

RF CALIBRATION KIT

Medical MRI Test Kit

MRI3T KIT

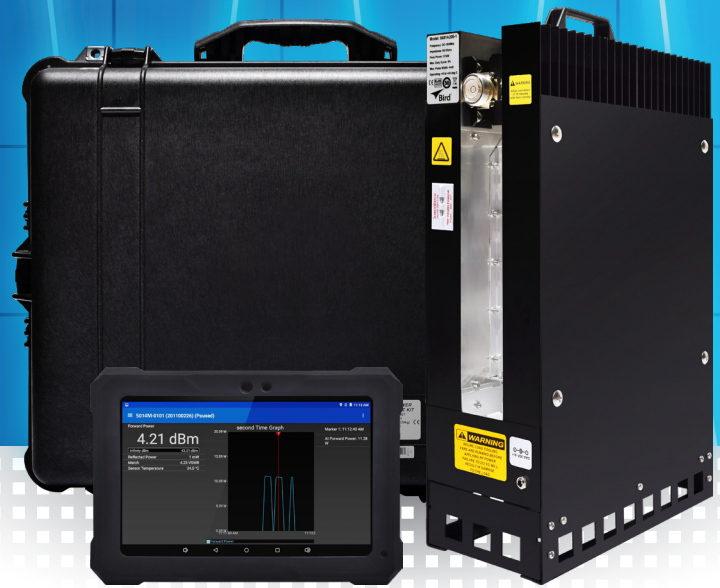
Accuracy Delivered

RF Power has been used in medical applications for many years and require high precision RF power measurements. Manufacturers of Magnetic Resonance Imaging (MRI) rely on Bird's RF expertise and test equipment for their research and development and field calibration of MRI equipment.

Accuracy of RF power measurements delivered during clinical MRI testing ensures safety and regulatory compliance. Under strict safety guidelines, this ensures that patients are scanned safely in both 1.5T and 3T systems and that no RF burns occur.

Bird's new MRI test kit provides a complete set of equipment to carry out precise and independent measurements of RF power encountered. It also determines if the equipment is not in the appropriate exposure limits during device or pulse sequencing test.

Technicians can have confidence when performing MRI safety measurements and test the accuracy of the specific absorption rate over the range of operating conditions encountered in MRI.



MRI3T KIT

PRODUCT FEATURES

By utilizing Bird's 5014M USB RF Power Sensor paired with our Plug-In Elements, pulse power can be measured during MRI testing and calibration.

- Forward Power
- Reflected Power
- Match Measurements
- Sensor Temperature

APPLICATIONS

- Hospitals, Urgent Cares, MRI Service Providers
- Imaging Service Providers
- OEM (Original Equipment Manufacturers)
- Emergency Care
- Resellers
- Capital Equipment Vendors

RF CALIBRATION KIT

MRI3T-KIT

Specifications



5000-NG
RF Power Meter Display



8581A Load



5014M Sensor



4300B672-2
Hard Carrying Case



Elements



Adapters

MEASUREMENT

Frequency Range	10 MHz to 130 MHz
RF Power	
Average, Max	2.2 kW
Peak, Max	37 kW
Pulse Width, Max	10 ms
Duty Cycle	Duty cycle such that avg. power rating is never exceeded
Acceleration, Max.	± 1.5 G along any axis
Magnetic Field, Max.	500 G
Acoustic Noise	75 dBa max, 1m from external surfaces

TEST CABLES

Connectors	7/16 (M) to 7/16 (M)
Material	RG393

ELEMENTS

Dynamic Range	20 dB
Labeling, Element	Label lists max power (W)

ENVIRONMENTAL

Operating Temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage Temperature	-20 °C to 70 °C (-40 °F to 158 °F)
Humidity, Relative	
Operating	30% to 75%
Storage	95% noncondensing max.
Altitude, Above Sea Level (ASL)	
Operating	-984 to +11,800 ft ASL (-300 to +4000 m)
Storage	-984 to +18,000 ft ASL (-300 to +5490 m)

ADAPTERS

Connector	7/16 (F) to HN (M) 7/16 (F) to N (M) 7/16 (M) to HN (F) 7/16 (M) to N (F)
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SYSTEM

Display	Full-Color 8 in 1280 x 800-pixel display with backlight.
Languages	English
Battery Type	Rechargeable, 3.7V/6200 mAh lithium
Battery Operating Time	8 hours typical
Battery Charge Time	6 hours typical 24-hour data logging (display in sleep mode)
OS	Android 5.1
Maintenance Interval	>= 1 year
Calibration Interval	<= 12 months
AC Input	100-240 VAC @ 50/60 ± 3 Hz, single phase, current <= 10A. US & CE plugs included

PHYSICAL

Size	21 in x 15 in x 25 in (535 mm x 381 mm x 635 mm)
Weight	75 lb (34.1 kg)
Material	No toxic materials, Metals are corrosion resistant, no sharp edges or projections on accessible components, Ferrous materials present.

STANDARD ACCESSORIES

Power Meter Display	5000-NG
USB Sensor	5014M
Forced-Air Cooled Load	8581A200-1
Case, Cards & Manual	4300B672-2
AC Adapter (5000-NG)	5B5002-1
AC Adapter (Load)	5A2436
Stylus	SK-TP-112
Cables, 6 ft (7/16DIN(M)-7/16DIN(M))	4300A676-8 (2)
USB Cable	5A2653-6L
Manual	920-4300A750-1

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5000-NG RF POWER METER DISPLAY

Specifications

MEASUREMENT

Frequency Range	2 MHz to 6 GHz with external power sensors (not included)
Key Measurements	True Average Power (Forward and Reflected) VSWR, Return Loss, rho, Match Efficiency Peak Power, Peak to Average Ratio, PEP, Crest Factor, Burst and Burst Average Power,CDF, CCDF, Confidence %, IEEE 194 Pulse Parameters, Sensor Temperature

ENVIRONMENTAL

Operating Temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Storage Temperature	-20 °C to 80 °C (-4 °F to 176 °F)

PHYSICAL

Size	9.2 in x 6.3 in x 1.1 in (233 mm x 160 mm x 28 mm)
Weight	1.3 lb (0.59 kg)

SYSTEM

Display	Full-Color 8" 1280 x 800-pixel display w/ backlight
Operating System	Android 5.1
Languages	English
Storage	16 GB
Data Transfer	WiFi802.11, USB drive
Battery Type	Rechargeable, 3.7 V/6200 mAh lithium battery
Battery Life (display in sleep mode)	24 hrs. continuous usage
Battery Charge Time	6 hours typical
Recommended Calibration Interval	No calibration required (sensor calibration recommended)
Power Supply	AC: 100 to 240 V / 50-60 Hz; DC: 5V/2.5 A
Upgradeability	Firmware field-upgradable via USB port, interchangeable US & CE plugs
Additional Functions	Data logging, numerical & graphing display
Sensor Detection	Automatic USB Sensors

5014M SENSOR

MEASUREMENT

Frequency Range	Element dependent, 50 - 130 MHz
Calibration Frequency & Nominal Power Level	127.72 MHz: 35 kW, 25 kW, 15 kW, 4.5 kW, 4.0 kW, 3.3 kW 63.86 MHz: 16 kW, 10 kW, 2 kW 51.70 MHz: 8 kW, 4 kW, 2.5 kW
Accuracy	General: Calibration frequency & power ±7.5%
Peak/Average Ratio	10 dB maximum with DPM elements
Insertion VSWR	1.05:1 Max
Insertion Loss, Max	0.1 dB
Dyamic Range	20 dB

SYSTEM

Settling Time	<3 seconds
Recommended Calibration Interval	1 year

CONNECTORS

RF Connectors	Input 7/16 (M)
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ENVIRONMENTAL

Operating Temperature	-10 °C to 50 °C (14°F to 122 °F)
Storage Temperature	-40 °C to 75 °C (-40 °F to 167 °F)
Humidity	95% max (non-condensing)

PHYSICAL

Size (excluding connectors)	2.3 in x 2.1 in x 3.5 in (58 mm x 53 mm x 89 mm)
Weight	1.12 lb (0.51 kg)

ELEMENTS INCLUDED

4300A374-20	50kW Peak, 30 to 60 MHz (FWD)
4300A374-30	50kW Peak, 60 to 130 MHz (FWD)
4300A374-50	5kW Peak, 30 to 60 MHz (RFL)
4300A374-60	5kW Peak, 60 to 130 MHz (RFL)

MEASUREMENTS

Frequency Range	10 - 130 MHz
RF Power	
Average, Max	2.2 kW
Peak, Max	37 kW
Pulse Width, Max	10 ms
Duty Cycle	Duty cycle such that avg. power rating is never exceeded
VSWR, Max.	1.1:1
VSWR Stability over 10 min. interval	± 0.1 dB

System

Cooling Method	Forced air convection
Impedance, Nominal	50 ohm
AC Input	90-264 VAC @ 50/60 ± 3 Hz, single phase, current ≤ 10A. Output +15 VDC, 0 to 2.7A, US & CE AC cords included
Connector	7/16 (F)
Operating Position	Vertical only

PHYSICAL

Size	13 in x 5.75 in x 20.5 in (330 mm x 145mm x 521 mm)
Weight	32 lb (14.6 kg)
Body	Black powder coat

second Time Graph

Marker 1: 11:12:40

At Forward Power
Wbirdrf.com/products

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