

Quick Card

SCU-1800 Preparing for Return Sweep

The following procedures will show how to verify the RF input and recommend input to the SCU-1800 for reverse sweep.

Prerequisite

Please Review SCU-1800 Getting Started Guide

<https://velocity.viavisolutions.com/docs/DOC-7516>

System Requirements

SCU-1800

48V DC supply

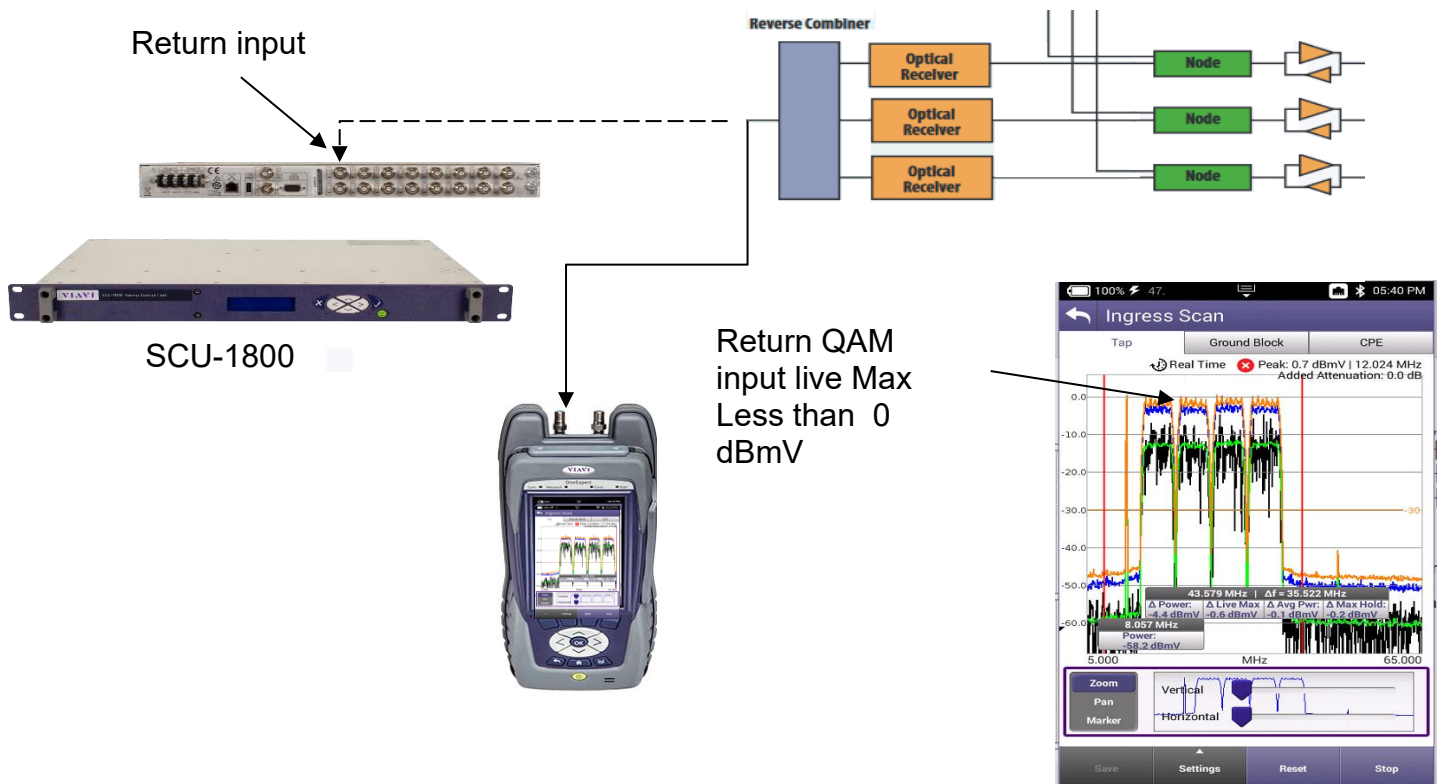
10/100 BaseT Ethernet connection with static IP

ONX-620/630

RF Return Power

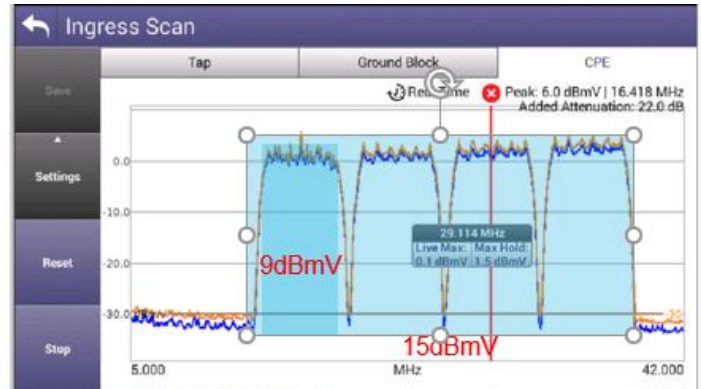
- Verify Return Carriers to each of the 16 ports of SCU-1800
 - Use ONX 620/630 in Ingress Scan with AGC checked, Live Max
 - Verify Level Live max is set to < 0 dBmV for all return QAMs as seen on Spectrum analyzer

Note: if QAM level > 7 dBmV it may exceed the total integrated power of 15 dB



Total RF Power

- Add all the Power in Bandwidth
- If total RF Power exceeds 15 dBmV on SCU-1800 return input the return telemetry data from ONX sweep will not get thru.
- When all signals have identical power, the following formula can be used to calculate total power:



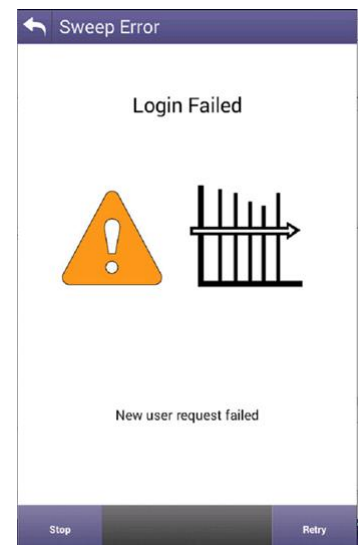
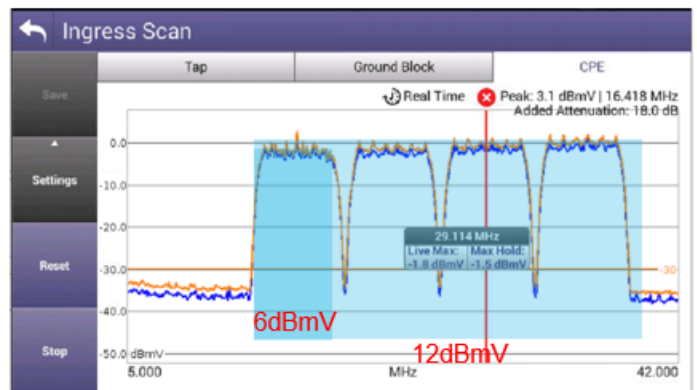
- $P_{total} = P_{one} + 10\log_{10}(N)$, where P_{total} is total power, P_{one} is the power of one signal, and N is the number of signals.

- For the previous example:

$$-P_{total} = 9 \text{ dBmV} + 10\log_{10}(4) = 15.02 \text{ dBmV}$$

- Attenuate incoming signal by 3dB

$$-P_{total} = 6 \text{ dBmV} + 10\log_{10}(4) = 12.02 \text{ dBmV}$$



Update to Total RF Power

SCU-1800 Firmware Update version 5.2.403 Release Notes

This SCU-1800 v5.2.403 firmware update is intended to provide usability updates and improve the quality of experience of the SCU-1800

Features / Bug Fixes of this 5.2.403 release:

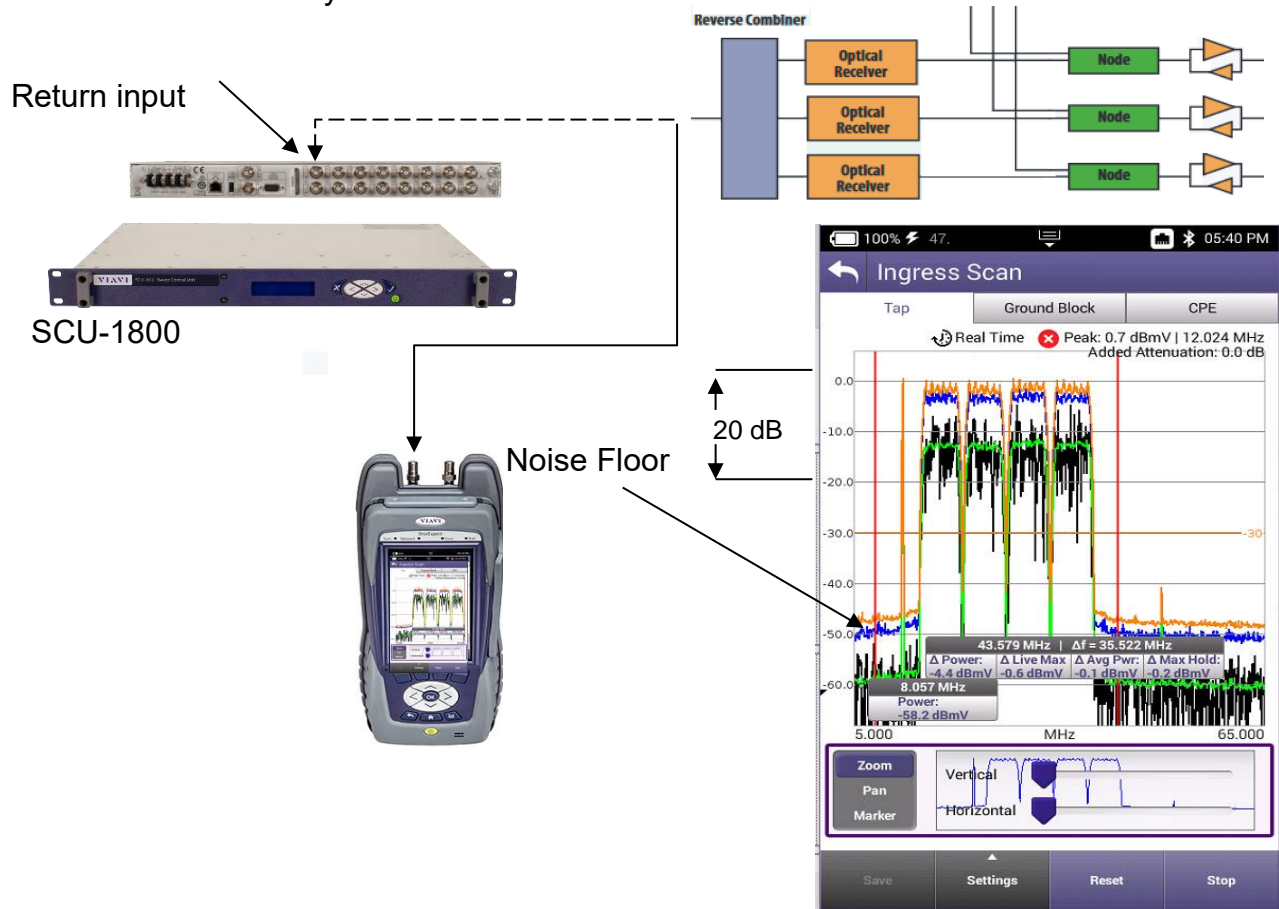
Automatic Gain Control for Input power into the reverse sweep ports

- Automatically adjusts to the input power on the reverse input ports
- SCU-1800 receiver Resolution Bandwidth (RBW) that is only 30 KHz wide
- Rapid Sweep enabled - Allowing Rapid Sweep pulse measurement capabilities on the SCU-1800
 - Only applicable to ONX-630's with active reverse sweep using ONX firmware 4.2 or newer
- Corrected an issue where some SCU-1800's web interface would be unresponsive
- Properly applies Test Point Compensation values upon reboot

NOTE: With this new FIRMWARE the Total RF Power in the return band is less significant. The automatic AGC on the SCU-1800 will not cause the ONX to ERROR out on sweep if the input level is too high.

Where to set Return Telemetry?

- Set where no active return carrier.
- 1 MHz from any return carrier
- Where noise floor is less than -23dBmV
- This example is a 12 MHz
- Note: Telemetry C/N ratio should be > 20 dB



Optimizing the Node and Setting Telemetry

- Verify Return Carriers to each of the 16 ports of SCU-1800
- Use RSG to Inject typical level 38 dBmV CW @ **return telemetry** frequency carrier into the fiber node
- Use ONX 620/630 in Ingress Scan to measure Level

