



# LIGHTING SCIENCES CANADA LTD.

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CERTIFIED TEST REPORT NO. LSC D097

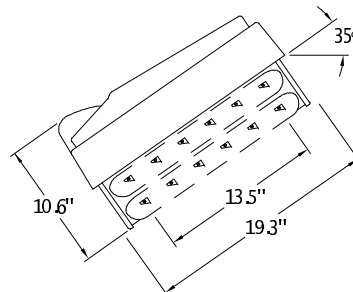
RELUME TECHNOLOGIES OUTDOOR LED LUMINAIRE CAT. NO. R-20  
WITH BLACK/DIFFUSE REFLECTORS AND CLEAR LENS  
24 WHITE LEDS. LUMEN OUTPUT = 3293 LMS.  
(NEW)

IESNA CUTOFF CLASSIFICATION: CUTOFF

REPORT PREPARED FOR:

THE CITY OF WELLAND  
WELLAND, ONTARIO  
UPON REQUEST FROM:  
TABIA - GREEN TBIZ PROGRAM

CERTIFIED BY:



DATE: JAN 25, 2008

LABORATORY RESULTS MAY NOT BE REPRESENTATIVE OF FIELD PERFORMANCE.  
ABSOLUTE PHOTOMETRY TAKEN. BALLAST FACTORS HAVE BEEN APPLIED.

TESTED IN 30 PLANES LEFT SIDE, 30 PLANES RIGHT SIDE, LEFT AND RIGHT AVERAGED

VERTICAL TEST INCREMENTS ARE 2.5 DEGREES.

TEST DISTANCE EXCEEDS FIVE TIMES THE GREATEST  
LUMINOUS OPENING OF LUMINAIRE.

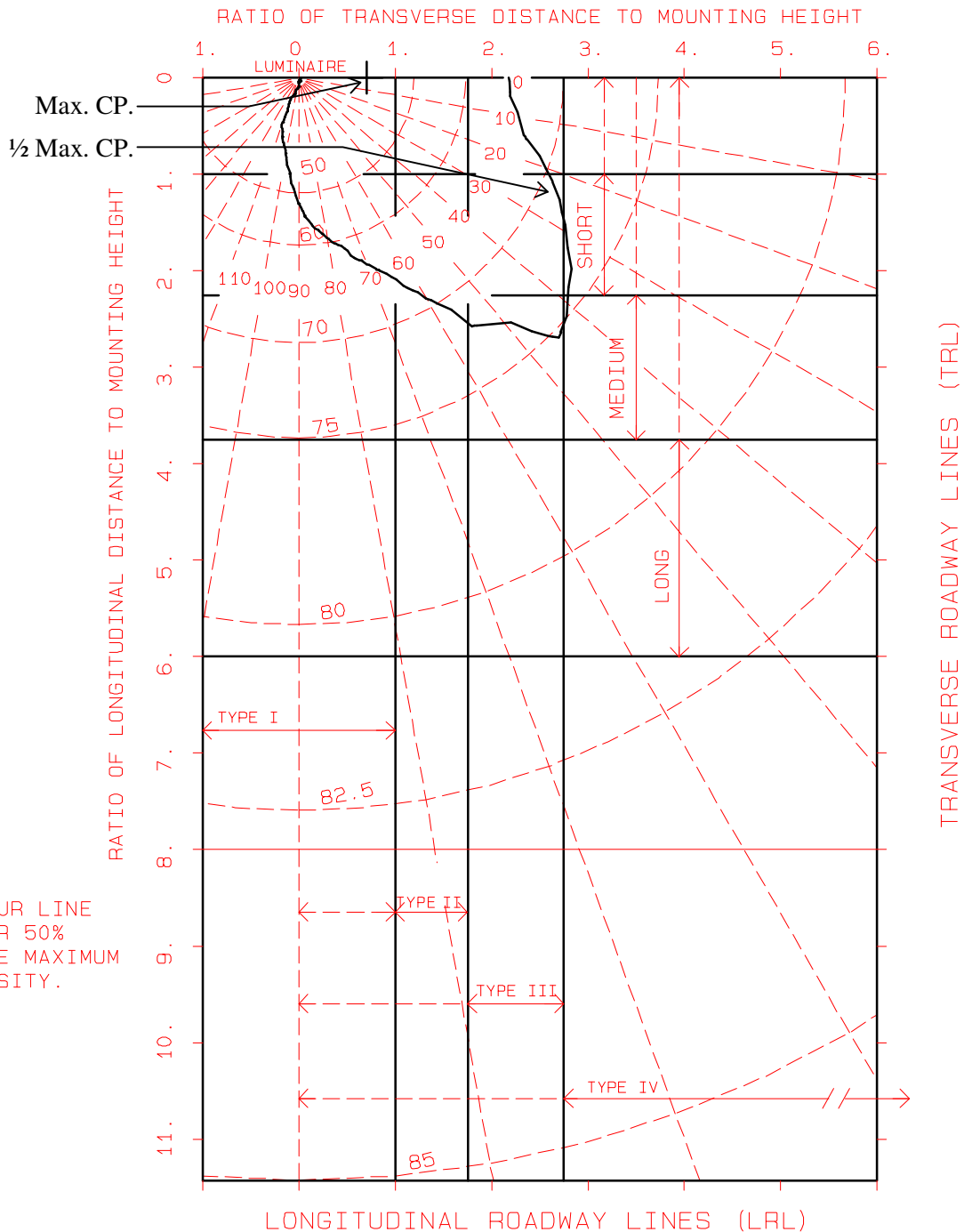
TESTED IN ACCORDANCE WITH IES RECOMMENDED PROCEDURES

# LIGHTING SCIENCES CANADA LTD.

440 PHILLIP ST., UNIT 19  
WATERLOO, ONTARIO

TEST REPORT NO. D097

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IES CLASSIFICATION: TYPE III, VERY SHORT

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UTILIZATION TABLE

CO-EFFICIENT OF UTILIZATION

RATIO	HOUSE SIDE	STREET SIDE	TOTAL
.5	.156	.281	.437
1.0	.199	.504	.703
1.5	.208	.629	.837
2.0	.209	.695	.904
2.5	.210	.730	.940
3.0	.210	.751	.961
3.5	.210	.765	.975
4.0	.210	.772	.982
5.0	.210	.781	.991
TOTAL:	.210	.788	.998

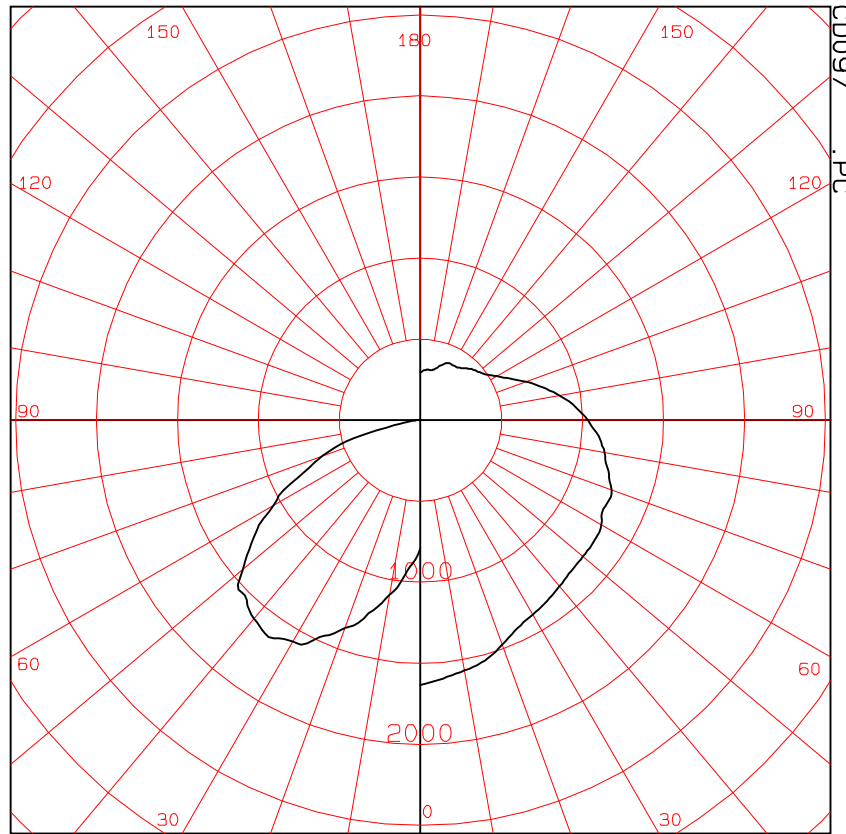
PERCENTAGE OUTPUTS

DOWNWARD:	STREET SIDE =	78.8%
	HOUSE SIDE =	21.0%
	TOTAL =	99.8%
UPWARD:	STREET SIDE =	.2%
	HOUSE SIDE =	.0%
	TOTAL =	.2%
TOTAL EFFICIENCY	=	100.0%

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CANDLEPOWER  
IN MAX. PLANE

ANGLE	CANDLEPOWER
.0	792
5.0	930
10.0	1094
15.0	1235
20.0	1365
25.0	1475
30.0	1576
35.0	1634
40.0	1598
45.0	1530
50.0	1431
52.5	1342
55.0	1258
57.5	1167
60.0	1046
62.5	971
65.0	832
67.5	725
70.0	645
72.5	538
75.0	424
77.5	245
80.0	129
82.5	72
85.0	42
87.5	31
90.0	17
95.0	15
105.0	0
115.0	0
125.0	0
135.0	0
145.0	0
155.0	0
165.0	0
175.0	0
180.0	0



CANDLEPOWER  
IN MAX. CONE

ANGLE	CANDLEPOWER
.0	1634
5.0	1599
15.0	1534
25.0	1417
35.0	1363
45.0	1316
55.0	1305
60.0	1290
62.5	1260
65.0	1256
67.5	1266
70.0	1255
72.5	1223
75.0	1200
77.5	1167
80.0	1155
82.5	1127
85.0	1104
87.5	1062
90.0	1032
95.0	958
105.0	783
115.0	607
125.0	492
135.0	445
145.0	397
155.0	389
165.0	324
175.0	310
180.0	295

MAXIMUM CANDLEPOWER: 1634  
 PLANE OF MAXIMUM: .0  
 VERTICAL ANGLE OF MAXIMUM: 35.0

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CANDLEPOWER SUMMARY

VERT. ANGLE	HORIZONTAL ANGLES - STREET SIDE									
	.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0
	****									
.0	792	792	792	792	792	792	792	792	792	792
5.0	930	930	941	947	923	905	898	869	844	837
10.0	1094	1099	1071	1076	1052	1016	995	971	939	895
15.0	1235	1265	1211	1240	1166	1147	1117	1104	1055	995
20.0	1365	1390	1364	1312	1290	1251	1207	1191	1129	1027
25.0	1475	1517	1462	1373	1346	1316	1294	1225	1161	1085
30.0	1576	1576	1498	1418	1375	1326	1289	1263	1199	1126
35.0**	1634	1599	1534	1417	1363	1316	1305	1256	1200	1104
40.0	1598	1580	1498	1425	1351	1324	1294	1253	1166	1081
45.0	1530	1525	1458	1393	1329	1292	1231	1191	1142	1022
50.0	1431	1413	1361	1331	1302	1261	1180	1142	1068	945
55.0	1258	1238	1284	1287	1252	1190	1138	1104	1008	867
60.0	1046	1067	1125	1168	1195	1143	1091	1021	889	616
65.0	832	840	944	1016	1104	1097	1052	910	480	139
70.0	645	642	756	876	956	1001	968	412	54	39
75.0	424	386	466	578	747	853	466	47	31	30
80.0	129	121	121	96	115	141	47	31	11	13
85.0	42	45	46	47	49	36	20	12	13	11
90.0	17	15	12	14	17	16	13	7	13	5

VERT. ANGLE	HORIZONTAL ANGLES - HOUSE SIDE										
	90.0	95.0	105.0	115.0	125.0	135.0	145.0	155.0	165.0	175.0	180.0
.0	792	792	792	792	792	792	792	792	792	792	792
5.0	808	795	788	783	761	746	727	713	712	725	719
10.0	878	852	814	774	736	704	699	665	645	656	650
15.0	952	934	867	784	726	678	637	623	592	598	597
20.0	987	926	843	764	691	619	581	554	533	542	538
25.0	1045	1003	877	752	652	581	522	484	465	464	466
30.0	1065	1012	845	695	604	529	481	425	399	383	380
35.0**	1032	958	783	607	492	445	397	389	324	310	295
40.0	1004	915	681	503	375	316	274	263	262	237	231
45.0	945	825	580	414	300	240	193	165	134	138	124
50.0	864	744	492	315	236	176	143	99	56	20	18
55.0	747	632	385	247	187	142	113	83	68	5	1
60.0	430	331	161	113	98	82	77	74	32	2	2
65.0	75	65	64	48	32	21	31	41	5	1	6
70.0	39	38	31	16	13	10	13	8	0	0	0
75.0	20	25	15	3	5	3	1	3	0	0	0
80.0	12	11	5	1	4	0	0	0	0	0	0
85.0	4	3	6	0	3	0	0	0	0	0	0
90.0	0	2	0	1	0	0	0	0	0	0	0

\*\* DENOTES VERTICAL ANGLE OF MAXIMUM CONE

\*\*\*\* DENOTES LATERAL ANGLE OF MAXIMUM PLANE

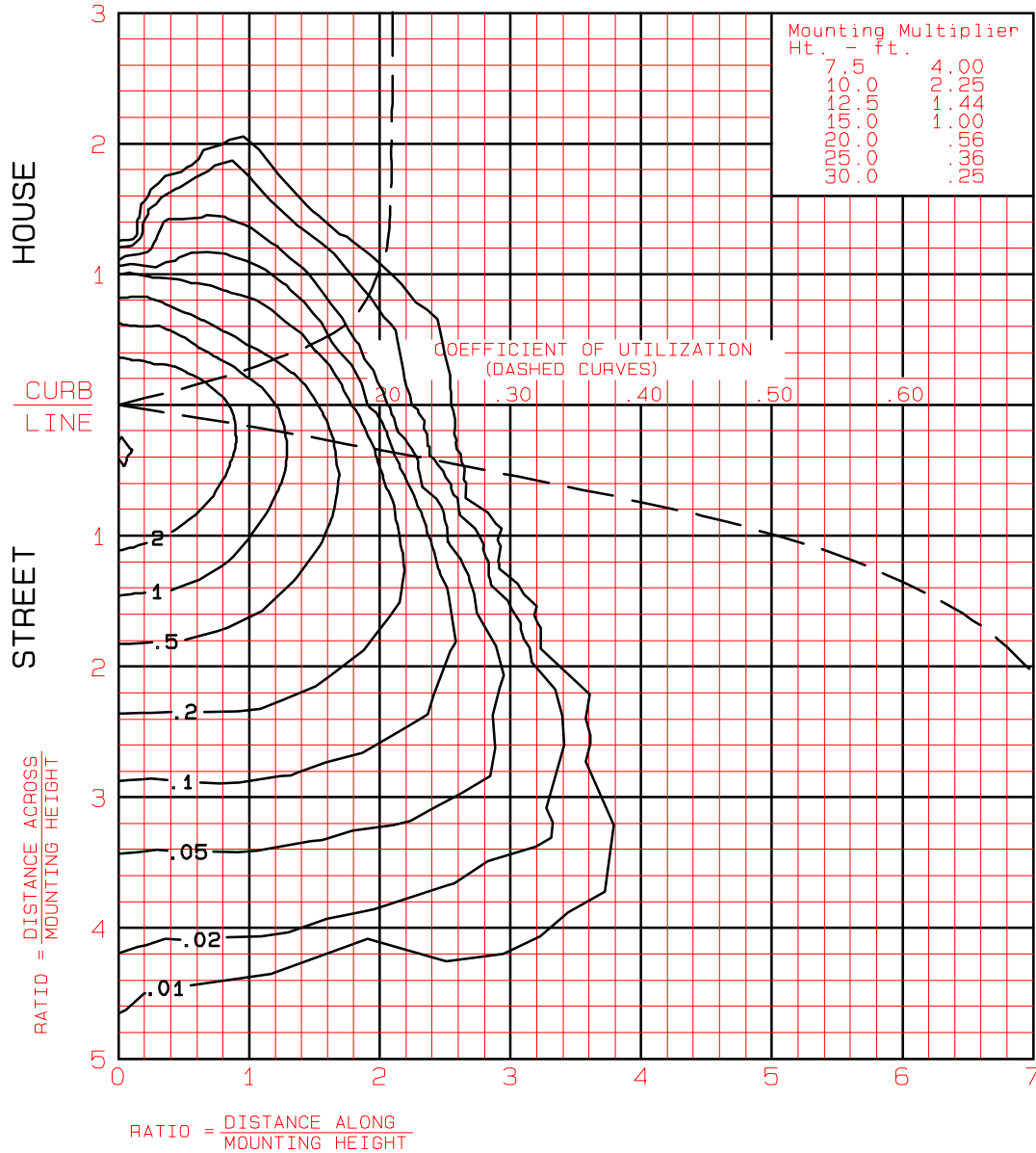
CANDLEPOWER WAS MEASURED IN 2.5 DEGREE STEPS - TABULATIONS ARE AVAILABLE

# ISOFOOTCANDLE

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 WITH BLACK/DIFFUSE REFLECTORS AND CLEAR LENS  
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MOUNTING HEIGHT FOR ISOFC 15.0 FEET



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\*\* FOOTCANDLE TABLE FOR SINGLE LUMINAIRE AT 15.0 FT. \*\*

LATERAL RATIOS	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
-3.00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
-2.50	.000	.000	.001	.001	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
-2.00	.002	.002	.010	.004	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
-1.50	.001	.038	.034	.008	.004	.002	.001	.000	.000	.000	.000	.000	.000	.000	.000
-1.00	.19	.16	.12	.043	.012	.004	.003	.001	.001	.001	.000	.000	.000	.000	.000
-.50	1.3	1.0	.43	.16	.028	.009	.004	.002	.001	.001	.000	.000	.000	.000	.000
HOUSE	CURB LINE														
STREET	3.5	3.3	1.4	.52	.063	.010	.005	.002	.001	.001	.000	.000	.000	.000	.000
.50	4.8	3.1	1.5	.68	.19	.017	.005	.003	.002	.001	.001	.000	.000	.000	.000
1.00	2.4	1.7	1.0	.54	.27	.053	.006	.003	.002	.001	.001	.000	.000	.000	.000
1.50	.91	.82	.59	.37	.22	.10	.016	.003	.002	.001	.001	.000	.000	.000	.000
2.00	.36	.35	.30	.23	.16	.100	.038	.006	.002	.001	.001	.001	.000	.000	.000
2.50	.16	.16	.15	.13	.10	.079	.038	.012	.003	.001	.001	.001	.000	.000	.000
3.00	.081	.084	.083	.075	.064	.048	.033	.013	.005	.002	.001	.001	.000	.000	.000
3.50	.043	.042	.041	.038	.031	.025	.018	.012	.005	.002	.001	.001	.000	.000	.000
4.00	.023	.020	.019	.016	.012	.012	.009	.006	.003	.002	.001	.001	.000	.000	.000
4.50	.011	.009	.009	.007	.006	.005	.004	.003	.002	.002	.001	.001	.000	.000	.000
5.00	.006	.005	.005	.004	.003	.003	.002	.002	.002	.001	.001	.001	.000	.000	.000
	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
	LONGITUDINAL MOUNTING HEIGHT RATIOS														

CORRECTION FACTORS FOR OTHER MOUNTING HEIGHTS: SEE ISOFOOTCANDLE PAGE

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(NEW)

CHROMATICITY MEASUREMENTS

CIE 1931-x:	0.321
CIE 1931-y:	0.343
CORRELATED COLOUR TEMPERATURE (°K):	5991
COLOUR RENDERING INDEX (%):	71.3