Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**	
Title	**Draft IEEE 802.16.2 Unwanted Emission Mask**	
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Re:	Revised text for the IEEE 802.26.2 draft "Recommended Practice for Coexistence of Broadband Wireless Access Systems" This is also a response to the 802.16.1 Physical Layer Task Group, Call for Contributions, Session #7	
Abstract	This document states the resolution of the April 19/20, 2000, IEEE 802.16.2 Interim meeting in regard to draft text on unwanted emissions for the "Practice" document being developed. The text will limit PHY out-of-band and spurious emissions.	
Purpose	IEEE802.16.2 should include this revised text within their Practice. IEEE802.16.1 PHY should consider this draft spec in their deliberations on the PHY interface.	
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standard is essential to reduce the possibility for delays in the development process and increase the likelihood that the draft publication will be approved for publication. Please notify the Chair <mailto:r.b.marks@ieee.org> as early as possible, in written or electronic form, of any patents (granted or under application) that may cover technology that is under consideration by or has been approved by IEEE 802.16. The Chair will disclose this notification via the IEEE 802.16 web site
<http://ieee802.org/16/ipr/patents/letters>.

Draft IEEE 802.16.2 Unwanted Emission Mask

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Introduction

At the IEEE 802.16.2 interim meeting in Montreal April 19/20th, 2000, discussions were held on the "Unwanted Emissions" text within: the current draft "Practice", the FCC spec, the Industry Canada spec and the ETSI spec. It was noticed that each of these specs is tighter than the others in specific circumstances. It was realized that the regulator specifications are intended for a different purpose than simple coexistence and so may not be directly applicable for the IEEE 802.16.2 Practice. Thus the working group developed a revised mask and proposed text is stated below.

It is appreciated that if local regulation text is tighter than the IEEE text then the local regulations take precedence. On the other hand, if local regulations are more relaxed than the IEEE text, then although these regulations are law, we would still recommend compliance with the tighter IEEE text as assist with coexistence issues.

The Practice defines the occupied bandwidth B_o as the 99% bandwidth (as per IEEE Std100-1992) and the multi-carrier occupied bandwidth as the sum of the individual occupied bandwidths.

Unwanted Emission Limit

Unwanted emissions spectral density should be attenuated by at least A (dB) below the total mean output power P_{mean} as follows:

(1) For a single carrier transmitter (see section A.1.2) :

> In any 1.0 MHz reference bandwidth, outside the authorized band, and removed from the authorized band edge frequency by up to and including $\pm$200% of the occupied bandwidth (i.e. 2 B_o): at least $A = 11 + 40\ f_{offset}/B_o + 10\ \log_{10}(B_o)$, dB, where B_o is in MHz and f_{offset} = frequency offset (in MHz) from the authorized band edge. Attenuation greater than 56 dB is not required.

(2) For a multi-carrier transmitter or multi-transmitters (excluding OFDM) into a common final stage amplifier (see section A.1.3):

> The mask is to be the same as in (1), using the *occupied* bandwidth that is defined for multi-carrier transmitters in section 3.1. The total mean power is the sum of the individual carrier/transmitter powers.

Note: Several transmitters into a common non-active antenna cannot use the multi-carrier mask for the composite signal. In this case the appropriate mask applies to the individual transmitter.

(3) In any 1.0 MHz band which is removed from the identified edge frequency by more than $\pm$200% of the occupied bandwidth:

At least $43 + 10\ \log_{10}(P_{mean})$ dB (i.e. –43 dBW), or 80 dB below P_{mean}, whichever is less stringent. P_{mean} is the mean output power of the transmitter (or, in the case of multi-carriers/multi-transmitters, the sum of the individual carrier/transmitter powers) in watts.