

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

221205125GZU-012

ISSUE DATE

29 January 2023

REVISION DATE

None

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13

DOCUMENT CONTROL NUMBER

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Report No.: 221205125GZU-012

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. KWWS10227*

(Remark: “**” 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: QGZ221129088.
<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 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 KWWS10227*. The sample was received, in undamaged condition. The sample designation was S221205125-012.
<u>DATES OF TESTS:</u>	11 January 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:	KWWS10227*
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For KWWS10227*

Criteria	Result
Total Lumen Output	671.7 lm
Total Power	24.3 W
Luminaire Efficacy	27.6 lm/W
S/MH(C0/180)	4.68
S/MH(C90/270)	1.81
Correlated Color Temperature (CCT)	2570 K
Color Rendering Index (CRI)	90
R9	62
Chromaticity Coordinate (x)	0.4752
Chromaticity Coordinate (y)	0.4202
Chromaticity Coordinate (u')	0.2680
Chromaticity Coordinate (v')	0.5333

Remark:

Measurement uncertainty for applicable tests has been established.

***** End of Page *****

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

Standard lamp used for integrating sphere:

Model: S82134

Current: 1.830

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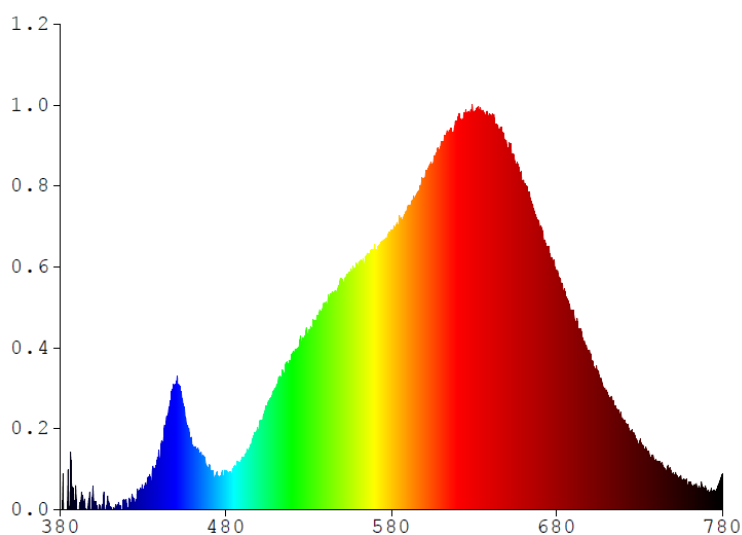
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For KWWS10227*

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0000	480	0.0004	580	0.0032	680	0.0027	780	0.0004
385	0.0000	485	0.0005	585	0.0033	685	0.0024		
390	0.0000	490	0.0006	590	0.0034	690	0.0022		
395	0.0000	495	0.0007	595	0.0036	695	0.0020		
400	0.0001	500	0.0009	600	0.0037	700	0.0018		
405	0.0000	505	0.0012	605	0.0039	705	0.0015		
410	0.0000	510	0.0014	610	0.0041	710	0.0013		
415	0.0001	515	0.0015	615	0.0043	715	0.0012		
420	0.0000	520	0.0017	620	0.0044	720	0.0010		
425	0.0001	525	0.0020	625	0.0045	725	0.0009		
430	0.0002	530	0.0020	630	0.0044	730	0.0008		
435	0.0003	535	0.0022	635	0.0044	735	0.0007		
440	0.0006	540	0.0023	640	0.0044	740	0.0006		
445	0.0011	545	0.0024	645	0.0042	745	0.0005		
450	0.0014	550	0.0026	650	0.0041	750	0.0004		
455	0.0011	555	0.0027	655	0.0039	755	0.0004		
460	0.0007	560	0.0028	660	0.0037	760	0.0003		
465	0.0006	565	0.0029	665	0.0035	765	0.0002		
470	0.0005	570	0.0029	670	0.0032	770	0.0002		
475	0.0003	575	0.0030	675	0.0029	775	0.0002		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWWS10227*

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

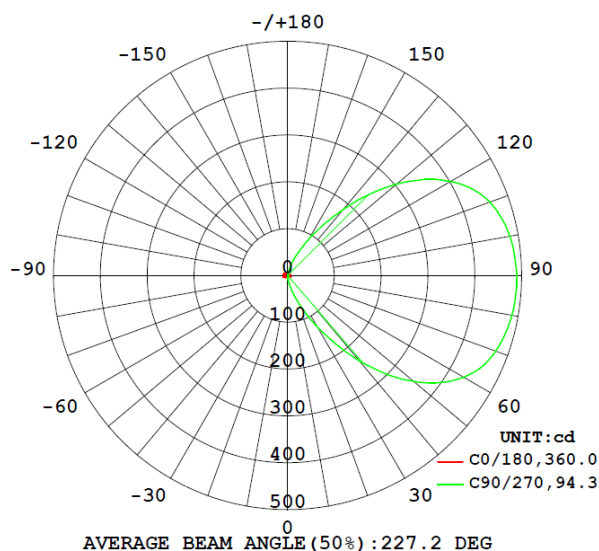
Photometric Measurements at 25°C – Integrating Sphere Method

Intertek Sample No.	Base Orientation	Correlated Color Temperatur e (K)	CRI	R9	CIE 31'	CIE 31'	CIE 76'	CIE 76'
					Chromaticit y	Chromaticit y	Chromaticit y	Chromaticit y
					Coordinate (x)	Coordinate (y)	Coordinate (u')	Coordinate (v')
KWWS10227*								
S2212051 25-012	--	2570	90	62	0.4752	0.4202	0.2680	0.5333

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)
KWWS10227*							
S2212051 25-012	--	120.2	203.6	24.3	0.993	671.7	27.6

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWWS10227*

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	0.9	0.9	0.9	0.9	0.7
5	1.2	1.9	3.2	4.4	3.6
10	1.8	3.8	8.1	13.4	13.3
15	2.5	5.7	14.0	26.4	29.4
20	3.3	6.9	19.6	42.7	52.7
25	3.7	7.5	22.6	61.2	85.0
30	4.1	7.8	24.5	82.4	126.3
35	4.6	7.8	27.6	102.4	177.2
40	5.2	7.8	33.8	123.5	236.9
45	5.9	8.5	38.2	144.0	297.0
50	6.4	9.5	41.7	164.3	351.7
55	6.4	10.5	45.1	191.3	398.5
60	6.7	11.8	48.0	222.8	434.5
65	7.5	13.3	49.9	254.1	459.1
70	7.8	14.7	51.5	280.5	472.8
75	7.1	16.2	53.1	301.5	481.2
80	6.3	17.1	54.0	315.8	486.4
85	5.5	17.0	54.3	321.4	488.8
90	5.2	16.5	53.6	318.8	489.4
95	5.4	16.7	52.1	307.3	486.7
100	6.0	16.2	49.9	287.0	482.1
105	6.8	14.9	46.7	260.0	473.1
110	7.4	13.3	43.1	228.2	459.5
115	7.1	11.8	39.4	193.3	436.2
120	6.0	10.4	36.4	159.0	401.8
125	5.0	9.5	33.3	130.3	357.4
130	4.7	8.6	30.2	109.6	303.6
135	4.3	7.6	25.6	94.3	244.3
140	3.6	6.9	19.0	79.6	184.0
145	3.2	6.1	17.2	63.6	131.2
150	2.9	5.4	14.8	46.0	89.0
155	2.3	4.5	11.5	32.0	55.8
160	1.4	3.5	7.9	19.1	32.0
165	1.0	2.4	4.4	9.1	15.0
170	0.4	1.1	1.7	2.8	4.9
175	0.5	0.6	0.4	0.8	1.0
180	0.5	0.5	0.5	0.2	0.4

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWWS10227*

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
KWWS10227*		
0-30	11.4	1.7
0-40	31.0	4.6
0-60	119.2	17.8
0-90	358.3	53.3
60-90	239.1	35.5
0-180	671.7	100.0

Beam Angle

Total Beam Angle (°)

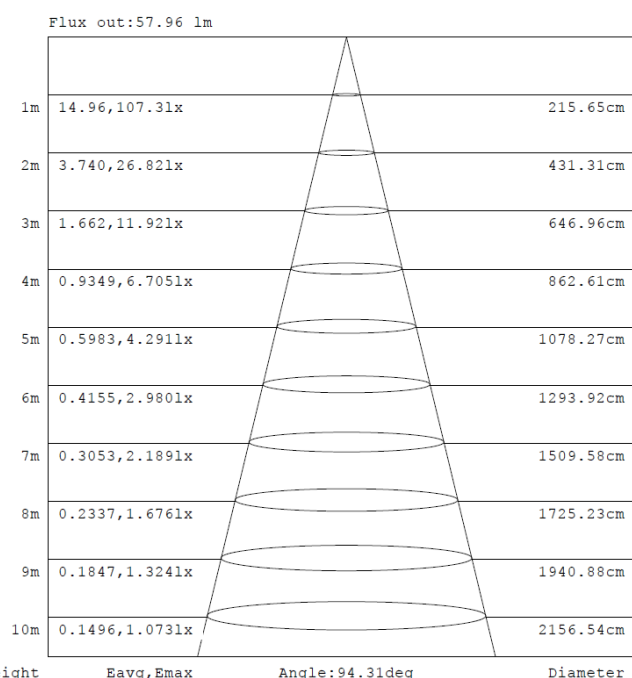
227.2

Illumination Plots

Model No.: KWWS10227*

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

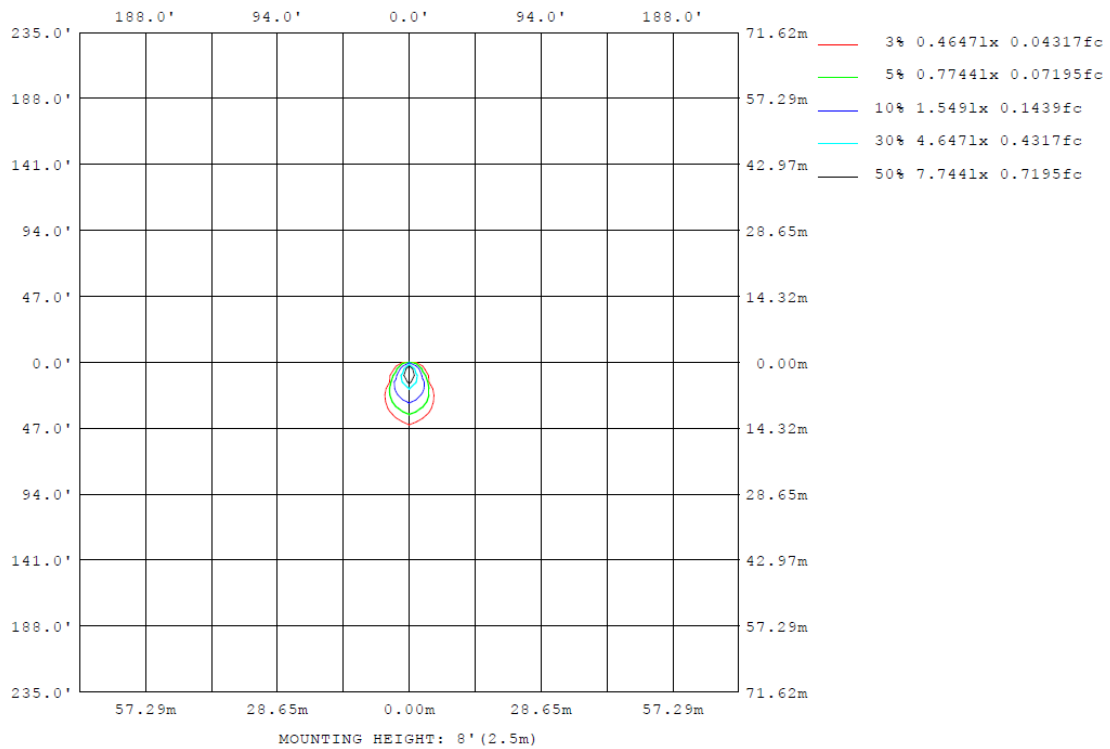
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWWS10227*

Model No.: KWWS10227*

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWWS10227*

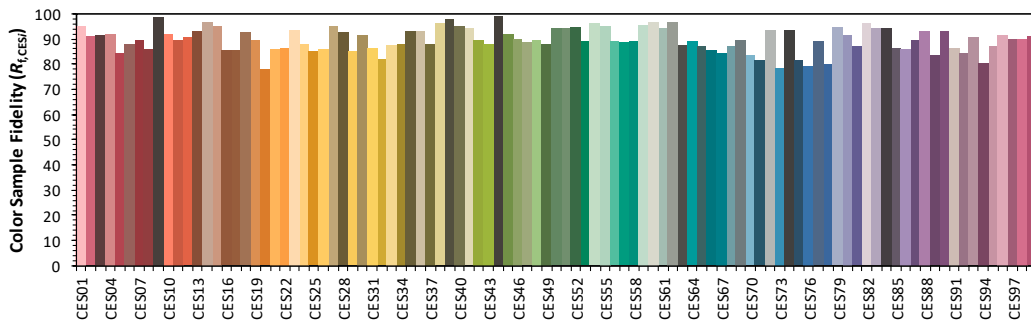
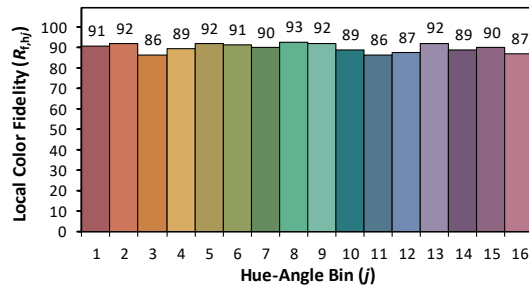
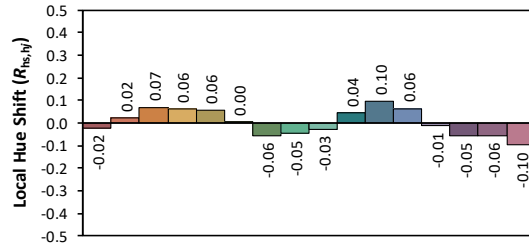
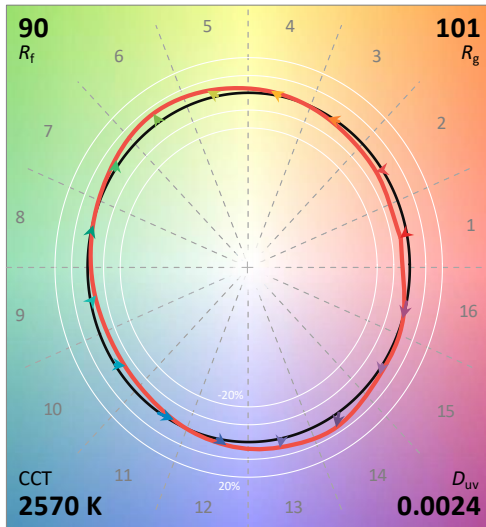
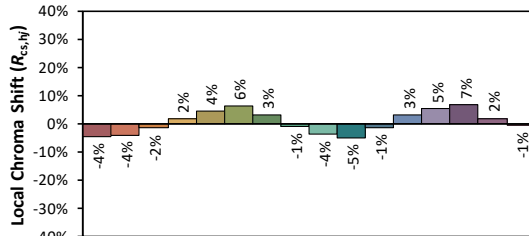
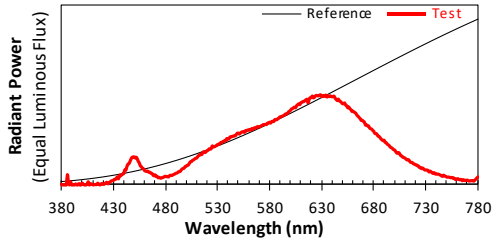
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2023/1/11

Model: KWWS10227*



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

x 0.4752
 y 0.4202
 u' 0.2680
 v' 0.5333

CIE 13.3-1995
(CRI)
 R_a 90
 R_g 62

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

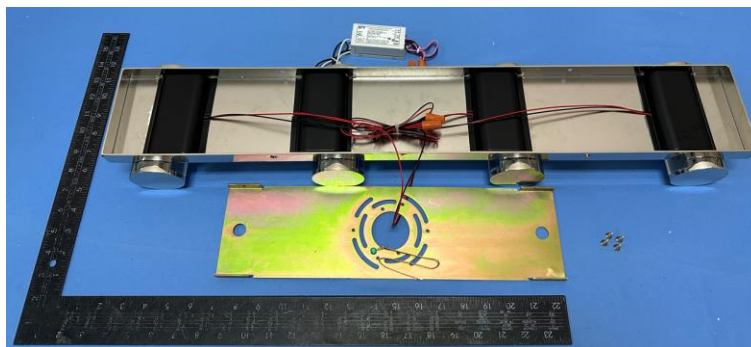
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TEST REPORT

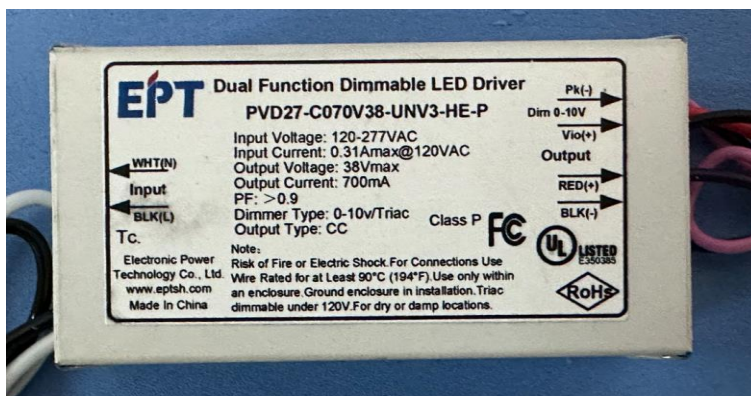
PRODUCT PICTURE (not to scale)



External view of KWWS10227*



External view of KWWS10227*



View of LED Driver PVD27-C070V38-UNV3-HE-P

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TEST REPORT

PRODUCT PICTURE (not to scale)



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 *****