Photometric Test Report

Relevant Standards

☑IES LM-79-2008
☑ANSI C82.77:2017

Prepared For

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Project Number
DLF2111111

Report Number
DLF2111111-1a

Test Date
2021/11/19

Issue Date
2021/12/9

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1.0 Test Summary

DLC Technical Requirements v5.1

Indoor - Troffer - 1X4 Luminaires for Ambient Lighting of Interior Commercial Spaces				
Requirement Category	**Test Method**	**Requirements**		**Test value**
Luminaire Description:	EZPANFAHE1X4 / 20W / 3500K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1500		3379
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	131.5
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		25.7
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	8.37%
		20.00%	277V	8.17%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.995
		0.9	277V	0.960
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3465±245	3410
		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		84
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%		77.70%
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		1.30
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		0.097
(Goniophotometer - Section 4.2)		Non-Worst Case		0.213
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		25.7
(Goniophotometer - Section 4.2)		Non-Worst Case		25.4

Luminaire Description:	EZPANFAHE1X4 / 20W / 4000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1500		3415
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	135.5
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		25.2
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	8.65%
		20.00%	277V	8.02%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.995
		0.9	277V	0.960
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3985±275	4005
		4 step	3985±154	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		85
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		15
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		84
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%		-11%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		77.72%
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		1.30
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		0.095
(Goniophotometer - Section 4.2)		Non-Worst Case		0.209
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		25.2
(Goniophotometer - Section 4.2)		Non-Worst Case		24.9
Luminaire Description:	EZPANFAHE1X4 / 20W / 5000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1500		3432
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	133.4
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		25.7

Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	8.45%
		20.00%	277V	8.09%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.995
		0.9	277V	0.960
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	4905
		4 step	5029±220	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		84
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		12
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		84
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		95
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%		77.69%
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		1.30
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		0.097
(Goniophotometer - Section 4.2)		Non-Worst Case		0.213
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		25.7
(Goniophotometer - Section 4.2)		Non-Worst Case		25.4
Luminaire Description:	EZPANFAHE1X4 / 30W / 3500K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1500		3896
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	131.5
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		29.6
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	9.14%
		20.00%	277V	7.52%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.995
		0.9	277V	0.975
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3465±245	3412
		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		84
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%		77.70%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		21
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		1.3
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		0.110
(Goniophotometer - Section 4.2)		Non-Worst Case		0.241
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		29.6
(Goniophotometer - Section 4.2)		Non-Worst Case		28.8
Luminaire Description:	EZPANFAHE1X4 / 30W / 4000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1500		3944
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	136.0
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		29.0
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	9.39%
		20.00%	277V	7.24%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.994
		0.9	277V	0.973
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3985±275	4005
		4 step	3985±154	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		85
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		15
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		84

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%		-11%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		77.66%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		21.1
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		1.30
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		0.108
(Goniophotometer - Section 4.2)		Non-Worst Case		0.238
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		29.0
(Goniophotometer - Section 4.2)		Non-Worst Case		28.4
Luminaire Description:	EZPANFAHE1X4 / 30W / 5000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1500		3965
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	133.5
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		29.7
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	9.22%
		20.00%	277V	7.66%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.994
		0.9	277V	0.975
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	4912
		4 step	5029±220	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		84
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		12
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		84
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		95
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%		77.69%

Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		21.1
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		1.30
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		0.110
(Goniophotometer - Section 4.2)		Non-Worst Case		0.246
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		29.7
(Goniophotometer - Section 4.2)		Non-Worst Case		29.4
Luminaire Description:	EZPANFAHE1X4 / 40W / 3500K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1500		4996
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	130.0
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		38.4
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	10.10%
		20.00%	277V	10.52%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.994
		0.9	277V	0.989
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3465±245	3426
		4 step	3465±124	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		84
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		84
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%		79.67%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		21.3
SC: 0-180° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.30
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		0.141
(Goniophotometer - Section 4.2)		Non-Worst Case		0.319
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		38.4
(Goniophotometer - Section 4.2)		Non-Worst Case		38.0
Luminaire Description:	EZPANFAHE1X4 / 40W / 4000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1500		5085
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	136.1
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		37.4
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	9.90%
		20.00%	277V	10.53%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.994
		0.9	277V	0.988
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3985±275	4027
		4 step	3985±154	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		84
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		13
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		84
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%		81.10%
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		1.28
SC: 90-270° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.22
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		0.137
(Goniophotometer - Section 4.2)		Non-Worst Case		0.310
Power (Input Wattage - W)				

(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		37.4
(Goniophotometer - Section 4.2)		Non-Worst Case		37.0
Luminaire Description:	EZPANFAHE1X4 / 40W / 5000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1500		5082
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	131.9
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		38.5
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	9.87%
		20.00%	277V	10.60%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.994
		0.9	277V	0.989
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	4920
		4 step	5029±220	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		84
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		11
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		84
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		95
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%		79.66%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		21.4
SC: 0-180° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.30
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		0.141
(Goniophotometer - Section 4.2)		Non-Worst Case		0.330
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		38.5
(Goniophotometer - Section 4.2)		Non-Worst Case		39.4

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2021/11/19	EZPANFAHE1X4	A1
2	Goniophotometer Test	2021/11/19	EZPANFAHE1X4	A1
3	THD and PF Test	2021/11/19	EZPANFAHE1X4	A1

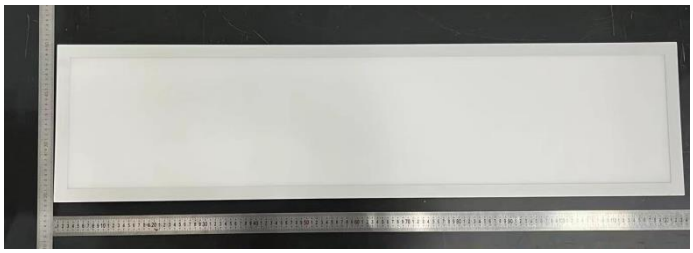
Remark(If any)
1、This report shall not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the US government.
2、The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full 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.

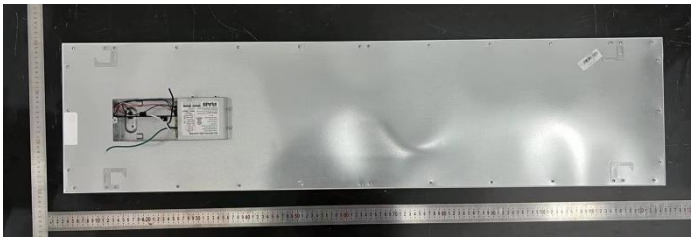
3.0 Production Description

Luminaire Description: EZPANFAHE1X4

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.	EZPANFAHE1X4 / 20W / 3500K	Sample ID.	A1
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
119.94	60	0.211	25.2	0.995
277.04	60	0.097	25.7	0.960

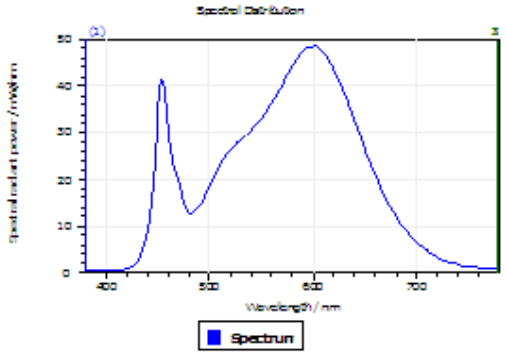
Test Result

CCT (K)	CRI	R9	Duv
3410	83	9	0.000098

Rf	Rg	IES Rcs,h1
84	94	-12%

4.1 Integrating Sphere Test

Results



Spectral values

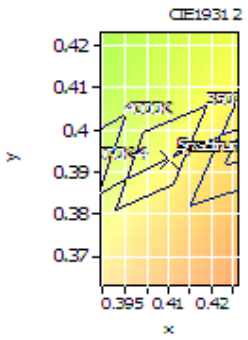
DominantWavelength	581.25 nm
Purity	0.411
PeakWavelength	599.40 nm
Radiant Power	7.697 W
Width50%:	140.69 nm

Color Coordinates

Correlated Color Temperat 3410 K

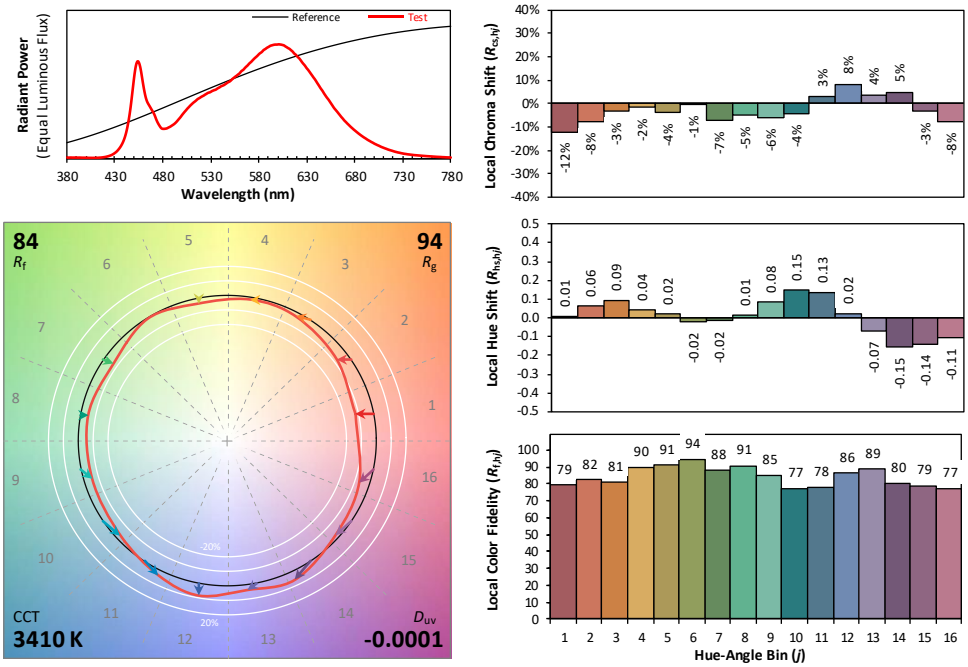
x:	0.4103	u:	0.2381	u':	0.2381
y:	0.3929	v:	0.3420	v':	0.5129

ResultsCRICRI01	82.1	ResultsCRICRI09	9.0
ResultsCRICRI02	92.2	ResultsCRICRI10	81.4
ResultsCRICRI03	95.7	ResultsCRICRI11	79.7
ResultsCRICRI04	80.4	ResultsCRICRI12	65.9
ResultsCRICRI05	82.2	ResultsCRICRI13	84.8
ResultsCRICRI06	89.6	ResultsCRICRI14	98.4
ResultsCRICRI07	83.1	ResultsCRICRI15	74.9
ResultsCRICRI08	60.9	ResultsCRICRI16	71.4
ResultsCRI	83.3		



PlanckDistance 9.8E-005

4.1 Integrating Sphere Test



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

x	0.4103
y	0.3929
u'	0.2381
v'	0.5129

CIE 13.3-1995 (CRI)

R_a	83
R_9	9

lors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE1X4 / 20W / 4000K	Sample ID.	A1
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
120.01	60	0.207	24.7	0.995
276.99	60	0.095	25.2	0.960

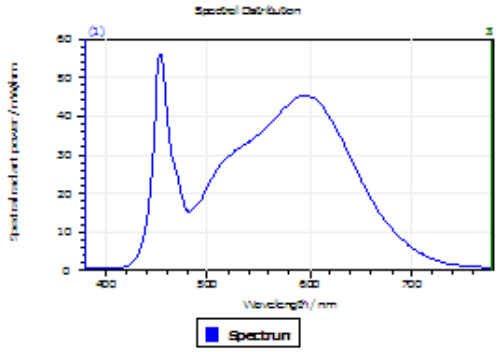
Test Result

CCT (K)	CRI	R9	Duv
4005	85	15	0.00019

Rf	Rg	IES Rcs,h1
84	94	-11%

4.1 Integrating Sphere Test

Results



Spectral values

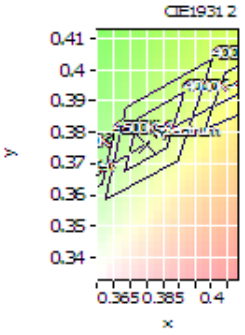
DominantWavelength	579.16 nm
Purity	0.270
PeakWavelength	453.97 nm
Radiant Power	7.945 W
Width50%:	21.00 nm

Color Coordinates

Correlated Color Temperat 4005 K

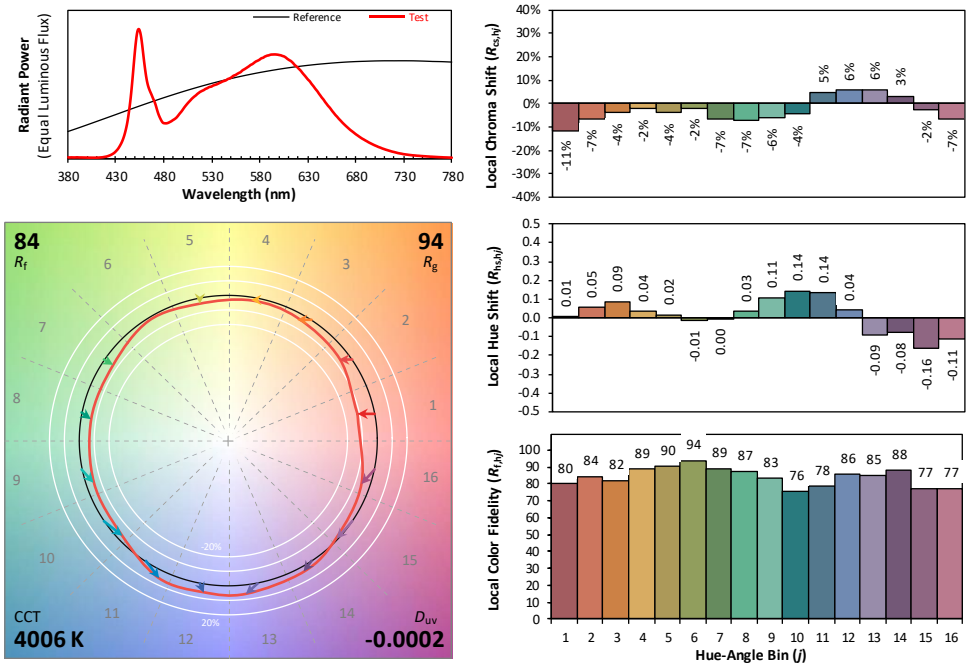
x:	0.3801	u:	0.2251	u':	0.2251
y:	0.3761	v:	0.3342	v':	0.5013

ResultsCRICRI01	83.6	ResultsCRICRI09	14.9
ResultsCRICRI02	92.5	ResultsCRICRI10	81.4
ResultsCRICRI03	95.9	ResultsCRICRI11	81.0
ResultsCRICRI04	81.7	ResultsCRICRI12	61.5
ResultsCRICRI05	83.1	ResultsCRICRI13	86.4
ResultsCRICRI06	88.5	ResultsCRICRI14	98.5
ResultsCRICRI07	85.3	ResultsCRICRI15	77.6
ResultsCRICRI08	65.6	ResultsCRICRI16	73.5
ResultsCRI	84.5		



PlanckDistance 1.9E-004

4.1 Integrating Sphere Test



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

x	0.3801
y	0.3761
u'	0.2251
v'	0.5013

CIE 13.3-1995 (CRI)

R_a	85
R_9	15

lors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE1X4 / 20W / 5000K	Sample ID.	A1
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
120.06	60	0.212	25.3	0.995
277.03	60	0.097	25.8	0.960

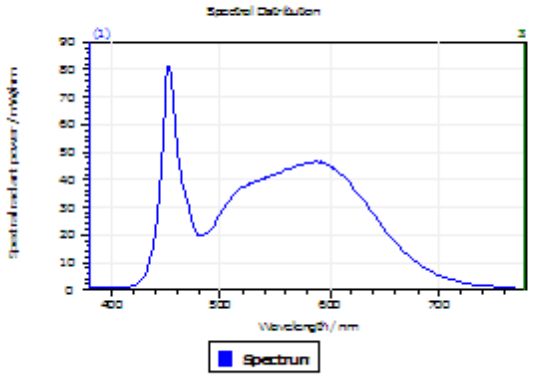
Test Result

CCT (K)	CRI	R9	Duv
4905	84	12	0.0023

Rf	Rg	IES Rcs,h1
84	95	-12%

4.1 Integrating Sphere Test

Results



Spectral values

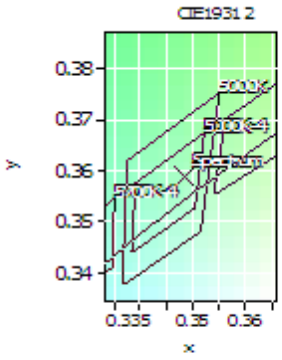
DominantWavelength	571.78 nm
Purity	0.123
PeakWavelength	452.81 nm
Radiant Power	9.014 W
Width50%:	19.20 nm
Luminous Flux	2.908 klm

Color Coordinates

Correlated Color Temperat 4905 K

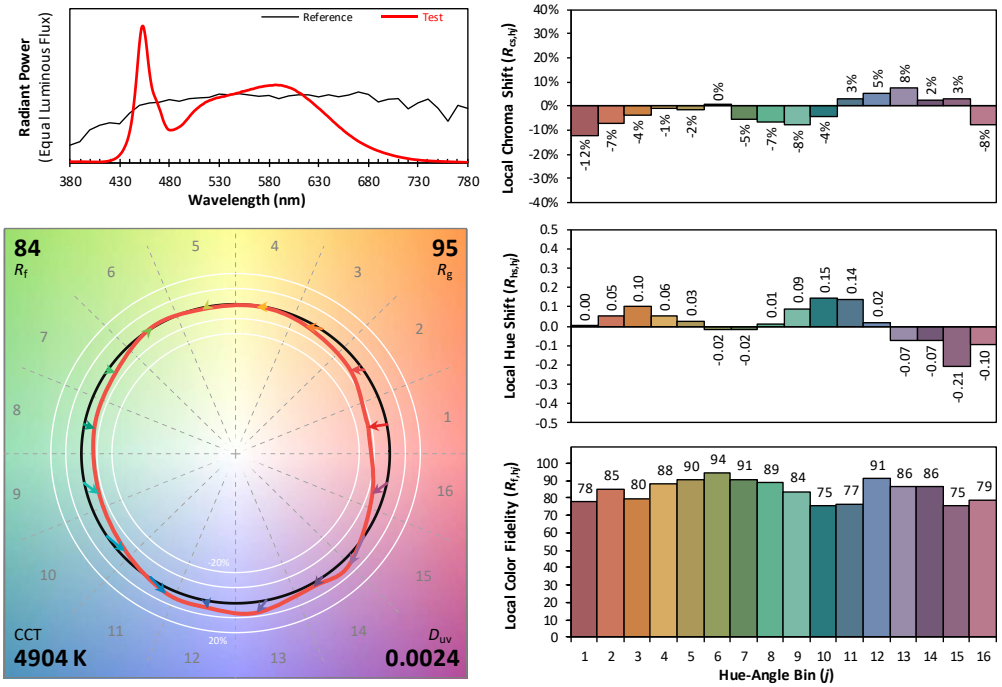
x:	0.3484	u:	0.2108	u':	0.2108
y:	0.3589	v:	0.3258	v':	0.4887

ResultsCRICRI01	82.1	ResultsCRICRI09	11.9
ResultsCRICRI02	90.5	ResultsCRICRI10	76.7
ResultsCRICRI03	94.9	ResultsCRICRI11	80.5
ResultsCRICRI04	81.3	ResultsCRICRI12	55.2
ResultsCRICRI05	81.9	ResultsCRICRI13	84.8
ResultsCRICRI06	85.7	ResultsCRICRI14	97.6
ResultsCRICRI07	87.1	ResultsCRICRI15	76.3
ResultsCRICRI08	67.5	ResultsCRICRI16	71.8
ResultsCRI	83.9		



PlanckDistance 2.3E-003

4.1 Integrating Sphere Test



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

x	0.3484
y	0.3589
u'	0.2108
v'	0.4887

CIE 13.3-1995 (CRI)

R_a	85
R_9	17

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE1X4 / 30W / 3500K	Sample ID.	A1
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
119.97	60	0.246	29.3	0.995
277.01	60	0.110	29.6	0.975

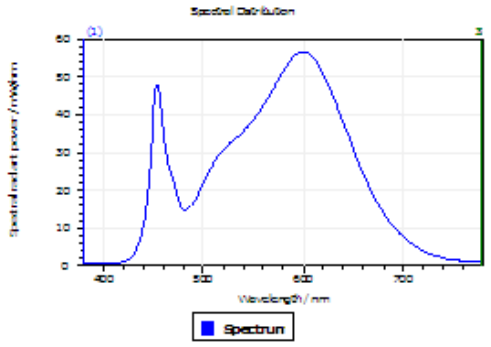
Test Result

CCT (K)	CRI	R9	Duv
3412	83	9	0.000073

Rf	Rg	IES Rcs,h1
84	94	-12%

4.1 Integrating Sphere Test

Results



Spectral values

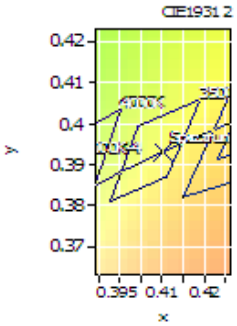
DominantWavelength	581.24 nm
Purity	0.411
PeakWavelength	599.33 nm
Radiant Power	8.963 W
Width50%:	140.72 nm

Color Coordinates

Correlated Color Temperat 3412 K

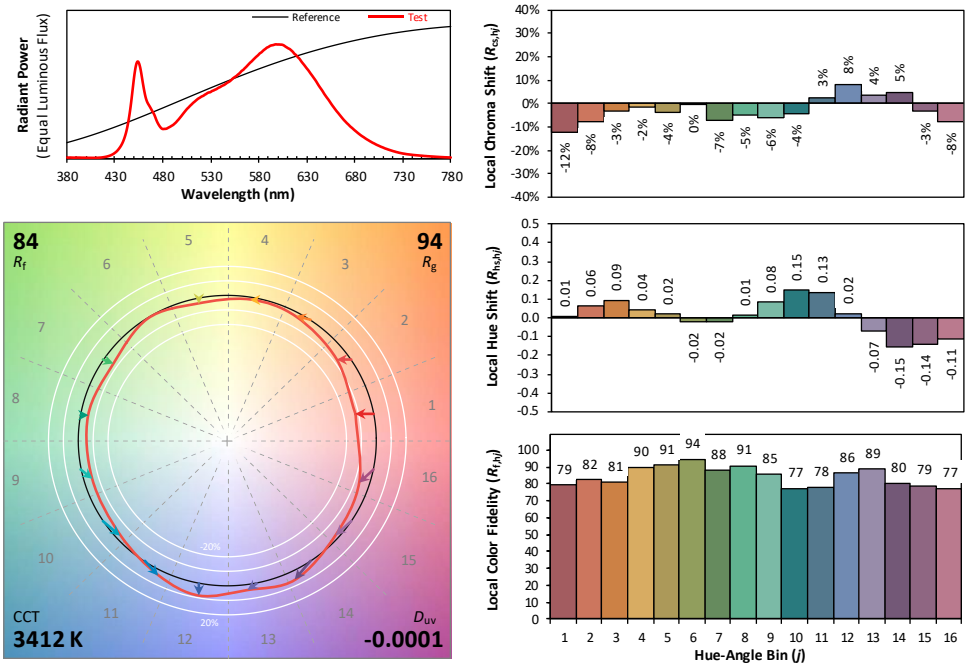
x:	0.4103	u:	0.2380	u':	0.2380
y:	0.3930	v:	0.3420	v':	0.5129

ResultsCRICRI01	82.0	ResultsCRICRI09	8.7
ResultsCRICRI02	92.1	ResultsCRICRI10	81.3
ResultsCRICRI03	95.7	ResultsCRICRI11	79.6
ResultsCRICRI04	80.4	ResultsCRICRI12	65.9
ResultsCRICRI05	82.1	ResultsCRICRI13	84.7
ResultsCRICRI06	89.5	ResultsCRICRI14	98.4
ResultsCRICRI07	83.0	ResultsCRICRI15	74.8
ResultsCRICRI08	60.7	ResultsCRICRI16	71.4
ResultsCRI	83.2		



PlanckDistance 7.3E-005

4.1 Integrating Sphere Test



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

x	0.4103
y	0.3930
u'	0.2380
v'	0.5129

CIE 13.3-1995 (CRI)

R_a	83
R_9	9

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4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE1X4 / 30W / 4000K	Sample ID.	A1
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
120.06	60	0.240	28.7	0.994
277.03	60	0.108	29.1	0.973

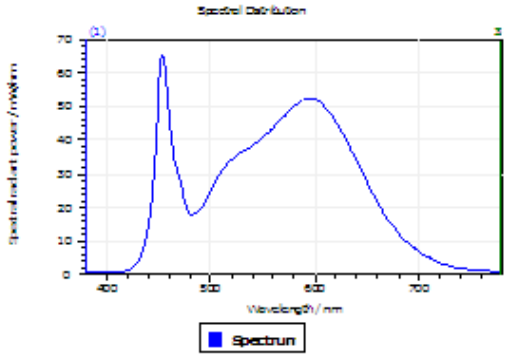
Test Result

CCT (K)	CRI	R9	Duv
4005	85	15	0.00015

Rf	Rg	IES Rcs,h1
84	94	-11%

4.1 Integrating Sphere Test

Results



Spectral values

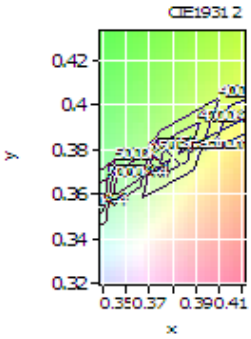
DominantWavelength	579.14 nm
Purity	0.270
PeakWavelength	453.90 nm
Radiant Power	9.187 W
Width50%:	20.84 nm

Color Coordinates

Correlated Color Temperat 4005 K

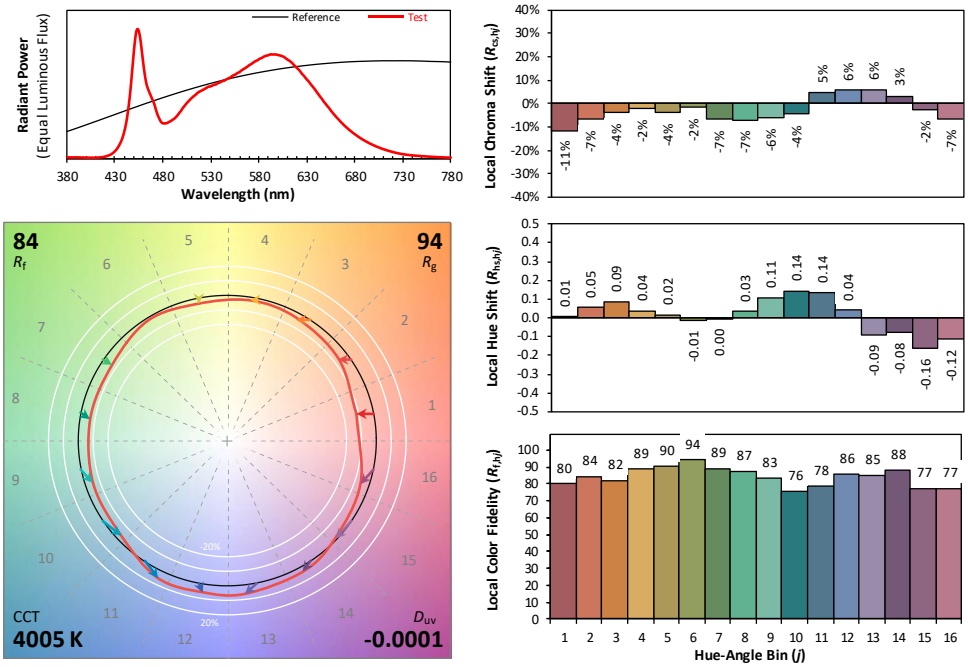
x:	0.3801	u:	0.2251	u':	0.2251
y:	0.3762	v:	0.3342	v':	0.5013

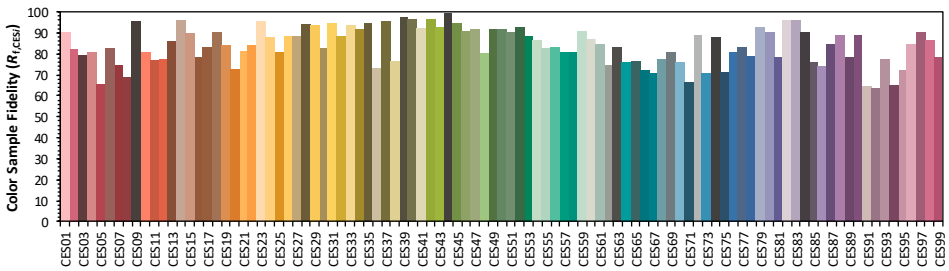
ResultsCRICRI01	83.6	ResultsCRICRI09	14.7
ResultsCRICRI02	92.5	ResultsCRICRI10	81.3
ResultsCRICRI03	96.0	ResultsCRICRI11	81.0
ResultsCRICRI04	81.7	ResultsCRICRI12	61.5
ResultsCRICRI05	83.1	ResultsCRICRI13	86.3
ResultsCRICRI06	88.4	ResultsCRICRI14	98.5
ResultsCRICRI07	85.3	ResultsCRICRI15	77.5
ResultsCRICRI08	65.5	ResultsCRICRI16	73.5
ResultsCRI	84.5		



PlanckDistance 1.6E-004

4.1 Integrating Sphere Test





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

x	0.3801
y	0.3762
u'	0.2251
v'	0.5013

CIE 13.3-1995 (CRI)

R_a	85
R_9	15

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4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE1X4 / 30W / 5000K	Sample ID.	A1
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
120.07	60	0.247	29.5	0.994
276.98	60	0.110	29.8	0.975

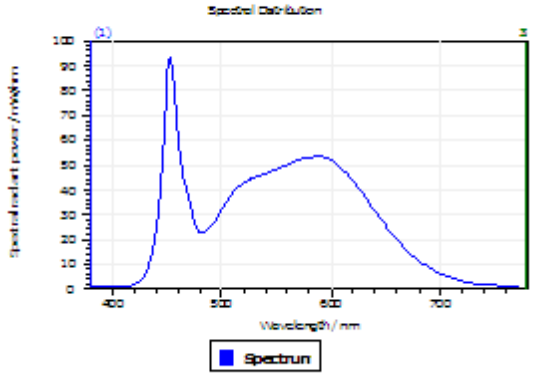
Test Result

CCT (K)	CRI	R9	Duv
4912	84	12	0.0023

Rf	Rg	IES Rcs,h1
84	95	-12%

4.1 Integrating Sphere Test

Results



Spectral values

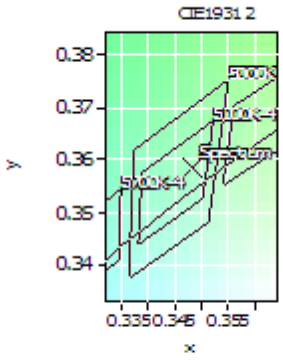
DominantWavelength	571.76 nm
Purity	0.121
PeakWavelength	452.83 nm
Radiant Power	10.39 W
Width50%:	19.56 nm
Luminous Flux	3.35 klm

Color Coordinates

Correlated Color Temperat 4912 K

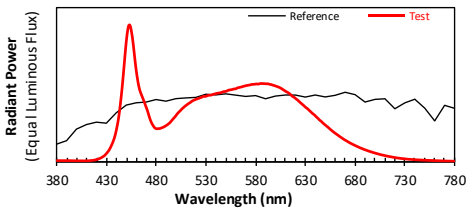
x:	0.3482	u:	0.2108	u':	0.2108
y:	0.3586	v:	0.3257	v':	0.4885

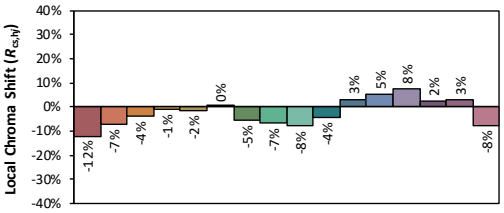
ResultsCRICRI01	82.1	ResultsCRICRI09	11.6
ResultsCRICRI02	90.6	ResultsCRICRI10	76.8
ResultsCRICRI03	94.9	ResultsCRICRI11	80.3
ResultsCRICRI04	81.2	ResultsCRICRI12	55.4
ResultsCRICRI05	81.9	ResultsCRICRI13	84.8
ResultsCRICRI06	85.8	ResultsCRICRI14	97.6
ResultsCRICRI07	87.0	ResultsCRICRI15	76.2
ResultsCRICRI08	67.3	ResultsCRICRI16	71.7
ResultsCRI	83.8		

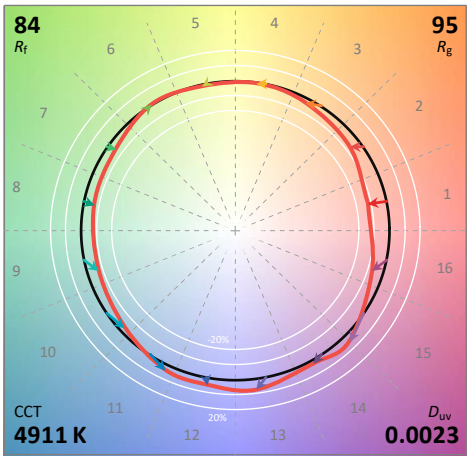


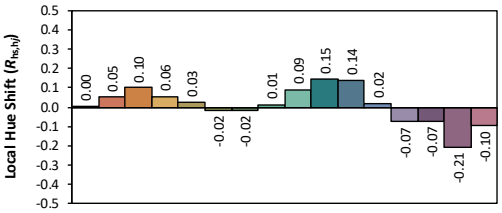
PlanckDistance 2.3E-003

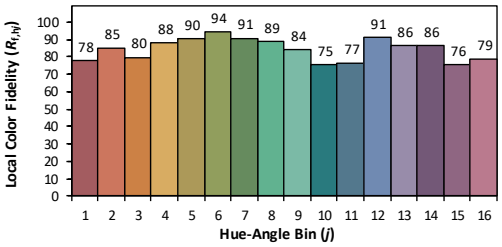
4.1 Integrating Sphere Test

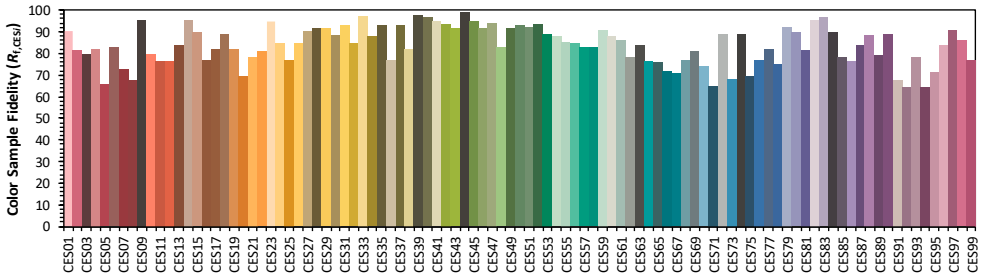












Notes: This is a recommended method for displaying IES TM-30-18 information.

x	0.3482
y	0.3586
u'	0.2108
v'	0.4885

CIE 13.3-1995 (CRI)

R_a	85
R_9	17

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE1X4 / 40W / 3500K	Sample ID.	A1
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
120.01	60	0.319	38.1	0.994
276.95	60	0.145	39.7	0.989

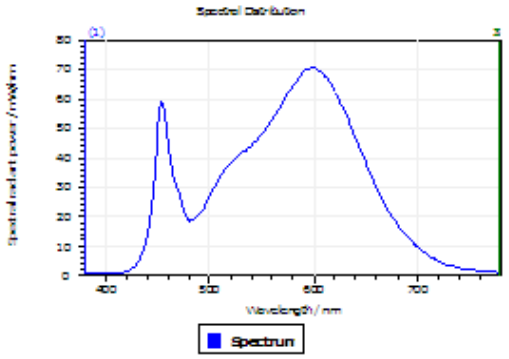
Test Result

CCT (K)	CRI	R9	Duv
3426	84	10	0.00007

Rf	Rg	IES Rcs,h1
84	94	-12%

4.1 Integrating Sphere Test

Results



Spectral values

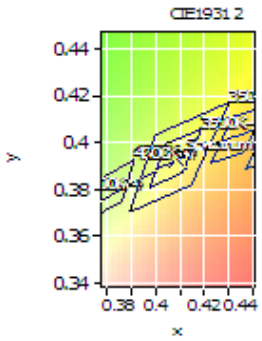
DominantWavelength	581.18 nm
Purity	0.407
PeakWavelength	598.75 nm
Radiant Power	11.18 W
Width50%:	140.10 nm

Color Coordinates

Correlated Color Temperat 3426 K

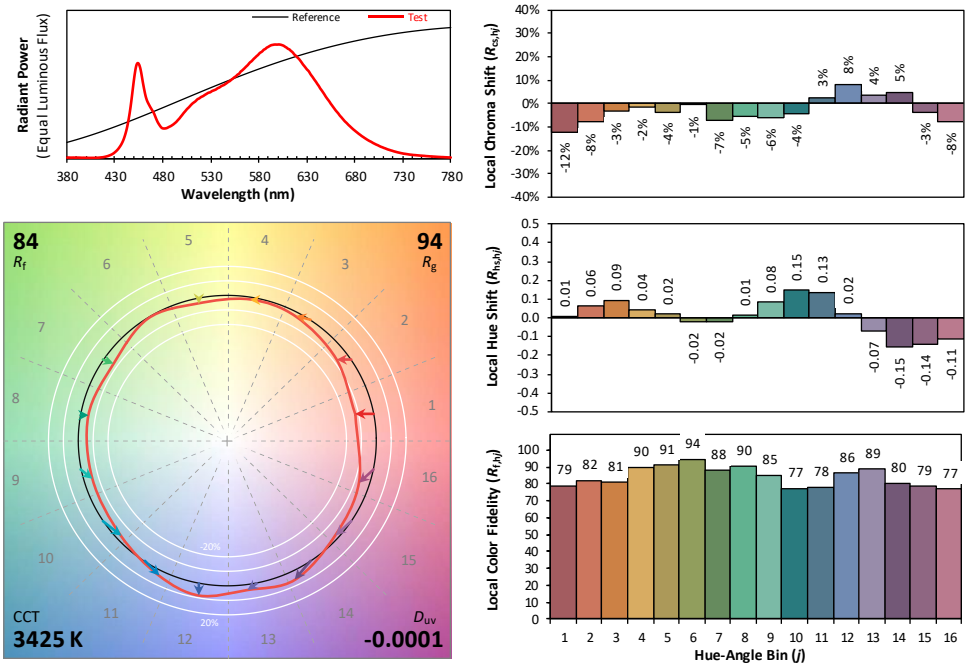
x:	0.4095	u:	0.2376	u':	0.2376
y:	0.3926	v:	0.3418	v':	0.5127

ResultsCRICRI01	82.1	ResultsCRICRI09	9.6
ResultsCRICRI02	91.8	ResultsCRICRI10	80.5
ResultsCRICRI03	96.3	ResultsCRICRI11	79.9
ResultsCRICRI04	80.9	ResultsCRICRI12	64.9
ResultsCRICRI05	82.2	ResultsCRICRI13	84.7
ResultsCRICRI06	89.0	ResultsCRICRI14	98.7
ResultsCRICRI07	83.8	ResultsCRICRI15	75.4
ResultsCRICRI08	61.8	ResultsCRICRI16	72.0
ResultsCRI	83.5		



PlanckDistance 7.0E-005

4.1 Integrating Sphere Test



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

x	0.4095
y	0.3926
u'	0.2376
v'	0.5127

CIE 13.3-1995 (CRI)

R_a	83
R_9	8

lors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE1X4 / 40W / 4000K	Sample ID.	A1
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	0.311	37.1	0.994
277.01	60	0.136	37.3	0.988

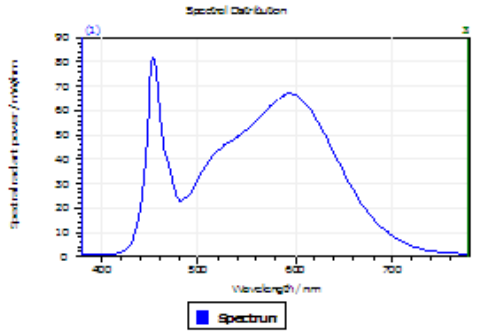
Test Result

CCT (K)	CRI	R9	Duv
4027	84	13	0.0002

Rf	Rg	IES Rcs,h1
84	94	-12%

4.1 Integrating Sphere Test

Results



Spectral values

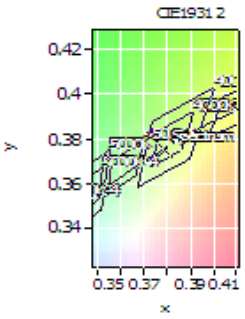
DominantWavelength	579.08 nm
Purity	0.265
PeakWavelength	454.00 nm
Radiant Power	11.71 W
Width50%:	21.75 nm

Color Coordinates

Correlated Color Temperat 4027 K

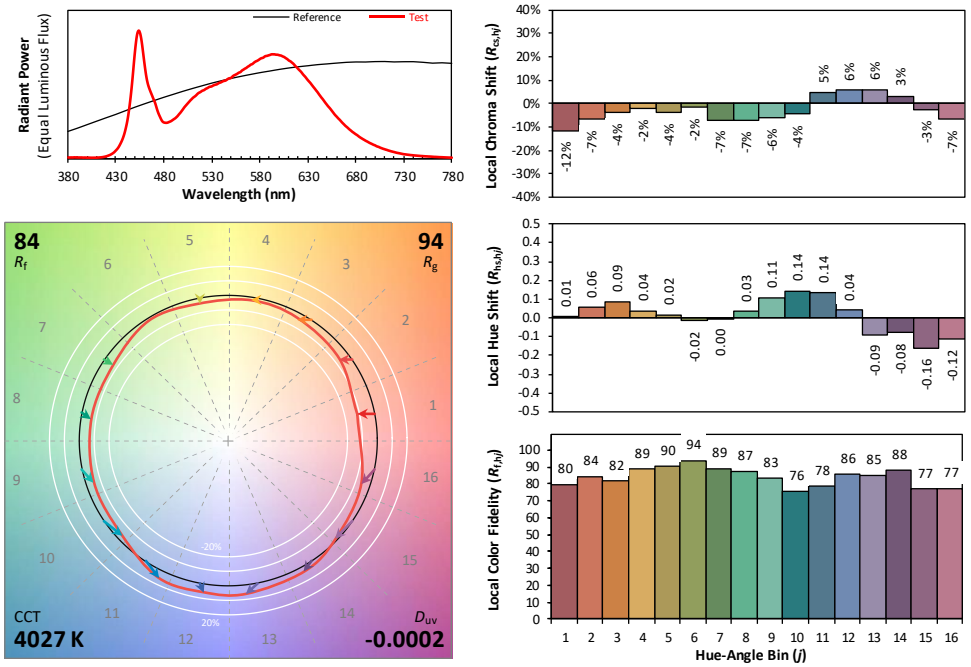
x: 0.3791 u: 0.2247 u': 0.2247
y: 0.3755 v: 0.3339 v': 0.5008

ResultsCRICRI01	83.2	ResultsCRICRI09	12.9
ResultsCRICRI02	92.5	ResultsCRICRI10	81.5
ResultsCRICRI03	95.6	ResultsCRICRI11	80.2
ResultsCRICRI04	81.0	ResultsCRICRI12	62.1
ResultsCRICRI05	82.8	ResultsCRICRI13	86.1
ResultsCRICRI06	88.6	ResultsCRICRI14	98.3
ResultsCRICRI07	84.8	ResultsCRICRI15	76.9
ResultsCRICRI08	64.6	ResultsCRICRI16	72.9
ResultsCRI	84.1		



PlanckDistance 2.0E-004

4.1 Integrating Sphere Test



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

x	0.3791
y	0.3755
u'	0.2247
v'	0.5008

CIE 13.3-1995 (CRI)

R_a	84
R_9	14

lors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE1X4 / 40W / 5000K	Sample ID.	A1
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
120.01	60	0.322	38.4	0.994
277.02	60	0.141	38.6	0.989

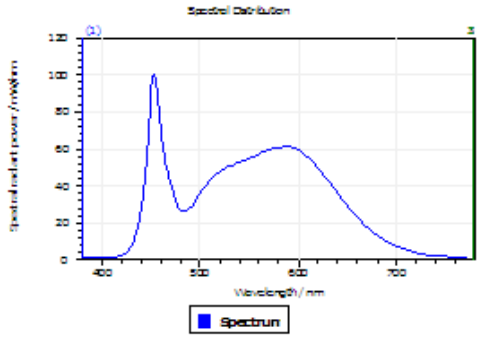
Test Result

CCT (K)	CRI	R9	Duv
4920	84	11	0.0022

Rf	Rg	IES Rcs,h1
84	95	-12%

4.1 Integrating Sphere Test

Results



Spectral values

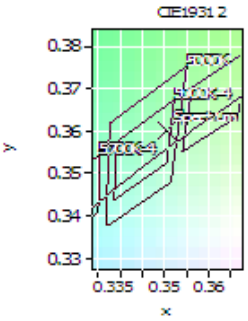
DominantWavelength	572.77 nm
Purity	0.132
PeakWavelength	453.22 nm
Radiant Power	11.81 W
Width50%:	21.09 nm

Color Coordinates

Correlated Color Temperat 4833 K

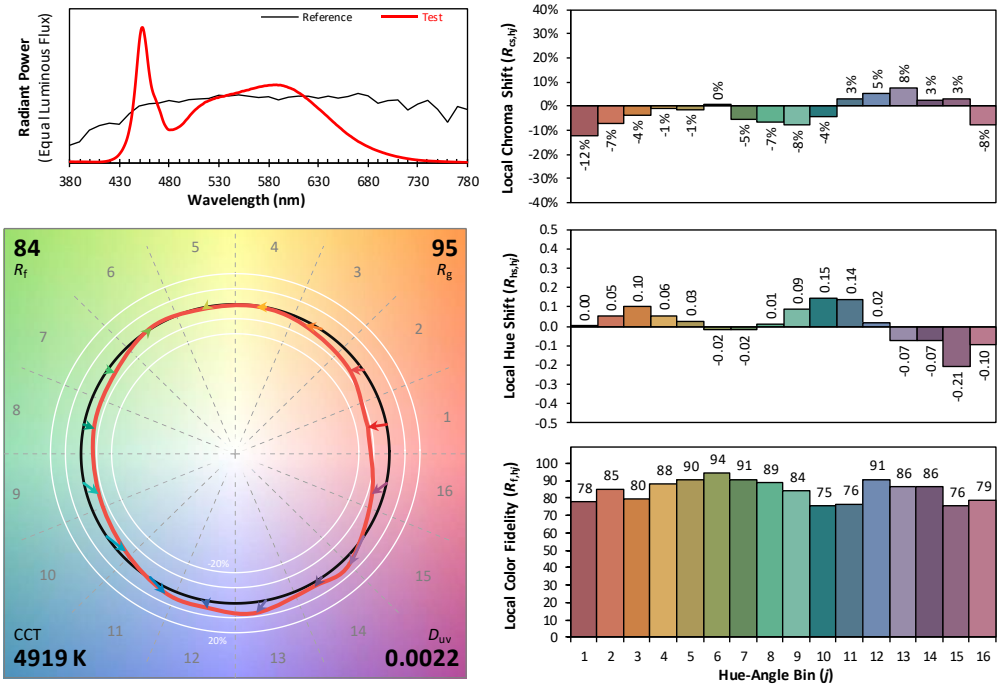
x:	0.3505	u:	0.2118	u':	0.2118
y:	0.3601	v:	0.3264	v':	0.4895

ResultsCRICRI01	81.9	ResultsCRICRI09	10.2
ResultsCRICRI02	90.9	ResultsCRICRI10	77.3
ResultsCRICRI03	95.1	ResultsCRICRI11	79.3
ResultsCRICRI04	80.3	ResultsCRICRI12	56.3
ResultsCRICRI05	81.4	ResultsCRICRI13	84.7
ResultsCRICRI06	85.8	ResultsCRICRI14	97.8
ResultsCRICRI07	86.5	ResultsCRICRI15	75.8
ResultsCRICRI08	66.4	ResultsCRICRI16	71.3
ResultsCRI	83.5		



PlanckDistance 2.1E-003

4.1 Integrating Sphere Test



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

x	0.3479
y	0.3583
u'	0.2107
v'	0.4883

CIE 13.3-1995 (CRI)

R_a	85
R_9	17

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE1X4 / 20W / 3500K	Sample ID.	A1
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	277.04	60	0.097	25.7	0.955
NON-WORST CASE	120.02	60	0.213	25.4	0.993

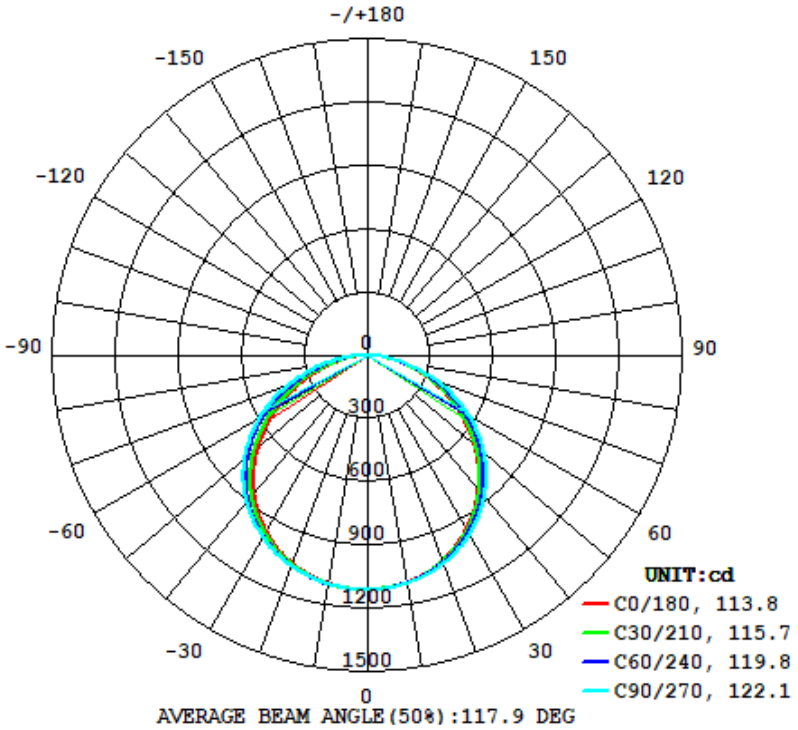
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
3379	162.0	165.0	113.8	122.1	131.5

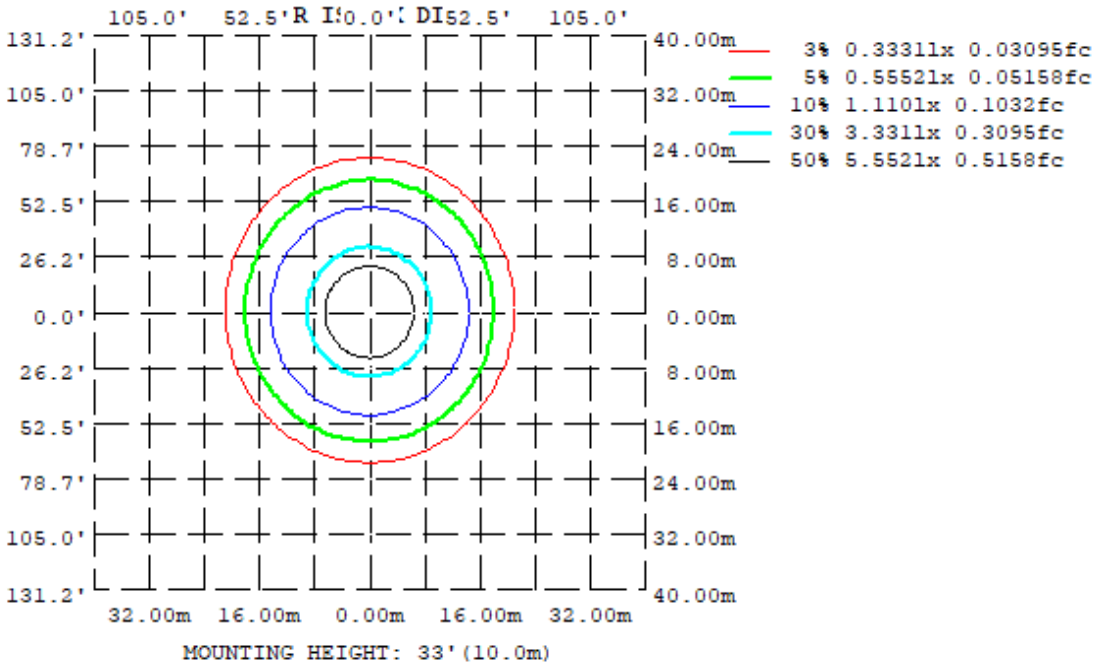
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
77.70%	20.5	1.32	1.30

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	1091	1092	1095	1097	1099	1101	1102	1098
20	1039	1042	1051	1052	1052	1060	1064	1053
30	950.5	960.4	977.3	972.5	967.7	986.8	997.9	975.1
40	826.7	844.2	869.5	856.9	843.9	877.0	898.9	863.7
50	672.2	694.9	730.0	705.2	686.1	730.1	766.1	719.6
60	494.9	517.1	554.2	521.5	501.5	551.9	597.5	546.2
70	307.1	320.5	348.4	318.9	305.6	349.0	396.0	352.4
80	131.0	131.2	138.5	124.2	122.4	150.8	182.0	160.1
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

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	15.8	17.4	16.1	17.7	18.0
	3H	18.1	19.6	18.5	19.9	20.3	17.5	19.0	17.9	19.3	19.7
	4H	18.8	20.2	19.2	20.5	20.9	18.1	19.5	18.5	19.9	20.3
	6H	19.2	20.6	19.7	20.9	21.3	18.6	19.9	19.0	20.3	20.6
	8H	19.4	20.6	19.8	21.0	21.4	18.7	20.0	19.1	20.4	20.8
	12H	19.5	20.7	19.9	21.0	21.5	18.8	20.0	19.2	20.4	20.8
4H	2H	16.8	18.2	17.2	18.6	18.9	16.5	17.9	16.9	18.2	18.6
	3H	18.9	20.1	19.3	20.5	20.9	18.4	19.6	18.9	20.0	20.4
	4H	19.7	20.8	20.1	21.2	21.6	19.2	20.3	19.6	20.7	21.1
	6H	20.3	21.2	20.7	21.7	22.1	19.7	20.7	20.2	21.1	21.6
	8H	20.5	21.4	20.9	21.8	22.3	19.9	20.8	20.4	21.2	21.7
	12H	20.6	21.4	21.1	21.9	22.3	20.0	20.8	20.5	21.3	21.8
8H	4H	20.0	20.8	20.4	21.3	21.7	19.5	20.4	20.0	20.9	21.3
	6H	20.7	21.4	21.2	21.9	22.4	20.2	21.0	20.7	21.4	21.9
	8H	20.9	21.6	21.4	22.1	22.6	20.5	21.1	21.0	21.6	22.1
	12H	21.1	21.7	21.6	22.2	22.7	20.6	21.2	21.1	21.7	22.3
12H	4H	20.0	20.8	20.5	21.3	21.7	19.6	20.4	20.1	20.9	21.3
	6H	20.7	21.4	21.2	21.8	22.4	20.3	21.0	20.8	21.4	22.0
	8H	21.0	21.6	21.5	22.1	22.6	20.6	21.2	21.1	21.7	22.2

Maximum UGR = 22.7

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

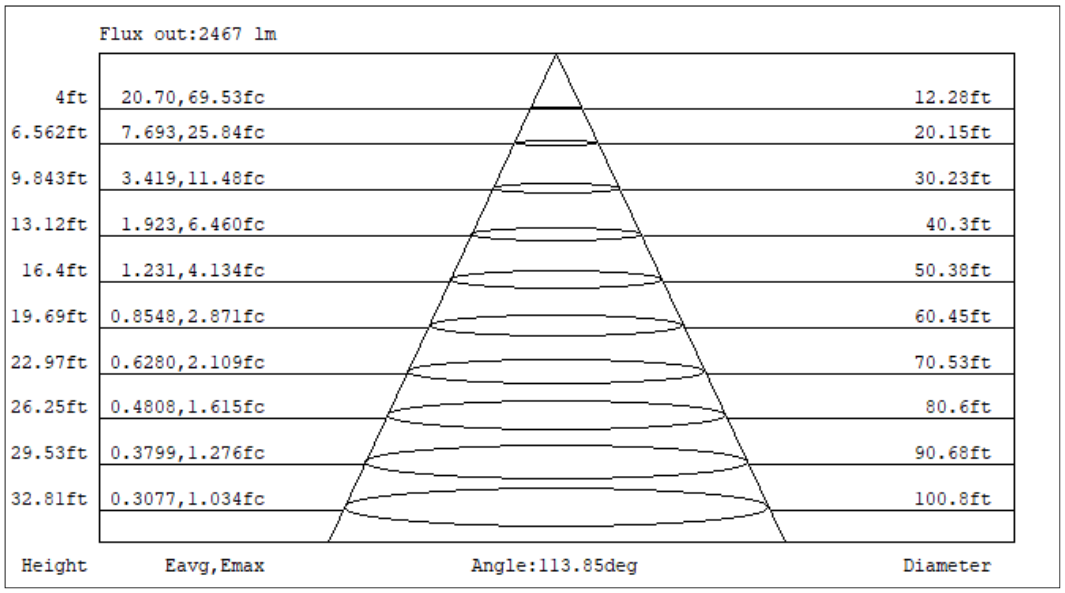
	Zonal (lm)		Total (lm)	Percent
0-10	105.39	0 - 10	105.39	3.12%
10-20	304.53	0 - 20	409.92	12.13%
20-30	468.78	0 - 30	878.70	26.01%
30-40	576.32	0 - 40	1455.02	43.06%
40-50	609.81	0 - 50	2064.83	61.11%
50-60	560.67	0 - 60	2625.50	77.70%
60-70	433.16	0 - 70	3058.66	90.52%
70-80	251.04	0 - 80	3309.70	97.95%
80-90	69.15	0 - 90	3378.85	100.00%
90-100	0.00	0 - 100	3378.85	100.00%
100-110	0.00	0 - 110	3378.85	100.00%
110-120	0.00	0 - 120	3378.85	100.00%
120-130	0.00	0 - 130	3378.85	100.00%
130-140	0.00	0 - 140	3378.85	100.00%
140-150	0.00	0 - 150	3378.85	100.00%
150-160	0.00	0 - 160	3378.85	100.00%
160-170	0.00	0 - 170	3378.85	100.00%
170-180	0.00	0 - 180	3378.85	100.00%

4.2 Goniophotometer Test

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	104	99	95	106	101	97	94	97	94	91	93	90	88	89	87	85	83
2	98	90	83	77	96	88	82	76	84	79	74	81	77	73	78	74	71	69
3	89	79	70	64	87	77	69	63	74	67	62	71	66	61	69	64	60	58
4	82	70	61	54	79	68	60	53	66	58	53	63	57	52	61	56	51	49
5	75	62	53	46	73	61	52	46	59	51	45	57	50	45	55	49	44	42
6	69	56	47	40	67	55	46	40	53	45	39	51	44	39	50	44	39	37
7	64	50	41	35	62	50	41	35	48	40	35	47	40	35	45	39	34	32
8	60	46	37	31	58	45	37	31	44	36	31	43	36	31	41	35	31	29
9	56	42	34	28	54	41	34	28	40	33	28	39	33	28	38	32	28	26
10	52	39	31	25	51	38	31	25	37	30	25	36	30	25	35	29	25	23

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE1X4 / 20W / 4000K	Sample ID.	A1
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	277.04	60	0.095	25.2	0.953
NON-WORST CASE	120.04	60	0.209	24.9	0.993

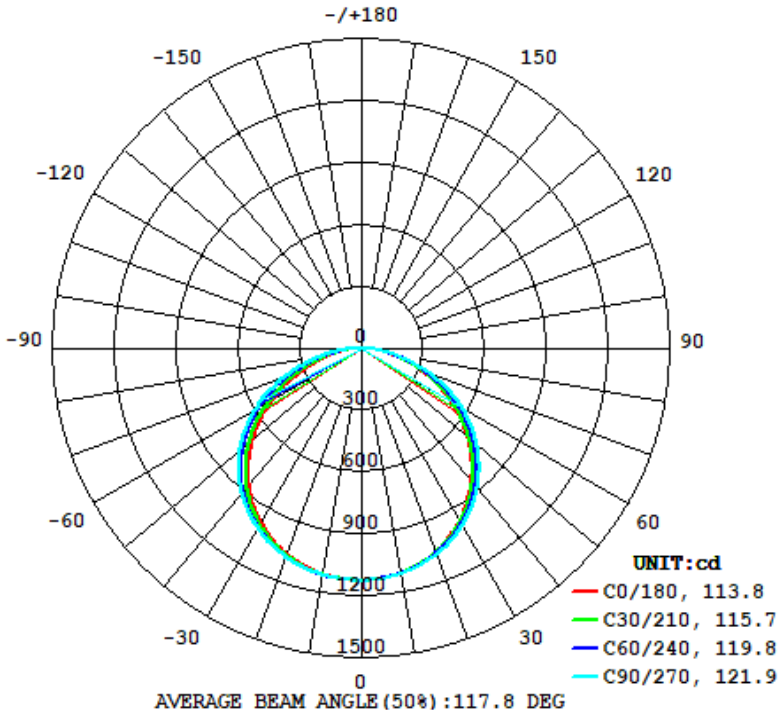
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
3415	161.9	164.9	113.8	121.9	135.5

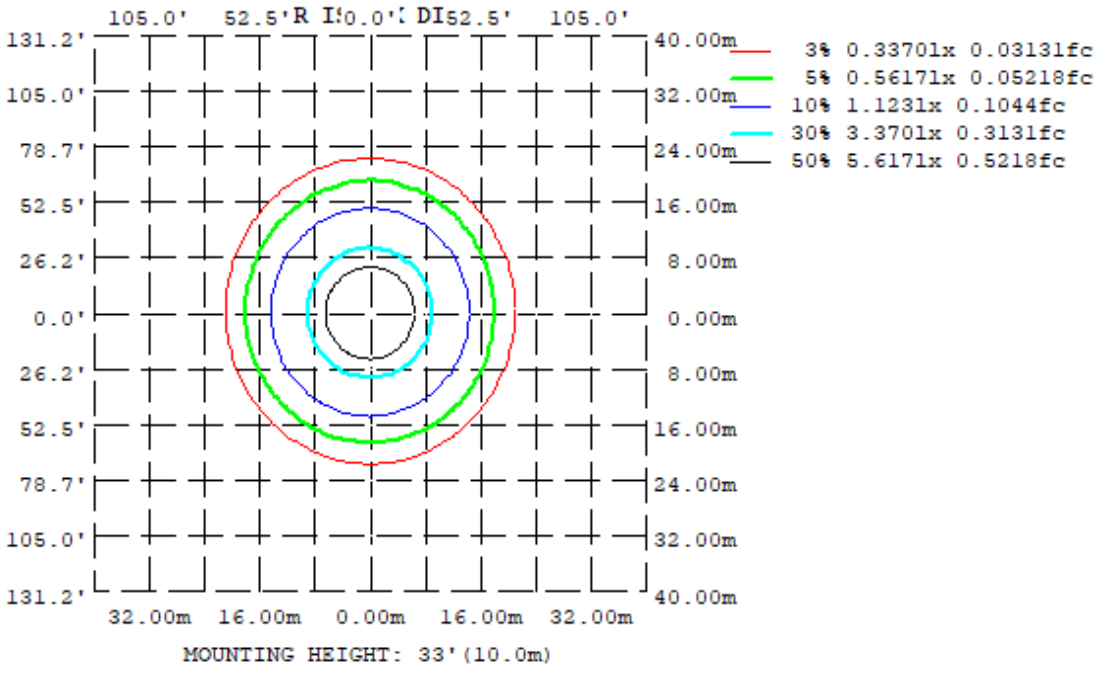
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
77.72%	20.5	1.32	1.30

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	1103	1104	1107	1109	1111	1114	1114	1109
20	1050	1055	1061	1064	1064	1073	1078	1064
30	960.7	970.0	986.3	983.4	979.1	997.4	1009	987.1
40	835.9	852.9	879.0	866.0	853.5	886.4	908.9	873.9
50	679.2	701.7	736.8	712.0	694.6	739.1	775.7	727.5
60	500.3	522.0	559.3	526.7	507.6	557.9	603.8	552.4
70	310.5	323.3	350.3	321.7	309.1	353.0	400.1	356.1
80	132.8	132.5	139.5	125.5	123.6	152.0	183.2	161.3
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

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	16.3	18.0	16.7	18.3	18.6	15.9	17.5	16.2	17.8	18.1
	3H	18.2	19.7	18.6	20.0	20.4	17.6	19.1	18.0	19.4	19.8
	4H	18.9	20.3	19.3	20.6	21.0	18.2	19.6	18.6	20.0	20.4
	6H	19.3	20.7	19.8	21.0	21.4	18.7	20.0	19.1	20.4	20.7
	8H	19.5	20.7	19.9	21.1	21.5	18.8	20.1	19.2	20.5	20.9
	12H	19.5	20.8	20.0	21.1	21.6	18.9	20.1	19.3	20.5	20.9
4H	2H	16.9	18.3	17.3	18.6	19.0	16.6	18.0	17.0	18.3	18.7
	3H	19.0	20.2	19.4	20.6	21.0	18.5	19.7	19.0	20.1	20.5
	4H	19.8	20.9	20.2	21.3	21.7	19.3	20.4	19.7	20.8	21.2
	6H	20.4	21.3	20.8	21.8	22.2	19.8	20.8	20.3	21.2	21.7
	8H	20.5	21.4	21.0	21.9	22.3	20.0	20.9	20.5	21.3	21.8
	12H	20.7	21.5	21.2	21.9	22.4	20.1	20.9	20.6	21.4	21.9
8H	4H	20.0	20.9	20.5	21.4	21.8	19.6	20.5	20.1	21.0	21.4
	6H	20.7	21.5	21.2	22.0	22.5	20.3	21.1	20.8	21.5	22.0
	8H	21.0	21.7	21.5	22.2	22.6	20.6	21.2	21.1	21.7	22.2
	12H	21.2	21.7	21.7	22.2	22.8	20.7	21.3	21.2	21.8	22.4
12H	4H	20.1	20.9	20.6	21.3	21.8	19.7	20.5	20.2	21.0	21.4
	6H	20.8	21.5	21.3	21.9	22.5	20.4	21.1	20.9	21.5	22.1
	8H	21.1	21.7	21.6	22.2	22.7	20.7	21.3	21.2	21.8	22.3

Maximum UGR = 22.8

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

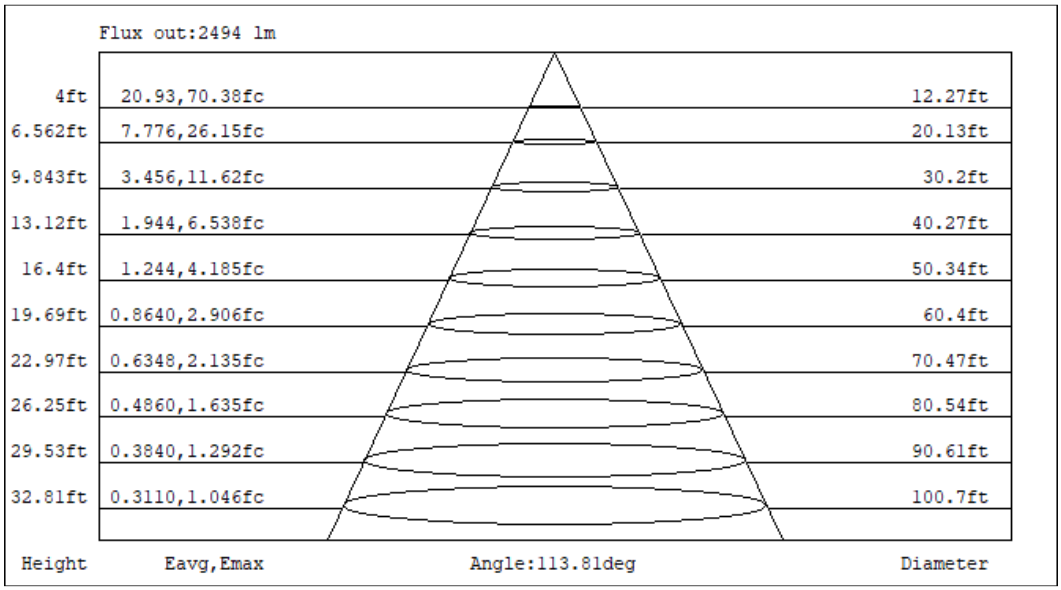
	Zonal (lm)		Total (lm)	Percent
0-10	106.58	0 - 10	106.58	3.12%
10-20	307.97	0 - 20	414.55	12.14%
20-30	474.03	0 - 30	888.58	26.02%
30-40	582.62	0 - 40	1471.20	43.08%
40-50	616.23	0 - 50	2087.43	61.13%
50-60	566.43	0 - 60	2653.86	77.72%
60-70	437.52	0 - 70	3091.38	90.53%
70-80	253.51	0 - 80	3344.89	97.96%
80-90	69.78	0 - 90	3414.67	100.00%
90-100	0.00	0 - 100	3414.67	100.00%
100-110	0.00	0 - 110	3414.67	100.00%
110-120	0.00	0 - 120	3414.67	100.00%
120-130	0.00	0 - 130	3414.67	100.00%
130-140	0.00	0 - 140	3414.67	100.00%
140-150	0.00	0 - 150	3414.67	100.00%
150-160	0.00	0 - 160	3414.67	100.00%
160-170	0.00	0 - 170	3414.67	100.00%
170-180	0.00	0 - 180	3414.67	100.00%

4.2 Goniophotometer Test

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	104	99	95	106	101	97	94	97	94	91	93	90	88	89	87	85	83
2	98	90	83	77	96	88	82	76	84	79	74	81	77	73	78	74	71	69
3	89	79	70	64	87	77	69	63	74	67	62	71	66	61	69	64	60	58
4	82	70	61	54	79	68	60	53	66	58	53	63	57	52	61	56	51	49
5	75	62	53	46	73	61	52	46	59	51	45	57	50	45	55	49	44	42
6	69	56	47	40	67	55	46	40	53	45	39	51	44	39	50	44	39	37
7	64	50	41	35	62	50	41	35	48	40	35	47	40	35	45	39	34	32
8	60	46	37	31	58	45	37	31	44	36	31	43	36	31	41	35	31	29
9	56	42	34	28	54	41	34	28	40	33	28	39	33	28	38	32	28	26
10	52	39	31	25	51	38	31	25	37	30	25	36	30	25	35	29	25	23

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE1X4 / 20W / 5000K	Sample ID.	A1
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	277.04	60	0.097	25.7	0.955
NON-WORST CASE	120.04	60	0.213	25.4	0.993

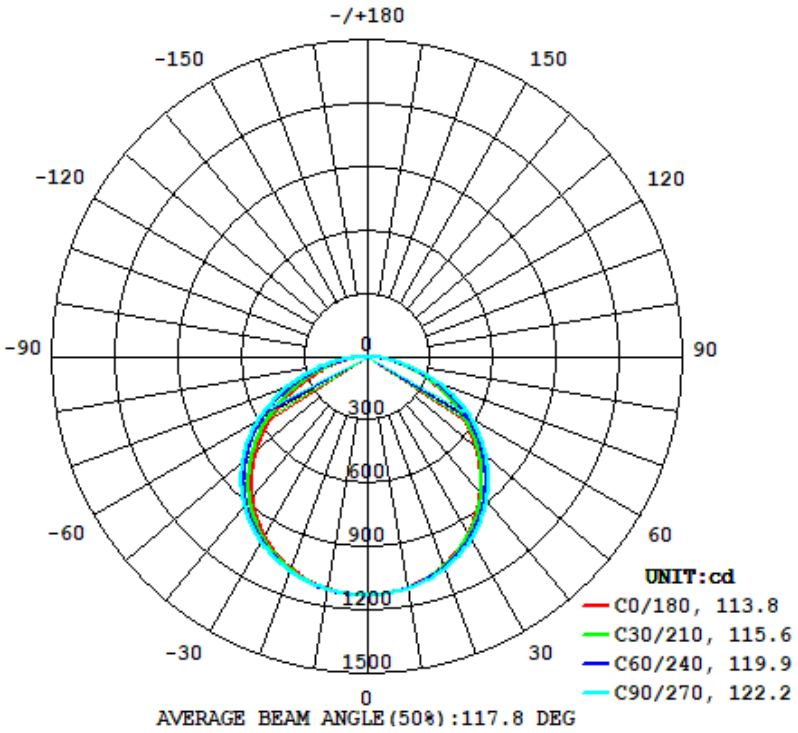
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
3432	161.9	165.0	113.8	122.2	133.4

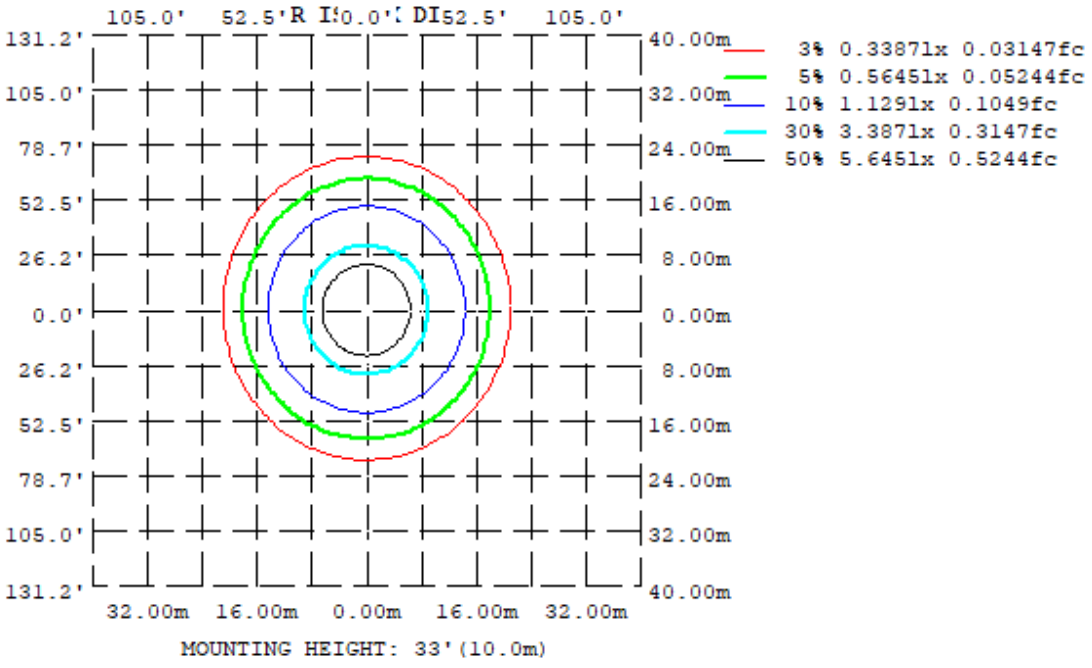
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
77.69%	20.6	1.32	1.30

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	1108	1110	1114	1115	1116	1119	1118	1114
20	1054	1059	1068	1069	1069	1078	1080	1070
30	964.7	975.9	992.8	988.7	982.1	1002	1012	989.1
40	839.3	857.9	885.7	871.4	856.7	889.2	913.1	876.7
50	682.6	706.5	743.4	717.6	695.7	740.8	778.4	730.1
60	502.8	525.1	564.2	531.0	509.1	559.6	607.4	554.6
70	311.9	326.4	354.7	324.8	310.0	354.6	402.1	357.3
80	133.4	134.0	141.7	127.2	123.9	152.4	184.3	161.9
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

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	16.3	18.0	16.7	18.3	18.6	15.8	17.5	16.2	17.8	18.1
	3H	18.2	19.7	18.6	20.1	20.4	17.6	19.1	18.0	19.4	19.8
	4H	18.9	20.3	19.3	20.7	21.0	18.2	19.6	18.6	20.0	20.4
	6H	19.4	20.7	19.8	21.1	21.4	18.7	20.0	19.1	20.3	20.7
	8H	19.5	20.8	19.9	21.2	21.6	18.8	20.1	19.2	20.4	20.8
	12H	19.6	20.8	20.0	21.2	21.6	18.9	20.1	19.3	20.5	20.9
4H	2H	16.9	18.3	17.3	18.7	19.0	16.6	18.0	17.0	18.3	18.7
	3H	19.0	20.2	19.4	20.6	21.0	18.5	19.7	19.0	20.1	20.5
	4H	19.8	20.9	20.3	21.3	21.7	19.3	20.4	19.7	20.8	21.2
	6H	20.4	21.4	20.9	21.8	22.3	19.8	20.8	20.3	21.2	21.7
	8H	20.6	21.5	21.1	21.9	22.4	20.0	20.9	20.5	21.3	21.8
	12H	20.7	21.5	21.2	22.0	22.5	20.1	20.9	20.6	21.4	21.9
8H	4H	20.1	21.0	20.5	21.4	21.9	19.6	20.5	20.1	21.0	21.4
	6H	20.8	21.5	21.3	22.0	22.5	20.3	21.1	20.8	21.5	22.0
	8H	21.0	21.7	21.5	22.2	22.7	20.5	21.2	21.1	21.7	22.2
	12H	21.2	21.8	21.7	22.3	22.8	20.7	21.3	21.2	21.8	22.4
12H	4H	20.1	20.9	20.6	21.4	21.8	19.7	20.5	20.2	21.0	21.4
	6H	20.8	21.5	21.4	22.0	22.5	20.4	21.1	20.9	21.5	22.1
	8H	21.1	21.7	21.6	22.2	22.8	20.7	21.3	21.2	21.8	22.3

Maximum UGR = 22.8

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

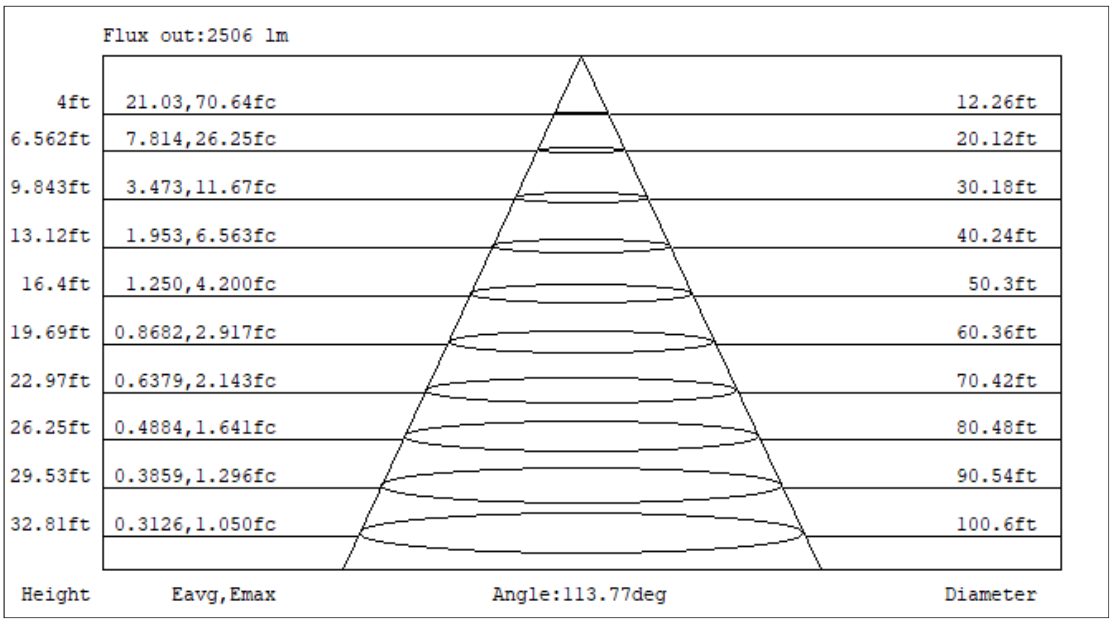
	Zonal (lm)		Total (lm)	Percent
0-10	107.06	0 - 10	107.06	3.12%
10-20	309.34	0 - 20	416.40	12.13%
20-30	476.18	0 - 30	892.58	26.00%
30-40	585.34	0 - 40	1477.92	43.06%
40-50	619.38	0 - 50	2097.30	61.10%
50-60	569.57	0 - 60	2666.87	77.69%
60-70	440.18	0 - 70	3107.05	90.52%
70-80	255.17	0 - 80	3362.22	97.95%
80-90	70.27	0 - 90	3432.49	100.00%
90-100	0.00	0 - 100	3432.49	100.00%
100-110	0.00	0 - 110	3432.49	100.00%
110-120	0.00	0 - 120	3432.49	100.00%
120-130	0.00	0 - 130	3432.49	100.00%
130-140	0.00	0 - 140	3432.49	100.00%
140-150	0.00	0 - 150	3432.49	100.00%
150-160	0.00	0 - 160	3432.49	100.00%
160-170	0.00	0 - 170	3432.49	100.00%
170-180	0.00	0 - 180	3432.49	100.00%

4.2 Goniophotometer Test

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	104	99	95	106	101	97	94	97	94	91	93	90	88	89	87	85	83
2	98	90	83	77	96	88	82	76	84	79	74	81	77	73	78	74	71	69
3	89	79	70	64	87	77	69	63	74	67	62	71	66	61	69	64	60	58
4	82	70	61	54	79	68	60	53	66	58	53	63	57	52	61	56	51	49
5	75	62	53	46	73	61	52	46	59	51	45	57	50	45	55	49	44	42
6	69	56	47	40	67	55	46	40	53	45	39	51	44	39	50	44	39	37
7	64	50	41	35	62	50	41	35	48	40	35	47	40	35	45	39	34	32
8	60	46	37	31	58	45	37	31	44	36	31	43	36	31	41	35	31	29
9	56	42	34	28	54	41	34	28	40	33	28	39	33	28	38	32	28	26
10	52	39	31	25	51	38	31	25	37	30	25	36	30	25	35	29	25	23

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE1X4 / 30W / 3500K	Sample ID.	A1
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	277.04	60	0.110	29.6	0.971
NON-WORST CASE	120.04	60	0.241	28.8	0.996

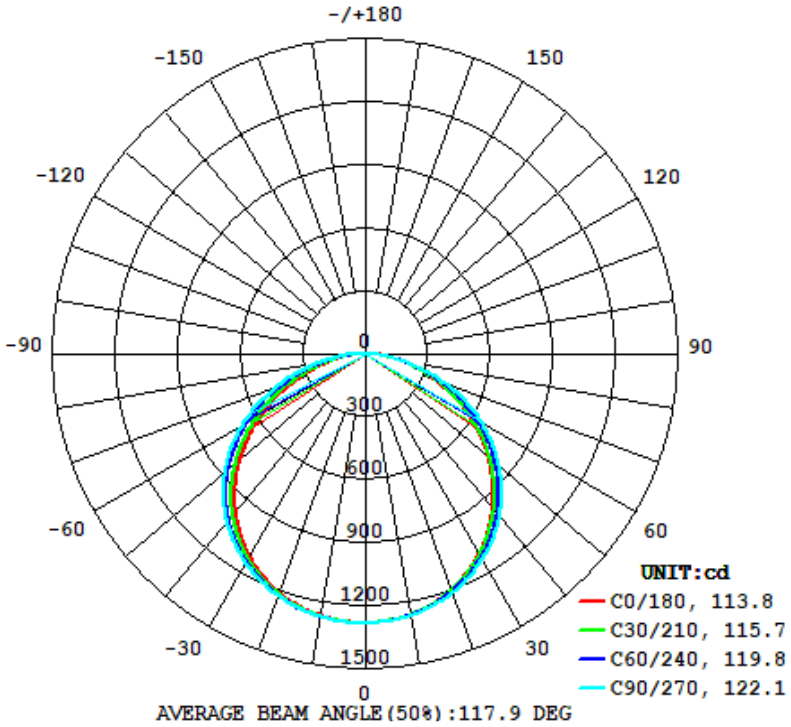
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
3896	162.0	165.0	113.8	122.1	131.5

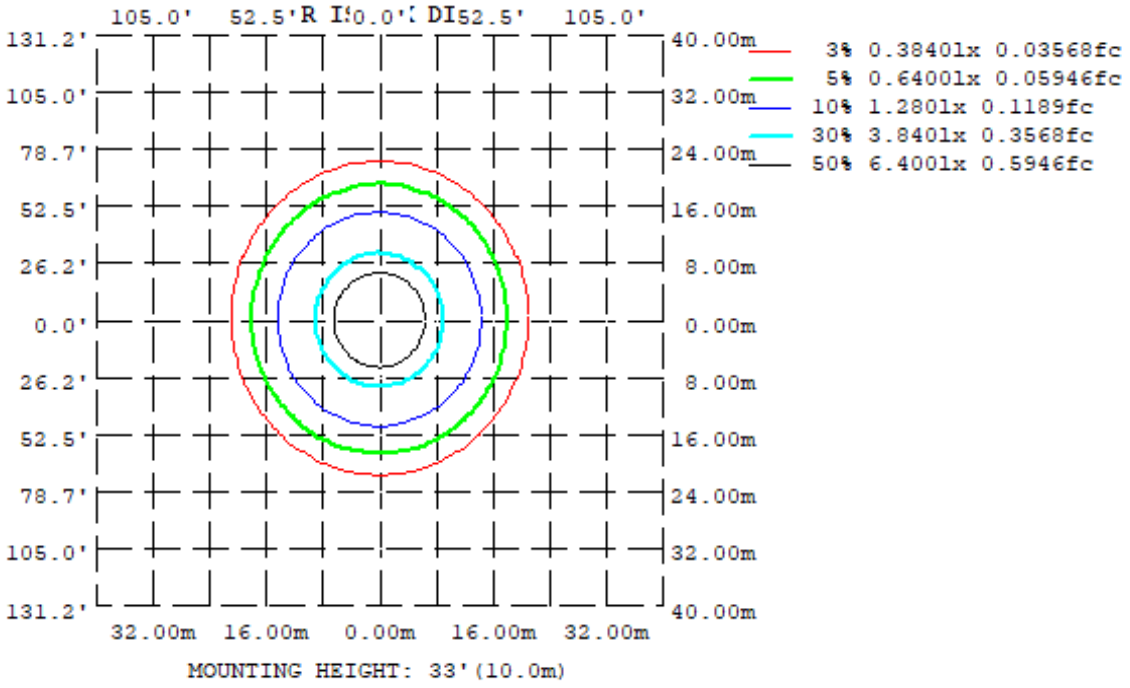
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
77.70%	21.0	1.32	1.30

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	1257	1258	1262	1265	1266	1270	1270	1265
20	1196	1200	1211	1213	1213	1223	1227	1214
30	1095	1107	1126	1121	1115	1138	1150	1125
40	951.9	973.1	1004	987.7	972.9	1011	1037	996.3
50	773.9	800.7	842.0	813.0	790.2	841.4	883.9	830.2
60	569.9	595.0	638.6	601.4	579.2	635.8	689.8	630.6
70	353.6	369.3	401.0	367.6	352.8	403.3	457.2	407.0
80	150.6	151.3	159.5	143.2	142.0	173.6	210.1	184.7
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

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	16.7	18.4	17.1	18.7	19.0	16.3	17.9	16.6	18.2	18.5
	3H	18.6	20.1	19.0	20.4	20.8	18.0	19.5	18.4	19.8	20.2
	4H	19.3	20.7	19.7	21.0	21.4	18.6	20.1	19.0	20.4	20.8
	6H	19.7	21.1	20.2	21.4	21.8	19.1	20.4	19.5	20.8	21.1
	8H	19.9	21.1	20.3	21.5	21.9	19.2	20.5	19.6	20.9	21.3
	12H	20.0	21.2	20.4	21.5	22.0	19.3	20.5	19.7	20.9	21.3
4H	2H	17.3	18.7	17.7	19.1	19.4	17.0	18.4	17.4	18.8	19.1
	3H	19.4	20.6	19.8	21.0	21.4	18.9	20.1	19.4	20.5	20.9
	4H	20.2	21.3	20.6	21.7	22.1	19.7	20.8	20.1	21.2	21.6
	6H	20.8	21.7	21.2	22.2	22.6	20.2	21.2	20.7	21.6	22.1
	8H	21.0	21.9	21.4	22.3	22.8	20.4	21.3	20.9	21.7	22.2
	12H	21.1	21.9	21.6	22.4	22.8	20.5	21.3	21.0	21.8	22.3
8H	4H	20.4	21.3	20.9	21.8	22.2	20.0	20.9	20.5	21.4	21.8
	6H	21.2	21.9	21.6	22.4	22.9	20.7	21.5	21.2	22.0	22.4
	8H	21.4	22.1	21.9	22.6	23.1	21.0	21.6	21.5	22.1	22.6
	12H	21.6	22.2	22.1	22.6	23.2	21.1	21.7	21.6	22.2	22.8
12H	4H	20.5	21.3	21.0	21.8	22.2	20.1	20.9	20.6	21.4	21.8
	6H	21.2	21.9	21.7	22.3	22.9	20.8	21.5	21.3	21.9	22.5
	8H	21.5	22.1	22.0	22.6	23.1	21.1	21.7	21.6	22.2	22.7

Maximum UGR = 23.2

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

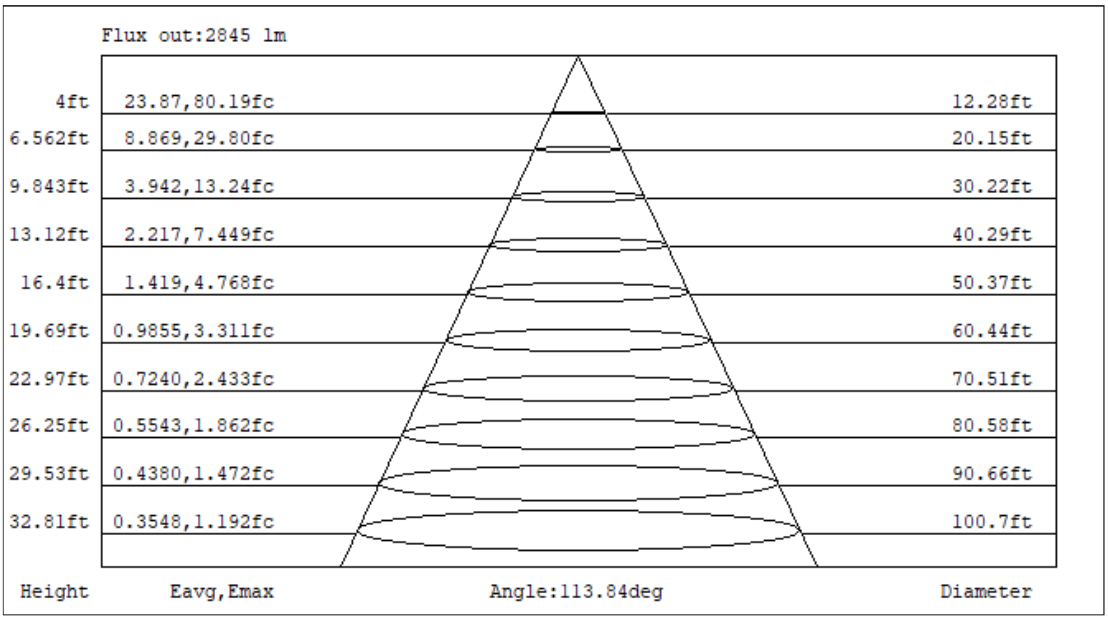
	Zonal (lm)		Total (lm)	Percent
0-10	121.50	0 - 10	121.50	3.12%
10-20	351.07	0 - 20	472.57	12.13%
20-30	540.45	0 - 30	1013.02	26.00%
30-40	664.43	0 - 40	1677.45	43.06%
40-50	703.05	0 - 50	2380.50	61.10%
50-60	646.50	0 - 60	3027.00	77.70%
60-70	499.56	0 - 70	3526.56	90.52%
70-80	289.56	0 - 80	3816.12	97.95%
80-90	79.77	0 - 90	3895.89	100.00%
90-100	0.00	0 - 100	3895.89	100.00%
100-110	0.00	0 - 110	3895.89	100.00%
110-120	0.00	0 - 120	3895.89	100.00%
120-130	0.00	0 - 130	3895.89	100.00%
130-140	0.00	0 - 140	3895.89	100.00%
140-150	0.00	0 - 150	3895.89	100.00%
150-160	0.00	0 - 160	3895.89	100.00%
160-170	0.00	0 - 170	3895.89	100.00%
170-180	0.00	0 - 180	3895.89	100.00%

4.2 Goniophotometer Test

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	104	99	95	106	101	97	94	97	94	91	93	90	88	89	87	85	83
2	98	90	83	77	96	88	82	76	84	79	74	81	77	73	78	74	71	69
3	89	79	70	64	87	77	69	63	74	67	62	71	66	61	69	64	60	58
4	82	70	61	54	79	68	60	53	66	58	53	63	57	52	61	56	51	49
5	75	62	53	46	73	61	52	46	59	51	45	57	50	45	55	49	44	42
6	69	56	47	40	67	55	46	40	53	45	39	51	44	39	50	43	39	37
7	64	50	41	35	62	50	41	35	48	40	35	47	40	35	45	39	34	32
8	60	46	37	31	58	45	37	31	44	36	31	43	36	31	41	35	31	29
9	56	42	34	28	54	41	33	28	40	33	28	39	33	28	38	32	28	26
10	52	39	31	25	51	38	31	25	37	30	25	36	30	25	35	29	25	23

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE1X4 / 30W / 4000K	Sample ID.	A1
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	277.04	60	0.108	29.0	0.969
NON-WORST CASE	120.02	60	0.238	28.4	0.995

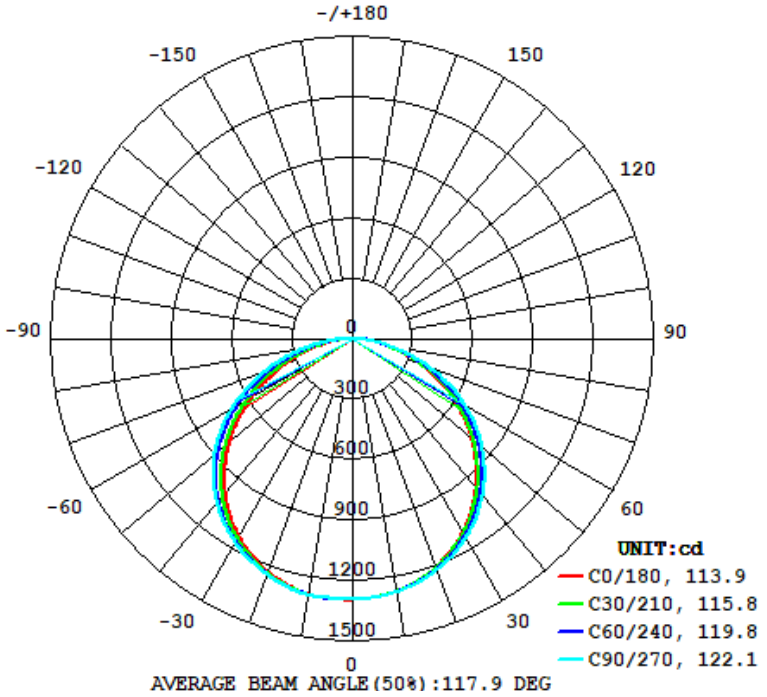
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
3944	162.0	165.1	113.9	122.1	136.0

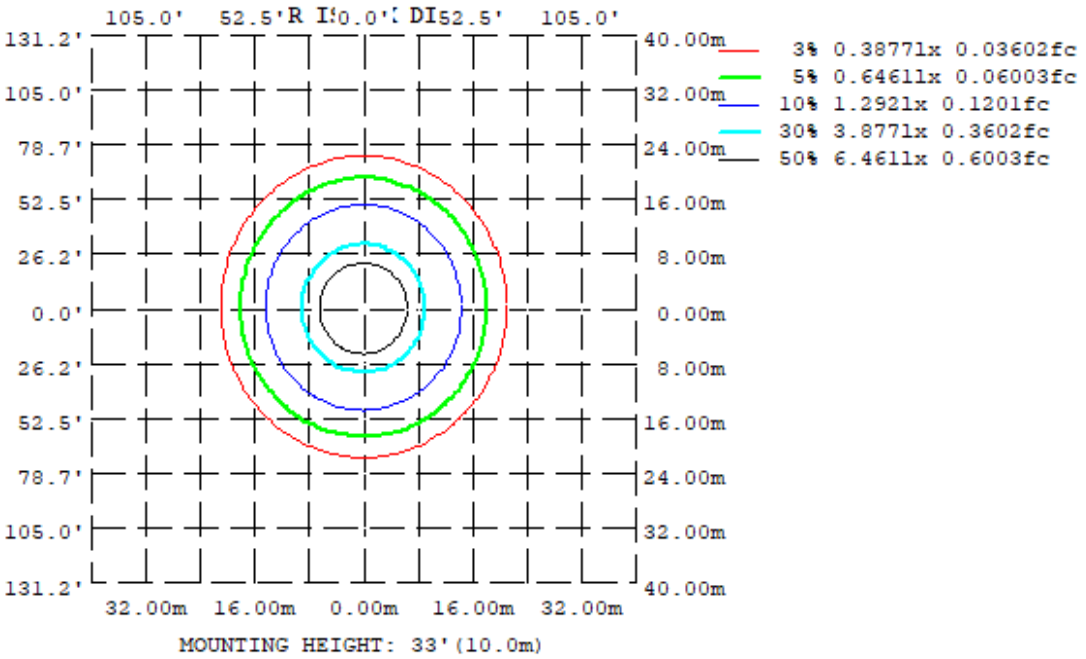
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
77.66%	21.1	1.32	1.30

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	1271	1270	1274	1277	1288	1290	1291	1283
20	1208	1212	1220	1222	1233	1242	1245	1232
30	1106	1116	1135	1131	1134	1157	1167	1142
40	962.2	981.6	1012	994.9	989.0	1028	1053	1013
50	782.3	807.5	847.2	819.6	803.6	855.3	898.2	843.1
60	580.1	602.8	642.5	609.7	587.1	645.5	699.6	638.9
70	360.6	375.2	406.8	372.8	357.5	408.6	464.0	411.9
80	153.8	153.7	161.9	145.2	143.7	175.3	212.1	186.3
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

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	16.8	18.4	17.1	18.7	19.1	16.4	18.0	16.7	18.4	18.7
	3H	18.7	20.2	19.1	20.5	20.9	18.1	19.6	18.5	20.0	20.3
	4H	19.4	20.8	19.8	21.1	21.5	18.7	20.2	19.1	20.5	20.9
	6H	19.8	21.2	20.2	21.5	21.9	19.2	20.5	19.6	20.9	21.3
	8H	20.0	21.2	20.4	21.6	22.0	19.3	20.6	19.7	21.0	21.4
	12H	20.1	21.3	20.5	21.6	22.1	19.4	20.6	19.8	21.0	21.4
4H	2H	17.3	18.8	17.7	19.1	19.5	17.1	18.5	17.5	18.9	19.2
	3H	19.5	20.7	19.9	21.1	21.5	19.1	20.3	19.5	20.7	21.1
	4H	20.3	21.4	20.7	21.8	22.2	19.8	20.9	20.2	21.3	21.7
	6H	20.9	21.8	21.3	22.3	22.7	20.4	21.3	20.8	21.7	22.2
	8H	21.1	22.0	21.5	22.4	22.9	20.5	21.4	21.0	21.9	22.3
	12H	21.2	22.0	21.7	22.5	22.9	20.7	21.4	21.1	21.9	22.4
8H	4H	20.5	21.4	21.0	21.9	22.3	20.2	21.1	20.6	21.5	22.0
	6H	21.3	22.0	21.8	22.5	23.0	20.8	21.6	21.3	22.1	22.5
	8H	21.5	22.2	22.0	22.7	23.2	21.1	21.7	21.6	22.2	22.7
	12H	21.7	22.3	22.2	22.8	23.3	21.2	21.8	21.8	22.3	22.9
12H	4H	20.6	21.4	21.1	21.9	22.3	20.2	21.0	20.7	21.5	22.0
	6H	21.3	22.0	21.8	22.4	23.0	20.9	21.6	21.4	22.1	22.6
	8H	21.6	22.2	22.1	22.7	23.2	21.2	21.8	21.7	22.3	22.8

Maximum UGR = 23.3

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

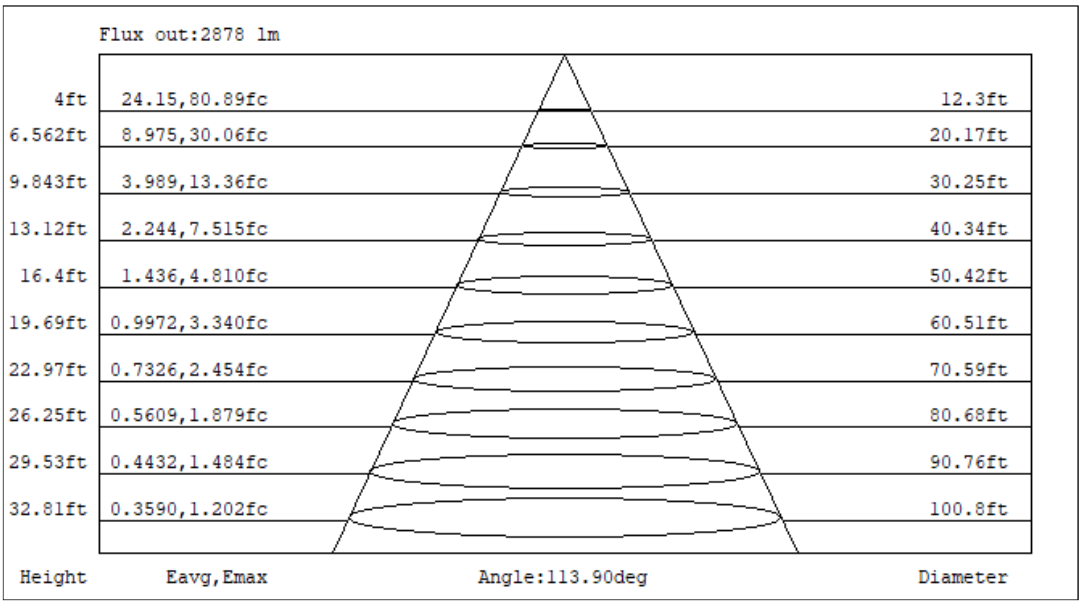
	Zonal (lm)		Total (lm)	Percent
0-10	122.85	0 - 10	122.85	3.11%
10-20	355.42	0 - 20	478.27	12.13%
20-30	547.08	0 - 30	1025.35	26.00%
30-40	672.43	0 - 40	1697.78	43.05%
40-50	711.28	0 - 50	2409.06	61.08%
50-60	653.98	0 - 60	3063.04	77.66%
60-70	506.63	0 - 70	3569.67	90.50%
70-80	293.65	0 - 80	3863.32	97.95%
80-90	80.87	0 - 90	3944.19	100.00%
90-100	0.00	0 - 100	3944.19	100.00%
100-110	0.00	0 - 110	3944.19	100.00%
110-120	0.00	0 - 120	3944.19	100.00%
120-130	0.00	0 - 130	3944.19	100.00%
130-140	0.00	0 - 140	3944.19	100.00%
140-150	0.00	0 - 150	3944.19	100.00%
150-160	0.00	0 - 160	3944.19	100.00%
160-170	0.00	0 - 170	3944.19	100.00%
170-180	0.00	0 - 180	3944.19	100.00%

4.2 Goniophotometer Test

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	104	99	95	106	101	97	94	97	94	91	93	90	88	89	87	85	83
2	98	90	83	77	96	88	82	76	84	79	74	81	77	73	78	74	71	69
3	89	79	70	64	87	77	69	63	74	67	62	71	66	61	69	64	60	58
4	82	70	61	54	79	68	60	53	66	58	53	63	57	52	61	56	51	49
5	75	62	53	46	73	61	52	46	59	51	45	57	50	45	55	49	44	42
6	69	56	47	40	67	55	46	40	53	45	39	51	44	39	50	43	39	37
7	64	50	41	35	62	50	41	35	48	40	35	47	40	35	45	39	34	32
8	60	46	37	31	58	45	37	31	44	36	31	43	36	31	41	35	31	29
9	56	42	34	28	54	41	33	28	40	33	28	39	33	28	38	32	28	26
10	52	39	31	25	51	38	31	25	37	30	25	36	30	25	35	29	25	23

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE1X4 / 30W / 5000K	Sample ID.	A1
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	277.03	60	0.110	29.7	0.971
NON-WORST CASE	120.05	60	0.246	29.4	0.994

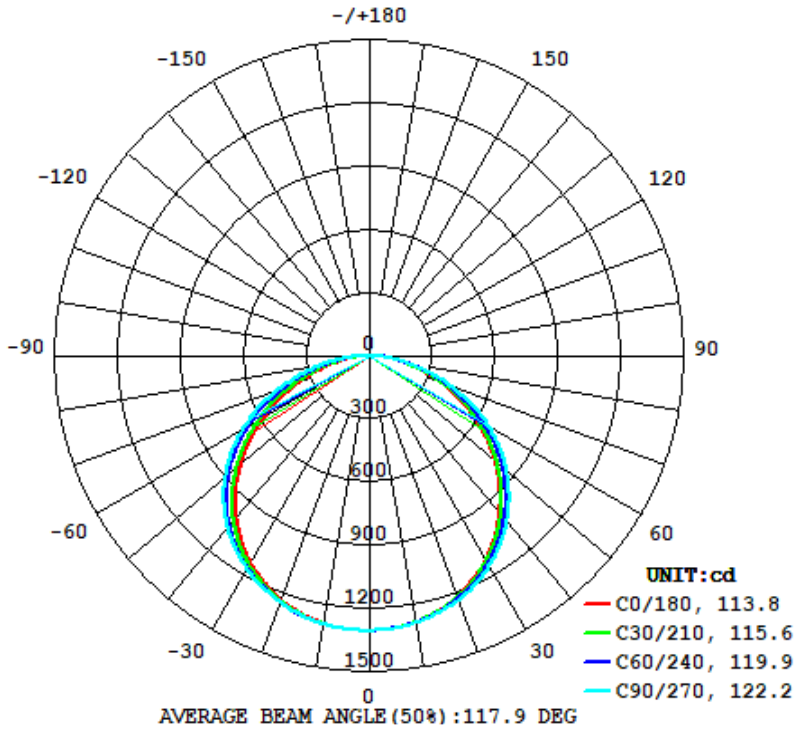
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
3965	161.9	165.0	113.8	122.2	133.5

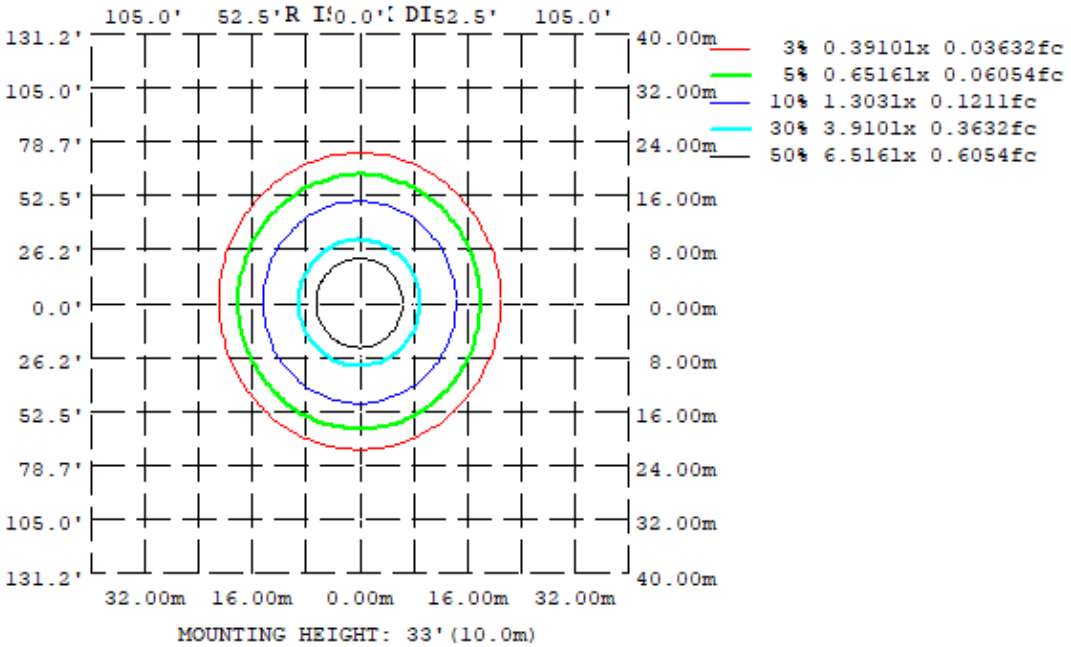
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
77.69%	21.1	1.32	1.30

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	1280	1281	1283	1287	1290	1292	1291	1287
20	1218	1222	1233	1234	1236	1244	1248	1233
30	1115	1126	1148	1142	1136	1158	1169	1143
40	969.2	990.0	1024	1006	991.5	1028	1055	1013
50	787.3	815.3	858.0	827.3	805.5	856.8	899.6	844.7
60	579.2	607.1	651.5	613.0	588.9	647.1	702.4	640.5
70	359.5	376.3	409.1	374.2	359.2	410.7	465.5	413.4
80	153.3	153.7	162.8	145.9	144.6	176.5	214.0	187.4
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

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	16.8	18.5	17.2	18.8	19.1	16.3	18.0	16.7	18.3	18.6
	3H	18.7	20.2	19.1	20.6	20.9	18.1	19.6	18.5	19.9	20.3
	4H	19.4	20.8	19.8	21.2	21.5	18.7	20.1	19.1	20.5	20.9
	6H	19.9	21.2	20.3	21.5	21.9	19.2	20.5	19.6	20.9	21.2
	8H	20.0	21.3	20.4	21.6	22.0	19.3	20.6	19.7	21.0	21.4
	12H	20.1	21.3	20.5	21.7	22.1	19.4	20.6	19.8	21.0	21.4
4H	2H	17.4	18.8	17.8	19.2	19.5	17.1	18.5	17.5	18.8	19.2
	3H	19.5	20.7	19.9	21.1	21.5	19.0	20.2	19.5	20.6	21.0
	4H	20.3	21.4	20.7	21.8	22.2	19.8	20.9	20.2	21.3	21.7
	6H	20.9	21.9	21.4	22.3	22.8	20.3	21.3	20.8	21.7	22.2
	8H	21.1	22.0	21.5	22.4	22.9	20.5	21.4	21.0	21.8	22.3
	12H	21.2	22.0	21.7	22.5	22.9	20.6	21.4	21.1	21.9	22.4
8H	4H	20.6	21.5	21.0	21.9	22.4	20.1	21.0	20.6	21.5	21.9
	6H	21.3	22.0	21.8	22.5	23.0	20.8	21.6	21.3	22.0	22.5
	8H	21.5	22.2	22.0	22.7	23.2	21.1	21.7	21.6	22.2	22.7
	12H	21.7	22.3	22.2	22.8	23.3	21.2	21.8	21.7	22.3	22.9
12H	4H	20.6	21.4	21.1	21.9	22.3	20.2	21.0	20.7	21.5	21.9
	6H	21.3	22.0	21.9	22.5	23.0	20.9	21.6	21.4	22.0	22.6
	8H	21.6	22.2	22.1	22.7	23.2	21.2	21.8	21.7	22.3	22.8

Maximum UGR = 23.3

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

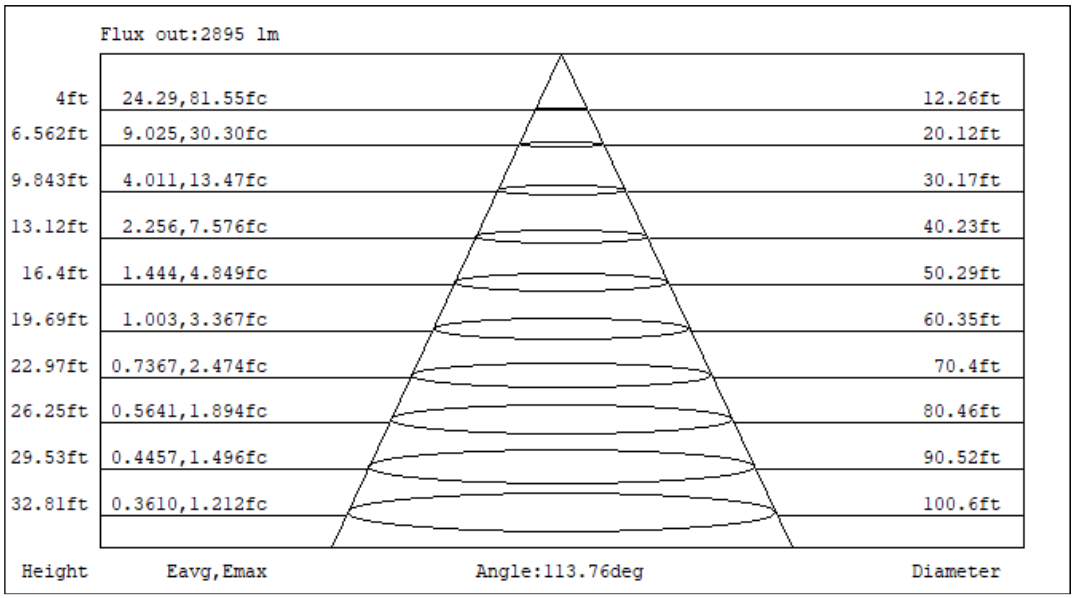
	Zonal (lm)		Total (lm)	Percent
0-10	123.63	0 - 10	123.63	3.12%
10-20	357.23	0 - 20	480.86	12.13%
20-30	549.97	0 - 30	1030.83	26.00%
30-40	676.08	0 - 40	1706.91	43.05%
40-50	715.36	0 - 50	2422.27	61.10%
50-60	657.86	0 - 60	3080.13	77.69%
60-70	508.42	0 - 70	3588.55	90.51%
70-80	294.80	0 - 80	3883.35	97.95%
80-90	81.28	0 - 90	3964.63	100.00%
90-100	0.00	0 - 100	3964.63	100.00%
100-110	0.00	0 - 110	3964.63	100.00%
110-120	0.00	0 - 120	3964.63	100.00%
120-130	0.00	0 - 130	3964.63	100.00%
130-140	0.00	0 - 140	3964.63	100.00%
140-150	0.00	0 - 150	3964.63	100.00%
150-160	0.00	0 - 160	3964.63	100.00%
160-170	0.00	0 - 170	3964.63	100.00%
170-180	0.00	0 - 180	3964.63	100.00%

4.2 Goniophotometer Test

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	104	99	95	106	101	97	94	97	94	91	93	90	88	89	87	85	83
2	98	90	83	77	96	88	82	76	84	79	74	81	77	73	78	74	71	69
3	89	79	70	64	87	77	69	63	74	67	62	71	66	61	69	64	60	58
4	82	70	61	54	79	68	60	53	66	58	53	63	57	52	61	56	51	49
5	75	62	53	46	73	61	52	46	59	51	45	57	50	45	55	49	44	42
6	69	56	47	40	67	55	46	40	53	45	39	51	44	39	50	43	39	37
7	64	50	41	35	62	50	41	35	48	40	35	47	40	35	45	39	34	32
8	60	46	37	31	58	45	37	31	44	36	31	43	36	31	41	35	31	29
9	56	42	34	28	54	41	33	28	40	33	28	39	33	28	38	32	28	26
10	52	39	31	25	51	38	31	25	37	30	25	36	30	25	35	29	25	23

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE1X4 / 40W / 3500K	Sample ID.	A1
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	277.02	60	0.141	38.4	0.986
NON-WORST CASE	120.01	60	0.319	38.0	0.994

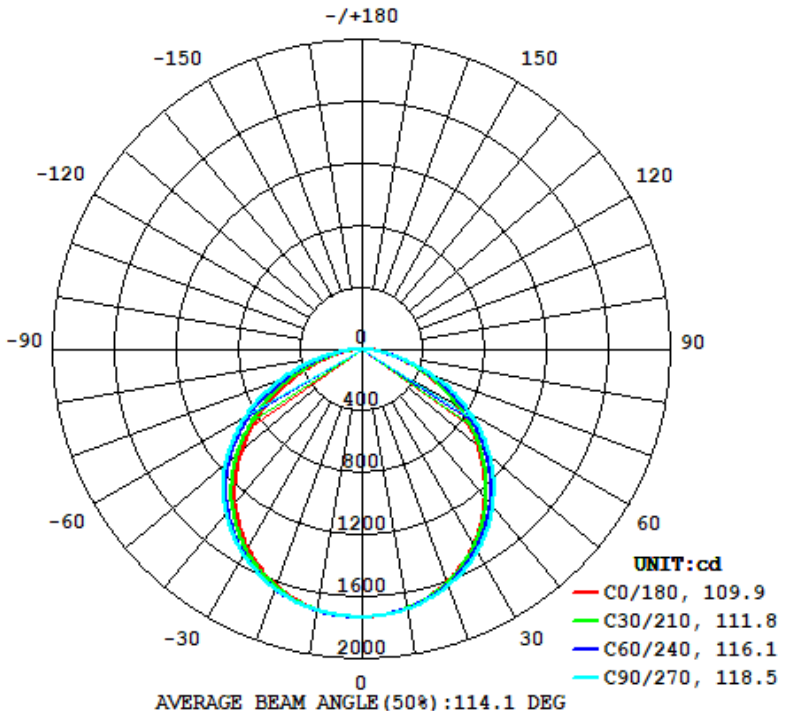
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
4996	158.2	161.5	109.9	118.5	130.0

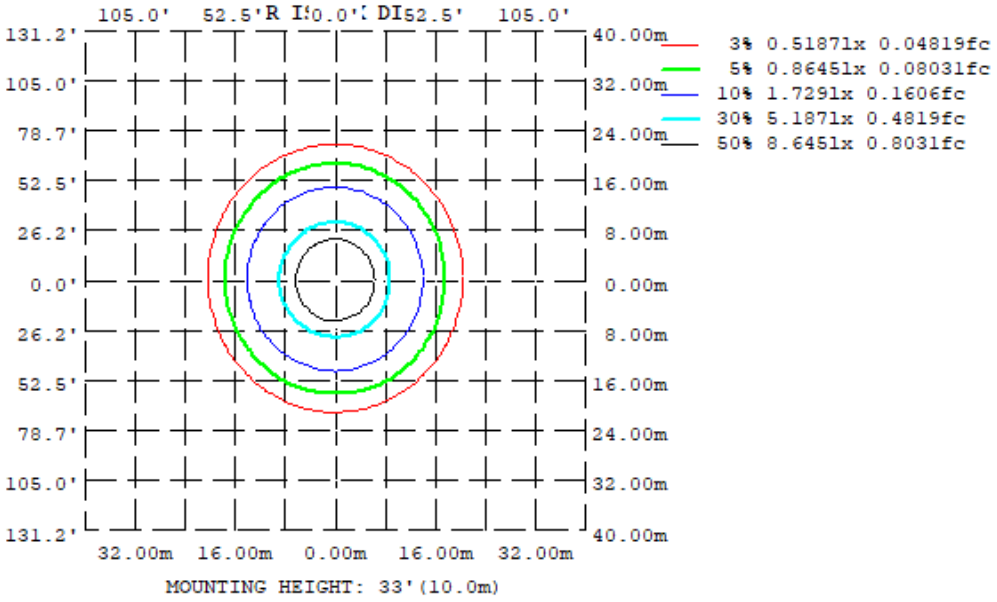
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
79.67%	21.3	1.30	1.28

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	1695	1695	1700	1703	1709	1712	1711	1702
20	1605	1610	1626	1626	1627	1642	1648	1625
30	1453	1471	1502	1492	1482	1515	1535	1494
40	1245	1277	1324	1297	1283	1331	1371	1314
50	992.3	1030	1090	1046	1021	1094	1157	1077
60	708.4	742.9	801.9	748.9	723.4	802.3	878.3	794.1
70	420.3	438.8	478.9	435.0	416.9	482.7	554.4	487.7
80	158.4	156.6	163.0	145.4	145.9	182.6	225.9	197.9
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

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	17.5	19.2	17.9	19.5	19.8	17.1	18.7	17.4	19.0	19.3
	3H	19.3	20.8	19.7	21.1	21.5	18.6	20.1	19.0	20.5	20.8
	4H	19.9	21.3	20.3	21.6	22.0	19.2	20.6	19.6	20.9	21.3
	6H	20.2	21.5	20.6	21.9	22.3	19.5	20.8	19.9	21.2	21.6
	8H	20.3	21.5	20.7	21.9	22.3	19.6	20.8	20.0	21.2	21.6
	12H	20.3	21.5	20.7	21.9	22.3	19.6	20.8	20.0	21.2	21.6
4H	2H	18.1	19.5	18.5	19.8	20.2	17.7	19.1	18.1	19.5	19.9
	3H	20.0	21.2	20.4	21.6	22.0	19.5	20.7	20.0	21.1	21.5
	4H	20.7	21.8	21.1	22.2	22.6	20.2	21.2	20.6	21.6	22.1
	6H	21.2	22.1	21.6	22.5	23.0	20.6	21.5	21.1	22.0	22.4
	8H	21.3	22.1	21.7	22.6	23.0	20.7	21.6	21.2	22.0	22.5
	12H	21.3	22.1	21.8	22.6	23.0	20.8	21.5	21.2	22.0	22.5
8H	4H	20.9	21.8	21.4	22.2	22.7	20.5	21.4	21.0	21.8	22.3
	6H	21.5	22.2	21.9	22.7	23.1	21.0	21.7	21.5	22.2	22.7
	8H	21.6	22.2	22.1	22.8	23.2	21.2	21.8	21.7	22.3	22.8
	12H	21.7	22.2	22.2	22.7	23.3	21.2	21.8	21.7	22.3	22.8
12H	4H	20.9	21.7	21.4	22.2	22.7	20.5	21.3	21.0	21.8	22.2
	6H	21.5	22.1	22.0	22.6	23.1	21.1	21.7	21.6	22.2	22.7
	8H	21.7	22.2	22.2	22.7	23.3	21.2	21.8	21.8	22.3	22.9

Maximum UGR = 23.3

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

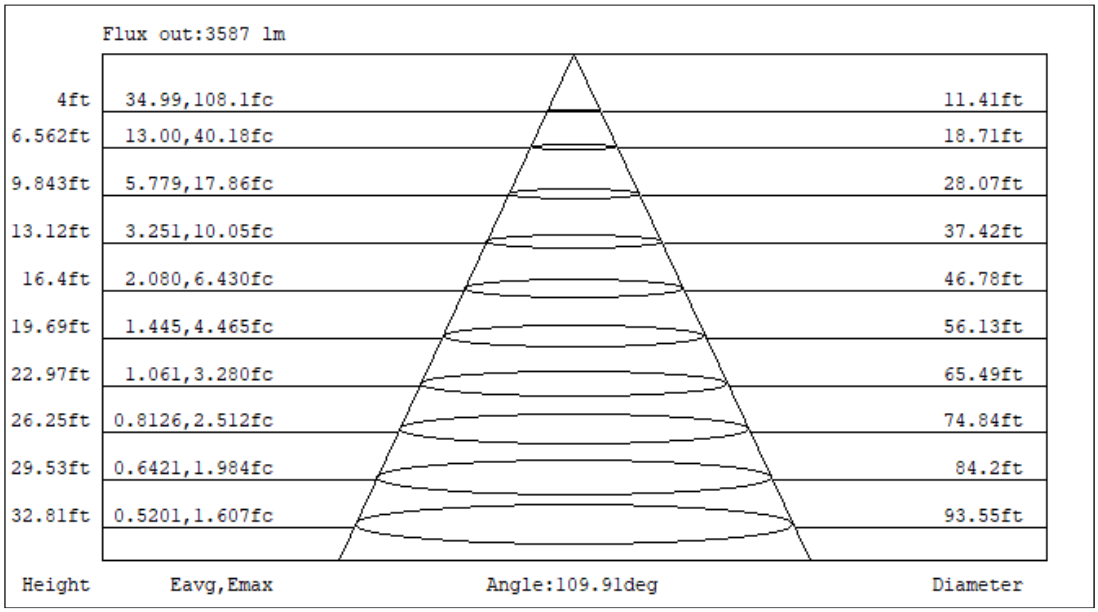
	Zonal (lm)		Total (lm)	Percent
0-10	163.79	0 - 10	163.79	3.28%
10-20	471.90	0 - 20	635.69	12.73%
20-30	721.95	0 - 30	1357.64	27.18%
30-40	878.89	0 - 40	2236.53	44.77%
40-50	918.35	0 - 50	3154.88	63.15%
50-60	825.03	0 - 60	3979.91	79.67%
60-70	614.35	0 - 70	4594.26	91.97%
70-80	330.75	0 - 80	4925.01	98.59%
80-90	70.55	0 - 90	4995.56	100.00%
90-100	0.00	0 - 100	4995.56	100.00%
100-110	0.00	0 - 110	4995.56	100.00%
110-120	0.00	0 - 120	4995.56	100.00%
120-130	0.00	0 - 130	4995.56	100.00%
130-140	0.00	0 - 140	4995.56	100.00%
140-150	0.00	0 - 150	4995.56	100.00%
150-160	0.00	0 - 160	4995.56	100.00%
160-170	0.00	0 - 170	4995.56	100.00%
170-180	0.00	0 - 180	4995.56	100.00%

4.2 Goniophotometer Test

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	84
2	99	91	84	78	96	89	83	77	85	80	76	82	78	74	79	75	72	70
3	90	80	72	65	88	78	71	64	75	69	63	72	67	62	70	65	61	59
4	83	71	62	55	80	69	61	55	67	60	54	64	58	53	62	57	52	50
5	76	63	54	47	74	62	53	47	60	52	46	58	51	46	56	50	45	43
6	70	57	48	41	68	56	47	41	54	46	41	52	45	40	51	45	40	38
7	65	51	42	36	63	50	42	36	49	41	36	47	41	36	46	40	35	33
8	60	47	38	32	59	46	38	32	45	37	32	43	37	32	42	36	32	30
9	56	43	35	29	55	42	34	29	41	34	29	40	33	29	39	33	29	27
10	53	40	32	26	52	39	31	26	38	31	26	37	31	26	36	30	26	24

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE1X4 / 40W / 4000K	Sample ID.	A1
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	276.94	60	0.137	37.4	0.985
NON-WORST CASE	120.07	60	0.310	37.0	0.995

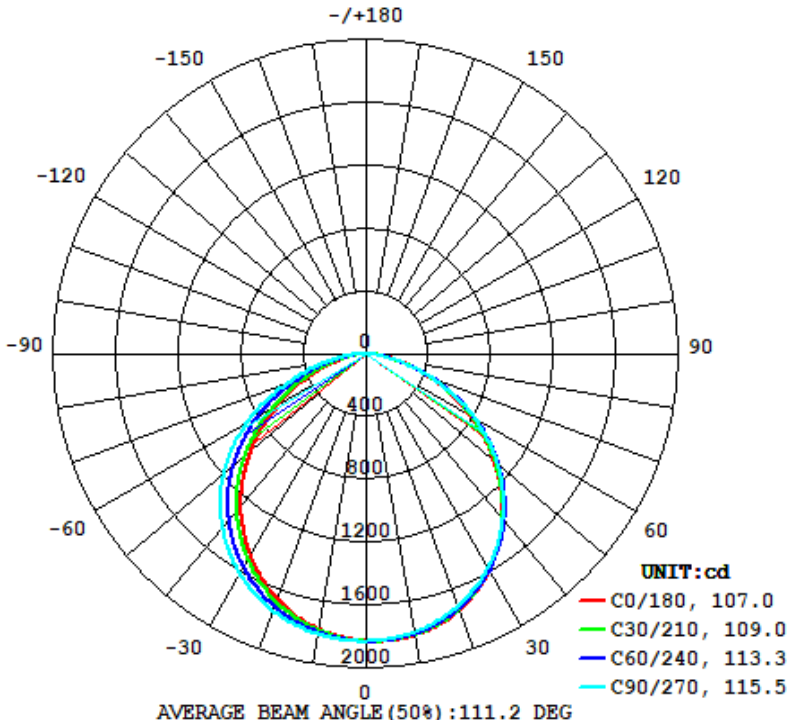
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
5085	155.4	158.7	107.0	115.5	136.1

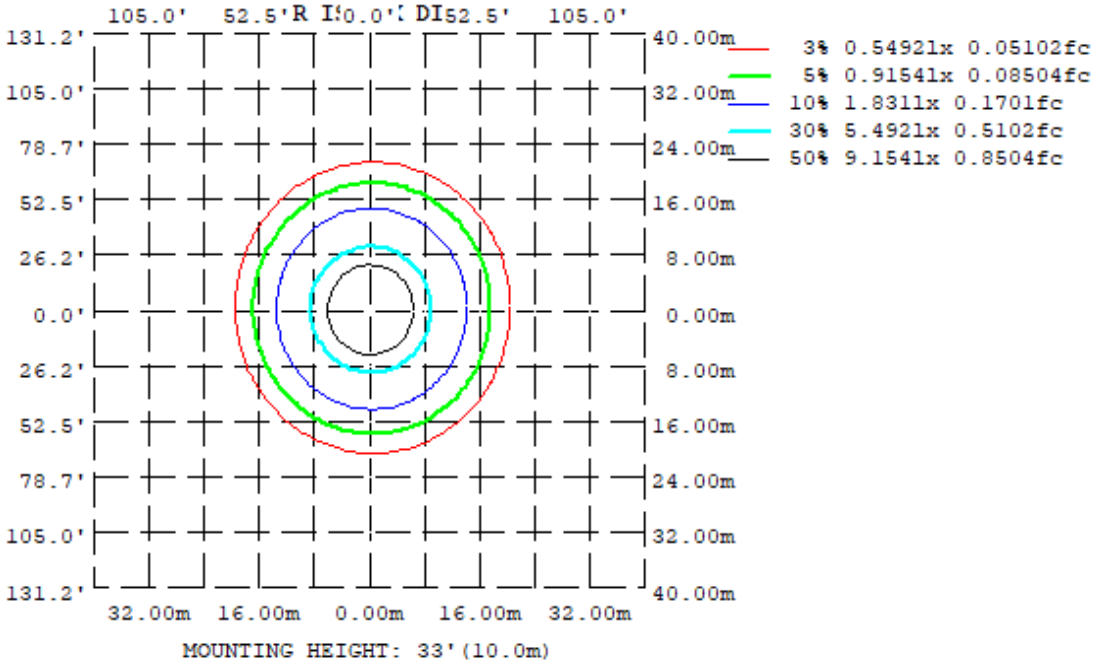
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
81.10%	20.8	1.28	1.22

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	1815	1810	1797	1782	1778	1791	1810	1820
20	1737	1730	1710	1675	1663	1697	1741	1750
30	1584	1588	1568	1509	1482	1540	1617	1616
40	1363	1377	1368	1282	1252	1326	1432	1417
50	1080	1107	1109	1005	967.5	1064	1193	1163
60	763.0	787.1	795.2	693.6	660.9	754.9	886.4	847.7
70	440.1	449.0	452.2	378.9	359.8	432.3	537.5	506.2
80	152.3	143.9	133.1	106.7	107.1	143.9	197.2	188.6
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

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	17.5	19.2	17.9	19.5	19.8	16.5	18.1	16.9	18.4	18.8
	3H	19.2	20.6	19.5	20.9	21.3	18.0	19.4	18.3	19.7	20.1
	4H	19.6	21.0	20.0	21.4	21.7	18.4	19.8	18.8	20.1	20.5
	6H	19.9	21.2	20.3	21.5	21.9	18.6	19.9	19.1	20.3	20.7
	8H	20.0	21.2	20.4	21.5	21.9	18.7	19.9	19.1	20.3	20.7
	12H	19.9	21.1	20.4	21.5	21.9	18.7	19.8	19.1	20.2	20.6
4H	2H	18.0	19.4	18.4	19.8	20.1	17.2	18.6	17.6	18.9	19.3
	3H	19.9	21.0	20.3	21.4	21.8	18.8	20.0	19.2	20.4	20.8
	4H	20.4	21.5	20.9	21.9	22.3	19.4	20.4	19.8	20.8	21.2
	6H	20.8	21.7	21.2	22.1	22.6	19.7	20.6	20.1	21.0	21.5
	8H	20.8	21.7	21.3	22.1	22.6	19.7	20.6	20.2	21.0	21.5
	12H	20.9	21.6	21.3	22.1	22.6	19.7	20.5	20.2	21.0	21.4
8H	4H	20.6	21.5	21.1	21.9	22.4	19.6	20.5	20.1	20.9	21.4
	6H	21.0	21.7	21.5	22.2	22.7	20.0	20.7	20.5	21.2	21.7
	8H	21.1	21.7	21.6	22.2	22.7	20.1	20.7	20.6	21.2	21.7
	12H	21.1	21.7	21.6	22.2	22.7	20.1	20.6	20.6	21.1	21.7
12H	4H	20.6	21.4	21.1	21.9	22.3	19.7	20.4	20.1	20.9	21.4
	6H	21.1	21.7	21.6	22.1	22.7	20.1	20.7	20.6	21.1	21.7
	8H	21.1	21.7	21.6	22.2	22.7	20.1	20.7	20.6	21.2	21.7

Maximum UGR = 22.7

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

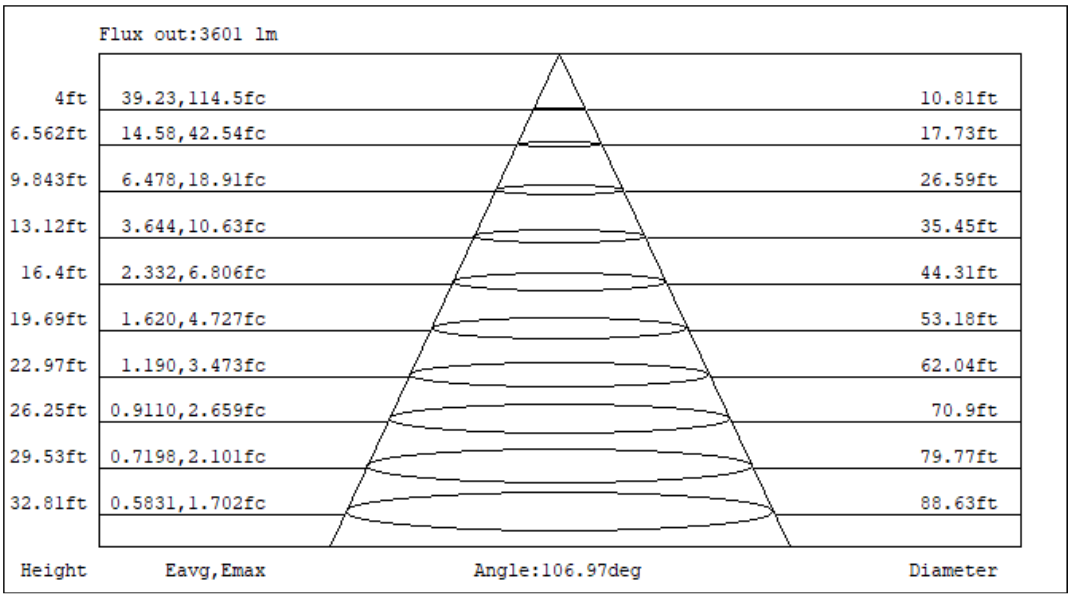
	Zonal (lm)		Total (lm)	Percent
0-10	173.24	0 - 10	173.24	3.41%
10-20	498.02	0 - 20	671.26	13.20%
20-30	758.21	0 - 30	1429.47	28.11%
30-40	915.49	0 - 40	2344.96	46.12%
40-50	944.52	0 - 50	3289.48	64.70%
50-60	834.00	0 - 60	4123.48	81.10%
60-70	602.68	0 - 70	4726.16	92.95%
70-80	305.61	0 - 80	5031.77	98.96%
80-90	52.79	0 - 90	5084.56	100.00%
90-100	0.00	0 - 100	5084.56	100.00%
100-110	0.00	0 - 110	5084.56	100.00%
110-120	0.00	0 - 120	5084.56	100.00%
120-130	0.00	0 - 130	5084.56	100.00%
130-140	0.00	0 - 140	5084.56	100.00%
140-150	0.00	0 - 150	5084.56	100.00%
150-160	0.00	0 - 160	5084.56	100.00%
160-170	0.00	0 - 170	5084.56	100.00%
170-180	0.00	0 - 180	5084.56	100.00%

4.2 Goniophotometer Test

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	105	101	97	107	102	99	95	98	95	92	94	92	89	91	89	87	85
2	100	91	85	79	97	90	83	78	86	81	76	83	78	75	80	76	73	71
3	91	80	72	66	88	79	71	65	76	70	64	73	68	63	71	66	62	60
4	83	71	63	56	81	70	62	56	67	60	55	65	59	54	63	58	53	51
5	76	64	55	48	74	63	54	48	60	53	47	59	52	47	57	51	46	44
6	71	57	48	42	69	56	48	42	55	47	42	53	46	41	51	45	41	39
7	65	52	43	37	64	51	43	37	50	42	37	48	42	36	47	41	36	34
8	61	47	39	33	59	47	39	33	45	38	33	44	38	33	43	37	32	31
9	57	44	35	30	55	43	35	30	42	35	30	41	34	29	40	34	29	27
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE1X4 / 40W / 5000K	Sample ID.	A1
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	277.04	60	0.141	38.5	0.986
NON-WORST CASE	120.02	60	0.330	39.4	0.994

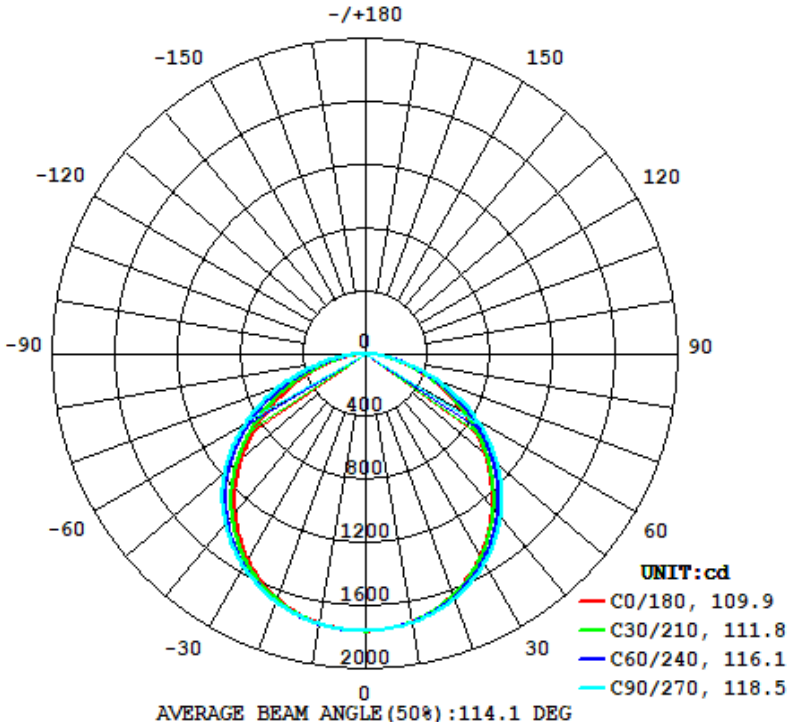
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
5082	158.2	161.5	109.9	118.5	131.9

Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
79.66%	21.4	1.30	1.28

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot

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	17.7	19.3	18.0	19.6	19.9	17.2	18.8	17.5	19.1	19.4
	3H	19.4	20.9	19.8	21.2	21.6	18.7	20.2	19.1	20.6	20.9
	4H	20.0	21.4	20.4	21.7	22.1	19.3	20.7	19.7	21.0	21.4
	6H	20.3	21.6	20.7	22.0	22.4	19.6	20.9	20.0	21.3	21.7
	8H	20.4	21.6	20.8	22.0	22.4	19.7	20.9	20.1	21.3	21.7
	12H	20.4	21.6	20.8	22.0	22.4	19.7	20.9	20.1	21.3	21.7
4H	2H	18.2	19.6	18.6	19.9	20.3	17.8	19.2	18.2	19.6	20.0
	3H	20.1	21.3	20.5	21.7	22.1	19.6	20.8	20.1	21.2	21.6
	4H	20.8	21.9	21.3	22.3	22.7	20.3	21.3	20.7	21.7	22.2
	6H	21.3	22.2	21.7	22.6	23.1	20.7	21.6	21.2	22.1	22.5
	8H	21.4	22.2	21.9	22.7	23.2	20.8	21.7	21.3	22.1	22.6
	12H	21.4	22.2	21.9	22.7	23.1	20.9	21.6	21.3	22.1	22.6
8H	4H	21.0	21.9	21.5	22.3	22.8	20.6	21.5	21.1	21.9	22.4
	6H	21.6	22.3	22.1	22.8	23.3	21.1	21.8	21.6	22.3	22.8
	8H	21.7	22.4	22.2	22.9	23.4	21.3	21.9	21.8	22.4	22.9
	12H	21.8	22.4	22.3	22.8	23.4	21.3	21.9	21.8	22.4	22.9
12H	4H	21.1	21.8	21.5	22.3	22.8	20.6	21.4	21.1	21.9	22.3
	6H	21.6	22.3	22.1	22.7	23.2	21.2	21.8	21.7	22.3	22.8
	8H	21.8	22.3	22.3	22.8	23.4	21.3	21.9	21.9	22.4	23.0

Maximum UGR = 23.4

4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1723	1725	1731	1732	1738	1739	1741	1731
20	1631	1638	1653	1656	1655	1671	1674	1651
30	1477	1498	1529	1518	1508	1543	1561	1518
40	1266	1299	1349	1321	1303	1352	1394	1332
50	1008	1047	1111	1066	1039	1113	1178	1094
60	720.2	755.4	817.9	763.5	736.1	815.8	893.9	807.8
70	427.3	446.7	488.1	443.1	424.5	491.2	564.7	496.0
80	161.3	159.3	166.1	147.9	148.5	185.6	230.5	201.2
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

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

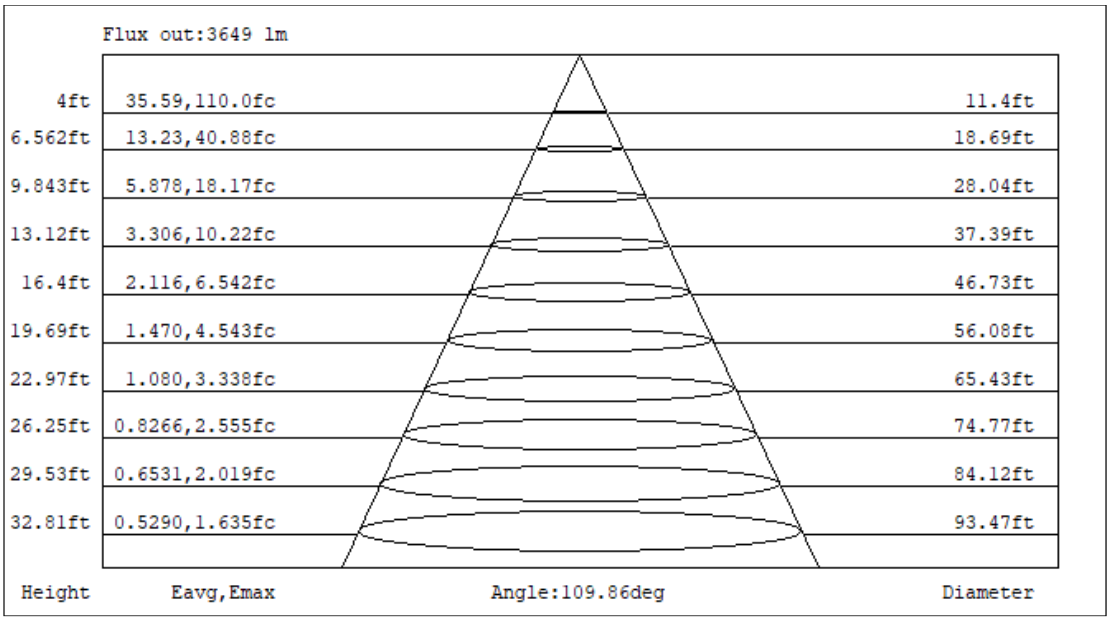
	Zonal (lm)		Total (lm)	Percent
0-10	166.61	0 - 10	166.61	3.28%
10-20	480.05	0 - 20	646.66	12.72%
20-30	734.44	0 - 30	1381.10	27.18%
30-40	893.88	0 - 40	2274.98	44.76%
40-50	933.98	0 - 50	3208.96	63.14%
50-60	839.47	0 - 60	4048.43	79.66%
60-70	625.16	0 - 70	4673.59	91.96%
70-80	336.72	0 - 80	5010.31	98.59%
80-90	71.84	0 - 90	5082.15	100.00%
90-100	0.00	0 - 100	5082.15	100.00%
100-110	0.00	0 - 110	5082.15	100.00%
110-120	0.00	0 - 120	5082.15	100.00%
120-130	0.00	0 - 130	5082.15	100.00%
130-140	0.00	0 - 140	5082.15	100.00%
140-150	0.00	0 - 150	5082.15	100.00%
150-160	0.00	0 - 160	5082.15	100.00%
160-170	0.00	0 - 170	5082.15	100.00%
170-180	0.00	0 - 180	5082.15	100.00%

4.2 Goniophotometer Test

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	84
2	99	91	84	78	96	89	83	77	85	80	76	82	78	74	79	75	72	70
3	90	80	72	65	88	78	71	64	75	69	63	72	67	62	70	65	61	59
4	83	71	62	55	80	69	61	55	67	60	54	64	58	53	62	57	52	50
5	76	63	54	47	74	62	53	47	60	52	46	58	51	46	56	50	45	43
6	70	57	48	41	68	56	47	41	54	46	41	52	45	40	51	45	40	38
7	65	51	43	36	63	50	42	36	49	41	36	47	41	36	46	40	35	33
8	60	47	38	32	59	46	38	32	45	37	32	43	37	32	42	36	32	30
9	56	43	35	29	55	42	34	29	41	34	29	40	33	29	39	33	29	27
10	53	40	32	26	52	39	31	26	38	31	26	37	31	26	36	30	26	24

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE1X4 / 20W / 3500K	Sample ID.	A1
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
119.94	60	0.211	25.2	0.995	8.37%
277.04	60	0.097	25.7	0.960	8.17%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE1X4 / 20W / 4000K	Sample ID.	A1
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
120.01	60	0.207	24.7	0.995	8.65%
276.99	60	0.095	25.2	0.960	8.02%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE1X4 / 20W / 5000K	Sample ID.	A1
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
120.06	60	0.212	25.3	0.995	8.45%
277.03	60	0.097	25.8	0.960	8.09%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE1X4 / 30W / 3500K	Sample ID.	A1
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
119.97	60	0.246	29.3	0.995	9.14%
277.01	60	0.110	29.6	0.975	7.52%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE1X4 / 30W / 4000K	Sample ID.	A1
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
120.06	60	0.240	28.7	0.994	9.39%
277.03	60	0.108	29.1	0.973	7.24%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE1X4 / 30W / 5000K	Sample ID.	A1
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
120.07	60	0.247	29.5	0.994	9.22%
276.98	60	0.110	29.8	0.975	7.66%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE1X4 / 40W / 3500K	Sample ID.	A1
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
120.01	60	0.319	38.1	0.994	10.10%
276.95	60	0.145	39.7	0.989	10.52%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE1X4 / 40W / 4000K	Sample ID.	A1
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	0.311	37.1	0.994	9.90%
277.01	60	0.136	37.3	0.988	10.53%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE1X4 / 40W / 5000K	Sample ID.	A1
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
120.01	60	0.322	38.4	0.994	9.87%
277.02	60	0.141	38.6	0.989	10.60%

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**********