

MULTIMEDIA TRAINING KIT

Glossary: ANTENNAS AND CABLES

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Antenna	Device that couples guided electromagnetic waves in a cable to to unguided electromagnetic waves in free space and vice versa
Antenna Isolation	By different means ensure that there is no interference between two or more radio devices that are mounted on the same physical infrastructure (mast, roof top etc,)
Aperture	Capturing area of an antenna. It is proportional to its physical dimensions and inversely proportional to the wavelength
Azimuth	Horizontal angle with respect of the geographical north
Beamwidth	Angular distance between the points at which the power transmitted or received by an antenna drops to half of the maximum power
Boresight	Direction of maximum gain of an antenna
dB	Decibel: the standard unit used to express gain or loss of power.
dBd	Decibels over dipole: a relative gain measurement with respect to a half wave dipole (0 dBd = 2.14 dBi) using a standard dipole antenna as a reference.
dBi	Decibel isotropic: Gain in decibels referenced to an isotropic radiator which is a theoretical antenna with equal gain to all points on isotropic sphere (0 dBd = 2.14 dBi).
dBm	A logarithmic expression for power, referenced to 1 milliwatt. $\text{dBm} = 10 \log(\text{power} / 1 \text{ mW})$.
Dipole	Antenna made with two collinear wires fed at their meeting ends.
Directivity	Capability of an antenna to focus the electromagnetic waves in a certain direction while reducing the radiation in other directions.
Efficiency	Measure of the departure of an antenna from the ideal due to the finite resistance of the material, imperfections and so on.
EIRP	Effective Isotropically-Radiated Power
Front to back ratio	Ratio between the power transmitted or received in the front of an antenna to the corresponding in the opposite direction

FSPL	Free Space Path Loss is the power loss in free space (without any kind of obstacles) due to the weakening of the signal while expanding into a spherical surface
Gain	Ratio between the amount of power transmitted or received by a given antenna and that of a reference antenna
High Directional antennas	Antenna with high gain that is normally used in the client side or to build point-to-point links.
Matched	Condition in which the antenna impedance is the same as that of the transmission line feeding it and therefore no power is lost
Maximum Radiated Power	Equals "Effective Isotropically-Radiated Power" (EIRP). Specifies the maximum power that is legally permitted to be send out to the free air in your country/area.
Omni-directional antenna	Antenna with a 360-degrees radiation pattern
Parabolic antenna	A directional antenna consisting of a dipole driven element mounted in front of a parabolic-shaped reflector.
Polarization	Direction of the electric field of an electromagnetic wave. Can be Lineal (Vertical or horizontal), circular, or elliptical.

Power Divider	Aka 'Combiners': a device that is used to attach several antennas together to one single radio. Combining antennas enables creation of new radiation patterns that can modify the service area of one single access point.
Radiation Pattern	Graph of the power transmitted or received by an antenna as a function of the spatial angle. Generally the vertical and horizontal radiation patterns are drawn separately.
Receiver Sensitivity	The minimum value of power that it is needed for the radio receiver to successfully decode information out of the radio signal.
Sectoral antenna	Antenna with a sector area of 60° – 120° radiation pattern
Sidelobes	Regions in which an antenna transmits or receives power at a lower level than in the main lobe.
SNR	Signal to Noise Ratio
VSWR	Voltage Standing Wave Ratio. Index of the fraction of the transmitted power that is reflected back towards the transmission line
Yagi antenna	A directional antenna consisting of composed of a dipole (aka radiator or driven element), a set of director elements and optionally a reflector.