

OT&E TRG “Wrap-Up”
For the
ASOS CL31 Ceilometer
Replacement, V2.79X ACU
Software and V2.0 EPROMS

Presented to the
CL31 OT&E Test Review Group
(TRG)

NWS/OPS24

August 20, 2009



OUTLINE

- OT&E Purpose
- OT&E Summary
- OT&E Objectives
- OT&E Test Trouble Reports (TTR's)
- Status Accounting of TRG Action Items
- TRG Recommendation



OT&E PURPOSE

Validate:

- CL31 ceilometer is a viable replacement for the CT12K ceilometer on ASOS in an operational environment, using a representative number of ASOS sites
- The ASOS firmware V2.79X and DCP V2.0 EPROMS can support either the CT-12K or CL31
- Installation procedure for CL31 and ASOS firmware



OT&E PURPOSE

continued

Validate:

- Logistics process
- Maintenance strategy
 - 90-day preventative
 - Corrective (if needed)
- Operational Notification Process



OT&E Summary

- OT&E Started: March 9, 2009
- Phase 1 Dual Installation 17 sites (3/12/09-5/4/09) CT-12K as primary CL31 as test
- Phase I Dual Installation 17 Sites CL31 as primary CT-12K as test (5/18/09-6/5/09)
- Phase 2 CL31 alone 4 sites (6/15/09-6/20/09) 17 Sites CL31 alone
- Note: MCE (Nov 08-Mar 09) – 8 sites



OT&E Objectives

- Installation Instructions CL31 (Mod Note 92) and ACU/DCP firmware (Mod Note 80) - PASS
 - **Successfully completed**
 - **Questionnaire: 5 sites overall good to excellent rating**
 - **6 sites provided detailed comments on Mod Notes**
- Draft Vaisala user's manual - PASS
 - **No comments received**
 - **Questionnaire: 5 sites overall rating good to excellent**
- Deliver CL31's from Vaisala to NLSC - PASS
 - **Successfully completed**
 - **Questionnaire: 5 sites overall rating good to excellent**
- Process for repair of field units if needed - PASS
 - **ABR successfully replaced the CL31 engine board**



OT&E Objectives (contd.)

- CL31 Interfaces properly with ASOS configuration types - PASS
 - **Successfully demonstrated**
- ASOS V2.79V/X firmware and DCP EPROMS V2.0 must communicate with systems interfaced to ASOS - PASS
 - **Successfully demonstrated**
- ASOS V2.79V/X firmware and DCP EPROMS V2.0 capable of supporting CT-12K or CL31 - PASS
 - **Successfully demonstrated**



OT&E Test Objectives (contd.)

- CL31 and ACU firmware V2.79X does not negatively effect ASOS operations - PASS
 - **Successfully demonstrated**
- Process for Switching CL31 to operational ceilometer - PASS
 - **Successfully demonstrated**
- AOMC site support - PASS
 - **Successfully demonstrated**
 - **Questionnaire: 3 sites overall good rating**
- Maintenance process including preventative maintenance and corrective maintenance (if needed) - PASS
 - **Successfully completed at all sites (window cleaning)**
 - **ABR successfully replaced CL31 engine board**
 - **OST11 and OPS12 successfully provided support to sites**



OT&E TTR's

- **TTR 210:** V2.79V Did Not Generate “F” Flag when IFW Sensors Thermistor Failed” – **CLOSED.**
 - **UPDATE:** This TTR was fixed in V2.79X ACU firmware
- **TTR 211:** Blank Field [] Instead of [CLR] in TEST CL31 12 hour Archive Page - **CLOSED**
 - **UPDATE:** This TTR was closed because it will only occur when the CL31 is used as a TEST sensor. The blank field is the expected ASOS Sky Condition Algorithm output, which was only used for the Meteorological Comparison Evaluation (MCE). In either case the data would not be used on an operational ASOS site.
- **TTR 212:** Dew Point Sensor Report Processing Automatically Turned Off – **CLOSED**
 - **UPDATE:** This TTR will be tracked as a “watch Item TTR” and was not deemed critical for OT&E.



OT&E TTR's (Contd.)

- **TTR 213: \$ Caused by a Hidden “N” Within the MAINT Page - CLOSED**
 - **UPDATE: This TTR was determined to be a software bug, but it was closed because it is part of OTR 1090. The TTR will reference OTR 1090.**
- **TTR 214: Clock Time Drift Problem Synchronization with the AOMC – CLOSED**
 - **UPDATE: This TTR is not associated with CL31 OT&E**
- **TTR 215: A Random “warm start” problem noted at PHX – CLOSED**
 - **UPDATE: This TTR was closed because the ET at PHX performed maintenance action that fixed the problem.**
- **TTR 225: 1513 Suspect Module Error on ABR CL31- CLOSED**
 - **Update: ABR successfully replaced the CL31 Engine Board**



OT&E TTR's (Contd.)

- **TTR 216:** 1st part: SIO Card Lock Up does not allow CL31 to be configured as the Operational Ceilometer – **CLOSED**
 - **UPDATE: W/OPS12 (Greg Dalyai) and W/OST11(John Monte) helped ITO and FAI to correctly configure their CL31's**
- **TTR 216:** 2nd part (**CRITICAL**): SIO Card transmission error – two sites (GDP and GEG) experienced chronic errors of this type - **OPEN**
 - **UPDATE: GDP fixed their problem (DTS-1 replacement and moved to new SIO card).**
 - **GEG problem still being analyzed by OST11, OPS12, OPS23, OPS24**
 - **Statistical analysis of pre-OT&E versus OT&E SYSLOG**
 - **AOMC trouble ticket analysis pre-OT&E versus OT&E period**
- **TTR 223:** CL31 Warning Message Incorrect – **OPEN (not critical)**
 - **UPDATE: SYSLOG message says “window conditioner” needs to be changed to “window condition”.**

OT&E TTR's (Contd.)

- **TTR 224:** False low cloud ceiling at OKC – **OPEN (not critical)**
 - **UPDATE:** The TRG determined that this TTR will not stop the deployment of the CL31.
 - bird were roosting on or near the CL31 and jumping back and forth over the CL31 window/laser.
 - OKC cut the grass and removed the horizontal bird abatement rods from the back up CL31- false cloud reports have been minimized
 - A motion camera and a “whirly-bird” bird deterrent will be placed near OKC CL31’s to gather evidence of birds
- **OTR 1090** – Software Handling of Maintenance Page Component Level “Degraded” Status Flag – **OPEN (not critical)**
 - **UPDATE** - The group decided that this OTR should be fixed. W/OPS12 recommends fixing it in V3.01, AOMC said that they could wait until V3.05. W/OPS23 will meet with Prism to price out the cost and time needed to fix this problem and other software problems that the TRG determines should be fixed

ST TTR's

Software Patches

- TTR 194: 1015 (CT-12K) Ceilometer #1 Response Timeout Error at 00:01 LST Everyday Causes "\$". **CLOSED**
 - **UPDATE:** The "Software Patch" The ASOS software has been modified to use ceilometer data received just before midnight, if there is no response from ceilometer sensor at midnight.
- TTR 198: CL31 Error at Start of New Month- **CLOSED**
 - **UPDATE:** The "Software Patch" same solution as TTR 194.



Status of TRG “OPEN” Action Items

- Review remaining “OPEN” Action Items from August 13 TRG Meeting Minutes
- Ensure all Action Items “CLOSED” which are deemed critical for TRG recommendation on deployment decision



TRG Recommendation

- Nationally Deploy CL31 as ASOS Operational Sensor with ASOS ACU V2.79X and DCP EPROM V2.0 (CONSENSUS Decision)

