EEE P802.11
Wireless LANs

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| TGax Power Save Calibration Scenario |
| Date: November 4, 2014 |
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# Abstract

This document describes the calibration scenario for power save and power save related operation parameters. The submission provides operation parameters for power save and describes the calibration scenario.

## Common Power Model Parameters for all simulation Scenarios

The following Average current consumption numbers are used to calculate the power consumption of the data transmission.

Voltage = 1.1 V, Bandwidth = { 20 MHz }, Band = { 2.4 GHz, 5 GHz }, NSS = { 1 }, Number of TX/RX antennas = { 1 }, TX power per antenna = { 15 dBm }

Table 1 – Current consumption in each Power State

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| **Power State** | **Average Current Consumption [mA]** |
| **Transmit [mA]** | **280** |
| **Receive [mA]** | **100** |
| **Listen [mA]** | **50** |
| **Sleep [mA]** | **0.003** |

Transmit power state is defined as the state when the STA is sending a PPDU.

Receive power state is defined as the state when the STA is receiving a PPDU.

Listen power state is defined as the state when the STA is performing CCA or actively looking for the presence of a PPDU.

Sleep power state is defined as the state when the STA is in Doze state and receiver is off.

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| Power Save Mechanism parameters |
| Mechanism | Parameter | Definition/Values | Pick one value from the suggested set of Simulation Values \*\* |
| Power save mode (PSM) | Beacon Interval (BI) | 100 TU | 100 TU |
| DTIM | Integer in unit of BI | { 1, 3 } |
| PSM timeout  | Length of time before STA goes to sleep  | { 50, 100, 200 } ms |
| Power save polling (PSP) | Beacon Interval | 100 TU | 100 TU |
| DTIM | Integer in unit of BI | { 1, 3 } |
| Unscheduled automatic power save delivery (U-APSD) | Beacon Interval | 100 TU | 100 TU |
| DTIM | Integer in unit of BI | { 1, 3 } |
| Max SP Length | Indicate the maximum number of buffered MSDUs, A-MSDUs, and MMPDUs that AP may deliver per SP | { 2, 4, 6, ∞ } |
| AC | Access Category | All ACs are both delivery and trigger enabled |

\*\* Simulation results presented should clearly indicated what values are used in the generating the simulation results

## Test 5: Power Save Mechanism Test

Goal:

This test case is intended to verify the power save mechanisms implemented in MAC system simulator

Assumptions:

* PER = 0

**Power save test parameters for PSM and PSP**

•MSDU length: 1500 bytes with CWmin=15  downlink every 200 ms

•RTS/CTS [ OFF ]

•MCS = [ 0 ]

•No A-MPDU aggregation

•Power model = [ PSM, PSP ]

•DTIM = [ 3 ]

•PSM timeout = [ 100 ] ms

**Power save test parameters for U-APSD**

•MSDU length: [ 120 bytes with CWmin=15 uplink and downlink every 40ms ]

•RTS/CTS [ OFF ]

•MCS = [ 0 ]

•No A-MPDU aggregation

•Power model = U-APSD

•DTIM = [ 3 ], STA may not receive Beacons for TIM

•Max SP Length = [ 4 ]

•All ACs are triggered and delivery enabled

Output:

* MAC throughput
* Pie chart (breakdown) of time spent in each power state during the course of the simulation
* Pie chart (breakdown) of energy consumed in each power state during the course of the simulation