

**AIRCRAFT AND SPACE VEHICLES SPACE SYSTEMS AND OPERATIONS**

**Space Operations and Ground Support Working Group (WG3)**

Agenda

Moscow, Russia

27-29 May 2013

1. **Opening of the meeting and introduction**
2. **Roll call and self-introduction by participants/delegates**
3. **Adoption of the agenda**
4. **Review/approval of minutes from meeting in Naples, September 2012**
5. **Review of Status/Report from SC14 Secretariat Focus on status on ongoing WD/CD/IS**
6. **Items from Naples Meeting**
   * **Safety Standards Work Area suggested by the Russian Delegation**
   * **Feasibility of achieving probabilities of success included in all of our standards. Issue raised by the Japanese delegation noting that there was not sufficient experience or data from which achievable probabilities could be estimated.**
   * **Combining all vehicle disposal items (LEO, GEO, Booster). All have elements in common, and if one changes, all must be changed simultaneously. There are many instances of disposal that are not related to debris mitigation. Some aspects of booster disposal drafts are infeasible for some nations, such as Israel, Japan, and France which must launch over land masses that preclude immediate descent or even descent after one or more revolutions.**
   * **Consolidating work items into more broad scope Technical Reports, which need only be approved at the SC level without the long enquiry stage, and which can be promoted to standards in due course. The objective is to clear the queue of things that have taken a very long time already.**
   * **Reconsideration of 24113. 24113 approaches mandatory review and reconsideration. It was created to mirror IADC guidelines, some of which are in question or will change. There are other debris mitigation guidelines of greater consensus that are different. For example, UN COPUOUS guidelines do not include a 25 year limit, and there is considerable divergence of analysis and opinion on how to estimate whether satellite lifetime is greater or less than 25 years. Furthermore, natural decay is uncontrolled and can be hazardous to satellites and the surface of the Earth.**
   * **Review of the Orbit Lifetime Standard. How to include different and emerging schemes required by French Space Law and other nation’s operational practices.**
7. **Matters for Joint Meetings of Several Working Groups**
   * **New Work Item for Satellite Aerodynamic Forces (Drag). This involves WG3 and WG4. Two communities are involved: space weather experts who need satellites with well characterized drag in order to infer atmospheric density variations by observing orbit changes and astrodynamics/flight dynamics experts who require formulations of satellite drag consistent with the model atmosphere used so that they can estimate satellite orbits. One cannot use validly drag determined by one analyst using a specific atmospheric model in analyses of other analysts using different atmospheric models. This leads to different orbit estimates from different experts using the same data. There will be a presentation and discussion.**
   * **Handbook for Design of Satellites Operating in a Debris Environment, TR headed by the delegation from Japan. This involves virtually all working groups.**
   * **Work item on small satellite operational guidance and best practices. I presented a paper on this subject at the ESA Debris Conference. I will do that for assembled working groups. It involves operations, design, management, and testing at least. For example, orbit architectures must be consistent with the intended missions and the functional characteristics of the satellite such as maneuverability and communications. Small satellites should not become space debris by design.**
   * **Mission Assurance: Proposed work items span almost all working groups. There is no uniform understanding among member nations of what Mission Assurance is and how it differs from Quality Control, Failure Mode Analysis, and other cross-cutting disciplines called different things by different nations and providers.**
8. **SC14 Strategic Plan and related organization**
9. **Any Other Business and location of the next meeting**
10. **Wrap-up session**

* **Review of resolutions/actions**
* **Review of meeting minutes**

**Participants should refrain from sharing their time among several working groups. Which important items will be considered at any given hour is unpredictable and depends on closure achieved in previous discussions. Hopping from one meeting to another is doomed to being exposed to important matters mid-stream and not being able to remain for critical decisions.**

**David Finkleman, PhD**

**Convenor, TC20/SC14/WG3**