

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

230410218GZU-004

ISSUE DATE

23-May-2023

REVISION DATE

None

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13

DOCUMENT CONTROL NUMBER

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Report No.: 230410218GZU-004

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. SLPD13227X

(Remark: "X" denote other appearance colors for the characters that change)

RENDERED TO

Visual Comfort and Company

Contact Name: Tess Gallagher

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<u>TEST:</u>	Electrical and Photometric as required to the IES LM-79 test standard.
<u>STATEMENT OF LIMITATION:</u>	The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.
<u>AUTHORIZATION:</u>	The testing performed was authorized by signed quote number: QGZ230406068.
<u>STANDARDS USED:</u>	The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen: IES LM-79: 2008 Approved Method for the Electrical and Photometric IES LM-79: 2019 Measurements of Solid-State Lighting Products ANSI C78.377:2017 Specifications of the Chromaticity of Solid State Lighting Products
<u>DESCRIPTION OF SAMPLE:</u>	The client submitted one sample of model SLPD13227X. The sample was received in undamaged condition. The sample designation was S230410218-004.
<u>DATES OF TESTS:</u>	08-May-2023
<u>ISSUED BY:</u>	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
<u>TEST LOCATION:</u>	Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2. Caipin Road, Science City, GETDD, Guangzhou, Guangdong, China

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TEST REPORT

SUMMARY

Model Number:	SLPD13227X
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For SLPD13227X

Criteria	Result
Total Lumen Output	243.8 lm
Total Power	35.6 W
Luminaire Efficacy	6.9 lm/W
S/MH(C0/180)	0.60
S/MH(C90/270)	0.64
Correlated Color Temperature (CCT)	2635 K
Color Rendering Index (CRI)	93
R9	61
Chromaticity Coordinate (x)	0.4607
Chromaticity Coordinate (y)	0.4039
Chromaticity Coordinate (u')	0.2661
Chromaticity Coordinate (v')	0.5249

Remark:

Measurement uncertainty for applicable tests has been established.

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TEST REPORT

EQUIPMENT LIST

Equipment Used	Model Number	Control Number
Goniophotometer System	Go-R5000	SA063-16
KONICA MINOLTA - Illuminance meter	CX-2B_WL	SA063-16-01
Standard Lamp	D215S	SA063-16-06
Digital Power Meter	PLM3000	SA063-16-09
AC power source for Goniophotometer	PCR-1000WH	SA063-16-10
Temperature Meter	RC-HT601A	SA047-62

GENERAL REMARK

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When determining for test conclusion, measurement uncertainty of tests has been considered.

Throughout this report a ☐ comma ☒ point is used as the decimal separator.

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TEST REPORT

TEST METHOD

Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IES LM-79

Light Distribution and Output Measurements

Light Distribution and total light output (luminous flux) were measured using a Go-R5000 Type-C Rotating Mirror Goniophotometer. Temperature 25°C and relative humidity of 60% was measured at a position in the testing laboratory.

The lamp rotates only around the fixed vertical axle in the prescribed burning position. The lamp and mirror permit the measurement of luminous intensity at the direction of any horizontal or vertical angle without tilting the lamp. The lamp was allowed to stabilize before measurements were made.

Chromaticity Measurements

Chromaticity was measured using a 2 meters integrating sphere spectral lamp measurement system, 4 π geometry, with an interior coating reflectance no less than 95 %. Temperature was measured at a position inside the sphere shielded from direct light. Relative humidity of 65% was measured at a position in the testing laboratory.

Spectral radiant flux measurements were made using spectroradiometer attached to the detector port of the integrating sphere. Each lamp was allowed to stabilise before measurements were made. The calibration of the integrating sphere spectroradiometer system is by the reference/standard lamps which are traceable to National Institute of Metrology P.R. CHINA. Lamp efficacy (lumens per watt) for each lamp model was then computed based on the luminous flux result. Electrical measurements including voltage, power and power factor were measured using EVERFINE - Digital Power Meter., model PLM3000.

Correction factor (self-absorption) has been considered when doing measurement.

Standard lamp used for Goniophotometer method:

Model: D215S

Current: 4.809A DC

Standard lamp used for integrating sphere:

Model: 110V/100W

Current: 0.8851A

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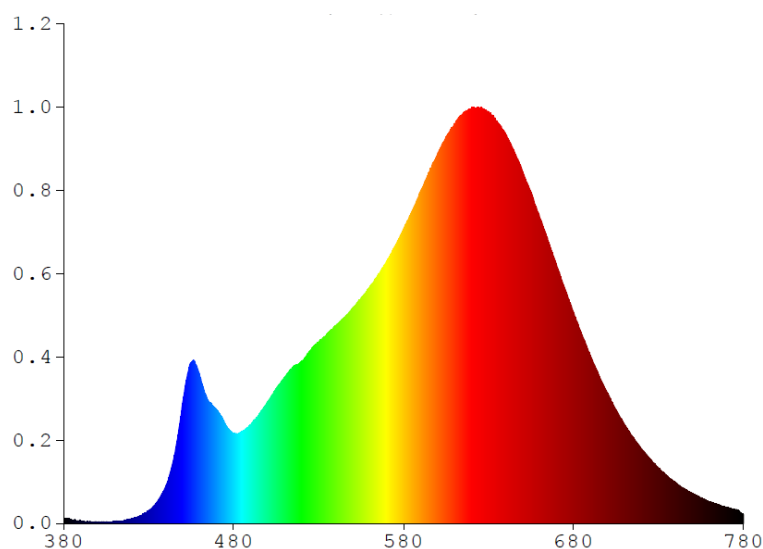
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For SLPD13227X

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0208	480	0.3693	580	1.2121	680	0.8669	780	0.0353
385	0.0093	485	0.3785	585	1.2858	685	0.7744		
390	0.0101	490	0.4069	590	1.3678	690	0.6869		
395	0.0077	495	0.4485	595	1.4465	695	0.6076		
400	0.0057	500	0.5009	600	1.5234	700	0.5354		
405	0.0058	505	0.5549	605	1.5908	705	0.4671		
410	0.0075	510	0.6023	610	1.6440	710	0.4053		
415	0.0115	515	0.6438	615	1.6877	715	0.3538		
420	0.0194	520	0.6674	620	1.7101	720	0.3074		
425	0.0306	525	0.7127	625	1.7092	725	0.2648		
430	0.0526	530	0.7472	630	1.6948	730	0.2274		
435	0.0888	535	0.7801	635	1.6559	735	0.1958		
440	0.1521	540	0.8135	640	1.6015	740	0.1680		
445	0.2748	545	0.8477	645	1.5322	745	0.1437		
450	0.4936	550	0.8869	650	1.4477	750	0.1235		
455	0.6634	555	0.9280	655	1.3611	755	0.1059		
460	0.6108	560	0.9731	660	1.2607	760	0.0906		
465	0.5051	565	1.0233	665	1.1609	765	0.0775		
470	0.4671	570	1.0815	670	1.0606	770	0.0665		
475	0.4101	575	1.1416	675	0.9447	775	0.0570		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLPD13227X

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

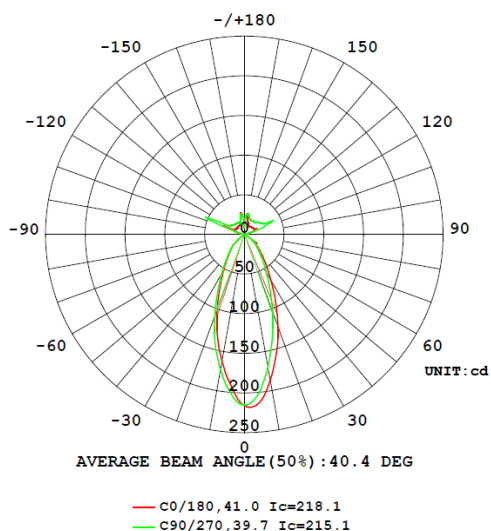
Photometric Measurements at 25°C – Integrating Sphere Method

Intertek Sample No.	Base Orientation	Correlated Color Temperature (K)	CRI	R9	CIE 31'	CIE 31'	CIE 76'	CIE 76'
					Chromaticit	Chromaticit	Chromaticit	Chromaticit
					y	y	y	y
					Coordinate	Coordinate	Coordinate	Coordinate
					(x)	(y)	(u')	(v')
SLPD13227X								
S2304102 18-004	--	2635	93	61	0.4607	0.4039	0.2661	0.5249

Photometric and Electrical Measurements at 25°C – Distribution Method

Intertek Sample No.	Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (Watts)	Input Power Factor	Absolute	Lumen
						Luminous Flux (Lumens)	Efficacy (Lumens Per Watt)
SLPD13227X							
S2304102 18-004	--	120.2	298.2	35.6	0.993	243.8	6.9

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLPD13227X

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	215.8	215.6	215.3	215.3	215.1
5	213.2	212.3	209.8	206.4	202.0
10	187.0	185.2	181.2	175.9	170.5
15	155.5	153.6	148.3	141.7	136.0
20	124.0	122.8	117.7	110.0	104.0
25	92.8	92.5	88.3	81.6	76.3
30	66.9	67.0	64.2	59.1	55.5
35	48.7	48.8	46.7	43.4	40.5
40	35.3	35.1	33.7	31.6	29.7
45	26.2	26.0	25.0	23.6	22.3
50	19.4	19.3	18.7	17.7	16.5
55	19.4	18.2	17.7	18.8	12.2
60	0.5	0.5	0.5	0.6	0.6
65	0.4	0.3	0.4	0.5	0.5
70	0.4	0.2	0.3	0.4	0.5
75	0.3	0.2	0.2	0.3	0.4
80	0.3	0.1	0.2	0.2	0.3
85	0.2	0.1	0.2	0.2	0.3
90	0.1	0.1	0.2	0.2	0.2
95	0.2	0.2	0.2	0.3	0.3
100	0.3	0.3	0.3	0.4	0.4
105	0.6	0.6	0.8	1.4	2.3
110	8.9	17.2	18.0	20.3	21.8
115	15.9	29.2	28.5	32.7	38.0
120	14.3	27.4	26.2	27.1	26.9
125	13.7	25.2	24.4	24.8	25.2
130	13.2	23.5	23.9	22.4	23.3
135	12.9	21.9	22.4	21.4	21.0
140	12.6	20.7	21.3	21.3	19.9
145	12.1	19.5	20.4	20.5	20.5
150	12.2	18.5	19.6	19.7	19.7
155	11.9	17.9	19.1	19.5	19.7
160	14.9	18.1	19.5	20.2	20.5
165	17.4	20.8	21.8	22.8	23.1
170	23.2	23.2	24.5	26.2	27.1
175	22.7	23.0	23.6	24.3	24.3
180	9.5	9.4	9.3	9.7	8.1

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLPD13227X

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
SLPD13227X		
0-30	94.6	38.8
0-40	121.3	49.8
0-60	144.3	59.2
0-90	145.0	59.5
60-90	0.7	0.3
0-180	243.8	100.0

Beam Angle

Total Beam Angle (°)

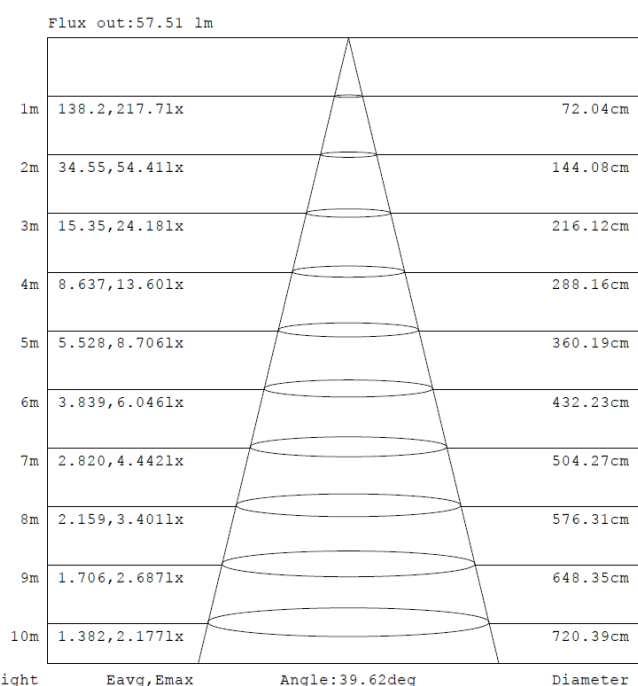
40.4

Illumination Plots

Model No.: SLPD13227X

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

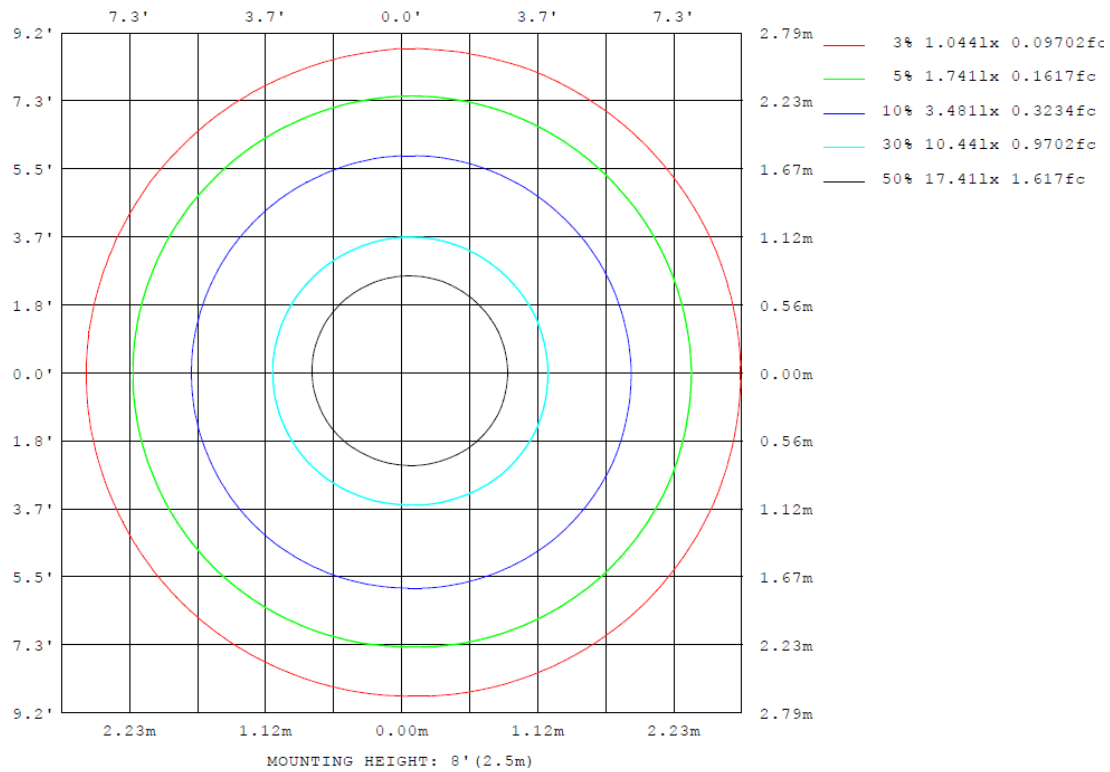
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLPD13227X

Model No.: SLPD13227X

Mount Height: 2.5 m

Isoillumination Plot



TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLPD13227X

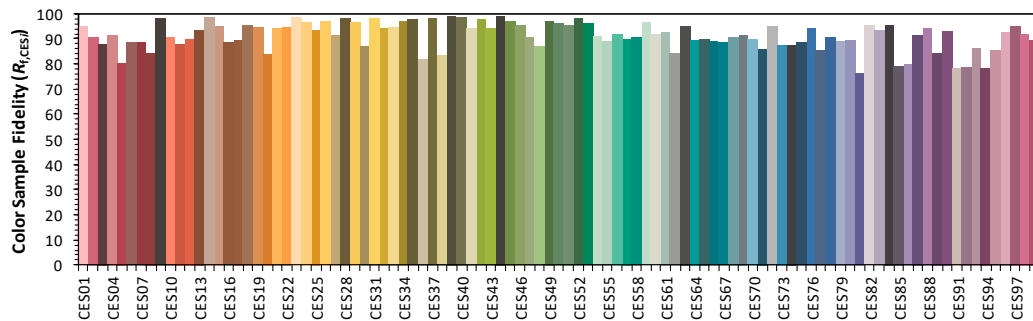
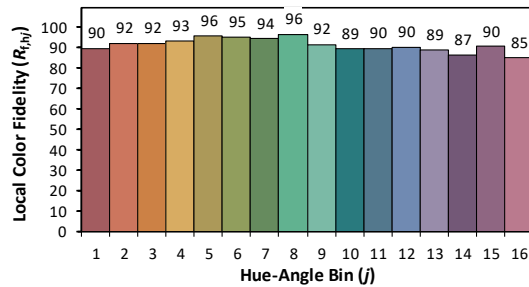
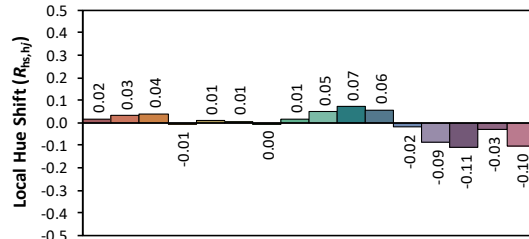
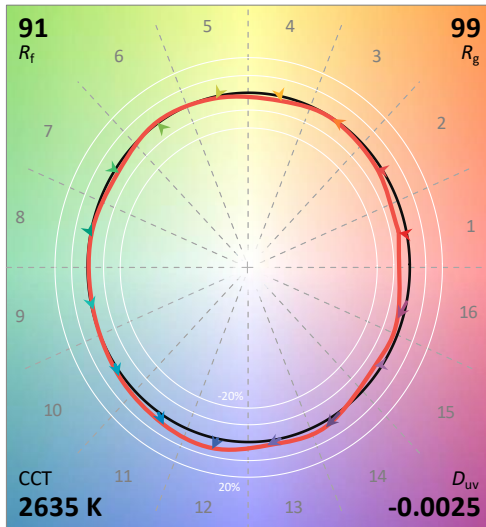
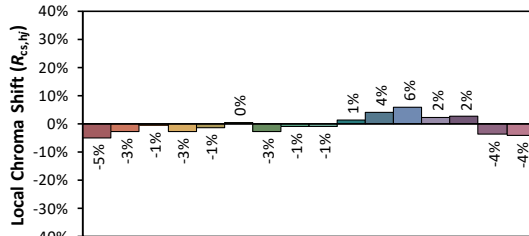
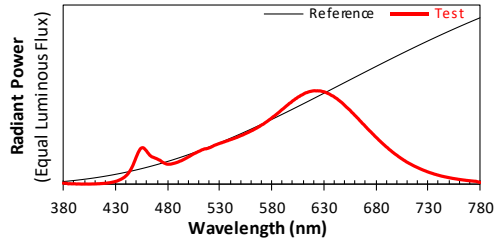
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2023/5/8

Model: SLPD13227X



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4607
 y 0.4039
 u' 0.2661
 v' 0.5249

CIE 13.3-1995
(CRI)
 R_a 93
 R_g 61

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

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TEST REPORT

PRODUCT PICTURE (not to scale)



External view of SLPD13227X



External view of SLPD13227X

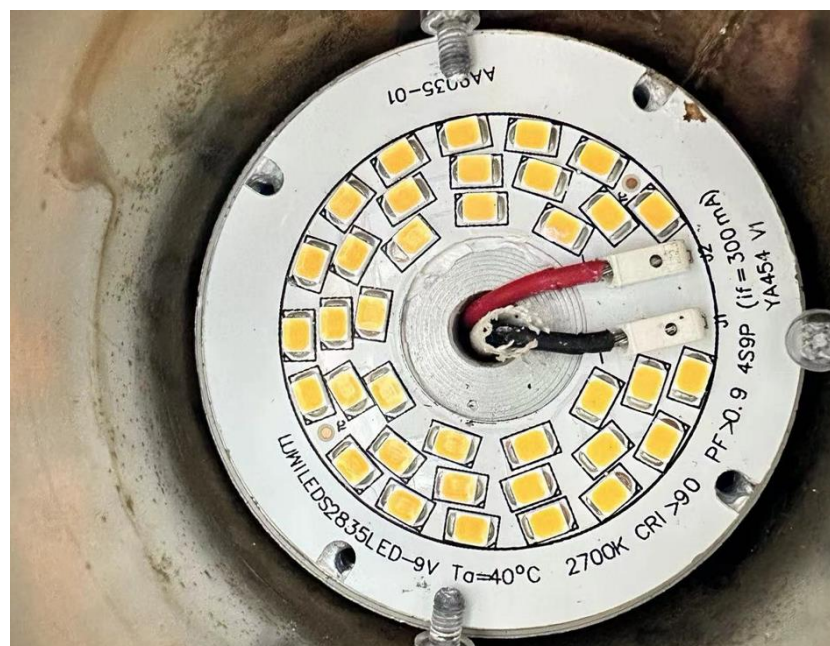
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TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED Driver PVD36-C090V40-UNV3-HE-P



View of LED

In Charge Of Tests:

Done Ye

Done Ye
Engineer

Report Reviewed By

Shelley Ying

Shelley Ying
Reviewer

Attachment: None

***** End of Report *****