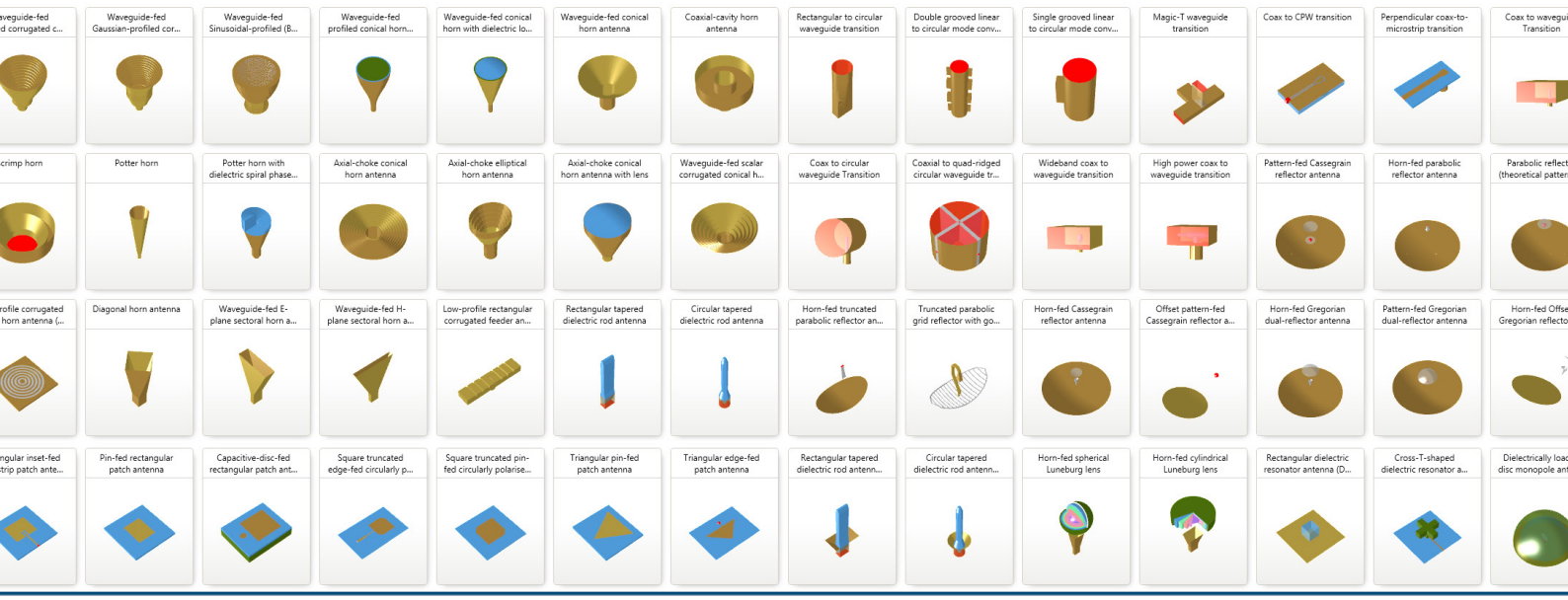
SIMULIA

3DEXPERIENCE®

ANTENNA MAGUS
THE LEADING ANTENNA DESIGN TOOL
Datasheet



Antenna Magus is the most extensive antenna synthesis tool available on the market today. Its large database of over 350 antennas, transitions and feed structures can be explored to choose the optimal topology, designed to meet the system criteria and exported to seamlessly integrate with your design workflow. Antenna Magus generates reliable simulation models of your designs for many of the market leaders in EM simulation, including CST Studio Suite®.

Antenna Magus provides the capability to design and evaluate over 350 antenna and array types. Concise and accessible information about different antennas and topics (including references to relevant literature and research resources) as well as many useful tools and libraries and exportable accurate simulation models are also included, making Antenna Magus an extremely powerful and flexible design tool for anyone working with antennas.

A successful antenna design should produce an element that is insensitive to manufacturing tolerances and is cost-effective to produce. Selecting the correct element as early in the design cycle as possible minimizes the risk of exceeding budget and time constraints during later stages

DASSAULT SYSTEMES

of the design and production process. Adapting an existing design, or searching for a new element in text books and published papers is no longer the most effective way to make this crucial selection.

Antenna Magus has been designed to present information in a manner that enables engineers to consider various options with minimal time and effort – before zooming in on one or two promising topologies. During the early design phase, the synthesis feature can be used to learn about the expected size and physical parameters of various designs and topologies.

Even if no element in the database fully meets the design objectives, browsing the antennas in the database gives invaluable insight into 'building blocks' and concepts that the antenna engineer can use to assemble a new antenna topology.

DESIGN

Flexible design saves time and helps avoid costly miscalculations

The design capabilities offered by Antenna Magus are the most flexible of all commercial antenna design tools. Each antenna can be designed for a range of objectives – like operating frequencies, gain, input impedance and substrate type. The synthesis algorithms match objectives to physical parameter sets in a matter of seconds, allowing the engineer instant feedback about the expected dimensions of the antenna.

Antenna Magus provides far better designs than are possible using simple frequency-scaled design approaches (where parameters of a reference design are simply scaled according to wavelength), with each synthesis saving days of numerical optimization.

Fast, flexible design allows many antennas to be designed and evaluated in an extremely short period of time – even by inexperienced engineers.

EXPORT

Export models of designed antennas to 3D EM simulators

Antenna Magus' export functionality allows more time to be spent on antenna design and less time on mastering simulation software. Novel concepts and design ideas can be tested quicker than ever before.

Starting with "ready to run" parametric simulation models exported from Antenna Magus, users can leverage the capabilities offered by the supported 3D EM simulation tools more effectively - and even combine various models to build a system.

ARRAY SYNTHESIS

Design arrays with various shapes and sizes

The array synthesis tool in Antenna Magus assists engineers in the design and analysis of antenna arrays of different shapes and sizes. The tool includes the ability to synthesize typical array layouts and excitation distributions for objectives like gain, beamwidth, squint angles and side-lobe levels.

Users can import externally defined layouts and specify 3D patterns of individual elements. Array layouts and synthesised 3D array patterns can be exported in various formats for use in further simulations.

UTILITIES

A toolbox for antenna engineers

Antenna Magus is more than just a database of antennas. It is a toolbox for antenna engineers, full of useful utilities and libraries that can be used to simplify everyday antenna tasks.

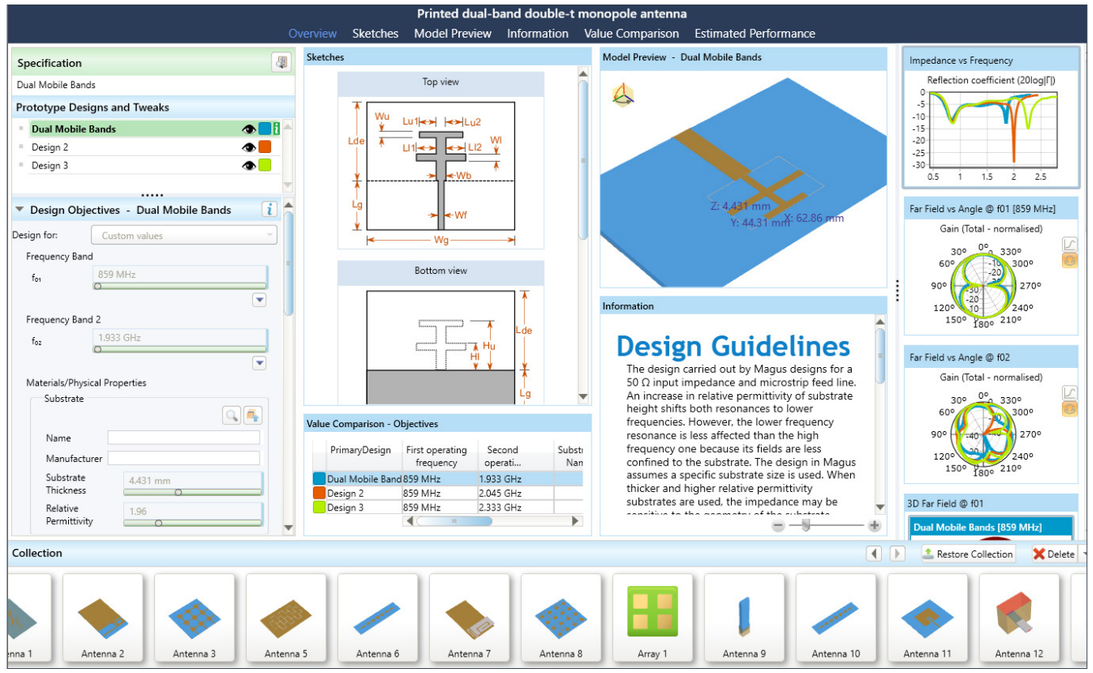
For example: "Trace" any scanned graph image using the mouse and export it as formatted text data; calculate the required gain of a receive antenna using the FRIIS calculator; get an accurate simulation model of a standard connector from the connector library – and many more.

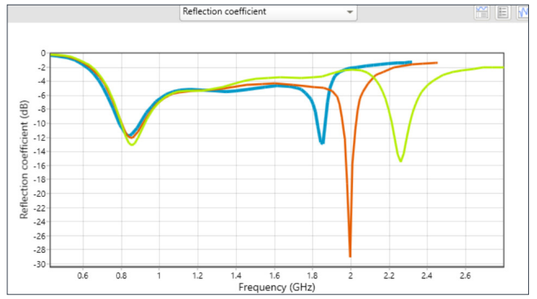
Although many utilities (similar to those in Antenna Magus) are freely available, they cannot be used with confidence – as there is no information on the methods that are used or their limitations! Antenna Magus provides a consistent and reliable set of tools and libraries in one place.

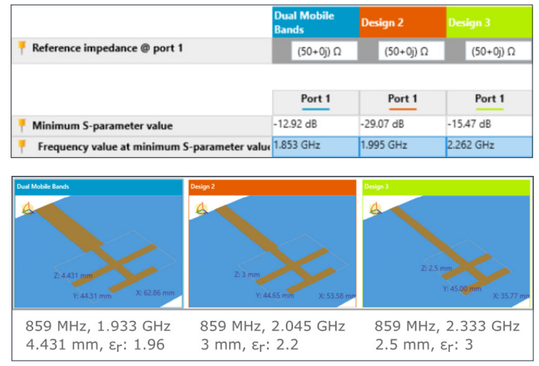
CONTACT & LICENCING

Antenna Magus has various licencing options, to meet every customer's needs. These include network (or floating) licences, node-locked (locked to a device) or term licences. Academic and teaching licenses are available.

For more information and a free evaluation version, please contact sales at www.3ds.com/how-to-buy/contact-sales.





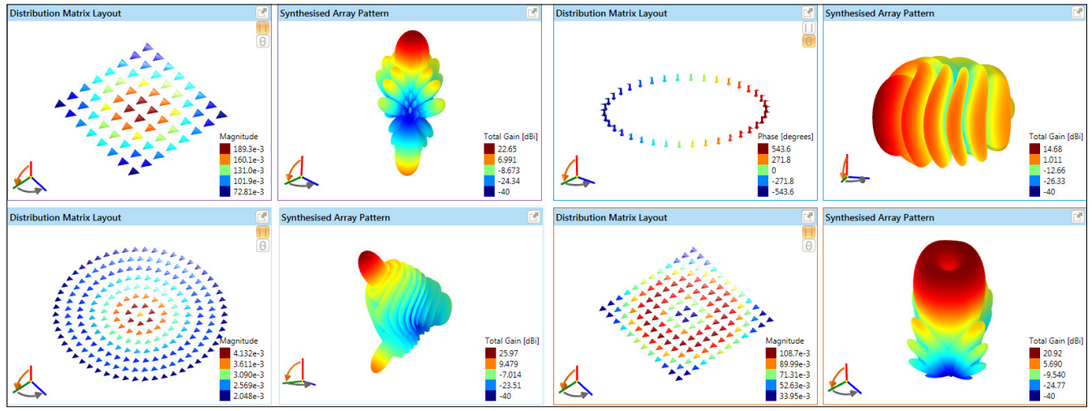


859 MHz, 1.933 GHz
4.431 mm, ε_r: 1.96

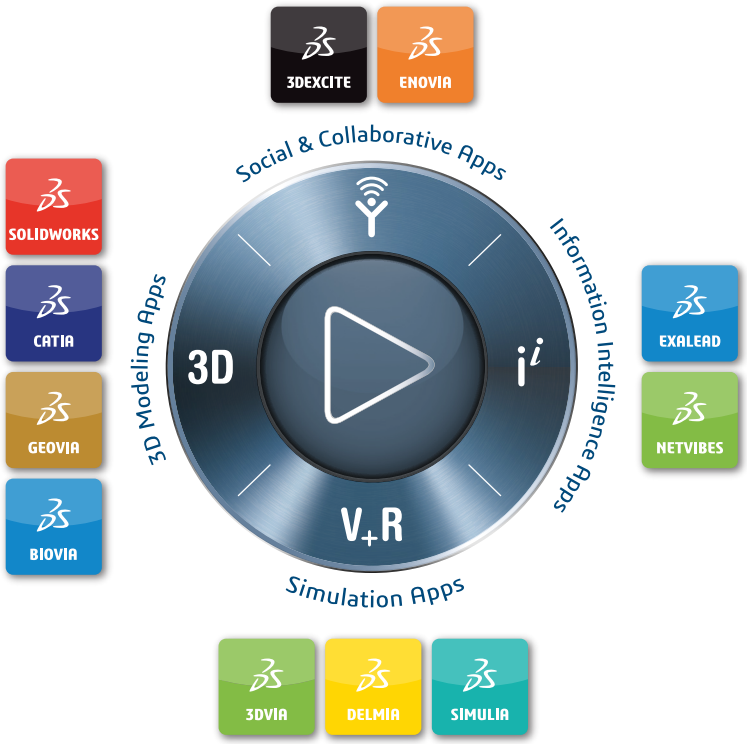
859 MHz, 2.045 GHz
3 mm, ε_r: 2.2

859 MHz, 2.333 GHz
2.5 mm, ε_r: 3

Design example: Dual-band double-T monopole antenna designed for different frequencies and substrates.



Some of the array layouts and its corresponding radiation pattern available in Antenna Magus: (Clockwise from top left) planar with broadside beam; circular with azimuthal beam; planar with broadside null; concentric circular with tilted beam.



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