531

Patent Number(s): US8242447-B1

Title: Method for detecting presence of research department explosive, carried on human subject in e.g. security check point, involves converting frequency measurements of reflected radiation by inverse Hilbert Transform

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Abstract: NOVELTY - The method involves adjusting voltage across a bismuth, strontium, calcium, copper and oxygen (BSCCO) composition Josephson junction stack from 1-10millivolts and back to 1millivolt to produce a set of frequencies of about at 0.5-5 THz. Terahertz radiation reflected from a target i.e. human subject, is received by an yttrium, barium, copper and oxygen (YCBO) composition Josephson junction detector. A set of frequency measurements of radiation is converted by inverse Hilbert transform. The radiation is analyzed to identify an explosive i.e. research department explosive (RDX).

USE - Method for detecting presence of an explosive i.e. RDX, carried on a target e.g. human subject and animal, in revolving entry door of airport, moving walkway, security check point, escalator, jetway, and entry gate of an airplane. Can also be used for pentaerythrite tetranitrate (PETN) and Semtex (RTM: general-purpose plastic explosive).,.

ADVANTAGE - The method enables facilitating detection of the explosive through clothing without raising privacy concern by a set of high-transition temperature superconducting Josephson junctions that reliably generate multiple Terahertz waves and detects the reflected Terahertz waves to detect and confirm presence of the explosive. The method enables deriving a set of real-time explosive signatures from information contained in the reflected Terahertz waves to consistently yield accurate and reliable detection of the explosive.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for an apparatus for detecting presence of an explosive on a target.

DESCRIPTION OF DRAWING(S) - The drawing shows a graph representing a relation between intensity and voltage measured by a Josephson junction detector.

Derwent Class Code(s): A89 (Photographic, laboratory equipment, optical); S03 (Scientific Instrumentation, photometry, calorimetry); U14 (Memories, Film and Hybrid Circuits, Digital memories); W06 (Aviation, Marine and Radar Systems)

Derwent Manual Code(s): A12-T03A; S03-C02B; S03-C06; U14-H03G; W06-B01

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Field of Search: x