

SYSTEM TEST REPORT FOR THE ASOS VERSION (V)2.82 SOFTWARE LOAD

(Dated 01/17/2006)

INTRODUCTION – The Office of Operational Systems, Field Systems Operations Center, Test and Evaluation Branch (OPS24) has completed a System Test (ST) for the Automated Surface Observing System (ASOS) Acquisition Control Unit (ACU) software V2.82 (01/17/2006). This load was based on the V2.82, dated 10/27/05 and was intended to correct the three Test Troubles Reports (TTR #153, TTR#154, and TTR #155) found in that load. The ST was conducted in accordance to the System Test Plan for ASOS Software V2.82 (01/17/06), issued by email on February 2, 2006. The ST began on January 27 and ended February 15, 2006.

OBJECTIVES – To verify the efficacy of the new functions in V2.8 on test ASOS systems using the latest weather sensors configured as in the field. Also, to ensure 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 National Weather Service Headquarters (WSH), Silver Spring, MD, and ST0 at the Sterling Research and Development Center (SR&DC), Sterling, VA, on January 27 and February 1, 2006, respectively. The SP1 ASOS has a single Data Collection Platform (DCP) configuration and the ST0 ASOS has a three-DCP configuration. The SP1 has an ACE-IDS simulator and a Codex modem for communication with the FAA Technical Center to evaluate the FAA Automated Data Acquisition System/Automated Lightning Detection and Reporting System interface only.

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 AWPAG, DTS1, and Ice-free Wind. The existing ASOS functionalities are maintained and the system is stable. All regression tests were successful. TTR#153 (METAR sent prematurely) and TTR#155 (Erroneous message for entering a dew point temperature with a missing ambient temperature) were successfully corrected. However there still are problems with this software load as follows:

1. TTR#154 (Audio alarms not generated and “HOURLY PENDING” not displayed at some times) was not completely fixed. Using the steps documented for this TTR in the Test Track Database, the alarm did not sound during the transmission of the METAR report after the cancellation of a pending SCPECI. The test was repeated several times and produced same result.
2. TTR#157 (Ice-Free Wind Sensors WJ Command (1792) and Averaging Time(1793) SYSLOG Messages have been observed at 12 field sites installed with preceding software versions V2.79, 2.79A, and 2.79B. When this occurred, wind values were sometimes missing in the METARs and SPECIs. This problem was not observed during the ST but is believed to also exist in this current load.

RECOMMENDATIONS – OPS24 has informed the ASOS Test Review Group of the above problems and is awaiting a resolution on these and five long-standing but less severe TTRs. They include: 1) TTR#135 -Test Dewpoint DQ Error causing Screen DB Overflow, 2) TTR#136 - Invalid IFW Peak Wind Direction of Zero, 3) TTR#137 - DCP Supply Voltage SYSLOG False Alarm Messages 4) TTR#138 - Sensor Page Displays Asterisks , and 5) TTR#149 - Incorrect ZR Sensor Calibration Statistics.

If none of these TTRs are judged "critical", OPS24 will provide the ASOS V2.82 (01/17/06), to the WFO Mt. Holly, NJ for installation in the ACY ASOS at Atlantic City, NJ. This will allow the FAA Technical Center, Atlantic City, NJ, to perform their interface tests to various FAA systems normally connected to ASOS. In parallel, we will also provide V2.82 to Ft. Rucker, AL through Scott AFB, Bellevue, IL for there testing. This will allow us to complete the ST and provide a recommendation to the ASOS TRG for proceeding to the V2.82 Operational Acceptance Test.

ATTACHMENT 1

ASOS V2.82 (01/17/2006) SYSTEM TEST CHECKLIST (REGRESSION TESTS)

#	TEST #	Test Description	Duration	Pass/Fail	Date	Site
1	01.01	Pre-Installation Routines	4 hrs	P	01/30/06	SP1
2	04.40	Wind Edit Data Validation	30 min	P	02/01/06	SP1
3	04.39	Wind Remark/REPRO	1 hour	P	01/31/06	SP1
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.	7 hours	P	02/15/06	SP1
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.	15 min	P	01/30/06	SP1
6	03.01	SPECI Generation —during hourly edit time and during edit time of another SPECI.	45 min	P	01/30/06	SP1
7	03.07	Editing Present Weather during hourly	½ hour	P	01/30/06	SP1
8	04.27	Ceiling Special (Falling Below Threshold)	½ hour	P	02/06/06	SP1
9	04.31	Visibility Special (Falling Below Threshold)	1 hour	P	02/02/06	SP1
10	04.33	Present Weather Edit/Augment Test Procedure	1 ½ hrs	P	02/07/06	SP1
11	14.02	15-Min PX Counter Verification	1 hour	P	02/01/06	SP1
12	14.05	Obstruction to Vision Procedure —Tests the generation of HZ, BR, FG, and FZBG.	30 min	P	01/31/06	SP1
13	14.06	PWINO, FZRANO, TSNO, AND PNO Special Notice Remarks	15 min	P	02/01/06	SP1

#	TEST #	Test Description	Duration	Pass/Fail	Date	Site
14	20.02	NGRVR Testing –Verifies edited and automated RVR data, encoding in METAR/SPECIs, SPECI generation.	3 hrs	P	02/09/06	SP1
15	20.04	Ground to Air (GTA) Radio Verification - Verifies the GTA radio is operational by checking that all values on the maintenance page are “P”.	15 min	P	02/02/06	SP1
16	11.06	Tornado Hot Key –tests generation of tornado through different methods and combinations	½ hour	P	01/31/06	SP1
17	20.06	Navy ATC Interface Test –Checks ASOS/Navy ATC interface for proper output to the ATC monitor.	1 hour	P	02/08/06	SP1
18	20.05	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.		P	02/15/06	SP1
19	20.01	ADAS/ALDARS Interface to ASOS Test - Checks ASOS response to ALDARS data.		NA		
20	20.03	ACE Interface Test - Checks ASOS ACE interface for proper output to the ACE simulator		P	02/15/06	SP1