

Length, Ukraine

UkrCSM (Ukrainian Center of Standardization, Metrology, Certification and Defense of Consumer's Rights)



NSC IM (National Scientific Centre "Institute of Metrology")

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					Comments	NMI	NMI Internal Service Identifier
Class	Instrument or Artifact: Measurand	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?			
Laser radiations	Stabilized laser of the mise en pratique: absolute frequency	Optical beat frequency	474	474	THz			24	kHz	2	95%	No	Approved on 10 January 2005	NSC IM	1
Laser radiations	Other stabilized laser: vacuum wavelength	Optical beat frequency	633	633	nm			1E-09		2	95%	Yes	Approved on 10 January 2005	NSC IM	2
Length instruments	Length interferometer, error of indicated displacement L	Comparison to master length interferometer	0.1	50	m			$Q[0.3, 0.5L]$, L in m	μm	2	95%	No	Approved on 10 January 2005	NSC IM	3
End standards	Gauge block: central length L	Interferometry, exact fractions	0.1	100	mm			$Q[20, 0.2L]$, L in mm	nm	2	95%	No	Approved on 10 January 2005	UkrCSM	4
End standards	Gauge block: central length L	Interferometry, exact fractions	0.1	100	mm			$Q[20, 0.2L]$, L in mm	nm	2	95%	No	Approved on 10 January 2005	NSC IM	5
End standards	Length bar (long gauge block): central length L	Interference lines counting	100	1000	mm			$Q[20, 0.2L]$, L in mm	nm	2	95%	No	Approved on 10 January 2005	NSC IM	6
Line standards	Line scale: line spacing L	Interferometry, photoelectric microscope	100	1000	mm	Artifact length	1000 mm maximum	$Q[20, 0.3L]$, L in mm	nm	2	95%	No	Approved on 10 January 2005, modified on 25 February 2013	NSC IM	7
						Illumination	reflection only								
Line standards	Stage micrometer: line spacing L	Interferometry, photoelectric microscope	0.01	200	mm	Artifact length	200 mm maximum	$Q[20, 0.3L]$, L in mm	nm	2	95%	No	Approved on 10 January 2005	NSC IM	8
						Illumination	transmission or reflection								

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Line standards	Engineer or surveyor tape, steel: line spacing L	Laser interferometer	0.001	50	m	Support	on-flat	$Q[2, 10L], L$ in m	μm	2	95%	No	Approved on 10 January 2005	NSC IM	9	
Line standards	Geodetic tape or wire invar: line spacing L	Laser interferometer	0.001	30	m	Support	on-flat	$Q[3, 8L], L$ in m	μm	2	95%	No	Approved on 10 January 2005	NSC IM	10	
Line standards	Surveyor leveling rod: line spacing L	Laser interferometer	1	4	m	Support	horizontal on Airy points	$Q[2, 5L], L$ in m	μm	2	95%	No	Approved on 10 January 2005	NSC IM	11	
Diameter standards	External cylinder (plug): diameter	1-D stylus comparator, gauge substitution	1	500	mm			0.3	μm	2	95%	No	Approved on 10 January 2005	NSC IM	12	
Diameter standards	Internal cylinder (ring): diameter L	Interferometry, exact fractions	3	100	mm	Ring's material	only transparent	$Q[0.02, 0.5E-03L], L$ in mm	μm	2	95%	No	Approved on 10 January 2005	NSC IM	13	
						Form and size of rings	20 mm x 20 mm x 8 mm to 150 mm x 150 mm x 60 mm									
Diameter standards	Internal cylinder (ring): diameter	1-D stylus comparator, gauge substitution	1	150	mm	Maximum external size	500 mm diameter	0.3	μm	2	95%	No	Approved on 10 January 2005	NSC IM	14	
Angle by circle dividers	Optical polygons: face angle	Laser goniometer	0	360	°	Number of divisions, n	6, 8, 10	0.16	"	2	95%	No	Approved on 10 January 2005	UkrCSM	15	
Flatness standard	Optical flat: flatness deviation over whole diameter	Fizeau interferometer and master flat	0	1000	nm	Maximum diameter	280 mm	50	nm	2	95%	No	Approved on 10 January 2005	NSC IM	16	
						Support mode	horizontal on 3 pads									
Surface texture	Roughness standard: ISO parameters R_{max}	Microinterferometer	0.001	200	μm			$(0.01 + 0.05R_{\text{max}})$	μm	2	95%	No	Approved on 10 January 2005	UkrCSM	17	

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Surface texture	Roughness standard: ISO parameters R_a	Profilometer, profilograph, stylus	0.001	100	μm			$(0.001 + 0.05R_a)$	μm	2	95%	No	Approved on 10 January 2005	UkrCSM	18
Gear standards	Gear pitch master: total cumulative pitch deviation (F_p)	Special set	0	0.1	mm	Gear diameter	60 mm to 400 mm	1.8	μm	2	95%	No	Approved on 10 January 2005	NSC IM	19
Gear standards	Gear pitch master: single pitch deviation (F_p)	Special set	0	0.1	mm	Pitch diameter	60 mm to 400 mm	1.5	μm	2	95%	No	Approved on 10 January 2005	NSC IM	20
Gear standards	Gear lead master: slope deviation	Special set	-0.1	0.1	mm	Diameter	25 mm to 200 mm	3 to 4	μm	2	95%	No	Approved on 10 January 2005	NSC IM	21
						Helix angle	45 °								
Gear standards	Gear lead master: helix form deviation (ff_b)	Special set	0	0.1	mm	Diameter	25 mm to 200 mm	2	μm	2	95%	No	Approved on 10 January 2005	NSC IM	22
						Helix angle	45 °								
Gear standards	Gear involute master: involute profile slope deviation (fHa), (fa)	Special interferometer	0.01	10	μm	Base circle diameter	80 mm to 150 mm	0.5	μm	2	95%	No	Approved on 10 January 2005	NSC IM	23
Long distance	Geodetic baseline: interval distances L	Comparison to precision rangefinder	24	5000	m	Distance	up to 1000 m	$Q[0.1, 0.25E-03L], L$ in m	mm	2	95%	No	Approved on 10 January 2005	NSC IM	24
Long distance	Geodetic baseline: interval distances L	Comparison to precision rangefinder	24	5000	m	Distance	above 1000 m	$Q[0.15, E-03L], L$ in m	mm	2	95%	No	Approved on 10 January 2005	NSC IM	25