



Photometric Indoor Test Report

Relevant Standards

IES LM-79-2008

ANSI C82.77

Prepared For

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H2P 1H4

Catalog Number

LUXEON ES 3000K 2 BIN GT4-RE-ES-S

LTL Test Number

28228

Test Date

2012-01-31

Prepared By

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Approved By

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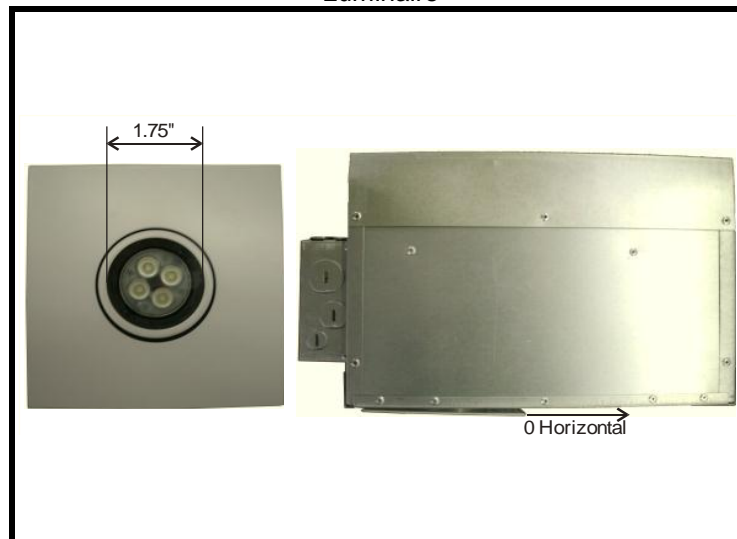
The results contained in this report pertain only to the tested sample.

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Luminaire Description: Formed steel housing, cast aluminum heatsink with black aluminum reflector,
clear glass enclosure with white enamel steel trim
Catalog Number: LUXEON ES 3000K 2 BIN GT4-RE-ES-S
Lamp: Four white LEDs with frosted plastic optics
Mounting: Recessed
Ballast/Driver: One Lightech LED 36CC 700 PU

Luminaire



Zonal Lumen Summary

Zone (Degrees)	Lumens	% of Lamp	% of Luminaire
0-30	353.6	N/A	74.6%
0-40	414.8	N/A	87.6%
0-60	466.7	N/A	98.5%
0-90	473.7	N/A	100.0%
90-180	0	N/A	0%
0-180	473.7	N/A	100.0%

Test Conditions

Test Temperature:	24.3 °C
Voltage:	120.0 VAC
Current:	0.09134 A
Power:	10.67 W
Power Factor:	0.973
Frequency:	60 Hz
Current THD:	16.6 %

Summary of Results

Total Lumen Output: 473.7 Lumens
Luminaire Efficacy: 44.4 Lumens/Watt
CIE Type: Direct

Spacing Criterion: 0.46 All Directions

Data was acquired using the calibrated photodetector method of absolute photometry. A spectral mismatch correction factor was employed based on the spectral responsivity of the photodetector and the spectral power distribution of the test subject.



Candela Tabulation
Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
	0	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209
	5	1099	1099	1099	1099	1099	1099	1099	1099	1099	1099	1099	1099	1099	1099	1099
	10	831	831	831	831	831	831	831	831	831	831	831	831	831	831	831
	15	551	551	551	551	551	551	551	551	551	551	551	551	551	551	551
	20	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351
	25	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224
	30	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145
	35	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96
	40	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
	45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
	50	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
	55	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
	60	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	65	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	70	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Zonal Lumen Tabulation (5 degree zones)

Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens
0-5	27.66	45-50	14.73	90-95	0	135-140	0
5-10	68.57	50-55	10.27	95-100	0	140-145	0
10-15	80.27	55-60	6.87	100-105	0	145-150	0
15-20	72.42	60-65	4.16	105-110	0	150-155	0
20-25	58.90	65-70	2.11	110-115	0	155-160	0
25-30	45.76	70-75	0.70	115-120	0	160-165	0
30-35	34.80	75-80	0	120-125	0	165-170	0
35-40	26.46	80-85	0	125-130	0	170-175	0
40-45	20.01	85-90	0	130-135	0	175-180	0



Utilization of Lumens - Zonal Cavity Method

Effective Floor Cavity Reflectance 20%												
Ceiling Cavity Reflectance	90				80				70			
Wall Reflectance	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **											
0	577.7	577.7	577.7	577.7	563.9	563.9	563.9	563.9	550.8	550.8	550.8	550.8
1	551.1	536.9	524.3	513.0	538.8	526.2	514.9	504.7	527.2	516.0	505.9	496.7
2	524.5	499.8	479.7	462.9	513.6	491.4	473.1	457.6	503.2	483.3	466.6	452.5
3	499.3	467.2	442.8	423.5	489.4	460.4	437.9	420.0	480.1	453.9	433.3	416.6
4	475.6	438.4	411.7	391.5	466.8	432.9	408.1	389.1	458.5	427.6	404.6	386.8
5	453.6	413.0	385.2	364.9	445.7	408.5	382.4	363.2	438.2	404.1	379.8	361.6
6	433.2	390.4	362.3	342.3	426.1	386.6	360.2	341.2	419.4	383.0	358.1	340.0
7	414.4	370.3	342.3	322.9	408.0	367.1	340.6	322.0	401.9	364.0	339.0	321.2
8	397.0	352.2	324.6	305.9	391.2	349.5	323.3	305.3	385.7	346.9	322.0	304.7
9	380.9	335.9	308.9	291.0	375.7	333.6	307.9	290.5	370.7	331.4	306.8	290.0
10	366.0	321.2	294.9	277.6	361.3	319.2	294.0	277.2	356.8	317.3	293.1	276.9

Ceiling Cavity Reflectance	50				30			10			0
Wall Reflectance	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **										
0	526.3	526.3	526.3	526.3	503.9	503.9	503.9	483.4	483.4	483.4	473.7
1	505.7	496.9	488.8	481.4	479.3	473.0	467.1	463.1	458.2	453.6	445.3
2	484.1	468.1	454.4	442.6	454.1	443.0	433.2	441.1	432.2	424.2	416.6
3	463.1	441.6	424.3	410.0	430.2	415.8	403.6	419.7	407.7	397.5	390.3
4	443.2	417.5	397.9	382.3	408.2	391.4	377.9	399.5	385.3	373.6	366.7
5	424.5	395.8	374.6	358.4	388.0	369.7	355.3	380.8	365.0	352.3	345.6
6	407.0	376.0	354.1	337.7	369.6	350.2	335.4	363.5	346.5	333.2	326.8
7	390.8	358.2	335.8	319.5	352.7	332.7	317.8	347.5	329.8	316.2	310.0
8	375.7	341.9	319.4	303.4	337.2	317.0	302.2	332.8	314.6	300.9	294.9
9	361.6	327.1	304.7	289.0	323.0	302.7	288.1	319.2	300.7	287.1	281.3
10	348.5	313.6	291.4	276.1	310.1	289.7	275.4	306.7	288.1	274.7	269.0

Average Luminance Table (cd/m²)

Horizontal Angle (Degrees)		0	45	90
Vertical Angle (Degree)	0	779400	779400	779400
	45	40390	40390	40390
	55	21010	21010	21010
	65	9493	9493	9493
	75	0	0	0
	85	0	0	0

This test was conducted using photometry techniques according to standard IES procedures. The user must therefore use caution in the following situations: 1) This test was performed using a specific ballast/lamp combination. Extrapolation of this data for other ballast/lamp combinations may produce erroneous results. 2) This test was conducted in a controlled laboratory environment where the ambient temperature was held at 25°C ±1°C. Field performance may differ particularly in regards to change in luminous output as a result of difference in ambient temperature and method of mounting the luminaire.



Polar Plot (Candela)

