

## Instruction for use of SMA Load Testbox

### 4 point Measurements of 50 ohm Male and Female Loads

#### Method of measurement:

A 10mA current source supplies a series connection of a 100 ohm 0.1% and the load connected to the Female SMA connector . A DVM, with preferable 4+1 digits, permanently reads the voltage across the 100 ohm 0.1% resistor available via the test leads, as soon the Load under test is fitted as well as in the situation where nothing is fitted to the SMA connector.

The potentiometer, which shaft is seen at the rear end, fine adjusts the voltage across the 100 ohm resistor to 1.0000 V (and thus the 10mA current as well as compensate for the inaccuracy of the DVM) and the momentary switch, when activated, causes the DVM to measure the voltage across the Load as e.g. 0.5003 V which means 50.03 ohm. As the switch, due to the spring loading, always reverts to the voltage across the 100 ohm resistor this monitoring on the DVM leads to continuous watch of the 1.000V and ensures reliable test results.

The added resistance is less than 5 milli ohm and thus 1/10 of the accuracy of the reference current of 10mA which incurs an accuracy of 50 ohm to +- 50 milli ohm. The 5 milli ohm also contains the resistance of the SMA male-male adaptor used when measuring SMA female Loads. (You may check this statement by fitting a SMA Short and measure the residual voltage)

The long term stability of the reference voltage 1.000V is quite good as seen stable for 4 hours continuous use, so from a productivity point of view, measuring a batch of Loads, it is a fast in use test equipment.

