

# Countering IEDs with novel electronic technologies

- DASA has launched a new Innovation Focus Area (IFA) called Countering IEDs by Novel Technology and Techniques.
- Seeking novel electronic technologies that can counter Improvised Explosive Devices (IEDs)
- Between £150k – £400k per proposal

It is vital that UK military and security users can continue to deploy new countermeasures and technologies to outpace IED threat evolution, to protect service personnel, emergency services and the public against the threat of improvised explosive devices (IEDs).

To address the UK's need for IED threat detection, the [Defence and Security Accelerator](#) (DASA) is pleased to launch a new IFA, [Countering IEDs by Novel Technology and Techniques](#). This IFA aims to find and develop innovations that use either the Radio Frequency (RF) spectrum or provide an understanding of the RF spectrum in order to detect and disrupt the functionality of IEDs.

## **Funding available**

Between £150k – £400k is available per proposal for this IFA. Proposals are expected to last between 6 – 18 months, and should deliver solutions at a minimum of [Technology Readiness Levels \(TRLs\) 5/6](#).

The IFA is open for proposals now until further notice.

Have an innovation? [Read the full competition document and submit a proposal](#).

## **Effective IED countermeasures: Key challenges**

An important part of countering an IED threat is the detection of devices along with understanding the electromagnetic environment. This will help inform situational awareness and determine threat from non-threat, and inform the configuration of other countermeasures.

### **What is an IED?**

An IED is an explosive device fabricated in an improvised manner, but with varying degrees of professionalism. An IED typically comprises of the following component types:

- a power source
- wires
- electronic circuitry
- an explosive initiator
- an explosives charge
- shrapnel products to increase fragmentation

- trigger mechanism
- various enclosures

The trigger mechanisms used to initiate IEDs are often adapted from commercial products. Examples could include modified Radio Controlled (RC) toys or the use of communication networks.

## **Challenge areas**

There are three challenge areas of interest for the IFA, and proposals are expected to meet at least one of the below challenges.

### **Challenge 1**

To capture and analyse RF signals using novel spectrum survey techniques, which may include, but is not limited to:

- signal analysis techniques and classification algorithms, which identify and distinguish between multiple technology standards and protocols, while being able to operate across a wide spectrum in real time
- generating methods or data analysis techniques to provide an understanding of the RF environment, which can be used to inform tactical decisions; for instance, the ability to identify abnormal changes in the environment

### **Challenge 2**

Approaches to permanently or temporarily disable commercial communications links and/or the electronics within a Remote Controlled Explosive Device. Examples include techniques that:

- disable communications links to prevent a trigger signal being received. Examples of communication links of interest include those used by push-to-talk radios, wireless doorbells, cellular devices, Wi-Fi and any other readily available communication devices. This may include approaches against the RF signal or the wireless transceivers themselves
- disable multiple communication types simultaneously across a wide spectrum, preventing devices from switching to alternative RF bearers that they may have access to
- disable the electronics within a Remote Controlled Explosive Device, preventing its detonation. Examples include RF techniques to affect the operation of microcontrollers or cause permanent damage

### **Challenge 3**

New or novel hardware and ancillaries (system components), which may include but is not limited to:

- novel antenna concepts to improve performance and lower the RF and visual signature of the service person or vehicle with respect to the ECM system and its ancillaries
- advancements in hardware design, such as tuneable filters, efficient ultra-wide band amplifier designs
- optimisations in size, weight, or power, or efficiency optimisations in wideband RF signal generation technologies (in the order of several GHz)
- novel signal and data processing hardware technologies and techniques, that offer advancements in efficiency, parallelism or dynamic configurability

[Read the full competition document to learn more about the challenge areas.](#)

### **Submit a proposal**

If you have a solution or technology that may help us discover better ways of countering IEDs and protect service personal and the public, DASA would like to hear from you. Read the full competition document to submit a proposal.

[Submit a proposal.](#)