CLAIMS:

1. A system (200) comprising:

- a waveguide element (1210) comprising a radiation exit window (230), wherein the waveguide element (1210) is (a) configured to receive radiation (221), wherein the radiation (221) at least comprises UV radiation, and (b) configured to radiate at least part of the radiation (221) to the exterior of the waveguide element (1210) via the radiation exit window (230) and (c) configured to internally reflect part of the radiation (221) at the radiation exit window (230);

- an optical sensor (310) configured to sense an internal reflection intensity (I) of the internally reflected radiation (221);

- a control system (300), functionally coupled to the optical sensor, and configured to reduce the intensity of the radiation (221) as function of reaching a predetermined first threshold of a reduction of the internal reflection intensity (I) over time.

2. The system (200) according to claim 1, wherein the control system (300) is configured to reduce the intensity of the radiation (221) only when in a predetermined control period a predetermined second threshold of an increase of the internal reflection intensity (I) over time does not occur, and wherein the predetermined first threshold of a reduction of the internal reflection intensity over time is a reduction of the internal reflection intensity (I) sensed by the optical sensor (310) of at least 1% in at maximum 1 seconds.

3. The system (200) according to any one of the preceding claims, wherein the predetermined first threshold is selected from the range of $0.1\%/s \leq |\Delta I/\Delta t| \leq 400\%/s$, wherein ΔI is the reduction in internal reflection intensity (I) in percent, wherein $\Delta I<0\%$, wherein Δt is the time period in which such reduction ΔI occurs, wherein Δt is at maximum 1 second.

4. The system (200) according to any one of claim 1 and claim 3, wherein the control system (300) is configured to increase the intensity of the radiation (221) as function

of a predetermined second threshold of an increase of the internal reflection intensity (I) over time.

5. The system (200) according to any one of claims 2, 3 (with reference to claim 2), and 4, wherein the predetermined second threshold is selected from the range of $0.1\%/s \leq |\Delta I/\Delta t| \leq 100\%/s$, wherein ΔI is the increase in internal reflection intensity (I) in percent, wherein $\Delta I>0\%$, wherein Δt is the time period in which such increase ΔI occurs, wherein Δt is at maximum 1 second.

6. The system (200) according to claim 5, wherein the control system is configured to reduce the radiation (221) as function of reaching the predetermined first threshold of the reduction of the internal reflection intensity (I) over time to a first intensity level of the radiation (221) larger than 0 W, and to increase the radiation (221) as function of the predetermined second threshold of the increase over time of the internal reflection intensity (I) to a predetermined second intensity level of the radiation (221), wherein the predetermined second intensity level of the radiation (221) is in the range of +/-10% of the intensity level of the radiation (221) before the reduction to the first intensity level of the radiation (221).

7. The system (200) according to claim 6, wherein the system (200) is configured to radiate at least part of the radiation (221) to the exterior of the waveguide element (1210) according to a predetermined relation between intensity of the radiation (221) and the internal reflection intensity (I) sensed by the optical sensor (310), and wherein the predetermined second intensity level of the radiation (221) is the intensity level of the radiation (221) associated with the internal reflection intensity (I) sensed by the optical sensor (310).

8. The system (200) according to any one of the preceding claims 1-3, comprising a user interface (340), wherein the control system (300) further comprises a safety routine, such that after a reduction of the intensity of the radiation (221) due to reaching the predetermined first threshold of the internal reflection intensity (I), the intensity of the radiation (221) can only be increased upon an instruction via the user interface (340).

9. The system (200) according to any one of the preceding claims, wherein the system further comprises:

- a light source (220) configured to provide the radiation (221).

10. The system (200) according to any one of the preceding claims, comprising a plurality of light sources (220) and a plurality of optical sensors (310) configured in a plurality of subsets (330) of one or more light sources (220) and one or more optical sensors (310), wherein the one or more light sources (220) of each subset (330) are configured to radiate radiation (221) via respective parts (233) of the radiation exit window (230), and wherein the control system (300) is configured to control one or more subsets (330) independent of one or more other subsets (330).

11. An object (10) comprising the system (200) according to any one of claims 1-10, wherein the object (10) comprises an external surface (11), and wherein the radiation exit window (230) is configured as at least part of the external surface (11), wherein the object is selected from the group comprising a door knob, a tap knob, a toilet knob, a toilet seat, a railing, a kitchen cutting board, and a medical device.

12. An object (10) comprising the system (200) according to any one of claims 1-10, wherein the object (10) comprises an external surface (11), and wherein the radiation exit window (230) is configured as at least part of the external surface (11), wherein the object is selected from the group comprising a table, an operating table, a cleanroom wall, an operation room wall, and a kitchen wall.

13. An object (10) that during use is at least partly submerged in water, the object (10) comprising the system (200) according to any one of claims 1-10, wherein the waveguide element (1210) is configured to irradiate with radiation (221) during an irradiation stage one or more of (i) a part (111) of an external surface (11) of said object (10) and (ii) water adjacent to said part (111) of said external surface (11), wherein the object (10) is selected from the group consisting of a vessel (1) and an infrastructural object (15).

14. A method for controlling escape of radiation (221) from a waveguide element (1210) to the exterior of the waveguide element (1210), radiation (221), wherein the radiation (221) at least comprises UV radiation, the method comprising sensing internal reflection

intensity (I) of within the waveguide element (1210) internally reflected radiation (221), and reducing the intensity of the radiation (221) as function of reaching a predetermined first threshold of a reduction of the internal reflection intensity (I) over time.

15. A method of providing a system (200) as defined in any one of claims 1-10 to an object (10), the method comprising providing the system (200) with the waveguide element (1210) to the object (10), wherein the object is selected from the group consisting of a vessel and an infrastructural object that has an aquatic application.