

REPORT : ASD-R-1473-A

TYPE : Dimming Output Range

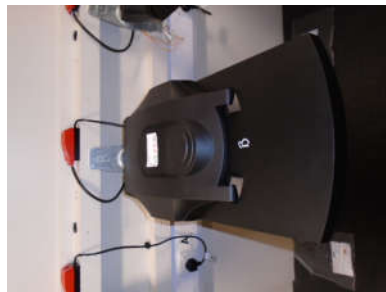
Project Number: 5143
Customer : ASD Lighting PLC
Product Type : Street Light
Project Instigator : D Butler
Project Start Date : 17/09/2018
Test Orientation : Installed Attitude
Project Notes : HWD6 52 LED range Test

Product Manufact. : ASD Lighting PLC
Product Descrip. : HWD6 52 LED
Product Code : HWD6-#4K52xx
Product Ref. : N.A.
Driver Type : Osram OT 4DIM
Dimmable : Yes
Thermal Management : Passive

Luminaire Details
Length (mm) : 680
Width (mm) : 330
Height (mm) : 170
Test Item A : 2443990
Test Item B : 2444036
Test Item C : 2444038C
Test Item D : 2444030
Test Item E : 2444023



Item A



Item B



Item C



Item D



Item E

REPORT : ASD-R-1473-A

TYPE : Dimming Output Range

Test Number: T1500
 Test Date: 17/09/2018
 Stabilization Time (mins): 52
 Output (%): 29
 Test Notes : T1
 Test Start Temp (°C) : 18.60

Nom. Drive Current (mA): 200
 Test Type: Std
 Tested By: D Butler
 Frequency Start Test (Hz) : 50.00
 Frequency End Test (Hz) : 50.00
 Test End Temp (°C) : 19.67

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.09	159	34.10	39.71	0.859	Leading
B	250.09	160	34.31	40.01	0.858	Leading
C	250.10	161	34.49	40.34	0.855	Leading
D	250.07	162	34.46	40.40	0.853	Leading
E	250.08	160	34.30	40.08	0.856	Leading
A	240.06	161	34.00	38.74	0.878	Leading
B	240.07	163	34.19	39.05	0.876	Leading
C	240.09	164	34.37	39.31	0.874	Leading
D	240.09	164	34.38	39.45	0.872	Leading
E	240.04	163	34.26	39.16	0.875	Leading
A	230.02	165	33.91	37.92	0.894	Leading
B	230.05	166	34.09	38.16	0.893	Leading
C	230.07	167	34.26	38.45	0.891	Leading
D	230.07	168	34.29	38.58	0.889	Leading
E	230.08	167	34.21	38.31	0.893	Leading
A	220.05	169	33.84	37.16	0.911	Leading
B	220.07	170	34.04	37.41	0.910	Leading
C	220.08	171	34.26	37.70	0.909	Leading
D	220.08	172	34.25	37.78	0.907	Leading
E	220.09	170	34.15	37.50	0.911	Leading
A	210.05	174	33.85	36.58	0.925	Leading
B	210.04	175	34.08	36.80	0.926	Leading
C	210.07	176	34.18	36.97	0.925	Leading
D	210.05	176	34.15	37.05	0.922	Leading
E	210.06	175	34.10	36.85	0.925	Leading

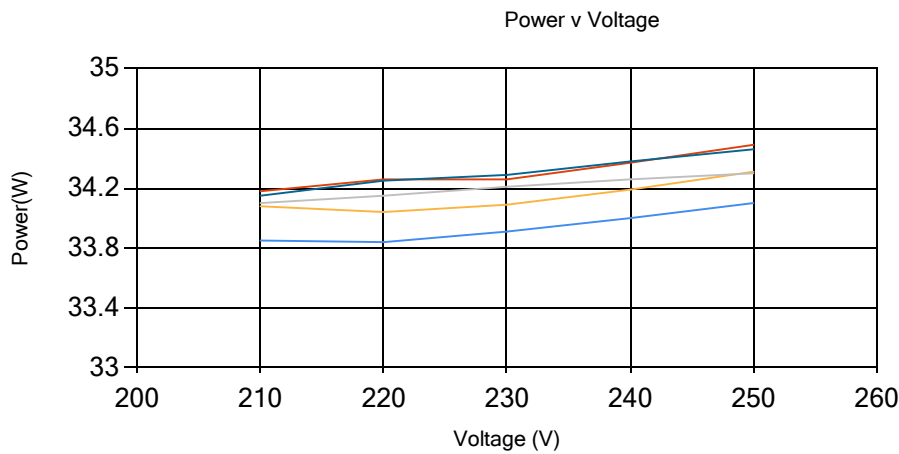
REPORT : ASD-R-1473-A

TYPE : Dimming Output Range

Test Number: T1500 Graphical Results Of Previous Page Tests.

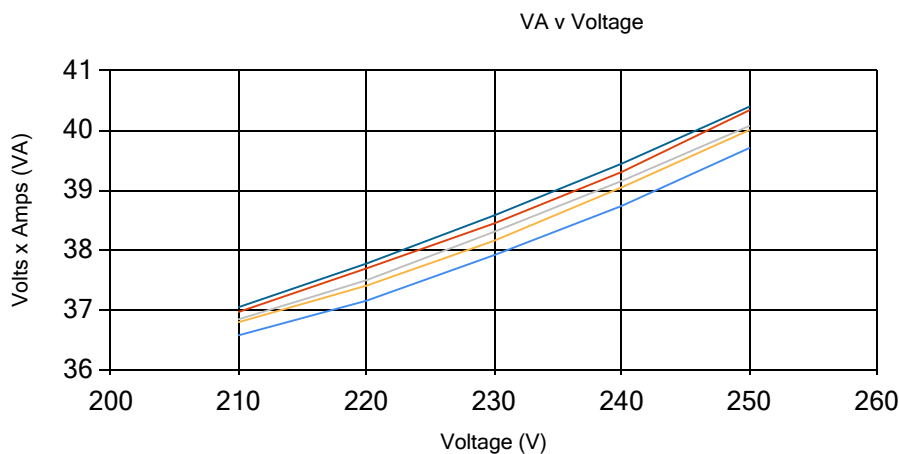
Drive (mA): 200

Output (%): 29



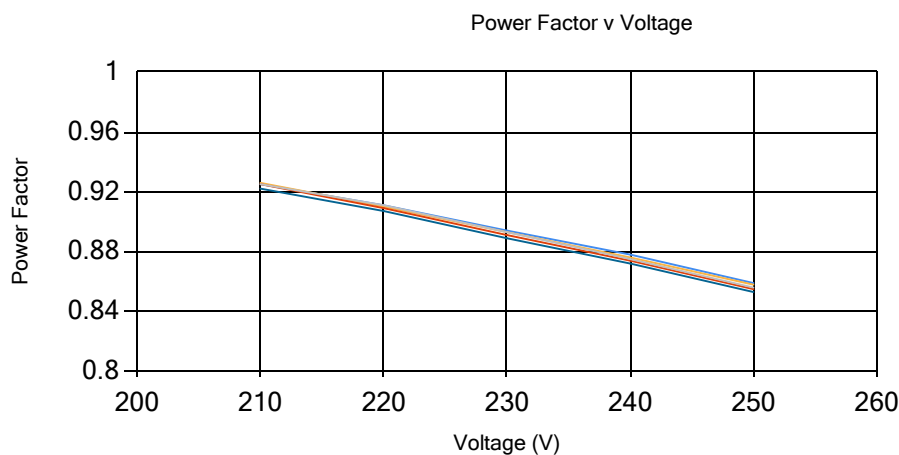
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
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- C
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REPORT : ASD-R-1473-A

TYPE : Dimming Output Range

Test Number: T1501
 Test Date: 17/09/2018
 Stabilization Time (mins): 24
 Output (%): 46
 Test Notes : T2
 Test Start Temp (°C) : 19.65

Nom. Drive Current (mA): 325
 Test Type: Std
 Tested By: D Butler
 Frequency Start Test (Hz) : 50.00
 Frequency End Test (Hz) : 50.00
 Test End Temp (°C) : 20.15

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.04	227	52.96	56.80	0.932	Leading
B	250.10	228	53.24	57.14	0.932	Leading
C	250.08	229	53.25	57.27	0.930	Leading
D	250.08	229	53.20	57.34	0.928	Leading
E	250.09	229	53.32	57.27	0.931	Leading
A	240.05	234	52.91	56.10	0.943	Leading
B	240.06	235	53.11	56.39	0.942	Leading
C	240.06	235	53.19	56.51	0.941	Leading
D	240.01	236	53.10	56.62	0.939	Leading
E	240.03	235	53.20	56.52	0.941	Leading
A	230.05	241	52.80	55.45	0.952	Leading
B	230.06	242	53.08	55.78	0.952	Leading
C	230.08	243	53.13	55.86	0.951	Leading
D	230.06	243	53.08	55.93	0.949	Leading
E	230.07	243	53.14	55.85	0.952	Leading
A	220.05	250	52.77	54.95	0.960	Leading
B	220.06	251	53.05	55.25	0.960	Leading
C	220.07	251	53.06	55.24	0.961	Leading
D	220.00	251	53.00	55.32	0.958	Leading
E	220.08	251	53.13	55.31	0.961	Leading
A	210.01	260	52.78	54.51	0.968	Leading
B	210.04	261	53.06	54.81	0.968	Leading
C	210.03	261	53.09	54.83	0.968	Leading
D	210.07	261	53.09	54.93	0.966	Leading
E	210.02	261	53.09	54.83	0.968	Leading

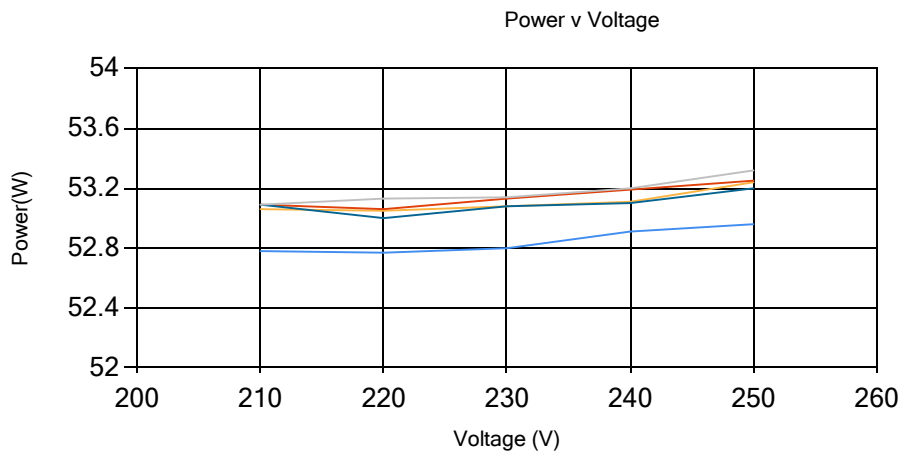
REPORT : ASD-R-1473-A

TYPE : Dimming Output Range

Test Number: T1501 Graphical Results Of Previous Page Tests.

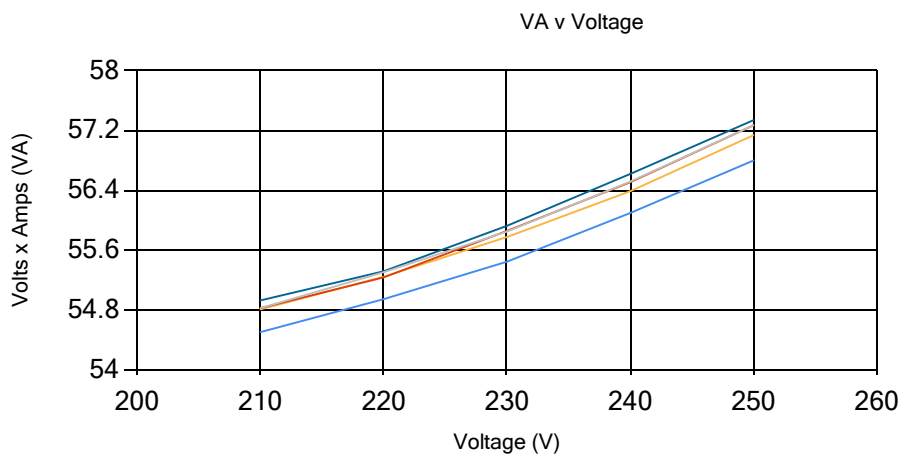
Drive (mA): 325

Output (%): 46



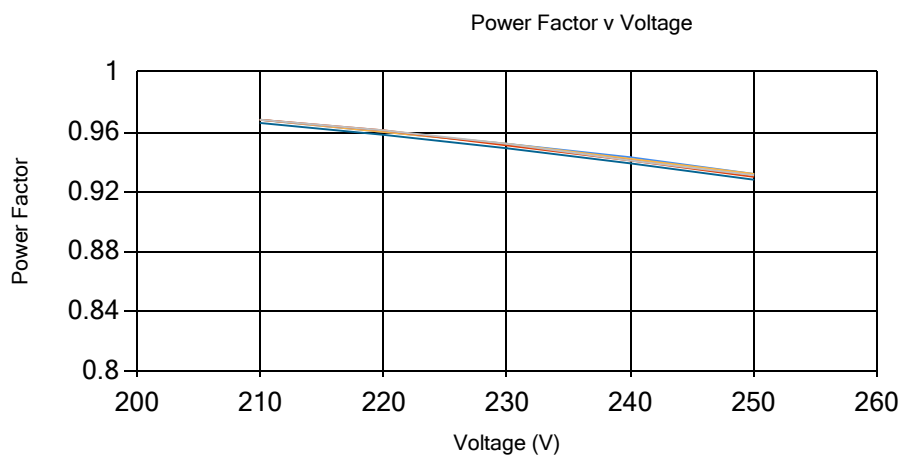
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
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- C
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REPORT : ASD-R-1473-A

TYPE : Dimming Output Range

Test Number: T1503
 Test Date: 17/09/2018
 Stabilization Time (mins): 31
 Output (%): 64
 Test Notes : T3
 Test Start Temp (°C) : 21.35

Nom. Drive Current (mA): 450
 Test Type: Std
 Tested By: D Butler
 Frequency Start Test (Hz) : 50.00
 Frequency End Test (Hz) : 50.00
 Test End Temp (°C) : 20.75

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.06	298	71.36	74.55	0.957	Leading
B	250.07	299	71.59	74.85	0.957	Leading
C	250.09	301	71.80	75.24	0.954	Leading
D	250.08	301	71.94	75.38	0.954	Leading
E	250.09	300	71.63	74.93	0.956	Leading
A	240.05	308	71.24	73.89	0.964	Leading
B	240.10	309	71.52	74.23	0.964	Leading
C	240.08	311	71.75	74.63	0.961	Leading
D	240.08	311	71.69	74.58	0.961	Leading
E	240.09	309	71.56	74.25	0.964	Leading
A	230.04	319	71.22	73.46	0.970	Leading
B	230.09	320	71.46	73.74	0.969	Leading
C	230.10	322	71.74	74.07	0.968	Leading
D	230.06	322	71.75	74.12	0.968	Leading
E	230.08	321	71.51	73.69	0.970	Leading
A	220.06	332	71.20	73.01	0.975	Leading
B	220.06	333	71.52	73.37	0.975	Leading
C	220.06	335	71.79	73.67	0.975	Leading
D	220.02	335	71.71	73.64	0.974	Leading
E	220.07	334	71.61	73.41	0.976	Leading
A	210.03	346	71.30	72.75	0.980	Leading
B	210.04	348	71.53	73.00	0.980	Leading
C	210.05	349	71.81	73.31	0.980	Leading
D	210.05	349	71.89	73.40	0.979	Leading
E	210.08	348	71.67	73.06	0.980	Leading

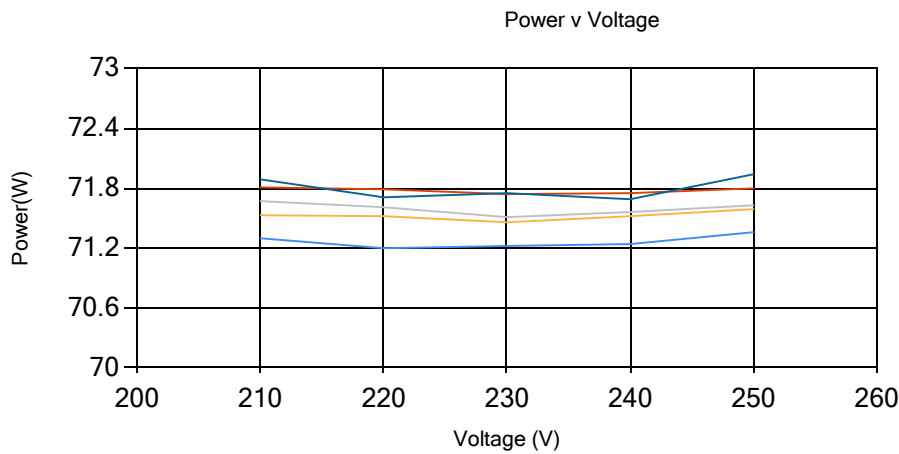
REPORT : ASD-R-1473-A

TYPE : Dimming Output Range

Test Number: T1503 Graphical Results Of Previous Page Tests.

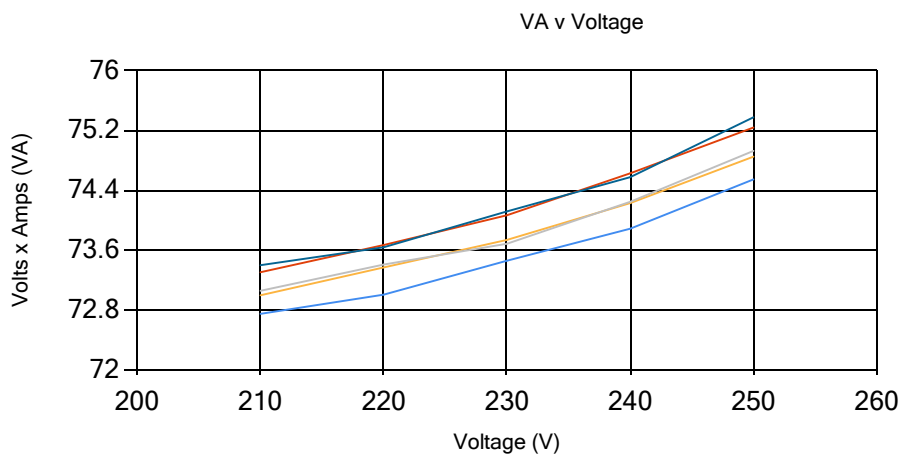
Drive (mA): 450

Output (%): 64



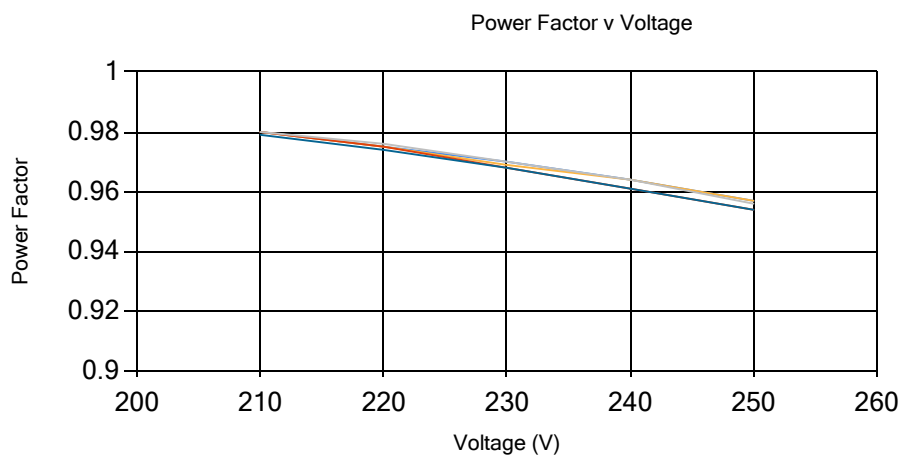
Fitting Designation

- 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-1473-A

TYPE : Dimming Output Range

Test Number: T1504
 Test Date: 17/09/2018
 Stabilization Time (mins): 31
 Output (%): 82
 Test Notes : T4
 Test Start Temp (°C) : 20.69

Nom. Drive Current (mA): 575
 Test Type: Std
 Tested By: D Butler
 Frequency Start Test (Hz) : 50.00
 Frequency End Test (Hz) : 50.00
 Test End Temp (°C) : 20.45

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.06	376	90.91	94.12	0.966	Leading
B	250.07	377	91.17	94.32	0.967	Leading
C	250.09	377	91.21	94.35	0.967	Leading
D	250.14	378	91.33	94.61	0.965	Leading
E	250.11	376	91.03	94.11	0.967	Leading
A	240.05	389	90.71	93.43	0.971	Leading
B	240.07	391	91.11	93.78	0.972	Leading
C	240.08	391	91.25	93.86	0.972	Leading
D	240.08	392	91.28	94.03	0.971	Leading
E	240.08	390	91.02	93.61	0.972	Leading
A	230.05	405	90.88	93.13	0.976	Leading
B	230.06	406	91.18	93.42	0.976	Leading
C	230.07	406	91.25	93.43	0.977	Leading
D	230.06	407	91.28	93.55	0.976	Leading
E	230.08	406	91.09	93.30	0.976	Leading
A	220.07	421	90.89	92.71	0.980	Leading
B	220.06	423	91.22	93.08	0.980	Leading
C	220.03	423	91.23	93.04	0.981	Leading
D	220.06	424	91.37	93.26	0.980	Leading
E	220.05	422	91.10	92.91	0.980	Leading
A	210.05	440	90.97	92.45	0.984	Leading
B	210.05	443	91.41	92.95	0.984	Leading
C	210.04	442	91.42	92.92	0.984	Leading
D	210.04	443	91.45	92.98	0.984	Leading
E	210.04	441	91.21	92.72	0.984	Leading

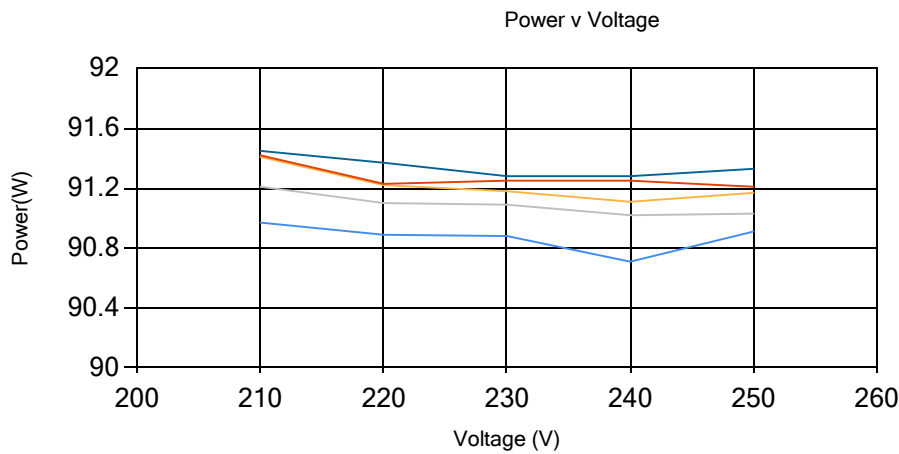
REPORT : ASD-R-1473-A

TYPE : Dimming Output Range

Test Number: T1504 Graphical Results Of Previous Page Tests.

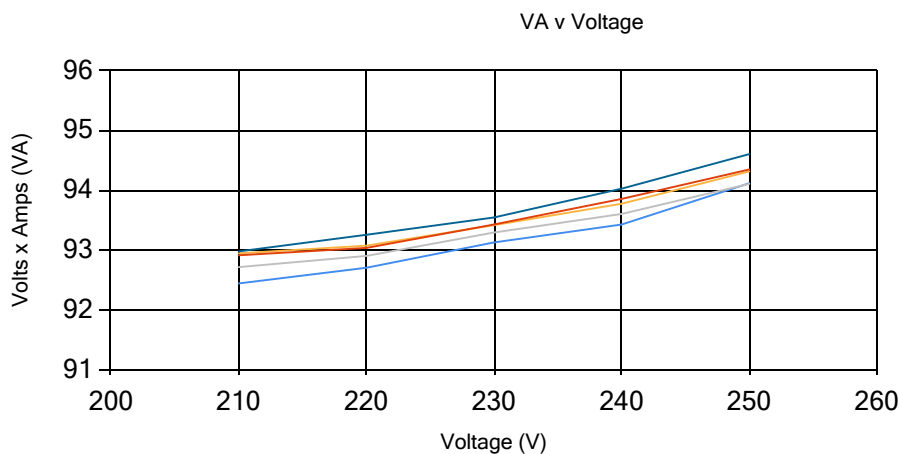
Drive (mA): 575

Output (%): 82



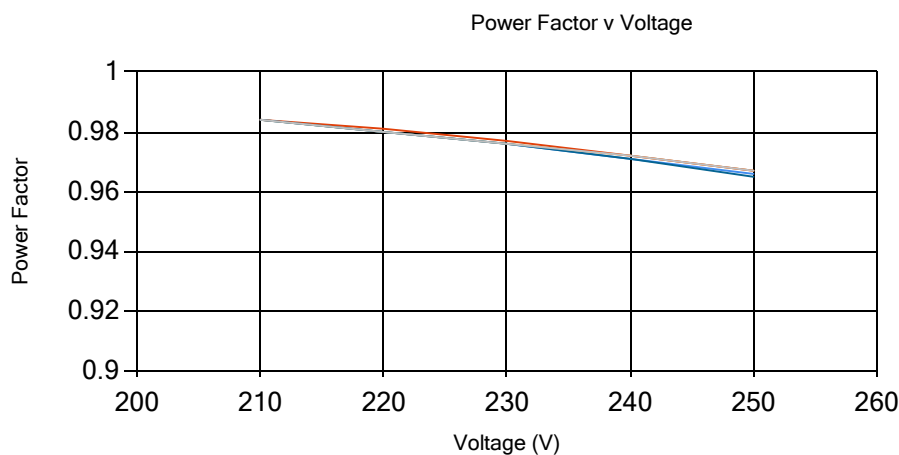
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E

REPORT : ASD-R-1473-A

TYPE : Dimming Output Range

Test Number: T1505
 Test Date: 17/09/2018
 Stabilization Time (mins): 25
 Output (%): 100
 Test Notes : T5
 Test Start Temp (°C) : 20.40

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) : 20.84

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.06	460	111.60	114.91	0.971	Leading
B	250.07	460	111.52	114.97	0.970	Leading
C	250.08	461	111.90	115.26	0.971	Leading
D	250.08	461	111.89	115.31	0.970	Leading
E	250.03	460	111.52	114.90	0.971	Leading
A	240.05	476	111.40	114.21	0.975	Leading
B	240.06	476	111.32	114.26	0.974	Leading
C	240.08	477	111.70	114.54	0.975	Leading
D	240.07	478	111.75	114.64	0.975	Leading
E	240.02	476	111.38	114.25	0.975	Leading
A	230.04	494	111.30	113.64	0.979	Leading
B	230.05	494	111.20	113.63	0.979	Leading
C	230.10	496	111.66	114.05	0.979	Leading
D	230.06	496	111.65	114.07	0.979	Leading
E	230.07	494	111.32	113.74	0.979	Leading
A	220.04	514	111.27	113.20	0.983	Leading
B	220.06	514	111.17	113.19	0.982	Leading
C	220.07	516	111.62	113.61	0.983	Leading
D	220.06	516	111.60	113.63	0.982	Leading
E	220.08	515	111.32	113.25	0.983	Leading
A	210.02	538	111.27	112.88	0.986	Leading
B	210.04	537	111.18	112.85	0.985	Leading
C	210.05	539	111.66	113.28	0.986	Leading
D	210.05	539	111.55	113.21	0.985	Leading
E	210.06	538	111.34	112.94	0.986	Leading

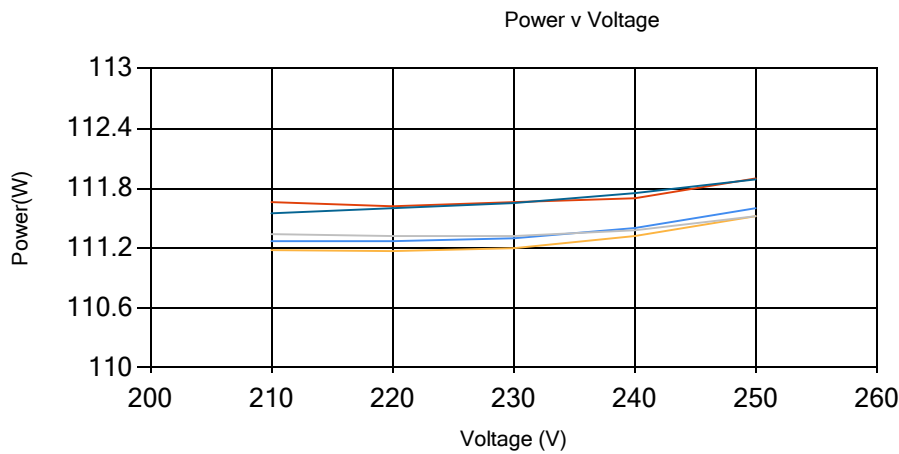
REPORT : ASD-R-1473-A

TYPE : Dimming Output Range

Test Number: T1505 Graphical Results Of Previous Page Tests.

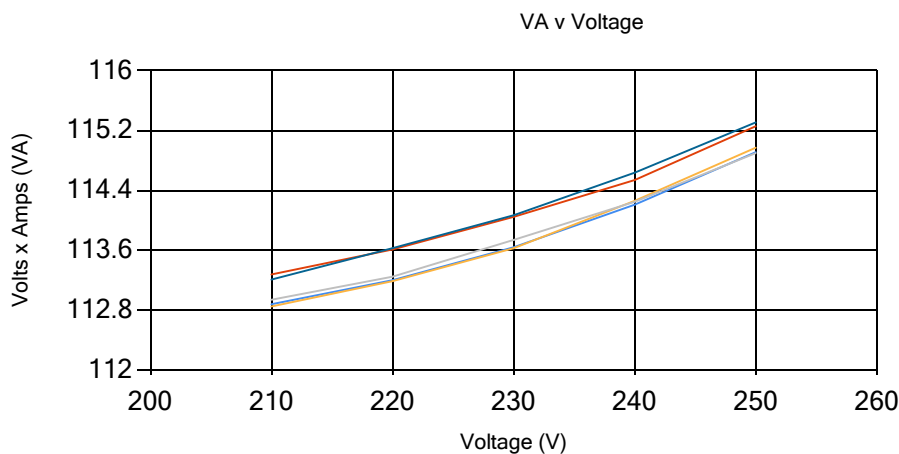
Drive (mA): 700

Output (%): 100



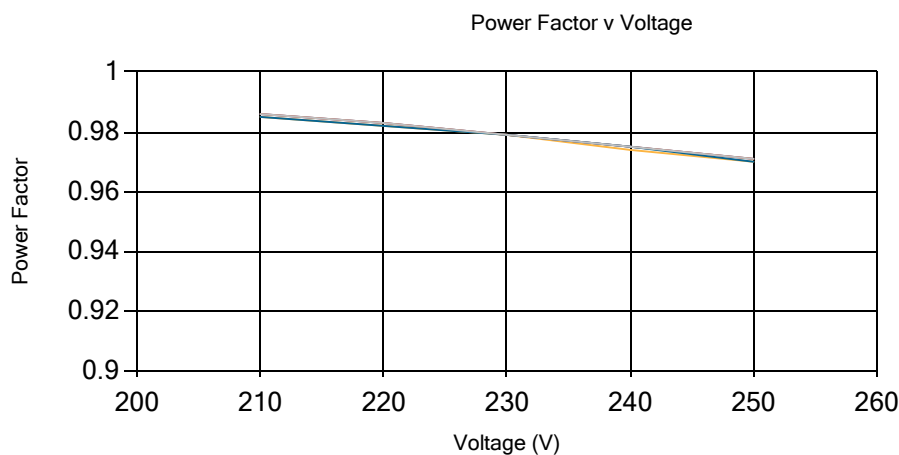
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
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- D
- E



Fitting Designation

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REPORT : ASD-R-1473-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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Dimming Curve: Avg. Power Of A To E Luminaires at 240V v Dimming Level Set

