

Teseq **NSG 4070D** RF Immunity Test System

The New Standard for RF Conducted Immunity Testing



Introducing the New Standard

For RF Conducted Immunity Testing | **NSG 4070D**

In today's interconnected world, electronic equipment must perform flawlessly even in the face of challenging environments. The new Teseq NSG4070D is your complete solution for testing the immunity of electronic systems to conducted disturbances caused by radio frequency (RF) fields.

Whether it's a wireless device causing interference near power cables or challenging scenarios like cable harnesses in a vehicle chassis affecting critical electronics, NSG 4070D ensures your equipment meets the highest standards of reliability and compliance.

The NSG 4070D from AMETEK CTS is a versatile EMC test generator designed to meet the stringent requirements of modern electromagnetic compatibility (EMC) testing. This multi-functional device supports a wide range of international standards, making it ideal for both development and conformity testing across various industries, including automotive, aerospace, and consumer electronics.

Equipped with a built-in signal generator, power meters, and multiple interfaces for monitoring Equipment Under Test (EUT), the NSG 4070D covers a broad frequency range from 4 kHz to 1 GHz. It offers flexibility with optional Class A power amplifier modules and advanced pulse modulation settings, particularly in the NSG 4070Dx variant, designed for specialized testing like ISO/DTS 7637-4.

Whether operated independently via its robust firmware or remotely controlled through LAN, RS232, or USB, the NSG 4070D ensures seamless, reliable EMC testing. With easy data transfer via USB and software integration options, this device simplifies compliance testing, making it an indispensable tool in any EMC lab.

"Ideal for development and conformity testing"

PRODUCT HIGHLIGHTS

- **Multi-Standard Compliance with Pre-Programmed Flexibility**
Saves time with reusable test configurations.
- **Wide Frequency Range**
Covers 4 kHz to 1 GHz, supporting both commercial and military EMC standards.
- **Built-In Power Meters**
Provides precise signal strength measurement with internal and external power meters.
- **Flexible Amplifier Options**
Supports external amplifiers and internal amplifier upgrades for extended range and power.
- **Comprehensive EUT Monitoring**
Tracks performance in real-time with multiple monitoring options.
- **External Accessories Control and Power Supply**
Powers and controls external devices directly, simplifying setup.
- **Advanced Pulse Modulation**
Enables custom pulse patterns for precise simulation of real-world conditions.
- **Independent Operation**
Operates standalone without requiring an external PC.
- **Remote Control Capabilities**
Integrates with automated setups via LAN, RS232, and USB interfaces.
- **Efficient Data Transfer**
Simplifies report generation and data export via USB and icd.Control software.
- **Software Integration**
Offers seamless automation and intuitive operation for higher productivity.



Highlights and benefits

Multi-Standard Compliance with Pre-Programmed Flexibility

The NSG 4070D comes equipped with pre-programmed settings for a wide range of global EMC standards, including IEC/EN 61000-4-6, IEC/EN 61000-4-39, ISO 11452-4, MIL-STD-461G CS114, DO-160G, and ISO/DTS 7637-4. These pre-configured profiles simplify compliance testing by allowing users to quickly execute tests with minimal setup.

Users can easily modify specific parameters such as dwell time, amplifier selection (internal or external), and the coupling device while retaining the integrity of the standard. Additionally, an Expert Mode (level X) is available for advanced users, offering complete control to customize any parameter. This mode is ideal for product-specific standards or non-standard testing scenarios, and all customized configurations can be saved for future use.

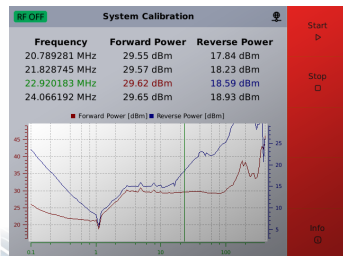
This combination of pre-programmed convenience and expert-level flexibility ensures that the NSG 4070D meets both standard compliance and unique testing needs. Integrated Signal Generator - Built-in signal generator for precise RF signal production, reducing the need for external devices.



Independent Operation

The NSG 4070D is designed for complete standalone operation, powered by robust internal firmware that eliminates the need for external PCs. This self-sufficient design simplifies setup and operation, reducing system complexity while ensuring reliable and efficient performance. With an intuitive user interface and built-in controls, users can execute tests directly on the device.

This independence enhances portability and makes the NSG 4070D ideal for both laboratory and on-site testing environments.

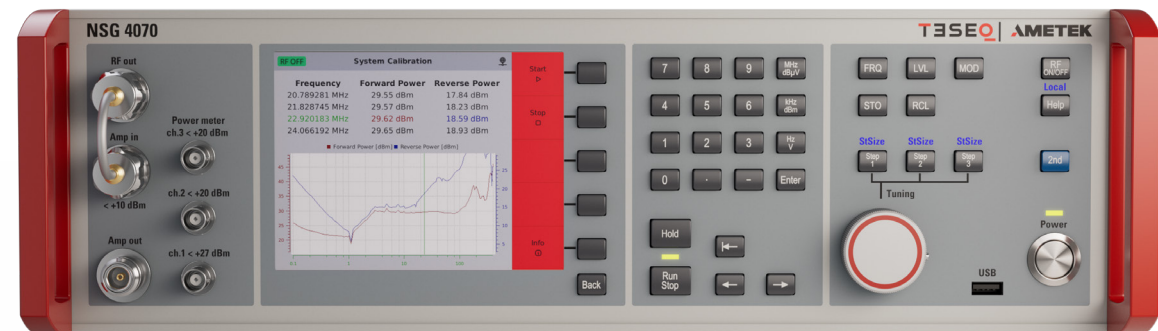
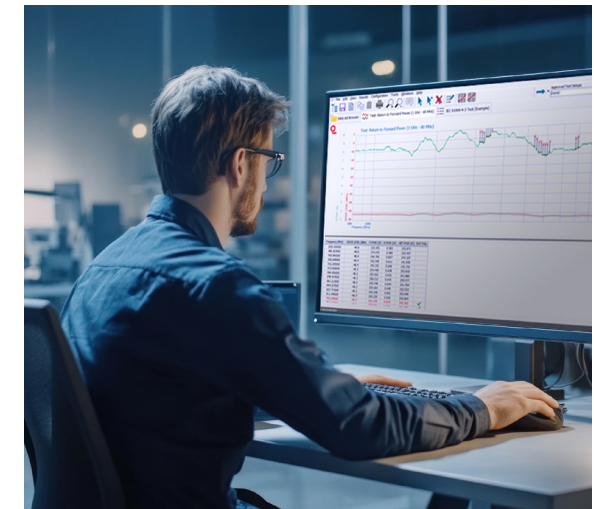


Software Integration

The NSG 4070D is fully compatible with both icd. Control and CIS software, offering advanced tools for enhanced testing and system control. This integration enables comprehensive test management, intuitive operation, and seamless automation for a highly efficient and user-friendly experience.

Efficient Data Transfer

The NSG 4070D streamlines data management with easy data export and report generation capabilities via USB, using the icd.Control software. This efficient process simplifies the documentation of test results, enabling users to quickly generate detailed reports and transfer data for analysis. The intuitive workflow enhances productivity and ensures seamless integration into compliance and quality assurance processes.



Remote Control Capabilities

The NSG 4070D supports remote control through LAN, RS232, and USB interfaces, enabling seamless integration into automated test setups. This feature allows users to operate the device from a distance, enhancing flexibility and efficiency in both laboratory and production environments. With remote access, the system can be easily monitored and controlled, making it an ideal choice for streamlined, automated EMC testing workflows.

*"...a future-proof solution
for electromagnetic
compatibility testing."*

Wide Frequency Range

The NSG 4070D features a built in signal generator with impressive frequency range, spanning from 4 kHz to 1 GHz, making it a powerful tool for a wide array of EMC testing applications. This extensive coverage is designed to meet the needs of both conventional commercial EMC testing and military-specific standards, as well as advanced testing scenarios that extend beyond traditional conducted immunity requirements.

With this wide range, the NSG 4070D ensures compatibility with emerging testing needs and provides a future-proof solution for industries that demand versatility and precision in electromagnetic compatibility testing.

Built-In Power Meters

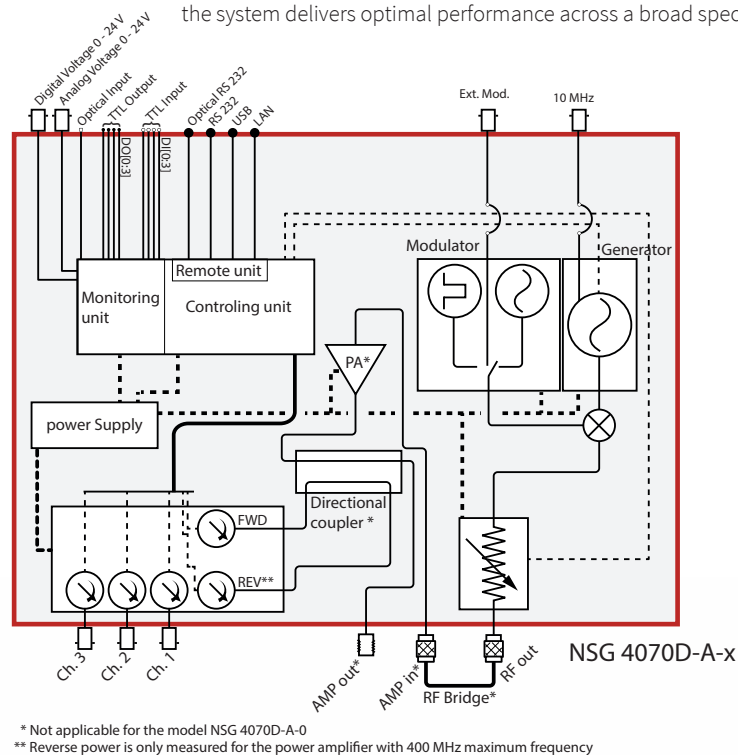
The NSG 4070D is equipped with up to five integrated power meters, delivering precise and reliable signal strength measurement during testing. Among these, two internal power meters are reserved for monitoring the performance of the internal amplifiers, with the capability to measure both forward and reverse power for enhanced accuracy and optimal system performance.

Additionally, the system supports three external power meters, providing flexibility for diverse testing needs. Notably, one of the three external power meters is specifically designed for high-power measurements, capable of handling up to five times the power range of the other two channels. This expanded capability ensures accurate measurement even in high-power testing scenarios, making the NSG 4070D a versatile and reliable solution for a wide range of EMC applications.

Flexible Amplifier Options

The NSG 4070D provides exceptional flexibility with its amplifier options, starting with the optional Class A modules. These high-performance amplifiers are designed for users seeking superior signal quality, offering high linearity, low distortion, and excellent stability. Class A modules are ideal for applications that require the utmost precision, providing enhanced performance for both low and high-frequency testing with exceptional accuracy and reliability.

In addition to the Class A modules, the NSG 4070D also supports external amplifiers and internal amplifier upgrades. These options allow users to extend the frequency range, increase output power levels, or enhance the internal amplifier to meet specific testing needs. Whether you're conducting standard EMC tests or working with more demanding applications, the combination of Class A modules, external amplifiers, and internal amplifier upgrade capabilities ensures the system delivers optimal performance across a broad spectrum of EMC testing scenarios.



Comprehensive EUT Monitoring

The NSG 4070D offers extensive EUT (Equipment Under Test) monitoring capabilities, including four TTL monitoring ports, one optical input, high digital voltage monitoring, and analog voltage monitoring. These features allow for real-time tracking of the EUT's performance during testing. The monitored data can be easily logged into test reports, providing detailed documentation. Additionally, the system is configurable to pause or stop the test based on predefined customer settings, ensuring automatic response to specific EUT conditions and enhancing test safety and reliability.

External Accessories Control and Power Supply

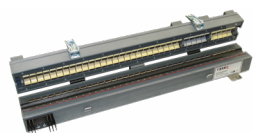
The NSG 4070D not only powers external accessories but also enables control over them, adding flexibility to your testing setup. It includes three power supply pins: +12 V/800 mA, -12 V/200 mA, and +5 V/800 mA, allowing the NSG 4070D to power connected devices directly. Additionally, the system is equipped with four TTL output pins that can be used to control external devices, such as the SW 4070 switch or MD 4070 monitoring devices. This capability streamlines integration and simplifies the management of external equipment during EMC testing.

Advanced Pulse Modulation

The NSG 4070D features three independent pulse modulators, allowing users to implement customized pulse patterns for specialized testing needs. This advanced functionality enables precise control of pulse characteristics, such as frequency, duty cycle, and timing, ensuring accurate simulation of real-world conditions. It is an ideal solution for both standard and highly complex EMC testing requirements.

Accessories

AMETEK offers a range of accessories designed to complement the NSG 4070D, ideal for RF conducted EMC testing. These accessories ensure precise, reliable, and compliant testing across various RF standards. When paired with the NSG 4070D, they form a complete solution for RF conducted EMC testing.



1. The **Coupling/Decoupling Networks (CDNs)** offered by AMETEK provide solutions for a wide range of applications. The **CDN M3** is designed for single-phase systems, while the **CDN M5** is used for three-phase testing. The **CDN AF** is tailored for asymmetrical data communication lines, the **CDN S** is ideal for shielded lines, and the **CDN T** is suited for telecommunications applications. These **CDNs** ensure reliable and repeatable performance, with frequency ranges from **10 kHz to 80 MHz** and **150 kHz to 230 MHz**, making them suitable for diverse EUT configurations and a variety of EMC standards.
2. The **Current Probes** and **Injection Clamps**, such as the **CIP 6136A** and **MD4070**, enable non-invasive RF signal injection and monitoring for conducted immunity tests. The **CIP 6136A** is designed for high-level disturbance injection, while the **MD 4070** offers both active and passive modes for low and high-level measurements. The **MD 4070** can be controlled manually or remotely via the **NSG 4070D**, ensuring flexibility and precision in testing.
3. The EM Clamps are essential tools for high-frequency immunity testing, providing efficient and repeatable RF signal injection or decoupling. The **KEMZ801B** is used for signal injection into cables, while the **KEMA 801B** is designed for decoupling other cables, ensuring compliance with standards such as **IEC/EN61000-4-6**. These clamps are ideal for conducting immunity tests across various applications, maintaining high performance and accuracy.



4. The **LAS 61xx** series consists of **loop antennas** designed for **IEC 61000-4-39** radiated immunity testing. The **LAS 6120** covers **9 kHz to 150 kHz**, and the **LAS6100** covers **150 kHz to 26 MHz**. These antennas provide stable, reliable performance for accurate, repeatable testing across these frequency ranges.
5. The **External Power Amplifiers**, such as the **CBA4K400M E Series**, **CBA230M A Series**, and **CBA1G-xD**, provide higher power levels for both higher frequencies and applications requiring more power than the **NSG 4070D models** can deliver. These amplifiers ensure compatibility with stringent EMC standards and reliable performance in demanding tests.
6. The **Switch SW 4070** allows seamless switching between internal and external amplifiers, extending the frequency range and providing flexibility. It can be remotely controlled via the **NSG 4070D**, ensuring optimal performance without reconfiguring the system.
7. The **Attenuators** and **RF Cables**, such as the **ATN 6xxx** series, offer different power and attenuation values to suit a wide range of testing requirements. The **LE4070 Set of Cables** provides durable, low-loss connections, ensuring signal integrity and reliability across various test setups.

AMETEK's accessories are designed to integrate seamlessly into EMC testing workflows, delivering the precision and performance necessary for rigorous compliance and pre-compliance evaluations.



Product selection

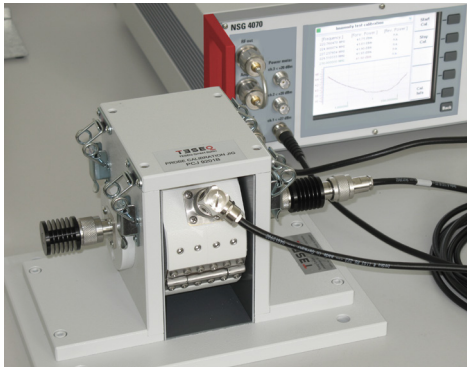


AVAILABLE MODEL

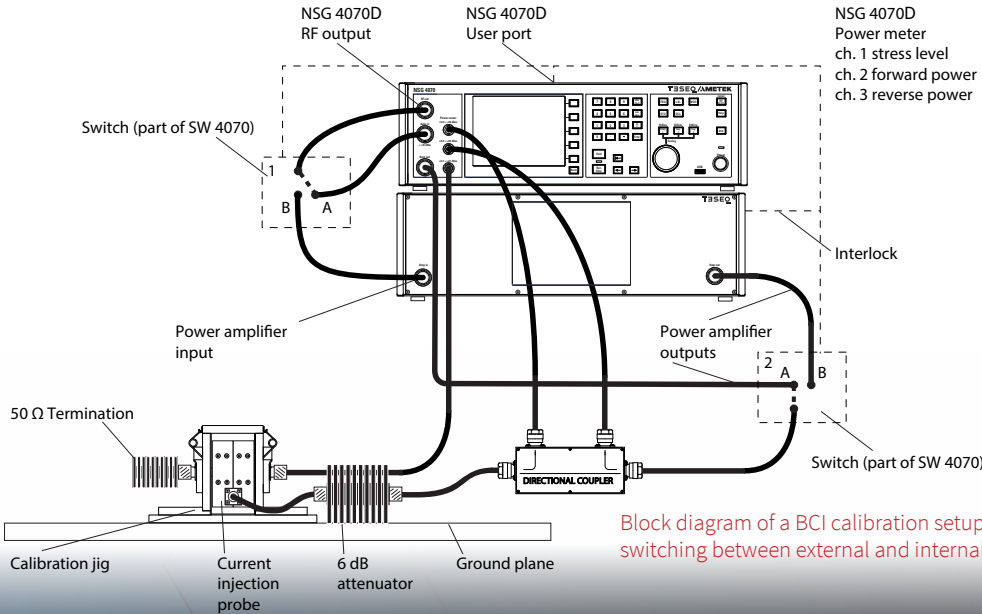
	Power Amplifier		IEC 61000-4-6	ISO 11452-4	MIL STD-461G, CS114	DO-160G, Section 20	ISO 7637-4, Pulse A	IEC 61000-4-39*
	Power	Frequency range	150 kHz to 230 MHz	100 kHz to 400 MHz	10 kHz (4 kHz) to 200 MHz	10 kHz to 400 MHz	1 Mhz to 10 MHz	9 kHz to 26 MHz
NSG 4070D-A-0	*	*	*	*	*	*	*	*
NSG 4070D-A230-50	50 W	150 kHz to 230 MHz	✓	✗	✗	✗	✓	✗
NSG 4070D-A230-100	100 W	150 kHz to 230 MHz	✓	✗	✗	✗	✓	✗
NSG 4070D-A400-50	50 W	4 kHz to 400 MHz	✓	✓	✓	✓	✓	✓
NSG 4070D-A400-100	100 W	4 kHz to 400 MHz	✓	✓	✓	✓	✓	✓

NOTE Not all power levels are achievable with all NSG 4070D models; higher power may require additional external amplifiers. Upgrade from one model to another is possible, please contact AMETEK-CTS Service team. Separate license to run IEC 61000-4-39 on the device is needed.
*Please contact your sales representative for more information.

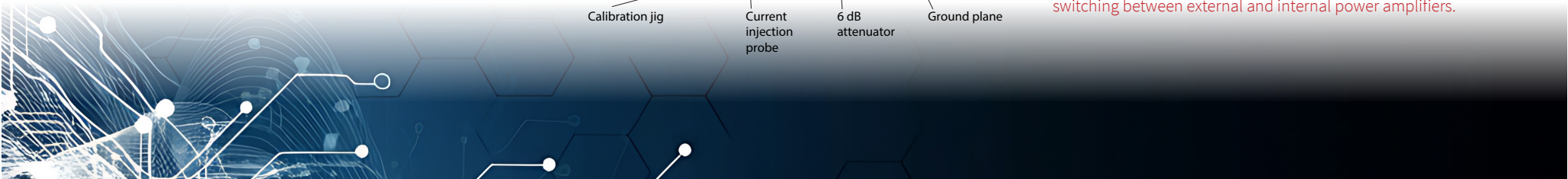
Example setup



BCI calibration setup with NSG 4070D



Block diagram of a BCI calibration setup featuring automated switching between external and internal power amplifiers.



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