



Testing Laboratory
0377

試驗報告

Test Report



照明檢測實驗室

Lighting Test and Evaluation Laboratory

新竹縣竹東鎮(310)中興路四段 195 號 62 館
電話：(03)591-6432 傳真：(03)582-0275



工業技術研究院
Industrial Technology
Research Institute



Test Report

Laboratory: Lighting Test and Evaluation Laboratory

Laboratory Address: Bldg. 62, 195 Sec. 4 Chung Hsing Rd., Chutung, Hsinchu,
Taiwan 310, R. O. C.

Test Address: 989-1, Wenshan Rd., Shangshan, Chyonglin, Hsinchu, Taiwan
307, R. O. C.

Laboratory No.: TAF 0377

Report No.: L96-226-2

Client: WANSTAR TECHNOLOGY CO., LTD.

Client Address: No.100, Singfu E.Rd.,Sinjhuang City, Taipei County 24252,
Taiwan (R.O.C).

Client Telephone: 886-2-2277-0066

Model No.: WS-S60

Report Date: 10/05/2007

Test Performed by: Chen-Wei Chien

Supervised by: Su-Chin Ju / Shih-Kai Lin

Lab. Manager:

Rita kuo

- Note :
1. Number of pages: 13 (excluding the cover sheet).
 2. This report cannot be used for advertisement or lawsuit purpose.
 3. This report is invalid without the official certification stamp.

Basic Information:

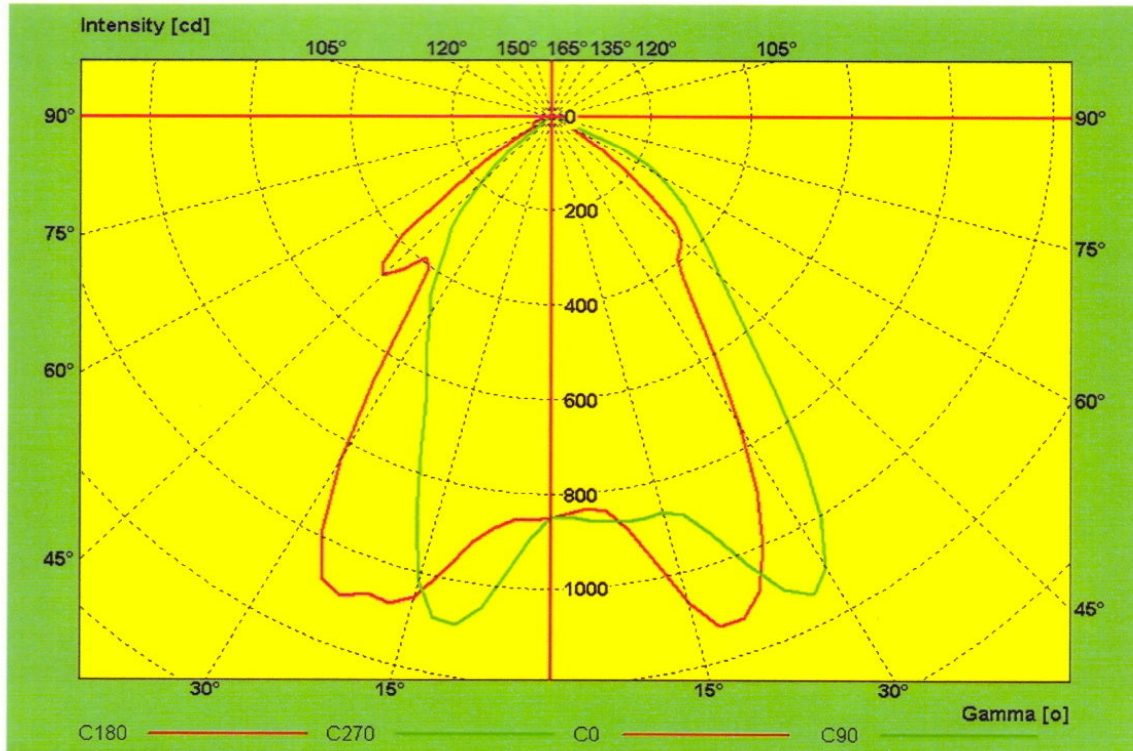
- Test No.: L96-226-1
- Model No.: WS-S60
- Input Voltage: 220 V
- Input Frequency: 60 Hz
- Weight : 6.24 Kg
- Dimensions: 600^L×200^W×130^H(mm)
- Test Luminaries photograph:



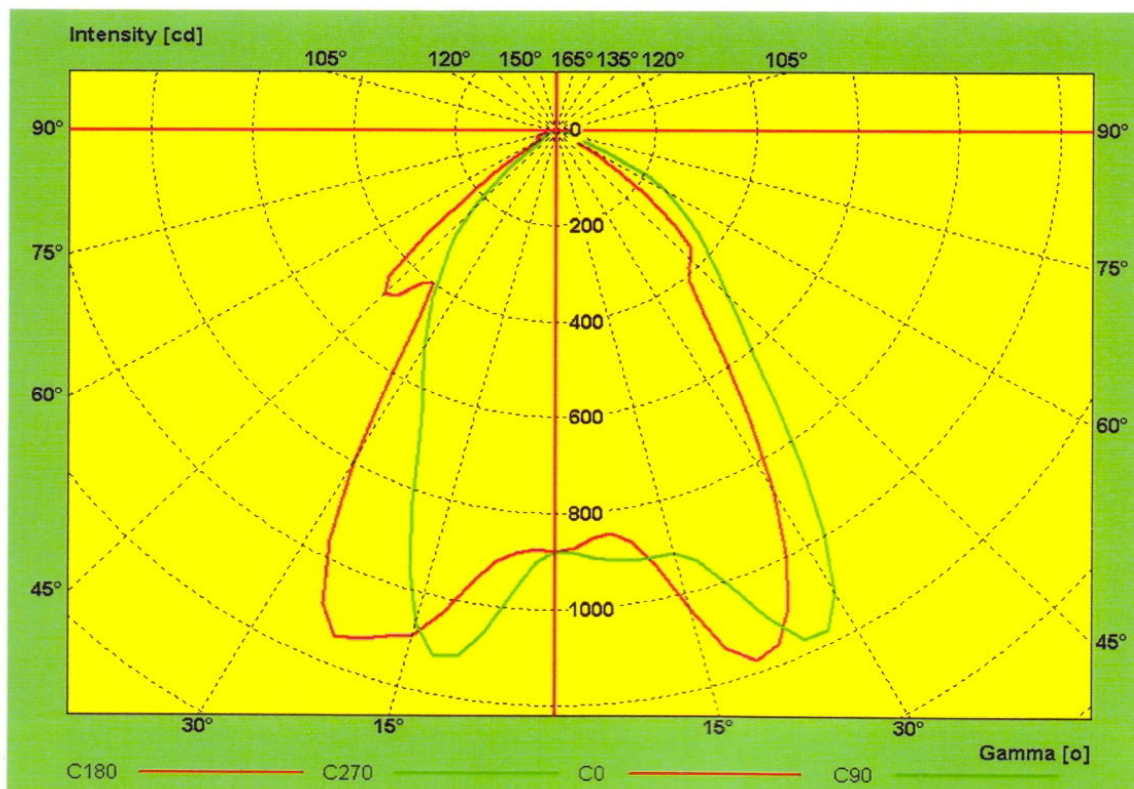
Test Result:

1. Polar Diagram

A. After 1 hour

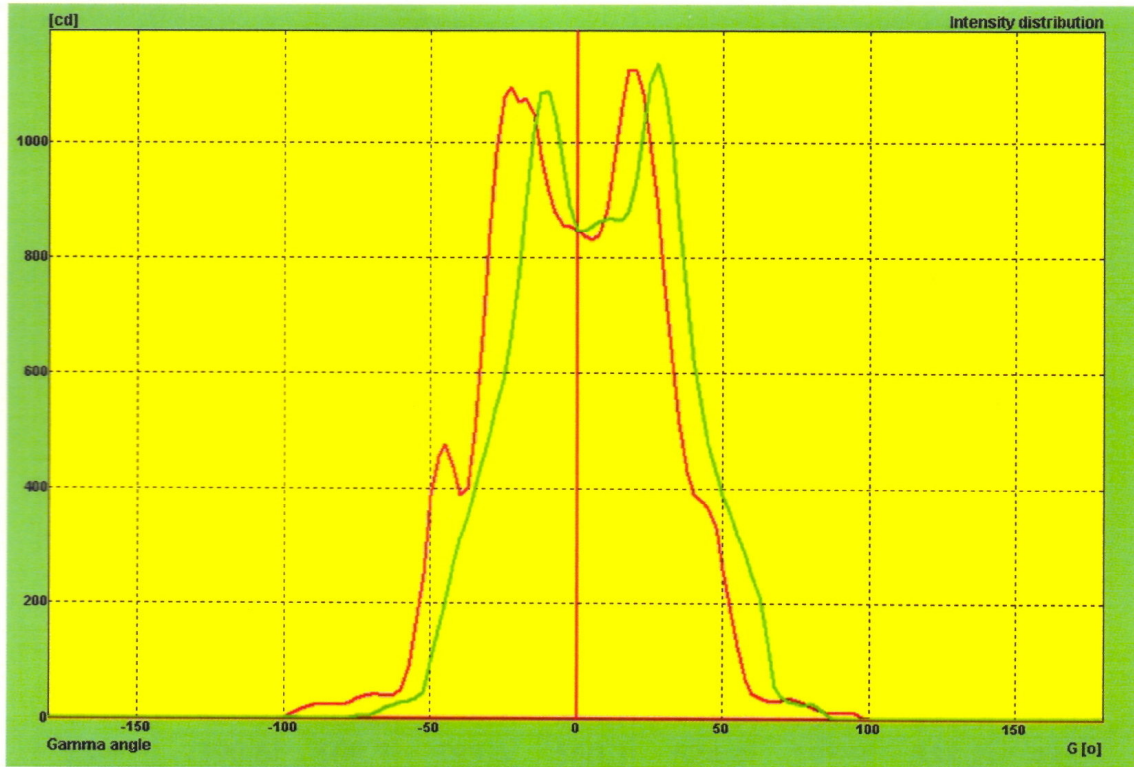


B. After 12 hour

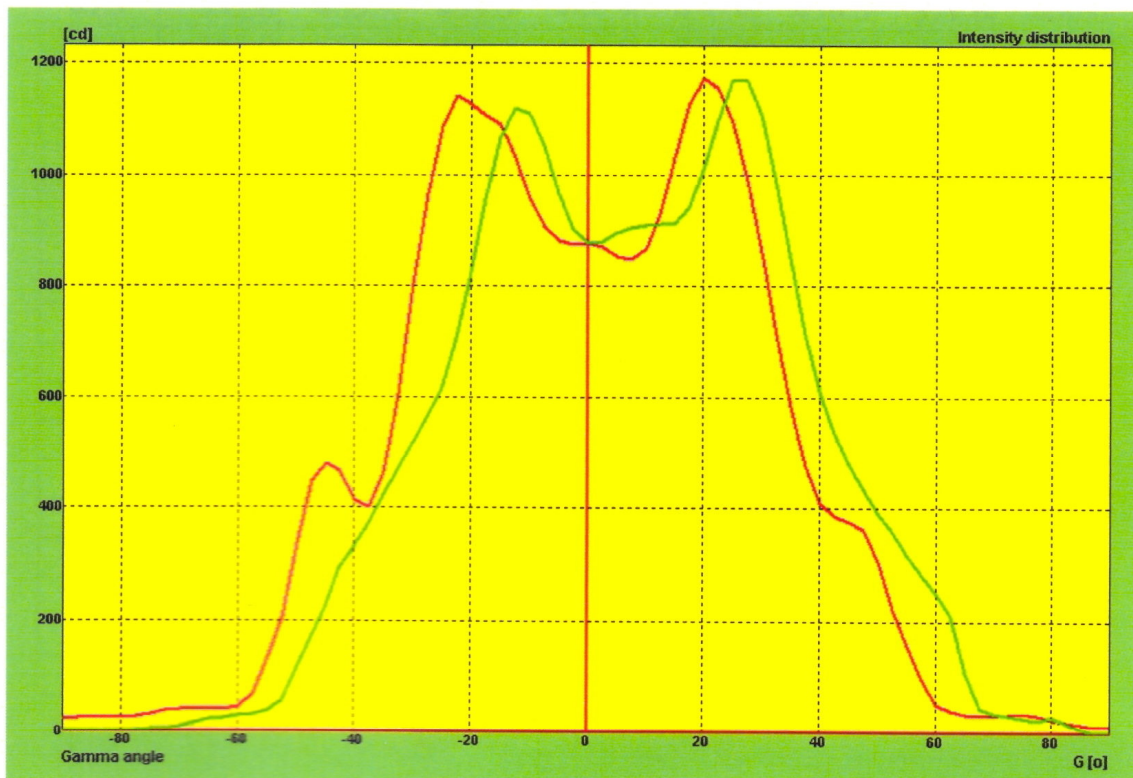


2. Cartesian Diagram

A. After 1 hour



B. After 12 hours





3. Intensity

A. After 1 hour

unit:[cd]

G/C	0	22.5	45	67.5	90	112.5	135	157.5
0.0	848.6	848.6	848.6	848.6	848.6	848.6	848.6	848.6
2.5	837.6	834.6	835.6	839.6	845.6	846.6	844.6	847.6
5.0	829.6	811.6	819.6	838.6	854.5	856.5	842.6	841.6
7.5	839.6	793.6	799.6	834.6	863.5	858.5	840.6	839.6
10.0	882.5	798.6	782.7	826.6	868.5	858.5	842.6	851.6
12.5	966.4	826.6	766.7	811.7	868.5	857.5	853.6	878.6
15.0	1062.2	910.5	781.7	803.7	864.5	864.5	878.5	933.6
17.5	1126.1	1039.5	838.6	814.7	879.5	892.5	937.5	1001.7
20.0	1125.1	1143.4	941.4	863.5	935.3	960.4	1024.5	1068.7
22.5	1086.2	1178.4	1067.2	939.3	1020.1	1049.2	1098.4	1109.7
25.0	999.3	1153.4	1143.1	1004.1	1101.8	1133.1	1142.4	1135.8
27.5	886.5	1060.5	1143.1	1028.0	1136.7	1159.0	1121.4	1109.7
30.0	751.7	920.5	1052.2	984.2	1095.9	1104.1	1029.5	1010.7
32.5	619.9	793.6	913.5	887.5	1000.1	998.3	904.5	875.6
35.0	512.1	665.7	764.7	762.8	870.5	853.6	773.6	714.5
37.5	429.7	568.3	646.7	646.1	733.9	704.7	647.9	572.3
40.0	390.6	508.7	583.4	560.3	624.4	598.9	558.2	485.4
42.5	378.3	451.4	544.7	505.8	542.5	525.7	489.5	430.6
45.0	365.3	426.1	518.8	476.5	478.7	470.8	431.5	403.1
47.5	332.6	406.9	499.0	444.9	430.4	436.6	371.6	400.0
50.0	258.0	359.6	466.4	400.5	387.9	398.6	318.2	409.6
52.5	184.3	279.2	421.5	369.5	353.5	372.4	283.9	383.1
55.0	125.3	185.0	343.2	347.3	319.9	335.7	270.8	311.3
57.5	69.4	121.0	243.0	319.1	285.6	302.2	248.4	233.6
60.0	43.8	73.0	153.8	247.7	247.9	248.2	203.4	145.4
62.5	36.4	47.6	71.6	146.2	213.0	186.7	148.6	64.3
65.0	31.6	41.9	45.0	85.6	146.1	118.8	97.0	45.1
67.5	30.0	37.6	37.7	47.2	55.1	65.5	48.4	37.0
70.0	31.2	32.6	33.0	36.9	37.5	36.4	33.5	31.8
72.5	35.3	28.6	29.6	33.1	30.6	31.2	28.9	30.9
75.0	32.8	24.7	25.5	31.2	26.8	28.6	25.8	33.3
77.5	27.4	32.3	18.9	29.7	22.6	27.8	23.2	31.8
80.0	20.5	32.4	10.3	25.2	26.8	26.3	21.6	24.7
82.5	17.6	28.0	6.4	16.5	21.7	26.1	17.1	15.6
85.0	11.4	17.6	3.7	4.9	11.1	14.6	9.6	8.9
87.5	9.4	9.8	0.4	0.0	2.2	2.1	2.5	6.6
90.0	10.1	7.3	0.0	0.0	0.0	0.0	0.0	6.9



unit:[cd]

G/C	180	202.5	225	247.5	270	292.5	315	337.5
0.0	848.6	848.6	848.6	848.6	848.6	848.6	848.6	848.6
2.5	853.6	860.6	873.6	886.7	891.7	882.6	870.6	852.6
5.0	856.6	886.7	921.8	952.9	962.9	948.6	911.5	868.5
7.5	877.6	933.8	989.0	1031.1	1047.2	1037.7	983.5	916.4
10.0	914.7	999.0	1057.2	1095.3	1089.3	1097.7	1046.5	986.3
12.5	980.8	1066.2	1093.3	1099.3	1084.3	1096.7	1072.4	1057.2
15.0	1049.9	1108.3	1082.3	1038.1	1018.1	1025.7	1040.5	1088.2
17.5	1077.0	1092.3	1012.1	932.8	889.7	898.6	961.5	1075.2
20.0	1071.0	1010.1	903.7	792.4	761.3	756.5	848.6	1005.3
22.5	1096.0	922.8	779.4	663.0	656.0	636.4	732.6	913.5
25.0	1078.0	824.5	671.0	557.7	586.8	550.4	627.7	806.6
27.5	983.8	726.2	593.8	485.5	538.6	481.3	551.7	701.8
30.0	838.5	625.9	541.6	444.3	487.5	432.3	487.7	598.0
32.5	663.2	510.5	505.5	424.3	445.3	396.3	442.8	504.1
35.0	494.9	410.2	449.4	428.3	393.2	376.2	403.8	423.3
37.5	402.7	342.7	374.3	418.1	346.9	365.1	357.2	375.2
40.0	388.8	327.6	306.5	405.7	310.7	347.4	322.8	361.3
42.5	436.0	387.8	247.6	349.8	265.9	292.0	290.3	366.3
45.0	474.9	443.7	228.1	258.8	197.6	211.4	261.1	335.3
47.5	454.0	400.1	215.0	171.9	152.1	148.7	215.7	281.0
50.0	387.5	300.8	173.9	96.1	94.3	78.7	153.9	191.8
52.5	250.5	173.8	120.6	52.2	45.6	42.6	86.5	118.5
55.0	163.5	82.5	54.9	37.2	33.9	32.7	43.2	67.8
57.5	89.5	46.5	37.0	31.2	30.4	27.7	33.3	39.5
60.0	50.0	34.7	31.2	27.5	27.2	23.7	28.8	31.9
62.5	40.2	29.2	27.3	23.5	24.0	20.4	25.6	28.4
65.0	38.6	26.9	24.3	19.5	19.5	17.1	22.4	23.8
67.5	41.1	24.9	21.2	15.8	12.7	13.9	18.5	20.4
70.0	39.8	22.4	17.8	12.7	6.1	12.8	14.4	16.8
72.5	38.3	19.5	13.1	9.4	3.4	11.2	9.3	13.0
75.0	33.9	15.5	8.0	4.9	2.8	6.4	5.4	8.9
77.5	28.2	10.6	4.1	2.2	1.6	2.9	2.2	5.5
80.0	24.2	8.2	2.1	0.8	0.0	0.0	0.4	4.7
82.5	22.9	9.1	1.0	0.0	0.0	0.0	0.0	5.0
85.0	24.0	11.1	0.3	0.0	0.0	0.0	0.0	4.6
87.5	24.1	11.2	0.0	0.0	0.0	0.0	0.0	4.2
90.0	22.3	10.6	0.0	0.0	0.0	0.0	0.0	4.5



B. After 12 hours

unit:[cd]

G/C	0	22.5	45	67.5	90	112.5	135	157.5
0.0	876.7	876.7	876.7	876.7	876.7	876.7	876.7	876.7
2.5	869.7	868.8	872.7	877.2	880.0	876.7	871.7	869.7
5.0	852.7	849.8	866.8	886.2	894.7	883.7	867.4	866.7
7.5	846.7	824.9	846.8	885.9	903.7	885.7	869.7	870.2
10.0	868.7	811.0	825.0	878.2	908.7	889.7	880.7	892.8
12.5	928.6	815.9	802.1	863.0	909.7	893.8	898.3	931.9
15.0	1030.5	863.8	797.1	845.9	910.7	914.8	943.8	1003.1
17.5	1128.3	983.3	836.5	859.2	938.8	966.0	1024.0	1076.3
20.0	1172.3	1123.8	930.4	916.1	1008.5	1054.3	1111.2	1134.5
22.5	1155.3	1204.5	1046.9	993.8	1096.9	1144.6	1167.3	1161.6
25.0	1093.4	1211.4	1143.4	1050.6	1167.9	1198.7	1181.3	1167.6
27.5	990.5	1144.7	1168.9	1064.6	1170.9	1179.6	1111.3	1095.4
30.0	861.7	1012.6	1100.6	1012.8	1106.9	1094.4	994.9	966.0
32.5	715.9	869.7	961.3	903.1	987.8	954.9	854.7	804.3
35.0	584.1	739.2	808.0	774.5	849.3	796.5	717.4	652.1
37.5	478.1	614.9	675.9	655.0	715.5	662.7	604.8	531.3
40.0	410.3	545.1	601.3	568.9	611.4	575.0	527.5	468.2
42.5	388.1	485.2	558.5	513.6	537.8	517.5	462.2	435.2
45.0	376.0	441.0	533.3	483.8	478.8	469.2	401.5	411.9
47.5	361.8	425.3	510.7	452.5	434.2	443.5	346.4	421.5
50.0	306.0	393.4	484.6	410.7	391.3	403.2	301.2	410.9
52.5	221.6	320.5	441.4	378.8	357.7	371.1	279.3	352.5
55.0	156.2	220.2	368.3	359.2	319.1	331.7	267.6	270.4
57.5	96.4	139.4	266.0	329.8	282.9	290.1	228.4	192.1
60.0	51.5	87.6	170.6	257.0	247.4	227.4	171.2	92.6
62.5	38.9	50.9	80.2	151.1	210.6	151.3	121.0	48.9
65.0	33.6	42.1	45.1	82.3	107.6	93.3	65.6	39.8
67.5	29.9	38.5	37.7	44.5	44.4	45.5	36.0	33.4
70.0	30.7	33.7	32.7	36.0	34.6	32.8	29.8	30.8
72.5	34.0	29.8	29.8	32.7	29.8	29.3	26.6	32.4
75.0	36.1	25.2	25.8	31.3	25.8	28.5	23.8	33.5
77.5	29.9	30.4	19.4	30.0	22.0	27.3	22.1	28.7
80.0	23.7	34.8	10.6	24.4	27.9	27.9	19.9	20.8
82.5	18.9	30.6	6.1	14.3	18.2	21.4	12.1	11.3
85.0	14.9	21.4	3.3	2.8	6.4	5.9	4.7	6.2
87.5	9.6	11.3	0.2	0.0	0.0	0.0	0.0	7.7
90.0	9.6	7.9	0.0	0.0	0.0	0.0	0.0	4.5



unit:[cd]

G/C	180	202.5	225	247.5	270	292.5	315	337.5
0.0	876.7	876.7	876.7	876.7	876.7	876.7	876.7	876.7
2.5	873.9	881.7	890.7	898.7	900.6	895.7	888.7	876.7
5.0	882.0	908.8	935.5	958.7	967.5	950.5	916.7	880.7
7.5	906.1	959.1	1005.1	1041.6	1052.2	1032.3	977.7	906.7
10.0	958.3	1034.0	1079.3	1116.6	1111.1	1109.1	1049.6	968.7
12.5	1030.6	1107.7	1128.1	1131.6	1119.1	1133.0	1093.6	1043.6
15.0	1089.9	1145.8	1119.5	1084.6	1064.2	1090.1	1095.2	1108.6
17.5	1105.0	1108.8	1052.2	979.7	955.5	991.6	1043.6	1127.6
20.0	1126.1	1029.3	937.9	838.7	822.8	850.8	941.7	1094.6
22.5	1141.1	945.0	801.5	702.8	706.1	714.1	821.7	1009.7
25.0	1085.9	838.5	691.1	588.8	617.4	608.3	706.8	908.7
27.5	963.3	734.5	612.9	513.8	565.5	533.6	612.8	799.7
30.0	801.6	621.8	560.7	477.8	517.6	472.8	543.3	689.8
32.5	605.7	495.1	513.6	460.8	468.8	429.6	484.8	585.8
35.0	463.1	399.7	447.4	460.8	422.5	394.0	439.9	486.8
37.5	402.1	346.7	371.7	455.0	372.3	369.9	397.2	412.6
40.0	414.5	360.9	302.4	432.5	331.9	357.6	346.7	372.9
42.5	465.4	435.3	256.6	375.0	293.6	324.7	311.9	373.3
45.0	478.9	456.4	250.7	268.4	226.7	257.2	277.5	365.9
47.5	447.4	389.8	235.2	181.8	170.1	178.0	246.9	321.3
50.0	336.3	268.4	182.8	104.9	113.7	115.9	188.9	250.0
52.5	203.8	139.5	118.0	55.4	56.1	56.1	127.1	155.7
55.0	131.2	66.8	52.2	38.6	36.7	36.5	62.6	96.0
57.5	66.6	41.5	36.8	31.7	30.5	29.8	38.3	52.2
60.0	44.3	32.5	30.6	28.2	27.7	25.1	31.7	35.1
62.5	38.9	28.6	27.1	24.2	24.4	21.7	27.7	29.9
65.0	40.6	26.5	24.1	20.0	21.5	18.5	24.7	25.9
67.5	42.1	24.2	21.1	16.2	15.2	14.5	21.1	22.4
70.0	40.7	21.6	17.5	13.0	8.0	12.5	17.0	19.0
72.5	36.5	18.5	12.4	9.7	4.0	11.6	12.3	15.1
75.0	31.7	14.2	7.2	5.2	3.0	9.1	7.4	11.2
77.5	26.8	9.2	3.5	2.1	1.0	4.4	3.4	7.0
80.0	23.3	8.2	1.6	0.5	0.0	0.5	0.9	4.3
82.5	23.7	10.0	0.6	0.0	0.0	0.0	0.0	4.2
85.0	24.3	11.7	0.0	0.0	0.0	0.0	0.0	4.7
87.5	23.8	11.5	0.0	0.0	0.0	0.0	0.0	4.2
90.0	21.2	10.3	0.0	0.0	0.0	0.0	0.0	4.1

4. Basic characteristic:

A. After 1 hour

- Input Power : 64 W
- Luminous Flux : 1663 Lm

Gamma [°]	Imin [cd/klm]	Imax [cd/klm]	Imean [cd/klm]	Zonal flux [lm]	Sum. zonal flux [lm]
0.0	848.6	848.6	848.6	0.0	0.0
2.5	833.6	891.7	856.4	5.1	5.1
5.0	808.6	963.9	875.3	15.5	20.6
7.5	790.7	1050.9	905.5	26.6	47.2
10.0	776.7	1101.7	937.5	38.4	85.6
12.5	766.7	1102.3	961.4	50.8	136.4
15.0	773.8	1110.4	971.9	63.0	199.4
17.5	801.7	1127.1	967.3	74.4	273.8
20.0	753.5	1156.4	951.3	84.5	358.3
22.5	636.4	1189.0	934.7	93.7	452.0
25.0	545.7	1198.0	906.3	101.6	553.6
27.5	479.3	1161.0	855.3	106.8	660.4
30.0	429.3	1108.1	775.1	107.5	767.9
32.5	385.2	1002.1	679.8	103.4	871.4
35.0	344.4	874.5	580.0	95.9	967.3
37.5	308.3	734.4	494.8	87.1	1054.4
40.0	279.0	627.4	438.1	80.0	1134.4
42.5	236.9	551.4	402.2	76.0	1210.4
45.0	180.5	520.7	371.5	73.3	1283.7
47.5	127.3	499.0	333.2	69.8	1353.5
50.0	71.7	476.3	280.3	63.2	1416.7
52.5	39.2	452.8	224.8	54.0	1470.7
55.0	29.7	408.8	176.3	44.3	1515.1
57.5	24.9	355.9	136.3	35.6	1550.7
60.0	21.5	317.9	101.2	27.8	1578.5
62.5	18.3	238.7	73.3	21.0	1599.5
65.0	14.8	165.2	50.5	15.2	1614.7
67.5	11.9	66.7	32.7	10.4	1625.1
70.0	6.1	44.9	26.1	7.5	1632.7
72.5	3.4	43.6	22.9	6.4	1639.0
75.0	2.2	45.1	20.0	5.6	1644.7
77.5	0.7	42.5	16.8	4.9	1649.6
80.0	0.0	38.3	16.8	4.2	1653.8
82.5	0.0	30.2	15.5	3.5	1657.3
85.0	0.0	24.4	10.8	2.7	1660.0
87.5	0.0	25.5	7.6	1.7	1661.7
90.0	0.0	23.6	9.3	1.2	1662.9

一五六一



B. After 12 hours

- Input Power : 64 W
- Luminous Flux : 1710.6 Lm

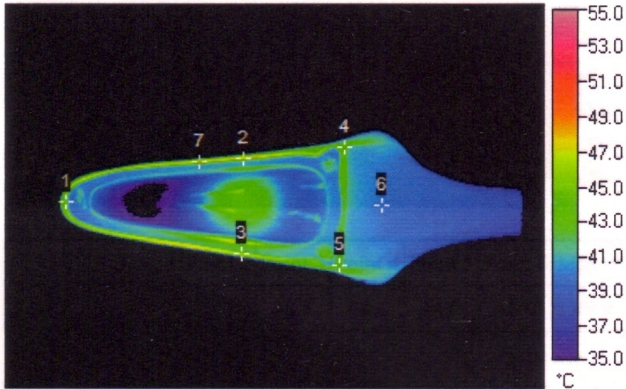
Gamma [°]	lmin [cd/klm]	lmax [cd/klm]	lmean [cd/klm]	Zonal flux [lm]	Sum. zonal flux [lm]
0.0	876.7	876.7	876.7	0.0	0.0
2.5	868.7	901.6	880.8	5.3	5.3
5.0	848.8	967.5	898.2	15.9	21.2
7.5	824.9	1052.2	925.6	27.2	48.4
10.0	806.0	1119.3	961.1	39.3	87.8
12.5	792.1	1134.3	989.4	52.2	139.9
15.0	797.0	1145.8	1006.7	65.0	204.9
17.5	826.9	1145.3	1010.2	77.4	282.3
20.0	809.9	1177.3	1004.6	88.8	371.1
22.5	683.2	1204.8	988.4	99.0	470.1
25.0	584.1	1234.0	953.9	107.2	577.3
27.5	503.3	1205.1	891.3	111.9	689.2
30.0	453.3	1108.6	801.3	111.6	800.7
32.5	407.4	997.7	692.7	106.2	907.0
35.0	366.0	858.7	589.8	97.7	1004.6
37.5	325.5	718.8	503.1	88.6	1093.2
40.0	298.7	621.0	449.0	81.7	1174.9
42.5	251.5	573.6	416.1	78.2	1253.1
45.0	206.9	537.6	384.9	75.9	1329.0
47.5	148.4	510.7	346.2	72.4	1401.4
50.0	91.9	487.2	291.5	65.7	1467.1
52.5	48.1	460.3	229.6	55.7	1522.8
55.0	33.3	416.6	178.6	45.1	1567.9
57.5	27.5	359.0	134.6	35.7	1603.6
60.0	23.4	312.3	97.1	27.1	1630.8
62.5	19.4	232.8	68.5	19.9	1650.7
65.0	16.8	127.9	44.3	13.9	1664.6
67.5	12.7	53.9	30.3	9.4	1673.9
70.0	7.5	42.9	25.8	7.2	1681.1
72.5	3.7	42.3	22.9	6.3	1687.4
75.0	2.8	43.8	19.9	5.6	1693.0
77.5	0.1	44.8	16.6	4.9	1697.9
80.0	0.0	41.7	15.6	4.2	1702.0
82.5	0.0	35.0	14.9	3.4	1705.5
85.0	0.0	25.8	10.1	2.5	1708.0
87.5	0.0	25.5	10.3	1.6	1709.5
90.0	0.0	23.2	9.6	1.1	1710.6

5. Surface temperature:

Test Temperature: 25°C

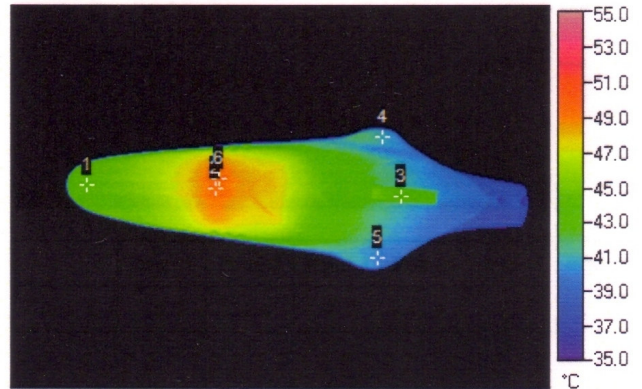
A. After 1 hour

• Front Temperature :



	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Max p7
Temp(°C)	45.1	46.9	45.8	42.7	42.6	39.9	47.9

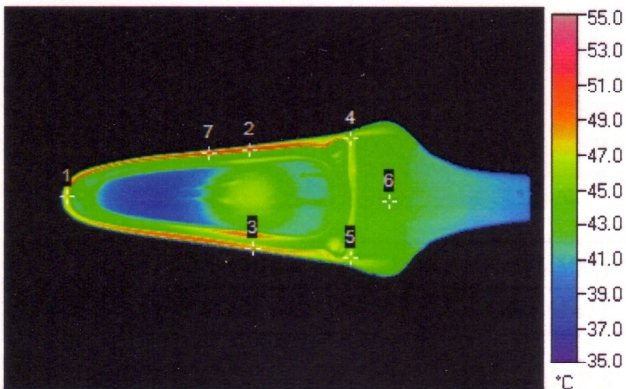
• Back Temperature :



	Point 1	Point 2	Point 3	Point 4	Point 5	Max p6
Temp(°C)	44.2	49.0	43.9	40.8	40.2	49.3

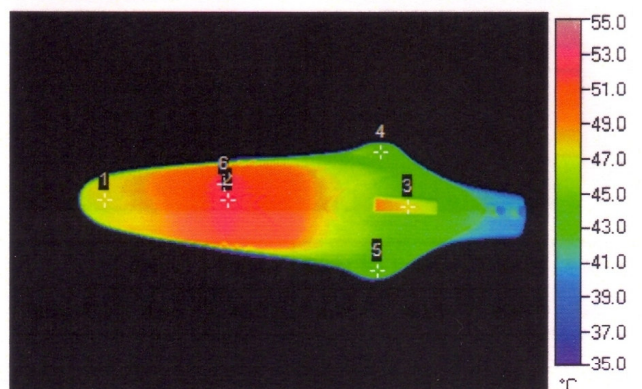
B. After 2 hours

• Front Temperature :



	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Max p7
Temp(°C)	47.3	51.0	48.3	45.5	45.4	42.8	51.6

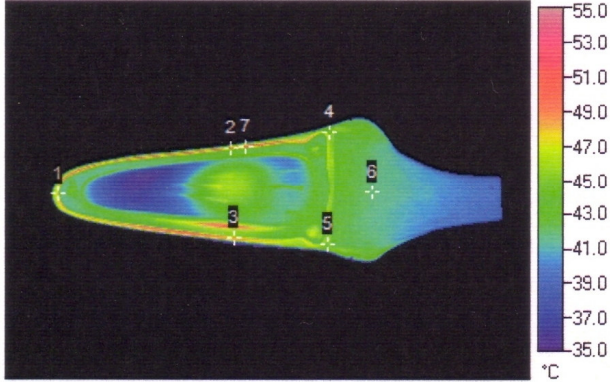
• Back Temperature :



	Point 1	Point 2	Point 3	Point 4	Point 5	Max p6
Temp(°C)	47.1	52.2	47.4	44.4	43.5	52.5

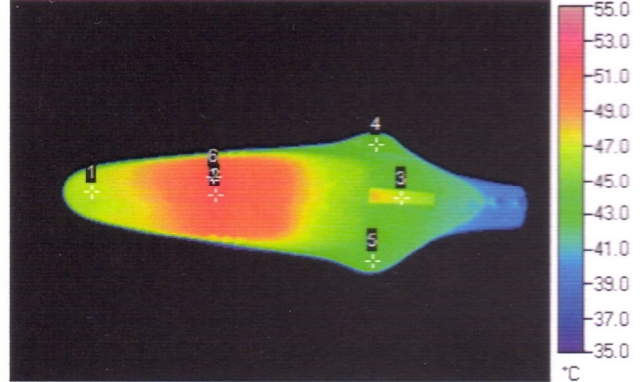
C. After 3 hours

• Front Temperature :



	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Max p7
Temp(°C)	47.9	49.0	48.3	44.6	44.8	41.9	49.9

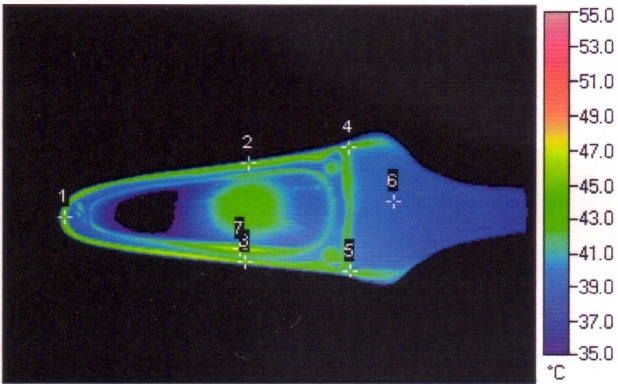
• Back Temperature :



	Point 1	Point 2	Point 3	Point 4	Point 5	Max p6
Temp(°C)	46.5	51.4	46.7	43.4	42.7	51.9

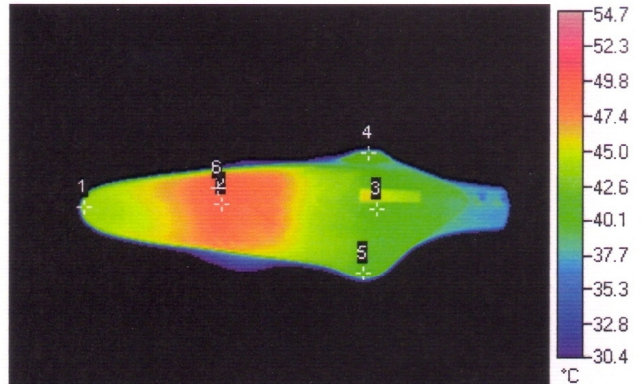
D. After 12 hours

• Front Temperature :



	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Max p7
Temp(°C)	45.2	45.4	45.2	42.3	42.2	39.2	47.2

• Back Temperature :



	Point 1	Point 2	Point 3	Point 4	Point 5	Max p6
Temp(°C)	43.6	48.7	40.6	40.6	40.9	49.4

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