



Chint Power Systems America
1380 Presidential Drive, Suite 100
Richardson, TX 75081

Date: **August 15, 2022**

Subject: **String Design CPS Warranty Compliance Approval**

String design using module STC data does not adequately evaluate the stress on an inverter. The product data sheet does provide the inverter stress limits for (1) Maximum Voltage [Voc(max)]; (2) Isc(max) and (3) Maximum DC Input power Wmp(max). Isc and Wmp are related variables but the relationship varies with temperature. Isc is the most critical and thus some variance from the datasheet Wmp is allowed by the tool, whereas no variance is allowed in the Isc estimate. The Isc estimate is based on a regional simulation (TMY data) for optimal roof, fixed and tracker configurations.

Voc is determined by the minimum site temperature from the historical weather station data. Since the minimum temperature occurs prior to sunrise, Voc is zero at that time and thus some variance is allowed by manually entering temperature values. This manual adjustment is performed by entering the closest weather station location and selecting manual temperature option and entering the “new” minimum temperature. It is the responsibility of the Engineer of Record to ensure that the “new” minimum temperature is a reasonable approximation of the actual temperature when the solar irradiation is high enough for the array to produce voltage.

The CPS String Sizer Tool Version 4.0 and above performs a site-specific estimation of the inverter stress due to array configuration and site geographic location. Since there are so many possible configurations, it is impossible for CPS Application Engineering to evaluate every site design and provide “approval in writing”. The tool provides automatic approval based on the site configuration. The output from the tool should be stored in the project folder as proof of CPS warranty compliance. No other documentation is required by CPS. The design is compliant when “APPROVED” appears in the tool as shown below. Red or Yellow fonts and highlighting may appear to indicate values that are close but not exceeding the limits. These are intended as optimization tools and if “APPROVED” – CPS APPLICATION ENGINEERING and Date appears; the Design is compliant.

Customers should rely on the CPS String Sizer Tool only for the purpose of evaluating PV system string configurations as they relate to CPS inverter input specifications and for no other purpose.

