# FACTORY ACCEPTANCE TEST REPORT FOR THE ASOS VERSION (V) 2.79S SOFTWARE LOAD

(March 18, 2008)

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**FACTORY ACCEPTANCE TEST REPORT FOR THE ASOS VERSION (V) 2.79S SOFTWARE LOAD**

(Dated 03/18/2008)

**INTRODUCTION –** The Office of Operational Systems, Field Systems Operations Center, Software Branch (OPS23) and the ASOS Contractor, Prism Communications, Inc., has successfully completed a Factory Acceptance Test (FAT) for the Automated Surface Observing System (ASOS) Acquisition Control Unit (ACU) software load V2.79S, dated 03/18/08. This load was based on the V2.79E, dated 11/26/07, and was developed to implement a new interface for the replacement ceilometer, Vaisala CL31. The Factory Test began on March 3 and successfully concluded on March 14, 2008, at Prism Communications, Inc. in Columbia, MD.

Thirteen (13) Software Trouble Reports (STR) were written during testing (see Attachment 1), corrected in the software, and retested for compliance with requirements.

**OBJECTIVES** – To verify the ASOS software interface to the new CL31 replacement ceilometer 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 at Prism Communications' facility in Columbia, MD. Tests were performed (see Attachment 2) to ensure the new software interface was functioning properly. Prism has both an ACU/DCP and ACU only configuration. Test datasets were run using the ASOS Sensor Emulator (ASENSE). After a week of testing at Prism, the software was installed on ST0 at the SR&DC, Sterling, VA, and tested to ensure compatibility with actual sensors. The ST0 ASOS has a three-DCP configuration.

**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 interface testing for the replacement ceilometer CL31 was successful. All STRs were successfully corrected.

**RECOMMENDATIONS** – OPS23 recommends release of this load for System Integration Test.

**POINT OF CONTACT** – Peggy Hoch is the OPS23 ASOS Software Manager and Point of Contact for the Factory Test. Peggy can be contacted by e-mail, Peggy.Hoch@noaa.gov, or by telephone at 301-713-0191 x165.

**ATTACHMENT 1 - SOFTWARE TROUBLE REPORTS (STRs)**

# ASOS Software Trouble Report

| | |
|---|---|
| **Project:** | V2.79S FAT |
| **STR Number:** | STR 01 |
| **Date:** | 03/03/08 |
| **System under Test:** | ACU2 |
| **Software Version:** | V2.79S 03/03/08 |
| **Reported By:** | Hak |
| **Title:** | CL31 reports FEW 200 instead of MM |
| **Description:** | While testing Backup sensor algorithm(Test CL31-BU01, step 10 and dataset time minute 5) system reported FEW 200 as Sky Condition on One Minute Screen before it goes to Missing. |
| **Solution:** | Cloud Height initialization wasn't done correctly and wasn't set to –1 if there is a sensor response timeout. Now the initializations are done properly and works as per the requirement. |
| **Modules Changed :** | Dcp/lceil.c |
| **Comments:** | |

**Approved:** _____ **Date:** _____

# ASOS Software Trouble Report

| | |
|---|---|
| **Project:** | V2.79S FAT |
| **STR Number:** | STR 02 |
| **Date:** | 03/03/08 |
| **System under Test:** | ACU1 |
| **Software Version:** | V2.79S 03/03/08 |
| **Reported By:** | Toni |
| **Title:** | Brackets removed incorrectly |
| **Description:** | Brackets are placed around CL31 data when report processing is "off". When report processing is turned "on", all brackets are removed from entire 12-Hr archive database. |
| **Solution:** | CL31 report processing state wasn't archived. Code is modified to archive CL31 report processing state.<br><br>Also 12-Hr database is modified to hold report-processing state for 3 CL31 sensors. |
| **Modules Changed :** | Dcp/s1717.c<br>Inc/typedef.h |
| **Comments:** | |

**Approved:** _____ **Date:** _____

# ASOS Software Trouble Report

| | |
|---|---|
| **Project:** | V2.79S FAT |
| **STR Number:** | STR 03 |
| **Date:** | 03/03/08 |
| **System under Test:** | ACU1 |
| **Software Version:** | V2.79S 03/03/08 |
| **Reported By:** | Toni |
| **Title:** | Missing CIG Remark |
| **Description:** | During CL31 sensor maintenance test, Sky remark “CIG 006 RWY22L” didn’t get displayed. |
| **Solution:** | The routine that builds Remarks was using only CT-12K sky remark. The routine was modified to use CL31 sky remark if CL31 is configured as an official ceilometer sensor. |
| **Modules Changed :** | Dcp/s1716.c |
| **Comments:** | |

**Approved:** _____ **Date:** _____

# ASOS Software Trouble Report

| | |
|---|---|
| **Project:** | V2.79S FAT |
| **STR Number:** | STR 04 |
| **Date:** | 03/04/08 |
| **System under Test:** | ACU1 |
| **Software Version:** | V2.79S 03/03/08 |
| **Reported By:** | Doug & Rajesh |
| **Title:** | Improper format in CIG Remark |
| **Description:** | Ceiling remark “CIG 6 RWY22L” incorrect. Remark should have the format “CIG 006 RWY22L”. Remark format should be consistent regardless of which sensor is primary(CL31 #1 or CL31 #3” |
| **Solution:** | Formatting was done only for the backup sensor(CL31 #3) but not for the primary sensor (CL31 #1). Now the formatting is done even for the primary sensor. |
| **Modules Changed :** | Algo/s1161.c |
| **Comments:** | |

**Approved:** _____ **Date:** _____

# ASOS Software Trouble Report

| | |
|---|---|
| **Project:** | V2.79S FAT |
| **STR Number:** | STR 05 |
| **Date:** | 03/04/08 |
| **System under Test:** | ACU1 |
| **Software Version:** | V2.79S 03/04/08 |
| **Reported By:** | Doug & Rajesh |
| **Title:** | CHI Test data command |
| **Description:** | Unable to download ceilometer test data using DCM command “12TEST2”. |
| **Solution:** | When “12TEST2” command, it always invoked 12TEST command as it was on the top of the list. Now, 12TEST2 is moved to the top of the list to precede 12TEST. Now both 12TEST and 12TEST2 DCM command works. |
| **Modules Changed :** | Oid/odirect.c |
| **Comments:** | |

**Approved:** _____ **Date:** _____

# ASOS Software Trouble Report

| | |
|---|---|
| **Project:** | V2.79S FAT |
| **STR Number:** | STR 06 |
| **Date:** | 03/04/08 |
| **System under Test:** | ACU1 |
| **Software Version:** | V2.79S 03/04/08 |
| **Reported By:** | Peggy Hoch |
| **Title:** | DCP Reset to BOOT PROMS |
| **Description:** | Configured CL31 #2 as remote sensor but ASENSE not configured with CL31 sensor. ACU/DCP comm failed, then DCP reset to BOOT PROMS every minute until CL31 sensor was configured on ASENSE. |
| **Solution:** | Since ASENSE did not provide data when polled, watch dog timeout occurred and re-initialization wasn't done correctly. Correct CL31 sensor initialization took care of it. |
| **Modules Changed :** | DCP/App/src/d433.c |
| **Comments:** | |

**Approved:** _____ **Date:** _____

# ASOS Software Trouble Report

| | |
|---|---|
| **Project:** | V2.79S FAT |
| **STR Number:** | STR 07 |
| **Date:** | 03/04/08 |
| **System under Test:** | ACU1 |
| **Software Version:** | V2.79S 03/04/08 |
| **Reported By:** | Toni |
| **Title:** | CIG Remark Failure |
| **Description:** | While running Sky Backup Algorithm test, CIG remark failed to appear. When Met-Discontinuity sensor is compared to CL31 #3. |
| **Solution:** | Test procedure needs to be corrected. CL31 #3 should have ceiling for Met-Discontinuity sensor to compare. |
| **Modules Changed :** | None. |
| **Comments:** | |

**Approved:** _____ **Date:** _____

# ASOS Software Trouble Report

| | |
|---|---|
| **Project:** | V2.79S FAT |
| **STR Number:** | STR 08 |
| **Date:** | 03/04/08 |
| **System under Test:** | ACU1 |
| **Software Version:** | V2.79S 03/04/08 |
| **Reported By:** | Peggy Hoch |
| **Title:** | Incorrect Suspect Module (Secondary) |
| **Description:** | ASENSE sent “FCLE” for Primary Suspect Module and “FCLP” for Secondary Suspect Module. Syslog recorded primary module correctly, but secondary = “CLECLP” |
| **Solution:** | Variable initialization required. |
| **Modules Changed :** | Syst/tsumm_pg.c |
| **Comments:** | |

**Approved:** _____ **Date:** _____

# ASOS Software Trouble Report

| | |
|---|---|
| **Project:** | V2.79S FAT |
| **STR Number:** | STR 09 |
| **Date:** | 03/05/08 |
| **System under Test:** | 007 |
| **Software Version:** | V2.79S 3/07/08 |
| **Reported By:** | Hak Kim |
| **Title:** | Sensor Config Page, List of sensors not getting cleared |
| **Description:** | On sensor config page if a user types wrong sensor code, the ASOS will display the entire list of valid sensor codes. Once the user enters the valid code the list at the bottom of the screen should disappear.<br><br>During ASOS 2.79S FAT, two problems were noted.<br>1. If the user enters invalid sensor code and then corrects it with the valid sensor code, the displayed sensor list did not clear entirely.<br>2. If the list is displayed and user doesn't correct to valid sensor code and if a refresh happens, line number 2 is erased completely leaving line number one. |
| **Solution:** | Problem 1: New line is added and wasn't getting cleared entirely. Erasing entire two lines solved the problem.<br><br>Problem 2: It is a latent defect. Every time a refresh happens, line 23 on all the OID screens are cleared as it is used for flashing "SYSLOG" if in case if there is one to display. So anything that is on line 23 is erased after the refresh. Screen refresh doesn't erase line 22. |
| **Modules Changed :** | util/t22k.c |
| **Comments:** | |

**Approved:** _____ **Date:** _____

# ASOS Software Trouble Report

| | |
|---|---|
| **Project:** | V2.79S FAT |
| **STR Number:** | STR 10 |
| **Date:** | 3/11/08 |
| **System under Test:** | Sterling ST0 |
| **Software Version:** | 3/07/08 |
| **Reported By:** | Doug G. |
| **Title:** | Incorrect Reporting of Multiple FEW Layers |
| **Description:** | In V2.79S, the cloud layer reporting logic was tested by simulating multiple layers designated as "FEW". In the V2.79E baseline, only the lowest FEW layer is to be reported. In V2.79S, up to three FEW layers can be reported. Multiple FEW layers is functionality that was introduced in the V2.93 software baseline. |
| **Solution:** | Remove the V2.93 logic that permits multiple FEW layers. |
| **Modules Changed :** | Algo/s1132.c |
| **Comments:** | |

**Approved:** _____ **Date:** _____

# ASOS Software Trouble Report

| | |
|---|---|
| **Project:** | V2.79S FAT |
| **STR Number:** | STR 11 |
| **Date:** | 03/12/08 |
| **System under Test:** | ACU1 |
| **Software Version:** | V2.79S 03/12/08 |
| **Reported By:** | Peggy Hoch |
| **Title:** | Error in configuring CL31 sensor |
| **Description:** | Tried to configure CL31 sensor on the port that was previously configured with CT-12K sensor. It turns green and then red, de-configure and re-configuring the CL31 sensor didn't work<br><br>However, following certain sequence can make it work |
| **Solution:** | Originally ACU sent DCP Ceilometer sensor configuration by sending a subtype zero for CL31 sensor and a subtype one for CT-12K sensor. Existing baseline assigns subtype zero anytime a sensor is de-configured.<br><br>To avoid this conflict, now code is modified to send subtype 2 for CL31 sensor and still send subtype 1 for CT-12K sensor. |
| **Modules Changed :** | ACU/Lasostasks/Syst/tinit.c<br>DCP/App/src/sio_init.c<br>DCP/App |
| **Comments:** | |

**Approved:** _____ **Date:** _____

# ASOS Software Trouble Report

| | |
|---|---|
| **Project:** | V2.79S FAT |
| **STR Number:** | STR 12 |
| **Date:** | 03/14/08 |
| **System under Test:** | ACU1 |
| **Software Version:** | V2.79S 03/13/08 |
| **Reported By:** | Peggy Hoch |
| **Title:** | FAIL Status not shown in RED |
| **Description:** | On the MAINT screen, ACU/DCP Comms status doesn't display FAIL status in RED. Instead it displays in GREY color. |
| **Solution:** | Add yellow color in table color_opt for displaying 'W' on CL31 MAINT page. Size of the table is changed to 11 from 10. |
| **Modules Changed :** | Lasostasks/Oid/tsstatus.c |
| **Comments:** | |

**Approved:** _____ **Date:** _____

# ASOS Software Trouble Report

| | |
|---|---|
| **Project:** | V2.79S FAT |
| **STR Number:** | STR 13 |
| **Date:** | 03/14/08 |
| **System under Test:** | ACU1 |
| **Software Version:** | V2.79S 03/13/08 |
| **Reported By:** | Peggy Hoch |
| **Title:** | Error in syslog for Power commanded on but remained off |
| **Description:** | Syslog showed "DCP #1 CL31 #1 CL31#3 power commanded ON but power remained OFF". This was when L1 and L3 configured on DCP. |
| **Solution:** | Initialization error. String concatenation is happening. Need to initialize. |
| **Modules Changed :** | Lasostasks/trcur_sr.c |
| **Comments:** | |

**Approved:** _____ **Date:** _____

# ATTACHMENT 2 - TEST PROCEDURES

## AA713 - CL31 Test 1 – Vaisala

### Description

This test verifies the requirements of ECP AA713 which calls for sensor output cloud heights to be rounded up to the nearest 100 feet before further processing. Changes in cloud height of 100 feet are also permitted after the new cloud height has persisted for at least 10 minutes. This test may also be run with software builds prior to V3.0 by using the Microsoft Excel spreadsheet "V279S_Append" to verify sky condition reports which will not have the functionality of ECP AA713.

This test also verifies that the sky condition report will be limited to three layers with an upper limit of cloud height less than or equal to 12000 feet.

**Test duration = approximately 2 hours**. The Microsoft Excel spreadsheet "AA713CL31_Append" contains the ceilometer output data as well as the one-minute updates of the sky condition field.

### Test Case

| Step Number | Operator Action | Expected Result | Comments | Result P/F |
|---|---|---|---|---|
| 1 | Sign on to system as a technician. | | | |
| 2 | Press **REVUE-SITE-CONFG-SENSR**. Add the CL31 sensor by typing **L1** on any available port on the screen. Configure the Visibility sensor by typing V1 on any available port. Press **BACK** and then press **DEFIN.** Select CL31 for the Ceilometer. EXIT. Press **REVUE-SENSR-STAT.** Turn on report processing for both CL31 and Visibility. | | Cold start of the system is not required prior to running this test. | |
| 3 | On the sensor emulator (ASENSE), press <**F1**> and add the CL31 to the port corresponding to the CL31. Press <**F8**> and specify dataset **A713CL31.txt.** Set the dataset to "***OFF***". Press <**F2**> and set detection status to **1** and measured value(1) to **15600.**<br><br>Set the visibility extinction coefficient to ***0.266*** and the Day/Nite to ***D***.<br>EXIT.<br><br>After 30 minutes, press <**F8**> and start the CL31 test procedure by pressing <**F10**> twice. (See NOTE) | Wait about 30 minutes until the SKY field reports *CLR*. Before this the SKY field will be *MM* (missing).<br><br>After about 10 minutes, the one-minute screen should begin displaying visibility of 7 SM. | Clouds detected above 12,500 feet are not reported.<br><br>(NOTE: Start the dataset at second 55 if CL31 is configured as a remote sensor. Start the dataset at | |

| Step Number | Operator Action | Expected Result | Comments | Result P/F |
|---|---|---|---|---|
| | | | second 15 if the CL31 is configured as a local sensor. | |
| 4 | After 2-3 minutes, press **REVUE-SENSR-12HR-PAGE-PAGE-PAGE.** Verify the cloud heights being reported by the CL31 are 850 feet.<br><br>After at least 3 samples of 850 feet have been received by the ACU, check the one-minute screen. The sky condition report should read "FEW009".<br>("FEW008" in V2.79S)<br><br>A layer-formation SPECI will be generated. Verify the proper format of sky condition data in the observation. | Ensure format and content of the 12-hour archive is correct, with records that are of the form:<br>"UTC 1042<br>P1 00850 ///// ///// 0000 0000 0000 006F"<br><br>Prior to integration of AA713, a SPECI should be generated with "FEW008" in the observation.<br><br>After AA713 is coded in V3.0, a SPECI should be generated with "FEW009" in the observation. | Prior to integration of AA713, cloud heights are rounded down, resulting in a layer at 800 ft.<br><br>When AA713 is coded, cloud samples of 850 feet should be rounded up to result in a layer at 900 feet.<br><br>Transmit the SPECI early, if desired. | |
| 5 | After 5 - 7 minutes, press **REVUE-SENSR-12HR-PAGE-PAGE-PAGE.** Verify the cloud heights currently being reported by the CL31 are between 1430 and 1460 feet. EXIT.<br><br>Press **REVUE-SENSR-DATA-PAGE-PAGE-PAGE.** Verify the current data content and format.<br><br>After at least 3 samples of 1450 feet have been received by the ACU, check the one-minute screen. The sky condition report should read "FEW009 FEW015". | Current data should be of the form:<br>"UTC<br>1028 1 01430<br>2 01450<br>1029 1 01460<br>1 01450"<br><br>In V2.79S, the sky condition report should be "FEW008 FEW014". | Label at the top of the current data page should be "CL31 #1" | |
| 6 | Every 5 to 10 minutes, press **REVUE-REPT-5MIN.** Verify the 5-minute observations contain the same sky condition report as the report in the sky condition field of the one-minute screen. | | | |
| 7 | After approximately 4 minutes, check the one-minute screen. The sky condition report should read "FEW009 SCT015 SCT029" | In V2.79S, the sky condition report should read "FEW008 SCT014 SCT028" | | |
| 8 | After 3 minutes, the sky condition report should change to "FEW009 SCT015 BKN029".<br><br>A SPECI should be generated for a ceiling below 3000 feet. Verify the correct format of sky condition | In V2.79S, the sky condition report should read "FEW008 SCT014 BKN028" in the body of the SPECI.<br><br>In V3.0, the SPECI should contain "FEW009 SCT015 | | |

| Step Number | Operator Action | Expected Result | Comments | Result P/F |
|---|---|---|---|---|
| | information in the SPECI | BKN029" in the sky condition field. | | |
| 9 | Ten minutes after the sky condition report indicates "BKN029", the ceiling layer should change to "BKN030".<br><br>When the ceiling layer height rises to "030" a SPECI should be generated. | The sky condition report should now read "FEW009 SCT015 BKN030".<br><br>In V2.79S, the sky condition report should remain "FEW008 SCT014 BKN028" | A 100 foot change in the ceiling height is allowed due to hysteresis logic in ECP AA713. | |
| 10 | After 5 minutes, the sky condition report should indicate the ceiling layer is now overcast | In V2.79S, the sky condition should change to "FEW008 FEW014 OVC028".<br><br>In V3.0, the SKY field should change to "FEW009 FEW015 OVC030". | | |
| 11 | After 15 minutes, press **REVUE-SENSR-12HR-PAGE-PAGE-PAGE.** Verify the sample cloud heights are now reported at 16000 feet.<br><br>After 4 samples of 16000 feet are received, check the sky condition report on the one-minute screen. | No cloud layers should be reported above 12,000 feet.<br><br>In V2.79S, the sky condition report will read "FEW008 SCT022 BKN028".<br><br>In V3.0, the sky condition report should read "FEW009 SCT022 BKN030" | The layer at 1500 feet still exists, but sky condition report is limited to 3 layers. | |

**Setup Report:**

Date:_____ Pass/Fail:_____ Run By:_____
Start Time:_____ End Time:_____ Witnessed By:_____
Comments/Deficiencies: _____

# ECP AA713 – Vertical Visibility - CT-12K, Handar, and CL31 Ceilometers

## Description

This test verifies the requirements of ECP AA713 which calls for sensor output cloud heights and vertical visibilities to be rounded up to the nearest 100 feet before further processing. Average vertical visibility height is also rounded up to the nearest 100 feet before generating output.

This test verifies the sky condition report will be properly generated whenever vertical visibility conditions exist. Test uses "AA713VV.TXT" dataset for CT-12K and Handar ceilometers. Test uses "AA713VV2.TXT" dataset for CL31 ceilometer.

Test duration = approximately 4 hours (1 hour 20 minutes for each type of ceilometer).

## Test Case

| Step Number | Operator Action | Expected Result | Comments | Result P/F |
|---|---|---|---|---|
| 1 | **Cold start of system is not required prior to start of test.**<br><br>Sign on as a technician on local OID (OID-1). | | | |
| 2 | **If no ceilometers are configured on the system, press REVUE-SITE-CONFG-SENS-CHANG and enter 'C1' (or 'L1') and 'V1' on any available ACU/DCP ports. EXIT.** | SYSLOG message should reflect configuration of the ceilometer and visibility sensor. | | |
| 3 | **Press REVUE-SITE-CONFG-DEFIN and select 'CT-12K' (or Handar or CL31) for Ceilometer. EXIT.** | | | |
| 4 | Configure Ceilometer and Visibility sensor on corresponding ASENSE ports.<br><br>On ASENSE, press <F8> | | NOTE: USE "AA713VV2.TXT" when testing CL31 ceilometer. | |

| Step Number | Operator Action | Expected Result | Comments | Result P/F |
|---|---|---|---|---|
| | and enter "AA713VV.TXT" for ceilometer test dataset. Leave dataset "OFF".<br><br>Press <F2> and enter "0" for Ceilometer "Layers" and "/////" for "Height."<br><br>Enter "3.0" for the visibility extinction coefficient and "D" for the photometer setting. | The sensors on ASENSE will turn green indicating that the sensor is being polled. | | |
| 5 | Press REVUE-SENSR-STAT and turn report processing ON for 'C1' (or 'L1') and 'V1' by entering your initials. | If data quality is not set to pass, or report processing is OFF, brackets will be displayed around 12-hour archive data. | | |
| 6 | Press REVUE-SENSR-12HR and verify visibility data are being received. Press PAGE-PAGE-PAGE. Verify ceilometer data are being received. | Ceilometer data records should reflect 0 layers and height of /////. No brackets should be around the archived values of CHI or visibility data. | | |
| 7 | Wait approximately 30 minutes. Verify "CLR" is displayed on one-minute screen.<br><br>On ASENSE, press <F8> and start the Vertical Visibility dataset defined in step 4 by pressing <F10> twice at 15 seconds past the minute if the ceilometer is configured as a local sensor. Start the ceilometer dataset at 55 seconds after the minute if the ceilometer is configured as a remote sensor. | Visibility on one-minute screen should be ½ SM after 10 minutes of valid data. "CLR" should be seen after 30 minutes of valid data.<br><br>Verify receipt of CHI dataset values by visiting REVUE-SENSR-12HR-PAGE-PAGE-PAGE. | | |

| Step Number | Operator Action | Expected Result | Comments | Result P/F |
|---|---|---|---|---|
| 8 | Wait approximately 3 minutes.<br><br>Verify sky condition report. | After 3 minutes of data are received, verify sky condition report reads "VV004".<br><br>(In V2.79S, rounds down to "VV003") | Actual average VV height = 350 feet, rounded up to 400 feet.<br><br>Time "VV004" or "VV003" first reported: _____Z. | |
| 9 | Wait approximately 16 minutes. Verify sky condition report changes to "VV005". | Sky condition report changes to "VV005".<br><br>(In V2.79S, changes to "VV004") | Average height of VV is now greater than or equal to 450 feet at this point.<br><br>Note time "VV005" first reported: _____Z. | |
| 10 | Sign on as an observer.<br><br>Press EDIT and change sky condition to "VV006". EXIT.<br><br>Wait 2 or 3 minutes. Press EDIT-RESET. Verify sky condition report changes to "VV005" within 2 minutes after EXIT from EDIT. | Sky condition field on one-minute screen should change immediately to "VV006".<br><br>Sky condition field should revert to "VV005" within 2 minutes after EXITing from EDIT. | Vertical visibility reports are not subject to the constraints of the hysteresis logic. | |
| 11 | Wait 16 minutes from the time "VV005" was first reported. Press REVUE-SENSR-12HR-PAGE-PAGE-PAGE. Verify two additional VV reports of 550 have been received.<br><br>One-minute Sky Condition report should now read "VV006". | Two vertical visibility reports of 550 feet are now in 12-hour archive.<br><br>Sky condition report = "VV006". (In V2.79S, report = "VV005") | | |
| 12 | Repeat steps 2 – 9 using Handar ceilometer<br><br>Repeat steps 2 – 9 using CL31 ceilometer. | Handar ceilometer not supported by V2.79S software. | Cold start is not required before each repeat of this test when switching ceilometer type. You must wait for the sky condition report to display "CLR" before configuring new ceilometer. | |

Date: _____ Pass/Fail: _____ Run By: _____

Start Time: _____ End Time: _____ Witnessed By: _____
Comments/Deficiencies: _____

# CL31-BU01: SKY BACKUP ALGORITHM – Vaisala CL-31 Ceilometer

**This procedure tests the use of the backup sensor when the primary sensor is not operational. It then tests the restoral of the primary sensor. It also generates cloud heights above 5,000 and 10,000 feet. Use data set files CL31BU1.A & B.**

**Using dataset files CT12BU1A and CT12BU1B, this test procedure can also be used as a regression test to process CT12K ceilometer data. When running as a regression test, substitute "C1" and "C3" for "L1" and "L3".**

**Time Required: 1 1/2 hours.**

| Step No. | Operator Action | Expected Results | Comments | Results P | Results F |
|---|---|---|---|---|---|
| 1 | Sign on as a system manager.<br><br>Go to the **REVUE-SITE-PHYS** screen and ensure the "OBS HOURLY REPORT TIME" is set to ***50*** and "OBS EDIT TIME" is set to ***5***. | | Cold start of the system is not required prior to this test. | | |
| 2 | Go to the **REVUE, SITE, CONFG, DEFIN** screen. Verify the ceilometer configuration is set to CL31. | The ceilometer configuration is set to CL31 | | | |
| 3 | Go to the **REVUE, SITE, CONFG, SENSR** screen and configure L1, L2, and L3, and V1 on any available ACU ports. Ensure Report Processing is turned ***ON*** for these sensors. | SYSLOG messages should confirm the configuration of the sensors and the report processing status of the sensors. | CT-12K ceilometers (C1, C2, and C3) may not be configured during this test. | | |
| 4 | If the system is configured for multiple sensors, turn ***OFF*** Report Processing for V2, and V3 (as applicable) using **REVUE, SENSOR, STAT, PROC**. | Report processing for V2, and V3 are turned OFF if configured. | | | |

| | | | | | |
|---|---|---|---|---|---|
| **This procedure tests the use of the backup sensor when the primary sensor is not operational. It then tests the restoral of the primary sensor. It also generates cloud heights above 5,000 and 10,000 feet. Use data set files CL31BU1.A & B.**<br><br>**Using dataset files CT12BU1A and CT12BU1B, this test procedure can also be used as a regression test to process CT12K ceilometer data. When running as a regression test, substitute "C1" and "C3" for "L1" and "L3".**<br><br>**Time Required: 1 1/2 hours.** | | | | | |
| 5 | ASENSE:<br><br>Use (F1) to set up L1, L2, L3, and V1 sensors.<br><br>Use (F8) and set up datasets CL31BU1.A for L1 and CL31BU1.B for L3. Use (F10) and set the Status for L1 and L3 to OFF.<br><br>Use (F2) and set the values for L2 to Detection Status = 1 and Measured Value(1) = 900.<br><br>Use (F2) and set the Coeff to 0.266 and the Day/Nite to D for the VIS sensor. Set the values for both L1 and L3 to Detection Status = 0 and Measured Value(1) = "/////". Ensure Range Checking and Real Life are disabled.<br><br>Verify that L1 is OFF on the F8 page. | Required sensors are configured on ASENSE. | When using this procedure as regression test, configure C1, C2, C3, and V1.<br><br>Use datasets CT12BU1A for C1 and CT12BU1B for C3 for regression testing. | | |
| 6 | Go to the REVUE, SITE, PHYS and set the Field Elevation to 100 ft. | | | | |
| 7 | Go to the REVUE, SITE, CONFG, SENSR, ALGOR screen and set L1, L2, and L3's elevation to 100 ft. Set the location of L2 to "RWY13L". | | | | |
| 8 | Go to the REVUE, SITE, CRIT screen and set the User's Ceiling criteria to 200. | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **This procedure tests the use of the backup sensor when the primary sensor is not operational. It then tests the restoral of the primary sensor. It also generates cloud heights above 5,000 and 10,000 feet. Use data set files CL31BU1.A & B.**<br>**Using dataset files CT12BU1A and CT12BU1B, this test procedure can also be used as a regression test to process CT12K ceilometer data. When running as a regression test, substitute "C1" and "C3" for "L1" and "L3".**<br>**Time Required: 1 1/2 hours.** | | | | | |
| 9 | Wait until the surface visibility of 7SM is displayed on the one-minute screen. Wait until L1 is operational. | After 30 minutes, Sky Condition field on one-minute screen displays "CLR". | | | |
| 10 | ASENSE: Press F8 to get to the dataset screen. Place the cursor on the first dataset. Right after HH:MM:XX, use F10 to set the Status of both dataset to ON. | NOTE: Start datasets between seconds 50 and 55 if configured as remote sensors and between seconds 15 and 20 if configured as local sensors. | F10 has to be pressed twice for datasets that have an initial OFF Status. | | |
| 11 | Verify the system results on the 1-MIN screen using Table 1 or file<br>CL31-BACKUP.PRN below. | | | | |

**Test Report:**

Date: _____ Pass/Fail _____ Run By: _____

Start Time: _____ End Time: _____ Witnessed By: _____

Comments/Deficiencies: _____

**Table 1 - Dataset Results**

| Time | Primary (L1) Data | Backup (L3) Data | SKY (1 MIN screen) | SYSLOG | P/F |
|---|---|---|---|---|---|
| 1 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | CLR | CL31 #1 Response Timeout | |
| 2 | 0 15600 F 0 15600 F | 0 ///// P 0 ///// P | CLR | | |
| 3 | 0 16800 F 0 16580 F | 0 ///// P 0 ///// P | MM | CL31 #1 Inoperative | |
| 4 | 0 ///// P 5 ///// P | 0 ///// P 0 ///// P | MM | | |
| 5 - 21 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | | |
| 22 | 1 22000 P 1 21900 P | 0 ///// P 0 ///// P | MM | | |
| 23 - 26 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | | |
| 27 -29 | 0 ///// P 0 ///// P | 2 5350 P 2 5350 P | MM | | |
| 30 | 0 ///// P 0 ///// P | 1 5350 P 1 5350 P | FEW050 (using L3) | CL31 #3 Operational | |
| 31 | 0 ///// P 0 ///// P | 1 11750 P 1 11750 P | FEW050 (using L3) | | |
| 32 | 1 5800 P 1 5750 P | 1 11750 P 1 11750 P | FEW050 SCT110 (using L3) | | |
| 33 | 1 5850 P 1 5700 P | 1 11750 P 1 11750 P | FEW055 (using L1) | CL31 #1 Operational | |
| 34 | 2 5850 P 1 5750 P | 1 11750 P 1 11750 P | FEW055 (using L1) | | |
| 35 | 1 5500 P 1 5650 P | 3 3700 P 3 3850 P | FEW055 (using L1) | | |
| 36 | 2 18000 P 1 2700 P | 3 3800 P 3 3750 P | FEW055 (using L1) | | |
| 37 | 1 5400 P 1 3150 P | 3 3750 P 3 3700 P | FEW055 (using L1) | | |
| 38 | 2 3200 P 1 3250 P | 1 12000 P 1 12000 P | FEW032 SCT055 (using L1) | | |
| 39 | 1 3300 P 1 3300 P | 1 12100 P 1 12200 P | FEW032 SCT055 (using L1) | | |
| 40 | 1 3400 P 1 3450 P | 1 12300 P 1 12400 P | FEW032 SCT055 (using L1) | | |
| 41 | 1 3400 P 1 3450 P | 1 12300 P 1 12400 P | FEW032 SCT055 (using L1) | | |
| 42 | 1 3400 P 1 3450 P | 1 12300 P 1 12400 P | FEW032 SCT055 (using L1) | | |
| 43 | 1 3400 P 1 3450 P | 1 12300 P 1 12400 P | FEW032 SCT055 (using L1) | | |
| 44 | 1 3400 P 1 3450 P | 1 12300 P 1 12400 P | FEW032 SCT055 (using L1) | | |

```
;
;      PRIMARY                                  BACKUP                                   MET
;      SENSOR DATA                 METAR        SENSOR DATA                 METAR        10MN          METAR
;TIME  N   HT1  N   HT2    PRIMARY SKY COND REPORT  N   HT1  N   HT2    BACKUP SKY COND REPORT  VSBY  ASOS SKY CONDITION REPORT   MAINTENANCE MESSAGE
;----  -  ----  -  ----  ------------------------  -  ----  -  ----  ------------------------  ----  ------------------------   ------------------
 0001  0 ///// p 0 ///// p                 CLR >  0 ///// P 0 ///// P                   MM >  7.00                   CLR >   CL31 #1 RESPONSE
TIMEOUT
 0002  0 15600 F 0 15600 F                 CLR >  0 ///// P 0 ///// P                   MM >  7.00                   CLR >
 0003  0 16800 F 0 16580 F                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >   CL31 #1 INOPERATIVE
 0004  0 ///// P 5 ///// P                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >
 0005  0 ///// P 0 ///// P                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >
 0006  0 ///// P 0 ///// P                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >
 0007  0 ///// P 0 ///// p                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >
 0008  0 ///// P 0 ///// p                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >
 0009  0 ///// P 0 ///// p                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >
 0010  0 ///// P 0 ///// p                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >
 0011  0 ///// P 0 ///// p                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >
 0012  0 ///// P 0 ///// p                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >
 0013  0 ///// P 0 ///// p                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >
 0014  0 ///// P 0 ///// p                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >
 0015  0 ///// P 0 ///// p                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >
 0016  0 ///// P 0 ///// p                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >
 0017  0 ///// P 0 ///// p                  MM >  0 ///// P 0 ///// P                   MM >  7.00                    MM >
 0018  0 ///// P 0 ///// p                  MM >  0 ///// P 0 /////  P                  MM >  7.00                    MM >
 0019  0 ///// P 0 ///// p                  MM >  0 ///// P 0 /////  P                  MM >  7.00                    MM >
 0020  0 ///// P 0 ///// p                  MM >  0 ///// P 0 /////  P                  MM >  7.00                    MM >
 0021  0 ///// P 0 ///// p                  MM >  0 ///// P 0 /////  P                  MM >  7.00                    MM >
 0022  0 ///// P 1 22000 p                  MM >  0 ///// P 0 /////  P                  MM >  7.00                    MM >
 0023  1 21900 P 0 ///// p                  MM >  0 ///// P 0 /////  P                  MM >  7.00                    MM >
 0024  0 ///// P 0 ///// p                  MM >  0 ///// P 0 /////  P                  MM >  7.00                    MM >
 0025  0 ///// P 0 ///// p                  MM >  0 ///// P 0 /////  P                  MM >  7.00                    MM >
 0026  0 ///// P 0 ///// p                  MM >  0 ///// P 0 /////  P                  MM >  7.00                    MM >
 0027  0 ///// P 0 ///// p                  MM >  2  5350 P 2  5350  P                  MM >  7.00                    MM >
 0028  0 ///// P 0 ///// p                  MM >  1  5350 P 1  5350  P                  MM >  7.00                    MM >
0029  0 ///// P 0 ///// p                  MM >  1  5350 P 1  5350  P                  MM >  7.00                    MM >
 0030  0 ///// P 0 ///// p                  MM >  1  5350 P 1  5350  P              FEW050  >  7.00                FEW050  >   CL31 #3 OPERATIONAL
 0031  0 ///// P 0 ///// p                  MM >  1 11750 P 1 11750  P              FEW050  >  7.00                FEW050  >
 0032  1  5800 P 1  5750 p                  MM >  1 11750 P 1 11750  P         FEW050 SCT110  >  7.00           FEW050 SCT110  >
 0033  1  5850 P 1  5700 p              FEW055  >  1 11750 P 1 11750  P         FEW050 SCT110  >  7.00                FEW055  >   CL31 #1 OPERATIONAL
```

```
0034  2  5850 P 1  5750 p              FEW055  >  1 11750 P 1 11750  P          FEW050 SCT110  >  7.00               FEW055  >
0035  1  5500 P 1  5650 p              FEW055  >  3  3700 P 3  3850  P         FEW050 SCT110  >  7.00               FEW055  >
0036  2 18000 P 1  2700 p              FEW055  >  3  3800 P 3  3750  P  FEW037 SCT050 BKN110  >  7.00               FEW055  >
0037  1  5400 P 1  3150 p              FEW055  >  3  3750 P 3  3700  P  FEW037 SCT050 BKN110  >  7.00               FEW055  >
0038  2  3200 P 1  3250 p        FEW032 SCT055  >  1 12000 P 1 12000  P  FEW037 SCT050 BKN110  >  7.00          FEW032 SCT055  >
0039  1  3300 P 1  3300 p        FEW032 SCT055  >  1 12100 P 1 12200  P  FEW037 SCT050 BKN110  >  7.00          FEW032 SCT055  >
0040  1  3400 P 1  3450 p        FEW032 SCT055  >  1 12300 P 1 12400  P         FEW037 BKN110  >  7.00          FEW032 SCT055  >
0041  1  3400 P 1  3450 p        FEW032 SCT055  >  1 12300 P 1 12400  P         FEW037 BKN110  >  7.00          FEW032 SCT055  >
0042  1  3400 P 1  3450 p        SCT032 BKN055  >  1 12300 P 1 12400  P         FEW037 BKN110  >  7.00          SCT032 BKN055  >  See Sky Remarks Below
0043  1  3400 P 1  3450 p        SCT032 BKN055  >  1 12300 P 1 12400  P         FEW037 BKN110  >  7.00          SCT032 BKN055  >
0044  1  3400 P 1  3450 p        SCT032 BKN055  >  1 12300 P 1 12400  P         FEW037 BKN110  >  7.00          SCT032 BKN055  >
```

When sky condition begins to report a ceiling, sky remark should be displayed as “CIG 009 RWY13L”.

# CL31-Sensor Configuration Test

**This procedure tests SYSLOG messages that are generated when primary, backup, and met discontinuity sensors are configured, deconfigured, and change operational status. Configuration options include multiple CL31 sensors as well as allowable CL31 – CT12K combinations. No data set files are required for this test. The test procedure has been designed to be compatible with ASOS ACU software versions 2.79S and 3.0.**

**This test takes approximately 1 hour 20 minutes to complete.**

| Step No. | Operator Action | Expected Results | Comments | Results P | Results F |
|---|---|---|---|---|---|
| 1 | Sign on as a system manager.<br><br>Go to the **REVUE-SITE-PHYS** screen and ensure the "OBS HOURLY REPORT TIME" is set to ***50*** and "OBS EDIT TIME" is set to ***5***. | | Cold start of the system is not required prior to running this test. | | |
| 2 | Sign on as a technician.<br><br>Go to the **REVUE-SITE-CONFG-DEFIN** screen and set the ceilometer's configuration to ***CL31.*** EXIT<br><br>Press REVUE-SYSLG. Verify CL31 is designated as the official ceilometer sensor. | The ceilometer's configuration is set to CL31.<br><br>SYSLOG message should read "CL31 is the Official Ceilometer Sensor". | If the ASOS already has CL31 as the official sensor, select CT-12K as the official sensor, exit, then return to the CONFG-DEFIN page and select CL31 as the official sensor. | | |
| 3 | Go to the REVUE-SITE-CONFG-SENSR screen and configure L1and L3 as ACU local sensors. Configure L2 as a remote sensor. Ensure Report Processing is turned ON for these sensors. | L1 and L3 are configured as ACU local sensors. L2 is configured as a remote sensor. | In V2.79S, turning on report processing for one sensor affects all ceilometers. In V3.0, each ceilometer must be turned on individually. | | |
| 4 | Press REVUE-SYSLG. Verify SYSLOG messages have been generated for the configuration of L1, L2, L3. Verify SYSLOG messages are generated for change in Report Processing status. | SYSLOG should display messages:<br><br>"CL31 #1 Sensor Configured"<br><br>"CL31 #2 Sensor Configured"<br><br>"CL31 #3 Sensor Configured"<br><br>"Turned Report Processing for CL31 Sensors On" | | | |

| | | | | | |
|---|---|---|---|---|---|
| 5 | Wait one minute. Verify ceilometer response timeout errors for L1, L2, L3. | SYSLOG should display messages:<br>"CL31 #1 Sensor Response Timeout"<br>"CL31 #2 Sensor Response Timeout"<br>"CL31 #3 Sensor Response Timeout" | | | |
| 6 | Press REVUE-SITE-CONFG-SENSR. Try to configure C1 on any available port (remote or local). Press BACK. This action should be disallowed since L2 and L3 are configured.<br>Press EXIT. This action should also be disallowed. Remove C1 from the port. Press EXIT. | Message should appear at the bottom of the configuration screen warning user that this action is not permitted.<br>Message should state: "Invalid Ceilometer Combination" | | | |
| 7 | ASENSE:<br>Use (F1) to set up for L1, L2 and L3 sensors.<br>Use (F2) and set the values for L1 to Layers = 1 and Height = 3000. Set the values for L2 to Layers = 2 and Height = 4000. Set the values for L3 to Layers = 3 and Height = 1000. Ensure Range Checking and Real Life are disabled. | Entries on ASENSE should turn green when polling of the sensors begins. | | | |
| 8 | Press REVUE-SITE-PHYS and set the Field Elevation to 100 ft. Go to the REVUE-SITE-CONFG-SENSR-ALGOR screen and set L1, L2, and L3's elevation to 100 ft. Set L2's location to RWY 22L and L3's location to CF. Exit. | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 9 | Press REVUE-SENSR-12HR-PAGE-PAGE-PAGE. Verify data from CL31 #1 is being received in the 12Hr archive.<br>Press PAGE. Verify data from CL31 #2 is being received in the 12Hr archive.<br>Press PAGE. Verify data from CL31 #3 is being received in the 12Hr archive. EXIT. | Archive entries for CL31 #1, #2, and #3 should be of the format:<br>"UTC 1042<br>P1 03000 ///// ///// 0000 0000 0000"<br>Each 12Hr Archive page should be labeled at the top as "CL31 #1", "CL31 #2", or "CL31 #3". | | | |
| 10 | Press REVUE-SENSR-DATA-PAGE-PAGE-PAGE-PAGE. Verify CL31 #1 data are being received. Press PAGE and verify CL31 #2 data are being received. Press PAGE and verify CL31 #3 data are being received. EXIT. | Each CL31 data page should be labeled at the top with the proper identifier (e.g., CL31 #1). Each record should be of the format:<br>"1038 1 03000<br>1 03050" | | | |
| 11 | Wait approximately 30 minutes. When sky condition field on one-minute screen displays "OVC030", press REVUE-SYSLG. Verify messages reflect the change in operational status of the ceilometers. EXIT. | SYSLOG messages should read:<br>"CL31 #1 Sensor is Operational"<br>"CL31 #2 Sensor is Operational"<br>"CL31 #3 Sensor is Operational" | | | |
| 12 | Use <F3> on ASENSE to change the sensor status of L2 and L3 to "F". Wait 2 to 3 minutes.<br>Press REVUE-SYSLG. Verify SYSLOG messages are generated to report change in operational status for L2 and L3. EXIT. | SYSLOG messages should read:<br>"CL31 #2 Sensor Is Inoperational"<br>"CL31 #3 Sensor Is Inoperational" | | | |
| 13 | Press REVUE-SITE-CONFG-SENSR. Deconfigure L2 and L3. EXIT.<br>Press REVUE-SYSLG. Verify SYSLOG messages reflect the deconfiguring of L2 and L3 sensors.<br>EXIT. | SYSLOG messages should read:<br>"CL31 #2 Sensor Deconfigured"<br>"CL31 #3 Sensor Deconfigured" | | | |

| | | | | | |
|---|---|---|---|---|---|
| 14 | Press REVUE-SITE-CONFG-SENSR. Configure a CT-12K sensor (C1) on any available port. EXIT.<br><br>Press REVUE-SYSLG. Verify the configuration status of C1. | SYSLOG messages should read:<br><br>"Ceilometer #1 Sensor Configured"<br><br>"Ceilometer #1 Data Quality Bad"<br><br>"Ceilometer #1 Sensor Response Timeout" | | | |
| 15 | Use <F1> on ASENSE to configure a CT-12K sensor on the appropriate port.<br><br>Use <F2> on ASENSE to set the values for C1 to Layers = 1 and Height = 7000. | | | | |
| 16 | Press REVUE-SENSR-12HR-TEST-PAGE. Verify the sensor test archive is receiving the data from C1. EXIT. | Test page records should be of the format:<br><br>"UTC 1041 [MM]<br><br>[10 7000 12000 ///// ///// 0000000011 0 0 1.11 222 333 444 55.5 66.66 77]<br><br>[10 7000 12000 ///// ///// 0000000011 0 0 1.11 222 333 444 55.5 66.66 77]" | Data on test page should always be displayed with brackets. | | |
| 17 | Press REVUE-SITE-CONFG-DEFIN-CHANG. Select the CT-12K ceilometer as the official ceilometer. EXIT. Press REVUE-SYSLG. Verify the SYSLOG message that reflects the change in designated official ceilometer. | SYSLOG should contain the message "CT12K is the Official Ceilometer Sensor" | | | |
| 18 | Wait 4 to 5 minutes. Press REVUE-SENSR-12HR-TEST-PAGE. Verify the CL31 #1 data are being archived as test data. EXIT. | 12HR Test Archive page for CL31 data should be labeled at the top of the screen as "CL31 #1" and each record in the test archive should be of the format:<br><br>"UTC 1042 [MM]<br><br>[P1 03000 ///// ///// 0000 0000 0000]<br><br>[P1 03000 ///// ///// 0000 0000 0000]" | Data on the 12HR TEST page are always enclosed in brackets. | | |

| | | | | | |
|---|---|---|---|---|---|
| 19 | Press REVUE-SITE-CONFG-SENSR. Attempt to configure L2 on any available port, either remote or local. Press BACK. Verify that this action is not permitted. Press EXIT. Verify that this action is not permitted. Replace "L2" with "**" to remove it from the port.<br><br>Attempt to configure L3 on any available port, either remote or local. Press BACK. Verify that this action is not permitted. Press EXIT. Verify that this action is not permitted. Replace "L3" with "**" to remove it from the port.<br><br>EXIT. | Message should appear at the bottom of the configuration screen warning user that these actions are not permitted.<br><br>Message should be displayed as:<br><br>"Invalid Ceilometer Combination" | L2 and L3 are not permitted to be configured whenever CT12K is configured. | | |
| 20 | When CL31 ceilometer processing logic is merged into V3.0, deconfigure C1 and repeat steps 2 – 19 using the Handar ceilometer instead of the CT12K. | | | | |

**Test Report:**

Date:_____ Pass/Fail_____ Run By: _____

Start Time: _____ End Time: _____ Witnessed By: _____

Comments/Deficiencies: _____

_____

# CL31- User EDIT & Augment Test

**This procedure tests the functionality of EDITing sky condition reports with cloud layers below 12000 feet as well as augmenting cloud layers above 12000 feet.**

***NOTE: IF A METAR IS TRANSMITTED DURING THE EXECUTION OF THIS TEST, THE SKY FIELD WILL BE RESET TO THE AUTOMATED SKY CONDITION INFORMATION. IF THAT HAPPENS, SIMPLY RE-ENTER THE EDITED AND/OR AUGMENTED INFORMATION.***

**This test takes approximately 1 hour 20 minutes to complete.**

| Step No. | Operator Action | Expected Results | Comments | Results P | Results F |
|---|---|---|---|---|---|
| 1 | Sign on as a system manager.<br><br>Go to the **REVUE-SITE-PHYS** screen and ensure the "OBS HOURLY REPORT TIME" is set to ***50*** and "OBS EDIT TIME" is set to ***5***. | | Cold start of the system is not required prior to running this test. | | |
| 2 | Sign on as a technician.<br><br>Go to the **REVUE-SITE-CONFG-DEFIN** screen and set the ceilometer's configuration to ***CL31.*** EXIT<br><br>Press REVUE-SYSLG. Verify CL31 is designated as the official ceilometer sensor. | The ceilometer's configuration is set to CL31.<br><br>SYSLOG message should read "CL31 is the Official Ceilometer Sensor". | If the ASOS already has CL31 as the official sensor, select CT-12K as the official sensor, exit, then return to the CONFG-DEFIN page and select CL31 as the official sensor. | | |
| 3 | Go to the REVUE-SITE-CONFG-SENSR screen and configure L1and L3 ceilometers. Ensure Report Processing is turned ON for these sensors. | L1 and L3 are configured. | In V2.79S, turning on report processing for one sensor affects all ceilometers. In V3.0, each ceilometer must be turned on individually. | | |
| 4 | Press REVUE-SYSLG. Verify SYSLOG messages have been generated for the configuration of L1 and L3. Verify SYSLOG messages are generated for change in Report Processing status. | SYSLOG should display messages:<br><br>"CL31 #1 Sensor Configured"<br><br>"CL31 #3 Sensor Configured"<br><br>"Turned Report Processing for CL31 Sensors On" | | | |

| | | | | | |
|---|---|---|---|---|---|
| 5 | ASENSE:<br><br>Use (F1) to configure L1 and L3 sensors on appropriate ASENSE ports.<br><br>Use (F2) and set the values for L1 to Detection Status = 1 and Measured Data(1) = 3000. Set the values for L3 to Detection Status = 3 and Measured Data(1) = 1000. Ensure Range Checking and Real Life are disabled. | Entries on ASENSE should turn green when polling of the sensors begins. | | | |
| 9 | Sign on as an observer. Press EDIT. Change Sky field to read "SCT009". EXIT. Verify "*" appears next to sky field on one-minute page.<br><br>If last transmitted observation reported a cloud layer under 1000 feet, press GENOB-SPECI-XMIT. Otherwise, SPECI will be generated automatically.<br><br>Verify format and content of SPECI. | Verify "SCT090" appears in the sky field on the one-minute screen. Verify "*" appears next to SKY label on screen.<br><br>Verify SPECI is generated with "SCT090" in the body of the report. | | | |
| 10 | After the SPECI transmits, press EDIT-RESET. EXIT. Automated sky condition report "BKN030" should reappear on one-minute screen. The "*" next to the SKY label should disappear. | Verify SKY field on one-minute screen = "BKN030".<br><br>Verify "*" next to SKY label disappears. | | | |
| 11 | Wait one minute, then press EDIT. Advance the cursor to the end of the SKY field on the one-minute page. Enter "OVC160". EXIT. Verify the SKY field now reads "BKN030 OVC160".<br><br>Wait until SKY field display transitions to read "SCT030 OVC160". | SKY field should display "BKN030 OVC160". After a few minutes, the SKY field should transition to "SCT030 OVC160". | If a METAR is transmitted while the augmented report is in effect, the "OVC160" will disappear due to automatic reset. | | |
| 12 | Press EDIT-RESET. EXIT. Upon exit, verify sky condition report changes to "SCT030". Wait until SKY field transitions to "FEW030". | SKY field should display "SCT030" and transition to "FEW030". | | | |

| | | | | | |
|---|---|---|---|---|---|
| 13 | On ASENSE, press <F1> and remove L1 from ASENSE. Press <F2> to return to the active sensor page of ASENSE.<br><br>This should cause the primary sensor to experience Response Timeout errors. After three missing readings, the SKY field should display "OVC010". | Verify a SPECI is generated when the sky condition report transitions to "OVC010". | Backup ceilometer report is now being used to generate information for SKY field. | | |
| 14 | Use ASENSE to set the Detection Status to 0 and the Measured Data(1) to /////.<br><br>Wait until SKY field on one-minute page transitions to "BKN010".<br><br>Press EDIT. Change SKY field to read "BKN010 OVC170". EXIT.<br><br>Wait until SKY field transitions to "SCT010 OVC170". Verify sky report in SPECI that is generated.<br><br>After SPECI is transmitted, verify the SKY field remains "SCT010 OVC170". | Verify no "*" appears beside the SKY label on the one-minute screen.<br><br>Verify the SPECI that is generated contains "SCT010 OVC170" in the body.<br><br>Once SPECI is transmitted, verify the SKY field remains unchanged at "SCT010 OVC170". | SPECI will be automatically generated when ceiling below 3000 feet dissipates.<br><br>Send SPECI early, if desired. | | |
| 15 | Press EDIT-RESET. EXIT. Verify SKY field displays "SCT010" after exiting from EDIT. | Verify sky condition on one-minute screen = "SCT010". | | | |
| 16 | Wait until SKY field on one-minute screen transitions to "CLR".<br><br>Press EDIT. Change SKY field to read "SCT025 BKN160". EXIT. Verify SKY report on one-minute screen remains unchanged until METAR is generated.<br><br>Once METAR is transmitted, verify the SKY field changes to "CLR". | Verify "*" appears next to SKY field on one-minute screen.<br><br>SKY field should remain "SCT025 BKN160" until transmission of the METAR. Then, SKY should change to "CLR". | To expedite testing, you may advance the clock to HH+47:58 after the one-minute page displays "CLR".<br><br>SKY field resets to AUTO mode after METAR is sent. | | |

**Test Report:**

Date:_____ Pass/Fail_____ Run By: _____

Start Time: _____ End Time: _____ Witnessed By: _____

Comments/Deficiencies: _____

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# CL31-Sensor Maintenance Test

**This procedure tests maintenance messages that are generated when primary, backup, and met discontinuity sensors have maintenance parameters that experience failures and/or warnings. It also tests the generation of SYSLOG messages and the maintenance flag ("$") whenever the sensor status or an individual sensor maintenance parameter is set to fail. The test verifies that a SYSLOG message will be generated but no "$" appended when individual maintenance parameters experience a change to warning status. No data set files are required for this test.**

**This test takes approximately 8 hours (Local sensor test = 4 hours; remote sensor test = 4 hours). Each test can be sub-divided into 80-minute tests for CL31 #1, CL31 #2, and CL31 #3.**

| Step No. | Operator Action | Expected Results | Comments | Results P/F Local | Remote |
|---|---|---|---|---|---|
| 1 | Sign on as a system manager.<br><br>Go to the **REVUE-SITE-PHYS** screen and ensure the "OBS HOURLY REPORT TIME" is set to ***50*** and "OBS EDIT TIME" is set to ***5***. | | Cold start of the system is not required prior to running this test. | | |
| 2 | Sign on as a technician.<br><br>Go to the **REVUE-SITE-CONFG-DEFIN** screen and set the ceilometer's configuration to ***CL31.*** EXIT<br><br>Press REVUE-SYSLG. Verify CL31 is designated as the official ceilometer sensor. | The ceilometer's configuration is set to CL31.<br><br>SYSLOG message should read "CL31 is the Official Ceilometer Sensor". | | | |
| 3 | Go to the REVUE-SITE-CONFG-SENSR screen and configure L1, L2, and L3 as ACU local sensors. EXIT. Press REVUE-SENSR-STAT and ensure Report Processing is turned ON for these sensors.<br><br>In order to minimize the maintenance impact of sensors other than the desired ceilometers, press REVUE-SITE-CONFG-SENSR and remove all sensors except the ceilometers under test. | L1, L2, and L3 are configured as ACU local sensors. | Ceilometers should be configured as remote sensors when repeating the test. | | |

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| 4 | Press REVUE-SYSLG. Verify SYSLOG messages have been generated for the configuration of L1, L2, L3. Verify SYSLOG messages are generated for change in Report Processing status. | SYSLOG should display messages:<br>"CL31 #1 Sensor Configured"<br>"CL31 #2 Sensor Configured"<br>"CL31 #3 Sensor Configured"<br>"Turned Report Processing for CL31 Sensors On" | | | |
| 5 | Press <F1> on ASENSE and configure 3 CL31 ceilometers on ports corresponding to ACU local ports.<br>Press <F2> and set L1 Detection Status to "1" and Measured Value(1) to "2000". Set L2 Detection Status to "2" and Measured Value(1) to "600". Set L3 Detection Status to "3" and Measured Value(1) to "4000". | Ceilometer labels on ASENSE should turn green when polled by ASOS. | Ceilometers should be configured on remote ports when repeating the test. | | |
| 6 | Press REVUE-SENSR-12HR-PAGE-PAGE-PAGE. Verify ceilometer #1 data are properly received by the ACU. Press PAGE. Verify ceilometer #2 data. Press PAGE. Verify ceilometer #3 data. | Ceilometer #1 archived data should reflect 1 layer at 2000 feet. Ceilometer #2 data should reflect 2 layers with lowest layer at 600 feet. Ceilometer #3 data should reflect 3 layers with the lowest layer at 4000 feet. | | | |
| 7 | Wait 30 minutes for ceilometers to become operational. While waiting, ensure there are no maintenance flags set. If any maintenance flags are set, disable or remove any communications channels that may be causing maintenance flags to be set. | Ensure WSP, Navy ATC, ADAS, GTA radio, etc are either removed or are disabled during the remainder of the test. | Generate a SPECI or METAR to check for "$" appended to message. | | |

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| 8 | On one-minute screen, verify sky condition report displays “OVC020” and remarks display “CIG 006 LOC”, where LOC is the location of the meteorological discontinuity sensor (see REVUE-SITE-CONFG-SENSR-ALGOR for LOC).<br><br>Press REVUE-SYSLG. Verify all three ceilometers are operational. | SYSLOG messages should state that all 3 ceilometers are now operational. | | | |
| 9 | Use <F3> on ASENSE to change sensor heater status of CL31 #1 to “7”. Change receiver gain to “L”.<br><br>Press MAINT. Verify ACU (or DCP, depending on sensor configuration) displays “P”. Select CL31 #1 (CL31 #2, or CL31#3, depending on the sensor being tested). Verify the status of the sensor displays “P”. Select the sensor. Verify the maintenance page displays the values sent by ASENSE. EXIT.<br><br>Press REVUE-SYSLG. Verify no parameter failure messages are recorded for changes in heater status and receiver gain. | Maintenance page for CL31 #1 should reflect heater status of “7” and receiver gain of “L”.<br><br>No SYSLOG messages should be displayed. | Do NOT set the sensor status to “FAIL” until prompted in later test steps. | | |
| 10 | Sign on as an observer. Press GENOB-SPEC-XMIT. When SPECI is generated, check to ensure the maintenance flag (“$”) is not appended. | SPECI format should contain valid sky condition information and not have “$” appended to the message. | | | |
| 11 | Use <F3> on ASENSE to change sensor heater status of CL31 #1 to “0”. Change window conditioner to “F65”. | Maintenance page for CL31 #1 should reflect heater status of “0” window conditioner value of “65 F”. | | | |
| 12 | Press MAINT. Depending on the configuration of CL31 #1, note the status of the ACU or DCP is now “F” instead of “P”. Select the ACU or DCP, wherever the CL31 #1 is configured. Verify status of the sensor is “F” instead of “P”. Select CL31 #1 (CL31 #2, or CL31 #3). Verify the maintenance page displays the values sent by ASENSE.<br><br>Press REVUE-SYSLG. Verify SYSLOG message for window conditioner has been entered. | SYSLOG message “CL31 #1 Window Conditioner Failure” should be displayed.<br><br>Window conditioner status should be “F”. Fail count should be “1” for window conditioner. | | | |

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| 13 | Press GENOB-SPEC-XMIT. When SPECI is generated, check to ensure "$" is appended. | SPECI format should contain valid sky condition information and should have "$" appended to the message. | | | |
| 14 | Use <F3> on ASENSE to change CL31 #1 window conditioner to "P99"<br><br>Press MAINT. Depending on the configuration of CL31 #1, note the status of the ACU or DCP is now "C" instead of "F". Select the ACU or DCP, wherever the CL31 #1 is configured. Verify status of the sensor is "C" instead of "F". Select CL31 #1 (CL31 #2, or CL31 #3). Verify the maintenance page displays the values sent by ASENSE. Press CLEAR to remove all fail counts. Press BACK-BACK. Verify each of the higher-level screens now display "P" instead of "C". EXIT.<br><br>Press REVUE-SYSLG. Verify no parameter messages are recorded for window conditioner when it returns to "P" status.<br><br>Press GENOB-SPEC-XMIT. When SPECI is generated, check to ensure no "$" is appended. | Verify each high-level maintenance screen displays "C" for the status of CL31#1 while fail counts are greater than zero.<br><br>Verify each high-level screen returns to "P" when all fail counts are removed.<br><br>SPECI contains valid sky condition information and no "$" is appended to output report. | | | |

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| 15 | Using the table below, repeat steps 11 – 14, changing the values of each parameter in the "P" column to the values in the "F" column (as in steps 11-12). Verify METAR/SPECI reports are sent with "$" appended.<br><br>Then, change values back to "P" (as in steps 12 – 14) and verify the "$" is removed from the METAR/SPECI reports.<br><br>PARAMETER "P" "F"<br>Outlaser P4095 F1000<br>Relative Outlaser P120 F50<br>Laser Temperature P+17.9 F-11.1<br>Blower Temperature P+21.3 F-3.6 | Maintenance page for CL31 should the changes in parameter status being sent by ASENSE. When transitioning from "P" to "F", fail counts should be reflected.<br><br>When parameters are reset to "P", fail counts should remain until cleared by technician. Higher level maintenance screens should reflect status of "C" until fail counts are removed.<br><br>Once fail counts are removed, all levels of maintenance screens should display "P".<br><br>SYSLOG message "CL31 #1 <parameter name> Failure" should be displayed when maintenance page transitions from "P" to "F".<br><br>Maintenance flag ("$") should remain in METAR/SPECIs until fail counts are cleared by technician | | | |
| 16 | Use <F3> on ASENSE to change CL31 #1 sensor status to "F".<br><br>Wait 2 – 3 minutes. SYSLOG message should confirm that CL31 #1 is now inoperative.<br><br>Verify the one-minute screen now displays a sky condition report of "OVC040" generated by CL31 #3. | SYSLOG message "Official Ceilometer Sensor Data Quality Check Error", and "CL31 #1 Sensor is Inoperational" should be generated after 3 consecutive sensor output messages are received at ACU.<br><br>SPECI should be generated due to the change in the sky condition report. The SPECI should have a "$" appended due to change in CL31 #1 sensor status. | Ceiling layer has increased to 4000 feet, exceeding the 3000 foot criterion. | | |

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| 17 | Use <F3> on ASENSE to change CL31 #1 status to “P”.<br><br>Sign on as a technician. Wait 1 minute. Press MAINT and clear all fail counts on the CL31 #1 maintenance page.<br><br>Wait 30 minutes until CL31 #1 is returned to operational status (Sky Condition report will change to “OVC020”).<br><br>While waiting for CL31 #1 to return to operational status, use <F3> on ASENSE to change the Suspect Module (Primary) and Suspect Module (Secondary) to each value listed below. After each entry is made in ASENSE, press MAINT and select CL31 #1 to ensure the maintenance page reflects each entry. Values to use are: “FCLE”, “FCLP”, ”FCLO”, “FCLT”, “FCLR”, “FCAX”, “FCLH”.<br><br>Press REVUE-SYSLG. Verify each of the Suspect Module failures listed above generates a SYSLOG message which includes the suspect module identifier.<br><br>After all values have been entered and checked, use ASENSE to restore both Suspect Module (Primary) and Suspect Module (Secondary) to “PSpSpSp”. | SPECI will be generated due to the change in ceiling height. SPECI should not contain “$”.<br><br>Maintenance page for CL31 #1 should contain Suspect Module (Primary) and Suspect Module (Secondary) values of CLE, CLP, CLO, CLT, CLR, CAX, and CLH. These entries should not generate the “$” maintenance flag.<br><br>After Suspect Module (Primary) and Suspect Module (Secondary) are changed to “PSpSpSp”, verify no SYSLOG messages are entered to reflect this change. | Each SYSLOG message should contain the three-character designator in suspect module failure message.<br><br>SpSpSp = three spaces | | |
| 18 | Use <F3> on ASENSE to change window conditioner status to “W65”.<br><br>Press MAINT. Select ACU or DCP, depending on the configuration of CL31 #1. Verify the maintenance page displays the values sent by ASENSE. EXIT.<br><br>Press REVUE-SYSLG. Verify parameter warning message is not recorded for window conditioner. | Maintenance page for CL31 #1 should reflect window conditioner status of “65 W”.<br><br>No SYSLOG message regarding the status of CL31 #1 Transmitter Inlaser should be displayed. | Do NOT set the sensor status to “FAIL” until prompted in later test steps.<br><br>Since maintenance parameters are set to “W” and not “F”, all levels of maintenance screens should still display “P”. | | |

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| 19 | Sign on as an observer. Press GENOB-SPEC-XMIT. When SPECI is generated, check to ensure "$" is not appended. | SPECI format should contain valid sky condition information and not have "$" appended to the message. | | | |
| 20 | Using the table below, repeat steps 18-19, changing the values of each parameter in the "P" column to the values in the "W" column. Verify METAR/SPECI reports are sent without a maintenance flag, "$", appended.<br>PARAMETER "P" "W"<br>Outlaser P4095 W1000<br>Relative Outlaser P120 W50<br>Background Radiance P999.9 W450.2<br>Tilt Angle P+90.0 W20.5<br>Internal Temperature P+25.8 W-60.7<br>External Temperature P+30.9 W-70.0<br>DC Power Temp P+20.0 W-20.0<br>Inclinometer Temp P+25.0 W-15.2<br>Laser Temperature P+17.9 W-11.1<br>Blower Temperature P+21.3 W-3.6 | Maintenance page for CL31 should display the changes in parameter status being sent by ASENSE. When transitioning from "P" to "W", fail counts should NOT be reflected.<br>Whether parameters are set to "P" or "W", higher level maintenance screens should always display a status of "P".<br>SYSLOG message "CL31 #1 <parameter name> Warning" should be displayed when maintenance page transitions from "P" to "W".<br>Maintenance flag ("$") should NOT be appended to METAR/SPECIs during this phase of the test. | To expedite testing, recommend setting all parameters in the table to "W" status before checking SYSLOG, checking Maintenance Page, generating SPECI, etc. Since a warning status on these parameters does not cause a "$" these parameters can be tested as a group. | | |
| 21 | Repeat steps 8 through 20, making changes to CL31 #2 instead of CL31 #1. | | To accelerate test, multiple maintenance parameters can be tested simultaneously. | | |
| 22 | Repeat steps 8 through 20, making changes to CL31 #3 instead of CL31 #2. | | To accelerate test, multiple maintenance parameters can be tested simultaneously. | | |
| 23 | Repeat steps 3 through 22, configuring the CL31 ceilometers as remote sensors. | | To accelerate test, multiple maintenance parameters can be tested simultaneously. | | |

**Test Report:**

Date:_____ Pass/Fail_____ Run By: _____

Start Time: _____ End Time: _____ Witnessed By: _____

Comments/Deficiencies: _____

# CL31-Meteorological Discontinuity Test #1

**This procedure tests SYSLOG messages that are generated when primary, backup, and met discontinuity sensors change operational status. It also tests the generation of met discontinuity remarks. Use data set file SKYMD01A.A, SKYMD01B.B, & SKYMD01C.C for this test.**
Time Required: Approximately 1 Hour 20 Minutes

| Step No. | Operator Action | Expected Results | Comments | Results P | Results F |
|---|---|---|---|---|---|
| 1 | Sign on as a system manager.<br><br>Go to the **REVUE-SITE-PHYS** screen and ensure the "OBS HOURLY REPORT TIME" is set to ***50*** and "OBS EDIT TIME" is set to ***5***. | | Cold start of the system is not required prior to running this test. | | |
| 2 | Go to the **REVUE-SITE-CONFG-DEFIN** screen and set the ceilometer's configuration to ***CL31.*** EXIT | The ceilometer's configuration is set to CL31. | | | |
| 3 | Go to the **REVUE-SITE-CONFG-SENSR** screen and configure L1and L3 as ACU local sensors. Configure L2 as a remote sensor. Ensure Report Processing is turned **ON** for these sensors. (Note: If L1, L2, and L3 are already configured at the start of the test, deconfigure them, exit, and reconfigure them after waiting 1 minute). | L1 and L3 are configured as ACU local sensors. L2 is configured as a remote sensor. | | | |

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| 4 | ASENSE:<br>Use (F1) to set up for L1, L2 and L3 sensors.<br><br>Use (F8) and set up datasets SKYMD01A.A for L1, SKYMD01B.B for L2, and SKY01MDC.C for L3. Use (F10) and set the Status for L1, L2, and L3 to OFF.<br><br>Use (F2) and set the values for L1, L2, and L3 to Detection Status = 0 and Measured Value(1) = "/////". Ensure Range Checking and Real Life are disabled. | | | | |
| 5 | Go to the REVUE, SITE, PHYS and set the Field Elevation to 100 ft. Go to the REVUE-SITE-CONFG-SENSR-ALGOR screen and set L1, L2, and L3's elevation to 100 ft. Set L2's location to RWY 22L and L3's location to CF. | | | | |
| 6 | Sign on as System Manager.<br>Go to the REVUE, SITE, CRIT screen and set the User's Ceiling criteria to 200.<br>Press PAGE and set the Criterion for a LOCAL alert to 6000 ft. EXIT. | | | | |
| 7 | Sign on as an observer and edit the surface visibility to ***7SM***. Wait 10 minutes. | | | | |
| 8 | **ASENSE**: Press **F8** to get to the dataset screen. Use **F10** to set the Status of each dataset to ***ON*** as quickly as possible (NOTE: Start datasets for local sensors between seconds 15 and 20. Start datasets for remote sensors between seconds 50 and 55.) | | *F10 has to be pressed twice for datasets that have an initial OFF Status*. | | |
| 9 | Verify the results of the datasets on the 1-MIN screen using Table 1 below. | | | | |

**Test Report:**

Date:_____ Pass/Fail_____ Run By: _____

Start Time: _____ End Time: _____ Witnessed By: _____

Comments/Deficiencies: _____
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**Table 1 - Dataset Results (SKYMDA.A & SKYMDB.B & SKYMDC.C)**

| Time | Primary (L1) Data | Met Disc (L2) Data | Backup (L3) Data | SKY (1 MIN) | REMARKS | ALERTS/SYSLOG |
|---|---|---|---|---|---|---|
| 1 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 2 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 3 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 4 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 5 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 6 | 1 18600 P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 7 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 8 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 9 | 0 ///// F 0 ///// F | 0 ///// P 1 19000 P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | CL31 # 1 Response Timeout |
| 10 | 0 ///// F 0 ///// F | 1 18800 P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | CL31 #1 Inoperative |
| 11 | 0 ///// F 0 ///// F | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 12 | 0 ///// P 0 ///// P | 2 18600 P 1 18900 P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 13 | 0 ///// P 0 ///// P | 1 19200 P 1 19100 P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 14 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 15 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 16 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 17 | 0 ///// P 2 14900 P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 18 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 19 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 20 | 1 15200 P 1 15300 P | 0 ///// P 5 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |

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| 21 | 1 14900 P 2 15300 P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 22 | 1 15200 P 1 15400 P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 23 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 24 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 25 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 26 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 27 | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 28 | 1 100 P 1 50 P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 29 | 1 50 P 1 50 P | 0 ///// P 0 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 30 | 0 ///// P 0 ///// P | 1 150 P 5 ///// P | 0 ///// P 0 ///// P | MM | CHINO RWY 22L | |
| 31 | 0 ///// P 5 ///// P | 1 100 P 1 100 P | 1 100 P 0 ///// P | MM | CHINO RWY 22L | CL31 #2 & CL31 #3 Operative |
| 32 | 1 50 P 1 150 P | 1 150 P 5 ///// P | 0 ///// P 0 ///// P | CLR (L3) | | |
| 33 | 1 150 P 1 150 P | 1 4350 P 1 4350 P | 0 ///// P 0 ///// P | CLR (L3) | | |
| 34 | 5 ///// P 0 ///// P | 1 4300 P 1 4350 P | 0 ///// P 0 ///// P | CLR (L3) | | |
| 35 | 2 5350 P 2 5350 P | 1 4400 P 1 4150 P | 1 4300 P 2 4350 P | CLR (L3) | | |
| 36 | 3 5350 P 1 5350 P | 1 4050 P 1 4250 P | 1 4300 P 1 4300 P | FEW043 (L3) | | |
| 37 | 1 5500 P 1 5500 P | 1 4300 P 1 4500 P | 1 4300 P 1 4500 P | FEW043 (L3) | | |
| 38 | 1 5550 P 1 5550 P | 1 4350 P 1 4450 P | 1 4250 P 1 4300 P | FEW043 (L3) | | CL31 #3 Response Timeout |
| 39 | 1 5550 P 1 5550 P | 1 4550 P 1 4450 P | 0 ///// F 0 ///// F | FEW043 (L3) | | CL31 #3 Inoperative |
| 40 | 1 5550 P 1 5550 P | 1 4400 P 1 4500 P | 0 ///// F 0 ///// F | MM | | |
| 41 | 1 5650 P 1 5650 P | 2 4300 P 1 4400 P | 1 4350 P 1 4350 P | MM | | |

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| 42 | 1 5650 P 1 5700 P | 1 4250 P 1 4450 P | 1 4400 P 1 4300 P | MM | | CL31 #1 Operative |
| 43 | 1 5750 P 1 5700 P | 1 4200 P 2 4100 P | 1 4300 P 1 4350 P | FEW001 BKN055 (L1) | | Special Alert |
| 44 | 1 5500 P 1 5600 P | 0 ///// F 0 ///// F | 1 4250 P 1 4450 P | FEW001 BKN055 (L1) | CIG 043 RWY 22L | |
| 45 | 1 5600 P 1 5550 P | 0 ///// F 0 ///// F | 1 4300 P 1 4350 P | FEW001 BKN055 (L1) | CIG 043 RWY 22L | CL31 #2 Response Timeout |
| 46 | 1 5300 P 1 5700 P | 0 ///// F 0 ///// F | 0 ///// F 0 ///// F | FEW001 BKN055 (L1) | CIG 043 RWY 22L | CL31 #2 Inoperative |
| 47 | 1 5400 P 1 5400 P | 0 ///// F 0 ///// F | 1 4300 0 ///// F | FEW001 BKN055 (L1) | CHINO RWY 22L | |
| 48 | 1 150 P 1 100 P | 1 4250 P 1 4300 P | 2 4300 P 5 ///// P | FEW001 BKN055 (L1) | CHINO RWY 22L | |

# CL31-SS01: SKY SINGLE-SENSOR –Vaisala CL-31 Ceilometer

This test displays all cloud amounts and tests the generation of specials for layers below 1,000 feet and ceiling formations for three ceiling categories. It also tests the variable ceiling remark. This test utilizes data set files CL31SS01.TXT and CT12SS01.TXT.

Time Required: Approximately 6 hours. (Can be sub-divided into two three-hour tests)

| Step No. | Operator Action | Expected Results | Comments | Result P/F |
|---|---|---|---|---|
| 1 | Sign on as a system manager.<br><br>Press **REVUE-SITE-PHYS** and ensure the "OBS HOURLY REPORT TIME" is set to ***50*** and "OBS EDIT TIME" is set to ***5***. | | Cold start of the system is not required prior to this test. | |
| 2 | Sign on as a technician.<br><br>Press **REVUE-SITE-CONFG-DEFIN** screen. Verify theVaisala CL-31 ceilometer's configuration. | The ceilometer's configuration is set to CL-31 | | |
| 3 | Press **REVUE-SITE-CONFG-SENSR** and configure CL31 (L1) on any available local port. Configure CT-12K (C1) on any available port (local or remote). | L1 will be configured as "official" sensor; C1 will be configured as test sensor. SYSLOG message confirms configuration of both ceilometers. | | |
| 4 | Press REVUE-SITE-CONFG-SENSR and configure V1 as ACU local sensor.<br><br>If the system is configured for multiple ceilometer and visibility sensors, remove them. EXIT.<br><br>Press REVUE-SENSR-STAT. Toggle Report Processing to "OFF" for L1 and V1. | L1 and V1 are configured as ACU local sensors.<br><br>L2, L3, V2, and V3 are not configured during this test.<br><br>Report Processing is off for Ceilometer and Visibility | If L1 and V1 are configured as remote sensors, remove the sensors at top of screen before making them local sensors. | |

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| 5 | ASENSE: Press <F1> and configure L1, C1, and V1 sensors on proper ASENSE ports.<br><br>Use <F8> and set up dataset CL31SS01.TXT for L1. Set up dataset CT12SS01.TXT for C1. Leave both datasets with Status = OFF.<br><br>Use <F2> and set the extinction coefficient to 0.266 D for V1. Set detection status = 0 and measured value(1) = ///// for L1. Set Layers = 0 and Height = ///// for C1. Ensure Range Checking and Real Life are disabled. (This information appears at the bottom of the screen) | Required sensors are configured on ASENSE. | | |
| 6 | Go to the REVUE, SITE, PHYS and set the Field Elevation to 100 ft. | | | |
| 7 | Go to the REVUE, SITE, CONFG, SENSR, ALGOR screen and set SKY ALGORITHM: SINGLE SENSOR #1 ELEVATION to 100 ft. | | | |
| 8 | Sign on as System Manager.<br><br>Press REVUE-SITE-CRIT-PAGE and set the User's LOCAL criteria to 4500. | | | |
| 9 | In V2.79S, deconfigure and reconfigure L1 and C1 before proceeding.<br><br>Wait until 5 minutes of data for L1 and V1 are obtained. Press REVUE-SENSR-STAT. Turn report processing on for L1 and V1. EXIT.<br><br>Press REVUE-SENSR-12HR. Verify CL31 data are being received. EXIT. Verify sky condition report on one-minute screen = "MM".<br><br>Press TEST-PAGE. Verify C1 data are received and are in brackets. Verify sky condition report on test page is "[MM]". | After 10 minutes of valid data, visibility of 7SM is displayed on the one-minute screen.<br><br>For first thirty minutes, test sky condition reports is "[MM]". | | |

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|---|---|---|---|---|
| 10 | ASENSE: Press F8 to get to the dataset screen. Turn the ceilometer dataset ON by pressing F10 twice quickly. (Note: Start the dataset at second 15 if configured as a local sensor and second 55 if configured as a remote sensor.) | For thirty minutes, sky condition will be reported as "MM".<br><br>Thirty minutes after the L1 dataset starts, the sky condition will begin to report "CLR". | Note: Pressing F10 twice will sequence the Status from Off to Pending, then to On. | |
| 11 | Verify the results of the dataset on the 1-MIN screen using Table 1 below. Periodically, check the sky condition report on the one-minute screen to see that it agrees with the sky condition report on the test page (both CL31 and CT-12K sensors are running datasets with identical cloud height and amount data).<br><br>Sign on as an observer.<br><br>When sky condition field on one-minute screen displays "BKN003", press EDIT and change the sky condition to read "BKN003 OVC150". EXIT. | All sky conditions have been verified.<br><br>Sky condition has been augmented with a manually entered layer above 12000 feet. | Running parallel data through CT-12K and CL31 logic verifies "plug and play" processing of new sensor.<br><br>Augmented cloud information (OVC150) will not appear on test page. | |
| 12 | When sky condition field on one-minute screen and 5-minute archive both display "BKN003 BKN015 OVC150", press EDIT-RESET-EXIT.<br><br>Verify "BKN003 BKN015" remains in the sky condition field after EXIT is pressed. | Verify "BKN003 BKN015 OVC150" remains on the one-minute screen until EDIT-RESET is executed.<br><br>Verify 5-minute archive contains one entry of "BKN003 BKN015 OVC150".<br><br>Verify one-minute screen returns to "BKN003 BKN015" after RESET is executed. | Sky condition report on test page should agree with automated portion of one-minute sky condition report (BKN003 BKN015) | |
| 13 | Periodically, verify the contents and format of the one-minute screen, VDU, 12-hour archive, 12-hour TEST archive, current sensor data, 5-minute observations, SPECIs, and METAR reports. | After 30 minutes of data are received, 12 hour TEST archive should report same sky condition as that shown on the one-min screen. | Sky Condition report and Data in the TEST archive should be enclosed in brackets. | |

| | | | | |
|---|---|---|---|---|
| 14 | After sky condition report changes from "FEW030" to "CLR", use <F3> on ASENSE and set L1 sensor status to "F". Wait 2 minutes. Sky condition should read "MM".<br><br>Press REVUE-SYSLOG. Verify message in SYSLOG stating L1 is inoperative. Wait until HH:00 or HH:30, whichever comes first. | Sky condition field should read "MM" on the one-minute screen. | Setting sensor status to "F" should occur approximately 2 hr 30 minutes into the test (See Table 1 for timing). | |
| 15 | Use Procomm or HyperTerm to download "CLOUD" information via Direct Command Mode. Verify cloud cover information against the 5-minute archive cloud amounts to ensure reasonable cloud cover percentages are saved. | | CLOUD data contains the percent cloud cover of the highest cloud layer detected at HH:00 and HH:30. | |
| 16 | Repeat steps 2 – 14, setting the CT-12K ceilometer as the "official" sensor and the CL31 ceilometer as the test sensor. In step 3, configure CL31 as a remote sensor instead of a local sensor. | | | |

**Test Report:**

Date:_____ Pass/Fail_____ Run By: _____

Start Time: _____ End Time: _____ Witnessed By: _____

Comments/Deficiencies: _____
_____

**Table 1 - DATASET CL31SS01.A**

| TIME (minutes) | EXPECTED SKY CONDITION | REMARKS | SPECI | REPORTED SKY CONDITION | COMMENTS |
|---|---|---|---|---|---|
| 1 - 29 | MM | | | | |
| 30 | CLR | | | | SYSLOG = CL31 #1 Operative |
| 31 | CLR | | | | |
| 32 | FEW003 | | Y | | If the previous METAR or SPECI has a Sky of <1000, a Special will not appear. |
| 33 | FEW003 | | | | |
| 34 | FEW003 | | | | |
| 35 | FEW003 | | | | |
| 36 | SCT003 | | | | |
| 37 | SCT003 | | | | |
| 38 | SCT003 | | | | |
| 39 | SCT003 | | | | |
| 40 | BKN003 | | Y | | |
| 41 | BKN003 | | | | |
| 42 | BKN003 | | | | |
| 43 | BKN003 | | | | |
| 44 | BKN003 | | | | |
| 45 | BKN003 | | | | |
| 46 | BKN003 | | | | |
| 47 | BKN003 BKN015 | | | | |
| 48 | BKN003 BKN015 | | | | |
| 49 | BKN003 BKN015 | | | | |

| TIME (minutes) | EXPECTED SKY CONDITION | REMARKS | SPECI | REPORTED SKY CONDITION | COMMENTS |
|---|---|---|---|---|---|
| 50 | BKN003 BKN015 | | | | |
| 51 | BKN003 BKN015 | | | | |
| 52 | BKN003 BKN015 BKN022 | | | | |
| 53 | SCT003 BKN015 BKN022 | | Y | | |
| 54 | SCT003 BKN015 BKN022 | | | | |
| 55 | SCT003 BKN015 OVC031 | | | | |
| 56 | SCT003 BKN015 BKN022 | | | | |
| 57 | SCT003 BKN015 OVC040 | | | | |
| 58 | SCT003 BKN015 OVC040 | | | | |
| 59 | SCT003 BKN019 OVC040 | CIG 015V022 | Y | | |
| 60 | SCT003 BKN019 OVC040 | CIG 015V022 | | | |
| 61 | SCT003 BKN019 OVC049 | CIG 015V022 | | | |
| 62 | SCT003 BKN019 OVC049 | CIG 015V022 | | | |
| 63 | SCT003 BKN017 BKN031 | CIG 015V022 | | | |
| 64 | SCT003 BKN017 BKN031 | CIG 015V022 | | | |
| 65 | FEW003 SCT017 BKN031 | | Y | | Send SPECI early |
| 66 | FEW003 SCT017 BKN031 | | | | |
| 67 | FEW003 SCT017 BKN031 | | | | |
| 68 | FEW003 SCT017 BKN049 | | LOCAL | | User-specified criterion |
| 69 | FEW003 SCT017 BKN049 | | | | |
| 70 | FEW003 SCT017 BKN049 | | | | |
| 71 | FEW003 SCT017 BKN049 | | | | |
| 72 | FEW003 SCT017 BKN049 | | | | |

| TIME (minutes) | EXPECTED SKY CONDITION | REMARKS | SPECI | REPORTED SKY CONDITION | COMMENTS |
|---|---|---|---|---|---|
| 73 | FEW017 SCT040 SCT049 | | | | |
| 74 | FEW017 SCT040 SCT049 | | | | |
| 75 | FEW015 SCT040 SCT049 | | | | |
| 76 | FEW015 SCT040 SCT049 | | | | |
| 77 | FEW015 SCT040 SCT049 | | | | |
| 78 | FEW022 | | | | |
| 79 | FEW022 | | | | |
| 80 | FEW022 | | | | |
| 81 | FEW031 | | | | |
| 82 | FEW031 | | | | |
| 83 | FEW040 | | | | |
| 84 | FEW040 | | | | |
| 85 | FEW040 | | | | |
| 86 | FEW049 | | | | |
| 87 | FEW049 | | | | |
| 88 | CLR | | | | |
| 89 | CLR | | | | |
| 90 | CLR | | | | |
| 91 | CLR | | | | |
| 92 | CLR | | | | |
| 93 | FEW008 | | Y* | | * NOTE: No SPECI if last transmitted observation had layer below 1000 feet. |
| 94 | FEW008 | | | | |

| TIME (minutes) | EXPECTED SKY CONDITION | REMARKS | SPECI | REPORTED SKY CONDITION | COMMENTS |
|---|---|---|---|---|---|
| 95 | FEW008 | | | | |
| 96 | FEW008 | | | | |
| 97 | SCT008 | | | | |
| 98 | SCT008 | | | | |
| 99 | SCT008 | | | | |
| 100 | SCT008 | | | | |
| 101 | SCT008 | | | | |
| 102 | BKN008 | | Y | | |
| 103 | BKN008 | | | | |
| 104 | BKN008 | | | | |
| 105 | BKN008 BKN013 | | | | |
| 106 | BKN008 BKN013 | | | | |
| 107 | BKN008 BKN013 | | | | |
| 108 | SCT008 BKN013 | | Y | | |
| 109 | SCT008 BKN013 | | | | |
| 110 | SCT008 BKN013 BKN022 | | | | |
| 111 | SCT008 BKN013 BKN022 | | | | |
| 112 | SCT008 BKN013 BKN022 | | | | |
| 113 | SCT008 BKN013 BKN022 | | | | |
| 114 | SCT008 BKN013 BKN022 | | | | |
| 115 | SCT008 BKN013 BKN022 | | | | |
| 116 | SCT008 BKN013 OVC030 | | | | |
| 117 | SCT008 BKN013 OVC030 | | | | |

| TIME (minutes) | EXPECTED SKY CONDITION | REMARKS | SPECI | REPORTED SKY CONDITION | COMMENTS |
|---|---|---|---|---|---|
| 118 | SCT008 BKN022 OVC030 | | Y | | |
| 119 | SCT008 BKN022 OVC030 | | | | |
| 120 | SCT008 BKN022 OVC030 | | | | |
| 121 | SCT008 BKN022 OVC030 | | | | |
| 122 | SCT008 BKN022 OVC030 | | | | |
| 123 | FEW008 BKN022 OVC030 | | | | |
| 124 | FEW008 BKN022 OVC030 | | | | |
| 125 | FEW008 SCT013 BKN022 | | | | |
| 126 | FEW008 SCT013 BKN022 | | Y | | |
| 127 | FEW008 SCT013 BKN030 | | | | |
| 128 | FEW008 SCT022 BKN030 | | | | |
| 129 | FEW008 SCT022 BKN030 | | | | |
| 130 | FEW008 SCT022 BKN030 | | | | |
| 131 | FEW013 SCT022 BKN030 | | | | |
| 132 | FEW013 SCT022 BKN030 | | | | |
| 133 | FEW013 SCT022 BKN030 | | | | |
| 134 | FEW013 SCT030 | | | | |
| 135 | FEW013 SCT030 | | | | |
| 136 | FEW022 SCT030 | | | | |
| 137 | FEW022 SCT030 | | | | |
| 138 | FEW022 SCT030 | | | | |
| 139 | FEW022 SCT030 | | | | |
| 140 | FEW022 SCT030 | | | | |

| TIME (minutes) | EXPECTED SKY CONDITION | REMARKS | SPECI | REPORTED SKY CONDITION | COMMENTS |
|---|---|---|---|---|---|
| 141 | FEW022 SCT030 | | | | |
| 142 | FEW030 | | | | |
| 143 | FEW030 | | | | |
| 144 | FEW030 | | | | |
| 145 | FEW030 | | | | |
| 146 | FEW030 | | | | |
| 147 | FEW030 | | | | |
| 148 | FEW030 | | | | |
| 149 | FEW030 | | | | |
| 150 | CLR | | | | |
| 151 | CLR | | | | Sensor status = “F” at approx minute 151 |
| 152 | CLR | | | | |
| 153 | CLR | | | | |
| 154 | MM | | | | SYSLOG = CL31 #1 Inoperative |
| 155 | MM | | | | |
| 156 | MM | | | | |

**Expected Sky Condition Input/Output**

| | SENSOR DATA | | | | MET 10MIN | METAR | METAR | |
|---|---|---|---|---|---|---|---|---|
| TIME | N | HT1 | N | HT2 | VSBY | ASOS SKY CONDITION REPORT | REMARKS | ALERTS |
| 0001 | 5 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0002 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0003 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0004 | 5 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0005 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0006 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0007 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0008 | 1 | 15500 | 0 | ///// | 7.00 | MM > | | |
| 0009 | 2 | 14900 | 2 | 15100 | 7.00 | MM > | | |
| 0010 | 2 | 15400 | 0 | ///// | 7.00 | MM > | | |
| 0011 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0012 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0013 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0014 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0015 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0016 | 0 | ///// | 5 | ///// | 7.00 | MM > | | |
| 0017 | 5 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0018 | 5 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0019 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0020 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0021 | 0 | ///// | 5 | ///// | 7.00 | MM > | | |
| 0022 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0023 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0024 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0025 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0026 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0027 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0028 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0029 | 0 | ///// | 0 | ///// | 7.00 | MM > | | |
| 0030 | 0 | ///// | 0 | ///// | 7.00 | CLR > | | |
| 0031 | 1 | 300 | 1 | 300 | 7.00 | CLR > | | |
| 0032 | 1 | 300 | 1 | 300 | 7.00 | FEW003 > | > | SPECI |
| 0033 | 1 | 300 | 1 | 300 | 7.00 | FEW003 > | | |
| 0034 | 1 | 300 | 1 | 300 | 7.00 | FEW003 > | | |
| 0035 | 1 | 300 | 1 | 300 | 7.00 | FEW003 > | | |
| 0036 | 1 | 300 | 1 | 300 | 7.00 | SCT003 > | | |

```
 0037  1   300  1   300  7.00                SCT003  >
 0038  1   300  1   300  7.00                SCT003  >
 0039  1   300  1   300  7.00                SCT003  >
 0040  1   300  1   300  7.00                SCT003  >
 0041  1   300  1   300  7.00                BKN003  >                    >  SPECI
 0042  1   300  1   300  7.00                BKN003  >
 0043  1   300  1   300  7.00                BKN003  >
 0044  1   300  1   300  7.00                BKN003  >
 0045  1   300  1   300  7.00                BKN003  >
 0046  1  1500  1  1500  7.00                BKN003  >
 0047  1  1500  1  1500  7.00          BKN003 BKN015  >
 0048  2  1500  1  1600  7.00          BKN003 BKN015  >
 0049  3  1600  1  1600  7.00          BKN003 BKN015  >
 0050  1  1600  1  1600  7.00          BKN003 BKN015  >
 0051  1  2200  1  2200  7.00          BKN003 BKN015  >
 0052  2  2200  1  2200  7.00    BKN003 BKN015 BKN022  >
 0053  1  2200  1  3100  7.00    SCT003 BKN015 BKN022  >                     >  SPECI
 0054  1  3100  3  3100  7.00    SCT003 BKN015 BKN022  >
 0055  1  3100  1  3100  7.00    SCT003 BKN015 OVC031  >
 0056  1  4000  1  4000  7.00    SCT003 BKN015 BKN022  >
 0057  1  4000  1  4000  7.00    SCT003 BKN015 OVC040  >
 0058  1  4000  1  4900  7.00    SCT003 BKN015 OVC040  >
 0059  1  4900  1  4900  7.00    SCT003 BKN019 OVC040  >   CIG 015V022 >
 0060  1  4900  1  4900  7.00    SCT003 BKN019 OVC040  >   CIG 015V022 >
 0061  5 /////  0 /////  7.00    SCT003 BKN019 OVC049  >   CIG 015V022 >
 0062  0 /////  5 /////  7.00    SCT003 BKN019 OVC049  >   CIG 015V022 >
 0063  0 /////  0 /////  7.00    SCT003 BKN017 BKN031  >   CIG 015V022 >
 0064  0 /////  0 /////  7.00    SCT003 BKN017 BKN031  >   CIG 015V022 >
 0065  0 /////  0 /////  7.00    FEW003 SCT017 BKN031  >                     >  SPECI
 0066  5 /////  0 /////  7.00    FEW003 SCT017 BKN031  >
0067  0 /////  0 /////  7.00    FEW003 SCT017 BKN031  >
 0068  0 /////  0 /////  7.00    FEW003 SCT017 BKN049  >
 0069  0 /////  0 /////  7.00    FEW003 SCT017 BKN049  >
 0070  0 /////  0 /////  7.00    FEW003 SCT017 BKN049  >
 0071  0 /////  0 /////  7.00    FEW003 SCT017 BKN049  >
 0072  0 /////  0 /////  7.00    FEW003 SCT017 BKN049  >
 0073  0 /////  0 /////  7.00    FEW017 SCT040 SCT049  >
 0074  0 /////  0 /////  7.00    FEW017 SCT040 SCT049  >
 0075  0 /////  0 /////  7.00    FEW015 SCT040 SCT049  >
 0076  5 /////  0 /////  7.00    FEW015 SCT040 SCT049  >
 0077  0 /////  0 /////  7.00    FEW015 SCT040 SCT049  >
 0078  5 /////  0 /////  7.00                FEW022  >
```

```
 0079  0 /////  0 /////  7.00                  FEW022  >
 0080  5 /////  0 /////  7.00                  FEW022  >
 0081  0 /////  0 /////  7.00                  FEW031  >
 0082  0 /////  0 /////  7.00                  FEW031  >
 0083  0 /////  0 /////  7.00                  FEW040  >
 0084  0 /////  0 /////  7.00                  FEW040  >
 0085  0 /////  0 /////  7.00                  FEW040  >
 0086  0 /////  0 /////  7.00                  FEW049  >
 0087  0 /////  0 /////  7.00                  FEW049  >
 0088  0 /////  0 /////  7.00                     CLR  >
 0089  0 /////  0 /////  7.00                     CLR  >
 0090  0 /////  0 /////  7.00                     CLR  >
 0091  0 /////  0 /////  7.00                     CLR  >
 0092  1   800  1   800  7.00                     CLR  >
 0093  1   800  1   800  7.00                  FEW008  >                    >  SPECI
 0094  1   800  1   800  7.00                  FEW008  >
 0095  1   800  1   800  7.00                  FEW008  >
 0096  1   800  1   800  7.00                  FEW008  >
 0097  1   800  1   800  7.00                  SCT008  >
 0098  1   800  1   800  7.00                  SCT008  >
 0099  1   800  1   800  7.00                  SCT008  >
 0100  3   800  1   800  7.00                  SCT008  >
 0101  1   800  1   800  7.00                  BKN008  >
 0102  1   800  1   800  7.00                  BKN008  >                    >  SPECI
 0103  1   800  1   800  7.00                  BKN008  >
0104  1  1300  3  1300  7.00                 BKN008  >
 0105  1  1300  1  1300  7.00           BKN008 BKN013  >
 0106  3  1300  1  1300  7.00           BKN008 BKN013  >
 0107  1  1300  1  1300  7.00           BKN008 BKN013  >
 0108  1  1300  1  1300  7.00           SCT008 BKN013  >                     > SPECI
 0109  2  2200  1  2200  7.00           SCT008 BKN013  >
 0110  1  2200  1  2200  7.00    SCT008 BKN013 BKN022  >
 0111  1  2200  1  2200  7.00    SCT008 BKN013 BKN022  >
 0112  1  2200  1  2200  7.00    SCT008 BKN013 BKN022  >
 0113  2  2200  1  2200  7.00    SCT008 BKN013 BKN022  >
 0114  1  2200  1  2200  7.00    SCT008 BKN013 BKN022  >                     > SPECI
 0115  1  3000  2  3000  7.00    SCT008 BKN013 BKN022  >
 0116  1  3000  1  3000  7.00    SCT008 BKN013 OVC030  >
 0117  1  3000  1  3000  7.00    SCT008 BKN013 OVC030  >
 0118  1  3000  1  3000  7.00    SCT008 BKN022 OVC030  >
 0119  1  3000  1  3000  7.00    SCT008 BKN022 OVC030  >
 0120  1  3000  1  3000  7.00    SCT008 BKN022 OVC030  >               >
```

```
 0121  1  3000  1  3000  7.00    SCT008 BKN022 OVC030  >               >
 0122  1  3000  5 /////  7.00    SCT008 BKN022 OVC030  >               >
 0123  0 /////  0 /////  7.00    FEW008 BKN022 OVC030  >               >
 0124  5 /////  0 /////  7.00    FEW008 BKN022 OVC030  >               >
 0125  0 /////  0 /////  7.00    FEW008 SCT013 BKN022  >               >
 0126  0 /////  0 /////  7.00    FEW008 SCT013 BKN022  >                    >  SPECI
 0127  5 /////  0 /////  7.00    FEW008 SCT013 BKN030  >
 0128  0 /////  0 /////  7.00    FEW008 SCT022 BKN030  >
 0129  0 /////  0 /////  7.00    FEW008 SCT022 BKN030  >
 0130  0 /////  0 /////  7.00    FEW008 SCT022 BKN030  >
 0131  0 /////  0 /////  7.00    FEW013 SCT022 BKN030  >
 0132  0 /////  0 /////  7.00    FEW013 SCT022 BKN030  >
 0133  0 /////  0 /////  7.00    FEW013 SCT022 BKN030  >
 0134  0 /////  0 /////  7.00           FEW013 SCT030  >
 0135  0 /////  0 /////  7.00           FEW013 SCT030  >
 0136  0 /////  0 /////  7.00           FEW022 SCT030  >
 0137  5 /////  0 /////  7.00           FEW022 SCT030  >
 0138  0 /////  0 /////  7.00           FEW022 SCT030  >
 0139  5 /////  0 /////  7.00           FEW022 SCT030  >
 0140  0 /////  0 /////  7.00           FEW022 SCT030  >
0141  5 /////  0 /////  7.00                 FEW022  > *NOTE BELOW
 0142  0 /////  0 /////  7.00                  FEW030  >
 0143  0 /////  0 /////  7.00                  FEW030  >
 0144  0 /////  0 /////  7.00                  FEW030  >
 0145  0 /////  0 /////  7.00                  FEW030  >
 0146  0 /////  0 /////  7.00                  FEW030  >
 0147  0 /////  0 /////  7.00                  FEW030  >
 0148  0 /////  0 /////  7.00                  FEW030  >
 0149  0 /////  0 /////  7.00                  FEW030  >
 0150  0 /////  0 /////  7.00                     CLR  >
 0151  0 /////  0 /////  7.00                     CLR  >
 0152  0 /////  0 /////  7.00                     CLR  >
 0153  0 /////  0 /////  7.00                      MM  >
 0154  0 /////  0 /////  7.00                      MM  >
 0155  0 /////  0 /////  7.00                      MM  >
 0156  0 /////  0 /////  7.00                      MM  >

*NOTE: May see FEW022 SCT030 if timing is off when starting datasets.
```

# CL31-VV01: SKY VERTICAL VISIBILITY – Vaisala CL-31 Ceilometer

| Step No. | Operator Action | Expected Results | Comments | Result P | Result F |
|---|---|---|---|---|---|
| **This procedure tests the generation of vertical visibility (VV) reports during low visibility conditions. Use data set file CL31VV01.TXT. This test procedure may also be used to verify "plug and play" functionality by configuring the CT-12K ceilometer as a test sensor and using the data set file CT12KVV1.TXT. The sky condition reports generated from both sensors should remain in agreement throughout the test.**<br><br>**Time Required: 3 hours (1 ½ hours for sensor configured as a local sensor; 1 ½ hours as a remote sensor).** | | | | | |
| 1 | Sign on as a system manager.<br><br>Go to the **REVUE-SITE-PHYS** screen and ensure the "OBS HOURLY REPORT TIME" is set to ***50*** and "OBS EDIT TIME" is set to ***5***. | | Cold start of the system is not required prior to running this test. | | |
| 2 | Go to the **REVUE, SITE, CONFG, DEFIN** screen. Verify the Vaisala CL-31 ceilometer's configuration as "official" sensor. | The ceilometer's configuration set to CL-31. | | | |
| 3 | Go to the REVUE, SITE, CONFG, SENSR screen to configure L1 and V1 as ACU local sensors. Optionally, configure C1 as either a local sensor or remote sensor.<br><br>If the system is configured for multiple ceilometers and/or visibility sensors, remove them. (See option listed in "Comments" column.) | L1 and V1 are configured as ACU local sensors. | Configuring a Vaisala CT-12K ceilometer ("C1") as a test sensor is optional during this test. If configured, use the dataset specified in step 4 for CT-12K data. | | |

| | | | | | |
|---|---|---|---|---|---|
| 4 | ASENSE:<br><br>Use <F1> to set up for L1 and V1 sensors.<br><br>Use <F8> and set up dataset CL31VV01.TXT for L1. If CT-12K is configured, set up dataset CT12KVV1.TXT for C1. Do not start the datasets (leave the status of the datasets "off"). Use <F2> and set the detection status to 0 layers and measured value(1) = ///// for L1. Set layers = 0 and height = ///// for C1, if configured.<br><br>Use <F2> and set the extinction coefficient to 1.864 D for V1. Ensure Range Checking and Real Life are disabled. | Required local sensors are configured on ASENSE. | | | |
| 5 | Press REVUE-SENSR-STAT and turn on Report Processing for the visibility sensor. Leave ceilometer report processing off until step 9. | | | | |
| 6 | Go to the REVUE, SITE, PHYS and set the Field Elevation to 100 ft. | | | | |
| 7 | Go to the REVUE, SITE, CONFG, SENSR, ALGOR screen and set L1's elevation to 100 ft. | | | | |
| 8 | Go to the REVUE, SITE, CRIT screen and set the User's Ceiling criteria to 200. | | | | |
| 9 | Wait until the surface visibility of 1SM is displayed on the one-minute screen. Wait until 10 minutes of missing data for L1 is obtained. Press REVUE-SENSR-STAT and turn on Report Processing for the ceilometer. | | Note: A Special Pending might be created. | | |
| 10 | ASENSE: Press <F8> to get to the dataset screen. Press F10 twice to set the Status of the datasets to ON (NOTE: Start the dataset at second 15 if configured as a local sensor. Start the dataset at second 55 if configured as a remote sensor.). | | Start the ceilometer(s) configured as a remote sensor first between second 55 and 58, then start any local ceilometer(s) between second 15 and 18. | | |

| | | | | | |
|---|---|---|---|---|---|
| 11 | Verify the system results on the 1-MIN screen as follows:<br><br>**TIME SKY SPECIAL**<br><br>**0001 - 0029 MM**<br>**0030 - 0031 CLR**<br>**0032 VV003 Y**<br>**0033 - 0046 VV003**<br>**0047 - 0051 BKN003 BKN015**<br>**0052 BKN003 BKN015 BKN022**<br>**0053 - 0054 SCT003 BKN015 BKN022 Y**<br>**0055 SCT003 BKN015 OVC031**<br>**0056 – 0057 SCT003 BKN015 BKN022**<br><br>You may also use the file CL31VV01.PRN below for verification. | All sky conditions have been verified. | Transmit SPECIs early if desired. | | |
| 12 | Repeat steps 3 – 11, configuring the CL31 ceilometer as a remote sensor. | | If CT-12K was configured during the first iteration of this test, it may be deconfigured during the repeat of the test. | | |

**Test Report:**

Date:_____ Pass/Fail_____ Run By: _____

Start Time: _____ End Time: _____ Witnessed By: _____

Comments/Deficiencies: _____
_____

TABLE 1 - DATASET

```
;
;                          MET
;      SENSOR DATA         10MN            METAR                    METAR
;TIME  N   HT1  N   HT2    VSBY  ASOS SKY CONDITION REPORT          REMARKS                  ALERTS
;----  -  ----  -  ----    ----  ------------------------  ------------------------  ------------------------
 0001  5 /////  0 /////  1.00                      MM >
 0002  0 /////  0 /////  1.00                      MM >
 0003  0 /////  0 /////  1.00                      MM >
 0004  5 /////  0 /////  1.00                      MM >
 0005  0 /////  0 /////  1.00                      MM >
 0006  0 /////  0 /////  1.00                      MM >
 0007  0 /////  0 /////  1.00                      MM >
 0008  0 /////  0 /////  1.00                      MM >
 0009  0 /////  0 /////  1.00                      MM >
 0010  0 /////  0 /////  1.00                      MM >
 0011  0 /////  0 /////  1.00                      MM >
 0012  0 /////  0 /////  1.00                      MM >
 0013  0 /////  0 /////  1.00                      MM >
 0014  0 /////  0 /////  1.00                      MM >
 0015  0 /////  0 /////  1.00                      MM >
 0016  0 /////  5 /////  1.00                      MM >
 0017  5 /////  0 /////  1.00                      MM >
 0018  5 /////  0 /////  1.00                      MM >
 0019  0 /////  0 /////  1.00                      MM >
 0020  0 /////  0 /////  1.00                      MM >
 0021  0 /////  5 /////  1.00                      MM >
 0022  0 /////  0 /////  1.00                      MM >
 0023  0 /////  0 /////  1.00                      MM >
 0024  0 /////  0 /////  1.00                      MM >
 0025  0 /////  0 /////  1.00                      MM >
 0026  0 /////  0 /////  1.00                      MM >
 0027  0 /////  0 /////  1.00                      MM >
 0028  0 /////  0 /////  1.00                      MM >
 0029  0 /////  0 /////  1.00                      MM >
 0030  0 /////  0 /////  1.00                     CLR  >
 0031  1   300  1   300  1.00                     CLR  >
 0032  1   300  1   300  1.00                   VV003  >                                        SPECI >
 0033  4   300  4   300  1.00                   VV003  >
 0034  4   300  4   300  1.00                   VV003  >
 0035  4   300  4   300  1.00                   VV003  >
 0036  4   300  4   300  1.00                   VV003  >
 0037  4   300  4   300  1.00                   VV003  >
 0038  4   300  4   300  1.00                   VV003  >
 0039  4   300  4   300  1.00                   VV003  >
0040  4   300  4   300  1.00                  VV003  >
 0041  4   300  1   300  1.00                   VV003  >
 0042  1   300  1   300  1.00                   VV003  >
 0043  1   300  1   300  1.00                   VV003  >
 0044  1   300  1   300  1.00                   VV003  >
 0045  1   300  1   300  1.00                   VV003  >
 0046  1  1500  1  1500  1.00                   VV003
```

```
0047  1  1500  1  1500  1.00              BKN003 BKN015
0048  2  1500  1  1600  1.00              BKN003 BKN015
0049  1  1600  1  1600  1.00              BKN003 BKN015
0050  1  1600  1  1600  1.00              BKN003 BKN015
0051  1  2200  1  2200  1.00              BKN003 BKN015
0052  2  2200  1  2200  1.00              BKN003 BKN015 BKN022
0053  1  2200  1  3100  1.00              SCT003 BKN015 BKN022                        SPECI
0054  1  3100  2  3100  1.00              SCT003 BKN015 BKN022
0055  1  3100  1  3100  1.00              SCT003 BKN015 OVC031
0056  0 /////  0 /////  1.00              SCT003 BKN015 BKN022
0057  0 /////  0 /////  1.00              SCT003 BKN015 BKN022
```