

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460



**OFFICE OF  
AIR AND RADIATION**

July 1, 2008

Mr. Brandon Yuan  
Espen Technology  
7621 Somerset Blvd.  
Paramount, CA 90723

Dear Mr. Yuan:

EPA has reviewed the Testing Documentation for the following lamp/ballast combination, and determined that it meets the Version 4.0 Residential Light Fixture (RLF) specifications indicated below. This Letter of Approval may be provided to other manufacturers interested in qualifying a fixture with the same lamp/ballast combination for ENERGY STAR. Those manufacturers may, in turn, submit a copy of this Letter in lieu of lab testing reports for the given performance characteristics. Please note that this Letter of Approval only covers the performance requirements in the table below.

Components: Ballast(s) Manufacturer Espen Model # VEC54120MR-X  
Lamp(s) Manufacturer Espen Model # FC8T9/841 & FC12T9/841

# of Lamps: <u>2</u>	Indiv. Listed Lamp Wattage: <u>22 &amp; 32</u>	Lamp Type: <u>CR</u>	Lamp Size: <u>T9</u>	Ballast Type: <u>Electronic</u>
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Performance Characteristic	Test Result		Meets ENERGY STAR Specification? (Yes/No)
<b>Combined Lamp &amp; Ballast Requirements:</b>			
System Efficacy	<u>3936</u>	Total Lumen Output	Yes
	<u>53.08</u>	Input Power (watts)	Yes
	<u>74.15</u>	Lumens Per Watt	Yes
<b>Lamp Requirements:</b>			
Lamp Life	<u>10000</u>	Average Rated Hours	Yes
Lumen Maintenance	<u>85.5 &amp; 86.5</u>	% of initial lumens at 40% rated lamp life (4,000 hour minimum)	Yes
Color Rendering Index	<u>82.5</u>	CRI	Yes
Lamp Correlated Color Temp.	<u>4100</u>	Target CCT (degrees Kelvin)	Yes
	<u>100</u>	% of samples fall within 7-step Mac Adam ellipse	
Lamp/Lampholder Compatibility	<u>G10q</u>	ANSI-IEC Designated <b>Lamp Base Type</b>	Yes
	<input type="checkbox"/> Yes OR No	ANSI-IEC Standardized <b>Lamp</b>	Yes
	<u>3222 &amp; 3231</u>	ANSI-IEC <b>Lamp</b> Standard Data Sheet Number	
Lamp Labeling Requirement	<input checked="" type="checkbox"/>	Lamp labeling requirement is met	Yes

<b>Ballast Requirements:</b>			
Lamp Start Time	<u>166</u>	Milliseconds	Yes
Power Factor	<u>0.573</u>		Yes
Lamp Current Crest Factor	<u>1.38</u>		Yes
Maximum Recommended Ballast Case Temperature During Normal Operation Inside a Fixture	<u>75</u>	Degrees Celsius	Yes
Electromagnetic and Radio Frequency Interference	<input checked="" type="checkbox"/>	Ballast meets FCC requirements for consumer use	Yes
Ballast Frequency	<u>31.9</u>	kHz	Yes
Transient Protection	<input checked="" type="checkbox"/>	Ballast meets transient protection requirements	Yes
End of Life Protection (Only required for ballasts with lamps sized T5 & smaller)	<input type="checkbox"/> Yes OR N/A	<input type="checkbox"/> Yes OR N/A	Yes
	<u>2</u>	Maximum number of lamps shut down when lamp end of life occurs	
Dimming	<input type="checkbox"/>	3-Way Switching	Yes
	<input type="checkbox"/>	Continuous Dimming	
Safety – Ballasts and “Non Edison base Fluorescent Adapters”	<input type="checkbox"/> Yes OR N/A	Listed for Safety	RLF or ceiling fan partner using this form in lieu of testing documentation must submit appropriate safety report for portable or hardwired fixtures.
Line Voltage Socket (LVS) Standard Design	This platform <b>does not</b> use the twist-and-lock LVS standard Design		Yes
Line Voltage Socket (LVS) Standard Design with Self-Ballasted Pin-Based Lamp	This platform <b>does not</b> ship with self-ballasted pin-based lamps (i.e., integrated lamp and ballast) that use the twist-and-lock LVS standard design		Yes

As a reminder, the approved lamp/ballast combination does not receive the ENERGY STAR label and can not be promoted as an ENERGY STAR approved product and can not carry the ENERGY STAR logo. Rather, you may promote this approved platform as an acceptable alternate to providing test reports with Residential Light Fixture submittals for ENERGY STAR qualification.

Any RLF or ceiling fan partner submitting this Letter of Approval in lieu of laboratory testing reports is still responsible for completing and signing a Qualified Product Information (QPI) form for the applicable lamp/ballast combination, and submitting any required test data not covered by this Letter.

Please direct questions about this letter to [RLF@icfi.com](mailto:RLF@icfi.com). Thank you for your continued support.

Sincerely,



Alex Baker, Lighting Program Manager  
ENERGY STAR for Residential Light Fixtures