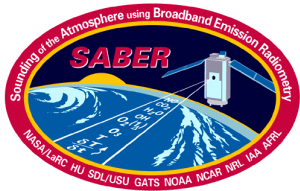# SABER Quality Assurance

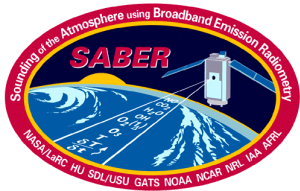## Earl Thompson
r.e.thompson@gats.hampton.va.us

SABER Quality Assurance
Milestones

- December 1997 - QA Plan Finished
- December 1997 - First Audit
- May 1998 - First Test Review
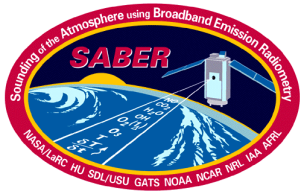
SABER Quality Assurance Activities

- **Audits:**

  QA Reviews Software Practices to:
  - (1) Assure that QA Plan (SABER-SQAP-97-1-V1.1) followed.
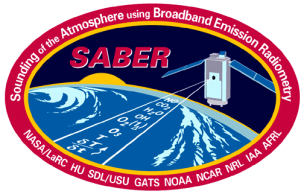 - (2) Continually improve QA Plan

- **Testing**

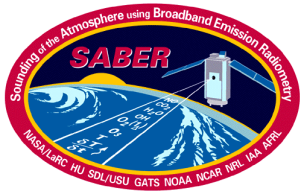 QA monitors testing to make sure software meets requirements

- Describe what you do.
- Do you have a list of your requirements?
- How do you know they are right?
- Do you have a verification matrix or equivalent?
- Do you have good communication with others?
- How do you handle module interface changes?
- How do you test your software?
- Do you use CM for software and documents?
- Do you have any problems?

- He has a list of requirements on what is to be tested.
- He has a test matrix (needs to be updated).
- Information on requirements, etc. comes from SDL/95-009. See also TIMED General Instrument Interface Specification, Document # 7363-9050, Rev. A, Section 8.
- See my notebook for sketch of front end software flow.

- What is the purpose of the test?
- What requirements does the test address?
- Does the test prove the software meets requirements?
- Are there enough details in test procedure?
- Provision for noting problems?
- Are the test procedures and test data under CM?

6.0 Test Procedures:

6.1 Test Name: PRD R1 Test

Objective: This test will verify that the PRD can establish a TCP/IP socket connection with the TIMED Spacecraft Emulator.

1. Start Replay 3.1 by double-clicking on its icon.
2. Select "Network" mode and click on "OK".
3. On the TIMED Spacecraft Emulator verify that a connection has been established.

[handwritten: Vcet Field with Jog that the telemetry received the POC as opposed to check about via Field Telemetry (Jog that) + Jim will check connection with scott connection was established + Jim will scott socket connection]

6.2 Test Name: PRD R2 Test

Objective: This test will show that for the PRD to receive telemetry from the TIMED Spacecraft Emulator, the PRD must send the Emulator "commands" for the telemetry required. If the "commands" are not correct then the Emulator will not send the telemetry and the TCP/IP connection will close.

1. Repeat steps 1-3 from the PRD R1 Test if needed to establish a TCP/IP connection with the TIMED Spacecraft Emulator.
2. Select the CCSDS Header Panel at the bottom of the "Data Analysis Window".
3. Click on the "Forward" button.
4. Telemetry should know be displayed in the CCSDS Header Panel window. ✓

6.3 Test Name: PRD R3 and R4d Test

Objective: This test will verify that the PRD can read and unpack CCSDS Telemetry Packets

1. Start Replay 3.1 by double-clicking on its icon.
2. Select "Network" mode and click on "OK".
3. Select the CCSDS Header Panel.
4. Verify:
   4.1. The AP ID reads 1440 (for housekeeping). ✓
   4.2. The Type Indicator is 0. ✓
   4.3. The Packet Secondary Header is 1. ✓
   4.4. The Source Sequence Count in increasing incrementally. ✓
   4.5. The Packet Length is 250 *[handwritten: Actually 255 — need to check should read not (or, just type0)]*
   4.6. The Sub-Frame ID is increasing incrementally. *[handwritten: should read (Typo)]*
5. Start the SABER_CMD.EXE by double clicking on its icon *[handwritten: dat. collecting]*
6. At the prompt enter "PRD_R3_Test1.txt"
7. Verify: *[handwritten: 1408]*
   7.1. The AP ID reads 1440 (for housekeeping). *[handwritten: dat. collecting]*
   7.2. The Type Indicator is 0.
   7.3. The Packet Secondary Header is 1. ✓
   7.4. The Source Sequence Count in increasing incrementally. ✓
   7.5. The Packet Length is 250 *[handwritten: 255 – Need to check]*
   7.6. The Sub-Frame ID is increasing incrementally. ✓
   7.7. Several randomly selected parameters in the Data Collection Packet *[handwritten: ✓ checked against Ray (verbally) * CRYd txt) → TM01V & TM02V not yet checked (committee)]*
8. Repeat step 5.
9. At the prompt enter "PRD_R3_Test2.txt"
10. Verify:
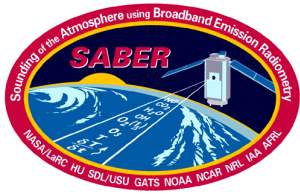   10.1. The AP ID reads 1440 (for housekeeping). ✓
    10.2. The Type Indicator is 0. ✓
    10.3. The Packet Secondary Header is 1. ✓
    10.4. The Source Sequence Count in increasing incrementally. ✓ *[handwritten: why not 250, Jim will check]*
    10.5. The Packet Length is 250 *[handwritten: 255]*
    10.6. The Sub-Frame ID is increasing incrementally. *[handwritten: should read not (RYd txt) will just type]*
    10.7. Several randomly selected parameters in the Housekeeping Packet

SABER Quality Assurance

Date	Requirement Number	Comment	Reviewers Initials
May 11, '98	1	Jim will check with Scott Cannon about Socket connector	ST
May 11, '98	3	Verify Packet length (255 or 256)	ST
May 11 '98	4d	In data collection mode the Housekeeping subcom Parameters TM01V & TM02V ~~agre were~~ were not being updated correctly	ST

SABER Quality Assurance
Future Activities

- Monthly Audits

- Test Reviews

- Software Reviews