



Photometric Indoor Test Report

Relevant Standards
LM-79-2008

Prepared For
Sea Gull Lighting
Andre Duljas
301 W. Washington Street
Riverside, NJ 08075

Catalog Number
96118S-32

LTL Test Number
21910

Test Date

2010-12-21

Prepared By

Signature

Approved By

Signature

Name and Title: Brian Moyer, Engineer

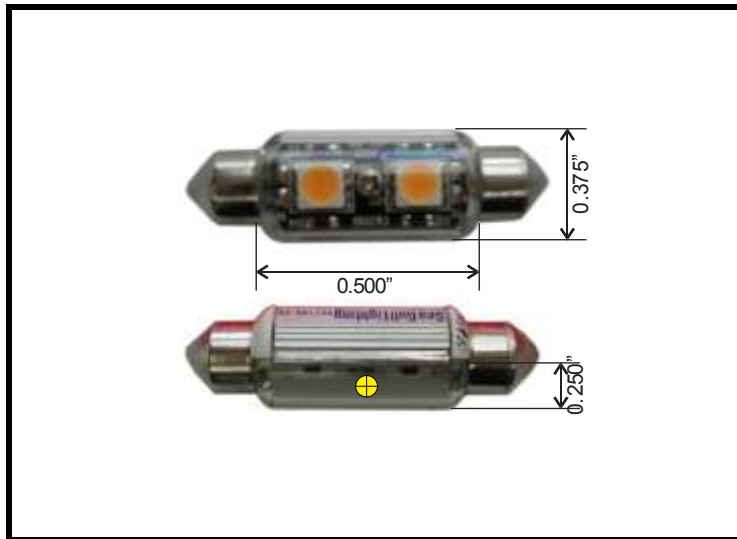
Name and Title: Michael Grather, PDE

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Luminaire Description: Extruded aluminum heatsink housing, clear plastic enclosure
Catalog Number: 96118S-32
Lamp: Two white LEDs
Mounting: Track

Luminaire



Zonal Lumen Summary

Table with 4 columns: Zone (Degrees), Lumens, % of Lamp, % of Luminaire. Rows include zones from 0-30 to 0-180.

Test Conditions

Test Temperature: 24.5 °C
Voltage: 12.00 VAC
Current: 0.05702 A
Power: 0.6330 W
Power Factor: 0.925
Frequency: 60 Hz

Summary of Results

Total Lumen Output: 25.61 Lumens
Luminaire Efficacy: 40.5 Lumens/Watt
CIE Type: Direct
Spacing Criterion: 0 Degree: 1.28, 90 degree: 1.26, 180 Degree: 1.28, 270 degree: 1.26

Data was acquired using the calibrated photodetector method of absolute photometry. A spectral mismatch correction factor was employed based on the spectral responsivity of the photodetector and the spectral power distribution of the test subject.



Candela Tabulation
Horizontal Angle (Degrees)

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	9.254	9.254	9.254	9.254	9.254	9.254	9.254	9.254	9.254	9.254	9.254	9.254	9.254	9.254	9.254	9.254
5	9.164	9.184	9.154	9.233	9.093	9.233	9.154	9.184	9.164	9.184	9.154	9.233	9.093	9.233	9.154	9.184
10	9.086	9.074	8.997	9.024	8.958	9.024	8.997	9.074	9.086	9.074	8.997	9.024	8.958	9.024	8.997	9.074
15	8.924	8.878	8.832	8.850	8.757	8.850	8.832	8.878	8.924	8.878	8.832	8.850	8.757	8.850	8.832	8.878
20	8.702	8.671	8.548	8.599	8.487	8.599	8.548	8.671	8.702	8.671	8.548	8.599	8.487	8.599	8.548	8.671
25	8.398	8.353	8.284	8.235	8.155	8.235	8.284	8.353	8.398	8.353	8.284	8.235	8.155	8.235	8.284	8.353
30	7.975	7.979	7.908	7.893	7.761	7.893	7.908	7.979	7.975	7.979	7.908	7.893	7.761	7.893	7.908	7.979
35	7.514	7.518	7.445	7.481	7.474	7.481	7.445	7.518	7.514	7.518	7.445	7.481	7.474	7.481	7.445	7.518
40	6.971	6.975	6.897	7.201	7.654	7.201	6.897	6.975	6.971	6.975	6.897	7.201	7.654	7.201	6.897	6.975
45	6.340	6.355	6.365	7.223	7.048	7.223	6.365	6.355	6.340	6.355	6.365	7.223	7.048	7.223	6.365	6.355
50	5.529	5.606	5.817	6.361	5.268	6.361	5.817	5.606	5.529	5.606	5.817	6.361	5.268	6.361	5.817	5.606
55	4.703	4.778	5.197	4.532	3.455	4.532	5.197	4.778	4.703	4.778	5.197	4.532	3.455	4.532	5.197	4.778
60	3.877	3.873	4.337	3.384	3.441	3.384	4.337	3.873	3.877	3.873	4.337	3.384	3.441	3.384	4.337	3.873
65	3.048	3.044	3.297	2.934	2.354	2.934	3.297	3.044	3.048	3.044	3.297	2.934	2.354	2.934	3.297	3.044
70	2.239	2.276	2.149	1.853	1.144	1.853	2.149	2.276	2.239	2.276	2.149	1.853	1.144	1.853	2.149	2.276
75	1.466	1.506	1.249	0.914	0.775	0.914	1.249	1.506	1.466	1.506	1.249	0.914	0.775	0.914	1.249	1.506
80	0.707	0.730	0.534	0.416	0.036	0.416	0.534	0.730	0.707	0.730	0.534	0.416	0.036	0.416	0.534	0.730
85	0.122	0.184	0.120	0.076	0.046	0.076	0.120	0.184	0.122	0.184	0.120	0.076	0.046	0.076	0.120	0.184
90	0.022	0.015	0.097	0.073	0.055	0.073	0.097	0.015	0.022	0.015	0.097	0.073	0.055	0.073	0.097	0.015
95	0.000	0.000	0.167	0.010	0.030	0.010	0.167	0.000	0.000	0.000	0.167	0.010	0.030	0.010	0.167	0.000
100	0.000	0.000	0.012	0.002	0.000	0.002	0.012	0.000	0.000	0.000	0.012	0.002	0.000	0.002	0.012	0.000
105	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
110	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
115	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
120	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
125	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
130	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
135	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
145	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
155	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
160	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
165	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
170	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
175	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
180	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Zonal Lumen Tabulation (5 degree zones)

Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens
0-5	0.2204	45-50	2.538	90-95	0.02609	135-140	0
5-10	0.6515	50-55	2.255	95-100	0.01300	140-145	0
10-15	1.061	55-60	1.949	100-105	0.0007349	145-150	0
15-20	1.439	60-65	1.663	105-110	0	150-155	0
20-25	1.770	65-70	1.264	110-115	0	155-160	0
25-30	2.048	70-75	0.8198	115-120	0	160-165	0
30-35	2.264	75-80	0.4460	120-125	0	165-170	0
35-40	2.426	80-85	0.1690	125-130	0	170-175	0
40-45	2.555	85-90	0.03560	130-135	0	175-180	0



Utilization of Lumens - Zonal Cavity Method

Effective Floor Cavity Reflectance 20%												
Ceiling Cavity Reflectance	90				80				70			
Wall Reflectance	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **											
0	31.23	31.23	31.23	31.23	30.48	30.48	30.48	30.48	29.77	29.77	29.77	29.77
1	28.78	27.52	26.39	25.39	28.05	26.91	25.89	24.96	27.36	26.33	25.40	24.55
2	26.30	24.08	22.27	20.76	25.59	23.58	21.91	20.51	24.93	23.09	21.56	20.26
3	24.04	21.18	19.00	17.29	23.37	20.76	18.74	17.13	22.74	20.35	18.48	16.97
4	22.03	18.77	16.42	14.65	21.41	18.41	16.22	14.54	20.82	18.07	16.02	14.44
5	20.26	16.75	14.35	12.60	19.69	16.45	14.20	12.53	19.15	16.17	14.04	12.46
6	18.69	15.06	12.67	10.98	18.17	14.81	12.55	10.93	17.68	14.57	12.43	10.88
7	17.31	13.63	11.30	9.68	16.84	13.42	11.20	9.64	16.40	13.21	11.10	9.61
8	16.10	12.42	10.16	8.62	15.67	12.23	10.08	8.59	15.27	12.06	10.00	8.56
9	15.02	11.38	9.20	7.74	14.63	11.22	9.13	7.72	14.27	11.06	9.07	7.70
10	14.06	10.48	8.38	7.01	13.71	10.34	8.33	6.99	13.38	10.21	8.27	6.97

Ceiling Cavity Reflectance	50				30			10			0
Wall Reflectance	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **										
0	28.44	28.44	28.44	28.44	27.22	27.22	27.22	26.10	26.10	26.10	25.58
1	26.07	25.24	24.47	23.77	24.24	23.62	23.04	23.31	22.82	22.35	21.83
2	23.69	22.19	20.90	19.78	21.35	20.27	19.33	20.57	19.69	18.90	18.35
3	21.58	19.59	17.99	16.67	18.89	17.52	16.37	18.23	17.08	16.09	15.54
4	19.75	17.43	15.65	14.24	16.83	15.29	14.04	16.28	14.95	13.85	13.30
5	18.16	15.62	13.75	12.32	15.11	13.47	12.18	14.64	13.20	12.05	11.51
6	16.79	14.10	12.20	10.78	13.67	11.98	10.68	13.26	11.76	10.59	10.06
7	15.58	12.81	10.91	9.53	12.44	10.73	9.46	12.09	10.56	9.39	8.88
8	14.53	11.71	9.84	8.51	11.39	9.69	8.45	11.09	9.55	8.40	7.91
9	13.59	10.77	8.94	7.66	10.49	8.81	7.61	10.23	8.70	7.57	7.10
10	12.77	9.95	8.17	6.94	9.71	8.07	6.90	9.48	7.96	6.87	6.43

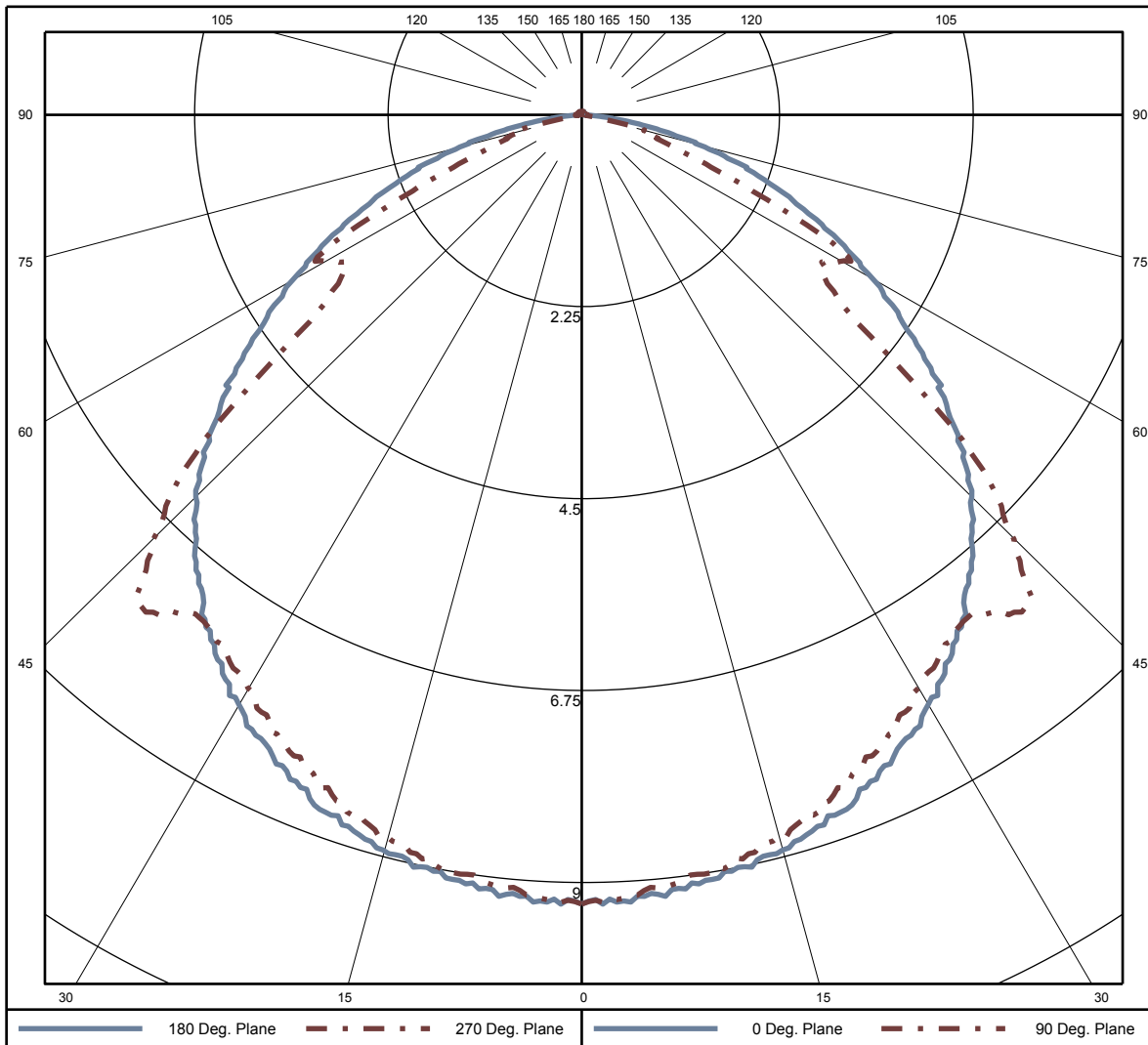
Average Luminance Table (cd/m²)

		Horizontal Angle (Degrees)		
		0	45	90
Vertical Angle (Degree)	0	75490	75490	75490
	45	44670	49330	84030
	55	34710	44760	48680
	65	24860	31940	45610
	75	13370	14900	24020
	85	1349	3596	3596

This test was conducted using photometry techniques according to standard IES procedures. The user must therefore use caution in the following situations: 1) This test was performed using a specific ballast/lamp combination. Extrapolation of this data for other ballast/lamp combinations may produce erroneous results. 2) This test was conducted in a controlled laboratory environment where the ambient temperature was held at 25°C ±1°C. Field performance may differ particularly in regards to change in luminous output as a result of difference in ambient temperature and method of mounting the luminaire.



Polar Plot (Candela)





Integrating Sphere Test Report

Relevant Standards

LM-79-2008

Prepared For

Sea Gull Lighting

Andre Duljas

301 W. Washington Street

Riverside, NJ 08075

Catalog Number

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LTL Test Number

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Test Date

2010-12-23

Prepared By

Signature

Approved By

Signature

Name and Title: Brian Moyer, Engineer

Name and Title: Michael Grather, PDE

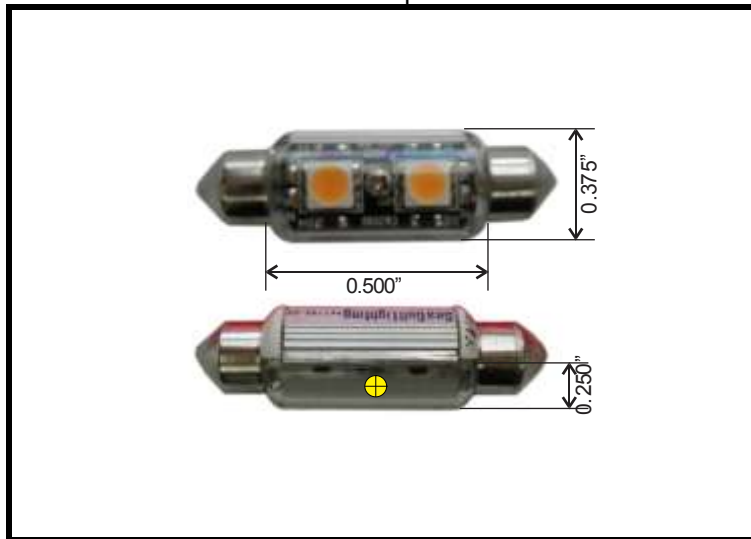
The results contained in this report pertain only to the tested sample.

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Lamp Description: Extruded aluminum heatsink housing, clear plastic enclosure
Catalog Number: 96118S-32
Lamp: Two white LEDs
Mounting: Track

Lamp



Summary of Results

Radiant Flux: 89.21 mW
Luminous Flux: 25.75 Lumens
Lamp Efficacy: 40.41 Lumens/Watt
CCT: 2976 K
CRI (Ra): 94.0
Chromaticity (x): 0.4305
Chromaticity (y): 0.3881
Chromaticity (u): 0.2533
Chromaticity (v): 0.3426
Duv: -0.0058

Test Conditions

Test Temperature: 24.5 °C
Voltage: 12.00 VAC
Current: 0.05740 A
Power: 0.6372 W
Power Factor: 0.925
Frequency: 60 Hz

Testing was performed in a Labsphere SLMS7650 two meter integrating sphere using the 4π geometry method, a Labsphere CDS 1100 spectrometer, and LightMtrX software.
Absorption correction was employed for this measurement.

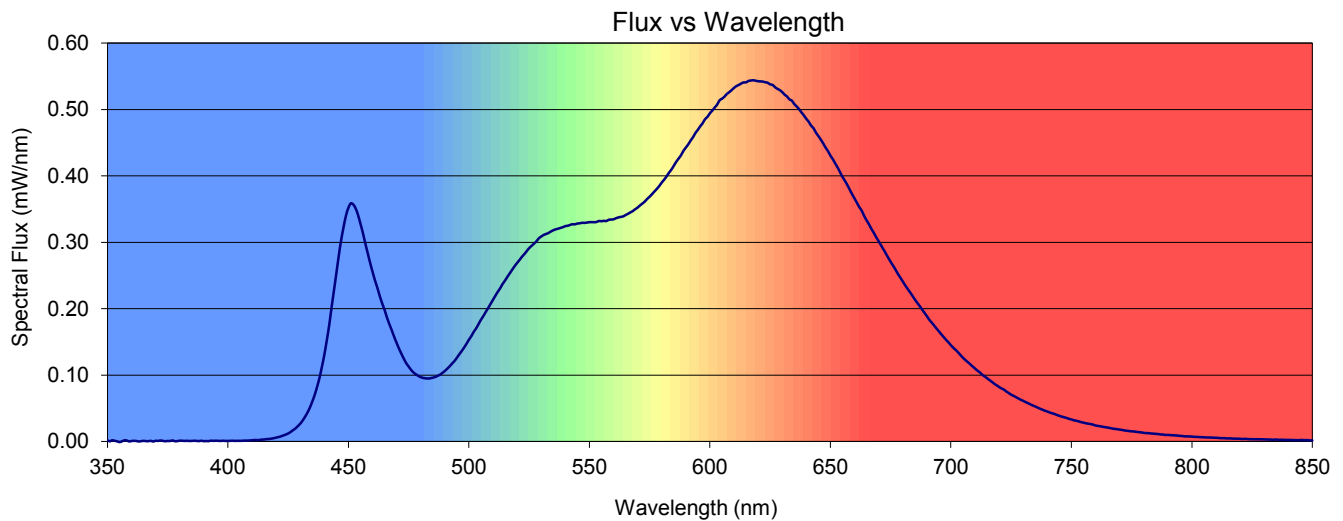
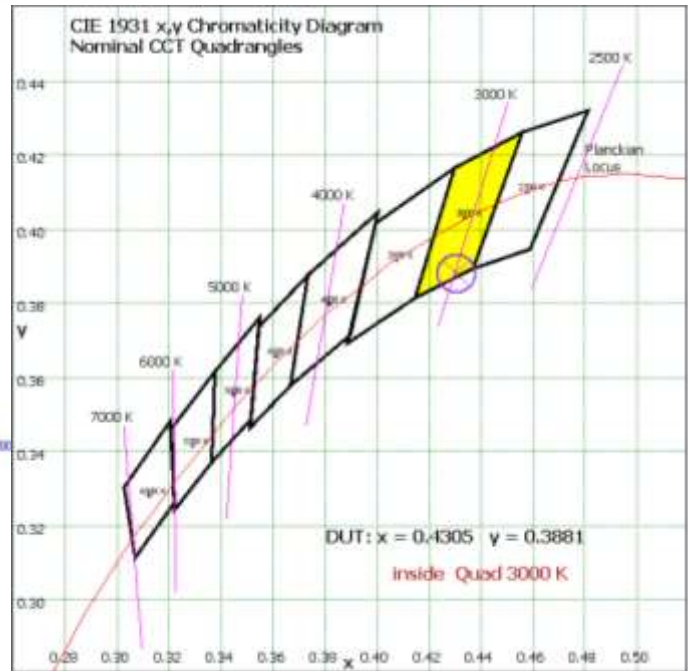
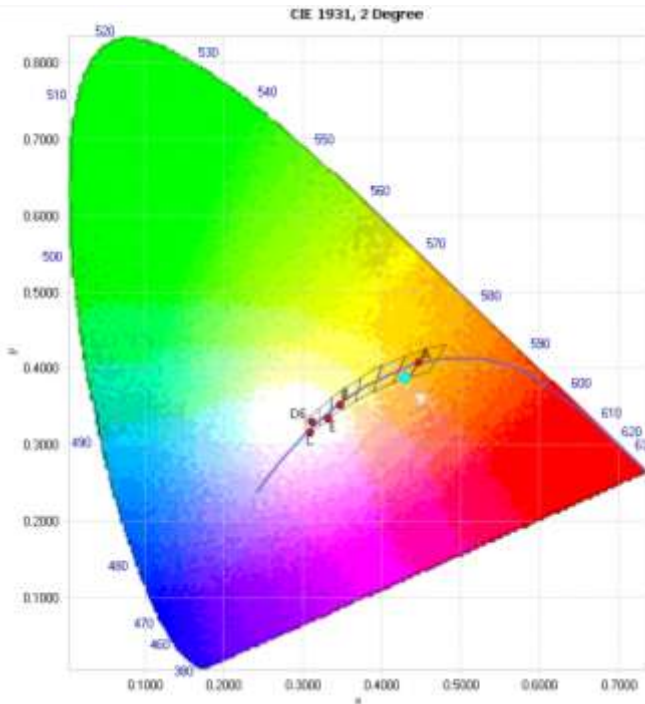


Chromaticity Coordinates

x	y	u	v	u'	v'	Duv
0.4305	0.3881	0.2533	0.3426	0.2533	0.5140	-0.0058

Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
94.0	97.1	97.2	94.5	94.8	96.2	94.9	92.3	85.4	66.2	90.9	94.2	79.5	97.6	95.7





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Spectral Power Distribution

λ(nm)	mW/nm	λ(nm)	mW/nm	λ(nm)	mW/nm	λ(nm)	mW/nm	λ(nm)	mW/nm	λ(nm)	mW/nm	λ(nm)	mW/nm
350	0.00188	422	0.00777	494	0.121	566	0.343	638	0.496	710	0.110	782	0.0126
351	0.000274	423	0.00913	495	0.126	567	0.345	639	0.491	711	0.107	783	0.0121
352	0.00191	424	0.0105	496	0.131	568	0.347	640	0.486	712	0.104	784	0.0119
353	0.00109	425	0.0121	497	0.136	569	0.350	641	0.482	713	0.101	785	0.0115
354	0.000308	426	0.0143	498	0.141	570	0.352	642	0.476	714	0.0981	786	0.0113
355	-0.000836	427	0.0170	499	0.147	571	0.356	643	0.472	715	0.0953	787	0.0106
356	0.000123	428	0.0196	500	0.153	572	0.358	644	0.465	716	0.0925	788	0.0105
357	0.00178	429	0.0231	501	0.159	573	0.361	645	0.460	717	0.0899	789	0.00984
358	0.00160	430	0.0268	502	0.165	574	0.365	646	0.455	718	0.0870	790	0.00996
359	0.000837	431	0.0316	503	0.170	575	0.369	647	0.449	719	0.0846	791	0.00961
360	0.000774	432	0.0371	504	0.177	576	0.372	648	0.443	720	0.0822	792	0.00946
361	0.00103	433	0.0435	505	0.183	577	0.377	649	0.437	721	0.0799	793	0.00916
362	0.000823	434	0.0510	506	0.189	578	0.380	650	0.431	722	0.0782	794	0.00898
363	0.0000435	435	0.0600	507	0.195	579	0.385	651	0.425	723	0.0753	795	0.00846
364	0.000536	436	0.0699	508	0.201	580	0.390	652	0.419	724	0.0731	796	0.00829
365	0.000991	437	0.0822	509	0.207	581	0.394	653	0.413	725	0.0705	797	0.00775
366	0.000587	438	0.0957	510	0.213	582	0.399	654	0.406	726	0.0688	798	0.00772
367	0.000490	439	0.112	511	0.220	583	0.405	655	0.399	727	0.0669	799	0.00765
368	0.00106	440	0.130	512	0.226	584	0.409	656	0.393	728	0.0648	800	0.00739
369	0.000018	441	0.151	513	0.231	585	0.415	657	0.387	729	0.0630	801	0.00705
370	0.00111	442	0.174	514	0.237	586	0.421	658	0.379	730	0.0612	802	0.00697
371	0.000894	443	0.201	515	0.242	587	0.426	659	0.373	731	0.0594	803	0.00667
372	0.00151	444	0.227	516	0.248	588	0.431	660	0.366	732	0.0578	804	0.00653
373	0.000987	445	0.253	517	0.253	589	0.437	661	0.360	733	0.0559	805	0.00635
374	0.000392	446	0.279	518	0.259	590	0.442	662	0.353	734	0.0543	806	0.00616
375	0.000860	447	0.303	519	0.264	591	0.447	663	0.348	735	0.0527	807	0.00598
376	0.000747	448	0.323	520	0.269	592	0.453	664	0.340	736	0.0511	808	0.00603
377	0.00164	449	0.340	521	0.273	593	0.458	665	0.333	737	0.0494	809	0.00572
378	0.000449	450	0.352	522	0.278	594	0.464	666	0.327	738	0.0480	810	0.00565
379	0.000589	451	0.359	523	0.282	595	0.469	667	0.320	739	0.0463	811	0.00537
380	0.00128	452	0.357	524	0.287	596	0.475	668	0.314	740	0.0452	812	0.00508
381	0.00118	453	0.351	525	0.291	597	0.479	669	0.308	741	0.0437	813	0.00506
382	0.000900	454	0.341	526	0.295	598	0.485	670	0.302	742	0.0425	814	0.00487
383	0.00106	455	0.328	527	0.298	599	0.489	671	0.296	743	0.0414	815	0.00461
384	0.000817	456	0.314	528	0.301	600	0.494	672	0.290	744	0.0400	816	0.00472
385	0.000882	457	0.299	529	0.306	601	0.498	673	0.283	745	0.0387	817	0.00439
386	0.00118	458	0.284	530	0.309	602	0.503	674	0.277	746	0.0375	818	0.00428
387	0.000919	459	0.269	531	0.311	603	0.507	675	0.271	747	0.0365	819	0.00424
388	0.000653	460	0.256	532	0.312	604	0.514	676	0.265	748	0.0355	820	0.00405
389	0.00117	461	0.243	533	0.314	605	0.516	677	0.259	749	0.0341	821	0.00383
390	0.000534	462	0.232	534	0.316	606	0.519	678	0.253	750	0.0333	822	0.00403
391	0.000717	463	0.219	535	0.318	607	0.523	679	0.247	751	0.0320	823	0.00371
392	0.000551	464	0.208	536	0.319	608	0.526	680	0.241	752	0.0313	824	0.00354
393	0.00126	465	0.198	537	0.320	609	0.529	681	0.236	753	0.0304	825	0.00357
394	0.000993	466	0.187	538	0.322	610	0.532	682	0.230	754	0.0292	826	0.00343
395	0.00119	467	0.177	539	0.323	611	0.535	683	0.225	755	0.0284	827	0.00348
396	0.00103	468	0.168	540	0.324	612	0.537	684	0.220	756	0.0275	828	0.00331
397	0.000877	469	0.158	541	0.325	613	0.539	685	0.214	757	0.0268	829	0.00334
398	0.00115	470	0.149	542	0.326	614	0.541	686	0.209	758	0.0262	830	0.00320
399	0.000857	471	0.140	543	0.327	615	0.541	687	0.204	759	0.0255	831	0.00309
400	0.000915	472	0.132	544	0.327	616	0.543	688	0.199	760	0.0241	832	0.00300
401	0.00101	473	0.125	545	0.328	617	0.544	689	0.194	761	0.0236	833	0.00282
402	0.00118	474	0.118	546	0.329	618	0.544	690	0.189	762	0.0229	834	0.00278
403	0.000926	475	0.113	547	0.329	619	0.543	691	0.184	763	0.0222	835	0.00302
404	0.00107	476	0.108	548	0.329	620	0.543	692	0.179	764	0.0216	836	0.00254
405	0.00100	477	0.104	549	0.330	621	0.542	693	0.175	765	0.0210	837	0.00270
406	0.00114	478	0.101	550	0.330	622	0.542	694	0.170	766	0.0204	838	0.00252
407	0.00140	479	0.0989	551	0.330	623	0.541	695	0.166	767	0.0196	839	0.00241
408	0.00137	480	0.0969	552	0.330	624	0.540	696	0.162	768	0.0190	840	0.00242
409	0.00161	481	0.0958	553	0.331	625	0.538	697	0.157	769	0.0186	841	0.00235
410	0.00188	482	0.0952	554	0.332	626	0.537	698	0.153	770	0.0179	842	0.00212
411	0.00224	483	0.0949	555	0.332	627	0.534	699	0.149	771	0.0175	843	0.00217
412	0.00224	484	0.0952	556	0.332	628	0.531	700	0.145	772	0.0167	844	0.00195
413	0.00219	485	0.0961	557	0.332	629	0.529	701	0.141	773	0.0162	845	0.00231
414	0.00288	486	0.0971	558	0.334	630	0.526	702	0.138	774	0.0157	846	0.00223
415	0.00302	487	0.0989	559	0.334	631	0.522	703	0.134	775	0.0153	847	0.00205
416	0.00363	488	0.101	560	0.335	632	0.520	704	0.130	776	0.0151	848	0.00216
417	0.00382	489	0.103	561	0.336	633	0.515	705	0.126	777	0.0145	849	0.00163
418	0.00432	490	0.106	562	0.337	634	0.513	706	0.123	778	0.0141	850	0.00175
419	0.00498	491	0.110	563	0.338	635	0.508	707	0.120	779	0.0137		
420	0.00588	492	0.113	564	0.339	636	0.505	708	0.117	780	0.0131		
421	0.00672	493	0.117	565	0.341	637	0.500	709	0.113	781	0.0127		