

Body Worn Antenna for Communications Systems

A high performance omnidirectional antenna system designed for body worn communications equipment.



Communications equipment that traditionally requires tall vertical omnidirectional antennas present operational challenges for their users as they are low gain, highly visible, and can limit manoeuvrability. This new body worn antenna system overcomes these limitations, increases performance and reduces cost.

Conventional omnidirectional antennas have finite gain levels which constrain the whole system's RF performance. This in turn negatively impacts the whole system level design of portable systems.

More efficient, higher gain

This new body worn antenna system developed by Dstl comprises multiple directional antennas and represents a step change in the performance of body worn antenna technology.

The gains of more than one directional antenna are combined to deliver a higher gain and more consistent omnidirectional coverage as compared to large vertical omnidirectional antennas.

The combination of the antenna signals gives a much more capable system above simply using the feed with the greatest Signal to Noise Ratio (SNR). Radiation efficiency is maximised which gives greater range, and / or longer battery life.

Benefits

- » Higher and more consistent gain
- » Greater range / longer battery life
- » Greater robustness and less prone to snagging
- » Low manufacturing costs owing to simple design
- » Discreet antenna reduces visual signature

Applications

- » Defence and security
- » Search and rescue
- » Specialist civilian applications

Description

The body worn antenna uses multiple distributed higher-gain directional antennas to reduce the Size, Weight and Power (SWaP) requirements while increasing the total system performance.

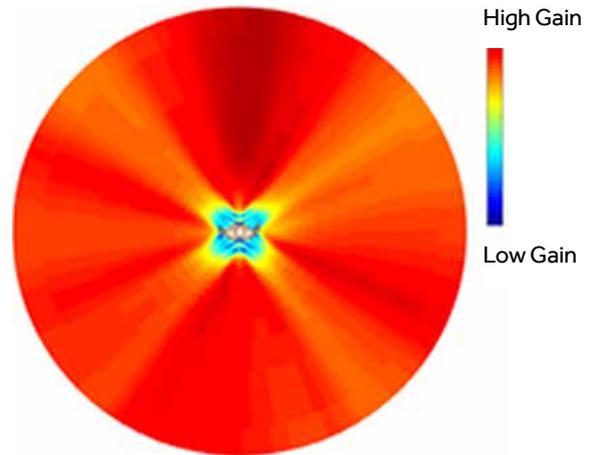
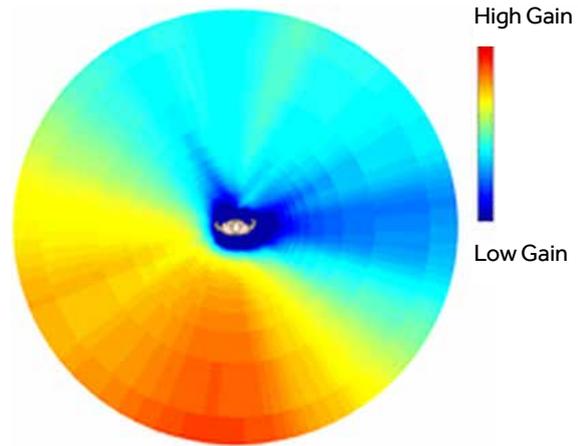
Due to their small size the antennas could be integrated in various ways such as into a vest, or on the straps of a backpack or radio.

Performance

Indoor and outdoor testing of prototypes from just 50mm in length have shown excellent performance. Multiple systems have been designed and tested which cover frequencies from 300 MHz to 6 GHz, with development continuing towards higher frequencies.

Intellectual Property

Patent granted in UK (GB 2539327) and applied for in USA, Europe, Canada, and Australia.



A comparison of the gain map of a conventional omnidirectional antenna (top) and the new body worn antenna (bottom).

More information

For more information about licensing this technology, or to speak to us about our other defence and security related IP, please contact us.

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