Conducted EMI System to IEC61000-4-6

A Complete integrated solution

- High specification… complete and compliant.
- Integrated Windows software package.
- Simple operation… no need for specialist skills.
- Highly automated operation.
- Multi-channel EUT monitoring included.
- Improve test productivity (and accuracy) with the ‘Enhanced’ options. Avoid time consuming pre-calibration scans and mis-match errors.

The Laplace model ***RFIC*** conducted immunity system comprises three parts…

- RFIC-4-6 synthesiser and interface unit. This includes PC Windows software for all control and monitoring requirements.
- RF0250 power amplifier.
- A comprehensive range of CDNs.

This system will test EUTs to more than the 10V stress level required by industrial standards. The x46xx range of CDNs cover all standard cable types with the unique benefit of versatility, each type being configurable to suit several different cables.
In addition, the system will operate with ‘Enhanced’ CDNs which offer closed loop control for better stress level accuracy, more efficient use of RF

Comprehensive The system includes signal generator, power amplifier, RF detector/ millivoltmeter, USB interface, PC software, EUT interface with recording feature and automatic operation

Compliance This system is completely compliant with the requirements of IEC61000-4-6.

Integration The system is designed to be used with either standard CDNs or the unique Laplace ‘Enhanced’ CDNs. These offer the benefits of closed loop control for improved productivity and reduced power amplifier requirement.

Simplicity These systems are renowned for ease of operation. The software is outstanding in terms of flexibility and intuitive user interface.

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RFIC system for compliance testing to IEC61000-4-6

The system The RFIC system comprises the RFIC-4-6 control unit, RF0250 power amplifier and appropriate CDNs. It includes PC Windows software to install on your PC to provide all control and monitoring functions, all cables, USB interface and manuals to enable compliant testing 'straight from the box'.

The software As with all modern test systems, the accompanying PC software is the key component. Laplace is renowned for its powerful, flexible, yet easy to use Windows software which will enable even new users to setup, run, monitor and complete compliance tests with the minimum of fuss. As a totally integrated Windows application, report generation, archiving of results and printing are available at the click of a mouse.

RFIC-4-6 Control unit

This unit includes:

- Signal generator and modulation system.
- Level control system (to ensure correct stress level applied).
- Two feedback inputs, both RF (for conventional testing) and DC (for enhanced CDNs)
- EUT monitoring inputs (4 channels) and EUT 'Prompt' output.
- USB interface to PC.
- PC software to run under Windows for all test control and monitoring requirements.

In short, this unit includes everything required apart from the power amplifier and CDNs to achieve fully compliant IEC61000-4-6 testing. The –A option adds a 25W 6dB in-line attenuator which is required if using the conventional test technique. (not required with 'Enhanced' CDNs). The user interface is particularly powerful, offering complete control of all test attributes and the plotting of frequency, stress level and up to 4 EUT monitoring signals on a single screen.

SPECIFICATION

Signal generator

Frequency range:	100KHz—500MHz
Frequency accuracy:	1Hz or 100ppm (whichever is greater)
Step increment (software):	0.1-5% w.r.t current freq.
Max RF level:	0dBm
Harmonics @ -10dBm:	-20dB dBc max
Output impedance:	50Ω
Modulation:	1KHz AM, 80% deep
Output connector:	BNC

Level Control

Set point via software:	1—20V
Control strategy:	Either pre-scanned via cal. fixture or 'real-time' if using Enhanced CDNs
Feedback input: Convent'l:	RF input, 30dBm max.
Enhanced:	0-25V, DC—100Hz
Attenuator (automatic):	70dB range
o/p level Indication:	Bargraph display on front panel.

EUT monitor

EUT inputs:	Qty 4, BNC i/p sockets
Voltage range:	0—10v
Frequency range:	DC—100Hz
Input impedance:	100KΩ
Resolution:	10 bit (10mV)
EUT prompt:	4P c/o relay pulsed at start of dwell.

PC Interface USB port

Power 100V-240V, 50/60Hz auto-sensing.

Physical: Size: 120 x 188 x 64mm
Weight: 4.5kg

-A option:
25W, in-line 6dB attenuator required to be fitted between PA and CDN when performing 'conventional' tests. Not required if using 'Enhanced' CDNs.

RF0250 RF Power Amplifier

This fixed gain broadband amplifier is matched to the requirements of the standard IEC6100-4-6 and will be suitable for use with any signal generator. It will deliver well in excess of the 10V industrial stress level when used with CDNs, BCI clamps or EM clamps.
The RF0250 is a compact and lightweight unit with forced air ventilation, external standby control and exceptional mismatch tolerance.
Maximum output is 25W at 0dBm input level and a 1dB compression output of 15W. It utilises Class A/AB linear power configuration that provides an excellent 3rd order intercept point, high gain and a wide dynamic range.

SPECIFICATION

Frequency range:	100KHz—250MHz
Input/Output impedance:	50Ω
RF input for max o/p:	0dBm
Saturated output power:	25W typical
Power out @ 1dB comp.:	15W typical
Small signal gain:	+43dB min
Class of operation:	AB
Gain flatness:	±1.5dB
Input VSWR:	2:1 max
Harmonics:	-15dBc typ. @15W
Spurious signals:	> -60dBc typ. @ 15W

General

Ventilation:	Forced ventilation Qty 2 fans
Ambient:	0-50°C, 95% humidity non-condensing.

Power 100-240V 50/60Hz auto sensing.

Physical

Size:	120 x 188 x 64mm
Weight:	5.5kg

RFIC Software

The software installs on any typical PC running any current Windows operation system. The PC needs to be fitted with a USB port.
This RFIC software completely controls the operation of the system. The test setup parameters are precisely as required by IEC61000-4-6.

Parameters
- Start frequency
- Stop frequency
- Frequency inc.
- Modulation on/off
- Stress level
- Dwell time

Mode
- Std/enhanced mode
- Calibration scan
- Run test
- Stop test
- Pause test
- Single freq. mode

Facilities
- Store results
- Recall results
- Save & load setup
- Output results to printer
- Add titles/notes

View
- All setup data
- Plot stress level target and actual voltage
- Plot EUT monitor channels
- View calibration data

Ancillary items ***(see separate data sheet for full details)***

The system may be used with any standard CDNs, EM clamps or BCI probes. However, the Laplace x46xx range of CDNs offer some unique key benefits:
The Standard models are Versatile, each CDN can be used on a range of cable types.
The ''Enhanced' models are Versatile AND have built-in detection which provides a feedback signal that may be used for level control during the test.

CDNs
- S46xx 'standard' models fully meet the requirements of IEC61000-4-6. 5 models cover over 23 different cable types.
- E46xx 'Enhanced' models are also fully compliant and versatile. They include a calibrated output feed so that the applied stress level can be monitored directly.

Useful stuff
- Grounding plates with CDN clamps.
- Calibration fixtures for CDNs
- Impedance matching network to allow 'Enhanced' CDNS to be used for emission measurements according to EN55022.

Available from

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