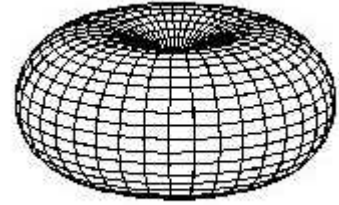


ANTENNA KEY TERMS

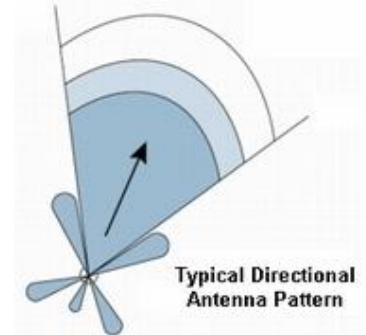
OMNI DIRECTIONAL ANTENNA

An **omni directional antenna** is an antenna which radiates power uniformly in all directions in one plane, with the radiated power decreasing with elevation angle above or below the plane, dropping to zero on the antenna's axis



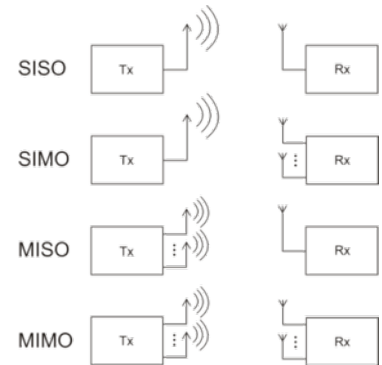
DIRECTIONAL / BEAM ANTENNA

A **directional antenna** or **beam antenna** is an antenna which radiates greater power in one or more directions allowing for increased performance on transmit and receive and reduced interference from unwanted sources



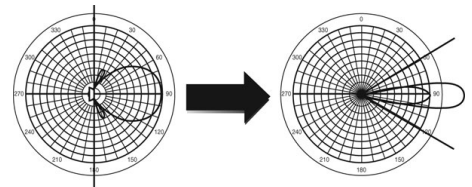
MIMO

multiple-input and multiple-output, or **MIMO** (commonly pronounced my-moh or me-moh), is the use of multiple antennas at both the transmitter and receiver to improve communication performance. It is one of several forms of smart antenna technology.



GAIN

Antenna gain is a measure of how energy is confined into a certain direction. Whilst an ideal antenna with 0 dBi gain radiates energy in all directions (isotropically), a directional antenna concentrates the same amount of energy into a section of the space on a specific heading.



By using a reflector all the energy appears in only one hemisphere and that results in a doubling of radiated energy in this direction or 3dB gain.

dBi

dB is a logarithmic unit and every 3 dB increase is a doubling of the power (intensity). This means that if you switch out your theoretic 0 dBi antenna for a 3 dBi antenna you will gain the same amount of extra range as doubling your transmitter output power. A 3 dB increment means an extended range by 1.414, a 6 dB increment means an extended range by 2 (1.414*1.414)

