

ARRIS manufactures a Whole Home Solution product which provides Cable TV/DVR capabilities, Telephone, Data, Routing and Wireless capabilities using a head end Gateway box serving multiple low power client STBs for each TV. There are three main issues with the ENERGY STAR STB requirements related to the ARRIS Media Gateway architecture. These are discussed below:

1. Customer awareness of ENERGY STAR is so strong that we are being told that our Media Gateway product (STB) must be ENERGY STAR compliant. Although the Media Gateway consumes less total power than multiple ENERGY STAR compliant STB/DVRs, we cannot be recognized under the current specification. The Gateway architecture continues to be postponed in the last two releases of the requirements, if not longer. We find ourselves at a competitive disadvantage with some customers due to the lack of definition in the ENERGY STAR requirements for this Gateway product architecture and the inability to achieve ENERGY STAR recognition.
2. The allocations provided in the specifications do not take into consideration the need to maintain features activity during a deep sleep or low power mode. In the United States, the phone service is considered a "life line" service which is to be always available for emergency service calls. Although this requirement has moderated over time, there is still an expectancy that the phone will work any time even during AC power failure. We have the ability in the DOCSIS based system to reduce the DOCSIS channel capacity during AC failure or for a Deep Sleep mode to conserve power, but not to a level requested by the STB requirements because of the telephone. There are home systems which require the Telephone Line including Alarms Systems and Fax machines. Both of these services require 24 Hour availability. We also have concerns for the data network for similar reasons to provide IP connections for IP phone, IP/internet based home security, and medical monitoring and reporting. None of these services will tolerate a delay in availability of connection.
3. The distributed architecture of a single Home Gateway serving multiple TVs consumes less power than multiple ENERGY STAR Versions 4 Compliant STB/DVRs. As stated during the call, "65% of the homes have 3 or more TVs". The total home power consumption for multiple TVs must be taken into consideration for the majority of homes. Although the Version 4.0 requirement identifies multi-room features, it fails to recognize systems that are more power efficient in total as compared to multiple STB/DVRs. More details on the Home Gateway's power consumption are attached to this document with a graphical presentation of the total home power consumption.

We have one other concern which is generic related to the timeline for changing requirements and effective dates. The ENERGY STAR specifications are changing about every 18 months with more stringent specifications. The Gateway STB products use complex System of IC (SOIC) to implement the product features/functions. Any power savings will originate inside of these devices. It takes a year for the new ICs to be designed and another year to develop the product and get it into the field at a minimum. The change cycle needs to be extended to allow implementation and recovery of development costs by all parties. The short cycle on changes and implementation will inflate the product cost because of the shortened cost recovery period. Design resources will be tied up with the current product development when new requirements are emerging. This places a great deal of stress on the manufacturer and the service providers who would standardize on a product for a number of years. Please reconsider your schedules with the development cycle timing and business cost factors in consideration.

Regards,

Roger Goodner
ARRIS Group, Inc.
3871 Lakefield Drive
Suwanee, GA 30024

Whole Home Solutions Annual Power Consumption

Energy Star stated during the broadcast Webinar on April 5, 2012, “65% of the homes have 3 or more TVs”. The attached analysis compares the total home energy consumption with multiple TVs using dedicated STB/DVR’s against the ARRIS Whole Home Set-Top Box/DVR system. The advantage of using a single main gateway device with multiple low powered remote STB’s is clearly an advantage in all multiple TV installations. In addition, the ARRIS Whole Home Solution is providing Telephone and Data services, including routing and wireless which would add to the multiple dedicated STB/DVR units’ power consumption.

The graphs shown in the chart have the following characteristics for 1 to 6 TV applications:

- Multiple HD-DVR STB (NRDC Study) – This is a popular NRDC study from May 2007 which identified the major power consumption of STBs. The unit shown here is the “Typical HD/DVR” which consumes over 350kWh on an annual basis.
- Recent HD-DVR STB (NRDC 2011 Study) – Based on a 2011 NDRC Study for a “recent model HD-DVR”. The model consumed 279kWh on an annual basis.
- ENERGY STAR Version 3 – Power requirements as defined in Version 3 for a HD/DVR with Advanced Video Processing, Cable Card, DVR, DOCSIS, HD, Home Networking, Multi-room, and Multi-Stream capabilities. The capabilities defined match the capabilities of the ARRIS MG6 Whole Home Solution.
- ENERGY STAR Version 4 – Power requirements as defined in Version 4 for a HD/DVR with Advanced Video Processing, Cable Card, DVR, DOCSIS, HD, Home Networking, Multi-room, and Multi-Stream capabilities. The capabilities defined match the capabilities of the ARRIS MG6 Whole Home Solution.
- Whole Home STB/DVR Solution – Today – Based on Current Media Gateway and multiple remote Media Players. This product is currently deployed in the field.
- Whole Home STB/DVR Solution - Future – Based on the Future Media Gateway and multiple remote Media Players. This product is currently in development. Power numbers are estimated at this time with the ability to provide low power states during periods of no usage. Power may be limited by capabilities of existing SOIC designs.

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R. Goodner

HD-DVR STB Annual Power Consumption

