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ADEMCO ITALIA
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20090 BUCCINASCO MI

Vs. rif.: --
Ns. rif.: FP/80-fm-3160/2003
Milano, 15 aprile 2003

Attenzione: SIG.SILVIO FERRARI

Oggetto: **Invio Rapporti di Prova di compatibilità elettromagnetica**

Con riferimento alla Vostra richiesta, Vi inviamo i Rapporti delle prove effettuate sui Vostri prodotti.

Modello	Rapporto di Prova	Norme applicate
ADVISTA 48	80SD00001	EN 50130-4:1995+A1:1998

Esito: **positivo**

Restiamo a Vostra disposizione per ogni eventuale chiarimento e Vi inviamo i nostri migliori saluti.

IMQ S.p.A.
Responsabile Area Laboratori

(Ing. Rocco Marotta)

All./

TEST REPORT

Measurements performed
in accordance with:
EN 50130-4:1995 + A1:1998

Test Report Ref. No. 80SD00001

Tested by: Massimo Brizzi

Date: 2003-04-08

Product	: Intruder alarm system (with communicator)	
Applicant	: ADEMCO ITALIA S.p.A. – Via C. Colombo, 1 - I-20094 Corsico	
Manufacturer	: ADEMCO ITALIA S.p.A. – Via C. Colombo, 1 - I-20094 Corsico	
Trade Mark	: ADEMCO	
Series	: /	
Model/Type ref.	: ADVISTA 48	
Serial number	: /	
Rating	: 1/N/PE AC 230 V 50 Hz	
Other information	: samples received on	: 2003-04-02
	testing dates	: 2003-04-02 ÷ 2003-04-07
	samples tested No.	: 1
	testing laboratory	: IMQ S.p.A. Via Quintiliano, 43 – I-20138 MILANO Tel. +39 0250731 - Fax +39 0250991500

Checked by:
EMC Testing Lab Head
Marco Trionfetti

Date: 2003-04-11

TEST SPECIFICATIONS, METHODS & PROCEDURES

According to: **EN 50130-4:1995 + A1:1998** "Electromagnetic Compatibility. Immunity requirements for component of fire, intruder and social alarm system. Product family standard"

The standard EN 50130-4:1995 + A1:1998 makes reference to the following Basic Standards:

Basic Standard	Date	Title
EN 61000-4-2 A1 A2	1995 1998 2001	Electromagnetic compatibility (EMC) Part 4: Testing and measuring techniques Section 2: Electrostatic discharge immunity test Basic EMC Publication
EN 61000-4-3 A1 A2	1996 1998 2001	Electromagnetic compatibility (EMC) Part 4: Testing and measuring techniques Section 3: Radiated, radio-frequency, electromagnetic field immunity test
EN 61000-4-4 A1 A2	1995 2001 2001	Electromagnetic compatibility (EMC) Part 4: Testing and measuring techniques Section 4: Electrical fast transient/burst immunity test Basic EMC Publication
EN 61000-4-5 A1	1995 2001	Electromagnetic compatibility (EMC) Part 4: Testing and measuring techniques Section 5: Surge immunity test
ENV 50141	1994	Electromagnetic compatibility - Basic immunity standard Conducted disturbances induced by radio-frequency fields immunity test
EN 61000-4-11 A1	1994 2001	Electromagnetic compatibility (EMC) Part 4: Testing and measuring techniques Section 11: Voltage dips, short interruptions and voltage variations immunity test

Additionally, clause 7 of EN 50130-4:1995 + A1:1998 requires to carry out supply voltage variations immunity test

TEST LOCATION

Conducted immunity tests are performed in laboratory.
Radiated immunity test is performed in a 3 m semianechoic chamber.

ENVIRONMENTAL CONDITIONS

Ambient temperature : 20 ÷ 25 °C
Relative humidity : 50 ÷ 60 %
Atmospheric pressure : 900 ÷ 1000 mbar

TEST RESULTS

Summary of test results

Port	Environmental Phenomenon	Result
Enclosure	Electrostatic discharges	Complies
Enclosure	Radio frequency electromagnetic fields, 80 MHz to 1000 MHz	Complies
A.C. mains	Electrical fast transients/bursts	Complies
Signal and control lines	Electrical fast transients/bursts	Complies
A.C. mains	Surges	Complies
Signal and control lines	Surges	Complies
A.C. mains	Injected currents, 0.15 to 100 MHz	Complies
Signal and control lines	Injected currents, 0.15 to 100 MHz	Complies
A.C. mains	Supply voltage variations	Complies
A.C. mains	Voltage dips and interruptions	Complies

Remark: Details of the results are showed on the next pages.

PERFORMANCE CRITERIA DURING IMMUNITY TESTS

A: During the test there shall be no damage, malfunction or change of status nor flickering of an indicator due to conditioning. The EUT shall meet the acceptance criteria for the functional test (see clause 6 of EN 50130-4:1995 + A1:1998), **during** the conditioning.

A1: During the test there shall be no damage, malfunction or change of status nor flickering of an indicator due to conditioning. The EUT shall meet the acceptance criteria for the functional test (see clause 6 of EN 50130-4:1995 + A1:1998), **after** the conditioning.

B: During the test there shall be no damage, malfunction or change of status due to conditioning. Flickering of an indicator during the conditioning is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change. The EUT shall meet the acceptance criteria for the functional test (see clause 6 of EN 50130-4:1995 + A1:1998), **after** the conditioning.

Particular requirements for CCTV systems for injected currents and radio frequency electromagnetic fields tests

For components of CCTV systems, where the status is monitored by observing the TV picture, then deterioration of the picture is allowed at 10 V (10 V/m) providing:

1) there is no permanent damage or change to the EUT (e.g. no corruption of memory or changes to programmable settings etc.)
2) at 3 V (3 V/m), any deterioration of the picture is so minor that the system could still be used, and
3) there is no observable deterioration of the picture at 1 V (1 V/m).

Minimum performance level of the EUT specified by the manufacturer

The apparatus shall continue to perform as intended.

Functional specifications

The ADVISTA 48 is a traditional intruder alarm system.

Description of support equipment

Defined as equipment needed for correct operation or loading of the EUT, but not considered as tested:

- keyboard type 6139 IT.

Mode of operation during the tests

The EUT is tested supplied with AC 230 V, idle condition.

Monitoring of the EUT

The following parameters/events are monitored:

- State maintenance + alarm condition with correct functioning of the communicator (by visual observation + telephone calls).

ELECTROSTATIC DISCHARGES

Methods and procedures according to EN 61000-4-2:1995 + A1:1998 + A2:2001, and to IMQ Operational Instruction IO-80-I01

Test levels according to sub-clause 9.3.4 of EN 50130-4:1995 + A1:1998

Position	Test voltage (kV)	Mode of application	Number of applications	Polarity	Performance criterion	Result
Enclosure	2/4/6	contact discharge	10	+/-	B	Complies
Keyboard	2/4/8	air discharge	10	+/-	B	Complies
Power cord	2/4/8	air discharge	10	+/-	B	Complies
Coupling planes	2/4/6	contact discharge	10	+/-	B	Complies

Repetition rate: 1 per second

Remark: The test set-up is showed in Annex A of this Test Report.

Result: The apparatus continues to operate as intended during and after the test.

RADIO FREQUENCY ELECTROMAGNETIC FIELDS, 80 MHz TO 1000 MHz

Methods and procedures according to EN 61000-4-3:1996 + A1:1998 + A2:2001, and to IMQ Operational Instruction IO-80-I02

Test levels according to sub-clause 10.3.4 of EN 50130-4:1995 + A1:1998

Frequency (MHz)	Test field strength (V/m (rms)) (unmodulated)	Modulation during the test	Performance criterion	Result
80 ÷ 1000	3	AM, 80 %, 1 kHz sinewave	A1	Complies
	10		B	Complies
	3	pulse modulation 1 Hz squarewave 50 % duty cycle	A1	Complies
	10		B	Complies

Frequency step: 1 %
Actuation time: 3 s

Remark: The test set-up is showed in Annex B of this Test Report.

Result: The apparatus continues to operate as intended during and after the test.
* The communicator is verified at the following frequencies: 80, 120, 160, 230, 434, 460, 600, 863, 900 MHz.

ELECTRICAL FAST TRANSIENTS/BURSTS

Methods and procedures according to EN 61000-4-4:1995 + A1:2001 + A2:2001, and to IMQ Operational Instruction IO-80-I03

Test levels according to sub-clause 12.2.4 of EN 50130-4:1995 + A1:1998

Port	Test voltage (kV)	Coupling mode	Polarity	Performance criterion	Result
A.C. mains	0.5/1/2	CDN	+/-	B	Complies
Signal and control lines	0.25/0.5/1	Capacitive clamp	+/-	B	Complies

Duration of the test: 1 minute

Remark: The test set-up is showed in Annex C of this Test Report.

Result: The apparatus continues to operate as intended during and after the test.

SURGES

Methods and procedures according to EN 61000-4-5:1995 + A1:2001, and to IMQ Operational Instruction IO-80-I04

Test levels according to sub-clause 13.3.4 of EN 50130-4:1995 + A1:1998

Port		Test Voltage (kV)	Coupling mode	Polarity	Performance criterion	Result
A.C. mains	Common mode	0.5/1/2	CDN	+/-	B	Complies
	Diff. mode	0.5/1	CDN	+/-	B	Complies
Signal and control lines (shielded cables)	Common mode	0.5/1	Direct (on shield)	+/-	B	Complies

Repetition rate: 1 every 12 s

Remark: The test set-up is showed in Annex D of this Test Report.

Result: The apparatus continues to operate as intended during and after the test.

INJECTED CURRENTS, 0.15 TO 100 MHz

Methods and procedures according to ENV 50141:1994, and to IMQ Operational Instruction IO-80-I05

Test levels according to sub-clause 11.3.4 of EN 50130-4:1995 + A1:1998

Port	Test voltage (V(rms)) (unmodulated)	Modulation during the test	Coupling mode	Performance criterion	Result
A.C. mains	3	AM, 80 %, 1 kHz sinewave	CDN	A1	Complies
	10			B	Complies
A.C. mains	3	pulse modulation 1 Hz squarewave 50 % duty cycle	CDN	A1	Complies
	10			B	Complies
Signal and control lines (shielded cable)	3	AM, 80 %, 1 kHz sinewave	CDN	A1	Complies
	10			B	Complies
Signal and Control lines (shielded cable)	3	pulse modulation 1 Hz squarewave 50 % duty cycle	CDN	A1	Complies
	10			B	Complies

Frequency step: 1 %
Actuation time: 3 s

Remark: The test set-up is showed in Annex E of this Test Report.

Result: The apparatus continues to operate as intended during and after the test.
* The communicator is verified at the following frequencies: 0.2, 1, 7.1, 13.56, 21, 27.12, 40.68, 80 MHz.

SUPPLY VOLTAGE VARIATIONS

Sub-clause 7.3.4 of EN 50130-4:1995 + A1:1998

Port	Test level in % of rated voltage	Performance criterion	Result
A.C. mains	110	A	Complies
	85	A	Complies

Result: The apparatus continues to operate as intended during and after the test.

VOLTAGE DIPS AND INTERRUPTIONS

Methods and procedures according to EN 61000-4-11:1994 + A1:2001, and to IMQ Operational Instruction IO-80-I10

Test levels according to sub-clause 8.3.4 of EN 50130-4:1995 + A1:1998

Port	Test level in % of rated voltage	Duration (ms)	Number of applications	Performance criterion	Result
A.C. mains	0	10/20/100	3	C	Complies
	40	10/20/100/200	3	C	Complies

Repetition rate: 1 per 10 seconds

Remark: The test set-up is showed in Annex F of this Test Report.

Result: The apparatus continues to operate as intended during and after the test.

ADDITIONAL TECHNICAL INFORMATION

Electromagnetically relevant components:

Component	No.	Manufacturer	Type - Technical data
Electronic board	1	ADEMCO	/ - /
Keyboard	1	ADEMCO	6139 IT - /

RFI suppression devices:

None.

EMI protection devices:

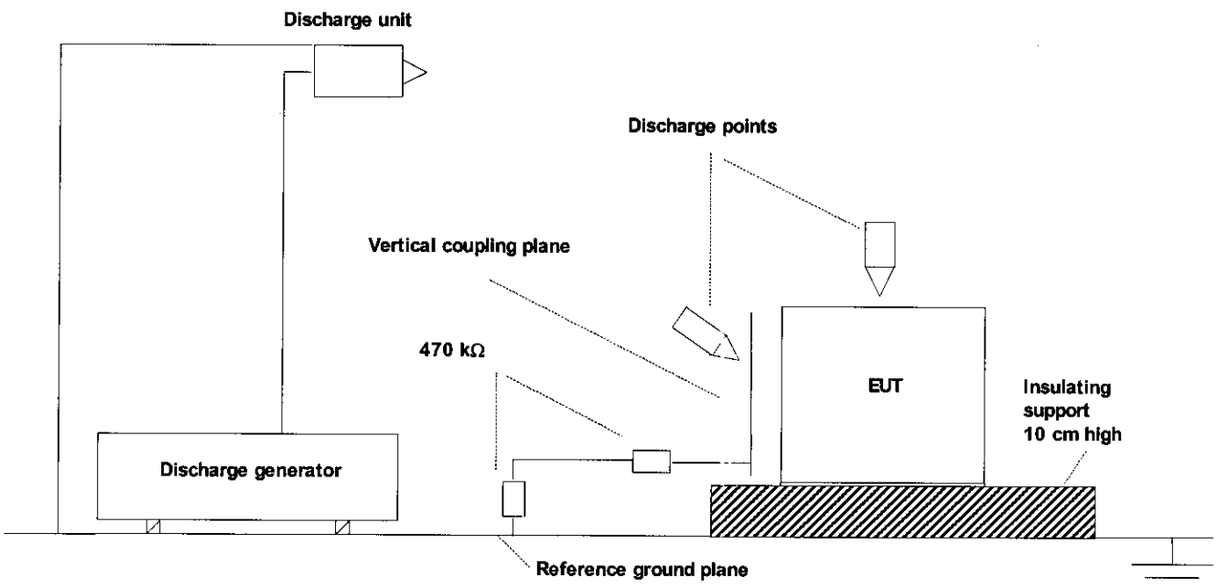
None.

Oscillator frequencies: / MHz

ANNEX A

Electrostatic discharges

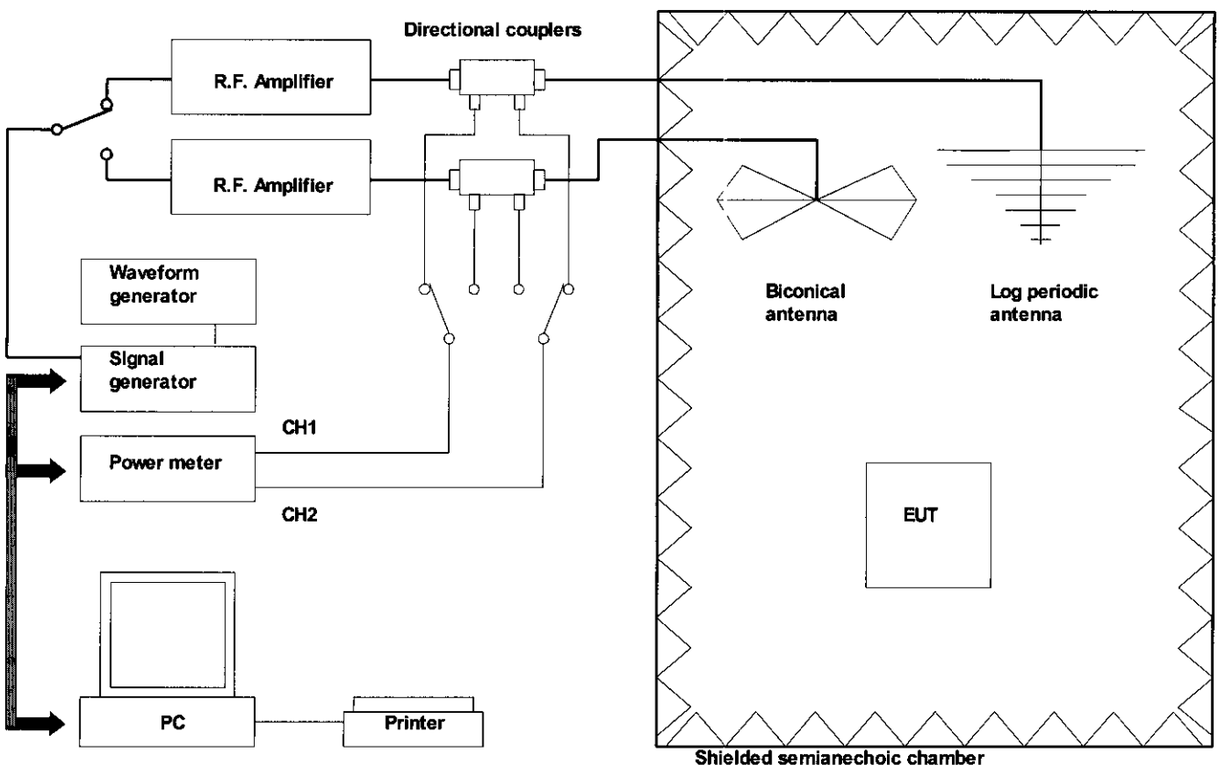
Test set-up:



ANNEX B

Radio frequency electromagnetic fields

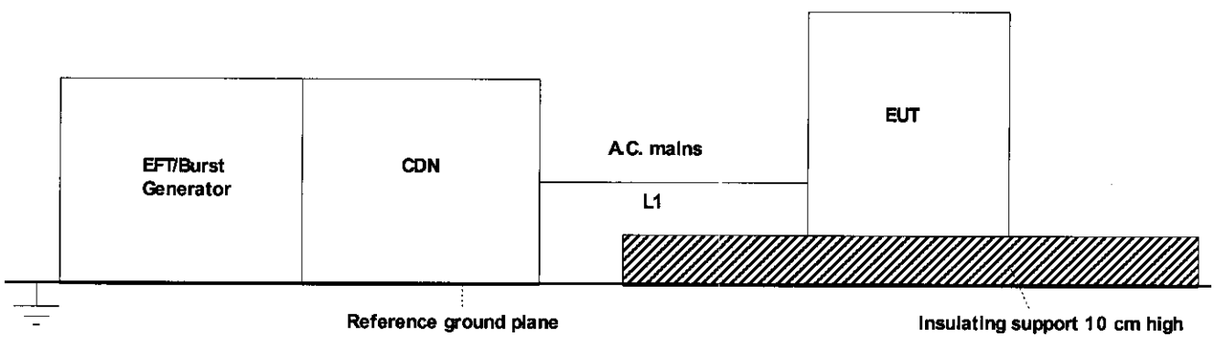
Test set-up:

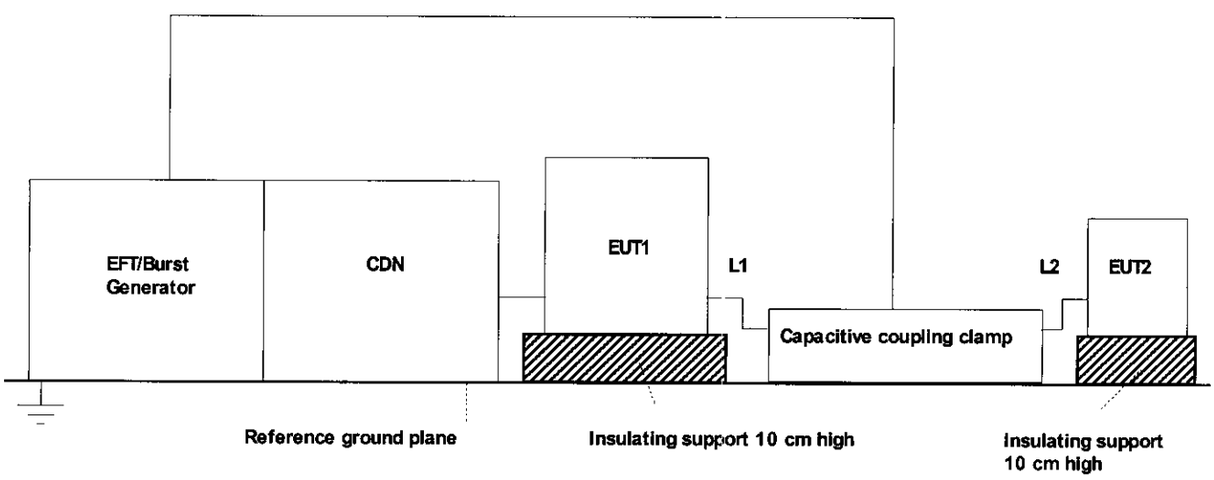


ANNEX C

Electrical fast transients/bursts

Test set-up:



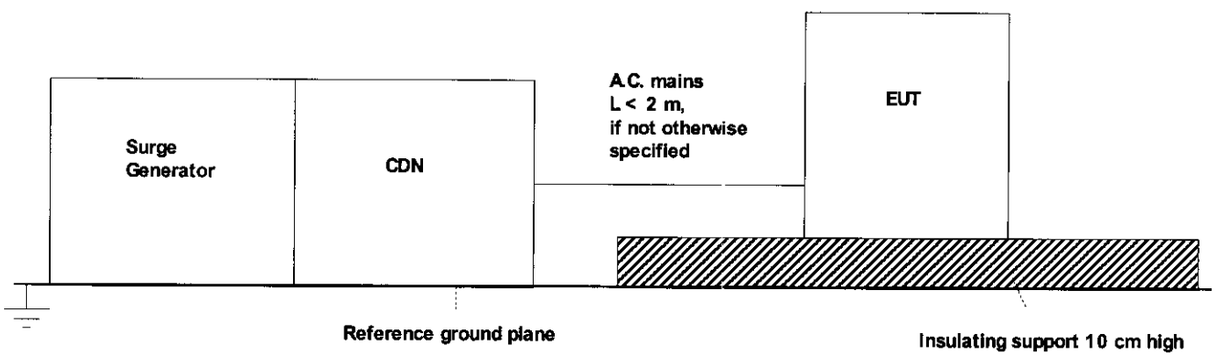


L1 : 1 m
L2 : 1 m when both EUT are tested
5 m when only EUT1 is tested

ANNEX D

Surges

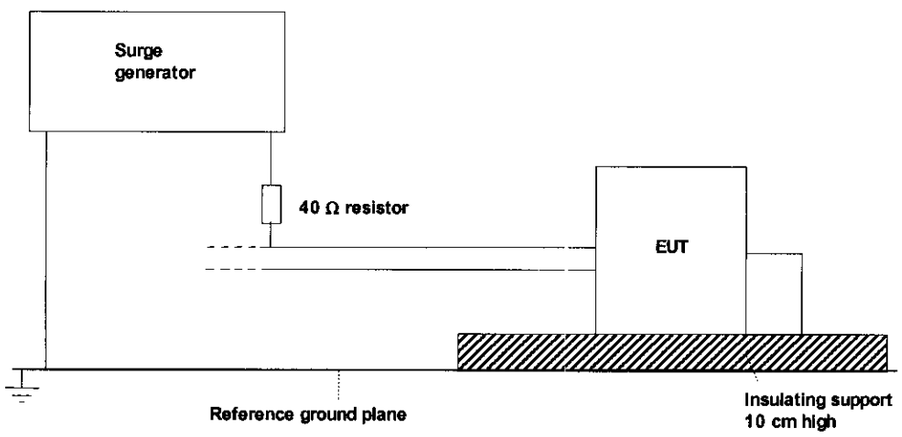
Test set-up:



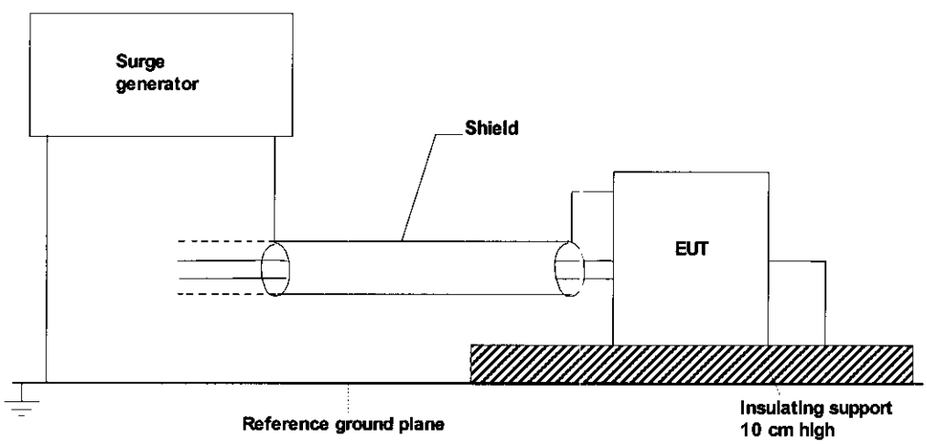
ANNEX D

Surges

Test set-up:



Application on D.C. mains and signal lines (unshielded cables)

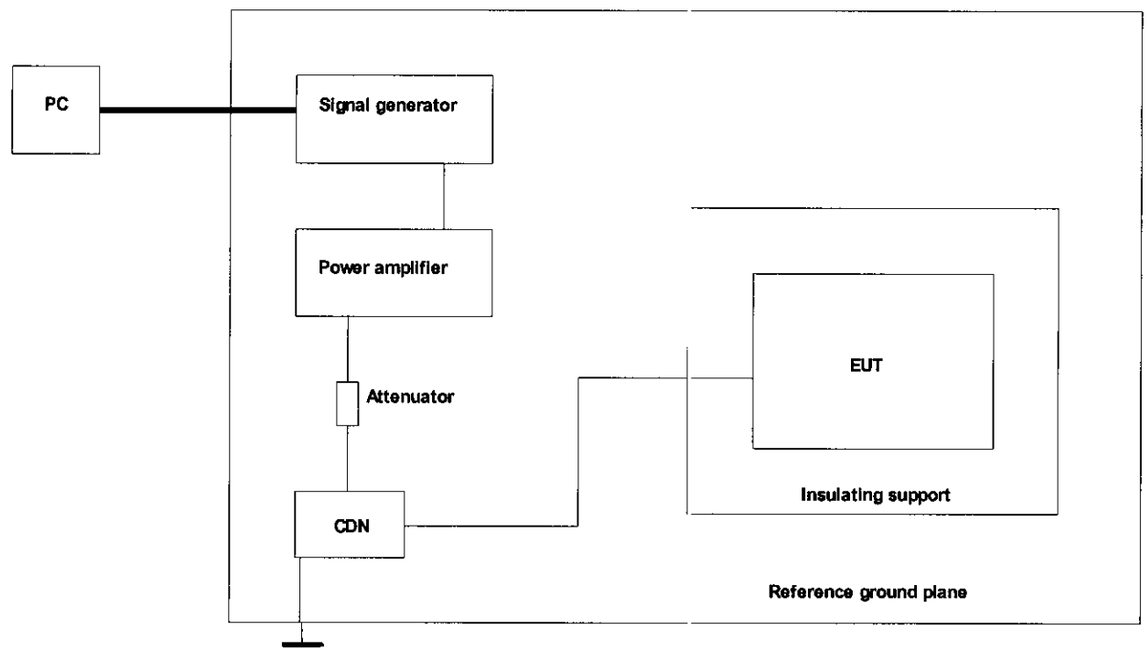


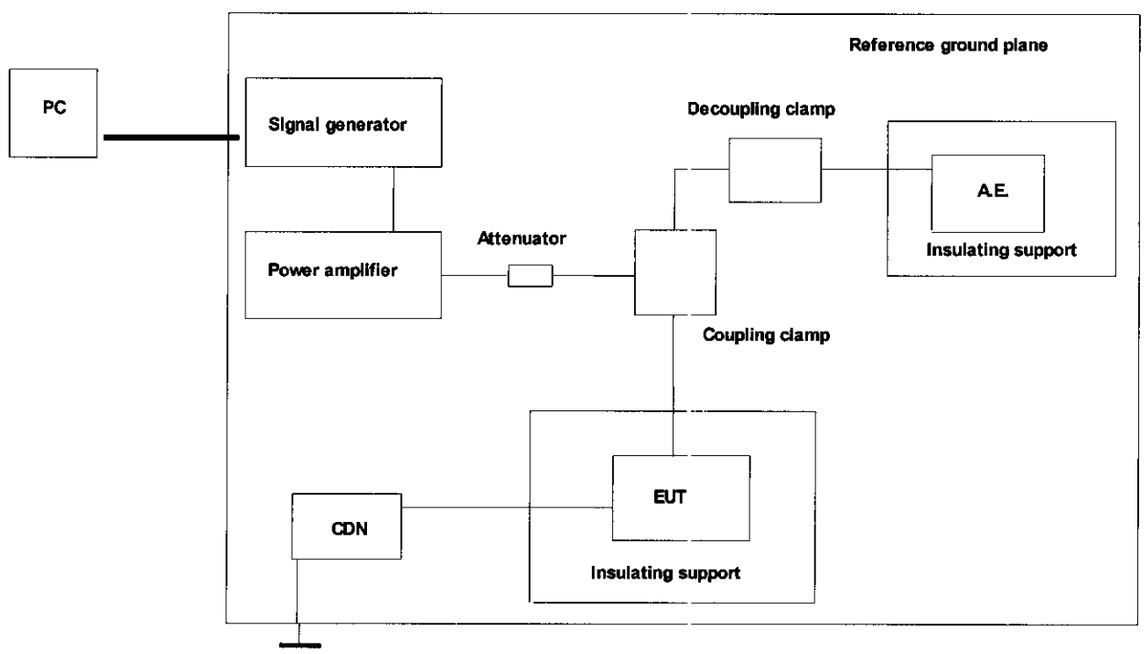
Application on signal lines (shielded cable)

ANNEX E

Injected currents

Test set-up:

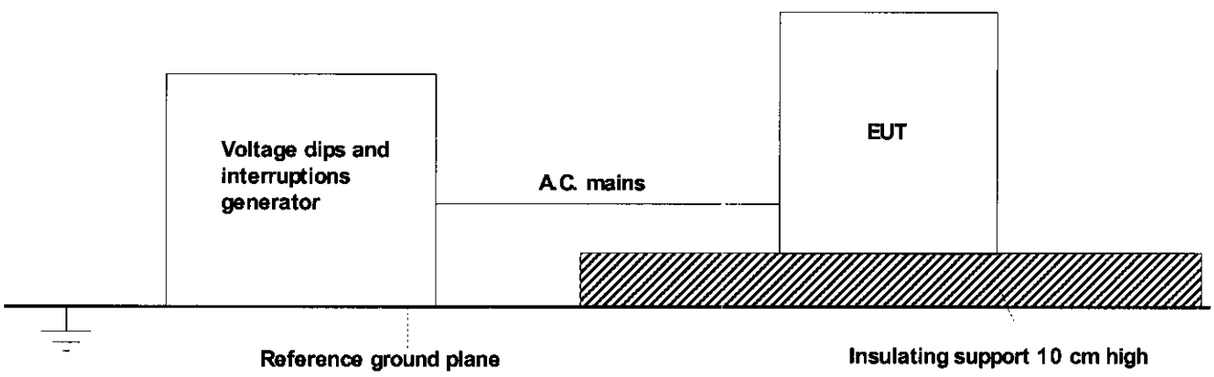




ANNEX F

Voltage dips and interruptions

Test set up:



ANNEX G

Test equipment and instrumentation

Electrostatic discharges

- Electrostatic Discharge Generator EM TEST type ESD30
  IMQ No. S-01270
- Discharge Unit EM TEST type P18
  IMQ No. S-01271

Radio frequency electromagnetic fields

- RF Generator RHODE & SCHWARZ type SMT03
  IMQ No. S-02388
- RF Amplifier AR type 100W1000M1A
  IMQ No. S-02389
- RF Amplifier AR type 200W1000M7A
  IMQ No. S-02390
- Directional Coupler AR type DC6180
  IMQ No. S-02392
- Directional Coupler MEB type RK100
  IMQ No. S-02391
- Powermeter TESEO type SOPM01
  IMQ No. S-02393
- Antenna SAS type 200/543
  IMQ No. S-02384
- Antenna AR type AT1080
  IMQ No. S-02386
- Shielded semianechoic chamber SIDT EUROPE
  IMQ No. P-01709
- PC and software for test automation

ANNEX G

Test equipment and instrumentation

Electrical fast transients/bursts

- System KEYTEK type S-ECAT
  IMQ No. S-01504
- EFT/B Generator KEYTEK type ECAT E411
  IMQ No. S-01506
- Coupling/Decoupling Network KEYTEK type ECAT E4553
  IMQ No. S-01509
- Capacitive Coupling Clamp KEYTEK type CCL-4/S
  IMQ No. S-01510
- PC and software for test automation

Surges

- System KEYTEK type S-ECAT
  IMQ No. S-01504
- Surge Generator KEYTEK type ECAT 501
  IMQ No. S-01507
- PC and software for test automation
- System KEYTEK type CE Master
  IMQ No. S-02377
- PC and software for test automation

ANNEX G

Test equipment and instrumentation

Injected currents

- Signal Generator ROHDE & SCHWARZ type SMG
  IMQ No. S-00562
- Signal Generator SCHLUMBERGER type 4421
  IMQ No. S-00302
- Amplifier IFI type M5360
  IMQ No. S-00571
- Power attenuator PASTERNACK type PE 7021-6
- Coupling/Decoupling Network MEB type M3-801/6
  IMQ No. S-01942
- Coupling/Decoupling Network MEB type S9-801/6
  IMQ No. S-01946
- Coupling Clamp LUTHI type EM101
  IMQ No. S-02032
- Decoupling Clamp LUTHI type FTC 101
  IMQ No. S-02033
- Millivoltmeter ROHDE & SCHWARZ type URV5
  IMQ No. S-00566
- PC and software for test automation

Voltage dips and interruptions

- System KEYTEK type S-ECAT
  IMQ No. S-02403
- Voltage dips and interruptions generator KEYTEK type ECAT EP62
  IMQ No. S-02402
- Three-phase selector KEYTEK type ECAT EP3
  IMQ No. S-02404
- PC and software for test automation