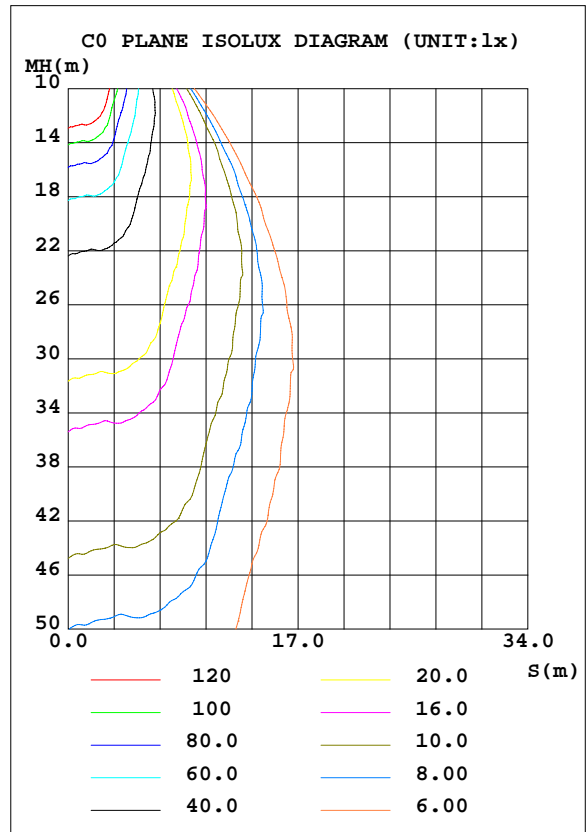
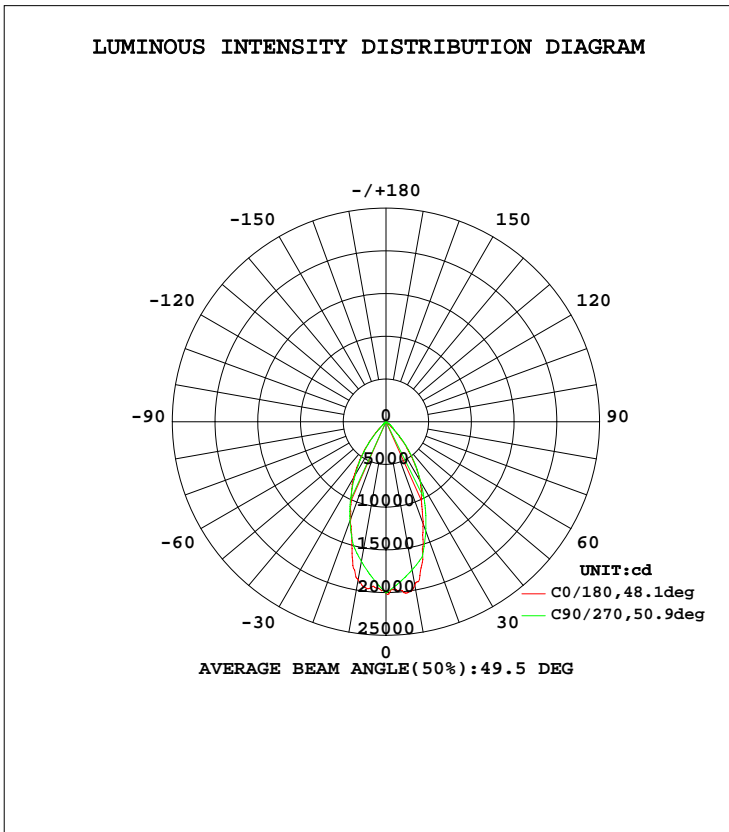


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.1V I:0.6950A P:148.1W PF:0.9670 Lamp Flux:14951x1 lm		
NAME: LED HIGH BAY LIGHT	TYPE:	WEIGHT:5
SPEC.:CREE XTE	DIM.:	SERIAL No.:
MFR.: QINHAN LIGHTING	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 100.95 lm/W			
MODEL	QH-HBGK-150W	Imax(cd)	20218	S/MH(C0/180)	0.76
NOMINAL POWER(W)	150W	LOR(%)	100.0	S/MH(C90/270)	0.81
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	14951	$\eta$ UP, DN(C0-180)	0.0, 47.8
NOMINAL FLUX(lm)	14951	CIE CLASS	DIRECT	$\eta$ UP, DN(C180-360)	0.0, 52.2
LAMPS INSIDE	1	$\eta$ up(%)	0.0	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	220.1	$\eta$ down(%)	100.0	CIBSE SHR MAX	0.80



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-12-29

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.287  
 Humidity:65.0%  
 Test Distance:8.000m [K=1.0000]  
 Remarks: 45度反光杯

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	lum, lamp
5	1943	1833	1833	1864	1980	1892	1883	1869	0- 5	458.3	458.3	3.07,3.07
10	1879	1669	1661	1746	1945	1789	1761	1741	5- 10	1306	1764	11.8,11.8
15	1536	1412	1489	1505	1669	1557	1639	1500	10- 15	1952	3716	24.9,24.9
20	1208	1146	1233	1230	1273	1279	1361	1261	15- 20	2260	5976	40,40
25	952.5	881.7	977.1	963.7	983.6	1011	1083	984.7	20- 25	2303	8279	55.4,55.4
30	760.6	673.3	721.2	725.8	804.5	760.1	804.6	753.1	25- 30	2182	10461	70,70
35	511.9	459.4	498.3	504.9	560.5	556.4	581.7	533.2	30- 35	1875	12337	82.5,82.5
40	288.6	256.9	275.4	292.8	335.2	358.7	358.9	337.3	35- 40	1383	13720	91.8,91.8
45	80.48	123.6	52.56	156.1	125.4	192.5	136.1	177.1	40- 45	775.6	14495	97,97
50	6.480	42.03	37.99	52.34	10.58	69.52	93.56	62.97	45- 50	257.1	14753	98.7,98.7
55	5.479	5.794	23.42	4.926	5.187	5.363	51.00	4.868	50- 55	83.67	14836	99.2,99.2
60	8.773	4.724	8.853	4.365	8.372	5.082	8.440	4.841	55- 60	48.69	14885	99.6,99.6
65	4.724	2.669	6.204	2.818	6.481	3.733	5.929	3.677	60- 65	34.20	14919	99.8,99.8
70	0.7420	0.8463	3.554	1.188	0.8860	1.953	3.419	1.771	65- 70	19.42	14939	99.9,99.9
75	0.8121	0.5483	0.9045	0.7235	0.8697	0.9569	0.9078	0.8817	70- 75	8.635	14947	100,100
80	0.2744	0.2740	0	0.3788	0.3863	0.3908	0	0.3875	75- 80	3.229	14950	100,100
85	0.0570	0	0	0	0.0875	0	0	0	80- 85	0.5503	14951	100,100
90	0.0302	0	0	0	0.0414	0	0	0	85- 90	0.0526	14951	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:×10cd								UNIT:lm			

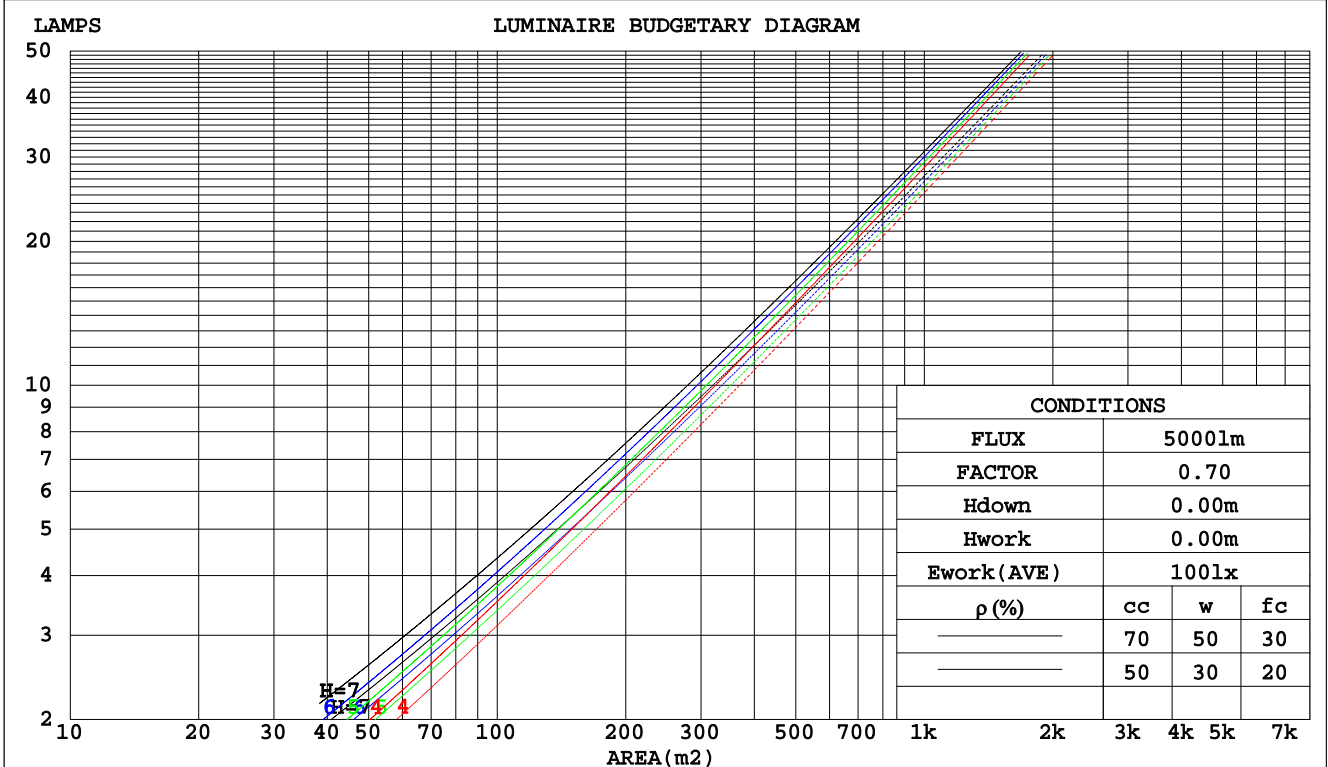
C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-12-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.287  
 Humidity:65.0%  
 Test Distance:8.000m [K=1.0000]  
 Remarks: 45度反光杯

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.1V I:0.6950A P:148.1W PF:0.9670 Lamp Flux:1495lx1 lm		
NAME: LED HIGH BAY LIGHT	TYPE:	WEIGHT:5
SPEC.:CREE XTE	DIM.:	SERIAL No.:
MFR.: QINHAN LIGHTING	SUR.:	PROTECTION ANGLE:

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfc	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	.00
1.0	1.11	1.08	1.06	1.09	1.06	1.04	1.05	1.03	1.01	1.01	.99	.98	.97	.96	.95	.94
2.0	1.03	.99	.96	1.01	.98	.95	.98	.95	.93	.95	.93	.91	.92	.91	.89	.87
3.0	.96	.91	.87	.95	.90	.87	.92	.88	.85	.90	.87	.84	.88	.85	.83	.81
4.0	.90	.84	.80	.89	.84	.80	.87	.82	.79	.85	.81	.78	.83	.80	.77	.75
5.0	.84	.78	.74	.83	.78	.74	.82	.77	.73	.80	.76	.73	.78	.75	.72	.70
6.0	.79	.73	.69	.78	.73	.69	.77	.72	.68	.75	.71	.68	.74	.70	.67	.66
7.0	.74	.68	.64	.74	.68	.64	.72	.67	.64	.71	.67	.63	.70	.66	.63	.62
8.0	.70	.64	.60	.70	.64	.60	.68	.63	.60	.67	.63	.59	.66	.62	.59	.58
9.0	.66	.60	.56	.66	.60	.56	.65	.60	.56	.64	.59	.56	.63	.59	.56	.54
10.0	.63	.57	.53	.62	.57	.53	.61	.56	.53	.61	.56	.53	.60	.56	.53	.51



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-12-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.287  
 Humidity:65.0%  
 Test Distance:8.000m [K=1.0000]  
 Remarks: 45度反光杯

WEC AND CCEC

Test:U:220.1V I:0.6950A P:148.1W PF:0.9670 Lamp Flux:14951x1 lm		
NAME: LED HIGH BAY LIGHT	TYPE:	WEIGHT:5
SPEC.:CREE XTE	DIM.:	SERIAL No.:
MFR.: QINHAN LIGHTING	SUR.:	PROTECTION ANGLE:

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.177	.101	.032	.170	.097	.031	.158	.090	.029	.146	.084	.027	.135	.078	.025	
2.0	.170	.093	.029	.164	.090	.028	.154	.085	.027	.144	.081	.025	.135	.076	.024	
3.0	.162	.086	.026	.157	.084	.025	.148	.080	.024	.140	.077	.024	.132	.073	.023	
4.0	.155	.080	.024	.150	.079	.023	.143	.076	.023	.135	.073	.022	.129	.070	.021	
5.0	.147	.075	.022	.144	.074	.022	.137	.071	.021	.131	.069	.021	.125	.067	.020	
6.0	.141	.071	.020	.138	.070	.020	.132	.067	.020	.126	.066	.019	.121	.064	.019	
7.0	.135	.067	.019	.132	.066	.019	.127	.064	.018	.122	.062	.018	.117	.061	.018	
8.0	.129	.063	.018	.126	.062	.018	.122	.061	.017	.117	.059	.017	.113	.058	.017	
9.0	.124	.060	.017	.121	.059	.017	.117	.058	.016	.113	.057	.016	.109	.055	.016	
10.0	.119	.057	.016	.117	.056	.016	.113	.055	.016	.109	.054	.015	.106	.053	.015	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	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	.171	.157	.145	.146	.135	.125	.100	.093	.086	.058	.054	.050	.018	.017	.016	
2.0	.156	.132	.113	.134	.114	.097	.092	.079	.068	.053	.046	.040	.017	.015	.013	
3.0	.144	.114	.090	.123	.098	.078	.085	.068	.054	.049	.040	.032	.016	.013	.011	
4.0	.134	.099	.072	.115	.085	.063	.079	.060	.044	.046	.035	.026	.015	.011	.009	
5.0	.125	.087	.059	.107	.076	.052	.074	.053	.037	.043	.031	.022	.014	.010	.007	
6.0	.118	.078	.050	.101	.068	.043	.070	.047	.031	.040	.028	.018	.013	.009	.006	
7.0	.111	.070	.042	.096	.061	.037	.066	.043	.026	.038	.025	.015	.012	.008	.005	
8.0	.106	.064	.036	.091	.056	.031	.063	.039	.022	.037	.023	.013	.012	.008	.004	
9.0	.100	.059	.031	.087	.051	.027	.060	.036	.019	.035	.021	.012	.011	.007	.004	
10.0	.096	.055	.027	.083	.048	.024	.057	.033	.017	.033	.020	.010	.011	.006	.003	

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-12-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.287  
 Humidity:65.0%  
 Test Distance:8.000m [K=1.0000]  
 Remarks: 45度反光杯

UGR(Unified Glare Rating) Table

Test:U:220.1V I:0.6950A P:148.1W PF:0.9670 Lamp Flux:1495lx1 lm										
NAME: LED HIGH BAY LIGHT					TYPE:			WEIGHT:5		
SPEC.:CREE XTE					DIM.:			SERIAL No.:		
MFR.: QINHAN LIGHTING					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	17.4	18.3	17.6	18.5	18.7	17.7	18.7	18.0	18.9	19.0
3H	17.2	18.1	17.5	18.3	18.5	17.6	18.5	17.9	18.7	18.9
4H	17.1	18.0	17.4	18.2	18.4	17.5	18.3	17.8	18.6	18.8
6H	17.0	17.8	17.3	18.1	18.3	17.4	18.2	17.7	18.4	18.7
8H	17.0	17.7	17.3	18.0	18.3	17.4	18.1	17.7	18.4	18.6
12H	17.0	17.7	17.3	17.9	18.2	17.3	18.0	17.7	18.3	18.6
4H 2H	17.1	18.0	17.4	18.2	18.4	17.5	18.3	17.8	18.5	18.8
3H	17.0	17.7	17.3	17.9	18.2	17.3	18.1	17.7	18.3	18.6
4H	16.9	17.5	17.2	17.8	18.1	17.3	17.9	17.6	18.2	18.5
6H	16.8	17.3	17.1	17.7	18.0	17.2	17.7	17.5	18.1	18.4
8H	16.7	17.2	17.1	17.6	18.0	17.1	17.6	17.5	18.0	18.3
12H	16.7	17.1	17.1	17.5	17.9	17.1	17.5	17.5	17.9	18.3
8H 4H	16.7	17.2	17.1	17.6	18.0	17.1	17.6	17.5	18.0	18.3
6H	16.6	17.0	17.0	17.4	17.9	17.0	17.4	17.4	17.8	18.2
8H	16.6	16.9	17.0	17.4	17.8	17.0	17.3	17.4	17.7	18.2
12H	16.5	16.8	17.0	17.3	17.7	16.9	17.2	17.4	17.7	18.1
12H 4H	16.7	17.1	17.1	17.5	17.9	17.1	17.5	17.5	17.9	18.3
6H	16.6	16.9	17.0	17.4	17.8	17.0	17.3	17.4	17.7	18.2
8H	16.5	16.8	17.0	17.3	17.7	16.9	17.2	17.4	17.7	18.1
Variations with the observer position at spacings:										
S = 1.0H	+ 3.7 / -15.4					+ 3.0 / -12.6				
1.5H	+ 6.3 / -17.5					+ 5.7 / -14.1				
2.0H	+ 8.8 / - 7.1					+ 5.8 / - 5.7				

CIE Pub.117 Corrected 14951 lm Total Lamp Luminous Flux.(8log(F/F0) = 9.4)

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-12-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.287  
 Humidity:65.0%  
 Test Distance:8.000m [K=1.0000]  
 Remarks: 45度反光杯

UTILIZATION FACTORS TABLE

Test:U:220.1V I:0.6950A P:148.1W PF:0.9670 Lamp Flux:1495lx1 lm		
NAME: LED HIGH BAY LIGHT	TYPE:	WEIGHT:5
SPEC.:CREE XTE	DIM.:	SERIAL No.:
MFR.: QINHAN LIGHTING	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) $k(RI) \times RCR = 5$									
k = 0.60	86	80	76	86	80	76	85	79	76	72
0.80	94	88	84	93	88	84	92	87	84	80
1.00	99	93	89	98	93	89	96	93	89	85
1.25	103	98	94	102	97	94	100	96	93	89
1.50	106	101	98	104	100	97	102	99	96	91
2.00	108	104	101	107	103	100	104	101	99	94
2.50	110	106	103	109	105	102	105	103	101	95
3.00	112	108	106	110	107	104	107	104	102	96
4.00	114	111	109	112	109	107	108	106	105	98
5.00	115	113	111	113	111	109	109	107	106	99
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:25.3DEG  
 Operators:  
 Test Date:2014-12-29

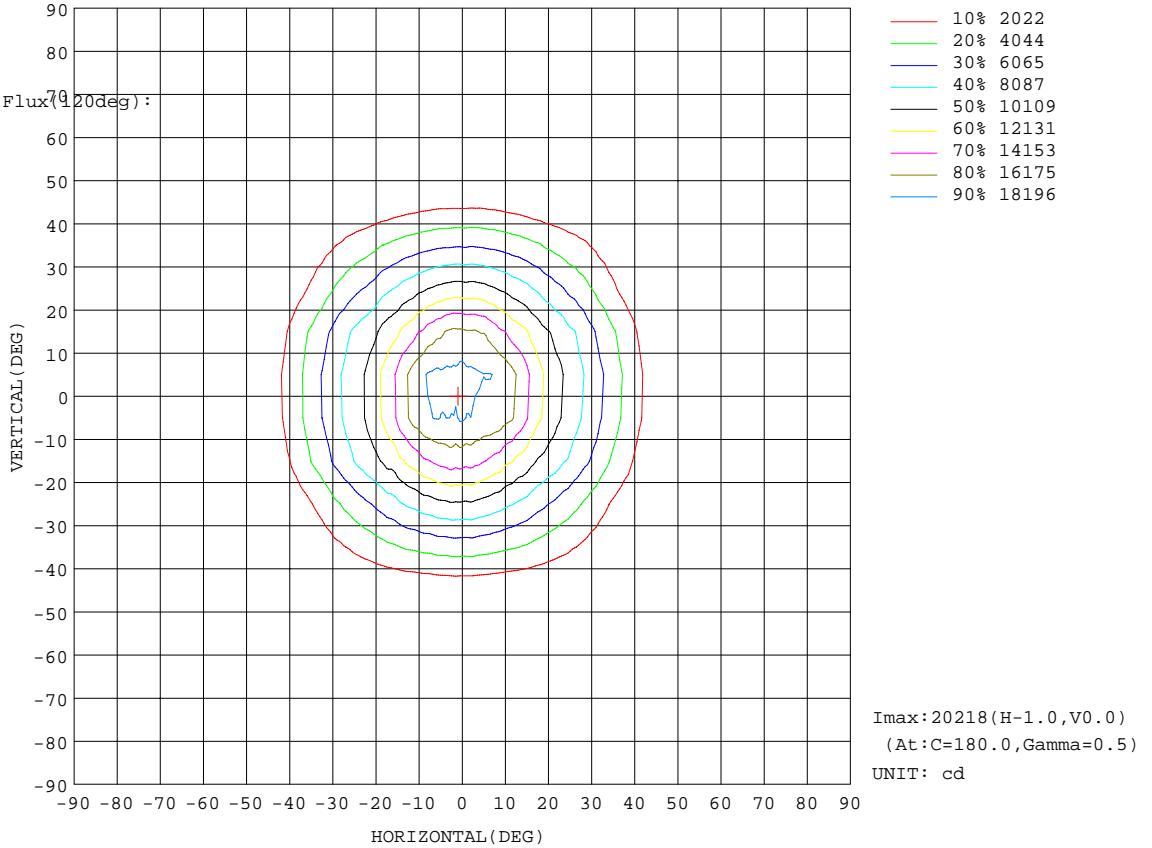
$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.287  
 Humidity:65.0%  
 Test Distance:8.000m [K=1.0000]  
 Remarks: 45度反光杯

ISOCANDELA DIAGRAM

Test:U:220.1V I:0.6950A P:148.1W PF:0.9670 Lamp Flux:1495lx1 lm		
NAME: LED HIGH BAY LIGHT	TYPE:	WEIGHT:5
SPEC.:CREE XTE	DIM.:	SERIAL No.:
MFR.: QINHAN LIGHTING	SUR.:	PROTECTION ANGLE:

Conical surface Flux(90deg):  
 14495 lm  
 %lum = 97.0%  
 %lamp = 97.0%

Conical surface Flux(70deg):  
 14885 lm  
 %lum = 99.6%  
 %lamp = 99.6%



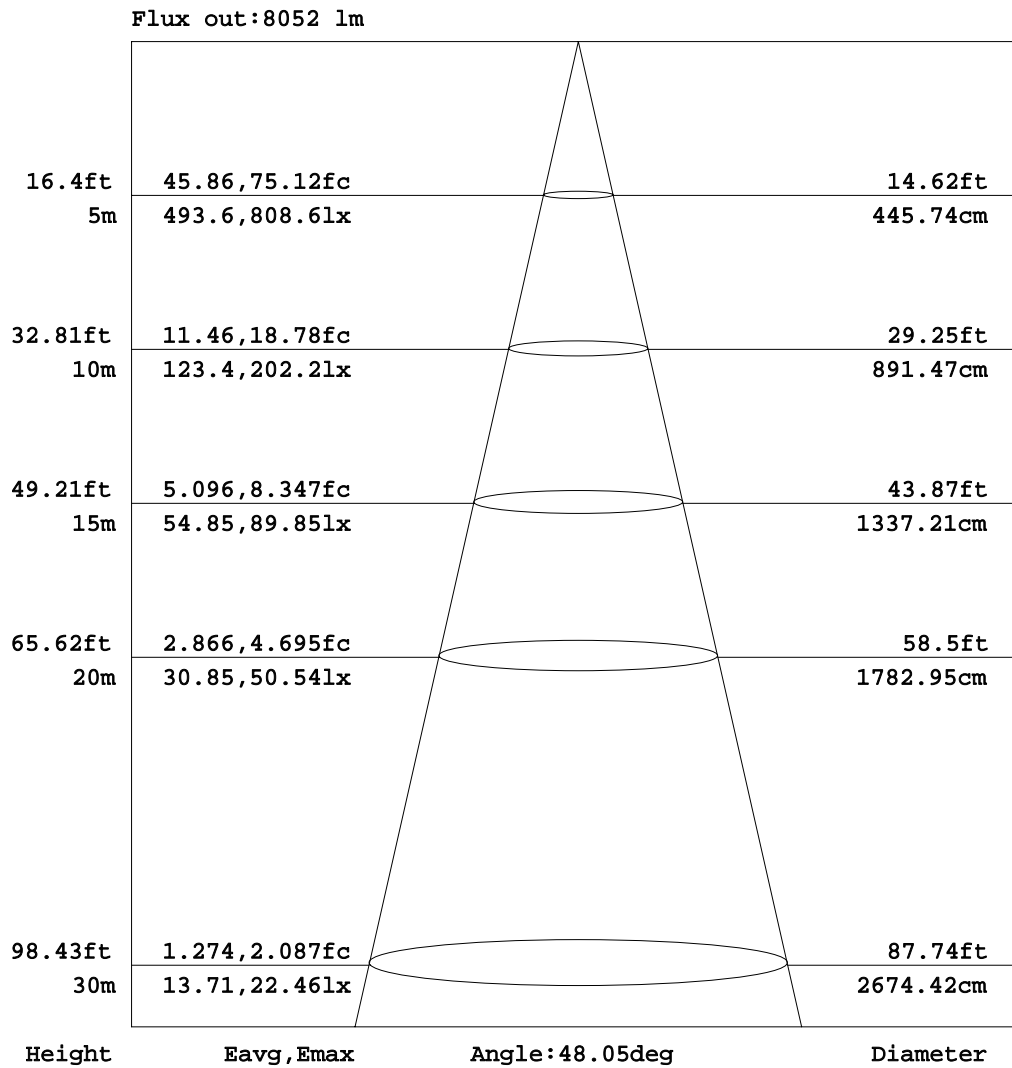
Imax:20218(H-1.0,V0.0)  
 (At:C=180.0,Gamma=0.5)  
 UNIT: cd

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-12-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.287  
 Humidity:65.0%  
 Test Distance:8.000m [K=1.0000]  
 Remarks: 45度反光杯

AAI Figure

Test:U:220.1V I:0.6950A P:148.1W PF:0.9670 Lamp Flux:1495lx1 lm		
NAME: LED HIGH BAY LIGHT	TYPE:	WEIGHT:5
SPEC.:CREE XTE	DIM.:	SERIAL No.:
MFR.: QINHAN LIGHTING	SUR.:	PROTECTION ANGLE:



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

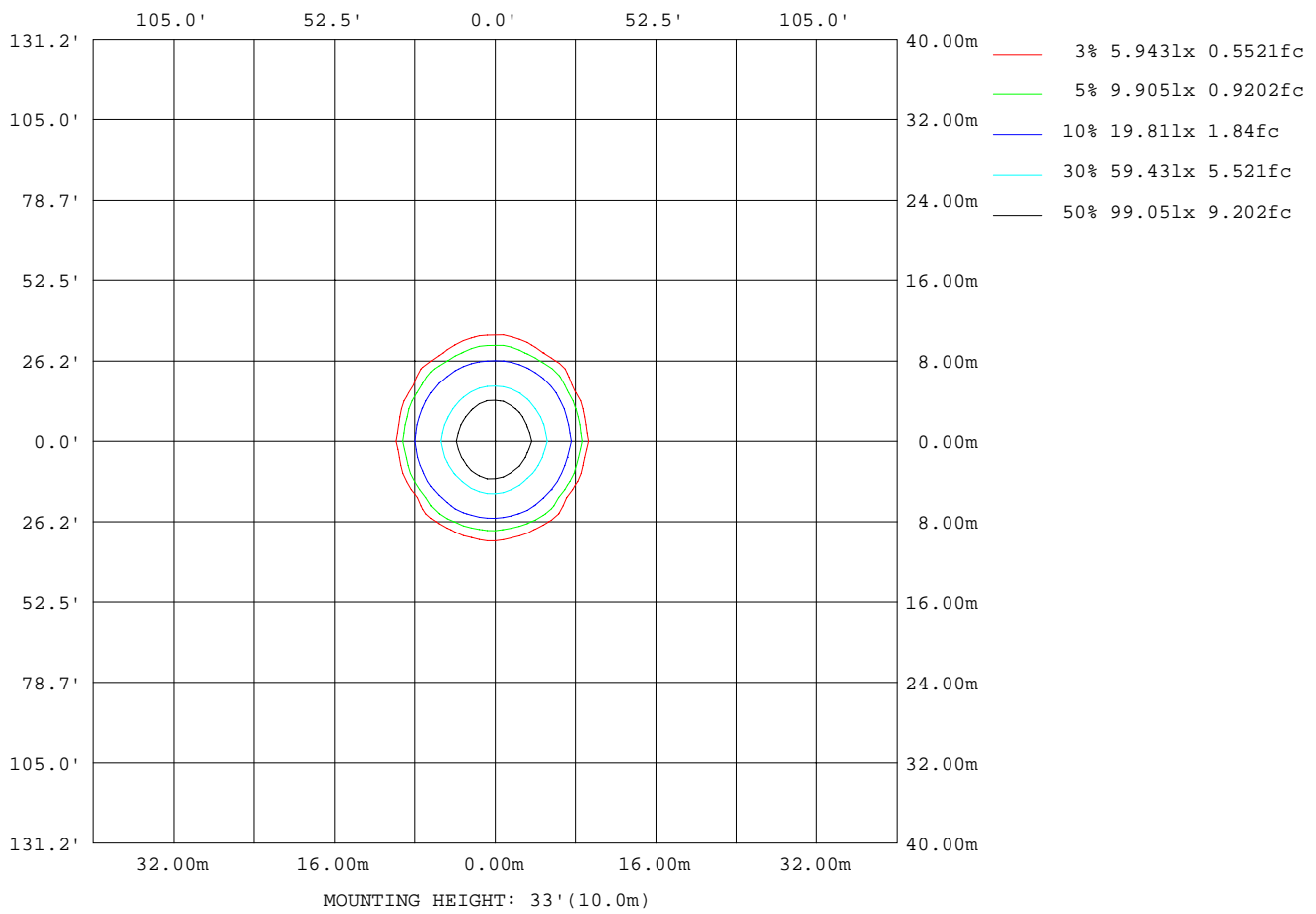
C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-12-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.287  
 Humidity:65.0%  
 Test Distance:8.000m [K=1.0000]  
 Remarks: 45度反光杯



ISOLUX DIAGRAM

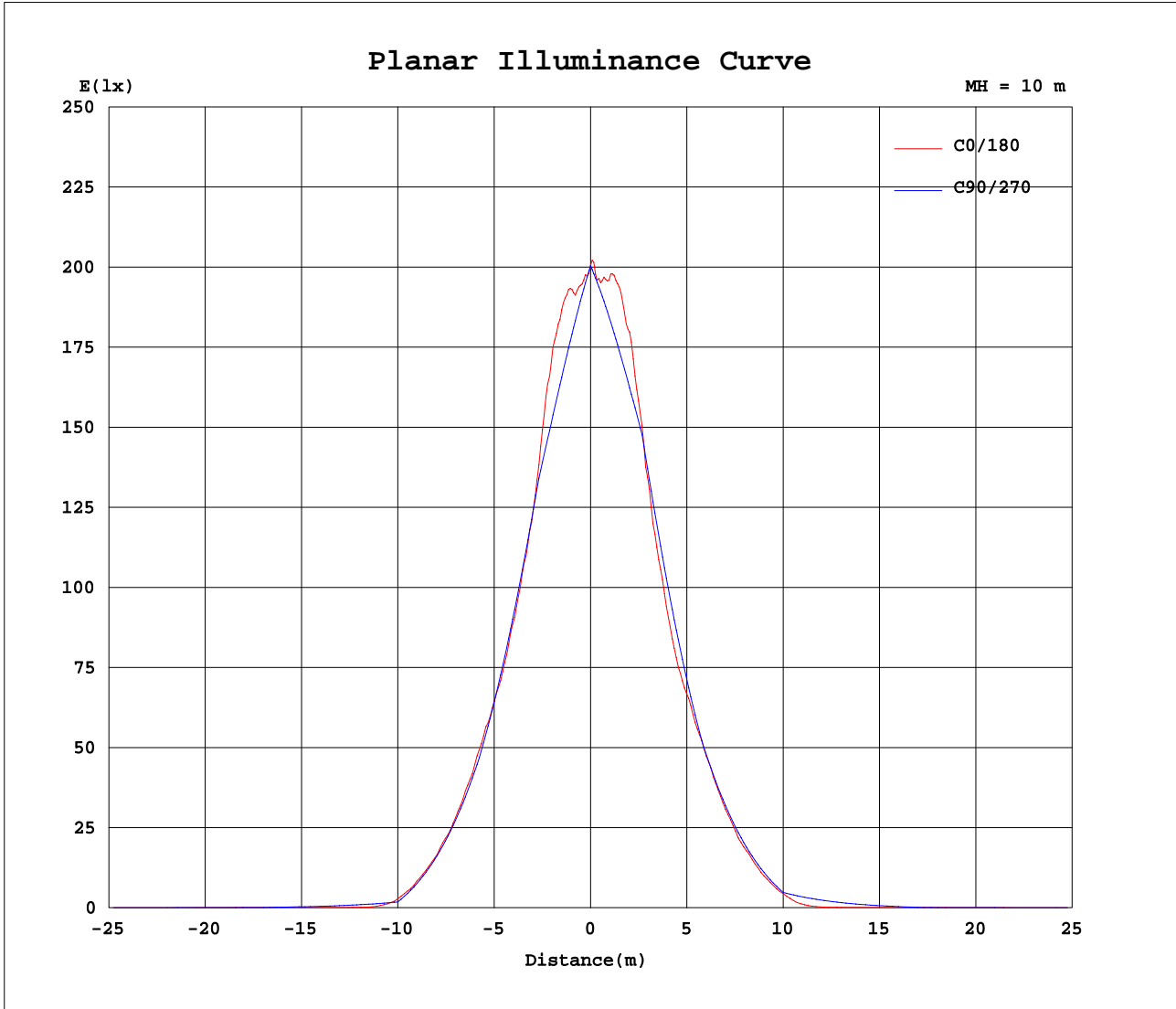
Test:U:220.1V I:0.6950A P:148.1W PF:0.9670 Lamp Flux:1495lx1 lm		
NAME: LED HIGH BAY LIGHT	TYPE:	WEIGHT:5
SPEC.:CREE XTE	DIM.:	SERIAL No.:
MFR.: QINHAN LIGHTING	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-12-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.287  
 Humidity:65.0%  
 Test Distance:8.000m [K=1.0000]  
 Remarks: 45度反光杯

Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators:  
 Test Date: 2014-12-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.287  
 Humidity: 65.0%  
 Test Distance: 8.000m [K=1.0000]  
 Remarks: 45度反光杯







LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.1V I:0.6950A P:148.1W PF:0.9670 Lamp Flux:1495lx1 lm		
NAME: LED HIGH BAY LIGHT	TYPE:	WEIGHT:5
SPEC.:CREE XTE	DIM.:	SERIAL No.:
MFR.: QINHAN LIGHTING	SUR.:	PROTECTION ANGLE:

Table--4

UNIT: x10cd

C( DEG) γ (DEG)	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355				
0	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005				
5	1866	1866	1863	1861	1862	1865	1869	1871	1875	1879	1886	1897	1909	1921	1932				
10	1747	1739	1737	1742	1738	1741	1741	1744	1749	1758	1769	1790	1808	1828	1851				
15	1620	1610	1571	1544	1519	1520	1500	1491	1492	1496	1493	1493	1493	1497	1511				
20	1357	1324	1292	1285	1256	1257	1261	1221	1199	1181	1166	1166	1173	1179	1189				
25	1069	1048	1035	1022	1019	992	985	979	994	969	966	941	932	931	938				
30	813	808	801	794	777	756	753	762	754	780	769	742	728	727	739				
35	584	577	575	574	556	547	533	540	538	529	524	522	495	490	495				
40	359	361	354	349	351	343	337	323	304	295	292	302	283	272	272				
45	139	142	147	158	169	181	177	151	107	103	108	103	87.3	72.4	72.3				
50	70.3	46.2	28.0	14.8	25.1	54.3	63.0	46.9	23.0	8.81	16.4	12.8	7.98	6.69	6.30				
55	39.5	25.8	17.0	9.95	7.36	5.76	4.87	9.51	7.33	6.45	5.17	5.61	5.73	5.40	5.66				
60	13.0	12.6	11.1	9.02	7.49	5.77	4.84	5.94	8.46	7.91	7.05	8.30	8.42	8.49	8.71				
65	6.57	7.28	7.84	8.11	7.53	5.48	3.68	4.00	5.85	6.47	4.70	5.16	5.18	4.77	4.54				
70	3.89	4.36	4.78	4.96	4.58	3.41	1.77	0.91	1.93	2.32	1.17	1.08	0.92	0.80	0.75				
75	1.16	1.40	1.70	1.95	1.96	1.53	0.88	0.59	0.58	0.73	0.80	0.68	0.81	0.78	0.80				
80	0.06	0.11	0.17	0.25	0.32	0.37	0.39	0.35	0.31	0.36	0.42	0.36	0.32	0.28	0.27				
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.06	0.07	0.06	0.05				
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-12-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.287  
 Humidity:65.0%  
 Test Distance:8.000m [K=1.0000]  
 Remarks: 45度反光杯