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## LED Lighting Systems on Royal Caribbean Quantum-class Ships Provide Substantial Energy Savings

Comparison with incandescent-based lighting system on Oasis-class *Allure of the Seas* shows considerable savings thanks to energy-efficient LED system that includes Elation LED fixtures

Promoted as the world's first smartships, Royal Caribbean International's environmentally friendly Quantum-class cruise liners - *Quantum of the Seas* and *Anthem of the Seas* - have set new standards in terms of energy-efficient onboard entertainment lighting systems. Now the numbers are in and the savings is even greater than expected.

When Royal Caribbean recently compared energy usage of the theatre show lighting system onboard *Quantum* and *Anthem* - both with large LED lighting systems that include Elation LED fixtures - with a similar yet incandescent-based lighting system on its Oasis-class *Allure of the Seas*, energy savings on the Quantum-class ships was 76%-84% greater, numbers that even surprised RCI.



"The power figures have been measured on *Quantum* and *Anthem* against the last incandescent and dimmer theatre show lighting rig on *Allure* and the results are - excuse the pun - enlightening. The LED theatre show rig that includes Elation and ETC LED fixtures is a dramatically lower consumer by comparison," stated Royal Caribbean International's Christopher Vlassopoulos, who coordinated the design and specification for all the entertainment equipment in the ships' public spaces, including the entertainment lighting systems. "Whilst we did anticipate a reduction this goes way beyond. And this is apart from the obvious additional savings from not having to purchase replacement lamps, ship them, store them and replace them."



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Some of the real world number comparisons show that energy usage for all the show lighting in the Royal Theatre was 386 Amps on *Allure* compared to 91 Amps on *Anthem* and 62 Amps on *Quantum*. As the measurements were done at full on, actual median savings is even greater - more than 90% - as the LED lights only use power when light and color is needed while discharge lamps run at 100% when a show is running. As Christopher explains, the power savings translates into quite a significant savings in dollars. "By switching from incandescent to LED we realize millions of dollars in savings over the lifetime of Royal Caribbean ships and on *Quantum* and *Anthem* we've also already benefited from the lower maintenance involved," which is no small matter as RCI ships operate on busy 24/7/365 schedules.

Savings extends to other areas as well. HVAC requirements have also been reduced and the electrical distribution costs are much lower and more efficient due to less cabling, fewer connections and no dimmers. When combining the energy savings with the savings in maintenance and operational costs, the total cost delta between *Allure* and the Quantum-class ships is substantial and more than pays for any technology upgrade costs.

*Quantum of the Seas* set sail in November of 2014 with *Anthem of the Seas* following in April of 2015. Built at Germany's Meyer Werft shipyard, media and entertainment system integration was by Amptown System Company. The third in the Quantum-class, *Ovation of the Seas*, is planned for 2016.

Pictured: *We Will Rock You* in the Royal Theatre (*Anthem of the Seas*)

### **About Elation Professional**

Elation Professional is one of the world's leading lighting and visual solutions providers and is the global brand of Elation Lighting. Founded in 1992 and headquartered in Los Angeles, with European sales, distribution and support based in The Netherlands, Elation designs and manufactures a comprehensive range of innovative yet affordable lighting and video products that are distributed through a global network of dealers and distributors. Made up of a spirited team of dedicated personnel, Elation is setting new efficiency and performance standards in Platinum lamp and LED technology and is acknowledged for a comprehensive commitment to Total Support. As a company in expansion with a presence in a growing variety of market segments, chances are you've experienced Elation lighting at a concert, special event, TV, theater, late night venue, House of Worship, theme park, cruise ship, exhibition, architectural space or elsewhere. For more information, please visit [www.elationlighting.com](http://www.elationlighting.com)

For more information, contact:

### **Elation Professional US**

6122 S. Eastern Avenue  
Los Angeles, CA 90040  
USA  
Tel: (866) 245-6726 (toll free)  
Tel: (323) 582-3322  
sales@elationlighting.com  
www.elationlighting.com

### **Elation Professional EU**



[www.ElationLighting.com](http://www.ElationLighting.com)

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Junostraat 2.  
6468 EW Kerkrade  
The Netherlands  
Tel: +31 (0)45 546 85 66  
[info@elationlighting.eu](mailto:info@elationlighting.eu)  
[www.elationlighting.eu](http://www.elationlighting.eu)