

# Icom ID-800 Radio Project

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# Issues

- Our existing Radios on ISS are showing signs of age and unreliability.
- The two Erickson transceivers have been in space for over 7 years. One has never been activated.
- Cables for the Erickson's are failing and need to be replaced.
- The Audio level for the Erickson's is very low, crew needs to be told “Eat the Mic”.

# Issues D700

- The D700 has many problems
- Packet Mail does not acknowledge packet mail, correctly preventing most stations from accessing Mail.
- The PM buttons are too confusing for crew.
- The D700 needs a full software reload due to PM button data corruption.
- Un-commanded mode changes.

# Keep it Simple

- The ID-800 is a very simple dual band transceiver, 2 meters and 70 cm.
- All features will be handled from a simple channel knob.
- Channels 1,2,3 voice
- Channel 4 packet
- Channel 5 SSTV, etc.
- Lets keep the # of channels to < 60

# Retire before it fails

- Electronic equipment in space has a shorter life span than on Earth.  
Transceivers should be replaced at 2-3 year intervals.
- The current D700 has been running for 3 years (almost 24/7)
- Major functionality of the D700 such as Mail box, never worked.
- D700 has very high crew maintenance.

# Icom ID-800

- Basic 2 / 70 cm transceiver
- Support for external TNC
- Supports FM-5k, FM2.5k and Digital Voice
- Heavy duty heat sink for 55 watt operations, can be scaled back to 25 watts.

# Digital Voice

- GSMK Digital Voice support
- Allows for Public or private conversations.
- Will take ISS into the next generation of DV hardware.
- DV format compatible with other Amateur Radio DV systems (Icom and Kenwood).
- Doppler Compatible on 2-Meters

# Icom ID-800

- Based on what we learned about the D700 usability issues the ID-800 will just use a simple Channel knob.
- School Schedule, go to channel 10
- Public voice, go to channel 1
- Digital voice test, go to channel 30
- Packet, go to channel 4



# Benefits

- A simple channel based radio system, very user friendly
- Digital voice capability for secure communications experimentation
- Improved packet performance
- Extra large heat sink for improved cooling
- Reliable

# Time Line

- Icom will look into special modifications if needed
- Could have FCS version by Q3 2007

# Doppler & DV

- Digital Voice will work with Doppler from ISS on the 2-meter band
- ISS has a maximum Doppler of 3.3k (+/-)
- Doppler is less than 3k for approximately 80% of the total pass.
- DV will work good at 2.5khz Doppler with an indicated Signal strength of S1.

# Doppler DV

- 2.0k Doppler needs S-0
- 3.0k Doppler needs S-9 for good decoding.