


## T e s t   R e p o r t

**Report No** : L16079  
**Client:** : TRT Lighting Ltd  
Unit 1, Target Park  
Shawbank Road  
Redditch  
B98 8YN  
**Description** : LM-290-101-2-48LED, LM-290-101-2-64 LED  
**Manufacturer** : TRT Lighting Ltd  
**Type/Model** : LM-290-101-2-48LED, LM-290-101-2-64 LED  
**Test Specification** : Measurement of power consumption in accordance with the  
'Unmetered Supplies Operational Information Document' –  
Version 14.0 (17/12/2014)  
**Date Testing Started** : 05/09/2016  
**Conclusion** : Refer to body of report  
**Date of Issue** : 04/10/2016  
**Date of Expiry** : 03/10/2021

**Checked by:** J.ADAMS  
**Position:** Accreditation &  
Certification Officer



**Approved by:** T.MALIK  
**Position:** Operations & Quality  
Manager



## **INTRODUCTION**

The product identified in Tables 1 & 8 were tested at the premises of TRT Lighting Ltd for measurement of power consumption in accordance with the 'Unmetered Supplies Operational Information Document' – Version 14.0 (17/12/2014).

## **PRODUCT 1 DETAILS**

**Table 1. Test Sample Details**

Product Description	LM-290-101-2-48LED
Model No.	LM-290-101-2-48LED
Number of Samples	Five
Condition of Samples	Good
Nominal Dimensions	535mm x 350mm x 200mm
Product Supply Requirement	240V AC 50 Hz
Lamp Type and Power	LED – Variable power
Sampling Method: Test samples randomly selected by client.	

The customer has declared that the equipment load does not vary with ambient temperature.

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## **RESULTS**

**Table 2. Wattage and VA results for model - LM-290-101-2-48LED**

Operating Mode	700mA				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
210	102.35	102.28	103.15	102.53	101.73
220	102.45	102.47	102.99	102.38	101.95
230	102.47	102.46	102.86	102.22	102.15
240	102.43	102.42	102.63	101.96	101.27
250	102.38	102.38	102.48	101.82	101.22
VA					
Voltage	Sample Number				
	1	2	3	4	5
210	102.81	102.72	103.60	102.99	102.20
220	103.00	103.02	103.54	102.94	102.52
230	103.14	103.17	103.53	102.90	102.83
240	103.27	103.28	103.45	102.79	102.13
250	103.39	103.39	103.49	102.83	102.25
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
210	1.00	1.00	1.00	1.00	1.00
220	0.99	0.99	0.99	0.99	0.99
230	0.99	0.99	0.99	0.99	0.99
240	0.99	0.99	0.99	0.99	0.99
250	0.99	0.99	0.99	0.99	0.99
Ambient Temperature During Test (°C)			25.0		
PF Leading/Lagging			Leading		

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**Table 3. Wattage and VA results for model - LM-290-101-2-48LED**

Operating Mode	575mA				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
210	84.53	84.57	84.52	84.20	84.26
220	84.42	84.42	84.08	83.60	84.09
230	84.38	84.35	84.23	83.75	84.02
240	84.55	84.53	84.22	83.77	83.78
250	84.51	84.51	84.47	84.01	83.76
VA					
Voltage	Sample Number				
	1	2	3	4	5
210	85.10	85.14	85.10	84.78	84.85
220	85.15	85.14	84.81	84.35	84.84
230	85.27	85.23	85.14	84.78	84.93
240	85.62	85.60	85.31	84.85	84.85
250	85.81	85.78	85.77	85.32	85.11
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
210	0.99	0.99	0.99	0.99	0.99
220	0.99	0.99	0.99	0.99	0.99
230	0.99	0.99	0.99	0.99	0.99
240	0.99	0.99	0.99	0.99	0.99
250	0.98	0.99	0.98	0.98	0.98
Ambient Temperature During Test (°C)			25.0		
PF Leading/Lagging			Leading		

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**Table 4. Wattage and VA results for model - LM-290-101-2-48LED**

Operating Mode	450mA				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
210	66.61	66.65	66.38	66.37	66.06
220	66.55	66.53	66.44	66.32	66.09
230	66.50	66.48	66.43	66.28	66.10
240	66.48	66.45	66.43	66.25	66.11
250	66.44	66.44	66.42	66.22	66.09
VA					
Voltage	Sample Number				
	1	2	3	4	5
210	67.41	67.44	67.19	67.17	66.89
220	67.51	67.52	67.44	67.32	67.10
230	67.70	67.67	67.73	67.55	67.33
240	67.97	67.90	67.86	67.72	67.61
250	68.23	68.18	68.18	68.00	67.90
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
210	0.99	0.99	0.99	0.99	0.99
220	0.99	0.99	0.99	0.99	0.98
230	0.98	0.98	0.98	0.98	0.98
240	0.98	0.98	0.98	0.98	0.98
250	0.97	0.97	0.97	0.97	0.97
Ambient Temperature During Test (°C)			25.0		
PF Leading/Lagging			Leading		

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**Table 5. Wattage and VA results for model - LM-290-101-2-48LED**

Operating Mode	325mA				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
210	49.20	49.42	49.15	49.12	49.02
220	49.20	49.35	49.12	49.08	49.01
230	49.20	49.34	49.09	49.05	48.99
240	49.21	49.32	49.08	49.03	48.98
250	49.22	49.33	49.07	49.03	48.99
VA					
Voltage	Sample Number				
	1	2	3	4	5
210	50.35	50.54	50.31	50.28	50.19
220	50.63	50.76	50.55	50.50	50.44
230	50.93	51.04	50.83	50.81	50.75
240	51.29	51.38	51.17	51.15	51.11
250	51.70	51.76	51.59	51.53	51.48
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
210	0.98	0.98	0.98	0.98	0.98
220	0.97	0.97	0.97	0.97	0.97
230	0.97	0.97	0.97	0.97	0.97
240	0.96	0.96	0.96	0.96	0.96
250	0.95	0.95	0.95	0.95	0.95
Ambient Temperature During Test (°C)			24.7		
PF Leading/Lagging			Leading		

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**Table 6. Wattage and VA results for model - LM-290-101-2-48LED**

Operating Mode	200mA				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
210	31.77	31.84	31.60	31.65	31.54
220	31.92	31.97	31.74	31.80	31.69
230	32.02	32.06	31.84	31.89	31.79
240	32.10	32.15	31.91	31.99	31.86
250	32.17	32.22	31.98	32.06	31.93
VA					
Voltage	Sample Number				
	1	2	3	4	5
210	33.66	33.71	33.54	33.60	33.47
220	34.16	34.18	33.98	34.03	33.94
230	34.74	34.78	34.62	34.71	34.55
240	35.33	35.34	35.16	35.27	35.10
250	35.95	35.99	35.80	35.95	35.76
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
210	0.94	0.94	0.94	0.94	0.94
220	0.93	0.94	0.93	0.93	0.93
230	0.92	0.92	0.92	0.92	0.92
240	0.91	0.91	0.91	0.91	0.91
250	0.89	0.90	0.89	0.89	0.89
Ambient Temperature During Test (°C)			25.0		
PF Leading/Lagging			Leading		

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**Table 7. Wattage and VA results for model - LM-290-101-2-48LED**

Operating Mode	Standby				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
210	0.82	0.81	0.77	0.80	0.82
220	0.84	0.85	0.79	0.83	0.80
230	0.87	0.88	0.82	0.86	0.84
240	0.92	0.91	0.85	0.89	0.91
250	0.95	0.95	0.87	0.94	0.91
VA					
Voltage	Sample Number				
	1	2	3	4	5
210	8.18	8.21	8.20	8.32	8.15
220	8.93	9.01	9.00	9.20	8.97
230	9.77	9.81	9.80	10.02	9.77
240	10.61	10.65	10.66	10.87	10.59
250	11.51	11.51	11.49	11.75	11.43
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
210	0.10	0.10	0.09	0.10	0.10
220	0.09	0.09	0.09	0.09	0.09
230	0.09	0.09	0.08	0.09	0.09
240	0.09	0.09	0.08	0.08	0.09
250	0.08	0.08	0.08	0.08	0.08
Ambient Temperature During Test (°C)			25.0		
PF Leading/Lagging			Leading		

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## **PRODUCT 2 DETAILS**

**Table 8. Test Sample Details**

Product Description	LM-290-101-2-64LED
Model No.	LM-290-101-2-64LED
Number of Samples	Five
Condition of Samples	Good
Nominal Dimensions	535mm x 350mm x 200mm
Product Supply Requirement	240V AC 50 Hz
Lamp Type and Power	LED – Variable power
Sampling Method: Test samples randomly selected by client.	

The customer has declared that the equipment load does not vary with ambient temperature.

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**Table 9. Wattage and VA results for model - LM-290-101-2-64LED**

Operating Mode	700mA				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
210	135.79	135.36	136.27	135.21	135.99
220	135.76	135.31	136.23	135.10	135.84
230	135.70	135.43	136.46	135.36	136.09
240	135.66	135.44	136.48	135.37	136.10
250	135.61	135.41	136.46	135.38	136.09
VA					
Voltage	Sample Number				
	1	2	3	4	5
210	137.40	137.02	137.85	136.87	137.67
220	137.65	137.28	138.09	137.05	137.80
230	137.91	137.20	138.60	137.63	138.37
240	138.18	138.07	138.99	137.99	138.77
250	138.57	138.48	139.35	138.44	139.21
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
210	0.99	0.99	0.99	0.99	0.99
220	0.99	0.99	0.99	0.99	0.99
230	0.98	0.99	0.98	0.98	0.98
240	0.98	0.98	0.98	0.98	0.98
250	0.98	0.98	0.98	0.98	0.98
Ambient Temperature During Test (°C)			25.0		
PF Leading/Lagging			Leading		

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**Table 10. Wattage and VA results for model - LM-290-101-2-64LED**

Operating Mode	550mA				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
210	105.58	105.58	106.20	105.51	106.03
220	105.41	105.36	105.95	105.27	105.81
230	105.35	105.31	105.91	105.23	105.79
240	105.25	105.24	105.87	105.21	105.82
250	104.77	104.64	105.17	104.51	105.06
VA					
Voltage	Sample Number				
	1	2	3	4	5
210	107.55	107.61	108.13	107.52	108.07
220	107.71	107.73	108.21	107.62	108.16
230	107.96	108.00	108.47	107.90	108.49
240	108.30	108.42	108.88	108.34	108.99
250	108.31	108.28	108.63	108.11	108.72
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
210	0.98	0.98	0.98	0.98	0.98
220	0.98	0.98	0.98	0.98	0.98
230	0.98	0.98	0.98	0.98	0.98
240	0.97	0.97	0.97	0.97	0.97
250	0.97	0.97	0.97	0.97	0.97
Ambient Temperature During Test (°C)			25.0		
PF Leading/Lagging			Leading		

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**Table 11. Wattage and VA results for model - LM-290-101-2-64LED**

Operating Mode	400mA				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
210	75.54	75.58	75.92	75.58	76.04
220	75.70	75.79	76.15	75.80	76.29
230	75.70	75.77	76.13	75.78	76.24
240	75.78	75.90	76.28	75.90	76.35
250	75.72	75.86	76.22	75.84	76.30
VA					
Voltage	Sample Number				
	1	2	3	4	5
210	77.96	78.05	78.27	78.02	78.52
220	78.51	78.69	78.90	78.64	79.18
230	78.95	79.12	79.30	79.06	79.60
240	79.53	79.76	79.95	79.70	80.20
250	80.09	80.33	80.48	80.25	80.77
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
210	0.97	0.97	0.97	0.97	0.97
220	0.96	0.96	0.97	0.96	0.96
230	0.96	0.96	0.96	0.96	0.96
240	0.95	0.95	0.95	0.95	0.95
250	0.95	0.94	0.95	0.95	0.94
Ambient Temperature During Test (°C)			25.0		
PF Leading/Lagging			Leading		

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**Table 12. Wattage and VA results for model - LM-290-101-2-64LED**

Operating Mode	250mA				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
210	47.88	48.01	48.26	48.11	48.38
220	47.98	48.11	48.35	48.20	48.47
230	48.34	48.50	48.78	48.59	48.88
240	48.33	48.48	48.72	48.55	48.82
250	48.38	48.52	48.75	48.58	48.86
VA					
Voltage	Sample Number				
	1	2	3	4	5
210	51.16	51.38	51.52	51.40	51.73
220	51.78	51.95	52.10	51.96	52.30
230	52.66	52.90	53.05	52.91	53.28
240	53.20	53.42	53.49	53.35	53.71
250	53.91	54.18	54.24	54.11	54.50
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
210	0.94	0.93	0.94	0.94	0.94
220	0.93	0.93	0.93	0.93	0.93
230	0.92	0.92	0.92	0.92	0.92
240	0.91	0.91	0.91	0.91	0.91
250	0.90	0.90	0.90	0.90	0.90
Ambient Temperature During Test (°C)			25.0		
PF Leading/Lagging			Leading		

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**Table 13. Wattage and VA results for model - LM-290-101-2-64LED**

Operating Mode	100mA				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
210	22.32	22.42	22.62	22.46	22.76
220	22.39	22.49	22.68	22.53	22.80
230	22.45	22.55	22.75	22.58	22.86
240	22.50	22.60	22.79	22.64	22.89
250	22.58	22.68	22.85	22.70	22.96
VA					
Voltage	Sample Number				
	1	2	3	4	5
210	27.09	27.29	27.34	27.23	27.64
220	27.87	28.11	28.12	28.00	28.37
230	28.59	28.93	28.87	28.74	29.13
240	29.56	29.84	29.77	29.64	30.06
250	30.39	30.73	30.61	30.44	30.80
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
210	0.82	0.82	0.83	0.82	0.82
220	0.80	0.80	0.81	0.80	0.80
230	0.79	0.78	0.79	0.79	0.78
240	0.76	0.76	0.77	0.76	0.76
250	0.74	0.74	0.75	0.75	0.75
Ambient Temperature During Test (°C)			25.0		
PF Leading/Lagging			Leading		

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**Table 14. Wattage and VA results for model - LM-290-101-2-64LED**

Operating Mode	Standby				
Watts					
Voltage	Sample Number				
	1	2	3	4	5
210	0.39	0.39	0.39	0.39	0.39
220	0.41	0.41	0.41	0.41	0.40
230	0.43	0.42	0.43	0.43	0.42
240	0.44	0.45	0.45	0.45	0.44
250	0.46	0.47	0.46	0.46	0.46
VA					
Voltage	Sample Number				
	1	2	3	4	5
210	11.21	11.49	11.16	11.16	11.36
220	12.24	12.58	12.19	12.22	12.47
230	13.22	13.59	13.23	13.30	13.54
240	14.50	14.88	14.41	14.52	14.75
250	15.74	16.28	15.89	15.81	16.07
Power Factor					
Voltage	Sample Number				
	1	2	3	4	5
210	0.03	0.03	0.03	0.03	0.03
220	0.03	0.03	0.03	0.03	0.03
230	0.03	0.03	0.03	0.03	0.03
240	0.03	0.03	0.03	0.03	0.03
250	0.03	0.03	0.03	0.03	0.03
Ambient Temperature During Test (°C)			25.0		
PF Leading/Lagging			Leading		

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## **DEVIATIONS(S) FROM TEST STANDARD**

No reported deviations from test standard.

## **MEASUREMENT UNCERTAINTY**

The following expanded uncertainties apply to the measurements shown in the results;

The expanded uncertainties for true power (W) measurement are  $\pm 0.25\%$ .

The expanded uncertainties for apparent power (VA) measurements are  $\pm 0.39\%$  for 5W to 50W

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k=2$ , providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

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## ILLUSTRATIONS

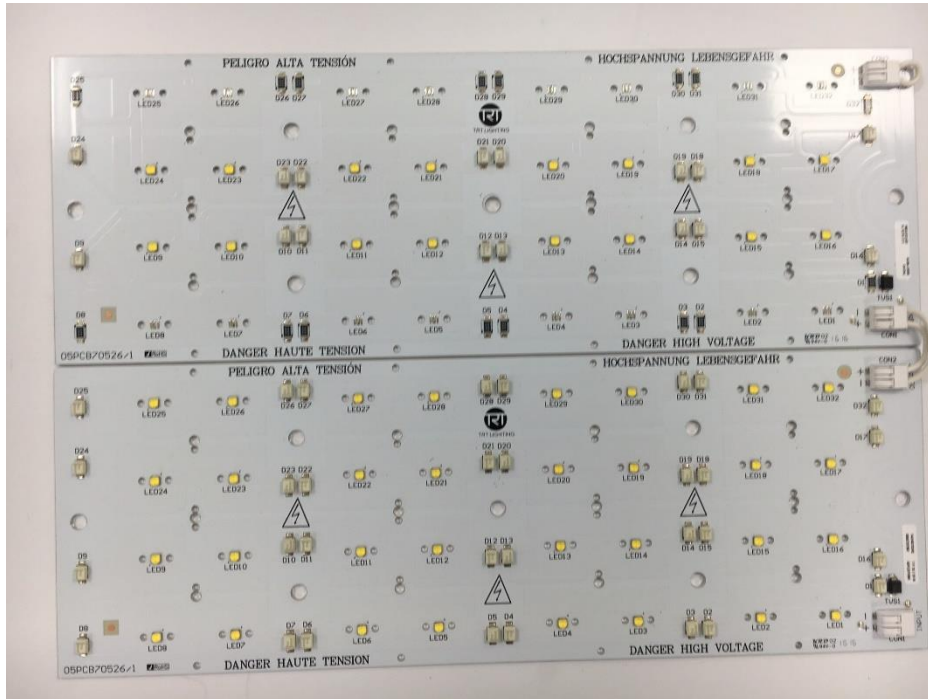


Figure 1. Product image for model - LM-290-101-2-48LED

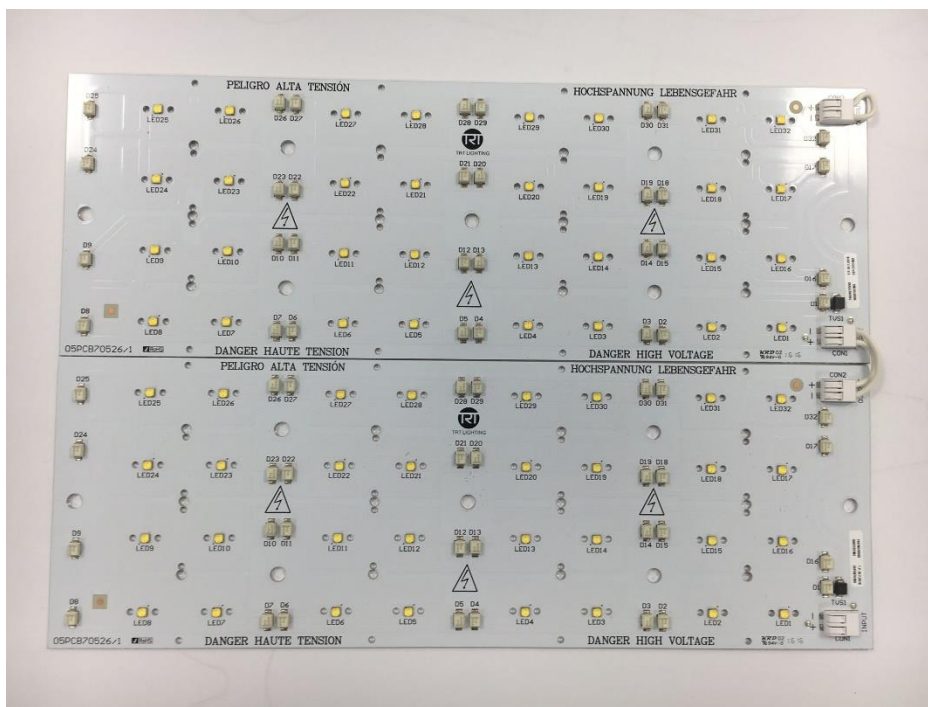


Figure 2. Product image for model - LM-290-101-2-64LED

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This page is to be read in conjunction with the first page of this report