Schedule of Accreditation

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Ministry of Defence

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Calibration performed by the Organisations at the locations specified below

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details		Activity	Location code
Address Calibration Centre Bolkiah Garrison BB3510 Negara Brunei Darussalam	**Local contact** Mr Sofri Rahman +673-2-386475	Electrical, DC and LF Electrical, RF and microwave Mass Temperature Pressure Humidity Dimensional Volume Torque	Laboratory

Site activities performed away from the locations listed above:

Location details		Activity	Location code
The customers' site or premises must be suitable for the nature of the particular calibrations undertaken and will be the subject of contract review arrangements between the laboratory and the customer.	**Local contact** Mr Sofri Rahman +673-2-386475	Mass Temperature	Customers' Sites

DETAIL OF ACCREDITATION

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
Values and uncertainties listed below are applicable for the calibration of both measurement instruments and for instruments with an output. the method used is by direct comparison unless otherwise stated in the remarks column				Laboratory
ELECTRICAL				
DC VOLTAGE	10 V Reference	0.50 ppm	This uncertainty can be realised with voltage standards within 20 ppm of the nominal voltage and only if they have their own temperature controlled enclosure of appropriate thermal stability	
Decade Values	10 μV, 100 μV and 1 mV 10 mV 100 mV 1 V 10 V 100 V 1 kV	0.50 μV 70 ppm 10 ppm 2.5 ppm 1.5 ppm 3.0 ppm 2.5 ppm	The stated CMCs are for values that lie within 0.5 % of those listed.	
Other values	0 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1 kV	1.0 μV 8.0 ppm 7.0 ppm 11 ppm 18 ppm		
DC RESISTANCE				
Specific values				
Generation	0.1 Ω 1 Ω 1.9 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 19 kΩ 100 kΩ 1 MΩ 10 MΩ 19 MΩ 100 MΩ 1 GΩ	4.0 ppm 4.0 ppm 16 ppm 4.0 ppm 4.0 ppm 4.0 ppm 4.0 ppm 10 ppm 3.5 ppm 4.0 ppm 3.5 ppm 35 ppm 9.0 ppm 170 ppm		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL (continued)				
DC RESISTANCE (continued)				
Specific Values (continued)				
Measurement	0.1 Ω 1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ 1.9 Ω 19 kΩ 19 MΩ	7.0 ppm 5.5 ppm 5.5 ppm 5.0 ppm 5.0 ppm 5.0 ppm 5.0 ppm 6.0 ppm 12 ppm 20 ppm 12 ppm 8.0 ppm 30 ppm	The stated CMCs are for values that lie within 10 % of those listed.	Laboratory
Other values Current carrying resistors	0 mΩ to 1 mΩ 1 mΩ to 10 mΩ 10 mΩ to 100 mΩ	0.050 % + 0.70 μΩ 0.090 % + 3.0 μΩ 240 ppm + 30 μΩ	At 5 A DC At 5 A DC At 1 A DC	
	0 Ω to 0.1 Ω 0.1 Ω to 1 Ω 1 Ω to 5 Ω 5 Ω to 12 Ω 12 Ω to 50 Ω 50 Ω to 120 Ω 120 Ω to 120 kΩ 120 kΩ to 500 kΩ 500 kΩ to 1.2 MΩ 1.2 MΩ to 5 MΩ 5 MΩ to 12 MΩ 12 MΩ to 120 MΩ 120 MΩ to 1 GΩ	60 μΩ 610 ppm 66 ppm 29 ppm 54 ppm 24 ppm 18 ppm 33 ppm 26 ppm 130 ppm 86 ppm 830 ppm 0.90 %		
DC CURRENT	0 μA to 1 μA 1 μA to 100 mA 100 mA to 10 A 10 A to 20 A	75 pA 65 ppm 60 ppm 110 ppm		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL (continued)				Laboratory
AC VOLTAGE				
Specific values				
Specific frequencies	*40 Hz, 1 kHz, 10 kHz, 20 kHz and 50 kHz*			
	10 mV	210 ppm		
	20 mV	170 ppm		
	100 mV	90 ppm		
	200 mV	90 ppm		
	600 mV	90 ppm		
	1 V	65 ppm		
	2 V	65 ppm		
	6 V	65 ppm		
	10 V	65 ppm		
	20 V	65 ppm		
	60 V	65 ppm		
	100 V	65 ppm		
	200 V	65 ppm		
	1 kV	75 ppm		
	10 mV *100 Hz and 400 Hz*	210 ppm		
	20 mV *500 Hz*	170 ppm		
	100 mV *100 Hz and 400 Hz*	90 ppm		
	200 mV and 600 mV *500 Hz*	90 ppm		
	1 V 100 Hz and 400 Hz	65 ppm		
	2 V and 6 V 500 Hz	65 ppm		
	10 V 100 Hz and 400 Hz	65 ppm		
	20 V and 60 V 500 Hz	65 ppm		
	100 V 100 Hz and 400 Hz	65 ppm		
	200 V 500 Hz	65 ppm		
	1000 V 400 Hz and 500 Hz	75 ppm		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL (continued) AC VOLTAGE Specific values (continued) Specific frequencies	2 mV to 10 mV 5 mV to 12 mV *20 Hz to 40 Hz* *40 Hz to 1 kHz* *1 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz* 12 mV to 50 mV *20 Hz to 40 Hz* *40 Hz to 1 kHz* *1 kHz to 20 kHz* *20 kHz to 50 kHz* *50 kHz to 100 kHz*	0.35 % 0.16 % 0.14 % 0.14 % 0.18 % 0.60 % 670 ppm 550 ppm 570 ppm 670 ppm 0.11 %		Laboratory

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL (continued)				Laboratory
AC VOLTAGE (continued)				
Other values (continued)	50 mV to 120 mV			
	20 Hz to 40 Hz	300 ppm		
	40 Hz to 1 kHz	170 ppm		
	1 kHz to 20 kHz	220 ppm		
	20 kHz to 50 kHz	440 ppm		
	50 kHz to 100 kHz	970 ppm		
	120 mV to 500 mV			
	20 Hz to 40 Hz	130 ppm		
	40 Hz to 1 kHz	230 ppm		
	1 kHz to 20 kHz	270 ppm		
	20 kHz to 50 kHz	410 ppm		
	50 kHz to 100 kHz	950 ppm		
	500 mV to 1.2 V			
	20 Hz to 40 Hz	150 ppm		
	40 Hz to 1 kHz	130 ppm		
	1 kHz to 20 kHz	190 ppm		
	20 kHz to 50 kHz	360 ppm		
	50 kHz to 100 kHz	950 ppm		
	1.2 V to 5 V			
	20 Hz to 40 Hz	410 ppm		
	40 Hz to 1 kHz	230 ppm		
	1 kHz to 20 kHz	270 ppm		
	20 kHz to 50 kHz	410 ppm		
	50 kHz to 100 kHz	950 ppm		
	5.0 V to 12 V			
	20 Hz to 40 Hz	160 ppm		
	40 Hz to 1 kHz	130 ppm		
	1 kHz to 20 kHz	190 ppm		
	20 kHz to 50 kHz	360 ppm		
	50 kHz to 100 kHz	930 ppm		
	12 V to 50 V			
	20 Hz to 40 Hz	460 ppm		
	40 Hz to 1 kHz	320 ppm		
	1 kHz to 20 kHz	320 ppm		
	20 kHz to 50 kHz	460 ppm		
	50 kHz to 100 kHz	0.15 %		
	50 V to 120 V			
	20 Hz to 40 Hz	270 ppm		
	40 Hz to 1 kHz	250 ppm		
	1 kHz to 20 kHz	250 ppm		
	20 kHz to 50 kHz	420 ppm		
	50 kHz to 100 kHz	0.14 %		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL (continued)				Laboratory
AC VOLTAGE (continued)				
Other values (continued)	120 V to 500 V			
	40 Hz to 1 kHz	620 ppm		
	1 kHz to 20 kHz	810 ppm		
	20 kHz to 50 kHz	0.15 %		
	500 V to 1 kV			
	40 Hz to 1 kHz	590 ppm		
	1 kHz to 20 kHz	790 ppm		
	20 kHz to 50 kHz	0.15 %		
AC CURRENT	10 mA to 12 mA			
	20 Hz to 45 Hz	0.25 %		
	45 Hz to 100 Hz	0.11 %		
	100 Hz to 5 kHz	0.060 %		
	12 mA to 50 mA			
	20 Hz to 45 Hz	0.32 %		
	45 Hz to 100 Hz	0.22 %		
	100 Hz to 5 kHz	0.21 %		
	50 mA to 120 mA			
	20 Hz to 45 Hz	0.26 %		
	45 Hz to 100 Hz	0.11 %		
	100 Hz to 5 kHz	0.070 %		
	120 mA to 500 mA			
	20 Hz to 45 Hz	0.33 %		
	45 Hz to 100 Hz	0.24 %		
	100 Hz to 5 kHz	0.26 %		
	500 mA to 1 A			
	20 Hz to 45 Hz	0.27 %		
	45 Hz to 100 Hz	0.14 %		
	100 Hz to 5 kHz	0.18 %		
	1 A to 10 A			
	40 Hz to 1 kHz	0.070 %		
	10 A to 20 A			
	40 Hz to 400 Hz	0.10 %		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
DISTORTION				Laboratory
Distortion Factor	0.1 % to 0.25 % *0.2 V to 0.5 V* *0.5 V to 2 V* *2 V to 300 V* 0.25 % to 0.4 % *0.2 V to 0.5 V* *0.5 V to 2 V* *2 V to 300 V* 0.4 % to 1.0 % *0.2 V to 0.5 V* *0.5 V to 2 V* *2 V to 300 V* 1.0 % to 100 % *0.2 V to 0.5 V* *0.5 V to 2 V* *2 V to 300 V*	 0.083 % distortion factor 0.043 % distortion factor 0.023 % distortion factor 0.068 % distortion factor 0.068 % distortion factor 0.032 % distortion factor 0.17 % distortion factor 0.090 % distortion factor 0.080 % distortion factor 0.90 % distortion factor 0.80 % distortion factor 0.80 % distortion factor	The capabilities for distortion factor relate to fundamental components in the frequency range 20 Hz to 100 kHz.	
FREQUENCY				
Specific values	100 kHz 1 MHz 5 MHz 10 MHz	2.7 parts in 10^{11} 2.7 parts in 10^{11} 5.4 parts in 10^{12} 3.0 parts in 10^{12}		
Other Values	dc to 10 kHz 10 kHz to 1 MHz 1 MHz to 10 MHz 10 MHz to 100 MHz 100 MHz to 1 GHz 1 GHz to 10 GHz 10 GHz to 15 GHz	26 µHz 160 µHz 1.6 mHz 16 mHz 160 mHz 1.6 Hz 3 in 10^{12}	Can be reported as elapsed time for repetitive events. 1/f	
RPM	10 RPM to 12 000 RPM 10 RPM to 100 0000 RPM	0.10 RPM 0.60 RPM	Mechanical Tachometer. Optical Tachometers and Calibrators	
TIME INTERVAL				
Stopwatch calibration	10 s to 24 Hrs	40 ms	Manually Triggered	

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
RF POWER				Laboraory
Signal sources	*300 kHz to 4.2 GHz* + 20 dBm to - 20 dBm	0.27 dB	The stated CMCs relate to the calibration of stable 50 Ω coaxial sources having an output VSWR of 1.01 or less and fitted with Type N connectors.	
Specific frequencies	*2 MHz, 10 MHz, 15 MHz, 25 MHz, 30 MHz, 43 MHz, 50 MHz, 60 MHz, 88 MHz, 100 MHz, 125 MHz, 180 MHz, 200 MHz, 250 MHz, 350 MHz, 400 MHz and 500 MHz* 1 W to 100 W	3.0 %		
	550 MHz 600 MHz 650 MHz, 700 MHz, 750 MHz, 800 MHz, 850 MHz, 900 MHz, 950 MHz 1 GHz 1 W to 100 W	4.0 %		
RF ATTENUATION	0 dB, to 40 dB *50 MHz to 6 GHz*	0.10 dB	The uncertainties for RF attenuation and VRC refer to a 50Ω coaxial system using type N precision connectors	
VOLTAGE REFLECTION COEFFICIENTSWR	1.0 to 1.20 to 0.1 *50 MHz to 61 GHz* *1 GHz to 3 GHz* *3 GHz to 6 GHz*	0.050 0.10 0.15		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
RF CALIBRATION FACTOR				Laboratory
Substitution Method	100 kHz	2.2 %		
	300 kHz	1.9 %	Referenced to 1 mW at 50 MHz	
	500 kHz	1.9 %		
	1 MHz	1.9 %		
	3 MHz	1.8 %		
	5 MHz	1.8 %		
	10 MHz	1.8 %		
	30 MHz	1.8 %		
	100 MHz	1.8 %		
	300 MHz	1.8 %		
	500 MHz	1.8 %		
	1 GHz	1.8 %		
	1.5 GHz	1.9 %		
	2 GHz	1.9 %		
	2.6 GHz	2.1 %		
Splitter method	100 kHz 100 kHz to 4.2 GHz	2.9 %		
	300 kHz	1.7 %	Referenced to 1 mW at 50 MHz	
	500 kHz	1.4 %		
	1 MHz	1.3 %		
	3 MHz	1.3 %		
	10 MHz	1.2 %		
	50 MHz	1.0 %		
	100 MHz	1.1 %		
	300 MHz	1.2 %		
	1 GHz	1.3 %		
	2 GHz	1.3 %		
	3 GHz	1.5 %		
	4.2 GHz	2.1 %		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
CAPACITANCE and DISSIPATION FACTOR				Laboratory
Specific frequencies		C_p (pF) D (tan δ)		
	1 pF			
	1 kHz to 100 kHz	0.0037 0.0027		
	1 MHz	0.0043 0.0029		
	10 pF			
	1 kHz to 100 kHz	0.0032 0.00049	For the calibration of standard four terminal pair capacitors. The CMCs quoted for dissipation factor apply to D values between zero and 0.002	
	1 MHz	0.0028 0.0012		
	100 pF			
	1 kHz to 100 kHz	0.030 0.00033		
	1 MHz	0.056 0.00036		
	1000 pF			
	1 kHz to 100 kHz	0.62 0.00035		
	1 MHz	0.71 0.00035		
OSCILLOSCOPE CALIBRATION				
TIME INTERVAL (Horizontal deflection coefficients)	1 µs	2.5 %		
	5 µs	2.8 %		
	20 µs	2.8 %		
	500 µs	2.2 %		
	1 ms	2.3 %		
	5 ms	2.2 %		
	10 ms	2.3 %		
	50 ms	2.2 %		
	100 ms	2.3 %		
DC AMPLITUDE (Vertical deflection coefficients)	10 mV	1.5 %		
	20 mV	1.1 %		
	50 mV	0.94 %		
	100 mV	0.91 %		
	200 mV	1.1 %		
	500 mV	1.2 %		
	1 V	1.2 %		
	2 V	1.5 %		
	5 V	1.2 %		
	10 V	1.2 %		
RISETIME	1 ns to 10 ns	230 ps	Nominal 25 mV	
	1 ns to 10 ns	228 ps	Nominal 250 mV	
	1 ns to 10 ns	226 ps	Nominal 1 V	
BANDWIDTH	50 kHz to 300 MHz	3.1 %	Digital Oscilloscopes	
		5.0 %	Analogue Oscilloscopes	

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
MASS	Nominal value (g)	(mg)		
Artefacts	26 000 25 000 20 000 10 000 5 000 2 000 1 000 500 200 100 50 20 10 5 2 1 0.5 0.2 0.1 0.05 0.02 0.01 0.005 0.002 0.001	20 20 10 5.4 2.7 1.0 0.53 0.27 0.10 0.053 0.033 0.027 0.020 0.017 0.013 0.010 0.0083 0.0067 0.0053 0.0040 0.0033 0.0027 0.0020 0.0020 0.0020	Substitution Method E2 from 1 mg to 26 kg	Laboratory
Non-Automatic Weighing Machines			Methods consistent with EURAMET CG18	
	5g 10g 20 g 50 g 100 g 200 g 500 g 1 kg 2 kg 5 kg 10 kg 20 kg 50 kg 100 kg 200 kg 250 kg 500 kg	0.023 mg 0.032 mg 0.044 mg 0.073 mg 0.13 mg 0.27 mg 0.69 mg 1.3 mg 3.8 mg 9.6 mg 19 mg 306 mg 770 mg 1.7 g 5.2 g 5.6 g 8.9 g	Weights are available in OIML Class E2 from 1 mg to 20 kg F1 from 1 mg to 20 kg Max grouped load 62 kg M1 From 1 kg to 20 kg Max. grouped load 260 kg Other loads within the overall listed range may also be used Max. grouped load 500 kg	Laboratory & Customers' Sites

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
TEMPERATURE			Calibration by comparison with reference instruments	
Temperature indicators with sensors				
	-60 °C to -30 °C	0.13 °C	In liquid bath	Laboratory
	-30 °C to 0 °C	0.055 °C		
	0 °C	0.038 °C		
	0 °C to 200 °C	0.055 °C		
	200 °C to 300 °C	0.065 °C		
Liquid in glass thermometers				
	-60 °C to -30 °C	0.17 °C		
	-30 °C to 0 °C	0.085 °C		
	0 °C	0.060 °C		
	0 °C to 90 °C	0.075 °C		
	90 °C to 250 °C	0.080 °C		
Calibration of temperature probes in air	0 °C to 70 °C	0.20 °C		
Temperature controlled, chambers, environmental cabinets and ovens and similar apparatus	25 °C to 50 °C	1.2 °C		Site
	50 °C to 200 °C	1.4 °C		
RELATIVE HUMIDITY			Calibration by comparison with reference salt solutions	Laboratory
Hygrometers	35 %rh	1.2 %rh	For the temperature range 15 °C to 30 °C	
	50 %rh	1.2 %rh		
	80 %rh	1.3 %rh		
TORQUE				
Hand torque tools	To BS EN ISO 6789:2:2017		The uncertainty quoted is for both the application of the calibration torque and the characteristics of the device being calibrated. Calibrations may also be given in lbf·in and lbf·ft.	
	1.4 N·m to 1356 N·m	10%		
	To BS EN ISO 6789:2003 (withdrawn)			
	1356 N·m to 6780 N·m	50 N·m		
	680 N·m to 1356 N·m	18 N·m		
	340 N·m to 680 N·m	5.0 N·m		
	135 N·m to 340 N·m	2.5 N·m		
	56 N·m to 135 N·m	1.0 N·m		
	3 N·m to 56 N·m	0.40 N·m		

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
LENGTH				Laboratory
Measuring Instruments and Machines				
Micrometers				
External	As BS 870:2008 0 mm to 25 mm	2.0 µm between any two points		
PRESSURE				
Hydraulic Pressure (Gauge)			Methods consistent with EURAMET CG3 and CG17	
"Pressure equivalent" calibration of dead weight testers.	500 kPa to 3.5 MPa 3.5 MPa to 7 MPa 7 MPa to 70 MPa 70 MPa to 140 MPa	0.012 % + 42 Pa 0.0067 % + 42 Pa 0.0067 % + 42 Pa 0.0072 % + 42 Pa		
Calibration of pressure indicating instruments and gauges	500 kPa to 3.5 MPa 3.5 MPa to 7 MPa 7 MPa to 70 MPa 70 MPa to 140 MPa	0.012 % + 42 Pa 0.0067 % + 42 Pa 0.0067 % + 42 Pa 0.0072 % + 42 Pa	Calibration of pressure measuring devices with an electrical output may be undertaken.	
Pneumatic Pressure (Gauge)				
Calibration of pressure indicating instruments and gauges	-95 kPa to 16 kPa 16 kPa to 172 kPa 172 kPa to 345 kPa 345 kPa to 7 MPa	0.013 % + 4 Pa 0.0082 % 0.0079 % 0.0068 %	Pressure measurements may be expressed in other units of pressure as required.	
Pneumatic Pressure (Absolute)				
Calibration of pressure indicating instruments and gauges	16 kPa to 172 kPa 172 kPa to 345 kPa 345 kPa to 7 MPa	0.0082 % + 1.9 Pa 0.0079 % + 1.9 Pa 0.0068% + 1.9 Pa		
VOLUME			Gravimetric method	
Measuring cylinders	100 ml to 2 l 2 l to 20 l	0.18 ml 6.5 ml		

END

Appendix - Calibration and Measurement Capabilities

Introduction

The definitive statement of the accreditation status of a calibration laboratory is the Accreditation Certificate and the associated Schedule of Accreditation. This Schedule of Accreditation is a critical document, as it defines the measurement capabilities, ranges and boundaries of the calibration activities for which the organisation holds accreditation.

Calibration and Measurement Capabilities (CMCs)

The capabilities provided by accredited calibration laboratories are described by the Calibration and Measurement Capability (CMC), which expresses the lowest uncertainty of measurement that can be achieved during a calibration. If a particular device under calibration itself contributes significantly to the uncertainty (for example, if it has limited resolution or exhibits significant non-repeatability) then the uncertainty quoted on a calibration certificate will be increased to account for such factors. The CIPM-ILAC definition of the CMC is as follows:

A CMC is a calibration and measurement capability available to customers under normal conditions:
(a) as published in the BIPM key comparison database (KCDB) of the CIPM MRA; or
(b) as described in the laboratory's scope of accreditation granted by a signatory to the ILAC Arrangement.

The CMC is normally used to describe the uncertainty that appears in an accredited calibration laboratory's schedule of accreditation and is the uncertainty for which the laboratory has been accredited using the procedure that was the subject of assessment. The CMC is calculated according to the procedures given in M3003 and is normally stated as an expanded uncertainty at a coverage probability of 95 %, which usually requires the use of a coverage factor of $k = 2$. An accredited laboratory is not permitted to quote an uncertainty that is smaller than the published CMC in certificates issued under its accreditation.

The CMC may be described using various methods in the Schedule of Accreditation:

As a single value that is valid throughout the range.
As an explicit function of the measurand or of a parameter (see below).
As a range of values. The range is stated such that the customer can make a reasonable estimate of the likely uncertainty at any point within the range.
As a matrix or table where the CMCs depend on the values of the measurand and a further quantity.
In graphical form, providing there is sufficient resolution on each axis to obtain at least two significant figures for the CMC.

Expression of CMCs - symbols and units

In general, only units of the SI and those units recognised for use with the SI are used to express the values of quantities and of the associated CMCs. Nevertheless, other commonly used units may be used where considered appropriate for the intended audience. For example, the term "ppm" (part per million) is frequently used by manufacturers of test and measurement equipment to specify the performance of their products. Terms like this may be used in Schedules of Accreditation where they are in common use and understood by the users of such equipment, providing their use does not introduce any ambiguity in the capability that is being described.

When the CMC is expressed as an explicit function of the measurand or of a parameter, this often comprises a relative term (e.g., percentage) and an absolute term, i.e. one expressed in the same units as those of the measurand. This form of expression is used to describe the capability that can be achieved over a range of values. Some examples are shown below. It should be noted that these expressions are *not* mathematical formulae but are instead written in a commonly used shorthand for expressing uncertainties - therefore, for purposes of clarity, an indication of how they are to be interpreted is also provided below.

DC voltage, 100 mV to 1 V: 0.0025 % + 5.0 µV

Over the range 100 mV to 1 V, the CMC is 0.0025 %·V + 5.0 µV, where V is the measured voltage.

Hydraulic pressure, 0.5 MPa to 140 MPa: 0.0036 % + 0.12 ppm/MPa + 4.0 Pa

Over the range 0.5 MPa to 140 MPa, the CMC is $0.0036\ \%\cdot p + (0.12\cdot 10^{-6}\cdot p\cdot 10^{-6}) + 4.0$ Pa, where p is the measured pressure in Pa.

It should be noted that the percentage symbol (%) simply represents the number 0.01. In cases where the CMC is stated only as a percentage, this is to be interpreted as meaning percentage of the measured value or indication.

Thus, for example, a CMC of 1.5 % means $1.5 \cdot 0.01 \cdot i$, where i is the instrument indication.