

Project	<b>IEEE 802.16 Broadband Wireless Access Working Group</b> < <a href="http://ieee802.org/16">http://ieee802.org/16</a> >	
Title	<b>Study Group into extensions to IEEE 802.16 Recommended Practice on Coexistence of FBWA systems</b>	
Date Submitted	<b>2001-03-15</b>	
Source(s)	Philip Whitehead Radiant Networks Plc The Mansion, Chesterford Park Little Chesterford, Essex CB10 1XL UK	Voice: +44 1799 533600 Fax: +44 1799 533601 <a href="mailto:pw@radiantnetworks.co.uk">mailto:pw@radiantnetworks.co.uk</a>
Re:	Outline of proposed study group actions on coexistence of FBWA systems	
Abstract	This paper describes the considerations for the formation of a new study group into coexistence of FBWA systems. Two main areas of work are described, relating to coexistence with point to point links and coexistence of systems operating in the 2-11 GHz frequency range	
Purpose	To support a motion to request formation of the study group	
Notice	This document has been prepared to assist IEEE 802.16. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.	
Release	The contributor grants a free, irrevocable license to the IEEE to incorporate text contained in this contribution, and any modifications thereof, in the creation of an IEEE Standards publication; to copyright in the IEEE's name any IEEE Standards publication even though it may include portions of this contribution; and at the IEEE's sole discretion to permit others to reproduce in whole or in part the resulting IEEE Standards publication. The contributor also acknowledges and accepts that this contribution may be made public by IEEE 802.16.	
Patent Policy and Procedures	<p>The contributor is familiar with the IEEE 802.16 Patent Policy and Procedures (Version 1.0) &lt;<a href="http://ieee802.org/16/ipr/patents/policy.html">http://ieee802.org/16/ipr/patents/policy.html</a>&gt;, including the statement "IEEE standards may include the known use of patent(s), including patent applications, if there is technical justification in the opinion of the standards-developing committee and provided the IEEE receives assurance from the patent holder that it will license applicants under reasonable terms and conditions for the purpose of implementing the standard."</p> <p>Early disclosure to the Working Group of patent information that might be relevant to the 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 &lt;<a href="mailto:r.b.marks@ieee.org">mailto:r.b.marks@ieee.org</a>&gt; 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 &lt;<a href="http://ieee802.org/16/ipr/patents/notices">http://ieee802.org/16/ipr/patents/notices</a>&gt;.</p>	

## **Study Group into extensions to IEEE 802.16 Recommended Practice on Coexistence of FBWA systems**

*Philip Whitehead*  
*Radiant Networks Plc*

The formation of a new study group is requested. The output of the study will be a proposal for a PAR for a new Recommended Practice for coexistence of FBWA systems (possibly an extension to the current draft practice) including a title, scope statement, purpose statement, and covering subject areas and scenarios not considered in the current document.

The possible scope of work is in two areas:

- (1) Coexistence between PMP and point to point systems of various types
- (2) Coexistence of FBWA systems operating below 11 GHz (including possible sharing with other services)

### (1) Coexistence with Point to Point Systems

The considerations for this work include:

- Identification and analysis of interference scenarios between PMP and Pt-Pt systems
- Consideration of the co-channel, adjacent channel and near adjacent channel scenarios
- Same area and nearby area analysis
- Consideration of 2 main cases – (a) pt to pt systems that are individually licensed (coordinated by regulatory bodies) and (b) pt-pt operator- configured systems within a block assignment
- Consideration of operating frequencies in the 23.5 –43.5 GHz frequency range
- Analysis of all potential interference mechanisms
- Production of simulation results, where needed
- Recommendation of pfd limits
- Recommendation of guard channels and geographical spacings
- Recommendation of useful mitigation techniques
- Consideration of appropriate antennas and possible recommendation of minimum standards

### (2) Coexistence of FBWA systems in the frequency range 2-11 GHz

Study of systems operating in lower frequency bands than those in the current draft Recommended Practice will make use of different system parameters and propagation models. Some differences are as follows:

- non - line of sight propagation may be acceptable at some frequencies
- multipath problems may be much more significant
- rain-fading is frequency dependent
- antenna beam-widths may be relatively wide
- cell re-use patterns may be different
- FBWA system architecture may be different from the higher frequencies

The considerations for this second subject area include:

- Identification and analysis of interference scenarios between various types of FBWA systems (TDD/FDD/HFDD)
- Consideration of the co-channel, adjacent channel and near adjacent channel scenarios
- Same area and nearby area analysis
- Consideration of operating frequencies in the 2-11GHz frequency range.
- Analysis of all potential interference mechanisms
- Production of simulation results, where needed
- Recommendation of pfd limits
- Recommendation of guard channels and geographical spacing
- Recommendation of useful mitigation techniques (but not extending to specification of sharing etiquettes that involve modifications to PHY/MAC of systems)
- Consideration of appropriate antennas and possible recommendation of minimum standards

For each of the above subject areas, a significant task is the production or adaptation of simulation tools to contribute essential data on which the recommendations will be based. The study group will examine possible sources for this essential information.

End of document