We Claim:

1. An apparatus for obtaining the subjective measurement of visual aberrations comprising an adjustable, aberration-generating optical assembly that introduces controlled levels of aberrations onto the pupil plane of a test subject's eye.
2. The apparatus of claim 1 wherein the aberration generator comprises a pair of mating polynomial plates, placed in the visual path, which introduces specific controlled amounts of aberrations into the ocular wavefront when shifted laterally by a calibrated amount.
3. The aberration generator of claim 1 located at the stop of a 1X Keplerian telescope, said telescope having a real exit pupil external to the telescope, so that efficient coupling is achieved between the pupil of the eye and the aberrations introduced by the generator.
4. The aberration generator of claim 1 wherein aberration generation is achieved by the use of phase plates located at the pupil plane of the optical assembly.
5. The apparatus of claim 1 having an ophthalmic trial lenses receiver introducible into the visual path at the pupil plane of the optical assembly.
6. The apparatus of claim 1 wherein a prism assembly or air-spaced mirror assembly is used to erect an image produced by the optical assembly.
7. The apparatus of claim 1 wherein a periscope assembly consisting of two air-spaced mirrors whose use renders the optical assembly line of sight and the subject's line of sight co-incident.
8. The apparatus of claim 1 wherein an infrared light emitting diode (LED) illumination system is configured to illuminate the subject's pupil so that the apparatus may be aligned to the subject's line of sight.
9. The apparatus of claim 1 wherein a beam splitting is placed in front of the objective lenses of the optical assembly so that the alignment of the test

subject's pupils to the telescope may be adjusted and tracked, as well as pupil size and test subject's line of sight.

10. A method of measuring and obtaining the subjective higher order aberrations of a patient comprising:
    a. Viewing a target,
    b. Adjusting the higher order aberration to a desired level,
    c. Recording the aberration level,
    d. Using the recorded data to generate an ophthalmic correction.
11. A method of providing an ophthalmic correction comprising:
    a. Obtaining low order subjective sphero-cylindrical refractive patient data,
    b. Obtaining higher order aberration subjective patient data,
    c. Generating an ophthalmic correction which incorporates these measurements.
12. The method of claim 11 wherein the higher order subjective aberrations are obtained using a continuous aberration generator.
13. The method of claim 11 wherein the patient data for a large population is obtained.
14. The method of claim 11 wherein the patient data for a sub-population is obtained.
15. The method of claim 11 wherein the patient data for a single individual is obtained.
16. The method of claim 11 wherein the aberration is rotationally symmetric.
17. The method of claim 16 wherein the aberration is spherical aberration.
18. The method of claim 11 wherein the aberration is non-rotationally symmetric.
19. The method of claim 18 wherein the aberration is coma.
20. The method of claim 18 wherein the aberration is trefoil.
21. A method of designing ophthalmic corrections incorporating the subjective correction of higher order aberrations comprising instructions which are encoded into machine instructions and programmed into a computer.

Claims:

1. An apparatus for obtaining the subjective measurement of visual aberrations comprising an adjustable, aberration-generating optical assembly that introduces controlled levels of aberrations onto the pupil plane of a test subject's eye and wherein the apparatus further comprises a periscope assembly consisting of two air-spaced mirrors whose use renders the optical assembly's line of sight and a subject's line of sight co-incident.

2. The apparatus as claimed in claim 1, wherein the aberration generator comprises a pair of mating polynomial plates, placed in the visual path, which introduces specific controlled amounts of aberrations into the ocular wavefront when shifted laterally by a calibrated amount.

3. The apparatus as claimed in claim 1, wherein the aberration generator is located at the stop of a IX Keplerian telescope, said telescope having a real exit pupil external to the telescope, so that efficient coupling is achieved between the pupil of the eye and the aberrations introduced by the generator.

4. The apparatus as claimed in claim 1, wherein aberration generation is achieved by the use of phase plates located at the pupil plane of the optical assembly.

5. The apparatus as claimed in claim 1, having an ophthalmic trial lenses receiver introducible into the visual path at the pupil plane of the optical assembly.

6. The apparatus as claimed in claim 1, wherein a prism assembly or air-spaced mirror assembly is used to erect an image produced by the optical assembly.

7. The apparatus as claimed in claim 1, wherein an infrared light emitting diode

(LED) illumination system is configured to illuminate the subject's pupil so that the apparatus may be aligned to the subject's line of sight.

8. The apparatus as claimed in claim 1, wherein a beam splitting is placed in front of the objective lenses of the optical assembly so that the alignment of the test subject's pupils to the telescope may be adjusted and tracked, as well as pupil size and test subject's line of sight.

9. A method of measuring and obtaining the subjective higher order aberrations of a patient comprising:

a) viewing a target,
b) adjusting the higher order aberration to a desired level,
c) recording the aberration level,
d) using the recorded data which is encoded into machine instructions and programmed into a computer to generate an ophthalmic correction.

10. A method of providing an ophthalmic correction comprising:

a) obtaining low order subjective sphero-cylindrical refractive patient data,
b) obtaining higher order aberration subjective patient data and encoding the same into machine instructions which are programmed into a computer;
c) generating an ophthalmic correction which incorporates these measurements.

11. The method as claimed in claim 10, wherein the higher order subjective aberrations are obtained using a continuous aberration generator.

12. The method as claimed in claim 10, wherein the patient data:

a) for a large population;

b) for a sub-population; or

c) for a single individual;

is obtained.

13. The method as claimed in claim 10, wherein the aberration is rotationally symmetric.

14. The method as claimed in claim 13, wherein the aberration is spherical aberration.

15. The method as claimed in claim 10, wherein the aberration is non-rotationally symmetric.

16. The method as claimed in claim 15, wherein the aberration is coma or trefoil.