# Phase 1 Hardware Status (Voice & Packet)

Lou McFadin, W5DID
ARISS-US Team

Sergej Samburov, RV3DR
ARISS-Russia Team

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Slide 1

# Onboard Hardware Status

- Onboard this time last year:
  - 1 Packet Module
  - 1 Adapter Module
  - 2 Ericsson Radios (2M & 70 cm) with 2 power supplies
  - 2 Ericsson cables
  - 1 Transceiver cable
  - 1 Headset Assembly
  - 1 Headset Extension Cable
  - 1 RS232 Cable (9 pin)
  - 1 ISS-HAM RF Cable
  - 1 FGB RF Cable
  - 1 ISS-HAM Power Cable

# ARISS Provided Hardware at SPACEHAB for STS-106 Launch (September 2000)
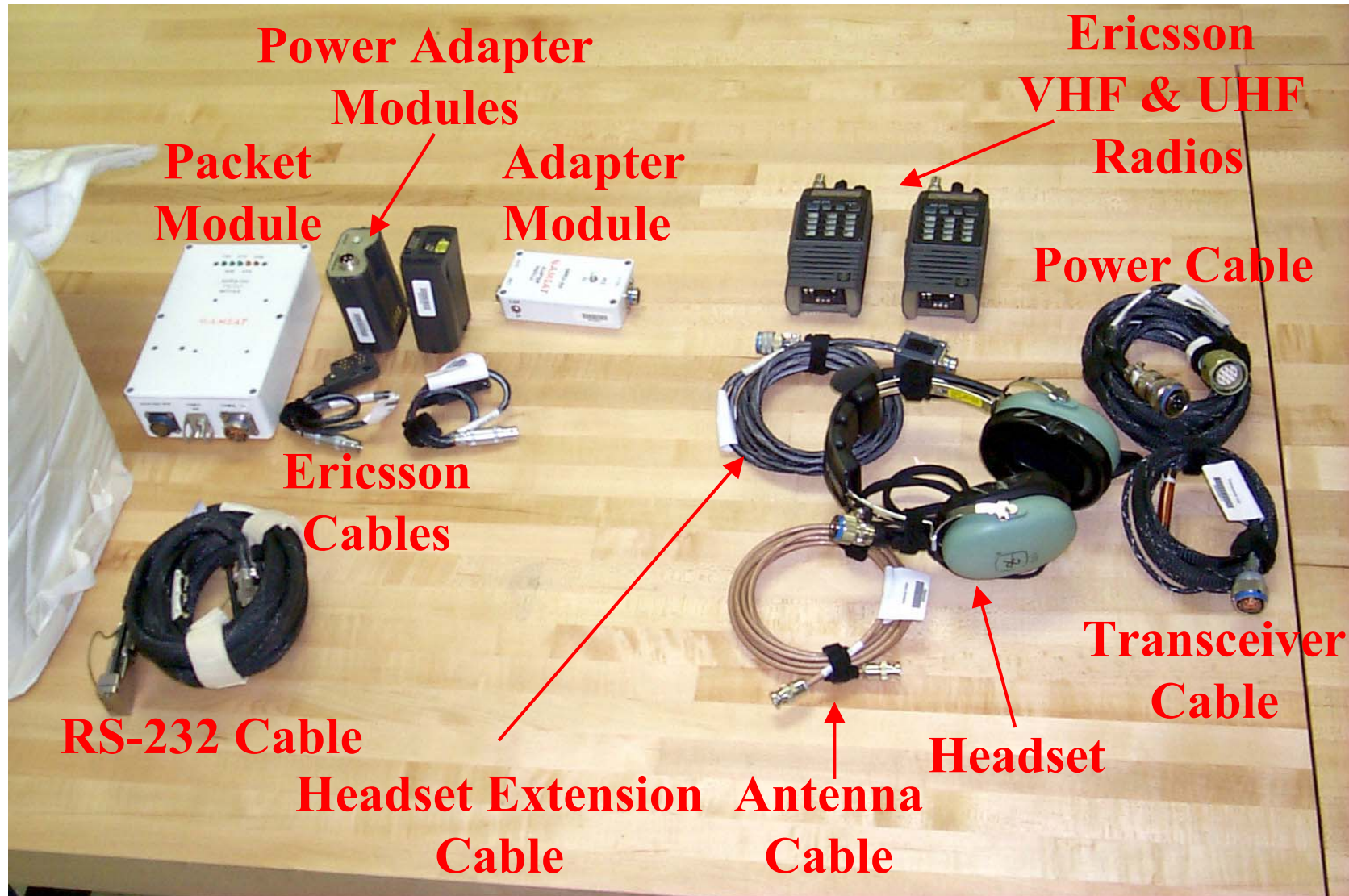
# What has been added since STS-106?

- New Packet Module (STS-105, August 2001)

- Enough cables & equipment to allow the crew to set up a second station in the Service Module (STS-108, December 2001)

- Four antennas to be installed on the Service Module (STS-108, December 2001)

- EVA Frame to allow the crew to carry the antennas (STS-108, December 2001)

ОТКЛ DISABLE

ВКЛ ENABLE

GPS

ВЫХОД ПИТ POWER OUT

PWR ПИТ
DCD НЕСУЩ
PTT ПРД
STA СОСТ
CON СОЕД

AMSAT NA

ПАКЕТНЫЙ МОДУЛЬ
PACKET MODULE

РАДИО СТ.
RADIO

ВКЛ ПИТ
POWER ON

ВХОД ПИТ
POWER IN

РАДИО СТ.
RADIO

ВКЛ ПИТ
POWER ON

ВХОД ПИТ
POWER IN

АДАПТЕР МОДУЛЬ
ADAPTER MODULE

ПРД
PTT

ГАРНИТ
HEADSET

РАДИО СТ.
RADIO

ВСПОМ. ОБОР.
AUX

EAR
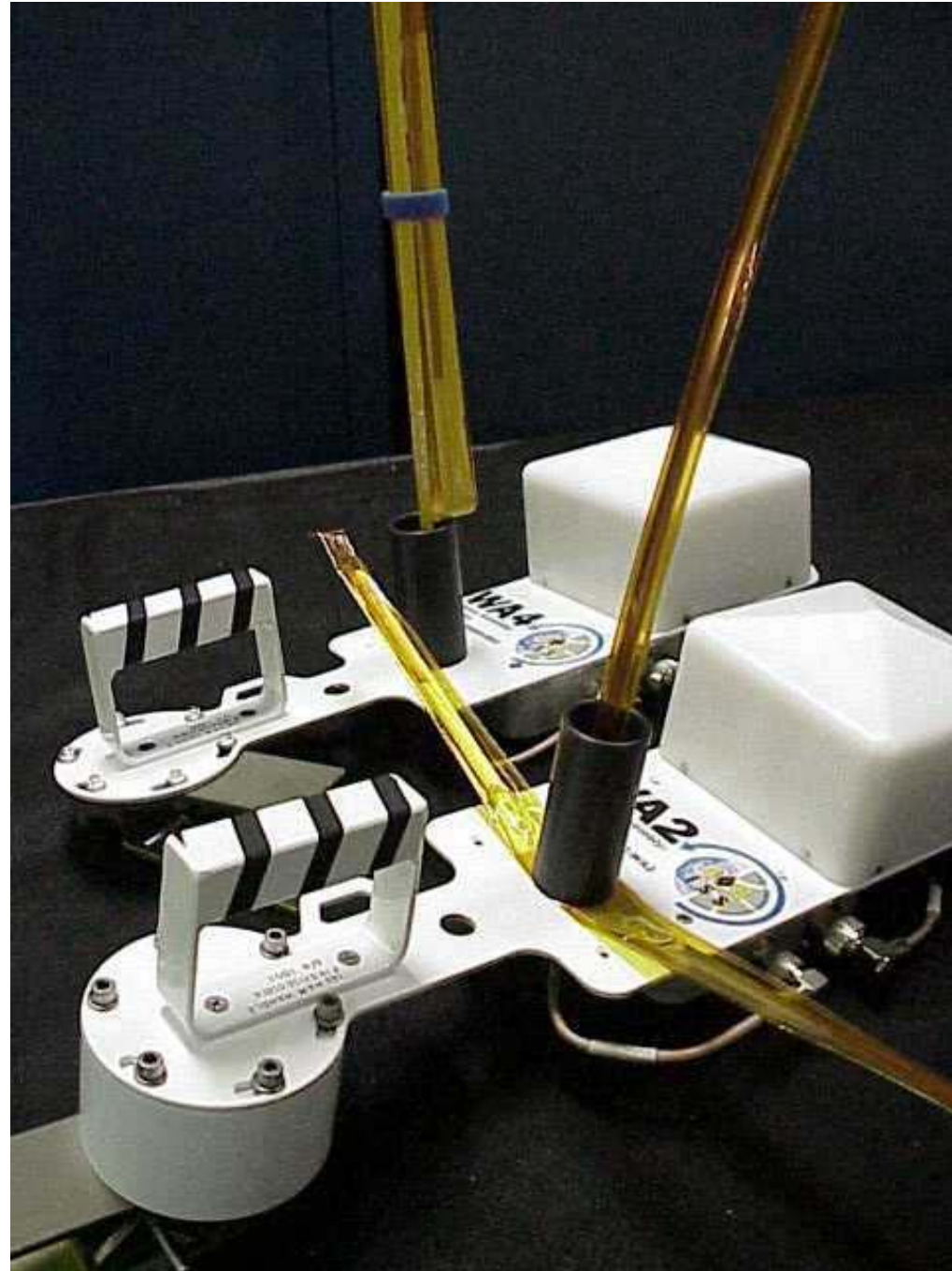
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AMSAT-NA

Antenna Cable

**Hardware Ready for Flight**

**Two of Four Antenna Systems**

**EVA Frame**

# What new hardware has been installed in the past year?

- Replaced the old Packet Module in FGB with the new one

- Installed two of the four antennas on the Service Module

# What does this do for us?

**Packet Module Upgrade**

- New Packet module has English & Cyrillic lettering
- New Firmware that boots up ready to operate.
- Solves the 8 bit data problem for the Packet Mail System allowing Russian font
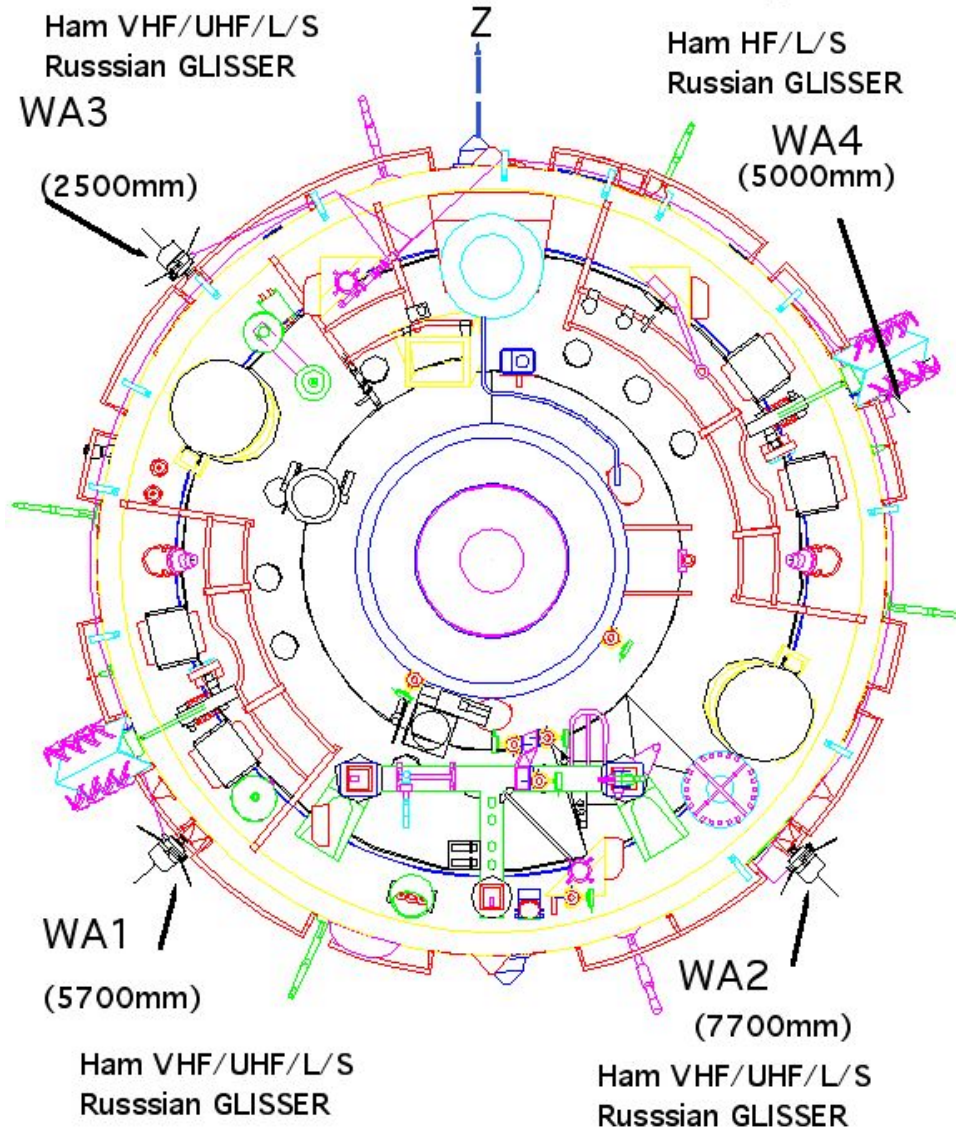- Additional mailbox memory (1 meg)

**Antenna System Installation**

- Provides the capability to install a second station in the Service Module
- Multi-band/multi-op capability (HF, 2 m, 70 cm, L-band, S-band)

# ISS-HAM Antennas and Usage

Ham VHF/UHF/L/S
Russsian GLISSER

**WA3**

(2500mm)

Z

Ham HF/L/S
Russian GLISSER

**WA4**
(5000mm)

**WA1**

(5700mm)

Ham VHF/UHF/L/S
Russsian GLISSER

**WA2**

(7700mm)

Ham VHF/UHF/L/S
Russsian GLISSER

Slide 15

# WA4 Antenna On-Orbit



ISS004E6438

# Current Hardware Status

- Voice operations are working well.

- FGB antennas work well

- The new TNC memory backup battery appears to also be discharged but the TNC appears to function properly

- The new TNC reverts to a default mode which is acceptable but loses all the messages and parameters that have been uplinked when shut off.

- The Russians team is requiring new tests to re-certify the hardware before any ISS Ham equipment can be installed in the Service Module

# Proposed Changes to the
# Phase 1 Onboard Equipment

- Manifest a dedicated computer for the ISS-HAM operations

- Add the SSTV module and Speaker Cable