



C E R T I F I C A T E

of Conformity

EC Council Directive 89/336/EEC
as last amended by EC Directive 93/68/EEC
Electromagnetic Compatibility

Registration No.: AE 50017684 0001

Report No.: 14001602 001

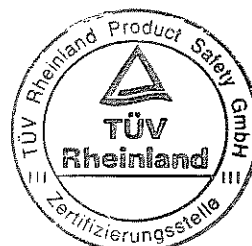
Holder: Precision Mastech Enterprises Co.
Room 1709, Hewlett Centre
52 Hoi Yuen Road
Kwun Tong, Kowloon
Hong Kong

Product: Isolationsprüfgerät
(Digital Insulation Tester)

Identification: MS5201
Serial no.: n.a.
refer to test report 14001602 001 for detailed list

Tested acc. to: EN 61326:1997+A1+A2

This certificate of conformity is based on an evaluation of a sample of the above mentioned product. Technical Report and documentation are at the Licence Holder's disposal. This is to certify that the tested sample is in conformity with all provisions of Annex III of Council Directive 89/336/EEC., in its latest amended version, referred to as the EMC Directive. This certificate does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to Article 10.1 of the Directive.



Certification Body

Dipl.-Ing. F. Nispel

Cologne, 07.10.2002

TÜV Rheinland Product Safety GmbH - Am Grauen Stein - D-51105 Köln

CE The CE marking may only be used if all relevant and effective EC Directives are complied with. CE

Prüfbericht - Nr.: 14001602 001
Test Report No.

Seite 1 von 9
 Page 1 of 9

Auftraggeber: Precision Mastech Enterprises Co.
Client:
 Room 1709, Hewlett Centre, 52 Hoi Yuen Road
 Kwun Tong, Kowloon
 Hong Kong

Gegenstand der Prüfung: Digital Insulation Tester
Test item:

Bezeichnung: MS5201 **Serien-Nr.:** Pre-production Model
Identification: *Serial No.*

Wareneingangs-Nr.: 020801001 **Eingangsdatum:** 01.08.2002
Receipt No.: *Date of receipt:*

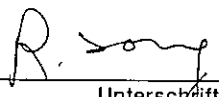
Prüfart: Refer to section 2.1
Testing location:

Prüfgrundlage: EN 61 326:1997+A1+A2
Test specification:

Prüfergebnis: Der vorstehend beschriebene Prüfgegenstand wurde geprüft und entspricht oben genannter Prüfgrundlage.
Test Result The a. m. test item passed.

geprüft / tested by: R. Fong **kontrolliert / reviewed by:** P. Poon

18.09.2002
Datum
Date


Unterschrift
Signature

18.09.2002
Datum
Date


Unterschrift
Signature

Sonstiges / Other Aspects:

Abkürzungen: OK, Pass = entspricht Prüfgrundlage
 Fail = entspricht nicht Prüfgrundlage
 N/A = nicht anwendbar

Abbreviations: OK, Pass = passed
 Fail = failed
 N/A = not applicable

Dieser Prüfbericht bezieht sich nur auf den o.g. Prüfgegenstand und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
 This test report relates to the a. m. test item. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark on this or similar products.

Authorized format 16.12.1996, R.M.



Contents

1	GENERAL REMARKS.....	3
1.1	COMPLEMENTARY MATERIALS.....	3
2	TEST SITES.....	3
2.1	TEST FACILITIES	3
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS	4
3	GENERAL PRODUCT INFORMATION.....	5
3.1	PRODUCT FUNCTION AND INTENDED USE	5
3.2	RATINGS AND SYSTEM DETAILS	5
3.3	INDEPENDENT OPERATION MODES	5
3.4	SUBMITTED DOCUMENTS.....	6
4	TEST RESULTS EMISSION	7
5	TEST RESULTS IMMUNITY	8



Prüfbericht - Nr.: 14001602 001
Test Report No.

Seite 3 von 9
Page 3 of 9

1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report.

Appendix 1: test results

Appendix 2: photos of test set-up

2 Test Sites

2.1 Test Facilities

TÜV Rheinland Hong Kong Ltd.
Room 405, 4/F., Tech Centre
72 Tat Chee Avenue
Kowloon
Hong Kong

Hong Kong Productivity Council
HKPC Building
78 Tat Chee Avenue
Kowloon
Hong Kong

The tests at these test sites have been conducted under the supervision of a TÜV engineer.



2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

	Kind of Equipment	Manufacturer	Type	S/N
<input checked="" type="checkbox"/>	Test Receiver	Rohde & Schwarz	ESH-3	890173/033
<input checked="" type="checkbox"/>	L/I/S/N	Rohde & Schwarz	ESH 3-Z5	849876/026
<input type="checkbox"/>	Oscilloscope	HP	54713B	US34510455
<input type="checkbox"/>	Test Receiver	Rohde & Schwarz	ESVP	882402/033
<input type="checkbox"/>	Absorbing Clamp	Rohde & Schwarz	MDS-21	979 3/4
<input type="checkbox"/>	Test Receiver	Rohde & Schwarz	ESVS30	842807/009
<input type="checkbox"/>	Biconical Antenna	Rohde & Schwarz	HK116	841489/015
<input type="checkbox"/>	Log.-Periodic Antenna	Rohde & Schwarz	HL223	841516/017
<input type="checkbox"/>	Universal Power Analyzer	Voltech	PM3000A	9915
<input type="checkbox"/>	Reference Impedance Network	Voltech	IEC 555 Standard	9946
<input type="checkbox"/>	AC Power Source	California Instr.	4500L	HK51895
<input type="checkbox"/>	Trip-Loop Antenna	Chase	LLA6142	1019
<input type="checkbox"/>	Double Ridge Horn Antenna	EMCO	3115	9002-3351
<input type="checkbox"/>	Double Ridge Horn Antenna	EMCO	3115	9002-3347
<input type="checkbox"/>	RF Comms Test Set	HP	8920B	US36492628
<input type="checkbox"/>	Spectrum Analyser + Tracking Gen.	HP	8596E	3639A00758
<input checked="" type="checkbox"/>	Signal Generator	Rohde & Schwarz	SMY 01	844146/024
<input type="checkbox"/>	Signal Generator	Rohde & Schwarz	SMY 01	844146/023
<input checked="" type="checkbox"/>	BiLog Antenna	EMCO	3143	9607-1287
<input type="checkbox"/>	Isotropic Field Probe	Holladay	HI-4422	90956
<input checked="" type="checkbox"/>	Power Amplifier	Kalmus	757-LC	7620-1
<input checked="" type="checkbox"/>	Power Amplifier	Kalmus	122-FC	7620-2
<input type="checkbox"/>	Coupling Clamp	Schaffner	CDN 126	312
<input type="checkbox"/>	Couple Device Network	Fischer	CDN-M3	9604
<input type="checkbox"/>	Spectrum Analyzer	Advantest	R3272	72420848
<input type="checkbox"/>	Temperature Chamber	Voetch	VC2020	522/79721
<input checked="" type="checkbox"/>	EFT,ESD,SURGE, DIPS tester	Schaffner	Best 96	IN3796-011



3 General Product Information

3.1 Product Function and Intended Use

The EUT is a battery operated digital insulation tester.

3.2 Ratings and System Details

Rated Voltage	:	6 x DC 1.5V size "AA"
Protection Class	:	III

Refer to the Rating Label for further information

3.3 Independent Operation Modes

The basic operation modes are:

ON

- measuring insulation resistance/AC voltage/DC voltage/resistance/continuity

OFF

For further information refer to User Manual

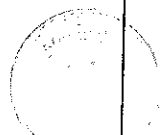


Prüfbericht - Nr.: 14001602 001
Test Report No.

Seite 6 von 9
Page 6 of 9

3.4 Submitted Documents

Material List
Circuit Diagram
User Manual



Prüfbericht - Nr.: 14001602 001
 Test Report No.

Seite 7 von 9
 Page 7 of 9

4 Test Results EMISSION

The Product is classified as:

Class A	<input type="checkbox"/>
Class B	<input checked="" type="checkbox"/>

Standard		PASS	FAIL	N/A
EN 61 326 Table 4	ENCLOSURE PORT			
	RADIATED DISTURBANCE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EN 61 326 Table 4	AC MAINS PORT			
	MAINS TERMINAL DISTURBANCE VOLTAGE Note: The EUT cannot be connected to AC Mains, therefore this test item is not applicable.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DISCONTINUOUS DISTURBANCE Note: According to CISPR14-1:2000+A1, clause 4.2.3.1 the EUT fulfils the requirements without further testing.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Prüfbericht - Nr.: 14001602 001
Test Report No.

Seite 8 von 9
Page 8 of 9

5 Test Results IMMUNITY

According to EN 61 326:1997+A1+A2 Annex C, this appliance shall fulfill the requirements of:

Electrostatic Discharge	Criterion B
Radiated Susceptibility	Criterion A

		PASS	FAIL	N/A
EN 61 326 Table 1	IMMUNITY REQUIREMENTS			
	ENCLOSURE PORT			
	ELECTROSTATIC DISCHARGE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	RADIO FREQUENCY ELECTROMAGNETIC FIELDS, AMPLITUDE MODULATED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	AC POWER PORT Note: According to EN 61 326:1997+A1+A2 Annex C, this port does not have to be considered.			
	VOLTAGE DIP / SHORT INTERRUPTIONS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	BURST	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	SURGE	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	CONDUCTED RF	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DC POWER PORT Note: According to EN 61 326:1997+A1+A2 Annex C, this port does not have to be considered.			
	BURST	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	SURGE	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	CONDUCTED RF	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Prüfbericht - Nr.: 14001602 001

Test Report No.

Seite 9 von 9

Page 9 of 9

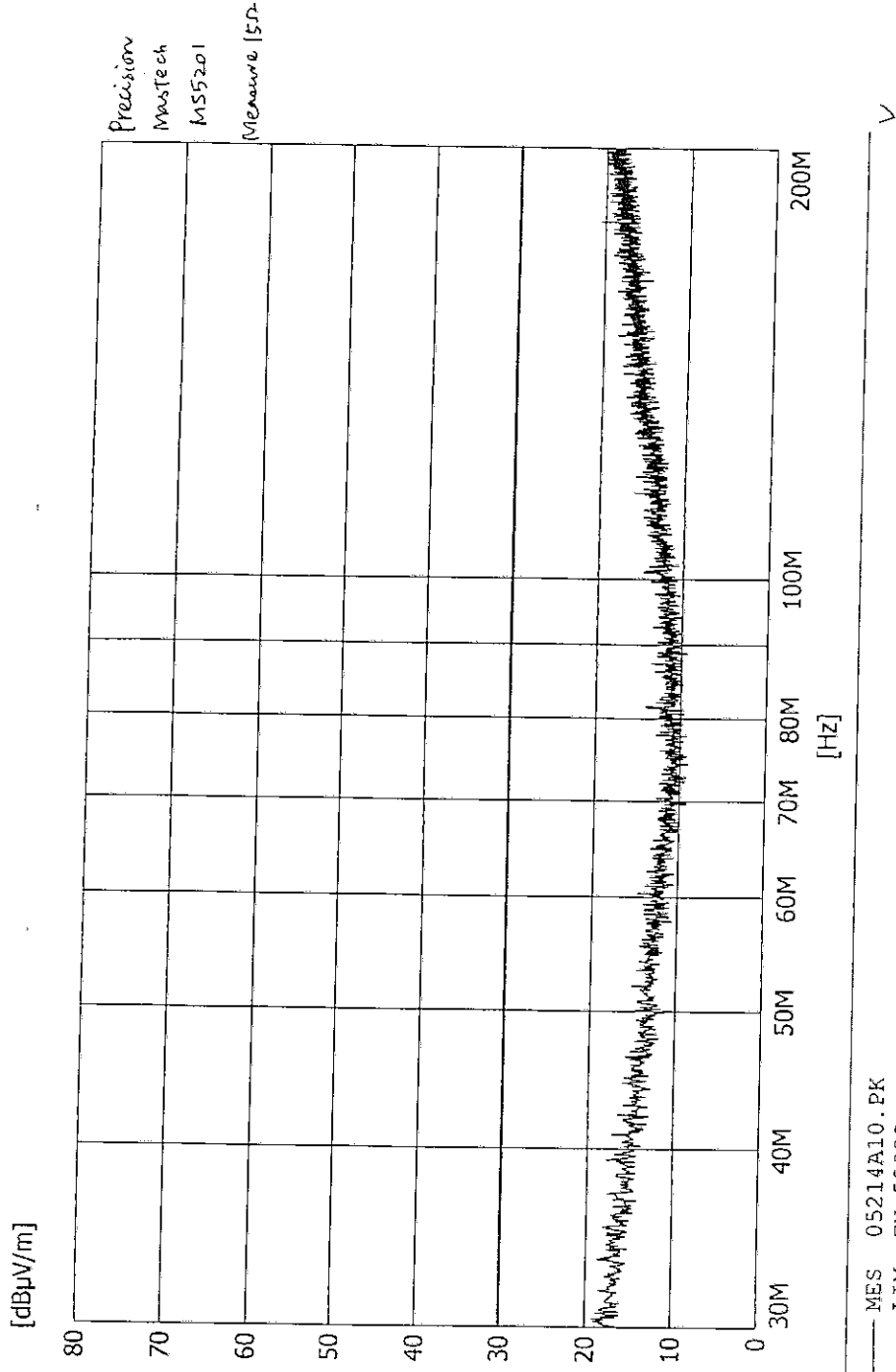
		PASS	FAIL	N/A
EN 61 326 Table 1	IMMUNITY REQUIREMENTS			
	I/O SIGNAL/CONTROL PORT Note: According to EN 61 326:1997+A1+A2 Annex C, this port does not have to be considered.			
	BURST	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	SURGE	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	CONDUCTED RF	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	I/O SIGNAL/CONTROL PORT CONNECTED DIRECTLY TO MAINS SUPPLY Note: According to EN 61 326:1997+A1+A2 Annex C, this port does not have to be considered.			
	BURST	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	SURGE	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	CONDUCTED RF	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



Prüfbericht - Nr.:
Test Report No.

14001602 001

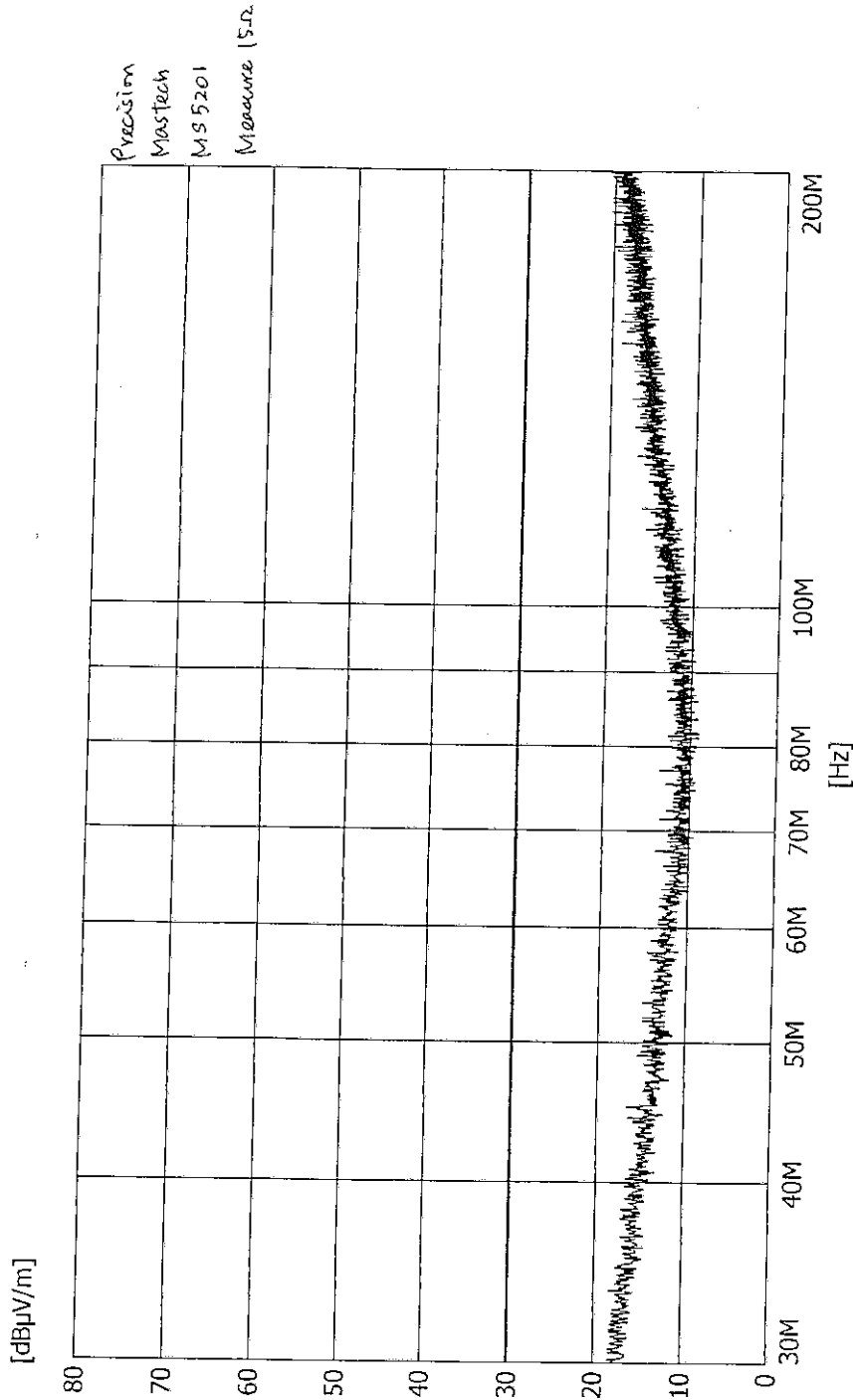
Seite 2 von 8
Page 2 of 8



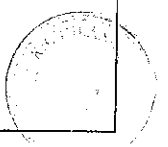
Prüfbericht - Nr.:
Test Report No.

14001602 001

Seite 3 von 8
Page 3 of 8



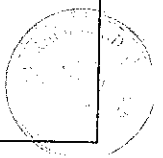
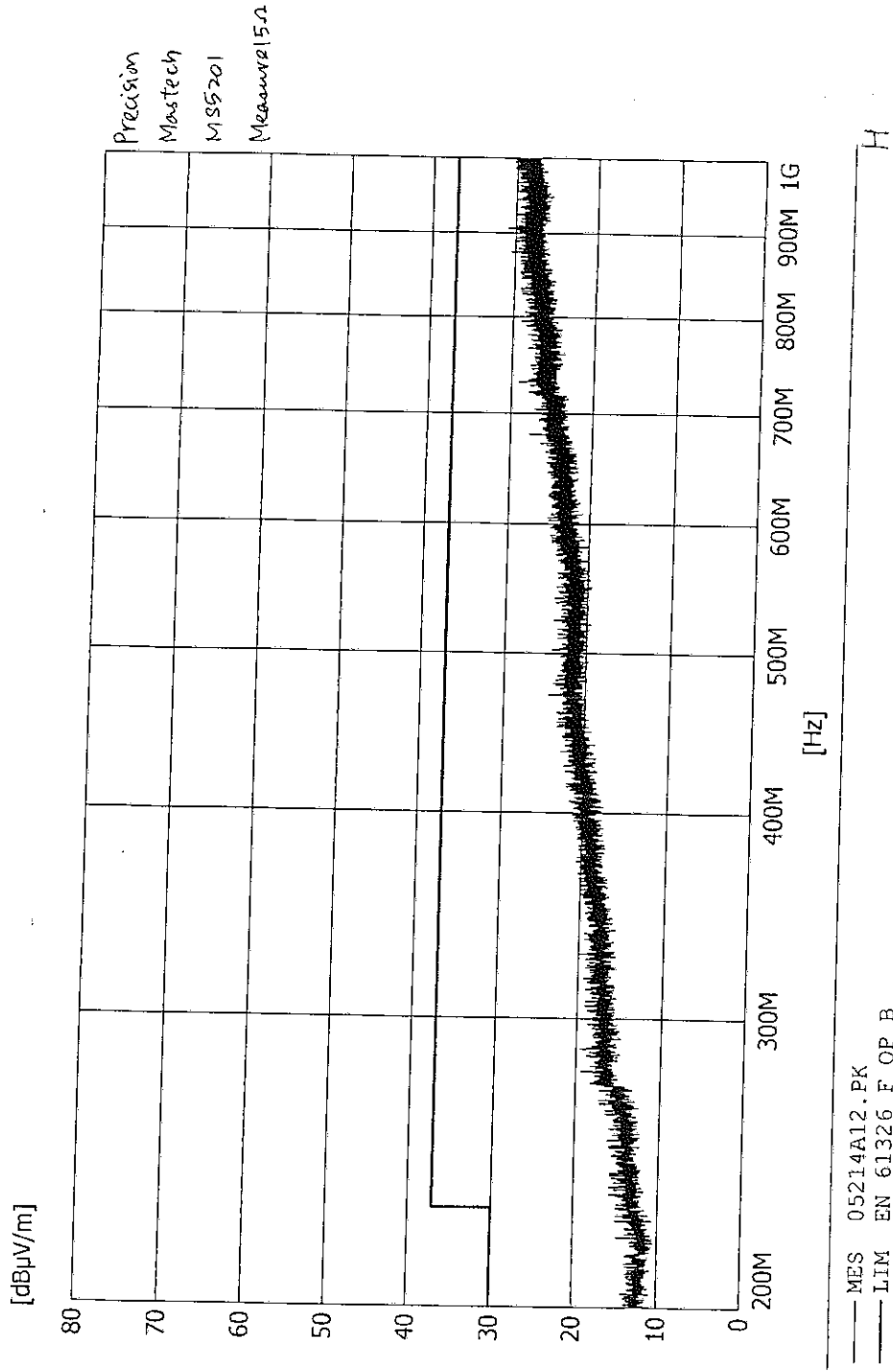
H



Prüfbericht - Nr.:
Test Report No.

14001602 001

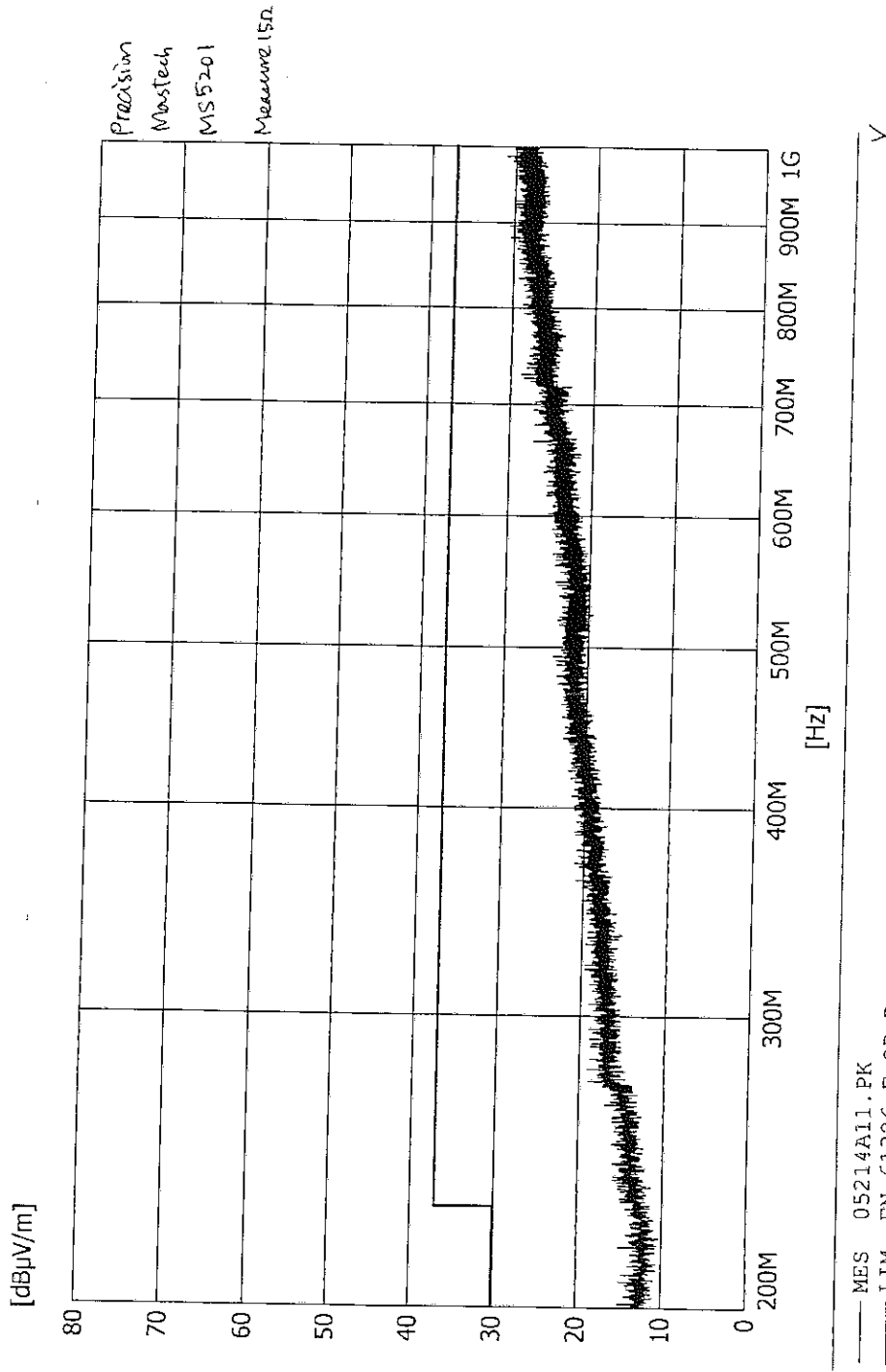
Seite 5 von 8
Page 5 of 8



Prüfbericht - Nr.:
Test Report No.

14001602 001

Seite 6 von 8
Page 6 of 8



Prüfbericht - Nr.:
 Test Report No.

14001602 001

Seite 7 von 8
 Page 7 of 8

EMC Test Protocol



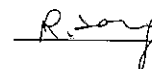
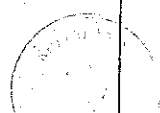
Reference:	Page: 5 of 6
Report: 14001602 001	Number of attached sheets:

Immunity Enclosure	RS Radiated Susceptibility		<input type="checkbox"/> IEC 61000-4-8 <input checked="" type="checkbox"/> IEC 61000-4-3 <input type="checkbox"/> ENV 50 204		
			Criterion: A	Total: PASS / FAIL	
Ambient:	20 °C,	58 % RH,	hPa		
Test Site:					
Operation Mode: ON – measuring 15 ohms					
Electromagnetic Field		Key Carrier		Magnetic Field	
Freq. Range:	80-1000 MHz	Frequency:	900±5MHz	Frequency:	50Hz
Field Strength:	3 V/m	Field Strength:	V/m	Field Strength:	A/m
Modulation			Modulation:		
none	AM	Pulse	%	kHz	Pulse: 50%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	80	1	Repetition time: 200Hz
Steps	# / 1 %	# / %	# / %	# / %	# / %
	Horizontal Vertical	Horizontal Vertical	Horizontal Vertical	Horizontal Vertical	Horizontal Vertical
Front					
Right					
Rear					
Left					
Comments:					

Step Size 1% at standard field strength.
 Step Size 4% at doubled field strength, if used.

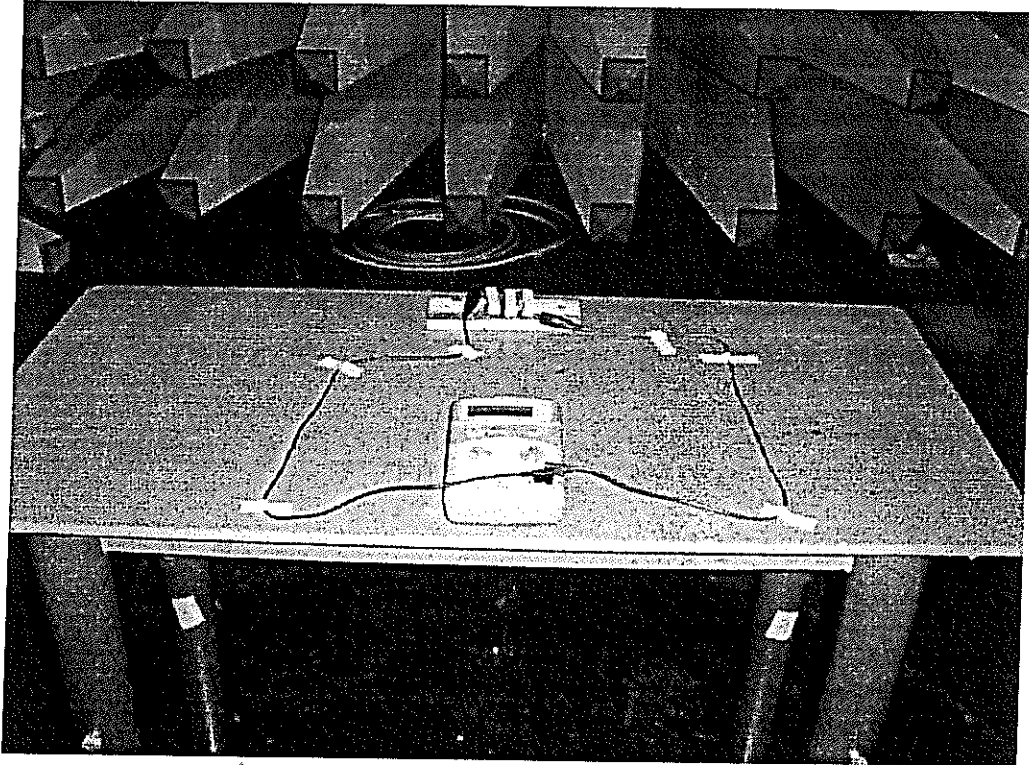
Date: 19.08.2002
 Inspector: Rachel Fong

Signature:

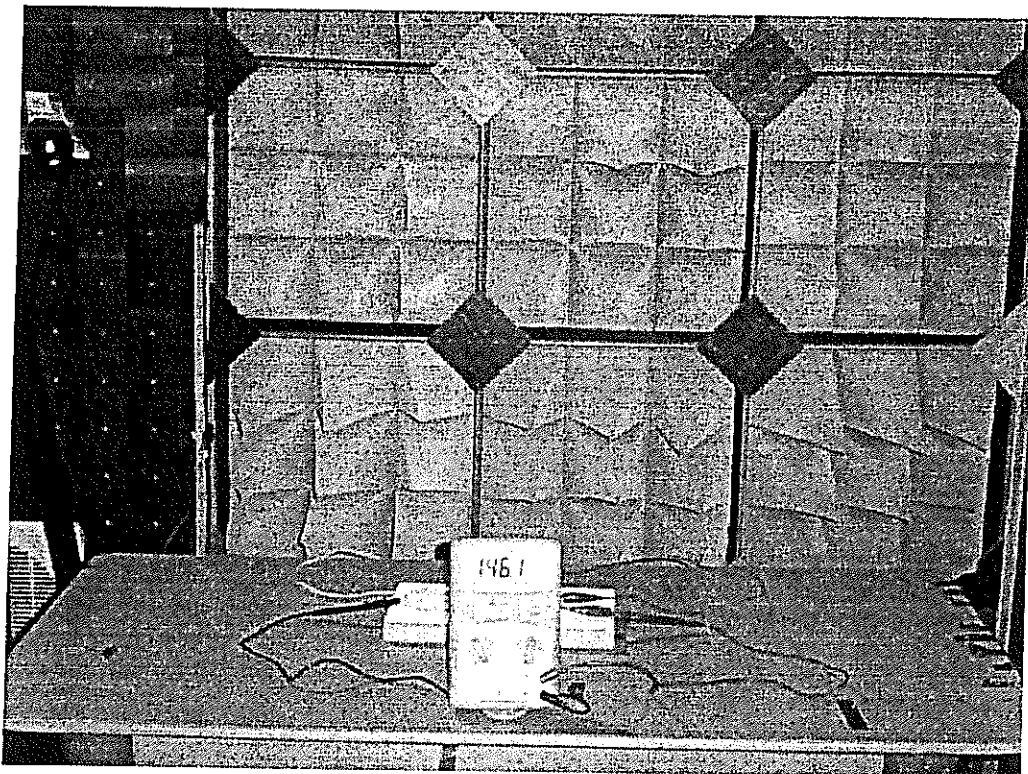



Prüfbericht - Nr.: 14001602 001
Test Report No.

Seite 1 von 2
Page 1 of 2



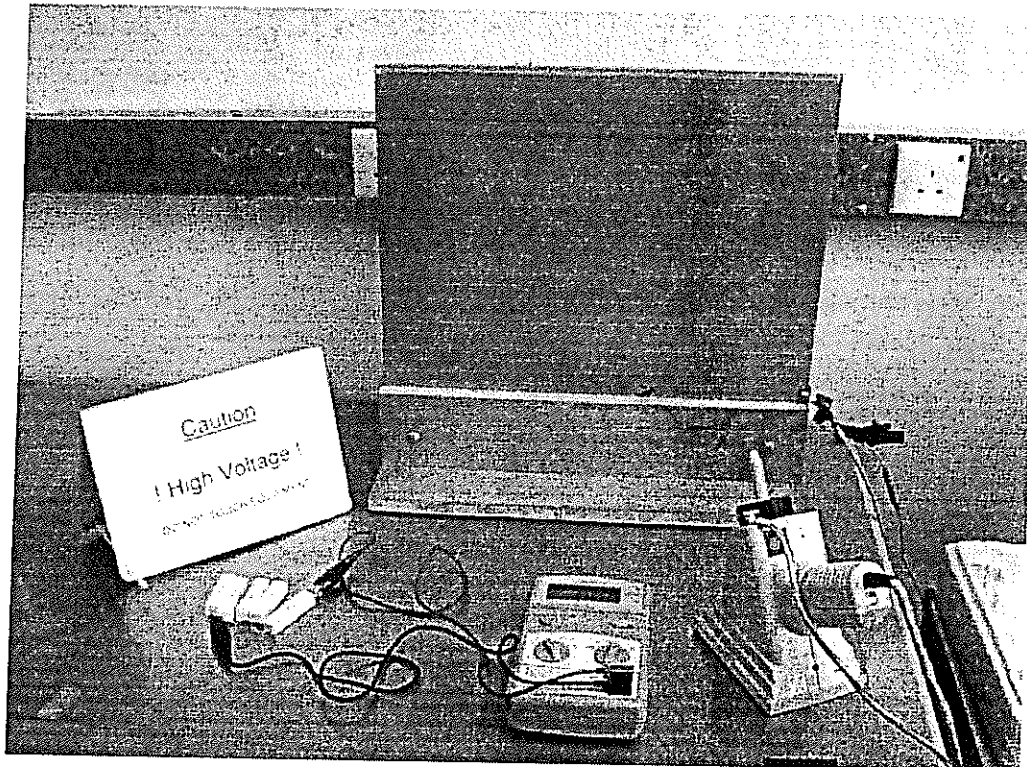
Test Setup for Radiated Disturbance



Test Setup for Radiated Susceptibility

Prüfbericht - Nr.: 14001602 001
Test Report No.

Seite 2 von 2
Page 2 of 2



Test Setup for Electrostatic Discharge

