

## SCOPE OF ACCREDITATION

"S 7 ENGINEERING" Limited Liability Company ("S 7 ENGINEERING" LLC)

name of legal entity

142015, Russia, Moscow region, Domodedovo district,  
Property "Domodedovo Airport", building 9, LERM building, 3rd floor

address of the place of activity

## Eligibility

GOST ISO/IEU17025-2019 "General requirements for the competence of testing and calibration laboratories"

name and details of an interstate or national standard establishing general requirements for competence of testing and calibration laboratories

## Calibration of measuring instruments

N p/p	Measurement	Measured value	Calibration object	Measurement range	Advanced Options	Extended measurement uncertainty (*)	Calibration method/technique	Note
1	2	3	4	5	6	7	8	9
1	Pressure measurements, vacuum measurements	Pressure	Manometers, vacuum gauges, Indicating mano- vacuum meters	(0... 60) MPa		$At_{0.95} = 3.6 \text{ Pa}$	Method of calibration of manometers, indicating vacuum gauges MK-14-19	
2	Time and frequency measurements	Frequency	Digital frequency meter	0.1 Hz... 1.3 GHz		$ln_{0.95} = 6 \cdot 10^{-12}$	Method of calibration of frequency meters MK-24-19	

1	2	3	4	5	6	7	8	9
3	Time and frequency measurements	Frequency	Analogue frequency meter	(45... 1000) Hz		$At_{0,95} = 0.00012 \text{ Hz}$	Method of calibration of analogue frequency meters MK-13-19	
4	Time and frequency measurements	Time	Mechanical stopwatches	(0... 60) min		$U_{0,95} = 0,0059 \text{ sec}$	Method of calibration of mechanical stopwatches MK-25-19	
5	Time and frequency measurements	Frequency Voltage Weak measurement Harmonic distortion	Low-frequency signal generators	0.1 Hz ... 30 MHz (0... 200) V (0 ... 100) dB Cr (0,0015... 5) %		$At_{0,95} = 0.0000012 \text{ Hz}$ $U_{0,95} = 0.00046 \text{ V}$ $In_{0,95} = (0.23... 10) \%$ $In_{0,95} = 0.00017 \%$	Method of calibration of low-frequency signal generators MK-27-19	
6	Measurements of electrical and magnetic quantities	DC power	DC Digital Ammeters	(2... (20) A		$In_{0,95} = 0.00000015A$	Method of calibration of ammeters, AC and DC voltmeters MK-30-19 Method of calibration of multimeters MK-128-19	
7	Measurements of electrical and magnetic quantities	DC power	Clamp meter	(0... 1000) A		$In_{0,95} = 0.0029 \text{ A}$	Method of calibration of clamp meters MK-31-19	

1	2	3	4	5	6	7	8	9
8	Measurements of electrical and magnetic quantities	DC voltage	Clamp meter	(0... 600) V		$A_{t_{0.95}} = 4.8 \cdot 10^{-6} \text{ V}$	Method of calibration of clamp meters MK-31-19	
9	Measurements of electrical and magnetic quantities	AC current	AC ammeters	( $1 \cdot 10^{-5}$ ... $1 \cdot 10^{-1}$ ) A (20... 1000) Hz (2... (20) A (20... 1000) Hz		$I_{n_{0.95}} = 0.00000015 \text{ A}$	Method of calibration of ammeters, AC and DC analog voltmeters MK-29-19 Method of calibration of multimeters MK-128-19	
10	Measurements of electrical and magnetic quantities	AC electric current	AC Digital Ammeters	( $1 \cdot 10^{-5}$ ... $1 \cdot 10^{-4}$ ) A (2... (20) A (20... $1,2 \cdot 10^3$ ) Hz		$I_{n_{0.95}} = 0.00000023 \text{ A}$	Method of calibration of ammeters, AC and DC analog voltmeters MK-30-19 Method of calibration of multimeters MK-128-19	

1	2	3	4	5	6	7	8	9
11	Measurements of electrical and magnetic quantities	AC voltage	AC Voltmeters	(0,06... 15) V (20... 1000) Hz		$U_{0.95} = 0.000015 \text{ V}$	Method of calibration of ammeters, AC and DC analog voltmeters MK-29-19 Method of calibration of multimeters MK-128-19	
12	Electrical resistance measurements	Electrical current resistance	Electrical resistance meters, ohmmeters	$(10^{-3} \dots 10^9) \text{ Ohm}$		$A_{t_{0.95}} = 4.7 \cdot 10^{-9} \text{ Ohm}$	Method of calibration of milliohmmeter MK-12-19 Method of calibration of multimeter MK-128-19 Method of calibration of electrical resistance of ohmmeters MK-131-19	

1	2	3	4	5	6	7	8	9
13	Electrical resistance measurements	DC electrical resistance	DC Resistance Banks	(100000... 100000000,0) Ohm		$A_{t_{0.95}} = 0.00012 \text{ Ohm}$	Method of calibration of multi-valued electrical resistance measures (DC resistance banks) MK-32-19	
14	Electrical resistance measurements	DC electrical resistance	MK-Test Systems-ExLRT (Loop Resistance Tester XLR-1931-02) (Loop resistance testers)	(0,02... 4100) mOhm		$I_{n_{0.95}} = 0.58 \%$	Method of calibration of loop Resistance Tester XLR-1931-02 MK-140-21	
15	Electrical capacitance measurements	Electrical capacitance	Capacitance Meters	(1· 10 <sup>-6</sup> ... 5 10 <sup>-4</sup> ) mF		$I_{n_{0.95}} = 0.000000019 \text{ mF}$	Method of calibration of Multimeters MK-128-19	
16	Radio-technical and radio-electronic measurements	DC voltage DC power	DC Power Supplies	(10... (30) A		$A_{t_{0.95}} = 0.00069 \text{ A}$	Method of calibration of DC Power Supply MK-85-19	
17	Measurements of parameters of aerometric devices and systems	Pressure	Pressure testers Vent Valve Tester DC600	(1... 4) bar		$A_{t_{0.95}} = 0.0002 \text{ bar}$	Method of calibration of Pressure tester Vent Valve Tester DC600 MK-125-19	

1	2	3	4	5	6	7	8	9
18	Measurements of parameters of aerometric devices and systems	Pressure	Pressure regulators F72928-55	(0... 10) psi		$In_{0.95} = 0.00084$ psi	Method of calibration of Pressure regulator F72928-55 MK-127-19	
19	Measurements of aircraft instrumentation parameters	Resistance	Ground system testers	(0,4... 40) MOm		$At_{0.95} = 0.00018$ MOm	Method of calibration of Ground system testers	
20	Measurements of aircraft instrumentation parameters	Resistance	Remotes C26005-1	(100... 1100) Ohm		$At_{0.95} = 0.0026$ Ohm	Calibration method of S26005-1 consoles used for testing the fire detection system of the APU / engine MK-139-21	

Head of Service – Chief  
Metrologist

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position of authorized person

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signature of the authorized

person

A.L.Muratov

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initials, surname of the authorized person

1 The symbol "\*" next to the serial number indicates that calibration can only be performed outside the permanent place of activity (at the place of temporary work).

2 The Note specifies the calibration methods (techniques) to be implemented. If the designation of the document establishing the calibration method(s) is dated, only that particular technique shall be used. If the designation of the document establishing the calibration method(s) is not dated, the latest version of the specified procedure (including any changes) shall be used.

3 Extended measurement uncertainty, which is part of the calibration and measurement capabilities of the laboratory and represents the least extended uncertainty achievable for the best available calibration object (type (group) of measuring instruments).

The probability of coverage is approximately 95 per cent and the coverage ratio is  $k = 2$ , unless otherwise stated in the note.

Uncertainty values without specifying units of quantities are relative to the measured value of the quantity, unless otherwise specified in the note.

Accreditation expert: R.I. Akhmadeeva

Technical expert: Z.Sh. Shakirova