

APPENDIX – DEVELOPER / NATIONAL LABORATORY DELIVERABLE CHECKLIST

The following is a list of “Best Practices” that are strongly recommended for developers and testing labs prior to shipping and upon receiving deliverables. These practices are to ensure the integrity of a deliverable and that testing can be started and conducted safely.

Developer Deliverable Checklist

The Developer shall ensure the following items have been completed prior to shipping to the National Laboratory:

- A test plan has been developed and approved by the Developer, USABC Working Group, and the testing lab (National Laboratory). The test plan must include the following items.
 - Detailed charging protocol with the following parameters:
 - Maximum taper current time (default 1 hour unless otherwise specified)
 - Constant voltage taper current cutoff (default C/20 if not otherwise specified)
 - Maximum % over the constant current charge capacity done during the constant voltage charge (default 5% if not otherwise specified)
 - Maximum allowable change in temperature above ambient during charge (default 10°C if not otherwise specified)
 - Fixture Requirements (Fixtures should replicate conditions that would be seen in the vehicle):
 - Clamping Force / Torque / Pressure
 - Fixture Drawings / Specifications / Materials if fixtures are not to be provided
 - Any other data about fixtures that could impact safety or performance.
- Perform a Static Capacity Test as outlined in the program specific USABC testing manual within 30 days prior to shipping to the testing lab.
 - Data from static capacity shall be supplied to the testing lab.
- Collect the following data within 7 days prior to shipping to the testing lab. The data shall be relayed to the testing lab and the USABC Workgroup.
 - Open Circuit Voltage
 - AC Impedance (at 1kHz)(if available)
 - Battery weight without fixture
 - Battery weight with fixture (if fixture is provided)
- Fixtures and interface methods should be consistent with the end use automotive application.

Test Laboratory Deliverable Checklist

The testing laboratory shall ensure the following items have been completed upon receipt and prior to the start of testing of deliverables at the National Laboratory:

- A visual inspection with photo documentation shall be conducted, and it should include the following items.
 - Packaging as received, which include outer package and how the batteries are arranged in package (document any damage of abnormalities)
 - Batteries as received (document any damage of abnormalities)
 - Polarity and connection methods
 - Fixture
 - Other hardware
- Measurement of the following parameters during the receipt check in.
 - Open Circuit Voltage
 - AC Impedance (at 1kHz)
 - Battery weight without fixture
 - Battery weight with fixture (if fixture is provided)
 - Cell dimensions using the USABC guidance method.
- The testing lab will analyze the data from the developer and compare it to the data taken at the lab to identify anomalies.
- Record fixture installation parameter (torque, pressure, force, etc.)
- Perform the Static Capacity Test as outlined in the USABC Testing manual prior to any other testing.
- The following limits will be imposed
 - Maximum taper current time (default 1 hour unless otherwise specified)
 - Constant voltage taper current cutoff (default C/20 if not otherwise specified)
 - Maximum % over the constant current charge capacity done during the constant voltage charge (default 5% if not otherwise specified)
 - Maximum allowable change in temperature above ambient during charge (default 10°C if not otherwise specified)