MEATEST s.r.o.
Zelezna 509/3, 619 00 Brno
Czech Republic

tel: +420 543 250 886, fax: +420 543 250 890
meatest@meatest.cz www.meatest.com
CMI Registration No. 6000-OR-029-04

MEATEST
KL Calibration Laboratory

Calibration Certificate No. 22043/V

Manufacturer:	Meatest
Model Type Number:	M550
Serial Number:	599611
Customer:	

Date of Calibration:	27.9.2021
Place of Calibration:	Calibration laboratory Meatest, Zelezna 3, CZ-619 00 Brno
Number of Pages:	5
Page:	1

The instrument has been calibrated in accordance with the manufacturer´s User´s manual using standards that are traceable to National or International Standards or have been derived by approved ratio techniques.

The measurement uncertainties stated in this document have been determined according EA-4/02. They were estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage factor k=2 with confidence level of 95%.

The measurement results relate only to the calibrated items ado not carry any implication regarding long term stability of the instrument.

Seal	Date of Issue	Head of Calibration Laboratory	Person in Charge
	28.9.2021	Ing. Karel Volný	Michal Kalina

Range of Calibration:	AC resistance, AC voltage Dissipation factor Frequency Capacitance, Inductance	
Calibration Conditions:	Temperature	(23 ± 1) °C
	Humidity	(33 ± 15) %
Calibration Procedure:	M550TR	
Applied Standards:	Direct measurement with standard multimeter FLUKE 8508A SN:86094803, Agilent E4980A SN:MY40107026, M140 SN:14006, A53131A SN: MY47004119.	

The following pages contain the calibration results with column indicating the instrument performance relative to the stated specification.

The column headed "%spe" is the measured error as percentage of the stated specification with no allowance being made for the calibration uncertainty.

Measurement Results:

Function	Range	Standard	UUT	Deviation	%spe	Allowed	Uncertaint	
4TP								
SHORT4TP	1 -	1.00000 -	1.00000 -	0.00 m-	0	0.10 m-	0.58 m-	ok
OPEN4TP	1 -	1.00000 -	1.00000 -	0.00 m-	0	0.10 m-	0.58 m-	ok
R4TP								
RS-R4TP	100 mOhm	100.207 mOhm; 1kHz	100.200 mOhm	-7 uOhm	-3	200 uOhm	58 uOhm	ok
RS-R4TP	100 mOhm	100.469 mOhm; 10kHz	100.423 mOhm	-46 uOhm	-5	1004 uOhm	58 uOhm	ok
RS-R4TP	1 Ohm	0.99968 Ohm; 1kHz	0.99965 Ohm	-0.03 mOhm	-3	1.00 mOhm	0.29 mOhm	ok
RS-R4TP	1 Ohm	1.00000 Ohm; 10kHz	0.99993 Ohm	-0.07 mOhm	-7	1.00 mOhm	0.29 mOhm	ok
RS-R4TP	1 Ohm	1.00068 Ohm; 100kHz	1.00075 Ohm	0.08 mOhm	4	2.00 mOhm	0.29 mOhm	ok
RS-R4TP	10 Ohm	9.9799 Ohm; 1kHz	9.9797 Ohm	-0.3 mOhm	-5	5.0 mOhm	1.2 mOhm	ok
RS-R4TP	10 Ohm	9.9805 Ohm; 10kHz	9.9798 Ohm	-0.7 mOhm	-15	5.0 mOhm	1.2 mOhm	ok
RS-R4TP	10 Ohm	9.9819 Ohm; 100kHz	9.9824 Ohm	0.4 mOhm	9	5.0 mOhm	1.2 mOhm	ok
RP-R4TP	100 Ohm	99.9862 Ohm; 1kHz	99.9885 Ohm	2.3 mOhm	12	20.0 mOhm	9.2 mOhm	ok
RP-R4TP	100 Ohm	99.9893 Ohm; 10kHz	99.9895 Ohm	0.2 mOhm	1	20.0 mOhm	9.2 mOhm	ok
RP-R4TP	100 Ohm	100.0030 Ohm; 100kHz	100.0020 Ohm	-1.0 mOhm	-5	20.0 mOhm	9.2 mOhm	ok
RP-R4TP	1 kOhm	0.999909 kOhm; 1kHz	0.999933 kOhm	0.024 Ohm	12	0.200 Ohm	0.092 Ohm	ok
RP-R4TP	1 kOhm	0.999931 kOhm; 10kHz	0.999953 kOhm	0.022 Ohm	11	0.200 Ohm	0.092 Ohm	ok
RP-R4TP	1 kOhm	1.000130 kOhm; 100kHz	1.000140 kOhm	0.010 Ohm	5	0.200 Ohm	0.092 Ohm	ok
RP-R4TP	10 kOhm	10.00056 kOhm; 1kHz	10.00080 kOhm	0.24 Ohm	12	2.00 Ohm	0.92 Ohm	ok
RP-R4TP	10 kOhm	10.00080 kOhm; 10kHz	10.00080 kOhm	-0.00 Ohm	0	2.00 Ohm	0.92 Ohm	ok
RP-R4TP	10 kOhm	10.00150 kOhm; 100kHz	10.00130 kOhm	-0.20 Ohm	-4	5.00 Ohm	0.92 Ohm	ok
RP-R4TP	100 kOhm	99.9920 kOhm; 1kHz	99.9912 kOhm	-0.8 Ohm	-4	20.0 Ohm	9.3 Ohm	ok
RP-R4TP	100 kOhm	99.9940 kOhm; 10kHz	99.9912 kOhm	-2.8 Ohm	-14	20.0 Ohm	9.3 Ohm	ok
RP-R4TP	100 kOhm	100.0063 kOhm; 100kHz	99.9912 kOhm	-15.1 Ohm	-15	100.0 Ohm	9.3 Ohm	ok
RP-R4TP	1 MOhm	0.999840 MOhm; 1kHz	0.999859 MOhm	0.019 kOhm	6	0.300 kOhm	0.093 kOhm	ok
RP-R4TP	1 MOhm	0.999888 MOhm; 10kHz	0.999939 MOhm	0.051 kOhm	10	0.500 kOhm	0.093 kOhm	ok
RP-R4TP	1 MOhm	0.999575 MOhm; 100kHz	0.999179 MOhm	-0.396 kOhm	-8	4.996 kOhm	0.093 kOhm	ok
RP-R4TP	10 MOhm	10.0035 MOhm; 1kHz	10.0032 MOhm	-0.3 kOhm	-6	5.0 kOhm	1.3 kOhm	ok
RP-R4TP	10 MOhm	9.9999 MOhm; 10kHz	9.9980 MOhm	-1.9 kOhm	-39	5.0 kOhm	1.2 kOhm	ok
RP-R4TP	100 MOhm	100.116 MOhm; 1kHz	100.102 MOhm	-14 kOhm	-3	501 kOhm	38 kOhm	ok
RP-R4TP	100 MOhm	99.981 MOhm; 10kHz	100.102 MOhm	121 kOhm	2	5005 kOhm	49 kOhm	ok
C4TP								
CP-C4TP	10 pF	10.2159 pF; 1kHz	10.2130 pF	-2.9 fF	-14	20.4 fF	8.0 fF	ok
CP-C4TP	10 pF	10.2118 pF; 100kHz	10.2100 pF	-1.8 fF	-9	20.4 fF	8.0 fF	ok
CP-C4TP	100 pF	100.382 pF; 1kHz	100.379 pF	-3 fF	-3	100 fF	58 fF	ok
CP-C4TP	100 pF	100.370 pF; 100kHz	100.361 pF	-9 fF	-8	100 fF	58 fF	ok
CP-C4TP	1 nF	0.99157 nF; 1kHz	0.99156 nF	-0.01 pF	-1	0.50 pF	0.24 pF	ok
CP-C4TP	1 nF	0.99130 nF; 100kHz	0.99130 nF	0.01 pF	1	0.99 pF	0.24 pF	ok
CP-C4TP	10 nF	10.1222 nF; 1kHz	10.1222 nF	-0.0 pF	0	5.1 pF	1.3 pF	ok
CP-C4TP	10 nF	10.1204 nF; 100kHz	10.1202 nF	-0.2 pF	-4	5.1 pF	1.3 pF	ok
CP-C4TP	100 nF	98.713 nF; 1kHz	98.712 nF	-1 pF	-2	49 pF	13 pF	ok
CP-C4TP	100 nF	98.723 nF; 100kHz	98.732 nF	9 pF	5	197 pF	13 pF	ok
CP-C4TP	1 uF	0.99654 uF; 1kHz	0.99653 uF	-0.01 nF	-2	0.50 nF	0.13 nF	ok
CP-C4TP	1 uF	0.99924 uF; 100kHz	0.99936 uF	0.12 nF	5	2.50 nF	0.13 nF	ok
CP-C4TP	10 uF	9.7194 uF; 1kHz	9.7193 uF	-0.1 nF	-2	4.9 nF	1.2 nF	ok
CP-C4TP	10 uF	9.7105 uF; 10kHz	9.7078 uF	-2.7 nF	-14	19.4 nF	1.2 nF	ok
CP-C4TP	100 uF	98.994 uF; 1kHz	99.007 uF	13 nF	13	99 nF	57 nF	ok
CP-C4TP	100 uF	99.401 uF; 5kHz	99.385 uF	-16 nF	-8	199 nF	58 nF	ok
D-C4TP	1	0.00025 ; 10pF,1kHz	0.00025	0.00 m	--	---	---	--
D-C4TP	1	0.00010 ; 100pF,1kHz	0.00020	0.10 m	--	---	---	--
D-C4TP	1	0.00008 ; 1nF,1kHz	0.00010	0.02 m	--	---	---	--
D-C4TP	1	0.00010 ; 10nF,1kHz	0.00020	0.10 m	--	---	---	--
D-C4TP	1	0.00008 ; 100nF,1kHz	0.00020	0.12 m	--	---	---	--
D-C4TP	1	0.00010 ; 1uF,1kHz	0.00010	-0.00 m	--	---	---	--
D-C4TP	1	0.00412 ; 10uF,1kHz	0.00406	-0.06 m	--	---	---	--
D-C4TP	1	0.01385 ; 100uF,1kHz	0.01375	-0.10 m	--	---	---	--

Measurement Results:

Function	Range	Standard	UUT	Deviation	%spe	Allowed	Uncertaint	
L4TP								
LS-L4TP	10 uH	11.0001 uH; 50kHz	10.9990 uH	-1.1 nH	-5	22.0 nH	6.4 nH	ok
LS-L4TP	100 uH	101.955 uH; 50kHz	101.958 uH	3 nH	3	102 nH	59 nH	ok
LS-L4TP	1 mH	1.10030 mH; 50kHz	1.10025 mH	-0.05 uH	-5	1.10 uH	0.64 uH	ok
LS-L4TP	10 mH	10.7207 mH; 10kHz	10.7206 mH	-0.1 uH	-1	10.7 uH	1.2 uH	ok
LS-L4TP	100 mH	97.973 mH; 10kHz	97.969 mH	-4 uH	-9	49 uH	11 uH	ok
LS-L4TP	1 H	1.00993 H; 1kHz	1.00993 H	-0.00 mH	-1	0.50 mH	0.13 mH	ok
LS-L4TP	10 H	9.8221 H; 1kHz	9.8218 H	-0.3 mH	-7	4.9 mH	1.1 mH	ok
4W								
SHORT4W	1 -	1.00000 -	1.00000 -	0.00 m-	0	0.10 m-	0.58 m-	ok
OPEN4W	1 -	1.00000 -	1.00000 -	0.00 m-	0	0.10 m-	0.58 m-	ok
R4W								
RS-R4W	100 mOhm	100.46 mOhm; 1kHz	100.46 mOhm	-1 uOhm	0	502 uOhm	174 uOhm	ok
RS-R4W	1 Ohm	1.00951 Ohm; 1kHz	1.00951 Ohm	0.00 mOhm	0	1.01 mOhm	0.58 mOhm	ok
RS-R4W	10 Ohm	10.0989 Ohm; 1kHz	10.0991 Ohm	0.2 mOhm	5	5.0 mOhm	2.3 mOhm	ok
RP-R4W	100 Ohm	100.998 Ohm; 1kHz	100.998 Ohm	-0 mOhm	0	20 mOhm	12 mOhm	ok
RP-R4W	1 kOhm	0.99993 kOhm; 1kHz	0.99995 kOhm	0.02 Ohm	10	0.20 Ohm	0.12 Ohm	ok
RP-R4W	10 kOhm	9.99978 kOhm; 1kHz	9.99980 kOhm	0.02 Ohm	1	2.00 Ohm	0.58 Ohm	ok
RP-R4W	100 kOhm	99.988 kOhm; 1kHz	99.991 kOhm	3 Ohm	3	100 Ohm	58 Ohm	ok
RP-R4W	1 MOhm	0.98997 MOhm; 1kHz	0.99005 MOhm	0.08 kOhm	4	1.98 kOhm	0.57 kOhm	ok
RP-R4W	10 MOhm	9.8520 MOhm; 1kHz	9.8529 MOhm	0.9 kOhm	1	98.5 kOhm	5.7 kOhm	ok
RP-R4W	100 MOhm	111.74 MOhm; 1kHz	111.98 MOhm	230 kOhm	4	5599 kOhm	197 kOhm	ok
C4W								
CP-C4W	100 pF	100.868 pF; 1kHz	100.871 pF	3 fF	3	101 fF	58 fF	ok
CP-C4W	1 nF	0.98545 nF; 1kHz	0.98546 nF	0.00 pF	1	0.49 pF	0.13 pF	ok
CP-C4W	10 nF	10.1612 nF; 1kHz	10.1612 nF	-0.0 pF	-1	5.1 pF	1.3 pF	ok
CP-C4W	100 nF	99.300 nF; 1kHz	99.300 nF	-0 pF	-1	50 pF	13 pF	ok
CP-C4W	1 uF	1.03094 uF; 1kHz	1.03092 uF	-0.02 nF	-4	0.52 nF	0.13 nF	ok
CP-C4W	10 uF	9.7193 uF; 1kHz	9.7196 uF	0.3 nF	6	4.9 nF	1.2 nF	ok
CP-C4W	100 uF	99.011 uF; 1kHz	99.014 uF	3 nF	7	50 nF	13 nF	ok
2W								
SHORT2W	1 -	1.00000 -	1.00000 -	0.00 m-	0	0.10 m-	0.58 m-	ok
OPEN2W	1 -	1.00000 -	1.00000 -	0.00 m-	0	0.10 m-	0.58 m-	ok
R2W								
RAC-2W	1 Ohm	1.1471 Ohm; 1kHz	1.1474 Ohm	0.4 mOhm	1	57.4 mOhm	2.0 mOhm	ok
RAC-2W	10 Ohm	10.229 Ohm; 1kHz	10.229 Ohm	0 mOhm	0	51 mOhm	12 mOhm	ok
RAC-2W	100 Ohm	101.125 Ohm; 1kHz	101.126 Ohm	1 mOhm	1	101 mOhm	12 mOhm	ok
RAC-2W	1 kOhm	1.00007 kOhm; 1kHz	1.00008 kOhm	0.01 Ohm	1	1.00 Ohm	0.12 Ohm	ok
RAC-2W	10 kOhm	9.99974 kOhm; 1kHz	9.99990 kOhm	0.16 Ohm	2	10.00 Ohm	0.58 Ohm	ok
RAC-2W	100 kOhm	99.975 kOhm; 1kHz	99.977 kOhm	1 Ohm	1	100 Ohm	58 Ohm	ok
RAC-2W	1 MOhm	0.98859 MOhm; 1kHz	0.98858 MOhm	-0.01 kOhm	-1	1.98 kOhm	0.57 kOhm	ok
RAC-2W	10 MOhm	9.7163 MOhm; 1kHz	9.7171 MOhm	0.8 kOhm	2	48.6 kOhm	5.6 kOhm	ok
C2W								
C-2W	100 pF	111.634 pF	111.765 pF	0.13 pF	2	5.59 pF	64 fF	ok
C-2W	1 nF	0.99622 nF	0.99635 nF	0.13 pF	1	9.96 pF	0.58 pF	ok
C-2W	10 nF	10.1720 nF	10.1720 nF	0.0 pF	0	20.3 pF	5.9 pF	ok
C-2W	100 nF	99.311 nF	99.310 nF	-1 pF	0	199 pF	57 pF	ok
C-2W	1 uF	1.03109 uF	1.03089 uF	-0.20 nF	-10	2.06 nF	0.60 nF	ok
C-2W	10 uF	9.7244 uF	9.7247 uF	0.2 nF	0	48.6 nF	5.6 nF	ok
C-2W	100 uF	99.562 uF	99.577 uF	15 nF	2	996 nF	57 nF	ok
METER								
AC Voltage								
VAC	1 V	0.300025 V; 100Hz	0.299400 V	-0.625 mV	-1	50.000 mV	0.053 mV	ok
VAC	1 V	0.300014 V; 1kHz	0.299400 V	-0.613 mV	-1	50.000 mV	0.047 mV	ok
VAC	1 V	0.299975 V; 10kHz	0.299300 V	-0.675 mV	-1	50.000 mV	0.053 mV	ok
VAC	1 V	0.29983 V; 100kHz	0.29870 V	-1.13 mV	-2	50.00 mV	0.41 mV	ok
VAC	1 V	0.99997 V; 100Hz	0.99950 V	-0.47 mV	-1	50.00 mV	0.12 mV	ok
VAC	1 V	1.000003 V; 1kHz	1.000000 V	-0.003 mV	0	50.000 mV	0.099 mV	ok
VAC	1 V	0.99997 V; 10kHz	0.99960 V	-0.37 mV	-1	50.00 mV	0.12 mV	ok
VAC	1 V	0.99986 V; 100kHz	0.99760 V	-2.26 mV	-5	50.00 mV	0.81 mV	ok
VAC	10 V	3.00045 V; 100Hz	2.99200 V	-8.45 mV	-4	200.00 mV	0.53 mV	ok
VAC	10 V	3.00032 V; 1kHz	2.99400 V	-6.32 mV	-3	200.00 mV	0.46 mV	ok

Measurement Results:

Function	Range	Standard	UUT	Deviation	%spe	Allowed	Uncertaint	
VAC	10 V	2.99970 V; 10kHz	2.99300 V	-6.70 mV	-3	200.00 mV	0.53 mV	ok
VAC	10 V	2.9973 V; 100kHz	2.9880 V	-9.3 mV	-5	200.0 mV	4.1 mV	ok
VAC	10 V	10.0003 V; 100Hz	9.9940 V	-6.3 mV	-3	200.0 mV	1.2 mV	ok
VAC	10 V	10.00033 V; 1kHz	10.00000 V	-0.33 mV	0	200.00 mV	0.98 mV	ok
VAC	10 V	9.9995 V; 10kHz	9.9970 V	-2.5 mV	-1	200.0 mV	1.2 mV	ok
VAC	10 V	9.9967 V; 100kHz	10.0300 V	33.3 mV	17	200.0 mV	8.1 mV	ok
Frequency								
FREQ	100 Hz	49.9993 Hz	49.9993 Hz	0.01 mHz	0	6.00 mHz	0.29 mHz	ok
FREQ	100 Hz	99.9986 Hz	99.9986 Hz	0.00 mHz	0	11.00 mHz	0.58 mHz	ok
FREQ	1 kHz	0.499993 kHz	0.499993 kHz	0.0001 Hz	0	0.0510 Hz	0.0029 Hz	ok
FREQ	1 kHz	0.999986 kHz	0.999986 kHz	-0.0000 Hz	0	0.1010 Hz	0.0058 Hz	ok
FREQ	10 kHz	4.99993 kHz	4.99993 kHz	-0.004 Hz	-1	0.501 Hz	0.032 Hz	ok
FREQ	10 kHz	9.99986 kHz	9.99985 kHz	-0.010 Hz	-1	1.001 Hz	0.058 Hz	ok
FREQ	100 kHz	49.9993 kHz	50.0004 kHz	1.11 Hz	22	5.00 Hz	0.29 Hz	ok
FREQ	100 kHz	99.9986 kHz	100.0020 kHz	3.40 Hz	34	10.00 Hz	0.58 Hz	ok

ok ... passed

Statement of Compliance: Passed