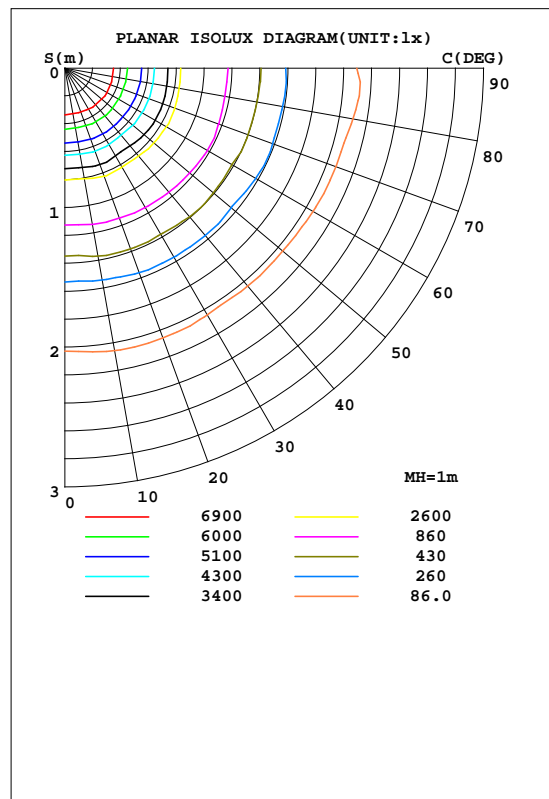
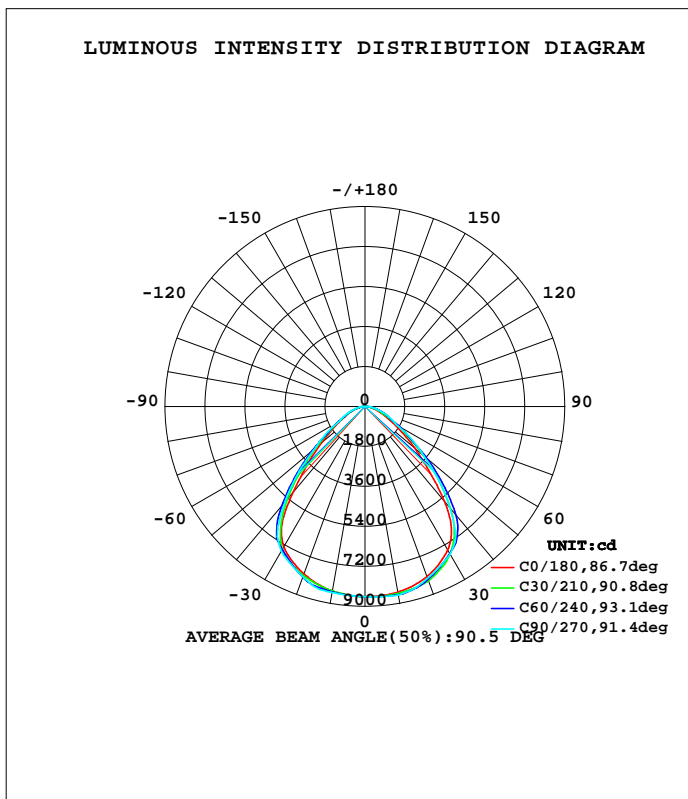


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:221.1V I:0.7037A P:151.4W PF:0.9731 Lamp Flux:18129.5x1 lm		
NAME: LED Highbay Light	TYPE:YHL-ID-150-HB-VD	WEIGHT:6.5Kg
SPEC.:PMMA90	DIM.:	SERIAL No.:20150714
MFR.:	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 119.74 lm/W			
MODEL	Nichia757-5000K-Ra70	I <sub>max</sub> (cd)	8623	S/MH(C0/180)	1.26
NOMINAL POWER(W)	154	LOR(%)	100.0	S/MH(C90/270)	1.30
RATED VOLTAGE(V)	222	TOTAL FLUX(lm)	18129	h UP, DN(C0-180)	0.0, 48.6
NOMINAL FLUX(lm)	18129.5	CIE CLASS	DIRECT	h UP, DN(C180-360)	0.0, 51.4
LAMPS INSIDE	1	h up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	221.1	h down(%)	100.0	CIBSE SHR MAX	1.30



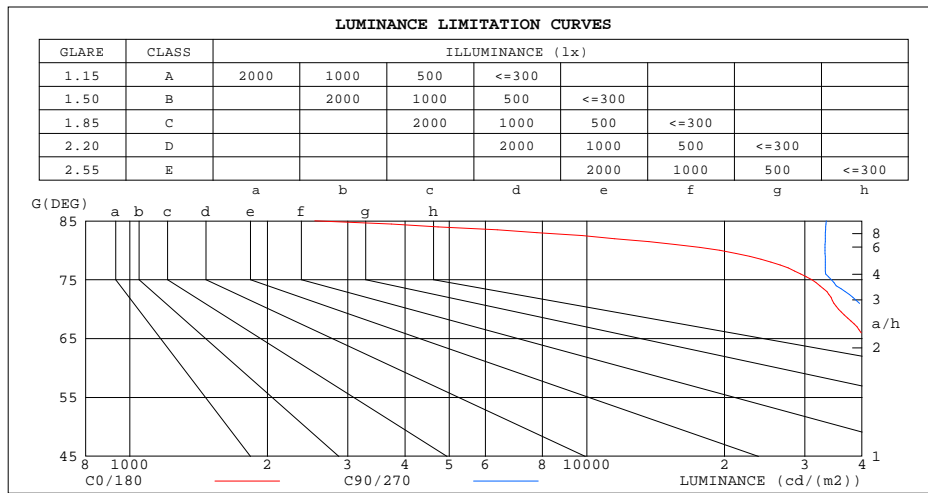
C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25DEG  
 Operators:Ryan Chan  
 Test Date:2015-07-14

C Range: 0 - 90DEG  
 Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.266  
 Humidity:65.0%  
 Test Distance:10.000m [K=1.0000]  
 Remarks:

ZONAL FLUX DIAGRAM  
AND LUMINANCE LIMITATION CURVES

ZONAL FLUX DIAGRAM:

g	C0	C45	C90	C135	C180	C225	C270	C315	g	F zone	F total	%lum, lamp
5	8531	8522	8536	8541	8552	8579	8594	8565	0- 5	204.6	204.6	1.13,1.13
10	8436	8450	8508	8489	8489	8572	8623	8545	5- 10	610.5	815.1	4.5,4.5
15	8270	8347	8450	8399	8360	8529	8495	8471	10- 15	1005	1820	10,10
20	8027	8190	8167	8264	8151	8354	8234	8239	15- 20	1370	3189	17.6,17.6
25	7716	7851	7854	7916	7851	8028	7957	7879	20- 25	1687	4877	26.9,26.9
30	7305	7386	7542	7436	7456	7618	7679	7430	25- 30	1950	6827	37.7,37.7
35	6536	6746	6863	6791	6802	7110	7113	6829	30- 35	2131	8958	49.4,49.4
40	5020	5676	5604	5744	5562	6333	5948	5857	35- 40	2127	11085	61.1,61.1
45	3644	4051	4272	4119	4066	4830	4709	4276	40- 45	1864	12949	71.4,71.4
50	2574	2961	2941	3020	2934	3574	3470	3138	45- 50	1495	14444	79.7,79.7
55	1784	2066	2133	2092	2063	2532	2549	2196	50- 55	1131	15575	85.9,85.9
60	1259	1318	1326	1364	1421	1658	1628	1479	55- 60	831.6	16406	90.5,90.5
65	923.1	930.9	1039	976.7	984.1	1177	1282	1062	60- 65	601.0	17007	93.8,93.8
70	656.1	657.8	752.6	684.4	672.3	842.8	935.0	761.3	65- 70	452.6	17460	96.3,96.3
75	434.0	410.6	479.1	456.1	433.8	594.8	603.7	542.7	70- 75	326.4	17786	98.1,98.1
80	183.1	184.6	311.5	240.8	172.8	360.4	395.4	338.0	75- 80	207.0	17993	99.2,99.2
85	11.95	93.26	157.3	118.2	8.779	179.9	202.6	170.0	80- 85	104.0	18097	99.8,99.8
90	1.511	3.971	2.988	3.312	0.9948	3.159	9.763	7.091	85- 90	32.13	18129	100,100
95									90- 95			
100									95-100			
105									100-105			
110									105-110			
115									110-115			
120									115-120			
125									120-125			
130									125-130			
135									130-135			
140									135-140			
145									140-145			
150									145-150			
155									150-155			
160									155-160			
165									160-165			
170									165-170			
175									170-175			
180									175-180			
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	2539	33415
80	19521	33224
75	31054	34277
70	35525	40750
65	40449	45545
60	46645	49118
55	57595	68882
50	74165	84723
45	95428	111891

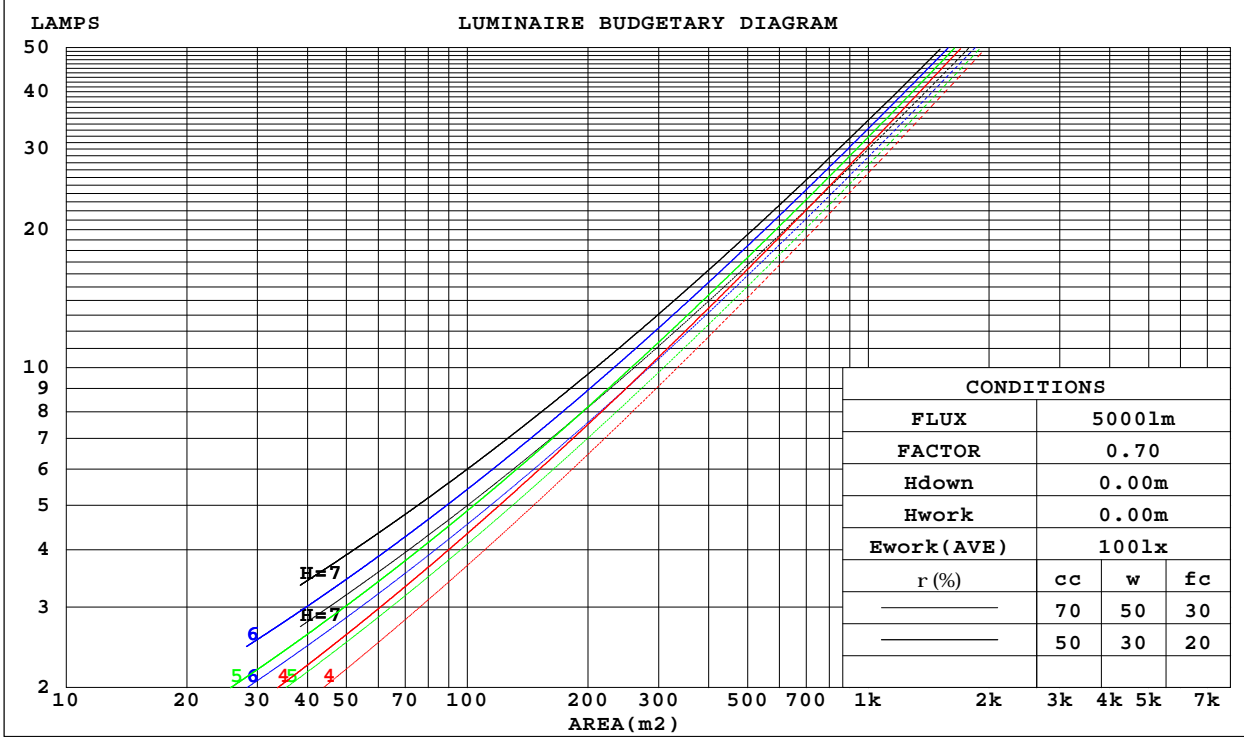
C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature:25DEG  
Operators:Ryan Chan  
Test Date:2015-07-14

g Range: 0 - 90DEG  
Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.266  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:221.1V I:0.7037A P:151.4W PF:0.9731 Lamp Flux:18129.5x1 lm		
NAME: LED Highbay Light	TYPE:YHL-ID-150-HB-VD	WEIGHT:6.5Kg
SPEC.:PMMA90	DIM.:	SERIAL No.:20150714
MFR.:	SUR.:	PROTECTION ANGLE:

r <sub>cc</sub>	80%			70%			50%			30%			10%			0
r <sub>w</sub>	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
r <sub>fc</sub>	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Coefficients of Utilization(CU)									
0.0	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	1.00
1.0	1.07	1.03	1.00	1.05	1.02	.99	1.01	.98	.96	.97	.95	.93	.93	.92	.90	.88
2.0	.96	.90	.85	.94	.89	.84	.90	.86	.82	.87	.84	.81	.84	.81	.79	.77
3.0	.86	.79	.73	.84	.78	.73	.82	.76	.72	.79	.74	.70	.76	.73	.69	.67
4.0	.78	.70	.64	.76	.69	.64	.74	.68	.63	.72	.66	.62	.70	.65	.61	.59
5.0	.70	.62	.57	.69	.62	.56	.67	.61	.56	.65	.60	.55	.64	.59	.55	.53
6.0	.64	.56	.50	.63	.56	.50	.61	.55	.50	.60	.54	.49	.58	.53	.49	.47
7.0	.59	.51	.45	.58	.50	.45	.56	.50	.45	.55	.49	.44	.54	.48	.44	.42
8.0	.54	.46	.41	.53	.46	.41	.52	.45	.40	.51	.45	.40	.50	.44	.40	.38
9.0	.50	.42	.37	.49	.42	.37	.48	.41	.37	.47	.41	.37	.46	.41	.36	.35
10.0	.46	.39	.34	.46	.39	.34	.45	.38	.34	.44	.38	.34	.43	.37	.33	.32



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25DEG  
 Operators:Ryan Chan  
 Test Date:2015-07-14

Range: 0 - 90DEG  
 Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.266  
 Humidity:65.0%  
 Test Distance:10.000m [K=1.0000]  
 Remarks:

WEC AND CCEC

Test:U:221.1V I:0.7037A P:151.4W PF:0.9731 Lamp Flux:18129.5x1 lm		
NAME: LED Highbay Light	TYPE:YHL-ID-150-HB-VD	WEIGHT:6.5Kg
SPEC.:PMMA90	DIM.:	SERIAL No.:20150714
MFR.:	SUR.:	PROTECTION ANGLE:

rcc	80%			70%			50%			30%			10%			0
rw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
rfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.251	.143	.045	.244	.139	.044	.231	.133	.042	.219	.126	.041	.208	.121	.039	
2.0	.241	.132	.041	.235	.130	.040	.224	.125	.039	.214	.120	.038	.204	.115	.036	
3.0	.228	.121	.036	.223	.119	.036	.213	.115	.035	.204	.112	.034	.195	.108	.033	
4.0	.214	.111	.033	.210	.110	.032	.201	.107	.032	.193	.104	.031	.185	.101	.031	
5.0	.201	.103	.030	.197	.101	.029	.190	.099	.029	.182	.096	.029	.176	.094	.028	
6.0	.189	.095	.027	.186	.094	.027	.179	.092	.027	.173	.090	.026	.167	.088	.026	
7.0	.178	.088	.025	.175	.087	.025	.169	.085	.025	.163	.084	.024	.158	.082	.024	
8.0	.168	.082	.023	.166	.081	.023	.160	.080	.023	.155	.078	.023	.150	.077	.022	
9.0	.159	.077	.022	.157	.076	.021	.152	.075	.021	.147	.074	.021	.143	.072	.021	
10.0	.151	.072	.020	.149	.072	.020	.144	.071	.020	.140	.069	.020	.136	.068	.020	

rcc	80%			70%			50%			30%			10%			0
rw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
rfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.176	.157	.139	.151	.134	.120	.103	.092	.083	.059	.054	.048	.019	.017	.016	
2.0	.166	.132	.104	.142	.114	.090	.097	.079	.063	.056	.046	.037	.018	.015	.012	
3.0	.156	.114	.080	.134	.098	.070	.092	.068	.049	.053	.040	.029	.017	.013	.009	
4.0	.148	.100	.064	.127	.087	.055	.087	.060	.039	.051	.035	.023	.016	.012	.008	
5.0	.141	.089	.051	.121	.077	.045	.083	.054	.032	.048	.032	.019	.016	.010	.006	
6.0	.134	.081	.043	.115	.070	.037	.079	.049	.026	.046	.029	.016	.015	.009	.005	
7.0	.128	.074	.036	.110	.064	.031	.076	.045	.022	.044	.026	.013	.014	.009	.004	
8.0	.122	.068	.031	.105	.059	.027	.073	.041	.019	.042	.024	.011	.014	.008	.004	
9.0	.116	.063	.027	.100	.055	.023	.069	.038	.017	.040	.023	.010	.013	.007	.003	
10.0	.111	.059	.024	.096	.051	.021	.067	.036	.015	.039	.021	.009	.013	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25DEG  
 Operators:Ryan Chan  
 Test Date:2015-07-14

g Range: 0 - 90DEG  
 g Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.266  
 Humidity:65.0%  
 Test Distance:10.000m [K=1.0000]  
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:221.1V I:0.7037A P:151.4W PF:0.9731 Lamp Flux:18129.5x1 lm										
NAME: LED Highbay Light					TYPE:YHL-ID-150-HB-VD			WEIGHT:6.5Kg		
SPEC.:PMMA90					DIM.:			SERIAL No.:20150714		
MFR.:					SUR.:			PROTECTION ANGLE:		
ceiling/cavity	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions	Viewed crosswise					Viewed endwise				
x = 2H y = 2H	26.3	27.7	26.6	27.9	28.0	26.8	28.1	27.1	28.3	28.5
3H	26.9	28.1	27.2	28.3	28.5	27.4	28.6	27.7	28.8	29.0
4H	27.1	28.2	27.4	28.5	28.7	27.6	28.7	27.9	29.0	29.2
6H	27.1	28.2	27.5	28.5	28.8	27.7	28.8	28.1	29.1	29.4
8H	27.1	28.2	27.4	28.4	28.7	27.8	28.9	28.1	29.1	29.4
12H	27.1	28.1	27.4	28.4	28.6	27.9	28.9	28.2	29.1	29.4
4H 2H	26.5	27.6	26.8	27.9	28.1	26.9	28.1	27.2	28.3	28.6
3H	27.2	28.2	27.5	28.5	28.8	27.6	28.6	28.0	28.9	29.2
4H	27.5	28.4	27.9	28.7	29.0	27.9	28.8	28.3	29.2	29.5
6H	27.6	28.4	28.0	28.8	29.1	28.2	29.0	28.6	29.4	29.7
8H	27.6	28.3	28.0	28.7	29.1	28.3	29.1	28.7	29.4	29.8
12H	27.6	28.2	28.0	28.6	29.0	28.4	29.1	28.9	29.5	29.9
8H 4H	27.5	28.3	27.9	28.6	29.0	28.0	28.7	28.4	29.1	29.4
6H	27.7	28.3	28.1	28.7	29.1	28.3	28.9	28.8	29.3	29.8
8H	27.7	28.2	28.2	28.7	29.1	28.5	29.1	29.0	29.5	29.9
12H	27.7	28.1	28.1	28.6	29.0	28.7	29.2	29.2	29.6	30.1
12H 4H	27.5	28.2	27.9	28.6	29.0	27.9	28.6	28.4	29.0	29.4
6H	27.7	28.2	28.2	28.7	29.1	28.3	28.9	28.8	29.3	29.7
8H	27.7	28.2	28.2	28.6	29.1	28.5	29.0	29.0	29.4	29.9
Variations with the observer position at spacings:										
S = 1.0H	+ 0.9 / - 1.2					+ 0.7 / - 0.9				
1.5H	+ 0.9 / - 1.0					+ 0.7 / - 0.7				
2.0H	+ 1.6 / - 1.4					+ 1.7 / - 1.3				

CIE Pub.117 Corrected 18129 lm Total Lamp Luminous Flux.(8log(F/F0) = 10.1)

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25DEG  
 Operators:Ryan Chan  
 Test Date:2015-07-14

g Range: 0 - 90DEG  
 g Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.266  
 Humidity:65.0%  
 Test Distance:10.000m [K=1.0000]  
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:221.1V I:0.7037A P:151.4W PF:0.9731 Lamp Flux:18129.5x1 lm		
NAME: LED Highbay Light	TYPE:YHL-ID-150-HB-VD	WEIGHT:6.5Kg
SPEC.:PMMA90	DIM.:	SERIAL No.:20150714
MFR.:	SUR.:	PROTECTION ANGLE:

REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	67	57	51	66	57	51	65	57	51	45
0.80	77	67	61	76	67	61	74	66	61	55
1.00	85	76	70	84	75	70	82	76	69	63
1.25	91	83	77	90	82	77	87	81	76	70
1.50	95	88	82	94	87	81	91	85	80	74
2.00	101	94	89	99	93	88	96	91	87	80
2.50	104	98	93	102	96	92	98	94	90	83
3.00	106	101	97	104	99	96	101	97	93	86
4.00	109	105	101	107	103	100	103	100	97	89
5.00	111	107	104	109	105	103	105	102	100	91
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25DEG  
 Operators:Ryan Chan  
 Test Date:2015-07-14

g Range: 0 - 90DEG  
 Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.266  
 Humidity:65.0%  
 Test Distance:10.000m [K=1.0000]  
 Remarks:

ISOCANDELA DIAGRAM

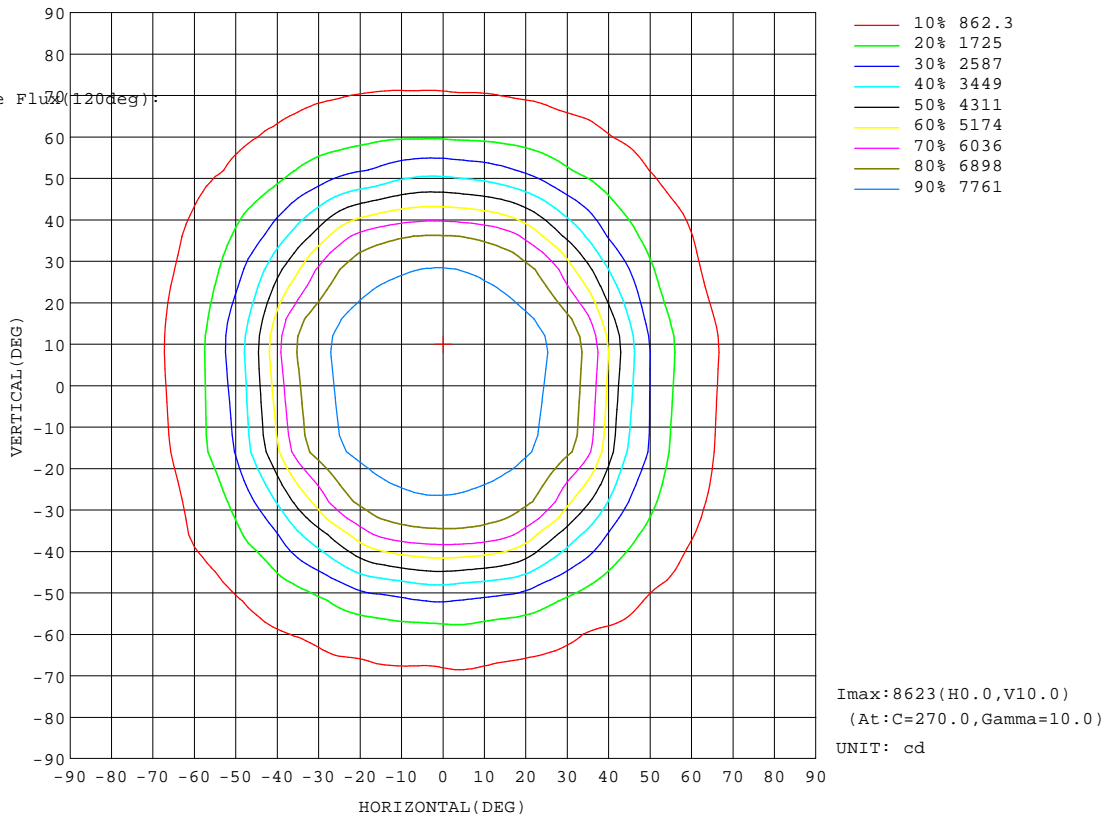
Test:U:221.1V I:0.7037A P:151.4W PF:0.9731 Lamp Flux:18129.5x1 lm		
NAME: LED Highbay Light	TYPE:YHL-ID-150-HB-VD	WEIGHT:6.5Kg
SPEC.:PMMA90	DIM.:	SERIAL No.:20150714
MFR.:	SUR.:	PROTECTION ANGLE:

Conical surface Flux(90deg):

12949 lm  
 %lum = 71.4%  
 %lamp = 71.4%

Conical surface Flux(120deg):

16406 lm  
 %lum = 90.5%  
 %lamp = 90.5%



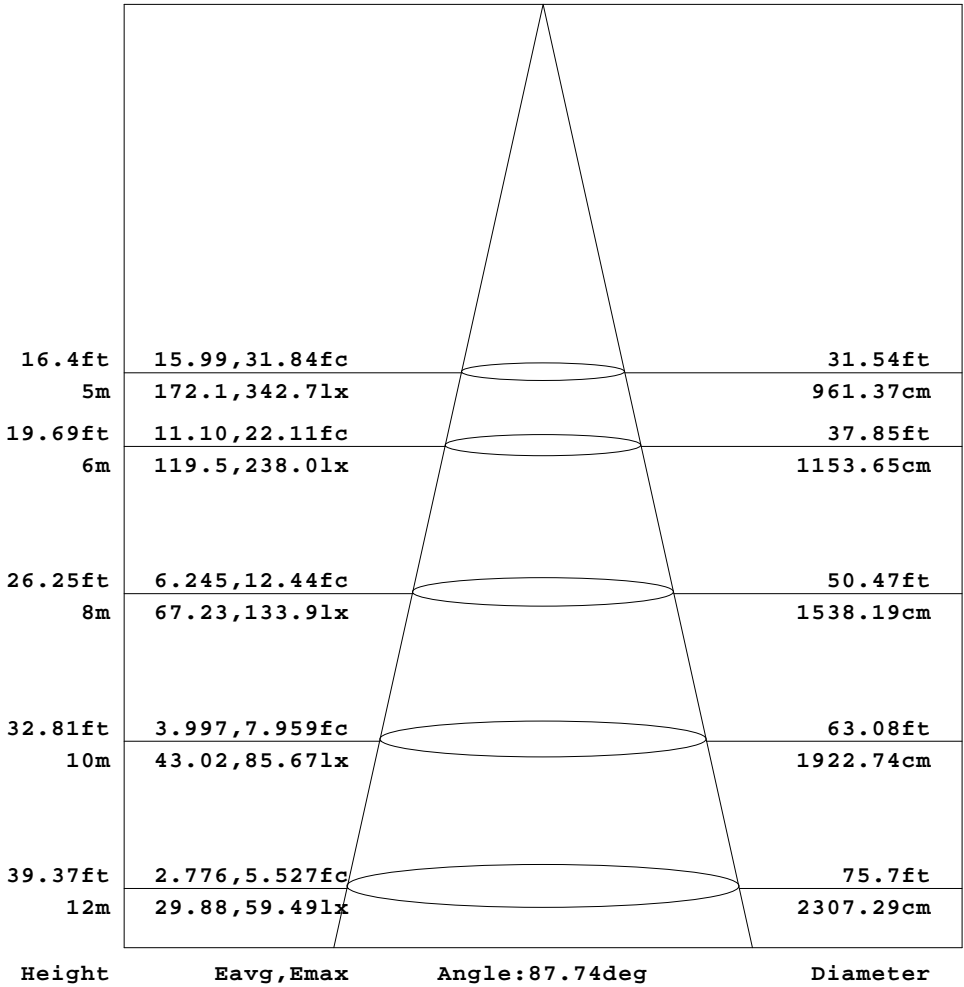
C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25DEG  
 Operators:Ryan Chan  
 Test Date:2015-07-14

Range: 0 - 90DEG  
 Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.266  
 Humidity:65.0%  
 Test Distance:10.000m [K=1.0000]  
 Remarks:

**AAI Figure**

Test:U:221.1V I:0.7037A P:151.4W PF:0.9731 Lamp Flux:18129.5x1 lm		
NAME: LED Highbay Light	TYPE:YHL-ID-150-HB-VD	WEIGHT:6.5Kg
SPEC.:PMMA90	DIM.:	SERIAL No.:20150714
MFR.:	SUR.:	PROTECTION ANGLE:

Flux out:12605 lm



Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

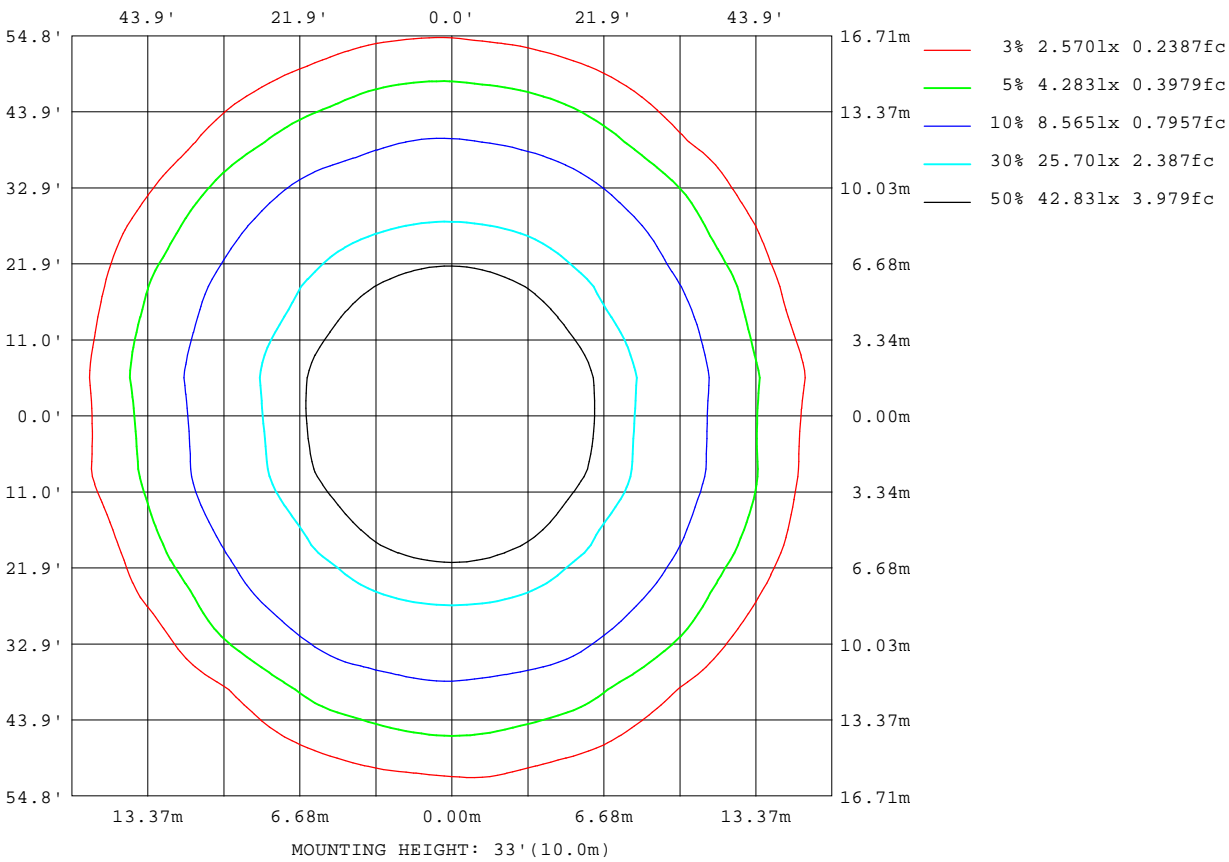
C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25DEG  
 Operators:Ryan Chan  
 Test Date:2015-07-14

g Range: 0 - 90DEG  
 Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.266  
 Humidity:65.0%  
 Test Distance:10.000m [K=1.0000]  
 Remarks:



**ISOLUX DIAGRAM**

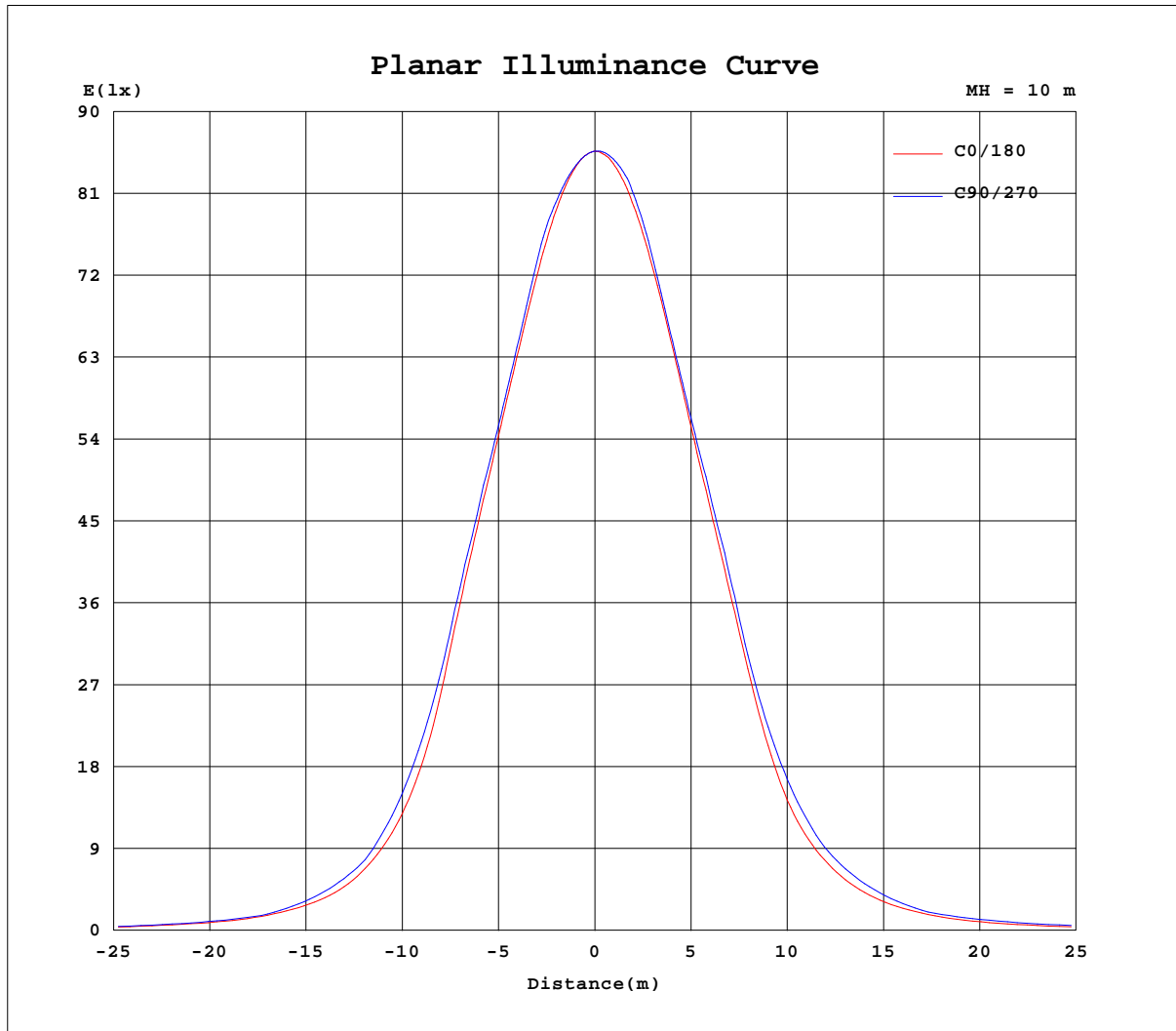
Test:U:221.1V I:0.7037A P:151.4W PF:0.9731 Lamp Flux:18129.5x1 lm		
NAME: LED Highbay Light	TYPE:YHL-ID-150-HB-VD	WEIGHT:6.5Kg
SPEC.:PMMA90	DIM.:	SERIAL No.:20150714
MFR.:	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25DEG  
 Operators:Ryan Chan  
 Test Date:2015-07-14

Page Range: 0 - 90DEG  
 Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.266  
 Humidity:65.0%  
 Test Distance:10.000m [K=1.0000]  
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature: 25DEG  
 Operators: Ryan Chan  
 Test Date: 2015-07-14

Page Range: 0 - 90DEG  
 Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.266  
 Humidity: 65.0%  
 Test Distance: 10.000m [K=1.0000]  
 Remarks:







LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:221.1V I:0.7037A P:151.4W PF:0.9731 Lamp Flux:18129.5x1 lm		
NAME: LED Highbay Light	TYPE:YHL-ID-150-HB-VD	WEIGHT:6.5Kg
SPEC.:PMMA90	DIM.:	SERIAL No.:20150714
MFR.:	SUR.:	PROTECTION ANGLE:

Table--4

UNIT: cd

C (DEG) g (DEG)	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355				
0	8565	8565	8565	8565	8565	8565	8565	8565	8565	8565	8565	8565	8565	8565	8565				
5	8587	8584	8581	8578	8574	8570	8565	8560	8555	8551	8547	8544	8540	8537	8534				
10	8608	8601	8593	8585	8570	8557	8545	8530	8515	8500	8487	8474	8462	8452	8443				
15	8489	8492	8488	8479	8473	8471	8471	8465	8433	8403	8372	8344	8320	8299	8282				
20	8224	8223	8222	8224	8231	8237	8239	8234	8230	8230	8191	8146	8105	8071	8045				
25	7924	7911	7891	7885	7875	7874	7879	7896	7920	7924	7923	7897	7836	7783	7743				
30	7618	7576	7556	7520	7493	7457	7430	7413	7434	7495	7538	7529	7481	7401	7341				
35	7110	7082	7046	7036	7050	6940	6829	6729	6672	6682	6801	6871	6882	6734	6608				
40	5976	6021	6045	6024	5923	5839	5857	5644	5486	5481	5525	5547	5531	5415	5154				
45	4697	4724	4723	4674	4550	4381	4276	4227	4166	4072	4000	3999	4025	4032	3780				
50	3414	3431	3429	3387	3302	3207	3138	3016	2873	2882	2852	2797	2739	2737	2638				
55	2479	2447	2382	2295	2204	2191	2196	2115	2014	1970	1953	1885	1846	1884	1864				
60	1641	1657	1652	1614	1554	1517	1479	1431	1420	1370	1288	1282	1314	1341	1311				
65	1225	1196	1161	1093	1060	1091	1062	1018	963	939	929	950	914	910	954				
70	897	876	864	828	821	799	761	737	714	701	690	649	673	690	683				
75	578	567	580	581	585	562	543	515	511	512	476	476	474	455	457				
80	373	365	372	377	371	353	338	313	305	283	275	273	238	229	206				
85	190	186	189	192	187	179	170	158	143	117	72.6	41.1	41.3	28.5	19.5				
90	6.74	5.88	5.79	6.12	6.52	6.87	7.09	7.27	7.19	7.08	6.28	5.01	3.74	2.95	2.03				

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25DEG  
 Operators:Ryan Chan  
 Test Date:2015-07-14

g Range: 0 - 90DEG  
 Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.266  
 Humidity:65.0%  
 Test Distance:10.000m [K=1.0000]  
 Remarks: