CLAIMS

1. An electromagnetic energy source for illumination of a vascular space, comprising;

a plurality electromagnetic energy emitters;

one or more optical cable connectors, wherein the optical cable connector is in optical communication with at least one of the plurality of electromagnetic energy sources;

one or more optical cables, comprising a hub that is configured to provide an optical interface with the optical cable connectors;

a processor, wherein the processor is configured to modulate optical communication between at least one of the plurality of electromagnetic energy emitters and the optical cable connector; and

a database that is communicatively linked to the processor, wherein the database comprises one or more illumination protocols and stored data related to performance of a component selected from the group consisting of one of the plurality of electromagnetic energy emitters, the optical interface, the optical cable, and a vascular access device, and wherein the illumination protocol comprises instructions for modulation of an electromagnetic energy emitter, wherein the processor is configured to modify a base illumination protocol based upon the stored data to generate an adjustment factor, wherein the stored data comprises data related to the performance of the component.

2. The electromagnetic energy source of claim 1, wherein the database further comprises data consisting of a calibration of intensity of at least one of the plurality of electromagnetic energy sources.

3. The electromagnetic energy source of claim 1, further comprising a mount configured to affix the electromagnetic energy source to a pole.

4. The electromagnetic energy source of claim 1, further comprising a calibration port.

5. The electromagnetic energy source of claim 1, wherein the hub is further configured to transmit an optical cable identification to the processor.

6. The electromagnetic energy source of claim 1, wherein the plurality of optical cable connectors comprises a first optical cable connector and a second optical cable connector, wherein the plurality of electromagnetic energy emitters comprises a first electromagnetic energy emitter, and wherein the electromagnetic energy source is configured to provide optical communication between the first optical cable connector and the first electromagnetic energy emitter and between the second optical cable connector and the first electromagnetic energy emitter during the same time interval.

7. The electromagnetic energy source of claim 1, wherein the plurality of optical cable connectors comprises a first optical cable connector and wherein the plurality of electromagnetic energy emitters comprises a first electromagnetic energy emitter and a second electromagnetic energy emitter, and wherein the electromagnetic energy source is configured to provide optical communication between the first optical cable connector and the first electromagnetic energy emitter during a first time interval and to provide optical communication between the first optical cable connector and the second electromagnetic energy emitter during a second time interval.

8. The electromagnetic energy source of claim 1, wherein the plurality of optical cable connectors comprises a first optical cable connector and wherein the plurality of electromagnetic energy emitters comprises a first electromagnetic energy emitter and a second electromagnetic energy emitter, and wherein the electromagnetic energy source is configured to provide optical communication between the first optical cable connector and the first electromagnetic energy emitter and the second electromagnetic energy emitter during the same time interval.

9. The electromagnetic energy source of claim 1, further comprising an optical router.

10. A system for illumination of a vascular space, comprising;

an electromagnetic energy source comprising a plurality of electromagnetic energy emitters;

a vascular access device, comprising an optical waveguide and a catheter, wherein the optical waveguide is enclosed within the catheter of the vascular access device;

an optical cable, wherein the optical cable is in optical communication with at least one of the plurality of electromagnetic energy sources and the optical waveguide; and,

a processor; and

a database comprising one or more illumination protocols and stored data related to performance of a component selected from the group consisting of one of the plurality of electromagnetic energy emitters, the optical interface, the optical cable, and a vascular access device, and wherein the illumination protocol comprises instructions for modulation of an electromagnetic energy emitter, wherein the processor is configured to modify a base illumination protocol based upon the stored data to generate an adjustment factor, wherein the stored data comprises data related to the performance of the component, wherein the processor is communicatively coupled to a database, and is configured to modulate the optical communication between at least one of the plurality of electromagnetic energy emitters and the optical cable based upon instructions stored in the database.

11. The system of claim 10, further comprising a plurality of optical cables and a plurality of vascular access devices.

12. The system of claim 10, further comprising an optical calibrator and a calibration port, wherein the calibration port is a component of the electromagnetic energy source and the optical calibrator is configured to interface with the calibration port.

13. The system of claim 12, wherein the calibration port is configured to provide optical communication between the optical calibrator and at least one of the plurality of electromagnetic energy emitters.

14. The system of claim 12, wherein the optical cable is configured to provide optical communication between the optical calibrator and at least one of the plurality of electromagnetic energy emitters.