



PureWave to Supply pWave™ Radios for Artemis Networks’ Revolutionary pCell™ Technology
Clusters of small and innovative **pWave** radios will deliver consistent high performance LTE service to every customer without the need for traditional cell towers

San Francisco, CA and Santa Clara, CA Feb 24, 2014 – Artemis Networks, the pioneer of pCell Technology, and PureWave Networks, a rapidly growing small cell pioneer announced today that the two companies have been working together on the design and development of the base stations for Artemis’ recently announced pCell technology. Artemis Networks describes their new pCell technology as “a radical new approach to wireless that consistently delivers full-speed mobile data to every mobile device concurrently, regardless of how many users are sharing the same spectrum at once ... eliminating the congestion, dead zones and unreliable connections we’ve come to accept with conventional cellular technology.”

pCell is a Software-Defined Radio C-RAN connected through fronthaul to pWave radios distributed throughout the coverage area. Unlike cellular systems, which generally avoid interference among base stations, in a pCell system, the radio signals from pWaves deliberately interfere, so as to synthesize a tiny, 1 cm diameter “personal cell” (a pCell) around the antenna of each standard, off-the-shelf LTE device (e.g. such as iPhone®, Android® phones, tablets and dongles) in the coverage area. As result, each LTE device can utilize the entire spectrum concurrently, even in high user density situations like airports and stadiums. Throughput and consistency is so high that pCell can concurrently deliver high throughput to what would normally be considered wireline-only applications, opening up new markets for mobile carriers. For example, last week at Columbia University, Artemis Networks [demonstrated a pCell system streaming multiple 4K Ultra HD video streams at once](#), using off-the-shelf Release 8 LTE dongles each concurrently using the same 10 MHz of spectrum.

pWave radio deployment is rapid and inexpensive. Since pWave radios deliberately interfere with each other, they do not need to be deployed in a specific plan to avoid interference, but rather are deployed “serendipitously”, wherever it is convenient and there is minimal site and fronthaul cost, whether indoor, outdoor or both.



Using the same spectrum, each additional pWave radio adds to the aggregate capacity of the pCell coverage area, so as mobile data usage grows, the carrier simply adds more pWave radios to the coverage area, serendipitously placed. Further, if a pWave radio drops out of the pCell network temporarily due to a power outage, the only impact is a reduction in aggregate capacity, not a loss of service to the area. As such, it is not necessary to provide battery or generator backup for every pWave radio, reducing the overall deployment cost.



PureWave has been selected by Artemis Networks to supply the pWave radios for its upcoming trial deployments, and will subsequently supply pWaves in various bands and power levels to wireless carriers that deploy the pCell System, both for initial deployments and to add additional capacity using the same spectrum as mobile data demand continues to grow.

“PureWave is excited to have partnered with Artemis Networks in helping to realize this promising new pCell technology,” said Dan Picker, PureWave Networks CTO. “It has long been clear to industry veterans that a completely new approach is required to keep up with the exponentially increasing mobile broadband capacity demands of today’s users. PureWave has focused on Smart-Antenna and Small Cell Base Station technologies to improve the efficiency in which valuable spectral resources are consumed. For this reason, we quickly understood the potential of pCell technology, since it effectively exploits a combination of these techniques. We also knew that our latest generation base station platform would be the perfect complement to realizing the technology in a real world setting.”

PureWave’s design leverages the new and highly integrated TCI6630K2L System-on-Chip (SoC) from Texas Instruments, combined with TI’s new analog front end transceiver, the AFE7500. These high-performance devices coupled with PureWave’s efficient small cell architecture provide the perfect basis for the development of these small devices that must nonetheless support extremely high throughput and low latency.

“Texas Instruments is delighted to be part of Artemis’ cutting edge pCell System, and to continue to expand small cell technology into new applications through our collaboration with PureWave,” said Cal Parsons, marketing manager, small cell processors, TI. “Artemis’ and PureWave’s announcement further illustrates the scope of unique and differentiated applications that can be addressed by TI’s high performance programmable small cell solutions.”

PureWave has continually raised the bar in the cellular infrastructure industry by introducing consistently smaller and more thermally efficient products with ever increasing performance and in the process has developed and employed a rich portfolio of IP. By employing a platform-based approach PureWave has been able to develop application-optimized products ranging from single-channel LTE access points to multi-band, multi-mode, and even multi-operator base stations.

PureWave’s latest generation platform is capable of handling all of the baseband and RF processing for up to two simultaneous sets of 20MHz FDD LTE channels spanning multiple bands, yet the products that leverage it are smaller than a page of paper. This combination of performance, efficiency, and flexibility has won PureWave a home in some of the most innovative wireless projects ever conceived, and they are now exploiting it in the design of the pWave radio.

“We are thrilled to partner with PureWave in developing and deploying pWave radios,” said Steve Perlman, Founder and CEO of Artemis Networks. “pCell is an entirely new approach to wireless requiring not just innovative thinking, but superbly engineered small, carrier-class radios, with an



architecture flexible enough to be used in entirely new ways in pCell deployments. We found both at PureWave, and are delighted to be working with PureWave as pCell ushers in an entirely new era of wireless.”

PureWave Networks will be showcasing some of their products, as well as their latest platform hardware in the Small Cell Forum Booth (7F61) at the 2014 Mobile World Congress in Barcelona.

About Artemis Networks

Artemis Networks LLC (www.artemis.com) is the pioneer of pCell technology, a breakthrough approach to wireless that consistently delivers full-speed data rate to every mobile device concurrently, regardless of how many users are sharing the same spectrum at once. Founded by technology pioneer Steve Perlman, and incubated for over a decade by Steve’s Rearden Companies incubator (www.rearden.com), Artemis is based in San Francisco, California. pCell technology is protected by a broad portfolio of fundamental patents, both US and internationally.

For more information about Artemis Networks, pCell and pWave Radios, visit www.artemis.com, follow us on [Twitter](#), and like us on [Facebook](#) and [Google+](#).

To find out more about pCell technology,

- visit www.artemis.com
- View our [Overview Video](#)
- View our recent [Live Demo at Columbia](#), [Technical Demonstration](#), or [pCell Visualization](#)

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About PureWave Networks

PureWave is a rapidly growing, privately held company headquartered in Silicon Valley. A small cell pioneer, PureWave has commercially introduced multiple generations of small cell and compact 4G wireless base stations, starting with the 2009 launch of the PureWave Quantum Family.

PureWave’s product portfolio includes the PureWave Constellation, a family of advanced, small cell base stations that deliver jaw-dropping peak data rates of up to 1Gbps of LTE capacity and offer an array of advanced options, including multi-channel and multi-frequency support, advanced SON and traffic shaping.

PureWave’s award-winning base stations have been deployed in over 220 commercial networks around the globe.



For more information about PureWave and its products, visit www.pwnets.com, follow us on [Twitter](#) and [LinkedIn](#), like us on [Facebook](#) and [Google+](#).

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