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Subject: Redefinition of *pwr* in self-ID packet

From: Power Distribution Sub-Task Group (Steve Bard, et.al.)

To: IEEE P1394a Working Group, Peter Johansson - Chair

This proposal is a modification to one presented by Peter Johansson (reference: P1394a/97-032r1) on the P1394a reflector. This is a formal response from the Power Distribution Sub-Task Group to Peter Johansson's proposal (a modification to an earlier proposal from the Power Distribution Sub-Task Group (reference: P1394a/97-032r0). Note: The Power Distribution Sub-Task Group is chartered by the Power Management Task force. The Power Management Task force (chaired by Claude Cruz) is sponsored by the 1394 Trade Association Architecture Working Group (chaired by Peter Johansson).

In clause 6.1 of draft P1394a, the power consumption requirement for cable powered devices is changed as shown below:

--> It shall consume no more than 1 Watt (3 watts for POWER_CLASS 101_2) for powering its PHY(as measured at the 1394 cable connection) after a power reset or after being initially connected to the bus (transition from all ports unconnected to any port connected). The receipt of a PHY link-on packet shall enable the node to consume additional power up to the limit specified by the node's self-ID packet(s);

In addition, the definition of *power_class* 101_2 is changed as shown in the excerpt from Table 6-2 below:

Table 6-2 — Self-ID packet fields (Continued)

Field	Derived from	Comment
pwr	POWER_CLASS	Power consumption and source characteristics: 000_2 Node does not need power and does not repeat power. 001_2 Node is self-powered and provides a minimum of 15 W to the bus. 010_2 Node is self-powered and provides a minimum of 30 W to the bus. 011_2 Node is self-powered and provides a minimum of 45 W to the bus. 100_2 Node is powered from the bus and is using up to 1 W. 101_2 Node may be powered from the bus (using up to 3 Watts for its PHY only); no additional power will be consumed when enabling the Link and higher layers[a]. 110_2 Node is powered from the bus and is using up to 1W. An additional 5 W is needed to enable the Link and higher layers[b]. 111_2 Node is powered from the bus and is using up to 1W. An additional 9 W is needed to enable the Link and higher layers[b].

a. The power providing capability of this node implementation is defined in ROM CSR space and cannot be determined until the Link has been enabled. If the node requires an additional amount of power (beyond the 3 Watt power-on power consumption limit) for higher device functions, the amount of power required can be discovered in the ROM CSR space. Enabling of additional power consumption by a POWER_CLASS 101_2 device is beyond the scope of this standard.

b. The link and higher layers are enabled by the link-on PHY packet described in clause 6.2.2 of IEEE Std 1394-1995.

The redefinition of power class 101_2 ensures an implementation in which the node PHY receives its power from the cable and all other circuitry (Link, etc.) receives its power from some other source. If the 3 Watt limit were to be shared between the PHY, Link, other circuitry (taking power regulator efficiency into account), it may not be possible to have a high speed PHY cable powered.