الموضـــوع: اختبـار كشـاف إضـاءة شـوارع ليـد قـدرة (١٥٠) وات- طراز: (TU) - انتاج شركة طيبة للصناعات المتطورة.

السـيد المهندس / مدير ادارة الاضاءة

شركة طيبة للصناعات المتطورة

تحية طيبة وبعد ،،،،

بالاشارة إلى كتاب سيادتكم واستلام العينة بتاريخ ٢٠٢١/١٢/١٩ م، بخصوص الموضوع عاليه .

نتشرف بالاحاطه بأنه تم إجراء الاختبارات المطلوبه وتم إعداد التقرير الفنى رقم (٢٠٢١/٧٠٠) المتضمن نتائج الاختبارات علما بان تكاليف إجراء الاختبارات هى مبلغ وقدره(٩٣٨١) جنيه (فقط وقدره تسعة الاف وثلاثمائة وواحد وثمانون جنيها مصريا لاغير) شاملة ١٤ % قيمة ضريبة القيمة المضافة وتسدد القيمة نقدا أو بشيك باسم الشركة القابضة لكهرباء مصر / مركز أبحاث الجهد الفائق طبقًا للقواعد واللوائح المنظمة لذلك وسيتم استلام التقرير الفني المكون من عدد (٥) صفحات بموقع مركز أبحاث الجهد الفائق بعد سداد المبلغ قيمة الاختبارات بعاليه.

وتفضلوا بقبول فائق الاحترام والتقدير ،،،،

رئيس قسم الشئون المالية بالمركز
محاسب/ ربيع محمد عبدالعزيز

مدير عام الإدارة العامة للمعايرة والجودة الشاملة
مهندس/ إيهاب فوزي محمود

رئيس قطاع
المعامل والبحوث والاختبارات
"د. مهندس/ سلوى علي أحمد"

شريف....

TEST REPORT

REPORT No. (700 /2021)

- **CLIENT: TEBA for Development Industries.**
  Plot No.1 –Industrial Zone(7A) – 10th of Ramadan- Egypt.
- **Report Date: 26/ 12 /2021.**
- **Place:**
  - EXTRA HIGH VOLTAGE RESEARCH CENTER LABORATORIES
  - Internal Code: TO – AC – 21 – 12 – 19 - 03.
- **Requirements:**
  - Test of LED street lighting luminaires (150) 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 ≤ 16 A per phase).
- **Description of Specimen:**
  - LED street lighting luminaire (150) watt – Type: (TU) - Rated Input power: (150) Watt - Manufactured by TEBA for Development Industries - Made in Egypt.
- **Description of Testing Equipment:**
  1. Measure Device: Volnic X-10 – Series: (CCD) Spectrum System-Certification NO.:(64844/2021).
  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 apparatus (MEGGAR) - Serial No.: (32772-2).
- **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.

- **Test Method and Results:**

1- Marking

Testing Date: 21/12/2021 **Testing Engineer**: Mohamed Khairy

- 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: 21/12/2021 **Testing Engineer**: Mohamed Khairy

- The test was carried out according to sub-clause (10.2.1) of IEC (60598-1).
- The insulation resistance shall be more than (2) MΩ.
- The measured value of the insulation resistance was (13.2) GΩ .
- **The LED luminaire passed the test**

3- Electric Strength

Testing Date: 21/12/2021 **Testing Engineer**: Mohamed Khairy

- 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: 21/12/2021 **Testing Engineer**: Mohamed Khairy

- 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 (150) Watt by more than (10) %.
- The measured value of the total power at the rated voltage (220 V) for the LED Luminaire was (149.5) 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 (0.99) by more than (0.05).
- The measured value of Total Harmonic Distortion (THD) for current was (7.55) %.

M. Khairy

- 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	0.02	Pass
2	3	29.07	5.8	Pass
3	5	10	3.3	Pass
4	7	7	1.49	Pass
5	9	5	1.6	Pass
6	$11 \leq n \leq 39$ (Odd harmonic only)	3	1.01 (Max.)	Pass

- The measured value of the power factor was (0.969).
- The displacement factor value for the LED Luminaire was (0.971).
- **The LED luminaire met the requirements**

5- Luminous flux

Testing Date: 22/12/2021 **Witness Engineer**: Mohamed Antar

- 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 (18000) lm, by more than (10) %.
- The measured value of the luminous flux for the LED Luminaire was (18091) lm.
- **The LED luminaire met the requirements**

6- Correlated Colour Temperature (CCT)

Testing Date: 22/12/2021 **Witness Engineer**: Mohamed Antar

- 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 (6500) K.
- **The LED luminaire achieved the above value.**

7-Colour Rendering Index (CRI)

Testing Date: 22/12/2021 **Witness Engineer**: Mohamed Antar

- 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 (82.6).
- **The LED luminaire achieved the above value.**

8-Luminaire Efficacy

Testing Date: 22/12/2021 **Witness Engineer**: Mohamed Antar

- 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 (121.01) lm/W.
- **The LED luminaire met the requirements**

Conclusion:

- **The LED street lighting luminaire (150) watt –Type: (TU) - Rated Input power: (150) Watt Manufactured by TEBA for Development Industries - 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:
- Tests were carried out on the above specimen only without any responsibility concerning other untested specimens.
- The tests were carried out without any obligation on Egyptian Electricity Holding Company
- This test report shall not be reproduced except in full, without written approval of EHVRC.
- This report and results are related only to the tested specimen.
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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. Imp. Lab.

Eng. Mohamed Antar Eng. Mohamed Khairy

General Manager

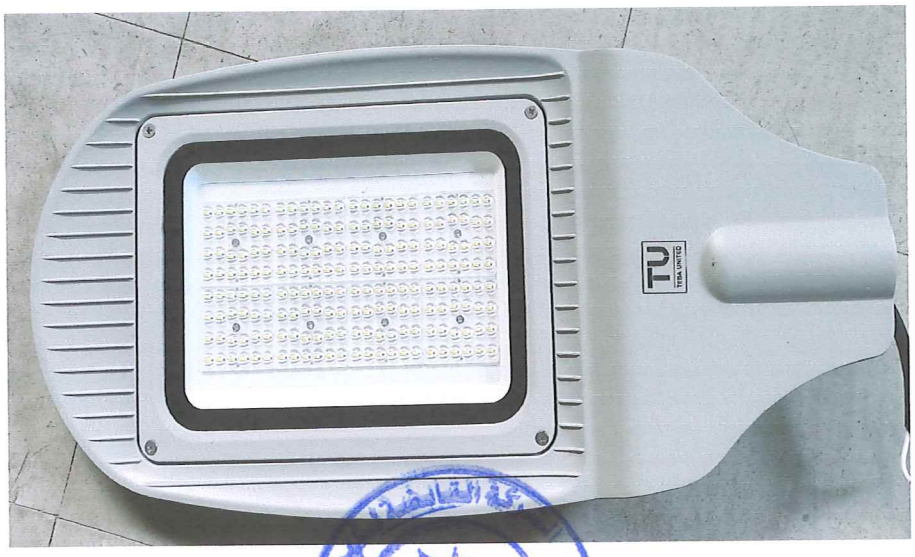
Eng. Ehab Fawzy Mahmoud

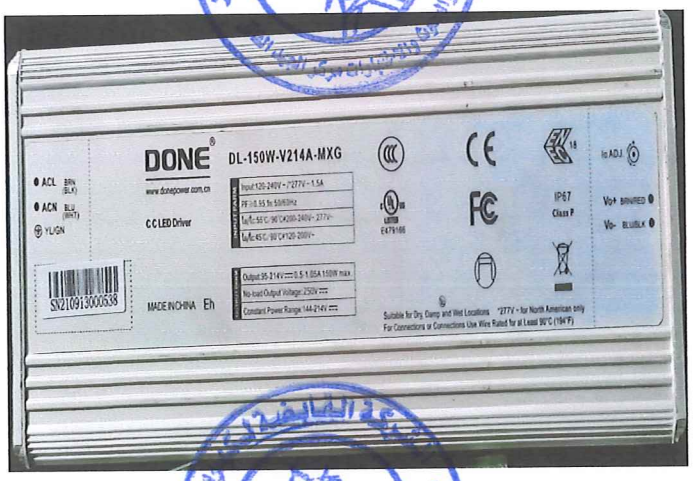
Head Sector

Dr. Eng. Salwa Ali Ahmed

Laboratories, Research and Testing Sector ORIGINAL

Sherif...

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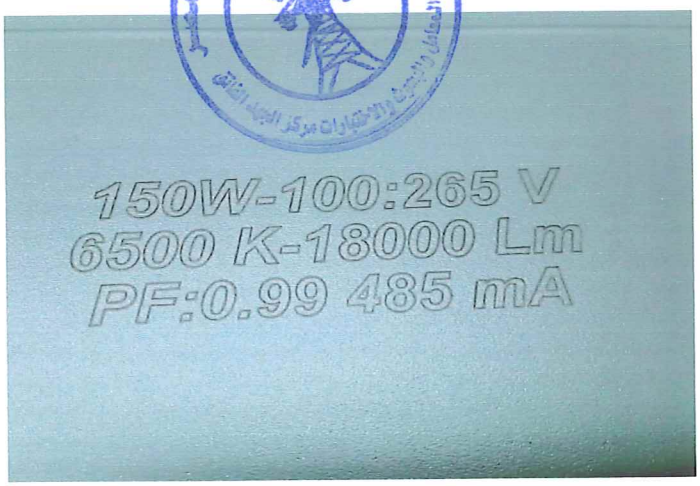
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PF:0.99 485 mA