Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**One 802.16 Standard for the 2 - 11 GHz Band**
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Source(s)		
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Re:	"General Contributions" area.
Abstract	It is proposed that an IEEE 802.16 effort be initiated now to consider the integration of IEEE 802.16a and IEEE 802.16.b specifications into **a single Standard.**
Purpose	An IEEE 802.16 effort be initiated now to consider the integration of IEEE 802.16a and IEEE 802.16.b specifications into a single Standard.
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PROPOSAL TO INTEGRATE IEEE 802.16a and IEEE 802.16.b PHY LAYER SPECIFICATIONS INTO A SINGLE STANDARD

1. BACKGROUND

When IEEE 802.16 began its considerations for the development of a Standard for the bands below 10 GHz it was proposed that a single standard be developed for both Licensed and Licensed-exempt bands. Some participants argued successfully that the requirements of the below 10 GHz Licensed and Licensed-exempt bands were significantly different and thus required a separate standard. Two Task Groups (TG3 developing IEEE 802.16a and TG4 developing IEEE 802.16b) were thus formed one for the Licensed bands and the other for the License-exempt bands. While TG3 started its efforts very methodically with the development of a Functional Requirements Document, TG4, maybe due to smaller attendance, is developing another standard without it. Both IEEE 802.16a and IEEE 802.16b are basing their MAC on IEEE 802.16, and the IEEE 802.16b is developing a PHY layer specification that is responsive to similar environmental and application requirements as those confronting the IEEE 802.16a PHY layer. Or to state it another way, the planned IEEE 802.16a standard with marginal modifications can be made to meet the IEEE 802.16b environmental and application requirements.

2. PROPOSAL

The contributors of this document believe that the premise under which the IEEE 802.16a and IEEE 802.16b were founded (i.e., that the requirements of the below 10 GHz Licensed and Licensed-exempt bands are significantly different and thus require separate Standards) has not been proven by current specification trends in the IEEE 802.16a and IEEE 802.16b.

It is thus proposed that an IEEE 802.16 effort be initiated now to consider the integration of IEEE 802.16b and IEEE 802.16a specification into a single Standard.

3. BENEFITS

- **The integration of these two closely related specifications into a single Standard will have significant benefits for the whole BWA industry (e.g., by increasing the economies of scale of the 802.16-based equipment for the 2 — 11 GHz bands, and minimize operational costs.**

- **The joint efforts of the TG3 and TG4 members will improve the critical mass of resources and results in a better and more widely applicable standard.**

- **Less confusion for telecommunication users. If integration of 802.16a and 802.16b does not take place, it is very likely that 802.16a-based equipment will be modified by different vendors to also operate in the U-NII bands. This will compromise the 802.16 s interoperability objectives.**

4. ATTACHMENT*

We are providing the attachment on how the Single-Carrier — Frequency Domain Equalization (SC-FDE) part of IEEE 802.16a Draft document can with minimal changes be adapted to meet the IEEE 802.16b requirements. Similarly, we will encourage that the adaptation of the OFDM part of IEEE 802.16a PHY be shared with IEEE 802.16b contributors for their consideration. As shown in the SC-FDE part of the PHY specifications, the 802.16a adopted PHY can easily be adapted to comply with IEEE 802.16b requirements with marginal changes. This is also true for the OFDM part of IEEE 802.16a standard; with minor changes to the 802.16a OFDM alternative it can also be used in the IEEE 802.16b licensed-exempt bands.

* IEEE 802.16.3c-01/58r1.