CLAIMS

1. A security screening device, comprising:

a portal, said portal comprising two electronically connected side pillars **100**, said portal forming an inspection area **120**,

each one of said two side pillars comprising a linear array of two or more millimeter-wave emitters **101**, a linear array of two or more millimeter-wave receivers **102**; a data acquisition processor **106** and an imaging processor **107**,

said two or more millimeter-wave emitters being configured to transmit cyclic broadband radio wave signals towards said inspection area searching for a concealed item **22** hidden on a moving target **21**,

each emitter from the linear array of emitters being configured to cyclically scan a range with bandwidth 5-20 GHz within 10-50 microseconds;

said two or more receivers being configured to sense said cyclic broadband radio wave signals emitted by said two or more millimeter-wave emitters, said cyclic broadband radio wave signals being direct signals unimpacted by the moving target, signals transmitted through the moving target and signals that are reflected back after impacting the moving target;

said two or more receivers being configured to send sensed signals to the data acquisition processor **106** then the data acquisition processor sends data to the imaging processor **107**, said imaging processor configured to provide one or more 2-dimensional images **25** of said moving target based on processing of said unimpacted direct signals and said signals transmitted through the moving target and said reflected signals; said one or more 2-dimensional images having optical path length resolution of better than 2 cm;

said imaging processor **107** is configured to select one or more sections of said one or more 2-dimensional images, said one or more sections corresponding to the concealed item of interest.

2. The device of claim 1, wherein said cyclic broadband radio wave signals transmitted vary in time, in frequency, or both in time and in frequency.

3. The device of claim 1, wherein said emitters are positioned in a vertical line and with an equal spacing between one another, and wherein said receivers are positioned in a vertical line and with an equal spacing between one another.

4. The device of claim 1, wherein said emitters transmit and said receivers sense said cyclic broadband radio wave signals in one linear polarization.

5. The device of claim 1, wherein the acquisition processor is configured to provide separation of a phase of the cyclic broadband radio wave signals.

6. The device of claim 1, wherein said imaging processor is configured to provide cross-eyed images of said target based on a location of said emitters and said receivers on both sides of said inspection area.

7. The device of claim 1, further comprising one or more magnetometers **104**; said one or more magnetometers is configured to provide supplemental magnetic field data to the acquisition processor for said processing.

8. The device of claim 1, said processing further comprising providing a confidence value corresponding to said concealed item of interest.

9. The device of claim 1, said processing further comprising providing a numeric representation corresponding to said concealed item of interest.

10. The device of claim 1, further comprising one or more video cameras **103**, said one or more video cameras is configured to track said concealed item of interest.

11. The device of claim 10, said processing further comprising optical image flow analysis, said processing further comprising providing one of two or more classifications for each target based on a joint analysis of optical data, magnetometer data, and radio wave data.

12. The device of claim 1, said portal further comprising an overhead beam connecting said two side pillars, said overhead beam housing a power input system.

13. The device of claim 1, each one of said side pillars further comprising a radio frequency generation, distribution and demodulation module **105** and the data acquisition processor **106** and the imaging processor **107**.

14. The device of claim 1, wherein each one of said two side pillars comprises 16-256 of said millimeter-wave emitters, wherein said emitters transmit and said receivers are configured to sense said cyclic broadband radio wave signals in two orthogonal polarizations.