SPECTRUM COEXISTENCE

VECTORWAVE

Autonomous cellular spectrum sharing

VectorWave enables 5G radio infrastructure to sense incumbent RF activity and adapt in nanoseconds—unlocking shared spectrum without the latency, infrastructure burden, and operational constraints of conventional coordination systems.

The pressure

Cellular operators and private network providers face growing demand for spectrum. Private 5G, AI workloads, industrial automation, and connected infrastructure are all increasing the need for high-performance wireless capacity.

But with little greenfield spectrum left, operators need to make better use of shared bands—without compromising protection for incumbent users such as federal radar systems.

Where current approaches fall short

Citizens Broadband Radio Service (CBRS): Demonstrated that commercial and incumbent users can share spectrum—but relies on SAS/ESC coordination and conservative protection mechanisms that limit dynamic use.

Dynamic Spectrum Sharing (DSS): Extends the same ambition into more dynamic sharing environments—but centralized coordination alone cannot deliver the local, signal-speed response needed when incumbent activity changes in real time.

Traditional spectrum sharing relies on coordination. VectorWave enables intelligence at signal-speed.

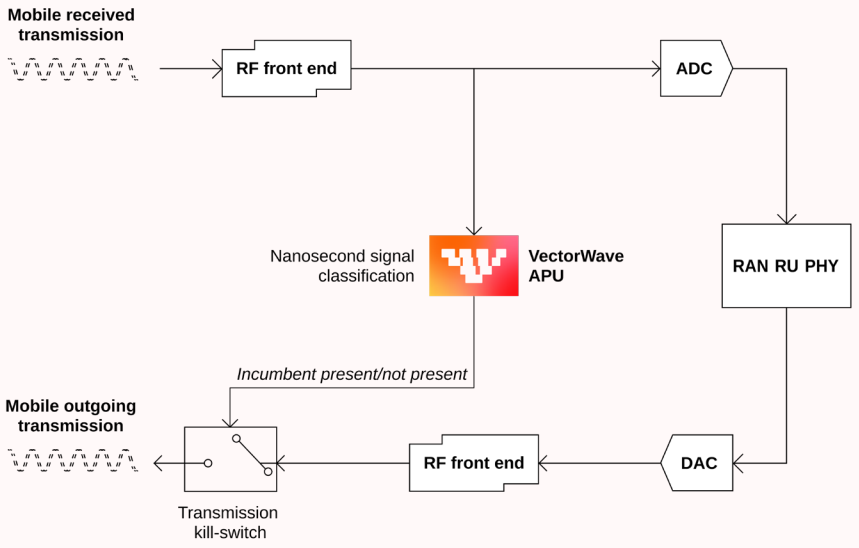
VectorWave changes where RF decisions happen

Instead of relying on external sensing, cloud processing and centralized instructions, VectorWave performs AI inference directly on the live RF signal.

Integrated within mobile radio infrastructure, VectorWave's Analog Processing Unit (APU) identifies incumbent RF activity before conventional digital compute and triggers an automatic response in nanoseconds.

Signal-speed intelligence inside mobile infrastructure

1. RF activity enters the base station or radio system.
2. The APU analyzes the RF signal before conventional digital compute.
3. VectorWave APU inference identifies incumbent radar or protected RF activity.
4. The system automatically attenuates, switches, or pauses transmission.
5. The base station resumes operation immediately when the channel is clear.



What VectorWave enables

Make more spectrum commercially usable

Enables mobile operators to use newly available shared spectrum by supporting real-time coexistence with federal incumbents.

Reduced coordination overhead

Moves spectrum awareness closer to the RF signal itself, reducing dependence on external sensing and centralized coordination systems.

Greater network continuity

Reduces the risk of prolonged service interruptions caused by centralized shutdown or reauthorization cycles.

Faster incumbent protection

Enables infrastructure to respond to protected RF activity in nanoseconds, not hours.

Nanosecond AI inference performed directly on the live RF signal

Edge-native sensing inside mobile infrastructure

Automatic response through attenuation, switching, or transmission pause

Faster incumbent response than conventional coordination-based approaches

By performing intelligence directly on the live RF signal, VectorWave turns cellular and 5G spectrum sharing from a centralized coordination process into an autonomous capability inside network infrastructure.

Learn more at **vectorwave.com**