

# *Speckle contrast measurements of a Laser Hybrid LCOS projector*

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## **ABSTRACT**

Laser Hybrid illumination is becoming a leader in the pursuit of a solid state illumination engine for projectors. With any laser based system, speckle needs to be discussed. This paper will discuss the basic details of the laser hybrid illumination, the fundamentals of speckle with regards to a simulated training application and in specifically, the measurement and analysis of speckle in as simulation environment. Speckle contrast of a simulator system is discussed, analyzed and topics for discuss are brought out. The core approach is based on ICAO 9625 and its limitations are discussed with regard to a hybrid laser source. Speckle is a sum of various component of a specific system. Many organizations and individuals are discussing and offering various methodologies into speckle and speckle measurements, most with their own specific component they are trying so sell, or in a laboratory environment, again focused on one aspect of system speckle, with other components removed or normalized to get just the speckle value for one component. But, speckle is a system issue, and many of these components are already in place, and maybe too expensive to replace or no know replacement can be found that meets the need of the training environment. So we must take into account the contribution of all fixed and viable components and derive a measurement method and target values that will meet our goal of supplying an adequate training environment.

## **BIO**

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Rod Sterling is Chief Engineer, of JVC Technology Center, JVCKENWOOD USA Corporation, in Long Beach, California. He received his MS in Electrical Engineering, Applied Physics from the University of California, San Diego. He currently supports the efforts in ultra-high resolution displays, Reference Series and Visualization Series projectors and their applications, with focus on Simulation, Visualization, Home Theatre, and Stereoscopic displays. He has over 31 years of experience in the display area and over 23 years in Simulation and Electronic/Digital Cinema. He is the author of over 23 journal articles, 12 patents and 2 screen credits. He is an active member of SID, IEEE, SPIE and SMPTE.