

Interpretation Number: 1-07/03 (Globally assigned multicast address)
Topic: Globally assigned multicast address bit order
Relevant Clause: Annex 31B
Classification: Unambiguous

Interpretation Request

Standard: IEEE Std 802.3-2002

should need a clarification/interpretation about the standard IEEE 802.3

Consider the Annex 31B (MAC Control PAUSE operation) of the standard IEEE Std 802.3-2002 (pag. 571).

With reference to the globally assigned 48 bit multicast address

01-80-C2-00-00-01

it's not clear which is the right order of nibble transmission on the MII interface.

There are 2 possible orders of transmission of the nibbles on the MII interface

a) -0-0-0-0-0-2-C-0-8-1-0

In this case, I'm supposing the first octet of the address is the high order byte

b) -0-0-8-2-C-0-0-0-0-1-0

In this case, I'm supposing the first octet of the address is the low order byte

Interpretation for IEEE Std 802.3-2002

IEEE Std 802.3 clearly references the required information in subclause 3.2.3.1 'Address designation' which includes a footnote attached to the last paragraph which states 'For information on how to use MAC addresses, see IEEE Std 802-2001, Overview and Architecture.'

Referring to IEEE Std 802-2001, subclause 9.2, '48-bit universal MAC addresses', the third paragraph of subclause 9.2.1 'concept' states:

The standard representation of a 48-bit LAN MAC address is as a string of six octets, using the hexadecimal representation (3.1.8). In certain contexts associated with use of IEEE 802.5 frame formats, LAN MAC addresses may be represented using the alternative bit-reversed representation (3.1.2). See 9.5 for further specification relating to use of the bit-reversed representation.

NOTE - The upper, bit-stream representation of the universal address in Figure 8 shows the LSB of each octet first; this corresponds to the data-communications convention for

representing bit-serial transmission in left-to-right order, applied to the model for transmission of LAN MAC address fields (see 6.2.3). See also 9.5 for further discussion of bit-ordering issues. The lower, octet-sequence representation shows the bits within each octet in the usual order for binary numerals; the order of octet transmission is from the top downward.

Hexadecimal representation: AC-DE-48-00-00-80
Bit-reversed representation: 35:7B:12:00:00:01

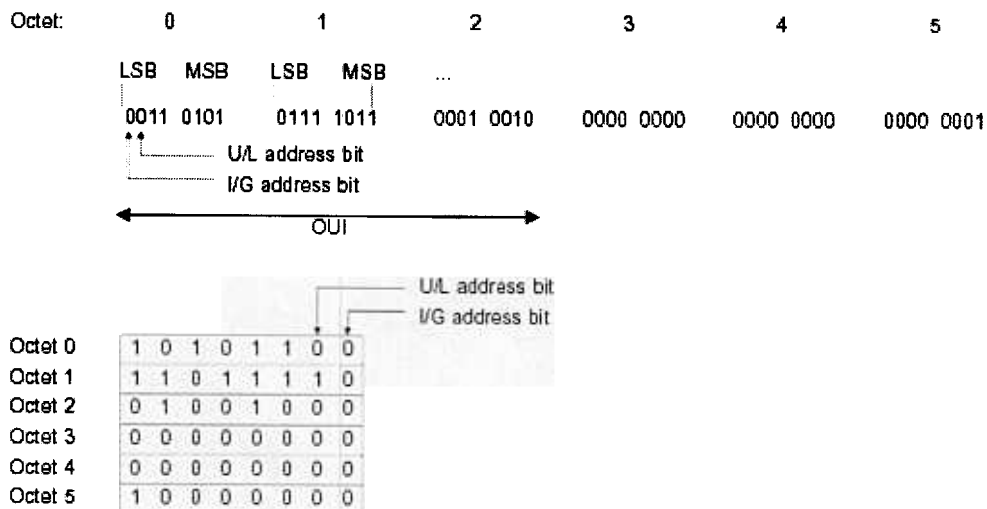


Figure 8—Universal address

This provides a clear mapping from the address written out in the standard and its transmission order.

Due to the infrequency with which the hexadecimal address format appears within 802.3 it may not be obvious that Clause 3 contains the needed reference. Due to this we will submit a maintenance request that will propose to add a cross reference back to subclause 3.2.3.1 from Annex 31B.

In addition Figure 22-11 in subclause 22.2.3 provides additional information on the bit and nibble transmission order across the MII.