**Chips in Space: ARISSat-1 deployment update**

*Steve Bible* - August 04, 2011

6:30 a.m. Arizona Time (1330 UTC), I leave the house and head to work. On the way, I stop at the local Dunkin’ Donuts and pick up four express dozen donuts and one Box-O’-Joe. These are a real treat, as we normally eat fruit and low-fat yogurt.

7:30 a.m. (1430 UTC) and we’re all gathered in the same conference room in which we held many of our weekend ARISSat-1 build meetings, watching NASA TV streaming on the big screen. People continue to gather in the room. Cosmonauts Sergei Volkov and Alexander Samokutyaev are transitioning from inside the ISS to outside. Leak checks are complete, and now they are decompressing the Pirs docking compartment.

7:50 a.m. (1450 UTC) the hatch is open. It takes a few more minutes before they emerge at 7:57 a.m. The helmet camera provides a great view of the satellite as they unwrap the protective covering on the solar panels. But something doesn’t look right. The bottom antenna appears to be missing. As we watch, there are a few fleeting glimpses of the bottom. I am wishing for a good view, to confirm whether the antenna is attached. There it is, or rather, there it is not! The UHF antenna—the uplink—is missing.

Russian Flight Control queries the cosmonauts, and they say that’s all there is. Control instructs the cosmonauts to set ARISSat aside and continue the remainder of the EVA. As we listen in, we hear the NASA Mission Control announcer mention that controllers are discussing the missing antenna and will make a decision as to what to do next.

8:35 a.m. (1535 UTC) all but two of the donuts are gone and the Box-O’-Joe is empty, we all file out of the conference room a little dismayed. We go back to our desks and listen with one ear to NASA TV on the Net. After all, there’s email to be answered.

As we work/listen, the announcer says that this was the last EVA for the year. The next EVA would be early next year; perhaps in February. Drat! That’s a long time to wait.

A little later, the announcer mentions that the antenna could possibly be curled up inside. That may be possible, but it would be a very tight curl. The antenna connectors on the space frame are N connector jacks. The antenna is an N connector plug with spring tape measure steel covered in Kapton tape. The length of the antenna was tuned for VHF (top antenna) and UHF (bottom antenna). A black plastic housing around the N connector plug forms the base of the antenna. From what I could see in the NASA video, it appeared that the connector base housing was there, but the spring tape measure steel antenna was not.
11:30 a.m. (1830 UTC) the NASA Mission Control announcer says they will go ahead and deploy ARISSat. The announcer says that, upon inspection, the antenna is not there. It appears to be broken. The decision is made to go ahead and deploy. What this means is that ARISSat has no UHF uplink, no transponder—the ability to communicate through the satellite—and no means to command it. We’ll have to see whether very strong stations might be able to communicate without an uplink antenna. Hams are a resourceful bunch; let’s see what happens.

11:43 a.m. (1843 UTC) ARISSat is deployed! And there’s no video! Argh!
2000-2200 UTC the first reception reports are coming in from Japan, Russia, Israel, Africa, Croatia, Greece, China and Hungary.

To track ARISSat-1, a good place to start is http://www.amsat.org/amsat-new/tools/. Next time, I’ll start digging into what makes ARISSat-1 tick.

Steve Bible, 73 DE N7HPR SK.

See earlier Chips in Space blogs here.