



Contents:

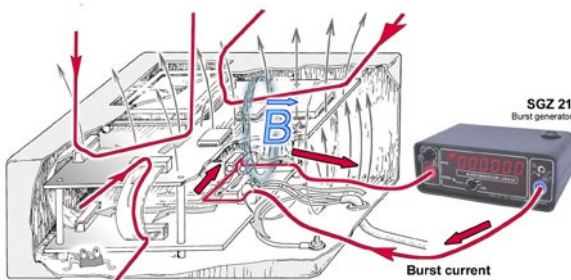
- Burst generator SGZ 21
- EMC sensor S31 with optical fibre
- B-field probe MS 02
- B-field sources BS 02; BS 04 DB; BS 04 DU; BS 05 D
- E-field sources ES 00; ES 01; ES 02; ES 05 D; ES 08 D
- Accessories
- Case with foam insert
- Operating instructions and laminat

Usage:

The E1 disturbance immunity development system simulates disturbance processes within the device. Disturbance currents, electric and magnetic fields are injected directly into the electronic modules in different ways to determine the susceptible structures on the circuit board, understand the coupling mechanism and enable the implementation of the optimum modifications.

Development system disturbance immunity E1 set

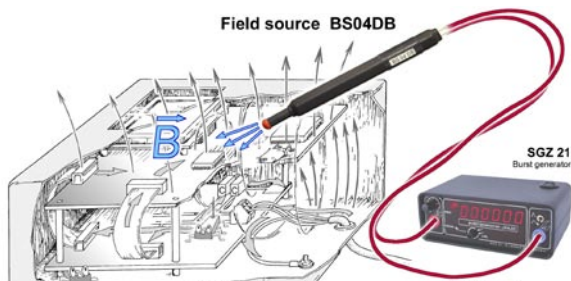
Measuring setup



Measuring strategies

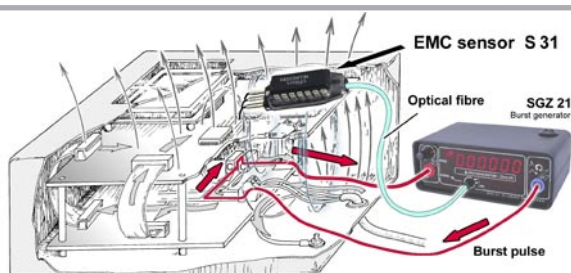
1. Analysis of disturbance current paths

Disturbance currents flow through the modules of an UUT during burst tests. The corresponding magnetic fields generate voltage differences in the GND system and/or induce voltages in signal loops. When a functional fault is produced in the UUT, the first step of the subsequent fault localization is to examine individual parts of the UUT such as individual modules, individual cable connections, small areas of a large module.



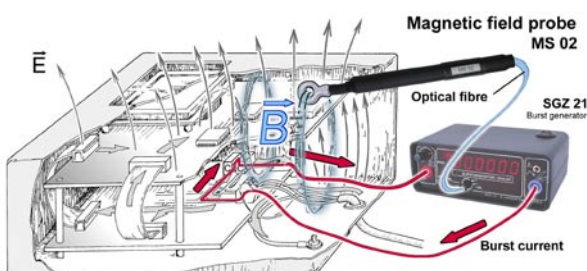
2. Fault localization with field sources

The functional fault is often caused by magnetic fields of the disturbance current or by electric fields (when coupling is field-bound). In order to pinpoint the place of interference, these fields are now coupled in with field sources which generate a magnetic or electric field in a small space. If a functional fault occurs when line-conducted disturbance current flows into and out of the UUT, magnetic field sources are used for fault localization. E field sources are used in the event that the fault occurs during field-bound coupling.



3. Monitoring of UUT logic signals

Signals are monitored when disturbances are coupled in so as to recognize disturbed logic signals and test the efficiency of EMC measures. These measurements allow statements with regard to the instantaneous operating state of UUTs if an interference is not immediately recognizable or not at all from outside. A sensor S31 is installed in the UUT for signal monitoring. This sensor transmits a signal which is significant for the UUT function without interacting with the UUT to the SGZ 21 via optical fibre.



4. Measuring burst magnetic fields

The E1 allows measurements of burst magnetic fields in the EUT with hardly any interaction with the uUT, thus indicating the run of burst currents. Each measurement of burst magnetic fields provides two results: the amount of the magnetic field and the direction of the magnetic field. The direction of the magnetic field lines - the current involved flows at an angle of 90° to them - can be easily determined by turning the probe. It is thus possible to obtain a precise idea of the magnetic field in the UUT and to assess which structures are particularly at risk.