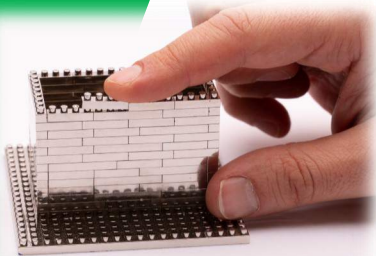# NEWSLETTER 1.1

February 2020

The 1st Anten'it Newsletter

Anten'it presents a re-usable and additive antenna building technology

Newsletter 1.1 is the first Newsletter for Anten'it users!

We know that users want to know more about the features of Anten'it products. Newsletters are not only to update our users with new features of Anten'it products but also to update with the exhibitions and publications about Anten'it products.

Anten'it products will be exhibited in Eucap 2020 in Copenhagen on 15-20 march 2020.

Enjoy Antenna Design

A new antenna training, design, prototyping and building concept. There are 4 different products working in Anten'it concept:

1. Anten'it Antenna Training Kit

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.

Active Learning Steps

Sketch → Design → Build → Measure → Repeat

Experiment sheets in Anten'it Antenna Training Kit includes each step of active learning cycle. Experiments start with theoretical background, proceed with analytical calculations, building the antenna, measure and iterate. Students learn the design parameters of antennas analytically where in practice, they need to design via iterations.

Research with Brick Type
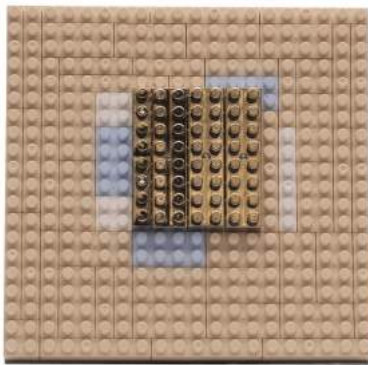
Save material and fabrication costs of prototyping steps. Change your structure easily with your hands.

# NEWSLETTER 1.1

Build Your Antennas with Bricks !

2. Anten'it Antenna Research Kit for Universities

Anten'it Antenna Research Kit is the academic version of Anten'it Antenna Design and Prototyping Kit for antenna engineers.

Anten'it Antenna Research Kit is useful for research, graduation projects and term projects. Re-usable cells save universities from material costs for each Project. Anten'it kits include dielectric cells, metal cells, ground planes and connectors. The cells are in brick form and connected to each other easily. There is no soldering between the cells or connectors.

The easy mounting and demounting feature also saves universities from spending their budget on fabrication costs. Furthermore, universities don't need to spend their budget on expensive infrastructures.

This kit doesn't include experiment sheets for antenna laboratory lectures but it includes datasheet booklet and antenna building instructions of more than 100 antennas.
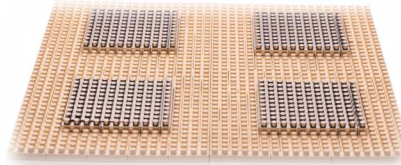
Re-Usable and Additive Antenna Prototyping Technology !

3. Anten'it Antenna Design and Prototyping Kit for Antenna Engineers

Antenna engineers can design complex antenna structures via simulation tools and prototype them with Anten'it kit. This eliminates purchasing materials and prototype fabrication steps of antenna design. 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.

Anten'it Antenna Design and Prototyping Kit doesn't only save users from cost but it saves also their time. Instead of waiting for long machining durations, engineers can build their prototypes in a few minutes or hours depending on their structures.

There are 3 different dielectric materials with different dielectric constants in the kit. The stepwise structure of Anten'it is very similar to FDTD mesh cells of CEM software programs. The smallest mesh cell in FDTD is $\lambda/10$. The smallest mesh cell of Anten'it corresponds to $\lambda/12.5$ at 6 GHz (The highest frequency of Anten'it kits).

The simulation results must be very similar to simulation results. There is a paper which is accepted to be published in Eucap 2020 conference showing the similar results of WIPL-D software program and Anten'it results.

Three different dielectric materials with different dielectric constants and colours. The loss tangent is below 0,002.

One Multi-Antenna Kit covers many antennas with different specifications.

4. Anten'it Multi-Antenna Kit

This kit aims to meet the needs of system engineers and researchers who use antennas in their projects but don't design antennas. They can use the kit in laboratory environment in order to build their prototype systems and iterate their designs. Anten'it kits provide them a practical way of changing their electromagnetic parameters by hand.

Multi-Antenna Kit includes the datasheet booklet covering over 100 antennas working at different frequencies. Antenna Building Instructions have the building steps of the antennas in the datasheet booklet. Researchers and system engineers can follow the steps in antenna building instructions and build the antenna. They already have the measured results of those antennas in the datasheet booklet. After they finish their Project, they can demount the cells and make it ready to use in another project.
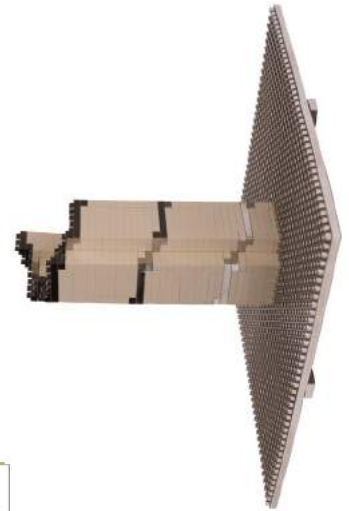
Polarization	Left Hand Circular Polarized
Antenna Pattern	Directive
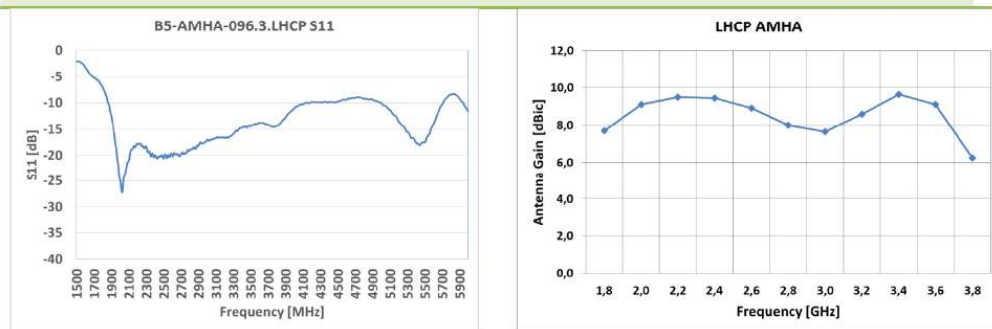
Exocis is our distributor in France !

We start building a distributor/sales representative network in Europe. Exocis is the first distributor. Our customers in France and French speaking part of Belgium and Switzerland can directly contact Exocis for our products.

Reference Publications about Anten'it:

1. "Anten'it: A Hardware-Based Antenna Design and Training Kit [Testing Ourselves]", IEEE Antennas and Propagation Magazine., February 2020, 62. 107-112. 10.1109/MAP.2019.2955827.

2. "Hands-On Antenna Training with Anten'it: Normal Mode Helix Antenna", EMC Turkiye Conference, 2019, 1-3. 10.1109/ 45372.2019.8976025.

3. "Anten'it: A Hardware for Antenna Design and Education", APS/URSI 2019, 10.1109

4. "Anten'it: Antenna Design and Training Hardware", 2019, 1-3. 10.1109/ SIU.2019.8806557.

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