APOGEE VIEW
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AMSAT's Eagle Project

In 2004, AMSAT's leadership presented the membership with new mission and vision statements. The vision statement begins, "Our Vision is to deploy high earth orbit satellite systems ..." Since then our Engineering department with guidance from the AMSAT Board and the executive team have worked to define a mission that would fulfill this vision and get it implemented. The result is the Eagle project. While I recognize that not everyone uses the term "Eagle" to mean the same thing, when I refer to the Eagle project I mean the totality of our efforts to get a high orbit satellite launched, regardless of its ultimate configuration and whether it is a standalone or rideshare satellite.

Since the first article on a suitable satellite design was published by Dick Jansson, KD1K (ex WD4FAB), at the 2000 AMSAT Symposium a number of developments have taken place. Key Eagle technical meetings were held in 2001 (Denver), 2002 (Orlando), 2004 (Orlando), 2005 (Pittsburgh) and in 2006 (San Diego). Other smaller focus group meetings have been held during the past four years, and many monthly reviews have been conducted via teleconference. Each meeting refined and clarified AMSAT's plan for the Eagle mission and provided more design details. The results of this evolution have been documented for the membership in many AMSAT Journal articles over the years.

Over time Dick's original 60cm cube with fold-out solar panels had its height reduced and then was changed from four to six sides to improve its spin stability and add more solar power generation capability.

Two primary transponder payloads have been defined. A linear transponder with U and L band uplinks and V and S1 band downlinks is intended to provide the traditional and popular communications modes. A new digital transponder, the Advanced Communications Payload, is intended to provide a modern high performance all-mode communications transponder on S2 and C bands to serve a new class of user wanting good long range communications with as little as a two foot dish, similar to a modern TVRO dish. Recently AMSAT began design work on a matching ground station for the ACP.

A new opportunity presented itself in the Summer of 2007 when AMSAT began talks with Intelsat General Corporation and later with Intelsat (the international parent company) about possible rideshare or assisted launch opportunities. A rideshare launch is particularly interesting as it would allow the Eagle satellite to be downsized and attached permanently to a commercial satellite in a geostationary orbit. The downsizing would result from the lack of need for independent solar power generation, propulsion, or orbit stabilization subsystem for Eagle. The antenna design also becomes simpler as the satellite would be on a stable platform with a fixed orientation relative to the Earth. Discussions with Intelsat continue but it has become clear that this opportunity is not going to be available at a discounted price so we must find a funding source or other

leverage before we can make much more progress. In the mean time AMSAT will continue design work on multiple Eagle structures suitable for either an independent elliptical orbit or for a rideshare opportunity. Believe me, we are trying to get a launch for the Eagle project.

The Eagle concept has evolved significantly over the past few years and we were overly optimistic on setting target dates but the vision lives on. We are all disappointed that this has not moved more quickly. There is a small army of dedicated volunteers working on subsystems like ACP, ground station, mechanical / thermal, IHU, and others. These people deserve your support and encouragement. AMSAT is always in need of new people to join these development teams to add new capabilities, replace people who move on to other activities and to enhance our capacity to produce results sooner.

The most significant issue is the same as it has been for over five years when my predecessor, past president Robin Haighton VE3FRH, announced after a fact finding trip that there are no more free launches. That has not changed but there are plenty of launch opportunities for GTO, other elliptical orbit and geosynchronous orbits. Getting a ride takes large amounts of money or some other reason for a launch agency to carry us aloft. AMSAT-DL is facing a similar difficult situation trying to find a ride for P3E. AMSAT is continuing to investigate all possibilities and so is keeping open the engineering efforts to build multiple spacecraft configurations, with as much commonality as possible, so we will be ready for the next opportunity when it is identified.

Thank you all for your continuing support and please feel free to contact me or any other AMSAT Board member or officer through the links on the AMSAT Web page (www.amsat.org, go to “About AMSAT” then “Our Leadership Team”). We are ready to answer questions and exchange ideas with members any time.

73,

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