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|---|---|
| Name of Accreditation Program | JCSS Accreditation Program |
| Accreditation Identification | JCSS 0037 Calibration |
| Name of Conformity Assessment Body | Standard Laboratory, Yamari Industries, Limited |
| Name of Legal Entity | Yamari Industries, Limited<br>JCN 2120901013202 |
| Inquiry Point | Standard Laboratory<br>TEL: +81-72-678-6518 FAX: +81-72-679-2006 |

*JCN: Japan Corporate Number

23・12・15-NITE-009
2024-05-31

# Certificate of Accreditation

International Accreditation Japan (IAJapan) hereby accredits the following conformity assessment body as a calibration laboratory of Japan Calibration Service System.

Accreditation Identification: JCSS 0037 Calibration

Name of Conformity Assessment Body: Standard Laboratory, Yamari Industries, Limited

Name of Legal Entity: Yamari Industries, Limited

Location of Conformity Assessment Body: 1-5-4 Mishimae, Takatsuki-shi, Osaka 569-0835, JAPAN

Scope of Accreditation: Temperature, Electricity(Direct Current & Low Frequency)
(as the following pages)

Accreditation Requirement: ISO/IEC 17025:2017*

* The relevant accreditation requirements described in the Accreditation Scheme Document for JCSS are also applied.

Effective Date of Accreditation: 2024-05-31

Expiry Date of Accreditation: 2028-05-30

Date of Initial Accreditation: 1994-08-01

Hideaki Tanaka

TANAKA Hideaki
Chief Executive, International Accreditation Japan (IAJapan)
National Institute of Technology and Evaluation

- International Accreditation Japan (IAJapan) is a laboratory accreditation body which has signed MRAs of ILAC (International Laboratory Accreditation Cooperation) and APAC (Asia Pacific Accreditation Cooperation).
- MRA requirements are, in addition to relevant international standards and guides, requirements for participation in proficiency testing programs, surveillance and reassessment, and the policy for the traceability of measurement for MRA purpose.
- This laboratory fulfills ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation means this laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).
- The latest accreditation information is publicly available on IAJapan Website as an accreditation certificate.

General Field of Calibration: Temperature
Date of Initial Accreditation of the Field: 1994-08-01
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility
Calibration and Measurement Capabilities

| Calibration Procedures# and Type of Instruments/Materials to be calibrated | | Range | | Expanded Uncertainty (Level of Confidence Approximately 95 %) | |
|---|---|---|---|---|---|
| Contact type thermo-meter | Fixed point apparatus | Triple point of Water | | 0.0006 ºC | |
| | | Triple point of Mercury | | 0.0020 ºC | |
| | | Melting point of Gallium | | 0.0023 ºC | |
| | | Freezing point of Indium | | 0.0035 ºC | |
| | | Freezing point of Tin | | 0.004 ºC | |
| | | Freezing point of Zinc | | 0.006 ºC | |
| | | Freezing point of Aluminum | | 0.008 ºC | |
| | | Freezing point of Silver | | 0.10 ºC | |
| | | Freezing point of Copper | | 0.16 ºC | |
| | Resistance thermometer (Fixed point calibration) | Standard platinum resistance thermometer (25 Ω, 2.5 Ω or 0.25 Ω) | | $W(T_{90})$ (*1) | $R(T_{90})$ (*2) |
| | | | Triple point of Water (*4) | - | 0.0014 ºC |
| | | | Triple Point of Mercury | 0.0026 ºC | - |
| | | | Melting point of Gallium | 0.0030 ºC | - |
| | | | Freezing point of Indium | 0.0045 ºC | - |
| | | | Freezing point of Tin | 0.006 ºC | - |
| | | | Freezing point of Zinc | 0.008 ºC | - |
| | | | Freezing point of Aluminu m | 0.010 ºC | - |
| | | | Freezing point of Silver | 0.12 ºC | - |
| | | Platinum resistance thermometer (100 Ω) | Triple point of Water | - | 0.004 ºC |
| | | | Triple point of Mercury | | |
| | | | Melting point of Gallium | - | 0.005 ºC |
| | | | Freezing point of Indium | - | 0.007 ºC |
| | | | Freezing point of Tin | - | 0.009 ºC |
| | | | Freezing point of Zinc | - | 0.012 ºC |
| | | | Freezing point of Aluminum | - | 0.018 ºC |

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|---|---|---|---|---|---|
| Contact type thermo-meter | Resistance thermometer (Comparison calibration) | Standard platinum resistance thermometer (2.5 Ω, 0.25 Ω ) | -195.798 ºC | 0.007 ºC | - |
| | | Standard platinum resistance thermometer (25 Ω) | -195.798 ºC | 0.007 ºC | 0.010 ºC |
| | | | From -196 ºC up to -80 ºC | - | 0.05 ºC |
| | | | From -80 ºC up to 0 ºC | - | 0.009 ºC |
| | | | More than 0 ºC up to 50 ºC | - | 0.010 ºC |
| | | | More than 50 ºC up to 100 ºC | - | 0.020 ºC |
| | | | More than 100 ºC up to 250 ºC | - | 0.023 ºC |
| | | | More than 250 ºC up to 500 ºC | - | 0.040 ºC |
| | | | More than 500 ºC up to 660 ºC | - | 0.10 ºC |
| | | Platinum resistance thermometer (100 Ω) | -195.798 ºC | - | 0.010 ºC |
| | | | From -196 ºC less than -80 ºC | - | 0.05 ºC |
| | | | From -80 ºC up to 0 ºC | - | 0.014 ºC |
| | | | More than 0 ºC up to 50 ºC | - | 0.018 ºC |
| | | | More than 50 ºC up to 100 ºC | - | 0.026 ºC |
| | | | More than 100 ºC up to 200 ºC | - | 0.030 ºC |
| | | | More than 200 ºC up to 250 ºC | - | 0.035 ºC |
| | | | More than 250 ºC up to 500 ºC | - | 0.06 ºC |
| | | | More than 500 ºC up to 660 ºC | - | 0.12 ºC |
| | | Industrial platinum resistance thermometer (100 Ω, four-wires) | -195.798 ºC | - | 0.12 ºC |
| | | | From -196 ºC less than -80 ºC | - | 0.14 ºC |
| | | | From -80 ºC less than -40 ºC | - | 0.10 ºC |
| | | | From -40 ºC less than -30 ºC | - | 0.040 ºC |
| | | | From -30 ºC less than 0 ºC | - | 0.026 ºC |
| | | | 0 ºC | - | 0.020 ºC |
| | | | More than 0 ºC up to 50 ºC | - | 0.026 ºC |
| | | | More than 50 ºC up to 230 ºC | - | 0.040 ºC |
| | | | More than 230 ºC up to 250 ºC | - | 0.06 ºC |
| | | | More than 250 ºC up to 500 ºC | - | 0.16 ºC |
| | | | More than 500 ºC up to 660 ºC | - | 0.18 ºC |
| | | Industrial platinum resistance thermometer (100 Ω, three-wires) | -195.798 ºC | - | 0.12 ºC |
| | | | From -196 ºC less than -80 ºC | - | 0.14 ºC |
| | | | From -80 ºC less than -40 ºC | - | 0.10 ºC |
| | | | From -40 ºC less than -30 ºC | - | 0.040 ºC |
| | | | From -30 ºC less than 0 ºC | - | 0.026 ºC |
| | | | 0 ºC | - | 0.023 ºC |
| | | | More than 0 ºC up to 50 ºC | - | 0.030 ºC |
| | | | More than 50 ºC up to 230 ºC | - | 0.040 ºC |
| | | | More than 230 ºC up to 250 ºC | - | 0.06 ºC |
| | | | More than 250 ºC up to 500 ºC | - | 0.16 ºC |
| | | | More than 500 ºC up to 660 ºC | - | 0.18 ºC |

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|---|---|---|---|---|
| Contact type thermo-meter | Liquid-in-glass thermometer | Liquid-in-glass thermometer with scale plate | 0 ºC | 0.03 ºC |
| | | | From -50 ºC less than 0 ºC | 0.04 ºC |
| | | | More than 0 ºC up to 50 ºC | |
| | | | More than 50 ºC up to 100 ºC | 0.05 ºC |
| | | | More than 100 ºC up to 150 ºC | 0.06 ºC |
| | | | More than 150 ºC up to 200 ºC | |
| | | | More than 200 ºC up to 250 ºC | 0.07 ºC |
| | | | More than 250 ºC up to 300 ºC | 0.08 ºC |
| | | | More than 300 ºC up to 350 ºC | 0.16 ºC |
| | Thermocouple (Fixed point calibration) | A noble metal thermocouple (R, S, B, Pt/Pd) | Triple point of Mercury | 0.18 ºC |
| | | | Freezing point of Water | 0.14 ºC |
| | | | Melting point of Gallium | |
| | | | Freezing point of Indium | 0.10 ºC |
| | | | Freezing point of Tin | 0.09 ºC |
| | | | Freezing point of Zinc | 0.08 ºC |
| | | | Freezing point of Aluminum | |
| | | | Freezing point of Silver | 0.14 ºC |
| | | | Freezing point of Copper | 0.20 ºC |
| | Thermocouple (Fixed point calibration) | A base metal thermocouple (N, K, E, J, T) | Triple point of Mercury | 0.26 ºC |
| | | | Freezing point of Water | |
| | | | Melting point of Gallium | |
| | | | Freezing point of Indium | |
| | | | Freezing point of Tin | |
| | | | Freezing point of Zinc | |
| | | | Freezing point of Aluminum | |
| | | | Freezing point of Silver | 0.30 ºC |
| | | | Freezing point of Copper | |
| | Thermocouple (Comparison calibration) | A noble metal thermocouple (R, S, B, Pt/Pd) | From -40 ºC up to 660 ºC | 0.20 ºC |
| | | | More than 660 ºC up to 1100 ºC | 0.7 ºC |
| | | | More than 1100 ºC up to 1300 ºC | 1.6 ºC |
| | | | More than 1300 ºC up to 1500 ºC | 1.8 ºC |
| | | | More than 1500 ºC up to 1554 ºC | 2.0 ºC |
| | | | 1553.5 ºC | 1.4 ºC |
| | | A base metal thermocouple (N, K, E, J, T) | From -196 ºC up to 500 ºC | 0.30 ºC |
| | | | More than 500 ºC up to 660 ºC | 0.35 ºC |
| | | | More than 660 ºC up to 1100 ºC | 0.7 ºC |
| | | | More than 1100 ºC up to 1300 ºC | 1.6 ºC |
| | | | More than 1300 ºC up to 1372 ºC | 1.8 ºC |

| | | | | |
|---|---|---|---|---|
| Contact type thermo-meter | Temperature sensors with display unit (Fixed point calibration) | Resolution: less than 0.01 ºC | Triple point of Water | 0.002 ºC |
| | | | Triple point of Mercury | 0.003 ºC |
| | | | Melting point of Gallium | |
| | | | Freezing point of Indium | 0.004 ºC |
| | | | Freezing point of Tin | 0.005 ºC |
| | | | Freezing point of Zinc | 0.007 ºC |
| | | | Freezing point of Aluminum | 0.008 ºC |
| | | | Freezing point of Silver | 0.12 ºC |
| | | | Freezing point of Copper | 0.20 ºC |
| | | Resolution: from 0.01 ºC (*3) | Triple point of Water | 0.01 ºC |
| | | | Triple point of Mercury | |
| | | | Melting point of Gallium | |
| | | | Freezing point of Indium | |
| | | | Freezing point of Tin | |
| | | | Freezing point of Zinc | |
| | | | Freezing point of Aluminum | |
| | | | Freezing point of Silver | 0.12 ºC |
| | | | Freezing point of Copper | 0.20 ºC |
| | Temperature sensors with display unit (Comparison calibration) | Resolution: less than 0.01 ºC | -195.798 ºC | 0.010 ºC |
| | | | From -196 ºC less than -80 ºC | 0.050 ºC |
| | | | From -80 ºC up to 50 ºC | 0.009 ºC |
| | | | More than 50 ºC up to 250 ºC | 0.023 ºC |
| | | | More than 250 ºC up to 500 ºC | 0.035 ºC |
| | | | More than 500 ºC up to 660 ºC | 0.10 º C |
| | | | More than 660 ºC up to 1100 ºC | 0.6 ºC |
| | | Resolution: from 0.01 ºC (*3) | -195.798 ºC | 0.02 ºC |
| | | | From -196 ºC less than -80 ºC | 0.05 ºC |
| | | | From -80 ºC up to 50 ºC | 0.02 ºC |
| | | | More than 50 ºC up to 250 ºC | 0.03 ºC |
| | | | More than 250 ºC up to 500 ºC | 0.04 ºC |
| | | | More than 500 ºC up to 660 ºC | 0.10 ºC |
| | | | More than 660 ºC up to 1100 ºC | 0.6 ºC |
| | | | More than 1100 ºC up to 1300 ºC | 1.4 ºC |
| | | | More than 1300 ºC up to 1400 ºC | 1.6 ºC |
| | | | More than 1400 ºC up to 1500 ºC | 1.8 ºC |
| | | | More than 1500 ºC up to 1554 ºC | 2.0 ºC |

| | | | | |
|---|---|---|---|---|
| Contact type thermo-meter | Thermometer calibration equipment | Resolution: less than 0.1 ºC | From -100 ºC less than 40 ºC | 0.14 ºC |
| | | | From -40 ºC up to 0 ºC | 0.10 ºC |
| | | | More than 0 ºC up to 100 ºC | 0.14 ºC |
| | | | More than 100 ºC up to 250 ºC | 0.23 ºC |
| | | | More than 250 ºC up to 500 ºC | 0.5 ºC |
| | | | More than 500 ºC up to 660 ºC | 0.6 ºC |
| | | | More than 660 ºC up to 800 ºC | 1.8 ºC |
| | | | More than 800 ºC up to 900 ºC | 2.0 ºC |
| | | | More than 900 ºC up to 1000 ºC | 2.3 ºC |
| | | | More than 1000 ºC up to 1100 ºC | 2.6 ºC |
| | | Resolution: from 0.1 ºC less than 1 ºC | From -100 ºC up to 100 ºC | 0.2 ºC |
| | | | More than 100 ºC up to 250 ºC | 0.3 ºC |
| | | | More than 250 ºC up to 500 ºC | 0.5 ºC |
| | | | More than 500 ºC up to 660 ºC | 0.6 ºC |
| | | | More than 660 ºC up to 800 ºC | 1.8 ºC |
| | | | More than 800 ºC up to 900 ºC | 2.0 ºC |
| | | | More than 900 ºC up to 1000 ºC | 2.3 ºC |
| | | | More than 1000 ºC up to 1100 ºC | 2.6 ºC |
| | | Resolution: from 1 ºC (*3) | From -100 ºC up to 660 ºC | 1 ºC |
| | | | More than 660 ºC up to 800 ºC | 2 ºC |
| | | | More than 800 ºC up to 1100 ºC | 3 ºC |

| | | | | |
|---|---|---|---|---|
| Radiation Thermometer | Near-infrared radiation thermometer / Visible radiation thermometer (Comparison calibration) | Resolution: 0.1 ºC | 600 ºC | 2.3 ºC |
| | | | 660 ºC | |
| | | | 700 ºC | |
| | | | 800 ºC | 3.0 ºC |
| | | | 900 ºC | |
| | | | 962 ºC | |
| | | | 1000 ºC | |
| | | | 1100 ºC | |
| | | | 1200 ºC | |
| | | | 1300 ºC | |
| | | | 1400 ºC | |
| | | | 1500 ºC | 3.5 ºC |
| | | | 1600 ºC | |
| | | | 1700 ºC | 4.0 ºC |
| | | | 1800 ºC | |
| | | | 1900 ºC | 4.5 ºC |
| | | | 2000 ºC | 5.0 ºC |
| | | Resolution: 1 ºC | 600 ºC | 3 ºC |
| | | | 660 ºC | |
| | | | 700 ºC | |
| | | | 800 ºC | |
| | | | 900 ºC | |
| | | | 962 ºC | |
| | | | 1000 ºC | |
| | | | 1100 ºC | |
| | | | 1200 ºC | |
| | | | 1300 ºC | |
| | | | 1400 ºC | 4 ºC |
| | | | 1500 ºC | |
| | | | 1600 ºC | |
| | | | 1700 ºC | |
| | | | 1800 ºC | |
| | | | 1900 ºC | 5 ºC |
| | | | 2000 ºC | |

#All Calibration Procedures are in-house procedures developed by this laboratory.

(*1): Temperature converted from the ratio of the resistance $R$ ($T_{90}$) to $R$ (273.16$K$), $W$ ($T_{90}$)

(*2): Temperature converted from resistance $R$ ($T_{90}$)

(*3): According to the resolution of an indicator, measurement capability is revalued for the resolution of an indicator.

Laboratory's permanent facility/On-site Calibration: On-site Calibration
Calibration and Measurement Capabilities

| Calibration Procedures# and Type of Instruments/Materials to be calibrated | | Range | | Expanded Uncertainty (Level of Confidence Approximately 95 %) | |
|---|---|---|---|---|---|
| Contact type thermo-meter | Resistance thermometer (Comparison calibration) | Industrial platinum resistance thermometer (100 Ω, four-wires) | | $W(T_{90})$ (*1) | $R(T_{90})$ (*2) |
| | | | From -30 ºC up to 140 ºC | - | 0.08 ºC |
| | | | More than 140 ºC up to 250 ºC | - | 0.4 ºC |
| | | | More than 250 ºC up to 550 ºC | - | 0.6 ºC |
| | | Industrial platinum resistance thermometer (100 Ω, three-wires) | From -30 ºC up to 140 ºC | - | 0.08 ºC |
| | | | More than 140 ºC up to 250 ºC | - | 0.4 ºC |
| | | | More than 250 ºC up to 550 ºC | - | 0.6 ºC |
| | Thermocouple (Comparison calibration) | A noble metal thermocouple (R, S, B) | From -30 ºC less than 50 ºC | 0.4 ºC | |
| | | | From 50 ºC up to 140 ºC | 0.3 ºC | |
| | | | More than 140 ºC up to 250 ºC | 0.5 ºC | |
| | | | More than 250 ºC up to 550 ºC | 0.7 ºC | |
| | | | More than 550 ºC up to 1100 ºC | 1.4 ºC | |
| | | A base metal thermocouple (N, K, E, J, T) | From -30 ºC up to 140 ºC | 0.3 ºC | |
| | | | More than 140 ºC up to 250 ºC | 0.5 ºC | |
| | | | More than 250 ºC up to 550 ºC | 0.7 ºC | |
| | | | More than 550 ºC up to 1100 ºC | 1.4 ºC | |
| | Temperature sensors with display unit (Comparison calibration) | Resolution: less than 0.1 ºC | From -30 ºC up to 140 ºC | 0.12 ºC | |
| | | | More than 140 ºC up to 250 ºC | 0.4 ºC | |
| | | | More than 250 ºC up to 550ºC | 0.6 ºC | |
| | | Resolution: from 0.1 ºC less than 1 ºC | From -30 ºC up to 140 ºC | 0.2 ºC | |
| | | | More than 140 ºC up to 250 ºC | 0.4 ºC | |
| | | | More than 250 ºC up to 550 ºC | 0.6 ºC | |
| | | | More than 550 ºC up to 1100 ºC | 1.4 ºC | |
| | | Resolution: from 1 ºC (*3) | From -30 ºC up to 550 ºC | 1 ºC | |
| | | | More than 550 ºC up to 1100 ºC | 2 ºC | |

#All Calibration Procedures are in-house procedures developed by this laboratory.

(*1): Temperature converted from the ratio of the resistance $R(T_{90})$ to $R$ (273.16$K$), $W$ ($T_{90}$)

(*2): Temperature converted from resistance $R(T_{90})$

(*3): According to the resolution of an indicator, measurement capability is revalued for the resolution of an indicator.

General Field of Calibration: Electricity (Direct Current & Low Frequency)
Date of Initial Accreditation of the Field: 2012-06-07
Laboratory's permanent facility/On-site Calibration: Laboratory's permanent facility
Calibration and Measurement Capabilities

| Calibration Procedures# and Type of Instruments/Materials to be calibrated | | Range | | | Expanded Uncertainty (Level of Confidence Approximately 95 %) |
|---|---|---|---|---|---|
| Direct Current & Low Frequenc Measuring Equipment, etc. | Temperature Indicator | Thermocouple with Reference Junction | B | From 0.178 mV up to 11.263 mV (From 200 °C up to 1600 °C) | 0.003 mV |
| | | | R | From -0.226 mV up to 18.849 mV (From -50 °C up to 1600 °C) | 0.004 mV |
| | | | S | From -0.236 mV up to 16.777 mV (From -50 °C up to 1600 °C) | |
| | | | N | From -3.990 mV up to 47.513 mV (From -200 °C up to 1300 °C) | 0.012 mV |
| | | | K | From -5.891 mV up to 54.886 mV (From -200 °C up to 1372 °C) | 0.018 mV |
| | | | E | From -8.825 mV up to 76.373 mV (From -200 °C up to 1000 °C) | 0.026 mV |
| | | | J | From -7.890 mV up to 69.553 mV (From -200 °C up to 1200 °C) | 0.023 mV |
| | | | T | From -5.603 mV up to 20.872 mV (From -200 °C up to 400 °C) | 0.018 mV |
| | | Thermocouple without Reference Junction | B | From 0.178 mV up to 11.263 mV (From 200 °C up to 1600 °C) | 0.003 mV |
| | | | R | From -0.226 mV up to 18.849 mV (From -50 °C up to 1600 °C) | |
| | | | S | From -0.236 mV up to 16.777 mV (From -50 °C up to 1600 °C) | |
| | | | N | From -3.990 mV up to 47.513 mV (From -200 °C up to 1300 °C) | 0.005 mV |
| | | | K | From -5.891 mV up to 54.886 mV (From -200 °C up to 1372 °C) | 0.006 mV |
| | | | E | From -8.825 mV up to 76.373 mV (From -200 °C up to 1000 °C) | 0.010 mV |
| | | | J | From -7.890 mV up to 69.553 mV (From -200 °C up to 1200 °C) | 0.008 mV |
| | | | T | From -5.603 mV up to 20.872 mV (From -200 °C up to 400 °C) | |
| | | Platinum Resistance Thermometer Sensor | 100 Ω, three-wires | From 18.520 Ω less than 247.092 Ω (From -200 °C less than 400 °C) | 0.030 Ω |
| | | | | From 247.092 Ω up to 390.481 Ω (From 400 °C up to 850 °C) | 0.026 Ω |
| | | | 100 Ω, four-wires | From 18.520 Ω less than 100.000 Ω (From -200 °C less than 0 °C) | 0.020 Ω |
| | | | | From 100.000 Ω up to 390.481 Ω (From 0 °C up to 850 °C) | 0.018 Ω |

#All Calibration Procedures are in-house procedures developed by this laboratory.