4.1) Connected Product Criteria:

PROPOSED TEXT

To be recognized as "connected" and to be eligible for the connected allowance, a refrigerator, refrigerator-freezer or freezer shall have the following capabilities. The "connected refrigerator, refrigerator-freezer or freezer system" (R/F System, as shown in Figure Z) shall include the base refrigerator/freezer plus all elements (hardware, software) required to enable communication in response to energy related commands whether resident inside or outside of the base appliance. This capability may be supported through one or more means, as identified in section 4F1, according to the manufacturer's choice. The design and implementation of the R/F System is entirely at the manufacturer's discretion provided that the R/F System makes use of open protocols as defined in section 4F2 for communication with devices outside of the R/F System.

R/F SYSTEM BOUNDARY DIAGRAM
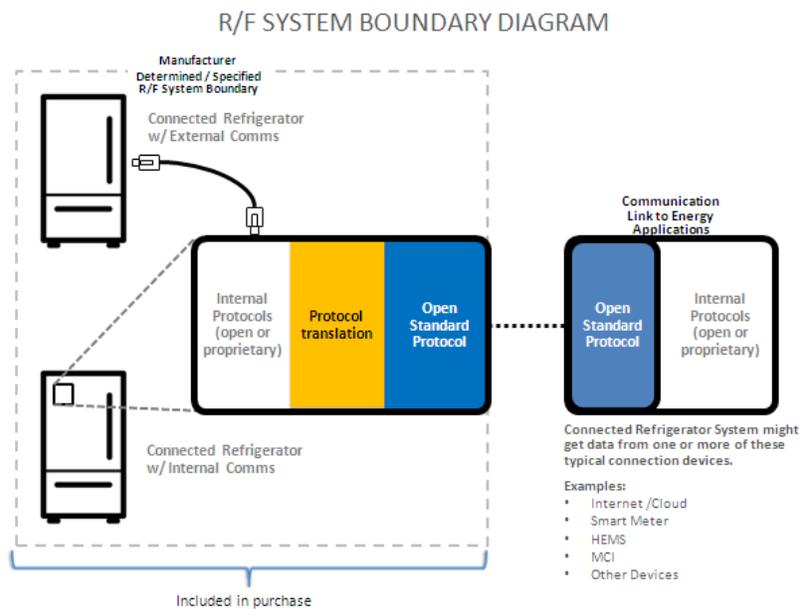
F. Communications

Communications **within** the R/F System are outside the scope of this specification and may be handled according to manufacturer's preferences.

1. Communication to entities **outside** the R/F System (as described above in Section 4.1) that enable connected functionality (Sections 4A through 4E) may be enabled by any of the following means, according to the manufacturer's preference.
    a) A built-in communication technology (considered within the R/F System)
    b) A manufacturer-specific external communication module (considered within the R/F System)

c) A standard communication port on the appliance combined with a third party communication module resident outside the R/F System and compliant with an open standard (see Figure Z).

If option b or c is used, the module must be easy for a consumer to install and shipped with the appliance, or provided to the consumer at the time of sale, or in a reasonable amount of time after the sale.

2. EPA *requires* for all communication layers outside of the R/F System, the use of:
   - Standards included in the Smart Grid Interoperability Panel (SGIP) Catalog of Standards,[1] and/or
   - NIST Smart Grid framework Tables 4.1 and 4.2
   - Standards adopted by the American National Standards Institute (ANSI) or another well-established standards organization such as the International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), International Telecommunication Union (ITU), Institute of Electrical and Electronics Engineers (IEEE), Consumer Electronic Association (CEA), or Internet Engineering Task Force (IETF)

G. Miscellaneous comments:

The EPA may consider more robust criteria in a future revision as relevant standardization efforts mature.

---

1 http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PMO#Catalog_of_Standards_Processes