TM-21 Report

Table 1: Report at each LM-80 Test Condition					
Description of LED Light Source Tested (manufacturer, model, catalog number)	LED Manufacturer: Samsung; LED Model No: LM281B				
Test Condition 1 - 85ºC Case Temp		**Test Condition 2 - 105ºC Case Temp**			
Sample size	20	Sample size	20	Sample size	-
Number of failures	0	Number of failures	0	Number of failures	-
DUT drive current used in the test (mA)	150	DUT drive current used in the test (mA)	150	DUT drive current used in the test (mA)	-
Test duration (hours)	6,000	Test duration (hours)	6,000	Test duration (hours)	-
Test duration used for projection (hour to hour)	1,000 - 6,000	Test duration used for projection (hour to hour)	1,000 - 6,000	Test duration used for projection (hour to hour)	-
Tested case temperature (ºC)	85	Tested case temperature (ºC)	105	Tested case temperature (ºC)	-
α	4.826E-06	α	5.690E-06	α	-
B	1.007	B	1.007	B	-
Reported L70(6k) (hours)	>36000	Reported L70(6k) (hours)	>36000	Reported L70(6k) (hours)	-

Table 2: Interpolation Report (projection based on *in-situ* temperature entered)	
$T_{s,1}$ (ºC)	85.00
$T_{s,1}$ (K)	358.15
α_1	4.826E-06
B_1	1.007
$T_{s,2}$ (ºC)	-
$T_{s,2}$ (K)	-
α_2	-
B_2	-
E_a/k_b	-
A	-
B_0	1.007
$T_{s,i}$ (ºC)	85.00
$T_{s,i}$ (K)	358.15
α_i	4.826E-06
Reported L70(6k) at 85ºC (hours)	>36000

Report Generated By: Jeremy B	Notes: For HAL-LC-XX-LED Series
Company: Larson Electronics LLC	
Date: 5/18/2021	

TM-21 Inputs

Instructions
Yellow fields are completed by the user. Fields not used should be left blank. Cyan fields are calculated based on user entries. First, enter a description of the LED light source tested. Then complete the fields labeled "LM-80 Testing Details". Test duration must be at least 6,000 hours. If only one case temperature data set is to be used (no interpolation), complete only "Tested case temperature 1". If the in-situ values falls between two cases temperatures, enter only those two case temperature data sets in Tested case temperature 1 and 2 in ascending temperature order. Next, further to the right, in the corresponding box(es) for each tested case temperature, enter the test data along with the time (in hours) at which each measurement was taken. Data entered must be normalized then averaged measured data (per TM-21 sections 5.2.1 and 5.2.2). Enter drive current, in-situ temperature data and the percentage of initial lumens to project to in the fields labeled "In-Situ Inputs". Results can be tailored to estimate lumen maintenance at a specific time by entering a value (t) in the yellow field. A complete TM-21 report will appear on the next tab labeled "Report".

LM-80 Test Inputs

Description of LED Light Source Tested (manufacturer, model, catalog number)
LED Manufacturer: Samsung; LED Model No: LM281B

LM-80 Testing Details	
Total number of units tested per case temperature:	20
Number of failures:	0
Number of units measured:	20
Test duration (hours):	6000
Tested drive current (mA):	150
Tested case temperature 1 (T_c, ºC):	85
Tested case temperature 2 (T_c, ºC):	105
Tested case temperature 3 (T_c, ºC):	

Please enter case temperatures in ascending order

Test Data for 85ºC Case Temperature	
Time (hours)	Lumen Maintenance (%)
0	100.00%
1000	100.23%
2000	99.79%
3000	99.30%
4000	98.79%
5000	98.30%
6000	97.88%

Test Data for 105ºC Case Temperature	
Time (hours)	Lumen Maintenance (%)
0	100.00%
1000	100.10%
2000	99.60%
3000	99.01%
4000	98.43%
5000	97.84%
6000	97.34%

Tested Case Temperature 3	
Time (hours)	Lumen Maintenance (%)

In-Situ Inputs

Drive current for each LED package/array/module (mA):	150
In-situ case temperature (T_c, ºC):	85
Percentage of initial lumens to project to (e.g. for L_{70}, enter 70):	70

Results

Time (t) at which to estimate lumen maintenance (hours):	75,000
Lumen maintenance at time (t) (%):	70.14%
Reported L70 (hours):	>36000