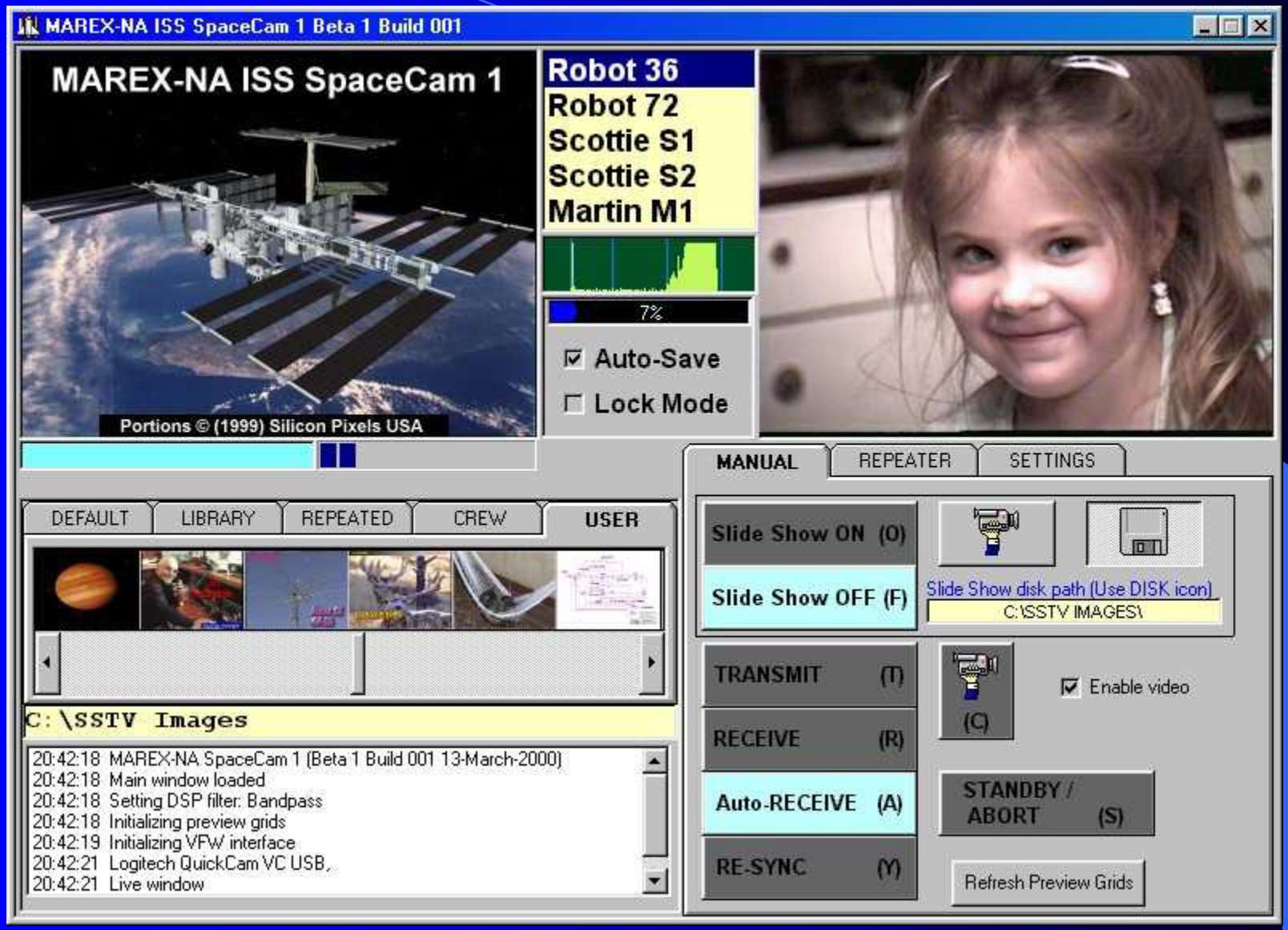
MAREX-NA / ARISS

SPACECAM1
Status Report
December 2002
project manager
G. Miles Mann WF1F

Introduction

The MAREX-NA / ARISS SSTV System is an entry-level PC based Slow Scan Television system designed to be used on board the International Space
Station Alpha.
The name of the SSTV project will be called the SpaceCam1 project. This system will support most of the common SSTV transmission modes. The SpaceCam1 project has been specifically designed to be accessible to as many stations as possible around the world.
The original proof-of-concept system was built by the MAREX-NA team
and successfully flown on the Russian Space Station Mir (December 1998
until August 1999).
The proof-of-concept system has proven the ability of the hardware design and it has taught us how to make additional improvements for the next generation SSTV system for ISS.


MAREX-NA ISS SpaceCam 1 Beta 1 Build 001
MAREX-NA ISS SpaceCam 1
Portions © (1999) Silicon Pixels USA
Robot 36
Robot 72
Scottie S1
Scottie S2
Martin M1
7%
Auto-Save
Lock Mode
MANUAL
REPEATER
SETTINGS
DEFAULT
LIBRARY
REPEATED
CREW
USER
Slide Show ON (O)
Slide Show OFF (F)
Slide Show disk path (Use DISK icon)
C:\SSTV IMAGES\
TRANSMIT (T)
RECEIVE (R)
Auto-RECEIVE (A)
RE-SYNC (Y)
(C)
Enable video
STANDBY / ABORT (S)
Refresh Preview Grids
C:\SSTV Images
20:42:18 MAREX-NA SpaceCam 1 (Beta 1 Build 001 13-March-2000)
20:42:18 Main window loaded
20:42:18 Setting DSP filter: Bandpass
20:42:18 Initializing preview grids
20:42:19 Initializing VFW interface
20:42:21 Logitech QuickCam VC USB,
20:42:21 Live window

Project Overview

The basic components of the SpaceCam1 project will consist of a Windows software application, which will run on most Windows computers, and simple VOX/SSTV Interface module.

The SpaceCam1 project will be plug-compatible with the ISS-Ham project and will add two-way SSTV support to the ISS-HAM VHF project.

Software Status

- The SpaceCam1 Software development is 98% completed.
- Testing with the ARISS audio adapter box has been completed.
- There are no, known problems.

Software Pending features

- Disk Size Limit
- Bit Map Buttons
  - Requested word translations from ARISS
- Russian fonts for Guest Text
  - Need a loaded computer from RSA

Hardware Status

- Hardware competed, waiting for final testing and approvals

ARISS Support

- Need a final decision on computer!
- Need a computer for 2 full months with the correct software load
- Need Button Translations
- Need digital camera information
- Need SSTV band plan
- Need to deliver before ISS Crew #7!

ARISS Support

- Zvezda Service Module installation plan
- Where are the following items going?
  - ISS-Ham 70cm Radio
  - Laptop computer with SpaceCam1
  - Adapter box and cables
- Power supply connections
- Access to new antenna system

ISS Crew Training

- Yuri Malenchenko; Expedition commander
- Sergei Moschenko; flight engineer
- Edward Lu; flight engineer
- Expedition Eight Crew
- Michael Foale; Expedition commander
- William McArthur; flight engineer
- Valeri Tokarev; flight engineer

Flight Time line

- ARISS should make an effort to complete all testing an paper work by Q1 2003
- Attempt to manifest a flight for Q3 2003
- Activate by Q4 2003

SpaceCam1 features

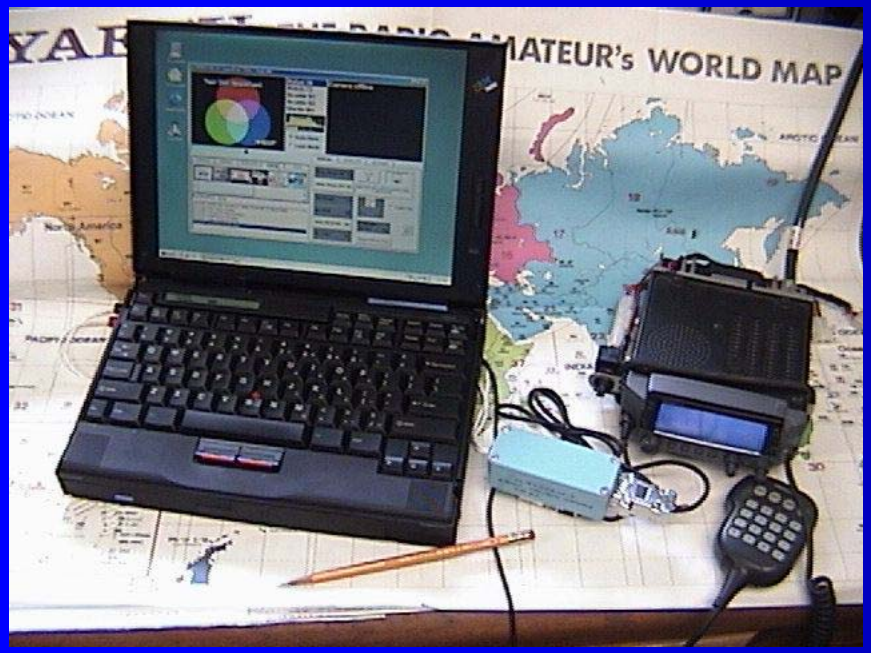
- Slide Show Mode
  - Images from disk or camera will be sent continuously.
- Repeater Mode
  - Earth stations can an Image to SpaceCam1 and it will repeat the image back to any Earth station within the footprint.

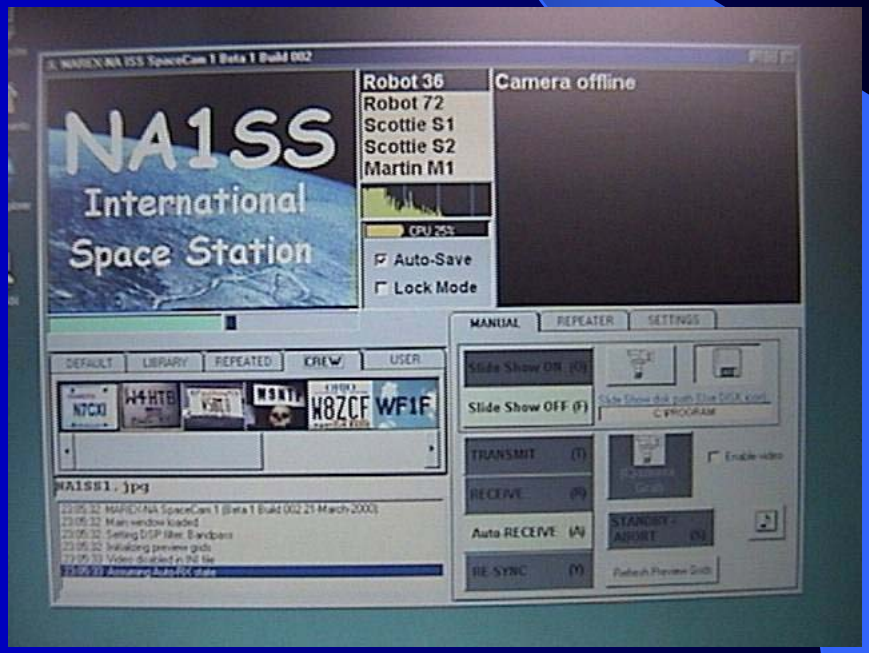
SpaceCam1 features continued

- Auto Receive
  - SpaceCam1 will automatically receive SSTV images (several formats) and save them to disk.
- Slide Show Mode
  - Crew can select a single image or multiple images to be Repeated over and over again.

Testing

Farrell Winder and the MAREX team have been actively testing the new software with Lou's new Audio Box.





Testing Cont.

The image on the left shows the size of the Audio Adapter box required to connect the SSC to the AIRSS Amateur Radio System.

TESTING SSC

- Final testing in Russia begins Q1 2003
- MAREX purchased 2 IBM-760 PC's to simulate the SSC testing. Everything works.
- New IBM A22 is begin considered
- Extensive successful satellite testing via AO-40

Space Station Computer

- Existing SSC are IBM 760XD 166Mhz, very limited access due to heave usage by ISS crew.
- New Taxi computers are being used for existing Ham station on ISS. IBM A22 1.0 GHz Pentium.
- Waiting for approval and testing on new computers.

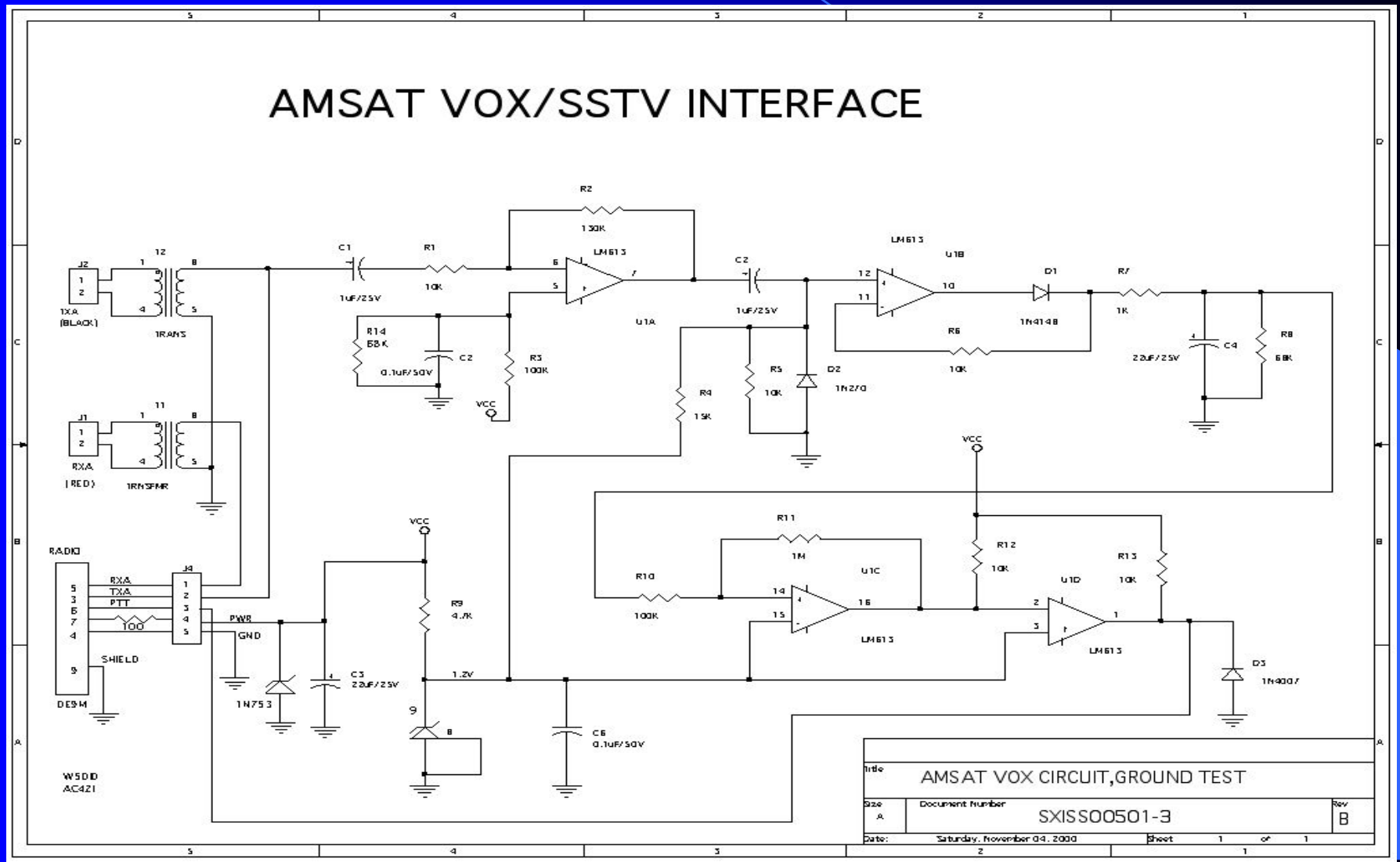
MAREX TEAM

Miles Mann	WF1F Project Architect
Jim Barber	N7CXI Software Architect
Fabrizio Bernardini	I0QIT Systems Engineer
Rebecca Harvey	N1GZD Translation coordinator
Hank Cantrell	W4HTB Hardware Engineer
Farrell Winder	W8ZCF PC/SSTV Engineer
Don Miller	W9NTP SSTV Architect
Jerry Muller	K0TV VHF-SHF Consultant
Wayne Nakata	N1WPN Repeater Engineer
Lou McFadin	W5DID ISS-Ham Hardware Manager

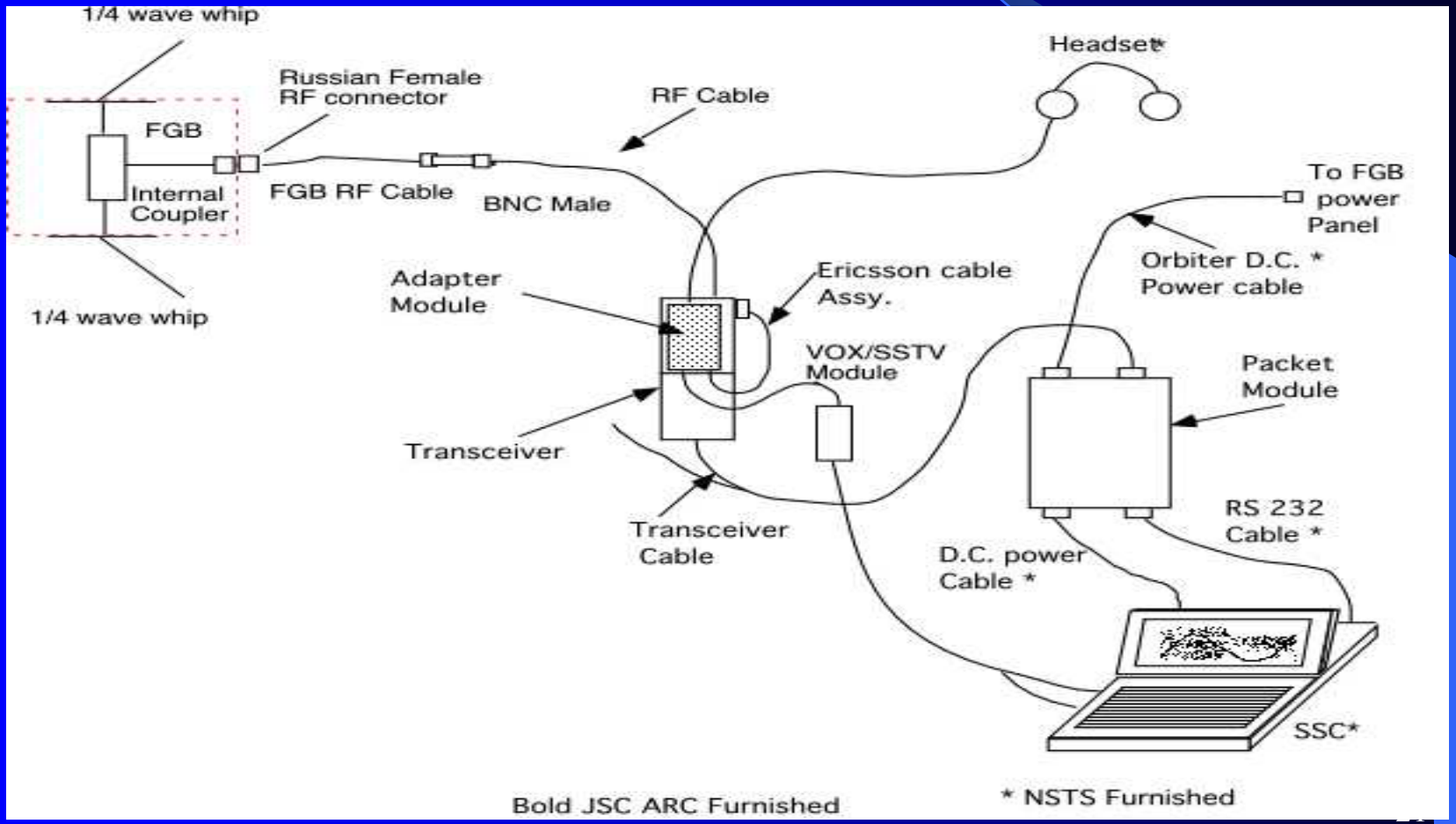
SpaceCam Testing Team

Stephen Lombard	VK2ISP
Danny Huton	VA3DH
Steve Forcht	VA3SF
Burt Amero	VE1AMA
Fusanon Koide	JG1VEM
Barrie Boden	G4CDZ
Ron Chapman	KA2HZO
Mile Pisani	
Robert Suding	W0LMD

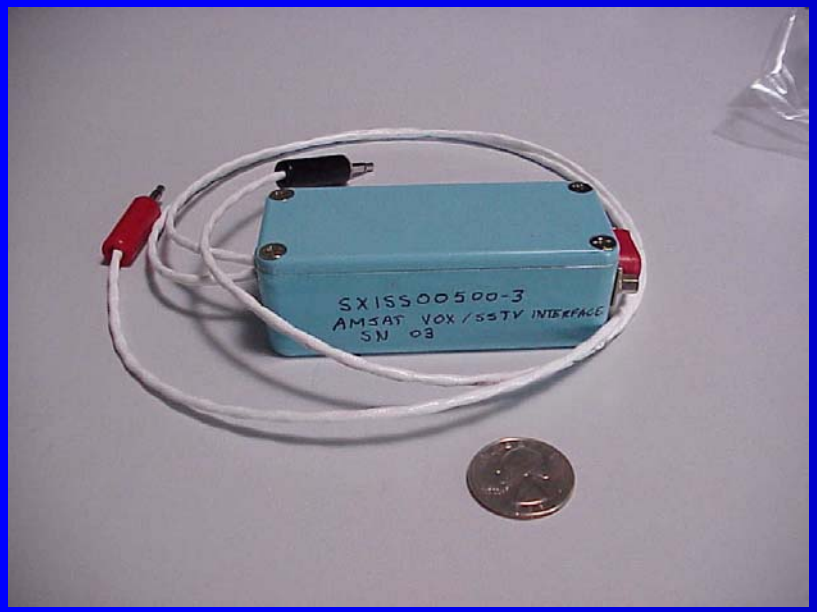
VOX/SSTV Module Schematic

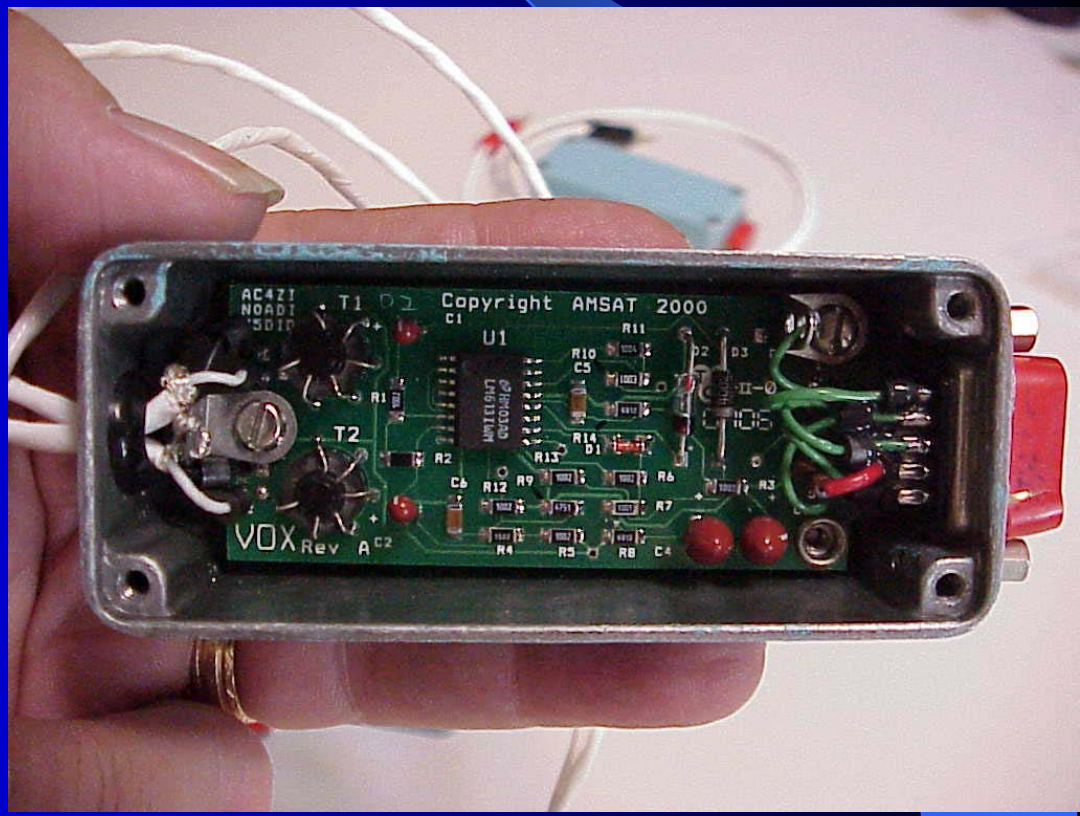


ISS-HAM with SSTV added



VOX/SSTV Module





Regular Updates
http:/www.marex-na.org