

THINKOM SOLUTIONS UNVEILS NEW MULTI-BEAM RECONFIGURABLE PHASED-ARRAY GATEWAY SOLUTION FOR NEXT-GENERATION SATELLITES

An “Array of Arrays” Gateway Antenna Can Support Multiple Moving LEO Satellites More Efficiently than Current Parabolic Dishes

HAWTHORNE, Calif. – August 14, 2019 – ThinKom Solutions reveals its new innovative solution for efficient and effective land-based gateways designed to accommodate current and next generation low-Earth-orbit (LEO) and medium-Earth-orbit (MEO) satellite constellations.

The new gateway concept, which ThinKom describes as an “array of arrays,” will provide a superior alternative to the large “antenna farms” of parabolic dishes currently used for support of geostationary (GEO) satellites. It is based on ThinKom’s proven phased-array antenna technology, which is currently in use on over 1,300 commercial aircraft installations worldwide, in 10M+ hours of proven high-reliability operation.

“The proliferation of cubesats, nanosats, microsats and other miniaturized satellites will require a new way of thinking when it comes to gateway antenna technology,” said Bill Milroy, Chairman and Chief Technology Officer of ThinKom Solutions. “The answer is not to deploy more and larger dish farms. Instead, we’re proposing an entirely new paradigm that’s designed for the future yet employs currently available proven phased array technology.”

Limitations of Dish-Based Gateways for LEO Networks

Current-generation gateways employ large parabolic dishes which are necessarily limited to one link per dish. Further, they are unable to repoint quickly to a different satellite, given their complex drive mechanisms. These legacy systems are large, heavy, expensive to install and maintain, and can take months to deploy. Additionally, they are adversely affected by wind, snow, and ice loading and typically require a substantial concrete foundation or reinforcement of roof structure to support the weight and uplift forces of several thousand kilograms resulting from even moderate wind conditions. These multi-dish gateway sites must allow for sufficient separation in order to avoid dish-to-dish blockages, often requiring a relatively large swath of real estate.

New Paradigm: An Array of Arrays

ThinKom’s approach uses multiple, tightly arranged, phased-array antennas, which are coherently (and reconfigurably) combined. The antenna units work together to track multiple LEO, MEO and GEO satellites simultaneously with look angles between 5 and 90

degrees in elevation and full 360-degree coverage in azimuth. The software-defined system is reconfigurable in that a single array is capable of supporting multiple links, modifying the number of beams and radiation properties dynamically to meet the link budget and throughput demands of the ever-changing number of satellites in view. It does all this without the high-power consumption of electronically scanned arrays, which is a critical feature in areas that rely on solar power or are otherwise energy-constrained due to geographic location.

The array, to be initially deployed in S and X-band operation (with higher frequencies brought on line as the market demands), is constructed in a fixed convex shape in order to provide maximum low-elevation coverage and minimize signal blockage while promoting the shedding of rain and snow. The visual signature of an array is less than two meters tall serving to eliminate the effects of high wind conditions and the footprint for a typical array (equivalent to eight 2.4-meter dishes or three 4.5-meter dishes or any mixed combination) occupies less than seven square meters, uniquely enabling flexible deployment in areas with limited real estate, such as rooftop locations.

“This radical new gateway concept is inherently flexible and scalable with far lower installation and maintenance costs,” said Milroy. “The low power and built-in redundancy provide greater reliability without routine maintenance, and individual units are hot-swappable in order to minimize or even eliminate downtime.”

“Most importantly, we’re not out to reinvent the wheel. This solution uses our patented, proven phased-array antenna technology that is in service today, minimizing R&D and time-to-market,” he added.

Photo caption: ThinkKom’s proposed array of arrays represents a new concept for land-based gateways for LEO, MEO and GEO satellite constellations.

Click [here](#) to download a high-resolution image.

About ThinkKom Solutions, Inc.

ThinkKom Solutions, Inc. (www.thinkom.com) is a leading provider of innovative, highly affordable, compact broadband antennas and products for aeronautical, vehicular, user terminal, gateway, satellite and man-portable applications. The company’s primary products uniquely enable near-term worldwide availability of high-data-rate connectivity in the X-, Ku-, Ka- and Q-bands. ThinkKom offers a range of reliable, proven technology solutions for the consumer, enterprise, first responder, civil, military and intelligence communities.

ThinKom

Media Contacts:

Greg Otto
ThinKom Solutions, Inc.
+1 310 802 4507
gregory.otto@thinkom.com

Jim Rhodes
Rhodes Communications, Inc.
+1 757 451 0602
jrhodes@rhodescomm.com



Rhodes Communications
International Public Relations and Marketing

Press release distributed by Rhodes Communications, Inc.
4509 Colley Ave., Norfolk, VA 23508 USA
Phone: +1 (757) 451-0602
www.rhodescommunications.com
pressreleases@rhodescomm.com