CLAIMS

1. A device for monitoring a measurement object (107b), comprising:

an active unit (115) having a light source (101) emitting light with a wavelength emission spectrum; and an optical detector (109);

one or several passive units (117);

at least one optical link (104a, 104b) for passing said emitted light from said light source to said one or several passive units (117); wherein

each passive unit (117) comprises;

a sensor (106);

a selector (105) for diverting at least a portion of said emitted light to said sensor (106);

said sensor (106) comprising a luminescent material (332, 342, 905, 1002, 1107, 1109) being affected by said emitted light being diverted by said selector (105),

wherein said light source (101) emits light in a said wavelength emission spectrum, such as UV light, that affects said luminescent material and said luminescent material radiates light in a radiated wavelength spectrum, such as visible light, when being affected by said emitted light;

said sensor (106) being arranged to be sensitive to an external influence (107a, 107a', 107a'',107a''') by said measurement object (107b) for producing a modulated signal of said radiated light during said external influence (107a, 107a', 107a'',107a'''); whereby said modulated signal is passed to said optical detector (109).

2. The device according to claim 1, wherein said luminescent material is a fluorescent material (332, 342, 905, 1002, 1107), which is directly irradiated by said emitted light from said light source for radiating light in said radiated wavelength spectrum.

3. The device according to claim 1, wherein said luminescent material is a material radiating light in said radiated wavelength spectrum when affected by charged particles produced by a charged particle generator comprised in said passive unit and generating charged particles when affected by said emitted light from said light source.

4. The device according to claim 1, wherein said selector (105) comprises:

an optical device for diverting at least a portion of the light received from said optical link (104a) to said passive unit (117);

a fixed filter (203) for passing at least a portion of said emitted light from said light source to said sensor (106).

5. The device according to claim 1, wherein said active unit (115) comprises an optical transmission filter (102) having an adjustable UV passband filter arranged to transmit UV light of different wavelength spectra, such as 200nm-250nm; 250nm-300nm; 300nm-350nm; and 350nm-400nm, or any combination thereof.

6. The device according to claim 1, wherein
an optical receiver filter (108) is arranged before the optical detector (109).

7. The device according to claim 1, further comprising:
a control processor (100) for controlling at least one of: said light source (101) and said optical detector (109).

8. The device according to claim 1, further comprising:
a real-time processor (110) receiving information from said optical detector (109).

9. The device according to claim 8, further comprising:
an information result processor (113) receiving information from said real-time processor (110); and
result definitions (112) comprising information for said information result processor (113); and
a result output (114) for presenting information from said information result processor (113) to a user.

10. The device according to claim 1, wherein said sensor is arranged to be affected by said external influence (107a, 107a') directly affecting the radiation of light in said radiated wavelength spectrum, such as visible light, by said luminescent material (332, 342, 905, 1002, 1107, 1109), for example quenching the radiation of luminescent light by said external influence, whereby said modulated signal is said radiated light in said radiated wavelength spectrum radiated by said luminescent material.

11. The device according to claim 1, wherein said sensor is arranged to be affected by said external influence (107a, 107a', 107a'') for directly affecting said radiated light in said radiated wavelength spectrum of said radiated light radiated by said luminescent material, for example absorb or reflect or scatter the radiated light radiated by said luminescent material, whereby said modulated signal is said radiated light in said radiated wavelength spectrum after said external influence (107a, 107a', 107a'').

12. The device according to claim 1, wherein said sensor is arranged to be affected by said external influence (107a’’’) for indirectly affecting said radiated wavelength spectrum of radiated light radiated by said luminescent material, by means of charged particles produced by a charged particle generator comprised in said passive unit, whereby said modulated signal is said radiated light in said radiated wavelength spectrum after said external influence (107a’’’).

13. The device according to claim 1, wherein said sensor is arranged to be affected by said external influence (107a, 107a’, 107a’’,107a’’’) for influencing upon said at least a portion of said emitted light being diverted by said selector, for example absorption, reflection or scattering of said at least a portion of said emitted light before affecting said luminescent material.

14. The device according to claim 1, wherein said passive unit further comprises a filter for preventing emitted light from reaching said measurement object.

15. The device according to claim 1, further comprising means for calibration of the sensor, namely variations in absorption when light is passed through said optical links (104a, 104b), variations in said light source (101), variations in said luminescent material (332, 342, 905, 1002, 1107), variations in said charged particle generator (1108), variations in said detector (109), variations caused by temperature, and variations caused by ambient light radiation.

16. The device according to claim 1, further comprising a wireless transmission line (119a, 119b, 119c) for transmission of information between the components of the device.

17. The device according to claim 1, wherein the device and/or at least one of the components: active unit (115) , control unit (118), result definition (112) and result output (114), are arranged in a mobile telephone.

18. The device according to claim 1, wherein said passive unit further comprises a pass filter for passing emitted light to said luminescent material and for preventing radiated light from passing backwards through said pass filter.