

MAREX & ARISS-RUSSIA

Modem upgrade project

Introduction

ISS currently supports an entry level Personal Message Email system using the Paccom TNC and ISS-Ham transceivers. The ISS-Ham system supports 1200 baud, Email and Round Table communications modes. The total Email memory available at a time is 64 Kbytes.

The Packet upgrade project would add an additional PMS mail box to the 70 cm band with additional features.

KANTRONICS KPC-9612



Hardware Overview

- Transceiver Kenwood TM-D700, 2-meters and 70-cm, provided by ARISS-Russia
- TNC Kantronics KPC-9612, provided by Marex and sponsors
- Power supply 12 VDC, provided by ARISS-Russia

Features

- 9600 Baud data rate
- 512kbyte RAM
- Orbiting Store and forward Mail box
- Fully remote controllable by System Operators
- Flexible Frequency and band operations.
- Power levels 5 to 45 watts FM

History

- KPC-9612 Successfully flown on Mir 1997 - 2000.
- Proven space flight reliability
- Earth based System operators and maintain the PMS file system without ISS crew intervention.

TESTING

- The KPC-9612 has over 2 years of in-flight use.
- System operators have proven they can maintain the mail box operations.

Software Wish List

- **ISS ROM Settings Pre Burnt**
- The Default TNC settings for ISS are much different than normal terrestrial TNC's. We will need a special settings burnt into the ROM. Marex is working with Kantronics for the changes

- AXDELAY 10/10 (100/100 msec)
- CD SOFTWARE
- CHECK 7/7 (70/70 sec)
- DWAIT 0/0
- MAXFRAME 4/4
- MYREMOTE K6ISS
- PACLEN 128/128
- RTEXT samburov
- TXDELAY 30/30 (300/300 msec)

More data per pass

Efficiency in Characters per Second

	35%	65%
1200	42	78
9600	336	624

Efficiency in Characters per Minute for an 8 minute pass

1200	20,160	37,440
9600	161,280	299,520

Development Schedule

Hardware Transceivers Need status from ARISS-RUSSIA

Hardware TNC: Waiting for final letters of approval from sponsors and Kantronics

It is possible to deliver the TNC by the end of 2002.

Power Supply Load

	Min	Transmit	RF Output
• Kenwood TM-D700			
• Low "L" TX	300 ma	3000 ma	5 watts
• Medium "M" TX	300 ma	4000 ma	10 watts
• High TX	300 ma	10,000 ma	45 watts
• Kantronics KPC-9612	45 ma	45 ma	
• Maximum Total Loads	345 ma	8045-10,045 ma	