



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
1	DC Voltage Standard	1.018 V	0.9 $\mu$ V/V	12,500/piece + 6,750/next point	Compared against DC voltage reference standard	09010-10110
		10 V	0.4 $\mu$ V/V			
		1 V	0.9 $\mu$ V/V			
	Standard Cell	1 V / 1.018 V	0.9 $\mu$ V/V	12,500/piece		09010-10111
2	DC Voltage Standard	0.1 V	0.6 $\mu$ V/V	36,000/piece	Compared against conventional Josephson voltage standard (Uncertainty depends on noise of Unit Under Calibration)	09010-10112
		1 V / 1.018 V	0.03 $\mu$ V/V			
		10 V	0.01 $\mu$ V/V			
3	DC Voltmeter	-10 mV to 10 mV	18 $\mu$ V/V to 174 $\mu$ V/V	15,000/range + 7,500/next range	Direct comparison with conventional Josephson voltage standard (Uncertainty depends on noise of Unit Under Calibration)	09010-10113
		-100 mV to 100 mV	1.8 $\mu$ V/V to 18 $\mu$ V/V			
		-1 V to 1 V	0.18 $\mu$ V/V to 1.8 $\mu$ V/V			
		-10 V to 10 V	0.02 $\mu$ V/V to 0.20 $\mu$ V/V			
4	DC Voltage Standard	0.1 V	0.6 $\mu$ V/V	40,000/2 points +8,000/next point	Compared against programmable Josephson voltage standard (Uncertainty depends on noise of Unit Under Calibration)	09010-10114
		1 V / 1.018 V	0.03 $\mu$ V/V			
		10 V	0.01 $\mu$ V/V			
5	Picoammeter	2 pA to 200 mA	0.1 mA/A to 0.01 mA/A	6,750 to 11,250/piece	Used volt-ampere method.	09010-10320
6	Electrometer	2 nC to 200 $\mu$ C	0.1 mC/C	6,750 to 11,250/ piece		09010-10321
7	DC Current Source	10 $\mu$ A, 100 $\mu$ A	5.0 $\mu$ A/A	9,000 THB first point + 2,500 THB next point	Volt Ampere method	09010-03111
		1 mA, 10 mA, 100 mA, 1 A, 10 A, 20 A	5.0 $\mu$ A/A to 14 $\mu$ A/A			09010-03121
		30 A, 100 A, 200 A	14 $\mu$ A/A to 20 $\mu$ A/A			09010-03131
8	DC Current Meter	10 $\mu$ A, 100 $\mu$ A	5.0 $\mu$ A/A	9,000 THB first point + 2,500 THB next point	Volt Ampere method	09010-03211
		1 mA, 10 mA, 100 mA, 1 A, 10 A, 20 A	5.0 $\mu$ A/A to 14 $\mu$ A/A			09010-03221
		30 A	14 $\mu$ A/A			09010-03231
9	AC/DC Transfer Standard	AC-DC Transfer Difference 2 mV to 20 V Frequency: 10 Hz to 1 MHz	6 $\mu$ V/V to 0.22 mV/V	136,250/item	11,250 THB for 5 points and add 5,000 THB for another points	09020-10510
		AC-DC Transfer Difference > 20 V to 1000 V Frequency: 10 Hz to 100 kHz				
10	Thermal Transfer Standard	AC-DC Transfer Difference 0.5 V to 20 V Frequency: 10 Hz to 1 MHz	6 $\mu$ V/V to 0.22 mV/V	11,250 to 136,250/item	11,250 THB for 5 points and add 5,000 THB for another points	09020-10511
		AC-DC Transfer Difference > 20 V to 1000 V Frequency: 10 Hz to 100 kHz				
11	Thermal Voltage Converter Standard	AC-DC Transfer Difference 0.5 V to 20 V Frequency: 10 Hz to 1 MHz	6 $\mu$ V/V to 0.22 mV/V	11,250/item		09020-10512
		AC-DC Transfer Difference > 20 V to 1000 V Frequency: 10 Hz to 100 kHz				
12	AC Measurement Standard	AC-DC Transfer Difference 10 mV to 20 V Frequency: 10 Hz to 1 MHz	6 $\mu$ V/V to 0.12 mV/V	67,500 to 91,250 /item	11,250 THB for 5 points and add 5,000 THB for another points Excluded WB option.	09020-10520
		AC-DC Transfer Difference > 20 V to 1000 V Frequency: 10 Hz to 100 kHz				
		AC Voltage 10 mV to 20 V	6 $\mu$ V/V to 0.12 mV/V	92,500 to 116,250 /item	11,250 THB for 5 points	09020-10521



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
		Frequency: 10 Hz to 1 MHz AC Voltage > 20 V to 1000 V Frequency: 10 Hz to 100 kHz			and add 5,000 THB for another points Included WB option.	
13	Alternating Voltage Measurement Standard	AC Voltage 100 mV to 20 V Frequency: 10 Hz to 1 MHz AC Voltage > 20 V to 1000 V Frequency: 10 Hz to 100 kHz	11 $\mu$ V/V to 0.18 mV/V	67500/item		09020-10522
14	AC Voltage Current Standard	AC Voltage 100 mV to 1000V Frequency 60 Hz and 400 Hz AC Current 100 mA to 30 A Frequency 60 Hz and 400 Hz	18 $\mu$ V/V to 0.58 mV/V 50 $\mu$ A/A to 0.12 mA/A	18,130 to 21,700/item		09020-10560



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
15	Multifunction Transfer Standard	AC Voltage 100 mV to 20 V Frequency: 10 Hz to 1 MHz	11 $\mu$ V/V to 0.18 mV/V	78750/item		09020-10561
		AC Voltage > 20 V to 1000 V Frequency: 10 Hz to 100 kHz	50 $\mu$ A/A to 0.12 mA/A			
		AC Current 100 $\mu$ V to 10 A Frequency: 10 Hz to 10 kHz				
16	AC Current Shunt	AC-DC Transfer Difference 5 mA to 100 A Frequency: 10 Hz to 100 kHz	18 $\mu$ A/A to 0.20 mA/A	6,750 to 11,250/item		09020-10610
17	AC-DC current transfer standard	30 A to 100 A	$\geq$ 23 mA/A	11,250 / range	AC-DC current transfer	09020-10611
18	Low level ac-dc voltage transfer by micro potentiometer	2 mV to 200 mV	$\geq$ 44 mV/V	66,250 /item	AC-DC voltage transfer	09020-10612
19	Wideband calibration source characterize	Wideband output 3.2 V  Frequency 10 Hz to 30 MHz	0.058 mV/V to 2.0 mV/V	11,250 / item	For Calibrator	09020-10613
20	Wideband function of AC measurement standard	Flatness error 1 mV to 3.2 V Wideband gain @ 1 kHz Wideband gain error Frequency 10 Hz to 30 MHz	0.084 mV/V to 2.0 mV/V 0.12 mV/V to 2.8 mV/V 0.15 mV/V to 2.8 mV/V	11,250/piece	For AC measurement standard	09020-10614
21	AC/DC transconductance amplifier	DC current: 0 A to 100 A AC current: 500 mA to 100 A Frequency 10 Hz to 100 kHz	27 $\mu$ A/A to 87 $\mu$ A/A	91,250 / item	For AC and DC output	09020-10615
22	DC Standard Resistor	1 k $\Omega$	0.04 $\mu\Omega/\Omega$	42,500/item	Compared against QHR standard maintain by NIMT using automatic resistance bridge.	09030-10210
23	Standard Resistor 1 $\Omega$	1 $\Omega$ at 50 mA	$\geq$ 0.21 $\mu\Omega/\Omega$	8,625/piece	Used a group of 1 $\Omega$ standard.	09030-10211
24	Standard Resistor 10 k $\Omega$	10 k $\Omega$ at 0.3 mA	$\geq$ 1.4 $\mu\Omega/\Omega$	8,625/piece	Used a group of 10 k $\Omega$ standard.	09030-10212
25	Standard Resistor 100 $\mu\Omega$	100 $\mu\Omega$ at 200 A	As Specification	10,000/piece	Used DCC bridge and 400 Amp range extender.	09030-10213
26	Standard Resistor (Calibrate in oil or in air)	1 m $\Omega$ to 10 k $\Omega$	As specification	6,750/item	Used DCC bridge and 100 Amp range extender. Voltage-Ratio Method Using Automatic High Resistance Bridge Using Dual Source High Resistance Ratio Bridge	09030-10214
		0.1 m $\Omega$ to 100 m $\Omega$	As Specification	7,880/item		09030-10231
		>10 k $\Omega$ to 1G $\Omega$	$\leq$ 500 $\mu\Omega/\Omega$	7,880/item		09030-10215
		1 G $\Omega$ to 1 T $\Omega$	37 $\mu\Omega/\Omega$ to 1.25 m $\Omega/\Omega$	7,880/item		09030-10216 09030-10217
		1 T $\Omega$ to 100 T $\Omega$	$>$ 1.25 m $\Omega/\Omega$ to 24.4 m $\Omega/\Omega$	7,880/item		
		0 $\Omega$ to 1 T $\Omega$	As specification	2,250/point test		
		10 T $\Omega$ at 100 V, 200 V 500 V and 1000 V	3 m $\Omega/\Omega$	2,250/point test		
27	Resistance Calibrator	0 $\Omega$ to 100 M $\Omega$	As specification	20,000/piece		09031-10210
28	Standard Resistor	Test Voltage: maximum 2500 V Range 100 M $\Omega$ to 1 T $\Omega$	As Specification	2,250 / point	Used Volt Amp Method	09031-10211
29	High Resistance Meter	Upto 100 T $\Omega$	As specification	2,250 / point	Direct	09030-10220
30	Digital Thermometer (indicator)	up to 10 M $\Omega$	$\leq$ 5 $\mu\Omega/\Omega$	(22,500 to 29,250)/item		09030-10221 09030-10222
		DCI 0 - 100 mA	$\leq$ 60 $\mu\Omega/\Omega$			
		up to 10 M $\Omega$	$\geq$ 5 $\mu\Omega/\Omega$	(9,000 to 18,000)/item		



National Institute of Metrology (Thailand)

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

Price List

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
		DCV 0 -100 mV	$\geq 20 \mu\Omega/\Omega$			
31	Low Resistance meter	Range 1 k $\Omega$ maximum Current 0.5 A	As Specification	2,250 / point	Direct measurement	09030-10223
		Range 100 $\Omega$ maximum Current 1 A				
		Range 10 $\Omega$ maximum Current 5 A				
		Range 1 $\Omega$ maximum Current 10 A				
		Range 0.1 $\Omega$ maximum Current 20 A				
		Range 0.01 $\Omega$ maximum Current 30 A				
		Range 1 m $\Omega$ maximum Current 100 A				
32	High Resistance Meter	Test Voltage: maximum 5000 V	As Specification	2,250 / point		09030-10224
		Range 10 M $\Omega$ , 20 M $\Omega$ and 50 M $\Omega$				
		Range 100 M $\Omega$ , 200 M $\Omega$ and 500 M $\Omega$				
		Range 1 G $\Omega$ , 2 G $\Omega$ and 5 G $\Omega$				
		Range 10 G $\Omega$ , 20 G $\Omega$ and 50 G $\Omega$				
		Range 100 G $\Omega$ , 200 G $\Omega$ and 500 G $\Omega$				
33	Low Resistance meter (High Current)	:100 m $\Omega$ , 200 m $\Omega$ , 400 n $\Omega$ , 600 m $\Omega$ and : 1 m $\Omega$ , 2 m $\Omega$ , 4 m $\Omega$ , 6 m $\Omega$ and 8 m $\Omega$ @ Max 100 A	As Specification	2,250 / point		09030-10225
		: 10 m $\Omega$ , 20 m $\Omega$ , 40 m $\Omega$ , 60 m $\Omega$ and 80 m $\Omega$ @ Max 60 A				
		: 0.1 $\Omega$ , 0.2 $\Omega$ , 0.4 $\Omega$ , 0.6 $\Omega$ and 0.8 $\Omega$ @ Max 10 A				
		: 1 $\Omega$ , 2 $\Omega$ , 4 $\Omega$ , 6 $\Omega$ , 8 $\Omega$ and 16 $\Omega$ @ Max 1 A				
		: 40 $\Omega$ , 80 $\Omega$ @ Max 1 A				
34	Low Resistance Meter	Range 1 m $\Omega$ to 10 M $\Omega$	As Specification	2,250 / point		09030-10226
35	High Resistance meter	Range 10 M $\Omega$ to 10 T $\Omega$ Maximum test Voltage: 5 kV	As Specification	2,250 / point		09030-10227
36	Decade Resistance 0.001 $\Omega$ to <1 $\Omega$	0.001 $\Omega$ to <1 $\Omega$	As Specification	7,000/knob	Direct measurement	09030-10228
37	Decade Resistance 1 $\Omega$ to <1 M $\Omega$	1 $\Omega$ to <1 M $\Omega$	As Specification	10,000/knob	Direct measurement	09030-10229
38	Decade Resistance 1 M $\Omega$ to <10 T $\Omega$	1 M $\Omega$ to <10 T $\Omega$	As Specification	10,000/knob	Direct measurement	09030-10230
39	Standard Watt Converter	Volt : 600 V Current : 100 A	> 60 $\mu$ W/VA	18,000 to 39,500/item		09050-10710



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
		AC Power : 60 kW Frequency : 50 Hz, 60 Hz Power Factor : $\pm 0$ to 1				
40	AC Wattmeter, Digital Power Meter	Volt : 1000 V Current : 80 A AC Power : 80 kW Frequency : 15 Hz to 450 Hz Power Factor : $\pm 0$ to 1	$> 100 \mu W/VA$	6,750 to 13,500/Channel		09050-10711
41	Energy Meter single phase/ three phase with pulse	Active energy per phase 0.06525 Ws to 4,800,000 Ws Voltage 15 V to 1000 V Current 0.01 A to 80 A Power Factor 1 to 0.087 (Inductive or Capacitive) Frequency 45 Hz to 65 Hz Measurement time 5s to 60 s	$\geq 60 \mu Ws/ VAs$ to $\geq 665 \mu Ws/ VAs$	single phase 5,000 to 35,000 / channel three phase 6,250 THB to 51,250 THB		09050-10712
42	Electrical Power Source	Power 1.5 W to 60 kW Frequency 50 Hz to 60 Hz Power Factor 1 to 0 (Inductive or Capacitive)  Voltage 3 V to 1000 V  Current 0.05 A to 100 A  Frequency 15 Hz to 6 kHz	Power $\geq 70 \mu W/VA$  Voltage $\geq 30 \mu V/V$  Current $\geq 30 \mu A/A$  Phase $\geq 0.005^\circ$	9,000 to 45,000/item		09050-10713
43	DC Power Meter	Power: 1mW to 20 kW Voltage : 100 mV to 1000 V  Current : 10 mA to 20 A	$\geq 40 \mu W/ W$	6,750 to 13,500/Channel		09050-10714
44	Energy Source	Energy 41.67 mWh to 3.333 kWh Power: 0.5 W to 20 kW Voltage: 10 V to 1000 V Current: 0.05 A to 20 A  Power Factor: 1	$> 0.12 \%$	5,000 to 15,000 / item		09050-10715



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
		Frequency: 50 Hz to 60 Hz  Time : 5 minute to 10 minute				
45	Three Phase Watt Meter,  Three Phase AC Power Meter, Three Phase Comparator	Power : 4.5 W to 240 kW  Voltage : 15 V to 1000 V Current : 0.1 A to 80 A Power Factor : 1 to 0 (Inductive, Capacitive) Frequency : 50 Hz to 60 Hz	100 $\mu$ W/VA to  370 $\mu$ W/VA	5,000 to 55,500 /Channel		09050-10716
46	Single phase / Three phase energy meter	Energy : (0.0625 Wh to 5000 kWh) / phase Power : (0.75 W to 50 kW) / phase  Voltage : 15 V to 1000 V Current : 0.1 A to 50 A Power Factor : 1 to 0.5 (Inductive, Capacitive)  Frequency : 50 Hz to 60 Hz  Time : 300 sec to 100 hours	Single phase @ 300 s 515 $\mu$ Wh/Wh  to 565 $\mu$ Wh/Wh Three phase @ 300 s  570 $\mu$ Wh/Wh  to 665 $\mu$ Wh/Wh	5,000 to 30,000 /Channel		09050-10717
47	Single Phase / Three Phase Watt Meter	AC Power : 0 W to 172.8 kW (three phase)  : 0 W to 57.6 kW (per phase) Voltage : 10 V to 480 V  Current : 0.001 A to 120 A	0.12 % for single phase  0.20 % for three phase	5,000 to 25,000 / channel	High burden  Direct measurement	09050-10718



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
		Power Factor : 1 to 0 (Inductive, capacitive) Frequency : 50 Hz to 60 Hz				
48	AC Power Source (On-site)	AC Power : 0.15 W to 76.8 kW  Voltage : 60 V to 480 V Current : 0.005 A to 160 A Power Factor : 1 to 0.5 (Inductive) Frequency : 50 Hz to 60 Hz	100 $\mu$ W/W  to 215 $\mu$ W/W	5,000 to 28,000 /Channel	Direct measurement	09050-30710
49	Single phase energy meter, Single phase power meter, Three phase energy meter, Three phase power meter  (On-site)	Energy : (0.01875 Wh to 76.8 kWh)/phase Power : (0.0375 W to 76.8 kW)/phase  Voltage: 15 V to 480 V Current : 0.005 A to 160 A  PF : 1 to 0.5 (Inductive) Frequency : 50 Hz to 60 Hz Time : 30 min to 1 hour	<u>Single/Three phase (<math>\leq</math> 5 A)</u> Power $\geq$ 400/450 $\mu$ W/W  Energy $\geq$ 400/550 $\mu$ Wh/Wh  <u>Single phase (<math>&gt;</math> 5 A to 50 A)</u> Power $\geq$ 200 $\mu$ W/W Energy $\geq$ 400 $\mu$ Wh/Wh  <u>Single phase (<math>&gt;</math> 50 A to 160 A)</u> Power $\geq$ 300 $\mu$ W/W Energy $\geq$ 500 $\mu$ Wh/Wh	2,500 to 10,000 /Channel	Comparison measurement  1. $\leq$ 5 A : single and three phases  2. $>$ 5 A to 160 A : single phase	09050-30711
50	Phase Meter	Phase Angle : 0.000 $^{\circ}$ to + 360.000 $^{\circ}$ Frequency : 15 Hz to 100 kHz Amplitude (rms) : 50 mV to 120 V	$>$ 0.01 $^{\circ}$	9,000 to 27,000/item		09050-10920
51	Phase Source	Phase Angle : 0.000 $^{\circ}$ to 999.999 $^{\circ}$  Frequency : 10 Hz to 100 kHz Amplitude (rms) : 50 mV to 120 V	$>$ 0.005 $^{\circ}$	18,000 to 45,000/item		09050-10921
52	Phase Meter Current Shunt	Range : 0.1 A to 50 A  Phase Angle : 0.000 $^{\circ}$ to $\pm$ 180 $^{\circ}$ Frequency : 16 Hz to 850 Hz	$\geq$ 0.002 $^{\circ}$	5,000 (5 pts)  + 800 / point		09050-10922



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
53	Power Analyzer, Harmonics and Flicker	Output Voltage : 1020 V Output Current : 80 A  Frequency : 20 Hz and up to 1 kHz Harmonics : 100 <sup>th</sup> , up to 6 kHz Flicker : 16 Hz to 9 kHz	Voltage > 100 $\mu$ V/V Current > 150 $\mu$ A/A Power > 200 $\mu$ W/VA  Frequency > 50 $\mu$ Hz/Hz	6,750 to 13,500/channel		09050-10930
54	Power Analyzer, Dips/ Swells	Voltage: 10 V to 1000 V Current Current : 0.05 A to 20A Dip/Swell amplitude : 10 % to 140 % of nominal amplitude  Time : 1 ms to 1 minute Frequency : 16 Hz to 850 Hz	$\geq 0.07$ %	2,250 to 9,000/ channel		09050-10931
55	Harmonic Current Meter	Current : 1 A to 120 A  Fund. Frequency : 50 Hz and 60 Hz  Harmonic current : 0.1 % to 10 % of fundamental  Harmonics : 1st to 40th,  Har. Frequency : 50 Hz to 2.4 kHz	<u>Harmonic &lt; 1 % of Fundamental</u> 0.07 % <u>Harmonic <math>\geq 1</math> % of Fundamental</u> 5.80 %	5,000 to 27,500/ channel	High burden  Direct measurement	09050-10932
56	Harmonics Power Source	Harmonics Power (0.0025 to 10) % of Fundamental Power Power Factor of Harmonics 1 to 0.5, Inductive or Capacitive Harmonics order : 2nd to 100th  Total Power : 20 W to 50 kW  Total Voltage : 50 V to 1000 V  Total Current : 0.8 A to 50 A  Power Factor of Fundamental 1 to 0.5, Inductive or Capacitive Fundamental Frequency : 50 Hz to 60 Hz	0.32 mW/W to 8.2 mW/W	10,000 THB/channel (10 points)	1) Additional fee: 750 THB/ additional point 2) Digital sampling technique	09050-10933
57	DC Power Meter (20 A to 200 A)	Power: 200 W to 200 kW  Voltage : 10 V to 1000 V	160 $\mu$ W/W to 325 $\mu$ W/W	7,500 THB (2 points)  / channel	7,500 THB for 2 points  2,500 THB/point for additional point	09050-10719



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
		Current : 20 A to 200 A				
58	Wattmeter AC Power Meter Power Comparator (Single Phase)	Power : 0 W to 12 kW Voltage: 60 V to 480 V Current : 0.1 A to 50 A PF: 1 to 0 (Inductive or Capacitive) Frequency : 50 Hz to 60 Hz	50 $\mu$ W/VA to 65 $\mu$ W/VA	5,000 THB to 25,000 THB / channel	Comparison measurement	09050-10720
59	Energy Meter with Pulse (Single phase or Three phase)	Energy: 1.05 mWh to 833.3 Wh per phase Power: 0.75 W to 50 kW per phase Voltage: 15 V to 1000 V Current : 0.1 A to 50 A PF: 1 to 0.5 (inductive or Capacitive) Frequency : 50 Hz to 60 Hz Time : 5 s to 60 s	90 $\mu$ Wh/Wh to 160 $\mu$ Wh/Wh	5,000 THB to 30,000 THB / channel	Pulse comparison	09050-10721
60	Wattmeter AC Power Meter Wattmeter with AC Current Clamp AC Power Meter with AC Current Clamp (80 A to 120 A) (1 phase or 3 phase)	Power : 0 W to 120 kW per phase Voltage: 15 V to 1000 V Current : 80 A to 120 A PF: 1 to 0 (inductive or Capacitive) Frequency : 50 Hz to 60 Hz	135 $\mu$ W/VA to 205 $\mu$ W/VA	5,000 THB to 25,000 THB / channel		09050-10722
61	Wattmeter with AC Current Clamp AC Power Meter with AC Current Clamp (500 A to 6000 A)	Power : 3.75 kW to 6000 kW per phase Voltage: 15 V to 1000 V Current : 500 A to 6000 A	5.6 mW/W to 6.8 mW/W	7,500 THB for 1st point 3,750 THB/point for additional point	Current coil used	09050-10723



National Institute of Metrology (Thailand)

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

Price List

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
	(1 phase or 3 phase)	PF: 1 to 0.5 (inductive) Frequency : 50 Hz to 60 Hz		/ channel		
62	Single Phase AC Wattmeter Single Phase AC Power Meter	Reactive Power : 0 var to 50 kvar Voltage: 15 V to 1000 V Current : 0.1 A to 50 A QF: 1 to 0 (inductive or capacitive) Frequency : 50 Hz to 60 Hz	60 $\mu$ var/VA to 125 $\mu$ var/VA	5,000 THB to 25,000 THB / channel	Direct measurement	09050-10724
63	Three Phase AC Wattmeter Three Phase AC Power Meter Three Phase Power Comparator	Reactive Power : 0 var to 150 kvar Voltage: 15 V to 1000 V Current : 0.1 A to 50 A QF: 1 to 0 (inductive or capacitive) Frequency : 50 Hz to 60 Hz	60 $\mu$ var/VA to 125 $\mu$ var/VA	5,000 THB to 25,000 THB	Direct measurement	09050-10725
64	Single Phase Energy Meter with Pulse Output	Reactive Energy: 0.06525 vars to 4800000 vars varh Voltage: 15 V to 1000 V Current : 0.01 A to 80 A QF: 1 to 0.087 (inductive or capacitive) Frequency : 45 Hz to 65 Hz Time : 5 s to 60 s	$\geq 60 \mu$ vars/ VAs to $\geq 665 \mu$ vars/ VAs	5,000 to 35,000 THB/ channel	Pulse comparison	09050-10726
65	Three Phase Energy Meter with Pulse Output	Reactive Energy: 0.19575 vars to 14,400,000 vars varh Voltage: 15 V to 1000 V	$\geq 60 \mu$ vars/ VAs to $\geq 665 \mu$ vars/ VAs	6,250 THB to 51,250 THB	Pulse comparison	09050-10727



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
		Current : 0.01 A to 80 A QF: 1 to 0.087 (inductive or capacitive) Frequency : 45 Hz to 65 Hz Time : 5 s to 60 s				
66	Single Phase Energy Meter (No Pulse)	Reactive Energy: 0.0625 varh to 16.667 kvarh Power: 0.75 var to 50 kvar Voltage: 15 V to 1000 V Current : 0.1 A to 50 A QF: 1 to 0.5 (inductive or capacitive) Frequency : 50 Hz to 60 Hz Time : 300 s to 1200 s	200 $\mu$ varh/varh to 600 $\mu$ varh/varh	5,000 THB to 15,000 THB / channel	Energy Packet	09050-10728
67	Three Phase Energy Meter (No Pulse)	Reactive Energy: 0.1875 varh to 50 kvarh Power: 0.75 var to 50 kvar Voltage: 15 V to 1000 V Current : 0.1 A to 50 A QF: 1 to 0.5 (inductive or capacitive) Frequency : 50 Hz to 60 Hz	200 $\mu$ varh/varh to 600 $\mu$ varh/varh	5,000 THB to 15,000 THB	Energy Packet	09050-10729
68	AC Voltage of Electrical Power Source	AC Voltage 0.1 V to 1000 V Frequency 10 Hz to 1 kHz	30 $\mu$ V/V	5,000 THB to 50,000 THB / channel	Digital Sampling Watt Meter, DSWM Method	09050-10730
69	AC Current of Electrical Power Source	AC Current 0.01A to 100 A Frequency 10 Hz to 1 kHz	40 $\mu$ A/A	5,000 THB to 50,000 THB / channel	Digital Sampling Watt Meter, DSWM Method	09050-10731
70	AC Voltage of AC power meter, or AC wattmeter	Voltage: 5 V to 1000 V	0.049 mV/V	2,500 THB to 25,000 THB	Direct measurement Method	09050-10732



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
		Frequency: 16 Hz to 850 Hz	to 0.31 mV/V	/ channel		
71	AC Current of AC power meter, or AC wattmeter	Current: 0.01 A to 20 A	0.061 mA/A	2,500 THB to 25,000 THB	Direct measurement Method	09050-10733
		Frequency: 16 Hz to 850 Hz Current: > 20 A to 80 A Frequency: 40 Hz to 850 Hz	to 0.177 mA/A	/ channel		
72	DC Power of Wattmeter	Power : 0.01 mW to 20 kW	0.15 mW/W	2,500 THB to 25,000 THB	Direct measurement Method	09050-10734
		Voltage: 0.01 V to 1000 V Current : 0.001 mA to 20 A	to 1.2 mW/W	/ channel		
73	DC Voltage of Wattmeter	Voltage: 0.01 V to 1000 V	0.02 mV/V	2,500 THB to 25,000 THB	Direct measurement Method	09050-10735
			to 0.16 mV/V	/ channel		
74	DC Current of Wattmeter	Current: 0.01 A to 20 A	0.15 mA/A	2,500 THB to 25,000 THB	Direct measurement Method	09050-10736
			to 1.2 mA/A	/ channel		
75	AC Voltage for VT with Wattmeter	AC Voltage 5 V to 1000 V Frequency 16 Hz to 850 Hz	0.051 mV/V to 0.086 mV/V	5,000 THB to 15,000 THB / channel	Direct measurement	09050-10737
76	Harmonic Voltage for Power Source	Voltage 1 V to 1000 V Fund. Freq. 45 Hz to 65 Hz Harmonic Amplitude (0.1 % to 25 %) of Fundamental Harmonic order 0, 2nd to 100th Harmonic Frequency DC to 6 kHz	45 $\mu$ V/V	5,000 THB to 50,000 THB / item	Digital Sampling Technique	09050-10934
77	Harmonic Current for Power Source	Current 0.01 A to 100 A Fund. Freq. 45 Hz to 65 Hz Harmonic Amplitude (0.1 % to 25 %) of Fundamental Harmonic order 0, 2nd to 100th Harmonic Frequency DC to 6 kHz	50 $\mu$ A/A	5,000 THB to 50,000 THB / item	Digital Sampling Technique	09050-10935
78	Harmonic source (Voltage harmonic)	Voltage (harmonic) : 0.01 V to 200 V Total rms voltage : 10 V to 1000 V Fundamental frequency : 50 Hz to 60 Hz Harmonic amplitude  : 0.1 % to 20 % of fundamental Phase shift of harmonic : 0 degree Harmonic order : 0 to 100th Harmonic frequency : 0 Hz to 6 kHz	0.0045 V/V to 3.5 V/V	6,250 THB to 11,250 THB / channel	Direct measurement	09050-10937
79	Harmonic source (Current harmonic)	Current (harmonic) : 0.1 mA to 4 A conditions Total rms current: 0.1 A to 20 A	0.0037 A/A to 8.8 A/A	7,500 THB to 14,250 THB / channel	Direct measurement	09050-10938



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
		Harmonic amplitude : 0.1 % to 20 % of fundamental Phase shift of harmonic : 0 degree Harmonic order : 0 to 100th Harmonic frequency : 0 Hz to 6 kHz				
80	AC Current for CT with Wattmeter	AC Current: 0.01 A to 120 A Frequency: 16 Hz to 850 Hz	0.011 % to 0.028 %	5,000 THB to 15,000 THB / channel	Direct measurement	09050-10738
81	Flicker impedance of power quality measurement system	Nominal impedance @ 50 Hz (0.24 +j0.15) Ω for line impedance (016 + j0.10) Ω for neutral impedance	0.033%	5,000 THB to 15,000 THB / channel	Volt-Ampere method	09050-10936
82	DC energy meter	DC energy : 0.000833 Wh to 50 kWh Voltage : 1 V to 500 V Current : 0.01 A to 10 A Time : 300 s to 10 hours	0.42 mWh/Wh to 4.3 mWh/Wh	5,000 THB to 15,000 THB / channel	Energy Packet	09050-10739
83	Three phase wattmeter, Three phase power meter, Three Phase Comparator Wattmeter AC power meter Wattmeter	Three phase active power : 0 W to 115.2 kW  Voltage : 60 V to 480 V Current : 0.005 A to 160 A Frequency: 45 Hz to 65 Hz PF:1, 0.5 (inductiv,capactive), 0 (inductiv,capactive),	54 μW/VA to 204 μW/VA	5,000 THB to 20,000 THB	Comparison measurement	09050-10740
84	Single phase wattmeter with frequency output AC power meter Wattmeter	Single phase active power :0.1305 W to 80 kW Voltage : 15 V to 1000 V Current : 0.1 A to 80 A Frequency: 45 Hz to 65 Hz PF:1 to 0.087, (inductive or capacitive)	48 μW/VA to 183 μW/VA	5,000 THB to 17,500 THB / channel	Direct with frequency measurement	09050-10741
85	Three phase wattmeter with frequency output AC power meter Wattmeter	Three phase active power: 0.3915 W to 240 kW Voltage : 15 V to 1000 V Current : 0.1 A to 80 A Frequency: 45 Hz to 65 Hz PF:1 to 0.087, (inductive or capacitive)	48 μW/VA to 183 μW/VA	5,000 THB to 17,500 THB	Direct with frequency measurement	09050-10742
86	Single phase wattmeter with frequency output AC power meter Wattmeter	Single phase reactive power :0.1305 var to 80 kvar Voltage : 15 V to 1000 V Current : 0.1 A to 80 A Frequency: 45 Hz to 65 Hz QF:1 to 0.087, (inductive or capacitive)	48 μvar/VA to 183 μvar/VA	5,000 THB to 17,500 THB / channel	Direct with frequency measurement	09050-10743
87	Three phase wattmeter with frequency output AC power meter Wattmeter	Three phase reactive power: 0.3915 var to 240 kvar Voltage : 15 V to 1000 V Current : 0.1 A to 80 A Frequency: 45 Hz to 65 Hz QF:1 to 0.087, (inductive or capacitive)	48 μvar/VA to 183 μvar/VA	5,000 THB to 17,500 THB	Direct with frequency measurement	09050-10744
88	Ac current clamp meter, Ac clamp meter Clamp meter	AC current Ac current : 10 A to 1500 A Frequency: 16 Hz to 300 Hz	5.045 mA/A	5,000 THB to 10,000 THB / channel	Indirect measurement	09050-10745



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
89	AC power meter, Wattmeter	Power factor (PF, $\cos \phi$ ) : 1 to 0 Reactive power factor (QF, $\sin \phi$ ) : 1 to 0 Voltage: 15 V to 1000 V  Current: 0.1 A to 80 A Frequency: 45 Hz to 65 Hz	$6 \times 10^{-6}$ to $61 \times 10^{-6}$	5,000 THB to 7,500 THB / channel	Direct measurement	09050-10746
90	AC power meter, Wattmeter	Frequency: 16 Hz to 850 Hz Voltage: 1 V to 1000 V  Current: 0.01 A to 80 A	0.0011 Hz to 0.050 Hz	5,000 THB to 7,500 THB / channel	Direct measurement	09050-10747
91	Single phase wattmeter, Single phase power meter, Single phase power comparator AC power meter Wattmeter	Reactive power: 0 var to 100 kvar Voltage : 15 V to 1000 V Current : 80 A to 100 A Frequency: 45 Hz to 65 Hz QF:1 to 0, (inductive or capacitive)	134 $\mu$ var/VA to 213 $\mu$ var/VA	5,000 THB to 12,500 THB / channel	Direct measurement	09050-10748
92	Three phase wattmeter, Three phase power meter, Three phase power comparator Wattmeter	Reactive power: 0 var to 300 kvar Voltage : 15 V to 1000 V Current : 80 A to 100 A Frequency: 45 Hz to 65 Hz QF:1 to 0, (inductive or capacitive)	134 $\mu$ var/VA to 213 $\mu$ var/VA	5,000 THB to 12,500 THB	Direct measurement	09050-10749
93	Single phase wattmeter, Single phase power meter, Single Phase Power comparator, Watt converter	Active power : 0 W to 80 kW Voltage : 15 V to 1000 V Current : 0.1 A to 80 A Frequency: 16 Hz to 400 Hz PF:1 to 0, (inductive or capacitive)	60 $\mu$ W/VA to 540 $\mu$ W/VA	5,000 THB to 27,500 THB / channel	Direct measurement	09050-10750
94	Three phase wattmeter, Three phase power meter, Three Phase Power comparator,	Active power : 0 W to 240 kW Voltage : 15 V to 1000 V Current : 0.1 A to 80 A Frequency: 16 Hz to 400 Hz PF:1 to 0, (inductive or capacitive)	60 $\mu$ W/VA to 540 $\mu$ W/VA	5,000 THB to 27,500 THB	Direct measurement	09050-10751
95	Single phase wattmeter, Single phase power meter, Single Phase Power comparator, Watt converter	Reactive power : 0 var to 80 kvar Voltage : 15 V to 1000 V Current : 0.1 A to 80 A Frequency: 16 Hz to 400 Hz QF:1 to 0, (inductive or capacitive)	60 $\mu$ var/VA to 540 $\mu$ var/VA	5,000 THB to 27,500 THB / channel	Direct measurement	09050-10752
96	Three phase wattmeter, Three phase power meter, Three Phase Power comparator,	Reactive power : 0 var to 240 kvar Voltage : 15 V to 1000 V Current : 0.1 A to 80 A Frequency: 16 Hz to 400 Hz PF:1 to 0, (inductive or capacitive)	60 $\mu$ var/VA to 540 $\mu$ var/VA	5,000 THB to 27,500 THB	Direct measurement	09050-10753
97	Transformer bridge ratio	Phase displacement error	0.35 minute of arc	10,000 THB to 47,500 THB	Direct comparison	09050-10754



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
	(Phase displacement error for voltage)	-180 deg to 180 deg or -10800 arcmin to 10800 arcmin Voltage: 10 V to 1000 V Frequency: 45 Hz to 65 Hz		/ item		
98	Transformer bridge ratio (Phase displacement error for current)	Phase displacement error -180 deg to 180 deg or  -10800 arcmin to 10800 arcmin  Current: 0.1 A to 20 A  Frequency: 45 Hz to 65 Hz	0.42 minute of arc	11,250 THB to 36,250 THB / item	Direct comparison	09050-10755
99	Transformer bridge ratio (Voltage Ratio Error)	Ratio error : -0.2 to 0.2 Voltage: 10 V to 1000 V -180 deg to 180 deg Frequency: 45 Hz to 65 Hz	$0.018 \times 10^{-2}$	10,000 THB to 47,500 THB / item	Direct comparison	09050-10756
100	Transformer bridge ratio (Current Ratio Error)	Ratio error : -0.2 to 0.2 Current: 0.1 A to 20 A -180 deg to 180 deg Frequency: 45 Hz to 65 Hz	$0.018 \times 10^{-2}$	11,250 THB to 36,250 THB / item	Direct comparison	09050-10757
101	Single phase energy meter with pulse output	Active Energy: 15 Ws to 2,880,000 Ws Voltage: 60 V to 480 V Current : 0.05 A to 100 A PF: 1 to 0.5 (inductive) and 1 to 0.8 (capacitive) Frequency : 45 Hz to 65 Hz Time : 10 s to 60 s	52 $\mu$ Ws/Ws	7,500 THB to 32,500 THB / Channel	Comparison measurement	09050-10758
102	Single phase energy meter with pulse output	Reactive Energy: 15 vars to 2,880,000 vars Voltage: 60 V to 480 V Current : 0.05 A to 100 A QF: 1(inductive) to 0.5 (inductive) and 1(inductive) to 0.8 (capacitive) Frequency : 45 Hz to 65 Hz  Time : 10 s to 60 s	52 $\mu$ vars/vars	7,500 THB to 32,500 THB / Channel	Comparison measurement	09050-10759
103	Three phase energy meter with pulse output	Active Energy: 45 Ws to 8,640,000 Ws  Voltage: 60 V to 480 V Current : 0.05 A to 100 A PF: 1 to 0.5 (inductive) and 1 to 0.8 (capacitive) Frequency : 45 Hz to 65 Hz Time : 10 s to 60 s	52 $\mu$ Ws/Ws	20,000 THB to 86,750 THB	Comparison measurement	09050-10760
104	Three phase energy meter with pulse output	Reactive Energy: 45 vars to 8,640,000 vars	52 $\mu$ vars/vars	20,000 THB to 86,750 THB	Comparison measurement	09050-10761



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department							
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code	
		Voltage: 60 V to 480 V Current : 0.05 A to 100 A QF: 1(inductive) to 0.5 (inductive) and 1(inductive) to 0.8 (capacitive) Frequency : 45 Hz to 65 Hz Time : 10 s to 60 s					
105	Calibrator	DC Voltage : 0 V to 1 kV	40 $\mu$ V/V to 0.6 $\mu$ V/V	13,500 to 33,750/item	2,000 to 9,000 THB/item for additional adjustment.	09110-11310	
		AC Voltage : 10 mV to 1 kV @ 10 Hz to 1 MHz	3.03 mV/V to 20 $\mu$ V/V				
		AC Voltage : 30 V to 1 kV @ 10 Hz to 100 kHz					
		DC Current : 0 A to 20 A	150 $\mu$ A/A to 4.5 $\mu$ A/A				
		AC Current : 100 mA to 20 A @ 10 Hz to 100 kHz	1.1 mA/A to 65 $\mu$ A/A				
		Resistance : 0 $\Omega$ to 1 G $\Omega$	1.3 m $\Omega$ / $\Omega$ to 1.8 $\mu$ $\Omega$ / $\Omega$				
		Wideband Option	Up to 30 MHz	As specification	11,250/option	3,000 THB/option for additional adjustment.	09110-11311
		Power Option	As specification	As specification	6,750/option	2,500 THB/option for additional adjustment.	09110-11312
		Scope Option	300 MHz	As specification	13,500/option	2,000 to 6,500 THB/option for additional adjustment.	09110-11313
			600 MHz to 1 GHz	As specification	18,000/option		09110-11314
	High Current	DC Current : 30 A	22 $\mu$ A/A	11,250/piece		09110-11315	
		AC Current : 30 A @ 10 Hz to 10 kHz	85 $\mu$ A/A to 114 $\mu$ A/A				
	Power Quality	AC Voltage -Delta Amplitude Verification, Static Condition 30 V, 300 V @ 50 Hz, 60 Hz -Delta Amplitude Verification, Flicker Condition  230 V@ 50 Hz  Composite Harmonic Verification - Voltage 0.12 V to 450 V @ 50 Hz, 60 Hz Type Wave : I, II, III, IV, Square and NRC 7030 - Current 0.11 A to 9.5 A @ 50 Hz, 60 Hz Type Wave : VI, VII, IECA, IECD and NRC 7030	3.20 $\times 10^{-5}$ to 4.10 $\times 10^{-5}$  4.13 $\times 10^{-5}$  1.87 $\times 10^{-3}$ to 2.90 $\times 10^{-1}$  1.83 $\times 10^{-3}$ to 1.52 $\times 10^{-1}$	18,000/option		09110-11316	
106	Oscilloscope Calibrator	Up to 600 MHz	As specification	40,000/item	2,000 to 13,500 THB/item for additional adjustment.	09110-11317	
		Up to 2.1 GHz	As specification	45,000/item		09110-11318	
107	Amplifier / Precision Power Amplifier	Up to 1kV 10 Hz up to 100 kHz	As specification	9,000/item	2,500 THB/function for additional adjustment.	09110-11319	
108	Digital Multimeter	6 1/2 digit	As specification	9,000 to 13,500/item	5,400 THB for additional adjustment.	09110-11320	
		7 1/2 digit	As specification	13,500 to 22,500/item	6,750 THB for additional calibrate with	09110-11321	
		8 1/2 digit	As specification	22,500 to 27,000/item	AC/DC Shunt using direct measurement	09110-11322	



National Institute of Metrology (Thailand)

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

Price List

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
109	Nano Voltmeter	DC Voltage: 1 mV to 100 mV	As specification	11,250 to 13,500/item	2,500 THB for additional adjustment.	09110-10120
110	DC High Voltage Divider	-10 kV to 10 kV	$30 \times 10^{-6}$ (Ratio)	$\leq 10$ kV 4,500 first point + 2,250 next point	Compared against DC high voltage reference system.	09060-10810
		>10 kV to 100 kV	$30 \times 10^{-6}$ (Ratio)	> 10 kV 5,630 first point + 2,250 next point		09060-10811
111	DC High Voltage Divider (On-site), DC High Voltage Measuring System (On-site)	200 kV	$\geq 30 \times 10^{-6}$ (Ratio)	60,000/item (5 voltage levels)	Additional fee: (1) 7,500/additional voltage level (2) Linearity Test: 10,000 /for 5 voltage levels	09060-30810
112	DC High Voltage Source	-10 kV to 100 kV	30 $\mu$ V/V	9,000 to 18,000/item	Compared against DC high voltage reference system.	09060-10812
113	DC High Voltage Source (On-site)	200 kV	$\geq 170 \mu$ V/V	60,000/item (5 voltage levels)	Additional fee: (1) 7,500/additional voltage level (2) Linearity Test: 10,000 /for 5 voltage levels	09060-30811
114	DC High Voltage Meter	-10 kV to 100 kV	As specification	6,750 to 18,000/item	Compared against DC high voltage reference system.	09060-10813
115	DC High Voltage Meter (On-site)	200 kV	$\geq 30 \mu$ V/V	60,000/item (5 voltage levels)	Additional fee: (1) 7,500/additional voltage level (2) Linearity Test: 10,000 /for 5 voltage levels	09060-30812
116	High Voltage Capacitance & Dissipation Factor	Capacitance 10 pF to 1000 pF Voltage:10 kV to 100 kV Frequency : 50 Hz Dissipation Factor: $50 \times 10^{-6}$ to $1 \times 10^{-3}$	$\geq 80 \mu$ F/F for Capacitance $\geq 50 \times 10^{-6}$ for Dissipation Factor	12,500/item	Compared against standard capacitor using AC high voltage capacitance and inductance bridge.	09060-10820
		Capacitance 10 pF to 1000 pF  Voltage:10 kV to 200 kV Frequency : 50 Hz Dissipation Factor: $50 \times 10^{-6}$ to $1 \times 10^{-3}$		17,500/item		09060-10821
117	AC High Voltage Divider	1 kV to 200 kV @ 50 Hz	$\geq 0.3 \%$ (Scale Factor)	11,500 to 27,500/item	Compared against AC high voltage reference system.	09060-10830
118	AC High Voltage Meter	1 kV to 200 kV @ 50 Hz	As specification	9,000 to 27,000/item	Compared against AC high voltage reference system.	09060-10831
119	AC High Voltage Meter, AC High Voltage Measuring System (Vrms, Vpeak, Vpeak/√2 @ 50 Hz)	100 kV	$\geq 0.3 \%$	67,500/item ( 5 voltage levels)	Additional fee: (1) 7,500/additional voltage level (2) Linearity Test: 10,000 /for 5 voltage levels	09060-30830
		200 kV	$\geq 0.3 \%$	82,500/item		09060-30831



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
	(On-site)			( 5 voltage levels)		
120	AC High Voltage Source	1 kV to 200 kV @ 50 Hz	$\geq 0.3 \%$	11,500 to 23,000/item		09060-10832
121	Voltage Transformer	3.3 kV to 33 kV @ 50Hz/60 Hz	Ratio error $\geq 0.01 \%$  Phase displacement $\geq 0.3$ min	7,500 first tap  + 1,900 next tap  per frequency, burden  and power factor	Compared against voltage transformer reference system.  850 THB for additional point	09060-10833
122	Transformer Loss Measuring System (On-site)	up to 200 kV, up to 5 kA, 50/60 Hz	0.03 % @ p.f. = 1.0 0.14 % @ p.f. = 0.1 1.4 % @ p.f. = 0.01	56,250 for 3 power factors (4 points/power factor)	On-site calibration of voltage transducers, and current transducers of the transformer loss measuring system are a prerequisite for this service.	09060-30834
123	Lightning Impulse Voltage  Measuring System 1.2/50 $\mu$ s	100 kV	Scale factor $\geq 1.1 \%$	23,750/ item	Additional fee for time to chopping  (2.0 to 6.0) $\mu$ s: 5,000 THB/point for  MS rated $\leq 200$ kV, and 10,000 THB/  point for MS rated $\leq 500$ kV.	09060-10840
		200 kV	Time parameter $\geq 1.7 \%$	26,250/ item		
		300 kV		31,250/ item		
		400 kV		33,750/ item		
		500 kV		36,250/ item		
124	Lightning Impulse Voltage Measuring System 1.2/50 $\mu$ s (On-site)	100 kV	Scale factor $\geq 1.1 \%$	71,250/ item	Additional fee: (1) 15,000/additional voltage level (2) Linearity Test: 20,000/for 5 voltage levels	09060-30840
		200 kV	Time parameter $\geq 2.2 \%$	78,750/ item		09060-30841
		300 kV		93,750/ item		09060-30842
		400 kV		101,250/ item		09060-30843
		500 kV		108,750/ item		09060-30844
125	Switching Impulse Voltage Measuring System 250/2500 $\mu$ s	100 kV	Scale factor $\geq 0.8 \%$	23,750/ item		09060-10841
		200 kV	Time parameter $\geq 1.7 \%$	26,250/ item		
		300 kV		31,250/ item		
		400 kV		33,750/ item		
126	Switching Impulse Voltage Measuring System 250/2500 $\mu$ s (On-site)	100 kV	Scale factor $\geq 1.1 \%$	71,250/ item (5 voltage levels)	Additional fee: (1) 15,000/additional voltage levels (2) Linearity Test: 20,000/for 5 voltage levels	09060-30845
		200 kV	Time parameter $\geq 2.2 \%$	78,750/ item (5 voltage levels)		09060-30846
		300 kV		93,750/ item (5 voltage levels)		09060-30847



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
		400 kV		101,250/ item (5 voltage levels)		09060-30848
127	Partial Discharge Calibrator	1 pC-1000 pC	≥ 1.7 %	15,000/ item  (7 points x 2 polarities)	Additional fee: 1,500 /item  for additional (1 point x 2 polarities)	09060-10850
128	Current Transformer	5 A to 1500 A @ 50 Hz/60 Hz	Ratio error ≥ 0.01 %  Phase displacement ≥ 0.3 min	7,500 first tap  + 1,900 next tap  per frequency, burden and power factor	Compared against current transformer reference system.  850 THB for additional point	09060-10860
129	Rogowski Coil (current transducer), Rogowski Current Transducer	10 A to 1500 A @ 50 Hz/60 Hz	≥ 0.5 %	7500/item  (5 current levels)  frequency 50 Hz or 60 Hz	Compared against current transformer reference system.  Additional fee: 7500/additional 5 current levels	09060-10861
130	AC Resistance	1 Ω, 25 Ω, 100 Ω, 400 Ω at 60 Hz or 75 Hz  1 kΩ, 10 kΩ, 12.9 kΩ (100 Hz to 10 kHz)	As Specification  2 μΩ/Ω - 60 μΩ/Ω	9,000/price/frequency + 1,250 next frequency	Direct substitution measurement	09040-10410
131	AC Resistor	1 Ω to 100 kΩ @ 1000 Hz	> 0.20 mΩ/Ω	5,000/piece	Measured by RLC digibridge and/or precision LCR meter, direct measurement, at desired frequencies.	09040-10411
	Additional Measurement at another Frequency	1 Ω to 100 kΩ @ 100 Hz to 100 kHz	> 0.20 mΩ/Ω	1,250 per frequency		09040-10412
132	Decade AC Resistor	1 Ω to 100 kΩ @ 1000 Hz	> 0.20 mΩ/Ω	5,000 first decade + 1,250 next step	Measured by RLC digibridge and/or precision LCR meter, direct measurement, at desired frequencies.	09040-10413
	Additional Measurement at another Frequency	1 Ω to 100 kΩ @ 100 Hz to 100 kHz	> 0.20 mΩ/Ω	(4,500 first decade  + 1,250 next step) per one frequency		09040-10414
133	Fixed, Fused Silica Dielectric Standard Capacitors	10 pF @ 1000 Hz	0.087 μF/F	20,000/piece/frequency	Comparing with a group of 10 pF standards	09040-10420
		1 pF @ 1000 Hz	0.71 μF/F	17,500/piece/ frequency	Applied direct substitution method with the reference standard capacitors.	09040-10421
		10 pF @ 1000 Hz	0.70 μF/F			
		100 pF @ 1000 Hz	0.70 μF/F			
134	Fixed Three Terminal, Nitrogen Dielectric Standard Capacitors	10 pF 100 pF	1.2 μF/F	12,500/piece/ frequency	Applied a null method using the basic ratio bridge.	09040-10422
		1000 pF	3.5 μF/F			
		10000 pF	7.0 μF/F			



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
		10000 pF @ 1000 Hz	5.3 $\mu$ F/F	20,000/piece/frequency	Comparing with a group of 10 nF standards	
135	Two or Three Terminal Mica Dielectric Standard Capacitors	0.001 $\mu$ F, 0.01 $\mu$ F, 0.1 $\mu$ F and 1 $\mu$ F @ 1000 Hz	> 0.12 mF/F	5,630/piece	Applied a null method using the basic ratio bridge.	09040-10423
	Additional Measurement at another Frequency	0.001 $\mu$ F, 0.01 $\mu$ F, 0.1 $\mu$ F and 1 $\mu$ F @ 100, 120, 200, 400, 500 Hz, 2 kHz,	> 0.12 mF/F	1,250/frequency	Applied a null method using the basic ratio bridge.	09040-10424
136	2 Terminal Pair Capacitance Standard	1 pF, 10 pF, 100 pF, 1000 pF at 1000 Hz to 10 MHz	> 100 $\mu$ F/F	10,000/Item	S-parameter with resonance frequency	09040-10437
137	4 Terminal Pair Capacitance Standard	1 pF, 10 pF, 100 pF, 1000 pF at 1000 Hz to 30 MHz	> 63 $\mu$ F/F	12,500/Item	S-parameter with resonance frequency	09040-10438
138	Four-Terminal Pair Capacitance Standard	1 pF, 10 pF, 100 pF, 1000 pF, 0.01 $\mu$ F, 0.1 $\mu$ F and 1 $\mu$ F @ 1000 Hz	> 0.12 mF/F	5,630/piece	Measured by precision capacitance bridge, direct measurement, at desired frequency.	09040-10425
139	Additional Measurement at another Frequency	1 pF, 10 pF, 100 pF, 1000 pF, 0.01 $\mu$ F, 0.1 $\mu$ F and 1	> 0.20 mF/F	1,250/frequency	Measured by RLC Digibridge and/or	09040-10426
140	Fixed Standard Capacitors	1 pF to 1 F @ 1000 Hz	> 0.20 mF/F	4,500/piece	Measured by RLC Digibridge and/or	09040-10427
	Additional Measurement at another Frequency	1 pF to 1 F @ 12 Hz to 1 MHz	> 0.20 mF/F	1,250/frequency		09040-10428
141	Decade capacitor	1 pF to 10 mF @ 1000 Hz	> 0.12 mF/F	5,000 first decade + 1,250 next step	Applied a null method using the basic ratio bridge.	09040-10429
		1 pF to 1 F @ 1000 Hz	> 0.20 mF/F	4,500 first decade  + 1,250 next step	Measured by RLC digibridge and/or precision LCR meter, direct measurement, at desired frequencies.	09041-10420
	Additional Measurement at another Frequency	1 pF to 1 F @ 12 Hz to 1 MHz	> 0.20 mF/F	(4,500 first decade + 1,250 next step) per one frequency		09041-10421 09041-10422
142	Precision Capacitance Bridge	1 pF, 10 pF, 100 pF	$\geq$ 0.40 $\mu$ F/F	27,500/Item	Calibrated by comparing its reading	09041-10423
143	Fixed Standard Inductors	100 $\mu$ H, 1 mH, 10 mH, 100 mH, 1 H and 10 H @ 100 Hz	> 0.16 mH/H	12,500/piece	Measured by the direct substitution method with the reference standard inductors.	09040-10430
		101 $\mu$ H, 1 mH, 10 mH, 100 mH, 1 H and 10 H @ 1000 Hz	> 0.16 mH/H			
	Additional Measurement at another Frequency	100 $\mu$ H, 1 mH, 10 mH, 100 mH, 1 H and 10 H @ 12 Hz to	> 0.20 mH/H	1,250/frequency	Measured by RLC digibridge and/or	09040-10431
144	Fixed standard Inductor	1 $\mu$ H to 10 H @ 1 kHz	> 0.20 mH/H	5,630/piece	Measured by RLC digibridge and/or	09040-10432
	Additional Measurement at another Frequency	1 $\mu$ H to 10 H @ 12 Hz to 1 MHz	> 0.20 mH/H	1,250/frequency		09040-10433
145	Decade Inductors	1 $\mu$ H to 10 H @ 1000 Hz	> 0.20 mH/H	4,500 first decade	Measured by RLC digibridge and/or	09040-10434



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
	Additional Measurement at another Frequency	1 $\mu$ H to 10 H @ 12Hz to 1 MHz	> 0.20 mH/H	+ 1,250 next step (4,500 first decade + 1,250 next step) per one frequency	precision LCR meter, direct measurement, at desired frequencies.	09040-10435
146	LCR Meter with 4 terminal pair configuration/without 4 terminal pair configuration	0.001 $\mu$ F, 0.01 $\mu$ F, 0.1 $\mu$ F and 1 $\mu$ F @ 100, 120, 200, 400, 500 Hz, 1 kHz, 2 kHz, 5 kHz, 10 kHz 1 pF, 10 pF, 100 pF, 1000 pF @ 1000 Hz* 100 $\mu$ H, 1 mH, 10 mH, 100 mH, 1 H and 10 H @ 100 Hz and 1000 Hz 1 $\Omega$ , 10 $\Omega$ , 100 $\Omega$ , 1000 $\Omega$ @ 1 kHz 1 k $\Omega$ , 10 k $\Omega$ , 12.9 k $\Omega$	> 0.12 mF/F > 0.12 mF/F > 0.16 mH/H > 0.20 m $\Omega$ / $\Omega$ 0.14 m $\Omega$ / $\Omega$	To be determined	Calibrated by comparing its reading against the standard capacitors, standard inductors and 4TP standard resistors. The correction functions are used to correct additional error due to the test fixture and test leads before measurement.* For 4 terminal pair configuration	09040-10436
147	Fixed Standard Inductors	10 mH @ 1 kHz	> 75 $\mu$ H/H	20,000/piece	Comparison with a group of inductance	09040-10439
148	Power Sensor with reflection coefficient	9 kHz to 18 GHz 9 kHz to 26.5 GHz	1.0 % to 2.0 % As Specification	20,000/item 25,000/item	Using DC substitution Method Using Direct Method	09090-11150 09090-11151
	EPRM power sensor (correction C.F.)	As specification	As Specification	3,000/item		09090-11152
149	Power meter	As specification	As specification	11,250/item		09090-11111
150	Feedthrough Mount	100 kHz to 18 GHz, 1 mW 9 kHz to 26.5 GHz, 1 mW	0.5 % to 1.3 % As Specification	21,000/item 23,000/item	Using DC substitution Method	09090-11130 09090-11131
151	RF Attenuator - Fix Attenuator/Step Attenuator - Attenuation in Coaxial line/Passive device	10 MHz to 18 GHz, 10 dB to 80 dB 100 kHz to 18 GHz, 10 dB to 80 dB	0.013 dB to 0.22 dB upto frequency range 0.027 dB to 0.20 dB upto frequency range	3,200/Freq. Point 3,000/Freq. Point	IF substitution Method (1) IF substitution Method (2)	09090-11120 09090-11121
152	Audio Attenuator	31.5 Hz to 100 kHz	As Specification	3,500/Freq.Point		09090-11122
153	RF-electric field probe	100 MHz to 1 GHz	0.7 dB	45,000/item	Reference standard field/ substitution with	09090-10314
154	Field Uniformity (Onsite- chamber)	80 MHz to 1 GHz	2.4 dB	40,000/item	Onsite	09090-10315
155	Oscilloscope	As specification	As specification	15,000/item		09090-11160
156	Spectrum Analyzer	As specification	As specification	50,000/item		09090-11161
157	Network Analyzer	As specification	As specification	67,500/item		09090-11162
158	Synthesizer Signal Generator /Synthesized Sweeper	Up to 18 GHz	As specification	8,000 to 22,500/item		09090-11163
159	Function Generator	As specification up to 200 MHz	As specification	10,000/item		09090-11164
160	RF Signal Generator	As specification	As specification	22,500/item 33,750/item	Excluded AM, FM and phase modulation. Included AM and FM modulation	09090-11170
161	Scalar Reflection Coefficient	40 kHz to 18 GHz	As specification	15,000/ item	Magnitude	09090-11210
162	RF Voltmeter	10 MHz to 1 GHz	0.4%	11,250/item	Comparison with TVC standard	09090-11172
163	RF Voltage Source	As specification	As specification	13,500/item		09090-11173



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
164	Directional Coupler/ power splitter	100 kHz to 18 GHz	As Specification	15,000/ item	Magnitude	09090-11250
		10 MHz to 18 GHz	As Specification	18,000/item	Vectors	09090-11350
165	Audio Analyzer	As specification	As specification	17,500 to 27,500 /item	direct measurement	09090-09321
166	Measuring Receiver	As specification	As specification	30,000 to 40000 /Item	direct measurement	09090-09322
167	Audio Filter	As specification	As specification	2,500/Freq.point	direct measurement	09090-09323
168	Eddy current crack detector	As specification	As specification	15,000 /item	direct measurement	09090-09324
169	Pulse and sine wave generator	Frequency Range : 9 kHz to 1 GHz	As specification	50,000/item	Direct measurement method with sampling	09090-11611
170	Other of RF Microwave Equipment	As specification	As specification	As Cost		09090-11171
171	THD Meter	As specification	As specification	12,500/Item		09090-11175
172	Range Calibrator	As specification	As specification	10,000/Item		09090-11176
173	Audio Power Amplifier	As specification	As Specification	3,500/Freq.Point	Voltage Ratio method	09090-05131
174	Total Radiated Power (TRP)/ mmWAVE antenna	24 GHz to 40 GHz	≥1.4 dB	20,000/item	Indect Far-field (IFF)	09090-11531
175	Antenna Factor (AF)/ Horn antenna	1 GHz to 18 GHz	≥1.6 dB	45,000/item	Standard Site Method (SSM)	09090-11511
	Amplifier/ Noise figure	10MHz to 18GHz	0.21 dB to 0.44 dB	22,000/Item	Direct measurement	09090-11431
177	Onsite- Normalized Site Attenuation (NSA)/ Anechoic Chamber	30 MHz to 1 GHz	≥1.2 dB	71,600/item	ref. CISPR 16-1-4 or equivalent	09090-10311
178	Onsite- Site VSWR/ Anechoic Chamber	1 GHz to 18 GHz	≥2.6 dB	71,600/item	ref. CISPR 16-1-4 or equivalent	09090-10312
179	Onsite- Shielding effectiveness (SE)/ Commercial Chamber	10 kHz to 18 GHz	≥2.9 dB	35,800/item	ref. IEEE std 299-2006	09090-10313
180	S-parameter / passive device	9 kHz to 18 GHz	0.01-0.03	5,000-20,000 / item	Direct method by VNA	09090-11311
181	Antenna Factor / Biconical or Log-periodic Antenna	30 MHz to 1 GHz	1.6 dB	45,000 / item	RAM	09090-11512
182	Antenna Factor / Passive Loop Antenna	9 kHz to 30 MHz	1.1 dB	45,000 / item	Magnetic Field Method	09090-11513
183	Standard Optical Power Meter	1 mW to 20 mW @ 488 nm,515 nm	≥ 0.5 %	9,380 first point +	Applied direct comparison method with standard calorimeter.	09100-12400
		50 uW to 20 mW @ 633 nm. 10 uW to 3 mW @ 1310 nm Band 10 uW to 10 mW @ 1550 nm Band		3,500 next point		



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
184	Optical Power Meter	1 mW to 20 mW @ 488nm,515nm  50 uW-to 20 mW @ 633 nm  10 uW to 3 mW @ 1310 nm Band  10 uW to 10 mW @ 1550 nm Band	$\geq 0.7 \%$	5,500 first point +  1,750 next point	Applied direct comparison method with standard power meter.	09100-12401
185	Optical Power Meter	100 mW to 10 W @10600 nm	$\geq 2 \%$	7,500 first point+2,500 next point	Substitutional Method monitor or beam	09100-12402
186	Laser Energy Meter	1mJ to 100 mJ @ 532 nm, 1064 nm	$\geq 2.4 \%$	7,500 first point+2,500 next point	Substitutional Method monitor or beam	09100-12403
187	Average pulse power for laser energy meter	10 mW to 1 W @ 532 nm, 1064 nm	$\geq 2.4 \%$	7,500 first point+2,500 next point	Substitutional Method monitor or beam	09100-12404
188	Variable Optical Attenuator	0 dB to 24 dB @ 1310 nm Band	0.05 dB	10,000/item	Follow the standard procedure in IEC	09100-12408
189	High Power Laser Meter	Power range: 150 W to 1 kW	2.00%	12,500 first point + next point 5,000	Substitutional Method monitor or beam	09100-12409
190	Single-Mode Fiber Length	200 m to $\geq 2000$ m @ 1310 nm, 1550 nm	$\geq 0.062$ m	18,000 first point + 5,000 next point	Follow the standard procedure in IEC 61746-1:2009 Annex A	09100-12410
191	Single-Mode Fiber Spectral Attenuation	30 dB @ 1200 nm to 1700 nm	$\geq 0.012$ dB	18,000 first point + 5,000 next point	Follow the standard procedure in IEC 60793-1-40 Annex A:Cut-back technique	09100-12411
192	Single-Mode Fiber Attenuation Coefficient Uniformity	0 dB/km to 10 dB/km @ 1310 nm, 1550 nm	$\geq 0.002$ dB/km	19,750 first point + 7,500 next point	Follow the standard procedure in IEC 60793-1-40 Annex C:Backscattering technique, IEC TR 62316:Bi-Directional trace, Attenuation uniformity	09100-12412
193	Single-Mode Fiber Reflectance	-20 dB to -35 dB @ 1310 nm, 1550 nm	$\geq 0.42$ dB	18,500 first point + 6,250 next point	Follow the standard procedure in IEC 61746-1:Annex G.3	09100-12413
194	CO2 Medical Laser	10 mW to 30 W @10600 nm	$\geq 2.4 \%$	5,000 first point+2,500 next point	Direct Measurement Method with	09100-32405
195	Nd-YAG Medical Laser	1 mJ to 100 mJ @532, 1064 nm	$\geq 2.4 \%$	5,000 first point+2,500 next point	Direct Measurement Method with	09100-32406
196	Nd-YAG Medical Laser	10 mW to 1 W @532, 1064 nm	$\geq 2.4 \%$	5,000 first point+2,500 next point	Direct Measurement Method with	09100-32407
197	Fiber Optic Power Meter	100 $\mu$ W to 1 mW @1310 nm Band	$\geq 0.6 \%$	5,000 first point+2,500 next point	Comparison method	09100-32408
198	DC magnetic flux density / Reference magnet	0.1 mT < B $\leq$ 5 mT 5 mT < B $\leq$ 20 mT 20 mT < B $\leq$ 30 mT 30 mT < B $\leq$ 2.4 T	8 mT/T 2 mT/T 0.5 mT/T 0.5 mT/T	9,000/item	Compared with the standard maintained by NIMT Megnetic Laboratory.	09070-11020
199	DC magnetic flux density / Magnetic field generator	0.1 mT/A < B $\leq$ 5 mT/A 5 mT/A < B $\leq$ 20 mT/A	5 mT/T 2 mT/T	9,000 first point + next point 630	Compared with the standard maintained by NIMT Megnetic	09070-11021



**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact customer Service Section: Ext. 3101, 3102 and 3103), Fax. +66 2577 3659, E-mail: cs@nimt.or.th, Website: http://www.nimt.or.th

**Price List**

Electrical Metrology Department						
Item No.	Description	Range	Accuracy / Uncertainty	Calibration Fee (THB)	Remark	Code
		20 mT/A < B ≤ 30 mT/A	1 mT/T		Laboratory.	
200	DC magnetic flux density / Gauss / Tesla meter	0.1 mT < B ≤ 5 mT	8 mT/T	9,000 first point + next point 630	Compared with the standard maintained by NIMT Megnetic Laboratory.	09070-11022
		5 mT < B ≤ 20 mT	1 mT/T			
		20 mT < B ≤ 30 mT	0.5 mT/T			
		30 mT < B ≤ 2.4 T	0.3 m T/T			
201	Frequency Source - Rubidium - Quartz, Others	1 MHz, 5 MHz, 10 MHz, 1 PPS	≤ 1 x 10 <sup>-13</sup>	21,600/item	Phase Comparison	09080-10221
202	Frequency Counter, Timer Counter	Up to 1 GHz	1 x 10 <sup>-12</sup> to 1 x 10 <sup>-9</sup>	7,200/item	Direct measurement	09080-10231
203	Frequency Meter	10 kHz to 225 MHz	3 x 10 <sup>-13</sup> to 5 x 10 <sup>-10</sup>	7,200/item	Direct measurement	09080-10232
204	Digital Tachometer	As specification	As specification	7,000/item	Direct measurement method by the light in LED	09080-10322
205	Stopwatch	As specification	As specification	2,250/item		09080-10331
206	Lidar Speed Meter (Lidar Gun)	60 km/h,80 km/h, 100 km/h and 120 km/h	0.58 km/h	15,000/item	Compare with Reference Speed Generator	09120-00001
<b>On-site Calibration</b>						
207	Standard Frequency Source for Remote	1 MHz, 5 MHz, 10 MHz	≤ 1 x 10 <sup>-13</sup>	21,600/item	GPS Common view	09080-30212