IEEE Standards Interpretations for IEEE Std 802.11g™-2003 Information technology — Telecommunications and information exchange between systems — Local and metropolitan area networks — Specific requirements — Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications AMENDMENT 4: Further Higher Data Rate Extension in the 2.4 GHz Band

This is an interpretation of IEEE Std 802.11g-2003.

November 2008

Interpretation Request #1
(1-01/05) **Topic:** (Service field content) **Relevant Clause:** Annex G **Classification:** Conflicts with Clause 17

Clause 19.3.2.1 states that within the SERVICE field "Bit b2 is used to indicate that the transmit frequency and symbol clocks are derived from the same oscillator. For all ERP systems, the Locked Clock Bit shall be set to 1."

However, clause 15.2.3.4 states "The 8-bit IEEE 802.11SERVICE field shall be reserved for future use. The value of X'00' signifies IEEE 802.11 device compliance."

Is a Clause 19 ERP device non-conformant if it sends a 1 or 2 Mbps frame without the SERVICE field bit B2 set?

Interpretation Response #1
The standard is unambiguous in this case. A PHY implementing Clause 19 shall set bit B2 in the Service field, as required by 19.3.2.1 in all transmissions. A PHY implementing Clause 15 that is dependent upon a particular value in a reserved field for its correct operation is not compliant with the standard. All implementations must ignore values of reserved fields upon reception. The editor of the standard will be instructed to remove the sentence "The value of X'00' signifies IEEE 802.11 device compliance" from 15.2.3.4.

Interpretation Request #2
1-05/06 (short SYNC field value) **Topic:** Accuracy of material 802.11g **Relevant Clauses:** 19.3.2.5 (figure 153B), 18.2.3.8 **Classification:** Unambiguous

I think there is an error in "Figure 153B Short preamble PPDU format for DSSS-OFDM", page 23, of the document 802.11g-2003.pdf In this figure, it is written : SYNC (56 bits - Scrambled Ones) It's not coherent with the short preamble of 802.11b, which SYNC is (56 bits - Scrambled Zeros) and the text in the norm 802.11g is not coherent with the figure 153B. It should be SYNC (56 bits - Scrambled Zeros) in this figure. The text is : 19.3.2.5 The short PLCP preamble and header are used to maximize the throughput by reducing the overhead associated with the preamble and header. Figure 153B shows the short preamble PLCP PPDU format. As seen, the PSDU is appended to the PLCP Preamble and the PLCP header. The short PLCP Preamble is described in 18.2.3.8 and 18.2.3.9. In 18.2.3.8 (802.11b), the text is shortSYNC = 56 bits of scrambled "0" bits. So there is an error.

Interpretation Response #2
The standard is unambiguous on this issue. Figures are not normative and the description of the field occurs only once in the standard. Therefore the description of the short SYNC field is unambiguously defined to be scrambled zeros. The working group will consider correcting the figure during the next revision of the standard.