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GB/T 4214.3-2023

Replacing GB/T 4214.3-2008

**Test Method for Noise of Household and Similar Electrical
Appliances - Particular Requirements for Dishwashers**

家用和类似用途电器噪声测试方法

洗碗机的特殊要求

(IEC 60704-2-3:2017, Household and Similar Electrical Appliances - Test Code for the Determination of Airborne Acoustical Noise - Part 2-3: Particular Requirements for Dishwashers, MOD)

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Foreword

This document was drafted in accordance with the rules of GB/T 1.1-2020 *Directives for Standardization - Part 1: Rules for the Structure and Drafting of Standardizing Documents*.

GB/T 4214 *Test Method for Noise of Household and Similar Electrical Appliances* series of standards has issued the following documents:

- General Requirements (GB/T 4214.1);
- Particular Requirements for Vacuum Cleaners (GB/T 4214.2);
- Particular Requirements for Dishwashers (GB/T 4214.3);
- Particular Requirements for Washing Machines and Spin Extractors (GB/T 4214.4);
- Particular Requirements for Electric Shavers, Hair Clippers or Trimmers (GB/T 4214.5);
- Particular Requirements for Electric Hair Care Appliances (GB/T 4214.6);
- Particular Requirements for Tumbler Dryers (GB/T 4214.7);
- Particular Requirements for Electric Cooking Ranges, Ovens, Grills, Microwave Ovens and Any Combination of These (GB/T 4214.8);
- Particular Requirements for Fans (GB/T 4214.9);
- Procedure for Determining and Verifying Declared Noise Emission Values (GB/T 4214.10);
- Particular Requirements for Electrically-operated Food Preparation Appliances (GB/T 4214.11);
- Particular Requirements for Fan Heaters (GB/T 4214.12);
- Particular Requirements for Range Hoods and Other Cooking Fume Extractors (GB/T 4214.13);
- Particular Requirements for Refrigerators, Frozen-food Storage Cabinets and Food Freezers (GB/T 4214.14);
- Particular Requirements for Electric Thermal Storage Room Heaters (GB/T 4214.15);
- Particular Requirements for Food Waste Disposers (GB/T 4214.16).

This document serves as a replacement of GB/T 4214.3-2008 *Household and Similar Electrical Appliances - Test Code for Determination of Airborne Acoustical Noise - Particular*

Test Method for Noise of Household and Similar Electrical Appliances - Particular Requirements for Dishwashers

1 Scope and Determined Quantity

Except for the following contents, this Chapter of GB/T 4214.1-2017 is applicable.

1.1 Scope

1.1.1 Overview

Added:

This document applies to household and similar single-unit electric dishwashers, with or without automatic program controls, using hot and / or cold water sources, which may be separated or permanently connected to a water supply or drainage system, intended to be placed against a wall on the floor, embedded or placed under a counter, under a kitchen operating surface or under a sink, and mounted on a wall or on a counter.

1.1.2 Type of noise

Replaced:

The methods specified in GB/T 6881.2-2017, GB/T 6881.3-2002 and GB/T 3767-2016 can be used to test the noise emitted by dishwashers.

1.1.3 Size of sound sources

Replaced:

The method specified in GB/T 3767-2016 is applicable to sound sources of any size. When adopting GB/T 6881.2-2017 and GB/T 6881.3-2002, it should be noted that the maximum size of the dishwasher under test shall satisfy the requirements specified in GB/T 6881.2-2017 and GB/T 6881.3-2002.

1.2 Determined Quantity

Added:

The requirements for the declared values of noise are beyond the scope of this document.

NOTE 101: for the determination and verification of the noise emission values declared in the product specification, see GB/T 4214.10-2021.

Reverberant Fields - Comparison Method for a Hard-walled Test Room (ISO 3743-1:2010, IDT)

Added:

GB 38383-2019 The Minimum Allowable Values of the Energy, Water Consumption and Grades for Dishwashers

IEC 60436:2015 Electric Dishwashers for Household Use - Methods for Measuring the Performance

3 Terms and Definitions

The following terms and definitions are applicable to this documents.

This chapter of GB/T 4214.1-2017 is applicable, except for the following contents.

3.3 operational cycle

Added:

The dishwasher's operational cycle starts when the program starts (excluding any user-set delays) and ends when all activity ceases (i.e., the end of the cycle); at the end of the cycle, all activity in the dishwasher has stopped. In other words, the dishwasher may revert to a power-off mode, or the dishwasher may have a steady state of power consumption before being turned on or off by the user.

NOTE: the program termination prompt tone should be turned off or minimized. If this operation cannot be performed, then, the prompt tone shall be included in the measurement.

3.101 rated dishwasher capacity

When loaded in accordance with the manufacturer's instructions, the total number of sets of tableware (place setting and service pieces) that can be washed and dried in one cycle.

NOTE: the manufacturer declares the rated dishwasher capacity of the dishwasher and expressly indicates the number of sets of tableware.

[source: IEC 60436:2015, 3.1.12]

3.102 place setting and service pieces

The tableware defined in IEC 60436:2015, or the tableware defined in GB 38383-2019.

NOTE: the tableware used is stated in the test report.

3.103 drying

The operating stage, during which, the load is dried. Drying starts when the washer pump stops

working after the final rinse and ends at the end of the operational cycle.

4 Measurement Method and Acoustic Environment

This chapter of GB/T 4214.1-2017 is applicable, except for the following contents.

4.2 Direct Method

Added:

If pure tone components are present in the noise emitted by the sound source, then, the estimated value of the standard deviation of sound pressure levels measured in an exclusive reverberation chamber may increase. Under this circumstance, in accordance with the stipulations of GB/T 6881.3-2002, it may be necessary to add additional microphone locations or sound source locations.

4.3 Comparison Method

Added:

If pure tone components are present in the noise emitted by the sound source, then, the estimated value of the standard deviation of sound pressure levels measured in a hard-walled test room or an exclusive reverberation chamber may increase. Under this circumstance, in accordance with the stipulations of GB/T 6881.2-2017 or GB/T 6881.3-2002, it may be necessary to add additional microphone locations or sound source locations.

5 Measurement Device

This chapter of GB/T 4214.1-2017 is applicable.

6 Operation and Positioning of the Device under Test

This chapter of GB/T 4214.1-2017 is applicable, except for the following contents.

6.1 Assembly and Pretreatment of Appliances

6.1.3

Replaced:

Before starting the measurement, the inner surface of the appliance and the filter shall be clean. The salt container, if available, shall be filled with salt and water in accordance with the manufacturer's instructions, and the rinse aid box shall be filled with rinse aid. The amount of salt and acid rinse (Type III) used shall comply with the contents of 5.8 and 5.9 in IEC 60436:2015. Then, the equipment shall be operated for at least 2 cycles in accordance with the

Dishwashers shall be operated in accordance with the standard test procedures in 6.101 and loaded with the standard load specified in 6.102. In accordance with different nominal numbers of sets of place setting (and artificial pollutants), the recommended detergent dosage is also different: 5 g for 1 ~ 3 sets, 10 g for 4 ~ 7 sets, 15 g for 8 ~ 10 sets and 20 g for above 10 sets. Detergent D specified in IEC 60436:2015 shall be used.

Immediately before the start of the program, the detergent shall be placed in the location of the dishwasher specified by the manufacturer. If a dispenser is installed, the detergent shall be added in whole or in part in accordance with the manufacturer's instructions. Before adding the detergent, the dispenser shall maintain dry and clean. Unless otherwise specified by the manufacturer, the detergent shall be put into the main compartment of the dispenser.

At the beginning of the standard test procedures, the standard test load shall be dry and at room temperature. Within 2 min before the start of the standard test procedures, the glasses with artificial pollutants shall be removed from the refrigerator and placed in the dishwasher.

Place in accordance with the loading scheme provided by the manufacturer. If there is no loading scheme or the loading scheme does not describe how the glasses are to be placed, then, place the glasses with frozen milk in the upper basket in a position where they can be directly spray-washed by the water from the nozzles. If the machine does not have an upper basket or the glasses cannot fit in the upper basket, then, place the glasses in the lower basket where they can be directly spray-washed by the water from the nozzles.

Care shall be taken to avoid the collision sound of the tableware due to the impact of water flow or the collision of the spray arms.

NOTE 101: under normal circumstances, the dishwasher door is opened for 3 h after an operational cycle, so as to allow the appliance to thoroughly cool.

6.5 Positioning and Installation of Appliances

6.5.2

Not applicable.

6.5.5

Added:

Appliances with non-detachable worktops and appliances specified by the manufacturer to be used only on a stand-alone basis shall be independently placed during measurement. All other appliances shall be placed in the test enclosure described in Appendix B of GB/T 4214.1-2017; if there is a worktop, it shall be removed.

The front edge (except the door) of the dishwasher cabinet designed to be built-in shall be 20 mm ~ 25 mm behind the front edge of the test enclosure.

If there is no skirting board integrated with the appliances, and the location of the skirting board

is not specified in the instructions for use, then, the skirting board shall be tightly pressed on the appliance.

6.101 Standard Test Procedures of Noise Test

The standard test procedures of noise measurement are the same as the procedures used to measure and determine the cleaning performance, drying performance, energy consumption and water consumption in accordance with IEC 60436:2015.

6.102 Standard Test Load of Noise Test

The standard test load of noise measurement includes all sets of place settings and a corresponding number of service pieces, which jointly constitute the rated washing capacity specified by the manufacturer, which is the load specified in IEC 60436:2015, or the load specified in Appendix B of GB 38383-2019. The standard test load shall be loaded in accordance with the rated washing capacity and the load placement scheme specified by the manufacturer in the instructions for use. If no load placement scheme is provided, then, the load placement shall be the same as that used to measure and determine the cleaning performance, drying performance, energy consumption and water consumption.

The standard test load consists of a glass filled with frozen artificial pollutant. Except for this glass, the rest of the load shall be clean. The artificial pollutants shall use ultra-heat treated milk, with a fat content of $3.5\% \pm 0.5\%$.

Depending on different nominal capacities, different amounts of artificial pollutants shall be used. 50 mL for 1 ~ 3 sets, 100 mL for 4 ~ 7 sets, 150 mL for 8 ~ 10 sets and 200 mL for above 10 sets.

The glasses shall be filled with the artificial pollutants specified above and frozen in a refrigerator at $-18\text{ }^{\circ}\text{C}$ or colder for at least 24 h.

7 Measurement of Sound Pressure Level

This chapter of GB/T 4214.1-2017 is applicable, except for the following contents.

7.1 Arrangement of Microphones, Measurement Surface and RSS Location in Approximately Free Field Above Reflective Surfaces

7.1.3

Not applicable.

7.1.5

Not applicable.

7.1.6

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