

Envelope tracking market to exceed 4 billion units by 2018

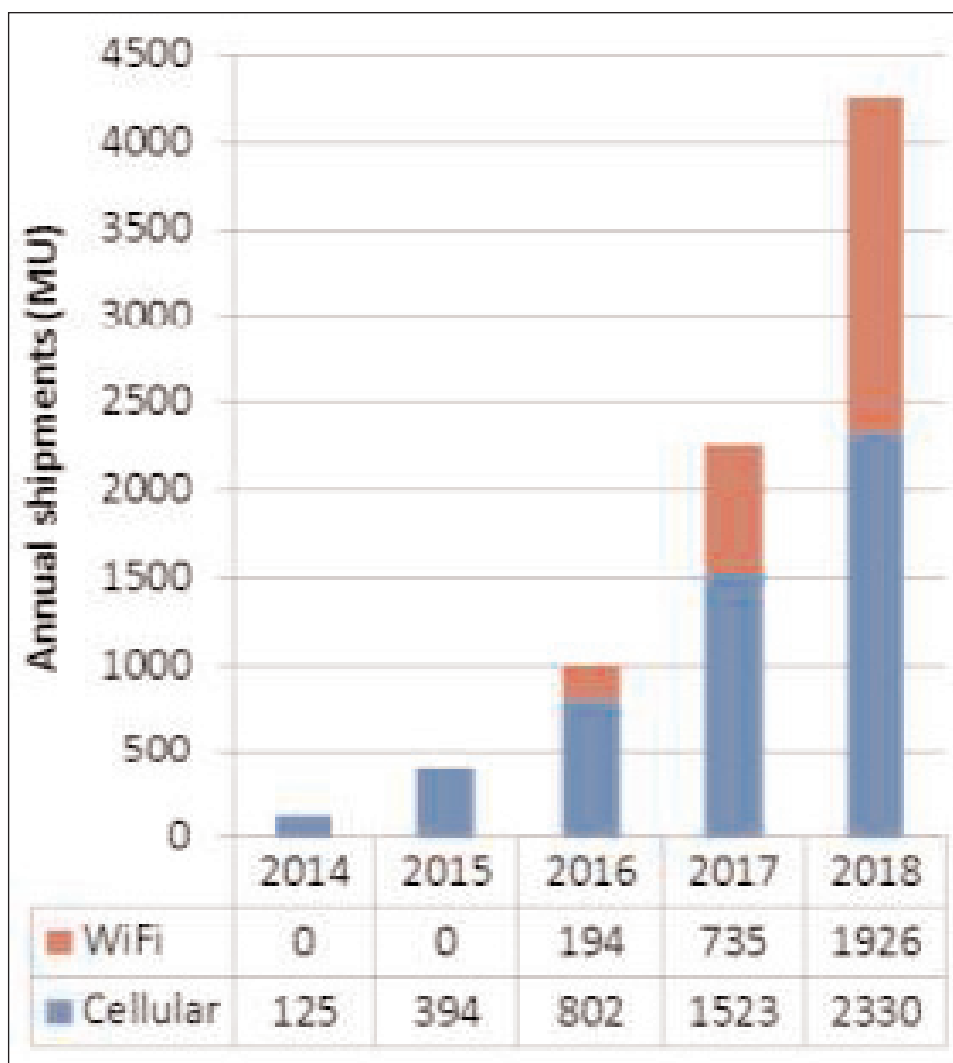
Nujira highlights a \$3bn market opportunity over five years as envelope tracking becomes ubiquitous for 4G smart-phones.

Envelope tracking (ET) adoption rates will soar, according to a new forecast analysis published by fabless envelope tracking (ET) semiconductor firm Nujira Ltd of Cambridge, UK. The firm's research predicts that the total market for ET power supply chips will exceed 4 billion units a year by 2018, representing a \$3bn market opportunity over the next five years as ET becomes ubiquitous across the 4G smart-phone market.

ET is a technique for improving the energy efficiency of RF power amplifiers (PAs). The traditional DC-DC converter supplying the PA is replaced by a highly agile ET power supply chip. This dynamically modulates the power supply pin of the RF PA with a high bandwidth, low noise waveform, synchronised to the instantaneous envelope (amplitude) of the signal being transmitted. At any instant in time, the PA is operating in a highly efficient compressed state, where the power supply voltage is just sufficient to enable the PA to transmit the instantaneous output power required.

Since the launch of the first ET-enabled phone in 2013 the market has expanded rapidly, with ET technology now featured in 15 flagship LTE phones from Apple, Samsung, LG/Google, HTC, Sony, ZTE and Amazon, with others in the pipeline. Nujira expects that those phones alone will account for about 125 million unit shipments of ET chips in 2014. In the next two years ET adoption is expected to cascade down from high-end smart-phones to the mid-tier sector, which together are forecast by market research firm Strategy Analytics to surpass 1 billion units by 2016.

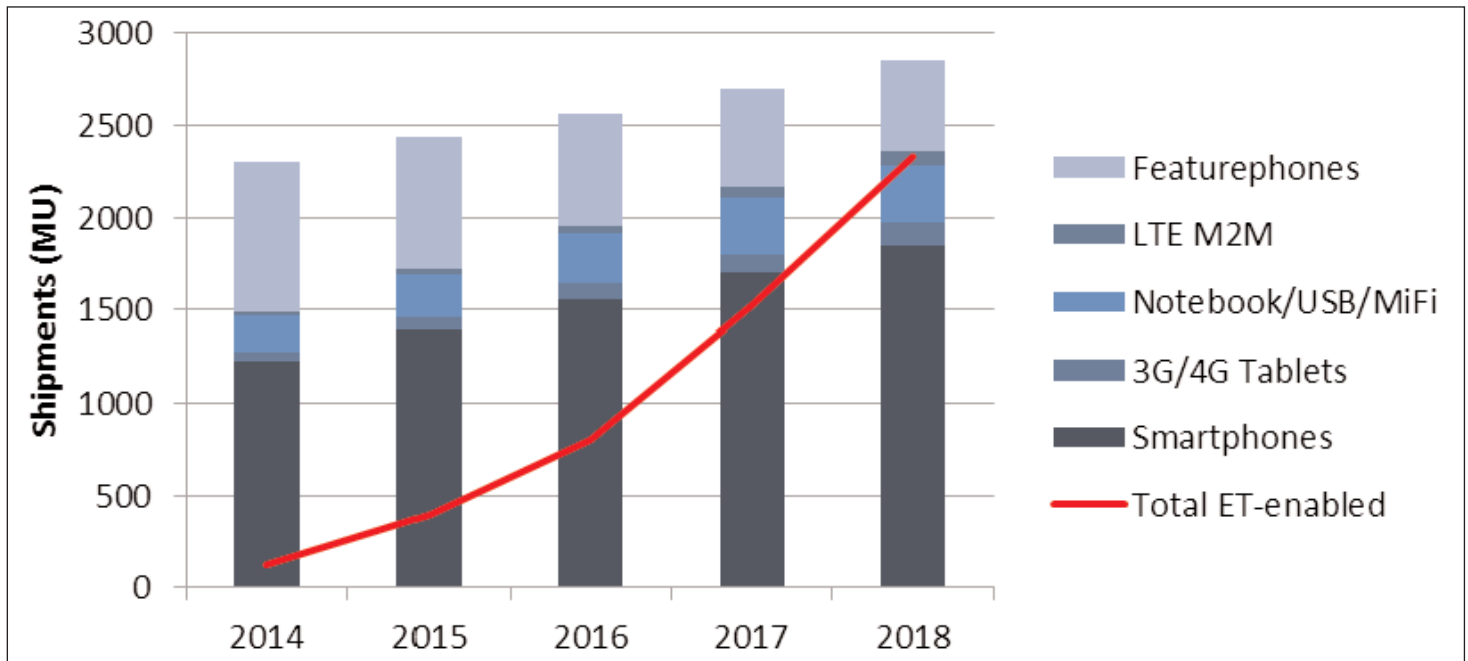
Nujira also expects that further opportunities will emerge for ET technology in WiFi, driven largely by the new high-data-rate 802.11ac standard. Existing WiFi PAs achieve less than 10% energy efficiency, and the market is ripe for high-bandwidth ET solutions that can



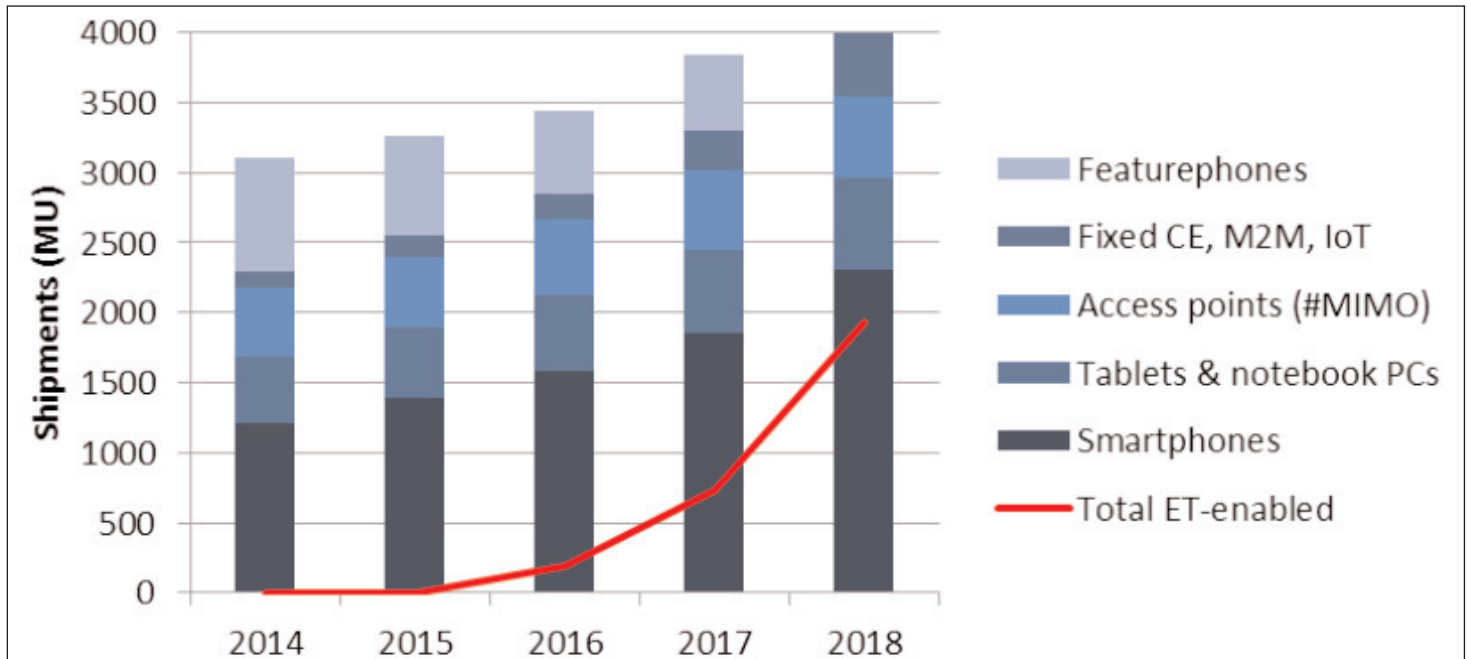
Envelope tracking shipment forecast.

cut current consumption by 75%, reckons the firm. Nujira expects that the first ET-enabled WiFi solutions will be shipping in 2016, with rapid adoption by 2018 across access points, smart-phones and 'Internet of Things' applications – a potential market of 2 billion units a year.

"The adoption of ET this year into all flagship smart-phones shows that key OEMs have recognized the value of integrating ET into their devices," says CEO Tim Haynes. "The continued roll-out of 4G LTE networks, including TD-LTE in China and the move to LTE-Advanced, will further reinforce the requirement for ET across the world," he adds.



Envelope tracking market opportunity in 3G/4G cellular.



Envelope tracking market opportunity in WiFi.

Alongside the product-level benefits of increased battery life, reduced heat dissipation and better signal coverage, ET is a vital enabling technology for CMOS PAs, allowing them to compete with incumbent gallium arsenide (GaAs) PAs, says the firm. Nujira believes that CMOS PAs will show significant growth over the next 5 years, driven by lower cost, higher front-end integration levels, and supply chain consolidation. By 2018, component-level integration of ET functionality with the CMOS ET PA will enable adoption in cost-driven 4G/LTE markets such as M2M/IoT and low-end smart-phones, as well as performance-driven applications such as 802.11ac WiFi, believes Nujira.

"With widespread adoption this year, mobile device manufacturers are waking up to the potential of ET," comments Christopher Taylor, director of the RF & Wireless Components advisory service at market research firm Strategy Analytics. "The report from Nujira paints an interesting picture of the changing landscape of the RF front-end market," he adds. "It is clear to see that, whether as a standalone chip, integrated with a CMOS PA, or ultimately into the cellular chipset, ET will rapidly become a critical enabling technology for the next generation of high-data-rate wireless communications." ■

www.nujira.com/market-projections-pa-810.php