CL31 Sensor Interface Test – Single Cabinet ASOS sensor (SIT test 4.4)

The SCA procedure demonstrates installation and configuration of the replacement ceilometer on an ASOS SCA without DCP. As there are no SCA installations with unused pedestals, there will be no installations which can support re-installation of the CT-12K as a test sensor after the CL31 replacement ceilometer is installed, this procedure will only demonstrate installation of the replacement ceilometer after removal of a legacy sensor, although a legacy sensor will be configured initially to demonstrate data ingest. The initial ASOS configuration will be a SCA with an extensive configuration of sensors, all of which are simulated using ASENSE. The configuration includes Primary Ceilometer as local sensor 1, and Ice Free Wind sensor, LEDWI, Visibility sensor, Temperature sensor, and Dewpoint sensor. The replacement ceilometer will interface to the ACU via a fiber optic interface. This procedure will be performed using ASOS System 1S2 located in the Software Branch ASOS laboratory at NWS Headquarters (6th floor). Because this is an indoor test, the Vaisala Termination Hood must be used to allow the replacement ceilometer to be operational. Initaally all sensor will be simulated using ASENSE. The replacement ceilometer will be interfaced to the ACU using Fiber Optic Cables. AC power will be provided to the ceilometer directly from Electronics and Heater circuit breaker pair in the Single Cabinet ASOS as is typical at SCA locations.

This procedure requires that the CL-31 replacement ceilometer be installed, configured and be operational on the SCA as a local sensor. This procedure should be executed after the SCA local sensor installation procedure is successfully completed.

It is anticipated that this procedure will be witnessed by representatives of the Office of Operational Systems (Observing Systems Branch – OPS22, Test and Evaluation Branch – OPS24, Maintenance Assurance Branch –OPS12, the Federal Aviation Administration, the Navy, and the Air Force.

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
1	Ensure the SCA is operational by observing the 1-minute screen. Verify that the termination hood is installed on the ceilometer. Verify that AC power has been removed from the ceilometer for a minimum of 5 minutes.	ASOS time is updating on OID 1-minute screen	Complete the Date, Start Time, Executed By, and ceilometer serial number entries in the test record.	P	
2	From the 1-minute screen, depress the following menu keys to verify proper SCA software configuration: **REVUE-SITE-VERSN-SW**	The MEMORY ACU APPLICATION VERSION EPROM Version is 2.79S dated 03/18/08	PRINT the final configuration and attach to the test report	P	
3	From the 1-minute screen, depress the following menu keys to verify proper ceilometer configuration: **REVUE-SITE-CONFIG-DEFINE**	Verify that the CEILOMETER is set to CL31. If CL31 is not defined as indicated, log onto the system as TECHNICIAN and **define** it.	PRINT the final configuration and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
4	From the 1-minute screen, depress the following menu keys to verify proper ceilometer configuration: **REVUE-SITE-CONFIG-SENSR**	Verify that local sensor 1 is set to **L1.** Verify that C1 is **NOT configured** as a local sensor.	If L1 is not defined as indicated, log onto the system as TECHNICIAN and configure it. If C1 is defined, log onto the system as TECHNICIAN and de-configure it. PRINT the final configuration and attach to the test report	P	
5	From the 1-minute screen, depress the following menu keys to verify proper ceilometer configuration: **REVUE-SITE-CONFIG-COMS**	Verify that SIO board 5 Port 1 is set to Local Sensor #1.	PRINT the final configuration and attach to the test report	P	
6	Observe the sky condition field on the 1-minute screen.	Verify that the sky condition is displayed as "**MM**" indicating missing.	PRINT the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
7	From the 1-minute screen depress the following menu keys to verify data is NOT being reported from the ceilometer which is not powered on: **REVUE-SENSR-12HR** and depress **PAGE** until CL31 #1 page is displayed.	Verify that the ceilometer data is displayed as "**M**" or "**[M]**" indicating missing.	PRINT the sensor data screen and attach to the test report	P	
8	Depress the following menu keys to display the TEST ceilometer data page: **TEST** and depress **PAGE** until the test ceilometer data page is displayed.	Verify that the test ceilometer data is displayed as a blank		P	
9	From the 1-minute screen depress the following menu keys to display the ceilometer status page: **REVUE-SENSR-STAT**	Verify that the CL31 #1 is displayed as failed for Selftest and Data Quality. Verify that Report Processing for the CL31 is set to **OFF.** If report processing is set to **ON**, turn report processing **OFF**.	If report processing is set to **ON**, log onto the system as TECHNICIAN turn CL31 report processing **OFF**.	P	
10	From the 1-minute screen depress the following menu keys to verify data is being reported from the ceilometer: **REVUE-SENSR-DATA** and depress **PAGE** until Ceilometer page is displayed.	Verify that the ceilometer data is displayed as "**M**".	PRINT the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
11	From the 1-minute screen, log onto the ASOS system as OBSERVER Depress the following menu keys to generate and transmit a Special: **GENOB-SPEC-XMIT**	Verify that the OID indicates that the system is "transmitting observation". When the "transmitting observation" indication is no longer displayed, verify that the Special observation on the 1-minute screen does not contain a sky condition report.	Print	P	
12	From the 1-minute screen depress the following menu keys to verify that no data is being reported from the ceilometer **REVIEW-RPT-5MIN**	Verify that the current 5-min observation does not contain a sky condition report	Print	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
13	From the 1-minute screen, log onto the ASOS system as TECHNICIAN Depress the following menu keys to access the define page: **REVUE-SITE-CONFIG-DEFIN** Depress **CHANG-SEQN-BACK** to define CEILOMETER as CT-12K Depress **BACK** to save the configuration **Wait 1 minute before proceeding** Depress **CHANG-SEQN-EXIT** to re-define CEILOMETER as CL31 Depress **REVUE-SYSLOG** to view syslog entries	Verify that message 1518 (CT-12K is the official ceilometer sensor) is displayed and immediately followed by message 1517 (CL31 is the official ceilometer sensor) After 1 minute, observe that a "Check the SYSLOG" message is displayed on the 1-minute screen	Print	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
14	From the 1-minute screen depress the **MAINT** menu key to access the maintenance screen. Depress **SEL** to select the ACU maintenance screen Depress **NEXT** until CL31#1 is highlighted and depress **SEL**	Verify that on the ACU maintenance screen, the ACU is indicated as Failed Verify that on the CL31#1 maintenance page, the sensor parameters are indicated as asterisk, and the Sensor Response and Data Quality are indicated as Failed.	P	P	
15	Apply AC power to the Ceilometer by setting the external circuit breakers to the ON position. Verify that the internal CL31 breakers for Electronics and Heaters are set to the on position. **<u>Wait 2 minutes before proceeding</u>** From the 1-minute screen depress the following menu keys to verify data is being reported from the ceilometer: **REVUE-SENSR-12HR** and depress **PAGE** until CL31 #1 page is displayed	Ceilometer powers on and begins to provide 12 hour data. Verify that the ceilometer data is displayed as clear sky ("/////" for first, second and third layer) and that the data is within brackets.	P	P	
16	Depress **TEST-PAGE** to display the test sensor data page	Verify that Ceilometer #1 is displayed with blank data	P	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
17	From the 1-minute screen depress the following menu keys to verify data is being reported from the ceilometer: **REVUE-SENSR-DATA** and depress **PAGE** until CL31 #1 page is displayed	Verify that the ceilometer data is displayed as clear sky ("/////" for all reports)	P	P	
18	Observe the SKY condition report on the 1-minute screen	Verify that the SKY condition is reported as missing (**MM**)		P	
19	From the 1-minute screen, log onto the ASOS system as OBSERVER Depress the following menu keys to generate and transmit a Special: **GENOB-SPEC-XMIT**	Verify that the OID indicates that the system is "transmitting observation". When the "transmitting observation" indication is no longer displayed, verify that the Special observation on the 1-minute screen does not contain a sky condition report.		P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
20	From the 1-minute screen depress the following menu keys to verify data is being reported from the ceilometer **REVIEW-RPT-5MIN**	Verify that the current 5-min observation does not contain a sky condition report.	P	P	
21	From the 1-minute screen depress the following menu keys to display the ceilometer status page: **REVUE-SENSR-STAT**	Verify that the CL31 #1 is displayed as passed for Selftest and failed for Data Quality.	P	P	
22	From the 1-minute screen log onto the ACU as Technician Depress the **MAINT** menu key to access the maintenance screen. Depress **SEL** to select the ACU maintenance screen Depress **NEXT** until CL31#1 is highlighted and depress **SEL**	Verify that on the ACU maintenance screen, the ACU is indicated as Failed Verify that on the CL31#1 maintenance page, the sensor parameters are indicated as pass, the Sensor Response is indicated as pass, and Data Quality is indicated as Failed.	P	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
23	Depress the **TEST** menu key to cause the sensor to run built-in test **Wait 30 minutes before proceeding**	Verify that after approx. one minute, the sensor test status is displayed as pass, the Sensor Response is indicated as pass, and Data Quality is indicated as Failed.		P	
24	From the 1-minute screen, depress the following menu keys to display the SYSLOG: **REVUE-SYSLOG**	Verify that the syslog indicates that the CL31 #1 is operative		P	
25	From the 1-minute screen, depress the following menu keys to display the sensor status: **REVUE-SENSR-STAT**	Verify that the CL31 #1 is displayed as passed for Selftest and for Data Quality.		P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
26	From the 1-minute screen log onto the ACU as Technician Depress the following menu keys to display the sensor status: **REVUE-SENSR-STAT** Depress **NEXT** until CL31#1 is highlighted. Depress the **PROC** menu key to turn report processing on for the CL31	Verify that report processing is displayed as ON		P	
27	From the 1-minute screen, depress the following menu keys to display the SYSLOG: **REVUE-SYSLOG**	Verify that the syslog indicates that report processing has been turned on for the CL31 #1.		P	
28	From the 1-minute screen depress the following menu keys to view sensor data: **REVUE-SENSR-12-HR**	Verify that the ceilometer data for the next update is displayed as clear sky ("/////" for first, second and third layer) and that no brackets are displayed around the data		P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
29	From the 1-minute screen depress the following menu keys to view sensor data: **REVUE-SENSR-DATA**	Verify that the ceilometer data for the next update is displayed as clear sky ("/////" for first, second and third layer) .		P	
30	On the 1-minute screen observe the SKY condition	Verify that the sky condition is displayed as **CLR**		P	
31	From the 1-minute screen, log onto the ASOS system as OBSERVER Depress the following menu keys to generate and transmit a Special: **GENOB-SPEC-XMIT**	Verify that the OID indicates that the system is "transmitting observation". When the "transmitting observation" indication is no longer displayed, verify that the Special observation on the 1-minute screen indicates that the sky condition is clear (e.g. – **CLR** is reported).		P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
32	From the 1-minute screen depress the following menu keys to verify data is being reported from the ceilometer **REVIEW-RPT-5MIN**	Verify that the 5-min observation which is recorded following the SPECI issued in the step above indicates that the sky condition is clear (e.g. – **CLR** is reported).		P	
33	Remove AC power from the ceilometer by setting the controlling circuit breaker to the off position **Wait 2 minutes before proceeding** From the 1-minute screen depress the following menu keys to access the SYSLOG: **REVIEW-SYSLOG**	Verify that the SYSLOG indicates "1515 CL31 #1 Sensor Response Timeout"		P	
34	Observe the sky condition field on the 1-minute screen.	Verify that the sky condition is displayed as "**MM**" indicating missing.	PRINT the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
35	From the 1-minute screen depress the following menu keys to verify data is NOT being reported from the ceilometer which is not powered on: **REVUE-SENSR-12HR** and depress **PAGE** until CL31 #1 page is displayed.	Verify that the ceilometer data is displayed as "**M**" or "**[M]**" indicating missing.	PRINT the sensor data screen and attach to the test report	P	
36	From the 1-minute screen depress the following menu keys to display the ceilometer status page: **REVUE-SENSR-STAT**	Verify that the CL31 #1 is displayed as failed for Selftest and Data Quality.	.	P	
37	From the 1-minute screen depress the following menu keys to verify data is being reported from the ceilometer: **REVUE-SENSR-DATA** and depress **PAGE** until Ceilometer page is displayed.	Verify that the ceilometer data is displayed as "**M**".	PRINT the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
38	From the 1-minute screen, log onto the ASOS system as OBSERVER Depress the following menu keys to generate and transmit a Special: **GENOB-SPEC-XMIT**	Verify that the OID indicates that the system is "transmitting observation". When the "transmitting observation" indication is no longer displayed, verify that the Special observation on the 1-minute screen does not contain a sky condition report.		P	
39	From the 1-minute screen depress the following menu keys to verify that no data is being reported from the ceilometer **REVIEW-RPT-5MIN**	Verify that the 5-min observation which is issued after the SPECIAL generated above does not contain a sky condition report		P	
40	Log off of the ASOS OID and remove power from the CL31 ceilometer	Complete remaining sections of the test report.		P	

Test Results : SCA Interface test

Test Date: 7/24/08

Start Time: 11:00 a.m

Executed By (print) : John Monte

(print) : Khien Nyygen

End Time: 12³⁰

Test Result (Pass/Fail): Pass

Ceilometer Serial Number: C3530007

Result Certified By (signature): John Monte

Comments/Deficiencies:

Witnessed by:

Name	Representing
Chris V. Arkins	OPS 22
Rick Parry	OPS 22
Bing Huang	FAA
Guy Sikora	OPS12
Khien Bangwyen	OPS24

SINGLE CABINET ASOS INTERFACE TEST RESULT NOTES:

CL31 Sensor Interface Test – Remote (DCP) ASOS sensor (SIT test 4.2)

The Remote Sensor (DCP) procedure demonstrates integration of the replacement ceilometer as a remote sensor in a multiple DCP system configuration. This procedure requires installation of three replacement ceilometers after removal of three legacy sensors, and subsequent installation and configuration of one legacy sensor as a "test" sensor. . Note that the ASOS ACU software DOES NOT SUPPORT configuration of a test sensor (i.e. – CT-12K) with more than one replacement ceilometer due to communication bandwidth limitations. The Sterling Research and Development Center "ST0" ASOS, which has three DCPs, will be used for this test. This system is typically configured to emulate a normally configured ASOS system, with full complement of sensors. No special sensor configuration will be required for this test, except that the the ASOS will have three DCPs enabled, each DCP will contain a legacy ceilometer, and the official sensor will be defined to be the CL31. In addition, there will be one legacy sensor (CT-12K) installed and configured such that it functions as a "test" ceilometer. The ASOS will have a Primary Official sensor (C1), Backup sensor(C3) and Meteorological Discontinuity (C2) sensor) and the legacy test sensor distributed among the three DCPs such that each DCP has a minimum of one sensor. When the ASOS is configured to support the test sensor, only the Official Primary sensor will be configured. The test sensor will be deconfigured during tests which demonstrate Backup and/or Meteorological Discontinuity sensors. Because this is an outdoor test, the Vaisala Termination Hood will not be used continuously, however it will be used to force each individual ceilometer to artificially report a clear sky condition in order to demonstrate the correspondence between each physical ceilometer and the data which it is configured to provide. (i.e., demonstrate that the Official Primary sensor data is recorded as CL31#1, the Meteorological Discontinuity sensor data is recorded as CL31 # 2 and the Backup sensor data is recorded as CL31 #3). Note that the Termination Hood emulates a clear sky condition.

This procedure requires that the CL-31 replacement ceilometers be installed, configured and be operational on the ASOS all as remote sensors, and that and one legacy CT12-K be installed and when appropriate configured. This procedure should be executed after the Remote sensor installation procedure is successfully completed.

It is anticipated that this procedure will be witnessed by representatives of the Office of Operational Systems (Observing Systems Branch – OPS22, Test and Evaluation Branch – OPS24, Maintenance Assurance Branch –OPS12, the Federal Aviation Administration, the Navy, and the Air Force.

Step No.	Operator Action	Expected Results	Comments	Results P	F
1	Ensure the ASOS is operational by observing the 1-minute screen. Remove AC power from all ceilometers by setting the power control modules to the off position. **Wait 5 minutes before proceeding**.	ASOS time is updating on OID 1-minute screen	Complete the Date, Start Time, and Executed By on the test record. Copy the ceilometer configuration information from the test report of procedure 1-3 (Remote sensor installation/ configuration)	P	
2	From the 1-minute screen, depress: **REVUE-SITE-VERSN-SW** screen and ensure that the ACU and DCP software versions are correct.	The *MEMORY ACU APPLICATION VERSION EPROM* Version is 2.79S dated *03/18/08*, that for each DCP: 1) the *CPU-A and CPU-B BOOT EPROM* is Version is 2.0 dated *05/02/06* 2) the *MEMORY DCP APPLICATION RAM* Version is 2.79S dated *03/18/08*	If the specified software versions are no installed, install them before proceeding. PRINT the software version information and attach to the test report	Conditional Now ceilometer issue	

NOTE: CPU B NOT INSTALLED AND SO NO INFO. DISPLAYED FOR DCP #3

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
3	From the 1-minute screen, depress the following menu keys to verify proper ceilometer configuration: **REVUE-SITE-CONFIG-DEFINE**	Verify that the CEILOMETER is set to CL31. If CL31 is not defined as indicated, log onto the system as TECHNICIAN and **define** it.	PRINT the final configuration and attach to the test report.	P	
4	From the 1-minute screen, depress the following menu keys to verify proper ceilometer configuration: **REVUE-SITE-CONFIG-SENSR**	Verify that a replacement ceilometer (i.e. – L1) is configured and that L2 and L3 are not configured. Verify that a legacy test sensor (i.e. - C1) is configured and that C2 and C3 are not configured.	If the configuration is not as specified, log onto the system as TECHNICIAN and correct it. PRINT the final configuration and attach to the test report	P	
5	Observe the sky condition field on the 1-minute screen.	Verify that the sky condition is displayed as "**MM**" indicating missing.	PRINT the sensor data screen and attach to the test report	P	
6	From the 1-minute screen depress the following menu keys to verify data is NOT being reported from the ceilometer which is not powered on: **REVUE-SENSR-12HR** and depress **PAGE** until CL31 #1 page is displayed.	Verify that the ceilometer data is displayed as "**M**" or "**[M]**" indicating missing.	PRINT the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
7	Depress the following menu keys to display the TEST ceilometer data page: **TEST** and depress **PAGE** until the test ceilometer data page is displayed.	Verify that the current test ceilometer data is displayed as a blank	PRINT the test ceilometer data screen and attach to the test report.	P	
8	From the 1-minute screen depress the following menu keys to display the ceilometer status page: **REVUE-SENSR-STAT**	Verify that the CL31 #1 is displayed as failed for Selftest and Data Quality. Verify that Report Processing for the CL31 is set to **OFF.** If report processing is set to **ON**, turn report processing **OFF**.	If report processing is set to **ON**, log onto the system as TECHNICIAN turn CL31 report processing **OFF**. PRINT the sensor status screen and attach to the test report	P	
9	From the 1-minute screen depress the following menu keys to verify data is being reported from the ceilometer: **REVUE-SENSR-DATA** and depress **PAGE** until CL31 # 1 page is displayed.	Verify that the ceilometer data is displayed as "**M**".	PRINT the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
10	From the 1-minute screen, log onto the ASOS system as OBSERVER Depress the following menu keys to generate and transmit a Special: **GENOB-SPEC-XMIT**	Verify that the OID indicates that the system is "transmitting observation". When the "transmitting observation" indication is no longer displayed, verify that the Special observation on the 1-minute screen does not contain a sky condition report.	PRINT the 1-minute screen and attach to the test report	P	
11	From the 1-minute screen depress the following menu keys to verify that no data is being reported from the ceilometer **REVIEW-RPT-5MIN**	Verify that the current 5-min observation does not contain a sky condition report	PRINT the 5-minute obs screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
12	From the 1-minute screen, log onto the ASOS system as TECHNICIAN Depress the following menu keys to access the define page: **REVUE-SITE-CONFIG-DEFIN** Depress **CHANG-SEQN-BACK** to define CEILOMETER as CT-12K Depress **BACK** to save the configuration **Wait 1 minute before proceeding** Depress **CHANG-SEQN-EXIT** to re-define CEILOMETER as CL31 Depress **REVUE-SYSLG** to view syslog entries	After 1 minute, observe that a "Check the SYSLOG" message is displayed on the 1-minute screen Verify that message 1518 (CT-12K is the official ceilometer sensor) is displayed and is followed by message 1517 (CL31 is the official ceilometer sensor)	PRINT the SYSLOG screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
13	From the 1-minute screen depress the **MAINT** menu key to access the maintenance screen. Depress **NEXT** then **SEL** to select the DCP with the Official Primary ceilometer maintenance screen Depress **NEXT** until CL31#1 is highlighted and depress **SEL**	Verify that on the DCP maintenance screen, the DCP is indicated as Failed Verify that on the CL31#1 maintenance page, the sensor parameters are indicated as asterisk, and the Sensor Response and Data Quality are indicated as Failed.	PRINT the maintenance screen and attach to the test report	P	
14	Apply AC power to the replacement and legacy Ceilometers by setting the power control module circuit breakers to the ON position. Verify that the internal CL31 breakers for Electronics and Heaters are set to the on position. **<u>Wait 2 minutes before proceeding</u>** From the 1-minute screen depress the following menu keys to verify data is being reported from the ceilometer: **REVUE-SENSR-12HR** and depress **PAGE** until CL31 #1 page is displayed	Ceilometer powers on and begins to provide 12 hour data. Verify that the ceilometer data is reported and that the data is within brackets.	**NOTE: - To allow easy differentiation between data produced by the CL31 and data produced by the CT-12K, it is permissible to install the termination hood on the CL31 which results in a report of clear sky below 25000 feet.** PRINT the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
15	Depress **TEST-PAGE** to display the test CEILOMETER data page	Verify that Ceilometer #1 data is displayed.	PRINT the test sensor data screen and attach to the test report	P	
16	From the 1-minute screen depress the following menu keys to verify data is being reported from the ceilometer: **REVUE-SENSR-DATA** and depress **PAGE** until CL31 #1 page is displayed	Verify that the ceilometer data is displayed.	PRINT the sensor data screen and attach to the test report	P	
17	Observe the SKY condition report on the 1-minute screen	Verify that the SKY condition is reported as missing (**MM**)	PRINT the 1-minute screen and attach to the test report	P	
18	From the 1-minute screen, depress the following menu keys to verify proper ceilometer configuration: **REVUE-SITE-CONFIG-DEFINE** Depress **CHANG-SEQN-BACK** to define CEILOMETER as CT-12K **Wait for 2 minutes before proceeding.**	Verify that the CEILOMETER is set to CT-12K	PRINT the final configuration and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
19	From the 1-minute screen depress the following menu keys to verify data is being reported from the ceilometer: **REVUE-SENSR-12HR** and depress **PAGE** until CEILOMETER #1 page is displayed	Verify that the ceilometer data is reported and that the data is within brackets.	**NOTE: - To allow easy differentiation between data produced by the CL31 and data produced by the CT-12K, it is permissible to install the termination hood on the CL31..** PRINT the sensor data screen and attach to the test report	P	
20	Depress **TEST-PAGE** to display the test ceilometer data page	Verify that CL 31 #1 data is displayed.	PRINT the test sensor data screen and attach to the test report	P	
21	From the 1-minute screen depress the following menu keys to verify data is being reported from the ceilometer: **REVUE-SENSR-DATA** and depress **PAGE** until CEILOMETER #1 page is displayed	Verify that the current ceilometer data is displayed.	PRINT the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
22	From the 1-minute screen, depress the following menu keys to verify proper ceilometer configuration: **REVUE-SITE-CONFIG-DEFINE** Depress **CHANG-SEQN-BACK** to define CEILOMETER as CL31 **Wait for 2 minutes before proceeding**	Verify that the CEILOMETER is set to CL31.	PRINT the final configuration and attach to the test report	P	
23	From the 1-minute screen depress the following menu keys to display the ceilometer status page: **REVUE-SENSR-STAT**	Verify that the CL31 is displayed as passed for Selftest and failed for Data Quality.	PRINT the sensor status screen and attach to the test report	P	
24	From the 1-minute screen log onto the ACU as Technician Depress the **MAINT** menu key to access the maintenance screen. Depress **SEL** to select the DCP containing the Official Primary ceilometer maintenance screen Depress **NEXT** until CL31#1 is highlighted and depress **SEL**	Verify that on the DCP maintenance screen, the DCP is indicated as Failed Verify that on the CL31 maintenance page, the sensor parameters are indicated as pass, the Sensor Response is indicated as pass, and Data Quality is indicated as Failed.	PRINT the sensor maintenance screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
25	Depress the **TEST** menu key to cause the sensor to run built-in test	Verify that after approx. one minute, the sensor test status is displayed as pass, the Sensor Response is indicated as pass, and Data Quality is indicated as Failed.		P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
26	From the 1-minute screen, depress the following menu keys and configure the ASOS as indicated: **REVUE-SITE-CONFIG-SENSR** De-configure the legacy sensor by depressing **CHANGE** then **NEXT** to position to the C1 entry and entering "**". Configure the SIO ports corresponding to the Meteorological Discontinuity and Backup sensor as L2 and L3 by depressing **NEXT** to position to the correct DCP SIO location and entering "**L2**", and "**L3**" as appropriate. Refer to the print obtained during step 1 of procedure 4.1-3 for sensor configuration DCP and SIO card/port numbers. Depress **EXIT** to effect configuration **<u>Restore AC Power to all ceilometer sensors</u>** **<u>Wait 30 minutes before proceeding</u>**	4-2 The configuration is correct.	PRINT the final configuration and attach to the test report	P	

36
30/6
1823

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
27	From the 1-minute screen, depress the following menu keys to display the SYSLOG: **REVUE-SYSLG**	Verify that the syslog indicates that the CL31 #1, CL31 # 2, and CL31 # 3 are operative	PRINT the SYSLOG screen and attach to the test report	P	
28	From the 1-minute screen, depress the following menu keys to display the sensor status: **REVUE-SENSR-STAT**	Verify that the CL31 #1, CL31 #2, and CL31 #3 are displayed as passed for Selftest and for Data Quality.	PRINT the sensor status screen and attach to the test report	P	
29	From the 1-minute screen log onto the ACU as Technician Depress the following menu keys to display the sensor status: **REVUE-SENSR-STAT** Depress **NEXT** until CL31#1 is highlighted. Depress the **PROC** menu key to turn report processing on for CL31 #1 and enter initials	Verify that report processing for **all three** CL31 sensors are displayed as ON	PRINT the sensor status screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
30	From the 1-minute screen, depress the following menu keys to display the SYSLOG: **REVUE-SYSLOG**	Verify that the syslog indicates that report processing has been turned on for the **CL31 SENSORS**	PRINT the Syslog screen	P	
31	From the 1-minute screen depress the following menu keys to view sensor data: **REVUE-SENSR-12-HR** and depress **PAGE** data for CL31#1 is displayed Depress **PAGE** to display data for CL31#2 Depress **PAGE** to display data for CL31#3 Depress **TEST** then **PAGE** to display data for the CT12-K test sensor.	For each of the 4 pages, verify that the ceilometer data for the next update is displayed and that no brackets are displayed around the data Verify Blank For Test Sensor	PRINT the four sensor data screens and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
32	From the 1-minute screen depress the following menu keys to view sensor data: **REVUE-SENSR-DATA** Depress **PAGE** until data for CL31#1 is displayed Depress **PAGE** to display data for CL31#2 Depress **PAGE** to display data for CL31#3	For each of the ~~4~~ 3 pages, verify that the ceilometer data for the next update is displayed	PRINT the sensor data screens and attach to the test report	P	
33	On the 1-minute screen observe the SKY condition	Verify that a valid sky condition is displayed	PRINT the 1-minute screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
34	From the 1-minute screen, log onto the ASOS system as OBSERVER Depress the following menu keys to generate and transmit a Special: **GENOB-SPEC-XMIT**	Verify that the OID indicates that the system is "transmitting observation". When the "transmitting observation" indication is no longer displayed, verify that the Special observation on the 1-minute screen indicates a valid sky condition.	PRINT the 1-minute screen and attach to the test report	P	
35	From the 1-minute screen depress the following menu keys to verify data is being reported from the ceilometer **REVIEW-RPT-5MIN**	Verify that the 5-min observation which is recorded following the SPECI issued in the step above indicates a valid sky condition.	PRINT the 5-minute obs screen and attach to the test report	P	

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Step No.	Operator Action	Expected Results	Comments	Results P	Results F
36	From the 1-minute screen , log onto the ASOS system as TECHNICIAN From the 1-minute screen depress the **MAINT** menu key to access the maintenance screen. Depress ~~**SEL**~~ NEXT to select DCP 1 Depress **NEXT** until CL31 is highlighted and depress **SEL**	Verify that on the CL31 maintenance page, the sensor parameters are indicated as pass, the Sensor Response and Data Quality are indicated as Passed.	PRINT the sensor maint screen and attach to the test report	P	
37	Depress the **TEST** menu key to cause the sensor to run built-in test	Verify that after approx. one minute, the sensor test status is displayed as pass, the Sensor Response is indicated as pass, and Data Quality is indicated as Passed.	PRINT the sensor maint screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
38	Depress **BACK**, **BACK** to return to the Maintenance Screen. Depress **NEXT** to position to DCP-2 Depress **SEL** to select DCP-2 Depress **NEXT** until CL31 is highlighted and depress **SEL**	Verify that on the CL31 maintenance page, the sensor parameters are indicated as pass, the Sensor Response and Data Quality are indicated as Passed.	PRINT the sensor maint screen and attach to the test report	P	
39	Depress the **TEST** menu key to cause the sensor to run built-in test	Verify that after approx. one minute, the sensor test status is displayed as pass, the Sensor Response is indicated as pass, and Data Quality is indicated as Passed.	PRINT the sensor maint screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
40	Depress **BACK**, **BACK** to return to the Maintenance Screen. Depress **NEXT** to position to DCP-3 Depress **SEL** to select DCP-3 Depress **NEXT** until CL31 is highlighted and depress **SEL**	Verify that on the CL31 maintenance page, the sensor parameters are indicated as pass, the Sensor Response and Data Quality are indicated as Passed.	PRINT the sensor maint screen and attach to the test report	P	
41	Depress the **TEST** menu key to cause the sensor to run built-in test	Verify that after approx. one minute, the sensor test status is displayed as pass, the Sensor Response is indicated as pass, and Data Quality is indicated as Passed.	PRINT the sensor maint screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
42	Depress **BACK**, **BACK** to return to the Maintenance Screen. Depress **NEXT** repeatedly to position to the DCP containing the Official Primary CL31. Depress **SEL** to select the DCP Depress **NEXT** until CL31 is highlighted and depress SEL to display the maintenance page for the Official Primary CL31. Depress **POWER** **Wait for 2 minutes before proceeding**.	Verify that on the CL31 maintenance page, the sensor parameters are indicated as pass, the Sensor Response and Data Quality are indicated as Passed. Sensor Response Verify that after 1 minute, the ~~Power Status~~ indicates Fail and Power Control indicates OFF	PRINT the sensor data screen and attach to the test report	P ~~PARTIAL~~ Jm	
43	From the 1-minute screen, depress the following menu keys to display the sensor status: **REVUE-SENSR-STAT**	Verify that the Official Primary CL31 displayed as failed for Selftest and for Data Quality.	PRINT the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
44	From the 1-minute screen depress the following menu keys to verify data is NOT being reported from the ceilometer which is not powered on: **REVUE-SENSR-12HR** and depress **PAGE** until data for the Official Primary sensor is displayed.	Verify that the ceilometer data is displayed as "**M**" indicating missing.	PRINT the sensor data screen and attach to the test report	P	
45	From the 1-minute screen depress the following menu keys to view sensor data: **REVUE-SENSR-DATA** Depress **PAGE** until data for the Official Primary sensor is displayed	Verify that the ceilometer data is displayed as "**M**".	PRINT the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	F
46	From the 1-minute screen, log onto the ASOS system as OBSERVER Depress the following menu keys to generate and transmit a Special: **GENOB-SPEC-XMIT**	Verify that the OID indicates that the system is "transmitting observation". When the "transmitting observation" indication is no longer displayed, verify that the Special observation on the 1-minute screen indicates a valid sky condition generated from Backup ceilometer data.	PRINT the 1-minute screen and attach to the test report	P	
47	From the 1-minute screen depress the following menu keys to verify data is being reported from the ceilometer **REVIEW-RPT-5MIN**	Verify that the 5-min observation which is recorded following the SPECI issued in the step above indicates a valid sky condition generated from Backup ceilometer data.	PRINT the 5-min obs screen and attach to the test report	P	
48	Observe the sky condition field on the 1-minute screen. 1923	Verify that a valid sky condition is displayed.	PRINT the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
49	Depress the following menu keys to view the syslog: **REVUE-SYSLG**	Verify that the syslog contains the following messages: *1515 – CL31 #1 SENSOR RESPONSE TIMEOUT* *1520 – CL31 # 1 INOPERATIVE* *1516 – CL31 #1 DATA QUALITY FAILURE*	PRINT the syslog screen and attach to the test report	N/A	N/A

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
50	From the 1-minute screen , log onto the ASOS system as TECHNICIAN From the 1-minute screen depress the **MAINT** menu key to access the maintenance screen. Depress **SEL** to select the DCP containing the Official Primary ceilometer 1 Depress **NEXT** until CL31 is highlighted and depress **SEL** Depress **POWER** to restore power to the Official Primary sensor **Wait for 30 minutes before proceeding**	Verify that after 2 minutes sensor response and power status are set to PASS	PRINT the sensor maintenance screen and attach to the test report	P	
51	Depress the following menu keys to view the syslog: **REVUE-SYSLG**	Verify that the syslog contains the following messages: *1519 – CL31 #1 IS OPERATIVE*	PRINT the syslog screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
52	From the 1-minute screen depress the following menu keys to view data from the Official Primary sensor: **REVUE-SENSR-12HR** and depress **PAGE** until data for the CL31 # 1 sensor is displayed.	Verify that valid sky condition data is reported (from the Official Primary Sensor).	PRINT the sensor data screen and attach to the test report	P	
53	Install the Vaisala termination hood on the Official Primary Sensor. **Wait 5 minutes before proceeding**. From the 1-minute screen depress the following menu keys to verify clear sky data is reported from the Official Primary sensor: **REVUE-SENSR-12HR** and depress **PAGE** until data for the Official Primary sensor is displayed.	Verify that the termination hood causes the Official Primary sensor to report clear sky (e.g. - */////*).	PRINT the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
54	From the 1-minute screen depress the following menu keys to view data from the Met. Discontinuity sensor: **REVUE-SENSR-12HR** and depress **PAGE** until data for the CL31 # 2 sensor is displayed.	Verify that valid sky condition data is reported (from the Met. Discontinuity Sensor).	PRINT the sensor data screen and attach to the test report	P	
55	Install the Vaisala termination hood on the Met. Discontinuity Sensor. **Wait 5 minutes before proceeding**. From the 1-minute screen depress the following menu keys to verify clear sky data is reported from the Met. Discontinuity sensor: **REVUE-SENSR-12HR** and depress **PAGE** until data for the CL31 #2 sensor is displayed.	Verify that the termination hood causes the Met. Discontinuity sensor to report clear sky (e.g. - /////).	PRINT the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
56	From the 1-minute screen depress the following menu keys to view data from the Backup sensor: **REVUE-SENSR-12HR** and depress **PAGE** until data for the CL31 #3 sensor is displayed.	Verify that valid sky condition data is reported (from the Backup Sensor).	PRINT the sensor data screen and attach to the test report	P	
57	Install the Vaisala termination hood on the Backup Sensor. **Wait 5 minutes before proceeding**. From the 1-minute screen depress the following menu keys to verify clear sky data is reported from the Backup sensor: **REVUE-SENSR-12HR** and depress **PAGE** until data for the Backup sensor is displayed.	Verify that the termination hood causes the Backup sensor to report clear sky (e.g. - *////*).	PRINT the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
~~Xx~~ 58	**Remove the Vaisala Termination Hood from the Backup ceilometer.** From the 1-minute screen depress the **MAINT** menu key to access the maintenance screen. Depress **NEXT** repeatedly to position to the DCP containing the Meteorological Discontinuity CL31 Depress **SEL** to select the DCP Depress **NEXT** until CL31 is highlighted and depress SEL to display the maintenance page for the Meteorological Discontinuity CL31. Depress **POWER** **Wait for 2 minutes before proceeding.**	Sensor Response Verify that after 1 minute, the ~~Power Status~~ indicates Fail and Power Control indicates OFF	**PRINT** the sensor maintenance screen and attach to the test report	Pass ~~Partial~~	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
59	Depress the following menu keys to view the syslog: **REVUE-SYSLG**	Verify that the syslog contains the following messages: *1515 – CL31 #2 SENSOR RESPONSE TIMEOUT* *1520 – CL31 # 2 INOPERATIVE* *1516 – CL31 #2 DATA QUALITY FAILURE*	PRINT the syslog screen and attach to the test report	P	
60	From the 1-minute screen, depress the following menu keys to display the sensor status: **REVUE-SENSR-STAT**	Verify that the Meteorological Discontinuity CL31 displayed as failed for Selftest and for Data Quality.	**PRINT** the sensor status screen and attach to the test report	P	
61	From the 1-minute screen depress the following menu keys to verify data is NOT being reported from the ceilometer which is not powered on: **REVUE-SENSR-12HR** and depress **PAGE** until data for CL31 # 2 sensor is displayed.	Verify that the ceilometer data is displayed as "**M**" or "**[M]**" indicating missing.	**PRINT** the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
62	From the 1-minute screen depress the following menu keys to view sensor data: **REVUE-SENSR-DATA** Depress **PAGE** until data for the ~~Official~~ Met ~~Primary~~ Discon sensor is displayed	Verify that the ceilometer data is displayed as "**M**".	**PRINT** the sensor data screen and attach to the test report	P	
63	From the 1-minute screen depress the **MAINT** menu key to access the maintenance screen. Depress **NEXT** repeatedly to position to the DCP containing the Backup CL31 Depress **SEL** to select the DCP Depress **NEXT** until CL31 is highlighted and depress SEL to display the maintenance page for the Backup CL31. Depress **POWER** **<u>Wait for 2 minutes before proceeding</u>**.	Sensor Response Verify that after 1 minute, the ~~Power Status~~ indicates Fail and Power Control indicates OFF	**PRINT** the sensor maintenance screen and attach to the test report	PASS ~~PARTIAL~~	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
64	Depress the following menu keys to view the syslog: **REVUE-SYSLG**	Verify that the syslog contains the following messages: *1515 – CL31 #3 SENSOR RESPONSE TIMEOUT* *1520 – CL31 #3 INOPERATIVE* *1516 – CL31 #3 DATA QUALITY FAILURE*	PRINT the syslog screen and attach to the test report	P	
65	From the 1-minute screen, depress the following menu keys to display the sensor status: **REVUE-SENSR-STAT**	Verify that the Backup CL31 displayed as failed for Selftest and for Data Quality.	**PRINT** the sensor status screen and attach to the test report	P	
66	From the 1-minute screen depress the following menu keys to verify data is NOT being reported from the ceilometer which is not powered on: **REVUE-SENSR-12HR** and depress **PAGE** until data for CL31 #3 sensor is displayed.	Verify that the ceilometer data is displayed as "**M**" indicating missing.	**PRINT** the sensor data screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
67	From the 1-minute screen depress the following menu keys to view sensor data: **REVUE-SENSR-DATA** Depress **PAGE** until data for the CL31 #3 sensor is displayed	Verify that the ceilometer data is displayed as "**M**".	**PRINT** the sensor data screen and attach to the test report	P	
68	From the 1-minute screen depress the **MAINT** menu key to access the maintenance screen. Depress **NEXT** repeatedly to position to the DCP containing the Meteorlogical Discontinuity CL31. Depress **SEL** to select the DCP. Depress **NEXT** until CL31 is highlighted and depress SEL to display the maintenance page for the Meteorlogical Discontinuity CL31. Depress **POWER**	Verify that after 1 minute, the Power Status indicates Pass and Power Control indicates ON	**PRINT** the sensor maintenance screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
69	Depress **BACK**, **BACK** to display the maintenance screen. Depress **NEXT** repeatedly to position to the DCP containing the Backup CL31 Depress **SEL** to select the DCP Depress **NEXT** until CL31 is highlighted and depress SEL to display the maintenance page for the Backup CL31. Depress **POWER**	Verify that after 1 minute, the Power Status indicates Pass and Power Control indicates ON	**PRINT** the sensor maintenance screen and attach to the test report	P	
70	Depress the following menu keys to view the syslog: **REVUE-SYSLG** WAIT FOR 30 MINUTES	Verify that the syslog contains the following messages: *1519 – CL31 #2 IS OPERATIVE* *1519 – CL31 #3 IS OPERATIVE*	PRINT the syslog screen and attach to the test report	P	
71	Log off of the ASOS OID and remove power from the CL31 ceilometer		Complete the remainder of the Test Report	P	

Test Results : Remote (DCP) sensor interface test

Test Date: 8/10/2008

Start Time: 2:00pm

Executed By (print) : John MONTE

(print) :

End Time: 5:00pm

Test Result (Pass/Fail): ~~FAIL~~ PASS - 1 NON-integration issue PASSED Step 2, ~~42~~, ~~58~~ & ~~63~~

Ceilometer # 1 Serial Number: C3530008

Ceilometer # 2 Serial Number: C3530007

Ceilometer # 3Serial Number: C3530005

Legacy (test) Ceilometer S/N: 50849

Result Certified By (signature): John Monte

Comments/Deficiencies: FAILED - SEE NOTES PAGE - NON-integration issue

Witnessed by:

Name	Representing
Gerald Wayne Knight	DOD - Navy
[illegible]	SRC - NAVY
[illegible]	FAA
Bob Ben	DOD - AirForce
Rick Parry	NWS OPS22
[illegible]	NWS OPS24
J. [illegible]	NWS OPS24

REMOTE (DCP) ASOS SENSOR INTERFACE TEST RESULT NOTES:

1) STEP 2 - DCP #3 display incorrect for SW-VERSION
CPU A BOOT PROM SHOWN AS UNKNOWS
CPU B BOOT PROM NOT SHOWN

KNOWN S/W ERROR

2) STEP 42 POWER COMMANDED OFF AND SENSOR RESPONSE FAILED, BUT
POWER STATUS NEVER SET TO FAIL
STEP 58 & 63 Same Problemas Step 42

CONSISTANT WITH V2.79D
Prodedure Changed to validate using SENSOR RESPONSE

3) Test 53-56 deferred due to lack of clouds. accomplished 8/13 (CL31 #1), (CL31 #2) and 8/14 (CL31 #3)

CL31 Sensor Interface Test – Software Stability Test (SIT test 4.5)

The ASOS Software Stability test procedure demonstrates successful integration of the replacement ceilometer as a remote sensor in a multiple DCP system configuration executing for an extended period. This procedure requires installation of three replacement ceilometers, and one legacy sensor as a "test" sensor. . Note that the ASOS ACU software DOES NOT SUPPORT configuration of a test sensor (i.e. – CT-12K) with more than one replacement ceilometer due to communication bandwidth limitations. This test will primarily focus on a multiple DCP 3 ceilometer configuration, although the final 8 hours will demonstrate configuration of the CT-12K as a "test" sensor with a replacement ceilometer configured as the Official Primary sensor. The Sterling Research and Development Center "ST0" ASOS, which has three DCPs, will be used for this test. This system is typically configured to emulate a normally configured ASOS system, with full complement of sensors. No special sensor configuration will be required for this test, except that the the ASOS will have three DCPs enabled, each DCP will contain a legacy ceilometer, and the official sensor will be defined to be the CL31. In addition, there will be one legacy sensor (CT-12K) installed and configured such that it functions as a "test" ceilometer. The ASOS will have a Primary Official sensor (C1), Backup sensor(C3) and Meteorological Discontinuity (C2) sensor) and the legacy test sensor distributed among the three DCPs such that each DCP has a minimum of one sensor. When the ASOS is configured to support the test sensor, only the Official Primary sensor will be configured. The test sensor will be deconfigured during tests which demonstrate Backup and/or Meteorological Discontinuity sensors. Because this is an outdoor test, the Vaisala Termination Hood will not be required.

The duration of this test will be 72 continuous hours total, with 48 continuous hours dedicated to operation with three replacement ceilometers (e.g. – C1, C2 and C3) and 24 hours with the system operating with a Primary Official replacement ceilometer and a legacy "test" sensor.

This procedure requires that the CL-31 replacement ceilometers be installed, configured and be operational on the ASOS all as remote sensors, and that and one legacy CT12-K be installed and when appropriate configured. This procedure should be executed as the last SIT test.

It is anticipated that this procedure will be witnessed by representatives of the Office of Operational Systems (Observing Systems Branch – OPS22, Test and Evaluation Branch – OPS24, Maintenance Assurance Branch –OPS12, the Federal Aviation Administration, the Navy, and the Air Force.

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
1	Ensure the ASOS is operational by observing the 1-minute screen. Verify that a CL31 replacement ceilometer is installed at the Primary Official, Meteorological Discontinuity, and Backup sensor location and a legacy CT-12K sensor is installed. Apply AC power to all ASOS sensors, including ceilometers. **<u>Wait 30 minutes before proceeding</u>**.	ASOS time is updating on OID 1-minute screen	Complete the Date, Start Time, Ceilometer S/Ns, and Executed By on the test record.	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
2	From the 1-minute screen, depress: **REVUE-SITE-VERSN-SW** screen and ensure that the ACU and DCP software versions are correct.	The *MEMORY ACU APPLICATION VERSION EPROM* Version is 2.79S dated *03/18/08*, that for each DCP: 1) the *CPU-A and CPU-B BOOT EPROM* is Version is 2.0 dated *05/02/06* 2) the *MEMORY DCP APPLICATION RAM* Version is 2.79S dated *03/18/08*	If the specified software versions are no installed, install them before proceeding. PRINT the software version information and attach to the test report	PARTIAL	
3	From the 1-minute screen, depress the following menu keys to verify proper ceilometer configuration: **REVUE-SITE-CONFIG-DEFINE**	Verify that the CEILOMETER is set to CL31. If CL31 is not defined as indicated, log onto the system as TECHNICIAN and **define** it.	PRINT the final configuration and attach to the test report.	P	
4	From the 1-minute screen, depress the following menu keys to verify proper ceilometer configuration: **REVUE-SITE-CONFIG-SENSR**	Verify that L1, L2 and L3 are defined, each on a separate DCP.	If the configuration is not as specified, log onto the system as TECHNICIAN and correct it. PRINT the final configuration and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
5	From the 1-minute screen depress the following menu keys to display the ceilometer status page: **REVUE-SENSR-STAT**	Verify that the CL31 #1, CL31 #2 and CL31 #3 are displayed as passed for Selftest and Data Quality. Verify that Report Processing for the CL31 sensors is set to **ON.** If report processing is set to **OFF**, log onto the system as TECHNICIAN and turn report processing **ON**	PRINT the sensor status screen and attach to the test report	P	
6	Follow the schedule defined in Appendix A of this procedure for 48 continuous hours. Note: Additional activities may be performed by participants. An activity log will be submitted at the end of each day.	Verify system operation per the action detailed in Appendix A	PRINT the appropriate screen and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
7	From the 1-minute screen, depress the following menu keys and configure the ASOS as indicated: **REVUE-SITE-CONFIG-SENSR** De-configure the Meteorological Discontinuity and Backup sensors by depressing **CHANGE** then **NEXT** to position to the C2 entry and entering "**", then **NEXT** to position to the C3 entry and enter "**". Configure the SIO ports corresponding to the CT-12K test sensor by depressing **NEXT** to position to the correct DCP SIO location and entering "**C1**". Refer to the print obtained during step 1 of procedure 4.1-3 for sensor configuration DCP and SIO card/port numbers. Depress **EXIT** to effect configuration **<u>Wait 30 minutes before proceeding</u>**	The configuration is correct.	PRINT the final configuration and attach to the test report	P	

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
8	From the 1-minute screen depress the following menu keys to verify data is being reported from the ceilometer: **REVUE-SENSR-12HR** and depress **PAGE** until CL31 #1 page is displayed	Verify that the ceilometer data is reported and that the data is not within brackets.	PRINT the sensor data screen and attach to the test report	P	
9	Depress **TEST-PAGE** to display the test ceilometer data page	Verify that CEILOMETER #1 data is displayed.	PRINT the test sensor data screen and attach to the test report	P	
10	Resume the schedule defined in Appendix A of this procedure for 24 continuous hours. Note: Additional activities may be performed by participants. An activity log will be submitted at the end of each day.	Verify system operation per the action detailed in Appendix A	PRINT the appropriate screen and attach to the test report	P	
11	Log off of the ASOS OID		Complete the remainder of the Test Report	N/A	N/A
12	Perform a DCM download of the system data since the last DCM was performed			N/A	N/A

Step No.	Operator Action	Expected Results	Comments	Results P	Results F
13	Perform an analysis of the DCM data collected since start of test	Verify that no anomalous behavior is found. All anomalous behavior will be analyzed and documented as to cause, and the documentation attached to the test report	Reviewed by John Monte 8/18 - 8/20	PASS	

Test Results : ASOS System/Software Stability Test

Test Date: 8/12/08

Start Time: 5:00 pm

Executed By (print) : John Monte

(print) :

End Time: 05:30

Test Result (Pass/Fail): PASS (ACU S/W ERRORS FOUND)

Ceilometer # 1 Serial Number: C3530008

Ceilometer # 2 Serial Number: C3530007

Ceilometer # 3Serial Number: C3530005

Legacy (test) Ceilometer S/N: S0849

Result Certified By (signature): John Monte

Comments/Deficiencies: SEE ATTACHED TTRs

Witnessed by:

Name	Representing
Gerald Wayne Knight	DOD-Navy
[illegible]	FAA-MTO/T
Bob Born	DOD-USAF
Karen Bangerter	NWS/OPS24
PETER DASHNAW	DOD NAVY

MINIMUM USER ACTIVITIES

- UNSIGNED user:
  - Exercise the Auxilliary command to display aux. weather, users, and manual sensors (AUX-WX-OFF-USERS-OFF-MAN-OFF-EXIT)

- TECHNICIAN - Log onto the ASOS OID OR dial into the system and log on as TECHNICIAN
  - Command a time sync with the AOMC (CMD-TIME-enter Y-EXIT)
  - Exercise Built-in Test for CL31 #1, CL31 #2 and CL31 #3
  - Exercise Built-in Test for any 5 sensors
  - Review site physical data (REVUE-SITE-PHYS-EXIT)
  - Review site hardware configuration, external configuration, and hardware definition(REVUE-SITE-CONFIG-HDWE-BACK-EXTERN-BACK-DEFIN-EXIT)
  - Review site sensor and comms configuration (REVIEW-SITE-CONFIG-SENSR-ALGOR-BACK-BACK-COMMS-BACK)
  - Review site software version (REVUE-SITE-VERSN-SW-BACK-AOMC-BACK)
  - Review sensor data pages (REVIEW-SENSR-DATA followed by page, etc. to view various data-EXIT
  - Review sensor 12 hour data pages ((REVIEW-SENSR-12HR followed by page, etc. to view various data-EXIT)
  - Review sensor status (REVIEW-SENSR-STAT)
  - Review the site communications log (REVIEW-COMM-BACK)
  - Review the site syslog (REVIEW-SYSLG) and generate a syslog entry (WRITE- enter message-EXIT)
  - Review sensor maintenance logs (MAINT-SEL when positioned to the ACU/DCP of interest-SEL-NEXT-SEL when positioned to the sensor of interest-EXIT)

- OBSERVER - Log onto the primary OID as OBSERVER
  - Review METAR log, 5-MINute Observation log, SHEF data, Daily summary and Monthly summary data (REVU-RPT-OBS-NEXT/PREV as appropriate BACK- 5MIN-NEXT/PREV as appropriate-BACK-SHEF-NEXT/PREV as appropriate-BACK-DSM-NEXT/PREV as appropriate-BACK-MSM-NEXT/PREV as appropriate-EXIT
  - Review the Daily and Monthly summary reports (REVU-DAILY-BACK-MONTH-EXIT)
  - Edit any data field on the 1-minute screen (EDIT-NEXT to position to present weather field, enter an ASOS code for the element)
  - Generate a manual remark for the current observation (REM-MAN-enter the text of the remark-EXIT
  - Transmit the edited observation as a SPECI (GENOB-SPEC-XMIT)
- AIR TRAFFIC CONTROLLER - Log onto the system as AIR TRAFFIC CONTROLLER
  - Enter a Tower Visibility value by depressing TWR and entering a visibility in miles.
  - Edit the present weather field of the data on the 1-minute screen (EDIT-NEXT to position to present weather field, enter an ASOS PW code- EXIT-GENOB-SPEC-XMIT

- SYSTEM MANAGER - Log onto the system REMOTELY as SYSTEM MANAGER
  - Change one of the passwords (CMD-PASSW-number corresponding to PW to change, enter PW information, BACK)

APPENDIX A – TYPICAL SEQUENCE OF ACTIVITIES

These procedures are meant to represent typical activities performed by various ASOS users. These activities represent the MINIMUM which must be completed. All participants are encouraged to exercise the ASOS during the stability test. Each additional activity and the results will be recorded on a log sheet which will be attached to the test report.

Following each hourly activity the results will be logged in this table

Time/Day	Hour	Activity	Configuration	Performed By	Pass/Fail
5:00 p.m. Tuesday	1	All	3 CL31	John Monte et al	PASS
6:00 p.m. Tuesday	2	No action	3 CL31		
7:00 p.m. Tuesday	3	No action	3 CL31		
8:00 p.m. Tuesday	4	No action	3 CL31		
9:00 p.m. Tuesday	5	No action	3 CL31		
10:00 p.m. Tuesday	6	No action	3 CL31		
11:00 p.m. Tuesday	7	No action	3 CL31		
12:00 p.m. Tuesday	8	No action	3 CL31		
1:00 a.m. Wednesday	9	No action	3 CL31		
2:00 a.m. Wednesday	10	No action	3 CL31		
3:00 a.m. Wednesday	11	No action	3 CL31		
4:00 a.m. Wednesday	12	No action	3 CL31		
5:00 a.m. Wednesday	13	No action	3 CL31		
6:00 a.m. Wednesday	14	No action	3 CL31	Overnite syslog reviewed	
7:00 a.m. Wednesday	15	No action	3 CL31	no anomalies - Monte	PASS
8:00 a.m. Wednesday	16	No action	3 CL31		
9:00 a.m. Wednesday	17	Observer	3 CL31	John Monte	PASS
10:00 a.m. Wednesday	18	Remote Technician/ATC	3 CL31	John Monte, Wayne Kunz Gr	PASS
11:00 a.m. Wednesday	19	Observer	3 CL31	John Monte	PASS
12:00 p.m. Wednesday	20	Observer/ATC	3 CL31	Rick Parry	PASS
1 :00 p.m. Wednesday	21	System Manager	3 CL31	John Monte	PASS

2:00 p.m. Wednesday	22	Observer/ATC	3 CL31	John Monte	PASSED
3:00 p.m. Wednesday	23	Technician	3 CL31	John Monte	PASS
4:00 p.m. Wednesday	24	12-Hr DCM archive	3 CL31	John Monte	PASS
5:00 p.m. Wednesday	25	Observer	3 CL31	John Monte	PASS
6:00 p.m. Wednesday	26	No action	3 CL31		
7:00 p.m. Wednesday	27	No action	3 CL31		
8:00 p.m. Wednesday	28	No action	3 CL31		
9:00 p.m. Wednesday	29	No action	3 CL31		
10:00 p.m. Wednesday	30	No action	3 CL31		
11:00 p.m. Wednesday	31	No action	3 CL31		
12:00 p.m. Wednesday	32	No action	3 CL31		
1:00 a.m. Thursday	33	No action	3 CL31		
2:00 a.m. Thursday	34	No action	3 CL31		
3:00 a.m. Thursday	35	No action	3 CL31		
4:00 a.m. Thursday	36	No action	3 CL31		
5:00 a.m. Thursday	37	No action	3 CL31		
6:00 a.m. Thursday	38	No action	3 CL31		
7:00 a.m. Thursday	39	No action	3 CL31	MONTE	
8:00 a.m. Thursday	40	No action	3 CL31	AM Syslog Review	No Overnite Issues
9:00 a.m. Thursday	41	~~RE-CONFIGURE~~ ATC	3 CL31	Wayne Knight	PASS
10:00 a.m. Thursday	42	Observer	3 CL31	Monte	PASS
11:00 a.m. Thursday	43	Remote Technician/ATC	3 CL31	WWK	PASS
12:00 p.m. Thursday	44	Observer	3 CL31	PETE	PASS
1 :00 p.m. Thursday	45	Observer/ATC	3 CL31	John Monte	PASS
2:00 p.m. Thursday	46	System Manager	3 CL31	John Monte	PASS
3:00 p.m. Thursday	47	Observer/ATC	3 CL31	Kevin Heavy	PASS
4:00 p.m. Thursday	48	12-Hr DCM archive	3 CL31	John Monte	PASS
5:00 p.m. Thursday	49	Technician - Reconfigure	1 CL31 1 CT-12K test	John Monte	PASS
6:00 p.m. Thursday	50	No action	1 CL31 1 CT-12K test		

7:00 p.m. Thursday	51	No action	1 CL31 1 CT-12K test		
8:00 p.m. Thursday	52	No action	1 CL31 1 CT-12K test		
9:00 p.m. Thursday	53	No action	1 CL31 1 CT-12K test		
10:00 p.m. Thursday	54	No action	1 CL31 1 CT-12K test		
11:00 p.m. Thursday	55	No action	1 CL31 1 CT-12K test		
12:00 p.m. Thursday	56	No action	1 CL31 1 CT-12K test		
1:00 a.m. Friday	57	No action	1 CL31 1 CT-12K test		
2:00 a.m. Friday	58	No action	1 CL31 1 CT-12K test		
3:00 a.m. Friday	59	No action	1 CL31 1 CT-12K test		
4:00 a.m. Friday	60	No action	1 CL31 1 CT-12K test		
5:00 a.m. Friday	61	No action	1 CL31 1 CT-12K test		
6:00 a.m. Friday	62	No action	1 CL31 1 CT-12K test		
7:00 a.m. Friday	63	No action	1 CL31 1 CT-12K test		
8:00 a.m. Friday	64	No action	1 CL31 1 CT-12K test	System REVIEWED	NO ISSUES OVERNITE
9:00 a.m. Friday	65	Technician	1 CL31 1 CT-12K test		NO PROBLEMS
10:00 a.m. Friday	66	All	1 CL31 1 CT-12K test		PASS
11:00 a.m Friday	67	Observer	1 CL31 1 CT-12K test	Joe Fiore	PASS
12:00 a.m. Friday	68	Remote Technician/ATC	1 CL31 1 CT-12K test		PASS
1:00 a.m Friday	69	Observer	1 CL31 1 CT-12K test		PASS
2:00 p.m. Friday	70	Observer/ATC	1 CL31 1 CT-12K test		PASS
3 :00 p.m. Friday	71	System Manager	1 CL31 1 CT-12K test		PASS
4:00 p.m. Friday	72	Observer/ATC	1 CL31 1 CT-12K test		PASS
5:00 p.m. Friday	END	12-Hr DCM archive	1 CL31 1 CT-12K test		PASS

ASOS CEILOMETER SYSTEM INTEGRATIN TEST ADDITIONAL ACTIVITY LOG

DATE/TIME	ACTIVITY DESCRIPTION	RESULT
8/13/08 7-8AM EDT	See attached printer output for activities.	No negative impact on CL31 ingest or processing.

Tests performed by: RICK PARRY
Print name

Rick Parry
Signature

ASOS CEILOMETER SYSTEM INTEGRATIN TEST ADDITIONAL ACTIVITY LOG

DATE/TIME	ACTIVITY DESCRIPTION	RESULT
8/13/08	REVIEWED MAINT PAGE FOR UPS – INDICATED "TIMEOUT" IS FAILED ON BOTH DCP UPS's – SITE TECH SAID CAUSED BY	FAIL
	2.798/2.0 – UPS APPEAR TO WORK FINE	

Tests performed by: JOHN MONTE
Print name

Signature

ASOS CEILOMETER SYSTEM INTEGRATIN TEST ADDITIONAL ACTIVITY LOG

DATE/TIME	ACTIVITY DESCRIPTION	RESULT
8/15 7:00	Mickey R troubleshooting Thin client up down arrow anomaly. Performed observer and technician functions	No SYSTEM PROBLEMS
8/15 10:30am 11:30AM	JOE FIORE ATC - FUNCTIONS OBS - FUNCTIONS (EDIT SKY COND - SPECI) ↳ HOT KEYS, TWR VIS, EDIT - SPECI)	NO SYSTEM PROBLEM

Tests performed by: Joe Fiori / Mickey Renegar — Print name

For [signature] — Signature

ASOS CEILOMETER SYSTEM INTEGRATIN TEST ADDITIONAL ACTIVITY LOG

DATE/TIME	ACTIVITY DESCRIPTION	RESULT
08/13/08 1220 Z	KN SIGNED IN AS SYS MANAGER and TECH INSPECT VARIOUS SCREEN DISPLAYS and LOGS	nothing out of the ordinary
08/13/08 18357	BOB BORN signed in AS OBSERVER. Reviewed MENU Selections (GIDI)	NOTHING unexpected occurred.
08/13/08 18-22	BOB BORN SIGNED IN AS AN ATC. Reviewed menu Selection (OIDI) TRY -TSRA OBSUSING F7	Nothing unexpected occurred.

Tests performed by: KHIEN NGUYEN (Print name) Khien Nguyen (Signature)

ASOS CEILOMETER SYSTEM INTEGRATIN TEST ADDITIONAL ACTIVITY LOG

DATE/TIME	ACTIVITY DESCRIPTION	RESULT
08/13/08	~~AUX~~ ~~When REVUE/USERS~~ about 2120Z	
	when an user signs in then logout	
	of the Secondary OID the AUX/USERS	
	Screen Showed <UNSIGNED> (user)	
	on OID2.	

Tests performed by: KHIEN NGUYEN (Print name) Khien Banguyen (Signature)