

## High Performance Antenna System for V2X Communications

An omnidirectional antenna system which improves the range and performance for Vehicle-to-everything communications systems.



Vehicle-to-everything (V2X) communication systems require high performing omnidirectional coverage to achieve road safety and traffic management goals. This new antenna system, originally designed for the military, is now available to license and offers improved gain and integration for distributed antenna systems.

Vehicle-to-everything (V2X) communication systems will be a key component in order to achieve full autonomous capability for vehicles. Indeed, they will still be necessary for the human-in-the-loop Level of Automation phases while full automation is developed, tested, and certified.

Many emerging V2X applications require 360 degree coverage, and to achieve this, it is common practice to use multiple antennas, including directional antennas.

However, to meet V2X performance requirements conventional communications systems will need to be enhanced.

### V2X Antenna System

This antenna system combines related technologies to provide enhanced antenna performance for vehicle applications.

It uses multiple directional antennas operating in phase to deliver improved radiated performance away from the platform.

### Benefits

The antenna improves the transmit and receive gain for vehicles and platforms above that achieved by a single omnidirectional antenna, or multiple directional and omnidirectional antennas that do not operate in phase with one another.

- » **Performance** - improved performance over that of a single omnidirectional antenna.
- » **Installation** - multiple options for deployment.
- » **Conventional Technology** - the system can exploit bespoke and more standard antennas depending on application requirement

## Description

Multiple directional antennas can be operated singularly or sequentially depending on application requirement. When driven sequentially in phase with each other, combined high gain performance can be achieved that radiates all around the platform.

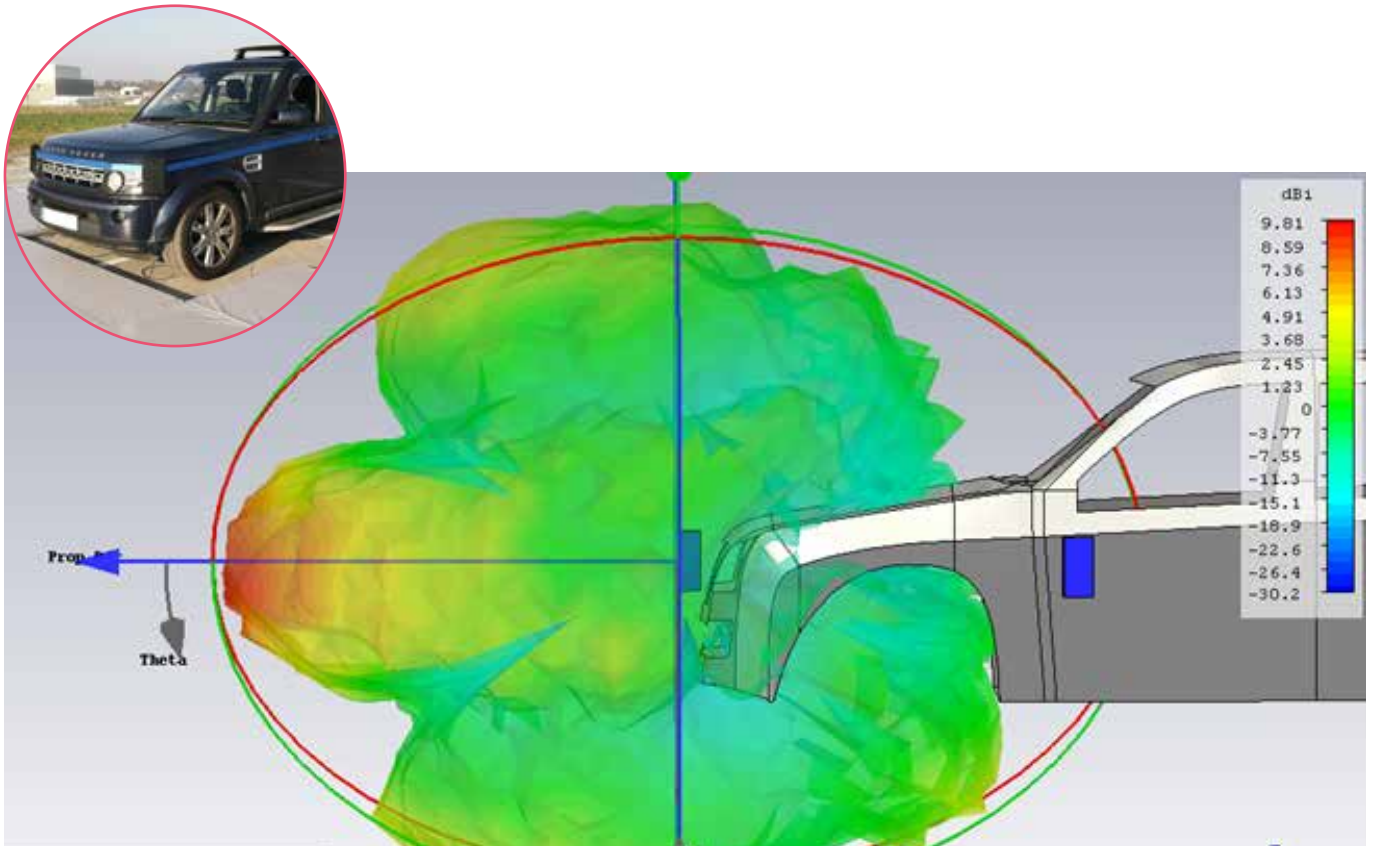
Hybrid installation options are available which enable the concept to provide consistency and performance benefits over a wide variety of platforms and configurations.

## Intellectual property

GB Patent application GB1902185.6 and PCT application PCT/GB2019/000023

## More information

For more information about licensing this technology, or to speak to us about our other sensors-related IP, please contact us.



Inset photo: Test vehicle with a number of embedded directional antennas  
Main image: Simulated pattern for a single antenna

**ploughshare**

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+44 (0)1794 301052

info@ploughshare.co.uk

[ploughshare.co.uk](http://ploughshare.co.uk)

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