MULTIMEDIA TRAINING KIT

Trainees' notes: Antennas and Cables

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| Introduction                                                                 | This unit starts by giving the reader a brief overview of the concept “Link Budget” in order to provide a clear picture of when, where and why the choice of antennas and cables matters in wireless implementations.
|                                                                             | Thereafter, the unit covers antennas in terms of types of antennas, polarization, isolation and finally, the unit discusses coaxial cables and connectors. |
| Timing/duration                                                           | Circa 2 hours |
| Content outline and main topics covered                                   | Link Budget (10 minutes)  
|                                                                             |     Radiated Power  
|                                                                             |     Decibel units  
|                                                                             |     FSPL, SNR and Receiver Sensitivity  
|                                                                             |     Link budget margin  
|                                                                             | Type of Antennas (40 minutes)  
|                                                                             |     Omnidirectional Antennas  
|                                                                             |     Sectoral Antennas  
|                                                                             |     Directional Antennas  
|                                                                             | Antenna Concepts (10 minutes)  
|                                                                             |     Antenna Gain  
|                                                                             |     Antenna Polarization  
|                                                                             | Coaxial Cables and Connectors (20 minutes)  
|                                                                             |     Coaxial Cables  
|                                                                             |     Connectors  
|                                                                             |     Pigtails  
<p>|                                                                             | Showcase On Antenna Installation (15-30 minutes) |
| Target audience                                                           | Techies, engineers and network administrators |</p>
<table>
<thead>
<tr>
<th>Prerequisite skills/knowledge</th>
<th>Understanding in basic radio physics.</th>
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<tbody>
<tr>
<td>Unit objectives/expected outcomes</td>
<td>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.</td>
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<td>Pre-workshop activities</td>
<td>None</td>
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<tr>
<td>Notes on using exercises</td>
<td>No exercises included.</td>
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| Resources included with unit | This unit comes with  
- 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:  
* Omni-directional antenna  
* Sectoral antenna  
* Directional antenna  
* Pigtail  
* Access Point (to be connected to the antenna)  
* Connector  
* Coaxial cable |
| Comments | |