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Pinkus et al.

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[54] **SPECTRAL DISTRIBUTION EMULATION**

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[58] **Field of Search** ..... 250/494.1, 495.1, 250/252.1 A, 330

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[57] **ABSTRACT**

A test arrangement for assessing the spectral energy distribution-determined response of a night vision device or other electro-optical apparatus. The test arrangement provides a library of spectral energy-distributed test signals or input scenes which may be selected to represent for example typical or extreme conditions expected during field use of the tested night vision device. The test signals originate in an array of energy transducer devices such as light emitting diode elements with each such light emitting diode element proving a limited wavelength component of the wide band composite optical signal received at the input port of the night vision device. Each component signal is arranged to be controlled electrically in presence or absence and also controlled electrically in radiance or intensity according to the needs of the scene being presented; such control is provided by a manual controller or by a programmed digital computer or by other controlling apparatus such as a programmed logic array. The composite test signal may include both infrared and visible components. In addition to control of the composite test signal, other aspects of the performed test such as test scene data storage may also be accomplished in the controller or computer. The disclosed apparatus is especially suited to performance verification of night vision systems in a laboratory environment prior to field use of similar systems. Military and non-military uses are contemplated.

20 Claims, 4 Drawing Sheets