REF NO.	Topic	Comment Summary	ENERGY STAR Response
1	Annual Energy Consumption Base Allowances	EPA is encouraged to correct the anomaly concerning Product Classes 5A, 5A-BI, 6, 7, and 7-BI and allow those product areas to use an additional 8.4 kWh/year.	In the final ENERGY STAR Version 5.0 Refrigerators and Freezers Product Specification, EPA corrected the Annual Energy Consumption Base Allowances (located in Table 1 of the specification) for the mentioned product classes with through-the-door ice (5A, 5A-BI, 6, 7, and 7-BI), consistent with the intent to establish ENERGY STAR levels that required products to use at least 10% less energy than measured in the DOE test procedure.
2	Freezers	The reintroduction of freezers into the ENERGY STAR specification is supported.	The final Version 5.0 specification contains criteria for freezers. EPA received comments from several manufacturers and a utility who supported continuing to cover freezers in the ENERGY STAR program. Most notably, however, EPA received confidential stakeholder data indicating there would be energy efficient freezers on the market in 2014 that provided a reasonable payback. The data indicated consumer payback periods was between 2 and 5 years for a number of freezer product classes and between 6 and 7 years for chest freezers. While the Agency generally uses a timeframe of between 2 and 5 years as a reasonable payback, EPA believed that a modestly longer payback for one class of freezers was acceptable in light of long lifetime of a freezer (in the most recent technical suport document, DOE estimated an average freezer lifetime of about 22 years).
3	Freezers	The continuation of the ENERGY STAR program for the freezer product categories is in conflict with EPA Guiding Principle number 3, which states that purchasers will recover their investment in increased energy efficiency within a reasonable period of time (further defined as between 2 and 5 years). The public comments that have been submitted to support a reasonable payback are outdated and do not reflect a reasonable payback period. Continuance of the freezer program will result in consumers paying a premium for energy savings that may, at best, be recovered in about 10 years, which will undermine the value and relevance of the ENERGY STAR brand for the consumer. EPA is strongly urged to reconsider their decision to continue the ENERGY STAR program for the freezer product categories.	

4	Connected	A 5% energy credit for connected refrigerators and freezers is strongly supported.	EPA has proposed a five percent functional adder for ENERGY STAR refrigerators and freezers with connected functionality, to help drive near-term, consumer value through the availability of new energy savings and convenience features. This functionality may also provide future benefits to the electric grid and additonal consumer savings once the supporting infrastructure is built.
5	Connected	Continues support for previously submitted comments that EPA should require open standards at the appliance and that a cloud-based system alone is not sufficient to qualify as connected. Ensuring that connected refrigerator freezers can be utilized in demand response and other utility-sponsored programs is critical to realizing the energy benefits of smart-grid enabled appliances.	Currently, a range of connected approaches are being explored in the nascent connected appliance market. Accordingly, EPA believes it is ultimately in the consumer's interest for the market to be free to test a range of options, constrained only by the consumer-oriented objectives the ENERGY STAR program is seeking to advance. In the final Version 5.0 specification, EPA continues to indicate a preference for products that enable on-premises open standards connectivity, while allowing alternate approaches to comply. EPA further intends to monitor the connected appliance market, including uptake of appliances with connected functionalty by consumers and utilities, and may consider subsequent criteria revisions to further encourage realization of energy and cost savings associated with smart grid interconnection. EPA also encourages stakeholders to share findings and data associated with their market monitoring activities to help inform refinement of connected product criteria.
6	Connected	Data is available on DR-capable refrigerators, clothes washers, and dishwashers that validate device performance in response to DR events compared to normal operation. Stakeholder would like to make findings available to DOE and EPA. Data may be available in the near future that provides insight into consumer usage patterns and impact of DR events on the consumer experience and will be made available to DOE and EPA.	EPA is appreciative of this and any offers to share data and information to help inform future revisions to connected functionality in order to ensure intended goals are being realized.

7	Connected	Requests that a known, open communication protocol for DR, such as SEP 2.0, be included in this statement: "A product that enables economical and direct, on-premises, open standards based interconnection is the preferred option for meeting this requirement, but alternative approaches are also available." Allowing multiple methods of communication could be problematic for utility DR program design.	EPA believes it important for market forces to drive acceptability of the varied communication protocols currently being used for appliances with connected functionality. In the Version 5.0 specification, EPA has set criteria ensuring the use of open-standards. EPA notes that this criteria allows for various protocols, including SEP 2.0 to comply.
8	Connected	EPA is encouraged to not make any further revisions to the connected criteria.	The final Version 5.0 connected criteria is unchanged from the Final Draft. EPA believes these criteria, crafted through extensive stakeholder input and careful consideration of varied stakeholder commentary, strikes an acceptable balance that will enable ENERGY STAR refrigerators and freezers with connected features to deliver upon the promise of enhanced consumer functionality and support future grid benefits associated with connected functionality.
9	Connected	The Final Draft states that delay defrost capability shall be disabled once the consumer enrolls in a DR program. This exception should be restated to require that the delay defrost be updated with the peak demand periods appropriate for the relevant utility. If the language remains, refrigerators that were prevented from defrosting during peak periods would suddenly be allowed to do so when they are enrolled in a program.	Appliance manufacturers have informed EPA that it is not acceptable for the total duration of defrost deferral to exceed four hours. Thus, it is important that delay defrost capability, intended to provide immediate grid benefit in the absence of signals-based DR, be disabled once the product is enrolled/interconnected into a signals-based DR program. EPA notes that once interconnected, utilities will gain added flexibility in regards to the scheduling of DAL events, which may be utilized to supplant delay defrost capability.

10	Connected	Requests the EPA modify the requirement that a refrigerator or freezer responding to a DR signal "be able to provide *at least one"* response in a rolling 24-hour period*,* and require that units respond to at least one event in a rolling 8-hour period. This will provide sufficient time for the refrigerator to return to normal operation and alleviate concerns about temperature maintenance. In the alternative, the existing language should be modified to require response to "*at a minimum* , one DR signal within 24 hours, but shall not limit the ability to respond to additional events, so long as functionality and safety are not jeopardized."	As previously noted in response #8, the final Version 5.0 connected criteria are unchanged from the Final Draft. The Agency notes that duration of and number of responses per rolling 24-hour period are stated as minimum criteria that manufacturers may elect to exceed. EPA encourages stakeholders to share the supporting data, to inform the next specification revision.
11	Connected	Definitions of DAL and TALR may prove ineffective at achieving their goal of DR load shedding, nor will they provide sufficient capacity to make DR programs cost-effective. This is due to the responses being tied to event duration. In many instances duration is not commonly known when an event needs to be called. Furthermore, a case cannot be foreseen where an event would be called with a duration of less than 15 minutes, thus nullifying the TALR (which offers larger DR reductions) unless multiple units were cycled through subsequent TALR events. Additionally, many events will last 6 hours or more to cover a peak time of 12-6. These events would fall outside of the 4 hour maximum defined DAL duration, meaning a response is not required. Therefore, multiple shorter events would need to be called and cycled through available DR resources. When combined with a 24 hour restriction, scheduling individual resources could become a massive undertaking.	EPA notes that DAL and TALR durations were informed by the smart refrigerator/freezer definition in the smart appliance ENERGY STAR Petition. However, in setting DR criteria, the Agency elected to frame the 10 minute TALR and 4 hour DAL durations as minimums rather than maximums. As such, appliance stakeholders may elect to design connected appliances with extended durations that may more closely align with utility needs.

12	Effective Date	EPA should harmonize the ENERGY STAR Refrigerator and Freezer V5.0 specification date with the DOE Federal standard effective date. Not doing so would impose special hardships on manufacturers and provide little to no benefit for consumers or the environment. Retailer impacts include the need to undergo two major floor transitions, which is a significant logistical undertaking that could result in supplier production interruption and potential product exclusion until the next transition cycle.	In light of complexities associated with the minimum standard and test procedure change next year, the effective date for the ENERGY STAR Residential Refrigerators and Freezers Version 5.0 specification has been changed to September 15, 2014.
13	Effective Date	An earlier effective date of January 1, 2014 should be adopted for the V5.0 specification. Delaying the effective date for a full year will deprive consumers of energy savings that could be achieved with the revised ENERGY STAR specification and high market share weakens the value of the ENERGY STAR label to consumers.	
14	Future Specification Revisions	EPA should carefully monitor market share data and consider a future specification revision as soon as it is warranted.	EPA reviews appliance specifications at least every 3 years or when market share reaches 35%, to ensure that a specification keeps pace with changing market conditions and technological advancements, and so that the program can continue to effectively differentiate, for consumers, the most energy efficient products available in the marketplace.
15	Test Method	DOE should ensure that the final draft properly references the units in subsections A and B as kWh and not Wh.	DOE has incorporated the requested modifications in the Final Test Method to maintain clarity and consistency.
16	Test Method	On Line 94, DOE references measuring energy consumption, but does not identify the units. DOE should identify the units as kWh.	
17	Test Method	On Line 103 of Subsection B, DOE references measuring the energy consumption and does not identify the units. DOE should identify the units as kWh.	

18	Test Method	The test method "signal" must be more precisely defined to ensure that laboratory test results will be repeated in response to triggers by utility DR programs. Signal is defined in terms of the action that results from the signal. This definition along with the definitions for DAL and TALR do not include sufficient detail about the specific packets of information that must be included in the signal sent to the unit under test. In testing, it was discovered that different manufacturers trigger their appliance responses based on different components of the DR signal. The test method must define exactly what signal is sent to test out functionality for both TALR and DAL scenarios, using a known protocol such as SEP 2.0.	All DR signals must comply with the ENERGY STAR Version 5.0 Residential Refrigerators Specification requirements. Connected Refrigerators and Freezers are still in the early stages of development and manufacturers may implement differing approaches to request DR functionality. At this time it would be premature to specify the tags and triggers required in each DR signal. At a minimum, the DR signal must request the specific duration and DR functionality, or modification in operation, as indicated in the definition. Any other signal information is determined by the manufacturer. DOE welcomes all suggestions for specific tags and triggers to be included in a DR Signal, for consideration in the next version of the test procedure.
19	Test Method	The anti-sweat heater should be active in both the baseline and DR tests to mimic normal consumer operation. Turning the anti-sweat heater off deviates from normal operation and eliminates a significant portion of the load, as well as a significant portion that could be reduced during a DR event. Testing has shown that refrigerators react significantly different when anti-sweat heaters are turned on compared to when they are off.	DOE appreciates the comment; however, there are significant issues with enabling the anti-sweat heaters during the baseline and DR tests. Variable anti-sweat heaters will not operate consistently throughout a test or from test to test without relative humidity control. The current DOE Test Procedure does not require a chamber capable of controlling relative humidity. Requiring this type of chamber for ENERGY STAR DR testing would substantially increase test burden. It is important that all testing is repeatable under the test conditions and enabling the anti-sweat heaters will introduce variability. Additionally, no investigative testing has been performed to evaluate the DR capabilities related to anti-sweat heaters. It is unclear if the anti-sweat heaters would be a required deferred component, or contribute to the average power reduction requirement. Due to the uncertainty and lack of data, anti-sweat heaters will be placed in the off configuration in this version of the Connected RF Test Method.