WHAT IS CLAIMED IS:

1. A method for cleaning a component of a gas turbine engine, the method comprising:

positioning an acoustic emitter at a cleaning location of the component of the gas turbine engine, the cleaning location characterized by having a build-up of foulants;

determining a predetermined frequency by measuring, via a sensor, emissivity of the cleaning location, and correlating the emissivity with a frequency configured to disperse the foulants, the predetermined frequency decreasing as the measured emissivity increases; and

emitting, via the acoustic emitter, one or more acoustic waves at a predetermined frequency towards the cleaning location of the component so as to disperse the foulants.

2. The method of claim 1, further comprising inserting the acoustic emitter into at least one of an inlet, a port, and a cooling passageway of the component of the gas turbine engine.

3. The method of claim 1, further comprising rinsing the cleaning location, via the acoustic emitter, after emitting the acoustic waves.

4. The method of claim 1, wherein emitting one or more acoustic waves at the predetermined frequency towards the cleaning location of the component further comprises providing airflow within the gas turbine engine during emission so as to move the acoustic waves towards the cleaning location of the component.

5. The method of claim 1, wherein the predetermined frequency ranges from about 2 hertz (Hz) to about 1500 Hz.

6. The method of claim 1, wherein the gas turbine engine comprises an aircraft engine of an aircraft.

7. The method of claim 6, wherein the aircraft engine is installed on a wing of the aircraft.

8. The method of claim 1, wherein the one or more components of the gas turbine engine comprise at least one of a compressor, a high-pressure turbine, a low- pressure turbine, a combustor, a combustion chamber, a fuel nozzle, one or more turbine blades, one or more compressor blades, a combustor liner, flowpath walls, a turbine nozzle or vane, a compressor vane, a booster, a turbine shroud, and a casing of the gas turbine engine.

9. A system for cleaning one or more components of a gas turbine engine, the system comprising:

an acoustic emitter for producing one or more acoustic waves for cleaning the one or more components of the gas turbine engine, the one or more components having a build-up of foulants accumulated on a surface thereof;

a controller communicatively coupled with the acoustic emitter, the controller configured to control a frequency of the acoustic emitter, and

at least one emissivity sensor communicatively coupled to the controller, the emissivity sensor configured to detect an emissivity of a surface of the one or more components, the emissivity being indicative of the presence of the foulants on the surface, the controller configured to correlate the emissivity with a frequency configured to disperse the foulants,

wherein the acoustic emitter is configured to direct the one or more acoustic waves at a predetermined frequency toward the build-up of foulants on the one or more components so as to disperse the foulants; and

wherein the predetermined frequency decreases as the detected emissivity increases.

10. The system of claim 9, wherein the acoustic emitter is configured to fit into at least one of an inlet, a port, and a cooling passageway of the component of the gas turbine engine.

11. The system of claim 10, further comprising one or more pressure sources configured to provide airflow that moves the acoustic waves through the one or more components of the gas turbine engine.

12. The system of claim 9, wherein the controller is configured to maintain the predetermined frequency of the acoustic emitter between about 2 hertz (Hz) and about 1500 Hz.

13. The system of claim 9, wherein the gas turbine engine comprises an aircraft engine of an aircraft, wherein the aircraft engine is installed on a wing of the aircraft.

14. The system of claim 9, wherein the one or more components of the gas turbine engine comprise at least one of a compressor, a high-pressure turbine, a low- pressure turbine, a combustor, a combustion chamber, a fuel nozzle, one or more turbine blades, one or more compressor blades, a combustor liner, flowpath walls, a turbine nozzle or vane, a compressor vane, a booster, a turbine shroud, and a casing of the gas turbine engine.

15. A hand-held apparatus for cleaning one or more components of a gas turbine engine, the apparatus comprising:

an acoustic emitter tube configured to direct one or more acoustic waves at a predetermined frequency towards a cleaning location of the one or more components of the gas turbine engine, the cleaning location characterized by having a build- up of foulants;

an emissivity sensor configured to detect an emissivity of a surface of the one or more components,

an articulating guide located at a distal end of the acoustic emitter tube, the articulating guide configured to locate the acoustic emitter tube near the cleaning location;

a control unit configured to control the articulating guide; and

a handle configured to assist a user in locating the acoustic emitter tube;

wherein the control unit is further configured to correlate the emissivity with a frequency configured to disperse the foulants, and wherein the predetermined frequency decreases as the detected emissivity increases.

16. The apparatus of claim 15, wherein the acoustic emitter tube of the apparatus is configured to access the cleaning location via at least one of an inlet, a port, and a cooling passageway of the one or more components of the gas turbine engine.

17. The apparatus of claim 15, wherein the acoustic emitter tube is further configured to deliver cleaning fluids to the cleaning location.

18. The apparatus of claim 15, wherein the control unit further comprises a user interface configured to display the cleaning location to a user.