

TELEMETERING STANDARDS COORDINATION COMMITTEE



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INTERNATIONAL FOUNDATION FOR TELEMETERING

TSCC Spring 2015 Meeting

Mar 10, 2015 (Tuesday) – 17:30 PST

The Clarion Inn

Ridgecrest, CA

(RCC 2015: China Lake)

Agenda

- **Officer Reports**

- Chair **D. Corry**
- Secretary-Treasurer **W. Klein**
- Action Item Review **D. Corry**

- **Committee Reports**

- Nominating Committee **B. Fleury**
- Radio Frequency **S. Brierley**
- Data Multiplex **B. Fleury**
- Networking and Protocols **D. Corry**
- Transducers **L. Eccles**
- Coding/Data Compression **TBD**
- Recorder / Reproducer **M. Buckley**
- ETSC Report **G. Mayer**

- **Break**

- **Website status** **D. Corry**

- **Old Business** **D. Corry**

- **New Business** **All**

House cleaning

- Next meeting held in conjunction with ITC in Las Vegas.
- Diarmuid Corry is chair.
- The TSCC extends it's thanks and appreciation to Brad Fleury for acting as chair for the last two years.
- Brad is now chair of the nominating sub-committee

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Committee Reports

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TSCC Fall 2015
Nominating
Subcommittee Report

October 20 2014
Town & Country Hotel
San Diego, CA
(ITC 2014)

Nominating Sub-Committee Membership

- Current Nominating Subcommittee Membership
 - Brad Fleury (Chair) – Edge Consulting
 - Stephen Nicolo – GDP Space Systems
 - Scott Brierley – United Launch Alliance
 - Wayne Klein – Apogee Labs

Sub-Committee Focus

- The nominating sub-committee shall propose TSCC members and officers for approval by the membership.
- Prospective TSCC members and officers can be nominated by the TSCC membership or by a nominating subcommittee.
- All nominations must be approved by a membership vote.

TSCC Membership Rules

- The TSCC shall have 16 members.
- Adequate representation shall always exist from the diverse groups constituting the telemetry community
- Representatives of government and commercial entities shall each constitute a minimum of one-third ($1/3$) of the regular TSCC Membership
- The remaining one-third ($1/3$) may include, but is not limited to those in commercial, governmental, and academic organizations
- Membership by representatives of non-US entities shall not exceed 25% of the total regular membership

TSCC Group Definitions

- Government entities are defined to include agencies of the United States Government, foreign governments, and not-for-profit organizations under contract to them
- Commercial entities are defined as manufacturers or vendors of equipment, software, or systems, for-profit companies that use telemetry equipment, and suppliers of telemetry-related services, such as consulting, on a for-profit basis.

TSCC Membership Terms

- TSCC Membership Terms are for five years
 - Terms are staggered so that the terms of 20% (rounded to the nearest integer) of the regular membership end each year
 - Members may be re-nominated for additional terms by the nominating sub-committee.
- In 2015 only Scott Brierley reaches the end of his term. His current term will end 12/31/15. We will vote on continuing memberships at the Fall meeting.

TSCC Member Re-elections

- Will take place at Fall meeting

TSCC Makeup

- The TSCC currently has 13 Members
 - 2 academic organization members
 - 3 government entity members
 - 8 commercial entity members
- We are 3 Members short
- Because of the 1/3 rule the 3 new members must come from government

TSCC Membership

- Academia (2)
 - Gerhard Mayer
 - Dr. Michael Marcellin
- Government (3)
 - Mark Bender
 - Filiberto Macias
 - Myron Moodie
 - Vacant
 - Vacant
 - Vacant
- Industry (8)
 - Scott Brierley
 - Diarmuid Corry
 - Lee Eccles
 - Brad Fleury
 - Wayne Klein
 - Steve Nicolo
 - Sergio Penna
 - Joe Sulewski
- Ex-Officios
 - Teresa Telles (TG chair)
 - Cliff Aggen (IFT Rep)
- Members Emeritus
 - Merv MacMedan
 - Erwin (Terry) Straehley

TSCC Membership

- The Aerospace Corporation
- United Launch Alliance
- Curtiss-Wright Controls Avionics & Electronics
- Boeing Commercial Airplane Co.
- Edge Consulting
- GDP Space Systems
- NASA- Jet Propulsion Laboratory

TSCC Membership

- L3 Communications
- USAF
- Apogee Labs, Inc.
- White Sands Missile Range
- GVM-Consulting/AIRBUS
- Southwest Research Institute
- NAVAIR
- EMBRAER
- University of Arizona
- New Mexico State University

Open Membership Slots

- Three open membership slots. We have 13 full members
 - Seeking volunteers/nominees
 - Plan to hold e-mail vote (there is a precedent!)
 - Goal is to have members in place before Fall meeting

New Membership Vote

- None proposed at this time

TSCC Officers

- Officers shall serve for a two year term of office
 - The term of office shall begin at the start of the TSCC Year in even calendar years
 - Traditionally the Vice-Chair succeeds to the Chair's position to fulfill a two year term as Chair
 - The Secretary-Treasurer may be re-elected
 - Officer Terms are due Fall 2014
 - **Officer Terms up December 31, 2014**
- Current Officers:
 - Chair – Diarmuid Corry
 - Vice-Chair - Vacant
 - Secretary-Treasurer – Wayne Klein

TSCC Officer Changes

- New Officers :
 - Vice-Chair - Open
- Committee Chairs
 - Nominating Committee chair changes to Past TSCC chair: Brad Fleury
 - Main Committee chairs:
 - Need chair for Coding and Data Compression subcommittee
 - Nominating Committee Members:
 - **Volunteers**

Actions

- Correct info to web site
 - Add new members and alternates - CLOSED
 - Correct member list - CLOSED
 - Correct subcommittee leads and members
 - Add reports from previous meetings – In Progress
 - Need Alternate for Mark Bender
 - Need Chair for C&DC sub-committee
 - Need three government members

TELEMETERING STANDARDS COORDINATION COMMITTEE



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TSCC Spring 2015 RF Subcommittee Report

Membership

■ Scott Brierley, Chair - ULA

- Mark Bender
- John Carlson
- Mark Dapore
- Brad Fleury
- Lloyd Lautzenhiser
- Eugene Law
- Fil Macias
- Warren Martin
- Bill McNatt
- Rich Siegal

Subcommittee Focus

- RF Subcommittee reviews standards dealing with the Radio Frequency (RF) telemetry link
- Current standards
 - RCC IRIG-106
 - RCC IRIG-118
 - RCC RF Handbook
 - CCSDS-401
 - CCSDS-411
 - SGLS
 - STDN
 - 1451.5

Significant Activity

- No standards reviewed

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TSCC Spring 2015

Data Multiplex

Committee Report

Brad Fleury

Edge Consulting and Sales

Committee Members

- Brad Fleury – Director Edge consulting and sales
- Alternate – Rob Tropa, Director Edge Consulting and Sales

Sub Committee Membership

Still looking for new members

Kevin Mcpeek – L-3 Communications

Derek Jones – RT Logic

Jason Phillips – RT Logic

Jon Mottram – RT Logic

Bob Downing (NEW)

Howard Eckstien (TBD)

Jack Sheldon (NEW)

Dave Sniffin

Erwin Straehley

Duane Wheaton

Sub-Committee Focus

- Current standards
 - IRIG-106 -13 (released June 2013)
 - INET Updates to commanding standards
 - Pink sheets out now
 - Collecting industry comments. No comments from my team
 - Telemetry App's Handbook (complete)
 - Budget and shutdown issues having affect on all.

Sub-Committee Focus

- Several telecons since last meeting
- IRIG-106 – 15
- Telecons replacing face to face
- INET Updates Commanding standards

Open Actions

- **Action – Finalize subcommittee members and get agreement to participate (nearly complete)**
- Support RCC ongoing efforts:
 - TMATS Handbook releases
 - IRIG standards
- Support RCC –TG Datamultiplex telecons
- Introduce TSCC website to subcommittee

TELEMETERING STANDARDS COORDINATION COMMITTEE



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TSCC Spring 2015 Networks Subcommittee Report

Sub Committee Membership

- Diarmuid Corry, Chair – Curtiss-Wright Controls, Avionics and Electronics
 - Ben Abbot, Southwest Research Institute
 - Myron Moodie, Southwest Research Institute
 - Wayne Klein, Apogee Labs
 - Fil Macias, White Sands Missile Range
 - William Malatesta, NAVAIR
 - Steve Nicolo, GDP Space Systems
 - Hyong Yi, Curtiss-Wright Controls, Avionics and Electronics
 - Robert Weaver, Apogee Labs
 - Chris Dehmelt, L3 Telemetry – East
 - Joe Sulewski, L3 Telemetry

Sub-Committee Focus I

- Standards Activity:
 - iNET Suite:
 - Radio Access Network Standard (RANS), Test Article Standard (TAS), System Management Standard (SMS), Metadata Standard (MDS)
 - No updates on RANS, TAS, SMS
 - Implementation of demonstration system based on these standards continues – flight test on schedule for FY2014
 - New MDS initiative spear-headed by Boeing, weekly meetings on-going with F2F held at ETC in June and planned for ITC
 - Refinement of other standards based on test results ongoing
 - Plan to transition standards to RCC once sufficiently mature still holds

Sub-Committee Focus II

- Standards Activity:
 - IRIG106-Pt2
 - Carl Reinwald has been working on a task to define the table of contents for Part II
 - Restructuring of the draft standards developed by iNET working groups
 - A structure has been proposed as follows:
 - Ch 22 – Base Protocol Suite
 - 22.1 – Network Access Layer
 - 22.2 – Internet Layer
 - 22.3 – Transport Layer
 - 22.4 – Application Layer
 - 22.5 – Supporting Technologies
 - Just a proposal! (though a good one). Needs to be ratified

Sub-Committee Focus III

- Standards Activity:
 - IEEE1588 (PTPv3)
 - Working group kicked off April 2013.
 - Monthly telecons taking place
 - Main focus right now is with security and implications of encryption – little progress since Spring
 - Issues with backward compatibility

Sub-Committee Focus IV

- Have not been notified of significant activity on any of the following standards of interest:
 - TMoIP (RCC 218)
 - SCPS, CCSDS
 - RTP, TCP, UDP, SNMP, FTP, IGMP, etc. etc.

Open Actions

- None

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TSCC Spring 2015

**Transducers Subcommittee
Report**

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TSCC Spring 2015

**Coding/Data Compression
Subcommittee Report**

Membership

- Vacant, Chair
 - Michael Marcellin - Univ. of Arizona
 - Chuck Creusere – NMSU;
 - Stephen Horan – NMSU;
 - Aaron Kiely – JPL;
 - Matt Klimesh – JPL;
 - M. MacMedan – emeritus;

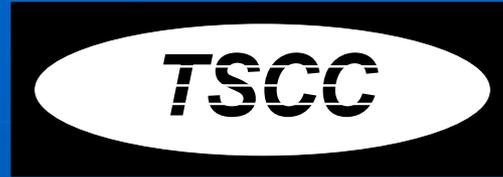
Membership - Continued

- George Nelson - Delta Information System;
- Jimmie Perkins – Raytheon;
- Khalid Sayood - Univ. of Nebraska – Lincoln;
- Pen-Shu Yeh - NASA – Goddard;
- Gary Thom - Delta Information System;
- Steve Nicolo - GDP Space Systems

Sub-Committee Focus

- Data Compression and Coding
- Current standards – updates

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**TSCC Spring 2015
Recorder/Reproducer
Subcommittee Report**

Sub Committee Membership

- Mark Buckley (Telspan Data), Chairman
- Albert Gabaldon, Alternate Chairman
 - Balázs Bagó (Zodiac)
 - Bob Baggerman (Georgia Tech Research Institute)
 - Tim Chalfant
 - Tim Gatton (Wideband)
 - Mike Lockard (EMC Corp)
 - Chris Dehmelt (L-3 Comm Telemetry East)
 - Rob Tropa (Edge Consulting)
 - Alfredo Berard
 - Carol Wong (NetAcquire)
 - Christian Rueck (Databus Tools)
 - Don Downing (Ampex)
 - Albert Gabaldon
 - Jack Salisbury
 - Johnny Pappas (Zodiac)
 - Kevin Bossoletti
 - Hung Mach (Boeing)
 - Marty Small (Calculex)
 - Matthew Grammer
 - Mike Fitter (Wideband Systems)
 - Doug Novak
 - Preston Hauck (NetAcquire)
 - Brad Fleury (Edge Consulting)
 - Steve Nicolo (GDP Space)
 - Tom Beams (Calculex)
 - E.J. Wendell (Leidos Data Storage)
 - Anthony Wirtz
 - Pete Jones (Wideband-Systems)
 - Rick Williams (Scientific Data Systems)
 - Kevin Bossoletti
 - Oahn Nguyen

Sub-Committee Focus

- Data Recorders, Ground and Airborne
- Standards in Place
 - IRIG 106-13 – Range Commanders Council (RCC) Telemetry Standards
<http://www.wsmr.army.mil/RCCsite/Pages/Publications.aspx>
 - STANAG 4575 – North Atlantic Treaty Organization (NATO) Standard Agreement (STANAG) – NATO Advanced Data Storage Interface (NADSI) Allied Engineering Documentation Publication (AEDP)
<http://www.nato.int/STRUCTUR/AC/224/standard/4575/4575.htm>
 - ANSI INCITS 175-1999 (R2004) 19mm Type ID-1 Recorded Instrumentation Digital Cassette Tape Format (revision and redesignation of ANSI X3.175-1990 (R1995))
 - MIL-STD-2179 – Helical Digital Recording Format For 19-MM Magnetic Tape Cassette Recorders/Recorders

Significant Activity

- RCC Telemetry Group Recorder & Reproducer Committee
 - IRIG 106-15 Chapters 6/9/10 Release In-Work
 - IRIG 106 Chapter 7 Standard Submitted & Responsibility Move to Data MUX Committee
- STANAG 4575, AEDP-6 Ratification
 - Released Ed 4 to NSA for ratification and subsequent release to member nations for promulgation.

Significant Activity

RCC Document 106-15 Chapter 10

- 2015 Release Pink Sheet Reviews Complete
- 2015 Release Submitted to RCC Tech Editor in December
- Comments & Word is Ongoing
- Publish Date TBD

Open Actions

- TSCC –
 - Validator
 - The RCC has requested the TSCC to develop a recorder validation tool (Chapter 10 Validator)
 - Software/hardware definition, procedure
 - Would include maintaining a “Golden File” of data. Any issues of TSCC maintaining files with ITF? Would be maintained on webpage.
 - We have a volunteer to lead the effort...
 - At least two versions exist...

TELEMETERING STANDARDS COORDINATION COMMITTEE



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TSCC Spring 2015 ETSC Report

ETTC 2015 – ETSC Agenda (prelim)

- **Open Meeting** - Toulouse, France - Thursday, June 11, 2015, 13:30 – 15:30 hours
- **Welcome & Introduction** (G. Mayer)
- **Committee Reports**
- **ETSC Subcommittees**
- SC-1: Spectrum & Frequency Management (J.-C. Ghnassia, S. de Penna)
- SC-2: Data Acquisition & Processing (W. Lange, Ch. Herpepin)
- SC-3: Data Recording & Storage (B. Bagó, P. Morel, S.W. Lyons)
- SC-4: Networked Telemetry (E. Schulze, Ch. Eder)
-
- **Telemetering Standards Coordination Committee** (TSCC)(S. Nicolo?)
- **Consultative Committee for Space Data Systems** (CCSDS) (R. Ritter)
- **Short Briefing on Meeting of the MDL Working Group** (Ch. Herpepin)
- **Proposed Issues for Discussion**
- Practical Introduction for MDL Usage (G. Freaud)
- Data Segregation, Encryption (B. Bagó)
- **New Business**
- **Conclusions & Adjourn** , 15.30 h

Old business 2014

- Request for funding has been submitted to IFT
- Roles and responsibilities document created but still to be posted on website
 - D. Corry to take action to do this before end March
- TSCC website is being used
 - Recorder committee and MDL users group are only users to date!
- Webmaster Bob Baggerman

Website Status

- Have begun task of bringing it up to date
- Are people still having problems logging in?
 - Note: there are two login links
 - One to read/participate in groups
 - One to edit website Wiki Pages
- Do we need a “website manager” role?

www.tsc.org

Any Other Business?