FUTURE NOW.

MESH & Wifi 6
Better technology for congested networks
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avm.de
Internet access for every connection
Higher demands on Wifi

Devices per household:

- 8 devices in 2012
- 24 devices in 2018
- 50 devices in 2020 (double of 2012)
- 50 devices in 2020 (triple of 2012)
Limitations

Wifi setup the classical way
Best wireless LAN with mesh convenience
Only with FRITZ!
FRITZ! home network – best wireless LAN with mesh convenience

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Crossband Repeating
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Only with FRITZ!

• One wireless network, same WiFi network name (SSID) and network key
• Modular system, easy to expand
• Connection at the touch of a button
• Optimized TV and video streaming
• Wireless night service
• Shared guest access / FRITZ!Hotspot
• Access and management from anywhere
• Central update for all devices
### WiFi & Mesh functionality
- One wireless network for all devices
- Shared network name (SSID) and network key
- Optimized TV and video streaming in the whole network
- Unified guest access with time and bandwidth (hotspot) limitation
- Wireless night service
- Unified Smart Home use from anywhere
- Password adoption from FRITZ!Box

### Modularity & Devices
- Broad range of FRITZ!Box, Repeaters and PLC plus WiFi models
- DSL, cable, fiber optics, LTE – consistent user experience on every connection
- Suitable products for all performance classes
- Different housing for any installation site
- Connection at the touch of a button
- Especially energy efficient
- Expandable with phones, Smart Home products, wireless dongles

### Performance & Security
- Smart crossband repeating for full speed
- Automatic selection of the best wireless channel for each band
- Automatic or manual updates
- Rating for password security
- Parental controls including time budget, blacklist
- MyFRITZ!App: access to information and management from on the go
FRITZ! home network – best wireless LAN with mesh convenience

Customized like your home

FRITZ!WLAN
WiFi repeater

FRITZ!Powerline
Powerline + WiFi
802.11v + 802.11k

Access Point steering
FRITZ! home network – best wireless LAN with mesh convenience

From S to XL
The genius behind FRITZ!

The entire home network at a glance
Wi-Fi 6: What’s different?

- Up to 8x8 MU-MIMO
- More spatial streams
- OFDMA (Uplink/downlink)
- Uplink resource scheduling
- 2.4 GHz
- 5 GHz
- 1024 QAM
- Extended range
- BSS color

Long OFDM symbol

ac

ax
Faster speed via 802.11AX

Maximum speed:

AC: 866 Mbit/s per Channel

vs

AX: 1201 Mbit/s

Long OFDM symbol
WLAN AX

- 11ax (4x4 MU-MIMO)
- 11ac (4x4 MU-MIMO)
- 11ac (3x3 MIMO)
- 11n (2x2 MIMO)

Extended range

Mbit/s

FRITZ!Box 7590
FRITZ!Box 7490
FRITZ!Box 7390

0  10  20  30  40  50  60  70  80  90 meters

1 room  2 room  3 rooms and more
Wifi 802.11ax – QAM – Quadrature Amplitude Modulation

- 802.11b – 16 QAM
- 802.11g – 32 QAM
- 802.11N – 64 QAM
- 802.11AC – 256 QAM
- 802.11AX – 1024 QAM
Innovation
Wireless AC with 4 x 4 Multi-User MIMO

Single-User MIMO

Multi-User MIMO
802.11 ax – MU MIMO

- 802.11 AC supports:
  - up to 4 x 4 MIMO
  - 5 GHz only

- 802.11 AX supports:
  - up to 8x8 MIMO
  - More spatial streams through the support of 2,4 & 5 GHz
One frame in the wifi network is 2300 Bytes large

average Frame contains only 350 Bytes of data

A lot of wasted space.
Wifi 802.11ax – OFDMA

- Orthogonal Frequency Division Multiple Access
- Chops up each wireless Channel into many smaller partial channels / sub channels
- Allowing up to 30 devices to the AP at once instead of just one.
- AP is gaining more flexibility allowing to allocate bandwidth to each device based on its data needs
**Wifi 802.11ax – BSS Color**

- BSS (basic service set)

- **BSS coloring:**
  - Helps ignoring noise from other overlapping Wifi networks
  - Dramatically improves Wifi performance and latency
  - Getting rid of unnecessary wait time
Target wake time

- Less energy consumption
- Less unnecessary wifi traffic
- Improve battery life time
- IoT ready - updating status once a day
The genius behind FRITZ!

FRITZ!OS
1111 awards for AVM

FRITZ!Box 7590
FRITZ!Box 6890 LTE
FRITZ!Box 5490
FRITZ!Box 7560
FRITZ!OS 7
FRITZ!Box 6890 LTE

All awards at a glance – avm.de/awards_en