



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-2835HW-2C-S1-08-PCT-HR3

Report Type: 10000 Hours Test Report		Product Type: LED Package	
Test Engineer:	Pote Wang <i>Pote Wang</i>		
Report Number:	RSZ180912501-10-10000-M3		
Test Date:	2018-09-17 to 2020-03-10		
Report Date:	2020-08-04		
Revised Note:	The previous report RSZ180912501-10-10000-M2 is replaced by this report on 2020-08-04		
Reviewed By:	Blake Zhang / EE Engineer		
Test Facility:	Test facility was located at No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China.		
Prepared By:	Bay Area Compliance Laboratories Corp. (Dongguan). No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China. Tel: +86-0769-86858888 Fax:+86-0769-86858588		
Accreditation:	The IAS Accreditation Number TL-460.		

TABLE OF CONTENTS

1 - General Information	3
1.1 Description of LED Light Sources	3
1.2 Standards and Reference Documentations	21
1.3 Testing Equipment	21
1.4 Drive Level	21
1.5 Ambient Conditions for Maintenance Test.....	21
1.6 Photometric Measurement Method and Uncertainty.....	22
1.7 Statement of Traceability	22
1.8 Sample Set.....	22
2 - Summary of Test Result	23
3 - Test Data	24
3.1 Data Set 1, 85°C, 150mA (Lumen Maintenance)	24
3.2 Data Set 1, 85°C, 150mA (Forward Voltage).....	25
3.3 Data Set 1, 85°C, 150mA (Chromaticity Shift)	26
3.4 Data Set 2, 105°C, 150mA (Lumen Maintenance)	27
3.5 Data Set 2, 105°C, 150mA (Forward Voltage).....	28
3.6 Data Set 2, 105°C, 150mA (Chromaticity Shift).....	29
4 - DUT Photo	30
4.1 #Mechanical Dimensions.....	30
4.2 DUT Photo.....	30
5 - Report Revision	31
Directions	32

1 - General Information

1.1 Description of LED Light Sources

Sample Size:

60 PCS test samples were in good condition and received on 2018-09-12. The samples were numbered from 1 to 30 and 31 to 60.

#Manufacturer:	Hongli Zhihui Group Co.,Ltd. Guangzhou Branch
#Part Number:	HL-AS-2835HW-2C-S1-08-PCT-HR3
#Part Type:	LED Package
#Drive Level:	DC 150mA
#Nominal CCT:	2700K
#Power:	0.96W
#Average Current Density per LED die:	1159.555 mA/mm ²
#Average Power Density per LED die:	3.827 W/mm ²
#CRI:	80
#Die Spacing:	0.15mm

Sampling Method:

LED samples for IESNA LM-80 testing consist of units built from a minimum of three manufacturing lots with each manufacturing lot built from different wafer lots built on non-consecutive days.

These manufacturing lots are picked to represent a wide parametric distribution.

#Family products covered by this report:

According to *ENERGY STAR® Requirements for the Use of LM-80 Data*, the following products can be covered by this report base on the information and declaration provided by manufacturer. The information of these models shows that the covered products meet all section 4 requirements of *ENERGY STAR® Requirements for the Use of LM-80 Data* (September 28, 2017)

This report covers the following models:

Model type	Model name	CRI (typ.)	CCT (typ.)	Series	Parallel	Power density (W/mm ²)	Current density per LED die (mA/mm ²)	Current per die (mA)	Distance between of dies	Current (mA)
Tested model	HL-AS-2835HW-2C-S1-08-PCT-HR3	80	2700K	2	1	0.0979	1159.555	150	0.15	150
Multiple models	HL-AS-2835HW-2C-S1-08-PCT-HR3	80	3000K	2	1	0.0979	1159.555	150	0.15	150
		80	4000K	2	1	0.0979	1159.555	150	0.15	150
		80	5000K	2	1	0.0979	1159.555	150	0.15	150
		80	5700K	2	1	0.0979	1159.555	150	0.15	150
		80	6500K	2	1	0.0979	1159.555	150	0.15	150
		80	≥2200K	2	1	0.0979	1159.555	150	0.15	150
Multiple models	HL-AS-2835HW-2C-S1-08-PCT-HR3(R9)	80	2700K	2	1	0.0979	1159.555	150	0.15	150
		80	3000K	2	1	0.0979	1159.555	150	0.15	150
		80	4000K	2	1	0.0979	1159.555	150	0.15	150
		80	5000K	2	1	0.0979	1159.555	150	0.15	150
		80	5700K	2	1	0.0979	1159.555	150	0.15	150
		80	6500K	2	1	0.0979	1159.555	150	0.15	150
		80	≥2200K	2	1	0.0979	1159.555	150	0.15	150

Multiple models	HL-AS-2835HW-2C-S1-08L-PCT-HR3	80	2700K	2	1	0.0979	1159.555	150	0.15	150
		80	3000K	2	1	0.0979	1159.555	150	0.15	150
		80	4000K	2	1	0.0979	1159.555	150	0.15	150
		80	5000K	2	1	0.0979	1159.555	150	0.15	150
		80	5700K	2	1	0.0979	1159.555	150	0.15	150
		80	6500K	2	1	0.0979	1159.555	150	0.15	150
		80	≥2200K	2	1	0.0979	1159.555	150	0.15	150
Multiple models	HL-AS-2835HW-2C-S1-08L-PCT-HR3(R9)	80	2700K	2	1	0.0979	1159.555	150	0.15	150
		80	3000K	2	1	0.0979	1159.555	150	0.15	150
		80	4000K	2	1	0.0979	1159.555	150	0.15	150
		80	5000K	2	1	0.0979	1159.555	150	0.15	150
		80	5700K	2	1	0.0979	1159.555	150	0.15	150
		80	6500K	2	1	0.0979	1159.555	150	0.15	150
		80	≥2200K	2	1	0.0979	1159.555	150	0.15	150
Multiple models	HL-AS-2835DW-2C-S1-08-PCT-HR3	80	2700K	2	1	0.0979	753.466	150	0.15	150
		80	3000K	2	1	0.0979	753.466	150	0.15	150
		80	4000K	2	1	0.0979	753.466	150	0.15	150
		80	5000K	2	1	0.0979	753.466	150	0.15	150
		80	5700K	2	1	0.0979	753.466	150	0.15	150
		80	6500K	2	1	0.0979	753.466	150	0.15	150
		80	≥2200K	2	1	0.0979	753.466	150	0.15	150
Multiple models	HL-AS-2835DW-2C-S1-08-PCT-HR3(R9)	80	2700K	2	1	0.0979	753.466	150	0.15	150
		80	3000K	2	1	0.0979	753.466	150	0.15	150
		80	4000K	2	1	0.0979	753.466	150	0.15	150
		80	5000K	2	1	0.0979	753.466	150	0.15	150
		80	5700K	2	1	0.0979	753.466	150	0.15	150
		80	6500K	2	1	0.0979	753.466	150	0.15	150
		80	≥2200K	2	1	0.0979	753.466	150	0.15	150
Multiple models	HL-AS-2835DW-2C-S1-08L-PCT-HR3	80	2700K	2	1	0.0979	753.466	150	0.15	150
		80	3000K	2	1	0.0979	753.466	150	0.15	150
		80	4000K	2	1	0.0979	753.466	150	0.15	150
		80	5000K	2	1	0.0979	753.466	150	0.15	150
		80	5700K	2	1	0.0979	753.466	150	0.15	150
		80	6500K	2	1	0.0979	753.466	150	0.15	150
		80	≥2200K	2	1	0.0979	753.466	150	0.15	150
Multiple models	HL-AS-2835DW-2C-S1-08L-PCT-HR3(R9)	80	2700K	2	1	0.0979	753.466	150	0.15	150
		80	3000K	2	1	0.0979	753.466	150	0.15	150
		80	4000K	2	1	0.0979	753.466	150	0.15	150
		80	5000K	2	1	0.0979	753.466	150	0.15	150
		80	5700K	2	1	0.0979	753.466	150	0.15	150
		80	6500K	2	1	0.0979	753.466	150	0.15	150
		80	≥2200K	2	1	0.0979	753.466	150	0.15	150

Multiple models	HL-AS-2835HVW-2C-S1-08-PCT-HR3	80	2700K	2	1	0.0582	255.495	30	0.15	30
		80	3000K	2	1	0.0582	255.495	30	0.15	30
		80	4000K	2	1	0.0582	255.495	30	0.15	30
		80	5000K	2	1	0.0582	255.495	30	0.15	30
		80	5700K	2	1	0.0582	255.495	30	0.15	30
		80	6500K	2	1	0.0582	255.495	30	0.15	30
		80	≥2200K	2	1	0.0582	255.495	30	0.15	30
Multiple models	HL-AS-2835HVW-2C-S1-08-PCT-HR3(R9)	80	2700K	2	1	0.0582	255.495	30	0.15	30
		80	3000K	2	1	0.0582	255.495	30	0.15	30
		80	4000K	2	1	0.0582	255.495	30	0.15	30
		80	5000K	2	1	0.0582	255.495	30	0.15	30
		80	5700K	2	1	0.0582	255.495	30	0.15	30
		80	6500K	2	1	0.0582	255.495	30	0.15	30
		80	≥2200K	2	1	0.0582	255.495	30	0.15	30
Multiple models	HL-AS-2835HVW-2C-S1-08L-PCT-HR3	80	2700K	2	1	0.0582	255.495	30	0.15	30
		80	3000K	2	1	0.0582	255.495	30	0.15	30
		80	4000K	2	1	0.0582	255.495	30	0.15	30
		80	5000K	2	1	0.0582	255.495	30	0.15	30
		80	5700K	2	1	0.0582	255.495	30	0.15	30
		80	6500K	2	1	0.0582	255.495	30	0.15	30
		80	≥2200K	2	1	0.0582	255.495	30	0.15	30
Multiple models	HL-AS-2835HVW-2C-S1-08L-PCT-HR3(R9)	80	2700K	2	1	0.0582	255.495	30	0.15	30
		80	3000K	2	1	0.0582	255.495	30	0.15	30
		80	4000K	2	1	0.0582	255.495	30	0.15	30
		80	5000K	2	1	0.0582	255.495	30	0.15	30
		80	5700K	2	1	0.0582	255.495	30	0.15	30
		80	6500K	2	1	0.0582	255.495	30	0.15	30
		80	≥2200K	2	1	0.0582	255.495	30	0.15	30
Multiple models	HL-AS-2835DVVW-2C-S1-08-PCT-HR3	80	2700K	2	1	0.0979	273.53	60	0.15	60
		80	3000K	2	1	0.0979	273.53	60	0.15	60
		80	4000K	2	1	0.0979	273.53	60	0.15	60
		80	5000K	2	1	0.0979	273.53	60	0.15	60
		80	5700K	2	1	0.0979	273.53	60	0.15	60
		80	6500K	2	1	0.0979	273.53	60	0.15	60
		80	≥2200K	2	1	0.0979	273.53	60	0.15	60
Multiple models	HL-AS-2835DVVW-2C-S1-08-PCT-HR3(R9)	80	2700K	2	1	0.0979	273.53	60	0.15	60
		80	3000K	2	1	0.0979	273.53	60	0.15	60
		80	4000K	2	1	0.0979	273.53	60	0.15	60
		80	5000K	2	1	0.0979	273.53	60	0.15	60
		80	5700K	2	1	0.0979	273.53	60	0.15	60
		80	6500K	2	1	0.0979	273.53	60	0.15	60
		80	≥2200K	2	1	0.0979	273.53	60	0.15	60

Multiple models	HL-AS-2835DVW-2C-S1-08L-PCT-HR3	80	2700K	2	1	0.0979	273.53	60	0.15	60
		80	3000K	2	1	0.0979	273.53	60	0.15	60
		80	4000K	2	1	0.0979	273.53	60	0.15	60
		80	5000K	2	1	0.0979	273.53	60	0.15	60
		80	5700K	2	1	0.0979	273.53	60	0.15	60
		80	6500K	2	1	0.0979	273.53	60	0.15	60
		80	≥2200K	2	1	0.0979	273.53	60	0.15	60
Multiple models	HL-AS-2835DVW-2C-S1-08L-PCT-HR3(R9)	80	2700K	2	1	0.0979	273.53	60	0.15	60
		80	3000K	2	1	0.0979	273.53	60	0.15	60
		80	4000K	2	1	0.0979	273.53	60	0.15	60
		80	5000K	2	1	0.0979	273.53	60	0.15	60
		80	5700K	2	1	0.0979	273.53	60	0.15	60
		80	6500K	2	1	0.0979	273.53	60	0.15	60
		80	≥2200K	2	1	0.0979	273.53	60	0.15	60
Multiple models	HL-AS-2835DVW-2C-S1-08-PCT-HR3	80	2700K	2	1	0.0979	134.783	30	0.15	30
		80	3000K	2	1	0.0979	134.783	30	0.15	30
		80	4000K	2	1	0.0979	134.783	30	0.15	30
		80	5000K	2	1	0.0979	134.783	30	0.15	30
		80	5700K	2	1	0.0979	134.783	30	0.15	30
		80	6500K	2	1	0.0979	134.783	30	0.15	30
		80	≥2200K	2	1	0.0979	134.783	30	0.15	30
Multiple models	HL-AS-2835DVW-2C-S1-08-PCT-HR3(R9)	80	2700K	2	1	0.0979	134.783	30	0.15	30
		80	3000K	2	1	0.0979	134.783	30	0.15	30
		80	4000K	2	1	0.0979	134.783	30	0.15	30
		80	5000K	2	1	0.0979	134.783	30	0.15	30
		80	5700K	2	1	0.0979	134.783	30	0.15	30
		80	6500K	2	1	0.0979	134.783	30	0.15	30
		80	≥2200K	2	1	0.0979	134.783	30	0.15	30
Multiple models	HL-AS-2835DVW-2C-S1-08L-PCT-HR3	80	2700K	2	1	0.0979	134.783	30	0.15	30
		80	3000K	2	1	0.0979	134.783	30	0.15	30
		80	4000K	2	1	0.0979	134.783	30	0.15	30
		80	5000K	2	1	0.0979	134.783	30	0.15	30
		80	5700K	2	1	0.0979	134.783	30	0.15	30
		80	6500K	2	1	0.0979	134.783	30	0.15	30
		80	≥2200K	2	1	0.0979	134.783	30	0.15	30
Multiple models	HL-AS-2835DVW-2C-S1-08L-PCT-HR3(R9)	80	2700K	2	1	0.0979	134.783	30	0.15	30
		80	3000K	2	1	0.0979	134.783	30	0.15	30
		80	4000K	2	1	0.0979	134.783	30	0.15	30
		80	5000K	2	1	0.0979	134.783	30	0.15	30
		80	5700K	2	1	0.0979	134.783	30	0.15	30
		80	6500K	2	1	0.0979	134.783	30	0.15	30
		80	≥2200K	2	1	0.0979	134.783	30	0.15	30

Multiple models	HL-AS-2835HW-2-S1-08-PCT-HR3	80	2700K	1	2	0.0204	463.822	60	0.15	60
		80	3000K	1	2	0.0204	463.822	60	0.15	60
		80	4000K	1	2	0.0204	463.822	60	0.15	60
		80	5000K	1	2	0.0204	463.822	60	0.15	60
		80	5700K	1	2	0.0204	463.822	60	0.15	60
		80	6500K	1	2	0.0204	463.822	60	0.15	60
		80	≥2200K	1	2	0.0204	463.822	60	0.15	60
Multiple models	HL-AS-2835HW-2-S1-08-PCT-HR3(R9)	80	2700K	1	2	0.0204	463.822	60	0.15	60
		80	3000K	1	2	0.0204	463.822	60	0.15	60
		80	4000K	1	2	0.0204	463.822	60	0.15	60
		80	5000K	1	2	0.0204	463.822	60	0.15	60
		80	5700K	1	2	0.0204	463.822	60	0.15	60
		80	6500K	1	2	0.0204	463.822	60	0.15	60
		80	≥2200K	1	2	0.0204	463.822	60	0.15	60
Multiple models	HL-AS-2835HW-2-S1-08L-PCT-HR3	80	2700K	1	2	0.0204	463.822	60	0.15	60
		80	3000K	1	2	0.0204	463.822	60	0.15	60
		80	4000K	1	2	0.0204	463.822	60	0.15	60
		80	5000K	1	2	0.0204	463.822	60	0.15	60
		80	5700K	1	2	0.0204	463.822	60	0.15	60
		80	6500K	1	2	0.0204	463.822	60	0.15	60
		80	≥2200K	1	2	0.0204	463.822	60	0.15	60
Multiple models	HL-AS-2835HW-2-S1-08L-PCT-HR3(R9)	80	2700K	1	2	0.0204	463.822	60	0.15	60
		80	3000K	1	2	0.0204	463.822	60	0.15	60
		80	4000K	1	2	0.0204	463.822	60	0.15	60
		80	5000K	1	2	0.0204	463.822	60	0.15	60
		80	5700K	1	2	0.0204	463.822	60	0.15	60
		80	6500K	1	2	0.0204	463.822	60	0.15	60
		80	≥2200K	1	2	0.0204	463.822	60	0.15	60
Multiple models	HL-AS-2835DW-2-S1-08-PCT-HR3	80	2700K	1	2	0.0204	309.997	60	0.15	60
		80	3000K	1	2	0.0204	309.997	60	0.15	60
		80	4000K	1	2	0.0204	309.997	60	0.15	60
		80	5000K	1	2	0.0204	309.997	60	0.15	60
		80	5700K	1	2	0.0204	309.997	60	0.15	60
		80	6500K	1	2	0.0204	309.997	60	0.15	60
		80	≥2200K	1	2	0.0204	309.997	60	0.15	60
Multiple models	HL-AS-2835DW-2-S1-08-PCT-HR3(R9)	80	2700K	1	2	0.0204	309.997	60	0.15	60
		80	3000K	1	2	0.0204	309.997	60	0.15	60
		80	4000K	1	2	0.0204	309.997	60	0.15	60
		80	5000K	1	2	0.0204	309.997	60	0.15	60
		80	5700K	1	2	0.0204	309.997	60	0.15	60
		80	6500K	1	2	0.0204	309.997	60	0.15	60
		80	≥2200K	1	2	0.0204	309.997	60	0.15	60

Multiple models	HL-AS-2835DW-2-S1-08L-PCT-HR3	80	2700K	1	2	0.0204	309.997	60	0.15	60
		80	3000K	1	2	0.0204	309.997	60	0.15	60
		80	4000K	1	2	0.0204	309.997	60	0.15	60
		80	5000K	1	2	0.0204	309.997	60	0.15	60
		80	5700K	1	2	0.0204	309.997	60	0.15	60
		80	6500K	1	2	0.0204	309.997	60	0.15	60
		80	≥2200K	1	2	0.0204	309.997	60	0.15	60
Multiple models	HL-AS-2835DW-2-S1-08L-PCT-HR3(R9)	80	2700K	1	2	0.0204	309.997	60	0.15	60
		80	3000K	1	2	0.0204	309.997	60	0.15	60
		80	4000K	1	2	0.0204	309.997	60	0.15	60
		80	5000K	1	2	0.0204	309.997	60	0.15	60
		80	5700K	1	2	0.0204	309.997	60	0.15	60
		80	6500K	1	2	0.0204	309.997	60	0.15	60
		80	≥2200K	1	2	0.0204	309.997	60	0.15	60
Multiple models	HL-AS-2835HW-2-S1-08-PCT-HR3	80	2700K	1	2	0.051	579.782	75	0.15	150
		80	3000K	1	2	0.051	579.782	75	0.15	150
		80	4000K	1	2	0.051	579.782	75	0.15	150
		80	5000K	1	2	0.051	579.782	75	0.15	150
		80	5700K	1	2	0.051	579.782	75	0.15	150
		80	6500K	1	2	0.051	579.782	75	0.15	150
		80	≥2200K	1	2	0.051	579.782	75	0.15	150
Multiple models	HL-AS-2835HW-2-S1-08-PCT-HR3(R9)	80	2700K	1	2	0.051	579.782	75	0.15	150
		80	3000K	1	2	0.051	579.782	75	0.15	150
		80	4000K	1	2	0.051	579.782	75	0.15	150
		80	5000K	1	2	0.051	579.782	75	0.15	150
		80	5700K	1	2	0.051	579.782	75	0.15	150
		80	6500K	1	2	0.051	579.782	75	0.15	150
		80	≥2200K	1	2	0.051	579.782	75	0.15	150
Multiple models	HL-AS-2835HW-2-S1-08L-PCT-HR3	80	2700K	1	2	0.051	579.782	75	0.15	150
		80	3000K	1	2	0.051	579.782	75	0.15	150
		80	4000K	1	2	0.051	579.782	75	0.15	150
		80	5000K	1	2	0.051	579.782	75	0.15	150
		80	5700K	1	2	0.051	579.782	75	0.15	150
		80	6500K	1	2	0.051	579.782	75	0.15	150
		80	≥2200K	1	2	0.051	579.782	75	0.15	150
Multiple models	HL-AS-2835HW-2-S1-08L-PCT-HR3(R9)	80	2700K	1	2	0.051	579.782	75	0.15	150
		80	3000K	1	2	0.051	579.782	75	0.15	150
		80	4000K	1	2	0.051	579.782	75	0.15	150
		80	5000K	1	2	0.051	579.782	75	0.15	150
		80	5700K	1	2	0.051	579.782	75	0.15	150
		80	6500K	1	2	0.051	579.782	75	0.15	150
		80	≥2200K	1	2	0.051	579.782	75	0.15	150

Multiple models	HL-AS-2835DW-2-S1-08-PCT-HR3	80	2700K	1	2	0.051	387.497	75	0.15	150
		80	3000K	1	2	0.051	387.497	75	0.15	150
		80	4000K	1	2	0.051	387.497	75	0.15	150
		80	5000K	1	2	0.051	387.497	75	0.15	150
		80	5700K	1	2	0.051	387.497	75	0.15	150
		80	6500K	1	2	0.051	387.497	75	0.15	150
		80	≥2200K	1	2	0.051	387.497	75	0.15	150
Multiple models	HL-AS-2835DW-2-S1-08-PCT-HR3(R9)	80	2700K	1	2	0.051	387.497	75	0.15	150
		80	3000K	1	2	0.051	387.497	75	0.15	150
		80	4000K	1	2	0.051	387.497	75	0.15	150
		80	5000K	1	2	0.051	387.497	75	0.15	150
		80	5700K	1	2	0.051	387.497	75	0.15	150
		80	6500K	1	2	0.051	387.497	75	0.15	150
		80	≥2200K	1	2	0.051	387.497	75	0.15	150
Multiple models	HL-AS-2835DW-2-S1-08L-PCT-HR3	80	2700K	1	2	0.051	387.497	75	0.15	150
		80	3000K	1	2	0.051	387.497	75	0.15	150
		80	4000K	1	2	0.051	387.497	75	0.15	150
		80	5000K	1	2	0.051	387.497	75	0.15	150
		80	5700K	1	2	0.051	387.497	75	0.15	150
		80	6500K	1	2	0.051	387.497	75	0.15	150
		80	≥2200K	1	2	0.051	387.497	75	0.15	150
Multiple models	HL-AS-2835DW-2-S1-08L-PCT-HR3(R9)	80	2700K	1	2	0.051	387.497	75	0.15	150
		80	3000K	1	2	0.051	387.497	75	0.15	150
		80	4000K	1	2	0.051	387.497	75	0.15	150
		80	5000K	1	2	0.051	387.497	75	0.15	150
		80	5700K	1	2	0.051	387.497	75	0.15	150
		80	6500K	1	2	0.051	387.497	75	0.15	150
		80	≥2200K	1	2	0.051	387.497	75	0.15	150
Multiple models	HL-AS-2835DW-2-S1-08-PCT-HR3	80	2700K	1	2	0.0979	861.112	150	0.15	300
		80	3000K	1	2	0.0979	861.112	150	0.15	300
		80	4000K	1	2	0.0979	861.112	150	0.15	300
		80	5000K	1	2	0.0979	861.112	150	0.15	300
		80	5700K	1	2	0.0979	861.112	150	0.15	300
		80	6500K	1	2	0.0979	861.112	150	0.15	300
		80	≥2200K	1	2	0.0979	861.112	150	0.15	300
Multiple models	HL-AS-2835DW-2-S1-08-PCT-HR3(R9)	80	2700K	1	2	0.0979	861.112	150	0.15	300
		80	3000K	1	2	0.0979	861.112	150	0.15	300
		80	4000K	1	2	0.0979	861.112	150	0.15	300
		80	5000K	1	2	0.0979	861.112	150	0.15	300
		80	5700K	1	2	0.0979	861.112	150	0.15	300
		80	6500K	1	2	0.0979	861.112	150	0.15	300
		80	≥2200K	1	2	0.0979	861.112	150	0.15	300

Multiple models	HL-AS-2835DW-2-S1-08L-PCT-HR3	80	2700K	1	2	0.0979	861.112	150	0.15	300
		80	3000K	1	2	0.0979	861.112	150	0.15	300
		80	4000K	1	2	0.0979	861.112	150	0.15	300
		80	5000K	1	2	0.0979	861.112	150	0.15	300
		80	5700K	1	2	0.0979	861.112	150	0.15	300
		80	6500K	1	2	0.0979	861.112	150	0.15	300
		80	≥2200K	1	2	0.0979	861.112	150	0.15	300
Multiple models	HL-AS-2835DW-2-S1-08L-PCT-HR3(R9)	80	2700K	1	2	0.0979	861.112	150	0.15	300
		80	3000K	1	2	0.0979	861.112	150	0.15	300
		80	4000K	1	2	0.0979	861.112	150	0.15	300
		80	5000K	1	2	0.0979	861.112	150	0.15	300
		80	5700K	1	2	0.0979	861.112	150	0.15	300
		80	6500K	1	2	0.0979	861.112	150	0.15	300
		80	≥2200K	1	2	0.0979	861.112	150	0.15	300
Multiple models	HL-AS-2835HW-2-S1-08-PCT-HR3	80	2700K	1	2	0.0979	1159.555	150	0.15	300
		80	3000K	1	2	0.0979	1159.555	150	0.15	300
		80	4000K	1	2	0.0979	1159.555	150	0.15	300
		80	5000K	1	2	0.0979	1159.555	150	0.15	300
		80	5700K	1	2	0.0979	1159.555	150	0.15	300
		80	6500K	1	2	0.0979	1159.555	150	0.15	300
		80	≥2200K	1	2	0.0979	1159.555	150	0.15	300
Multiple models	HL-AS-2835HW-2-S1-08-PCT-HR3(R9)	80	2700K	1	2	0.0979	1159.555	150	0.15	300
		80	3000K	1	2	0.0979	1159.555	150	0.15	300
		80	4000K	1	2	0.0979	1159.555	150	0.15	300
		80	5000K	1	2	0.0979	1159.555	150	0.15	300
		80	5700K	1	2	0.0979	1159.555	150	0.15	300
		80	6500K	1	2	0.0979	1159.555	150	0.15	300
		80	≥2200K	1	2	0.0979	1159.555	150	0.15	300
Multiple models	HL-AS-2835HW-2-S1-08L-PCT-HR3	80	2700K	1	2	0.0979	1159.555	150	0.15	300
		80	3000K	1	2	0.0979	1159.555	150	0.15	300
		80	4000K	1	2	0.0979	1159.555	150	0.15	300
		80	5000K	1	2	0.0979	1159.555	150	0.15	300
		80	5700K	1	2	0.0979	1159.555	150	0.15	300
		80	6500K	1	2	0.0979	1159.555	150	0.15	300
		80	≥2200K	1	2	0.0979	1159.555	150	0.15	300
Multiple models	HL-AS-2835HW-2-S1-08L-PCT-HR3(R9)	80	2700K	1	2	0.0979	1159.555	150	0.15	300
		80	3000K	1	2	0.0979	1159.555	150	0.15	300
		80	4000K	1	2	0.0979	1159.555	150	0.15	300
		80	5000K	1	2	0.0979	1159.555	150	0.15	300
		80	5700K	1	2	0.0979	1159.555	150	0.15	300
		80	6500K	1	2	0.0979	1159.555	150	0.15	300
		80	≥2200K	1	2	0.0979	1159.555	150	0.15	300

Multiple models	HL-AS-2835DVW-2-S1-08-PCT-HR3	80	2700K	1	2	0.0979	227.942	50	0.15	100
		80	3000K	1	2	0.0979	227.942	50	0.15	100
		80	4000K	1	2	0.0979	227.942	50	0.15	100
		80	5000K	1	2	0.0979	227.942	50	0.15	100
		80	5700K	1	2	0.0979	227.942	50	0.15	100
		80	6500K	1	2	0.0979	227.942	50	0.15	100
		80	≥2200K	1	2	0.0979	227.942	50	0.15	100
Multiple models	HL-AS-2835DVW-2-S1-08-PCT-HR3(R9)	80	2700K	1	2	0.0979	227.942	50	0.15	100
		80	3000K	1	2	0.0979	227.942	50	0.15	100
		80	4000K	1	2	0.0979	227.942	50	0.15	100
		80	5000K	1	2	0.0979	227.942	50	0.15	100
		80	5700K	1	2	0.0979	227.942	50	0.15	100
		80	6500K	1	2	0.0979	227.942	50	0.15	100
		80	≥2200K	1	2	0.0979	227.942	50	0.15	100
Multiple models	HL-AS-2835DVW-2-S1-08L-PCT-HR3	80	2700K	1	2	0.0979	227.942	50	0.15	100
		80	3000K	1	2	0.0979	227.942	50	0.15	100
		80	4000K	1	2	0.0979	227.942	50	0.15	100
		80	5000K	1	2	0.0979	227.942	50	0.15	100
		80	5700K	1	2	0.0979	227.942	50	0.15	100
		80	6500K	1	2	0.0979	227.942	50	0.15	100
		80	≥2200K	1	2	0.0979	227.942	50	0.15	100
Multiple models	HL-AS-2835DVW-2-S1-08L-PCT-HR3(R9)	80	2700K	1	2	0.0979	227.942	50	0.15	100
		80	3000K	1	2	0.0979	227.942	50	0.15	100
		80	4000K	1	2	0.0979	227.942	50	0.15	100
		80	5000K	1	2	0.0979	227.942	50	0.15	100
		80	5700K	1	2	0.0979	227.942	50	0.15	100
		80	6500K	1	2	0.0979	227.942	50	0.15	100
		80	≥2200K	1	2	0.0979	227.942	50	0.15	100
Multiple models	HL-AS-2835DVW-2-S1-08-PCT-HR3	80	2700K	1	2	0.0979	134.783	30	0.15	60
		80	3000K	1	2	0.0979	134.783	30	0.15	60
		80	4000K	1	2	0.0979	134.783	30	0.15	60
		80	5000K	1	2	0.0979	134.783	30	0.15	60
		80	5700K	1	2	0.0979	134.783	30	0.15	60
		80	6500K	1	2	0.0979	134.783	30	0.15	60
		80	≥2200K	1	2	0.0979	134.783	30	0.15	60
Multiple models	HL-AS-2835DVW-2-S1-08-PCT-HR3(R9)	80	2700K	1	2	0.0979	134.783	30	0.15	60
		80	3000K	1	2	0.0979	134.783	30	0.15	60
		80	4000K	1	2	0.0979	134.783	30	0.15	60
		80	5000K	1	2	0.0979	134.783	30	0.15	60
		80	5700K	1	2	0.0979	134.783	30	0.15	60
		80	6500K	1	2	0.0979	134.783	30	0.15	60
		80	≥2200K	1	2	0.0979	134.783	30	0.15	60

Multiple models	HL-AS-2835DVW-2-S1-08L-PCT-HR3	80	2700K	1	2	0.0979	134.783	30	0.15	60
		80	3000K	1	2	0.0979	134.783	30	0.15	60
		80	4000K	1	2	0.0979	134.783	30	0.15	60
		80	5000K	1	2	0.0979	134.783	30	0.15	60
		80	5700K	1	2	0.0979	134.783	30	0.15	60
		80	6500K	1	2	0.0979	134.783	30	0.15	60
		80	≥2200K	1	2	0.0979	134.783	30	0.15	60
Multiple models	HL-AS-2835DVW-2-S1-08L-PCT-HR3(R9)	80	2700K	1	2	0.0979	134.783	30	0.15	60
		80	3000K	1	2	0.0979	134.783	30	0.15	60
		80	4000K	1	2	0.0979	134.783	30	0.15	60
		80	5000K	1	2	0.0979	134.783	30	0.15	60
		80	5700K	1	2	0.0979	134.783	30	0.15	60
		80	6500K	1	2	0.0979	134.783	30	0.15	60
		80	≥2200K	1	2	0.0979	134.783	30	0.15	60
Multiple models	HL-AS-2835DVW-S1-08-PCT-HR3	80	2700K	1	1	0.0582	273.53	60	/	60
		80	3000K	1	1	0.0582	273.53	60	/	60
		80	4000K	1	1	0.0582	273.53	60	/	60
		80	5000K	1	1	0.0582	273.53	60	/	60
		80	5700K	1	1	0.0582	273.53	60	/	60
		80	6500K	1	1	0.0582	273.53	60	/	60
		80	≥2200K	1	1	0.0582	273.53	60	/	60
Multiple models	HL-AS-2835DVW-S1-08-PCT-HR3(R9)	80	2700K	1	1	0.0582	273.53	60	/	60
		80	3000K	1	1	0.0582	273.53	60	/	60
		80	4000K	1	1	0.0582	273.53	60	/	60
		80	5000K	1	1	0.0582	273.53	60	/	60
		80	5700K	1	1	0.0582	273.53	60	/	60
		80	6500K	1	1	0.0582	273.53	60	/	60
		80	≥2200K	1	1	0.0582	273.53	60	/	60
Multiple models	HL-AS-2835DVW-S1-08L-PCT-HR3	80	2700K	1	1	0.0582	273.53	60	/	60
		80	3000K	1	1	0.0582	273.53	60	/	60
		80	4000K	1	1	0.0582	273.53	60	/	60
		80	5000K	1	1	0.0582	273.53	60	/	60
		80	5700K	1	1	0.0582	273.53	60	/	60
		80	6500K	1	1	0.0582	273.53	60	/	60
		80	≥2200K	1	1	0.0582	273.53	60	/	60
Multiple models	HL-AS-2835DVW-S1-08L-PCT-HR3(R9)	80	2700K	1	1	0.0582	273.53	60	/	60
		80	3000K	1	1	0.0582	273.53	60	/	60
		80	4000K	1	1	0.0582	273.53	60	/	60
		80	5000K	1	1	0.0582	273.53	60	/	60
		80	5700K	1	1	0.0582	273.53	60	/	60
		80	6500K	1	1	0.0582	273.53	60	/	60
		80	≥2200K	1	1	0.0582	273.53	60	/	60

Multiple models	HL-AS-2835DVW-S1-08-PCT-HR3	80	2700K	1	1	0.0582	134.783	30	/	30
		80	3000K	1	1	0.0582	134.783	30	/	30
		80	4000K	1	1	0.0582	134.783	30	/	30
		80	5000K	1	1	0.0582	134.783	30	/	30
		80	5700K	1	1	0.0582	134.783	30	/	30
		80	6500K	1	1	0.0582	134.783	30	/	30
		80	≥2200K	1	1	0.0582	134.783	30	/	30
Multiple models	HL-AS-2835DVW-S1-08-PCT-HR3(R9)	80	2700K	1	1	0.0582	134.783	30	/	30
		80	3000K	1	1	0.0582	134.783	30	/	30
		80	4000K	1	1	0.0582	134.783	30	/	30
		80	5000K	1	1	0.0582	134.783	30	/	30
		80	5700K	1	1	0.0582	134.783	30	/	30
		80	6500K	1	1	0.0582	134.783	30	/	30
		80	≥2200K	1	1	0.0582	134.783	30	/	30
Multiple models	HL-AS-2835DVW-S1-08L-PCT-HR3	80	2700K	1	1	0.0582	134.783	30	/	30
		80	3000K	1	1	0.0582	134.783	30	/	30
		80	4000K	1	1	0.0582	134.783	30	/	30
		80	5000K	1	1	0.0582	134.783	30	/	30
		80	5700K	1	1	0.0582	134.783	30	/	30
		80	6500K	1	1	0.0582	134.783	30	/	30
		80	≥2200K	1	1	0.0582	134.783	30	/	30
Multiple models	HL-AS-2835DVW-S1-08L-PCT-HR3(R9)	80	2700K	1	1	0.0582	134.783	30	/	30
		80	3000K	1	1	0.0582	134.783	30	/	30
		80	4000K	1	1	0.0582	134.783	30	/	30
		80	5000K	1	1	0.0582	134.783	30	/	30
		80	5700K	1	1	0.0582	134.783	30	/	30
		80	6500K	1	1	0.0582	134.783	30	/	30
		80	≥2200K	1	1	0.0582	134.783	30	/	30
Multiple models	HL-AS-2835HW-S1-08-PCT-HR3	80	2700K	1	1	0.0204	463.822	60	/	60
		80	3000K	1	1	0.0204	463.822	60	/	60
		80	4000K	1	1	0.0204	463.822	60	/	60
		80	5000K	1	1	0.0204	463.822	60	/	60
		80	5700K	1	1	0.0204	463.822	60	/	60
		80	6500K	1	1	0.0204	463.822	60	/	60
		80	≥2200K	1	1	0.0204	463.822	60	/	60
Multiple models	HL-AS-2835HW-S1-08-PCT-HR3(R9)	80	2700K	1	1	0.0204	463.822	60	/	60
		80	3000K	1	1	0.0204	463.822	60	/	60
		80	4000K	1	1	0.0204	463.822	60	/	60
		80	5000K	1	1	0.0204	463.822	60	/	60
		80	5700K	1	1	0.0204	463.822	60	/	60
		80	6500K	1	1	0.0204	463.822	60	/	60
		80	≥2200K	1	1	0.0204	463.822	60	/	60

Multiple models	HL-AS-2835HW-S1-08L-PCT-HR3	80	2700K	1	1	0.0204	463.822	60	/	60
		80	3000K	1	1	0.0204	463.822	60	/	60
		80	4000K	1	1	0.0204	463.822	60	/	60
		80	5000K	1	1	0.0204	463.822	60	/	60
		80	5700K	1	1	0.0204	463.822	60	/	60
		80	6500K	1	1	0.0204	463.822	60	/	60
		80	≥2200K	1	1	0.0204	463.822	60	/	60
Multiple models	HL-AS-2835HW-S1-08L-PCT-HR3(R9)	80	2700K	1	1	0.0204	463.822	60	/	60
		80	3000K	1	1	0.0204	463.822	60	/	60
		80	4000K	1	1	0.0204	463.822	60	/	60
		80	5000K	1	1	0.0204	463.822	60	/	60
		80	5700K	1	1	0.0204	463.822	60	/	60
		80	6500K	1	1	0.0204	463.822	60	/	60
		80	≥2200K	1	1	0.0204	463.822	60	/	60
Multiple models	HL-AS-2835DW-S1-08-PCT-HR3	80	2700K	1	1	0.051	753.466	150	/	150
		80	3000K	1	1	0.051	753.466	150	/	150
		80	4000K	1	1	0.051	753.466	150	/	150
		80	5000K	1	1	0.051	753.466	150	/	150
		80	5700K	1	1	0.051	753.466	150	/	150
		80	6500K	1	1	0.051	753.466	150	/	150
		80	≥2200K	1	1	0.051	753.466	150	/	150
Multiple models	HL-AS-2835DW-S1-08-PCT-HR3(R9)	80	2700K	1	1	0.051	753.466	150	/	150
		80	3000K	1	1	0.051	753.466	150	/	150
		80	4000K	1	1	0.051	753.466	150	/	150
		80	5000K	1	1	0.051	753.466	150	/	150
		80	5700K	1	1	0.051	753.466	150	/	150
		80	6500K	1	1	0.051	753.466	150	/	150
		80	≥2200K	1	1	0.051	753.466	150	/	150
Multiple models	HL-AS-2835DW-S1-08L-PCT-HR3	80	2700K	1	1	0.051	753.466	150	/	150
		80	3000K	1	1	0.051	753.466	150	/	150
		80	4000K	1	1	0.051	753.466	150	/	150
		80	5000K	1	1	0.051	753.466	150	/	150
		80	5700K	1	1	0.051	753.466	150	/	150
		80	6500K	1	1	0.051	753.466	150	/	150
		80	≥2200K	1	1	0.051	753.466	150	/	150
Multiple models	HL-AS-2835DW-S1-08L-PCT-HR3(R9)	80	2700K	1	1	0.051	753.466	150	/	150
		80	3000K	1	1	0.051	753.466	150	/	150
		80	4000K	1	1	0.051	753.466	150	/	150
		80	5000K	1	1	0.051	753.466	150	/	150
		80	5700K	1	1	0.051	753.466	150	/	150
		80	6500K	1	1	0.051	753.466	150	/	150
		80	≥2200K	1	1	0.051	753.466	150	/	150

Multiple models	HL-AS-2835DW-S1-08-PCT-HR3	80	2700K	1	1	0.0204	309.997	60	/	60
		80	3000K	1	1	0.0204	309.997	60	/	60
		80	4000K	1	1	0.0204	309.997	60	/	60
		80	5000K	1	1	0.0204	309.997	60	/	60
		80	5700K	1	1	0.0204	309.997	60	/	60
		80	6500K	1	1	0.0204	309.997	60	/	60
		80	≥2200K	1	1	0.0204	309.997	60	/	60
Multiple models	HL-AS-2835DW-S1-08-PCT-HR3(R9)	80	2700K	1	1	0.0204	309.997	60	/	60
		80	3000K	1	1	0.0204	309.997	60	/	60
		80	4000K	1	1	0.0204	309.997	60	/	60
		80	5000K	1	1	0.0204	309.997	60	/	60
		80	5700K	1	1	0.0204	309.997	60	/	60
		80	6500K	1	1	0.0204	309.997	60	/	60
		80	≥2200K	1	1	0.0204	309.997	60	/	60
Multiple models	HL-AS-2835DW-S1-08L-PCT-HR3	80	2700K	1	1	0.0204	309.997	60	/	60
		80	3000K	1	1	0.0204	309.997	60	/	60
		80	4000K	1	1	0.0204	309.997	60	/	60
		80	5000K	1	1	0.0204	309.997	60	/	60
		80	5700K	1	1	0.0204	309.997	60	/	60
		80	6500K	1	1	0.0204	309.997	60	/	60
		80	≥2200K	1	1	0.0204	309.997	60	/	60
Multiple models	HL-AS-2835DW-S1-08L-PCT-HR3(R9)	80	2700K	1	1	0.0204	309.997	60	/	60
		80	3000K	1	1	0.0204	309.997	60	/	60
		80	4000K	1	1	0.0204	309.997	60	/	60
		80	5000K	1	1	0.0204	309.997	60	/	60
		80	5700K	1	1	0.0204	309.997	60	/	60
		80	6500K	1	1	0.0204	309.997	60	/	60
		80	≥2200K	1	1	0.0204	309.997	60	/	60
Multiple models	HL-AS-2835DW-S1-08L-PCT-HR3(R9)-KJD	80	2700K	1	1	0.0204	309.997	60	/	60
		80	3000K	1	1	0.0204	309.997	60	/	60
		80	4000K	1	1	0.0204	309.997	60	/	60
		80	5000K	1	1	0.0204	309.997	60	/	60
		80	5700K	1	1	0.0204	309.997	60	/	60
		80	6500K	1	1	0.0204	309.997	60	/	60
		80	≥2200K	1	1	0.0204	309.997	60	/	60
Multiple models	HL-AS-2835HW-S1-08-PCT-HR3	80	2700K	1	1	0.051	930.002	150	/	150
		80	3000K	1	1	0.051	930.002	150	/	150
		80	4000K	1	1	0.051	930.002	150	/	150
		80	5000K	1	1	0.051	930.002	150	/	150
		80	5700K	1	1	0.051	930.002	150	/	150
		80	6500K	1	1	0.051	930.002	150	/	150
		80	≥2200K	1	1	0.051	930.002	150	/	150

Multiple models	HL-AS-2835HW-S1-08-PCT-HR3(R9)	80	2700K	1	1	0.051	930.002	150	/	150
		80	3000K	1	1	0.051	930.002	150	/	150
		80	4000K	1	1	0.051	930.002	150	/	150
		80	5000K	1	1	0.051	930.002	150	/	150
		80	5700K	1	1	0.051	930.002	150	/	150
		80	6500K	1	1	0.051	930.002	150	/	150
		80	≥2200K	1	1	0.051	930.002	150	/	150
Multiple models	HL-AS-2835HW-S1-08L-PCT-HR3	80	2700K	1	1	0.051	930.002	150	/	150
		80	3000K	1	1	0.051	930.002	150	/	150
		80	4000K	1	1	0.051	930.002	150	/	150
		80	5000K	1	1	0.051	930.002	150	/	150
		80	5700K	1	1	0.051	930.002	150	/	150
		80	6500K	1	1	0.051	930.002	150	/	150
		80	≥2200K	1	1	0.051	930.002	150	/	150
Multiple models	HL-AS-2835HW-S1-08L-PCT-HR3(R9)	80	2700K	1	1	0.051	930.002	150	/	150
		80	3000K	1	1	0.051	930.002	150	/	150
		80	4000K	1	1	0.051	930.002	150	/	150
		80	5000K	1	1	0.051	930.002	150	/	150
		80	5700K	1	1	0.051	930.002	150	/	150
		80	6500K	1	1	0.051	930.002	150	/	150
		80	≥2200K	1	1	0.051	930.002	150	/	150
Multiple models	HL-**-2835D***W-S1-08*-PCT-HR3(R9)-***-**	80	2700K	1	1	0.0204	210.407	60	/	60
		80	3000K	1	1	0.0204	210.407	60	/	60
		80	4000K	1	1	0.0204	210.407	60	/	60
		80	5000K	1	1	0.0204	210.407	60	/	60
		80	5700K	1	1	0.0204	210.407	60	/	60
		80	6500K	1	1	0.0204	210.407	60	/	60
		80	≥2200K	1	1	0.0204	210.407	60	/	60
Multiple models	HL-**-2835D***W-2-S1-08*-PCT-HR3(R9)-***-**	80	2700K	1	2	0.0367	210.407	60	0.15	120
		80	3000K	1	2	0.0367	210.407	60	0.15	120
		80	4000K	1	2	0.0367	210.407	60	0.15	120
		80	5000K	1	2	0.0367	210.407	60	0.15	120
		80	5700K	1	2	0.0367	210.407	60	0.15	120
		80	6500K	1	2	0.0367	210.407	60	0.15	120
		80	≥2200K	1	2	0.0367	210.407	60	0.15	120
Multiple models	HL-**-2835D***W-2-LVR5-S1-08*-PCT-HR3(R9)-***-**	80	2700K	1	2	0.0204	172.223	30	0.15	60
		80	3000K	1	2	0.0204	172.223	30	0.15	60
		80	4000K	1	2	0.0204	172.223	30	0.15	60
		80	5000K	1	2	0.0204	172.223	30	0.15	60
		80	5700K	1	2	0.0204	172.223	30	0.15	60
		80	6500K	1	2	0.0204	172.223	30	0.15	60
		80	≥2200K	1	2	0.0204	172.223	30	0.15	60

Multiple models	HL-**-2835D***W-2-LVR5-S1-08*-PCT-HR3(R9)-***-**	80	2700K	1	2	0.0979	861.112	150	0.15	300
		80	3000K	1	2	0.0979	861.112	150	0.15	300
		80	4000K	1	2	0.0979	861.112	150	0.15	300
		80	5000K	1	2	0.0979	861.112	150	0.15	300
		80	5700K	1	2	0.0979	861.112	150	0.15	300
		80	6500K	1	2	0.0979	861.112	150	0.15	300
		80	≥2200K	1	2	0.0979	861.112	150	0.15	300
Multiple models	HL-**-2835D***W-2-LVR2-S1-08*-PCT-HR3(R9)-***-**	80	2700K	1	2	0.0979	861.112	150	0.15	300
		80	3000K	1	2	0.0979	861.112	150	0.15	300
		80	4000K	1	2	0.0979	861.112	150	0.15	300
		80	5000K	1	2	0.0979	861.112	150	0.15	300
		80	5700K	1	2	0.0979	861.112	150	0.15	300
		80	6500K	1	2	0.0979	861.112	150	0.15	300
		80	≥2200K	1	2	0.0979	861.112	150	0.15	300
Multiple models	SL-*B2835FTA-21EA*	80	2700K	2	1	0.0979	1159.555	150	0.15	150
		80	3000K	2	1	0.0979	1159.555	150	0.15	150
		80	4000K	2	1	0.0979	1159.555	150	0.15	150
		80	5000K	2	1	0.0979	1159.555	150	0.15	150
		80	5700K	2	1	0.0979	1159.555	150	0.15	150
		80	6500K	2	1	0.0979	1159.555	150	0.15	150
		80	≥2200K	2	1	0.0979	1159.555	150	0.15	150
Multiple models	SL-*B2835FTA-21EA*H	80	2700K	2	1	0.0979	1159.555	150	0.15	150
		80	3000K	2	1	0.0979	1159.555	150	0.15	150
		80	4000K	2	1	0.0979	1159.555	150	0.15	150
		80	5000K	2	1	0.0979	1159.555	150	0.15	150
		80	5700K	2	1	0.0979	1159.555	150	0.15	150
		80	6500K	2	1	0.0979	1159.555	150	0.15	150
		80	≥2200K	2	1	0.0979	1159.555	150	0.15	150
Multiple models	SL-*B2835FTA-21EA*-**	80	2700K	2	1	0.0979	1159.555	150	0.15	150
		80	3000K	2	1	0.0979	1159.555	150	0.15	150
		80	4000K	2	1	0.0979	1159.555	150	0.15	150
		80	5000K	2	1	0.0979	1159.555	150	0.15	150
		80	5700K	2	1	0.0979	1159.555	150	0.15	150
		80	6500K	2	1	0.0979	1159.555	150	0.15	150
		80	≥2200K	2	1	0.0979	1159.555	150	0.15	150
Multiple models	SL-*B2835FTA-21EA*H**-**	80	2700K	2	1	0.0979	1159.555	150	0.15	150
		80	3000K	2	1	0.0979	1159.555	150	0.15	150
		80	4000K	2	1	0.0979	1159.555	150	0.15	150
		80	5000K	2	1	0.0979	1159.555	150	0.15	150
		80	5700K	2	1	0.0979	1159.555	150	0.15	150
		80	6500K	2	1	0.0979	1159.555	150	0.15	150
		80	≥2200K	2	1	0.0979	1159.555	150	0.15	150

Multiple models	SL- *B2835FTA- 21EA*/*	80	2700K	2	1	0.0979	1159.555	150	0.15	150
		80	3000K	2	1	0.0979	1159.555	150	0.15	150
		80	4000K	2	1	0.0979	1159.555	150	0.15	150
		80	5000K	2	1	0.0979	1159.555	150	0.15	150
		80	5700K	2	1	0.0979	1159.555	150	0.15	150
		80	6500K	2	1	0.0979	1159.555	150	0.15	150
		80	≥2200K	2	1	0.0979	1159.555	150	0.15	150
Multiple models	SL- *B2835FTA- 21EA*H/*	80	2700K	2	1	0.0979	1159.555	150	0.15	150
		80	3000K	2	1	0.0979	1159.555	150	0.15	150
		80	4000K	2	1	0.0979	1159.555	150	0.15	150
		80	5000K	2	1	0.0979	1159.555	150	0.15	150
		80	5700K	2	1	0.0979	1159.555	150	0.15	150
		80	6500K	2	1	0.0979	1159.555	150	0.15	150
		80	≥2200K	2	1	0.0979	1159.555	150	0.15	150
Multiple models	SL- **B2835FTA- 21EA****- APH***	80	2700K	2	1	0.0979	1159.555	150	0.15	150
		80	3000K	2	1	0.0979	1159.555	150	0.15	150
		80	4000K	2	1	0.0979	1159.555	150	0.15	150
		80	5000K	2	1	0.0979	1159.555	150	0.15	150
		80	5700K	2	1	0.0979	1159.555	150	0.15	150
		80	6500K	2	1	0.0979	1159.555	150	0.15	150
		80	≥2200K	2	1	0.0979	1159.555	150	0.15	150
Multiple models	SL- *B2835FTA- 11EA*	80	2700K	1	1	0.051	930.002	150	/	150
		80	3000K	1	1	0.051	930.002	150	/	150
		80	4000K	1	1	0.051	930.002	150	/	150
		80	5000K	1	1	0.051	930.002	150	/	150
		80	5700K	1	1	0.051	930.002	150	/	150
		80	6500K	1	1	0.051	930.002	150	/	150
		80	≥2200K	1	1	0.051	930.002	150	/	150
Multiple models	SL- *B2835FTA- 11EA*H	80	2700K	1	1	0.051	930.002	150	/	150
		80	3000K	1	1	0.051	930.002	150	/	150
		80	4000K	1	1	0.051	930.002	150	/	150
		80	5000K	1	1	0.051	930.002	150	/	150
		80	5700K	1	1	0.051	930.002	150	/	150
		80	6500K	1	1	0.051	930.002	150	/	150
		80	≥2200K	1	1	0.051	930.002	150	/	150
Multiple models	SL- *B2835FTA- 11EA*-**	80	2700K	1	1	0.051	930.002	150	/	150
		80	3000K	1	1	0.051	930.002	150	/	150
		80	4000K	1	1	0.051	930.002	150	/	150
		80	5000K	1	1	0.051	930.002	150	/	150
		80	5700K	1	1	0.051	930.002	150	/	150
		80	6500K	1	1	0.051	930.002	150	/	150
		80	≥2200K	1	1	0.051	930.002	150	/	150

Multiple models	SL- *B2835FTA- 11EA*H-**	80	2700K	1	1	0.051	930.002	150	/	150
		80	3000K	1	1	0.051	930.002	150	/	150
		80	4000K	1	1	0.051	930.002	150	/	150
		80	5000K	1	1	0.051	930.002	150	/	150
		80	5700K	1	1	0.051	930.002	150	/	150
		80	6500K	1	1	0.051	930.002	150	/	150
		80	≥2200K	1	1	0.051	930.002	150	/	150
Multiple models	SL- *B2835FTA- 11EA*/*	80	2700K	1	1	0.051	930.002	150	/	150
		80	3000K	1	1	0.051	930.002	150	/	150
		80	4000K	1	1	0.051	930.002	150	/	150
		80	5000K	1	1	0.051	930.002	150	/	150
		80	5700K	1	1	0.051	930.002	150	/	150
		80	6500K	1	1	0.051	930.002	150	/	150
		80	≥2200K	1	1	0.051	930.002	150	/	150
Multiple models	SL- *B2835FTA- 11EA*H/*	80	2700K	1	1	0.051	930.002	150	/	150
		80	3000K	1	1	0.051	930.002	150	/	150
		80	4000K	1	1	0.051	930.002	150	/	150
		80	5000K	1	1	0.051	930.002	150	/	150
		80	5700K	1	1	0.051	930.002	150	/	150
		80	6500K	1	1	0.051	930.002	150	/	150
		80	≥2200K	1	1	0.051	930.002	150	/	150
Multiple models	SL- **B2835FTA- 11EA****- APH***	80	2700K	1	1	0.051	930.002	150	/	150
		80	3000K	1	1	0.051	930.002	150	/	150
		80	4000K	1	1	0.051	930.002	150	/	150
		80	5000K	1	1	0.051	930.002	150	/	150
		80	5700K	1	1	0.051	930.002	150	/	150
		80	6500K	1	1	0.051	930.002	150	/	150
		80	≥2200K	1	1	0.051	930.002	150	/	150
Multiple models	SL- *B2835FTA- 11CA*	80	2700K	1	1	0.0204	463.822	60	/	60
		80	3000K	1	1	0.0204	463.822	60	/	60
		80	4000K	1	1	0.0204	463.822	60	/	60
		80	5000K	1	1	0.0204	463.822	60	/	60
		80	5700K	1	1	0.0204	463.822	60	/	60
		80	6500K	1	1	0.0204	463.822	60	/	60
		80	≥2200K	1	1	0.0204	463.822	60	/	60
Multiple models	SL- *B2835FTA- 11CA*H	80	2700K	1	1	0.0204	463.822	60	/	60
		80	3000K	1	1	0.0204	463.822	60	/	60
		80	4000K	1	1	0.0204	463.822	60	/	60
		80	5000K	1	1	0.0204	463.822	60	/	60
		80	5700K	1	1	0.0204	463.822	60	/	60
		80	6500K	1	1	0.0204	463.822	60	/	60
		80	≥2200K	1	1	0.0204	463.822	60	/	60

Multiple models	SL- *B2835FTA- 11CA*-**	80	2700K	1	1	0.0204	463.822	60	/	60
		80	3000K	1	1	0.0204	463.822	60	/	60
		80	4000K	1	1	0.0204	463.822	60	/	60
		80	5000K	1	1	0.0204	463.822	60	/	60
		80	5700K	1	1	0.0204	463.822	60	/	60
		80	6500K	1	1	0.0204	463.822	60	/	60
		80	≥2200K	1	1	0.0204	463.822	60	/	60
Multiple models	SL- *B2835FTA- 11CA*H**	80	2700K	1	1	0.0204	463.822	60	/	60
		80	3000K	1	1	0.0204	463.822	60	/	60
		80	4000K	1	1	0.0204	463.822	60	/	60
		80	5000K	1	1	0.0204	463.822	60	/	60
		80	5700K	1	1	0.0204	463.822	60	/	60
		80	6500K	1	1	0.0204	463.822	60	/	60
		80	≥2200K	1	1	0.0204	463.822	60	/	60
Multiple models	SL- *B2835FTA- 11CA*/*	80	2700K	1	1	0.0204	463.822	60	/	60
		80	3000K	1	1	0.0204	463.822	60	/	60
		80	4000K	1	1	0.0204	463.822	60	/	60
		80	5000K	1	1	0.0204	463.822	60	/	60
		80	5700K	1	1	0.0204	463.822	60	/	60
		80	6500K	1	1	0.0204	463.822	60	/	60
		80	≥2200K	1	1	0.0204	463.822	60	/	60
Multiple models	SL- *B2835FTA- 11CA*H/*	80	2700K	1	1	0.0204	463.822	60	/	60
		80	3000K	1	1	0.0204	463.822	60	/	60
		80	4000K	1	1	0.0204	463.822	60	/	60
		80	5000K	1	1	0.0204	463.822	60	/	60
		80	5700K	1	1	0.0204	463.822	60	/	60
		80	6500K	1	1	0.0204	463.822	60	/	60
		80	≥2200K	1	1	0.0204	463.822	60	/	60
Multiple models	SL- **B2835FTA- 11CA****- APH***	80	2700K	1	1	0.0204	463.822	60	/	60
		80	3000K	1	1	0.0204	463.822	60	/	60
		80	4000K	1	1	0.0204	463.822	60	/	60
		80	5000K	1	1	0.0204	463.822	60	/	60
		80	5700K	1	1	0.0204	463.822	60	/	60
		80	6500K	1	1	0.0204	463.822	60	/	60
		80	≥2200K	1	1	0.0204	463.822	60	/	60

The family models and tested model could meet all the requirements listed as below:

- The testes model has the greatest number of LED dies. and,
- Minimum die edge of die edge spacing of the family models is greater than or equal to that of the tested LED package; and,
- the family models' electrical power density (i.e. W/mm² of PCB or substrate total area, or equivalent calculation) less than or equal to the tested LED package; and,
- average current density per LED die (i.e. mA/mm² of epitaxial structures) less than or equal to the tested LED package; and,
- identical materials used (note: this does not constrain phosphor quantity and/or dimensional adjustments); and,
- identical construction processes used;

g. For the Model name of "HL-**-2835D***W-S1-08*-PCT-HR3(R9)-***-**" and "HL-**-2835D***W-2-S1-08*-PCT-HR3(R9)-***-**", as below is the the detail remarks :

1. Two different Model name for different market.
2. The first"***" is a letter A or AS which stands for the process type.
3. The second "****" is a number from 1 to 999 which stands for the brightness level.
4. The third"***" is a letter L or None which stands for the bonding wire style.
5. The fourth"****" is the letter, which stands for the customer code.
6. The fifth"***" means color temperature code, for example, 27 stands for 2700K color temperature, 30 stands for 3000K color temperature, 35 stands for 3500K color temperature, 40 stands for 4000K color temperature, 50 stands for 5000K color temperature, 60 stands for 6000K color temperature, 65 stands for 6500K color temperature.

h. The first * is the letter I /N /W which stand for color temperature. I means 2200-3700K, N means 3700-4700K, W means above 4700K.The second * is a different product solution (Color coordinateand and applications and special solution etc...).The third ** mainly distinguishes specific color temperature codes, for example, 27 stands for 2700K color temperature.

i. The first and second * of SL-**B2835FTA-21CC****-APH***/ SL-**B2835FTA-12CC**** -APH***/ SL-**B2835FTA-11CC**** -APH** is a numbers 27, 30,40,50,65, which stand for CCT. Number From three to six * is a different product solution (Color coordinateand and applications and special solution etc...), from seven to nine * is Different version numbers.

1.2 Standards and Reference Documentations

- ANSI/IES LM-80-15: IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.
- CIE 127:2007: Measurement of LEDs
- ENERGY STAR® Requirements for the Use of LM-80 Data (This standard was not accredited by IAS)

1.3 Testing Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
0.5m integrating sphere	EVERFINE	AIS-2	G185304TA1381172	2019-06-28	2020-06-27
LED Test Source	EVERFINE	LTS-300	P185616CD1371113	2019-07-23	2020-07-22
High Accuracy Array Spectroradiometer	EVERFINE	HAAS-2000	P600674CM1381123	2019-06-28	2020-06-27
Standard Light Source	EVERFINE	D062	G100278CJ7351206	2019-12-24	2020-12-23
Multilayer aging machine	BACL	B2-270	20015	2020-03-10	2021-03-09
DC Power Supply	BACL	B12001-12	90023	2020-01-07	2021-01-06

1.4 Drive Level

Samples are driven with a constant direct current (DC) during maintenance test, photometric and electrical measurement. The current value was regulated to within $\pm 3\%$ of the specified value of the manufacturer during maintenance test, and was within $\pm 0.5\%$ during photometric and electrical measurement test.

1.5 Ambient Conditions for Maintenance Test

For lumen maintenance test, samples within one data set, were installed on cooling boards in thermal chambers with minimal ambient airflow. The case temperature and ambient temperature was monitored by thermocouples which one was soldered to the coldest DUTs' case (TMP_{LED}) location, while the other is mounted at a distance of 5 mm above the TMP location.

During life testing, TMP_{LED} of the coldest LEDs were maintained at a temperature that was greater than or equal to 2°C below the corresponding nominal case temperature. Surrounding air was maintained at a temperature that was greater than or equal to 5°C below the corresponding nominal case temperature. Thermocouples were shielded from direct DUT optical radiation and comply with ASTM E230 Table 1 "Special Limits".

Samples were connected to DC power supply in series circuits with a constant current. The forward current was regulated to within $\pm 3\%$ of the specified value of the manufacturer.

The relative humidity within chamber was kept less than 65% during test.

For photometry measurement, the ambient temperature during test was set to $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$, RH <65%.

1.6 Photometric Measurement Method and Uncertainty

Integrating sphere and spectroradiometer is used to measure luminous flux and chromaticity coordinate $u'v'$. 2π measurement was used and sample was driven by DC power supply. The forward current was regulated to within $\pm 0.5\%$ of the nominal value. The test system was calibrated by halogen reference lamp. The ambient temperature during test was set to $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$, RH <65%. The temperature measurement point was located in the sphere and the temperature was detected by a temperature probe.

The uncertainty of the light output (luminous flux) measurements is $U=1.8\%$ ($K=2$), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is $U=20\text{K}$ ($K=2$), at the 95% confidence level.

The uncertainty of the CRI is $U=1.5$ ($K=2$), at the 95% confidence level.

1.7 Statement of Traceability

Bay Area Compliance Laboratories Corp. (Dongguan) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

1.8 Sample Set

Data Set 1: 85°C , 150mA

Part Number: HL-AS-2835HW-2C-S1-08-PCT-HR3
Number of Units: 30
Case Temperature: $>83^{\circ}\text{C}$
Ambient Temperature: $>80^{\circ}\text{C}$
Life Test Drive Current: 150mA
Measurement Current: 150mA

Data Set 2: 105°C , 150mA

Part Number: HL-AS-2835HW-2C-S1-08-PCT-HR3
Number of Units: 30
Case Temperature: $>103^{\circ}\text{C}$
Ambient Temperature: $>100^{\circ}\text{C}$
Life Test Drive Current: 150mA
Measurement Current: 150mA

2 - Summary of Test Result

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	α	β	Reported TM-21 L ₇₀ Lifetime
1	30	0	1000hrs	10000hrs	2.477E-06	0.999	>60000hrs
2	30	0	1000hrs	10000hrs	3.127E-06	0.997	>60000hrs

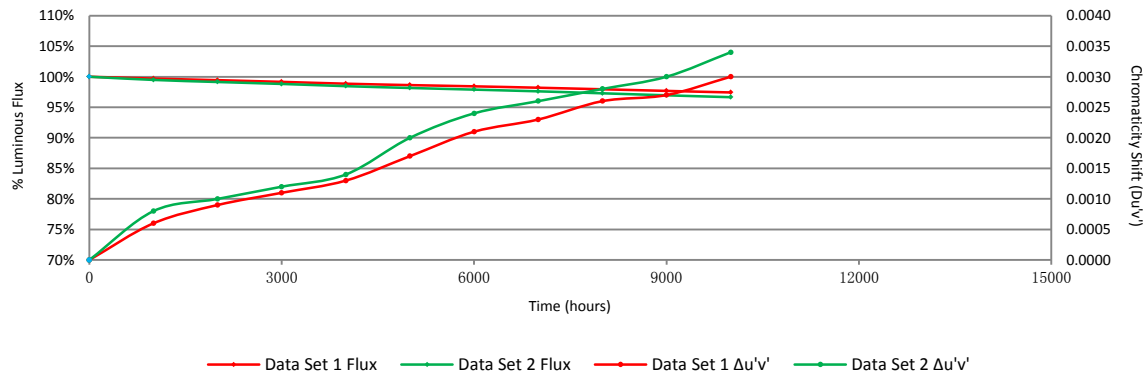
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	99.70%	99.44%	99.16%	98.86%	98.63%	98.43%	98.20%	97.95%	97.68%	97.43%
2	99.48%	99.14%	98.82%	98.46%	98.16%	97.89%	97.61%	97.29%	96.96%	96.65%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	0.0006	0.0009	0.0011	0.0013	0.0017	0.0021	0.0023	0.0026	0.0027	0.0030
2	0.0008	0.0010	0.0012	0.0014	0.0020	0.0024	0.0026	0.0028	0.0030	0.0034

Average Lumen Maintenance and Chromaticity Shift VS. Time



3 - Test Data

3.1 Data Set 1, 85°C, 150mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	100.00	99.52	99.22	98.87	98.48	98.17	97.91	97.67	97.49	97.05	96.90
2	99.61	99.94	99.61	99.40	99.20	98.96	98.84	98.67	98.32	97.84	97.58
3	99.45	99.88	99.61	99.30	99.02	98.80	98.49	98.22	97.91	97.87	97.67
4	99.06	99.62	99.30	99.08	98.85	98.57	98.47	98.06	97.86	97.65	97.38
5	100.10	99.55	99.26	98.91	98.53	98.44	98.19	97.99	97.89	97.85	97.69
6	101.70	99.61	99.21	98.92	98.53	98.24	98.20	98.00	97.83	97.67	97.36
7	100.70	99.60	99.30	99.10	98.74	98.47	98.30	98.01	97.76	97.54	97.28
8	98.55	99.81	99.56	99.20	98.99	98.84	98.67	98.43	98.20	98.05	97.81
9	98.80	99.51	99.09	98.86	98.48	98.20	97.98	97.60	97.25	97.15	96.74
10	98.59	99.64	99.37	99.06	98.83	98.64	98.38	98.25	97.98	97.76	97.68
11	100.10	99.78	99.70	99.39	99.05	98.81	98.53	98.38	98.10	97.82	97.59
12	100.30	99.52	99.47	99.18	98.90	98.65	98.46	98.14	97.82	97.53	97.42
13	100.10	99.81	99.55	99.23	98.91	98.68	98.53	98.23	98.00	97.81	97.27
14	99.05	99.74	99.52	99.22	98.93	98.79	98.66	98.49	98.12	97.87	97.73
15	100.70	99.60	99.40	99.14	98.81	98.61	98.43	98.22	97.93	97.90	97.61
16	99.08	99.89	99.68	99.55	99.22	98.88	98.56	98.27	98.02	97.91	97.66
17	98.65	99.64	99.26	99.02	98.64	98.50	98.25	98.11	97.72	97.50	97.26
18	98.87	99.66	99.32	99.00	98.66	98.31	98.12	98.02	97.67	97.06	96.76
19	99.61	99.89	99.69	99.48	99.26	99.15	98.91	98.60	98.31	98.13	98.04
20	101.20	99.60	99.41	99.11	98.91	98.78	98.57	98.35	98.17	97.88	97.66
21	99.97	99.56	99.41	99.18	98.98	98.69	98.55	98.37	98.13	97.92	97.66
22	98.40	99.83	99.70	99.41	99.08	98.86	98.72	98.50	98.34	98.18	97.77
23	98.83	99.79	99.37	99.16	98.86	98.57	98.40	98.10	97.81	97.32	97.07
24	100.30	99.59	99.35	98.95	98.62	98.40	98.29	98.19	97.99	97.47	97.14
25	99.25	99.76	99.60	99.38	99.12	98.93	98.70	98.55	98.33	98.10	97.85
26	100.40	99.70	99.48	99.06	98.69	98.48	98.24	97.98	97.79	97.57	97.32
27	100.00	99.62	99.46	99.15	98.89	98.71	98.62	98.48	98.18	97.62	97.25
28	98.70	99.66	99.42	99.07	98.74	98.59	98.39	98.15	97.89	97.57	97.40
29	95.90	99.80	99.42	99.28	98.88	98.67	98.28	98.04	97.84	97.49	97.14
30	99.37	99.76	99.45	99.30	98.86	98.51	98.35	98.04	97.72	97.47	97.25
Avg.	99.51	99.70	99.44	99.16	98.86	98.63	98.43	98.20	97.95	97.68	97.43
Med.	99.53	99.66	99.42	99.16	98.87	98.65	98.45	98.20	97.92	97.71	97.41
st dev	1.08	0.12	0.16	0.18	0.21	0.23	0.23	0.25	0.25	0.30	0.3210
Min.	95.90	99.51	99.09	98.86	98.48	98.17	97.91	97.60	97.25	97.05	96.74
Max.	101.70	99.94	99.70	99.55	99.26	99.15	98.91	98.67	98.34	98.18	98.04

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

No.	Forward Voltage (V)										
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	6.436	6.423	6.411	6.466	6.467	6.385	6.393	6.376	6.383	6.380	6.399
2	6.437	6.418	6.419	6.436	6.450	6.388	6.399	6.384	6.388	6.385	6.407
3	6.429	6.404	6.403	6.464	6.450	6.372	6.373	6.376	6.379	6.387	6.387
4	6.426	6.392	6.394	6.414	6.402	6.365	6.404	6.363	6.374	6.360	6.382
5	6.431	6.385	6.401	6.463	6.436	6.383	6.376	6.369	6.376	6.382	6.384
6	6.450	6.409	6.426	6.450	6.475	6.408	6.428	6.402	6.409	6.412	6.413
7	6.453	6.420	6.434	6.448	6.452	6.407	6.406	6.405	6.411	6.405	6.420
8	6.432	6.394	6.417	6.434	6.455	6.387	6.379	6.382	6.392	6.401	6.404
9	6.430	6.388	6.402	6.423	6.436	6.372	6.372	6.372	6.378	6.387	6.378
10	6.462	6.421	6.447	6.458	6.476	6.418	6.425	6.413	6.424	6.427	6.429
11	6.447	6.407	6.431	6.447	6.469	6.413	6.401	6.404	6.404	6.417	6.417
12	6.450	6.415	6.435	6.453	6.468	6.414	6.415	6.407	6.411	6.402	6.418
13	6.437	6.402	6.418	6.433	6.470	6.406	6.429	6.388	6.395	6.408	6.406
14	6.450	6.418	6.434	6.449	6.498	6.416	6.453	6.411	6.411	6.420	6.427
15	6.447	6.411	6.436	6.448	6.480	6.414	6.418	6.416	6.415	6.424	6.418
16	6.454	6.409	6.435	6.486	6.480	6.406	6.418	6.423	6.415	6.435	6.428
17	6.420	6.388	6.406	6.418	6.454	6.385	6.398	6.395	6.387	6.385	6.404
18	6.421	6.381	6.401	6.449	6.447	6.377	6.375	6.380	6.375	6.408	6.401
19	6.449	6.415	6.431	6.482	6.472	6.401	6.409	6.410	6.407	6.412	6.418
20	6.430	6.399	6.415	6.417	6.453	6.397	6.389	6.399	6.387	6.423	6.404
21	6.443	6.420	6.435	6.437	6.470	6.415	6.407	6.441	6.415	6.407	6.427
22	6.404	6.375	6.384	6.397	6.431	6.373	6.366	6.398	6.382	6.406	6.381
23	6.433	6.412	6.427	6.399	6.466	6.409	6.407	6.422	6.416	6.420	6.419
24	6.408	6.380	6.403	6.369	6.433	6.368	6.375	6.389	6.384	6.424	6.389
25	6.403	6.371	6.385	6.397	6.426	6.357	6.364	6.364	6.369	6.399	6.370
26	6.411	6.388	6.408	6.373	6.436	6.372	6.383	6.379	6.383	6.387	6.407
27	6.430	6.399	6.419	6.430	6.456	6.410	6.427	6.414	6.414	6.433	6.424
28	6.416	6.390	6.404	6.373	6.440	6.388	6.384	6.406	6.424	6.402	6.392
29	6.410	6.389	6.400	6.367	6.429	6.385	6.383	6.400	6.368	6.412	6.386
30	6.425	6.398	6.413	6.417	6.446	6.400	6.414	6.400	6.390	6.413	6.412
Avg.	6.432	6.401	6.416	6.430	6.454	6.393	6.399	6.396	6.396	6.405	6.405
Med.	6.432	6.401	6.416	6.435	6.454	6.393	6.400	6.400	6.391	6.408	6.407
st dev	0.016	0.015	0.016	0.033	0.021	0.018	0.022	0.019	0.017	0.018	0.017
Min.	6.403	6.371	6.384	6.367	6.402	6.357	6.364	6.363	6.368	6.360	6.370
Max.	6.462	6.423	6.447	6.486	6.498	6.418	6.453	6.441	6.424	6.435	6.429

3.3 Data Set 1, 85°C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)									
				0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	0.2627	0.5284	2693	0.0003	0.0005	0.0007	0.0008	0.0011	0.0014	0.0017	0.0021	0.0027	0.0030
2	0.2632	0.5291	2680	0.0004	0.0006	0.0007	0.0009	0.0020	0.0021	0.0022	0.0025	0.0027	0.0028
3	0.2643	0.5280	2661	0.0004	0.0007	0.0010	0.0011	0.0014	0.0015	0.0019	0.0021	0.0018	0.0020
4	0.2636	0.5278	2676	0.0006	0.0008	0.0009	0.0012	0.0018	0.0021	0.0022	0.0025	0.0031	0.0036
5	0.2612	0.5278	2725	0.0007	0.0011	0.0014	0.0015	0.0019	0.0023	0.0025	0.0027	0.0030	0.0035
6	0.2617	0.5279	2715	0.0006	0.0009	0.0012	0.0014	0.0020	0.0031	0.0035	0.0039	0.0035	0.0040
7	0.2614	0.5267	2726	0.0004	0.0006	0.0007	0.0009	0.0009	0.0011	0.0012	0.0013	0.0018	0.0022
8	0.2628	0.5270	2695	0.0006	0.0009	0.0012	0.0015	0.0018	0.0024	0.0027	0.0030	0.0031	0.0036
9	0.2625	0.5283	2697	0.0007	0.0011	0.0012	0.0013	0.0015	0.0021	0.0022	0.0025	0.0035	0.0036
10	0.2644	0.5290	2655	0.0005	0.0008	0.0011	0.0013	0.0014	0.0016	0.0017	0.0018	0.0016	0.0020
11	0.2634	0.5293	2673	0.0004	0.0007	0.0009	0.0011	0.0017	0.0021	0.0024	0.0027	0.0025	0.0027
12	0.2620	0.5274	2710	0.0009	0.0014	0.0016	0.0019	0.0023	0.0034	0.0036	0.0038	0.0038	0.0039
13	0.2629	0.5301	2681	0.0007	0.0012	0.0014	0.0016	0.0020	0.0026	0.0028	0.0031	0.0037	0.0039
14	0.2642	0.5281	2663	0.0006	0.0008	0.0009	0.0010	0.0011	0.0013	0.0015	0.0017	0.0018	0.0022
15	0.2637	0.5285	2672	0.0005	0.0008	0.0010	0.0011	0.0013	0.0016	0.0019	0.0021	0.0017	0.0017
16	0.2616	0.5276	2718	0.0007	0.0009	0.0011	0.0014	0.0023	0.0026	0.0029	0.0032	0.0039	0.0042
17	0.2628	0.5296	2684	0.0005	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0018	0.0022	0.0023
18	0.2626	0.5284	2694	0.0007	0.0009	0.0011	0.0012	0.0014	0.0018	0.0020	0.0022	0.0013	0.0016
19	0.2630	0.5285	2685	0.0009	0.0012	0.0014	0.0017	0.0023	0.0037	0.0040	0.0043	0.0041	0.0045
20	0.2631	0.5306	2675	0.0006	0.0008	0.0011	0.0014	0.0019	0.0025	0.0026	0.0027	0.0033	0.0036
21	0.2635	0.5292	2673	0.0007	0.0010	0.0011	0.0014	0.0020	0.0025	0.0026	0.0027	0.0032	0.0035
22	0.2634	0.5278	2680	0.0003	0.0004	0.0005	0.0007	0.0009	0.0010	0.0010	0.0011	0.0014	0.0017
23	0.2637	0.5285	2670	0.0008	0.0011	0.0014	0.0015	0.0017	0.0020	0.0021	0.0024	0.0023	0.0025
24	0.2618	0.5294	2707	0.0008	0.0011	0.0013	0.0014	0.0020	0.0025	0.0028	0.0031	0.0029	0.0031
25	0.2633	0.5303	2672	0.0007	0.0011	0.0013	0.0016	0.0020	0.0031	0.0034	0.0036	0.0040	0.0042
26	0.2631	0.5294	2680	0.0007	0.0010	0.0013	0.0014	0.0015	0.0016	0.0016	0.0018	0.0016	0.0017
27	0.2618	0.5286	2709	0.0005	0.0008	0.0011	0.0013	0.0016	0.0018	0.0021	0.0023	0.0016	0.0018
28	0.2630	0.5296	2682	0.0005	0.0009	0.0010	0.0013	0.0019	0.0024	0.0027	0.0030	0.0031	0.0033
29	0.2604	0.5248	2756	0.0006	0.0009	0.0010	0.0011	0.0016	0.0022	0.0025	0.0028	0.0031	0.0034
30	0.2621	0.5269	2710	0.0004	0.0005	0.0007	0.0009	0.0015	0.0017	0.0022	0.0024	0.0020	0.0023
Avg.	0.2628	0.5284	2691	0.0006	0.0009	0.0011	0.0013	0.0017	0.0021	0.0023	0.0026	0.0027	0.0030
Med.	0.2630	0.5285	2683	0.0006	0.0009	0.0011	0.0013	0.0017	0.0021	0.0022	0.0025	0.0028	0.0031
st dev	0.0010	0.0012	23	0.0002	0.0002	0.0003	0.0003	0.0004	0.0007	0.0007	0.0007	0.0009	0.0009
Min.	0.2604	0.5248	2655	0.0003	0.0004	0.0005	0.0007	0.0009	0.0010	0.0010	0.0011	0.0013	0.0016
Max.	0.2644	0.5306	2756	0.0009	0.0014	0.0016	0.0019	0.0023	0.0037	0.0040	0.0043	0.0041	0.0045

3.4 Data Set 2, 105°C, 150mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
31	100.40	99.70	99.45	99.20	98.87	98.57	98.50	98.28	97.81	97.16	96.99
32	99.72	99.74	99.47	99.03	98.73	98.69	98.55	98.26	98.07	97.83	97.43
33	100.30	99.30	98.97	98.60	98.29	98.22	98.06	97.83	97.42	97.06	96.72
34	98.73	99.29	99.09	98.75	98.24	97.88	97.70	97.35	97.22	96.78	96.56
35	98.27	99.07	98.73	98.37	98.06	97.79	97.36	97.04	96.84	96.61	96.33
36	101.70	99.51	99.41	99.02	98.62	98.33	97.95	97.69	97.21	96.88	96.55
37	98.24	99.54	99.18	98.99	98.79	98.44	98.03	97.73	97.38	97.19	96.85
38	101.30	99.51	99.11	98.91	98.47	98.23	97.91	97.67	97.37	97.16	96.92
39	100.20	99.45	99.17	98.86	98.56	98.23	98.13	97.84	97.30	97.05	96.65
40	96.62	99.53	99.04	98.77	98.34	98.09	97.76	97.51	97.28	96.64	96.29
41	101.00	99.50	99.11	98.93	98.50	98.44	98.18	97.91	97.71	97.28	97.07
42	98.13	99.39	98.91	98.60	98.34	98.01	97.67	97.25	96.93	96.72	96.48
43	98.43	99.49	98.88	98.55	98.14	97.68	97.59	97.42	97.12	96.86	96.48
44	99.95	99.64	99.43	99.13	98.79	98.49	98.05	97.85	97.48	97.02	96.82
45	100.70	99.40	99.04	98.73	98.28	98.03	97.80	97.56	97.25	97.03	96.59
46	98.31	99.40	98.98	98.63	98.33	98.28	98.21	97.92	97.55	97.46	97.03
47	99.29	99.33	99.12	98.69	98.26	98.03	97.87	97.52	97.29	97.08	96.75
48	99.53	99.51	99.04	98.81	98.53	98.10	97.73	97.54	97.13	96.82	96.44
49	99.71	99.57	99.29	99.05	98.73	98.44	98.23	98.06	97.60	97.28	96.95
50	99.94	99.69	99.53	99.17	98.86	98.66	98.33	97.91	97.56	96.84	96.67
51	100.10	99.55	99.39	99.06	98.70	98.34	98.02	97.72	97.34	97.08	96.84
52	98.71	99.67	99.39	99.06	98.67	98.43	98.18	97.71	97.41	97.15	96.97
53	99.42	99.41	98.84	98.58	98.22	98.11	97.94	97.66	97.36	96.56	96.06
54	99.92	99.47	99.16	98.79	98.46	98.24	97.91	97.64	97.32	96.92	96.75
55	97.92	99.58	99.07	98.71	98.38	97.93	97.52	97.18	96.84	96.56	96.07
56	98.49	99.28	99.11	98.74	98.38	97.93	97.46	97.15	96.75	96.37	96.21
57	99.59	99.71	99.41	99.08	98.59	98.08	97.79	97.53	97.41	97.35	97.06
58	98.77	99.14	98.84	98.35	97.94	97.43	97.17	96.96	96.63	96.50	95.83
59	100.00	99.47	99.11	98.78	98.46	98.05	97.69	97.48	97.34	97.16	97.00
60	100.20	99.45	98.90	98.53	98.11	97.62	97.38	97.11	96.75	96.54	96.09
Avg.	99.45	99.48	99.14	98.82	98.46	98.16	97.89	97.61	97.29	96.96	96.65
Med.	99.65	99.50	99.11	98.78	98.46	98.16	97.91	97.65	97.33	97.02	96.69
st dev	1.12	0.16	0.22	0.23	0.25	0.30	0.33	0.33	0.32	0.33	0.3695
Min.	96.62	99.07	98.73	98.35	97.94	97.43	97.17	96.96	96.63	96.37	95.83
Max.	101.70	99.74	99.53	99.20	98.87	98.69	98.55	98.28	98.07	97.83	97.43

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

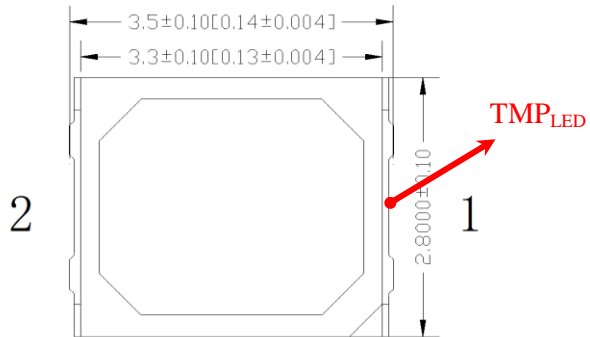
No.	Forward Voltage (V)										
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
31	6.466	6.432	6.454	6.484	6.490	6.431	6.438	6.456	6.450	6.440	6.445
32	6.443	6.408	6.428	6.455	6.459	6.397	6.406	6.411	6.404	6.401	6.414
33	6.431	6.397	6.417	6.442	6.453	6.402	6.398	6.398	6.404	6.408	6.405
34	6.444	6.403	6.426	6.494	6.456	6.414	6.402	6.403	6.407	6.401	6.426
35	6.411	6.368	6.384	6.417	6.426	6.372	6.375	6.369	6.362	6.376	6.385
36	6.383	6.331	6.347	6.378	6.391	6.334	6.331	6.334	6.333	6.342	6.345
37	6.442	6.411	6.427	6.451	6.457	6.405	6.404	6.407	6.400	6.412	6.414
38	6.446	6.413	6.429	6.451	6.458	6.413	6.401	6.407	6.401	6.405	6.418
39	6.434	6.412	6.426	6.481	6.453	6.406	6.389	6.408	6.398	6.387	6.417
40	6.439	6.409	6.426	6.451	6.458	6.411	6.466	6.408	6.404	6.410	6.420
41	6.462	6.431	6.451	6.464	6.475	6.434	6.424	6.428	6.420	6.407	6.469
42	6.419	6.383	6.400	6.428	6.438	6.387	6.435	6.368	6.422	6.368	6.388
43	6.417	6.394	6.403	6.428	6.439	6.390	6.376	6.371	6.377	6.375	6.393
44	6.455	6.444	6.446	6.465	6.485	6.430	6.418	6.417	6.421	6.406	6.436
45	6.418	6.416	6.426	6.433	6.462	6.392	6.380	6.453	6.372	6.397	6.414
46	6.427	6.416	6.418	6.444	6.457	6.403	6.391	6.393	6.385	6.390	6.410
47	6.436	6.415	6.427	6.450	6.465	6.417	6.410	6.413	6.400	6.384	6.418
48	6.458	6.435	6.451	6.489	6.494	6.433	6.425	6.461	6.427	6.420	6.441
49	6.436	6.415	6.430	6.507	6.478	6.407	6.400	6.429	6.401	6.394	6.423
50	6.416	6.412	6.410	6.449	6.459	6.396	6.382	6.374	6.383	6.382	6.398
51	6.429	6.411	6.427	6.499	6.478	6.409	6.401	6.404	6.409	6.399	6.419
52	6.451	6.420	6.440	6.514	6.505	6.432	6.423	6.429	6.423	6.428	6.438
53	6.409	6.390	6.398	6.445	6.442	6.378	6.377	6.371	6.371	6.383	6.385
54	6.438	6.415	6.433	6.471	6.470	6.423	6.436	6.408	6.411	6.404	6.423
55	6.420	6.395	6.406	6.485	6.452	6.399	6.447	6.402	6.382	6.386	6.396
56	6.417	6.391	6.405	6.444	6.445	6.409	6.388	6.377	6.375	6.389	6.398
57	6.458	6.435	6.450	6.487	6.489	6.435	6.426	6.435	6.426	6.423	6.439
58	6.426	6.402	6.417	6.464	6.470	6.413	6.414	6.411	6.390	6.396	6.407
59	6.451	6.422	6.442	6.476	6.480	6.429	6.423	6.427	6.421	6.429	6.436
60	6.437	6.413	6.435	6.467	6.475	6.413	6.414	6.413	6.413	6.413	6.425
Avg.	6.434	6.408	6.423	6.460	6.462	6.407	6.407	6.406	6.400	6.399	6.415
Med.	6.436	6.412	6.427	6.460	6.459	6.409	6.405	6.408	6.403	6.400	6.418
st dev	0.018	0.022	0.022	0.029	0.023	0.022	0.027	0.028	0.024	0.020	0.023
Min.	6.383	6.331	6.347	6.378	6.391	6.334	6.331	6.334	6.333	6.342	6.345
Max.	6.466	6.444	6.454	6.514	6.505	6.435	6.466	6.461	6.450	6.440	6.469

3.6 Data Set 2, 105°C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)									
				1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
31	0.2622	0.5296	2698	0.0003	0.0006	0.0007	0.0009	0.0014	0.0017	0.0019	0.0021	0.0021	0.0025
32	0.2626	0.5291	2691	0.0004	0.0005	0.0007	0.0008	0.0011	0.0015	0.0018	0.0021	0.0025	0.0027
33	0.2621	0.5303	2696	0.0006	0.0009	0.0012	0.0013	0.0014	0.0017	0.0019	0.0021	0.0028	0.0030
34	0.2618	0.5264	2719	0.0006	0.0008	0.0011	0.0013	0.0022	0.0027	0.0028	0.0029	0.0029	0.0032
35	0.2645	0.5306	2648	0.0003	0.0005	0.0006	0.0008	0.0010	0.0015	0.0016	0.0018	0.0030	0.0030
36	0.2646	0.5303	2647	0.0009	0.0012	0.0015	0.0017	0.0020	0.0021	0.0024	0.0026	0.0027	0.0030
37	0.2643	0.5271	2664	0.0008	0.0010	0.0012	0.0013	0.0020	0.0025	0.0028	0.0031	0.0037	0.0040
38	0.2622	0.5292	2699	0.0005	0.0007	0.0010	0.0013	0.0016	0.0018	0.0019	0.0021	0.0022	0.0025
39	0.2613	0.5279	2722	0.0008	0.0009	0.0012	0.0015	0.0018	0.0020	0.0022	0.0024	0.0024	0.0026
40	0.2588	0.5222	2802	0.0009	0.0012	0.0013	0.0016	0.0024	0.0031	0.0033	0.0037	0.0036	0.0040
41	0.2605	0.5270	2744	0.0006	0.0010	0.0012	0.0014	0.0024	0.0029	0.0032	0.0033	0.0038	0.0042
42	0.2618	0.5256	2721	0.0011	0.0013	0.0015	0.0017	0.0021	0.0028	0.0030	0.0033	0.0037	0.0044
43	0.2608	0.5271	2737	0.0010	0.0013	0.0014	0.0017	0.0025	0.0031	0.0034	0.0035	0.0036	0.0041
44	0.2632	0.5301	2676	0.0006	0.0008	0.0010	0.0012	0.0013	0.0014	0.0015	0.0017	0.0016	0.0018
45	0.2637	0.5300	2666	0.0007	0.0010	0.0012	0.0013	0.0017	0.0019	0.0021	0.0022	0.0022	0.0024
46	0.2647	0.5278	2654	0.0008	0.0012	0.0014	0.0017	0.0022	0.0026	0.0030	0.0033	0.0034	0.0038
47	0.2635	0.5281	2677	0.0009	0.0012	0.0013	0.0015	0.0026	0.0031	0.0034	0.0036	0.0040	0.0041
48	0.2616	0.5289	2713	0.0005	0.0007	0.0009	0.0010	0.0013	0.0016	0.0018	0.0019	0.0018	0.0021
49	0.2637	0.5294	2667	0.0007	0.0011	0.0012	0.0013	0.0015	0.0016	0.0017	0.0018	0.0023	0.0024
50	0.2627	0.5267	2698	0.0010	0.0014	0.0016	0.0017	0.0021	0.0024	0.0026	0.0029	0.0025	0.0028
51	0.2629	0.5282	2689	0.0010	0.0013	0.0016	0.0018	0.0022	0.0028	0.0031	0.0034	0.0035	0.0038
52	0.2635	0.5295	2670	0.0010	0.0013	0.0015	0.0018	0.0023	0.0028	0.0030	0.0030	0.0035	0.0040
53	0.2618	0.5302	2704	0.0009	0.0013	0.0015	0.0018	0.0023	0.0030	0.0033	0.0035	0.0036	0.0039
54	0.2639	0.5301	2662	0.0009	0.0013	0.0016	0.0018	0.0023	0.0028	0.0031	0.0033	0.0036	0.0039
55	0.2652	0.5285	2641	0.0011	0.0013	0.0015	0.0017	0.0027	0.0032	0.0035	0.0037	0.0039	0.0043
56	0.2631	0.5263	2692	0.0010	0.0014	0.0017	0.0020	0.0029	0.0034	0.0036	0.0039	0.0037	0.0041
57	0.2610	0.5288	2725	0.0006	0.0009	0.0010	0.0012	0.0017	0.0023	0.0026	0.0028	0.0033	0.0036
58	0.2603	0.5263	2751	0.0007	0.0012	0.0015	0.0016	0.0024	0.0031	0.0033	0.0036	0.0042	0.0046
59	0.2650	0.5292	2643	0.0007	0.0010	0.0011	0.0013	0.0017	0.0023	0.0024	0.0026	0.0023	0.0026
60	0.2630	0.5269	2692	0.0007	0.0009	0.0012	0.0014	0.0018	0.0021	0.0023	0.0023	0.0027	0.0029
Avg.	0.2627	0.5282	2694	0.0008	0.0010	0.0012	0.0014	0.0020	0.0024	0.0026	0.0028	0.0030	0.0034
Med.	0.2628	0.5287	2692	0.0007	0.0010	0.0012	0.0015	0.0020	0.0024	0.0027	0.0029	0.0031	0.0034
st dev	0.0015	0.0018	37	0.0002	0.0003	0.0003	0.0003	0.0005	0.0006	0.0007	0.0007	0.0007	0.0008
Min.	0.2588	0.5222	2641	0.0003	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0016	0.0018
Max.	0.2652	0.5306	2802	0.0011	0.0014	0.0017	0.0020	0.0029	0.0034	0.0036	0.0039	0.0042	0.0046

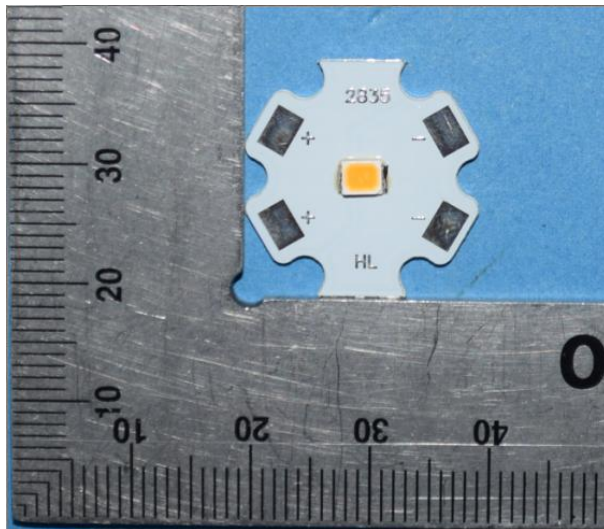
4 - DUT Photo

4.1 #Mechanical Dimensions



All dimensions are in millimeter

4.2 DUT Photo



5 - Report Revision

Report Number	Report Date	Contents
RSZ180912501-10-10000	2020-03-12	Original report.
RSZ180912501-10-10000-M1	2020-05-04	Update the family products covered in this report.
RSZ180912501-10-10000-M2	2020-06-02	Update the family products covered in this report.
RSZ180912501-10-10000-M3	2020-08-04	Update the family products covered in this report.

FINAL

Directions

1. The information marked “superscript #” is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
3. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.
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*****END OF REPORT*****