

# MULTIMEDIA TRAINING KIT

## *Trainers' notes: Antennas and Cables*

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<b>Introduction</b>	<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>
<b>Timing/duration</b>	Circa 2 hours
<b>Content outline and main topics covered</b>	<p>Link Budget (10 minutes)</p> <ul style="list-style-type: none"><li>Radiated Power</li><li>Decibel units</li><li>FSPL, SNR and Receiver Sensitivity</li><li>Link budget margin</li></ul> <p>Type of Antennas (40 minutes)</p> <ul style="list-style-type: none"><li>Omnidirectional Antennas</li><li>Sectoral Antennas</li><li>Directional Antennas</li></ul> <p>Antenna Concepts (10 minutes)</p> <ul style="list-style-type: none"><li>Antenna Gain</li><li>Antenna Polarization</li></ul> <p>Coaxial Cables and Connectors (20 minutes)</p> <ul style="list-style-type: none"><li>Coaxial Cables</li><li>Connectors</li><li>Pigtails</li></ul> <p>Showcase On Antenna Installation (15-30 minutes)</p>
<b>Target audience</b>	Techies, engineers and network administrators

<b>Prerequisite skills/knowledge</b>	Understanding in basic radio physics.
<b>Unit objectives/expected outcomes</b>	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.
<b>Pre-workshop activities</b>	None
<b>Notes on using exercises</b>	No exercises included.
<b>Resources included with unit</b>	This unit comes with <ul style="list-style-type: none"> <li>- Handout</li> <li>- Slides</li> <li>- Additional Resources</li> </ul>
<b>Additional trainer resources</b>	Radio Laboratory Handbook of ICTP. Marco Zennaro and Carlo Fonda. February 2004
<b>Equipment needed</b>	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"> <li>• Omni-directional antenna</li> <li>• Sectoral antenna</li> <li>• Directional antenna</li> <li>• Pigtail</li> <li>• Access Point (to be connected to the antenna)</li> <li>• Connector</li> <li>• Coaxial cable</li> </ul>
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