Project	**IEEE 802.16 Broadband Wireless Access Working Group**		
Title	**Recommended text for section 4.1.4 of Recommended Coexistence Practices document**		
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Re:	Recommends text to be added to section 4.1.4 of the Coexistence document. This is in response to call for contributions made at meeting #4 in Hawaii.		
Abstract	The system-level and network-level impacts of the SS antenna pattern are discussed. A text that reflects such impacts is recommended to be included in the Coexistence document.		
Purpose	It is proposed that the recommended text be included in the Coexistence document.		
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Recommended Text for Section 4.1.4 of the Recommended Coexistence Practices Document

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Background

In early system- and network-level analyses of BWA systems including interference analysis, frequency planning, and channel modeling it has always been assumed that the SS antenna is highly directional with considerable amount of off-axis discrimination. This assumption has led to introducing aggressive reuse schemes in network planning. It has also led to non-multipath modeling of the channel and, therefore, less complexity in radios.

Recommendations for SS antenna RPE, while should take into account the complexity and cost of manufacturing high-performance antennas and their adverse effect on the deployment, should also be compliant with, and try not to deviate too much from, original assumptions about SS antennas. For example, an unreasonably wide main beam or high first sidelobe level might introduce multipath into the system. Mitigating the effects of multipath requires either added complexity to the radio by requiring equalizers, or more difficult network planning and deployment or coordination process. Either case, the cost of deploying a BWA network increases.

Moreover, while a deployment case at its early stages might resemble a low-interference environment which could function with class 1 antennas, growth of the self network or coexisting networks might create relatively higher interference levels which calls for a higher class antenna.

Recommended Text

Having said the above, therefore, it is proposed that the Recommended Practices document recommends that “the deployment priority should be given to the use of higher gain and/or higher classes of SS antennas wherever the cost can be justified.”