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Subject
CARPET-VTS

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CARPET-VTS

Introduction

Since 1992 TNO has provided a tool for the prediction of the performance of radar systems. This tool, CARPET version 2 (CARPET 2), enables companies, (maritime) institutions, universities, customers and government bodies to get an prediction of the radar performance. CARPET 2 is widely used within the VTS community.

Due to the development of for example solid state technology applied in the latest generation VTS radar systems, CARPET 2 is less suitable to predict the performance of these advanced systems. Shortcomings of the current version of CARPET have been expressed to TNO by members of the VTS community and also by IALA. TNO has evaluated the effort to upgrade CARPET 2 and suggests to develop new software tool for the prediction of the performance of advanced radar systems, especially for the VTS community.

CARPET-VTS

TNO is a research institute founded by law which carries out numerous research programs, including research programs for radar. These radar research programs are commissioned by the Dutch Ministry of Defence as well as other governmental and non-governmental organisations. As a result, TNO has a vast knowledge of advanced cutting edge radar technology. TNO's extensive knowledge base will become freely available for software development of CARPET-VTS tool.

The requirements of a new version of CARPET, called CARPET-VTS, have been drawn up by TNO. CARPET-VTS will overcome certain drawbacks of the current version, CARPET 2. It will allow accommodation of the waveforms of modern coherent VTS radar systems. The added functionality includes:

1. complex radar waveform,
2. extended target,
3. radial velocity averaging,
4. more precise specification of loss factors,
5. redesign to modern standards of the GUI (graphical user interface),
6. redesign of the graphics,
7. support of (partially) encrypted settings files.

In addition, the structure of CARPET-VTS tool will also be modified, so that CARPET-VTS can be adapted and extended more easily in the future.

Funding

In a meeting with IALA, January 2012, TNO has indicated that it is possible to extend the capabilities based on CARPET 2 and develop a new tool like CARPET-VTS. TNO, being a not for profit organization, cannot 'upfront' finance the CARPET-VTS software development. Since this meeting in January 2012 no solution to raise the required funding appeared. However, TNO receives requests for a new version of CARPET on a regularly basis.

TNO believes that it can support the VTS community with the requested tool in the most economical way, as TNO doesn't need to build up the required knowledge, but only needs to develop the software based on that knowledge. As the VTS community is relatively large, TNO wants to propose to the VTS community to use 'crowd funding' to raise the required funding for the software development. Once enough funding is raised, the software development starts.

For the development of the tool CARPET-VTS a budget of € 300.000,-- is needed (excluding VAT). Participating in the crowd for CARPET-VTS provides several benefits:

- Two licenses of CARPET-VTS will be provided for the price of 1 license;
- Crowd members will get a price reduction that is proportional to the budget that exceeds € 300.000,--. The larger the crowd and their investment, the larger the discount.
- Crowd members get the two year support fee of € 1.000,-- for free. After these two years, the support fee will be € 500,-- per legal entity.
- Crowd members get a CARPET-VTS training, one person per license, at our premises of TNO in The Hague for free.

Date

1 August 2013

Our reference

TNO-060-DHW-2013-01972

Page

2/4

Pricing

The price of the software development of CARPET-VTS is € 300.000,-- VAT excluded. For this development, crowd funding by the VTS community is needed. As mentioned in the previous paragraph, investing in the development of the CARPET-VTS tool provides several benefits like a free license, 2 year support fee for free and a free course. It is also possible to obtain an even better package deal (all prices VAT excluded):

Package deal	Number of licenses	Minimum price	Maximum price
Basic	2	€ 11.000,--	€ 15.000,--
Extended	6	€ 31.000,--	€ 41.000,--
Large	10	€ 45.000,--	€ 60.000,--
University	2	€ 3.000,--	€ 4.000,--

Participants of the crowd funding receive licenses according to their choice of license package of the new version of CARPET-VTS.

When CARPET-VTS is on the market, the price of one license will be fixed to € 17.500,-- (VAT excluded) for commercial and professional usage and € 3.000,-- (VAT excluded) for academic usage. This includes one year support fee. After one year, a support fee has to be paid of € 500,-- which needs to be extended each following year. This support fee will cover part of the yearly cost of bug fixes, software updates and support to the customers.

CARPET-VTS licenses will only be sold to legal entities.

Procedure

TNO will setup a website dedicated to CARPET-VTS crowd funding initiative hosted by its corporate communication department, inviting members of the VTS community to join the initiative. The website will contain the information similar to this document and will also contain practical information like a *License Agreement CARPET-VTS* (LACV). The LACV will be based on the general software license agreement model of TNO, adapted for the specific crowd sourcing related aspects. The LACV will be available on the website.

This website will be released on October 1st 2013 and will close a number of months later, at the end date December 31st 2013, leaving a window of opportunity of three months for the crowd to show commitment to the development of CARPET-VTS. Each crowd member will participate by choosing one of the license package deals and signing the LACV, committing to pay the license fee if TNO can raise the required funding of € 300.000,-- VAT excluded, before the end date.

Date

1 August 2013

Our reference

TNO-060-DHW-2013-01972

Page

3/4

After the closing at the end date, all LACV's are combined and the total committed funding is communicated with the crowd, which results in a final price, between the minimum and maximum indicated per package. TNO will send out invoices to the crowd which needs to be paid within two weeks after receiving the invoice and set a final release date of CARPET-VTS within approximately 6 months.

Activities will start after we have received all payments of the crowd.

If TNO cannot raise the required budget before the end date, TNO will withdraw the crowd funding initiative and TNO will not start the development of CARPET-VTS. In this case the crowd will be informed and no cost will be charged.

Request to IALA

TNO can only raise the required funding before the end date if the crowd is large enough. As TNO is not a commercial organization, TNO will need to rely on the exposure of, for example, IALA. TNO therefore requests IALA to inform actively all members of IALA and associated organizations so that it is broadly announced in the VTS community that TNO can develop CARPET-VTS with a crowd funding to obtain an economical solution to perform VTS radar performance predictions in the years to come.

Future

CARPET2 is discontinued and it will no longer be supported after the release of CARPET-VTS.

A series of extensions can be accommodated in CARPET-VTS in the future. Examples are an improved sea clutter model and the modeling of FMCW radar.

Date

1 August 2013

Our reference

TNO-060-DHW-2013-01972

Page

4/4