



- Conducted RF Immunity Testing
- BCI-Testing

### Description

The CIT-100 is a complete test system for conducted RF-immunity testing and BCI-testing acc. to IEC/EN 61000-4-6, ISO 11452-4, MIL-STD 461, CS114 and similar standards.

The system consists of a built-in

- Signal generator, 4kHz - 1.2 GHz
- RF-Power-Amplifier, max 4kHz - 400 MHz, 25 / 75 W
- 3-Channel RF-Power-Meter to measure the test level as well as forward & reverse power, 4kHz - 1.2 GHz
- Directional Coupler
- Comfortable control software

As a „stand-alone“ test system the CIT-100 is convincing by its easy and comfortable handling and the excellent cost-performance ratio.

We also offer the full range of coupling/decoupling networks (CDN's), EM-coupling clamp, BCI- and current clamps.

### Special Features:

- Conducted RF immunity tests acc. to IEC/EN61000-4-6 and BCI tests acc. to ISO 11452-4 and MIL-STD 461, CS 114
- Signalgenerator, RF-power amplifier, RF-power meter and directional coupler in one 19"-case
- All built in instruments can also be used separately, via existing input / output connector. Hence, the Signal-generator and the RF-power-meter can also be used for radiated immunity tests acc. IEC/EN 61000-4-3. Furthermore an additional external RF-Power-amplifier could be connected to the CIT-100 for this purpose.
- Stand-alone operation possible with optional available netbook
- Control-software included
- Most important parameters are shown on an integrated display
- Automatic EUT-monitoring
- Operation via USB port of a PC or Notebook
- Complete range of CDNs and EM-clamps available

Also available as CIT-1000 with built-in touch-screen and control PC for independent stand-alone use.

### Technical specifications

| RF-Generator                                                    |                                             |
|-----------------------------------------------------------------|---------------------------------------------|
| Two switchable outputs<br>(Only one can be used simultaneously) | 2 x SMA                                     |
| Frequency range                                                 | 4 kHz to 1.2 GHz                            |
| Frequency resolution                                            | 1 Hz                                        |
| Output level range                                              | 0 to -63 dBm                                |
| Output level resolution                                         | 0.1 dB                                      |
| Harmonics                                                       | < 30 dBc                                    |
| Spurious                                                        | < 45 dBc                                    |
| Amplitude mod. (internal)                                       | 0 - 100%, resolution 1%                     |
| Amplitude mod. (external)                                       | 0-100%, max. Amplitude 1V=100%,<br>BNC jack |
| Pulse modulation (internal)                                     | 5-95%, resolution 1%                        |
| Pulse modulation (external)                                     | DC...1MHz, 3,3/5V CMOS/TTL, BNC jack        |
| LF-Generator (modulation)                                       |                                             |
| Connector                                                       | BNC jack                                    |
| Frequency range                                                 | 1 Hz to 100 kHz                             |
| Frequency resolution                                            | 0.1 Hz                                      |
| Signal                                                          | Sine wave / square wave / triangular        |
| Amplitude                                                       | 0...1 V                                     |

### Technical specifications

| RF-Voltmeter 1 (test-level)                    |                                                         |
|------------------------------------------------|---------------------------------------------------------|
| Connector                                      | BNC jack                                                |
| Frequency range                                | 4 kHz to 1.2 GHz                                        |
| Measuring range                                | -40 to +30 dBm                                          |
| RF-Voltmeter 2 + 3 (forward and reverse power) |                                                         |
| Connector                                      | 2 x SMA                                                 |
| Frequency range                                | 4 kHz to 1.2 GHz                                        |
| Measuring range                                | -40 to +33 dBm<br>+ directional coupler typ. 40 dB      |
| EUT-Monitor input                              |                                                         |
| Input voltage                                  | 0-10 V                                                  |
| Resolution                                     | 2.5 mV                                                  |
| Input impedance                                | 100 k                                                   |
| EUT-failed input                               |                                                         |
| Input signal                                   | 3.3/5V CMOS/TTL level                                   |
| Detection Mode                                 | Status or edge controlled                               |
| Temperature measurement                        | 10 to 100 °C (1039-1385Ω)<br>resolution < 1 °C (PT1000) |
| SCPI interfaces                                |                                                         |
| USB 2.0                                        | USB-B                                                   |
| LAN, 100 Mbit                                  | RJ45                                                    |
| GPIB (optional)                                | Centronics                                              |
| Digital I/Os                                   |                                                         |
| Out                                            | 4 Bit Digital out, 5V CMOS/TTL                          |
| In                                             | 4 Bit Digital in, 5V CMOS/TTL                           |
| Interlock                                      |                                                         |
| Closes at                                      | R < 1 k Ω                                               |

| Technical specifications    | CT-100 / 25      | CT-100 / 75 MIL                                                     | CT-100 / 75      |
|-----------------------------|------------------|---------------------------------------------------------------------|------------------|
| RF-Power Amplifier (TYPE)   | 25 W             | 75 W MIL                                                            | 75 W             |
| Frequency range             | 100kHz-250MHz    | (4) 10kHz-250 (400) MHz                                             | 100kHz-400MHz    |
| <b>Output Power:</b>        |                  |                                                                     |                  |
| Nominal                     | 25 W             | 75 W<br>10W from 4 kHz - 10 kHz<br>min. 20 W from 250 MHz - 400 MHz | 75 W             |
| Linear @ 1dB compression    | 20 W             | 50 W                                                                | 50 W             |
| Gain                        | 46dB nominal     | 51dB nominal                                                        | 51dB nominal     |
| Flatness                    |                  | ± 1.5 dB maximum                                                    |                  |
| Input power for rated input |                  | 1 mW / 0 dBm                                                        |                  |
| Input / output impedance    |                  | 50 Ω                                                                |                  |
| Input VSWR                  |                  | 1.5:1 max                                                           |                  |
| Harmonic distortion         | <- 20 dBc @ 20 W | <- 20 dBc @ 50 W                                                    | <- 20 dBc @ 50 W |
| Noise figure                | typ. 5 dB        | typ. 7 dB                                                           | typ. 7 dB        |
| Spurious output             |                  | <- 75 dBc @ 10 W                                                    |                  |

## Features:

### Internal RF-Power Amplifier

Several amplifier modules are available. Highest output power can be 75 W over the specified frequency range. The amplifier input can be accessed via the back panel of the CIT-100, so that the amplifier can also be used with any external generator. 25 W and 75 W amplifiers are available as standard.

### Internal RF-Voltmeter

Accurate measurements of RF signals from -40 dBm up to +30 dBm are done by the internal 3-channel RF-voltmeter which can be accessed (for separate use) via a BNC connector.

One channel is used to measure the test level and two channels to measure the forward and reverse power via the built-in directional coupler.

### Internal RF-Signal Generator

As the internal generator generates its output signal without any internal mixing components, low harmonics and spurious frequencies are assured.

### Amplitude Modulation

Frequencies generated by the generator can also be modulated with a LF signal. Modulation frequencies may vary from 1 Hz up to 100 kHz, modulation levels are available from 0 % to 100 %.

### User defined signals

External signals (e.g. EUT-fail or external instruments) can be connected and monitored using the application software.

## Setup:

The CIT-100 is a PC-controlled test equipment. It can be operated by any commercial IBM compatible PC (Microsoft® Windows software) via USB port. All settings of the equipment, e.g. start frequency, stop frequency, step width, test voltage etc. are made by means of the control software which is also included in the delivery. The three functional units RF-signal generator, RF-power amplifier and RF-voltmeter are set automatically by the software, depending on the pre-set test parameters.

Each component, however, may also be called and operated as separate measuring and testing equipment. This means: using the CIT-100 as testing system, you have three full, additional "single units" at your disposal, for which separate inputs and outputs are available as BNC connections. Due to the computer-aided control of the CIT-100, any modifications which may become necessary, for example, due to the revision of standards, may be performed without problems and without having to manipulate the hardware of the equipment.

## Quick overview of the different versions:

| Type                          | CIT-100 / 25              | CIT-100 / 75 MIL                                                                          | CIT-100 / 75              |
|-------------------------------|---------------------------|-------------------------------------------------------------------------------------------|---------------------------|
| Signalgenerator               | 4 kHz to 1.2 GHz          |                                                                                           |                           |
| RF-Power-Amplifier            | 25 W<br>100 kHz - 250 MHz | 75 W from 10kHz - 250MHz<br>10 W from 4 kHz - 100 kHz<br>min. 20 W from 250 MHz - 400 MHz | 75 W<br>100 kHz - 400 MHz |
| RF-Power-Meter<br>(3-channel) | 4 kHz to 1.2 GHz          |                                                                                           |                           |
| Directional coupler           | 4 kHz to 1.2 GHz          |                                                                                           |                           |