Si'Tarc™
SMALL INDUSTRIES' TESTING AND RESEARCH CENTRE
Recognised by DSIR / GOI as Scientific & Industrial Research Organisation Promoted by SIEMA & CODISSIA and Sponsored by IDBI

SI'TARC TESTING & CALIBRATION LABORATORIES
83 & 84, Avarampalayam Road, K.R. Puram (Po), Coimbatore - 641 006.
Telefax : 91-0422 2562612, 2560473 E-mail : sitarc@vsnl.com Website : www.sitarc.com

a wing of Si'Tarc instituted by

COINDIA
COIMBATORE INDUSTRIAL INFRASTRUCTURE ASSOCIATION

O.R:T-P/2007-2008/ 29897 Date: 2008.01.28

To

Ray Dynamics
15/6, GKS Nagar
Pappanaickenpalayam
COIMBATORE – 641 037.
TAMIL NADU
INDIA.

Dear Sir,

With reference to your letter No. SITARC/AOL-test/07-08/001dated 10.01.2008 regarding testing of LED Based aviation obstacle Light with inbuilt Auto ON/OFF DAY / NIGHT switch. We are enclosing herewith our test report No. Z 2895 dated 2008.01.28.

Thanking you

Yours faithfully,

K. Gunabal
(K GUNABAL)
Dy. Director.

kg/rj

Si'Tarc
SMALL INDUSTRIES' TESTING
AND RESEARCH CENTRE

RECOGNISED BY DSIR/MINISTRY OF SCIENCE & TECHNOLOGY AND BIS, SPONSORED BY INDUSTRIAL DEVELOPMENT BANK OF INDIA (IDBI), PROMOTED BY THE SOUTHERN INDIA ENGG. MANUFACTURERS ASSOCIATION (SIEMA) AND COIMBATORE DISTRICT SMALL SCALE INDUSTRIES ASSOCIATION (CODISSIA).

Test Report No. Z 2895 **Page 1 of 6** **Date : 2008.01.28**

TEST REPORT OF LED AVIATION OBSTACLE LIGHT
(As per International Civil Aviation Organization requirements (ICAO) & Directorate of Air Routes and Aerodrome (DARA)

YOUR ORDER / REF. NO.	: SITARC/AOL-test/07-08/001	DATE	: 2008.01.10
MAKE	: RAY DYNAMICS	RECD. ON	: 2008.01.11
ITEM	: LED Based aviation obstacle Light with inbuilt Auto ON/OFF DAY / NIGHT switch.	CODE NO.	: Z 2996
NO. OF SAMPLE	: One	MODEL	: LIT32-UI

TEST REQUESTED BY

Ray Dynamics
15/6, GKS Nagar
Pappanaickenpalayam
COIMBATORE – 641 037.
TAMIL NADU
INDIA.

SMALL INDUSTRIES TESTING AND RESEARCH CENTRE STL

NOTE :
1. This report refers only to the particular sample(s) submitted for testing and the sample was not drawn by us.
2. This report shall not be reproduced except in full, unless written permission for the publication of an approved abstract has been obtained from the Director, Si'Tarc.
3. The results reported in this report are valid at the time of under the stated conditions of measurement.
4. Correction or attestation if any invalidate this report. This report is strictly confidential & its use for publicity, arbitration or as evidence in legal disputes is forbidden.
5. All care is being taken in testing the sample given by the customer. However, there is a possibility of an error due to failure of equipment, power supply and inadvertent human error.
6. No claim is admissible against Si'Tarc, due to any mistake in testing or reporting the results.

83&84, AVARAMPALAYAM ROAD, K.R.PURAM PO., COIMBATORE - 641 006. TELEFAX : 91-0422-2562612 & 2560473
E-Mail Address : sitarc@vsnl.com

Test Report No. Z 2895 **Page 2 of 6** **Date : 2008.01.28**

TEST REPORT OF LED AVIATION OBSTACLE LIGHT
(As per International Civil Aviation Organization requirements (ICAO) & Directorate of Air Routes and Aerodrome (DARA)

Description of Sample :

Nomenclature	:	LED Based aviation obstacle Light with inbuilt Auto ON/OFF DAY / NIGHT switch
Make	:	RAY DYNAMICS
Model	:	LIT32-UI
Operating Voltage	:	230V AC, 50 Hz
Category	:	Low intensity - Type "B"
Requirements	:	As per (ICAO) international civil aviation organization (Annexure 14) Directive for 32 cd of low intensity obstacle light Type - B requirements.

Test Results

1. **Illumination test:**
   Minimum requirements as per ICAO : 32 cd/m^2

i. **Vertical Beam Spread**:

S.No.	AC Voltage	Minimum light output required (cd/m^2)	Test results in cd/m^2		
			0°	6°	10°
1	70.0	32.0	54	52	50
2	230.0	32.0	54	52	49
3	270.0	32.0	54	51	49

ii. **Horizontal beam spread**: Complies all around 360°

Result : Pass

2. **Operating voltage range test:**
   Requirements : Lamp shall be glow 70V AC to 270V AC
   Test Results : The lamp glows in the voltage range of 70V AC to 270V AC
   Results : Meets the requirements.

Tested by
(M. Karthikeyan) 28/01/08
JE/ Elec. Engg. Division

SMALL INDUSTRIES TESTING AND RESEARCH CENTRE STL

Approved by
28/01/08
(K.Viswanathan)
HOD / Elec. Engg. Division

3. **Power Consumption Test:**

S.No.	Details	Units	Measured Value
1	Voltage	Volts	230
2	Current	Amps	0.04817
3	Power	Watts	3.898

4. **Insulation Resistance Test at 500V DC:**
Measured Value : 500×10^3 Meg Ohms

5. **Di-Electric Strength Test:**
1000 Volts applied for 1 minute between the terminals and body : Withstood
Result : Pass

6. **Day / Night Switch:**

Requirements:
Lamp should sense the ambient Light and Automatically ON/OFF.
Test Results: Meets the requirements.

Result : Pass

7. **Dry Heat test:** (IS : 9000 (Part 3/Sec 5)-1977 & Customer's requirements)

Test Condition:

The lamp is placed in an oven for 6 hours at a temperature of 55°C. During the last ½ an hour, the following functional tests are carried out.
a. Visual examination
b. Verification of output performance at 230V AC.

Result : Satisfactory

After the dry heat test, (after 6 hours) the recovery period is allowed for one hour. Then the functional performance tests are carried out and the lamp is functioning satisfactorily within the limits.

Result : Pass

Tested by
(M. Karthikeyan)
JE/ Elec. Engg. Division

Approved by
28/01/08
(K.Viswanathan)
HOD / Elec. Engg. Division

8. **Cold test:** (IS : 9000 (Part 3/Sec 5)-1977 & Customer's requirements)

The lamp is placed in a chamber for 2 hours at a temperature of -10°C.
During the last ½ an hour, the following functional tests are carried out.

i. Visual examination
ii. Verification of output performance at 230V AC.

Result : Satisfactory

After the cold test, (after 2 hours) the recovery period is allowed for one hour. Then the functional performance tests are carried out and the lamp is functioning satisfactorily within the limits.

Result: Pass

9. **Salt Mist test:** (IS : 9000 (Part xi)-1983) & customer's requirements

The lamp is placed in the salt spray chamber for the following condition as per procedure 1.
Chamber temperature : 35 ± 3°C. Duration : 8 hours

Preparation of Salt Solution:

S.No.	Requirements	5% Solution
1	Distilled water by weight	95 parts
2	Sodium chloride (AR) by weight	5 Parts
3	Specific gravity	1.0268 to 1.0413
4	P^H (35 ± 1°C)	6.5 to 7.2

During the last ½ an hour, the following functional performance tests are carried out.

a. Visual examination
b. Verification of output performance at 230V AC.

Result : Satisfactory

After the salt mist test, (after 8 hours) the recovery period is allowed for one hour. Then the functional performance tests are carried out and the lamp is functioning satisfactorily within the limits.

Result: Pass

Tested by
28/01/08
(M. Karthikeyan)
JE/ Elec. Engg. Division

SMALL INDUSTRIES TESTING AND RESEARCH CENTRE STL

Approved by
28/01/08
(K. Viswanathan)
HOD / Elec. Engg. Division

Test Report No. Z 2895 **Page 5 of 6** **Date : 2008.01.28**

10. **Type of enclosures:**

Test Requirements: IP 66

(Method of tests as IS: 4691-195, IEC Pub 947-1 (1983)

Dust test: (Numeral No : 6X) (Category I)

S.No.	Test Requirements
1.	The lamp is placed inside the test chamber and the pressure inside the lamp is maintained below atmospheric pressure by a Vacuum Pump. The lamp has a single conduit hole and the suction of the pump is connected to the conduit hole. No other openings are available.
2.	The lamp is draw into the chamber, a minimum of 80 times the volume of air in the enclosure, without exceeding an extraction rate of 60 volumes per hour or a depression of more than 200mm of water on the manometer.
3.	The test duration is 2 hour due to extraction rate of 40 to 60 volumes per hour is obtained.
4.	The protection is satisfactory if no deposit of dust is observable inside the lamp at the end of test.

Test Results:

No deposit of dust is observed inside the lamp at the end of test.

Result : Pass

ii. **Water Spray test:** (Numeral No : X6)

(Method of tests as IS: 4691-195, IEC Pub 947-1 (1983)

Test Requirements:

The test is made by spraying the equipment from all practicable directions with a stream of water from a standard test nozzle. The conditions to be observed are as follows:

Nozzle Internal diameter	:	12.5mm
Delivery rate	:	100 l/min ± 5%
Water pressure at the nozzle	:	1 bar approximately (100 kN/mm^2)

Test duration per m^2 of surface area of equipment	:	1 min.
Minimum test duration	:	3 min.
Distance from nozzle to equipment surface	:	3 m approximately.

Test duration is 5 minutes with lamp '**ON**' condition , then submitted to a high voltage test of 1000V ac applied for one minute.

Tested by

(M. Karthikeyan) 28/01/08

JE/ Elec. Engg. Division

SMALL INDUSTRIES TESTING AND RESEARCH CENTRE STL

Approved by

28/01/08

(K.Viswanathan)

HOD / Elec. Engg. Division

Test Report No. Z 2896 **Page 6 of 6** **Date : 2008.01.28**

Test results:

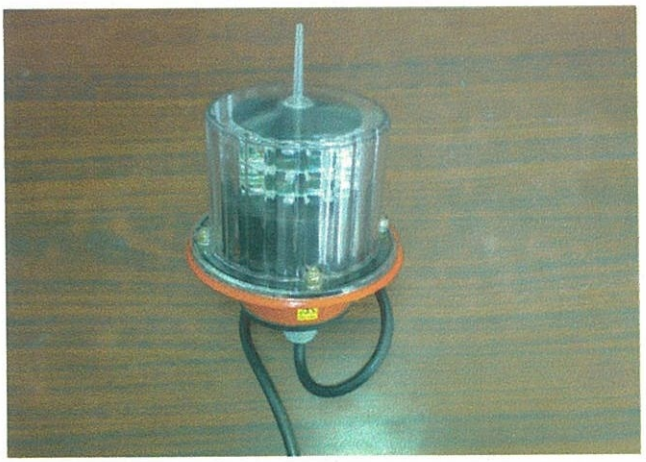
i. **High voltage test**:
1000 volts ac applied for one minute the water spray test : **Withstood**

ii. **Insulation resistance test at 500 V DC**:
Before HV test : 500 Meg Ohm
After HV test : 500 Meg Ohm

iii. No water particles entered inside the lamp enclosure.

Result : Pass

11. **Photo of the tested sample :**



Tested by

28/01/08

(M. Karthikeyan)
JE/ Elec. Engg. Division

SMALL INDUSTRIES TESTING AND RESEARCH CENTRE * STL

Approved by

28/01/08

(K.Viswanathan)
HOD / Elec. Engg. Division