

# **RADAR**

*Advanced Materials and Unrelenting Innovation*

## **WELCOME TO *WHAT'S ON OUR RADAR!***

This is the first issue of Cuming Microwave's brand-new newsletter! Join us for the latest developments in advanced materials for electronics, aerospace, radar absorption, and microwave transmission. We want to highlight our cus-

tomers' accomplishments, so feel free to drop us a line with photos of how you put Cuming C-RAM products to good use. If we use your information in the next newsletter, you'll receive a free gift!



C-RAM AR(HP) weatherproof radar absorber installs quickly and easily on airbase building.



The finished radar absorber system was approved by the FAA and United States Coast Guard.

## **CUMING C-RAM IMPROVES AIR TRAFFIC SAFETY**

Responding to an FAA requirement, Cuming Microwave provided weatherproof radar absorbing panels to cover the exterior of a building at the Coast Guard Air Station (formerly Otis Air Force Base) in Cape Cod, Massachusetts.

Unwanted reflections were interfering with air traffic beacons operating at L-Band (1.1-1.6 GHz). Cuming's solution is C-RAM AR(HP), an open-cell reticulated foam dielectric absorber. Supplied as lightweight panels 2.50"

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## **C-RAM BRIDGE ABSORBER AIDS EUROPEAN WATERWAY SAFETY**

European waterways tend to be busy and crowded with commercial shipping, which is why preventing spurious radar reflections from bridges is so important. Responding once again to regulatory safety concerns, Cuming Microwave recently supplied panels of C-RAM SS-9.4-ANRH for installation on bridges in and around several major European cities. Thin and lightweight, the absorber is very effective at X-Band (9.4 GHz), and is both fire retardant and weatherproof. The panels can be attached with adhesive or mechanical fasteners and may be painted in a variety of colors. For more information on Cuming Microwave's special-purpose bridge absorbers, see Data Sheet 320-7A.



Preventing false radar reflections is essential to European waterway safety.

C-RAM SS-9.4-ANRH absorber is thin, flexible, and very effective at X-Band.

## CUMING SUPPLIES ABSORBER FOR MAJOR RESEARCH FACILITY

The University of Waterloo (Ontario, Canada) recently unveiled a major advance in anechoic chamber design as part of its Centre for Intelligent Antenna and Radio Systems (CIARS). The unique facility can perform a wide range of tests, including far-field antenna tests and spherical, hemispherical, and planar wave near-field measurements, as well as EMC testing. Frequencies can reach the Terahertz range, a new area of study. The \$15 Million state-of-the-art chamber

is 44' x 44' x 20' high inside and has RCM access doors. Cuming-Lehman Chambers supplied the doors and C-RAM SFC-48 radar absorber to line the chamber. For more information on CIARS, see the university's 9/20/2013 issue of its "Imprint" newspaper, [www.uwimprint.ca](http://www.uwimprint.ca).



Powerful antenna systems can be tested in the CIARS anechoic chamber.

## NEW PIM CHAMBER OFFERS REMARKABLE PERFORMANCE

Cuming Microwave and Cuming-Lehman Chambers designed and built a new PIM (Passive Intermodulation) test chamber for Lockheed Martin in Newtown PA. The state-of-the-art facility has fiber optic lighting

and electrically-operated sliding RCM doors. C-RAM SFC-72 pyramidal absorbers line the walls and ceiling, and 48" walkway absorber covers the floor. The chamber supports a 100,000-class clean room environment. A fully welded shielded enclosure allows PIM measurements of critical electronic equipment down below -150 dBm at 290 MHz, with an operating range of 25 MHz to 75 GHz. On-site testing has confirmed that the new chamber meets or exceeds all of its design parameters. See Technical Bulletin 390-1 at [www.cumingmicrowave.com](http://www.cumingmicrowave.com).



The Lockheed Martin Newtown chamber is an extremely "quiet" PIM test facility.



C-RAM SFC-72 pyramidal absorbers line the automatic RCM shielded doors.

## UNIQUE RADAR ABSORBER "FENCE" STOPS REFLECTIONS

Northrop Grumman's outdoor radar range in St. Augustine FL was being affected by unwanted reflections from a movable positioner. Cuming-Lehman Chambers met the challenge with an unusual radar absorber "fence" made using C-RAM ODP outdoor pyramidal absorber. The simple but very effective device worked like a charm! Let us know how we can help you solve this kind of worrisome problem. See Technical Bulletin 390-9A at [www.cumingmicrowave.com](http://www.cumingmicrowave.com).



C-RAM ODP on a portable framework makes for an unusual radar absorber system.

C-RAM ODP combines all-weather capability, high performance, and great versatility.





## CAN YOU HEAR ME NOW?

“Explosive growth” is the only way to describe the proliferation of cell phones and other devices communicating via rooftop microwave towers in every city and town. The resulting need to crowd together as many frequencies as possible has led to the crosstalk phenomenon known as PIM or “passive intermodulation.” Cuming Microwave solves the PIM problem with C-RAM PIM-465, a thin, flexible sheet radar absorber that can be wrapped around towers, railings, and other structures and simply tied in place as needed to reduce interference from both reflections and re-radiation.



C-RAM absorber helps prevent interference in crowded antenna clusters.

Weatherproof and easy to use, the absorber can be quickly adjusted for optimal results, and needs no maintenance. For more information on Cuming Microwave’s line of communications-band absorbers, see Technical Bulletin 320-9B at [www.cumingmicrowave.com](http://www.cumingmicrowave.com).

## THE NEED FOR NETWORKING



Internal antennas and communications networks are guarded by C-RAM absorber.

No office building or public facility is considered complete these days without clear and reliable Wi-Fi access. Flawless data transmission must be maintained at all times. Keeping all those channels open and properly separated is a challenge, especially with a DAS (distributed antenna system) operating inside the complexities of modern metal building construction. Cuming Microwave offers a specially designed “PIM reduction” product called C-RAM PIM-645 FR for just that purpose. Channel separation in excess of 100 dB is routinely achieved over a frequency range of 800 MHz to 5.0 GHz. This new technology promises to keep internal networks working now and well into the future. For more information on Cuming Microwave’s line of anti-interference absorbers, see Technical Bulletin 320-9C at [www.cumingmicrowave.com](http://www.cumingmicrowave.com).

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## EMPLOYEE SPOTLIGHT

Army Specialist E4 Ryan O’Keefe returned to the United States in July after serving for 11 months in Kandahar, Afghanistan. Ryan is happy to be back home, working as Lead in Cuming Microwave’s Aerospace Department. The hardest parts of Ryan’s deployment were separation from his family and missing the birth of his second daughter. Ryan is one of several Cuming Microwave employees whose

past or present military service protects our country. We’re proud of all our veterans and thank them for their bravery, sacrifice, and devotion to duty.



## CUMING MICROWAVE CARES

Last October, employees organized a collection drive for those affected by Superstorm Sandy. Donations were shipped to a fire station in New Jersey for distribution to the

hardest hit areas. Thanks to all of our employees who supported this worthwhile effort!

### C-RAM IMPROVES AIR TRAFFIC SAFETY *(continued from page 1)*

thick and attached with a combination of adhesive and mechanical fasteners, the material installs quickly and can be adjusted as needed to achieve desired performance. The

finished system was approved by the FAA and the United States Coast Guard. For more information, see Technical Bulletin 320-3 at [www.cumingmicrowave.com](http://www.cumingmicrowave.com).

## MICROWAVE ANNUAL OUTING A BIG SUCCESS

Cuming Microwave's annual summer outing was a big success this year. Held at Camp Satucket in East Bridgewater, Massachusetts, the event drew a happy crowd of employees and their families who enjoyed a day filled with sports activi-

ties and a delicious barbeque buffet. The next big company event will be the annual holiday party, scheduled for December.



Fun at the Cuming Microwave picnic - left-to-right: Ashley Pires, Jennifer Stewart, Patrick McCabe, Edwin Lugo, Bill Nye and Gilberto Vasquez Caicedo.

## EURO REPS BULLISH ON CUMING MICROWAVE

Cuming Microwave exhibited in March 2013 at the EMV Exhibition in Stuttgart, Germany, Europe's premier event on electromagnetic compatibility. Management personnel took advantage of the show to hold a sales meeting with Cuming Microwave European sales representatives. The meeting was graciously hosted by Eberhard and Edith Klein of Emc-Technik. The reps received the latest news and learned of

many exciting new developments, including advanced products and the latest facility expansion, all part of Cuming Microwave's efforts to offer continuously improving service for our customers around the world.



Cuming Microwave sales meeting in Stuttgart, Germany - seated left-to-right: Mike Kocsik, Cuming Microwave; Eberhard Klein, Emc-Technik; John Cuming, Cuming Microwave; standing, left-to-right: Edith Klein, Emc-Technik; Gerhard Schatzle, Emc-Technik; Sem Gorter, HF Technology; Joe Praught, Cuming Microwave; Jorgen Bruun, Cuming Microwave; Pia Gruber, Emc-Technik; Aleksey Ananiev, Electrade-M; not pictured: Rudolf Tubl, Transtech.

### Cuming Microwave Sales Representatives

- UNITED STATES**
- New England:  
MA, RI, CT, VT, NH, and ME  
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[www.dbmsales.com](http://www.dbmsales.com)
  - New York region: NY, NJ, and PA  
CDB Evolution INC  
[www.cdb.li](http://www.cdb.li)
  - Mid-Atlantic: DE, MD, VA, and  
Washington D.C.  
Signal Support  
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AL, GA, NC, SC, and TN  
Signal Support  
[www.signalsupport.nt](http://www.signalsupport.nt)
  - Florida  
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[www.microwaves.com/t&erepco.html](http://www.microwaves.com/t&erepco.html)
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Great Lakes: WI and Northern IL  
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  - Northern California  
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