

Stok Air Automação Ltda.

850, Tamoios St. – ZIP 80.320-290 CURITIBA, PR, BRAZIL

Phone/fax: + 55 41 343 0236, e-mail: stokair@bol.com.br

**CONFORMITY DECLARATION
IN ACCORDANCE WITH**

89/336EEC

Stok Air Automação Ltda.
850, Tamoios St.
ZIP 80.320-290 Curitiba, PR, Brazil

Declares that the following tyre calibrator model :

Electronic Tyre Calibrator Premium

which this declaration refers to respect the following regulations:

Standards : EN 61000-3-2:1995 + A10:1997
EN 61000-3-3:1995
EN 55011:1991 + A1:1997 + A2:1996
EN 50082-1:1995

Curitiba, July 16, 2003


Director João Paulo Caravalle



ISTITUTO ITALIANO
DEL MARCHIO DI QUALITÀ
per il controllo di rispondenza
a norme tecniche di prodotti e sistemi:
D.P.R. n. 134 del 20-1-1971

I-20138 Milano - Via Quintiliano, 43
Tel. 0250731 (r.a.) - Fax 02507327
E-mail: info@imq.it
CCIAA Milano n° 1421712
Trib. Milano Pers. Giur. n° 159 / vo: 5 fasc. 162
C. Fiscale/P. IVA 00798880159

MR ENNES
AIRTECH

FAX: 0055.41.2428811

Your Ref: -
Our Ref: US/rc - EM 0324/99
Date: 1999-02-04

Dear Mr Ennes

EMC Test Results and applied standards

With referencen to your-kind request of 1998-12-10, we inform you that the tests carried out on your products, had a positive result.

Electronic tire calibrator type FUTURA - ART04L

Test reports: 80S9900042/e
80S9900042/i

Standards: EN 61000-3-2:1995 + A13:1997
EN 61000-3-3:1995
EN 55011:1991 + A1:1997 + A2:1996
EN 50082-1:1995

The above mentioned Test Report will follow by mail.

Yours sincerely,

Umberto Scola
Manager
Electronic Division

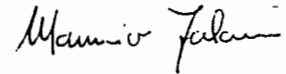
TEST REPORT

Measurements performed
in accordance with:
EN 61000-3-2:1995+A13:1997
EN 61000-3-3:1995
EN 55011:1991+A1:1997+A2:1996

Test Report Ref. No. 80s9900042/e

Page 1 of 20

Tested by: Maurizio Falorni



Date: 28.01.1999

Product : Tyres pressure electronic calibrator

Applicant : AIRTECH EQUIP. DE AUTOMAÇÃO INDUSTRIAL Ltda, Rua Santo Amaro,
580 - Agua Verde - BR-80620-330 Curitiba

Manufacturer : AIRTECH EQUIP. DE AUTOMAÇÃO INDUSTRIAL Ltda, Rua Santo Amaro,
580 - Agua Verde - BR-80620-330 Curitiba

Trade Mark : PNEUAIR

Series : /

Model/Type ref. : FUTURA ART04L

Serial number : Z928K612

Rating : 1/N/PE AC 220 V 50/60 Hz 48 W

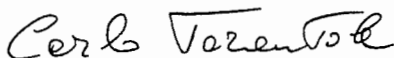
Other information : samples received on : 22.12.1998

testing dates : 19.01.1999 - 21.01.1999

samples tested No. : 1

testing laboratory : IMQ - Istituto Italiano del Marchio di Qualità
Via Quintiliano, 43 - 20138 MILANO
Tel. +39 2 50731 - Fax +39 2 5073271

Checked by:
EMC Laboratory Manager



Carlo Tarantola

Date: 03.02.1999

The results of tests and checks reported in this Test Report refer exclusively to the samples tested and described in the Report itself. Only full reproductions of the Test Report are allowed without written permission of IMQ.

TEST SPECIFICATIONS, METHODS & PROCEDURES

EMISSION: according to the following standards:

Product family standard	Date	Title
EN 61000-3-2 A13	1995 1997	Electromagnetic compatibility (EMC) Part 3: Limits Section 2: Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
EN 61000-3-3	1995	Electromagnetic compatibility (EMC) Part 3: Limits Section 3: Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current ≤ 16 A
EN 55011 A1 A2	1991 1997 1996	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment

TEST LOCATION

Harmonic currents and voltage fluctuations measurements are performed in laboratory.
All RF emission measurements are performed in a shielded chamber, except for radiated continuous emission measurement from 30 to 1000 MHz which is performed in a 3 m semianechoic chamber.

ENVIRONMENTAL CONDITIONS

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

MEASUREMENT RESULTS

Summary of measurement results

Port	Environmental Phenomenon	Result
A.C. mains	Harmonic currents	Complies
	Voltage fluctuations	Complies
	Conducted continuous emissions	Complies
Enclosure	Radiated emissions	Complies

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

The measurements are carried out with a supply voltage of AC 230 V instead of AC 220 V (EUT rated voltage); the results are deemed to be equivalent.

CONDUCTED EMISSION: HARMONIC CURRENTS

Methods and procedures according to EN 61000-3-2:1995 + A13:1997, and to IMQ Operational Instruction IO-80-E02

Port: A.C. mains

Harmonic order n	Max. permissible steady state harmonic (A)	Max. permissible transitory harmonic (A)	Result
odd harmonics			
3°	2.30	3.45	Complies
5°	1.14	1.71	Complies
7°	0.77	1.155	Complies
9°	0.40	0.60	Complies
11°	0.33	0.495	Complies
13°	0.21	0.315	Complies
15° ≤ n ≤ 39°	0.15 · 15/n	/	Complies
even harmonics			
2°	1.08	1.620	Complies
4°	0.43	0.645	Complies
6°	0.30	0.450	Complies
8° ≤ n ≤ 40°	0.23 · 8/n	/	Complies

Remark: Limits for Class A equipment.

Detailed results are showed in Annex A of this Test Report.

The measurement set-up is showed in Annex E of this Test Report.

Result: The equipment under test produces values of harmonic components of the input current lower than the permitted limits.

CONDUCTED EMISSION: VOLTAGE FLUCTUATIONS

Methods and procedures according to EN 61000-3-3:1995, and to IMQ Operational Instruction IO-80-E01

Port: A.C. mains

Type of voltage fluctuation	Limit	Comments	Result
Short-term flicker indicator P_{st}	1.0	/	Complies
Long-term flicker indicator P_{lt}	0.65	/	Complies
Relative steady-state voltage change d_c	3 %	/	Complies
Relative voltage change characteristic $d(t)$	>3 % for not more than 200 ms	/	Complies
Maximum relative voltage change d_{max}	4 %	/	Complies

Remark: Detailed results are showed in Annex B of this Test Report.
The measurement set-up is showed in Annex F of this Test Report.

Result: The equipment under test produces P_{st} , P_{lt} , d_c , $d(t)$ and d_{max} values lower than the permitted limits.

RADIATED EMISSION: CONTINUOUS INTERFERENCE

Methods and procedures according to EN 55011:1991 + A1:1997 + A2:1996, and to IMQ Operational Instruction IO-80-E08

Port: enclosure

Frequency range (MHz)	Limit dB(μ V/m)	Comments	Result
30 ÷ 230	40.5 Quasi-Peak	The limits in table 3 of EN 55011 are increased by a factor of 10.5 dB for the measuring distance of 3 m	Complies
230 ÷ 1000	47.5 Quasi-Peak		Complies

Remark: Limits for Group 1, Class B equipment.

Detailed results are showed in Annexes D and D/1 of this Test Report.

The measurement set up is showed in Annex H of this Test Report.

Result: The equipment under test produces radiated disturbance values lower than the permitted limits.

ADDITIONAL TECHNICAL INFORMATION

Electromagnetically relevant components:

Component	No.	Manufacturer	Type - Technical data
Electronic circuit	1	/	/ - /
Microprocessor	1	/	/ - 4 MHz
Power supply circuit	1	/	/ - /

RFI suppression devices:

None.

EMI protection devices:

None.

Oscillator frequencies: 4 MHz

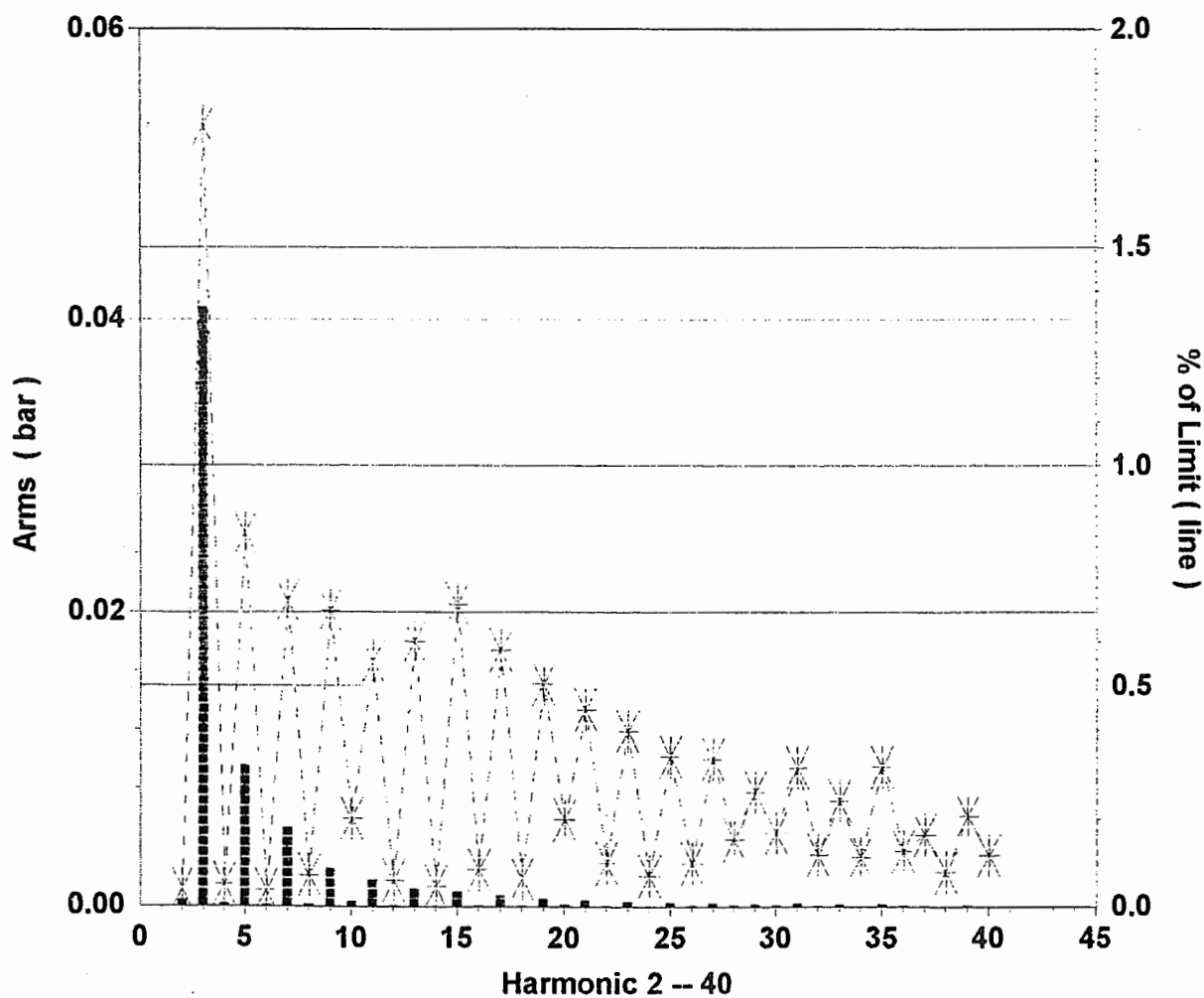
ANNEX A

Measurement of the harmonic component

Clause 6.2 of EN 61000-3-2:1995 + A13:1997 Harmonic currents measurement

Test conditions: According to Annex C sub-clause C.10 of EN 61000-3-2:1995 + A13:1997
(Normal operating conditions)Graphic representation of harmonic currents in A_{rms} and as a % of the limit of steady state harmonics:

- X-axis : harmonic order
- left Y-axis : A_{rms}
- right Y-axis: % of the limit
- bars : measured values of harmonic currents in A_{rms}
- asterisks : measured values of harmonic currents as a % of the limit of steady state harmonics



ANNEX B

Voltage fluctuations

Clause 4. of EN 61000-3-3:1995 Assessment of voltage fluctuations (Flicker measurement)

Test conditions: According to sub-clause 6.6 of EN 61000-3-3:1995 (Normal operating conditions)

Observation time: 10 minutes (P_{st})

2 hours (P_{lt})

Type of voltage fluctuation	Maximum allowed	Observed
Short term flicker indicator P_{st}	1.0	0.013
Long term flicker indicator P_{lt}	0.65	0.013
Relative steady state voltage change d_c	3 %	0 %
Maximum relative voltage change d_{max}	4 %	0 %
Relative voltage change characteristic $d(t)$	> 3 % for not more than 200 ms	> 3 % for 0 ms

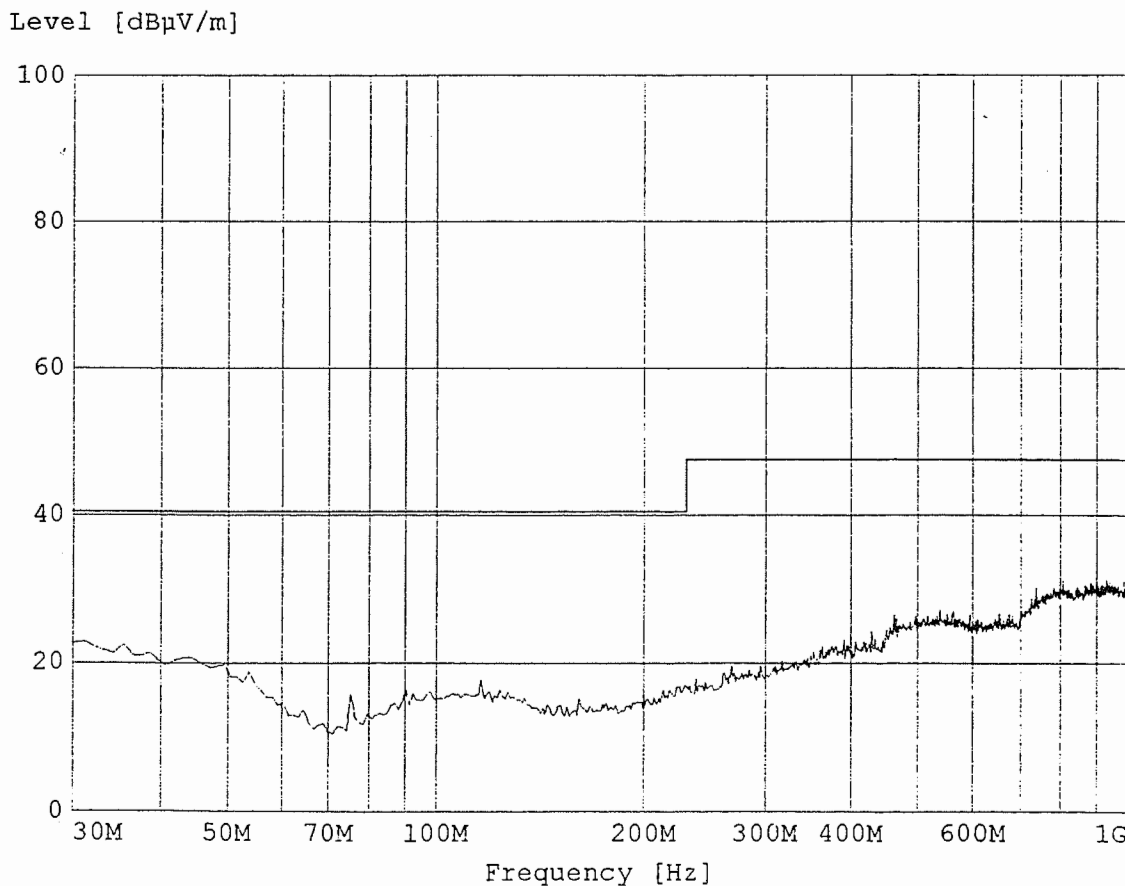
Remark: /

ANNEX D/1

Continuous interference in the frequency range 30 to 1000 MHz (radiated emission)

Quasi-Peak detector (X marked points) []

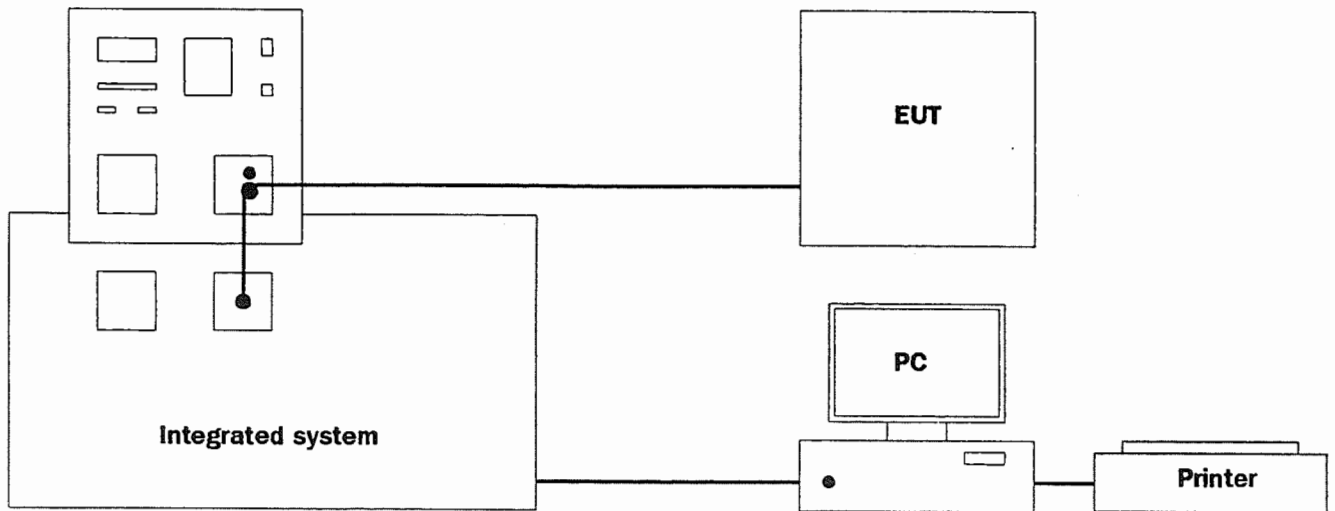
Peak detector [X]



ANNEX E

Harmonic currents

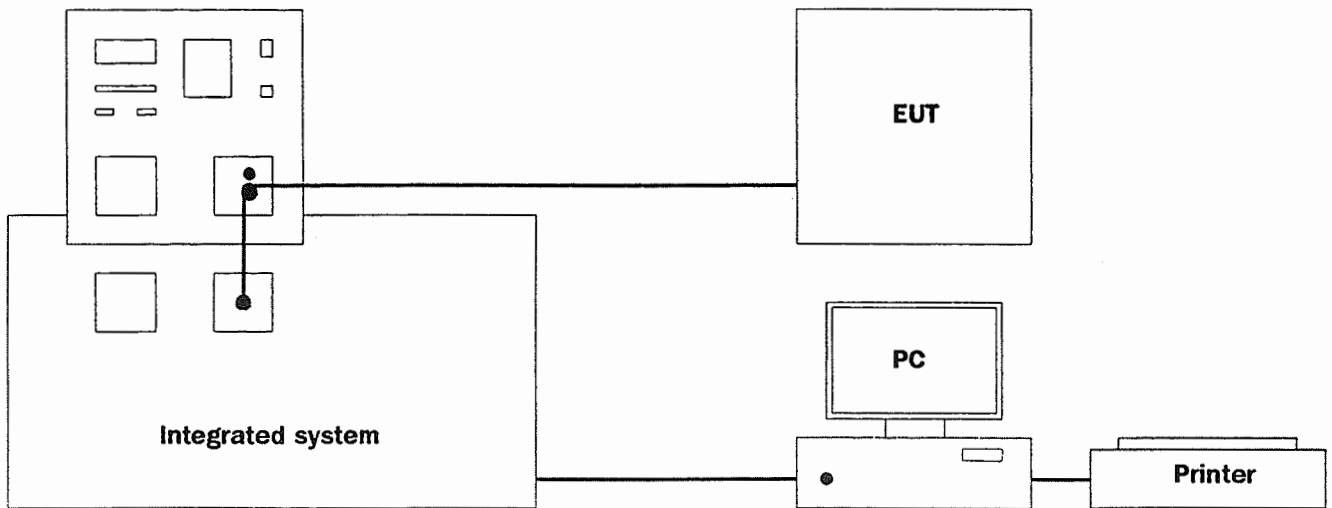
Measurement set-up:



ANNEX F

Voltage fluctuations

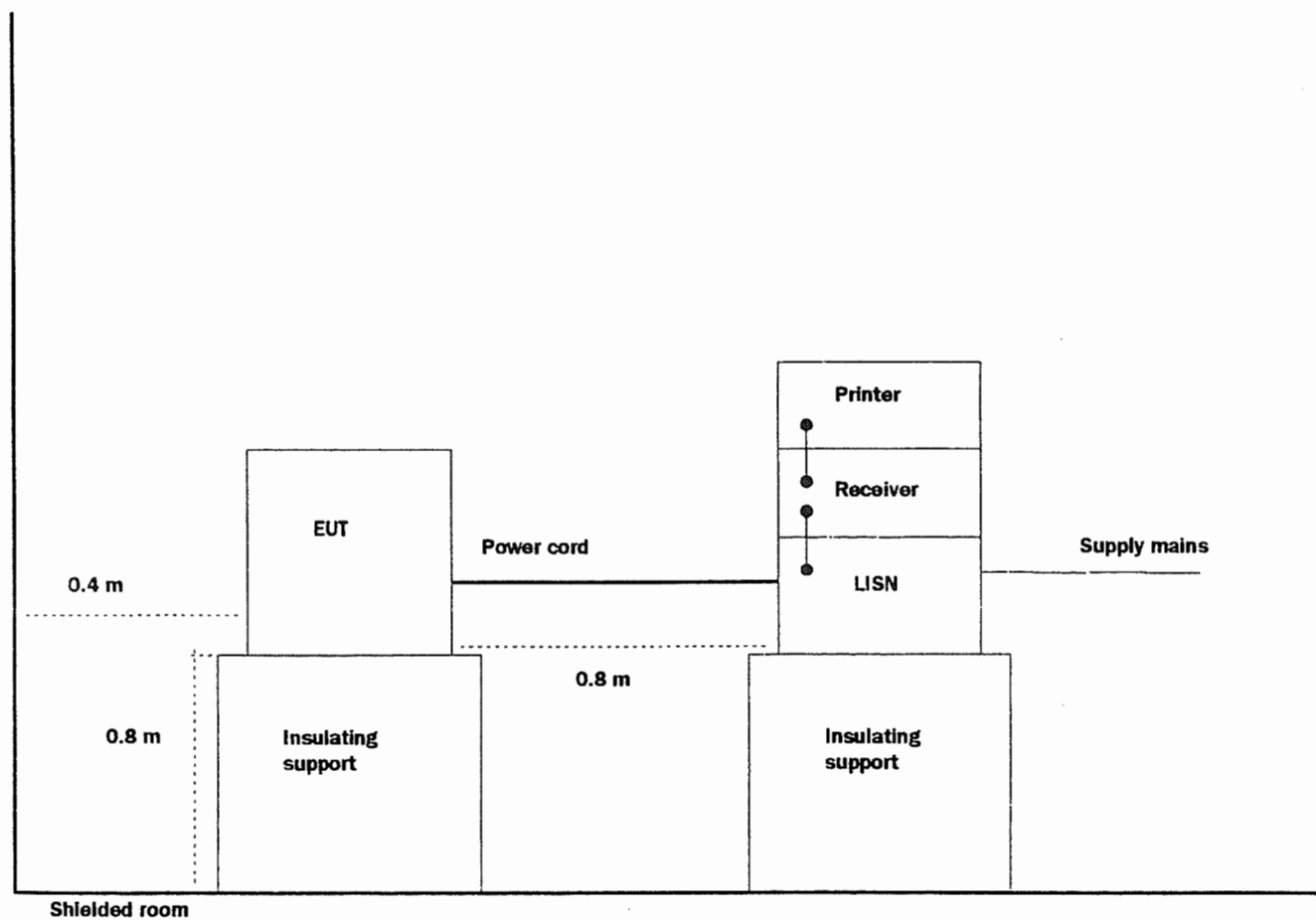
Measurement set-up:



ANNEX G

Conducted continuous emissions

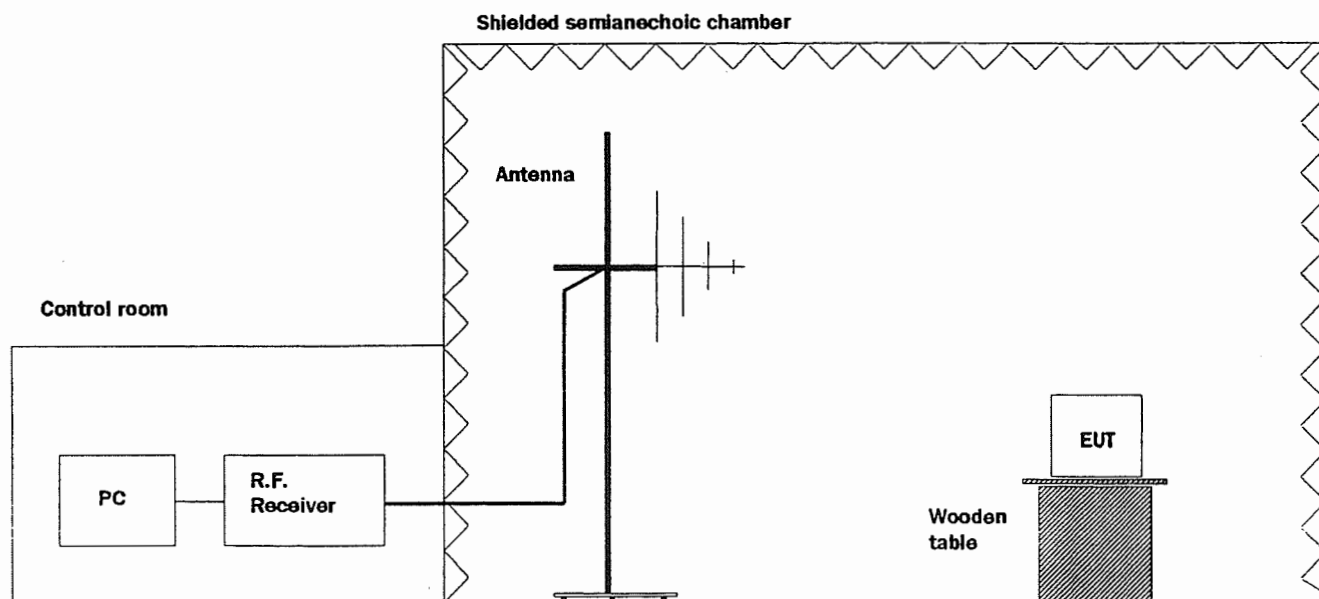
Measurement set-up:



ANNEX H

Radiated emission

Measurement set-up:



ANNEX I**Measurement equipment and instrumentation****Harmonic currents**

- Integrated system KEYTEK type EP 94
IMQ No. S-02295
- PC and software for measurement automation

Voltage fluctuations

- Integrated system KEYTEK type EP 94
IMQ No. S-02295
- PC and software for measurement automation

Conducted continuous emission

- Artificial Mains V-network ROHDE & SCHWARZ type ESH2-Z5
IMQ No. S-00554
- Artificial Mains V-network ROHDE & SCHWARZ type ESH3-Z5
IMQ No. S-02122
- Pulse limiter ROHDE & SCHWARZ type ESH3-Z2
IMQ No. S-02205
- Selective Voltmeter EMI ROHDE & SCHWARZ type ESMI
IMQ No. S-02349/02350
- PC and software for measurement automation

Radiated Emission

- Selective Voltmeter EMI ROHDE & SCHWARZ type ESMI
IMQ No. S-02349/02350
- Antenna ARA type LPB-2513/A
IMQ No. S-02385
- System controller mast antenna and turntable SUNOL SCIENCES type CONT94
- Shielded semianechoic chamber SIDT EUROPE
IMQ No. P-01709
- PC and software for measurement automation



ISTITUTO ITALIANO
DEL MARCHIO DI QUALITÀ
per il controllo di rispondenza
a norme tecniche di prodotti e sistemi:
D.P.R. n. 134 del 20-1-1971

I-20138 Milano - Via Quintiliano, 43
Tel. 0250731 (r.a.) - Fax 02507327
E-mail: info@imq.it
CCIAA Milano n° 1421712
Trib. Milano Pers. Giur. n° 159 / vol. 5 fasc. 162
C. Fiscale/P. IVA 00798880159

MR ENNES
AIRTECH

FAX: 0055.41.2428811

Your Ref:—
Our Ref: US/rc – EM 0324/99
Date: 1999-02-04

Dear Mr Ennes

EMC Test Results and applied standards

With referencen to your kind request of 1998-12-10, we inform you that the tests carried out on your products, had a positive result.

Electronic tire calibrator type FUTURA – ART04L

Test reports: 80S9900042/e
80S9900042/i

Standards: EN 61000-3-2:1995 + A13:1997
EN 61000-3-3:1995
EN 55011:1991 + A1:1997 + A2:1996
EN 50082-1:1995

The above mentioned Test Report will follow by mail.

Yours sincerely,

Umberto Scola
Manager
Electronic Division

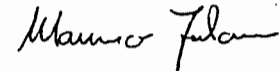
TEST REPORT

Measurements performed
in accordance with:
EN 50082-1:1992

Test Report Ref. No. 80s9900042/i

Page 1 of 12

Tested by: Maurizio Falorni



Date: 28.01.1999

Product : Tyres pressure electronic calibrator

Applicant : AIRTECH EQUIP. DE AUTOMAÇÃO INDUSTRIAL Ltda, Rua Santo Amaro,
580 - Agua Verde - BR-80620-330 Curitiba

Manufacturer : AIRTECH EQUIP. DE AUTOMAÇÃO INDUSTRIAL Ltda, Rua Santo Amaro,
580 - Agua Verde - BR-80620-330 Curitiba

Trade Mark : PNEUAIR

Series : /

Model/Type ref. : FUTURA ART04L

Serial number : Z928K612

Rating : 1/N/PE AC 220 V 50/60 Hz 48 W

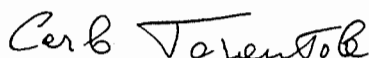
Other information : samples received on : 22.12.1998

testing dates : 19.01.1999 - 21.01.1999

samples tested No. : 1

testing laboratory : IMQ - Istituto Italiano del Marchio di Qualità
Via Quintiliano, 43 - 20138 MILANO
Tel. +39 2 50731 - Fax +39 2 5073271

Checked by:
EMC Laboratory Manager



Carlo Tarantola

Date: 03.02.1999

The results of tests and checks reported in this Test Report refer exclusively to the samples tested and described in the Report itself. Only full reproductions of the Test Report are allowed without written permission of IMQ.

TEST SPECIFICATIONS, METHODS & PROCEDURES

IMMUNITY: according to EN 50082-1:1992 "Electromagnetic compatibility. Generic immunity standard. Part 1: Residential, commercial and light industry"

The standard EN 50082-1 makes reference to the following Basic Standards:

Basic Standard	Date	Title
IEC 801-2	1984	Electromagnetic Compatibility for Industrial-process measurement and control equipment. Part 2: Electrostatic Discharge Requirements
IEC 801-3	1984	Electromagnetic Compatibility for Industrial-process measurement and control equipment. Part 3: Radiated Electromagnetic Field Requirements
IEC 801-4	1988	Electromagnetic Compatibility for Industrial-process measurement and control equipment. Part 4: Electrical Fast Transient/Burst Requirements

Electrostatic Discharges test is however performed according to both IEC 801-2:1984 and IEC 1000-4-2:1995 (EN 61000-4-2:1995).

Electrical Fast Transients/Bursts test is however performed according to both IEC 801-4:1988 and IEC 1000-4-4:1995 (EN 61000-4-4:1995).

Remark: /

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, 27 MHz to 500 MHz	Complies
A.C. mains	Electrical fast transients/bursts	Complies

Remark: Details of the results are showed on the next pages.
The tests are carried out with a supply voltage of AC 230 V instead of AC 220 V (EUT rated voltage); the results are deemed to be equivalent.

PERFORMANCE CRITERIA

Performance criterion A:

the apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer then either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.

Performance criterion B:

the apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer then either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.

Performance criterion C:

temporary loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

Minimum performance level of the EUT specified by the manufacturer

The apparatus shall continue to operate as intended.

Functional specifications

Tyres pressure electronic calibrator used to inflate or deflate the tyres at selected pressure.

Description of support equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested:
None.

Mode of operation during the tests

The EUT is tested supplied with AC 230 V, 50 Hz.

The apparatus is tested in inflate and deflate modes; a tyre is used for correct functioning.

Monitoring of the EUT

The following parameters/events are monitored:

- Correct functioning (by visual observation)

ELECTROSTATIC DISCHARGES

Methods and procedures according to EN 61000-4-2:1995, and to IMQ Operational Instruction IO-80-I01

Test levels according to table 1.2 of EN 50082-1:1992

Position	Test voltage (kV)	Mode of application	Number of applications	Polarity	Performance criterion	Result
Enclosure	4	contact discharge	10	+/-	B	Complies
Back metal cover	4	contact discharge	10	+/-	B	Complies
Front control panel	8	air discharge	10	+/-	B	Complies
Power cord	8	air discharge	10	+/-	B	Complies
Coupling planes	4	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.

ELECTRICAL FAST TRANSIENTS/BURSTS

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

Test levels according to tables 2.1-3.1-4.1 of EN 50082-1:1992

Port	Test voltage (kV)	Coupling mode	Polarity	Performance criterion	Result
A.C. mains	1	CDN	+/-	B	Complies

Duration of the test: 2 minutes

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.

ADDITIONAL TECHNICAL INFORMATION

Electromagnetically relevant components:

Component	No.	Manufacturer	Type - Technical data
Electronic circuit	1	/	/ - /
Microprocessor	1	/	/ - 4 MHz
Power supply	1	/	/ - /

RFI suppression devices:

None.

EMI protection devices:

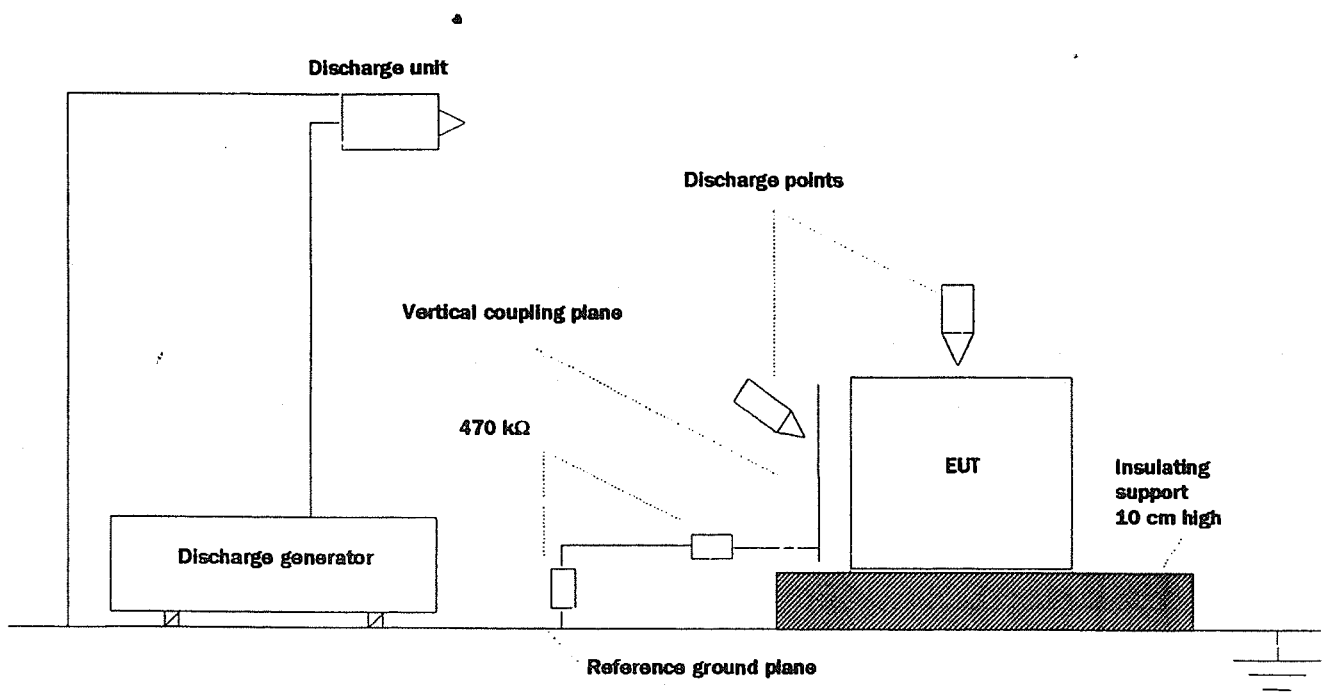
None.

Oscillator frequencies: 4 MHz

ANNEX A

Electrostatic Discharges

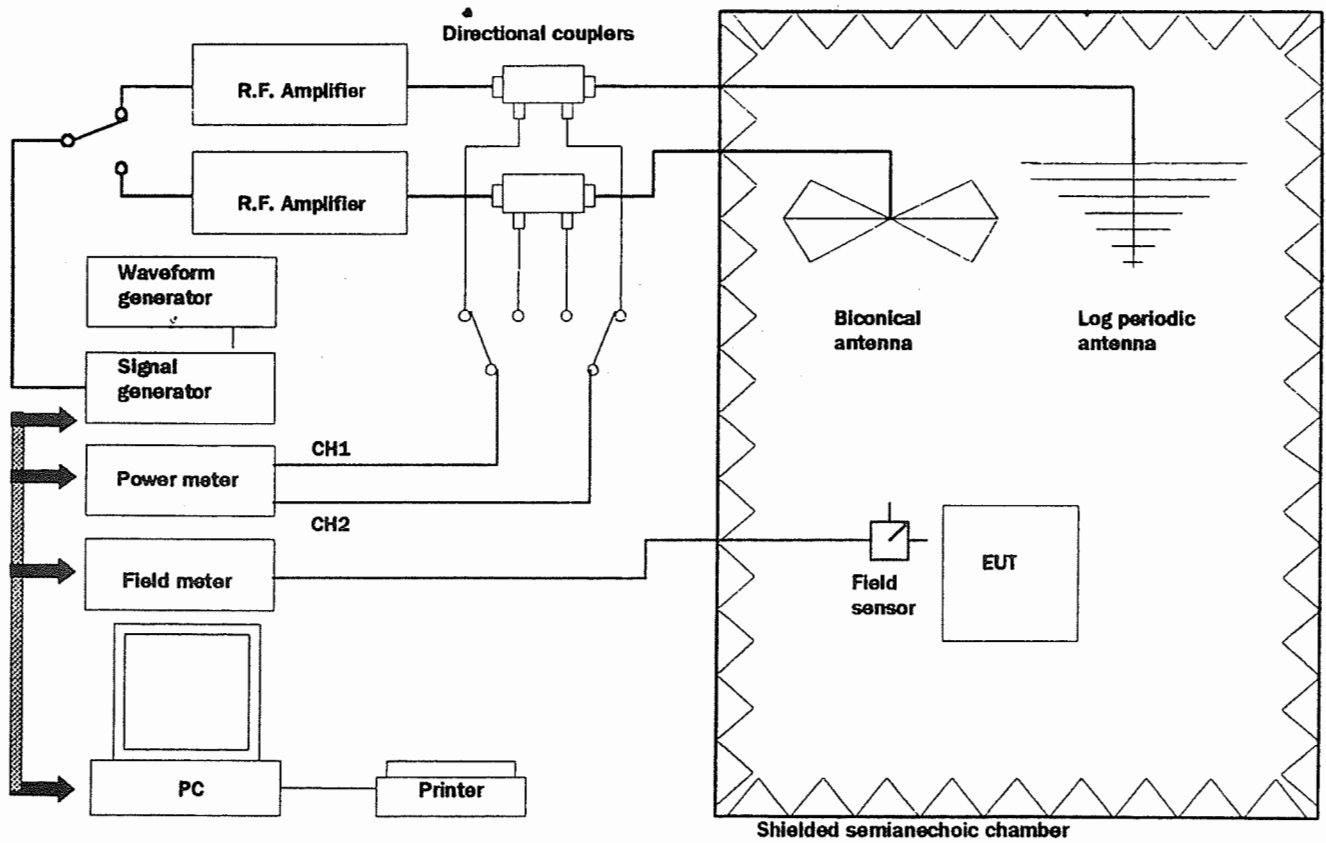
Test set-up:



ANNEX B

Radio Frequency Electromagnetic Fields

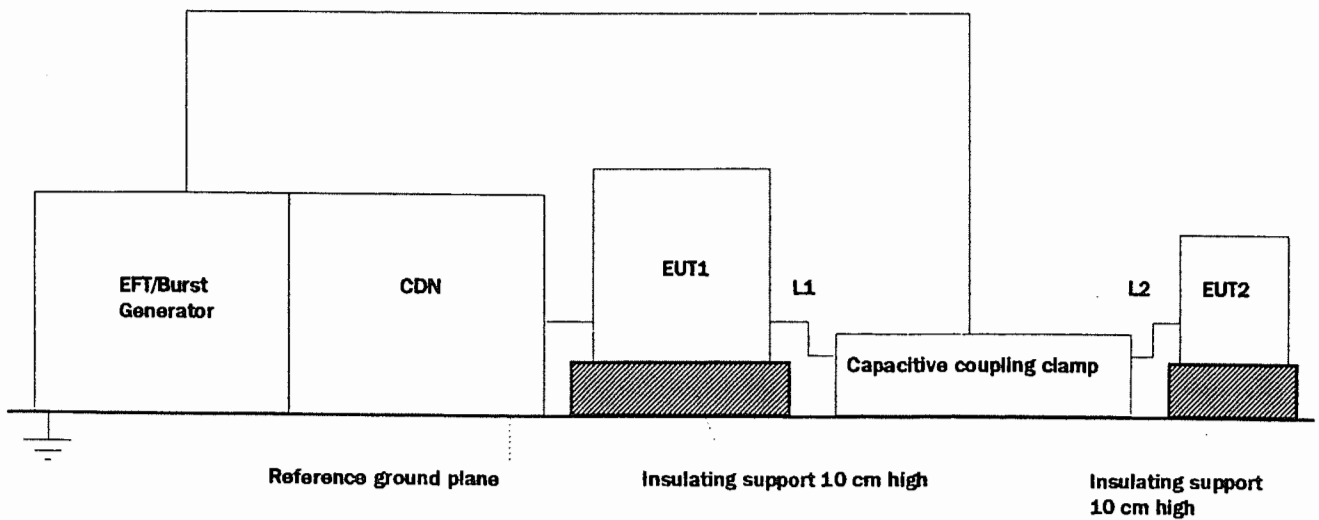
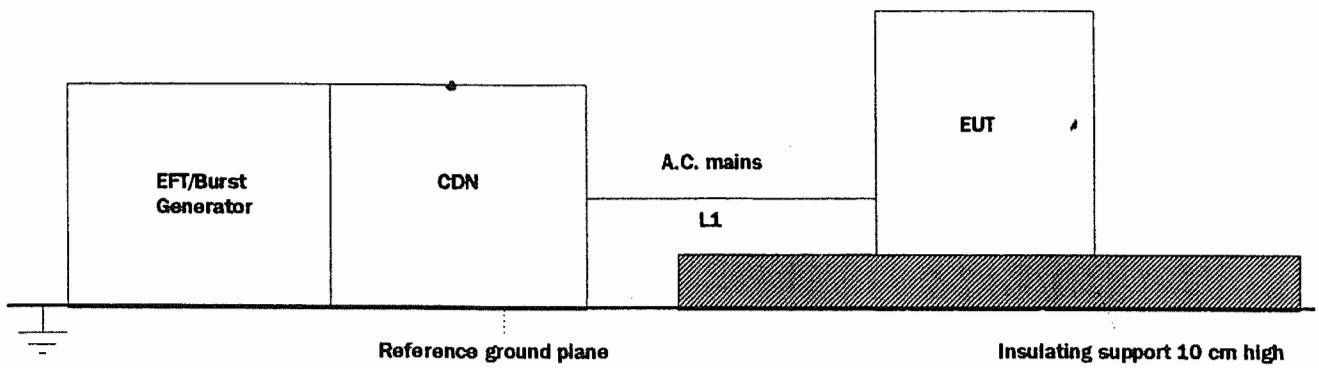
Test set-up:



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**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
- Isotropic Field Probe AR type FP 2000
IMQ No. S-02394/83
- Isotropic Field Monitor AR type FM 2000
IMQ No. S-02382
- 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

Electrical Fast Transients/Bursts

- EFT/B Generator SCHAFFNER type NSG 225 A
IMQ No. S-01040
- Capacitive Coupling Clamp EM TEST type HFK
IMQ No. S-01288