

# REPORT : ASD-R-1475-A

## TYPE : Dimming Output Range

Project Number: 5145  
Customer : ASD Lighting PLC  
Product Type : Street Light  
Project Instigator : D Butler  
Project Start Date : 21/09/2018  
Test Orientation : Installed Attitude  
Project Notes : HWD8 148 LED range test

Product Manufact. : ASD Lighting PLC  
Product Descrip. : HWD8 148 LED  
Product Code : HWD8/#4KLED-148xx  
Product Ref. : N.A.  
Driver Type : Osram OT 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 : 2492657



Item A



Item B



Item C



Item D



Item E

# REPORT : ASD-R-1475-A

## TYPE : Dimming Output Range

Test Number: T1517  
 Test Date: 03/10/2018  
 Stabilization Time (mins): 31  
 Output (%): 29  
 Test Notes : T5  
 Test Start Temp (°C) : 21.34

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) : 20.70

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.06	429	92.63	107.34	0.863	Leading
B	250.08	429	92.44	107.20	0.862	Leading
C	250.10	430	92.61	107.48	0.862	Leading
D	250.09	429	92.69	107.29	0.864	Leading
E	250.07	429	92.69	107.19	0.865	Leading
A	240.05	437	92.40	104.97	0.880	Leading
B	240.07	437	92.22	104.82	0.880	Leading
C	240.10	438	92.42	105.06	0.880	Leading
D	240.03	437	92.45	104.87	0.882	Leading
E	240.05	437	92.63	104.96	0.883	Leading
A	230.04	447	92.27	102.91	0.897	Leading
B	230.06	447	92.07	102.72	0.896	Leading
C	230.05	448	92.29	103.04	0.896	Leading
D	230.06	448	92.53	103.03	0.898	Leading
E	230.04	448	92.52	102.98	0.899	Leading
A	220.03	459	92.14	101.04	0.912	Leading
B	220.05	459	92.01	100.92	0.912	Leading
C	220.05	460	92.19	101.15	0.911	Leading
D	220.01	459	92.22	101.00	0.913	Leading
E	220.02	460	92.40	101.09	0.914	Leading
A	210.01	474	92.07	99.47	0.926	Leading
B	210.05	473	91.94	99.34	0.926	Leading
C	210.04	474	92.12	99.50	0.926	Leading
D	210.01	473	92.12	99.48	0.927	Leading
E	210.02	474	92.34	99.54	0.928	Leading

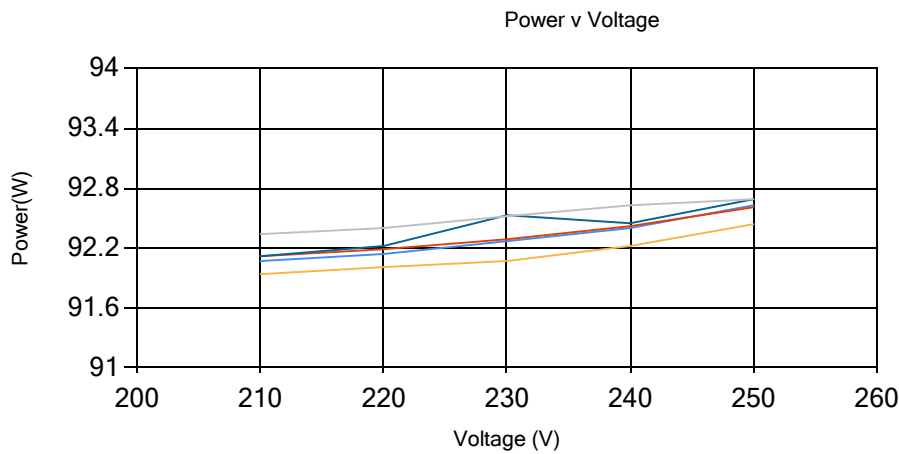
# REPORT : ASD-R-1475-A

## TYPE : Dimming Output Range

Test Number: T1517 Graphical Results Of Previous Page Tests.

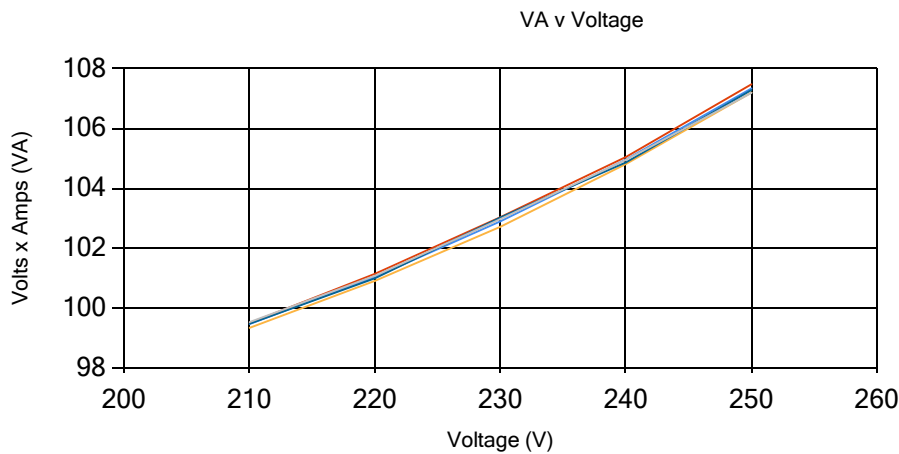
Drive (mA): 200

Output (%): 29



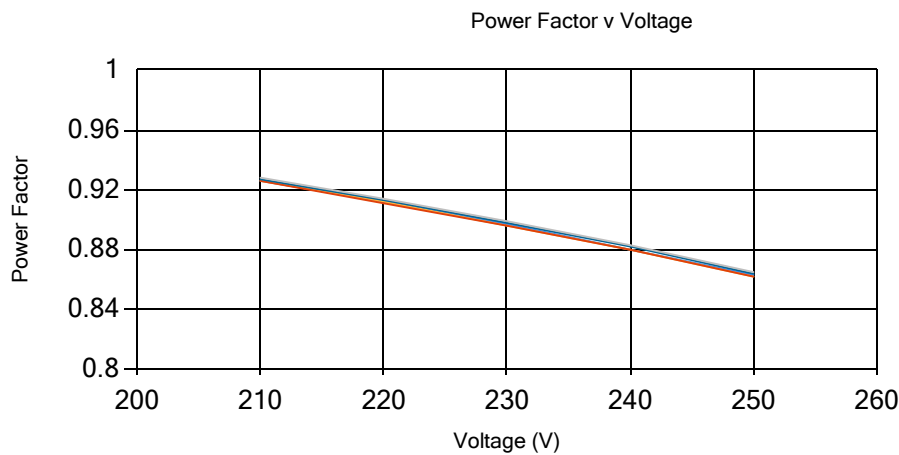
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
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# REPORT : ASD-R-1475-A

## TYPE : Dimming Output Range

Test Number: T1516  
 Test Date: 03/10/2018  
 Stabilization Time (mins): 31  
 Output (%): 46  
 Test Notes : T4  
 Test Start Temp (°C) : 22.39

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) : 21.10

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.03	622	145.05	155.51	0.933	Leading
B	250.07	622	145.08	155.53	0.933	Leading
C	250.08	621	144.67	155.23	0.932	Leading
D	250.02	623	145.38	155.72	0.934	Leading
E	250.04	623	145.56	155.86	0.934	Leading
A	240.03	641	144.97	153.78	0.943	Leading
B	240.03	641	144.93	153.79	0.942	Leading
C	240.09	640	144.72	153.73	0.941	Leading
D	240.01	642	145.30	154.12	0.943	Leading
E	240.03	642	145.42	154.20	0.943	Leading
A	230.04	663	145.01	152.45	0.951	Leading
B	230.06	662	144.89	152.36	0.951	Leading
C	230.07	662	144.64	152.23	0.950	Leading
D	230.07	664	145.36	152.79	0.951	Leading
E	230.08	665	145.51	152.89	0.952	Leading
A	220.03	687	144.98	151.20	0.959	Leading
B	220.05	687	144.95	151.23	0.959	Leading
C	220.06	686	144.61	150.91	0.958	Leading
D	220.05	689	145.33	151.53	0.959	Leading
E	220.07	689	145.57	151.69	0.960	Leading
A	210.03	715	145.12	150.24	0.966	Leading
B	210.04	715	144.94	150.12	0.966	Leading
C	210.07	714	144.73	149.94	0.965	Leading
D	209.98	717	145.29	150.45	0.966	Leading
E	210.06	717	145.60	150.69	0.966	Leading

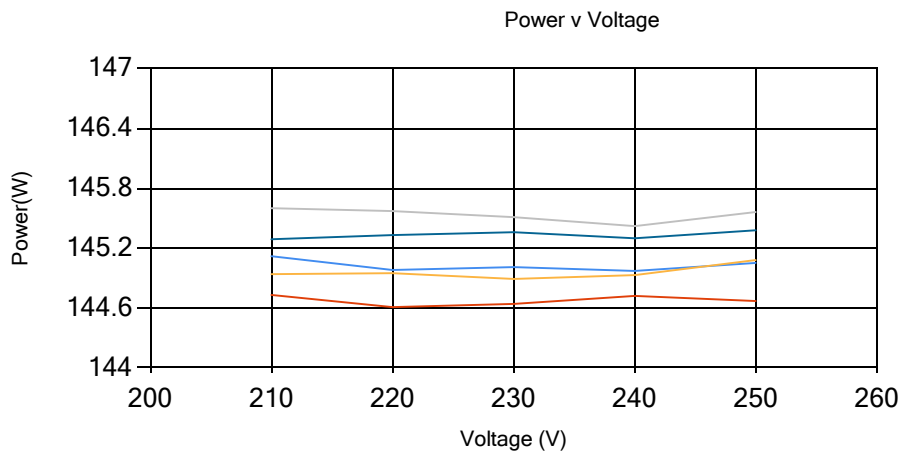
# REPORT : ASD-R-1475-A

## TYPE : Dimming Output Range

Test Number: T1516 Graphical Results Of Previous Page Tests.

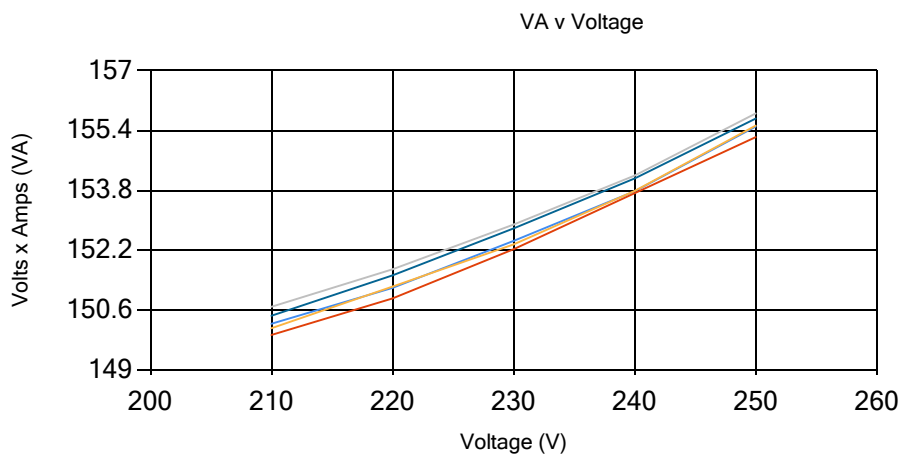
Drive (mA): 325

Output (%): 46



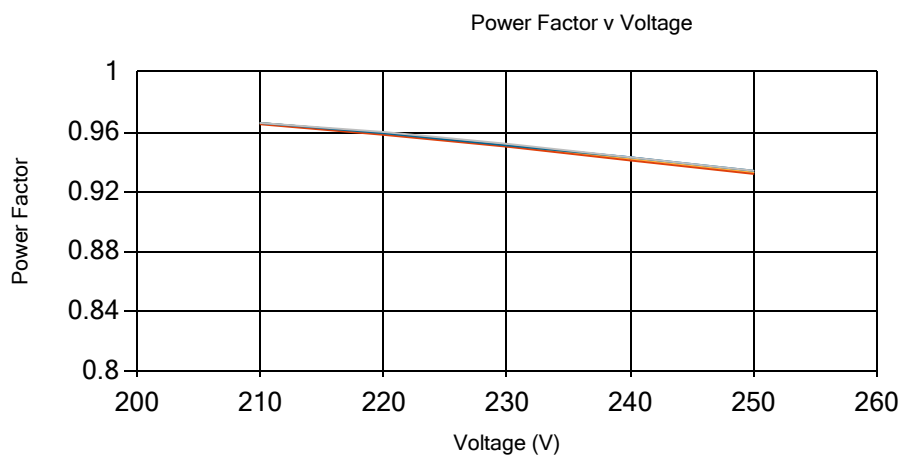
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E

# REPORT : ASD-R-1475-A

## TYPE : Dimming Output Range

Test Number: T1515  
 Test Date: 03/10/2018  
 Stabilization Time (mins): 31  
 Output (%): 64  
 Test Notes : T3  
 Test Start Temp (°C) : 21.07

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) : 21.52

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.03	826	198.92	206.48	0.963	Leading
B	250.05	826	198.89	206.48	0.963	Leading
C	250.06	824	198.42	206.09	0.963	Leading
D	250.01	827	199.14	206.65	0.964	Leading
E	250.03	827	199.34	206.87	0.964	Leading
A	240.06	855	198.90	205.29	0.969	Leading
B	240.06	855	198.91	205.35	0.969	Leading
C	240.08	854	198.55	204.98	0.969	Leading
D	240.06	857	199.24	205.63	0.969	Leading
E	240.09	857	199.48	205.82	0.969	Leading
A	230.03	888	198.87	204.22	0.974	Leading
B	230.05	888	198.93	204.30	0.974	Leading
C	230.06	886	198.44	203.87	0.973	Leading
D	230.06	890	199.30	204.64	0.974	Leading
E	230.08	890	199.37	204.66	0.974	Leading
A	220.03	924	198.94	203.38	0.978	Leading
B	220.04	925	198.99	203.46	0.978	Leading
C	220.06	923	198.51	203.02	0.978	Leading
D	220.05	926	199.32	203.77	0.978	Leading
E	220.08	927	199.51	203.92	0.978	Leading
A	210.02	965	199.03	202.75	0.982	Leading
B	210.03	966	199.16	202.86	0.982	Leading
C	210.04	964	198.69	202.44	0.982	Leading
D	210.05	967	199.43	203.12	0.982	Leading
E	210.06	968	199.60	203.23	0.982	Leading

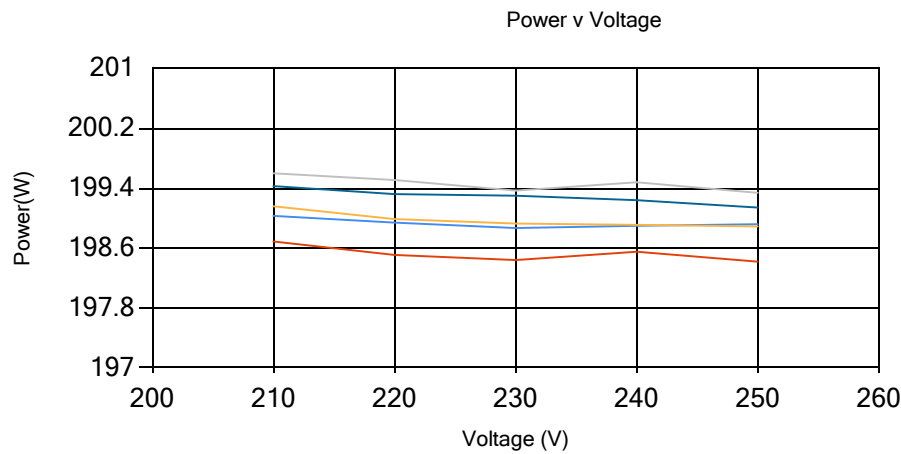
# REPORT : ASD-R-1475-A

## TYPE : Dimming Output Range

Test Number: T1515 Graphical Results Of Previous Page Tests.

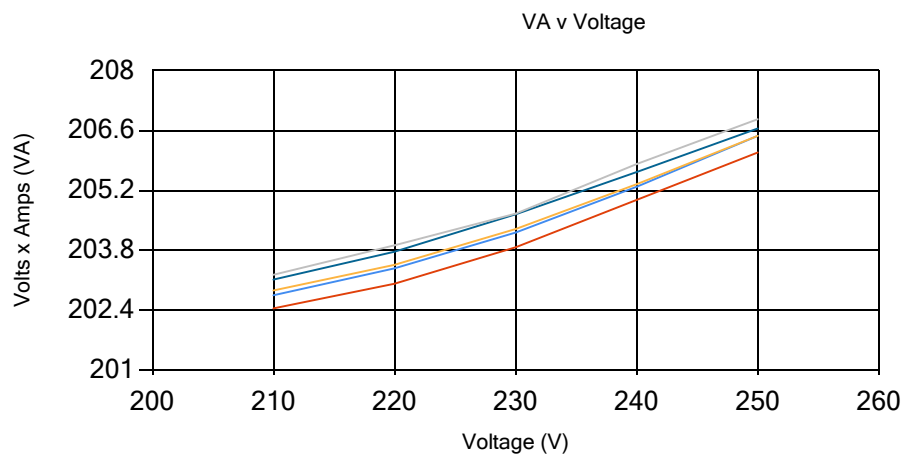
Drive (mA): 450

Output (%): 64



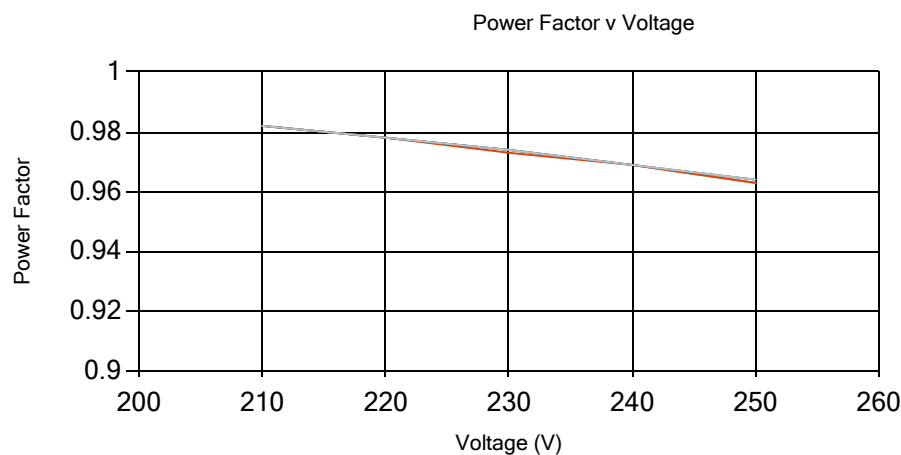
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
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- E

# REPORT : ASD-R-1475-A

## TYPE : Dimming Output Range

Test Number: T1514  
 Test Date: 03/10/2018  
 Stabilization Time (mins): 44  
 Output (%): 82  
 Test Notes : T2  
 Test Start Temp (°C) : 18.59

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) : 20.96

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.07	1042	254.83	260.53	0.978	Leading
B	250.07	1041	254.56	260.25	0.978	Leading
C	250.08	1040	254.14	259.96	0.978	Leading
D	250.08	1041	254.79	260.46	0.978	Leading
E	250.09	1043	255.16	260.85	0.978	Leading
A	240.03	1080	254.45	259.26	0.981	Leading
B	240.04	1079	254.24	259.01	0.982	Leading
C	240.06	1077	253.78	258.65	0.981	Leading
D	240.11	1080	254.50	259.23	0.982	Leading
E	240.07	1082	254.97	259.74	0.982	Leading
A	230.01	1122	253.96	257.98	0.984	Leading
B	230.06	1122	254.07	258.03	0.985	Leading
C	230.04	1120	253.52	257.54	0.984	Leading
D	230.09	1121	254.10	257.92	0.985	Leading
E	230.06	1123	254.46	258.37	0.985	Leading
A	220.05	1169	253.96	257.27	0.987	Leading
B	220.03	1169	254.06	257.30	0.987	Leading
C	220.05	1167	253.53	256.80	0.987	Leading
D	220.05	1168	253.90	257.08	0.988	Leading
E	220.01	1170	254.28	257.76	0.988	Leading
A	210.01	1222	254.00	256.64	0.990	Leading
B	210.02	1223	254.22	256.87	0.990	Leading
C	210.04	1220	253.58	256.21	0.990	Leading
D	210.02	1222	253.96	256.58	0.990	Leading
E	210.04	1223	254.37	256.95	0.990	Leading



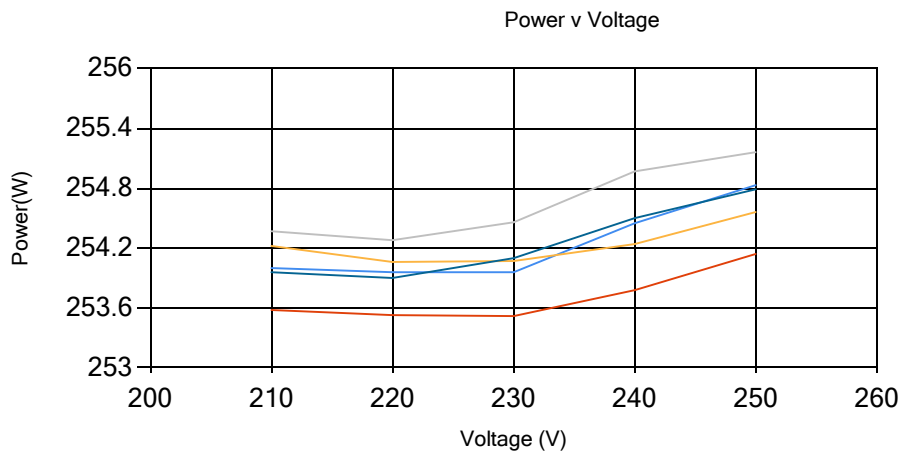
# REPORT : ASD-R-1475-A

## TYPE : Dimming Output Range

Test Number: T1514 Graphical Results Of Previous Page Tests.

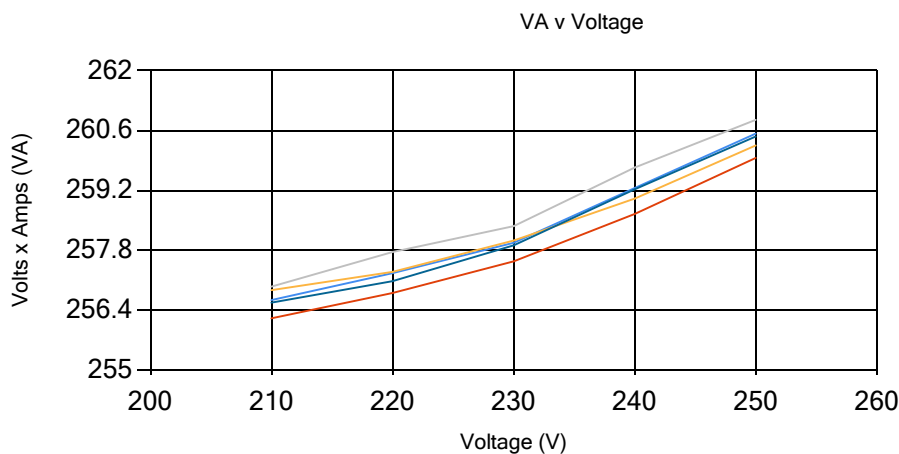
Drive (mA): 575

Output (%): 82



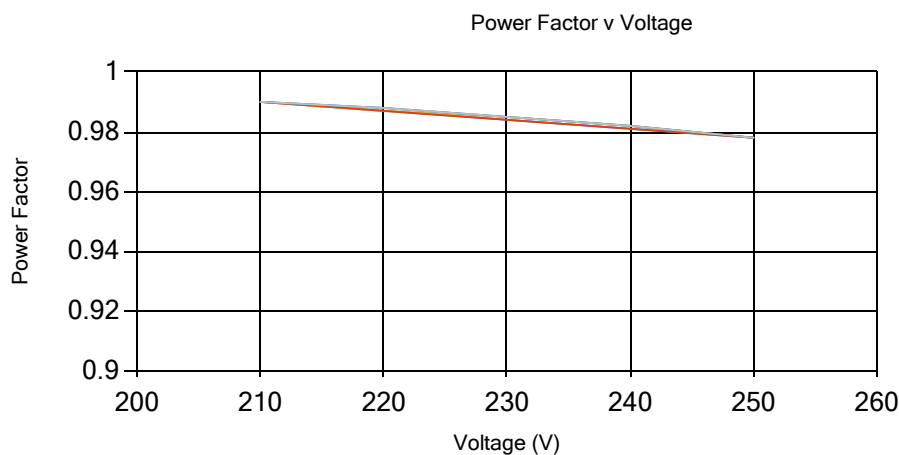
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E

# REPORT : ASD-R-1475-A

## TYPE : Dimming Output Range

Test Number: T1513  
 Test Date: 02/10/2018  
 Stabilization Time (mins): 42  
 Output (%): 100  
 Test Notes : T1  
 Test Start Temp (°C) : 19.10

Nom. Drive Current (mA): 700  
 Test Type: Std  
 Tested By: D Butler  
 Frequency Start Test (Hz) : 50.00  
 Frequency End Test (Hz) : 50.00  
 Test End Temp (°C) : 21.70

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.03	1259	310.27	314.73	0.986	Leading
B	250.05	1260	310.58	314.97	0.986	Leading
C	250.07	1257	309.80	314.31	0.986	Leading
D	250.05	1259	310.46	314.85	0.986	Leading
E	250.07	1262	311.07	315.49	0.986	Leading
A	240.04	1306	309.86	313.56	0.988	Leading
B	240.07	1308	310.24	313.88	0.988	Leading
C	240.05	1305	309.51	313.23	0.988	Leading
D	240.04	1307	310.04	313.62	0.989	Leading
E	240.12	1310	310.83	314.48	0.988	Leading
A	230.01	1360	309.78	312.82	0.990	Leading
B	230.03	1362	310.26	313.31	0.990	Leading
C	230.07	1358	309.45	312.48	0.990	Leading
D	230.03	1360	309.86	312.81	0.991	Leading
E	230.06	1363	310.67	313.64	0.991	Leading
A	220.00	1419	309.71	312.14	0.992	Leading
B	220.04	1422	310.37	312.81	0.992	Leading
C	220.05	1418	309.61	312.05	0.992	Leading
D	220.04	1420	310.00	312.41	0.992	Leading
E	220.04	1422	310.58	312.97	0.992	Leading
A	210.01	1486	310.02	311.96	0.994	Leading
B	210.03	1488	310.64	312.58	0.994	Leading
C	210.04	1484	309.73	311.70	0.994	Leading
D	210.01	1486	310.09	312.04	0.994	Leading
E	210.03	1489	310.66	312.58	0.994	Leading

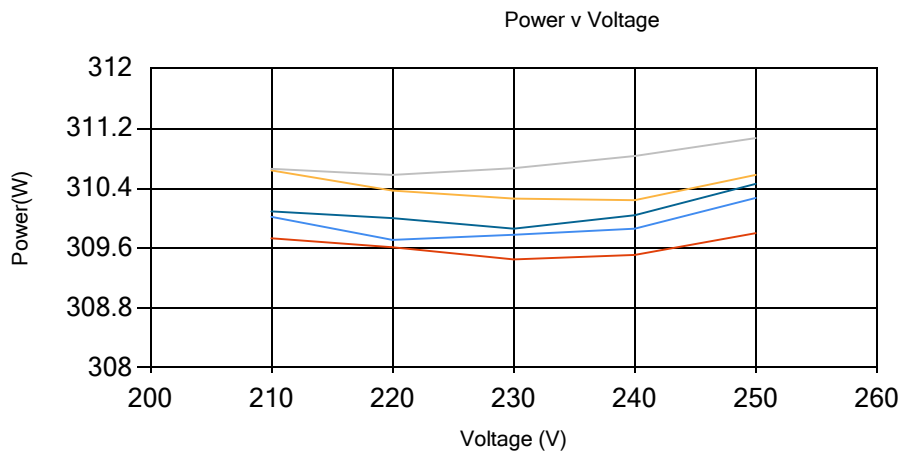
# REPORT : ASD-R-1475-A

## TYPE : Dimming Output Range

Test Number: T1513 Graphical Results Of Previous Page Tests.

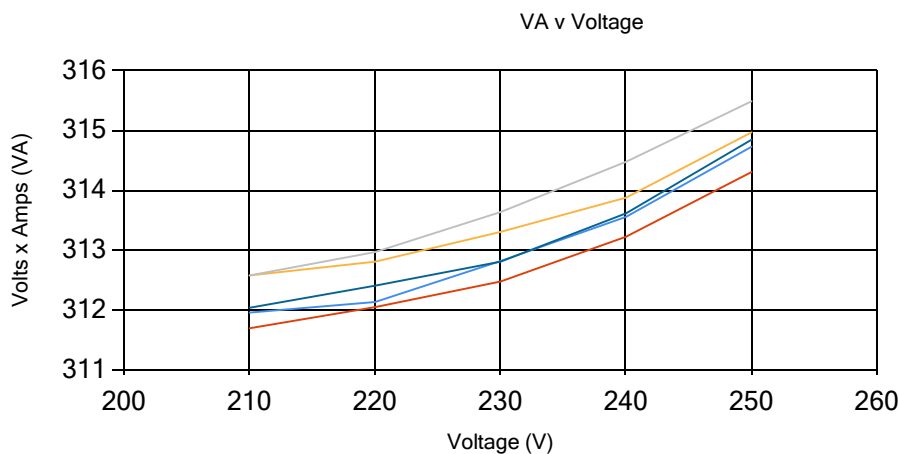
Drive (mA): 700

Output (%): 100



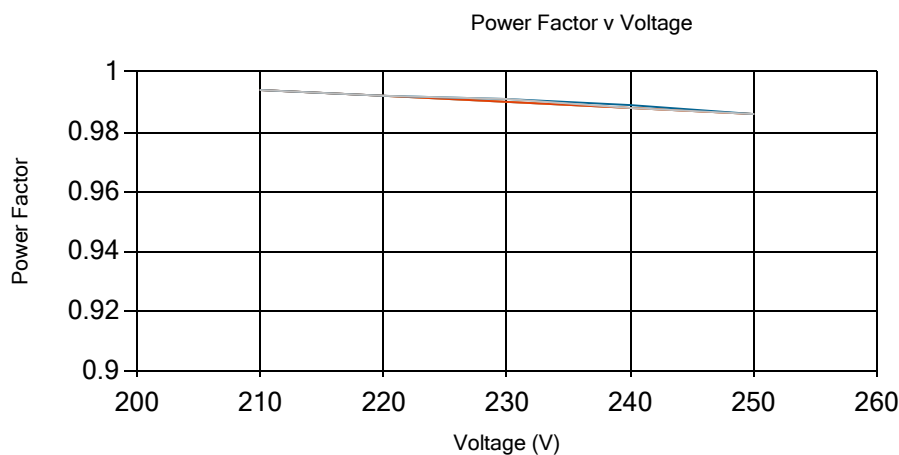
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
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- C
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- E

# REPORT : ASD-R-1475-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.

REPORT : ASD-R-1475-A  
TYPE : Dimming Output Range

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

