

short circuit

**EXTRA HIGH  
VOLTAGE  
RESEARCH  
CENTER**



**Short Circuit Company**  
For Services And Lighting Solutions



الموضوع: اختبار كشف إضاءة شوارع ليد قدرة (١٠٠) وات -  
طراز: ( STAR PORT ) - انتاج شركة إم اتش جروب  
للالكترونيات - صناعة محلية .

## الساده / شركة إم اتش جروب للالكترونيات

تحية طيبة وبعد ....

بالإشارة إلى كتاب سيادتكم واستلام العينة بتاريخ ٢٠٢٢/٩/٢٠ م، بخصوص الموضوع عاليه .  
نتشرف بالاحاطه بأنه تم إجراء الاختبارات المطلوبه وتم إعداد التقرير الفنى رقم (٢٠٢٢/٤٧٥) المتضمن نتائج الاختبارات  
علما بان تكاليف إجراء الاختبارات هى مبلغ وقدره (٩٣٨١) جنيه (فقط وقدره تسعة الاف وثلاثمائة وواحد وثمانون جنهما  
مصريا لاغير) شاملة ١٤ % قيمة ضريبة القيمة المضافة ومرفق التقرير الفنى المكون من (٦) صفحة  
وتفضلوا بقبول فائق الاحترام والتقدير ،،،

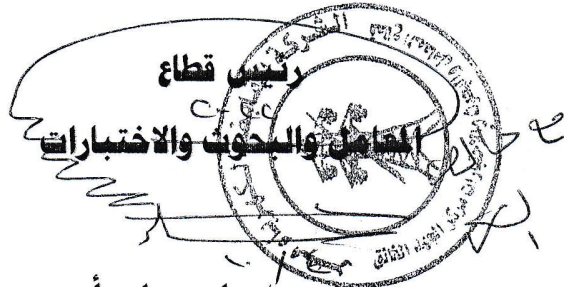
رئيس قسم الشئون المالية بالمركز

محاسب/ ربيع محمد عبدالعزيز

مدير عام الاداره العامه للمعامل

ومركز لبحاث الجهد الفائق

مهندس/ إيهاب فوزي محمود



د. مهديس / سلوى علي أحمد

شريف ٣/١٠/٢٠٢٢



## TEST REPORT

REPORT No. (475 /2022)

▪ **CLIENT: M.H Group for Electronics Co.**

Factory: New Borg El Arab 3<sup>rd</sup> industrial Zone Alexandria

▪ **Report Date: 3/ 10 /2022.**

▪ **Place:**

- EXTRA HIGH VOLTAGE RESEARCH CENTER LABORATORIES
- Internal Code: TO – AC – 22 – 09 – 20 - 01.

▪ **Requirements:**

- Test of LED street lighting luminaires (100) watt according to IEC standard.

▪ **Standard Specification:**

- IEC (60598 –1)/(2008) : Luminaires – Part 1: General requirements and tests.
- IEC (62722-2-1)/(2011) : Luminaire performance – Part 2-1: Particular requirements for LED luminaires.
- IEC (62717)/(2015) : LED Modules for general lighting-Performance requirements.
- IEC (61000-3-2)/(2018) : Electromagnetic compatibility (EMC) - Part 3-2: Limits -Limits for harmonic current emissions(equipment input current  $\leq 16$  A per phase).

▪ **Description of Specimen:**

- LED street lighting luminaire (100) watt – Type: (STAR PORT) - Rated Input power: (100) Watt - Manufactured by M.H Group for Electronics Co. - Made in Egypt.

▪ **Description of Testing Equipment:**

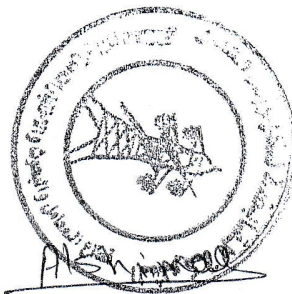
1. Measure Device: Everfine GO-2000A\_v1.
2. Power analyzer, Model: (HIOKI-3196) - Certificate No.: ( 218/23/2020).
3. Two voltage transformers – Type: (UZGT10) - Serial No.: (929130/65) and (925007/65).
4. Insulation resistance meter- Type: (SONEL/MIC-10K1) - Certificate No. : (1350/23C009/36/237/2022)

▪ **Test Sample:**

- Test sample was chosen under the responsibility of the client.

▪ **Tests:**

- 1- Marking.
- 2- Insulation Resistance.
- 3- Electric Strength.
- 4- Total Input Power.
  - 4.1 LED luminaire Power.
  - 4.2 Displacement Factor.
- 5- Luminous Flux.
- 6- Correlated Colour Temperature (CCT).
- 7- Colour Rendering Index (CRI).
- 8- Luminaire Efficacy.



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▪ **Test Method and Results:**

**1- Marking**

Testing Date: 25/9/2022

Testing Engineer: Alshaimaa Rafaat

- The test was carried out according to clause (3.4) of IEC (60598-1).
- The marking shall be legible, marking labels shall not be easily removable and they shall show no curling.
- **The LED luminaire met the requirements.**

**2- Insulation Resistance**

Testing Date: 28/9/2022

Testing Engineer: Alshaimaa Rafaat

- The test was carried out according to sub-clause (10.2.1) of IEC (60598-1).
- The insulation resistance shall be more than (2) M $\Omega$ .
- The measured value of the insulation resistance was (14.8) G $\Omega$ .
- **The LED luminaire passed the test**

**3- Electric Strength**

Testing Date: 28/9/2022

Testing Engineer: Alshaimaa Rafaat

- The test was carried out according to sub-clause (10.2.2) of IEC (60598-1).
- No flashover or breakdown shall occur during the test.
- **The LED luminaire passed the test.**

**4- Total Input Power**

Testing Date: 28/9/2022

Testing Engineer: Alshaimaa Rafaat

- The test was carried out according to clause (7) of IEC (62722-2-1) as following:

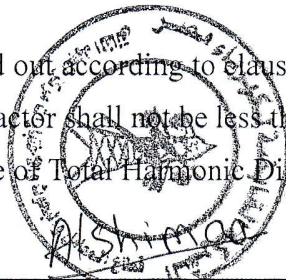
**4.1 LED luminaire Power**

- The test was carried out according to clause (7.1) of IEC (62717).
- The initial power consumed shall not exceed the rated power (100) Watt by more than (10) %.
- The measured value of the total power at the rated voltage (220 V) for the LED Luminaire was (98.66) Watt.
- **The LED luminaire met the requirements.**

**4.2 Displacement Factor**

- The test was carried out according to clause (7.2) of IEC (62717).
- The displacement factor shall not be less than (0.95) by more than (0.05).
- The measured value of Total Harmonic Distortion (THD) for current was (6.98) %.

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- The harmonic currents shall not exceed the relative limits given in [Table 2] of IEC (61000-3-2).
- The maximum permissible harmonic current expressed as a percentage of the input current at the fundamental frequency illustrated in the following table:

No.	Harmonic order	Maximum permissible	Measured value	Remark
1	2	2	0.7	Pass
2	3	29.41	4.15	Pass
3	5	10	2.82	Pass
4	7	7	0.93	Pass
5	9	5	2.53	Pass
6	11 ≤ n ≤ 39 (Odd harmonic only)	3	1.28 (Max.)	Pass

- The measured value of the power factor was (0.980).
- The displacement factor value for the LED Luminaire was (0.982).
- **The LED luminaire met the requirements**

#### **5- Luminous flux**

Testing Date: 29/9/2022

Witness Engineer: Mohamed Khairy

- The test was carried out according to clause (8.1) of IEC (62722-2-1).
- The initial luminous flux shall not be less than the rated luminous flux (12000) lm, by more than (10) %.
- The measured value of the luminous flux for the LED Luminaire was (12128.6) lm.
- **The LED luminaire met the requirements**

#### **6- Correlated Colour Temperature (CCT)**

Testing Date: 29/9/2022

Witness Engineer: Mohamed Khairy

- The test was carried out according to clause (9.2) of IEC (62722-2-1).
- The measured value of correlated colour temperature (CCT) for the LED Luminaire was (5121) K.
- **The LED luminaire achieved the above value.**

#### **7- Colour Rendering Index (CRI)**

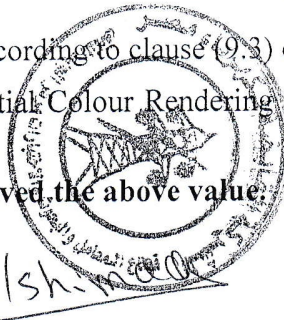
Testing Date: 29/9/2022

Witness Engineer: Mohamed Khairy

- The test was carried out according to clause (9.3) of IEC (62722-2-1).
- The measured value of initial Colour Rendering Index (CRI) for the LED Luminaire was (80.6).
- **The LED luminaire achieved the above value.**

M. Khairy

Alsh. Khairy





### 8- Luminaire Efficacy

Testing Date: 29/9/2022

Witness Engineer: Mohamed Khairy

- The test was carried out according to clause (8.3) of IEC (62722-2-1).
- The LED Luminaire efficacy shall not be less than (90) % of the rated LED Luminaire efficacy (120) lm/W.
- The measured value of luminaire efficacy was (122.93) lm/W.
- The LED luminaire met the requirements

#### ▪ Conclusion:

- The LED street lighting luminaire (100) watt – Type: (STAR PORT) - Rated Input power: (100) Watt - Manufactured by M.H Group for Electronics Co. - Made in Egypt, achieved the results of tests mentioned in this report according to IEC. The customer to check of carrying out other remaining tests specified in IEC standard and not included in this report.

#### ▪ Notes:

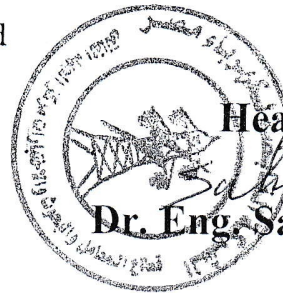
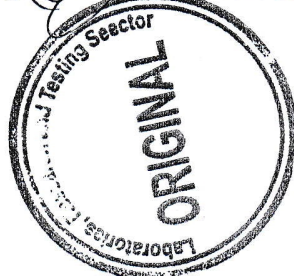
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- The tests were carried out without any obligation on Egyptian Electricity Holding Company
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- This report is valid for the tested specimen and for a maximum three years unless there is a change in the design or specifications mentioned in this report.

#### ▪ Test Engineers:

A.C. Lab  
*Alshamaa*  
Eng. Alshamaa Rafaat

Imp. Lab.  
*M. Khairy 31/10/2022*  
Eng. Mohamed Khairy

General Manager  
*Eng. Fawzy*  
Eng. Fawzy Mahmoud



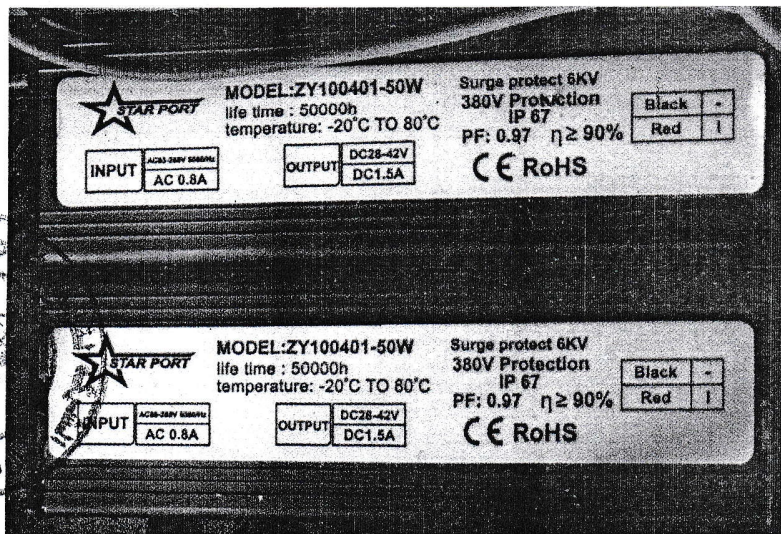
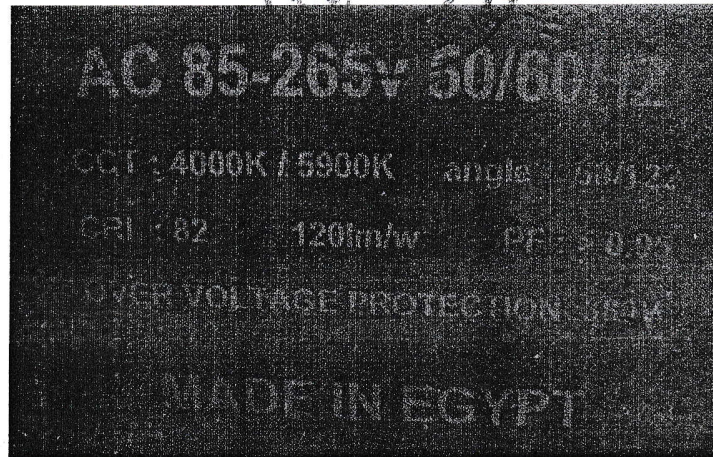
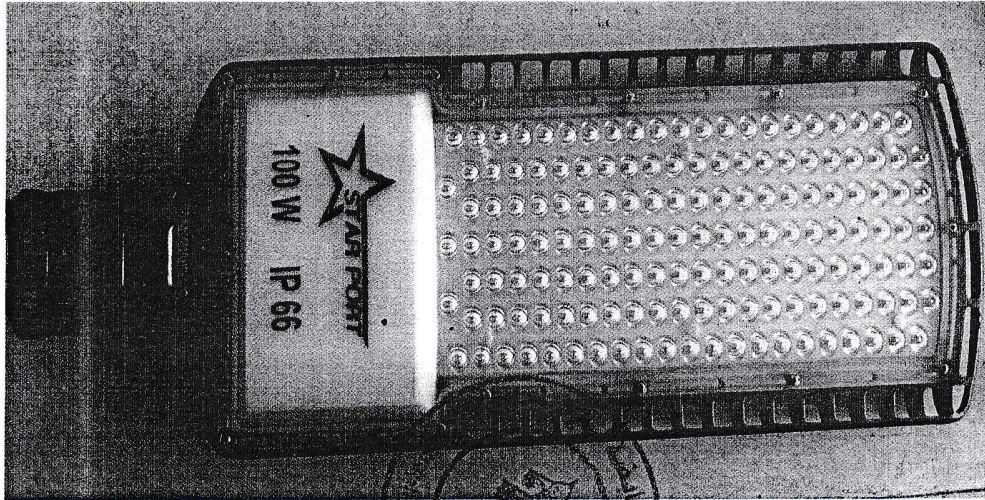
Head Sector  
*2022/10*  
Dr. Eng. Salwa Ali Ahmed



Egyptian Electricity Holding Company  
 Laboratories, research and testing sector  
 Extra High Voltage Research Center  
 km 27 Cairo- Alex. Desert road  
 Report No. (475 /2022)



الشركة القابضة لكهرباء مصر  
 قطاع المعامل والبحوث والاختبارات  
 مركز أبحاث الجهد الفائق  
 الكيلو ٢٧ طريق القاهرة/الاسكندرية الصحراوي  
 رقم التقرير: (٤٧٥/ ٢٠٢٢)



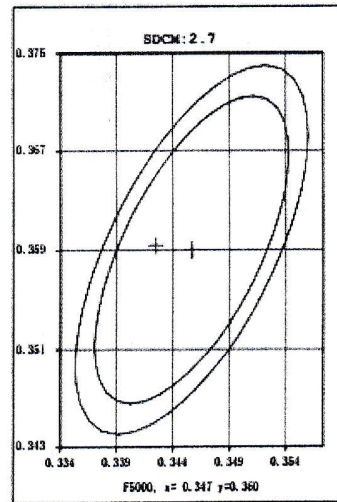
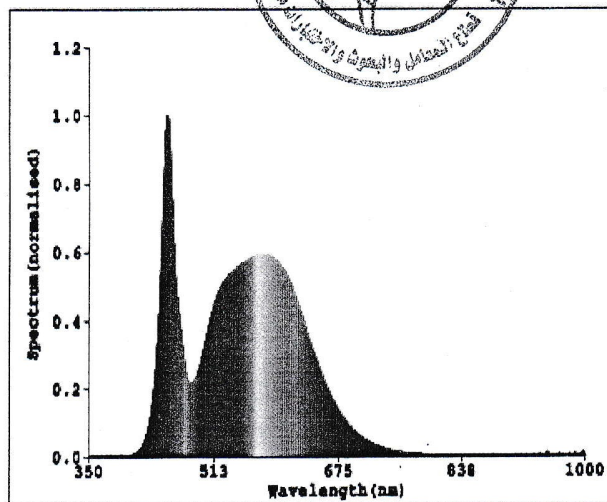
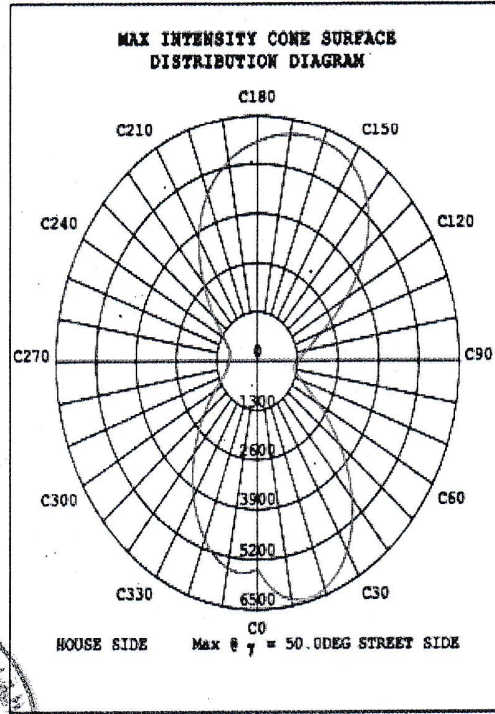
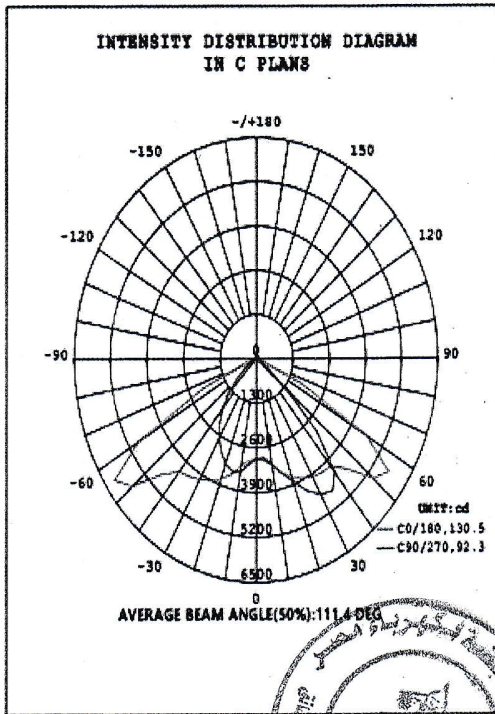
M. Klein



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الشركة القابضة لكهرباء مصر  
 قطاع المعامل والبحوث والاختبارات  
 مركز أبحاث الجهد الفائق  
 الكيلو ٢٧ طريق القاهرة /الاسكندرية الصحراوى  
 رقم التقرير: (٤٧٥ / ٢٠٢٢)



**Color Parameters:**

Chromaticity Coordinates:  $x=0.3428$   $y=0.3594/u'=0.2070$   $v'=0.4881$   $duv=0.00475$   
 Tc=5121K Dominant WL:Ld=565.8nm Purity=10.8%  
 Ratio:R=15.0% G=80.7% B=4.3% Peak WL:Lp=451.3nm HNL:20.5nm  
 Rendering Index:Ra=80.6 TM-30: Rf=82 Rg=94 CQS: Qa=79.30 TLCI = 66  
 R1 =75 R2 =87 R3 =94 R4 =76 R5 =80 R6 =80 R7 =85  
 R8 =66 R9 =3 R10=63 R11=73 R12=58 R13=81 R14=93 R15=71

