



# Sky High Bay

Photometric and Optical Testing Services Test Report POTS/DC14106

Meadowbank Business Park  
Tweedale Way  
Oldham  
OL9 8EH

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0845 313 2752

### PHOTOMETRIC TEST REPORT

Report Number: POTS/DC14106	Report Date: 15/05/2014	Prepared By: D CHAMBERS
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### Details of Product Tested

Manufacturer: CONSTANT GROUP	Source Type: LED
Model: 120cm batten	Luminaire Type: DOWNLIGHT
Power Supply Used: Uninterruptible AC power supply	
Voltage(AC V) = 230.0	Current (mA)= 661
Power (Watts)= 149.3	Power factor= 0.982

### Results

Flux (lumens): 15365	
CIE 1931 Chromaticity Cx:0.3714	CIE 1931 Chromaticity Cy: 0.3615
CRI (%):87.96	CCT (K): 4148

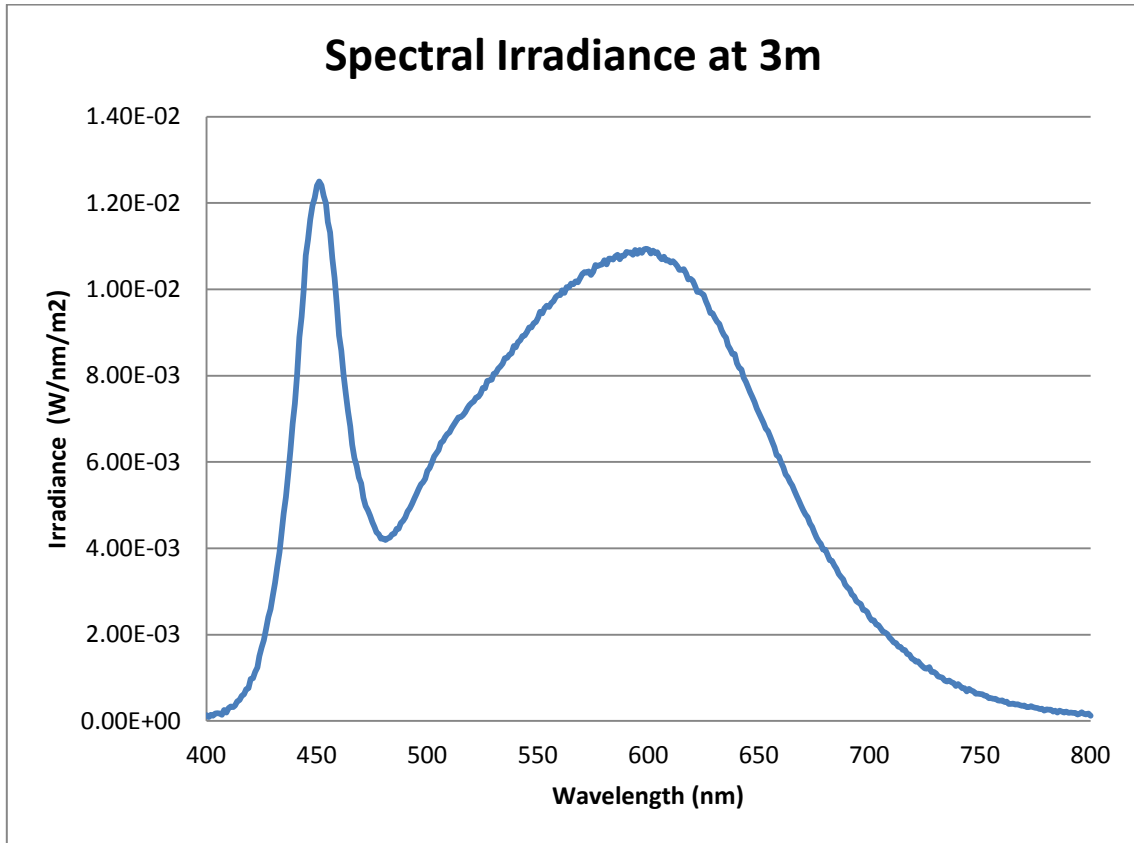


Figure 1: Spectral Irradiance



Figure 2: CIE 1931 diagram.

GONIOPHOTOMETER TEST		
Date of Test: 09/05/2014	Ambient Temperature: 25°C	
Measurement Filename: 120cm batten		
Instrument Used: Radiant Imaging NFMS0800 Goniometer with ProMetric PM-1200N-1 Imaging Photometer		
Photometer Working Distance: 3m	Measurement Geometry: Near-Field	
Comments:		
Reference Photometer Used: Specbos1201	Reference Photometer Serial Number: 2911670	
Traceable: to NPL standards, UKAS Accredited	Calibration Certificate Number: 13201	
Calibration Certificate Date: 15 <sup>th</sup> March 2013	Sample Stabilisation Time (minutes): 60	
Reference Photometer Calibration Uncertainty: $\pm 2.4\%$ ( $k=2$ , 20-200 lux, CIE illuminant A source)		
Scan Set Up		
Direction	Range	Increment
Inclination Zone 1	0-90°	3°
Azimuth	0-360°	10°
Results		
Integrated Luminous Flux (lumens):15365	Peak Intensity (3° Spot, candelas): 5700.1	Efficacy (lumens/Watt): 103
Beam Angle (50% of max intensity C0-180, degrees): 114.1		
Photometric Filename (IES LM-63-2002): 120cm batten		
IES File – Absolute or Relative Format? RELATIVE		
Photometric Filename (EULUMDAT): 120cm batten		
EULUMDAT File – Absolute or Relative Format? RELATIVE		

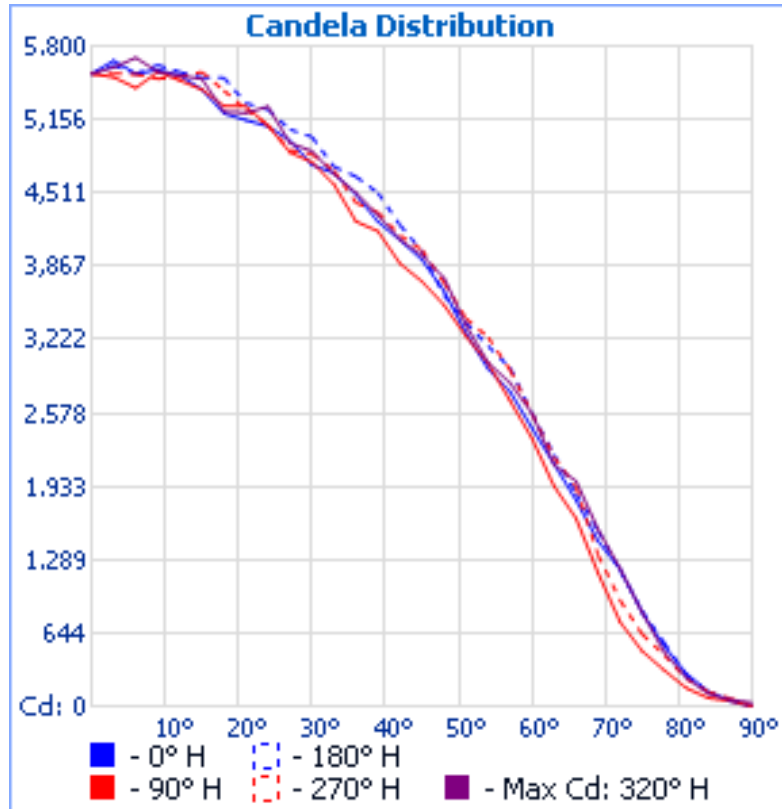


Figure 3: Far-Field Luminous Intensity (C0-180, Cartesian Coordinates)

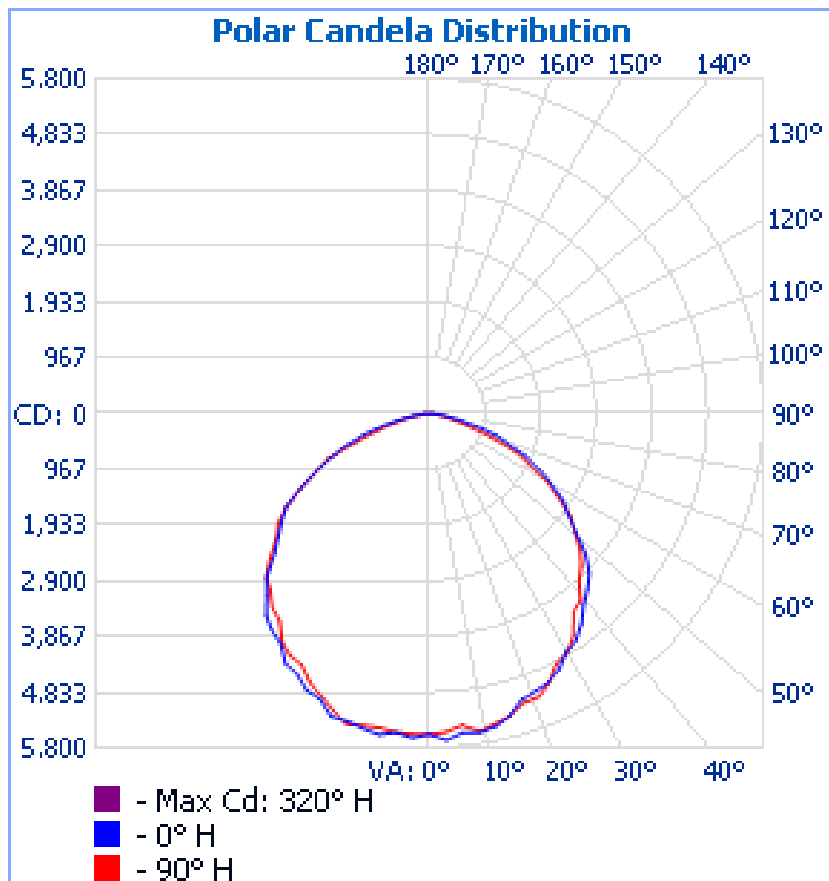


Figure 4: Far-Field Luminous Intensity (C0-180, C90-270, Polar Coordinates)

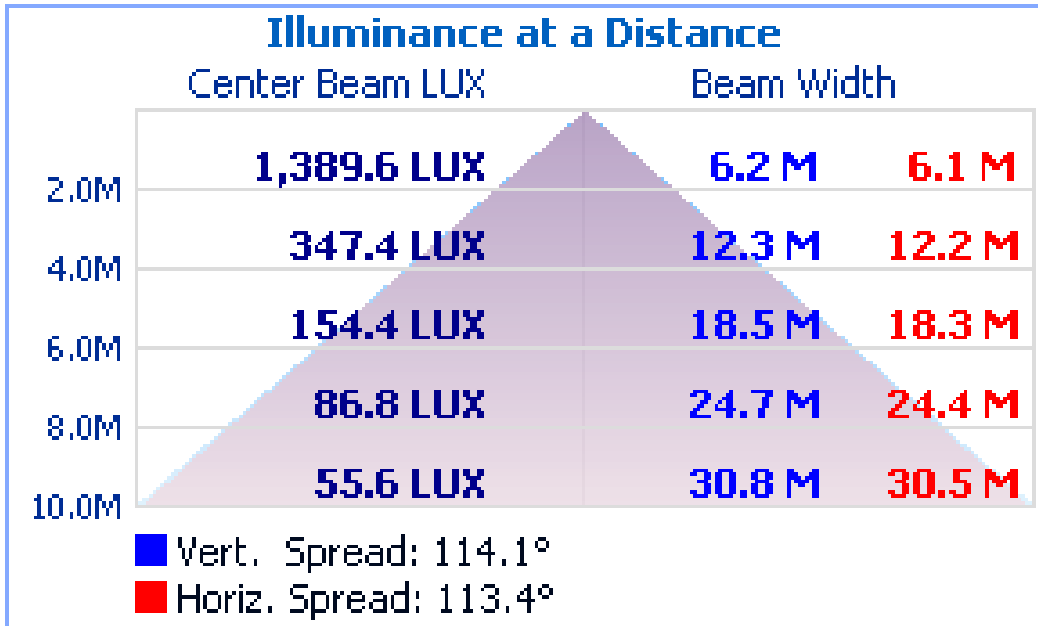


Figure 4a. Cone diagram for mounting height of 10 metres.

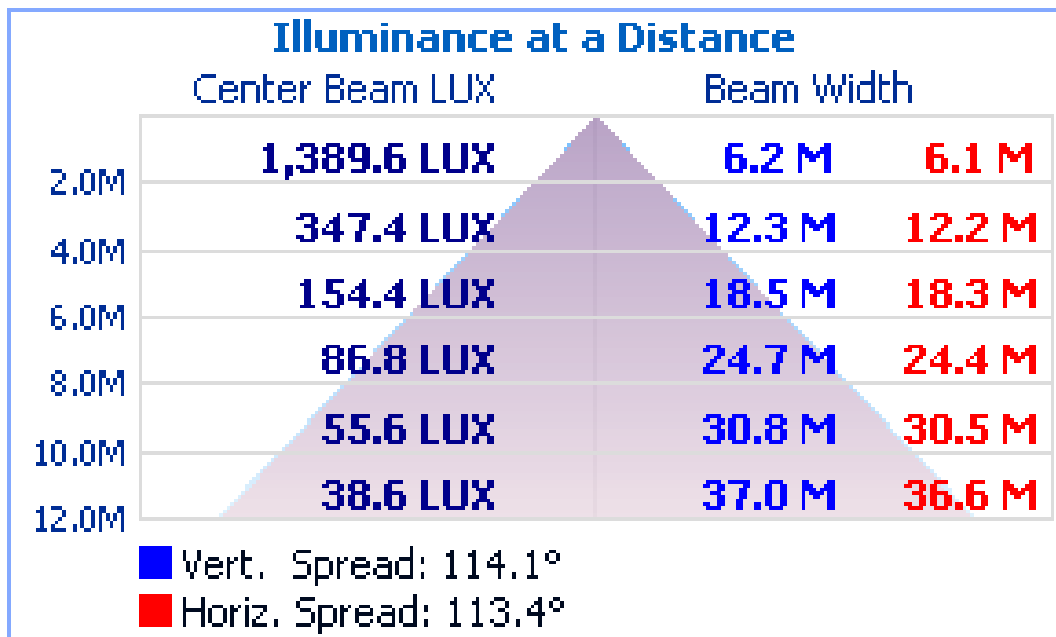


Figure 4b. Cone diagram for mounting height of 12 metres.

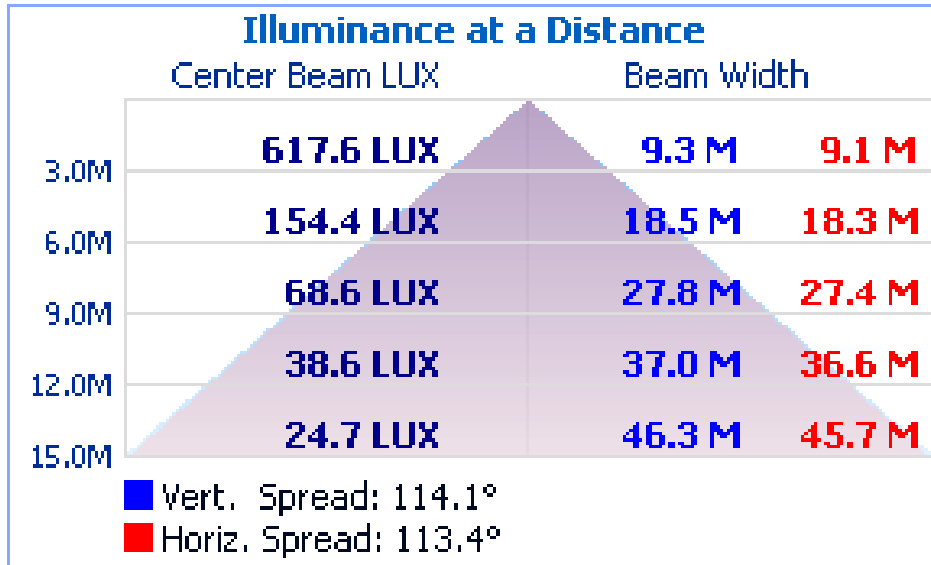


Figure 4b. Cone diagram for mounting height of 15 metres.

Reflectance of	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Ceiling	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Floor Cavity	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Room dimension		View endwise (C0)					View crosswise (C90)				
x	y										
2H	2H	21.5	23.1	21.9	23.4	23.8	22.3	23.9	22.7	24.3	24.6
	3H	22.6	24.1	23.0	24.4	24.8	23.5	25.0	23.9	25.3	25.7
	4H	23.0	24.3	23.4	24.7	25.1	23.7	25.1	24.1	25.4	25.8
	6H	23.1	24.4	23.5	24.7	25.1	23.9	25.1	24.3	25.5	25.9
	8H	23.1	24.3	23.5	24.7	25.1	23.8	25.0	24.2	25.4	25.8
	12H	23.0	24.2	23.5	24.6	25.0	23.8	25.0	24.2	25.3	25.7
4H	2H	22.2	23.6	22.6	23.9	24.3	22.9	24.2	23.3	24.6	25.0
	3H	23.4	24.6	23.8	25.0	25.4	24.2	25.3	24.6	25.7	26.1
	4H	23.9	24.9	24.3	25.3	25.7	24.5	25.5	24.9	25.9	26.3
	6H	24.0	24.9	24.4	25.3	25.8	24.6	25.5	25.0	25.9	26.3
	8H	24.0	24.8	24.5	25.3	25.7	24.6	25.4	25.1	25.9	26.3
	12H	24.0	24.8	24.5	25.2	25.7	24.6	25.4	25.1	25.8	26.3
8H	4H	23.9	24.8	24.4	25.2	25.7	24.5	25.4	25.0	25.8	26.3
	6H	24.1	24.8	24.6	25.2	25.7	24.6	25.3	25.1	25.8	26.3
	8H	24.2	24.8	24.7	25.3	25.8	24.7	25.3	25.2	25.8	26.3
	12H	24.1	24.6	24.7	25.2	25.7	24.7	25.2	25.3	25.8	26.3
12H	4H	23.9	24.7	24.4	25.1	25.6	24.5	25.3	25.0	25.7	26.2
	6H	24.1	24.7	24.6	25.2	25.7	24.7	25.3	25.2	25.8	26.3
	8H	24.1	24.6	24.7	25.2	25.7	24.7	25.2	25.2	25.7	26.2

Distance between luminaires: 0.25

Due to missing symmetry characteristics the values apply only to the indicated line of sight.

Table 1. UGR values

	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558
3	5675	5648	5643	5631	5638	5625	5598	5573	5544	5529	5531	5542	5559	5578	5592	5592	5597	5609	5632
6	5559	5569	5613	5586	5497	5443	5471	5546	5522	5434	5431	5485	5551	5578	5571	5579	5530	5513	5558
9	5592	5553	5557	5500	5566	5472	5452	5460	5505	5575	5462	5436	5521	5569	5550	5482	5522	5600	5635
12	5544	5531	5524	5476	5413	5502	5371	5486	5430	5501	5422	5492	5566	5522	5580	5486	5325	5538	5574
15	5421	5390	5504	5385	5456	5352	5409	5375	5503	5420	5412	5435	5255	5447	5404	5413	5329	5372	5525
18	5211	5373	5383	5179	5448	5385	5265	5287	5346	5276	5317	5337	5194	5312	5283	5208	5391	5316	5524
21	5151	5150	5136	5157	5064	5231	5221	5191	5136	5273	5034	5172	5153	5216	5241	5119	5338	5220	5301
24	5098	5083	5099	5037	5168	5088	5173	5024	5095	5106	5079	5090	5199	5084	5102	4983	5274	5045	5245
27	4971	4972	4908	4901	4903	4908	4912	4920	4923	4868	4879	4942	4859	4908	4907	4887	4933	4887	5069
30	4757	4725	4804	4716	4818	4842	4797	4782	4707	4783	4803	4886	4817	4861	4826	4734	4835	4727	5005
33	4688	4594	4572	4649	4568	4596	4519	4685	4708	4587	4602	4664	4584	4610	4537	4790	4610	4579	4743
36	4497	4454	4546	4527	4440	4439	4485	4500	4449	4261	4331	4405	4543	4449	4422	4565	4294	4370	4656
39	4258	4324	4222	4153	4173	4194	4234	4252	4179	4176	4228	4124	4185	4164	4121	4276	4111	4171	4511
42	4098	4129	4105	3941	3992	4113	3980	4003	3885	3891	3947	4016	4035	3943	4000	3929	3814	3990	4230
45	3924	3799	3726	3817	3769	3691	3746	3699	3702	3734	3757	3768	3698	3660	3860	3790	3694	3771	3999
48	3649	3562	3508	3571	3512	3497	3483	3543	3471	3526	3574	3580	3469	3522	3610	3484	3402	3561	3612
51	3280	3304	3336	3249	3147	3220	3255	3199	3211	3251	3219	3194	3288	3243	3357	3238	3129	3323	3375
54	2966	3061	3089	2964	2896	2928	2927	2926	2922	3015	2994	2883	2910	3030	3108	2965	2923	3046	3167
57	2766	2721	2655	2620	2618	2648	2673	2728	2609	2685	2653	2574	2616	2757	2703	2512	2617	2712	2975
60	2445	2456	2331	2327	2399	2409	2474	2352	2297	2354	2341	2390	2399	2394	2269	2291	2318	2407	2574
63	2131	2170	2044	2100	2000	2079	2060	1997	1981	1935	2012	1943	2012	2008	1983	1950	1991	2120	2212
66	1813	1716	1778	1805	1752	1683	1654	1612	1613	1653	1588	1664	1691	1655	1658	1634	1648	1746	1870
69	1450	1404	1441	1409	1388	1320	1217	1228	1171	1169	1171	1201	1302	1379	1297	1322	1373	1425	1541
72	1205	1154	1079	1015	1005	957	860	841	787	741	767	813	842	990	1021	966	1064	1123	1192
75	824	819	766	699	658	560	486	514	528	486	511	488	469	574	680	684	748	796	840
78	531	495	486	419	354	329	311	321	288	319	330	295	342	292	331	408	480	476	558
81	291	276	255	212	197	191	174	172	161	162	179	161	163	196	160	186	258	270	275
84	131	123	98	94	80	100	76	75	80	75	67	92	77	71	74	81	95	104	128
87	47	66	54	32	36	53	38	43	50	50	41	36	50	51	39	51	31	43	61
90	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 2a. Luminous intensity values, azimuth 0-180°



	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350
0	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558	5558
3	5654	5667	5667	5660	5646	5630	5605	5578	5560	5565	5588	5604	5608	5615	5645	5687	5696
6	5610	5628	5640	5609	5580	5592	5562	5539	5554	5592	5588	5628	5681	5700	5603	5515	5518
9	5675	5654	5612	5577	5576	5602	5512	5424	5514	5650	5532	5543	5597	5574	5616	5508	5424
12	5553	5402	5448	5557	5571	5612	5464	5463	5530	5583	5551	5520	5467	5543	5481	5482	5469
15	5374	5426	5496	5224	5483	5527	5417	5358	5575	5492	5553	5475	5426	5514	5586	5434	5508
18	5352	5498	5373	5354	5408	5313	5320	5415	5412	5401	5377	5374	5305	5225	5462	5328	5368
21	5187	5444	5165	5263	5135	5305	5235	5300	5244	5306	5248	5325	5314	5215	5325	5272	5326
24	5009	5203	5159	5241	5166	5217	5134	5069	5106	5106	5230	5161	5107	5270	5092	5302	5025
27	4922	4982	5033	5017	5070	5105	5104	5041	4887	5000	5095	5077	5097	4949	5089	4981	5071
30	4808	4856	4859	4881	4806	4854	4828	4923	4854	4828	4839	4888	4762	4880	4917	4911	4708
33	4560	4727	4843	4674	4678	4692	4737	4711	4708	4724	4703	4750	4614	4678	4664	4584	4662
36	4314	4490	4534	4537	4555	4606	4462	4506	4426	4610	4605	4555	4514	4512	4466	4497	4523
39	4271	4274	4416	4315	4360	4269	4381	4458	4341	4380	4396	4409	4344	4317	4270	4294	4232
42	4121	4016	4106	4157	4102	4176	4252	4175	4139	4177	4099	4081	4165	4102	3997	4006	4059
45	3848	3639	3901	3976	3845	3859	3923	3887	4011	3870	3996	3840	3791	3962	3896	3826	3838
48	3683	3536	3660	3749	3588	3553	3663	3788	3722	3716	3781	3653	3578	3765	3644	3574	3631
51	3374	3242	3332	3468	3417	3377	3388	3451	3408	3543	3467	3390	3378	3347	3343	3376	3290
54	3138	3037	3085	3189	3231	3133	3201	3237	3244	3182	3175	3069	3033	3020	3166	3133	3031
57	2830	2659	2805	2945	2923	2887	2748	2917	2957	2886	2989	2865	2880	2843	2793	2721	2704
60	2486	2411	2448	2543	2601	2570	2515	2569	2570	2524	2522	2568	2507	2575	2397	2454	2503
63	2178	2155	2125	2129	2238	2256	2227	2187	2189	2168	2251	2213	2226	2122	2104	2091	2180
66	1824	1719	1792	1898	1928	1895	1952	1779	1927	1814	1872	1886	1885	1980	1939	1826	1779
69	1497	1451	1452	1468	1499	1492	1472	1489	1330	1433	1533	1514	1550	1553	1566	1470	1424
72	1201	1163	1078	1155	1157	1088	1033	1011	931	939	1003	1077	1174	1210	1247	1173	1230
75	887	782	784	896	752	640	618	591	635	600	588	657	733	827	865	799	808
78	549	547	497	471	410	428	433	403	454	422	432	393	453	477	523	545	540
81	296	320	302	244	208	260	247	272	243	244	235	254	288	252	278	319	318
84	144	120	122	125	121	132	122	138	129	121	142	112	119	114	126	132	135
87	59	62	50	54	63	62	47	63	71	62	61	61	60	58	60	66	58
90	0	32	0	0	0	0	0	0	0	0	0	0	0	33	0	0	0

Table 2b. Luminous intensity values, azimuth 190-350°

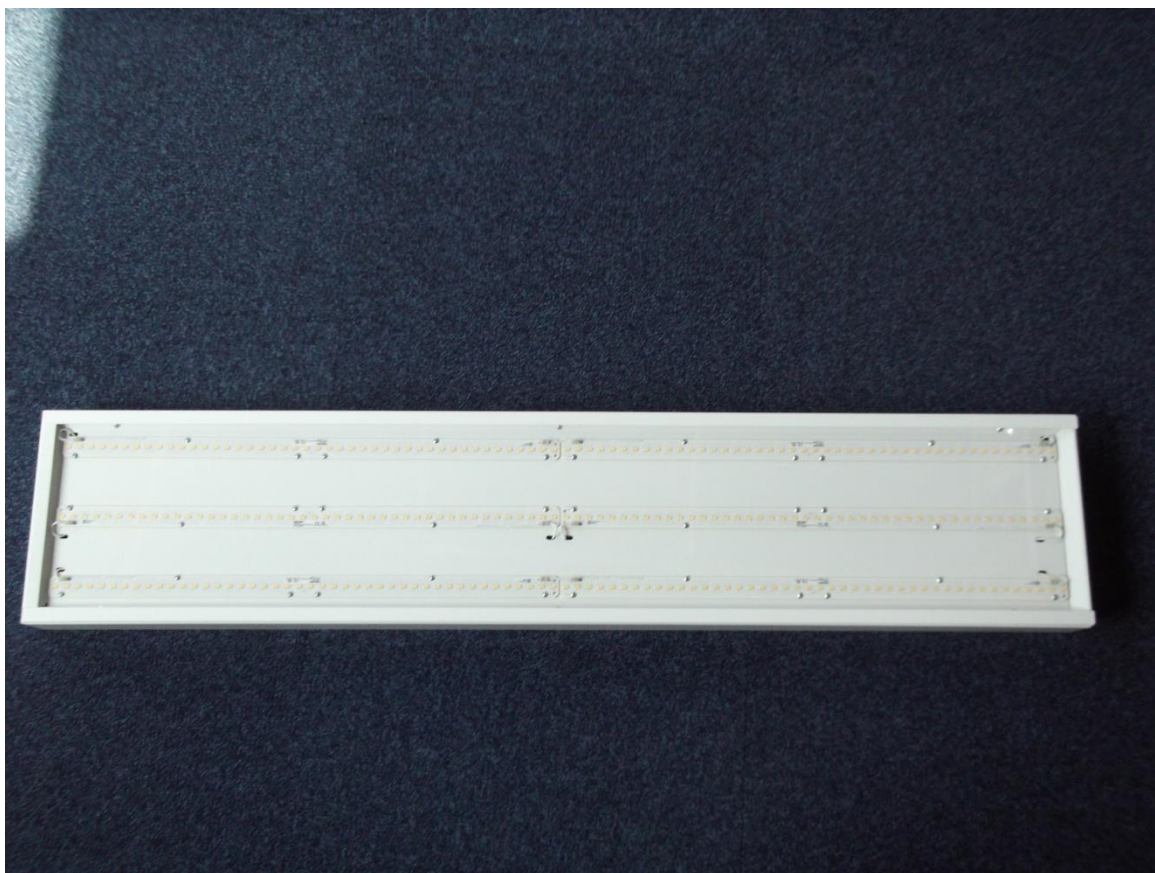


Photo 1: Luminaire for test

*Tested by:*

*Checked by:*

Signature:

Signature:



Print Name: D CHAMBERS

Print Name: GH JOHN

Date: 15/05/2014

Date: 16/05/2014

Test Engineer

Partner / Director