ORA Wideband Antenna

BACKGROUND

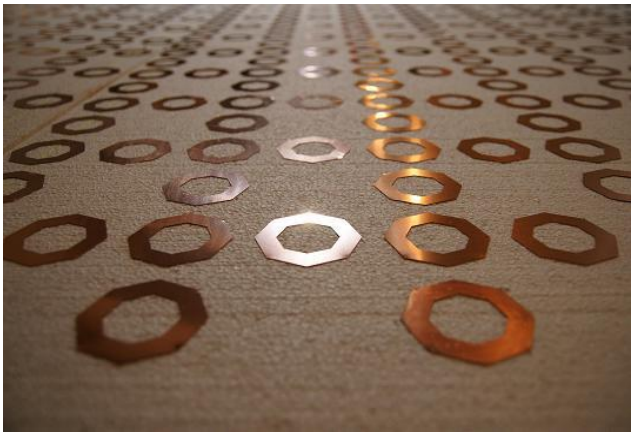
A team, led by Prof. Tony Brown at The University of Manchester, has been researching novel technology as the basis for lightweight, extremely wideband array antennas. The original work on the Octagon Ring Antenna (ORA) was sponsored by the STFC as part of the Square Kilometre Array (SKA) project and there are now opportunities to develop the technology for use in a number of commercial markets.

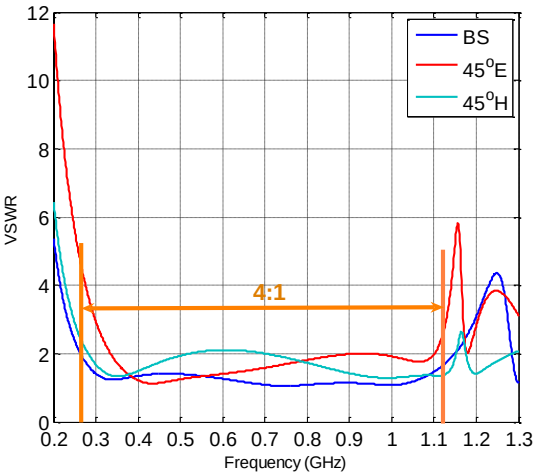
Commercialisation is being managed by The University of Manchester Intellectual Property Ltd (UMIP) and the IP consists of an international patent portfolio.

THE TECHNOLOGY

By exploiting and controlling the inherent mutual coupling between array elements (normally detrimental to performance), the bandwidth of the device has been extended significantly. The technology has the potential to extend boundaries in existing antenna applications and to open up new ones. Device attributes include:

- Very broad bandwidth: a frequency ratio of at least 3:1.
- Good scalability: 300 MHz – 1.0 GHz or 3 GHz – 10 GHz and beyond.
- Applications at up to 60 GHz and 120 GHz may also be feasible.
- Dual polarisation capability, with low levels of cross-polarisation.
- Reduced size, weight and lower cost compared with existing technology.
- Ease of manufacture, using low cost printed circuit techniques.
- Electronically steerable array, in either transmit or receive mode, or both.



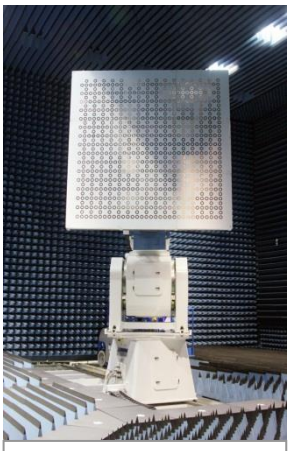


ORA 16 x16 finite array	ORA frequency range

KEY BENEFITS

Along with ease of manufacture, one immediate implication of the size and weight reduction is greater ease of deployment in the field. Other examples of extended applicability and/or performance, compared with existing technology, such as Vivaldi array antennas, include:

- Improved high data rate communication
- Multifunctionality – the ability to carry many services at the same time
- Higher resolution in, for example, radar imaging, where smaller objects or lower object separations may be resolved



16 x 16 ORA on test

OPPORTUNITY

There has already been significant interest in ORA from the mobile communications industry and UMIP is actively seeking to commercialise the technology by licensing into this sector. UMIP would also be interested in discussing ORA with companies involved in the defence and healthcare industries.

CONTACT

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