



Statutory Rules 1988 No. 1

259/

## National Measurement Regulations<sup>2</sup> (Amendment)

I, THE GOVERNOR-GENERAL of the Commonwealth of Australia, acting with the advice of the Federal Executive Council, hereby make the following Regulations under the *National Measurement Act 1960*.

Dated 27 October 1988.

N. M. STEPIEN

Governor-General

By His Excellency's Command,

*John N. Curran*

Minister of State for Industry,  
Technology and Commerce

### Commencement

1. These Regulations commence on 1 November 1988.

### Principal Regulations

2. In these Regulations, "Principal Regulations" means the National Measurement Regulations.

### Units of measurement of electrical resistance

3. Regulation 45 of the Principal Regulations is amended:
  - (a) by inserting after subregulation (1) the following subregulation:

"(1A) A unit of measurement specified in an item in Schedule 19 may be referred to by the alternative name (if any) specified in Column 3 of that Schedule in that item.";
  - (b) by omitting from subregulation (2) "3" and substituting "4";
  - (c) by omitting from subregulation (3) "4" and substituting "5".

**Schedule 1**

4. Schedule 1 to the Principal Regulations is amended by inserting after item 10 the following items:

“10A	picometre	10 <sup>-12</sup>	pm
10B	femtometre	10 <sup>-15</sup>	fm
10C	attometre	10 <sup>-18</sup>	am”.

**Schedule 2**

5. Schedule 2 to the Principal Regulations is amended by inserting after item 6 the following item:

“6A	square micrometre	10 <sup>-12</sup>	μm <sup>2</sup> ”.
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**Schedule 3**

6. Schedule 3 to the Principal Regulations is amended by adding at the end the following items:

“13	nanogram	10 <sup>-12</sup>	ng
14	metric carat	0.2 x 10 <sup>-3</sup>	CM”.

**Schedule 4**

7. Schedule 4 to the Principal Regulations is repealed and the following Schedule substituted:

**SCHEDULE 4**

Regulation 10

**UNITS OF MEASUREMENT OF VOLUME**

Column 1 Item No.	Column 2 Name of unit	Column 3 Volume in cubic metres	Column 4 Symbol
1	teralitre	10 <sup>9</sup>	TL or Tl
2	gigalitre	10 <sup>6</sup>	GL or Gl
3	megalitre	10 <sup>3</sup>	ML or Ml
4	kilolitre	1	kL or kL
5	hectolitre	10 <sup>-1</sup>	hL or hL
6	dekalitre	10 <sup>-2</sup>	daL or daL
7	litre	10 <sup>-3</sup>	L or l
8	decilitre	10 <sup>-4</sup>	dL or dL
9	centilitre	10 <sup>-5</sup>	cl or cl
10	millilitre	10 <sup>-6</sup>	mL or mL
11	microlitre	10 <sup>-9</sup>	μL or μL
12	cubic kilometre	10 <sup>9</sup>	km <sup>3</sup>
13	cubic metre	1	m <sup>3</sup>
14	cubic decimetre	10 <sup>-3</sup>	dm <sup>3</sup>
15	cubic centimetre	10 <sup>-6</sup>	cm <sup>3</sup>
16	cubic millimetre	10 <sup>-9</sup>	mm <sup>3</sup>

**Schedule 7**

8. Schedule 7 to the Principal Regulations is amended by adding at the end the following items:

“8	picosecond	10 <sup>-12</sup>	ps
9	femtosecond	10 <sup>-15</sup>	fs
10	attosecond	10 <sup>-18</sup>	as”.

**Schedule 8**

9. Schedule 8 to the Principal Regulations is amended by inserting after item 6 the following item:

“6A microhertz  $10^{-6}$   $\mu\text{Hz}$ ”.

**Schedule 11**

10. Schedule 11 to the Principal Regulations is amended:

(a) by inserting before item 1 the following item:

“1A giganewton  $10^9$  GN”;

(b) by adding at the end the following item:

“5 micronewton  $10^{-6}$   $\mu\text{N}$ ”.

**Schedule 12**

11. Schedule 12 to the Principal Regulations is repealed and the following Schedule substituted:

**SCHEDULE 12**

Regulation 30

**UNITS OF MEASUREMENT OF WORK AND ENERGY**

Column 1 Item No.	Column 2 Name of unit	Column 3 Work or energy in joules	Column 4 Symbol
1	exajoule	$10^{18}$	EJ
2	petajoule	$10^{15}$	PJ
3	terajoule	$10^{12}$	TJ
4	gigajoule	$10^9$	GJ
5	megajoule	$10^6$	MJ
6	kilojoule	$10^3$	kJ
7	joule	1	J
8	millijoule	$10^{-3}$	mJ
9	microjoule	$10^{-6}$	$\mu\text{J}$
10	nanojoule	$10^{-9}$	nJ
11	picojoule	$10^{-12}$	pJ
12	gigawatt hour	$3.6 \times 10^{12}$	GW.h
13	megawatt hour	$3.6 \times 10^9$	MW.h
14	kilowatt hour	$3.6 \times 10^6$	kW.h
15	watt hour	$3.6 \times 10^3$	W.h
16	teraelectronvolt	$1.602\ 189\ 2 \times 10^{-7}$	TeV
17	gigaelectronvolt	$1.602\ 189\ 2 \times 10^{-10}$	GeV
18	megaelectronvolt	$1.602\ 189\ 2 \times 10^{-13}$	MeV
19	kiloelectronvolt	$1.602\ 189\ 2 \times 10^{-16}$	keV
20	electronvolt	$1.602\ 189\ 2 \times 10^{-19}$	eV

**Schedule 13**

12. Schedule 13 to the Principal Regulations is amended by inserting before item 1 the following items:

“1A petawatt  $10^{15}$  PW  
1B terawatt  $10^{12}$  TW”.

**Schedule 14**

13. Schedule 14 to the Principal Regulations is amended:

- (a) by inserting before item 1 the following item:  
     "1A terapascal  $10^{12}$  TPa";
- (b) by inserting after item 3 the following item:  
     "3A hectopascal  $10^2$  hPa";
- (c) by adding at the end the following item:  
     "7 nanopascal  $10^{-9}$  nPa".

**Schedule 16**

14. Schedule 16 to the Principal Regulations is repealed and the following Schedule substituted:

**SCHEDULE 16**

Regulation 39

## UNITS OF MEASUREMENT OF ELECTRIC CURRENT

Column 1	Column 2	Column 3	Column 4
Item No.	Name of unit	Electric current in amperes	Symbol
1	gigaampere	$10^9$	GA
2	megaampere	$10^6$	MA
3	kiloampere	$10^3$	kA
4	ampere	1	A
5	milliampere	$10^{-3}$	mA
6	microampere	$10^{-6}$	$\mu$ A
7	nanoampere	$10^{-9}$	nA
8	picoampere	$10^{-12}$	pA
9	femtoampere	$10^{-15}$	fA
10	attoampere	$10^{-18}$	aA

**Schedule 17**

15. Schedule 17 to the Principal Regulations is repealed and the following Schedule substituted:

**SCHEDULE 17**

Regulation 41

## UNITS OF MEASUREMENT OF ELECTRIC CHARGE

Column 1	Column 2	Column 3	Column 4
Item No.	Name of unit	Electric charge in coulombs	Symbol
1	megacoulomb	$10^6$	MC
2	kilocoulomb	$10^3$	kC
3	coulomb	1	C
4	millicoulomb	$10^{-3}$	mC
5	microcoulomb	$10^{-6}$	$\mu$ C
6	nanocoulomb	$10^{-9}$	nC
7	picocoulomb	$10^{-12}$	pC
8	ampere hour	3600	A.h

**Schedule 18**

16. Schedule 18 to the Principal Regulations is amended:

(a) by inserting before item 1 the following item:

“1A teravolt  $10^{12}$  TV”;

(b) by adding at the end the following items:

“7 nanovolt  $10^{-9}$  nV  
8 picovolt  $10^{-12}$  pV”.

**Schedule 19**

17. Schedule 19 to the Principal Regulations is repealed and the following Schedule substituted:

**SCHEDULE 19**

Regulation 45

## UNITS OF MEASUREMENT OF ELECTRICAL RESISTANCE

Column 1	Column 2	Column 3	Column 4	Column 5
Item No.	Name of unit	Alternative name	Electrical resistance in ohms	Symbol
1	exaohm		$10^{18}$	EΩ
2	petaohm		$10^{15}$	PΩ
3	teraohm		$10^{12}$	TΩ
4	gigaohm	gigohm	$10^9$	GΩ
5	megaohm	megohm	$10^6$	MΩ
6	kiloohm	kilohm	$10^3$	kΩ
7	ohm		1	Ω
8	milliohm		$10^{-3}$	mΩ
9	microohm	microhm	$10^{-6}$	$\mu\Omega$
10	nanoohm		$10^{-9}$	nΩ
11	picoohm		$10^{-12}$	pΩ

**Schedule 20**

18. Schedule 20 to the Principal Regulations is amended by adding at the end the following items:

“4 nanosiemens  $10^{-9}$  nS  
5 picosiemens  $10^{-12}$  pS”.

**Schedule 21**

19. Schedule 21 to the Principal Regulations is amended:

(a) by inserting after item 1 the following item:

“1A millifarad  $10^{-3}$  mF”;

(b) by adding at the end the following item:

“5 femtofarad  $10^{-15}$  fF”.

**Schedule 22**

20. Schedule 22 to the Principal Regulations is amended:

(a) by inserting before item 1 the following item:

“1A kilohenry  $10^3$  kH”;

(b) by adding at the end the following item:

"4 nanohenry 10<sup>-9</sup> nH".

### Schedule 23

21. Schedule 23 to the Principal Regulations is amended by inserting after item 2 the following items:

"2A microkelvin 10<sup>-6</sup> μK  
2B nanokelvin 10<sup>-9</sup> nK".

### Schedule 28

22. Schedule 28 to the Principal Regulations is amended:

(a) by inserting before item 1 the following item:

"1A exabecquerel 10<sup>18</sup> EBq";

(b) by inserting after item 8 the following item:

"8A nanobecquerel 10<sup>-9</sup> nBq".

### Schedule 30

23. Schedule 30 to the Principal Regulations is amended by inserting before item 1 the following item:

"1A gigagray 10<sup>9</sup> GGy".

### Schedule 30C

24. Schedule 30C to the Principal Regulations is amended by inserting before item 1 the following item:

"1A megawatt per square metre 10<sup>6</sup> MW/m<sup>2</sup>".

### Additional amendments

25. The Principal Regulations are further amended as set out in the Schedule.

## SCHEDULE

Regulation 25

### ADDITIONAL AMENDMENTS

The following provisions of the Principal Regulations are amended by omitting "Organization" (wherever occurring) and substituting "Organisation":

Paragraphs 78A (1) (a) and (b); subregulation 78A (3); paragraphs 79 (1) (a) and (b); subregulation 79 (3); paragraph 80 (1) (a); subregulation 80 (3); paragraphs 80 (6) (a) and 80 (7) (g); subregulation 81 (1); paragraph 81 (2) (a).

### NOTES

1. Notified in the *Commonwealth of Australia Gazette* on *h* 1988. *31 October/*
2. Statutory Rules 1961 No. 142 as amended by 1963 No. 126; 1964 No. 146; 1965 No. 13; 1968 No. 150; 1970 No. 40; 1972 Nos. 62, 133 and 160; 1973 Nos. 68 and 253; 1977 No. 150; 1979 No. 65; 1981 No. 195; 1983 No. 64; 1984 Nos. 195 and 231; ~~1985 No. 315; 1986 Nos. 172 and 399.~~

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To date. For previous amendment,  
see Note 2 to Statutory Rules 1988 No. 258  
and see also Statutory Rules 1988 No. 258/