The SARK-110-ULM is the entry-level model of the SARK-110 antenna analyzer series. This is a truly pocket-size device, so you can take it anywhere. The built-in battery lasts up to eight hours on a single charge. It features a graphical display and an intuitive user interface that makes it easy to operate.

The native measurement frequency range is between 0.1 and 160 MHz, but it operates up to 700 MHz with reduced performances. It has full vector measurement capability and accurately resolves the resistive, capacitive and inductive components of a load.

The functionality is not restricted to antenna analysis, but it is a multipurpose instrument featuring a Time Domain Reflectometer (TDR) mode which is intended for fault location and length determination in coaxial cables; as well as an RF signal generator. The analyzer is designed for standalone operation, but it can be controlled from your desktop using SARK Plots for Windows and from your tablet or smartphone using SARK Plots for Android through USB or short-range Bluetooth LE.

Typical applications include checking and tuning antennas, impedance matching, component test, cable fault location, measuring coaxial cable parameters, and cutting coaxial cables to precise electrical lengths. As a signal generator, it is ideal for receiver calibration, sensitivity tests, and signal tracing.

Features

- Pocket size and lightweight
- Frequency range up to 700 MHz
- Resolves the sign of impedance
- Excellent accuracy over a broad range of impedances
- USB and short-range Bluetooth LE connectivity
- Compatible with all SARK-110 software
- Lifetime free firmware upgrades available, open to community requested features

Specification

Frequency range

0.1 – 160 MHz and up to 700 MHz with reduced performances

Display

2" Monochrome 128 x 64 pixels

RF Output

Connector type SMA; output signal square; two selectable power levels (signal generator); ±30-ppm stability

Architecture

Two narrow-band detectors with 12-bit ADC; reactance sign measurement

Modes

Scalar chart; Smith chart; Single frequency; SWR; Multiband; Time Domain Reflectometer; Signal generator; Band scan

Special Functions

Configurable presets for amateur bands; Marker; Save/load data; Deep sweep save with timer function; VSWR Audible feedback; Transmission line add/subtract; Circuit models

Connectivity

Micro-USB and short-range Bluetooth Low Energy

Data Memory

2 MB for storage of measurements, configuration, and firmware upgrades

Software

SARKPlots for Windows and Android

Power

Built-in 1000 mAh Li-Poly battery; 8-hour autonomy; charge from USB

Feature	SARK-110	SARK-110-ULM
Display	3"Color 400 x 200 pixels	2"Monochrome 128 x 64 pixels
Frequency range	0.1 – 230 MHz 1-Hz resolution +- 30-ppm stability	0.1 – 160 MHz and up to 700 MHz with reduced performances 1-Hz resolution +- 30-ppm stability
Output signal shape	Sinusoidal	Square
Output power (measurements)	≈-12 dBm	≈ -14 dBm
Output power (signal generator)	Programmable from -73 to -10 dBm	≈-14 dBm (Low) and -9 dBm (High)
Test port connector type	MCX (included MCX to SMA adaptor)	SMA
Measured parameters	VSWR, Rs, Xs, Rp, Xp, |Zs|, <Zs, RL, CL, |Rho|, <Rho, %Ref PWR, Q, Cs, Cp, Ls, Lp	VSWR, Rs, Xs, Rp, Xp, |Zs|, <Zs, RL, CL, |Rho|, <Rho, %Ref PWR, Q, Cs, Cp, Ls, Lp
Reactance sign measurement	Yes	Yes
Narrowband detectors	Two narrowband detectors Two 12-bit ADCs	Two narrowband detectors Two 12-bit ADCs
Return loss dynamic range	0 to -60 dB	0 to -60 dB
Measurement limits	VSWR < 100:1, |Z| < 100K, |R| < 100K, |X| < 100K, |Rho| < 0.98, C < 100 nF, L < 100 mH, -180 < Θ < 180	VSWR < 100:1, |Z| < 100K, |R| < 100K, |X| < 100K, |Rho| < 0.98, C < 100 nF, L < 100 mH, -180 < Θ < 180
Sweep frequency resolution	258 points (258 to10000 indeep sweep mode)	102 points (102 to10000 indeep sweep mode)

	3-sec sweep time (normal)	1.5 sec sweep time (normal)
Impedance reading in open circuit	160K (@1 MHz)	120K (@1 MHz)
Internal data memory	2 MB for storage of measurements, screenshots, configuration and firmware upgrades	2 MB for storage of measurements, configuration and firmware upgrades
OSL Calibration	8 Calibration profiles 400 points	8 Calibration profiles 400 points
USB	Mini-USB connector Mass Storage class HID class	Micro-USB connector Mass Storage class HID class
Wireless interface	None	Short-range Bluetooth Low Energy
Battery	Li-Poly 1000 mAh Internal battery charger 2.5-hour autonomy 3.5-hour charge Charge via USB	Li-Poly 1000 mAh Internal battery charger 8-hour autonomy 3.5-hour charge Charge via USB
Modes	Scalar chart Smith chart Single-frequency Multiband charts Cable test (TDR) Signal generator Band scan	Scalar chart Smith chart Single-frequency SWR Multiband Cable test (TDR) Signal generator Band scan
Special functions	Configurable presets for amateur bands Markers Save/load data Save screenshots Deep sweep save with timer function VSWR Audible feedback Transmission line add/subtract Circuit models: loop antenna, capacitor, crystal, transmission line Automatic LC matching calculator	Configurable presets for amateur bands Marker Save/load data Deep sweep save with timer function VSWR Audible feedback Transmission line add/subtract Circuit models: loop antenna, capacitor, crystal, transmission line

Software	SARKPlots for Windows and Android	SARKPlots for Windows and Android
Dimensions	98 x 60 x 14.5 (mm) Weight: 120-g	105 x 67 x 15 (mm) Weight: 110-g
Package contents	SARK-110 x 1 with built-in battery MCX to SMA female connector adapter x 1 SMA plug to SMA female8"(20-cm) cable adapter x 1	SARK-110-ULM x 1 with built-in battery

Part List

1 x SARK-110-ULM Antenna Analyzer

ECCN/HTS

ECCN	3B992.b.2
HSCODE	9030409000
UPC	