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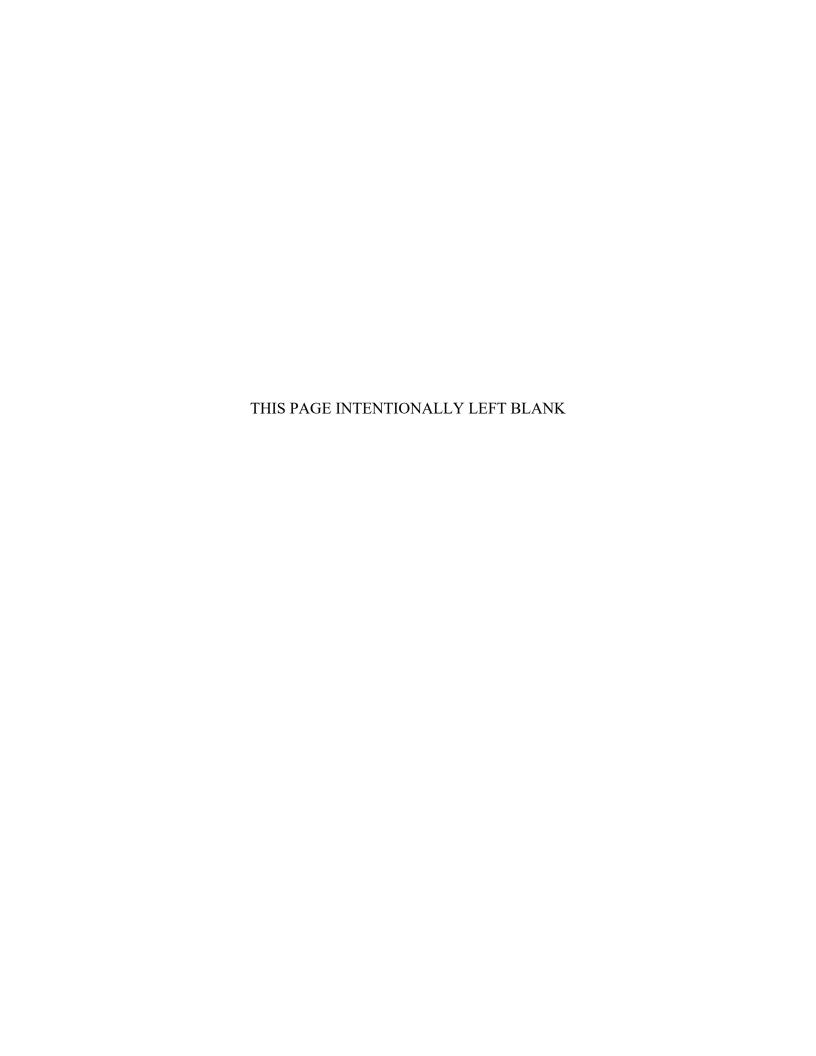
Certified by: OPPSD (Kevin C. Cooley)

SUMMARY OF REVISIONS: This Instruction supersedes National Weather Service Instruction 30-301, *System Test (ST) Process*, dated September 30, 2014. Changes were made to reflect the NWS Headquarters reorganization effective April 1, 2015. It includes the following changes:

- Updated the names of certification and approving officials to reflect personnel changes
- Updated all sections to include new re-organization division name (Office of Planning and Programming for Service Delivery, OPPSD) and the branch name (Systems Engineering Integration and Testing, SEIT)
- Updated the referenced NWS directives to reflect the new directives structure
- Updated all sections to incorporate the System Acceptance Test (SAT)
- Updated the list of operational systems to remove unsupported systems
- Updated Test Review Group (TRG) members list to include current representatives
- Updated the TRG section to include the ISSO role
- Updated the Field Maintenance Kit (FMK) prerequisite to reflect the new NLSC Location in Grandview, MO
- Removed the obsolete Appendix about consensus voting

Signed   1/29/2020

Kevin C. Cooley   Date

Director, Office of Planning & Programming for Service Delivery

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System Acceptance Test Process

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1. **Introduction**

This instruction supports the National Weather Service Policy Directive, 80-306 (NWSPD 80-3), System Acceptance Test Process, by delineating the process and procedures followed during a System Acceptance Test (SAT). NWSPD 80-305 stipulates new systems and fielded or maintained systems be first tested in a simulated operational environment and then at a representative sample of field sites affected by the change(s) as a condition for national deployment. A SAT is the test of new system(s) and a System Test (ST) is the test of deployed or maintained existing system(s). The ST/SAT is conducted in a simulated operational environment. The tests described herein are administered by the System Engineering Integration and Test Branch (SEIT) of the National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS), Office of Planning and Programing for Service Delivery (OPPSD), Engineering Standards Division (ES). This instruction describes the development, conduct, and reporting of an ST/SAT.

2. **References**

   a. National Weather Service Policy Directive 80-3, System Engineering
   b. National Weather Service Instruction 80-301, Systems Engineering Process and Life Cycle
   c. National Weather Service Instruction 80-303, System Engineering for New Development
   d. National Weather Service Instruction 80-304, Software Development
   e. National Weather Service Instruction 80-305, Test and Evaluation
   f. National Weather Service Instruction 80-307, Operational Test and Evaluation Process

3. **Definitions**

The following definitions apply for the purposes of this instruction.

3.1 **System Acceptance Test**

The SAT is a formal evaluation of newly developed systems during the Design and Development Stage. SAT will typically be conducted by the development organization's test team within their facility using a separate test bed built specifically for SAT. The SAT is conducted in a simulated and controlled pseudo-operational test bed. SAT focuses on the validation of technical requirements after the Developmental Test and Evaluation (DT&E) and System Integrations Tests (SIT) are successfully completed.

The purpose of SAT is to verify that the design solution meets all of the system technical requirements and release notes documented by a Request for Change (RC) and is prepared for successful Operational Test and Evaluation (OT&E). SAT is conducted in accordance with the approved SAT Plan and Procedures, with witnessing and potential participation by designated Government representatives.

SAT activities assess progress toward resolving critical operational issues, validating cost-performance tradeoff decisions, mitigating acquisition technical risk, and achieving system maturity. Documentation will consist of test plans, procedures, and test reports. SAT is

performed and traced to the functional requirements specification via a Requirements Traceability Matrix (RTM). All discrepancies discovered during SAT must be documented in the SAT Test Trouble Reports (TTR), which the development organization must address with corrective action plans and implementation of approved correction actions. SAT regression testing must then be performed to verify the subject corrections, as well as to ensure that they had no adverse impacts on other system functionalities or performance. A successful SAT is a prerequisite for OT&E of the System-Under-Test.

3.2   System Test

The ST is a formal evaluation of a system already operational and maintained by NWS during the Design and Development Stage. The ST will typically be conducted by the OPPSD / Engineering Standards (ES) Division / Systems Engineering Integration Testing (SEIT) Branch test team using a separate test bed built specifically for ST. The ST is conducted in a simulated and controlled pseudo-operational test bed and focuses on the validation of technical requirements after the Developmental Test and Evaluation (DT&E) and System Integration Tests (SIT) are successfully completed.

The purpose of ST is to verify that the design solution meets all of the system technical requirements and release notes documented by a Request for Change (RC) and is prepared for successful Operational Test and Evaluation (OT&E). ST activities assess progress toward resolving critical operational issues, validating cost-performance tradeoff decisions, mitigating acquisition technical risk, and achieving system maturity. Documentation will consist of test plans, procedures, and test reports. A successful ST is a prerequisite for OT&E of the System-Under-Test.

3.3   Test Bed

A Test Bed is any system configured for explicit use in the conduct of an SAT/ST. A Test Bed may be comprised of hardware, software, communications interfaces, and system documentation. The Test Beds evaluated should be representative of the systems that are affected by the new, deployed or maintained system. If resources do not allow testing all configurations, the most commonly used configurations should be evaluated. Those configurations that cannot be replicated in a Test Bed should be included among the sites selected for the OT&E whenever possible. Changes in the configuration of the Test Bed are not allowed during an SAT/ST without the explicit approval of the SAT/ST Director (see Section 5.5).

The NWS maintains Test Bed facilities that may be used to simulate the conditions encountered at operational field sites. Some systems do not allow simulation; completion of the ST/SAT in this case may require limited deployment of the System-Under-Test to select prototype sites.

3.4   System-Under-Test

A System-Under-Test may be any new or modified existing operational system or any subsystem or component thereof.

4.   Scope

Major operational systems are maintained by the NWS for the collection, distribution, and dissemination of meteorological data, climatologic data, hydrologic data and derived products. OPPSD performs SAT/ST for new and existing major operational systems for the validation of technical requirements and proposed changes in the baseline configuration as a prerequisite for OT&E of the System-Under-Test. Some examples of major operational systems that undergo SAT/ST include:

- Automated Surface Observing System (ASOS)
- Radiosonde Replacement System (RRS)
- Radiosonde Workstation System (RWS)
- Broadcast Message Header (BMH)
- NOAA Weather Radio All Hazards (NWR)

5.   Roles and Responsibilities

This section identifies the roles and responsibilities of the groups and individuals supporting and administering SAT and ST.

5.1   Program Management Committee

A Program Management Committee (PMC) is established with overall responsibility for system management including the authorization of changes in the baseline configuration of the system and the national deployment of a system, subsystem, or component thereof. The PMC may be comprised of NWS Office and Regional Directors and representatives of other Federal agencies.

5.2   Configuration Control Board

The Configuration Control Board (CCB) established and chaired by the System Program Manager to govern changes to and versioning of approved documentation from the Critical Design Review (CDR) in conjunction with key stakeholders. The CCB is subordinate to the Program Management Committee (PMC).

CCB reviews proposed changes formally documented in a RC to the baseline requirements, design, and specification documents through the remaining activities related to development, test, and production. The CCB decision of the proposed change is documented by a vote on the RC. The CCB may stipulate in the RC the successful completion of a System Integration Test (SIT), SAT/ST, and OT&E as conditions for national deployment of the System-Under-Test.

5.3   Test Review Group (TRG)

A TRG is an established independent body to oversee the conduct of an SAT/ST. The TRG is comprised of the Program Manager, Regional Focal Points, National Weather Service Employee Organization (NWSEO) Representative, members of the Test Team, representatives from the NWS user community, and Other Agency Focal Points, as appropriate. The TRG recommendations are based on the majority opinion of voting members. The System Program Manager is a member of the TRG and presents the TRG recommendations to the CCB for final approval.

The TRG convenes the Test Readiness Review (TRR) prior to the commencement of tests to review the status of the System-Under-Test and to ensure the test prerequisites have been satisfied. During the TRR, the TRG votes whether to recommend proceeding to SAT/ST. The recommendation is presented to the CCB by the System Program Managers.

The TRG meets periodically during the SAT/ST to review test results and to prioritize any deficiencies discovered. The TRG may suspend the SAT/ST at any time upon the discovery of a critical defect. The TRG may authorize the resumption of tests upon the satisfactory resolution of the problem. The TRG meets at the conclusion of the SAT/ST to review the results and decide whether to recommend proceeding with the Operational Test and Evaluation (OT&E).

5.4   Test Review Group Chair

The TRG Chair is the SEIT Branch Chief, SEIT Team Lead, or designated representative. The TRG Chair convenes the TRG meetings and works with the Test Director and the TRG members to adjudicate TTR and ensure the efficient test conduct. The TRG Chair works with the test team to resolve any issues that may arise during the conduct of the test.

The TRG Chair is a non-voting member of the TRG except in the case of a tied vote. The TRG Chair casts the deciding vote in the event of a tie.

5.5   Test Director

The SEIT Team Lead or designee serves as the Test Director. The Test Director manages the development and coordination of the Test Plan, oversees the execution of tests, chairs the TRG, and manages the development and coordination of the Test Report. The Test Director is the primary point of contact for the SAT/ST. The Test Director coordinates the timely delivery of hardware, software, and documentation required for the SAT/ST. The Test Director prepares and disseminates daily status reports during the conduct of the SAT/ST (Appendix F). The Test Director prepares and disseminates the minutes of TRG meetings in a timely manner, typically within 24 hours following each meeting. The Test Director prepares and disseminates daily status reports during the conduct of the SAT/ST (Appendix G). The Test Director reports to the CCB through the System Program Manager. The Test Director is a voting member of the TRG.

5.6   System Program Manager

The System Program Manager serves as the primary focal point for a major operational system. The System Program Manager reports to the PMC and may chair the CCB. The System Program Manager is a member of the TRG and presents the recommendations of the TRG to the CCB. The System Program Manager is typically a part of the Program Management Office. The System Program Manager is not a voting member of the TRG.

5.7   Test Team

The Test Team is typically comprised of NWS staff members from SEIT and other organizational units within NWS. Members of the Test Team conduct the tests, help develop and review the Test Plan, document and track deficiencies, help record the minutes of TRG meetings,

ensure appropriate technical experts analyze the test results, and help develop the Test Report. The Test Director may solicit support from other organizational units within NOAA, other Federal agencies, user community, and/or the NWSEO to serve on the Test Team and satisfy the objectives of the test. Members of the Test Team may be required to travel to test sites to assess the System-Under-Test.

Test Team members that are voting members of the TRG will be identified in the Test Plan.

5.8   NWS Headquarters Test Support

The organizational units within NWS Headquarters (WSH) responsible for software and hardware development provide the Test Director with all requisite system components, the associated Version Description Document (VDD), and draft installation procedures prior to commencement of the SAT/ST. The appropriate operations support and maintenance organizations provide draft operations user and hardware maintenance documentation prior to commencement of the SAT/ST. The Test Director may solicit test support from the National Weather Service Training Center (NWSTC).

The WSH Test members that are voting members of the TRG will be identified in the Test Plan.

5.9   Information System Security Officer (ISSO)

The ISSO, or other designated authority, may be required to participate in the TRG when the System-Under-Test is an information system or the System-Under-Test might affect the NWS information systems. The Test Director may solicit support from the ISSO, or other designated authority, as required to meet the technical objectives of the SAT/ST.

The ISSO, or other designated authority, is a voting member of the TRG if participation is required.

5.10   Regional Headquarters Test Support

Personnel from NWS Regional Headquarters serve as Regional Focal Point (POC) for the SAT/ST. Regional POC serve to support the technical objectives of the SAT/ST. The Regional POC are the primary liaison between WSH and Regional Headquarters and coordinate any support required for the SAT/ST with their respective field offices.

Regional POCs, or other designated authority, are voting members of the TRG. Regional POCs should coordinate the one vote per Region with participating Field Office Test personnel.

5.11   Field Office Test Support

The Test Director may invite field office personnel to participate, as required, to meet the technical objectives of the SAT/ST. Field Office Support typically includes the Meteorologist-in-Charge or Hydrologist-in-Charge and other subject matter experts as required. Field Office Support personnel may report to the TRG and/or participate in meetings of the TRG at the request of their respective Regional Headquarters. Field office staff assignments must be coordinated with the respective Regional Focal Point and approved by Regional Headquarters.

Field Office personnel should coordinate their vote recommendation with the Regional POC.

5.12 NOAA Test Support

The Test Director may invite staff members from other organizational units within NOAA, such as the National Center for Environmental Prediction (NCEP) and the National Center for Data Collection (NCDC), to participate as required to meet the technical and operational objectives of the SAT/ST.

Actively participating NOAA Organizational Unit Focal Points, or other designated authority, are voting members of the TRG.

5.13 Other Agency Test Support

Some of the major operational systems listed in Section 4 are managed in cooperation with other Federal agencies. Membership in the TRG is open to subject matter experts from other Federal agencies.

Actively participating designees from other Federal Agencies are voting members of the TRG.

5.14 NWSEO Test Support

A National Weather Service Employee Organization (NWSEO) representative is a member of the TRG. NWSEO representative participation in the TRG supports safe and effective working conditions for NWS employees.

Actively participating NWSEO designees are voting members of the TRG.

6. SAT/ST Process

A description of the process followed during the conduct of an SAT/ST follows.

6.1 Authorization to Test (ATT)

SAT/ST may begin after an Authorization to Test (ATT) is obtained. The ATT comes from the CCB and System Program Manager. Systems connected to any NWS operational system or environment can be issued ATT for SAT/ST upon approval by the CCB. The System Program Manager can grant ATT for SAT/ST to systems not connected to any NWS operational systems or environments based on the system maturity and review of supporting artifacts and deliverables.

6.2 SAT/ST Conduct

A SAT/ST may be conducted after an Authorization to Test (ATT) is obtained. The Test Plan identifies the specific SAT/ST tests. The Test Team performs the system installation with the support of other development organizations as required using the draft installation instructions.

For newly developed systems, SAT will typically be conducted by the development organization's test team, within their facility, using a separate test bed built specifically for SAT. The SAT is conducted in a simulated and controlled pseudo-operational test bed. The SAT is conducted in accordance with the approved SAT Plan and Procedures with witnesses and potential participation by designated Government representatives.

For systems already operational and maintained by NWS, ST will typically be conducted by the OPPSD / ES Division / SEIT Branch test team using a separate test bed built specifically for ST. The ST is conducted in a simulated and controlled pseudo-operational test bed. ST is conducted in accordance with the approved ST Plan and Procedures with participation by Test Team.

6.3   Test Commencement

The Test formally begins with a Test Readiness Review (TRR).

6.3.1   Test Readiness Review

The TRR held prior to the test confirms all prerequisites for the SAT/ST have been properly satisfied prior to the start of the Test. The TRR is convened by the TRG Chair and is attended by the members of the TRG, hardware and software developers, the Test Director and other Subject Matter Experts (SMEs) as required to assess the readiness of the System-Under-Test. The Test Director will provide a checklist of prerequisites for the SAT/ST (Appendix B) and coordinate presentations by SME to verify the status of the System-Under-Test. A TRG recommendation to start the SAT/ST is based on the successful completion of the prerequisites.

6.3.2   Prerequisites

Prerequisites are items that must be completed and/or provided to the Test Director prior to the TRR. A typical prerequisite list includes the following items.

a.   Successful Completion of the SIT and DT&E. The CCB may stipulate that a successful SIT and DT&E as a SAT/ST prerequisite. The CCB will review the results of the SIT and DT&E Integration Test and determine whether the System-Under-Test is free of critical defects and ready for the SAT/ST. Any problems found during the SIT and DT&E must be fully documented in the VDD and provided to the Test Director prior to the TRR.

b.   Hardware and software delivery: The SAT/ST System-Under-Test hardware and software must be delivered to the test location(s) and ready for installation and test.

c.   Hardware and software certification: System hardware engineers certify the hardware delivered for the SAT/ST is representative of the hardware that will be deployed to operational sites. System software engineers certify the software delivered for the SAT/ST is the latest revision, the software is free of critical defects, and all fixes implemented have been properly incorporated and documented.

d.   Field Modification Kit: The Program Manager will ensure any required Field Maintenance Kit (FMK), including draft installation instructions, is available for the SAT/ST. The National Logistics Support Center (NLSC) in Grandview, MO should initial issue the FMK for the SAT/ST; however, it is not required.

   e.   System Documentation: Draft versions of all system documentation must be available for the SAT/ST. System documentation includes: NWS engineering handbooks, user/operator manuals, system administration manuals, maintenance manuals, release notes, and installation instructions.

   f.   SAT/ST Documentation: SAT/ST documentation includes the SAT/ST Plan together with any associated Test Case Procedures. The SAT/ST Plan is coordinated for signature of the SEIT Branch Chief in advance of the TRR.

6.4   Methodology

The SAT/ST Plan documents the test strategy. The tests should verify that the design solution meets all of the system technical requirements and release notes documented by a RC and is prepared for successful OT&E.

The SAT/ST may include provisions for monitoring and reporting product availability and reliability if network communications are affected. The Product Availability and Monitoring System (PAMS), collects, analyzes, and reports product availability and reliability. In general, product availability and reliability for the System-Under-Test should be equal to or greater than the current system performance.

The SAT/ST tests also evaluate the system stability. The duration of the SAT/ST must long enough to adequately evaluate the system's stability. The SAT/ST may include a second test phase, where the System-Under-Test is used operationally for an extended period of up to 30 days to verify the system performance, stability, reliability, and communications.

6.4.1   Purpose and Objectives

The purpose of an SAT/ST is to verify that the System-Under-Test meets the technical specifications, the system is stable and reliable, and all associated documentation and logistical support required to operate and maintain the system is available prior to national deployment. Additional test objectives may be developed by team members in coordination with SMEs from NWS and other Federal agencies. SAT/ST Plan should clearly state the specific test objectives together with the evaluation criteria for each objective. The specific test objectives and evaluation criteria should be based on documented system requirements whenever possible.

6.4.2   Test Case Procedures

The SAT/ST Plan includes Test Case Procedures as required to fully evaluate the System-Under-Test. Test Case Procedures are developed by the Test Team to evaluate the full functionality and operability of the System-Under-Test and may be designed to examine: system hardware, system software, communications, and/or operations. Test Case Procedures fall into two general classes: 1) they may test a new capability, functionality, or fix; or 2) they may be used to ensure that the functionality and operability of the system is consistent with the established system specifications, i.e. regression tests. Each Test Case Procedure should contain a cover sheet with a description of the test scenario, the purpose of the test, the test objectives, the estimated time required to complete the procedure, and the criteria for a successful outcome. Each Test Case Procedure should provide step-by-step instructions to be followed in completing the test. The

expected outcome should be indicated and a pass/fail check-off should be provided for each step. Space should be provided for comments and the tester should be encouraged to annotate the procedure both as a record of the test and for future improvements to the procedure. An example of a typical Test Case Procedure is provided in Appendix D. The completed Test Case Procedures are included in the SAT/ST Report and are part of the official test record. All Test Case Procedures included in the SAT/ST Plan must be completed.

6.5   Trouble Report

A TTR must be completed for each deficiency discovered during the SAT/ST. The TTR should include a complete description of the defect including any supporting data. A TTR may also be used to suggest enhancements to the system that are beyond the scope of the SAT/ST. A sample TTR form is provided in Appendix E. TRG meetings are periodically convened during the SAT/ST to review and classify TTRs. The SAT/ST Director coordinates the collection and dissemination of TTRs to the TRG for adjudication.

6.5.1   Classification of Test Trouble Reports

TTRs may be assigned numerical scores to indicate the severity of the defect, i.e. the Impact, and the Priority. A five point grading system is typically used with '1' being the most severe and '5' being the least severe. A typical assignment scheme for Impact is described in Table 1.

Table 1- Impact Descriptions

Impact	Type	Action
Impact 1	**Critical**: A repeatable problem, with no workaround, that prevents or may compromise the full delivery of products or services.	The TRG recommends the immediate suspension of ST, and the System-Under-Test is turned over to the system developers to resolve the problem. The ST may be resumed at the recommendation of the TRG after an appropriate fix or workaround has been developed. The Test Team may develop new Test Case Procedures and/or repeat selected Test Case Procedures to evaluate the proposed solution.
Impact 2	**Urgent**: A repeatable problem, with an acceptable workaround, that prevents or may compromise the full delivery of products or services.	The TRG may recommend that the SAT/ST continue with an approved workaround in place until an appropriate fix is developed. If a fix becomes available during the SAT/ST, the TRG may recommend the immediate implementation of the fix. The Test Team may develop new Test Case Procedures and/or repeat selected Test Case Procedures to evaluate the proposed fix.
Impact 3	**Routine**: A repeatable problem that does not prevent or compromise the full delivery of products and services.	The SAT/ST may continue at the discretion of the TRG. An approved workaround may be authorized until the problem is fixed, but this is not mandatory. Routine deficiencies are documented and prioritized by the proper authority for future fixes.
Impact 4	**Watch Item**: Infrequent or poorly documented behavior of the System-Under-Test that may prevent or compromise the delivery of products or services.	The TRG may recommend that the SAT/ST continue. The Test Team may develop new Test Case Procedures and/or repeat selected Test Case Procedures in an attempt to reproduce the problem. Any further observations are documented and submitted to the TRG for review.
Impact 5	**Potential Enhancement**: An item identified by the TRG for consideration as a new system requirement.	The TRG forwards the recommended change to the Program Manager for consideration under the Configuration Management process.

The Priority addresses how the problem is to be resolved. A typical assignment scheme for the Priority is described in Table 2 Priority Descriptions.

Table 2- Priority Descriptions

Priority	Type	Action
Priority 1	**Urgent**: Immediate emergency action is required.	All appropriate resources are directed to resolve the problem.
Priority 2	**High**: Include in the next interim release.	The available resources are directed to promptly resolve the problem.
Priority 3	**Routine:** Include in a future interim release.	Resources are directed to resolve the problem as allowed.
Priority 4	**Low:** Consider for the next major release.	The item is deferred to future system improvements.
Priority 5	**Undetermined**: The Priority has not yet been assigned.	None.

6.6   Conclusion of the Testing

The Test Director will convene an SAT/ST Wrap-up meeting following the successful completion of all test case procedures. The Test Director will review the activities conducted to date including a summary of the TTRs and their disposition, and any other findings and/or recommendations. The TRG will review the materials presented and recommend whether to proceed with tests of the system at operational field sites. The following conditions must be satisfied to recommend the system for tests at operational field sites:

- Successful completion of all test case procedures
- All test objectives provided in the SAT/ST are met.
- Adjudication of all TTRs submitted during the SAT/ST by the TRG.
- The System-Under-Test must be free of critical deficiencies. Non-critical deficiencies may be present; however a suitable workaround must be authorized prior to national deployment.
- All draft documentation (e.g., installation, operations, system administration, support, and maintenance) must be acceptable for use in field operations.

The System Program Manager reports the recommendation of the TRG to the CCB. The SAT/ST Report is prepared following the conclusion of testing.

7.   Tools

SEIT maintains system engineering, integration and test tools specific to the management of SAT/ST.

7.1   Test Archive

Test documents are kept on file for not less than 5 years. Both hard and soft copies of the test

documents are kept whenever feasible. Test documents include the SAT/ST Plan together with any Test Case Procedures and the SAT/ST Report, and may include test data, the results of data analysis, TRG meeting minutes, interim reports, and any other supporting records. SEIT maintains a shared file server to store electronic copies of test documents. Hard copies of test documents are locally filed and maintained.

7.2   Deficiency Status Tracking and Archive

SEIT maintains a database program, Test Track Pro, for tracking TTRs.

7.3   Data Analyses

SEIT has developed a Product Availability and Monitoring System (PAMS) to measure the reliability and availability of network communications.

7.4   Dissemination

SEIT disseminates SAT/ST Plans and SAT/ST Reports via Google Drive and/or NOAA email. Interim reports, minutes, and other correspondence may be sent by electronic mail, fax, or mail, as appropriate.

8.   Documentation

The official record of an SAT/ST is comprised of two documents: the ST Plan and the ST Report.

8.1   Test Plan

The SAT/ST Plan describes the actual conduct of tests. The plan will typically include an introduction, purpose, objectives, evaluation criteria for each objective, test system configurations, test materials, test methodology, methods for deficiency adjudication, test focal points, and contact information. Typical outlines for an SAT/ST Plan are provided in Appendices B and C. The test plan will include all Test Case Procedures and a TTR Form as appendices. The SAT/ST Plan is developed by SEIT in coordination with WSH, Regional Headquarters, Weather Forecast Offices, and other Federal agencies. The SAT/ST Plan should be reviewed by the members of the TRG and other subject matter experts as appropriate. The SAT/ST Plan must be approved by the Chief, SEIT Branch, prior to commencing the SAT/ST.

8.2   Test Report

The SAT/ST Report should include a purpose, introduction, test objectives, a description of how the test was conducted, a summary of the test results including a listing of all TTRs and their disposition, and the test conclusions and final recommendation. Typical outlines for an ST Report are provided in Appendices D and E. The SAT/ST Report should describe any follow-on testing required because of problems found during the SAT/ST. The draft SAT/ST Report should be reviewed by the members of the TRG and other subject matter experts as appropriate. The SAT/ST Report is forwarded to the Chief, SEIT Branch for signature.

Appendix A – EXAMPLE of a Test Readiness Review Checklist

The purpose of this checklist is to document that the various hardware subsystems and software are functioning, and all required documentation is available to support the System Test. System Test is scheduled to begin **MO/DAY/YR**. The items below are required to be completed by **MO/DAY/YR**.

Entries should be made below to identify hardware serial number(s), firmware versions, Version Description Documents (VDD), test procedures, etc. required to identify the equipment configuration to be tested. Contract Officer's Representatives (COR) and their Branch Chiefs need to certify that the subsystems have been checked out and ready for ST. The RRS Program Manager will certify that the System is ready to be turned over to the System Test Director.

1. Hardware: Branch Chief (ORG code) (Name)_____Date: _____

    1.1 Tracking Antenna (System 6)   Tracking Antenna (System 7)
       Hardware: (Serial No.) _____   Hardware: (Serial No.) _____
       Firmware: (Version No.) _____   Firmware: (Version No.) _____
       VDD: (Attachment?) (Y/N) _____   Date: _____
       Checkout Procedure: (Attached?) (Y/N)_____Date:_____
       COR: (Signature)_____Date: _____

    1.2 Subcomponent (System 6)   Subcomponent (System7)
       Hardware: (Serial No.) _____Hardware: (Serial No.) _____
       Firmware: (Version No.) _____   Firmware: (Version No.) _____
       VDD: (Attachment?) (Y/N) _____   Date: _____
       Checkout Procedure: (Attached?) (Y/N)_____Date:_____
       COR: (Signature)_____Date: _____

    1.3 Global Positioning Satellite (GPS) Repeater (Building 16)
       Hardware: (Serial No.) _____   Hardware: (Serial No.) _____
       Checkout Procedure: (Attached?) (Y/N)_____Date:_____
       COR: (Signature)_____Date: _____

    1.4 Subcomponent Antenna (System 6)   Subcomponent Antenna (System 7)
       Hardware: (Serial No.) _____   Hardware: (Serial No.) _____
       Checkout Procedure: (Attached?) (Y/N)_____Date:_____
       COR: (Signature)_____Date: _____

    1.5 Surface Weather Observation Equipment (System 7)
       Hardware: (Serial No.) _____   Hardware: (Serial No.) _____
       Checkout Procedure: (Attached?) (Y/N)_____Date:_____
       COR: (Signature)_____Date: _____

1.6 Workstation (System 6)   Workstation (System7)
    Hardware: (Serial No.) _____   Hardware: (Serial No.) _____
    Checkout Procedure: (Attached?) (Y/N)_____Date:_____
    COR: (Signature)_____Date: _____

1.7 Radiosondes (100 available)
    Model A GPS Module: (Serial No.) _____
    Model BGPS Module: (Serial No.) _____
    COR: (Signature)_____Date: _____

1.8 Precision Digital Barometer (PDB) (System 7)
    Hardware: (Serial No.) _____
    Checkout Procedure: (Attached?) (Y/N)_____Date:_____
    COR: (Signature)_____Date: _____

2. Tool Kit: Branch Chief (Org. Code) (Name)_____Date: _____

   POC: (Signature)_____Date: _____

3. Software: Branch Chief (Org. Code) (Name)_____Date: _____

   Workstation Software Application: (Version No.)_____VDD: (Attached?) (Y/N) _____
   Date: _____
   Support Software: (Version No.)_____VDD: (Attached?) (Y/N)_____Date:_____
   All Deliverable Media (e.g., CDs) (Attached?) (Y/N)_____Date:_____
   COR: (Signature)_____Date: _____

4. Documentation

   4.1 Engineering Handbook (EHB)-1 Updates: Branch Chief (Org. Code) (Name)
      _____ Date: _____
     Manual: (Attached?) (Y/N)____Web Address: _____Date: _____
     (Signature)_____Date: _____

   4.2 EHB-4, EMRS Updates: Branch Chief (Org. Code) (Name)_____Date:_____
     Manual: (Attached?) (Y/N) ___ Web Address: _____Date: _____
     (Signature)_____Date: _____

   4.3 EHB-9, Technical Manual: Branch Chief (Org. Code) (Name)_____Date:
     Manual: (Attached?) (Y/N) ___ Web Address: _____Date: _____
     (Signature)_____Date: _____

   4.4 Operator Training Guide: Branch Chief (Org. Code) (Name)_____Date:_____
     Manual: (Attached?) (Y/N)____Web Address: _____Date: _____
     (Signature)_____Date: _____

4.5 Handbook Rawinsonde Observations: Branch Chief (Org. Code) (Name) _____Date:
    Manual: (Attached?) (Y/N)_____Web Address: _____Date: _____
    (Signature)_____Date: _____

5.   Systems 6 and 7 installed, certified, and ready for ST IA.

Program Manager (Org. Code)
(Signature)_____Date: _____

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Appendix B – EXAMPLE of a SAT/ST Plan Outline (Short Form)

Table of Contents

Acronyms

1. Introduction

2.Objectives

3.System-Under-Test

4.Prerequisites

5.Test Facilities

6.Test Conduct

7.Analysis and Evaluation

8.Recommendations

Attachments

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Appendix C – EXAMPLE of a SAT/ST Plan Outline (Long Form)

Table of Contents

Acronyms

Tables

Figures

Attachments

Appendix D – EXAMPLE of a SAT/ST Report Outline (Short Form)

1. Introduction

2. Objectives

3. Assumptions/Constraints

4. Test Conduct

5. Test Results

6. Conclusions

7. Recommendations

Attachments

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Appendix E – EXAMPLE of a SAT/ST Report Outline (Long Form)

Table of Contents

Executive Summary

Acronyms

1. Introduction
    1.1 Report Organization
    1.2 Test Strategy

Part I - ST Results and Recommendations

1. Functional Test Results
    1.1 Definitions
    1.2 Hardware Installation
    1.3 Software Installation
    1.4 Test Procedures

2. Post-ST Activities

3. Conclusions

4. Recommendations

Part II - ST Description

1. Background
    1.1 Test Objectives and Criteria
    1.2 Test Result Analysis Process
    1.3 Risks, Constraints, and Assumptions
    1.4 Software Enhancements and Modifications under Test
    1.5 Test System Configurations

2. ST Conduct
    2.1 Problem Documentation and Classification
    2.2 Deficiency Report Discussion

Tables

Attachments

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Appendix F – EXAMPLE of a Daily Status Report

SAT/ST Daily Status—Console Replacement System

Date: 9/31/06

Number of Completed Tests to Date: 32

Number of Tests Completed Today: 3

Tests On-Going/Pending: 1

New TTRs: 2

Test Procedures to be Updated: 4

Test Procedures Updated: 3

Miscellaneous (Comments):   none

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Appendix G – EXAMPLE of a Test Review Group Minutes Outline

a. Meeting Title

b. Meeting Location

c. Date

d. List of Attendees

e. Purpose

f. Issues Arising

g. Corrections to the Minutes

h. Review of Test Trouble Reports

i. Discussion

j. Action Items

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Appendix H – EXAMPLE of a Test Procedure

TEST #430c   Maximum Winds 132kts   Overall Outcome: Pass [ ]   Fail [ ]

TESTED BY: **DATE:**   **ITERATION:**_____**Time Start:** _____**Time End:** _____

The purpose of this test is to verify RWS can detect the same anomalous weather conditions (defined in Federal Meteorological Handbook No.3) as the legacy system. This test will be conducted using the External Data Pump (XDP) to run data set (**1006.mal**) containing known problem/condition, maximum winds 132Kts, from real radiosonde flights collected by OPS22 personnel.OPS22 assistance may be required to identify specific condition. It is estimated 1 2 hours will be required to accomplish.

Step	Action	Expected Results	Comments	Pass/Fail	
1	Start XDP.Click Setup/configure button.	Step 1-Administrative Data Entry window opens.			
2	Select Sippican GPS (87) for Radiosonde Type, As-is for Simulation and click Next.	Parameters updated.	Make sure that the >Balloon Release sends an Event Marker from SPS= option is turned OFF.		
3	In the Configuration Data Entry window, click Browse button.Double click on :\AtmosphenomDataCat on 10.201.. Double click on 1006 folder, select XDP-1006.mal and click Open button.	Step 2-Configuration Data Entry window is displayed. X:\1006\XDP-1006.mal is displayed in the All in field.			
4	At the bottom of Configuration Data Entry screen, click **Browse** button and select *Sippican.cfg* for RPX configuration. Click Finish to close window.	External Data Pump for PITS window is displayed. *C:\RRSprojects\xdpPITS\Sippican.cfg* is displayed in *RPX Config* field. External Data Pump for PITS window closes.			

Step	Action	Expected Results	Comments	Pass/Fail	
5	Click Start Pump button to start sending data to RWS.				
6	Login to RWS as an observer and select Run a live flight.	Hardware Status, Antenna Orientation/TRS Display, Administrative Display, and GPS Status windows are displayed.			
7	Run a live flight and terminate this flight at around 57 minutes.	Max winds 132kts; slant range 162 km. To verify wind speed, display the wind plot and check values at 24 minutes elapsed time			
8	Click Flight -> Terminate to terminate this flight.	Live flight is terminated.	NOTE: When flight is finished, click on the Stop Pump button on the XDP to discontinue data being sent to RWS.		
9	Click Flight -> Exit to close RWS application.				
10	End of manual procedure				

Appendix I – EXAMPLE of a Test Trouble Report Form

Test Trouble Report (TTR) FORM				
Title/Summary:				
Originator:		**RWS Build:**		**Phone:**
Location:		**Date/Time:**		**Email:**

Priority		Impact		Operation Mode		Type of Issue		Frequency	
1.Immediate fix		**1**.Prevents successful observation; **NO WORKAROUND**		Live Flight		System malfunction		Always	
2.Include in the next build		**2**.Prevents successful observation; **REASONABLE WORKAROUND**		Rework		Modification of existing function/ design		Sometimes	
3.Include in a future build		**3**.Less critical degradation of data		Offline or Maintenance		New function or requirement		One-time occurrence	
4.Include in next major build		**4**.Degradation of system capabilities; **no data affected**		In-line Simulation		Not sure or indeterminate		See description	
5. Undetermined		**5**.Minimum to no impact; nice to have		Other				Unknown	
		6. Undetermined							

Problem Description:	**Ascension No./Release No.:**

Date/Time of Flight (UTC):_____ **Capture File:**_____

Please send by e-mail to *<Test Director>* **and** *<TRG Chair>***.**

Call *<Test Director>* **at** *301-427-####* **or** <u>TRG Chair</u>**> at** *301-427-####* **if you have any questions or comments.**