

## MEMORANDUM

**TO:** AESS Board of Governors  
**SUBJECT:** Technical Operations  
**DATE:** Fall 2013 (October 4<sup>th</sup>, 2013)  
**FROM:** Roger Oliva, AESS VP Tech Ops

**Discussion:** As previously reported, the AESS Technical Panels (TPs) are not all fully functioning or adequately serving the membership-at-large. A few are, but overall – they exist in name-only.

Past methods used to develop the Panels haven't taken hold.

I have listed TP activities below in order of “vibrancy”, a recommended way forward, and closing commentary.

### Radar Systems

Working Group plans and procedures are currently being vetted. We should have these soon:

- Waveform Diversity – submitted by Dave Thomas
- Commercial Radar – submitted by Mark Yeary
- Standards – submitted by John Milan

Need volunteers to take over the RSP coordination.

The 2013 International Conference on Radar was a great success. Early indications are that the goal of 300 attendees would be exceeded. And the general consensus was that the quality of the papers was high.

RadarCon14 Cincinnati OH (19 May - 23 May 2014) – Theme: *FROM SENSING TO INFORMATION*. Web Page: <http://www.radarcon2014>

2014 International Radar Conference, Lille France (13 Oct - 17 Oct 2014). Theme: *CATCHING THE INVISIBLE*, Web site: [www.radar2014.org](http://www.radar2014.org)

2015 International Radar Conference, Washington DC (10 May – 15 May 2015)

2015 Radar Conference for Pretoria South Africa (late September).

Standards are coming due. Need chairs for both the Letter Band and the Terminology Standards.

### Space Systems

Space Missions, Systems and Architecture of the 2013 IEEE Aerospace Conference that will take place in Big Sky in March 2014.

Contributions in Space Systems of the AES Transactions and for the Systems Magazine. Positive experience through participation in the IEEE Division IX meeting focused on “Quality of Life”, June 7, 2013 at ESA-ESRIN.

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Working with IEEE GOLD to introduce a special Panel focused on Student and GOLD Activities that will be held during the IEEE Section Congress 2014 Amsterdam, Netherlands, August 22-24, 2014.

Coordination and planning of scientific activities (both propagation and communication experiments) on Q/V band channel of TDP#5 (Technology Demonstration Payload) on Alphasat. Alphasat was launched into its planned orbit in July, Satellite operations are on-track, to date.

MetroAerospace Conference with IEEE I&M Society. The event will be held in Benevento (Italy) on 29-30 May 2014.

An invited lecture was held by Daniele Mortari (from Aerospace Engineering Department of Texas A&M University, U.S.) at University of Rome in July 2013 on “Visual-based Attitude and Position Estimation using Moon or Earth Images.”

ESTEL Conference, October 2014, at ESRIN (European Space Agency), Rome, Italy.

The second IEEE AESS Summer Workshop on Integrated Satellite Communication and Navigation Systems (ISaCoNaS): “Advanced Services and Applications, Architectures and Terminals To improve Quality of Life”, July, 24-28 2014, Apulia, Italy. (<http://isaconas-workshop.uniroma2.it/>).

### Working Groups:

- System Analysis & Design
- Standardization
- Dual Use Applications
- Communications and Navigation
- Earth Observation
- Constellations
- EHF Technologies
- Aerospace-Wireless Technologies Integration
  
- Recommendation: Use guest lecturers, systems training, and thesis activities prepared for students at the University of Roma to engage other students world-wide through our Education objectives. Include Master’s course in “Advanced Satellite and Communications Systems” and on line Master’s Course in “Satellite Communications and Navigation Systems”, if feasible

### Avionics

- The Panel will be on-display at the DASC in Syracuse next week.
- TP members will have 1<sup>st</sup> face-to-face Meeting at the DASC - October 10<sup>th</sup>
- Special Issue on Avionics in Systems Magazine - members to contribute articles
- Several AESS members have contributed time on DASC this year in reviewing paper submissions.

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- Aero Electromechanics China 2013, October 22-24th, 2013, [http://www.galleonevents.com/Electromechanics2013/2013email/email\\_02.html](http://www.galleonevents.com/Electromechanics2013/2013email/email_02.html)) – in partnership with AESS.

**Aerospace Workforce** – leaderless, no activity. Through CTAP, IEEE/USA leadership will: “Seek more balanced IEEE communications on workforce shortage issues, especially in Spectrum.”

**Cyber Security** - No update, but meeting planned for Fall. Panel continues focus on embedded and network systems which exist in almost every industry. The standards and regulations field is under evaluation. Panel will work on education and public outreach to train engineers, educate policy makers and alleviate public concern.

**Gyro and Accelerometer** - Met September 9-10<sup>th</sup>, 2013, minutes pending.

**Control and Guidance** – No update

**Aerospace Integration** – Strategy being developed, volunteer on-tap.

**Target Tracking Systems** – leaderless but volunteers on-tap, no activity. “...other responsibilities that don’t allow me to pay the attention that the Target Tracking Systems Panel duly deserves...(10/2, 5:48p)”

**Standards** – No update.

**Unmanned Aerial Vehicles** – No update.

Where to we go from here?

### Strategy:

- (a) Each AESS Board Member identify areas for collaboration, and identify areas that are absent that we would like to engage on (Recommended suspense, 11/1/13).
- (b) Send amended list of Systems Engineering interest items to include some of those listed above to Chapter Chairs for Chapter distribution and insight (Recommended suspense, 11/1/13).
- (c) Engage CTAP with Implementation Strategy to impact change (Recommended suspense, 11/4/13).
- (d) If we cannot resurrect interest in the existing Panel Structure through active and relevant participation, we will work to introduce these contributory or alternative Panel Structures:
  - Flight (Avionics)
  - GPS guided NextGen Air Traffic Control
  - Unmanned Aircraft Systems (AUS)

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- Energy storage and distribution (or Aerospace Systems Integration)
  - Electro-mechanics (or Aerospace Systems Integration)
  - Operations (or Aerospace Systems Integration)
    - Google Automated automobile
  - Power (or Aerospace Systems Integration)
    - Fuel cells (alternate/new energy storage devices)
- (e) Create a banner for each Technical Panel to attract attention to AESS function at particular conference (~\$400 ea).
- (f) Leverage Systems Council and IEEE/USA Activities by engaging in as many of these as the AESS Panel Structure can support (inputs by 11/1/13):
- Reducing cost to low earth orbit
  - Review of laws that will be enforced to assure citizens' personal privacy is maintained vs. electronic surveillance systems to include GPS tracking and aerospace generated imagery.
  - IEEE Transportation Electrification Initiative.
  - Upgrading and modernizing the national airspace system with cost-effective communications, navigation, surveillance and air traffic management technologies.
  - Promoting the use of intelligent transportation systems to improve transportation safety, optimize traffic flow, ease congestion and reduce energy use.
  - Advancing a technology-focused national space program that balances exploration, science, national security and international partnerships.
  - International Partnerships for Space and Transportation
  - Near Earth Objects
  - Near Zero Fatality Vision for Transportation
  - Synthetic Aperture Radar
  - Obtain information on the current status of high speed rail infrastructure programs from experts.
  - Seek more balanced IEEE communications on workforce shortage issues, especially in Spectrum.
  - Urban upgrades to aging trains/subways and infrastructure.

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- Advances in shipping/ocean-travel efficiencies that can use aerospace technologists.
- Aerospace research science in partnership with oceanographic exploration.
- Nano-electronics integration with applications for avionics, remote sensing, communications, and computing.
- Alternative energy solutions to the transportation and aerospace infrastructure.
- Embedded software security concerns and recommended solutions.
- Electric flight advanced research, development, and implementation planning.

**Commentary:** We all benefit from the selfless volunteers that wish to make the world a better place. I will continue to work towards encouraging engineers to engage with the IEEE/AESS. I am pleased to know and work with such a committed group of engineers. Thanks for the opportunity to serve.