Version 2022 includes various features and improvements as well as a number of new antennas and extensions. This newsletter will discuss the new features as well as the antennas and extensions that have been made available.

For more comprehensive information on the update, please visit the Antenna Magus website or read the full release notes.

NEW FEATURES AND EXTENSIONS

Find by Size
Find Mode functionality has been improved to allow the specification of a bounding box. Combined with the existing keyword and value search, a goodness factor is used to indicate the suitability of any given device as well as indicating whether the size constraint is achieved.
Currently constraints are tested on the three primary axes and results displayed on device cards using three face colours: green – yes, red – no and grey – unspecified. A best-fit approach is used when orientating spatial limits with primary axes. A couple of examples are shown below, from left to right: 3 dimensions specified but device only fits in the x- and y-dimension; 3 dimensions specified and device fits in the entire space; only 2 dimensions specified, but device only fits along the x-dimension.

The inclusion of Find by Size results in an improved ordering of devices in Find Mode, especially useful where the physical fit of a device in a given maximum volume is required.

The spatial limitation result feeds into the overall Goodness Factor score, as outlined in the Quick Summary section of each device. A more detailed 3D indicator further elaborates on the fit in the Quick Summary panel.

Array Operator Preview

The UX (user experience) of the Array Operators has been greatly improved by allowing the user to see a preview of the effect of an operator on the array layout before applying it. In cases where multiple operators are used, it is possible to preview the array layout at each sequential stage.

The Operator Preview allows changes to operators to be viewed in real-time, including cases where multiple operators are present. When multiple operators have been added, the preview will show the effect of all the operators up to and including the one being edited. This makes it simple to go back and edit existing operators to get the intended final array layout.

Multiple operators applied sequentially make it possible to achieve complex layouts using a simple base layout as a starting point.
Radome Library
The radome library has been expanded to include multilayer versions of the existing aerodynamic nose cone radomes. Each layer has its own thickness, relative permittivity and loss tangent and the number of layers can be changed through a single parameter in the export model.

**NEW ANTENNAS AND EXTENSIONS**

**New Antennas**
The total number of devices in the Antenna Magus database is now 379 with the inclusion of 3 new antennas.

Reflectarray antennas are a hybrid of phased arrays and conventional reflectors. A typical reflectarray is composed of a number of radiators that impart a specified amount of phase to the incident field and subsequently reradiate the signal into free space. The first reflectarray design added to Antenna Magus uses a square patch as a unit cell element. The configuration or arrangement of elements depends on the design objectives that include number of elements, size, gain, scan angle as well as substrate parameters.

RFID technology is increasingly being used in the automotive industry for applications such as tire-tracking as well as distance- and pressure-monitoring. In this respect, the Planar NU Meander Dipole and Planar Meander Dipole are candidate prototypes for automotive tire applications. The meandered lines reduce their overall size while impedance matching is achieved via modified T-match configurations. In the case of the Planar Meander Dipole, the T-match is modified to keep the real impedance low while enhancing the impedance bandwidth.
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