



Award-winning design from Berlin:

Carbon Mobile wins the JEC Composites Connect - Innovation Award for the Carbon 1 MK II, the world's first carbon fiber smartphone.



Berlin, 02. June 2021: European startup company, Carbon Mobile, has reached another milestone as it continues to accelerate the future of electronics and unlock a new era of composites.

The Carbon 1 MK II, designed in Germany has secured the most coveted and prestigious award in the field of composites – the JEC Composites Connect - Innovation Award. The JEC jury of international experts has awarded the innovative smartphone in the design category. The world's thinnest and lightest smartphone produced with carbon composites was able to prevail against strong rival innovations from industry giants, Toray and Armacell.

Firas Khalifeh, CEO of Carbon Mobile, upon winning the award said, "We're incredibly proud the JEC Award judges have recognized and awarded the Carbon 1 MK II. High performance materials like carbon fiber will drive forward the more exciting and greener future of connected devices. This Carbon 1 is just the start. This is for the team and all our partners that share this vision and have put so much time, resource and passion into this project."

Revolutionary Materials Technology, born in Germany

Despite their advanced properties for producing robust yet lightweight structures, carbon fibers behave in an electromagnetic shielding manner. This means that they block radio signals, forming a Faraday cage that rather than allowing signals to pass through, instead disperses them around the outer body of the device. Connected

Following four years of research and development, Carbon Mobile's engineers have developed a revolutionary process to unlock carbon fiber's potential for connected devices. The patented HyRECM (Hybrid Radio Enabled Composite Material) technology fuses carbon fibers together with a complementary composite material capable of RF signal permeation. To further boost the devices connectivity, a unique 3D-printed conductive ink is integrated into the carbon fiber structure. The result is the first "radio enabled" carbon fiber based material. Applied for the first time in the Carbon 1 MK II, the new technology produces a robust carbon fiber-based housing structure that is not only incredibly thin and light, but also made from less than five percent plastic.





This cutting-edge monocoque design enables a device that weighs just 125 grams, a third lighter than conventional smartphones. At only 6.3mm, it is also 25 percent thinner as well.

Towards a world with zero E-Waste

In an industry that generates over 50m tons of E-Waste annually, a shift towards strong yet lightweight composite materials like carbon fibre could save 100m tons of the Earth's resources every year in production.

Carbon Mobile believe this is a major steppingstone for the adoption of high-performance sustainable materials in connected devices. "We want to deliver our contribution to cutting electronic waste and improving sustainability in the technologies we rely on most," says Khalifeh. Their radical research has already dramatically reduced lead-times from 3 hours in 2017 to just 30 minutes today and the opportunity to truly rival mass production capabilities of plastics, glass and aluminium is on the horizon.

Leading German composites manufacturer, LANXESS partnered with Carbon Mobile in the development of the device. Their Tepex composite material used for the monocoque body can be easily recycled and repurposed for new uses. "We're happy that our composite material contributes to the success of this amazing cell phone. It does more than just allow exceptionally thin wall thicknesses of the housing. In fact, with its high strength and rigidity, it also helps to make the device very robust for daily use. In addition, the matte-black carbon-fibers give the smartphone a truly high-tech look," says Dirk Bonefeld, Head of Marketing and Sales for Tepex in the "Consumer Electronics and Sport" (CES) sectors at LANXESS. "We are pleased to partner with Carbon Mobile on this important project and are looking forward to the further successful cooperation."

LANXESS as a strong partner alongside Carbon Mobile

The starting material for the production of the housing is a thermoplastic composite material of the Tepex dynalite product range from LANXESS. This is additionally reinforced with a fabric of very fine 1K endless carbon filaments. The special composite material was originally developed for the extremely lightweight construction of highly loaded components. With its high stiffness and strength, it contributes to the fact that the device is very robust in daily use. To extend the service life of the smartphone, all its components are designed to be easily replaceable for repair purpose, which also prevents electronic waste from being created.

ABOUT JEC Innovation Awards

JEC Innovation Awards celebrate the fruitful cooperation between players of the composite community. Started in 1996, the JEC Innovation Awards have, over the past 24 years, brought in 1,900 companies worldwide. 198 companies and 475 partners have been rewarded for the excellence of their composite innovations. The JEC Innovation Awards reward composites champions, based on criteria such as partner involvement in the value chain, technicality, or commercial applications of innovations.

Images and further information can be found [here](#).



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Innovation Designed in Germany

Carbon Mobile GmbH, based in Berlin, is a German technology company with a great vision: to be the new European alternative with a diverse portfolio in the field of consumer electronics. In doing so, Carbon Mobile wants to shake up a sluggish and saturated market that is hungry for innovation and initiate a rethink towards sustainable production.