

## Vaisala CheckTime – a Liquid Water Equivalent (LWE) solution for improved efficiency in Winter Weather Operations. What does ATC need to know about LWE?

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Recent regulation changes within the FAA will change winter operations this season (2014-2015) for commercial airlines. In past years, the FAA didn't provide Holdover Times for aircraft operations when the ATIS or ASOS/AWOS reported heavy snow. That will all change with the introduction of LWE.

Early 2000 the FAA funded research with the National Center for Atmospheric Research and Dr. Roy Rasmussen to find a replacement for the snow based visibility Holdover Table published annually by the FAA. The research revealed that technology had advanced to measure the Liquid Water Equivalent (LWE) of snow and other frozen precipitation and was a more precise indicator of the performance of aircraft de-icing fluids than the snow based visibility in the Holdover Tables. By measuring the LWE of snow every minute and pairing the water content against the saturation point of the de-icing fluid, a precise time, CheckTime™, can be calculated to indicate the effectiveness of the fluid. CheckTime™ represents the time when the accumulated water content begins to cause failure of the aircraft de-icing fluid.

During the past winter (2013-2014) Vaisala launched CheckTime™ with 3 major airlines in the U.S. under the direction and supervision of the FAA in a winter demonstration. Over 400 flights incorporated CheckTime™ into their de-icing procedures prior to departure.

### Snapshot of Vaisala AviCast with CheckTime™

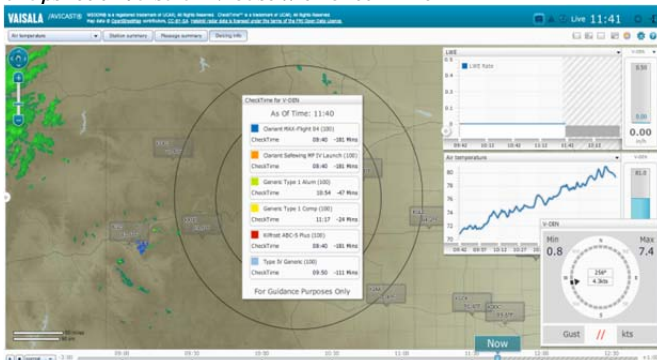


Image provided by American Airlines

In a recent announcement at the SAE, G-12 committee meeting, the FAA stated that any U.S. airline wishing to utilize CheckTime™ and LWE may request authorization through their FAA Certificate Management Office for the coming winter (2014-2015).

Vaisala Inc., headquartered out of Louisville, Colorado, provides the information to the airlines as a service and owns and operates a network of weather stations installed at the airport. Airlines are able to get CheckTime™ information two ways; directly into the cockpit via the airline ACARS system and/or on a web-based display.

Vaisala's web-based display, called AviCast, shows CheckTime™ information, and many other features and functions including lightning alerting, weather radar and LWE forecasting, as well as a full suite of atmospheric conditions. Since AviCast can be viewed on any web browser, it provides the capability for any airline managers, deice managers, ATC operators and other interested parties to view this information and stay abreast of the current and changing weather conditions.

ATC may see a variation in airline operations this winter based on which airlines have adopted this new technology into their winter operations. Some airlines may now be departing in snow conditions which previously would have restricted them due to the snow based visibility table. Vaisala continues to build its network of weather stations to support this technology and the commercial airline industry.

\* CheckTime is a registered trademark of UCAR.