

CWS 500N2

CONTINUOUS WAVE SIMULATOR



FOR TESTS ACCORDING TO ...

- > BMW GS 95002 (2001)
- > DaimlerChrysler DC-10614
- > DaimlerChrysler DC-11224
- > DO 160 Section 20
- > EN 61000-4-6
- > EN 61000-6-1
- > EN 61000-6-2
- > Fiat 9.90110
- > Ford ES-XW7T-1A278-AB
- > Ford ES-XW7T-1A278-AC
- > GMW 3097 (2001)
- > GMW 3097 (2004)
- > IEC 60601-1-2
- > IEC 61000-4-6
- > IEC 61326
- > IEC 61850-3
- > ISO 11452-4
- > ISO 11452-5
- > MBN 10284-2
- > MIL STD 461 D CS 114
- > MIL STD 461 E CS 114
- > ...

BULK CURRENT INJECTION (BCI) TESTING









Bulk Current Injection (BCI) is a test procedure to proof the immunity to electrical disturbances by narrowband electromagnetic energy. The test signal is injected by means of a current injection probe physically being a current transformer laid around the wiring harness. Immunity tests are performed varying the level and the frequency of the injected test signal. The BCI test method is widely known in the automotive industry as well as in the military/aircraft industry to test single components of a complex system.

The CWS 500N2 is designed to be used also for tests with CDNs and EM clamps for tests according to EN/IEC 61000-4-6 and related standards.

HIGHLIGHTS

- > **Most compact equipment**
- > **Supports BCI testing as per various standard requirements**
- > **Basic frequency range 9kHz up to 400MHz**
- > **Extendable frequency range up to 1GHz**
- > **Built-in 100W class A amplifier up to 400MHz**

APPLICATION AREAS

- | | |
|--|---|
|  AUTOMOTIVE |  INDUSTRY |
|  TELECOM |  MEDICAL |
|  AVIONICS |  BROADCAST |
|  MILITARY |  RESIDENTIAL |

TECHNICAL DETAILS

BULK CURRENT INJECTION AS PER ISO 11452-4

Output level	As required in ISO 11452-4, using closed loop or substitution method
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BULK CURRENT INJECTION AS PER MIL 461 CS 114

Output level	As required in MIL 461 CS 114, using the closed loop method
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MEASUREMENTS FOR BULK CURRENT INJECTION

Directional coupler	Included to measure forward power and reverse power
Forward power	Internal power meter #1
Reverse power	Internal power meter #2
Injected current	Internal power meter #3

TEST ROUTINES FOR BULK CURRENT INJECTION

ISO 11452-4	Operation via icd.control
MIL 461 CS114	Operation via icd.control

IEC 61000-4-6

Output level	1V - 30Vrms (emf) all standard test levels are guaranteed with all coupling methods
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MEASUREMENTS, IEC 61000-4-6

Cal in (BNC)	Integrated power meter to record the calibration data of a coupling device
Injected current	Measured by internal power meter
RF indicator	LED indicating the RF output status
LCD	Display of the test level and the preselected frequency value

TEST ROUTINES FOR IEC 61000-4-6

Quick Start	Immediate start; easy-to-use and fast test routine
User Test routines	Frequency sweep
Service	Service, Set-up

OUTPUT

RF output	N connector at the front panel
Output power	Built-in amplifier 50dBm (9kHz - 400MHz) at 1dB compression.
Gain amplifier	> 50dB
Output impedance	50ohm
Harmonic distortion	< -20dBc at max. power
Insertion loss	Approx. 1dB (directional coupler + RF relay)

TIME PARAMETERS

Dwell time	td = 0.3s - 9,999s
Pause time	tr = 0/0.3s - 9,999s

TEST FREQUENCIES

Frequency range	9kHz - 400MHz (built-in amplifier) 9kHz - 1,000MHz (ext. amplifier)
Unmodulated signal	CW (continuous wave)
Amplitude modulation	1kHz, 80% AM (EN/IEC 61000-4-6) 1kHz, 95% AM (automotive) 400Hz, 80% AM 50Hz, 80% AM (automotive) 2Hz, 80% AM (IEC 60601-1-2)
Pulse modulation	1Hz, 50% duty cycle (EN 50130-4) 1kHz, 50% duty cycle (MIL 461)

INTERFACE

Serial interface	USB
Parallel interface	IEEE 488, addresses 1 - 30
Fail 1	BNC input; test will be stopped (active low)
Fail 2	BNC input; test status will be saved (max. 10 events) when active low. Test continues

TECHNICAL DETAILS

GENERAL DATA

Dimensions, weight	19"/6HU, approx. 31kg
Supply voltage	115V or 230V +10/-15%, 50/60Hz
Input power	Max. 380W
Power factor	cos(phi) = 0.96 at max. output power as per IEC 555
Fuses	2x6.3AT (115V) or 2x3.15AT (230V)
Cooling	Active cooling, air ventilation
Temperature	10°C - 40°C
Rel. humidity	Max. 85%, non-condensing

ACCESSORIES

Cables	N-type coaxial cables to connect the 3dB attenuator and/or the injection probe, BNC-coaxial cable to connect the current monitoring probe, with N-to-BNC adapter
icd.control	Extensive and most versatile remote control and reporting software. The standard library helps to configure the test setup. Multiple interruption functions automated by IEEE instruments or manually. Easy-to-use as well as expandable to complex test routines based on vector definitions.

OPTIONS

ATT3/100	3dB attenuator, 100W
ATT20/15	20dB attenuator for current monitor path, the set includes 2 units
ATT20/100	20dB attenuator, 100W for small level RF signals as per MIL STD 461 an DO-160
T-50A	50ohm, 6W termination resistor
Calibration	Adaptors and cal jigs
CDNs	as per IEC 61000-4-6 (refer to separate list)
Clamps	EM clamp as per IEC 61000-4-6 Current injection clamps Current monitoring clamps
R-100x	150ohm-to-50ohm matching impedance

COMPETENCE WHEREVER YOU ARE



CONTACT EM TEST DIRECTLY

Switzerland

EM TEST (Switzerland) GmbH > Sternenhofstraße 15 > 4153 Reinach > Switzerland
 Phone +41 (0)61/7179191 > Fax +41 (0)61/7179199
 Internet: www.emtest.ch > E-mail: sales@emtest.ch

Germany

EM TEST GmbH > Lünener Straße 211 > 59174 Kamen > Deutschland
 Phone +49 (0)2307/26070-0 > Fax +49 (0)2307/17050
 Internet: www.emtest.com > E-mail: info@emtest.de

France

EM TEST FRANCE > Le Trident - Parc des Collines > Immeuble B1 - Etage 3 > 36, rue Paul Cézanne > 68200 Mulhouse > France
 Phone +33 (0)389 31 23 50 > Fax +33 (0)389 31 23 55
 Internet: www.emtest.fr > E-mail: info@emtest.fr

Poland

EM TEST Polska > ul. Ogrodowa 31/35, 00-893 Warszawa > Polska
 Phone +48 (0)518 64 35 12
 Internet: www.emtest.com/pl > E-mail: info.polska@emtest.de

USA / Canada

EM TEST USA Inc. > 9250 Brown Deer Road > San Diego > CA 92121
 Phone +1 (858) 699 1685 > Fax +1 (858) 458 0267
 Internet: www.emtest.com > E-mail: tom.revesz@ametek.com

P.R. China

E & S Test Technology Limited > Rm 913, Leftbank > No. 68 Bei Si Huan Xi Lu > Haidian District > Beijing 100080 > P.R. China
 Phone +86 (0)10 82 67 60 27 > Fax +86 (0)10 82 67 62 38
 Internet: www.emtest.com > E-mail: info@emtest.com.cn

Malaysia

EM TEST (M) SDN BHD > Unit B2-6, Jalan Dataran SD2 > Dataran SD2, PJU9 > Bandar Sri Damansara > 52200 Kuala Lumpur > Malaysia
 Phone +60 (03)62 73 22 01 > Fax +60 (03)62 74 22 01
 Internet: www.emtest.com > E-mail: sales@emtest.com.my

Information about scope of delivery, visual design and technical data correspond with the state of development at time of release. Technical data subject to change without further notice.