Dimming Compatibility Matrix with 120 Vac TRIAC and ELV Dimmers

EBR015E-0440-36		Total Score:	93.8%	Driver Current (mA) with no Dimmer:		443	Driver Light (FC) with no Dimmer:		1135	Scoring				
		Average Min. Dimming:	17.8%							0 - Needs improvement				
										1 - Unlikely to be noticed				
										2 - No issues				
Dimmer List		Indiv. Score	Light Output (Foot Candle)		Current (mA)		Dimming Range[1]		Smooth Dimming[2]	Sag[3]	No Start Flash[4]	Flicker[5]	Shimmer[6]	Able to turn off[7]	Audible Noise[8]
Mfg.	Model	%	Max	Min	Max	Min	Max	Min		%					
									5		5	10	10	10	10
CLIPSAL	32E450LM	91.7%	1130	236	440	78	100%	21%	2	1.0%	2	2	2	2	2
CLIPSAL	32E450UDM	91.7%	1133	182	443	58	100%	16%	2	0.0%	2	2	2	2	2
CLIPSAL	32E450TM	91.7%	1132	300	443	98	100%	27%	2	0.0%	2	2	2	2	2
SIEMENS	5TG02001CC1	100.0%	1135	85	443	28	100%	7%	2	0.0%	2	2	2	2	2

NOTES:

1. If light is measured, then the dimming range is based on light output. If light is not measured, then the dimming range is based on the percentage of output current.
2. While adjusting the dimming level, a smooth dimming, with no sudden jumps in light output, results in a score of 2. A small jump that is only noticeable if directly staring at the light results in a score of 1.
   A large obvious jump results in a score of 0.
3. Percentage away from 100% output current when dimmer is inserted in the circuit, at the dimmer's maximum conduction angle.
4. No flash at startup (at maximum conduction angle) results in a score of 2. A smooth, but still noticeable transition from overshoot results in a score of 1. A transition with overshoot and undershoot results in a score of 0.
5. Highly visible repeating light fluctuations. No flicker results in a score of 2. Flicker results in a score of 0. There is no "1" score.
   Flicker is measured using a stable AC source delivered by a power supply. AC line voltage instability will cause visible light fluctuations.
6. Low frequency or random variations in light output that are typically less noticeable than flicker (the light output does not turn off at any point).
   No shimmer, perfect light output, results in a score of 2. Only noticeable shimmer, if staring directly at the LEDs, results in a score of 1. Obvious shimmer, even if looking away from the LEDs, results in a score of 0.
   Like Flicker, Shimmer is measured using a stable AC source delivered by a power supply. AC line voltage instability will cause visible light fluctuations.
7. No light output when dimmer switch or button is turned off.
8. Audible noise with driver located at 3 feet and measured at 90 degree conduction angle (worst case). A strongly apparent noise resuts in a score of 0.
   A score of 1 is assigned if the noise is not very obvious, and most likely to not be noticed inside of a fixture.
9. All the dimmers are set to the widest dimming range, when the trim potentiometer is available. Testing is done with 1 dimmer per LED driver.