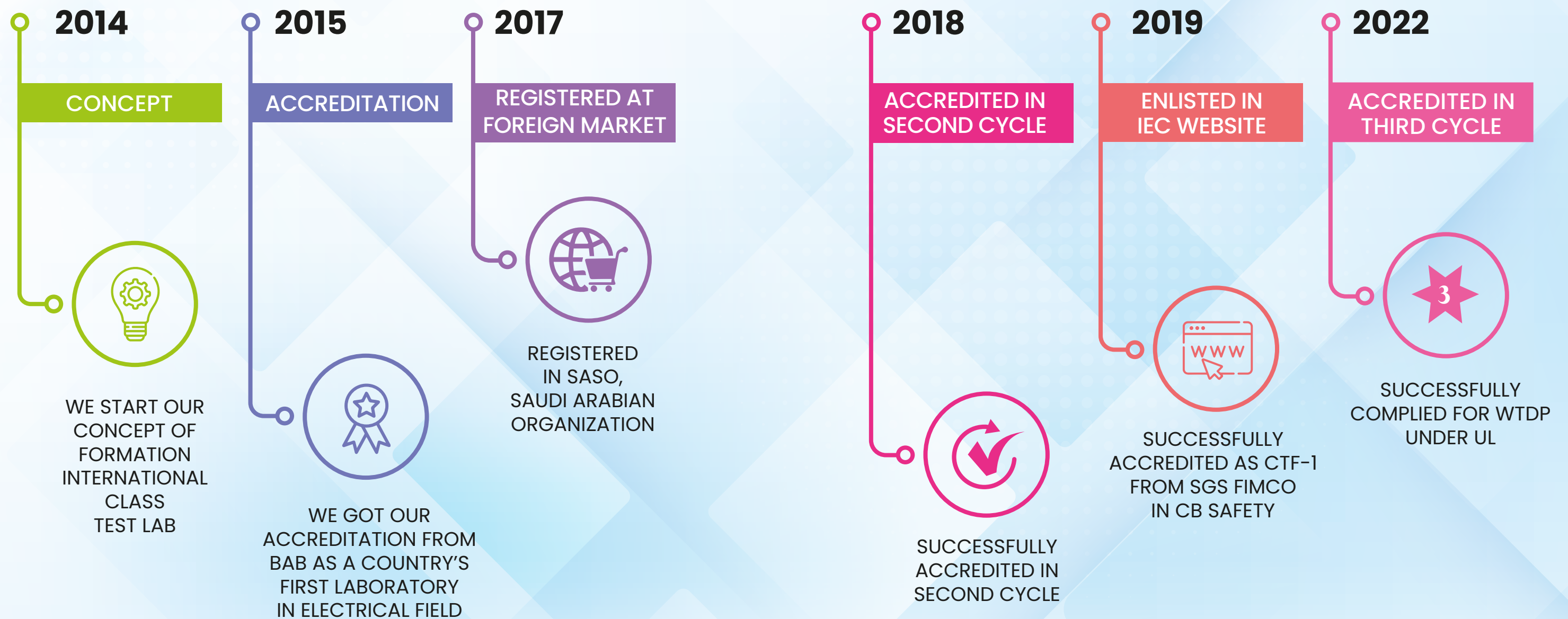




**COUNTRY'S FIRST AND ONLY ACCREDITED LAB OF PERFORMANCE  
AND SAFETY TESTING SERVICES FOR ELECTRICAL HOME APPLIANCE**

# HISTORY OF NUSDAT-UTS







# **TESTING FACILITY**

# **PERFORMANCE TEST**

**Assure Consistency  
in Reliable Performance**



## PERFORMANCE TESTING FACILITY



# OUR SCOPE LIST











## PERFORMANCE TESTING FACILITY

### Applications:

- One stop solution for Performance Testing of Refrigerator and Freezer.
- More than 100 units can be tested at a time.
- More than 50 tests are performed before giving the clearing certificate of every refrigerator or freezer

### Test Scopes:

- IEC/EN62552 : 2020
- AHAM HRF-1 : 2008
- UAE.S 5010
- AUS/NZS 4474 : 2018
- IS 1476 (part-1) : 2000
- IS 15750 : 2006
- SASO 2892 : 2018

### Specifications:

- It has several controlling features like Air velocity, Internal RH, Tachometer, Pressure sensor to set up and measure the climate of the room.
- Temperature range :  $-30^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$
- Humidity range: 10% to 95%
- Precision of data collection  $0.01^{\circ}\text{C}$
- Having the capacity of testing 100 samples at a time (14 chambers)



## MASS FLOW METER:

### Ultimate real world performance:

- Unchallengeable ELITE performance on liquid and gas mass flow, volume flow, and density measurements.
- Reliable two-phase flow measurement for the most challenging applications.
- Designed to minimize process, mounting, and environmental effects.

### Best fit for applications

- Scalable platform for the widest range of line size and application coverage including hygienic, cryogenic, high pressure, and high temperature.

- Available with the broadest range of communication and connectivity options.

### Superior measurement confidence

- Smart Meter Verification delivers complete, traceable calibration verification, continuously or on demand at the press of a button.
- Globally leading ISO/IEC 17025 calibration facilities offers best in class uncertainty of  $\pm 0.014\%$ .
- Intelligent sensor design mitigates the need for zero calibration in the field.



## PLIS Machine

- It ensures the exact quantity of refrigerant in each and every sample which is the key feature for the specific performance of refrigerator.
- It monitors Real-time Production defect and suggests accordingly



## Refrigerant Leakage Test Room

- This is a closed environment where Refrigerant Leakage Test and Gas Charging is done.
- It has a suction line which sucks out all the hazardous components outside.
- It helps us to keep the laboratory weather clean and healthy.





**THINK  
GREEN**





### Specifications:

- Temperature range :ID: +10°C~ +50°C , OD:-15°C ~ +60°C
- Humidity range: ID:35% ~85%, OD: 25% ~ 90%
- Temperature Control Precision is  $\pm 0.2$
- Having the capacity of testing 4 samples at a time

### Test Facilities:

- Wall Mounted Split type Air Conditioner
- Portable Air Conditioner
- Window Type Air Conditioner

### Testing Capacity Range:

- Cooling Capacity: 2600~29000W (9000~100000Btu/h)
- Heating Capacity: 2600~29000W (9000~100000Btu/h)

### Test Facility according to standard (Country wise) :

- BDS ISO 5151: 2012 (Bangladesh)
- ANSI/AHAM PAC-1-2015 (USA)
- e CFR Appendix M1 to subpart B of Part 430 (USA)
- ANSI/ASHRAE 37-2009 (USA)
- ANSI/AHAM PAC-1-2015 (USA)
- IS 1391 (Part-2): 2018 ( India)
- EN 14825:2018 ( European Union Countries)
- EN 14511-1,-2,-3,-4:2018 ( European Union Countries)
- SASO 2681: 2013 (Saudi Arabia)
- UAE.S/ISO 5151:2010 (United Arab Emirates)

## COMMERCIAL AIR CONDITIONER



### Specifications:

- Temperature range : ID: 5 °C ~55 °C , OD:-30°C ~ +65°C
- Humidity range: 30% ~ 90%
- Temperature Control Precision is  $\pm 0.1$
- Having the capacity of testing 2 samples at a time

### Test Facilities:

- VRF type Air Conditioner
- Multiple Split type Air Conditioner
- Light Commercial type Air Conditioner

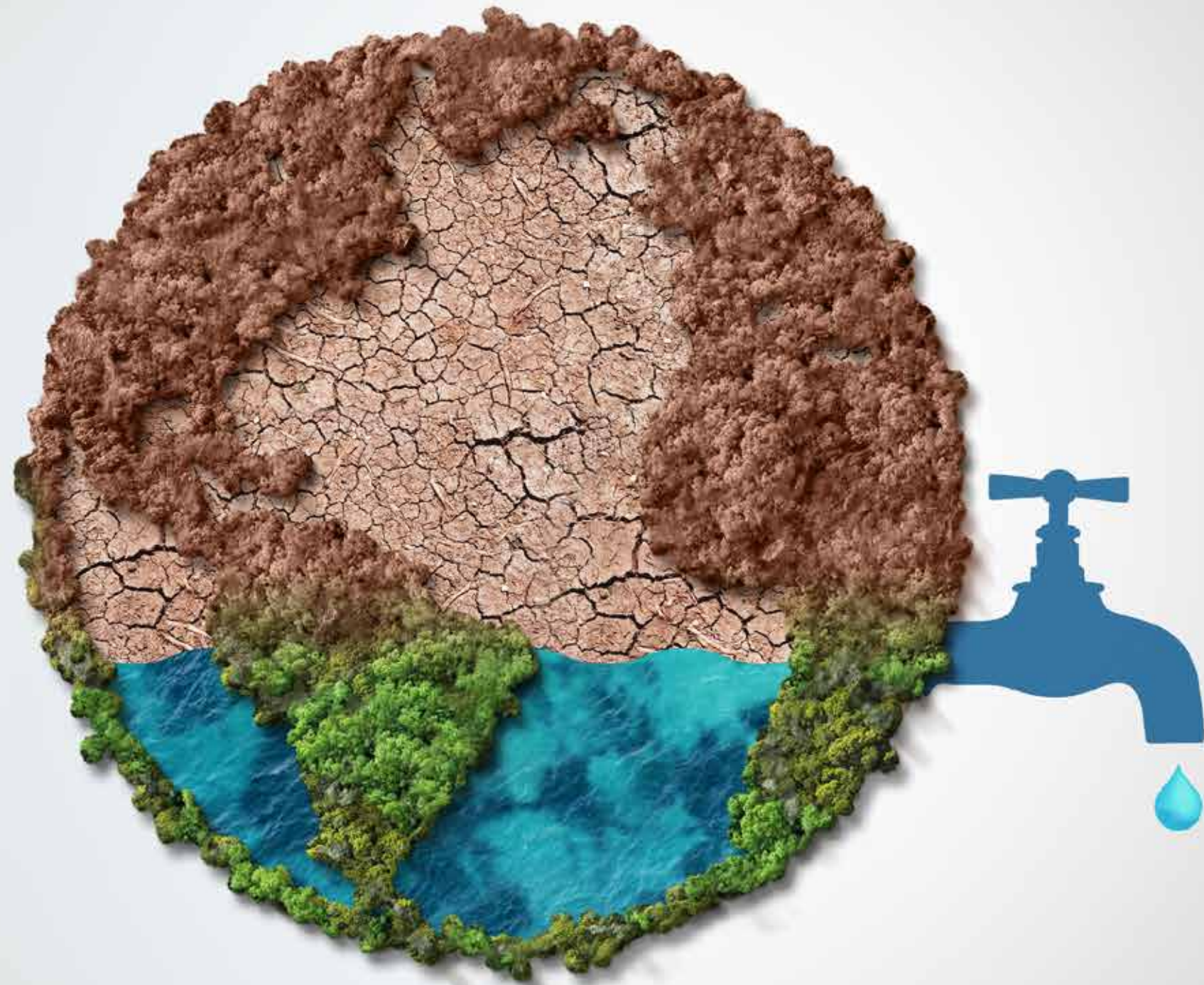
### Testing Capacity Range:

- **Indoor Unit:**
  - Cooling Capacity: 0.8HP~14HP (2000~35000KW)
  - Heating Capacity: 0.8HP~14HP (2000~35000KW)
- **Outdoor Unit:**
  - Cooling Capacity: 0.8HP~42HP (2000~105000KW)
  - Heating Capacity: 0.8HP~42HP (2000~105000KW)

### Test Facility according to standard (Country wise):

- ISO 15042 : 2017
- ISO 13253:2017
- EN 14825:2018 ( European Union Countries)





# Washing Machine



## Washing machine performance lab

We have introduced countries first washing machine performance Chamber with maximum testing facilities for different various conditions. Our lab features

- Temperature controller,
- Internal RH controller,
- High pressure water supply,
- Pressure sensors,
- RPM sensors and more

to check the performance of washing machine in extreme conditions. All operations can be controlled, visualized and can be analyzed further as per R&I demand at higher precision and accuracy.





## LABORATORY FUNCTIONS

### LABORATORY FUNCTIONS

#### Air Handling features:

- Test Room DBT: 5 ~40°C RH: 40 ~95%
- Load Room DBT: 20±2°C RH: (65±5)%

#### Water Conditions:

- Cold water temperature: 5 ~30°C (±0.5°C )
- Hot water temperature: 30 ~85°C (±0.5°C )
- Water pressure: 240kPa(±50kPa)
- Water hardness: 2.5±0.2mmol/L or 0.5±0.2mmol/L

#### UUT:

- Washing machine: 5 units at a time (max.10kg)
- Washing machine: 2 units at the same time (max. 20kg)
- UUT water flow range: 0 ~30L/min

### Applications:

- One stop solution for Performance Testing of washing machines.
- More than 5 units can be tested at a time.
- More than 10 type of standard tests are performed before giving the clearing certificate of every washing machine.

### Test Scopes:

- IEC 60456-2010
- EN 60456-2016
- EN 50229-2015
- IEC 61121-2013
- EN 61121-2013
- GB/T 4288-2018



**SAFETY FIRST**



# CB Safety Testing

Make Products Safer, In Turn Increase Consumer Confidence And Public Safety

## Features

- Ensure Safety from Fire hazards.
- Assure Ingress protection ratings.
- Secure Electrical & Mechanical Safety.
- Confirm products constructional safety and adequate stability.



## Capabilities

- In house testing facility according IEC 60335-1, IEC60335-2-24, IEC 60335-2-40 and IEC 60335-2-89.





## Data Logger- Keysight DAQ 970A



Reliable, accurate and time efficient monitoring for measurement system

### Specifications:

- 3-slot mainframes with built-in 6 ½ digit DMM
- 9 switch, RF and control plug-in modules, including a new 4-channel simultaneous sampling digitizer
- Basic 0.003% DCV accuracy
- Up to 450 channel/s scan rate
- Up to one million points scanning memory
- Large 4.3" color display for ease of setup and viewing data
- The auto calibration compensates for drifts in the internal DMM or on the DAQM907A multifunction module

### Applications:

- Measure, analyze and store test data with precision and efficiency



## Needle Flame Burner: ATS 02.07-C

### Specifications:

- Flame Temperature: 100°C ~700°C
- Flame Height: 12mm ± 1mm

### Applications:

- Proficiently assess the probability of spreading fire hazard from ignition simulating fire conditions inside the equipment. Whether ignition, time and flame length are the outcomes.
- Suitable for lighting, low-voltage electrical, household appliances, machine tools, and other electrical and electronic DUT.

**Reference Standards:** IEC 60695-11-5:2004, GB4706.1:2005, IEC60335-1, GB5169.5:2008



metal  
 lathing  
 verovlagozashinaya film  
 rafters  
 strainer  
 heater  
 steam  
 concrete slab



## Safety Tester- SPS Electronics KT3881

### Applications:

- Properly ensure safe operating standards for any household product that uses electricity.
- 5 in 1 tester - DC High Voltage Test, DCHV- 3 KV
- Insulation Resistance Test, IR- 500V DC 50MOhm
- Protective Wire Test, 10 - 30 AAC / max. 500 mOhm
- Earth Bond Test, PE
- Continuity Test, CT
- Function Test, FT
- Reference Standard: IEC/EN/CSA/UL 60335-1

Test your devices to a wide variety of global standards, providing accurate and reliable results

### Specifications:

- Safety current limited test voltage
- Test device combination for safety and function test
- Automatic test process
- Time basis 0.1 - 999.9 seconds (dwell time)
- Active power measurement for function test







lathing  
verivlagozashinaya film  
rafters  
strainer  
heater  
steam  
concrete slab



## Proof Tracking Tester- ZLT-LDQC

### Specifications:

- Test Voltage and Current: 100~600V , 1A continuously adjustable
- Dripping Nozzle: Outer diameter: 0.9mm~1.2mm 0.9mm~3.45mm for solution B
- Dripping Interval: 0-99 seconds (adjustable), the time for 50 drops to fall on the specimen shall be  $(24.5 \pm 2)$  min
- Conform to standard: IEC60112, IEC60335-1, IEC60598-1

### Applications:

- Wonderful solution to measure the electrical breakdown(tracking) properties of an insulating material
- Ensures how inflammable the component is thus to protect the fire hazard.
- Fully automated system having built-in cabinet to maximize the safety of the operator.



metal  
 lathing  
 vetrovlagozashchinnaya film  
 rafters  
 strainer  
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 steam  
 concrete slab



## The Glow Wire Tester: ATS

### Specifications:

- Loop wire Diameter: 4mm
- Maximum Glow wire temperature: 980°C
- Control System: Programmable automatic controller

### Applications:

- Ideally determine the fire risk of finished E&E insulation of house hold appliances by observing whether the test sample start or stay burning.
- Determine the ignition temperature (GWIT), flammability and flammability index (GWFI) of solid insulation materials and other of solid non metallic combustible materials.
- Reference Standard: IEC60695 -11-5, IEC60695-11-5:2004, GB/T5169.5:2008, GB4706.1:2005.



## The Ball pressure tester: ATS



### Specifications:

- Temperature range: Up to 300 °C
- Ball diameter: 5 mm
- Duration of test: 60 min
- Weight: 20 N

### Applications:

- Smartly designed for testing parts of non-metallic materials for resistance to heat which determine dimensional stability under stress at elevated temperatures
- Applicable to electrotechnical equipment, its subassemblies and components, and to solid electrical insulating materials except ceramics

**Reference Standards:** IEC 60695-10-2

## Pendulum Hammer: ATS



### Specifications:

- Material: Stainless Steel
- Drop Height: 200-1200mm
- Impact Element: 2-50J

### Applications:

- Flawless system to identify the durability of fragile material at higher deformation speeds.
- Determine the impact of energy absorbed by a standardized specimen up to break by measuring the height of rising of the pendulum hammer.

**Reference Standards:** IEC 60335-1







## Burst Pressure Testing Machine:



### Specifications:

- High Pressure Liquid (water) Pump
- Hydraulic test with 0 bar-400 bar pressure range
- Computer control with armored glass protection cabinet

### Applications:

- Highly capable for testing burst pressure in cylindrical type component such as hose, tube, pipe, valve, sensor, cylinder, gauge etc. maintaining pressure safety.

**Reference Standards:** IEC/EN/CSA/UL 60335-1

## Ingress Protection Tester- IP Tester



### Specifications:

- This device is reciprocating swing from 0 to 360 degree. Thus we can spray water from every side of the product
- Can test the equipment up to IPX4 rating.
- Water flow: 0.5 to 5.5 ltr.

### Applications:

- Well organized set up for the dust and waterproof testing of any kind of electrical equipment.

**Reference standards:** IEC/EN 60529 and IEC/EN/CSA/UL 60335-1



## Ac Hipot Tester

### Specifications:

- Model: Ainuo AN9602X
- Rated output voltage: up to 5000 Volt
- Breakdown Current: 0.1-99.99mA
- Reference Standard: IEC/EN/CSA/UL 60335-1
- Smaller in size



## Leakage Current Tester

### Specifications:

- Model: Ainuo AN9620X
- Voltage Range: Up to 300Volt.
- Leakage current Measure: 0.01mA -19mA.
- Latest International Standard: IEC/EN/CSA/UL 60335-1
- It has feature of Standard A MD card.



## Ground Bond Tester

### Specifications:

- Model: Ainuo AN9613X
- Constant current output: up to 32Amp
- Voltage Measure Range: 0.01 - 7.50Volt
- Resistance Measure Range: up to 600milliohm  
VFD display, simple operation;
- Can operate Remotely on RS232 Serial interface.



## DC Milliohm Meter

### Specifications:

- 3.5" (320 x 240) TFT LCD display
- Precision :0.05%
- Resolution : 0.1μohm
- Up to 60 readings per second
- Four wire resistance measurement system

It has the ability of temperature compensation measurement. It can measure very high accuracy wire resistance.









## Ingress Protection Tester- IP Tester



### Specifications:

- This device is reciprocating swing from 0 to 180 degree. Thus we can spray water from every side of the product.
- Can test the equipment up to IPX4 rating.
- Water flow: 0.5 to 5.5 ltr.

### Applications:

- Well organized set up for the dust and waterproof testing of any kind of electrical equipment.

**Reference Standards:** IEC/EN 60529 and IEC/EN/CSA/UL 60335-1

## Inclined Stability Testing Plane



### Specifications:

- It can tilt the appliance up to 25 degree angle.
- It can measure the stability of the appliance weighted up to 200kg

**Reference Standards:** IEC/EN/CSA/UL 60335-1

### Applications:

- Complete solution for ensuring the adequate stability of the product for different standing angle



## EMF Tester



- Extremely precise equipment to assess electronic and electrical equipment related to human exposure restrictions for electric, magnetic and electromagnetic fields.

### Reference Standards:

Standard IEC 60335-2-24 & EN 62233

## Gas Monitor

- Perfectly captures refrigerant leakage of the refrigerator and air conditioner.
- It ensures that the refrigerator and air conditioner you are buying is Eco friendly and free from hazardous issue.
- Reference Standard: IEC/EN/UL/CSA 60335-2-24, IEC/EN/UL/CSA 60335-2-40, IEC/EN/UL/CSA 60335-2-89









# Reliability Test

Measuring Probability of Failure-free Operation



## Reliability Laboratory

Reliability Laboratory of NUSDAT-UTS, is the first in-house reliability testing facilitate Lab in Bangladesh where we follow International Safe Transit Association's (ISTA) standards to verify the capability of the package and product to withstand transport hazards. Reliability Test Program consists of a series of integrated tests (ISTA standards, ASTM standards, customer requirements such as RELIANCE, PEPSICO, DANBY, COCA COLA etc) as follows:

- Atmospheric Preconditioning
- Atmospheric Conditioning
- Compression
- Vibration
- Shock



## Vibration Tester



- This is employed for evaluating industrial products against vibrations.
- It assures the products to cope with various loads such as sine vibration, random vibration of real-time trace
- Reference Standard: ISTA 2A-2B & ASTM D4169

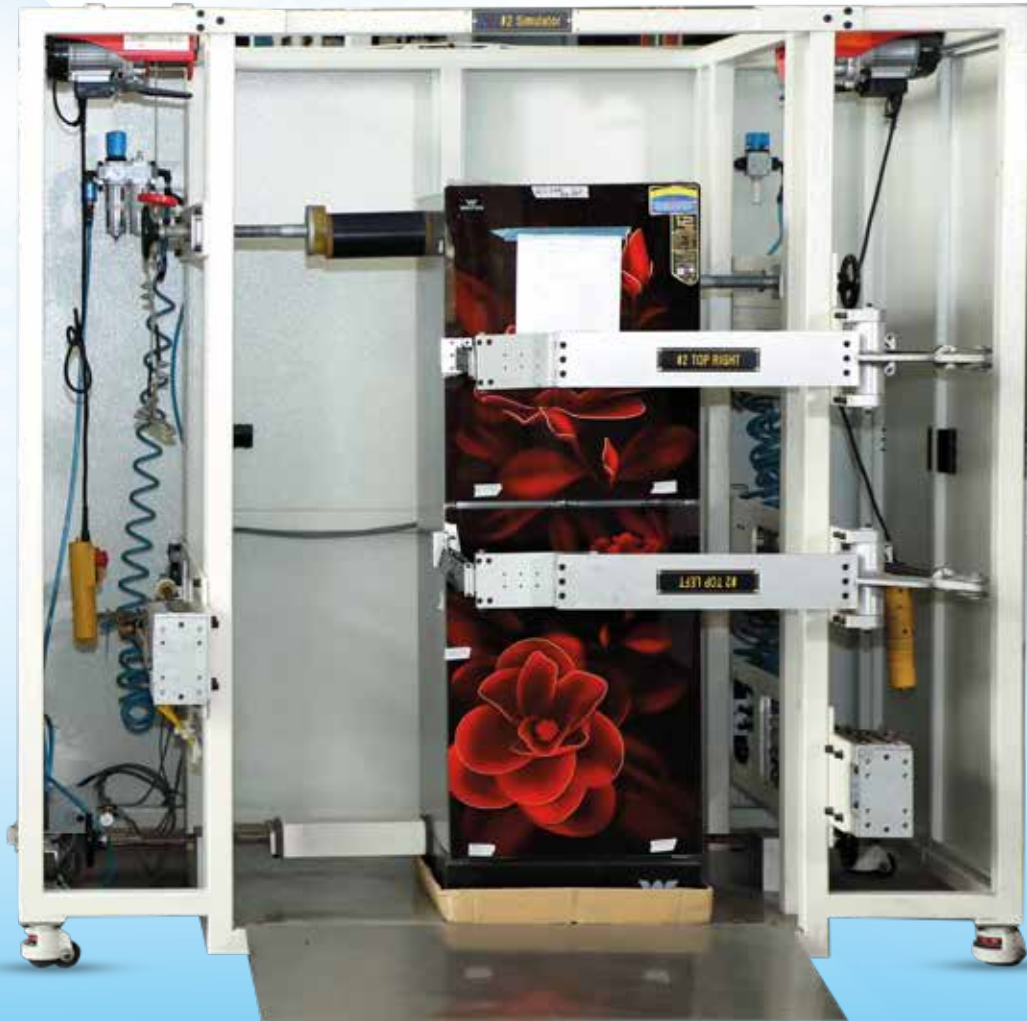
## Compression Tester

- Used to test the compression resistance of carton which ensures high performance pressure and deformation resistance of corrugated box
- It is used to determine whether or not the product has been damaged during warehouse stacking.
- Reference Standard: ISTA 2A-2B & ASTM D4169





## Door Tester



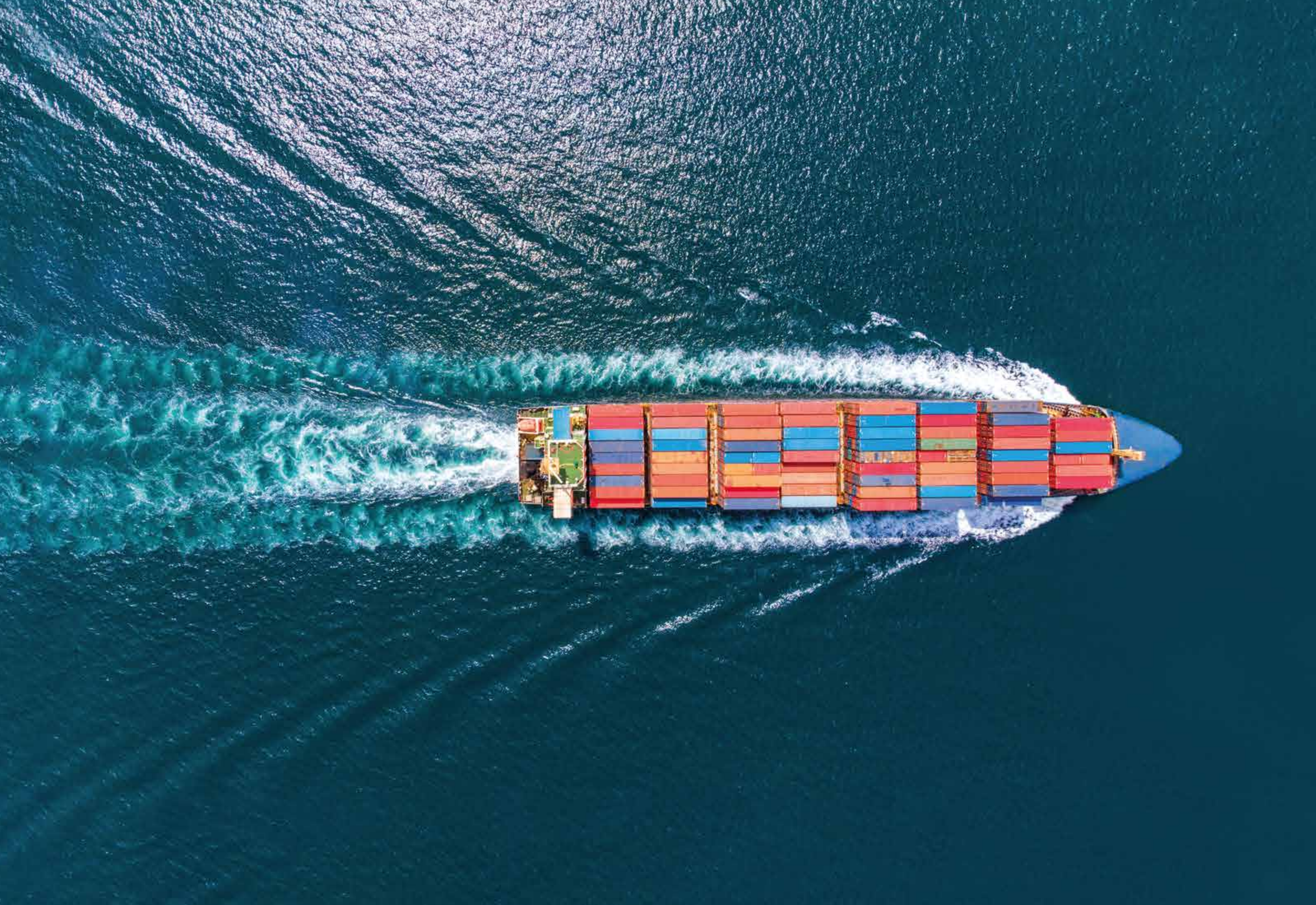
- Used to assure the durability of refrigerator door.
- It is often used to test life time of door for refrigeration, micro-wave oven, washing machine.

## Drop Tester

- Used to ensure the ability of a package to withstand the impacts during the shipping and handling.
- Ensures High Performance Against Impacts During Shipping and Handling
- Reference Standard: ISTA 2A & ASTM D4169









## Incline Impact Tester



## Calibration

Confidence that the measurements taken are accurate

- Used to conduct inclined impact test at specific velocity with min 10 or 15 degree Inclination Angle with specific displacement
- It is required to simulate the inline impact for measuring the resistance capacity of our products
- Reference Standard: ASTM D4169, D880



## Yokogawa 2553A- Precision DC Calibrator



### Specifications:

- High accuracy:  
DC Voltage:  $\pm 75$  ppm  
DC Current:  $\pm 120$  ppm
- Wide output range :  
Stability:  $\pm 15$  ppm/h  
Noise:  $2 \mu\text{Vrms}$
- Wide frequency range:  
5.5 digits  $\pm 120000$  count output resolution

### Applications:

- Expert in delivering high quality service with powerful features to meet your calibration/verification needs.
- An efficient solution for calibration of traditional voltage and current measuring devices such as ammeters, voltmeters, digital millimeters, and DC wattmeters.

## Pressure Calibrator – Omega DPG4000-500



### Specifications:

- Very High Accuracy:  $\pm 0.05\%$  FS
- Range: -11 to 500 psi
- Displays in 18 Standard or Custom Engineering Units
- Large, Backlit, 5-Digit Display with 16.5 mm (0.65") High
- Digits and 20-Segment Bar Graph









## AC Voltage Current Standard- Yokogawa 2558A



### Specifications:

- High accuracy:  
AC Voltage:  $\pm 0.04\%$   
AC Current:  $\pm 0.05\%$
- Wide output range :  
AC Voltage: 1.00 mV to 1200.0 V  
AC Current: 1.00 mA to 60.00 A
- Wide frequency range:  
40 to 1000 Hz (Frequency accuracy:  $\pm 50$  ppm)

### Applications:

- High-precision instrument to provide a wide range of AC voltages and currents.
- Simple standalone and precise solution for calibrating meters, CTs, analog wattmeters, power meters, clamp-on testers, and current transformers.



## Pressure Calibrator: Fluke 700G



### Specifications:

- Range: -14 to 3000 psi
- Resolution: 0.1 psi
- Accuracy:
  - ± 0.04 % of reading
  - 0.01 % of range

## Additel 917- Pneumatic Pressure Test Pump



### Specifications:

- Great stability and high resolution (10 Pa (0.1 mbar).)
- Hand-tight quick connectors
- Pressure range upto 1000 PSI (70 Bar)
- Hand operated pressure pump
- Ideal comparison test pump for pressure instruments calibration.
- Specially designed shut-off valve makes the pressure as stable as possible during calibration

### Applications:

Very precise and reliable in calibration of Pressure Gauge, Pressure sensors with waterless concept.



## Hybrid Temperature Bath SiKA TP 3M165E.2



### Specifications:

- Patented control technology – time saving up to 50%
- High calibration volume
- Fastest stabilization times on the market
- Patented touch screen function
- Temperature range: -35...165 °C
- Accuracy:  $\pm 0.3$  °C
- Stability :  $\pm 0.010$  °C
- Resolution: 0.001

### Applications:

- Perfect solution for calibration of RTD, PRT, Thermocouple etc.

## Weight Calibration



### Specifications:

- Capacity: 0.5g to 200g with E1 class and mass up to 50 kg with F2 class.







## Scale and Tape measuring Machine

### Specifications:

- Measuring Range: 0-1000 mm and repeatability in scope
- Overall Accuracy:  $\pm 0.015 \text{ mm. / 1000 mm.}$
- Resolution: 0.001 mm.
- Reference Object: CCD Camera with 20x magnification

**Applications:** Calibrate scales and tapes with high precision and standards.



## Gauge Blocks–Mitutoyo



### Specifications:

- Measuring Range: 0 – 500 mm and repeatability in scope  
Grade: 0

### Applications:

- Exceptional precision and stability for calibration.
- Some of the most accurate and trusted instruments in the world, featuring exceptional flatness and ideal surface roughness.



## Service We Provide



## Category A: Testing & Calibration

### Testing Facility

NUSDAT-UTS is highly delighted to serve the testing facilities regarding Performance, Safety and Reliability tests.

### Calibration Facility

We have already established a Calibration lab with highly precise calibration equipment which can be served on demand of clients. Also, accreditation of calibration lab is under process.



## Category B: Consultancy



### International Market Consultancy

As per customer's demand and the specific country requirements, we are always ready to assist in which country with which product the market share can be attained.



### Compliance Consultancy

To sell products in competitive market, we can provide compliance consultancy to our clients, which includes standard testing, further development (if necessary), product choice etc.



### Certification Consultancy

After compliance of the product according to specific standards, we assist our clients to get the required certificates and marking or labeling.



### RoHS Consultancy

In addition, we provide necessary information regarding RoHS compliance of the product. As per requirements, we can help our clients to test their products for RoHS compliance from different laboratories.



### EMC consultancy

We can also provide necessary information regarding EMC compliance of the product. As per requirements, we can help our clients to test their products for EMC compliance from different laboratories. In near future, we will introduce our own EMC lab also.

## Category C: Knowledge Sharing



NUSDAT-UTS is an ISO/IEC 17025 accredited laboratory Since 2015. On basis of our experience, we provide knowledge sharing program to do so. We can assist any interested laboratory for implementing standard practice by demonstrating, reviewing and making quality manual. We also can provide consultancy on getting accreditation.



By completing three successful cycle of accreditation audit, we are now competent for the function of the internal audit. We can provide internal audit facility as per customer demand.



Considering your laboratory operation and technical requirement, we can support you finding the appropriate way for the Uncertainty Budget Calculation.





1,224.49

108.78 (-9.18%)

59,977.10

3,559,927

¥ 694

High 1,065.67 (-51.57)

Low 1,022.80 (-101.41)

680.08 -10.86%



# Various Types of Standards

We already have more than 200 standards on our reading list. We are enriching our knowledge everyday. It is the first and foremost duty of NUSDAT-UTS. We can support you with those knowledge in response of your technical and management queries about those standards.