Photometric Test Report

Relevant Standards

☑IES LM-79-2008
☑ANSI C82.77:2017

Prepared For

RAB Lighting Inc.

Room 6A33, No.1388, Wuzhong road,Shanghai ,China

Xiao Xiang,15921313292,Gary.Xiao@rabweb.com

Prepared By

Deliver Co.， Ltd.
Block 11, 78 Keling Road, SSTP, Suzhou, China
0512-66801950,kevin.jia@szdeliver.com

Project Number
DLF2111111

Report Number
DLF2111111-1a

Test Date
2021/11/19

Issue Date
2021/12/9

Prepared By	**Approved By**
Wangzun Zhu	Kevin Jia

1.0 Test Summary

DLC Technical Requirements v5.1

Indoor - Troffer - 2X2 Luminaires for Ambient Lighting of Interior Commercial Spaces				
Requirement Category	**Test Method**	**Requirements**		**Test value**
Luminaire Description:	EZPANFAHE2X2 / 20W / 3500K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	2000		3644
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	137.4
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		26.5
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	7.91%
		20.00%	277V	8.29%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.995
		0.9	277V	0.962
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3465±245	3369
		4 step	3465±124	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		82
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		3
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		94
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-13%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		78.12%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		20.1
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		1.24
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		0.100
(Goniophotometer - Section 4.2)		Non-Worst Case		0.218
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		26.5
(Goniophotometer - Section 4.2)		Non-Worst Case		26.0

Luminaire Description:	EZPANFAHE2X2 / 20W / 4000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	2000		3789
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	146.2
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		25.9
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	8.55%
		20.00%	277V	7.82%
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	3982
		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		12
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		93
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-12%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		78.12%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		20.3
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		1.26
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.098
(Goniophotometer - Section 4.2)		Non-Worst Case		0.211
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		25.9
(Goniophotometer - Section 4.2)		Non-Worst Case		25.2
Luminaire Description:	EZPANFAHE2X2 / 20W / 5000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	2000		3785
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	142.3
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		26.6

Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	7.96%
		20.00%	277V	8.31%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.995
		0.9	277V	0.963
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	4835
		4 step	5029±220	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		83
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		6
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		94
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-13%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		78.12%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		20.3
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		1.26
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.100
(Goniophotometer - Section 4.2)		Non-Worst Case		0.219
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		26.6
(Goniophotometer - Section 4.2)		Non-Worst Case		26.1
Luminaire Description:	EZPANFAHE2X2 / 30W / 3500K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	2000		4183
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		30.7
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	9.33%
		20.00%	277V	8.15%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.994
		0.9	277V	0.978
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3465±245	3375
		4 step	3465±124	

Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80	82
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0	5
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70	83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89	94
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%	-13%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%	78.06%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22	20.7
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	1.26
Input Voltage (V)			
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case	277
(Goniophotometer - Section 4.2)		Non-Worst Case	120
Input Current (A)			
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case	0.114
(Goniophotometer - Section 4.2)		Non-Worst Case	0.230
Power (Input Wattage - W)			
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case	30.7
(Goniophotometer - Section 4.2)		Non-Worst Case	27.5
Luminaire Description:	EZPANFAHE2X2 / 30W / 4000K		
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	2000	4368
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110 / Premium 125	145.9
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case	29.9
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00% / 120V	9.50%
		20.00% / 277V	7.78%
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 / 3985±275	3990
		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	11
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70	83

Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		93
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-12%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		78.05%
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		1.26
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.111
(Goniophotometer - Section 4.2)		Non-Worst Case		0.245
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		29.9
(Goniophotometer - Section 4.2)		Non-Worst Case		29.3
Luminaire Description:	EZPANFAHE2X2 / 30W / 5000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	2000		4346
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	140.9
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		30.8
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	9.23%
		20.00%	277V	8.00%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.994
		0.9	277V	0.977
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	4850
		4 step	5029±220	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		83
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		6
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		94
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-13%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		78.05%

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		1.26
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.114
(Goniophotometer - Section 4.2)		Non-Worst Case		0.253
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		30.8
(Goniophotometer - Section 4.2)		Non-Worst Case		30.2
Luminaire Description:	EZPANFAHE2X2 / 40W / 3500K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	2000		5330
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	133.2
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		40.0
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	9.56%
		20.00%	277V	10.62%
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	3385
		4 step	3465±124	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		82
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		4
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		94
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-13%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		81.92%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		20.3
SC: 0-180° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.24
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		0.146
(Goniophotometer - Section 4.2)		Non-Worst Case		0.330
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		40.0
(Goniophotometer - Section 4.2)		Non-Worst Case		39.4
Luminaire Description:	EZPANFAHE2X2 / 40W / 4000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	2000		5582
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	144.8
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	9.90%
		20.00%	277V	10.54%
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	3994
		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		11
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		93
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-12%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		81.37%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		20.9
SC: 0-180° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.24
SC: 90-270° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.24
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		0.318
Power (Input Wattage - W)				

(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		38.5
(Goniophotometer - Section 4.2)		Non-Worst Case		38.0
Luminaire Description:	EZPANFAHE2X2 / 40W / 5000K			
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	2000		5487
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 110	Premium 125	137.7
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		39.8
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	9.71%
		20.00%	277V	10.80%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.994
		0.9	277V	0.990
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	4873
		4 step	5029±220	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾80		83
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	⩾0		8
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	⩾89		94
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-12%⩽IES Rcs,h1⩽+23%		-13%
Zonal Lumen Requirement (0°-60°) (Goniophotometer - Section 4.2)	IES LM-79-2008	⩾75%		81.91%
Corrected UGR (X=4H, Y=8H, 70/50/20%) (Goniophotometer - Section 4.2)	CIE 190-2010	＜22		20.4
SC: 0-180° (Goniophotometer - Section 4.2)	IES LM-79-2008	1.0-2.0		1.24
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		0.146
(Goniophotometer - Section 4.2)		Non-Worst Case		0.330
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		39.8
(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	EZPANFAHE2X2	B1
2	Goniophotometer Test	2021/11/19	EZPANFAHE2X2	B1
3	THD and PF Test	2021/11/19	EZPANFAHE2X2	B1

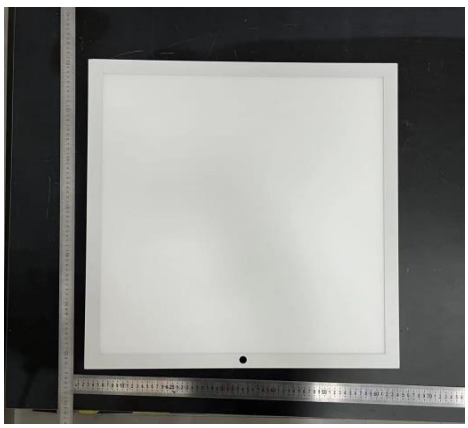
Remark(If any)
1、This report shall not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the US government.
2、The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full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

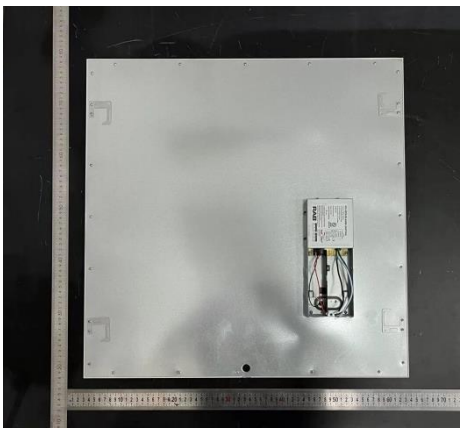
3.0 Production Description

Luminaire Description: EZPANFAHE2X2

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.	EZPANFAHE2X2 / 20W / 3500K	Sample ID.	B1
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	0.217	25.9	0.995
277.03	60	0.099	26.5	0.962

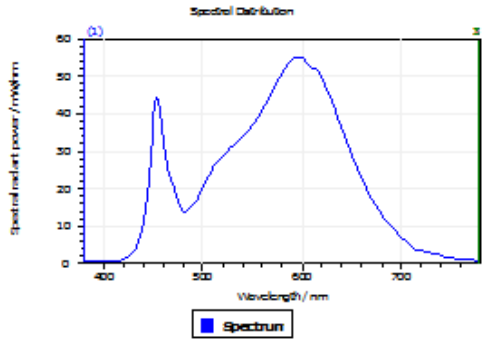
Test Result

CCT (K)	CRI	R9	Duv
3369	82	3	0.00029

Rf	Rg	IES Rcs,h1
83	94	-13%

4.1 Integrating Sphere Test

Results



Spectral values

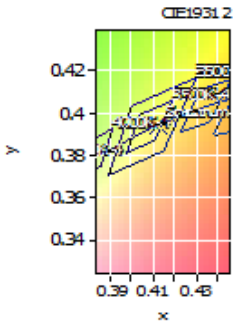
DominantWavelength	581.48 nm
Purity	0.419
PeakWavelength	596.05 nm
Radiant Power	8.586 W
Width50%:	136.21 nm

Color Coordinates

Correlated Color Temperat 3369 K

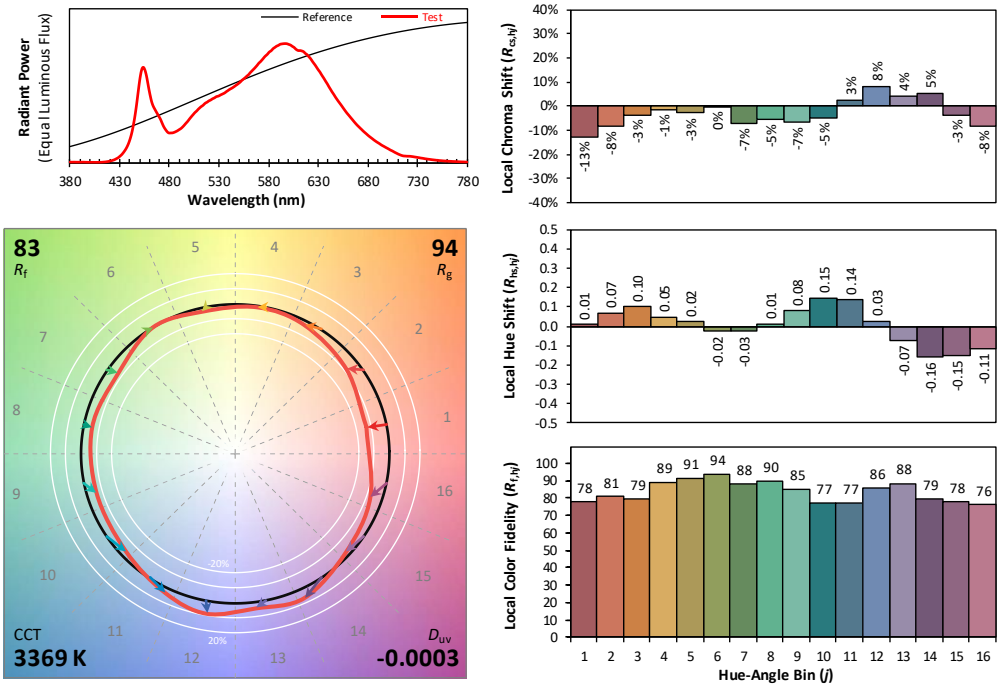
x: 0.4125 u: 0.2392 u': 0.2392
y: 0.3935 v: 0.3423 v': 0.5135

ResultsCRICRI01	80.5	ResultsCRICRI09	3.2
ResultsCRICRI02	91.7	ResultsCRICRI10	80.4
ResultsCRICRI03	94.9	ResultsCRICRI11	77.2
ResultsCRICRI04	78.3	ResultsCRICRI12	65.7
ResultsCRICRI05	80.3	ResultsCRICRI13	83.6
ResultsCRICRI06	88.5	ResultsCRICRI14	97.9
ResultsCRICRI07	82.1	ResultsCRICRI15	73.0
ResultsCRICRI08	58.3	ResultsCRICRI16	69.8
ResultsCRI	81.8		



PlanckDistance 2.9E-004

4.1 Integrating Sphere Test



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

x	0.4125
y	0.3935
u'	0.2392
v'	0.5135

CIE 13.3-1995 (CRI)

R_a	83
R_9	8

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE2X2 / 20W / 4000K	Sample ID.	B1
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	25.9	0.960

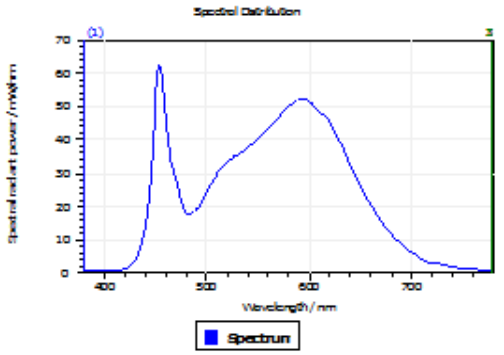
Test Result

CCT (K)	CRI	R9	Duv
3982	84	12	0.000057

Rf	Rg	IES Rcs,h1
83	93	-12%

4.1 Integrating Sphere Test

Results



Spectral values

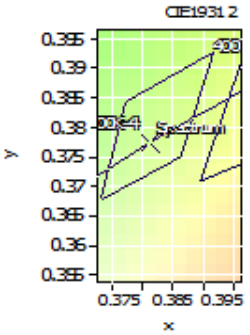
DominantWavelength	579.11 nm
Purity	0.277
PeakWavelength	454.00 nm
Radiant Power	8.976 W
Width50%:	21.56 nm

Color Coordinates

Correlated Color Temperat 3982 K

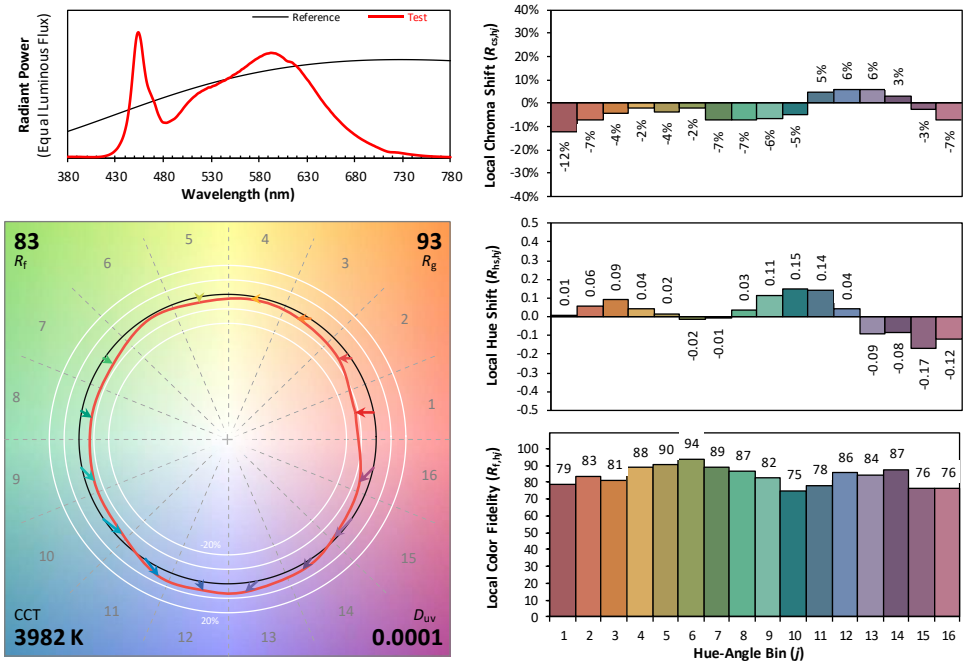
x:	0.3813	u:	0.2254	u':	0.2254
y:	0.3774	v:	0.3347	v':	0.5020

ResultsCRICRI01	82.6	ResultsCRICRI09	11.5
ResultsCRICRI02	91.9	ResultsCRICRI10	80.0
ResultsCRICRI03	95.9	ResultsCRICRI11	79.8
ResultsCRICRI04	80.8	ResultsCRICRI12	60.6
ResultsCRICRI05	82.2	ResultsCRICRI13	85.3
ResultsCRICRI06	87.7	ResultsCRICRI14	98.5
ResultsCRICRI07	85.0	ResultsCRICRI15	76.4
ResultsCRICRI08	64.4	ResultsCRICRI16	72.5
ResultsCRI	83.8		



PlanckDistance	5.7E-005

4.1 Integrating Sphere Test



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

x	0.3813
y	0.3774
u'	0.2254
v'	0.5020

CIE 13.3-1995 (CRI)

R_a	84
R_9	10

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.	EZPANFAHE2X2 / 20W / 5000K	Sample ID.	B1
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	0.217	25.9	0.995
277.03	60	0.100	26.6	0.963

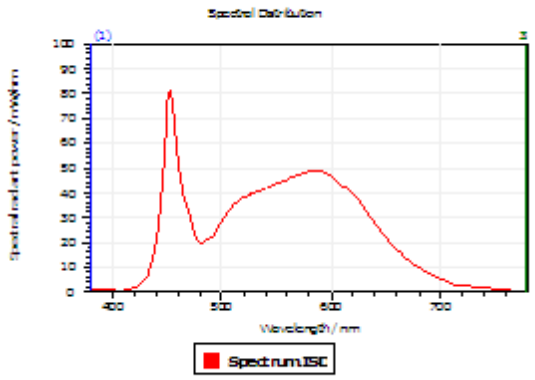
Test Result

CCT (K)	CRI	R9	Duv
4835	83	6	0.0031

Rf	Rg	IES Rcs,h1
83	94	-13%

4.1 Integrating Sphere Test

Results



Spectral values

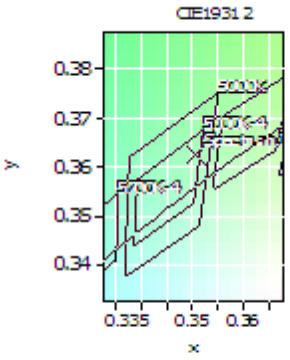
DominantWavelength	571.96 nm
Purity	0.140
PeakWavelength	452.74 nm
Radiant Power	9.215 W
Width50%:	19.65 nm
Luminous Flux	3.007 klm

Color Coordinates

Correlated Color Temperat 4835 K

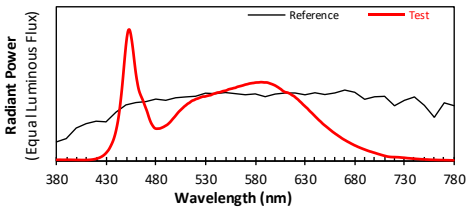
x:	0.3507	u:	0.2110	u':	0.2110
y:	0.3624	v:	0.3271	v':	0.4907

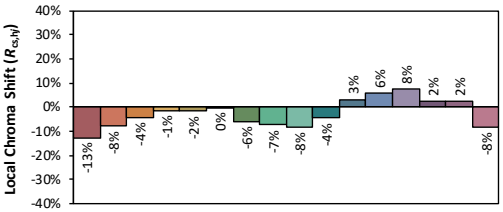
ResultsCRICRI01	80.6	ResultsCRICRI09	6.0
ResultsCRICRI02	90.0	ResultsCRICRI10	75.6
ResultsCRICRI03	95.0	ResultsCRICRI11	78.5
ResultsCRICRI04	79.6	ResultsCRICRI12	54.9
ResultsCRICRI05	80.4	ResultsCRICRI13	83.5
ResultsCRICRI06	85.0	ResultsCRICRI14	97.7
ResultsCRICRI07	86.3	ResultsCRICRI15	74.1
ResultsCRICRI08	65.1	ResultsCRICRI16	69.9
ResultsCRI	82.7		

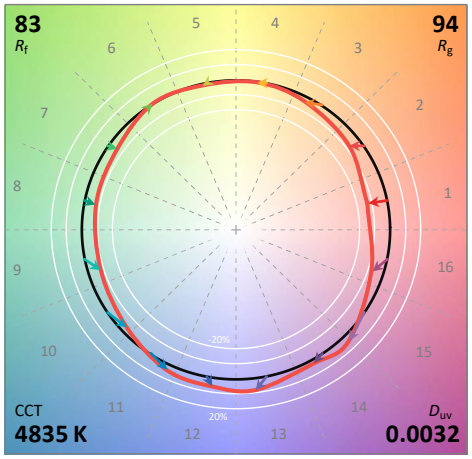


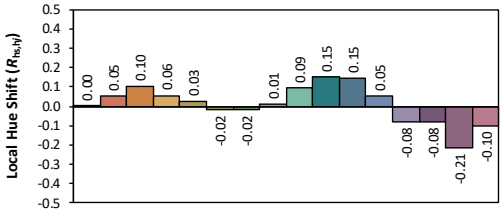
PlanckDistance 3.1E-003

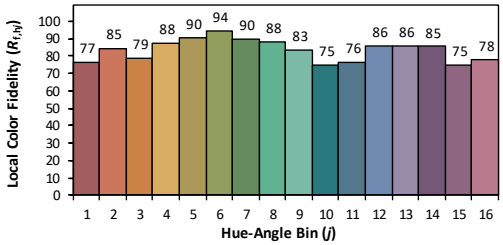
4.1 Integrating Sphere Test

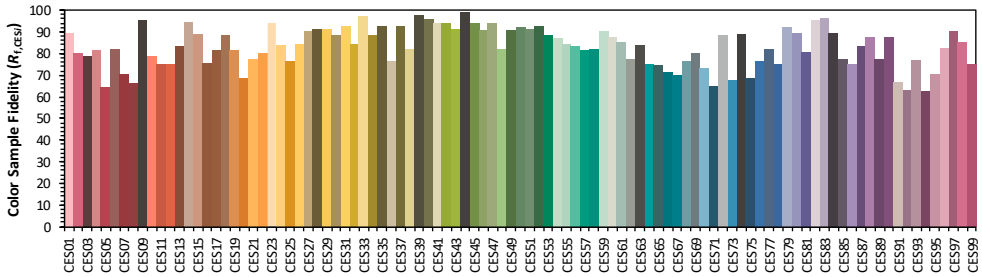












Notes: This is a recommended method for displaying IES TM-30-18 information.

x	0.3507
y	0.3624
u'	0.2110
v'	0.4907

CIE 13.3-1995 (CRI)

R_a	84
R_9	13

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE2X2 / 30W / 3500K	Sample ID.	B1
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	0.253	30.2	0.994
276.98	60	0.114	30.8	0.978

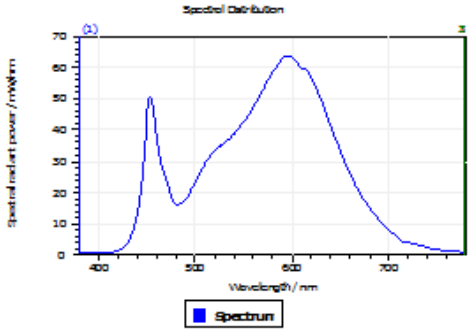
Test Result

CCT (K)	CRI	R9	Duv
3375	82	5	0.00028

Rf	Rg	IES Rcs,h1
83	94	-13%

4.1 Integrating Sphere Test

Results



Spectral values

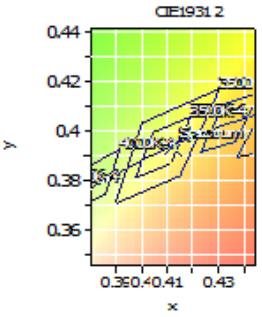
DominantWavelength	581.46 nm
Purity	0.418
PeakWavelength	595.91 nm
Radiant Power	9.87 W
Width50%:	136.16 nm

Color Coordinates

Correlated Color Temperat 3375 K

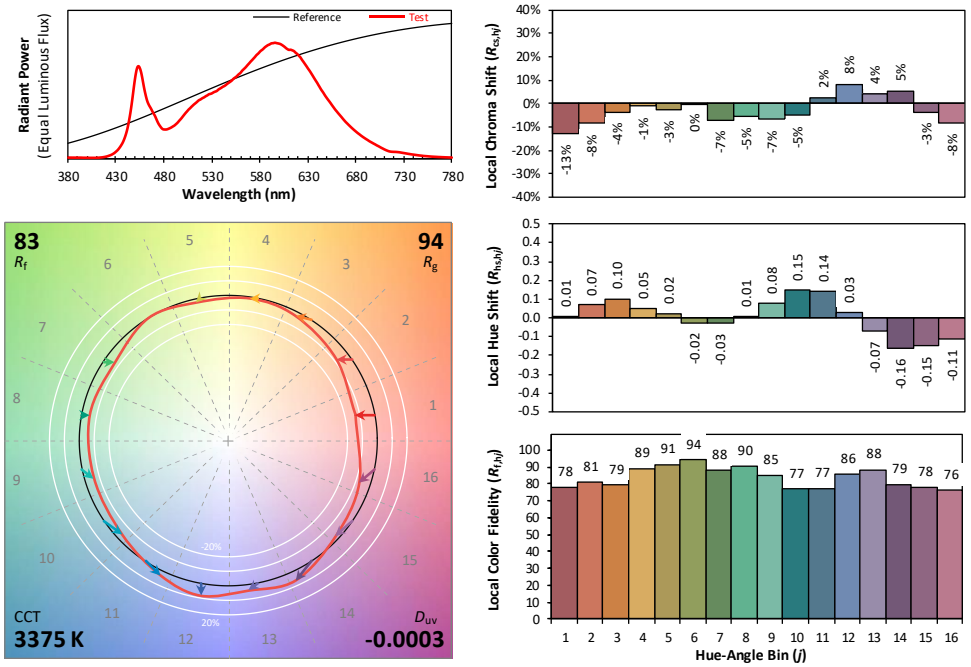
x: 0.4122 u: 0.2391 u': 0.2391
y: 0.3934 v: 0.3423 v': 0.5134

ResultsCRICRI01	80.7	ResultsCRICRI09	5.4
ResultsCRICRI02	91.1	ResultsCRICRI10	79.0
ResultsCRICRI03	96.1	ResultsCRICRI11	78.4
ResultsCRICRI04	79.6	ResultsCRICRI12	64.6
ResultsCRICRI05	81.0	ResultsCRICRI13	83.3
ResultsCRICRI06	88.1	ResultsCRICRI14	98.6
ResultsCRICRI07	83.0	ResultsCRICRI15	73.8
ResultsCRICRI08	59.9	ResultsCRICRI16	70.7
ResultsCRI	82.4		



PlanckDistance 2.8E-004

4.1 Integrating Sphere Test



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

x	0.4122
y	0.3934
u'	0.2391
v'	0.5134

CIE 13.3-1995 (CRI)	
R_a	82
R_9	4

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.	EZPANFAHE2X2 / 30W / 4000K	Sample ID.	B1
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	0.246	29.3	0.994
276.99	60	0.111	30.1	0.975

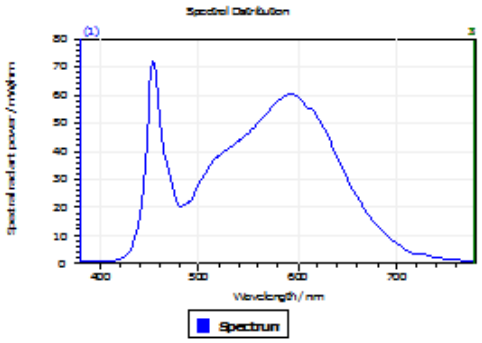
Test Result

CCT (K)	CRI	R9	Duv
3990	84	11	0.000024

Rf	Rg	IES Rcs,h1
83	93	-12%

4.1 Integrating Sphere Test

Results



Spectral values

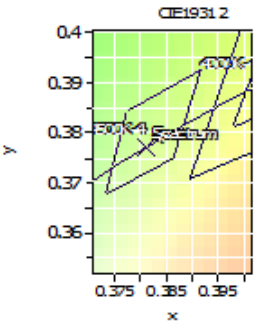
DominantWavelength	579.10 nm
Purity	0.275
PeakWavelength	453.97 nm
Radiant Power	10.37 W
Width50%:	21.75 nm

Color Coordinates

Correlated Color Temperat 3990 K

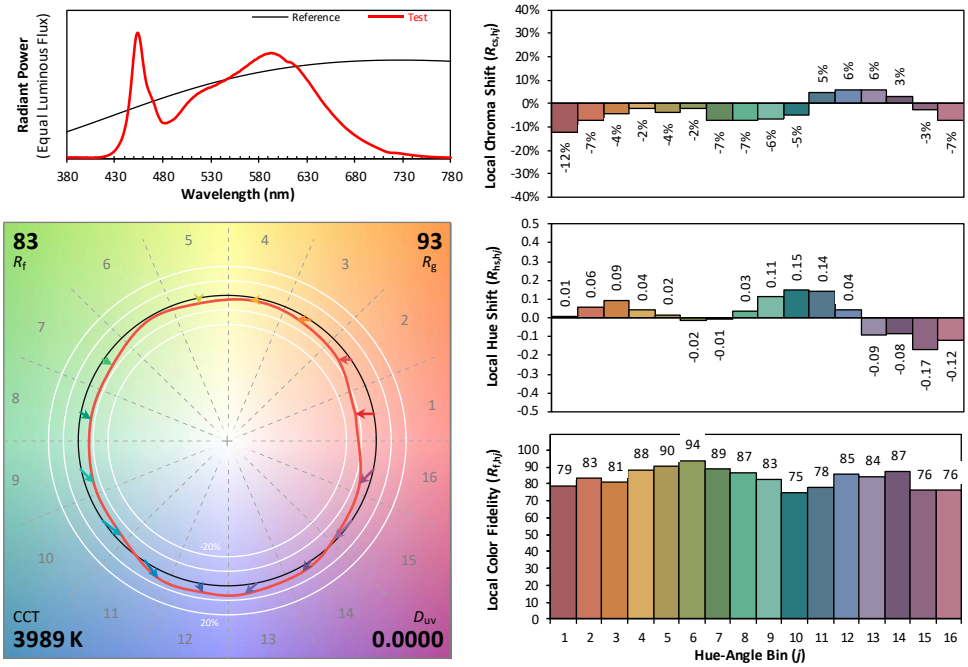
x:	0.3809	u:	0.2253	u':	0.2253
y:	0.3771	v:	0.3345	v':	0.5018

ResultsCRICRI01	82.4	ResultsCRICRI09	11.0
ResultsCRICRI02	91.9	ResultsCRICRI10	80.0
ResultsCRICRI03	95.9	ResultsCRICRI11	79.6
ResultsCRICRI04	80.6	ResultsCRICRI12	60.7
ResultsCRICRI05	82.1	ResultsCRICRI13	85.2
ResultsCRICRI06	87.7	ResultsCRICRI14	98.4
ResultsCRICRI07	84.9	ResultsCRICRI15	76.2
ResultsCRICRI08	64.2	ResultsCRICRI16	72.4
ResultsCRI	83.7		



PlanckDistance 2.4E-005

4.1 Integrating Sphere Test



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

x	0.3809
y	0.3771
u'	0.2253
v'	0.5018

CIE 13.3-1995 (CRI)

R_a	84
R_9	10

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.	EZPANFAHE2X2 / 30W / 5000K	Sample ID.	B1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

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

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.00	60	0.253	30.2	0.994
277.03	60	0.114	30.9	0.977

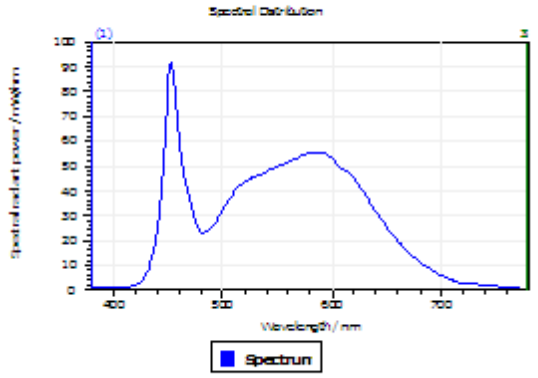
Test Result

CCT (K)	CRI	R9	Duv
4850	83	6	0.003

Rf	Rg	IES Rcs,h1
83	94	-13%

4.1 Integrating Sphere Test

Results



Spectral values

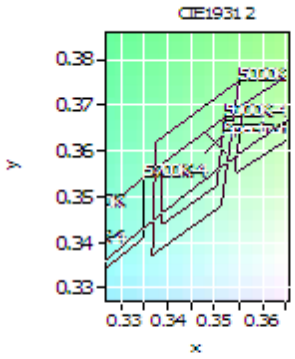
DominantWavelength	571.91 nm
Purity	0.137
PeakWavelength	452.87 nm
Radiant Power	10.53 W
Width50%:	20.27 nm
Luminous Flux	3.43 klm

Color Coordinates

Correlated Color Temperat 4850 K

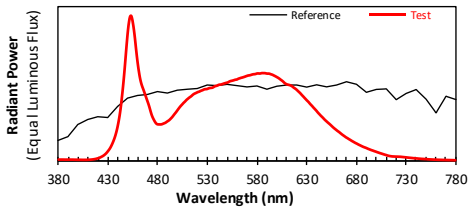
x:	0.3502	u:	0.2110	u':	0.2110
y:	0.3617	v:	0.3269	v':	0.4903

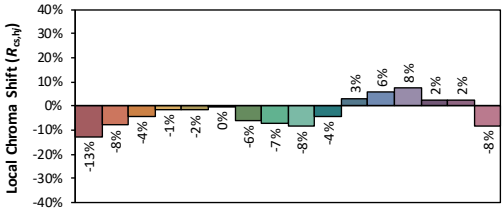
ResultsCRICRI01	80.6	ResultsCRICRI09	5.7
ResultsCRICRI02	90.1	ResultsCRICRI10	75.9
ResultsCRICRI03	95.0	ResultsCRICRI11	78.2
ResultsCRICRI04	79.3	ResultsCRICRI12	55.3
ResultsCRICRI05	80.3	ResultsCRICRI13	83.5
ResultsCRICRI06	85.1	ResultsCRICRI14	97.7
ResultsCRICRI07	86.1	ResultsCRICRI15	74.0
ResultsCRICRI08	64.9	ResultsCRICRI16	69.8
ResultsCRI	82.7		

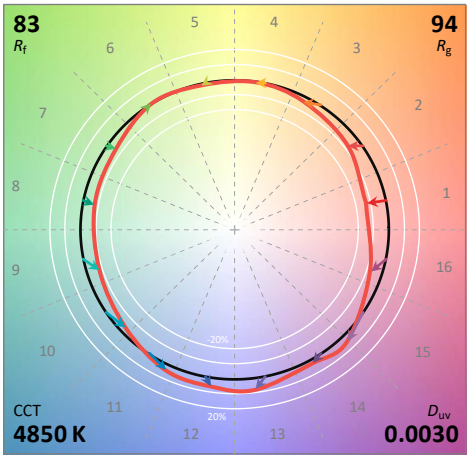


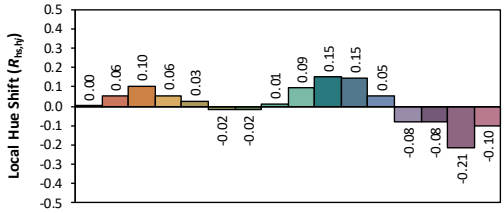
PlanckDistance 3.0E-003

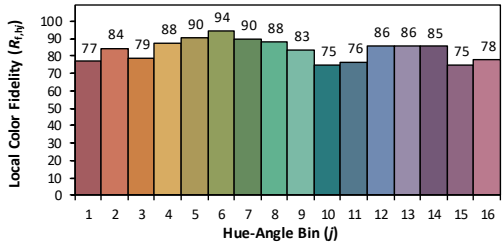
4.1 Integrating Sphere Test

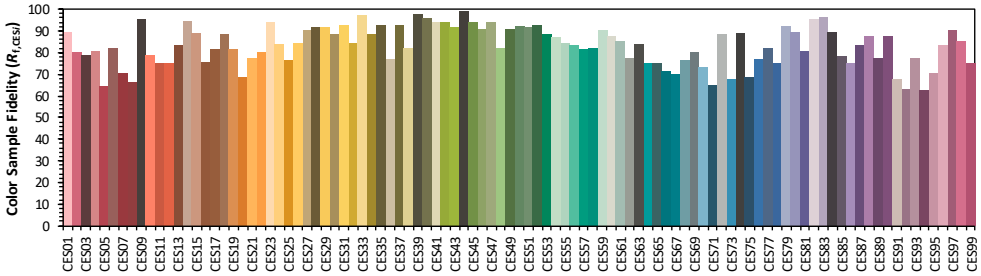












Notes: This is a recommended method for displaying IES TM-30-18 information.

x	0.3502
y	0.3617
u'	0.2110
v'	0.4903

CIE 13.3-1995 (CRI)

R_a	84
R_9	13

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	EZPANFAHE2X2 / 40W / 3500K	Sample ID.	B1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

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

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.98	60	0.328	39.1	0.994
276.95	60	0.145	39.7	0.989

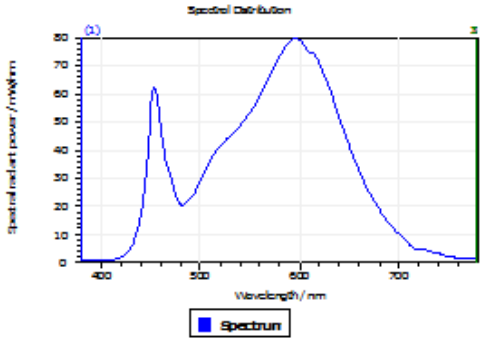
Test Result

CCT (K)	CRI	R9	Duv
3385	82	4	0.00039

Rf	Rg	IES Rcs,h1
83	94	-13%

4.1 Integrating Sphere Test

Results



Spectral values

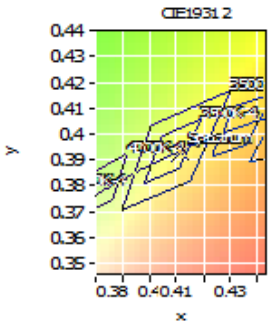
DominantWavelength	581.47 nm
Purity	0.414
PeakWavelength	595.64 nm
Radiant Power	12.39 W
Width50%:	135.75 nm

Color Coordinates

Correlated Color Temperat 3385 K

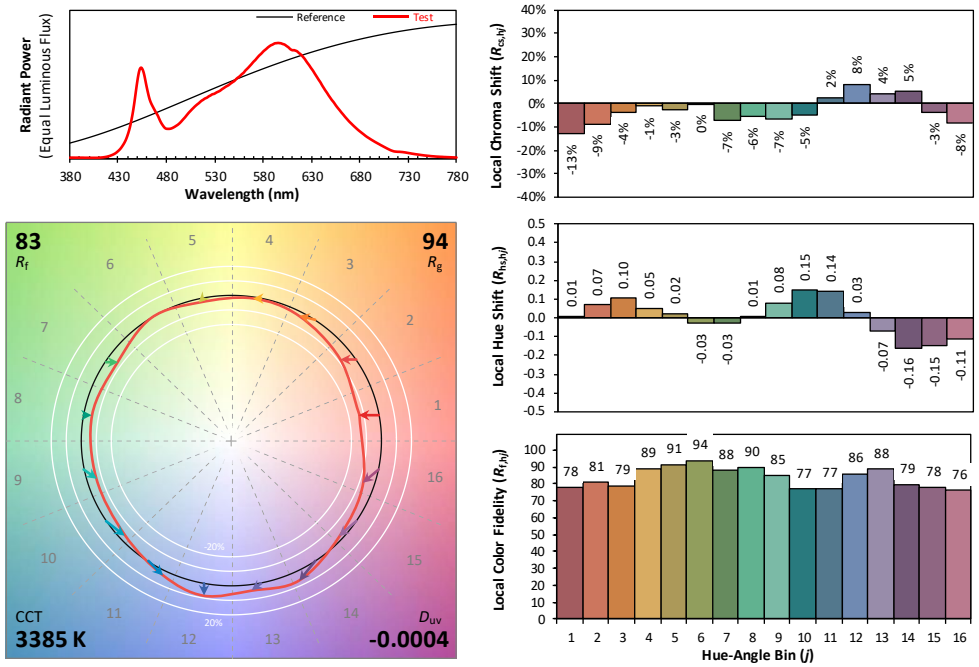
x:	0.4115	u:	0.2389	u':	0.2389
y:	0.3928	v:	0.3420	v':	0.5130

ResultsCRICRI01	80.4	ResultsCRICRI09	4.4
ResultsCRICRI02	91.1	ResultsCRICRI10	79.1
ResultsCRICRI03	95.8	ResultsCRICRI11	77.7
ResultsCRICRI04	79.1	ResultsCRICRI12	65.1
ResultsCRICRI05	80.7	ResultsCRICRI13	83.2
ResultsCRICRI06	88.2	ResultsCRICRI14	98.4
ResultsCRICRI07	82.6	ResultsCRICRI15	73.5
ResultsCRICRI08	59.3	ResultsCRICRI16	70.4
ResultsCRI	82.2		



PlanckDistance 3.9E-004

4.1 Integrating Sphere Test



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

x	0.4115
y	0.3928
u'	0.2389
v'	0.5130

CIE 13.3-1995 (CRI)

R_a	82
R_9	3

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.	EZPANFAHE2X2 / 40W / 4000K	Sample ID.	B1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

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

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.98	60	0.319	38.0	0.994
277.05	60	0.141	38.7	0.988

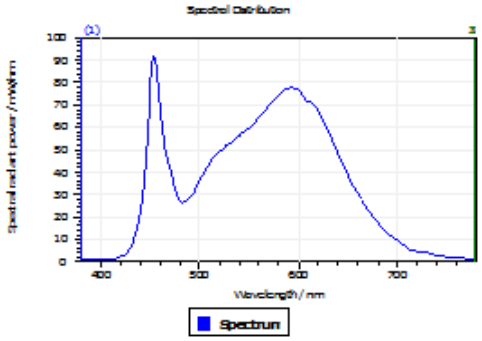
Test Result

CCT (K)	CRI	R9	Duv
3994	84	11	0.00005

Rf	Rg	IES Rcs,h1
83	93	-12%

4.1 Integrating Sphere Test

Results



Spectral values

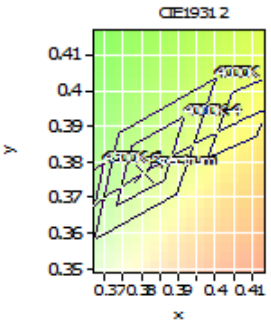
DominantWavelength	579.12 nm
Purity	0.273
PeakWavelength	453.99 nm
Radiant Power	13.34 W
Width50%:	22.18 nm

Color Coordinates

Correlated Color Temperat 3994 K

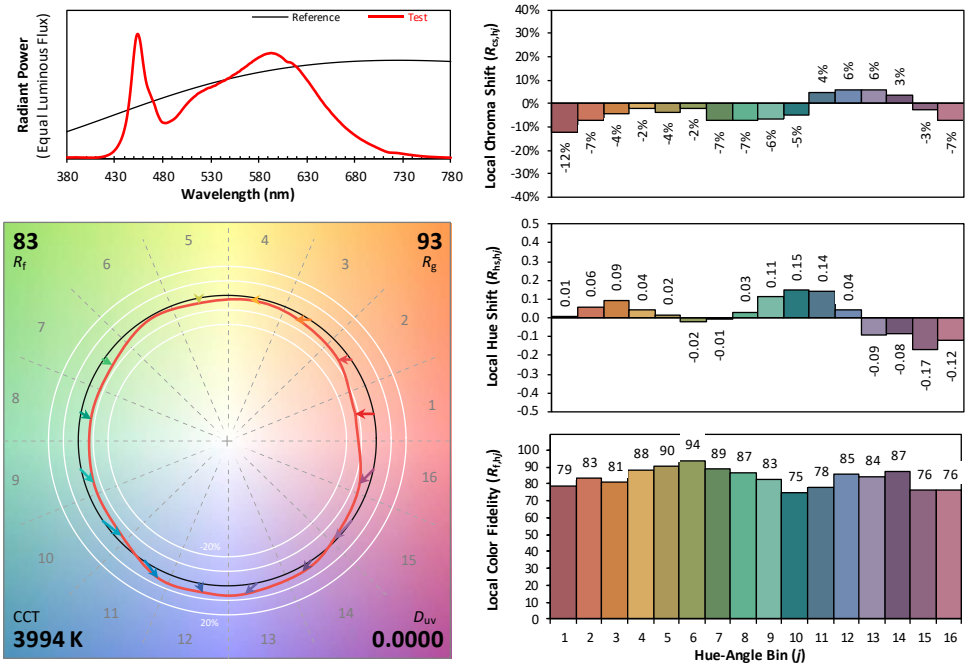
x:	0.3807	u:	0.2252	u':	0.2252
y:	0.3768	v:	0.3344	v':	0.5016

ResultsCRICRI01	82.3	ResultsCRICRI09	10.5
ResultsCRICRI02	91.8	ResultsCRICRI10	79.9
ResultsCRICRI03	95.8	ResultsCRICRI11	79.4
ResultsCRICRI04	80.4	ResultsCRICRI12	60.9
ResultsCRICRI05	81.9	ResultsCRICRI13	85.1
ResultsCRICRI06	87.6	ResultsCRICRI14	98.4
ResultsCRICRI07	84.8	ResultsCRICRI15	76.1
ResultsCRICRI08	64.0	ResultsCRICRI16	72.3
ResultsCRI	83.6		



PlanckDistance 5.0E-005

4.1 Integrating Sphere Test



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

x	0.3807
y	0.3768
u'	0.2252
v'	0.5016

CIE 13.3-1995 (CRI)

R_a	84
R_9	10

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.	EZPANFAHE2X2 / 40W / 5000K	Sample ID.	B1
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
120.08	60	0.332	39.6	0.994
277.03	60	0.146	40.1	0.990

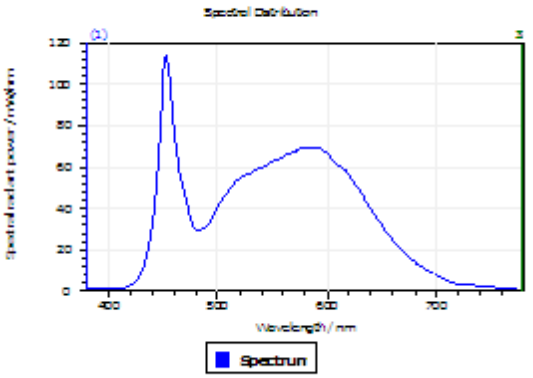
Test Result

CCT (K)	CRI	R9	Duv
4873	83	8	0.0028

Rf	Rg	IES Rcs,h1
83	94	-13%

4.1 Integrating Sphere Test

Results



Spectral values

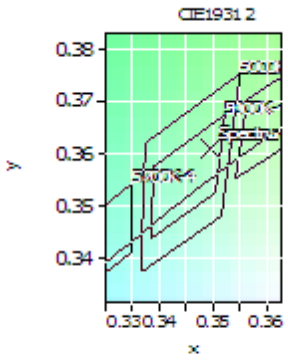
DominantWavelength	571.80 nm
Purity	0.131
PeakWavelength	453.03 nm
Radiant Power	13.24 W
Width50%:	21.13 nm
Luminous Flux	4.302 klm

Color Coordinates

Correlated Color Temperat 4873 K

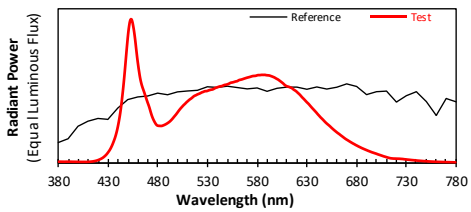
x:	0.3495	u:	0.2109	u':	0.2109
y:	0.3608	v:	0.3265	v':	0.4897

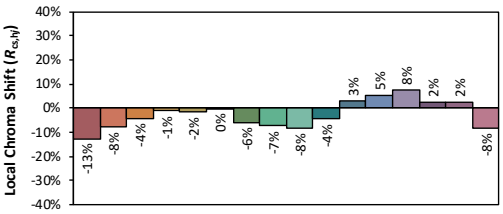
ResultsCRICRI01	81.0	ResultsCRICRI09	8.2
ResultsCRICRI02	89.8	ResultsCRICRI10	75.0
ResultsCRICRI03	94.7	ResultsCRICRI11	79.2
ResultsCRICRI04	80.4	ResultsCRICRI12	54.6
ResultsCRICRI05	80.9	ResultsCRICRI13	83.6
ResultsCRICRI06	84.8	ResultsCRICRI14	97.5
ResultsCRICRI07	87.0	ResultsCRICRI15	75.0
ResultsCRICRI08	66.4	ResultsCRICRI16	70.9
ResultsCRI	83.1		

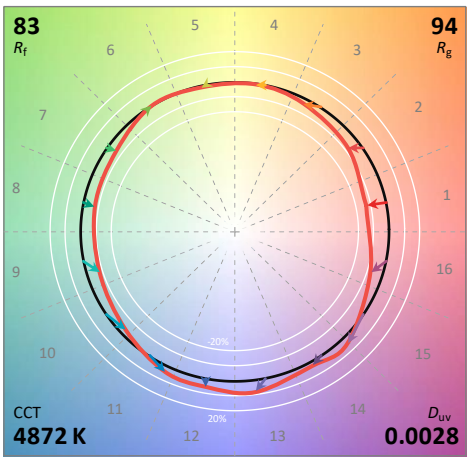


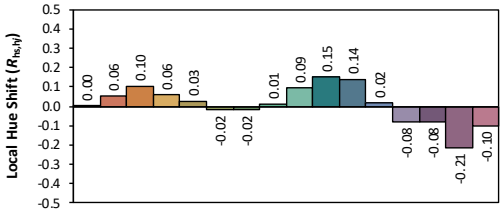
PlanckDistance 2.8E-003

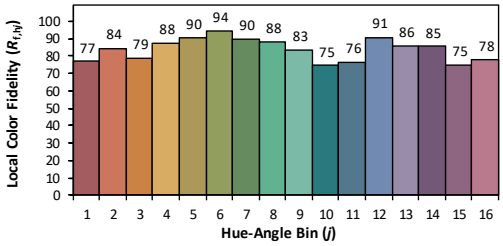
4.1 Integrating Sphere Test

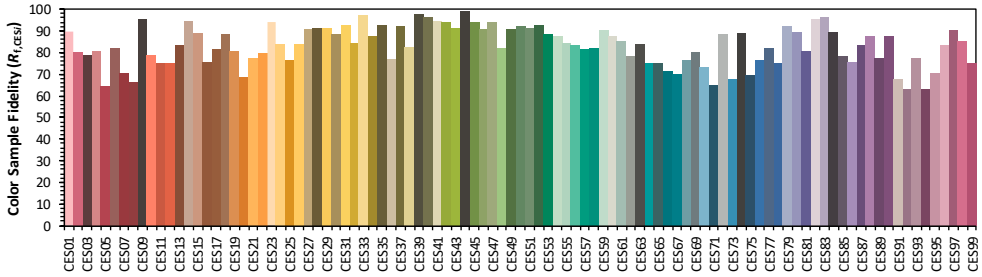












Notes: This is a recommended method for displaying IES TM-30-18 information.

x	0.3495
y	0.3608
u'	0.2109
v'	0.4897

CIE 13.3-1995 (CRI)

R_a	84
R_9	13

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X2 / 20W / 3500K	Sample ID.	B1
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	276.91	60	0.100	26.5	0.958
NON-WORST CASE	120.04	60	0.218	26.0	0.992

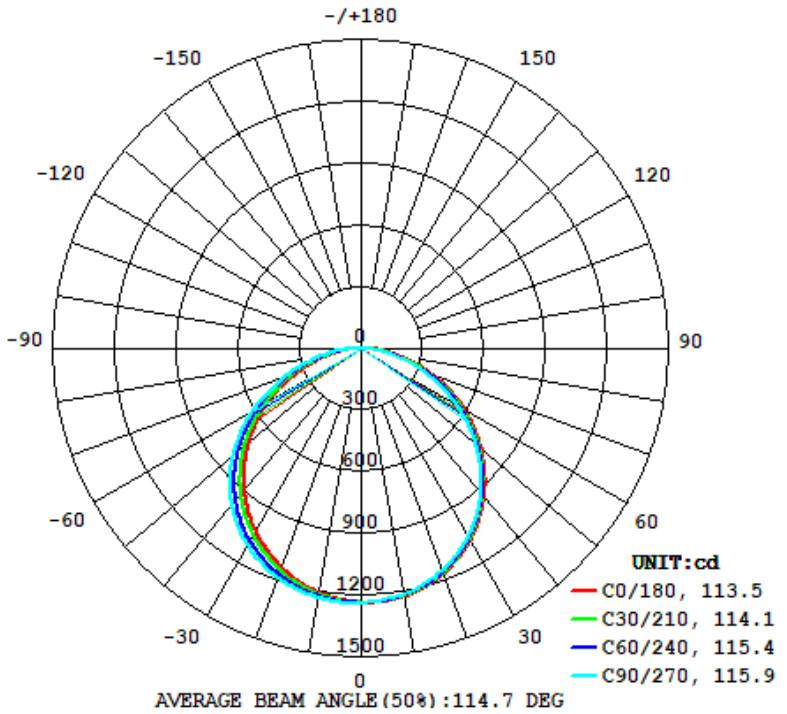
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
3644	163.2	162.9	113.5	115.9	137.4

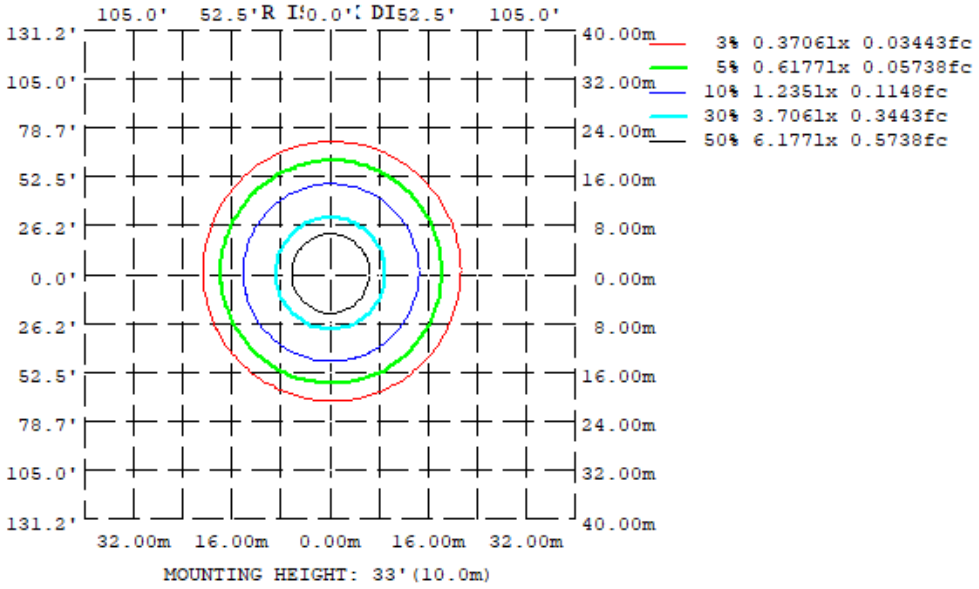
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
78.12%	20.1	1.28	1.24

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	1223	1216	1211	1205	1205	1217	1229	1230
20	1167	1159	1150	1136	1135	1162	1188	1185
30	1072	1061	1052	1031	1028	1067	1107	1102
40	938.4	925.6	912.2	887.7	887.9	934.9	982.8	975.3
50	772.3	753.7	737.9	714.3	718.5	767.5	817.3	810.4
60	579.2	556.6	536.9	519.0	528.8	572.8	617.3	613.3
70	370.5	346.1	324.8	313.9	328.3	362.5	397.0	397.2
80	168.6	146.8	125.3	123.4	138.1	160.3	181.1	184.6
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	15.9	17.6	16.3	17.9	18.2	15.8	17.5	16.2	17.8	18.1
	3H	17.7	19.2	18.0	19.5	19.9	17.6	19.1	18.0	19.5	19.8
	4H	18.3	19.7	18.7	20.1	20.4	18.3	19.7	18.7	20.1	20.4
	6H	18.7	20.0	19.1	20.4	20.8	18.8	20.1	19.2	20.5	20.9
	8H	18.9	20.1	19.3	20.5	20.9	19.0	20.2	19.4	20.6	21.0
	12H	18.9	20.1	19.3	20.5	20.9	19.0	20.3	19.5	20.6	21.1
4H	2H	16.6	18.0	17.0	18.3	18.7	16.5	17.9	16.9	18.3	18.7
	3H	18.5	19.7	18.9	20.1	20.5	18.5	19.7	18.9	20.1	20.5
	4H	19.3	20.3	19.7	20.8	21.2	19.3	20.4	19.8	20.8	21.2
	6H	19.8	20.8	20.3	21.2	21.7	19.9	20.9	20.4	21.3	21.8
	8H	20.0	20.9	20.4	21.3	21.8	20.1	21.0	20.6	21.5	21.9
	12H	20.1	20.9	20.5	21.3	21.8	20.3	21.1	20.8	21.5	22.0
8H	4H	19.6	20.5	20.1	20.9	21.4	19.7	20.5	20.1	21.0	21.4
	6H	20.3	21.0	20.7	21.5	21.9	20.4	21.1	20.9	21.6	22.1
	8H	20.5	21.1	21.0	21.6	22.1	20.7	21.3	21.2	21.8	22.3
	12H	20.6	21.2	21.1	21.7	22.2	20.9	21.5	21.4	21.9	22.5
12H	4H	19.6	20.4	20.1	20.9	21.4	19.7	20.5	20.2	21.0	21.4
	6H	20.3	21.0	20.8	21.4	22.0	20.5	21.1	21.0	21.6	22.1
	8H	20.6	21.1	21.1	21.6	22.2	20.8	21.4	21.3	21.9	22.4

Maximum UGR = 22.5

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

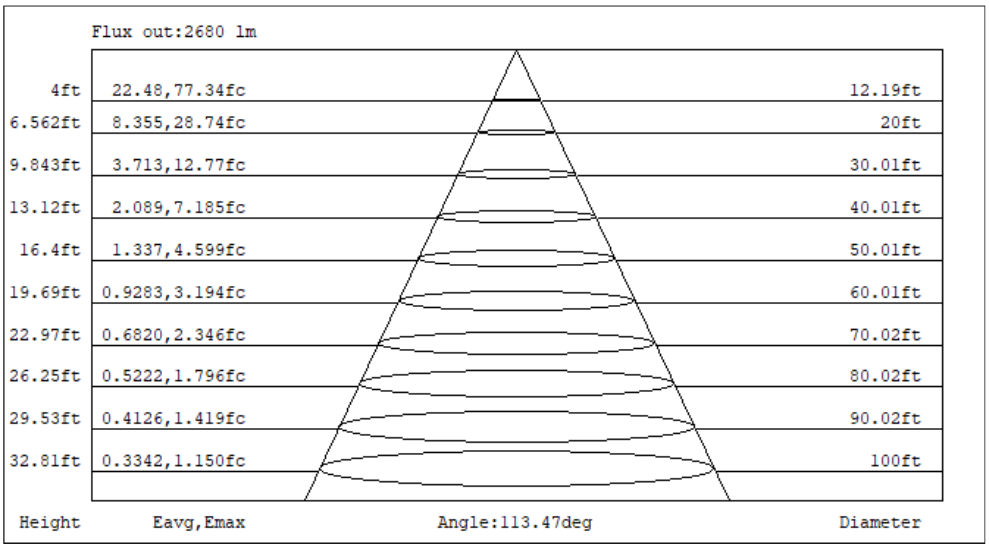
	Zonal (lm)		Total (lm)	Percent
0-10	117.07	0 - 10	117.07	3.21%
10-20	337.07	0 - 20	454.14	12.46%
20-30	515.22	0 - 30	969.36	26.60%
30-40	627.02	0 - 40	1596.38	43.81%
40-50	655.36	0 - 50	2251.74	61.79%
50-60	595.00	0 - 60	2846.74	78.12%
60-70	455.80	0 - 70	3302.54	90.63%
70-80	265.98	0 - 80	3568.52	97.93%
80-90	75.38	0 - 90	3643.90	100.00%
90-100	0.00	0 - 100	3643.90	100.00%
100-110	0.00	0 - 110	3643.90	100.00%
110-120	0.00	0 - 120	3643.90	100.00%
120-130	0.00	0 - 130	3643.90	100.00%
130-140	0.00	0 - 140	3643.90	100.00%
140-150	0.00	0 - 150	3643.90	100.00%
150-160	0.00	0 - 160	3643.90	100.00%
160-170	0.00	0 - 170	3643.90	100.00%
170-180	0.00	0 - 180	3643.90	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	99	95	106	101	97	94	97	94	91	93	90	88	90	87	85	83
2	99	90	83	77	96	88	82	76	85	79	75	81	77	73	78	75	71	69
3	90	79	71	64	87	77	70	63	74	68	62	72	66	61	69	64	60	58
4	82	70	61	54	80	68	60	54	66	59	53	64	57	52	61	56	52	49
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	45	43
6	70	56	47	40	68	55	47	40	53	46	40	52	45	40	50	44	39	37
7	64	51	42	36	63	50	42	36	48	41	35	47	40	35	46	39	35	33
8	60	46	38	32	58	46	37	32	44	37	31	43	36	31	42	36	31	29
9	56	42	34	29	55	42	34	28	41	33	28	40	33	28	39	32	28	26
10	52	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	25	24

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X2 / 20W / 4000K	Sample ID.	B1
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	276.93	60	0.098	25.9	0.955
NON-WORST CASE	120.05	60	0.211	25.2	0.993

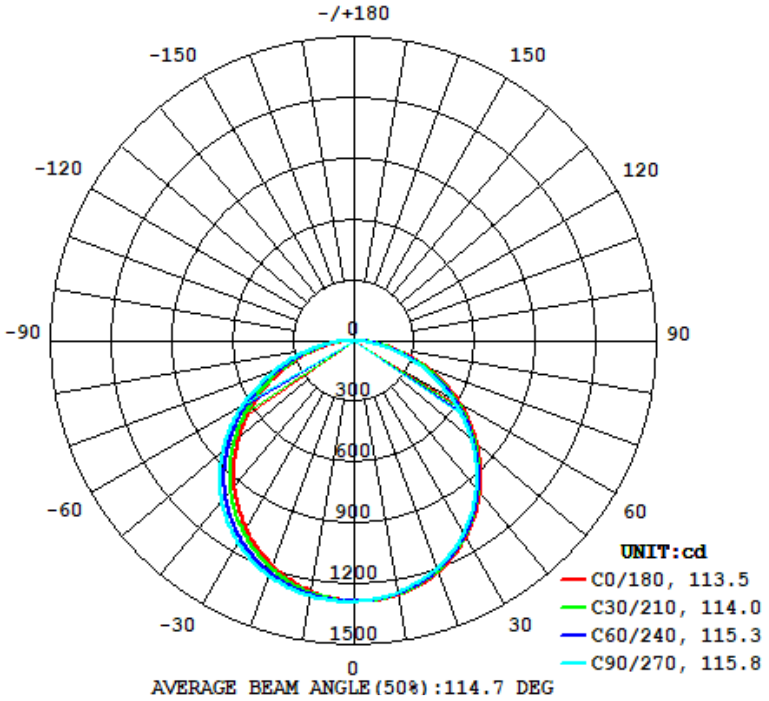
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
3789	163.2	162.9	113.5	115.8	146.2

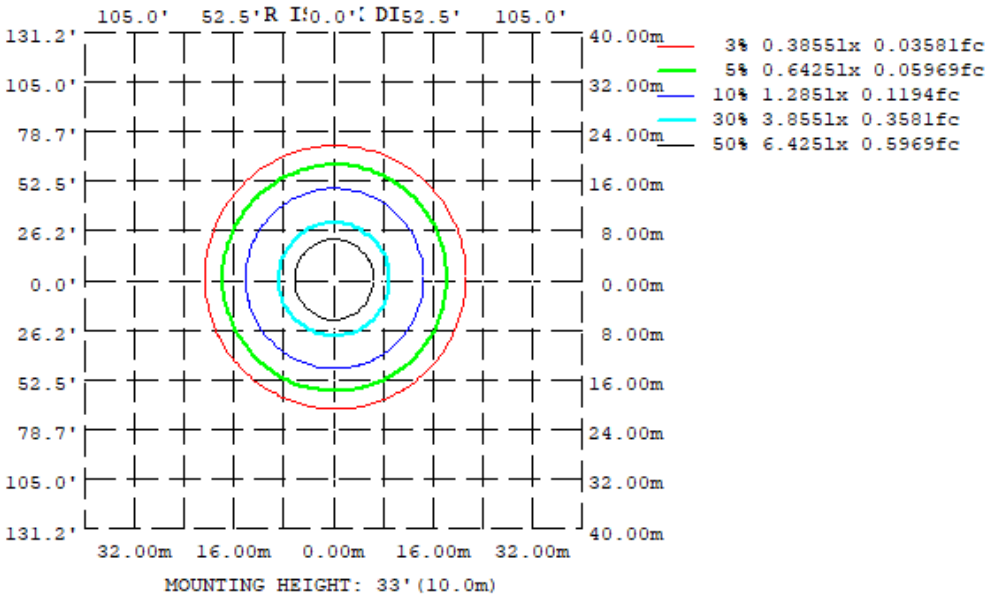
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
78.12%	20.3	1.28	1.26

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1271	1265	1261	1253	1256	1266	1279	1280
20	1214	1205	1196	1181	1182	1210	1235	1233
30	1115	1103	1093	1071	1071	1111	1151	1144
40	973.8	961.4	949.0	922.7	922.9	971.4	1022	1014
50	802.7	783.9	766.1	743.1	748.5	799.0	849.1	843.2
60	601.3	577.3	557.4	538.7	550.6	596.1	641.8	637.5
70	385.3	359.3	337.5	326.1	342.0	377.8	413.0	413.8
80	174.6	152.1	130.0	128.0	144.6	167.4	188.6	192.9
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	16.0	17.7	16.4	18.0	18.3	16.0	17.6	16.3	17.9	18.2
	3H	17.8	19.3	18.1	19.6	20.0	17.7	19.2	18.1	19.6	19.9
	4H	18.4	19.8	18.8	20.2	20.5	18.4	19.8	18.8	20.2	20.6
	6H	18.8	20.1	19.2	20.5	20.9	18.9	20.2	19.3	20.6	21.0
	8H	18.9	20.2	19.4	20.6	21.0	19.1	20.3	19.5	20.7	21.1
	12H	19.0	20.2	19.4	20.6	21.0	19.2	20.4	19.6	20.7	21.2
4H	2H	16.7	18.1	17.1	18.4	18.8	16.6	18.0	17.0	18.4	18.8
	3H	18.6	19.8	19.0	20.2	20.6	18.6	19.8	19.1	20.2	20.6
	4H	19.4	20.4	19.8	20.9	21.3	19.4	20.5	19.9	20.9	21.4
	6H	19.9	20.8	20.4	21.3	21.7	20.0	21.0	20.5	21.4	21.9
	8H	20.1	20.9	20.5	21.4	21.9	20.3	21.1	20.7	21.6	22.0
	12H	20.2	20.9	20.6	21.4	21.9	20.4	21.2	20.9	21.7	22.1
8H	4H	19.7	20.6	20.1	21.0	21.5	19.8	20.7	20.2	21.1	21.6
	6H	20.3	21.1	20.8	21.6	22.0	20.5	21.2	21.0	21.7	22.2
	8H	20.5	21.2	21.0	21.7	22.2	20.8	21.4	21.3	21.9	22.4
	12H	20.7	21.3	21.2	21.8	22.3	21.0	21.6	21.5	22.1	22.6
12H	4H	19.7	20.5	20.2	21.0	21.5	19.8	20.6	20.3	21.1	21.5
	6H	20.4	21.1	20.9	21.5	22.1	20.6	21.2	21.1	21.7	22.2
	8H	20.7	21.2	21.2	21.7	22.3	20.9	21.5	21.4	22.0	22.5

Maximum UGR = 22.6

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

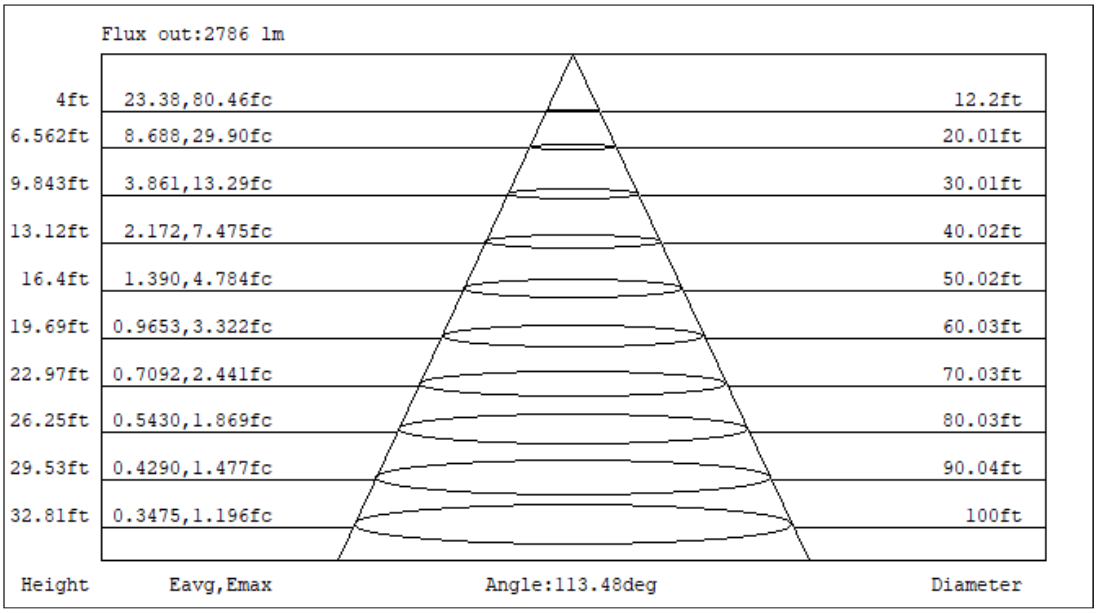
	Zonal (lm)		Total (lm)	Percent
0-10	121.77	0 - 10	121.77	3.21%
10-20	350.52	0 - 20	472.29	12.46%
20-30	535.80	0 - 30	1008.09	26.60%
30-40	651.98	0 - 40	1660.07	43.81%
40-50	681.41	0 - 50	2341.48	61.79%
50-60	618.66	0 - 60	2960.14	78.12%
60-70	473.95	0 - 70	3434.09	90.63%
70-80	276.64	0 - 80	3710.73	97.93%
80-90	78.42	0 - 90	3789.15	100.00%
90-100	0.00	0 - 100	3789.15	100.00%
100-110	0.00	0 - 110	3789.15	100.00%
110-120	0.00	0 - 120	3789.15	100.00%
120-130	0.00	0 - 130	3789.15	100.00%
130-140	0.00	0 - 140	3789.15	100.00%
140-150	0.00	0 - 150	3789.15	100.00%
150-160	0.00	0 - 160	3789.15	100.00%
160-170	0.00	0 - 170	3789.15	100.00%
170-180	0.00	0 - 180	3789.15	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	99	95	106	101	97	94	97	94	91	93	90	88	90	87	85	83
2	99	90	83	77	96	88	82	76	85	79	75	81	77	73	78	75	71	69
3	90	79	71	64	87	77	70	63	74	68	62	72	66	61	69	64	60	58
4	82	70	61	54	80	68	60	54	66	59	53	64	57	52	61	56	52	49
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	45	43
6	70	56	47	40	68	55	47	40	53	46	40	52	45	40	50	44	39	37
7	64	51	42	36	63	50	42	36	48	41	35	47	40	35	46	39	35	33
8	60	46	38	32	58	46	37	32	44	37	31	43	36	31	42	36	31	29
9	56	42	34	29	55	42	34	28	41	33	28	40	33	28	39	32	28	26
10	52	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	25	24

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X2 / 20W / 5000K	Sample ID.	B1
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	276.96	60	0.100	26.6	0.958
NON-WORST CASE	120.05	60	0.219	26.1	0.995

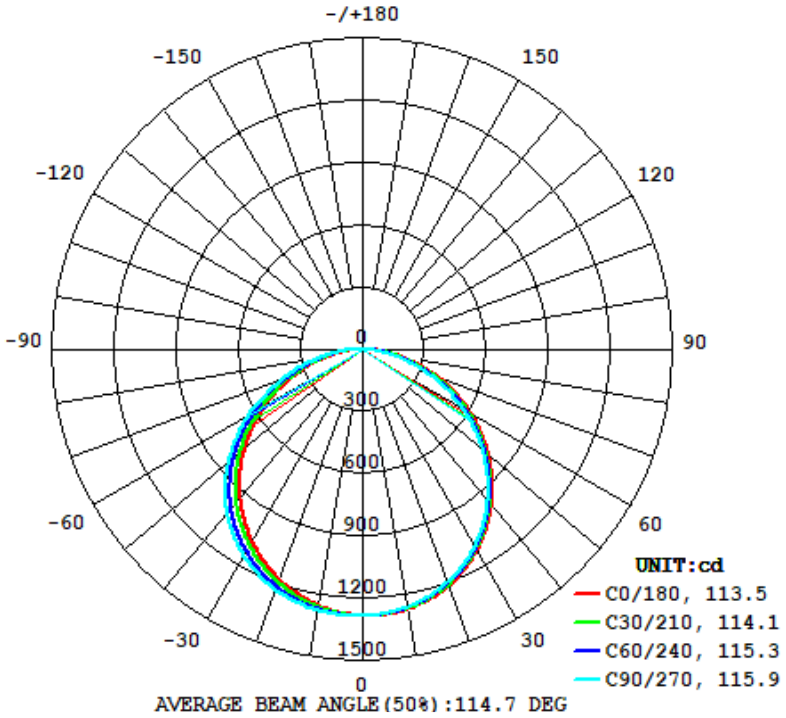
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
3785	163.2	162.9	113.5	115.9	142.3

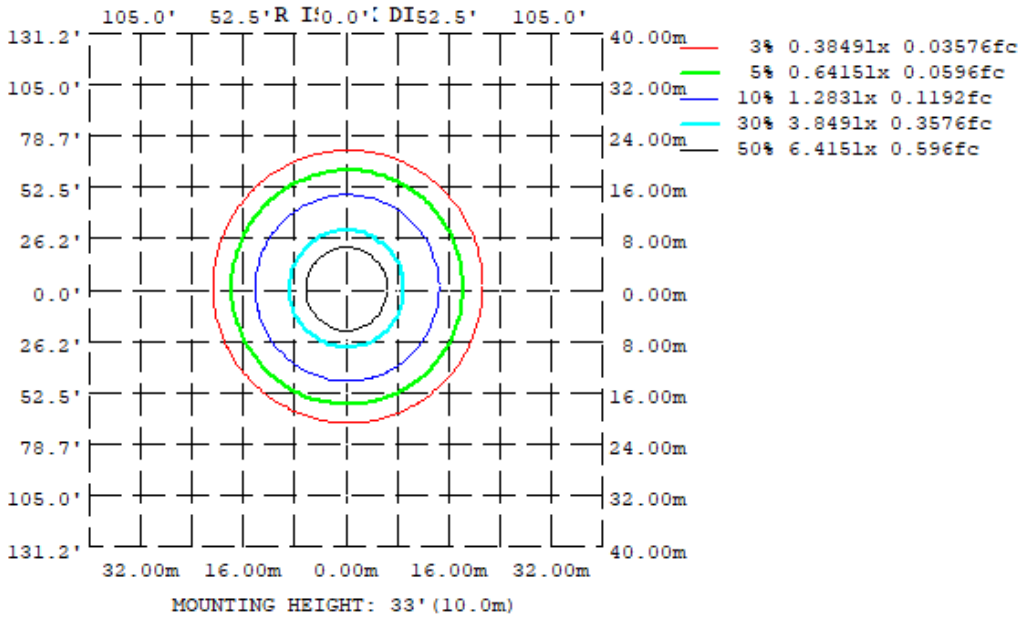
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
78.12%	20.3	1.28	1.26

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1270	1264	1258	1252	1253	1266	1277	1278
20	1213	1203	1195	1180	1181	1208	1234	1233
30	1113	1103	1092	1070	1071	1111	1149	1143
40	974.0	960.4	946.3	922.5	923.9	971.4	1021	1013
50	801.8	782.5	764.3	741.4	748.4	797.7	849.0	841.8
60	600.9	577.2	556.4	537.5	551.1	596.0	641.0	637.5
70	384.4	358.9	337.1	325.0	342.6	378.1	413.0	413.1
80	174.0	151.9	129.7	127.9	144.9	167.6	189.0	192.5
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

UGR Table - Corrected

Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	16.0	17.7	16.4	18.0	18.3	16.0	17.6	16.3	17.9	18.2
	3H	17.8	19.3	18.1	19.6	20.0	17.7	19.3	18.1	19.6	19.9
	4H	18.4	19.8	18.8	20.2	20.5	18.4	19.8	18.8	20.2	20.6
	6H	18.8	20.1	19.2	20.5	20.9	18.9	20.2	19.3	20.6	21.0
	8H	18.9	20.2	19.4	20.6	21.0	19.1	20.3	19.5	20.7	21.1
	12H	19.0	20.2	19.4	20.6	21.0	19.2	20.4	19.6	20.8	21.2
4H	2H	16.7	18.1	17.1	18.4	18.8	16.6	18.0	17.0	18.4	18.8
	3H	18.6	19.8	19.0	20.2	20.6	18.6	19.8	19.1	20.2	20.6
	4H	19.4	20.4	19.8	20.8	21.3	19.4	20.5	19.9	20.9	21.4
	6H	19.9	20.8	20.3	21.3	21.7	20.0	21.0	20.5	21.4	21.9
	8H	20.1	20.9	20.5	21.4	21.8	20.3	21.1	20.7	21.6	22.0
	12H	20.1	20.9	20.6	21.4	21.9	20.4	21.2	20.9	21.7	22.1
8H	4H	19.7	20.6	20.1	21.0	21.5	19.8	20.7	20.2	21.1	21.6
	6H	20.3	21.1	20.8	21.5	22.0	20.5	21.3	21.0	21.7	22.2
	8H	20.5	21.2	21.0	21.7	22.2	20.8	21.4	21.3	21.9	22.4
	12H	20.7	21.3	21.2	21.7	22.3	21.0	21.6	21.5	22.1	22.6
12H	4H	19.7	20.5	20.2	21.0	21.4	19.8	20.6	20.3	21.1	21.6
	6H	20.4	21.1	20.9	21.5	22.1	20.6	21.3	21.1	21.7	22.3
	8H	20.6	21.2	21.1	21.7	22.3	20.9	21.5	21.4	22.0	22.5

Maximum UGR = 22.6

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

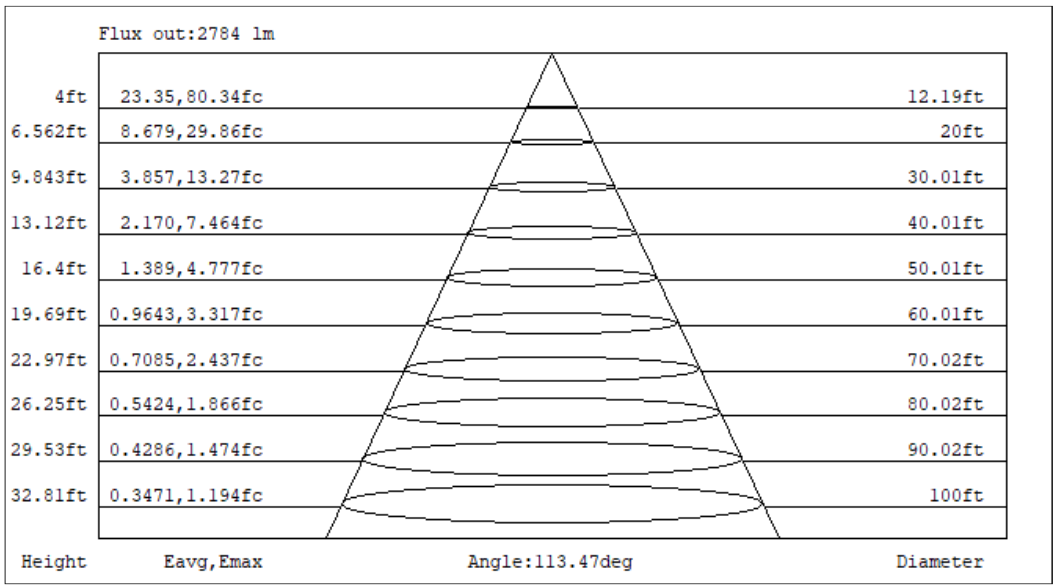
	Zonal (lm)		Total (lm)	Percent
0-10	121.63	0 - 10	121.63	3.21%
10-20	350.15	0 - 20	471.78	12.46%
20-30	535.22	0 - 30	1007.00	26.60%
30-40	651.31	0 - 40	1658.31	43.81%
40-50	680.73	0 - 50	2339.04	61.79%
50-60	618.06	0 - 60	2957.10	78.12%
60-70	473.52	0 - 70	3430.62	90.63%
70-80	276.41	0 - 80	3707.03	97.93%
80-90	78.40	0 - 90	3785.43	100.00%
90-100	0.00	0 - 100	3785.43	100.00%
100-110	0.00	0 - 110	3785.43	100.00%
110-120	0.00	0 - 120	3785.43	100.00%
120-130	0.00	0 - 130	3785.43	100.00%
130-140	0.00	0 - 140	3785.43	100.00%
140-150	0.00	0 - 150	3785.43	100.00%
150-160	0.00	0 - 160	3785.43	100.00%
160-170	0.00	0 - 170	3785.43	100.00%
170-180	0.00	0 - 180	3785.43	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	99	95	106	101	97	94	97	94	91	93	91	88	90	87	85	83
2	99	90	83	77	96	88	82	76	85	79	75	81	77	73	78	75	71	69
3	90	79	71	64	87	77	70	63	74	68	62	72	66	61	69	64	60	58
4	82	70	61	54	80	68	60	54	66	59	53	64	57	52	61	56	52	49
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	45	43
6	70	56	47	40	68	55	47	40	53	46	40	52	45	40	50	44	39	37
7	64	51	42	36	63	50	42	36	48	41	35	47	40	35	46	39	35	33
8	60	46	38	32	58	46	37	32	44	37	31	43	36	31	42	36	31	29
9	56	42	34	29	55	42	34	28	41	33	28	40	33	28	39	32	28	26
10	52	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	25	24

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X2 / 30W / 3500K	Sample ID.	B1
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	276.91	60	0.114	30.7	0.974
NON-WORST CASE	120.01	60	0.230	27.5	0.995

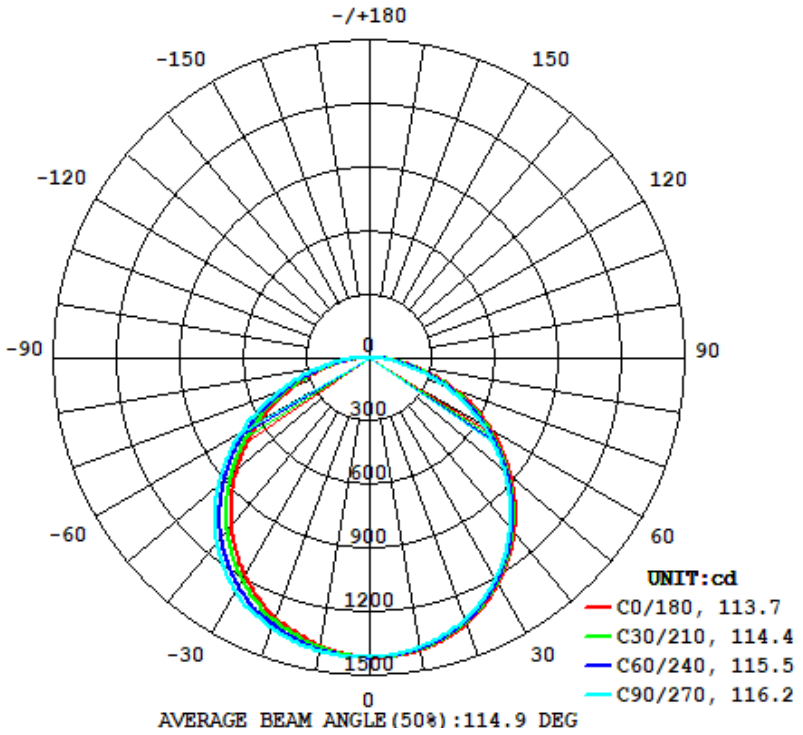
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
4183	163.3	163.0	113.7	116.2	136.1

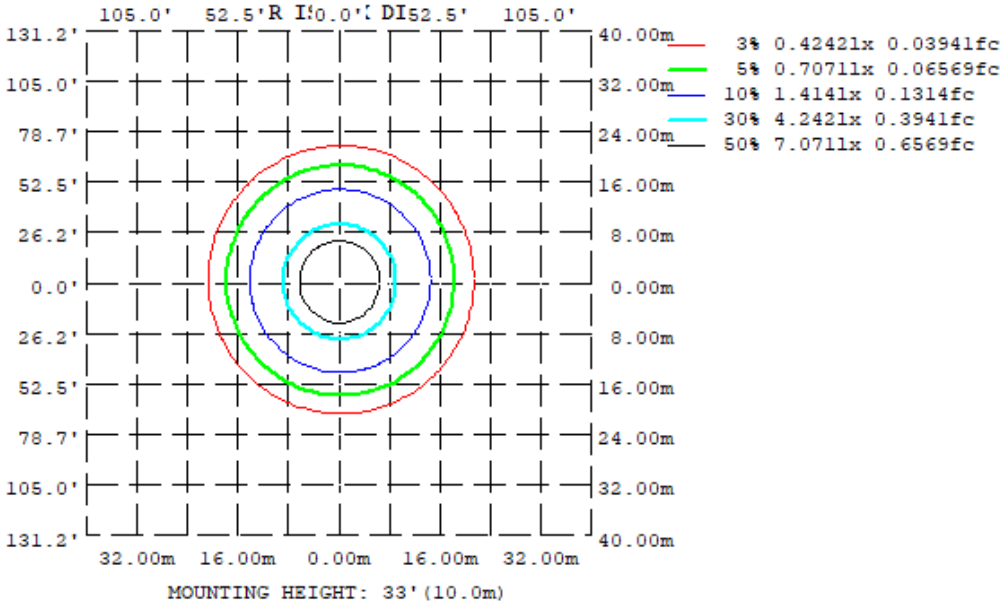
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
78.06%	20.7	1.28	1.26

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1400	1392	1384	1379	1380	1392	1405	1407
20	1337	1326	1316	1299	1309	1330	1358	1355
30	1229	1215	1204	1179	1185	1231	1275	1267
40	1075	1059	1045	1016	1022	1076	1131	1122
50	884.9	862.9	844.2	816.1	827.4	883.0	939.8	932.5
60	663.9	635.2	619.2	597.7	607.9	659.0	709.9	705.4
70	428.0	399.2	374.7	361.5	377.5	417.1	456.5	456.6
80	194.5	169.7	144.7	142.6	158.9	183.8	208.0	212.0
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

UGR Table - Corrected

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	16.4	18.1	16.8	18.4	18.7	16.3	18.0	16.7	18.3	18.6
	3H	18.2	19.7	18.6	20.0	20.4	18.1	19.6	18.5	20.0	20.3
	4H	18.8	20.2	19.2	20.6	20.9	18.8	20.2	19.2	20.6	20.9
	6H	19.2	20.6	19.7	20.9	21.3	19.3	20.6	19.7	21.0	21.4
	8H	19.4	20.6	19.8	21.0	21.4	19.5	20.7	19.9	21.1	21.5
	12H	19.4	20.6	19.8	21.0	21.4	19.6	20.8	20.0	21.1	21.6
4H	2H	17.1	18.5	17.5	18.8	19.2	17.0	18.4	17.4	18.8	19.2
	3H	19.0	20.2	19.4	20.6	21.0	19.0	20.2	19.5	20.6	21.0
	4H	19.8	20.9	20.2	21.3	21.7	19.8	20.9	20.3	21.3	21.8
	6H	20.3	21.3	20.8	21.7	22.2	20.4	21.4	20.9	21.8	22.3
	8H	20.5	21.4	21.0	21.8	22.3	20.7	21.5	21.1	22.0	22.4
	12H	20.6	21.4	21.1	21.9	22.3	20.8	21.6	21.3	22.1	22.5
8H	4H	20.1	21.0	20.6	21.4	21.9	20.2	21.1	20.6	21.5	22.0
	6H	20.8	21.5	21.3	22.0	22.5	20.9	21.6	21.4	22.1	22.6
	8H	21.0	21.6	21.5	22.1	22.6	21.2	21.8	21.7	22.3	22.8
	12H	21.1	21.7	21.6	22.2	22.8	21.4	22.0	21.9	22.5	23.0
12H	4H	20.1	20.9	20.6	21.4	21.9	20.2	21.0	20.7	21.5	22.0
	6H	20.8	21.5	21.4	22.0	22.5	21.0	21.7	21.5	22.1	22.6
	8H	21.1	21.7	21.6	22.2	22.7	21.3	21.9	21.8	22.4	22.9

Maximum UGR = 23.0

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

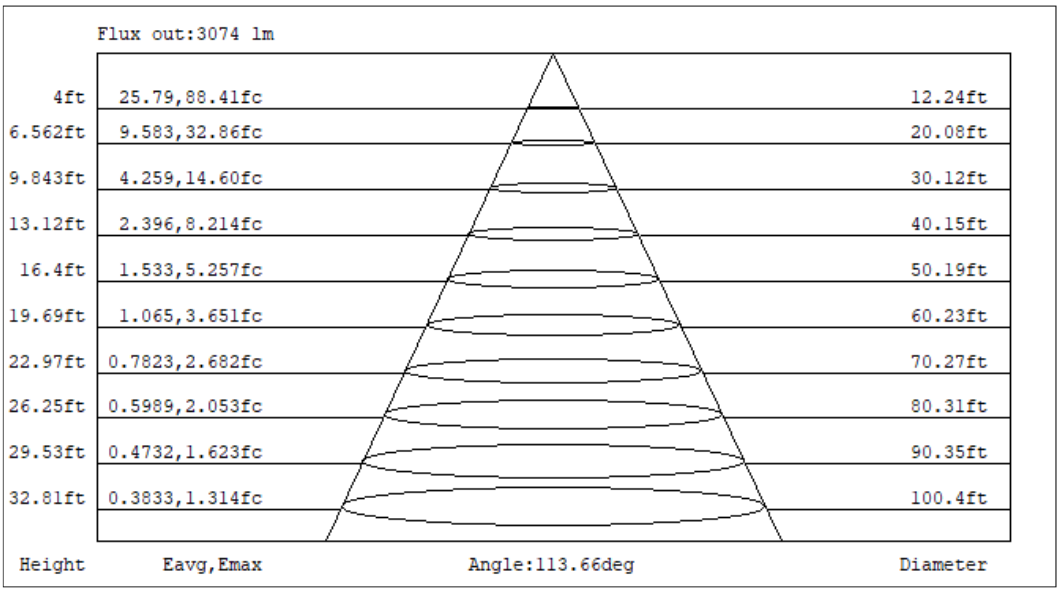
	Zonal (lm)		Total (lm)	Percent
0-10	133.91	0 - 10	133.91	3.20%
10-20	385.59	0 - 20	519.50	12.42%
20-30	590.87	0 - 30	1110.37	26.54%
30-40	719.79	0 - 40	1830.16	43.75%
40-50	752.24	0 - 50	2582.40	61.73%
50-60	683.08	0 - 60	3265.48	78.06%
60-70	524.74	0 - 70	3790.22	90.60%
70-80	306.26	0 - 80	4096.48	97.92%
80-90	86.82	0 - 90	4183.30	100.00%
90-100	0.00	0 - 100	4183.30	100.00%
100-110	0.00	0 - 110	4183.30	100.00%
110-120	0.00	0 - 120	4183.30	100.00%
120-130	0.00	0 - 130	4183.30	100.00%
130-140	0.00	0 - 140	4183.30	100.00%
140-150	0.00	0 - 150	4183.30	100.00%
150-160	0.00	0 - 160	4183.30	100.00%
160-170	0.00	0 - 170	4183.30	100.00%
170-180	0.00	0 - 180	4183.30	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	99	95	106	101	97	94	97	94	91	93	90	88	90	87	85	83
2	99	90	83	77	96	88	82	76	85	79	75	81	77	73	78	75	71	69
3	90	79	71	64	87	77	70	63	74	68	62	72	66	61	69	64	60	58
4	82	70	61	54	80	68	60	54	66	59	53	64	57	52	61	56	51	49
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	45	42
6	70	56	47	40	68	55	46	40	53	46	40	52	45	39	50	44	39	37
7	64	51	42	36	63	50	41	35	48	41	35	47	40	35	46	39	35	33
8	60	46	38	32	58	46	37	32	44	37	31	43	36	31	42	36	31	29
9	56	42	34	28	55	42	34	28	41	33	28	40	33	28	39	32	28	26
10	52	39	31	26	51	39	31	26	38	30	26	37	30	25	36	30	25	24

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X2 / 30W / 4000K	Sample ID.	B1
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	276.93	60	0.111	29.9	0.971
NON-WORST CASE	120.05	60	0.245	29.3	0.996

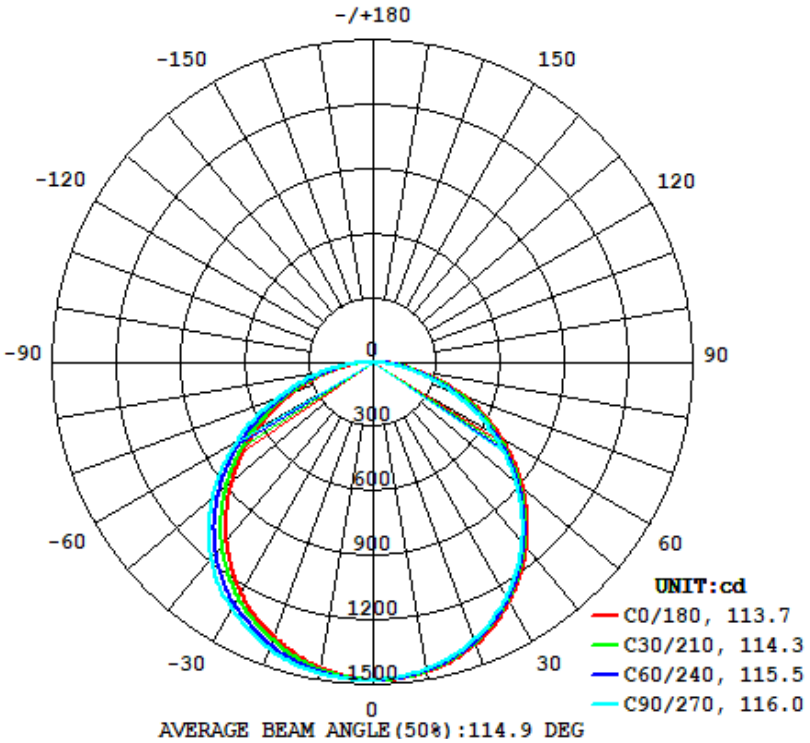
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
4368	163.4	163.0	113.7	116.0	145.9

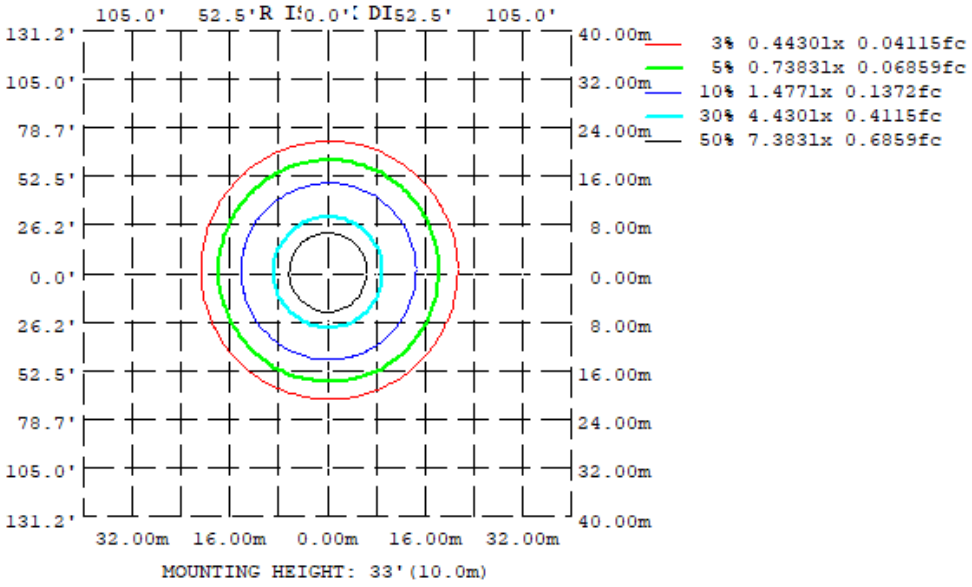
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
78.05%	20.8	1.28	1.26

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1462	1454	1446	1438	1442	1456	1469	1469
20	1396	1387	1375	1357	1359	1390	1419	1416
30	1282	1268	1257	1231	1239	1285	1322	1315
40	1122	1105	1090	1061	1069	1126	1181	1172
50	922.5	900.2	880.5	852.6	866.4	923.9	982.7	975.2
60	691.6	664.3	641.3	618.9	637.5	689.6	741.7	737.7
70	445.4	415.9	390.8	377.1	395.7	437.1	477.3	478.0
80	201.9	176.0	150.4	148.1	167.5	193.2	218.3	222.5
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

UGR Table - Corrected

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	16.5	18.2	16.9	18.5	18.8	16.5	18.1	16.8	18.4	18.7
	3H	18.3	19.8	18.6	20.1	20.5	18.3	19.8	18.6	20.1	20.4
	4H	18.9	20.3	19.3	20.7	21.0	18.9	20.3	19.3	20.7	21.1
	6H	19.3	20.6	19.7	21.0	21.4	19.4	20.7	19.8	21.1	21.5
	8H	19.5	20.7	19.9	21.1	21.5	19.6	20.8	20.0	21.2	21.6
	12H	19.5	20.7	19.9	21.1	21.5	19.7	20.9	20.1	21.3	21.7
4H	2H	17.1	18.6	17.5	18.9	19.3	17.1	18.5	17.5	18.9	19.3
	3H	19.1	20.3	19.5	20.7	21.1	19.2	20.3	19.6	20.7	21.1
	4H	19.9	21.0	20.3	21.4	21.8	19.9	21.0	20.4	21.4	21.9
	6H	20.4	21.4	20.9	21.8	22.3	20.6	21.5	21.0	21.9	22.4
	8H	20.6	21.5	21.0	21.9	22.4	20.8	21.7	21.2	22.1	22.6
	12H	20.7	21.5	21.1	21.9	22.4	20.9	21.7	21.4	22.2	22.6
8H	4H	20.2	21.1	20.7	21.5	22.0	20.3	21.2	20.8	21.6	22.1
	6H	20.8	21.6	21.3	22.1	22.5	21.0	21.8	21.5	22.2	22.7
	8H	21.1	21.7	21.6	22.2	22.7	21.3	22.0	21.8	22.5	22.9
	12H	21.2	21.8	21.7	22.3	22.8	21.5	22.1	22.0	22.6	23.1
12H	4H	20.2	21.0	20.7	21.5	22.0	20.3	21.1	20.8	21.6	22.1
	6H	20.9	21.6	21.4	22.0	22.6	21.1	21.8	21.6	22.2	22.8
	8H	21.2	21.8	21.7	22.2	22.8	21.4	22.0	21.9	22.5	23.1

Maximum UGR = 23.1

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

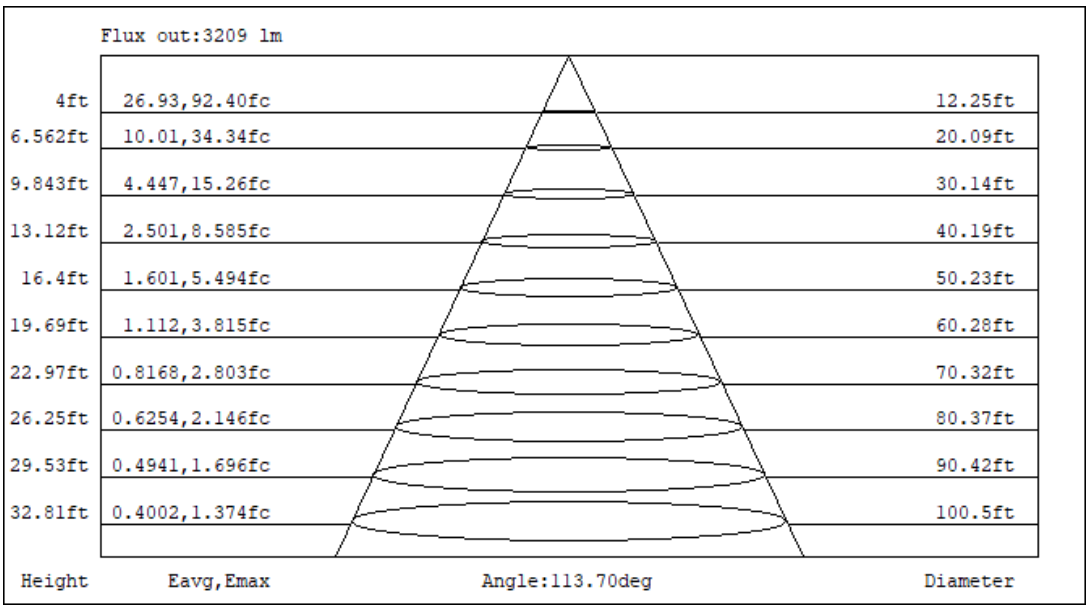
	Zonal (lm)		Total (lm)	Percent
0-10	139.91	0 - 10	139.91	3.20%
10-20	402.79	0 - 20	542.70	12.42%
20-30	616.03	0 - 30	1158.73	26.52%
30-40	751.74	0 - 40	1910.47	43.73%
40-50	785.80	0 - 50	2696.27	61.72%
50-60	713.35	0 - 60	3409.62	78.05%
60-70	547.97	0 - 70	3957.59	90.59%
70-80	320.01	0 - 80	4277.60	97.92%
80-90	90.85	0 - 90	4368.45	100.00%
90-100	0.00	0 - 100	4368.45	100.00%
100-110	0.00	0 - 110	4368.45	100.00%
110-120	0.00	0 - 120	4368.45	100.00%
120-130	0.00	0 - 130	4368.45	100.00%
130-140	0.00	0 - 140	4368.45	100.00%
140-150	0.00	0 - 150	4368.45	100.00%
150-160	0.00	0 - 160	4368.45	100.00%
160-170	0.00	0 - 170	4368.45	100.00%
170-180	0.00	0 - 180	4368.45	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	99	95	106	101	97	94	97	94	91	93	90	88	90	87	85	83
2	98	90	83	77	96	88	82	76	85	79	75	81	77	73	78	75	71	69
3	90	79	71	64	87	77	70	63	74	68	62	72	66	61	69	64	60	58
4	82	70	61	54	80	68	60	54	66	59	53	64	57	52	61	56	51	49
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	45	42
6	69	56	47	40	68	55	46	40	53	46	40	52	45	39	50	44	39	37
7	64	51	42	36	63	50	41	35	48	41	35	47	40	35	46	39	35	33
8	60	46	38	32	58	46	37	32	44	37	31	43	36	31	42	36	31	29
9	56	42	34	28	55	42	34	28	41	33	28	40	33	28	39	32	28	26
10	52	39	31	26	51	39	31	26	38	30	26	37	30	25	36	30	25	24

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X2 / 30W / 5000K	Sample ID.	B1
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	276.97	60	0.114	30.8	0.974
NON-WORST CASE	120.05	60	0.253	30.2	0.995

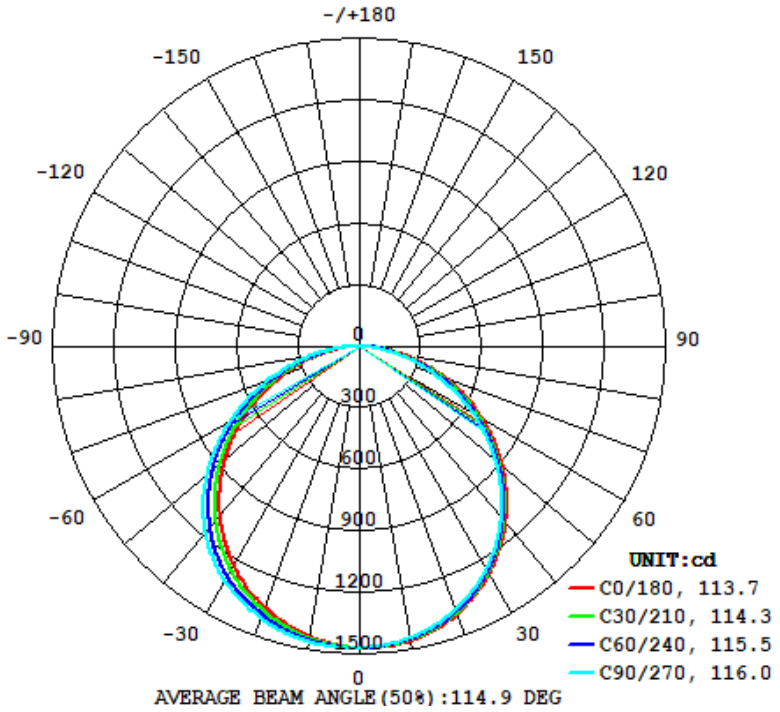
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
4346	163.4	163.1	113.7	116.0	140.9

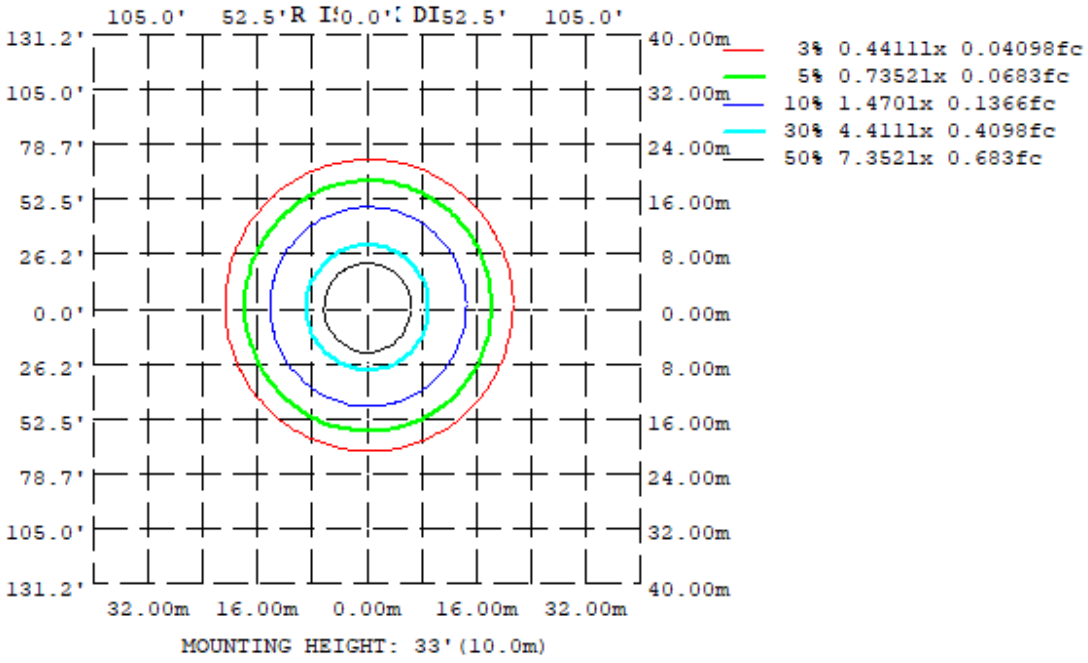
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
78.05%	20.8	1.28	1.26

4.2 Goniophotometer Test

Light Distrubtion Curve



Isolux Plot



4.2 Goniophotometer Test

Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	1455	1446	1439	1431	1436	1448	1461	1461
20	1389	1378	1367	1351	1352	1382	1412	1408
30	1275	1262	1250	1225	1233	1278	1321	1315
40	1117	1099	1084	1054	1065	1119	1176	1166
50	918.8	895.5	876.0	848.9	863.2	919.5	977.0	968.6
60	688.0	660.4	635.7	617.2	635.0	687.1	738.4	733.9
70	443.5	412.8	387.8	374.6	394.6	435.3	474.8	476.0
80	200.5	174.8	149.0	147.1	167.3	192.7	217.4	221.6
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

UGR Table - Corrected

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	16.5	18.2	16.9	18.5	18.8	16.5	18.1	16.8	18.4	18.7
	3H	18.3	19.8	18.6	20.1	20.4	18.3	19.8	18.6	20.1	20.5
	4H	18.9	20.3	19.3	20.7	21.0	18.9	20.4	19.3	20.7	21.1
	6H	19.3	20.6	19.7	21.0	21.4	19.4	20.7	19.8	21.1	21.5
	8H	19.4	20.7	19.9	21.1	21.5	19.6	20.8	20.0	21.2	21.6
	12H	19.5	20.7	19.9	21.1	21.5	19.7	20.9	20.1	21.3	21.7
4H	2H	17.1	18.6	17.5	18.9	19.3	17.1	18.6	17.5	18.9	19.3
	3H	19.1	20.3	19.5	20.7	21.1	19.2	20.3	19.6	20.7	21.1
	4H	19.9	20.9	20.3	21.4	21.8	20.0	21.0	20.4	21.4	21.9
	6H	20.4	21.4	20.9	21.8	22.2	20.6	21.5	21.0	22.0	22.4
	8H	20.6	21.4	21.0	21.9	22.4	20.8	21.7	21.2	22.1	22.6
	12H	20.7	21.4	21.1	21.9	22.4	20.9	21.7	21.4	22.2	22.7
8H	4H	20.2	21.1	20.6	21.5	22.0	20.3	21.2	20.8	21.6	22.1
	6H	20.8	21.6	21.3	22.1	22.5	21.0	21.8	21.5	22.3	22.7
	8H	21.0	21.7	21.5	22.2	22.7	21.3	22.0	21.8	22.5	23.0
	12H	21.2	21.8	21.7	22.3	22.8	21.5	22.1	22.0	22.6	23.1
12H	4H	20.2	21.0	20.7	21.5	22.0	20.3	21.1	20.8	21.6	22.1
	6H	20.9	21.6	21.4	22.0	22.6	21.1	21.8	21.6	22.2	22.8
	8H	21.2	21.7	21.7	22.2	22.8	21.4	22.0	21.9	22.5	23.1

Maximum UGR = 23.1

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

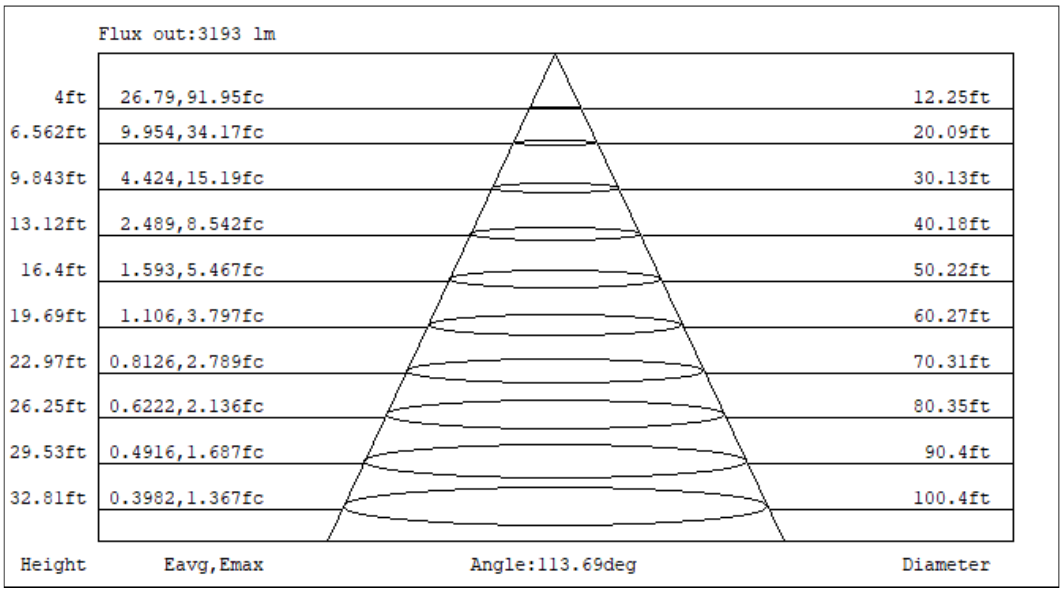
	Zonal (lm)		Total (lm)	Percent
0-10	139.20	0 - 10	139.20	3.20%
10-20	400.70	0 - 20	539.90	12.42%
20-30	613.06	0 - 30	1152.96	26.53%
30-40	747.75	0 - 40	1900.71	43.73%
40-50	781.63	0 - 50	2682.34	61.72%
50-60	709.74	0 - 60	3392.08	78.05%
60-70	545.21	0 - 70	3937.29	90.60%
70-80	318.39	0 - 80	4255.68	97.92%
80-90	90.33	0 - 90	4346.01	100.00%
90-100	0.00	0 - 100	4346.01	100.00%
100-110	0.00	0 - 110	4346.01	100.00%
110-120	0.00	0 - 120	4346.01	100.00%
120-130	0.00	0 - 130	4346.01	100.00%
130-140	0.00	0 - 140	4346.01	100.00%
140-150	0.00	0 - 150	4346.01	100.00%
150-160	0.00	0 - 160	4346.01	100.00%
160-170	0.00	0 - 170	4346.01	100.00%
170-180	0.00	0 - 180	4346.01	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	99	95	106	101	97	94	97	94	91	93	90	88	90	87	85	83
2	98	90	83	77	96	88	82	76	85	79	75	81	77	73	78	75	71	69
3	90	79	71	64	87	77	70	63	74	68	62	72	66	61	69	64	60	58
4	82	70	61	54	80	68	60	54	66	59	53	64	57	52	61	56	51	49
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	45	42
6	69	56	47	40	68	55	46	40	53	46	40	51	45	39	50	44	39	37
7	64	51	42	36	63	50	41	35	48	41	35	47	40	35	45	39	35	33
8	60	46	38	32	58	46	37	32	44	37	31	43	36	31	42	36	31	29
9	56	42	34	28	55	42	34	28	41	33	28	40	33	28	39	32	28	26
10	52	39	31	26	51	39	31	26	38	30	26	37	30	25	36	30	25	24

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X2 / 40W / 3500K	Sample ID.	B1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

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

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	277.08	60	0.146	40.0	0.987
NON-WORST CASE	120.06	60	0.330	39.4	0.994

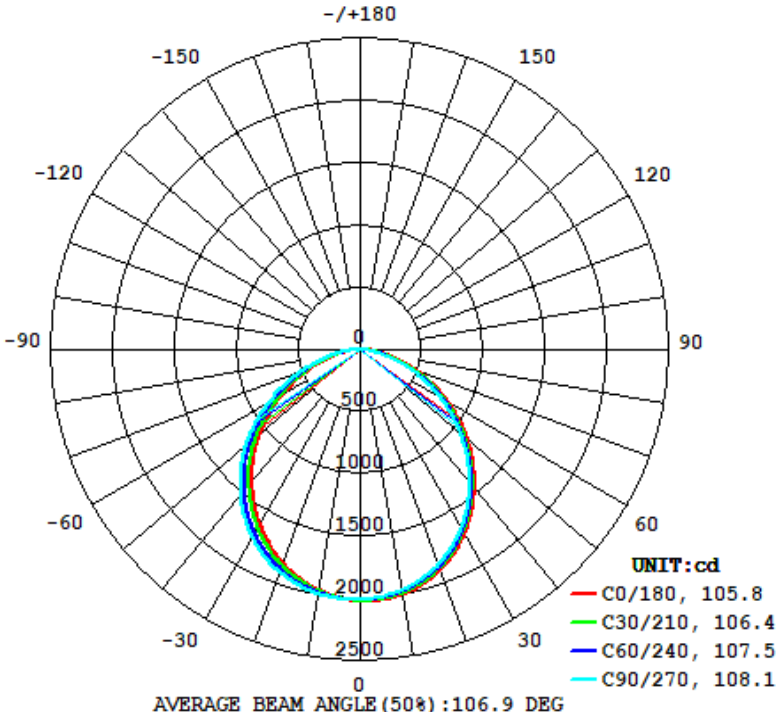
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
5330	155.9	155.7	105.8	108.1	133.2

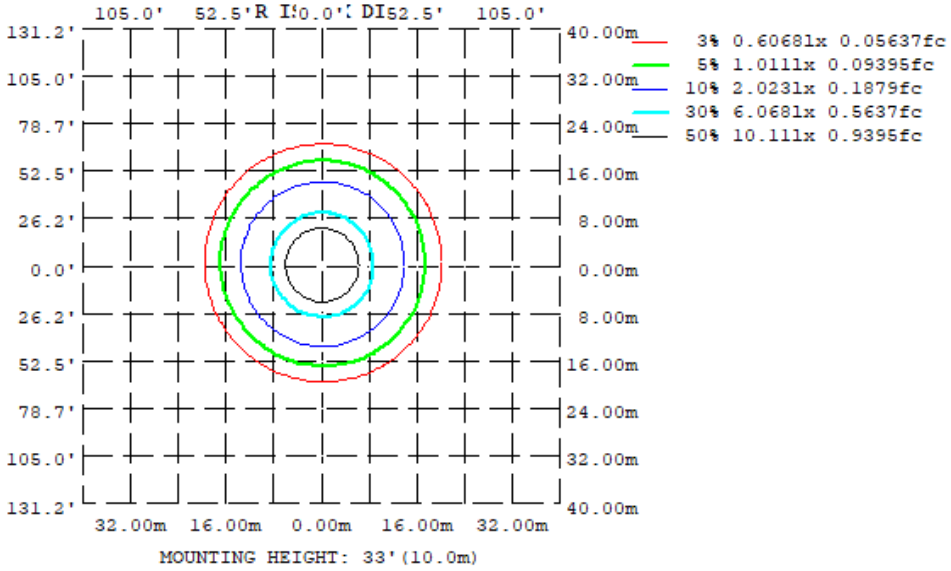
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
81.92%	20.3	1.24	1.22

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	1997	1976	1960	1945	1965	1979	1994	1990
20	1885	1863	1842	1811	1829	1868	1909	1901
30	1702	1673	1651	1610	1626	1685	1746	1735
40	1449	1418	1390	1347	1364	1434	1507	1494
50	1146	1108	1076	1039	1067	1138	1212	1202
60	811.4	769.3	734.6	707.3	738.4	800.9	863.7	859.9
70	473.9	433.4	399.4	384.4	412.7	458.6	503.3	505.1
80	168.3	136.7	107.0	106.3	129.5	157.2	180.3	187.6
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	17.0	18.6	17.3	18.9	19.2	16.9	18.5	17.3	18.8	19.2
	3H	18.4	19.9	18.8	20.2	20.6	18.5	19.9	18.8	20.2	20.6
	4H	18.9	20.2	19.3	20.6	20.9	19.0	20.3	19.3	20.7	21.0
	6H	19.1	20.3	19.5	20.7	21.1	19.2	20.5	19.6	20.8	21.2
	8H	19.1	20.3	19.5	20.7	21.1	19.3	20.5	19.7	20.9	21.3
	12H	19.1	20.2	19.5	20.6	21.0	19.3	20.4	19.7	20.8	21.2
4H	2H	17.5	18.9	17.9	19.2	19.6	17.5	18.9	17.9	19.2	19.6
	3H	19.2	20.3	19.6	20.7	21.1	19.3	20.4	19.7	20.8	21.2
	4H	19.7	20.7	20.1	21.1	21.6	19.8	20.9	20.3	21.3	21.7
	6H	20.0	20.9	20.4	21.3	21.8	20.2	21.1	20.7	21.5	22.0
	8H	20.0	20.8	20.5	21.3	21.8	20.3	21.1	20.7	21.5	22.0
	12H	20.0	20.7	20.5	21.2	21.7	20.3	21.0	20.7	21.5	22.0
8H	4H	19.9	20.7	20.4	21.2	21.7	20.1	20.9	20.5	21.3	21.8
	6H	20.3	20.9	20.8	21.4	21.9	20.5	21.2	21.0	21.7	22.2
	8H	20.3	20.9	20.8	21.4	21.9	20.6	21.2	21.1	21.7	22.2
	12H	20.3	20.8	20.8	21.3	21.9	20.6	21.2	21.1	21.6	22.2
12H	4H	19.9	20.7	20.4	21.1	21.6	20.1	20.8	20.5	21.3	21.8
	6H	20.3	20.9	20.8	21.3	21.9	20.5	21.1	21.0	21.6	22.1
	8H	20.3	20.9	20.8	21.4	21.9	20.6	21.2	21.1	21.7	22.2

Maximum UGR = 22.2

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

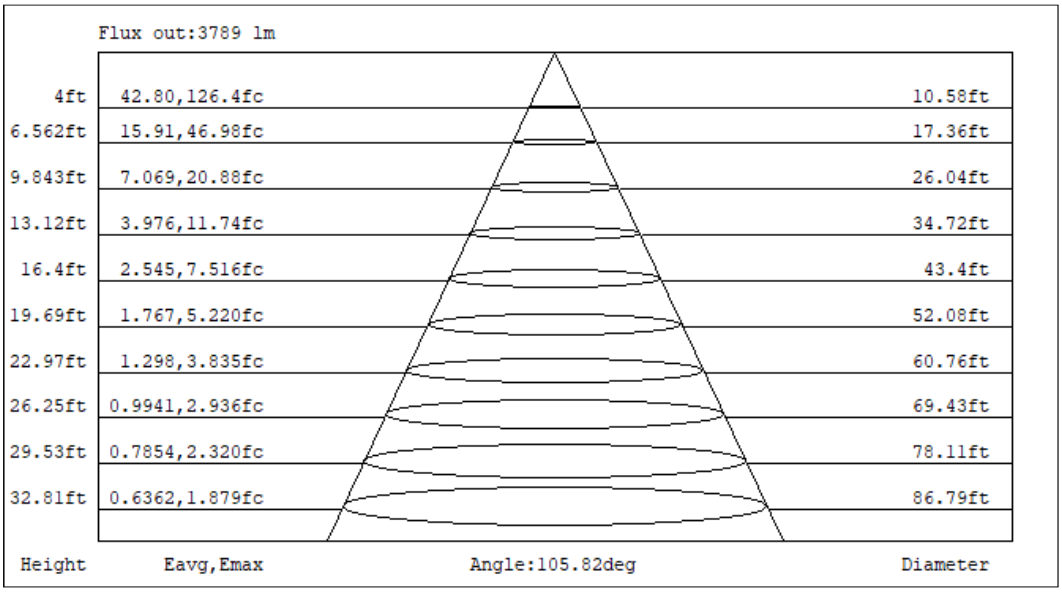
	Zonal (lm)		Total (lm)	Percent
0-10	190.17	0 - 10	190.17	3.57%
10-20	543.69	0 - 20	733.86	13.77%
20-30	819.05	0 - 30	1552.91	29.13%
30-40	973.78	0 - 40	2526.69	47.40%
40-50	985.77	0 - 50	3512.46	65.90%
50-60	853.82	0 - 60	4366.28	81.92%
60-70	607.36	0 - 70	4973.64	93.31%
70-80	306.21	0 - 80	5279.85	99.06%
80-90	50.23	0 - 90	5330.08	100.00%
90-100	0.00	0 - 100	5330.08	100.00%
100-110	0.00	0 - 110	5330.08	100.00%
110-120	0.00	0 - 120	5330.08	100.00%
120-130	0.00	0 - 130	5330.08	100.00%
130-140	0.00	0 - 140	5330.08	100.00%
140-150	0.00	0 - 150	5330.08	100.00%
150-160	0.00	0 - 160	5330.08	100.00%
160-170	0.00	0 - 170	5330.08	100.00%
170-180	0.00	0 - 180	5330.08	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	103	99	96	98	95	93	95	92	90	91	89	87	85
2	100	92	85	80	97	90	84	79	86	81	77	83	79	75	80	77	74	71
3	91	81	73	67	89	79	72	66	76	70	65	74	68	64	71	67	63	61
4	84	72	63	57	81	71	63	56	68	61	56	66	60	55	64	58	54	52
5	77	64	56	49	75	63	55	49	61	54	48	59	53	48	57	52	47	45
6	71	58	49	43	69	57	49	43	55	48	42	54	47	42	52	46	42	40
7	66	53	44	38	64	52	44	38	50	43	38	49	42	37	47	42	37	35
8	61	48	40	34	60	47	39	34	46	39	34	45	38	33	44	38	33	31
9	57	44	36	31	56	44	36	30	42	35	30	41	35	30	40	34	30	28
10	54	41	33	28	53	40	33	28	39	32	28	38	32	27	37	32	27	26

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X2 / 40W / 4000K	Sample ID.	B1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

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

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	277.00	60	0.141	38.5	0.986
NON-WORST CASE	120.05	60	0.318	38.0	0.994

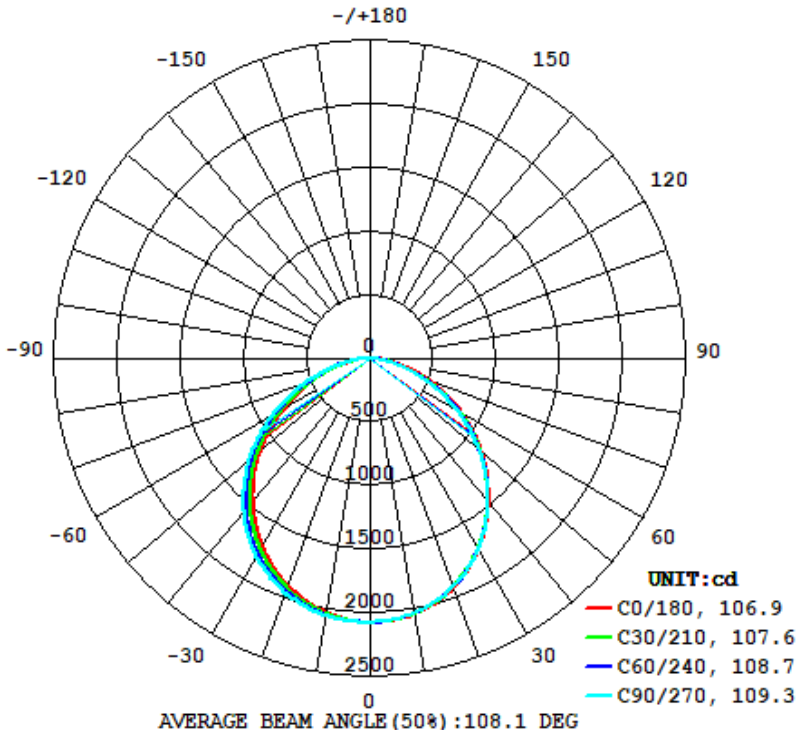
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
5582	157.0	156.8	106.9	109.3	144.8

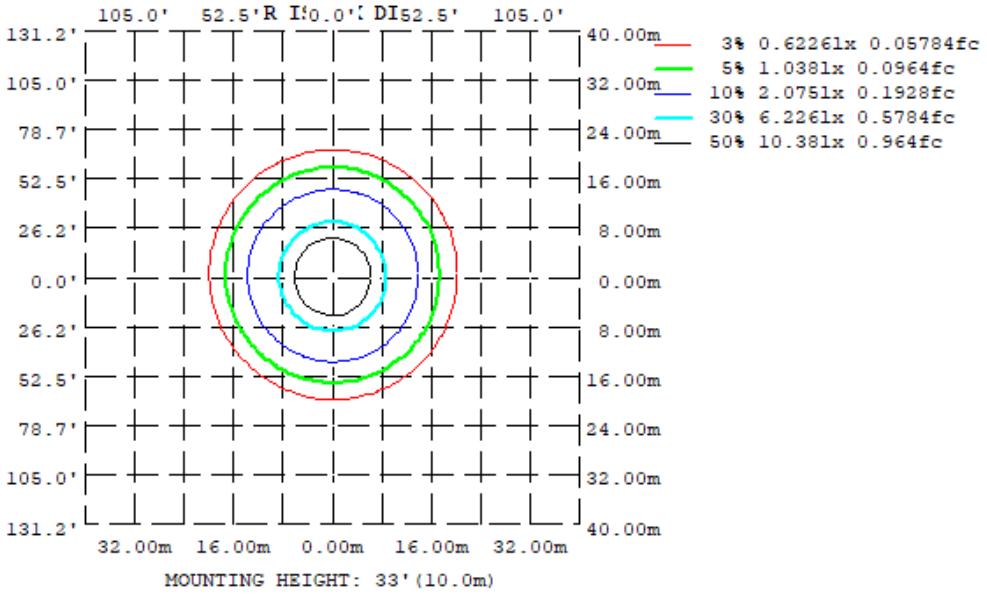
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
81.37%	20.9	1.24	1.24

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	2037	2032	2028	2022	2032	2042	2052	2049
20	1920	1912	1913	1898	1905	1938	1963	1946
30	1727	1720	1722	1703	1706	1759	1801	1771
40	1469	1459	1459	1438	1444	1505	1559	1525
50	1164	1147	1139	1118	1144	1205	1258	1231
60	827.5	801.9	784.9	772.5	803.2	857.5	904.6	884.6
70	489.3	457.7	434.6	428.3	457.8	500.5	535.5	527.7
80	181.5	151.6	124.9	126.5	153.7	180.5	200.9	203.9
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	17.3	18.9	17.6	19.2	19.5	17.4	19.0	17.7	19.3	19.6
	3H	18.8	20.2	19.2	20.6	20.9	18.9	20.4	19.3	20.7	21.1
	4H	19.2	20.6	19.6	21.0	21.3	19.5	20.8	19.9	21.2	21.6
	6H	19.5	20.8	19.9	21.1	21.5	19.8	21.0	20.2	21.4	21.8
	8H	19.5	20.7	19.9	21.1	21.5	19.8	21.0	20.3	21.4	21.8
	12H	19.5	20.7	19.9	21.0	21.5	19.9	21.0	20.3	21.4	21.8
4H	2H	17.8	19.2	18.2	19.5	19.9	18.0	19.3	18.4	19.7	20.1
	3H	19.5	20.7	19.9	21.1	21.5	19.7	20.9	20.1	21.3	21.7
	4H	20.1	21.1	20.5	21.5	22.0	20.4	21.4	20.8	21.8	22.2
	6H	20.4	21.3	20.9	21.8	22.2	20.8	21.7	21.2	22.1	22.6
	8H	20.5	21.3	20.9	21.8	22.2	20.9	21.7	21.3	22.1	22.6
	12H	20.5	21.2	20.9	21.7	22.2	20.9	21.6	21.4	22.1	22.6
8H	4H	20.3	21.2	20.8	21.6	22.1	20.6	21.4	21.1	21.9	22.4
	6H	20.7	21.4	21.2	21.9	22.4	21.1	21.8	21.6	22.3	22.8
	8H	20.8	21.4	21.3	21.9	22.4	21.2	21.8	21.7	22.3	22.8
	12H	20.8	21.3	21.3	21.8	22.4	21.2	21.8	21.7	22.3	22.9
12H	4H	20.3	21.1	20.8	21.6	22.0	20.6	21.4	21.1	21.9	22.3
	6H	20.7	21.4	21.3	21.8	22.4	21.1	21.8	21.6	22.2	22.7
	8H	20.8	21.4	21.3	21.9	22.4	21.3	21.8	21.8	22.3	22.9

Maximum UGR = 22.9

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

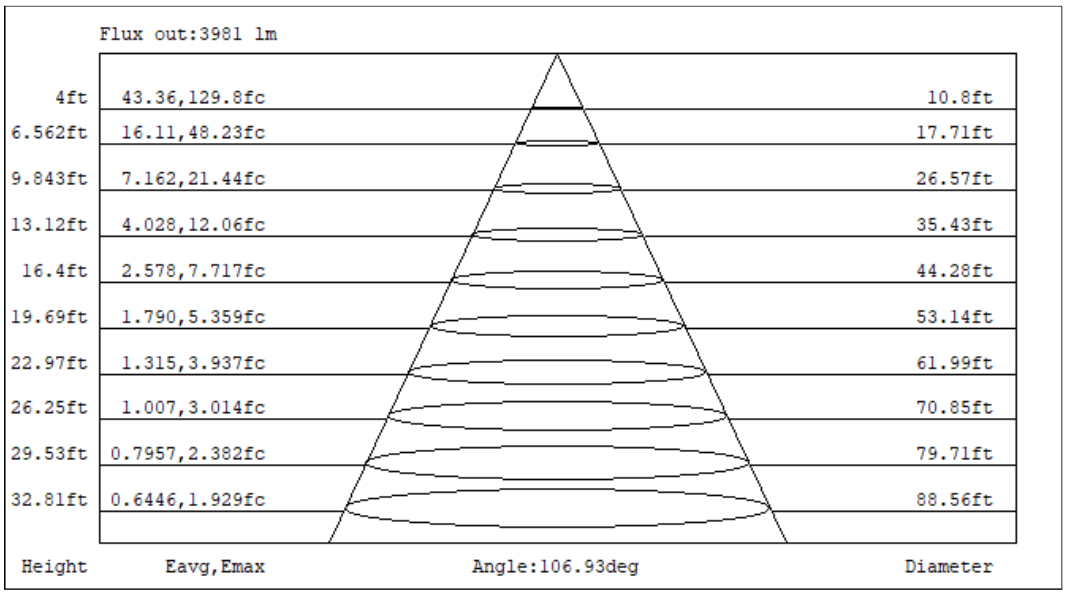
	Zonal (lm)		Total (lm)	Percent
0-10	196.16	0 - 10	196.16	3.51%
10-20	561.36	0 - 20	757.52	13.57%
20-30	847.57	0 - 30	1605.09	28.75%
30-40	1011.25	0 - 40	2616.34	46.87%
40-50	1028.00	0 - 50	3644.34	65.29%
50-60	897.83	0 - 60	4542.17	81.37%
60-70	645.78	0 - 70	5187.95	92.94%
70-80	333.54	0 - 80	5521.49	98.91%
80-90	60.61	0 - 90	5582.10	100.00%
90-100	0.00	0 - 100	5582.10	100.00%
100-110	0.00	0 - 110	5582.10	100.00%
110-120	0.00	0 - 120	5582.10	100.00%
120-130	0.00	0 - 130	5582.10	100.00%
130-140	0.00	0 - 140	5582.10	100.00%
140-150	0.00	0 - 150	5582.10	100.00%
150-160	0.00	0 - 160	5582.10	100.00%
160-170	0.00	0 - 170	5582.10	100.00%
170-180	0.00	0 - 180	5582.10	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	90	91	89	87	85
2	100	92	85	79	97	90	84	78	86	81	77	83	79	75	80	76	73	71
3	91	81	73	66	88	79	72	66	76	70	65	73	68	63	71	66	62	60
4	83	72	63	56	81	70	62	56	68	61	55	65	59	54	63	58	54	52
5	77	64	55	49	75	63	55	48	61	53	48	59	52	47	57	51	47	45
6	71	58	49	43	69	57	48	42	55	48	42	53	47	42	52	46	41	39
7	66	52	44	38	64	52	43	37	50	43	37	49	42	37	47	41	37	35
8	61	48	39	34	60	47	39	33	46	38	33	45	38	33	43	37	33	31
9	57	44	36	30	56	43	35	30	42	35	30	41	35	30	40	34	30	28
10	54	41	33	27	52	40	32	27	39	32	27	38	32	27	37	31	27	25

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	EZPANFAHE2X2 / 40W / 5000K	Sample ID.	B1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

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

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	277.08	60	0.146	39.8	0.987
NON-WORST CASE	120.02	60	0.330	39.4	0.994

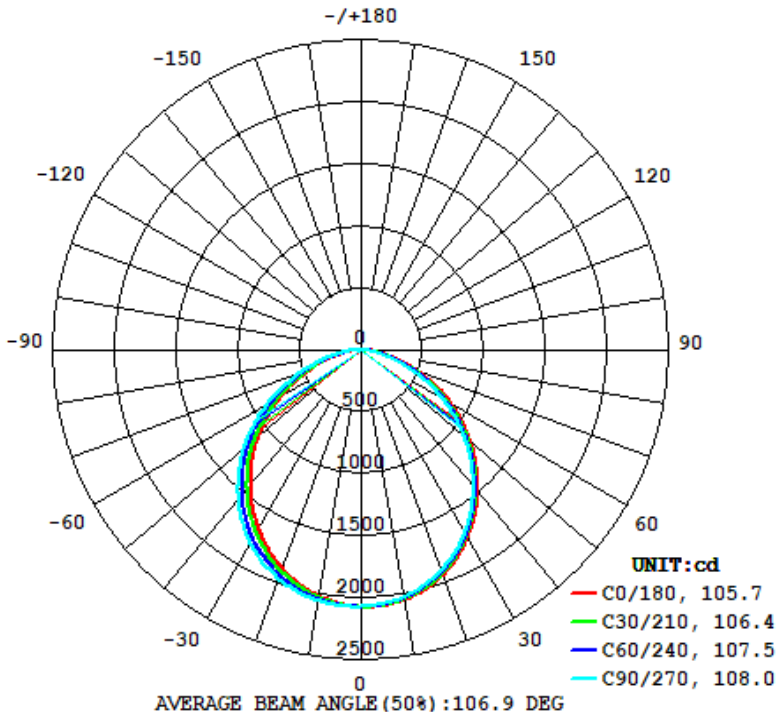
Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
5487	155.9	155.7	105.7	108.0	137.7

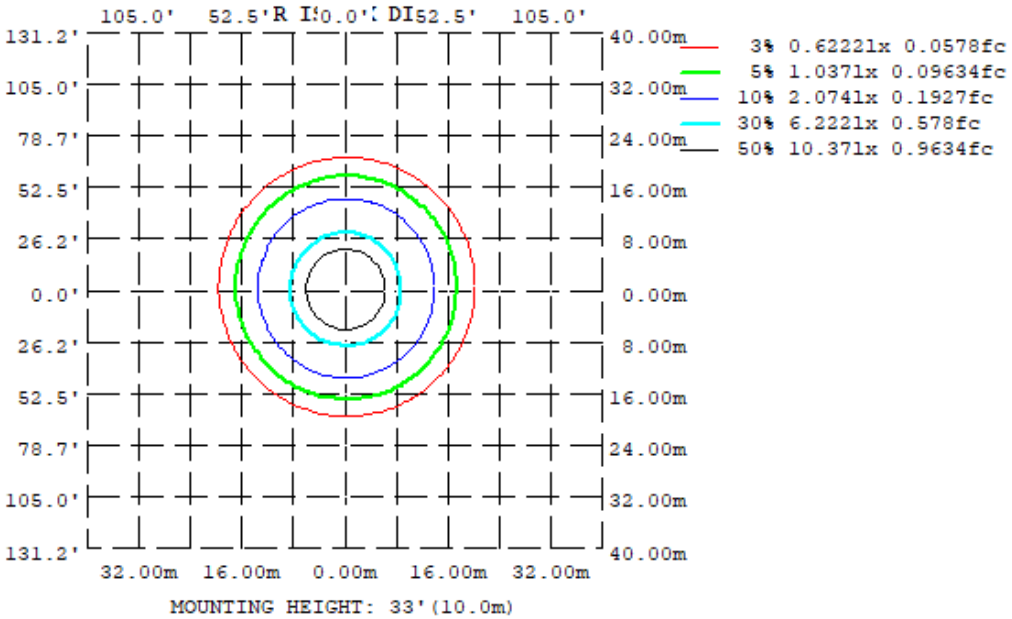
Zonal Lumen Requirement (0°-60°)	UGR (X=4H, Y=8H, 70/50/20%)	SC: 0-180°	SC: 90-270°
81.91%	20.4	1.24	1.22

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	2045	2031	2019	2009	2016	2037	2054	2052
20	1933	1914	1897	1871	1879	1922	1966	1961
30	1741	1718	1700	1661	1667	1733	1800	1789
40	1483	1455	1429	1390	1399	1476	1554	1543
50	1172	1137	1106	1070	1097	1174	1250	1242
60	828.1	788.5	753.8	727.7	759.8	826.8	891.4	887.8
70	482.7	442.6	409.0	395.1	425.5	473.9	520.5	523.4
80	170.4	138.5	108.9	108.1	135.8	164.1	187.0	195.6
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	17.0	18.6	17.4	19.0	19.3	17.0	18.6	17.4	19.0	19.3
	3H	18.5	20.0	18.9	20.3	20.6	18.6	20.0	19.0	20.3	20.7
	4H	18.9	20.3	19.3	20.6	21.0	19.1	20.4	19.5	20.8	21.1
	6H	19.1	20.4	19.6	20.8	21.2	19.3	20.6	19.8	21.0	21.4
	8H	19.1	20.4	19.6	20.7	21.1	19.4	20.6	19.8	21.0	21.4
	12H	19.1	20.3	19.6	20.7	21.1	19.4	20.5	19.8	20.9	21.3
4H	2H	17.6	18.9	18.0	19.3	19.7	17.6	19.0	18.0	19.3	19.7
	3H	19.3	20.4	19.7	20.8	21.2	19.4	20.5	19.8	20.9	21.3
	4H	19.8	20.8	20.2	21.2	21.6	20.0	21.0	20.4	21.4	21.8
	6H	20.1	21.0	20.5	21.4	21.8	20.3	21.2	20.8	21.6	22.1
	8H	20.1	20.9	20.5	21.4	21.8	20.4	21.2	20.8	21.7	22.1
	12H	20.1	20.8	20.5	21.3	21.8	20.4	21.1	20.9	21.6	22.1
8H	4H	20.0	20.8	20.4	21.3	21.7	20.2	21.0	20.6	21.5	21.9
	6H	20.3	21.0	20.8	21.5	22.0	20.6	21.3	21.1	21.8	22.3
	8H	20.4	21.0	20.9	21.5	22.0	20.7	21.3	21.2	21.8	22.3
	12H	20.4	20.9	20.9	21.4	21.9	20.7	21.3	21.2	21.8	22.3
12H	4H	20.0	20.7	20.5	21.2	21.7	20.2	20.9	20.7	21.4	21.9
	6H	20.3	21.0	20.9	21.4	22.0	20.6	21.3	21.2	21.7	22.3
	8H	20.4	20.9	20.9	21.4	22.0	20.8	21.3	21.3	21.8	22.3

Maximum UGR = 22.3

4.2 Goniophotometer Test

ZONAL LUMEN SUMMARY

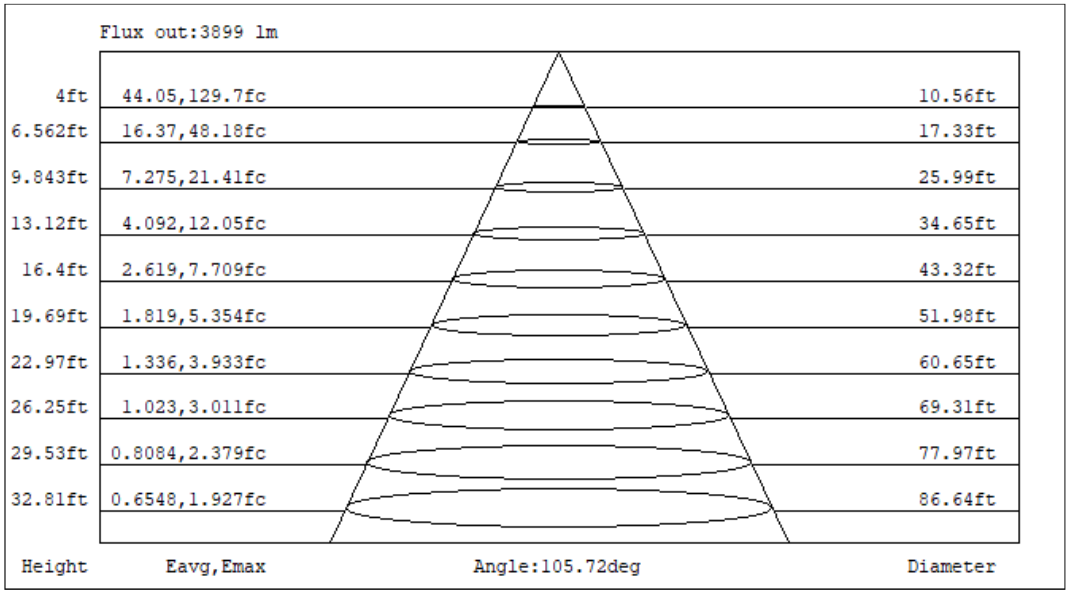
	Zonal (lm)		Total (lm)	Percent
0-10	195.80	0 - 10	195.80	3.57%
10-20	559.70	0 - 20	755.50	13.77%
20-30	843.08	0 - 30	1598.58	29.14%
30-40	1002.29	0 - 40	2600.87	47.40%
40-50	1014.15	0 - 50	3615.02	65.89%
50-60	878.98	0 - 60	4494.00	81.91%
60-70	625.20	0 - 70	5119.20	93.30%
70-80	315.41	0 - 80	5434.61	99.05%
80-90	51.93	0 - 90	5486.54	100.00%
90-100	0.00	0 - 100	5486.54	100.00%
100-110	0.00	0 - 110	5486.54	100.00%
110-120	0.00	0 - 120	5486.54	100.00%
120-130	0.00	0 - 130	5486.54	100.00%
130-140	0.00	0 - 140	5486.54	100.00%
140-150	0.00	0 - 150	5486.54	100.00%
150-160	0.00	0 - 160	5486.54	100.00%
160-170	0.00	0 - 170	5486.54	100.00%
170-180	0.00	0 - 180	5486.54	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	103	99	96	98	95	93	95	92	90	91	89	87	85
2	100	92	85	80	97	90	84	79	86	81	77	83	79	75	80	77	74	71
3	91	81	73	67	89	79	72	66	76	70	65	74	68	64	71	67	63	61
4	84	72	63	57	81	71	63	56	68	61	56	66	60	55	64	58	54	52
5	77	64	56	49	75	63	55	49	61	54	48	59	53	48	57	52	47	45
6	71	58	49	43	69	57	49	43	55	48	42	54	47	42	52	46	42	40
7	66	53	44	38	64	52	44	38	50	43	38	49	42	37	47	42	37	35
8	61	48	40	34	60	47	39	34	46	39	34	45	38	33	44	38	33	31
9	57	44	36	31	56	44	36	30	42	35	30	41	35	30	40	34	30	28
10	54	41	33	28	53	40	33	28	39	32	28	38	32	27	37	32	27	26

CONE OF LIGHT DIAGRAM



4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X2 / 20W / 3500K	Sample ID.	B1
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	0.217	25.9	0.995	7.91%
277.03	60	0.099	26.5	0.962	8.29%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X2 / 20W / 4000K	Sample ID.	B1
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	8.55%
277.03	60	0.097	25.9	0.960	7.82%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X2 / 20W / 5000K	Sample ID.	B1
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	0.217	25.9	0.995	7.96%
277.03	60	0.100	26.6	0.963	8.31%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X2 / 30W / 3500K	Sample ID.	B1
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	0.253	30.2	0.994	9.33%
276.98	60	0.114	30.8	0.978	8.15%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X2 / 30W / 4000K	Sample ID.	B1
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	0.246	29.3	0.994	9.50%
276.99	60	0.111	30.1	0.975	7.78%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X2 / 30W / 5000K	Sample ID.	B1
Temperature (°C)	25.3	Humidity (%RH)	56.0

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

Test Results					
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
120.00	60	0.253	30.2	0.994	9.23%
277.03	60	0.114	30.9	0.977	8.00%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X2 / 40W / 3500K	Sample ID.	B1
Temperature (°C)	25.3	Humidity (%RH)	56.0

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

Test Results					
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
119.98	60	0.328	39.1	0.994	9.56%
276.95	60	0.145	39.7	0.989	10.62%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X2 / 40W / 4000K	Sample ID.	B1
Temperature (°C)	25.3	Humidity (%RH)	56.0

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

Test Results					
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
119.98	60	0.319	38.0	0.994	9.90%
277.05	60	0.141	38.7	0.988	10.54%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	EZPANFAHE2X2 / 40W / 5000K	Sample ID.	B1
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
120.08	60	0.332	39.6	0.994	9.71%
277.03	60	0.146	40.1	0.990	10.80%

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**********