

## NXDN™ Forum: Product Showcase

NXDN™ has become a leading narrowband digital two-way radio protocols worldwide.

This is a brief introduction and overview to the current products and services provided by various members of the NXDN™ Forum. The NXDN™ Forum is a group of leading companies from a diverse range of backgrounds in the Land Mobile Radio industry.

The products and services outlined here are done so with the permission of the member companies of the NXDN™ Forum. We encourage you to visit the websites or directly contact the member company to obtain more details about the content explained here.



NXDN™ Forum website: <http://www.nxdn-forum.com/>

Member Company	Core Competence	Product/Services
<b>Cobham (Aeroflex)</b>	Test Equipment	Test Sets
<b>Alinco, Inc.</b>	Manufacturer	Terminals
<b>Avtec Incorporated</b>	Dispatch Solutions	Consoles
<b>CML Microsystems Plc</b>	Semiconductor Solutions	Baseband IC
<b>CTI Products Inc.</b>	Applications	Dispatch Apps
<b>CVDS Incorporated</b>	Recording Solutions	Logging Recorder
<b>Etherstack Ltd.</b>	Software Solutions	Protocol Stacks
<b>Eventide Incorporated</b>	Recording Solutions	Logging Recorder
<b>EXACOM Incorporated</b>	Recording Solutions	Logging Recorder
<b>Freedom Communication Technologies Inc.</b>	Test Equipment	Test Sets
<b>GME/Standard Communications</b>	Manufacturer	Terminals
<b>Hoag Electronics Inc.</b>	Engineering Consulting	Custom Solutions
<b>Hytera Communications Corp.</b>	Manufacturer	Terminals/Infrastructure
<b>Icom Inc.</b>	Manufacturer	Terminals/Infrastructure
<b>JVCKENWOOD Corporation</b>	Manufacturer	Terminals/Infrastructure
<b>Numonix</b>	Logging Solutions	Logging Recorder
<b>Raven Electronics Corporation</b>	Hardware/Software	VoIP/RoIP Telephony
<b>RFnetworks Corporation</b>	Test Equipment	Test Sets
<b>Ritron Incorporated</b>	Manufacturer	Terminals
<b>Rockwell Collins (ARINC)</b>	Test House	Systems Integration
<b>Telex Radio Dispatch Group</b>	Dispatch Solutions	Consoles
<b>UltraTech Labs</b>	Test House	IOP Testing
<b>Zetron, Inc.</b>	Dispatch Solutions	Consoles

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The information in this document has been carefully checked, and is believed to be correct and accurate. However, the NXDN™ Forum assumes no responsibility for inaccuracies or mistakes.

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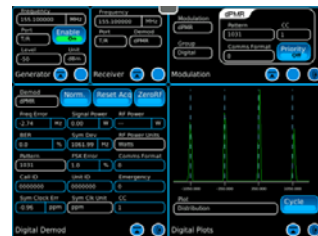
## Cobham (Aeroflex Incorporated) Test and measurement equipment

### NXDN™ Product / Service: the 8800S Digital Radio Test Set

Improving upon the very popular 8800 platform, the new 8800S Digital Radio Test Set supports higher direct power measurements up to 125 Watts. With its hybrid portable design, the industry's largest color touch-screen display, a measurement range from -140 dBm to 500 Watts, and unmatched analog and digital test features, the 8800 offers RF professionals a whole new experience in radio test.



Weighing only 17 lbs (7.71 kg), with a 2.5+ hour internal battery, and 30 G shock rating, now test professionals will no longer compromise portability for critical test features; and vice versa. Advanced features ranging from Auto-Test to digital modulation analysis plots to even an internal 500 W (4% accuracy) in-line power meter are all available within a one-box solution!



### The 3920B Digital Radio Test Set

The 3920B continues to expand its digital PMR test capabilities, making it the most comprehensive and versatile instrument in the market. New enhancements include a low noise RF generator with -110 dBc/Hz performance, providing ultimate accuracy for radio test and alignment. Speech test patterns are also available for testing receiver sensitivity using actual human voice.



### The 3550R Digital Radio Test System

The 3550R is the industry's lightest, most rugged and first truly portable touch-screen analog and digital radio test system. The 3550R takes radio and repeater site testing to the next level with a quantum leap in an easy to use, integrated test system for complete radio receiver and transmitter performance testing, cable fault and antenna system analysis.



### Additional Information:

**8800S** : <http://ats.aeroflex.com/radio-test-sets/land-mobile-radio-products/8800s-digital-radio-test-set>

**3920B** : <http://ats.aeroflex.com/radio-test-sets/land-mobile-radio-products/3920b-series-analog-and-digital-radio-test-platform>

**3550R** : <http://ats.aeroflex.com/radio-test-sets/land-mobile-radio-products/3550r-radio-test-system>

**Alinco, Inc.**  
**Radio Manufacturer**

**NXDN™ Product/Service: NXDN™ Handheld Radio**

The new DJ-NX40 is a rugged simple-to-operate NXDN digital or conventional SCPC transceiver employing FDMA 4-level FSK modulation and the NXDN protocol, featuring true 6.25kHz spectrum efficiency, higher security and superior audio clarity.

DJ-NX40 features include professional grade specs such as 0.7W audio output, 1.5ppm frequency stability, selectable TX output of 1W or 5W; keep in touch for retail, construction, factory, warehouse, in a theme-park, shopping mall, exhibition hall, hotel... offering instant, reliable and secure business communications, the DJ-NX40 is a cost-effective way to migrate smoothly from legacy analog to cutting-edge digital technology!



**Additional Information:**

DJ-NX40T : <http://www.alinco.com/Products/DJ-NX40T.pdf>

## Avtec Incorporated Dispatch Consoles and Applications

### NXDN™ Product/Service: Scout VoIP System

#### Service Description:

Scout is a true VoIP console system; all its components may be distributed over a LAN/WAN infrastructure using standard Ethernet. There is no backroom TDM switch. Users said they want a console that does every-thing a traditional console does, yet operates on a network. Scout delivers this functionality today, and through active product development and customer feedback, new enhancements are continually incorporated into the feature set.

Scout is Avtec's 4th Generation console product, and was designed for a 10+ year lifecycle in mission-critical environments. Scout provides a dedicated media workstation with its own Ethernet connection and rugged peripherals. This allows customers the option to operate on standard PCs and benefit from reduced life-cycle support costs.

Avtec's Scout console supports radios from NXDN™ manufacturers, offering access to advanced radio features such as ANI, Paging, and Emergency call.

#### Basic Scout System

With VPGate, Scout supports a wide variety of connections, including conventional analog and digital radios, analog and IP technology, logging recorders, and much more.



#### Further Details:

<http://www.avtecinc.com/products/scout/>

**CML Microsystems Plc  
Semiconductor Solutions**

**NXDN™ Product/Service: CMX7131 and CMX7141 multi-mode digital LMR processor chip**

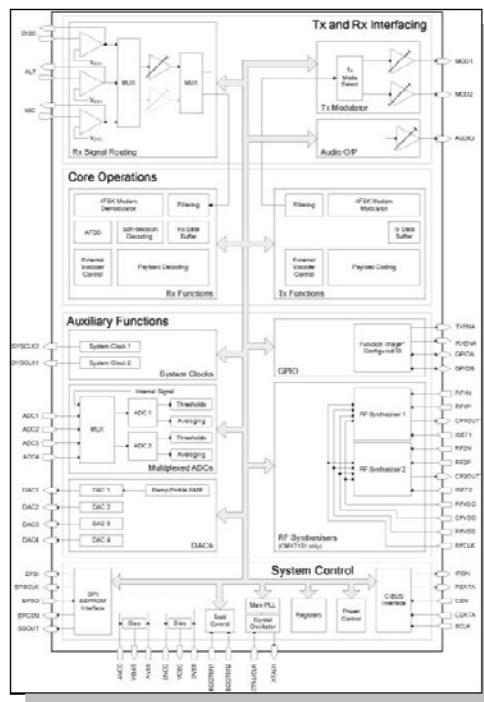
**Product Description:**

The CMX7131 and CMX7141 are half-duplex processor IC platforms built on FirmASIC® technology and are suitable for use in digital radio and dual-mode (analogue/digital) systems, including NXDN™, dPMR™ and DCR (Japan) radio designs.

Alternatively, these ICs, with the correct Function Image™, can be configured to operate as an Analogue Two-way Radio Processor.

Using CML's proprietary FirmASIC® component technology, on-chip sub-systems are configured by a Function Image(FI): this is a data file that is uploaded during device initialisation that defines the device's function and feature set.

7131/7141FI-3.x implements a half-duplex 4FSK modem with NXDN protocol support functions. In conjunction with a suitable host, vocoder and RF section, a compact, low cost, low power digital PMR radio conforming to the NXDN™ standard can be realised.



**Further Details:**

[http://www.cmlmicro.com/products/CMX7131\\_CMX7141\\_Digital\\_PMR\\_Processors/?q=NXDN&curr=109](http://www.cmlmicro.com/products/CMX7131_CMX7141_Digital_PMR_Processors/?q=NXDN&curr=109)

**CVDS Incorporated**  
**Communication equipment manufacturer**

**NXDN™ Product/Service: Digital Logging Recorder**

**Product Description:**

The ComLog IP series of Digital Voice Recorder is an all-inclusive recording solution for any sized application. This third generation ComLog IP system has evolved into a highly reliable and efficient recording solution for all 24/7, mission critical deployment. The ComLog chassis uses an open architecture hardware design to allow the system to keep pace with the fast moving technological advancements available today – and for years to come. The purpose designed software provides performance, flexibility, and ease-of-use to the users of the system. All access for administration and playback is via a highly secure network connection with all data encrypted to prevent unauthorized access and packet sniffing.

Features include:

- 4-240 Recording Channels
- Integrated AMBE+2™/IMBE™ DVSI vocoder for NEXEDGE, NXDN and P25 “on-the-wire” (networked) recording solution (no external adapters nor converters required)
- All-in-one recording of analog/digital/IP inputs from audio sources such as telephones, consoles, etc.
- Search by Date, Time, Radio ID and other metadata
- Real-Time Monitor
- Powerful Incident Recreation
- ....and much more....



**ComLog IP350+**



**ComLog IP700+**

**Further Details:**

<http://www.cvds.com/products-2>

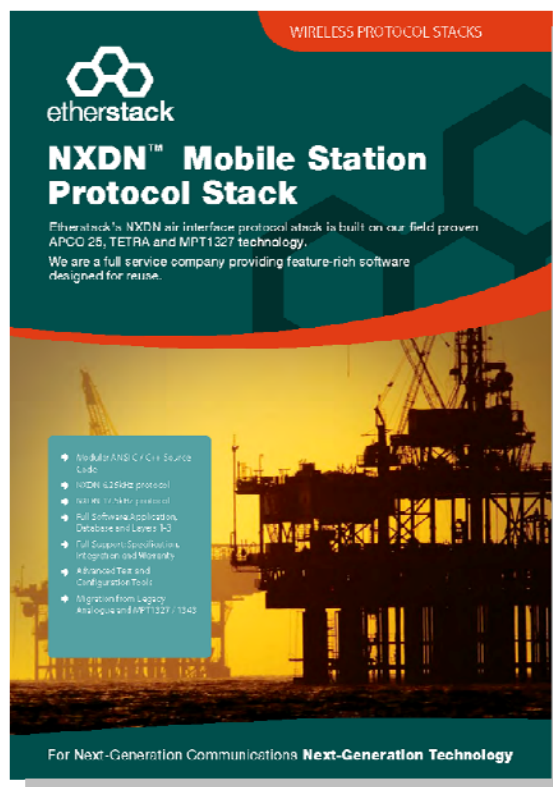
## Etherstack Ltd. Protocol Stacks

### NXDN™ Product/Service: Mobile/Base Station Waveforms

#### Product Description:

This highly portable stack is available in two variants, Mobile Stack (MS) and Basestation Stack (BS). Written in highly portable ANSI C, the stack can be readily hosted on a wide range of popular microprocessors and DSPs. The NXDN stack provides a complete implementation including the PHY (physical layer) in software.

The stack is available with Etherstack's ELITE automated test suite tools - to assist the manufacturer with integration, testing and maintenance of the implementation during the lifecycle of the product.



#### Further Details:

<http://www.etherstack.com/>



## Eventide Logging Recording Products

### NXDN™ Product/Service: NexLog IP-Based Logging Recorders

#### Product Description:

Eventide's NexLog series of communications logging recorders provide archival and instant recall voice recording for NXDN™ radio systems. IP-audio and call-related metadata (PTT ID, Group ID) for each transmission are reliably captured, recorded and archived. The resulting recordings are instantly available for replay, research, incident reconstruction, burn to DVD/Blu-ray, and export via email. The same Eventide communications logging recorder can also record the customer's VoIP telephones, digital PBX telephones, analog telephones, other LMR systems, 9-1-1 calls, and PC screen video. Eventide communications loggers reliably meet the mission-critical needs of thousands of government and industry customers worldwide.



#### Further Details:

<http://eventide.com/CommunicationsDivision/Products/NexLogRecorders/NexLog740.aspx>

email: [Loggers@eventide.com](mailto:Loggers@eventide.com) or call Eventide at +(201) 641-1200 extension 264

## EXACOM Incorporated Logging Recording Products

### NXDN™ Product/Service: Multi-media Logging Recorder

#### Product Description:

EXACOM is well positioned to offer industry leading Next Generation recording technology with the new Hindsight-G2™ platform. Advanced functionality is standard in all EXACOM recording solutions to meet the demanding environments found in today's 911, Defense, Homeland Security, Utilities and Transportation Communications Centers. With integrations for P25 IP radio systems, conventional radio systems, analog, digital and VoIP phone systems, Hindsight-G2™ offers power and flexibility at your fingertips. EXACOM designed the multi-faceted Hindsight-G2™ platform with not only the communications center administrators in mind, but the everyday user as well. The Hindsight-G2™ places the focus on increasing production by decreasing stress while searching for calls. No database expertise is required to search, find and recreate entire incidents. EXACOM solutions offer a choice of non-proprietary, industry standard hardware.



Further Details: <http://exacom.com/featured-products/>

## Freedom Communication Technologies Inc. Radio Test Sets

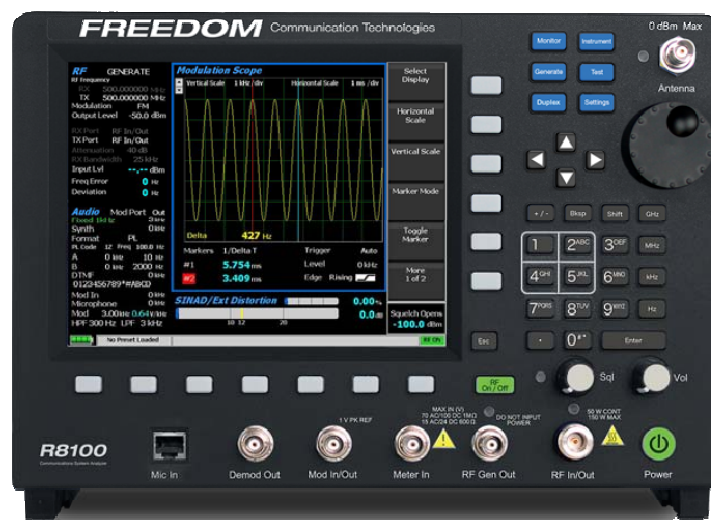
### NXDN™ Product/Service: Radio Test Sets

#### Product Description:

The R8100 is the premium, ultra-portable member of our product family. It has all the functionality and test capabilities of our industry-standard R8000 communications system analyzer, but also features an internal battery, premier ergonomics and suite of advanced features that are optional on the R8000. With the R8100, there's absolutely no trade-off between benchtop power and total portability and the unit's Class 3 Mil-Spec shock and vibration rating at test to its suitability for nearly any LMR test environment. Designed for portability, the 6.4kg R8100 supports the NXDN™ protocol and NXDN "Type C" Trunking, and is compliant with the Conformance Test procedures of the NXDN standard.

The software-defined R8100 possesses an exceptional range of features and capabilities, including:

- Optional "AutoTune" Automated Test and Alignment for Kenwood "NX Series" radios
- High performance spectrum analyzer with full-band display and noise floor < -140dBm
- Accepts up to 150 watts of RF power without need for an external attenuator
- Expandable and upgradable to more advanced feature sets
- "Super-bright" 8.4-inch LCD display for easy viewing in all lighting conditions
- Ultra-wide frequency coverage from 1MHz up to 3GHz
- Support for every major LMR format, including P25, P25 trunking, TETRA, DMR & dPMR



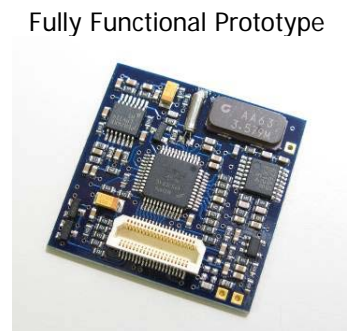
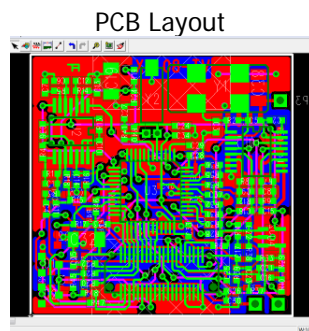
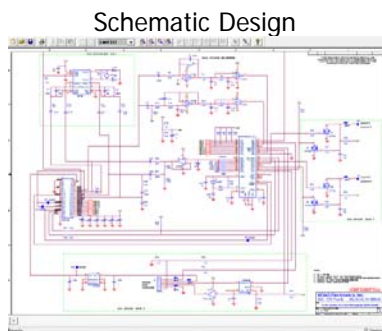
Further Details: <http://freedomcte.com/r8100/>

**Hoag Electronics, Inc.**  
**Electronic Product Design and Engineering Solutions**

**NXDN™ Product/Service:**

Hoag Electronics is an electronics engineering product design consulting company that specializes in the design and development of new electronic products. We provide a 'one-stop' turnkey electronics product design service from product conception, specification, and prototypes, all the way to a 'ready to manufacture' product. We specialize in the use of Microcontrollers, Wireless technology, Analog and Digital Mixed Signal applications for the Land Mobile Industry.

Hoag Electronics has over 25 years of extensive experience in hardware circuit design, microcontroller firmware, software design and wireless design. Our primary targets are companies in need of expert and experienced electronic engineers to bring your product to market as quickly as possible.



**Further Details:**

Please see our new website: [www.HoagElectronics.com](http://www.HoagElectronics.com)  
And on Facebook: [www.facebook.com/hoagelectronics](https://www.facebook.com/hoagelectronics)

Icom Incorporated  
Radio Manufacturer

**NXDN™ Product/Service: A full range of NXDN™ equipment**

**Product Description:**

IDAS™ is Icom's digital land mobile radio system using the NXDN™ common air interface. IDAS™ offers a complete system of handheld radios, mobile radios, repeaters, network interface/trunking controller, remote communicator (dispatch application) and various accessories. IDAS™ is a complete digital solution that system owners and managers can grow into as their own time and budgets allow.

The IDAS™ system product suite supports conventional, multi-conventional (IP linked conventional networks) and Type-C and Type-D trunking, and much more.



**Further Details:**

<http://www.icom.co.jp/world/idas/idas/>

**JVCKENWOOD Corporation**  
**Radio manufacturer**

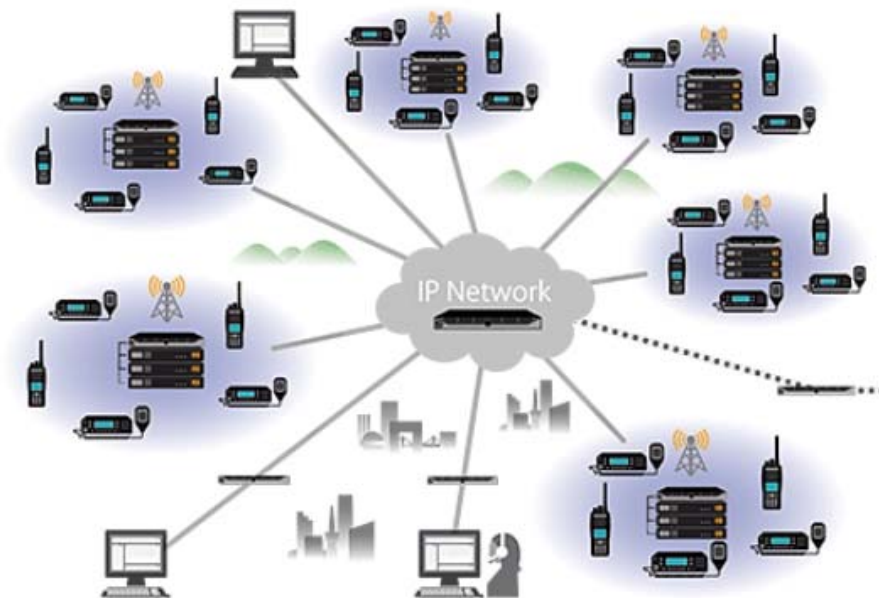
**NXDN™ Product/Service: A full range of NXDN™ equipment**

**Product Description:**

All NEXEDGE™ products use advanced DSP-driven digital voice technologies and support both FM analog and new digital fleets. System type conversion or expansion only requires software options and/or additional base station units, i.e., no “major” upgrading. JVCKENWOOD offers NEXEDGE™ conventional, conventional IP network, trunked and wide area trunked IP networked Type-C and Type-D trunking solutions with secure digital voice and an array of advanced digital feature sets for business and government sectors.



JVCKENWOOD has now developed NEXEDGE® Generation 2 (Gen2). Gen2 offers a quantum leap in network size: the maximum number of sites that can be connected has increased from 48 to 1,000, representing virtually unlimited scalability. At the same time, it provides full compatibility with current equipment. For customers looking to create large-scale digital trunked networks, NEXEDGE® Gen2 has the features, capabilities and performance to satisfy all their requirements.



**Further Details:**

<http://nexedge.kenwood.com/index.html>

## Raven Electronics Corporation DSP Based Communication Solutions

### NXDN™ Product/Service: Voice and Data Switching Equipment

#### Product Description:

Mobile users are deploying digital technologies from major radio manufactures in order to capitalize on the voice quality and features they offer. In doing so, some hardware and software vendors are being faced with the choice of implementing expensive VOCODER technologies within their own platforms or being left behind. Raven can bridge this gap.

Customers want over-the-air transmissions and console initiated calls to utilize NXDN™ digital voice capabilities using direct IP Telephony solutions. Should an existing recording solution, for example, not currently support decoding NXDN™ digital voice frames and call metadata then Raven can provide a single, centralized solution to overcome this problem.

- Decode IP-based NXDN™ voice frames from receivers and console-initiated calls
- Copy digital call headers (talk group ID, caller SUID, etc) and form new G.711 RTP streams
- Forward to a TCP port on a recording device, smartphone application or console system.



#### Further Details:

<http://www.ravencomm.com/products/catalog/2/36/m4x-nexedge-recording-gateway/>

## Ritron Incorporated Radio Manufacturer

### NXDN™ Product/Service:

#### Product Description:

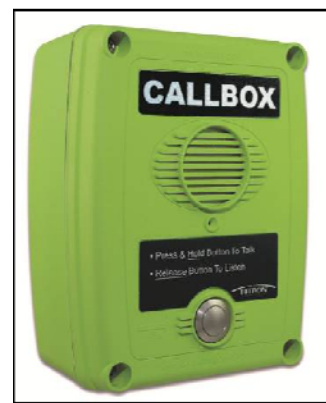
The Ritron Clean Cab Radio (RCCR) is designed with state of the art RF technology to provide onboard voice communication for freight and transit railroad operations.

The radio is available in both 1 piece or 2 piece remote head models and is fully compliant with the January 1, 2013 FCC mandate for narrow band operation. It supports 25kHz (wide) and 12.5kHz (narrow) operation and can be easily upgraded via a plug-in board to support digital communication using the NXDN™ digital standard at 6.25kHz.



#### XD Series Digital Callbox:

A new, compact, dual-mode, XD-Series NXDN™ digital capable callbox. The callbox allows customers to conveniently position wireless communication right where it's needed – eliminating costly trenching and construction associated with wired solutions. The callbox has an internal antenna, is weather-proof and can operate on stand-alone D-cell batteries. It is capable of either 12.5KHz analog mode or in NXDN digital 12.5KHz or 6.25KHz. A built-in relay is used for access-control applications i.e. gates, doors or for activating an emergency strobe light. The callbox is available in Hi-Viz Green or Diminishing Black color.

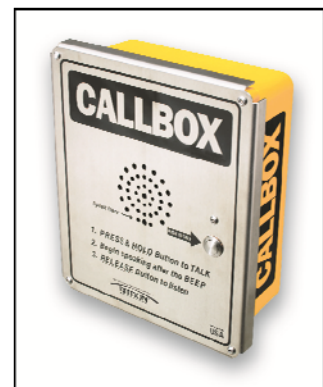


#### Other Ritron Callboxes:

All OutPost Series Callboxes are available in Light Duty and Heavy Duty XT models. The Heavy Duty XT features a weather-resistant fiberglass enclosure, a stainless steel faceplate with tamper-resistant fasteners and a concealed antenna making it perfect to withstand any element.

#### Further Details:

<http://www.ritron.com>





**Rockwell Collins  
Radio Systems Integration and Test House**

**NXDN™ Product/Service: Comprehensive Testing Services and Facilities**

**Service Description:**

Rockwell Collins recently purchased ARINC which operates two interoperability test labs. Our NXDN™ lab is used to evaluate performance, interoperability, data communications, and GPS reporting capabilities of equipment from different suppliers to determine compliance with the NXDN™ technical standard for LMR and public safety radio systems.

The Interoperability Test and Demonstration Center (ITDC) will provide customers, partners, and technology vendors a platform to assess the capability, reliability, and interoperability of existing and new equipment. It is equipped with a variety of Public Safety and Homeland Security voice, video, and data technologies, including trunked and conventional LMR systems, broadband wireless, video surveillance, and physical security platforms.



**Further Details:**

<http://www.arinc.com/> or [www.rockwellcollins.com](http://www.rockwellcollins.com)

## Telex Radio Dispatch Group

### Dispatch Consoles and Applications

Telex Radio Dispatch is a leading manufacturer of IP control for two-way radio communications. Based on a distributive architecture, Telex Radio Dispatch console systems have flexibility, scalability and redundant capability based on the network. For more than 12 years Telex has supplied systems for Public Safety, Utilities, Manufacturing and Education.

### NXDN™ Product/Service: Radio Dispatch Interfaces

#### Product Description:

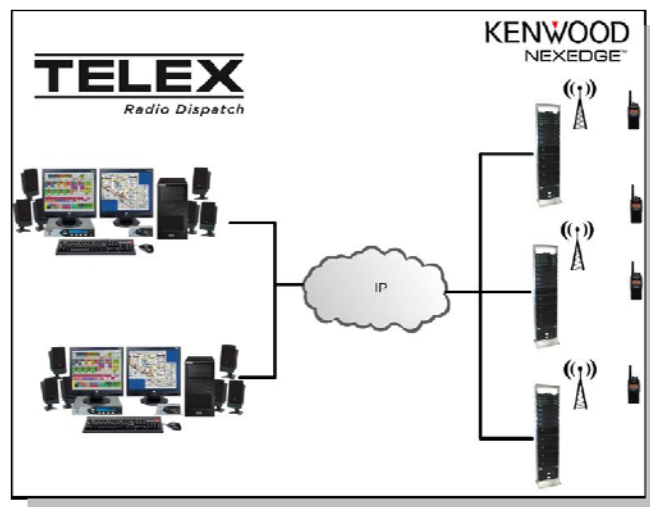
Now shipping is a C-Soft NEXEDGE IP interface. The interface is designed to connect directly to JVCKENWOOD NEXEDGE® trunking repeaters without using any radio gateway or additional hardware. The C-Soft NEXEDGE IP interface provides flexibility in deployment and offers advanced radio control features. NEXEDGE IP interface is an optional feature on C-Soft Dispatch Console and available in 2, 6, 12 and 24 lines.

In addition we have an NXDN™ over-the-air control station option for our IP-224 Radio over IP (RoIP) interface that enhances our existing JVCKENWOOD NEXEDGE® interface and also adds Icom IDAS™ capability.

#### Example of JVCKENWOOD NEXEDGE™ Direct IP Interface:

#### Features

- Group Call/Individual Call/Broadcast Call/Alert Call
- Selectable Talk Group
- Emergency Call Decode with Acknowledgement Capabilities
- Text Messaging to/from a Talk Group or to/from an Individual
- Status encode/decode to/from a Talk Group or to/from an Individual
- Status Request/Status Decode/Status Encode
- Radio Stun, and revive
- Radio Remote Monitor with Supervisor Password Protection
- Remote Regrouping
- GPS decoding with IP Interface Capabilities
- Supports Multi-sites operations
- Over-The-Air-Aliasing
- Supports up to 24 Talk Paths per Console.
- Supports both Narrow band (12.5Khz) and Very Narrow band (6.25Khz) Channel Spacing



Further Details: <http://www.telexradiodispatch.com>

## Ultra Tech Group of Labs Compliance Testing house

### NXDN™ Product/Service: NXDN™ Interoperability Testing

#### Product Description:

UltraTech Group of Labs has more than 24 years of experience in the test and measurement for radio and telecommunications equipment and is Canada's largest and most successful EMC & Radio Test house. As Canada's only FCC and Industry Canada Telecommunication Certification Body, Ultratech has the expertise and experience necessary to qualify radio and telecommunications devices for industry and regulatory requirements.

Ultratech can also provide testing services for NXDN™, specifically testing for compliance with the NXDN™ Conformance test procedures.



#### Further Details:

<http://www.ultratech-labs.com/>

**Zetron, Inc.**  
**Dispatch Consoles and Applications**

**NXDN™ Product/Service: MAX Dispatch System**

**Product Description:**

Zetron's MAX Dispatch system is a pure, end-to-end, IP-based telecommunications console system designed for mission-critical dispatch applications. Because MAX Dispatch employs the latest, standards-based IP protocols and IT best practices, it offers the highest levels of interoperability, scalability and usability. It is designed to streamline the console operator's job and help them focus on the incident or task at hand. It is also designed to meet the needs of the full range of other personnel who interact with the system, including administrators, supervisors, and radio and IT technicians



**Further Details:**

<http://www.zetron.com/Products/RadioDispatch/MAXDispatch.aspx>