

REPORT : ASD-R-1476-A

TYPE : Dimming Output Range

Project Number: 5145
Customer : ASD Lighting PLC
Product Type : Street Light
Project Instigator : SB-DM
Project Start Date : 03/10/2018
Test Orientation : Installed Attitude
Project Notes : HWD8 136 RANGE TEST

Product Manufact. : ASD Lighting PLC
Product Descrip. : HWD8 136 LED
Product Code : HWD8/#4K136xx
Product Ref. : N.A.
Driver Type : OSRAM 4 Dim
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-1476-A

TYPE : Dimming Output Range

Test Number: T1522
 Test Date: 04/10/2018
 Stabilization Time (mins): 31
 Output (%): 29
 Test Notes : T5
 Test Start Temp (°C) : 21.30

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) : 20.78

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.07	406	86.04	101.62	0.847	Leading
B	250.07	405	85.64	101.32	0.845	Leading
C	250.12	406	85.90	101.61	0.845	Leading
D	250.07	406	86.07	101.45	0.849	Leading
E	250.05	406	85.98	101.47	0.847	Leading
A	240.07	413	85.87	99.17	0.866	Leading
B	240.07	412	85.46	98.88	0.864	Leading
C	240.07	413	85.65	99.12	0.864	Leading
D	240.01	413	85.86	99.03	0.867	Leading
E	240.03	413	85.87	99.05	0.867	Leading
A	230.04	422	85.62	97.01	0.883	Leading
B	230.06	420	85.28	96.64	0.882	Leading
C	230.07	422	85.49	96.97	0.882	Leading
D	230.03	421	85.74	96.87	0.885	Leading
E	230.04	422	85.75	96.97	0.884	Leading
A	220.05	432	85.47	94.99	0.900	Leading
B	220.05	431	85.19	94.72	0.899	Leading
C	220.08	431	85.35	94.90	0.899	Leading
D	219.98	431	85.53	94.85	0.902	Leading
E	220.00	431	85.55	94.90	0.902	Leading
A	210.02	444	85.35	93.22	0.916	Leading
B	210.08	443	85.06	92.96	0.915	Leading
C	210.05	444	85.31	93.24	0.915	Leading
D	209.97	443	85.37	93.06	0.918	Leading
E	210.02	444	85.46	93.23	0.917	Leading

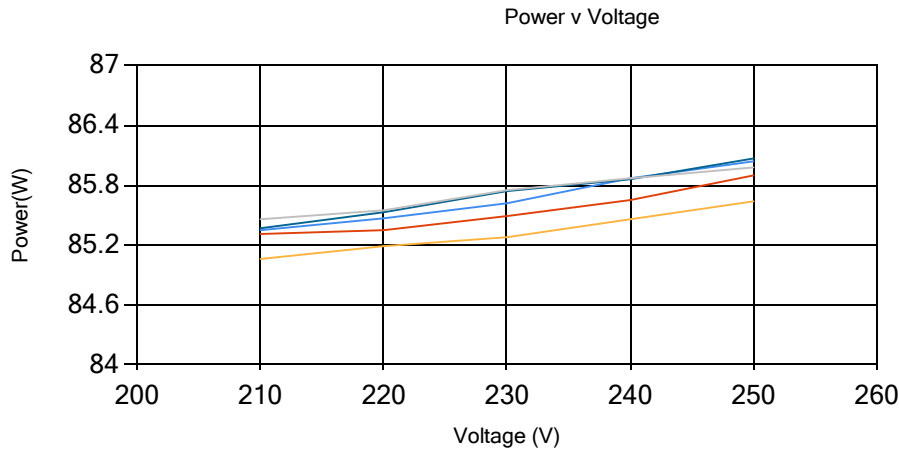
REPORT : ASD-R-1476-A

TYPE : Dimming Output Range

Test Number: T1522 Graphical Results Of Previous Page Tests.

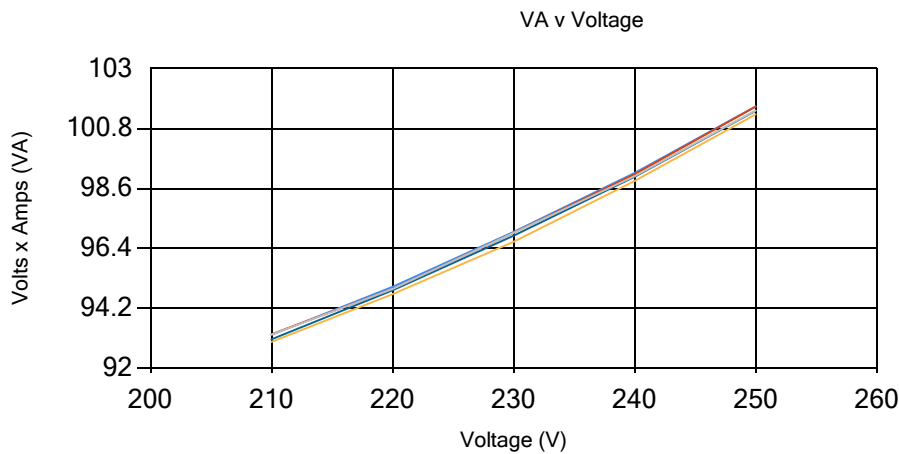
Drive (mA): 200

Output (%): 29



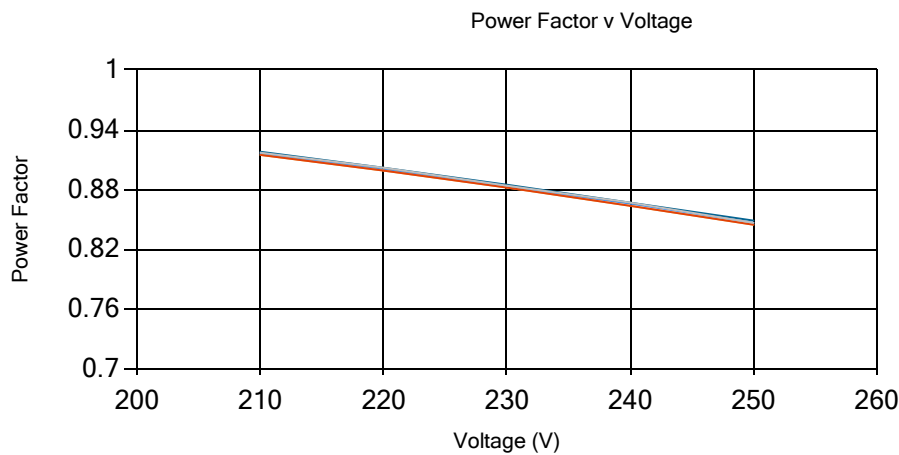
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E

REPORT : ASD-R-1476-A

TYPE : Dimming Output Range

Test Number: T1521
 Test Date: 04/10/2018
 Stabilization Time (mins): 31
 Output (%): 46
 Test Notes : T4
 Test Start Temp (°C) : 21.52

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) : 21.65

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.05	580	134.00	145.05	0.924	Leading
B	250.07	580	133.99	145.05	0.924	Leading
C	250.07	580	133.80	145.00	0.923	Leading
D	250.07	580	134.10	145.06	0.925	Leading
E	250.09	582	134.51	145.47	0.925	Leading
A	240.05	597	133.90	143.26	0.935	Leading
B	240.07	597	133.90	143.30	0.934	Leading
C	240.08	597	133.72	143.25	0.934	Leading
D	240.11	597	134.14	143.41	0.935	Leading
E	240.08	598	134.36	143.63	0.936	Leading
A	230.04	616	133.83	141.72	0.944	Leading
B	230.05	616	133.82	141.77	0.944	Leading
C	230.09	616	133.74	141.72	0.944	Leading
D	230.07	616	133.84	141.70	0.945	Leading
E	230.14	618	134.42	142.15	0.946	Leading
A	220.06	638	133.81	140.42	0.953	Leading
B	220.04	638	133.78	140.42	0.953	Leading
C	220.09	637	133.60	140.25	0.953	Leading
D	220.06	638	133.89	140.45	0.953	Leading
E	220.07	639	134.19	140.81	0.954	Leading
A	210.03	663	133.84	139.30	0.961	Leading
B	210.04	663	133.80	139.31	0.960	Leading
C	210.05	662	133.63	139.13	0.961	Leading
D	210.04	664	133.95	139.33	0.961	Leading
E	210.05	665	134.25	139.61	0.962	Leading

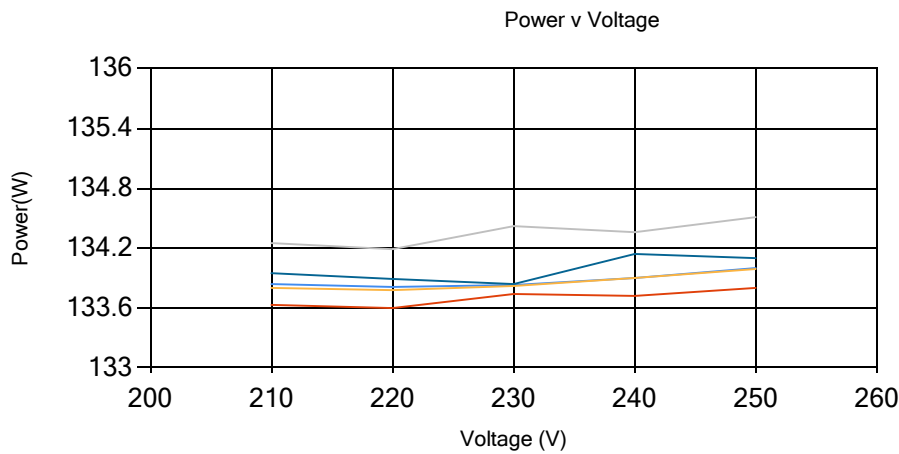
REPORT : ASD-R-1476-A

TYPE : Dimming Output Range

Test Number: T1521 Graphical Results Of Previous Page Tests.

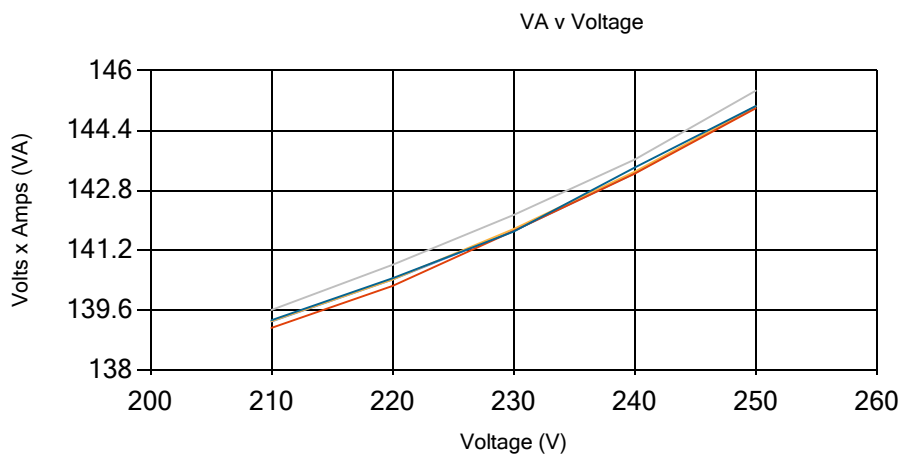
Drive (mA): 325

Output (%): 46



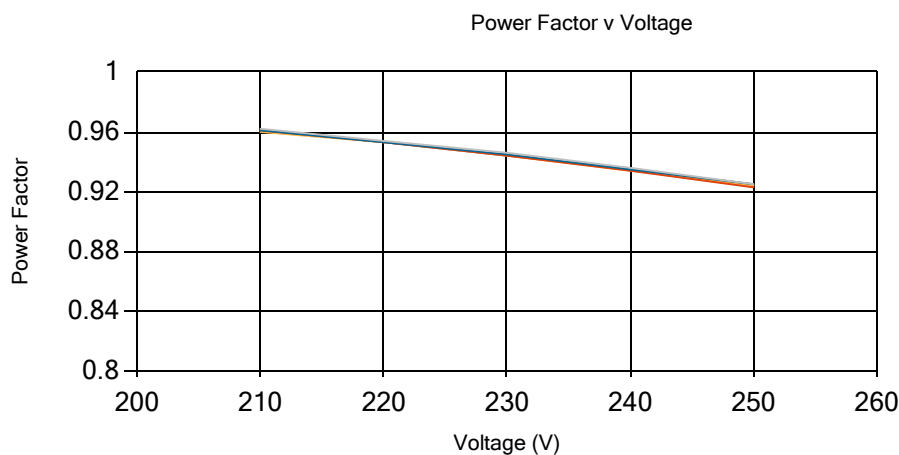
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
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- C
- D
- E

REPORT : ASD-R-1476-A

TYPE : Dimming Output Range

Test Number: T1520
 Test Date: 04/10/2018
 Stabilization Time (mins): 31
 Output (%): 64
 Test Notes : T3
 Test Start Temp (°C) : 20.96

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) : 22.32

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.07	766	183.17	191.48	0.957	Leading
B	250.09	766	183.28	191.63	0.957	Leading
C	250.10	766	183.24	191.57	0.957	Leading
D	250.07	768	183.69	191.93	0.957	Leading
E	250.02	768	183.80	191.97	0.957	Leading
A	240.04	792	183.19	190.16	0.963	Leading
B	240.06	793	183.27	190.27	0.963	Leading
C	240.04	792	183.09	190.19	0.963	Leading
D	240.06	794	183.56	190.52	0.964	Leading
E	240.07	794	183.66	190.60	0.964	Leading
A	230.03	822	183.19	189.07	0.969	Leading
B	230.05	822	183.25	189.14	0.969	Leading
C	230.06	822	183.13	189.06	0.969	Leading
D	230.05	824	183.60	189.45	0.969	Leading
E	230.08	824	183.70	189.50	0.969	Leading
A	220.03	855	183.17	188.04	0.974	Leading
B	220.05	855	183.32	188.23	0.974	Leading
C	220.06	855	183.19	188.14	0.974	Leading
D	220.05	857	183.69	188.59	0.974	Leading
E	220.07	857	183.86	188.65	0.975	Leading
A	210.01	892	183.21	187.22	0.979	Leading
B	210.03	892	183.38	187.41	0.979	Leading
C	210.03	892	183.26	187.33	0.978	Leading
D	210.02	894	183.70	187.71	0.979	Leading
E	210.06	895	183.99	187.91	0.979	Leading

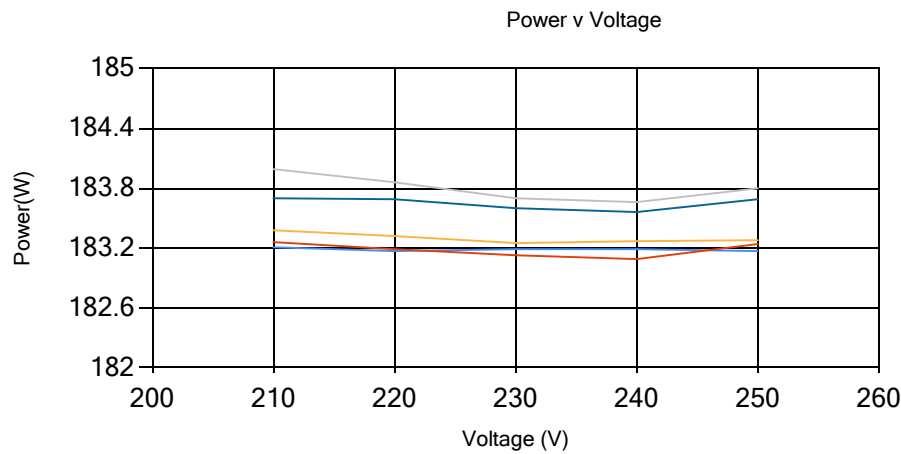
REPORT : ASD-R-1476-A

TYPE : Dimming Output Range

Test Number: T1520 Graphical Results Of Previous Page Tests.

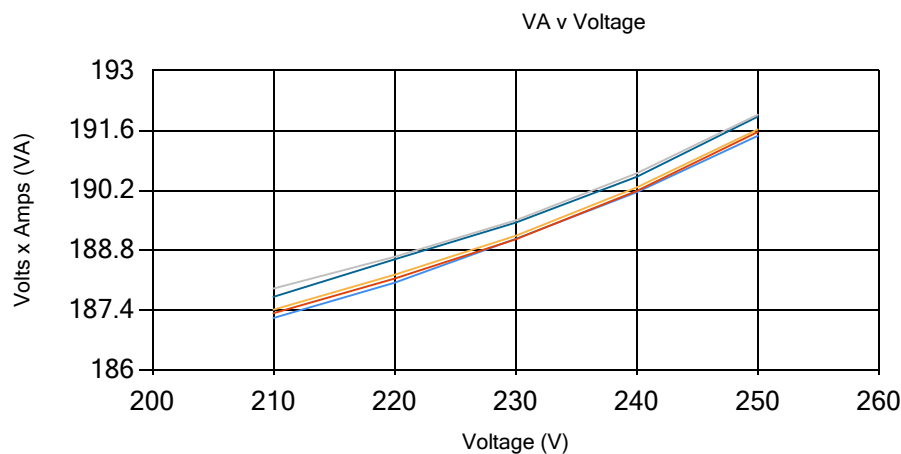
Drive (mA): 450

Output (%): 64



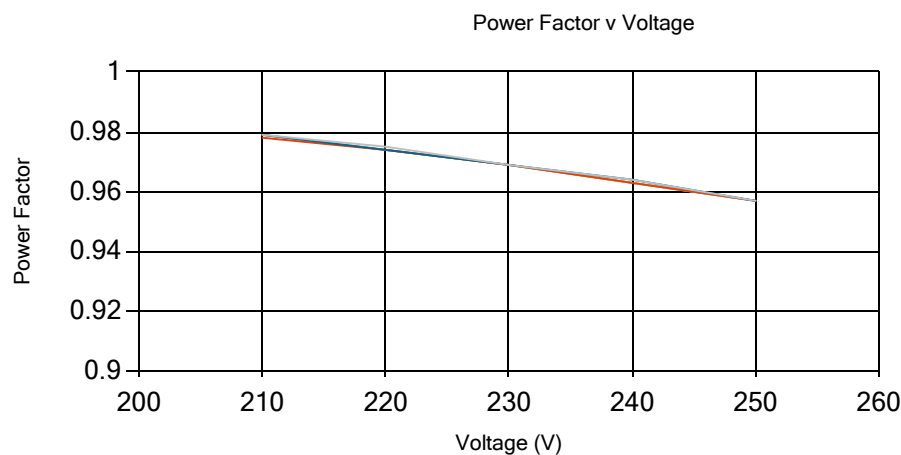
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
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- C
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REPORT : ASD-R-1476-A

TYPE : Dimming Output Range

Test Number: T1519
 Test Date: 04/10/2018
 Stabilization Time (mins): 40
 Output (%): 82
 Test Notes : T2
 Test Start Temp (°C) : 18.78

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) : 20.82

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.05	964	234.80	241.11	0.974	Leading
B	250.07	965	235.13	241.41	0.974	Leading
C	250.11	963	234.52	240.93	0.973	Leading
D	250.08	966	235.32	241.59	0.974	Leading
E	250.10	966	235.34	241.53	0.974	Leading
A	240.06	999	234.42	239.74	0.978	Leading
B	240.08	1000	234.76	240.04	0.978	Leading
C	240.10	998	234.13	239.53	0.978	Leading
D	240.06	1000	234.76	240.11	0.978	Leading
E	240.08	1001	234.94	240.21	0.978	Leading
A	230.05	1037	234.16	238.60	0.981	Leading
B	230.04	1038	234.47	238.87	0.982	Leading
C	230.06	1036	233.92	238.42	0.981	Leading
D	230.10	1039	234.62	238.97	0.982	Leading
E	230.12	1039	234.71	239.09	0.982	Leading
A	220.03	1080	233.99	237.67	0.985	Leading
B	220.06	1082	234.42	238.05	0.985	Leading
C	220.06	1079	233.72	237.39	0.985	Leading
D	220.10	1082	234.46	237.88	0.985	Leading
E	220.07	1082	234.39	238.01	0.985	Leading
A	210.01	1129	233.97	236.99	0.987	Leading
B	210.03	1130	234.41	237.41	0.987	Leading
C	210.06	1127	233.77	236.76	0.987	Leading
D	210.04	1130	234.33	237.26	0.988	Leading
E	210.10	1131	234.66	237.58	0.988	Leading

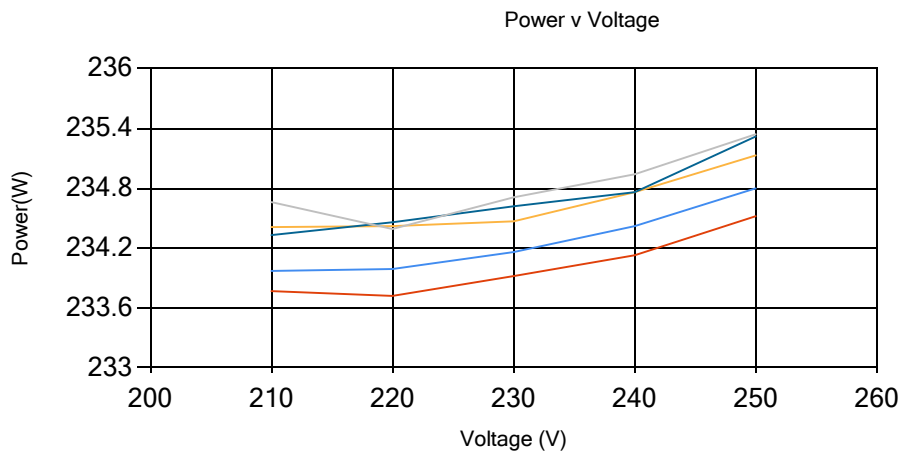
REPORT : ASD-R-1476-A

TYPE : Dimming Output Range

Test Number: T1519 Graphical Results Of Previous Page Tests.

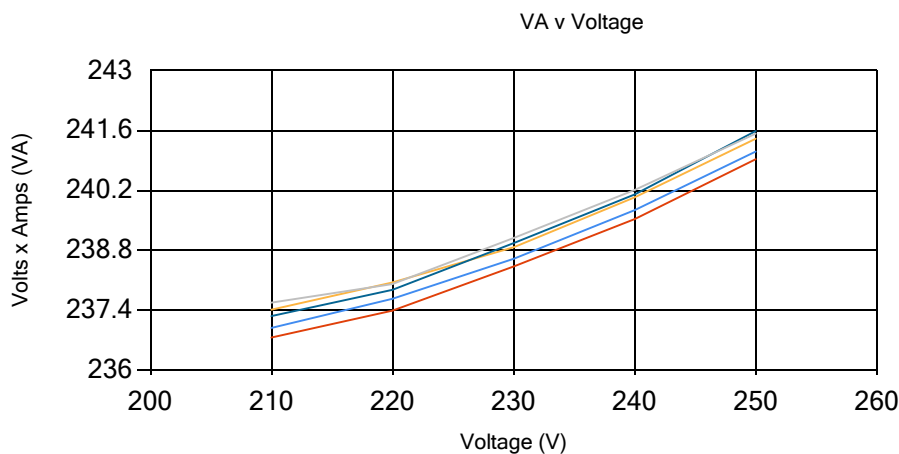
Drive (mA): 575

Output (%): 82



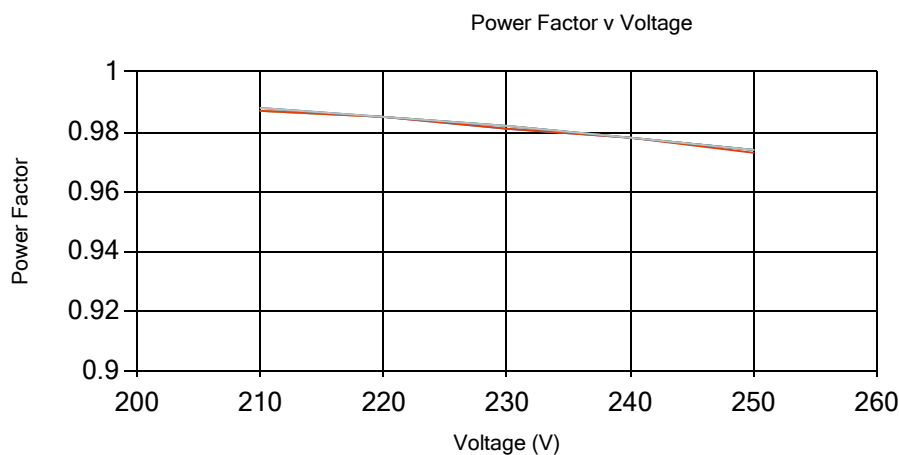
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E

REPORT : ASD-R-1476-A

TYPE : Dimming Output Range

Test Number: T1518
 Test Date: 03/10/2018
 Stabilization Time (mins): 35
 Output (%): 100
 Test Notes : T1
 Test Start Temp (°C) : 20.85

Nom. Drive Current (mA): 700
 Test Type: Std
 Tested By: SB-DM
 Frequency Start Test (Hz) : 50.00
 Frequency End Test (Hz) : 50.00
 Test End Temp (°C) : 22.65

ITEM	Voltage (V)	Current (mA)	Power (W)	VA	PF	Lead/Lag
A	250.03	1164	286.04	291.01	0.983	Leading
B	250.05	1163	285.87	290.82	0.983	Leading
C	250.06	1161	285.35	290.34	0.983	Leading
D	250.07	1166	286.65	291.47	0.983	Leading
E	250.08	1166	286.73	291.57	0.983	Leading
A	240.02	1208	285.82	289.93	0.986	Leading
B	240.04	1207	285.65	289.78	0.986	Leading
C	240.05	1205	285.07	289.18	0.986	Leading
D	240.00	1209	286.09	290.09	0.986	Leading
E	240.08	1210	286.48	290.47	0.986	Leading
A	230.02	1257	285.74	289.09	0.988	Leading
B	230.03	1256	285.59	288.96	0.988	Leading
C	230.04	1254	285.04	288.42	0.988	Leading
D	230.09	1258	286.12	289.44	0.989	Leading
E	230.11	1260	286.52	289.81	0.989	Leading
A	220.01	1311	285.71	288.42	0.991	Leading
B	220.03	1311	285.70	288.44	0.991	Leading
C	220.03	1309	285.21	288.03	0.990	Leading
D	220.05	1313	286.19	288.99	0.991	Leading
E	220.05	1314	286.51	289.19	0.991	Leading
A	210.00	1373	286.04	288.24	0.992	Leading
B	210.01	1372	285.88	288.08	0.992	Leading
C	210.02	1369	285.32	287.57	0.992	Leading
D	210.05	1375	286.53	288.75	0.992	Leading
E	210.09	1376	286.91	289.08	0.993	Leading

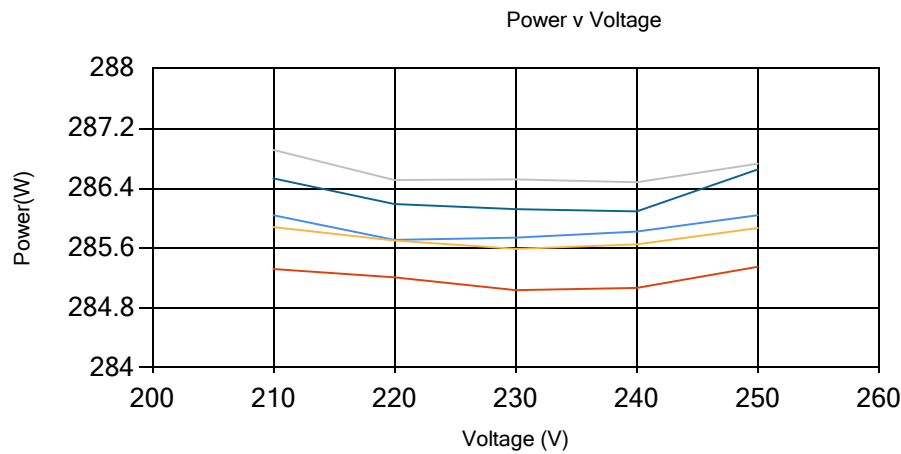
REPORT : ASD-R-1476-A

TYPE : Dimming Output Range

Test Number: T1518 Graphical Results Of Previous Page Tests.

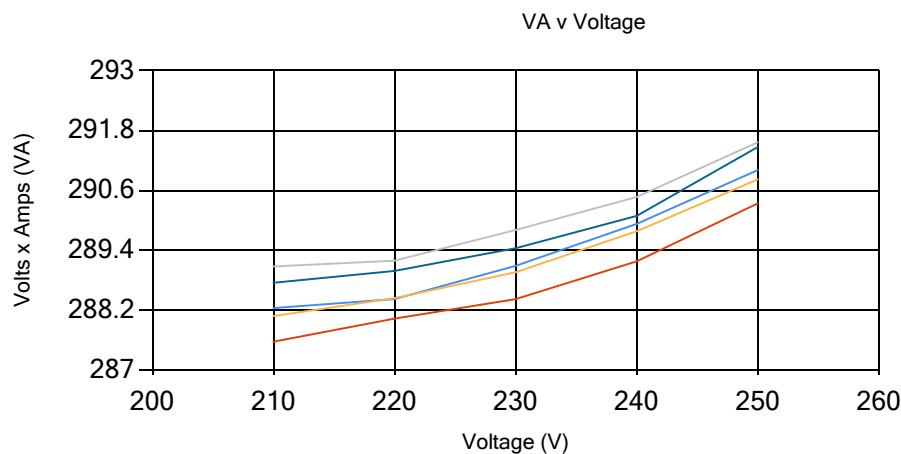
Drive (mA): 700

Output (%): 100



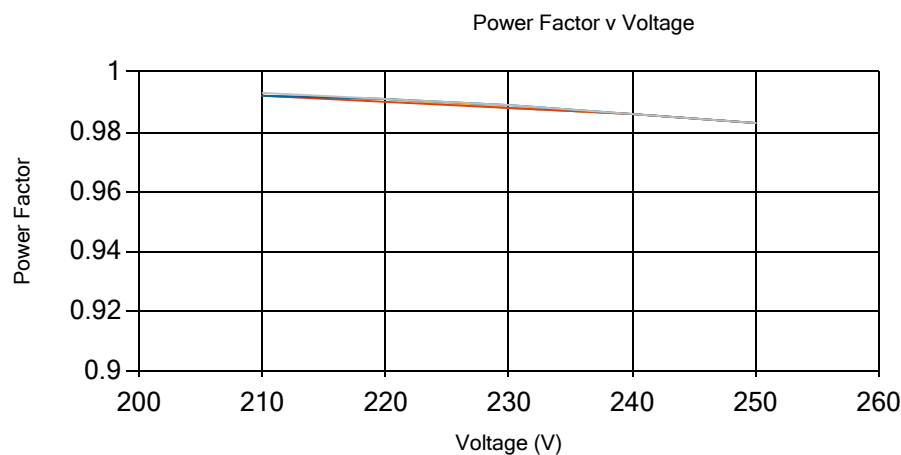
Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
- B
- C
- D
- E



Fitting Designation

- A
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REPORT : ASD-R-1476-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-1476-A
TYPE : Dimming Output Range

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

