

SYSTEM TEST RESULTS

FOR

IFW FIRMWARE V4.54

UPGRADE

Presented to
ASOS Test Review Board

NWS/OPS24
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IFW FIRMWARE VERSION 4.54 UPGRADE System Test Overview

- ◆ Background
- ◆ Test Objectives
- ◆ Test Requirements
- ◆ Test Methodology
- ◆ Test Schedule

IFW FIRMWARE VERSION 4.54 UPGRADE

Background

- ◆ Failure of the Analog Switch on the Thermistor which monitors the temperature of the transducer heaters has been discovered at a number of sites around the country.
- ◆ When this happens, the reported temperature is not within the bounds of the sensor specifications.
 - This can allow ice to build up on the transducer arms during freezing precipitation events, leading to unreliable sensor readings
- ◆ It was discovered that when the heater control fails, the sensor does not send a Failed flag (F) to the ASOS
 - No diagnostics generated for the OID or Maintenance Page
 - No System Log Error (SYSLOG) messages
- ◆ Version 4.54 Firmware was developed to address these issues

IFW FIRMWARE VERSION 4.54 UPGRADE

System Test Objectives

- ◆ IFW with new firmware 4.54 must work with ASOS system
- ◆ Failed sensor components detected and proper sensor statuses sent to ACU
- ◆ ACU software successfully uses sensor statuses sent from IFW

IFW FIRMWARE VERSION 4.54 UPGRADE

System Test Requirements

- ◆ Approved System Test Plan (Feb. 2009)
- ◆ Installation Mod Note 85 ready
- ◆ ASOS Test Bed at SFSC base-lined and operational

IFW FIRMWARE VERSION 4.54 UPGRADE

System Test Methodology

- ◆ IFW Firmware Installation
 - Verify Mod Note 85
- ◆ DCP Firmware Installation
- ◆ ACU Software Installation
- ◆ 24-Hours System Stability Test
- ◆ Regression Tests (6)
- ◆ Verification of ASOS System Logs

IFW FIRMWARE VERSION 4.54 UPGRADE

System Test Configurations

- ◆ Good IFW Sensor + V4.54 Firmware
- ◆ Failed IFW Sensor + V4.54 Firmware
- ◆ ACU Software Versions 2.79D, 2.79V, 2.79X

IFW FIRMWARE VERSION 4.54 UPGRADE

Specific Test Results for Failed IFW Sensor

	ACU V2.79D	ACU V2.79V	ACU V2.79X
After Cold Start	MAINT Page shows "*" \$ Not appears in any OBS	THERMISTER TEMP shows "F" \$ appeared in all OBS	THERMISTER TEMP shows "F" \$ appeared in all OBS
Deconfigure then Reconfigure	MAINT Page shows "*" \$ Not appears in any OBS	THERMISTER TEMP shows "*" indefinitely \$ appears in all OBS	THERMISTER TEMP shows "F" \$ appeared in all OBS
Press TEST	THERMISTER TEMP shows T indefinitely \$ appeared in all OBS	THERMISTER TEMP shows "T" indefinitely \$ appeared in all OBS	THERMISTER TEMP shows "F" \$ appeared in all OBS

IFW FIRMWARE VERSION 4.54 UPGRADE

General Test Results

- ◆ Mod Note 85 Adequate
- ◆ For Good IFW Sensor, Firmware 4.54 works with all ACU software versions
 - All Regression Tests Passed
- ◆ For Failed IFW Sensor
 - Earlier Testing revealed an undetermined(*) sensor status for the failed IFW in the MAINT Page (TTR#210, i.e., Infinite Loop problem using TEST Command)
 - Correction made in 2.79X