

## Thermometry, New Zealand, MSL (Measurement Standards Laboratory)

Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty					Comments	NMI Service Identifier
Quantity	Instrument or artifact	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?		
Temperature	Mercury triple point cell	Comparison with reference cell(s)	234.3156	234.3156	K	Cryostat		0.38	mK	2	95%	No	Approved on 24 June 2004 Modified on 09 February 2015	T1
Temperature	Gallium melting point cell	Comparison with reference cell(s)	29.7646	29.7646	°C	Temperature controlled furnace		0.13	mK	2	95%	No	Approved on 24 June 2004 Modified on 09 February 2015	T3
Temperature	Indium freezing point cell	Comparison with reference cell(s)	156.5985	156.5985	°C	Temperature controlled furnace		0.52	mK	2	95%	No	Approved on 24 June 2004 Modified on 09 February 2015	T4
Temperature	Tin freezing point cell	Comparison with reference cell(s)	231.928	231.928	°C	Temperature controlled furnace		0.82	mK	2	95%	No	Approved on 24 June 2004 Modified on 09 February 2015	T5
Temperature	Zinc freezing point cell	Comparison with reference cell(s)	419.527	419.527	°C	Temperature controlled furnace		1.90	mK	2	95%	No	Approved on 24 June 2004 Modified on 09 February 2015	T6
Temperature	SPRT	Mercury triple point cell	-38.8344	-38.8344	°C	Fixed point cell		0.40	mK	2	95%	No	Approved on 24 June 2004 Modified on 09 February 2015	T7
Temperature	SPRT	Gallium melting point cell	29.7646	29.7646	°C	Fixed point cell		0.19	mK	2	95%	No	Approved on 24 June 2004 Modified on 09 February 2015	T9
Temperature	SPRT	Indium freezing point cell	156.5985	156.5985	°C	Fixed point cell		0.56	mK	2	95%	No	Approved on 24 June 2004 Modified on 09 February 2015	T10
Temperature	SPRT	Tin freezing point cell	231.928	231.928	°C	Fixed point cell		0.85	mK	2	95%	No	Approved on 24 June 2004 Modified on 09 February 2015	T11
Temperature	SPRT	Zinc freezing point cell	419.527	419.527	°C	Fixed point cell		1.90	mK	2	95%	No	Approved on 24 June 2004 Modified on 09 February 2015	T12



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Quantity	Instrument or artifact	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?		
Temperature	SPRT	Water triple point cell	0.01	0.01	°C			0.12	mK	2	95%	No	Approved on 23 November 2009 Modified on 09 February 2015	
Temperature	IPRTs	Comparison with SPRT in mineral oil bath	-40	60	°C			$(2 + 2E-05 t )$ , $t$ in °C	mK	2	95%	No	Interpolation equation used. Minimum 16 points. Hysteresis measurement. Approved on 16 March 2011	
Temperature	IPRTs	Comparison with SPRT in mineral oil bath	60	200	°C			$(2 + 2E-05t)$ , $t$ in °C	mK	2	95%	No	Interpolation equation used. Minimum 16 points. Hysteresis measurement. Approved on 16 March 2011	
Temperature	IPRTs	Comparison with SPRT in salt oil bath	200	420	°C			$(2 + 2E-05t)$ , $t$ in °C	mK	2	95%	No	Interpolation equation used. Minimum 16 points. Hysteresis measurement. Approved on 16 March 2011	