C26532
FLORIDA DOT DIST
VF-2020-54X210-34-RGB

Site Name: _____

Field Test Procedure

DD3925955   **Rev: 1—22 May 2018**

DAKTRONICS

DAKTRONICS, INC.

Introduction

This test procedure describes the field tests for a LED dynamic message sign site for this project. The purpose of this test is:

1. To check that the sign and related equipment supplied by Daktronics has been installed properly.

2. To check that all sign and related equipment supplied by Daktronics is functioning. Special emphasis is placed on items that, if bad, are not expected to show up as being bad during normal operation. Example: earth grounding not connected.

3. To put the sign into the state needed so that it is ready for normal operation without the need for an additional visit before beginning normal operation.

4. As a record that all tests and setup tasks have been performed at each particular site so that it will not be necessary to re-visit sites later because of not being sure whether or not certain tests or setup items have been done.

Note that this is not a test of all software functions or hardware design limits; this would be very time consuming, and would be redundant, as those tests need to be done only once.

This test should be performed for every sign site at the completion of installation of the particular site.

The test messages to be used should be the test messages listed or messages such as "Testing; Message 1" or moving rows, moving columns, etc., that will not misdirect traffic.

This test requires the cooperation of an operator at the central controller with personnel at the sign site.

Test equipment required:

- Boom truck, or whatever is required to get up into the sign
- Digital multi-meter and Ground resistance tester
- Laptop computer, with vanguard software
- Ethernet Cable
- Common hand tools
- Flash Drive/Memory Stick

Site Information

Daktronics Representative: _____

Contract number and name: _____

Sign assembly no.:_____

Sign serial no.:_____

Traffic cabinet assembly no.:_____

Traffic cabinet serial no.:_____

Field controller serial no.:_____

Field controller address no.:_____

Site IP address Primary: _____ Auxiliary: _____

Important: Make sure that the firmware listed below is the most current version, if not make sure to download the latest version of the firmware from Dakfiles.daktronics.com and save on to flash drive.

Sign dimension: _____

Firmware: Version number:

        1) Controller Firmware ED- _____   _____

        2) Module – EPLD   _____

        3) Control Panel   _____

        4) Display Module   _____

        5) VCB/ DIST BRD firmware   _____

        6) ED13309 - Boot loader   _____

Sign Exterior Inspection

____1.0 Visually inspect the outside of the sign for damage.

____1.1 Check that the front, bottom, and rear light sensors are unobstructed.

Power Connection Inspection

____2.0 Turn off the power to the sign, from outside the sign.

____2.1 Remove the panel board cover. Check that the two hot wires, neutral, and earth ground wires from the 120/240 VAC power source are connected into the panel board main breaker terminals, neutral bus, and earth ground bus, respective

____2.2 Check that the earth grounding wire is secure from the case of the sign (inside or outside) to the earth ground rod(s) near the base of the sign.

____2.3 Check that all panel board circuit breakers are off, except for the "Panel board Surge Suppressor" breaker, which should be on. Apply power to the sign.

____2.4 Using a safe procedure, measure the AC voltage from the panel board main breaker input lugs to neutral; it should measure between 105 and 125 VAC. Also, check the voltage from neutral to earth ground; should be less than 10 VAC. (This is a no-load test of the input voltage.) Record below.

   L1 to neutral: _____   L2 to neutral: _____   Neutral to earth ground: _____

____2.5 Re-install the panel board cover temporarily.

____2.6 Terminate Communication cable to VCB.

____2.7 Turn on the circuit breaker for the cabinet lights. Check that the "Cabinet Light Timer" switch or switches work properly and check that all lamps light.

Sign Interior Inspection

____3.0 Make sure the Site Information for the sign is filled out: sign serial number, sign model number, sign assembly number, etc.

____3.1 Inspect the inside of the sign for damage and signs of water intrusion. Check for loose parts, connections and wiring, inside of the sign including the inside of the power supply enclosure, and service control panel. Also, verify that the fiber-optic cables are connected to the proper location on the VCB (Vanguard control board).

____3.2 Check that all conduits that enter the sign are sealed inside at the end that enters the sign.

____3.3 Resistance between circuit ground on the VCB and earth ground.
- Verify that power to the display is off.
- Make sure cat5 cable isn't plugged in from controller to VCB when doing this test.
- If equipped; remove P1 (the 4-pin connector) from all Mini CAN I/O board inside the display
- Inside each power supply enclosure temporarily disconnect the green wire from back of display that is connected betweenTB1 and the back wall of the display.
- Using a Multi-Meter Measure the resistance between from the end of the green wire connected to TB1 to the back wall of the display
- Reading should be from 10K to 220K
- Record Value _____
- After test is complete reconnect green wire to the back of the sign and reconnect the cat5 cable.

Sign Power Test

____4.0 Turn on all circuit breakers.

____4.1 Check all sign convenience outlets and control equipment outlets by using a multi-meter, each outlet should measure between 105 and 125 VAC.

Functional Test

____5.0 Turn on the sign controller power switch, check that the power indicator LED is on, and check that the Active LED on the sign controller begins blinking

____5.1 Enter all the necessary data into the sign controller such as address, module type, sign height, sign width, sign type, access type, and peripherals.
   a.   Reference display configuration sheet if necessary

____5.2 Perform software reset through the VFC-3000 controller by selecting the "Reset Only" function on the LCD menus. (This will save the information into memory).

____5.3 **Note: If testing at night run the all on 10% test patterns and turn the fans and heaters (if equipped) on manually in controller menu.** Display the "**All On 100% Burn**" test pattern; check that all fans and/or heater turn ON. Once complete set test pattern to "**None**".

____5.4 Turn on each "Personal Ventilation Timer" switch individually momentarily; ventilation fans should turn on each time.

____5.5 Push the button in the service control panel for the ventilation fans and verify they turn on. Release it and they should turn off.

____5.6 Check that all power supplies are passing in the peripheral menu.

____5.7 Check that the value indicated by each of the three light sensors appears reasonable for the current ambient lighting conditions. Record below:

      a. **Note:** Light sensors utilize digital integrated circuits, which are calibrated at the integrated circuit factory, and do not require additional calibration.

Date: _____ Time: _____ Sky conditions: _____

      Light sensor readings: 1: _____ 2: _____ 3:_____

____5.8 Check that the internal and ambient temperatures appear correct, and record below:
      Note: Temp sensors utilize digital integrated circuits, which are calibrated at the integrated circuit factory, and do not require additional calibration.
         Ambient temperature (Temp Ambient), degrees F.: _____
         Internal temperature (TempSign1), degrees F.: _____
         If equipped: Internal temp #2 (TempSign2), degrees F.: _____
         If equipped: Internal temp #3 (TempSign3), degrees F.: _____

____5.9 Check that the humidity sensor is functioning, and record the reading below:
      a. Relative humidity: _____

____5.10 Parallel surge suppressor with remote reporting: Display the "View Peripherals" screen on the LCD, and check that the Surge Suppressor entry indicates "Pass".

____5.11 **Note: If testing at night turn the fans on manually in controller menu.** Airflow sensors with electronically-controlled fans.
      a. Display the "All On 100% Burn" test pattern in order to turn on the ventilation fans. Checks that all "Airflow Sensors" indicate "pass" on the sign controller; check that the same quantities of airflow sensors that exist in the sign are indicated on the sign controller.

      b. Blank the sign to turn off the "All On 100% Burn" test pattern, and check that the fans turn off. Check that all airflow sensors indicate "pass".

____5.12 **Note: If testing at night turn the fans on manually in controller menu.** RPM Sensors with electronically controlled fans.
      a. Display the "All On 100% Burn" test pattern to turn on the ventilation fans. Checks that all RPM sensors report values other than 0 on the sign controller; check that the same quantities of RPM sensors that exist in the sign are indicated on the sign controller.

      b. Blank the sign to turn off the "All On 100% Burn" test pattern, and check that the fans turn off. Check that all RPM sensors indicate "pass"

____5.13 **Note: If testing at night do the all on 10% test patterns**. Display the "All On 100%" test pattern and check that it is displaying. Turn off one power supply. Check in the "View Peripherals" screen that all power supplies (isolation boards) that are on indicate 24.1 to 25.2 VDC. Repeat the above step for each remaining power supply. Turn on all power supplies.

____5.14 Run the following test patterns and verify that all the test patterns display properly.
- a. Alphabet
- b. Line ID
- c. Module ID
- d. **Note if testing at night don't do this test pattern.** Auto Test Patterns

____5.15 Set to "Normal Mode" to exit the test pattern mode.

____5.16 Sign door signal switches: Display the View Peripherals Menu on the LCD. Close all sign doors, and check   that the LCD indicates that the doors are closed.
Note: It may take up to 10 seconds after the door position is changed to indicate the change

____5.17 Using Vanguard software display a message that will not misdirect traffic and that has characters that butt up to the top, bottom, left, and right edges of the sign and verify that it displays correctly. This verifies proper message display capability for this sign size.
a. Using a test message check visually that the dimming level of the display appears reasonable for the light conditions with automatic dimming set and record the level. Dimming Level%_____

____5.18 Set the time, date, and correct time zone.

____5.19 **Note: If testing at night run the all on 10% test patterns.** Run the "All On 100% Burn" test pattern and leave the brightness set to 100%. Using a safe procedure, check and record the AC voltage from the sign panel board main breaker input lugs to neutral; it should measure between 105 and 125 VAC. Also, check the voltage from neutral to earth ground; it should measure less than 10 VAC. (This is a loaded test of the input voltage.) Record below.
- a. L1 to neutral: _____   L2 to neutral: _____   Neutral to earth ground: _____

____5.20 Perform a pixel test and verify that all pixels are reported as good.

____5.21 Reinstall all enclosure covers.

____5.22 Record the installed firmware version numbers (from the sign controller "Version Information" page), and the dimensions of the sign. (If the dimension of the sign doesn't match the actual sign size, correctly configure the sign controller for this site.) Record the following information under the Site Information:

____5.23 Auxiliary Control Panel

    a.   Turn on the Auxiliary Control Panel power switch. Check that the Power indicator LED is on and that the Active LED is blinking.

    b.   Push the Reset switch on the auxiliary control panel. The field controller should reset, the LCD should stop updating for about a minute, and it should return to the main screen.

    c.   Set the Local/Remote switch to Local mode and verify the ACP communicates with the field controller.

    d.   Set the Local/Remote switch to Remote mode and verify that the Local LED turns off.

Final Details

____6.0 **If equipped:** Confirm that all sign and traffic cabinet thermostats are set properly, and all

____6.1 Equipment covers are installed.

____6.2 Verify the sign is blank.

____6.3 Verify that any test messages you created have been removed from the sign controller.

____6.4 Record if main breaker is left on or off: On: ___   Off: ___   Date: _____

____6.5 Make sure the Site Information is filled out: serial numbers, site location, phone number, sign dimension, firmware versions, etc.

It is acknowledged that the following field test procedure has been completed for this site and the display is operational.

Daktronics Technician

_____   _____   _____

Printed Name   Signature   Date

Customer

_____   _____   _____

Printed Name   Signature   Date

DAKTRONICS PERSONNEL MUST RETURN THIS COMPLETED DOCUMENT AND QUALITY FEED BACK FORM TO THE DAKTRONICS CONTRACT PROJECT MANAGER.

Transportation Quality Feedback form

For Internal Daktronics use only. This is not part of the field Test Procedure. This form needs field out and sent back to Daktronics with the Field Test Procedures

Submitted By_____ Contract#_____

Display Type (i.e. VF2400_27x105-66-A) _____

Location of Display_____

Display Serial #_____ nearest City and State _____

Commissioning Date_____ Project Manager_____

Did you experience any issues or unplanned work during the commission of this display? **Yes/ No** (if no skip to additional comments/Punch list items)

Failed Part Description	Part Number	Part Serial #

Describe the issues and or unplanned work

_____
_____
_____
_____
_____
_____
_____
_____
_____

Additional Comments /Punch list Items

_____
_____
_____
_____
_____
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_____
_____

FTP completed   **Yes / No**

Site Complete   **Yes / No** (if no documents punch list items above)