Cisco Spaces: Environmental Analytics App Configuration Guide

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Preface

This preface describes the audience, organization, and conventions of this document. It also provides information on how to obtain other documentation.

This preface contains the following sections:

- Audience, on page iii
- Document Conventions, on page iii
- Related Documentation, on page iv
- Communications, Services, and Additional Information, on page iv

Audience

This guide is meant for Cisco Spaces account administrators who enable the hybrid work experience through the Cisco Spaces **Environmental Analytics** app.

Other target audiences include network and IT administrators who deploy the Cisco Spaces **Environmental Analytics** app.

Document Conventions

This document uses the following conventions:

Table 1: Document Conventions

Convention	Description
Bold font	Commands and keywords and user-entered text appear in **bold** font. Commands, command options, and keywords are in boldface.
Italic font	Document titles, new or emphasized terms, and arguments for which you supply values are in *italic* font.
Option > **Option**	Used to describe a series of menu procedures in the GUI.

Reader Alert Conventions

This document may also use the following conventions for reader alerts:

Note Means the following information includes helpful suggestions or references to material not covered in this document.

Tip Means the following information will help you solve a problem.

Caution Means you need to be careful. In this situation, you might perform an action that could result in equipment damage or loss of data.

Related Documentation

- All user documentation for Cisco Spaces is available at https://www.cisco.com/c/en/us/support/wireless/dna-spaces/series.html.

    - Cisco Spaces Data Sheet

    - Cisco Spaces Configuration Guide

    - Cisco Spaces compatibility with other Cisco products

- For Cisco Spaces support information, see Support or contact the Cisco Spaces support team.

Communications, Services, and Additional Information

- To receive timely, relevant information from Cisco, sign up at Cisco Profile Manager.

- To get the business impact you're looking for with the technologies that matter, visit Cisco Services.

- To submit a service request, visit Cisco Support.

- To discover and browse secure, validated enterprise-class apps, products, solutions, and services, visit Cisco DevNet.

- To obtain general networking, training, and certification titles, visit Cisco Press.

- To find warranty information for a specific product or product family, access Cisco Warranty Finder.

Cisco Bug Search Tool

Cisco Bug Search Tool (BST) is a gateway to the Cisco bug-tracking system, which maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. The BST provides you with detailed defect information about your products and software.

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CHAPTER 1

Overview of Cisco Spaces: Environmental Analytics App

Overview of Environmental Analytics App

The Cisco Spaces Environmental Analytics app helps you optimize your building's performance using indoor environment insights or metrics data from the available sensors. These insights are derived from sensors integrated into the networking and collaboration infrastructure throughout your buildings within your network.

Use the Environmental Analytics app to measure and analyze the environmental analytics metrics data such as carbon dioxide, Total Volatile Organic Compound (TVOCs), ambient noise, temperature, and relative humidity and take the required corrective actions.

In a Day 0 configuration scenario, the Environmental Analytics **Overview** window is displayed with information about the recommended environmental levels. For more information, see Recommended Environmental Levels.

The Environmental Analytics app presents the following environment insight views:

- **Floor View**: Provides insights of your building's performance with historical data and trends about specific hours and days.

- **Floor Comparison**: Provides information about multiple floors ranked by their performance whether averages or cumulative time spent out of the ideal range.

Figure 1: Environmental Analytics
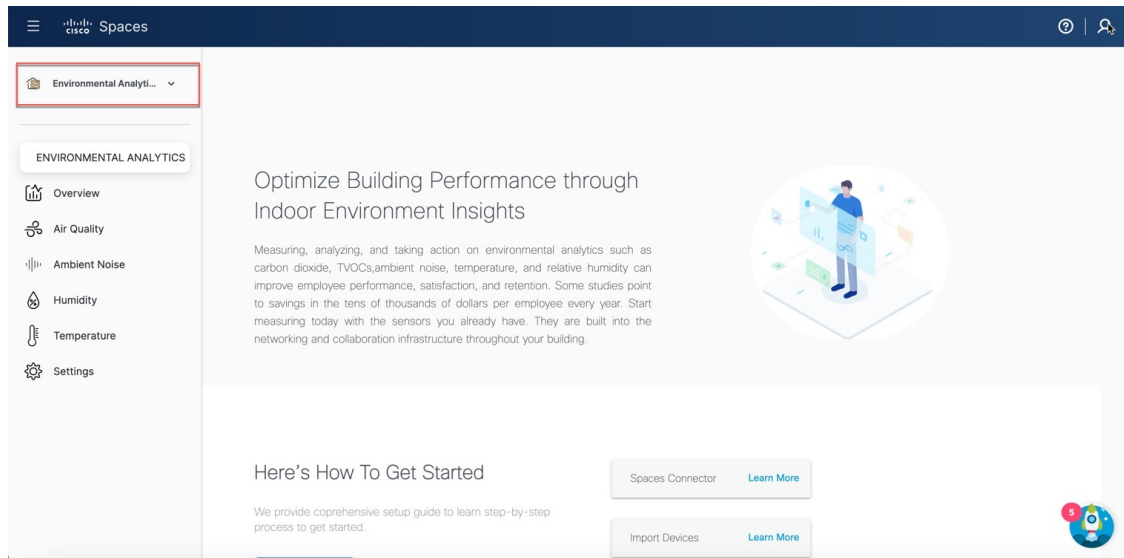
Prerequisites for the Environmental Analytics App

To use the Environmental Analytics app, you must:

- Import the sensor devices to gather the Environmental Analytics metrics data. Click **Import Devices** to open the **Import Devices for Environmental Metrics** window to import sensor devices from any of the following options:

    - Cisco Webex Control Hub

    - Meraki Things

    - Cisco Catalyst Wireless Access Points (9136/9166): To use Cisco Catalyst Wireless Access Points (9136/9166) for Environmental Analytics app, you must integrate with the Catalyst Center, import maps, or use Cisco Prime Infrastructure map imports.

    - Any third-party loT Sensors

- Have an active Cisco Spaces: Connector available. For more information, see Cisco Spaces: Connector 3 Configuration Guide.

In the Environmental Analytics app **Home** page, a green tick mark against each of the above-mentioned items indicates the successful fulfillment of the corresponding prerequisite.

Features of the Environmental Analytics App

The **Overview** window displays the active sensors telemetry metrics for a selected location (all floors under the parent level) during a month.

Figure 2: Overview
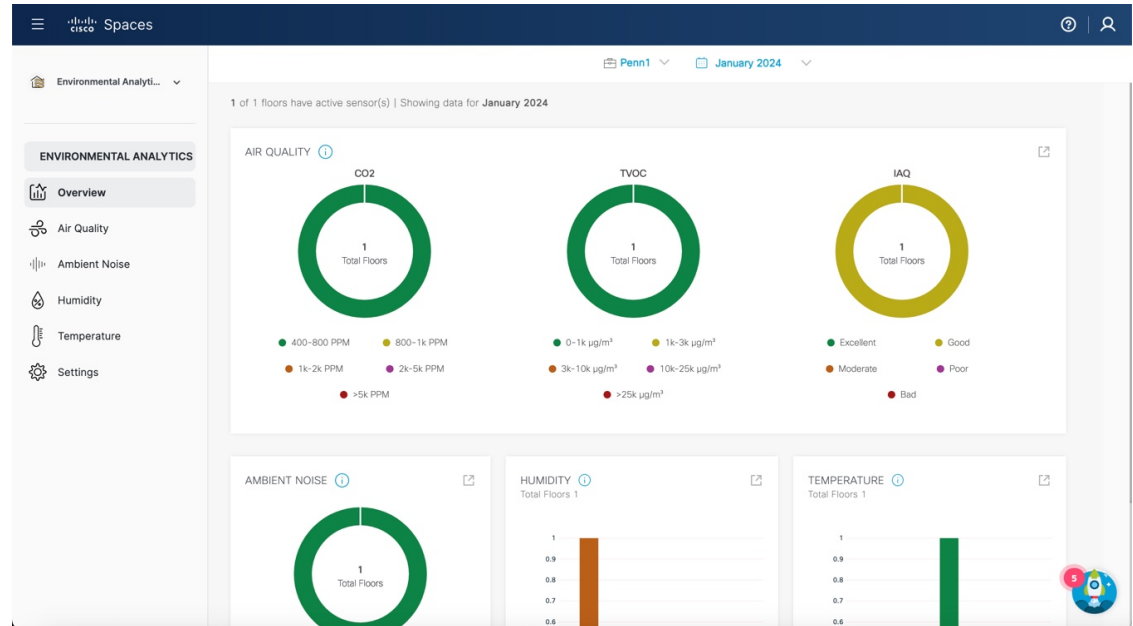
The **Overview** window displays the performance data received from the active sensors in graphical format in the following feature sections:

- **Air Quality**: Indoor Air Quality (IAQ) score, index, and other recommended air quality levels for the floors with active sensors. This section displays the following telemetry data:

  - CO_2

  - TVOC

  - IAQ

  - Particulate Matter (PM) 2.5

- **Ambient Noise**: Floor noise levels as per the recommendations.

- **Humidity**: Humidity level of the floor.

- **Temperature**: Temperature level of the floor.

To view the overview data for another floor or month:

1. From the **Location** drop-down list, select a location (building or a campus).

2. From the **Calendar** drop-down list, select another month.

Click the ⬀ icon to open the respective feature section to view additional parameters.

Recommended Environmental Levels

Table 2: Recommended Environmental Levels

Environmental Metrics	Recommended Levels
Carbon dioxide (CO_2)	Below 1000 PPM
Total Volatile Organic Compounds (TVOC)	Below 3k µg/m³
Ambient Noise	Below 40 dB
Humidity	Between 30% - 60%
Temperature	Between 21°C - 25°C
Particulate Matter (PM2.5)	Below 35 µg/m³
Indoor Air Quality (IAQ)	Below Moderate

CHAPTER 2

Working with Cisco Spaces: Environmental Analytics App

Viewing Sensor Performance Data

The **Overview** window displays the performance data of the active sensors available in the floors of the building. The data is displayed for the selected floor for the selected month. Use this data for your analysis.

Step 1 In Cisco Spaces, click the **Menu** icon (☰) and choose **Home** > **ACT Apps** > **Environmental Analytics** app tile.

Optionally, from the **Dashboard** drop-down list (left navigation pane of the Cisco Spaces **Home** window), select **Environmental Analytics**.

The **Environmental Analytics** window is displayed.

Step 2 In the left navigation pane, click **Overview**.

The **Overview** window displays the sensor performance data of the active sensors available in the selected root location or the floor for the month.

Step 3 View the sensor data organized as per the following sections:

- **Air Quality**: Displays the sensor performance data for TVOC, IAQ and PM2.5.

- **Ambient Noise**: Displays the sensor performance data for ambient noise levels.

- **Humidity**: Displays the sensor performance data for humidity levels.

• **Temperature**: Displays the sensor performance data for temperature levels.

Step 4 (Optional) To view the sensor data for a different floor or month:

a)   From the **Location** drop-down list, select the root location or floor.

b)   From the **Month** drop-down list, select another month.

Step 5 Click the   icon to open the corresponding parameter configuration window to perform the required updates.

Configuring Environmental Analytics Parameters

Use the **Settings** tab in the Environmental Analytics app to configure the parameters. Configure these parameters to view the sensor data in the other tabs.

Step 1 In Cisco Spaces, click the **Menu** icon ( ) and choose **Home** > **ACT Apps** > **Environmental Analytics** app tile.

Optionally, from the **Dashboard** drop-down list (left navigation pane of the Cisco Spaces **Home** window), select **Environmental Analytics**.

The **Environmental Analytics** window is displayed.

Step 2 In the left navigation pane, click **Settings**.

The **Environmental Analytics Settings** window is displayed with the telemetry metrics of all sensor devices.

Figure 3: Settings

Step 3 In the **Device Type** section, view the following metrics:

- CO_2

- IAQ

- TVOC

- PM2.5

- Ambient Noise

- Humidity

- Temperature

Step 4 For each metric, view the following sensor details:

- Webex Sensor

- AP Sensor

- BLE Sensor

- Wired Sensor

- Wireless Sensor

- Meraki Things Sensor

Note To view the supported telemetry types, see Supported Telemetry Types, on page 7.

Step 5 Click **Edit** against the corresponding metric name.

Step 6 Check or uncheck the check box for the required sensor and click **Save**.

Click **Cancel** to discard the changes, if required.

Step 7 Click **μg/m³** or **PPB** to set the unit for TVOC telemetry data.

The selected unit is highlighted in a blue background.

Step 8 Click **Celsius** or **Fahrenheit** to set the unit for temperature telemetry data.

The selected unit is highlighted in a blue background.

Supported Telemetry Types

The telemetry types supported for each device type are:

Table 3: Sensor and Supported Telemetry Types

Device Type	Supported Telemetry Types
Cisco Webex	• Temperature • Ambient Noise • Humidity • IAQ
Wired	• Temperature • Humidity • CO_2 • TVOC
Access Point	• Temperature • Humidity • CO_2 • TVOC • IAQ
Wireless	• Temperature • Humidity
BLE	• Temperature • Humidity • CO_2
Meraki Things	• Temperature • Ambient Noise • Humidity • TVOC • IAQ • PM2.5 • CO_2

View Air Quality Parameters

Before you begin

Use the **Settings** tab to configure the Air Quality parameters.

Step 1   In Cisco Spaces, click the **Menu** icon (☰) and choose **Home** > **ACT Apps** > **Environmental Analytics** app tile.

Optionally, from the **Dashboard** drop-down list (left navigation pane of the Cisco Spaces **Home** window), select **Environmental Analytics**.

The **Environmental Analytics** window is displayed.

Step 2   In the left navigation pane, click **Air Quality**.

The **Air Quality** window includes the tabs: **IAQ**, **CO2**, **TVOC**, **PM2.5**.

Step 3   Click the **IAQ** tab.

The floor data with **IAQ** value *Below Moderate* for the selected month is displayed.

Figure 4: Air Quality Parameters
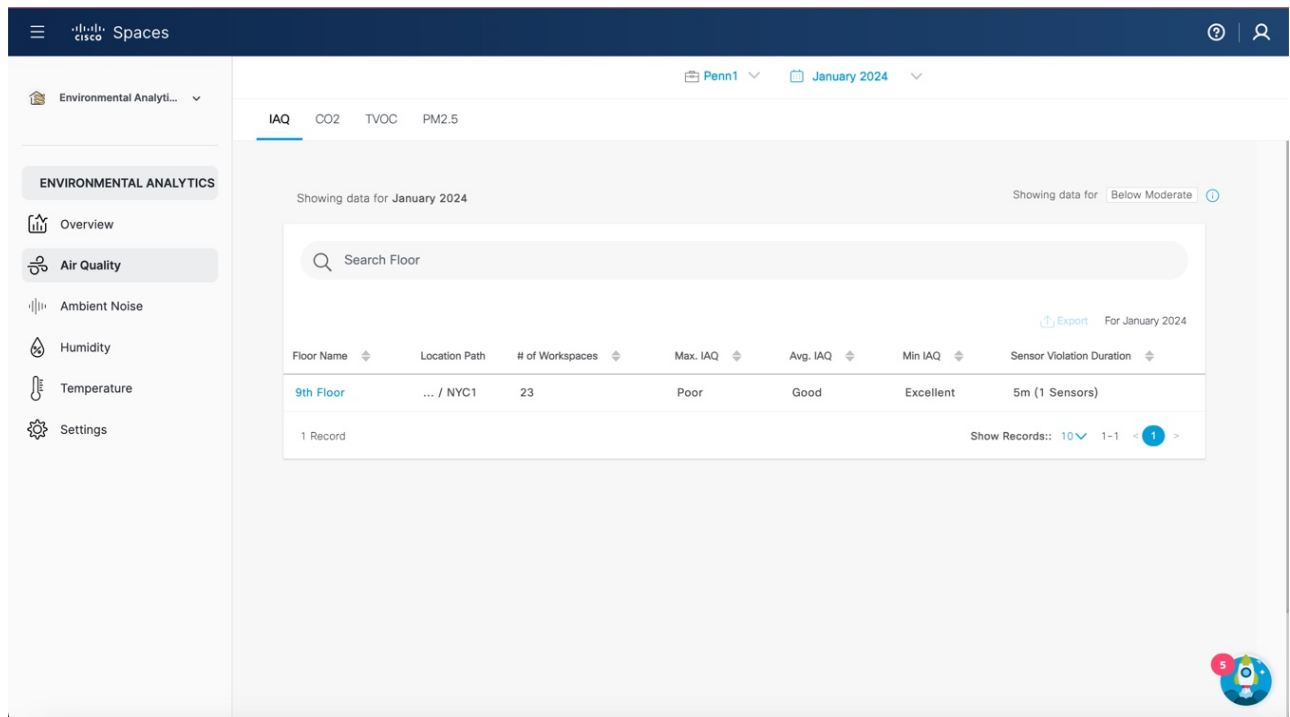
a)   View the following telemetry details:

   • **Floor Name**: Click the floor name to view the details in the **Floor** window. The **Floor Details** window is displayed.

   • **Location Path**: Displays the floor location path.

- **# of Workspaces**: Displays the number of workspaces.

- **Max. IAQ**: Displays the maximum IAQ level for the particular floor.

- **Avg. IAQ**: Displays the average IAQ level for the particular floor.

- **Min IAQ**: Displays the minimum IAQ level for the particular floor.

- **Sensor Violation Duration**: Displays the duration of sensor violation.

b) To view IAQ details of another floor location, from the **Location** drop-down list, select another location.
c) To view IAQ details of another month, from the **Month** drop-down list, select another month.

Step 4 Click the **CO2** tab.

a) Click **Setup Devices** to configure devices to generate CO2 measurements.
b) After devices are set, the floor data with CO_2 value as *Below 1000 ppm* is displayed.
c) View the following telemetry details:

- **Floor Name**: Click the floor name to view the details in the **Floor** window.

- **Location Path**: Displays the floor location path.

- **# of Workspaces**: Displays the number of workspaces.

- **Max. CO2**: Displays the maximum CO_2 level for the particular floor.

- **Avg. CO2**: Displays the average CO_2 level for the particular floor.

- **Min CO2**: Displays the minimum CO_2 level for the particular floor.

- **Sensor Violation Duration**: Displays the duration of sensor violation.

d) To view CO2 details of another floor location, from the **Location** drop-down list, select another location.
e) To view CO2 details of another month, from the **Month** drop-down list, select another month.

Step 5 Click the **TVOC** tab.

The floor data with **TVOC** value as *Below 3000 µg/m³* is displayed.

a) View the following telemetry details:

- **Floor Name**: Click the floor name to view the details in the **Floor** window.

- **Location Path**: Displays the floor location path.

- **# of Workspaces**: Displays the number of workspaces.

- **Max. TVOC**: Displays the maximum TVOC level for the particular floor.

- **Avg. TVOC**: Displays the average TVOC level for the particular floor.

- **Min TVOC**: Displays the minimum TVOC level for the particular floor.

- **Sensor Violation Duration**: Displays the duration of sensor violation.

b) To view TVOC details of another floor location, from the **Location** drop-down list, select another location.
c) To view TVOC details of another month, from the **Month** drop-down list, select another month.

Step 6 Click the **PM2.5** tab.

The floor data with PM2.5 value as *Below 35 μg/m³* is displayed.

a) View the following telemetry details:

- **Floor Name**: Click the floor name to view the details in the **Floor** window.

- **Location Path**: Displays the floor location path.

- **# of Workspaces**: Displays the number of workspaces.

- **Max. PM2.5**: Displays the maximum PM2.5 level for the particular floor.

- **Avg. PM2.5**: Displays the average PM2.5 level for the particular floor.

- **Min PM2.5**: Displays the minimum PM2.5 level for the particular floor.

- **Sensor Violation Duration**: Displays the duration of sensor violation.

b) To view PM2.5 details of another floor location, from the **Location** drop-down list, select another location.

c) To view PM2.5 details of another month, from the **Month** drop-down list, select another month.

Step 7 (Optional) Use the following options if required:

- **Search**: Use this field to search for the required floors.

- **Export**: Use this option to export the environmental sensor telemetry details as a comma-separated values file.

- **Show Records**: Use the drop-down to select the number of records to be displayed in the tab. Use the forward and backward arrows to navigate to the other page records.

Step 8 Click any floor name to view the sensor performance data for the selected floor in detail. For more information, see Viewing Sensor Data in Floor View.

Figure 5: Air Quality Parameters: Floor View
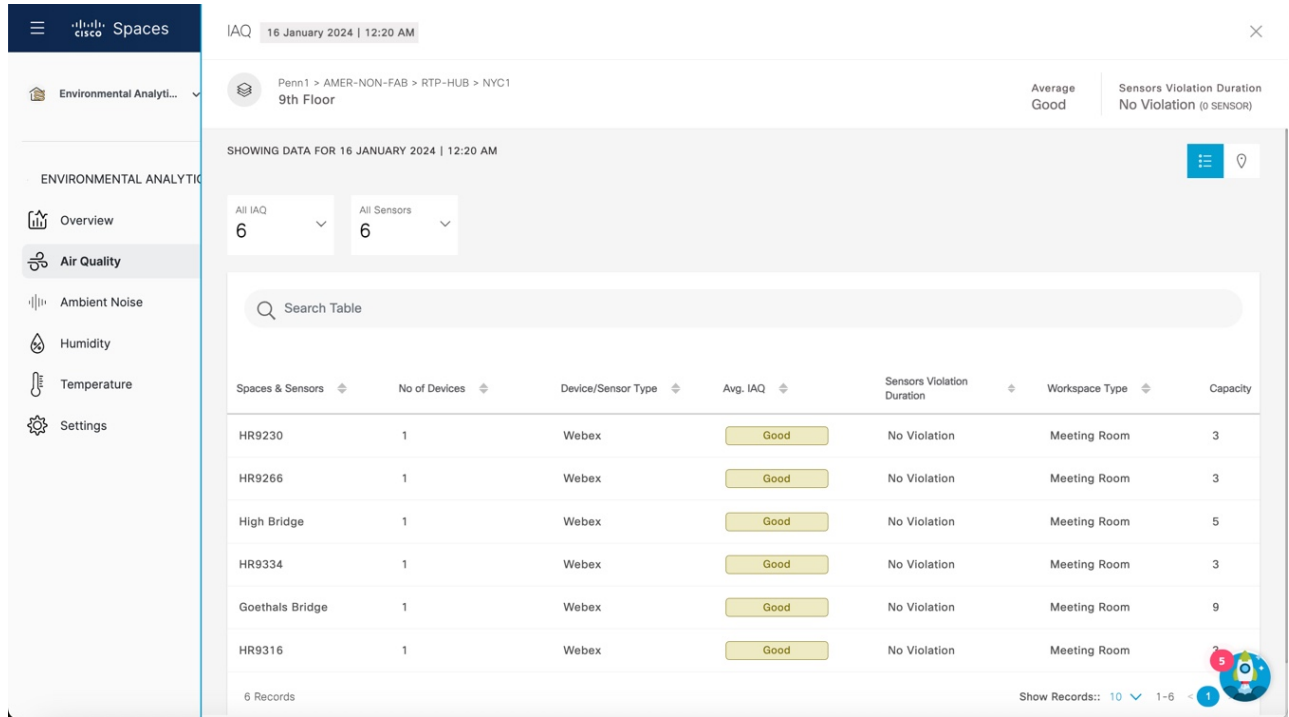
View Ambient Noise Parameters

Before you begin

Use the **Settings** tab to configure the Ambient Noise parameters.

Step 1 In Cisco Spaces, click the **Menu** icon (☰) and choose **Home** > **ACT Apps** > **Environmental Analytics** app tile.

Optionally, from the **Dashboard** drop-down list (left navigation pane of the Cisco Spaces **Home** window), select **Environmental Analytics**.

The **Environmental Analytics** window is displayed.

Step 2 In the left navigation pane, click **Ambient Noise**.

The floor data with Ambient Noise value *Below 40 dBa* for the selected month is displayed.

Step 3 In the window that is displayed, view the following telemetry details:

- **Floor Name**: Click the floor name to view the details in the **Floor** window.

- **Location Path**: Displays the floor location path.

- **# of Workspaces**: Displays the number of workspaces.

- **Max. Ambient Noise**: Displays the maximum Ambient Noise level for the particular floor.

- **Avg. Ambient Noise**: Displays the average Ambient Noise level for the particular floor.

- **Min Ambient Noise**: Displays the minimum Ambient Noise level for the particular floor.

- **Sensor Violation Duration**: Displays the duration of sensor violation.

Step 4   (Optional) Use the following options if required:

- **Search**: Use this field to search for the required floors.

- **Export**: Use this option to export the environmental sensor telemetry details as a comma-separated values file.

- **Show Records**: Use the drop-down to select the number of records to be displayed in the tab. Use the forward and backward arrows to navigate to the other page records.

Step 5   If you already clicked a floor name to view other sensor data in floor view, the **Ambient Noise** window is also displayed in **Floor View**. For more information, see Viewing Sensor Data in Floor View, on page 16.

Figure 6: Ambient Noise: Floor View
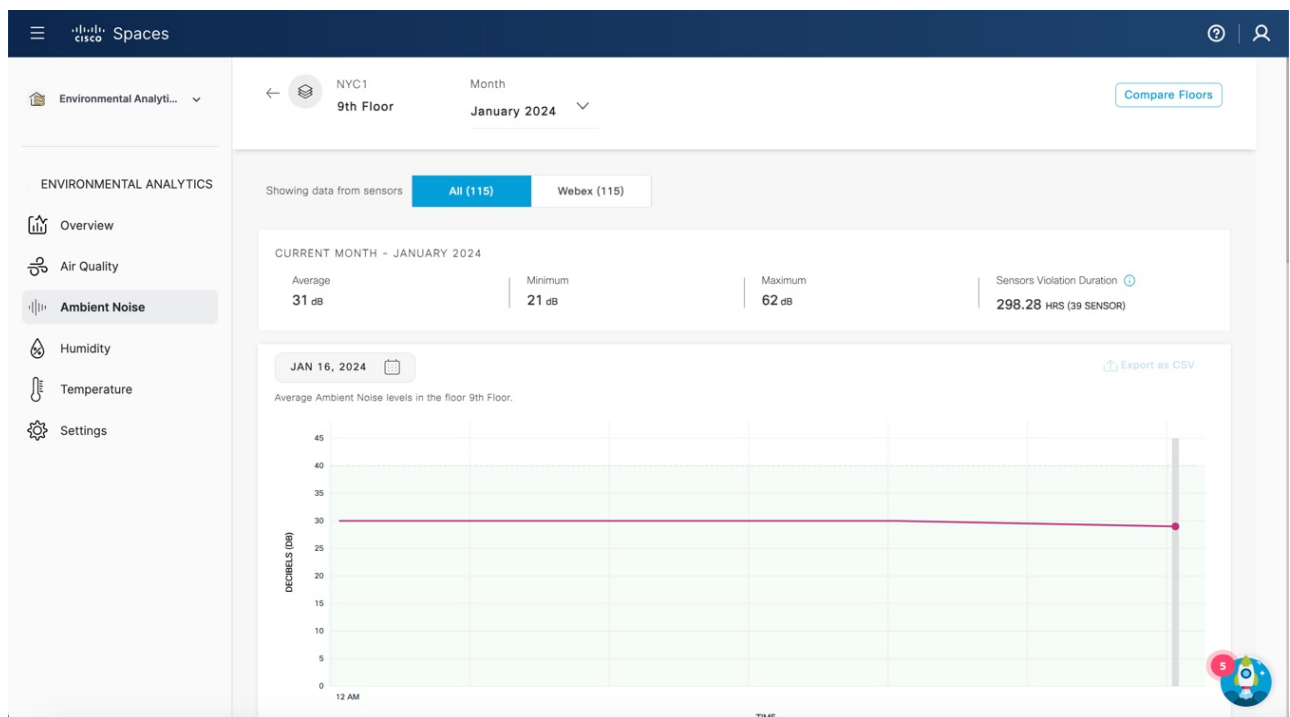
View Humidity Parameters

Before you begin

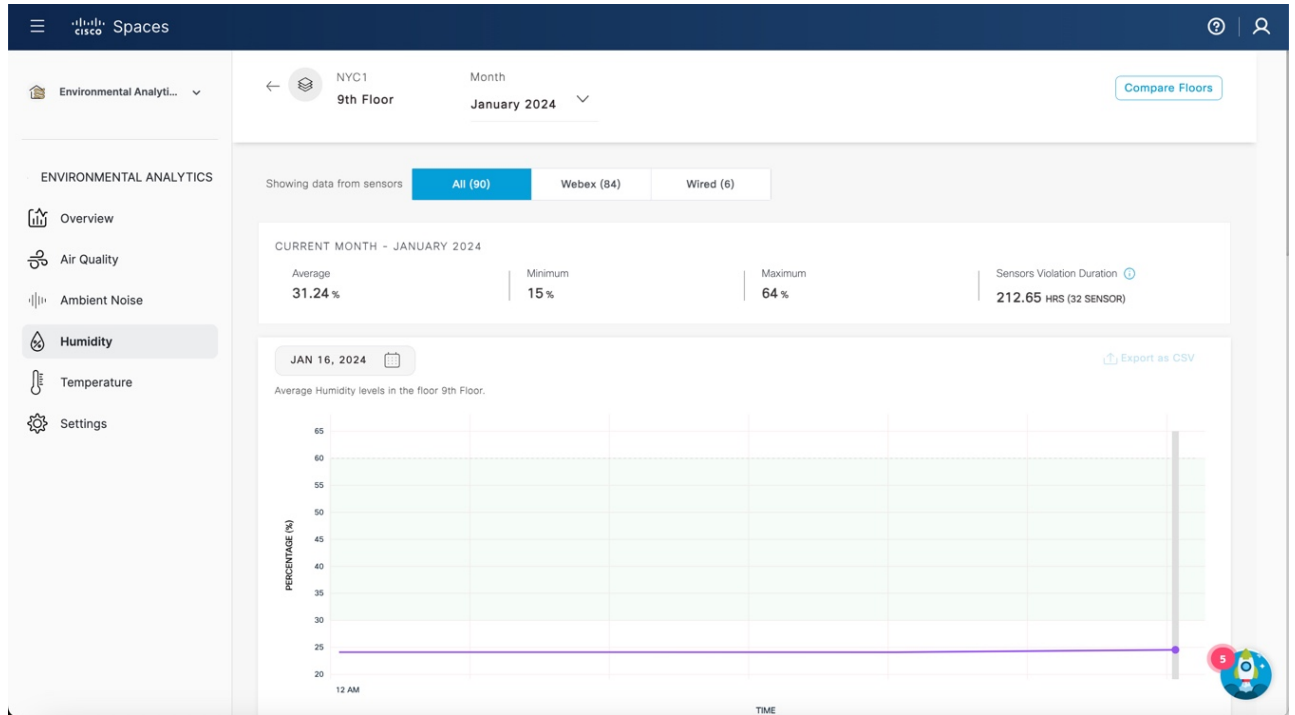Use the **Settings** tab to configure the Humidity parameters.

Step 1 In Cisco Spaces, click the **Menu** icon (▤) and choose **Home** > **ACT Apps** > **Environmental Analytics** app tile.

Optionally, from the **Dashboard** drop-down list (left navigation pane of the Cisco Spaces **Home** window), select **Environmental Analytics**.

The **Environmental Analytics** window is displayed.

Step 2 In the left navigation pane, click **Humidity**.

The floor data with Humidity value *Between 30-60%* for the selected month is displayed.

Step 3 In the window that is displayed, view the following telemetry details:

- **Floor Name**: Click the floor name to view the details in the **Floor** window.

- **Location Path**: Displays the floor location path.

- **# of Workspaces**: Displays the number of workspaces.

- **Max. Humidity**: Displays the maximum Humidity level for the particular floor.

- **Avg. Humidity**: Displays the average Humidity level for the particular floor.

- **Min Humidity**: Displays the minimum Humidity level for the particular floor.

- **Sensor Violation Duration**: Displays the duration of sensor violation.

Step 4 (Optional) Use the following options if required:

- **Search**: Use this field to search for the required floors.

- **Export**: Use this option to export the environmental sensor telemetry details as a comma-separated values file.

- **Show Records**: Use the drop-down to select the number of records to be displayed in the tab. Use the forward and backward arrows to navigate to the other page records.

Step 5 If you already clicked a floor name to view other sensor data in floor view, the **Humidity** window is also displayed in **Floor View**. For more information, see Viewing Sensor Data in Floor View.

Figure 7: Humidity: Floor View

View Temperature Parameters

Before you begin

Use the **Settings** tab to configure the Temperature parameters.

Step 1   In Cisco Spaces, click the **Menu** icon (☰) and choose **Home** > **ACT Apps** > **Environmental Analytics** app tile.

Optionally, from the **Dashboard** drop-down list (left navigation pane of the Cisco Spaces **Home** window), select **Environmental Analytics**.

The **Environmental Analytics** window is displayed.

Step 2   In the left navigation pane, click **Temperature**.

The floor data with Temperature value *Between 21-25°C* for the selected month is displayed.

Step 3   In the window that is displayed, view the following telemetry details:

- **Floor Name**: Click the floor name to view the details in the **Floor** window.

- **Location Path**: Displays the floor location path.

- **# of Workspaces**: Displays the number of workspaces.

- **Max. Temperature**: Displays the maximum Temperature level for the particular floor.

- **Avg. Temperature**: Displays the average Temperature level for the particular floor.

- **Min Temperature**: Displays the minimum Temperature level for the particular floor.

- **Sensor Violation Duration**: Displays the duration of sensor violation.

Step 4   (Optional) Use the following options if required:

- **Search**: Use this field to search for the required floors.

- **Export**: Use this option to export the environmental sensor telemetry details as a comma-separated values file.

- **Show Records**: Use the drop-down to select the number of records to be displayed in the tab. Use the forward and backward arrows to navigate to the other page records.

Step 5   If you already click a floor name to view other sensor data in floor view, the **Temperature** window is also displayed in **Floor View**. For more information, see Viewing Sensor Data in Floor View.

Figure 8: Temperature: Floor View
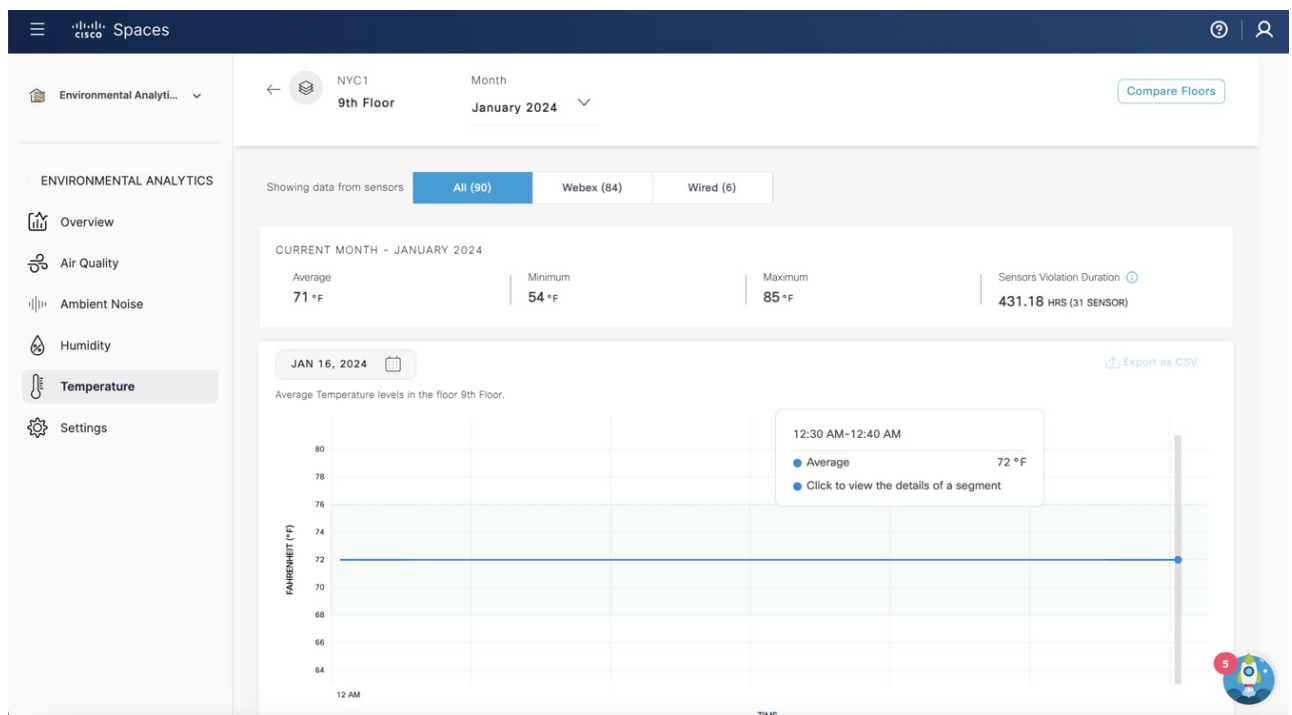
Viewing Sensor Data in Floor View

You can view the sensor data in floor view for **Air Quality**, **Ambient Noise**, **Humidity**, and **Temperature**.

Step 1 In Cisco Spaces, click the **Menu** icon (☰) and choose **Home** > **ACT Apps** > **Environmental Analytics** app tile.

Optionally, from the **Dashboard** drop-down list (left navigation pane of the Cisco Spaces **Home** window), select **Environmental Analytics**.

The **Environmental Analytics** window is displayed.

Step 2 In the left navigation pane, click any sensor data of your choice.

Step 3 In the sensor detail window that is displayed, click the floor name.

The **Floor View** window is displayed with the sensor performance data for the selected floor for the current month.

By default, the **All** option is selected and the window displays sensor performance data from all devices. Click **Webex** if you want to view the sensor performance data from Cisco Webex devices.

Step 4 For the selected sensor data, the following data is displayed in graphical format:

- Current Month: Displays the information about sensors that violated the optimal range for a specific time. Click the graph to view the sensor data in detail.

- Average levels in the floor: Displays the average levels in the selected floor in graphical format. Click the time range to view additional information. You can again click the graphical format to view the details of the segment.

- Daily average, min & max levels in floor: Displays the daily average, minimum and maximum levels in the selected floor in graphical format. Click the time range to view additional information.

- Cumulative Time in Violation: Displays the cumulative time in violation in graphical format.

- By Hour of the Day: Displays the sensor performance data by an hour of the day.

- By Day of the Week: Displays the sensor performance data by day of the week.

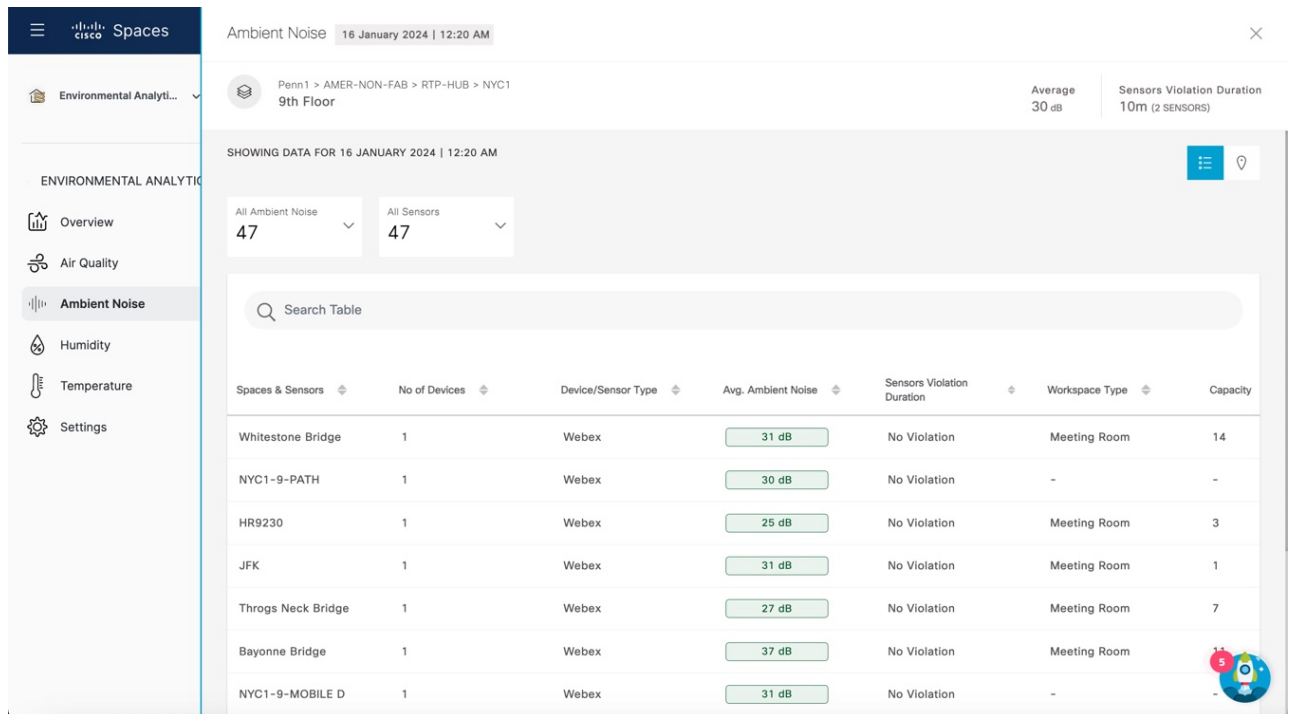For **Air Quality** sensor data, the following window is displayed:
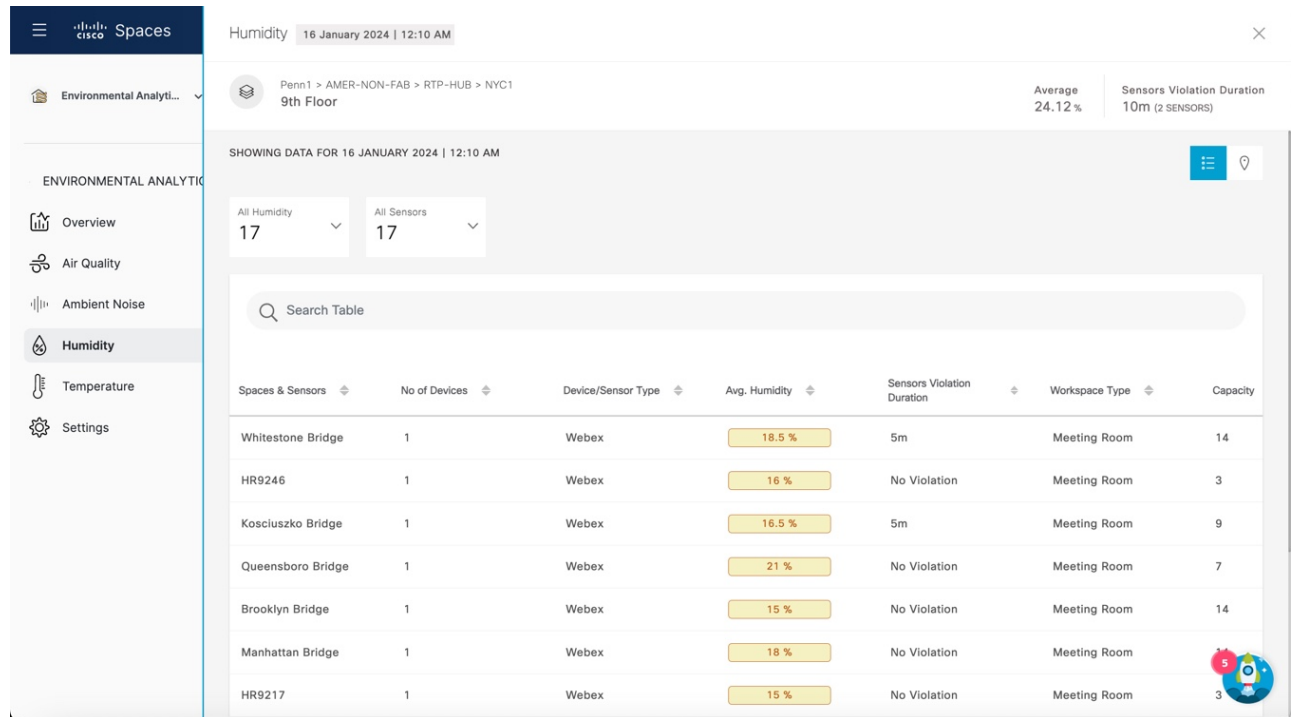
Figure 9: Air Quality Sensor Data
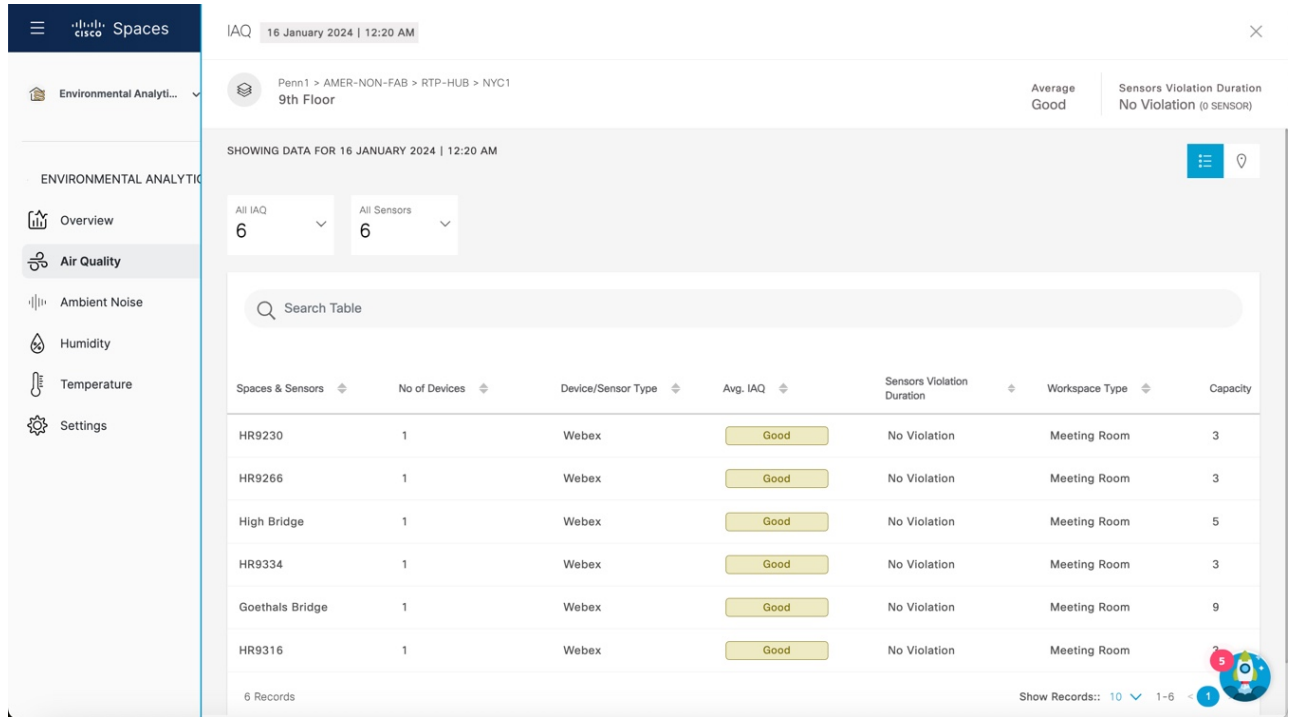
For **Ambient Noise** sensor data, the following window is displayed:

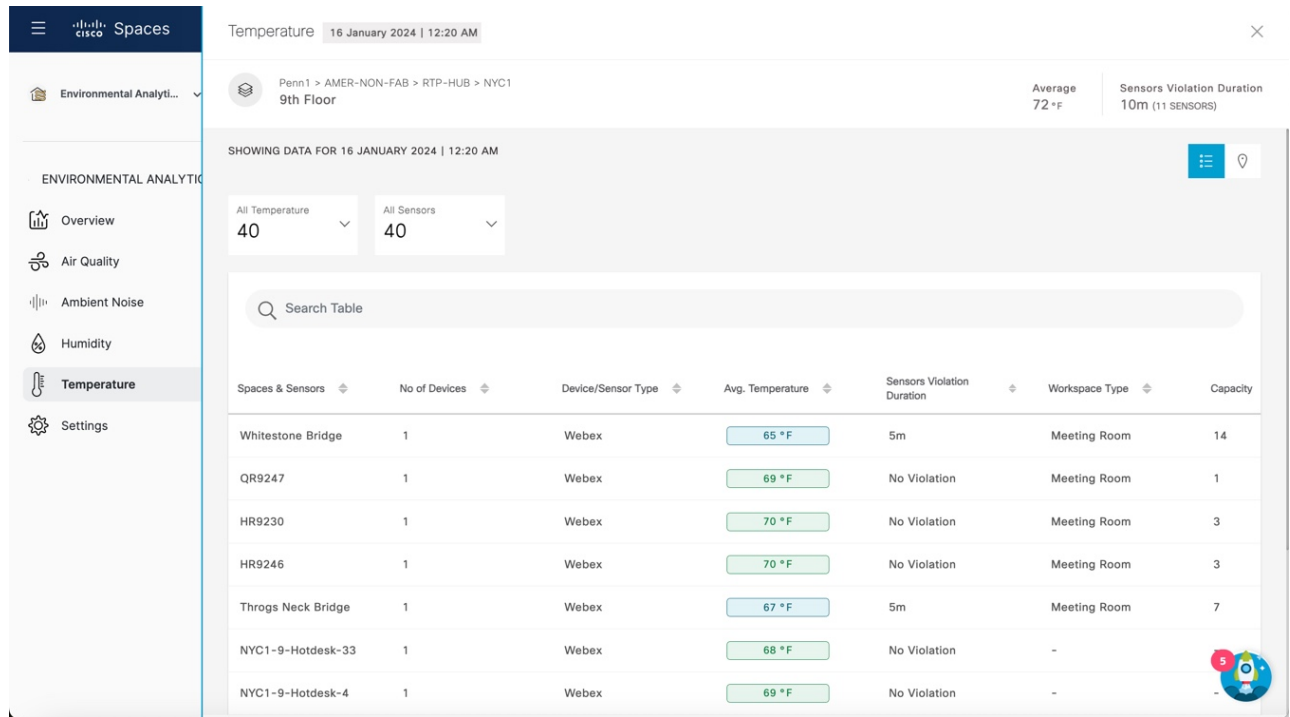*Figure 10: Ambient Noise Sensor Data*

For **Humidity** sensor data, the following window is displayed:
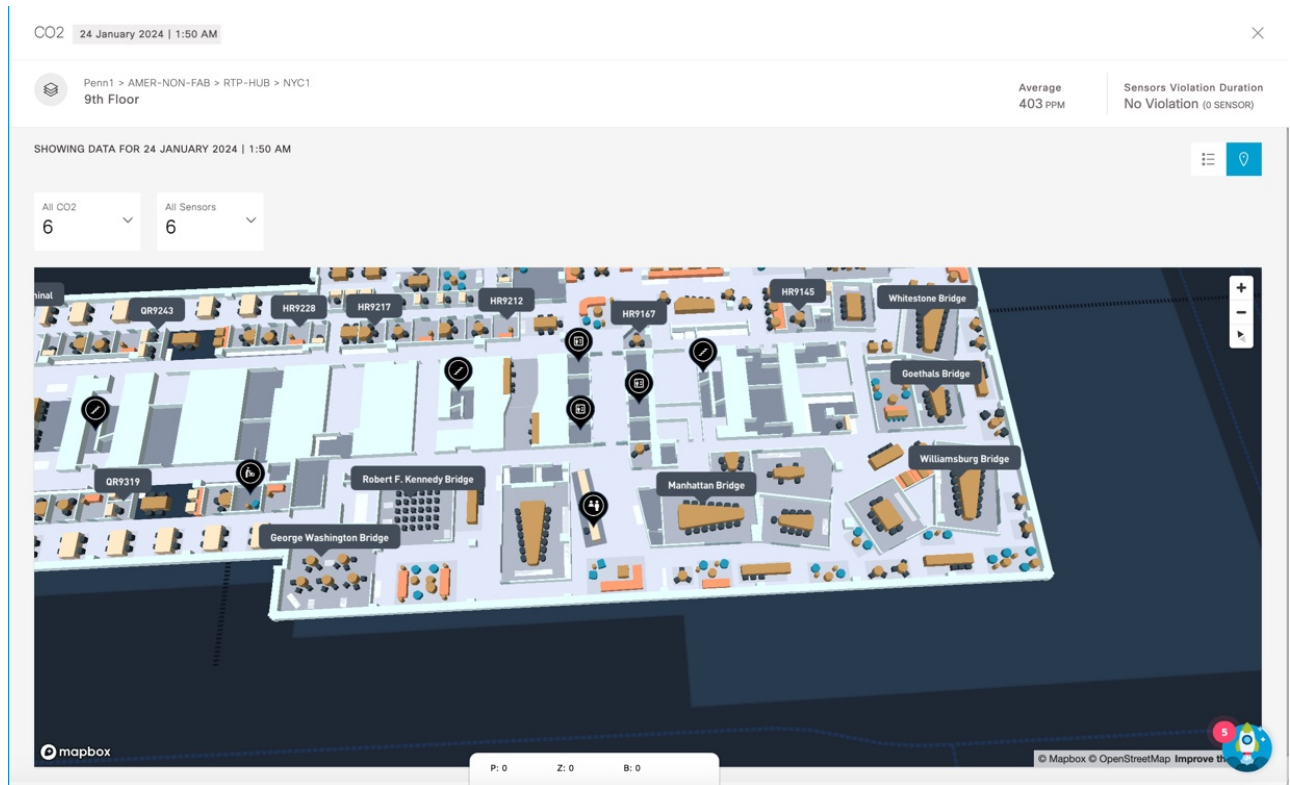
Figure 11: Humidity Sensor Data

For **Temperature** sensor data, the following window is displayed:

Figure 12: Temperature Sensor Data

Step 5 To view the sensor data in Rich Map view, click the **Rich Map** ( ) icon.

The Floor View is displayed in Rich Maps.

Figure 13: Rich Maps View

Step 6 (Optional) To download the sensor metric as a CSV file, click **Export as CSV**.

Step 7 Click **Compare Floors** to open the **Floor Comparison** window to view the floor comparison data. For more information, see .

**Step 8** Click the **Close** (✕) icon to close the window.

Compare Floors

Step 1 In the Cisco Spaces dashboard, click the **Menu** icon (☰) and choose **Home**.

Optionally, from the **Dashboard** drop-down list (left navigation pane of the Cisco Spaces **Home** window), select **Environmental Analytics**.

The **Environmental Analytics** window is displayed.

Step 2 From the left navigation pane, select any sensor data of your choice.

Step 3 In the sensor detail window that is displayed, click the floor name.

The **Floor View** window is displayed with the sensor performance data. The data for the current month is displayed for the selected floor. By default, the **All** option is selected and the window displays sensor performance data from all devices. Click **Webex** if you need to display the sensor performance data from Cisco Webex devices.

Step 4   In the **Floor View** window, click **Compare Floors**.

The **Floor Comparison** pop-up window is displayed. By default, **All** is selected. Click **Webex** to view sensor data from Cisco Webex devices.

Figure 14: Floor Comparison
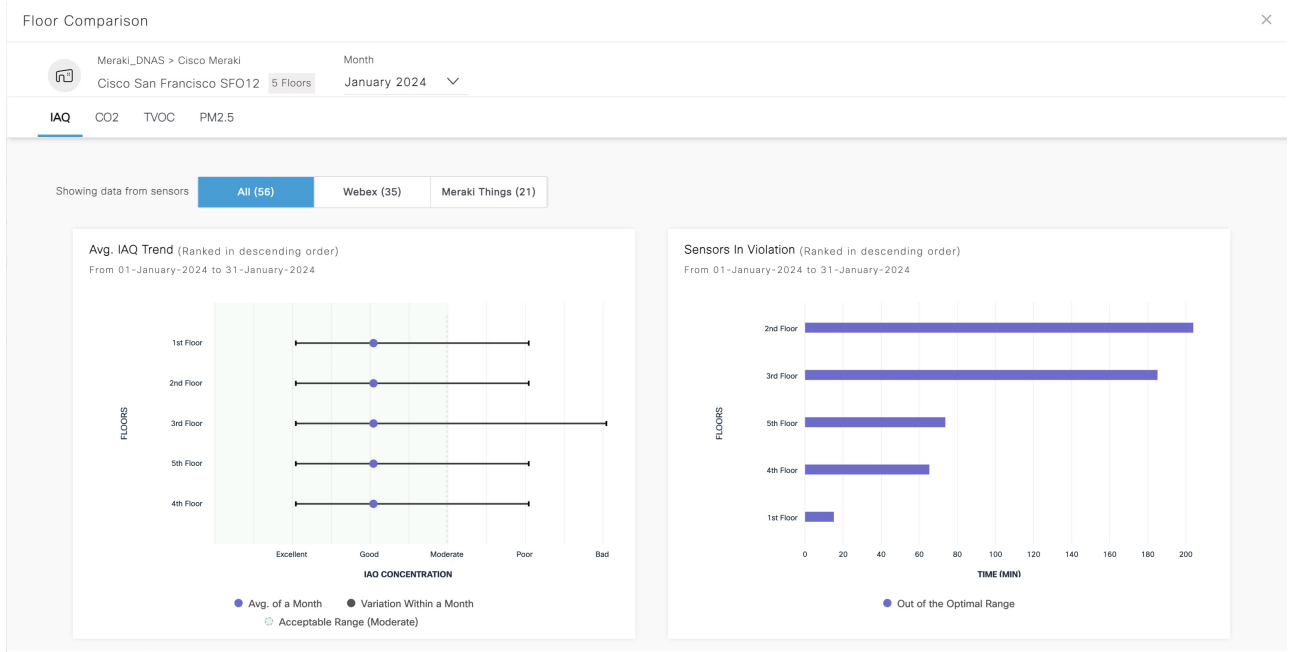
Step 5   View the floor comparison data from all the sensors. The floor comparison details such as average sensor trend and sensors in violation for the selected month is displayed.

Step 6   Hover your cursor over the graph to view additional sensor details.

Step 7   (Optional) From the **Month** drop-down list, select a different month to view the floor comparison data.