

STIT 1.1: Intelligent Three-Stub Tuner, WR340 Waveguide

General Description

The STIT 1.1 intelligent three-stub waveguide tuner is designed for manual impedance matching of WR340 (R26) waveguide loads in the 2.45 GHz ISM band. Conversely, when terminated with a matched load, the STIT can be used to realize reflection coefficients that cover a wide area of the Smith Chart.

The tuner's basic design is derived from the HOMER-Series SHTT 2.45-GHz Autotuner. Each stub is equipped with a stepper motor and a top-travel terminal switch. An RS232 or RS422 interface is available to the user for remote control and monitoring, with an optional Controller Area Network (CAN) interface. The desired stub positions can be easily adjusted and monitored by a built-in 3.2-inch color LCD display with a touch panel (touchscreen). The display can be detached and connected with the STIT unit using an RS422 cable provided in the kit.



Fig. 1. Intelligent three-stub tuner STIT 1.1.

Specifications

Electrical	
Waveguide type	WR340 (R26)
Flange type	IEC
Frequency range	2425 – 2475 MHz
Maximum working power ¹	10 kW
Power supply voltage	24 V ± 10% DC
Peak current consumption (all stubs moving)	3 A
Interface	RS232 / RS422 / CAN
Display	3.2" Wide color LCD with touch panel
Maximum RS422 display cable length	up to 100 m
Tuning	
Max tuning stub travel	25 mm
Tuning range	VSWR ≤ 10:1
Full stub insertion travel time	2.3 s

¹ Maximum working power is specified for **matched load** conditions. For loads with high reflection coefficient magnitude (>0.9), the maximum power applied must be lower to avoid arcing for deeply inserted tuning stubs.

Mechanical	
Mass	4.6 kg
Dimensions (L × W × H)	174 × 138.2 × 225.1 mm
Surface finish	E-CLPS 4600
Environmental	
Operating temperature range	+5 °C to +55 °C
Storage temperature range	-10 °C to +70 °C
Optimal conditions for long term storage	+5 °C to +35 °C, humidity < 75%

Dimensional Drawing

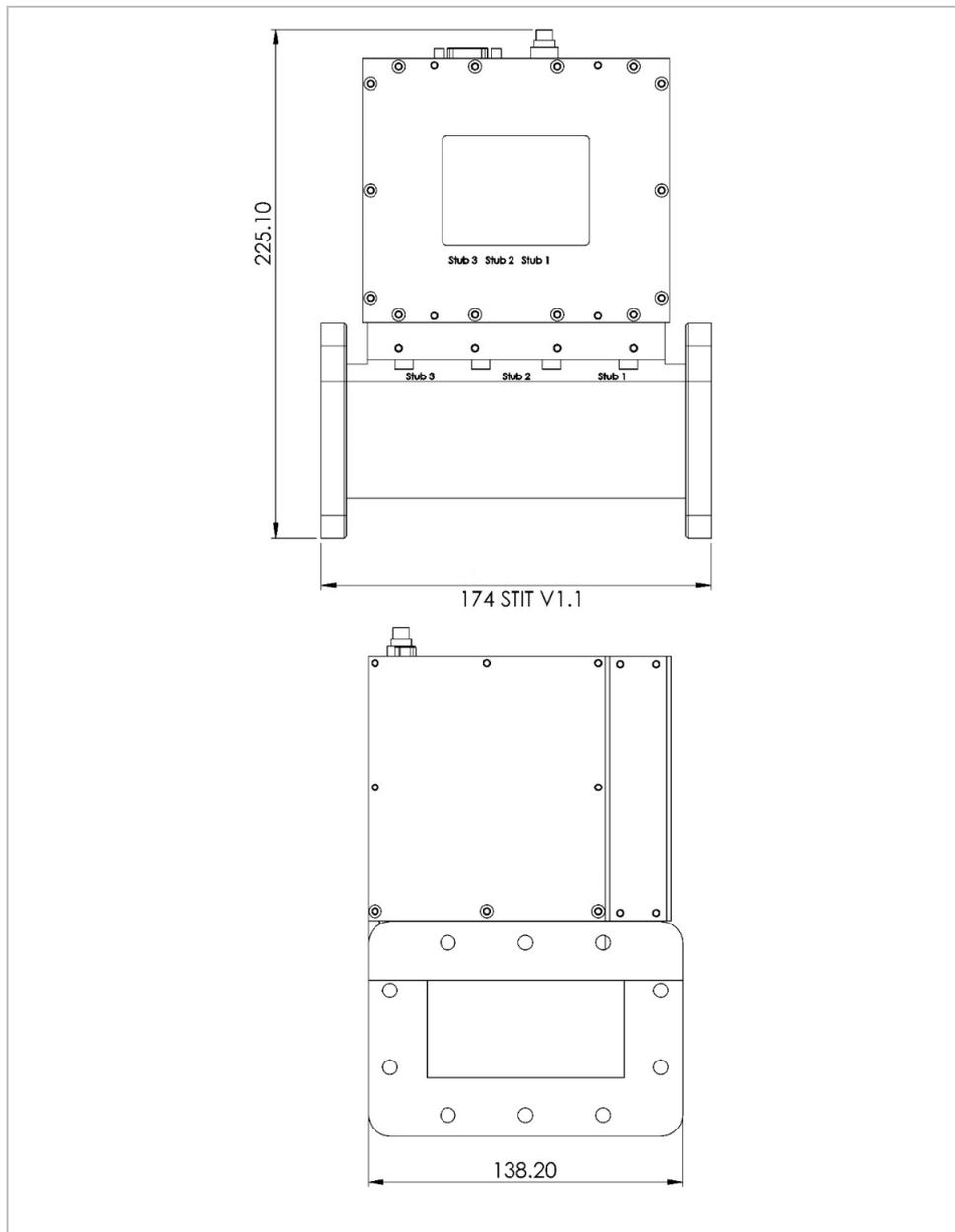


Fig. 2. Basic STIT 1.1 dimensions in millimeters.