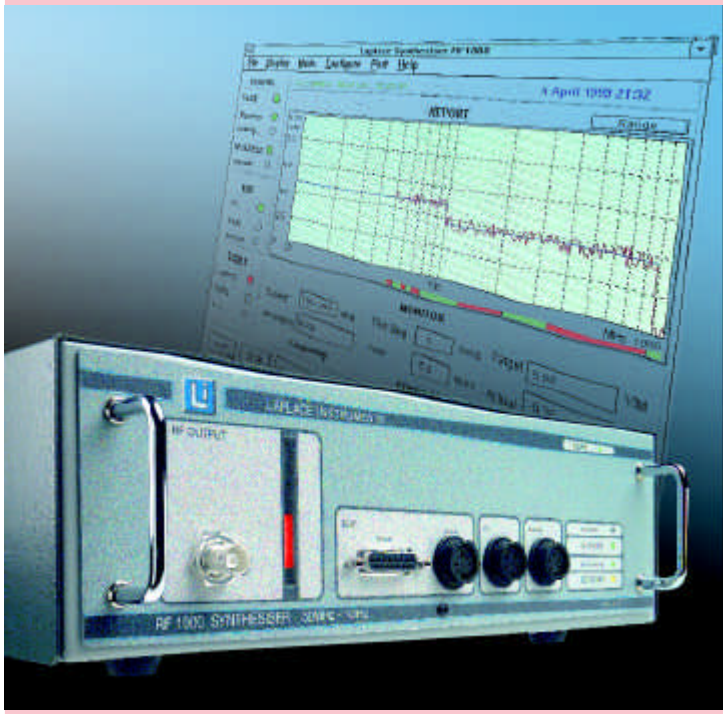
RF SYNTHESISER FOR IMMUNITY TEST

RF1000

Matched to the requirements of IEC61000-4-3

A PC controlled signal source fully meeting all requirements for IEC61000-4-3 and featuring automatic scanning to pre-programmed schedules.

- **Simple to use via PC 'Windows' software package**
- **Serial port interface. No need for special interface cards**
- **Field probe input for automatic level control**
- **Suitable for use with any Power Amplifier and antenna / cell / chamber combination**
- **Standard IEC61000-4-3 tests pre-programmed**
- **EUT status input and prompt output**



The RF1000 is a source of signal matched to the RFI immunity requirements of IEC61000-4-3. Features such as sine and pulsed modulation, programmable start and stop frequencies, frequency step, and dwell time are provided as standard.

This synthesiser has been conceived with the practical user in mind. To make the best use of the immunity test facilities for both compliance testing and product investigations, several useful features have been developed. These include:

- Powerful EUT monitoring with real time display correlated to field strength and frequency.
- Sweep can be continuous or 'pause on fault' or 'stop on fault'. Additional EUT excitation output, either pulsed or continuous.
- Flexible single frequency search mode. Automatic ramping of field strength and fine control of frequency.

The system is controlled from any PC via a Windows software package and serial port. No additional interface cards are required.

EUT MONITORING. Real time monitoring and logging of EUT status facilitates accurate recording of test progress and reporting. Flexible EUT status response modes allow unattended testing for greatest productivity.

RESULTS. The frequency, field strength and EUT status can be plotted in real time on screen to show how the product is performing. At the end of the sweep, the plot can be saved and printed as part of the results documentation.

AUTOMATION. The RF1000 can automatically perform standard IEC61000-4-3 scans. In addition the user can enter custom sweeps with flexible step size, dwell time, modulation and field strength.

CONTROLLABILITY. The software also provides a powerful tool for specific product investigations. The single frequency mode can search out any weakness with automatic field strength ramping and fine control of frequency.

Credence Technologies, Inc.

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IEC61000-4-3 immunity testing requires that the EUT (equipment under test) operates satisfactorily when subject to a strong electromagnetic field.

This requires a frequency scan at a certain fixed level of field strength (specified by the standard). The 'scan' will comprise a series of 'steps' in frequency. Each step is specified as a percentage of current frequency value.

This percentage is variable from 0.5% to 5%.

At each step, the frequency is held, the level adjusted to achieve the required field strength as measured by the field sensor, a prescribed modulation mode is initiated and then the conditions held for a 'dwell' time. The EUT should be monitored to detect faulty operation during the test.

The RF1000 Synthesiser

The synthesiser generates a signal at the required frequency, modulation and level which can be fed to the cell via a fixed gain Power Amplifier such as the Laplace RF1100.

Frequency and modulation are simple set values but the level is controlled via a field strength sensor feedback loop.

The PC will provide the level set point in terms of sensor output (i.e. already adjusted to take account of cell characteristics). Two modes are available: real time feedback or pre-programmed level. The former takes account of the effect of the EUT inside the cell.

The RF1000 also acts as an interface to the EUT with status input and 'prompt' outputs to exercise the product at each step.

A single frequency mode is available in which the cell is effectively controlled directly by the operator from the PC, enabling specific weaknesses in the EUT to be investigated.

System Components

- Synthesiser – The RF1000. Linked to PC via serial port. Generates the required signals and controls the amplitude to produce required field strength inside cell. Also interfaces simple EUT status signal back to PC and generates simple 'prompt' signal to EUT under PC control.
- PC with RF1000 software package. User interface and main control for the system.
- EUT monitoring facilities:
  - EUT excitation and monitoring. The software when used under Win 98 or NT will enable the use of standard PC plug- in cards (e.g. Keithley or National Instruments or others) and standard control / acquisition package such as DasyTec or Labview with DDE interchange to monitor the EUT status or and to trigger test cycles.
  - Video interface running in separate window. Camera and camera hardware interface and software are supplied separately.

Cell Characteristics

The cell may be distinctly non linear in frequency characteristics. Generally each cell is individually calibrated by the manufacturer and the resultant characteristics programmed into the software.

Ordering Information

Order code:	RF1000
Includes:	RF1000 synthesiser Serial cable and PC software Mains cable, User manual Mating connectors for EUT and P.A.

SPECIFICATION

Output carrier frequency:	30MHz - 1GHz
Resolution:	0.5% of current value
Step size:	0.5% to 5% of current value
Level (carrier signal):	-60dBm to 0dBm
Indication:	Bargraph indication of level.
THD (worst case):	10%
Modulation:	off, 1KHz sine, 80% AM modulation 200Hz, 10Hz & 1Hz pulsed. 100% level
Output connector:	BNC
Ext. feedback probe:	Input: 0-2V Calibration via PC software.
Mode:	Open loop (pre-programmed) or closed loop.
Excitation:	5V @ 20mA dc.
Connector:	5 pin circular
EUT status:	5V relay input
Fault modes:	Stop, pause, continue.
Connector:	3 pin circular
EUT prompt:	4 pole c/o volt free contacts.
Modes:	Pulsed, Continuous, off
Connector:	15 pin Dee type
P.A. interlock:	Contact closure enforces standby mode.
Connector:	4 pin circular
CONTROL:	From supplied PC software via standard PC serial port.
Environment:	Windows 3.1, 3.11, 95, 98, NT
Main control:	Start test (RUN) Stop test (STOP) Pause at frequency (Dwell) Single frequency mode
Setup screen:	Enables all parameters of a test sweep and EUT details to be programmed.
Parameters:	Start and end frequencies Frequency step (% of current value) Field strength (0 - 10V/m) Dwell time (1 - 99 seconds) Modulation mode.
Single freq. Screen:	Manually or automatically ramp the field strength at one frequency.
Report screen:	Plot all details of the test including setup parameters, actual vs. target settings and EUT status.
Status window:	Real time indication of operating mode, EUT status and P.A. status.
MENUS	
File:	All standard Windows facilities, including printer output and file Save, Open commands. Test results and setup data can be stored/ recalled separately.
Mode:	Select operating mode and test sequence. Standard IEC tests pre-programmed.
Config:	Enter cell characteristics, Probe calibration, P.A. characteristics
Indication:	Mains power Output signal level (bargraph) P.A. status, EUT status, EUT prompt
GENERAL	
Supply:	110V or 230V, factory set 50 or 60Hz
Size:	120 x 64 x 188mm
Weight:	4.5kg

Available from:

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