Anten'it Antenna Training Kit

TEACHING ANTENNA DESIGN IN ANTENNA LABORATORY LECTURES

Anten'it Antenna Training Kit is designed for antenna laboratory lectures and antenna training centers. Different from all other training kits, Anten'it Antenna Training Kit has an ability to teach antenna design to students. The brick-type of antenna cells provide students to design their own antennas during antenna laboratory lectures. Experiment sheets include short theoretical information about antennas and the antenna design procedure with Anten'it.

The antenna types which can be designed with Anten'it Antenna Training Kit are given below:

1. Dipole Antenna Design Experiment
2. Monopole Antenna Design Experiment
3. Normal Mode Helix Antenna Design Experiment
4. Axial-mode Helix Antenna Design Experiment
5. Dielectric Resonator Antenna (DRA) Design Experiment
6. Probe Fed Patch Antenna Design Experiment
7. 1X4 and 2X2 Probe Fed Patch Antenna Array Design Experiment
8. Standard Gain Horn Antenna (with a Special Feed) Design Experiment
9. Discone Antenna Design Experiment
10. Sleeve Monopole Antenna Design Experiment
11. Planar Inverted-F Antenna (PIFA) Design Experiment
12. Dielectric Resonator Monopole Antenna Design Experiment

A standard antenna training kit includes six of these experiments with the numbers: 1, 2, 3, 4, 5, 6.

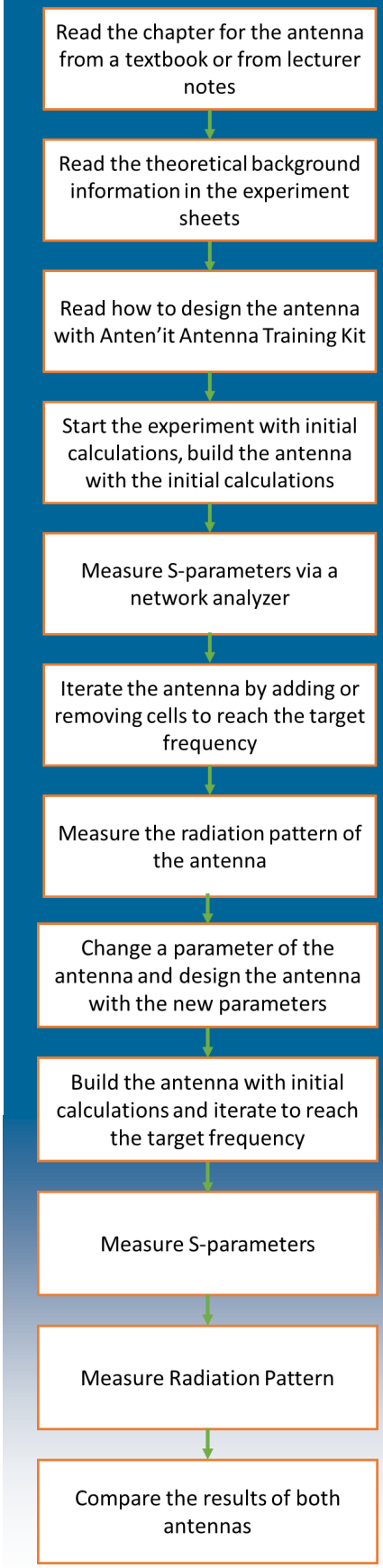
In addition to the standard antenna training kit, these kits are also customizable. Antenna lecturers can select the antenna types from the list and teach only the antenna types they would like to.

There is no network analyser, software or antenna radiation pattern measurement system in the kit. The antenna frequency ranges change between 500-6000 MHz.

If you don't have a network analyzer or antenna radiation pattern measurement system in your laboratory, we can also offer a complete package with our partners.

Anten'it can be ordered via sales representatives on www.antenit.com or sales@antenit.com. Anten'it is a patent pending product of Antenom Antenna Technologies.

A Typical Antenna Design Experiment Procedure with Anten'it Antenna Training Kit



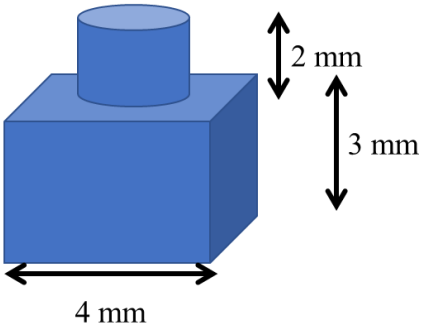
Theoretical Background Behind Anten'it Kits

HARDWARE MESH CELLS

Antenna simulation programs generally include CAD interfaces. When the designers draw a solid structure in CAD interface, simulation programs discretize the solid structure into small pieces called "mesh cells". Maxwell equations are calculated within each mesh cell by using numerical methods such as method of moments (MOM), finite-difference time-domain (FDTD), finite element method (FEM) etc. Each numerical method uses different mesh cell shapes.

FDTD type of simulation programs use cubic mesh cells. In order to get accurate results, the mesh cell dimensions are selected lower than wavelength/10.

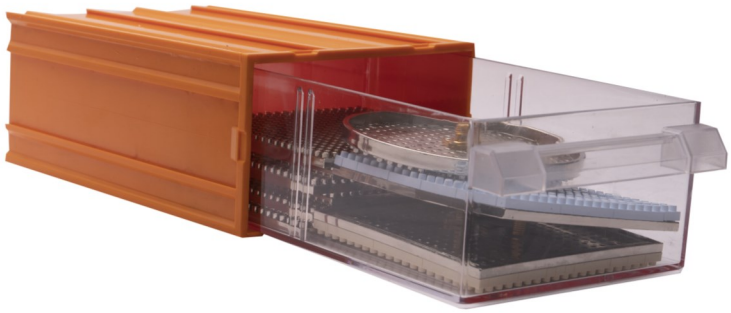
Anten'it Antenna Training Kit uses brick-type hardware cells. Brick type of mesh cells are very similar to cubic shapes. The resolution of Anten'it cells is 4 mm (length) X 4 mm (width) X 3 mm (height). 4 mm corresponds to wavelength/12.5 at 6 GHz. 6 GHz is the highest frequency of Anten'it kits.



The hardware mesh cells provide students to design their antennas directly in front of a network analyzer. They can start their design with calculations and iterate by adding or removing cells (bricks). Then, they reach the target design frequency and measure the radiation patterns of the antennas.

STANDARD ANTENNA TRAINING KIT

Standard Anten'it Antenna Training Kit includes 6 antenna design experiments. Each transparent box includes one antenna experiment. Ground planes are in a different box (yellow). Connectors are already mounted on the ground planes. There are cables, adaptors and removing tools within the kit. There is also a spare parts box within the kit. This box includes metal and dielectric cells.



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