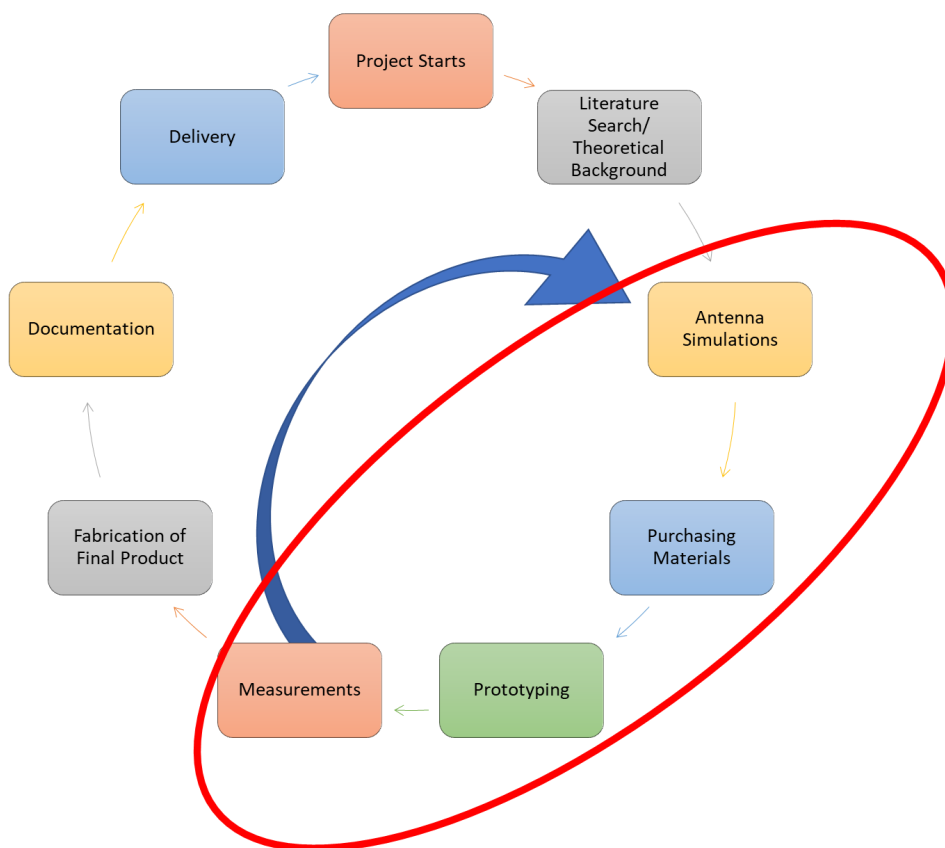




# Anten'it Antenna Design and Prototyping Kit for Antenna Engineers

## DESIGN, PROTOTYPE AND MEASURE CYCLE OF ANTENNA ENGINEERS



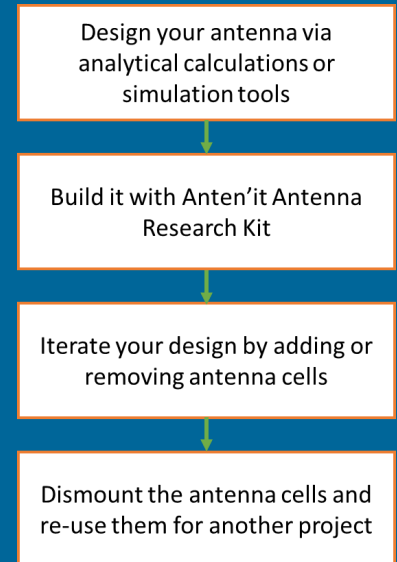
Antenna engineers start their projects with literature research and theoretical background. They generally design and analyse different antenna types in electromagnetic simulation tools. When they reach target antenna parameters, they purchase materials and prototype their structures. Each prototype is measured and this cycle repeats until they reach the target final product parameters. This cycle (shown in red ellipse) generally repeats more than once. After all, the final product is fabricated, documented and delivered.

Anten'it is a hardware based design tool which combines some parts of this design cycles. Antenna engineers can design antennas via simulation tools and prototype them with Anten'it kit. This eliminates purchasing materials for prototypes. Anten'it can also be used without simulation tools. Antenna engineers can design, build and iterate antennas by adding or removing cells directly in front of a network analyzer. This eliminates simulation, purchasing materials, prototyping steps of this cycle.

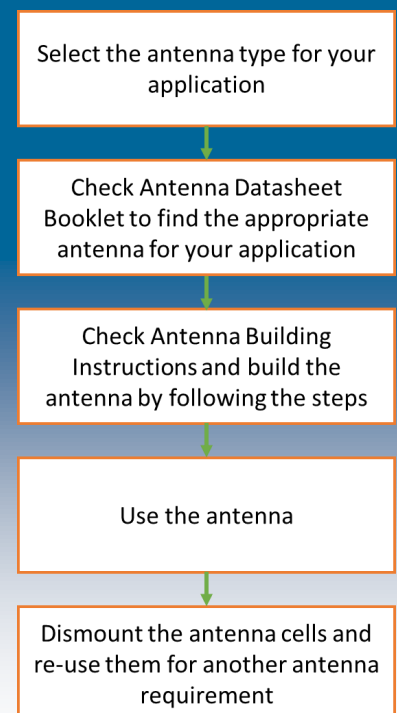
Anten'it can be ordered via distributors in [www.antenit.com](http://www.antenit.com) or [sales@antenit.com](mailto:sales@antenit.com)  
 Anten'it is a patent pending product of Antenom Antenna Technologies

## Two Typical Applications of Anten'it Antenna Design and Prototyping Kit

### 1– Design your novel antennas



### 2– Build Antennas by following the steps in Antenna Building Instructions



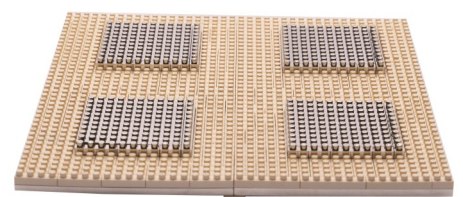
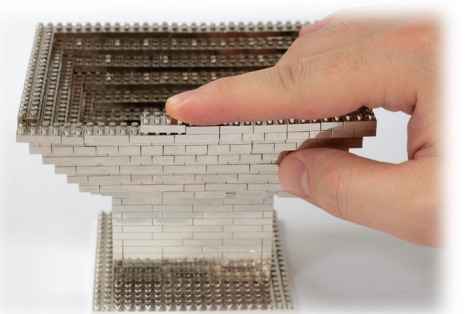


# Anten'it Antenna Design and Prototyping Kit for Antenna Engineers

## ADVANTAGES FOR ANTENNA ENGINEERS

Anten'it antenna design and prototyping kit provides advantages to antenna engineers:

1. It saves material costs for prototyping because antenna cells are re-usable.
2. It saves machining costs for prototyping.
3. It saves machining duration for prototyping because antenna cells can be mounted easily by hands.
4. It saves material purchasing duration because there are already metal cells, 3 different kinds of dielectric cells, ground planes and connectors in Anten'it kits.
5. It decreases antenna design duration dramatically.
6. It can be used for novel antenna designs.
7. If you don't have simulation tools, you don't need to invest for buying a simulation tool. You can directly design antennas in front of a network analyzer.
8. If you don't have simulation tools, you don't need to invest for a well-equipped computer for simulation tools.
9. It can be used for conceptual designs.
10. There are many datasheets with measured results in the datasheet booklet and antenna building instructions include how to build those antennas step by step. You can follow the steps, build the antennas. This is a useful method for urgent antenna needs.
11. When other departments such as radar, direction finding, signal processing, systems engineering etc. ask for antennas for their applications, you can easily build and supply antennas to them. This generally provides them to understand their requirements better. Remember that system engineers also need to iterate their design. When their requirements change (for example increasing the gain or changing HPBW), you can easily change the antenna and supply the new antenna in a very short-time.
12. You can build antennas for academic purposes (journals, conferences, books).
13. You can teach antenna design easily to your newly graduate colleagues and interns.
14. If your customer or research partner has Anten'it kits, you can share your design with them and they can build the same structure in their organizations.





## 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.

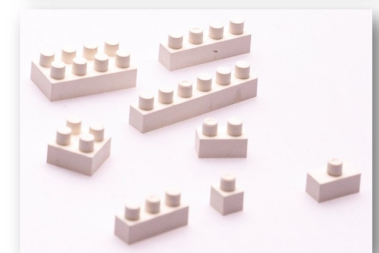
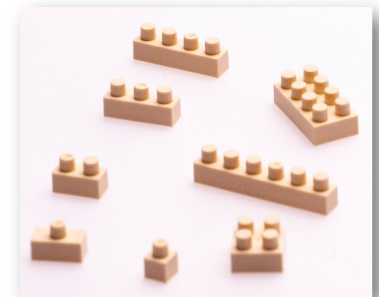
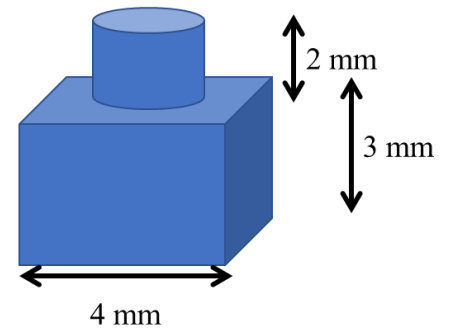
FDTD type of simulation programs use cubic mesh cells. In order to get accurate results, the mesh cell dimensions are selected lower than wavelength/10.

Anten'it Kits use 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 and researchers 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.

### CONTENT OF ANTENNA DESIGN AND PROTOTYPING KIT

1. Metal Cells
2. Dielectric Cells with 3 different dielectric constants and colours
3. Ground Planes
4. Connectors
5. Dipole Antenna Balun
6. Cables
7. Adapters
8. 50 ohm Terminations
9. Case
10. Anten'it Datasheet Booklet and Antenna Building Instructions
11. Anten'it User Manual
12. Removers



Anten'it can be ordered via distributors in [www.antenit.com](http://www.antenit.com) or [sales@antenit.com](mailto:sales@antenit.com)  
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