

REPORT : ASD-R-1478-A

TYPE : Dimming Output Range

Project Number: 5149
Customer : ASD Lighting PLC
Product Type : Street Light
Project Instigator : SB-DM
Project Start Date : 05/10/2018
Test Orientation : Installed Attitude
Project Notes : HWD8 112 Range Test

Product Manufact. : ASD Lighting PLC
Product Descrip. : HWD8 112
Product Code : HWD8/#4K112xx
Product Ref. : N.A.
Driver Type : Osram 4DIM
Dimmable : Yes
Thermal Management : Passive

Luminaire Details
Length (mm) : 880
Width (mm) : 330
Height (mm) : 170
Test Item A : 2492832
Test Item B : 2492709
Test Item C : 2492803
Test Item D : 2492657
Test Item E : 2492755



Item A



Item B



Item C



Item D



Item E

REPORT : ASD-R-1478-A

TYPE : Dimming Output Range

Test Number: T1533
 Test Date: 08/10/2018
 Stabilization Time (mins): 45
 Output (%): 29
 Test Notes : T5
 Test Start Temp (°C) : 19.62

Nom. Drive Current (mA): 200
 Test Type: Std
 Tested By: SB-DM
 Frequency Start Test (Hz) : 50.00
 Frequency End Test (Hz) : 50.00
 Test End Temp (°C) : 19.63

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.05	337	73.68	84.29	0.874	Leading
B	250.07	339	73.52	84.74	0.868	Leading
C	250.07	336	73.30	84.14	0.871	Leading
D	250.05	339	73.82	84.77	0.871	Leading
E	250.06	338	73.74	84.53	0.872	Leading
A	240.04	343	73.45	82.38	0.892	Leading
B	240.05	345	73.26	82.72	0.886	Leading
C	240.07	343	73.12	82.35	0.888	Leading
D	240.03	345	73.65	82.87	0.889	Leading
E	240.04	344	73.51	82.65	0.890	Leading
A	230.06	351	73.38	80.81	0.908	Leading
B	230.07	352	73.12	81.03	0.903	Leading
C	230.08	350	72.94	80.63	0.905	Leading
D	230.03	353	73.55	81.19	0.906	Leading
E	230.04	352	73.36	80.99	0.906	Leading
A	220.03	361	73.21	79.34	0.923	Leading
B	220.06	362	73.03	79.59	0.918	Leading
C	220.07	360	72.82	79.16	0.920	Leading
D	220.00	362	73.34	79.68	0.921	Leading
E	220.08	361	73.31	79.55	0.921	Leading
A	210.05	372	73.15	78.08	0.937	Leading
B	210.06	373	73.01	78.32	0.932	Leading
C	210.07	371	72.83	77.97	0.934	Leading
D	210.01	373	73.35	78.42	0.935	Leading
E	210.02	373	73.21	78.42	0.934	Leading

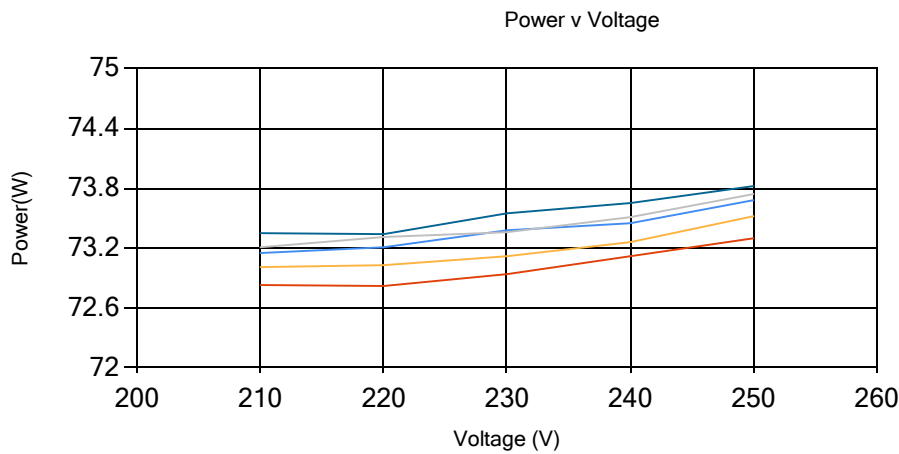
REPORT : ASD-R-1478-A

TYPE : Dimming Output Range

Test Number: T1533 Graphical Results Of Previous Page Tests.

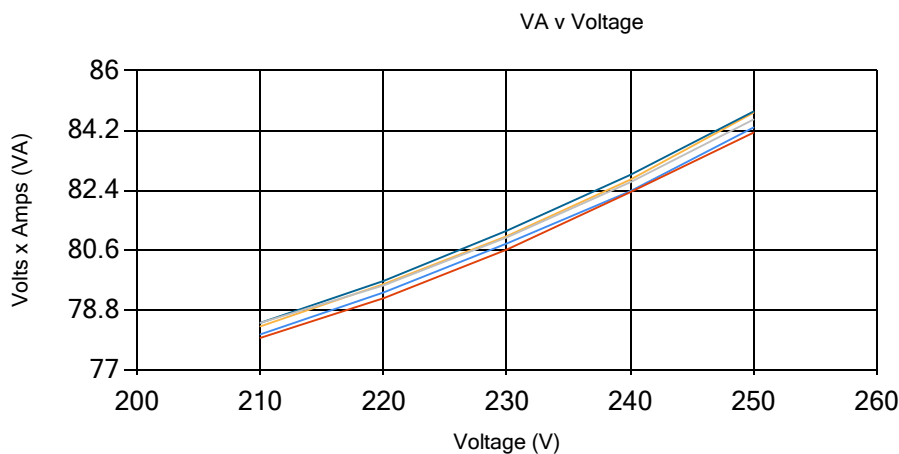
Drive (mA): 200

Output (%): 29



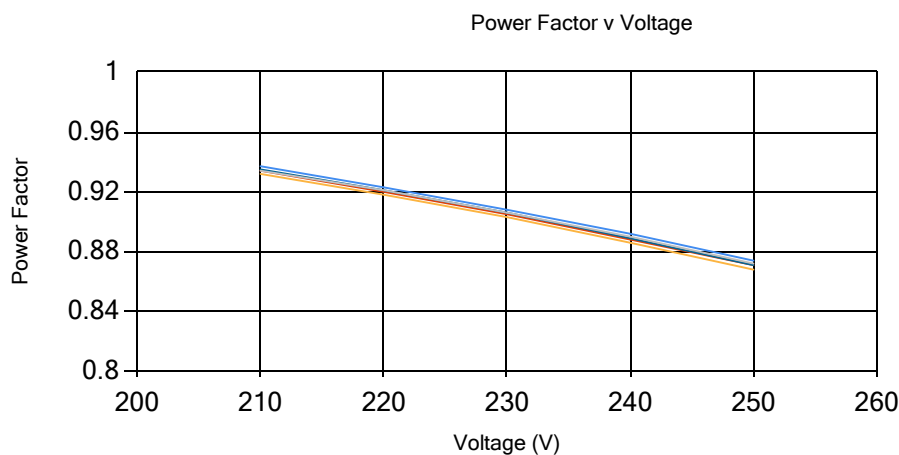
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
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REPORT : ASD-R-1478-A

TYPE : Dimming Output Range

Test Number: T1532
 Test Date: 08/10/2018
 Stabilization Time (mins): 31
 Output (%): 46
 Test Notes : T4
 Test Start Temp (°C) : 20.64

Nom. Drive Current (mA): 325
 Test Type: Std
 Tested By: SB-DM
 Frequency Start Test (Hz) : 50.00
 Frequency End Test (Hz) : 50.00
 Test End Temp (°C) : 20.19

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.09	483	113.52	120.86	0.939	Leading
B	250.10	483	113.14	120.91	0.936	Leading
C	250.09	482	113.22	120.66	0.938	Leading
D	250.03	485	113.78	121.30	0.938	Leading
E	250.11	485	113.73	121.14	0.939	Leading
A	240.05	498	113.41	119.53	0.949	Leading
B	240.07	498	113.07	119.56	0.946	Leading
C	240.10	497	113.23	119.42	0.948	Leading
D	240.07	500	113.66	119.89	0.948	Leading
E	240.09	499	113.76	119.90	0.949	Leading
A	230.01	515	113.36	118.39	0.958	Leading
B	230.05	515	113.03	118.38	0.955	Leading
C	230.03	514	113.14	118.23	0.957	Leading
D	230.06	517	113.78	118.90	0.957	Leading
E	230.00	516	113.68	118.72	0.957	Leading
A	220.03	534	113.35	117.43	0.965	Leading
B	220.04	534	113.07	117.46	0.963	Leading
C	220.05	533	113.18	117.31	0.965	Leading
D	220.07	536	113.81	117.87	0.965	Leading
E	220.01	536	113.71	117.83	0.965	Leading
A	210.02	556	113.51	116.76	0.972	Leading
B	210.06	555	113.16	116.63	0.970	Leading
C	210.03	555	113.28	116.60	0.972	Leading
D	209.99	557	113.77	117.01	0.972	Leading
E	210.01	557	113.76	117.03	0.972	Leading

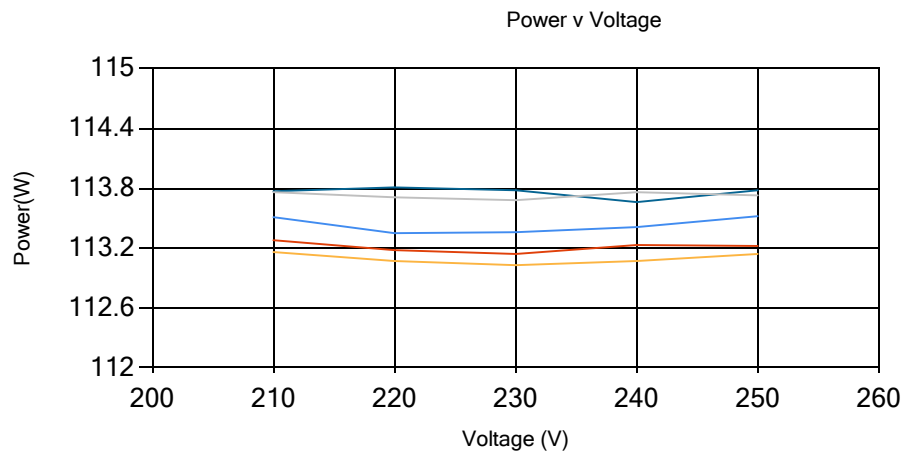
REPORT : ASD-R-1478-A

TYPE : Dimming Output Range

Test Number: T1532 Graphical Results Of Previous Page Tests.

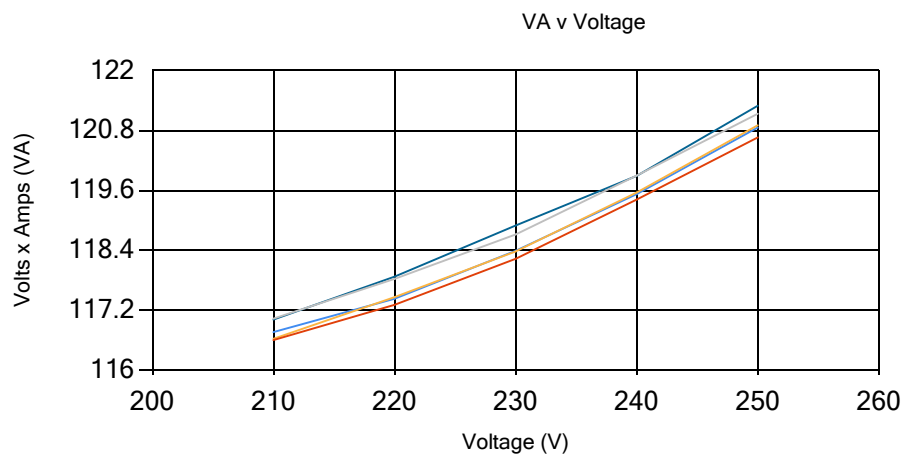
Drive (mA): 325

Output (%): 46



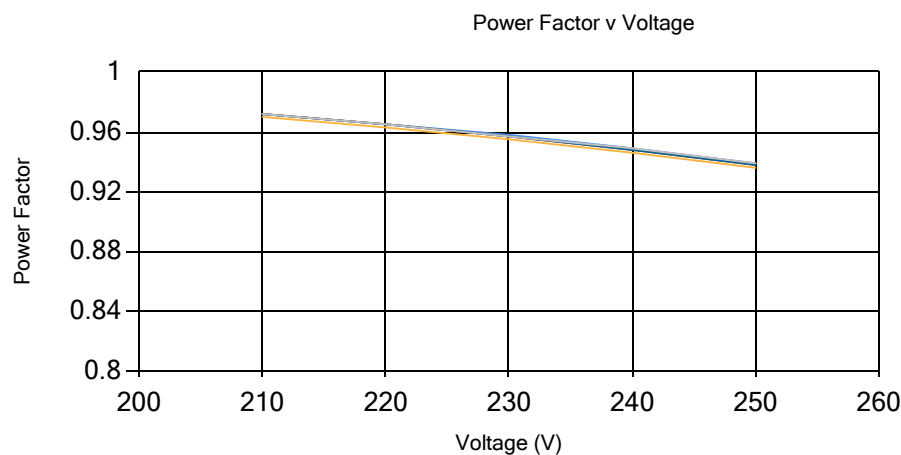
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E

REPORT : ASD-R-1478-A

TYPE : Dimming Output Range

Test Number: T1531
 Test Date: 08/10/2018
 Stabilization Time (mins): 46
 Output (%): 64
 Test Notes : T3
 Test Start Temp (°C) : 19.19

Nom. Drive Current (mA): 450
 Test Type: Std
 Tested By: SB-DM
 Frequency Start Test (Hz) : 50.00
 Frequency End Test (Hz) : 50.00
 Test End Temp (°C) : 19.66

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.05	635	152.58	158.89	0.960	Leading
B	250.07	638	152.83	159.51	0.958	Leading
C	250.09	635	152.26	158.70	0.960	Leading
D	250.08	639	153.22	159.73	0.959	Leading
E	250.10	639	153.16	159.64	0.959	Leading
A	240.06	657	152.47	157.71	0.967	Leading
B	240.07	659	152.66	158.25	0.965	Leading
C	240.09	656	152.10	157.46	0.966	Leading
D	240.08	660	153.23	158.54	0.967	Leading
E	240.10	659	152.98	158.32	0.966	Leading
A	230.04	682	152.42	156.83	0.972	Leading
B	230.05	683	152.43	157.05	0.971	Leading
C	230.06	680	151.98	156.39	0.972	Leading
D	230.06	685	153.13	157.52	0.972	Leading
E	230.08	684	152.95	157.33	0.972	Leading
A	220.07	710	152.54	156.14	0.977	Leading
B	220.08	711	152.59	156.37	0.976	Leading
C	220.07	707	152.07	155.67	0.977	Leading
D	220.06	712	153.20	156.78	0.977	Leading
E	220.06	711	152.92	156.49	0.977	Leading
A	210.03	740	152.49	155.40	0.981	Leading
B	210.05	741	152.67	155.71	0.981	Leading
C	210.06	738	152.10	155.02	0.981	Leading
D	210.04	743	153.20	156.09	0.982	Leading
E	210.07	743	153.16	155.97	0.982	Leading

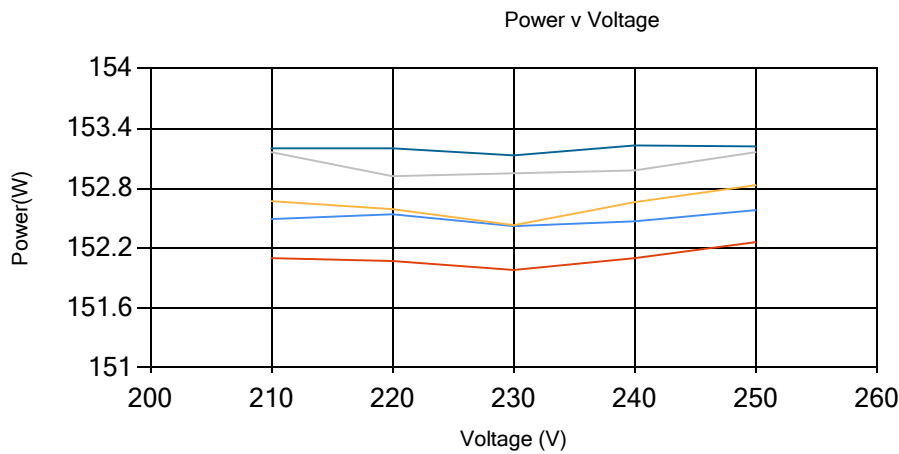
REPORT : ASD-R-1478-A

TYPE : Dimming Output Range

Test Number: T1531 Graphical Results Of Previous Page Tests.

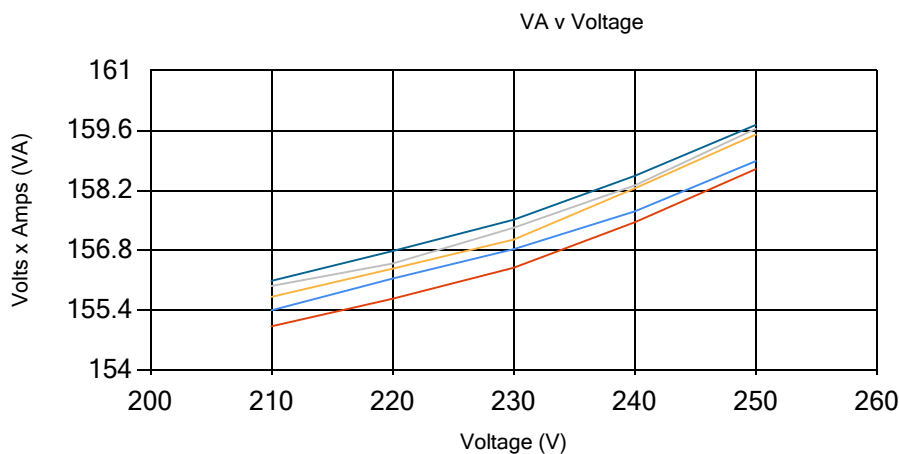
Drive (mA): 450

Output (%): 64



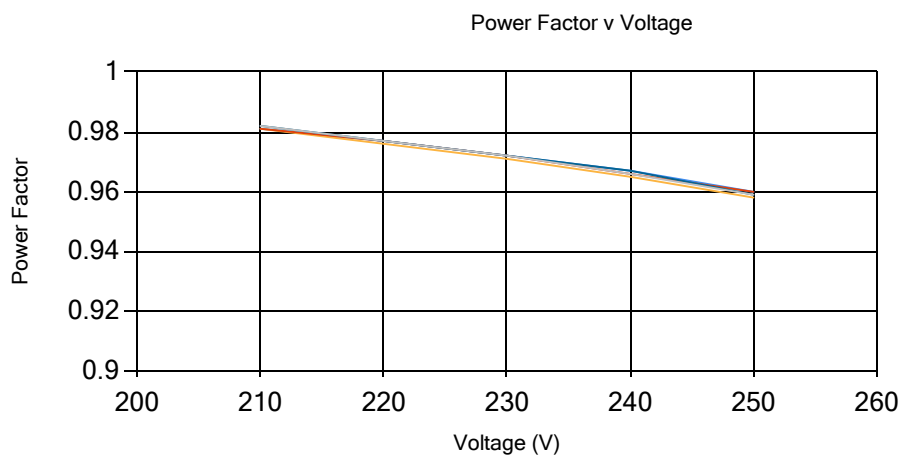
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
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- D
- E



Fitting Designation

- A
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REPORT : ASD-R-1478-A

TYPE : Dimming Output Range

Test Number: T1530
 Test Date: 05/10/2018
 Stabilization Time (mins): 31
 Output (%): 82
 Test Notes : T2
 Test Start Temp (°C) : 22.11

Nom. Drive Current (mA): 575
 Test Type: Std
 Tested By: SB-DM
 Frequency Start Test (Hz) : 50.00
 Frequency End Test (Hz) : 50.00
 Test End Temp (°C) : 22.16

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.07	809	194.42	202.29	0.961	Leading
B	250.06	811	195.12	202.76	0.962	Leading
C	250.09	810	194.73	202.46	0.962	Leading
D	250.02	809	194.71	202.37	0.962	Leading
E	250.04	810	194.81	202.59	0.962	Leading
A	240.03	837	194.27	200.94	0.967	Leading
B	240.05	840	195.11	201.55	0.968	Leading
C	240.05	838	194.60	201.11	0.968	Leading
D	239.99	838	194.61	201.15	0.968	Leading
E	240.09	839	194.85	201.45	0.967	Leading
A	230.04	869	194.34	199.93	0.972	Leading
B	230.05	871	195.07	200.43	0.973	Leading
C	230.06	870	194.54	200.04	0.973	Leading
D	230.06	871	194.78	200.29	0.973	Leading
E	230.08	871	194.73	200.28	0.972	Leading
A	220.03	905	194.43	199.09	0.977	Leading
B	220.05	907	195.13	199.63	0.978	Leading
C	220.07	906	194.78	199.35	0.977	Leading
D	220.05	906	194.79	199.38	0.977	Leading
E	220.08	906	194.85	199.45	0.977	Leading
A	210.01	945	194.51	198.35	0.981	Leading
B	210.03	948	195.29	199.05	0.981	Leading
C	210.04	946	194.86	198.63	0.981	Leading
D	210.03	947	195.03	198.84	0.981	Leading
E	210.06	947	195.00	198.79	0.981	Leading

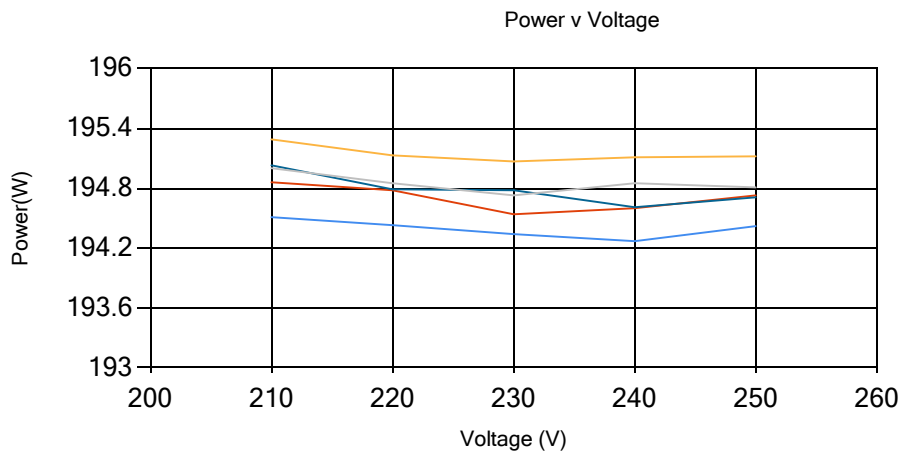
REPORT : ASD-R-1478-A

TYPE : Dimming Output Range

Test Number: T1530 Graphical Results Of Previous Page Tests.

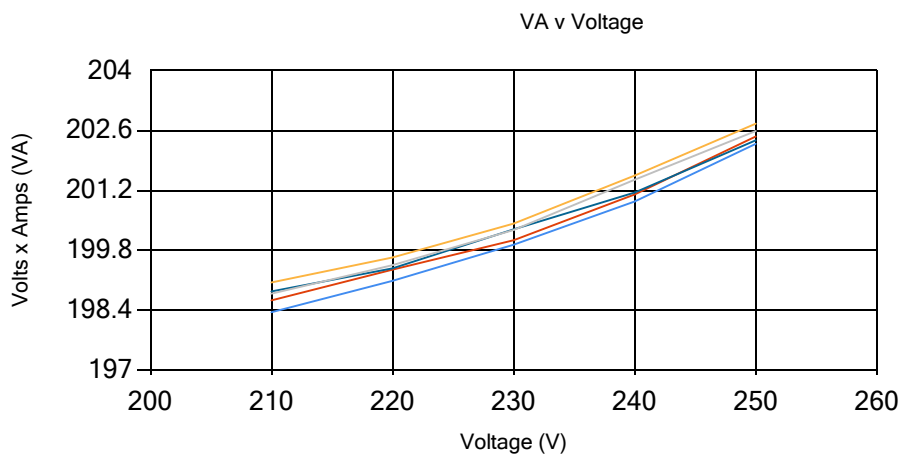
Drive (mA): 575

Output (%): 82



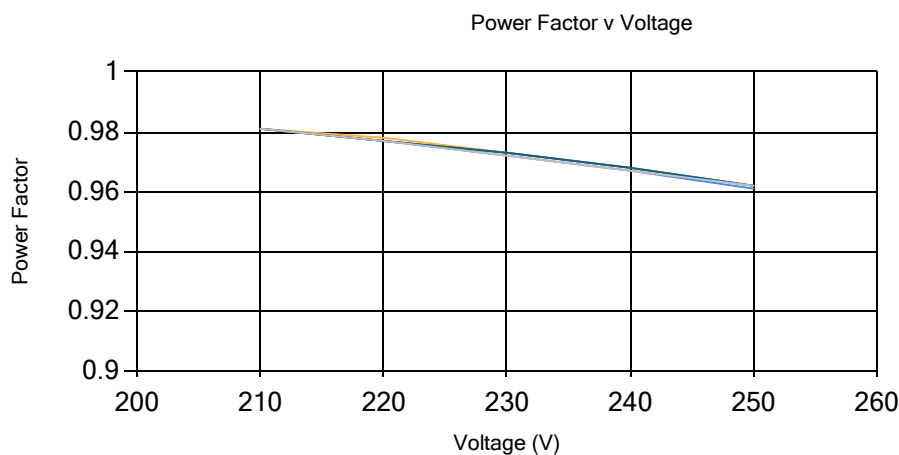
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
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- E



Fitting Designation

- A
- B
- C
- D
- E

REPORT : ASD-R-1478-A

TYPE : Dimming Output Range

Test Number: T1529
 Test Date: 05/10/2018
 Stabilization Time (mins): 39
 Output (%): 100
 Test Notes : T1
 Test Start Temp (°C) : 20.38

Nom. Drive Current (mA): 100
 Test Type: Std
 Tested By: SB-DM
 Frequency Start Test (Hz) : 50.00
 Frequency End Test (Hz) : 50.00
 Test End Temp (°C) : 21.95

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.06	977	238.08	244.40	0.974	Leading
B	250.09	979	238.63	244.77	0.975	Leading
C	250.10	977	238.06	244.24	0.975	Leading
D	250.07	978	238.51	244.66	0.975	Leading
E	250.04	979	238.49	244.71	0.975	Leading
A	240.03	1012	237.62	242.93	0.978	Leading
B	240.05	1014	238.21	243.36	0.979	Leading
C	240.06	1012	237.63	242.86	0.979	Leading
D	240.05	1013	237.95	243.07	0.979	Leading
E	240.07	1014	238.14	243.35	0.979	Leading
A	230.05	1051	237.47	241.84	0.982	Leading
B	230.07	1053	238.08	242.32	0.983	Leading
C	230.05	1051	237.38	241.76	0.982	Leading
D	230.09	1052	237.87	242.11	0.983	Leading
E	230.07	1054	238.15	242.51	0.982	Leading
A	220.02	1095	237.29	240.86	0.985	Leading
B	220.05	1097	237.90	241.36	0.986	Leading
C	220.06	1095	237.38	240.98	0.985	Leading
D	220.09	1096	237.58	241.10	0.985	Leading
E	220.06	1098	237.97	241.55	0.985	Leading
A	210.02	1145	237.46	240.38	0.988	Leading
B	210.04	1146	237.99	240.81	0.988	Leading
C	210.05	1144	237.36	240.27	0.988	Leading
D	210.03	1145	237.60	240.49	0.988	Leading
E	210.05	1147	237.99	240.77	0.988	Leading

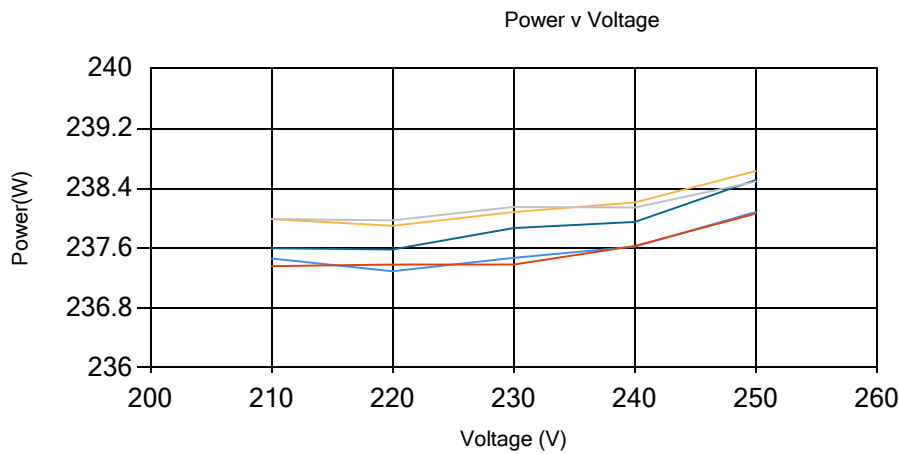
REPORT : ASD-R-1478-A

TYPE : Dimming Output Range

Test Number: T1529 Graphical Results Of Previous Page Tests.

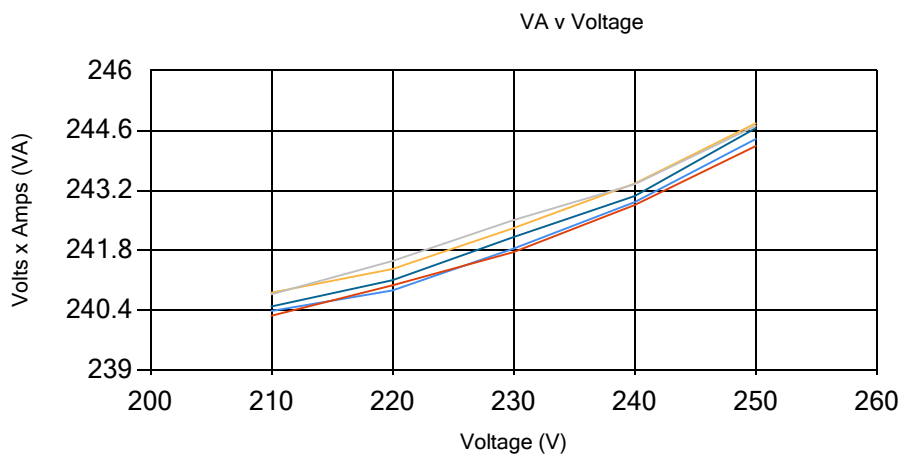
Drive (mA): 100

Output (%): 100



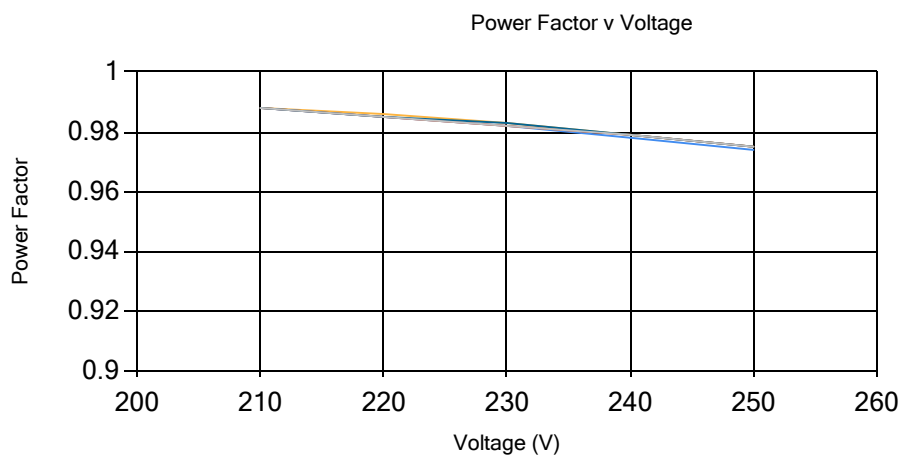
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

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REPORT : ASD-R-1478-A

TYPE : Dimming Output Range

Test Method.

This UMSUG test was conducted in line with the requirements of the Unmetered Supplies Operational Information Document Version 17.0. Using a batch of 5 luminaires of identical product specification, Wattage and VA v Voltage readings were taken at 210, 220, 230, 240, and 250 Volt 50Hz. The measurements included the drivers required to operate from the mains supply. Before results were recorded the equipment under test was allowed to reach steady state load conditions. This was achieved by powering up at 250V nominal voltage and taking power readings of all five fittings at one minute intervals, in line with LM79-08. The Pre-Burn test period at 250V was set at 15 minutes. The recording of the results commenced after the Pre-Burn period had expired and all five individual fittings had a % difference in power of less than 0.5% taken over a subsequent 15 minute rolling period. The dwell time before recording results, at the 4 reduced voltage levels, was 10 minutes at each reduction. All testing was conducted at a nominal ambient temperature of 20 degrees C. (+/- 3 deg). When testing for a dimming / range code data is taken at full load output, minimum dimmed load and 3 additional dim levels between these extremes. The percentage output dimming level is shown with each set of data. Equipment used: KiKusui PCR 2000M stabilised supply, Yokogawa WT332E and Yokogawa WT333E Digital Power Meters.

Measurement Uncertainty Between 4W and 500W.

Measured Value.	Accuracy.
Voltage (300V range, 250V 50Hz)	+/- 0.40 V
Current (500 mA, 250V 50Hz)	+/- 0.75 mA
Current (1000 mA, 250V 50Hz)	+/- 1.5 mA
Current (2000 mA, 250V 50Hz)	+/- 3.0 mA
Power (50W , 250V 50Hz)	+/- 0.125 W
Power (150W , 250V 50Hz)	+/- 0.225 W
Power (250W , 250V 50Hz)	+/- 0.40 W
Power (500W , 250V 50Hz)	+/- 0.80 W
Frequency(50Hz)	+/- 0.03 Hz

Measurements of Power of 4W or greater are made with an uncertainty of less than or equal to +/- 2% at a 95% confidence level. Below 4W Uncertainty is less than +/- 0.08 W at a 95% confidence level.



Typical Test Setup.

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TYPE : Dimming Output Range

Dimming Curve: Avg. Power Of A To E Luminaires at 240V v Dimming Level Set

