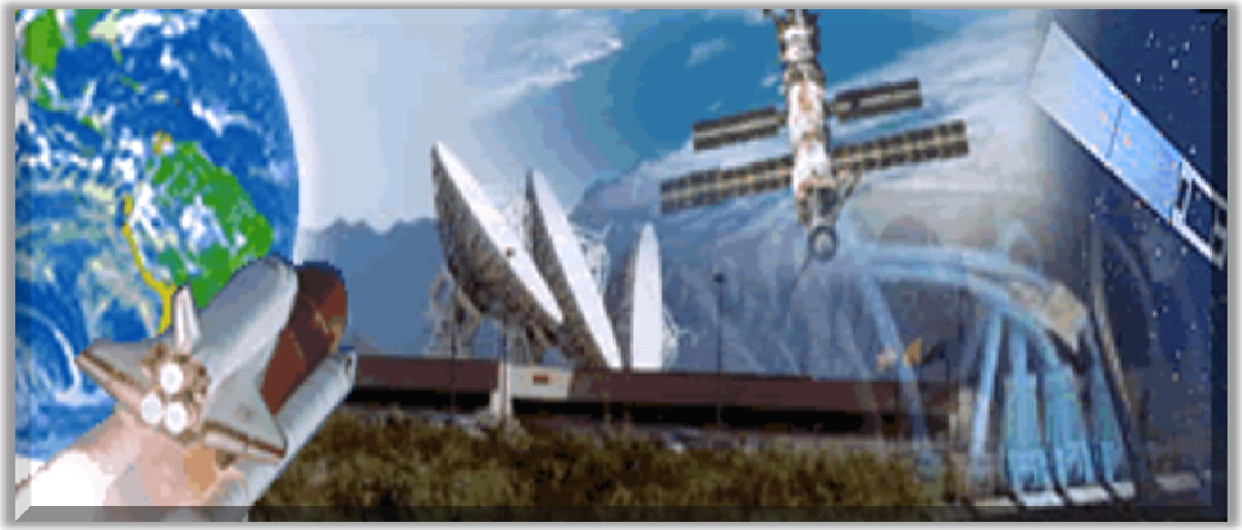
Network Protocol Working Group



04/16/12

Rick Kraesig/GSFC SMM
Erik Richards/WSC Engineering

Agenda

- **Part I**
  - **Network Testing**
  - **Network Mission Support**
    - **Pre-Launch**
    - **Launch/Early Orbit**
    - **Mission Operations**
  - **Mission L-1 Day Voice Check**
  - **Problem Reporting**
  - **Johnson Space Center (JSC) Electronic Flight Notes**
  - **WSC Support Position Call Signs**

Agenda (cont'd)

- **Part II**
  - **Delogs**
  - **Delogging Process**
  - **Delog Parameter Page**
  - **First Report Process**
  - **SAS File Column Alignment**
  - **EB/N_o**
  - **Open Discussion**

Network Testing

- All Testing requires a Schedule Request and Briefing Message (BM)
  - Schedule Requests
    - Secures WSC Equipment
    - Secures Engineering Support (if required)
    - Used to populate WSC Long Forecast Schedule
  - Briefing Message
    - Describes detail Network Support
    - Identify Data/Voice Circuits
    - Timeline
  - SUPIDEN will be scheduled with a suffix of SM vice MS (MxxxxSM)
    - WSC Accountability

Network Testing (cont'd)

- Spaceflight Mission Managers (SMM) and WSC Engineering will support Network Testing
  - Briefing Message Test Timeline
    - Network unprepared to support if tests are brought up earlier than stated timeline
  - Voice Protocol
    - Test Briefing:
      - Who does the briefing (based on Customer or Network driven test?)
      - What items should be covered
    - Ground Controller (GC) interfaces with the SMM
    - SMM will interface with WSC Engineering
  - Ground Control Message Request (GCMR) Management
    - If the GC is unable to send; GC will advise the SMM to send the GCMR
    - If the SMM is unable to send; SMM will advise WSC Engineering to send the GCMR

Network Mission Support

- **Pre-Launch**
  - **SMMs and WSC Engineering are on-console to support**
    - **Console support is documented in an Critical Support Interim Support Instructions (ISI)**
  - **Voice Protocol**
    - **GC interfaces with the SMM**
    - **SMM interfaces with WSC Engineering**

Network Mission Support (cont'd)

- **Launch/Early Orbit**
  - **SMMs and WSC Engineering are on-console to support**
    - **Console support is documented in an Critical Support ISI**
  - **Voice Protocol**
    - **GC interfaces with the SMM?**
    - **SMM interfaces with WSC Engineering?**
    - **During troubleshooting efforts the GC interfaces directly with WSC Engineering**
    - **Upon GC releasing the SMM and WSC Engineering from Launch and Early Orbit Phase (LEOP)**
      - **GC interface is with WSC CSC and/or WSC OPS**
  - **GCMR Management**
    - **If the GC is unable to send; who should GC contact to send?**

Network Mission Support (cont'd)

- **Mission Operations**
  - **Voice Protocol**
    - **GC interfaces with WSC CSC and/or WSC OPS**
  - **GCMR Management**
    - **If the GC is unable to send; GC will advise the WSC CSC to send the GCMR**

Mission L-1 Day Voice Check

- Performed at L-1 Day or as close to Launch as possible
- Test will be documented in a Schedule Request and Briefing Message
- At the conclusion of the test the Voice Circuits will be frozen
- SMM will send Network Test Report

Problem Reporting

- **Non-realtime issues/questions for WSC**
  - **On-going problem or following up in near real-time**
  - **GC to work the process by going through the SMM**
  - **SMM will work the issue with WSC personnel**
  - **Call-up list can be utilized during off hours**

JSC Electronic Flight Notes

- **Flight Note Usage**
  - **Performance Data Requests**
  - **Tracking and Data Relay Satellite (TDRS) Accountability time tag**
- **Access**
  - **SMM**
  - **WSC Engineering**

WSC Support Position Call Signs

- White Sands OS – Operation Supervisor (one for entire site)
- WSGT or STGT OPS – This is the SS (Site Specialist). There is one for each Ground Terminal
- CSC 1 thru 7 – These are the Communication Service Controllers. One for each SGLT
- White Sands Engineering – Most likely this will be the TO&A support for the activity
- White Sands LMT – Line Maintenance Tech. This position can provide limited support if Engineering is not available, usually with playbacks

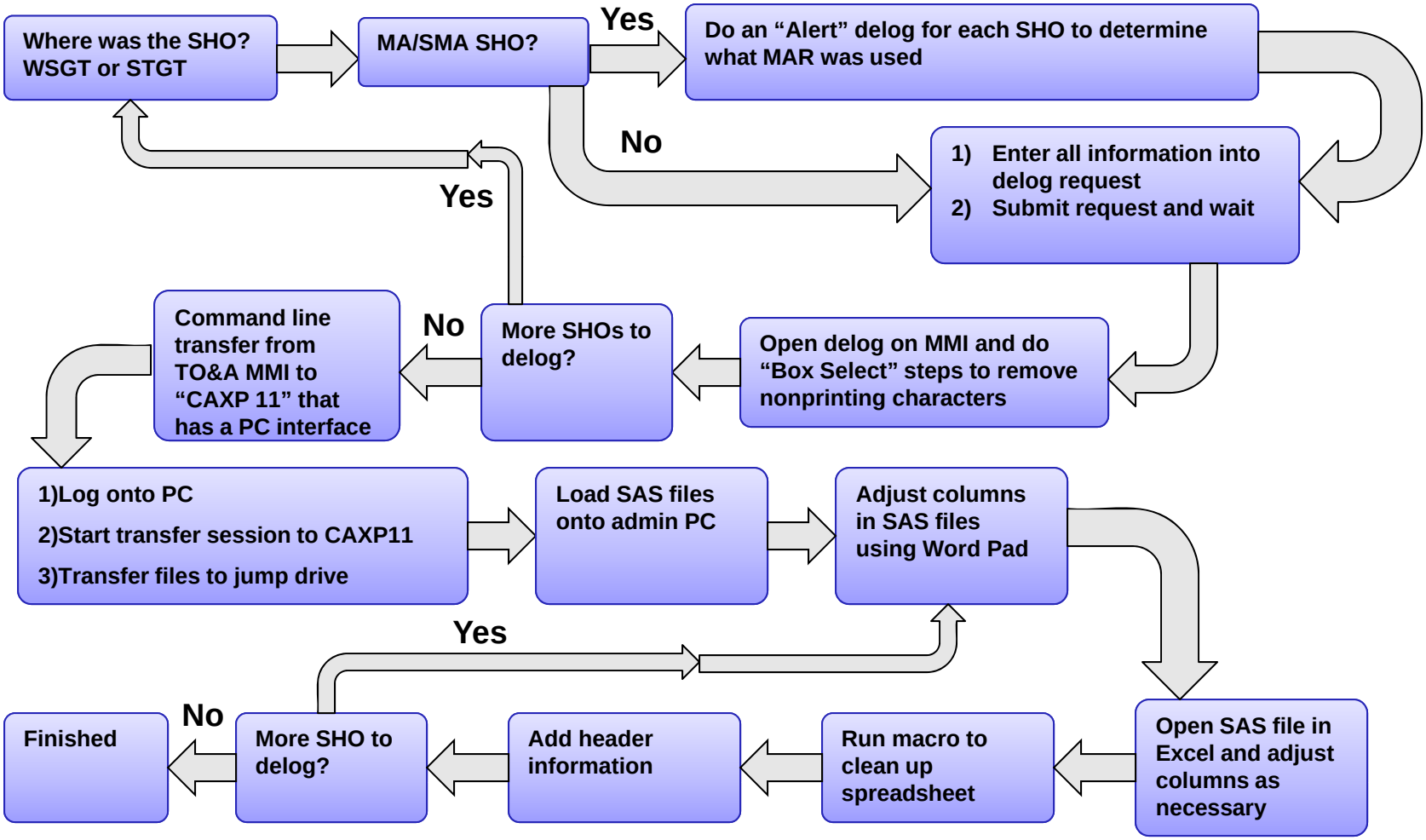
Part II

Erik Richards/WSC – TO&A

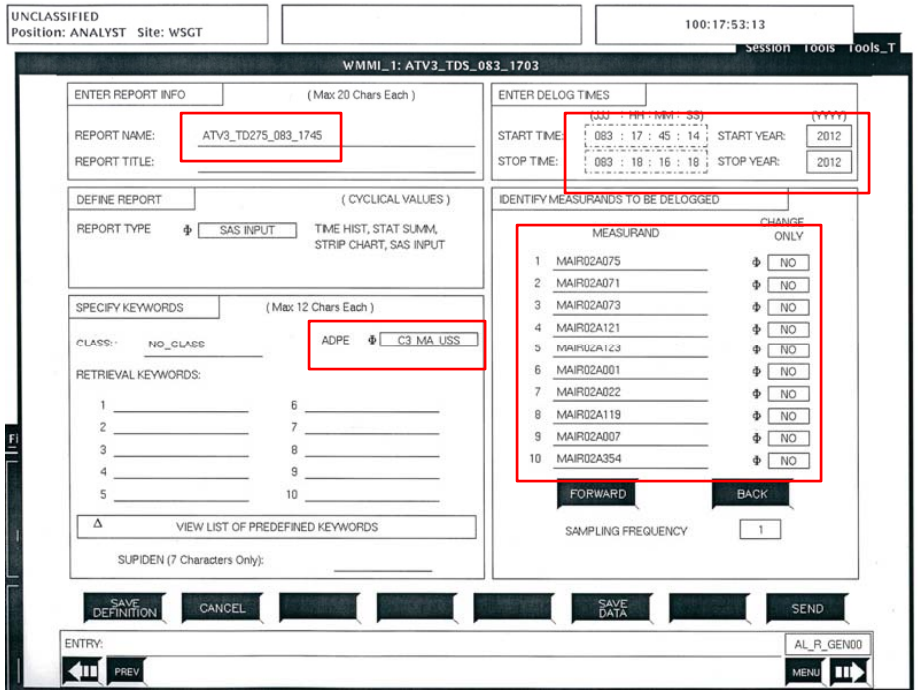
Delogs

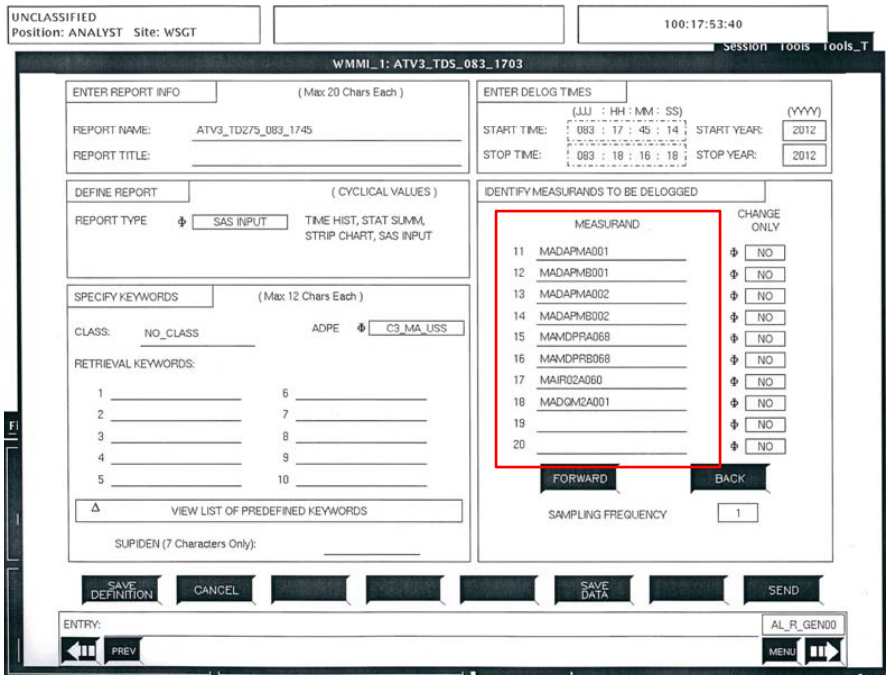
- **Original intent**
  - **Designed for internal troubleshooting**
  - **Delogs were never intended as an SN product**
- **The compromise**
  - **Will be provided on a best effort basis**
  - **What is needed in a delog request**
    - **Supporting TDRS, Antenna system, Time frame, SGLT information if available**
    - **Requested data cannot be more than 90 old**
    - **Urgency**

Delogging Process



Delog Parameter Page

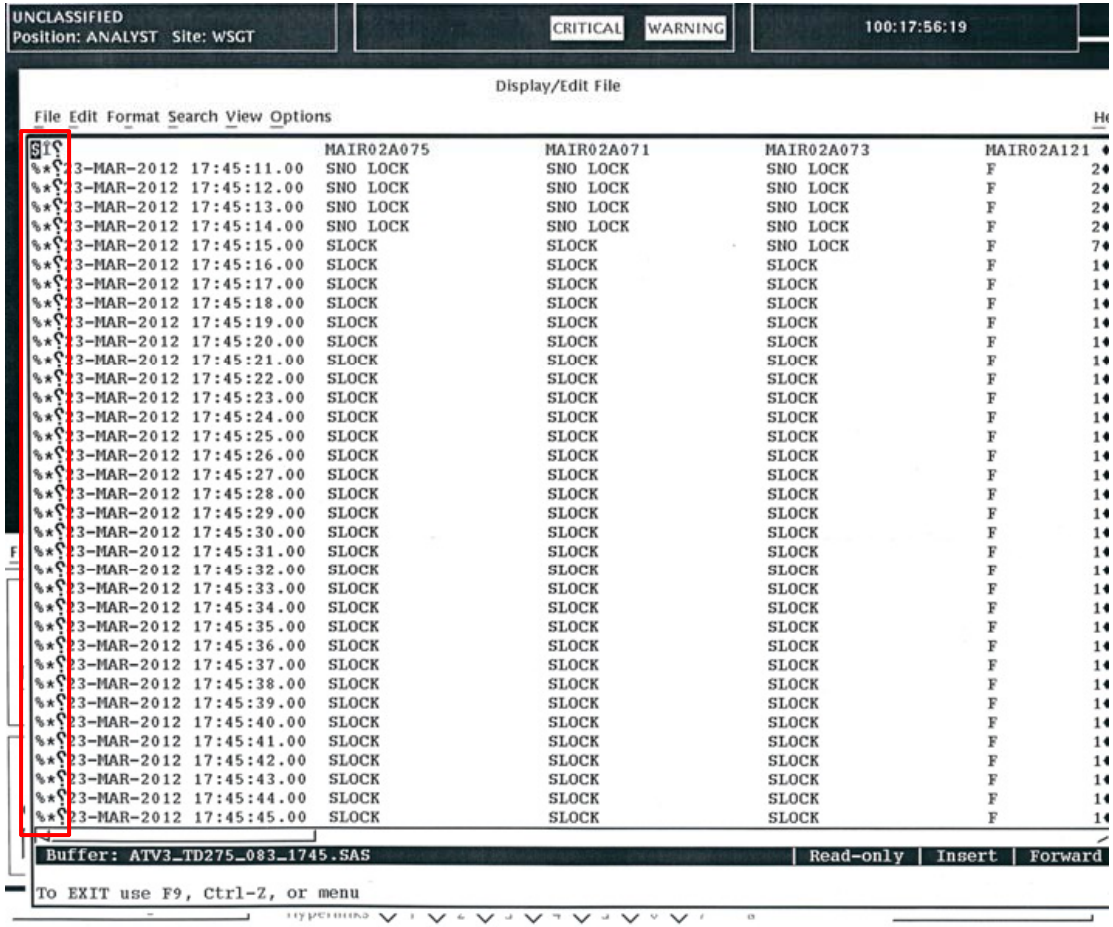




- **All entries must be typed**
- **No Copy and paste**
- **ADPE**
  - **DIS, TT&C and for each SGLT Exec, KTTC, MA/SMA, SA1 or SA2**

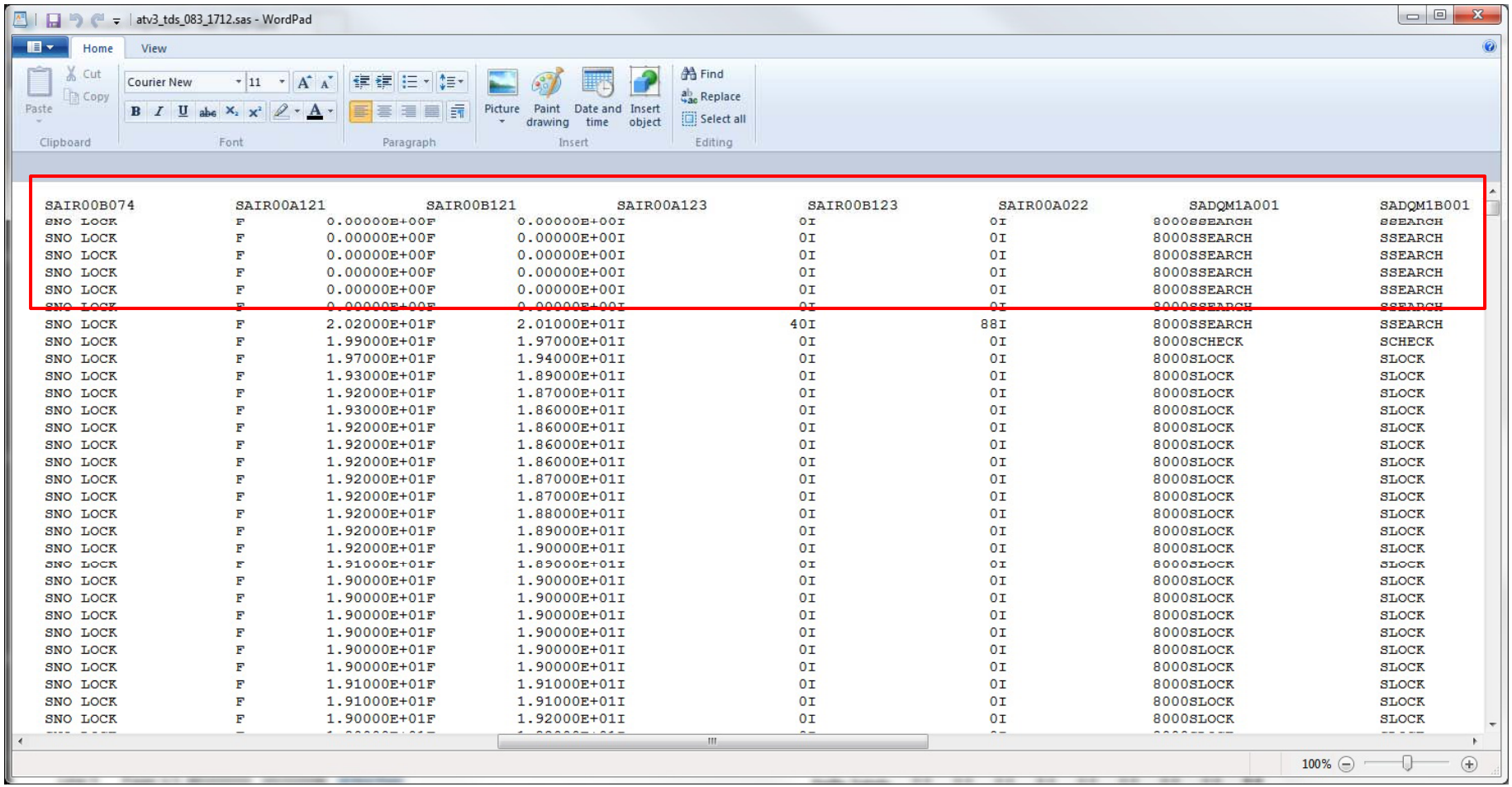
First Report Process

- **Command line "Box Select"**
- **Removes nonprinting characters**



SAS File Column Alignment

- **Columns have to be manually aligned**



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SNO LOCK	F	0.00000E+00F	0.00000E+00I	0I	0I	8000SSEARCH	SSEARCH
SNO LOCK	F	0.00000E+00F	0.00000E+00I	0I	0I	8000SSEARCH	SSEARCH
SNO LOCK	F	0.00000E+00F	0.00000E+00I	0I	0I	8000SSEARCH	SSEARCH
SNO LOCK	F	0.00000E+00F	0.00000E+00I	0I	0I	8000SSEARCH	SSEARCH
SNO LOCK	F	0.00000E+00F	0.00000E+00I	0I	0I	8000SSEARCH	SSEARCH
SNO LOCK	F	0.00000E+00F	0.00000E+00I	0I	0I	8000SSEARCH	SSEARCH
SNO LOCK	F	2.02000E+01F	2.01000E+01I	40I	88I	8000SSEARCH	SSEARCH
SNO LOCK	F	1.99000E+01F	1.97000E+01I	0I	0I	8000SCHECK	SCHECK
SNO LOCK	F	1.97000E+01F	1.94000E+01I	0I	0I	8000SLOCK	SLOCK
SNO LOCK	F	1.93000E+01F	1.89000E+01I	0I	0I	8000SLOCK	SLOCK
SNO LOCK	F	1.92000E+01F	1.87000E+01I	0I	0I	8000SLOCK	SLOCK
SNO LOCK	F	1.93000E+01F	1.86000E+01I	0I	0I	8000SLOCK	SLOCK
SNO LOCK	F	1.92000E+01F	1.86000E+01I	0I	0I	8000SLOCK	SLOCK
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SNO LOCK	F	1.91000E+01F	1.91000E+01I	0I	0I	8000SLOCK	SLOCK
SNO LOCK	F	1.90000E+01F	1.92000E+01I	0I	0I	8000SLOCK	SLOCK

EB/N_o

- Gives customers and TO&A a reference point for supports
- Calculated by the Integrated Receivers (IR)
- Based on the IR's reference C/N_o
- Reference C/N_o is based on minimum/maximum EIRP settings
- Customer EIRP is from Radio Frequency Interface Control Document (RFICD)
- Context HTV-3 Testing
  - Transmitted well over advertised EIRP
  - Min/Max EIRP in SHO's are not correct
  - Meaningless EB/N_o results

Open Discussion