

SYSTEM TEST REPORT FOR THE ASOS VERSION (V)2.83 SOFTWARE LOAD

(Dated 05/02/2006)

INTRODUCTION – The Office of Operational Systems, Field Systems Operations Center, Test and Evaluation Branch (OPS24) has successfully completed a System Test (ST) for the Automated Surface Observing System (ASOS) Acquisition Control Unit (ACU) software load V2.83, dated 05/02/06. This load was based on the V2.82, dated 01/17/06, and was intended to correct a Test Troubles Reports (TTR #154) found in that load. The ST was conducted in accordance to the System Test Plan for ASOS Software V2.83 (05/02/06), issued by email on May 14, 2006. The ST began on May 23 and ended June 16, 2006, at National Weather Service Headquarters (WSH), Silver Spring, MD, and at Sterling Research and Development Center (SR&DC), Sterling, VA.

OBJECTIVES – To verify the TTR#154 was fixed and to verify the ASOS system stability is maintained and the existing ASOS functions are not negatively affected by the new changes.

TEST METHODOLOGY – The new software was installed on the ASOS Test Systems SP1 at the WSH, Silver Spring, MD, and ST0 at the SR&DC, Sterling, VA, May 23 and May 25, 2006, respectively. The SP1 ASOS has a single Data Collection Platform (DCP) configuration and the ST0 ASOS has a three-DCP configuration.

After the software was installed on the SP1 and ST0 test systems, checkout tests were performed. Subsequently, all planned regression tests (see Attachment 1) were performed to ensure the new fixes have no adverse effect on the existing ASOS system in both functionality and accuracy.

TEST RESULTS – This software load successfully supports the existing ASOS sensor suite and the new sensors, including the new precipitation gauge (AWPAG), dew point sensor (DTS1), and Ice-free Wind (IFW) sensor. The existing ASOS functionalities are maintained and the system is stable. All regression tests were successful. TTR#154 (If the SPECI is cancelled in the last minute of the METAR edit window because of reversal of trend, then audio alarm does not sound during transmission of the next METAR) were successfully corrected. However, one minor problem was found during the ST and was documented in TTR#159. This problem is related to the temporary missing display of the tower visibility, as follows:

Logged on as OBS or ATC with TWR VIS displayed, the following command sequences result in everything except “SM” disappearing from TWR field on the one-minute screen:

*CMD
EDIT-ABORT
EDIT ... EXIT
EDIT-RESET-EXIT
GENOB-XMIT
GENOB-TRNDO-XMIT-Y-ENTER
GENOB-WTRSP-XMIT-Y-ENTER
GENOB-FUNNL-XMIT-Y-ENTER
GENOB-ABORT*

The TWR field is refreshed at the next second 23 screen update (TWR-EXIT will also refresh the TWR field). This problem is not present in V2.7B-6.ff

RECOMMENDATIONS – OPS24 informed the ASOS Test Review Group of the above problem (TTR#159) and consulted with Mr. Calvin Smith, the Federal Aviation Administration (FAA) ASOS representative on the ASOS Configuration Control Board. Based on discussions with Calvin, it is believed this problem is only inconvenient but not critical enough to suspend the ST. Therefore, OPS24 shipped the ASOS V2.83 (05/02/06), to the electronic technician at the Weather Forecast Office (WFO) Mt. Holly, NJ for installation in the first Operational Acceptance site (OAT), the ASOS at Atlantic City, NJ (ACY). This will allow the FAA Technical Center (FAATC), Atlantic City, NJ, to perform their interface tests to various FAA systems normally connected to ASOS. In parallel, we will also provide the software to Ft. Rucker, AL through Scott AFB, Bellevue, IL for their testing. This will allow us to complete the ST and provide a recommendation to the ASOS TRG for proceeding to the V2.83 OAT at all designated sites including FAA sites that received FAA training .

* NOTE: The FAA interfaces under test at the FAATC include, but, may not be limited to:

ASOS Controller Equipment – Information Display System (ACE-IDS)
Weather Systems Processor (WSP),
AWOS/ASOS Data Acquisition System (ADAS)
Automatic Lightning Detection and Acquisition System (ALDARS).

POINT OF CONTACT - Khien Nguyen is the OPS24 lead for the ST. Khien can be contacted by e-mail, khien.nguyen@noaa.gov, or by telephone at 301-713-0326 x177.

ATTACHMENT 1

ASOS V2.83 (05/02/06) SYSTEM TEST CHECKLIST
(REGRESSION TESTS)

#	TEST #	Test Description	Scenarios : Either ASENSE or LIVE Sensor	Duration	Pass/ Fail	Date	Site
1	01_01	Pre-Installation Routines		4 hrs	P	05/25/06	ST0
2	04_40p	Wind Edit Data Validation	ASENSE	30 min	P	05/31/06	ST0
3	04_39p	Wind Remark/REPRO	ASENSE	1 hr	P	06/14/06	ST0
4	15_01	Wind Algorithm Regression Test -Tests basic functions of the wind algorithm by performing a combination of manual data entry and running on-line data sets [Stop after Step 61].	ASENSE	2 hrs	P	06/14/06	ST0
5	02_08	Command - Time - Verifies or corrects the ASOS site's time. The TIME function calls the AOMC and synchronizes the site's time to the AOMC's time.	ASENSE	15 min	P	05/25/06	ST0
6	03_01	SPECI Generation during hourly edit time and during edit time of another SPECI.	Either	45 min	P	05/25/06	ST0
7	03_07	Editing Present Weather during hourly	Either	½ hr	P	05/25/06	ST0
8	04_27p	Ceiling Special (Falling Below Threshold)	Either	½ hr	P	05/31/06	ST0
9	04_31p	Visibility Special (Falling Below Threshold)	Either	1 hr	P	06/13/06	SP1
10	04_33p	Present Weather Edit/Augment Test Procedure	Either	1 ½ hrs	P	06/14/06	ST0
11	14_02p	15-Min PX Counter Verification	ASENSE	1 hr	P	06/13/06	SP1
12	14_05p	Obstruction to Vision Procedure - Tests the generation of HZ, BR, FG, and FZBG.	ASENSE	10 min	P	06/01/06	SP1
13	14_06p	PWINO, FZRANO, TSNO, AND PNO Special Notice Remarks		15 min	P	06/13/06	SP1

14	20_2	NGRVR Testing - Verifies edited and automated RVR data, encoding in METAR/SPECIs, SPECI generation.	ASENSE	3 hrs	P	06/14/06	ST0
15	20_4	Ground to Air (GTA) Radio Verification - Verifies the GTA radio is operational by checking that all values on the maintenance page are "P".	Either	15 min	P	06/13/06	SP1
16	20_5	ASOS to AWIPS Interface Verification - Verifies AWIPS ingests and stores ASOS products and these products can be displayed on AWIPS and that AWIPS distributes ASOS products appropriately.	Either	20 min	P	06/16/06	SP1
17	20_6	Navy ATC Interface Test - Checks ASOS/Navy ATC interface for proper output to the ATC monitor.	Either	1 hr	P	06/14/06	SP1
18	11_06	Tornado Hot Key - Tests generation of tornado through different methods and combinations.	Either	20 min	P	06/14/06	SP1
19	20_3	ACE Interface Test - Checks ASOS ACE interface for proper output to the ACE simulator	Either				N/A
20	20_1	ADAS/ALDARS Interface to ASOS Test - Checks ASOS response to ALDARS data.	Either				N/A
21	02_4	Command - Observation - The CMD-OBS function allows the observer to generate corrected METAR/SPECI reports, transmit a pending SPECI before the edit time expires, and cancel a pending SPECI report before it is transmitted.	Either	30 min	P	06/02/06	SP1
22	02_10	Review-Daily (REVUE-DAILY) and Review-Month (REVUE-MONTH) - The REVUE-DAILY and REVUE-MONTH functions allow the observer to review, edit, and augment the daily and monthly summary products. These products will then be encoded into messages.	Either	1 hr	P	06/13/06	SP1

23	02_14	Review-Sensor - This procedure tests the REVUE-SENSR function is available all users except the Air Traffic Controller (ATC). The REVUE-SENSR function enables the user to view the 12 hour archive of raw sensor data, the last 10 minutes of algorithm processed sensor data, and sensor status information such as turning report processing on or off and whether the sensor is in automated or manual mode.	Either	15 min	P	06/02/06	SP1
24	02_15	Review SYSLOG - This procedure tests the ASOS System Logging capability.	Either	15 min	P	06/08/06	SP1
25	02_16	COMLG Function Verification	Either	15 min	P	06/08/06	SP1
26	02_17	TWR Function Verification	Either	15 min	P	06/07/06	SP1
27	02_18	SIGN ON/OFF Function Verification	Either	15 min	P	06/08/06	SP1
28	02_19	EDIT Function Verification	Either	30 min	P	06/08/06	SP1
29	03_16	Accumulated Precipitation Remark - This procedure verifies the Hourly Precipitation Amount (Prrrr) is displayed correctly on the one-minute page (REMARKS field) and that it gets reset properly after the observation has been transmitted.	ASENSE	30 min	P	06/08/06	SP1
30	04_28	CEILING SPECI (Rising to Equal/Above Threshold)	Either	1 ½ hrs	P	06/12/06	SP1
31	04_29p	LAYER SPECI (Entered/Removed Below Threshold)	Either	45 min	P	06/12/06	SP1
32	04_30p	VIS Data Validation	Either	25 min	P	06/08/06	SP1
33	04_32p	VIS SPECIAL (Rising to Equal/Above Threshold)	Either	1 hr	P	06/07/06	SP1
34	04_41p	Altimeter Edit Data Validation	Either	30 min	P	06/14/06	ST0
35	04_42p	SKY Augment Edit Log Entries	Either	1 ½ hrs	P	06/08/06	SP1
36	06_01	REVUE SITE PHYS Screen Verification	Either	20 min	P	06/08/06	SP1

37	06_03	REVUE SITE CRIT SPECIAL Screen Verification	Either	30 min	P	06/13/06	SP1
38	06_05	REVUE SITE CRIT LOCAL Screen Verification	Either	30 min	P	06/13/06	SP1
39	06_06	REVUE SITE CRIT SHEF Screen Verification	Either	30 min	P	06/13/06	SP1
40	06_07	REVUE SITE CONFIG EXTRN Screen Verification	Either	30 min	P	06/01/06	SP1
41	06_13	REVUE RPT 5MIN Screen Verification	Either	20 min	P	06/01/06	SP1
42	06_14	REVUE RPT Screen Verification	Either	15 min	P	06/01/06	SP1
43	06_15	REVUE RPT OBS Screen Verification	Either	30 min	P	06/01/06	SP1
44	06_17	REVUE RPT 5-MIN REV2H Screen Verification	Either	15 min	P	06/14/06	ST0
45	06_19	EDIT Screen Verification	Either	15 min	P	05/25/06	ST0
46	06_21	EDIT REM Screen Verification	Either	30 min	P	05/25/06	ST0
47	09_01	GENOB Function Verification	Either	1 ½ hrs	P	06/01/06	SP1
48	09_02	GENOB Present Weather BEGIN/END Times	Either	30 min	P	06/01/06	SP1
49	10_01	HOT KEY User Verification	Either	15 min	P	05/31/06	SP1
50	10_02	HOT KEY Access Restriction Verification	Either	15 min	P	05/31/06	ST0
51	10_03	TORNADO HOT KEY Verification	Either	45 min	P	05/31/06	SP1
52	10_04	THUNDERSTORM HOT KEY Verification	Either	1 ½ hrs	P	05/31/06	SP1
53	10_05	HAIL HOT KEY Verification	Either	1 ½ hrs	P	05/31/06	SP1
54	10_06	VIRGA HOT KEY Verification	Either	30 min	P	05/31/06	SP1
55	10_07	VOLCANIC ASH HOT KEY Verification (different combinations)	A-SENSE	1 hr	P	06/01/06	SP1

56	11_01	FC Augmented Into Present Weather	Either	10 min	P	06/01/06	SP1
57	11_02	+FC Augmented into Present Weather	Either	30 min	P	06/01/06	SP1
58	11_03	GENOB Funnel Cloud	Either	15 min	P	05/31/06	SP1
59	11_04	GENOB Tornado	Either	20 min	P	05/31/06	SP1
60	11_05	GENOB Spout	Either	20 min	P	05/31/06	SP1
61	11_07	VOLCANIC ASH HOT KEY Verification	Either	10 min	P	05/31/06	SP1
62	11_09	VIRGA HOT KEY	Either	15 min	P	06/01/06	SP1
63	11_10	THUNDERSTORM HOT KEY	Either	15 min	P	05/31/06	SP1
64	13_06	SKY SPECIALS Checkout	Either	30 min	P	06/01/06	SP1
65	14_01p	PRESENT WEATHER Identifiers/Remarks Verifications	Either	2 ½ hrs	P	06/01/06	SP1
66	14_03p	FROZEN PRECIPITATION Combination Verification	Either	2 hrs	P	06/01/06	SP1
67	14_07p	SNOW INTENSITY Verification	Either	1 ½ hrs	P	06/01/06	SP1
68	14_08	SQUALL SPECIAL Verification	Either	15 min	P	06/01/06	SP1
69	02_07	Command - Password	Either	30 min	P	05/25/06	ST0