

# MASTER RF TEST KITS

## Spectrum/Cable & Antenna Analyzers

### SK-SH-KIT, SK-SH-KITA



## | RF Total Coverage

Bird's Master RF Test Kit combines the best of both worlds in RF testing needs for maintaining your RF integrity.

The Master RF Test kit provides all the necessary equipment needed for field technicians and engineers for installation, troubleshooting, and maintenance of coaxial cable and antenna systems and analysis of system performance.

The comprehensive exclusive kit provides coverage with our SiteHawk™ Cable and Antenna Analyzer, SignalHawk™ Spectrum Analyzer, including a power sensor, calibration combo and all must have connection needs with an assortment of adapters, and cables all housed in an organized case.

Coverage you need with any cable & antenna installation and maintenance for wireless service providers, contractors, military, aerospace and defense, and public safety applications. Quick and easy interference analysis of cellular systems, land mobile radio systems, Wi-Fi.

*Ask about our Instructor led training.*



Cable & Antenna Analyzer



Spectrum Analyzer

### CABLE & ANTENNA ANALYZER HIGHLIGHTS

- Wide frequency range from 1 MHz to 6 GHz.
- Test RF cables and antennas at the frequency of operation.
- Distance to Fault, return loss, cable loss
- FDR (Frequency Domain Reflectometry) measurement method results in a highly reliable assessment of the health of critical components in your system; ultimately providing a "heads-up" before a failure occurs.

### SPECTRUM ANALYZER HIGHLIGHTS

- Wide frequency range between 9 kHz to 6 GHz providing real-time spectrum monitoring and analysis of RF frequency circuits.
- Predefined Measurements: Channel Power, ACPR, OBW, Phase Noise, N dB Down Bandwidth, Field Strength, FM Demodulation and more.
- View the spectrum with trace display, spectrogram display, or both.
- Option available for interference hunting. See SK-SH-KITA





SK-6000-TC

SH-60S-TC or  
SH-60S-AOA

5017D-AV



SK-CAL-MN-C6



FH-AV-CC



4240-401



25-T-MN

## SK-6000-TC CABLE &amp; ANTENNA ANALYZER

## MEASUREMENT

Frequency Range	1 MHz to 6 GHz
Frequency Resolution	1 kHz
Output Power	-10 dBm, typical
Trace Noise Magnitude (IFBW 1kHz)	0.05 dB rms
Measurement Speed	1 ms/data point
Measurement Data Points	51 to 3201
Measure Bandwidth	100 Hz to 30 kHz
Temperature Stability	0.01 dB/°F (0.02 dB/°C)
Return Loss Measurement Range	0 dB to -60 dB
Resolution	0.01 dB
VSWR Measurement Range	1.0 to 65.0
Cable Loss Measurement Range	0 dB to 30 dB
DTF Range	0 to 5000 ft (0 to 1500 m)
Corrected Directivity	> 38 dB
Maximum Input Voltage	50 V
Immunity to Interfering Signals	+13 dBm
Power Measurement	Yes

## ACCURACY

Frequency Accuracy	$\pm 2.5 \times 10^{-6}$ @25 °C
Reflect Amplitude Accuracy	-10 dB to 0 dB: $\pm 0.6$ dB -20 dB to -10 dB: $\pm 0.8$ dB -35 dB to -20 dB: $\pm 3.0$ dB

## SH-60S-TC or -AOA SPECTRUM ANALYZER

## MEASUREMENT

Frequency Range	9 kHz to 6 GHz
Aging	$\pm 1$ ppm
Sweep Time	1.1 ms to 1600 s full span, 2.69 ms to 1600 s settable zero span
Resolution Bandwidth	10 Hz to 5 MHz in 1, 2, 3, 5, 10 steps
Second Harmonic Distortion	1.6 GHz to 70 dBc
Third Order Intercept (TOI)	+15 dBm (-10 dBm tones, 1 MHz apart, preamp off, reference level -10 dBm)
P1dB	+5 dBm nominal
Phase Noise	-95 dBc/Hz, @10 kHz (typical -97 dBc/Hz), -115 dBc/Hz, @1 MHz (typical -116 dBc/Hz)
Measurement Range	DANL to +20 dBm
Input Attenuator Range	0 to 30 dB, 1 dB step
Max Safe Input Level	Preamp Off: +30 dBm Preamp +20 dB: 0 dBm Preamp +40 dB: -20 dBm
Reference Level Range	-140 dBm to +20 dBm, -190 dBm to +70 dBm (Ref level offset: ON)
RBW Switching Uncertainty	$\pm 0.3$ dB
Input Attenuator Uncertainty	$\pm 0.6$ dB
Display Average Noise Level (DANL)	Preamp Off: 1 GHz, -129 dBm/Hz (typical -132 dBm/Hz) Preamp +20 dB: 1 GHz, -149 dBm/Hz (typical -152 dBm/Hz) Preamp +40 dB: 1 GHz, -168 dBm/Hz (typical -169 dBm/Hz) (Input terminated, detector set to positive, trace average set to 1000, span set to 50 kHz, reference level of -100 dBm, all other settings auto-coupled, 23 $\pm$ 5 °C normalized to 1 Hz RBW)
Residual Responses	-75 dBm

## ACCURACY

Frequency Span Accuracy	$\pm 1\%$
RBW Accuracy	$\geq 1$ MHz, $\pm 10\%$ , <1 MHz, $\pm 2\%$
Amplitude Accuracy	$\pm 1.5$ dB (ATT set to 0 dB, input signal -5 to -30 dBm, detector set to positive, sensitivity set to low, RBW auto-coupled, all other settings auto-coupled, 23 $\pm$ 5 °C. Half hour warm-up required.)
Reference Level Accuracy	$\geq -60$ dBm, $\pm 0.8$ dB

# 5017D-AV WIDEBAND POWER SENSOR Specifications

## MEASUREMENT

Frequency Range	100 MHz to 1.3 GHz
Power Measurement Range	500 mW to 500 W average, 1300 W Peak
Impedance	50 Ohms nominal
Insertion Loss	<0.05 dB
Insertion VSWR	<1.05
Directivity	28 dB up to 100 MHz 30 dB from 100 to 1300 MHz

## CONNECTORS

DPM	D89 proprietary interface
PC interface (1)	RS-232, 9600 Baud, no parity, 8 data bits, 1 stop bit, D89
PC interface (2)	USB 2.0 Type B
Connector	N(f) Both

## SYSTEM

Power Supply	
USB Port	Less than one low-power load
DC Input Connector	7 to 18 VDC at less than 0.1 A
Data Logging	Requires 5000-NG, VPM3 or Bird RF Meter App

## ENVIRONMENTAL

Operating Temperature	-10 °C to 50 °C (14 °F to 122 °F)
Storage Temperature	-40 °C to 80 °C (-40 °F to 176 °F)

## PHYSICAL

Size	4.8 in x 4.6 in x 1.3 in (122 mm x 117 mm x 35.5 mm)
Weight	1.2 lb (.27 kg)

## CERTIFICATIONS

Mechanical Shock & Vibration	IAQ MIL-PRF-28800F class 3
CE	EMC EN 61326-1-2006

# SK-CAL-MN-C6 CALIBRATION COMBO

## MEASUREMENT

Frequency	DC to 6 GHz
Resistance	50 Ohm
Average Power	≤ 1 W
Load Return Loss	-35 dB
Load VSWR	≤ 1.025
Open Phase Deviation	≤ ± 0.6°
Short Phase Deviation	≤ ± 0.6°

## INTERFACE

Connectors	N (m)
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## ENVIRONMENTAL

Operating Temperature	15 °C to 35 °C (49 °F to 95 °F)
Storage Temperature	-40 °C to 75 °C (-40 °F to 167 °F)

## PHYSICAL

Size	15.27 in x 12.13 in x 6.69 in (38.8 cm x 30.8 cm x 17 cm)
Weight	4.5 lb (2.04 kg) without foam
Body	Polypropylene

## CERTIFICATIONS

Compliance	IP67, MIL-STD, 810F, 512.4, Drop Tested Per MIL-STD-3010C Method 5007
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## 4240-401 ADAPTER KIT

## PHYSICAL

Size	6.5 in x 4.63 in x 1.69 in (16.5 cm x 11.8 cm x 4.3 cm)
Weight	1 lb (.45 kg)
Body	Polypropylene

## CONNECTORS INCLUDED

(1) Male, (1) Female, Type N
(1) Male, (1) Female, Type BNC
(1) Male, (1) Female, Type TNC
(1) Male, (1) Female, Type UHF
(1) Male, (1) Female, Type SMA
(5) 50 Ohm couplers

## 25-T-MN TERMINATION/LOAD RESISTOR

## MEASUREMENT

Power Rating	25 W
Frequency	DC - 4 GHz
VSWR DC - 1 GHz	1.10:1 max
VSWR 1 GHz - 4 GHz	1.15:1 max
Impedance	50 Ohms, Nominal

## INTERFACE

Connectors	N (m)
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## ENVIRONMENTAL

Temperature Range	-40 °C to 40 °C (-40 °F to 104 °F)
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## PHYSICAL

Product Type	Dry (Convection-Cooled)
Operating Position	Any
Finish	Black Anodized
Size	4.7 in L x 2.3 in Dia (119.4 mm x 58.5 mm)
Weight	7 oz (198 g)

## OPTIONAL KIT

SK-SH-KITA is a Master RF Kit with SH-60S-AOA substituted for interference hunting.

## birdrf.com/products

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