

TEST CERTIFICATE



Yadav Measurements

Issued By :

YADAV MEASUREMENTS PRIVATE LIMITED

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CIN number: U31909RJ2003PTC018450



T-0347

Certificate number: YMPL/252998/64284		Page 1 of 8
1.a	Tested for:-	RISHABH INSTRUMENTS PRIVATE LIMITED, F-31, MIDC SATPUR, NASHIK, MAHARASHTRA, 422007, INDIA
1.b	Submitted by:	RISHABH INSTRUMENTS PRIVATE LIMITED, F-31, MIDC SATPUR, NASHIK, MAHARASHTRA, 422007, INDIA
2.	Reference:-	Customer order number: -Nil- Service request form number: 2014-2015/1009/9 Date: 16 th October, 2014 Date of receipt of the instrument: 16 th October, 2014 Condition of item on receipt: Satisfactory
3.	Test certificate:	Date of issue: 16 th December, 2014 Date of testing: 30 th October, 2014
4.	Description of equipment under test:-	
	Number of samples:	2
	Nature of sample:	POWER QUALITY MONITOR
	Sr. No.	14/07/0107, 14/07/0108
	Aux. Supply:	60-300V AC/DC
	Input Voltage:	500V L-L
	Current rating:	5A/1A
	Impulse Constant:	4000 imp/kWh
	Type/Model :	RISH PQM
	Reference frequency:	45Hz-65Hz
	Accuracy Class:	0.5s

This certificate is issued in accordance with the laboratory accreditation requirements of the National Accreditation Board for testing and calibration Laboratories (NABL). This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Checked by : 
Sign. : 
Name : **PRADEEP BHANAWAT**

Approved by : 
Sign. : 
Name : **ABHIJAT DUBE**

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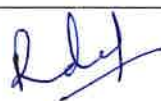


5.	Tests details:- D=Test done, ND=Test not done, NA=Test not applicable, PD=Test partially done C: Conform, NC= Non Conform		
5.1	Test specification as per IEC61326-1:2012 and test procedure as per CISPR11 for Emission test.		
A	Radiated Emission test	D	C
6.	Note:- 1) This Certificate relates only to the particular samples received for testing at YMPL. 2) Only the test(s) asked by the customer has been carried out. 3) This certificate, in full or in part, shall not be published, advertised, used for any legal action, unless prior permission has been secured. 4) Any anomaly/discrepancy in this test report/certificate should be brought to our notice within 45 days from the date of issue. 5) Authenticity of this certificate can be verified by sending details of certificate to Yadav.measurements@ymllabs.com 6) EN 61326-1:2013 is equivalent to IEC61326-1:2012 7) Unless otherwise specified all testing done on 50Hz. 8) Measurement uncertainty for RE test is 6.20db.		
7.	Test results:-The test results are given on next pages.		

Product Description

The EUT is Power Quality monitor with both of the configuration 3 Phase 4 Wire and 3 Phase 3 Wire input supply 500V L-L and auxiliary supply 60V-300V AC/DC along with the Input current 5A/1A. EUT has a LCD Display. Refer figures given below for detailed description of EUT.

For testing EUT was powered up with 230 V AC auxiliary voltages and was given input voltage 230V along with the line current of 5A for the all three lines.
 It has 2 terminals 13 and 14 for auxiliary supply.
 1, 4 and 7 for line current IN for L1 L2 and L3 respectively and terminal 3, 6 and 9 for line current OUT for L1 L2 and L3 respectively.

EUT limits specified as specified by customer.
 For Emission : as per CISPR 11 Class A equipment

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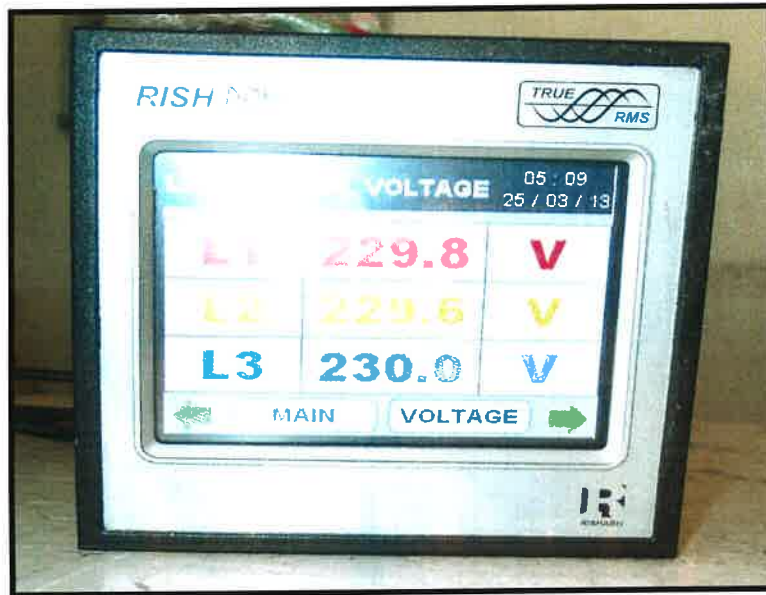


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EUT picture:

1) Front View



2) Side View



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Sr. No.	Particulars of tests & clause number	Requirement as per Specification	Measured value/observation	Remarks							
A	Emission test (As per IEC61326-1:2012)	<p>Radiated Emission Test:- The test of radio interference shall be carried out for the frequencies from 30MHz to 1000MHz. Disturbance should be within limits specified in CISPR11 for 30MHz to 1000MHz under the following conditions:</p> <ul style="list-style-type: none"> - For class A equipments. - tested as table top equipment. - for connection to the voltage circuits, an unshielded cable length of 1m to each connector shall be used. - EUT was in operating condition. - Auxiliary circuit energized with reference Voltage. - With a current between 0.1Ib and 0.2Ib. <table border="1"> <thead> <tr> <th rowspan="2">Frequency range(MHz)</th> <th>Allowed limits (dBμV/m)</th> </tr> <tr> <th>Quasi-peak</th> </tr> </thead> <tbody> <tr> <td>30 to 230</td> <td>50.46</td> </tr> <tr> <td>230 to 1000</td> <td>57.46</td> </tr> </tbody> </table> <p>Note: 1) The lower limit shall apply at the transition frequencies. 2) The Radiated Emission test was performed at 3m test distance. 3)The emission limits in frequency range 30MHz to 1GHz are recalculated for 3m test distance.</p>	Frequency range(MHz)	Allowed limits (dB μ V/m)	Quasi-peak	30 to 230	50.46	230 to 1000	57.46	<p>Radiated Emission Test:- The obtained values of radiated emission for 30MHz to 1000MHz are shown in following tables. The obtained values are less than the specified limit. Also there was no disturbance occurred in modbus communication during the test. (Test was performed on EUT Sr. No. 14/07/0108)</p>	Conform
Frequency range(MHz)	Allowed limits (dB μ V/m)										
	Quasi-peak										
30 to 230	50.46										
230 to 1000	57.46										

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Radio interference measurement

Equipment details:-

EMC receiver:-

Make: - Rohde & Schwarz
Model: - ESU8

Antenna:-

Frequency range: 30MHz to 6000MHz
Make: - Sunol Sciences Corp.
Model: - JB6
Type: - Hybrid Antenna

3m Semi Anechoic chamber:-

Make: - Rainford, UK
Model: - 3m Semi Anechoic chamber

Preamplifier:-

Make: - TDK
Model: -PA-02-0118

Emission software used:-

Make: TDK RF Ltd.
Model: TDK Emission lab

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Test: - Radiated Emission Test

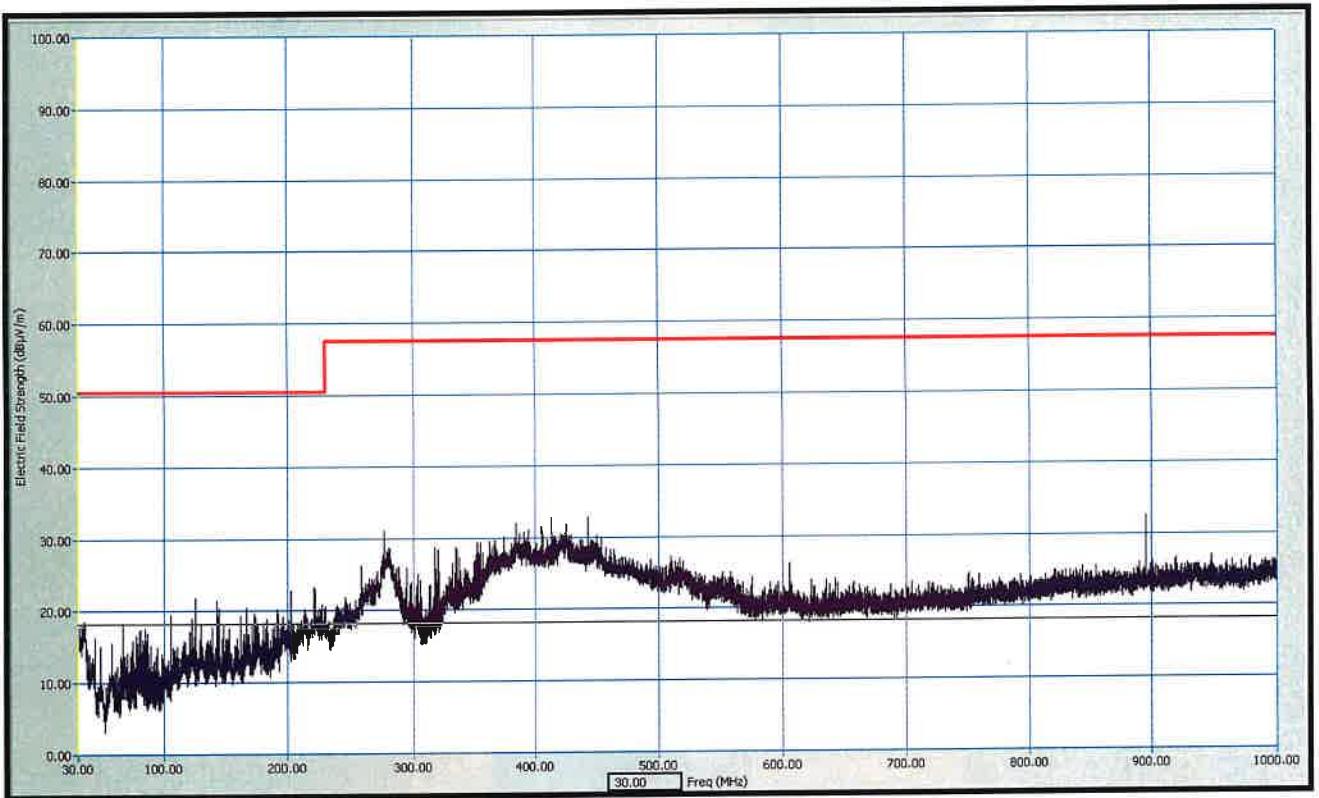
Meter Serial No.:- 14/07/0108

Frequency Range: - 30-1000 MHz

Polarization: - Horizontal

Detector: Quasi-Peak

Observation Graph:-



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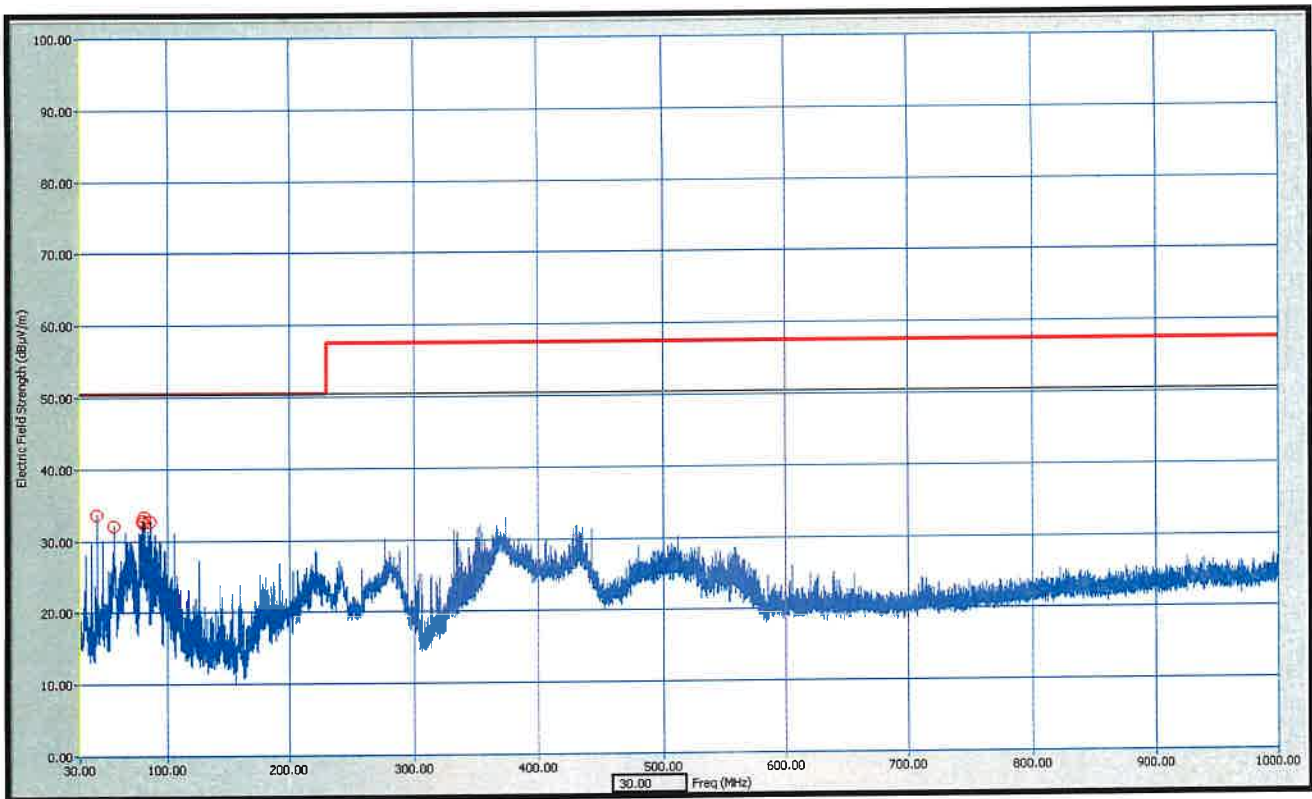
Frequency Range: - 30-1000 MHz

Polarization: - Vertical

Detector: Quasi-Peak

Observation Table: -

S.No.	Freq. (MHz)	Polarization	Tower height cm	EUT Angle Degree	Quasi peak Limit dB μ V/m	Detector	Radiated emission dB μ V/m	Result
1	43.45	V	100	185.71	50.46	Quasi Peak	33.66	Pass
2	57.15	V	100	230.71	50.46	Quasi Peak	32.06	Pass
3	80.25	V	100	95.71	50.46	Quasi Peak	32.93	Pass
4	81.25	V	200	140.71	50.46	Quasi Peak	32.61	Pass
5	82.3	V	100	140.71	50.46	Quasi Peak	33.46	Pass
6	86.15	V	100	140.71	50.46	Quasi Peak	32.71	Pass



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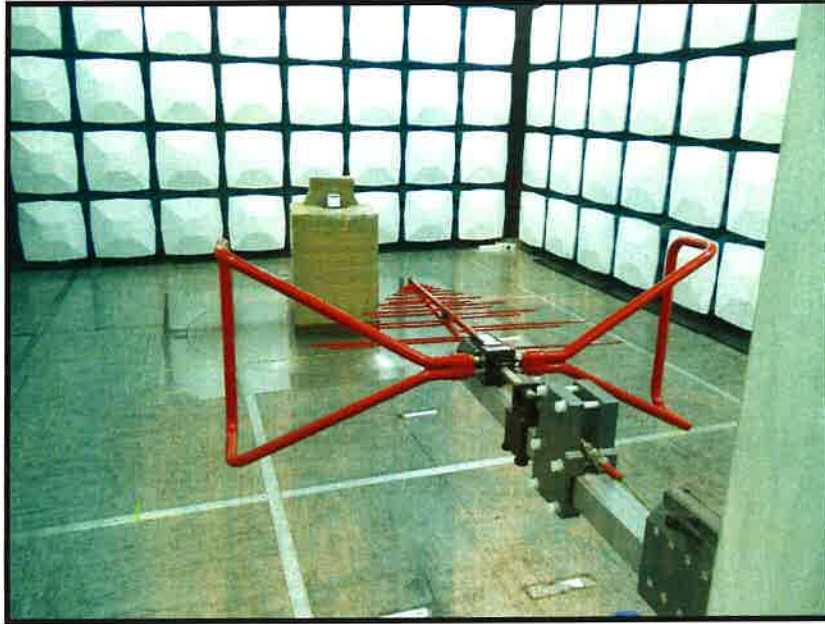
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Test setup for Radiated Emission from 30MHz to 1000MHz



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