

80 Channel HTOL System

Introduction

For cost-effective HTOL testing it's desirable to test large numbers of units simultaneously. This requires a system capable of distributing a test signal over a large number of channels with a high power signal source used in order to overcome the inevitable splitter losses.

The HPA-272+ 100W amplifier can be used to drive 80 test channels in a configuration similar to that shown in Figure 1. This setup is popular for use in high-throughput production testing applications such as HTOL where parallel processing of many DUTs is a requirement.

The entire system can be placed into a single 37 RU Rack Frame, shown in Figure 2.

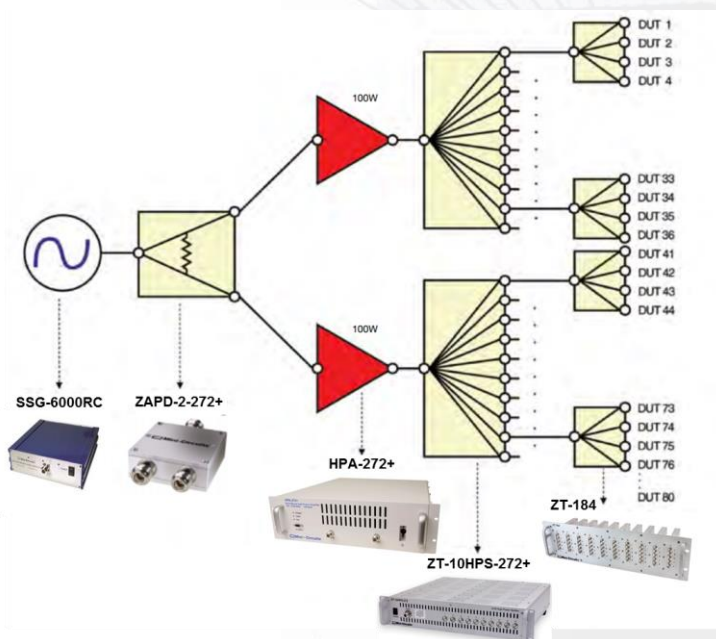


Figure 1
Mini-Circuits' HTOL System

Cautionary Notes

In the initial setup, set the SSG to low power with the following instructions to make sure all connections are correct. After that, set the SSG power to achieve the desired output power as shown on page 3 & 4.

Recommended sequence for connecting the amplifier:

- Connect AC mains power supply
- Connect output loads. **Make sure all ports are terminated**
- Turn on the AC power of the amplifier
- Set RF input signal to -30 dBm
- Apply the RF input signal

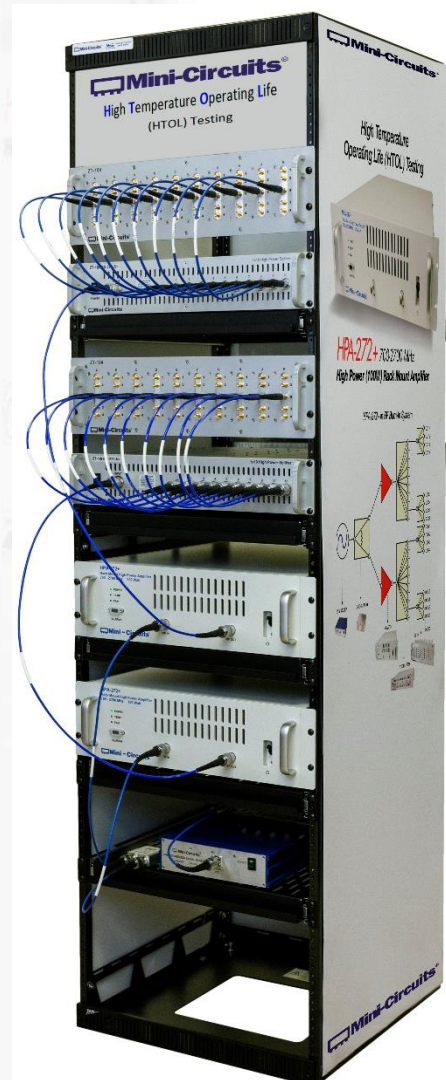


Figure 2
HTOL System in 37 RU Rack

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Signal Generator GUI Control

Mini-Circuits' Signal Generators can be controlled via the MCL GUI or via a multitude of programming languages. This section will go through the basics of using the MCL GUI.

Mini-Circuits' GUI can be downloaded on our website in the Software Download Section:
<https://www.minicircuits.com/softwaredownload/sg.html>

Once downloaded and installed, simply open the GUI (it'll be named Mini-Circuits Generator) and connect by either USB or Ethernet (available to RC models only).

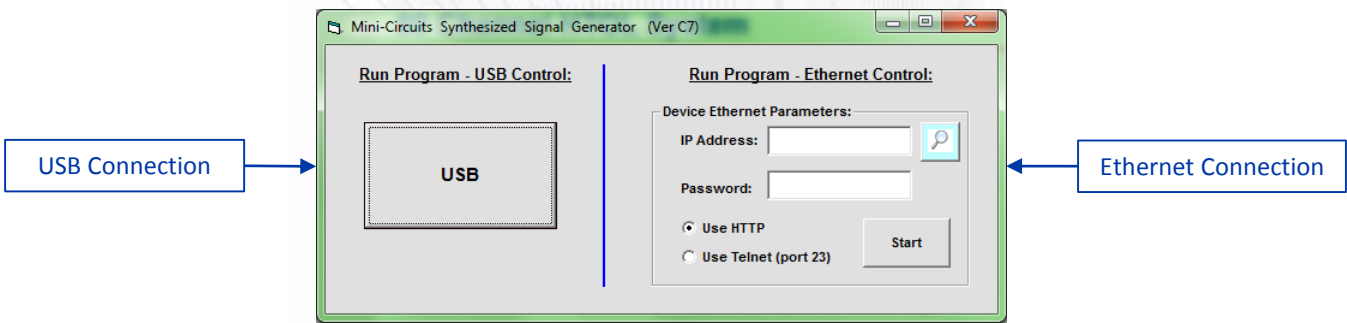


Figure 3
Mini-Circuits SSG GUI Connection Screen

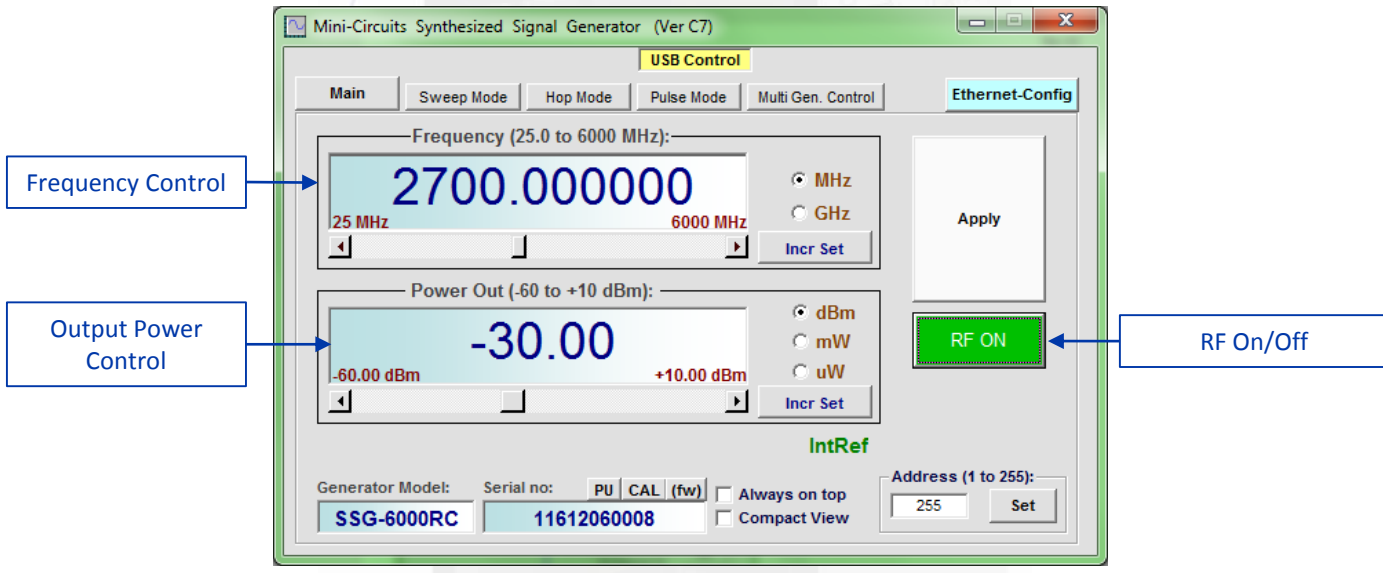


Figure 4
Mini-Circuits SSG GUI Home Screen

For a more in-depth look on using the GUI or for help with controlling the unit via your own programming environment, view the User Guide and/or the Programming Manual found in the *Software Download* section on the website. There are also Programming Examples in various programming environments to help you get started.

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RF System Performance

Frequency (MHz)	Output Power of SSG (dBm)	HPA Output (dBm)	Output Power Per Channel (dBm)
700	+0.50	+50.00	+32.75

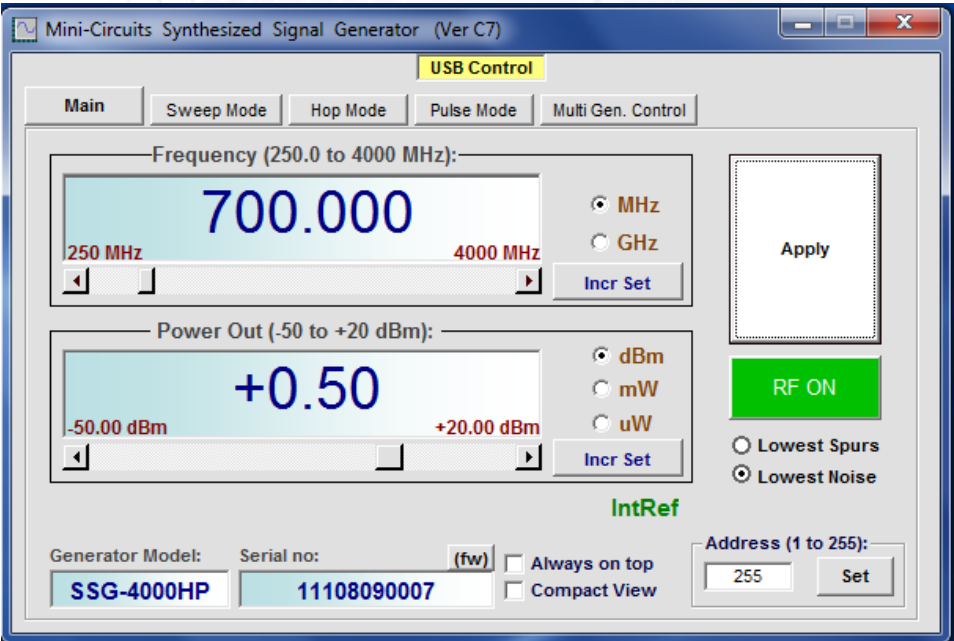


Figure 5
Output Power of SSG at 700MHz

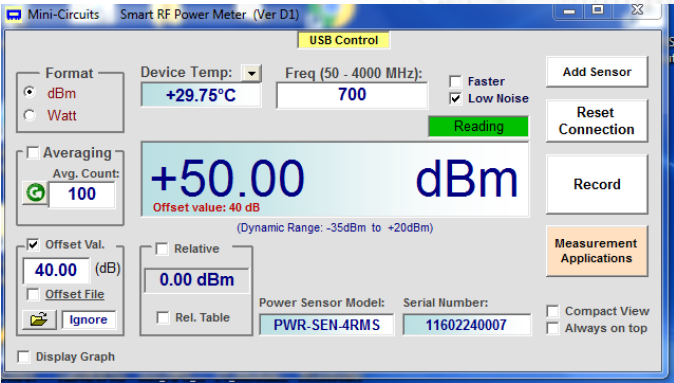


Figure 6
HPA Output at 700MHz

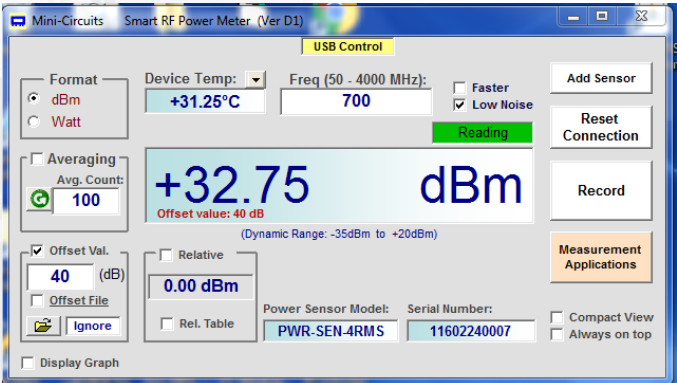


Figure 7
Output Power Per Channel at 700MHz

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RF System Performance

Frequency (MHz)	Output Power of SSG (dBm)	HPA Output (dBm)	Output Power Per Channel (dBm)
2700	+9.00	+49.60	+29.86

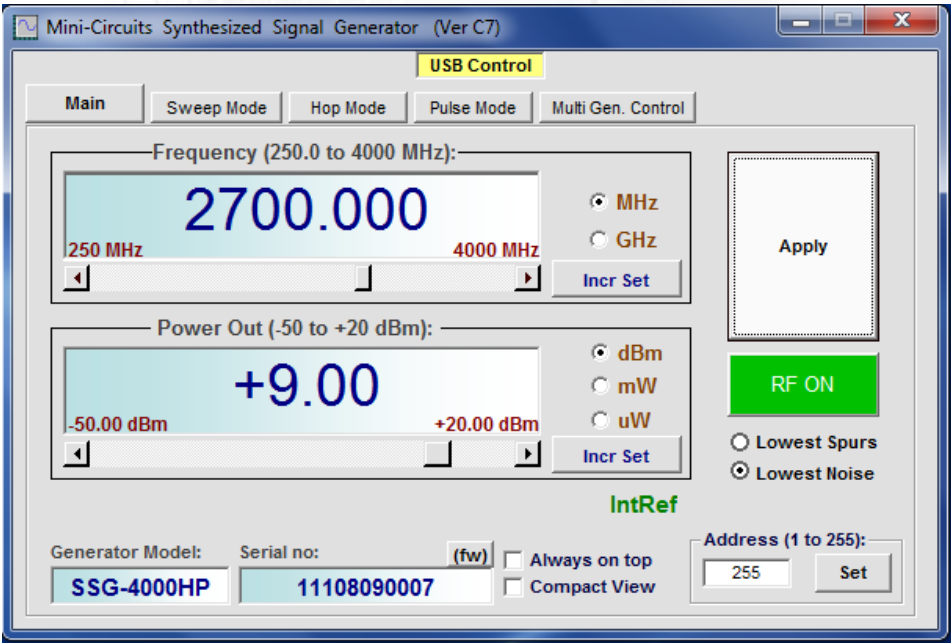


Figure 8
Output Power of SSG at 2700MHz

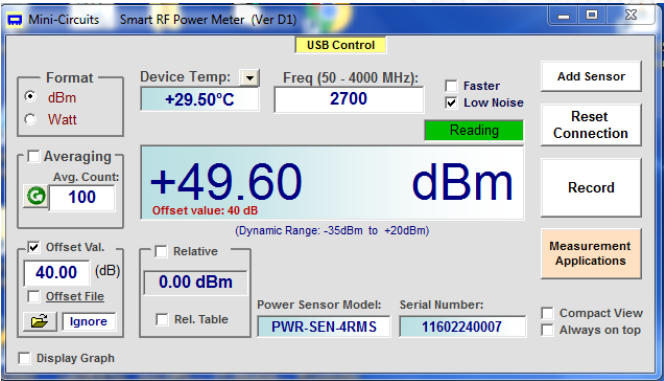


Figure 9
HPA Output at 2700MHz

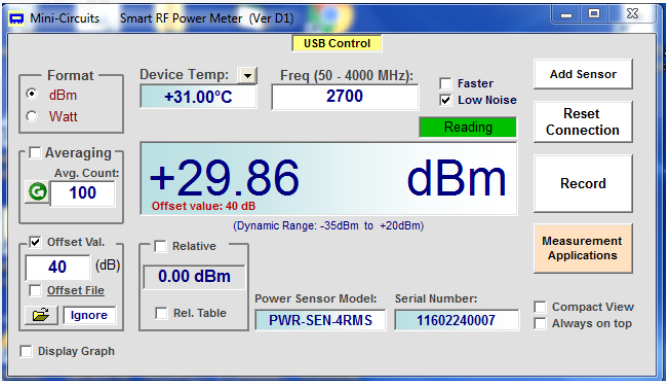


Figure 10
Output Power of Per Channel at 2700MHz

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Rack Frame Assembly

Please follow the assembly instructions provided with the rack.

Notes:

- A. Please remember to stabilize the unit with the squaring plates provided. Even when the units are secured onto the rack, we suggest keeping the squaring plates in the back (see **Figure 11**)
- B. The rack comes with 1U markers (see **Figure 12**)
 - 1. Each tray is 1U and should fit exactly



Figure 11

Rear with 2 Squaring Plates



Figure 12

1U Markers with Tray Placement

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Securing Mini-Circuits' Products to the Rack

The SSG-6000RC and the ZAPD-2-272-N+ must be placed onto a tray to be included into the rack. All other items (HPA-272+, ZT-10HPS-272+, and ZT-184) can all be mounted directly via the mounting holes on the sides of each unit.

Our suggestion is to place the HPA-272+ and the ZT-10HPS-272+ onto trays on their own due to their weight. Each comes with feet (removable) so that there will be little chance of scratches on the unit or the tray itself.

To mount each unit and have the tray to support them, please remove the feet from the HPA-272+ and the ZT-10HPS-272+.

Our suggested placement of all units is shown in **Figure 13**.

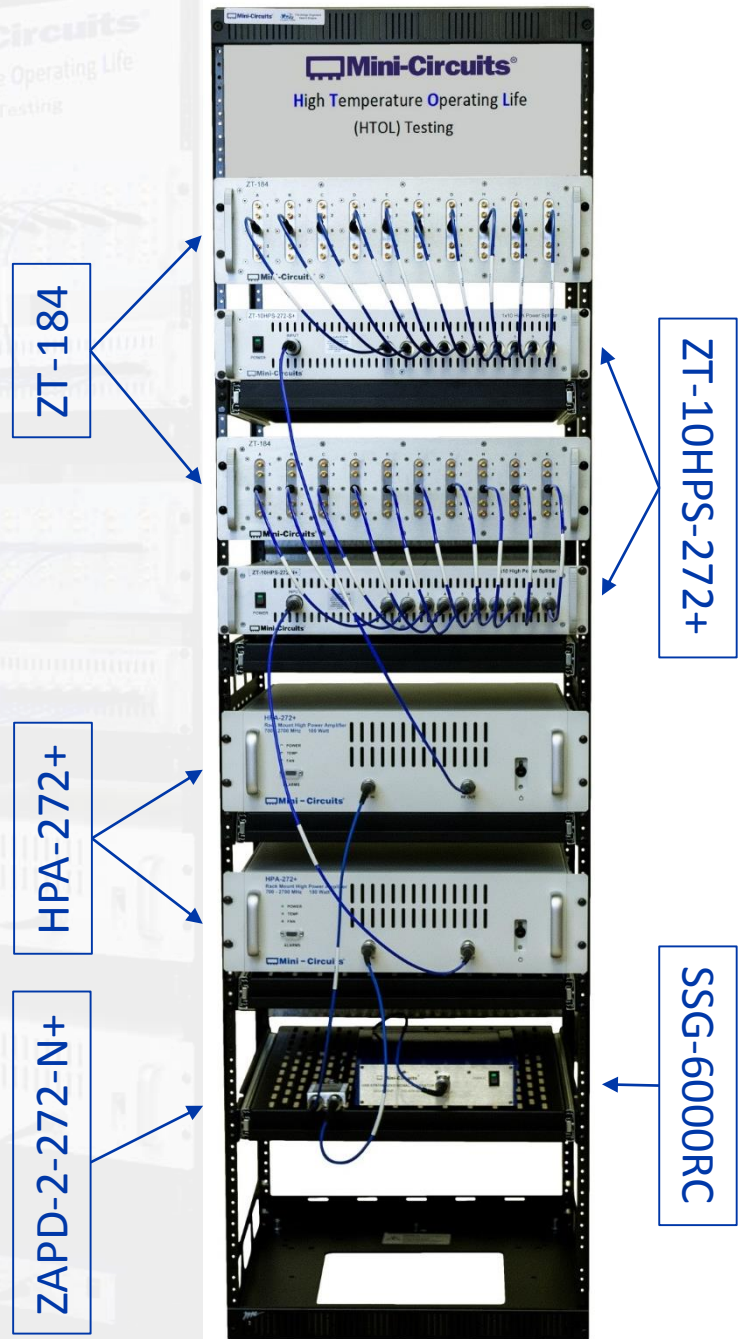


Figure 13

HTOL Test Rack MCL Suggested Placement

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