Interpretation Number: 1-07/98
Topic: Format of the OUI in PHY Identifier register
Relevant Clauses: 22.2.4.3.1
Classification: Unambiguous

Interpretation Request

I am trying to understand clause 22.2.4.3.1 of IEEE Std 802.3u-1995. The clause explains how the OUI (Organizationally Unique Identifier) maps to MII (Media Independent Interface) Management Registers 2 and 3. Although we have an IEEE assigned OUI of XX-XX-XX, I cannot figure out how to store our OUI in these Registers.

My confusion is based on the following:

1. It is unclear to me whether the OUI provided has a format of bits 1 to 24 or as bits 24 to 1.

2. Also, the specification refers to IEEE Std 802-1990. However, is the specification implying that we should store the data in the registers as it will be used to form our Universal Address?

Interpretation for IEEE std 802.3u-1995

Standard 802-1990, as referenced by std 802.3u-1995 subclause 22.2.4.3.1, clearly states in the last paragraph of subclause 5.2 that ‘The bit significance of the Organizationally Unique Identifier is defined in Fig 5-2.’ That figure is reproduced below.

Fig 5-2
Bit Significance

	LSB							MSB
Octet 0	a	b	c	d	e	f	g	h
Octet 1	i	j	k	l	m	n	o	p
Octet 2	q	r	s	t	u	v	w	x

Of particular reference should be the bit designations, ‘a’ through ‘x’, provided in Std 802-1990 Figure 5-2. These bit designations also clearly appear in std 802.3u-1995 Figure 22-12 of subclause 22.2.4.3.1 which is also reproduced below.

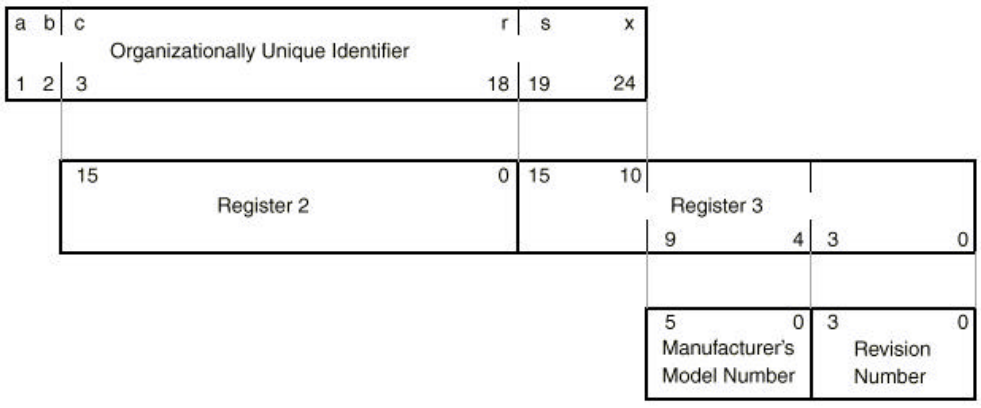

Figure 22-12—Format of PHY Identifier

As and example consider the OUI AC-DE-48. Taking this OUI and arranging it as specified by 802-1990 figure 5-2 yields:-

```
            LSB                             MSB
   Octet 0   a   b   c   d   e   f   g   h
     AC      0   0   1   1   0   1   0   1

   Octet 1   i   j   k   l   m   n   o   p
     DE      0   1   1   1   1   0   1   1

   Octet 2   q   r   s   t   u   v   w   x
     48      0   0   0   1   0   0   1   0
```

Mapping this bit assignment into Registers 2 and 3 as specified in 802.3u-1995 Figure 22-12 yields:-

```
  a b   c d e f g h i j k l m n o p q r   s t u v w x
  0 0   1 1 0 1 0 1 0 1 1 1 1 0 1 1 0 0   0 1 0 0 1 0

 +----+---------------------------------+------------+
 |a b | c                             r | s         x|
 |                       OUI                         |
 |1 2 | 3                            18 |19        24|
 +----+---------------------------------+------------+

      +---------------------------------+------------+---
      |15                             0 |15        10|9
      |             Register 2          |      Register 3
      |                                 |            |
      +---------------------------------+------------+---
```

Register 2 contents:-

```
               15                                0
              +-----------------------------------+
              |                                   |
              | 1 1 0 1 0 1 0 1 1 1 1 0 1 1 0 0 |
              |                                   |
              +-----------------------------------+
```

Register 3 contents:-

```
               15                                0
              +-----------------------------------+
              |                                   |
              | 0 1 0 0 1 0 X X X X X X X X X X |
              |                                   |
              +-----------------------------------+
```