



## IMPLEMENTING GUIDELINES OF THE PHILIPPINE ENERGY LABELING PROGRAM FOR CLOTHES WASHING MACHINES 2024, 1<sup>ST</sup> EDITION

Pursuant to Sections 5 and 9 of Department Circular No. 2020-06-0015, as amended, entitled "Prescribing the Guidelines of the Philippine Energy Labeling Program (PELP) for Compliance of Importers, Manufacturers, Distributors and Dealers of Electrical Appliances and Other Energy-Consuming Products (ECP)", the Implementing Guidelines for Clothes Washing Machines, including the Particular Product Requirements (PPR) and Code of Practice (COPE) are hereby issued for the information and guidance of all those concerned and for compliance by all manufacturers, importers, distributors, dealers, retailers and other key stakeholders.

**1. Particular Product Requirement (PPR) for Clothes Washing Machines.** The PPR provides the requirements for Clothes Washing Machine and other relevant information:

### 1.1 Scope

This PPR covers fixed speed and variable speed clothes washing machines, with minimum capacity of 5kg up to 22kg, that operates using electricity (rated at 230 volts and 60 Hz) as main power source with or without heating devices utilizing cold and/or hot water supply. The following are the categories:

#### 1.1.1 Fixed speed / variable speed clothes washing machines.

- a. Manual
  - Single tub
  - Twin tub
- b. Automatic
  - Top loading
  - Front loading

*Notes:*

- a. Clothes Washing machines with rated washing capacity beyond 22kg are not covered in this PPR.
- b. Stand-alone spin dryers/water extractors are not covered in this PPR.

### 1.2 Definition of Terms

For the purpose of this PPR, the following definitions and those in PNS IEC 60456 – Clothes washing machines for household use – Methods for measuring the performance and its future amendments shall apply:

**Applicants** - refer to manufacturers, importers, distributors, or dealers.

**Capacity** - refers to the maximum mass, in kg, of dry textiles of a particular type that can be treated in the washing machine on the programme selected.

**Clothes Washing Machines** – refers to an encased assembly designed as a unit and for cleaning and rinsing of textile using water, which may also have a means of extracting excess water from the textiles.

**Automatic Clothes Washing Machine** - refers to a washing machine where the load is fully treated by the machine without the need for user intervention at any point during the programme prior to its completion.

**Manual Clothes Washing Machine** - refers to a washing machine where the machine requires user intervention at one or more points during the programme to enable the machine to proceed to the next operation.



- a. **Single-Tub Washer** - refers to a single drum washer that contains the clothes to be washed, rinsed or soaked and to be filled manually with water then rotated at a certain speed to remove the dirt from the clothes.
- b. **Twin-Tub Washing Machine** - refers to a twin-tub washing machine as the name implies, is a washing machine that has two compartments (tubs). One tub is for washing the clothes, and the other is for spinning the clothes to dry. It is a type of machine which requires user intervention that includes transfer of wet clothes by hand from one tub to the other; manual filling of water (non-automatic water level); and setting this machine to run a spin cycle separately to the wash cycle and finally drain the water. This type of machine is always top loading.

**Cycle** - refers to the complete washing process, as defined by the programme selected, consisting of a series of different operations (wash, rinse, spin, etc.) and includes any operations that occur after the completion of the programme.

**Cycle Time** - refers to the time from the initiation of the programme (excluding any user programmed delay) until all activities ceased. Activities are considered to have ceased when the power consumption reverts to a steady state condition that persists indefinitely without user intervention. If there is no activity after the end of the programme, the cycle time is equal to the programme time.

**Decision Rule** - rule that describes how measurement uncertainty is accounted for when stating conformity with specified requirements.

**Energy Consumption** - refers to the energy consumed over a programme (called the programme energy), which is equivalent to the sum of the electrical energy, any cold-water correction and the energy embodied in any hot water.

**Energy Efficiency Factor (EEF)** - refers to the ratio of the capacity of the clothes washing machine, in kg, to the energy consumption, in kWh per cycle.

**Energy Efficiency Performance Rating (EPR)** - refers to the product's star rating, which is based on the ranges of EEF and is stated on the energy label.

**Energy Efficiency Rating** - as indicated in the energy label, pertains to the rated Energy Efficiency Factor (EEF) of the clothes washing machines.

**Generic Models** - refers to the range of models similar to the base model where all have the same major physical characteristics, construction, system design and other performance characteristics.

**Programme** - refers to the series of operations which are pre-defined within the washing machine, and which are declared by the manufacturer as suitable for washing certain textile types.

**Programme Time** - refers to the time from the initiation of the programme (excluding any user programme delay) until the completion of the programme. If the end of programme is not indicated, the programme time is equal to the cycle time.

**Spin Extraction** - also known as water extraction, refers to the water-extracting function by which water is removed from textiles by centrifugal action. This is included as a function (built in operation) of an automatic washing machine but may also be performed in a spin extractor.

**Spin Extractor** - otherwise known as Spin Dryer or Water Extractor, refers to a water extracting appliance in which water is removed from textiles by centrifugal action.

**Washing Performance** - refers to the ratio of the average sum of the reflectance measurement of all stain test strips of test washing machines to the average sum of the reflectance measurement of the reference machine.

### 1.3 Normative Reference

The Clothes Washing Machine covered under this PPR shall be tested, as applicable, according, but not limited to the following standards and their future amendments.

**PNS IEC 60456:2013** Clothes washing machines for household use – Methods for measuring the performance.

Considering the regular updating of the standards, the latest edition of the PNS shall be used as reference. It is understood that future amendments of the PNS indicated in this PPR shall be applied after its effectivity. A transition period coinciding with the transition period indicated in the PNS shall be provided to give ample time for all stakeholders to adjust and conform to the new requirements, if any.

### 1.4 Code of Practice on Energy Labeling of Products. Pursuant to Section 15 of the Energy Efficiency and Conservation (EEC) Act, the Code of Practice on Energy Labeling of Products (COPE) provides for the calculation methods of the following:

**1.4.1** The Clothes Washing Machine Energy Efficiency Rating in the DOE Label is based on the **Energy Efficiency Factor (EEF)** for clothes washing machine, which is calculated as follows:

$$EEF = \frac{\text{Capacity (kg)}}{W_{total}}$$

Where:

**$W_{total}$**  refers to the Energy Consumption, as defined in Section 1.2.

**Capacity** refers to the Capacity as defined in Section 1.2.

The Energy Efficiency Rating reflected on the DOE Energy Label shall correspond to the claimed Energy Efficiency Factor value. The Energy Efficiency Rating shall be adjusted accordingly (as needed) once the product has undergone verification testing.

**1.4.2** For the estimation of **monthly energy and water consumption** (based on a specified monthly washing cycle), the calculations are as follows:

$$\text{Monthly Energy Consumption (kWh)} = W_{total} \times N$$

$$\text{Monthly Water Consumption (liter)} = \text{Total water consumption} \times N$$

Where:

**N** is the number of washing cycles per month. With regards to the DOE Energy Label, this parameter is assumed to be 16 cycles per month.

**$W_{total}$**  refers to the Energy Consumption as defined in Section 1.2.

**Total Water Consumption** is the measured water consumption throughout the programme (liter).

*Note: Energy consumed from Spin Extraction / Water Extraction will be included in the Total Energy Consumption if water extraction is included in the completion of a cycle of the washing machine.*

**1.4.3** For the estimation of **monthly electricity cost**, the calculation is as follows:

$$\text{Monthly Electricity Cost} = \text{Monthly Energy Consumption (kWh)} \times \text{Electricity Price}$$

Where:

**Electricity Price** is the prevailing peso per kWh, as indicated in the electricity bill issued by an electric power distribution company.

**1.4.4** For the estimation of **Monthly Greenhouse Gas (GHG) Emission** due to monthly electricity consumption, the calculation is as follows:

$$\text{Monthly GHG Emission} = \text{Monthly Energy Consumption (kWh)} \times \text{Emission Factor}$$

Where:

**Emission Factor** is the Simple Operating Margin (OM) Emission Factor derived using the power grid statistics and is available in the DOE Website.

*Note: The unit of the calculated GHG emission shall be in kg CO<sub>2</sub> per kWh*

## **1.5 Minimum Energy Performance**

**1.5.1** The performance data that will be declared shall be based from Washing Performance of at least 0.6.

**1.5.2** Clothes Washing Machines covered under this Implementing Guidelines, manufactured and assembled outside the Philippines, must meet the MEP requirement of the country of origin, as may be applicable.

## **1.6 Tolerance**

The following tolerances shall apply to all covered clothes washing machines for households use:

**1.6.1** Energy Efficiency Factor shall not be less than 95% of the rated EEF of the test sample.

*Notes:*

- a. The measured Energy Consumption shall be rounded-off first before determining the tolerance.*
- b. Verdict shall be based on the rounded-off value.*

**1.6.2** Energy consumption shall not be more than 110% of the rated energy consumption of the test sample.

**1.6.3** Washing performance shall not be less than 90% of the rated washing performance of the test sample.

## **2. Product Verification Testing**

All general technical provisions in the Guidelines shall apply, including the following:

### **2.1 Sampling Method for Verification Testing**

**2.1.1** A unit for a specific product model shall be randomly tagged from the sampling location.

*Note: If a model (either base or generic) has been verified, the result of the test shall apply to all the base or generic models declared for that model.*

### **2.2 Conduct of Verification Testing**

**2.2.1** Prior to testing, there shall be no preparation, modification or adjustment in any manner on a test sample and no special quality control, testing or assembly procedure on a test sample, or in any parts and sub-assemblies thereof, that is not normally performed during production and assembly.

Test methods to verify conformity to the claimed information in the label shall be as specified in Section 1.3.

**2.2.2** Sample shall be tested at a standard voltage of  $230V\sim \pm 1\%$ ,  $60Hz \pm 1\%$ .

#### **2.2.3 Testing Programme**

##### **2.2.3.1 Automatic Clothes Washing Machines**

a. The Programme to be used for automatic clothes washing machine testing shall be in accordance with the manufacturer's instructions, provided that the programme selected is intended for the similar purpose when compared to the programme on the reference washing machine. Refer to Annexes E and F of PNS IEC 60456 for guidance.

##### **2.2.3.2 Manual Clothes Washing Machines**

a. Programme to be used for manual clothes washing machine testing shall be in accordance with the manufacturer's instruction regarding the settings and operation of the appliance. Where no specific instructions are provided, the test procedure for manual washing machine in Annex M of PNS IEC 60456 shall be followed.

b. The recommended reference programme on the reference machine in accordance with Annex M of PNS IEC 60456 is Cotton at 20°C.

**2.2.3.3** The Energy Consumption of the water extraction function is included in the total energy consumption. The water extraction performance is not covered in the PPR.

**2.2.4** The water to be used shall be soft water with total water hardness of  $0.5 \pm 2\%$  millimoles per liter of calcium carbonate ( $\text{CaCO}_3$ ).

**2.2.5** The base load to be used shall be in accordance with the Annex C of PNS IEC 60456.

**2.2.6** In cases where a measured value falls within the guard band, as defined in this IG, the DOE Recognized Testing Laboratory that conducted the test shall be responsible for issuing the final verdict. The final verdict shall be in accordance with Annex A: Guidelines on the Decision Rule of this IG to account for measurement uncertainty.

### **2.3 Presentation of Results**

**2.3.1** Measured Energy Consumption shall be rounded-off to the nearest 0.01 kWh. The rules of rounding-off shall be followed.

**2.3.2** The measured Energy Consumption shall be rounded-off first before determining the tolerance.

**2.3.3** Verdict shall be based on the rounded-off value.

### **2.4 Correction of Performance Ratings**

**2.4.1** Applicant has the option to change their claimed ratings in order to comply with the requirements of the implementing guidelines based on the result of the test.

**2.4.2** New claims shall conform to the tolerances specified in Section 1.6.

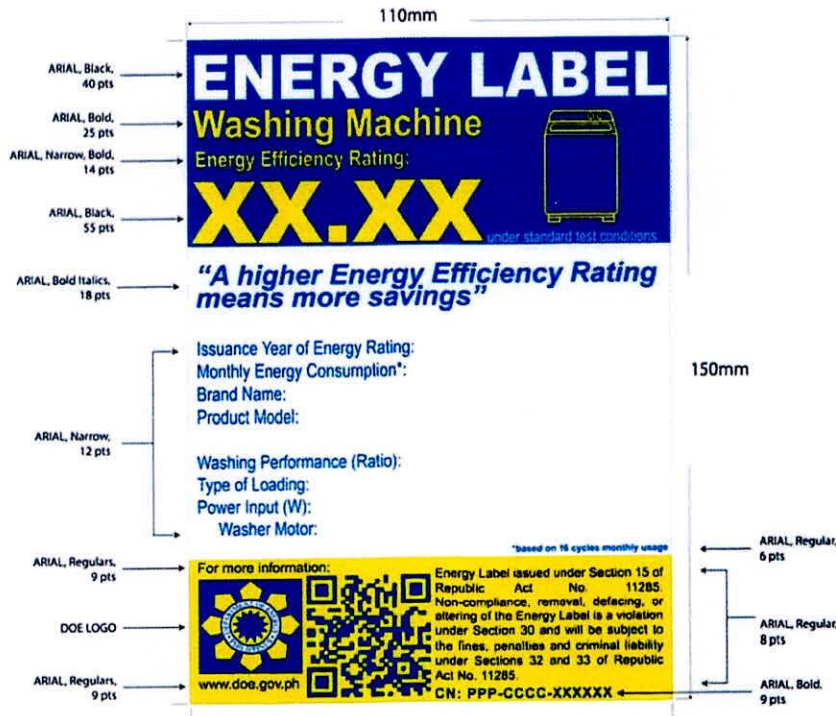
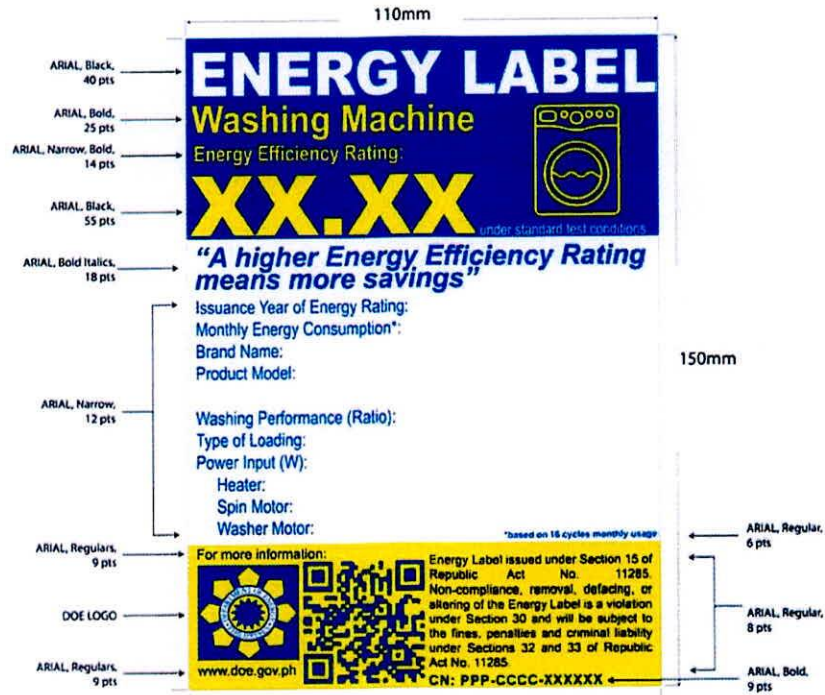
### **2.5 Inspection of Generic Models**

**2.5.1** A model will not be considered generic if there is a difference in component parts that may affect the performance and/or energy consumption of the clothes washing machines, including capacity (kg), cycle timer, nameplate ratings, water volume, number of tubs, type of motor, loading and operation, among others.

**2.5.2** In case of doubt, DOE-EPRED shall require the inspected units to be subjected to performance testing.

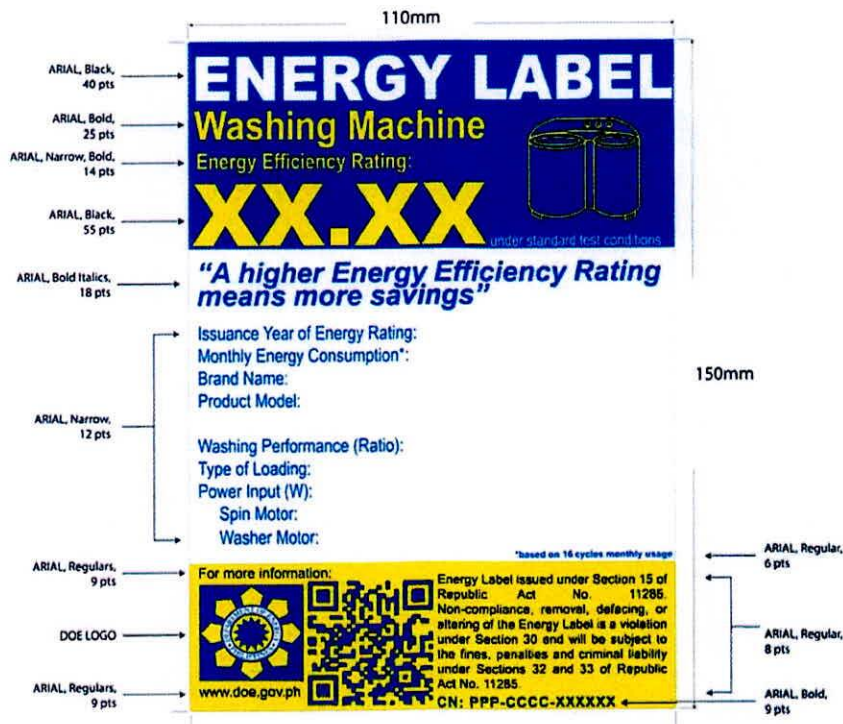
### 3. Specification and Dimensions of Energy Label

#### 3.1 Label Design



#### Swatches





Swatches



3.1.1 Products on sale shall have the energy label affixed at the front of the unit or its control panel, whichever is more visible.



3.2 Presentation of Energy Label

**ENERGY LABEL**  
**Washing Machine**  
 Energy Efficiency Rating:  
**XX.XX** under standard test conditions



**“A higher Energy Efficiency Rating means more savings”**

Issuance Year of Energy Rating:  
 Monthly Energy Consumption\*:  
 Brand Name:  
 Product Model:

Washing Performance (Ratio):  
 Type of Loading:  
 Power Input (W):  
 Heater:  
 Spin Motor:  
 Washer Motor:

\*based on 16 cycles monthly usage

For more information:



Energy Label issued under Section 15 of Republic Act No. 11285. Non-compliance, removal, defacing, or altering of the Energy Label is a violation under Section 30 and will be subject to the fines, penalties and criminal liability under Sections 32 and 33 of Republic Act No. 11285.

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**ENERGY LABEL**  
**Washing Machine**  
 Energy Efficiency Rating:  
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**“A higher Energy Efficiency Rating means more savings”**

Issuance Year of Energy Rating:  
 Monthly Energy Consumption\*:  
 Brand Name:  
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 Type of Loading:  
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#### 4. Product Registration

Applicants may register their clothes washing machine models through the PELP Online Product Registration, which includes the information indicated in the Product Registration Form – Clothes Washing Machine, among others. These procedures also apply to both manufactured and imported institutional products.

##### 4.1 Product Registration Form

The Product Registration Form shall indicate the product's details, details of the testing facility used and the product's performance specifications, in accordance with the normative references stated in section 1.3. The Product Registration Form shall contain, at the minimum, the following information:

Product Test Report Details	
Name of Testing Laboratory	
Country of Testing Laboratory	
ISO 17025 Accreditation Body	
Accreditation Membership/Affiliation	
Laboratory Report Issuance Date	
Accreditation Certificate Expiration Date	
Product Details	
Product Category	Cleaning and Laundry Appliances
Product	Clothes Washing Machines (CWM)
Particular Product	<input type="checkbox"/> Automatic Washer and Spin Dryer <input type="checkbox"/> Manual Single Tub Washer <input type="checkbox"/> Manual Twin - Tub Washer and Spin Dryer
Type	Loading <input type="checkbox"/> Top load CWM <input type="checkbox"/> Front load CWM
	Motor <input type="checkbox"/> Single Speed <input type="checkbox"/> Variable Speed (Inverter)
	Model <input type="checkbox"/> Base <input type="checkbox"/> Generic
Product Performance Specification	
Brand Name	
Model Number/Code	
Product Name	
Year Model	
Country of Origin	
Original Equipment Manufacturer (OEM)	
Capacity (kg)	
Power Input (Watts)	
Heater (Watts)	
Spin Motor Rating (Watts)	
Washer Motor Rating (Watts)	
Hot Water Correction ( $W_H$ )	
Cold Water Correction ( $W_C$ )	
Off mode power consumption (kWh)	
Left on mode power consumption (kWh)	
Energy Consumption (kWh)	
Total water consumption (liter)	
Energy Efficiency Factor (EEF)	
Programme time	
Remaining Moisture Content (%) (as applicable)	

Rinsing Index (as applicable)	
Washing Performance (Ratio)	
Voltage (V)	
Frequency (Hz)	
Other Parameters	

*Note: Number of samples tested for product registration purposes will be up to the Applicant. Test report shall be valid up to one (1) year from the date issued.*

**5. Effectivity**

This IG shall take effect fifteen (15) days following its publication in at least two (2) newspapers of general circulation. Copies of this IG shall be filed with the University of the Philippines Law Center – Office of the National Administrative Register.

Issued at Energy Center, Bonifacio Global City, Taguig City.

  
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## ANNEX A GUIDELINES ON DECISION RULE

This document will provide the decision rule that will be used to account for measurement uncertainty, based on ILAC-G8:09/2019.

### Definition of Terms:

**Acceptance Interval** - interval of permissible measured quantity values.

**Acceptance Limit (AL)** - specified upper or lower bound of permissible measured quantity values.

**Guard Band (w)** – interval between a tolerance limit (TL) and a corresponding acceptance limit (AL) where length  $w = |TL - AL|$ .

**Measured Quantity Value** - quantity value representing a measured result.

**Rejection Interval** - interval of non-permissible measured quantity values.

**Specific Risk** - is the probability that an accepted item is non-conforming, or that a rejected item does conform. This risk is based on measurements of a single item.

**Tolerance Interval / Specification Interval** - interval of permissible values of property.

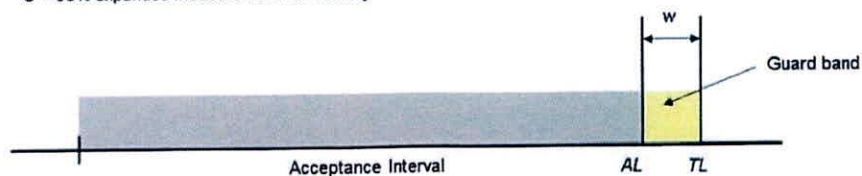
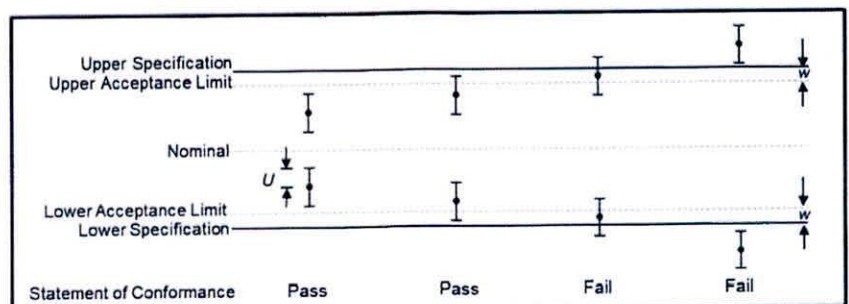
**Tolerance Limit (TL) / Specification Limit** - specified upper or lower bound of permissible values of a property.

### Decision Rule

A Binary decision rule is when the result is limited to two choices (pass or fail). As explained below, the declaration of conformity is binary acceptance.

### Binary Acceptance based on Guard Band

The decisions are based on guard-banded acceptance limits. The acceptance limits,  $AL = TL - w$ , where  $U$  is the expanded measurement uncertainty or equivalent to  $w$ . The estimate of the measurand is assumed to have a normal probability distribution and specific risk is used for the risk calculation. In this case, the risk of accepted items being outside the tolerance limit is less than or equal to 2.5%.



Statements of Conformity are reported as follows:

- Pass – acceptance based on guard band; the measurement result being below the acceptance limit,  $AL = TL - w$ .
- Fail – rejection based on guard band; if the measurement result is above the acceptance limit,  $AL = TL - w$

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