Technical E-Paper

Professional custom antennas design: project process and ideal supplier.

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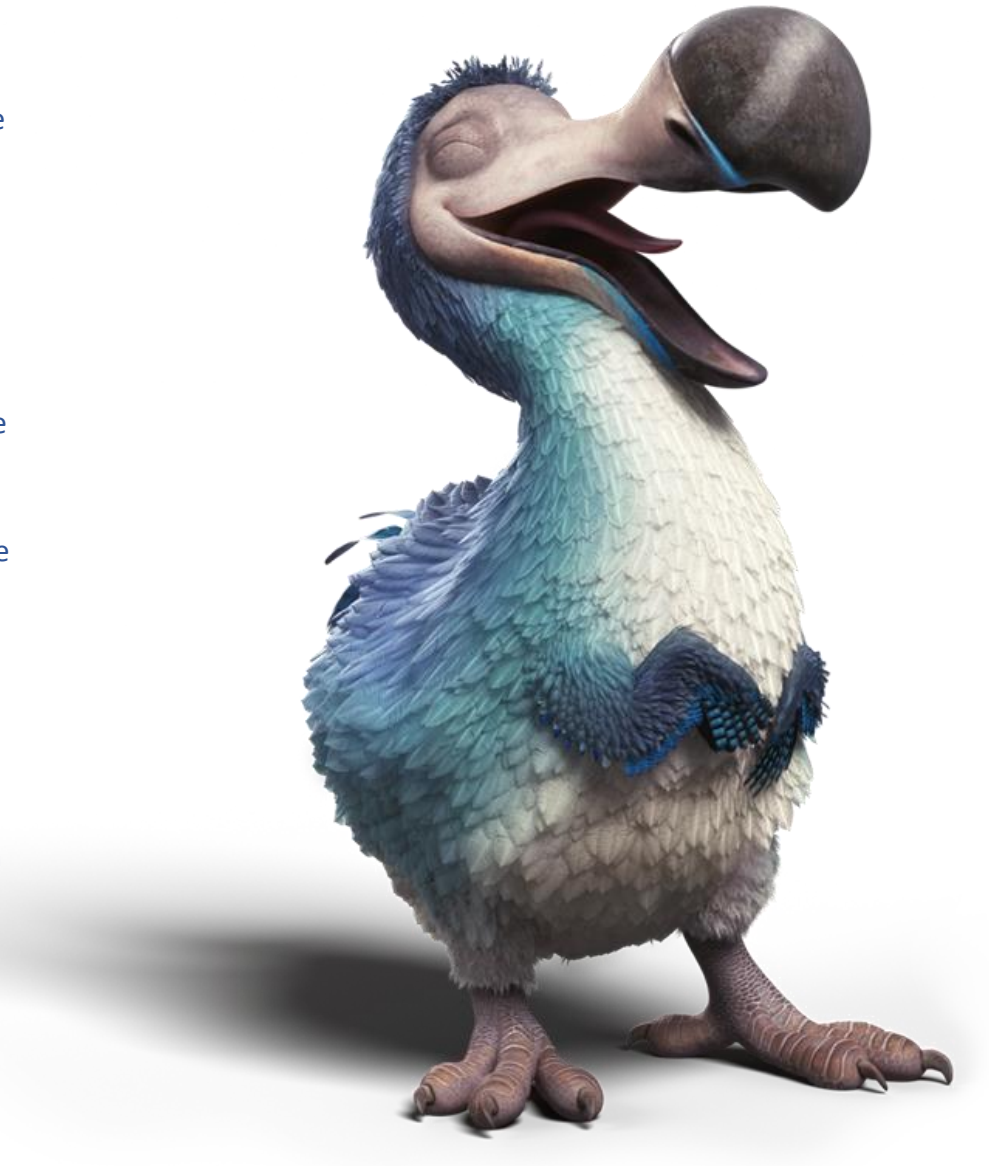
How should the customer-supplier relationship be approached when you contact a company to develop a customised product, in this case an antenna?

Is the supplier you have chosen really up to the task you are entrusting him with? What means do you have to evaluate it? Is the customer-supplier relationship you are establishing really on an equal footing?

Have you ever had to brook the relationship with a "***Dodo***", i.e. with a supplier who should have been professionally extinguished long ago?

Here are some brief notes on what should make the difference when choosing a supplier for your *customized antenna.*



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Introduction.

There are serious and competent companies operating in the professional antennas sector able to offer excellent products to the market, capable of effectively solving the most typical coverage needs.

However, it is equally true that there are companies, like yours, that aim to offer new and original solutions, with increasingly specific requirements for which standard antennas are inefficient, due to the technical compromises (both mechanical and electrical) that such a choice entails.

The need therefore arises to conceive and make an *ad hoc* product, able to meet the requirements and specifications necessary to gain an advantage over competitors.

It is therefore necessary to identify the most reliable supplier, who can guarantee that he will be able to supply what you are looking for in the best possible way, letting you rest easy throughout the development of the project.

Indeed, this activity requires a specific business set-up and organisation, with totally different characteristics to the Companies that manufacture and supply standard products.

In addition to technical expertise and the availability of suitable equipment, a work process must be adopted that is able to ensure the best results, optimising development time and costs.

Let's look below at the 6 steps of the ideal approach to developing and making the best *customized antenna*.

1. First contact with the Customer

For this initial phase to be fruitful and useful in laying a solid foundation for the future project, a good supplier must ensure that these two goals are achieved:

- *Define the needs and problems that the customer has encountered and wants to solve*;
- *Assess the feasibility of the project and identify immediately possible solutions.*

To achieve these goals, the supplier must first of all be able to listen and fully understand what the customer's actual needs are, so as to be able to identify the best way forward even at this early stage.

After an initial exchange of emails, it is important to arrange a meeting (in-person or by conference call) where all aspects of the issue can be addressed and discussed.

The supplier's aim is to make this 'chat' useful above all for the Customer, giving him the chance to assess 'live', through detailed answers to specific questions, his attitude towards the problem in question.

In practical terms, right from this preliminary stage it is important to provide the Customer with indications as to whether the antenna can actually guarantee the required performance.

The Customer must have the first indispensable information about the feasibility of the project, the supplier's ability to develop it and possible ways forward.

2. Drafting the proposal.

After the initial meeting during which the Customer's needs and requirements are defined, the next step is to draft the proposal. The following main points will be addressed in this step:

- Technical characteristics of the antenna
- Description of the project and its most important phases
- Analysis of critical issues and how they will be addressed
- Cost and expected delivery time

In our opinion, it is essential at this point to reassure the customer that the project they are about to embark on will result in the development of the product they are looking for. For this reason, in the proposal it is essential to take responsibility for the achievement of the goals that have been identified as fundamental for the success of the project.

The Customer often needs to study certain aspects in more detail before going ahead with the project. A thorough *preliminary analysis* will provide all the information the customer needs, at a much lower cost than the full project.

This will make it easier for the Customer to decide whether to proceed with the project as such or not, as he will have a complete series of clear and comprehensible indications as to what will be done and how it will be done, avoiding that annoying feeling you get when you buy a product *sight unseen*.

3. Project development and construction of the first prototypes

After the Customer has confirmed the project, we can begin to tackle its development and the construction of the first prototypes. It is necessary in this stage to highlight the importance of adequate and continuous control of the various steps taken by continuously monitoring the partial results obtained, in order to implement any optimisations to the process, as well as promptly correct any errors identified.

The availability of a suitably equipped laboratory within the company, along with experience and knowledge of electromagnetism in the radio frequency measurement field involved, is fundamental in controlling the various steps.

The supplier's knowledge of the antenna-product supplied must be total and complete, and the electrical specifications defined during the project must certainly not have been reached by chance through a series of repetitive attempts with no logic or scientific theory to support them.

The ability to make reliable measurements rapidly and to make partial prototypes in-company leads to significant savings in time and resources.

Consider, for example, the possibility of manufacturing a component in your own workshop and subsequently measuring it in your own anechoic chamber, suitably equipped for the necessary tests. This is also of great importance for the confirmation of the solutions chosen following electromagnetic simulations, which always require instrumental verification in the laboratory.

Prototypes must be as similar as possible to the final product, but without overly affecting delivery times. This means being able to choose the right technologies, that may differ between prototyping and subsequent production while keeping the product qualitatively unchanged.

4. Measurement and characterisation of prototypes

After the prototypes have been made, the delicate antenna characterisation phase begins. These measurements define the behaviour of the antenna, and it is clear that it is indispensable to perform them correctly.

Making them without using an adequate measuring range that excludes external influences could lead to serious problems when the antenna is tested *in the field*.

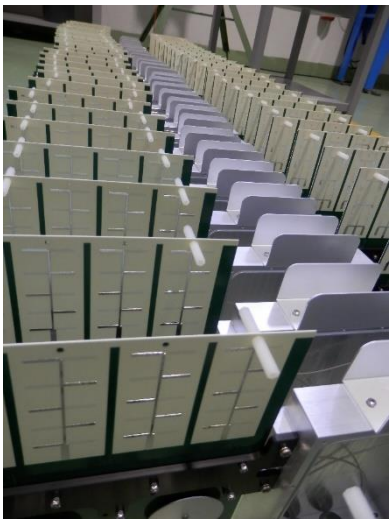
Maybe it is over the top at this point to mention the importance of using an instrument such as the ***anechoic chamber***.

At the end of the measurements, and after verifying the correspondence between the results obtained and the Customer's requirements, the agreed number of working prototypes and the document containing the antenna characterisation measurements and any considerations regarding the activities carried out and the subsequent test phases that the Customer intends to perform will be supplied in the agreed times.

If requested, assistance to the Customer for the tests and inspections of the delivered product follows.

During all the project phases described so far, there must be constant contact with the Customer, keeping him abreast of the various project developments.

5. Construction of production batches.



Regardless of whether or not the Customer entrusts the subsequent production to the designer of the antenna, a good designer must be able to lay the foundations for the subsequent industrialisation of the antenna, proposing the right technologies according to the quantities and batches to be produced.

In fact, information about the quantities to be produced, at least in terms of general numbers, should have in some way already conditioned some of the choices made in the design stage.

Otherwise, there would be the risk of having an overly high cost for each piece produced, with all the obvious problems that this entails.

For this reason, it is always advisable to have an overview of the project from an early stage, keeping the right balance between the general view of the process and the need to solve a specific problem that inevitably arises during the activity.

It goes without saying that, here too, experience can help.

For this step, like for all those already discussed, compliance with the time schedule is crucial.

It is useful to remember that quality work necessarily needs the right amount of time to be carried out, but it is also true that the quality and professionalism of the service offered is also judged by its compliance with the time schedule.

6. After-sales service

In this business, customer care never ends.

Being available to give advice on how best to use the product supplied and on topics related to the supplier's skills, even if not strictly related to the project just completed, is crucial.

In today's business world, the customer-supplier relationship must go beyond the simple sale of a product; it must be professional and continuous collaboration, in which both parties respect each other's work, seeking to bring value to their target market together.

Conclusions.

What has been described in this article must be considered as the indispensable process for the production of a customized *antenna*.

Leaving out any of these steps or performing them without due care could result in a product that does not live up to expectations.

It is clear that, in order to make the *Customized Antenna* that can solve your problem, not only is a specific structure and organisation indispensable, it is also essential to have a well-defined working process, optimised as a result of the experience gained from years of work in this field.

Thank you for taking the time to read this article. If you would like to read more, you can find the full list here: https://www.elettromagneticservices.com/news

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