

Webinar Q&A

GETTING TO EV CHARGING AND V2G INTEROPERABILITY

On February 6, 2025, QualityLogic held a webinar to explore the challenges and solutions for seamless V2G and CCS interoperability. These are answers to the questions that came up during the presentation.

Do you see the microgrid options easier to manage??

I'm not sure why they would be. One of the challenges with micro grids is that they tend to be custom systems. They're basically microcosms of a full utility and a lot of customized pieces go together. So I don't know why it's any easier to manage. It's more controlled, of course, and you can decide to standardize a particular micro grid, but as a class of grids, I haven't seen them really standardized yet.

Can you tell us more about the user feedback that you have received? What factors did you measure mostly? E.g. do users think the height of the charger pole is too high?

We aren't directly involved in that part of the charging experience. There are other players that are doing that. Our focus with the industry has been on understanding the messaging between a charger and a charging station, and why there are problems from a messaging standpoint. Two particularly useful reports on this topic are from ChargeX and ChargerHelp:

- **ChargeX Prescribed Testing Program (June 2024):** Building upon insights from VOLTS 2023, the ChargeX Consortium implemented a prescribed testing program during the CharIN Festival in June 2024. The program involved structured test scenarios with defined pass criteria, aiming to enhance interoperability between EVs and EVSEs. Feedback from participants indicated that the

hybrid structure of ad hoc and prescribed testing was effective, providing valuable insights for future testing efforts.

- **ChargerHelp! Reliability Report (August 2024):** ChargerHelp! analyzed data from approximately 20,000 charging stations over four years, uncovering significant reliability and interoperability challenges. The study found that actual charger uptime was 73.7%, compared to the reported 84.6%. Issues identified included unreported broken stalls, inaccurate station statuses, aging equipment, and unreliable network providers. The report recommended improving software interoperability and network data sharing to address these challenges.

What additional test hardware is needed to use your software testing products?

It depends on the domain. For the CCS Analyzer we need the PCAP files from a charging session, and we analyze them. We don't need any additional hardware but the our customers have to have some way of capturing those PCAP files, whether a sniffer or some sort of man in the middle system or natively in the EVSE or EV.

For our 1547/UL 1741 SB tools, we manage a complete inverter test lab including the inverter being tested, the grid simulator, the DC power supply, and the power analyzer. You have to have an inverter Test Lab that our system can manage.

When do you expect UL 1741 SC to be released?

You'll have to ask Tim Zgonena at UL, but he's working very hard to get it out. We've been saying this quarter for many, many quarters but I'm actually quite confident it's going to be out this year, because we're getting close to going through all the all the comments and finalizing the last few issues. So I'd say, I hope it's out this quarter or next. Keep in mind that this is a very complex and new standard and I expect some effort to get systems implemented, certified and interoperable.

Do you know if the car owners are happy with the V2G feature? If it affects the battery?

There have been a lot of pilot projects done around the world, a lot done in Europe. There's a whole study on that in a white paper that we cite in our V2G workshops. It talks about V2G pilot projects around the world. If customers are getting compensated for letting their vehicles be used as grid support vehicles, and it's not inconveniencing them, why not? The EV manufacturers have moved away from concerns about battery early-degradation. If you look at the charge/discharge cycles, you're using that battery a lot more just for the charging than you would for the V2G part. As I understand it from an electrical and a chemistry standpoint, battery life is not really a big issue with V2G.

Are there UL 1741 SB certified chargers in the market? Generally it's just UL 1741 SA certification?

Yes, there are certified UL 1741 SB chargers coming to market. For instance, Wallbox just announced one and dcbell has one. I was just looking at requirements from some pilot V2X projects in California that require UL 1741 SB. They're coming in the market. And the California Energy Commission, I believe, will be listing them. We work with quite a number of EVSE manufacturers that are interested in and working on that UL 1741 SB certification.

Is there a difference in testing NACS vs CCS?

Not really. NACS basically defines what the plug looks like, and NACS uses the same communications protocols and the same PLC communications as CCS does.

Can you talk a bit more about how QualityLogic approach interoperability test vs protocol conformance test in your last slide? Is this about plugging systems together in a lab setting and run a number of predesigned scenarios designed by QL?

We actually may be doing a project along those lines, but right now, interoperability testing that we focus on in the CCS world has been is when vehicles and chargers get together, plug in, and capture the message traffic between the two> We take the PCAP file with the message traffic and analyze it. I think we're going to get more involved in designing what CCS Interoperability tests look like. In terms of other domains in the utility industry, we haven't really got to the point where we need that much interoperability testing yet. We're still focused on conformance testing and improving and enhancing conformance testing, because the better conformance testing you do, the more likely you are to be interoperable.

UL has discussed QIKP, using other UL standards to interconnect V2G AC systems. You mentioned testing to UL 1741 Supplement AC, which is also a method to interconnect V2G AC systems. Do you think there will be interoperability challenges with QIKP?

Not really, because what you're doing is basically certifying a DER system. You're taking a specific charger and a specific vehicle and certifying them together so they can act as a certified DER. You don't really care where the grid support behavior is coming from (EV or EVSE inverter). From a utility standpoint the QIKP system just looks like a solar or battery inverter. It's a really interesting option, but its limited in application to, any place where you can be sure you have the same vehicle and the same charger all the time.

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