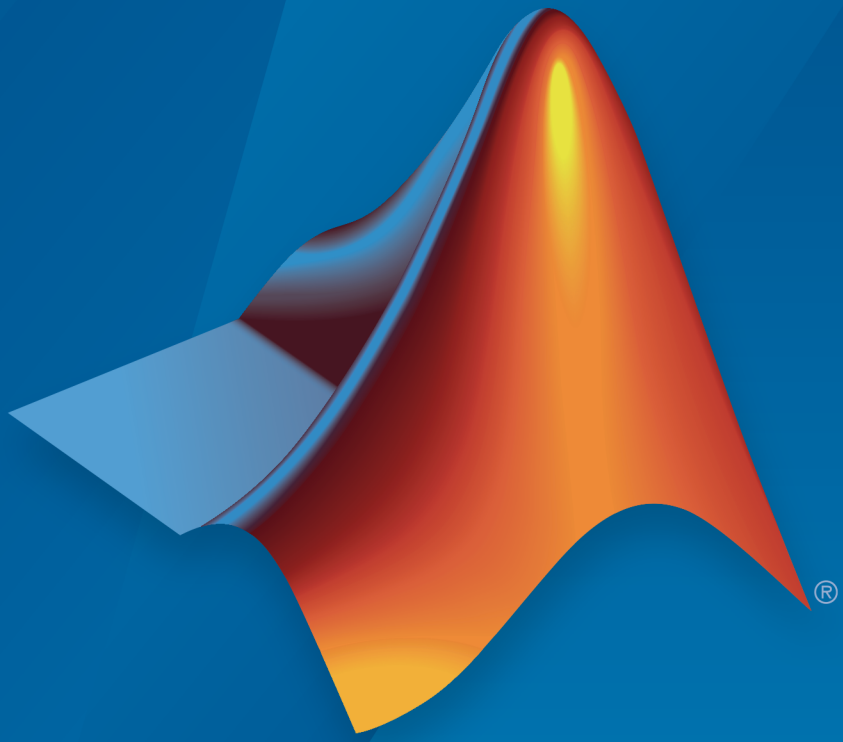
WLAN System Toolbox™ Release Notes



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R2016b

Version: 1.2

New Features

IEEE 802.11ah Support: Generate IEEE 802.11ah compliant waveforms

This release adds support for IEEE® 802.11ah™ waveform generation. For details, see `wlanS1GConfig` and "802.11ah Waveform Generation".

Multiuser-MIMO Receiver: Decode and analyze 802.11ac multiuser waveforms

This release adds support for IEEE 802.11ac™ MU-MIMO receiver. For details, see "802.11ac Multi-User MIMO Precoding".

LDPC Channel Coding: Analyze the performance of 802.11ac/n links using low-density parity-check (LDPC) channel coding techniques

This release adds LDPC support for IEEE 802.11ac and 802.11n™. For details, see "802.11n Packet Error Rate Simulation for 2x2 TGn Channel".

Beacon Frame Generation Example: Create Beacon frames for receiver testing and over-the-air transmission

This release adds an example that creates and transmits a WLAN OFDM Beacon. You can transmit Beacon frames using an SDR platform, and then receive and view the Beacon using a standard Wi-Fi® device. For details, see "802.11 OFDM Beacon Receiver with USRP Hardware".

Productize functions

WLAN packet detection and format detection functions are productized in this release.

- Packet detection — Use the function `wlanPacketDetect` to return the offset from the start of the input waveform to the start of the detected preamble.
- Format detection — Use the function `wlanFormatDetect` to detect and return the packet format for the specified received signal.

R2016a

Version: 1.1

New Features

Bug Fixes

Support for 802.11p Standard: Simulate 802.11p systems to analyze Intelligent Transportation Systems (ITS) applications

The toolbox now supports IEEE 802.11p™ communications systems. Transmit and receive OFDM functions now include options for 10 MHz or 5 MHz channel bandwidth. For examples on how to use the 802.11p standard, see:

- 802.11p and 802.11a Packet Error Rate Simulations — Measures packet error rates in 802.11p and 802.11a™ links using an end-to-end simulation with a fading channel and AWGN.
- 802.11p Spectral Emission Mask Testing — Performs spectrum emission mask tests for an 802.11p transmitted waveform.

Support for 802.11j Standard: Simulate 802.11j systems to analyze Japanese WiFi market applications

Support is enabled for IEEE 802.11j™ communications systems. Transmit and receive OFDM functions now provide option for 10 MHz channel bandwidth.

Functionality Being Removed or Changed

Use of the `wlanGeneratorConfig` object is discouraged for parameterizing the `wlanWaveformGenerator` function. See wlanWaveformGenerator for the recommended parameter `Name,Value` pair syntax.

Functionality	Result	Use Instead	Compatibility Considerations
`wlanWaveformGenerat` `cfgWaveGen` is a `wlanGeneratorConfig` object.	Still runs	`wlanWaveformGenerat`	Replace all instances of old function syntax with new function syntax. `ame,Value`

R2015b+

Version: 1.0

New Features

IEEE 802.11ac and 802.11b/a/g/n standard-compliant physical layer models

WLAN System Toolbox™ provides standard-compliant functions for the design, simulation, and verification of IEEE 802.11™ b/a/g/n/ac communications systems.

Very high throughput (VHT), high throughput (HT-mixed), and legacy (non-HT) waveform generation

WLAN System Toolbox provides 802.11 standard-compliant waveform generation for VHT, HT, and non-HT formats.

For more information, see Waveform Generation and Signal Transmission.

Channel coding, modulation (OFDM, DSSS, CCK), spatial stream mapping, and MIMO receivers

WLAN System Toolbox provides 802.11 standard-compliant functions for individual preamble field creation and decoding, OFDM demodulation and channel estimation, carrier frequency offset estimation, and data recovery. Single input single output (SISO) and multiple input multiple output (MIMO) antenna configurations are supported.

For more information, see Packet Recovery and Signal Reception.

Channel models, including TGac and TGn

WLAN System Toolbox provides channel models described by the TGn and TGac task groups. or more information, see WLAN Channel Models and Propagation Channel.

Measurements including channel power, spectrum mask, EVM, PER, and occupied bandwidth

WLAN System Toolbox examples show how to measure signal characteristics and system performance.

Waveform transmission and reception with radio devices and instruments

When coupled with a radio hardware support package, WLAN System Toolbox functions enable transmission and reception of packet contents with radio devices and instruments.

C code generation support

All WLAN System Toolbox functions support C code generation. Also, you can access the underlying code to customize the algorithms and functions.