



HUAWEI CONNECT: THE FUTURE OF 5G & WIFI 6 POWERING AN INTELLIGENT WORLD

WEDNESDAY, 12 FEBRUARY, 2025

GROUP 6

HUAWEI - LEADING THE ICT REVOLUTION

HUAWEI, a global leader in ICT infrastructure and smart devices, operates in over 170 countries. With a commitment to innovation, the company has pioneered advancements in AI chips, 5G networks and WiFi 6 connectivity, shaping the vision of an intelligent, connected world. In Malaysia, Huawei stands as the largest ICT solution provider, ranking among the top 5 employer brands and winning the Cybersecurity Innovation Award in 2020.



5G - SPEED BEYOND IMAGINATION

What used to take hours is now done in seconds.

The fifth-generation (5G) wireless technology revolutionizes communication with:

- Ultra-low latency: 1ms (millisecond)
- High-speed data rate: Up to 10Gbps peak speed
- Massive connectivity: 1 million devices/km²

With urban coverage ranging from 700-3025Mbps, 5G enables seamless experiences for:

- AR & VR: Enhancing immersive gaming, virtual tourism, and interactive education.
- Automation: Boosting efficiency in manufacturing, transportation, and mining.
- 5G Live Broadcast & Private Networks: Elevating media and business communications.
- Smart Cities: Revolutionizing healthcare, education, and industrial operations

Innovative 5G Applications by Huawei:

- Smart & Virtual Tourism: Tourists can live-stream destinations in real time.
- 5G Industrial Parks: Supporting hi-tech industries and creating new job opportunities.
- Robotic Integration: Increasing productivity by 30% through automation.
- AR/VR Education: Transforming learning with interactive, real-world applications.



Wi-Fi 6 : Next-Gen Connectivity

Officially certified in 2019, Wi-Fi 6 is based on the 802.11ax standard and offers significant improvements in speed, efficiency, and connectivity.

Key features include:

- Blazing Speeds – Up to 9.6 Gbps peak data rates.
- Dual-Band Operation – Works on both 2.4 GHz and 5 GHz spectrums.
- Enhanced Efficiency – Handles 100+ devices simultaneously in high-density environments.
- Lower Latency & Power Consumption – 30% reduction in energy usage for connected devices.
- Stronger Signal & Coverage – Huawei's 8T8R spatial streams increase transmission rates and improve bandwidth by 2.8 times.

How Does Wi-Fi 6 Improve Bandwidth & Coverage?

Huawei optimizes Wi-Fi 6 by offering:

- Larger Spatial Streams – 2x the previous version (Wi-Fi 5). Higher Transmission Efficiency – 5% increase in subcarrier quantity, 6% longer symbol duration, and 25% more efficient coding, reducing data transfer time significantly.
- Enhanced Signal Quality – SNR (Signal-to-Noise Ratio) boosted by 9dB+ using OFDMA-based RU narrowband transmission.
- Extended Coverage – Huawei's RF optimization and TX power improvements ensure stable 193.9 Mbps speeds over wider areas.

Wi-Fi 6: The Future of Video & Cloud Services

Wi-Fi 6 enhances modern digital experiences with:

- OFDMA Technology – Supports multi-user sequential scheduling for 10x better efficiency.
- BSS Coloring – Allows multiple devices to transmit on the same channel simultaneously, reducing congestion.
- Wide DMA for Low Latency – Cloud VR, multi-screen IPTV, HD online teaching, and e-sports now run smoother than ever.

Core Wi-Fi 6 Technologies Impacting Huawei's Future

- 1024-QAM & 8x8 MU-MIMO – Providing 4x larger bandwidth than Wi-Fi 5.
- UL/DL OFDMA & UL/DL MU-MIMO – Supporting 4x higher concurrency than Wi-Fi 5.
- Low Latency & Power Efficiency – 50% lower latency (as low as 20ms) and reduced power consumption.

REFLECTION:

5g and Wi-Fi 6 is the future. This talk gave us a better understanding of how 5G and Wi-Fi 6 are changing the way we connect and communicate. 5G improves outdoor connectivity, making smart cities and remote work more efficient. Meanwhile, Wi-Fi 6 enhances indoor experiences, providing faster speeds and better connections in homes, schools and offices. These innovations make life easier by reducing internet lag, improving communication and supporting new technologies like AR/VR and smart healthcare. They will bridge gaps between communities, enable real-time data processing, and create a smarter, more connected world.

From this talk, we understand that we need to learn more about new upcoming technologies like 5G and Wi-Fi 6 in order to create better life with seamless implementation of technology.

Overall, this talk showed us how technology is shaping a smarter, more connected world and making everyday life more convenient.



Huawei Technologies

Wi-Fi 6

Huawei AirEngine

- Highest performance
- Most stable experience
- Most comprehensive IoT applications
- Most secure
- 2x speed vs industry Wi-Fi 6

5G

- Smart Antenna – Improves SNR, expanding coverage radius by 20%.
- Dynamic Turbo – Ensures low latency for mission-critical services.
- Network Distribution – Adjusts coverage based on user density.
- Lossless Roaming – Achieves zero packet loss in service roaming.

Wi-Fi 6 vs. 5G: Where They Shine

Wi-Fi 6 is ideal for indoor environments, providing high-speed connectivity in homes, malls, universities, classrooms, and stadiums. It excels in ultra-high-density areas with multiple connected devices.

On the other hand, 5G is designed for outdoor coverage, delivering fast internet across cities, highways, plazas, and scenic areas. It ensures seamless connectivity in urban settings and wide outdoor spaces.