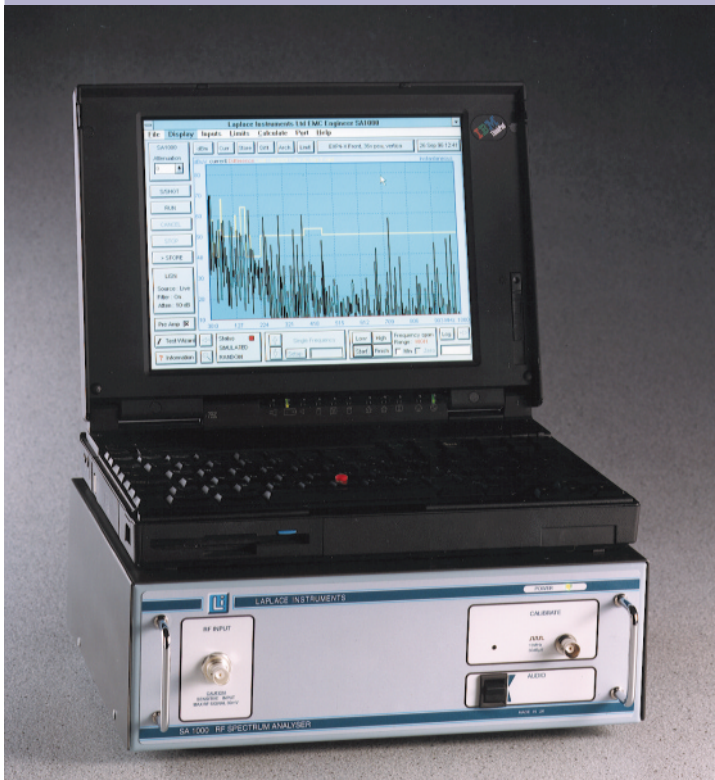


# 1 GHz RF SPECTRUM ANALYSER

SA1000

The ideal tool for PC based EMC emissions measurement and general RF applications

- ▼ Powerful RF Spectrum analyser with Windows interface
- ▼ 10KHz to 1.1GHz coverage
- ▼ Fully PC controlled
- ▼ EMC compliance tests to EN standards
- ▼ True average and quasi-peak measurements
- ▼ Powerful PC based software with TestDirector mode for assisted testing
- ▼ Unique single frequency mode for non-steady emissions



The use of in-house facilities for EMC emissions testing has now become recognised as a cost effective and logical contribution to the EMC compliance strategy for any organisation. The Laplace SA1000 spectrum analyser provides all the performance and functionality required to provide the core of any EMC test system. Running under Windows based EMCEngineer software the system integrates all the key elements required for EMC measurements:

- Spectrum analyser setup
- Average, peak and Quasi-Peak processing
- Antenna factor compensation
- Ambient (background) nulling
- Limit line display for all common EN standards
- Single frequency mode for monitoring unsteady emissions

In addition the excellent specification makes the SA1000 ideal for use as a general purpose benchtop RF spectrum analyser.

The SA1000 provides a powerful core to a complete range of EMC test kits available from Laplace and an invaluable tool during the design and development of new products and for the RF monitoring of established products.

**POWERFUL** The SA1000 is capable of displaying the spectrum over any part of the range 10KHz to 1100MHz with complete freedom of start and stop frequencies, with either logarithmic or linear scaling. This exceeds the range required to cover the EMC spectrum for all the common standards.

**AFFORDABLE** The unique SA1000 is the only analyser (at any price) which is totally PC controlled and yet covers all the requirements of EMC testing such as antenna factor compensation, standard limits with adjustment for distance, overload detection etc . . . It represents an outstanding price/performance advantage.

**UNIQUE** The SA1000 has a single frequency mode for true averaging and quasi-peak measurements which can be shown plotted against time. This enables trends and excursions to be monitored as required by the EMC standards for fluctuating emissions

**EFFECTIVE** The system software is specifically designed for EMC measurements and comparisons with limit levels. Standard features include background nulling, antenna factor compensation, limit line display and multiple trace comparison.

LAPLACE INSTRUMENTS LIMITED



# 1 GHz RF SPECTRUM ANALYSER

SA1000

## HARDWARE

The SA1000 analyser is an exceptionally well featured, conventional RF spectrum analyser which is completely controlled from your own PC.

- 10KHz - 1100MHz frequency range.
- High sensitivity. Field strength down to <math><17\text{dBuV/m}</math> when used with the Laplace RF200 broadband antenna.
- 60dB (min) dynamic range.
- 4 stage input attenuator, 0, 10, 20 and 30 dB.
- Infinite zoom capability. Tune to any signal anywhere in frequency range.
- 9KHz and 120KHz I.F. bandwidths (CISPR compliant).
- Monitor any signal in Single Frequency mode for true average and quasi-peak measurement.
- Built-in calibration source to confirm operation and accuracy of analyser.
- An audio demodulator complete with internal loudspeaker is provided so that the user can listen to any signal. This aids both identification of signals, particularly background, and the location of problem emissions. The demodulation technique copes with FM and AM modulation.

## EMCEngineer - EMC software for Windows

Powerful software system specifically developed for use with the SA1000 Spectrum analyser and the Laplace EMC test kits. Includes many unique features designed to make EMC testing as simple and painless as possible, including a TestDirector mode which, as far as is practical, automates the measurement of EMC emissions. Selection of the correct analyser parameters, limit lines, compensation factors is automatic thus minimising the chances of errors.

The EMCEngineer software has been tailored to suit the needs of users who are using open area test sites and thus have to contend with relatively high ambient levels of interference. The background nulling facilities enable the user to identify signals from the EUT amongst the ambient noise with ease. To make the operation as simple as possible, the software automatically compensates for antenna factor, adjusts limit lines to match test distance and detector type and can display up to 4 traces on screen simultaneously. Installation is straightforward and automatic. The system uses the serial port (which all PCs have) so there is no need to plug anything inside the PC.

Because the system is PC based all the resources and facilities of the PC environment are available to the user. These include saving of test results to disk, hardcopy printing, transfer of data to other applications, merging of results into test reports etc.

## SA1000 SPECIFICATION

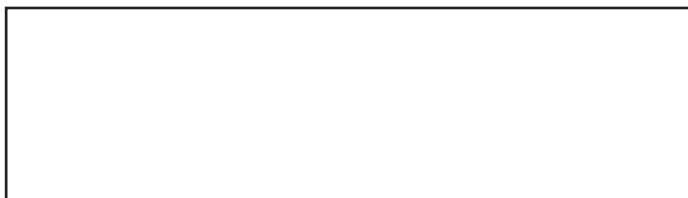
### HARDWARE

Frequency range:	10KHz - 1100MHz
Centre frequency control:	Infinitely variable
Sensitivity:	> -85dBm (22dBuV)
With SA1020 pre-amp:	> -105dBm (2dBuV) at 500MHz
Flatness:	$\pm 4\text{dB}$
Max. RF input (50R):	3dBm (110dBuV)
Spurious responses:	>40dB down from fundamental
Scan rate:	Variable, min 10secs
Overload:	Overload detector at input. Output to PC
Input protection:	Diode clamped, 1.6V pk-pk max.
Bandwidth	- narrow: 9KHz (<math><30\text{MHz}</math> - wide: 120KHz (>30MHz)
Start/stop frequency selection:	Anywhere in frequency range
Input dynamic range:	60dB min
RF attenuator:	Out, -10, -20, -30dB
Modes:	Spectrum: Instantaneous, average and peak Single freq.: Instantaneous, average and quasi-peak.
Auto (self) calibration:	Automatic self cal. when not active or when changing ranges.
Calibration output:	10MHz @ 30dBuV square wave
Horizontal scale modes:	Spectrum, Time trend (single freq mode)
Display traces:	Input, stored, archived, difference, limit
Audio demodulator:	Slope demodulation Internal loudspeaker
Control interface:	PC serial interface on rear panel
Control software:	Windows application software, Compatible with any colour screen PC running Windows
Connectors:	BNC RF input BNC calibration signal output
Indicators:	Power on LED
Input power:	230V 50Hz, 40W
Factory set option:	115V 60Hz.
Physical:	
Dimensions:	305 wide x 270 deep x 115 mm
Weight:	5kg

### PC Software, additional functions:

Scaling:	Vert: dBuV, dBm, dBuV/m, dBuA Horiz: Spectrum mode: KHz, MHz (variable), Log or Lin scale
Traces:	Single freq mode: mSec, sec (variable) Current (signal currently acquired) Stored (background copied from current) Difference (Current - Stored) Archive (Any trace from disk) Limit (All common limits included)
Background nulling:	Automatic. In either average or peak processing modes
Limits:	EN55011/14/15/22, EN50081, EN60945 User may enter own limits (Automatic interpolation)
Compensation:	Antenna factor compensation for all Laplace accessories User may enter own compensation data.
TestDirector:	Standard EN testing under software direction. Auto selection of analyser setup and limit levels.
Analyser controls:	Start/stop frequency (cursor or numeric entry) Bandwidth (automatic) Attenuator setting Sweep resolution (100, 250, 500 points) Single frequency mode (Inst. Ave, QP) Single frequency control Single frequency update rate (0.1, 0.5, 1.0 sec)
Analyser status:	Operating: Active, overload, calibrating, busy. Error: Not connected, not active, fault

Available from:



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