



Dishwashers: Defining Key Aspects of ENERGY STAR[®] Customer Satisfaction

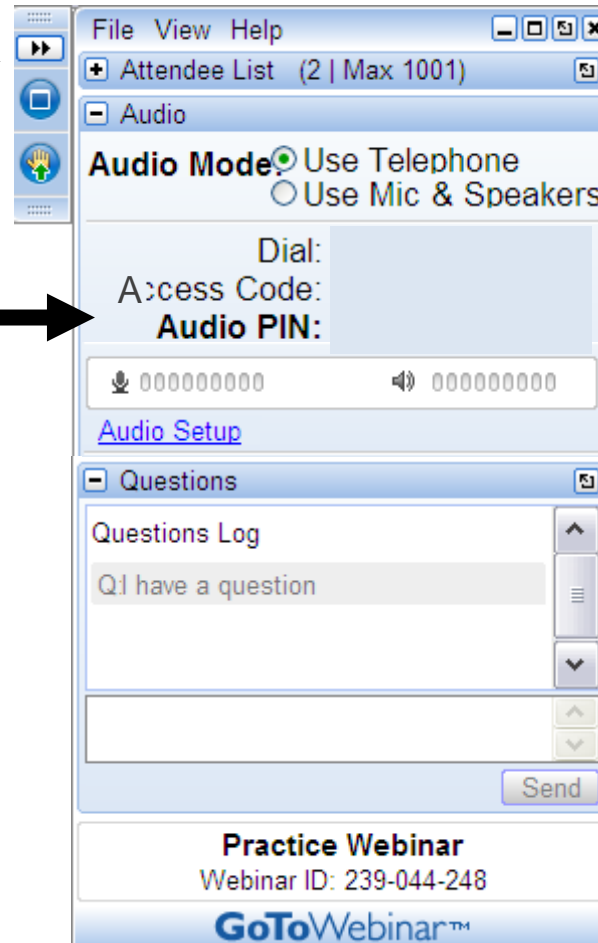
**Melissa Fiffer, U.S. EPA
Roadmapping Webinar
March 23, 2016**

Using GoToWebinar

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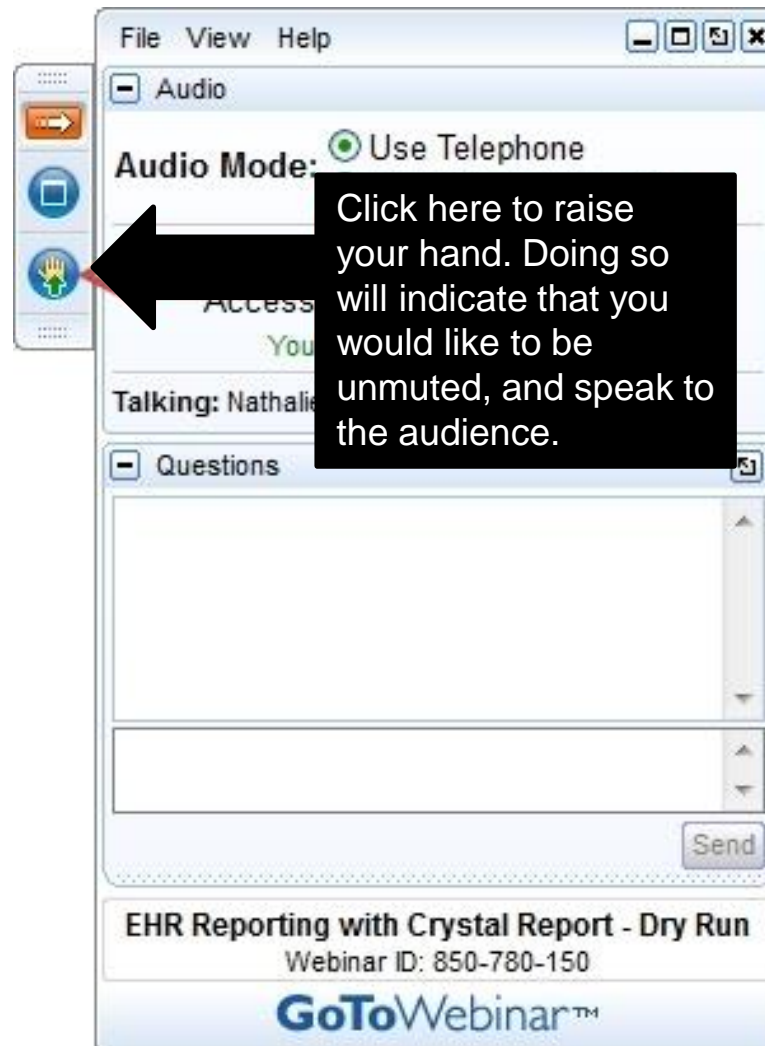


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Appliance Roadmapping Goals

- Build on more than 20 years of partnership to foster the future success of the ENERGY STAR program for appliances
- *Look ahead creatively to the next five years, with the goal of maintaining an ENERGY STAR appliance program that delivers on consumer expectations for performance and efficiency*
- Establish pathways to further engagement between EPA ENERGY STAR, appliance manufacturers, retailers and energy efficiency program sponsors on an ongoing basis
- Charting progress and identifying consumer value of connected functionality



Appliance Roadmapping: Where are we now?

Late 2015

- Kick-off session at ENERGY STAR Products Partner Meeting
- Launch of roadmapping web site
- Release of draft outline of upcoming appliance spec revisions

Winter/Spring 2016

- **Webinars scheduled for Jan-May on topics inc. customer satisfaction, connected, and consumer messaging.**
- We are open to exploring other topics of mutual interest to EPA, utilities, manufacturers, and retailers.
- We are open to forming working groups to continue the conversation on any of the webinar topics where there is more in-depth interest.

Summer/Fall 2016

- We are open to hosting in-person meeting(s) this summer for working group topics where there is interest/relevance.
- We expect to culminate the appliance roadmapping effort with an in-person meeting at the Oct 2016 ENERGY STAR Products Partner Meeting.

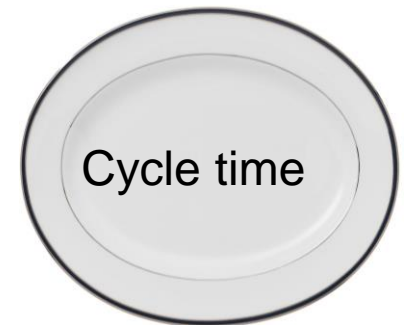
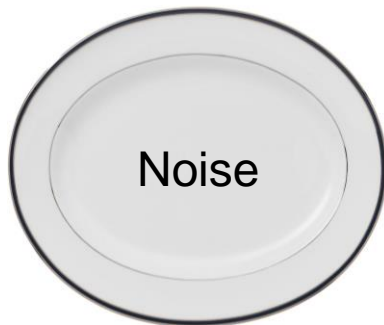
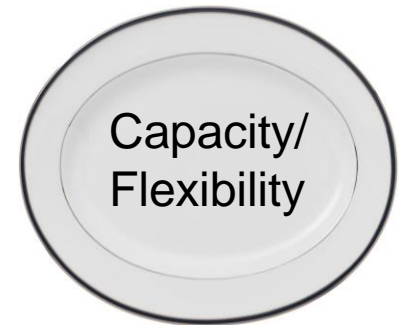
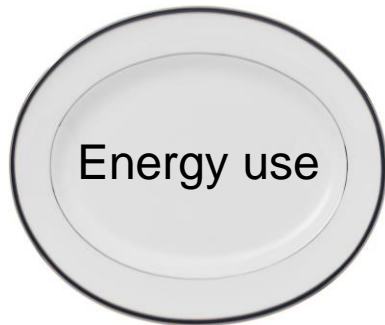


Agenda for Today's Webinar

- Discussion of key dishwasher performance factors
 - Abroad
 - In the U.S. market
- Discussion of dishwasher technology and features
- ENERGY STAR and dishwasher performance
- Next steps for dishwasher roadmapping



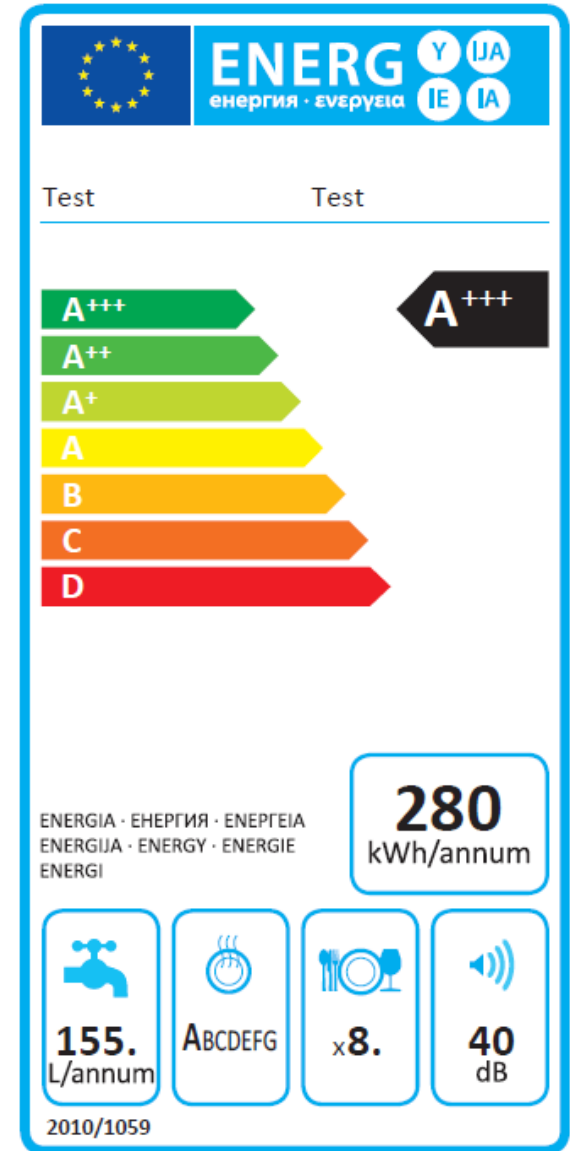
Dishwasher Performance Considerations





Key Performance Factors in Other Countries

- All European household dishwashers are scored on energy, cleaning, and drying efficiency indices. They bear a label indicating:
 - Noise emission
 - Drying efficiency class (ABCDEFGG)
 - Rated Capacity
 - Annual energy and water consumption
- Australia Water Efficiency Labelling and Standards (WELS) program tests for:
 - Water Efficiency
 - Washing and drying effectiveness
 - Cleaning performance thresholds must be met in order to be registered and labeled.





Discussion – Key Performance Factors in the U.S.



Which factors are most important to U.S. consumers?

- Cleaning
- Rinsing
- Noise
- Energy Efficiency
- Water Efficiency
- Cycle time
- Drying
- Capacity
- Flexibility



Highlights of Dishwasher Technology and Features

- Sensors (Soil sensor)
- Improved motors
- Improved fill control
- Gray water rinse
- Reduced inlet-water temperature
- Ultrasonic washing
- Microprocessor controls and fuzzy logic
- Increased Insulation
- Low standby loss of electric controls
- Flow-through heating
- Fan drying
- Condenser dryer
- Improved water filters
- Variable washing pressure and flow rates (based on cycle selection)
- Connected features
- Tub material

How might these technologies and features impact efficiency? Cost? Performance?

Are there other market trends we should be aware of?

ENERGY STAR Dishwasher Criteria



- Our goal: Use ENERGY STAR to promote energy efficient appliances that do not compromise on performance.
 - ENERGY STAR criteria provide consistent definitions and approaches to achieve energy savings.
 - ENERGY STAR is a trusted resource that can help consumers find these advanced products and identify the benefits they offer.
- Reminder: ENERGY STAR labels both standard and compact models.
 - Compact dishwashers include countertop and dishdrawer designs.



ENERGY STAR Dishwasher Criteria

- ENERGY STAR Version 6.0 (effective January 29th, 2016)

Product Type	AEC _{Base} (kWh/year)	Water Consumption (gallons/cycle)
Standard	270	≤ 3.5
Compact	203	≤ 3.1

- ENERGY STAR Most Efficient 2016

Product Type	AEC (kWh/year)	Water Consumption (gallons/cycle)
Standard	≤ 240	≤ 3.2

AEC = annual energy consumption



Dishwasher Cleaning Performance

- ENERGY STAR Test Method for Residential Dishwasher Cleaning Performance (Rev. Feb-2014)
- Data will **not** be shared publicly
- Implemented in Version 6.0 as optional:
 - Cleaning Index data can be reported through an EPA-recognized certification body (CB) or directly to EPA
- Required for ENERGY STAR Most Efficient:
 - Cleaning Index data shall be reported through a CB
 - Products must obtain a minimum per cycle Cleaning Index:

Test Cycle Type	Cleaning Index
Heavy	70
Medium	70
Light	70



Dishwasher Cleaning Performance Data

- Number of models that have submitted cleaning data

	Brands	Models
ENERGY STAR	2	4
ENERGY STAR Most Efficient	2	9
Total	4	13

- Number of models that meet Most Efficient energy and water criteria, but have not submitted for recognition

Brands	Models
5	19



Discussion – Dishwasher Closing Comments

Next Steps in the Dishwasher Roadmapping Process



- Further engagement between EPA ENERGY STAR, appliance manufacturers, retailers and energy efficiency program sponsors:
 - Working group on dishwasher performance?
 - Additional webinars?
 - In person meetings?
- How can ENERGY STAR help promote performance testing in dishwashers?



Other Upcoming Roadmapping Webinars

- *Connected Appliances: Continued*
April 7th, 2016 from 1:00-3:00 pm Eastern
- *Collaborating on Consumer Messaging: Educating on Efficient Product Use and Replacement/Recycling*
May 25th, 2016 from 1:00-3:00pm Eastern
- *Clothes Washer Performance follow-up*
Stay tuned for updates
Please feel free to submit workgroup topics



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Thank you for participating!

*Check for updates on the
[Appliance Roadmapping
web site](#)*