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Title	Changes in Amendment P802.16.2a Affecting IEEE Std 802.16.2	
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Re:	IEEE P802.16.2a/D5	
Abstract	This paper contains a summary of changes in P802.16.2a/D5 that affect IEEE Std 802.16.2. They are listed by category and include the detailed changes made to deal with the available interpretation of the published standard.	
Purpose	To clarify the nature and extent of editing that affects the published standard.	
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Changes in Amendment P802.16.2a Affecting IEEE Std 802.16.2

(an edited version of [IEEE 802.16.2a-03/06r1](#))

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Synopsis

The PAR for P802.16.2a allows for corrections and essential updates to IEEE Std 802.16.2, for example to bring text and references up to date and to make modifications that deal with the approved interpretation of the published recommended practice. These changes were not expected to be very significant and that indeed proved to be the case. Apart from changes needed to align the document with the interpretation, no changes were made to any of the recommendations and none of the quantitative guidelines has been changed in any way.

The incorporation of substantial new material in accordance with the PAR proved to be problematic. The scope of this material had not been adequately foreseen when the original recommended practice was drafted. As a result, it was found that, in order to create a readable and useful amendment, the original text needed restructuring, in which parts of the text needed to be moved to a common section and other parts needed to be in a specific topic-related section. This resulted in a large number of editorial adjustments to the original text that are extremely hard to follow using strikeout and replace editing. It was therefore decided to make a large replacement text version of the document that would be useful to the reader when published.

Inevitably, this approach makes it harder to see what has been changed in the original document. Below, therefore, an explanation is provided of the significant changes that have been made. They are not large in number and only the changes that deal with the interpretation have any significant technical impact. The base standard, when read in conjunction with the interpretation, is still largely valid, and the technical guidelines for coexistence have not been altered. Some errors have been found that vary from minor typos to wrongly titled figures and these have been corrected in the amendment.

List of main changes affecting the original document content

The interpretation:

The most significant set of changes deals with the approved interpretation of the base standard (see Appendix below). This clarifies the nature of original Fig. 6 to indicate that the diagram should not be interpreted as requiring any particular transmitter emission mask, as this was never the intention. It is only intended to describe block edge characteristics. Figure 7 and some of the text also related to this issue. A number of changes were made to deal with the issues raised by the interpretation, as follows:-

- Original text in 6.1.3 (out of block unwanted emissions) has been revised so as to remove the possibility of misinterpretation of the standard
- Figure 6 has been deleted as it was judged not to be essential and could be misinterpreted
- Figure 7 has been deleted as it was also judged not to be essential and could be misinterpreted
- Recommendation 9 has been deleted since it is no longer consistent with the new text in 6.1.3 and refers to an emission mask that was never included in the recommended practice. Other recommendations have been edited to be consistent with the deletion of recommendation 9
- The definition of B_0 has been revised to be consistent with the above changes

Terminology:

Various (all) occurrences of terminology used for psfd have been changed in response to a sponsor ballot comment from Bruce Barrow. A standard IEEE way to describe psfd may be useful.

Various (all) occurrences of terminology for power spectral density (psd) have been changed in response to a sponsor ballot comment from Bruce Barrow. A standard IEEE way to describe psd may be useful.

Restructuring:

Various editorial changes have been implemented to restructure the layout to accommodate the new material authorized in the PAR and make the document coherent. Without restructuring, the amendment is judged to be unreadable. Although these changes are significant in number, they do not alter any of the technical content of the original recommended practice. Some text has been slightly edited to be consistent with the new locations after restructuring.

Editorial corrections:

A number of editorial changes were made as follows:

- The title of original Figure 1 has been changed to “reference diagram for BWA systems”.
- An ETSI acknowledgement has been inserted in Figures 7 and 8 as these figures are quoted from ETSI EN 301 390.
- Note: The ETSI acknowledgements below Figures 1 and 2 in IEEE Std 802.16.2 should be deleted because they were incorrectly placed. These figures were created in the course of the development of 802.16.2 and were *not* supplied by ETSI. (P802.16.2a/D5 incorrectly repeats these acknowledgments.)

Updates:

Due to the passage of time, some information was found to be out of date. An example is the reference made to the ETSI BRAN project, whose status has altered since the recommended practice was published. Where such changes have been found to be significant, the text has been appropriately updated.

Minor editorial corrections:

A number of minor typos were found and corrected

Bibliography:

The bibliography has been extended to refer to archived input papers, to provide full the reader with access to the source material of the very complex coexistence simulation and calculation work. At the time the original recommended practice was published, it was decided that the full details of the contributions would create an excessively large and unwieldy document. A summary of each simulation adopted in the guidelines was therefore provided in an annex. The new references allow for the reader to find a full explanation of the necessarily brief summaries in the annex.

Appendix: Approved Interpretation for IEEE Std 802.16.2-2001

“Subsection 6.1.3, **Out-of-block unwanted emissions** of the Recommended Practice for Coexistence of Fixed Broadband Wireless Access Systems relates to out-of-block unwanted emissions. Figure 7 provides an example application of out-of-block unwanted emission limits. The transmitter spectrum shown in the figure is an example of a typical actual spectrum for one possible channel bandwidth. It shows the relationship between the placement of the example carrier and the block edge mask, so as to meet the recommended out-of-blocks limits.

It is not an emission mask and there is no intention to imply the use of any particular mask. The system designer is free to choose the levels and placement of carrier frequencies in order to meet the recommended out-of-block emission limits.”