

# CERTIFICATE OF CALIBRATION

**Issued By :**  
Transmille Calibration, Inc  
158 Brentwood Drive  
Unit #4  
Colchester VT 05446

**Certificate Number** [REDACTED]  
**Date of Issue:** [REDACTED]

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Approved Signatory  
*Scott Sabourin*

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D. Bartlett  G. Viens  S. Sabourin

**Customer :** [REDACTED]  
[REDACTED]

**Instrument :** System ID : [REDACTED]  
Description : Advanced Multiproduct Calibrator  
Manufacturer : Transmille  
Model Number : 4010  
Serial Number : [REDACTED]

**Calibration Info:**

Date Received : [REDACTED]  
Job Number : [REDACTED]  
Order Number : [REDACTED]  
Procedure Number : [REDACTED]  
Procedure Version : [REDACTED]

**Environmental Conditions**

Temperature : 23°C ± 1°C  
Relative Humidity : 35%RH ± 10%RH  
Mains Voltage : 120V ± 10V  
Mains Frequency : 60Hz ± 1Hz

**Comments**

This certificate is issued in compliance with ISO/IEC 17025:2017 and our ANAB accredited quality system. Reported measurement uncertainties are stated with a coverage factor  $k=2$ , corresponding to a coverage probability of 95% Instrument was allowed to stabilise for at least 12 hours before calibration.  
4 Wire kelvin connections were used for ohms measurements below 10kOhms

**Traceability Information**

Instrument Description	Serial Number	Certificate Number	Cal. Date	Period [Weeks]
4010 Multi-Product Calibrator	[REDACTED]	46084	5/6/2022	52
8091 Precision 8.5 Digit Multimeter	[REDACTED]	46147	6/8/2022	52
8700 GPS Frequency Reference	[REDACTED]	39277	7/25/2019	GPS
AC/DC-100mA Current Shunt	[REDACTED]	AC-27542	5/10/2022	52
AC/DC-1A Current Shunt	[REDACTED]	AC-27546	5/10/2022	52
AC/DC-2A Current Shunt	[REDACTED]	AC-27544	5/10/2022	52
AC/DC-20A Current Shunt	[REDACTED]	22235	5/4/2022	52
LCR-6002 Precision LCR Meter	[REDACTED]	2395177	9/29/2021	52
5790B AC Measurement Standard	[REDACTED]	1500306064-1	4/8/2021	104

**Calibrated By :** Ian Slay **Date of Calibration :** [REDACTED]

This certificate provides traceability of measurement to recognized National standards, through units of measurement realized at the National Physical Laboratory (NPL), National Institute of Standards & Technology (NIST) or other recognized National standards laboratories to the International System of Units. Copyright of this certificate is owned by the issuing laboratory and may not be reproduced except in full, without the prior written approval of the issuing laboratory.

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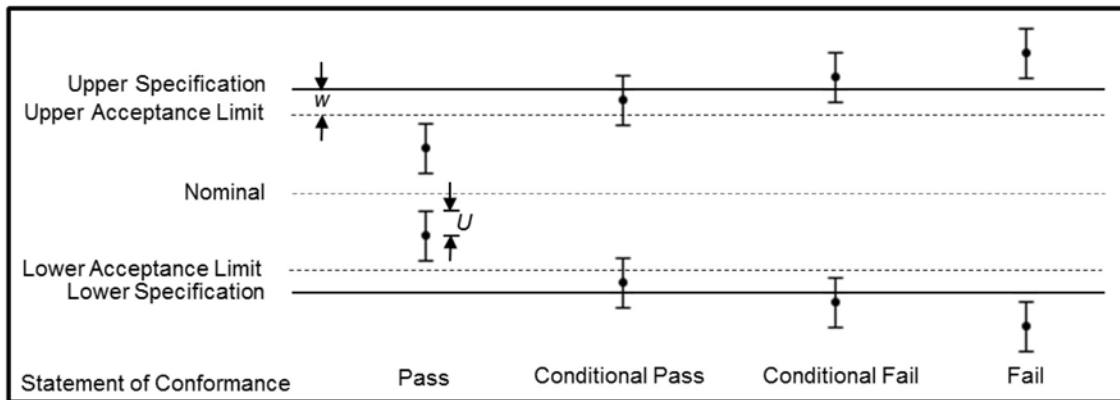
## Reporting Of Results

The following pages contain the results of calibration, with columns indicating applied value, measured/indicated value, test tolerance, the uncertainty of measurement and the test point status with relevance to the specification.

The column labelled 'Tolerance' is the calculated tolerance of the UUT based upon the testing specification.

The column labelled 'Pass / Fail' indicates compliance with the specified tolerance based upon the applied value, taking into account the measurement uncertainty. The table below indicates the possible status along with a description of each

<u>Status</u>	<u>Explanation</u>
Pass	The UUT complies with the stated specification at the measurement point, taking into account the uncertainty of measurement. The specific false acceptance risk is up to 2.5%.
Pass *	The indicated result from the UUT falls within the stated specification by a margin less than the measurement uncertainty. Based on the indicated measurement compliance is more probable than non compliance with the specification. The specific false acceptance risk is up to 50%.
Fail *	The indicated result from the UUT falls outside of the stated specification by a margin less than the measurement uncertainty. Based on the indicated measurement, non-compliance with the specification is more probable than compliance. The specific false reject risk is up to 50%.
Fail	The UUT has been found to be non compliant with the testing specification at the measurement point, taking into account the uncertainty of measurement. The specific false reject risk is up to 2.5%.



$U$  = 95% expanded measurement uncertainty

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## AFTER ADJUSTMENT RESULTS

Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
<b>Firmware Version : 14.1.1</b>					
<b>UI Version : 3.1.9.1</b>					
<b>DC Voltage</b>					
200mV Range	0.0000mV	-0.0001mV	± 2uV	0.8uV	Pass
200mV Range	100.0000mV	99.9996mV	± 3.5uV	1.1uV	Pass
200mV Range	200.0000mV	200.0007mV	± 5uV	1.8uV	Pass
200mV Range	-100.0000mV	-100.0004mV	± 3.5uV	1.1uV	Pass
200mV Range	-200.0000mV	-200.0026mV	± 5uV	1.8uV	Pass
2V Range	0.2200000V	0.2199994V	± 4.5uV	1.9uV	Pass
2V Range	1.0000000V	1.000014V	± 11.5uV	5.6uV	Pass
2V Range	2.0000000V	2.000012V	± 20.5uV	18uV	Pass
2V Range	-0.2200000V	-0.2200026V	± 4.5uV	1.9uV	Pass
2V Range	-1.0000000V	-1.000021V	± 11.5uV	5.6uV	Pass
2V Range	-2.0000000V	-2.000028V	± 20.5uV	18uV	Pass *
20V Range	2.200000V	2.199995V	± 41.6uV	19uV	Pass
20V Range	10.000000V	9.999970V	± 104uV	61uV	Pass
20V Range	20.000000V	20.000000V	± 184uV	161uV	Pass
20V Range	-2.200000V	-2.200000V	± 41.6uV	19uV	Pass
20V Range	-10.000000V	-9.999984V	± 104uV	61uV	Pass
20V Range	-20.000000V	-20.000008V	± 184uV	161uV	Pass
200V Range	22.00000V	22.00034V	± 504uV	180uV	Pass *
200V Range	100.00000V	99.99996V	± 1.4mV	750uV	Pass
200V Range	200.00000V	200.00008V	± 2.6mV	2.8mV	Pass *
200V Range	-200.00000V	-200.00163V	± 2.6mV	2.8mV	Pass *
200V Range	-100.00000V	-100.00004V	± 1.4mV	750uV	Pass
200V Range	-22.00000V	-21.99980V	± 504uV	180uV	Pass
1kV Range	220.0000V	220.0012V	± 5mV	3mV	Pass
1kV Range	1000.0000V	1000.0000V	± 14.4mV	8.6mV	Pass
1kV Range	-1000.0000V	-999.9996V	± 14.4mV	8.6mV	Pass
1kV Range	-220.0000V	-220.0007V	± 5mV	3mV	Pass
<b>AC Voltage Output Frequency Tests</b>					
10kHz at 1V	10.000000kHz	9.999998kHz	± 300mHz	1mHz	Pass
100kHz at 1V	100.0000kHz	100.0000kHz	± 3Hz	0.01Hz	Pass
<b>AC Voltage Measurements</b>					
200mV A.C. : 10Hz	20.000mV	19.996mV	± 31uV	18.2uV	Pass
200mV A.C. : 40Hz	20.000mV	19.996mV	± 31uV	12.2uV	Pass

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## AFTER ADJUSTMENT RESULTS

Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
200mV A.C. : 206Hz	20.000mV	19.998mV	± 18.2uV	12.2uV	Pass
200mV A.C. : 1kHz	20.000mV	19.997mV	± 32uV	12.2uV	Pass
200mV A.C : 10kHz	20.000mV	19.998mV	± 32uV	16.8uV	Pass
200mV A.C : 50kHz	20.000mV	20.006mV	± 60uV	28uV	Pass
200mV A.C : 100kHz	20.000mV	20.009mV	± 180uV	37uV	Pass
200mV A.C. : 10Hz	50.000mV	50.011mV	± 55uV	29uV	Pass
200mV A.C. : 40Hz	50.000mV	50.010mV	± 55uV	16uV	Pass
200mV A.C. : 206Hz	50.000mV	50.014mV	± 23uV	16uV	Pass *
200mV A.C. : 1kHz	50.000mV	50.013mV	± 38uV	16uV	Pass
200mV A.C : 10kHz	50.000mV	50.014mV	± 38uV	21uV	Pass
200mV A.C : 100kHz	50.000mV	50.010mV	± 300uV	143uV	Pass
200mV A.C. : 10Hz	100.000mV	100.012mV	± 95uV	81uV	Pass
200mV A.C. : 40Hz	100.000mV	100.011mV	± 95uV	17uV	Pass
200mV A.C. : 206Hz	100.000mV	100.018mV	± 31uV	17uV	Pass *
200mV A.C. : 1kHz	100.000mV	100.016mV	± 48uV	17uV	Pass
200mV A.C : 10kHz	100.000mV	100.018mV	± 48uV	23uV	Pass
200mV A.C : 100kHz	100.000mV	99.991mV	± 500uV	243uV	Pass
200mV A.C. : 10Hz	200.000mV	200.002mV	± 175uV	157uV	Pass
200mV A.C. : 40Hz	200.000mV	199.984mV	± 175uV	27uV	Pass
200mV A.C. : 206Hz	200.000mV	199.999mV	± 47uV	27uV	Pass
200mV A.C. : 1kHz	200.000mV	199.994mV	± 68uV	27uV	Pass
200mV A.C : 10kHz	200.000mV	199.999mV	± 68uV	34uV	Pass
200mV A.C : 50kHz	200.000mV	200.016mV	± 240uV	141uV	Pass
200mV A.C : 100kHz	200.000mV	200.004mV	± 900uV	141uV	Pass
2V Range : 10Hz	0.21000V	0.21000V	± 285uV	164uV	Pass
2V Range : 40Hz	0.21000V	0.21001V	± 285uV	111uV	Pass
2V Range : 206Hz	0.21000V	0.21001V	± 153.6uV	28uV	Pass
2V Range : 1kHz	0.21000V	0.21000V	± 224.1uV	28uV	Pass
2V Range : 10kHz	0.21000V	0.21000V	± 224.1uV	35uV	Pass
2V Range : 100kHz	0.21000V	0.21015V	± 1.1mV	147uV	Pass
2V Range : 500kHz	0.21000V	0.20958V	± 1.1mV	463uV	Pass
2V Range : 40Hz	0.50000V	0.50013V	± 200uV	89uV	Pass *
2V Range : 206Hz	0.50000V	0.50013V	± 200uV	89uV	Pass *
2V Range : 1kHz	0.50000V	0.50013V	± 285uV	88uV	Pass
2V Range : 40Hz	1.00000V	1.00018V	± 280uV	125uV	Pass *
2V Range : 206Hz	1.00000V	1.00016V	± 280uV	125uV	Pass *
2V Range : 1kHz	1.00000V	1.00018V	± 390uV	125uV	Pass
2V Range : 40Hz	1.50000V	1.50019V	± 360uV	173uV	Pass *
2V Range : 206Hz	1.50000V	1.50015V	± 360uV	173uV	Pass

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Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
2V Range : 1kHz	1.50000V	1.50019V	± 495uV	173uV	Pass
2V Range : 10Hz	2.00000V	2.00000V	± 1.2mV	631uV	Pass
2V Range : 40Hz	2.00000V	1.99999V	± 1.2mV	215uV	Pass
2V Range : 206Hz	2.00000V	1.99995V	± 440uV	215uV	Pass
2V Range : 1kHz	2.00000V	2.00000V	± 600uV	215uV	Pass
2V Range : 2kHz	2.00000V	2.00005V	± 600uV	322uV	Pass
2V Range : 10kHz	2.00000V	1.99999V	± 600uV	322uV	Pass
2V Range : 20kHz	2.00000V	1.99999V	± 1.6mV	322uV	Pass
2V Range : 50kHz	2.00000V	2.00006V	± 1.6mV	690uV	Pass
2V Range : 100kHz	2.00000V	2.00000V	± 6.4mV	690uV	Pass
2V Range : 500kHz	2.00000V	1.99989V	± 6.4mV	3.3mV	Pass
2V Range : 750kHz	2.00000V	1.99978V	± 6.4mV	3.3mV	Pass
2V Range : 1MHz	2.00000V	1.99955V	± 6.4mV	3.3mV	Pass
20V Range : 10Hz	2.1000V	2.0998V	± 2.6mV	0.66mV	Pass
20V Range : 40Hz	2.1000V	2.1000V	± 2.6mV	0.22mV	Pass
20V Range : 206Hz	2.1000V	2.1000V	± 1.3mV	0.22mV	Pass
20V Range : 1kHz	2.1000V	2.1000V	± 2mV	0.22mV	Pass
20V Range : 100kHz	2.1000V	2.1019V	± 4.3mV	0.72mV	Pass
20V Range : 40Hz	5.0000V	5.0014V	± 1.8mV	0.77mV	Pass *
20V Range : 206Hz	5.0000V	5.0014V	± 1.8mV	0.77mV	Pass *
20V Range : 1kHz	5.0000V	5.0013V	± 2.6mV	0.77mV	Pass
20V Range : 206Hz	10.0000V	10.0020V	± 2.6mV	1.2mV	Pass *
20V Range : 1kHz	10.0000V	10.0017V	± 3.7mV	1.2mV	Pass
20V Range : 40Hz	15.0000V	15.0019V	± 3.4mV	1.6mV	Pass *
20V Range : 206Hz	15.0000V	15.0020V	± 3.4mV	1.6mV	Pass *
20V Range : 1kHz	15.0000V	15.0017V	± 4.7mV	1.6mV	Pass
20V Range : 10Hz	20.0000V	19.9996V	± 11.6mV	6.2mV	Pass
20V Range : 40Hz	20.0000V	20.0001V	± 4.2mV	2.0mV	Pass
20V Range : 206Hz	20.0000V	20.0001V	± 4.2mV	2.0mV	Pass
20V Range : 1kHz	20.0000V	19.9997V	± 5.8mV	2.0mV	Pass
20V Range : 5kHz	20.0000V	19.9999V	± 5.8mV	2.5mV	Pass
20V Range : 10kHz	20.0000V	20.0005V	± 5.8mV	2.5mV	Pass
20V Range : 50kHz	20.0000V	19.9986V	± 15mV	6.3mV	Pass
20V Range : 100kHz	20.0000V	19.9999V	± 15mV	6.3mV	Pass
200V Range : 40Hz	21.000V	20.988V	± 30.5mV	2.1mV	Pass
200V Range : 206Hz	21.000V	20.989V	± 15.2mV	2.1mV	Pass
200V Range : 1kHz	21.000V	20.989V	± 20.2mV	2.1mV	Pass
200V Range : 100kHz	21.000V	20.967V	± 92mV	6.6mV	Pass
200V Range : 40Hz	50.000V	50.003V	± 45mV	9.3mV	Pass

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Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
200V Range : 206Hz	50.000V	50.004V	± 19.5mV	9.3mV	Pass
200V Range : 1kHz	50.000V	50.006V	± 19.5mV	9.3mV	Pass
200V Range : 100kHz	50.000V	49.901V	± 150mV	55mV	Pass *
200V Range : 40Hz	100.000V	100.009V	± 70mV	13mV	Pass
200V Range : 206Hz	100.000V	100.012V	± 27mV	13mV	Pass
200V Range : 1kHz	100.000V	100.014V	± 27mV	13mV	Pass *
200V Range : 50kHz	100.000V	100.004V	± 250mV	28mV	Pass
200V Range : 40Hz	150.000V	150.013V	± 95mV	16mV	Pass
200V Range : 206Hz	150.000V	150.015V	± 34.5mV	16mV	Pass
200V Range : 1kHz	150.000V	150.019V	± 34.5mV	16mV	Pass *
200V Range : 40kHz	150.000V	150.013V	± 350mV	131mV	Pass
200V Range : 40Hz	200.000V	200.017V	± 120mV	20mV	Pass
200V Range : 206Hz	200.000V	200.003V	± 42mV	20mV	Pass
200V Range : 1kHz	200.000V	200.005V	± 56mV	20mV	Pass
200V Range : 10kHz	200.000V	200.007V	± 90mV	78mV	Pass
200V Range : 20kHz	200.000V	200.006V	± 90mV	138mV	Pass *
200V Range : 40kHz	200.000V	199.996V	± 450mV	138mV	Pass
1kV Range : 40Hz	210.000V	210.032V	± 315.5mV	21mV	Pass
1kV Range : 206Hz	210.000V	210.030V	± 102mV	21mV	Pass
1kV Range : 1kHz	210.000V	210.031V	± 172.5mV	21mV	Pass
1kV Range : 10kHz	210.000V	210.031V	± 263mV	139mV	Pass
1kV Range : 40Hz	750.000V	749.970V	± 210mV	91mV	Pass
1kV Range : 206Hz	750.000V	749.994V	± 210mV	91mV	Pass
1kV Range : 1kHz	750.000V	749.989V	± 307.5mV	91mV	Pass
1kV Range : 10kHz	750.000V	749.968V	± 307.5mV	127mV	Pass
1kV Range : 50Hz	1000.000V	999.853V	± 260mV	114mV	Pass *
1kV Range : 206Hz	1000.000V	999.834V	± 260mV	114mV	Pass *
1kV Range : 1kHz	1000.000V	999.832V	± 370mV	114mV	Pass
<b>Linearity - 20V DC Range</b>					
Linearity	19.000000V	18.999930V	± 176uV	154uV	Pass *
Linearity	18.000000V	17.999925V	± 168uV	146uV	Pass *
Linearity	17.000000V	16.999995V	± 160uV	139uV	Pass
Linearity	16.000000V	15.999985V	± 152uV	132uV	Pass
Linearity	15.000000V	15.000020V	± 144uV	125uV	Pass *
Linearity	14.000000V	13.999980V	± 136uV	117uV	Pass *
Linearity	13.000000V	13.000010V	± 128uV	110uV	Pass
Linearity	12.000000V	12.000040V	± 120uV	103uV	Pass *
Linearity	11.000000V	11.000005V	± 112uV	95uV	Pass
Linearity	9.000000V	8.999988V	± 96uV	55uV	Pass
Linearity	8.000000V	7.999996V	± 88uV	50uV	Pass

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## AFTER ADJUSTMENT RESULTS

Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
Linearity	7.000000V	7.000003V	± 80uV	45uV	Pass
Linearity	6.000000V	6.000002V	± 72uV	39uV	Pass
Linearity	5.000000V	5.000006V	± 64uV	34uV	Pass
Linearity	4.000000V	4.000005V	± 56uV	29uV	Pass
Linearity	3.000000V	3.000003V	± 48uV	23uV	Pass
Linearity	2.100000V	2.100007V	± 40.8uV	19uV	Pass
Linearity	-19.000000V	-18.999945V	± 176uV	154uV	Pass *
Linearity	-18.000000V	-18.000030V	± 168uV	146uV	Pass *
Linearity	-17.000000V	-17.000025V	± 160uV	139uV	Pass *
Linearity	-16.000000V	-16.000015V	± 152uV	132uV	Pass
Linearity	-15.000000V	-15.000015V	± 144uV	125uV	Pass
Linearity	-14.000000V	-14.000015V	± 136uV	117uV	Pass
Linearity	-13.000000V	-12.999990V	± 128uV	110uV	Pass
Linearity	-12.000000V	-12.000040V	± 120uV	103uV	Pass *
Linearity	-11.000000V	-11.000060V	± 112uV	95uV	Pass *
Linearity	-9.000000V	-8.999999V	± 96uV	55uV	Pass
Linearity	-8.000000V	-8.000006V	± 88uV	50uV	Pass
Linearity	-7.000000V	-7.000009V	± 80uV	45uV	Pass
Linearity	-6.000000V	-6.000009V	± 72uV	39uV	Pass
Linearity	-5.000000V	-5.000020V	± 64uV	34uV	Pass
Linearity	-4.000000V	-4.000017V	± 56uV	29uV	Pass
Linearity	-3.000000V	-3.000012V	± 48uV	23uV	Pass
Linearity	-2.100000V	-2.100021V	± 40.8uV	19uV	Pass
<b>DC CURRENT</b>					
200uA Range	0.0000uA	-0.0009uA	± 10nA	13pA	Pass
200uA Range	20.0000uA	19.9989uA	± 12nA	0.65nA	Pass
200uA Range	50.0000uA	49.9983uA	± 15nA	0.93nA	Pass
200uA Range	100.0000uA	100.0006uA	± 20nA	1.4nA	Pass
200uA Range	150.0000uA	150.0000uA	± 25nA	6nA	Pass
200uA Range	200.0000uA	200.0004uA	± 30nA	6.5nA	Pass
200uA Range	-200.0000uA	-200.0004uA	± 30nA	6.5nA	Pass
2mA Range	0.210000mA	0.209996mA	± 40.5nA	6.6nA	Pass
2mA Range	0.500000mA	0.500000mA	± 55nA	9.3nA	Pass
2mA Range	1.000000mA	1.000016mA	± 80nA	14nA	Pass
2mA Range	1.500000mA	1.499999mA	± 105nA	68nA	Pass
2mA Range	2.000000mA	2.000004mA	± 130nA	73nA	Pass
2mA Range	-2.000000mA	-2.000001mA	± 130nA	73nA	Pass

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## AFTER ADJUSTMENT RESULTS

Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
20mA Range	5.00000mA	4.99999mA	± 450nA	106nA	Pass
20mA Range	10.00000mA	10.00017mA	± 700nA	161nA	Pass
20mA Range	15.00000mA	14.99999mA	± 950nA	1.2uA	Pass *
20mA Range	20.00000mA	20.00003mA	± 1.3uA	0.3uA	Pass
20mA Range	-20.00000mA	-20.00002mA	± 1.3uA	0.3uA	Pass
200mA Range	21.0000mA	21.0004mA	± 4.1uA	0.3uA	Pass
200mA Range	50.0000mA	50.0024mA	± 5.5uA	0.7uA	Pass
200mA Range	100.0000mA	99.9944mA	± 8uA	1.4uA	Pass
200mA Range	150.0000mA	149.9978mA	± 10.5uA	41uA	Pass *
200mA Range	200.0000mA	200.0009mA	± 13uA	3uA	Pass
200mA Range	-200.0000mA	-200.0011mA	± 12uA	3uA	Pass
2A Range	1.000000A	1.000026A	± 160uA	15uA	Pass
2A Range	2.000000A	1.999999A	± 290uA	52uA	Pass
2A Range	-1.000000A	-1.000012A	± 160uA	15uA	Pass
2A Range	-2.000000A	-2.000000A	± 290uA	52uA	Pass
30A Range	10.00000A	10.00029A	± 3.3mA	0.7mA	Pass
30A Range	20.00000A	20.00068A	± 6.3mA	1.4mA	Pass
30A Range	30.00000A	30.01130A	± 15.4mA	2.1mA	Pass
30A Range	-30.00000A	-30.01237A	± 15.4mA	2.1mA	Pass
30A Range	-20.00000A	-20.00342A	± 6.3mA	1.4mA	Pass
30A Range	-10.00000A	-10.00083A	± 3.3mA	0.7mA	Pass
<b>AC CURRENT</b>					
200uA Rng: 10Hz	25.000uA	24.994uA	± 300nA	0.17uA	Pass
200uA Rng: 40Hz	25.000uA	24.983uA	± 300nA	0.17uA	Pass
200uA Rng: 206Hz	25.000uA	24.982uA	± 167.5nA	0.13uA	Pass
200uA Rng: 1kHz	25.000uA	24.991uA	± 450nA	0.13uA	Pass
200uA Rng: 5kHz	25.000uA	25.299uA	± 450nA	0.22uA	Pass *
200uA Rng: 10kHz	25.000uA	25.147uA	± 450nA	0.20uA	Pass
200uA Rng: 10Hz	200.000uA	200.001uA	± 650nA	0.28uA	Pass
200uA Rng: 40Hz	200.000uA	199.979uA	± 650nA	0.28uA	Pass
200uA Rng: 56Hz	200.000uA	199.993uA	± 290nA	0.16uA	Pass
200uA Rng: 1kHz	200.000uA	199.990uA	± 1.8uA	0.16uA	Pass
200uA Rng: 5kHz	200.000uA	200.094uA	± 1.8uA	0.73uA	Pass
200uA Rng: 10kHz	200.000uA	200.011uA	± 1.8uA	0.73uA	Pass
2mA Rng: 40Hz	0.21000mA	0.20991mA	± 670nA	0.28uA	Pass
2mA Rng: 206Hz	0.21000mA	0.20992mA	± 326nA	0.16uA	Pass



# CERTIFICATE OF CALIBRATION

## AFTER ADJUSTMENT RESULTS

Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
2mA Rng: 1kHz	0.21000mA	0.20992mA	± 1.4uA	0.16uA	Pass
2mA Rng: 5kHz	0.21000mA	0.20978mA	± 1.4uA	0.76uA	Pass
2mA Rng: 10kHz	0.21000mA	0.20991mA	± 1.4uA	0.76uA	Pass
2mA Rng: 30kHz	0.21000mA	0.21080mA	± 2.7uA	1uA	Pass
2mA Rng: 40Hz	1.00000mA	0.99984mA	± 10.6uA	0.28uA	Pass
2mA Rng: 206Hz	1.00000mA	1.00010mA	± 10.6uA	0.28uA	Pass
2mA Rng: 1kHz	1.00000mA	1.00018mA	± 10.6uA	0.28uA	Pass
2mA Rng: 10kHz	1.00000mA	1.00049mA	± 10.6uA	1.7uA	Pass
2mA Rng: 10Hz	2.00000mA	2.00016mA	± 4.2uA	1.4uA	Pass
2mA Rng: 40Hz	2.00000mA	1.99963mA	± 4.2uA	1.4uA	Pass
2mA Rng: 56Hz	2.00000mA	1.99998mA	± 1.4uA	0.58uA	Pass
2mA Rng: 1kHz	2.00000mA	2.00017mA	± 10.3uA	0.58uA	Pass
2mA Rng: 5kHz	2.00000mA	2.00005mA	± 10.3uA	3.3uA	Pass
2mA Rng: 10kHz	2.00000mA	2.00015mA	± 10.3uA	3.3uA	Pass
2mA Rng: 20kHz	2.00000mA	2.00141mA	± 20.6uA	6.4uA	Pass
20mA Rng: 40Hz	2.1000mA	2.0993mA	± 7.2uA	0.6uA	Pass
20mA Rng: 206Hz	2.1000mA	2.0998mA	± 2.8uA	0.6uA	Pass
20mA Rng: 1kHz	2.1000mA	2.0999mA	± 8.3uA	0.6uA	Pass
20mA Rng: 5kHz	2.1000mA	2.1013mA	± 8.3uA	3.4uA	Pass
20mA Rng: 10kHz	2.1000mA	2.0998mA	± 8.3uA	3.4uA	Pass
20mA Rng: 20kHz	2.1000mA	2.1024mA	± 14.5uA	6.7uA	Pass
20mA Rng: 30kHz	2.1000mA	2.1034mA	± 14.5uA	6.7uA	Pass
20mA Rng: 40Hz	10.0000mA	9.9986mA	± 28uA	2.4uA	Pass
20mA Rng: 206Hz	10.0000mA	10.0003mA	± 28uA	2.4uA	Pass
20mA Rng: 1kHz	10.0000mA	10.0012mA	± 28uA	2.4uA	Pass
20mA Rng: 10kHz	10.0000mA	10.0022mA	± 28uA	9uA	Pass
20mA Rng: 10Hz	20.0000mA	20.0004mA	± 43uA	10.2uA	Pass
20mA Rng: 40Hz	20.0000mA	19.9998mA	± 43uA	2.7uA	Pass
20mA Rng: 1kHz	20.0000mA	20.0007mA	± 53uA	2.7uA	Pass
20mA Rng: 5kHz	20.0000mA	19.9974mA	± 53uA	3uA	Pass
20mA Rng: 10kHz	20.0000mA	19.9994mA	± 53uA	3uA	Pass
20mA Rng: 20kHz	20.0000mA	19.9991mA	± 53uA	3uA	Pass
20mA Rng: 30kHz	20.0000mA	19.9806mA	± 104uA	3uA	Pass
200mA Rng: 40Hz	21.000mA	21.001mA	± 72uA	2.8uA	Pass
200mA Rng: 206Hz	21.000mA	21.002mA	± 28.4uA	2.8uA	Pass
200mA Rng: 1kHz	21.000mA	21.002mA	± 145uA	2.8uA	Pass
200mA Rng: 5kHz	21.000mA	20.990mA	± 145uA	3uA	Pass
200mA Rng: 10kHz	21.000mA	20.997mA	± 145uA	3uA	Pass
200mA Rng: 20kHz	21.000mA	21.024mA	± 347uA	3uA	Pass

# CERTIFICATE OF CALIBRATION

## AFTER ADJUSTMENT RESULTS

Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
200mA Rng: 30kHz	21.000mA	21.075mA	± 347uA	3uA	Pass
200mA Rng: 40Hz	100.000mA	100.021mA	± 540uA	14uA	Pass
200mA Rng: 206Hz	100.000mA	100.023mA	± 540uA	14uA	Pass
200mA Rng: 1kHz	100.000mA	100.020mA	± 540uA	14uA	Pass
200mA Rng: 10kHz	100.000mA	100.015mA	± 540uA	14uA	Pass
200mA Rng: 10Hz	200.000mA	200.004mA	± 430uA	108uA	Pass
200mA Rng: 40Hz	200.000mA	199.998mA	± 430uA	50uA	Pass
200mA Rng: 56Hz	200.000mA	200.000mA	± 100uA	50uA	Pass
200mA Rng: 1kHz	200.000mA	200.001mA	± 1mA	50uA	Pass
200mA Rng: 5kHz	200.000mA	199.886mA	± 1mA	58uA	Pass
200mA Rng: 10kHz	200.000mA	199.972mA	± 1mA	82uA	Pass
200mA Rng: 30kHz	200.000mA	200.175mA	± 1.6mA	82uA	Pass
2A Rng: 40Hz	0.21000A	0.21004A	± 720uA	52.5uA	Pass
2A Rng: 206Hz	0.21000A	0.21001A	± 326uA	52.5uA	Pass
2A Rng: 1kHz	0.21000A	0.21000A	± 1.4mA	52.5uA	Pass
2A Rng: 5kHz	0.21000A	0.21003A	± 1.4mA	61uA	Pass
2A Rng: 10kHz	0.21000A	0.21000A	± 2.3mA	61uA	Pass
2A Rng: 10Hz	1.00000A	1.00018A	± 2.3mA	498uA	Pass
2A Rng: 40Hz	1.00000A	1.00029A	± 2.3mA	139uA	Pass
2A Rng: 56Hz	1.00000A	1.00026A	± 800uA	139uA	Pass
2A Rng: 1kHz	1.00000A	1.00007A	± 5.4mA	139uA	Pass
2A Rng: 5kHz	1.00000A	1.00020A	± 5.4mA	220uA	Pass
2A Rng: 10kHz	1.00000A	1.00003A	± 5.4mA	220uA	Pass
2A Rng: 10Hz	2.00000A	2.00003A	± 4.3mA	996uA	Pass
2A Rng: 40Hz	2.00000A	2.00024A	± 4.3mA	278uA	Pass
2A Rng: 56Hz	2.00000A	2.00016A	± 1.4mA	278uA	Pass
2A Rng: 1kHz	2.00000A	1.99975A	± 10.4mA	440uA	Pass
2A Rng: 5kHz	2.00000A	2.00006A	± 10.4mA	440uA	Pass
2A Rng: 10kHz	2.00000A	2.00005A	± 10.4mA	440uA	Pass
30A Rng: 40Hz	2.10000A	2.09834A	± 7.2mA	0.32mA	Pass
30A Rng: 206Hz	2.10000A	2.09996A	± 10.3mA	0.32mA	Pass
30A Rng: 1kHz	2.10000A	2.09801A	± 10.3mA	0.32mA	Pass
30A Rng: 5kHz	2.10000A	2.10232A	± 16.6mA	0.29mA	Pass
30A Rng: 10kHz	2.10000A	2.10524A	± 68mA	0.29mA	Pass
30A Rng: 10kHz	10.00000A	10.00316A	± 304mA	5.2mA	Pass
30A Rng: 10Hz	20.00000A	19.99905A	± 605mA	10.3mA	Pass
30A Rng: 40Hz	20.00000A	19.99784A	± 43mA	3.2mA	Pass
30A Rng: 56Hz	20.00000A	19.99927A	± 18mA	3.2mA	Pass
30A Rng: 100Hz	20.00000A	19.99975A	± 64mA	3.2mA	Pass



# CERTIFICATE OF CALIBRATION

**AFTER ADJUSTMENT RESULTS**

Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
30A Rng: 1kHz	20.00000A	19.99874A	± 64mA	3.2mA	Pass
30A Rng: 5kHz	20.00000A	20.01372A	± 104mA	4.3mA	Pass
30A Rng: 30Hz	30.00000A	30.00952A	± 48mA	15.5mA	Pass
30A Rng: 1kHz	30.00000A	30.00794A	± 124mA	4.8mA	Pass

# CERTIFICATE OF CALIBRATION

## AFTER ADJUSTMENT RESULTS

Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
<b>2 Wire Resistance measured as value at terminals.</b>					
0R 2 Wire	0.1810Ω	0.1812Ω	± 40mΩ	9uΩ	Pass
0.1R 2 Wire	0.2780Ω	0.2792Ω	± 40mΩ	11uΩ	Pass
1R 2 Wire	1.2690Ω	1.2695Ω	± 40mΩ	25uΩ	Pass
10R 2 Wire	10.190Ω	10.190Ω	± 40.2mΩ	163uΩ	Pass
100R 2 Wire	100.207Ω	100.208Ω	± 41.8mΩ	1.3mΩ	Pass
1kR 2 Wire	1.000208kΩ	1.000210kΩ	± 58mΩ	12mΩ	Pass
10kR 2 Wire	10.00021kΩ	10.00023kΩ	± 165mΩ	130mΩ	Pass
100kR 2 Wire	100.0033kΩ	100.0032kΩ	± 2.3Ω	1.4Ω	Pass
1MR 2 Wire	1.000049MΩ	1.000047MΩ	± 30Ω	17Ω	Pass
10MR 2 Wire	10.00089MΩ	10.00084MΩ	± 1000Ω	300Ω	Pass
100MR 2 Wire	100.0090MΩ	99.9134MΩ	± 183kΩ	18kΩ	Pass
1000MR 2 Wire	989.00MΩ	992.43MΩ	± 10MΩ	0.49MΩ	Pass
<b>Simulated Ohms</b>					
100 R Range	0.0000Ω	0.0073Ω	± 60mΩ	9uΩ	Pass
100 R Range	30.0000Ω	30.0057Ω	± 60mΩ	870uΩ	Pass
100 R Range	100.0000Ω	100.0047Ω	± 60mΩ	1.7mΩ	Pass
330 R Range	100.0000Ω	100.0204Ω	± 83mΩ	1.7mΩ	Pass
330 R Range	330.0000Ω	330.0142Ω	± 83mΩ	7.5mΩ	Pass
1kR Range	0.33000kΩ	0.33002kΩ	± 150mΩ	7.5mΩ	Pass
1kR Range	0.50000kΩ	0.50002kΩ	± 150mΩ	8.6mΩ	Pass
1kR Range	1.00000kΩ	1.00000kΩ	± 150mΩ	12mΩ	Pass
3.3kR Range	1.00000kΩ	1.00004kΩ	± 380mΩ	12mΩ	Pass
3.3kR Range	2.00000kΩ	1.99997kΩ	± 380mΩ	69mΩ	Pass
3.3kR Range	3.30000kΩ	3.30005kΩ	± 380mΩ	79mΩ	Pass
10kR Range	3.3000kΩ	3.3000kΩ	± 1.1Ω	79mΩ	Pass
10kR Range	5.0000kΩ	5.0000kΩ	± 1.1Ω	100mΩ	Pass
10kR Range	10.0000kΩ	10.0000kΩ	± 1.1Ω	132mΩ	Pass
33kR Range	10.0000kΩ	10.0001kΩ	± 3.4Ω	132mΩ	Pass
33kR Range	20.0000kΩ	19.9995kΩ	± 3.4Ω	706mΩ	Pass
33kR Range	33.0000kΩ	32.9996kΩ	± 3.4Ω	820mΩ	Pass
100kR Range	33.000kΩ	33.002kΩ	± 10.1Ω	820mΩ	Pass
100kR Range	50.000kΩ	50.001kΩ	± 10.1Ω	970mΩ	Pass
100kR Range	100.000kΩ	100.000kΩ	± 10.1Ω	1.4Ω	Pass
330kR Range	100.000kΩ	99.994kΩ	± 33.1Ω	1.4Ω	Pass
330kR Range	200.000kΩ	199.990kΩ	± 33.1Ω	7.9Ω	Pass
330kR Range	330.000kΩ	329.991kΩ	± 33.1Ω	9.3Ω	Pass
1MR Range	0.33000MΩ	0.33002MΩ	± 100.1Ω	9.3Ω	Pass
1MR Range	0.50000MΩ	0.50002MΩ	± 100.1Ω	11.2Ω	Pass
1MR Range	1.00000MΩ	0.99999MΩ	± 100.1Ω	16.7Ω	Pass
3.3MR Range	1.00000MΩ	1.00006MΩ	± 330.1Ω	16.7Ω	Pass

# CERTIFICATE OF CALIBRATION

## AFTER ADJUSTMENT RESULTS

Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
3.3MR Range	2.00000MΩ	2.00000MΩ	± 330.1Ω	148Ω	Pass
3.3MR Range	3.30000MΩ	3.30001MΩ	± 330.1Ω	173Ω	Pass
10MR Range	3.3000MΩ	3.2999MΩ	± 1.1kΩ	173Ω	Pass
10MR Range	5.0000MΩ	5.0001MΩ	± 1.1kΩ	205Ω	Pass
10MR Range	10.0000MΩ	9.9999MΩ	± 1.1kΩ	300Ω	Pass
33MR Range	10.0000MΩ	10.0005MΩ	± 15.8kΩ	300Ω	Pass
33MR Range	20.0000MΩ	20.0006MΩ	± 15.8kΩ	7.3kΩ	Pass
33MR Range	33.0000MΩ	32.9992MΩ	± 15.8kΩ	9kΩ	Pass
100MR Range	33.0000MΩ	33.0222MΩ	± 160kΩ	9kΩ	Pass
100MR Range	50.0000MΩ	50.0203MΩ	± 160kΩ	11kΩ	Pass
100MR Range	100.0000MΩ	100.0075MΩ	± 160kΩ	18kΩ	Pass
330MR Range	100.0000MΩ	99.6110MΩ	± 3.4MΩ	18kΩ	Pass
330MR Range	200.0000MΩ	199.7650MΩ	± 3.4MΩ	121kΩ	Pass
330MR Range	330.0000MΩ	329.7160MΩ	± 3.4MΩ	181kΩ	Pass
1GR Range	0.3300GΩ	0.3264GΩ	± 20.6MΩ	181kΩ	Pass
1GR Range	0.5000GΩ	0.4985GΩ	± 20.6MΩ	259kΩ	Pass
1GR Range	1.0000GΩ	1.0009GΩ	± 20.6MΩ	489kΩ	Pass

## 4 Wire Ohms Measured relative to Zero

100mR 4 Wire	100.00mΩ	99.82mΩ	± 5mΩ	10.6uΩ	Pass
1R 4 Wire	1.00444Ω	1.00430Ω	± 5mΩ	25uΩ	Pass
10R 4 Wire	10.007714Ω	10.007473Ω	± 5.2mΩ	163uΩ	Pass
100R 4 Wire	100.00781Ω	100.00621Ω	± 7.5mΩ	1.3mΩ	Pass
1kR 4 Wire	1.0000113kΩ	1.0000105kΩ	± 23mΩ	6mΩ	Pass
10kR 4 Wire	10.000141kΩ	10.000132kΩ	± 130mΩ	132mΩ	Pass *
100kR 4 Wire	100.00330kΩ	100.00318kΩ	± 2.3Ω	1.4Ω	Pass

## PT100 Resistance Option

PT100 PRT Resistance	-99.750°C	-99.746°C	± 0.015°C	0.023°C	Pass *
PT100 PRT Resistance	0.219°C	0.219°C	± 0.026°C	0.020°C	Pass
PT100 PRT Resistance	30.207°C	30.206°C	± 0.029°C	0.021°C	Pass
PT100 PRT Resistance	60.212°C	60.212°C	± 0.032°C	0.021°C	Pass
PT100 PRT Resistance	100.147°C	100.147°C	± 0.037°C	0.023°C	Pass
PT100 PRT Resistance	200.080°C	200.081°C	± 0.048°C	0.029°C	Pass
PT100 PRT Resistance	400.020°C	400.024°C	± 0.072°C	0.036°C	Pass
PT100 PRT Resistance	799.590°C	799.593°C	± 0.13°C	0.083°C	Pass

## Capacitance @ 1kHz Measured Cp up to 1uF, Cs above

1nF	1.0060nF	1.0048nF	± 22.5pF	0.6pF	Pass
2nF	2.0142nF	2.0129nF	± 25pF	1.2pF	Pass
5nF	5.0410nF	5.0554nF	± 32.5pF	3pF	Pass
10nF	10.111nF	10.106nF	± 45pF	6pF	Pass
100nF	99.67nF	99.63nF	± 270pF	60pF	Pass

# CERTIFICATE OF CALIBRATION

## AFTER ADJUSTMENT RESULTS

Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
1uF	1.0023uF	1.0019uF	± 4nF	600pF	Pass
10uF	9.881uF	9.881uF	± 60nF	6nF	Pass
<b>Variable Capacitance</b>					
10uF Rng	0.950uF	0.949uF	± 70nF	1nF	Pass
10uF Rng	5.000uF	4.980uF	± 70nF	3nF	Pass
10uF Rng	9.500uF	9.490uF	± 70nF	6nF	Pass
100uF Rng	10.000uF	10.000uF	± 700nF	10nF	Pass
100uF Rng	50.000uF	50.000uF	± 700nF	30nF	Pass
100uF Rng	95.00uF	95.20uF	± 700nF	60nF	Pass
1mF Rng	0.1000mF	0.1000mF	± 7uF	0.1uF	Pass
1mF Rng	0.500mF	0.500mF	± 7uF	1uF	Pass
1mF Rng	0.950mF	0.953mF	± 7uF	1uF	Pass
10mF Rng	1.000mF	0.996mF	± 70uF	1uF	Pass
10mF Rng	5.000mF	4.987mF	± 70uF	3uF	Pass
10mF Rng	9.500mF	9.458mF	± 70uF	6uF	Pass
100mF Rng	10.000mF	9.960mF	± 700uF	6uF	Pass
100mF Rng	40.000mF	39.900mF	± 700uF	24uF	Pass
<b>Inductance @ 1kHz. measured Ls up to 1H. Lp above</b>					
Inductance @ 1kHz	1.064mH	1.066mH	± 55uH	0.6uH	Pass
Inductance @ 1kHz	10.356mH	10.366mH	± 100uH	6uH	Pass
Inductance @ 1kHz	19.707mH	19.722mH	± 145uH	12uH	Pass
Inductance @ 1kHz	30.093mH	30.105mH	± 195uH	18uH	Pass
Inductance @ 1kHz	51.780mH	51.800mH	± 300uH	30uH	Pass
Inductance @ 1kHz	103.36mH	103.41mH	± 550uH	60uH	Pass
Inductance @ 1kHz	1.0350H	1.0361H	± 5mH	0.6mH	Pass
Inductance @ 1kHz	10.190H	10.192H	± 50mH	6mH	Pass
<b>A/D Input</b>					
10V A/D Input	10.0000V	10.0000V	± 400uV	59uV	Pass
5V A/D Input	5.0000V	5.0000V	± 300uV	35uV	Pass
0V A/D Input	0.000V	0.0001V	± 200uV	1.4uV	Pass
-5V A/D Input	-5.0000V	-4.9999V	± 300uV	35uV	Pass
-10V A/D Input	-10.0000V	-9.9999V	± 400uV	59uV	Pass
<b>20 ppm Frequency Output</b>					
Frequency	10.0000000MHz	10.0000005MHz	± 200Hz	300mHz	Pass
Frequency	1.0000000MHz	1.0000014MHz	± 20Hz	30mHz	Pass
Frequency	100.000000kHz	100.000015kHz	± 2Hz	3mHz	Pass
Frequency	50.0000000kHz	50.0000070kHz	± 1Hz	3mHz	Pass
Frequency	20.0000000kHz	20.0000030kHz	± 400mHz	3mHz	Pass
Frequency	10.0000000kHz	10.0000016kHz	± 200mHz	300uHz	Pass
Frequency	1.00000000kHz	0.99999999kHz	± 20mHz	3uHz	Pass

# CERTIFICATE OF CALIBRATION

## AFTER ADJUSTMENT RESULTS

Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
Frequency	100.000000Hz	100.000070Hz	± 2mHz	3uHz	Pass
<b>Amplitude Output</b>					
2mV/Div	12.0000mV	11.9993mV	± 21.2uV	0.84uV	Pass
5mV/Div	30.0000mV	29.9962mV	± 23uV	0.88uV	Pass
10mV/Div	60.0000mV	59.9993mV	± 26uV	0.97uV	Pass
20mV/Div	120.000mV	120.000mV	± 32uV	1.5uV	Pass
50mV/Div	300.000mV	299.996mV	± 50uV	2.3uV	Pass
100mV/Div	600.000mV	600.001mV	± 80uV	3.7uV	Pass
200mV/Div	1.20000V	1.19996V	± 140uV	13.9uV	Pass
500mV/Div	3.00000V	3.00003V	± 320uV	23.4uV	Pass
1V/Div	6.00000V	6.00003V	± 620uV	39.3uV	Pass
2V/Div	12.00000V	12.00013V	± 1.2mV	0.10mV	Pass
5V/Div	30.0000V	29.9996V	± 3mV	0.23mV	Pass
10V/Div	60.0000V	59.9996V	± 6mV	0.45mV	Pass
20V/Div	120.0000V	119.9998V	± 12mV	2.3mV	Pass
50V/Div	300.0000V	299.9995V	± 30mV	3.6mV	Pass
<b>Timebase Output</b>					
20ns/Div	50.00000MHz	49.999978MHz	± 250Hz	3Hz	Pass
50ns/Div	20.00000MHz	19.999991MHz	± 100Hz	3Hz	Pass
100ns/Div	10.00000MHz	9.999999MHz	± 50Hz	300mHz	Pass
200ns/Div	5.000000MHz	4.9999994MHz	± 25Hz	300mHz	Pass
500ns/Div	2.000000MHz	1.9999997MHz	± 10Hz	300mHz	Pass
1us/Div	1.000000MHz	0.9999999MHz	± 5Hz	30mHz	Pass
2us/Div	500.0000kHz	499.99994kHz	± 2.5Hz	30mHz	Pass
5us/Div	200.0000kHz	199.99996kHz	± 1Hz	30mHz	Pass
10us/Div	100.0000kHz	99.99998kHz	± 500mHz	3mHz	Pass
20us/Div	50.00000kHz	49.999991kHz	± 250mHz	3mHz	Pass
50us/Div	20.00000kHz	19.999997kHz	± 100mHz	3mHz	Pass
100us/Div	10.00000kHz	9.999999kHz	± 50mHz	300uHz	Pass
200us/Div	5.000000kHz	4.9999990kHz	± 25mHz	300uHz	Pass
500us/Div	2.000000kHz	1.9999996kHz	± 10mHz	300uHz	Pass
1ms/Div	1.000000kHz	0.9999997kHz	± 5mHz	3uHz	Pass
2ms/Div	500.0000Hz	499.99986Hz	± 2.5mHz	3uHz	Pass
5ms/Div	200.0000Hz	199.99996Hz	± 1mHz	3uHz	Pass
10ms/Div	100.0000Hz	99.99998Hz	± 500uHz	3uHz	Pass
20ms/Div	50.00000Hz	49.999992Hz	± 250uHz	3uHz	Pass
50ms/Div	20.00000Hz	19.999996Hz	± 100uHz	3uHz	Pass
100ms/Div	10.00000Hz	9.999998Hz	± 50uHz	1uHz	Pass
200ms/Div	5.00000Hz	4.999998Hz	± 25uHz	1uHz	Pass
500ms/Div	2.00000Hz	1.999999Hz	± 10uHz	1uHz	Pass

# CERTIFICATE OF CALIBRATION

## AFTER ADJUSTMENT RESULTS

Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
1s/Div	1.00000Hz	0.999999Hz	± 5uHz	1uHz	Pass
<b>600 MHz Frequency Sweep Output</b>					
10MHz	10.000000MHz	9.999999MHz	± 50Hz	300mHz	Pass
300MHz	300.00000MHz	299.99997MHz	± 1.5kHz	30Hz	Pass
600MHz	600.00000MHz	600.00090MHz	± 3kHz	30Hz	Pass
<b>600MHz Bandwidth Level output into 50R Pk-Pk</b>					
Level @ 5MHz	600mV	586mV	± 65mV	1mV	Pass
Level @ 250MHz	600mV	641mV	± 65mV	1mV	Pass
Level @ 600MHz	600mV	628mV	± 65mV	1mV	Pass
<b>50kHz Reference level</b>					
BW Ref Frequency	50.000kHz	50.000kHz	± 1.5Hz	3mHz	Pass
BW ref Level	0.213V	0.213V	± 1.1mV	0.41mV	Pass
<b>Fast Rise output</b>					
Fast Rise output	1.000ns	1.179ns	± 500ps	0.2ns	Pass
<b>Power Option: AC Voltage Measurements (Current out = 3A)</b>					
20V Range : 56Hz	20.000V	20.000V	± 7.9mV	1.9mV	Pass
200V Range : 60Hz	50.000V	50.006V	± 27.5mV	9.3mV	Pass
200V Range : 60Hz	100.000V	100.013V	± 47.5mV	12.6mV	Pass
200V Range : 45Hz	200.000V	199.998V	± 87.5mV	20.2mV	Pass
200V Range : 60Hz	200.000V	200.004V	± 87.5mV	20.2mV	Pass
200V Range : 400Hz	200.000V	200.001V	± 87.5mV	20.2mV	Pass
1000V Range : 60Hz	500.000V	500.063V	± 275mV	43mV	Pass
<b>Power Option: AC Current (Voltage out = 20V )</b>					
30A Rng: 56Hz	3.00000A	2.99986A	± 5.5mA	1.3mA	Pass
30A Rng: 56Hz	5.00000A	4.99990A	± 6.5mA	0.8mA	Pass
30A Rng: 45Hz	10.00000A	9.99971A	± 9mA	1.6mA	Pass
30A Rng: 56Hz	20.00000A	19.99281A	± 14mA	3.2mA	Pass
30A Rng: 400Hz	10.00000A	9.99480A	± 9mA	1.6mA	Pass
30A Rng: 56Hz	30.00000A	29.99441A	± 15mA	4.8mA	Pass
2A Rng: 56Hz	2.00000A	2.00046A	± 2.4mA	0.93mA	Pass
2A Rng: 56Hz	0.50000A	0.50023A	± 900uA	172uA	Pass
100mA Rng: 56Hz	100.000mA	99.985mA	± 140uA	23.7uA	Pass
100mA Rng: 56Hz	20.000mA	19.998mA	± 60uA	5.3uA	Pass
100mA Rng: 400Hz	100.000mA	99.980mA	± 140uA	23.7uA	Pass
10mA Rng: 56Hz	10.0000mA	9.9974mA	± 14uA	2.4uA	Pass
10mA Rng: 56Hz	2.0000mA	2.0009mA	± 6uA	1.1uA	Pass
10mA Rng: 400Hz	10.0000mA	9.9978mA	± 14uA	2.4uA	Pass
1mA Rng: 56Hz	1.00000mA	0.99981mA	± 1.4uA	0.28uA	Pass



# CERTIFICATE OF CALIBRATION

## AFTER ADJUSTMENT RESULTS

Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
1mA Rng: 56Hz	0.30000mA	0.30007mA	± 700nA	.17uA	Pass
1mA Rng: 400Hz	1.00000mA	0.99980mA	± 1.4uA	0.28uA	Pass
<b>DC Current output on Power</b>					
30A Range / 20V DC	20.00000A	19.99856A	± 12mA	1.4mA	Pass
30A Range / 110V DC	20.00000A	19.99917A	± 12mA	1.4mA	Pass
30A Range / 220V DC	20.00000A	19.99961A	± 12mA	1.4mA	Pass
30A Range / 500V DC	20.00000A	19.99993A	± 12mA	1.4mA	Pass
30A Range / 1kV DC	20.00000A	20.00026A	± 12mA	1.4mA	Pass
30A Range / 20V DC	3.00000A	3.00120A	± 5.2mA	60uA	Pass
30A Range / 110V DC	3.00000A	3.00122A	± 5.2mA	60uA	Pass
30A Range / 220V DC	3.00000A	3.00119A	± 5.2mA	60uA	Pass
2A Range / 20V DC	2.00000A	1.99996A	± 700uA	40uA	Pass
2A Range / 110V DC	2.00000A	1.99997A	± 700uA	40uA	Pass
2A Range / 220V DC	2.00000A	1.99997A	± 700uA	40uA	Pass
2A Range / 500V DC	2.00000A	1.99997A	± 700uA	40uA	Pass
2A Range / 20V DC	0.30000A	0.29992A	± 445uA	66uA	Pass
2A Range / 110V DC	0.30000A	0.29992A	± 445uA	66uA	Pass
2A Range / 220V DC	0.30000A	0.29992A	± 445uA	66uA	Pass
100mA Range / 20V DC	100.000mA	99.990mA	± 85uA	4.2uA	Pass
100mA Range/110V DC	100.000mA	99.990mA	± 85uA	4.2uA	Pass
100mA Range/220V DC	100.000mA	99.990mA	± 85uA	4.2uA	Pass
100mA Range/500V DC	100.000mA	99.990mA	± 85uA	4.2uA	Pass
10mA Range / 20V DC	10.0000mA	9.9971mA	± 8.5uA	0.16uA	Pass
10mA Range / 110V DC	10.0000mA	9.9971mA	± 8.5uA	0.16uA	Pass
10mA Range / 220V DC	10.0000mA	9.9971mA	± 8.5uA	0.16uA	Pass
10mA Range / 500V DC	10.0000mA	9.9971mA	± 8.5uA	0.16uA	Pass
1mA Range / 20V DC	1.00000mA	0.99971mA	± 850nA	14nA	Pass
1mA Range / 110V DC	1.00000mA	0.99971mA	± 850nA	14nA	Pass
1mA Range / 220V DC	1.00000mA	0.99971mA	± 850nA	14nA	Pass
1mA Range / 500V DC	1.00000mA	0.99971mA	± 850nA	14nA	Pass
<b>DC Voltage output on Power ( DC Current = 3Amp)</b>					
20V Range DC	10.0000V	9.9999V	± 290uV	60uV	Pass
20V Range DC	20.0000V	19.9998V	± 540uV	160uV	Pass
200V Range DC	200.000V	200.000V	± 6.4mV	2.8mV	Pass
1000V Range DC	500.000V	500.002V	± 19mV	5mV	Pass
1000V Range DC	1000.000V	1000.000V	± 34mV	8.6mV	Pass
<b>Phase Angle Full Range @ 120V/10A 60Hz</b>					
0° Phase Angle	0.00°	0.05°	± 0.21°	0.12°	Pass
60° Phase Angle	60.00°	60.02°	± 0.21°	0.12°	Pass



# CERTIFICATE OF CALIBRATION

**AFTER ADJUSTMENT RESULTS**

Test Title	Applied Value	Reading	Tolerance	Uncertainty	Pass / Fail
90° Phase Angle	90.00°	90.09°	± 0.21°	0.12°	Pass *
180° Phase Angle	180.00°	180.10°	± 0.21°	0.12°	Pass *
240° Phase Angle	240.00°	240.04°	± 0.21°	0.12°	Pass
270° Phase Angle	270.00°	269.97°	± 0.97°	0.12°	Pass

**End of test results**

**END OF TEST DATA**