

GRL-SCIS

GRL Shared Capacity Interoperability Software

Overview

Source products with multiple USB Type-C® connectors such as the multi-port charger apply a power sharing protocol to manage power distribution across all the device’s ports. As Sink devices are connected to or disconnected from the Source device, the power allocation dynamically adjusts to meet the demands of each connected Sink device.

The GRL Shared Capacity Interoperability software validates the power management requirements when the USB Type-C® charger is connected to popular Sink devices following USB-IF’s USB Type-C® Shared Capacity Charger Interoperability standard. The GRL software conducts the tests as per the USB-IF compliance test specification on the connected devices and tests the charger’s ports in a shared power gang at the same time.

Comprehensive test reports will be generated after each test run displaying details of all test results and conditions.

The screenshot displays the GRL Shared Capacity Interoperability Software (0.00.5) interface. The window title is "GRL Shared Capacity Interoperability Software (0.00.5) - License Expired". The interface includes a menu bar (Application, Options, License, Windows, Help) and a toolbar with various icons. A tree view on the left shows the software structure: "GRL Shared Capacity Interoperability Calib", "Calibrations", "A1-EPR calibration", "Tests", and "Power Sharing Test".

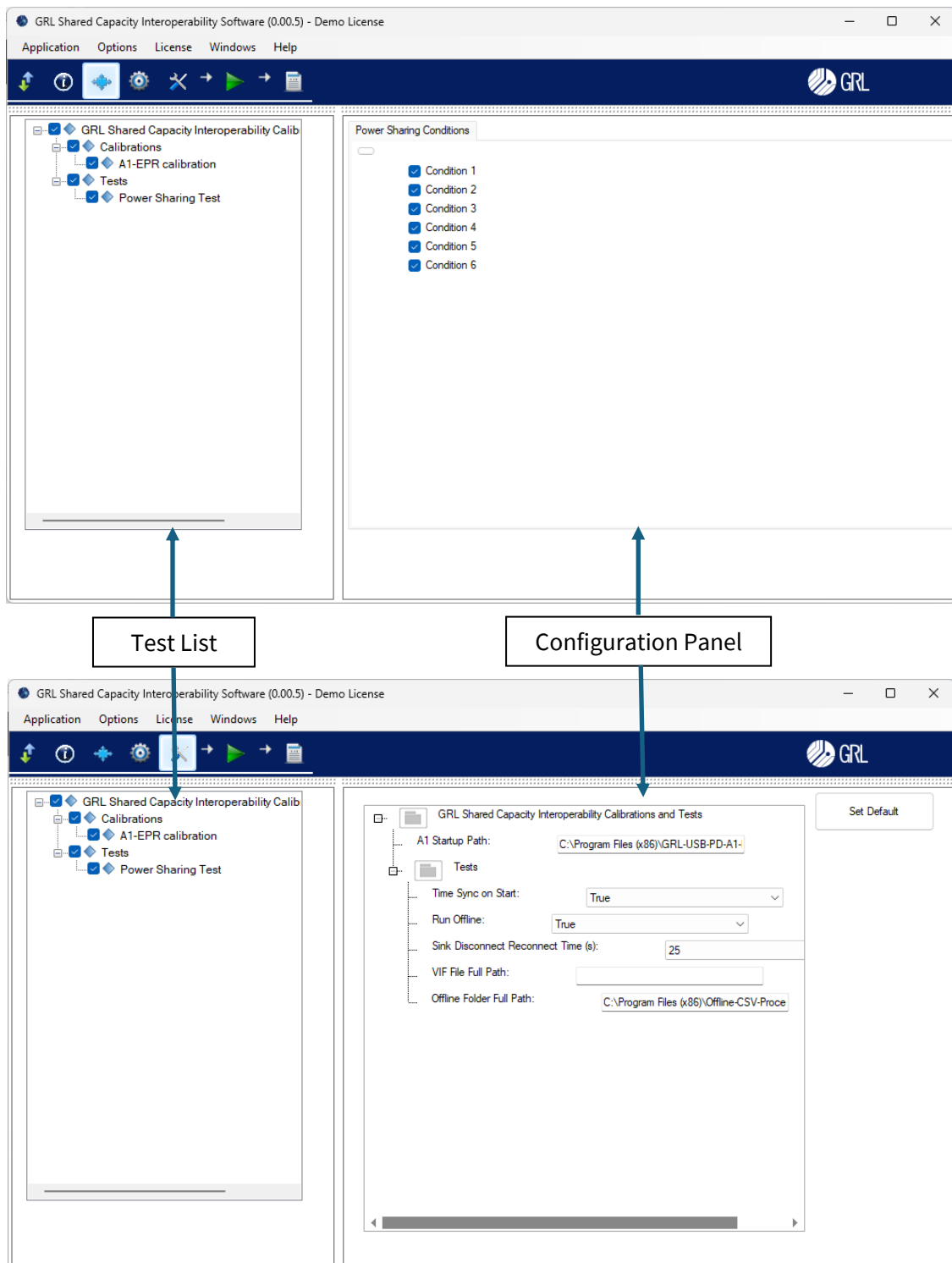
The main area is divided into several sections:

- Device List:** A table with columns: Name, ID, Address, Type, Vendor, Lib. It lists two devices: A1-EPR (ID: A1EPR1, Address: 203639374D465701) and A1_EPR 2 (ID: A1EPR2, Address: 203639374D465702).
- Test Configuration:** A section titled "4. Power Sharing Test [C4]" with a "Pass/Fail Stats" section. It lists various parameters and their values:
 - DUT Max Power: 68W
 - DUT Port 1 Power: 60W
 - DUT Port 2 Power: 60W
 - A1-EPR Serial Number 1: 203639374D46570E0039001C
 - A1-EPR Serial Number 2: 203639374D46570D0029002E
 - Sink 1: Google Pixelbook Go
 - Sink 2: Samsung S21 Phone
 - Verification 1 Result: Pass
 - Verification 1 Remark: -
 - Verification 2 Result: Pass
 - Verification 2 Remark: -
 - Verification 3 Result: Pass
 - Verification 3 Remark: -
- Test Results Table:** A table with columns: No, TestName, Limits, Value, Results, Power Sharing Conditions. It shows six test results, all of which passed.

No	TestName	Limits	Value	Results	Power Sharing Conditions
1	Power Sharing Test	N/A	N/A	Pass	Condition 1
2	Power Sharing Test	N/A	N/A	Pass	Condition 2
3	Power Sharing Test	N/A	N/A	Pass	Condition 3
4	Power Sharing Test	N/A	N/A	Pass	Condition 4
5	Power Sharing Test	N/A	N/A	Pass	Condition 5
6	Power Sharing Test	N/A	N/A	Pass	Condition 6
- Test Summary:** A section at the bottom right showing "Test completed time: 06 February 2026 15:22:55 PM".

User-Friendly Interface

By having both test list and configuration panels side by side on the same screen, the GRL Shared Capacity Interoperability software eliminates the hassle of going back and forth multiple screens. This is especially useful when performing complex shared power management testing and verifying the product functions as defined in the USB Power Delivery specification.



Automated Tests

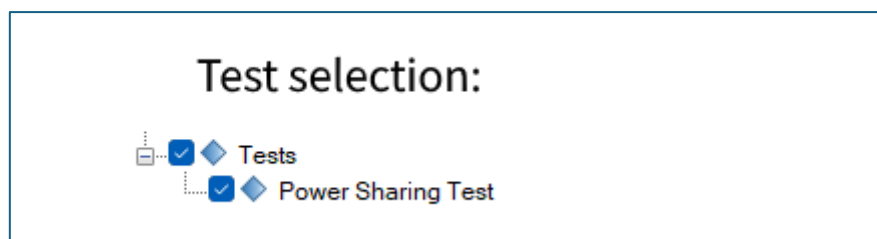
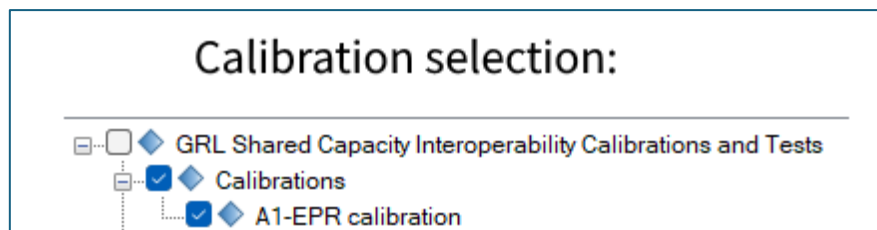
The GRL Shared Capacity Interoperability software verifies that the following requirements for each of the specified test conditions are met to determine if the test passes or fails:

Verification	Test Pass/Fail Requirements
V1	The gang does not advertise more than the total gang power
V2	Each port advertises at least 7.5W while the charger is powered
V3	The charger notifies all ports when the power reserve changes
V4	The port power contracts settle within 3s after a power reserve change
V5	The port power rebalancing is completed without using Hard Reset, Error Recovery, or Disabled
Others	Other USB Power Delivery specification related

In addition to this, the GRL Shared Capacity Interoperability software also performs checks to verify it meets certain aspects of the product as defined in the USB power delivery specification.

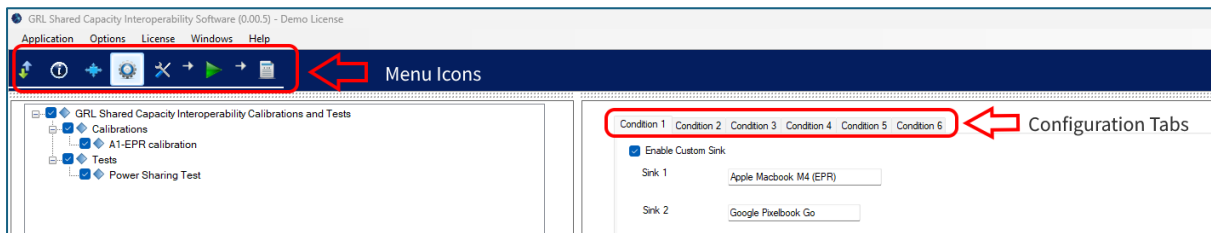
Quick Test Selection

The GRL Shared Capacity Interoperability software provides a dedicated test selection panel which lists all the calibration and tests following the USB-IF compliance test specification. You can select a calibration or test group to perform all calibration/tests under the selected group. To run individual tests, just select the check box of each respective test.



Simple Test Configuration

It is easy to set up and configure calibration and tests using the GRL Shared Capacity Interoperability software. Just select a menu icon at the top of the screen to display the corresponding configuration screen. By just clicking on each configuration tab, you can directly access the related settings.



Test Condition screen

The screenshot shows the 'Test Condition screen' with a toolbar at the top. Below the toolbar, there is a section titled 'Power Sharing Conditions' with a toggle switch. Below that, there is a list of six conditions, each with a checked checkbox: Condition 1, Condition 2, Condition 3, Condition 4, Condition 5, and Condition 6.

Setup Configuration screen

The screenshot shows the 'Setup Configuration screen' with a toolbar at the top. Below the toolbar, there are six tabs labeled 'Condition 1' through 'Condition 6'. Below the tabs, there is a section titled 'Enable Custom Sink' (checked) and two sections for sink devices: 'Sink 1' (Apple Macbook M4 (EPR)) and 'Sink 2' (Google Pixelbook Go).

Select Test Condition 1 to 6 for testing.

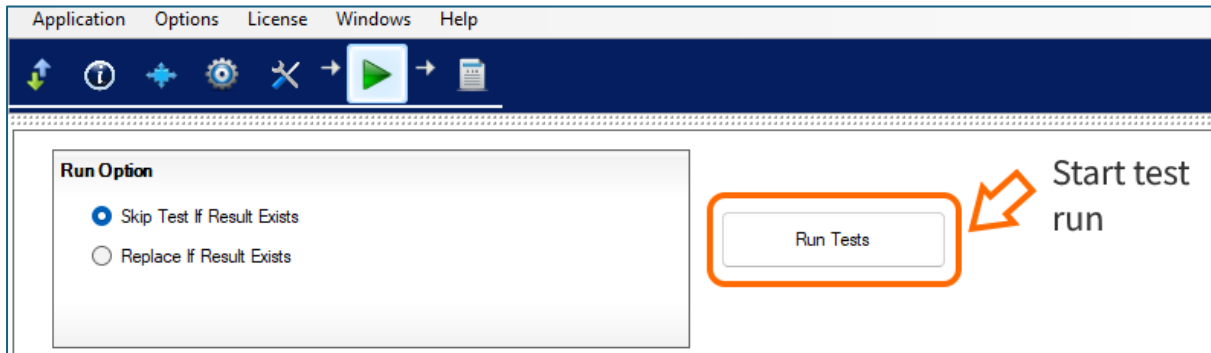
Calibration & Test Configuration screen

The screenshot shows the 'Calibration & Test Configuration screen' with a toolbar at the top and the GRL logo in the top right corner. Below the toolbar, there is a tree view on the left showing the software's structure: 'GRL Shared Capacity Interoperability Calibrations and Tests', 'A1 Startup Path', and 'Tests'. Below the tree view, there are several configuration fields: 'A1 Startup Path' (C:\Program Files (x86)\GRL-USB-PD-A1-), 'Time Sync on Start' (True), 'Run Offline' (True), 'Sink Disconnect Reconnect Time (s)' (25), 'VIF File Full Path' (empty), and 'Offline Folder Full Path' (C:\Program Files (x86)\Offline-CSV-Proce). There is a 'Set Default' button on the right.

Configure additional parameters for calibration and testing.

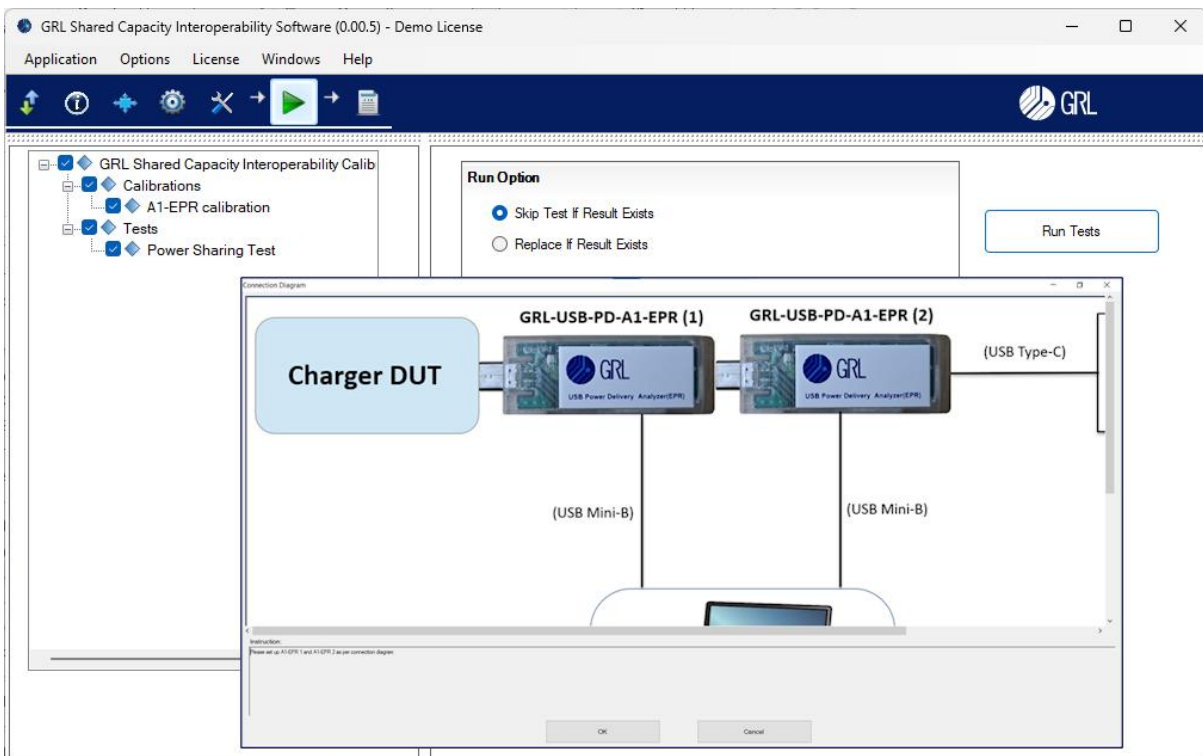
Easy Capture and Validation

With just a click of a button, the GRL Shared Capacity Interoperability software allows you to quickly capture and validate the test results.



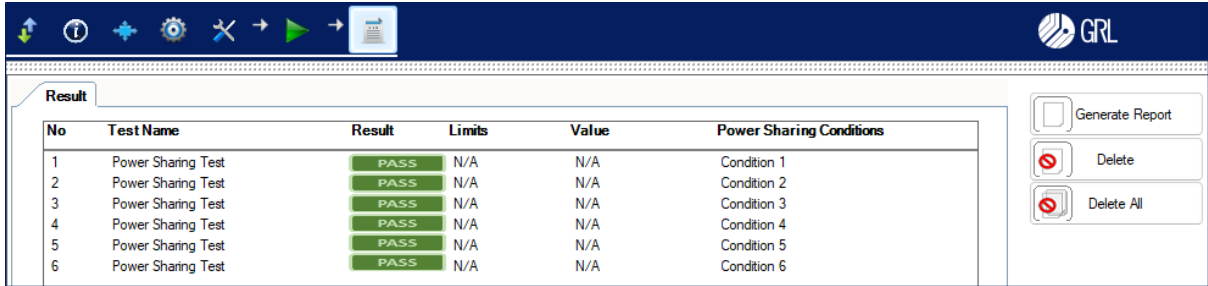
Automated Setup Prompts

The GRL Shared Capacity Interoperability software provides setup instructions every time there is a change in the setup when running tests.



Concise Result Reporting

After each calibration/test session has ended, the GRL Shared Capacity Interoperability software automatically displays the complete summary of the results in the software.



The GRL Shared Capacity Interoperability software also allows full reports to be created displaying the results from the calibration/test runs.

6. Power Sharing Test [C6]

Pass/Fail Stats : Pass

DUT Max Power : 68W

DUT Port 1 Power : 60W

DUT Port 2 Power : 60W

A1-EPR Serial Number 1 : 203639374D46570E0039001C

A1-EPR Serial Number 2 : 203639374D46570D0029002E

Sink 1 : Samsung S21 Phone

Sink 2 : Google Pixel 10 Phone

Verification 1 Result : Pass

Verification 1 Remark : -

Verification 2 Result : Pass

Verification 2 Remark : -

Verification 3 Result : Pass

Verification 3 Remark : -

Verification 4 Result : Pass

Verification 4 Remark : -

GRL Shared Capacity Interoperability Software Report

No	TestName	Limits	Value	Results	Power Sharing Conditions
1	Power Sharing Test	N/A	N/A	Pass	Condition 1
2	Power Sharing Test	N/A	N/A	Pass	Condition 2
3	Power Sharing Test	N/A	N/A	Pass	Condition 3
4	Power Sharing Test	N/A	N/A	Pass	Condition 4
5	Power Sharing Test	N/A	N/A	Pass	Condition 5
6	Power Sharing Test	N/A	N/A	Pass	Condition 6

Integrations

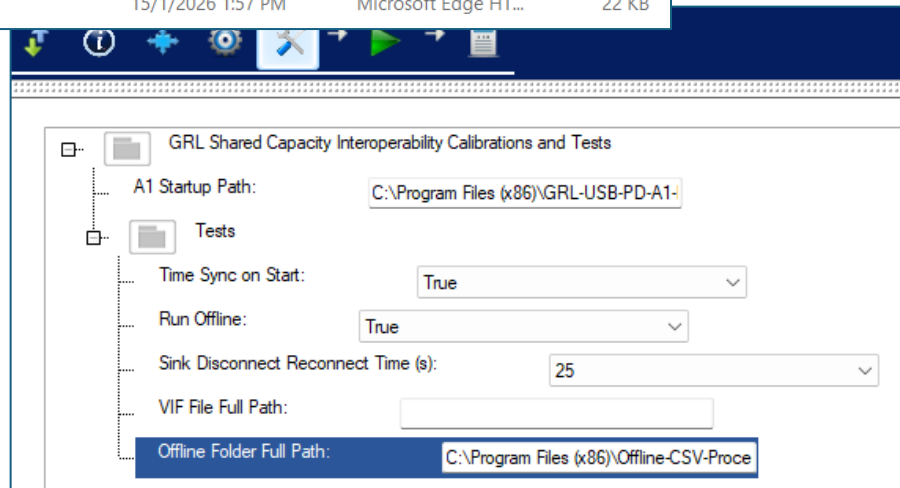
The GRL Shared Capacity Interoperability software is only compatible with the GRL-USB-PD-A1-EPR USB Power Delivery analyzer. The GRL-USB-PD-A1-EPR is the only USB analyzer you need to optimize USB Power Delivery performance for USB connectors and charging technologies over USB Type-C® making it perfect for shared capacity interoperability testing.



Offline Data Processing

Previously run traces can be post processed very easily by placing the trace files in a folder and running offline data processing with a click of a button.

A1Cal.txt	15/1/2026 1:57 PM	Text Document	1 KB
C3 First Output CSV.csv	15/1/2026 1:57 PM	Microsoft Excel Co...	1,052 KB
C3 Second Output CSV.csv	15/1/2026 1:57 PM	Microsoft Excel Co...	1,041 KB
Sample VIF File.xml	15/1/2026 1:57 PM	Microsoft Edge HT...	22 KB



Equipment Requirements

Equipment/Device	Qty.	Description
GRL USB Type-C® Power Delivery Analyzer	2	GRL-USB-PD-A1-EPR USB Type-C® Power Delivery Performance Analyzer
USB Type-C® based Sink Device	4	Mobile phones or laptop computers with USB Type-C® connectors for power-in charging.
Control Computer (laptop or desktop) <ul style="list-style-type: none"> VISA (Virtual Instrument Application Architecture) API Application 	1	Windows 10+ OS (for automation control) The VISA application is required to be installed on the control PC running the GRL Shared Capacity Interoperability software. GRL's application framework has been tested to work with all three versions of VISA available on the market: 1. NI-VISA: http://www.ni.com/download/ni-visa-17.0/6646/en/ 2. Keysight IO Libraries: www.keysight.com (Search on IO Libraries) 3. Tektronix TekVISA: www.tek.com (Downloads > Application > TekVISA)
USB Type-C® based Device Under Test (DUT)	1	Source devices with multiple USB Type-C® connectors such as multi-port chargers

Support Offered by GRL

Offered Benefits:

Technical Support - Provides elevated support for GRL Products and Software, with access to technical support experts who respond within a specified time and ensure committed repair and calibration turnaround times.

Knowledge Base - Access to all GRL Support where you can manage support and service resources related to your assets such as service requests and status.

Download Center - Access to various software updates and tutorials.

Granite River Labs

Founded in Silicon Valley in 2010, Granite River Labs (GRL) is the world's leading Engineering Services and Test Automation Solutions firm for connectivity and charging. GRL helps engineers solve tough design and validation challenges. GRL was founded with a vision to provide affordable test services to help hardware developers implement digital interface technologies as they become faster, more complex and more challenging to test. Today, GRL has worked with hundreds of companies supporting the adoption of new and emerging technologies from their worldwide test facilities and R&D centres. GRL's combination of market-leading technical expertise, broad capabilities across connectivity and charging technologies and intense focus on quality and customer service excellence has led to rapid growth and recognition as the "go to" expert.

Ordering Information

For a formal quote and pricing, contact info@graniteriverlabs.com

Model Number	Description
GRL-SCITP1Y	Shared Capacity Interoperability Tool Package (Includes two GRL-USB-PD-A1-EPR and 1 year software license)
GRL-SCIS1Y	Shared Capacity Interoperability 1 year Software License (Software license only)
GRL-SCITP	Shared Capacity Interoperability Tool Package (Includes two GRL-USB-PD-A1-EPR and Permanent software license)
GRL-SCISP	Shared Capacity Interoperability Permanent Software License (Software license only)



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Product specifications and descriptions in this document are subject to change without notice.

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Email: info@graniteriverlabs.com

Website: www.graniteriverlabs.com