HAVIT COMMERCIAL
http://www.havitcommercial.com.au
Tel: 02 9381 8383
E-mail:sales@havitcommercial.com.au

Report No.: 001 Test Time: 2019-09-10 13:03

Luminaire Property

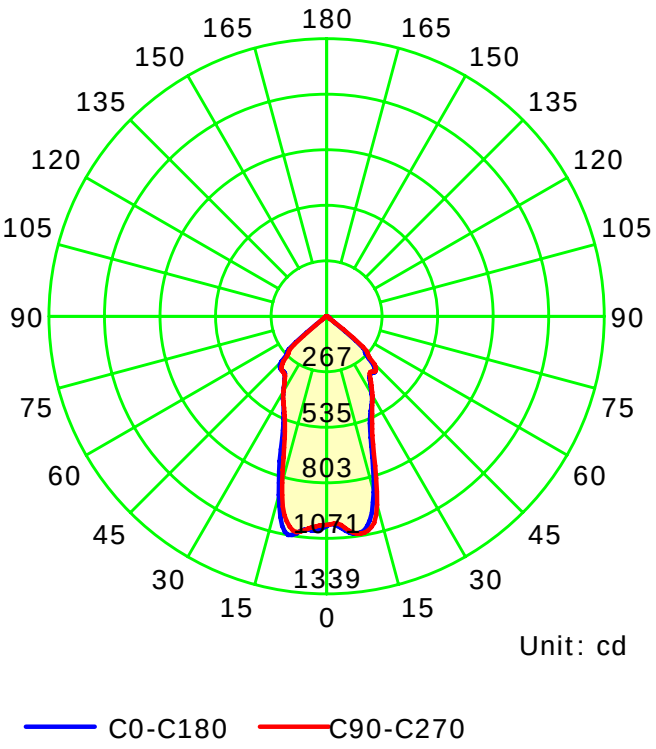
Luminaire Manufacturer:
Luminaire Category: Outdoor lighting
Luminaire Description: HCP-242180-WW
Lamp Catalog: COB
Luminous Length (mm): -100
Luminous Width (mm): -100
Luminous Height (mm): 0
Voltage: 12V
Current: 0.80A
Power: 19.2W
Power Factor: 0.000

Photometric Results

CIE Class: Direct
Total Rated Lamp Lumens: 1069.1 lm
Measurement Flux: 1069.1 lm
Efficiency: 100%
Downward Ratio: 100%
Upward Ratio: 0%
Field Angle(C0/C180,C90/C270,C45/C225,C135/315): 102.5, 102.5, 102.4, 102.6
Beam Angle(C0/C180,C90/C270,C45/C225,C135/315): 46.0, 46.9, 46.9, 46.4
Luminaire Efficacy Rating (LER): 55.73
Central Intensity: 1012.51 cd
Max. Intensity: 1071.41 cd
Pos of Max. Intensity: H180 V10
S/MH(C0/C180): 0.74
S/MH(C90/C270): 0.74

Picture Of Luminaire

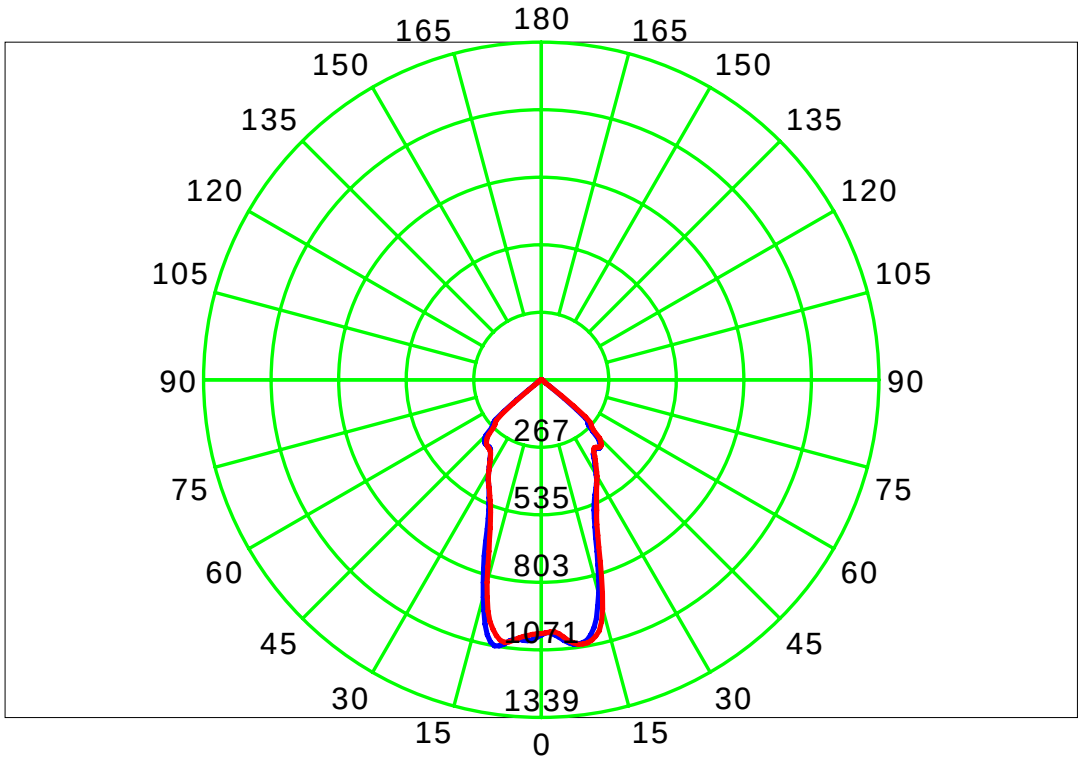
Luminous Intensity Distribution Curve

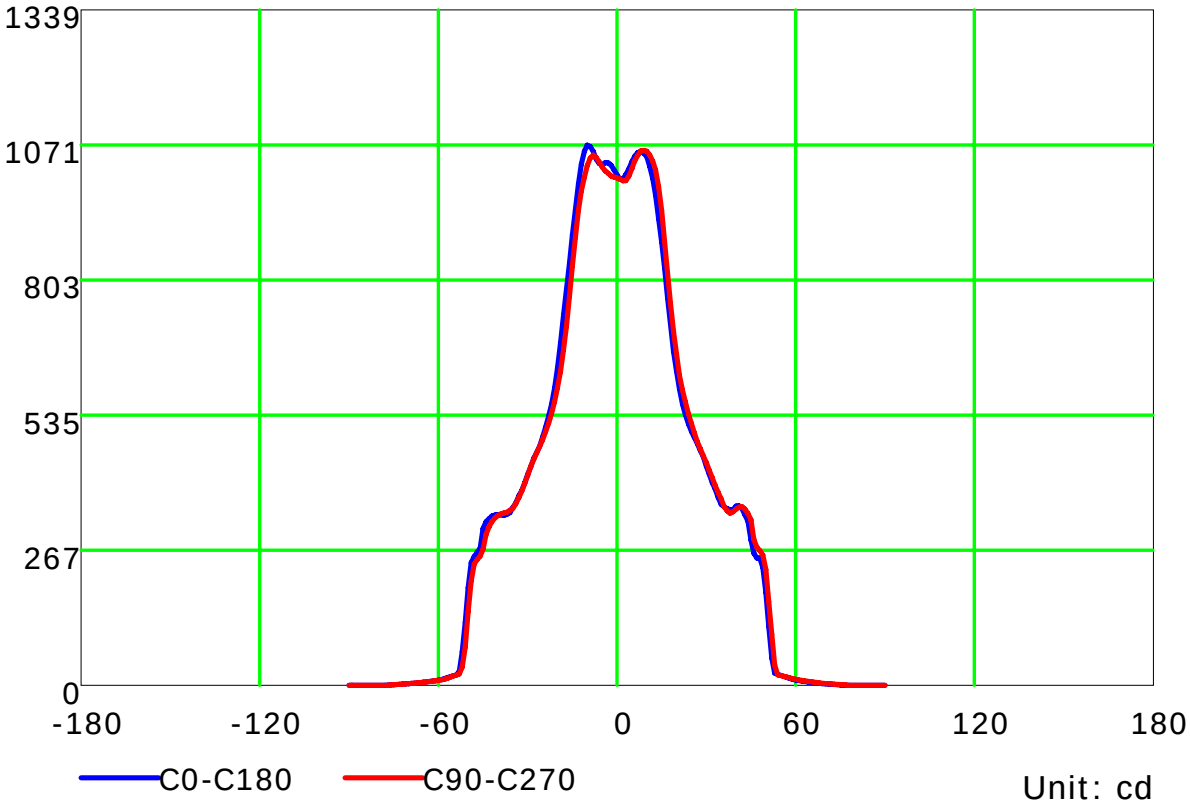


C Plane (°):0.0-360.0: 30.0
Gamma Plane (°):0.0-90.0:1.0
Test Lab: HAVIT LIGHTING
Test Device: GPM-1600L
Test Type: TYPE C
Distance: 6.583 m
Temperature: 25°C
Humidity:
Operator: DING LI
Inspector:

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Luminous Intensity Distribution Curve



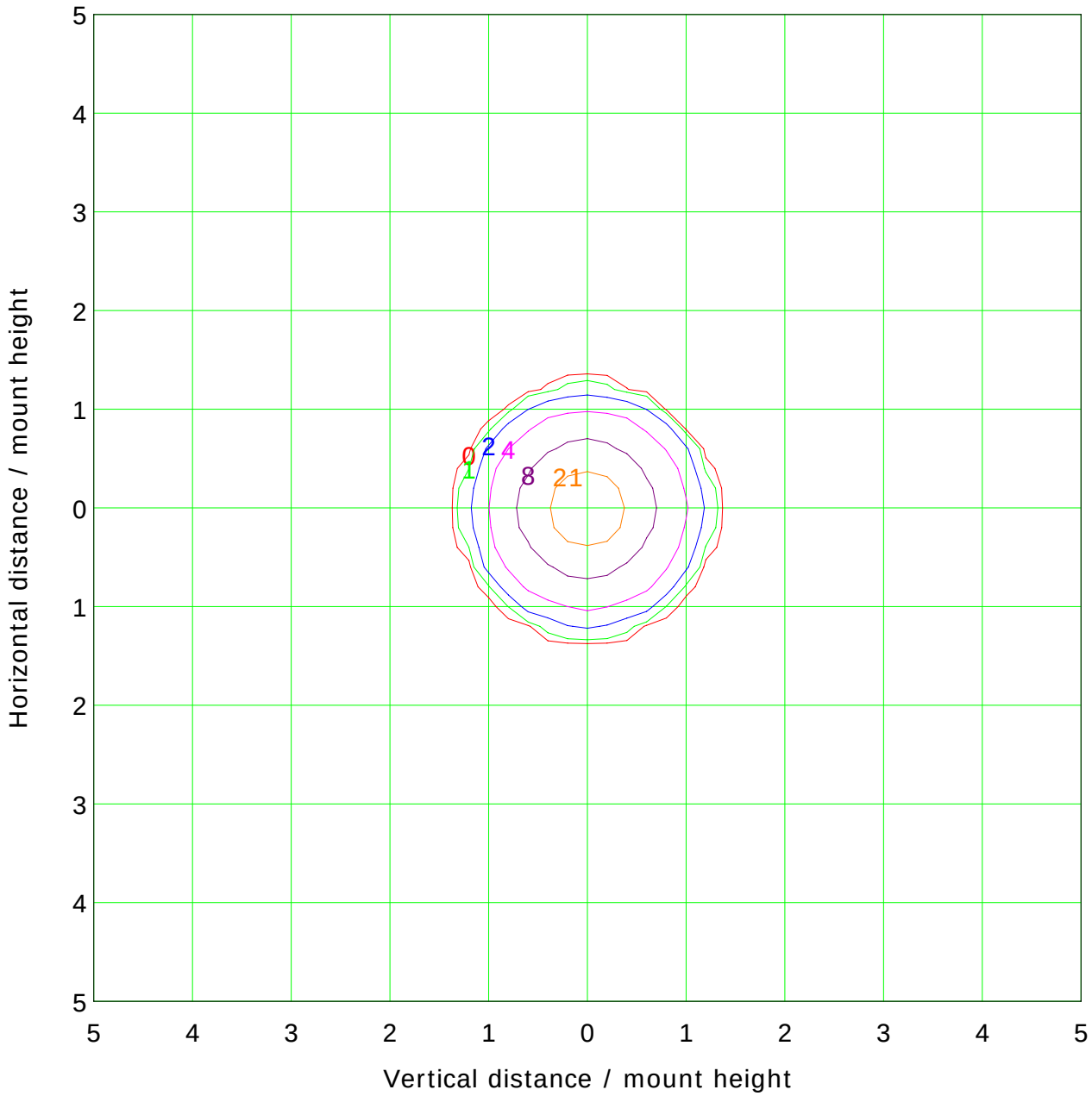


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IsoLux Plot



Mounting Height: 5.0m Max Lux(100%): 41.4 lx

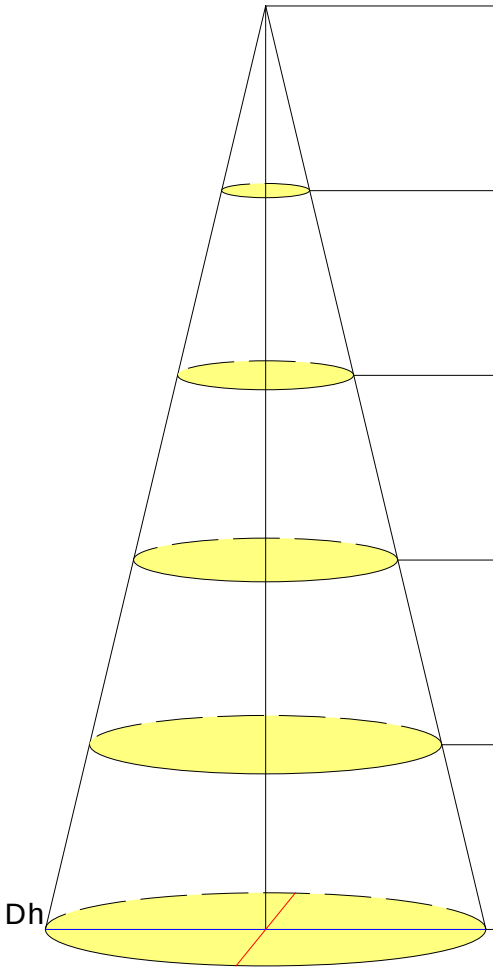
(1%): 0.4 lx	(2%): 0.8 lx
(5%): 2.1 lx	(10%): 4.1 lx
(20%): 8.3 lx	(50%): 20.7 lx
(100%): 41.4 lx	

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Illuminance at a Distance



Dist(m)	Enadir(lx)	Dh/Dv_B(m)	S_B(sq.m)	Eav_B(lx)
1.0	1012.51	0.85/0.87	0.6	464.50
2.0	253.13	1.70/1.73	2.4	116.13
3.0	112.50	2.55/2.60	5.3	51.61
4.0	63.28	3.40/3.47	9.5	29.03
5.0	40.50	4.24/4.33	14.8	18.58

Beam Angle(B): H46.0 V46.9 Field Angle(F): H102.5 V102.5

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UGR Table

Reflectance:										
Ceiling (cavity)	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
Reference 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	22.4	23.4	22.6	23.6	23.8	22.3	23.3	22.6	23.5	23.7
3H	22.2	23.1	22.5	23.4	23.6	22.2	23.1	22.5	23.3	23.6
4H	22.2	23.0	22.5	23.3	23.5	22.1	22.9	22.4	23.2	23.5
6H	22.1	22.8	22.4	23.1	23.4	22.0	22.8	22.4	23.1	23.4
8H	22.0	22.8	22.4	23.1	23.4	22.0	22.7	22.3	23.0	23.3
12H	22.0	22.7	22.4	23.0	23.3	21.9	22.6	22.3	23.0	23.3
X=4H Y=2H	22.2	23.0	22.5	23.3	23.5	22.1	22.9	22.4	23.2	23.5
3H	22.0	22.7	22.4	23.0	23.4	22.0	22.7	22.3	23.0	23.3
4H	21.9	22.6	22.3	22.9	23.3	21.9	22.5	22.3	22.8	23.2
6H	21.9	22.4	22.3	22.8	23.2	21.8	22.4	22.2	22.7	23.1
8H	21.8	22.3	22.3	22.7	23.1	21.8	22.3	22.2	22.7	23.1
12H	21.8	22.2	22.2	22.6	23.1	21.7	22.2	22.2	22.6	23.0
X=8H Y=4H	21.8	22.3	22.3	22.7	23.1	21.8	22.3	22.2	22.7	23.1
6H	21.7	22.1	22.2	22.6	23.0	21.7	22.1	22.1	22.5	23.0
8H	21.7	22.1	22.2	22.5	23.0	21.6	22.0	22.1	22.4	22.9
12H	21.7	22.0	22.2	22.4	22.9	21.6	21.9	22.1	22.4	22.9
X=12H Y=4H	21.8	22.2	22.2	22.6	23.1	21.7	22.2	22.2	22.6	23.0
6H	21.7	22.1	22.2	22.5	23.0	21.6	22.0	22.1	22.4	22.9
8H	21.7	22.0	22.2	22.4	22.9	21.6	21.9	22.1	22.4	22.9
Variations with the observer position at spacings:										
S=1.0H	+2.6/-12.7					+2.6/-12.3				
S=1.5H	+3.9/-15.2					+3.9/-14.6				
S=2.0H	+5.9/-17.2					+5.9/-16.4				

Calculate in accordance with CIE Pub.117. The table is revised with 1069lm (8log(F/F0) = 0.2).

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Test Lab: HAVIT LIGHTING
Test Type: TYPE C
Temperature: 25°C
Operator: DING LI

Gamma Plane (°):0.0-90.0:1.0
Test Device: GPM-1600L
Distance: 6.583 m
Humidity:
Inspector:

Candlepower Table

Unit: cd

G\C	C0.0	C30.0	C60.0	C90.0	C120.0	C150.0	C180.0	C210.0	C240.0	C270.0
G0.0	1012.5	1004.4	1004.1	1006.3	1009.0	1014.3	1012.5	1004.4	1004.1	1006.3
G1.0	1003.5	997.6	997.4	1003.8	1012.5	1023.2	1021.9	1014.0	1009.8	1007.9
G2.0	1004.1	1000.1	995.3	1000.5	1014.0	1027.3	1031.7	1023.3	1016.8	1010.1
G3.0	1012.9	1009.2	1001.2	1000.8	1014.8	1029.3	1036.1	1029.5	1021.2	1015.5
G4.0	1023.9	1021.3	1011.6	1009.7	1017.2	1031.4	1036.2	1030.2	1025.4	1020.2
G5.0	1038.2	1029.0	1023.3	1024.5	1025.1	1035.4	1032.5	1030.7	1031.3	1028.0
G6.0	1049.2	1032.8	1032.1	1040.3	1039.8	1045.8	1034.9	1030.4	1040.3	1037.9
G7.0	1056.5	1035.9	1037.0	1051.2	1051.5	1057.6	1043.3	1038.0	1052.1	1046.9
G8.0	1058.4	1043.4	1045.8	1059.7	1065.2	1066.2	1058.6	1050.0	1059.9	1051.5
G9.0	1055.1	1049.7	1052.9	1060.9	1071.1	1066.9	1068.3	1060.0	1058.8	1046.0
G10.0	1048.4	1049.7	1054.8	1059.3	1070.0	1058.0	1071.4	1061.1	1046.0	1030.5
G11.0	1029.4	1036.1	1051.3	1051.9	1058.0	1039.7	1058.9	1044.3	1021.3	1007.6
G12.0	1005.1	1012.8	1036.0	1039.4	1039.2	1015.5	1033.1	1010.1	984.6	980.2
G13.0	971.8	982.6	1010.3	1022.0	1013.1	984.8	994.1	964.6	939.6	942.0
G14.0	925.2	941.9	972.0	988.6	973.3	941.2	943.1	906.1	880.0	888.0
G15.0	878.8	906.2	930.7	941.6	925.2	895.5	892.5	849.4	819.3	831.4
G16.0	828.2	856.5	882.4	880.6	870.5	837.6	836.6	799.7	758.6	771.2
G17.0	768.0	805.4	820.7	816.8	810.2	778.4	784.4	748.1	706.4	711.6
G18.0	716.4	749.8	766.9	757.6	754.1	723.9	734.6	697.6	663.0	665.9
G19.0	662.0	690.9	705.6	701.8	700.6	667.3	678.5	647.7	624.1	622.1
G20.0	622.7	644.5	658.5	656.7	657.4	623.9	628.9	607.2	591.5	590.2
G21.0	587.8	601.2	619.8	614.9	617.8	585.3	589.1	576.5	564.8	562.5
G22.0	557.7	570.3	585.5	585.3	583.8	556.5	557.2	547.8	539.7	538.8
G23.0	536.9	545.9	562.3	562.1	558.0	531.6	534.0	524.8	520.2	519.9
G24.0	518.8	526.3	541.3	538.8	534.3	510.5	511.8	502.1	500.4	503.1
G25.0	503.4	510.1	522.6	519.2	516.2	493.0	492.0	481.2	484.1	486.7
G26.0	491.8	498.4	506.7	500.9	498.6	480.0	474.4	464.0	468.5	473.9
G27.0	479.5	485.1	490.4	482.9	484.9	466.7	461.9	449.1	453.2	460.7
G28.0	466.0	473.5	476.2	469.7	471.8	451.8	450.6	437.2	440.5	448.4
G29.0	453.2	459.8	463.4	454.9	454.4	436.9	433.2	425.0	426.0	434.2
G30.0	434.7	444.2	446.5	441.8	440.0	421.2	418.3	411.8	410.3	416.1
G31.0	419.0	427.2	432.0	426.7	422.7	408.0	402.2	399.1	395.4	400.5
G32.0	402.2	409.7	415.6	411.9	406.5	391.1	386.5	385.1	379.8	385.0
G33.0	389.6	394.5	399.4	396.6	391.0	379.7	375.8	376.2	369.4	372.3
G34.0	372.9	379.5	385.3	382.6	374.7	364.8	361.8	361.2	357.0	360.4
G35.0	358.8	368.3	371.5	369.6	361.3	351.8	352.5	350.4	347.5	350.9
G36.0	354.0	359.3	359.6	354.6	345.3	340.3	342.5	340.0	342.7	347.3

C Plane (°):0.0-360.0: 30.0
Test Lab: HAVIT LIGHTING
Test Type: TYPE C
Temperature: 25°C
Operator: DING LI

Gamma Plane (°):0.0-90.0:1.0
Test Device: GPM-1600L
Distance: 6.583 m
Humidity:
Inspector:

Candlepower Table (Continue 1)

Unit: cd

G\C	C0.0	C30.0	C60.0	C90.0	C120.0	C150.0	C180.0	C210.0	C240.0	C270.0
G37.0	350.4	354.7	354.6	345.9	336.3	334.2	339.0	336.0	337.3	343.3
G38.0	347.9	354.1	349.3	341.3	330.2	334.4	337.1	334.7	335.9	342.0
G39.0	348.6	357.0	350.8	344.3	332.4	335.8	338.2	334.4	335.1	340.2
G40.0	355.6	359.7	353.0	349.6	337.7	336.3	338.7	333.1	332.5	336.5
G41.0	355.9	360.1	356.1	353.3	341.5	336.2	337.9	331.9	328.5	332.2
G42.0	350.3	357.8	356.3	354.2	343.1	334.1	335.9	328.7	323.3	325.3
G43.0	338.1	349.4	350.1	349.5	341.1	328.9	330.7	321.9	312.0	314.6
G44.0	325.6	337.9	339.2	340.5	336.4	322.8	324.6	311.3	297.7	299.6
G45.0	288.0	305.8	322.1	328.2	329.1	297.3	310.9	286.6	265.7	269.7
G46.0	262.0	275.8	274.6	289.1	283.9	267.2	271.8	258.8	253.6	256.4
G47.0	252.5	265.7	257.5	273.9	269.7	260.4	263.4	252.5	248.4	249.3
G48.0	252.5	258.9	252.5	267.3	263.0	253.2	255.6	246.9	240.5	240.6
G49.0	233.7	250.0	251.3	258.4	254.4	228.7	243.4	229.9	209.1	206.9
G50.0	183.7	214.9	237.1	229.5	218.7	178.4	193.6	171.6	145.5	145.9
G51.0	116.7	141.7	172.8	165.9	157.9	114.0	125.1	93.8	68.3	76.0
G52.0	54.2	70.1	99.7	101.1	98.2	60.4	66.8	41.9	31.3	36.3
G53.0	24.2	25.9	44.2	40.1	43.3	24.5	28.1	23.5	21.5	22.5
G54.0	21.6	20.8	22.8	20.9	20.4	19.7	20.6	20.2	20.0	20.4
G55.0	19.9	19.1	20.7	19.6	18.9	18.3	19.1	18.7	18.5	18.6
G56.0	17.8	17.4	18.7	17.9	17.6	16.6	17.4	17.2	16.5	16.3
G57.0	15.7	15.6	16.9	16.6	16.1	14.7	15.5	15.1	14.3	13.9
G58.0	13.9	14.3	15.2	15.1	14.3	12.9	13.4	13.2	12.4	12.3
G59.0	11.8	12.4	13.8	13.6	12.8	11.4	11.6	11.4	11.0	11.1
G60.0	10.6	11.0	12.1	12.1	11.1	10.2	10.5	10.3	10.1	10.1
G61.0	9.6	10.1	11.0	10.9	10.2	9.2	9.4	9.3	9.1	9.2
G62.0	8.7	9.0	9.9	9.9	9.3	8.3	8.5	8.3	8.3	8.4
G63.0	7.7	8.2	8.9	9.0	8.3	7.8	7.8	7.4	7.5	7.7
G64.0	6.8	7.2	7.8	8.2	7.5	6.9	7.0	6.8	6.6	6.8
G65.0	6.1	6.4	6.9	7.4	6.8	6.1	6.1	6.2	5.9	6.4
G66.0	5.4	5.7	6.2	6.6	6.1	5.5	5.6	5.6	5.3	5.5
G67.0	4.8	5.0	5.4	5.7	5.3	4.8	4.8	4.8	4.6	4.9
G68.0	4.2	4.5	4.8	5.0	4.7	4.3	4.3	4.3	4.2	4.4
G69.0	3.5	3.9	4.2	4.4	4.2	3.7	3.8	3.9	3.6	3.8
G70.0	3.1	3.4	3.5	3.8	3.7	3.3	3.4	3.3	3.0	3.3
G71.0	2.7	3.0	3.0	3.3	3.3	2.8	3.0	3.0	2.8	2.9
G72.0	2.2	2.5	2.8	3.0	2.9	2.4	2.6	2.7	2.2	2.4
G73.0	1.9	2.1	2.3	2.4	2.3	2.0	2.2	2.2	1.8	1.9

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Test Type: TYPE C
Temperature: 25°C
Operator: DING LI

Gamma Plane (°):0.0-90.0:1.0
Test Device: GPM-1600L
Distance: 6.583 m
Humidity:
Inspector:

Candlepower Table (Continue 2)

Unit: cd

G\C	C0.0	C30.0	C60.0	C90.0	C120.0	C150.0	C180.0	C210.0	C240.0	C270.0
G74.0	1.5	1.7	2.1	2.1	2.0	1.6	1.7	1.8	1.3	1.6
G75.0	0.9	1.3	1.5	1.8	1.5	1.3	1.4	1.4	0.9	1.1
G76.0	0.4	0.8	1.0	1.2	1.2	0.8	1.0	1.0	0.5	0.7
G77.0	0.1	0.3	0.5	0.8	0.6	0.4	0.6	0.6	0.2	0.3
G78.0	0.0	0.1	0.2	0.3	0.2	0.0	0.2	0.3	0.0	0.0
G79.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0
G80.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G81.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G82.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G83.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G84.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G85.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G86.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G87.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G88.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G89.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G90.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

C Plane (°):0.0-360.0: 30.0
Test Lab: HAVIT LIGHTING
Test Type: TYPE C
Temperature: 25°C
Operator: DING LI

Gamma Plane (°):0.0-90.0:1.0
Test Device: GPM-1600L
Distance: 6.583 m
Humidity:
Inspector:

Candlepower Table (Continue 3)

Unit: cd

G\C	C300.0	C330.0	C360.0							
G0.0	1009.0	1014.3	1012.5							
G1.0	1006.3	1006.4	1003.5							
G2.0	1004.0	1000.0	1004.1							
G3.0	1006.1	999.3	1012.9							
G4.0	1013.3	1005.5	1023.9							
G5.0	1022.6	1014.9	1038.2							
G6.0	1034.3	1028.8	1049.2							
G7.0	1046.6	1041.7	1056.5							
G8.0	1054.3	1051.3	1058.4							
G9.0	1054.5	1051.3	1055.1							
G10.0	1043.1	1044.1	1048.4							
G11.0	1019.8	1027.3	1029.4							
G12.0	990.5	1002.2	1005.1							
G13.0	947.3	969.6	971.8							
G14.0	892.5	922.5	925.2							
G15.0	835.5	875.4	878.8							
G16.0	775.6	824.0	828.2							
G17.0	725.0	763.0	768.0							
G18.0	678.5	715.2	716.4							
G19.0	635.2	668.4	662.0							
G20.0	601.7	627.9	622.7							
G21.0	573.8	595.9	587.8							
G22.0	547.0	564.3	557.7							
G23.0	526.1	540.3	536.9							
G24.0	507.8	522.0	518.8							
G25.0	494.0	503.9	503.4							
G26.0	480.8	489.1	491.8							
G27.0	467.4	473.7	479.5							
G28.0	454.7	461.4	466.0							
G29.0	440.4	449.0	453.2							
G30.0	423.3	432.1	434.7							
G31.0	407.8	415.1	419.0							
G32.0	391.8	400.9	402.2							
G33.0	379.4	386.7	389.6							
G34.0	365.6	374.1	372.9							
G35.0	356.8	364.1	358.8							
G36.0	351.2	355.4	354.0							

C Plane (°):0.0-360.0: 30.0
Test Lab: HAVIT LIGHTING
Test Type: TYPE C
Temperature: 25°C
Operator: DING LI

Gamma Plane (°):0.0-90.0:1.0
Test Device: GPM-1600L
Distance: 6.583 m
Humidity:
Inspector:

Candlepower Table (Continue 4)

Unit: cd

G\C	C300.0	C330.0	C360.0							
G37.0	344.9	352.6	350.4							
G38.0	341.3	347.8	347.9							
G39.0	339.2	346.3	348.6							
G40.0	336.6	344.0	355.6							
G41.0	334.8	340.2	355.9							
G42.0	329.5	335.5	350.3							
G43.0	319.9	328.7	338.1							
G44.0	307.2	321.4	325.6							
G45.0	269.5	298.3	288.0							
G46.0	257.4	268.1	262.0							
G47.0	248.8	258.9	252.5							
G48.0	242.3	250.8	252.5							
G49.0	205.5	233.4	233.7							
G50.0	151.3	189.9	183.7							
G51.0	91.6	130.4	116.7							
G52.0	45.1	72.8	54.2							
G53.0	24.0	29.5	24.2							
G54.0	21.7	20.7	21.6							
G55.0	19.7	18.8	19.9							
G56.0	17.1	16.9	17.8							
G57.0	14.8	14.7	15.7							
G58.0	13.0	13.0	13.9							
G59.0	11.6	11.4	11.8							
G60.0	10.4	10.4	10.6							
G61.0	9.4	9.6	9.6							
G62.0	8.5	8.5	8.7							
G63.0	7.7	7.8	7.7							
G64.0	6.8	6.8	6.8							
G65.0	6.3	6.1	6.1							
G66.0	5.5	5.5	5.4							
G67.0	4.8	4.7	4.8							
G68.0	4.3	4.3	4.2							
G69.0	3.7	3.7	3.5							
G70.0	3.3	3.2	3.1							
G71.0	2.8	2.8	2.7							
G72.0	2.3	2.3	2.2							
G73.0	1.9	1.8	1.9							

C Plane (°):0.0-360.0: 30.0
Test Lab: HAVIT LIGHTING
Test Type: TYPE C
Temperature: 25°C
Operator: DING LI

Gamma Plane (°):0.0-90.0:1.0
Test Device: GPM-1600L
Distance: 6.583 m
Humidity:
Inspector:

Candlepower Table (Continue 5)

Unit: cd

G\C	C300.0	C330.0	C360.0							
G74.0	1.4	1.5	1.5							
G75.0	0.9	1.3	0.9							
G76.0	0.5	0.7	0.4							
G77.0	0.1	0.1	0.1							
G78.0	0.0	0.0	0.0							
G79.0	0.0	0.0	0.0							
G80.0	0.0	0.0	0.0							
G81.0	0.0	0.0	0.0							
G82.0	0.0	0.0	0.0							
G83.0	0.0	0.0	0.0							
G84.0	0.0	0.0	0.0							
G85.0	0.0	0.0	0.0							
G86.0	0.0	0.0	0.0							
G87.0	0.0	0.0	0.0							
G88.0	0.0	0.0	0.0							
G89.0	0.0	0.0	0.0							
G90.0	0.0	0.0	0.0							

C Plane (°):0.0-360.0: 30.0
Test Lab: HAVIT LIGHTING
Test Type: TYPE C
Temperature: 25°C
Operator: DING LI

Gamma Plane (°):0.0-90.0:1.0
Test Device: GPM-1600L
Distance: 6.583 m
Humidity:
Inspector: