APTIV CONNECT QUALIFIER

Video Insights



Harness the power of advanced AI to label ground-monitoring video, reducing manual effort and speeding up vehicle validation.

In one of the great ironies of automotive engineering, systems that are exciting to work on tend to be tedious to validate. That is especially true of the perception systems that make advanced safety and advanced driver assistance systems (ADAS) possible.

Camera, radar, and lidar systems generate huge quantities of data — data that is particularly difficult to search because it is visual. In order to validate that safety and ADAS systems are working as intended and complying with relevant regulations, engineers have to sift through all that visual data to identify any potential issues and analyze what might have happened.

That takes a lot of time and increases costs — unless you are using Qualifier Video Insights.

LET AI DO THE MONOTONOUS WORK

Part of the Aptiv Connect Qualifier vehicle validation solution, Video Insights uses a vehicle data recorder (VDR) and a camera system to record what is happening in and around vehicles during testing. Advanced AI then labels the video, identifying weather conditions, bridges, tunnels, pedestrians, vehicles, street signs, lane markings, and more. At the same time, Video Insights blurs faces and license plates, providing the anonymity required by privacy regulations.

Video Insights feeds those labels and video data into the Qualifier web application, enabling search and reporting.

BENEFITS

- **Quickly validate perception systems**
- **Reduce manual effort**
- **Demonstrate compliance with evolving regulations**
- **Enhance safety**

Dashboards keep track of ADAS feature activations, providing a high-level overview and allowing you to drill down into the details for troubleshooting.

For example, your dashboard will keep track of how often the advanced emergency braking system (AEBS) activates and how many of those are true positives or false positives. You can then drill down on a particular false positive to see what the ground-monitoring video showed at the time of the event. Perhaps it was foggy and the vehicle was going under an overpass. You could then do a simple search to find all the times when fog and underpasses were present during test drives and determine the frequency of false positives.

For troubleshooting, Qualifier's built-in AC-Graph tool allows you to view labeled video alongside time-aligned data signals and a GPS map of the test drive route. That makes it easy to see if the problem only happens at a particular overpass or if it only happens when adaptive cruise control is also engaged. You can then tweak your software and test again to make sure you've corrected the issue.

APTIV

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FASTER, BETTER, SMARTER

Video Insights can dramatically reduce the amount of time it takes to validate vehicle features that rely on perception systems. It eliminates manual work, provides machine learning-ready data, and speeds up troubleshooting. It also allows managers to see from a single pane of glass if they are meeting their testing targets. For example, you might want to test your blind spot detection system by driving past motorcycles 100 times. Qualifier Video Insights can show you how many times your vehicles have passed motorcycles and how often blind spot detection performed as intended.

Those same dashboards can also help you demonstrate compliance with relevant regulations. And as regulations or market conditions evolve, Qualifier's event-based data collection, edge analytics, customizable dashboards, and immediate over-the-air updates give you the flexibility you need to adapt.

The best way to understand what Qualifier Video Insights can do for you is to see it in action. Email qualifier@aptiv.com today to schedule your free demo.

VIDEO INSIGHTS LABELS

- Face (blurred)
- Registration plate (blurred)
- Car
- Truck
- Bus
- Motorcycle
- Pedestrian
- Bicycle
- Speed limit (EU & US, with value)
- Stop
- Pedestrian crossing
- School zone ahead
- Construction zone
- Signal ahead
- Other signs
- Motorway
- Highway
- Urban area
- Shared lane
- Overpass
- Tunnel
- Traffic jam
- Roadblock
- Roundabout (island)
- Lane condition
- Cloudy
- Foggy
- Rainy
- Snowy
- Snow on street
- Road edge type (right, left, guardrail, fence, barrier, wall, curb, flat, unknown)
- Line markings (left, right, type of line, color of line, number of lanes.
- Day
- Night
- Road surface (asphalt, concrete, gravel, dirt, cobblestone)

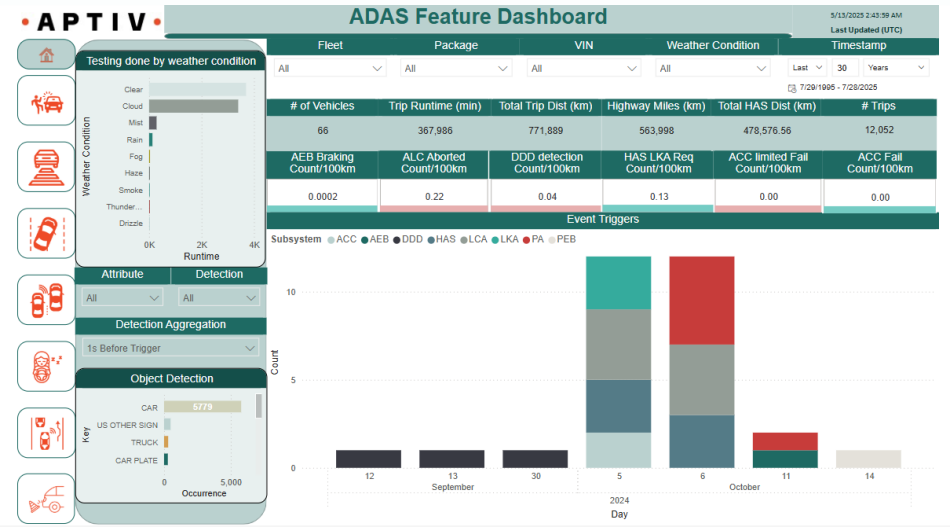


QUALIFIER VIDEO SYSTEM



To use Video Insights, you'll need to have the Qualifier Video System deployed in your test vehicles. It allows you to connect up to four cameras to your Aptiv EP-2000 or EP-800 vehicle data recorder (VDR), and it collects video whenever predefined events occur.

The Aptiv video system is highly configurable. You choose from a wide variety of cameras and mounting systems suitable for interior and exterior use. You can also set up the video recording and data collection so that it captures what is happening for a set number of seconds before and after events of interest to you. Event-based video capture streamlines search so validation becomes faster and easier.



Video Insights labels feed customizable, interactive dashboards. These visualizations make it easy to track KPIs and troubleshoot issues across multiple vehicle programs.

You can view labeled video alongside a graph of data signals coming from your vehicle and a GPS map of the trip route. This lets you see what was happening in and around your vehicle when a particular event took place, which can simplify troubleshooting.



FEATURES	
Road labeling	Identify the type of road surface, type of road edge, number of lanes, type of lane markings, and road surface quality.
Scene labeling	Identify when bridges, tunnels, roundabouts, construction zones, traffic jams, school zones, roadblocks, highways, city driving, and other features are present.
Weather labeling	Identify and quantify conditions like clouds, fog, rain, snow, and snow-covered streets, and classify drives as day or night driving.
Vehicle labeling	Identify when cars, trucks, buses, and motorcycles are present.
Pedestrian and cyclist labeling	Identify when pedestrians and bicycles are present.
Road sign labeling	Identify speed limit signs (including posted speed) and other road signs in Europe and North America
Filters	Narrow down data by date and tags related to objects, road characteristics, scene features, and/or weather conditions.
Omnisearch	Easily find Video Insights labels and tags by typing a few letters of the VIN, event name, or tags.
Integrated video player	View labeled data in AC-Graph without interrupting your usual workflow.
Time alignment	View labeled video alongside GPS maps and graphs of data signals to speed up troubleshooting.
Analytics dashboards	Get an overview of your test coverage or drill down into specifics to ensure that you are meeting your targets and complying with regulations.
Privacy blurring	Obscure faces and license plates to comply with data privacy regulations.
APIs	Import Video Insights data into your own repository to enable machine learning.

PART OF THE COMPLETE APTIV CONNECT QUALIFIER SOLUTION

Used by 70% of the world's leading vehicle manufacturers, Aptiv Connect Qualifier is an end-to-end data collection and analytics solution. It includes Edge hardware with Connect Edge software for edge processing, web-based analytics applications, and professional services. To learn more or set up a demo, contact your Aptiv representative or email qualifier@aptiv.com.

ABOUT APTIV

Aptiv is a global technology company that develops safer, greener, and more connected solutions enabling a more sustainable future of mobility.
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