

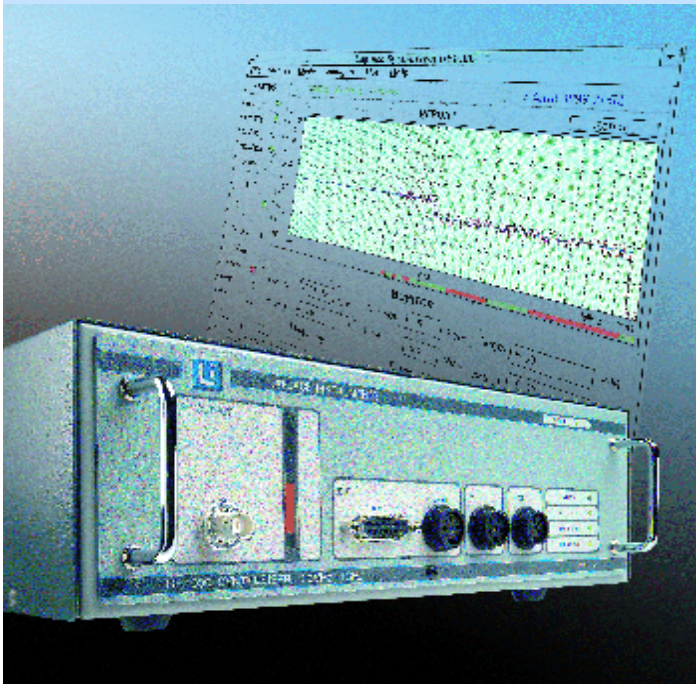
RF Synthesisers for Immunity testing

RF1000
RF2000
RF3000

Matched to the requirements of IEC61000-4-3 up to 3GHz.

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

- ⇒ Simple to use via PC Windows software
- ⇒ Easy USB interface.
- ⇒ 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 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 RFx000 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.

The RF1000, RF2000 and RF3000 immunity test controllers include a signal generator 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.

The RF1000 covers the range 30MHz—1GHz, the RF2000 covers 30MHz—2.4GHz and the RF3000 covers 30MHz—3GHz. All include powerful Windows control software with USB port interface.

When used with the LaplaCell range of test cells, these synthesisers provide full automatic control of field level and all that is needed to provide an automated compliance test facility. Advanced features such as pre-scanning, display of EUT status against applied field level and full Windows compatibility are standard.

These synthesisers also have all the facilities required for test chamber applications, with an optional RS232 port specifically provided for remote probe connection. Fully compatible with industry standard isotropic probes.

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RF Synthesisers..... Do the work for you.

The RFx000 range are specifically designed to take the hassle out of testing to IEC61000-4-3. All aspects of the testing process are controlled by an 'intelligent' Windows software program, included with the hardware.

IEC61000-4-3

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

This requires a scan at a certain fixed level (specified by the standard) of field strength. 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 0.1% 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 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 range RF1x00 of Pas.

Frequency and modulation are values set by the PC software but the amplitude is automatically controlled via a field strength sensor feedback loop. The PC provides 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 synthesiser also acts as an interface to the EUT with a status input connector and a 'prompt' output to exercise the product at each frequency 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.

Immunity system components

- **Synthesiser** RFx000. Linked to PC via USB port. Generates the required signals and controls the amplitude to produce required field strength. Also interfaces simple EUT status signal back to PC and generates simple 'prompt' signal to EUT under PC control
- PC with included **software package**. User interface and main control for the system.
- **Test cell or chamber**. The LaplaCell provides an ideal test environment which includes feedback sensor. Fully calibrated as required by IEC61000-4-20.
- **Field sensor**. Provides a feedback signal for closed cycle control of field level. With the LaplaCell the probe is included. If using a chamber, a separate probe must be used, together with RS232 interface to the synthesiser. This interface is option -RH.
- **EUT** monitoring facilities
 - EUT excitation and monitoring.
 - Video interface running in separate window. Camera and lighting facilities can be supplied with the cell.

Available from

SPECIFICATION SUMMARY

Output

Frequency range:	30MHz - 1GHz (RF1000) 30MHz—2.4GHz (RF2000) 30MHz—3GHz (RF3000)
Frequency step:	0.1% to 5% of current value
Output Level :	-60dBm to 0dBm (carrier signal)
Indication:	Bargraph indication of level.
THD (worst case):	10%
Modulation:	off, 1KHz sine, 80% AM modulation 200Hz, 10Hz & 1Hz pulsed. 100% level BNC
Output connector:	
Ext. feedback probe:	
LaplaCell:	0-2.5V. Calibration via PC software.
Connector:	8 pin circular DIN
Other chamber:	Field sensor probe compatible with HI-4422 via fibre optic interface (synthesiser option -RH)
Control Mode:	Open loop or closed loop. (Software selectable)
EUT status:	5V relay input
Fault modes:	Stop, pause, continue.
Connector:	3 pin circular DIN
EUT prompt:	4 pole c/o volt free contacts.
Modes:	Pulsed, Continuous, off
Connector:	15 pin D-sub type
P.A. interlock:	Contact closure enforces standby mode.
Connector:	4 pin circular DIN.

Control:

	From supplied PC software via standard USB serial port.
Environment:	Any Windows OS from Win98 and later.
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 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, Save As and Open commands.
Mode:	Select operating mode and test sequence. Standard IEC tests pre-programmed.
Config:	Enter cell characteristics, Probe calibration,
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

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