![AMSAT Italia logo] **AMSAT Italia** ®

HamTV Experiment on-board ISS

*Amateur digital television transmitter on-board
the International Space Station*

HamTV is an Amsat-Italia project developed within the ARISS/ArCOL WG, its purpose is to transmit digital video from the International Space Station as a complement of the half-duplex voice link carried out within the ARISS school contacts activities.

The payload is intended to be embarked on the Columbus module of the ISS where an amateur station will be installed and operated. It will use S-Band antennas already installed outside the European module.

The sequence of voice and video transmitted towards the Earth will be captivating, procuring a very intense experience of the pass of the ISS over the ground stations.

Payload – HamTV Transmitter

The HamTV transmitter concept is outlined here
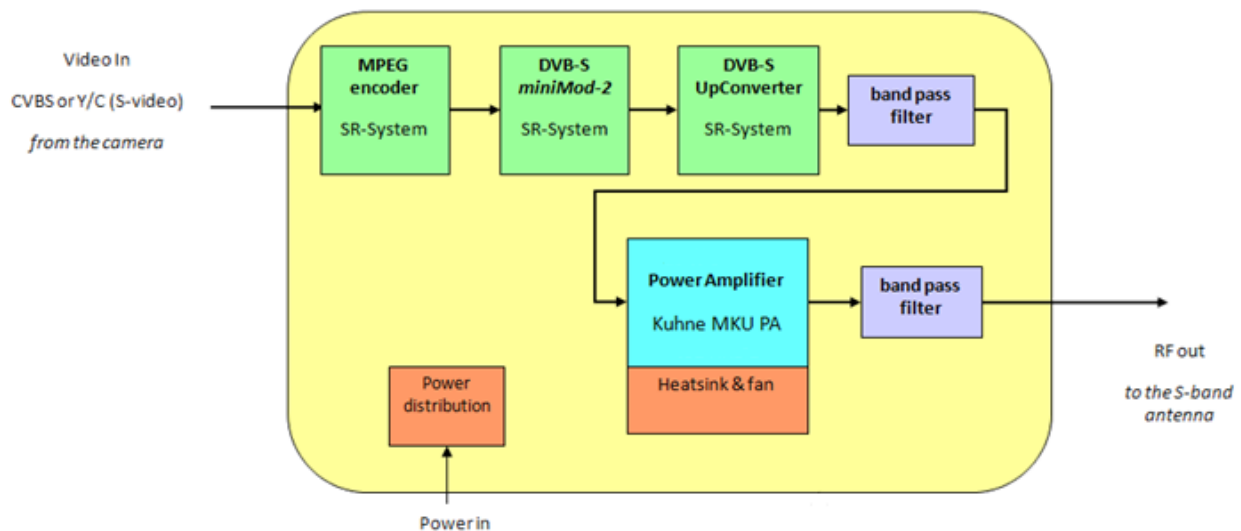
The video source will be a camcorder that will feed the HamTV system. The encoder translates the input in a MPEG stream which will be modulated onto the S-band with the selected modulation scheme and then transmitted towards the Ground Stations.

The entire transmitter will be based on COTS components properly modified to achieve the human space flight qualifications needed to be placed and operated on-board the Space Station.

Ground Station

A basic radio amateur station able to receive HamTV from ISS is proposed in the following panel.
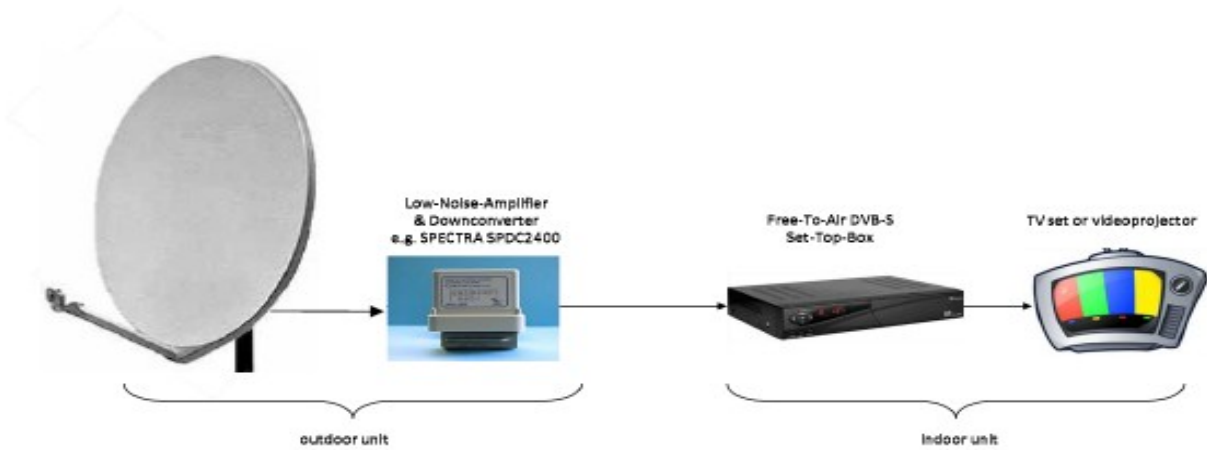
The receiving system is designed taking into account link budget calculations. A 1m dish with proper feeding should be adequate enough to reach minimum system requirements. Since patch antenna on-board ISS are circularly polarized (RHCP), also ground stations must be equipped with circular polarized antenna feeds.

An example of a tipycal ground station antenna with a tracking system is shown below.

I0ELE's Ground Station antenna system

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For a deeper description please refer to the Amsat Symposium 2010 proceedings.