



Chanalyzer Pro with Cisco CleanAir®

metageek

Chanalyzer Pro with Cisco CleanAir[®]

spectrum analysis software

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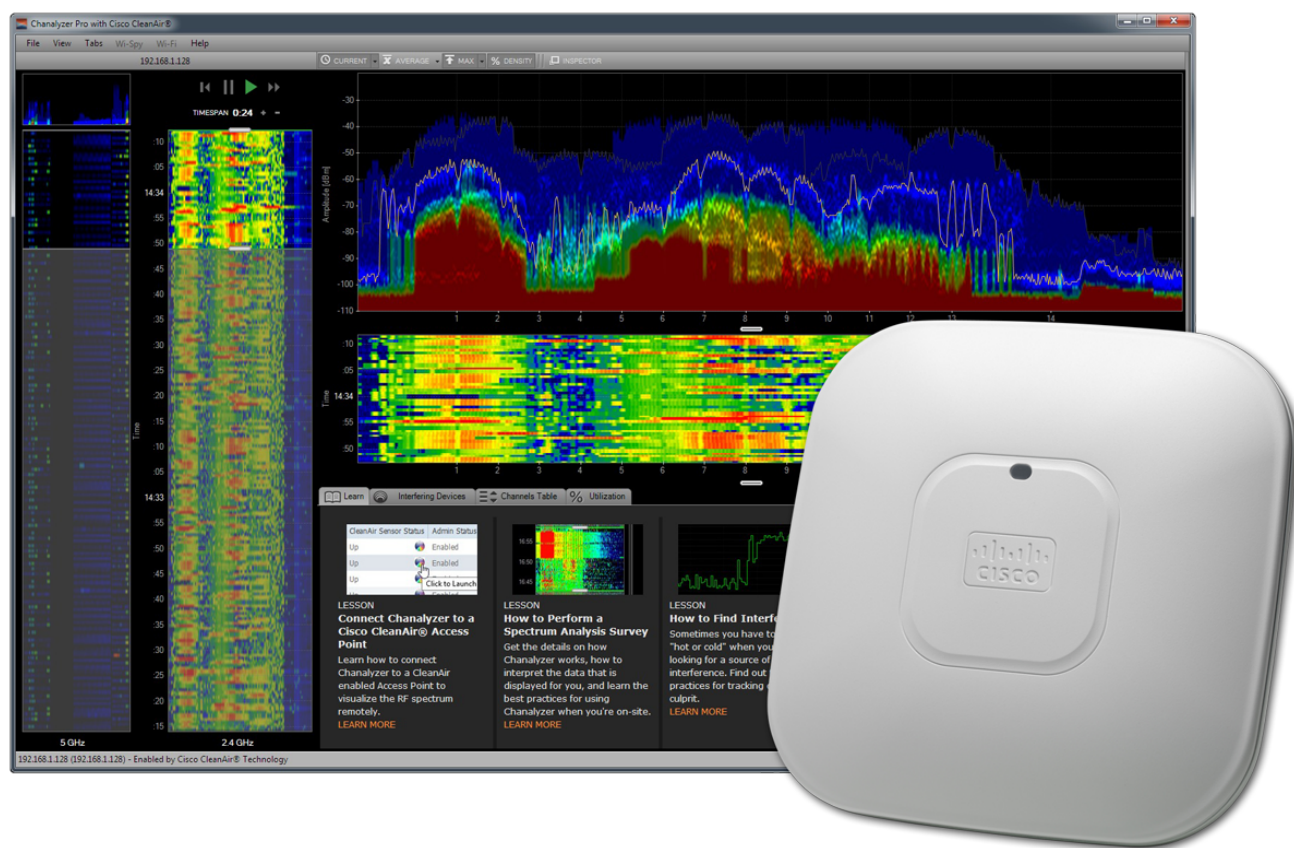
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Visualize and Troubleshoot Wi-Fi Interference with Chanalyzer Pro

Chanalyzer Pro with Cisco CleanAir® turns RF spectrum data collected from a Cisco CleanAir enabled access point or MetaGeek Wi-Spy into highly interactive charts and graphs, allowing you to visualize your wireless landscape. Chanalyzer display wireless access points and other transmitters as they appear in the spectrum, giving quick insight into whether interference is Wi-Fi or non-Wi-Fi related.

Note: The features and abilities of Chanalyzer Pro depend on which data source you are using. When Chanalyzer is in CleanAir® mode, Wi-Fi data will be unavailable. If using Chanalyzer in Wi-Spy mode from within a VM, an additional USB Wi-Fi adapter is required to gather network data.



System Requirements

OPERATING SYSTEM: **Microsoft® Windows 8, 7, Vista ***

* support for XP (SP3) to be announced

Mac OS X VIRTUALIZATION: **VMware Fusion, Parallels**

NOTE: Virtual machines require an external USB Wi-Fi adapter to view Wi-Fi information

DISPLAY RESOLUTION: **1024 x 600** (or better)

FRAMEWORK: **.NET Framework 4**

USB PORT: **1.1** (or better)

RAM: **4 GB** (recommended)

Cisco CleanAir® Mode

HARDWARE: **Cisco CleanAir Enabled Access Point** (for remote troubleshooting)

SUPPORTED: Cisco Aironet 1500, 2600, 3500, and 3600 Series

MetaGeek Wi-Spy Mode

HARDWARE: **Wi-Spy 2.4x, Wi-Spy DBx, or Wi-Spy 900x**

Built-In Wi-Fi card (802.11n recommended, a/b/g compatible)

Installation

1) Download Chanalyzer Pro with Cisco CleanAir

<http://www.metageek.net/products/chanalyzer/gimmepro-cleanair/>

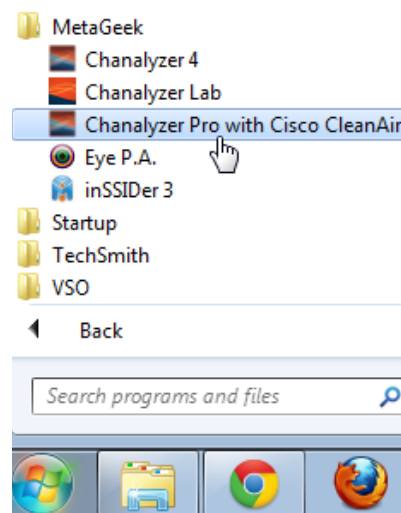
1. Open the downloaded file and double-click the installer.
2. Follow the installer prompts.

2) Run Chanalyzer

Click on the start menu to access the "MetaGeek" directory.

Click **Start > All Programs > MetaGeek**.

Select **Chanalyzer Pro with Cisco CleanAir** to launch the software.



CleanAir® AP Mode:

Connect to a Cisco Access Point

The three different operating modes of a Cisco CleanAir access point determine the data available to Chanalyzer.

Local

Each Cisco CleanAir-enabled access point radio provides air quality and interference detection reports for the **current operating channel only**. Local mode does not disrupt client connections. When a hybrid-REAP access point is connected to the controller, its Cisco CleanAir functionality is identical to local mode.

Monitor

When Cisco CleanAir is enabled in monitor mode, the access point provides air quality and interference detection reports for **all monitored channels**. Monitor mode allows the AP to share spectrum analysis dwells for collection of Wi-Fi data.






SE-Connect

This mode enables a user to connect Chanalyzer running on an external PC to a Cisco CleanAir-enabled access point in order to display and analyze detailed spectrum data for **all Wi-Fi channels on a radio**. In this mode, an access point is used strictly as a spectrum analysis capture interface and does not provide any Wi-Fi, RF, or spectrum data to the controller.

There are two options for connecting to a CleanAir Access Point using Chanalyzer:

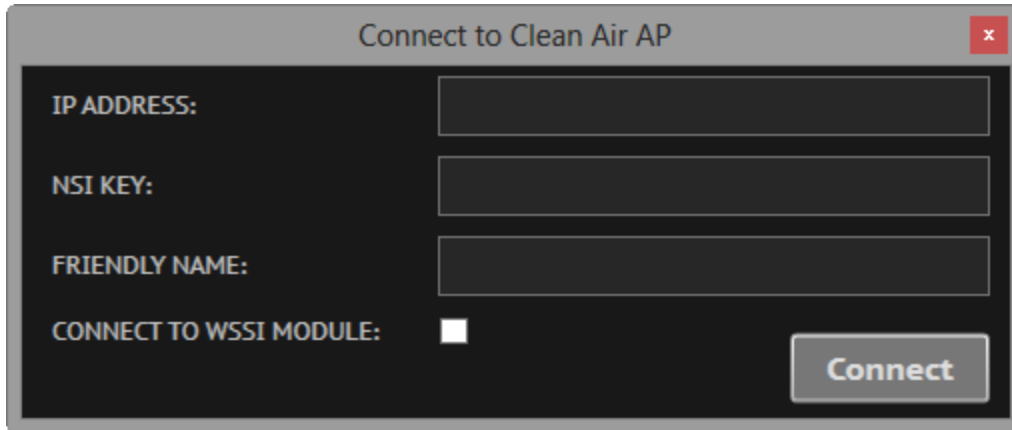
CCF File

From the Cisco Prime administration page you can download a .ccf file that contains details about an access point, such as the NSI key. Use Chanalyzer to open the file and start capturing spectrum data.

CleanAir Sensor Status	Admin Status	AP Mode	Op
Up	 Enabled	Local	Up
Up	 Enabled	Local	Up
Up	 Click to Launch Spectrum Expert		Up
Up	 Enabled	SE-Connect	Up
Up	 Enabled	Monitor	Up

Chanalyzer Direct Connect

Within Chanalyzer, use the file menu to select “Connect to a CleanAir AP.” You will need to enter in the IP address, NSI Key and assign it a friendly name. If the AP has a WSSI monitor module, select the checkbox.

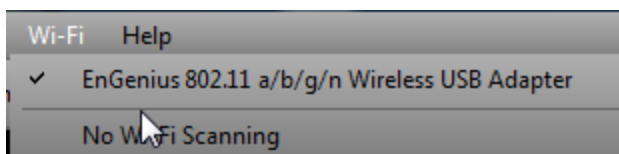


Chanalyzer will keep a list of your recent connections so you can toggle between multiple APs quickly.

Wi-Spy Mode:

Choose a Wireless Network Interface Card (NIC)

Select a built-in or connected wireless network card in the main menu to access additional WLAN information about SSIDs, RSSI, MAC address and data rate. Click **Wi-Fi** in the menu bar, and then your wireless network card to collect Wi-Fi data in conjunction with the spectrum data.

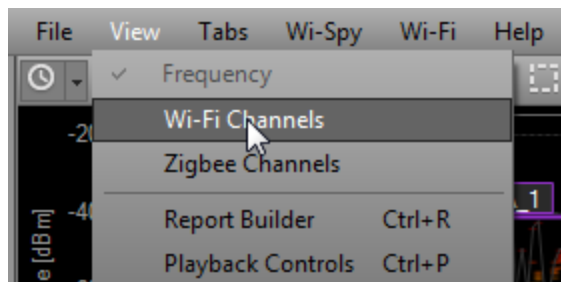


**Wi-Spy is a spectrum analyzer. It is not capable of reading at the Wi-Fi packet layer. Therefore Wi-Spy will not appear in the Wi-Fi card drop-down list. If you are running Chanalyzer in a VM, you will need an additional USB Wi-Fi adapter.*

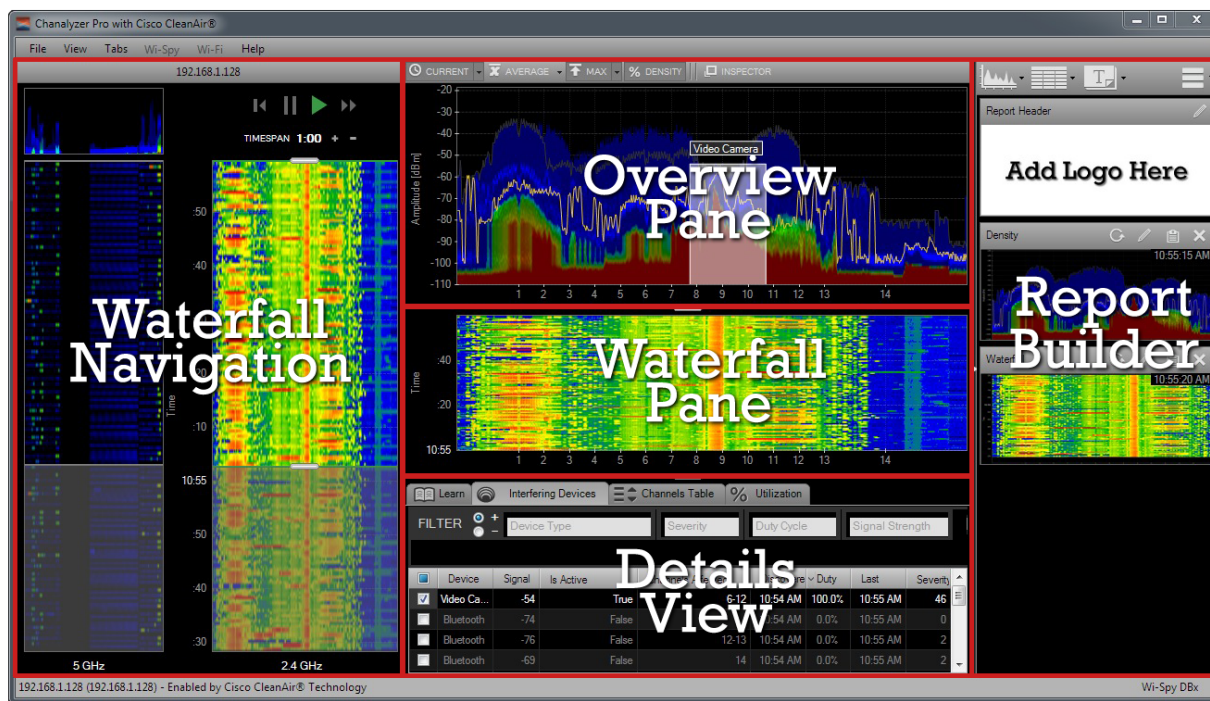
Occasionally a wireless network card will actively perform probe requests on all Wi-Fi channels, creating noise across the entire band with power levels above -40dBm. This background activity can often skew results of a spectrum analysis site survey. If you notice this behavior with your wireless network card and don't want the additional noise in your recording, we recommend that you select **No Wi-Fi Scanning**.

See Wi-Fi Channels label on the Density View

In the main menu select **View > Wi-Fi Channels**. This will change the x-axis to display the Wi-Fi channels instead of the corresponding spectrum frequencies.



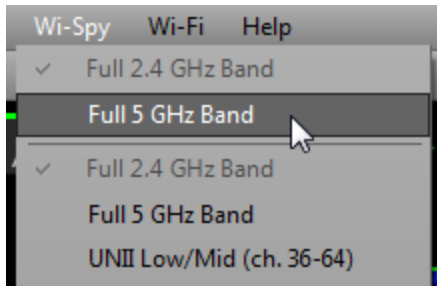
Navigation Pane (Wi-Spy Mode)



The Navigation pane provides controls for browsing Wi-Spy / Wi-Fi capture sessions or recordings. Within the Navigation Pane, you'll find:

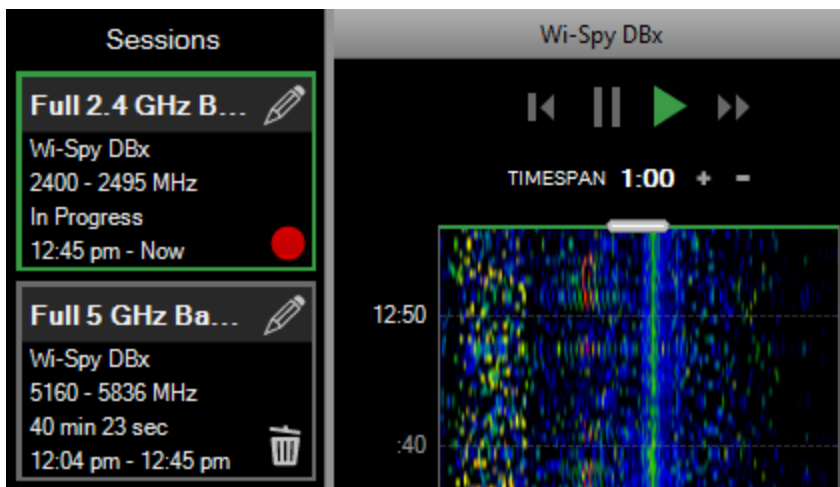
Device Selector (Wi-Spy Mode)

Chanalyzer Pro continuously logs data from multiple sources when connected to your computer. To change which band you're currently analyzing and recording, select an option from the **Wi-Spy** menu.



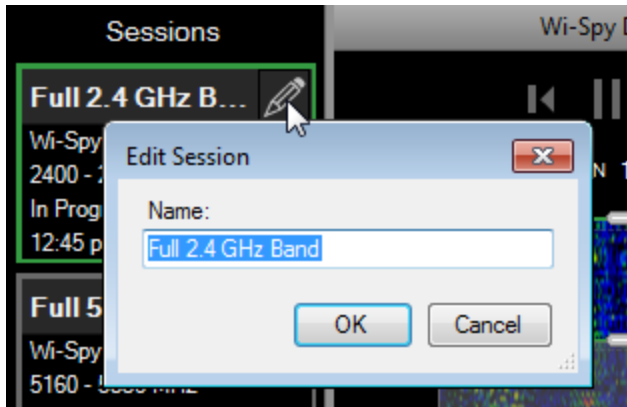
Session Navigator (Wi-Spy Mode)

Each time a user selects a new frequency range in the Wi-Spy menu the previous data is saved as a session in a Wi-Spy Recording. Active sessions are indicated with a red record icon meaning there is currently data being added to the session. The session currently being displayed in Chanalyzer, whether it is active or not, will have a green box around it. With two Wi-Spy devices, Chanalyzer can simultaneously log the 2.4 GHz and 5 GHz.



Renaming a Session

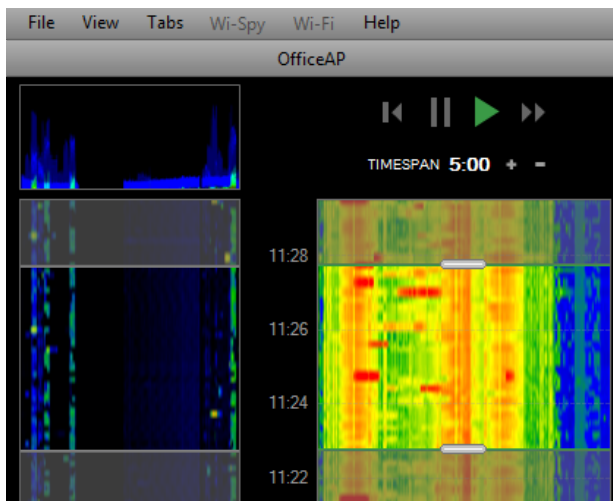
Sessions can be renamed to represent various points in a recording. This feature is primarily used to identify locations however it can also be used to identify smaller frequency ranges.



Timespan Controls (CleanAir and Wi-Spy Modes)

Note: Screenshots depict Chanalyzer Pro, but similar functionality is found in CleanAir Mode

The Timespan controls adjust the length of time users see in the Overview and Details panes. Timespan adjustments allow users to narrow-in on anomalies and moments in time when WLAN performance suffered. The playback buttons are used to Play, Pause, Rewind, and Fast Forward while viewing a capture. The playback controls can also aid in selecting smaller time spans in the waterfall navigation.



Waterfall Navigation

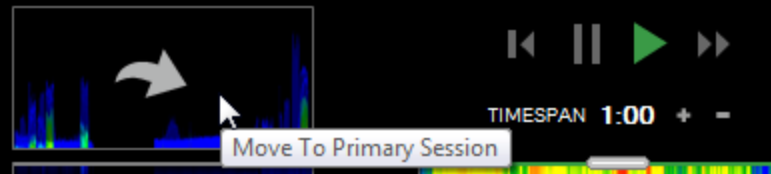
Waterfall Navigation colorfully displays all data in the current Wi-Spy session to show the section of time detailed in the Overview and Details panes.

To move to a specific position within the session, double-click a point within the waterfall. You can also click-and-drag the head and tail of the highlight slider region to easily adjust the timespan in the Waterfall Navigation.

Navigation Pane (CleanAir Mode)

Double Rainbow!

When connected to a CleanAir AP, Chanalyzer's Navigation Pane displays spectrum waterfalls for the 2.4 GHz and 5 GHz bands simultaneously. By default, the 2.4 GHz band will be displayed as the active session in the overview pane. Clicking the preview window above the secondary waterfall will



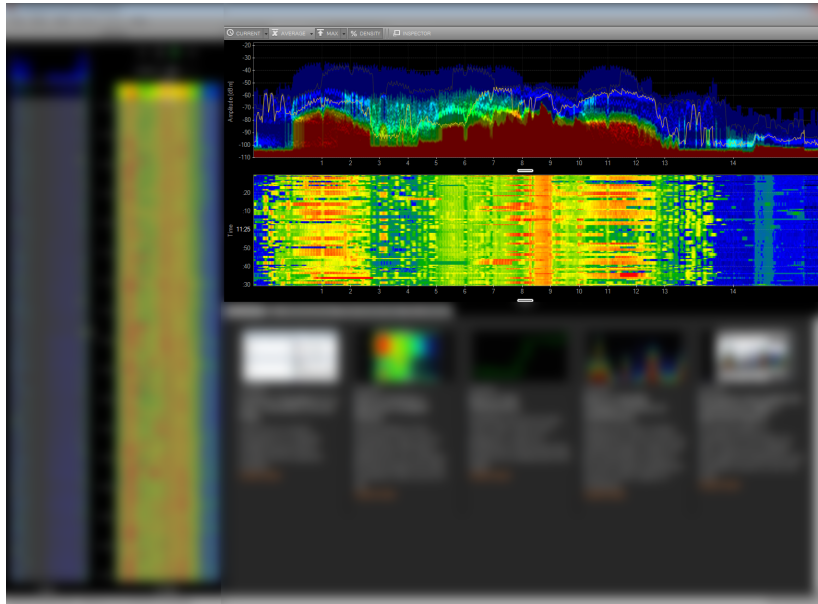
Session Navigation & Renaming

When opening a recording made in CleanAir mode, the Session Manager appears and functions similarly to the above descriptions.



Overview Pane

This pane, located at the top-right of the Navigation pane, contains the Waterfall and Density views.



Density View

The Density View displays how often a signal is detected at a specific amplitude. After a short time of gathering data, patterns begin to emerge in the Density View. A density map view enables the user to quickly identify packet-based and analog patterns that may be interfering with your network.

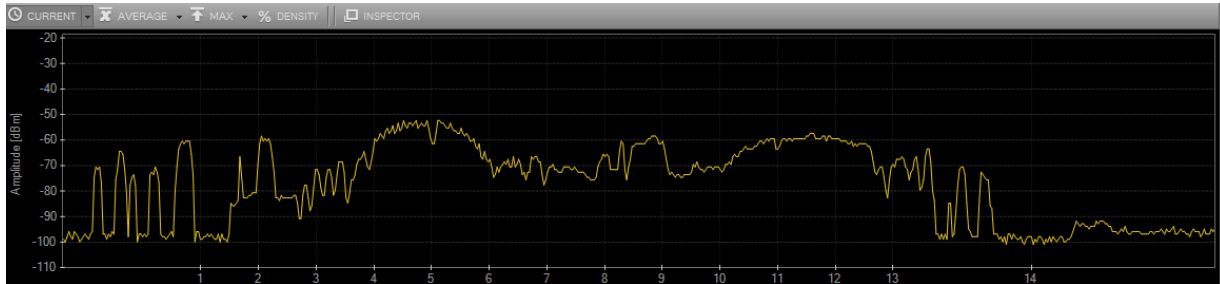
Display Options

The Density View has several view options. All of the display options can be toggled on and off as needed, and the trace colors customized. Users can employ combinations of these options to troubleshoot more efficiently.



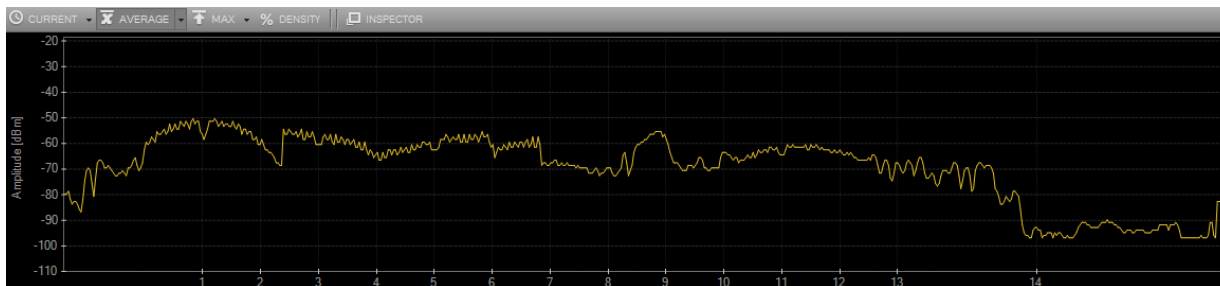
Current

The current display option represents the received values at the most recent reading in the time span. By default this will be real-time unless the user has changed the time span settings to previously captured data.



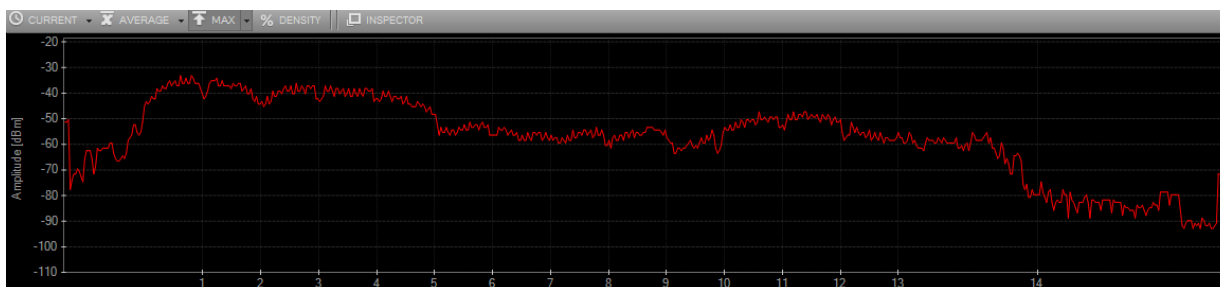
Average

The average display option represents the average of the received spectrum activity in the selected time span. For example, if the time span is 1 minute, the average will be calculated in the rolling 1 minute.



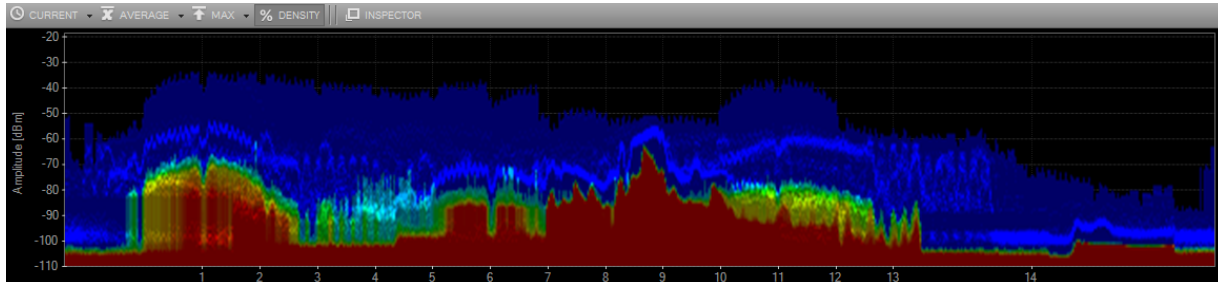
Max

The maximum display option represents the maximum values received from the Wi-Spy across the band in the selected time span.



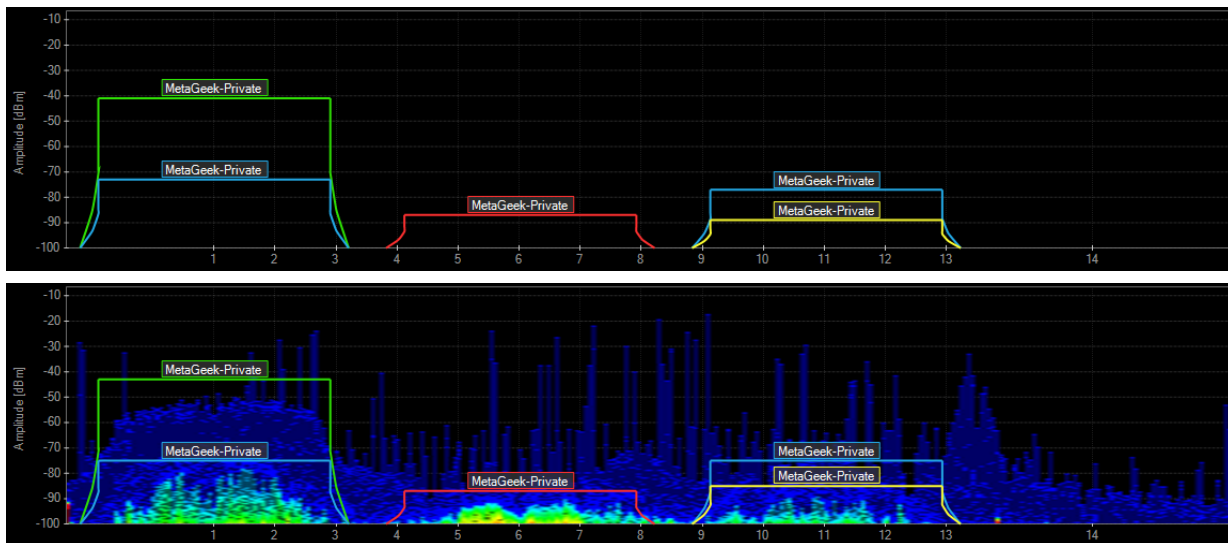
Density

This view emphasizes how constant noise is across the spectrum. At any given point, Chanalyzer assigns a color based on how much of the energy in a range of time is above that point. If 50% of all the activity is above an amplitude point, Chanalyzer colors it red. This display option is especially useful in understanding how constant interference is within a given range of time.



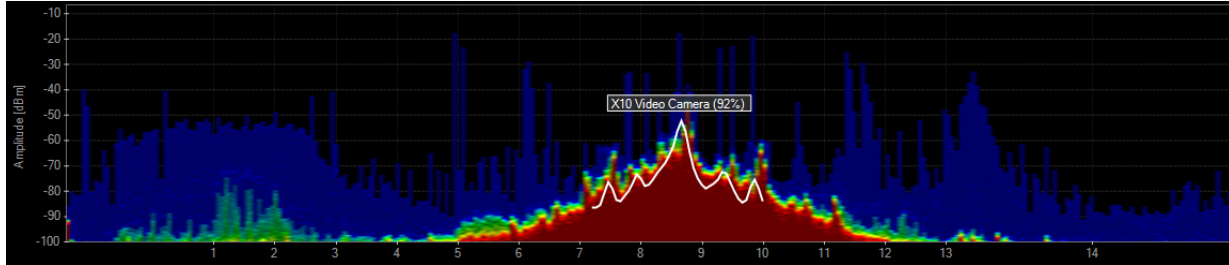
Networks (Wi-Spy Mode)

By selecting SSIDs in the Networks Table, Chanalyzer will draw overlays in the density view to help the user interpret which may be experiencing the most congestion.

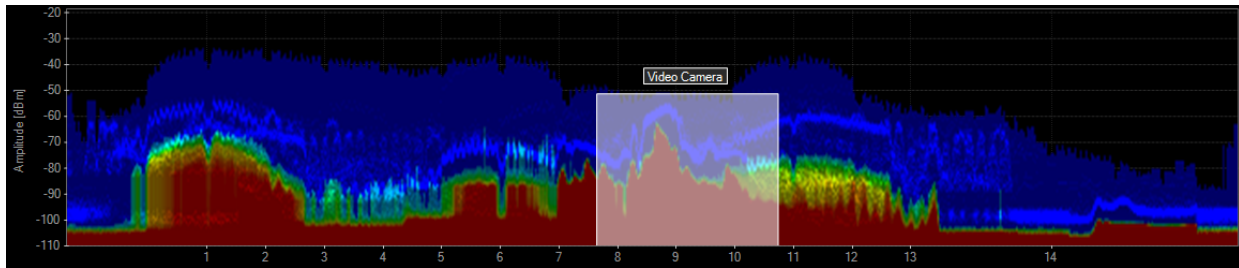


Transmitters

Wi-Spy Mode: Chanalyzer Pro will attempt to automatically identify transmitters from the Signatures tab. This display option will toggle on the drawing of detected transmitters within the threshold settings.

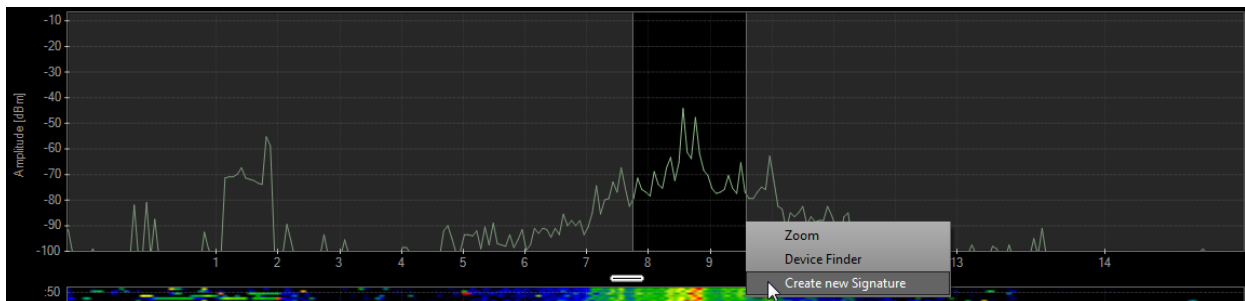


CleanAir Mode: When connected to a CleanAir AP, Chanalyzer will draw overlays around the channels that an interfering device is affecting. Simply check the box in the "Interfering Devices" tab next to the devices you are interested in.



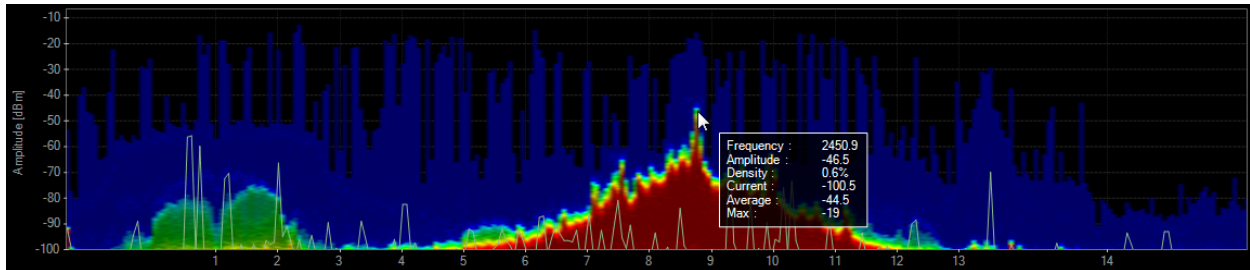
Outline (Wi-Spy Mode Only)

This represents the line Chanalyzer Pro attempts to match patterns to. This is most often used in creating a classifier.



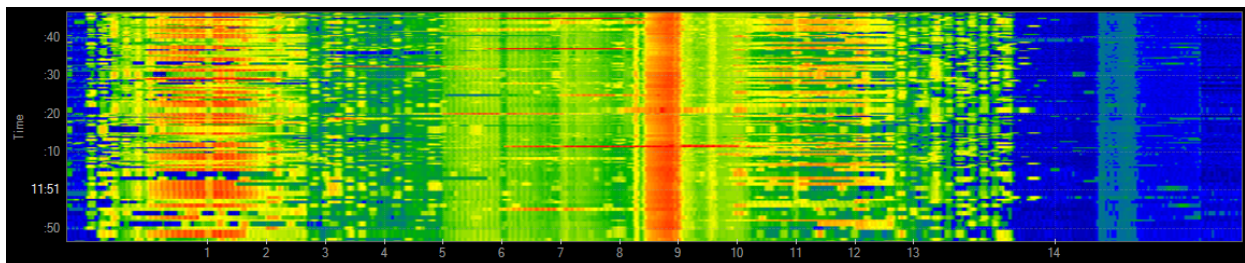
Inspector

This creates a hovering box above the cursor that displays specific numbers regarding a particular frequency amplitude point.



Waterfall View

This view graphs amplitude over time for each frequency in the selected ISM band. The Waterfall View uses a color scale to represent amplitude levels – low are dark blue while high amplitudes are bright red. This emphasizes instances where wireless devices like cordless phones or microwaves may have changed the spectrum. For example, when a microwave is started or a cordless phone changes channels, it is very noticeable in the Waterfall View.



Details Pane (CleanAir AP Mode)

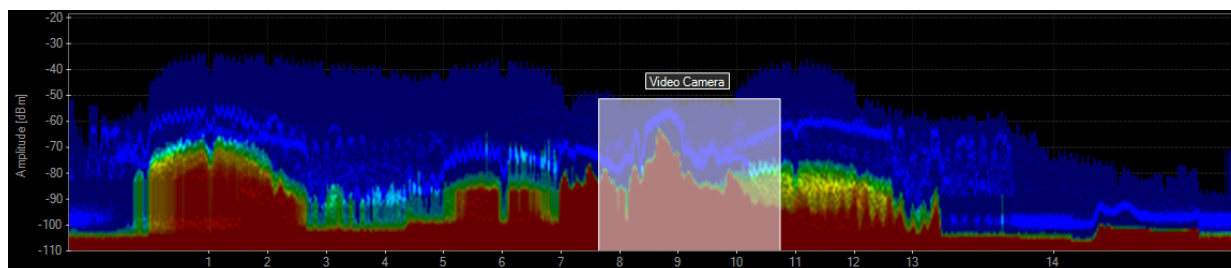
Device Interferers Table

When connected to a CleanAir AP, Chanalyzer will begin populating the Interfering Devices table with any non-Wi-Fi transmitters that are detected. The table is fully filterable by Device Type, Severity, Duty Cycle, and Signal Strength.

Device Type	Signal Strength (dBm)	Is Active	Channels Affected	Discovered Time	Duty Cycle	Last Seen	Severity
<input type="checkbox"/> Bluetooth	-69	False	12-14	11:37 AM	0.0%	11:53 AM	2
<input type="checkbox"/> Bluetooth	-76	True	13-14	11:37 AM	0.0%	11:53 AM	2
<input type="checkbox"/> Bluetooth	-77	True		11:37 AM	0.0%	11:53 AM	2
<input type="checkbox"/> Bluetooth	-69	True	1, 3-5, 12-14	11:38 AM	0.0%	11:53 AM	2
<input type="checkbox"/> Bluetooth	-71	True		11:38 AM	0.0%	11:52 AM	0
<input type="checkbox"/> Bluetooth	-64	True		11:38 AM	1.0%	11:52 AM	0
<input type="checkbox"/> Bluetooth	-67	True		11:38 AM	0.0%	11:52 AM	0
<input type="checkbox"/> DECT-Like phone	-69	True	14	11:38 AM	0.0%	11:52 AM	2
<input type="checkbox"/> Bluetooth	-74	True		11:38 AM	0.0%	11:52 AM	0
<input type="checkbox"/> Bluetooth	-76	True		11:41 AM	0.0%	11:52 AM	0
<input type="checkbox"/> Bluetooth	-78	True		11:41 AM	0.0%	11:53 AM	0
<input type="checkbox"/> Video Camera	-53	True	6-12	11:45 AM	100.0%	11:53 AM	39
<input type="checkbox"/> Bluetooth	-76	True		11:46 AM	0.0%	11:53 AM	0
<input type="checkbox"/> WiMax Fixed	-67	False	1-4	11:52 AM	0.0%	11:52 AM	0

Clicking the checkbox next to an interferer will display a visual indicator in the density view

that spans the channels where the device is active. The spanning area will be filled in depending on the severity of the interference-- The higher the severity, the more opaque the overlay will be (and the more impact your users are likely to experience).



Channels Table

Average - The average signal strength (in dBm) of devices on a channel.

Total Utilization - Measurement (in percentage) of total airtime utilization on a channel.

Device Count - Number of devices detected on a channel.

Devices Duty Cycle - A measurement of how constant a specific transmitter is above the noise floor.

Interference Max Power - Highest detected amplitude level of an interfering device affecting that channel.

Air Quality Index - Grade assigned by averaging the impact of interference against a theoretical perfect spectrum. The closer to 100, the better. Read more [here](#).

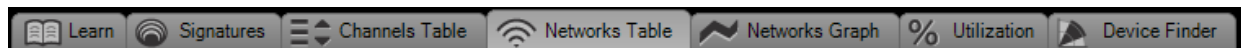
Channel	Average (dBm)	Total Utilization	Device Count	Devices Duty Cycle	Interference Max Power	Air Quality Index
1	-58.0	75.0%	3	0.0%	-62.9	94
2	-58.0	73.5%	2	0.0%	-66.1	95
3	-58.0	71.6%	1	0.0%	-66.1	93
4	-59.0	74.1%	3	0.0%	-62.9	93
5	-58.0	77.5%	2	0.0%	-62.9	94
6	-57.0	82.5%	2	0.0%	-62.9	93
7	-56.0	80.5%	3	0.0%	-62.9	90
8	-56.0	79.2%	2	0.0%	-62.9	90
9	-56.0	76.1%	2	0.5%	-60.4	90
10	-56.0	76.2%	5	0.2%	-60.4	93
11	-58.0	82.4%	6	0.2%	-60.4	91
12	-60.0	77.7%	7	0.1%	-60.4	91
13	-62.0	63.2%	8	0.1%	-60.4	91
14	-74.0	19.5%	4	0.3%	-60.4	96

Utilization

Utilization (also called Duty Cycle in some applications) is a relative score that helps determine how usable a channel is. It measures the percentage of time a signal was at or above the Utilization Threshold. This threshold can be adjusted in the top left corner of the Utilization tab. The selected time span in the waterfall navigation is used in the Utilization calculation.

Details Pane (Wi-Spy Mode)

The details pane contains a number of tabs with more in-depth information about Wi-Fi networks and their channels. You can quickly alternate between tabs by pressing CTRL + TAB.



Networks Table (Wi-Spy Mode)

The Networks Table is a list of all the Wi-Fi access points that are within range of your computer's Wi-Fi card.

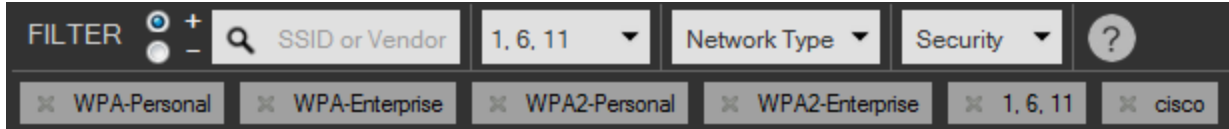
The names (or SSIDs) of access points (APs) are displayed, along with signal strength (RSSI), channel, MAC address and other identifiers. This table provides a snapshot of Wi-Fi networks in the area, and helps correlate RF activity in the spectrum views to known Wi-Fi networks.

To see a network drawn in the Density View or Networks Graph, click the check box next to its name.

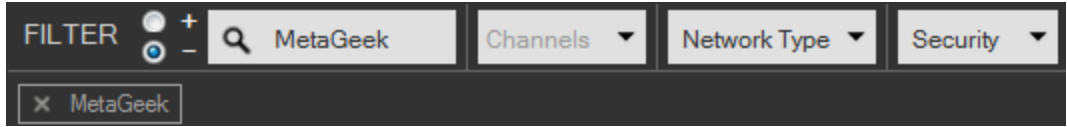
SSID	Channel	RSSI	Privacy	MAC	Max Rate	Vendor	Network Type
MetaGeek_Aurora_QA	1	-71	WPA2-Enterprise	1c:e6:c7...	216		Infrastructure
MetaGeek-Private	1	-43	WPA2-Enterprise	00:19:77...	130	Aerohive Networks, Inc.	Infrastructure
MetaGeek-Private	1	-75	WPA2-Enterprise	08:ea:44...	54	Aerohive Networks, Inc.	Infrastructure
MetaGeek-Private	6	-89	WPA2-Enterprise	08:ea:44...	54	Aerohive Networks, Inc.	Infrastructure
MetaGeek_QA2	7	-89	WPA2-Personal	1c:af:f7...	11	D-LINK INTERNATIONAL PTE LIMITED	Infrastructure
MetaGeek_QA_Rich	8	-69	Open	00:1e:58...	130	D-Link Corporation	Infrastructure
MetaGeek-Private	11	-79	WPA2-Enterprise	00:19:77...	130	Aerohive Networks, Inc.	Infrastructure
MetaGeek-Private	11	-91	WPA2-Enterprise	08:ea:44...	195	Aerohive Networks, Inc.	Infrastructure
MetaGeek-Private	40	-59	WPA2-Enterprise	00:19:77...	130	Aerohive Networks, Inc.	Infrastructure

Networks Table Filters

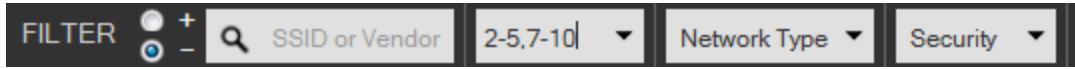
The Networks Table filters allow you to exclude or include SSIDs that meet your filter criteria. You can filter by SSID, vendor, channels, network type, and security. This can be very useful if you are in an area with dozens of AP's and you only want to view certain networks, for example, networks centered on channel 6. The filters can be stacked to meet a variety of criteria.



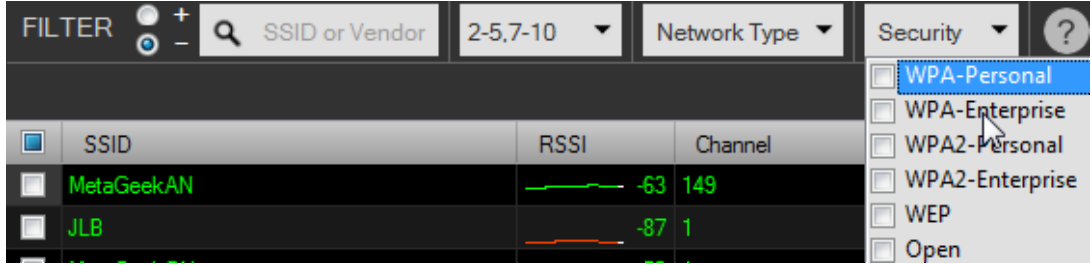
The SSID or Vendor filter begins with a "+" or "-" option. This will determine whether the include or exclude the following text entered. For example, if you do not want to see any wireless networks named "MetaGeek", select the - radio button and enter "MetaGeek" in the SSID or Vendor field. Press enter to apply the filter. Chanalyzer will then show every network that doesn't have "MetaGeek" in the SSID or hardware field.



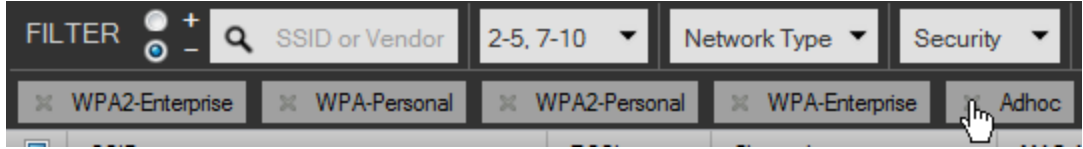
To filter by channels click the arrow on the drop-down menu which will allow you to choose between 2.4 GHz and 5 GHz channels. 2.4 GHz channels range from 1-14 and 5 GHz channels from 36-165. "-" will filter the channels from a to b. For example, typing (1-6) will show channels 1 through 6. Using a "," will allow you to enter multiple single channels to view. Typing (1, 4, 6, 9) will show only those channels. You can also use a combination of the two operators as follows: (2-5, 7-10).



The remaining filter options will show either AdHoc or Infrastructure networks or exclude certain security settings of SSIDs.



To remove filters click the x next to the box below.



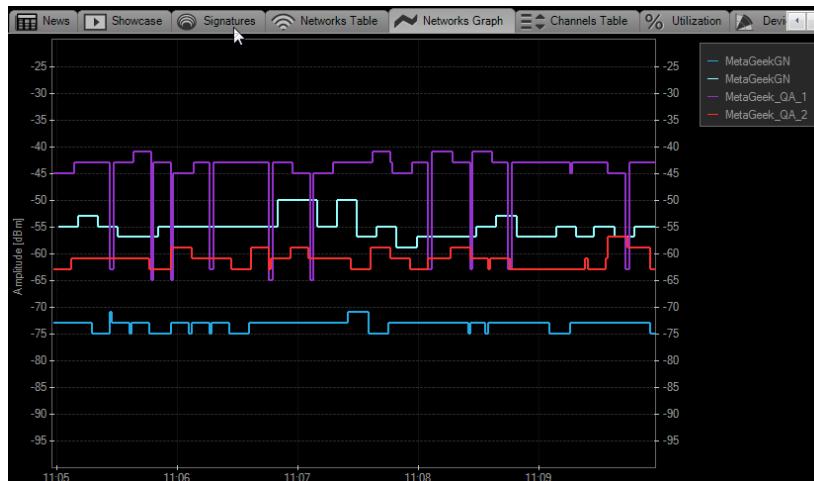
Sort by RSSI to find the strongest or weakest nearby network.

Within Chanalyzer, you can sort by RSSI by clicking the "RSSI" table header. This will sort detected wireless networks by ascending/descending order showing which have the strongest or weakest signal as compared to where you are at that moment. We recommend viewing networks with an RSSI value above -85dBm.

	SSID	RSSI
<input type="checkbox"/>	SSID0	-45
<input type="checkbox"/>	SSID2	-67
<input type="checkbox"/>	SSID1	-73
<input type="checkbox"/>	SSID2	-78

Networks Graph

Click the Networks Graph to show signal strength over time, drawing the rows selected in the Networks Table. Drops in signal strength indicate poor signal coverage and can be referenced against the Waterfall and Density views to determine if interference is to blame. Please note, this data comes from the wireless network card and not the Wi-Spy.

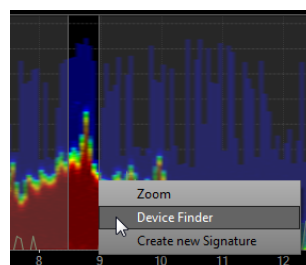


Device Finder

This view shows signal strength over time graph similar to the Networks Graph, but also shows the signal strength of a selected frequency range. Device Finder will enable you to actively seek out transmitters so you can know exactly what is happening in your networks.

Amplify the results of the built-in device finder feature with our Device Finder Directional Antenna, allowing you to track down offending devices quicker than with a Wi-Spy alone. Don't let mystery devices stay a mystery.

Click and drag across the density pane to highlight a continuous interferer. A contextual menu will appear. Select **Device Finder**.



Chanalyzer Pro will now track the amplitude levels over time of the frequency selection made in the density pane. As the user gets closer to the source the line graph will trend upwards.



Utilization

Utilization (also called Duty Cycle in some applications) is a relative score that helps determine how usable a channel is. It measures the percentage of time a signal was at or above the Utilization Threshold. This threshold can be adjusted in the top left corner of the Utilization tab. The selected time span in the waterfall navigation is used in the Utilization calculation.



Channels Table

Current – The current represents an average of the most recent amplitude readings within the channel range.

Grade – This calculation uses the entire 20 Mhz width of a a Wi-Fi channel. Higher power levels near the center of the channel will affect the grade more negatively. A high grade of 90 or above can be interpreted as an "A" while 80 or above is a "B." Anything below 70 is not recommended for Wi-Fi deployment.

Average - For each channel range (for example, Wi-Fi Channel 1, 2401 - 2423 MHz), Chanalyzer calculates the average power within that channel frequency range.

Max - This is the highest amplitude point within the Wi-Fi channel frequency range.

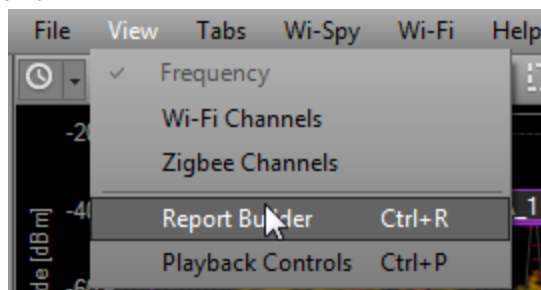
Utilization – The percentage of all noise above a defined amplitude threshold. The default amplitude is -85dBm.

Networks – Once network scanning is initialized Chanalyzer will count list the amount of networks detected.

Channel	Grade	Utilization	Average	Current	Max	Noise Floor	Access Points
1	70.4	13.5%	-64.0	-74	-38.0	-92.0	1
2	69.1	14.6%	-59.0	-74	-32.0	-92.0	1
3	73.2	12.8%	-58.5	-62	-32.0	-93.0	0
4	73.7	13.3%	-58.5	-62	-32.0	-93.5	0
5	71.6	14.4%	-59.0	-62	-32.5	-93.5	1
6	73.1	12.7%	-63.5	-62	-39.0	-94.5	0
7	76.1	11.8%	-64.0	-79	-39.0	-94.5	0
8	80.4	10.2%	-65.5	-78	-39.0	-95.0	0
9	81.4	8.9%	-66.0	-78	-39.5	-95.0	0
10	75.3	11.8%	-65.0	-77	-39.0	-94.0	0
11	72.6	12.7%	-65.0	-77	-39.0	-93.5	1
12	75.7	11.6%	-66.5	-80	-40.5	-94.5	0
13	84.4	7.9%	-68.0	-80	-42.0	-96.0	0
14	98.9	0.5%	-90.0	-98	-66.5	-100.0	0

Report Builder

With the Report Builder, users can highlight and visually explain how bad interference was when it occurred in an easy, professional manner.



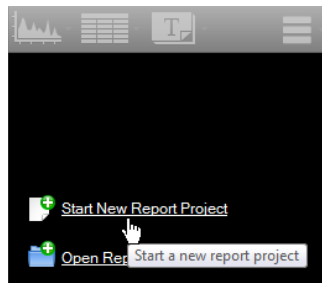
Simply follow the steps below to create your own reports.

1) Open Report Builder

Click View from the top menu and select Report Builder (or Ctrl+R)

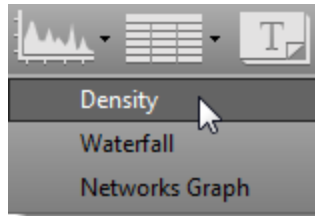
2) Start a New or Open an Existing Report Project

Chanalyzer can start with a previously built report project (.wsxr file) or build a new one.



3) Add a Block to the Report

At the top of the Report Builder interface, select **Add Graph** and choose the type of graph you would like to add. Each of these menu items will add a different graph block from Chanalyzer Pro to your report.

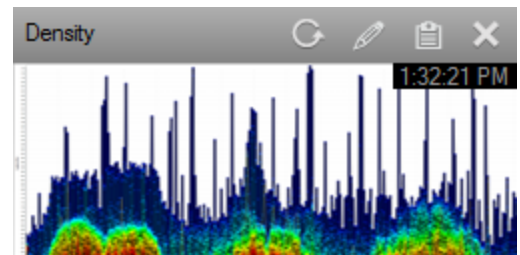


When a block is added, it will take a snapshot of one of the panes exactly as it is currently displayed in the application. Make sure the correct networks are selected at the time the snapshot is taken so it will be entered in the report correctly. Use the display options to choose the correct method of coloring as well.

There are several block types like graph, table, text or image. Each of these can be added by clicking an image in the top of the report builder.

Refresh a Block

If you are not satisfied with the captured image or table results, you can easily update it. Move the time span in the navigation pane and adjust any display options you would like. Then click the refresh button at the top of the block. The block will update to the current graph or table as displayed in Chanalyzer Pro.

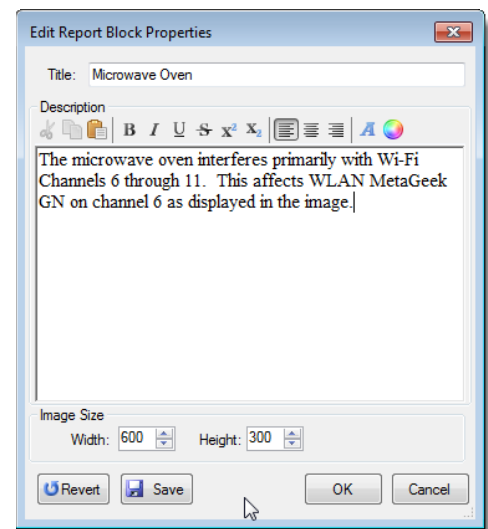


Edit Block Details

Change the title and description of the report block by clicking the pencil icon in the top right of the block. This is where you can change the block title or content, allowing you to create a better and more personalized presentation of your findings.

Copy Block Details to Clipboard

If you would like to use the captured image or table in another program, you can do so by clicking the clipboard icon at the top of the block.



Creating Custom Report Builder Blocks

After editing a block's text, click **Save** to replace the default text with the current paragraph.



The **Revert** button will return all modifications to the original default settings.

To save a default set of blocks for quick addition in reports build the set of blocks and select the **Save** button at the bottom of the report builder. This will export all of the blocks as a .wsxr file.

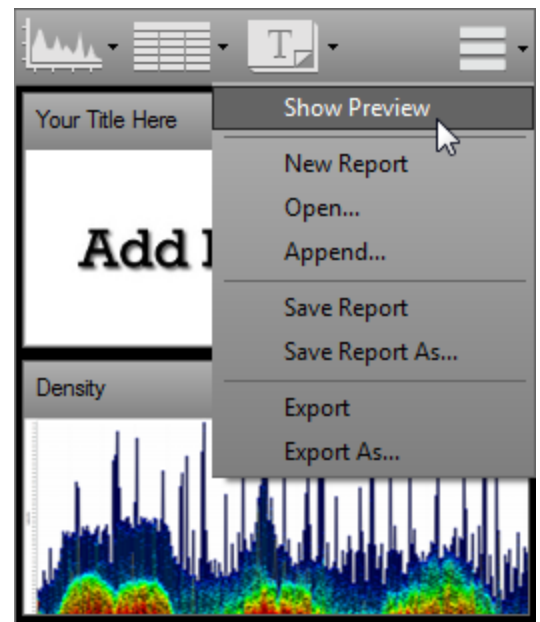
To merge your current report with a previously created one, click the down arrow next to the save button to "append" a .wsxr file with the current report. This will add all of the blocks to the bottom of the report generator.

Rearranging Blocks

The order of blocks can be set by dragging and dropping blocks. Grab the block by the gray title section to drag them up and down the list to rearrange.

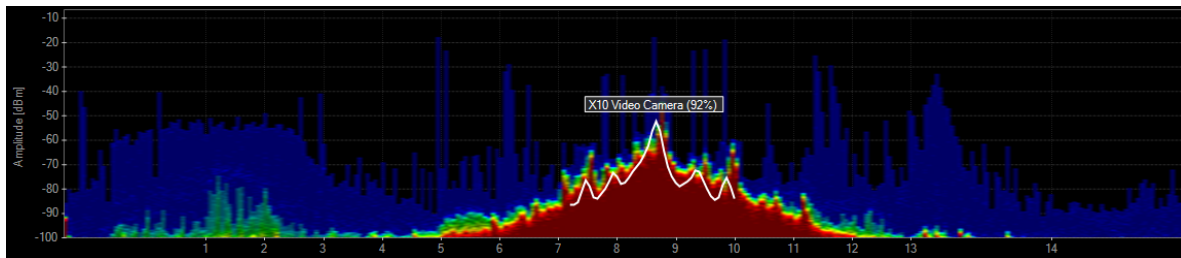
Report Builder Settings

Settings for the report builder can be found by clicking the Settings menu to the right.



Automatic Classification (Wi-Spy Mode)

Chanalyzer Pro will automatically identify a transmission once a signature has been created. Devices with separate center frequencies will need separate classifiers created. Chanalyzer uses the outline view to match classifier patterns in a spectrum recording. When a classifier matches the shape in the outline by a large percentage it will draw it in the density view if the transmitter display option is enabled.

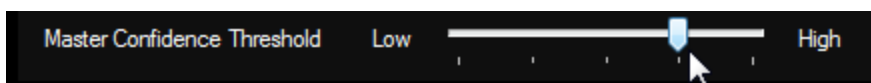


Threshold Settings

There are two sliders that act as threshold settings to adjust the rate at which Chanalyzer Pro identifies transmitters in the Density View. By lowering the threshold, Chanalyzer Pro will identify more often with lower confidence levels. Confidence levels can be adjusted individually or as a group.

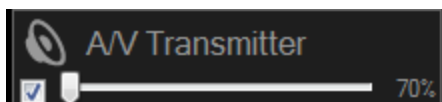
Master Confidence Slider

The master confidence threshold slider changes how frequent the classifier will be drawn in the density view.

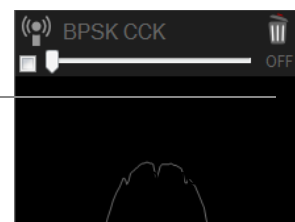


Individual Confidence Threshold Slider

Each classifier has its own threshold settings. The confidence level of each classifier is listed next to the slider. Due to the different nature of transmitters, classifiers should have different confidence levels. Each classifier can be adjusted under the master threshold slider.



Disabling Classification

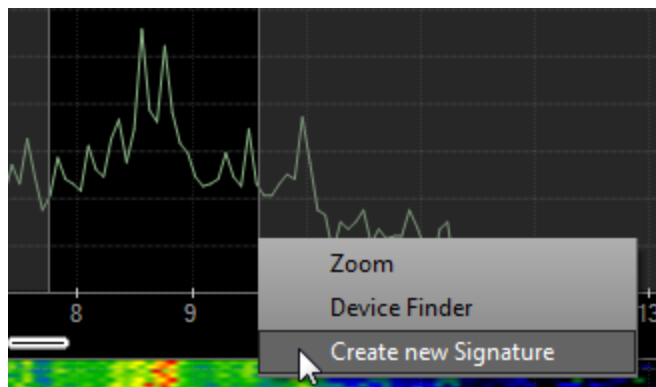


Classification can be turned off as a display option above the density view. Click the transmitters button. Individually each device in the signature tab can also be checked, enabling or disabling it as a possible device to be classified.

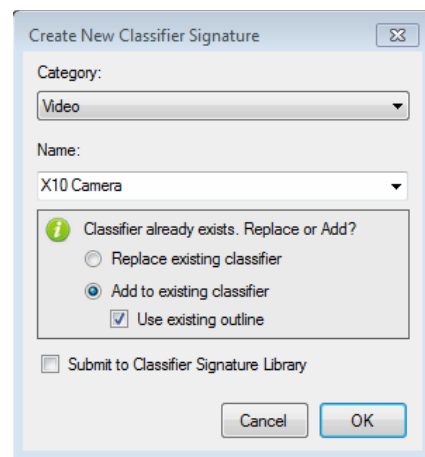
Deleting a Classifier

To permanently remove a classifier from the signatures tab, click the garbage can icon in the top right of the classifier.

Create a New Signature



1. Turn on the outline view.
2. Disable the current, average, max, density, networks and transmitter views.
3. Highlight the frequency range of the device you wish to create a classifier for.
4. Adjust the time frame to find shape that represents the device the most.
5. Click **Create Classifier** in the contextual menu.
6. Assign a Category to the classifier and give it a name.
7. Please click **Submit to Classifier Library**. This Library is managed by MetaGeek and will be made available to all other Chanalyzer users.

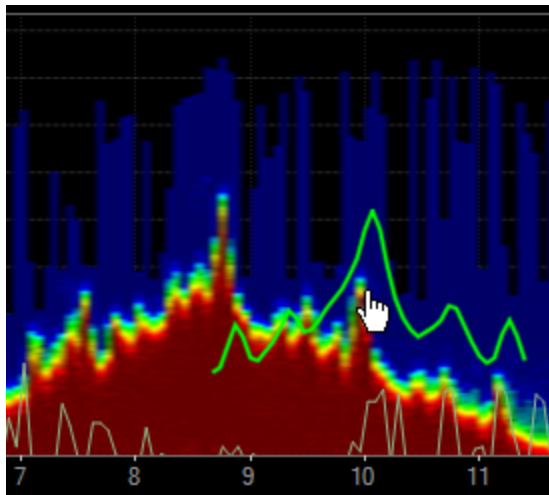


Adding a Frequency Range to a Classifier

1. Follow steps 1-5 from "How to create a Classifier" to add a new frequency range.
2. Select the same Category of the existing classifier you would like to add a new channel or range.
3. Type the same name. Chanalyzer will auto-complete the Name field.
4. Select **Add to Existing Classifier** and check "Use existing outline"
5. Click OK

Using the Silhouette for Identification

Click on the classifier in the **Signatures** tab and then hover the mouse over the Density View. Turn off the silhouette by clicking the box again in the Signatures tab.



Wi-Spy Mode Configuration Settings

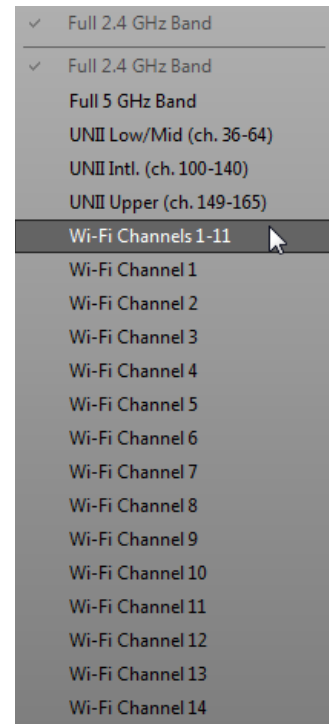
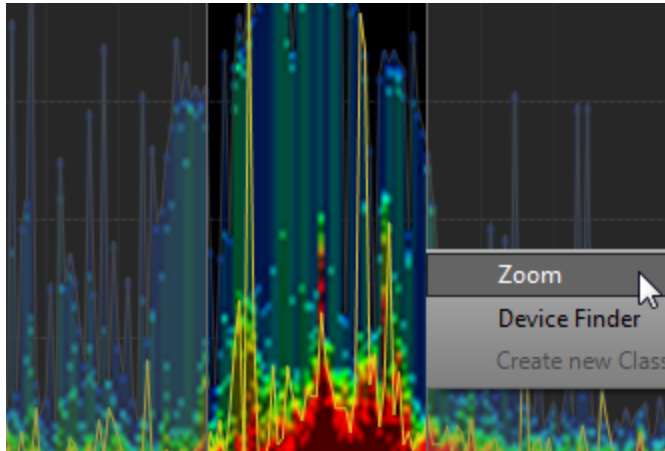
The Chanalyzer software operates similar to a DVR. It will automatically save all of the Wi-Spy data it has seen since the program was initialized. If the user changes frequency range, the old data will be stored into a session within the Wi-Spy capture. The user can then navigate between captured sessions by selecting the **Sessions** navigator above the waterfall navigation in Chanalyzer Pro.

There are two methods to change the start and stop frequencies displayed in Chanalyzer. Click and drag the mouse across the frequency range you would like to view in high resolution or use the pre-defined Wi-Spy configurations in the main menu under **Wi-Spy**.

Click-and-Drag Wi-Spy Configuration

To view a higher resolution of a smaller frequency range, click and hold down the mouse

button to highlight range you would like to view. Upon releasing the mouse button a contextual menu will appear. Click Zoom. Chanalyzer will then store the previous data in a session. You can view it at any time by clicking on the session navigator.

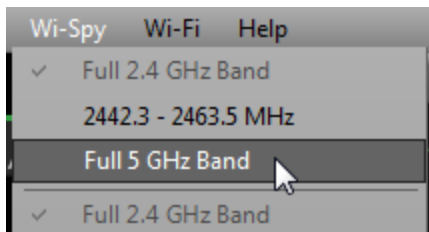


Wi-Spy Configuration Presets

Chanalyzer includes pre-defined zoom settings that have been optimized for speed and resolution. Access these shortcuts in the top main menu under **Configuration**. Choose the Wi-Fi channel range you would like to monitor.

Return to Previous Wi-Spy Settings

Chanalyzer saves the most recently used Wi-Spy configurations in the main-menu. To return to a previous setting use the main menu **Configuration** option to return the previous setting.



View a Previous Capture

View a Previously Captured Session

Since Chanalyzer continuously logs all spectrum data, previous configurations and settings are stored in a unique session and can be viewed at any time during the capture. Viewing a previous capture will not interrupt the current live capture session.



Finding Interfering Transmitters (Wi-Spy Mode)

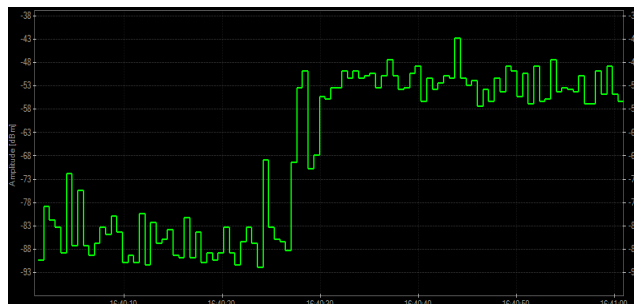
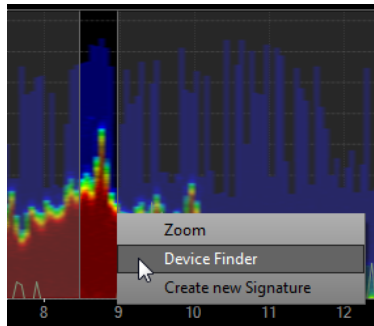
The standard antenna in most spectrum analyzers and Wi-Fi receivers is omni-directional. Omni-directional antennas receive signals in all directions, whereas a directional antenna is more like a flashlight – point it in any given direction to gain visibility in that specific area.

When performing site surveys, directional antennas minimize the guesswork associated with determining where interferers are transmitting from. Instead of going into each room to see if amplitude increases or decreases, Wi-Spy users with a Device Finder directional antenna can simply rotate the Wi-Spy and Device Finder to find higher amplitude levels and walk in the direction until the transmitter is located.

Users can highlight frequency ranges of a transmitter's peak signal and track it using a directional antenna. This feature only works during live captures, and is very useful because it gives exact amplitude levels over time – freeing the user from interpreting color ranges. As the amplitude level falls, you know you are getting "cold" and as the amplitude level increases, you know you are getting "warm".



Highlight a transmitter by clicking and dragging across the Density View. Then click on the Device Finder tab. With Device Finder, users can track down any device, no matter if the software identifies the interfering device or not. This method is perfect for transmitters that emit a constant signal, like cordless phones or AV transmitters. While using the Device Finder graph, continually monitor the Density View to identify the pattern of the device.



LEARN MORE

You can learn more about Chanalyzer Pro at our website <http://www.metageek.net/products/chanalyzer>