



Chromaticity Shift (Δu^*v^*)			
L26	0.0034	0.0034	0.0037
L27	0.0037	0.0037	0.0040
L28	0.0034	0.0035	0.0038
L29	0.0031	0.0033	0.0036
L30	0.0033	0.0036	0.0039
L31	0.0036	0.0037	0.0038
L32	0.0031	0.0036	0.0037
L33	0.0033	0.0034	0.0036
L34	0.0034	0.0036	0.0038
L35	0.0037	0.0038	0.0040
L36	0.0032	0.0032	0.0034
L37	0.0030	0.0035	0.0035
L38	0.0031	0.0032	0.0034
L39	0.0033	0.0033	0.0034
L40	0.0038	0.0039	0.0041
L41	0.0036	0.0036	0.0038
L42	0.0035	0.0037	0.0039
L43	0.0033	0.0035	0.0037
L44	0.0032	0.0038	0.0041
L45	0.0036	0.0039	0.0040
L46	0.0033	0.0034	0.0035
L47	0.0034	0.0035	0.0037
L48	0.0035	0.0039	0.0042
L49	0.0032	0.0033	0.0035
L50	0.0029	0.0035	0.0036
AV	0.0034	0.0036	0.0038
MIN	0.0029	0.0032	0.0034
MAX	0.0038	0.0039	0.0042
STDEV	0.0002	0.0002	0.0002
Number	25	25	25

Handwritten signature/initials

Handwritten signature/initials

6 Data Set 3: 105°C, 200 mA

Description of Light Sources Tested:	LY-WE070801S2235
Case Temperature:	104.2°C
Ambient Temperature:	103.4°C
Drive Current:	200 mA
Measure Current:	200 mA
Failures Observed:	None

Lumen Maintenance (%)											
L51	24.74	618.5	98.62%	98.15%	97.47%	97.17%	96.65%	96.32%	96.01%	95.60%	95.19%
L52	24.63	632.8	99.02%	98.06%	97.69%	96.82%	96.64%	96.49%	96.03%	95.66%	95.08%
L53	24.66	620.5	98.76%	98.00%	97.73%	96.95%	96.71%	96.44%	96.01%	95.59%	95.16%
L54	24.64	619.0	98.89%	97.97%	97.55%	96.87%	96.58%	96.35%	96.00%	95.62%	95.16%
L55	24.85	637.6	98.71%	97.88%	97.55%	97.12%	96.59%	96.31%	95.97%	95.55%	95.12%
L56	24.74	627.5	98.86%	98.00%	97.48%	97.01%	96.64%	96.31%	95.97%	95.66%	95.10%
L57	24.70	620.5	99.04%	98.17%	97.74%	96.93%	96.62%	96.32%	95.97%	95.62%	95.09%
L58	24.82	640.8	98.90%	98.10%	97.50%	96.80%	96.61%	96.32%	96.01%	95.57%	95.07%
L59	24.86	632.2	98.64%	98.22%	97.73%	96.89%	96.57%	96.46%	96.04%	95.57%	95.18%
L60	24.90	640.1	98.78%	97.89%	97.60%	96.75%	96.72%	96.28%	96.04%	95.65%	95.07%
L61	24.73	618.8	98.70%	97.95%	97.75%	96.83%	96.64%	96.48%	95.97%	95.58%	95.10%
L62	24.79	625.0	98.64%	98.07%	97.54%	96.90%	96.68%	96.50%	96.05%	95.58%	95.11%
L63	24.79	641.2	99.01%	98.17%	97.64%	96.99%	96.65%	96.28%	96.02%	95.66%	95.15%
L64	24.70	615.0	98.82%	98.17%	97.49%	96.86%	96.70%	96.32%	96.03%	95.62%	95.13%
L65	24.66	640.2	99.01%	98.29%	97.40%	96.95%	96.59%	96.42%	96.00%	95.61%	95.16%
L66	24.77	630.1	98.65%	98.00%	97.52%	97.11%	96.58%	96.43%	96.09%	95.61%	95.07%
L67	24.67	614.9	98.71%	97.96%	97.46%	97.10%	96.62%	96.24%	95.98%	95.63%	95.13%
L68	24.94	648.9	98.99%	97.94%	97.41%	97.12%	96.71%	96.41%	96.07%	95.63%	95.08%
L69	24.85	643.5	98.97%	98.15%	97.69%	96.81%	96.63%	96.34%	96.13%	95.56%	95.18%
L70	24.67	615.9	98.99%	98.19%	97.39%	96.77%	96.57%	96.40%	96.06%	95.59%	95.17%
L71	24.86	647.8	99.02%	98.26%	97.54%	96.89%	96.58%	96.32%	95.98%	95.60%	95.17%
L72	24.99	656.1	98.81%	97.87%	97.41%	97.01%	96.64%	96.45%	96.15%	95.63%	95.11%
L73	24.95	654.7	98.98%	98.11%	97.45%	97.02%	96.63%	96.43%	96.08%	95.60%	95.09%
L74	24.94	651.6	98.99%	98.32%	97.38%	97.04%	96.60%	96.36%	96.05%	95.68%	95.11%
L75	24.82	639.2	98.77%	98.20%	97.64%	96.88%	96.72%	96.31%	96.05%	95.63%	95.20%
AV	24.79	633.3	98.85%	98.08%	97.55%	96.94%	96.63%	96.37%	96.03%	95.61%	95.13%
MIN	24.63	614.9	98.62%	97.87%	97.38%	96.75%	96.57%	96.24%	95.97%	95.55%	95.07%
MAX	24.99	656.1	99.04%	98.32%	97.75%	97.17%	96.72%	96.50%	96.15%	95.68%	95.20%
STDEV	0.1075	13.2099	0.0015	0.0013	0.0012	0.0012	0.0005	0.0007	0.0005	0.0004	0.0004
Number	25	25	25	25	25	25	25	25	25	25	25

Lumen Maintenance (%)			
L51	94.78%	94.80%	94.19%
L52	94.95%	94.88%	94.49%
L53	95.06%	94.74%	94.35%
L54	95.02%	94.79%	94.35%
L55	94.96%	94.90%	94.67%
L56	94.93%	94.76%	94.41%
L57	94.95%	94.55%	94.42%
L58	95.04%	94.84%	94.72%
L59	94.99%	94.52%	94.34%
L60	94.93%	94.75%	94.23%
L61	94.89%	94.67%	94.53%
L62	95.02%	94.68%	94.35%
L63	94.91%	94.61%	94.29%
L64	94.76%	94.59%	94.47%
L65	94.95%	94.75%	94.68%
L66	95.00%	94.87%	94.77%
L67	94.95%	94.66%	94.45%
L68	94.95%	94.78%	94.59%
L69	94.86%	94.63%	94.52%
L70	94.91%	94.88%	94.58%
L71	94.89%	94.83%	94.76%
L72	94.96%	94.30%	94.47%
L73	94.87%	94.52%	94.33%
L74	95.01%	94.61%	94.43%
L75	95.06%	94.89%	94.64%
AV	94.94%	94.71%	94.48%
MIN	94.76%	94.30%	94.19%
MAX	95.06%	94.90%	94.77%
STDEV	0.0008	0.0015	0.0016
Number	25	25	25

Description of Light Sources Tested:	LY-WE070801S2235
Case Temperature:	104.2°C
Ambient Temperature:	103.4°C
Drive Current:	200 mA
Measure Current:	200 mA
Failures Observed:	None

Chromaticity Shift ($\Delta u'v'$)												
L51	0.2536	0.5301	2880	0.0013	0.0018	0.0027	0.0031	0.0035	0.0034	0.0035	0.0036	0.0037
L52	0.2535	0.5286	2889	0.0016	0.0020	0.0026	0.0033	0.0033	0.0034	0.0036	0.0037	0.0037
L53	0.2534	0.5299	2884	0.0012	0.0019	0.0027	0.0032	0.0034	0.0032	0.0037	0.0037	0.0039
L54	0.2538	0.5298	2876	0.0013	0.0020	0.0026	0.0033	0.0032	0.0032	0.0035	0.0038	0.0038
L55	0.2538	0.5297	2878	0.0014	0.0018	0.0027	0.0030	0.0034	0.0036	0.0038	0.0036	0.0037
L56	0.2530	0.5296	2895	0.0014	0.0020	0.0025	0.0031	0.0032	0.0035	0.0037	0.0036	0.0038
L57	0.2538	0.5297	2877	0.0015	0.0021	0.0027	0.0030	0.0035	0.0033	0.0038	0.0036	0.0037
L58	0.2542	0.5303	2866	0.0012	0.0018	0.0025	0.0030	0.0031	0.0035	0.0037	0.0038	0.0040
L59	0.2568	0.5344	2790	0.0014	0.0020	0.0026	0.0033	0.0033	0.0036	0.0038	0.0039	0.0037
L60	0.2535	0.5295	2885	0.0015	0.0018	0.0027	0.0031	0.0034	0.0034	0.0037	0.0037	0.0038
L61	0.2528	0.5292	2902	0.0012	0.0021	0.0027	0.0032	0.0032	0.0034	0.0037	0.0038	0.0039
L62	0.2536	0.5305	2878	0.0012	0.0019	0.0025	0.0032	0.0034	0.0033	0.0035	0.0038	0.0037
L63	0.2532	0.5299	2889	0.0013	0.0019	0.0027	0.0032	0.0035	0.0036	0.0037	0.0037	0.0039
L64	0.2528	0.5293	2901	0.0016	0.0021	0.0026	0.0033	0.0033	0.0033	0.0034	0.0037	0.0037
L65	0.2533	0.5287	2894	0.0015	0.0020	0.0026	0.0030	0.0032	0.0035	0.0035	0.0039	0.0037
L66	0.2533	0.5298	2887	0.0013	0.0020	0.0026	0.0032	0.0031	0.0034	0.0037	0.0037	0.0040
L67	0.2541	0.5297	2871	0.0014	0.0019	0.0025	0.0031	0.0033	0.0035	0.0037	0.0038	0.0039
L68	0.2542	0.5304	2865	0.0013	0.0019	0.0026	0.0032	0.0034	0.0033	0.0035	0.0037	0.0038
L69	0.2537	0.5303	2876	0.0015	0.0020	0.0027	0.0030	0.0032	0.0033	0.0034	0.0038	0.0039
L70	0.2533	0.5303	2886	0.0015	0.0021	0.0025	0.0033	0.0033	0.0034	0.0037	0.0037	0.0038
L71	0.2541	0.5302	2869	0.0012	0.0021	0.0024	0.0030	0.0032	0.0033	0.0036	0.0038	0.0038
L72	0.2539	0.5298	2874	0.0012	0.0021	0.0026	0.0032	0.0033	0.0034	0.0035	0.0038	0.0039
L73	0.2541	0.5296	2870	0.0014	0.0020	0.0026	0.0031	0.0034	0.0032	0.0035	0.0039	0.0036
L74	0.2541	0.5299	2870	0.0015	0.0020	0.0027	0.0031	0.0033	0.0035	0.0036	0.0036	0.0037
L75	0.2535	0.5299	2883	0.0012	0.0018	0.0026	0.0030	0.0034	0.0034	0.0036	0.0038	0.0039
AV	0.2537	0.5300	2877	0.0014	0.0020	0.0026	0.0031	0.0033	0.0034	0.0036	0.0037	0.0038
MIN	0.2528	0.5286	2790	0.0012	0.0018	0.0024	0.0030	0.0031	0.0032	0.0034	0.0036	0.0036
MAX	0.2568	0.5344	2902	0.0016	0.0021	0.0027	0.0033	0.0035	0.0036	0.0038	0.0039	0.0040
STDEV	0.0008	0.0010	20.8986	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Number	25	25	25	25	25	25	25	25	25	25	25	25

[Handwritten signature]



Chromaticity Shift ($\Delta u'v'$)			
L51	0.0040	0.0042	0.0043
L52	0.0041	0.0043	0.0050
L53	0.0040	0.0041	0.0050
L54	0.0042	0.0043	0.0051
L55	0.0038	0.0039	0.0043
L56	0.0042	0.0045	0.0046
L57	0.0045	0.0046	0.0047
L58	0.0041	0.0043	0.0045
L59	0.0039	0.0043	0.0044
L60	0.0039	0.0041	0.0044
L61	0.0038	0.0039	0.0040
L62	0.0043	0.0044	0.0045
L63	0.0042	0.0044	0.0046
L64	0.0039	0.0042	0.0046
L65	0.0040	0.0042	0.0045
L66	0.0040	0.0041	0.0049
L67	0.0041	0.0044	0.0045
L68	0.0040	0.0041	0.0049
L69	0.0040	0.0045	0.0047
L70	0.0044	0.0046	0.0048
L71	0.0042	0.0043	0.0049
L72	0.0041	0.0047	0.0048
L73	0.0038	0.0039	0.0042
L74	0.0039	0.0043	0.0046
L75	0.0043	0.0045	0.0046
AV	0.0041	0.0043	0.0046
MIN	0.0038	0.0039	0.0040
MAX	0.0045	0.0047	0.0051
STDEV	0.0002	0.0002	0.0003
Number	25	25	25

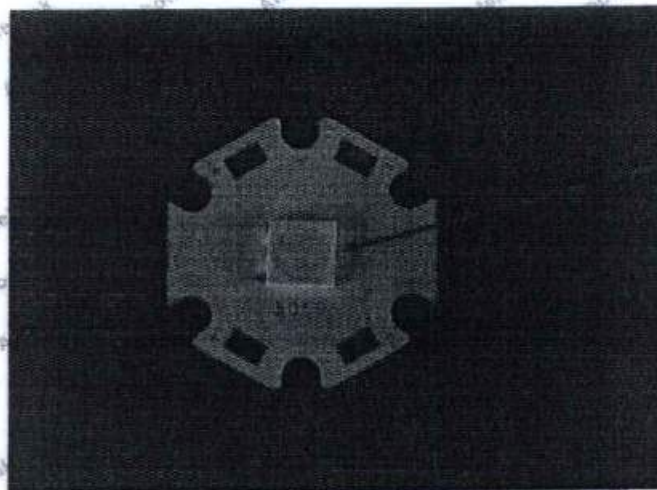
[Handwritten signatures and marks]



7 Attachment A – TM-21 Report

Table 1: Report at each LM-80 Test Condition					
Description of LED Light Source Tested (manufacturer, model, catalog number)		SHENZHEN LEPOWER OPTO ELECTRONICS CORP., LTD -LY-WE070801S2235			
Test Condition 1 - 55°C Case Temp		Test Condition 2 - 85°C Case Temp		Test Condition 3 - 105°C Case Temp	
Sample size	25	Sample size	25	Sample size	25
Number of failures	0	Number of failures	0	Number of failures	0
DUT drive current used in the test (mA)	200	DUT drive current used in the test (mA)	200	DUT drive current used in the test (mA)	200
Test duration (hours)	12,000	Test duration (hours)	12,000	Test duration (hours)	12,000
Test duration used for projection (hour to hour)	6,000 - 12,000	Test duration used for projection (hour to hour)	6,000 - 12,000	Test duration used for projection (hour to hour)	6,000 - 12,000
Tested case temperature (°C)	55	Tested case temperature (°C)	85	Tested case temperature (°C)	105
α	2.985E-06	α	2.940E-06	α	3.362E-06
B	0.986	B	0.983	B	0.983
Calculated L70(12k) (hours)	115,000	Calculated L70(12k) (hours)	115,000	Calculated L70(12k) (hours)	101,000
Reported L70(12k) (hours)	>72000	Reported L70(12k) (hours)	>72000	Reported L70(12k) (hours)	>72000

8 Product Photo

TMP_{LED}

*****END OF TEST REPORT*****



REPÚBLICA FEDERATIVA DO BRASIL

CADASTRO NACIONAL DA PESSOA JURÍDICA



NÚMERO DE INSCRIÇÃO 42.525.342/0001-75 MATRIZ	COMPROVANTE DE INSCRIÇÃO E DE SITUAÇÃO CADASTRAL	DATA DE ABERTURA 30/06/2021
NOME EMPRESARIAL M.P INDUSTRIA E COMERCIO DE MATERIAIS DE ILUMINACAO LTDA		
TÍTULO DO ESTABELECIMENTO (NOME DE FANTASIA) M.P LUX		PORTE ME
CÓDIGO E DESCRIÇÃO DA ATIVIDADE ECONÔMICA PRINCIPAL 27.40-6-02 - Fabricação de luminárias e outros equipamentos de iluminação		
CÓDIGO E DESCRIÇÃO DAS ATIVIDADES ECONÔMICAS SECUNDÁRIAS 43.21-5-00 - Instalação e manutenção elétrica 46.49-4-06 - Comércio atacadista de lustres, luminárias e abajures 47.42-3-00 - Comércio varejista de material elétrico 47.51-2-01 - Comércio varejista especializado de equipamentos e suprimentos de informática 47.54-7-03 - Comércio varejista de artigos de iluminação 71.12-0-00 - Serviços de engenharia		
CÓDIGO E DESCRIÇÃO DA NATUREZA JURÍDICA 206-2 - Sociedade Empresária Limitada		
LOGRADOURO R DAS PERDIZES	NÚMERO 311	COMPLEMENTO *****
CEP 83.609-090	BAIRRO/DISTRITO VILA GILCY	MUNICÍPIO CAMPO LARGO
ENDEREÇO ELETRÔNICO MYCHAELPREVIATO@HOTMAIL.COM		TELEFONE (41) 8882-3896
ENTE FEDERATIVO RESPONSÁVEL (EFR) *****		
SITUAÇÃO CADASTRAL ATIVA	DATA DA SITUAÇÃO CADASTRAL 30/06/2021	
MOTIVO DE SITUAÇÃO CADASTRAL *****		
SITUAÇÃO ESPECIAL *****	DATA DA SITUAÇÃO ESPECIAL *****	

Aprovado pela Instrução Normativa RFB nº 1.863, de 27 de dezembro de 2018.

Emitido no dia 16/08/2021 às 14:43:43 (data e hora de Brasília).

Página: 1/1



RAZÃO SOCIAL: Asseste Consultoria Empresarial Ltda.

CNPJ: 04.936.040/0001-09

ENDEREÇO: Rua Professor Angelo Antônio
COMERCIAL: Dallegrave, 203. Curitiba - PR. CEP:
82100-230.

TELEFONE: (41) 99620-6655

EMAIL / HOME PAGE: tatiane@asseste.com.br
www.asseste.com.br

ALVARÁ: 1.340.539



À Prefeitura Municipal de Horizonte - CNPJ: 23.555.196/0001-86

Av. Presidente Castelo Branco, 5100 - Centro

Horizonte - Ceará - CEP: 62880-060

A/c Sidney Siqueira

departamentodecompras@horizonte.ce.gov.br

Proposta comercial n°231/21

Prezados, apresentamos abaixo nossa proposta comercial para fornecimento dos projetores LED, conforme descritivo técnico fornecido.

O produto ofertado atende as especificações mínimas exigidas, conforme ficha técnica enviada em conjunto com este orçamento.



Modelo	Descritivo	Qtd	Preço unitário	Preço total
Projektor LED 960W Modelo Coliseo PRO Lente 10° Fabricante Silicon Energy	PROJETOR COM TECNOLOGIA LED, POTÊNCIA NOMINAL ENTRE 950W E 1000W, FLUXO LUMINOSO DO PROJETOR DE NO MÍNIMO 110.000 lm, GRAU DE PROTEÇÃO IP66 (ÓPTICO) / IP67 (DRIVER), FATOR DE POTÊNCIA > 0,92, TENSÃO DE ENTRADA AC (100 ~ 277 Vac), GRAU DE PROTEÇÃO MECÂNICA IK10, TEMPERATURA DE COR CORRELATA 5.000K, ÂNGULO DO FACHO MÍNIMO ENTRE 10° E 15°, COM PROTEÇÃO CONTRA SURTOS INCLUSA (10kV @ 1.2x350µs / 10kA @ 8/20µs), CORPO EM ALUMÍNIO COM PARAFUSOS EM AÇO INOXIDÁVEL, ACABAMENTO COM PINTURA ELETROSTÁTICA A PÓ/EPÓXI, HASTE DE FIXAÇÃO COM AJUSTE DE INCLINAÇÃO FABRICADA EM AÇO GALVANIZADO, PARA FIXAÇÃO EM ESTRUTURA METÁLICA, VIDA ÚTIL MÍNIMA 100.000 HORAS (@L70), ÍNDICE DE REPRODUÇÃO DE COR (IRC) > 70, EFICIÊNCIA MÍNIMA DO PROJETOR 110 lm/W COMPROVADA POR LAUDO LM79 EMITIDO POR LABORATÓRIO CREDITADO PELO INMETRO, FONTE LUMINOSA (LED) COM CERTIFICAÇÃO CONFORME NORMAS IES LM 80-08 E IES TM 21, GARANTIA DE 05 ANOS E DISPONIBILIZAÇÃO DE ARQUIVO IES.	54	R\$ 11.900,00	R\$ 642.600,00
Projektor LED 960W Modelo Coliseo PRO Lente 25° Fabricante Silicon Energy	PROJETOR COM TECNOLOGIA LED, POTÊNCIA NOMINAL ENTRE 950W E 1000W, FLUXO LUMINOSO DO PROJETOR DE NO MÍNIMO 155.000 lm, GRAU DE PROTEÇÃO IP66 (ÓPTICO) / IP67 (DRIVER), FATOR DE POTÊNCIA > 0,92, TENSÃO DE ENTRADA AC (100 ~ 277 Vac), GRAU DE PROTEÇÃO MECÂNICA IK10, TEMPERATURA DE COR CORRELATA 5.000K, ÂNGULO DO FACHO MÍNIMO ENTRE 20° E 30°, COM PROTEÇÃO CONTRA SURTOS INCLUSA (10kV @ 1.2x350µs / 10kA @ 8/20µs), CORPO EM ALUMÍNIO COM PARAFUSOS EM AÇO INOXIDÁVEL, ACABAMENTO COM PINTURA ELETROSTÁTICA A PÓ/EPÓXI, HASTE DE FIXAÇÃO COM AJUSTE DE INCLINAÇÃO FABRICADA EM AÇO GALVANIZADO, PARA FIXAÇÃO EM ESTRUTURA METÁLICA, VIDA ÚTIL MÍNIMA 100.000 HORAS (@L70), ÍNDICE DE REPRODUÇÃO DE COR (IRC) > 70, EFICIÊNCIA MÍNIMA DO PROJETOR 160 lm/W COMPROVADA POR LAUDO LM79 EMITIDO POR LABORATÓRIO CREDITADO PELO INMETRO, FONTE LUMINOSA (LED) COM CERTIFICAÇÃO CONFORME NORMAS IES LM 80-08 E IES TM 21, GARANTIA DE 05 ANOS E DISPONIBILIZAÇÃO DE ARQUIVO IES.	32	R\$ 11.900,00	R\$ 380.800,00

PREÇO TOTAL

O preço total para fornecimento dos equipamentos referenciados é de:

- R\$ 1.023.400 (Um milhão, vinte e três mil e quatrocentos reais).



Proposta comercial n°231/21

Condição de pagamento:

- A combinar.

Prazo de entrega:

- Até 150 dias.

Garantia:

- 5 anos

Colocamo-nos a disposição para dirimir quaisquer dúvidas.

Curitiba, 12 de agosto de 2021.

Atenciosamente;



Marcelo Santos
Asseste consultoria
Qualidade em energia

Marcelo Santos
Engenheiro

(41) 99265-7900
engenharia@asseste.com.br

[Handwritten signature]

TEST REPORT

IES LM-80-08

For

SHENZHEN LEPOWER OPTO ELECTRONICIS CORP., LTD

3-5 Floors, Bldg B, Chuangfu Science Technology Park, Shihuan Rd No.202, Shangwu
Community, Shiyao St, Bao'an District, Shenzhen

Report No.: SZANL180515001-01

Product Name: 5050

Model No.: LY-WE070801S2235

Test Initiation Date: 2017-01-04

Revision Date: 2018-05-21

Test Completion Date: 2018-05-21

Tested By: Meteor Liu

Meteor Liu

Reviewed By: Derek Zhang

Derek

Prepared By: Shenzhen Anbotech Compliance Laboratory Limited
1/F., Bldg C, Gold Power Industrial Park, Juhongshan and
Industrial Zone, Pingshan New District, Shenzhen, Guangdong,
China

Tel: +86 755 2606 6440

Fax: +86 755 2601 4772

Web: www.anbotech.com.cn



Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or use in part without prior written consent from Shenzhen Anbotech Compliance Laboratory Limited. This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

TABLE OF CONTENTS

1 General Information	3
1.1 Product Description for Equipment under Test (EUT)	3
1.2 Standards Used	4
1.3 Test Facility Description	4
1.4 Test Equipment List	4
2 Summary of Test Result	5
3 Test Method	6
3.1 Photometric and Electrical Measurement	6
3.2 Season the LED Package from 0 hours to 12000 hours	6
4 Data Set 1: 55°C, 200 mA	7
5 Data Set 2: 85°C, 200 mA	11
6 Data Set 3: 105°C, 200 mA	15
7 Attachment A – TM-21 Report	19
8 Product Photo	19

1 General Information

1.1 Product Description for Equipment under Test (EUT)

Applicant: SHENZHEN LEPOWER OPTO ELECTRONICIS CORP., LTD

Tested Model: LY-WE070801S2235

Part Type: LED Package

CCT: 3000K-6500K

Number of LED Light Source tested: See tables

Case temperature (test point temperature): See tables

Drive current of the LED light source during lifetime test: See tables

Initial luminous flux and forward voltage at photometric measurement current: See tables

Lumen maintenance data for each individual LED light source along with median value, standard deviation, minimum and maximum lumen maintenance value for all of the LED Light sources: See tables

Observation of LED light source failure including the failure conditions and time of failure: See tables

LED light source monitoring interval: The LED light source is inspected at regular interval (24 hours) throughout the 12000 hours test.

Photometric measurement uncertainty: 1.5% on flux measurements for LM-80 testing.

Chromaticity shift reported over the Measurement time: See tables

LED Light Source Test interval: At regular intervals (1000 hours) throughout the 12000 hours test.

Date of Receiving Sample: 2017-01-04

Test Duration: 2017-01-04 to 2018-05-21



1.2 Standards Used

IESNA LM-80-08: IES Approved Method for Measuring Lumen Maintenance of LED Light Sources

1.3 Test Facility Description

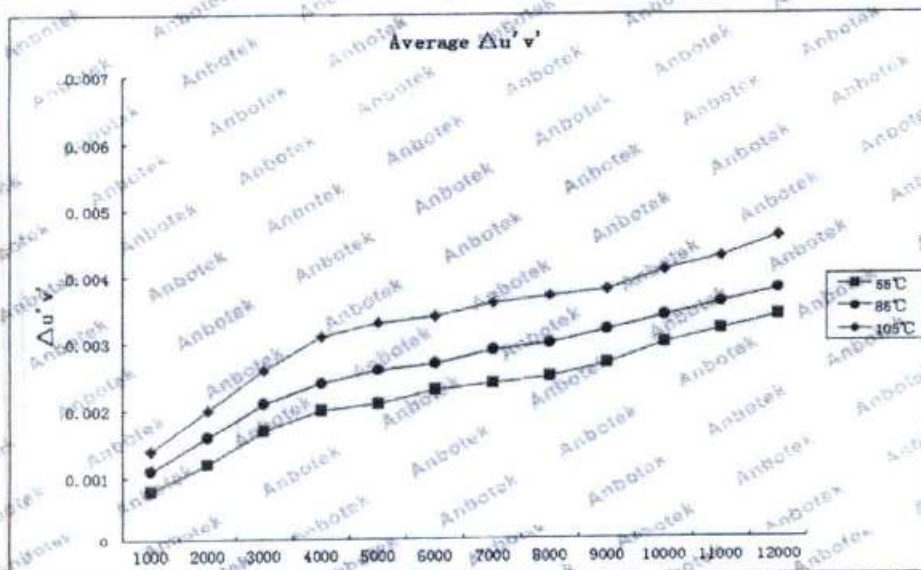
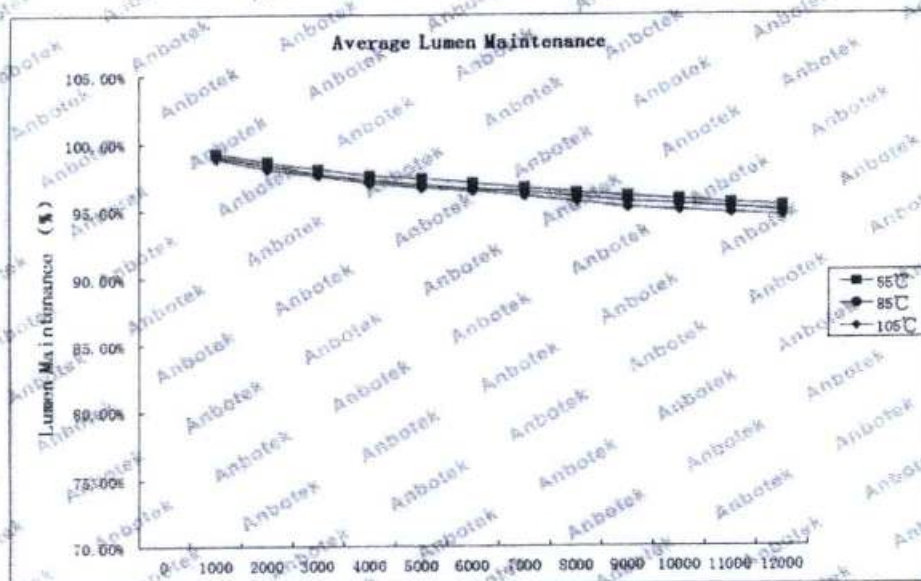
The test facility used by Shenzhen Anbotek Compliance Laboratory Limited is located at 1/F., Bldg. C, Gold Power Industrial Park, Julongshan Grand Industrial Zone, Pingshan New District, Shenzhen, Guangdong, China.

1.4 Test Equipment List

Equipment	Manufacturer	Model No.	Serial No.	Calibration Date
Digital Power Meter	YOKOGAWA	WT210	SE-074	2018-06-06
LM-80 Aging Test System	KEYI	KY-3X-LH60	SE-564	2018-06-06
DC Power Supply	EVERFINE	WY605	SE-605	2018-06-06
Standard Lamp	EVERFINE	D062	SE-606	2018-06-06
Spectrum Analyzer	EVERFINE	HAAS-2000	SE-607	2018-06-06
Integrating Sphere (0.5m)	EVERFINE	AIS-2	SE-608	2018-06-06

2 Summary of Test Result

	Case Temperature (T _{case})	Ambient Temperature (T _{amb})	Drive Current	Average Lumen Maintenance at 12000 hours	Average Chromaticity Shift (Δu'v') at 12000 hours
1	54.3°C	53.1°C	200 mA	95.22%	0.0034
2	84.4°C	83.3°C	200 mA	94.89%	0.0038
3	104.2°C	103.4°C	200 mA	94.48%	0.0046



3 Test Method

3.1 Photometric and Electrical Measurement

Total light output (luminous flux) for the $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ ambient temperature conditions is measured using a integrating sphere. Each LED package is operated at rated drive current (CC Mode).

The total uncertainty of the light output measurements is estimated, at the 95% confidence level, not to exceed $\pm 1.6\%$ over the wavelength range 380-800nm.

3.2 Season the LED Package from 0 hours to 12000 hours

Three LM-80 aging measurement system Temperature Chambers are using for Seasoning, and the temperature is set to 55°C , 85°C , 105°C (manufacture defined), the airflow is minimum to keep the uniformity to temperature. LED package are operated steady state (no cycling) for a period of 12000 hours, checked the lumen flux and Chromaticity Shift every 1000 hours. The samples are inspected at regular intervals (24 hours) throughout the 12000 hours. The time and date of failure of each lamp is recorded. The actual elapsed time for each light package is in hour.

4 Data Set 1: 55°C, 200 mA

Description of Light Sources Tested:	LY-WE070801S2235
Case Temperature:	54.3°C
Ambient Temperature:	53.1°C
Drive Current:	200 mA
Measure Current:	200 mA
Failures Observed:	None

Lumen Maintenance (%)											
L1	24.84	637.9	99.23%	98.62%	98.04%	97.68%	97.30%	97.00%	96.67%	96.21%	95.98%
L2	24.69	623.7	99.26%	98.65%	97.88%	97.43%	97.34%	96.99%	96.58%	96.16%	95.92%
L3	24.81	628.8	99.06%	98.75%	98.08%	97.43%	97.34%	96.95%	96.63%	96.18%	95.89%
L4	24.83	625.9	99.21%	98.56%	98.23%	97.53%	97.31%	96.93%	96.64%	96.23%	95.96%
L5	24.79	631.7	99.36%	98.64%	98.30%	97.41%	97.28%	97.01%	96.80%	96.43%	95.92%
L6	24.75	624.3	99.22%	98.43%	98.26%	97.76%	97.33%	96.98%	96.60%	96.23%	95.92%
L7	24.76	628.9	99.32%	98.56%	98.00%	97.77%	97.25%	96.98%	96.63%	96.26%	96.00%
L8	24.81	632.0	99.24%	98.48%	97.98%	97.64%	97.36%	96.94%	96.63%	96.28%	95.97%
L9	24.80	631.8	99.03%	98.78%	98.20%	97.55%	97.35%	97.01%	96.59%	96.17%	95.98%
L10	24.78	620.2	99.07%	98.71%	98.29%	97.58%	97.35%	96.94%	96.55%	96.20%	95.91%
L11	24.98	650.7	99.19%	98.79%	98.24%	97.80%	97.34%	96.98%	96.56%	96.18%	95.96%
L12	24.66	616.3	99.17%	98.51%	97.93%	97.43%	97.36%	97.02%	96.59%	96.28%	95.97%
L13	24.90	646.5	99.28%	98.59%	98.19%	97.54%	97.34%	96.91%	96.66%	96.24%	95.97%
L14	24.88	631.8	99.18%	98.41%	98.17%	97.54%	97.27%	96.89%	96.94%	96.65%	96.14%
L15	24.82	627.4	99.07%	98.78%	97.94%	97.64%	97.28%	96.92%	96.59%	96.20%	95.89%
L16	24.78	625.4	99.38%	98.48%	97.89%	97.78%	97.27%	97.02%	96.67%	96.15%	95.93%
L17	24.86	639.1	99.12%	98.41%	97.96%	97.40%	97.30%	96.94%	96.66%	96.17%	95.98%
L18	24.91	644.9	99.44%	98.44%	98.01%	97.68%	97.32%	96.95%	96.60%	96.14%	95.97%
L19	24.70	612.4	99.07%	98.73%	97.98%	97.41%	97.33%	97.02%	96.58%	96.29%	96.00%
L20	24.90	643.4	99.16%	98.66%	97.92%	97.42%	97.38%	96.91%	96.61%	96.13%	96.00%
L21	24.90	647.8	99.06%	98.88%	98.23%	97.55%	97.30%	97.03%	96.57%	96.27%	95.96%
L22	24.94	653.9	99.32%	98.40%	97.97%	97.46%	97.31%	96.98%	96.62%	96.20%	95.94%
L23	24.86	644.4	99.37%	98.72%	97.89%	97.36%	97.28%	96.91%	96.67%	96.26%	95.93%
L24	24.78	620.5	99.19%	98.48%	98.04%	97.64%	97.36%	97.01%	96.58%	96.15%	95.92%
L25	24.77	623.5	99.41%	98.44%	98.29%	97.72%	97.32%	97.03%	96.58%	96.17%	95.89%
AV	24.82	632.5	99.22%	98.59%	98.08%	97.57%	97.32%	96.97%	96.62%	96.22%	95.96%
MIN	24.66	612.4	99.03%	98.40%	97.88%	97.36%	97.25%	96.89%	96.55%	96.13%	95.89%
MAX	24.98	653.9	99.44%	98.79%	98.30%	97.80%	97.38%	97.03%	96.94%	96.65%	96.14%
STDEV	0.0787	11.2585	0.0012	0.0013	0.0015	0.0014	0.0003	0.0004	0.0008	0.0010	0.0005
Number	25	25	25	25	25	25	25	25	25	25	25



Lumen Maintenance (%)			
L1	95.76%	95.66%	95.53%
L2	95.70%	95.61%	95.24%
L3	95.68%	95.28%	95.17%
L4	95.71%	95.26%	95.17%
L5	95.85%	95.21%	94.89%
L6	95.75%	95.72%	95.51%
L7	95.89%	95.71%	95.12%
L8	95.75%	95.40%	95.08%
L9	95.91%	95.87%	95.04%
L10	95.79%	95.45%	95.38%
L11	95.55%	95.52%	95.27%
L12	95.74%	95.47%	95.36%
L13	95.69%	95.36%	95.02%
L14	95.99%	95.79%	95.46%
L15	95.64%	95.60%	95.55%
L16	95.66%	95.31%	95.15%
L17	95.62%	95.42%	95.38%
L18	95.68%	95.50%	95.21%
L19	95.61%	95.53%	95.47%
L20	95.70%	95.45%	95.34%
L21	95.91%	95.25%	95.04%
L22	95.80%	95.50%	94.89%
L23	95.72%	95.50%	94.99%
L24	95.55%	95.19%	95.04%
L25	95.80%	95.40%	95.29%
AV	95.74%	95.47%	95.22%
MIN	95.55%	95.19%	94.89%
MAX	95.99%	95.87%	95.55%
STDEV	0.0011	0.0018	0.0020
Number	25	25	25

Description of Light Sources Tested:	LY-WE070801S2235
Case Temperature:	54.3°C
Ambient Temperature:	53.1°C
Drive Current:	200 mA
Measure Current:	200 mA
Failures Observed:	None



Chromaticity Shift ($\Delta u'v'$)												
L1	0.2543	0.5291	2870	0.0009	0.0013	0.0018	0.0020	0.0018	0.0024	0.0025	0.0024	0.0026
L2	0.2535	0.5291	2886	0.0007	0.0013	0.0016	0.0020	0.0020	0.0024	0.0023	0.0025	0.0026
L3	0.2541	0.5296	2870	0.0008	0.0014	0.0018	0.0020	0.0020	0.0023	0.0024	0.0024	0.0025
L4	0.2542	0.5285	2873	0.0009	0.0014	0.0017	0.0020	0.0023	0.0024	0.0025	0.0027	0.0025
L5	0.2533	0.5297	2887	0.0009	0.0011	0.0018	0.0020	0.0022	0.0023	0.0024	0.0026	0.0026
L6	0.2532	0.5298	2891	0.0010	0.0014	0.0016	0.0020	0.0021	0.0023	0.0024	0.0026	0.0028
L7	0.2537	0.5297	2880	0.0009	0.0011	0.0016	0.0020	0.0022	0.0024	0.0025	0.0027	0.0028
L8	0.2536	0.5280	2890	0.0008	0.0013	0.0019	0.0021	0.0022	0.0023	0.0026	0.0025	0.0025
L9	0.2538	0.5285	2883	0.0010	0.0013	0.0019	0.0019	0.0019	0.0025	0.0025	0.0023	0.0028
L10	0.2543	0.5294	2866	0.0008	0.0012	0.0017	0.0020	0.0021	0.0024	0.0022	0.0025	0.0027
L11	0.2543	0.5299	2864	0.0007	0.0012	0.0015	0.0021	0.0021	0.0022	0.0023	0.0023	0.0026
L12	0.2540	0.5304	2869	0.0009	0.0012	0.0015	0.0021	0.0023	0.0024	0.0022	0.0025	0.0029
L13	0.2541	0.5303	2868	0.0007	0.0013	0.0015	0.0019	0.0019	0.0023	0.0023	0.0027	0.0029
L14	0.2538	0.5284	2884	0.0008	0.0011	0.0017	0.0021	0.0021	0.0024	0.0023	0.0024	0.0028
L15	0.2539	0.5308	2873	0.0009	0.0011	0.0018	0.0020	0.0023	0.0024	0.0024	0.0024	0.0029
L16	0.2534	0.5297	2886	0.0010	0.0011	0.0017	0.0020	0.0023	0.0022	0.0025	0.0024	0.0028
L17	0.2537	0.5296	2880	0.0008	0.0012	0.0018	0.0020	0.0018	0.0022	0.0025	0.0023	0.0029
L18	0.2546	0.5295	2861	0.0009	0.0010	0.0014	0.0020	0.0020	0.0025	0.0025	0.0027	0.0026
L19	0.2535	0.5301	2881	0.0008	0.0011	0.0016	0.0019	0.0022	0.0021	0.0024	0.0026	0.0028
L20	0.2538	0.5300	2875	0.0008	0.0014	0.0017	0.0019	0.0020	0.0021	0.0024	0.0023	0.0028
L21	0.2537	0.5302	2876	0.0007	0.0011	0.0019	0.0020	0.0019	0.0023	0.0025	0.0025	0.0026
L22	0.2541	0.5297	2870	0.0007	0.0014	0.0019	0.0020	0.0022	0.0021	0.0023	0.0025	0.0027
L23	0.2534	0.5297	2886	0.0008	0.0010	0.0016	0.0020	0.0021	0.0022	0.0026	0.0026	0.0029
L24	0.2535	0.5290	2887	0.0008	0.0011	0.0016	0.0019	0.0022	0.0023	0.0023	0.0026	0.0026
L25	0.2540	0.5293	2873	0.0008	0.0011	0.0014	0.0020	0.0021	0.0025	0.0025	0.0027	0.0027
AV	0.2538	0.5295	2877	0.0008	0.0012	0.0017	0.0020	0.0021	0.0023	0.0024	0.0025	0.0027
MIN	0.2532	0.5280	2861	0.0007	0.0010	0.0014	0.0019	0.0018	0.0021	0.0022	0.0023	0.0025
MAX	0.2546	0.5304	2891	0.0010	0.0014	0.0019	0.0021	0.0023	0.0025	0.0026	0.0027	0.0029
STDEV	0.0004	0.0006	8.7019	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Number	25	25	25	25	25	25	25	25	25	25	25	25



Chromaticity Shift ($\Delta u'v'$)			
L1	0.0030	0.0031	0.0031
L2	0.0027	0.0028	0.0031
L3	0.0031	0.0032	0.0033
L4	0.0029	0.0030	0.0033
L5	0.0026	0.0033	0.0033
L6	0.0033	0.0035	0.0037
L7	0.0033	0.0034	0.0038
L8	0.0032	0.0034	0.0035
L9	0.0029	0.0033	0.0034
L10	0.0030	0.0035	0.0038
L11	0.0033	0.0033	0.0036
L12	0.0027	0.0032	0.0033
L13	0.0033	0.0035	0.0037
L14	0.0028	0.0031	0.0035
L15	0.0027	0.0035	0.0035
L16	0.0027	0.0031	0.0035
L17	0.0030	0.0032	0.0033
L18	0.0032	0.0033	0.0034
L19	0.0029	0.0031	0.0035
L20	0.0032	0.0033	0.0035
L21	0.0031	0.0032	0.0034
L22	0.0029	0.0031	0.0032
L23	0.0031	0.0033	0.0036
L24	0.0032	0.0033	0.0035
L25	0.0027	0.0030	0.0032
AV	0.0030	0.0032	0.0034
MIN	0.0026	0.0028	0.0031
MAX	0.0033	0.0035	0.0038
STDEV	0.0002	0.0002	0.0002
Number	25	25	25



5 Data Set 2: 85°C, 200 mA

Description of Light Sources Tested:	LY-WE070801S2235
Case Temperature:	84.4°C
Ambient Temperature:	83.3°C
Drive Current:	200 mA
Measure Current:	200 mA
Failures Observed:	None

Lumen Maintenance (%)											
		0min	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs
L26	24.89	640.2	99.19%	98.63%	97.59%	97.13%	96.80%	96.62%	96.25%	95.95%	95.57%
L27	24.86	636.0	98.81%	98.56%	97.56%	97.09%	96.83%	96.58%	96.36%	95.93%	95.61%
L28	24.66	610.4	98.88%	98.19%	97.80%	97.09%	96.86%	96.63%	96.36%	95.94%	95.64%
L29	24.92	645.3	99.19%	98.55%	97.64%	97.25%	96.80%	96.60%	96.27%	95.92%	95.55%
L30	24.75	623.5	98.80%	98.36%	97.66%	97.25%	96.77%	96.51%	96.28%	95.93%	95.63%
L31	24.83	643.5	98.97%	98.43%	97.87%	97.42%	96.93%	96.52%	96.26%	95.97%	95.67%
L32	24.76	626.5	98.83%	98.39%	97.65%	97.03%	96.86%	96.47%	96.29%	95.92%	95.67%
L33	24.82	645.2	99.06%	98.24%	97.63%	97.37%	96.85%	96.51%	96.25%	95.88%	95.63%
L34	24.69	613.8	98.88%	98.29%	97.69%	97.09%	96.79%	96.66%	96.26%	95.96%	95.67%
L35	24.75	617.8	99.12%	98.25%	97.84%	97.04%	96.87%	96.61%	96.30%	95.92%	95.56%
L36	24.85	647.1	98.85%	98.32%	97.58%	97.18%	96.93%	96.68%	96.25%	95.97%	95.61%
L37	24.93	649.6	99.01%	98.52%	97.63%	97.09%	96.91%	96.65%	96.31%	95.91%	95.67%
L38	24.67	609.7	99.15%	98.50%	97.74%	97.27%	96.77%	96.48%	96.34%	95.89%	95.52%
L39	24.82	644.2	99.19%	98.28%	97.84%	97.33%	96.80%	96.52%	96.35%	95.97%	95.65%
L40	24.85	638.9	98.96%	98.25%	97.64%	97.16%	96.85%	96.60%	96.37%	95.95%	95.67%
L41	24.85	644.4	99.11%	98.28%	97.77%	97.12%	96.93%	96.65%	96.35%	95.90%	95.57%
L42	24.78	624.5	98.98%	98.56%	97.79%	97.28%	96.88%	96.57%	96.25%	95.98%	95.66%
L43	24.92	651.5	98.89%	98.36%	97.56%	97.25%	96.90%	96.59%	96.29%	95.94%	95.48%
L44	24.72	614.5	98.91%	98.20%	97.68%	97.12%	96.85%	96.48%	96.32%	95.89%	95.55%
L45	24.70	622.9	99.04%	98.24%	97.82%	97.16%	96.87%	96.63%	96.30%	95.92%	95.56%
L46	24.69	621.3	99.15%	98.18%	97.61%	97.39%	96.75%	96.57%	96.35%	95.98%	95.52%
L47	24.84	644.2	98.85%	98.53%	97.85%	97.31%	96.83%	96.68%	96.36%	95.98%	95.66%
L48	24.77	642.0	99.03%	98.29%	97.54%	97.00%	96.86%	96.48%	96.38%	95.97%	95.50%
L49	24.83	646.1	98.92%	98.55%	97.75%	97.04%	96.90%	96.60%	96.38%	95.90%	95.49%
L50	24.92	642.9	99.10%	98.63%	97.65%	97.15%	96.77%	96.49%	96.35%	95.95%	95.53%
AV	24.80	633.8	98.99%	98.38%	97.69%	97.19%	96.85%	96.57%	96.31%	95.94%	95.59%
MIN	24.66	609.7	98.80%	98.18%	97.54%	97.00%	96.75%	96.47%	96.25%	95.88%	95.48%
MAX	24.93	651.5	99.19%	98.63%	97.87%	97.42%	96.93%	96.68%	96.38%	95.98%	95.67%
STDEV	0.0837	13.6560	0.0013	0.0015	0.0010	0.0012	0.0005	0.0007	0.0005	0.0003	0.0006
Number	25	25	25	25	25	25	25	25	25	25	25



Lumen Maintenance (%)			
L26	95.34%	95.24%	94.81%
L27	95.47%	95.34%	95.04%
L28	95.55%	95.48%	94.94%
L29	95.10%	94.88%	94.72%
L30	95.46%	95.32%	95.01%
L31	95.47%	95.27%	94.79%
L32	95.40%	94.82%	94.79%
L33	95.14%	95.05%	94.80%
L34	95.45%	95.32%	94.74%
L35	95.34%	95.24%	94.82%
L36	95.51%	95.39%	94.98%
L37	95.35%	95.20%	95.08%
L38	95.26%	95.24%	95.10%
L39	95.50%	94.78%	94.81%
L40	95.49%	95.39%	94.94%
L41	95.38%	95.35%	95.17%
L42	95.35%	94.93%	94.88%
L43	95.04%	94.93%	94.89%
L44	95.30%	95.08%	94.77%
L45	95.40%	95.18%	95.10%
L46	95.44%	95.23%	94.76%
L47	95.08%	95.00%	94.98%
L48	95.46%	95.41%	94.74%
L49	95.29%	95.12%	94.73%
L50	95.33%	95.27%	94.90%
AV	95.36%	95.18%	94.89%
MIN	95.04%	94.78%	94.72%
MAX	95.55%	95.48%	95.17%
STDEV	0.0014	0.0020	0.0014
Number	25	25	25

Description of Light Sources Tested:	LY-WE070801S2235
Case Temperature:	84.4°C
Ambient Temperature:	83.3°C
Drive Current:	200 mA
Measure Current:	200 mA
Failures Observed:	None



Chromaticity Shift ($\Delta u'v'$)												
	2500 K	3000 K	3500 K	4000 K	4500 K	5000 K	5500 K	6000 K	6500 K	7000 K	8000 K	9000 K
L26	0.2534	0.5300	2884	0.0010	0.0017	0.0020	0.0025	0.0024	0.0027	0.0029	0.0028	0.0034
L27	0.2562	0.5331	2808	0.0010	0.0015	0.0020	0.0023	0.0025	0.0025	0.0030	0.0029	0.0032
L28	0.2539	0.5283	2878	0.0012	0.0015	0.0021	0.0023	0.0025	0.0029	0.0029	0.0032	0.0034
L29	0.2541	0.5305	2866	0.0011	0.0016	0.0018	0.0025	0.0024	0.0026	0.0029	0.0028	0.0031
L30	0.2534	0.5296	2886	0.0010	0.0016	0.0022	0.0024	0.0024	0.0027	0.0029	0.0028	0.0032
L31	0.2541	0.5296	2871	0.0012	0.0017	0.0021	0.0024	0.0025	0.0027	0.0031	0.0029	0.0032
L32	0.2535	0.5312	2875	0.0010	0.0016	0.0022	0.0024	0.0024	0.0025	0.0030	0.0031	0.0033
L33	0.2535	0.5306	2879	0.0010	0.0015	0.0022	0.0024	0.0028	0.0029	0.0028	0.0031	0.0033
L34	0.2531	0.5300	2892	0.0010	0.0017	0.0021	0.0025	0.0028	0.0028	0.0027	0.0029	0.0033
L35	0.2533	0.5294	2890	0.0011	0.0015	0.0019	0.0024	0.0028	0.0028	0.0030	0.0031	0.0033
L36	0.2530	0.5303	2892	0.0011	0.0016	0.0021	0.0023	0.0027	0.0028	0.0030	0.0029	0.0033
L37	0.2537	0.5303	2876	0.0013	0.0015	0.0020	0.0024	0.0028	0.0027	0.0028	0.0031	0.0034
L38	0.2533	0.5300	2888	0.0013	0.0015	0.0023	0.0025	0.0028	0.0027	0.0028	0.0032	0.0031
L39	0.2545	0.5303	2869	0.0012	0.0016	0.0018	0.0024	0.0027	0.0025	0.0029	0.0029	0.0033
L40	0.2552	0.5332	2829	0.0011	0.0018	0.0020	0.0024	0.0025	0.0028	0.0029	0.0029	0.0030
L41	0.2538	0.5298	2878	0.0012	0.0015	0.0020	0.0024	0.0025	0.0028	0.0031	0.0028	0.0031
L42	0.2539	0.5295	2875	0.0011	0.0015	0.0020	0.0024	0.0026	0.0027	0.0027	0.0029	0.0032
L43	0.2536	0.5301	2879	0.0011	0.0015	0.0022	0.0023	0.0026	0.0025	0.0027	0.0031	0.0030
L44	0.2531	0.5297	2894	0.0010	0.0014	0.0020	0.0024	0.0028	0.0028	0.0028	0.0029	0.0033
L45	0.2532	0.5297	2890	0.0010	0.0014	0.0020	0.0025	0.0026	0.0029	0.0029	0.0030	0.0030
L46	0.2541	0.5296	2871	0.0010	0.0018	0.0019	0.0024	0.0028	0.0026	0.0030	0.0029	0.0033
L47	0.2551	0.5301	2845	0.0012	0.0016	0.0021	0.0024	0.0025	0.0027	0.0028	0.0030	0.0032
L48	0.2533	0.5300	2887	0.0012	0.0015	0.0022	0.0023	0.0025	0.0027	0.0028	0.0030	0.0033
L49	0.2539	0.5305	2870	0.0011	0.0016	0.0022	0.0024	0.0027	0.0027	0.0030	0.0031	0.0031
L50	0.2540	0.5297	2872	0.0013	0.0017	0.0021	0.0025	0.0028	0.0027	0.0028	0.0030	0.0034
AV	0.2538	0.5302	2873	0.0011	0.0016	0.0021	0.0024	0.0026	0.0027	0.0029	0.0030	0.0032
MIN	0.2530	0.5293	2808	0.0010	0.0014	0.0018	0.0023	0.0024	0.0025	0.0027	0.0028	0.0030
MAX	0.2562	0.5332	2894	0.0013	0.0018	0.0023	0.0025	0.0028	0.0029	0.0031	0.0032	0.0034
STDEV	0.0007	0.0010	20.187 7	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Number	25	25	25	25	25	25	25	25	25	25	25	25

Chromaticity Shift ($\Delta u'v'$)			
L26	0.0034	0.0034	0.0037
L27	0.0037	0.0037	0.0040
L28	0.0034	0.0035	0.0038
L29	0.0031	0.0033	0.0036
L30	0.0033	0.0036	0.0039
L31	0.0036	0.0037	0.0038
L32	0.0031	0.0036	0.0037
L33	0.0033	0.0034	0.0036
L34	0.0034	0.0036	0.0038
L35	0.0037	0.0038	0.0040
L36	0.0032	0.0032	0.0034
L37	0.0030	0.0035	0.0035
L38	0.0031	0.0032	0.0034
L39	0.0033	0.0033	0.0034
L40	0.0038	0.0039	0.0041
L41	0.0036	0.0036	0.0038
L42	0.0035	0.0037	0.0039
L43	0.0033	0.0035	0.0037
L44	0.0032	0.0036	0.0041
L45	0.0036	0.0039	0.0040
L46	0.0033	0.0034	0.0035
L47	0.0034	0.0035	0.0037
L48	0.0035	0.0039	0.0042
L49	0.0032	0.0033	0.0035
L50	0.0029	0.0035	0.0036
AV	0.0034	0.0036	0.0038
MIN	0.0029	0.0032	0.0034
MAX	0.0038	0.0039	0.0042
STDEV	0.0002	0.0002	0.0002
Number	25	25	25



6 Data Set 3: 105°C, 200 mA

Description of Light Sources Tested:	LY-WE070801S2235
Case Temperature:	104.2°C
Ambient Temperature:	103.4°C
Drive Current:	200 mA
Measure Current:	200 mA
Failures Observed:	None



Lumen Maintenance (%)											
	V _F (V)	Φ _{lm} (lm)	1000 hrs	2500 hrs	5000 hrs	7500 hrs	10000 hrs	15000 hrs	20000 hrs	25000 hrs	30000 hrs
L51	24.74	618.5	98.62%	98.15%	97.47%	97.17%	96.65%	96.32%	96.01%	95.60%	95.19%
L52	24.63	632.8	99.02%	98.06%	97.69%	96.82%	96.64%	96.49%	96.03%	95.66%	95.08%
L53	24.66	620.5	98.78%	98.00%	97.73%	96.95%	96.71%	96.44%	96.01%	95.59%	95.16%
L54	24.64	619.0	98.89%	97.97%	97.55%	96.87%	96.58%	96.35%	96.00%	95.62%	95.16%
L55	24.85	637.6	98.71%	97.88%	97.55%	97.12%	96.59%	96.31%	95.97%	95.55%	95.12%
L56	24.74	627.5	98.86%	98.00%	97.48%	97.01%	96.64%	96.31%	95.97%	95.66%	95.10%
L57	24.70	620.5	99.04%	98.17%	97.74%	96.93%	96.62%	96.32%	95.97%	95.62%	95.09%
L58	24.82	640.8	98.90%	98.10%	97.50%	96.80%	96.61%	96.32%	96.01%	95.57%	95.07%
L59	24.86	632.2	98.64%	98.22%	97.73%	96.89%	96.57%	96.46%	96.04%	95.57%	95.18%
L60	24.90	640.1	98.78%	97.89%	97.60%	96.75%	96.72%	96.28%	96.04%	95.55%	95.07%
L61	24.73	618.8	98.70%	97.95%	97.75%	96.83%	96.64%	96.48%	95.97%	95.58%	95.10%
L62	24.79	625.0	98.64%	98.07%	97.54%	96.90%	96.68%	96.50%	96.05%	95.58%	95.11%
L63	24.79	641.2	99.01%	98.17%	97.64%	96.99%	96.65%	96.28%	96.02%	95.66%	95.15%
L64	24.70	615.0	98.82%	98.17%	97.49%	96.86%	96.70%	96.32%	96.03%	95.62%	95.13%
L65	24.66	640.2	99.01%	98.29%	97.40%	96.95%	96.59%	96.42%	96.00%	95.61%	95.16%
L66	24.77	630.1	98.65%	98.00%	97.52%	97.11%	96.58%	96.43%	96.09%	95.61%	95.07%
L67	24.67	614.9	98.71%	97.96%	97.46%	97.10%	96.62%	96.24%	95.98%	95.63%	95.13%
L68	24.94	648.9	98.99%	97.94%	97.41%	97.12%	96.71%	96.41%	96.07%	95.63%	95.08%
L69	24.85	643.5	98.97%	98.15%	97.69%	96.81%	96.63%	96.34%	96.13%	95.56%	95.18%
L70	24.67	615.8	98.99%	98.19%	97.39%	96.77%	96.57%	96.40%	96.06%	95.59%	95.17%
L71	24.86	647.8	99.02%	98.26%	97.54%	96.89%	96.58%	96.32%	95.98%	95.60%	95.17%
L72	24.99	656.1	98.81%	97.87%	97.41%	97.01%	96.64%	96.45%	96.15%	95.63%	95.11%
L73	24.85	654.7	98.98%	98.11%	97.45%	97.02%	96.63%	96.43%	96.08%	95.60%	95.09%
L74	24.94	651.6	98.99%	98.32%	97.38%	97.04%	96.60%	96.36%	96.05%	95.68%	95.11%
L75	24.82	639.2	98.77%	98.20%	97.64%	96.88%	96.72%	96.31%	96.05%	95.63%	95.20%
AV	24.79	633.3	98.85%	98.08%	97.55%	96.94%	96.63%	96.37%	96.03%	95.61%	95.13%
MIN	24.63	614.9	98.62%	97.87%	97.38%	96.75%	96.57%	96.24%	95.97%	95.55%	95.07%
MAX	24.99	656.1	98.81%	97.87%	97.41%	97.01%	96.64%	96.45%	96.15%	95.63%	95.20%
STDEV	0.1075	13.2098	0.0015	0.0013	0.0012	0.0012	0.0005	0.0007	0.0005	0.0004	0.0004
Number	25	25	25	25	25	25	25	25	25	25	25

Lumen Maintenance (%)			
L51	94.78%	94.80%	94.19%
L52	94.95%	94.88%	94.49%
L53	95.06%	94.74%	94.35%
L54	95.02%	94.79%	94.35%
L55	94.98%	94.90%	94.67%
L56	94.93%	94.76%	94.41%
L57	94.95%	94.55%	94.42%
L58	95.04%	94.84%	94.72%
L59	94.99%	94.52%	94.34%
L60	94.93%	94.75%	94.23%
L61	94.89%	94.67%	94.53%
L62	95.02%	94.69%	94.35%
L63	94.91%	94.61%	94.29%
L64	94.76%	94.58%	94.47%
L65	94.95%	94.75%	94.68%
L66	95.00%	94.87%	94.77%
L67	94.95%	94.66%	94.45%
L68	94.95%	94.78%	94.59%
L69	94.86%	94.63%	94.52%
L70	94.91%	94.88%	94.58%
L71	94.89%	94.83%	94.76%
L72	94.96%	94.30%	94.47%
L73	94.87%	94.52%	94.33%
L74	95.01%	94.61%	94.43%
L75	95.06%	94.89%	94.64%
AV	94.94%	94.71%	94.48%
MIN	94.76%	94.30%	94.19%
MAX	95.06%	94.90%	94.77%
STDEV	0.0008	0.0015	0.0016
Number	25	25	25



Description of Light Sources Tested:	LY-WE070801S2235
Case Temperature:	104.2°C
Ambient Temperature:	103.4°C
Drive Current:	200 mA
Measure Current:	200 mA
Failures Observed:	None



Chromaticity Shift ($\Delta u'v'$)												
								5000	5000	5000	5000	5000
L51	0.2536	0.5301	2880	0.0013	0.0018	0.0027	0.0031	0.0035	0.0034	0.0035	0.0036	0.0037
L52	0.2535	0.5286	2889	0.0016	0.0020	0.0026	0.0033	0.0033	0.0034	0.0036	0.0037	0.0037
L53	0.2534	0.5299	2884	0.0012	0.0019	0.0027	0.0032	0.0034	0.0032	0.0037	0.0037	0.0039
L54	0.2538	0.5298	2876	0.0013	0.0020	0.0026	0.0033	0.0032	0.0032	0.0035	0.0038	0.0038
L55	0.2538	0.5297	2878	0.0014	0.0018	0.0027	0.0030	0.0034	0.0036	0.0038	0.0038	0.0037
L56	0.2530	0.5296	2895	0.0014	0.0020	0.0025	0.0031	0.0032	0.0035	0.0037	0.0038	0.0038
L57	0.2538	0.5297	2877	0.0015	0.0021	0.0027	0.0030	0.0035	0.0033	0.0038	0.0036	0.0037
L58	0.2542	0.5303	2866	0.0012	0.0018	0.0025	0.0030	0.0031	0.0035	0.0037	0.0038	0.0040
L59	0.2568	0.5344	2790	0.0014	0.0020	0.0026	0.0033	0.0033	0.0036	0.0038	0.0039	0.0037
L60	0.2535	0.5295	2885	0.0015	0.0018	0.0027	0.0031	0.0034	0.0034	0.0037	0.0037	0.0038
L61	0.2528	0.5292	2902	0.0012	0.0021	0.0027	0.0032	0.0032	0.0034	0.0037	0.0038	0.0039
L62	0.2536	0.5305	2878	0.0012	0.0019	0.0025	0.0032	0.0034	0.0033	0.0035	0.0038	0.0037
L63	0.2532	0.5299	2889	0.0013	0.0019	0.0027	0.0032	0.0035	0.0036	0.0037	0.0037	0.0039
L64	0.2528	0.5293	2901	0.0016	0.0021	0.0026	0.0033	0.0033	0.0033	0.0034	0.0037	0.0037
L65	0.2533	0.5287	2894	0.0015	0.0020	0.0026	0.0030	0.0032	0.0035	0.0035	0.0039	0.0037
L66	0.2533	0.5298	2887	0.0013	0.0020	0.0026	0.0032	0.0031	0.0034	0.0037	0.0037	0.0040
L67	0.2541	0.5297	2871	0.0014	0.0019	0.0025	0.0031	0.0033	0.0035	0.0037	0.0038	0.0039
L68	0.2542	0.5304	2865	0.0013	0.0019	0.0026	0.0032	0.0034	0.0033	0.0035	0.0037	0.0038
L69	0.2537	0.5303	2876	0.0015	0.0020	0.0027	0.0030	0.0032	0.0033	0.0034	0.0038	0.0039
L70	0.2533	0.5303	2886	0.0015	0.0021	0.0025	0.0033	0.0033	0.0034	0.0037	0.0037	0.0038
L71	0.2541	0.5302	2869	0.0012	0.0021	0.0024	0.0030	0.0032	0.0033	0.0036	0.0038	0.0038
L72	0.2539	0.5298	2874	0.0012	0.0021	0.0026	0.0032	0.0033	0.0034	0.0035	0.0038	0.0039
L73	0.2541	0.5296	2870	0.0014	0.0020	0.0026	0.0031	0.0034	0.0032	0.0035	0.0039	0.0036
L74	0.2541	0.5299	2870	0.0015	0.0020	0.0027	0.0031	0.0033	0.0035	0.0036	0.0036	0.0037
L75	0.2535	0.5299	2883	0.0012	0.0018	0.0026	0.0030	0.0034	0.0034	0.0036	0.0038	0.0039
AV	0.2537	0.5300	2877	0.0014	0.0020	0.0026	0.0031	0.0033	0.0034	0.0036	0.0037	0.0038
MIN	0.2528	0.5286	2790	0.0012	0.0018	0.0024	0.0030	0.0031	0.0032	0.0034	0.0036	0.0036
MAX	0.2568	0.5344	2902	0.0016	0.0021	0.0027	0.0033	0.0035	0.0036	0.0038	0.0039	0.0040
STDEV	0.0008	0.0010	20.898 6	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Number	25	25	25	25	25	25	25	25	25	25	25	25

Chromaticity Shift ($\Delta u'v'$)

L51	0.0040	0.0042	0.0043
L52	0.0041	0.0043	0.0050
L53	0.0040	0.0041	0.0050
L54	0.0042	0.0043	0.0051
L55	0.0038	0.0039	0.0043
L56	0.0042	0.0045	0.0046
L57	0.0045	0.0046	0.0047
L58	0.0041	0.0043	0.0045
L59	0.0039	0.0043	0.0044
L60	0.0039	0.0041	0.0044
L61	0.0038	0.0039	0.0040
L62	0.0043	0.0044	0.0045
L63	0.0042	0.0044	0.0046
L64	0.0039	0.0042	0.0046
L65	0.0040	0.0042	0.0045
L66	0.0040	0.0041	0.0049
L67	0.0041	0.0044	0.0045
L68	0.0040	0.0041	0.0049
L69	0.0040	0.0045	0.0047
L70	0.0044	0.0046	0.0048
L71	0.0042	0.0043	0.0049
L72	0.0041	0.0047	0.0048
L73	0.0038	0.0039	0.0042
L74	0.0039	0.0043	0.0046
L75	0.0043	0.0045	0.0046
AV	0.0041	0.0043	0.0046
MIN	0.0038	0.0039	0.0040
MAX	0.0045	0.0047	0.0051
STDEV	0.0002	0.0002	0.0003
Number	25	25	25



7 Attachment A – TM-21 Report



Table 1: Report at each LM-80 Test Condition

Description of LED Light Source Tested (manufacturer, model, catalog number)		SHENZHEN LEPOWER OPTO ELECTRONICS CORP., LTD -LY-WE070801S2235			
Test Condition 1 - 55°C Case Temp		Test Condition 2 - 85°C Case Temp		Test Condition 3 - 105°C Case Temp	
Sample size	25	Sample size	25	Sample size	25
Number of failures	0	Number of failures	0	Number of failures	0
DUT drive current used in the test (mA)	200	DUT drive current used in the test (mA)	200	DUT drive current used in the test (mA)	200
Test duration (hours)	12,000	Test duration (hours)	12,000	Test duration (hours)	12,000
Test duration used for projection (hour to hour)	6,000 - 12,000	Test duration used for projection (hour to hour)	6,000 - 12,000	Test duration used for projection (hour to hour)	6,000 - 12,000
Tested case temperature (°C)	55	Tested case temperature (°C)	85	Tested case temperature (°C)	105
α	2.985E-06	α	2.940E-06	α	3.362E-06
B	0.986	B	0.983	B	0.983
Calculated L70(12k) (hours)	115,000	Calculated L70(12k) (hours)	115,000	Calculated L70(12k) (hours)	101,000
Reported L70(12k) (hours)	>72000	Reported L70(12k) (hours)	>72000	Reported L70(12k) (hours)	>72000

8 Product Photo



*****END OF TEST REPORT*****

Relatório

REL EM 14698/2020

SUMÁRIO

1.	INTRODUÇÃO	3
1.1	Ensaios Realizados	3
1.2	Descrição das Amostras	3
1.3	Local/ Período.....	3
2	DESENVOLVIMENTO E RESULTADOS.....	4
2.1	Características elétricas e fotométricas.....	4
2.1.1	Equipamentos / Instrumentos Utilizados	4
2.1.2	Condições Ambientais	4
2.1.3	Procedimento	4
2.1.4	Resultados	4
3	HISTÓRICO DE REVISÃO	5
4	CONCLUSÃO	5

*Reproduções deste documento só têm validade se forem integrais e autorizadas pelo Lactec.
Os resultados se referem somente aos itens ensaiados ou amostrados.
O laboratório não é responsável pela amostragem, os resultados se aplicam à amostra conforme recebida.*



Relatório

REL EM 14698/2020

1. INTRODUÇÃO

1.1 Ensaios Realizados

O presente relatório descreve a execução dos seguintes ensaios:

- Características elétricas e fotométricas.

1.2 Descrição das Amostras

Projeto LED Aspen Pro, SE-ASP-240, 240W, 220V, 5000K, Silicon

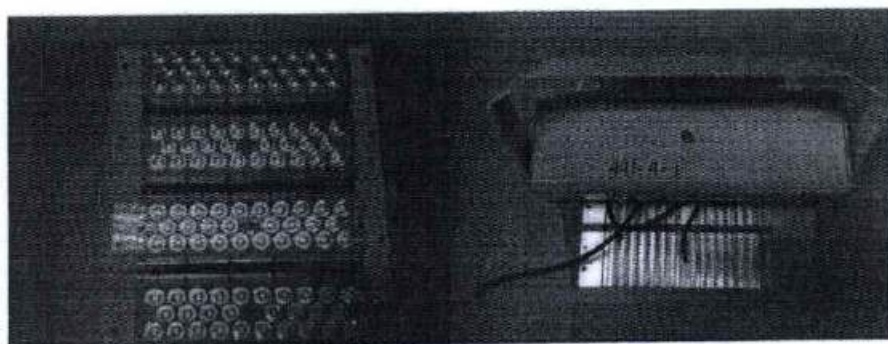


Figura 01 – Amostra para ensaio

1.3 Local/ Período

Laboratório de Luminotécnica do Lactec.

Centro Politécnico da UFPR – Curitiba – PR.

Prédio: LAC

De 23 de novembro a 18 de dezembro de 2020.

*Reproduções deste documento só têm validade se forem integrais e autorizadas pelo Lactec.
Os resultados se referem somente aos itens ensaiados ou amostrados.
O laboratório não é responsável pela amostragem, os resultados se aplicam à amostra conforme recebida.*



Relatório
REL EM 14698/2020

Página 1 de 5
Emissão: 28/12/2020

Título:	Ensaios em Refletor LED
Objetivo:	Medição elétrica e fotométrica
Orçamento:	20746/2020
Pedido:	-
Solicitante:	Silicon Energy Av. Pres. Kennedy, 3399 – Portão CEP: 80640-010 – Curitiba - PR
Amostras:	Projektor LED Aspen Pro, SE-ASP-240, 240W, 220V, 5000K, Silicon
Executante:	Lactec - LAC Rodovia BR-116, km 98, nº 8813 Jardim das Américas Caixa Postal 19067 CEP 81531-980 Curitiba – Paraná – Brasil

Equipe técnica:

Gustavo Negrele
Rodrigo Takeshi Ohno
Camila Figueiredo

Relator:

Rodrigo Takeshi Ohno
Engenheiro Eletricista

Revisor:

**GUSTAVO
RODRIGO
NEGRELE:
08780249990**

Digitally signed by GUSTAVO RODRIGO
NEGRELE:08780249990
DN: C=BR, O=ICP-Brasil, OU=Secretaria
da Receita Federal do Brasil - RFB,
OU=RFB e CPF A3, OU=(EM BRANCO),
OU=AR SERASA, CN=GUSTAVO
RODRIGO NEGRELE:08780249990
Reason: I am the author of this document
Location:
Date: 2020-12-28 13:36:12

LAC / EAL / EM
Laboratório de Luminotécnica

Gustavo Rodrigo Negrele
Técnico Mecatrônico

"Este relatório não é um certificado de conformidade".

"Este relatório se refere somente aos itens ensaiados".

*Reproduções deste documento só têm validade se forem integrais e autorizadas pelo Lactec.
Os resultados se referem somente aos itens ensaiados ou amostrados.
O laboratório não é responsável pela amostragem, os resultados se aplicam à amostra conforme recebida.*



Relatório

REL EM 14698/2020

2 DESENVOLVIMENTO E RESULTADOS

2.1 Características elétricas e fotométricas

2.1.1 Equipamentos / Instrumentos Utilizados

- Goniofotometro Everfine, modelo GO-2000H – Calibrado com as lâmpadas de referência Halógena;
- Fonte Eletrônica de Tensão AC Everfine, modelo DPS1030-V200;
- Espectrorradiômetro Everfine, modelo HASS-200;
- Fonte de Tensão AC Califórnia Instruments, modelo 3001 ix;
- Termohigrometro digital Instrutemp, modelo ITLOG80;
- Analisador de potência Everfine, modelo PF2010, certificado CCR 632/20 válido até 07/2021.

2.1.2 Condições Ambientais

- Temperatura: (25 ± 1) C;
- Umidade relativa do ar: < 65 %.

2.1.3 Procedimento

A amostra foi ligada em 220V, e estabilizada utilizando a variação de pelo menos três medições sucessivas de potência elétrica em um intervalo de 15 minutos, variando menos que 0,5%. Após a estabilização, foram realizadas as medições elétricas e fotométricas.

2.1.4 Resultados

Os resultados, medidos após **60 min** de estabilização, estão apresentados na tabela 01 abaixo e também nos anexos 01 e 02.

Tabela 01 – Resultados

Amostra	Tensão (V)	Corrente (A)	Potência (W)	FP	Fluxo Luminoso (lm)	TCC (K)	IRC	Eficiência (lm/W)
441-4	220,0	1,112	236,8	0,9688	40197,5	5149	73,0	169,72

Reproduções deste documento só têm validade se forem integrais e autorizadas pelo Lactec.
Os resultados se referem somente aos itens ensaiados ou amostrados.
O laboratório não é responsável pela amostragem, os resultados se aplicam à amostra conforme recebida.

