MINUTES

Standards Liaison Group for Automatic Test

2012-2 Meeting
27th November 2012

Venue: MBDA, Stevenage
Start: 10:00 am
Chair: Malcolm Brown   DE&S – EngTLS TM Development
Secretary: Terry Coles   Cassidian Test Engineering Services

Those present:

Alex Barrett	MBDA (UK)
Andrew Parkinson	Teradyne
Ashley Hulme	Independent Consultant
Bill Tully	MBDA (UK)
Chris Gorringe	Cassidian Test Engineering Services
Fernando Manrique	Indra
Graham Strachan	DE&S – AVR5
Graham Ward	EADS Astrium
Jean-Cristophe Hertzog	MBDA Group (France)
José Manuel Gonzalez Pascual	Indra
Keith Ellis	AKE Consultants
Malcolm Brown	DE&S – Head of ATS
Marvin Rozner	Aeroflex (US)
Matt Cornish	Cassidian Test Engineering Services
Paul Fowler	Raytheon
Pete Cassidy	DSG
Robert McAndrew	SELEX Galileo
Ryan Hodges	DE&S – AVR5
Steve Kelly	DSG
Terry Coles	Cassidian Test Engineering Services
Terry Roblett	MBDA (UK)
Terry Tinsley	Aeroflex Test Solutions
Tom Philips	SELEX Galileo

1.   APOLOGIES

Apologies for absence were received from:

Alain Vervin	Teradyne
Andy Mugford	BAE SYSTEMS
Bartolome Lozano Ceron	Airbus Military
Colin Sycamore	Intepro Systems
Darren Nicholls	Rohde & Schwarz UK
Dave Joel	Lanson Consultants
Hans Hopf	Sekas
Howard Saward	Cassidian Test & Services
Ian Tonge	Serco Technical and Assurance Services
Jochen Wolle	Rohde & Schwarz GmbH
Keith Randall	Rohde & Schwarz UK
Mike Davis	SSBV
Paul Attwell	CIMTEK
Penri Jones	Cassidian Test Engineering Services
Peter Lawson	GAMBICA
Richard Baldwin	Terotest
Richard Padley	GE Aviation
Roland Andrews	DiagnoSYS
Simon Tanner	Intepro Systems
Steve Brenner	Terotest
William Sinclair	SELEX Sensors and Airborne Systems

2.   INTRODUCTIONS

The Chair opened the meeting by welcoming all present.   He said how gratifying it was to see so many attendees after the much smaller Meetings that the group had experienced in the past.

He briefly explained his role within DS&E and with respect to the SLGAT group. This was followed by a round of introductions.

MB also mentioned that his Department Head, Richard Denning, had hoped to attend, but unfortunately had another commitment.

3.   REVIEW OF MINUTES OF LAST MEETING

No errors in content or accuracy were reported in the minutes of the 2012-1 meeting. The minutes were accepted as an accurate record of the meeting.

4.   DE&S (TLS) CURRENT ACTIVITIES

MB said that the changes to the DE&S (TLS) organisation had continued since this was mentioned at the last meeting.   The team has lost another two members and is now down to four.   However, Vimbai Fedrick has joined the team having moved from AVR5. Her role is to maintain the Policy and she is the sponsor for JSP 886 Vol 7 Part 8.6 (Test Equipment), 8.7 (Support Equipment) and 8.17 (Calibration). These have now all been published.

a)   SLGAT Terms of Reference

MB explained that Richard Denning had felt that after many years without any formal structure, a better definition of the group should be developed. He had therefore produced a Terms of Reference document (TOR), (distributed with these Minutes), which set out the requirements for a newly named group called Committee on Automatic Test Systems for Defence (CATS4D).   He summarised the proposed structure with the aid of a Presentation, (also distributed with these Minutes).

One important aspect of the new structure is that CATS4D would report to the Committee for Defence Reliability & Maintainability (CoDERM), which is run by the one star, who will see what is happening. This may allow MB to bid for more funds to get more work done with Industry. With respect to the TOR, he welcomed comments as this would be reviewed by CoDERM early in the new year.

A number of comments and queries were raised:

- AP: How is the OSA being promoted?
  - MB replied that there are a number of ways. The ultimate goal is to promote through the one star, who would talk to other one stars, to ensure that the information is disseminated to as many groups as possible.
- TP: Similar work is going on in DoD and a joint approach is needed.
  - MB said that he is working with NAVAIR and information from this group goes into SCC20. He would add this to the objectives of the TOR.
- AP: The DoD view is different, with less emphasis on IEEE 1641 and more on ATML.
  - MB replied that this was true, but they did similar things and were also focussed on an Open Standards approach. He was trying to keep the Policy at a high level, but, depending on what DoD did, he may change

what he is mandating in the Standard. IEEE 1641 would remain a requirement.

b)   Membership

TC explained that at the last Meeting it had been noted that attendee numbers had been quite low for some time and there was uncertainty about how many of the approximately fifty people on the list were actually active. As a result, he had polled everyone and asked them to confirm that they wished to remain.

The response had been very good and most people had responded positively. A small number had asked to be removed, but some of these had provided another member of their organisation to take over the role from them. Only four had not responded at all.

As a result, 44 people were now confirmed active. There was one comment:

- KE: The group should endeavour to expand the participation.
    - This was agreed and it was commented that this might even be a side effect of the new structure, with the one star helping to spread the word.

c)   CDET

Using the same presentation material as he used earlier, MB explained that CDET, the Common Development Environment for Test was a collaborative programme with NAVAIR to share code and tools. He was currently writing the Summary Statement of Intent (SSOI) and one goal was to avoid ITAR issues; both sides were keen to achieve this. He said that NAVAIR had a significant number of people working on this and the overall target was to get it approved.

Once, in place, he would be looking to get contracts in place over the next two years.

5.   DEFENCE STANDARDS - UPDATES

MB gave an update of the status of test related Defence Standards:

- Def Stan 00-53 – Safe Operating Limits. This was still obsolescent. MB had a Meeting on the coming Friday to discuss this and Def Stan 00-70. TLS have a new contact in DStan, who may be able to assist.
- Def Stan 00-42 Part 4 – Testability. KE provided a Presentation on this (distributed with these Minutes). He had been looking at the Standard and to try to get a better feel of what MoD wanted from it, he had been in conversation with the reliability people at Abbey Wood. There was an IEC Standard (IEC 60706) which also provided Testability information and he had done a comparison of the two. In general, Def Stan 00-42 Part 4 is not a particularly good document; there are some useful parts, but it needs improvement. IEC 60706 is generally good, but is quite detailed. His conclusion was that the way ahead was to use IEC 60706 to improve Def Stan 00-42 Part 4, within the legal limitations, such as copyright etc.

A number of questions and comments were raised on KE's presentation:

- MB: The idea is to give the IPTs something that they can work with.
- TP: The commercial aerospace world also has some useful material, which could be taken account of.
- J-C H: France have a new Standards group to address this. He was requested to provide contact information:

Action: J-C H

- AP: This has been a real problem in the past and the updates were needed to provide a strong metric.
- TP: It is very hard to prove that test coverage, diagnostics, etc meets the requirements, so good verification requirements are needed.

MB said that the draft would be available for the next Meeting.

6. REPORT ON SCC20 ACTIVITIES & 2012–2 (ANAHEIM) MEETING

CCG gave a report on SCC20 activities and the 2012-2 meeting

This was a two day meeting which took place just before Autotestcon. The Steering meeting included election of officers, the outcome of which was that Mike Seavey is Chair with CCG as Co-Chair and Teresa Lopes as Secretary.

Subcommittee chairs are appointed by Chair based on self-nominations

DMC – John Sheppard and Tim Wilmering

HI – Rob Spinner and Steve Mann

TAD – Ion Neag and Anand Jain co-chairs, Mike Rutledge Secretary

TI – Chris Gorringe and Teresa Lopes

Mike Stora has recently stepped down, so Mike Seavey had been looking for nominations for Hardware Interfaces which have now been filled.

There had been some controversy, because someone had allegedly bought the rights to IPR in IEEE 1505. This was being pursued vigorously by the IEEE and the lawyers, but if this could not be resolved the Standard may be cancelled. MB said that if this happened, he might have to remove elements from the Def Stan. Everyone concerned had been extremely surprised at this development because there is an IPR declaration item at every meeting.

IEEE 1641.1 (User Guide) had been submitted to RevCom, but had been rejected, initially because someone had marked a change as Technical (even though it was actually Editorial) and then because changes in the IEEE's organisation had removed AH from the list of people who could submit. There were also some issues with power outages, due to Hurricane Sandy; so as a result, the document was on the Agenda for January, rather than December.

IEEE 1671 UUT Description and Test Description are changing in that some of the Test Description elements are moving to User Description. The focus is now on the Procurement Cycle and the idea is to normalise the Standard so that information is in the best place and not duplicated.

The TII Sub-committee considered IEEE 1671.4 which joins together the instruments and the test system. Mike Seavey is running this. Instrument Description was on its second draft, but there were few changes. The Ballot had been completed and it was with RevCom on the December Agenda.

There had been an intention to put two new Standards through (P1671.5 Test Station Description and P1671.6 Test Adaptor Description), but Hurricane Sandy had prevented that.

The P1671.0 ATML User Guide had been produced from the material developed during the ATML demonstrations.

Two new Standards were being produced; IEEE P1871.1&2 and IEEE P1877. IEEE P1871.1 used material stripped from Test Description to cover Synthetic Instruments and IEEE P1871.2 Intrinsic Path Characteristics extended ATML path descriptions to provided extended information to allow for tools for automatic path finding. This is recommended practice rather than a Full Standard.

IEEE P1877 (Test Orchestration Interface) had been proposed by NASA. They had been using ATML for monitoring remote assets and the Standard was on performance testing of these assets.

Post Meeting Note: More information about the P1877 proposal may be found at
<http://grouper.ieee.org/groups/scc20/tii/ATML/Minutes/2012-09%20Meeting%2043%20(SCC20%202012-2)/Intro%20P1877.pptx>.

The DMC Sub-committee did not meet.

In conclusion CCG said that around 5 Standards should be released next year.

A number of questions and comments were raised during the discussion and these are summarised here:

- TP: Is it possible to get copies of the Standards for SLGAT members to review?
  - MB said that he would look into this.

Post Meeting Note: Issued Standards are not available to anyone who has not purchased them. However, Project Authorisation Requests (PARS), that describe the scope and purpose of individual Standards may be obtained and reviewed by anyone with an IEEE account. IEEE accounts may be created by interested parties at the IEEE website. An overview of the PAR (eg the Project details) may be obtained without a login.

When the group is being requested to review Standards, then they will be made available prior to any Meeting.

- AP: Asked for clarification on what parts of UUT Description and Test Description were moving.
  - CCG said mainly Faults and Failures.
- CCG: Commented that there was another consortium 'standard' (not IEEE), DiagML, which is predominantly used for Diagnostics. This contains similar diagnostic information to the ATML family of standards, but does not have the test depth supported by ATML.. However, DiagML provides information about a snapshot in time, whereas ATML covered the total picture. The Test Description and UUT Description work was ongoing and one of its aims was to ensure that ATML could be used to generate DiagML.

7.   REPORT ON THE PROPOSED NEW IVI STANDARD

CCG said that there had been considerable adverse comments about IVI Drivers and some people had had issues using certain Vendors IVI drivers. Partly this was because the IVI Foundation had a problem understanding the

problem at first, but had now done a lot of work to ensure that vendor Drivers can be tested and validated to demonstrate IVI Standard acceptance.

They had already been doing a lot of work in the background. For one thing, vendors might support IVI, but they never said what versions or parts they met. The new approach would have a new logo, which required them to declare what they met.

In addition, IVI do a lot of work on platform support (versions of Windows, etc) and they do a good job.

The new system will mandate a subset of the source code to allow the driver to be extended.

Tutorials will be produced in the New Year. IVI will collaborate with the DoD. The idea is to move on from the past.

A number of questions and comments were raised during the discussion and these are summarised here:

- AP: Extensions allow for divergence; there needs to be some control over this. He thought that .NET was a good approach.
- J-C H: The Standard should allow Users to comment and allow the extensions in a controlled way. Currently, vendors only provide minimal class support.
  - This was accepted.
- MR: Stated that he had never liked IVI because it tries to impose a Standard on instrument functions. This is the wrong way round because it then bundles instrument functions into pre-defined packages.
  - CCG agreed with this; it stopped vendors from producing and marketing their value-added capabilities.
- TP: Vendors should not be allowed to drive what the Users can do.
  - AP said that the vendor needed a way to recover their investment in development and was concerned if users were allowed to play around with their work. CCG said that the current proposals wouldn't allow that.
- AB: He was a fan of USB instrumentation, had anyone been talking about this?
  - CCG said that he wasn't aware of any discussions. MR said that the driver should be independent of the bus type.

8. **PRESENTATION BY CASSIDIAN TEST ENGINEERING SERVICES ON OSA-RTS**

With the aid of a Presentation, (distributed with these Minutes), MC provided a detailed overview of the Open Systems Architecture Runtime System, which had been developed by TES for MB.

A number of questions and comments were raised during the discussion and these are summarised here:

- TP: Asked if LabView could be used with the toolkit?
  - MC replied that, as is the intention for the OSA RTS, the vendor could modify the Open Source 'glue' code to accommodate the LabView APIs. He added that care would need to be exercised to ensure that the resulting solution met the IEEE 1641 validation requirements as defined in JSP 886 and Def Stan 66-31 Part 8.

- TP: Asked how complete newWaveX-SD was in terms of creating the signals?
  - MC replied that the tool supported the Basic Signal Components and Test Signal Framework library (TSF) included in the Standard. Additionally, new TSFs can be imported or developed. SK said that DSG had been using newWaveX-SD for some years and had found it very capable and easy to use.
- TP: Asked for more information on newWaveX.
  - TJC replied that the TES website had quite a lot of information about the newWaveX products, although he accepted that Selex had experienced some difficulties accessing this due to IT Policy limitations. He said that TES would be investigating this.
- FM: Said that he had experienced a different problem getting information on newWaveX; he was told that the product was subject to ITAR.
  - CCG said that this was due to the agent approaching EADS NA instead of TES; they bundled newWaveX-SD with their SigBase product.
- TP: Asked if there was any way to get hold of TSF libraries that could be passed on to Selex?
  - MB said that this was a commercial issue rather than technical, but he would investigate this.

Action: MB

- FM: With respect to the test program calls to the Runtime, asked how they were created?
  - MC said that the Capability Driver Description file contains the information needed to translate between the imported test requirements and the local test resource capabilities.
- AP: Asked if the ATML Test Station Description file used was for the target machine?
  - MC replied Yes.
- KE: Suggested that he understood the package to be glue code to wrap the third-party tools. Was it configurable?
  - MC confirmed this. The code was owned by MB and is available, on request, to any organisation developing IEEE 1641 compliant solutions for MoD or coalition partners.
- TP: Asked if all functions of a test system needed to be supported by TSFs or if a subset could be produced.
  - MC said that only those functions needed by the TPSs had to be supported. Others could be added later, of course.

It was suggested that the OSA Diagram in the Standard should be put on top of the OSA-RTS architecture to see how they mapped. This was agreed.

Action: MB

TP had brought along another OSA-RTS Presentation, (prepared by Anand Jain from NI and distributed with these Minutes). Selex had asked NI if they would support IEEE 1641 with LabView and this was the result.

He presented this to the Meeting and explained that this was an early version and NI would update the tools to meet the OSA requirements. In addition, he put up an architecture diagram (distributed with these Minutes) which showed how Selex took the test requirements from DOORS and translated it into a runable system in TestStand. His point was that Selex were already doing many of the things needed to meet IEEE 1641.

A number of questions and comments were raised during the discussion and these are summarised here:

- RM: They have another problem; they need to import ATLAS.
- KE: NI have done this to stop other vendors taking their business, but it was important that the system did not call instrument drivers directly, without the signal interface.
  - MC reiterated that the vendor would need to modify the Open Source 'glue' code to accommodate the LabView APIs. He also said that care would need to be exercised to ensure that the resulting solution met the IEEE 1641 validation requirements as defined in JSP 886 and Def Stan 66-31 Part 8.
- JP: Indra were concerned about the various solutions shown because they did not wish to develop a new Runtime. He was also worried about giving this to developers because he thought that they would need a different runtime for each TPS.
  - CCG says that the runtime didn't matter; the only important thing was the ATML Test Description and TSF Libraries. How an organisation designed its runtime was irrelevant.
- AH: Had noticed that Selex only appeared to use IVI Drivers and yet others had stated that they didn't work.
  - TP replied that they had limited the functions that could be used, but occasionally had to fall back on NI drivers. They were also careful which vendors they used.
- MC: Commented that he was uncertain how the NI solution could work, because there was no Translator. Without this they couldn't import TPSs from other platforms.

9. PRESENTATION BY INDRA ON 1641 TEST ENVIRONMENT

With the aid of a Presentation, (distributed with these Minutes), FM provided an overview of the Indra Testbricks toolset. This used pseudo code as the Carrier Language; their use of pseudo code is built on the use of bricks, as in Alice and Scratch.

A number of questions and comments were raised during the discussion and these are summarised here:

- CCG: Asked why they chose pseudo code?
  - FM said that Indra already used it.
- MR: When using stacks, how do complex steps like triggering get implemented?
  - FM said that variables have a number of types and some can be triggered on the state of other variables.
- RM: Thought that interpreted languages were too slow for modern applications.
  - FM said that Indra do not experience this problem because they use very powerful machines and critical code is all put within a test block. Once in memory, this is interpreted very quickly.
- J-CH: Asked how many of Indra's TPSs can actually be developed like this? He couldn't see how the system could handle digital or very fast measurements.
  - This lead to general discussion about how well IEEE 1641 handled these types of tests and at least one organisation believed it could only

be used for 10% of modern testing. MB requested that this be added as an Agenda item for the next Meeting.

<div align="right">Action: TC</div>

- AB: Said that a lot of what was being discussed around the table was related to legacy techniques, whereas we should be looking forward.
  - CCG said that this was not true, it's just how people perceive it. They look at IEEE 1641 and try to see how it would work with their old systems, instead of looking at how it could be done with their new ones. MB requested that this be added as an Agenda item for the next Meeting.

<div align="right">Action: TC</div>

10.   ANY OTHER BUSINESS

a)   UADs

AB said that at the previous Meeting, MB had mentioned UADs. He asked which Standard covered them. MB replied JSP 886,Vol 7 Part 8.06 Chapter 2.

b)   Thanks to MBDA for providing the Facilities

MB thanked AB for organising the venue and MBDA for providing the facilities. This was echoed by the attendees.

11.   DATE OF NEXT MEETING

The next meeting will be held after SCC20, probably in May 2013 (date to be advised).

The Chairman closed the meeting at 3:00 pm

Terry Coles   Malcolm Brown
(Secretary)   (Chair)

Circulation List

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