Photometric Test Report

Relevant Standards

☑IES LM-79-2008
☑ANSI C82.77:2017

Prepared For

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1.0 Test Summary

DLC Technical Requirements v5.1

Indoor - Troffer - 2X4 Luminaires for Ambient Lighting of Interior Commercial Spaces				
Requirement Category	**Test Method**	**Requirements**		**Test value**
Luminaire Description:	EZPANFAHE2X4 / 30W / 3500K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	3000		4064
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	135.0
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		30.1
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	4.42%
		20.00%	277V	11.04%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.998
		0.9	277V	0.952
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3465±245	3417
		4 step	3465±124	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		83
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		7
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		94
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-12%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		76.81%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		19.0
SC: 0-180° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.32
SC: 90-270° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.26
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.115
(Goniophotometer - Section 4.2)		Non-Worst Case		0.247
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		30.1
(Goniophotometer - Section 4.2)		Non-Worst Case		29.4

Luminaire Description:	EZPANFAHE2X4 / 30W / 4000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	3000		4167
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	141.5
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		29.5
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	4.51%
		20.00%	277V	10.74%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.998
		0.9	277V	0.950
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3985±275	4039
		4 step	3985±154	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		83
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		10
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		93
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-12%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		76.76%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		19.1
SC: 0-180° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.32
SC: 90-270° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.28
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.113
(Goniophotometer - Section 4.2)		Non-Worst Case		0.242
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		29.5
(Goniophotometer - Section 4.2)		Non-Worst Case		28.9
Luminaire Description:	EZPANFAHE2X4 / 30W / 5000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	3000		4178
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	138.5
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		30.2

Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	4.44%
		20.00%	277V	11.05%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.998
		0.9	277V	0.953
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	4845
		4 step	5029±220	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		82
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		3
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		93
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-13%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		76.74%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		19.6
SC: 0-180° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.32
SC: 90-270° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.28
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.115
(Goniophotometer - Section 4.2)		Non-Worst Case		0.249
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		30.2
(Goniophotometer - Section 4.2)		Non-Worst Case		29.7
Luminaire Description:	EZPANFAHE2X4 / 40W / 3500K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	3000		5149
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	132.8
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		38.8
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	4.91%
		20.00%	277V	9.99%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.998
		0.9	277V	0.976
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3465±245	3422
		4 step	3465±124	

Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		83
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		7
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		94
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-12%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		76.74%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		19.8
SC: 0-180° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.32
SC: 90-270° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.26
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.144
(Goniophotometer - Section 4.2)		Non-Worst Case		0.325
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		38.8
(Goniophotometer - Section 4.2)		Non-Worst Case		38.4
Luminaire Description:	EZPANFAHE2X4 / 40W / 4000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	3000		5332
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	141.2
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		37.8
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	5.16%
		20.00%	277V	9.36%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.998
		0.9	277V	0.975
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3985±275	4046
		4 step	3985±154	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		83
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		9
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83

Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		93
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-12%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		76.74%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		19.9
SC: 0-180° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.32
SC: 90-270° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.28
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.140
(Goniophotometer - Section 4.2)		Non-Worst Case		0.314
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		37.8
(Goniophotometer - Section 4.2)		Non-Worst Case		37.4
Luminaire Description:	EZPANFAHE2X4 / 40W / 5000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	3000		5305
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	136.6
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		38.8
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	5.00%
		20.00%	277V	10.02%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.998
		0.9	277V	0.977
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	4853
		4 step	5029±220	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		83
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		6
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		93
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-13%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		76.72%

Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		19.9
SC: 0-180° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.32
SC: 90-270° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.26
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.144
(Goniophotometer - Section 4.2)		Non-Worst Case		0.322
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		38.8
(Goniophotometer - Section 4.2)		Non-Worst Case		38.4
Luminaire Description:	EZPANFAHE2X4 / 50W / 3500K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	3000		6281
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	130.1
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		48.3
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	5.83%
		20.00%	277V	10.85%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.998
		0.9	277V	0.987
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3465±245	3432
		4 step	3465±124	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		83
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		9
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		94
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-12%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		76.73%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		20.5
SC: 0-180° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.32
SC: 90-270° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.28

Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.177
(Goniophotometer - Section 4.2)		Non-Worst Case		0.402
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		48.3
(Goniophotometer - Section 4.2)		Non-Worst Case		48.0
Luminaire Description:	EZPANFAHE2X4 / 50W / 4000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	3000		6548
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	140.0
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		46.8
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	6.11%
		20.00%	277V	10.11%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.997
		0.9	277V	0.986
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3985±275	4043
		4 step	3985±154	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		83
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		9
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		93
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-12%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		76.50%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		20.8
SC: 0-180° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.32
SC: 90-270° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.28
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.172
(Goniophotometer - Section 4.2)		Non-Worst Case		0.389
Power (Input Wattage - W)				

(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		46.8
(Goniophotometer - Section 4.2)		Non-Worst Case		46.4
Luminaire Description:	EZPANFAHE2X4 / 50W / 5000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	3000		6473
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	133.8
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		48.4
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	5.84%
		20.00%	277V	10.82%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.998
		0.9	277V	0.987
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	4863
		4 step	5029±220	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		83
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		5
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		93
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-13%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		76.71%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		20.6
SC: 0-180° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.32
SC: 90-270° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.26
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.177
(Goniophotometer - Section 4.2)		Non-Worst Case		0.407
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		48.4
(Goniophotometer - Section 4.2)		Non-Worst Case		48.1

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2021/11/19	EZPANFAHE2X4	C1
2	Goniophotometer Test	2021/11/19	EZPANFAHE2X4	C1
3	THD and PF Test	2021/11/19	EZPANFAHE2X4	C1

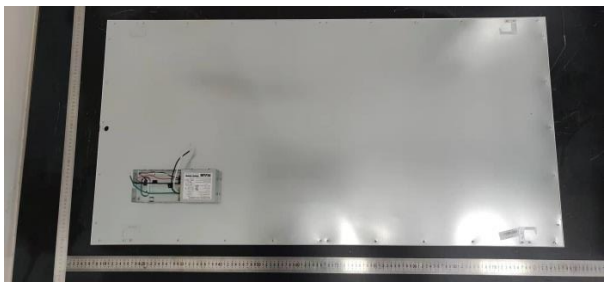
Remark(If any)
1、This report shall not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the US government.
2、The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.

3.0 Production Description

Luminaire Description: EZPANFAHE2X4

Electrical Specification: 120V-277V,50/60HZ

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE2X4 / 30W / 3500K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C.
The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.
The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.99	60	0.246	29.5	0.998
277.03	60	0.114	30.0	0.952

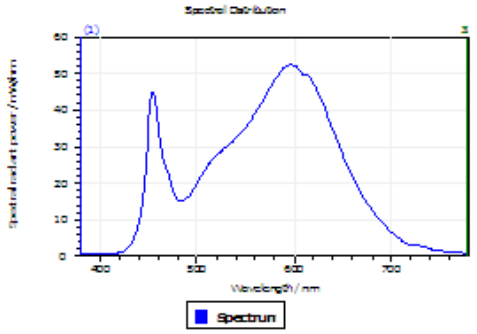
Test Result

CCT (K)	CRI	R9	Duv
3417	83	7	0.00086

Rf	Rg	IES Rcs,h1
83	94	-12%

4.1 Integrating Sphere Test

Results



Spectral values

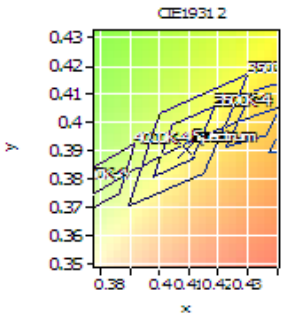
DominantWavelength	581.55 nm
Purity	0.400
PeakWavelength	596.44 nm
Radiant Power	8.274 W
Width50%:	137.40 nm

Color Coordinates

Correlated Color Temperat 3417 K

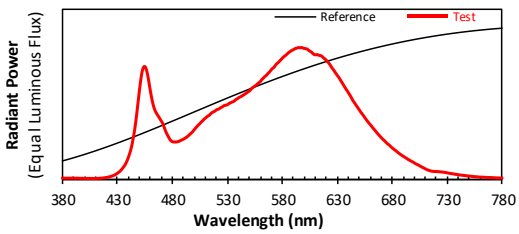
x:	0.4091	u:	0.2382	u':	0.2382
y:	0.3906	v:	0.3412	v':	0.5118

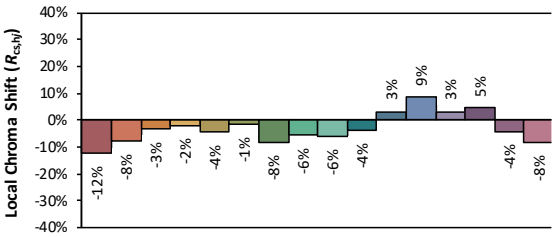
ResultsCRICRI01	81.7	ResultsCRICRI09	7.4
ResultsCRICRI02	92.9	ResultsCRICRI10	83.0
ResultsCRICRI03	94.4	ResultsCRICRI11	78.1
ResultsCRICRI04	79.1	ResultsCRICRI12	66.8
ResultsCRICRI05	81.9	ResultsCRICRI13	84.8
ResultsCRICRI06	90.3	ResultsCRICRI14	97.7
ResultsCRICRI07	81.8	ResultsCRICRI15	74.6
ResultsCRICRI08	59.6	ResultsCRICRI16	70.8
ResultsCRI	82.7		

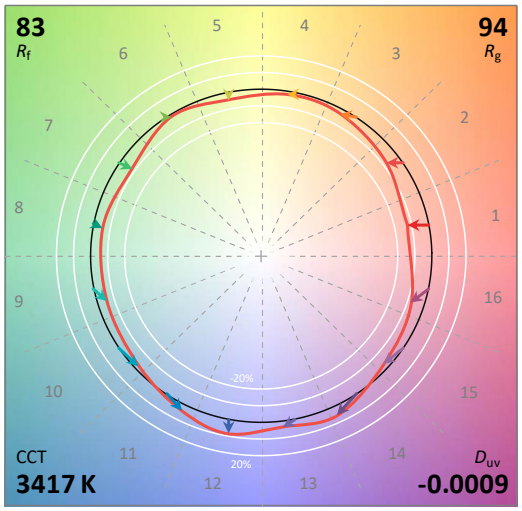


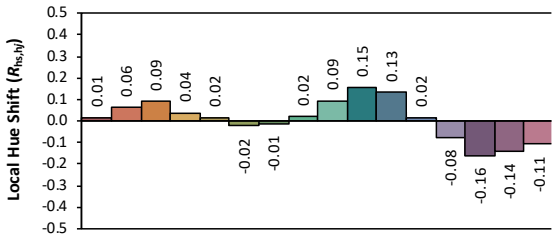
PlanckDistance 8.6E-004

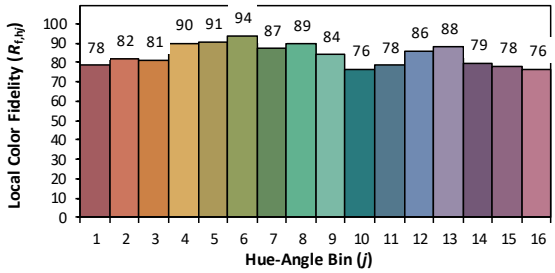
4.1 Integrating Sphere Test

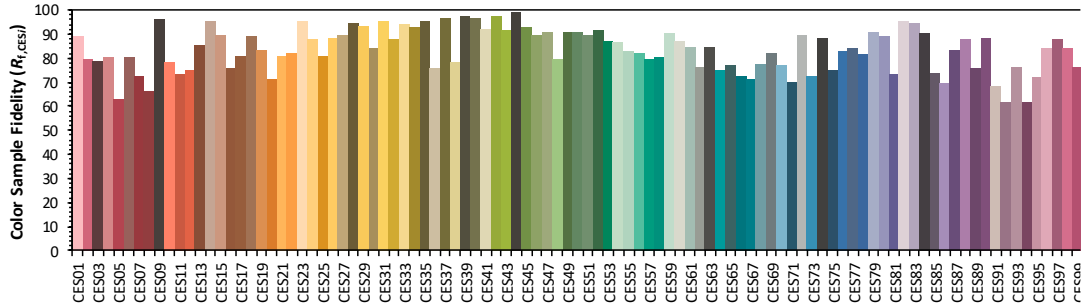












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.4091
y	0.3906
u'	0.2382
v'	0.5118

CIE 13.3-1995 (CRI)

R_a	83
R_9	8

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE2X4 / 30W / 4000K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C.
The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.
The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.95	60	0.240	28.7	0.998
277.03	60	0.111	29.3	0.950

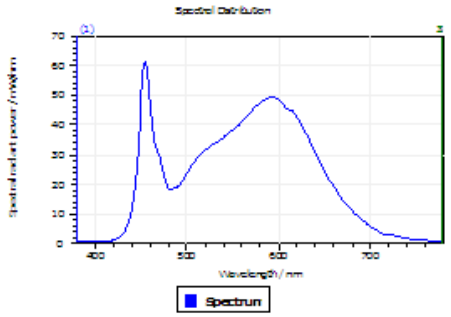
Test Result

CCT (K)	CRI	R9	Duv
4039	83	10	0.00024

Rf	Rg	IES Rcs,h1
83	93	-12%

4.1 Integrating Sphere Test

Results



Spectral values

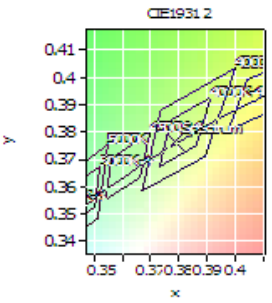
DominantWavelength	578.79 nm
Purity	0.267
PeakWavelength	454.65 nm
Radiant Power	8.548 W
Width50%:	22.38 nm

Color Coordinates

Correlated Color Temperat 4039 K

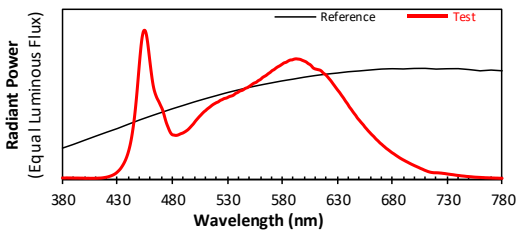
x: 0.3789 u: 0.2243 u': 0.2243
y: 0.3763 v: 0.3341 v': 0.5012

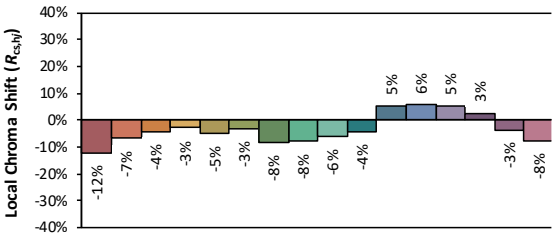
ResultsCRICRI01	82.4	ResultsCRICRI09	9.7
ResultsCRICRI02	92.9	ResultsCRICRI10	82.5
ResultsCRICRI03	94.8	ResultsCRICRI11	78.4
ResultsCRICRI04	79.2	ResultsCRICRI12	61.6
ResultsCRICRI05	82.0	ResultsCRICRI13	85.7
ResultsCRICRI06	89.0	ResultsCRICRI14	97.8
ResultsCRICRI07	83.6	ResultsCRICRI15	75.8
ResultsCRICRI08	62.8	ResultsCRICRI16	71.4
ResultsCRI	83.4		

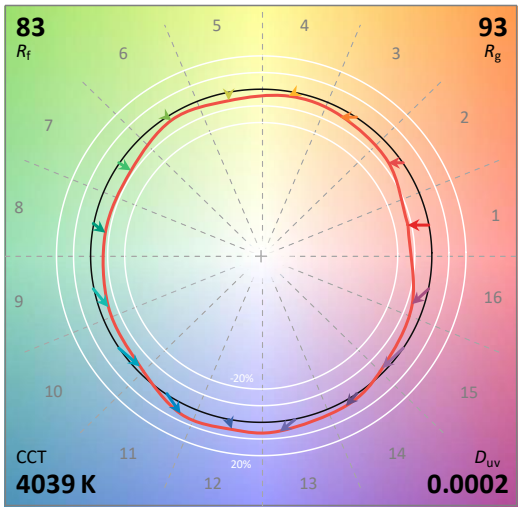


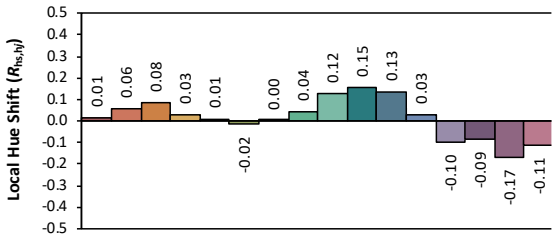
PlanckDistance 2.4E-004

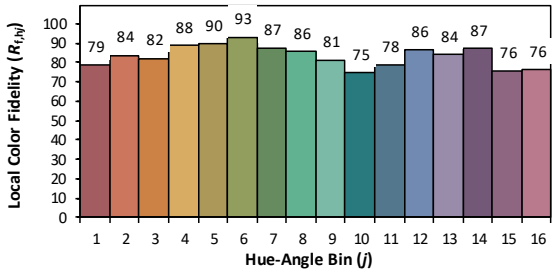
4.1 Integrating Sphere Test

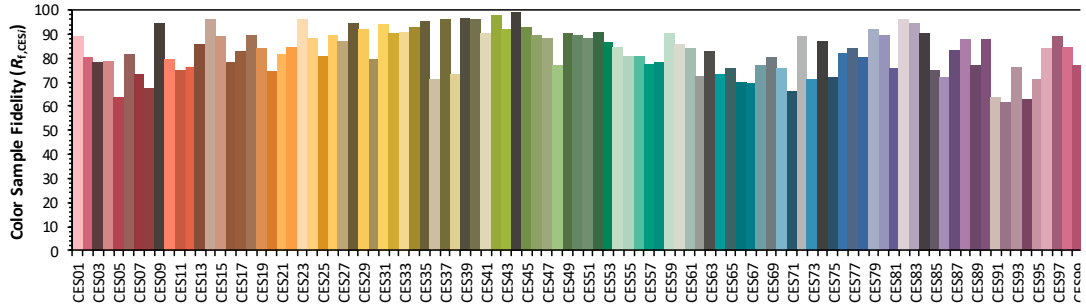












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3789
y	0.3763
u'	0.2243
v'	0.5012

CIE 13.3-1995 (CRI)

R_a	84
R_9	11

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE2X4 / 30W / 5000K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C.
The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.
The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.02	60	0.247	29.6	0.998
277.00	60	0.114	30.1	0.953

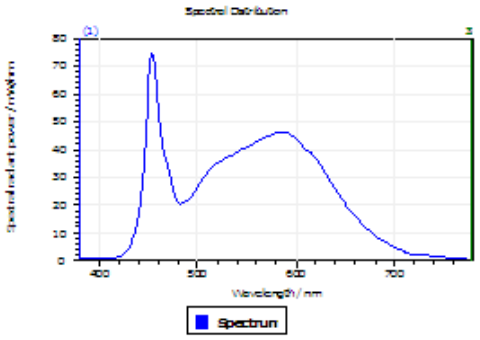
Test Result

CCT (K)	CRI	R9	Duv
4845	82	3	0.0036

Rf	Rg	IES Rcs,h1
83	93	-13%

4.1 Integrating Sphere Test

Results



Spectral values

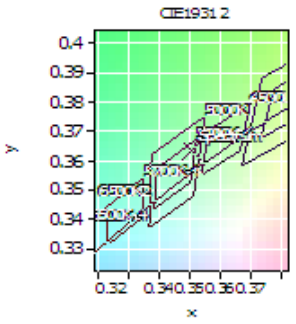
DominantWavelength	571.53 nm
Purity	0.142
PeakWavelength	454.03 nm
Radiant Power	8.662 W
Width50%:	21.40 nm

Color Coordinates

Correlated Color Temperat 4845 K

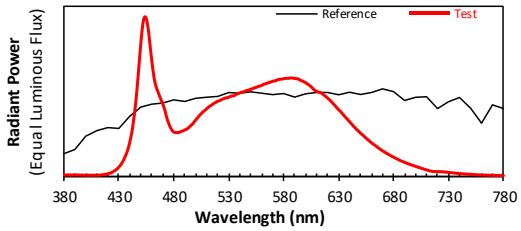
x:	0.3505	u:	0.2106	u':	0.2106
y:	0.3632	v:	0.3274	v':	0.4910

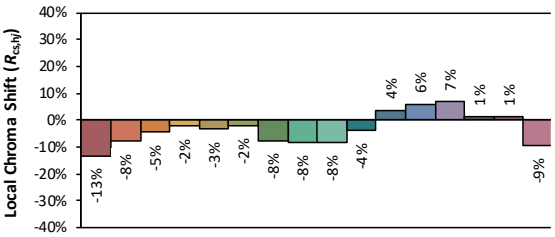
ResultsCRICRI01	80.1	ResultsCRICRI09	2.7
ResultsCRICRI02	90.8	ResultsCRICRI10	77.3
ResultsCRICRI03	95.0	ResultsCRICRI11	76.4
ResultsCRICRI04	77.6	ResultsCRICRI12	54.7
ResultsCRICRI05	79.7	ResultsCRICRI13	83.4
ResultsCRICRI06	85.8	ResultsCRICRI14	97.7
ResultsCRICRI07	84.9	ResultsCRICRI15	73.2
ResultsCRICRI08	63.3	ResultsCRICRI16	68.4
ResultsCRI	82.1		

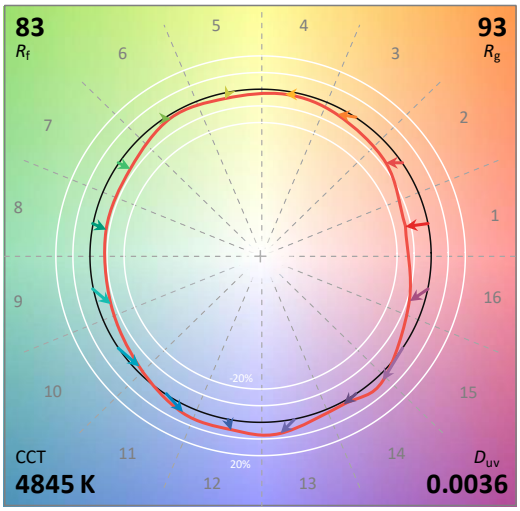


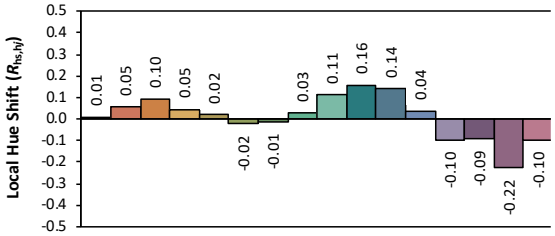
PlanckDistance	3.6E-003

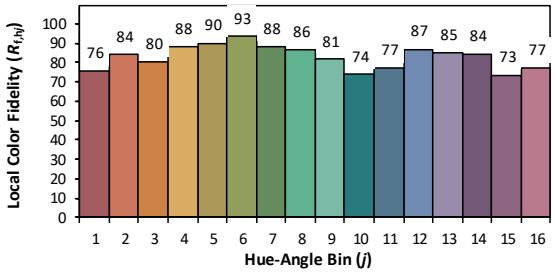
4.1 Integrating Sphere Test

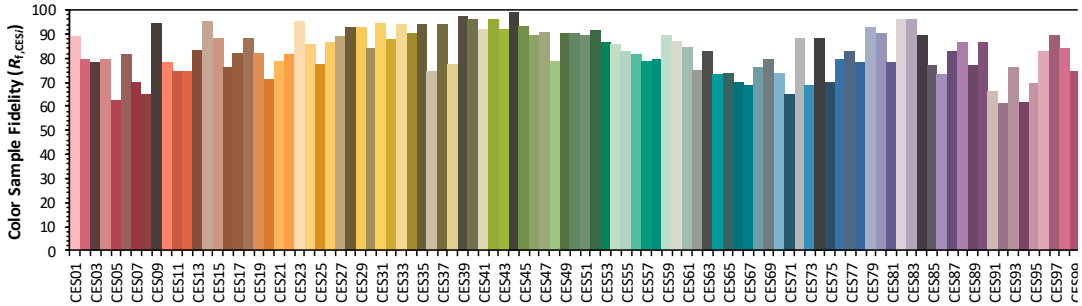












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3505
y	0.3632
u'	0.2106
v'	0.4910

CIE 13.3-1995 (CRI)

R_a	82
R_9	4

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE2X4 / 40W / 3500K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C.
The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.
The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.98	60	0.320	38.3	0.998
277.03	60	0.143	38.7	0.976

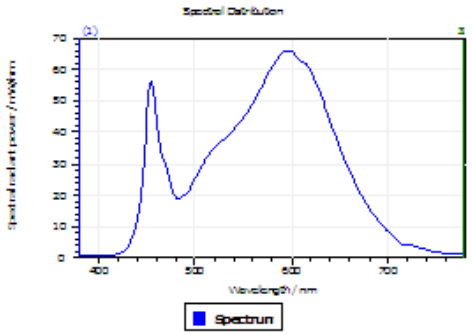
Test Result

CCT (K)	CRI	R9	Duv
3422	83	7	0.00083

Rf	Rg	IES Rcs,h1
83	94	-12%

4.1 Integrating Sphere Test

Results



Spectral values

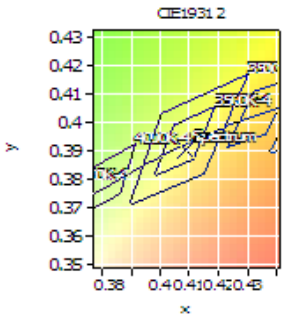
DominantWavelength	581.52 nm
Purity	0.399
PeakWavelength	596.29 nm
Radiant Power	10.44 W
Width50%:	137.34 nm

Color Coordinates

Correlated Color Temperat 3422 K

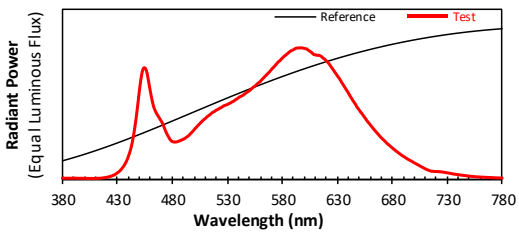
x:	0.4088	u:	0.2381	u':	0.2381
y:	0.3905	v:	0.3411	v':	0.5117

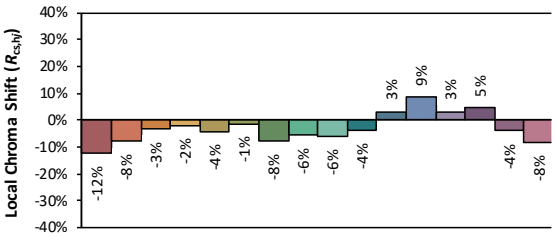
ResultsCRICRI01	81.5	ResultsCRICRI09	6.6
ResultsCRICRI02	92.8	ResultsCRICRI10	82.8
ResultsCRICRI03	94.3	ResultsCRICRI11	77.8
ResultsCRICRI04	78.8	ResultsCRICRI12	66.9
ResultsCRICRI05	81.7	ResultsCRICRI13	84.6
ResultsCRICRI06	90.2	ResultsCRICRI14	97.6
ResultsCRICRI07	81.7	ResultsCRICRI15	74.3
ResultsCRICRI08	59.2	ResultsCRICRI16	70.6
ResultsCRI	82.5		

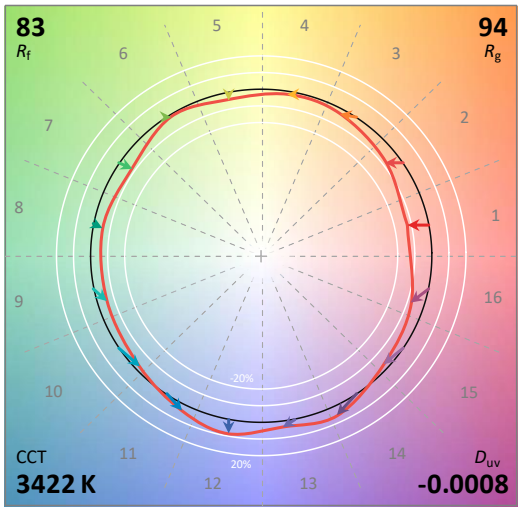


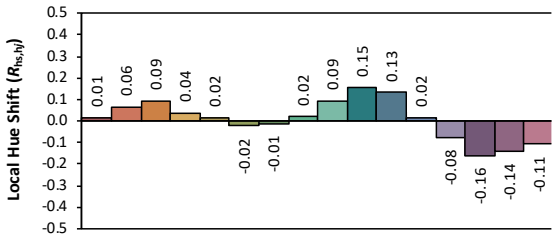
PlanckDistance 8.3E-004

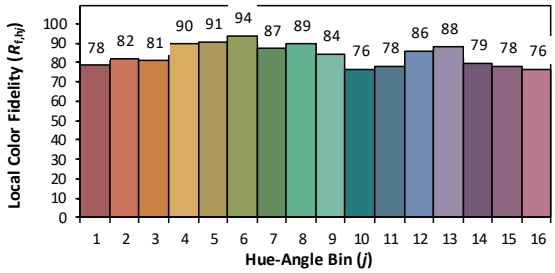
4.1 Integrating Sphere Test

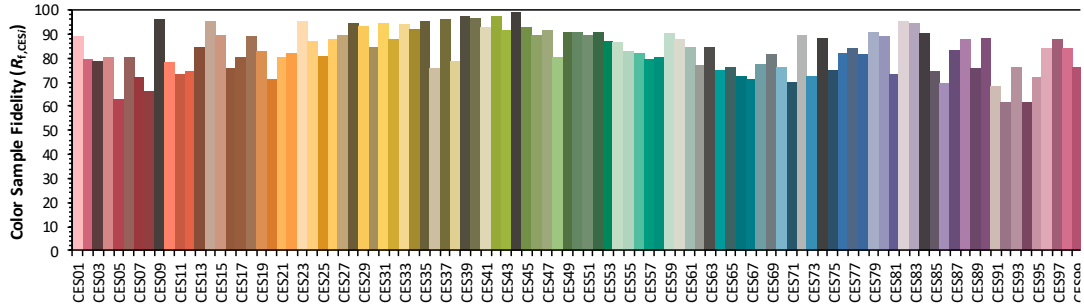












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.4088
y	0.3905
u'	0.2381
v'	0.5117

CIE 13.3-1995 (CRI)

R_a	83
R_9	8

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE2X4 / 40W / 4000K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C.
The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.
The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.99	60	0.310	37.1	0.998
277.01	60	0.139	37.5	0.975

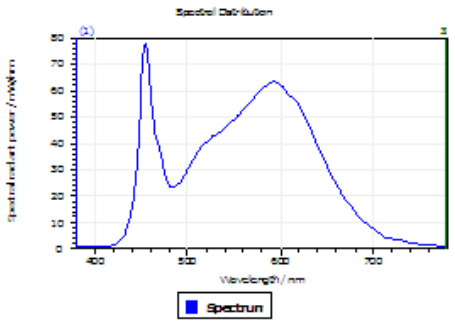
Test Result

CCT (K)	CRI	R9	Duv
4046	83	9	0.00025

Rf	Rg	IES Rcs,h1
83	93	-12%

4.1 Integrating Sphere Test

Results



Spectral values

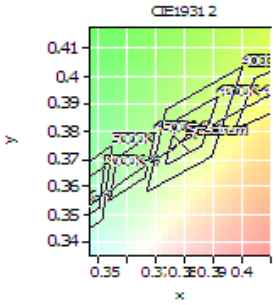
DominantWavelength	578.75 nm
Purity	0.265
PeakWavelength	454.62 nm
Radiant Power	10.94 W
Width50%:	22.70 nm

Color Coordinates

Correlated Color Temperat 4046 K

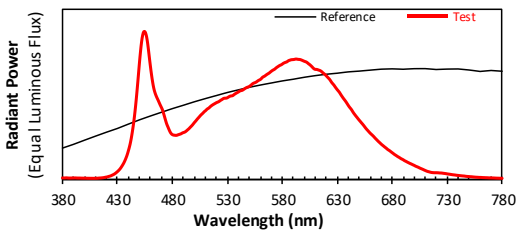
x:	0.3786	u:	0.2241	u':	0.2241
y:	0.3762	v:	0.3340	v':	0.5010

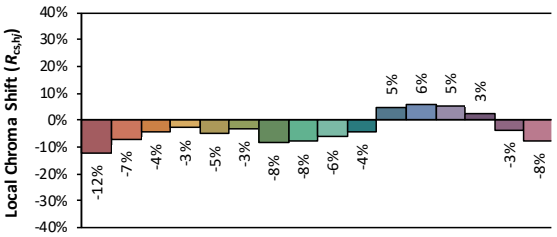
ResultsCRICRI01	82.2	ResultsCRICRI09	9.0
ResultsCRICRI02	92.8	ResultsCRICRI10	82.3
ResultsCRICRI03	94.7	ResultsCRICRI11	78.1
ResultsCRICRI04	79.0	ResultsCRICRI12	61.7
ResultsCRICRI05	81.8	ResultsCRICRI13	85.5
ResultsCRICRI06	89.0	ResultsCRICRI14	97.8
ResultsCRICRI07	83.5	ResultsCRICRI15	75.5
ResultsCRICRI08	62.5	ResultsCRICRI16	71.2
ResultsCRI	83.2		

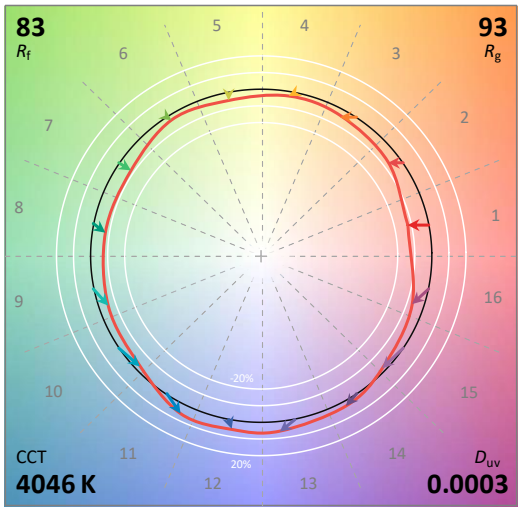


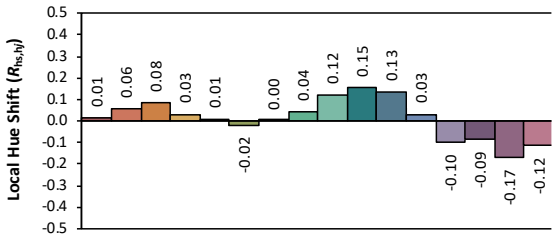
PlanckDistance 2.5E-004

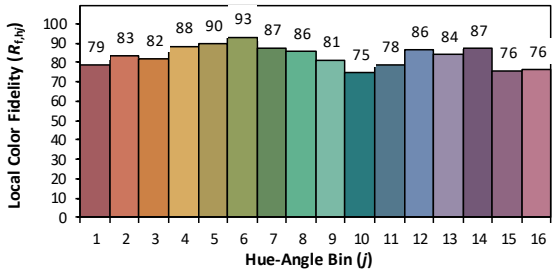
4.1 Integrating Sphere Test

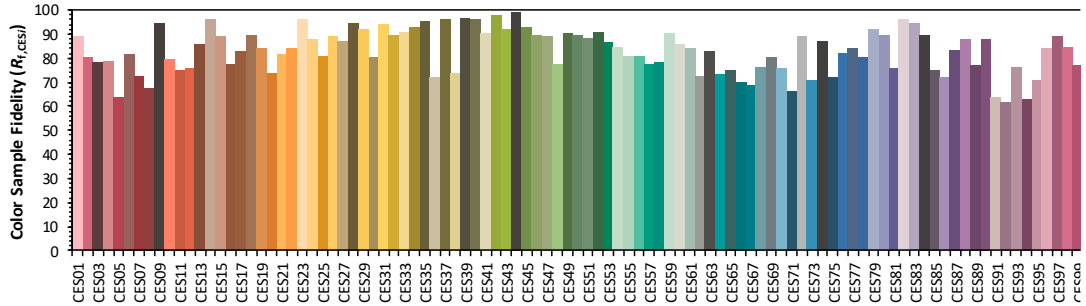












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3786
y	0.3762
u'	0.2241
v'	0.5010

CIE 13.3-1995 (CRI)

R_a	84
R_9	11

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE2X4 / 40W / 5000K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C.
The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.
The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.98	60	0.321	38.4	0.998
276.99	60	0.143	38.8	0.977

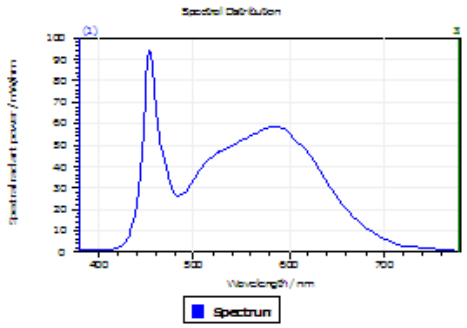
Test Result

CCT (K)	CRI	R9	Duv
4853	83	6	0.0036

Rf	Rg	IES Rcs,h1
83	93	-13%

4.1 Integrating Sphere Test

Results



Spectral values

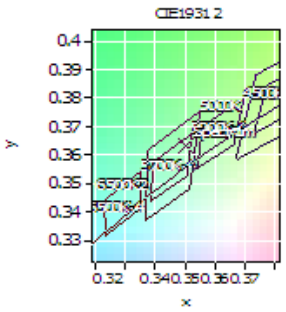
DominantWavelength	571.46 nm
Purity	0.141
PeakWavelength	453.94 nm
Radiant Power	10.99 W
Width50%:	21.69 nm

Color Coordinates

Correlated Color Temperat 4853 K

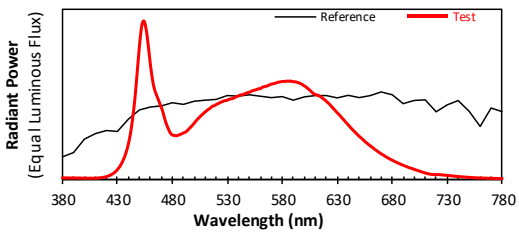
x:	0.3503	u:	0.2105	u':	0.2105
y:	0.3630	v:	0.3273	v':	0.4909

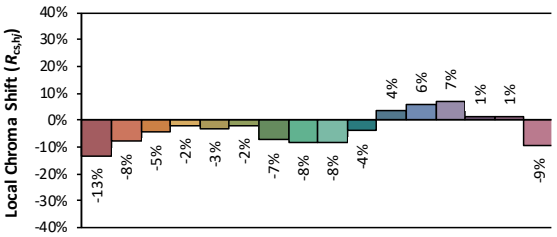
ResultsCRICRI01	80.5	ResultsCRICRI09	5.5
ResultsCRICRI02	90.2	ResultsCRICRI10	76.0
ResultsCRICRI03	95.2	ResultsCRICRI11	77.7
ResultsCRICRI04	78.9	ResultsCRICRI12	53.6
ResultsCRICRI05	80.2	ResultsCRICRI13	83.5
ResultsCRICRI06	85.3	ResultsCRICRI14	97.8
ResultsCRICRI07	86.1	ResultsCRICRI15	74.1
ResultsCRICRI08	65.0	ResultsCRICRI16	69.5
ResultsCRI	82.7		

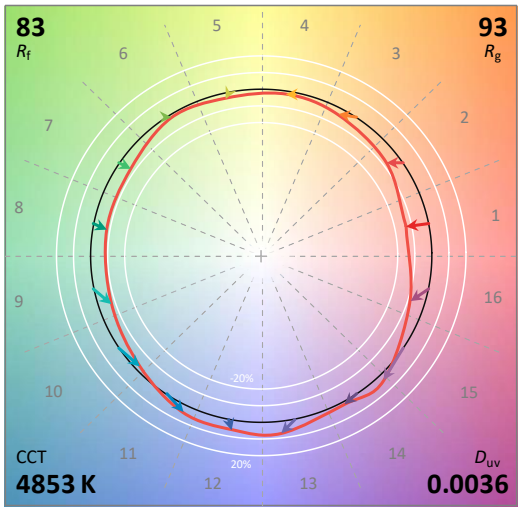


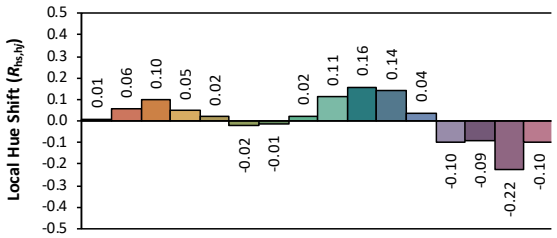
PlanckDistance 3.6E-003

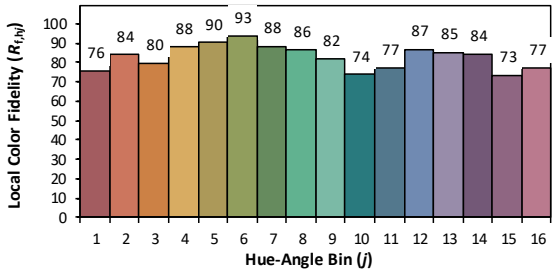
4.1 Integrating Sphere Test

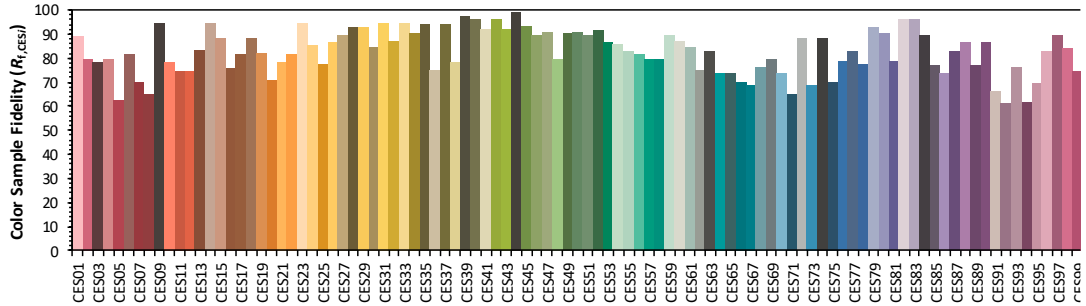












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3503
y	0.3630
u'	0.2105
v'	0.4909

CIE 13.3-1995 (CRI)

R_a	82
R_9	4

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE2X4 / 50W / 3500K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C.
The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.
The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.00	60	0.399	47.8	0.998
276.99	60	0.176	48.1	0.987

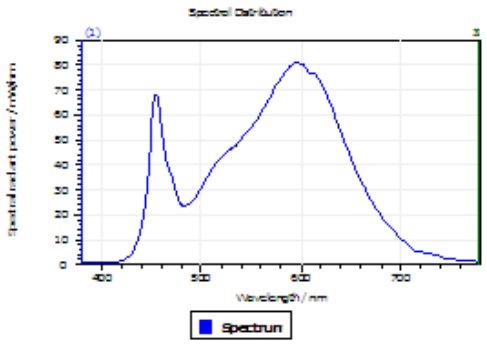
Test Result

CCT (K)	CRI	R9	Duv
3432	83	9	0.00083

Rf	Rg	IES Rcs,h1
83	94	-12%

4.1 Integrating Sphere Test

Results



Spectral values

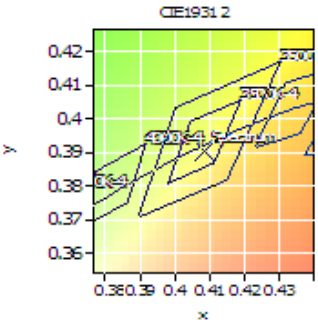
DominantWavelength	581.49 nm
Purity	0.397
PeakWavelength	596.13 nm
Radiant Power	12.83 W
Width50%:	137.38 nm

Color Coordinates

Correlated Color Temperat 3432 K

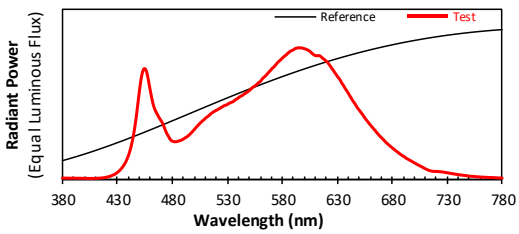
x:	0.4083	u:	0.2378	u':	0.2378
y:	0.3903	v:	0.3410	v':	0.5115

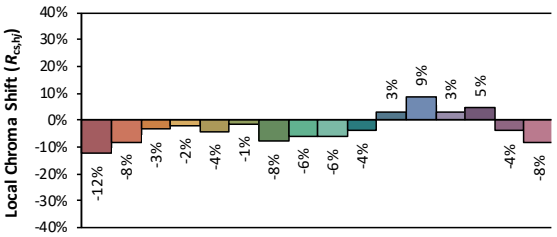
ResultsCRICRI01	81.9	ResultsCRICRI09	8.7
ResultsCRICRI02	92.5	ResultsCRICRI10	82.0
ResultsCRICRI03	95.3	ResultsCRICRI11	78.5
ResultsCRICRI04	79.7	ResultsCRICRI12	65.9
ResultsCRICRI05	82.0	ResultsCRICRI13	84.8
ResultsCRICRI06	89.6	ResultsCRICRI14	98.2
ResultsCRICRI07	82.7	ResultsCRICRI15	75.2
ResultsCRICRI08	60.8	ResultsCRICRI16	71.7
ResultsCRI	83.1		

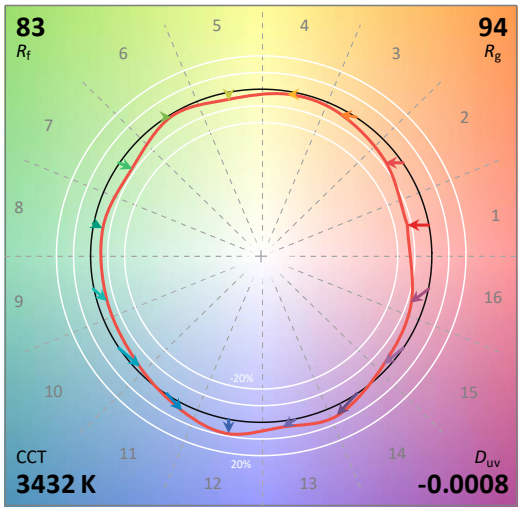


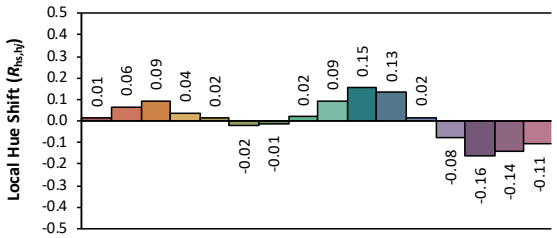
PlanckDistance 8.3E-004

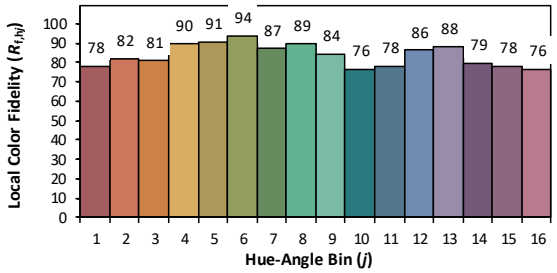
4.1 Integrating Sphere Test

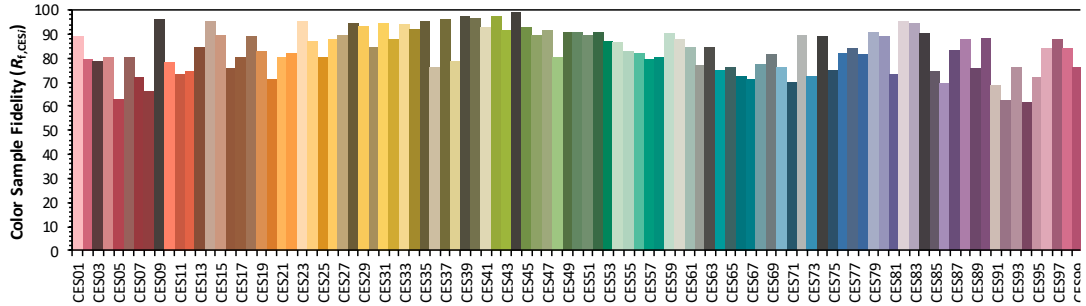












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.4083
y	0.3903
u'	0.2378
v'	0.5115

CIE 13.3-1995 (CRI)

R_a	83
R_9	8

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE2X4 / 50W / 4000K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C.
The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.
The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.99	60	0.384	45.9	0.997
277.01	60	0.169	46.3	0.986

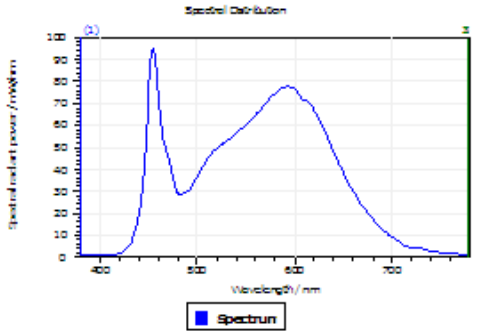
Test Result

CCT (K)	CRI	R9	Duv
4043	83	9	0.00019

Rf	Rg	IES Rcs,h1
83	93	-12%

4.1 Integrating Sphere Test

Results



Spectral values

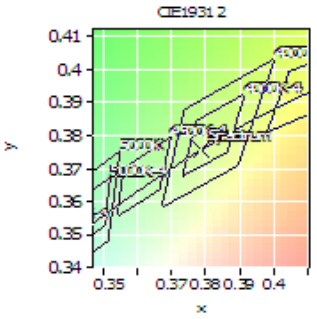
DominantWavelength	578.80 nm
Purity	0.265
PeakWavelength	454.61 nm
Radiant Power	13.42 W
Width50%:	22.77 nm

Color Coordinates

Correlated Color Temperat 4043 K

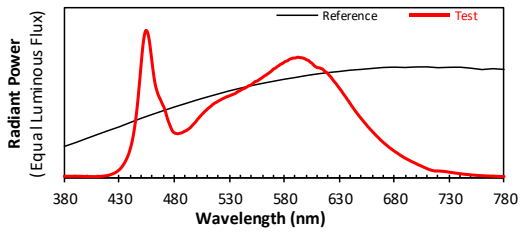
x:	0.3787	u:	0.2242	u':	0.2242
y:	0.3761	v:	0.3340	v':	0.5010

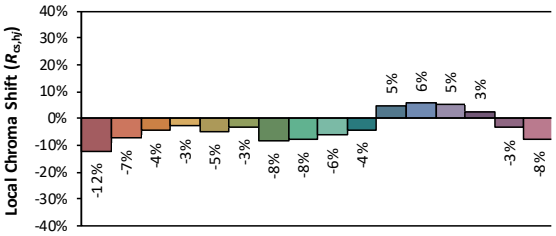
ResultsCRICRI01	82.2	ResultsCRICRI09	9.1
ResultsCRICRI02	92.8	ResultsCRICRI10	82.2
ResultsCRICRI03	94.8	ResultsCRICRI11	78.1
ResultsCRICRI04	79.1	ResultsCRICRI12	61.8
ResultsCRICRI05	81.8	ResultsCRICRI13	85.5
ResultsCRICRI06	88.9	ResultsCRICRI14	97.8
ResultsCRICRI07	83.5	ResultsCRICRI15	75.5
ResultsCRICRI08	62.6	ResultsCRICRI16	71.2
ResultsCRI	83.2		

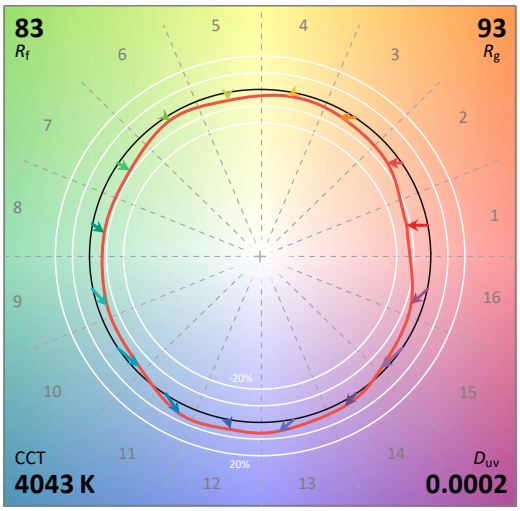


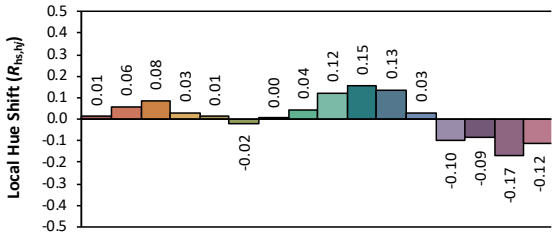
PlanckDistance	1.9E-004

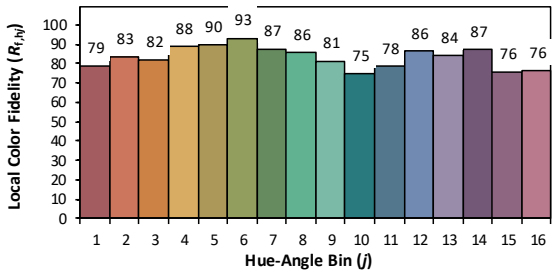
4.1 Integrating Sphere Test

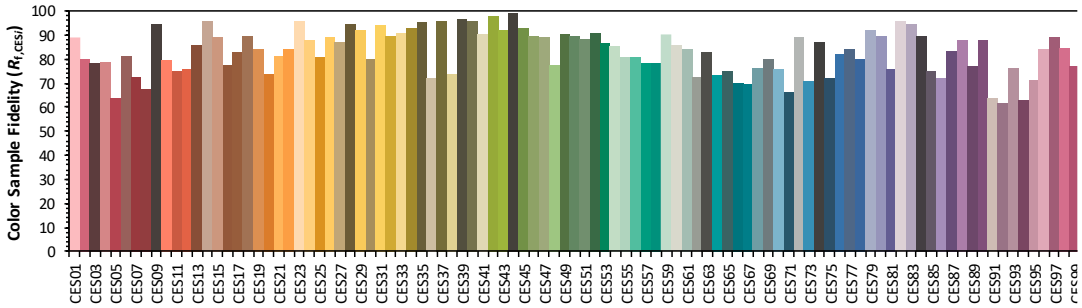












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3787
y	0.3761
u'	0.2242
v'	0.5010

CIE 13.3-1995 (CRI)

R_a	84
R_9	11

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE2X4 / 50W / 5000K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C.
The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.
The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.05	60	0.398	47.7	0.998
276.96	60	0.176	48.0	0.987

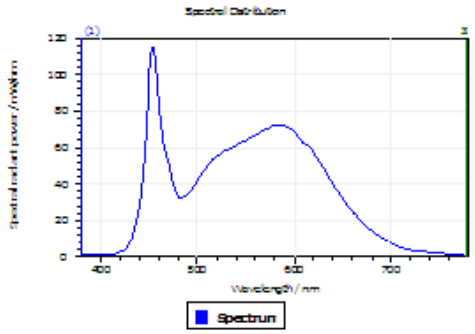
Test Result

CCT (K)	CRI	R9	Duv
4863	83	5	0.0036

Rf	Rg	IES Rcs,h1
83	93	-13%

4.1 Integrating Sphere Test

Results



Spectral values

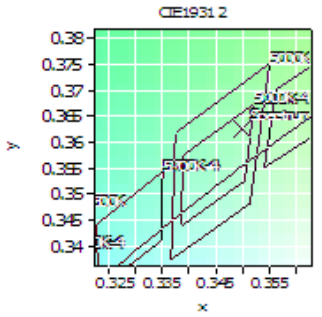
DominantWavelength	571.38 nm
Purity	0.139
PeakWavelength	464.00 nm
Radiant Power	13.56 W
Width50%:	21.98 nm

Color Coordinates

Correlated Color Temperat 4863 K

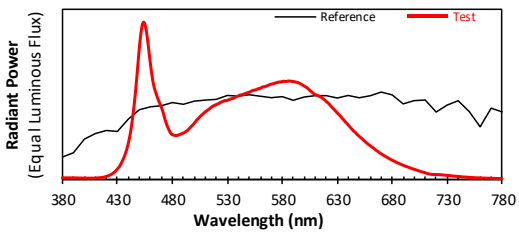
x:	0.3500	u:	0.2105	u':	0.2105
y:	0.3626	v:	0.3271	v':	0.4907

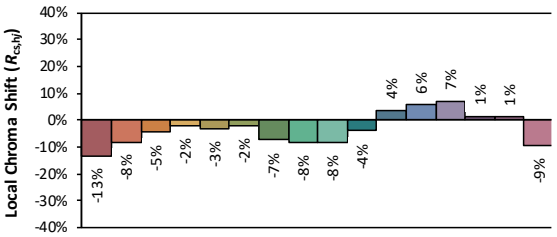
ResultsCRICRI01	80.4	ResultsCRICRI09	5.1
ResultsCRICRI02	90.2	ResultsCRICRI10	76.0
ResultsCRICRI03	95.2	ResultsCRICRI11	77.4
ResultsCRICRI04	78.7	ResultsCRICRI12	53.9
ResultsCRICRI05	80.1	ResultsCRICRI13	83.4
ResultsCRICRI06	85.3	ResultsCRICRI14	97.8
ResultsCRICRI07	86.0	ResultsCRICRI15	74.0
ResultsCRICRI08	64.8	ResultsCRICRI16	69.4
ResultsCRI	82.6		

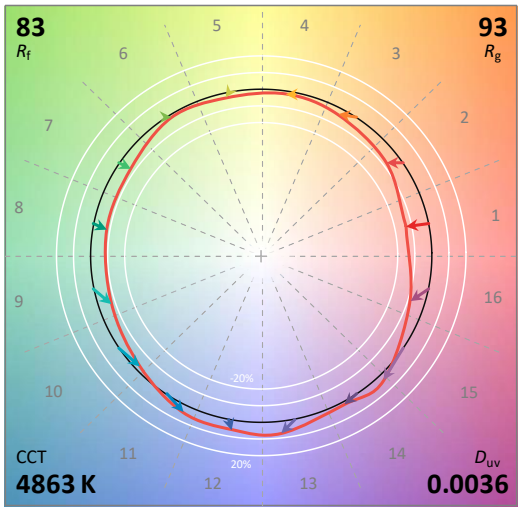


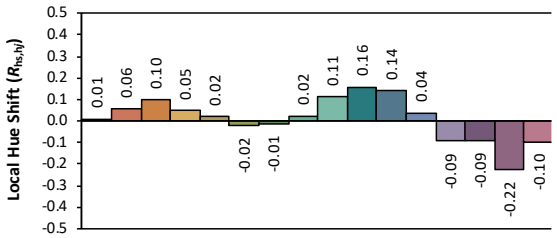
PlanckDistance 3.5E-003

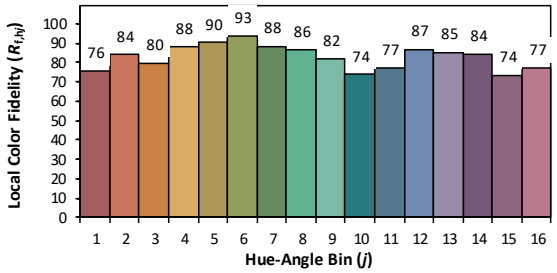
4.1 Integrating Sphere Test

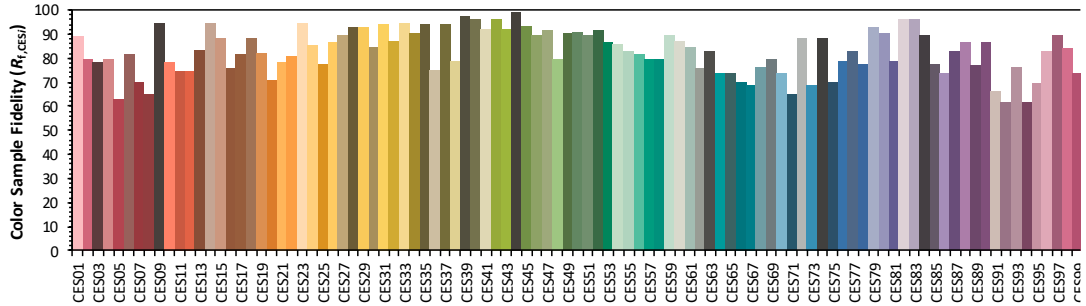












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3500
y	0.3626
u'	0.2105
v'	0.4907

CIE 13.3-1995 (CRI)

R_a	82
R_9	4

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X4 / 30W / 3500K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using a type C goniophotometer and software.
The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample.
The voltage of an AC power supply (RMS voltage)or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5^{o} vertical intervals and 10^{o} horizontal intervals.

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	277.01	60	0.115	30.1	0.946
NON-WORST CASE	120.01	60	0.247	29.4	0.992

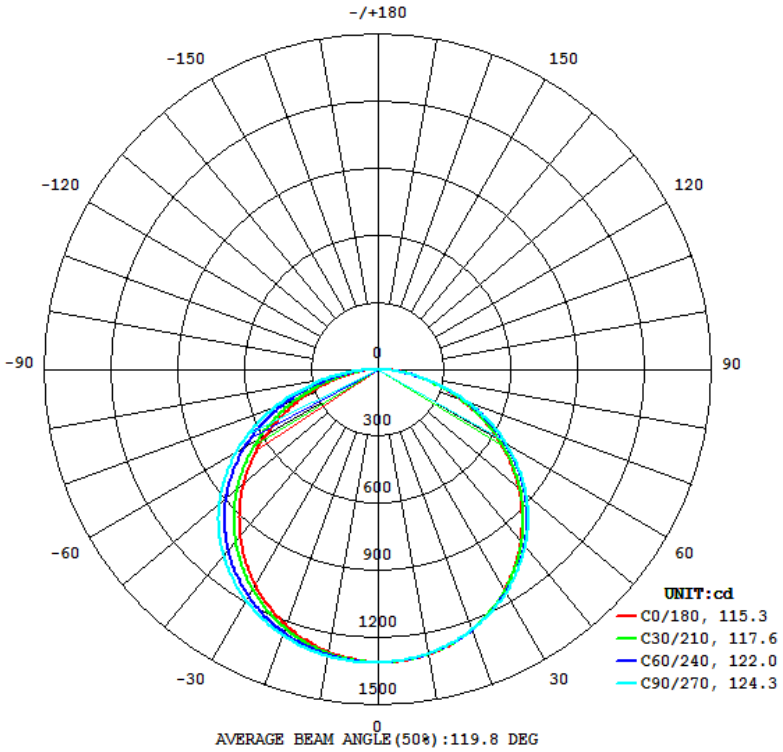
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
4064	163.0	166.2	115.3	124.3	135.0

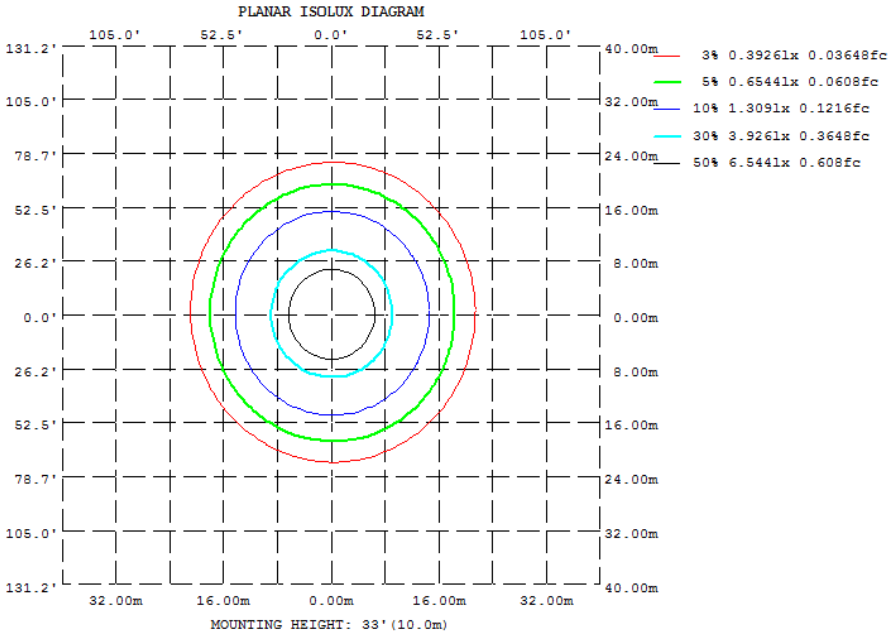
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
76.81%	19.0	1.32	1.26

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1294	1291	1289	1284	1283	1293	1303	1302
20	1237	1236	1236	1221	1217	1241	1263	1257
30	1138	1146	1152	1122	1109	1151	1191	1173
40	1002	1017	1032	987.6	967.3	1024	1083	1051
50	829.4	850.8	871.7	815.7	789.5	859.7	933.4	890.9
60	626.0	647.7	670.5	611.3	583.7	658.3	738.3	692.0
70	401.3	415.0	429.3	378.7	360.4	425.3	499.0	459.8
80	177.7	178.0	178.2	149.4	145.5	185.7	235.8	215.8
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

UGR Table - Corrected

UGR Table - Corrected

Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	14.5	16.2	14.9	16.5	16.8	13.8	15.5	14.2	15.8	16.1
	3H	16.4	18.0	16.8	18.3	18.6	15.6	17.1	16.0	17.4	17.8
	4H	17.2	18.6	17.6	18.9	19.3	16.2	17.7	16.6	18.0	18.4
	6H	17.7	19.0	18.1	19.4	19.8	16.7	18.0	17.1	18.4	18.8
	8H	17.8	19.1	18.3	19.5	19.9	16.8	18.1	17.2	18.5	18.9
	12H	17.9	19.1	18.3	19.5	19.9	16.9	18.1	17.3	18.5	18.9
4H	2H	15.1	16.5	15.5	16.9	17.3	14.6	16.0	15.0	16.4	16.7
	3H	17.3	18.5	17.7	18.9	19.3	16.6	17.8	17.0	18.2	18.6
	4H	18.1	19.2	18.5	19.6	20.0	17.3	18.4	17.7	18.8	19.3
	6H	18.7	19.7	19.2	20.2	20.6	17.9	18.8	18.3	19.3	19.7
	8H	19.0	19.9	19.4	20.3	20.8	18.1	19.0	18.5	19.4	19.9
	12H	19.1	19.9	19.6	20.4	20.8	18.2	19.0	18.6	19.5	19.9
8H	4H	18.4	19.3	18.9	19.7	20.2	17.7	18.6	18.2	19.1	19.5
	6H	19.2	19.9	19.7	20.4	20.9	18.4	19.1	18.9	19.6	20.1
	8H	19.4	20.1	19.9	20.6	21.1	18.6	19.3	19.1	19.8	20.3
	12H	19.6	20.2	20.1	20.7	21.3	18.8	19.4	19.3	19.9	20.4
12H	4H	18.4	19.2	18.9	19.7	20.2	17.8	18.6	18.2	19.1	19.5
	6H	19.2	19.9	19.7	20.3	20.9	18.5	19.2	19.0	19.6	20.2
	8H	19.5	20.1	20.0	20.6	21.2	18.8	19.4	19.3	19.9	20.4

Maximum UGR = 21.3

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

	Zonal (lm)		Total (lm)	Percent
0-10	124.23	0 - 10	124.23	3.06%
10-20	358.73	0 - 20	482.96	11.88%
20-30	552.45	0 - 30	1035.41	25.48%
30-40	681.50	0 - 40	1716.91	42.25%
40-50	726.95	0 - 50	2443.86	60.13%
50-60	677.71	0 - 60	3121.57	76.81%
60-70	533.82	0 - 70	3655.39	89.95%
70-80	317.05	0 - 80	3972.44	97.75%
80-90	91.57	0 - 90	4064.01	100.00%
90-100	0.00	0 - 100	4064.01	100.00%
100-110	0.00	0 - 110	4064.01	100.00%
110-120	0.00	0 - 120	4064.01	100.00%
120-130	0.00	0 - 130	4064.01	100.00%
130-140	0.00	0 - 140	4064.01	100.00%
140-150	0.00	0 - 150	4064.01	100.00%
150-160	0.00	0 - 160	4064.01	100.00%
160-170	0.00	0 - 170	4064.01	100.00%
170-180	0.00	0 - 180	4064.01	100.00%

4.2 Goniophotometer Test

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	108	103	99	95	106	101	97	93	97	93	90	93	90	88	89	87	85	83
2	98	90	82	76	95	88	81	76	84	79	74	81	76	72	78	74	70	68
3	89	78	70	63	87	77	69	63	74	67	61	71	65	60	68	63	59	57
4	81	69	60	53	79	68	59	53	65	58	52	63	56	51	61	55	51	48
5	75	62	52	45	73	60	52	45	58	51	45	56	49	44	54	48	44	42
6	69	55	46	39	67	54	46	39	52	45	39	51	44	39	49	43	38	36
7	64	50	41	35	62	49	41	35	48	40	34	46	39	34	45	39	34	32
8	59	46	37	31	58	45	37	31	43	36	31	42	35	30	41	35	30	28
9	55	42	33	28	54	41	33	28	40	33	27	39	32	27	38	32	27	25
10	52	38	30	25	51	38	30	25	37	30	25	36	29	25	35	29	25	23

CONE OF LIGHT DIAGRAM

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X4 / 30W / 4000K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using a type C goniophotometer and software.
The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample.
The voltage of an AC power supply (RMS voltage)or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5^{o} vertical intervals and 10^{o} horizontal intervals.

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	276.95	60	0.113	29.5	0.944
NON-WORST CASE	120.00	60	0.242	28.9	0.994

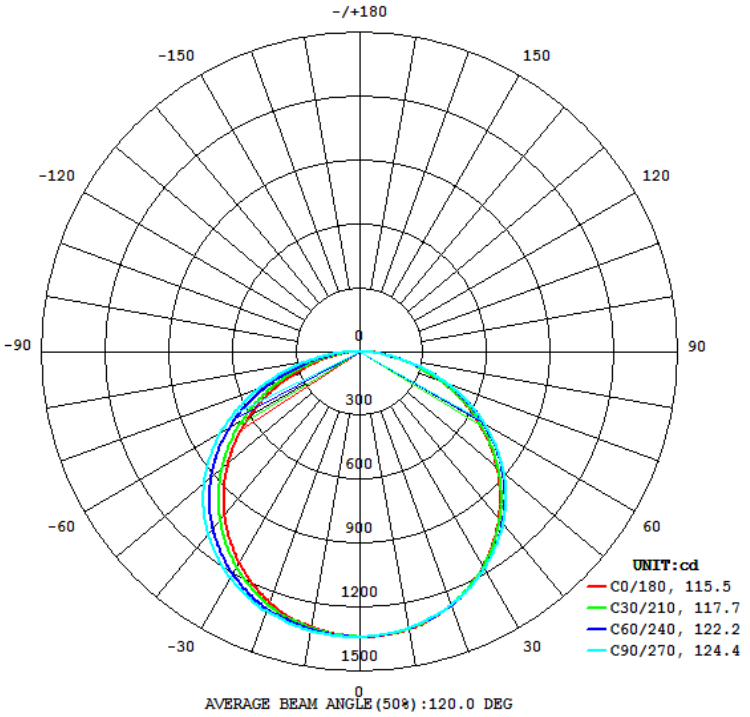
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
4167	163.1	166.3	115.5	124.4	141.5

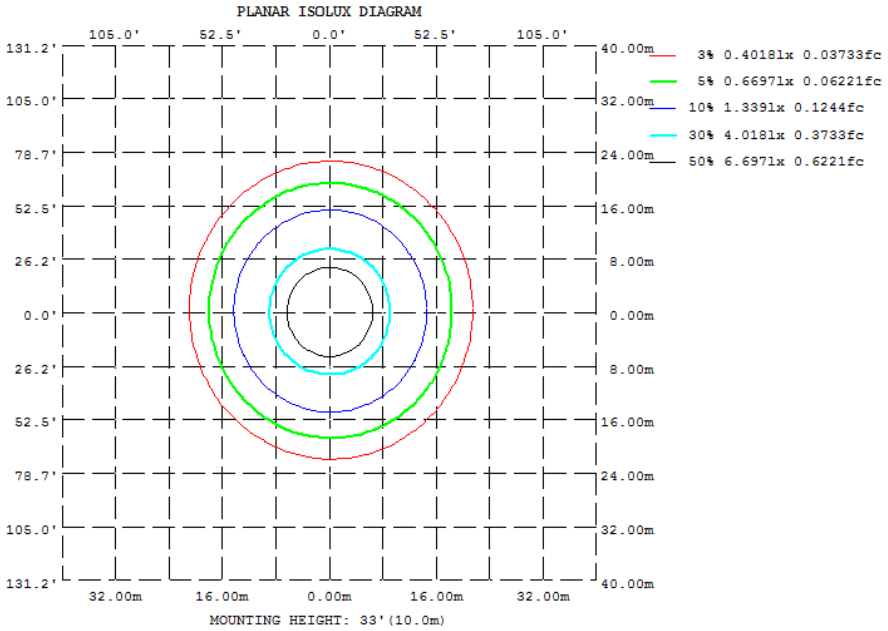
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
76.76%	19.1	1.32	1.28

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1324	1319	1317	1314	1311	1321	1332	1330
20	1264	1263	1264	1247	1251	1275	1296	1292
30	1164	1171	1175	1147	1142	1184	1224	1206
40	1024	1038	1054	1009	995.1	1054	1114	1081
50	848.0	869.3	889.9	833.8	812.2	884.0	959.9	915.3
60	638.8	662.2	684.0	624.3	600.4	676.6	758.5	710.8
70	412.7	426.7	441.6	389.1	370.6	437.2	512.4	472.6
80	183.0	183.3	183.2	153.5	149.3	190.2	242.0	221.6
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

UGR Table - Corrected

UGR Table - Corrected

Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	14.6	16.2	14.9	16.6	16.9	13.9	15.6	14.3	15.9	16.2
	3H	16.5	18.0	16.9	18.4	18.7	15.7	17.2	16.1	17.5	17.9
	4H	17.3	18.7	17.7	19.0	19.4	16.4	17.8	16.8	18.1	18.5
	6H	17.8	19.1	18.2	19.5	19.9	16.8	18.1	17.2	18.5	18.9
	8H	17.9	19.2	18.3	19.6	20.0	16.9	18.2	17.3	18.6	19.0
	12H	18.0	19.2	18.4	19.6	20.0	17.0	18.2	17.4	18.6	19.0
4H	2H	15.2	16.6	15.6	17.0	17.3	14.7	16.1	15.1	16.5	16.9
	3H	17.4	18.6	17.8	19.0	19.4	16.7	17.9	17.1	18.3	18.7
	4H	18.2	19.3	18.6	19.7	20.1	17.4	18.5	17.9	18.9	19.4
	6H	18.9	19.8	19.3	20.3	20.7	18.0	19.0	18.4	19.4	19.9
	8H	19.1	20.0	19.5	20.4	20.9	18.2	19.1	18.6	19.5	20.0
	12H	19.2	20.0	19.7	20.5	20.9	18.3	19.1	18.8	19.6	20.0
8H	4H	18.5	19.4	19.0	19.8	20.3	17.8	18.7	18.3	19.2	19.6
	6H	19.3	20.0	19.8	20.5	21.0	18.5	19.3	19.0	19.7	20.2
	8H	19.5	20.2	20.0	20.7	21.2	18.7	19.4	19.2	19.9	20.4
	12H	19.7	20.3	20.2	20.8	21.4	18.9	19.5	19.4	20.0	20.6
12H	4H	18.5	19.3	19.0	19.8	20.3	17.9	18.7	18.4	19.2	19.6
	6H	19.3	20.0	19.8	20.5	21.0	18.6	19.3	19.1	19.7	20.3
	8H	19.6	20.2	20.1	20.7	21.3	18.9	19.5	19.4	20.0	20.5

Maximum UGR = 21.4

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

	Zonal (lm)		Total (lm)	Percent
0-10	126.94	0 - 10	126.94	3.05%
10-20	367.00	0 - 20	493.94	11.85%
20-30	566.28	0 - 30	1060.22	25.45%
30-40	698.56	0 - 40	1758.78	42.21%
40-50	745.13	0 - 50	2503.91	60.09%
50-60	694.52	0 - 60	3198.43	76.76%
60-70	548.26	0 - 70	3746.69	89.92%
70-80	325.83	0 - 80	4072.52	97.74%
80-90	94.10	0 - 90	4166.62	100.00%
90-100	0.00	0 - 100	4166.62	100.00%
100-110	0.00	0 - 110	4166.62	100.00%
110-120	0.00	0 - 120	4166.62	100.00%
120-130	0.00	0 - 130	4166.62	100.00%
130-140	0.00	0 - 140	4166.62	100.00%
140-150	0.00	0 - 150	4166.62	100.00%
150-160	0.00	0 - 160	4166.62	100.00%
160-170	0.00	0 - 170	4166.62	100.00%
170-180	0.00	0 - 180	4166.62	100.00%

4.2 Goniophotometer Test

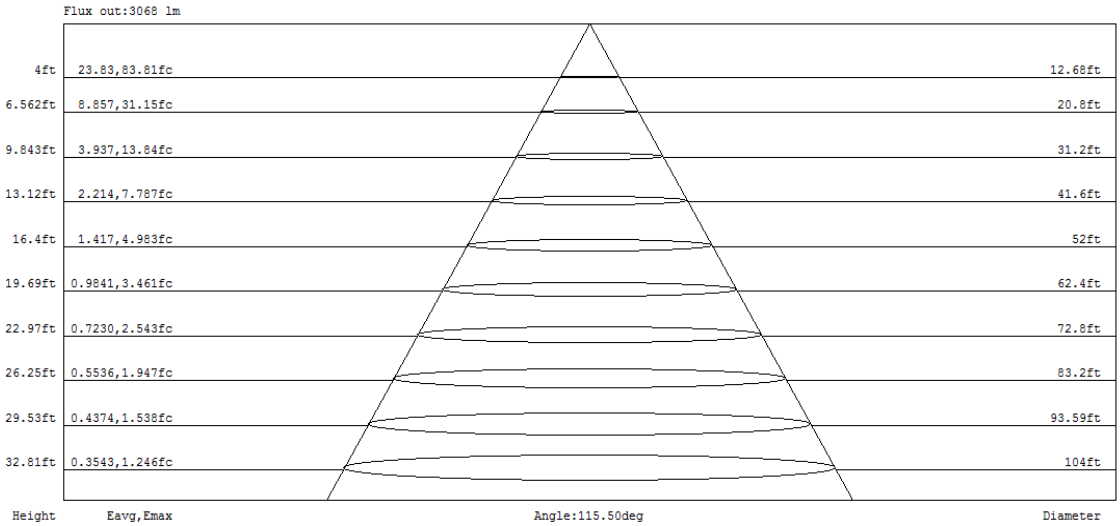
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	108	103	99	95	105	101	97	93	97	93	90	93	90	87	89	87	85	83
2	98	89	82	76	95	88	81	76	84	78	74	81	76	72	78	74	70	68
3	89	78	70	63	87	77	69	62	74	67	61	71	65	60	68	63	59	57
4	81	69	60	53	79	68	59	53	65	58	52	63	56	51	61	55	50	48
5	75	61	52	45	73	60	52	45	58	51	45	56	49	44	54	48	44	41
6	69	55	46	39	67	54	46	39	52	45	39	51	44	39	49	43	38	36
7	64	50	41	35	62	49	41	35	48	40	34	46	39	34	45	39	34	32
8	59	45	37	31	58	45	37	31	43	36	31	42	35	30	41	35	30	28
9	55	42	33	28	54	41	33	28	40	33	27	39	32	27	38	32	27	25
10	52	38	30	25	51	38	30	25	37	30	25	36	29	25	35	29	25	23

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X4 / 30W / 5000K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using a type C goniophotometer and software.
The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample.
The voltage of an AC power supply (RMS voltage)or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5^{o} vertical intervals and 10^{o} horizontal intervals.

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	277.06	60	0.115	30.2	0.947
NON-WORST CASE	120.03	60	0.249	29.7	0.992

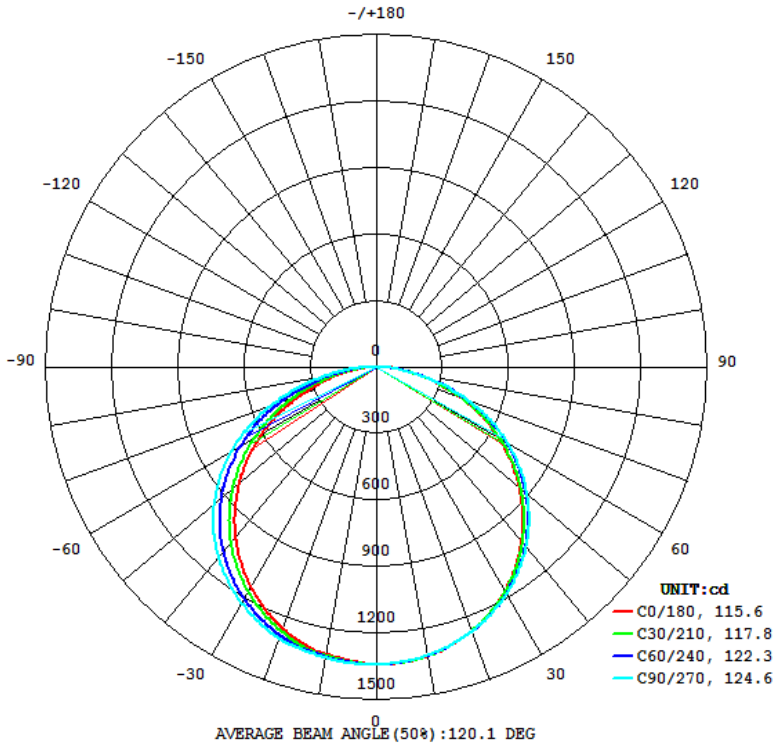
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
4178	163.2	166.3	115.6	124.6	138.5

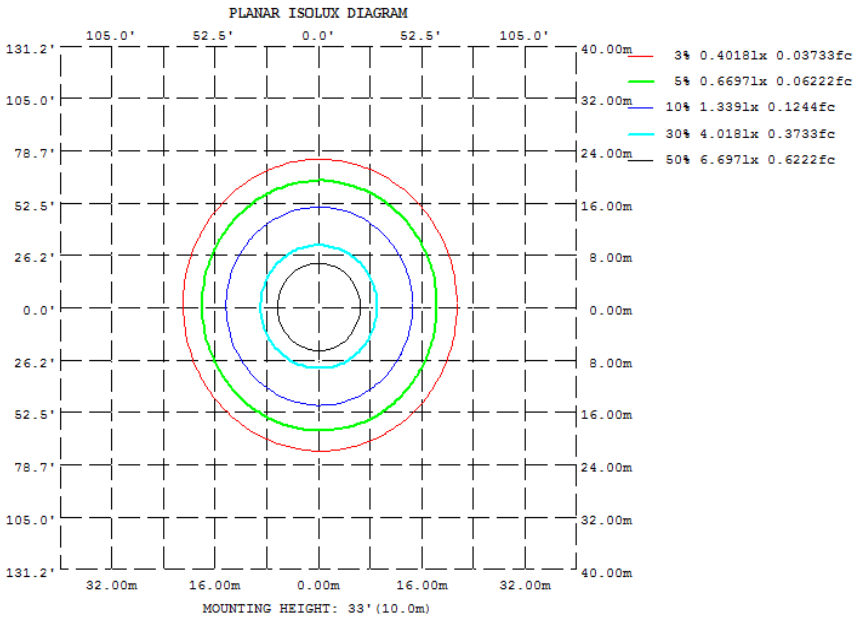
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
76.74%	19.6	1.32	1.28

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1324	1321	1319	1314	1316	1323	1331	1332
20	1265	1266	1266	1251	1253	1278	1302	1294
30	1166	1174	1181	1150	1143	1186	1228	1209
40	1026	1042	1058	1012	995.9	1055	1116	1084
50	849.0	871.8	895.0	836.5	813.9	886.0	962.6	918.2
60	642.3	665.0	687.5	625.6	601.1	677.6	761.2	713.1
70	413.8	428.9	445.1	391.4	370.8	438.0	514.1	472.8
80	183.4	184.1	185.0	154.7	149.6	190.7	242.6	222.0
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

UGR Table - Corrected

UGR Table - Corrected

Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	14.6	16.3	14.9	16.6	16.9	13.9	15.6	14.3	15.9	16.2
	3H	16.6	18.1	16.9	18.4	18.8	15.7	17.2	16.1	17.5	17.9
	4H	17.3	18.7	17.7	19.1	19.4	16.3	17.8	16.7	18.1	18.5
	6H	17.8	19.1	18.2	19.5	19.9	16.8	18.1	17.2	18.5	18.9
	8H	17.9	19.2	18.4	19.6	20.0	16.9	18.2	17.3	18.6	19.0
	12H	18.0	19.3	18.5	19.6	20.1	17.0	18.2	17.4	18.6	19.0
4H	2H	15.2	16.6	15.6	17.0	17.4	14.7	16.1	15.1	16.5	16.8
	3H	17.4	18.6	17.8	19.0	19.4	16.7	17.9	17.1	18.3	18.7
	4H	18.2	19.3	18.7	19.7	20.2	17.4	18.5	17.9	18.9	19.4
	6H	18.9	19.8	19.3	20.3	20.7	18.0	19.0	18.4	19.4	19.8
	8H	19.1	20.0	19.6	20.4	20.9	18.2	19.1	18.6	19.5	20.0
	12H	19.2	20.0	19.7	20.5	21.0	18.3	19.1	18.8	19.6	20.0
8H	4H	18.5	19.4	19.0	19.9	20.3	17.8	18.7	18.3	19.2	19.6
	6H	19.3	20.0	19.8	20.5	21.0	18.5	19.3	19.0	19.7	20.2
	8H	19.6	20.2	20.1	20.7	21.2	18.7	19.4	19.2	19.9	20.4
	12H	19.7	20.4	20.3	20.8	21.4	18.9	19.5	19.4	20.0	20.6
12H	4H	18.5	19.4	19.0	19.8	20.3	17.9	18.7	18.4	19.2	19.6
	6H	19.3	20.0	19.9	20.5	21.0	18.6	19.3	19.1	19.7	20.3
	8H	19.7	20.3	20.2	20.7	21.3	18.9	19.5	19.4	20.0	20.5

Maximum UGR = 21.4

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

	Zonal (lm)		Total (lm)	Percent
0-10	127.15	0 - 10	127.15	3.04%
10-20	368.01	0 - 20	495.16	11.85%
20-30	567.59	0 - 30	1062.75	25.43%
30-40	700.21	0 - 40	1762.96	42.19%
40-50	747.10	0 - 50	2510.06	60.07%
50-60	696.50	0 - 60	3206.56	76.74%
60-70	550.30	0 - 70	3756.86	89.91%
70-80	327.07	0 - 80	4083.93	97.74%
80-90	94.44	0 - 90	4178.37	100.00%
90-100	0.00	0 - 100	4178.37	100.00%
100-110	0.00	0 - 110	4178.37	100.00%
110-120	0.00	0 - 120	4178.37	100.00%
120-130	0.00	0 - 130	4178.37	100.00%
130-140	0.00	0 - 140	4178.37	100.00%
140-150	0.00	0 - 150	4178.37	100.00%
150-160	0.00	0 - 160	4178.37	100.00%
160-170	0.00	0 - 170	4178.37	100.00%
170-180	0.00	0 - 180	4178.37	100.00%

4.2 Goniophotometer Test

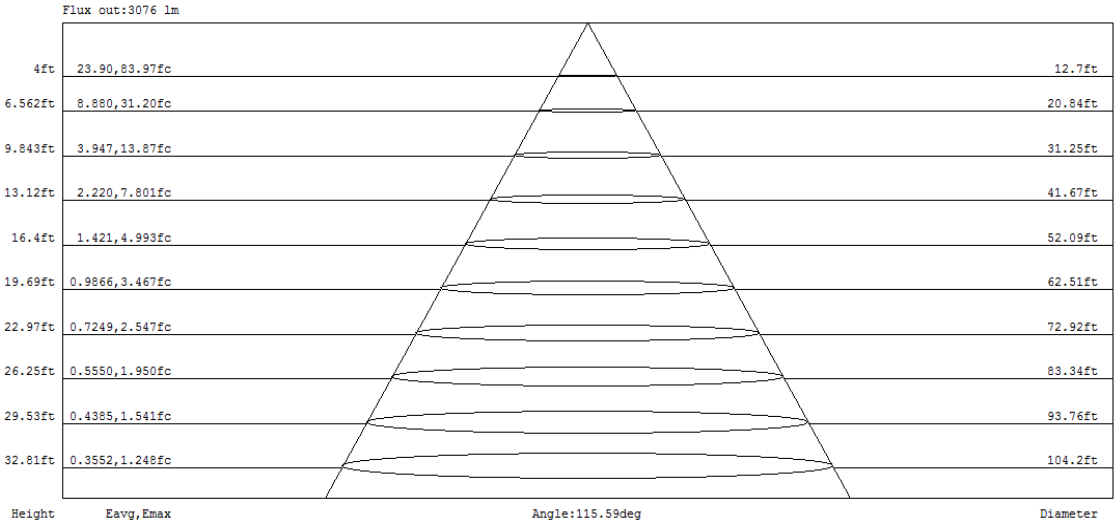
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	108	103	99	95	106	101	97	93	97	93	90	93	90	87	89	87	85	83
2	98	90	82	76	95	88	81	76	84	79	74	81	76	72	78	74	70	68
3	89	78	70	63	87	77	69	62	74	67	61	71	65	60	68	63	59	57
4	81	69	60	53	79	68	59	53	65	58	52	63	56	51	61	55	50	48
5	75	61	52	45	73	60	52	45	58	51	45	56	49	44	54	48	44	41
6	69	55	46	39	67	54	46	39	52	45	39	51	44	39	49	43	38	36
7	64	50	41	35	62	49	41	35	48	40	34	46	39	34	45	39	34	32
8	59	45	37	31	58	45	36	31	43	36	31	42	35	30	41	35	30	28
9	55	42	33	28	54	41	33	28	40	33	27	39	32	27	38	32	27	25
10	52	38	30	25	51	38	30	25	37	30	25	36	29	25	35	29	25	23

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X4 / 40W / 3500K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using a type C goniophotometer and software.
The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample.
The voltage of an AC power supply (RMS voltage)or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5^{o} vertical intervals and 10^{o} horizontal intervals.

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	277.00	60	0.144	38.8	0.972
NON-WORST CASE	120.02	60	0.325	38.4	0.984

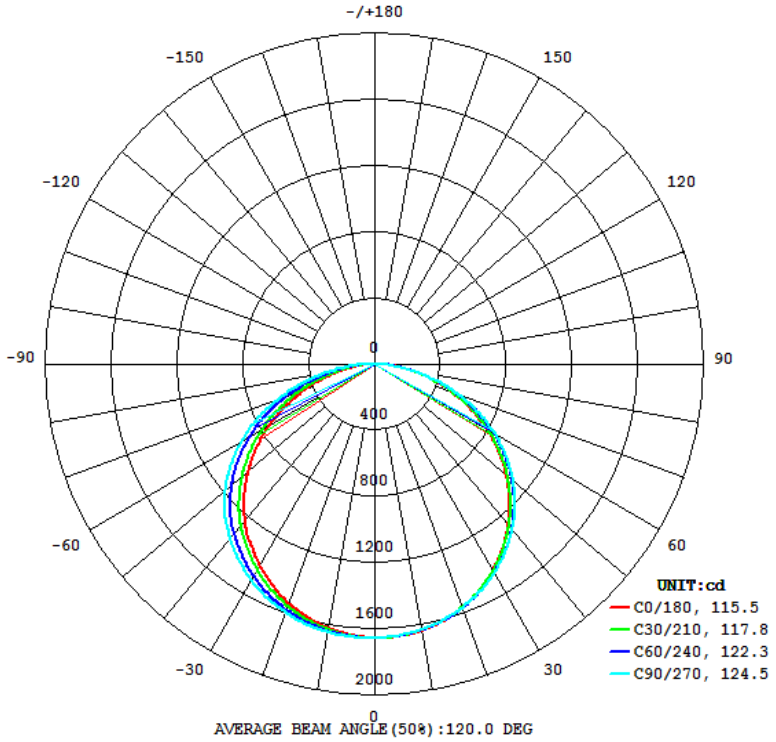
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
5149	163.2	166.3	115.5	124.5	132.8

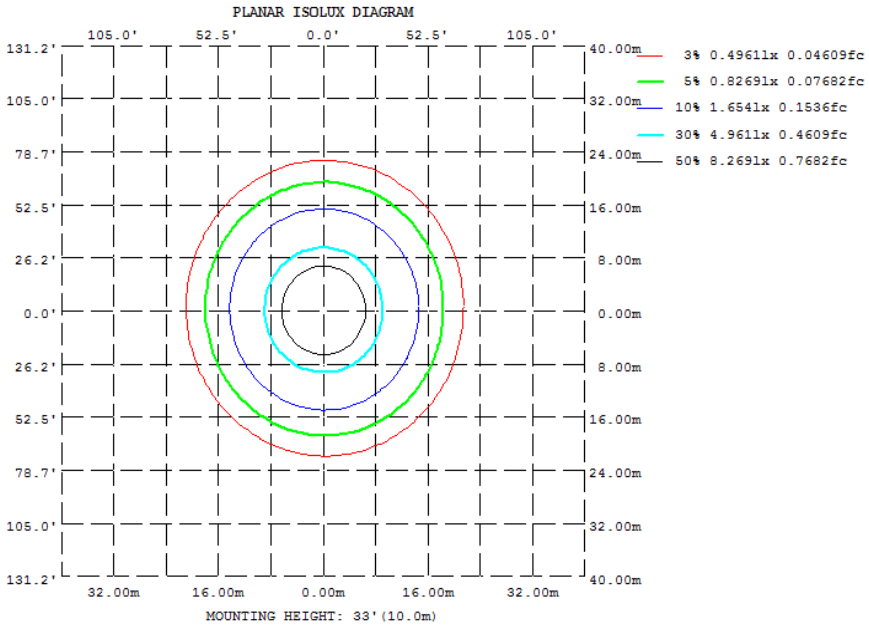
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
76.74%	19.8	1.32	1.26

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1635	1632	1628	1620	1621	1633	1645	1644
20	1564	1562	1562	1543	1537	1568	1596	1587
30	1439	1449	1456	1419	1401	1453	1504	1480
40	1266	1286	1304	1249	1229	1305	1369	1331
50	1048	1076	1102	1032	1005	1094	1188	1133
60	790.8	819.2	847.6	771.7	744.1	838.0	940.1	879.6
70	510.4	527.3	546.8	481.0	458.3	542.2	634.3	584.5
80	225.8	226.7	226.6	189.1	184.8	236.1	300.5	274.5
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

UGR Table - Corrected

UGR Table - Corrected

Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	15.3	17.0	15.6	17.3	17.6	14.6	16.3	15.0	16.6	16.9
	3H	17.2	18.8	17.6	19.1	19.5	16.4	17.9	16.8	18.2	18.6
	4H	18.0	19.4	18.4	19.8	20.1	17.0	18.5	17.4	18.8	19.2
	6H	18.5	19.8	18.9	20.2	20.6	17.5	18.8	17.9	19.2	19.6
	8H	18.6	19.9	19.1	20.3	20.7	17.6	18.9	18.0	19.3	19.7
	12H	18.7	19.9	19.2	20.3	20.8	17.7	18.9	18.1	19.3	19.7
4H	2H	15.9	17.3	16.3	17.7	18.0	15.4	16.8	15.8	17.2	17.5
	3H	18.1	19.3	18.5	19.7	20.1	17.4	18.6	17.8	19.0	19.4
	4H	18.9	20.0	19.4	20.4	20.9	18.1	19.2	18.6	19.6	20.1
	6H	19.6	20.5	20.0	21.0	21.4	18.7	19.7	19.1	20.1	20.6
	8H	19.8	20.7	20.2	21.1	21.6	18.9	19.8	19.3	20.2	20.7
	12H	19.9	20.7	20.4	21.2	21.7	19.0	19.8	19.5	20.3	20.7
8H	4H	19.2	20.1	19.7	20.5	21.0	18.5	19.4	19.0	19.9	20.3
	6H	20.0	20.7	20.5	21.2	21.7	19.2	20.0	19.7	20.5	20.9
	8H	20.2	20.9	20.7	21.4	21.9	19.4	20.1	19.9	20.6	21.1
	12H	20.4	21.0	20.9	21.5	22.1	19.6	20.2	20.1	20.7	21.3
12H	4H	19.2	20.0	19.7	20.5	21.0	18.6	19.4	19.1	19.9	20.3
	6H	20.0	20.7	20.5	21.2	21.7	19.3	20.0	19.8	20.4	21.0
	8H	20.3	20.9	20.8	21.4	22.0	19.6	20.2	20.1	20.7	21.2

Maximum UGR = 22.1

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

	Zonal (lm)		Total (lm)	Percent
0-10	156.93	0 - 10	156.93	3.05%
10-20	453.20	0 - 20	610.13	11.85%
20-30	697.95	0 - 30	1308.08	25.41%
30-40	861.49	0 - 40	2169.57	42.14%
40-50	921.65	0 - 50	3091.22	60.04%
50-60	859.59	0 - 60	3950.81	76.74%
60-70	677.84	0 - 70	4628.65	89.90%
70-80	403.40	0 - 80	5032.05	97.74%
80-90	116.53	0 - 90	5148.58	100.00%
90-100	0.00	0 - 100	5148.58	100.00%
100-110	0.00	0 - 110	5148.58	100.00%
110-120	0.00	0 - 120	5148.58	100.00%
120-130	0.00	0 - 130	5148.58	100.00%
130-140	0.00	0 - 140	5148.58	100.00%
140-150	0.00	0 - 150	5148.58	100.00%
150-160	0.00	0 - 160	5148.58	100.00%
160-170	0.00	0 - 170	5148.58	100.00%
170-180	0.00	0 - 180	5148.58	100.00%

4.2 Goniophotometer Test

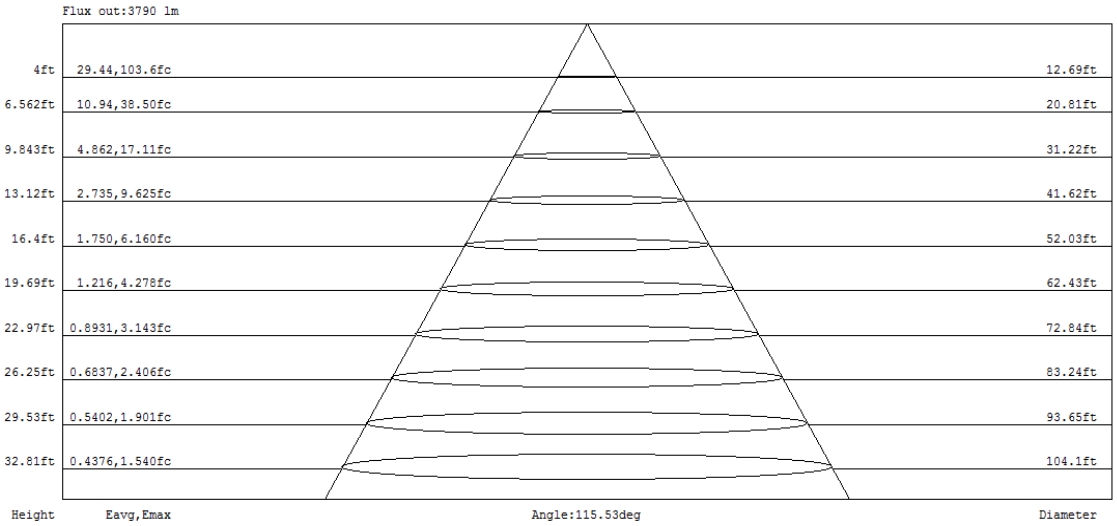
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	108	103	99	95	105	101	97	93	97	93	90	93	90	87	89	87	85	83
2	98	89	82	76	95	88	81	76	84	78	74	81	76	72	78	74	70	68
3	89	78	70	63	87	77	69	62	74	67	61	71	65	60	68	63	59	57
4	81	69	60	53	79	68	59	53	65	58	52	63	56	51	61	55	50	48
5	75	61	52	45	73	60	52	45	58	50	45	56	49	44	54	48	44	41
6	69	55	46	39	67	54	46	39	52	45	39	51	44	39	49	43	38	36
7	64	50	41	35	62	49	41	35	48	40	34	46	39	34	45	38	34	32
8	59	45	37	31	58	45	36	31	43	36	31	42	35	30	41	35	30	28
9	55	42	33	28	54	41	33	28	40	33	27	39	32	27	38	32	27	25
10	52	38	30	25	51	38	30	25	37	30	25	36	29	25	35	29	25	23

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X4 / 40W / 4000K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using a type C goniophotometer and software.
The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample.
The voltage of an AC power supply (RMS voltage)or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5^{o} vertical intervals and 10^{o} horizontal intervals.

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	276.95	60	0.140	37.8	0.971
NON-WORST CASE	120.00	60	0.314	37.4	0.994

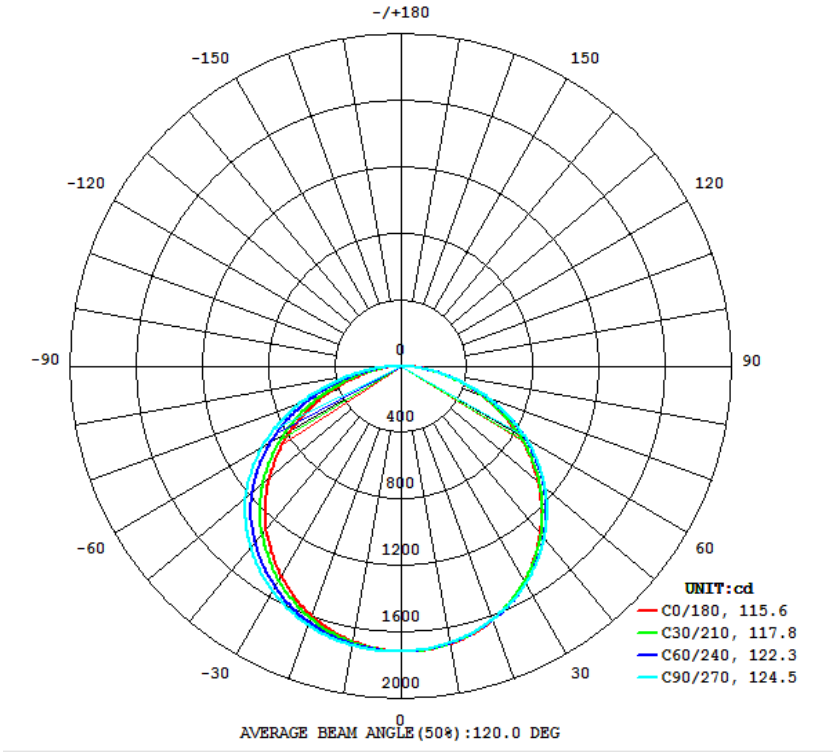
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
5332	163.1	166.3	115.6	124.5	141.2

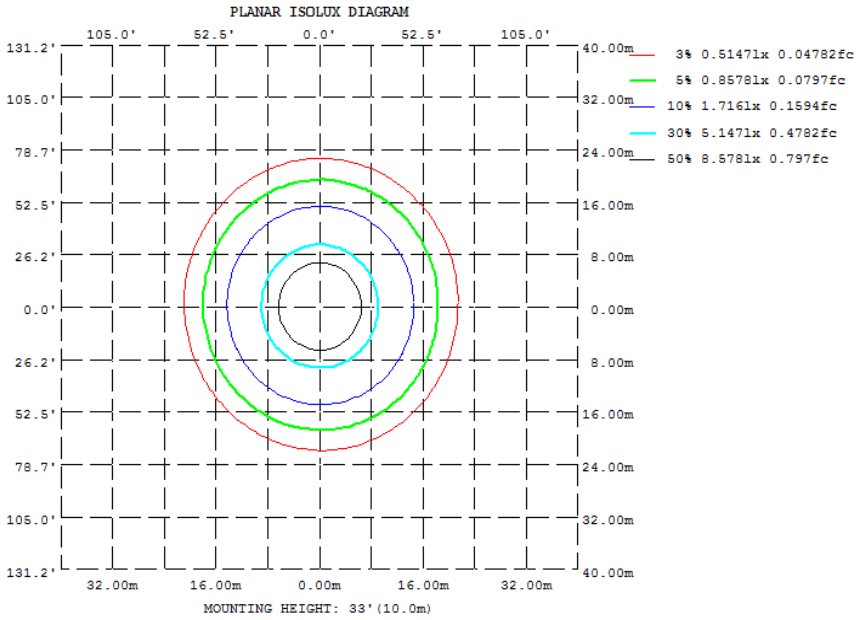
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
76.74%	19.9	1.32	1.28

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1696	1693	1686	1680	1681	1693	1704	1703
20	1621	1620	1619	1598	1594	1623	1655	1642
30	1493	1501	1508	1468	1455	1508	1560	1534
40	1312	1332	1351	1291	1275	1342	1416	1377
50	1087	1115	1142	1067	1042	1133	1230	1174
60	821.6	849.0	876.7	798.5	771.7	867.2	973.5	910.9
70	529.1	546.9	565.6	498.0	475.8	561.3	657.6	605.8
80	233.9	234.7	234.6	196.1	191.5	244.8	310.6	284.4
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

UGR Table - Corrected

UGR Table - Corrected

Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	15.4	17.1	15.7	17.4	17.7	14.7	16.4	15.1	16.7	17.0
	3H	17.3	18.9	17.7	19.2	19.5	16.5	18.0	16.9	18.3	18.7
	4H	18.1	19.5	18.5	19.8	20.2	17.2	18.6	17.5	18.9	19.3
	6H	18.6	19.9	19.0	20.3	20.7	17.6	18.9	18.0	19.3	19.7
	8H	18.7	20.0	19.1	20.4	20.8	17.7	19.0	18.1	19.4	19.8
	12H	18.8	20.0	19.2	20.4	20.9	17.8	19.0	18.2	19.4	19.8
4H	2H	16.0	17.4	16.4	17.8	18.1	15.5	16.9	15.9	17.3	17.6
	3H	18.2	19.4	18.6	19.8	20.2	17.5	18.7	17.9	19.1	19.5
	4H	19.0	20.1	19.4	20.5	21.0	18.2	19.3	18.7	19.7	20.2
	6H	19.7	20.6	20.1	21.1	21.5	18.8	19.8	19.2	20.2	20.7
	8H	19.9	20.8	20.3	21.2	21.7	19.0	19.9	19.4	20.3	20.8
	12H	20.0	20.8	20.5	21.3	21.8	19.1	19.9	19.6	20.4	20.8
8H	4H	19.3	20.2	19.8	20.6	21.1	18.6	19.5	19.1	20.0	20.4
	6H	20.1	20.8	20.6	21.3	21.8	19.3	20.1	19.8	20.6	21.0
	8H	20.3	21.0	20.8	21.5	22.0	19.5	20.2	20.0	20.7	21.2
	12H	20.5	21.1	21.0	21.6	22.2	19.7	20.3	20.2	20.8	21.4
12H	4H	19.3	20.1	19.8	20.6	21.1	18.7	19.5	19.2	20.0	20.4
	6H	20.1	20.8	20.6	21.3	21.8	19.4	20.1	19.9	20.5	21.1
	8H	20.4	21.0	20.9	21.5	22.1	19.7	20.3	20.2	20.8	21.3

Maximum UGR = 22.2

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

	Zonal (lm)		Total (lm)	Percent
0-10	162.63	0 - 10	162.63	3.05%
10-20	469.74	0 - 20	632.37	11.86%
20-30	723.39	0 - 30	1355.76	25.43%
30-40	892.26	0 - 40	2248.02	42.16%
40-50	953.97	0 - 50	3201.99	60.05%
50-60	890.28	0 - 60	4092.27	76.74%
60-70	701.68	0 - 70	4793.95	89.90%
70-80	417.68	0 - 80	5211.63	97.74%
80-90	120.69	0 - 90	5332.32	100.00%
90-100	0.00	0 - 100	5332.32	100.00%
100-110	0.00	0 - 110	5332.32	100.00%
110-120	0.00	0 - 120	5332.32	100.00%
120-130	0.00	0 - 130	5332.32	100.00%
130-140	0.00	0 - 140	5332.32	100.00%
140-150	0.00	0 - 150	5332.32	100.00%
150-160	0.00	0 - 160	5332.32	100.00%
160-170	0.00	0 - 170	5332.32	100.00%
170-180	0.00	0 - 180	5332.32	100.00%

4.2 Goniophotometer Test

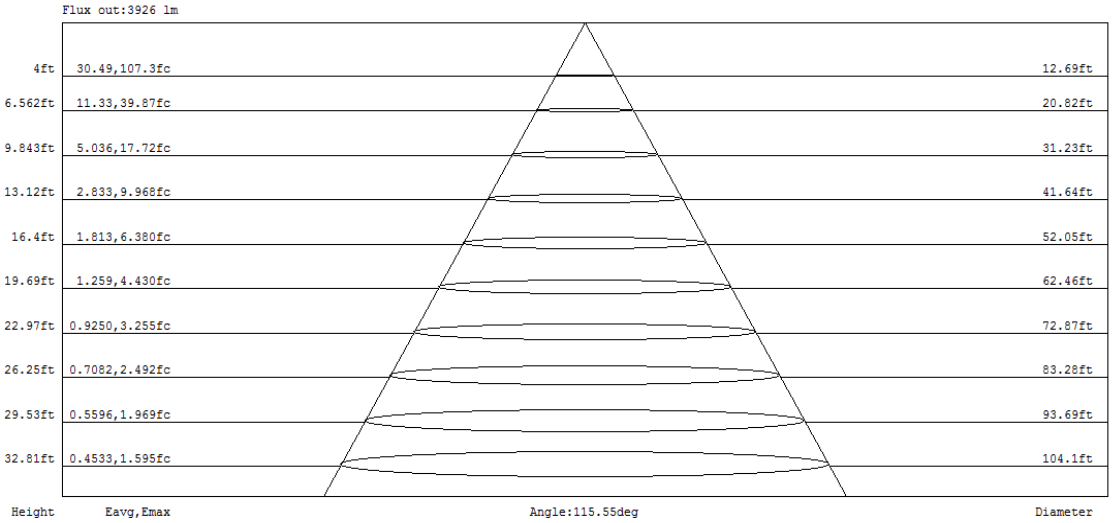
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	108	103	99	95	106	101	97	93	97	93	90	93	90	87	89	87	85	83
2	98	89	82	76	95	88	81	76	84	78	74	81	76	72	78	74	70	68
3	89	78	70	63	87	77	69	62	74	67	61	71	65	60	68	63	59	57
4	81	69	60	53	79	68	59	53	65	58	52	63	56	51	61	55	50	48
5	75	61	52	45	73	60	52	45	58	51	45	56	49	44	54	48	44	41
6	69	55	46	39	67	54	46	39	52	45	39	51	44	39	49	43	38	36
7	64	50	41	35	62	49	41	35	48	40	34	46	39	34	45	38	34	32
8	59	45	37	31	58	45	36	31	43	36	31	42	35	30	41	35	30	28
9	55	42	33	28	54	41	33	28	40	33	27	39	32	27	38	32	27	25
10	52	38	30	25	51	38	30	25	37	30	25	36	29	25	35	29	25	23

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X4 / 40W / 5000K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using a type C goniophotometer and software.
The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample.
The voltage of an AC power supply (RMS voltage)or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5^{o} vertical intervals and 10^{o} horizontal intervals.

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	277.05	60	0.144	38.8	0.972
NON-WORST CASE	120.01	60	0.322	38.4	0.993

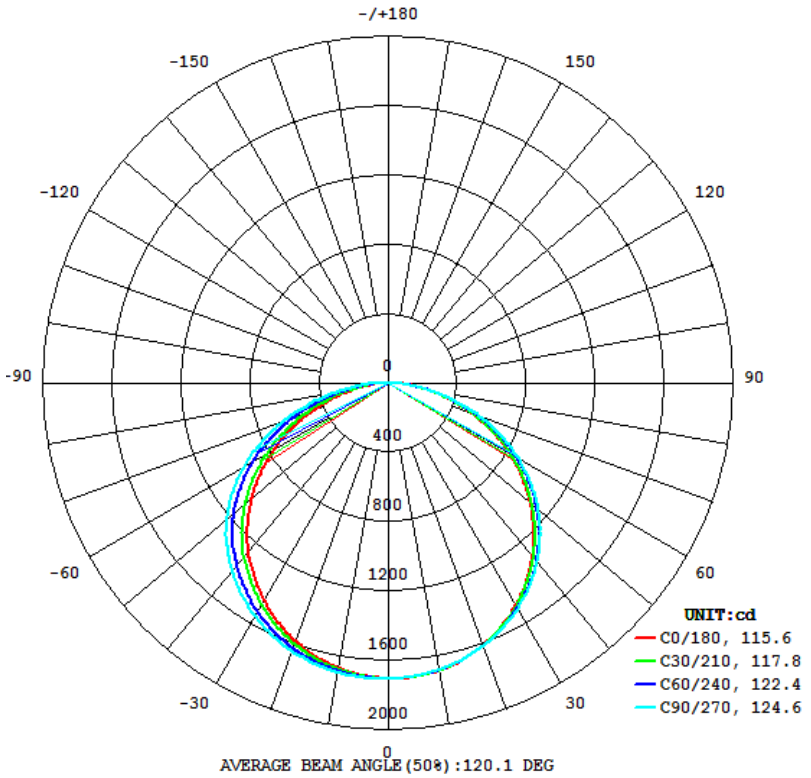
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
5305	163.2	166.4	115.6	124.6	136.6

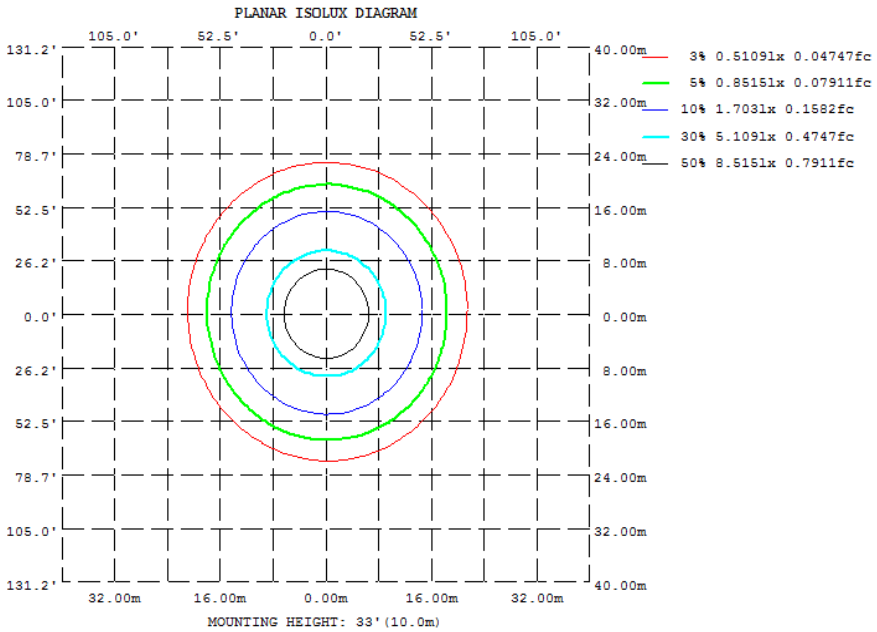
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
76.72%	19.9	1.32	1.26

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1682	1679	1677	1674	1670	1683	1695	1694
20	1609	1609	1611	1592	1582	1614	1643	1635
30	1481	1492	1502	1462	1443	1497	1550	1527
40	1303	1327	1346	1287	1266	1335	1410	1369
50	1080	1110	1137	1065	1035	1126	1224	1167
60	815.9	845.4	875.9	796.0	766.3	863.2	968.4	906.2
70	526.4	545.6	565.4	497.5	471.9	557.6	654.2	602.0
80	232.7	233.9	235.4	196.3	189.7	243.0	309.3	282.6
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

UGR Table - Corrected

UGR Table - Corrected

Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	15.4	17.1	15.8	17.4	17.7	14.7	16.4	15.1	16.7	17.0
	3H	17.4	18.9	17.7	19.2	19.6	16.5	18.0	16.9	18.3	18.7
	4H	18.1	19.5	18.5	19.9	20.2	17.1	18.6	17.5	18.9	19.3
	6H	18.6	19.9	19.0	20.3	20.7	17.6	18.9	18.0	19.3	19.7
	8H	18.8	20.0	19.2	20.4	20.8	17.7	19.0	18.1	19.4	19.8
	12H	18.8	20.1	19.3	20.5	20.9	17.8	19.0	18.2	19.4	19.8
4H	2H	16.0	17.4	16.4	17.8	18.2	15.5	16.9	15.9	17.3	17.6
	3H	18.2	19.4	18.6	19.8	20.2	17.5	18.7	17.9	19.1	19.5
	4H	19.0	20.1	19.5	20.5	21.0	18.2	19.3	18.7	19.7	20.2
	6H	19.7	20.7	20.1	21.1	21.5	18.8	19.8	19.2	20.2	20.6
	8H	19.9	20.8	20.4	21.2	21.7	19.0	19.9	19.4	20.3	20.8
	12H	20.0	20.8	20.5	21.3	21.8	19.1	19.9	19.6	20.4	20.8
8H	4H	19.3	20.2	19.8	20.7	21.1	18.6	19.5	19.1	20.0	20.4
	6H	20.1	20.8	20.6	21.3	21.8	19.3	20.1	19.8	20.5	21.0
	8H	20.4	21.0	20.9	21.5	22.0	19.5	20.2	20.0	20.7	21.2
	12H	20.6	21.2	21.1	21.6	22.2	19.7	20.3	20.2	20.8	21.4
12H	4H	19.4	20.2	19.8	20.6	21.1	18.7	19.5	19.2	20.0	20.4
	6H	20.1	20.8	20.7	21.3	21.8	19.4	20.1	19.9	20.5	21.1
	8H	20.5	21.1	21.0	21.6	22.1	19.7	20.3	20.2	20.8	21.3

Maximum UGR = 22.2

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

	Zonal (lm)		Total (lm)	Percent
0-10	161.68	0 - 10	161.68	3.05%
10-20	466.95	0 - 20	628.63	11.85%
20-30	719.13	0 - 30	1347.76	25.40%
30-40	887.46	0 - 40	2235.22	42.13%
40-50	949.32	0 - 50	3184.54	60.02%
50-60	886.02	0 - 60	4070.56	76.72%
60-70	698.62	0 - 70	4769.18	89.89%
70-80	416.03	0 - 80	5185.21	97.73%
80-90	120.23	0 - 90	5305.44	100.00%
90-100	0.00	0 - 100	5305.44	100.00%
100-110	0.00	0 - 110	5305.44	100.00%
110-120	0.00	0 - 120	5305.44	100.00%
120-130	0.00	0 - 130	5305.44	100.00%
130-140	0.00	0 - 140	5305.44	100.00%
140-150	0.00	0 - 150	5305.44	100.00%
150-160	0.00	0 - 160	5305.44	100.00%
160-170	0.00	0 - 170	5305.44	100.00%
170-180	0.00	0 - 180	5305.44	100.00%

4.2 Goniophotometer Test

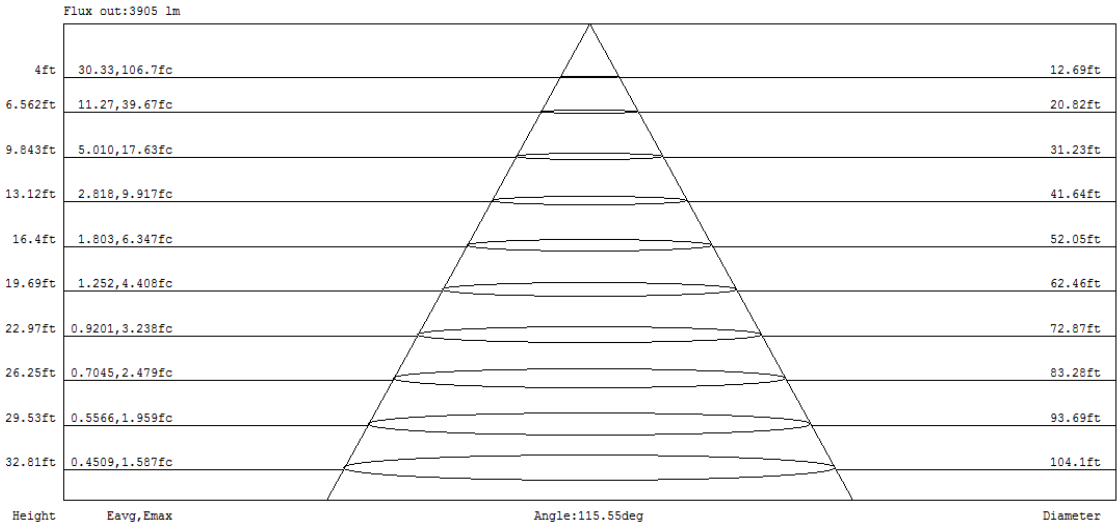
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	108	103	99	95	106	101	97	93	97	93	90	93	90	87	89	87	85	83
2	98	89	82	76	95	88	81	76	84	78	74	81	76	72	78	74	70	68
3	89	78	70	63	87	77	69	62	74	67	61	71	65	60	68	63	59	57
4	81	69	60	53	79	68	59	53	65	58	52	63	56	51	61	55	50	48
5	75	61	52	45	73	60	52	45	58	50	45	56	49	44	54	48	44	41
6	69	55	46	39	67	54	46	39	52	45	39	51	44	39	49	43	38	36
7	64	50	41	35	62	49	41	35	48	40	34	46	39	34	45	38	34	32
8	59	45	37	31	58	45	36	31	43	36	31	42	35	30	41	35	30	28
9	55	42	33	28	54	41	33	28	40	33	27	39	32	27	38	32	27	25
10	52	38	30	25	51	38	30	25	37	30	25	36	29	25	35	29	25	23

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X4 / 50W / 3500K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using a type C goniophotometer and software.
The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample.
The voltage of an AC power supply (RMS voltage)or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5^{o} vertical intervals and 10^{o} horizontal intervals.

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	277.08	60	0.177	48.3	0.984
NON-WORST CASE	119.99	60	0.402	48.0	0.995

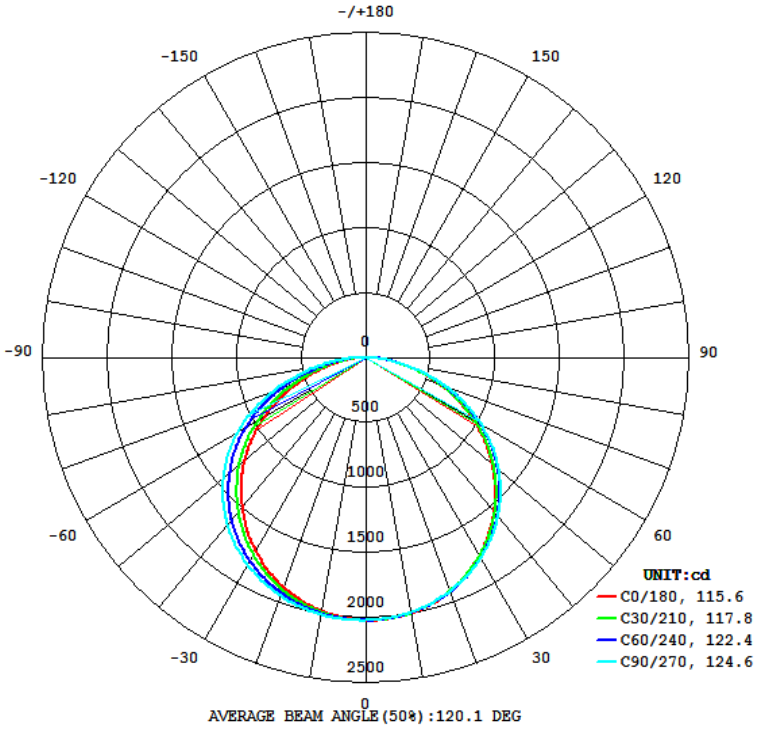
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
6281	163.2	166.3	115.6	124.6	130.1

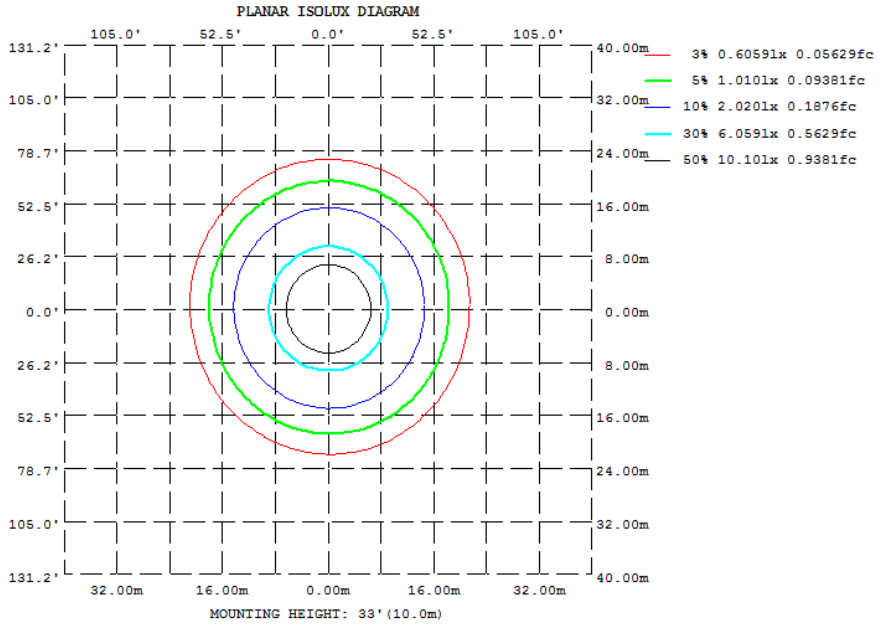
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
76.73%	20.5	1.32	1.28

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1996	1992	1987	1981	1982	1993	2006	2006
20	1908	1907	1907	1883	1878	1912	1946	1936
30	1757	1768	1778	1731	1713	1776	1836	1809
40	1547	1571	1592	1523	1490	1580	1669	1619
50	1281	1314	1347	1259	1227	1330	1440	1373
60	967.1	1002	1035	942.3	908.0	1024	1147	1074
70	620.4	652.6	664.3	586.4	559.8	661.7	775.3	713.5
80	276.3	276.9	277.4	231.9	225.4	288.4	366.6	334.7
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

UGR Table - Corrected

UGR Table - Corrected

Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	16.0	17.7	16.4	18.0	18.3	15.3	17.0	15.7	17.3	17.6
	3H	17.9	19.5	18.3	19.8	20.1	17.1	18.6	17.5	18.9	19.3
	4H	18.7	20.1	19.1	20.4	20.8	17.7	19.2	18.1	19.5	19.9
	6H	19.2	20.5	19.6	20.9	21.3	18.2	19.5	18.6	19.9	20.3
	8H	19.3	20.6	19.8	21.0	21.4	18.3	19.6	18.7	20.0	20.4
	12H	19.4	20.7	19.9	21.0	21.5	18.4	19.6	18.8	20.0	20.4
4H	2H	16.6	18.0	17.0	18.4	18.8	16.1	17.5	16.5	17.9	18.2
	3H	18.8	20.0	19.2	20.4	20.8	18.1	19.3	18.5	19.7	20.1
	4H	19.6	20.7	20.0	21.1	21.6	18.8	19.9	19.3	20.3	20.8
	6H	20.3	21.2	20.7	21.7	22.1	19.4	20.4	19.8	20.8	21.3
	8H	20.5	21.4	20.9	21.8	22.3	19.6	20.5	20.0	20.9	21.4
	12H	20.6	21.4	21.1	21.9	22.4	19.7	20.5	20.2	21.0	21.5
8H	4H	19.9	20.8	20.4	21.2	21.7	19.2	20.1	19.7	20.6	21.0
	6H	20.7	21.4	21.2	21.9	22.4	19.9	20.7	20.4	21.2	21.6
	8H	20.9	21.6	21.4	22.1	22.6	20.1	20.8	20.6	21.3	21.8
	12H	21.1	21.7	21.6	22.2	22.8	20.3	20.9	20.8	21.4	22.0
12H	4H	19.9	20.7	20.4	21.2	21.7	19.3	20.1	19.8	20.6	21.0
	6H	20.7	21.4	21.2	21.9	22.4	20.0	20.7	20.5	21.2	21.7
	8H	21.0	21.6	21.5	22.1	22.7	20.3	20.9	20.8	21.4	21.9

Maximum UGR = 22.8

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

	Zonal (lm)		Total (lm)	Percent
0-10	191.55	0 - 10	191.55	3.05%
10-20	553.19	0 - 20	744.74	11.86%
20-30	852.08	0 - 30	1596.82	25.42%
30-40	1051.36	0 - 40	2648.18	42.16%
40-50	1121.89	0 - 50	3770.07	60.02%
50-60	1048.92	0 - 60	4818.99	76.73%
60-70	826.94	0 - 70	5645.93	89.89%
70-80	492.54	0 - 80	6138.47	97.73%
80-90	142.37	0 - 90	6280.84	100.00%
90-100	0.00	0 - 100	6280.84	100.00%
100-110	0.00	0 - 110	6280.84	100.00%
110-120	0.00	0 - 120	6280.84	100.00%
120-130	0.00	0 - 130	6280.84	100.00%
130-140	0.00	0 - 140	6280.84	100.00%
140-150	0.00	0 - 150	6280.84	100.00%
150-160	0.00	0 - 160	6280.84	100.00%
160-170	0.00	0 - 170	6280.84	100.00%
170-180	0.00	0 - 180	6280.84	100.00%

4.2 Goniophotometer Test

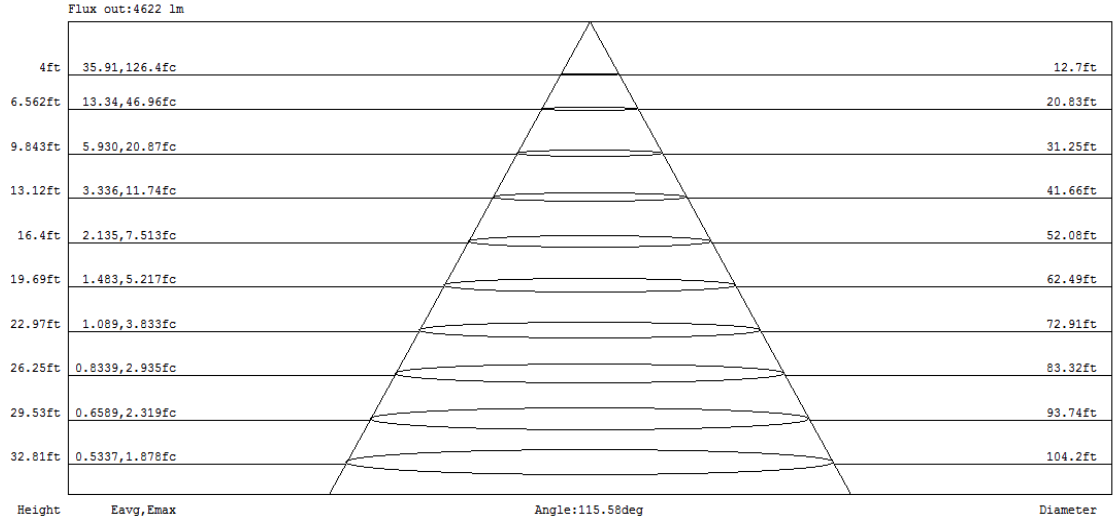
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	108	103	99	95	105	101	97	93	97	93	90	93	90	87	89	87	85	83
2	98	89	82	76	95	88	81	76	84	78	74	81	76	72	78	74	70	68
3	89	78	70	63	87	77	69	62	74	67	61	71	65	60	68	63	59	57
4	81	69	60	53	79	68	59	53	65	58	52	63	56	51	61	55	50	48
5	75	61	52	45	73	60	52	45	58	50	45	56	49	44	54	48	44	41
6	69	55	46	39	67	54	46	39	52	45	39	51	44	39	49	43	38	36
7	64	50	41	35	62	49	41	35	48	40	34	46	39	34	45	38	34	32
8	59	45	37	31	58	45	36	31	43	36	31	42	35	30	41	35	30	28
9	55	42	33	28	54	41	33	28	40	33	27	39	32	27	38	32	27	25
10	52	38	30	25	51	38	30	25	37	30	25	36	29	25	35	29	25	23

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X4 / 50W / 4000K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using a type C goniophotometer and software.
The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample.
The voltage of an AC power supply (RMS voltage)or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5^{o} vertical intervals and 10^{o} horizontal intervals.

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	277.01	60	0.172	46.8	0.983
NON-WORST CASE	120.02	60	0.389	46.4	0.994

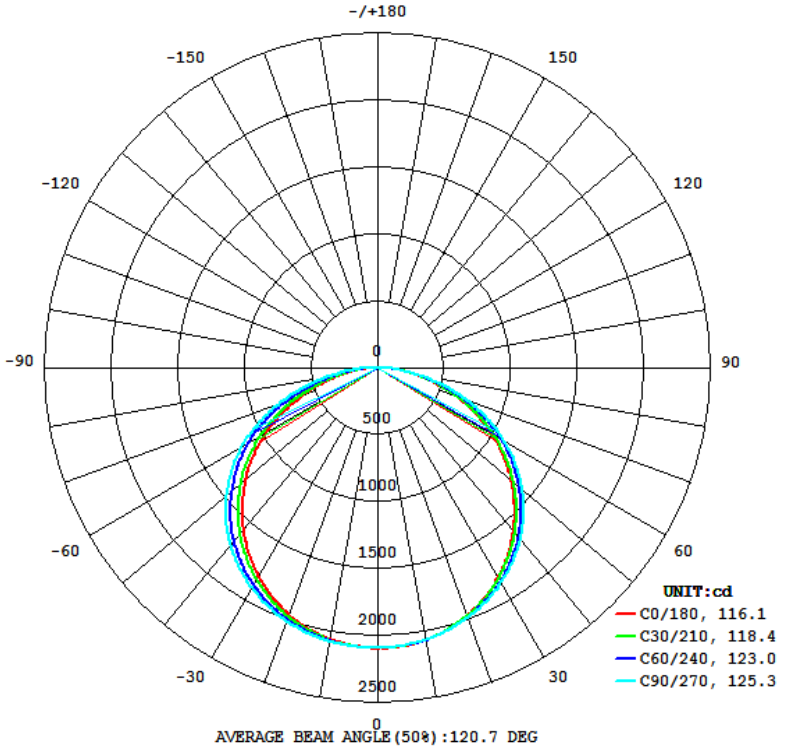
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
6548	163.6	166.6	116.1	125.3	140.0

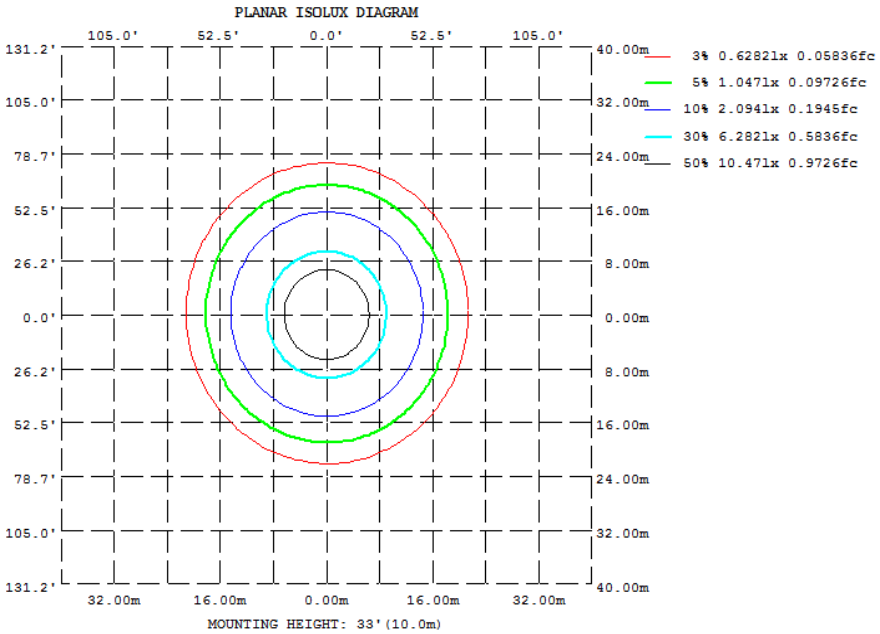
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
76.50%	20.8	1.32	1.28

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	2062	2061	2059	2056	2061	2070	2077	2070
20	1969	1972	1982	1966	1961	1986	2011	1992
30	1811	1830	1854	1818	1794	1847	1896	1855
40	1588	1628	1670	1610	1571	1648	1722	1659
50	1315	1365	1421	1342	1296	1386	1484	1401
60	993.0	1044	1105	1019	969.4	1072	1180	1093
70	639.0	673.4	718.1	647.0	603.7	695.6	797.0	723.7
80	282.6	292.9	302.8	269.8	250.3	305.1	374.8	337.0
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

UGR Table - Corrected

UGR Table - Corrected

Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	16.2	17.9	16.6	18.2	18.5	15.6	17.2	15.9	17.6	17.9
	3H	18.2	19.7	18.6	20.1	20.4	17.4	18.9	17.8	19.2	19.6
	4H	19.0	20.4	19.4	20.7	21.1	18.0	19.5	18.4	19.8	20.2
	6H	19.5	20.8	19.9	21.2	21.6	18.5	19.9	18.9	20.2	20.6
	8H	19.7	20.9	20.1	21.3	21.7	18.7	20.0	19.1	20.3	20.7
	12H	19.8	21.0	20.2	21.4	21.8	18.8	20.0	19.2	20.4	20.8
4H	2H	16.8	18.3	17.2	18.6	19.0	16.3	17.8	16.7	18.1	18.5
	3H	19.0	20.3	19.5	20.7	21.1	18.4	19.6	18.8	20.0	20.4
	4H	19.9	21.0	20.4	21.4	21.9	19.2	20.2	19.6	20.7	21.1
	6H	20.6	21.6	21.1	22.0	22.5	19.7	20.7	20.2	21.2	21.6
	8H	20.8	21.7	21.3	22.2	22.6	20.0	20.8	20.4	21.3	21.8
	12H	21.0	21.8	21.4	22.2	22.7	20.1	20.9	20.6	21.4	21.8
8H	4H	20.2	21.1	20.7	21.6	22.0	19.6	20.5	20.0	20.9	21.4
	6H	21.0	21.8	21.5	22.3	22.7	20.3	21.0	20.8	21.5	22.0
	8H	21.3	22.0	21.8	22.5	23.0	20.5	21.2	21.0	21.7	22.2
	12H	21.5	22.1	22.0	22.6	23.2	20.7	21.3	21.2	21.8	22.4
12H	4H	20.3	21.1	20.7	21.5	22.0	19.6	20.4	20.1	20.9	21.4
	6H	21.1	21.8	21.6	22.2	22.8	20.4	21.1	20.9	21.5	22.1
	8H	21.4	22.0	21.9	22.5	23.1	20.7	21.3	21.2	21.8	22.3

Maximum UGR = 23.2

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

	Zonal (lm)		Total (lm)	Percent
0-10	198.40	0 - 10	198.40	3.03%
10-20	573.25	0 - 20	771.65	11.79%
20-30	883.72	0 - 30	1655.37	25.28%
30-40	1091.84	0 - 40	2747.21	41.96%
40-50	1167.30	0 - 50	3914.51	59.78%
50-60	1094.22	0 - 60	5008.73	76.50%
60-70	867.25	0 - 70	5875.98	89.74%
70-80	519.68	0 - 80	6395.66	97.68%
80-90	152.05	0 - 90	6547.71	100.00%
90-100	0.00	0 - 100	6547.71	100.00%
100-110	0.00	0 - 110	6547.71	100.00%
110-120	0.00	0 - 120	6547.71	100.00%
120-130	0.00	0 - 130	6547.71	100.00%
130-140	0.00	0 - 140	6547.71	100.00%
140-150	0.00	0 - 150	6547.71	100.00%
150-160	0.00	0 - 160	6547.71	100.00%
160-170	0.00	0 - 170	6547.71	100.00%
170-180	0.00	0 - 180	6547.71	100.00%

4.2 Goniophotometer Test

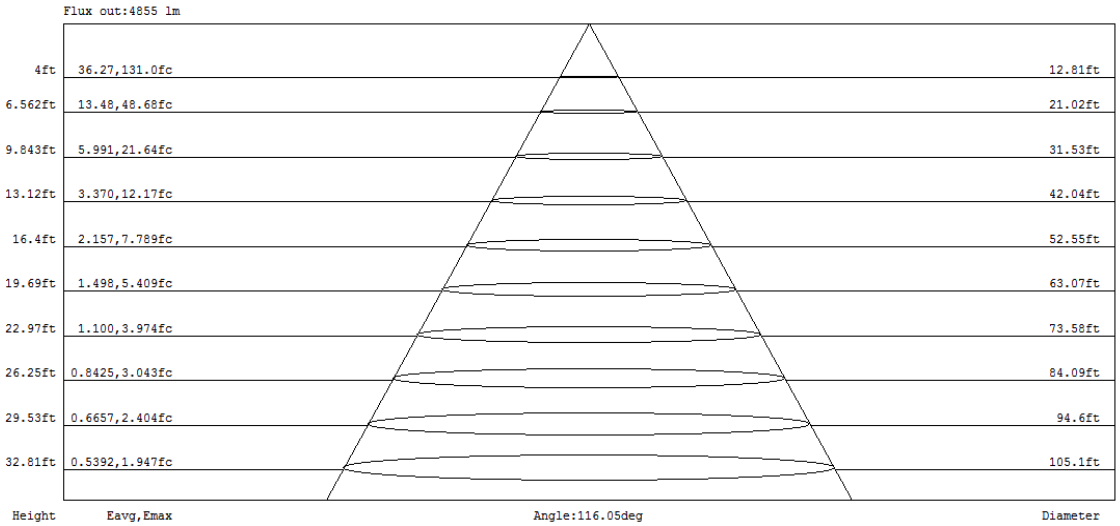
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	108	103	99	95	105	101	97	93	97	93	90	93	90	87	89	87	85	83
2	98	89	82	76	95	87	81	75	84	78	74	81	76	72	78	74	70	68
3	89	78	70	63	87	76	69	62	73	67	61	71	65	60	68	63	59	57
4	81	69	60	53	79	68	59	52	65	58	52	63	56	51	60	55	50	48
5	75	61	52	45	72	60	51	45	58	50	44	56	49	44	54	48	43	41
6	69	55	46	39	67	54	45	39	52	45	39	51	44	38	49	43	38	36
7	64	50	41	35	62	49	40	34	47	40	34	46	39	34	45	38	34	32
8	59	45	37	31	58	45	36	31	43	36	30	42	35	30	41	35	30	28
9	55	42	33	28	54	41	33	27	40	32	27	39	32	27	38	32	27	25
10	52	38	30	25	50	38	30	25	37	30	25	36	29	25	35	29	24	23

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X4 / 50W / 5000K	Sample ID.	C1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

Test Method
The samples were tested according to the IES LM-79-2008.
Photometric paramters were measured using a type C goniophotometer and software.
The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample.
The voltage of an AC power supply (RMS voltage)or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.
The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5^{o} vertical intervals and 10^{o} horizontal intervals.

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	277.01	60	0.177	48.4	0.984
NON-WORST CASE	120.02	60	0.407	48.1	0.985

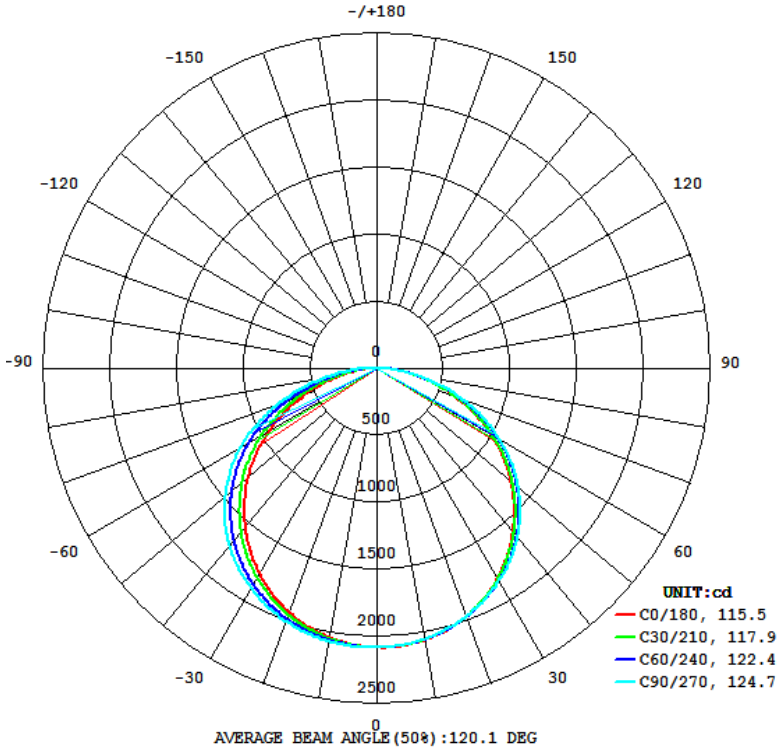
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
6473	163.1	166.4	115.5	124.7	133.8

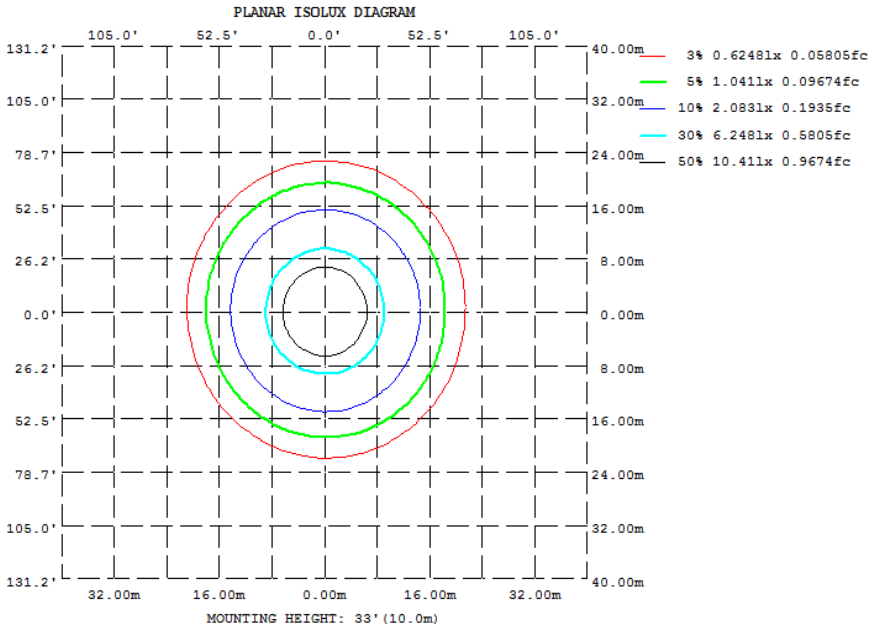
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
76.71%	20.6	1.32	1.26

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	2058	2053	2049	2038	2040	2056	2069	2065
20	1965	1968	1966	1941	1934	1971	2008	1994
30	1810	1822	1832	1785	1766	1830	1892	1863
40	1592	1618	1643	1571	1535	1627	1721	1669
50	1319	1355	1391	1300	1264	1367	1485	1415
60	997.5	1033	1069	972.9	935.5	1054	1184	1107
70	637.7	662.2	686.8	604.2	578.1	682.1	799.3	736.3
80	284.0	285.5	286.3	239.1	233.1	297.6	378.4	345.3
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

UGR Table - Corrected

UGR Table - Corrected

Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	16.1	17.8	16.5	18.1	18.4	15.4	17.1	15.8	17.4	17.7
	3H	18.0	19.6	18.4	19.9	20.3	17.2	18.7	17.6	19.0	19.4
	4H	18.8	20.2	19.2	20.6	20.9	17.8	19.3	18.2	19.6	20.0
	6H	19.3	20.6	19.7	21.0	21.4	18.3	19.6	18.7	20.0	20.4
	8H	19.4	20.7	19.9	21.1	21.5	18.4	19.7	18.9	20.1	20.5
	12H	19.5	20.8	20.0	21.1	21.6	18.5	19.7	18.9	20.1	20.6
4H	2H	16.7	18.1	17.1	18.5	18.9	16.2	17.6	16.6	18.0	18.3
	3H	18.9	20.1	19.3	20.5	20.9	18.2	19.4	18.6	19.8	20.2
	4H	19.7	20.8	20.2	21.2	21.7	18.9	20.0	19.4	20.4	20.9
	6H	20.4	21.3	20.8	21.8	22.2	19.5	20.5	20.0	20.9	21.4
	8H	20.6	21.5	21.1	21.9	22.4	19.7	20.6	20.1	21.0	21.5
	12H	20.7	21.5	21.2	22.0	22.5	19.8	20.6	20.3	21.1	21.6
8H	4H	20.0	20.9	20.5	21.4	21.8	19.3	20.2	19.8	20.7	21.1
	6H	20.8	21.5	21.3	22.0	22.5	20.0	20.8	20.5	21.3	21.7
	8H	21.0	21.7	21.6	22.2	22.7	20.2	20.9	20.8	21.4	21.9
	12H	21.2	21.9	21.8	22.3	22.9	20.4	21.0	20.9	21.5	22.1
12H	4H	20.0	20.9	20.5	21.3	21.8	19.4	20.2	19.9	20.7	21.1
	6H	20.8	21.5	21.4	22.0	22.5	20.1	20.8	20.6	21.3	21.8
	8H	21.2	21.8	21.7	22.2	22.8	20.4	21.0	20.9	21.5	22.0

Maximum UGR = 22.9

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

	Zonal (lm)		Total (lm)	Percent
0-10	197.36	0 - 10	197.36	3.05%
10-20	570.00	0 - 20	767.36	11.85%
20-30	878.01	0 - 30	1645.37	25.42%
30-40	1083.27	0 - 40	2728.64	42.15%
40-50	1156.02	0 - 50	3884.66	60.01%
50-60	1080.81	0 - 60	4965.47	76.71%
60-70	852.69	0 - 70	5818.16	89.88%
70-80	508.02	0 - 80	6326.18	97.73%
80-90	146.94	0 - 90	6473.12	100.00%
90-100	0.00	0 - 100	6473.12	100.00%
100-110	0.00	0 - 110	6473.12	100.00%
110-120	0.00	0 - 120	6473.12	100.00%
120-130	0.00	0 - 130	6473.12	100.00%
130-140	0.00	0 - 140	6473.12	100.00%
140-150	0.00	0 - 150	6473.12	100.00%
150-160	0.00	0 - 160	6473.12	100.00%
160-170	0.00	0 - 170	6473.12	100.00%
170-180	0.00	0 - 180	6473.12	100.00%

4.2 Goniophotometer Test

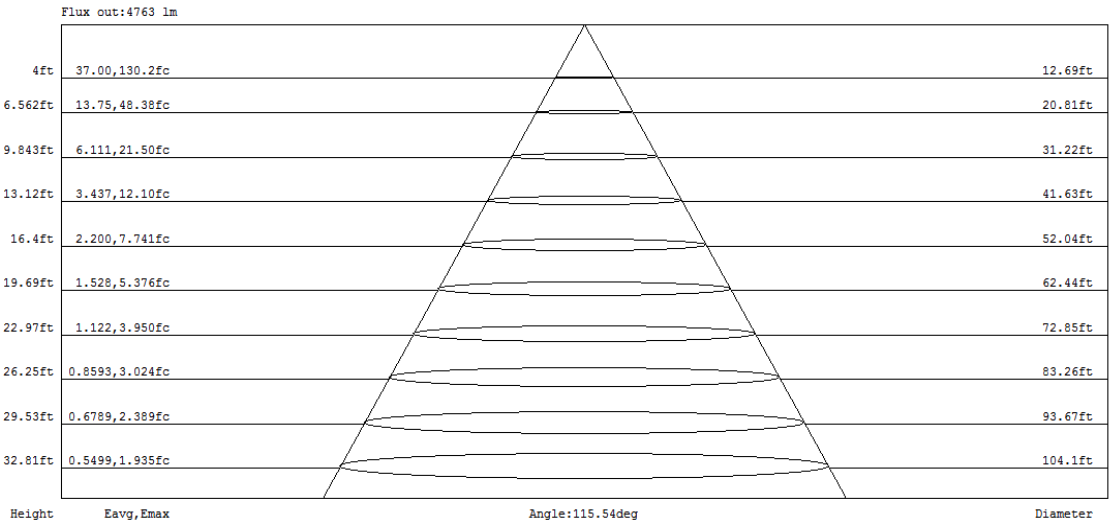
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	108	103	99	95	105	101	97	93	97	93	90	93	90	87	89	87	85	83
2	98	89	82	76	95	88	81	76	84	78	74	81	76	72	78	74	70	68
3	89	78	70	63	87	77	69	62	74	67	61	71	65	60	68	63	59	57
4	81	69	60	53	79	68	59	53	65	58	52	63	56	51	61	55	50	48
5	75	61	52	45	73	60	52	45	58	50	45	56	49	44	54	48	44	41
6	69	55	46	39	67	54	46	39	52	45	39	51	44	39	49	43	38	36
7	64	50	41	35	62	49	41	35	48	40	34	46	39	34	45	38	34	32
8	59	45	37	31	58	45	36	31	43	36	31	42	35	30	41	35	30	28
9	55	42	33	28	54	41	33	28	40	33	27	39	32	27	38	32	27	25
10	52	38	30	25	51	38	30	25	37	30	25	36	29	25	35	29	25	23

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X4 / 30W / 3500K	Sample ID.	C1
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the ANSI C82.77:2002. The total harmonic distortion shall be measured to the 40th order. The ambient temperature condition was maintained at 25º C ± 1º C. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

Test Results					
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
119.99	60	0.246	29.5	0.998	4.42%
277.03	60	0.114	30.0	0.952	11.04%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X4 / 30W / 4000K	Sample ID.	C1
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the ANSI C82.77:2002. The total harmonic distortion shall be measured to the 40th order. The ambient temperature condition was maintained at 25º C ± 1º C. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

Test Results					
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
119.95	60	0.240	28.7	0.998	4.51%
277.03	60	0.111	29.3	0.950	10.74%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X4 / 30W / 5000K	Sample ID.	C1
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the ANSI C82.77:2002. The total harmonic distortion shall be measured to the 40th order. The ambient temperature condition was maintained at 25º C ± 1º C. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

Test Results					
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
120.02	60	0.247	29.6	0.998	4.44%
277.00	60	0.114	30.1	0.953	11.05%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X4 / 40W / 3500K	Sample ID.	C1
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the ANSI C82.77:2002. The total harmonic distortion shall be measured to the 40th order. The ambient temperature condition was maintained at 25º C ± 1º C. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

Test Results					
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
119.98	60	0.320	38.3	0.998	4.91%
277.03	60	0.143	38.7	0.976	9.99%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X4 / 40W / 4000K	Sample ID.	C1
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the ANSI C82.77:2002. The total harmonic distortion shall be measured to the 40th order. The ambient temperature condition was maintained at 25º C ± 1º C. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

Test Results					
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
119.99	60	0.310	37.1	0.998	5.16%
277.01	60	0.139	37.5	0.975	9.36%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X4 / 40W / 5000K	Sample ID.	C1
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the ANSI C82.77:2002. The total harmonic distortion shall be measured to the 40th order. The ambient temperature condition was maintained at 25º C ± 1º C. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

Test Results					
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
119.98	60	0.321	38.4	0.998	5.00%
276.99	60	0.143	38.8	0.977	10.02%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X4 / 50W / 3500K	Sample ID.	C1
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the ANSI C82.77:2002. The total harmonic distortion shall be measured to the 40th order. The ambient temperature condition was maintained at 25º C ± 1º C. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

Test Results					
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
120.00	60	0.399	47.8	0.998	5.83%
276.99	60	0.176	48.1	0.987	10.85%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X4 / 50W / 4000K	Sample ID.	C1
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the ANSI C82.77:2002. The total harmonic distortion shall be measured to the 40th order. The ambient temperature condition was maintained at 25º C ± 1º C. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

Test Results					
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
119.99	60	0.384	45.9	0.997	6.11%
277.01	60	0.169	46.3	0.986	10.11%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X4 / 50W / 5000K	Sample ID.	C1
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method
The samples were tested according to the ANSI C82.77:2002. The total harmonic distortion shall be measured to the 40th order. The ambient temperature condition was maintained at 25º C ± 1º C. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

Test Results					
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
120.05	60	0.398	47.7	0.998	5.84%
276.96	60	0.176	48.0	0.987	10.82%

5.0 Equipment Information

Test Equipment			
Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF107	Integrating Sphere System	2020/12/26	2021/12/25
DLF108	Auxiliary Lamp	2020/12/26	2021/12/25
DLF122	Measurement Standard Lamp Standard Lamp Type: 220 V, 0.4720 A, Tungsten, Omni-derectional	2020/12/26	2021/12/25
DLF116	AC Power Source	2020/12/26	2021/12/25
DLF113	Power Meter	2020/12/26	2021/12/25
DLF112	Temperature Recorder	2020/12/26	2021/12/25
DLF114	Temperature & Humidity Datalogger	2020/12/26	2021/12/25
DLF101	Goniophotometer	2020/12/26	2021/12/25
DLF125	Standard Lamp Standard Lamp Type: 76.58 V, 6.7875 A, Tungsten, Omni-derectional	2020/12/26	2021/12/25
DLF104	AC Power Source	2020/12/26	2021/12/25
DLF507	DC Power Source	2020/12/26	2021/12/25
DLF102	Power Meter	2020/12/26	2021/12/25
DLF111	Temperature & Humidity Datalogger	2020/12/26	2021/12/25
DLF119	Power Meter	2020/12/26	2021/12/25
DLF031	Temperature data logger	2020/12/26	2021/12/25
DLF022	Digital power meter	2020/12/26	2021/12/25
DLF003	Temperature & Humidity Datalogger	2020/12/26	2021/12/25

********** End of Test Report**********