

**Acoustics, Ultrasound and Vibration, Thailand, NIMT (National Institute of Metrology (Thailand))**



Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					NMI Internal Identifier	Comments
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?		
Pressure sensitivity level	Measurement microphone type LS1P	IEC 61094-2:1992			dB (reference: 1 V/Pa)	Frequency	20 Hz	0.05	dB (reference: 1 V/Pa)	2	95%	No	Approved on 11 January 2013	14010 - 11101
Pressure sensitivity level	Measurement microphone type LS1P	IEC 61094-2:1992			dB (reference: 1 V/Pa)	Frequency	31.5 Hz to 4 kHz	0.04	dB (reference: 1 V/Pa)	2	95%	No	Approved on 11 January 2013	14010 - 11101
Pressure sensitivity level	Measurement microphone type LS1P	IEC 61094-2:1992			dB (reference: 1 V/Pa)	Frequency	8 kHz	0.06	dB (reference: 1 V/Pa)	2	95%	No	Approved on 11 January 2013	14010 - 11101
Pressure sensitivity level	Measurement microphone type LS1P	IEC 61094-2:1992			dB (reference: 1 V/Pa)	Frequency	10 kHz	0.07	dB (reference: 1 V/Pa)	2	95%	No	Approved on 11 January 2013	14010 - 11101
Pressure sensitivity level	Measurement microphone type LS2P	IEC 61094-2:1992			dB (reference: 1 V/Pa)	Frequency	20 Hz	0.10	dB (reference: 1 V/Pa)	2	95%	No	Approved on 11 January 2013	14010 - 11102
Pressure sensitivity level	Measurement microphone type LS2P	IEC 61094-2:1992			dB (reference: 1 V/Pa)	Frequency	31.5 Hz	0.06	dB (reference: 1 V/Pa)	2	95%	No	Approved on 11 January 2013	14010 - 11102
Pressure sensitivity level	Measurement microphone type LS2P	IEC 61094-2:1992			dB (reference: 1 V/Pa)	Frequency	63 Hz to 12.5 kHz	0.04	dB (reference: 1 V/Pa)	2	95%	No	Approved on 11 January 2013	14010 - 11102
Pressure sensitivity level	Measurement microphone type LS2P	IEC 61094-2:1992			dB (reference: 1 V/Pa)	Frequency	16 kHz	0.05	dB (reference: 1 V/Pa)	2	95%	No	Approved on 11 January 2013	14010 - 11102
Pressure sensitivity level	Measurement microphone type LS2P	IEC 61094-2:1992			dB (reference: 1 V/Pa)	Frequency	20 kHz	0.08	dB (reference: 1 V/Pa)	2	95%	No	Approved on 11 January 2013	14010 - 11102
Sound pressure level	Pistonphone or sound calibrator, single frequency (250 Hz to 1 kHz)	IEC 60942: 2003 comparison using insert voltage technique	94	124	dB (reference: 20 µPa)	Frequency	250 Hz and 1 kHz	0.08	dB (reference: 20 µPa)	2	95%	No	Approved on 11 January 2013	14010 - 12101
						Microphone type	IEC 61094-1 LS1P or LS2P							

**Acoustics, Ultrasound and Vibration, Thailand, NIMT (National Institute of Metrology (Thailand))**



Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					NMI Internal Identifier	Comments
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?		
Sound pressure level	Sound calibrator, multi frequency	IEC 60942: 2003 comparison using insert voltage technique	94	114	dB (reference: 20 µPa)	Frequency	31.5 Hz	0.09	dB (reference: 20 µPa)	2	95%	No	Approved on 11 January 2013	14010 - 12201
						Microphone type	IEC 61094-1 LS2P							
Sound pressure level	Sound calibrator, multi frequency	IEC 60942: 2003 comparison using insert voltage technique	94	114	dB (reference: 20 µPa)	Frequency	63 Hz to 8 kHz	0.09	dB (reference: 20 µPa)	2	95%	No	Approved on 11 January 2013	14010 - 12201
						Microphone type	IEC 61094-1 LS2P							
Sound pressure level	Sound calibrator, multi frequency	IEC 60942: 2003 comparison using insert voltage technique	94	114	dB (reference: 20 µPa)	Frequency	12.5 kHz	0.10	dB (reference: 20 µPa)	2	95%	No	Approved on 11 January 2013	14010 - 12201
						Microphone type	IEC 61094-1 LS2P							
Sound pressure level	Sound calibrator, multi frequency	IEC 60942: 2003 comparison using insert voltage technique	94	114	dB (reference: 20 µPa)	Frequency	16 kHz	0.14	dB (reference: 20 µPa)	2	95%	No	Approved on 11 January 2013	14010 - 12201
						Microphone type	IEC 61094-1 LS2P							
Free-field response level	Sound level meter	IEC 61672-1: 2002 sequential comparison			dB (reference: 20 µPa)	Frequency	31.5 Hz to 63 Hz	0.4	dB (reference: 20 µPa)	2	95%	No	Approved on 11 January 2013	14010 - 13201
Free-field response level	Sound level meter	IEC 61672-1: 2002 sequential comparison			dB (reference: 20 µPa)	Frequency	> 63 Hz to 2 kHz	0.2	dB (reference: 20 µPa)	2	95%	No	Approved on 11 January 2013	14010 - 13201
Free-field response level	Sound level meter	IEC 61672-1: 2002 sequential comparison			dB (reference: 20 µPa)	Frequency	> 2 kHz to 10 kHz	0.3	dB (reference: 20 µPa)	2	95%	No	Approved on 11 January 2013	14010 - 13201
Free-field response level	Sound level meter	IEC 61672-1: 2002 sequential comparison			dB (reference: 20 µPa)	Frequency	> 10 kHz to 16 kHz	0.4	dB (reference: 20 µPa)	2	95%	No	Approved on 11 January 2013	14010 - 13201

## Acoustics, Ultrasound and Vibration, Thailand, NIMT (National Institute of Metrology (Thailand))



Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					NMI Internal Identifier	Comments
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?		
Charge sensitivity (modulus)	Accelerometer	Laser interferometry, ISO 16063-11			C/(m/s <sup>2</sup> )	Frequency	40 Hz	0.6	%	2	95%	Yes	Approved on 25 April 2019	14020-13101
Charge sensitivity (modulus)	Accelerometer	Laser interferometry, ISO 16063-11			C/(m/s <sup>2</sup> )	Frequency	> 40 Hz to 800 Hz	0.5	%	2	95%	Yes	Approved on 25 April 2019	14020-13101
Charge sensitivity (modulus)	Accelerometer	Laser interferometry, ISO 16063-11			C/(m/s <sup>2</sup> )	Frequency	> 800 Hz to 5 kHz	0.8	%	2	95%	Yes	Approved on 25 April 2019	14020-13101
Voltage sensitivity (modulus)	Accelerometer	Laser interferometry, ISO 16063-11			V/(m/s <sup>2</sup> )	Frequency	40 Hz	0.6	%	2	95%	Yes	Approved on 25 April 2019	14020-13301
Voltage sensitivity (modulus)	Accelerometer	Laser interferometry, ISO 16063-11			V/(m/s <sup>2</sup> )	Frequency	> 40 Hz to 800 Hz	0.5	%	2	95%	Yes	Approved on 25 April 2019	14020-13301
Voltage sensitivity (modulus)	Accelerometer	Laser interferometry, ISO 16063-11			V/(m/s <sup>2</sup> )	Frequency	> 800 Hz to 5 kHz	0.8	%	2	95%	Yes	Approved on 25 April 2019	14020-13301
Charge sensitivity (modulus)	Accelerometer	Comparison ISO 16063-21			C/(m/s <sup>2</sup> )	Frequency	40 Hz to 5 kHz	1.0	%	2	95%	Yes	Approved on 25 April 2019	14020-13102
Acceleration output (modulus)	Acceleration calibrator	Comparison ISO 16063-21	1	100	m/s <sup>2</sup>	Frequency	40 Hz to 5 kHz	1.0	%	2	95%	Yes	Approved on 25 April 2019	14020-12101
Acceleration (modulus)	Acceleration measuring instrument	Comparison ISO 16063-21	1	100	m/s <sup>2</sup>	Frequency	40 Hz to 5 kHz	1.0	%	2	95%	Yes	Approved on 25 April 2019	14020-11101