control signal, to maintain the selected set-point value; and,

a calibration device, including a reference detector means designed to detect the irradiance inside the test chamber and to produce a reference irradiance signal representative of the detected irradiance, a reference irradiance signal transmitting means connected to the reference detector means, a calibration meter arranged for receiving the reference irradiance signal and for producing a calibration signal, and a calibration signal input means connected to the controller for inputting the calibration signal directly to the controller.

14. An accelerated weathering apparatus comprising:

a test chamber;

a specimen supporting means for supporting a specimen in the test chamber;

an array of light sources located within the test chamber for producing light in the test chamber;

a power source for powering the light sources; and,

a plurality of automatically adjustable control channels for concurrently controlling outputs of the light sources, each of the channels controlling an output of at least one of the light sources, the plurality of automatically adjustable control channels including a plurality of light source detectors arranged to detect different spatial areas of the specimen supporting means.

15. The accelerated weathering apparatus of claim **14**, wherein each control channel further includes:

a ballast means connected to the at least one light source, for controlling the amount of power the at least one light source receives from the power source;

a control means, connected to the ballast means, for producing a ballast control signal for controlling operation of the ballast means;

a light source detector means of the plurality of light source detectors, the light source detector means inserted into the specimen supporting wall at a location corresponding to the at least one light source, to detect irradiance existing in the test chamber produced by the at least one light source, and for generating an irradiance signal representative of the detected irradiance;

an irradiance signal transmitting means connected to the light source detector means; and,

an irradiance signal input means for inputting the irradiance signal to the control means, the control means using the irradiance signal to adjust the ballast control signal, to maintain a selected value.

16. The accelerated weathering apparatus of claim **14**, wherein there are first and second specimen supporting walls and there are first and second rows of light sources each row having four discharge lamps.

17. The accelerated weathering apparatus of claim **16**, wherein the light source detector mean consists of four light source detectors inserted into the first and second specimen supporting walls such that each one of the four detectors is positioned to substantially detect irradiance form two of the discharge lamps.

18. The accelerated weathering apparatus of claim **17**, wherein there are four separately adjustable control channels.

19. The accelerated weathering apparatus of claim **14** further including:

a calibration device, including a reference detector means designed to detect the irradiance inside the test chamber and to produce a reference irradiance signal representative of the detected irradiance, a reference irradiance signal transmitting means connected to the reference detector means, a calibration meter for receiving the reference irradiance signal and for producing a calibration signal, and a calibration signal input means for inputting the calibration signal directly to the controller.

20. The accelerated weathering apparatus of claim **14** further including:

a barrier located within the test chamber, composed of a material which interferes with a passage of the light produced by the discharge lamps in a pattern selected to increase an even distribution of light to the specimen supporting means.

21. A method of accelerated weather testing of specimens in a testing apparatus having a test chamber, a specimen supporting means, light sources powered by a power source controlled by a ballast, a plurality of automatically adjustable control channels for concurrently controlling outputs of the light sources, each of the channels controlling an output of at least one of the light sources, each channel having a light source detector, to detect the irradiance inside the test chamber, the method comprising the steps of:

detecting with each of the light source detectors irradiance existing int he test chamber substantially due to irradiance produced by the light sources associated with the control channel with which the light source is associated, in order to develop an irradiance signal;

transferring the irradiance signal detected by the ultraviolet detector to control circuitry of the control channel;

comparing the irradiance signal with a set-point value to determine if they are equal;

increasing a ballast control signal to the ballast associated with control channel when the set-point signal is greater than the irradiance signal;

decreasing the ballast control signal sequence to the ballast associated with the control channel when the set-point signal is less than the irradiance signal;

altering the ballast output associated with the control channel, based on the increase and decreasing steps in order to alter the output of the light source;

inserting a reference detector immediately adjacent one of the light source detectors;

selecting one of the control channels for calibration;

detecting with the reference detector irradiance existing in the test chamber substantially due to irradiance produced by the light source associated with the selected control channel, in order to develop a calibration signal;

comparing the calibration signal with the irradiance signal developed for the light source associated with the selected control channel; and,

outputting a signal to the ballast associated with the selected control channel in order to calibrate the output of the selected control channel.

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