



71773
2X4 LED Panel Light
DLC 4.0 Premium



RoHS

0-10V Dimmable



QPL ID #
PQY4CGVS

Model:		71773
OVERALL LAMP PARAMETERS	Input Voltage	120-277 VAC 60HZ
	Input Current	0.33A Max @ 120V; 0.15A Max @ 240V
	Input Power	40W
	Power Factor	PF ≥0.95
	Luminance	5,020 LM
	Luminous Efficiency	125 LM/W
	CRI	>80
	Beam Angle	112°
	Main Structure	Aluminium Frame + Polystyrene Lens
LED DRIVER	Output Voltage	12-24 VDC
	Output Current	0.48A
	Driver Efficiency	88%
	Driver Brand	Letron
LED	LED Manufacturer	Jufei Electronics
	LED Type	2835 SMD
	LED Quantity	336 PCS
	LED Efficacy	110 LM/W
	Color Temperature	3000K
Photocell	-	N/A
LIFESPAN & ENVIRONMENT	Lifespan	50,000+ Hrs.
	Warranty	5 Years
	IP Rating	IP21 Dry Locations
	Operating Temperature	-20℃---40℃
	Storage Temperature.Humidity	-40℃---80℃ , 10--90% RH
SAFETY&EMC	Safety Norms	UL1598, UL8750, EN60598, EN61347-2-13, EN62031, EN62471
	Withstand Voltage	I/P-FG: 2121VDC
	Grounding Resistance	25A 100mΩ
	Electromagnetic Compatibility	EN55015, EN61000-2-3, EN61000-3-3, EN61547
OTHERS	Dimension	Pls refer to attached dimension drawing
	Net Weight	0.6KG
	Gross Weight	0.8KG
	Q'ty / Carton纸箱	2 PCS
	Volume	0.52Cbm/carton
	Housing Color	White

www.morrisproducts.com



Shenzhen Belling Efficiency Testing Lab



NVLAP LAB CODE 600102-0

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Test report of

IES LM-79-08

Approved Method: Electrical and Photometric

Measurements of Solid-State Lighting Products

Applicant:

Morris Products Inc.

Address:

53 Carey Rd. Queensbury, NY 12804

For Product:

2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces

Model No.:

71773, 71774, 71775

Test laboratory: Shenzhen Belling Efficiency Testing Lab., 1/F., Building 1, 1F, No.1 building, Meibaohe industrial park, Dalang street, Shenzhen, Guangdong Prov.518101, China.

Cherie Tang

Jason Zhou

Complied by: Cherie Tang

Review by: Jason Zhou

Project Engineer

Technical Manager

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Shenzhen Belling Efficiency Testing Lab. This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.



Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
71773	3000K	6447.296	52.08	123.796
71774	4000K	6625.889 * ¹	52.13 * ²	127.103 * ³
71775	5000K	6804.481	52.18	130.404

*1: This value is calculated and the calculation formula is as below:

$$6625.889 = (6804.481 - 6447.296) / 2 + 6447.296$$

*2: This value is calculated and the calculation formula is as below:

$$52.13 = (52.08 + 52.18) / 2$$

*3: This value is calculated and the calculation formula is as below:

$$127.103 = 6625.889 / 52.13$$



1 General

1.1 Product Information

Manufacturer	Morris Products Inc.
Manufacturer Address	53 Carey Rd. Queensbury, NY 12804
Brand Name	MORRIS
Luminaire Type	2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces
Model Number	71773, 71774, 71775
Rated Inputs	AC 100-277V 50/60Hz
Rated Power	50 W
Nominal CCT	3000K / 5000K
Date of Receipt Samples	2017-02-14

1.2 Standards or methods

- ANSI C78.377-2015: Specifications for the Chromaticity of Solid State Lighting Products
- ANSI C82.77-2002: Harmonic Emission Limits-Related Power Quality Requirements for Lighting Equipment
- CIE Publication No.13.3-1995: Method of Measuring and Specifying Color Rendering of Light Sources
- IESNA LM-79-08 Approved Method: Electric & Photometric Measurement of Solid-state Lighting Products



1.3 Equipment list

Device	Manufacture	Model No.	Serial No.	Calibration due date
Goniophotometric System	SENSING	GMS-3000	N.A	2017-09-21
AC Power Source	ALL POWER	APW-110N	992257	2017-08-27
Total Luminous Flux Standard Lamp	SENSING	110V/100W	S13100234	2017-09-15
Digital Power Meter	YOKOGAWA	WT310	C2QM02030V	2017-08-29
Integral Sphere	SENSING	SPR-600M	N.A	2017-08-27
Integral Sphere (2M)	SENSING	SD-20	N.A	2017-08-27
Digital Power Meter	YOKOGAWA	WT210	91L929742	2017-08-29
Optical Color and Electrical Measurement System	SENSING	SPR-3000	N.A	2017-08-27
Temperature/humidity/clock	VICTOR	VC230	57636	2017-09-13
Digital Anemometer	TECMAN	TD8901	026141	2017-09-13

Statement of Traceability: Shenzhen Belling Efficiency Testing Lab attests that all calibration has been performed using suitable standards traceable to national primary standards and International System of Unit (SI).



2 Test conducted and method

2.1 Ambient Condition

The ambient temperature in which measurements are being taken was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, the air flow around the sample(s) being tested did not affect the performance.

2.2 Power Supply Characteristics

The AC power supply had a sinusoidal voltage wave shape at the prescribed frequency (60 Hz) such that the RMS summation of the harmonic components does not exceed 3 percent of the fundamental during operation of the test item.

The voltage of AC power supply (RMS voltage) applied to the device under test was regulated to within ± 0.2 percent under load.

2.3 Seasoning and Stabilization

No seasoning was performed in accordance with IESNA LM-79-08. And before the measurement, the sample was stabilized until the light output and power variations were less than 0.5% in 30 minutes intervals (3 readings, 15 minutes apart).

2.4 Integrating Sphere System

The system includes AC power source, digital power meter, DC power supply, spectrophotometer, and integrating sphere. The integrating sphere system is calibrated by standard light source before measurement. The system and standard light source has been calibrated regularly and traceable to the National Primary Standards. 4π geometry was used during measurement. The product was operated in its intended orientation in application and was recorded in this report.

2.5 Goniophotometer System

The goniophotometer system is calibrated by standard light source before measurement. The standard light source has been calibrated regularly and traceable to the National Primary Standards.

Type C goniophotometer was used for measuring total luminous flux, luminous intensity distribution, and color spatial uniformity. The product was operated in its intended orientation in application and was recorded in this report. The method according to IESNA LM-79-08 following chapter.



3 Test Result Summary

3.1 Integrating Sphere System

3.1.1 Electrical data

Model Number	Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
71773	120.0	60	0.440	52.08	0.986
71774	120.02	60	0.441	52.18	0.986

3.1.2 Additional Test

Test Item	Model	Test Voltage (V)	Frequency (Hz)	Test Result
Power factor	71773	120	60	0.986
		277	60	0.921
	71774	120	60	0.986
		277	60	0.928
Total harmonic distortion	71773	120	60	12.4%
		277	60	17.8%
	71774	120	60	13.1%
		277	60	18.4%
Off state power (W)	71773	120	60	0
	71774	277	60	0

3.1.3 Photometric data

Model Number	Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
71773	6447.296	123.796	2915	81.8	4
71774	6804.481	130.404	4826	81.5	0

3.1.4 Chromaticity Coordinate

Model Number	Duv	x	y	u'	v'
71773	0.0005	0.4438	0.4075	0.2535	0.5237
71774	0.0060	0.3518	0.3692	0.2092	0.4940



3.2 Goniophotometer System

3.2.1 Electrical data

Model Number	Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
71773	120.13	60	0.437	51.6750	0.9845

3.2.2 Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	S/MH (C0/180)	S/MH (C90/270)	Zonal Lumen in 0-60°(%lm)
6384.14	123.54	1.26	1.18	77.586



4 Test Data

71773

Test Condition

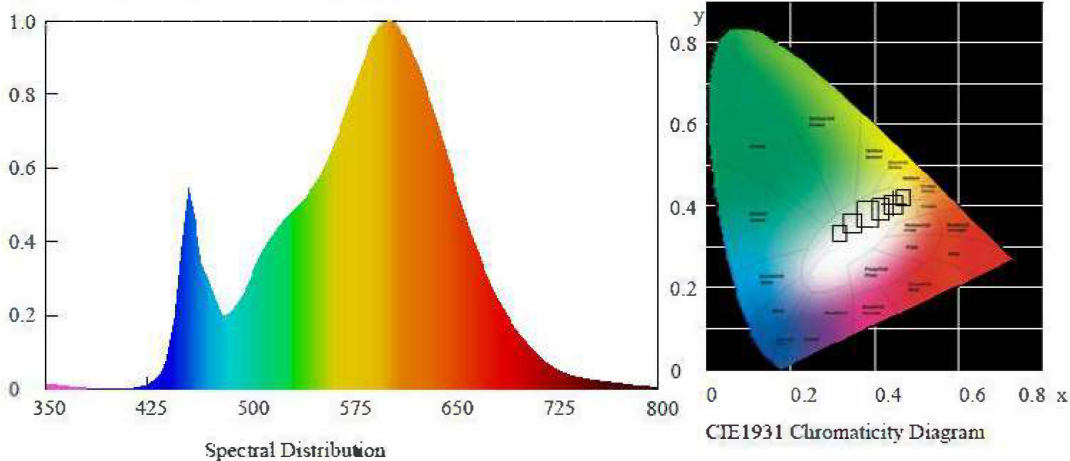
Temperature: 25°C

RH: 58%

Spectrum Range: 350-800 nm

Scan Step: 5 nm

Spectroradiometric Parameters

Chromaticity Coordinates: $x=0.4438$ $y=0.4075$ $u'=0.2535$ $v'=0.5237$

Correlated Color Temperature: 2915 K

Dominant Wavelength: 582.0 nm(E)

Luminous Flux: 6447.296 lm

Purity: 0.5555

Chromaticity Difference: 0.0005 Duv

Peak Wavelength: 362.3 nm

Color Ratio: $K_r=46.0\%$ $K_g=46.7\%$ $K_b=7.2\%$

Bandwidth: 0nm

Radiant Flux: 18.936 W

Rendering Index: $R_a=81.8$ $R_1=81$ $R_2=92$ $R_3=94$ $R_4=79$ $R_5=81$ $R_6=91$ $R_7=81$ $R_8=56$ $R_9=4$ $R_{10}=83$ $R_{11}=78$ $R_{12}=70$ $R_{13}=85$ $R_{14}=97$ $R_{15}=72$

Electric Parameters

Voltage: 120.0 V

Current: 0.44 A

Power Factor: 0.986

Power: 52.08 W

Luminous Efficacy: 123.796 lm/W

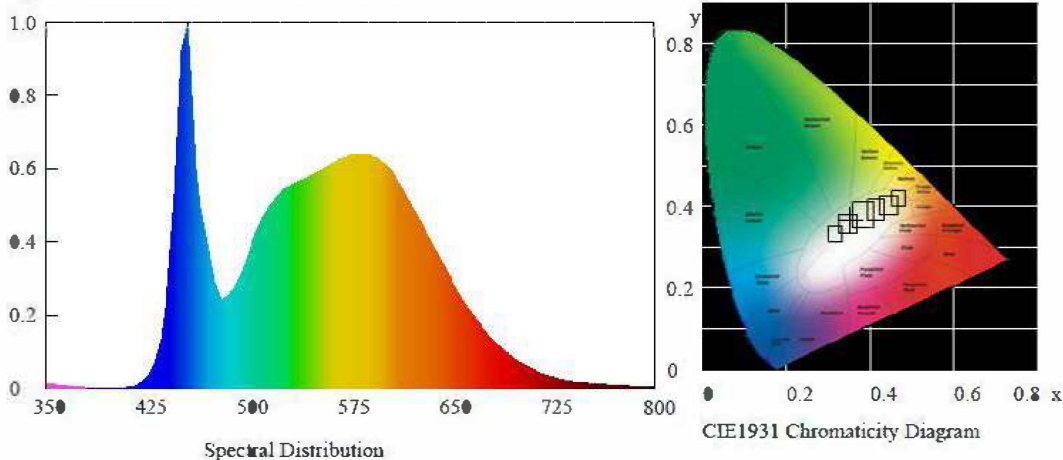


71773

Test Condition

Temperature: 25°C
Spectrum Range: 350-800 nm

RH: 58%
Scan Step: 5 nm

Spectroradiometric Parameters

Chromaticity Coordinates: $x=0.3518$ $y=0.3692$ $u'=0.2092$ $v'=0.4940$

Correlated Color Temperature: 4826 K

Dominant Wavelength: 569.0 nm(E)

Luminous Flux: 6804.481 lm

Purity: 0.1631

Chromaticity Difference: 0.0060Duv

Peak Wavelength: 448.3 nm

Color Ratio: $K_r=33.9\%$ $K_g=55.1\%$ $K_b=11.0\%$

Bandwidth: -445.3nm

Radiant Flux: 19.683 W

Rendering Index: $R_a=81.5$

$R_1=79$ $R_2=88$ $R_3=94$ $R_4=79$ $R_5=78$ $R_6=82$ $R_7=87$ $R_8=64$

$R_9=0$ $R_{10}=71$ $R_{11}=77$ $R_{12}=51$ $R_{13}=82$ $R_{14}=97$ $R_{15}=72$

Electric Parameters

Voltage: 120.02 V

Current: 0.441 A

Power Factor: 0.986

Power: 52.18 W

Luminous Efficacy: 130.404 lm/W

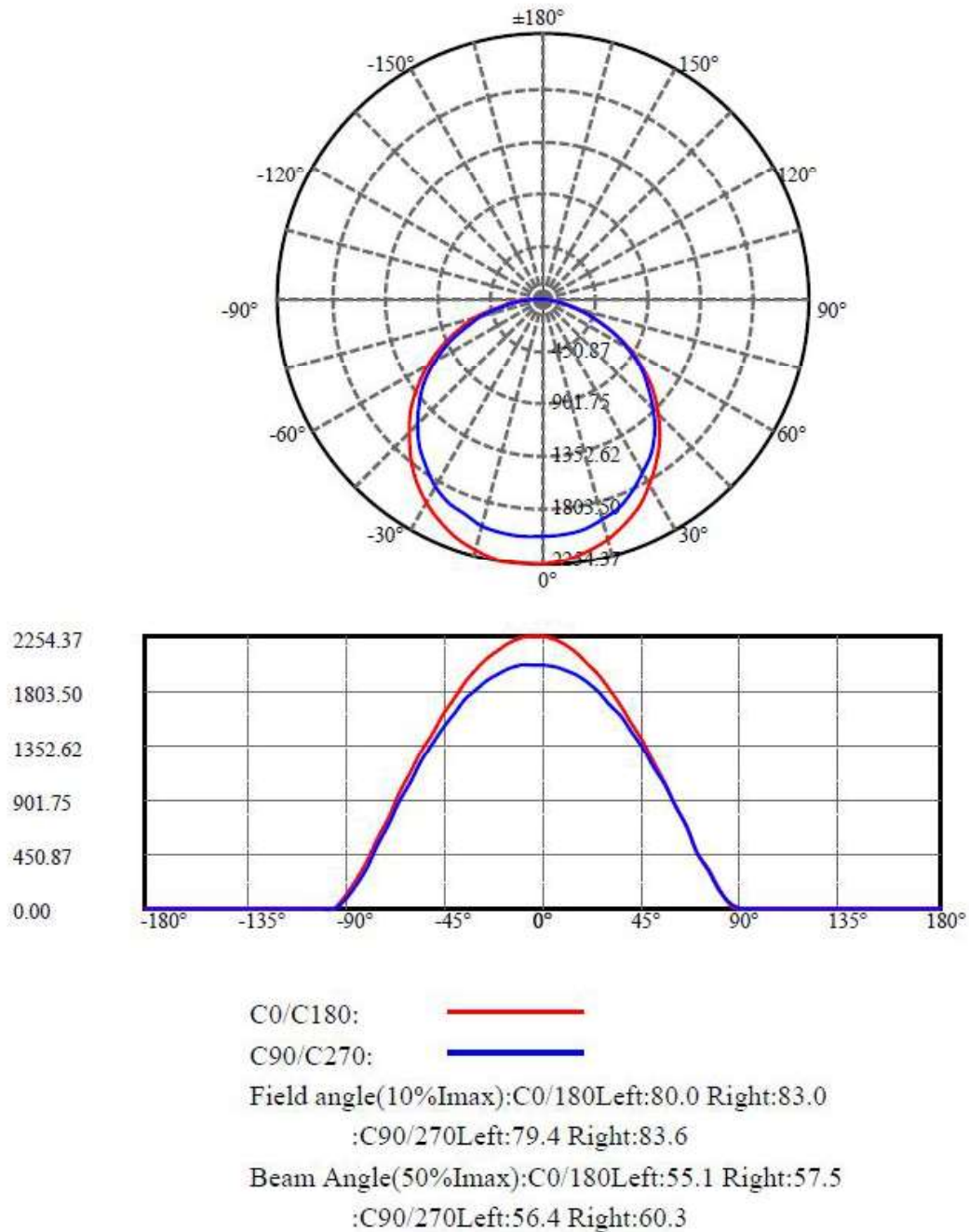
**Zonal Flux Diagram**

Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2150.560	0.000	0	.000%	.000%
5.0	2143.707	51.348	51.348	.804%	.804%
10.0	2120.314	152.640	203.988	2.391%	3.195%
15.0	2078.751	249.367	453.355	3.906%	7.101%
20.0	2017.745	338.134	791.489	5.296%	12.398%
25.0	1939.985	415.930	1207.419	6.515%	18.913%
30.0	1845.757	480.318	1687.737	7.524%	26.436%
35.0	1734.704	528.914	2216.652	8.285%	34.721%
40.0	1609.672	560.088	2776.74	8.773%	43.494%
45.0	1469.103	572.603	3349.343	8.969%	52.463%
50.0	1316.458	565.851	3915.194	8.863%	61.327%
55.0	1154.156	540.624	4455.818	8.468%	69.795%
60.0	981.152	497.405	4953.223	7.791%	77.586%
65.0	798.562	436.824	5390.047	6.842%	84.429%
70.0	605.414	360.098	5750.145	5.641%	90.069%
75.0	433.526	276.136	6026.281	4.325%	94.395%
80.0	264.242	190.790	6217.071	2.988%	97.383%
85.0	118.879	107.730	6324.801	1.687%	99.071%
90.0	31.161	43.448	6368.25	.681%	99.751%
95.0	0.687	9.422	6377.671	.148%	99.899%
100.0	0.673	0.373	6378.045	.006%	99.905%
105.0	0.773	0.385	6378.43	.006%	99.911%
110.0	0.873	0.428	6378.858	.007%	99.917%
115.0	0.988	0.469	6379.327	.007%	99.925%
120.0	1.102	0.505	6379.832	.008%	99.933%
125.0	1.202	0.529	6380.361	.008%	99.941%
130.0	1.288	0.540	6380.901	.008%	99.949%
135.0	1.388	0.539	6381.44	.008%	99.958%
140.0	1.417	0.517	6381.957	.008%	99.966%
145.0	1.474	0.481	6382.438	.008%	99.973%
150.0	1.517	0.440	6382.878	.007%	99.980%
155.0	1.502	0.382	6383.26	.006%	99.986%
160.0	1.502	0.315	6383.576	.005%	99.991%
165.0	1.474	0.245	6383.821	.004%	99.995%
170.0	1.460	0.174	6383.995	.003%	99.998%
175.0	1.531	0.107	6384.103	.002%	99.999%
180.0	1.602	0.038	6384.14	.001%	100.000%

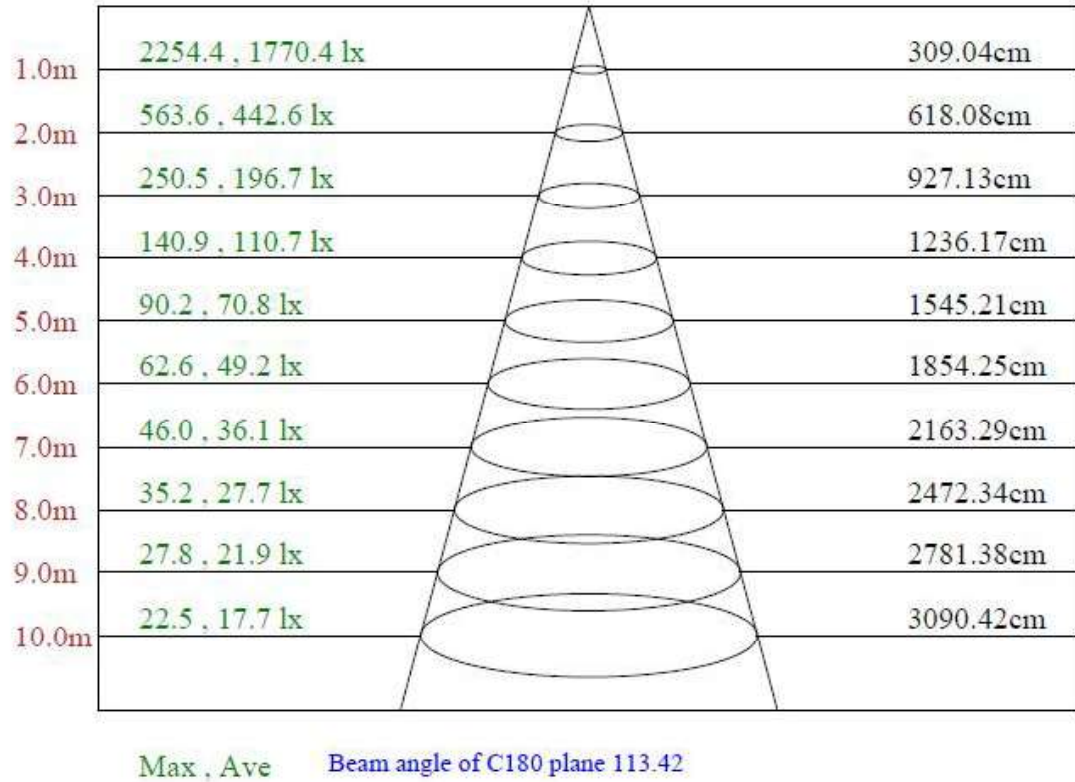
**Luminous Intensity Distribution Diagram**

Light Distribution Curve [Unit:cd]





Lux distance Curve



**Luminous Intensity Distribution Data**

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	2249.57	2224.39	2178.14	2113.13	2032.78	1931.37	1813.71	1681.85	1542.21
22.5	2241.55	2213.86	2174.71	2111.99	2031.64	1932.97	1821.95	1691.93	1548.62
45.0	2160.29	2144.49	2111.30	2060.48	1988.83	1898.18	1792.19	1667.66	1535.12
67.5	2073.07	2058.65	2037.59	1993.64	1928.40	1848.50	1748.47	1636.07	1507.42
90.0	2012.41	2005.08	1978.99	1934.12	1873.91	1794.94	1698.33	1591.66	1466.90
112.5	2082.92	2070.55	2036.90	1986.54	1919.24	1835.69	1738.85	1622.33	1495.74
135.0	2163.72	2149.07	2112.45	2057.96	1989.75	1899.10	1794.02	1674.07	1541.98
157.5	2220.95	2202.18	2165.55	2110.16	2033.93	1940.99	1832.48	1711.38	1571.06
180.0	2249.57	2254.37	2239.95	2202.87	2147.01	2072.61	1983.34	1874.37	1753.28
202.5	2241.55	2246.36	2231.02	2197.83	2144.49	2070.55	1982.88	1876.20	1752.82
225.0	2160.29	2174.48	2159.14	2126.41	2079.48	2015.84	1924.50	1824.70	1710.93
247.5	2073.07	2080.86	2074.67	2044.69	1998.67	1939.16	1861.32	1764.95	1656.67
270.0	2012.41	2017.45	2015.38	1991.35	1947.40	1894.97	1824.24	1731.30	1625.77
292.5	2082.92	2079.71	2071.24	2055.67	2007.60	1950.60	1877.58	1779.83	1667.20
315.0	2163.72	2159.83	2142.43	2115.65	2062.31	1994.10	1909.40	1809.13	1687.80
337.5	2220.95	2217.98	2195.54	2157.54	2098.48	2020.19	1928.85	1817.83	1691.24
360.0	2249.57	2224.39	2178.14	2113.13	2032.78	1931.37	1813.71	1681.85	1542.21

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	1385.18	1216.24	1037.91	859.58	669.35	456.46	318.88	161.16	30.45
22.5	1392.04	1227.91	1048.44	864.62	677.14	456.69	318.88	160.24	30.90
45.0	1379.68	1217.61	1045.01	871.94	684.23	455.55	316.82	162.30	32.74
67.5	1360.91	1198.84	1039.74	864.85	677.82	455.55	317.05	157.04	31.36
90.0	1326.12	1170.91	1019.37	848.60	665.92	455.55	314.07	158.64	35.48
112.5	1353.82	1203.19	1044.55	869.20	683.78	534.75	326.44	168.71	44.87
135.0	1390.90	1234.55	1068.81	895.52	709.19	528.11	343.15	186.11	53.11
157.5	1419.51	1262.02	1088.04	907.20	720.86	541.16	360.32	196.41	59.75
180.0	1613.64	1460.95	1297.96	1130.39	947.72	759.78	575.50	393.28	225.48
202.5	1613.86	1466.67	1303.68	1129.71	946.80	762.75	571.61	388.24	220.22
225.0	1579.53	1432.33	1274.38	1107.96	928.72	741.00	556.73	375.65	208.31
247.5	1531.91	1395.71	1243.25	1073.39	901.93	718.80	537.27	353.68	194.35
270.0	1504.44	1366.86	1219.67	1055.99	884.99	698.20	516.44	340.86	181.30
292.5	1544.27	1402.80	1244.39	1074.99	897.13	711.02	521.24	339.94	184.05
315.0	1554.58	1407.84	1250.80	1078.20	893.46	710.79	521.70	342.69	186.34
337.5	1555.26	1398.91	1240.50	1066.30	887.97	700.49	520.33	342.92	183.36
360.0	1385.18	1216.24	1037.91	859.58	669.35	456.46	318.88	161.16	30.45

C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	0.69	0.69	0.69	0.92	0.92	1.15	1.37	1.37	1.37
22.5	0.92	0.69	0.92	0.92	0.92	1.15	1.15	1.37	1.37
45.0	0.69	0.69	0.69	0.92	0.92	1.15	1.15	1.15	1.37
67.5	0.69	0.69	0.69	0.69	0.92	0.92	1.15	1.15	1.15
90.0	0.69	0.46	0.69	0.69	0.92	0.92	1.15	1.15	1.15
112.5	0.69	0.69	0.69	0.69	0.92	0.92	1.15	1.15	1.37
135.0	0.69	0.69	0.69	0.92	0.92	1.15	1.15	1.37	1.37
157.5	0.69	0.69	0.69	0.92	1.15	1.15	1.37	1.37	1.37
180.0	82.18	1.15	0.69	0.69	0.92	0.92	1.15	1.15	1.37
202.5	80.81	0.69	0.69	0.69	0.92	0.92	1.15	1.15	1.37
225.0	67.76	0.69	0.69	0.69	0.69	0.92	0.92	1.15	1.37
247.5	59.52	0.46	0.46	0.69	0.69	0.92	0.92	1.15	1.15
270.0	54.25	0.46	0.46	0.69	0.69	0.92	0.92	1.15	1.15
292.5	49.90	0.69	0.69	0.69	0.69	0.92	0.92	1.15	1.15
315.0	50.36	0.69	0.69	0.69	0.92	0.92	0.92	1.15	1.15
337.5	48.07	0.92	0.69	0.92	0.92	0.92	1.15	1.15	1.37
360.0	0.69	0.69	0.69	0.92	0.92	1.15	1.37	1.37	1.37



C/ γ (°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.37	1.37
22.5	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.37	1.60
45.0	1.37	1.37	1.37	1.60	1.37	1.37	1.37	1.37	1.60
67.5	1.37	1.37	1.37	1.37	1.37	1.37	1.15	1.37	1.60
90.0	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.60
112.5	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.60
135.0	1.37	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
157.5	1.60	1.60	1.60	1.83	1.60	1.60	1.60	1.60	1.60
180.0	1.37	1.37	1.60	1.60	1.60	1.60	1.60	1.60	1.60
202.5	1.37	1.37	1.60	1.60	1.60	1.60	1.60	1.60	1.60
225.0	1.37	1.37	1.37	1.60	1.60	1.60	1.60	1.60	1.60
247.5	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
270.0	1.15	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
292.5	1.15	1.15	1.37	1.37	1.37	1.37	1.37	1.37	1.37
315.0	1.37	1.37	1.37	1.37	1.60	1.60	1.37	1.37	1.37
337.5	1.37	1.37	1.60	1.60	1.60	1.60	1.60	1.60	1.60
360.0	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.37	1.37
C/ γ (°)	180.0								
0.0	1.60								
22.5	1.60								
45.0	1.60								
67.5	1.60								
90.0	1.60								
112.5	1.60								
135.0	1.60								
157.5	1.60								
180.0	1.60								
202.5	1.60								
225.0	1.60								
247.5	1.60								
270.0	1.60								
292.5	1.60								
315.0	1.60								
337.5	1.60								
360.0	1.60								



Photo Document



****End of test report****