



# TEST REPORT

According to ANSI/IES LM-80-15

For

## Hongli Zhihui Group Co.,Ltd. Guangzhou Branch

Room 316, Building 2, No.1, Xianke Yi Road, Huadong Town, Huadu District, Guangzhou, China

**#Model: HL-AS-2835IR2C-L1-08-PCT**

|  |  |
|--|--|
| <b>Report Type:</b><br>6000 Hours Test Report  | <b>Product Type:</b><br>LED Package  |
| <b>Reviewed By:</b><br>Pote Wang   | <i>Pote Wang</i>   |
| <b>Report Number:</b><br>RSZ190428534-10-6000  |  |
| <b>Test Date:</b><br>2020-01-04 to 2020-10-15  |  |
| <b>Report Date:</b><br>2020-10-23  |  |
| <b>Approved by:</b><br>Blake Zhang / EE Engineer   |  |
| <b>Test Facility:</b><br>Test facility was located at No.69,Pulongcun ,Puxihu Industrial Area, Tangxia , Dongguan, Guangdong, China. |  |
| <b>Prepared By:</b>  | Bay Area Compliance Laboratories Corp. (Dongguan).<br>No.69,Pulongcun ,Puxihu Industrial Area, Tangxia ,<br>Dongguan, Guangdong, China.<br>Tel: +86-0769-86858888<br>Fax:+86-0769-86858588 |
| <b>Accreditation:</b>  | The IAS Accreditation Number TL-460.   |



## TABLE OF CONTENTS

|  |           |
|--|-----------|
| <b>1 - General Information</b> .....                                   | <b>3</b>  |
| 1.1 Description of LED Light Sources .....                             | 3         |
| 1.2 Standards and Reference Documentations .....                       | 3         |
| 1.3 Testing Equipment .....  | 4         |
| 1.4 Drive Level .....  | 4         |
| 1.5 Ambient Conditions for Maintenance Test .....                      | 4         |
| 1.6 Photometric Measurement Method and Uncertainty.....                | 4         |
| 1.7 Statement of Traceability .....                                    | 4         |
| 1.8 Sample Set.....  | 5         |
| <b>2 - Summary of Test Result</b> .....                                | <b>6</b>  |
| <b>3 - Test Data</b> .....   | <b>7</b>  |
| 3.1 Data Set 1, 85°C, 150mA (700-800nm Photon Flux Maintenance) .....  | 7         |
| 3.2 Data Set 1, 85°C, 150mA (Forward Voltage).....                     | 8         |
| 3.3 Data Set 1, 85°C, 150mA (Wavelength) .....                         | 9         |
| 3.4 Data Set 2, 105°C, 150mA (700-800nm Photon Flux Maintenance) ..... | 10        |
| 3.5 Data Set 2, 105°C, 150mA (Forward Voltage).....                    | 11        |
| 3.6 Data Set 2, 105°C, 150mA (Wavelength) .....                        | 12        |
| <b>4 - DUT Photo</b> .....   | <b>13</b> |
| 4.1 #Mechanical Dimensions.....  | 13        |
| 4.2 DUT Photo.....   | 13        |
| <b>Directions</b> .....  | <b>14</b> |

**Bay Area Compliance Laboratories Corp. (Dongguan)**

No.69, Pulongcun, Puxinhu Industrial Area Tangxia ,

Dongguan, Guangdong, China.

The IAS Accreditation Number TL-460

FINAL





## 1.8 Sample Set

### Data Set 1: 85°C, 150mA

Part Number: HL-AS-2835IR2C-L1-08-PCT

Number of Units: 30

Case Temperature: >83°C

Ambient Temperature: >80°C

Life Test Drive Current: 150mA

Measurement Current: 150mA

### Data Set 2: 105°C, 150mA

Part Number: HL-AS-2835IR2C-L1-08-PCT

Number of Units: 30

Case Temperature: >103°C

Ambient Temperature: >100°C

Life Test Drive Current: 150mA

Measurement Current: 150mA

FINAL



## Bay Area Compliance Laboratories Corp. (Dongguan)

No.69, Pulongcun, Puxinhu Industrial Area Tangxia ,  
Dongguan, Guangdong, China.  
The IAS Accreditation Number TL-460

### 2 - Summary of Test Result

---

| Data Set: | Sample Size | Failures Observed: | Test Interval | Test Duration |  | Reported TM-21 Q <sub>70</sub> Lifetime | Reported TM-21 Q <sub>90</sub> Lifetime |
|-----------|-------------|--------------------|---------------|---------------|--|---|---|
|-----------|-------------|--------------------|---------------|---------------|--|---|---|

FUNNIAL

### 3 - Test Data

#### 3.1 Data Set 1, 85°C, 150mA (700-800nm Photon Flux Maintenance)

| No.    | p.fr (μmol × s <sup>-1</sup> ) | 700-800nm Photon Flux Maintenance (%) |         |         |         |         |         |
|--------|--------------------------------|---------------------------------------|---------|---------|---------|---------|---------|
|        |                                | 0hr(Initial)                          | 1000hrs | 2000hrs | 3000hrs | 4000hrs | 5000hrs |
| 1      | 0.6826                         | 100.69                                | 100.44  | 100.12  | 99.88   | 99.56   | 99.33   |
| 2      | 0.6542                         | 100.50                                | 100.20  | 99.89   | 99.60   | 99.34   | 99.11   |
| 3      | 0.6904                         | 100.43                                | 100.16  | 100.03  | 99.93   | 99.64   | 99.26   |
| 4      | 0.6861                         | 100.64                                | 100.19  | 99.78   | 99.56   | 99.34   | 99.07   |
| 5      | 0.6915                         | 100.58                                | 100.27  | 100.19  | 99.91   | 99.52   | 99.36   |
| 6      | 0.6886                         | 101.00                                | 100.68  | 100.25  | 100.01  | 99.81   | 99.51   |
| 7      | 0.7030                         | 100.85                                | 100.40  | 100.26  | 99.91   | 99.72   | 99.46   |
| 8      | 0.6869                         | 100.92                                | 100.54  | 100.51  | 100.20  | 99.93   | 99.53   |
| 9      | 0.6831                         | 100.07                                | 99.71   | 99.33   | 99.06   | 98.76   | 98.54   |
| 10     | 0.6826                         | 100.64                                | 100.29  | 100.26  | 99.99   | 99.66   | 99.40   |
| 11     | 0.6888                         | 100.36                                | 100.13  | 100.00  | 99.67   | 99.30   | 98.95   |
| 12     | 0.6939                         | 99.67                                 | 99.35   | 99.18   | 98.83   | 98.60   | 98.34   |
| 13     | 0.6813                         | 99.94                                 | 99.56   | 99.05   | 98.77   | 98.49   | 98.21   |
| 14     | 0.6948                         | 99.90                                 | 99.61   | 99.45   | 99.32   | 99.14   | 98.79   |
| 15     | 0.6911                         | 100.29                                | 100.01  | 99.67   | 99.42   | 99.15   | 98.78   |
| 16     | 0.6867                         | 100.32                                | 100.06  | 99.87   | 99.64   | 99.45   | 99.24   |
| 17     | 0.6930                         | 100.03                                | 99.70   | 99.64   | 99.34   | 99.00   | 98.63   |
| 18     | 0.6895                         | 100.48                                | 100.03  | 99.64   | 99.33   | 99.14   | 98.87   |
| 19     | 0.6945                         | 99.88                                 | 99.55   | 99.06   | 98.73   | 98.47   | 98.26   |
| 20     | 0.6831                         | 99.72                                 | 99.43   | 99.19   | 98.99   | 98.68   | 98.42   |
| 21     | 0.6831                         | 100.23                                | 99.90   | 99.74   | 99.39   | 98.99   | 98.61   |
| 22     | 0.6955                         | 99.84                                 | 99.45   | 99.37   | 99.08   | 98.78   | 98.55   |
| 23     | 0.6936                         | 99.99                                 | 99.68   | 99.60   | 99.28   | 99.03   | 98.75   |
| 24     | 0.6892                         | 99.91                                 | 99.41   | 99.19   | 98.96   | 98.69   | 98.35   |
| 25     | 0.6862                         | 99.24                                 | 98.92   | 98.91   | 98.59   | 98.25   | 97.87   |
| 26     | 0.6932                         | 99.57                                 | 99.22   | 99.16   | 99.05   | 98.73   | 98.49   |
| 27     | 0.6892                         | 99.65                                 | 99.25   | 99.07   | 98.87   | 98.51   | 98.10   |
| 28     | 0.6973                         | 100.06                                | 99.56   | 99.44   | 99.08   | 98.78   | 98.51   |
| 29     | 0.6966                         | 100.07                                | 99.71   | 99.02   | 98.82   | 98.56   | 98.21   |
| 30     | 0.6791                         | 100.04                                | 99.57   | 99.19   | 99.00   | 98.72   | 98.47   |
| Avg.   | 0.6883                         | 100.18                                | 99.83   | 99.60   | 99.34   | 99.06   | 98.77   |
| Med.   | 0.6892                         | 100.07                                | 99.71   | 99.62   | 99.33   | 99.02   | 98.69   |
| st dev | 0.0085                         | 0.43                                  | 0.44    | 0.46    | 0.45    | 0.46    | 0.47    |
| Min.   | 0.6542                         | 99.24                                 | 98.92   | 98.91   | 98.59   | 98.25   | 97.87   |
| Max.   | 0.7030                         | 101.00                                | 100.68  | 100.51  | 100.20  | 99.93   | 99.53   |



**3.2 Data Set 1, 85°C, 150mA (Forward Voltage)**

| No.    | Forward Voltage (V) |         |         |         |         |         |         |
|--------|---------------------|---------|---------|---------|---------|---------|---------|
|        | 0hr(Initial)        | 1000hrs | 2000hrs | 3000hrs | 4000hrs | 5000hrs | 6000hrs |
| 1      | 2.112               | 2.141   | 2.127   | 2.127   | 2.128   | 2.128   | 2.129   |
| 2      | 2.120               | 2.198   | 2.157   | 2.149   | 2.147   | 2.147   | 2.148   |
| 3      | 2.104               | 2.126   | 2.113   | 2.114   | 2.118   | 2.116   | 2.120   |
| 4      | 2.098               | 2.118   | 2.102   | 2.110   | 2.110   | 2.115   | 2.113   |
| 5      | 2.143               | 2.165   | 2.149   | 2.149   | 2.160   | 2.156   | 2.161   |
| 6      | 2.156               | 2.182   | 2.169   | 2.171   | 2.176   | 2.173   | 2.176   |
| 7      | 2.164               | 2.187   | 2.167   | 2.167   | 2.180   | 2.179   | 2.181   |
| 8      | 2.138               | 2.164   | 2.146   | 2.144   | 2.166   | 2.159   | 2.157   |
| 9      | 2.116               | 2.143   | 2.123   | 2.125   | 2.136   | 2.133   | 2.138   |
| 10     | 2.113               | 2.142   | 2.123   | 2.134   | 2.151   | 2.144   | 2.149   |
| 11     | 2.156               | 2.184   | 2.172   | 2.165   | 2.179   | 2.169   | 2.174   |
| 12     | 2.150               | 2.179   | 2.164   | 2.160   | 2.171   | 2.180   | 2.177   |
| 13     | 2.107               | 2.132   | 2.120   | 2.114   | 2.127   | 2.124   | 2.126   |
| 14     | 2.147               | 2.173   | 2.160   | 2.153   | 2.168   | 2.168   | 2.167   |
| 15     | 2.136               | 2.159   | 2.147   | 2.143   | 2.159   | 2.154   | 2.153   |
| 16     | 2.122               | 2.146   | 2.134   | 2.126   | 2.143   | 2.149   | 2.144   |
| 17     | 2.135               | 2.160   | 2.146   | 2.140   | 2.154   | 2.164   | 2.156   |
| 18     | 2.114               | 2.136   | 2.121   | 2.116   | 2.131   | 2.132   | 2.133   |
| 19     | 2.143               | 2.164   | 2.151   | 2.145   | 2.164   | 2.163   | 2.162   |
| 20     | 2.114               | 2.138   | 2.124   | 2.118   | 2.135   | 2.135   | 2.138   |
| 21     | 2.108               | 2.128   | 2.118   | 2.108   | 2.124   | 2.122   | 2.132   |
| 22     | 2.151               | 2.173   | 2.160   | 2.152   | 2.172   | 2.167   | 2.173   |
| 23     | 2.126               | 2.147   | 2.139   | 2.128   | 2.162   | 2.147   | 2.147   |
| 24     | 2.110               | 2.133   | 2.123   | 2.113   | 2.130   | 2.128   | 2.128   |
| 25     | 2.108               | 2.132   | 2.119   | 2.110   | 2.130   | 2.128   | 2.126   |
| 26     | 2.108               | 2.128   | 2.120   | 2.109   | 2.128   | 2.129   | 2.129   |
| 27     | 2.111               | 2.133   | 2.121   | 2.113   | 2.131   | 2.132   | 2.130   |
| 28     | 2.144               | 2.162   | 2.157   | 2.145   | 2.162   | 2.161   | 2.165   |
| 29     | 2.161               | 2.182   | 2.173   | 2.161   | 2.176   | 2.180   | 2.181   |
| 30     | 2.117               | 2.139   | 2.131   | 2.125   | 2.137   | 2.137   | 2.139   |
| Avg.   | 2.128               | 2.153   | 2.139   | 2.134   | 2.149   | 2.147   | 2.148   |
| Med.   | 2.121               | 2.147   | 2.137   | 2.131   | 2.149   | 2.147   | 2.148   |
| st dev | 0.020               | 0.022   | 0.020   | 0.020   | 0.020   | 0.020   | 0.020   |
| Min.   | 2.098               | 2.118   | 2.102   | 2.108   | 2.110   | 2.115   | 2.113   |
| Max.   | 2.164               | 2.198   | 2.173   | 2.171   | 2.180   | 2.180   | 2.181   |







## Bay Area Compliance Laboratories Corp. (Dongguan)

No.69, Pulongcun, Puxinhu Industrial Area Tangxia ,  
Dongguan, Guangdong, China.  
The IAS Accreditation Number TL-460

### 3.4 Data Set 2, 105°C, 150mA (700-800nm Photon Flux Maintenance)

No.

FINAL



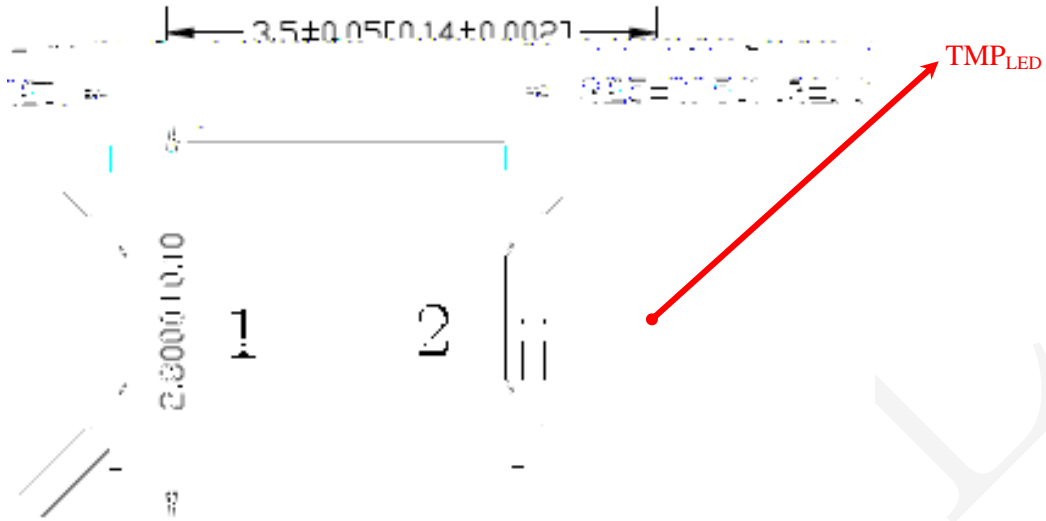
**3.5 Data Set 2, 105°C, 150mA (Forward Voltage)**

| No. | Forward Voltage (V) |         |         |         |         |         |         |
|-----|---------------------|---------|---------|---------|---------|---------|---------|
|     | 0hr(Initial)        | 1000hrs | 2000hrs | 3000hrs | 4000hrs | 5000hrs | 6000hrs |
| 31  | 2.118               | 2.161   | 2.135   | 2.127   | 2.140   | 2.140   | 2.145   |
| 32  | 2.106               | 2.148   | 2.124   | 2.113   | 2.130   | 2.127   | 2.129   |
| 33  | 2.114               | 2.153   | 2.132   | 2.118   | 2.135   | 2.132   | 2.134   |
| 34  | 2.119               | 2.157   | 2.134   | 2.123   | 2.138   | 2.136   | 2.136   |
| 35  | 2.133               | 2.170   | 2.145   | 2.134   | 2.149   | 2.154   | 2.163   |
| 36  | 2.150               | 2.189   | 2.164   | 2.153   | 2.169   | 2.169   | 2.182   |
| 37  | 2.112               | 2.177   | 2.156   | 2.146   | 2.166   | 2.162   | 2.171   |
| 38  | 2.103               | 2.138   | 2.114   | 2.108   | 2.124   | 2.122   | 2.133   |
| 39  | 2.153               | 2.189   | 2.169   | 2.155   | 2.173   | 2.169   | 2.176   |
| 40  | 2.099               | 2.133   | 2.115   | 2.102   | 2.120   | 2.111   | 2.131   |
| 41  | 2.121               | 2.156   | 2.131   | 2.121   | 2.144   | 2.135   | 2.141   |
| 42  | 2.148               | 2.181   | 2.159   | 2.148   | 2.171   | 2.164   | 2.165   |
| 43  | 2.098               | 2.128   | 2.108   | 2.101   | 2.119   | 2.114   | 2.116   |
| 44  | 2.113               | 2.143   | 2.124   | 2.115   | 2.131   | 2.129   | 2.132   |
| 45  | 2.123               | 2.153   | 2.134   | 2.125   | 2.139   | 2.140   | 2.147   |
| 46  | 2.151               | 2.184   | 2.169   | 2.153   | 2.169   | 2.170   | 2.176   |
| 47  | 2.136               | 2.165   | 2.153   | 2.138   | 2.152   | 2.152   | 2.156   |
| 48  | 2.135               | 2.167   | 2.158   | 2.138   | 2.152   | 2.158   | 2.163   |
| 49  | 2.115               | 2.147   | 2.137   | 2.120   | 2.132   | 2.138   | 2.138   |
| 50  | 2.155               | 2.186   | 2.178   | 2.156   | 2.171   | 2.173   | 2.177   |
| 51  | 2.110               | 2.170   | 2.159   | 2.144   | 2.153   | 2.159   | 2.161   |
| 52  | 2.112               | 2.143   | 2.139   | 2.117   | 2.133   | 2.129   | 2.134   |

FINAL

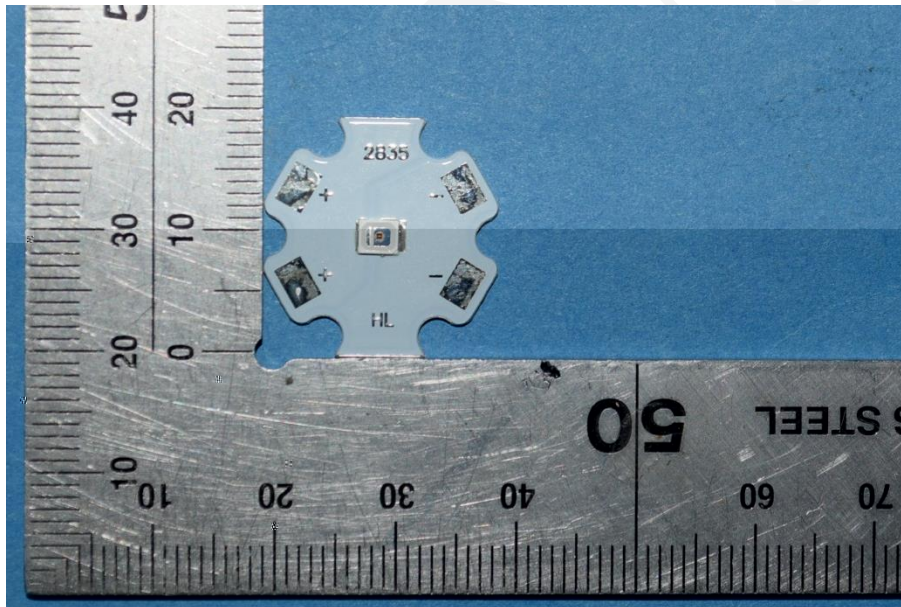
#### 4 - DUT Photo

##### 4.1 #Mechanical Dimensions



All dimensions are in millimeter

##### 4.2 DUT Photo





## Bay Area Compliance Laboratories Corp. (Dongguan)

No.69, Pulongcun, Puxinhu Industrial Area Tangxia ,  
Dongguan, Guangdong, China.  
The IAS Accreditation Number TL-460

### Directions

---

\*\*\*\*\*END OF REPORT\*\*\*\*\*

FUNNIAL