SCHAFFNER

IEC 61000-4-6 Test System

NSG 2070

- **Self contained package**
- **Can perform all standard test techniques**

National and international regulations on electromagnetic compatibility require that electrical and electronic equipment is designed to be resistant to induced RF signals in power lines and data lines.
As radio traffic and RF interference levels continue to increase all over the world, the issue becomes one of growing importance.
Previously, the task of testing equipment for susceptibility to induced RF was lengthy and prone to error. The NSG 2070 changes all that. It is one of the first instruments on the market to offer a simple, self-contained, self-calibrating system for fast, effective, reliable testing for susceptibility to induced RF in power lines and data lines for both compliance testing and pre-compliance characterisation. The system fulfills all the requirements of IEC 61000-4-6.
The NSG 2070-1 generator unit incorporates a 100kHz - 250MHz HF-synthesizer and a high power amplifier.
NSG 2070 is compatible with all types of power line and data line coupling options; namely coupling/decoupling networks, electromagnetic clamp and current injection probe.
Test parameters are pre-programmed so that standard procedures can be simply invoked. The ability to create fully customized tests with user-specified parameters is also provided for more detailed characterisation work.

Self-calibration
Calibration of the test rig as required by IEC 61000-4-6 to ensure a constant frequency output is simple with NSG 2070. The instrument automatically and quickly calibrates itself to the chosen coupling method and stores the calibration table for future reference.

Safety
Power-down is automatic in the event of violation of any safety condition and there is a stop button that can be used to invoke an immediate power-down. When operated under software control, hitting any of the keys on the keyboard during the test has the same effect. The synthesizer and amplifier are processor-controlled to guarantee safe, error-free test procedures. The load-independent output stage is short-circuit and open-circuit protected.

Controllability
Manual control of the NSG 2070 is via five function keys and a series of LCD menus which allow the engineer to calibrate the test set-up, and program test procedures simply by selecting built-in IEC 61000-4-6 test parameters, or by setting custom levels. The RUN, PAUSE and STOP buttons are used to control tests.

Software Control
The Windows-based software control module WIN 2070 provides real-time remote control of all the NSG 2070 functions, along with a whole suite of additional test sequencing, editing, saving and reporting tools. Using intuitive Windows screens and a virtual instrument front panel, engineers can set-up and run single tests - just as under manual control - or can sequence a whole series of tests for automatic execution.
WIN 2070 includes a professional report generator which can be used to produce hard copy test reports automatically for management, engineering or quality records, or as compliance documents to meet legal requirements.

Options

WIN 2070	WINDOWS™ software
CDN 721	Current injection probe (CIP)
INA 721	Calibration set for CDN 721
KEMZ 801	EM clamp, including cable
INA 725	Calibration set for CDN 725
CDN M3 / 32A	Coupling network
CDN M5 / 32A	Coupling network
CDN S4	Coupling network
CDN T4	Coupling network
MD 720	Monitor probe complete

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Coupling Options

A range of application-specific coupling/decoupling networks (CDNs) is offered for use with the NSG 2070, for power, data and telecom applications. This coupling method is ideal for repetitive testing for detailed design characterisation, or volume compliance work.

An electromagnetic clamp (EM-clamp) can be used to couple the signal directly to any power line or data line. It is not application-specific, so this coupling option is a good choice where many different products are to be tested.

Schaffner's current injection probe is easy to use and, unlike competitive units, is capable of coupling signals right up to IEC 61000-4-6 Level 3. Like the EM-clamp, the current injection probe can be used to couple the signal to any power line or data line.

Technical Specifications — Synthesiser NSG 2070

Bandwidth:	100kHz - 250MHz	VSWR:	< 1.5
Modulation frequency:	1kHz ± 1%	Dynamic range:	> 58dB
Step size:	1kHz - 100MHz	Distortion:	> -17dB (referred to carrier frequency)
Operating modes:	frequency sweep, pulse mode	RF meter	
Sweep modes:	linear, numeric, percentage	Output range:	-40dBm ... +10dBm
Linearity:	< +2dB, calibrated < ± 0.5dB	linearity:	±5%, from 0.166V to 1.66V
Input / Output impedance:	50Ω	Modulation:	amplitude modulation 0 - 100%
Hold time:	2ms - 100sec	Frequency response:	±5%, from 100kHz - 250MHz 80% ≤ +5%
		VSWR	< 1.15 from 100kHz - 250MHz

Technical Specifications — Amplifier NSG 2070

Bandwidth:	100kHz to 250MHz	Input / output impedance:	50Ω
Distortion:	< -20dB (relative to carrier frequency) no signal deterioration or ringing	Output VSWR:	<1.2 (including 4dB attenuator)
		Load impedance:	from open to short circuit
Linearity:	± 1.5dB, with calibration < ± 0.5dB	Housing:	19" benchtop housing with prop feet
Input sensitivity:	-40dBm to +10dBm	Size W x D x H mm	449 x 171 x 461
Power output:	85W max. (saturated)	Weight:	NSG 2070: 16kg approx.

14 Ordering information, Options

14.1 Ordering information

Type	Bandwidth	Power into 50 Ω	Note
NSG 2070-1	100 kHz ... 250 MHz	0 ... 85 W	Synthesiser and end stage up to LEVEL 3
Included:	1 mains cable (country-specific) 1 Attenuator 4 dB/40 W 1 Cable 50 Ω, length 3 m with N (m) type connections 1 Cable 50 Ω; length 1 m; N (m)/BNC (m) 1 Cable 50 Ω; length 0.1 m; BNC (m)/BNC (m) 1 Manual		

Type	Bandwidth	Synthesiser output into 50 Ω	Note
NSG 2070-2	100 kHz ... 250 MHz	-40 dBm ... +10 dBm	Synthesiser only
Included:	1 mains cable (country-specific) 1 Cable 50 Ω; length 1 m; N (m)/BNC (m) 1 Manual		

14.2 Options

Current injection probe

CDN 721 Current injection probe CIP

INA 721 Calibration set for CDN 721

including Test Jig
Adapter 100 Ω
Adapter 150 Ω

EM Clamp

CDN 725	EM Clamp	
	including	Cable 50 Ω; 0.2 m; N (m)/N (f)
INA 725	Calibration set for CDN 725	
	including	Test setup Adapter 100 Ω Adapter 150 Ω
INA 726	Decoupling Clamp	

Coupling network

CDN M3 / 16 A	Coupling network; 0.15 - 230 MHz
CDN M3 / 32 A	Coupling network; 0.15 - 230 MHz
CDN M5 / 32 A	Coupling network; 0.15 - 230 MHz
CDN S4	Coupling network; 0.15 - 230 MHz
CDN T4	Coupling network; 0.15 - 230 MHz

INA 720	Calibration set for CDN-M/S/T	
	including	Adapter 100 Ω Adapter 150 Ω

Other CDNs are available on request.

Monitoring -Probe

MD 720	Monitoring probe complete