Methods for determining solar radiation levels based on end use location for development of test conditions in an accelerated weathering device

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Abstract

A fundamental factor in any artificial testing instrument is the unit's capability of accurately reproducing the environment to which the materials will experience in their end-use application. Using a sophisticated modeling system the spectral power distribution of sunlight is critically defined and characterized. Once the defined spectrum is established a correct artificial light source / filtering system providing the characteristics desired can be selected. Several laboratory based solar radiation sources which are commonly used in simulating sunlight each with advantages and disadvantages are compared. In the comparison basic and advanced solar radiation measuring and monitoring systems are employed.

Author Biography

George Coonley has been involved in the field of technical lighting systems for over twenty-five years. The last twelve years George has focused on design and implementation of custom designed lighting systems used for solar thermal loading, full spectrum material degradation testing and technical lighting solutions designed for the automotive safety testing community.

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