What is claimed is:

1. A system comprising:

a focus optic configured to converge an electromagnetic radiation (EMR) beam to a focal region located along an optical axis;

a detector configured to detect a signal radiation emanating from a predetermined location along the optical axis;

a controller configured to adjust a parameter of the EMR beam based in part on the signal radiation detected by the detector; and

a window located a predetermined depth away from the focal region, between the focal region and the focus optic along the optical axis, wherein the window is configured to make contact with a surface of a tissue.

2. The system of claim 1, wherein the EMR beam is configured to generate a plasma at the predetermined location along the optical axis and wherein the signal radiation emanates from the plasma.

3. The system of claim 1, wherein the signal radiation emanates from an interaction between the EMR beam and the window.

4. The system of claim 1, wherein the focus optic is further configured to image the signal radiation detected by the detector.

5. The system of claim 1, further comprising a scanner configured to scan the focal region from a first region within the tissue to a second region within the tissue.

6. The system of claim 1, wherein the EMR beam is further configured to generate a thermionic plasma at the focal region.

7. The system of claim 1, wherein the window is further configured to transmit the EMR beam.

8. The system of claim 1, wherein the focus optic is further configured to converge the EMR beam at a numerical aperture (NA) of at least 0.3.

9. The system of claim 1, wherein the parameter of the EMR beam comprises at least one of: a pulse energy, a repetition rate, a pulse duration, a focal region location, a focal region size, a wavelength, or a power.

10. The system of claim 1, wherein the signal radiation comprises at least one of: a visible light, an infrared light, an acoustic signal, an ultrasonic signal, a radio signal, or a temperature.

11. A method comprising:

contacting, using a window, a surface of a tissue;

converging, using a focus optic, an electromagnetic radiation (EMR) beam to a focal region located along an optical axis;

detecting, using a detector, a signal radiation emanating from a location along the optical axis;

adjusting, using a controller, a parameter of the EMR beam based in part on the detected signal radiation; and

positioning the focal region within the tissue at a predetermined distance from the surface of the tissue.

12. The method of claim 11, further comprising generating, using the EMR beam, a plasma at the location along the optical axis, wherein the signal radiation emanates from the plasma.

13. The method of claim 11, further comprising directing the converging EMR beam incident upon the window, wherein the signal radiation emanates from an interaction between the EMR beam and the window.

14. The method of claim 11, further comprising imaging, using the focus optic, the signal radiation incident the detector.

15. The method of claim 11, further comprising scanning, using a scanner, the focal region from a first region within the tissue to a second region within the tissue.

16. The method of claim 11, further comprising generating, using the EMR beam, a thermionic plasma at the focal region.

17. The method of claim 11, further comprising transmitting the EMR beam through the window.

18. The method of claim 11, wherein the focus optic is further configured to converge the EMR beam at a numerical aperture (NA) of at least 0.3.

19. The method of claim 11, wherein the parameter of the EMR beam comprises at least one of: a pulse energy, a repetition rate, a pulse duration, a focal region location, a focal region size, a wavelength, or a power.

20. The method of claim 11, wherein the signal radiation comprises at least one of: a visible light, an infrared light, an acoustic signal, an ultrasonic signal, a radio signal, or a temperature.

What is claimed is:

1. A system comprising:

a focus optic configured to focus an electromagnetic radiation (EMR) beam to a focal region located along an optical axis;

a window, intersecting the optical axis, configured to contact a surface of a tissue;

an optical detector configured to detect an intensity of a signal radiation generated by a single reflection of the EMR beam from a surface of the window;

a controller configured to determine a reference position along the optical axis, based upon the detected signal radiation, where a portion of the focal region is substantially coincident with the surface of the window; and

a stage configured to translate the focal region to a treatment position that is located at a predetermined distance from the reference position.

2. The system of claim 1, wherein the focus optic and the stage are configured to position the treatment position within a tissue.

3. The system of claim 2, wherein the treatment position is located within a dermal tissue.

4. The system of claim 2, wherein the EMR beam is configured to generate a thermionic plasma at the focal region.

5. The system of claim 1, wherein the EMR beam comprises a pulse having a pulse duration of at least 1 picosecond.

6. The system of claim 1, wherein the focus optic is further configured to image the signal radiation incident the detector.

7. The system of claim 1, wherein the controller is further configured to determine the reference position by:

determining a transverse width of the EMR beam incident the surface of the window, based upon the signal radiation; and

translating the focal region along the optical axis until the transverse width has a minimum value.

8. The system of claim 1, wherein the controller is further configured to determine the reference position by translating the focal region along the optical axis until the intensity of the signal radiation has a maximum value.

9. The system of claim 1, wherein the focus optic is further configured to converge a second EMR beam to a second focal region, wherein the second EMR beam has at least one of: a wavelength that is identical to a wavelength of the EMR beam or a wavelength that is different to the wavelength of the EMR beam, and, wherein the second EMR beam is configured to effect a desired change in the tissue.

10. The system of claim 1, wherein the stage is configured to translate the focal region by translating at least one of: the focus optic, one or more optical elements, and the window.

11. A method comprising:

converging, using a focus optic, an electromagnetic radiation (EMR) beam to a focal region located along an optical axis;

contacting a surface of a tissue with a window that intersects the optical axis;

detecting, using a detector, an intensity of a signal radiation generated by a single reflection of the EMR beam from a surface of the window;

determining, using a controller, a reference position along the optical axis based upon the detected signal radiation, wherein, at the reference position, a portion of the focal region is substantially coincident with a surface of the window; and,

translating, using a stage, the focal region to a treatment position located a predetermined distance from the reference position.

12. The method of claim 11, further comprising contacting, using the window, a surface of a tissue, such that the treatment position is located within the tissue.

13. The method of claim 12, wherein the predetermined distance is configured to locate the treatment position within a dermal tissue.

14. The method of claim 12, wherein the EMR beam is configured to generate a thermionic plasma in the focal region.

15. The method of claim 11, wherein the EMR beam comprises a pulse having a pulse duration of at least 1 picosecond.

16. The method of claim 11, wherein detecting the signal radiation further comprises imaging, using the focus optic, the signal radiation incident the detector.

17. The method of claim 11, wherein determining the reference position further comprises:

determining, using the controller, a transverse width of the EMR beam incident the surface of the window, based upon the signal radiation; and,

translating the focal region along the optical axis until the transverse width has a minimum value.

18. The method of claim 11, wherein determining the reference position further comprises:

translating the focal region until the intensity of the signal radiation has a maximum value.

19. The method of claim 11, further comprising:

converging, using the focus optic, a second EMR beam to a second focal region,

wherein the second EMR beam has at least one of: a wavelength that is identical to a wavelength of the EMR beam or a wavelength that is different to the wavelength of the EMR beam; and

wherein the second EMR beam is configured to effect a desired change in the tissue.

20. The method of claim 11, wherein translating the focal region further comprises translating at least one of the focus optic, one or more optical elements, and the window.