Rf Method of Reciprocity Performance Testing, Part II: Long Term Performance Verification

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Abstract

Modern image stability testing typically involves the isolation of each environmental variable that is believed to impact image permanence and the measurement and quantification of the effects produced by exposure to such variables over time. The high stability of modern photographic products makes testing under ambient conditions too lengthy for new product development cycles, which results in the use of accelerated aging whereby the impacting variables are held at levels considerably greater than ambient, forcing the image to a failure point in a far shorter length of time than normal. In Part I, we discussed the calculation of reciprocity factors and explored a new method of testing for reciprocity performance by demonstrating a 2–4X reduction in the time required for test completion while potentially improving the accuracy of the results and predictions. This paper extends that discussion with the use of actual test data specifically designed to show the benefits of higher replication and optimal sampling protocols. These techniques can further reduce the time that is needed to run reciprocity tests while improving the accuracy of the conclusions.

Author Biography

Adam Bush received his BS in Chemistry/Biology from the Rochester Institute of Technology. After working as an analytical chemist and product development engineer at Xerox Corp. in Webster, NY, Bush joined Eastman Kodak Company in 2000 as a photoscience engineer. He currently supports the Thermal Product Platform and Image Stability Technical Center in Rochester, NY.