edge technology and manufacturing expertise, we have shipped billions of high quality lighting products. With TCP, you can count on a lighting product that is designed to meet the needs of the market - that transforms your surroundings and envelopes you in warmth - lighting that generates beauty with every flip of the switch.