

**ROAD WEATHER INFORMATION SYSTEM
DEVICE TESTING - LEVEL C**

Project Name: _____ **Test Date:** _____

RWIS # _____ **Route:** _____ **MM** _____ . _____ **NB/SB/EB/WB/Median**
Nearest Side Street Name: _____

This procedure outlines Level C device test to be performed on Road Weather Information System. Level C device testing demonstrates that each device is fully operational from the designated control center to the device work site after integration into the designated control center software management systems. After the Contractor's verification test, the Department will conduct a 14-day observational and functional test period.

Testing Software Name: _____

Test Location: _____

Service Pole No.: _____

RWIS Manufacturer: _____

RWIS Model No.: _____

RWIS Serial No.: _____

RWIS Communication Mode with Center: Fiber Other **If Other List:** _____

1: CAMERA

No.	Task	Required Value	Actual Value	Pass	Fail	Comments
I.	Verify PTZ operation					
II.	Obtain color video still frame image	Max. 8 preset images in every 5-10 minutes				
III.	Continuous Pan rotation	360°				
IV.	Variable Pan Speed	0.5° per second to 225° per second				
V.	Vertical Tilt range	180° of movement (0° to 90° down to 0°, with video rotation)				
VI.	Variable Tilt Speed	0.5° per second to 60° per second				
VII.	Zoom	Up to 10X Digital				
VIII.	Verify capability to configure preset positions	Up to 64				

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RWIS Data Pages (Web pages):

All Weather and Site forecasting (NTCIP-ESS) Data available through web based User Interface in text format in following web pages:

Summary Page

RPU Name: _____

Representative Surface Sensor Name: _____

Data collection Time for the RPU: _____

Surface Status for the RPU's Representative Surface Sensor: _____

Surface Temperature, If available, for the RPU's Representative surface sensor: _____

Subsurface Temperature, if available, For the RPU's Representative Subsurface Probe: _____

Air Temperature: _____

Relative Humidity: _____

Dew Point Temperature: _____

Precipitation Occurrence, Or Type, Intensity or Rate: _____

Visibility Distance: _____

Wind Gust Speed: _____

Average Wind Direction: _____

No.	Task	Required Value	Actual Value	Pass	Fail	Comments
I.	Verify page display one – line summary of current data for each RPU.	X	X			
II.	Verify color indication of surface status and Precipitation type.	X	X			
III.	Verify Summary page available link	Maps, Forecast & cameras				
IV.	Verify Summary web Page refresh automatically	In every 6 minutes				

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Surface Summary Page

RPU Name: _____

Data Collection Time: _____

Air Temperature: _____

Surface Sensor Name & No.: _____

Surface Status: _____

Surface Temperature: _____

Subsurface Temperature: _____
If available, for the
Surface sensor

Dew Point Temperature: _____ Freeze Point Temperature: _____

Average Wind Speed & Direction: _____

Precipitation Type: _____

Chemical Factor: _____ Chemical Percent: _____

Solution Depth: _____

Ice Percent: _____

No.	Task	Required Value	Actual Value	Pass	Fail	Comments
I.	Verify page display current data for each surface sensor in system grouped by RPU.	X	X			
II.	Verify color indication of surface status for each surface sensor.	X	X			
III.	Verify available link through summary page (depending upon available data)	Maps, Forecast & cameras				
IV.	Verify Surface Summary web Page refresh automatically	In every 6 minutes				

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RPU Status Page

RPU Name: _____

Data Collection Time: _____

Air Temperature: _____ Relative Humidity: _____

Dew Point Temperature: _____ Wet Bulb Temperature: _____

Air Temperature: *Minimum:* _____ *Maximum:* _____
(24 Hour)

Average Wind Speed & Direction: _____

Wind Gust Speed & Direction: _____

Visibility Distance: _____ Water Level: _____

Precipitation Occurrence or Type, Intensity, Accumulation and Rate: _____

Details for each Surface Sensor:

Surface Sensor Name: _____

Surface Status: _____

Surface Temperature: _____ Freeze Point Temperature: _____

Chemical Factor: _____ Chemical Percent: _____

Solution Depth: _____ Ice Percent: _____

Conductivity: _____ Salinity: _____

Subsurface Temperature: _____ Subsurface Moisture: _____
(For each Subsurface Sensor) (For each Subsurface Sensor)

No.	Task	Required Value	Actual Value	Pass	Fail	Comments
I.	Verify RPU Status page display all current data for single RPU.	X	X			
II.	Verify color indication of surface status and Precipitation type.	X	X			
III.	Verify available link through RPU status page	Maps, Forecast & cameras				
IV.	Verify RPU Status on web Page refresh automatically	In every 6 minutes				

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Nearest Side Street Name: _____

Atmospheric History Page

RPU Name: _____

Data Collection Time: _____
(For each History Data Snapshot)

History Time Period: _____

Air Temperature: _____ **Relative Humidity:** _____

Dew Point Temperature: _____

Average Wind Speed & Direction: _____

Wind Gust Speed: _____

Precipitation Occurrence or Type: _____
Intensity, Accumulation and Rate

No.	Task	Required Value	Actual Value	Pass	Fail	Comments
I.	Verify Atmospheric history page display all 12 hrs. Atmospheric data for single RPU. (Most recent to least recent)					
II.	Verify color indication of Precipitation type.					
III.	Verify available link to access previous or next 8 hrs. history data					
IV.	Verify current display data linked to Surface history data					
V.	Verify Export link of web Page	Export data in CSV format(used by external application)				

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Surface/Atmospheric History Page

RPU Name: _____

Data Collection Time: _____
(For each History Data Snapshot)

History Time Period: _____

Surface Status: _____ **Surface Temperature:** _____
(For Selected Surface Sensor) (For Selective Surface Sensor)

Subsurface Temperature, if available: _____
(For Selected Surface Sensor)

Air Temperature: _____ **Relative Humidity:** _____

Dew Point Temperature: _____

Average Wind Speed & Direction: _____

Wind Gust Speed: _____

Precipitation Occurrence or Type, Intensity _____

No.	Task	Required Value	Actual Value	Pass	Fail	Comments
I.	Verify Surface/Atmospheric history page display 12 hrs. Atmospheric and surface history information. (Most recent to least recent)					
II.	Verify color indication of Precipitation type.					
III.	Verify available link to access previous or next 8 hrs. history data					
IV.	Verify the link through each data field Title.					
V.	Verify Export link of web Page	Export data in CSV format(used by external application)				

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Nearest Side Street Name: _____

Surface/Precipitation History Page

RPU Name: _____

Data Collection Time: _____
(For each History Data Snapshot)

History Time Period: _____

Surface Status: _____ **Surface Temperature:** _____
(For Selected Surface Sensor) (For Selective Surface Sensor)

Surface Temperature, if available: _____
(For Selected Surface Sensor)

Freeze Point Temperature: _____ **Solution Depth:** _____
(For Selected Surface Sensor) (For Selective Surface Sensor)

Chemical Factor: _____ **Chemical Percent:** _____
(For Selected Surface Sensor) (For Selective Surface Sensor)

Ice Percent: _____
(For Selected Surface Sensor)

Conductivity: _____ **Salinity:** _____
(For Selected Surface Sensor) (For Selective Surface Sensor)

Precipitation Occurrence or Type, Intensity, Accumulation and Rate _____

No.	Task	Required Value	Actual Value	Pass	Fail	Comments
I.	Verify Surface/Precipitation History Page display 12 hrs. Precipitation and Surface History information. (Most recent to least recent)					
II.	Verify color indication of Surface Status and Precipitation.					
III.	Verify available link to access previous or next 8 hrs. history data					
IV.	Verify the link through each data field Title.	Display glossary definition for the field				
V.	Verify Export link of web Page	Export data in CSV format (used by ext. application)				

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Project Name: _____ Test Date: _____

RWIS # _____ Route: _____ MM _____ . _____ NB/SB/EB/WB/Median
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History Graph Page

Surface Temperature: _____ Freeze Point Temperature: _____
(For Each Sensor) (For Each Sensor)

Surface Status: _____
(For Each Sensor)

Precipitation Type and Intensity: _____
(For Each Sensor)

Air Temperature: _____ Dew Point Temperature: _____

No.	Task	Required Value	Actual Value	Pass	Fail	Comments
1.	Confirm Line graph representation of historical temperature data for a Single RPU.	X	X			
2	Chart Scale					
I.	Verify customization for Time and date	dd mon yyyy hh:mm format				
3	Chart Selection					
I.	Verify name and no. of each sensor display along with a check box. (for Current RPU)	Air Temp. Dew Temp. Surface Temp. Freeze Temp.				
II.	Verify Export link of web Page used by (ext. application)	Export data in CSV format				
4	Legends					
I.	Verify legend Display by Checking the box	Precipitation & Intensity and Surface Status legend				

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Glossary Page

No.	Task	Required Value	Actual Value	Pass	Fail	Comments
I.	Verify web user interface include a glossary page	X	X			
II.	Verify the glossary page by defining a data item through web link of RWIS Data pages.	X	X			

Camera Page

No.	Task	Required Value	Actual Value	Pass	Fail	Comments
I.	Verify Camera attached to one or more RPUs	Camera page available				
II.	Verify Camera page refresh video images	In every 6 minutes				
III.	Verify looping option in camera page	Last 6 (or more) video images delay time(1-10 sec)				

Pavement Forecast Page

The Pavement Forecast data shall deliver to Network Server in graphical format by contractor's meteorologist staff.

Air Temperature: _____ **Dew Point Temperature:** _____
Forecast **Forecast**

Surface Temperature: _____ **Precipitation Forecast:** _____
Forecast

Wind Speed & Direction: _____
Forecast

Cloud Cover, Relative Humidity: _____
& Precipitation Probability

Snow Accumulation Forecast: _____
(If needed)

Forecaster's Discussion: _____

No.	Task	Required Value	Actual Value	Pass	Fail	Comments
I.	Verify Pavement Forecast data display in graphic	X	X			

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	format.					
II.	Verify additional page access from Pavement Forecast main page. (for additional details)	Temperature, Precipitation& Cloud Cover, Snow Accumulation Wind & Relative Humidity				
III.	Verify link to Historical pavement Forecast page					
IV.	Verify temperature page (user)customization option (display in graphical format)	Forecast Actual				

Map Page

No.	Task	Required Value	Actual Value	Pass	Fail	Comments
I.	Verify Link maps, status maps and Overlay maps accessibility					
II.	Verify in Link map RPU site noted on map display current data for selected RPU in another page.					
III.	Verify Status map display data in tabular form in same page					
IV.	Verify type of overlay map display on web page	Regional & Site map				
V.	Verify Regional map have only one RPU sites on the map.					
VI.	Verify in Site map current data display in data tag.					
VII.	Verify Site map display all data for each RPU on map (By Default)	Air & Dew point Temperature, Average Wind speed & Direction ,Precipitation Occurrence or Type ,Relative Humidity				
VIII.	Verify each Sensor Tag Display in Site map (By Default)	Chemical Factor& percent, Subsurface Temperature, Surface Status & Temperature				

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LEVEL C TEST RESULTS:

PASS

FAIL

Correction Work Items:

1. _____
2. _____
3. _____
4. _____
5. _____

We agree that Level C testing of the Road Weather Information System has been performed and that the information above accurately represents the results of the test.

Contractor Name: _____

Contractor Representative Name: _____

Signature and Date: _____

ITS Inspector Name: _____

Signature and Date: _____

Resident Engineer Name: _____

Signature and Date: _____

Corrected Work Items:

ITS Inspector Signatures & Date

1. _____
2. _____
3. _____
4. _____
5. _____

