Že več kot 200 let skrbimo za točna in zanesljiva merjenja

We take care of accurate and reliable measurements for more than 200 years

REPUBLIKA SLOVENIJA
MINISTRSTVO ZA GOSPODARSKI RAZVOJ IN TEHNOLOGIJO
URAD RS ZA MEROSLOVJE

“Štejte, kar se da šteti, merite, kar se da meriti in, kar se ne da meriti, naredite merljivo”.

(Galileo Galilei)

Z merjenji se v življenju srečujemo vsak dan, na vsakem koraku. Za to, da so merjenja v Sloveniji primerljiva in mednarodno usklajena, imamo vzpostavljen nacionalni meroslovni sistem, za katerega skrbi Urad RS za meroslovje. Nacionalni meroslovni sistem zagotavlja sledljivost meritev na mednarodno raven in natančna merila za uporabo v trgovini, industriji, javni upravi in na znanstvenem področju ter za ustreznost izdelkov iz plemenitih kovin.

Korenine meroslovja na področju Slovenije imajo dolgo tradicijo in segajo vse v prazgodovinski čas, kar dokazujejo bogate arheološke najdbe. V obdobju antike, Bizanca in v poznejših obdobjih so skozi kraje današnje Slovenije vodile vojaške in trgovske poti, ki so pomenile blagovno menjavo in z njo povezane meroslovne aktivnosti.

Cesarica Marija Terezija je v času svojega vladanja v Avstro-Ogrski monarhiji vpeljala za tiste čase vzoren red na področju meroslovja, zaradi česar je imela Slovenija že v 18. stoletju urejen meroslovni sistem, kjer je bilo poleg mer in merskih enot poskrbljeno tudi za primerno kontrolo in označevanje plemenitih kovin.

Da je uporaba enotnih in primerljivih merskih enot bistvena za nemoteno trgovino in razvoj družbe tudi na mednarodni ravni, so sprevideli tudi voditelji 17 držav, ki so leta 1875 podpisali Metrsko konvencijo, kateri se je do danes pridružila že večina razvitih držav, tudi Slovenija. V okviru Metrske konvencije je bil definiran tudi mednarodni sistem enot SI, ki danes določa 7 osnovnih enot (meter, kilogram, sekunda, amper, kelvin, mol in kandela).

V brošuri so zbrane osnovne enote mednarodnega merskega sistema SI, ki predstavljajo osnovo vseh merjenj na svetu in so bile pred kratkim tudi redefinirane z navezavo na naravne konstante. Hkrati so v brošuri predstavljena tipična zakonska merila, ki jih uporabniki srečujejo v vsakdanjem življenju, in različne oznake, ki jih posamezna merila ali izdelki, ki so pod nadzorom Urada RS za meroslovje, morajo vsebovati.

S to brošuro želimo spodbuditi bralce, da začnejo razmišljati o merjenjih in merskih enotah ter jim na slikovit način v besedi in sliki predstaviti, kje vse se merjenja v vsakdanjem življenju izvajajo, pa se tega niti ne zavedamo.

Kontrola meril ob Ljubljanici pred 200 leti.
The weights & measures office by the Ljubljanica river 200 years ago.

SI
12

Urad RS za meroslovje že več kot 200 let skrbi za točna in zanesljiva merjenja. Kot nacionalna meroslovna institucija vodi in razvija nacionalni meroslovni sistem Republike Slovenije, vključno s sistemom ugotavljanja skladnosti na področju izdelkov iz plemenitih kovin. Te sisteme predstavlja v ustreznih mednarodnih organizacijah in jih razvija na mednarodno primerljiv in prepoznaven način.

Metrology Institute of the RS (MIRS) has been taking care of accurate and reliable measurements for more than 200 years. As the NMI, MIRS is competent and responsible for a development of a national metrology system, including conformity assessment of precious metal alloys. MIRS represents these systems in international organisations and develops them in an internationally comparable and recognizable way.

»Count what is countable, measure what is measurable, and what is not measurable, make measurable«.

(Galileo Galilei)

We encounter measurements every day in our life, at every step. For the measurements in Slovenia to be comparable and internationally coordinated, we have established a national metrology system, which is the responsibility of the Metrology Institute of the Republic of Slovenia. The national metrology system ensures the traceability of measurements to the international level and precise measuring instruments for use in trade, industry, public administration and in the scientific field, as well as the compliance of precious metal products.

The roots of metrology in the territory of Slovenia have a long tradition and go back to prehistoric times, as evidenced by rich archaeological finds. In the period of antiquity, Byzantium and later periods, the military and trade routes led to a lively exchange, implicating metrological activities through the places of today's Slovenia.

During her reign in the Austro-Hungarian Empire, emperor Maria Theresa introduced for those times an ideal order in the field of metrology, which led Slovenia to have a metrological system already in the 18th century. The system covered all measures and measurements and additionally also control and labeling of precious metals.

The use of uniform and comparable units of measurement being essential for the smooth trade and development of society at the international level was understood by the leaders of 17 countries that signed the Meter Convention in 1875, to which most developed countries, including Slovenia, have joined up to this day. Within the framework of the Meter Convention, the international system of SI units was also defined, which today defines 7 basic units (meter, kilogram, second, amper, kelvin, mol and candela).

The brochure summarizes the basic units of the international measurement system SI, which represent the basis of all measurements in the world and which have recently been redefined by reference to natural constants. At the same time, the brochure presents typical legal measures that users encounter in their everyday life and the various labels that individual criteria or products that are under the control of the Metrology Institute of the Republic of Slovenia must contain.

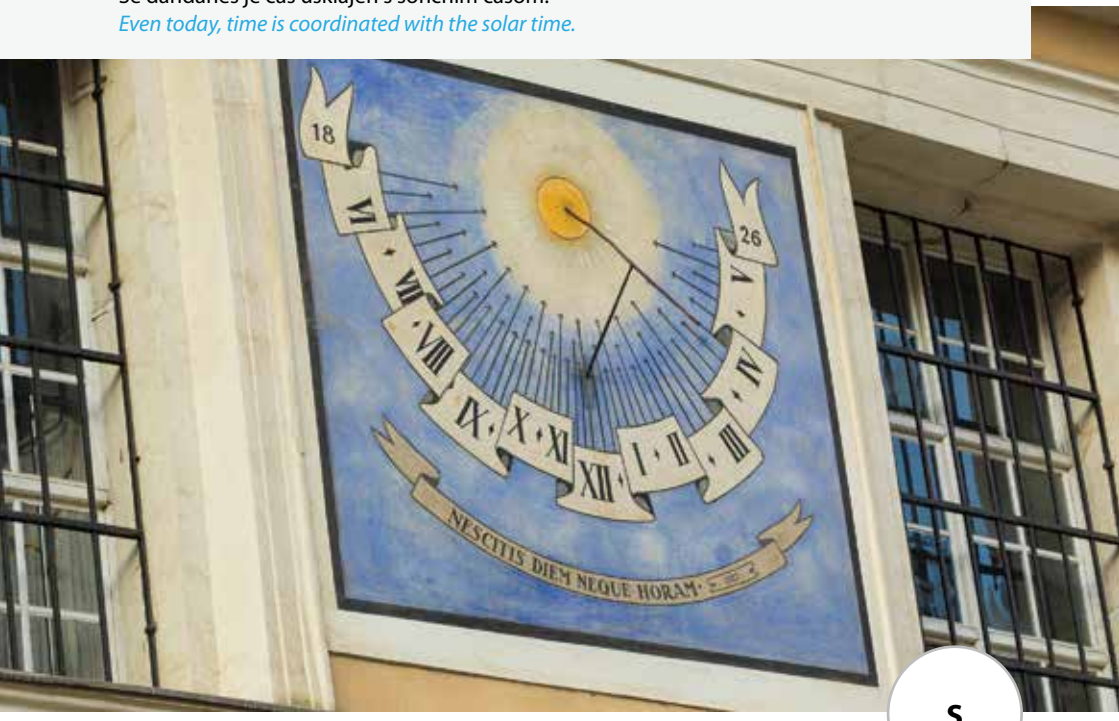
With this brochure, we want to encourage readers to begin to think about measurements and units of measurement, presenting them in words and images where all the measurements in everyday life are carried out, even when we are not aware of this.

Novorojenčke se najprej stehta.
At first newborns are weighed.

Merjenja nas spremljajo vsak dan, vsepovsod, vse življenje. Z merjenji se v življenju srečujemo vsak dan, pa čeprav se tega niti ne zavedamo. V razvitih državah, kamor sodi tudi Slovenija, predstavljajo merjenja v najširšem pomenu besede zelo pomembno vlogo za gospodarstvo in družbo, saj zagotavljajo kakovost izdelkov in storitev v skladu z mednarodnimi standardi.

Measurements surround us every day, everywhere, all life long. Measurement are part of our everyday life, even though we are not even aware of that. In developed countries, measurements in the broadest sense represents a very important role for the economy and society, as they guarantee the quality of products and services in accordance with international standards.

Še dandanes je čas usklajen s sončnim časom.
Even today, time is coordinated with the solar time.

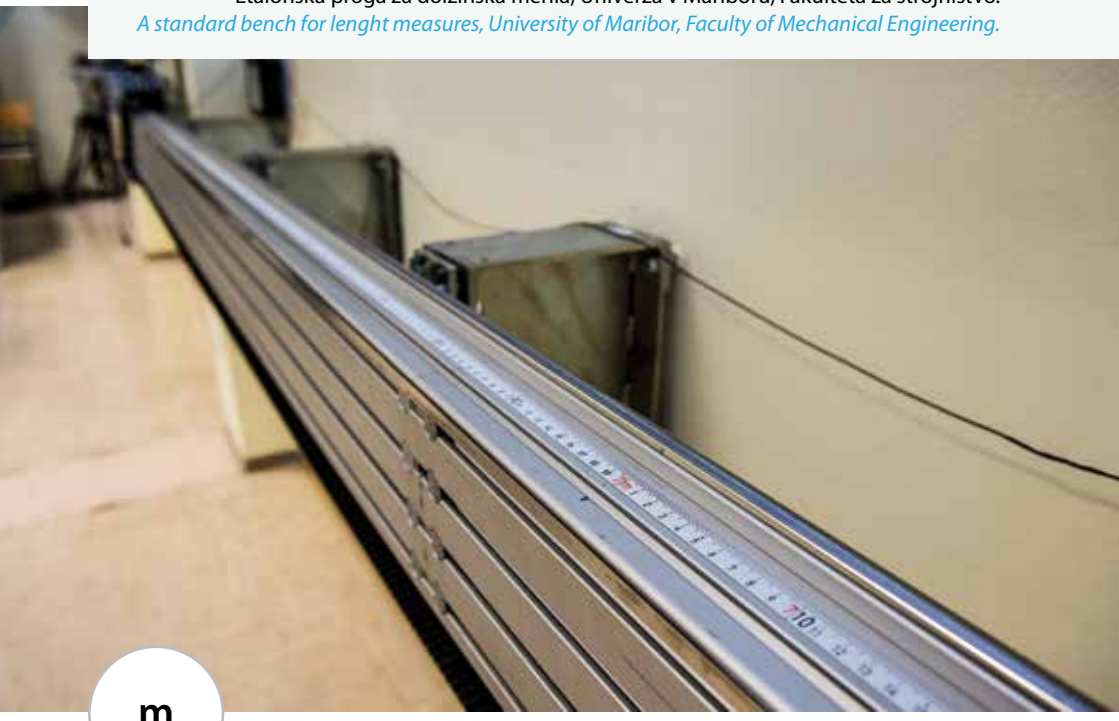


s

SI enota za čas je sekunda s simbolom s. Definirana je s fiksno numerično vrednostjo frekvence hiperfinega prehoda cezijevega atoma 133 v nemotenem osnovnem stanju $\Delta\nu_{Cs}$, enako 9 192 631 770 in izraženo z enoto Hz, kar je enako s^{-1}.

The second, symbol s, is the SI unit of time. It is defined by taking the fixed numerical value of the caesium frequency $\Delta\nu_{Cs}$, the unperturbed ground-state hyperfine transition frequency of the caesium 133 atom, to be 9 192 631 770 when expressed in the unit Hz, which is equal to s^{-1}.

Etalonska proga za dolžinska merila, Univerza v Mariboru, Fakulteta za strojništvo.
A standard bench for lenght measures, University of Maribor, Faculty of Mechanical Engineering.



m

SI enota za dolžino je meter s simbolom m. Definirana je s fiksno numerično vrednostjo hitrosti svetlobe c, enako 299 792 458 in izraženo z enoto m s^{-1}, kjer je sekunda definirana preko Δv_{Cs}.

The metre, symbol m, is the SI unit of length. It is defined by taking the fixed numerical value of the speed of light in vacuum c to be 299 792 458 when expressed in the unit m s^{-1}, where the second is defined in terms of Δv_{Cs}.

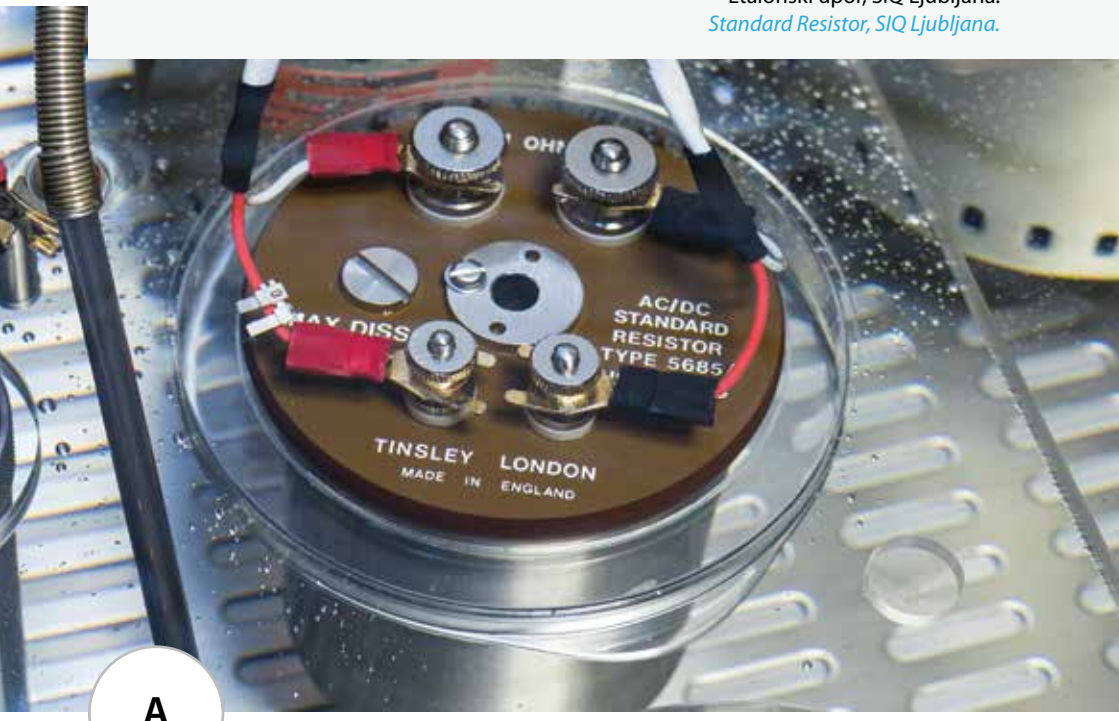
Etalonske uteži v komparatorski tehtnici, Urad RS za meroslovje.
Standard weights in a mass comparator, Metrology Institute of the Republic of Slovenia.

kg

SI enota za maso je kilogram s simbolom kg. Definirana je s fiksno numerično vrednostjo planckove konstante h, enako 6,62607015 $\times 10^{-34}$ in izraženo z enoto J s, kar je enako kg m^2 s^{-1}, kjer sta meter in sekunda definirana preko c in Δv_{Cs}.

The kilogram, symbol kg, is the SI unit of mass. It is defined by taking the fixed numerical value of the Planck constant h to be 6.626-070-15 $\times 10^{-34}$ when expressed in the unit J s, which is equal to kg m^2 s^{-1}, where the metre and the second are defined in terms of c and Δv_{Cs}.

Etalonski upor, SIQ Ljubljana.
Standard Resistor, SIQ Ljubljana.



A

SI enota za električni tok je amper s simbolom A. Definirana je s fiksno numerično vrednostjo elementarnega naboja e, enako $1{,}602176634 \times 10^{-19}$ in izraženo z enoto C, kar je enako A s, kjer je sekunda definirana preko Δv_{Cs}.

The ampere, symbol A, is the SI unit of electric current. It is defined by taking the fixed numerical value of the elementary charge e to be $1.602176634 \times 10^{-19}$ when expressed in the unit C, which is equal to A s, where the second is defined in terms of Δv_{Cs}.

Trojna točka vode, Univerza v Ljubljani, Fakulteta za elektrotehniko.
A triple point of water University of Ljubljana, Faculty of Electrical Engineering.

K

SI enota za termodinamično temperaturo je kelvin s simbolom K. Definirana je s fiksno numerično vrednostjo boltzmanove konstante k, enake 1,380649 $\times 10^{-23}$ in izraženo z enoto J K^{-1}, kar je enako kg m^2 s^{-2} K^{-1}, kjer so kilogram, meter in sekunda definirani preko h, c in Δv_{Cs}.

The kelvin, symbol K, is the SI unit of thermodynamic temperature. It is defined by taking the fixed numerical value of the Boltzmann constant k to be 1.380649 $\times 10^{-23}$ when expressed in the unit J K^{-1}, which is equal to kg m^2 s^{-2} K^{-1}, where the kilogram, the metre and the second are defined in terms of h, c and Δv_{Cs}.

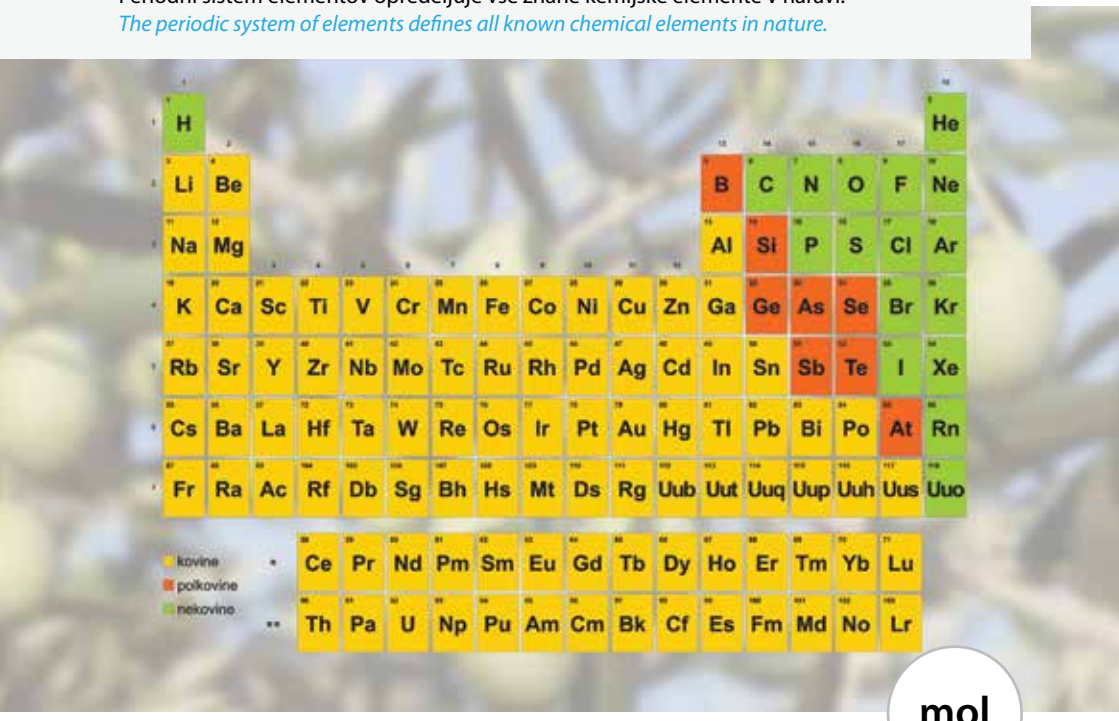
Kandela se uporablja za merjenje svetilnosti virov svetlobe.
The candela is used to measure the luminous intensity of light sources.

cd

SI enota za svetilnost v dani smeri je kandela s simbolom cd. Definirana je s fiksno numerično vrednostjo svetlobne učinkovitosti monokromatskega sevanja frekvence 540 $\times 10^{12}$ Hz, K_{cd}, enako 683 in izraženo z enoto lm W^{-1}, kar je enako cd sr W^{-1}, oziroma cd sr kg^{-1} m^{-2} s^3, kjer so kilogram, meter in sekunda definirani preko h, c in Δv_{Cs}.

The candela, symbol cd, is the SI unit of luminous intensity in a given direction. It is defined by taking the fixed numerical value of the luminous efficacy of monochromatic radiation of frequency 540 $\times 10^{12}$ Hz, K_{cd}, to be 683 when expressed in the unit lm W^{-1}, which is equal to cd sr W^{-1}, or cd sr kg^{-1} m^{-2} s^3, where the kilogram, the metre and the second are defined in terms of h, c and Δv_{Cs}.

Periodni sistem elementov opredeljuje vse znane kemijske elemente v naravi.
The periodic system of elements defines all known chemical elements in nature.



mol

SI enota za množino snovi je mol s simbolom mol. En mol vsebuje natančno 6,02214076 $\times 10^{23}$ elementarnih enot. Ta vrednost je fiksna numerična vrednost Avogadrove konstante N_A. Množina snovi sistema s simbolom n je mera števila opredeljenih elementarnih enot. Elementarna enota je lahko atom, molekula, ion, elektron …

The mole, symbol mol, is the SI unit of amount of substance. One mole contains exactly 6.02214076 $\times 10^{23}$ elementary entities. This number is the fixed numerical value of the Avogadro constant, N_A. The amount of substance, symbol n, of a system is a measure of the number of specified elementary entities. An elementary entity may be an atom, a molecule, an ion, an electron …

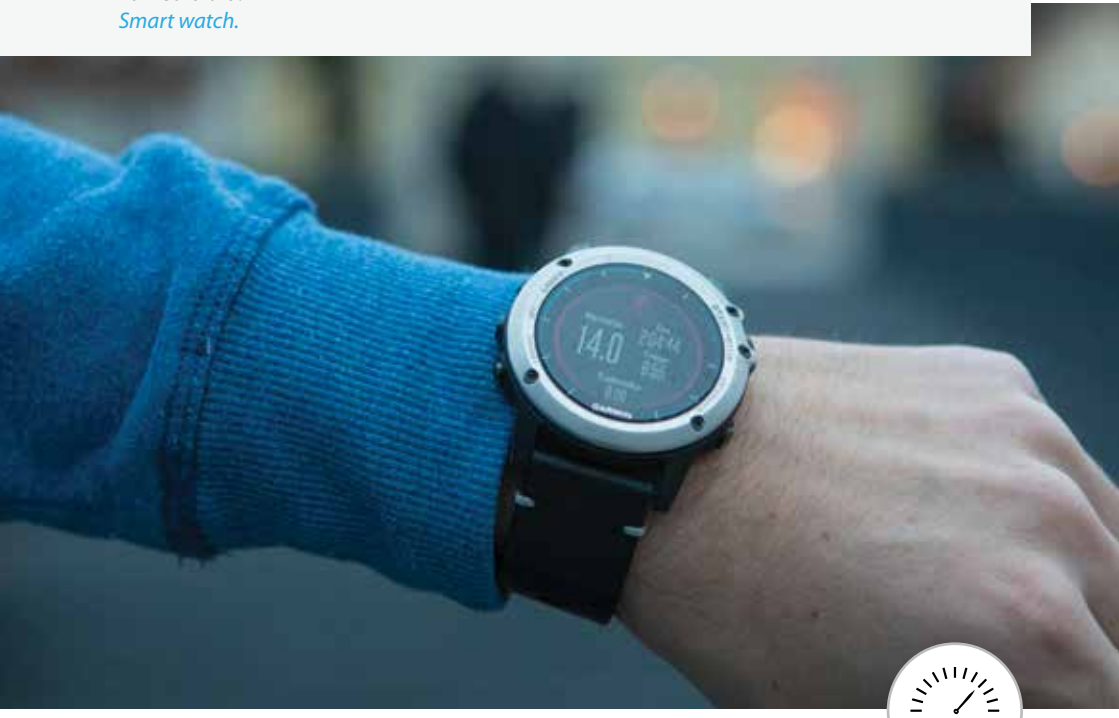
Vsa merjenja bodo izhajala iz frekvence cezijevega atoma in vrednosti naravnih konstant.
All measurements will be based on the frequency of the cesium atom and the natural constants.

SI

Redefinicija SI enot omogoča točnejše meritve kjerkoli v vesolju. Definicije enot so prešle pot od regionalnih mer, ki so jih določali vladarji, do univerzalnega merskega sistema. Redefinirane enote so univerzalno uporabne po celotnem nam znanem vesolju, kar predstavlja nov mejnik naše civilizacije.

Revision of the SI units allows for more accurate measurements anywhere in the universe. The definitions of units have crossed the path from the regional dimensions determined by the sovereigns, to the universal measurement system around the world. Redefined units are universally applicable throughout the universe as known to us, which represents a new frontier of our civilization.

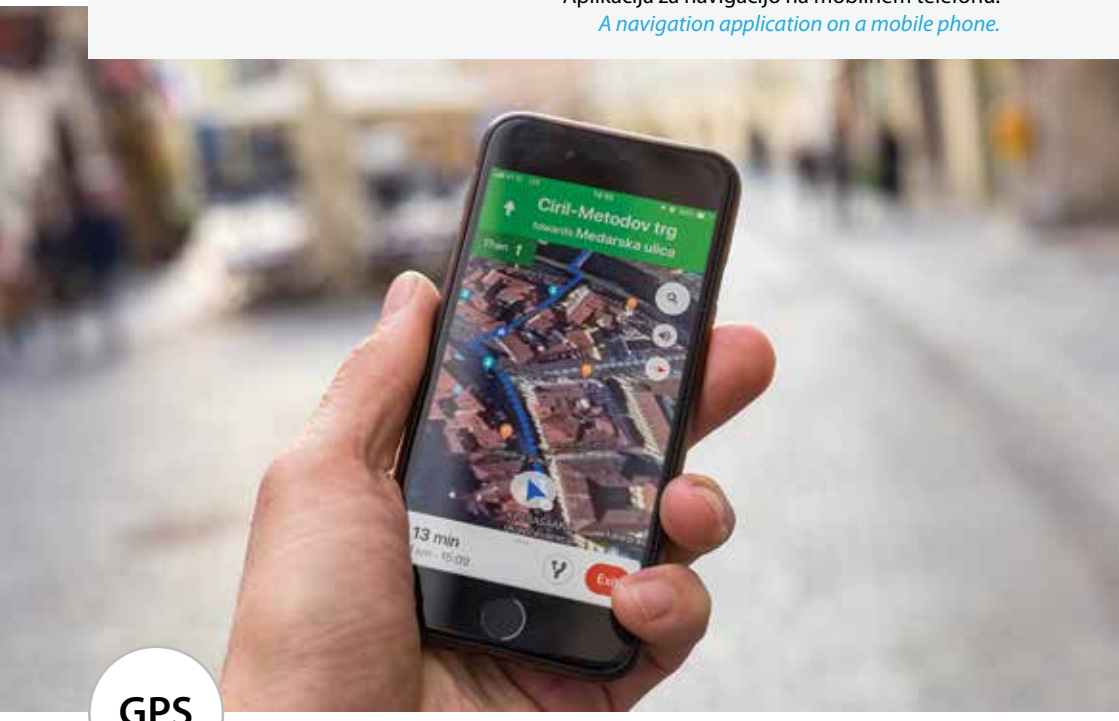
Pametna ura.
Smart watch.



Prihodnost merjenj pri roki. Tako majhen merilni instrument, pa tako veliko različnih meritev. Že dandanes znajo pametne ure meriti tudi deset različnih parametrov, v prihodnosti pa bo miniaturizacija in povezljivost naprav omogočila merjenja »skoraj vsega« kar pri roki, merilne naprave pa bodo vgrajene tako rekoč povsod.

The future of measurements at hand. Such a small measuring instrument, and so many different measurements. Even today, smart watches can measure ten different parameters, and in the future, the miniaturization and connectivity of the devices will make it possible to measure "almost everything" at hand, while the measuring devices will be installed practically everywhere.

Aplikacija za navigacijo na mobilnem telefonu.
A navigation application on a mobile phone.



GPS

GPS sateliti vsako sekundo oddajo signal z informacijo o svojem času in poziciji relativno na središče Zemlje. Mobilni telefon mora za določitev svojega položaja prejeti informacijo vsaj štirih satelitov. Svoje koordinate izračuna na osnovi izmerjenih časovnih razlik. Točnost določenih koordinat je odvisna od točnosti njegovega merjenja časa.

GPS satellites transmit a signal every second with information about their time and position relative to the center of the Earth. The mobile phone must receive information from at least four satellites to determine its position. It then calculates its coordinates based on the measured time differences. The accuracy of coordinates depends on its time measurement accuracy.

Električni števec je zakonsko merilo za merjenje porabe električne energije.
An electrical energy meter is a legal measuring instrument for measuring electric energy consumption.

Zakonska merila so zaščitena pred nepooblaščenimi posegi. Zaščitne oznake so fizične (žig ali zaščitna nalepka) ali pa programske (kontrolna vsota). Če so zaščitne oznake uničene ali poškodovane ali je spremenjena programska oprema, potem merilo ni več veljavno overjeno.

Legal measuring instruments are protected against unauthorized interventions. Protective markings can be of physical (seal or label) or software (check sum) form. If the protective markings are destroyed or damaged or the software is changed, then the measuring instrument is no longer verified.

Priprava za merjenje prostornine tekočih goriv je zakonsko merilo.
A fuel dispenser is a legal measuring instrument for measuring the volume of liquid fuels.

Zakonska merila so pregledana v predpisanih rokih. Ko so merila odobrena, zakonodaja predpisuje, da se redno pregledujejo z rednimi oziroma v izjemnih primerih z izrednimi overitvami. Priprava za merjenje prostornine tekočih goriv (bencinske črpalke) se overjajo enkrat na leto ali enkrat na dve leti. Poleg overitev se ta merila nadzirajo in preskušajo tudi s strani inšpekcijskega nadzora Urada za meroslovje.

Legal measuring instruments are examined within the prescribed periods. Once the measuring instruments are approved, the legislation requires that they are regularly verified or in exceptional cases extraordinarily verified. Devices for measuring the volume of liquid fuels (fuel dispensers) have to be verified once per year or once per two years. Apart from periodic verification, fuel dispensers are also inspected and tested by MIRS.

Vodomer je zakonsko merilo za merjenje porabe vode.
A water meter is a legal measuring instrument for measuring water consumption.

Zakonska merila so označena z meroslovnimi oznakami. Nov vodomer mora biti označen s CE znakom in dodatno meroslovno oznako, po petih letih pa mora imeti vsak vodomer tudi veljavno overitveno oznako (žig) redne overitve v obliki ščita na katerem je natisnjeno leto in mesec do kdaj je overitev veljavna.

Legal measuring instruments are marked with the metrological markings. The new water meter must be marked with a CE mark and a supplementary metrology mark. After five years each water meter must also have a valid verification mark (stamp). Stamp is in the form of a shield and wears the year and the month until the verification is valid.

Tehtnica je zakonsko merilo za merjenje mase.
A weighing instrument is a legal measuring instrument for mass measurement.

Merilni pogreški zakonskih meril so manjši od predpisanih mej. Kupec pričakuje pošteno tehtanje kupljenega blaga, zato mora zaupati uporabljeni tehtnici. V okviru naznačenih obratovalnih pogojev in v odsotnosti motenj merilni pogrešek ne sme presegati vrednosti največjega dopustnega pogreška (NDP), kakor je določen v ustreznih posebnih zahtevah za tehtnico.

Measurement errors of legal measuring instruments are lower than the prescribed limits. The buyer expects fair weighing of the purchased goods, so he must trust the used ~~weighers~~ instruments. Within the designated operating conditions and in the absence of interference, the measurement error shall not exceed the maximum permissible error (MPE) value as specified in the relevant specific requirements for the scales.

V povprečju predpakirani izdelki presegajo količino, ki je označena na embalaži.
On average, the pre-packaged products exceed the quantity indicated on the packaging.

V predpakiranih izdelkih nadziramo ustreznost dejanskih količin označenih po masi ali prostornini v razponu vrednosti od 5 g do 10 kg oziroma od 5 ml do 10 l. Serije izdelkov morajo ustrezati načelu povprečja. To pomeni, da so posamezni izdelki lahko lažji od označene nazivne vrednosti, v povprečju pa mora serija dosegati ali presegati nazivno vrednost, ki je označena na embalaži.

The quantity in the prepackaged products is controlled by checking the indicated weight or volume in the range between 5 g to 10 kg or 5 ml to 10 l. Product batches must comply with the averaging principle. This means that individual products may be lighter than the designated nominal value, but on average the series must reach or exceed the nominal value indicated on the packaging.

Gostinska posoda (kozarec, vrč…) je zakonsko merilo za prodajo pijače za takojšno porabo.
A capacity serving measure (such as a glass, a mug…) is a legal measuring instrument.

Skrbimo, da dobite toliko, kot plačate. Gostinec mora točeno pijačo izmeriti v meroslovno ustrezno označenih kozarcih v primeru, da pijačo prodaja po količini, ki jo natoči v kozarec. Pijača, ki jo gostinec prodaja na takšen način, mora biti napolnjena vsaj do oznake, kar pomeni, da je spodnji rob meniskusa, ki ga oblikuje tekočina, poravnan z zgornjim robom merilne črtice.

We take care that you get as much as you pay for. The caterer has to use suitable metrologically marked capacity serving measures in the case that the drink is sold in the amount that is poured into the measured glass. The beverage sold by the caterer must be filled at least to the mark, which means that the lower edge of the meniscus formed by the liquid is aligned with the upper edge of the measuring line.

Taksimeter je zakonsko merilo za merjenje in obračun prevožene poti.
A taximeter is a legal measuring instrument for measuring and billing a distance travelled.

Zakonska merila zagotavljajo potrošnikom zaščito. Zakon o meroslovju določa, da morajo merila, ki se uporabljajo na področjih varovanja zdravja, varstva okolja, splošne tehnične varnosti, prometa blaga in storitev ter v postopkih pred upravnimi in pravosodnimi organi, izpolnjevati meroslovne zahteve, določene s predpisi.

Legal measuring instruments provide consumers' protection. The Metrology Act requires that the measuirng instruments used in the fields of protection of public health, environmental protection, general technical safety, movement of goods and services and in procedures before administrative and judicial bodies must meet the metrological requirements laid down by regulations.

Državne oznake in oznake Evropske unije s področja meroslovja
National markings and markings of European Union in the field of metrology

oznaka redne overitve v obliki žiga
periodic verification marking in a form of seal

zaščitna oznaka v obliki žiga
protective marking in a form of seal

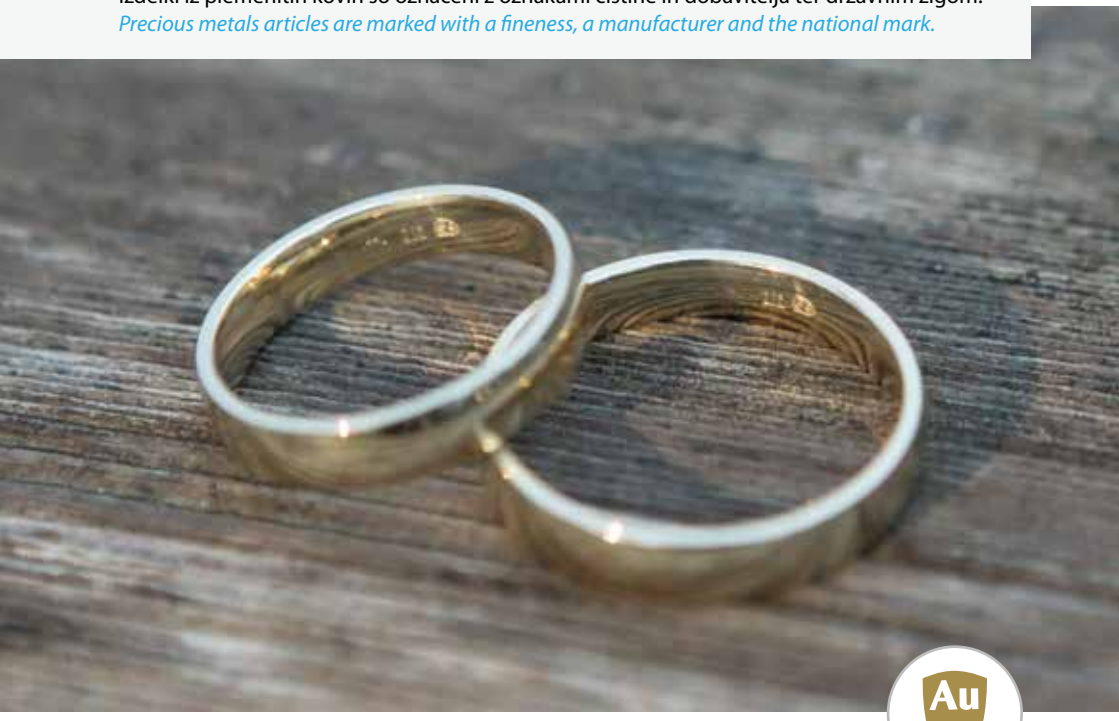
oznaka redne overitve v obliki nalepke
periodic verification marking in a form of label

oznaka skladnosti za izdelek iz zlata v obliki žiga
conformity mark for gold article in a form of hallmark

oznaka »CE«, ki ji mora slediti dodatna meroslovna oznaka
»CE« marking, which must be followed by the supplementary metrology marking

znak »e« za skladnost predpakiranih izdelkov
»e« sign for conformity of prapacked products

Izdelki iz plemenitih kovin so označeni z oznakami čistine in dobavitelja ter državnim žigom.
Precious metals articles are marked with a fineness, a manufacturer and the national mark.



Skrbimo za to, da vam ne prodajo medenine za zlato in jekla za srebro. Vrednost in cena izdelka iz zlata sta odvisni od dejanske količina zlata v izdelku. Zlati izdelki običajno vsebujejo 58,5 % zlata in 41,5 % drugih kovin, kar je označeno z oznako, izraženo v tisočinkah (585). Srebrni nakit običajno vsebuje 92,5 % srebra, kar je na izdelkih označeno z oznako 925.

We take care that you do not buy brass for gold and steel for silver. The value and price of the gold article depend on the actual amount of gold in the product. Gold articles usually contain 58.5 % of gold and 41.5 % of other metals, which is indicated by a mark, expressed in ~~thousands~~ (585). Silver jewelry usually contains 92.5 % of silver, which is marked on the products with mark 925.

Koncept električnega plovila z navpičnim vzletanjem in pristajanjem.
The concept of an electrical aircraft with vertical take-off and landing.

eVTOL

Slovenska podjetja bodo potrebovala točna merjenja pri izzivih v prihodnosti. Razvoj tehnologije vedno prinese tudi nepričakovane izzive. Med njimi bodo gotovo tudi potrebe s področja merjenj, ki jim mora biti kos dobro delujoč nacionalni meroslovni sistem. Urad RS za meroslovje je bil s slovenskim meroslovnim sistemom takim izzivom do zdaj še vedno kos.

Slovenian companies will need accurate measurements for challenges of the future. The development of technology inevitably brings unexpected challenges. Among them, there will certainly be demands in the field of measurements that must be dealt with by a well-functioning national metrology system. The Metrology Institute of the Republic of Slovenia with the Slovenian metrology system has so far been up to such challenges.

Slovar pogostih izrazov
Dictionary of common terms

meritev, merjenje
proces eksperimentalnega pridobivanja ene ali več vrednosti, ki jih je mogoče upravičeno pripisati veličini

measurement
process of experimentally obtaining one or more quantity values that can reasonably be attributed to a quantity

merilni instrument
naprava, ki se sama ali skupaj z eno ali več dodatnimi napravami uporablja za merjenje

measuring instrument
device used for making measurements, alone or in conjunction with one or more supplementary devices

etalon
realizacija definicije dane veličine z navedeno vrednostjo in pripadajočo merilno negotovostjo, uporabljena kot referenca

measurement standard
realization of the definition of a given quantity, with stated quantity value and associated measurement uncertainty, used as a reference

nacionalni etalon
Etalon, ki ga nacionalni organ oblasti prizna kot podlago za pripisovanje vrednosti drugim etalonom za zadevne istovrstne veličine v državi ali gospodarstvu.

national measurement standard
measurement standard recognised by national authority to serve in a state or economy as the basis for assigning qunatity values to other measurement standards for the kind of quantity concerned

veličina
lastnost pojava, telesa ali snovi, pri čemer ima ta lastnost velikost, ki jo je mogoče izraziti kot število in referenco

quantity
property of a phenomenon, body, or substance, where the property has a magnitude that can be expressed as a number and a reference

mednarodni sistem enot SI
sistem enot, temelječ na mednarodnem sistemu veličin, ki ga sestavljajo imena in simboli enot, niz predpon z njihovimi imeni in simboli ter pravila za njihovo uporabo in ga je sprejela Generalna konferenca za uteži in mere (CGPM)

International System of Units SI
system of units, based on the International System of Quantities, their names and symbols, including a series of prefixes and their names and symbols, together with rules for their use, adopted by the General Conference on Weights and Measures (CGPM)

Osnovna veličina / *Base quantity*	**Osnovna enota / *Base unit***	
Ime / *Name*	**Ime / *Name***	**Simbol / *Symbol***
dolžina / *lenght*	meter / *metre*	m
masa / *mass*	kilogram / *kilogram*	kg
čas / *time*	sekunda / *second*	s
električni tok / *electric current*	amper / *ampere*	A
termodinamična temperatura / *thermodynamic temperature*	kelvin / *kelvin*	K
množina snovi / *amount of substance*	mol / *mole*	mol
svetilnost / *luminous intensity*	kandela / *candela*	cd

kalibracija, umeritev
operacija, s katero se pod določenimi pogoji najprej ugotavlja povezava med vrednostmi veličine in merilnimi negotovostmi, ki jih dajejo etaloni in ustrezna kazanja s pripadajočimi merilnimi negotovostmi, nato pa se ta informacija uporabi za ugotovitev razmerja, ki na podlagi kazanja omogoči pridobitev merilnega rezultata

calibration
operation that, under specified conditions, in a first step, establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties and, in a second step, uses this information to establish a relation for obtaining a measurement result from an indication

overjanje, preverjanje
priskrba objektivnih dokazov, da dani predmet izpolnjuje specificirane zahteve

verification
provision of objective evidence that a given item fulfils specified requirements

merilni rezultat
niz vrednosti veličine, pripisanih merjencu, skupaj z vsemi drugimi koristnimi informacijami, ki so na voljo

measurement result
set of quantity values being attributed to a measurand together with any other available relevant information

meroslovna sledljivost
lastnost meritvenega rezultata, ki omogoča navezavo rezultata na referenco skozi dokumentirano neprekinjeno verigo umeritev, od katerih vsaka prispeva k merilni negotovosti

metrological traceability
property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty

merilna negotovost
nenegativni parameter, ki označuje raztros vrednosti veličine, ki so na podlagi uporabljenih podatkov pripisane merjencu

measurement uncertainty
non-negative parameter characterizing the dispersion of the quantity values being attributed to a measurand, based on the information used

zakonsko meroslovje
del meroslovja, ki se nanaša na dejavnosti, izhajajoče iz zakonskih zahtev, ter zadeva merjenje, merske enote, merilne instrumente in merilne metode, ki jih izvajajo pristojni organi

legal metrology
part of metrology relating to activities which result from statutory requirements and concern measurement, units of measurement, measuring instruments and methods of measurement and which are performed by competent bodies

Viri:

SIST-V ISO/IEC Vodilo 99:2012 Mednarodni slovar za meroslovje – Osnovni in splošni koncepti ter z njimi povezani izrazi (VIM)
Mednarodni slovar izrazov zakonskega meroslovja (OIML), Urad RS za meroslovje, 2008

Sources:

ISO/IEC Guide 99:2012 International vocabulary of metrology – Basic and general concepts and associated terms (VIM)
VIML-International Vocabulary of Terms in Legal Metrology (OIML)

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