DQA MTBF Report

	Judgment	Approve	Prepared
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The MTBF Report of R213UCE-L01 sample

Model：	R213UCE-L01	Reporter：	Mingchi.huang	Date：	2020/5/20	Test Region：	RA Lab	Ambient Condition：	25℃

I. Test Condition：

Ta = 50℃，Test time = 500hrs，Sample Quantity = 12pcs

Ta = 50℃, Humidity =80% RH，Test time = 500hrs，Sample Quantity = 12pcs

Ta = 50℃, Humidity =80% RH，Test time = 1,000hrs，Sample Quantity = 6pcs

Ta = 50℃(on/off)，Test time =240hrs，Sample Quantity = 6pcs

II. Judgment Rule：

$\hat{MTBF}_L$ **> 50,000 hours @ 90% Confidence Level (Exclude LED)**

III. Judgment Criteria：

Function OK.

IV. Calculating method：

$$\hat{MTBF}_L = \frac{2*\Sigma\,(n * AF * t)}{\chi^2((2r+2), 90\%CL)}$$

- n：Quantity of test samples
- AF：Acceleration Factor
- t：Test Hours
- χ^2：Chi-square function
- r：Failed Quantity

V. Test Result：

1. After RA test, the function of all samples is OK.
2. So, r= 0, χ^2 (2r+2)= 4.61 @ 90% confidence level.
3. RT = 25℃ and Test temperature = 50℃ So, AF = 5.73；Power cycling(AF)=1.5
4. $\hat{MTBF}$ = 2*{12*5.73*500+12*5.73*500+6*5.73*1,000+6*5.73*1.5*240}/4.61= 50,116 > 50,000 hrs

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VI. Conclusion：

The $\hat{\Lambda}$ **MTBF$_L$** of R213UCE-L01 > 50,000 Hours. (Exclude LED)

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