Solid State 2.45 GHz High-Power Generator STPG 2450

General Description

STPG 2450 (Fig. 1) is a compact modular high-power synthesized solid state generator operating in 2.45-GHz ISM frequency range. Depending on the number of internal power amplifier (PA) modules, the generator provides maximal CW output power 400 W (model STPG 2450-400, one PA module) or 800 W (model STPG 2450-800, two PA modules).

Fig. 1. High-power solid state generator STPG 2450.

The generator frequency and output power can be set in fine steps either locally via LCD touchscreen, or remotely via RS232 or USB interface using SCPI language. A complimentary Windows-based control program is a part of the delivery.

The output power level is calibrated from 20 dBm to 53 dBm (model STPG 2450-400) or to 56 dBm (model STPG 2450-800) in full frequency range. The power is precisely leveled using a proprietary levelling loop.

STPG 2450 comprises the following components:

- Solid state synthesizer with power levelling
- One or two solid state power amplifier modules
- DC power supplies (one for each PA module)
- Power combiners
- Bidirectional power meter with leveling output
- Cooling water flowmeter
- Internal controller
- Touch panel LCD display
- Waveform generator

The generator is built in a standard 3U-height 19'' cabinet with depth 434.5 mm. It is cooled by water, which substantially reduces its acoustic noise compared to air-cooling.

Reverse Power Protection

Each PA module is internally protected by a circulator so that the generator can handle full reflected power perpetually. This feature enables the generator to be used for instance for calibrations requiring totally reflecting impedance standards.

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Specifications

Electrical	STPG 2450-400	STPG 2450-800
Frequency range	2400 – 2500 MHz	
Frequency setting step	1 Hz	
Frequency switching time	max. 5 ms, typ. 2 ms	
Number of power amplifier (PA) modules	1	2
Maximum output power (CW, matched termination)	400 W	800 W
Power setting range	0 – 400 W	0 – 800 W
Power setting step	0.01 dB = 0.2 % of set power	
Output impedance	50 Ω	
Output RF connector	7/16-F	
Output protection	Circulator in each PA module	
Max. load VSWR	Unlimited	
AC power supply	100 – 300 VAC, 40 – 60 Hz, 1-phase	
AC input power	1400 VA	2000 VA
Remote control interface	USB, RS232	
Remote control language	SCPI	
Mechanical	**STPG 2450-400**	**STPG 2450-800**
Width	483 mm	
Height	140 mm	
Depth	435 mm	
Mass	12 kg	18 kg
Other	**STPG 2450-400**	**STPG 2450-800**
Cooling water flow rate (minimum)	2 liters/minute	
Cooling water temperature[1]	+15 to +25 °C	
Pressure drop at min water flow rate	< 5 kPa	
Maximum working pressure	500 kPa	
Water inlet/outlet connector[2]	SMC KPH10-03	
Water hose	SMC TU 1065 Polyurethane	
Operating temperature range	+5 to +55 °C	
Storage temperature range	-10 to +125 °C	

Notes:

[1] Increase minimum cooling water temperature in condensing situations.

[2] See e.g. www.smc.eu

Basic Dimensions

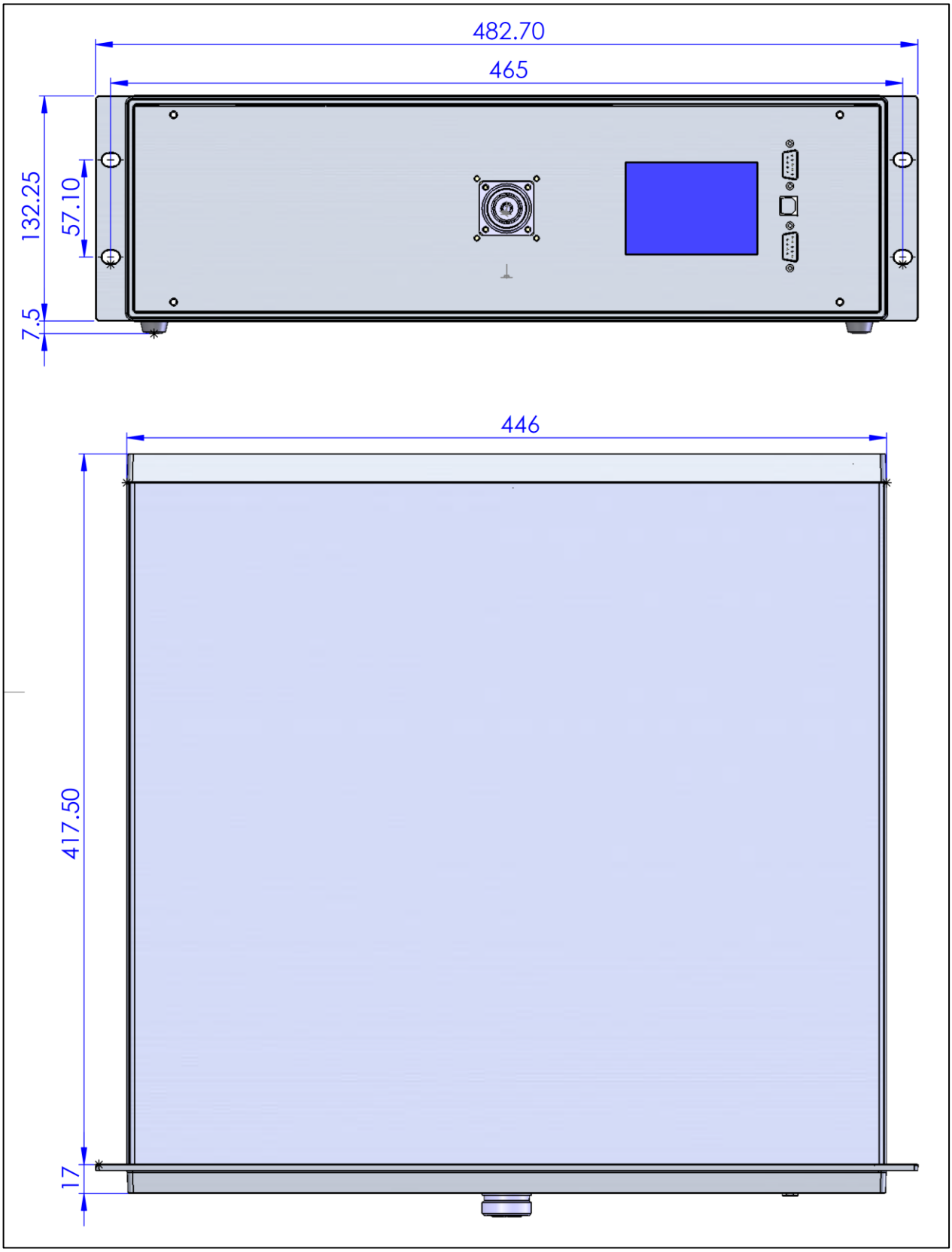

Fig. 2. Basic dimensions of solid state generator STPG 2450. All dimensions are in millimeters.