

## **ASOS CL31 Replacement Ceilometer Second System Test (ST) TRG Meeting**

### **MINUTES: CL31 Test Review Group (TRG) Meeting**

**DATE:** December 18, 2008

### **ATTENDEES:**

#### **TRG MEMBERS:**

Jerald Dinges (W/OPS24 – Chair/Moderator)  
Khien Nguyen (W/OPS24 - ST Director),  
Joseph Fiore (W/OPS24 - Secretariat),  
“ABSENT” Greg Dalyai (W/OPS12)  
Richard Parry (W/OPS22)  
John Monte (W/OST11) CL31 Ceilometer Project Manager  
“ABSENT” Laura Cook (W/OS7)  
Bing Huang (FAA ATO-T)  
Gerald “Wayne” Knight (U.S. Navy, SPAWARSYSCEN, Charleston, SC)  
Dan Lester (NWS Central Region Headquarters)  
“ABSENT” William “Mac” Lawrence (USAF HQ/AFWA)  
Kevin Conaty [W/OICO12 - ASOS Operations Monitoring Center (AOMC)]

#### **TEST SUPPORT PERSONNEL:**

“ABSENT” Beth McNulty (W/OS23) - NWS Office of Climate, Water, and Weather  
“ABSENT” James Brand [FAA Technical Center (FAATC), Atlantic City, NJ]  
“ABSENT” Ray Bahavar [FAA National Airway System Engineering Office (NASEO)]  
“ABSENT” Robert Retzlaff (NWS Training Center, Kansas City, MO)  
Jennifer Dover (W/OPS22 SFSC)  
Brian Rice (SFSC contractor)  
Chet Schmitt (W/OPS22)  
Harry Tran (NWS W/OPS24)  
Jerry Kranz (FAA contractor))

#### **GUESTS:**

Lew Harrington (NWS Southern Region Headquarters)  
John Bush (NWS Pacific Region Headquarters)  
Dave Mannarano (W/OPS24)

### **SUMMARY and ACTION ITEMS:**

A System Test (ST) Test Review Group (TRG) meeting for the CL31 Replacement Ceilometer ST Test Review Group (TRG) (second ST) was held by audio teleconference at National Weather Service Headquarters (WSH), Silver Spring, MD on December 18, 2008. The Office of Operational Systems (OOS), Field Systems Support Center (FSOC), Test and Evaluation Branch

(W/OPS24) convened and moderated the meeting. This meeting was conducted provide a status on progress of the second ST with V2.79T (12/02/08) and adjudicate any problems found during ST.

First, Jerry Dinges reviewed the open action items (listed in the action item list) from the last TRG meeting (12/09/08). The main part of TRG meeting was to discuss progress on V2.79T (12/02/08) ST to date. To date SFSC reported that 8 regression tests have been run and passed. However, a critical test trouble report: TTR 194: "1015 Ceilometer #1 Response Timeout Error at 00:01 LST Everyday Causes "\$" " was found on December 11 at Sterling (ST0) and Bismarck (BIS). ST0 was running V2.79T (12/02/08), and is a multiple DCP system. BIS was running V2.79S and is a single DCP system. Even though ceilometer data continues to be reported, the TTR was determined to be critical because the 1015 message generates a maintenance action "\$", which causes a workload issue for the electronic technicians and for the AOMC. ST was temporarily suspended on December 15 to allow further investigation of this TTR.

The "\$" must be cleared every day so a "\$" does not go out in the METAR or SPECI observations. This problem does not occur with earlier versions of ASOS V2.79D/E/W. This problem is also not repeatable on all ASOS systems with V2.79S or V2.79T. Since the problem was found on December 11, there has been a lot of testing performed by OPS24, the U.S. Navy, and Prism to help isolated and fix the problem. Investigation of the problem has revealed that if an ASOS system has a line driver connection between the ACU and DCP this problem does NOT occur. If the ASOS has a radio communication link between the ACU and DCP the problem occurs. The problem also only occurs when the CT12K ceilometer is configured as the "operational ceilometer". It does not occur when the CL31 is the "operational ceilometer". All this information is critical to help Prism fix the problem. The U.S. Navy will be sending a summary report to OPS24 and Prism on the testing they performed to investigate this problem. OPS24 has documented this problem at BIS and ST0 and sent the ASOS SYSLOG data to Prism.

On December 16 OPS22 proposed a work around for this problem that would allow V2.79T (12/02/08) to be installed at 7 OT&E sites that are participating in the Meteorological Comparison Evaluation (MCE) between the CT12K and CL31 ceilometers. Since the winter season is in full swing, it is critical to obtain winter data from the 7 MCE OT&E sites so enough cases are obtained for analysis. OPS22 proposed that V2.79T could be installed ONLY at these 7 MCE sites if the AOMC would agree to manually clear the fail counts and "\$" caused by TTR 194 each day while the MCE is running (until April 2009 at the latest).

On December 17 AOMC agreed to this proposal from OPS22. It should be stressed that the installation of V2.79T (12/02/08) at these 7 MCE sites in not an OT&E. It is a "Beta Test" of V2.79T to allow the collection of ceilometer data for the MCE. When Prism finds a solution to TTR 194, a new version of ASOS software must undergo and pass another ST before actual OT&E can begin at all OT&E sites. OPS22, OPS24, AOMC, the U.S. Navy, the FAA, and NWS Central, Southern, and Pacific regions agreed to this approach. OPS24 will contact the NWS Eastern, Western, and Alaska regions to inform them of this decision.

The 7 MCE “Beta Test” sites are:

CAR (Caribou, ME)  
JKL (Jackson, KY)  
GDP (Guadalupe Pass, TX)  
BIS (Bismarck, ND)  
HIO (Portland, OR)  
FAI (Fairbanks, Alaska) (PAFA)  
ITO (Hilo, HI)

Therefore, ST was resumed on December 18 at SFSC on ST0 and at the U.S. Navy. If the rest of ST is successful, V2.79T (12/02/08) will be installed at the 7 MCE sites in January 2009 after an MCE “Beta-Test” kick-off meeting held by OPS24. There will be another ST TRG meeting on December 30 at 2 PM EST to bring the TRG up to date on the progress on V2.79T ST.

Jerry Kranz of the FAA asked if the fix for the TTR written for the missing ceilometer data in the ADAS one-minute message could be included in the software load that fixes TTR 194. OPS24 will contact OPS23 to ask if this can be done.

The following action items from the December 9 TRG were discussed:

**Action Item 3: (OPEN):** Assigned to Joe Fiore (W/OPS24) from the OT&E TRG “kick off” meeting November 17. Joe will send the updated “white paper” draft to the test team for review. This “white paper” summarizes the results of the CL31 to CT12K Meteorological Comparison Evaluation through November, and provides an explanation for significant and great differences between the CL31 and CT12K sensors. After team review this “white paper” will be distributed for wider review. **UPDATE:** This paper is in final review by the data analysis team, and will be available for wider review after January 5, 2009.

**Action Item 4 (OPEN):** Assigned to Khien Nguyen and Harry Tran (W/OPS24). Khien and Harry will use the protocol analyzer to capture and interpret the ADAS one-minute data as it is sent from ASOS ST0 to the FAATC’s ADAS/ALDARS test bed. Khien will update the ADAS test procedures to add the one-minute cloud report to the test procedure. Khien and Harry will run the ADAS test with the CT12K configured as the operational sensor on SCA at WSH, and again with the CL31 configured as the operational sensor on ST0 with communications to the FAATC’S ADA/ALDARS test bed. Khien will contact Jim Brand at the FAATC to coordinate ADAS testing. Khien and Harry will run the ADAS test procedures on ST0 during the second ST. Khien will also coordinate with FAATC for WSP testing. However, it was determined that the WSP only receives wind data from ASOS. Also this was verified on V2.79S using the codex modem dial connection. Therefore, the WSP test is not critical if cannot be scheduled during the ST. **UPDATE:** This action item is in progress. Khien and Harry have used the protocol analyzer to decode known ASOS data being sent to ADAS, and they are developing a data set with all required ASOS one-minute data that will be run in Sterling and sent to the ADAS test bed at the FAA Tech Center. Khien and Harry will use the test data set with the ASENSE simulator to test

the ADAS link. They will also use actual sensors (including the ceilometer) to test the ADAS one-minute data (including attempting to send cloud data) message to make sure that it gets sent correctly from SFSC and is received and decoded correctly by the FAA Tech Center. This test will confirm if one-minute cloud data is not being sent in the ADAS one-minute message.

**Action Item 5 (CLOSED):** Assigned to Jennifer Dover (W/OPS24). Jennifer will update three ST test procedures to reflect minor changes made by SAIC during ST. Jennifer will send the update test procedures to Khien Nguyen so he can send them to the U.S. Navy for ST. **COMPLETE.**

**Action Item 6 (CLOSED):** Assigned to Khien Nguyen (W/OPS24). Khien will schedule two TRG meetings during ST and notify the TRG and testers when the meetings will take place. **UPDATE:** The TRG meetings will take place on 12/18/08 and on 12/30/08. **COMPLETE**

**Action Item 7 (OPEN):** Assigned to Peggy Hoch (W/OPS23) and Prism Communications (ASOS software contractor). After a lot of discussion, the group decided (with FAA concurrence) that the latest TTR (involving missing CL31 cloud reports in ADAS one-minute data) should not be a requirement for V3.01. Peggy will instruct Prism to provide the fix in an interim software load (e.g., V2.79U). Peggy noted Prism would not deliver a fix until January 2009 at the earliest. However, the TTR, yet to be assigned officially, was determined to be non-critical since the problem will not affect the start of OT&E. A decision will be made later whether to perform an ST on V2.79U and integrate the fix into OT&E Phase II (CL31 switched as primary ceilometer on ASOS) or whether to merge V2.79U into V3.01 (tentatively slated for ST in February 2009). **UPDATE:** Prism will be working on a solution to this TTR in January 2009.

**Action Item 8 (CLOSED):** Assigned to Dave Eckberg (SAIC W/OPS22 support contractor). Dave will fill in the ASOS ST) Component (Sensor Firmware) Version Table with the latest version of sensor firmware for the ASOS sensors on ST0 and send the table to OPS24. **UPDATE:** Dave sent the table by e-mail to OPS24 on 12/10/08. **COMPLETE**

**Action Item 9 (CLOSED):** Assigned to Hak Kim and Peggy Hoch (W/OPS23). Hak and Peggy will ensure Prism delivers the 3 Factory Acceptance Test procedures for the 3 fixes provided in V2.79T (12/02/08). These are needed for the ST. **COMPLETE**

The following new action items were assigned during the December 18 TRG:

**Action Item 1 (OPEN):** Assigned to Khien Nguyen. Khien will call Bob Retzlaff at the NWSTC to have him install V2.79T (12/02/08) on the SCA ASOS at the NWSTC to see if they can reproduce TTR 194 (1015 message in SYSLOG at 00:01 LST) on an SCA ASOS.

**Action Item 2 (OPEN):** Assigned to Joe Fiore. Joe will contact the NWS Eastern, Western, and Alaska regions to inform them of the planned "Beta-Test" of V2.79T for the MCE at the MCE sites in their regions.

**Action Item 3 (OPEN):** Assigned to OPS24 and OPS23. OPS24 will contact OPS23 to have OPS23 ask Prism if the include the fix to the ADAS one-minute message TTR with the fix to TTR 194 in the same software load.

Please direct all questions/concerns to Khien Nguyen (Phone (301)-713-0326 x 177, email [khien.nguyen@noaa.gov](mailto:khien.nguyen@noaa.gov)).

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