<u>ASOS CL31 Replacement Ceilometer Second System Test (ST) "Kick-Off"</u>

MINUTES: CL31 Test Review Group (TRG) Meeting

DATE: December 9, 2008

ATTENDEES:

<u>TRG MEMBERS</u>:
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
Laura Cook (W/OS7)
Bing Huang (FAA ATO-T)
Gerald "Wayne" Knight, Ron Heatherdale (U.S. Navy, SPAWARSYSCEN, Charleston, SC)
"ABSENT" Dan Lester (NWS Central Region Headquarters)
William "Mac" Lawrence (USAF HQ/AFWA)
"ABSENT" Kevin Conaty [W/OICO12 - ASOS Operations Monitoring Center (AOMC)]

<u>TEST SUPPORT PERSONNEL</u>:
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)
Barbra Childs, Brian Rice, Aaron Poyer (SFSC contractor)
Joe Devost (W/OPS12)
Chet Schmitt (W/OPS22)
Peggy Hoch (W/OPS23)
Hak Kim (W/OPS23)
Harry Tran (NWS W/OPS24)
Jerry Kranz (FAA contractor)

<u>GUESTS</u>:
Matt Ferrell (RMS, NWS Eastern Region Headquarters)
Bob Brashears (EPM, NWS Central Region Headquarters)
John Bush (NWS Pacific Region Headquarters)
Ed Doerr (NWS Alaska Region Headquarters)
Steve Butler, (NWS ET, DCO Hilo, HI)
Joel Williams (NWS W/OST11)

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SUMMARY and ACTION ITEMS:

A second System Test (ST) Test Review Group (TRG) "kick-off" meeting for the CL31 Replacement Ceilometer ST Test Review Group (TRG) was held by audio teleconference at National Weather Service Headquarters (WSH), Silver Spring, MD on December 9, 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 to obtain TRG approval to restart another ST for ASOS ACU V2.79T (12/02/08). This latest test firmware from Prism, Inc (ASOS software contractor) fixes to critical problems with ASOS ACU V2.79S test firmware. Two problems are documented as Test Trouble Reports (TTR), i.e., TTR # 191 - *Incorrect Maintenance Flag($) Generated when CL31 Used in Conjunction with CT12K* and TTR#192 - *Loss of Communications to CT-12K when CL31 Configured, then Deconfigured.* A third fix is for an Operational Trouble Report # 1087 – *False DCP UPS Status Indicator*. The OTR was discovered during System Integration Test conducted in August 2008. TTR191 was discovered right at the conclusion of ST and the start of the original OT&E (November 17, 2008). TTR192 was found November 24. 2008 while testing a beta V2.79T delivered from Prism. A second version of test ASOS ACU firmware with fixes for these three critical TTR's was delivered by Prism to the Government for informal testing on Tuesday, December 3 as V2.79T (dated 12/02/08). The Government (W/OST11 and W/OPS24) exercised the firmware on the SCA ASOS at National Weather Service Headquarters (WSH), and on an ASOS ACU/DCP test system configuration (ST0) at the Sterling Field Support Center (SFSC), Sterling, VA. Testing through Monday, December 8 at WSH and SFSC indicated the three critical problems are fixed. However, on the same day, W/OPS23 informed W/OPS23 that another problem in ASOS V2.79S was discovered. The problem found is no cloud information in the one-minute observation (OMO) data is sent on the AWOS/ASOS Data Acquisition System (ADAS) when the CL31 is configured as the primary ceilometer on ASOS (When the CT12K is configured as the primary ceilomete, the could information is sent on ADAS). After much discussion on the latest problem, Jerry Kranz (FAA contractor) believes the ceilometer data in the OMO is not yet a requirement on ADAS. Jerry will verify this is the case. Also, since this problem only exits when the CL31 is configured as the primary sensor, this fix is not needed until Phase II of the OT&E. W/OPS23 will direct Prism to produce a V2.79U test firmware with this fix. However, V2.79U may be integrated into V3.01, currently slated for February ST. **The recommendation to the TRG was to proceed to the second ST using V2.79T (12/02/08).** The ST will include two communication interface tests with the FAA Technical Center ADAS/ALDARS test bed: 1) with CL31 primary and the CT12K test; and, 2) the CL31 primary with not CT12K configured). W/OPS24 will modify the ASOS/ADAS test procedure to include ceilometer data and will use an protocol data analyzer to validate the ceilometer data sent from ST0 against the Interface Control Document specification. This will be done using the FAATC ADAS/ALDARS test bed to initiate a query of ASOS data from ST0.

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Jerry stated only the NWS SFSC and the U.S. Navy SPAWARSYSCEN, Charleston will formally participate as test sites during the ST. Both the FAA NASEO and the NWSTC cannot participate formally due to schedule conflicts. However, Bob Retzlaff will be provided V2.79T to informally check the test firmware. The NWSTC must, however, use the two "checklist" to validate the ASOS test system is "clean." (w/o problems) as a prerequisite to testing.

The TRG voted to start ST. ST will take place on the SFSC ST0 ASOS and on the U.S. Navy SPAWARSYSCEN, Charleston, SC's ASOS test system. Both SFSC and the U.S. Navy will use the two "checklists" developed by W/OPS24 to prepare the ASOS for the V2.79T ST. The first checklist details how to revert back to V2.79E/D in preparation for ST. The second checklist details how to run V2.79T ST with three different configurations of ceilometers:

1: CT12K as operational sensor, CT12K as test sensor (29 regression tests w/o Met Con/Backup. and ADAS tests)

2: CL31 as operational sensor, CT12K as test sensor (29 regression tests with ADAS test)

3: CL31 as operational sensor, no test sensor (all 31 regression tests including Met.Con/Backup and ADAS tests).

In addition both ST sites will complete an ASOS test system configuration table documenting the ASOS components and the version of firmware used for the ACU/DCP and each sensor. (See Attachment).

SFSC will run the regression tests for all three configurations (see above parenthetical statements following each ceilometer configuration listed). It will take approximately 4-5 days to run regression tests for each configuration, so ST will most likely continued through or just after the Holidays. Therefore, any waivers obtained for the 9 selected OT&E sites will not be needed. Jerry Kranz stated Tuyen Kieu will still inform us of any exemptions the FAA Headquarters grants even though at this time, ST will mostly likely last through this second FAA moratorium (Dec. 19, 2008 – Jan. 5, 2009). TRG meetings will be held on Thursday December 18 and Tuesday December 30 during ST to discuss progress and any issues to date. It ST is successful, OT&E will resume in early 2009 Another OT&E TRG 'kick-off" meeting will be scheduled for the TRG approval to restart the OT&E.

For the OT&E Jerry stated 3 OT&E sites installed the CL31 hardware without software:
1) Burlington, VT (BTV); 2) Portland, OR (HIO); and, Bismarck, ND (BIS). The CL31 will be installed at Caribou, ME (CAR) this week. In addition, Joe Devost (W/OPS12) is working with W/OPS24 and has a draft addendum instructions for the OT&E draft NWS Engineering Modification Note #92. These addition instructions stemmed from as an action item during the OT&E "kick off meeting on November 17. It was noted the existing mod note is written for replacing the CT12K with the CL31. The additional instruction will clarify how to install CL31 as a test sensor and leaving the CT12K as the primary. In addition, W/OPS12, is working on instruction to ensure the requirement for a second UPS is bypassed using wiring if the CL31 is

the ninth sensor installed on an ASOS. W/OPS12 is coordinating with the National Reconditioning Center, Kanas City, MO to validate the procedure. These additional instructions are required for the OT&E. In addition, Joe Devost stated the A/D converter cards have been shipped to all OT&E sites requiring them.

The following action items were assigned during the meeting:

Action Item 1: (OPEN): Assigned to Joe Fiore, Harry Tran (W/OPS24) and Wayne Knight (U.S. Navy, SPAWARSYSCEN, Charleston, SC). Joe and Harry will update the ASOS ST0 Sensor Configuration Table, and pass the table to the U.S. Navy (Wayne Knight). Wayne will fill in the table with the SPAWARSYSCEN ASOS System ASOS Sensor Configuration and send the table back to W/OPS24. **UPDATE:** This table has been updated and was sent to the U.S. on 12/10/08 (See Attachment). **COMPLETE**

Action Item 2: (OPEN): Assigned to Joe Devost (W/OPS12). Joe will put the ASOS firmware version V2.79T (dated 12/02/08) on the OPS12 website, so the U.S. Navy can download V2.79T for ST. **UPDATE:** Joe provided an e-mail with the URL to download V2.79T. W/OPS24 forward the e-mail to U.S. Navy. **COMPLETE**

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.

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.

Action Item 5 (OPEN): 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.

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<u>Action Item 6 (OPEN):</u> 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**

<u>Action Item 7 (OPEN):</u> Assigned to Peggy Hoch (W/OPS22) 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 will 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 intergrate 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).
<u>Action Item 8 (OPEN):</u> 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. (See Attachment). **COMPLETE**

Action Item 9 (OPEN): 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.

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

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