WECA Interoperability Test Plan

Application Specific Devices

Version 1.0

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1.0 Overview

The goal of the Wireless Ethernet Compatibility Alliance, Inc. ("WECA") is to ensure interoperability among (but not between) IEEE 802.11b and 802.11a products from multiple manufacturers, and to promote these technologies within both the business and consumer markets. To this end, WECA technical committee members have developed the following interoperability test plan for Application Specific Devices ("ASDs"). This plan will be reviewed and updated annually, based on the date it is ratified by the WECA Board of Directors. The ASD test plan shall remain consistent with other WECA test plans.

ASDs are either 802.11b or 802.11a clients or access points ("APs") that cannot be certified under a standard WECA test plan because they do not comply to the standard test configuration and/or because they are designed to perform a specific application. Examples include, but are not limited to: PDAs, telephones, bar code scanners, DVD players, pagers, televisions, recording devices, digital stereos, monitoring equipment, and cable modems. The access points and clients used to validate ASD compliance (from the standard test bed) will meet all of the requirements specified in the Wi-Fi or Wi-Fi5 System Interoperability Test Plan (referred to as the "standard test plan").

Working in conjunction with an appropriate test facility, WECA will execute these tests on vendor products so as to grant products a "seal of interoperability" – the Wi-Fi or Wi-Fi5 certification logo – upon successful completion of the tests. Products that pass the following tests are permitted to bear the appropriate certification logo in accordance with the WECA guidelines. In this fashion, customers may look to WECA logos as a mark of interoperability.

The testing of ASD products has two purposes:

1. Verify the product meets Wi-Fi or Wi-Fi5 Radio Link requirements. Radio link functions include all of the application independent 802.11a or b functions, at the MAC and PHY layers. This includes operations such as association, WEP, and roaming.

2. Verify ASD specific functionality when the standard test bed components are included as part of a functioning system. The functions and acceptance criteria must be defined specifically for each ASD.

    Because of the unique operation of each ASD, a procedure is defined for establishing a functional test (the "Functional Test"). This procedure includes the following steps:

    1. Vendor reviews existing tests, radio link requirements, and the unique requirements of the ASD, and proposes a Functional Test procedure and success criteria.

    2. A WECA Review Committee reviews the vendor's Functional Test proposal and works with the vendor to resolve any issues.

    3. WECA publishes the resulting proposal as a test specification.

    4. The test facility conducts the test according to the specification and according to its usual policies and procedures.

    As WECA identifies a class of products (for example, print servers) that are sufficiently similar, the WECA technical committee may define the class and a single test suite to cover all products in this class. Establishment of a class seeks to streamline and simplify the testing process and is not in any way intended to impose requirements on the non-802.11x functionality of the ASD. Products that do not conform to a class test may specify a Functional Test as described above.

2.0 Radio Link Requirements

Refer to the requirements sections in the Wi-Fi and Wi-Fi5 System Interoperability Test Plans for the general radio link requirements.

3.0 Test Environment

3.1 Test Bed

The test bed will be constructed from components of the existing test bed (WECA-certified APs and clients) and will use vendor-supplied equipment, as needed. Test beds are manually configured according to specifications provided in the test plan. Once the test is started, the actual test shall execute with minimal user intervention. For example, a batch script might periodically launch print jobs to keep a print server busy. Vendor supplied equipment and software shall be left with the test facility upon successful completion of the test, so that it can be included in the test bed.

> Note: Software that runs on the test facility's Windows PCs must be sufficiently developed to be easily installed AND be completely removed repeatedly by a test operator. Furthermore the software must be compatible with the version of Windows that is currently being used for testing. Alternatively, a PC with pre-loaded software may be supplied. If test software is required to run on this PC, (i.e.: the Chariot software), the PC/Software platform shall be compatible with this software.

3.2   Test Tools

The lab provides equipment necessary for testing APs and Clients according to the standard test plan. These are available for use with ASD tests. The specific list of equipment is available from the test lab, and may change from time to time as a result of upgrades to newer software versions and other lab-initiated changes. Consult the lab for a current list. As a representative example, the available equipment, as of this writing, includes:

1. One PC –Server

    1. running Windows-NT server

    2. NetIQ Chariot version 4.1 test suite (Server)

    3. Ethernet and serial ports

2. Three Laptop - Clients

    1. running Windows-98

    2. NetIQ Chariot version 4.1 test suite (Client)

3. 802.11b Analyzer - Sniffer Technologies

4. HP-Adviser Ethernet Packet Analyzer

5. 10BaseT Hub (16 port, Linksys)

6. 10/100BaseT switch (Ziplex NH-2025-GE)

7. Four 802.11b Access Points

8. Four 802.11b Clients

4.0 Functional Test Procedures

The functional tests must be capable of demonstrating that each of the radio link requirements listed in section 2 are satisfied. The tests are expected to rely on the ASD functioning, in its normal application mode, to provide traffic that exercises each radio link function. Verification that each requirement is met may be accomplished via some observable functional behavior or by analyzing sniffer traces.

> Hint: Generally, it is preferable to observe functional behavior, rather than sniffer traces, where it can be relied upon. It is recommended that the standard test be used as a reference to illustrate how each radio link function can be exercised and verified.

4.1   Proposal

The ASD vendor shall propose a Functional Test plan. A completed Functional Test proposal will be based on a WECA-supplied template, which will include:

1. Description of the ASD with respect to its 802.11a or b operation.

2. List of applicable functional requirements. It is possible that some ASD products may never exercise some radio link requirements, yet still remain interoperable in a Wi-Fi or Wi-Fi5 network. These cases shall be treated as an exception in the ASD plan by clearly stating why the requirement should be waived.

3. List of acceptance criteria.

4. Identification of additions or modifications required to the standard test bed or lab test tools. This shall include any:

    -   Applications that must run on Windows PCs such as special applications, agents, clients, or drivers.

    -   Custom hardware.

    -   Modifications required to the testbed.

5. A description of which 802.11a or b options are required in the system under test. These should identify options beyond those required for interoperability testing in other WECA tests.

4.2   Acceptance

The Functional Test proposal defined in the previous section must be approved by a Review Committee prior to lab testing. This committee shall include the Technical Director (or designee), a representative of the testing facility, and at least one additional WECA member. The additional WECA member(s) shall have a working familiarity with the standard tests, general operation of the test facility, and the application to be tested. The member(s) shall be designated by the Technical Director and approved by the vendor.

The Review Committee has 30 days from submission of the vendor's Functional Test (to the Technical Director) to form the committee and review the proposal. If the proposal is rejected by the Review Committee, the Committee will provide the vendor with written suggestions on changes to be made in order for the Functional Test to be accepted. The Review Committee has 15 days to review subsequent proposals. If the vendor believes the Review Committee has not followed these guidelines or that the vendor has received unfair treatment, it may appeal to the Board of Directors.

The Review Committee shall review the Proposed Functional Test and validate that it meets the following criteria:
1. The proposal will provide a reasonable assurance of interoperability with all applicable WECA certified products and be consistent with other tests.
2. The proposed tests will be repeatable with consistent results.

3. The proposed tests can be performed within similar time and lab facility requirements as other WECA tests.
4. The approved test plan will be available to all WECA members.

4.3 Certification Test

The test facility shall follow the approved test plan to configure the test bed, execute the tests, and interpret the results. The vendor shall supply the ASD and any other hardware or software required to execute the test plan. The test facility shall schedule and operationally manage the test in the same manner as other WECA tests. The lab shall provide reasonable resources, including appropriate test tools. If extraordinary test setup is required, the test facility reserves the right to require technical assistance from the vendor, which may include on-site support. The test facility personnel shall execute the approved test plan.