IEEE P802.22 Wireless RANs

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| Errata – 802.22 base std, TTG and TU |
| Date: 2016-03-15 |
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***Proposed corrections to the IEEE Std 802.22TM- 2011***

Simplification of Table 21

Remove the TTG parameter, or if there is resistance to removing it, replace it by a “reserved” byte. The historical value of this byte is no longer of substance and it's existence is confusing because it alludes to variability of the TTG value, variability which conflicts with the normative text in section 9.4 of the Standard. We prefer removing it and reducing the size of the DCD message by one byte

The resulting TTG periods are substantially 210 μs as desired by the Standard. Removing the TTG in Table 21 above resolves the fact that Table 21 used to allow a range for this value, which is in conflict with the text in section 9.4.

Correction of Table 21

There is byte alignment problem in Table 21.

As a fix, we propose to add a 4 bit “reserved” field immediately after the “Action Mode” field and before the “Action Superframe number” field. This will correct the byte alignment error and will not consume any extra bandwidth since the 802.22 PHY transmits messages in integer byte lengths.

Modification of Table 203

Implementors of the 802.22 std have found that the theoretical samply frequencies (time units or TU) were not chosen to allow for optimal phase noise and slight changes to the sampling frequency will improve the situation.

We therefore propose that the 6 MHz BW TU frequency be 6.800,000 MHz (34/5), the 7 MHz BW TU frequency be 7.9375 MHz (127/16) and the 8 MHz BW TU frequency be 9.0625 MHz (145/16). The ensuing modifications to Table 203 are:

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| Cyclic Prefix | **Number of symbolsper frame 1** | **Transmit-receive turnaround gap 2 (TTG)** | **Receive-transmit turnaround gap 3 (RTG)** |
| BW | **6 MHz 7 MHz 8 MHz** | **6 MHz 7 MHz 8 MHz** | **6 MHz 7 MHz 8 MHz** |
| 1/4 | 242933 | 1428 TU1666 TU1903 TU | 2572 TU909 TU1682 TU |
| 1/8 | 273237 | 1428 TU1666 TU1903 TU | 1548 TU1165 TU658 TU |
| 1/16 | 293439 | 1428 TU1666 TU1903 TU | 524 TU781 TU914 TU |
| 1/32 | 303540 | 1428 TU1666 TU1903 TU | 204 TU781 TU1234 TU |

NOTE 1—Indicates the DS/US payload symbols only. Here, one frame preamble symbol and one header symbol carrying the FCH, DS/US-MAP and DCD/UCD are assumed. Different values may apply when the frame carries more header symbols using 1/4 cyclic prefix such as the superframe preamble and SCH.

NOTE 2—Example of TTG set to absorb the propagation delay for up to 30 km and a CPE turnaround time of 10 μs. For larger distances, proper scheduling at the BS will allow for absorption of longer propagation delay.

NOTE 3—Portion of symbol left over to arrive at the 10 ms frame period. There is also the possibility of superfram re-alignement (~+/- 25 TU) at the top of the minute with the master clock.

Simplification of Table 273

The TTG range in this table is erroneous and conflicts with the text. This is confusing and can lead to errors. As text in section 9.4 supersedes the Tables, the TTG entry in this table should be removed.