

Title (en)

MILLIMETER WAVE IMAGING UNIT WITH FREQUENCY SCANNING ANTENNA

Title (de)

MILLIMETER-WELLENBILDERZEUGUNGSEINHEIT MIT FREQUENZABTASTANTENNE

Title (fr)

UNITE D'IMAGERIE A ONDES MILLIMETRIQUES A ANTENNE A BALAYAGE EN FREQUENCE

Publication

EP 1920266 A2 20080514 (EN)

Application

EP 06813981 A 20060830

Priority

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- US 21627705 A 20050830
- US 30082705 A 20051214

Abstract (en)

[origin: WO2007027827A2] A frequency scanned millimeter wave imaging unit and discloses imaging system comprised of one or more of these units. The unit includes one or more millimeter wave frequency scanning antenna for collecting frequency dependent beams of millimeter wave radiation from a narrow one-dimensional field of view and millimeter wave amplifier components for amplifying the millimeter wave radiation collected by each antenna. Antennas can be sized according to the application. The unit includes a beam-former that separates the amplified radiation to produce frequency dependent signals corresponding to the frequency dependent beams. The beam-former includes delay lines, a millimeter wave lens, and an array of millimeter wave power detectors for detecting the power in each frequency dependent beam. A sampling circuit reads out the frequency dependent signals to produce a one-dimensional image of the antenna field of view. A two dimensional image of a target may be obtained by moving the target (or having the target move) across the field of view of the scanning antenna or by moving the antenna in order to scan its line of focus over the target. A standard unit has a 4.5-inch antenna and another standard unit has a 26-inch antenna. In preferred embodiments the 5.5-inch antenna unit is used along with other similar units in a portal imager and in a close-in whole body imager. This unit is also used in a hand-held unit and the larger 26-inch antenna unit is used in an imager system that can be focused at ranges between about 5 feet and infinity.

IPC 8 full level

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CPC (source: EP US)

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