The following items I believe need clarified or corrected in IEEE-1394-1995. I am suggesting that these items be taken care of in the P1394.a working group.

Page 81, section 4.2.2.7 Power and ground

Second paragraph under table 4-20.

Input voltage range is from 7.5V to 40V.

Should be:

Input voltage range is from 8.0V to 40V.

Page 139, section 6.1.1.3 Link event indication

CYCLE TOO LONG description

- CYCLE TOO LONG…. ISOCHRONOUS_CYCLE_TIME

Should be:

- CYCLE TOO LONG…. NOMINAL_CYCLE_TIME
see table 4-32 page 89. If not ISOCHRONOUS_CYCLE_TIME needs defined.

Page 200, section 8.2.1 Reset

Reset, as define in section 8.2.1 of the standard, is from the perspective of the node controller requesting the link to perform the following functions:

- Discard all transactions and subactions
- Disable reception of all non-broadcast packets
- Disable transmission of all packets.

At the same time the node controller is requesting the PHY layer to reset the bus and initialize itself while the transaction layer shall not accept data requests from applications.

This full definition (see section 8.2.1, page 200 of IEEE-1394-1995) is believed to be incomplete in term of scope. It is understood that the intent of the Standard is to allow a reset of each layer independently. Currently the standard defines three types of reset:

1) Power reset
   Upon power reset all CSRs shall return to their initial values. The PHY shall be instructed to initiate bus reset.
   - Transmission or reception of all packets is disabled

2) Bus reset

Bus reset shall have the same effect as power reset except:
- STATE_CLEAR register shall have the gone bit set
- SPLIT_TIMEOUT register shall remain unchanged
- CYCLE_TIME register shall be unchanged
- BUS_TIME register shall be unchanged

Since a bus reset can occur at any time the following action must taken:
- Discard all transactions and subactions
- Disable reception of all non-broadcast packets
  - There is an insinuation that broadcast packets have to be received. It is important to note that reception of broadcast packets by the link is dependant on the services supported and is not required for all implementation. This includes self_ID packets.
- Disable transmission of all packets.
- At the same time the node controller is requesting the PHY layer to reset the bus and initialize itself while the transaction layer shall not accept data requests from applications.

3) Command reset

The side effect of power_reset and command_reset shall be the same except:
- STATE_CLEAR register shall have the gone bit set
- Node_ID shall be unchanged
- Bus_reset **shall not be** initiated
- CYCLE_TIME register shall be unchanged
- BUS_TIME register shall be unchanged
- BUS_MANAGER register shall be unchanged
- 1394.A EXTENSION:
  - BANDWIDTH_AVAILABLE register shall be unchanged
  - CHANNELS_AVAILABLE register shall be unchanged

Since a bus reset can occur at any time the following action must taken:
- Optionally discard or queue all transactions and subactions

With the differing effects of these resets it is not practical to accept the definition given in section 8.2.1.

Page 1394, section 6.1.1.3 Link event indication

HEADER CRC ERROR DETECTED

This indication occurs when a header CRC check fails for a received primary packet. Primary packets are those packets containing CRCs (not self_ID or PHY packets).

I think that we better understand the benefits of this requirement. I am not aware of an implementation that reports header CRC errors. If there is a benefit then we should drive to make devices complaint else remove the requirement. I believe that most devices just discard the packet without any indication.

Page 1394, section 6.1.1.3 Link event indication

UNKNOWN TRANSACTION CODE DETECTED

This indication occurs when a tcode for a received primary packet is not known. Primary packets are those packets containing CRCs (not self_ID or PHY packets).

I think that we better understand the benefits of this requirement. I am not aware of an implementation that reports unknown tcode. If there is a benefit then we should drive to make devices complaint else remove the requirement. I believe that most devices just discard the packet without any indication.

Page 50, section 4.1.1.2 PHY control confirmation

Arb_A_rx, and Arb_A_rx definition

I am not aware of the benefit of this confirmation service nor am I aware of a way to reliably present status that contains anything other than 11b = ZZ with the current PHY/Link interface protocol. We should look at removal of this as a requirement.

Page 341, Annex J sectin J.4.1 PHY register map in relation to
Page 50, section 4.1.1.2 PHY control confirmation

The PHY register map shown does not contain status information about Initiated_reset. You can only force you PHY to initiated one not read status if it was the one responsible for the last one.

*** I really think that a PHY register map should have a Version Field - which standards rev. and a Vendor/Revision Field. I have worked with 5 PHYs and I've seen 3 different register sets.***

Page 139, secton 6.1.1.3 Link event indication

- DUPLICATE CHANNEL DETECTED

This is a little confusing, EXPECTED CHANNEL LIST is optional but DUPLICATE CHANNEL DETECTED not? Aren't they attempting to expose a similar error. If so both should be optional or mandatory

.
Page 139, secton 6.1.1.3 Link event indication

- BUS OCCUPANCY VIOLATION DETECTED

It is stated that this value is optional. If it is, does that mean the MAX_BUS_OCCUPANCY parameter is also optional? If so then it should be mentioned

as such in chapter 4 table 4-32. It a little confusing because MAX_BUS_OCCUPANCY parameter is defined in the PHY chapter but it is a link parameter.

Page 139, secton 6.1.1.3 Link event indication

CYCLE TOO LONG definition

The last isochronous cycle was too long. A cycle start packet was received, an NOMINAL_CYCLE_TIME (125usec) passed, and a subaction_gap was not detected. Again, the standard doesn't clearly state who is required to generate this indication. It is my understanding that all nodes who are Cycle_Master or isochronous capable shall support this indication (of course they must have there cycle_timers enable).

Page 139, section 6.1.1.4 Link Remote Configuration Request

The node controller uses this service to request the link layer to send PHY control packets. The following action shall be provided:

- Send PHY configuration packet
  - Set force root
  - Remote physical_ID (only use with force root)
  - Set gap count
  - Gap Count
- Send Link_on packet
  - Remote physical_ID

It is important to note that this service is for remote PHY devices. Local PHY devices are configured using a PHY control request.

WARNING industry movement may cause conflict with the standard. Local PHY devices are intercepting these parameters. 1394.a should comprehend this if it doesn't already.

Also, I would think that it should clearly state that this service is only required for IRM and BM capable nodes.

Page 140, section 6.1.1.5 Link remote configuration indication

This is only required for Bus Manager/IRM capable nodes. This section should clarify this. Also, if this service is provided must the link be capable of receiving 62 nodes worth of self_IDs?

Many nodes may not be capable of receiving 62 nodes worth of self_IDs.

Page 141, section 6.1.2.2 Link data confirmation

b) Acknowledge. This parameter shall be set to one of the values defined in table 6-13.
…

The Link receiving this data confirmation has no control over the value of this parameter. The acknowledging link is the one in control (section 6.1.2.4). I believe that in this section we should define what status the link should provide with the value isn't one defined in table 6-13, ACKNOWLEDGE_MISSING.