TEST REPORT

Of IES LM-79-08

Kunde: *Client:*	MIC Optoelectronic Co.,Ltd
Adresse: *Address:*	3rd floor, D building ,12# Jinyuan first road, Heao, Henggang, Longgang district, Shenzhen, China
Hersteller: *Manufacturer:*	MIC Optoelectronic Co.,Ltd
Adresse: *Address:*	3rd floor, D building ,12# Jinyuan first road, Heao, Henggang, Longgang district, Shenzhen, China
Name der Marke: *Brand Name:*	MIC
Beschreibungdes Produkts: *Product Description:*	LED STREET LIGHT
Modelle: *Models:*	Testing Model: MSL-F240 (Related model: MSL-F30,MSL-F50,MSL-F60,MSL-F80,MSL-F100,MSL-F120,MSL-150,MSL-F180,MSL-F200,MSL-F300)
Bewertung: *Rating:*	AC90-305V, 50/60Hz, 240-250W
Verfahren: *Method:*	IES LM-79-08: Approved Method for Electrical and Photometric Measurements of Solid-State Lighting Products
Prüfergebnis*: *Test result*:*	

Datum der Prüfung: *Date of Test:*	**Datum der Emission:** *Date of Issue:*	**Klassifizierung:** *Classification:*	**Gegenstand der Prüfung:** *Test item:*
2021-11-23	2021-11-24	Commission Test	IES LM-79-08

Prüflabor (Testlabor) / Testing Laboratory:
Shenzhen Southern LCS Compliance Testing Laboratory Ltd.

Test von/Test by:	**Check von**/Check by:	**Genehmigt von**/Approved by:
Zero Huang	Ian Luo	Jesse
Zero Huang/ Project Engineer	Ian Luo/ Director	Jesse Liu/ Manager

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.

Remark: The duplication of this report or parts of it and its use for advertising purposes is only allowed with permission of the testing laboratory.This report contains the result of examination of the product sample submitted by the appliance. A general statement concerning the quality of the products from the series manufacturer cannot be derived therefore.

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1. Test Method

Test Item.....:	Integrating Sphere Test
Ambient Condition .....:	Lumin test at 25.1℃, Operational temperature(Ta): T_{min} =-40℃ T_{max} =+55℃
Stabilization time .....(h):	0.5h
Orientation(burning position) of SSL product during test .....:	down
Test Method .....:	The sample was tested according to the IES LM-79-2008. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.
Test Item.....:	Goniophotometer Test
Ambient Condition.....:	Lumin test at 25.1℃, Operational temperature(Ta): T_{min} =-40℃ T_{max} =+55℃
Total operated time of the product for measurements including stabilization..... (h):	1.0h
Orientation(burning position) of SSL product during test .....:	down
Test Method.....:	The sample was tested according to the IES LM-79-2008. Photometric paramters were measured using a type C goniophotometer and software. The sample reference plane was located at the center of the sample goniometer at a test distance of 26m from the detectors. The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, Luminous efficacy, zonal flux were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.

2. Product Information

Product description.....:	LED STREET LIGHT
Model Number.....:	MSL-F240
Rated Inputs.....:	AC90-305V, 50/60Hz
Rated Power.....:	240-250W
Declared CCT.....:	6500K
LED Manufacturer.....:	PHILIPS LUMILEDS 3030
LED Model.....:	LUXEON 3030
Forward current of the LED chip.....:	120mA
Date of Receipt Samples.....:	November 20, 2022
Quantity of Receipt Samples.....:	1 unit

3. Test equipment list

Manufacturer	Description	Equipment ID	Model	Calibration Date	Calibration Due Date
EVERFINE	Full-field Speed Goniophotometer	SLCS-S-112	GO-R5000	2020/07/02	2021/07/01
EVERFINE	Digital Power Meter	SLCS-S-103	PF2010	2020/06/24	2021/06/23
EVERFINE	AC Testing Power Source	SLCS-S-115	DPS1060	2020/06/24	2021/06/23
EVERFINE	Total Spectral Radiant Flux Standard Lamp	SLCS-S-143	D908S	2020/07/02	2021/07/01
SENSING	2 Meter Integrating Sphere	SLCS-S-038	SPR-3000	2020/07/02	2021/07/01
YOKOGAWA	Digital Power Meter	SLCS-S-058	WT310	2020/06/24	2021/06/23
ALL POWER ELECTRONIC	AC Testing Power Source	SLCS-S-111	APW-105N	2020/06/24	2021/06/23
SENSING	Standard Lamp	SLCS-S-118	S11010017	2020/07/02	2021/07/01

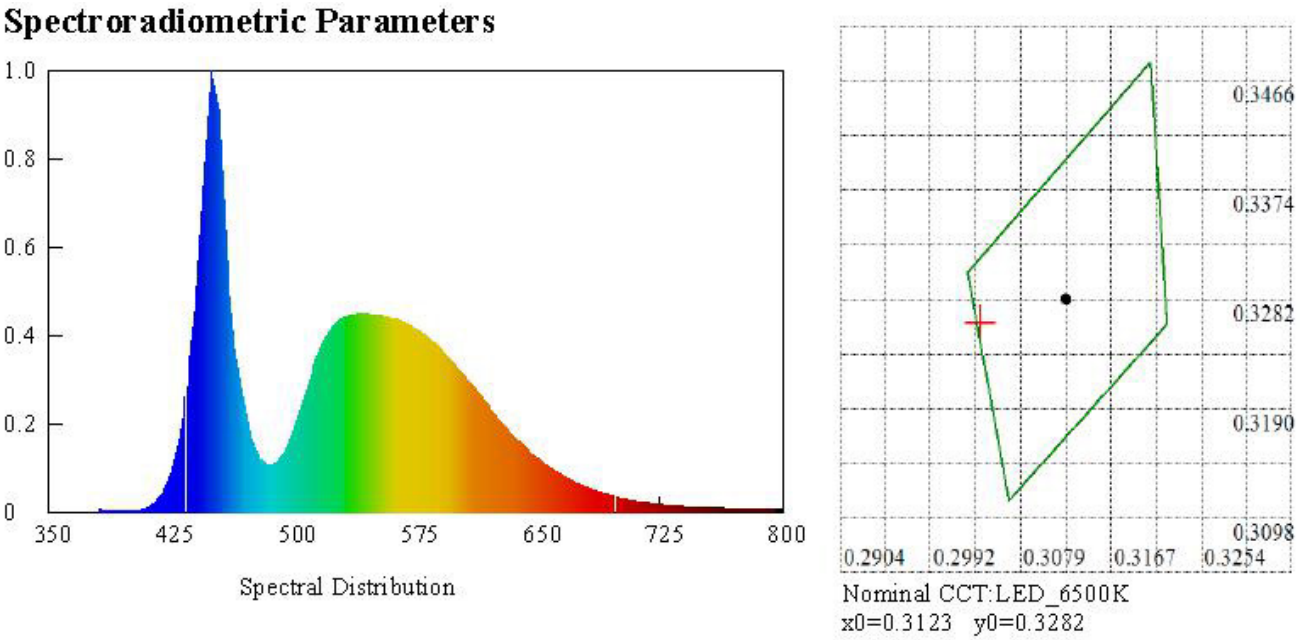
4. Integrating Sphere Test Results

4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	230.02	50/60	1.097	0.9904	249.44

Test type	CCT (K)	CRI	Duv	Luminous flux (lm)	Luminous efficacy(lm/W)
Output	6500	80.6	+0.00624	37590.6	150.7

4.2 Spectrum



Chromaticity Coordinates: x=0.3040 y=0.3262 u'=0.1928 v'=0.4655

Correlated Color Temperature: 6500 K

Dominant Wavelength: 488.0 nm(E)

Colour Fidelity Index: Rf=80

Gamut Index: Rg=91

Luminous Flux: 37590.6 lm

Purity: 0.1041

Chromaticity Difference: +0.00624Duv

Peak Wavelength: 450.0 nm

Color Ratio: Kr=27.8% Kg=61.4% Kb=10.8%

Bandwidth: 22.5nm

Radiant Flux: 90.657 W

Photosynthetically Active Radiation(PAR): 89.2 W

Photosynthetic Photon Flux(PPF):1151.87μmol/s

Rendering Index: Ra= 80.6

R1=80 R2=86 R3=80 R4=73 R5=81 R6=78 R7=83 R8=71

R9=-33 R10=43 R11=70 R12=38 R13=72 R14=88 R15=65 Re=62

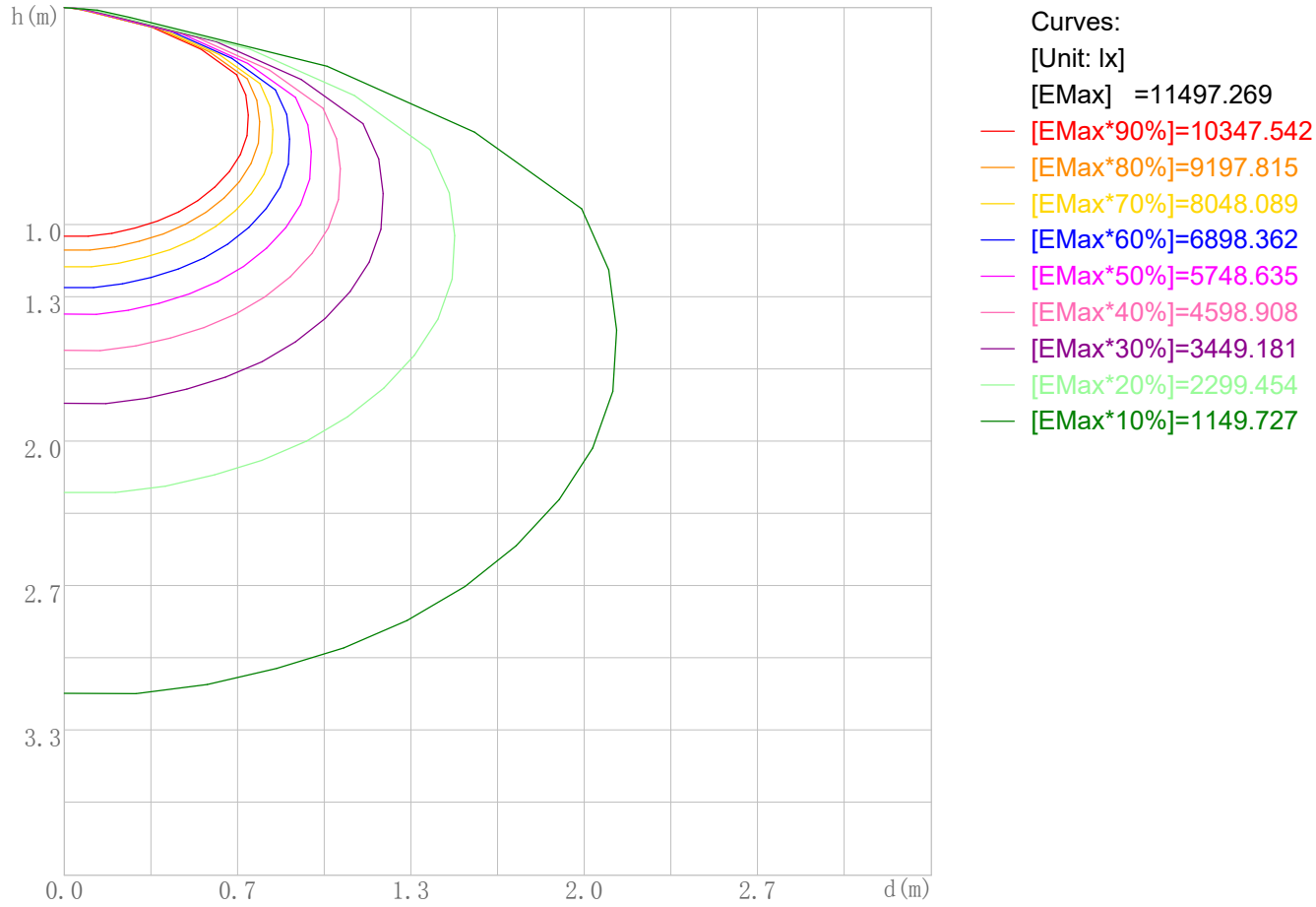
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	230.13	50/60	1.097	0.9904	249.44

Test type	Total Flux (lm)	Luminous efficacy(lm/W)	Imax (cd)	Spacing Criteria (0~180°)	Spacing Criteria (90~270°)
Output	37590.6	150.7	14782	0.43	0.41

5.2 Luminous Intensity Distribution Diagram and C0 Plane Isolux Diagram (Unit : lx)

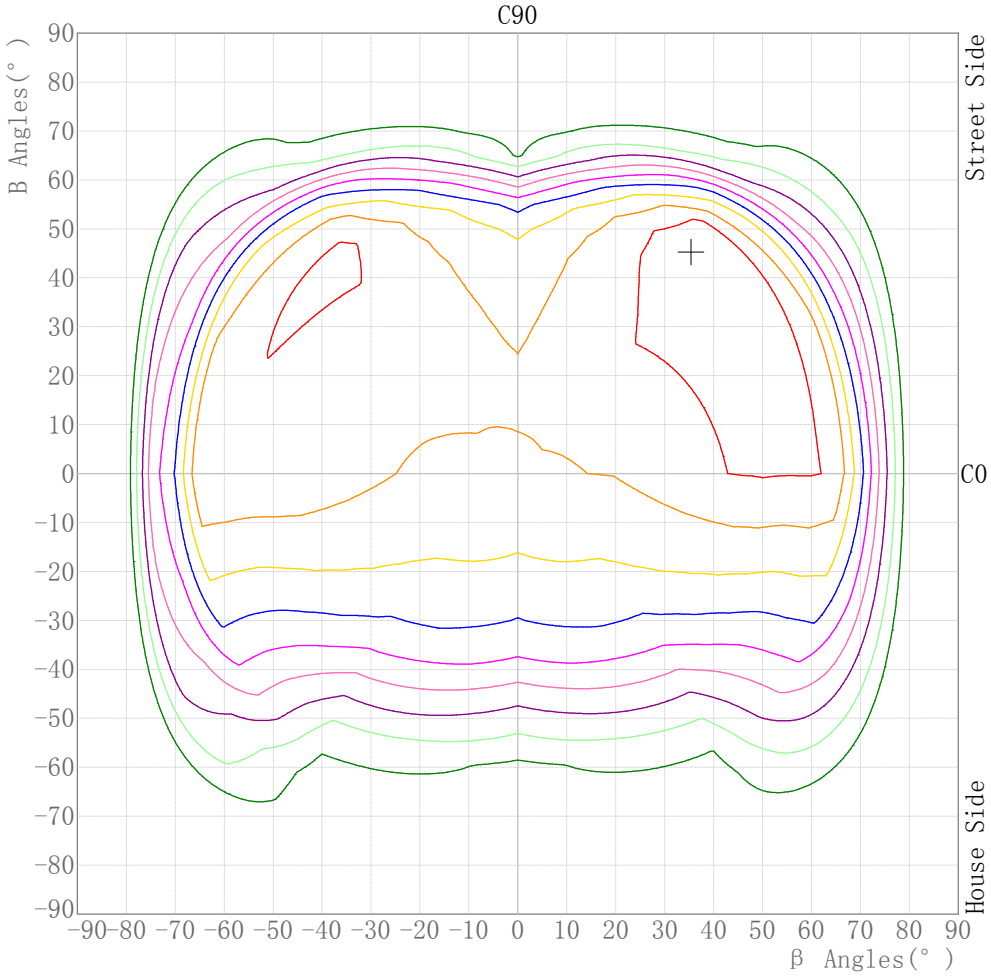


Space Plane Maximum Illuminance and @Angle:11497.27lx,5.0deg
Plane Maximum Lighting Intensity and @Angle:13553.190cd,0eg

5.3 Zonal Flux Diagram

Zone(γ)	Zone Flux (lm)	Sums Flux (lm)	Zone%Lamp	Sums%Lamp
0.0-5.0	274.66	274.66	0.67	0.67
5.0-10.0	821.59	1096.25	1.99	2.66
10.0-15.0	1360.17	2456.41	3.30	5.95
15.0-20.0	1884.94	4341.35	4.57	10.52
20.0-25.0	2390.70	6732.05	5.79	16.31
25.0-30.0	2870.52	9602.57	6.96	23.27
30.0-35.0	3310.36	12912.93	8.02	31.29
35.0-40.0	3681.63	16594.57	8.92	40.22
40.0-45.0	3962.82	20557.39	9.60	49.82
45.0-50.0	4143.47	24700.86	10.04	59.86
50.0-55.0	4199.49	28900.35	10.18	70.04
55.0-60.0	4018.87	32919.22	9.74	79.78
60.0-65.0	3487.55	36406.77	8.45	88.23
65.0-70.0	2486.91	38893.68	6.03	94.26
70.0-75.0	1437.41	40331.09	3.48	97.74
75.0-80.0	644.66	40975.75	1.56	99.30
80.0-85.0	180.89	41156.64	0.44	99.74
85.0-90.0	82.40	41239.03	0.20	99.94
90.0-95.0	24.95	41263.98	0.06	100.00
95.0-100.0	0.00	41263.98	0.00	100.00
100.0-105.0	0.00	41263.98	0.00	100.00
105.0-110.0	0.00	41263.98	0.00	100.00
110.0-115.0	0.00	41263.98	0.00	100.00
115.0-120.0	0.00	41263.98	0.00	100.00
120.0-125.0	0.00	41263.98	0.00	100.00
125.0-130.0	0.00	41263.98	0.00	100.00
130.0-135.0	0.00	41263.98	0.00	100.00
135.0-140.0	0.00	41263.98	0.00	100.00
140.0-145.0	0.00	41263.98	0.00	100.00
145.0-150.0	0.00	41263.98	0.00	100.00
150.0-155.0	0.00	41263.98	0.00	100.00
155.0-160.0	0.00	41263.98	0.00	100.00
160.0-165.0	0.00	41263.98	0.00	100.00
165.0-170.0	0.00	41263.98	0.00	100.00
170.0-175.0	0.00	41263.98	0.00	100.00
175.0-180.0	0.00	41263.98	0.00	100.00

5.4 Isocandela Diagram



Curves:
[Unit: cd]
[IMax] =14782.472
[IMax*90%]=13304.225
[IMax*80%]=11825.977
[IMax*70%]=10347.730
[IMax*60%]=8869.483
[IMax*50%]=7391.236
[IMax*40%]=5912.989
[IMax*30%]=4434.742
[IMax*20%]=2956.494
[IMax*10%]=1478.247

Luminaire Classification:
IES: Type II
Longitudinal: Short
Cutoff: Cutoff

Maximum Light Intensity(cd): 14782.47
Maximum Cand.@Angle: H=35.4°,V=45.3°

5.5 Luminous Distribution Intensity Data

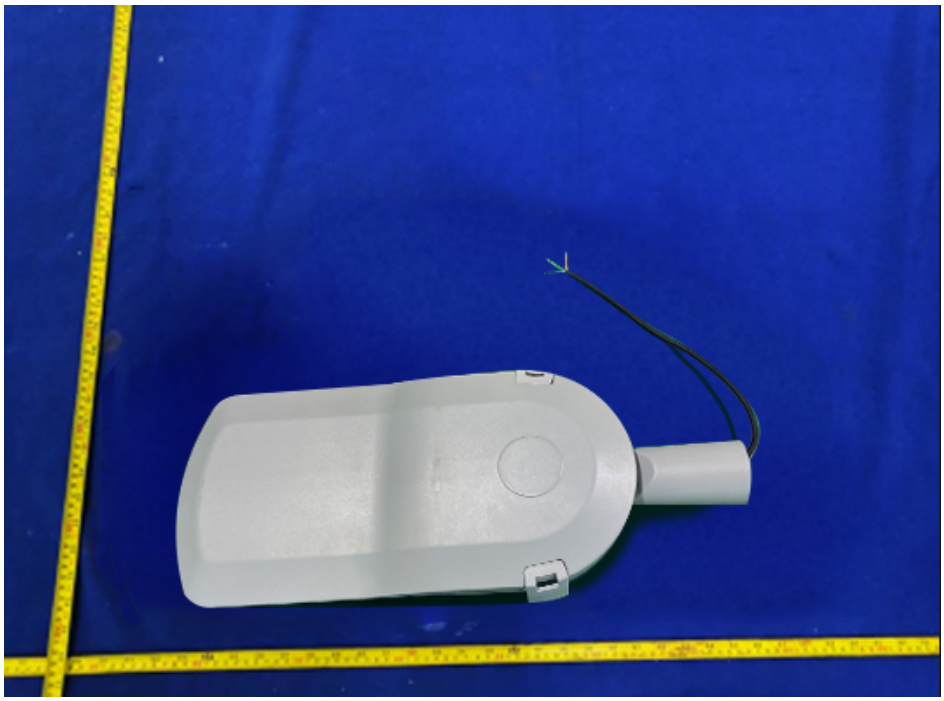
Table--1 UNIT: ×100cd

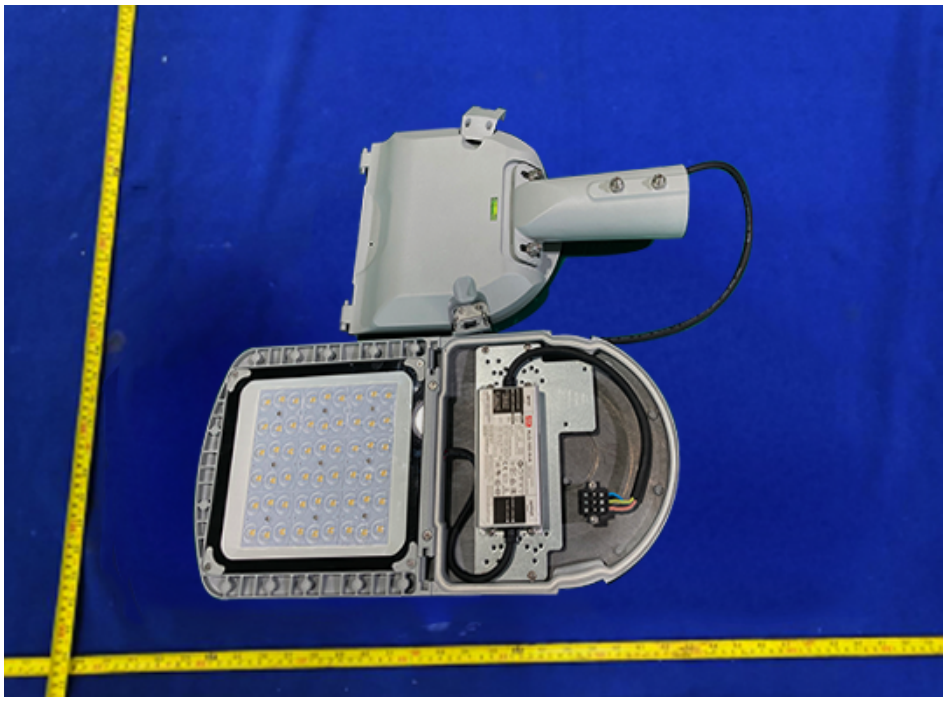
C (DEG) / γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	4671	4671	4671	4671	4671	4671	4671	4671	4671	4671	4671	4671	4671	4671	4671	4671			
5	4414	4442	4473	4493	4472	4443	4398	4361	4346	4353	4369	4387	4402	4412	4420	4425			
10	3327	3411	3497	3553	3550	3510	3416	3305	3242	3192	3167	3141	3142	3201	3269	3304			
15	1840	1900	1975	2013	2034	2066	2015	1892	1806	1713	1623	1558	1550	1645	1749	1815			
20	769	831	886	886	895	949	975	882	797	756	700	611	604	672	748	789			
25	289	328	370	354	344	390	428	371	318	309	276	223	206	241	297	306			
30	118	131	148	138	133	156	189	152	130	125	111	92.6	91.3	103	128	127			
35	62.2	64.1	68.9	65.5	65.9	74.2	86.9	73.0	64.4	62.4	59.2	55.1	55.7	59.4	67.8	66.3			
40	45.4	47.2	49.8	47.0	47.2	51.6	58.2	51.3	47.1	47.9	47.1	43.3	43.2	45.9	51.1	48.4			
45	39.5	42.7	45.7	42.2	41.3	44.7	50.7	45.9	41.2	44.1	44.3	39.5	38.5	40.9	45.4	43.2			
50	36.8	40.0	42.8	39.6	38.3	41.3	45.3	41.9	38.5	41.2	41.5	37.2	36.0	38.2	41.7	39.8			
55	34.1	36.5	38.3	36.1	34.7	36.3	39.4	36.9	35.1	36.9	37.1	34.6	33.3	34.4	37.1	35.6			
60	29.5	31.4	32.7	30.9	30.0	30.7	33.1	31.1	29.9	31.3	31.9	29.9	28.9	29.8	31.9	30.4			
65	24.2	25.6	26.5	25.3	24.6	25.4	26.4	24.9	24.2	25.1	26.2	24.4	23.8	24.5	26.3	24.8			
70	18.7	19.6	20.9	19.7	19.0	19.7	20.5	18.8	18.5	19.1	20.0	19.2	18.7	19.4	20.3	19.1			
75	13.1	13.7	14.9	14.3	13.8	14.2	14.4	12.9	12.9	13.4	14.3	13.8	13.4	14.0	14.6	13.6			
80	7.88	8.39	9.09	9.06	8.70	8.95	8.53	7.67	7.52	7.75	8.38	8.36	8.12	8.61	8.75	8.11			
85	2.95	3.14	3.74	3.68	3.37	3.36	3.17	2.57	2.66	2.62	2.76	2.66	2.52	2.78	3.08	3.01			
90	0.07	0.08	0.10	0.11	0.09	0.08	0.07	0.06	0.06	0.06	0.06	0.07	0.08	0.08	0.08	0.09			
95	0.05	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.07	0.06	0.07	0.07			
100	0.05	0.06	0.06	0.06	0.07	0.07	0.09	0.05	0.06	0.06	0.10	0.07	0.10	0.07	0.07	0.06			
105	0.07	0.06	0.08	0.06	0.14	0.07	0.14	0.21	0.20	0.21	0.13	0.07	0.17	0.07	0.12	0.08			
110	0.17	0.13	0.11	0.06	0.25	0.07	0.13	0.23	0.30	0.20	0.13	0.08	0.13	0.08	0.14	0.17			
115	0.21	0.17	0.11	0.07	0.08	0.07	0.13	0.20	0.25	0.19	0.12	0.10	0.10	0.10	0.13	0.20			
120	0.22	0.21	0.09	0.11	0.55	0.11	0.10	0.23	0.25	0.20	0.10	0.11	0.22	0.11	0.12	0.22			
125	0.18	0.22	0.11	0.14	0.47	0.13	0.11	0.22	0.20	0.18	0.12	0.13	0.24	0.13	0.14	0.18			
130	0.19	0.24	0.16	0.20	0.55	0.19	0.16	0.23	0.20	0.22	0.15	0.18	0.29	0.18	0.21	0.23			
135	0.31	0.33	0.29	0.21	0.43	0.18	0.27	0.32	0.34	0.37	0.27	0.19	0.39	0.25	0.43	0.42			
140	0.62	0.57	0.50	0.35	0.46	0.38	0.49	0.57	0.77	0.76	0.52	0.36	0.39	0.62	0.90	0.92			
145	1.21	1.05	1.03	0.68	0.70	0.79	1.09	0.96	1.70	1.48	1.11	0.81	0.80	1.26	1.73	1.90			
150	2.10	1.89	2.05	1.69	1.47	1.78	2.09	1.67	3.17	2.52	2.30	1.76	1.45	2.10	2.79	3.39			
155	3.05	2.64	3.01	2.53	2.40	2.55	2.95	2.42	4.76	3.90	4.18	3.14	2.59	3.31	4.17	5.09			
160	3.75	3.26	3.79	3.07	3.07	3.28	3.47	3.11	5.85	5.38	5.47	4.45	3.61	4.08	5.46	6.09			
165	4.27	3.77	4.43	3.94	3.75	3.77	3.87	3.66	6.10	5.96	5.71	5.17	4.47	4.66	5.49	5.96			
170	4.94	4.58	5.00	4.81	4.78	4.68	4.68	4.50	5.75	5.77	5.43	5.18	4.81	5.02	5.52	5.56			
175	5.60	5.30	5.61	5.53	5.53	5.45	5.42	5.20	5.71	5.69	5.46	5.50	5.29	5.29	5.60	5.35			
180	5.95	5.74	5.93	5.61	5.63	5.61	5.47	5.40	5.92	5.91	5.71	5.93	5.62	5.61	5.62	5.47			

6. Photo of sample

Photo document

Photos of MFL-G720





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