

Report Number	TRN-13842
Customer	Brilliant Way
Contact	Jarek Dabrowski
Product Type	LED Streetlight
Test Purpose	Generation of Photometric Data
Sales Order Ref	Q-LUX2014-2032
Works Order Number	WO-3997
Test Item Reference	TI-3393
LAB Test Method Reference	TES-1055
Test Standards	LM-79-08
Lab Location Reference	LUX-EPC
Tested by	Joshua Mahinda
Date of Test	27/06/2014
Analysed by	Paul Ottavio
Number of products tested	1

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Date: 30/06/2014



Eko Road 90W - LED Streetlight

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Nomenclature

Lamp Orientation described below relates to the position in which a lamp is designed to operate for maximum performance and safety, these include:

BD - Base Down (bulb is vertically positioned with the metal base at the bottom, glass up)

BU - Base Up (bulb is vertically positioned with the metal base at the top, glass hanging down)

HBD - Horizontal +15° to Base Down

H45 - Horizontal to -45° only

VBU - Vertical Base Up ±15°

VBD - Vertical Base Down ±15°

HBU - Base Up +/- 90° (bulb can be operated in a base up or horizontal position)

HOR - Horizontal Burn (bulb is positioned with the metal base parallel to the ground)

H75 - Horizontal +/- 75° (bulb should not be operated within 15° of vertical)

U - Universal Burn (burn can be operated in any position)

Test Conditions

Measurements were made with an ambient temperature of 25°C +/- 1°C. Measurements were taken only after sufficient time for thermal stabilisation has been allowed. Thermal stabilisation according to LM-79-08 was achieved before measurements are measured and reported.

Calibrations

The far field Type C Goniophotometer is calibrated using an intensity lamp calibrated by a NVLAP accredited calibration laboratory.

Test Equipment

UL LSI Custom Far-Field Type C Moving Mirror Goniophotometer measures intensity as a function of angle.

Data Formats

IES (5 deg azimuth and 2.5 deg inclination) and LDT (5 deg C planes and 2.5 deg gamma angles)

Spectral Data file from which the calculation of chromaticity and CRI etc. have been performed and the derived results from the LightMtrX software are provided as a text file format.

All photometric data for LED products will be provided in ABSOLUTE photometric format and all non-LED data will be in relative photometric format with lamp lumens measured separately, where possible, for LOR estimation.

Product Name	Eko Road 90W - LED Streetlight
Part/Serial Number	ER-E1-30X3-04414004
Type of Product	LED Streetlight
Base Type	Not Applicable - Luminaire
Driver Type	Mains
Test Time	40 mins
Operating Orientation	Base Up
Test Orientation	Base Up
Ambient Temperature	25.1°C
Manufacturer	Brilliant Way
Date of Manufacture	04/2014
Thermal Management	Passive
Dimmable	Yes
Pre-Burning Time	0 hours
Stabilisation Time	90 mins
Humidity	< 65% RH

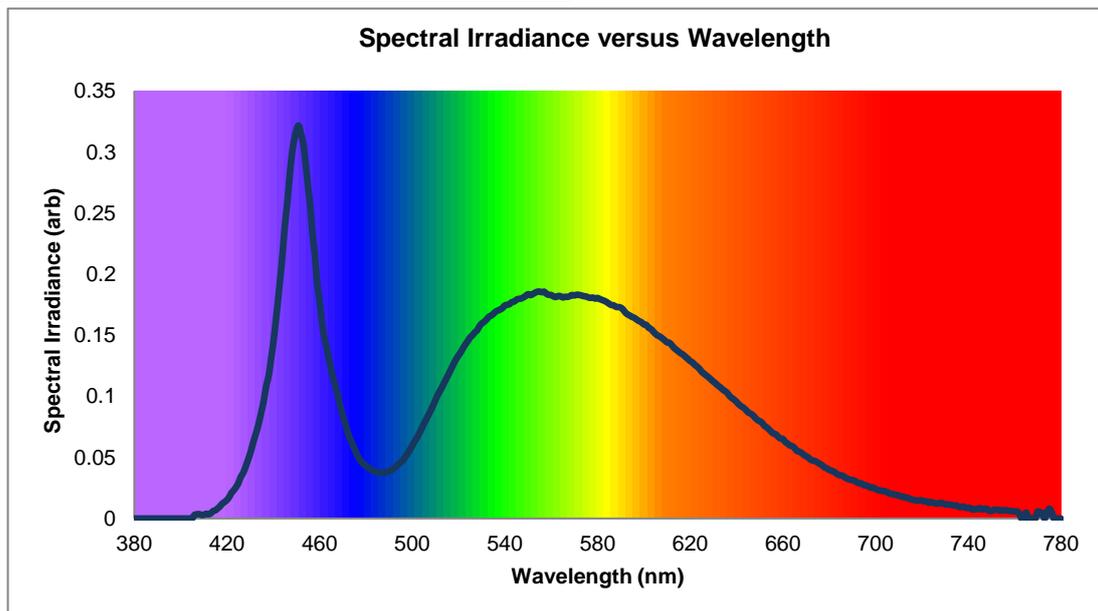


Cus Name			
CUS- 1351	LUX- EPC		
RFI -	WO- 3997		
SO- 2032.	TI- 3393		
PO-	TES- 1055		
Cus PO	TRN- 13842		

Photometric Measurements	
Luminous Flux	9557 lm
Luminous Efficacy	105.35 lm/W

Electrical Measurements	
Frequency	50 Hz
Voltage	229.95 V
Current	0.424 A
Power	90.72 W
Power Factor	0.931
Peak Power VA	97.50 W

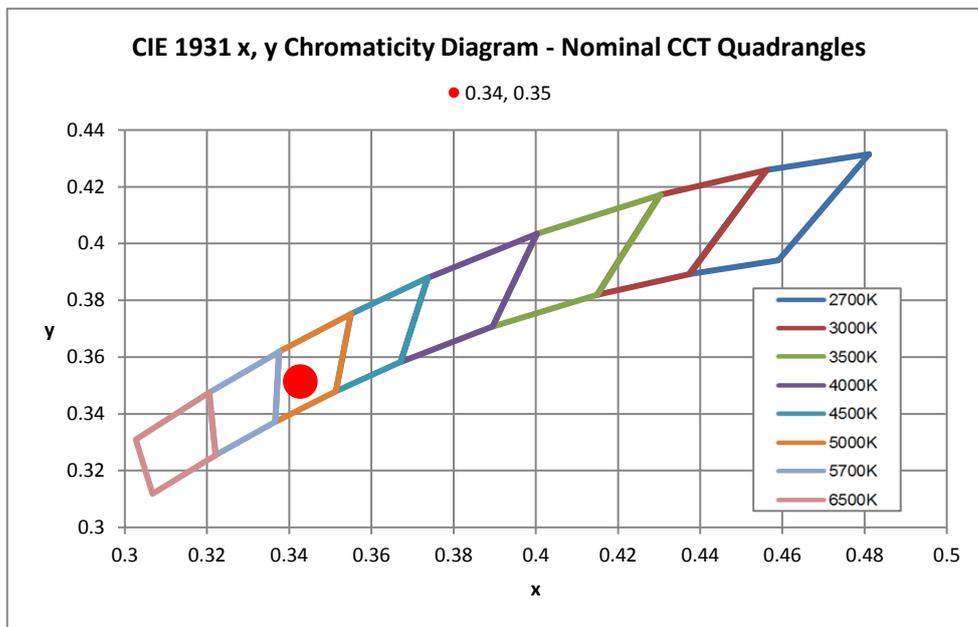
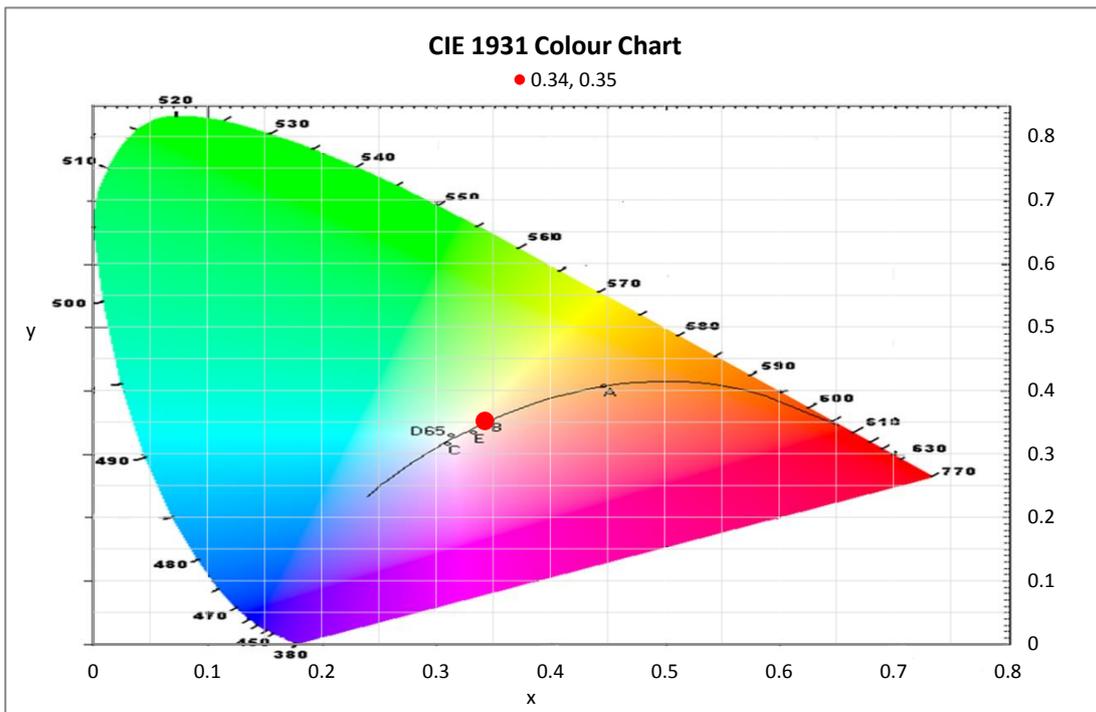
Dimension	Sample	Luminous Opening
Diameter/Width	80 mm	50 mm
Length	620 mm	170 mm
Height/Depth	80 mm	11 mm



Colour Rendering Index Detail			
R1	73.0	R8	63.0
R2	79.4	R9	-10.1
R3	81.4	R10	48.5
R4	74.6	R11	70.1
R5	72.7	R12	42.4
R6	69.7	R13	73.9
R7	83.5	R14	89.3

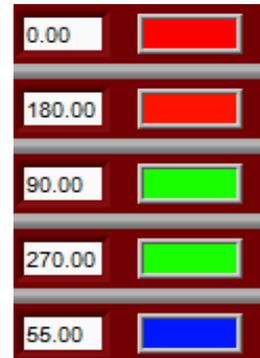
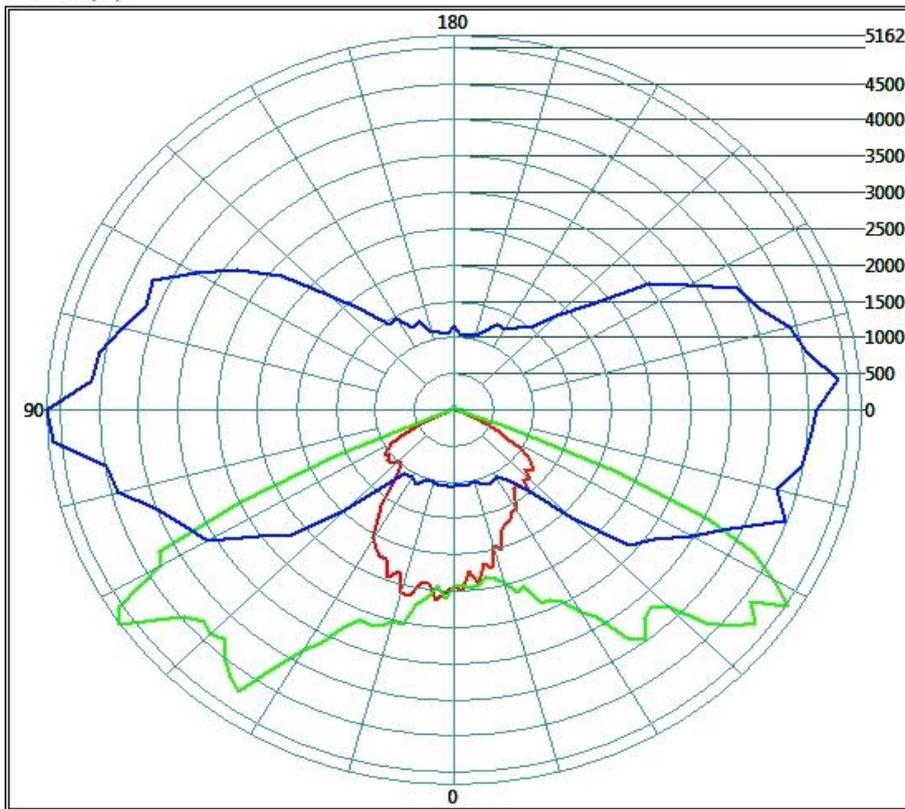
Colorimetric Details	
CCT	5090K
CRI (Ra)	75

Chromaticity Coordinates		
CIE 1931	x	0.3427
	y	0.3514
CIE 1960	u	0.2098
	v	0.3228
CIE 1976	u'	0.2098
	v'	0.4842
Duv		0.0003



Goniophotometric Measurements		
Beam Angle	Horizontal	134°
	Vertical	77°
On-axis Intensity		2428 cd
Peak Intensity		5162 cd
Peak Direction	Horizontal	90°
	Vertical	55°

Polar Plot (cd)



Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone Width (m)	Projected Illuminance (lux)
0.5	1.06	2.57	9713.4
1	2.13	5.14	2428.4
2	4.26	10.28	607.1
3	6.38	15.42	269.8
4	8.51	20.56	151.8
5	10.64	25.69	97.1
6	12.77	30.83	67.5
8	17.03	41.11	37.9
10	21.28	51.39	24.3
20	42.56	102.78	6.1



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Test Report Number: TRN-13842
Test Item: TI-3393

Spectral Power Distribution

λ (nm)	W						
380	0.000000	430	5.30E-02	480	4.30E-02	530	1.60E-01
381	0.00E+00	431	5.98E-02	481	4.18E-02	531	1.61E-01
382	0.00E+00	432	6.64E-02	482	4.04E-02	532	1.63E-01
383	0.00E+00	433	7.25E-02	483	3.92E-02	533	1.65E-01
384	0.00E+00	434	8.01E-02	484	3.85E-02	534	1.66E-01
385	0.00E+00	435	8.84E-02	485	3.78E-02	535	1.68E-01
386	0.00E+00	436	9.76E-02	486	3.73E-02	536	1.69E-01
387	0.00E+00	437	1.09E-01	487	3.78E-02	537	1.70E-01
388	0.00E+00	438	1.16E-01	488	3.77E-02	538	1.71E-01
389	0.00E+00	439	1.30E-01	489	3.81E-02	539	1.72E-01
390	0.00E+00	440	1.44E-01	490	3.87E-02	540	1.75E-01
391	0.00E+00	441	1.60E-01	491	3.95E-02	541	1.75E-01
392	0.00E+00	442	1.78E-01	492	4.10E-02	542	1.76E-01
393	0.00E+00	443	1.96E-01	493	4.25E-02	543	1.77E-01
394	0.00E+00	444	2.16E-01	494	4.43E-02	544	1.78E-01
395	0.00E+00	445	2.40E-01	495	4.59E-02	545	1.79E-01
396	0.00E+00	446	2.58E-01	496	4.78E-02	546	1.80E-01
397	0.00E+00	447	2.78E-01	497	5.05E-02	547	1.80E-01
398	0.00E+00	448	2.97E-01	498	5.32E-02	548	1.81E-01
399	0.00E+00	449	3.10E-01	499	5.63E-02	549	1.82E-01
400	0.00E+00	450	3.18E-01	500	5.96E-02	550	1.84E-01
401	0.00E+00	451	3.22E-01	501	6.31E-02	551	1.83E-01
402	0.00E+00	452	3.15E-01	502	6.61E-02	552	1.84E-01
403	0.00E+00	453	3.06E-01	503	6.95E-02	553	1.85E-01
404	0.00E+00	454	2.90E-01	504	7.34E-02	554	1.86E-01
405	0.00E+00	455	2.72E-01	505	7.74E-02	555	1.86E-01
406	2.90E-03	456	2.55E-01	506	8.11E-02	556	1.85E-01
407	3.44E-03	457	2.32E-01	507	8.49E-02	557	1.86E-01
408	3.60E-03	458	2.15E-01	508	8.86E-02	558	1.84E-01
409	3.01E-03	459	1.92E-01	509	9.25E-02	559	1.83E-01
410	3.00E-03	460	1.78E-01	510	9.69E-02	560	1.83E-01
411	3.89E-03	461	1.61E-01	511	1.01E-01	561	1.82E-01
412	3.44E-03	462	1.48E-01	512	1.05E-01	562	1.81E-01
413	4.20E-03	463	1.40E-01	513	1.08E-01	563	1.82E-01
414	6.08E-03	464	1.31E-01	514	1.12E-01	564	1.82E-01
415	6.65E-03	465	1.22E-01	515	1.16E-01	565	1.81E-01
416	8.24E-03	466	1.14E-01	516	1.19E-01	566	1.82E-01
417	9.96E-03	467	1.07E-01	517	1.23E-01	567	1.81E-01
418	1.22E-02	468	1.00E-01	518	1.27E-01	568	1.82E-01
419	1.36E-02	469	9.15E-02	519	1.31E-01	569	1.83E-01
420	1.52E-02	470	8.43E-02	520	1.34E-01	570	1.83E-01
421	1.76E-02	471	7.86E-02	521	1.36E-01	571	1.83E-01
422	2.11E-02	472	7.15E-02	522	1.40E-01	572	1.83E-01
423	2.32E-02	473	6.61E-02	523	1.43E-01	573	1.83E-01
424	2.59E-02	474	6.20E-02	524	1.45E-01	574	1.82E-01
425	2.92E-02	475	5.72E-02	525	1.48E-01	575	1.82E-01
426	3.42E-02	476	5.31E-02	526	1.50E-01	576	1.81E-01
427	3.72E-02	477	4.92E-02	527	1.52E-01	577	1.81E-01
428	4.20E-02	478	4.66E-02	528	1.54E-01	578	1.81E-01
429	4.74E-02	479	4.46E-02	529	1.57E-01	579	1.80E-01
						580	1.81E-01



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λ (nm)	W						
581	1.80E-01	631	1.11E-01	681	3.91E-02	731	1.15E-02
582	1.79E-01	632	1.09E-01	682	3.84E-02	732	1.15E-02
583	1.78E-01	633	1.07E-01	683	3.70E-02	733	1.09E-02
584	1.77E-01	634	1.06E-01	684	3.58E-02	734	1.07E-02
585	1.76E-01	635	1.04E-01	685	3.53E-02	735	1.07E-02
586	1.75E-01	636	1.03E-01	686	3.49E-02	736	9.55E-03
587	1.74E-01	637	1.00E-01	687	3.33E-02	737	9.49E-03
588	1.73E-01	638	9.87E-02	688	3.25E-02	738	9.79E-03
589	1.73E-01	639	9.72E-02	689	3.17E-02	739	8.72E-03
590	1.73E-01	640	9.55E-02	690	3.15E-02	740	8.68E-03
591	1.71E-01	641	9.35E-02	691	3.09E-02	741	8.66E-03
592	1.69E-01	642	9.19E-02	692	2.96E-02	742	7.15E-03
593	1.67E-01	643	9.08E-02	693	2.89E-02	743	7.66E-03
594	1.66E-01	644	8.90E-02	694	2.87E-02	744	7.70E-03
595	1.65E-01	645	8.70E-02	695	2.72E-02	745	8.50E-03
596	1.64E-01	646	8.60E-02	696	2.72E-02	746	7.30E-03
597	1.63E-01	647	8.47E-02	697	2.63E-02	747	7.86E-03
598	1.62E-01	648	8.26E-02	698	2.52E-02	748	8.08E-03
599	1.61E-01	649	8.07E-02	699	2.54E-02	749	6.46E-03
600	1.59E-01	650	7.97E-02	700	2.43E-02	750	6.10E-03
601	1.59E-01	651	7.84E-02	701	2.34E-02	751	6.93E-03
602	1.56E-01	652	7.60E-02	702	2.30E-02	752	7.13E-03
603	1.55E-01	653	7.47E-02	703	2.25E-02	753	7.18E-03
604	1.53E-01	654	7.30E-02	704	2.25E-02	754	6.26E-03
605	1.51E-01	655	7.10E-02	705	2.15E-02	755	6.93E-03
606	1.50E-01	656	6.95E-02	706	2.04E-02	756	6.61E-03
607	1.49E-01	657	6.89E-02	707	2.01E-02	757	6.57E-03
608	1.47E-01	658	6.68E-02	708	1.98E-02	758	6.25E-03
609	1.46E-01	659	6.55E-02	709	1.93E-02	759	5.99E-03
610	1.44E-01	660	6.52E-02	710	1.89E-02	760	5.69E-03
611	1.44E-01	661	6.28E-02	711	1.80E-02	761	5.94E-03
612	1.42E-01	662	6.15E-02	712	1.79E-02	762	4.37E-03
613	1.40E-01	663	5.99E-02	713	1.70E-02	763	0.00E+00
614	1.38E-01	664	5.93E-02	714	1.69E-02	764	0.00E+00
615	1.37E-01	665	5.79E-02	715	1.59E-02	765	4.94E-03
616	1.35E-01	666	5.55E-02	716	1.54E-02	766	0.00E+00
617	1.34E-01	667	5.48E-02	717	1.50E-02	767	0.00E+00
618	1.32E-01	668	5.38E-02	718	1.46E-02	768	0.00E+00
619	1.31E-01	669	5.23E-02	719	1.48E-02	769	0.00E+00
620	1.29E-01	670	5.10E-02	720	1.48E-02	770	5.62E-03
621	1.28E-01	671	5.00E-02	721	1.40E-02	771	4.88E-03
622	1.26E-01	672	4.81E-02	722	1.41E-02	772	4.50E-03
623	1.24E-01	673	4.75E-02	723	1.30E-02	773	0.00E+00
624	1.23E-01	674	4.69E-02	724	1.35E-02	774	4.44E-03
625	1.20E-01	675	4.60E-02	725	1.29E-02	775	8.00E-03
626	1.19E-01	676	4.46E-02	726	1.23E-02	776	5.39E-03
627	1.17E-01	677	4.36E-02	727	1.22E-02	777	0.00E+00
628	1.16E-01	678	4.19E-02	728	1.28E-02	778	0.00E+00
629	1.14E-01	679	4.11E-02	729	1.25E-02	779	0.00E+00
630	1.12E-01	680	3.98E-02	730	1.17E-02	780	0.00E+00

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