CURVE WARNING SYSTEM TEST PLANS

1. DEVICE NAMING COORDINATION

1.1. The System Integrator shall coordinate with the TMC/ROC to identify the device names for each device.

1.2. The System Integrator shall then send a request to TOTS to identify the network name, IP address, and any pertinent configuration information.

2. EXPLANATION – STANDALONE (SALT) TESTING

2.1. The System Integrator shall work with the DEVICE VENDOR (if required by the testing form) and complete the NDOT specified SALT tests (non-network) on each unit of equipment after installation.

2.2. Conduct SALT testing on each unit of equipment as outlined on the NDOT provided testing form.

2.3. The System Integrator shall coordinate through the Resident Engineer and the Construction Crew to have an appropriate NDOT representative present for the onsite inspection.

2.4. The System Integrator shall submit the DEVICE vendor commissioning documents with the SALT testing to the Engineer for review and approval.

2.5. Supply a bucket truck and operator, or suitable equivalent equipment necessary to carry out procedures as required by the testing documents, at no direct payment.

CURVE WARNING SYSTEM (CWS) SALT PROCEDURE

TEST #	SALT TEST PROCEDURE	EXPECTED RESULT	PASS / FAIL
CWS Name:		**IP Address:**	**GPS:**
TOTS Network Name:		**Associated Cabinet Name:**	
Purpose and General Verification			
System Integrator: *This SALT tests the proper installation of a functional CWS. The system integrator will use a laptop to perform this test. Using the manufacture's software, the integrator will be able to verify the CWS is operational.* ***General Verification****: For each test below, complete the CWS SALT Matrix, circling the "Pass" or "Fail" in the appropriate cell. Only indicate a "Pass" on this form if the entire matrix column related to the tested function passes for EACH CWS being tested.*			
CWS Information			
1.	Verify CWS Information using the manufacturer software or device label.	**Manufacturer: _____** **Model: _____** **Serial Number: _____** **Firmware Ver: _____**	Pass / Fail
2.	Manufacturer's commissioning of CWS equipment.	Manufacturer confirmation of full operation of all CWS -associated equipment.	Pass / Fail
Equipment Verification			
3.	Verify CWS controller is securely mounted in cabinet.	CWS controller is securely mounted in cabinet.	Pass / Fail
4.	Using a meter, verify the system is properly bonded to earth ground.	Meter reading of 5 Ohms or less.	Pass / Fail
5.	Verify Ethernet cable length does not exceed 328 feet from the CWS Controller to the PoE++ injector or PoE++ switch, using either a time domain reflectometer or beginning- and end-foot markers.	The Ethernet cable length is less than 328 feet. **Cable Length: _____**	Pass / Fail
6.	Verify power supply energizes the system.	System is energized.	Pass / Fail
7.	Verify all cabling is labeled with the to/from on each end and at any major transition point and is neatly managed throughout the cabinet.	All premise or inside plant cables originating and ending in the cabinet are properly terminated and labeled. Labeling material rated for Outside Plant (OSP) use. Cables are neatly managed using adjustable hook-and-loop fastener straps.	Pass / Fail
8.	Verify CWS is accessible via User Interface (UI).	CWS accessible via User Interface (UI).	Pass / Fail

9.	Verify CWS operations locally via User Interface (UI).	CWS turns on/off via User Interface (UI).	Pass / Fail
10.	Using manufacturer's software, issue command to actuate the field device.	Visual confirmation of field device activation.	Pass / Fail
11.	Using manufacturer's software issue command to de-actuate the field device.	Visual confirmation of field device deactivation.	Pass / Fail

Signatures

DATE	**AGENCY/FIRM**	**PERFORMED BY** (Print Name) (Integrator)	**INTL**	**AGENCY/FIRM**	**WITNESSED BY** (Print Name) (NDOT)	**INTL**

Integrator Signature	
NDOT Signature	

3. **EXPLANATION - SUBSYSTEM (SST) TESTING**

3.1. ***DOES NOT APPLY TO THIS SYSTEM AS IT DOES NOT CONNECT INTO THE NETWORK OR BACK TO THE TMC/ROC***