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EV Charger Field Testing Protocol

Additional submitted attachment is included below.

Project: Electric Vehicle Charging Infrastructure Reliability
EVCharger Field Testing Protocol

1 Virtual (From Assigned EVSP App)

Do not open this document until navigational instructions to test charging location have been received. Open the assigned navigation app and input the assigned charging station as the destination. If information is available, provide a summary of the information you can find remotely of the assigned charging station of interest, including accessibility and availability of chargers.

1. According to {EVSE App}, what are the GPS coordinates of the charging location?
+ GPS coordinates-only Entry Box

2. According to {EVSE App}, how many chargers are at {charging location}?
+ Integer-only Entry Box -> num_chargers

For each {charger} at {charging location} (repeat questions 3-11 min(num_chargers, 20) times):

3. According to {EVSE App}, what is the power rating of {charger}?
+ Integer-only Entry Box

4. According to {EVSE App}, what connectors does {charger} have?
- ❑ Level 1
- ❑ Level 2
- ❑ DC Fast: CCS
- ❑ DC Fast: CHAdeMO
- ❑ Tesla/NACS
- ❑ Other (please specify): _____
- ❑ {EVSE App} doesn't report this information

5. According to {EVSE App}, how many ports does {charger} have?
- ○ 1 -> num_ports
- ○ 2 -> num_ports
- ○ 3 -> num_ports
- ○ 4 -> num_ports
- ○ 5 -> num_ports
- ○ 6 -> num_ports
- ○ Other (please specify): _____ -> num_ports
- ○ {EVSE App} doesn't report this information

[if "{EVSE App} doesn't report port-level information," skip questions 6-11]

6. What is the power sharing mechanism of {charger}'s ports?
- Not shared, only one works at a time
- Shared
- {EVSE App} doesn't report this information

For each {port} of {charger} (repeat questions 7-11 min(num_ports, 6) times):

7. Is there information on {EVSE App} about the availability of {port} of {charger}?
- Yes
- No

[if "Yes," then proceed

If "No," then skip question 8]

8. Is {port} of {charger} available at {charging location}?
+ Yes
+ No

9. Is there information on {EVSE App} about the operationality of {port} of {charger}?
- Yes
- No

[if "Yes," then proceed

If "No," then skip question 10]

10. Is {port} of {charger} operational at {charging location}?
- Yes
- No

11. Which of the following connectors does {port} of {charger} have? [Include Pictures of each type]
- Level 1
- Level 2
- DC Fast: CCS
- DC Fast: CHAdeMO
- Tesla/NACS
- Other (please specify): _____
- {EVSE App} doesn't report this information

2 En Route (Using Assigned GPS Navigation App)

Open assigned navigation app and record the location specific information of the charging station communicated by the navigation app such as GPS coordinates, directions for getting to the charging station such as distance and time to destination. Note any traffic congestion en route.

2.1 Before departure:

1. According to {Navigation App}, what are the GPS coordinates of {charging location} site?

+ GPS coordinates-only Entry Box

2. According to {Navigation App}, how far away is {charging location} site from {starting location}? [Post-process using google maps API, remove question]

+ Integer-only Entry Box (miles)

3. According to {Navigation App}, how much time will it take to get to {charging location} site from {starting location}?

+ Integer-only Entry Box (minutes)

2.2 After Arrival:

Drive to the charging station and dedicated parking lot. Look for the first available charger nearest to approach if there are multiple slots. Document your experience. Describe your experience location and driving to the charging station. Tell us if the charging station is in the same location as suggested by the navigation app or somewhat different. Describe your overall experience in locating the charging station within the site. Was the signage helpful?

4. How easy was it to drive to the {charging location} site?

- **Very Difficult:** Encountered multiple issues such as complex routes or inadequate signage, causing significant delays or confusion.
- **Somewhat Difficult:** Faced some challenges like unclear directions or congestions, leading to minor delays or confusion. Faced some challenges like unclear directions, leading to minor delays or confusion.
- **Neutral**: The journey was neither particularly easy nor difficult; navigational aspects were average, and there were no exceptional issues.
- **Somewhat Easy**: Reached the location with relative ease; directions were mostly clear, and signage was adequate.
- **Very Easy:** Effortless journey with clear routes and excellent signage, resulting in no delays or confusion.

5. What are the actual GPS coordinates of {charging location} site?

+ GPS coordinates-only Entry Box

6. How much time did it actually take to get to {charging location} site from {starting location}?
+ Integer-only Entry Box (minutes)

7. What is the driving distance from the {charging location} site entrance to the actual chargers?
+ Integer-only Entry Box (miles)

8. How easy was it to locate the chargers at the {charging location} site?
- **Very Difficult** Chargers were not only obscured or poorly positioned but also widely dispersed across the site. Finding all available chargers necessitated extensive time and effort, with inadequate or misleading signage exacerbating the issue.
- **Somewhat Difficult** Chargers were somewhat dispersed or not immediately visible, requiring active search. Signage was present but not sufficiently clear, leading to moderate delays in locating all chargers.
- **Neutral** Chargers were neither easy nor difficult to find; they may be somewhat spread out but were generally findable with standard effort.
- **Somewhat Easy** Chargers were fairly easy to locate, with some being dispersed but adequately signed to guide the user efficiently.
- **Very Easy** Chargers were prominently displayed and closely positioned, with clear and abundant signage, allowing for immediate and effortless location of all units.

9. What level of signage to locate chargers was present at the {charging location} site?
- **Very Poor:** Absence of any signage or indicators, making it highly challenging to identify the location of chargers.
- Poor: Minimal signage present, but not sufficient for clear direction. Signage may be small, outdated, or ambiguous, necessitating additional effort to locate chargers
- **Adequate:** Basic signage is available that allows for locating chargers with a reasonable level of effort. Signage is functional but not particularly conspicuous.
- **Good:** Clear and visible signage that efficiently guides the user to the chargers. Signage may also indicate the types of chargers and their availability.
- **Excellent:** Comprehensive, well-designed signage that is prominently displayed. Directions to all available chargers are clear, with additional information such as charger type, rates, occupancy status, and other amenities.

3 At Charging Location

Describe your observations if you think the charging station site design has equitable access for drivers with disabilities. What special features are included to be ADA compliant? Do you think there is enough redundancy of chargers in the location? Record how drivers are using the chargers.

3.2 Charger Info:

1. How many chargers are at {charging location}?

\+ Integer-only Entry Box -> num_chargers

2. Are the chargers at the {charging location} all physically accessible (like can you get to the charger and touch it)?

- No
- Yes

[if "Yes," then skip question 3

If "No" then answer 3 and skip all questions except those in section 3.4]

3. Why are the chargers at the {charging location} not physically accessible?

- Intentionally Blocked (maintenance, holiday, etc.) [Text Elaboration] [Upload Picture]
- Unintentionally Blocked (snow, spiders, debris, etc.) [Text Elaboration] [Upload Picture]

For each {charger} at {charging location} (repeat questions 4-11 min(num_chargers, 20) times):

4. Is the {charger} ADA compliant?

- Yes [Upload Multiple Picture]
- No [Upload Multiple Picture]
- Not Sure (please specify why): _____ [Upload Multiple Picture]

5. How many ports does {charger} have?

- 1 -> num_ports
- 2 -> num_ports
- 3 -> num_ports
- 4 -> num_ports
- 5 -> num_ports
- 6 -> num_ports
- Other (please specify): _____---> num_ports

6. What is the power sharing mechanism of {charger}'s ports?
- Only one port present
- Not shared, only one works at a time
- Shared with even powersplit
- Shared with uneven powersplit
- Other (please specify): _____
- Not sure (please specify why): _____

For each {port} of {charger} (repeat questions 7-12 min(num_ports, 6) times):

7. Is {port} of {charger} physically available/open at {charging location}?
- Yes
- No

[if "Yes," then skip question 8]

8. Why is {port} of {charger} not physically available at {charging location}?
- Being used by EV
- Blocked by ICEV
- Blocked by EV
- Other (please specify): _____

9. How many parking stops can access {port} of {charger} at {charging location}?
- Integer-only Entry Box -> num_spots

For each {parking spot} that can access {port} (repeat question 10 num_spots times):

10. What is in the {parking spot}?
- Empty
- EV parked
- ICEV parked
- Other (please specify): _____

11. Does {port} of {charger} seem operable at {charging location}?
- Yes
- No

[if "Yes," then skip question 12]

12. Why does{port} of {charger} seem inoperable at {charging location}?

- ❑ Marked as out of service [Upload Pictures]
- ❑ Offline/Unresponsive screen [Upload Pictures]
- ❑ Error on screen or LED [Upload Pictures]
- ❑ No power [Upload Pictures]
- ❑ Damaged cable [Upload Pictures]
- ❑ Damaged connector [Upload Pictures]
- ❑ Other (please specify): _____ [Upload Pictures]
- ❑ Not sure (please specify why): _____ [Upload Pictures]

13. Which of the following connectors does {port} of {charger} have? [Include Pictures of each type]

- o Level 1
- o Level 2
- o DC Fast: CCS
- o DC Fast: CHAdeMO
- o Tesla/NACS
- o Other (please specify): _____

3.3 Location Info:

14. How would you rate the safety and security features present at the {charging location} site?

- o **Very Poor**: No visible security measures or safety features, raising concerns about safety during charging.
- o **Poor**: Minimal safety features like basic fencing, but no surveillance or security personnel present, causing some apprehension about the location.
- o **Adequate**: Some noticeable security measures such as fencing or emergency call buttons, offering a moderate sense of safety.
- o **Good**: Multiple safety features present like CCTV cameras and emergency buttons; however, no visible security personnel. Generally felt secure during charging.
- o **Excellent**: Comprehensive safety and security measures including CCTV cameras, security personnel or guards, fenced perimeter, and emergency call buttons, ensuring a high level of comfort and safety while charging.

15. How safe did you feel while charging at the {charging location} site?

- o **Very Unsafe**: Felt threatened or very apprehensive due to lack of safety measures, or suspicious activities in the vicinity.
- o **Somewhat Unsafe**: Felt mildly apprehensive due to some concerns about the surroundings or lack of visible safety features.
- o **Neutral**: Neither felt particularly safe nor unsafe; no specific concerns or feelings of security.
- o **Somewhat Safe**: Generally felt at ease while charging but noticed some room for improvement in safety measures.
- o **Very Safe**: Felt completely secure and at ease, confident in the safety measures and surroundings of the charging location.

16. What level of lighting to locate chargers was present at the {charging location} site?
- **Very Poor:** No visible lighting fixtures near the chargers; difficult to anticipate how the area would be illuminated during low-light conditions.
- **Poor:** Some lighting fixtures present, but appear inadequate or poorly placed for facilitating charger location during nighttime, or need to rely on lights on chargers to navigate
- **Adequate:** Basic lighting fixtures are visible and appear functional, although not tested in low-light conditions. Expected to provide a reasonable level of visibility.
- **Good:** Multiple well-placed lighting fixtures are visible, suggesting that locating chargers during low-light conditions would be straightforward.
- **Excellent:** Abundant, well-designed lighting fixtures that are not only visible but also strategically placed to facilitate easy charger location at all times.

3.4 Nearby Charger Location Info:

17. Is there another charging location in safe walking distance (less than 0.25 miles; on the same side of the highway if applicable) of the {charging location}?
- No
- Yes

[If "No," skip question 18]

18. How many other charging locations are in safe walking distance (less than 0.25 miles; on the same side of the highway if applicable) of the {charging location}?
+ Integer-only Entry Box

[For each {Charging Location} identified in question 17, repeat Section 3]

Once you are at charging station, describe the parking situation and options available for you.

4 At Test Chargers (For Charger X | X = 1:(1 | 2 | 3 | 4) with Vehicle Y and assigned payment method Z)

4.1 Parking:

1. What is the orientation of the parking spot associated with {Charger X}?
- Standard
- Diagonal
- Parallel

[if "Standard" or "Diagonal" then skip question 3

If "Parallel" then skip question 2]

2. How did you enter the parking spot to reach the charging cable of {Charger X}?
- Front-in
- Back-in

3. What direction was the car facing to reach the charging cable of {Charger X}?
- Driver-side facing curb
- Passenger-side facing curb

4. Was it necessary to park out-of-bounds or unconventionally of the charging spot to reach the charging cable of {Charger X}?
- Yes [Upload Picture]
- No

4.2 Charger Specifications:

Describe the charger (i.e., make, model, ID) and describe the connectors available to you (i.e., CCS, CHAdeMO, NACS). What other real-time charging information that is made available to you as the driver/ user.

5. Is any metadata or service tag about {Charger X} visible on the frame of or around {Charger X}?
- Yes [Upload Picture]
- No

[if "No," then skip questions 6-8]

6. What is the make of {Charger X}?
+ Text Entry Box or Drop Down

7. What is the model of {Charger X}?
+ Text Entry Box or Drop Down

8. What is the ID of {Charger X}?
+ Text Entry Box or Drop Down

9. How many ports does {Charger X} have?
- 1 -> num_ports
- 2 -> num_ports
- 3 -> num_ports
- 4 -> num_ports
- 5 -> num_ports
- 6 -> num_ports
- Other: ___ -> num_ports

10. What is the power sharing mechanism of {Charger X}'s ports?
- Only one port present
- Not shared, only one works at a time
- Shared with even powersplit
- Shared with uneven powersplit
- Other (please specify): _____
- Not sure (please specify why): _____

For each {port} of {charger} (repeat questions 11-17 min(num_ports, 6) times):

11. Is {port} of {Charger X} physically available/open at {charging location}?
- Yes
- No

[if "Yes," then skip question 12]

12. Why is {port} of {Charger X} not physically available at {charging location}?
- Being used by EV
- Blocked by ICEV
- Blocked by EV
- Other (please specify): _____

13. How many parking spots can access {port} of {Charger X} at {charging location}?
- Integer-only Entry Box -> num_spots

For each {parking spot} that can access {port} (repeat question 14 num_spots times):

14. What is in the {parking spot}?
- Empty
- EV parked
- ICEV parked
- Other (please specify): _____

15. Does {port} of {Charger X} seem operable at {charging location}?
- Yes
- No

[if "Yes," then skip question 16]

16. Why does{port} of {charger} seem inoperable at {charging location}?
- ❑ Marked as out of service [Upload Pictures]
- ❑ Offline/Unresponsive screen [Upload Pictures]
- ❑ Error on screen or LED [Upload Pictures]
- ❑ No power [Upload Pictures]
- ❑ Damaged cable [Upload Pictures]
- ❑ Damaged connector [Upload Pictures]
- ❑ Other (please specify): _____ [Upload Pictures]

17. Which of the following connectors does {port} of {charger} have? [Include Pictures of each type]
- o Level 1
- o Level 2
- o DC Fast: CCS
- o DC Fast: CHAdeMO
- o Tesla/NACS
- o Other (please specify): _____ [Upload Pictures]

4.3 Physical Condition:

4.3.1 Screen...

Before you detach the charging cable, describe other functions of the charger.

18. Is there a screen on {Charger X}?
- o Yes, full display/touch screen
- o Yes, digital LCD
- o No, LEDs present
- o No

[if "No" or "No, LEDs present" then skip questions 19-20]

19. What is the status of the screen of {Charger X}?
- o Online
- o Offline
- o Out of Order
- o Error Message Displayed [Describe Error]
- o Other (please specify): _____

20. Is the screen of {Charger X} damaged?
- o Damaged but possibly functional [Upload Picture]
- o Damaged beyond function [Upload Picture]
- o Not damaged
- o Not sure (please specify): _____ [Upload Picture]

[if "Damaged beyond function" then skip *Operating Condition* Section 4.4]

4.3.2 Charging Cable...

Select an available port, {Port X} of charger {Charger X} to test. Inspect the charging cable; describe your charging experience.

21. Describe how the charging cable of {Port X} was previously handled?
- o Neatly folded and docked on the charger
- o Wrapped around the charger but not docked
- o Thrown on the ground
- o Tangled with other cables
- o Other (please specify): _____

22. Is the charging cable of {Port X} damaged?
- o Damaged but possibly functional [Upload Picture]
- o Damaged beyond function [Upload Picture]
- o Not damaged
- o Not sure (please specify why): _____ [Upload Picture]

[if "Damaged beyond function" then skip *Operating Condition* Section 4.4]

23. What is the length of the charging cable of {Port X} (in Feet)?
+ Float-only Entry Box

24. Does the charging cable of {Port X} reach the charging socket on {Vehicle Y}?
- o Yes
- o No

[if "Yes" then skip question 25,

If "No" then skip *Operating Condition* Section 4.4]

25. Approximately how long should the charging cable of {Port X} be to reach the charging socket on {Vehicle Y} (in Feet)?
+ Integer-only Entry Box

4.3.3 Cable Connector...

Describe the condition of the connector.

26. Which of the following connectors does {Port X} of {Charger X} have? [Include Pictures of each type]
- ○ Level 1
- ○ Level 2
- ○ DC Fast: CCS
- ○ DC Fast: CHAdeMO
- ○ Tesla/NACS
- ○ Other (please specify): _____ [Upload Picture]

27. Is the charging cable connector of {Port X} damaged?
- ○ Damaged but possibly functional [Upload Picture]
- ○ Damaged beyond function [Upload Picture]
- ○ Not damaged
- ○ Not sure (please specify why): _____
- ○ [Upload Picture]

[if "Damaged beyond function" then skip *Operating Condition* Section 4.4]

4.4 Operating Condition:

Attempt to connect the charging connector to vehicle and initiate payment using supported payment method. Describe your experience initiating the charger.

28. What is the state of charge (SOC) of {Vehicle Y} before charge initiation?
+ Integer-only Entry Box (0-100)

29. Which of the following methods are available to initiate a charge at {Charger X}?
- ❑ Credit card: Swipe
- ❑ Credit card: Dip
- ❑ Credit card: tap
- ❑ Physical membership card
- ❑ Mobile membership card
- ❑ Mobile app
- ❑ Screen interface
- ❑ QR code on site
- ❑ Phone call
- ❑ Text
- ❑ Plug and charge
- ❑ Other (please specify): _____

30. Which of the following payment methods failed to initiate a charge after at most 5 attempts at {Charger X}?

- ❑ Credit card: Swipe [record any error message]
- ❑ Credit card: Dip [record any error message]
- ❑ Credit card: tap [record any error message]
- ❑ Physical membership card [record any error message]
- ❑ Mobile membership card [record any error message]
- ❑ Mobile app [record any error message]
- ❑ Screen interface [record any error message]
- ❑ QR code on site [record any error message]
- ❑ Phone call [record any error message]
- ❑ Text [record any error message]
- ❑ Plug and charge [record any error message]
- ❑ Other (please specify): _____ [record any error message]

31. Which of the following payment methods successfully initiated a charge after at most 5 attempts with {Charger X}? How many attempts did it take to successfully initiate a charge?

- ❑ Credit card: Swipe
  - ○ Attempts: _____
- ❑ Credit card: Dip;
  - ○ Attempts: _____
- ❑ Credit card: tap
  - ○ Attempts: _____
- ❑ Physical membership card
  - ○ Attempts: _____
- ❑ Mobile membership card
  - ○ Attempts: _____
- ❑ Mobile app
  - ○ Attempts: _____
- ❑ Screen interface
  - ○ Attempts: _____
- ❑ QR code on site
  - ○ Attempts: _____
- ❑ Phone call
  - ○ Attempts: _____
- ❑ Text
  - ○ Attempts: _____
- ❑ Plug and charge
  - ○ Attempts: _____
- ❑ Other (please specify): _____
  - ○ Attempts: _____
- ❑ All methods fail

[if "All methods fail" then skip all remaining questions in Section 4.4]

If using an app for charging, take a screenshot to show that charging has initiated, and if energy is being delivered into vehicle.

32. Does the vehicle dashboard indicate that energy is initially being dispensed into {Vehicle Y} from {Charger X}?
- No
- Yes
- Not Sure (please specify why): _____

[if "Yes" then skip question 33]

33. Did the vehicle dashboard display any error messages given it suggests energy isn't being dispensed into {Vehicle Y} from {Charger X}?
- No
- Yes [Record any error messages]

34. Does the charger screen or LED indicate that energy is initially being dispensed into {Vehicle Y} from {Charger X}?
- No
- Yes
- Not Sure (please specify why): _____

[if "Yes" then skip question 35]

35. Did the charger screen or LED display any error messages given it suggests energy isn't being dispensed into {Vehicle Y} from {Charger X}?
- No
- Yes [Record any error messages]

36. Does the {EVSE App} indicate that energy is initially being dispensed into {Vehicle Y} from {Charger X}?
- No
- Yes
- Not Sure (please specify why): _____

[if "Yes" then skip question 37]

37. Did the {EVSE App} display any error messages given it suggests energy isn't being dispensed into {Vehicle Y} from {Charger X}?
- No
- Yes [Record any error messages]

38. Does the vehicle port indicate that energy is initially being dispensed into {Vehicle Y} from {Charger X}?
- o No
- o Yes
- o Not Sure (please specify why): _____

[if "Yes" then skip question 39]

39. Did the vehicle port display any error messages (light indication) given it suggests energy isn't being dispensed into {Vehicle Y} from {Charger X}?
- o No
- o Yes [Record any error messages]

[if "No" was selected for questions 23, 25, 27, and 29, skip all other questions in this section]

40. Before 10 minutes of charging at {Charger X}, did energy stop being dispensed into {Vehicle Y} from {Charger X}?
- o No
- o Yes
- o Not Sure (please specify why): _____

[If "Yes" was not chosen, skip questions 41-44]

41. Before the charge interruption at {Charger X}, how much energy (in kWh) was dispensed into {Vehicle Y} from {Charger X}?
+ Float-only Entry Box

42. After the charge interruption at {Charger X}, what is the state of charge of {Vehicle Y}?
+ Float-only Entry Box (0-100)

43. Before the charge interruption at {Charger X}, how long (in minutes) was energy being dispensed into {Vehicle Y} from {Charger X}?
+ Float-only Entry Box

44. After the charge interruption at {Charger X}, did the screen display any error messages?
- o No
- o Yes [Record any error messages]

45. After 10 minutes of charging at {Charger X}, how much energy (in kWh) was dispensed into {Vehicle Y} from {Charger X}?
+ Float-only Entry Box

46. After 10 minutes of charging at {Charger X}, what is the state of charge of {Vehicle Y}?
+ Integer-only Entry Box (0-100)

47. After 10 minutes of charging at {Charger X}, did the screen or LED interface display any error messages?
o No
o Yes [Record any error messages]

48. After 10 minutes of charging at {Charger X}, did {Vehicle Y}'s dashboard display any error messages?
o No
o Yes [Record any error messages]

49. After 10 minutes of charging at {Charger X}, did {Vehicle Y}'s charging port display any error messages?
o No
o Yes [Record any error messages]

50. After 10 minutes of charging at {Charger X}, did the {EVSE App}'s display any error messages?
o No
o Yes [Record any error messages]

4.5 Getting Help:

51. Is there customer service contact information on/near {Charger X}?
o No
o Yes

[If No, skip remaining questions in section]

52. What type of contact information is available {Charger X}? [Checkbox]
o Phone number (to CPO)
o Phone number (to on-site personnel)
o Help button
o Website
o QR Code
o Other (please specify): _____

53. Could you successfully contact a real or AI customer service agent?
- No
- Yes
- The charger worked so did not need to

[If "Yes" was not selected, skip remaining questions in section 4.5]

54. How long did you wait before you initiated contact with a customer service agent?
    - Float-only Entry Box

55. How would rate the contacted customer service agent's technical knowledge about EV charger?
- **Extremely Lacked Technical Knowledge**: The customer service agent displayed a severe lack of technical knowledge about EV chargers, which hindered their ability to assist with the broken charger effectively.
- **Somewhat Lacked Technical Knowledge**: The customer service agent had some technical knowledge gaps, which impacted their ability to provide comprehensive assistance with the broken EV charger.
- **Neutral (Average Technical Knowledge)**: The customer service agent's technical knowledge was neither particularly noteworthy nor exceptionally lacking. Their technical knowledge was average, and the effectiveness of assistance was in line with this.
- **Demonstrated Adequate Technical Knowledge**: The customer service agent demonstrated adequate technical knowledge about EV chargers, contributing to a satisfactory resolution of the broken charger issue.
- **Highly Knowledgeable about EV chargers**: The customer service agent displayed a high level of technical knowledge about EV chargers, resulting in a successful and efficient resolution of the broken charger problem.

56. How would you rate the general helpfulness of the customer service agent?
- **Extremely Unhelpful**: The customer service agent was unresponsive, provided incorrect information, and did not make any effort to assist with the broken EV charger issue. The interaction was entirely unsatisfactory, and no progress was made in resolving the problem.
- **Somewhat Unhelpful**: The customer service agent made minimal effort to assist with the broken EV charger issue but fell short of being genuinely helpful. The interaction left room for improvement, and there was limited progress in resolving the problem.
- **Neutral**: The customer service agent's assistance with the broken EV charger issue was neither particularly helpful nor unhelpful. The interaction was average or did not leave a strong impression in either direction, and there was limited progress made.
- **Somewhat Helpful**: The customer service agent was reasonably helpful in addressing the issue with the broken EV charger, but there were still some aspects that could have been improved, and the issue may not have been fully resolved.
- **Extremely Helpful**: The customer service agent was highly responsive, provided accurate information, and made a significant effort to assist with the broken EV charger issue, resulting in a successful resolution. The interaction was exceptionally satisfactory, and the problem was effectively resolved.

Was the customer service agent already aware of {Charger X}'s problem?

- No
- Yes

[If No, skip remaining questions in section]

57. How did the customer service agent become aware of {Charger X}'s problem?
- OCPP/OCPI/internal telemetry
- Consumer Complaint
- Through routine maintenance work
- Other, please explain: ____

58. Did the customer service agent provide an estimated fault resolution time for {Charger X}'s problem?
- No
- Yes, record resolution time: ___

59. According to the customer service agent, what was the reason behind {Charger X}'s failure?
    - Textbox