Decision imposing the BiH Law on Measuring Units, introducing EU standards

In the exercise of the powers vested in me by Article V of Annex 10 (Agreement on Civilian Implementation of the Peace Settlement) to the General Agreement for Peace in Bosnia and Herzegovina, according to which the High Representative is the final authority in theatre regarding interpretation of the said Agreement on the Civilian Implementation of the Peace Settlement; and considering in particular Art. II.1. (d) of the last said Agreement, according to the terms of which the High Representative shall "Facilitate, as the High Representative judges necessary, the resolution of any difficulties arising in connection with civilian implementation";

Recalling paragraph XI.2 of the Conclusions of the Peace Implementation Conference held in Bonn on 9 and 10 December 1997, in which the Peace Implementation Council welcomed the High Representative?s intention to use his final authority in theatre, regarding interpretation of the Agreement on the Civilian Implementation of the Peace Settlement, in order to facilitate the resolution of any difficulties as aforesaid "by making binding decisions, as he judges necessary" on certain issues including (under sub-paragraph (c) thereof) "measures to ensure the implementation of the Peace Agreement throughout Bosnia and Herzegovina and its Entities";

Considering the seriousness of the problems faced by Bosnia and Herzegovina arising out of the absence of legislation in the field of standardisation, and in particular the difficulties facing producers wishing to export their products to markets within the European Union;

Noting that the European Union "Road Map" for Bosnia and Herzegovina recommends the establishment of a single Bosnia and Herzegovina Institute for Standards;

Noting further that in the Annex to the Declaration of the Peace Implementation Council which met in Brussels on 23 and 24 May 2000 it was stated that the authorities of Bosnia and Herzegovina should act promptly as to the adoption of a Law on Standardisation, including the creation of a Bosnia and Herzegovina Institute for Standards, aimed at strengthening the whole system of standardisation in Bosnia and Herzegovina of which the Law on Measuring Units is an inseparable and logical part.

All this considered, borne in mind and noted, I hereby issue the following Decision which shall enter into force with immediate effect on an interim basis, until such time as the Parliamentary Assembly of Bosnia and Herzegovina adopts this Law in due form, without amendments and with no conditions attached.

Pursuant to, and as an integral part of this my Decision herein, I require the appropriate authorities of the Federation of Bosnia and Herzegovina and of the Republika Srpska to take all necessary steps to ensure that the laws and regulations of the Federation of Bosnia and Herzegovina and of the Republika Srpska respectively are and remain fully harmonised with the Law on Measuring Units of Bosnia and Herzegovina hereinafter set out. In the event that changes are required to be made to the laws and/or regulations of the Entities in consequence thereof, as is the case with the Law on Measuring Units and Measuring Instruments of the Republika Srpska (Official Gazette of the Republika Srpska No 37/99) such changes are to be effected no later than six months after the entry into force of the said Law on Measuring Units of Bosnia and Herzegovina.

DECISION ON LAW ON MEASURING UNITS OF BOSNIA AND HERZEGOVINA

I GENERAL PROVISIONS

Article 1

1. This Law defines measuring units in Bosnia and Herzegovina, their names and symbols, fields and manner of application, and the obligation to use these measuring units in order to ensure the application of unanimity of measurements in Bosnia and Herzegovina.

Article 2

1. Measuring units are defined on the basis of international agreements that are binding on Bosnia and Herzegovina.

2. The details on defining the measuring units and their use shall be in accordance with international standards ISO 2955 series ISO 31. and ISO 1000.

Article 3

1. Measuring units as defined by this Law shall be used by their names and symbols in all public references to measuring units and the use thereof in the operation of legal and physical persons in Bosnia and Herzegovina.

Article 4

1. In addition to legal measuring units as referred to in Article 3 of this Law, other measuring units can exceptionally be used in Bosnia and Herzegovina, when:

a) the use of such measuring units is defined by an international agreement ratified by Bosnia and Herzegovina;

b) such measuring units are used in another country for the goods, services and data intended for export to that country.

Article 5

1. When releasing imported goods to the market, and when offering services or information, data expressed in measuring units as defined by this Law shall be indicated in addition to data that are not in conformity with the provisions of this Law.

Article 6

1. For data transmission and processing, measuring units can exceptionally be expressed in units prescribed for systems with a limited group of symbols, and on the basis of applicable international regulations.

Article 7

1. In addition to measuring unit symbols as prescribed by this Law, letter and number codes can be used in international trade in accordance with applicable international recommendations.

Article 8

1. The Institute for Metrology of Bosnia and Herzegovina and competent inspection bodies shall supervise the implementation of this Law.

II LEGAL MEASURING UNITS

Article 9

1. Legal measuring units in Bosnia and Herzegovina are:

1) Units of the international system (hereinafter referred to as: SI units), as follows:

- a) SI base units (table 1.a)
- b) SI supplementary units (table 1.b)
- c) SI derived units with special names and symbols (table 1.c)
- d) some SI derived units with names and symbols that can be expressed in base

units (table 1.d)

2) Exceptionally recognised units outside the SI, some with limited use (table 2.)

3) Decimal units formed by adding prefixes to units as referred to in items 1. and 2. of this paragraph (table 3.), in a manner and with exceptions as indicated in Annex 2.

4) Complex derived units formed from units as referred to in items 1., 2. and 3. of this paragraph. Tables 1a., 1b., 1c., 1d., 2. and 3., and annexes 1., 2. and 3., and their contents are the Annexes to this Law, and constitute an integral part of it.

III PENAL PROVISIONS

Article 10

1. A legal person shall be fined between 2,000 KM and 20,000 KM if such person does not use a measuring unit as prescribed by this Law (Articles 3, 4, 5, and 9) in circulation of goods or provision of services.

2. In cases described under paragraph 1 of the present Article, the actual person responsible for a legal person shall be fined between 120 KM and 1,200 KM.

3. In cases described under paragraph 1 of the present Article, a person responsible for not using a measuring unit as prescribed by this Law may be subject to an on the spot cash fine of 200 KM.

Article 11

1. A legal person shall be fined between 600 KM and 2,000 KM if such person uses in its operation (Article 9 of this Law) measuring units contrary to the provisions of this Law.

2. In cases described under paragraph 1 of the present Article, the actual person responsible for a legal person shall be fined between 200 KM and 500 KM.

3. In cases described under paragraph 1 of the present Article, a person responsible for using a measuring unit contrary to the provisions of this Law may be subject to an on the spot fine of 200 KM.

IV – TRANSITIONAL AND FINAL PROVISIONS

Article 12

1. The Law on Measuring Units and Measuring Instruments (Official Gazette of RBiH Nos.14/93 and 13/94) is hereby revoked as of the day of entry into force of this Law.

2. This Law, which shall include the three annexes hereinafter set out, shall be published without delay in the Official Gazette of Bosnia and Herzegovina and shall enter into force on the eighth day following the date of such publication.

3. This Law shall likewise be published without delay in the Official Gazettes of the Federation of Bosnia and Herzegovina and of the Republika Srpska.

ANNEX 1.

1. UNITS OF THE INTERNATIONAL SYSTEMSI BASE UNITS

Quantity	Name	Symbol
length	Meter	m
mass	Kilogram	kg
time	Second	s

electrical current	Ampere	A
thermodynamic temperature	Kelvin	K
luminous intensity	Candela	cd
amount of substance	Mole	mol

Definitions of SI base units:

Length:
Unit for length is the **meter**. The meter is 1/2999 792 458 of the distance light travels in a vacuum in one second.

Mass:
Unit for mass is the **kilogram**. The kilogram is the mass of the international prototype of the kilogram.

Time:
Unit for time is the **second**. The second equals 9 129 631 770 cycles of radiation corresponding to the transition between the two hyper fine levels of the ground state of the caesium atom.

Electrical current:
Unit for electrical current is the **ampere**. The ampere is that constant current which, if maintained in two straight parallel conductors of infinite length and negligible cross circular section, and placed one meter apart in a vacuum, would produce between these conductors a force equal to 2 X 10-7 newton per meter of length.

Thermodynamic temperature:
Unit for thermodynamic temperature is the **Kelvin**. The Kelvin is the thermodynamic temperature that equals 1/273 of the thermodynamic temperature of the triple point of water.

Luminous intensity:
Unit for luminous intensity is the **candela**. The candela is the luminous intensity, in a given direction, of a source that emits monochromatic radiation of frequency 540 X 1012 hertz and that has a radiant intensity in that direction of 1/683 watt/steradian.

Amount of substance:
Unit for amount of substance is the **mol**. The mol is amount of substance of a system which contains as many elementary entities as there are atoms in 0,012 kilograms of carbon 12.

Note:
When using the mole, the elementary entities must be specified (atoms, molecules, ions, electrons, other particles or specified groups of such particles).

SI SUPPLEMENTARY UNITS

Table 1.b

Quantity	**Name**	**Symbol**
plane angle	Radian	rad
solid angle	Steradian	sr

DEFINITIONS:

Plane angle:
Unit for the plane angle is the **radian**. The radian is the measure of a central angle subtending an arc equal in length to the radius (1 rad = 1.).

Solid angle:
Unit for the space angle is the **steradian**. The steradian is a solid angle at the center of the sphere subtending a section on the surface equal in area to the square of the radius of the sphere (1 sr = 1.).

SI DERIVED UNITS WITH SPECIAL NAMES AND SYMBOLS

Table 1.c

Quantity	**Name**	**Symbol**	**Expressed in terms of other units**	Expressed in terms of base units
frequency (rate of occurrence)	hertz	Hz		s^{-1}
force	newton	N		$m \cdot kg \cdot s^{-2}$
pressure (stress)	Pascal	Pa	N / m^2	$m^{-1} \cdot kg \cdot s^{-2}$
energy, work, quantity of heat	joule	J	$N \cdot m$	$m^2 \cdot kg \cdot s^{-2}$
power, energy flux, heat flux	watt	W	J / s	$m^2 \cdot kg \cdot s^{-3}$
electric charge	coulomb	C		$s \cdot A$
electric tension electromotive force electric potential	Volt	V	W / A	$m^2 \cdot kg \cdot s^{-3}$
electrical capacitance	farad	F	C / V	$m^{-2} \cdot kg^{-1} \cdot s^4 \cdot A^2$
electrical conductance	siemens	S	A / V	$m^{-2} \cdot kg^{-1} \cdot s^3 \cdot A^2$
magnetic flux	weber	Wb	$V \cdot s = T \cdot m^2$	$m^2 \cdot kg \cdot s^{-2} \cdot A^{-1}$
magnetic flux density	tesla	T	Wb / m^2	$kg \cdot s^{-2} \cdot A^{-1}$
inductance	henry	H	$Wb / A = \Omega \cdot s$	$m^2 \cdot kg \cdot s^{-2} \cdot A^{-2}$
Celsius temperature	Celsius degree	?C		K
luminous flux	lumen	Lm	$cd \cdot sr$	
illuminance	lux	Lx	lm / m^2	
activity of radioactive substance	becquerel	Bq		s^{-1}
absorbed dose of ionizing radiation	gray	Gy	J / kg	$m^2 \cdot s^{-2}$
dose equivalent of ionizing radiation	sievert	SV	J / kg	$m^2 \cdot s^{-2}$

·) Celsius temperature t is defined as a difference t = T – T ? between two thermodynamics temperatures T and T? , where T ? = 273 Kelvin.

SOME DERIVED SI UNITS

Table 1.d

Quantity	**Name**	**Symbol**	**Expressed in terms of base SI units**
area	square meter	m^2	m^2
volume	cube meter	m^3	m^3

Velocity	meter per second	m/s	$m \cdot s^{-1}$
acceleration	meter per square second	m/s^2	$m \cdot s^{-2}$
length mass	kilogram per meter	kg/m	$m^{-1} \cdot kg$
area mass	kilogram per square meter	kg/m^2	$m^{-2} \cdot kg$
Volume mass (mass density)	kilogram per cube meter	kg/m^3	$m^{-3} \cdot kg$
specific volume	cube meter per kilogram	m^3/kg	$m^3 \cdot kg^{-1}$
magnetic field strength	Ampere per meter	A/m	$m^{-1} \cdot A$
electric power density	Ampere per square meter	A/m^2	$m^{-2} \cdot A$
concentration	mole per cube meter	mol/m^3	$m^{-3} \cdot mol$
molar mass	kilogram per mole	kg/mol	$kg \cdot mol^{-1}$
luminance	Candela per square meter	cd/m^2	$m^{-2} \cdot cd$
volume flow	cube meter per second	m^3/s	$m^3 \cdot s^{-1}$
mass flow	kilogram per second	kg/s	$kg \cdot s^{-1}$
angle velocity	radian per second	rad/s	s^{-1}
angle acceleration	radian per square seconds	rad/s^2	s^{-2}
cinematic viscosity	square meter per second	m^2/s	$m^2 \cdot s^{-1}$
dynamic viscosity	Pascal second	Pa · s	$m^{-1} \cdot kg \cdot s^{-1}$
surface tension	newton per meter	N/m	$kg \cdot s^{-2}$
entropy	joule per Kelvin	J/K	$m^2 \cdot kg \cdot s^{-2} \cdot K^{-1}$
specific heat capacity, specific entropy	joule per kilogram Kelvin	J/ (kg· K)	$m^2 \cdot s^{-2} \cdot K^{-1}$
specific energy	joule per kilogram	J/kg	$m^2 \cdot s^{-2}$
heat conductivity	watt per meter Kelvin	W/(m · K)	$m \cdot kg \cdot s^{-3} \cdot K^{-1}$
volume energy	joule per cube meter	J/m^3	$m^{-1} \cdot kg \cdot s^{-2}$
electric field strength	Volt per meter	V/m	$m \cdot kg \cdot s^{-3} \cdot A$
permittivity	farad per meter	F/m	$m^{-3} \cdot kg^{-1} \cdot s^4$
permeability	henry per meter	H/m	$m \cdot kg \cdot s^{-2} \cdot A^{-2}$
molar energy	joule per mole	J/mol	$m^2 \cdot kg \cdot s^{-2} \cdot mol^{-1}$
exposure dose of ionizing radiation	coulomb per kilogram	C/kg	$kg^{-1} \cdot s \cdot A$
radiant intensity	Watt per steradian	W/sr	

EXCEPTIONALLY RECOGNISED UNITS OUTSIDE THE SI

WITH SPECIAL NAMES

Table 2

Quantity	Name	Symbol	Expressed in terms of SI units	Use permitted only in
length	nautical mile astronomical unit		1 nautical mile =1852 m 1 astronomical unit = $1{,}4959787 \cdot 10^{11}$ m	in sea and air traffic in astronomy
area	are hectare	A ha	1a = 100 m^2 1ha = 10000 m^2	for indicating land surface
volume	liter	l L	1 l = 1 L = 10^{-3} m^3	
angle	degree minute second gon	1? 1′ 1” 1g	1? = (Pi / 180) rad 1′ = (Pi / 10800) rad 1” = (Pi / 648000) rad 1g = (Pi / 200) rad	
mass length mass mass of precious stones	ton atomic mass unit tex meter carat		1 t = 10^3 kg 1 u = $1{,}66057 \cdot 10^{-27}$ kg 1 tex = 10^{-6} kg/m 1 meter carat = $2 \cdot 10^{-4}$ kg	in physics and chemistry for expressing mass of textile fiber and thread
time	minute hour day	min h d	1 min = 60 s 1 h = 3600 s 1 d = 86400 s	
velocity	knot		1 knot = 1852/3600 m/s	in sea, river and air traffic
pressure	bar millimetres of mercury gauge	bar mmHg	1 bar = 10^5 Pa 1 mmHg = 133,322 Pa	for determining blood pressure in health care
energy	electron volt*	eV	1 eV = $1{,}60219 \cdot 10^{-19}$ J	in special fields
power	volt-ampere var	VA var	1 VA = 1 W 1 var = 1 W	for determining apparent electric power for determining reactive (futile) electric power
refraction of optical systems	diopter		1 diopter = 1 m^{-1}	in health care and in physics

*) an atomic unit of mass equals 1/12 of mass of ^{12}C-atom nuclide.

DECIMAL UNITS

NAMES OF PREFIXES, SYMBOLS AND NUMERICAL VALUES

Table 3

Name	**Symbol**	**Numerical values**
yotta	J	1 000 000 000 000 000 000 000 000 = 10^{24}
zetta	Z	1 000 000 000 000 000 000 000 = 10^{21}
exa	E	1 000 000 000 000 000 000 = 10^{18}

peta	P	1 000 000 000 000 000 = 10^{15}
tera	T	1 000 000 000 000 = 10^{12}
giga	G	1 000 000 000 = 10^{9}
mega	M	1 000 000 = 10^{6}
kilo	k	1 000 = 10^{3}
hecto	h	100 = 10^{2}
deca	da	10 = 10^{1}
deci	d	0,1 = 10^{-1}
centi	c	0,01 = 10^{-2}
mili	m	0,001 = 10^{-3}
micro	µ	0,000 001 = 10^{-6}
nano	n	0,000 000 001 = 10^{-9}
pico	p	0,000 000 000 001 = 10^{-12}
femto	f	0,000 000 000 000 001 = 10^{-15}
atto	a	0,000 000 000 000 000 001 = 10^{-18}
zepto	z	0,000 000 000 000 000 000 001 = 10^{-21}
yocto	y	0,000 000 000 000 000 000 000 001 = 10^{-24}

Annex 2

FORMING DERIVED MEASURING UNITS

1. Derived units are formed from other units on the basis of physical relations.

2. Names and symbols of derived units are formed from names and symbols of units they are made of, to which names and symbols of corresponding algebra operations are added.

3. There is only a limited number of derived SI units with special names and symbols, which are derived from the original way of writing the names. (Tables 1.d and 2.).

Annex 3

FORMING DECIMAL UNITS

1. Decimal units are units are bigger or smaller than some unit (which has a special name) and are made by multiplying with a decimal multiples or sub-multiples.

2. Decimal multiples and submultiples are prescribed by an international agreement, and their names and symbols are given in Table 3.

3. Names of decimal units are formed by putting prefixes before names of units.

4. Symbol of a decimal unit is also formed by putting a symbol of the prefix before the symbol of the unit.

5. When forming a decimal unit, only one prefix can be used at a time.

6. The name of the decimal unit and its symbol form an entirety.

7. Mathematic operations apply on the whole of the decimal unit, for example the cube decimetre is represented by cm3, meaning (cm)3 etc.

Decimal units are formed:

a) from all SI units, except for degree Celsius and the kilogram (to avoid using two prefixes, decimal units are formed from the gram unit, g = 10-3 kg);

b) from the following exceptionally recognised outside the SI: litre, tone, tex, bar, electron Volt and var.

WRITING AND PRINTING OF MEASURING UNITS

1. Names of measuring units and of prefixes of decimal units are written in accordance with the orthographic rules of Bosnian language.

2. Symbols of measuring units and decimal prefixes are written in upright letters of Latin alphabet, and two letters of Greek alphabet (µ and *omega*).

3. Every unit is represented with one symbol only, with the exception of litre, which is represented by l or L.

4. Symbols are not followed by a full stop, with the exception of the normal punctuation.

5. Multiplication of units can be expressed by a half-high dot or a thin (so called solid) space between unit symbols (a line can not stop at that space).

6. If the unit is formed by dividing other units, division can be expressed by a solidus, a horizontal bar or with negative exponents. For example:

$W/Kg \times K = W \times Kg^{-1} \times K^{-1} = W/(Kg \times K)$

Sarajevo, 12 November 2000

Wolfgang Petritsch
High Representative

Office of the High Representative