The RF Experts

RAILHAWK™ KIT

Railway RF Cable & Antenna Analyzer

NEW

RH-RR-KIT

Signal Maintenance - On Track!

Bird's new Railway RF Cable & Antenna Analyzer solution provides a comprehensive kit that allows technicians to maintain high quality service networks in the railway industry. Based on the need for redundant communications, Bird's Cable & Antenna Analyzer increases reliability and assures maintainability for communication protocols targeted in railway space. Designed to help novice and expert users, our easy-to-use analyzer finds problems before they become time-consuming, expensive repairs.

Bird's RailHawk RF Railway Test Kit is the result of combining the proven antenna and cable testing functionality of the SiteHawk handheld analyzer, Bird's plug and play power sensor – designed specifically to test the UHF analog/digital radio systems, as well as the GSM-R/LTE-R voice/data systems - and all the necessary loads, adapters and cables into a single rugged transit case.

Avoid communication shortfalls, downtime and expense resulting from trial and error of swapping components to fix your issue.

PRODUCT FEATURES

- Test RF cables & antennas at the frequency of operation, not at DC where problems are masked
- Locate RF cable, connector & antenna problems at the source
- FDR (frequency Domain Reflectometry) pinpoints faults at the frequency of operation, unlike other measurement techniques which can mask pending failures of critical system components
- Distance to Fault (DTF) mode can plot VSWR or Return Loss levels at each distance point along the cable and antenna system length
- Cable Loss function measures insertion loss of the cable system over a given frequency range
- OTG USB communication port for connection to Bird power sensors, storage devices and battery charging

APPLICATIONS

- Determine if your GSM-R & LTE radio RF cables and antennas are the source of your problem.
- Diagnose antenna and cable problems in fixed, track-side radio infrastructure, and on-board rolling stock
- Accurately pinpoint coaxial cable faults, minimizing downtime associated with removing furniture, panels and bulkheads.
- Early identification of degraded cable performance due to moisture ingress, permitting planned maintenance instead of emergency repairs.

Bird

RAILHAWK™ RAILWAY RF CABLE & ANTENNA ANALYZER KIT

RH-RR-KIT

Specifications

RAILHAWK™

7020-1-010101


SK-CAL-MN-C6


FH-AV-CC


4240-401


4240-550


25-T-MN

MEASUREMENT

Frequency Range	1 MHz to 6000 MHz
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 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	±2.5×10-6 @25 °C
Reflect Amplitude Accuracy	**–15 dB to 0 dB:** 0.4 dB **–25 dB to –15 dB:** 1.5 dB **–35 dB to –25 dB:** 4.0 dB

CONNECTORS

Connector	USB Type-C, USB 3.0
Test Port Connector Impedance	N-type, Female 50 ohms

ENVIRONMENTAL

Operating Temperature	14 °F to 131 °F (-10 °C to 55 °C)
Storage Temperature	-40 °F to 176 °F (-40 °C to 80 °C)
Battery Charging Temperature	32 °F to 95 °F (0 °C to 35 °C)

SYSTEM

Display	5.5 in, 720p
OS	Android
Languages	English, Chinese, Spanish
Battery Type	Lithium-ion rechargeable
Battery Operating Time	10 hours typical
Battery Charge Time	5 hours typical
Storage Capacity	Thousands of trace and setups
Recommended Calibration Interval	2 years
Compatible With	Bird's RF Meter App utilizing RF compatible sensors 501X, 7020, 7022 Series

PHYSICAL

Size	7.7 in x 3.6 in x 2.4 in (195 mm x 90 mm x 60 mm)
Weight	1.98 lb (0.9 kg)

CERTIFICATIONS

CE	**EMC:** Standard EN 61326-1:2006 **Safety:** Standard EN 71010-1:2001

STANDARD ACCESSORIES

Calibration Combo	SK-CAL-MN-C6
Stylus	SK-TP-112
AC Adapter (12 Vdc Output)	SK05T-1200300Z
Hard Carrying Case	FH-AV-CC
Adapter Kit	4240-401
Adapter Kit, 7/16" DIN	4240-550
RF Cable, 10 feet long	5A2970-16-120B
USB Drive	5A2745-1
USB Adapter	SK-CONN-OTG-2

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RAILHAWK™ RAILWAY RF CABLE & ANTENNA ANALYZER KIT

7020-1-010101 POWER SENSOR Specifications

MEASUREMENT

Frequency Range	350 MHz to 4.0 GHz
Power Measurement Range	0.15 W to 150 W
Impedance	50 Ohms nominal
Insertion Loss	0.1 dB, Max.
Insertion VSWR	1.10, Max.
Directivity	28 dB, Min.

CONNECTORS

Interface	Protocol USB 2.0 Connector USB Type 'B' with "SeaLATCH" locking USB connector Data Logging with VPM3 Software
Connector	N(f)

SYSTEM

Power Supply	
USB Port	Less tha one low-power load
DC Input Connector	7 to 18 VDC at less than 0.1 A

ENVIRONMENTAL

Operating Temperature	-30 to +60 °C (-22 to +140 °F)
Storage Temperature	-40 to +80 °C (-40 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	1.0 lb (.45 kg)

CERTIFICATIONS

Mechanical Shock & Vibration	IAQ MIL-PRF-28800F class 3
CE	**EMC:** European Standard EN 61326-1:2006 – Electronic Equipment for Measurement, Control and Laboratory Use – EMC Requirements in accordance with EMC Directive (2004/108/EC)
RoHS	Compliant

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)

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)

FH-AV-CC HARD CASE

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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RAILHAWK™ RAILWAY RF CABLE & ANTENNA ANALYZER KIT

4240-401 ADAPTER KIT

Specifications

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

4240-550 ADAPTER KIT 7/16" DIN

PHYSICAL

Size	9.5 in x 6.5 in x 2.0 in (24.13 cm x 16.51 cm x 5.0 cm)
Weight	1 lb (.45 kg)
Body	Polypropylene

CONNECTORS INCLUDED

(1) PA-MNME, N (M) to 7/16 DIN (M)
(1) PA-FNFE, N (F) to 7/16 DIN (F)
(1) PA-FNME, N (F) to 7/16 DIN (M)
(1) PA-MNFE, N (F) to 7/16 DIN (F)
(1) PA-FEME-R, 7/16 DIN (F) to 7/16 DIN with right angle (M)
(1) PA-FEFE, 7/16 DIN (F) to 7/16 DIN (F)

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)

ENVIRONMENTAL

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

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)

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