CDG 7000

Conducted Disturbances Test System

IEC/EN 61000-4-6, IEC 60601-1-2 Ed. 4.1,
IEC 61000-4-39, MIL 461 CS 114,
ISO 11452-4, Namur

- The compact device consists of
  RF signal generator, RF-power amplifier,
  3-channel RF voltmeter and **directional coupler**
- Frequency range (signal generator)
  4 kHz – 1200 MHz
- Frequency ranges of the RF power amplifier:
  10 kHz – 250 MHz
  100 kHz – 400 MHz
  10 kHz – 400 MHz
- Now with **200 W** RF Power Amplifier and **BCI Tests up to 500 mA closed loop**: **CDG 7000-200**!*

NEW

** with the appropriate accessories*

Turn Key Solution for Conducted Immunity and Magnetic Field Tests

Overview

Test generator for all interference immunity standards and magnetic fields against conducted interference induced by high frequency fields including BCI tests (ISO 11452-4). One of the very few combined IEC 61000 4-6 test systems that include the RF signal generator, a RF power amplifier, a 3-channel RF voltmeter and a directional coupler for a competitive price. The CDG 7000 generates interferences as defined in IEC EN 61000-4-6 immunity to conducted disturbances induced by radio frequency fields and magnetic fields acc. IEC 60601-1-2 and IEC 61000-4-39.

The standard describes a test setup in which these high frequency interferences can be influenced on a EUT without a complicated structure with antennas, field instrumentation and shielded rooms. By using coupling networks and coupling clamp's sine waves are induced directly into power and signal lines. We offer an extensive range of accessories for this purpose. The test object retains its original place in the device structure, so that the system can be tested in its overall function.

Key Facts

- The included application software **(HELIA 7-Basic)** enables extensive reporting functions and EUT monitoring (HELIA 7 BCI requires for BCI testing)
- Simple expansion with external amplifier via 2nd generator output
- SCPI command set enables easy integration into own software systems
- Interfaces: USB, LAN, GPIB (option)
- Temperature measuring input, e.g. for monitoring and displaying the BCI clamp temperature and input for external pulse modulation
- **NEW: CDG 7000-200 with 200 W RF power amplifier**: Option to extend the frequency range to **4 kHz – 1 MHz using the CDG 7000-200-4** (see separate data sheet)
- Configurable, digital 8-channel user port

CDG 7000

Conducted Disturbances Test System

Models: RF Generator for conducted and magnetic field tests	
CDG 7000-25	10 kHz - 250 MHz, amplifier 25 W Maximum test level: 10 V (15 V) with 80 % AM (without 6 dB) Built-in directional coupler, with software HELIA 7 – Basic | USB, LAN
CDG 7000-75	100 kHz - 400 MHz, amplifier 75 W Maximum test level: 30 V (40 V) with 80% AM (without 6 dB) Built-in directional coupler with software HELIA 7 – Basic | USB, LAN
CDG 7000-75-10	10 kHz - 400 MHz, amplifier 75 W Maximum test level: 30 V (40 V) with 80% AM (without 6 dB) Built-in directional coupler with software HELIA 7 – Basic | USB, LAN
CDG 7000-200	100 kHz – 400 MHz, amplifier: 200 W Maximum test level: 30 V (40 V) at 80% AM (without 6 dB) **BCI Tests up to 500 mA closed loop** *(with the appropriate accessories)* Built-in directional coupler with HELIA 7 – Basic software, USB, LAN Option to extend the frequency range downward: to **4 kHz – 1 MHz with CDG 7000-200-4** *(see separate data sheet)*
CDG 7000-E	Without amplifier *(see separate data sheet)*

NEW

Technical data I

RF-Power Amplifier

	25 W	**75 W**	**75 W / 10 k**	**200 W**
Frequency range	10 kHz - 250 MHz	100 kHz - 400 MHz	10 kHz - 400 MHz	100 kHz - 400 MHz + CDG 7000-200-4: 4 kHz - 1 MHz
Output Power:				
Nominal	25 W	75 W	75 W	200 W
Linear @ 1dB compression	20 W	50 W	50 W	100 W
Gain	46 dB nominal	51 dB nominal	51 dB nominal	56 dB nominal
Flatness	± 1.5 dB max.	± 1.5 dB max.	± 1.5 dB max.	± 1.5 dB max.
Input power for rated output	1 mW / 0 dBm	1 mW / 0 dBm	1 mW / 0 dBm	1 mW / 0 dBm
Input / impedance Output / impedance	50 Ω (SMA) 50 Ω (N)	50 Ω (SMA) 50 Ω (N)	50 Ω (SMA) 50 Ω (N)	50 Ω (SMA) 50 Ω (N)
Input VSWR	1.5 : 1 max.	1.5 : 1 max.	1.5 : 1 max.	1.5 : 1 max.
Harmonic distortion	< -20 dBc @ 20 W	< -20 dBc @ 50 W	< -20 dBc @ 50 W	< 20 dBc @ 100W
Spurious	< -75 dBc to 10 W	< -75 dBc to 10 W	< -75 dBc to 10 W	< -75 dBc to 10 W
Directional coupler				
Power	100 W	100 W	100 W	500 W
Frequency range	10 kHz – 500 MHz	100 kHz – 500 MHz	10 kHz – 500 MHz	10 kHz – 400 MHz
Coupling	40 dB	40 dB	40 dB	50 dB

CDG 7000

Conducted Disturbances Test System

RF Generator	
Two switchable outputs (only one can be used simultaneously)	2 x SMA
Frequency range	9 kHz - 1.2 GHz (usable from 4 kHz)
Frequency resolution	1 Hz
Output level range	0 to - 63 dBm
Output level resolution	0.1 dB
Harmonics	< 30 dBc
Spurious	< 45 dBc
Amplitude modulation (internal)	0 - 100 %, resolution 1 %
Amplitude modulation (external)	0 – 100 % , max. Amplitude 1 V = 100 %, BNC jack
Pulse modulation (internal)	5 - 95 %, resolution 1 %
Pulse modulation (external)	DC...1 MHz, 3,3/5 V CMOS/TTL, BNC jack

LF Generator (modulation)	
Connector	BNC jack
Frequency range	1 Hz - 100 kHz
Frequency resolution	0.1 Hz
Signal	Sine wave / square wave / triangular
Amplitude	0...1 V

RF Voltmeter (test level)	
Connector	BNC jack
Frequency range	9 kHz - 1.2 GHz (usable from 4 kHz)
Measuring range	-40 to +30 dBm

RF Voltmeter 2+3 (forward / reverse power)	
Connector	2 x SMA
Frequency range	9 kHz - 1.2 GHz (usable from 4 kHz)
Measuring range	-40 to +33 dBm + directional coupler (typ. 40 dB)

Technical data II

Module	
EUT-MONITOR INPUT	
Input voltage	0 to 10 V DC
Resolution	2.5 mV
Input impedance	100 kΩ
EUT-FAILED INPUT	
Input signal	3,3/5 V CMOS/TTL level
Detection mode	status or edge controlled
Temperature measurement	10 - 100 °C (1039 to 1385 Ω) resolution < 1 °C (PT 1000)
SCPI Interfaces	
USB 2.0	USB-B
LAN, 100 Mbit	RJ45
GPIB (optional)	Centronics

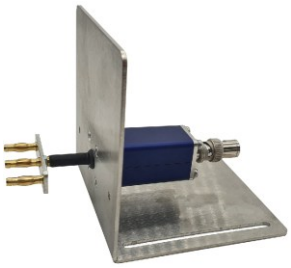
Module	
DIGITAL I/OS	
Out	4 Bit Digital out, 5 V CMOS/TTL
In	4 Bit Digital in, 5 V CMOS/TTL
INTERLOCK	
Closes at	R < 1 kΩ

General data	
Temperature range	0 - 40 °C
Housing	19“ desktop case (84 TE; 3 HE)
Weight	approx. 11 kg
Width / height / depth	app. 450 / 135 / 504 mm
AC Input	100 - 240 VAC; 50/60 Hz

CDG 7000

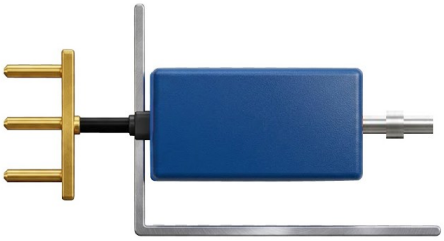
Conducted Disturbances Test System

Accessories for calibration set



Connection adaptor with laboratory plug for each CDN

(schematic diagram)



50/150 Ohm adaptor

Fastening angle

| < - CDG A 41xx -> | < ---------CDG A 4100 ----------> |

To calibrate a coupling network (CDN), the following elements are required (AE and EUT side)*:

2x CDG A 41xx (corresponding CDN connection adaptors for AE and EUT side)

2x CDG A 4100 (mounting plate + 50/150 Ohm transition + 50 Ohm termination for AE side) or
2x CDG 4110 (50/150 Ohm adaptor)

The following is required for the first coupling network *:

2 x CDG A 41xx +
2 x CDG A 4100

For each additional coupling network, only two corresponding connection adaptors must be ordered*:

2 x CDG A 41xx

**Depending on the signal, termination can be omitted on the AE side. Let us advise you on the details.*

Accessories

Coupling Networks (For further CDNs, see the 'Coupling Networks' data sheet; special CDNs available on request.)

- CDN-M1
- CDN-M2
- CDN-M3
- CDN-M4
- CDN-M5
- CDN-M2+3
- CDN-M1/-M2/-M3-10k
- CDN-M4/-M5-10k
- CDN-M2/-M3-125A
- CDN-M4/-M5-125A
- CDN-L1
- CDN-L1-32A
- CDN-AF2
- CDN-AF3
- CDN-AF4
- CDN-AF5
- CDN-AF6
- CDN-AF8
- CDN-AF2/-AF3-10k
- CDN-AF4/-AF5-10k
- CDN-RJ45
- CDN-RJ45-10k
- CDN D 100
- CDN-T2
- CDN-T4
- CDN-T8
- CDN-T2/-T4/-T8-10k
- CDN-S1
- CDN-S1-75 Ohm
- CDN-S2
- CDN-S3
- CDN-S4
- CDN-S9
- CDN-S15
- CDN-S25
- CDN-CAN-L4
- CDN-CAN-L5
- CDN-RJ45-S
- CDN-HDMI
- CDN-FireWire
- CDN-USB-3.0-Z
- CDN-USB-3.0-P
- CDN-USB Typ-C

CDG 7000

Conducted Disturbances Test System

CDN Facts

CDN EMCL-20

- EM-Coupling clamp for cables up to Ø 20 mm
- Included calibration set and factory calibration
- Option: With matching network **CDN-EMCL-NW_10** starting from 10 kHz

CDN EMCL-35

- EM-Coupling clamp for cables up to Ø 35 mm
- Included calibration set and factory calibration

CDN ABCL-20

- Decoupling clamp for cables up to Ø 20 mm
- For additional decoupling at immunity testing according to IEC / EN 61000-4-6

CDN ABCL-35

- Decoupling clamp for cables up to Ø 35 mm
- For additional decoupling at immunity testing according to IEC / EN 61000-4-6

CDN BCI-P1

- Injection probe for Bulk Current Injection (BCI)
- Frequency range 1 - 400 MHz
- For cables up to Ø 40 mm
- Included calibration set

CDN BCI-P1_MT-1

- Additional transformer for CDN BCI-P1
- Frequency range 1 - 400 MHz
- For cables up to Ø 40 mm
- Included calibration set

CDG CMP-45

- Current monitoring probe 10 kHz - 400 MHz, foldable
- For cables up to Ø 45 mm
- Option: Calibration set **CDG A CMP-45**

CDG CMP-46

- Current monitoring probe 10 kHz - 400 MHz, not foldable
- For cables up to Ø 46 mm
- Option: Calibration set **CDG A CMP-46**

CDN Calibration set

- Mounting angle: **CDG A 4100** (Mounting angle, 50 / 150 Ω adapter, 50 Ω Termination)
- Calibration adapter: **CDG A 41xx**

Attenuators

- **CDG 7006-20W** 6 dB Attenuator, 20 W
- **CDG 7006-100W** 6 dB Attenuator, 100 W
- **CDG 7020-20W** 20 dB Attenuator, 20 W

Termination

- **CDG A 50** BNC Termination, 50 Ω, 1 W
- **CDG A 50-10W** BNC Termination, 50 Ω, 10 W

Included in scope of delivery

- Power cable V-Lock
- Ground terminal
- USB cable
- BNC connector, 50 Ohm resistor
- 2 x Socket strips and 3 x SMA fixed cables (already connected)
- USB dongle for HELIA software
- User manual
- USB stick including calibration certificate, user manual, HELIA software.
- 4 x RF cable:
  - BNC male ¬- N male, 1.5 m (L0023),
  - N connector - N connector, 1.5 m (L0068),
  - BNC male - TNC male, 1.5 m (L0024),
  - N connector - BNC connector angled (only for 75 W version), 30 cm (L0069)

Sales Partner:
ABSOLUTE EMC
ABSOLUTE EMC Llc.
Covering sales in North America
United States, Mexico, & Canada
absolute-emc.com
Phone:703-774-7505
info@absolute-emc.com