



Capacity increase through SDMA

Wavion's unique Spatial Division Multiple Access (SDMA) technology enables you to double the downlink capacity of any of your Wavion base stations through a simple software upgrade procedure. No additional hardware installation required.

Wavion's SDMA technology gets more out of the available spectrum. It allows simultaneous transmission of two different data streams over the same frequency to two different clients. SDMA can work with any standard based Wi-Fi client, keeping capacity increase completely independent of the WiFi client type or model.

Wavion's SDMA provides similar capacity gains as of 802.11n with existing infrastructure. These benefits are provided without a forklift upgrade of CPEs or base station, or any software upgrade to Wi-Fi clients or CPEs.

An additional enhancement to Wavion's family of spatially adaptive Base Stations, the SDMA feature enables Wavion's customers to increase their network capacity through a simple procedure, without adding sites or incurring more installation costs.

Apart from its new SDMA functionality, which provides capacity gain similar to current generation 802.11n capacity gain, Wavion's base stations provide beamforming and interference mitigation capabilities, which are not available in current generations of 802.11n. These capabilities add an average of 10dB link gain to any standard WiFi client, enabling extended coverage and higher throughputs.

The SDMA capability is available as a SW upgrade to Wavion's family of 2.4 GHz and 5.8 GHz Base Stations and can be remotely controlled and monitored through Wavion's Web access application.

Features & Benefits

- Software enabled capacity increase - double your capacity through a simple software upgrade procedure
- Capacity gain similar to 802.11n
- Available with any 802.11a/b/g and 802.11n client – no changes to the Wi-Fi client's software or driver required
- Available for Wavion's 2.4 GHz Omni and Sector products as well as for the 5.8 GHz Sector product line

Technology

The SDMA technology is based on the core beamforming technology incorporated in Wavion's specially designed ASIC. The SDMA functionality is enabled by simultaneously directing two separate beams to two users, each with a null directed to the other users. This ensures that each stream is received by the targeted user without cross-interference from the other user.

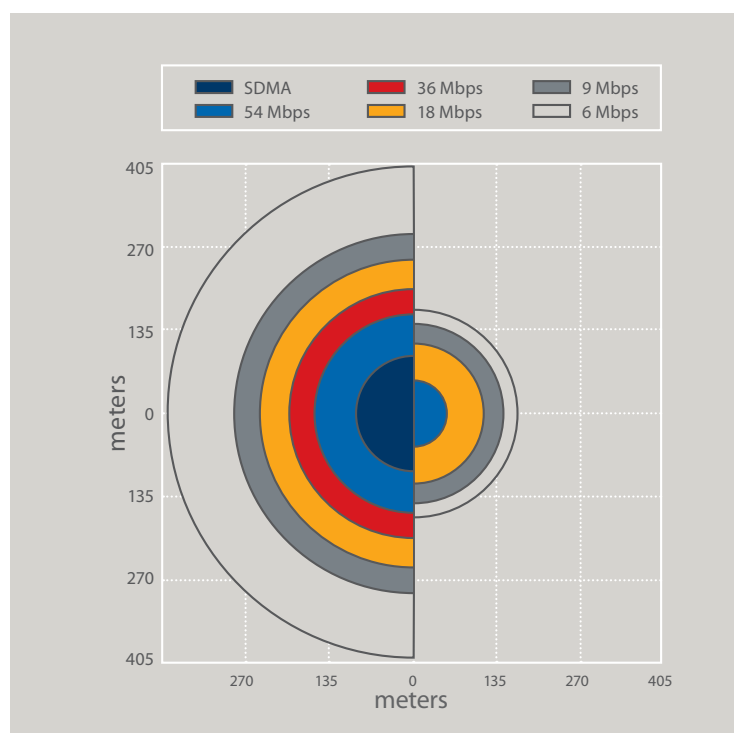
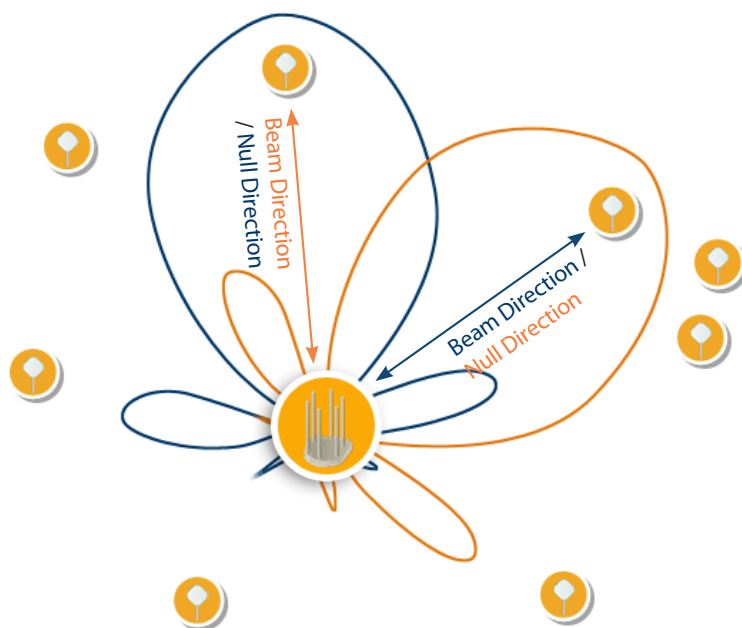
The pairs of clients enjoying the simultaneous transmission are selected per packet from the client list. The more clients are connected to the WBS, the higher the chances to select the pairs which can enjoy the full advantage of SDMA.

SDMA is effective when the following conditions are met:

- Clients are connected in good SNR (above 15dB), thus enabling high modulation rates.
- The environment is reflection-rich, thus enabling enough spatial diversity even for close angularly separated clients.
- A large number of clients are connected to the WBS, thus enabling the variety between the clients needed for optimal pair selection.
- The backhaul to the WBS is wide, thus not limiting the total downlink traffic.

Wavion's SDMA technology is ideal for Internet Access in dense urban areas, such as public squares or train stations, where many clients are located in reflection-rich environment and most of them are located in good SNRs.

Another application for SDMA is Wireless Backhaul. A typical scenario includes WBS-5800-SCT providing backhaul to multiple WBS-2400 units, using multiple 5.8 CPEs which are physically connected to the 2.4 GHz units.



Specifications

- Minimum SNR: 15dB
- Standard 802.11b/g client (clients must be angularly separated by at least 10 degrees relative to the base station)
- Control and management via Wavion's web management application
- Remote software upgrade

Maximum throughput achieved in previous versions		Maximum throughput achieved in version 4.0 (SDMA enabled)		Average Gain
UDP DL	TCP DL	UDP DL	TCP DL	Mixed Traffic
26Mbps	17.7Mbps	53Mbps	32Mbps	170%