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Wi-Fi installation and troubleshoot

Client Guide

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1 Purpose

- Understanding the operation and limitations of wireless networks helps the user optimize the role of wireless networking in their home network
- Equip technical staff with knowledge and testing tools to provide best practices with respect to locating, setting up, and troubleshooting a wireless network with DASAN ONT products
- General introduction of Wifi technology, instructions to set the location of Wifi devices, guide to adjust Wifi antenna angle, guide to deploy Wifi device in some typical areas.

2 Introduction to Wi-Fi technology

2.1 About the IEEE 802.11 Standard

- According to Wikipedia, "Wi-Fi, which stands for Wireless Fidelity or 802.11 network, is a wireless network that uses radio waves, like cell phones, televisions and radios
- Current wifi technology uses two bands of 2.4Ghz and 5GHz with the following basic characteristics

Release Date	Standard	Band (GHz)	Bandwidth (MHz)	Modulation	Advanced Antenna Technologies	Maximum Data Rate (PHY Rate)
1997	802.11	2.4	20	DSSS, FHSS	N/A	2 Mbps
1999	802.11a	5	20	OFDM	N/A	54 Mbps
1999	802.11b	2.4	20	DSSS	N/A	11 Mbps
2003	802.11g	2.4	20	DSSS, OFDM	N/A	54 Mbps
2009	802.11n	2.4, 5	20, 40	OFDM	MIMO (up to 4 spatial streams)	600 Mbps
2013	802.11ac	5	40, 80, 160	OFDM	MIMO MU-MIMO (up to 8 spatial streams)	6.93 Gbps

2.2 About the 2.4 GHz Wi-Fi Band

- Wi-Fi (IEEE 802.11) makes use of 20 MHz wide channels in the 2.4 GHz band. Working frequency from 2402MHz to 2494MHz range divided into 13 + 1 channels, that are spaced 5 MHz apart
- The width of each channel is 20 Mhz or 40 Mhz
- If we use 20Mhz channel width, there will be 3 channels that do not overlap. Normally people will choose channels 1, 6 and 11 as shown below

