

# The Impact of QualityLogic's CCS Analyzer on EV Charging Interoperability

QualityLogic was excited to participate in and support the EV charging interoperability testing at the CharIN Festival hosted by Lincoln Electric in Cleveland, OH, June 12-14, 2024. QL's CCS Analyzer tool was actively deployed in testing by several EV and EVSE manufacturers to speed up and improve analysis of their test session data.

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~ CPO EVSE systems engineer

The CCS Analyzer enables these investigators to uncover hidden issues. As described by a CPO EVSE systems engineer, "A session review typically takes 15-30 min each." This has been a manual process and focused primarily only on failures. "Now I'm able to run 50-100 or more sessions in the same time it takes to manually analyze just one session. This enables us look at files we otherwise wouldn't have had time for, giving us the ability to identify hidden issues."

This can mean improved efficiencies, time savings, increased analysis capacity, and deeper assessment to advance learning well beyond root cause failures. He points out how the tool helps to discover previously unseen anomalies and is beneficial for firmware regression testing, and extending to quality assurance, finding it useful in 3 fields; interoperability, regression and product development.

From this CPO perspective, "OEMs request interop performance stats, and the tool enables us to report timing statistics, to enable comparison of performance improvements."

Brian Esterberg, a strategic market advisor for QualityLogic, talked with a few of the testing and system engineers on-site from OEM, CPO and EVSE manufacturers to see how they were utilizing the QualityLogic CCS Analyzer tool and understand its value to the EV ecosystem.

Among those interviewed, there was broad agreement that the analyzer speeds root cause failure analysis exponentially. What used to take 15-30 minutes to manually analyze one charge session can be processed almost instantly using the CCS Analyzer.

Demonstrating his analysis in real time during one of the Festival charging sessions, a senior engineer responsible for EV charging excitedly says, "here's why I love this; it auto configures to Wireshark in any format I want to see, reads the EV and EVSE files, and auto identifies the communications protocols." He highlights the ability to customize the parameters for different variables such as target, min, max, current, and so on.

**We threw some of the hardest instances at it and it pointed us in the right direction quickly. I'm glad someone thought of this, it's a really great idea.**

~ An EVSE lead systems engineer

Power users have clearly figured out how to leverage the tool to meet their specific needs. For example, the ability to pick and choose which anomaly tests to run, in addition to defining the parameters helps make the CCS Analyzer an efficient and powerful tool. Further, it is completely hardware agnostic and compliments existing sniffers and engineering test tools.

Among those who have worked with the tool longest, users also commented about QL's responsiveness to feedback, quickly making enhancements that have made the tool even more valuable. One such example was expanding the PCAP file size limit from 20MB to limitless in a matter of weeks.

An OEM user describes finding it "very useful when analyzing multiple traces with multiple errors." She also points out the value as the number of test cases/traces continues to increase exponentially. She highlights how it can help "expedite training of inexperienced engineers and service technicians" which frees up human expert capacity for more challenging tasks.


A relatively new user to the tool, a lead systems engineer at an EVSE manufacturer has been analyzing files for 5-6 years. "I'm glad someone thought of this, it's a really great idea", adding their "field service team is very excited". She says "We threw some of the hardest instances at it and it pointed us in the right direction quickly," noting that their service team doesn't generally have the amount of experience she does. Her assessment is that the tool flags issues which "speeds learning" and makes analysis "less overwhelming".

Finally, users described how the tool has become a means to better communicate and collaborate on interoperability issues. Having accurate information quickly helps to build trust and to expedite learnings more broadly. This collaboration between OEM, CPO, and EVSE is viewed by many as critical to accelerate achieving reliability and interoperability improvements across the CCS community.

One CPO EVSE systems engineer describes how OEMs request interoperability performance statistics and how the tool enables them to report on analytics, timing statistics, and timing ranges to enable comparison of performance and together to track improvements.

Another EVSE senior engineer highlights how the QualityLogic CCS Analyzer enhances their ability to verify and collaborate between EV/ EVSE, to improve communications and understanding with the OEM, summarizing "it expedites decoding in minutes vs days and makes my life much easier".

The OEM user we talked with agreed the tool enables them to look at files not previously considered, and to share more detail w/the EVSEs. She concludes, "this helps to improve communications and relationship with EVSEs and is good for the industry"



**It helps to improve communications and relationships. It's good for the industry.**

**~ Senior project manager at an OEM**

## About QualityLogic's CCS Analyzer

QualityLogic's CCS Analyzer is a new class of tool for analysis of Combined Charging System (CCS) traffic between the EV and the EVSE. The CCS Analyzer is an "expert system" that improves productivity of human experts by automating the analyses the session traffic to identify anomalies that cause failed charging sessions, extract timing data from the files and uncover non-fatal anomalies that may cause future issues. The tool is hardware agnostic and compliments existing engineering test tools and sniffers.

For a demonstration or to learn more contact us at [info@qualitylogic.com](mailto:info@qualitylogic.com)