

## CLAIMS

## WHAT IS CLAIMED IS:

1. A system for treating an eye, the system comprising:  
a laser configured to generate a laser beam; and  
a diffractive optical element configured to split the laser beam into a pre-determined pattern and direct the patterned laser beam to a treatment zone of the eye.
2. The system of claim 1, wherein the laser comprises a near-IR to mid-IR laser.
3. The system of claim 1, wherein the laser comprises a wavelength range from about 500 nanometers (nm) to about 2 micrometers ( $\mu\text{m}$ ).
4. The system of claim 1, wherein the laser comprises a power from about 100 (milliwatts) mW to about 4 watts (W).
5. The system of claim 1, wherein the laser comprises a pulse repetition rate from about 1 hertz (Hz) to about 1000 Hz.
6. The system of claim 1 wherein the pre-determined pattern comprises an arcuate, annular, spotted, or line scan pattern.
7. The system of claim 6, wherein the spotted pattern comprises at least 2 points of illumination.
8. The system of claim 1, wherein the treatment zone of the eye comprises the eyelids, sclera, retina, or any combination thereof.
9. The system of claim 1, wherein the system is configured to be handheld or slit lamp adapted.
10. The system of claim 1, further comprising a patient interface, wherein the patient interface comprises an intra-operative registration module.
11. The system of claim 1, further comprising a corneal shield.

12. A method for treating an eye, the method comprising:  
generating a laser beam;  
splitting the laser beam into a pre-determined pattern with a diffractive optical element; and  
directing the patterned laser beam to a treatment zone of the eye, thereby treating a target tissue in the treatment zone with the patterned laser beam.
13. The method of claim 12, wherein the laser beam comprises a near-IR to mid-IR laser emission.
14. The method of claim 12, wherein the laser beam comprises a wavelength range from about 500 nanometers (nm) to about 2 micrometers ( $\mu\text{m}$ ).
15. The method of claim 12, wherein the laser beam comprises a power from about 100 (milliwatts) mW to about 4 watts (W).
16. The method of claim 12, wherein the laser beam comprises a pulse repetition rate from about 1 hertz (Hz) to about 1000 Hz.
17. The method of claim 12, wherein the treatment zone of the eye comprises the eyelids, sclera, retina, or any combination thereof.
18. The method of claim 12, wherein the pre-determined pattern comprises an arcuate, annular, spotted, or line scan pattern.
19. The method of claim 12, wherein the treatment may comprise a duration of from about 1 minute to about 30 minutes.
20. The method of claim 12, wherein the treatment may comprise a treatment for dry eye, diplopia, convergence insufficiency, strabismus, or any combination thereof.
21. The method of claim 12, further comprising aligning the patterned laser beam to irradiate the treatment zone of the eye.

22. The method of claim 21, wherein aligning comprises determining one or more optical signals on an alignment sensor.
23. The method of claim 22, wherein the alignment sensor comprises a quad photo diode.
24. The method of claim 22, wherein the one or more optical signals comprise one or more reflected optical signal from a cornea, iris, or any combination thereof a patient.
25. The method of claim 22, wherein the one or more optical signals comprise near-infrared (NIR) illumination, visible illumination, or any combination thereof.
26. The method of claim 25, wherein the near-infrared illumination comprises a wavelength range from about 850 nanometers (nm) to about 940 nm.
27. The method of claim 12, further comprising monitoring the laser beam power as the target tissue in the treatment zone is treated.