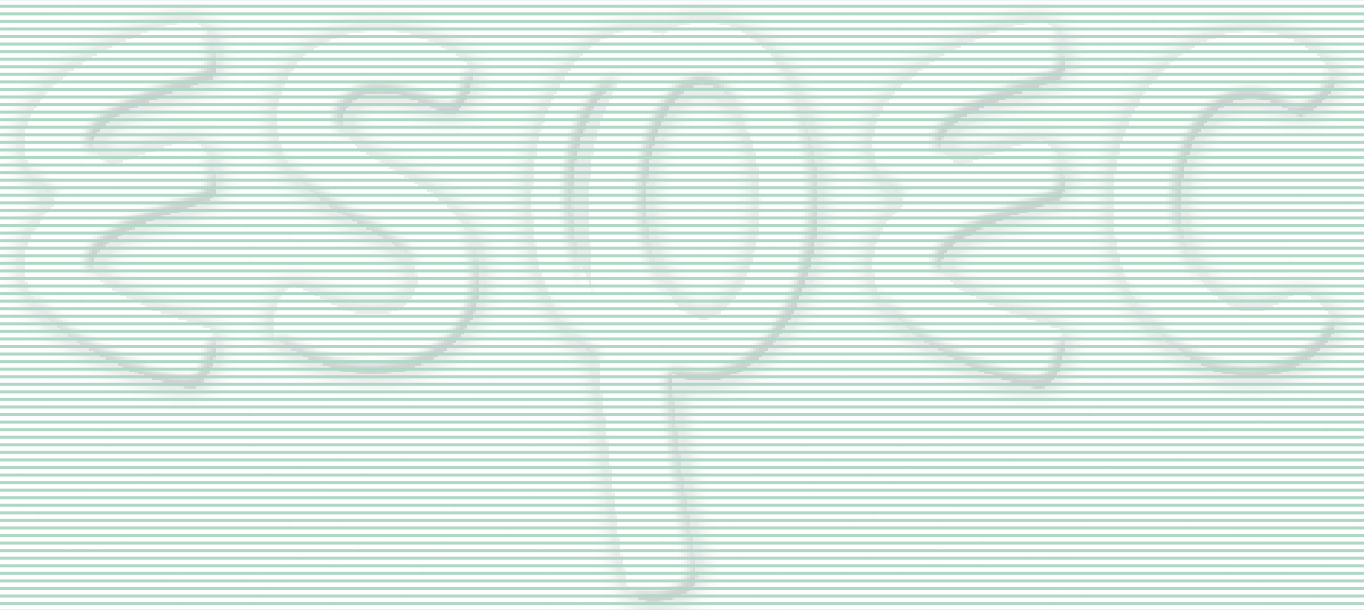


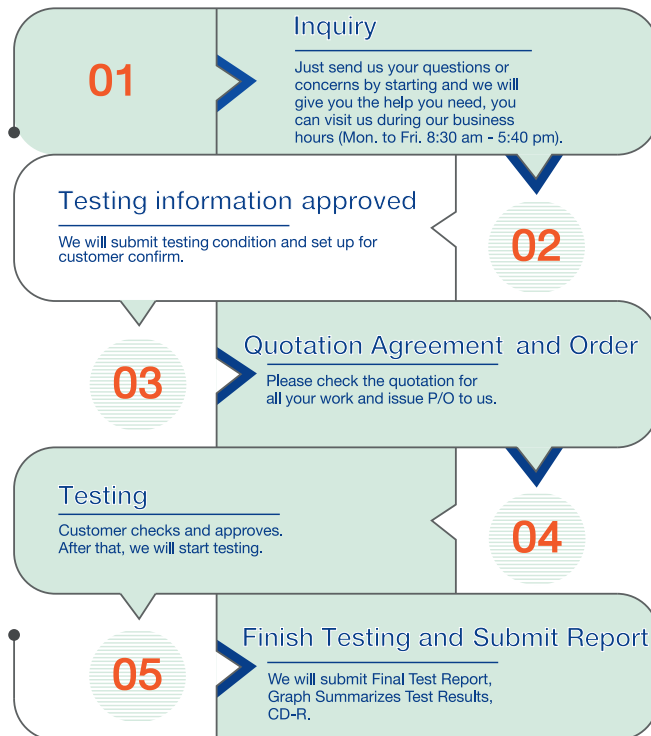
Quality is more than a word



**Test Laboratory & Product Sales Service**

**ESPEC ENGINEERING (THAILAND) CO., LTD.**

## TEST SERVICE FLOW CHART



## WHAT DO WE SERVE



In Thailand, we sell products from Japan, U.S.A. and China

- ESPEC CORP. (JAPAN) : [espec.co.jp](http://espec.co.jp)
- ESPEC NORTH AMERICA : [espec.com](http://espec.com)
- ESPEC Guangdong : [gd-espec.com](http://gd-espec.com)

### SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Tests: Temperature Simulation (-75 to 200) °C	Test Methods <sup>1</sup> : MIL-STD-883; IEC 60068-2-14; ISO 16750-4
Thermal Shock (-60 to 150) °C	ISO 16750-4; IEC 61215-1-1, IEC 60068-2-14
Cold Test Up to -75 °C	IEC 60068-2-1
Dry Heat Up to 200 °C	IEC 60068-2-2
Temperature and humidity (-75 to 200) °C (20-95) % RH	MIL-STD-810; ISO 9455-17; IEC 60068-2-78
Temperature and humidity cycle (-75 to 200) °C (20-95) % RH	IEC 60068-2-30, IEC 60068-2-38; ISO 12405-4

## SALE PRODUCTS

ESPEC is the world's leading manufacturer of "environmental test chambers" that support the advancement of cutting-edge technologies. Through our sales network that extends to 45 countries worldwide, we provide high-quality products and services to customers around the world. In addition, we provide total solutions for environmental testing through various products and services, all from the customer's perspective.

ESPEC ENGINEERING (THAILAND) CO., LTD. established in 2015 at Amata City Chonburi Industrial Estate in Thailand. We have Japanese staff and skilled Thai engineers in order to support along with cooperate with local agencies in ASEAN, India and Oceania in order to enhance the support capability against the customers located inside the above countries.



Walk-In Type Temperature (& Humidity) Chamber / E Series



Bench-Top Type Temperature (& Humidity) Chamber

# THERMAL SHOCK TEST

## THERMAL SHOCK (Air to Air : 2 / 3 Zone)



Damper Type (No physical movement of specimens)

Model	TSA-203ES-W	TSA-203EL-W	TSA-103ES-W	TSA-71H
Interior Dimensions	W 650 x H 460 X D 670 mm	W 650 x H 460 X D 670 mm	W 650 x H 460 X D 370 mm	W 410 x H 460 X D 370 mm
Total Load Resistance	50 kg (Equally distributed load)	50 kg (Equally distributed load)	50 kg (Equally distributed load)	30 kg (Equally distributed load)
Temperature Range	-70°C to +200°C	-65°C to +200°C	-70°C to +200°C	-70°C to +200°C
High temp. exposure	Ambient temp. , +60°C to + 200°C	Ambient temp. +50°C to +200°C	Ambient temp. , +60°C to + 200°C	Ambient temp. , +60°C to + 200°C
Low temp. exposure	-70°C to 0°C	-65°C to 0°C	-70°C to 0°C	-70°C to 0°C
Test performance example	3 zone (specimen 26 kg) +150°C ,30 min --> Ambient temp, 10 min --> -65°C ,30 min		3 zone (specimen 7.5 kg) +150°C ,30 min --> Ambient temp, 5 min --> -65°C ,30 min	
Recovery Time	Within 10 min	Within 5 min	Within 5 min	Within 5 min
Temp Fluctuation	± 0.5°C	± 0.5°C	± 0.5°C	± 0.5°C

## THERMAL SHOCK (Air to Air : 2 Zone)



Elevator Type

## THERMAL SHOCK (Liquid to Liquid)



Model	TSD-101-W
Interior Dimensions	W 710 x H 345 x D 410 mm
Total Load Resistance	30 kg
Temperature Range	-77°C to +205°C
High temp. exposure	+60°C to + 205°C
Low temp. exposure	-77°C to 0°C
Test performance example	2 zone (specimen 10 kg) +150°C (setting +155°C) , 30 min --> -65°C (setting -68°C) ,30 min
Recovery Time	Specimen temp within 15 min
Specimen transfer time	Within 10 sec (Transfer between hot & cold chambers)
Temp Fluctuation	± 1°C

- STANDARD TEST
  - MIL-STD-883H (Method No. 1010.8) IEC 60068-2-14Na (JIS C60068-2-14Na)
  - MIL-STD-202G (Method No. 107G) ● JASO D 014-4 ● EIAJ ED-2531B Na

Model	TSB-51
Inside bath dimensions	W 290 x H 350 X D 520 mm
Basket dimensions	W 150 x H 150 X D 200 mm
Basket load capacity	2 kg
Temperature Range	-65°C to +200°C
Hot bath	+70°C to +200°C
Cold bath	0°C to -65°C
Specimen transfer time	Within 10 sec (Transfer between hot & cold baths)
Temp Fluctuation	± 2°C

- STANDARD TEST
  - MIL-STD-883E (Method No. 1011.9)
  - MIL-STD-202G (Method No.107G)
  - JIS C 0025

# RAPID-RATE TEMPERATURE / HUMIDITY CYCLE TEST



Model	EGNX28-12NWL
Interior Dimensions	W 1000 x H 1000 X D 800 mm
Total Load Resistance	70 kg
Temperature Range	-70°C to +180°C
Temp & Humidity Range	+10°C to +85°C / 10% RH to 95%RH
Speed Ramp Rate	Pull down : 12.5°C / min Heat up : 15°C / min
Temp Fluctuation	± 2°C(at control sensor)



Model	ARSF-0800-15
Interior Dimensions	W 1000 x H 980 X D 800 mm
Total Load Resistance	100 kg
Temperature Range	-70°C to +180°C
Temp & Humidity Range	+10°C to +95°C / 10% RH to 98%RH
Speed Ramp Rate	Pull down : 15°C / min Heat up : 15°C / min
Temp Fluctuation	± 0.3°C



Model	GFS-200-20
Interior Dimensions	W 600 x H 830 X D 400 mm
Total Load Resistance	70 kg
Temperature Range	-70°C to +180°C
Temp & Humidity Range	+10°C to +95°C / 10% RH to 98%RH
Speed Ramp Rate	Pull down : 18°C / min Heat up : 20°C / min
Temp Fluctuation	± 0.3°C



Model	BTZ-4200E
Interior Dimensions	W498 x D381 x H600 mm
Total Load Resistance	23 kg
Temperature Range	-70°C to +180°C
Speed Ramp Rate	Pull down : 13°C / min Heat up : 15°C / min
Temp Fluctuation	± 0.5°C

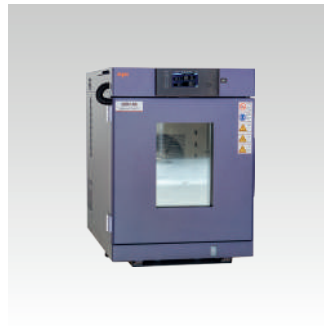
● STANDARD TEST

- IEC 60068-2-1 : Cold ● IEC 60068-2-2 : Dry heat
- IEC 60068-2-14Nb : Change of temperature with specified rate of change ● IEC 60068-2-30 : Damp Heat, cycle
- IEC 60068-2-38 : Composite temperature / humidity cycle test ● IEC 60068-2-78 : Damp Heat, steady state
- ISO 16750-4 (5.3) : Road vehicles (Temperature cycling)

# TEMPERATURE / HUMIDITY CYCLE TEST



Model	GPS-5W	GPL-4	GPL-3	GPS-3
Interior Dimensions	W 1200 x H 980 X D 1000 mm	W 1000 x H 980 X D 800 mm	W 600 x H 830 X D 800 mm	W 600 x H 830 X D 800 mm
Total Load Resistance	100 kg	70 kg	70 kg	100 kg
Temperature Range	-70°C to +180°C	-40°C to +180°C	-40°C to +180°C	-70°C to +180°C
Temp & Humidity Range	+10°C to +95°C / 10% RH to 98%RH	+10°C to +95°C / 10% RH to 98%RH	+10°C to +95°C / 10% RH to 98%RH	+10°C to +95°C / 10% RH to 98%RH
Speed Ramp Rate	Pull down : 1.5°C / min Heat up : 6.0°C / min	Pull down : 3.0°C / min Heat up : 3.3°C / min	Pull down : 3.5°C / min Heat up : 3.3°C / min	Pull down : 2.0°C / min Heat up : 6.0°C / min
Temp and Humidity Fluctuation	± 0.3°C,+2.5%RH	± 0.3°C,+2.5%RH	± 0.3°C,+2.5%RH	± 0.3°C,+2.5%RH



Model	ARS-1100
Interior Dimensions	W 1100 x H 1000 X D 1000 mm
Total Load Resistance	150 kg
Temperature Range	-75°C to +180°C
Temp & Humidity Range	+10°C to +95°C / 10% RH to 98%RH
Speed Ramp Rate	Pull down : 4.1°C / min Heat up : 4.7°C / min
Temp and Humidity Fluctuation	± 0.3°C,+2.5%RH

Model	GSH-64V
Interior Dimensions	W 400 x H 400 X D 400 mm
Total Load Resistance	20 kg
Temperature Range	-40°C to +150°C
Temp & Humidity Range	+15°C to +85°C / 30% RH to 95%RH
Speed Ramp Rate	Pull down : 1.1°C / min Heat up : 2.4°C / min
Temp and Humidity Fluctuation	± 0.3°C (-40°C to 100°C) ± 0.5°C (+100.1°C to 150°C) ± 2.5%RH

Model	GPL-3B
Interior Dimensions	W 600 x H 830 x D 800 mm
Total Load Resistance	70 kg
Temperature Range	-40°C to +150°C
Temp & Humidity Range	+10°C to +95°C / 10%RH to 98%RH
Speed Ramp Rate	Pull down 2.5°C / min Heat up 2.5°C / min
Temp and Humidity Fluctuation	±0.3°C , ±2.5%RH



Model	EBL-3HW2P3A-20	EBL-3EA0P2T-20	EBL-4HW2P3A-20
Interior Dimensions	W 3020 x H 2100 X D 1970 mm	W 3020 x H 2100 X D 1970 mm	W 4070 x H 1900 X D 1970 mm
Total Load Resistance	600 kgf / m <sup>2</sup>	600 kgf / m <sup>2</sup>	600 kgf / m <sup>2</sup>
Temperature Range	-30°C to +80°C	-30°C to +80°C	-30°C to +80°C
Temp & Humidity Range	+10°C to +80°C / 10% RH to 95%RH	+10°C to +80°C / 10% RH to 95%RH	+10°C to +80°C / 10% RH to 95%RH
Speed Ramp Rate	Pull down : 0.4°C / min Heat up : 1°C / min	Pull down : 0.4°C / min Heat up : 1°C / min	Pull down : 0.4°C / min Heat up : 1°C / min
Temp and Humidity Fluctuation	±0.5°C,+4%RH	±0.5°C,+4%RH	±0.3°C, ±2.5 %RH

## ● STANDARD TEST

- IEC 60068-2-1 : Cold ● IEC 60068-2-2 : Dry heat ● IEC 60068-2-14Nb : Change of temperature with specified rate of change
- IEC 60068-2-30 : Damp Heat, cycle ● IEC 60068-2-38 : Composite temperature / humidity cycle test
- IEC 60068-2-78 : Damp Heat, steady state ● ISO 16750-4 (5.3) : Road vehicles (Temperature cycling)

## TEMPERATURE TEST



Model	GPH-H40
Interior Dimensions	W 1000 x D 1000x H 1000 mm
Temperature Range	(Ambient temp.+ 20)°C to +350°C
Temperature heat-up time	Within 60 min from ambient temp. to 350°C
Temp. Fluctuation	±1.5°C at + 100°C ± 2.0°C at + 200°C ±4.0°C at + 300°C
Total load resistance	100 kg

- STANDARD TEST
- IEC 60068-3-5, IEC60068-3-6

## VACUUM TEST



Model	VAC-201P
Interior Dimensions	W 600 x H 600 X D 600 mm
Temperature Range	+40°C to +200°C
Pressure Range	933 x 102 Pa to 1 x 102 Pa
Speed Ramp Rate	atmospheric to 133 Pa Within 15 min Inlet open to atmosphere Within 8 min
Temperature constancy	±0.5°C(Vacuum),+1°C(Atmospheric)
Total load resistance	100 kg

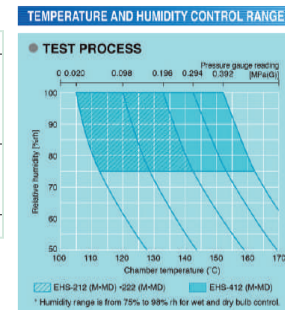
- STANDARD TEST
- IEC 60204, EN 61000-6-2, 55011

## HIGHLY ACCELERATED STRESS TEST



Model	EHS-211M
Interior Dimensions	Ø294 x D318 mm
Unsaturated control	Temp : +105°C to +142.9°C Humidity : 75%RH to 100%RH
Pressure range	0.020 to 0.196 Mpa(Gauge)
Heat up and pressurization time	0 to 0.196MPa(Gauge) Approx : 30 min
Wet-saturated control	Temp : +105°C to +132.9°C
Pressure range	0.020 to 0.196 Mpa(Gauge)
Heat up and pressurization time	0 to 0.196MPa(Gauge) Approx : 45 min
Temp and Humidity Fluctuation	±0.3°C / ±2.5%rh

- STANDARD TEST
- IEC 60068-2-66 (JIS C 60068-2-66) : Damp Heat, Steady state
- IEC 60749-4 : heat
- JEITA(EIAJ)
- JESD22-A118B
- JESD22-A110E
- JESD22-A102E
- AEC-Q100-Rev-H
- JPCA-ET08



## TESTING SERVICE OUTLINE

### Environmental Testing

- Thermal Shock Test
- Temperature / Humidity Cycle Test
- High Accelerate Stress Test
- Temperature Test
- Temperature / Humidity Test
- Temperature / Low Pressure Test

### Others Available Testing

- Corrosion Test ( CCT, SST, CASS)
- Weather Ability Test ( SWOM, Carbon arc, Xenon arc, QUV etc.)
- Water Resistance Test
- Static Strength Test
- Vibration Durability Test
- Material Properties Test
- Fracture Analysis
- X-Ray CT Inspection
- Ozone Resistance Test
- Dust Resistance Test
- Fatigue Durability Test
- Impact Test
- Chemical Analysis
- Foreign Substance Analysis
- 3D Shape Inspection

\*\*\* We can consider another test condition also \*\*\*

# Service Menu

## 1 ) Parts and consumables

We provide stock of spare parts and consumables in Thailand in order to provide services to customers.

## 2) Modification and additional option

After-sale we can on-site modification and additional option to chamber for example.

- Water purify system
- Chiller system
- Re-location
- Online core
- Paperless recorder
- Auto door lock system
- Tower light 3 Color with buzzer
- Cable port hold
- N2 Option
- Barcode system

## 3) Maintenance / Preventive Maintenance

We provide after-sales maintenance chamber and preventative maintenance according to the 1 year contract, with every 6 months inspecting the chamber. There is a check of electrical equipment and machine safety. Inspect parts as become to damage and fix them before the part is damaged. And prepare preventative maintenance reports for customers. Including checking the chamber in case of problems under the preventive maintenance contract.

## 4) Calibration Service (Certificated by ISO17025)

There are 2 types of Calibration service,

- 1.) Accuracy (1 point at center)
- 2.) Uniformity (9 point )

Range of temperature and humidity  
 Temperature range: -80°C to 300°C  
 Humidity range: 20% RH to 95% RH

### Preventive Maintenance Report

\*Maintenance Date : \_\_\_\_\_ \*TSR No: \_\_\_\_\_ PM No: 1 / 2

\*Customer Name : \_\_\_\_\_

\*Chamber Model : PR \_\_\_\_\_ \*Serial number: \_\_\_\_\_ \*Date of Manufacture \_\_\_\_\_

Check list	Items	Result OK / NG	Check list	Items	Result OK / NG
*Visual Check	Scratch/braking (inside/outside)		*Safety devices	Leakage breaker (MAIN)	
	Relay burning/overheat			Overheat protector	
	Electric wires burning/change color			Thermal relay	
	Door gasket (outlet)			Current breaker	
*Wear check	Door gasket (inlet)		Refrigerant leakage detector		
	Main Door Lock		Fiber		
	Refrigerant gas		Emergency stop switch		
*Leakage check	Air		*Operation check	Control switches	
	Water			Microleak signal	
*Operation sound	Air circulator		Temperature indicator		
	Refrigerator Compressor		Temperature Controller		
	Condenser fan motor				

Check list	Items	Value	Spec. Range	Result OK / NG
*Electric insulation	Terminals - Body	NG	SPEC < GRND	
	Dry bulb temperature sensor	NG	SPEC > 11KΩ	
	Wet bulb temperature sensor	NG	SPEC > 11KΩ	
	Temperature heater	NG	SPEC > 11KΩ	
	Humidity heater	NG	SPEC > 11KΩ	
*Rated value	Refrigerator compressor	NG	SPEC > 11KΩ	
	(Voltage)			
	Power supply voltage B-S	V	380 V Within 10%	
	Power supply voltage S-T	V	380 V Within 10%	
	Power supply voltage S-U	V	380 V Within 10%	
	Power supply voltage U-V	V	230 V Within 10%	
	(Current amp)			
	*Dry heater	A		
	*Humidity heater	A		
	*Air circulator	A		
	*Refrigerator	A		

### Certificate of Calibration

ESPEC ENGINEERING (THAILAND) CO., LTD.  
 220/905, Anusay City (Choburi Industrial Estate (Phase II),  
 M. S. 1, Hongsakuln, A. Pathong, Chonburi 20100  
 Tel: 038-103551-5 Fax: 038-103556 www.espec.co.th

**Certificate of Calibration**

Certificate No. : \_\_\_\_\_  
 Page : 1 of 3

Customer : _____	Description : _____
Address : _____	Manufacturer : _____
Model : _____	Received date : _____
Serial No. : _____	Calibration date : _____
Identification No. : N/A	Environment Condition : _____
Calibration Place : _____	Temperature : (23±1)°C
	Humidity : (50±3) %RH

**Calibration Method** : Calibration were conducted using In-house calibration procedure CP-SER-001  
 According to comparison with MI Data Acquisition Switch Unit. The calibration method based on IEC 95-7 guidelines for calibration of climate chamber edition 07/2009.

**Reference Standard Instruments** : \_\_\_\_\_ Model \_\_\_\_\_ Serial No. \_\_\_\_\_ Certificate No. \_\_\_\_\_ Due Date \_\_\_\_\_

This result of calibration was found accurate as shown on date and place of calibration only.  
**Traceability** : This measurement are traceable to the International system of Unit (SI), through National Institute of Metrology (Thailand) (NIMT)

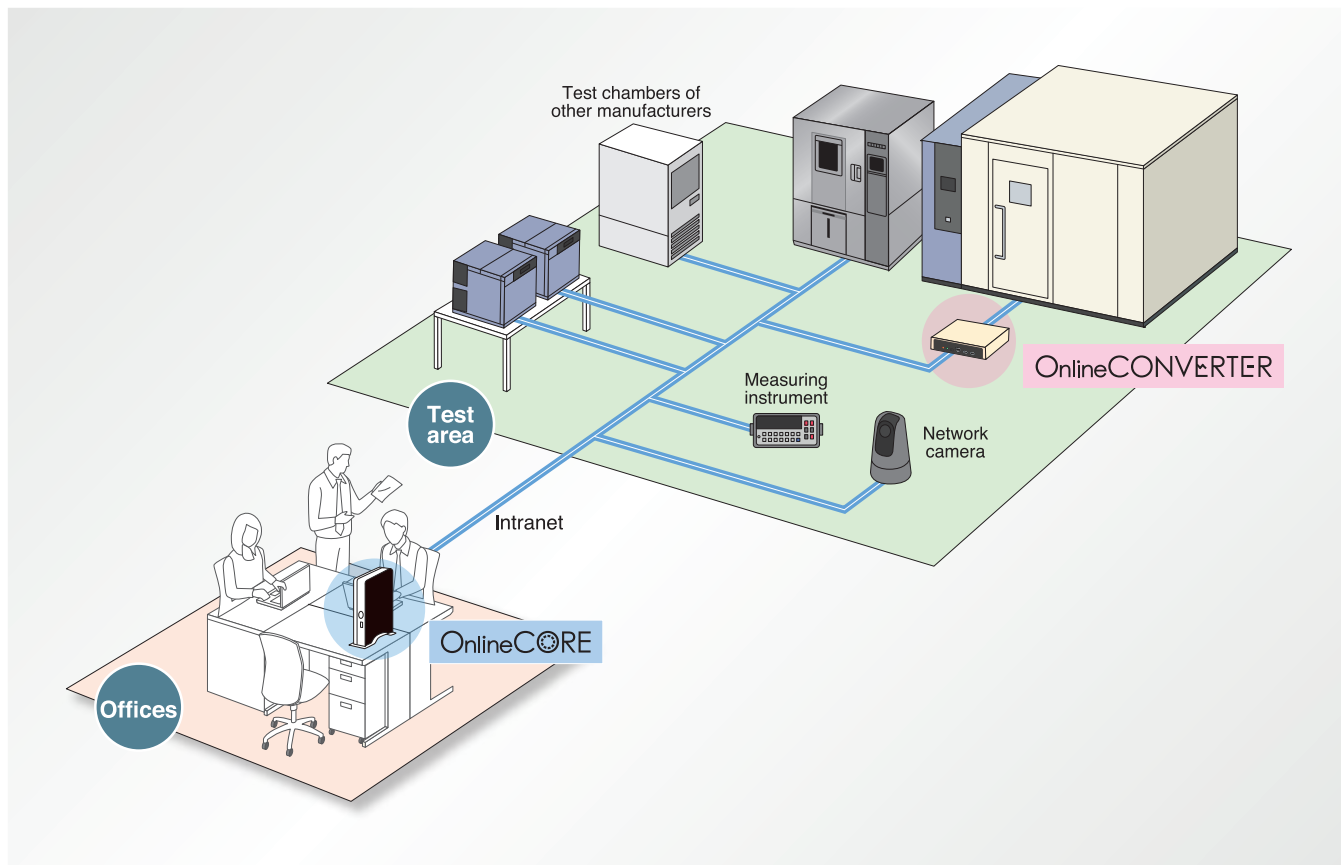
The reported uncertainty of measurement was based on standard uncertainty multiplied by coverage factor k=2, providing a level of confidence of not less than 95%.

Calibrated by : \_\_\_\_\_ Approved by : \_\_\_\_\_  
 Issue date : \_\_\_\_\_

This calibration shall not be reproduced other than in full except with the prior written approval of ESPEC ENGINEERING (THAILAND) CO., LTD.

Rev. 01 / 23 Sep 2021 PM-SER-002

# NETWORK PRODUCTS



## CONTACT US

Telephone : +66(0)38-109-353-5  
Fax : +66(0)38-109-356  
E-mail : [info@espec.co.th](mailto:info@espec.co.th)  
Website : [espec.co.th](http://espec.co.th)  
Address :  
700/860, Amata City Chonburi Industrial Estate  
(Phase 8) Moo 5, Tambol Nongkakha  
Amphur Panthong, Chonburi 20160  
Thailand



Map



Website