

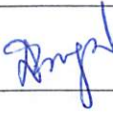
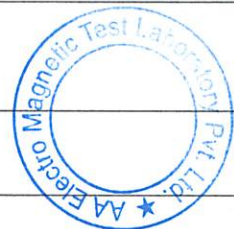


EMI/EMC Test Report

Report Reference No.....	AAEMT/EMC/210903-01
Applicant's name.....	ENERSOL Systems PVT. LTD.
Address.....	510, PACE CITY 2, SECTOR-37, GURGAON-122001
Manufacture's Name.....	ENERSOL Systems PVT. LTD.
Address.....	510, PACE CITY 2, SECTOR-37, GURGAON-122001
Test item description:	
Product name..... :	3 Phase MULTI FUNCTION METER
Trademark	ENERSOL
Model and/or type reference	MFR-0910
Serial Number:	300914
Standards	IEC 61000-4-5:2014+A1:2017
Testing Laboratory information:	
Testing Laboratory Name	AA Electro Magnetic Test Laboratory Private Limited
Address	Plot No 174, Udyog Vihar - Phase 4, Sector 18, Gurgaon, Haryana, India
<p>This device described above has been tested by AA Electro Magnetic Test Laboratory Private Limited, and the test results show that the equipment under test (EUT) is in compliance with the mentioned requirements. And it is applicable only to the tested sample identified in the report.</p> <p>This report shall not be reproduced except in full, without the written approval of AA Electro Magnetic Test Laboratory Private Limited, this document June be altered or revised by AA Electro Magnetic Test Laboratory Private Limited, personal only, and shall be noted in the revision of the document.</p>	
Testing..... :	
Date of receipt of test item	Sep. 03, 2021
Date (s) of performance of tests	Sep. 03, 2021
Date of Issue.....	Sep. 07, 2021
Test Result	Pass
Declaration of Conformity:	Declaration of conformity of the results is based as per the standard limits
Compiled by (+ signature)Mayank Pandey:	
Approved & Authorized by (+ signature) Bittu Kumar:	
Reviewed & Issued by (+ sign) Dr. Lenin Raja:	



1 Contents

	Page
COVER PAGE	
1 CONTENTS	2
2 TEST SUMMARY	3
2.1 MEASUREMENT UNCERTAINTY	5
3 TEST FACILITY	6
3.1 DEVIATION FROM STANDARD	6
3.2 ABNORMALITIES FROM STANDARD CONDITIONS	6
4 GENERAL INFORMATION	7
4.1 GENERAL DESCRIPTION OF EUT	7
4.2 EUT TEST MODE	8
4.3 DESCRIPTION OF TEST SETUP	8
4.4 TEST PERIPHERAL LIST	9
4.5 EUT PERIPHERAL LIST	9
5 EQUIPMENTS LIST FOR ALL TEST ITEMS	10
6 IMMUNITY TEST RESULTS	11
6.4 SURGE IMMUNITY TEST	11
6.4.1 E.U.T. Operation	11
6.4.2 Test specification	12
6.4.3 Measurement Data	13
6.4.4 Test Setup Photograph	14



2 Test Summary

Test	Test Requirement	Test Method	Limits	Criterion	Result
Surge	IEC 61000-4-5:2014 + A1:2017	IEC 61000-4-5:2014 + A1:2017	±4 kV on AC L-N (Level X) (Special)	B	PASS

N/A is an abbreviation for Not Applicable.

Model description: N/A



Performance criterion	During the test	After the test
A	During and after the test the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. 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 by what the user may reasonably expect from the EUT if used as intended.	During and after the test the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. 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 by what the user may reasonably expect from the EUT if used as intended.
B	During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. 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 by what the user may reasonably expect from the EUT if used as intended.	After the test, the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance.
C	During and after testing, a temporary loss of function is allowed, provided the function is self recoverable, or can be restored by the operation of the controls or cycling of the power to the EUT by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.	During and after testing, a temporary loss of function is allowed, provided the function is self recoverable, or can be restored by the operation of the controls or cycling of the power to the EUT by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

Particular performance criteria

The particular performance criteria which are specified in the normative annexes take precedence over the corresponding parts of the general performance criteria.

Where particular performance criteria for specific functions are not given, then the general performance criteria shall apply.

Product documentation

The specification used by the manufacturer to define the performance criteria for the testing required by this standard shall be made available to the user upon request.



2.1 Measurement Uncertainty

The report uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

No.	Item	Frequency Range	U , Value
1	N/A	N/A	N/A



3 Test Facility

The test facility is recognized, certified or accredited by the following organizations:

ILAC / NABL Accreditation No.: TC-8597

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by National Accreditation Board for Testing and Calibration Laboratories (NABL).

ILAC –A2LA Accreditation No.: 5593.01

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered American Association of Laboratory Accreditation (A2LA.)

FCC- Recognition No.: 137777

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by Federal Communications Commission (FCC).

ISED Recognition No.: 26046

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by Institute for Social and Economic Development.(ISED)

VCCI- Registration No: 4053

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by Voluntary Control Council for Interference.(VCCI)

TEC Designation No.: IND063

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by Telecommunication Engineering (TEC) Center.

BIS Recognition No: 816586

BIS recognized as per CRS scheme for IT electronics, LED control gears, Lamp, Inverter / UPS are recognized as per LRS 2020.

3.1 Deviation from standard

None

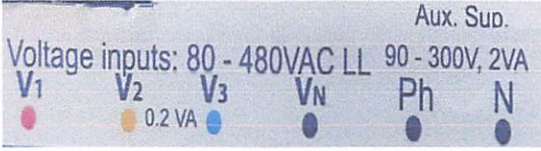
3.2 Abnormalities from standard conditions

None



4 General Information

4.1 General Description of EUT

Manufacturer:	ENERSOL Systems PVT. LTD.
Manufacturer Address:	510, PACE CITY 2, SECTOR-37, GURGAON-122001
EUT Name:	3 PHASE MULTI FUNCTION METER
Model No:	MFR-0910
Serial Number:	300914
Brand Name:	ENERSOL
H/W No.:	Version 4
S/W No.:	Version 4
Marking Label:	
Power Supply Range:	Input -90-300VAC,2VA
Battery:	N/A

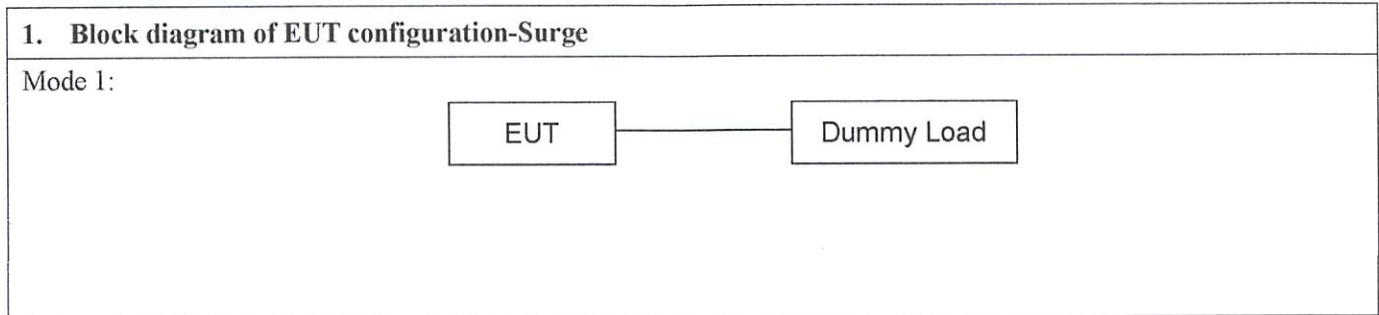


4.2 EUT Test Mode

Mode 1	The EUT is in normal operating mode.
--------	--------------------------------------

4.3 Description of Test setup

EUT was tested in normal configuration (Please See following Block diagrams)



4.4 Test Peripheral List

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	Signal cable
1	Dummy Load (Variable Resistor)	N/A	N/A	N/A	N/A	N/A	N/A

4.5 EUT Peripheral List

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	signal cable
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A



5 Equipments List for All Test Items

<input checked="" type="checkbox"/> Surge Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	Compact immunity simulator	3ctest	CCS 600	ES0801819	2020/01/28	2022/01/27
2	Combination Wave Surge Simulator	3ctest	CWS6WT	ES0311904	2021/06/05	2022/06/04



6 Immunity Test Results

6.1 Surge immunity test

Applicable Standard: IEC 61000-4-5:2014+A1:2017

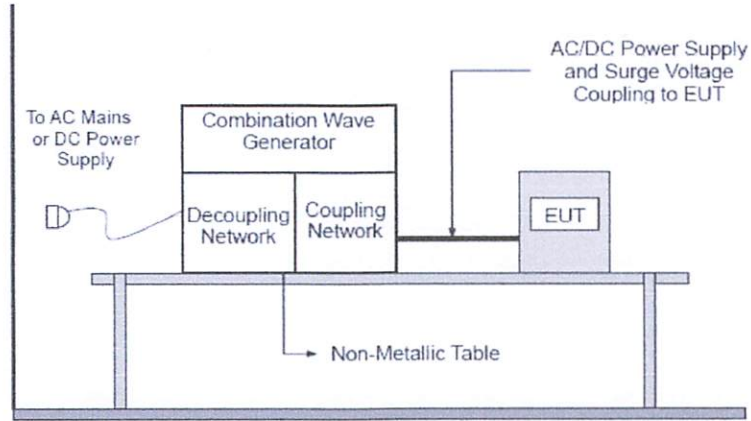
Acceptable Performance Criterion:	B
Test Level:	± 4 kV on AC L-N (Level X) (Special)
Polarity:	Positive & Negative
Generator source impedance:	2 Ω
Trigger Mode:	Internal
No. of surges:	10 positive & 10 negative

6.1.1 E.U.T. Operation

Temperature:	26.1°C	Humidity:	50% RH	Atmospheric Pressure:	97.8	Kpa
Test Mode:	Mode 1					



6.1.2 Test specification



EUT was placed on a wooden table which is 0.8m above the ground and operated in the mode as mentioned above. The power cord between the EUT and the coupling/decoupling network was bundled so as to make it less than 2m in length.



6.1.3 Measurement Data

Test Record

Surge Immunity Test Result												
M/N:		MFR-0910				Test Result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail						
Test Voltage:		AC 220V, 50Hz				Test date: 2021-09-03						
Test Signal		<input checked="" type="checkbox"/> 1.2/50 μ s <input checked="" type="checkbox"/> 8/20 μ s Interval: <u>60</u> seconds Pulse: <u>10</u> times										
Coupling Line		Test level								Performance Criterion	Result	
		1 kV		2 kV		4 kV		5 kV				
		+	-	+	-	+	-	+	-			
AC Line	L-N	0°	A	A	A	A	A	A	A	-	-	Pass
		90°	A	A	A	A	A	A	A	-	-	Pass
		180°	A	A	A	A	A	A	A	-	-	Pass
		270°	A	A	A	A	A	A	A	-	-	Pass
Note: N/A ~												



6.1.4 Test Setup Photograph



Rear View of Connections



****END OF THE REPORT****

