WEAPONS TECHNOLOGY CENTRE

QinetiQ

Emerging Algorithmic Techniques – Calling Notice

WTC Terminal Effects and Accuracy Programme

Introduction

This calling notice is for advanced algorithmic studies to support improved seeker acquisition and weapon navigation. Proposals need to be submitted by 17/08/2012 and be up to 6 months in duration.

These studies will support the Weapons Technology Centre (WTC) funded Terminal Effects and Accuracy (TEA) programme, lead by QinetiQ, which aims to identify and develop seeker technologies for:

- Future (2025) multi-mode, multi-role complex weapons
- Enhancements to future pipeline seekers, e.g. Thales Lightweight Multirole Missile (LMM)

The focus is on sensor and algorithm options for lightweight man-portable Battlefield Weapons, with a secondary focus on VSHORAD (Very Short Range Air Defence).

Work theme

This call focuses on the challenge of investigating and developing innovative algorithmic techniques to significantly enhance the performance of seekers for weapons designed to:

- Fit within a maximum diameter projectile of 75 mm;
- Operate at speeds of 500 m/s, tracking targets from up to 8 km (scenario / sensor dependent) and down to 50 m;
- Detect / track ground targets, such as personnel (on foot or on a bicycle), vehicles, through to armour, potentially in urban environments (where buildings may obscure the targets) or rural environments where targets may make use of natural cover from vegetation and foliage;
- Detect / track aerial targets such as model aircraft, Unmanned Aerial Systems, and Attack Helicopters;
- Operate in day, night and all weather environments.

Innovative approaches to aid current / future sensor technology with this task are invited. Sensors could be one or more of visual / IR imager, radar, LIDAR and Semi-Active Laser (SAL). Algorithmic areas identified as suitable for this work are listed below. This list is not comprehensive and other ideas could be discussed with one of the contacts on the following page:

- Maintaining capability whilst reducing costs (e.g. processing to allow improved performance from low-cost hardware);
- Improving target detection, recognition, identification, tracking and maintaining positive ID against a wide target set in a cluttered background;
- Static and moving targets, small / stealthy targets and camouflage, concealment and deception (CCD);
- Accuracy and aimpoint refinement to avoid collateral damage in complex clutter;
- Use of a wide range of 3rd party targeting information of different fidelities, lock on before / after launch;
- Image enhancement for compression and image compression (to support operator in the loop and battle damage indication);
- Techniques to improve weapon guidance and navigation (e.g. coping with GPS denial).

The exploitation of techniques should be considered for relevance to the above points and the potential for implementation on future tactical hardware.

Timescales for response to SOR

• Call for proposals	Monday	09/07/12
• Ideas to SRG Primes (optional)*	Wednesday	18/07/12
• Closing date for full proposals	Friday	17/08/12
• Reply to suppliers	Friday	07/09/12

It is suggested that there is significant benefit to exposing ideas to one of the Seeker developers detailed below, before submission of the proposal template, to ensure that ideas are clearly focused on a seeker need. The ideas should be a single paragraph outlining a potential work study whilst being without commercial commitment.

[dstl] SELEX GALILEO MBDA MISSILE SYSTEMS THALES

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Algorithm and Seeker Developers

Short ideas can be sent to the following for feedback on suitability:

	Company	Phone	E-mail address
Gavin Beard	QinetiQ	01684 895426	gsbeard@qinetiq.com
Keith Markham	MBDA	01179 316260	keith.markham@mbda.co.uk
David Wilson	THALES	02890 465197	david.j.wilson@uk.thalesgroup.com
Bob Shears	Selex Galileo	01268 887233	robert.shears@selexgalileo.com
Colin Vout	MBDA	01438 755911	colin.vout@mbda.co.uk
Jason Cowell	THALES	01256 387472	jason.cowell@uk.thalesgroup.com

Recommended format

- See the proposal template for responses.

Conditions

- Output will be DECON705 Full Rights
- Security classification is UNCLASSIFED
- The submitted proposal will be:
  - a fully costed proposal;
  - considered to be a complete submission;
  - considered to be commercially sensitive and only distributed to a named list of TEA reviewers, commercial and project managers and the WTC tasking group;
  - Individual NDAs will not be required.

Price guidance

- £300k has been allocated to this call
- It is anticipated that 5-6 studies of value ~£50k each will be let
- Potential suppliers are encouraged to submit studies around this price point
- The TEA programme desires to fund a spread of activities rather than fund 2 or 3 more detailed studies.

Scoring criteria

Proposals need to address this call or they will not be considered.
A summary list of the criteria against which proposals will be scored is below:

- Military Benefit – Does the proposal allow improved performance compared to current capabilities, or allow a cheaper seeker to provide the performance achieved by more-expensive current systems? Does the work address the key technical issues identified? The greater the perceived benefit, the higher the score;
- Route to product – Does the suggested technology have a potential development route for use in a seeker? Low TRL research may not have a clearly defined route but should address a suitable algorithmic area. Higher TRL research should make it clear how it could be implemented and used;
- Delivery Risk – Is the proposed programme of work feasible for the timescale and cost? Consideration will be made of the technological challenges of the work and the company's expertise;
- Cost compliance and value for money – An indicative budget should be supplied as part of the call. The cost of proposals will be weighed against the other criteria to judge whether the proposal is considered to be good value.

Contact Details

For further information please contact Gavin Beard on 01684 895426 or gsbeard@qinetiq.com.

Please submit proposals to Andrew Robson at afgrobson@qinetiq.com.

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