To generate the three primary colors in a 1DLP® laser phosphor projector, the laser diode shines laser light onto a phosphor wheel to create yellow light, while blue laser light passes through an opening in the phosphor wheel. The projector then sends the yellow light through a color wheel to generate red and green, while the blue laser light passes through a diffusion window. These red, green and blue colors are then directed onto an imaging surface, such as a DLP chip, which directs the light through a lens and onto the projection screen. The primary advantage of a laser phosphor projector is the long life of the illumination system before it reaches 50% brightness. As a lampless system, laser phosphor also eliminates the need for lamps and, in many designs, filter replacements, reducing the down-time, maintenance and costs associated with lamp-based projectors. The long life and low maintenance of laser phosphor projectors make them ideal for high-use settings like boardrooms, classrooms, houses of worship, museums and location-based entertainment venues.
Certain manufacturers claim laser phosphor projectors provide “maintenance free” operation. Although it is true that laser phosphor illumination systems are solid state and do not require any maintenance throughout their lifecycle, this only applies to the light engine. Laser-based projectors are still subject to regular maintenance such as cleaning fans and lenses to maximize efficiency and performance.

With increased brightness, performance capabilities and long-life, customers will be able to reap the benefits of these new systems.