

REPORT : ASD-R-1467-A

TYPE : Dimming Output Range

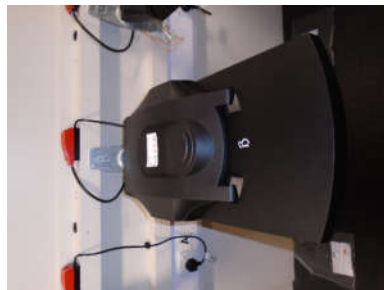
Project Number: 5139
Customer : ASD Lighting PLC
Product Type : Street Light
Project Instigator : D Butler
Project Start Date : 11/09/2018
Test Orientation : Installed Attitude
Project Notes : HWD6 Range Test 84 LED

Product Manufact. : ASD Lighting PLC
Product Descrip. : HWD6 84LED
Product Code : HWD6-#4K84xx
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 : 2444038
Test Item D : 2444030
Test Item E : 2444023



Item A



Item B



Item C



Item D



Item E

REPORT : ASD-R-1467-A

TYPE : Dimming Output Range

Test Number: T1484
 Test Date: 12/09/2018
 Stabilization Time (mins): 48
 Output (%): 29
 Test Notes : T5
 Test Start Temp (°C) : 19.51

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) : 19.35

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.04	238	52.71	59.56	0.885	Leading
B	250.06	237	52.52	59.30	0.886	Leading
C	250.07	238	52.60	59.58	0.883	Leading
D	249.97	238	52.53	59.40	0.884	Leading
E	250.01	237	52.51	59.28	0.886	Leading
A	240.05	243	52.53	58.37	0.900	Leading
B	240.07	242	52.35	58.14	0.900	Leading
C	240.06	243	52.36	58.35	0.898	Leading
D	240.02	243	52.37	58.27	0.899	Leading
E	240.09	242	52.34	58.07	0.901	Leading
A	230.02	249	52.35	57.31	0.914	Leading
B	230.07	249	52.25	57.18	0.914	Leading
C	230.07	249	52.18	57.26	0.911	Leading
D	229.96	249	52.23	57.24	0.913	Leading
E	230.08	248	52.26	57.13	0.915	Leading
A	220.03	256	52.24	56.36	0.927	Leading
B	220.02	255	52.02	56.12	0.927	Leading
C	220.07	256	52.09	56.35	0.925	Leading
D	220.01	256	52.13	56.32	0.926	Leading
E	220.02	255	52.06	56.14	0.927	Leading
A	210.01	265	52.12	55.55	0.938	Leading
B	210.03	264	51.98	55.38	0.939	Leading
C	210.04	264	51.98	55.50	0.937	Leading
D	210.09	264	51.97	55.47	0.937	Leading
E	210.01	263	51.93	55.32	0.939	Leading

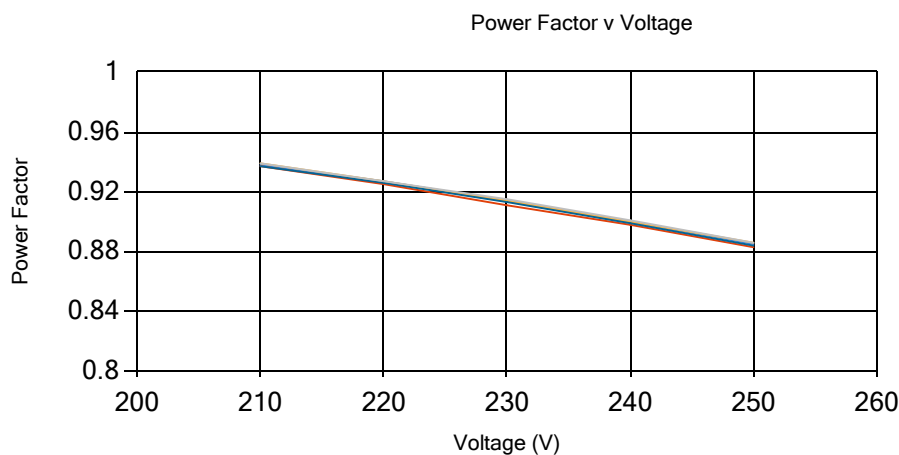
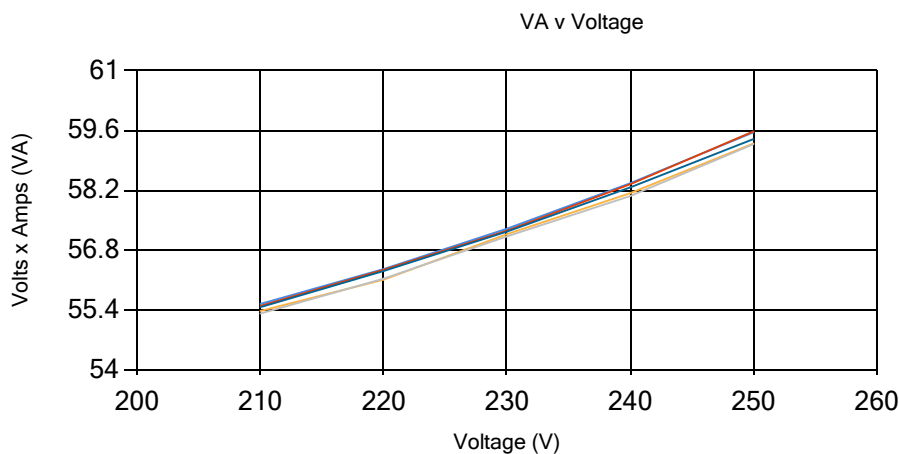
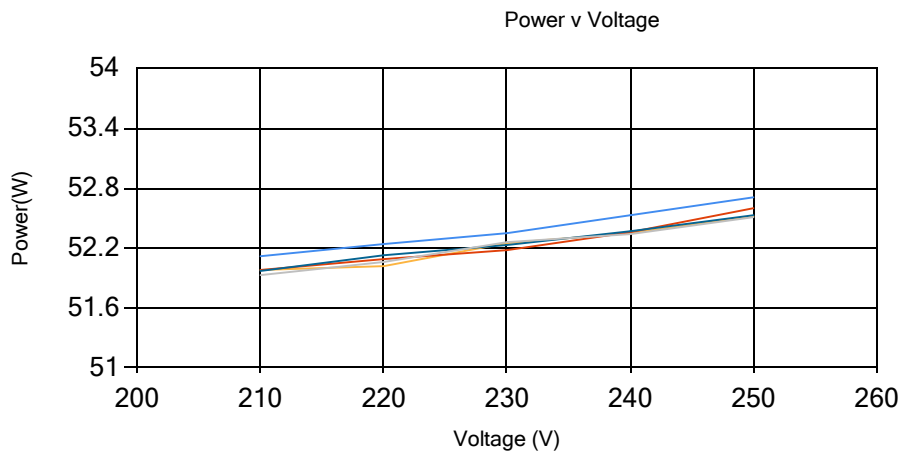
REPORT : ASD-R-1467-A

TYPE : Dimming Output Range

Test Number: T1484 Graphical Results Of Previous Page Tests.

Drive (mA): 200

Output (%): 29



REPORT : ASD-R-1467-A

TYPE : Dimming Output Range

Test Number: T1483 Nom. Drive Current (mA): 325
 Test Date: 11/09/2018 Test Type: Std
 Stabilization Time (mins): 31 Tested By: D Butler
 Output (%): 46 Frequency Start Test (Hz) : 50.00 Frequency End Test (Hz) : 50.00
 Test Notes : T4
 Test Start Temp (°C) : 20.09 Test End Temp (°C) : 20.90

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.00	349	82.46	87.24	0.945	Leading
B	250.03	348	82.27	86.92	0.946	Leading
C	250.07	349	82.30	87.16	0.944	Leading
D	250.05	349	82.45	87.24	0.945	Leading
E	250.01	348	82.43	87.09	0.947	Leading
A	240.04	360	82.46	86.51	0.953	Leading
B	240.04	359	82.16	86.08	0.955	Leading
C	240.03	360	82.25	86.40	0.952	Leading
D	240.05	360	82.40	86.40	0.954	Leading
E	240.07	359	82.27	86.18	0.955	Leading
A	230.01	373	82.34	85.70	0.961	Leading
B	230.03	371	82.08	85.39	0.961	Leading
C	230.05	373	82.22	85.72	0.959	Leading
D	229.98	373	82.31	85.72	0.960	Leading
E	230.00	372	82.28	85.60	0.961	Leading
A	220.03	388	82.47	85.32	0.967	Leading
B	220.05	386	82.16	84.92	0.968	Leading
C	220.07	387	82.21	85.19	0.966	Leading
D	220.05	387	82.40	85.26	0.967	Leading
E	220.00	387	82.39	85.15	0.968	Leading
A	210.02	404	82.50	84.84	0.972	Leading
B	210.04	402	82.16	84.48	0.973	Leading
C	210.05	403	82.24	84.64	0.972	Leading
D	210.04	404	82.39	84.76	0.972	Leading
E	210.05	403	82.37	84.64	0.973	Leading

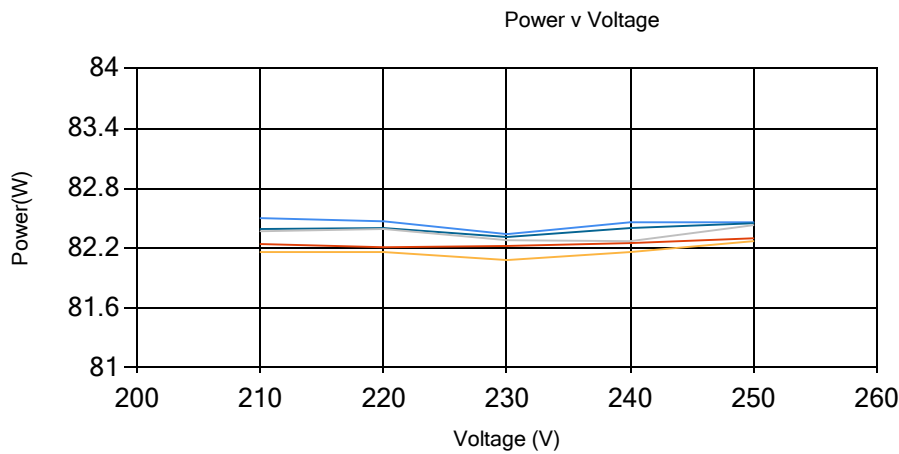
REPORT : ASD-R-1467-A

TYPE : Dimming Output Range

Test Number: T1483 Graphical Results Of Previous Page Tests.

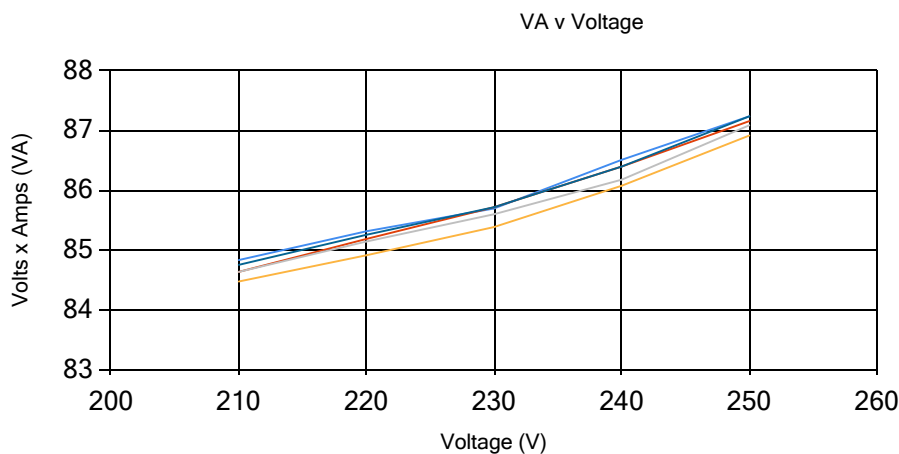
Drive (mA): 325

Output (%): 46



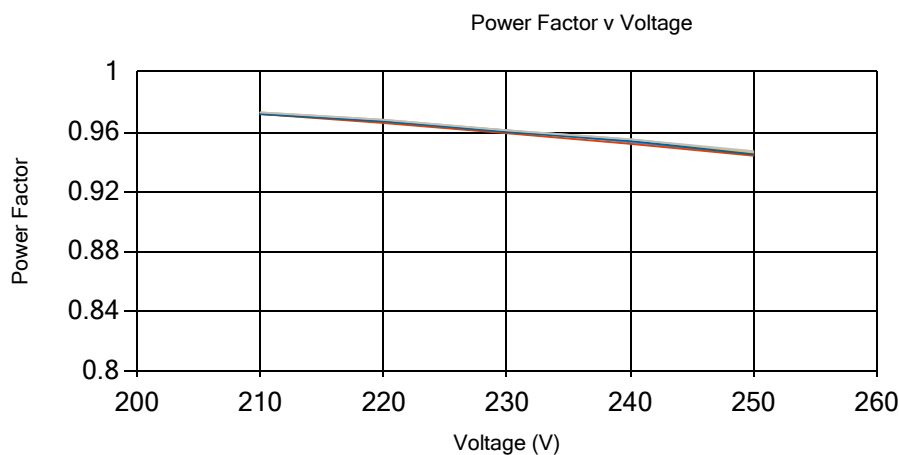
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E

REPORT : ASD-R-1467-A

TYPE : Dimming Output Range

Test Number: T1482
 Test Date: 11/09/2018
 Stabilization Time (mins): 34
 Output (%): 64
 Test Notes : T3
 Test Start Temp (°C) : 21.02

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) : 20.86

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.04	468	113.64	116.97	0.972	Leading
B	250.07	467	113.55	116.83	0.972	Leading
C	250.11	467	113.28	116.69	0.971	Leading
D	250.07	468	113.57	116.92	0.971	Leading
E	250.08	467	113.59	116.85	0.972	Leading
A	240.02	484	113.44	116.24	0.976	Leading
B	240.04	484	113.35	116.13	0.976	Leading
C	240.08	483	113.11	115.97	0.975	Leading
D	240.05	484	113.35	116.19	0.976	Leading
E	240.06	484	113.48	116.25	0.976	Leading
A	230.02	503	113.35	115.70	0.980	Leading
B	230.04	502	113.30	115.58	0.980	Leading
C	230.09	502	113.00	115.41	0.979	Leading
D	230.05	502	113.23	115.60	0.980	Leading
E	230.06	503	113.30	115.63	0.980	Leading
A	220.01	524	113.35	115.31	0.983	Leading
B	220.03	523	113.27	115.12	0.984	Leading
C	220.05	522	112.84	114.84	0.983	Leading
D	220.03	524	113.21	115.20	0.983	Leading
E	220.05	523	113.30	115.18	0.984	Leading
A	210.01	548	113.41	115.02	0.986	Leading
B	210.03	547	113.33	114.84	0.987	Leading
C	210.04	545	112.92	114.55	0.986	Leading
D	210.04	547	113.17	114.81	0.986	Leading
E	210.05	547	113.28	114.80	0.987	Leading

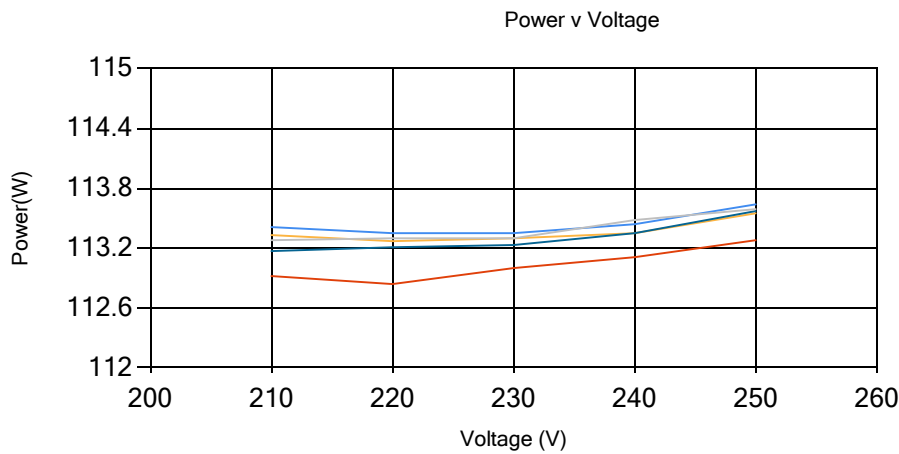
REPORT : ASD-R-1467-A

TYPE : Dimming Output Range

Test Number: T1482 Graphical Results Of Previous Page Tests.

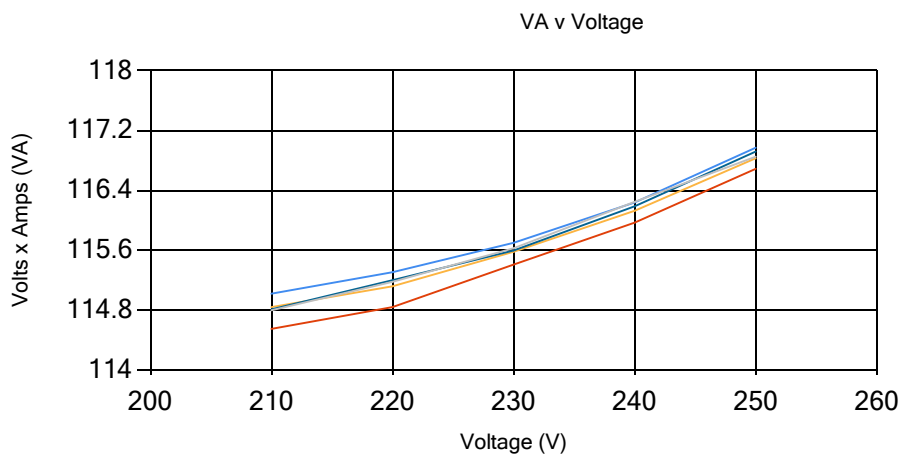
Drive (mA): 450

Output (%): 64



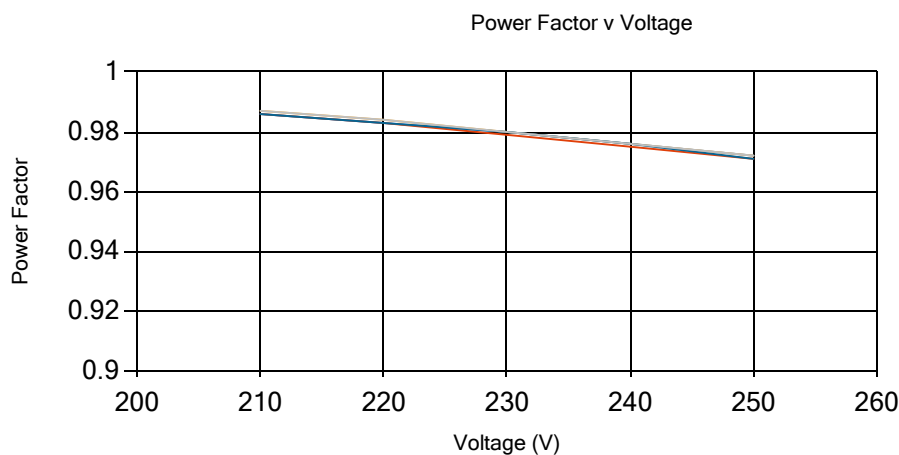
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E

REPORT : ASD-R-1467-A

TYPE : Dimming Output Range

Test Number: T1481
 Test Date: 11/09/2018
 Stabilization Time (mins): 31
 Output (%): 82
 Test Notes : T2
 Test Start Temp (°C) : 20.76

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) : 21.35

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.02	614	146.89	153.49	0.957	Leading
B	250.06	613	147.14	153.41	0.959	Leading
C	250.07	616	147.46	154.04	0.957	Leading
D	250.01	612	146.45	152.91	0.958	Leading
E	250.03	612	146.47	152.90	0.958	Leading
A	240.05	635	146.87	152.42	0.964	Leading
B	240.04	634	146.97	152.17	0.966	Leading
C	240.08	637	147.38	152.87	0.964	Leading
D	239.99	632	146.22	151.64	0.964	Leading
E	240.06	632	146.40	151.72	0.965	Leading
A	230.01	658	146.74	151.33	0.970	Leading
B	230.04	657	146.88	151.18	0.972	Leading
C	230.05	660	147.33	151.86	0.970	Leading
D	230.03	656	146.27	150.78	0.970	Leading
E	230.05	655	146.27	150.70	0.971	Leading
A	220.01	684	146.75	150.43	0.976	Leading
B	220.04	684	146.88	150.40	0.977	Leading
C	220.05	686	147.31	151.00	0.976	Leading
D	220.05	682	146.40	150.07	0.976	Leading
E	220.05	682	146.38	149.97	0.976	Leading
A	210.00	713	146.85	149.78	0.980	Leading
B	210.05	714	147.04	149.86	0.981	Leading
C	210.04	716	147.50	150.48	0.980	Leading
D	210.03	712	146.54	149.53	0.980	Leading
E	210.03	711	146.47	149.41	0.980	Leading

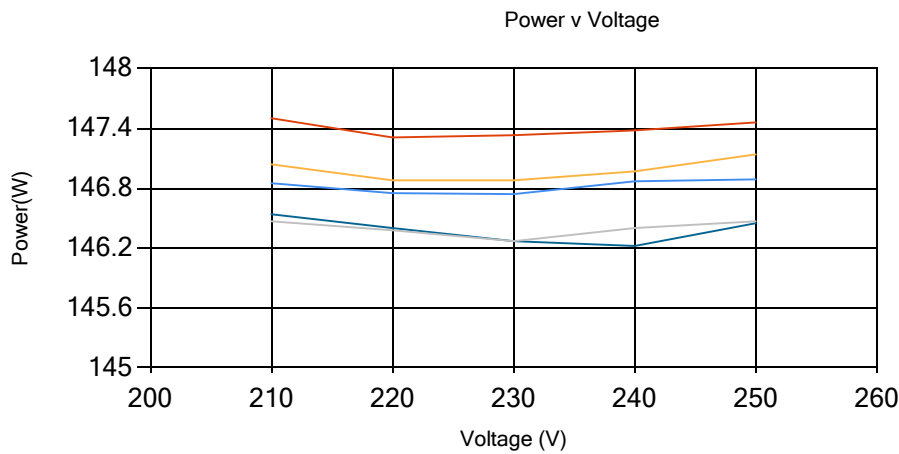
REPORT : ASD-R-1467-A

TYPE : Dimming Output Range

Test Number: T1481 Graphical Results Of Previous Page Tests.

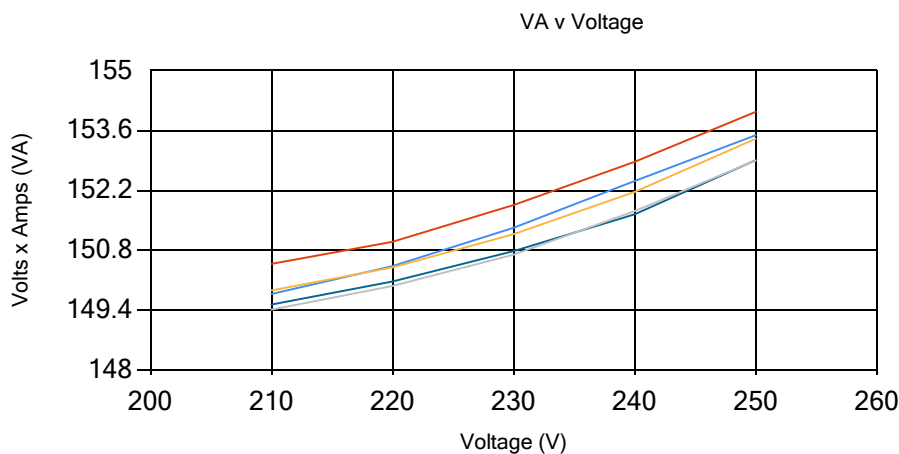
Drive (mA): 575

Output (%): 82



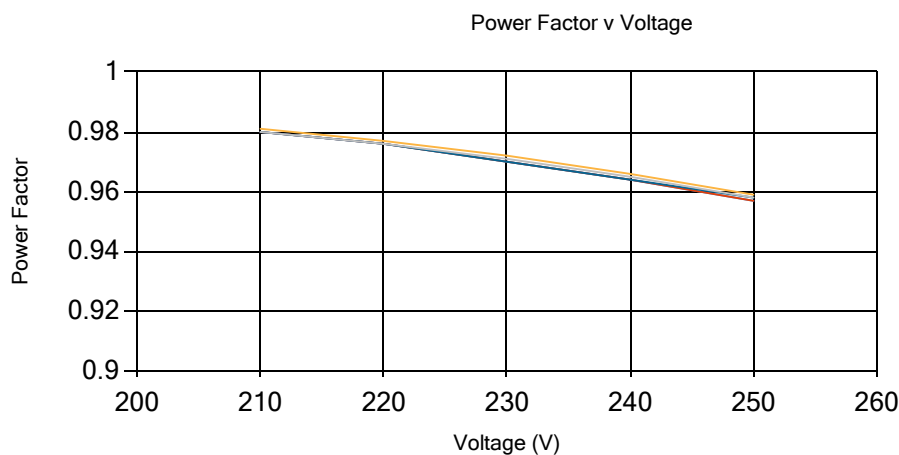
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E

REPORT : ASD-R-1467-A

TYPE : Dimming Output Range

Test Number: T1480
 Test Date: 11/09/2018
 Stabilization Time (mins): 48
 Output (%): 100
 Test Notes : T1
 Test Start Temp (°C) : 18.97

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) : 21.13

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.03	739	178.29	184.74	0.965	Leading
B	250.08	737	178.13	184.22	0.967	Leading
C	250.06	742	179.12	185.51	0.966	Leading
D	250.05	738	178.15	184.41	0.966	Leading
E	250.07	736	177.61	183.95	0.966	Leading
A	240.04	765	178.16	183.62	0.970	Leading
B	240.08	763	178.01	183.11	0.972	Leading
C	240.09	768	178.91	184.34	0.971	Leading
D	240.06	763	177.87	183.16	0.971	Leading
E	240.07	761	177.35	182.62	0.971	Leading
A	230.05	794	178.14	182.58	0.976	Leading
B	230.04	792	177.91	182.22	0.976	Leading
C	230.05	797	178.88	183.34	0.976	Leading
D	230.10	792	177.85	182.29	0.976	Leading
E	230.12	791	177.48	181.95	0.976	Leading
A	220.01	826	178.07	181.73	0.980	Leading
B	220.03	824	177.84	181.39	0.980	Leading
C	220.04	830	178.85	182.57	0.980	Leading
D	220.03	825	177.89	181.54	0.980	Leading
E	220.06	823	177.43	181.11	0.980	Leading
A	210.00	863	178.26	181.26	0.983	Leading
B	210.02	862	178.03	180.97	0.984	Leading
C	210.04	867	179.01	182.07	0.983	Leading
D	210.05	863	178.14	181.16	0.983	Leading
E	210.07	860	177.54	180.56	0.983	Leading

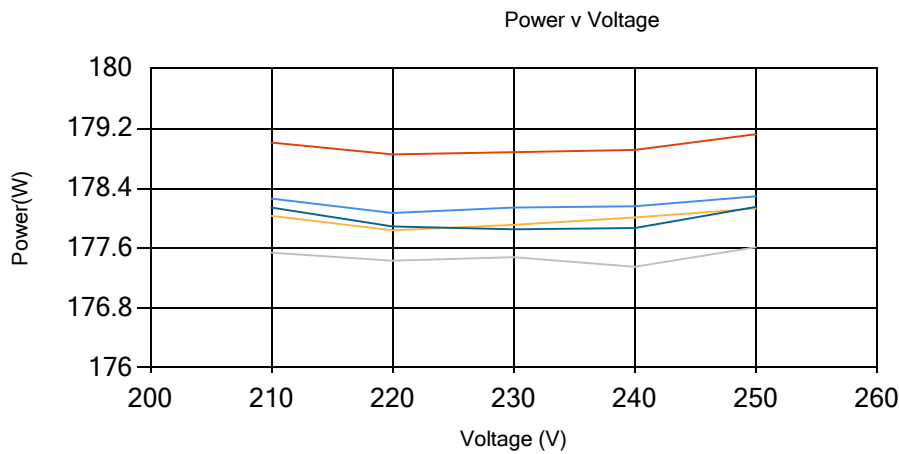
REPORT : ASD-R-1467-A

TYPE : Dimming Output Range

Test Number: T1480 Graphical Results Of Previous Page Tests.

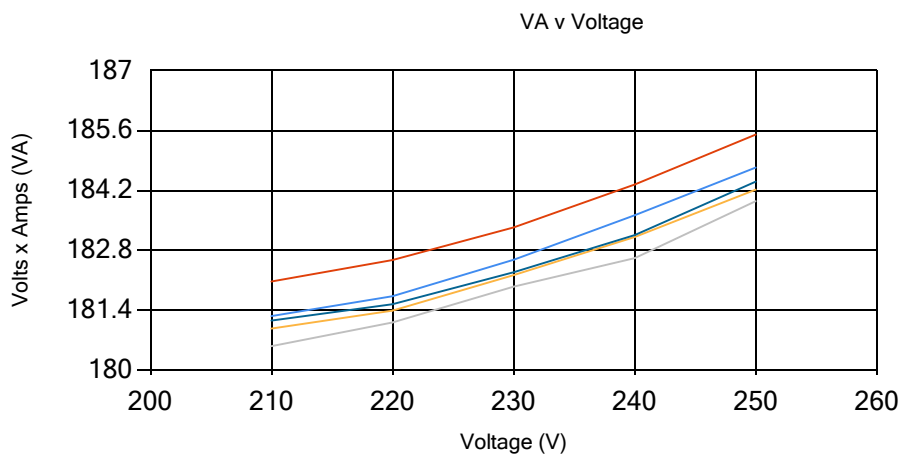
Drive (mA): 700

Output (%): 100



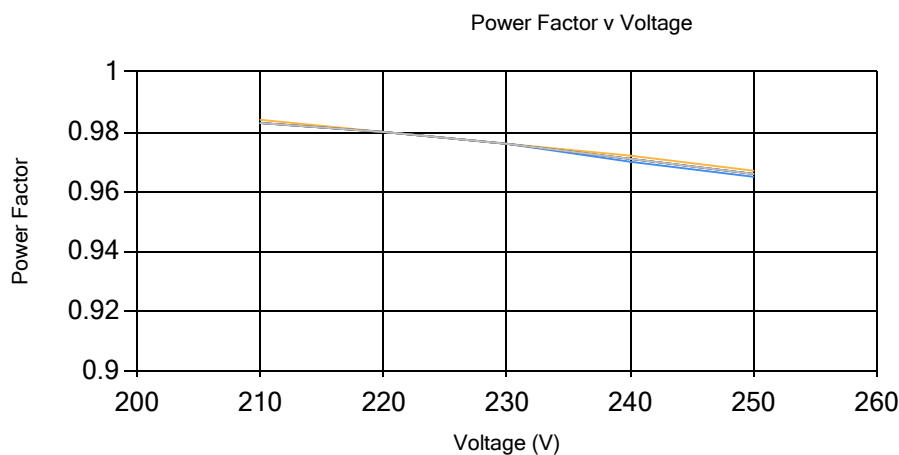
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E

REPORT : ASD-R-1467-A

TYPE : Dimming Output Range

Test Method.

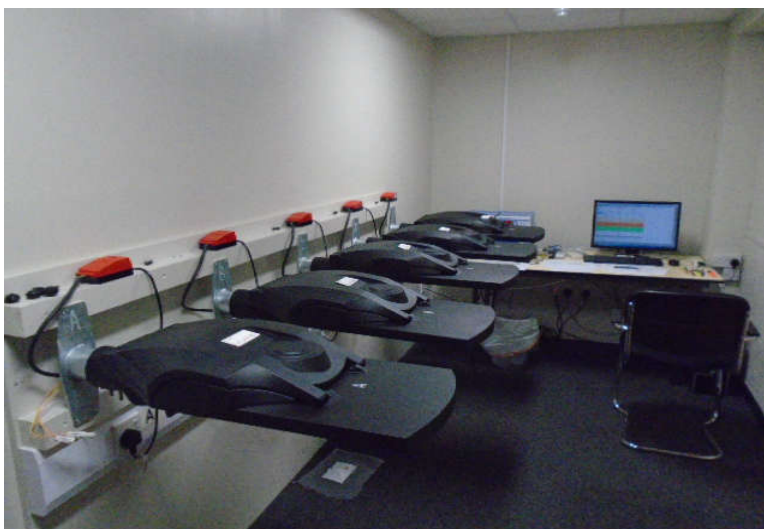
This UMSUG test was conducted in line with the requirements of the Unmetered Supplies Operational Information Document Version 17.0. Using a batch of 5 luminaires of identical product specification, Wattage and VA v Voltage readings were taken at 210, 220, 230, 240, and 250 Volt 50Hz.

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-1467-A
TYPE : Dimming Output Range

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

