Does ZigBee Interfere with WiFi?

ZigBee and WiFi can peacefully co-exist. Here's how.

ZigBee is a specification for a suite of high-level communication protocols. ZigBee is used to create personal area networks built from small, low-powered digital radios.

Although, ZigBee devices are low powered, they can communicate data over long distances by transmitting data to intermediate devices in order to reach more distant ones.

Low powered ZigBee devices communicate across long distances, "hopping" from intermediary-device to intermediary-device. Distances typically range from 10 to 1,600 meters (30 to 5,300 feet), depending on power output and environmental conditions, like other buildings, interior wall and ceiling/ floor types, and geographic topology.

ZigBee is based on the IEE 802.15 standard.

ZigBee and Wi Fi share the same 2.4 GHz band. ZigBee channels can squeeze in between the large Wi Fi channels without interference.

We use channels 15, 20, 25 and 26:
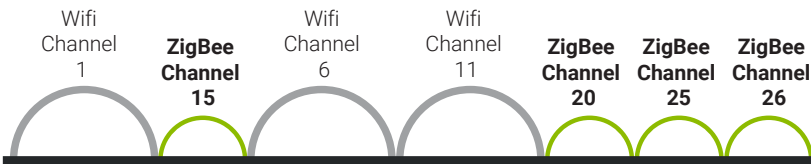
The foundation of every ZigBee standard and specification is the powerful IEEE 802.15.4 physical radio standard, which operates in unlicensed bands worldwide at 2.4GHz (global), 915Mhz (Americas) and 868Mhz (Europe). The ZigBee standard offers reliable communications of information packets with excellent data throughput rates of 250Kbs at 2.4GHz (16 channels), 40Kbs at 915Mhz (10 channels) and 20Kbs at 868Mhz (1 channel).

These are examples of some products that communicate using ZigBee:

- HVAC control
- Lighting controls
- Demand response controls
- Advanced metering infrastructure
- Security (door locks, safes, door/ window contacts,
- Wireless smoke and CO detectors
- Automatic Meter Reading
- Indoor location sensing
- Entertainment system remote controls
- Blinds, drapery and shade controls

In this illustration we see that both ZigBee and WiFi are "spread spectrum." They do not operate on a single frequency but rather on a band of frequencies. WiFi occupies more RF spectrum per channel than ZigBee; the channel spacing allows them to coexist without interference.