

MULTIMEDIA TRAINING KIT

Trainers' notes: Antennas and Cables

Developed by: Alberto Escudero Pascual <www.it46.se>

Introduction	<p>This unit starts by giving the reader a brief overview of the concept “Link Budget” in order to provide a clear picture of <i>when</i>, <i>where</i> and <i>why</i> the choice of antennas and cables matters in wireless implementations.</p> <p>Thereafter, the unit covers antennas in terms of types of antennas, polarization, isolation and finally, the unit discusses coaxial cables and connectors.</p>
Timing/duration	Circa 2 hours
Content outline and main topics covered	<p>Link Budget (10 minutes)</p> <ul style="list-style-type: none">Radiated PowerDecibel unitsFSPL, SNR and Receiver SensitivityLink budget margin <p>Type of Antennas (40 minutes)</p> <ul style="list-style-type: none">Omnidirectional AntennasSectoral AntennasDirectional Antennas <p>Antenna Concepts (10 minutes)</p> <ul style="list-style-type: none">Antenna GainAntenna Polarization <p>Coaxial Cables and Connectors (20 minutes)</p> <ul style="list-style-type: none">Coaxial CablesConnectorsPigtails <p>Showcase On Antenna Installation (15-30 minutes)</p>
Target audience	Techies, engineers and network administrators

Prerequisite skills/knowledge	Understanding in basic radio physics.
Unit objectives/expected outcomes	The participants should be familiar with different types of antennas, cables and connectors and be able to select appropriate passive equipment for a certain wireless implementation.
Pre-workshop activities	None
Notes on using exercises	No exercises included.
Resources included with unit	This unit comes with <ul style="list-style-type: none"> - Handout - Slides - Additional Resources
Additional trainer resources	Radio Laboratory Handbook of ICTP. Marco Zennaro and Carlo Fonda. February 2004
Equipment needed	Preferable, the following type of equipment should be available for presentation of the different physical objects described in the unit: <ul style="list-style-type: none"> • Omni-directional antenna • Sectoral antenna • Directional antenna • Pigtail • Access Point (to be connected to the antenna) • Connector • Coaxial cable
Comments	