



# **INTERAGENCY OPERATIONS ADVISORY GROUP**

## **IOAG-17d Meeting**

**Document Number: IOAG17d.A.MN.2013**

**Prepared by: Stephanie Wan, IOAG Secretariat**

**Prepared on: 19 January 2014**

**IOAG-17d Meeting Minutes**  
**Teleconference**  
**19 November 2013**  
**12:00 – 15:00 UTC**

**Attendance:**

**Chair:** Michael Schmidt

**Secretariat:** Stephanie Wan

Members:

CNES: Jean-Marc Soula

CSA: Jean-Pierre

DLR: Martin Pilgram, Rolf Kozlowski

ESA: Francois Allard, Nestor Peccia, Enrico Vassallo, Gian-Paolo Calzolari

NASA: Phil Liebrecht, Bernie Edwards, Les Deutsch, John Rush, Wallace Tai, JJ Miller, Kim Cashin, James Afarin, Bill Horne

JAXA: Tsutomu Shigeta, Takanori Iwata

Observers:

KARI: Sang-II Ahn

**1) Opening/ Introduction of IOAG participants:**

The Chair opened up the meeting. He noted that he received notice that Gan Yong (CNSA), Giovanni Valentini (ASI), and Peter Allan (UKSA) could not attend this time.

**2) Secretariat's Report:**

The Secretariat provided an update on outstanding action items, minutes for approval, and an IOAG delegation participation table. The IOAG-17b minutes were approved, and the IOAG-17c minutes still required implementation of the comments and will be distributed around via email for final approval at a later date.

The Chair commented that he contacted other agencies while in Dubai at the International Committee on GNSS, such as ISRO and Russia, and there may be potential partnerships with other organizations such as APSCO.

**3) Status of ToR, IOAG Procedures**

The Chair noted that he reviewed the Terms of Reference and Procedures Manual, and did not believe the Terms of Reference needed updating. DLR commented that the ToR still should be reviewed. It was requested that all delegates make comments on changes that deemed necessary.

AI 17d-01: All delegates to review the ToR, updated draft documents of the Procedures, Work Plan and Annual Report. [Assigned to: All IOAG Members; Due Date: 15 December 2013]

#### **4) CCSDS Report:**

Mr. Peccia presented an update to the CESG report, highlighting that a workshop was held recently in San Antonio. The workshop's focus was on space data link security book, with decisions from the working group to be shared at the next meeting. He noted updated timelines from SEA, MOIMS, CSS, SIS, and SLS areas of progress. The navigation working group had put their books as a low priority based upon the items analyzed. Furthermore he discussed how a new working group on optical communications was formed, with the concept paper, charter and projects forms submitted to SLS-AD and CESG poll. He then updated the IOAG delegation that an official response from CCSDS to IOAG will be provided before the end of December 2013. Currently the LEO 26ghz modulation recommendation is to be expected by mid-2015, with a schedule for the Magenta book on VCM by the end of 2015. For Optical Links, the Green Books regarding Optical communications concepts and terminologies and Real-Time Weather and Atmospheric Characterization Data is expected by the end of 2015.

#### **5) ICG Meeting Report**

The Chair commented that the IOAG has been officially referenced during the ICG-8 meeting in Dubai, UAE. He noted that there is a reference table for ICG activities. ICG Liaison, JJ Miller thanked the Chair for attending, and noted that the objective to attend ICG was to meet the other international participants, especially since some were not aware of the IOAG. The Chair's presence and presentation strengthened the organization's authority on the need for Space Service Volume. Now, all major service providers have presented on the topic. The Chair noted that now as a 'player' in the ICG game, and IOAG can collect the needs from the working group and provide inputs. The next ICG meeting will be 10-14 November 2014.

DLR commented that he had trouble getting in contact to participate and requested the participation list.

AI 17d-02: ICG Liaison to share ICG-8 participation list with delegates. [Assigned to: ICG Liaison; Due Date: 30 November 2013]

CNES commented that a while back, one of the IOP actions was to collect data on the Navigation Mission Models, but it was not assembled and shared. It was requested that this action be re-visited.

AI 17d-03: Secretariat to refer back to AI 15c-05 "Send mission model for Global Navigation Satellite Systems Space Service Volume to NASA and Secretariat for coordinated presentation at ICG-7" and consolidate list of mission models. [Assigned to: Secretariat; Due Date: 15 January 2014]

## **6) Status of ICPA**

CNES and Gian-Paolo noted that they collected all the proposed changes and aggregated them into the ICPA. The Chair asked for comments on the consolidation of the inputs and whether there is feedback to the CSSDS; however there were no comments. When the Chair asked whether there may be technical issues, CNES noted that feedback was limited from the 25 September email distributed and a feedback loop should be included into the procedures. Furthermore, in January the CCSDS report will occur. Therefore there was a concern as to when it would be the right time to submit feedback to CCSDS. CCSDS noted that they were concerned it will not be completed by the IOAG-18 meeting. All inputs would need to be provided by next week following the IOAG-17d meeting if it is to be incorporated. It was proposed to provide changes on the existing ICPA, due date priorities, and need target dates. CCSDS commented that it will be difficult to provide inputs from IOP-3 requests. CNES asked IOAG to agree on a list of standards need and target dates with proposals made and provide feedback according to the IOAG vision.

AI 17d-04: All delegates to refer back to email on 25th September on the ICPA (IOAG CCSDS Product Agreement) document and provide comments on all changes proposed [Assigned to: All IOAG Members; Due Date: 26 November 2013]

## **7) Modulation and Coding Schemes of CCSDS**

Mr. Calzolari and Mr. Vassallo provided an extensive response on behalf of ESA to the IOAG AI 17-04. ESA's response raised questions on possible scenarios, analyzed the coding (Mr. Calzolari) and modulation (Mr. Vassallo) schemes in relation to ESA's needs, and how to work closely with CCSDS on its resolution. Mr. Vassallo noted that GMSK and Filtered OQPSK each have advantages and disadvantages depending on the channel. Furthermore, a GMSK signal can be demodulated by an OQPSK demodulator and vice versa. ESA's near earth orbiters at 8 GHz use SRRC-OQPSK while Lagrange missions at 8 GHz use GMSK. He noted that both schemes would then be able to remain in CCSDS and IOAG as "core" schemes.

The IOAG delegates thanked Mr. Calzolari and Mr. Vassallo for this presentation, but noted that the action item was to agree on whether to further explore the topic of coding and modulation schemes. Therefore, while the presentation provided by ESA was detailed, the rest of the other IOAG delegates have not considered to that extent. NASA asked to develop a small team to take a further look at the action item. It was agreed that this would be further discussed amongst interested delegates, led by Calzolari, Tai, Vassallo, and Deutsch, to explore the action items, and report their findings back at IOAG-18.

AI 17d-05: Gian-Paolo Calzolari, Wallace Tai, Enrico Vassallo, and Les Deutsch to involve other delegations as considered relevant to further explore AI 17c-01 & AI 17-04 and to report at IOAG -18. [Due Date: 24 January 2014]

## **8) Status of Top 10 Priorities**

The IOAG delegates felt that they were not in a position to currently discuss their agency's priorities and decided that more time would be needed to review the items. It was agreed that the delegations would review their agency's priorities and after the Secretariat aggregates all the inputs, to reconvene and discuss at IOAG-18.

AI 17d-06: All IOAG delegates to confirm their agency's priorities (See AI 17b-01) [Assigned to: All IOAG Members; Due Date: 6 December 2013]

AI 17d-07: Secretariat to consolidate list of priorities and rankings, considering the inputs and values that have been provided in AI 17d-06 [Assigned to: Secretariat; Due Date: 13 December 2013]

## **9) Status of MOSSG**

Mr. Francois Allard presented an update to the MOSSG. He noted that there has only been one meeting since the last IOAG meeting, and there are plans to have two more meetings prior to the IOAG-18. There will also be a face to face meeting in Rome right after the IOAG-18 meeting. He invited and encouraged more members to participate.

## **10) Status of Other Working Groups:**

OLSG noted that there are some discussions speeding up on optical links. The 26GHz group noted there were no new activities.

## **11) CSA Membership**

CSA noted that Jean Pierre and Ken Lord will be attending IOAG-18. The Chair invited CSA to Rome to make a formal presentation on their interest to become a full member, and then the IOAG members will vote. NASA expressed positively to having CSA attend IOAG.

## **12) RFSA, ISRO Membership**

The Chair commented that he has tried to contact ISRO, and believes that he has positive responses when reaching out. However, for RFSA it has not been as successful. He tried talking with participants at ICG and they will check back with their counterparts.

If there is no response by IOAG-18, they will become observer members. CNES asked for a final chance to invite them to participate in the upcoming meeting, and if there is no reply or feedback before the Rome meeting, then to agree they become observer status. It was noted that other international working groups have had the same experience with those agencies.

### **13) Preparation for the next face-to-face meeting**

The Chair discussed the next face to face meeting that was agreed at IOAG-18 during the week of February 10-14, 2014. He noted that several organizations had expressed interest to not start on Monday morning due to travel. It was agreed that the meeting would start the afternoon of 10 February 2014, and end on the afternoon of 13 February. This would allow for discussions to continue until Thursday if necessary, but also provide the meeting room for the MOSSG to meet on Thursday and Friday.

The Secretariat provided a presentation with regards to the basic logistics information of the meeting room and location, and noted she had been working closely with ASI. For travel paperwork purposes, NASA noted they needed the point of contact's position and contact information.

### **13) IOAG SpaceOps paper**

DLR noted that he submitted the IOAG abstract to SpaceOps 2014 and it was accepted. The next steps will be how to develop the paper. CNES (Soula), NASA (Liebrecht), and DLR (Pilgram) volunteered to help draft the paper and suggested that a preliminary draft be developed by IOAG-18.

### **14) Any Other Business:**

The Chair noted the meeting was reaching the time limit and that all items on the agenda have been addressed. He requested whether there were any additional comments to be raised, and hearing none, concluded the teleconference.

## ACTION ITEMS

AI 17d-01: All delegates to review the ToR, updated draft documents of the Procedures, Work Plan and Annual Report. [Assigned to: All IOAG Members; Due Date: 15 December 2013]

AI 17d-02: ICG Liaison to share ICG-8 participation list with delegates. [Assigned to: ICG Liaison; Due Date: 30 November 2013]

AI 17d-03: Secretariat to refer back to AI 15c-05 “Send mission model for Global Navigation Satellite Systems Space Service Volume to NASA and Secretariat for coordinated presentation at ICG-7” and consolidate list of mission models. [Assigned to: Secretariat; Due Date: 15 January 2014]

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