



## Tactical Data Information Links (TADILs)

27–28 June 2007

Presenter: Mr Howard Harvey

Mawson Lakes, SA

### Course Topics:

- Introduction to TADILs;
- Link-4A;
- Link-11;
- Link-16;
- Link-22;
- Satellite TADILs;
- Data Link Integration Options
- Cooperative Engagement Capability (CEC)

The courses will be conducted from 9.00am to 5.00pm. Morning tea will be available at approximately 10.00am to 10.30am, lunch from 12.30pm to 1.30pm and afternoon tea at approximately 3.00pm to 3.30pm.

### Registration Fee:

AU\$1320 (including GST)

**Earlybird rates:** AU\$1122 (incl. GST)  
**register before 23<sup>rd</sup> March 2007**

Group and PhD student discounts available. Please enquire.

For details of further courses please see our web site:

[www.nicta.com.au/short\\_courses](http://www.nicta.com.au/short_courses)

or contact the NICTA Industry Education Manager.

### About Tactical Data Information Links (TADILs)

This **two-day** course covers the principles and the technology of Tactical Data Information Links (TADILs). It includes a historical perspective, with a brief introduction to Link-4A, an introduction to Link-11 and a detailed introduction to Link-16, principles of VMF, Link-22, Satellite TADILs and Cooperative Engagement Capability. The course studies data links and the equipment required from engineering and capability aspects, rather than as an introduction for TADIL operators.

### About NICTA

National ICT Australia (NICTA) is Australia's ICT Centre of Excellence and was established to drive innovation through high quality research, research training and technology transfer. As a world-class research institute NICTA uniquely combines excellence in research, education, commercialisation and collaboration. We are working to ensure that Australia is well placed to benefit from the significant opportunities that ICT research delivers.

NICTA is funded by the Australian Government as represented by the Department of Communications, Information Technology and the Arts and the Australian Research Council through *Backing Australia's Ability* and the ICT Centre of Excellence program. NICTA members are the Australian Capital Territory Government, the New South Wales Government, the University of New South Wales and the Australian National University.

### About NICTA short courses

In July 2005 NICTA boosted its education by taking on the short course business of the Cooperative Research Centre for Sensor Signal and Information Processing (CSSIP) and Wedgetail Training, Research and Development Centre (Wedgetail TRDC).

The education model established by CSSIP and Wedgetail TRDC provided scope for delivering in-house programs tailored to specific needs of organizations. NICTA, with its extensive network of world-class researchers, is now offering a greater variety of short courses in an increasing number of locations in Australia and sometimes internationally. NICTA short courses connect research with industry by providing practical information from experts on how to solve key problems in industry and government. The Program offers scientists, engineers and managers technical training with a leading edge in areas such as telecommunications, transport, security, defence, logistics, e-government, mining, finance and biotechnology.

## Course Topics

### Introduction to TADILs

**Link-4A:** A brief introduction; Basic principles; Automatic Carrier Landing System (ACLS); Carrier Aircraft Inertial Navigation System (CAINS); Capabilities and Limitations; Timeslots; Message structure.

**Link-11:** Overview; Tactical Data System; Encryption; Data Terminal Set; Radios for Link-11; Conventional Link Eleven Waveform (CLEW); Single Tone Link Eleven Waveform (SLEW); Data Construction; Data Terminal Set Modes; Net Cycle Time (NCT); Net Efficiency; Doppler effects; Link-11 via satellites.

**Link-16:** A brief introduction; Capabilities; Time Slot Blocks (TSBs); Message Construction; Net synchronization; Frequencies and Interference Protection Feature (IPF); Range Extension by Relay; Time Slot Reallocation (TSR); Precise Participant Location and Identification (PPLI); Link-16 Enhance Throughput (LET).

**VMF:** Derivation from the Link-16 standard; VMF Message Catalogue; Header Layer; Bearer Layer; ASMTF and XML comparisons; VMF Syntax.

**Video on Link-16:** Link-16 capacity; Video stream bandwidth; Compression; Impact on image quality; Impact on Link-16 services; Demonstration of bit errors.

**Link-22:** Introduction; The NILE project; Overview; Timeslots and Minislots; Word Structure; TDMA process.

**Satellite TADILs:** Main modes of communications via satellites; Geosynchronous vs. Low Earth Orbit (LEO); Satellite limitations; Link-11 via satellite; Satellite TADIL-J, JRE; STDL.

**Data Link Integration Issues:** Factors influencing integration options; Impact on future support.

**Cooperative Engagement Capability (CEC):** A brief introduction; CEC concepts; Cooperative Engagement; Cooperative Target Resolution; Composite Tracking.

**Concluding Discussion, Course Review**

### Instructor: Mr. Howard Harvey

Mr Howard Harvey has recently retired after 40 years at DSTO, Edinburgh, SA. He received his B Technology (Electronic Engineering) from the South Australian Institute of Technology (now UniSA) in 1971. He developed a range of applications for microprocessing systems both embedded and as PC-based applications. His involvement with avionics since 1983 has included the PC-9 trainer, updates to the F/RF-111C, P-3C, F/A-18 and more recently with the Australian Wedgetail AEW&C. He has worked with engineering aspects of TADILs since 1995 with emphasis towards capability and integration on the AEW&C and other ADF platforms. He was the DSTO representative on the ADF Data Link Working Group for 7 years.

Please complete the registration form and send it together with your fee, if appropriate, **by no later than 23<sup>rd</sup> March 2007** for earlybird registration or **by no later than 13<sup>th</sup> June 2007** to

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Industry Education Manager,  
NICTA, SPRI Building,  
Mawson Lakes Boulevard,  
Mawson Lakes, South Australia, 5095.  
Telephone: (08) 8302 3928  
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Email: [anne-marie.eliseo@nicta.com.au](mailto:anne-marie.eliseo@nicta.com.au)

## Registration Form and Tax Invoice\* ABN 62 102 206 173

\*Upon completion of this form, including the relevant payment, this form will become a Tax Invoice.

**Please register me for Tactical Data Information Links (TADILs) on 27–28 June 2007.**

PLEASE PRINT

Date: \_\_\_\_\_

Title: \_\_\_\_\_ First Name: \_\_\_\_\_ Surname: \_\_\_\_\_

Position: \_\_\_\_\_ Organisation/Division: \_\_\_\_\_

Postal Address: \_\_\_\_\_

Telephone No: \_\_\_\_\_ Facsimile No: \_\_\_\_\_ Email: \_\_\_\_\_

Dietary preference: \_\_\_\_\_

Course Fees:  Earlybird rate: AU\$1122 (incl. GST)  
(Please register before **Mar 23<sup>rd</sup>, 2007.**)

Full fee: AU\$1320 (incl. GST)  
(Please register before **Jun 13<sup>th</sup>, 2007.**)

Method of Payment (please tick)

Cheque (payable to National ICT Australia Ltd)

**Please forward cheque and a copy of THIS Registration Form to the NICTA Industry Education Manager.**

Credit Card: \_\_\_\_\_ Credit Card No.: \_\_\_\_\_ Expiry Date: \_\_\_\_\_

Visa  Master Card \_\_\_\_\_ Name on card: \_\_\_\_\_

Amount: AU\$ \_\_\_\_\_ Signature: \_\_\_\_\_  Tick if receipt required

Electronic Funds Transfer

BANK

Commonwealth Bank of Australia

**Please advise by email to Annette Van Bramer**

ACCOUNT NAME

National ICT Australia Limited

[annette.vanbramer@nicta.com.au](mailto:annette.vanbramer@nicta.com.au)

BSB

062 900

**when payment is made**

ACCOUNT NUMBER

1032 4576

REFERENCE NUMBER

270607

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- Phone NICTA's Industry Education Manager on +61 8 8302 3928.