सूक्ष्म, लघु एवं मध्यम उद्यम
MICRO, SMALL & MEDIUM ENTERPRISES
MSME - TECHNOLOGY DEVELOPMENT CENTRE,
MUMBAI

CALIBRATION CERTIFICATE

Acc. Cert. No. C-0085

Work Order No. :WO/ECL/809/14-15 | Certificate No. : CC/ECL/2047/14-15
Date : 10/12/2014 | Date of Calibration : 15/12 to 20/12/2014
Page : 1 of 26

Calibrated Item : Multifunction Calibrator With Current Coil

Calibrated for : M/s. Electro Meter Corporation,P-5,C.I.T.Road, Scheme-LV ,
7 th & 9th Floor,Maulati, Kolkata-700 014

Calibrated at : IDEMI, Mumbai.

Specification of Item Under Calibration	Standard Instruments Used for Calibration
Manufacturer : M/s Fluke Condition of Item on receipt : Good Range of Calibration: refer page 2 to 26 Sr. No. : 1372004 Model : 5520A Coil Sr. No. : 0025678 Accuracy : Refer Manual	Please Refer Page 1A of 26 for Standard Instruments Used for Calibration Standards used are traceable to to National / International Standards

Ambient Conditions :

Temperature : 25 ± 2.5°C Relative Humidity : 35% to 65%

Remarks : Please refer page 2 to 26 for Calibration Results.

1)Procedure of Calibration:The above mentioned item is calibrated as per operating procedure. OP-ECL-022,023,027,029,032,034,037,038,041,057,065,068,073.

2)The reported Expanded Uncertainity is at Coverage factor K=1.96& at95%Confidence Level.

3) Calibration Status : Sticker indicating 'CAL STATUS' is affixed on the instrument.

4) Our NABL certificate No. is C - 0085 Valid up to 30/08/2016.

PRADEEP GUJARATHI
TECHNICAL MANAGER
AUTHORISED SIGNATORY

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INSTITUTE FOR DESIGN OF ELECTRICAL MEASURING INSTRUMENTS, MUMBAI
भारत सरकार की सोसाईटी
सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय
Government of India Society
Ministry of Micro, Small & Medium Enterprises
स्वातंत्र्यवीर तात्या टोपे मार्ग, चुनाभट्टी, सायन डाकघर, मुंबई - 400 022.
SWATANTRYAVEER TATYA TOPE MARG, CHUNABHATTI, SION P.O. MUMBAI - 400 022.

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ELECTRICAL CALIBRATION LABORATORY

Instrument Sr. No:1372004 | Page No. : 1A of 26
Current Coil Sr. No. : 0025678 | Certificate No. : CC/ECL/2047/14-15
Date of Calibration : 15/12 to 20/12/2014

Standard Instruments Used for Calibration

1) AC / DC Transfer Standard
   ID No. : IDEMI/ECL/TFRSTD/01
   Calibration Validity upto 21/09/2015
2) 8½ Reference Multimeter
   ID No. : IDEMI/ECL/DMM/07
   Calibration Validity upto 03/02/2016
3) Digital Frequency Counter with
   GPS Controlled Freq. Std.
   ID No. : IDEMI/ECL/FC/01
   Calibration Validity up to 13/02/2015
4) Standard Resistor
   ID No. : IDEMI/ECL/RES/02
   Calibration Validity up to 17/06/2016
5) 7½ Digit Multimeter
   ID No. IDEMI/ECL/DMM/04
   Calibration Validity up to 09/05/2015
6) Standard Current Clamp
   with 6 1/2 Digit Multimeter
   ID No. : IDEMI/ECL/DMM/02
   Calibration Validity up to 03/01/2015
7) Standard Current Clamp with
   7½ Digit Multimeter
   ID No. : IDEMI/ECL/DMM/04
   Calibration Validity up to 09/05/2015
8) Precision Current Shunt
   ID NO. : IDEMI/ECL/PSHT/ 01,16
   Calibration Validity upto May 2015
9) Precision Current Shunt
   ID NO. : IDEMI/ECL/PSHT/ 02,05,09,11
   Calibration Validity upto July 2015
10) Standard Capacitors
    ID No. : IDEMI/ECL/CAP/ 04 to 07
    Calibration Validity upto 02/08/2015
11) Standard Capacitors
    ID NO. : IDEMI/ECL/CAP/ 08 to 10
    Calibration Validity upto April 2016
12) Reference Energy Calibration System
    ID No. : IDEMI/ECL/PEC/02
    Calibration Validity upto 04/01/2015
13) Digital Storage Oscilloscope
    ID No. CT/STD/SCOPE/01
    Calibration Validity upto 05/08/2016
14) 8½ Digit Multimeter
    ID No. : IDEMI/ECL/DMM/03
    Calibration Validity upto 13/01/2016

Standards used are traceable to
National / International Standards

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TECHNICAL MANAGER
AUTHORISED SIGNATORY

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ELECTRICAL CALIBRATION LABORATORY

Instrument Sr. No: 1372004
Date of Calibration :15/12to 20/12/2014

Cert. No. : CC/ECL/2047/14-15

Calibration Results :

DC VOLTAGE CALIBRATION

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in %
	mV		**mV**	**mV**		
Auto	0.09903		0.1000	0.00097	0.9795	0.07
Volts	1.00003	0 to	1.0000	-0.00003	-0.0030	0.012
DC	9.99992	329.9999mV	10.0000	0.00008	0.0008	0.001
	99.99932	DC	100.0000	0.00068	0.0007	0.0007
	328.99819		329.0000	0.00181	0.0006	0.0007
	V		**V**	**V**		
	0.9999959	0 to	1.000000	0.0000041	0.0004	0.0005
	3.2899867	3.299999 V DC	3.290000	0.0000133	0.0004	0.0005
	9.999972	0 to 32.99999 V	10.00000	0.000028	0.0003	0.0005
	32.899896	DC	32.90000	0.000104	0.0003	0.0005
	50.00071	30 to	50.0000	-0.00071	-0.0014	0.0005
	100.00148	329.9999 V DC	100.0000	-0.00148	-0.0015	0.0005
	329.0052		329.0000	-0.0052	-0.0016	0.0005
	500.0062	100 to	500.000	-0.0062	-0.0012	0.0005
	1000.0217	1020 V DC	1000.000	-0.0217	-0.0022	0.0005

Note : The Value mentioned above is the mean of 5 readings.

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ELECTRICAL CALIBRATION LABORATORY

Instrument Sr. No: 1372004
Date of Calibration :15/12to 20/12/2014 Cert. No. : CC/ECL/2047/14-15

Calibration Results : **AC VOLTAGE CALIBRATION @ 50 Hz**

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in %
	mV		**mV**	**mV**		
Auto	1.0019	1.0 to	1.000	-0.0019	-0.1896	0.2
Volts	10.0007	32.999 mV AC	10.000	-0.0007	-0.0070	0.03
AC	31.9996		32.000	0.0004	0.0013	0.02
	49.9977	33 mV to	50.000	0.0023	0.0046	0.007
	99.9969	329.999 mV AC	100.000	0.0031	0.0031	0.007
	328.991		329.000	0.009	0.0027	0.007
	V	0.33 V to	**V**	**V**		
	0.999973	3.29999 V AC	1.00000	0.000027	0.0027	0.007
	3.19999		3.20000	0.00001	0.0003	0.007
	10.00023	3.3 V to	10.0000	-0.00023	-0.0023	0.007
	32.0015	32.9999 V AC	32.0000	-0.0015	-0.0047	0.007
	49.9987	33 V to	50.000	0.0013	0.0026	0.007
	100.0012	329.999 V AC	100.000	-0.0012	-0.0012	0.007
	329.017		329.000	-0.017	-0.0052	0.007
	499.998	330 V to 1020 V	500.00	0.002	0.0004	0.007
	1000.023	AC	1000.00	-0.023	-0.0023	0.007

Note : The Value mentioned above is the mean of 5 readings.

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ELECTRICAL CALIBRATION LABORATORY

Instrument Sr. No: 1372004
Date of Calibration :15/12to 20/12/2014

Cert. No. : CC/ECL/2047/14-15

Calibration Results :

AC VOLTAGE CALIBRATION @ 1 kHz

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in %
	mV		**mV**	**mV**		
Auto	1.0024	1.0 to	1.000	-0.0024	-0.239	0.2
Volts	10.0012	32.999 mV AC	10.000	-0.0012	-0.012	0.03
AC	32.0001		32.000	-0.0001	-0.0003	0.02
	49.9983	33 mV to	50.000	0.0017	0.003	0.007
	99.9971	329.999 mV AC	100.000	0.0029	0.003	0.007
	328.992		329.000	0.008	0.003	0.007
	V	0.33 V to	**V**	**V**		
	0.999979	3.29999 V AC	1.00000	0.000021	0.002	0.007
	3.20001		3.20000	-0.00001	-0.0002	0.007
	9.99986	3.3 V to	10.0000	0.00014	0.001	0.007
	32.0002	32.9999 V AC	32.0000	-0.0002	-0.001	0.007
	49.9978	33 V to	50.000	0.0022	0.004	0.007
	99.9972	329.999 V AC	100.000	0.0028	0.003	0.007
	328.993		329.000	0.007	0.002	0.007
	500.009	330 V to	500.00	-0.009	-0.002	0.007
	1000.017	1020 V AC	1000.00	-0.017	-0.002	0.007

Note : The Value mentioned above is the mean of 5 readings.

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Instrument Sr. No: 1372004
Date of Calibration :15/12to 20/12/2014

Cert. No. : CC/ECL/2047/14-15

Calibration Results :

AC VOLTAGE CALIBRATION @ 10 kHz

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in %
	mV		**mV**	**mV**		
	1.0028	32.999 mV AC	1.000	-0.0028	-0.279	0.2
	10.0013		10.000	-0.0013	-0.013	0.03
Auto	32.0012		32.000	-0.0012	-0.004	0.02
Volts	49.9975	33mV	50.000	0.0025	0.005	0.007
AC	99.9968	329.999mV AC	100.000	0.0032	0.003	0.007
	328.986		329.000	0.014	0.004	0.007
	V		**V**	**V**		
	1.000009	0.33 V to	1.00000	-0.000009	-0.001	0.007
	3.20007	3.29999 V AC	3.20000	-0.00007	-0.002	0.007
	9.99996	3.3 V to	10.0000	0.00004	0.0004	0.007
	32.0005	32.9999 V AC	32.0000	-0.0005	-0.002	0.007
	50.0008	33 V to	50.000	-0.0008	-0.002	0.007
	99.9968	329.999 V AC	100.000	0.0032	0.003	0.007
	329.003		329.000	-0.003	-0.001	0.007

Note : The Value mentioned above is the mean of 5 readings.

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Instrument Sr. No: 1372004
Date of Calibration :15/12to 20/12/2014

Cert. No. : CC/ECL/2047/14-15

Calibration Results :

DC CURRENT CALIBRATION

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in %
	uA		**uA**	**uA**		
Auto	10.0007	329.999 uA	10.000	-0.0007	-0.007	0.01
Amps	99.9959	DC	100.000	0.0041	0.004	0.007
DC	189.9897		190.000	0.0103	0.005	0.007
	328.9820		329.000	0.0180	0.005	0.005
	mA		**mA**	**mA**		
	0.500006	3.29999 mA	0.50000	-0.000006	-0.001	0.005
	1.000005	DC	1.00000	-0.00001	-0.0005	0.005
	3.29001		3.29000	-0.00001	-0.0003	0.005
	10.00031		10.0000	-0.00031	-0.062	0.005
	20.00090	32.9999 mA	20.0000	-0.00090	-0.004	0.005
	32.90141	DC	32.9000	-0.00141	-0.004	0.007
	100.0010		100.000	-0.0010	-0.001	0.005
	199.997	329.999 mA	200.000	0.003	0.002	0.005
Auto Volts	**Calculated mA**	DC	**mA**	**mA**		
DC With	329.894		329.900	0.006	0.002	0.005
Std. Resistor	**Calculated A**		**A**	**A**		
	0.49995	1.09999 A	0.50000	0.00005	0.010	0.006
	0.99984	DC	1.00000	0.00016	0.016	0.006
		1.1 to 2.99999 A				
	2.99878	DC	2.99900	0.00022	0.007	0.006
	4.99935	0 to 10.9999 A	5.0000	0.00065	0.013	0.006
	9.9986	DC	10.0000	0.00140	0.014	0.006
		11 to 20.5 A				
	19.9985	DC	20.0000	0.00150	0.008	0.006

Note : The Value mentioned above is the mean of 5 readings.

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ELECTRICAL CALIBRATION LABORATORY

Instrument Sr. No: 1372004
Date of Calibration :15/12to 20/12/2014

Cert. No. : CC/ECL/2047/14-15

Calibration Results : **AC CURRENT CALIBRATION @ 50 Hz**

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in %
	Calculated µA		**µA**	**µA**		
Auto	33.003	29 to 329.99 µA	33.00	-0.003	-0.009	0.03
Volts	100.014		100.00	-0.014	-0.014	0.03
AC	199.991	AC	200.00	0.009	0.005	0.03
with Std.	328.984		329.00	0.016	0.005	0.03
Shunt	**Calculated mA**		**mA**	**mA**		
	1.000003	0.33 to	1.00000	-0.000003	-0.0003	0.03
	3.29018	3.29999 mA AC	3.29000	-0.00018	-0.005	0.03
	9.99933	3.3 to	10.0000	0.00067	0.007	0.03
	32.9003	32.9999 mA AC	32.9000	-0.0003	-0.001	0.03
	99.9960	33 to	100.000	0.0040	0.004	0.03
	328.967	329.999 mA AC	329.000	0.033	0.010	0.03
	Calculated A	0.33 to	**A**	**A**		
	0.499906	1.09999 A	0.50000	0.000094	0.019	0.02
	1.089908	AC	1.09000	0.000092	0.008	0.02
	2.000513	1.1 to	2.00000	-0.000513	-0.026	0.02
	2.901065	2.99999 A AC	2.90000	-0.001065	-0.037	0.02
	5.000290	3 to	5.0000	-0.000290	-0.006	0.02
	10.901208	10.9999 A AC	10.9000	-0.001208	-0.011	0.02
	20.004013	11 to 20.5 A AC	20.0000	-0.004013	-0.020	0.02

Note : The Value mentioned above is the mean of 5 readings.

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ELECTRICAL CALIBRATION LABORATORY

Instrument Sr. No: 1372004
Date of Calibration :15/12to 20/12/2014

Cert. No. : CC/ECL/2047/14-15

Calibration Results :

AC CURRENT CALIBRATION @1 kHz

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in %
	Calculated µA		**µA**	**µA**		
Auto	32.995	29 to 329.99 µA	33.00	0.005	0.015	0.03
Volts	100.010	AC	100.00	-0.010	-0.010	0.03
AC	200.013		200.00	-0.013	-0.006	0.03
with Std.	329.034		329.00	-0.034	-0.010	0.03
Shunt	**Calculated mA**		**mA**	**mA**		
	1.000043	0.33 to	1.00000	-0.000043	-0.004	0.03
	3.290224	3.29999 mA AC	3.29000	-0.000224	-0.007	0.03
	9.99941	3.3 to	10.0000	0.00059	0.006	0.03
	32.89986	32.9999 mA AC	32.9000	0.00014	0.0004	0.03
	99.9977	33 to	100.000	0.0023	0.002	0.03
	328.9900	329.999 mA AC	329.000	0.0100	0.003	0.03
	***Calculated A**		**A**	**A**		
	0.499842	0.33 to	0.50000	0.000158	0.032	0.02
	1.089812	1.09999 A AC	1.09000	0.000188	0.017	0.02
	2.00023	1.1 to	2.00000	-0.00023	-0.011	0.02
	2.90039	2.99999 A AC	2.90000	-0.00039	-0.013	0.02
	5.0011	3 to	5.0000	-0.0011	-0.022	0.02
	10.9025	10.9999 A AC	10.9000	-0.0025	-0.023	0.02
	20.0056	11 to 20.5 A AC	20.0000	-0.0056	-0.028	0.02

Note : The Value mentioned above is the mean of 5 readings.

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ELECTRICAL CALIBRATION LABORATORY

Instrument Sr. No: 1372004
Date of Calibration :15/12to 20/12/2014

Cert. No. : CC/ECL/2047/14-15

Calibration Results :

AC CURRENT CALIBRATION @10 kHz

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in %
	Calculated µA		µA	µA		
Auto	32.994	29 to 329.99 µA	33.00	0.0060	0.018	0.03
Volts	99.972	AC	100.00	0.0280	0.028	0.03
AC	199.949		200.00	0.0510	0.026	0.03
with Std.	329.102		329.00	-0.1020	-0.031	0.03
Shunt	**Calculated mA**		**mA**	**mA**		
	0.999914	0.33 to	1.00000	0.000086	0.009	0.03
	3.29005	3.29999 mA AC	3.29000	-0.00005	-0.002	0.03
	9.99978	3.3 to	10.0000	0.00022	0.002	0.03
	32.8952	32.9999 mA AC	32.9000	0.0048	0.015	0.03
	99.9744	33 to	100.000	0.0256	0.026	0.03
	328.956	329.999 mA AC	329.000	0.044	0.013	0.03
	Calculated A		**A**	**A**		
	0.503324	0.33 to	0.50000	-0.003324	-0.660	0.02
	1.095274	1.09999 A AC	1.09000	-0.005274	-0.482	0.02
	2.00716	1.1 to 2.99999 A AC	2.00000	-0.007160	-0.357	0.02

AC CURRENT CALIBRATION @ 5 kHz

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in %
Auto	**Calculated A**	1.1 to	**A**	**A**		
Volts	2.90049	2.99999 A AC	2.90000	-0.00049	-0.017	0.03
AC	5.00058	3 to	5.0000	-0.00058	-0.012	0.03
with Std.	10.89855	10.9999 A AC	10.9000	0.00145	0.013	0.02
Shunt	20.02005	11 to 20.5 A AC	20.0000	-0.02005	-0.100	0.02

Note : The Value mentioned above is the mean of 5 readings.

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ELECTRICAL CALIBRATION LABORATORY

Instrument Sr. No: 1372004
Date of Calibration :15/12to 20/12/2014

Cert. No. : CC/ECL/2047/14-15

Calibration Results :

RESISTANCE CALIBRATION

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert in %
Range	Reading	Range	Reading	Units	% of Rdg	
	Ω		Ω	Ω		
	1.00009	0 to	1.0000	-0.00009	-0.0090	0.007
Auto	5.00010	10.9999Ω,4W	5.0000	-0.00010	-0.0020	0.002
Ohms	10.89990		10.9000	0.00010	0.0009	0.002
	19.99976	11 to	20.0000	0.00024	0.0012	0.0015
	32.89960	32.9999Ω,4W	32.9000	0.00040	0.0012	0.0013
	49.99950	33 to	50.0000	0.00050	0.0010	0.001
	109.89869	109.9999Ω,4W	109.9000	0.00131	0.0012	0.001
	199.99829	110 to	200.0000	0.00171	0.0009	0.001
	329.89662	329.9999Ω,4W	329.9000	0.00338	0.0010	0.002
	kΩ		kΩ	kΩ		
	0.4999930	0.33 to	0.500000	0.0000070	0.0014	0.001
	1.0899935	1.999999kΩ,4W	1.090000	0.0000065	0.0006	0.001
		1.1 to				
	3.2899726	3.299999kΩ,4W	3.290000	0.0000274	0.0008	0.002

Note : The Value mentioned above is the mean of 5 readings.

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ELECTRICAL CALIBRATION LABORATORY

Instrument Sr. No: 1372004
Date of Calibration :15/12to 20/12/2014

Cert. No. : CC/ECL/2047/14-15

RESISTANCE CALIBRATION

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in %
	kΩ		**kΩ**	**kΩ**		
Auto	4.999917	3.3 to	5.00000	0.000083	0.0017	0.001
Ohms	10.899906	10.99999kΩ,4W	10.90000	0.000094	0.0009	0.001
	19.999797	11 to	20.00000	0.000203	0.0010	0.002
	32.899628	32.99999kΩ,4W	32.90000	0.000372	0.0011	0.002
	49.99970	33 to	50.0000	0.00030	0.0006	0.001
	109.89880	109.9999kΩ,4W	109.9000	0.00120	0.0011	0.001
	200.00908	110 to	200.0000	-0.00908	-0.0045	0.002
	329.90720	329.9999kΩ,2W	329.9000	-0.0072	-0.0022	0.002
	MΩ		**MΩ**	**MΩ**		
	0.5000021	330 kΩ to	0.500000	-0.0000021	-0.0004	0.002
	1.0899958	1.099999 MΩ,2W	1.090000	0.0000042	0.0004	0.002
	1.9999914	1.1 to	2.000000	0.0000086	0.0004	0.002
	3.2899976	3.299999 MΩ,2W	3.290000	0.0000024	0.00007	0.006
	4.999985	3.3 MΩ to	5.00000	0.000015	0.0003	0.005
	10.900033	10.99999M,2W	10.90000	-0.000033	-0.0003	0.003
	19.999915	11 to	20.00000	0.000085	0.0004	0.003
	32.900171	32.9999 MΩ,2W	32.90000	-0.00017	-0.0005	0.05
	49.99434	33 to	50.0000	0.0057	0.0113	0.04
	109.9071	109.9999 MΩ,2W	109.9000	-0.0071	-0.0065	0.02
	200.0412	110 MΩ to	200.000	-0.0412	-0.0206	0.08
	329.1154	329.9999 MΩ,2W	329.000	-0.1154	-0.0351	0.06
	500.259	330 to	500.00	-0.259	-0.0518	0.05
	1001.265	1100.00 MΩ,2W	1000.00	-1.265	-0.1263	0.2

Note : The Value mentioned above is the mean of 5 readings.

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Instrument Sr. No: 1372004
Date of Calibration :15/12to 20/12/2014

Cert. No. : CC/ECL/2047/14-15

Calibration Results :

FREQUENCY CALIBRATION at 3V

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in %
	Hz		**Hz**	**Hz**		
Auto	0.040000		0.04	0.000000	0.0000	0.012
Hz	0.050002		0.05	-0.000002	-0.0040	0.012
	0.099993	0.01 to	0.10	0.000007	0.0070	0.012
	0.299991	119.99 Hz	0.30	0.000009	0.0030	0.012
	44.99999		45.00	0.00001	0.00002	0.0002
	49.99999		50.00	0.00001	0.00002	0.0002
	100.0000		100.00	0.0000	0.0000	0.0002
	500.0000	120.0 to	500.0	0.0000	0.000	0.0002
	1100.0000	1199.9 Hz	1100.0	0.0000	0.000	0.0002
	kHz		**kHz**	**kHz**		
	1.2000001	1.2 to	1.200	-0.0000001	-0.00001	0.0002
	11.900001	11.999 kHz	11.900	-0.000001	-0.00001	0.0002
	50.000004	12 to	50.00	-0.000004	-0.00001	0.0002
	119.00001	119.99 kHz	119.00	-0.00001	-0.00001	0.0002
	500.00005	120.0 to	500.0	-0.00005	-0.00001	0.0002
	1000.0001	1199.9 kHz	1000.0	-0.0001	-0.00001	0.0002
	1199.0001		1199.0	-0.0001	-0.00001	0.0002
	MHz		**MHz**	**MHz**		
	1.2000001	1.2 to	1.200	-0.0000001	-0.00001	0.0002
	2.0000001	2MHz	2.000	-0.0000001	-0.000005	0.0002

Note : The Value mentioned above is the mean of 5 readings.

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Instrument Sr. No: 1372004
Date of Calibration :15/12to 20/12/2014

Cert. No. : CC/ECL/2047/14-15

Calibration Results :

CAPACITANCE CALIBRATION

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in %
Standard DMM with Standard Capacitors	**nF** 1.0073	0.4 nF to 1.0999 nF	**nF** 1.0000	**nF** -0.0073	-0.725	0.6
	9.9928	3.3 nF to 10.9999 nF	10.0000	0 0.0072	0.072	0.5
	99.8422	33 nF to 109.999 nF	100.000	0.1578	-0.841	0.3
	µF 0.9984	0.33 µF to 1.09999 µF	**µF** 1.00000	**µF** 0.0016	0.160	0.2
	9.9980	3.3 µF to 10.9999 µF	10.0000	0.0020	0.020	0.1
	100.02	33 µF to 109.999 µF	100.000	-0.02	-0.020	0.07
	mF 0.9999	0.33 µF to 1.0999 mF	**mF** 1.0000	**mF** 0.0001	0.010	0.4

Note : 1) The Value mentioned above is the mean of 5 readings.
2) Standard Capacitors value are traceable at 1kHz.

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Instrument Sr. No:1372004
Date of Calibration :15/12to 20/12/2014

Certificate No. : CC/ECL/2047/14-15

Calibration Results :

THERMOCOUPLE CALIBRATION
Source Mode

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in °C
	Calculated °C		°C	°C		
Auto	600.000	B-T/C	600.00	0.000	0.000	0.1
mV	800.029	('600°C TO	800.00	-0.029	-0.004	0.07
DC	1000.056	1820°C)	1000.00	-0.056	-0.006	0.07
	1200.082		1200.00	-0.082	-0.007	0.06
	1400.082		1400.00	-0.082	-0.006	0.06
	1800.008		1800.00	-0.008	-0.0004	0.05
	-250.100		-250.00	0.100	-0.040	0.1
	-0.010	T-T/C	0.00	0.010	-	0.07
	99.996	('-250°C TO	100.00	0.004	0.004	0.05
	199.998	400°C)	200.00	0.002	0.001	0.05
	299.993		300.00	0.007	0.002	0.05
	399.013		399.00	-0.013	-0.003	0.03
	-0.080		0.00	0.080	-	0.2
	299.950	R-T/C	300.00	0.050	0.017	0.16
	600.017	('0°C TO	600.00	-0.017	-0.003	0.14
	899.992	1767°C)	900.00	0.008	0.001	0.14
	1199.979		1200.00	0.021	0.002	0.08
	1499.964		1500.00	0.036	0.002	0.05
	1759.954		1760.00	0.046	0.003	0.05
	-200.040		-200.00	0.040	-0.020	0.06
	-0.019	N-T/C	0.00	0.019	-	0.06
	100.023	('-200°C TO	100.00	-0.023	-0.023	0.05
	499.992	1300°C)	500.00	0.008	0.002	0.05
	999.982		1000.00	0.018	0.002	0.04
	1299.000		1299.00	0.000	0.000	0.03
	-249.000		-249.00	0.000	0.000	0.3
	-0.034	E-T/C	0.00	0.034	-	0.22
	200.015	('-250°C TO	200.00	-0.015	-0.007	0.14
	400.008	1000°C)	400.00	-0.008	-0.002	0.14
	599.975		600.00	0.025	0.004	0.07
	799.985		800.00	0.015	0.002	0.05
	999.948		1000.00	0.052	0.005	0.02

Note : 1) Above mentioned values are mean of 5 readings.
2) Above Calibration is done by simulation method.

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Instrument Sr. No:1372004
Date of Calibration :15/12to 20/12/2014

Certificate No. : CC/ECL/2047/14-15

Calibration Results :

THERMOCOUPLE/RTD CALIBRATION

Source Mode

Calibration Standard		Unit Under Calibration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in °C
	Calculated °C		°C	°C		
	-0.060		0.00	0.060	-	0.2
	299.989	S-T/C	300.00	0.011	0.004	0.16
Auto	599.945	('0°C TO	600.00	0.055	0.009	0.12
mV	900.009	1767°C)	900.00	-0.009	-0.001	0.12
DC	1199.967		1200.00	0.033	0.003	0.06
	1499.958		1500.00	0.042	0.003	0.03
	1760.000		1760.00	0.000	0.000	0.03
	-200.032		-200.00	0.032	-0.016	0.03
	-0.006		0.00	0.006	-	0.03
	199.989	J-T/C	200.00	0.011	0.006	0.03
	399.993	('-210°C TO	400.00	0.007	0.002	0.03
	600.008	1200°C)	600.00	-0.008	-0.001	0.03
	800.014		800.00	-0.014	-0.002	0.03
	999.988		1000.00	0.012	0.001	0.03
	1199.007		1199.00	-0.007	-0.001	0.03
	-200.013		-200.00	0.013	-0.006	0.04
	-0.010	K-T/C	0.00	0.010	-	0.04
	200.008	('-200°C TO	200.00	-0.008	-0.004	0.04
	500.005	1372°C)	500.00	-0.005	-0.001	0.03
	999.987		1000.00	0.013	0.001	0.03
	1349.982		1350.00	0.018	0.001	0.02
Auto	-199.999	Pt- 385	-200.000	-0.001	0.001	0.01
Ohms	-50.013	('-200°C to	-50.000	0.013	-0.026	0.01
	-0.004	800°C)	0.000	0.004	-	0.01
	49.991		50.000	0.009	0.018	0.01
	199.986		200.000	0.014	0.007	0.01
	400.000		400.000	0.000	0.000	0.02
	800.005		800.000	-0.005	-0.001	0.02

Note : 1) Above mentioned values are mean of 5 readings.
2) Above Calibration is done by simulation method.

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Instrument Sr. No:1372004
Current Coil Sr. No. : 0025678
Date of Calibration :15/12to 20/12/2014

Certificate No. : CC/ECL/2047/14-15

Calibration Results :

CUEERNT COIL CALIBRATION

Calibration Standard		Unit Under Calibration		Error		Expanded
Range	Reading	Range	Reading	Units	% of Rdg.	Uncert. in %
	Calculated A		**Calculated A**	**A**		
Auto	20.032	1000 A	20.00	-0.032	-0.160	0.7
Volts	100.107	AC, 50 Hz	100.00	-0.107	-0.107	0.7
AC	200.739	(Calibrator with	200.00	-0.739	-0.368	0.7
with Current	501.411	Current Coil)	500.00	-1.411	-0.281	0.7
Clamp	1002.533		1000.00	-2.533	-0.253	0.7
	Calculated A		**Calculated A**	**A**		
Auto	20.038	1000 A	20.00	-0.038	-0.190	0.8
Volts	100.868	DC	100.00	-0.868	-0.861	0.8
DC	201.669	(Calibrator with	200.00	-1.669	-0.828	0.8
with Current	503.675	Current Coil)	500.00	-3.675	-0.730	0.8
Clamp	1005.568		995.00	-10.568	-1.051	0.8

Note : Above mentioned values are mean of 5 readings.

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Instrument Sr. No. : 1372004
Date of Calibration : 15/12 to 20/12/2014

Certificate No. : CC/ECL/2047/14-15

Calibration Results :

SCOPE MODE : LEVSINE (AMPLITUDE FLATNESS)

Calibration Standard		Unit Under Calibration		Error		Expanded Uncert. in %
Range	Calculated Reading	Range	Reading	Units	% of Rdg.	
	mVp-p		**mVp-p**	**mVp-p**		
Auto Volts AC	5.200	5 mVp-p to 5.5 Vp-p 50 KHz to 600 MHz (into 50 Ω)	5 @ 50 kHz	-0.200	-3.846	0.1
	5.166		5 @ 1 MHz	-0.166	-3.213	6.3
	5.004		5 @ 10 MHz	-0.004	-0.080	6.3
	4.899		5 @ 100 MHz	0.101	2.062	6.3
	4.933		5 @ 200MHz	0.067	1.358	6.3
	4.994		5 @ 400MHz	0.006	0.120	6.3
	4.960		5 @ 600MHz	0.040	0.806	6.3
	Vp-p		**Vp-p**	**Vp-p**		
	101.190		0.1 @ 50 kHz	-1.190	-1.176	0.1
	100.990		0.1 @ 1 MHz	-0.990	-0.980	6.3
	100.400		0.1 @ 10 MHz	-0.400	-0.398	6.3
	98.920		0.1 @ 100 MHz	1.080	1.092	6.3
	99.360		0.1 @ 200MHz	0.640	0.644	6.3
	101.620		0.1 @ 400MHz	-1.620	-1.594	6.3
	100.450		0.1 @ 600MHz	-0.450	-0.448	6.3
	1.0076		1 @ 50 KHz	-0.0076	-0.754	0.1
	1.0033		1 @ 1 MHz	-0.0033	-0.329	6.3
	1.0043		1 @ 10 MHz	-0.0043	-0.428	6.3
	0.9915		1 @ 100 MHz	0.0085	0.857	6.3
	0.9963		1 @ 200 MHz	0.0037	0.371	6.3
	0.9962		1 @ 400 MHz	0.0038	0.381	6.3
	0.9964		1 @ 600 MHz	0.0036	0.361	6.3
	5.0388		5 @ 50 KHz	-0.0388	-0.770	0.1
	5.0055		5 @ 1 MHz	-0.0055	-0.110	6.3
	5.0064		5 @ 10 MHz	-0.0064	-0.128	6.3
	4.9370		5 @ 100 MHz	0.0630	1.276	6.3
	4.9550		5 @ 200 MHz	0.0450	0.908	6.3
	4.9549		5 @ 400 MHz	0.0451	0.910	6.3
	4.9637		5 @ 600 MHz	0.0363	0.731	6.3

Note : 1) The Value mentioned above is the mean of 5 readings.
2) The Bandwidth obsereved is 250 MHz.

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Instrument Sr. No. : 1372004 | Page : 18 of 26
Date of Calibration :15/12to 20/12/2014 | Certificate No. : CC/ECL/2047/14-15

Calibration Results :

SCOPE MODE : MARKER

Calibration Standard		Unit Under Calibration		Error		Expanded
Range	Reading	Range	Reading	Units	% of Rdg.	Uncert. in ppm
	Calculated ns		**ns**	**ns**		
Auto	1.999999	Time Marker	2.000	0.000001	0.000043	2
Frequency	4.999998	O/P Volts :	5.000	0.000002	0.000040	2
Mode	9.999996	1 V (p-p)	10.00	0.000004	0.000040	2
	19.999991	1 ns to 5 s	20.00	0.000009	0.000043	2
	49.999979		50.00	0.000021	0.000043	2
	99.999966		100.0	0.000034	0.000034	2
	199.999920		200.0	0.000080	0.000040	2
	499.999810		500.0	0.000190	0.000038	2
	Calculated µs		**µs**	**µs**		
	1.000000		1.000	0.000000	0.000036	2
	1.999999		2.000	0.000001	0.000040	2
	4.999998		5.000	0.000002	0.000039	2
	9.999997		10.00	0.000003	0.000030	2
	19.999992		20.00	0.000008	0.000039	2
	49.999981		50.00	0.000019	0.000038	2
	99.999966		100.0	0.000034	0.000034	2
	199.999921		200.0	0.000079	0.000040	2
	499.999820		500.0	0.000180	0.000036	2
	Calculated ms		**ms**	**ms**		
	1.000000		1.000	0.000000	0.000034	2
	1.999999		2.000	0.000001	0.000039	2
	4.999998		5.000	0.000002	0.000037	2
	9.999996		10.00	0.000004	0.000044	2
	19.999997		20.00	0.000003	0.000016	2
	50.000000		50.00	0.000000	0.000000	2
	100.000000		100.0	0.000000	0.000000	2
	200.000000		200.0	0.000000	0.000000	150
	500.000000		500.0	0.000000	0.000000	150
	Calculated s		**s**	**s**		
	1.000000		1.000	0.000000	0.000000	150
	2.000000		2.000	0.000000	0.000000	150
	5.000000		5.000	0.000000	0.000000	150

Note : 1) The Value mentioned above is the mean of 5 readings.
2) Time Marker Calibration is done by measuring the Frequency and Calculating the time by using the formula t = 1 / F

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ELECTRICAL CALIBRATION LABORATORY

Instrument Sr. No. : 1372004
Date of Calibration :15/12to 20/12/2014

Certificate No. : CC/ECL/2047/14-15

Calibration Results :

SCOPE MODE : LEVSINE (FREQUENCY)

Calibration Standard		Unit Under Calibration		Error		Expanded
Range	Reading	Range	Reading	Units	% of Rdg.	Uncert. in ppm
	kHz		**kHz**	**kHz**		
Auto Frequency Mode	50.000014	50 kHz to 600 MHz	50	-0.000014	-0.00003	2
	100.00002		100	-0.00002	-0.00002	2
	500.00013		500	-0.00013	-0.00003	2
	MHz		**MHz**	**MHz**		
	1.0000002		1.00	-0.0000002	-0.00002	2
	10.000002		10.00	-0.000002	-0.00002	2
	50.000014		50.00	-0.000014	-0.00003	2
	100.00002		100.00	-0.00002	-0.00002	2
	300.00008		300.00	-0.00008	-0.00003	2
	600.00016		600.00	-0.00016	-0.00003	2

Note : The Value mentioned above is the mean of 5 readings.

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ELECTRICAL CALIBRATION LABORATORY

Instrument Sr. No. : 1372004
Date of Calibration :15/12to 20/12/2014

Certificate No. : CC/ECL/2047/14-15

Calibration Results :

SCOPE MODE : VOLT ,DC VOLTAGE (50 Ω)

Calibration Standard		Unit Under Calibration		Error		Expanded
Range	Reading	Range	Reading	Units	% of Rdg.	Uncert. in %
	mVp-p		**mVp-p**	**mVp-p**		
Auto	1.0002	6.6 Vp-p	1.000	-0.0002	-0.020	0.003
Volt DC	5.0072		5.000	-0.0072	-0.144	0.003
	10.0152		10.000	-0.0152	-0.152	0.003
	50.078		50.00	-0.078	-0.156	0.003
	100.154		100.00	-0.154	-0.154	0.003
	Vp-p		**Vp-p**	**Vp-p**		
	0.50079		0.5000	-0.00079	-0.158	0.003
	1.00159		1.0000	-0.00159	-0.159	0.003
	3.0047		3.000	-0.0047	-0.156	0.003
	6.0095		6.000	-0.0095	-0.158	0.003
	6.6095		6.599	-0.0105	-0.159	0.003

SCOPE MODE : VOLT, DC VOLTAGE (1 MΩ)

Calibration Standard		Unit Under Calibration		Error		Expanded
Range	Reading	Range	Reading	Units	% of Rdg.	Uncert. in %
	mVp-p		**mVp-p**	**mVp-p**		
Auto	0.1019	130 Vp-p	0.100	-0.0019	-1.865	0.003
Volts DC	1.0011		1.000	-0.0011	-0.110	0.003
	4.9994		5.000	0.0006	0.012	0.003
	9.9989		10.000	0.0011	0.011	0.003
	50.001		50.00	-0.001	-0.002	0.003
	100.004		100.00	-0.004	-0.004	0.003
	Vp-p		**Vp-p**	**Vp-p**		
	10.0009		10.000	-0.0009	-0.009	0.003
	20.000		20.00	0.000	0.000	0.003
	40.000		40.00	0.000	0.000	0.003
	60.001		60.00	-0.001	-0.002	0.003
	80.002		80.00	-0.002	-0.002	0.003
	100.003		100.00	-0.003	-0.003	0.005
	130.005		130.00	-0.005	-0.004	0.005

Note : The Value mentioned above is the mean of 5 readings.

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Date of Calibration :15/12to 20/12/2014

Certificate No. : CC/ECL/2047/14-15

Calibration Results :

SCOPE MODE : VOLT ,AC VOLTAGE (50 Ω)

Calibration Standard		Unit Under Calibration		Error		Expanded
Range	Reading	Range	Reading	Units	% of Rdg.	Uncert. in %
	mVp-p		**mVp-p**	**mVp-p**		
Auto	0.9881	6.6 Vp-p	1.000	0.0119	1.204	0.02
Volts AC	4.9409	1000 Hz	5.000	0.0591	1.196	0.02
	9.9467		10.000	0.0533	0.536	0.02
	49.937		50.00	0.063	0.126	0.02
	99.934		100.00	0.066	0.066	0.02
	Vp-p		**Vp-p**	**Vp-p**		
	0.50007		0.5000	-0.00007	-0.014	0.02
	1.00004		1.0000	-0.00004	-0.004	0.02
	2.9998		3.000	0.0002	0.007	0.02
	5.9993		6.000	0.0007	0.012	0.02
	6.5982		6.599	0.0008	0.012	0.02

SCOPE MODE : VOLT , AC VOLTAGE (1 MΩ)

Calibration Standard		Unit Under Calibration		Error		Expanded
Range	Reading	Range	Reading	Units	% of Rdg.	Uncert. in %
	mVp-p		**mVp-p**	**mVp-p**		
Auto	1.0194	130 Vp-p	1.000	-0.0194	-1.903	0.02
Volts AC	4.9897	1000 Hz	5.000	0.0103	0.206	0.02
	9.9879		10.000	0.0121	0.121	0.02
	49.918		50.00	0.082	0.164	0.02
	99.840		100.00	0.160	0.160	0.02
	Vp-p		**Vp-p**	**Vp-p**		
	9.9842		10.000	0.0158	0.158	0.02
	19.983		20.00	0.017	0.085	0.02
	39.953		40.00	0.047	0.118	0.02
	59.927		60.00	0.073	0.122	0.02
	79.904		80.00	0.096	0.120	0.02
	99.883		100.00	0.117	0.117	0.02
	129.859		130.00	0.141	0.109	0.02

Note : 1) The Value mentioned above is the mean of 5 readings.
2) Standard readings are calculated by measuring RMS voltage and Multiplied by 2 to conevrt it to Peak -Peak for square wave.

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Instrument Sr. No: 1372004
Date of Calibration :15/12to 20/12/2014

Cert. No. : CC/ECL/2047/14-15

Calibration Results :

AC POWER CALIBRATION AT 50Hz ,UPF

Calibration Standard		Unit Under Calibration			Error		Exp.Uncert
Range	Reading	Voltage	Current	Wattage	Units	% of Rdg	in %
	mW	**V**	**A**	**mW**	**mW**		
	**299.84	10	0.03	300.0	0.16	0.053	0.04
	W			**W**	**W**		
Auto	**9.9947	10	1	10.00	0.0053	0.053	0.04
AC	**49.962	10	5	50.00	0.038	0.076	0.04
Voltage	**99.934	10	10	100.0	0.065	0.065	0.04
&	**199.89	10	20	200.0	0.11	0.055	0.04
Current	**W**			**W**	**W**		
0-1-0	1.19981	40	0.03	1.2000	0.00019	0.016	0.03
Lead / Lag	39.994	40	1	40.00	0.006	0.015	0.03
PF	199.926	40	5	200.00	0.073	0.037	0.03
	399.88	40	10	400.0	0.13	0.033	0.03
	800.03	40	20	800.0	-0.03	-0.004	0.03
	W			**W**	**W**		
	4.4996	150	0.03	4.500	0.0004	0.009	0.03
	149.99	150	1	150.0	0.01	0.007	0.03
	749.77	150	5	750.0	0.23	0.031	0.03
	1499.8	150	10	1500	0.2	0.013	0.03
	2999.8	150	20	3000	0.2	0.007	0.03
	W			**W**	**W**		
	8.9987	300	0.03	9.000	0.0013	0.014	0.03
	299.99	300	1	300.0	0.01	0.003	0.03
	1499.58	300	5	1500.0	0.42	0.028	0.03
	2999.4	300	10	3000	0.6	0.020	0.03
	5999.8	300	20	6000	0.2	0.003	0.03
	W			**W**	**W**		
	14.3957	480	0.03	14.400	0.0043	0.030	0.03
	479.95	480	1	480.0	0.05	0.010	0.03
	2399.18	480	5	2400.0	0.82	0.034	0.03
	4798.85	480	10	4800	1.14	0.024	0.03
	9599.6	480	20	9600	0.4	0.004	0.03

Note : 1)The Value mentioned above is the mean of 5 readings.
2) Above" ** " Mark Readings are not covered the under the scope of NABL Accreditation.

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Date of Calibration :15/12to 20/12/2014

Cert. No. :CC/ECL/2047/14-15

Calibration Results :

AC POWER CALIBRATION AT 50Hz ,0.5 Lag

Calibration Standard		Unit Under Calibration			Error		Exp.Uncert
Range	Reading	Voltage	Current	Wattage	Units	% of Rdg	in %
	mW	**V**	**A**	**mW**	**mW**		
	*150.04	10	0.03	150.0	-0.04	-0.027	0.08
	W			**W**	**W**		
Auto	*4.9966	10	1	5.00	0.0034	0.068	0.08
AC	*24.964	10	5	25.00	0.036	0.144	0.08
Voltage	*49.942	10	10	50.0	0.058	0.116	0.08
&	*99.94	10	20	100.0	0.06	0.064	0.08
Current	**mW**			**mW**	**mW**		
0-1-0	599.99	40	0.03	600.0	0.01	0.002	0.06
Lead / Lag	**W**			**W**	**W**		
PF	20.006	40	1	20.00	-0.006	-0.030	0.06
	99.952	40	5	100.00	0.048	0.048	0.06
	200.03	40	10	200.0	-0.03	-0.015	0.06
	400.16	40	20	400.0	-0.16	-0.040	0.06
	W			**W**	**W**		
	2.2506	150	0.03	2.250	-0.0006	-0.027	0.06
	75.01	150	1	75.0	-0.01	-0.013	0.06
	374.75	150	5	375.0	0.25	0.067	0.06
	749.6	150	10	750	0.4	0.053	0.06
	1500.2	150	20	1500	-0.2	-0.013	0.06
	W			**W**	**W**		
	4.5006	300	0.03	4.500	-0.0006	-0.013	0.06
	149.94	300	1	150.0	0.06	0.040	0.06
	749.51	300	5	750.0	0.49	0.065	0.06
	1499.7	300	10	1500.0	0.3	0.020	0.06
	3000.3	300	20	3000	-0.2	-0.007	0.06
	W			**W**	**W**		
	7.2013	480	0.03	7.200	-0.0013	-0.018	0.06
	240.03	480	1	240.0	-0.03	-0.012	0.06
	1199.38	480	5	1200.0	0.61	0.051	0.06
	2399.6	480	10	2400	0.4	0.017	0.06
	4801.1	480	20	4800	-1.1	-0.023	0.06

Note : 1) The Value mentioned above is the mean of 5 readings.
2) Above" ** " Mark Readings are not covered the under the scope of NABL Accreditation.

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Date of Calibration :15/12to 20/12/2014

Cert. No. : CC/ECL/2047/14-15

Calibration Results :

AC POWER CALIBRATION AT 50Hz ,0.2 Lag

Calibration Standard		Unit Under Calibration			Error		Exp.Uncert
Range	Reading	Voltage	Current	Wattage	Units	% of Rdg	in %
	mW	**V**	**A**	**mW**	**mW**		
	**60.13	10	0.03	60.0	-0.13	-0.216	0.20
	W			**W**	**W**		
Auto	**1.9997	10	1	2.00	0.0003	0.015	0.20
AC	**9.982	10	5	10.00	0.018	0.180	0.20
Voltage	**19.977	10	10	20.0	0.023	0.115	0.20
&	**39.98	10	20	40.0	0.02	0.050	0.20
Current	**mW**			**mW**	**mW**		
0-1-0	240.22	40	0.03	240.0	-0.21	-0.087	0.15
Lead / Lag	**W**			**W**	**W**		
PF	8.009	40	1	8.00	-0.009	-0.112	0.15
	40.012	40	5	40.00	-0.012	-0.030	0.15
	80.12	40	10	80.0	-0.12	-0.150	0.15
	160.29	40	20	160.0	-0.29	-0.181	0.15
	mW			**mW**	**mW**		
	901.1	150	0.03	900	-1.1	-0.122	0.15
	W			**W**	**W**		
	30.01	150	1	30.0	-0.01	-0.033	0.15
	149.88	150	5	150.0	0.12	0.080	0.15
	300.1	150	10	300	-0.1	-0.033	0.15
	600.0	150	20	600	0.0	0.000	0.15
	W			**W**	**W**		
	1.8019	300	0.03	1.800	-0.0019	-0.105	0.15
	60.05	300	1	60.0	-0.05	-0.083	0.15
	299.9	300	5	300.0	0.1	0.033	0.15
	600.5	300	10	600	-0.5	-0.083	0.15
	1199.8	300	20	1200	0.2	0.017	0.15
	W			**W**	**W**		
	2.8838	480	0.03	2.880	-0.0038	-0.132	0.15
	96.06	480	1	96.0	-0.06	-0.062	0.15
	480.07	480	5	480.0	-0.08	-0.017	0.15
	961.2	480	10	960	-1.2	-0.125	0.15
	1920.9	480	20	1920	-1.0	-0.052	0.15

Note : 1) The Value mentioned above is the mean of 5 readings.
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Instrument Sr. No: 1372004
Date of Calibration :15/12to 20/12/2014

Cert. No. :CC/ECL/2047/14-15

Calibration Results :

AC POWER CALIBRATION AT 50Hz ,0.8 Lead

Calibration Standard		Unit Under Calibration			Error		Exp.Uncert
Range	Reading	Voltage	Current	Wattage	Units	% of Rdg	in %
	mW	**V**	**A**	**mW**	**mW**		
Auto	**239.80	10	0.03	240.0	0.20	0.083	0.20
AC	**W**			**W**	**W**		
Voltage	**7.9978	10	1	8.00	0.0022	0.028	0.20
&	**39.986	10	5	40.00	0.014	0.035	0.20
Current	**79.958	10	10	80.0	0.042	0.053	0.20
0-1-0	**159.97	10	20	160.0	0.03	0.019	0.20
Lead / Lag	**mW**			**mW**	**mW**		
PF	959.75	40	0.03	960.0	0.25	0.026	0.04
	W			**W**	**W**		
	31.991	40	1	32.00	0.009	0.028	0.04
	159.939	40	5	160.00	0.060	0.038	0.04
	319.86	40	10	320.0	0.14	0.044	0.04
	639.82	40	20	640.0	0.18	0.028	0.04
	W			**W**	**W**		
	3.5992	150	0.03	3.600	0.0008	0.022	0.04
	120.00	150	1	120.0	0.00	0.000	0.04
	599.88	150	5	600.0	0.13	0.022	0.04
	1199.8	150	10	1200	0.2	0.017	0.04
1)	2400.2	150	20	2400	-0.2	-0.008	0.04
	W			**W**	**W**		
	7.1976	300	0.03	7.200	0.0024	0.033	0.04
	239.98	300	1	240.0	0.02	0.008	0.04
	1199.82	300	5	1200.0	0.18	0.015	0.04
	2399.5	300	10	2400	0.5	0.021	0.04
	4800.8	300	20	4800	-0.8	-0.017	0.04
	W			**W**	**W**		
	11.5129	480	0.03	11.520	0.0071	0.062	0.04
	383.98	480	1	384.0	0.02	0.005	0.04
	1919.60	480	5	1920.0	0.39	0.020	0.04
	3838.9	480	10	3840	1.0	0.026	0.04
	7680.4	480	20	7680	-0.2	-0.003	0.04

Note : 1) The Value mentioned above is the mean of 5 readings.
2) Above" ** " Mark Readings are not covered the under the scope of NABL Accreditation.

P.V. Ambekar
Checked by

Calibrated By

सूक्ष्म, लघु एवं मध्यम उद्यम
MICRO, SMALL & MEDIUM ENTERPRISES
IME - TECHNOLOGY DEVELOPMENT CENTRE,
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वैद्युतिक मापन उपयंत्र अभिकल्प संस्थान, मुंबई - ४०० ०२२.
INSTITUTE FOR DESIGN OF ELECTRICAL
MEASURING INSTRUMENTS, MUMBAI - 400 022.

IDEMI

ELECTRICAL CALIBRATION LABORATORY

Instrument Sr. No: 1372004
Date of Calibration : 15/12 to 20/12/2014

Cert. No. :CC/ECL/2047/14-15

Calibration Results :

POWER FACTOR

Calibration Standard		Unit Under Calobration		Error		Exp.Uncert
Range	Reading	Range	Reading	Units	% of Rdg	in PF
Auto	**PF**		**PF**	**PF**		
AC	1.0000	300 V & 10 A	1.000	0.0000	-	0.001
Voltage	**Lag**	@ 50 Hz	**Lag**	**Lag**		
&	0.2001		0.200	-0.0001	-	0.001
Current	0.5001		0.500	-0.0001	-	0.001
0-1-0	0.7999		0.800	0.0001	-	0.001
Lead / Lag	**Lead**		**Lead**	**Lead**		
PF	0.2002		0.200	-0.0002	-	0.001
	0.5000		0.500	0.0000	-	0.001
	0.8000		0.800	0.0000	-	0.001

Note : The Value mentioned above is the mean of 5 readings.

***** End of Calibration Certificate *****

P.V. Ambekar
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