

Best Practices for Implementation of EPA QA Handbook (Levels 1 and 2)

This document provides a high level overview for staff already familiar with AirVision as to potential best practices for implementation of the USEPA guidance for best practices for QA for gases.

EPA Handbook Guidance	Best practices for implementation in AirVision
1-point QC checks completed according to the SOP and at least every 14 days?	The Calibration Trend Graph can be used to visually review calibration results over a long period of time (e.g., quarter or annual), and a mouse-hover over will show exact dates in the event the exact date of the calibration is unclear.
1-point QC points within $\pm X\%$ (or $\pm Y$ ppb, whichever is greater) of the transfer standard value?	The user can set the Drift Limit in a calibration program, and AirVision will denote any result where the difference is $>$ the set percentage with an asterisk (*) marker in the Calibration Results report. The Calibration Trend Graph will also show results and high/low bound lines for configured drift limits for visual review of the differences vs analyzer response.
1-point QC check percent differences calculated correctly? At least 10% and a minimum of 1 (whichever is greater) of 1-point QC checks should be verified.	(Hand verification of AirVision calculations)
Zero/span checks completed according to the SOP and at least every 14 days?	The Calibration Trend Graph can be used to visually review calibration results over a long period of time (e.g., quarter or annual), and a mouse-hover over will show exact dates in the event the exact date of the calibration is unclear.
Zero points within $\pm X$ ppb over 24 hours? Zero points within $\pm Y$ ppb over >24 hours - 14 days?	The user can set the Drift Limit in a calibration program, and AirVision will denote any result where the difference is $>$ the set percentage with an asterisk (*) marker in the Calibration Results report. The Calibration Trend Graph will also show results and high/low bound lines for configured drift limits for visual review of the differences vs analyzer response.
Span points within $\pm X\%$ of the transfer standard value?	The user can set the Drift Limit in a calibration program, and AirVision will denote any result where the difference is $>$ the set percentage with an asterisk (*) marker in the Calibration Results report. The Calibration Trend Graph will also show results and high/low bound lines for configured drift limits for visual review of the differences vs analyzer response.

<p>Zero/span point differences calculated correctly? At least 10% and a minimum of 1 (whichever is greater) each of zero and span checks should be verified.</p>	<p>(Hand verification of AirVision calculations)</p>
<p>Shelter temperature maintained within the allowable FRM/FEM temperature range?</p>	<p>Shelter temperature parameter should be set with High-High (H) and Low-Low limit in the "Validation" tab of the logger channel (hourly average). The Sample Data Editor can be used to filter (Flag field "not blank") to identify any hours with a H or L flag.</p>
<p>Shelter temperature within $\pm 2.1^{\circ}\text{C}$ standard deviation over 24 hours?</p>	<p>See application note for Data Average Rollup program and to create a new parameter for shelter temperature standard deviation. Rollup programs can't do an "H" or "L" flag after rollup, but user could filter/sort results in the Data Editor, or ADVP could be run to create alarm email, using a daily Group Task to do the site temperature rollup and ADVP rule check in real-time.</p>
<p>Shelter temperature standard deviations calculated correctly? At least 10% and a minimum of 1 (whichever is greater) 24-hour period(s) should be verified.</p>	<p>(Hand verification of AirVision calculations)</p>
<p>Calibration or Multi-point Verification completed according to the SOP and within the past 182 days (or 365 days, if zero/span checks are performed daily)?</p>	<p>(Manual)</p>
<p>Calibration(s) and/or Multi-point Verification(s) results within $\pm 2.1\%$ (or ± 1.5 ppb, whichever is greater) of the best-fit straight line? Slope within 1 ± 0.05? Only answer "Yes" if the answer to both questions is "yes". Otherwise, answer "No". (EPA recommends the DASC tool be used for these calculations)</p>	<p>Currently the DASC is the best tool for this evaluation, we are looking at a DASC report.</p>
<p>Calibration(s) and/or Multi-point Verification(s) calculated correctly? At least 10% and a minimum of 1 (whichever is greater) should be verified.</p>	<p>(Hand verification of AirVision calculations)</p>
<p>Maintenance performed according to the SOP and on</p>	<p>Logbook Reports and/or Work Item reports from CATS module.</p>

<p>schedule for the monitor, transfer standard, zero air source, and sample line/manifold? (See applicable maintenance checklist and/or SOP)</p>	
<p>All data logger status flags appropriate and accounted for in the dataset with AQS qualifier flags or null codes, as needed?</p>	<p>Using the data editor, QA staff can filter hours for flags = "contains <" and Null Code = "blank" and qualifier code = "blank" to find invalid hours that do not yet have a null code or qualifier code.</p>
<p>Adequate and accurate logbook, strip chart, QC/QA, maintenance, and local significant/exceptional event documentation provided to recreate the events recorded? Level 2 only: At least 10% and a minimum of 1 (whichever is greater) of each record should be verified.</p>	<p>(Hand verification of AirVision flagging and internal documentation review)</p>
<p>Concentration data gaps investigated and resolved?</p>	<p>Review via Data Editor, gaps would be where Value "is blank".</p>
<p>Data Outlier(s) (e.g., high/low concentrations) and Probable Cause(s):</p>	<p>Can review graphically via Data Editor time series graph, and / or sort values in the Data Editor by value (and also filtering for Null Code "is blank" and qualifier code "is blank" to identify outliers that aren't already nulled.</p>