

REPORT : ASD-R-1465-A

TYPE : Dimming Output Range

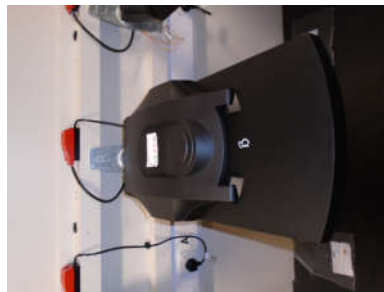
Project Number: 5137
Customer : ASD Lighting PLC
Product Type : Street Light
Project Instigator : NF
Project Start Date : 25/06/2018
Test Orientation : Installed Attitude
Project Notes : Range Test HWD6 100 led

Product Manufact. : ASD Lighting PLC
Product Descrip. : HWD6 4000K 100 LED
Product Code : HWD6/#4K100xx
Product Ref. : N.A.
Driver Type : Osram OT 4 DIM
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 : 2444038
Test Item D : 2444030
Test Item E : 2444023



Item A



Item B



Item C



Item D



Item E

REPORT : ASD-R-1465-A

TYPE : Dimming Output Range

Test Number: T1474
 Test Date: 05/09/2018
 Stabilization Time (mins): 31
 Output (%): 29
 Test Notes : T5
 Test Start Temp (°C) : 21.03

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) : 20.83

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.03	310	65.89	77.61	0.849	Leading
B	250.06	311	65.80	77.85	0.845	Leading
C	250.08	312	66.27	78.09	0.849	Leading
D	250.00	313	65.97	78.14	0.844	Leading
E	250.04	313	66.15	78.33	0.845	Leading
A	240.03	316	65.85	75.78	0.869	Leading
B	240.05	316	65.63	75.79	0.866	Leading
C	240.08	317	66.15	76.10	0.869	Leading
D	240.01	317	65.82	76.10	0.865	Leading
E	240.04	318	66.08	76.38	0.865	Leading
A	230.02	322	65.75	74.08	0.888	Leading
B	230.04	322	65.59	74.10	0.885	Leading
C	230.03	324	66.10	74.49	0.887	Leading
D	230.04	324	65.81	74.42	0.884	Leading
E	230.02	324	65.89	74.52	0.884	Leading
A	220.03	330	65.75	72.60	0.906	Leading
B	220.03	329	65.43	72.48	0.903	Leading
C	220.07	332	66.00	73.01	0.904	Leading
D	220.00	331	65.73	72.87	0.902	Leading
E	220.01	332	65.87	73.02	0.902	Leading
A	209.98	339	65.65	71.27	0.921	Leading
B	210.03	339	65.46	71.17	0.920	Leading
C	210.04	341	66.03	71.69	0.921	Leading
D	209.98	340	65.63	71.44	0.918	Leading
E	210.00	341	65.84	71.66	0.919	Leading

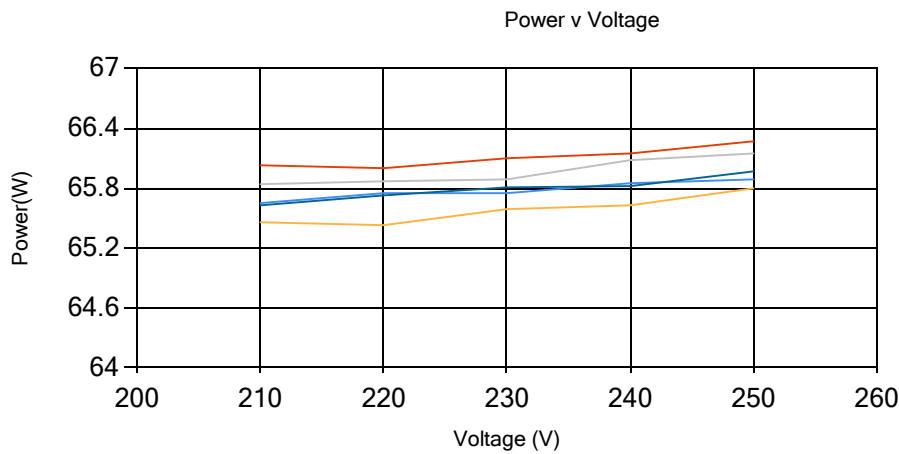
REPORT : ASD-R-1465-A

TYPE : Dimming Output Range

Test Number: T1474 Graphical Results Of Previous Page Tests.

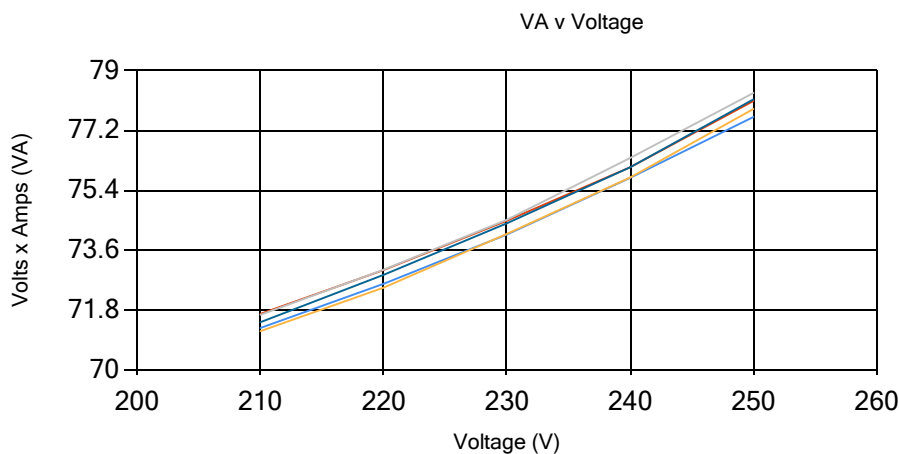
Drive (mA): 200

Output (%): 29



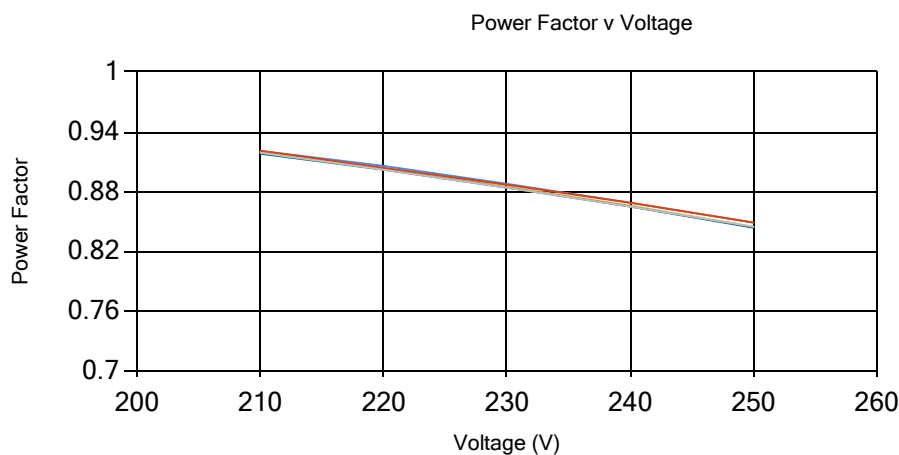
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E

REPORT : ASD-R-1465-A

TYPE : Dimming Output Range

Test Number: T1473
 Test Date: 05/09/2018
 Stabilization Time (mins): 31
 Output (%): 46
 Test Notes : T4
 Test Start Temp (°C) : 21.20

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) : 20.99

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.03	436	100.98	109.11	0.926	Leading
B	250.06	437	100.95	109.20	0.925	Leading
C	250.10	440	101.96	110.00	0.927	Leading
D	250.01	438	101.17	109.55	0.924	Leading
E	250.02	439	101.41	109.81	0.924	Leading
A	240.02	449	100.94	107.68	0.937	Leading
B	240.07	449	100.93	107.83	0.936	Leading
C	240.04	452	101.76	108.44	0.938	Leading
D	240.02	450	101.01	108.02	0.935	Leading
E	240.02	452	101.39	108.39	0.935	Leading
A	230.02	463	100.88	106.46	0.948	Leading
B	230.04	463	100.83	106.54	0.946	Leading
C	230.06	466	101.74	107.25	0.949	Leading
D	230.05	465	101.08	106.86	0.946	Leading
E	230.07	466	101.40	107.21	0.946	Leading
A	220.05	479	100.90	105.45	0.957	Leading
B	220.07	479	100.82	105.45	0.956	Leading
C	220.09	483	101.75	106.22	0.958	Leading
D	219.99	480	100.93	105.62	0.956	Leading
E	220.01	482	101.31	106.06	0.955	Leading
A	210.02	498	100.86	104.50	0.965	Leading
B	210.05	498	100.88	104.58	0.965	Leading
C	210.07	501	101.74	105.30	0.966	Leading
D	209.98	499	101.02	104.77	0.964	Leading
E	210.05	500	101.30	105.10	0.964	Leading

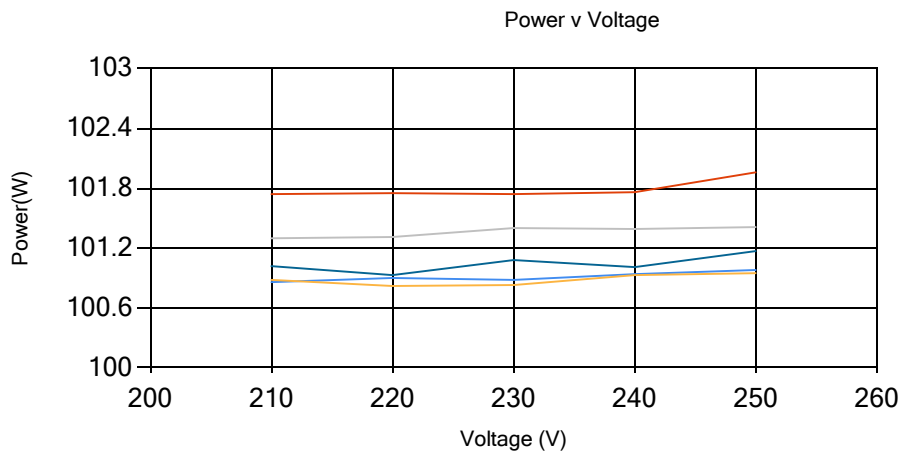
REPORT : ASD-R-1465-A

TYPE : Dimming Output Range

Test Number: T1473 Graphical Results Of Previous Page Tests.

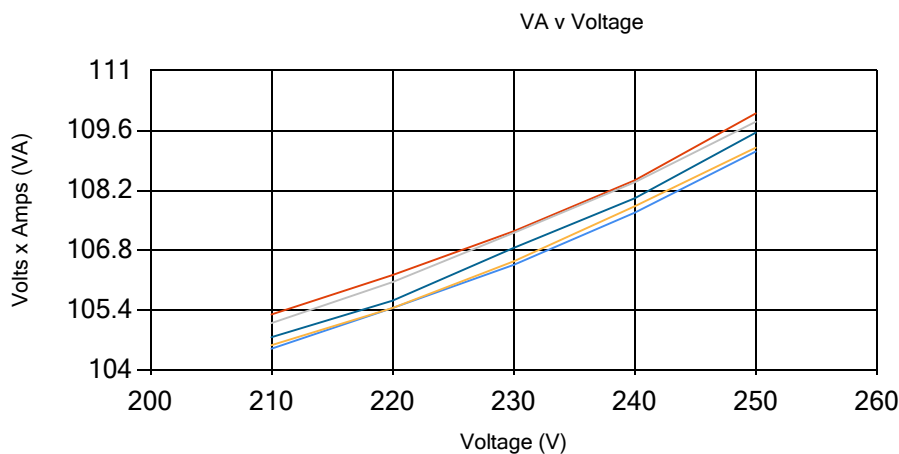
Drive (mA): 325

Output (%): 46



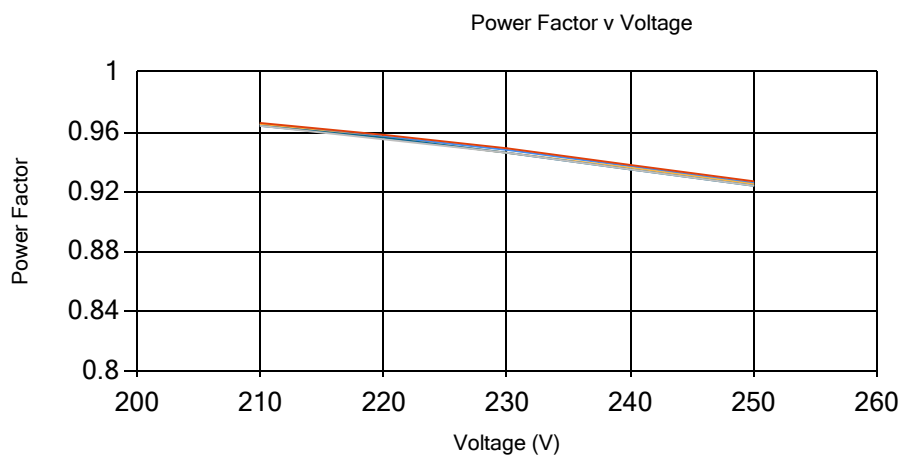
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E

REPORT : ASD-R-1465-A

TYPE : Dimming Output Range

Test Number: T1472
 Test Date: 05/09/2018
 Stabilization Time (mins): 31
 Output (%): 64
 Test Notes : T3
 Test Start Temp (°C) : 22.21

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) : 21.59

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.02	571	136.00	142.69	0.953	Leading
B	250.06	572	136.24	143.07	0.952	Leading
C	250.09	574	137.05	143.68	0.954	Leading
D	250.00	573	136.23	143.19	0.951	Leading
E	250.01	573	136.40	143.16	0.953	Leading
A	240.02	590	136.14	141.68	0.961	Leading
B	240.05	591	136.21	141.91	0.960	Leading
C	240.06	594	137.13	142.67	0.961	Leading
D	239.99	592	136.37	142.15	0.959	Leading
E	240.01	592	136.39	142.03	0.960	Leading
A	229.99	612	136.16	140.75	0.967	Leading
B	230.02	613	136.38	141.10	0.967	Leading
C	230.06	616	137.19	141.74	0.968	Leading
D	229.98	614	136.36	141.12	0.966	Leading
E	230.00	614	136.58	141.24	0.967	Leading
A	220.03	637	136.39	140.14	0.973	Leading
B	220.01	638	136.62	140.48	0.973	Leading
C	220.06	641	137.33	141.05	0.974	Leading
D	220.04	638	136.53	140.41	0.973	Leading
E	220.05	639	136.71	140.51	0.973	Leading
A	209.99	663	136.34	139.29	0.979	Leading
B	210.03	666	136.73	139.80	0.978	Leading
C	210.06	669	137.51	140.46	0.979	Leading
D	210.05	667	136.73	139.87	0.978	Leading
E	210.07	666	136.93	139.94	0.979	Leading

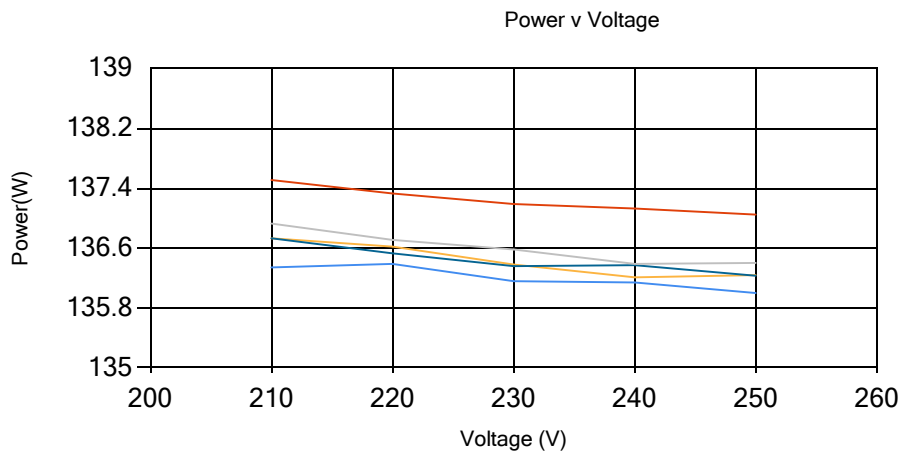
REPORT : ASD-R-1465-A

TYPE : Dimming Output Range

Test Number: T1472 Graphical Results Of Previous Page Tests.

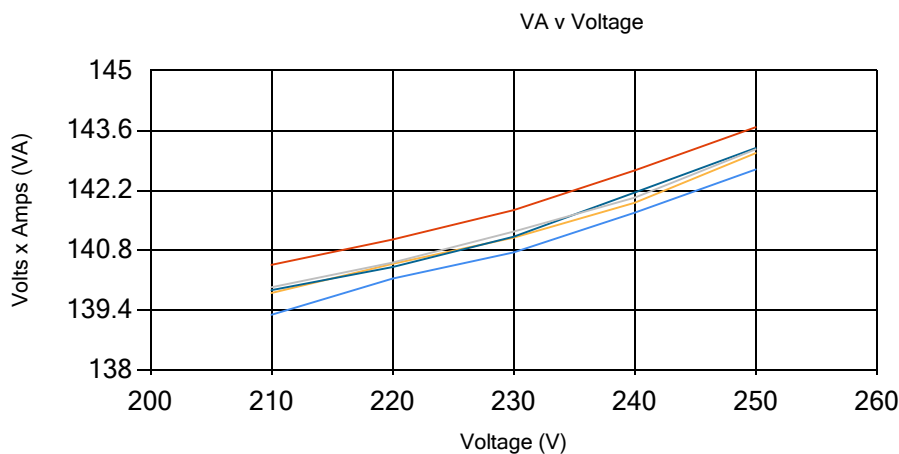
Drive (mA): 450

Output (%): 64



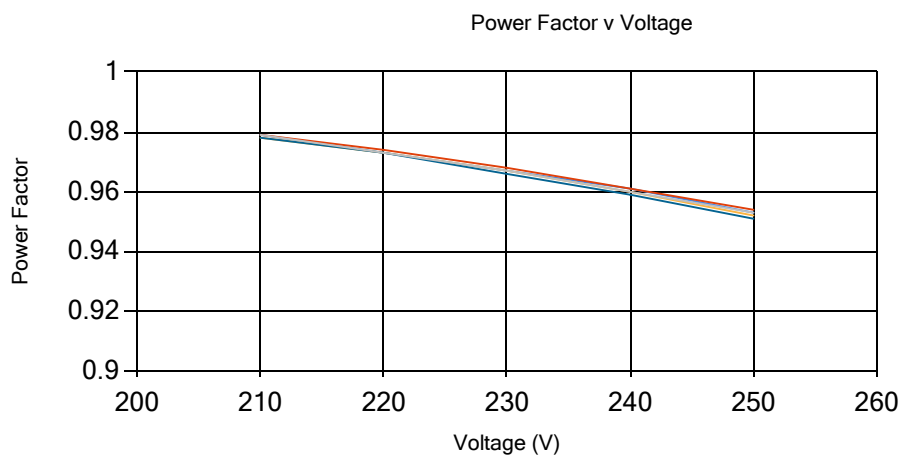
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E

REPORT : ASD-R-1465-A

TYPE : Dimming Output Range

Test Number: T1471
 Test Date: 05/09/2018
 Stabilization Time (mins): 39
 Output (%): 82
 Test Notes : T2
 Test Start Temp (°C) : 21.13

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) : 22.07

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.05	716	172.58	178.97	0.964	Leading
B	250.06	718	172.87	179.44	0.963	Leading
C	250.10	722	174.05	180.48	0.964	Leading
D	250.05	719	173.11	179.77	0.963	Leading
E	250.07	721	173.55	180.18	0.963	Leading
A	240.01	740	172.32	177.66	0.970	Leading
B	240.04	743	172.71	178.28	0.969	Leading
C	240.05	747	173.84	179.26	0.970	Leading
D	240.10	744	173.03	178.64	0.969	Leading
E	240.05	745	173.29	178.82	0.969	Leading
A	230.00	768	172.26	176.74	0.975	Leading
B	230.02	771	172.61	177.26	0.974	Leading
C	230.06	775	173.82	178.36	0.975	Leading
D	230.01	772	172.84	177.52	0.974	Leading
E	230.04	773	173.29	177.86	0.974	Leading
A	219.99	800	172.28	175.91	0.979	Leading
B	220.03	802	172.70	176.55	0.978	Leading
C	220.04	807	173.82	177.57	0.979	Leading
D	220.02	804	173.01	176.87	0.978	Leading
E	220.07	805	173.43	177.14	0.979	Leading
A	210.00	835	172.41	175.46	0.983	Leading
B	210.02	839	172.96	176.13	0.982	Leading
C	210.04	843	173.91	176.98	0.983	Leading
D	210.04	839	173.14	176.25	0.982	Leading
E	210.05	840	173.50	176.51	0.983	Leading

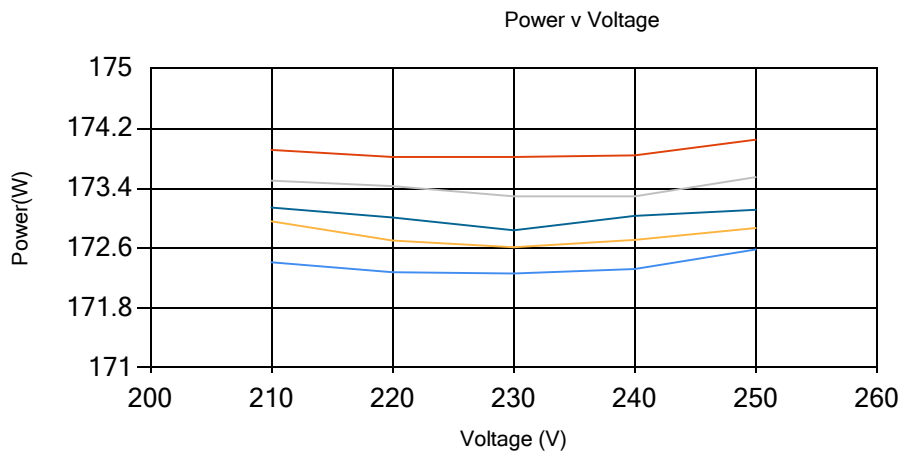
REPORT : ASD-R-1465-A

TYPE : Dimming Output Range

Test Number: T1471 Graphical Results Of Previous Page Tests.

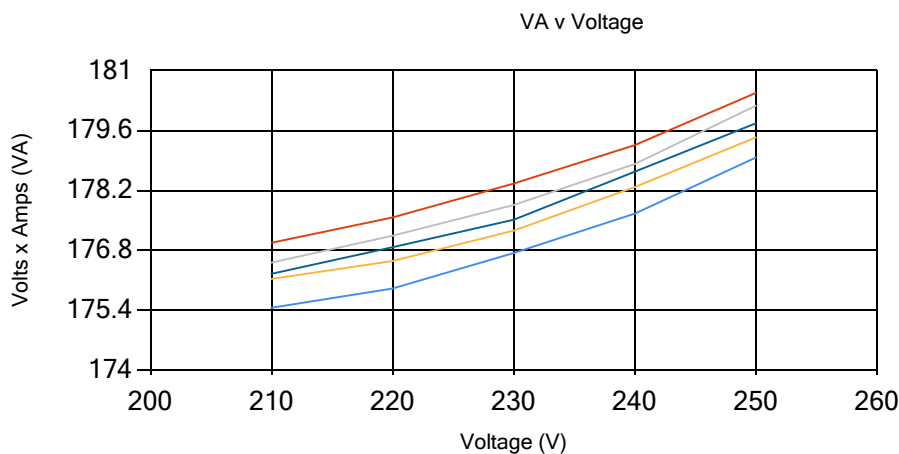
Drive (mA): 575

Output (%): 82



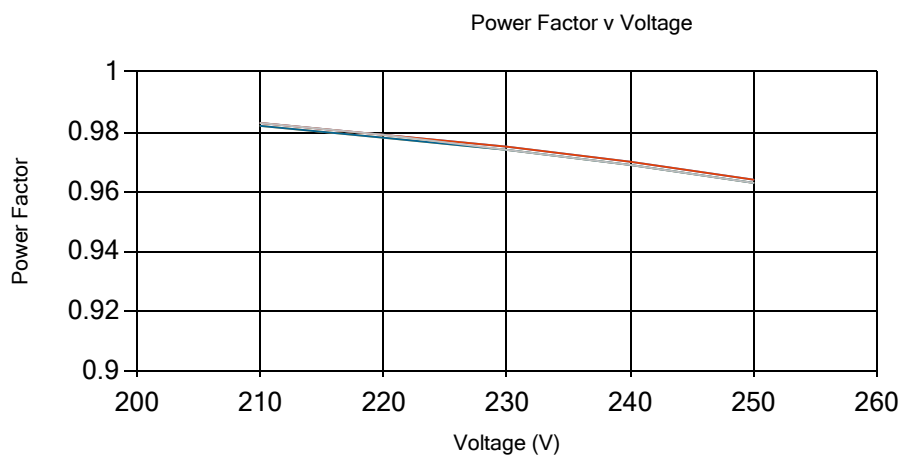
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E

REPORT : ASD-R-1465-A

TYPE : Dimming Output Range

Test Number: T1470
 Test Date: 05/09/2018
 Stabilization Time (mins): 41
 Output (%): 100
 Test Notes : A
 Test Start Temp (°C) : 20.58

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) : 21.62

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.02	878	212.42	219.62	0.967	Leading
B	250.07	877	212.03	219.30	0.967	Leading
C	250.07	877	212.21	219.33	0.968	Leading
D	250.06	877	212.29	219.32	0.968	Leading
E	250.08	878	212.49	219.53	0.968	Leading
A	240.00	909	212.06	218.10	0.972	Leading
B	240.03	907	211.61	217.77	0.972	Leading
C	240.05	907	211.80	217.78	0.973	Leading
D	240.03	908	212.00	217.92	0.973	Leading
E	240.05	908	211.98	217.99	0.972	Leading
A	230.00	943	211.80	216.87	0.977	Leading
B	230.03	941	211.37	216.52	0.976	Leading
C	230.04	941	211.53	216.50	0.977	Leading
D	230.02	941	211.50	216.46	0.977	Leading
E	230.05	942	211.64	216.66	0.977	Leading
A	220.00	981	211.62	215.82	0.981	Leading
B	220.02	980	211.25	215.56	0.980	Leading
C	220.04	980	211.43	215.60	0.981	Leading
D	220.03	980	211.46	215.55	0.981	Leading
E	220.05	980	211.57	215.67	0.981	Leading
A	209.98	1024	211.57	215.06	0.984	Leading
B	210.04	1023	211.24	214.74	0.983	Leading
C	210.03	1023	211.39	214.82	0.984	Leading
D	210.06	1023	211.54	214.88	0.984	Leading
E	210.03	1023	211.61	215.05	0.984	Leading

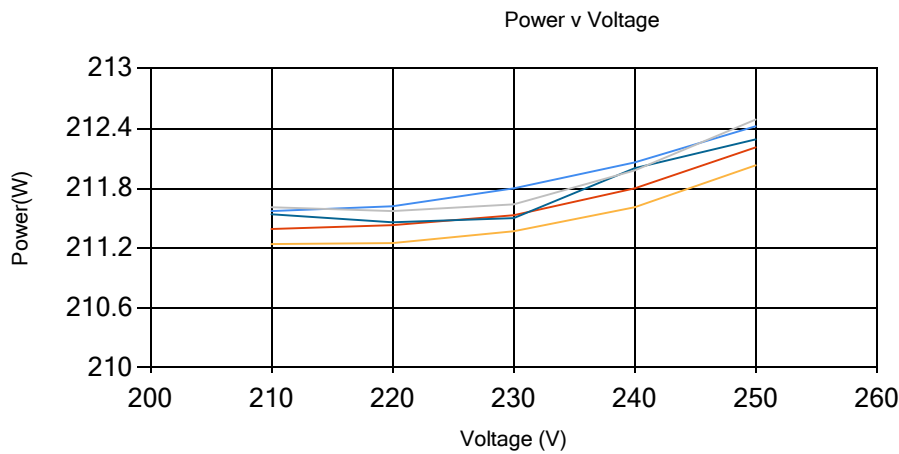
REPORT : ASD-R-1465-A

TYPE : Dimming Output Range

Test Number: T1470 Graphical Results Of Previous Page Tests.

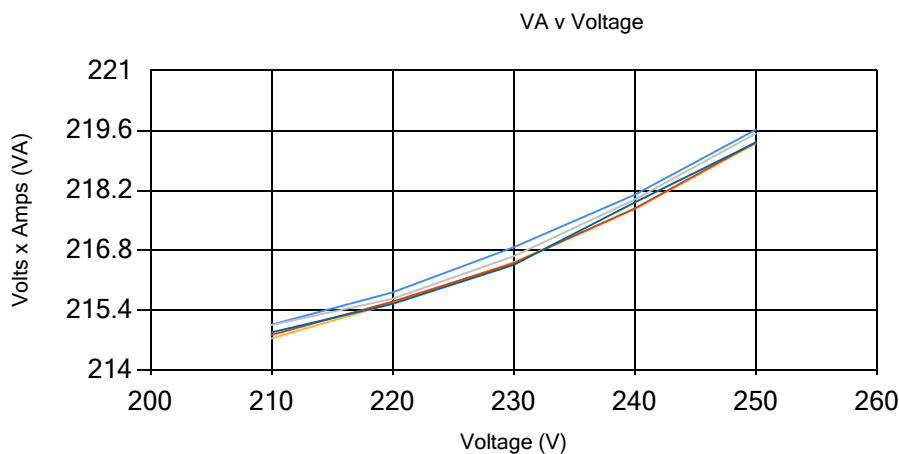
Drive (mA): 700

Output (%): 100



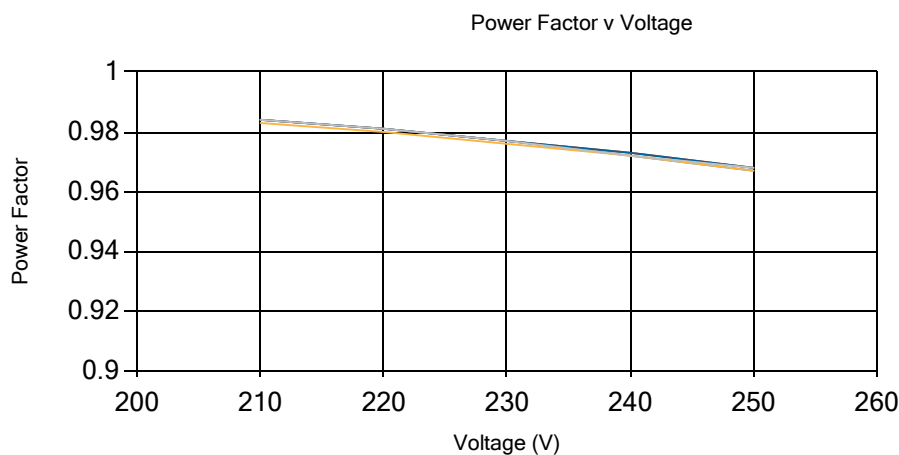
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
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REPORT : ASD-R-1465-A

TYPE : Dimming Output Range

Test Method.

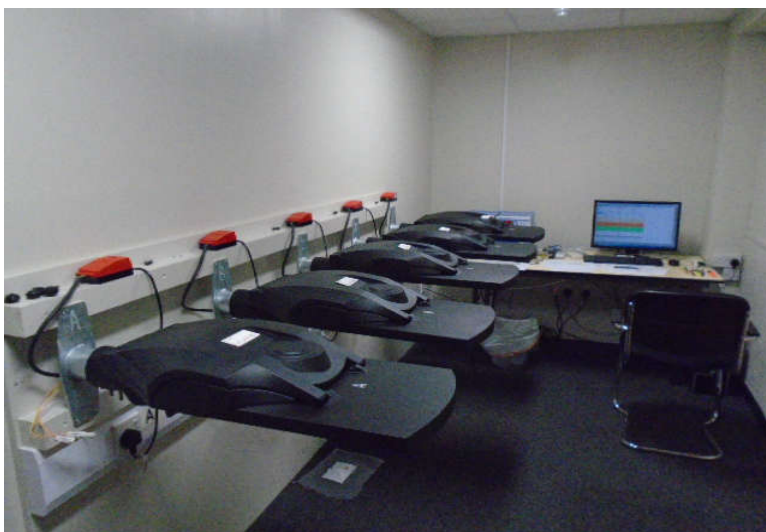
This UMSUG test was conducted in line with the requirements of the Unmetered Supplies Operational Information Document Version 17.0. Using a batch of 5 luminaires of identical product specification, Wattage and VA v Voltage readings were taken at 210, 220, 230, 240, and 250 Volt 50Hz.

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-1465-A
TYPE : Dimming Output Range

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

