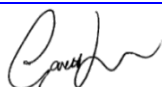


Report Number	GNC-36016
Customer	Encapsulite International Ltd
Contact	Jordan Waumsley
Product Type	LED Tube
Test Purpose	Goniometric (Type C) Intensity Scan - IES/LDT Files & Report - Scan Increments 15 degrees Azimuth by 2.5 degrees inclination
Quote / PO Reference	Q-LUX-302609 / PO (17038)
Works Order Number	WO-36016
Test Standards	LM-79-19; (BS) EN 13032-4:2015 + A1 2019; CIE S025:2015
Testing Conducted at	LUX-TSI Limited Unit 1B Pencoe Technology Park, Pencoe, Bridgend, CF35 5AQ
Tested by	Charles Read
Date of Receipt of Test Item	11/11/2025
Date(s) of Test	13/11/2025
Analysed by	Gareth Jones
Number of products tested	1

Address: LUX-TSI Ltd.,
Pencoe Technology Park,
Pencoe, Bridgend,
CF35 5AQ, UK
Telephone: +44 (0) 1656 864618
Authorised by: G. Jones
Email: CustomerService@lux-tsi.com
Signed:



Date: 14/11/2025



MT50 & MT70 LED Range

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TRCL_GC_R19_4

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)

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-79-19 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. On-axis spectral measurements taken using Gooch and Housego OL770 spectrometer.

Data Formats

IES (15 deg azimuth and 2.5 deg inclination) and LDT (15 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	MT50 & MT70 LED Range
Part/Serial Number	MT50 LED 2 HO
Type of Product	LED Tube
Lamp Base Type	Luminaire

Enter Driver Here

Test Time	11 mins
Operating Orientation	Horizontal
Test Orientation	Horizontal
Ambient Temperature	25.2°C
Manufacturer	Encapsulite International Ltd
Date of Manufacture	N/A
Thermal Management	Passive
Dimmable	No
Pre-Burning Time	0 hours
Stabilisation Time	30 minutes
Humidity	43.7% RH
Averaging Applied	NONE

Driver Details		
Manufacturer		Tridonic
Model		28005034
Part/Serial #		N/A
Driver Type		Internal Driver
Output	Voltage	N/A
	Current	325 A
	Power	N/A

Photometric Measurements	
Luminous Flux (lm)	2511 lm
Luminous Efficacy (lm/W)	143 lm/W

Dimension	Sample	Luminous Opening
Diameter/Width	50 mm	50 mm
Length	650 mm	565 mm
Height/Depth	50 mm	50 mm

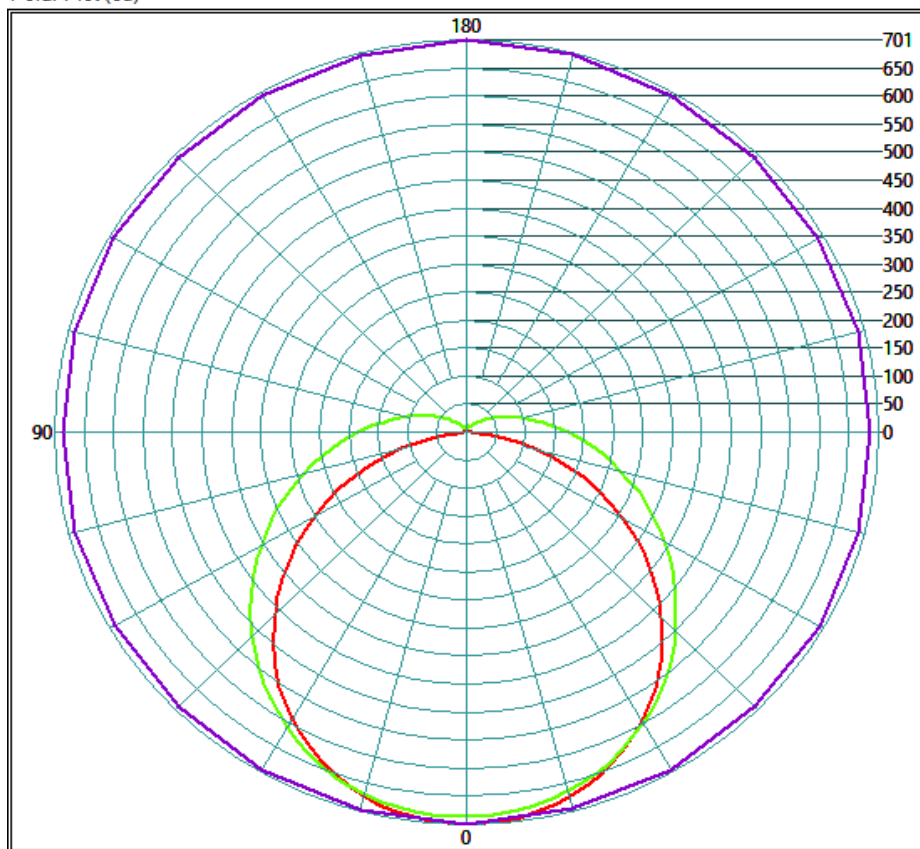
NOTE - these dimensions may not be the same as IES/LDT file due to product geometry for best use in lighting design software

Electrical Measurements	
Frequency	50 Hz
Voltage	230 V
Current	0.085 A
Power	17.6 W
Power Factor	0.905
Apparent Power	19.4 VA

Goniophotometric Measurements

Beam Angle	Horizontal	132°
	Vertical	111°
On-axis Intensity		701 cd
Peak Intensity		701 cd
Peak Direction	Horizontal	180°
	Vertical	0°

Polar Plot (cd)



Mounting Height (m)	Beam Width (m)		Projected Illuminance (lux)
	C0-C180 plane	C90-270 plane	
0.5	2.2	1.5	2803
1	4.5	2.9	701
2	8.9	5.9	175
3	13.4	8.8	78
4	17.8	11.7	44
5	22.3	14.7	28
7.5	33.5	22.0	12
10	44.6	29.4	7
20	89.2	58.7	2

Appendices & non-accredited results

Colorimetric Measurement Results

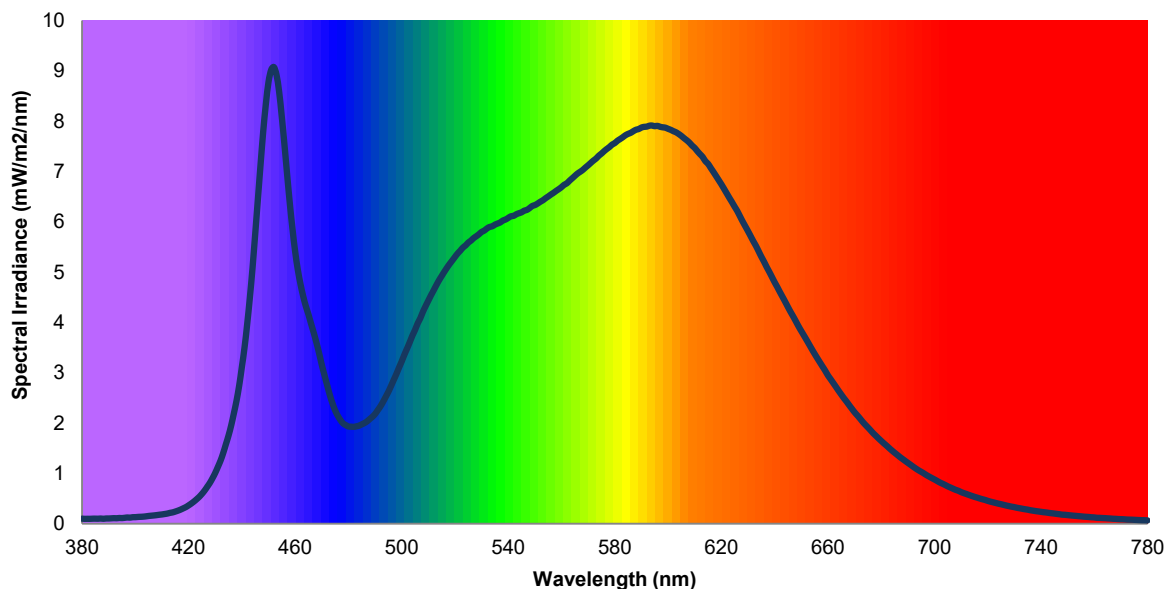
Obtained via On-axis Spectral Measurement

The following data was determined from an on-axis spectral measurement using a Gooch & Housego OLI770 spectrometer at a distance of 15.4m. Angle of mirror where spectrum is measured is 0 degrees. Results may differ if compared to spatially averaged colourimetric result (e.g. measured in an integrating sphere).

LM79 requires spatially averaged colourimetric results (i.e. from a sphere, or from a full gonio colourimetric scan). The colourimetric results in this report do not follow those requirements.

BS (EN) 13032 and CIE S025 do not state this requirement. Compliance with these standards is observed.

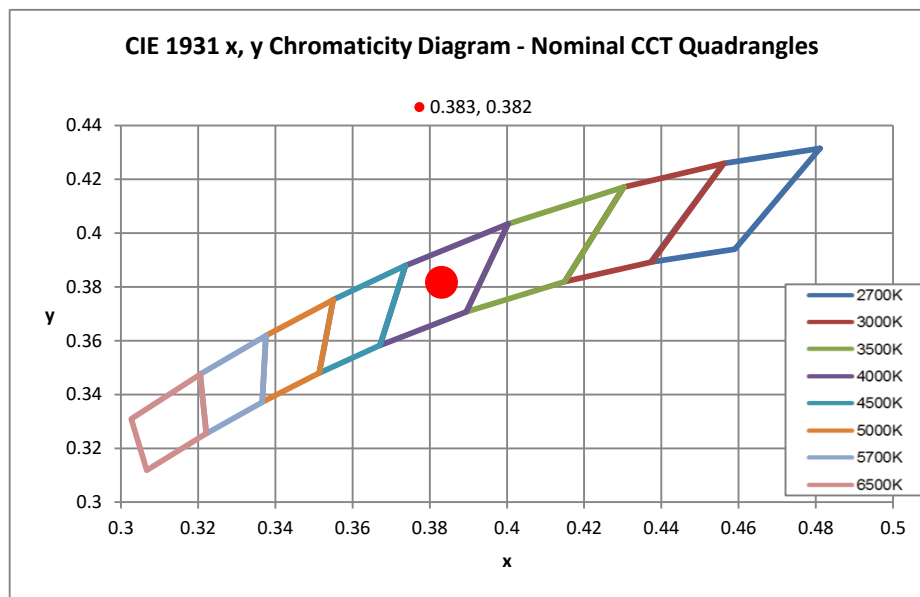
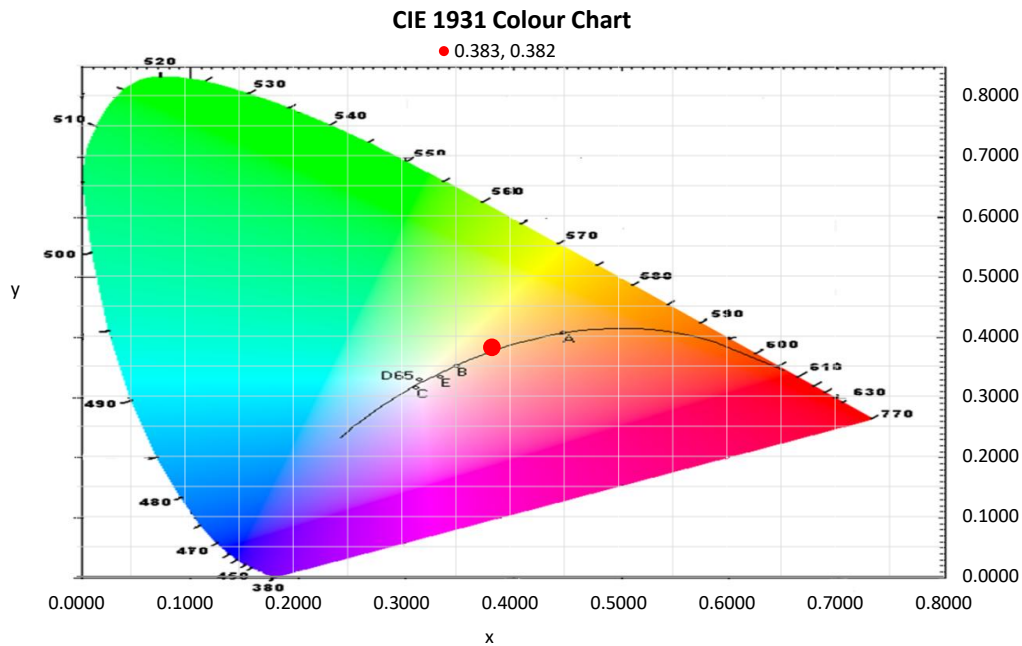
Spectral Irradiance versus Wavelength



Colour Rendering Index Detail			
R1	80	R8	62
R2	88	R9	2
R3	93	R10	70
R4	81	R11	79
R5	79	R12	56
R6	83	R13	82
R7	86	R14	96

Colorimetric Details	
CCT	3966K
CRI (Ra)	81

Chromaticity Coordinates		
CIE 1931	x	0.3830
	y	0.3817
CIE 1960	u	0.2249
	v	0.3361
CIE 1976	u'	0.2249
	v'	0.5041
Duv		0.0015



Spectral Power Distribution

λ (nm)	mW/m ² /nm
380	1.01E-01
381	9.65E-02
382	9.77E-02
383	9.72E-02
384	1.00E-01
385	1.01E-01
386	9.95E-02
387	1.03E-01
388	9.81E-02
389	1.04E-01
390	1.04E-01
391	1.07E-01
392	1.10E-01
393	1.08E-01
394	1.13E-01
395	1.12E-01
396	1.18E-01
397	1.24E-01
398	1.21E-01
399	1.29E-01
400	1.30E-01
401	1.35E-01
402	1.37E-01
403	1.41E-01
404	1.46E-01
405	1.54E-01
406	1.59E-01
407	1.64E-01
408	1.71E-01
409	1.78E-01
410	1.84E-01
411	1.93E-01
412	2.02E-01
413	2.15E-01
414	2.25E-01
415	2.41E-01
416	2.59E-01
417	2.81E-01
418	3.06E-01
419	3.31E-01
420	3.64E-01
421	4.01E-01
422	4.41E-01
423	4.86E-01
424	5.34E-01
425	5.92E-01
426	6.58E-01
427	7.34E-01
428	8.12E-01
429	9.07E-01

λ (nm)	mW/m ² /nm
430	1.01E+00
431	1.13E+00
432	1.26E+00
433	1.41E+00
434	1.58E+00
435	1.75E+00
436	1.96E+00
437	2.19E+00
438	2.45E+00
439	2.75E+00
440	3.11E+00
441	3.50E+00
442	3.97E+00
443	4.49E+00
444	5.08E+00
445	5.76E+00
446	6.44E+00
447	7.13E+00
448	7.79E+00
449	8.34E+00
450	8.78E+00
451	9.02E+00
452	9.08E+00
453	8.92E+00
454	8.58E+00
455	8.08E+00
456	7.52E+00
457	6.93E+00
458	6.36E+00
459	5.86E+00
460	5.41E+00
461	5.05E+00
462	4.76E+00
463	4.52E+00
464	4.33E+00
465	4.16E+00
466	3.97E+00
467	3.79E+00
468	3.60E+00
469	3.39E+00
470	3.16E+00
471	2.95E+00
472	2.76E+00
473	2.56E+00
474	2.39E+00
475	2.25E+00
476	2.15E+00
477	2.06E+00
478	1.99E+00
479	1.96E+00

λ (nm)	mW/m ² /nm
480	1.93E+00
481	1.93E+00
482	1.93E+00
483	1.94E+00
484	1.95E+00
485	1.97E+00
486	2.00E+00
487	2.03E+00
488	2.08E+00
489	2.12E+00
490	2.18E+00
491	2.26E+00
492	2.33E+00
493	2.42E+00
494	2.52E+00
495	2.62E+00
496	2.74E+00
497	2.86E+00
498	2.97E+00
499	3.10E+00
500	3.23E+00
501	3.36E+00
502	3.48E+00
503	3.60E+00
504	3.74E+00
505	3.85E+00
506	3.98E+00
507	4.09E+00
508	4.22E+00
509	4.33E+00
510	4.43E+00
511	4.54E+00
512	4.64E+00
513	4.74E+00
514	4.84E+00
515	4.92E+00
516	5.01E+00
517	5.09E+00
518	5.16E+00
519	5.23E+00
520	5.30E+00
521	5.37E+00
522	5.43E+00
523	5.49E+00
524	5.53E+00
525	5.59E+00
526	5.63E+00
527	5.68E+00
528	5.71E+00
529	5.75E+00

λ (nm)	mW/m ² /nm
530	5.80E+00
531	5.83E+00
532	5.87E+00
533	5.90E+00
534	5.91E+00
535	5.94E+00
536	5.97E+00
537	5.99E+00
538	6.03E+00
539	6.05E+00
540	6.08E+00
541	6.11E+00
542	6.12E+00
543	6.15E+00
544	6.17E+00
545	6.19E+00
546	6.22E+00
547	6.24E+00
548	6.27E+00
549	6.31E+00
550	6.33E+00
551	6.36E+00
552	6.40E+00
553	6.43E+00
554	6.47E+00
555	6.50E+00
556	6.54E+00
557	6.58E+00
558	6.62E+00
559	6.65E+00
560	6.69E+00
561	6.74E+00
562	6.77E+00
563	6.82E+00
564	6.86E+00
565	6.91E+00
566	6.96E+00
567	6.99E+00
568	7.03E+00
569	7.08E+00
570	7.12E+00
571	7.17E+00
572	7.22E+00
573	7.26E+00
574	7.31E+00
575	7.36E+00
576	7.40E+00
577	7.45E+00
578	7.49E+00
579	7.53E+00
580	7.56E+00

Spectral Power Distribution

λ (nm)	mW/m ² /nm
581	7.61E+00
582	7.64E+00
583	7.68E+00
584	7.72E+00
585	7.75E+00
586	7.77E+00
587	7.80E+00
588	7.83E+00
589	7.84E+00
590	7.87E+00
591	7.89E+00
592	7.89E+00
593	7.91E+00
594	7.91E+00
595	7.90E+00
596	7.91E+00
597	7.89E+00
598	7.88E+00
599	7.87E+00
600	7.85E+00
601	7.83E+00
602	7.80E+00
603	7.78E+00
604	7.75E+00
605	7.71E+00
606	7.66E+00
607	7.62E+00
608	7.57E+00
609	7.52E+00
610	7.47E+00
611	7.40E+00
612	7.35E+00
613	7.29E+00
614	7.21E+00
615	7.15E+00
616	7.07E+00
617	6.99E+00
618	6.91E+00
619	6.83E+00
620	6.75E+00
621	6.66E+00
622	6.57E+00
623	6.48E+00
624	6.39E+00
625	6.30E+00
626	6.21E+00
627	6.11E+00
628	6.01E+00
629	5.91E+00
630	5.81E+00

λ (nm)	mW/m ² /nm
631	5.72E+00
632	5.61E+00
633	5.52E+00
634	5.42E+00
635	5.31E+00
636	5.21E+00
637	5.10E+00
638	5.01E+00
639	4.90E+00
640	4.80E+00
641	4.70E+00
642	4.60E+00
643	4.51E+00
644	4.41E+00
645	4.31E+00
646	4.21E+00
647	4.12E+00
648	4.02E+00
649	3.92E+00
650	3.83E+00
651	3.74E+00
652	3.65E+00
653	3.56E+00
654	3.47E+00
655	3.38E+00
656	3.29E+00
657	3.21E+00
658	3.12E+00
659	3.04E+00
660	2.95E+00
661	2.87E+00
662	2.80E+00
663	2.72E+00
664	2.64E+00
665	2.57E+00
666	2.50E+00
667	2.43E+00
668	2.36E+00
669	2.29E+00
670	2.22E+00
671	2.16E+00
672	2.10E+00
673	2.03E+00
674	1.97E+00
675	1.92E+00
676	1.86E+00
677	1.80E+00
678	1.75E+00
679	1.70E+00
680	1.65E+00

λ (nm)	mW/m ² /nm
681	1.60E+00
682	1.55E+00
683	1.50E+00
684	1.46E+00
685	1.41E+00
686	1.37E+00
687	1.33E+00
688	1.29E+00
689	1.25E+00
690	1.21E+00
691	1.17E+00
692	1.13E+00
693	1.10E+00
694	1.06E+00
695	1.03E+00
696	1.00E+00
697	9.67E-01
698	9.37E-01
699	9.08E-01
700	8.80E-01
701	8.50E-01
702	8.20E-01
703	7.96E-01
704	7.71E-01
705	7.43E-01
706	7.19E-01
707	6.96E-01
708	6.72E-01
709	6.54E-01
710	6.29E-01
711	6.09E-01
712	5.91E-01
713	5.71E-01
714	5.53E-01
715	5.35E-01
716	5.19E-01
717	5.02E-01
718	4.86E-01
719	4.73E-01
720	4.55E-01
721	4.39E-01
722	4.26E-01
723	4.12E-01
724	3.99E-01
725	3.87E-01
726	3.75E-01
727	3.61E-01
728	3.50E-01
729	3.39E-01
730	3.29E-01

λ (nm)	mW/m ² /nm
731	3.17E-01
732	3.07E-01
733	2.97E-01
734	2.87E-01
735	2.80E-01
736	2.68E-01
737	2.60E-01
738	2.51E-01
739	2.44E-01
740	2.36E-01
741	2.29E-01
742	2.23E-01
743	2.14E-01
744	2.08E-01
745	2.02E-01
746	1.95E-01
747	1.88E-01
748	1.80E-01
749	1.77E-01
750	1.71E-01
751	1.66E-01
752	1.60E-01
753	1.56E-01
754	1.51E-01
755	1.46E-01
756	1.41E-01
757	1.37E-01
758	1.33E-01
759	1.28E-01
760	1.25E-01
761	1.17E-01
762	1.16E-01
763	1.13E-01
764	1.11E-01
765	1.07E-01
766	1.04E-01
767	9.86E-02
768	9.66E-02
769	9.23E-02
770	9.02E-02
771	8.84E-02
772	8.37E-02
773	8.12E-02
774	8.00E-02
775	7.76E-02
776	7.47E-02
777	7.21E-02
778	6.98E-02
779	6.88E-02
780	6.54E-02

Measurement Uncertainty

The following is the reported expanded uncertainty of the UL 6440T Type C Mirror Goniophotometer.

Parameter	Equipment Ref	Uncertainty
Total Luminous Flux (%)	NA	± 6.47
Luminous Intensity (%)	NA	± 6.47
Temperature (°C)	LX1019GC	± 0.13
Voltage DC TY720 (%)	LX1008GC	± 0.017
Current DC TY720 (%)	LX1012SP	± 0.670
Voltage AC WT210 (%)	LX1003GC	± 0.15
Current AC WT210 (%)	LX1003GC	± 0.13
Power AC WT210 (%)	LX1003GC	± 0.27
Frequency (50/60 Hz) WT210 (%)	LX1003GC	± 0.002

The reported expanded uncertainty is based on the combined standard uncertainty multiplied by a coverage factor of $k = 2$. This value of k gives a coverage probability of approximately 95%, assuming a normal distribution. This determination of the measurement uncertainty has been done in accordance with international requirements including UKAS, BIPM Guide to the Expression of Uncertainty in Measurement and CIE 198:2011 and CIE S 025/E:2015.

Electrical measurement equipment used for the determination of results for this report, are compliant and meet the performance requirements of the measurement standards used.

----- END OF REPORT -----