

Project	IEEE 802.16 Registration Authority Issue
Title	Draft IEEE RAC Tutorial
Date:	2006-05-11
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Re:	Registration Authority Issue
Abstract	This contribution provides a draft tutorial for the IEEE RAC
Purpose	To build consensus on the tutorial
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Use of the IEEE assigned Operator ID with IEEE Std 802.16 Standard for Local and Metropolitan Area Networks

General

IEEE Std 802.16 defines a 24-bit number to identify the Operator of an 802.16 base station. This Operator ID is combined with an additional 24-bit field to define the Base Station ID. The Operator ID is also mentioned in IEEE 802.16e, an amendment approved in December 2005. Subclause 6.3.2.3.47 says that the 24-bit Operator ID is a "Unique ID assigned to the operator."

In the Base Station ID, each Operator ID assignment reserves a 24-bit block of programmable identifiers (i.e., the unique BS identifier within the Operator network).

Operator ID

A Operator ID is a sequence of three octets. The Operator ID is administered by the IEEE. The binary representation of an Operator ID is formed by taking each octet in order and expressing it as a sequence of eight bits, least significant bit (lsb) to most significant bit (msb), left to right.

For example, the Operator ID AC - DE - 48 could be used to generate the the binary representation:

first octet of Operator ID	second octet of Operator ID	third octet of Operator ID
0011 0101	0111 1011	0001 0010
lsb msb	lsb msb	lsb msb
C A	E D	8 4

The order of bit transmission of a MAC address field is that of the binary representation with the leftmost bit as the first bit transmitted.

0011 0101	0111 1011	0001 0010
next bit transmitted		
first bit transmitted		last bit transmitted

Base Station ID

A Base Station ID is defined as a sequence of six octets. The first three octets take the values of the three octets of the Operator ID in order; the following three octets are administered by the Operator ID assignee. The hexadecimal representation of the Base Station ID consists of the hexadecimal values of the six octets in order, separated by hyphens, in the order transmitted by the network application, left to right.

For example, the Operator ID AC - DE - 48 could be used to generate the Base Station ID:

AC-DE-48-00-80-80	
first octet	second octet
transmitted	transmitted

Operator ID Administration

The Operator ID(s) referenced in your IEEE Registration Authority Assignment letter has been described in previous correspondence as 24-bit globally assigned Operator Identification and as an integral part of a 48-Bit globally assigned Base Station ID block. An Operator ID assignment allows the Operator to generate approximately 16 million Base Station IDs, by varying the last three octets.

The method that an Operator uses to ensure that no two of its Base Stations carry the same ID will, of course, depend on the assignment process, and the Operator's philosophy. However, the network selection algorithms may expect Base Stations to have unique IDs. The ultimate responsibility for assuring that expectations and requirements are met, therefore, lies with the Operator of the Base Station.