

# RF CALIBRATION KIT

## Wideband, High Power

# SMK-3000 SERIES

## Precise. Accurate. Dependable.

The SMK calibration kits are precision, high power calibration standards that are used to calibrate RF radios, wattmeters, directional couplers and other high-power RF test equipment in the field or metrology lab. Unlike other calibration solutions, the SMK-3000 calibration kits reduce the cost of ownership and provide a much faster time-to-calibration with lab precision and accuracy you've come to expect from Bird.

Covering a frequency range of 1 to 1000 MHz, the in-line calibration kits enable users to calibrate with either 1% or 3% accuracy in just minutes.

Included in the SMK-3000 kit is the Model 4421A Multifunction Power Meter. This intuitive display unit clearly identifies the Forward and Reflected power measurements within the RF path. In addition, return loss readings can also shown to provide additional insight into the RF system being monitored.

### PRODUCT FEATURES

- Forward Power in W or dBm
- Reflected Power in W or dBm
- Return Loss in VSWR, RL, or Reflection Coefficient
- Graph of Power Over Time

### INCLUDES

- Low band Directional Power Sensor
- Medium band Directional Power Sensor
- High band Directional Power Sensor
- 4421A Multifunction Power Meter
- Rugged carrying case
- Latch & Lock cable



4421A SERIES

## PRODUCT SELECTION GUIDE

Kit Model #	Sensors Included	Frequency Range	Accuracy	Power Range
SMK-3001 (1% Kit)	SMK-3001-LB	1 to 10 MHz	+/- 1% of reading (2σ)	80 to 107 W
	SMK-3001-MB	10 to 100 MHz		
	SMK-3001-HB	100 to 1000 MHz		
SMK-3003 (3% Kit)	SMK-3003-LB	1 to 10 MHz	+/- 3% of reading (2σ)	1 to 1000 W
	SMK-3003-MB	10 to 100 MHz		
	SMK-3003-HB	100 to 1000 MHz		

## MEASUREMENT

<b>Directivity</b>	28 dB minimum
<b>Impedance</b>	50 ohms
<b>Insertion loss</b>	< 0.05 dB
<b>Insertion VSWR</b>	< 1.05:1

## UNCERTAINTY

<b>Forward Power Uncertainty*</b>	
<b>SMK-3001 series</b>	± 1% of reading*, 2σ
<b>SMK-3003 series</b>	± 3% of reading*, 2σ
	Calibration plane location: Connector output
<b>Reflected Power Uncertainty*</b>	± 3% of reading*, 2σ
	Calibration plane location: Connector output
<b>VSWR Uncertainty</b>	-27 dB to -10 dB, see chart

\*Measurement conditions: Harmonics < 35 dBc, Load VSWR < 1.1:1, AM modulation < 1%

## CONNECTORS

<b>RF Input</b>	N(m), Quick Change (QC)
<b>RF Output</b>	N(f), Quick Change (QC)
<b>Display</b>	1-meter Latch & Lock coiled cable

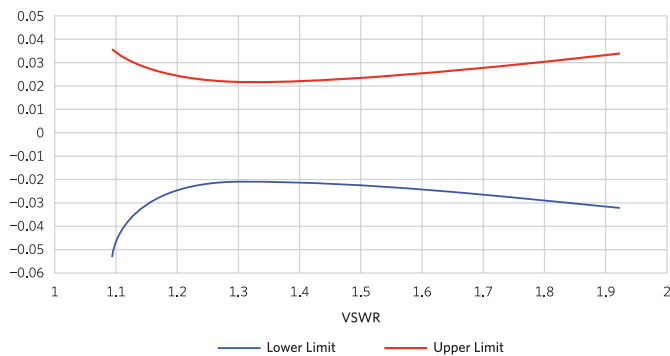
## ENVIRONMENTAL

<b>Operating Humidity</b>	20% to 50%
<b>Operating Temperature</b>	19.4 °C to 26.1 °C (73 °F ± 6 °F)
<b>Storage Temperature</b>	-20 °C to 70 °C (-4 °F ± 158 °F)

## PHYSICAL

<b>Weight (excluding 4421A)</b>	5 lb (2.27 kg)
---------------------------------	----------------

VSWR UNCERTAINTY



# MODEL 4421A

## Specifications

### PRODUCT FEATURES

- Compatible with SMK-3000 sensors and all 402x RF sensor series.
- Automatic sensor detection for seamless integration.
- Large 9.7 in full color LCD touchscreen display for easy readability.
- Dual sensor option expands measurement capabilities.
- Compact, lightweight and portable design enhances functionality.

### MEASUREMENT

<b>Compatible Bird Sensors</b>	SMK-3000 Series , 4021, 4022, 4023, 4024, 4025, 4027 Series, 4028 Series
<b>Power Range</b>	Sensor dependent
<b>Frequency Range</b>	Sensor dependent
<b>Sensor Channels</b>	Model dependent, 1 or 2
<b>VSWR Display</b>	1.0 to 199.9
<b>Return Loss Display</b>	0 to 40 dB

### SYSTEM

<b>Display</b>	9.7 in TFT full color LCD with touch screen
<b>AC Power</b>	100-240 VAC, 50 to 60 Hz, 0.5 A
<b>Fuse rating</b>	IEC (5 x 20 mm), time-delay
<b>Battery Type</b>	Internal, rechargeable
<b>Battery Life</b>	Up to 7 hours
<b>Battery Charger</b>	Built-in. Approximately 4 hours to fully recharge.

### ENVIRONMENTAL

<b>Humidity</b>	95% max, noncondensing
<b>Altitude</b>	10,000 ft max
<b>Operating Temperature</b>	0 °C to 50 °C
<b>Storage Temperature</b>	-20 °C to 70 °C

### PHYSICAL

<b>Size</b>	10.6 in x 9.7 in x 3.6 in (269 mm x 246 mm x 91 mm)
<b>Weight</b>	Less than 5 lb

### CERTIFICATIONS

<b>CE</b>	CE Compliant
-----------	--------------



MODEL 4421A  
Side Views



[birdrf.com/products](http://birdrf.com/products)

The **RF** Experts | USA Sales : 30303 Aurora Rd, Solon, OH 44139 | [www.birdrf.com](http://www.birdrf.com)  
Phone: +1 440.248.1200 / 866.695.4569 [Toll Free] | Fax: +1 440.248.5426 / 866.546.4306 [Toll Free]

Bird is not responsible for omissions or errors. Specifications subject to change without notice.  
©2020 Bird • RF-Calibration-Kit-SMK-3000-Series-06102020

