



S5800E Series Field Comm Analyzer

Datasheet



Saluki Technology Inc.

The document applies to the instruments of the following models:

- S5800EA Field Comm Analyzer (9kHz - 4.0GHz).
- S5800EB Field Comm Analyzer (9kHz - 6.0GHz).

Standard Accessories of S5800E series field comm analyzer:

Item	Name	Qty.
1	Main Machine	1 pcs
2	AC/DC Adapter	1 pcs
3	Rechargeable Li-ion Battery	1pcs
4	Vehicle Charger 12V/DC (<0.5Ω)	1 pcs
5	Crossover LAN Cable	1 pcs
6	USB Cable	1 pcs
7	RF Connector	1 pcs
8	Soft Carrying Case	1 pcs
9	CD (Site Workbench Software and Manual)	1 pcs

Options of the S5800E series field comm analyzer:

Option No.	Item	Description
S5800-01	RF Power Meter (Software)	Providing true RMS measurements with accurate measurements for both CW and complex digitally modulated signals.
S5800-02	In-line Bi-Directional RF High Power Sensor	300 MHz to 4GHz, 2mW to 150W, N(f) 50Ω
S5800-03	Terminal RF Power Sensor	1MHz to 6GHz, -30dBm to +20dBm, N(m), 50Ω
S5800-04	Interference Location Analysis	Add Spectrogram, RSSI, Signal ID, Signal Strength, Interference Location Mapping, Delta Spectrum and DPS measurement applications to the spectrum analyzer. (Need directional log periodic antenna)
S5800-05	Signal Coverage Mapping	Allowing users to map RSSI and ACPR measurements. (Need option S5800-06)
S5800-06	GPS Module (USB)	/
S5800-07	Signal Analysis	LTE,WCDMA,TDSCDMA,GSM,CDMA
S5800-08	Tracking Generator	Frequency range: 25MHz - 4.4GHz

Option No.	Item	Description
S5800-09	Tracking Generator	Frequency range: 25MHz - 6.0GHz
S5800-10	Spectrum Persistence	Find interference covered by transmit signal.Acquires several thousands of spectrum data per second and show the spectrum density over time.
S5800-11	Gate Sweep	For TD signal analysis
S5800-12	Directional Active Log Periodic Antenna	Frequency range: 9 kHz to 20MHz
S5800-13	Directional Active Log Periodic Antenna	Frequency range: 20MHz to 200MHz
S5800-14	Directional Active Log Periodic Antenna	Frequency range: 200MHz to 500MHz
S5800-15	Directional Active Log Periodic Antenna	Frequency range: 500MHz to 3GHz
S5800-16	Directional Active Log Periodic Antenna	Frequency range: 500MHz to 8GHz
S5800-17	Antenna Handle with GPS and Electronics Compass	/

Preface

Thanks for choosing Saluki Technology Inc instrument. We devote ourselves to meeting your demands, providing you high-quality measuring instrument and the best after-sales service. We persist with “superior quality and considerate service”, and are committed to offering satisfactory products and service for our clients.

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Saluki Technology

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Product Quality Assurance

The warranty period of the product is 36 months from the date of delivery. The instrument manufacturer will repair or replace damaged parts according to the actual situation within the warranty period. The user should return the product to the manufacturer and prepay mailing costs. The manufacturer will return the product and such costs to the user after maintenance.

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1. Overview

S5800E Series Field Comm Analyzer is designed specifically for wireless communications field engineers and technicians. Today's wireless spectrum is shared among different communications systems and services including mobile communications, mobile radios, paging, wireless local-area networks and digital video broadcasting. In addition to licensed systems, the spectrum is also shared with unlicensed transmitters and signal impairments such as reflections and fading. The combination of all these signals creates a very complex environment which must be first cleared and routinely monitored in order to maximize service performance.

Designed specifically for wireless communications field engineers and technicians, the S5800E series provide all necessary measurement functions and performance to accurately characterize the signal environment in addition to clearing, detecting, identifying and locating signal interference in a lightweight, handheld instrument.

Key Features

- Frequency range: 9kHz - 4GHz/ 6GHz
- Fast scan mode, scan time can be set from 10 μ s to 1000s, DANL -164dBm/Hz
- One-button power measurement: channel power, occupied bandwidth, adjacent channel power, field strength
- Powerful interference analysis: spectrogram, signal strength, received signal strength indication, channel scan, signal identification, interference location, digital persistence spectrum, differential spectrum
- Support demodulation analysis of main wireless communication system: TDD-LTE, FDD-LTE, WCDMA/HSDPA+, TD-SCDMA/HSDPA+, CDMA/EVDO, GSM/EDGE (option)
- Indoor and outdoor signal coverage, Net clean test (option)
- Time domain measurement, support video trigger, time trigger and external trigger
- Quickly identifies, locates and maps signal interference
- Optional 25MHz - 4.4GHz/ 6GHz tracking source
- Performs comprehensive signal analysis for complete site profile and monitoring of signal environment
- Handheld, lightweight, rugged design that with standards harsh environments and lighting conditions

Measurements & Applications

- **Measurements**
 - Spectrum Analysis
 - Channel Power
 - Occupied Bandwidth (OBW)
 - Adjacent Channel Leakage Ratio (ACLR)
 - Field Strength
 - AM/FM

➤ Optional Measurement Mode

- High Precision Power Meter (Option S5800-01)
- Interference Analysis (Option S5800-04)
- Coverage Mapping (Option S5800-05)
- Tracking Generator (Option S5800-08/09)
- GPS (Option S5800-06)
- LTE/WCDMA/TDSCDMA/GSM/CDMA Analyzer (Option S5800-07)

2. Technical Specifications

2.1. Spectrum Analysis

Model	S5800EA	S5800EB
Frequency		
Frequency range	9kHz - 4GHz	9kHz - 6GHz
Resolution	1Hz	
Frequency Counting Accuracy	(signal to noise ratio is 25 dB, the resolution bandwidth (RBW) / sweep width = 0.01)	
Counting Accuracy	$\pm 1 \times 10^{-6} \pm 1$	
Aging Speed	$< \pm 1 \times 10^{-6}$ /year	
Temperature Stability	$< \pm 0.5 \times 10^{-6}$ (0 - 50°C)	
Frequency Span	1kHz to 4GHz in 1-2-5 sequence (automode), and 0Hz (zero span)	1kHz to 6GHz in 1-2-5 sequence (automode), and 0Hz (zero span)
Bandwidth		
Resolution Bandwidth (RBW)	1Hz to 3MHz in 1-3 sequence (auto or manually selectable)	
Video Bandwidth (VBW)	1Hz to 3MHz in 1-3 sequence (auto or manually selectable)	
Bandwidth Accuracy	$< \pm 10\%$	
Sensitivity	(60dB/3dB band width) $< 5:1$	
Spectral Purity (Phase Noise)		
@1 kHz Offset from carrier	-90 dBc/Hz (typ.)	
@10 kHz Offset from carrier	-100 dBc/Hz (typ.)	
@100 kHz Offset from carrier	-110 dBc/Hz (typ.)	
Amplitude		
Dynamic Range	> 100 dB	
Measurement Range	DANL to max. safe input level	

Max. Safe Input Level	+30dBm (peak power, input attenuation > 15dB), 50VDC	
Amplitude Accuracy	≤ ±1.0 dB	
Attenuator Range	0dB to 55dB in 1dB steps	
TOI	> +15dBm (typ.)	
DANL (typ.)		
(Input terminated, RBW = 1 Hz, Attn = 0 dBm, Sample Detector)		
Preamp Off	≤-150dBm (2MHz-1GHz)	≤-150dBm (1MHz-1GHz)
	≤-142dBm (1GHz-3GHz)	≤-140dBm (1GHz-3GHz)
	≤-142dBm (3GHz-4GHz)	≤-140dBm (3GHz-6GHz)
Preamp On	≤-165dBm (10MHz-1GHz)	≤-162dBm (1MHz-1GHz)
	≤-160dBm (1GHz-3GHz)	≤-158dBm (1GHz-3GHz)
	≤-158dBm (3GHz-4GHz)	≤-152dBm (3GHz-6GHz)
Spurious Response		
Residual Response	1MHz - 6GHz: ≤ -85dBm (no signal input attenuation, 0dB)	
Second Harmonic Distortion	< -70dBc (input level -20dBm, mixer input, preamp off)	
Reference Level (20°C - 30°C)		
Range	-167dBm to +35dBm	
Accuracy	≤ ±0.5dB	
Sweep & Trigger Mode		
Sweep Time	20ms - 250s (≥ 200 Hz)	
	10μs - 1000s (= 0 Hz)	
	1ms - 250s (Fast scan)	
Accuracy	< ±0.2%	
Trigger Mode	Free trigger, Single trigger, Video trigger, Trigger	
Display		
Logarithmic Scale	0.1 - 0.9 dB/ lattice, 0.1dB step;	
	1 - 40dB/ lattice, 1dB step	
Linear Scale	10 scale	
Scale Unit	dBm, dBmV, dBμV, mV	
Marker Readout Resolution	0.03dB	
	0.03% linear reference level	
Trace	6	
Detector	Sample/ peak/ negative/ normal/ quasi peak/ RMS/ avg	
Frequency Standard Function	A peak, peak, frequency standard to the center, the reference frequency standard	
Marker Mode	Normal, delta, fixed, frequency counter	

Reference Level	-167dBm to +30dBm	
Level Accuracy	$\leq \pm 0.5\text{dB}$ (typ., $25\pm 5^\circ\text{C}$)	
RBW Switching Accuracy	< 0.1dB (typ.)	
Attenuator Switching Accuracy	< 0.3dB (typ.)	
RF Input		
Input Connector	N type	
Input Impedance	50 Ω	
VSWR (typ.)	<1.8 (10MHz-4.4GHz, attenuator $\geq 10\text{dB}$)	< 1.8 (10MHz-6GHz, attenuator $\geq 10\text{dB}$)
USB Output	1 USB2.0, 1 miniUSB	
LAN	Adaptive 10M/100M	
Tracking Generator (Optional)		
Output Connector	N type	
Output Impedance	50 Ω	
VSWR	< 2.0	
Frequency Range	25MHz - 4.4GHz	25MHz - 6GHz
Frequency Stability	$\pm 2\text{ppm}$	
Level Range	-30dBm to 0dBm	
Level Resolution	1dB	
Level Accuracy	$\pm 2\text{dB}$	
Harmonic Distortion	-20dBc	
Spurious	-30dBc	

2.2. LTE Measurement

Model	S5800EA	S5800EB
Frequency range	10MHz - 4GHz	10MHz - 6GHz
Bandwidth	1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz	
EVM Mode	BTS mode (RS/P-SS/S-SS/PDSCH), OTA mode (RS)	
Measurement Report	All Measurement Results, RF Measurement Results, Signal Modulation Quality Results	
RF Measurement		
Accuracy (typ.)	$\pm 1.0\text{dB}$ (input range -50dBm to +10dBm) LTE-FDD	
	$\pm 1.0\text{dB}$ (input range -30dBm to +10dBm) LTE-TDD	
Modulation Measurement		

Frequency Deviation	$\pm 10\text{Hz}$ + Reference clock deviation
EVM Accuracy (FDD-LTE)	2% (typ., E-UTRA Test Model 3.1, -50dBm to -10dBm)
EVM Accuracy (TDD-LTE)	2% (typ., E-UTRA Test Model 3.1, -50dBm to -10dBm)
Over-the-air Measurement	
Scanner	Capture up to 6 signals
	SS-POWER, RSRP, RSRQ, SINR
	Automatically save with GPS information, SS power and modulation measurement results
Antenna Alignment	Support MIMO 2X2, 4X4
	Display RS power and multiple antenna delay
Coverage Map Measurement	Sweep - S-SS power, RSRP, RSRQ/SINR, Cell ID of the strongest signal
	Output format: .kml, .csv

2.3. WCDMA Measurement

Model	S5800EA	S5800EB
Frequency range	10MHz - 4GHz	10MHz - 6GHz
Bandwidth	3.84MHz	
Maximum Spreading Factor	256 / 512	
RF Measurement		
Accuracy (typ.)	$\pm 1.0\text{dB}$ (input range -50dBm to +10dBm)	
Demodulation Measurement		
Frequency Offset	$\pm 10\text{Hz}$ + Reference clock deviation	
Modulation Type	WCDMA QPSK	
	HSPA+ QPSK, 16QAM, 64QAM	
EVM (RMS)	2% (EVM<25%)	
CDP	$\pm 1.0\text{dB}$ (CDP > -25dB)	
CPICH	$\pm 1.0\text{dB}$	
Over-the-air Measurement		
Scrambling Code Scanner	Up to 6 Scrambling Codes	
	CPICH, Ec/Io, Ec, Channel Power	
Multipath Scanner	Up to 6 multipath	
	Tau, RSCP, Channel Power	

2. 4. GSM/EDGE Measurement

Model	S5800EA	S5800EB
Frequency range	10MHz - 4GHz	10MHz - 6GHz
RF Measurement		
Accuracy (typ.)	±1.0dB (input range -50dBm to +10dBm)	
Demodulation Measurement		
Frequency Offset	±10Hz + Reference clock deviation	
Modulation Type	GSM GMSK	
	EDGE 8PSK	
Phase Error (GMSK)	± 1.0deg	
EVM(8PSK)	± 1.5%	

2. 5. TD-SCDMA Measurement

Model	S5800EA	S5800EB
Frequency range	10MHz - 4GHz	10MHz - 6GHz
Bandwidth	1.6MHz	
Slot Selection	256 / 512	
SYNC-DL Setting	Auto or 0-31 setting	
Demodulation Type	Auto or QPSK/8PSK/16QAM/64QAM	
RF Measurement		
Accuracy (typ.)	±1.0dB (input range -50dBm to +10dBm)	
Demodulation Measurement		
Frequency Offset	±10Hz + Reference clock deviation	
Demodulation Type	QPSK, 8PSK, 16QAM, 64QAM	
EVM (RMS)	2% (P-CCPCH power > -50 dBm)	
Over-the-air Measurement		
Scrambling Code Scanner	32 SYNC-DL	
	Ec/Io and Tau measurement	
Tau Scanner	Up to 6 SYNC-DL	
	DwPTS power, Tau, Ec/Io measurement	

3. General Information

Model	S5800EA	S5800EB
Display		
Type / Size	TFT LCD / 6.5" (640 x 480)	
Data Storage		
Internal	1 GB, >2000 saved measurement files	
External	Limited by size of USB flash drive	
Battery		
Type	Rechargeable lithium battery 11.1V / 5.2Ah	
Charging Time	> 4.5 hours	
Operation Time	> 3.0 hours (continuous); >2.5 hours (with tracking generator)	
Environmental		
Operating Temperature	-10°C to +55 °C	
Storage Temperature	-40 °C to +80 °C	
Shock	Mil-PRF-28800F Class 2	
EMC		
European EMC	IEC/EN 61326-1:2006	
AC Power		
AC Adapter Output	19V / 3.42Ah	
AC Adapter Input	100 – 240 VAC, 50-60 Hz	
Dimension & Weight		
Dimension	257mm x 75mm x 185mm	
Weight	< 2.5 kg	

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