TSI Link A B Comparison Workbook User Guide

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Contents

Overview

The A-B Comparison workbook contains a set of worksheets for TSI Link™ Report Creator that support comparative analyses. A-B comparisons are useful to compare two events, conditions, or locations. Some examples include:

- Before and after an engineering control is installed
- Upstream and downstream of an air filter
- Indoor versus outdoor
- Summer versus winter
- With a machine in operation versus not in operation
- Sample point versus an established baseline

The templates in this workbook are designed to make comparative analysis between any two studies efficient and insightful. It supports a variety of measured including sound, particulate matter, and gases. Each worksheet is described below.

If you are new to Report Creator, check out the **Report Creator Product Page** for guides and videos including: setting up an account, installing the application, using the study manager, using the layout view, customizing report creator templates, etc. This application guide builds upon and supplements those guides. This guide does not duplicate all of the content on those guides.

A-B Comparison Worksheets

The table below lists the worksheets available in the A-B comparison workbook.

Worksheet Template	Supported Measurements	Supported Instruments	Examples of Applications
IAQ Gas – **Number Concentration**	CO2 (ppm) Formaldehyde, CHOH (ppb) CO (ppm) Ozone, OJ (ppb) NO2(ppb) Cl (ppm) Ammonia, NHJ (ppm) voe (ppb & ppm)	Omni Trak™ Q-Trak™ XP	✓ IAQ impact studies ✓ “What is that smell?” Troubleshooting ✓ Remediation Analysis
PM – **Mass Concentration**	PM 1.0 PM2.5 PM4.0 PM 10	Omni Trak™ Q-Trak™ XP DustTrak™ AM520	✓ Remediation Analysis ✓ Proactive IAQ checking of schools commercial buildings and office buildings with and without people
PM – **Mass Concentration H&S** (Note 1)	NC 0.3 – 0.5 um NC 0.5 – 1.0 um NC 1.0 – 2.5 um NC 2.5 – 4.0 um NC 4.0 – 10 um	Omni Trak™	✓ Industrial Hygiene analysis ✓ Checking of manufacturing cleanliness ✓ Studies of working environment adjustments
PM – Number **Concentration IAQ**	NC 0.3 – 0.5 um NC 0.5 – 1.0 um NC 1.0 – 2.5 um NC 2.5 – 5.0 um NC 5.0 – 10 um	Q-Trak™ XP A100	✓ Measuring HVAC adjustment ✓ Analyzing effectiveness of a mobile filter ✓ Air Quality in an empty vs full public space
Sound – Broadband	LCS LCF LCI LAS LAF LAI LZS LZF LZI	Omni Trak™ Casella™ 620	✓ Analysis of community noise ✓ Manufacturing sounds studies ✓ Analyzing impact of engineering adjustments
Sound – Octave Band	LZS octave band	Casella™ 620	✓ Public or commercial spaces ✓ Classroom studies
Configurable Report	See Note 2		Thousands of possibilities!

Notes:

1. There are two versions of the PM Number Concentration worksheet. The difference between the two is size cut point in the second highest channel. The “H&S” version has a 4.0 um cut point to reflect the respirable size range.
   The “IAQ” version has a 5.0 um cut point to reflect the MERV filtration range.

2. The Configurable Report workbook allows you to select up to three measurements in a study from a large list. This configuration is made at the bottom of the Cover worksheet. See the Configurable Report section for more detail.

Worksheet Steps

This workbook and it worksheets leverage the common Report Creator Functions – Customizing, Study Manager, Importing Tests, Layout View, etc. – for instructions on those functions see the **Report Creator Product Page**.

The worksheet templates within this workbook has a similar structure. This section outlines the basic operating steps for all of them. Unique analyses for different worksheets are discussed in Step 5 Analyze Data.

Step 1 Select a Worksheet

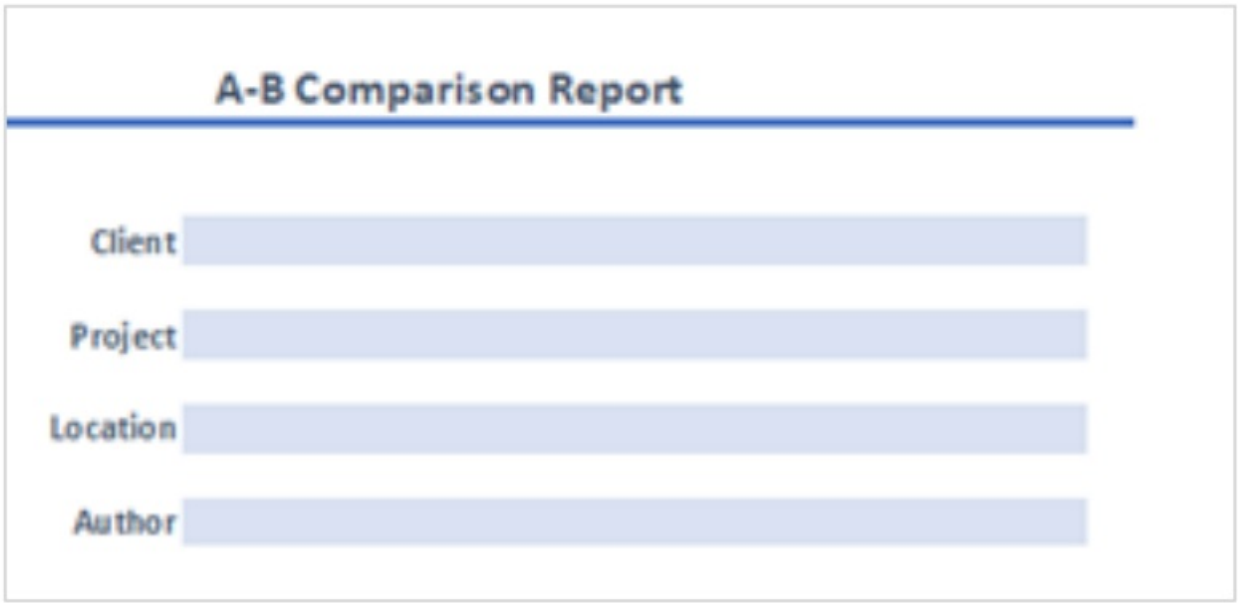
The A-B Comparison workbook is one of many that are available. An overview of the workbooks available is on the Report Creator product page.

The overview of worksheets in the prior section provides guidance on the A-B Comparison Worksheets.

Step 2 Cover Sheet

This workbook contains a very simple Cover sheet that can be customized to suit your needs. See the Customizing Report Creator Templates to learn how. Other sheets can be added to your workbook1 if desired.

The bottom of the Cover sheet includes a configuration tool for the Configurable Report. This configuration tool is discussed below. If the Cover sheet is deleted from the workbook, the Configurable Report will not be functional.

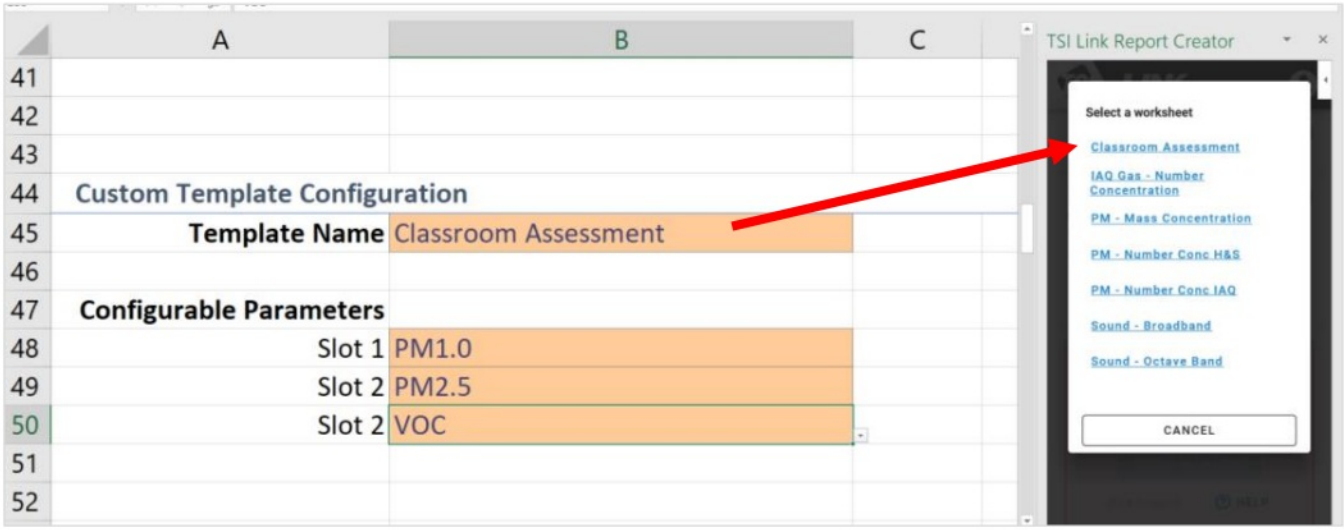


Configurable Report Set up

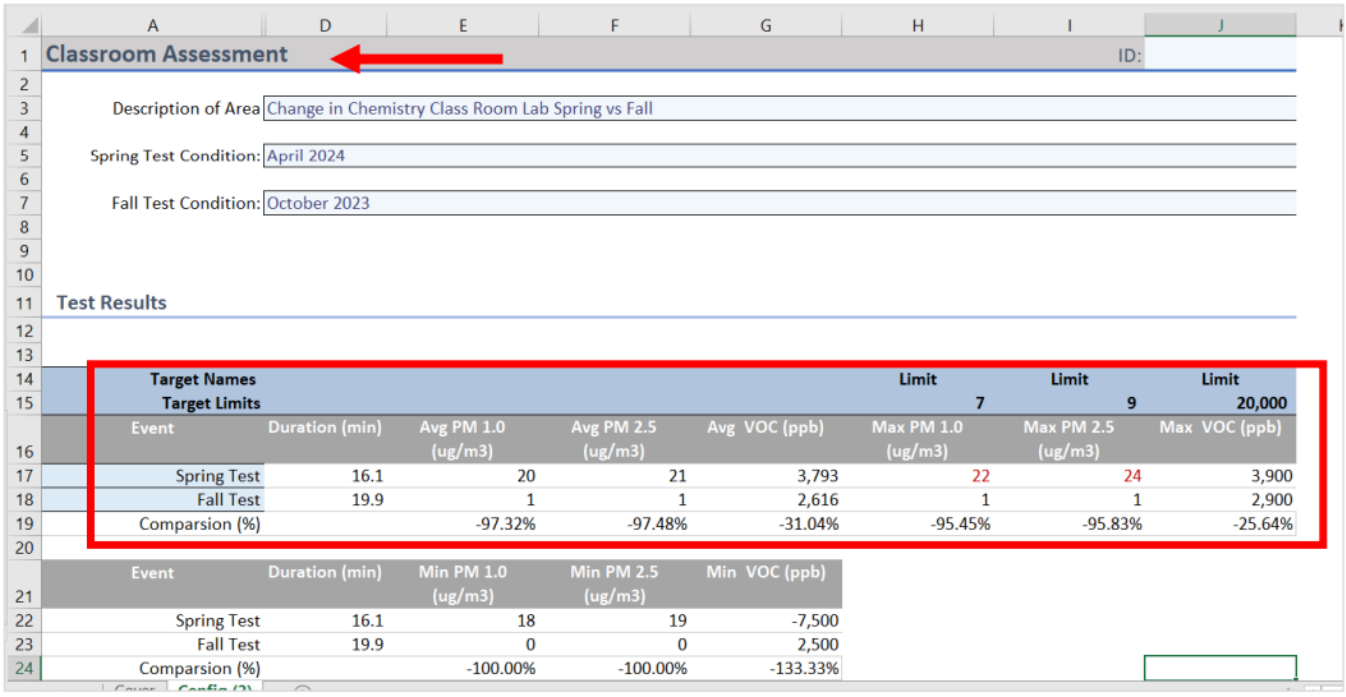
The worksheets discussed above import specific measurement data. But the TSI instrument portfolio can generate a wide range of measurements. It would be impractical to create templates for all possible permutations. The Configurable Report provides a way for you to define an A-8 comparison for any three measurements you like.

The configuration is performed at the bottom of the Cover sheet.

You can give the Configurable Report a unique name, if desired.
Then select up to three measurements.
Save the workbook template and open Report Creator. You will see your name appear in the worksheet selection list.



After adding the worksheet, the name of the Report will appear in cell A 1 of the template.
After you add the data, the parameters will be summarized in 14 through 20, with additional charts and data further down.

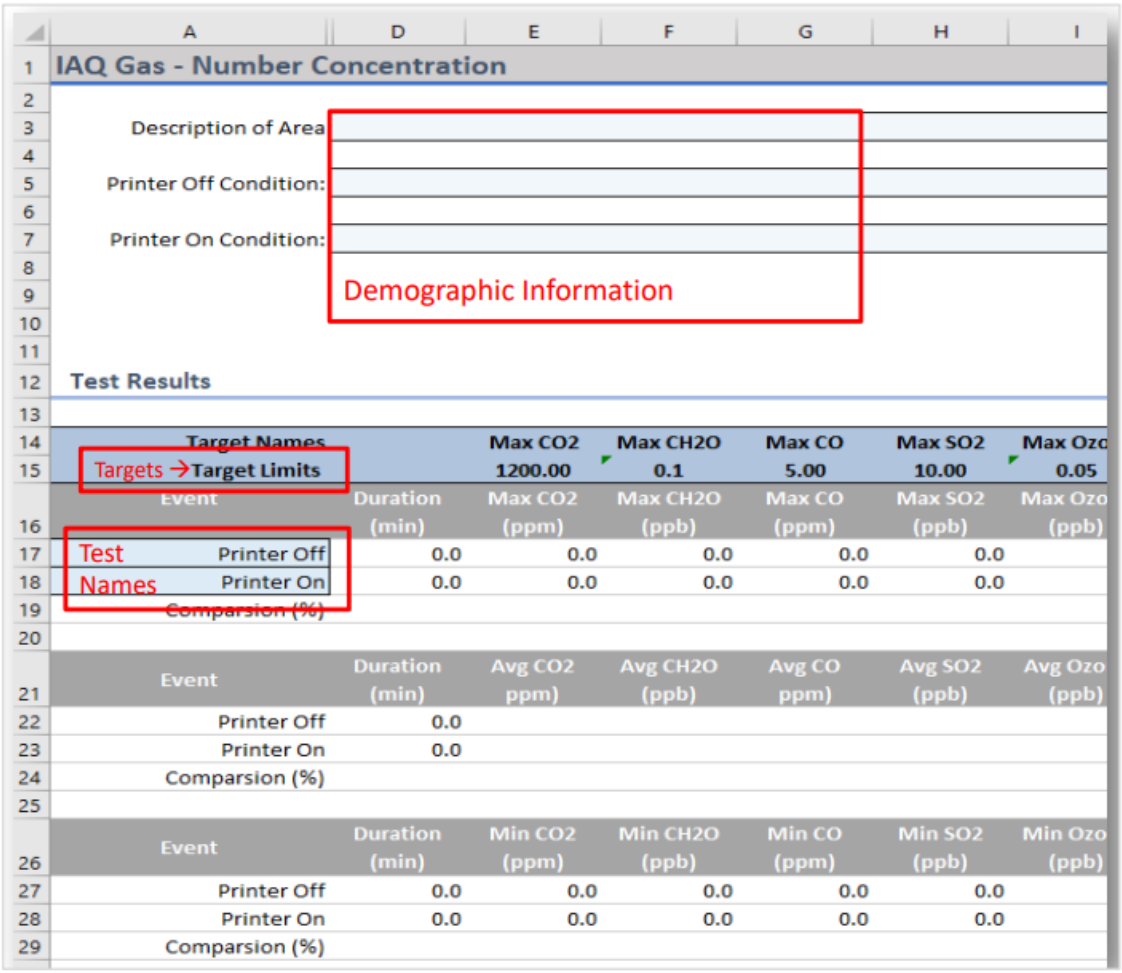


NOTICE

The Layout View functionality is not supported for the Configurable Report.

Step 3 Enter Demographic Information and Test Names

After you have created a blank worksheet, you can enter whatever demographic information you want into your report. Start by changing the default Test 1 and Test 2 to something more meaningful, if desired.
These names are highlighted in blue in the Test Results table. In the example picture, we have changed the names to Printer Off and Printer On. All the other headers are automatically updated with the new labels.



You can also add or edit target maximum limits for each gas in Row 15. If you do not want to display a target limit, simply leave the cell blank.

NOTICE

You can also enter target limits into the worksheet templates if you want to make them static and avoid re-entering them. Refer to Customizing Report Creator Templates.

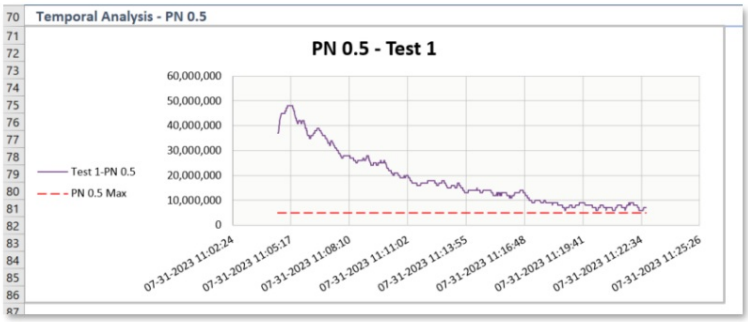
Step 4 Load Study Data

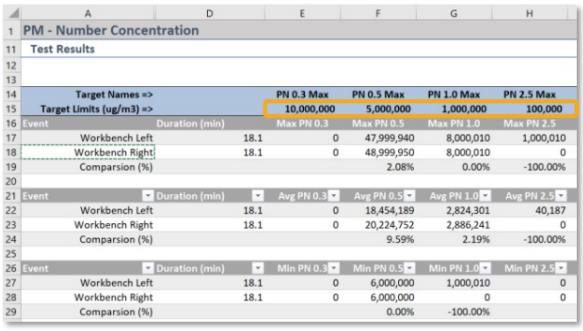
Load up to two studies using STUDY MANAGER or File Import. For background see the **Study Manager Guide**.

Make sure the study names match the labels you added above. Swap them if necessary. When ready, click Add Data to import data into the worksheet.

Step 5 Analyze Data

Target Limits
Target limits for the maximum values, as highlighted above, may be changed. These limits will be displayed on the chart to provide context.





PM - Number Concentration

Test Results

Target Names =>		PN 0.3 Max	PN 0.5 Max	PN 1.0 Max	PN 2.5 Max
Target Limits (ug/m3) =>		10,000,000	5,000,000	1,000,000	100,000
Event	Duration (min)	Max PN 0.3	Max PN 0.5	Max PN 1.0	Max PN 2.5
Workbench Left	18.1	0	47,999,940	8,000,010	1,000,010
Workbench Right	18.1	0	48,999,950	8,000,010	0
Comparsion (%)			2.08%	0.00%	-100.00%
Event	Duration (min)	Avg PN 0.3	Avg PN 0.5	Avg PN 1.0	Avg PN 2.5
Workbench Left	18.1	0	18,454,189	2,824,301	40,187
Workbench Right	18.1	0	20,224,752	2,886,241	0
Comparsion (%)			9.59%	2.19%	-100.00%
Event	Duration (min)	Min PN 0.3	Min PN 0.5	Min PN 1.0	Min PN 2.5
Workbench Left	18.1	0	6,000,000	1,000,010	0
Workbench Right	18.1	0	6,000,000	0	0
Comparsion (%)			0.00%	-100.00%	

Each measure and the target limit are displayed in a chart, along with the target limits defined in the data summary table.

Test Results

The Test Results section includes one or more tables to display maximum, average, and minimum values for each measurement. If you have added a target limit, the summary measurement will turn red if the target was exceeded.

The percentage comparison is also calculated for each measurement.

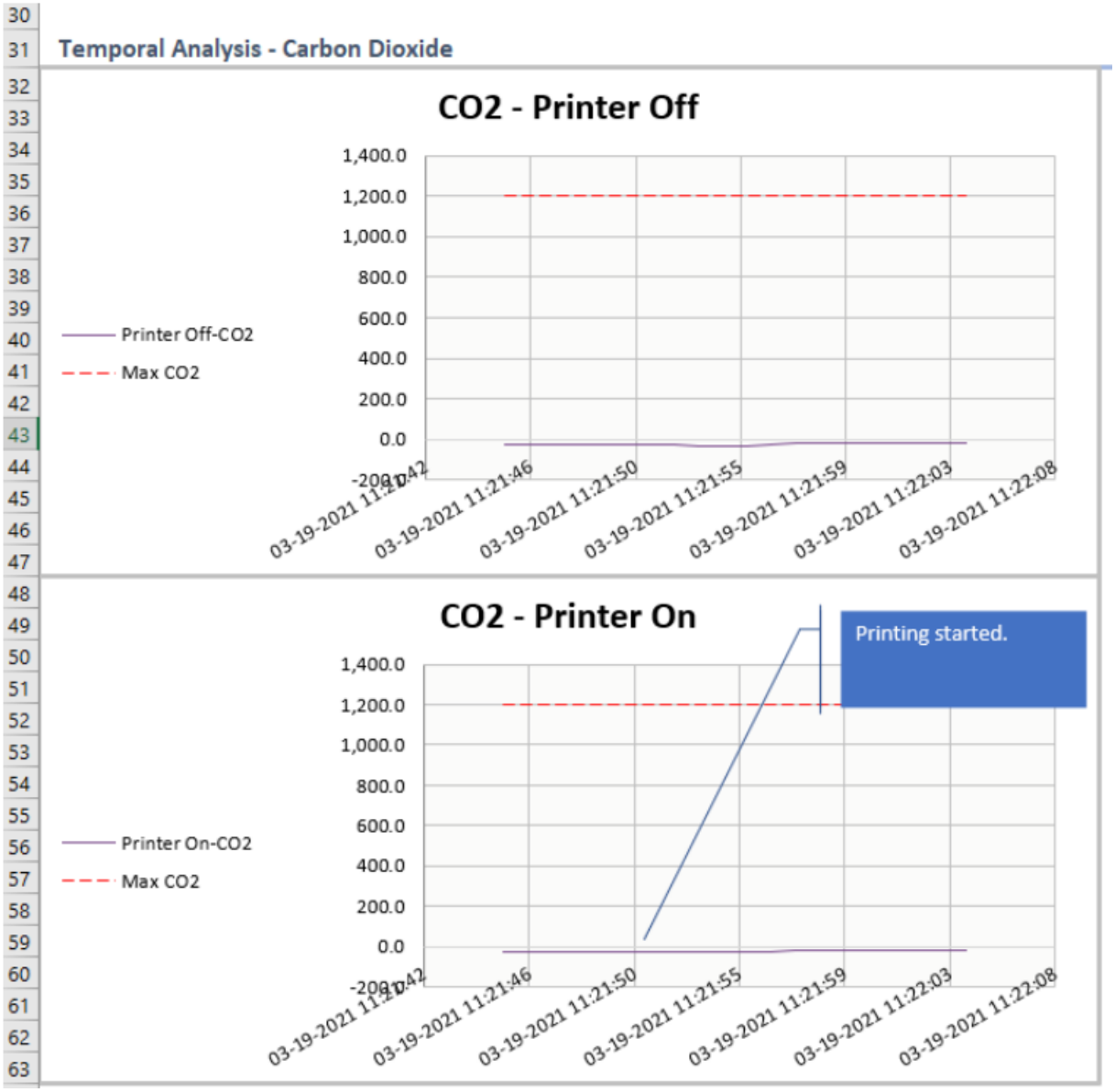
Test Results

Target Names		Max CO2	Max CH2O	Max CO	Max SO2	Max Ozone	Max NO2	Max CL	Max NH3	Max VOC Low	Max VOC High
Target Limits		1200.00	0.1	5.00	10.00	0.05	20.00	0.1	5.00	1000.00	100.00
Event	Duration (min)	Max CO2 (ppm)	Max CH2O (ppb)	Max CO (ppm)	Max SO2 (ppb)	Max Ozone (ppb)	Max NO2 (ppb)	Max CL (ppm)	Max NH3 (ppm)	Max VOC (ppb)	Max VOC ppm)
Printer Off	0.3	-15.0	0.0	144.2	0.0	0.0	0.0	0.0	2.4	0.0	0.0
Printer On	0.3	-15.0	0.0	144.2	0.0	0.0	0.0	0.0	2.4	0.0	0.0
Comparsion (%)		0.0		0.0					0.0		

Event	Duration (min)	Avg CO2 ppm)	Avg CH2O (ppb)	Avg CO ppm)	Avg SO2 (ppb)	Avg Ozone (ppb)	Avg NO2 (ppb)	Avg CL (ppm)	Avg NH3 (ppm)	Avg VOC Low (ppb)	Avg VOC High (ppm)
Printer Off	0.3	-23.9	0.0	129.4	0.0	0.0	0.0	0.0	2.4	0.0	0.0
Printer On	0.3	-23.9	0.0	129.4	0.0	0.0	0.0	0.0	2.4	0.0	0.0
Comparsion (%)		0.0		0.0					0.0		

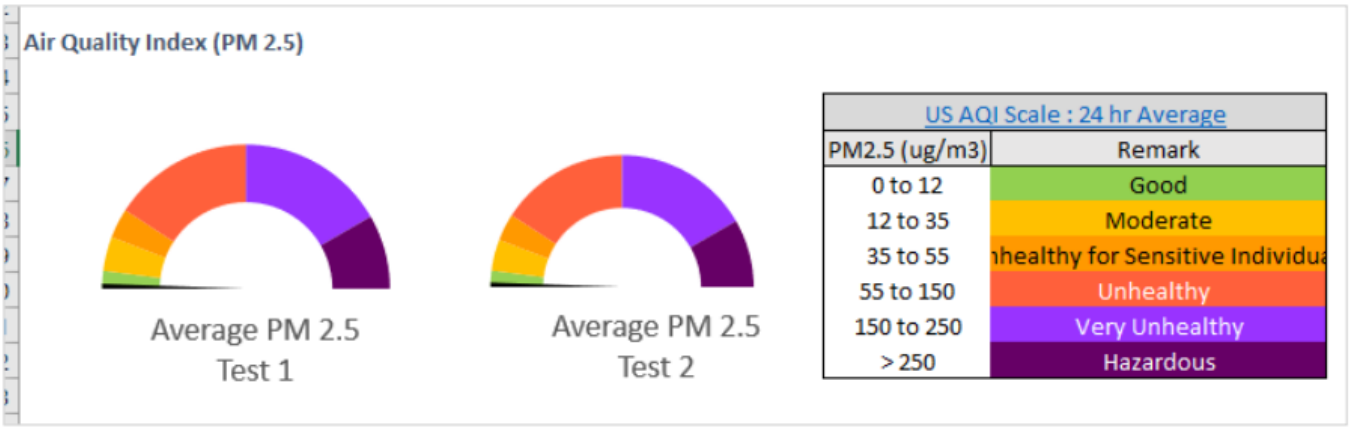
Event	Duration (min)	Min CO2 (ppm)	Min CH2O (ppb)	Min CO (ppm)	Min SO2 (ppb)	Min Ozone (ppb)	Min NO2 (ppb)	Min CL (ppm)	Min NH3 (ppm)	Min VOC Low (ppb)	Min VOC High (ppm)
Printer Off	0.3	-30.0	0.0	117.3	0.0	0.0	0.0	0.0	2.3	0.0	0.0
Printer On	0.3	-30.0	0.0	117.3	0.0	0.0	0.0	0.0	2.3	0.0	0.0
Comparsion (%)		0.0		0.0					0.0		

Time charts are also displayed for each gas, along with the target limits. You can use Excel's drawing tools to highlight or annotate the charts if desired. See Getting Started with TS/ Link Report Creator for more information on annotation.



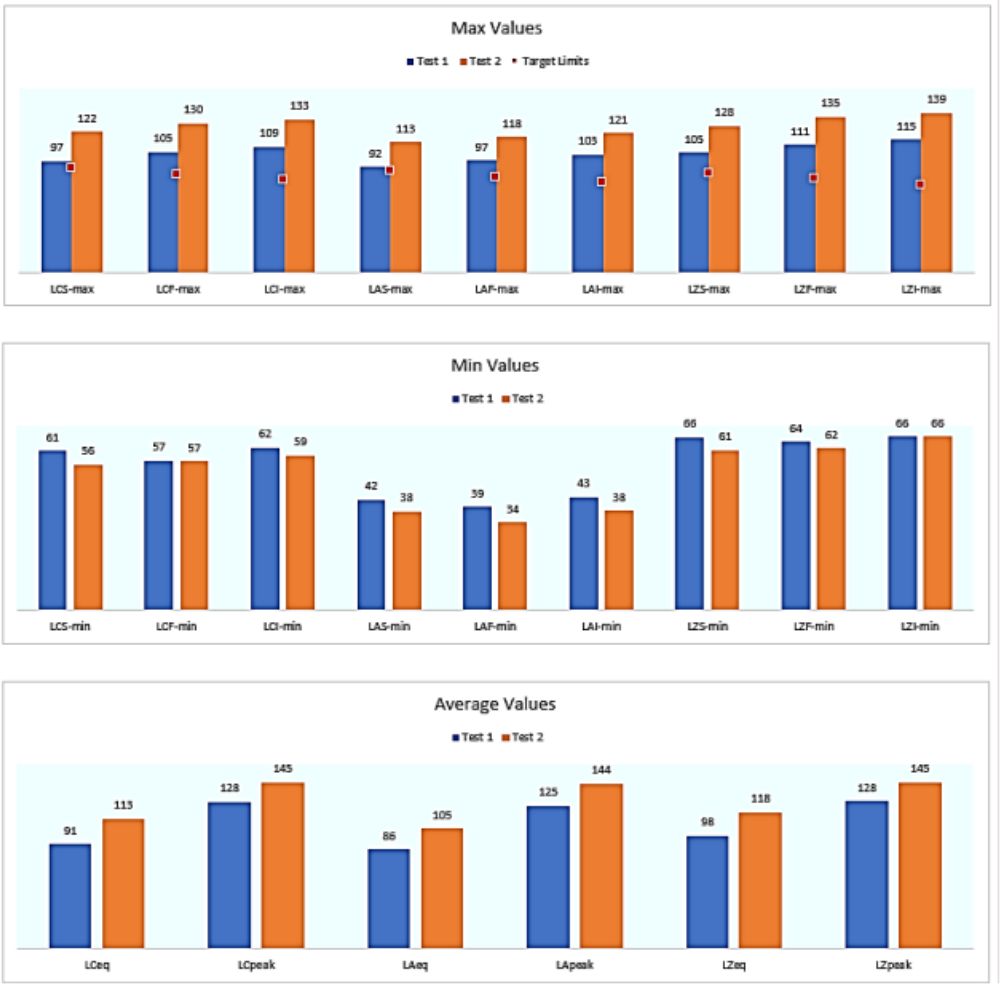
PM – Mass Concentration

The PM – Mass Concentration worksheet includes a speedometer chart visualization to help readers better contextualize the numbers.
This is based on the US Air Quality Index scale. This visualization can be removed from your template if it is not useful.



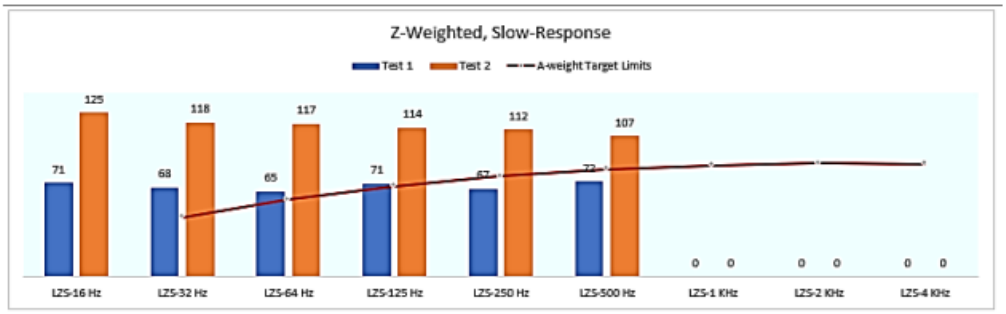
Sound – Broadband

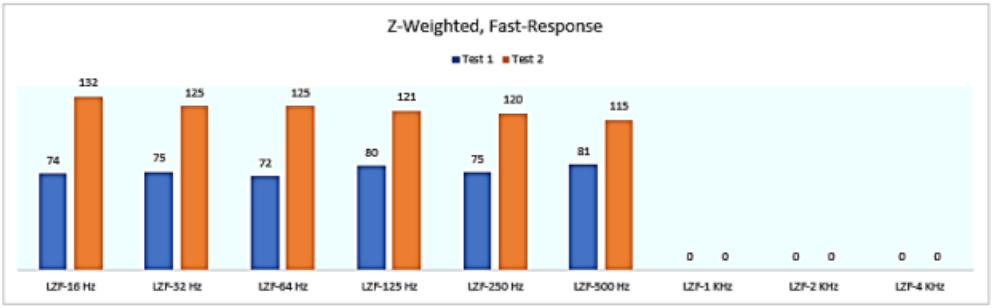
The Sound – Broadband worksheet is a column chart that includes all the available measurements.

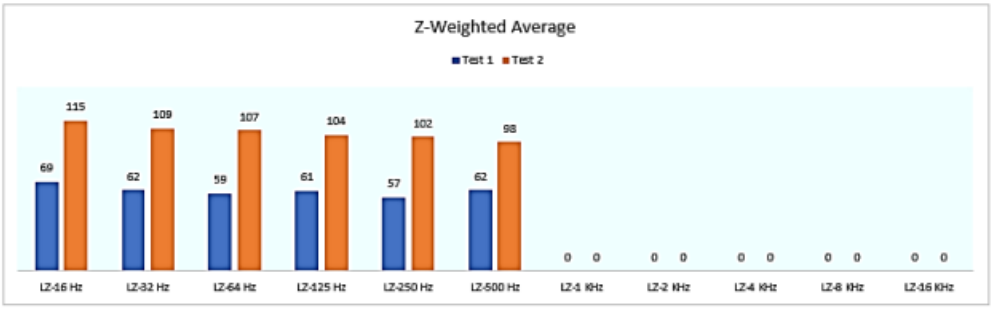


Sound – Octave Band

The Sound – Octave Band worksheet is a column chart that includes all octave band frequencies.







Layout View Analysis

The Layout View provides the ability to compare both studies spatially. In the example below, the Maximum PM2.5 measurements are displayed on a building floorplan. A photo, diagram, map, or any image can be used as the background.

The Layout View is supported in all worksheets except the Configurable Report. But keep in mind that there are only two locations available in these worksheets. If you would like to analyze more locations, consider using the Spatial Analysis workbook instead.

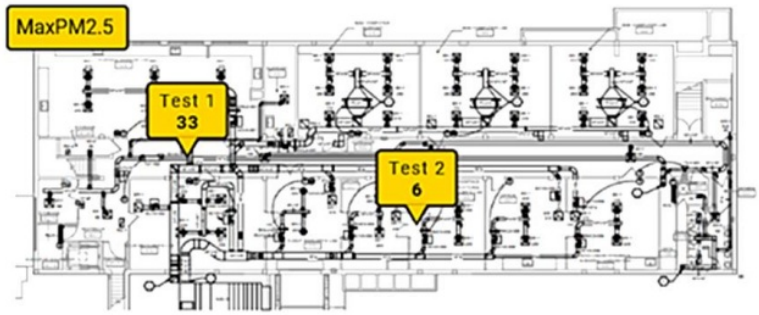
If you wish to use Layout View, you may want to add space for Spatial Analysis, as discussed in Customizing Report Creator Templates.

Step 6 Complete the Assessment

To complete the report, you can add recommendations under the Conclusions section.

The print layout for this sheet does not include the measurement data in the blue tables at the bottom of the sheet. They will not appear in a PDF export either.

	Target Names =>		PM 1.0 Avg	PM 2.5 Avg	PM 4.0 Avg	PM 10 Avg	PM 1.0 Max	PM 2.5 Max	PM 4.0 Max	PM 10 Max
	Target Limits (ug/m3) =>		20	30	40	50	35	45	55	65
Event		Duration (min)	Avg PM1.0	Avg PM2.5	Avg PM4.0	Avg PM10	Max PM1.0	Max PM2.5	Max PM4.0	Max PM10
Test 1		61.3	4.56	4.89	4.95	4.99	31.00	33.00	34.00	34.00
Test 2		61.3	1.71	1.85	1.86	1.87	6.00	6.00	6.00	6.00
Comparsion (%)			-62.58%	-62.05%	-62.39%	-62.51%	-80.65%	-81.82%	-82.35%	-82.35%



CUSTOMER SUPPORT

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Documents / Resources

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References

- User Manual