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Patent Number(s): EP2490009-A1; US2012211659-A1
Title: Terahertz wave characteristic measurement method for detecting substance involves measuring spectral characteristic or intensity of terahertz, transmitted through and reflected from thickness region of solution at particular frequency
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Abstract: NOVELTY - The method involves irradiating terahertz waves at a region in which a thickness of a solution is in a range from 10 micrometer to 100 micrometer such that propagation direction of terahertz waves is in a thickness direction of the solution, and measuring spectral characteristic or intensity at particular frequency or particular wavelength of terahertz waves that are one of transmitted through the region and reflected from the region. The solution contains one type of target substance to be measured.
USE - Terahertz wave characteristic measurement method for detecting substance such as in airport security checkpoint. Uses include but are not limited to liquid, organic solvent, such as alcohol like methanol and ethanol, and water, hydrogen peroxide, hydrochloric acid, and blood.
ADVANTAGE - The terahertz wave characteristic measurement method is capable, even if a target to be measured is a liquid, of measuring a spectral characteristic or intensity of terahertz waves transmitted through or reflected by the target to be measured without freezing or solidifying operation being applied. The effects of absorption of terahertz waves by a solvent with polarity, such as water, is suppressed because the terahertz waves are irradiated at the region in which thickness of the solution is in the range of 10 micrometers to 100 micrometers such that the propagation direction of the terahertz waves is the thickness direction of the solution.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:
(1) a substance detection method;
(2) a measurement instrument to be used for detecting substance;
(3) a terahertz wave characteristic measurement device; and
(4) a substance measurement device.
DESCRIPTION OF DRAWING(S) - The drawing shows a schematic diagram of a substance detection device.
Substance detection device (10)
Terahertz wave generation unit (12)
Spectral characteristic measurement instrument (14)
Measurement unit (16)
Processing section (18)
Derwent Class Code(s): S03 (Scientific Instrumentation, photometry, calorimetry)
Derwent Manual Code(s): S03-E04A5
IPC: G01N-021/35; G01J-005/10
Designated States:
EP2490009-A1:
(Regional): AL; AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HR; HU; IE; IS; IT; LI; LT; LU; LV; MC; MK; MT; NL; NO; PL; PT; RO; RS; SE; SI; SK; SM; TR; BA; ME