

Proposal for Forming an IAA Study Group

SG 3.18

Title of Study:

Study of Possible International Protocol to handle Crisis/Emergency of Astronauts in Low Earth Orbit"

Proposer(s):

S. Ramakrishnan

Primary IAA Commission Preference:

Commission 3

Secondary IAA Commission Interests:

Commission 4 & 5

Members of Study Team

Chair(s): S. Ramakrishnan

Secretary: U. Nair

Other Members:

M. Howes

I. Marboe

B. Hufenbach

Short Description of Scope of Study

Overall Goal:

It is expected that human activities in LEO would be on the rise in future not only due to missions around the earth but also because of other interplanetary manned missions including that to Mars. As a consequence the probability of major malfunctions of Human Missions in Low Earth Orbit will increase accordingly.

The Study will assess the feasibility to establish a protocol, restricted to rescue of crew from LEO, who got marooned or have lost de-orbit burn capability or are left with intolerably damaged thermal protection system and is not considering Moon, trans-lunar, Mars or other interplanetary missions.

Rescuing from orbit is a critical operation and may not always result in success. It may also subject another set of crew to the uncertainties of rescue operations. Therefore the design of space vehicle shall take care of all conceivable failure modes and make the space vehicle reliable to the extent possible. In the unlikely event of crisis/emergencies, the space vehicle design shall be capable enough to achieve the objective of alleviating the immediate danger to the crew without any external assistance. Rescue in the context of this protocol is considered to be those cases where external assistance is mandatory to rescue the lives of the crew.

Preliminary Content List

1. Introduction/Preamble
2. Objectives/scope of study
3. Possible crisis situations/emergency scenario of Crew in LEO
4. Crew Rescue Methodologies/Mechanisms under study – Hardware, operations and logistics
5. Current International Treaties/Protocol in the area of Outer Space & Space Travel/Space systems and their implementation status.
6. Impediments/hurdles foreseen in evolving an international protocol on Crew rescue from space and approach to overcome them.
7. Proposed draft protocol to handle crisis/emergency of astronauts in LEO
8. Conclusion & way forward

Methodology:

E-Mails, Teleconferences, face to face meetings, Workshop

Time Line:

- 1st Draft October 2013
- Final Document 2014/14

Final Product (Report, Publication, etc.):

- Draft report
- Final Report

Target Community:

Space Agencies, UN Outer Space Office,

Support Needed:

Potential Sponsors:

To be returned to the IAA Secretary General Paris

by email: sgeneral@iaamail.org

Date: 06 February 2013

(No Signature required if document authenticated).

Follow-up Section for IAA use only

Initial Phase

Application received:

06 February 2013

Commission Approved:

06 February 2013

SAC Approved:

04 March 2013

Web Site Section opened:

22 April 2013

Members Formally Appointed by IAA:

Final Phase

Peer Review by Commission Completed:

Recommended by the Commission:

Final Report Received:

SAC Approved:

BOT Accepted:

Publisher Selected:

Study Published: