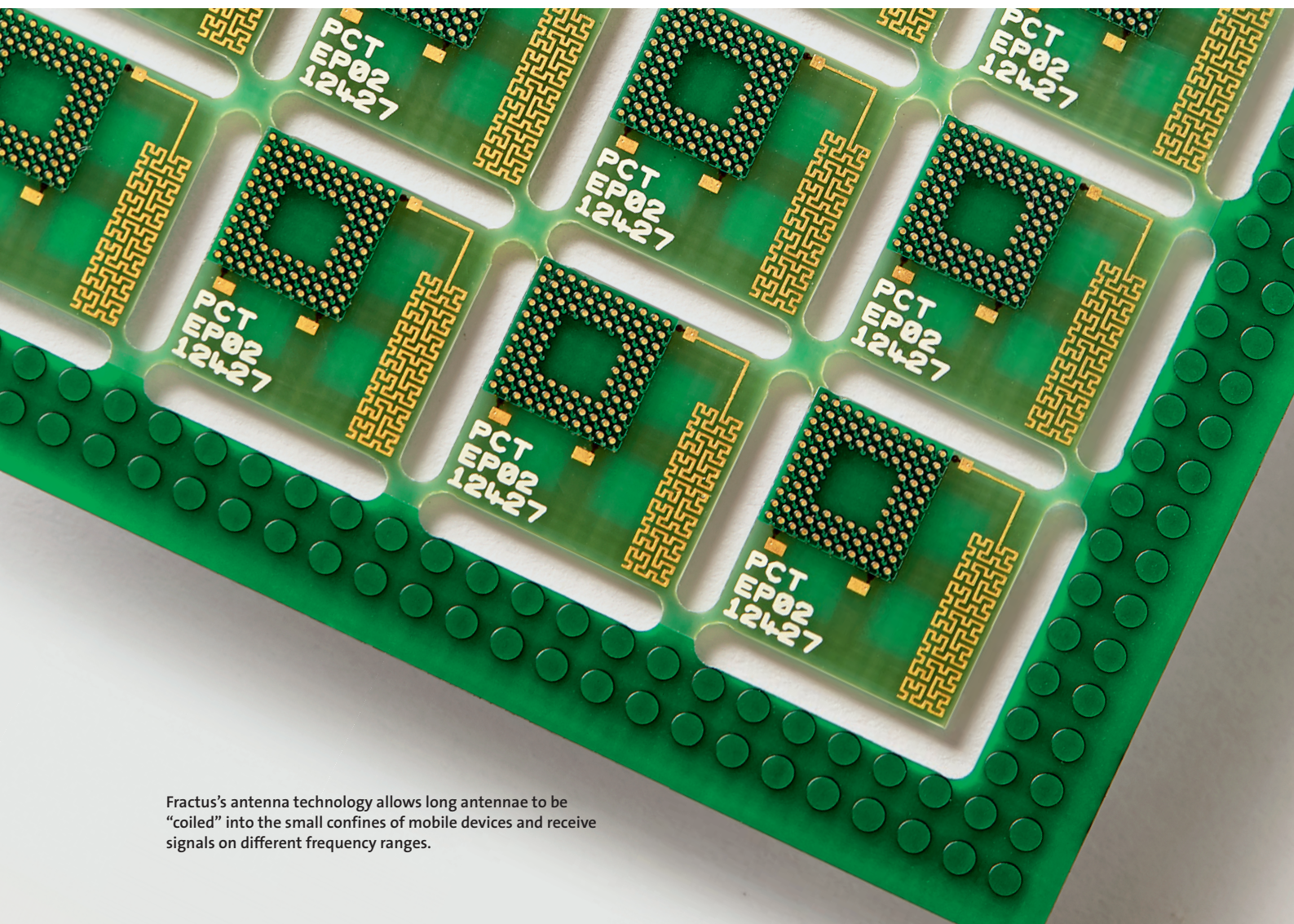




EPO SME CASE STUDIES | FRACTUS

Snowflake pattern precipitates new application for antennae

Spanish company Fractus began life as a contract engineering service-provider and design laboratory specialising in antennae based on fractal formations for use in devices such as smartphones, tablets and pacemakers. It suffered patent infringements by customers that almost cost it the business. Its turnaround strategy was possible thanks to its strong patent portfolio, which allowed it to seek litigation against infringers. Fractus is now a technology development and licensing company, relying heavily on the ability to enforce its IP. The company sees the Unified Patent Court as a promising venue for patent disputes without the disadvantages of the current fragmented, multi-country litigation system in Europe.



Fractus's antenna technology allows long antennae to be "coiled" into the small confines of mobile devices and receive signals on different frequency ranges.

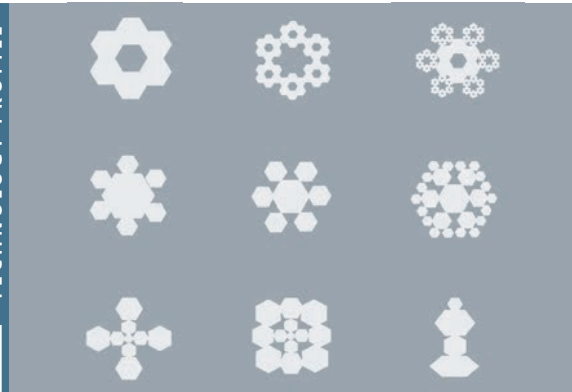
Fractus was co-founded in 1999 by Rubén Bonet, its president and CEO, and Carles Puente Baliarda. It originally positioned itself as a products and services company, developing customised antennae for leading smartphone manufacturers (Samsung, LG, Siemens) and network operators (Telefonica). The firm was in consolidation phases until 2002. During this time it was able to raise EUR 20m from first-tier venture capital firms and to expand its workforce to 30 employees. International expansion followed with the opening of an office in Korea in 2003, with annual sales revenues reaching EUR 4m and staff expanding to 70 employees shortly afterwards.

The original Fractus invention concerned fractal-based antennae, the technology which was the focus of co-founder Carles Puente Baliarda's academic research. Today, Fractus's core technology range remains that of antennae and arrays for telecom mobile terminals, connected devices, communicating wearables and stationary networks. These antennae are multiband and miniaturised and have low visual impact. End-user markets include smartphones and tablets, connected objects, medical and wearable technology and telecom networks.



Fractus was an early pioneer in developing internal antennae for mobile phones.

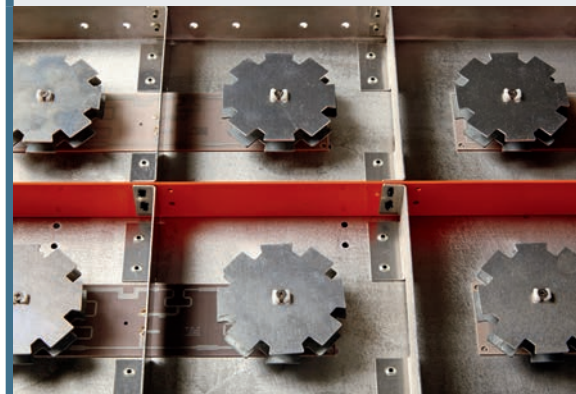
TECHNOLOGY PROFILE



Fractal-based antennae are characterised by a structural pattern that repeats on multiple scales. Each scaled repeat corresponds to a given range of frequencies, so that the antenna can operate over multiple frequency bands while remaining spatially compact and affordable in terms of manufacturing costs. Antennae developed by Fractus are suitable not only for smartphones (they can be integrated into the “shell” of the handset), but also for numerous smaller connected objects from the Internet of Things.

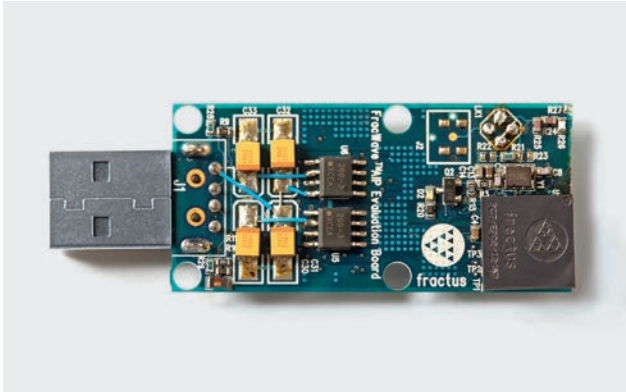
Above: examples of possible fractal-based multilevel antennae structures based on hexagons (EP1223637).

Below: a base station antenna with a “snowflake” geometry which ensures a highly efficient surface for minimal overall dimensions.



Sustaining protection

From the beginning, Fractus's strategy was to build a robust IP portfolio. This was met with reluctance by some customers, who sought to claim IP ownership of the projects they commissioned Fractus to carry out. However, Fractus decided early on to include strict clauses in its business and engineering contracts. These clauses specified that ownership of the IP rights associated with its custom-designed antennae would remain with Fractus and that customers would receive the product or the service only. In practice, this meant that



Internal antenna in a wireless dongle product.

supply agreements did not concede any IP rights to the client which instead had to be licensed. The company was ready to lose business from customers or partners who were not willing to accept such conditions, and this did in fact happen on one or two occasions. However, the policy enabled the company to grow from two original patent families in 1999 to almost 40 families in 2007. Today its portfolio includes over 120 patents and patent applications worldwide.

TAKEAWAY

CONSISTENT IP STRATEGY

Patience is a cardinal virtue, and tangible returns on investment on any IP strategy take time to materialise. It can therefore be dangerous to switch strategies just to grab financial quick wins.

Fractus also took care early on to “mark” its patents, by building claim chart proofs to make it easier to detect infringement. These documents compare technical evidence from a client’s product (obtained by dismantling it) with the specific claims of a Fractus patent, in order to establish whether or not the product incorporates one or more elements of Fractus’s patented technologies.

The 2007–2009 period proved challenging for the company: product revenues stagnated at less than EUR 4m, and an increasing number of clients used Fractus’s patents on their smartphone models without paying royalties. For example, some clients who had paid for antenna designs for a number of terminal models duplicated these designs on other models without notifying Fractus. This meant that they also were not paying the company for new developments. As a result, the company started downsizing, and management had to explore alternative growth opportunities. The firm’s IP portfolio became its major asset for attracting the new capital equity that was crucial to its turnaround, and its future hinged on boosting the value of its IP, i.e. adopting a patent monetisation business model.

Running the gauntlet

The change in Fractus’s business model was both risky and challenging. Its founders envisioned a move from a products and services company developing customised antennae designs for a limited number of very large clients to a technology-licensing company creating excellence in antennae technologies while serving numerous customers in multiple markets.

In 2009, Fractus engaged a Texas-based IP litigation law firm, which agreed to work for the company on a performance basis, taking no money upfront, but receiving a percentage of any damages won in court. The company decided to sue (in the US, which provides a jury court system) ten handset manufacturers, including some previous customers (Samsung, LG, RIM, HTC, Sharp, Palm, etc.), for patent infringement. Some of them opted to settle at an early stage and take a licence instead. Motorola, for example, agreed to negotiate upfront, becoming the first public licensee in 2010 and creating a positive precedent.

In 2010 a virtuous circle started when nine of the ten companies sued signed licensing contracts, prompting many smaller clients worldwide to do the same. Only Samsung resisted in court, with the litigation dragging on until 2014, when Fractus eventually won USD 23m in back-due royalties, plus USD 15m in damages. The decision was granted in Tyler County, Texas. Fractus’s “marking” of its own patents provided decisive evidence which, in combination with expertise from its US-based litigation lawyers, led to a successful outcome.

This success proved to the outside world that Fractus was not a company which “bit the hand that fed it”, but an inventor defending its legitimate IP rights. As a result, licensing revenues, which were practically nil in 2009, reached over USD 100m in 2015.

“Looking back, adopting a sophisticated IP strategy early on, when Fractus was still a start-up with limited resources, was the most important strategic decision we made.”



*Rubén Bonet,
co-founder and CEO, Fractus*

Agility in transformation

Fractus thus turned itself into a technology-licensing company that continues to strengthen its IP creation pipeline through constant R&D investment, which is primarily self-financed from its royalty revenues. The company today owns more than 40 patent families and as many pending applications, resulting in over 120 granted patents and patent applications worldwide. About 90% of company revenues arises from licensing, while the remaining 10% comes from sales of its products and services.

TAKEAWAY

IP LICENSING

IP monetisation can be an integral part of a company's value-creation process. However, it must be supported by a sustained R&D effort, ensuring technical innovation that continually adds value to the technology licences offered to clients.

IP strategy is oriented towards securing financing from investors and bankers by proving the company's value-creation potential, which justifies investors' long-term commitment. It is also meant to guarantee the company's independence, since royalty revenues from technology licensing fund 100% of Fractus's R&D activities, ensuring continued renewal of its IP portfolio.

Fractus prefers – and typically engages in – the non-predatory and amicable negotiation of licensing contracts concerning existing patented technologies (between five and seven years old) that have been adopted by players in various sectors who may or may not be customers of Fractus. Fractus then makes itself known as the original inventor and offers to permit continued use of the patented technology through a licensing contract. The targeted company is considered a “good faith infringer” since it was not aware upfront of the identity of the inventor. The licensing contract simply turns it into a lawful licensee.

TAKEAWAY

INTANGIBLE VALUE OF IP

Critical IP monetisation decisions (prosecution milestones, licensing negotiation, litigation) must also take account of the non-financial costs and benefits, such as image, goodwill, human resource gains and losses, partnership opportunities, and so on.

Litigation, which can be lengthy, expensive and of uncertain outcome, is kept as a last resort. The company has not undertaken any infringement litigation since the Samsung case. However, this precedent still serves as a permanent warning to future infringers that Fractus is prepared to sue if necessary.

TAKEAWAY

ENFORCING IP

Litigation must always be a last resort. However, the credibility of licensors depends on their determination to fight for their rights and take wilful infringers to court.

For the first time in its history, Fractus has enough market recognition and technological maturity to consider potential IP partnerships for developing new patentable technologies and know-how. Following an open innovation approach, this “insourcing” of innovations would widen its profitable IP portfolios and provide faster coverage of critical technologies, market segments and geographic areas.

Internal strategic planning

IP has been a fully fledged part of Fractus's corporate strategic planning since 2009. From inventor incentives to patent prosecution and potential litigation, the design, deployment and monitoring of IP is a corporate process personally supervised by the CEO, Rubén Bonet, and supported by the CTO, the marketing VP (responsible for comprehensive business intelligence), the IP director (supervising detection and formal description of in-house inventions, patent filing and prosecution) and the licensing director (supervising all licensing negotiations). They form Fractus's in-house IP engagement committee.

TAKEAWAY

DEVELOPING IP POLICY

Designed at CEO level and frequently redefined by experts in-house, a company's IP policy should have its origins in its corporate vision. It should be proactive, rather than merely reactive to external factors and should preferably form an integral part of the corporate and technology strategies.

Fractus shares all IP-related assumptions and decisions with its outside partners, including patent attorneys, IP litigation lawyers and IP consultants, who then provide feedback and constructive criticism on the initial draft plans. While Fractus’s management are responsible for formulating and monitoring IP policy and measuring its value, implementation is partly outsourced to its outside partners.

The company focuses its resources on its technical capabilities, so there is no need to maintain in-house patent attorneys or litigation lawyers. It selects top-level, internationally competent professionals as and when required. However, regardless of the strength of their credentials, the limits of their tasks and responsibilities are strictly defined and enforced by the top management. Fractus seeks to forge mutual trust and long-term relationships and foster excellence and durable commitment.

TAKEAWAY

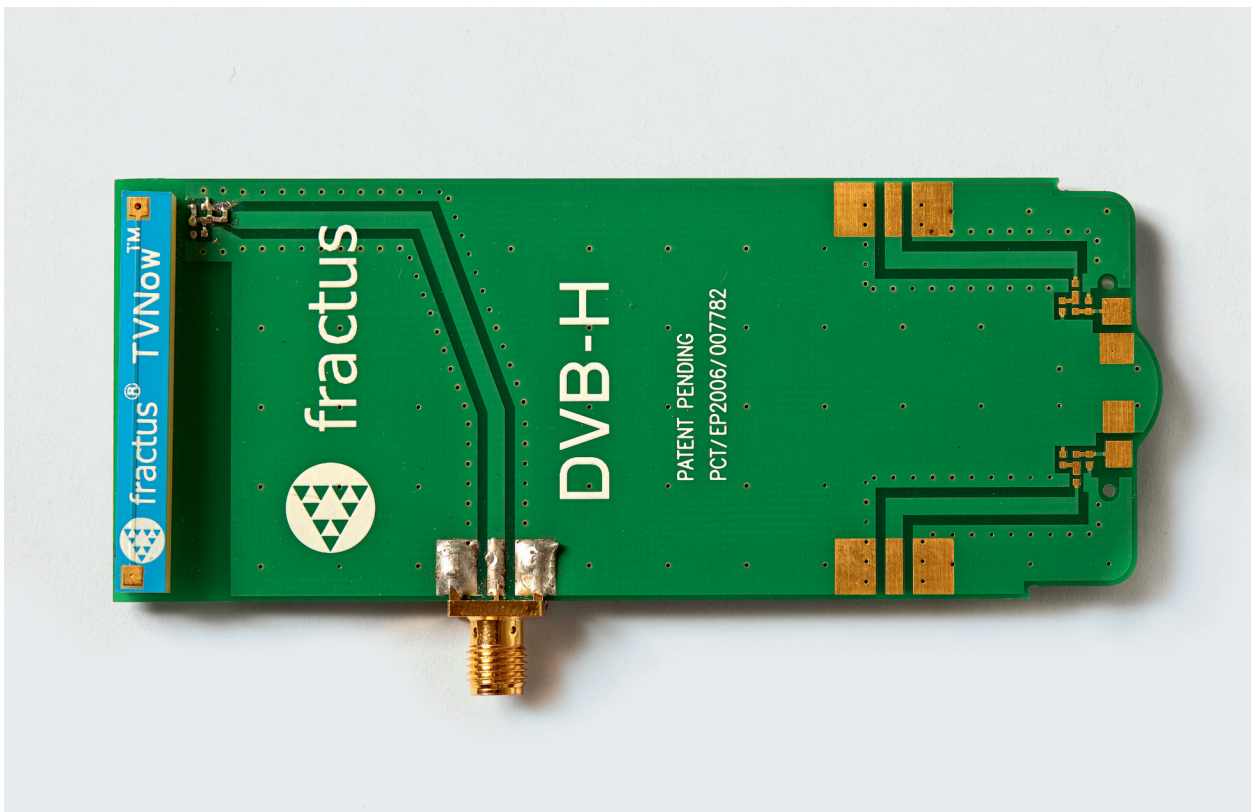
EXTERNAL IP SUPPORT

IP subcontractors (patent attorneys, IP lawyers, strategy consultants) are expected to execute strategic decisions effectively and contribute to their refinement. It is essential for relationships with them to be based on trust and transparency.

Patents and trade marks are Fractus’s major IP assets, although formalised know-how plays a significant role in the firm’s success and is protected by a strict confidentiality policy.

When it comes to patents, it is the firm’s policy to file applications for all patentable inventions arising from its internal R&D. The company’s in-house IP engagement committee decides on the patentability of inventions, and on whether to file an application. Fractus also relies on IP data-mining, using public databases such as Espacenet (EPO) and PATENTSCOPE (WIPO) to map competitors’ patents.

The company’s patent policy involves filing US provisional applications and EP applications to generate a search report, which is later used to optimise PCT applications covering Japan, China, India and South Korea and, in Europe, primarily Spain, France, Germany, the Netherlands and the UK. The Unitary Patent may therefore reduce Fractus’s filing and maintenance costs in Europe while automatically extending protection to all other participating EU countries.



Fractus’s TVNow is an off-the-shelf internal antenna solution for portable DVB-H applications.

Adjusting the scope

In 2009, Fractus had little choice but to enforce its patents in the United States. The company's intention was to obtain reasonable damages for the infringement of its patents and establish its credibility in the largest possible market. Achieving similar results in Europe would have been difficult. Fractus would have been exposed to the risk of parallel litigation in several national jurisdictions, a complex and costly option that was quickly discarded.

Litigating in the US courts involves much higher costs and delays than in a single European jurisdiction. However, the expected damages in US jurisdictions, which are perceived as favourable to "smaller" plaintiffs, are also much higher than what European courts would grant. Moreover, the US law firm that handled the case for Fractus agreed to compensation based on the licence agreements enforced and damages awarded by the court. European IP law firms are normally not allowed to propose such performance-based compensation agreements.

While it still considers litigation as a final recourse, Fractus would probably opt for the Unified Patent Court (UPC) in a similar case in the future. The new court, offering efficient and faster proceedings, would save part of the litigation costs in the US. Europe-wide enforcement will be less cumbersome for patent owners, and will reduce costs and increase legal certainty, as there will be no need to engage in parallel patent litigation in different member states. Similarly, the Unitary Patent could facilitate the ramp-up of Fractus's licensing programmes by easing the overhead costs of a nationally fragmented European market. Escalating from five countries to potentially 26 European participating countries at no additional cost is a clear advantage for a multi-client licensor like Fractus.

COMPANY PROFILE

FRACTUS, S.A.

- > Headquarters: Barcelona, Spain
- > Year of establishment: 1999
- > Staff: < 100
- > Turnover: > EUR 100 million since inception
- > www.fractus.com

PRODUCTS/SERVICES

Geometry-based antennae provide miniature and multiband internal antennae for wireless devices and network infrastructure. Thanks to their multiple iterations, the antennae can operate over multiple frequencies and bandwidths while remaining spatially compact.

MARKET AND TECHNICAL AREA

Telecommunications, Internet of Things (IoT)

CUSTOMERS

Leading players in the mobile telecom market, IoT, smart wearables and semiconductor manufacturers

SELECTED AWARDS

- 2004 European Technology Innovation Award (Frost & Sullivan)
- 2005 Technology Pioneer (World Economic Forum)
- 2014 European Inventor Award (EPO)
- 2017 European Inspiring Company Award (Elite Stock Exchange)

PATENT PORTFOLIO

Over 40 patent families, including EP2273611, EP1597794, EP1592083

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