

Claims:

1. A system for detecting refractive power of a dry ophthalmic lens under inspection, comprising:
 - a) a top camera 10 arranged to view the ophthalmic lens 40 through an optical module 25;
 - b) an optically transparent surface 30 to position the ophthalmic lens 40 for inspection;
 - c) a precisely calibrated glass target 50 suitably positioned on a transparent plate 60, arranged to achieve an image of the ophthalmic lens 40 overlaid with the image of the pattern on the target 50;
 - d) at least one light source having multiple wavelength LEDs to capture different images under multiple lighting conditions.
2. A system according to claim 1 wherein the glass target comprises precisely etched pattern with equidistant squares of different contrasts.
3. A system according to claim 1 wherein the calibration involves multiple known refractive power lenses or golden samples, selected to plot a graph and create a table across the entire spectrum of refractive powers for comparison, during normal production and inspection.
4. A system according to claim 1 wherein the calibration table and graph are generated with cylindrical and spherical refractive power data points and includes both positive and negative refractive power lenses.
5. A method for creating a table and graph of refractive powers for multiple dry ophthalmic lens the method comprising the steps of:

positioning a first known refractive power ophthalmic lens on the transparent plate 30 with the convex side of the lens facing the camera 10;

capturing a high contrast image of the ophthalmic lens with the image of the calibrated glass target 50 overlaid, by strobing the light source 70;

measuring the centre to centre distance between several predetermined set of target points, of at least 7 x 7 neighbouring squares, preferably at the centre of the ophthalmic lens image;

applying a formula to convert each of the measured distances in the X and Y axis, into a corresponding diopetre value to generate a reference refractive power table;

plotting a line graph of all the diopetre values measured using the golden samples to produce a smooth line curve through interpolation.

6. A method according to claim 4 wherein one of the formula to calculate the diopetre values is as follows

$$Y = -9E-07x^4 + 0.0005x^3 - 0.1281x^2 + 14.204x - 630.16$$

7. A method for detecting the refractive power of a dry ophthalmic lens under inspection, comprising:

capturing an image of an ophthalmic lens superimposed with the image of the calibration target;

measuring the average distances between the neighbouring squares of a selected 7 x 7 square area;

calculating the diopetre value of the lens for each of the determined distances;

determining the refractive power of the lens by comparing diopetre value with the calibration table and graph;

communicating the results to the networked computer for further processing.

8. A method according to claim 7 wherein the ophthalmic lens inspected in the production line is preferably inspected with the convex side of the lens facing the camera.
9. A method according to claim 7 wherein the ophthalmic lens and the calibrated glass target is illuminated with a backlight source to enable capturing an sharp contrast image to be acquired by the camera.