IEEE P802.11
Wireless LANs

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| TG ax Scenarios Proposed Text additions to 14/980 for Box5 Calibration |
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Abstract

This document contains proposed changes to document 14/980 to make clear the scenarios and detail parameters such that Box5 integrated system-level simulator can be better calibrated.

**CID 166**

# Background

Box5 simulator is being calibrated and used for performance evaluation, but there is lack of formal definition of the calibration-specific simulation parameter assumption in the Simulation Document 11-14/0980.

# Proposed Edits

## Adding the following context prior to the appendix 1

**Scenarios for calibration of Box5 simulator**

As shown in Table 2 of 11-14/0571, scenarios 1 and 4 are used for Box5 calibration. Besides, 11ac scenario 6 [11-09/0451r16] is suggested to be used for initial and quick calibration.

**Common parameters**

The basic procedure of packet reception and preamble detection is defined in the appendix 4 of 11-14/0571 which is simplified specifically for Box5 calibration in the subsection “Box 5” of section “System Simulation Calibration”

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| **PHY parameters**  |
| **BW**  | All BSSs at 5GHz [80 MHz, no dynamic bandwidth]  |
| **Primary channel**  | Aligned primary 20MHz channel for each co-80MHz-channel BSS;The detection of preamble and BA should only focus on primary 20MHz  |
| **Channel model** | TGac D NLOS per link |
| **Shadow fading** | iid log-normal shadowing (5 or 0 dB standard deviation) per link |
| **Preamble Type**  | Control: legacy 20us; Data: 11ac (20us+20us for 1antenna case)  |
| **AP/STA TX Power**  | 20/15 dBm per antenna   |
| **Power Spectral density**  | Scaled to 80 MHz  |
| **number of antennas at AP /STA**  | 1/1  |
| **AP /STA antenna gain**  | 0/-2 dBi  |
| **Noise Figure**  | 7dB  |
| **CCA-ED threshold** | -56 dBm (measured across the entire bandwidth after large-scale fading) |
| **Rx sensitivity/CCA-SD**  | -76 dBm (a packet with lower rx power is dropped) |
| **Link Adaption** | Fixed MCS =5 for 11ac SS6 and TBD for 11ax SS1-4  |
| **Channel estimation** | Ideal unless otherwise specified  |
| **PHY abstraction** | RBIR, BCC (see appendix 1&3 in [11-14/0571]) |
| **Symbol length**  | 4us with 800ns GI per OFDM symbol  |

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| **MAC parameters**  |
| **Access protocol**  | [EDCA, AC\_BE with default parameters] [CWmin = 15, CWmax = 1023, AIFSn=3 ] |
| **Queue length** | A single queue for each traffic link is set inside AP/STA sized of 2000 packets |
| **Traffic type** | UDP CBR with rate 10^8bps (may not enough to model full buffer)Random start time during a 10ms interval  |
| **MPDU size** | 1544 Bytes (1472 Data + 28 IP header + 8 LLC header + 30 MAC header + 4 delimiter + 2 padding)  |
| **Aggregation**  | [A-MPDU / max aggregation size / BA window size, No A-MSDU, immediate BA without explicit request], Max aggregation: 32 or 64 MPDUs  |
| **Max number of retries**  | 10  |
| **Beacon** | Disabled unless otherwise specified  |
| **RTS/CTS**  | OFF unless otherwise specified  |
| **Running time**  | >= 10s per drop  |
| **Output metric** | -CDF or Histogram of per non-AP STA throughput (received bits/overall simulation time)**-**PER of all AP/STA (1 - # of success subframes / # of transmitted subframes) |

**Test Cases of 11ac Scenario 6**

No shadowing is assumed.

* 1 BSS (upper-right corner BSS B)
	+ DL only case
	+ UL only case
		- 1 STA: each STA-AP
		- 2 STAs: 3+9, 3+15, 3+27
		- 3 STAs: 3+9+15, 3+9+27
	+ DL & UL case
* 2 BSS (A+B)
	+ Both DL only
	+ Both UL only
	+ A DL and B UL
	+ B UL and A DL
* 3 BSS
	+ DL only
	+ UL only
	+ Mixed DL & UL

