IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mixed traffic configurations on simulation scenarios | | | | |
| Date: May 10, 2015 | | | | |
| Authors and Contributors | | | | |
| Name | Company | Address | Phone | Email |
| Yingpei Lin | Huawei |  |  | [linyingpei@huawei.com](mailto:linyingpei@huawei.com) |
| Phillip Barber | Huawei |  |  | [pbarber@broadbandmobiletech.com](mailto:pbarber@broadbandmobiletech.com) |
| Hongjia Su | Huawei |  |  | [suhongjia@huawei.com](mailto:suhongjia@huawei.com) |
| Xiaofei Wang | Interdigital |  |  | [Xiaofei.Wang@InterDigital.com](mailto:Xiaofei.Wang@InterDigital.com) |

# Abstract

This document provides a mixed traffic model for each simulation scenario in Simulation Scenarios Document [IEEE 802.11-14/0980r10](https://mentor.ieee.org/802.11/dcn/14/11-14-0980-10-00ax-simulation-scenarios.docx)

# Problem 1

The underlying dot11ax Traffic Models are presented in the Evaluation Methodology Document [IEEE 802.11-14/0571r8](https://mentor.ieee.org/802.11/dcn/14/11-14-0571-08-00ax-evaluation-methodology.docx).

Traffic Model relevancy (Per each apartment/cubicle/BSS) to specific Simulation Scenarios are TBD for scenario 1~4 in the Simulation Scenarios Document [IEEE 802.11-14/0980r10](https://mentor.ieee.org/802.11/dcn/14/11-14-0980-10-00ax-simulation-scenarios.docx).

Currently the reserved location for the TBD information in the Simulation Scenario document only conveys the potential presence and characterstics of the traffic models.

For simulation purposes it is also necessary to know the specific traffic types that are present for a given Simulation Scenario, and at what frequency of presence among STA in the BSS: Traffic Mix.

Add Traffic Mix to each Simulation Scenario to complete the Simulation Scenario process and document.

Remove duplicate content and reformat for clarity.

# Remedy 1

[Add the traffic mix configurations for scenario 1~4 as:]

# 1 - Residential Scenario

**Traffic model**

**For Calibration:**

* Use full buffer traffic
* Downlink only or Uplink only
* BE class

**For performance tests:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | | | | |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Traffic model for each apartment | | | | | | |
| Sim Traffic Identifier | Source/Sink | Traffic Model1 | Traffic Model Class Identifier2 | Directional3 | Number of Traffic Services Assigned to STAs in Sim Population (Source/Sink)4 | AC |
| D1 | AP/STA | Buffered Video Streaming | BV6 | Asymmetric Bi-directional | 2/2 | VI |
| D2 | AP/STA | Buffered Video Streaming | BV3 | Asymmetric Bi-directional | 4/4 | VI |
| D3 | AP/STA | FTP | FTP | Asymmetric Bi-directional | 2/2 | BE |
| D4 | AP/STA | HTTP | HTTP | Asymmetric Bi-directional | 4/4 | BE |
| D5 | AP/STA | Gaming | GMG | Asymmetric Bi-directional | 3/3 | VI |
| D6 | AP/STA | VoIP | VOIP | Symmetric Bi-directional | 2/2 | VO |
| D7 | AP/STA | MGMT: Beacon | 220 octets long Beacon frame @ 1 Mbps in 2.4 GHz/ @ 6 Mbps in 5 GHz is transmitted every 100 TUs | Unidirectional | 1/0 | VI |
| U1 | STA/AP | Buffered Video Streaming | BV3 | Asymmetric Bi-directional | 1/1 | VI |
| U2 | STA/AP | FTP | FTP | Asymmetric Bi-directional | 2/2 | BE |
| U3 | STA/AP | Gaming | GMG | Asymmetric Bi-directional | 3/3 | VI |
| U4 | STA/AP | MGMT: Probe Req | TBD | Unidirectional | All unassociated STAs/0 | VI |

Note 1,2,3: From Evaluation Methodology Document Appendix 2, except for MGMT traffic types which are defined in the Table.

Note 4: Traffic Services to/from STAs shall be randomly assigned among the total number of STAs in the simulation population for the identified population granularity (apartment, office cubicle, BSS, etc…). For example, the Traffic Service D1 would be randomly assigned to two different STAs, for SS1 that would be 2 of 10 STAs. Assignment to AP is always to a single AP in the simulation population for the identified population granularity.

# 2 – Enterprise Scenario

**Traffic model**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | | | | |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Traffic model for each office cubicle | | | | | | |
| Sim Traffic Identifier | Source/Sink | Traffic Model1 | Traffic Model Class Identifier2 | Directional3 | Number of Traffic Services Assigned to STAs in Sim Population (Source/Sink)4 | AC |
| D1 | AP/STA | Buffered Video Streaming | BV6 | Asymmetric Bi-directional | 2/2 | VI |
| D2 | AP/STA | Buffered Video Streaming | BV3 | Asymmetric Bi-directional | 6/6 | VI |
| D3 | AP/STA | VDI | VDI | Asymmetric Bi-directional | 48/48 | VI |
| D4 | AP/STA | VoIP | VOIP | Symmetric Bi-directional | 10/10 | VO |
| D5 | AP/STA | MGMT: Beacon | 280 octets long Beacon frame @ 1 Mbps in 2.4 GHz/ @ 6 Mbps in 5 GHz is transmitted every 100 TUs | Unidirectional | 1/0 | VI |
| U1 | STA/AP | MGMT: Probe Req | TBD | Unidirectional | All unassociated STAs/0 | VI |

Note 1,2,3: From Evaluation Methodology Document Appendix 2, except for MGMT traffic types which are defined in the Table.

Note 4: Traffic Services to/from STAs shall be randomly assigned among the total number of STAs in the simulation population for the identified population granularity (apartment, office cubicle, BSS, etc…). For example, the Traffic Service D3 would be randomly assigned to forty-eight different STAs, for SS2 that would be 48 of 64 STAs. Assignment to AP is always to a single AP in the simulation population for the identified population granularity.

# 3 - Indoor Small BSSs Scenario

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | | | | |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Traffic model for each BSS | | | | | | |
| Sim Traffic Identifier | Source/Sink | Traffic Model1 | Traffic Model Class Identifier2 | Directional3 | Number of Traffic Services Assigned to STAs in Sim Population (Source/Sink)4 | AC |
| D1 | AP/STA | Buffered Video Streaming | BV6 | Asymmetric Bi-directional | 12/12 | VI |
| D2 | AP/STA | Buffered Video Streaming | BV3 | Asymmetric Bi-directional | 8/8 | VI |
| D3 | AP/STA | FTP | FTP | Asymmetric Bi-directional | 4/4 | BE |
| D4 | AP/STA | HTTP | HTTP | Asymmetric Bi-directional | 12/12 | BE |
| D5 | AP/STA | Gaming | GMG | Asymmetric Bi-directional | 16/16 | VI |
| D6 | AP/STA | VoIP | VOIP | Symmetric Bi-directional | 12/12 | VO |
| D7 | AP/STA | MGMT: Beacon | 280 octets long Beacon frame @ 1 Mbps in 2.4 GHz/ @ 6 Mbps in 5 GHz is transmitted every 100 TUs | Unidirectional | 1/0 | VI |
| U1 | STA/AP | Buffered Video Streaming | BV3 | Asymmetric Bi-directional | 4/4 | VI |
| U2 | STA/AP | FTP | FTP | Asymmetric Bi-directional | 4/4 | BE |
| U3 | STA/AP | Gaming | GMG | Asymmetric Bi-directional | 16/16 | VI |
| U4 | STA/AP | MGMT: Probe Req | TBD | Unidirectional | All unassociated STAs/0 | VI |

Note 1,2,3: From Evaluation Methodology Document Appendix 2, except for MGMT traffic types which are defined in the Table.

Note 4: Traffic Services to/from STAs shall be randomly assigned among the total number of STAs in the simulation population for the identified population granularity (apartment, office cubicle, BSS, etc…). For example, the Traffic Service D1 would be randomly assigned to twelve different STAs, for SS3 that would be 12 of 40 STAs. Assignment to AP is always to a single AP in the simulation population for the identified population granularity.

## Interfering Scenario for Scenario 3

This scenario introduces and overlay of unmanaged P2P networks on top of Scenario 3.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | | | | |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Traffic model for interfering P2P STAs per BSS for SS3 | | | | | | |
| Sim Traffic Identifier | Source/Sink | Traffic Model1 | Traffic Model Class Identifier2 | Directional3 | Number of Traffic Services Assigned to STAs in Sim Population (Source/Sink)4 | AC |
| D1 | STA/STA | Buffered Video Streaming | BV3 | Asymmetric Bi-directional | 2/2 | VI |
| D2 | STA/STA | FTP | FTP | Asymmetric Bi-directional | 2/2 | BE |
| D3 | STA/STA | MGMT: Beacon | 220 octets long Beacon frame @ 1 Mbps in 2.4 GHz/ @ 6 Mbps in 5 GHz is transmitted every 100 TUs | Unidirectional | 1/0 | VI |

Note 1,2,3: From Evaluation Methodology Document Appendix 2, except for MGMT traffic types which are defined in the Table.

Note 4: Traffic Services to/from STAs shall be randomly assigned among the total number of STAs in the simulation population for the identified population granularity (apartment, office cubicle, BSS, etc…). For example, the Traffic Service D1 would be randomly assigned to two different STAs, for SS3:Interfering P2P per BSS that would be 2 of 4 STAs.

# 4 - Outdoor Large BSS Scenario

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | | | | |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Traffic model for each BSS | | | | | | |
| Sim Traffic Identifier | Source/Sink | Traffic Model1 | Traffic Model Class Identifier2 | Directional3 | Number of Traffic Services Assigned to STAs in Sim Population (Source/Sink)4 | AC |
| D1 | AP/STA | Buffered Video Streaming | BV6 | Asymmetric Bi-directional | 5/5 | VI |
| D2 | AP/STA | Buffered Video Streaming | BV3 | Asymmetric Bi-directional | 20/20 | VI |
| D3 | AP/STA | Multicast Video Streaming | MC2 | Unidirectional | 1/12 | VI |
| D4 | AP/STA | FTP | FTP | Asymmetric Bi-directional | 4/4 | BE |
| D5 | AP/STA | HTTP | HTTP | Asymmetric Bi-directional | 15/15 | BE |
| D6 | AP/STA | Gaming | GMG | Asymmetric Bi-directional | 25/25 | VI |
| D7 | AP/STA | VoIP | VOIP | Symmetric Bi-directional | 20/20 | VO |
| D8 | AP/STA | MGMT: Beacon | 280 octets long Beacon frame @ 1 Mbps in 2.4 GHz/ @ 6 Mbps in 5 GHz is transmitted every 100 TUs | Unidirectional | 1/0 | VI |
| U1 | STA/AP | Buffered Video Streaming | BV3 | Asymmetric Bi-directional | 10/10 | VI |
| U2 | STA/AP | FTP | FTP | Asymmetric Bi-directional | 4/4 | BE |
| U3 | STA/AP | Gaming | GMG | Asymmetric Bi-directional | 25/25 | VI |
| U4 | STA/AP | MGMT: Probe Req | TBD | Unidirectional | All unassociated STAs/0 | VI |

Note 1,2,3: From Evaluation Methodology Document Appendix 2, except for MGMT traffic types which are defined in the Table.

Note 4: Traffic Services to/from STAs shall be randomly assigned among the total number of STAs in the simulation population for the identified population granularity (apartment, office cubicle, BSS, etc…). For example, the Traffic Service D1 would be randomly assigned to five different STAs, for SS4 that would be 5 of 50 STAs. Assignment to AP is always to a single AP in the simulation population for the identified population granularity.

# Remedy 2

[Remove duplicative content from Annex 2:]















# Remedy 3

[Remove and relocate unique references to EVM from Annex 2:]

# Remedy 4

[Remove obsolete template from Annex 3:]

# Annex 3 - Templates



# Straw poll

Do you agree to modify the Simulation Scenarios document IEEE 802.11-15/980r10 as provided in IEEE 802.11-15/0373r4?

Y:

N:

A: