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CLOSING THE GAP

A Newsletter Dedicated to Cutting Edge Solutions for the Next Generation

AUGUST 2022

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OVER-THE-AIR TESTING REPORT



In this report, we will look at the benefits, challenges, and emerging solutions for efficient and effective over-the-air testing. [pg.4](#)

JF TECH ADDED TO NWS FAMILY



JF TECH manufactures components for servers, wireless networks, and cellular optical fiber systems for the wireless and wireline sector in Canada. [pg.2](#)

JF TECH Added To NWS Group of Companies

This past April, Network Wireless Solutions, LLC (“NWS”) has added JF TECH, Inc to the NWS Group of Companies, which includes Gap Wireless.

JF TECH manufactures components for servers, wireless networks, and cellular optical fiber systems for the wireless and wireline sector in Canada. They also manufactures components for external fiber optic networks. Under the leadership of President and Owner Jean-François Trudel, JF TECH has seen exceptional recent growth across its client relationships, driven by the Company’s commitment to superior quality and exceptional service.



Jean-François said, “The JF TECH team is thrilled to be joining NWS. Together, we will bring the company to a higher level and fully exploit the 5G growth opportunities in North America.”

JF TECH will further expand NWS’ presence in Canada, broadening the customer base of the combined business across government and military, education and utilities, and telecommunications sub-sectors.

“Over the past decade, Jean-François and the team have built an incredibly high-growth business with impressive margins,” said NWS CEO Xavier Williams. “As we continue to grow our Canadian reach, we look forward to building upon the strong performance of the team, developing even further the synergistic potential within the NWS platform.”

Nikola Trkulja, Managing Director at Grain added, “We are thrilled at the prospect of bringing these two incredible organizations together in their single commitment to excellence and service. Together, our partners are poised to accelerate the pace of growth in the Canadian wireless and wireline industry at a very exciting time for telecommunications services.”

“Gap Wireless and JF Tech are now teamed up to take on the telecom market in Canada. Individually, both companies were growing at a fast pace. Now together, the team will become a formidable market leader”, says Glenn Poulos, Gap Wireless, VP & GM.

FREEDOM R8100 & R8200 Promotion Until Aug 31, 2022



Purchase a FREEDOM R8100 or R8200 communications analyzer and select from the options below for huge savings!

Save up to \$11,000 CAD on purchase of an R8100 or R8200 Communications System Analyzer

- Select 1 option: Save \$5,800 CAD
- Select 2 options: Save \$7,100 CAD
- Select 3 options: Save \$9,000 CAD
- Select 4+ options: Save \$11,000 CAD

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Supporting University of Toronto's New Hardware Design and Communication Course



In January of 2022, the Edward S. Rogers Sr. Department of Electrical and Computer Engineering at the University of Toronto launched a brand-new second-year course: [ECE295: Hardware Design and Communication](#). An exciting addition to the curriculum, students work in teams to design, build and test a complete electronic system from scratch. Along the way, students gain skills in a broad range of topics, including PCB design, soldering, test & measurement, project management, teamwork, and oral/written communication. This year, the project was to design an entire digital radio transceiver operating in the HF frequency band. Each team was tasked with developing a particular subsystem (e.g. receiver mixer, power amplifier, PLL, etc.) and ensuring, through appropriate interface

control, that their designs would integrate with other subsystems successfully to yield a functional radio. Aside from successfully designing and assembling their PCBs, an important component of the course was the rigorous unit and system-level testing of their designs, which was made possible through immersive training and usage of modern test equipment. This equipment, featuring Keysight's Smart Bench Essentials, includes a digital oscilloscope, digital multimeter, triple-output power supply, and arbitrary function generator. The equipment was installed in a state-of-the-art lab in the Myhal Centre for Engineering Innovation & Entrepreneurship, and was procured from Gap Wireless.



The course was an astounding success! Over 50 PCBs were successfully built, and a fully functioning radio picking up HF digital transmissions thousands of kilometres away was realized. To further add to the excitement of the course, prizes were offered to the best teams, which rewarded not only innovative designs, but also teams that exemplified the spirit and virtues we value in engineering. At the end of the course, we had an awards ceremony on the University of Toronto campus, where exciting prizes were given out for first, second, and third place. Prizes included high-end multimeters, SDR dongles (fittingly), and gift certificates. We are grateful to Gap Wireless for sponsoring one of the prizes. Overall, the addition

of prizes upped the ante for many teams and added another dimension to the course's success and the student experience. We certainly can't wait for the next edition of the course!

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EMI, EMC, & EMF Testing Report

EMC, EMI, & EMF Testing Report

The Keys to Electromagnetic Testing for Product Development, Compatibility, and Safety



You can't feel, see, hear, touch, taste, or smell it, but the air around you is full of electromagnetic activity. These bursts of oscillating electric and magnetic fields are the carrier pigeons of the information age. They contain our voices, our faces, and our data. Turn off these invisible lights, and we will enter a digital dark age.

As crucial as electromagnetic signals are, they must also be carefully controlled. The wrong signal at the wrong time could prove disastrous—even deadly. Those exposed to high levels of electromagnetic fields must carefully monitor their exposure. Designers of wireless equipment must ensure that their products do not cause harm, direct or indirect. This requires rigorous testing and certification.

In this report, we will explore the challenges of electromagnetic testing and discover some available solutions to those challenges. We will also examine the ways in which electromagnetic testing is poised to change and how stakeholders can better prepare themselves to adapt to those changes.



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Over-the-Air Testing Report

Over-the-Air Testing Report

This report will examine the benefits, challenges, and emerging solutions for efficient and effective over-the-air testing.



Cell phones were once recognizable by a prominent antenna protruding towards the sky—or rather, to the nearest cell tower. A similar story can be told for vehicles, televisions, and radios. Antennas, for many people, are still visualized in the mind as those long metal sticks that somehow talk to one another.

But those days are long past, and the sophisticated electronics available today utilize much different—and much less visible—antenna technology. It is not an aesthetic choice but rather a necessary adaptation to evolving wireless standards. The latest of these, 5G millimeter wave (mmWave), is a perfect example. Antennas no longer work alone but may be grouped in intelligent arrays that steer their signals in the proper directions, all at frequencies much higher than those typically used in the past.

Ultimately, these changes are improvements for end-users with increasing demands. However, they come at the cost of increased complexity for the designers of wireless equipment and communication networks. In particular, the sophistication of modern wireless systems demands sophisticated over-the-air (OTA) testing and measurements. These tests can be costly, complex, and cumbersome, but they are critical to ensuring proper system performance and conformance to wireless standards.

In this report, we will look at the benefits, challenges, and emerging solutions for efficient and effective OTA testing.



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New Vendor Announcement: Edge Power Solutions



Reliable Power for Optical LAN, DAS, LED DC Lighting, Security & Remote Communications Devices

Edge Power Solutions (EPS) is the leader in Remote Power Supplies for the DAS industry. They provide reliable, consistent, flexible, and intelligent power solutions.

Edge Power Solutions power supplies have GPON / Passive Optical LAN friendly 8, 16 and 32 outputs and an (optional) integrated passive optical splitter. They continue to be in a class of their own providing both time and cost savings.

Edge Power Solutions is dedicated to providing SIMPLE and APPROACHABLE power for emerging technology markets.

Simple. Easy to specify, configure, install and maintain.

Approachable. Non-intimidating power solutions for IT and Low Voltage professionals.

Their POL and DAS-friendly power supplies combine a power source, protected

distribution, and optional integrated fiber optic splitter. The simple and easy-to-deploy systems are also a favourite of security, building controls and lighting industry.

In addition, EPS offers a complete line of Lithium ION UPS's, fiber optic splitters, fiber adapter plates, fiber optic enclosures and power installation accessories. Reliable Power supplies are the very heart of every project. At EPS, they make sure that your company has the right power supply for your requirements and systems. EPS will provide you with the latest technology that can keep up with the changing needs.

To date, there are over 300 successful projects under their power system

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WELCOME ABOARD Roy Song



Gap Wireless is excited to announce that Roy Song has joined us as Director of Sales.

Born and raised in Toronto, Roy is an accomplished senior sales leader with 20+ years of experience, known for delivering strong revenue and profit gains in highly competitive markets. Acknowledged for driving multimillion-dollar annual revenue growth; recipient of multiple company sales awards year over year. His experience spans Rogers, Glentel, Bell, and more.

Roy has over 10 years of experience leading and successfully building high-performing sales teams. With an exceptional record of leadership experience, he has generated record growth opportunities while ensuring productivity and high morale in a healthy corporate sales culture.

He is looking forward to leading our team of vastly talented sales professionals to foster and grow Gap Wireless's top-tier customers and finding areas of growth with key vendors. I look forward to contributing to the success and continued growth of Gap Wireless and taking it to the next level.

Fun Facts: Roy is proud to be a first-time dad (March 2020) and is a car and sports enthusiast.



NetAlly Network Testing Tools

Wired Solutions

NetAlly's complete line of handheld Ethernet/IP test and analysis tools provide innovative and reliable network visibility in the palm of your hand. Our easy-to-use tools simplify the complexities of network testing, providing instant visibility for efficient problem solving. We help frontline technicians validate network connectivity in less than 10 seconds – improving productivity and the end-user experience.



Wi-Fi Solutions

NetAlly's full suite of interoperable Wi-Fi network testing and survey solutions enable network professionals to more effectively design and deploy 802.11 and Bluetooth/BLE wireless LANs for optimal performance, security, and compliance. The AirMapper™ Ecosystem of tools speeds and simplifies mission-critical tasks – from planning,

deployment, and validation to ongoing network troubleshooting and optimization.

AirMagnet

From planning and deployment to ongoing network troubleshooting, the AirMagnet network tools span the entire WLAN lifecycle.

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Keysight 2-Port RF Electronic Calibration Modules

The Keysight RF electronic calibration (ECal) module makes calibration of vector network analyzers fast, easy, and accurate. ECal is a precision, single-connection calibration technique for your vector network analyzer. Performing a full two-port calibration takes less than half the time and number of connections using ECal

versus mechanical calibration kits. Furthermore, the accuracy of the calibration is comparable between electronic and mechanical methods. Traditional mechanical calibrations require intensive operator interaction, which is prone to errors. With ECal, the operator simply connects the ECal module to the network analyzer and the software controls the rest.



ECal modules are transfer standards capable of transferring the factory calibration accuracy to your network analyzer. The 85092D RF electronic calibration system is easily controlled by one of two methods depending on the network analyzer. The Keysight PNA and ENA series of network analyzers control the module directly through a USB interface.

Key Features

- DC/300 kHz to 9 GHz frequency range.
- Fast full two-port calibration with a single connection
- Simple non-insertable device calibration
- NIST traceable accurate calibrations
- Reduced connector wear

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VeEX UX400 Next Generation Network Testing Now up to 600G

The VeEX UX400 is the smallest multi-service transport test solution to offer test capabilities ranging from DS1/E1 all the way up to 6x 100G traffic generation, supporting the latest 100G/40G optical pluggable form factors (CFP4, CFP2, CFP, QSFP28, QSFP+, no adapters required). Its modular architecture allows for up to six independent test modules and up to twelve concurrent tests or combinations of tests, including legacy PDH/DSn, SDH/SONET, OTN, Ethernet, Fibre Channel, CPRI/OBSAI, C/DWDM spectrum analysis and more. The platform's software architecture has been developed so that multiple users or scripts are able to access and operate different test modules at the same time, maximizing the use of resources.



Key Features

- Intuitive Multi-user graphical user interface (GUI) with touch screen control
- Multi-test. Up to 12 independent concurrent tests
- Field exchangeable test modules

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Select Fabricators RF/EMI Shielded Portable Tents/Enclosures

Select Fabricators' RF/EMI shielded soft wall enclosures are available as a high-performance alternative to hard wall metal chambers and provide over -90 dB shielding effectiveness with portable to semi-permanent design options.



Applications for Select Fabricators' Portable RF / EMI Shielded Enclosures include: EMC pre-compliance or conducted and radiated emissions testing, wireless device testing, temporary EMI shielding, and secure communications.

Key Features

- All enclosures are made in the USA
- Standard sizes are available – we can produce any custom size as well
- All enclosures come with:
- Standard size patented double magnet door size: 40" x 70"
- Heavy duty tarp flooring to protect the conductive floor
- Frame style of your choice
- Shielding Effectiveness Certificate
- One-year limited warranty

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Trimm Inc. Power DC Power Distribution

Trimm, Inc. carries a full line of DC power distribution panels and accessories used in the telecommunications and data center industry. Their line includes GMT, KLM, TPA, TPS, TPC, and TLS fuse panels as well as circuit



breaker panels. Trimm Inc. also specializes in custom fuse panels designed to meet your needs. They provide fuse panels to wireless and wireline communications providers, information technology companies and many others.

Trimm Inc. panel options include box-style, OV and Versatile fuse/breaker panels. Panels range from 1U to 5U high and support low current projects, as well as high current with Versatile panels offering up to 850 amps per bus. We also offer heat baffles, bridging clips and rack adaptors.

Gain an Advantage with Trimm's Power Distribution Panels.

Versatile, reliable, tested and proven. Making quality products in the USA since 1922.

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Powering Sunwave DAS with VoltServer™ Digital Electricity™

"VoltServer is thrilled to have GAP Wireless as a valued partner to address the needs in the Canadian Wireless Market. Their expertise and "customer first" approach has been key to the early successes we're seeing in Canada. Additionally, with GAP's collaboration, we've been able to ensure the proper product sets and configurations to our customers in Canada." Ken Hydzik, Vice President Sales – North America, VoltServer

This application note, "Powering the Sunwave Crossfire DAS with Digital Electricity™" will cover the following:

1. What is Digital Electricity™?
2. VoltServer's Complete Power Provisioning Design Services
3. Implementation Guide
4. List of Digital Electricity Products

The high-power capacity of Digital Electricity™ is an exceptional choice when paired with high-bandwidth fiber. The benefits of Digital Electricity™ include enabling further distances from the head-end and powering multiple radios from a single pair of copper.

Other benefits of Digital Electricity™

- Monitoring and Control
- Safety
- Flexibility
- Cost to Install

VoltServer is the leading provider of intelligent, premise-based power distribution solutions leveraging Digital Electricity™ from centralized source to distributed endpoint loads to improve the customer's essential business applications. Patented and proven Digital Electricity™ (DE) solutions deliver cost-effective, high-reliability power where and when you need.

VoltServer Digital Electricity™ and Sunwave DAS are proudly distributed by Gap Wireless.



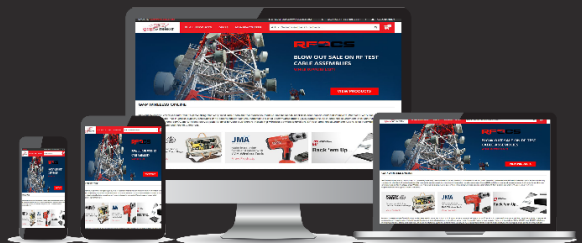
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Gap Wireless Web Store



Browse the extensive Gap Wireless Web Store to discover the latest solutions from our network of more than 60 world-class manufacturers. You'll find a wide variety of test and measurement equipment, ICT equipment, and telecom infrastructure equipment.

[Visit Web Store Now](#)



Gap Wireless

Gap Wireless is a leading provider of products and services for wireless network operators and contractors, as well as electronic labs in the Government, OEM, and Education markets. Gap Wireless works with industry-recognized vendors to stock and distribute thousands of wireless infrastructure, public safety, and test & measurement products across North America. Gap Wireless also provides value-added technical/engineering services.

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