

**Operational Acceptance Test (OAT) Report  
for  
Automated Surface Observing System (ASOS) Software Version (V) 2.79D**

**Introduction and Background**

Massachusetts Institute of Technology (MIT) Lincoln Laboratories is investigating the feasibility of using data from the ASOS One-Minute Observations (OMO) to support the Federal Aviation Administration's (FAA) next Generation Air Transport System. The OMOs are also being used at some of the Center Weather Service Units (CWSU). While reviewing the OMOs received on AWOS/ASOS Data Acquisition System (ADAS) and the Integrated Terminal Weather System (ITWS), Lincoln Labs noted wind data was missing in the OMOs from sites where the Vaisala Model 425NWS Ice-Free Wind (IFW) sensor is installed. Further investigation revealed, in some cases, missing precipitation data for sites with the All-Weather Precipitation Accumulation Gauge (AWPAG) and missing dewpoint for sites with the Vaisala Model DTS1 dewpoint sensor as well.

Installation of V2.79D for the OAT was authorized on March 13, 2007, with the issuance of the *Operational Acceptance Test (OAT) Plan for Automated Surface Observing System (ASOS) Software Version (V) 2.79D*, dated March 5, 2007. The purpose of the OAT was to verify V2.79D is acceptable for national deployment to resolve the problem of missing data in the OMOs.

**Conduct of the OAT**

The OAT began on March 13, 2007, with installation of V2.79C at Atlantic City (KACY), NJ, for evaluation of Federal Aviation Administration (FAA) interfaces, and was completed on May 4, 2007. During the OAT, V2.79D software was installed at 39 sites:

SID	Site Name	Install Date	Days of Operation
KACY	Atlantic City, NJ	03/13/07	51
KLSE	La Crosse, WI	03/13/07	51
<b>KNEW</b>	<b>New Orleans (Lakefront), LA</b>	03/14/07	50
KOVS	Boscobel, WI	03/15/07	49
KLCH	Lake Charles, LA	03/15/07	49
KHJO	Hanford, CA	03/16/07	48
KVCT	Victoria, TX	03/16/07	48
KCOT	Cotulla, TX	03/17/07	47
KFAT	Fresno, CA	03/19/07	45
KALI	Alice, TX	03/20/07	44
KBFL	Bakersfield, CA	03/20/07	44

KEAU	Eau Claire, WI	03/20/07	44
KNMM	Meridian, MS	03/21/07	43
KCRP	Corpus Christi, TX	03/22/07	42
KRKP	Rockport, TX	03/22/07	42
KLVK	Livermore, CA	03/22/07	42
<b>KEYE</b>	<b>Indianapolis (Eagle Creek), IN</b>	03/22/07	42
KNJW	Meridian, MS	03/22/07	42
PHNG	Kaneohe Bay, HI	03/26/07	38
KMAE	Madera, CA	03/28/07	36
KMCE	Merced, CA	03/28/07	36
PHBK	Barking Sands, HI	03/29/07	35
<b>KICT</b>	<b>Wichita, KS</b>	04/02/07	31
KMOD	Modesto, CA	04/02/07	31
KP92	Salt Point, LA	04/11/07	22
KBPT	Port Arthur, TX	04/12/07	21
KAMA	Amarillo, TX	04/16/07	17
KBGD	Borger, TX	04/17/07	16
KFFC	Atlanta (Falcon Field), GA	04/17/07	16
KDHT	Dalhart, TX	04/18/07	15
KDEN	Denver, CO	04/18/07	15
KAPA	Denver (Centennial), CO	04/19/07	14
<b>KBOS</b>	<b>Boston, MA</b>	04/24/07	9
KFTY	Atlanta (Fulton County), GA	04/25/07	8
KPDK	Atlanta (DeKalb-Peachtree), GA	04/25/07	8
KDMH	Baltimore (Inner Harbor), MD	04/25/07	8
KATL	Atlanta, GA	04/27/07	6
KGUY	Guymon, OK	05/01/07	3
<b>KMSP</b>	<b>Minneapolis, MN</b>	05/03/07	-
	Total site-days of operation	As of 5/03/07	1208

The OMOs from the **highlighted** sites were monitored by MIT Lincoln Labs. Although V2.79D was not installed at some planned OAT sites, all planned system configurations and interfaces were evaluated. A table of characteristics and interfaces for the planned OAT sites is provided as an Appendix.

## **Results**

At the completion of the OAT (May 4, 2007), a total of 1208 site-days of operation were accumulated and no software-related problems were reported. The receipt of properly coded OMOs was confirmed for the five ASOS sites being monitored by Lincoln Laboratories (KNEW, KEYE, KICT, KBOS, KMSP). The Atlanta Center Weather Support Unit (CWSU) also confirmed proper receipt of the OMOs for V2.79D sites in the Atlanta area (KFFC, KFTY, KPDK, KATL).

## **Recommendation**

Based on the results of this OAT, the V2.79D software is acceptable for use at all ASOS sites with IFW sensors.

## ASOS V2.79D OAT Site Characteristics and Interfaces

SID	Name	FAA Service Level	Staffing	DCPs	Multiple Sensors	Comms	ZR	TSTM/ALDARS	GTA/ATIS	ACE	RVR	WSP	IFW	AWPAG	Current Software Version
KACY	Atlantic City, NJ	C	PT	1	---	DIAL	ZR	---	ATIS	ACE	---	WSP	IFW	AWPAG	2.83
KBOS	Boston, MA	A	FT	3	M/B	ADAS	ZR	ALDARS	ATIS	ACE	NGRVR	---	IFW	AWPAG	2.83
KBWI	Baltimore, MD	A	FT	1	M	ADAS	ZR	ALDARS	ATIS	ACE	RVR	---	IFW	AWPAG	2.79C
KDCA	Washington, DC	A	FT	1	B	ADAS	ZR	ALDARS	ATIS	ACE	NGRVR	---	IFW	AWPAG	2.79C
KIAD	Washington, DC	A	FT	3	M/B	ADAS	ZR	ALDARS	ATIS	ACE	---	---	IFW	AWPAG	2.79C
KIGX	Chapel Hill, NC	D	---	1	---	ADAS	ZR	ALDARS	GTA	---	---	---	IFW	---	2.79B
KAPA	Denver, CO	A	FT	1	---	ADAS	ZR	ALDARS	ATIS	---	---	---	IFW	---	2.79C
KDEN	Denver, CO	A	FT	2	B	ADAS	ZR	ALDARS	ATIS	---	RVR	---	IFW	AWPAG	2.79C
KEYE	Indianapolis, IN	D	---	1	---	ADAS	ZR	ALDARS	---	---	---	---	IFW	---	2.79C
KICT	Wichita, KS	A	FT	1	---	DIAL	ZR	TSTM	ATIS	---	RVR	---	IFW	AWPAG	2.79C
KMCI	Kansas City, MO	A	FT	2	B	ADAS	ZR	ALDARS	ATIS	---	RVR	---	IFW	AWPAG	2.79C
KMKE	Milwaukee, WI	A	FT	2	B	ADAS	ZR	ALDARS	ATIS	---	RVR	---	IFW	AWPAG	2.79C
KMSP	Minneapolis, MN	A	FT	2	B	ADAS	ZR	ALDARS	ATIS	---	RVR	---	IFW	AWPAG	2.79B
KSET	Saint Charles, MO	D	---	1	---	ADAS	ZR	ALDARS	GTA	---	---	---	IFW	---	2.79C
KSTL	Saint Louis, MO	A	FT	2	B	ADAS	ZR	ALDARS	ATIS	ACE	RVR	---	IFW	AWPAG	2.79C
KNEW	New Orleans, LA	C	---	1	---	ADAS	---	ALDARS	ATIS	---	RVR	---	IFW	---	2.79B