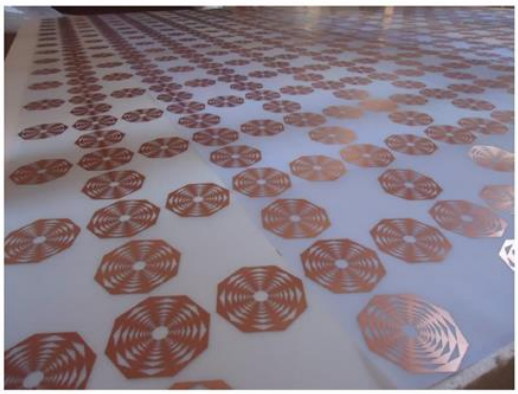
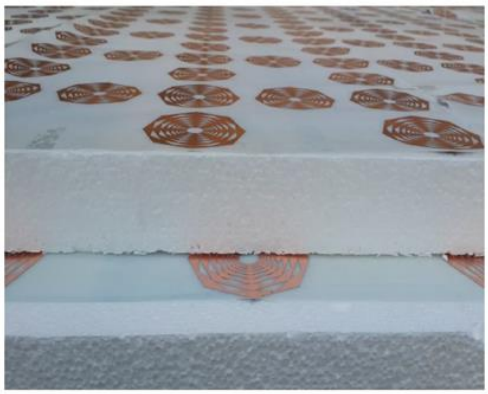
UltraWideBand Antenna





The Invention

Optimal end-to-end antenna system design for applications requiring ultrawide bandwidth. The antenna design allows for improved range, resolution and a wider field of view in a low cost solution that can be printed onto flexible materials. The antenna's transmitter/receiver has a fractal design and makes use of a frequency-selective surface to achieve a bandwidth ratio of 1:10. The transmitter/receiver design is printed onto the surface of the object using conductive ink, a low-cost manufacturing process.

Novelty

- One antenna to replace many, due to ultrawide bandwidth ratio
- Low cost and easy to manufacture
- Antenna element is planar allowing for compact, low profile and flexible configurations
- Using antennas to 'see through walls/fire/smoke'

Application Fields

The antenna system can be designed to fit specifically with many needs. Here are some applications which the system can be adapted to:

- **Space observation:** designed with square kilometre array project requirements in mind
- **Military:** tactical communications systems, RADAR, border control, data gathering with drones
- **Industrial:** telecommunications - reducing number of antennas needed for different services on base transceiver stations, civilian RADAR and communications, high resolution medical RF imaging, search-and-rescue aids
- **Consumer Products**: wearables, mobile phones, electronic devices, gaming systems

IP Status

Patent application no. GB1314339.1 was submitted in the United Kingdom in August 2013. A further patent application no. 2016/01049 was filed in South Africa in February 2016. The IP is co-owned with the University of Manchester.

A genetic algorithm design process has also been developed which can be used to design antenna systems with various requirements. The team also has know-how in designing the entire system around the antenna for maximum benefit to the user.

Commercial Interest

We are looking for potential licencees of the patents for application in the Square Kilometre Array Project. We are also looking for collaborators interested in developing bespoke systems and products for commercialisation in other applications.

The team also has a high level of capability in predicting performance of the antennas through simulation by comparing simulations with measurements for reflection coefficients and antenna efficiency.

Lead Inventor

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The development was executed at and supported by the University of Malta, sole owner of the rights. The university's IP is managed by its Knowledge Transfer Office. Inquiries shall be submitted to knowledgetransfer@um.edu.mt, or further information may be obtained on +356 2340 3930.