



Candela Tabulation (5 degree Vertical Increments)

	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	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	0.00
5	0.04	0.01	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	0.01
10	0.85	0.52	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.52
15	1.20	0.93	0.53	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.53	0.93
20	1.01	0.96	0.63	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.63	0.96
25	0.81	0.76	0.60	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.60	0.76
30	0.68	0.63	0.49	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.49	0.63
35	0.60	0.55	0.42	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.42	0.55
40	0.56	0.50	0.38	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.38	0.50
45	0.54	0.48	0.35	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.35	0.48
50	0.55	0.48	0.34	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.34	0.48
55	0.56	0.48	0.32	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.32	0.48
60	0.54	0.45	0.29	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.29	0.45
65	0.50	0.39	0.25	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.25	0.39
70	0.44	0.32	0.19	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.19	0.32
75	0.38	0.25	0.14	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.14	0.25
80	0.33	0.19	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.10	0.19
85	0.27	0.15	0.08	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.08	0.15
90	0.22	0.13	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.13
95	0.18	0.11	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.11
100	0.14	0.10	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.10
105	0.12	0.08	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.08
110	0.10	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.07
115	0.08	0.06	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.06
120	0.07	0.05	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.05
125	0.05	0.04	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.04
130	0.04	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03
135	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02
140	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02
145	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
150	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
155	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
160	0.01	0.01	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	0.01
165	0.01	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
170	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	0.00
175	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	0.00
180	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	0.00

Zonal Lumen Tabulation (5 degree zones)

Zone	Lumens	Zone	Lumens	Zone	Lumens	Zone	Lumens
0-5	0.00	45-50	0.06	90-95	0.02	135-140	0.00
5-10	0.00	50-55	0.06	95-100	0.02	140-145	0.00
10-15	0.02	55-60	0.07	100-105	0.01	145-150	0.00
15-20	0.05	60-65	0.06	105-110	0.01	150-155	0.00
20-25	0.05	65-70	0.05	110-115	0.01	155-160	0.00
25-30	0.05	70-75	0.05	115-120	0.01	160-165	0.00
30-35	0.05	75-80	0.04	120-125	0.01	165-170	0.00
35-40	0.06	80-85	0.03	125-130	0.00	170-175	0.00
40-45	0.06	85-90	0.02	130-135	0.00	175-180	0.00



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	1.077	1.077	1.077	1.077	1.04	1.04	1.04	1.04	1.004	1.004	1.004	1.004
1	0.964	0.907	0.855	0.81	0.926	0.874	0.828	0.786	0.89	0.844	0.802	0.764
2	0.869	0.776	0.7	0.637	0.832	0.749	0.679	0.621	0.798	0.722	0.659	0.605
3	0.787	0.672	0.585	0.516	0.753	0.649	0.568	0.504	0.721	0.626	0.553	0.493
4	0.716	0.589	0.497	0.428	0.685	0.569	0.484	0.419	0.655	0.55	0.471	0.411
5	0.655	0.521	0.429	0.362	0.627	0.504	0.419	0.355	0.6	0.488	0.408	0.349
6	0.603	0.466	0.375	0.312	0.577	0.451	0.367	0.306	0.552	0.437	0.358	0.3
7	0.556	0.419	0.332	0.271	0.533	0.406	0.324	0.267	0.51	0.394	0.317	0.262
8	0.516	0.38	0.296	0.239	0.494	0.369	0.289	0.235	0.474	0.358	0.283	0.231
9	0.48	0.346	0.266	0.212	0.46	0.336	0.26	0.209	0.442	0.327	0.255	0.206
10	0.448	0.317	0.241	0.19	0.43	0.309	0.236	0.187	0.414	0.3	0.231	0.185

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	0.936	0.936	0.936	0.936	0.875	0.875	0.875	0.818	0.818	0.818	0.792
1	0.824	0.786	0.752	0.721	0.733	0.706	0.68	0.684	0.663	0.642	0.615
2	0.735	0.673	0.621	0.575	0.628	0.585	0.547	0.586	0.551	0.52	0.493
3	0.662	0.584	0.522	0.471	0.546	0.493	0.45	0.51	0.466	0.429	0.404
4	0.601	0.514	0.447	0.394	0.481	0.424	0.377	0.449	0.401	0.361	0.337
5	0.55	0.457	0.388	0.335	0.428	0.369	0.322	0.401	0.35	0.309	0.287
6	0.507	0.41	0.341	0.29	0.385	0.325	0.279	0.361	0.309	0.268	0.247
7	0.47	0.371	0.303	0.253	0.349	0.289	0.244	0.328	0.276	0.236	0.215
8	0.437	0.337	0.271	0.224	0.318	0.259	0.216	0.3	0.248	0.209	0.19
9	0.408	0.309	0.245	0.199	0.292	0.234	0.193	0.276	0.224	0.187	0.169
10	0.383	0.284	0.222	0.179	0.269	0.213	0.174	0.255	0.205	0.168	0.151

Average Luminance Table (cd/m²)

	0	45	90
0	0	0	0
45	530	418	0
55	525	385	0
65	479	302	0
75	375	178	0
85	283	122	0

Note: The zonal cavity calculation technique is accurate when luminaires with symmetric candela distributions are employed and when the luminaires are located symmetrically throughout the room. This unit has special characteristics and therefore these values should be used with caution.

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 THESE 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.

