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IP3b

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PVC Offset

Sizes 1/2" thru 6"
Meets Flexible Mandrel
Test Requirements

Bore Spacers

Sizes 1/2" thru 6"
Roll assembled conduit into
caissons and under
obstructions

IP2

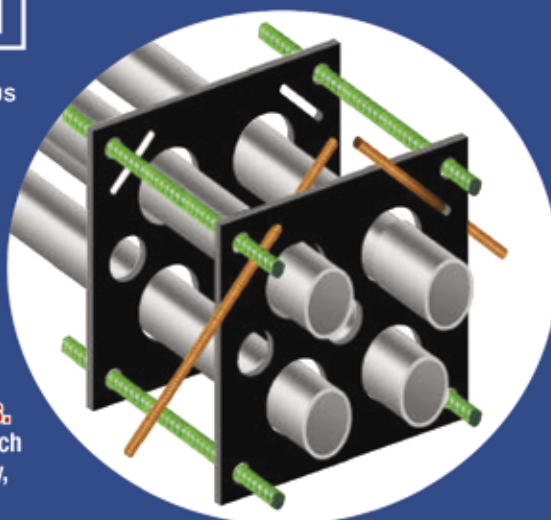
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IP1

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IP13A-F

Conduit Transition Couplings

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PVC Schedule 40 & 80

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5 Minutes*

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IP15

**End Bell
Adapter**
Schedule
40/80 PVC

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PVC/PVC



PVC/EMT



PVC/Rigid



PVC/Liquidtight



PVC/Stainless



PVC/Alum



PVC/Flex



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PRESIDENT

Glen Hobson
205-441-5591
glen@handfmedia.net

ASSOCIATE PUBLISHER

Steven Goodwin
205-624-2181
steve@handfmedia.net

ADMINISTRATIVE DIRECTOR

Steven Hobson
steven@handfmedia.net

EDITOR

Brandon Greenhill
brandon@handfmedia.net

CREATIVE/ WEB DIRECTOR

Jacklyn Greenhill
jacklyn@handfmedia.net

P.O. Box 1568 • Pelham, AL 35124
Phone: 205-441-5591 • Fax: 205-624-2181
www.theelectriccurrent.com
info@theelectriccurrent.com



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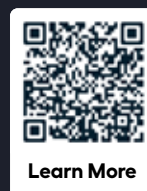
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Evluma's New Roadway Luminaire, RoadMax RX3, Replaces 150-400W HID Cobraheads



Evluma crowns their versatile roadway product line with their largest LED roadway luminaire to date. The RoadMax RX3 is positioned to assist municipalities and utilities retire inefficient and maintenance-intensive legacy HID cobraheads on major roadways.

Evluma announces the release of the LED RoadMax RX3 roadway luminaire. The large, triple-light-engine RX3 is up to 50% more energy efficient than the 150-400W HID cobraheads it's positioned to replace.

The RX3 completes Evluma's RoadMax series of low-glare roadway luminaires. The release of the RX3 also kicks off a series of new features that will roll out over the entire product line, including 277-480VAC compatibility. The RoadMax RX3 is available in model wattages ranging from 120-300W. Optionally, an adjustable lumen output switch increases service efficiency by expanding each model wattage with an additional seven output settings.

Like the rest of the RoadMax luminaires, the RX3 is distinguished by its sophisticated, durable design and low-glare, precision optics. Multiple luminaire configurations for Type II, Type III, Type IV and Type V, all with zero-uplight (U0), are offered. Proven to further reduce glare, the RX3 is released with signature RoadMax secondary lenses. Innovative field-installable shields curtail light trespass. The large roadway luminaire can be ordered with a 7-pin socket for networked nodes and 20kV/10kA Extreme surge protection. Like all RoadMax, the RX3 can be customized to include Evluma's Photocontrol Fail-safe, a patented technology that solves photocontrol failures on street and area lights.

The RoadMax RX2 spanning 70 – 220 watts was released in March of 2023 and the award-winning RX1 offered in 30-100 watts was released in March of 2022. "Color temperatures, efficacy targets, expanding specifications, adherence to RP-8-22 (IES) plus citizen feedback are just a few factors that can influence the choice of roadway luminaire. Overlapping wattages between each size luminaire (small,

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Switch	Catalog Number	Approx. Weight (lbs)	DPDT - Double Pole - Double Throw TPDT - Triple Pole - Double Throw
Single Phase (240 Vac) UL Listed	7103	13	DPDT with 100 amp main contacts, 100amp aux contacts
	7205A	35	DPDT with 200 amp main contacts, 200amp aux contacts
	7406	48	DPDT with 400 amp main contacts, 400amp aux contacts
Single Phase (240 Vac) with "Center-Off" Position UL Listed & SUSE Rated	7215	48	DPDT with 200 amp main contacts, 200 amp aux contacts
	7416	48	DPDT with 400 amp main contacts, 400 amp aux contacts
Three Phase (240 Vac) UL Listed	7805	56	TPDT with 200 amp main contacts, 200 amp aux contacts
	7806	56	TPDT with 400 amp main contacts, 400 amp aux contacts
Three Phase (240 Vac) with "Center-Off" Position UL Listed & SUSE Rated	7815	56	TPDT with 200 amp main contacts, 200 amp aux contacts
	7816	56	TPDT with 400 amp main contacts, 400 amp aux contacts
Single Phase (600 Vac) Non-UL & Not-SUSE	T-5233-6	184	DPDT with 800 amp main contacts, 600amp aux contacts
Three Phase (600 Vac) Non-UL & Not-SUSE	7800-6	56	TPDT with 200 amp main contacts, 200 amp aux contacts
	7808-6	56	TPDT with 400 amp main contacts, 400 amp aux contacts
	T-6233-6	197	TPDT with 800 amp main contacts, 600 amp aux contacts



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medium, large) allows for a variety of choices in efficacy (lm/W) and light output. It also affords additional flexibility if the goal is to stock fewer SKUs,” stated Evluma Marketing Director, Cathleen Shattuck. “With a 10-year warranty and 20kV/10kA surge protection the RX3 crowns this robust line of roadway luminaires.”

About Evluma

Evluma is committed to developing affordable, long-lasting and environmentally low-impact LED lighting solutions that fundamentally change the landscape of the outdoor utility lighting market. Evluma’s background in innovative lighting technologies and software creatively influences the design of its utility-grade products. Formed in 2008, Evluma’s dedication to exceptional customer service is renowned. Evluma is located in Renton, WA, USA.

For more Information please contact: Cathleen Shattuck, Marketing Director, cshattuck@evluma.com

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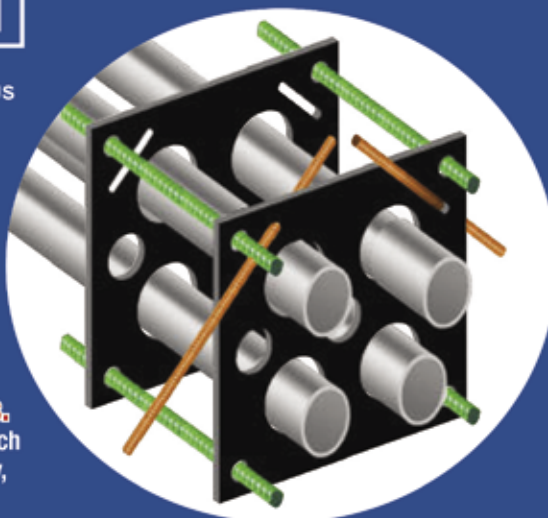
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Additionally, the light comes with reversible ground spikes for secured footing, allowing for easy setup and use on any surface. The charging cable comes with a convenient wrap system to store on the unit, ensuring you always have it on hand when you need it.

The light can be quickly and easily folded up for compact storage and transportation, making it the perfect portable lighting solution for jobsites sites, camping trips, outdoor events, and more.

The High Power LED Tripod Light has two on/off switches, ensuring maximum control over the lighting, and has a charge time of only 6 hours, with a run time of up to 8 hours on the low setting, 4 hours on the medium setting, and 2 hours on the high setting.

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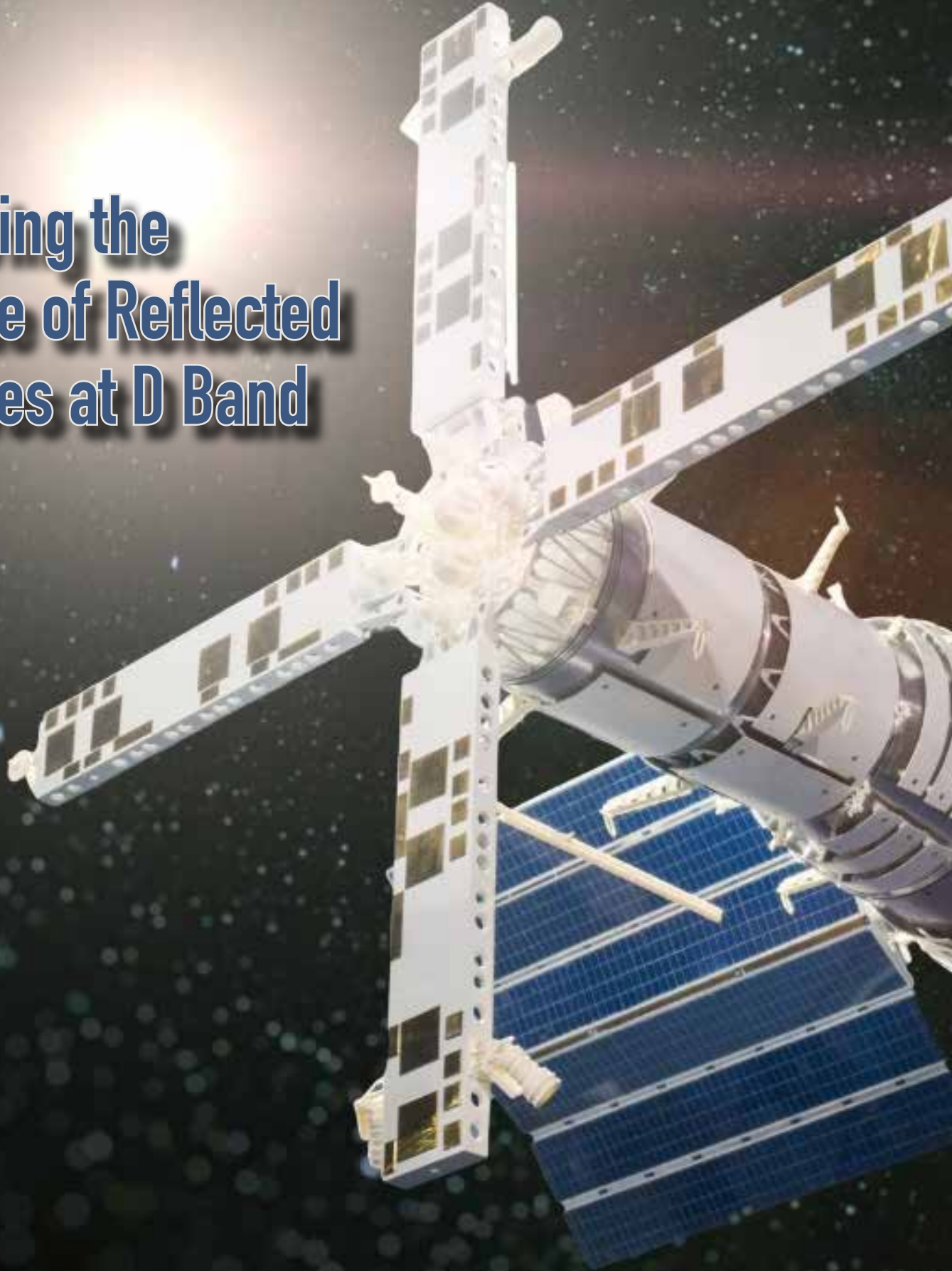
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Solving the Issue of Reflected Waves at D Band





*Looking to deliver reliable test, measurement and prototyping equipment for
D band led NI to THz-enabled isolators designed for NASA*

The call for "more D band" has gone out. With the ability to transmit 100 Gigabits per second (Gbps), the D band will unlock a number of technologies across a wide range of industries. Wireless communication is often the focal point, but commercial applications include high-precision sensing, radio astronomy, and airport security detectors. For the military, the D band will open the door to the next generation of inter-satellite links, imaging radars, and stand-off detection.



However, as research and development teams attempt to deliver on the much-anticipated move into the frequency range between 110-170 GHz, they are running into a common problem of signal reflections, also known as mismatches. These undesirable waves, or ripples, can attenuate power output, distort the digital information on the carrier and, in extreme cases, damage internal components.

To offset the issue of mismatches at lower microwave frequencies, engineers rely on Faraday rotation isolators but at higher frequencies, like those within the D band, traditional isolators often struggle to deliver the same results. "When you get above 110 GHz it's sort of uncharted territory," explains Ed Loewenstein, Chief Architect at NI. "Your connectivity gets a little strange and cables don't work very well anymore. So, most things are done in waveguides."

Suppressing signal reflections

Until recently, there has been limited test and measurement equipment available at D band frequencies, with few standards and little-to-no traceability to NIST (National Institute of Standards and Technology).

"What we often hear is that once someone sets up their equipment to make a test or measurement at these frequencies and something doesn't go quite right, they spend most of their time trying to figure out whether it's their test equipment or the device that they're testing," adds Loewenstein.

Therefore, the development of the D band is dependent on companies like NI, formerly known as National Instruments, which create the equipment that engineers rely upon to efficiently and accurately perform comprehensive research, testing, and validation. However, recently, as the company was looking to create new 6G sub-THz reference architecture they ran into the issue of reflected waves themselves in the waveguides.



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"We were really struggling with bad mismatches in our waveguide system and kept getting these really bad frequency ripples," adds Loewenstein.

In millimeter wave (mmW) systems, the distance between components is often much larger than a wavelength. As you sweep frequencies, the phase changes and there are nulls, dips, and degraded performance. To resolve that in microwave frequencies, engineers simply insert an isolator between components and the reflected signal gets absorbed.

However, as you move up the electromagnetic spectrum shorter wavelengths require smaller constituent parts. At mmW frequencies, the parts are tiny and even the smallest misalignment can significantly degrade performance.

As demand for D band systems increases, so does the number of isolator options available. Unfortunately, their performance still lags behind what engineers have become accustomed to at lower frequencies.

Advances in mmW isolator design

"We evaluated the isolators on the market from

what data was available and it was pretty easy arithmetic to see that Micro Harmonics was the most appropriate thing for us," adds Loewenstein.

Micro Harmonics Corporation is a Virginia-based manufacturer specializing in the design of mmW components. Under a NASA contract, Micro Harmonics essentially reinvented the isolator so that it can operate well into THz frequencies.

The traditional method to manufacture an isolator has been to use ferrites that are substantially longer than required, and then tune the magnetic bias field to achieve optimal performance. This delivers good isolation but at a much higher insertion loss.

What Micro Harmonics did to minimize loss was reduce the ferrite length by as much as possible. The design developed for NASA saturates the ferrite with a strong magnetic bias field, which allows for the shortest possible length of ferrite to achieve the ideal 45° of rotation. This lowers the insertion loss to less than 1 dB at 75-110 GHz and only 2 dB at 220-330 GHz.

The only way to confirm such precision is to fully characterize each isolator on a vector network analyzer. This validates total compliance, as opposed to just spot-checking at a couple of frequencies in the band. The test data are then supplied with each isolator.

"They are one of the vendors that we've encountered that actually supplies full S-parameter files, which include magnitude and phase," says Loewenstein. "When dealing with a high-value component, whose performance you are counting on, I would say this type of information is essential."

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Meeting deadlines for D band

NI needed to deliver its new mmW test and measurement equipment as well as its advanced software-defined radios which can greatly accelerate prototyping and next-gen wireless innovation.

Loewenstein says it was important that the isolator could cover the entire D band which the isolators designed for NASA could do.

"It was a nice bonus that it is designed in a small cube, so it fits directly onto a flush surface without a rear accessible flange, explains Loewenstein. "You don't need extra waveguide sections or anything."

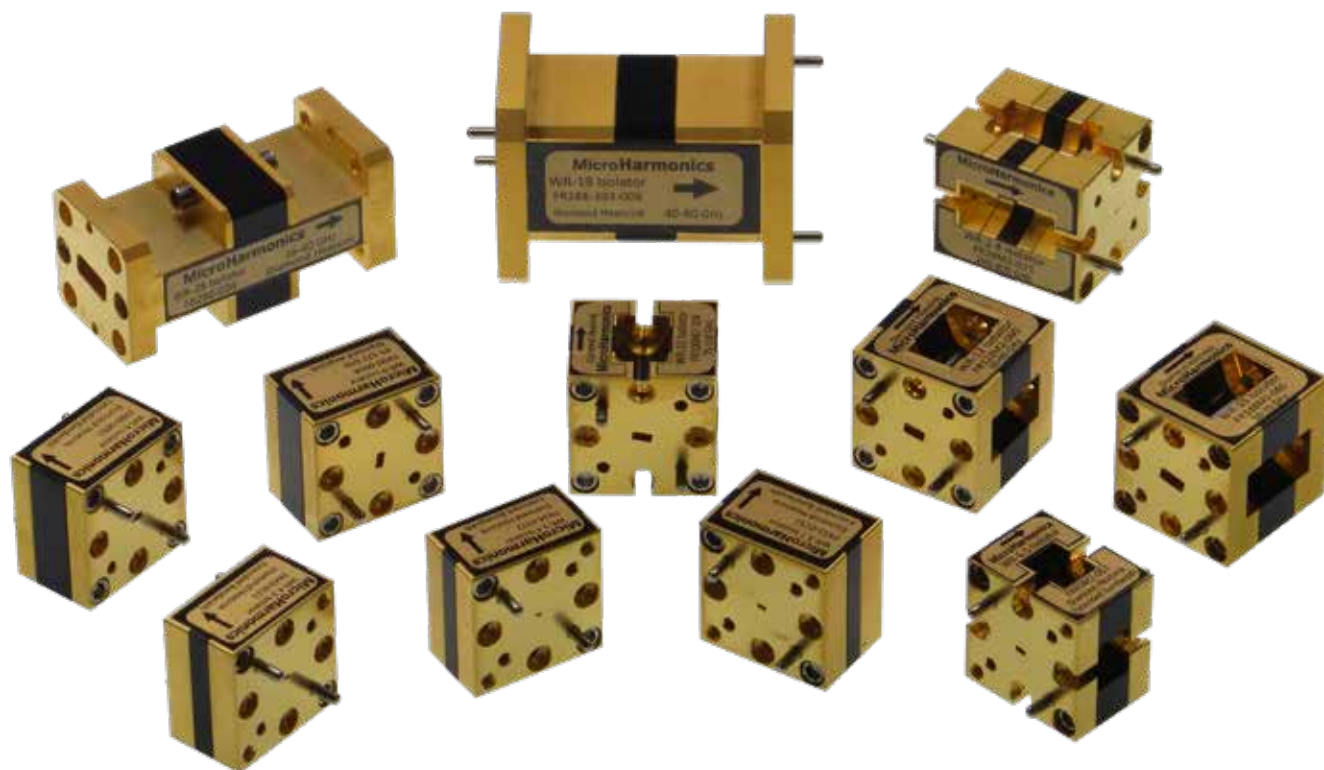
NI measured their systems before and then after inserting the isolator and saw a noticeable improvement in the ripple which they said was due to cleaning up the mismatch reflections. This allowed them to announce the 6G Sub-THz reference architecture that provides calibrated measurements with up to four gigahertz of modu-

lation bandwidth.

"We can now receive and transmit at D band. We can also use software-defined radio techniques to prototype and make measurements that are traceable to a power meter," says Loewenstein.

The insatiable demand for data bandwidth, especially for communications, and the existing spectrum available within D band has companies charging ahead at lightspeeds. As part of that allure, the FCC recently allowed some experimental licenses in D band and up to 220 gigahertz so that people can begin to develop new broadband communication methods that use those frequencies.

"Right now, people are looking to do research in sub-terahertz communication. They are designing future chipsets, radio links, or the protocols," explains Loewenstein. "So, we are looking to allow them to make tests and measurements as well as utilize our software-defined radios to enable future growth within the D band and beyond. •





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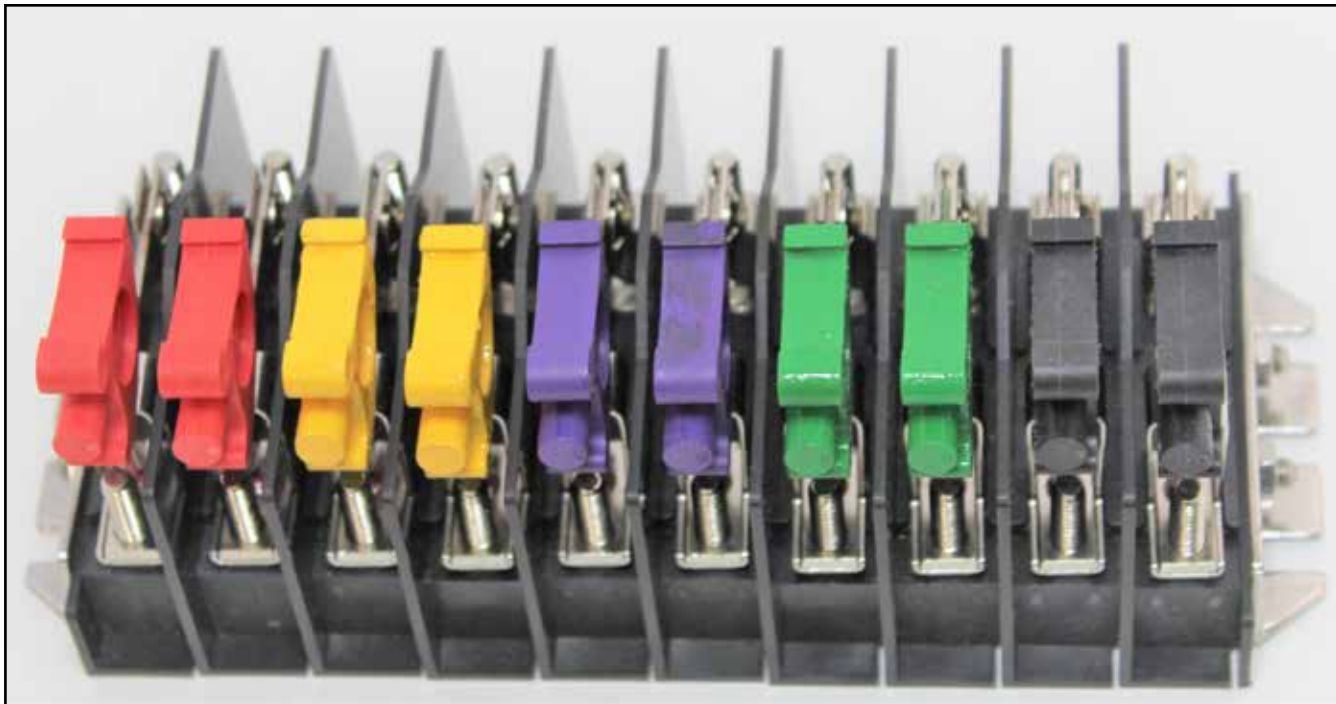
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NovaTech Automation Acquires TestSwitch LLC's Product Line, Including Their Flagship W3TS Test Switch, Expanding Its Critical Infrastructure Solutions Portfolio

NovaTech Automation, a global leader in automation and control solutions, is excited to announce the successful acquisition of the TestSwitch LLC line of products. TestSwitch is a renowned provider of electromechanical switches used in critical infrastructure testing. This strategic acquisition further solidifies NovaTech Automation's position in the industry while enhancing its product portfolio, including TestSwitch's flagship product, the W3TS Test Switch.

TestSwitch entered the utility industry in 1983 with the Sliding Link Switch and has been focusing on its W3TS Test Switch since early 2001. This highly regarded product offers exceptional quality and reliability in test switches.

With the addition of TestSwitch's products, NovaTech Automation reinforces its commitment to delivering innovative and comprehensive solutions for critical infrastructure, bolstering its existing product lines, which include the Orion Substation Automation Platform, Kronos Satellite Clock, and Bitronics Power Measurement solutions.

"This acquisition represents a significant step forward for NovaTech Automation as we expand our offerings in the critical infrastructure sector," said Conrad Oakey, CEO of NovaTech Automation. "TestSwitch LLC has built an exceptional reputation for their innovative and reliable switches, and we are excited to welcome their products and expertise into our organization. We are committed to delivering the same level of excellence our customers have come to expect."

The W3TS Test Switch and other TestSwitch products will be seamlessly integrated into NovaTech Automation's portfolio, providing customers with enhanced solutions that ensure the safety, reliability, and performance of their critical systems. NovaTech Automation's global presence and robust customer support will further benefit former TestSwitch LLC clients.

NovaTech Automation is dedicated to ensuring a smooth transition for TestSwitch LLC customers and partners, offering assistance and support as they become part of the NovaTech Automation ecosystem.

For more information about NovaTech Automation and the Orion family of substation automation solutions or TestSwitch LLC, visit www.novatechautomation.com or <https://testswitch.com/> or call (913) 451-1880. Additional information can be found: TestSwitch Datasheet and TestSwitch Catalogue. •

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John Deere Announces Strategic Partnership with SpaceX to Expand Rural Connectivity to Farmers through Satellite Communications



Deere & Company (NYSE: DE) announced it has entered into an agreement with SpaceX to provide cutting-edge satellite communications (SATCOM) service to farmers. Utilizing the industry-leading Starlink network, this solution will allow farmers facing rural connectivity challenges to fully leverage precision agriculture technologies. This partnership, an industry first, will enable John Deere customers to be more productive, profitable, and sustainable in their operations as they continue to provide food, fuel, and fiber for their communities and a growing global population.

“The value of connectivity to farmers is broader than any single task or action. Connectivity unlocks vast opportunities that were previously limited or unavailable,” said Aaron Wetzel, Vice President of Production and Precision Ag Production Systems at John Deere. “For example, throughout the year, farmers must complete tasks within extremely short windows of time. This requires executing incredibly precise production steps while coordinating between machines and managing machine performance. Each of these areas are enhanced through connectivity, making the entire operation more efficient, effective, and profitable.”

The SATCOM solution will connect both new and existing machines through satellite internet service and ruggedized satellite terminals. This will fully enable technologies such as autonomy, real-time data sharing, remote diagnostics, enhanced self-repair solutions, and machine-to-machine communication, all of which help

farmers work more efficiently while minimizing downtime.

“John Deere has led the agriculture equipment industry for more than two decades with satellite-based precision guidance technology,” said Jahmy Hindman, Senior Vice President & Chief Technology Officer at John Deere. “Now, we are bringing satellite communications service to the farm at scale so farmers with cellular coverage challenges can maximize the value of connectivity to their operations. The SATCOM solution unlocks the John Deere tech stack so every farmer can fully utilize their current precision agriculture technology in addition to the new innovative solutions they will deploy in the future. We initiated this process with a fierce focus on delivering value to our customers, and this partnership ensures we have a solution that meets their needs today and in the future.”

John Deere’s SATCOM solution will leverage SpaceX’s Starlink satellite internet constellation. To activate this solution, John Deere dealers will install a ruggedized Starlink terminal on compatible machines, along with a 4G LTE JDLink modem to connect the machine to the John Deere Operations Center. The SATCOM solution will initially be available through a limited release in the United States and Brazil starting in the second half of 2024.

www.deere.com/en/news/ •



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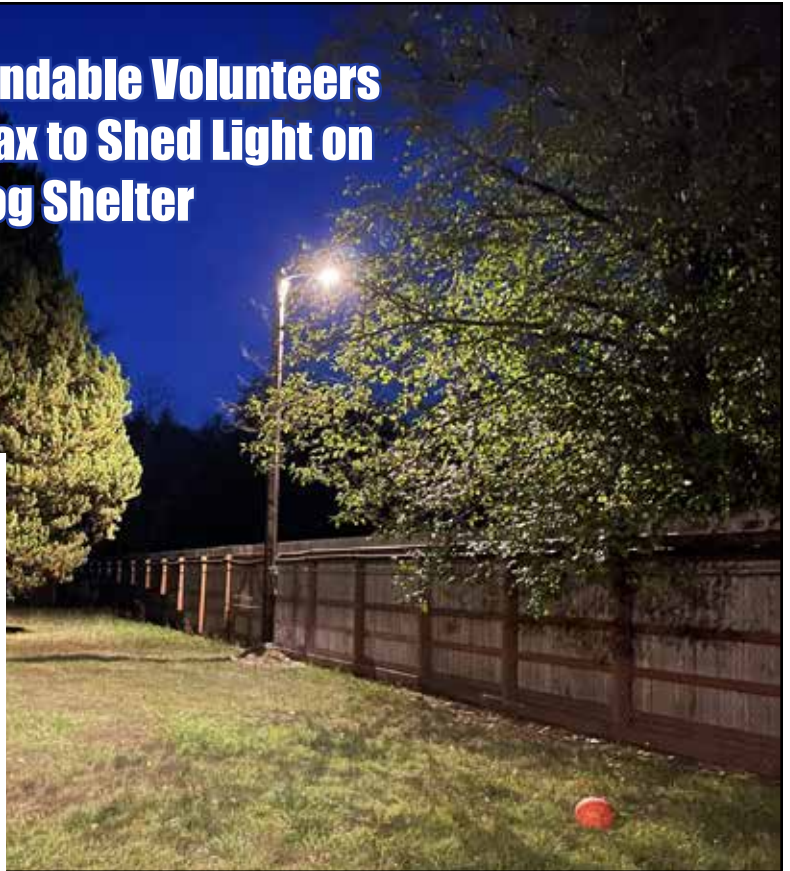
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Dogs, Lights, and Commendable Volunteers – Evluma donates AreaMax to Shed Light on Adopt-a-Pet Volunteer Dog Shelter



Due to many undesirable scenarios, dogs are left abandoned or treated poorly. Adopt-a-Pet has dedicated their efforts to address these unfortunate situations by providing much needed veterinary care, food, and a route to a loving home since 1979, with a spay/neuter program beginning in 1985. Today, Adopt-a-Pet relies on contributions from its community to continue these commendable efforts.

Supported by seventy-one members and thirty-seven volunteers, Adopt-a-Pet's operations are often hindered during the evening hours when natural light fades. This is most exacerbated during the winter months when Adopt-a-Pet's location of Shelton, Washington receives only around eight hours of daylight.

Recognizing the challenge, Evluma, in collaboration with Steve Mills of Cascadia McLaren, donated three AreaMax lights to Adopt-a-Pet. These AreaMax have enhanced the much-needed illumination to their outdoor working space and enclosed yards where the pets roam and play, providing safer and longer hours of operation.

Dennis Simon expressed his gratitude by stating "The difference it has made is incredible for working the dark hours."

While the AreaMax have elevated the illumination of Adopt-a-Pet's grounds, more are required to achieve sufficient illumination. Evluma has pledged to donate two more AreaMax to reach this goal.

If you wish to contribute the Adopt-a-Pet's efforts, please visit Adopt-a-Pet's website which describes 10 ways to support their cause. One can provide a monetary donation, become a volunteer, or give one of their dogs a loving home. You can also support them by following their social channels Instagram and Facebook.

Please reach out to adoptapetadoptions@gmail.com for questions or volunteer.aapwa@gmail.com for volunteering related inquiries. •

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