IEEE P802.11
Wireless LANs

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| CCI Resilience text for TDD Receiver |
| Date: 2018-May-06 |
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# Introduction

In presentation 18/0750 (Co-channel interference tolerance requirements for millimeter wave distribution networks) it was detailed that TDD systems will be partially limited by CCI generated by stations in the same system.

The fixed and slotted nature of the TDD operation combined with operation at high SNR and timeslots reuse, causes CCI. However, in many cases the CCI level at the receiver is low enough to allow reception but high enough to be detected.

Due to the above, TDD stations receiver are operating better if they are resilient to CCI.

# Proposed text for CCI resilience text

*Co-Channel Interference (CCI) Resilience:*

*In the presence of CCI, a DMG STA operating in a TDD SP is expected to decode a PPDU that contains at least one MPDU with RA field set to the MAC address of the STA at least under the following conditions:*

* *The RCPI of the PPDU is 3dB above sensitivity; and*
* *The RCPI of the CCI is 6dB or less than the RCPI of the PPDU; and*
* *The PPDU has sufficient SINR to be decodable.*

# Comments and Notes;

* The reason not to use absolute CCI RCPI values per MCS is because if a device has improved sensitivity it affects the CCI relative power, making it incorrect.
* Operation in conditions of low CCI (<6dB) caused by system self interference doesn’t look a realistic case that should be part of the main design target. Lowering the 6dB to a lower level should be differentiator parameter. However below ~3dB is not practical anymore.

**Following comments are not essential to be included – some of them are trivial:**

* The intended PPDU arrives within [0 … TDD Guard] from the start of the TDD slot according to the spec in "SP with TDD channel access".
* The 6dB (above) is the power step to be used by the receiver to detect a second PPDU (the intended PPDU) after it locked on the start of the first PPDU (the CCI PPDU). It should be noted that the power step is expected to converge in <=10nsec (based on the spec about frame power raise from 10% to 90% in less than 10nsec)
* It is advised that a receiver can correctly receive an intended PPDU, or part of it, even in other conditions than specified above.
* Receiver should have CCI resilience parameters optimized to minimize false alarms and miss of cases which may reduce the numbers of correctly received intended PPDUs in any condition.

# Straw poll

Do you agree to add the text proposed above for TDD receivers?