

EMC TEST REPORT
for
Shenzhen Maxonic Automation Control Co., Ltd.
MVP Intelligent Electropneumatic Valve Positioner
Model Number: MVP1L-0-10S0000

Prepared for : Shenzhen Maxonic Automation Control Co., Ltd.
Maxonic Building, No.3 Road, North of Shenzhen High-tech
Industrial Park, Shenzhen

Prepared By : Most Technology Service Co., Ltd.
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Date of Test : Aug. 09, 2008
Date of Receiver : Aug. 14, 2008

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APPENDIX I (Photos of the EUT) (3 pages)

TEST REPORT DECLARATION

Report Number		MTE/EAH/8080808
Applicant	Company Name	Shenzhen Maxonic Automation Control Co., Ltd.
	Address	Maxonic Building, No.3 Road, North of Shenzhen High-tech Industrial Park, Shenzhen
Manu- facturer	Company Name	Shenzhen Maxonic Automation Control Co., Ltd.
	Address	Maxonic Building, No.3 Road, North of Shenzhen High-tech Industrial Park, Shenzhen
Product	Product Name	MVP Intelligent Electropneumatic Valve Positioner
	Model No.	MVP1L-0-10S0000
	Power Supply	--
	Remark	N/A
Test Result		The EUT was found compliant with the requirement(s) of the standards.
Standard		EN 61000-6-4:2007, EN 61000-6-2:2005 (IEC 61000-4-2:2001, IEC 61000-4-3: 2006, IEC 61000-4-8: 2001)
<p>*Note</p> <p>The above device has been tested by Most Technology Service Co., Ltd. To determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The test record, data evaluation & Equipment Under Test (EUT) configurations represented are contained in this test report and Most Technology Service Co., Ltd. Is assumed full responsibility for the accuracy and completeness of test. Also, this report shows that the EUT is technically compliant with the requirement of the above standards.</p> <p>This report applies to above tested sample only. This report shall not be reproduced except in full, without written approval of Most Technology Service Co., Ltd., this document may be altered or revised by Most Technology Service Co., Ltd., personal only, and shall be noted in the revision of the document.</p>		
Prepared by	<i>Wendy</i>	
	Wendy zhu	
Reviewed by	<i>Sam</i>	
	Sam zhong	
Approved by	<i>Yvette</i>	
	Yvette zhou(Manager)	



1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	: MVP Intelligent Electropneumatic Valve Positioner
Model Number	: MVP1L-0-10S0000
Brand Name	: N/A
Applicant	: Shenzhen Maxonic Automation Control Co., Ltd. Maxonic Building, No.3 Road, North of Shenzhen High-tech Industrial Park, Shenzhen
Manufacturer	: Shenzhen Maxonic Automation Control Co., Ltd. Maxonic Building, No.3 Road, North of Shenzhen High-tech Industrial Park, Shenzhen
Date of Test	: Aug. 09, 2008

2. LABORATORY INFORMATION

2.1. Laboratory Name

Most Technology Service Co., Ltd.

2.2. Location

No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China

2.3. Test facility

3m Anechoic Chamber : May 1, 2007 File on Federal Communication Commission
Registration Number:490827

Certificated by VCCI, Japan Sep. 11, 2007
Registration No.:R-2622

Shielding Room : Certificated by VCCI, Japan Sep.11, 2007
Registration No.:C-2865

EMC Lab. : Accredited by TUV Rheinland Shenzhen
Audit Report: 17006916001
Sep. 18, 2007

Accredited by Industry Canada
Registration Number: 7103A-1
May 31, 2007

Accredited by TIMCO
Registration Number: Q1460
March 28, 2007

2.4. Measurement Uncertainty

No.	Item	Uncertainty
1.	Uncertainty for Conducted Disturbance Test	1.25dB
2.	Uncertainty for Radiated Disturbance Test	3.15dB

3. IMMUNITY PERFORMANCE CRITERIA

The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance level by its manufacturer or the requestor of the test, or the agreed between the manufacturer and the purchaser of the product.

Criterion A:

The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacture, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level of the permissible performance loss is not specified by the manufacturer, 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.

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 specified by the manufacture, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. 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 of the permissible performance loss is not specified by the manufacturer, 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.

Criterion C:

Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

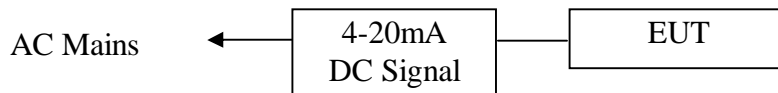
4. SUMMARY OF TEST RESULTS

EMISSION			
Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	EN 61000-4-2:2007	----	N/A
Radiated disturbance	EN 61000-4-2:2007	----	PASS
IMMUNITY (EN 61000-4-2:2005)			
Test Item	Basic Standard	Performance Criteria	Results
Electrostatic discharge (ESD)	IEC 61000-4-2:2001	B	PASS
Radio-frequency, Continuous radiated disturbance	IEC 61000-4-3:2006	A	PASS
Electrical fast transient (EFT)	IEC 61000-4-4:2004	B	N/A
Surge (Input a.c. power ports)	IEC 61000-4-5:2005	B	N/A
Surge (Telecommunication ports)		B	N/A
Radio-frequency, Continuous conducted disturbance	IEC 61000-4-6:2006	A	N/A
Power frequency magnetic field	IEC 61000-4-8:2001	A	PASS
Voltage dips, 0% reduction	IEC 61000-4-11:2004	B	N/A
Voltage dips, 60%, 30% reduction		C	N/A
Voltage interruptions		C	N/A
N/A is an abbreviation for Not Applicable.			

5. BLOCK DIAGRAM OF TEST SETUP

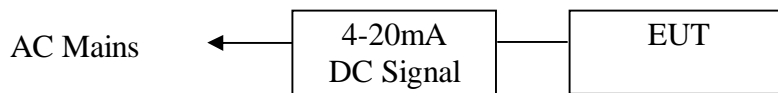
The equipments are installed test to meet EN 61000-6-4 requirement and operating in a manner which tends to maximize its emission characteristics in a normal application. EUT was tested in normal configuration (Please See following Block diagrams)

5.1. Block Diagram of connection between EUT and simulation-EMI



(EUT: MVP Intelligent Electropneumatic Valve Positioner)

5.2. Block Diagram of connection between EUT and simulation-EMS



(EUT: MVP Intelligent Electropneumatic Valve Positioner)

6. TEST INSTRUMENT USED

6.1. For Radiation Test (In Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESPI	101202	Mar. 15, 08	1 Year
2.	Bilog Antenna	Sunol	JB3	A121206	Mar. 15, 08	1 Year
3.	Cable	Resenberger	N/A	NO.1	Apr. 05, 08	1 /2Year
4.	Cable	SchwarzBeck	N/A	NO.2	Apr. 05, 08	1 /2Year
5.	Cable	SchwarzBeck	N/A	NO.3	Apr. 05, 08	1 /2Year
6.	DC Power Filter	DuoJi	DL2Ī 30B	N/A	N/A	N/A
7.	Single Phase Power Line Filter	DuoJi	FNF 202B30	N/A	N/A	N/A
8.	3 Phase Power Line Filter	DuoJi	FNF 402B30	N/A	N/A	N/A

6.2. For Electrostatic Discharge Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	Kikusui	KES4021	LM003537	Mar. 15, 08	1 Year

6.3. For RF Strength Susceptibility Test

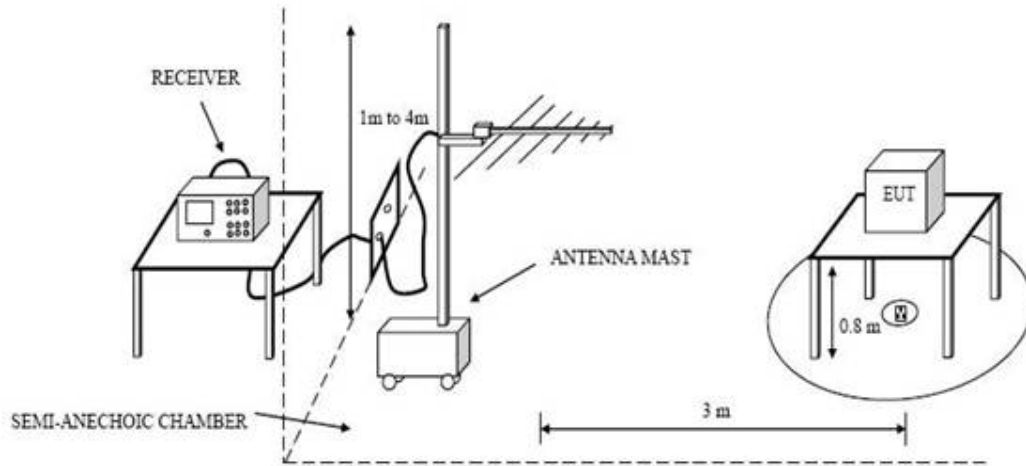
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Signal Generator	IFR	2032	203002/100	Mar. 15, 08	1 Year
1.	Amplifier	A&R	150W1000	301584	NCR	NCR
2.	Dual Directional Coupler	A&R	DC6080	301508	Mar. 15, 08	1 Year
3.	Power Sensor	A&R	PH2000	301193	Mar. 15, 08	1 Year
4.	Power Meter	A&R	PM2002	302799	Mar. 15, 08	1 Year
5.	Field Monitor	A&R	FM5004	300329	Mar. 15, 08	1 Year
6.	Field Probe	A&R	FP5000	300221	Mar. 15, 08	1 Year
7.	Log-periodic Antenna	A&R	AT1080	16512	Mar. 15, 08	1 Year
8.	RF Cable	MIYAZAKI	N/A	No.1/No.2	Apr. 05, 08	1/2 Year

6.4. For Magnetic Field Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMC PRO System	EM Test	UCS-500-M4	V0648102026	Mar. 15, 08	1 Year

7. RADIATED DISTURBANCE TEST

7.1. Configuration of Test System



7.2. Test Standard

EN 61000-6-4: 2007

7.3. Radiated Disturbance Limit

All emanations from devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dB μ V/m)
30 ~ 230	3	50
230 ~ 1000	3	57

Note: 1. The lower limit shall apply at the transition frequencies.

2. Distance refers to the distance in meters between the test antenna and the closed point of any part of the EUT.

7.4. Operating Condition of EUT

7.4.1. Environmental Conditions:

Ambient Temperature: 26°C, Relative Humidity: 60 %

7.4.2. Setup the EUT and the simulators as shown on Section 5.1.

7.4.3. Turn on the power of all equipments.

7.4.4. Let the EUT work in test mode (Running) and test it.

7.5. Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 10m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to EN 61000-6-4 on Radiated Disturbance test.

The bandwidth setting on the test receiver is 120 kHz.

The frequency range from 30MHz to 1000MHz is checked. The test result are reported on Section 7.6..

7.6. Radiated Disturbance Test Results

7.6.1. Test Results: **PASS**

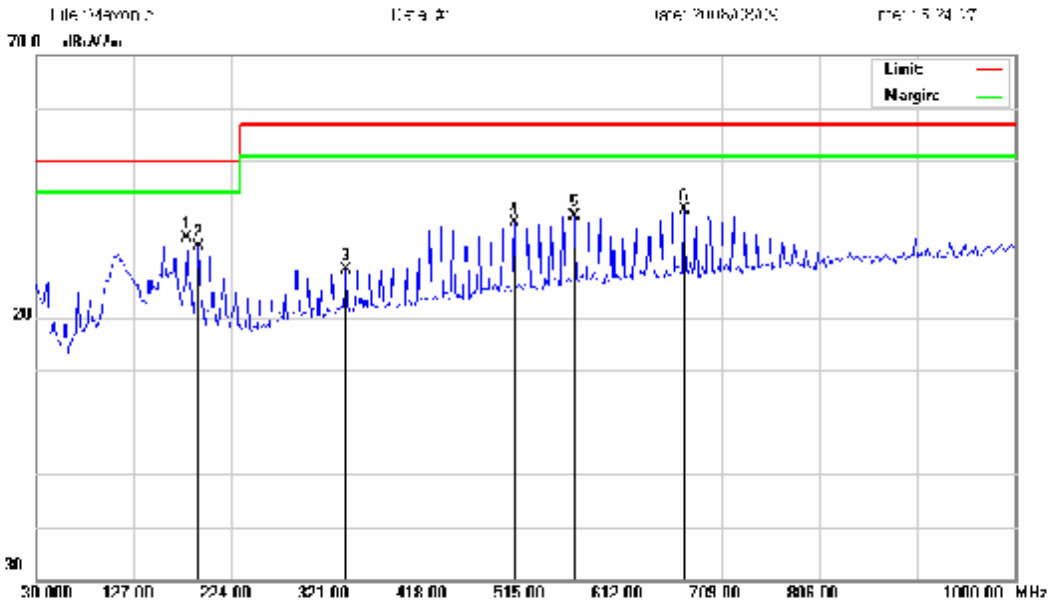
7.6.2. Emission Level= Correct Factor + Reading Level.

7.6.3. All reading are Quasi-Peak values.

7.6.4. All scanning waveforms and test data on the following pages.

7.6.5. Test Engineer: Jack, Test Date: Aug. 09, 2008

Radiated Emission Measurement

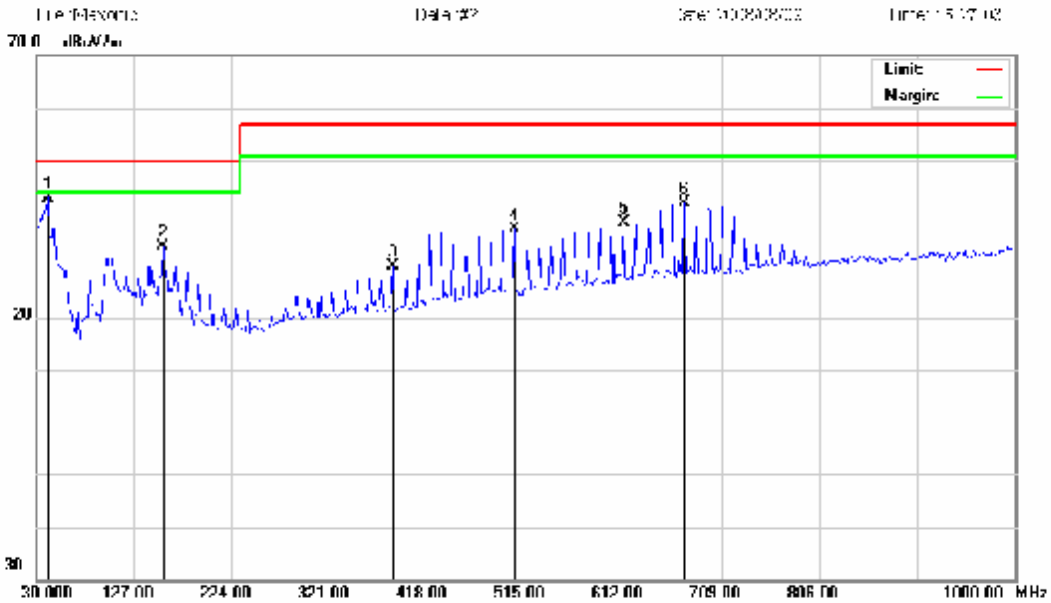


Site: site MOST 3M Polarization: *Horizontal* Temperature: 25
 Limit: EN 60922 Class A 3M Radiation Power: 100 Humidity: 60 %
 PUT: MYP Intelligent Electropneumatic Valve Positioner Averager: 50
 M/N: MYP1L-0-10S0000
 Mode: Running
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	179.3800	21.51	13.73	35.24	50.00	-14.76	QP		
2		191.0200	20.01	13.65	33.66	50.00	-16.34	QP		
3		336.5200	12.07	17.07	29.14	57.00	-27.86	QP		
4		503.3600	16.76	21.40	38.16	57.00	-18.84	QP		
5		563.5000	16.64	22.74	39.38	57.00	-17.62	QP		
6		672.1400	16.21	24.52	40.73	57.00	-16.27	QP		

*:Maximum data x:Over limit !:over margin

Radiated Emission Measurement



Site: site MOST 3M Polarization: **Vertical** Temperature: 25
 Limit: EN 60922 Class A 3M Radiation Power: Humidity: 60 %
 PUT: MVP Intelligent Electropneumatic Valve Positioner Distance: 3m
 M/N: MVP1L-0-10S0000
 Mode: Running
 Note:

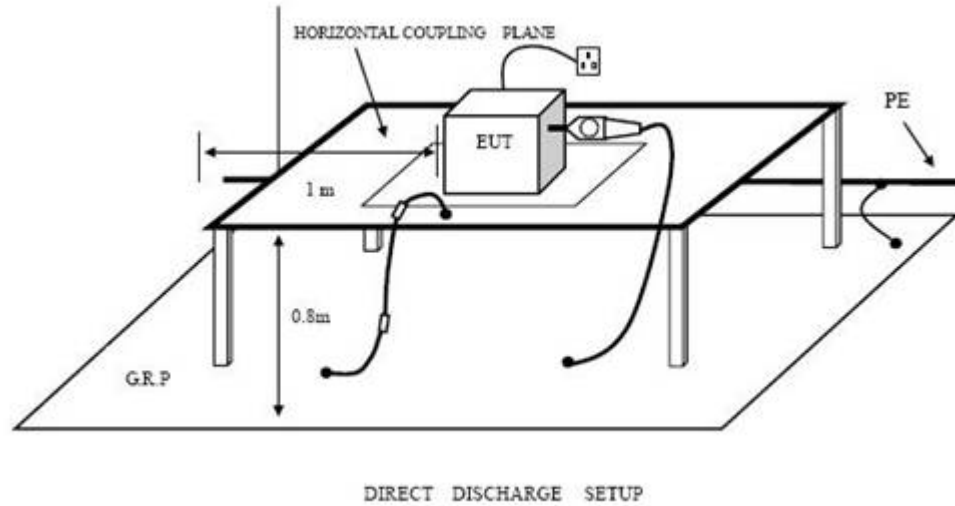
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	41.6400	29.18	13.75	42.93	50.00	-7.07	QP		
2		156.1000	19.41	14.30	33.71	50.00	-16.29	QP		
3		383.0800	11.67	18.16	29.83	57.00	-27.17	QP		
4		503.3600	15.42	21.40	36.82	57.00	-20.18	QP		
5		612.0000	14.96	23.26	38.22	57.00	-18.78	QP		
6		672.1400	17.29	24.52	41.81	57.00	-15.19	QP		

*:Maximum data x:Over limit !:over margin

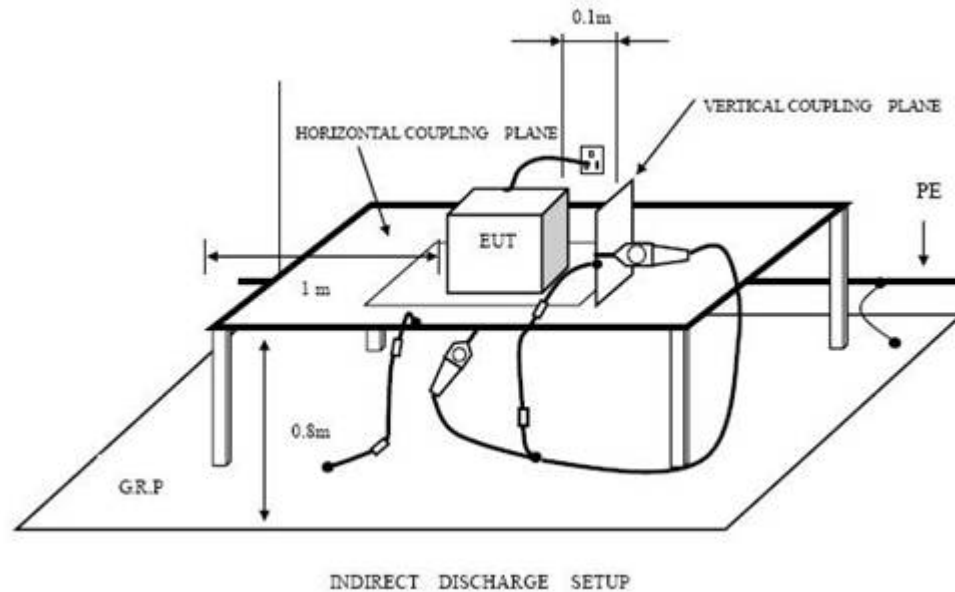
8. ELECTROSTATIC DISCHARGE IMMUNITY TEST

8.1. Configuration of Test System

8.1.1. Configuration of ESD Test System(Direct Discharge)



8.1.2. Configuration of ESD Test System(Indirect Discharge)



8.2. Test Standard

EN 61000-6-2:2005 (IEC 61000-4-2: 2001)
(Severity Level 3 for Air Discharge at 8KV,
Severity Level 2 for Contact Discharge at 4KV)

8.3. Severity Levels and Performance Criterion

8.3.1. Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	2	2
2.	4	4
3.	6	8
4.	8	15
X	Special	Special

8.3.2. Performance criterion : **B**

8.4. Operating Condition of EUT

8.4.1. Environmental Conditions:

Ambient Temperature: 24 °C, Relative Humidity: 55 %

8.4.2. Setup the EUT and the simulators as shown on Section 5.2.

8.4.3. Turn on the power of all equipments.

8.4.4. Let the EUT work in test mode (Running) and test it.

8.5. Test Procedure

8.5.1. Air Discharge:

The test was applied on non-conductive surfaces of EUT. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the discharge electrode was removed from the EUT. The generator was re-triggered for a new single discharge and repeated 20 times for each pre-selected test point. This procedure was repeated until all the air discharge completed

8.5.2. Contact Discharge:

All the procedure was same as Section 8.5.1. except that the generator was re-triggered for a new single discharge and repeated 50 times for each pre-selected test point. the tip of the discharge electrode was touch the EUT before the discharge switch was operated.

8.6. Test Results

8.6.1. Test Results: **PASS**

8.6.2. Test data on the following pages.


Electrostatic Discharge Test Results

Most Technology Service Co., Ltd.

Date : 08/09/2008

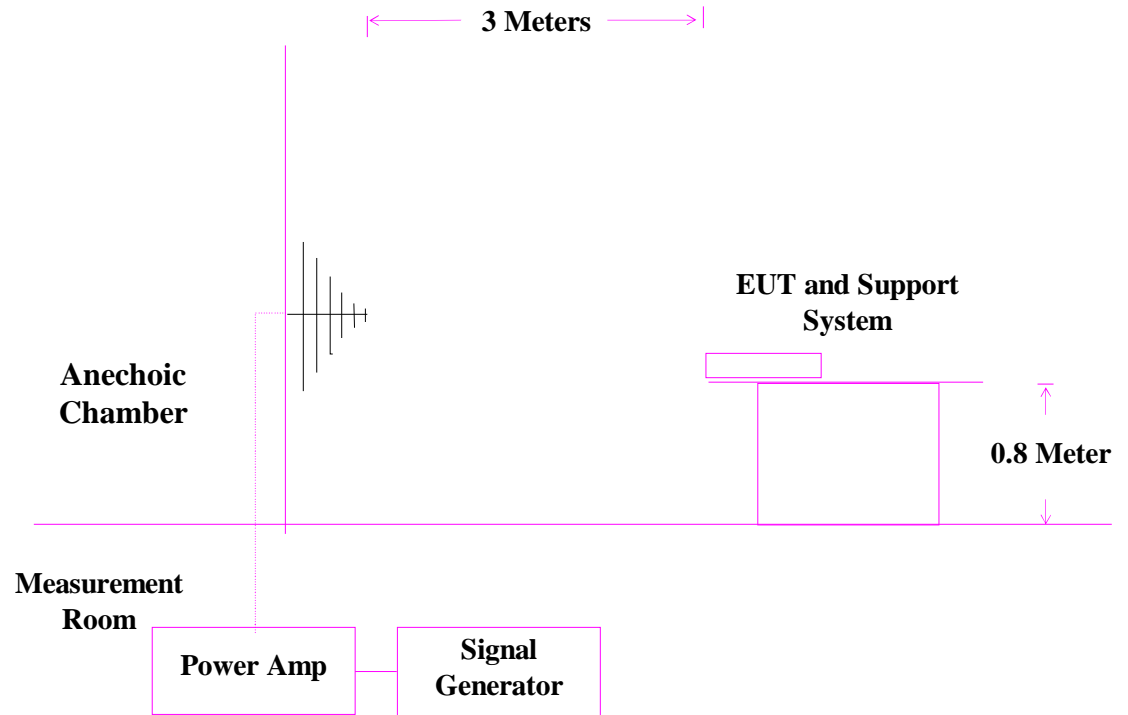
<i>Applicant</i> :	MAXONIC	<i>Test Date</i> :	Aug. 09, 2008
<i>EUT</i> :	MVP Intelligent Electropneumatic Valve Positioner	<i>M/N</i> :	MVP1L-0-10S0000
<i>Power Supply</i> :	--	<i>Test Mode</i> :	Running
<i>Test Engineer</i> :	Ariel	<i>Criterion</i> :	B
<p><i>Air Discharge: ±8KV</i> # For Air Discharge each Point Positive 10 times and negative 10 times discharge.</p> <p><i>Contact Discharge: ±4KV</i> # For Contact Discharge each point positive 25 times and negative 25 times discharge</p>			
<i>Test Results Description</i>			
Location		Kind A-Air Discharge C-Contact Discharge	Result
Slots		A	PASS
LCD		A	PASS
Buttons		A	PASS
Screws		C	PASS
HCP		C	PASS
VCP of Front		C	PASS
VCP of Rear		C	PASS
VCP of Left		C	PASS
VCP of Right		C	PASS
<i>Remark :</i>			

Discharge was considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

Reviewer : 

9. RF FIELD STRENGTH SUSCEPTIBILITY TEST

9.1. Configuration of Test System



9.2. Test Standard

EN 61000-6-2:2005 (IEC 61000-4-3: 2006)
(Severity Level: 3 at 10V / m)

9.3. Severity Levels and Performance Criterion

9.3.1. Severity level

Level	Test Field Strength V/m
1.	1
2.	3
3.	10
X	Special

9.3.2. Performance criterion : A

9.4. Operating Condition of EUT

9.4.1. Environmental Conditions:

Ambient Temperature: 24 °C, Relative Humidity: 53 %

9.4.2. Setup the EUT and the simulators as shown on Section 5.2.

9.4.3. Turn on the power of all equipments.

9.4.4. Let the EUT work in test mode (Running) and test it.

9.5. Test Procedure

Testing was performed in a Fully anechoic chamber as recommended by IEC 61000-4-3. The EUT was placed on an 80 cm high non-conductive table located in the area of field uniformity. The radiating antenna was placed 3m in front of the EUT and Support system, and dwell time of the radiated interference was controlled by an automated, computer-controlled system. The signal source was stepped through the applicable frequency range at a rate no faster than 1% of the fundamental. The signal was amplitude modulated 80% over the frequency range 80 MHz to 1GHz at a level of 3 V/m. The dwell time was set at 1.5 s. Field presence was monitored during testing via a field probe placed in close proximity to the EUT. Throughout testing, the EUT was closely monitored for signs of susceptibility. The test was performed with the antennae oriented in both a horizontal and vertical polarization.

All the scanning conditions are as follows :

Condition of Test	Remarks
1. Test Fielded Strength	10 V/m (Severity Level 3)
2. Radiated Signal	80% amplitude modulated with a 1kHz sine wave
3. Scanning Frequency	80 - 1000 MHz
4. Sweeping time of radiated	0.0015 decade/s
5. Dwell Time	1.5 Sec.

9.6. Test Results

9.6.1. Test Results: **PASS**

9.6.2. Test data on the following pages.

RF Field Strength Susceptibility Test Results

Most Technology Service Co., Ltd.

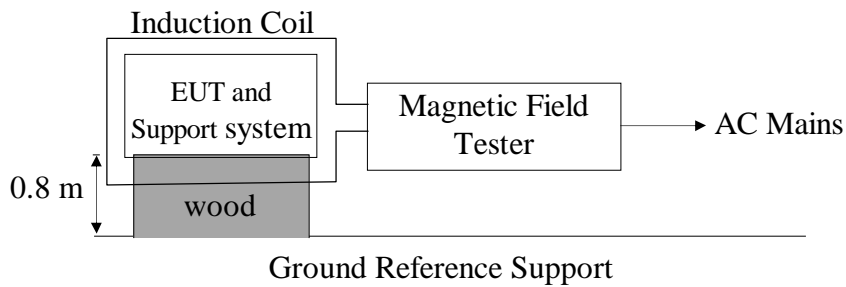
Date : 08/09/2008

<i>Applicant</i> :	MAXONIC	<i>Test Date</i> :	Aug. 09, 2008
<i>EUT</i> :	MVP Intelligent Electropneumatic Valve Positioner	<i>M/N</i> :	MVP1L-0-10S0000
<i>Field Strength</i> :	10 V/m	<i>Criterion</i> :	A
<i>Power Supply</i> :	--	<i>Frequency Range</i> :	80-1000MHz
<i>Test Engineer</i> :	Ariel	<i>Test Mode</i> :	Running
<i>Modulation:</i> p AM .. Pulse .. none 1 kHz 80%			
<i>Test Results Description</i>			
<i>Frequency Rang 1:</i> 80MHz - 1000 MHz			
<i>Steps</i>	1%	1%	
	<i>Horizontal</i>	<i>Vertical</i>	
<i>Front</i>	PASS	PASS	
<i>Right</i>	PASS	PASS	
<i>Rear</i>	PASS	PASS	
<i>Left</i>	PASS	PASS	
<i>Note: No function loss</i>			

Reviewer :  _____

10. MAGNETIC FIELD IMMUNITY TEST

10.1. Configuration of Test System



10.2. Test Standard

EN 61000-6-2:2005 (IEC 61000-4-8: 2001)
(Severity Level 4 at 30A/m)

10.3. Severity Levels and Performance Criterion

10.3.1. Severity level

Level	Magnetic Field Strength A/m
1.	1
2.	3
3.	10
4.	30
5.	100
X.	Special

10.3.2. Performance criterion : A

10.4. Operating Condition of EUT

10.4.1. Environmental Conditions:

Ambient Temperature: 22 °C, Relative Humidity: 56 %

10.4.2. Setup the EUT and the simulators as shown on Section 5.2.

10.4.3. Turn on the power of all equipments.

10.4.4. Let the EUT work in test mode (Running) and test it.

10.5. Test Procedure

The EUT was subjected to the test magnetic field by using the induction coil of standard dimensions (1m*1m) and shown in Section 10.1.. The induction coil was then rotated by 90° in order to expose the EUT to the test field with different orientations.

10.6. Test Results

10.6.1. Test Results: **PASS**

10.6.2. Test data on the following pages.

Magnetic Field Immunity Test Results

Most Technology Service Co., Ltd.

Date :08/09/2008

<i>Applicant</i> :	<i>MAXONIC</i>	<i>Test Date</i> :	<i>Aug. 09, 2008</i>
<i>EUT</i> :	<i>MVP Intelligent Electropneumatic Valve Positioner</i>	<i>M/N</i> :	<i>MVPIL-0-10S0000</i>
<i>Power Supply</i> :	<i>--</i>	<i>Test Mode</i> :	<i>Running</i>
<i>Test Engineer</i> :	<i>Ariel</i>	<i>Criterion</i> :	<i>A</i>

Test Results Description

<i>Test Level</i>	<i>Testing Duration</i>	<i>Coil Orientation</i>	<i>Criterion</i>	<i>Result</i>
<i>30A/m</i>	<i>5 mins</i>	<i>X</i>	<i>A</i>	<i>PASS</i>
<i>30A/m</i>	<i>5 mins</i>	<i>Y</i>	<i>A</i>	<i>PASS</i>
<i>30A/m</i>	<i>5 mins</i>	<i>Z</i>	<i>A</i>	<i>PASS</i>

Remark: No function loss

Reviewer :



APPENDIX I

(Photos of the EUT)

Figure 1
General Appearance of the EUT



Figure 2
General Appearance of the EUT

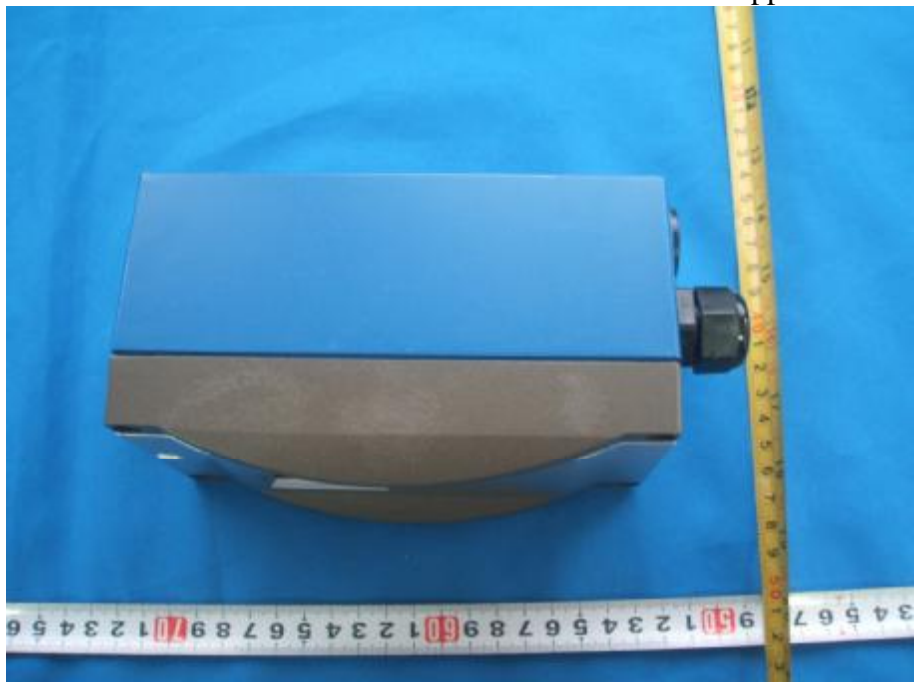


Figure 3
Inside of the EUT



Figure 4
Components Side of the PCB

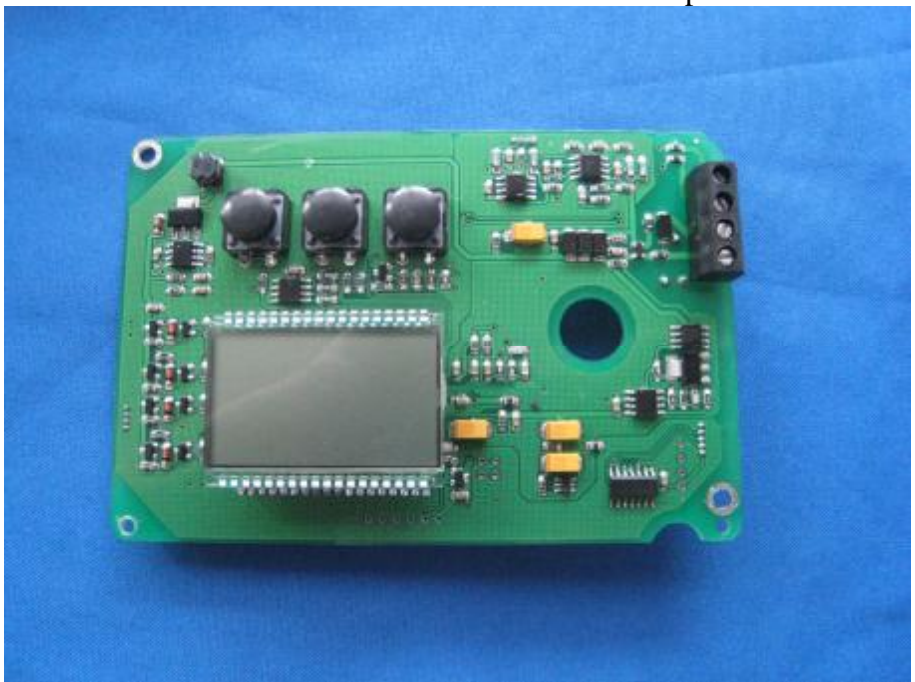


Figure 5
Components Side of the PCB

