MAY/JUN 2017 Vol.4 No.4

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Inside

May/June 2017

ON THE COVER

The Hytera Multi-mode Advanced Radio offers a truly convergent platform for critical voice and broadband data services. The radio supports multimode communication in different scenarios, whether it's daily business operations or emergency response, broadband or narrowband, utilising the public or private network.

Offering the user a unified communication experience, the rich applications and high-level data security ensures the radio can handle any critical situation. Seamlessly switching between networks, the intelligent device lets the operator concentrate on the message while the handset takes care of network transitions.

In narrowband, it is suitable for DMR (350–527 MHz) and TETRA (350–470 MHz), while in broadband it can be used for 3GPP LTE Rel10, 2G, 3G and 4G. The main touch screen is 4.0 inches (with glove touch capability) and the top screen is 1.0 inch. As well as a customisable user interface, the unit also has 13MP rear and front cameras (record 1080p HD video at 30fps), and 2x SIM and 2x Micro SD Card slots. It even has an open API for third-party development.

The ergonomic design combined with the rugged chassis and touch-screen supports a new sensory experience to meet your diversified requirements. Users can listen and see clearly, operate and transmit securely and use their improved situational awareness to respond and achieve mission success quickly and effectively.

Hytera Communications (Aust) P/L
www.hytera.com.au

Transmit

There's no doubt that new technologies — eg, mobile broadband — are really beginning to make their mark in the business- and mission-critical world, particularly in the public safety sector. The announcement that AT&T has won the contract to build the FirstNet nationwide public safety broadband network in the US, plus tests of Telstra's LANES system here in Australia, are showing that momentum is rapidly building in this field. And it's no surprise that systems such as these require all sort of technologies, not just radio. Modern communications networks are more like IT systems and often incorporate combinations of mission-critical and consumer-level BYOD technologies, as witnessed by Victoria SES's decision to move most of its operations to the cloud so that its 5000 volunteers can stay connected everywhere, all the time.

But the backbone of communications systems remains, and always will remain, radio signals travelling through the air. With data demands increasing, and spectrum being squeezed more and more, researchers are hard at work developing new transmitter and antenna technologies to meet the needs of today and tomorrow. You can read about some of that work in this issue.

As I write this, Comms Connect New Zealand has just wrapped up, and a great success it was. All credit to the RFUANZ and the WFevents team for another great event. And don't forget that Comms Connect Sydney (7–8 June) is just around the corner. Take a look at the preview in this issue for a full rundown of who will be there — make sure that includes you! See you there.

Jonathan Nally, Editor
jnally@wfmedia.com.au

Calendar

June 2017

Comms Connect Sydney
6–8 June
Sydney Olympic Park
sydney.comms-connect.com.au

July 2017

Emergency Management Conference
11–12 July
Pullman Melbourne Albert Park
hpe.com.au/emc/

August 2017

APCO 2017
13–16 August
Colorado Convention Centre, Denver
apco2017.org

SAFETYconnect 2017
16–17 August
Rosehill Gardens, Sydney
safety-connect.com.au

September 2017

AFAC17
4–7 September
International Convention Centre, Sydney
afacconference.com.au

November 2017

MilCIS 2017
14–16 November
National Convention Centre, Canberra
milcis.com.au

Comms Connect Melbourne
21–23 November
Melbourne Convention & Exhibition Centre
melbourne.comms-connect.com.au

For a full list of industry events, see criticalcomms.com.au/events

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FIRSTNET'S FIRST STEPS

Jonathan Nally

FirstNet is now officially underway, following AT&T's selection as prime contractor.

The United States' nationwide wireless broadband network dedicated to America's first responders, FirstNet, is now really off and running after many years of discussion and preparation. On 30 March, the First Responder Network Authority announced that AT&T had been selected as the prime contractor to build the network and operate it over a span of 25 years.

The communications infrastructure will provide for the day-to-day needs of public safety officers in disaster response and recovery, and securing of large events. It will also make 20 MHz of prime broadband spectrum available for private-sector development.

"Today is a landmark day for public safety across the nation and shows the incredible progress we can make through public–private partnerships," said US Department of Commerce Secretary Wilbur Ross.

"FirstNet is a critical infrastructure project that will give our first responders the communications tools they need to keep America safe and secure. This public–private partnership will also spur innovation and create over 10,000 new jobs in this cutting-edge sector."

The main points of the 25-year agreement between FirstNet and AT&T are:

- FirstNet will provide 20 MHz of spectrum and make success-based payments of US$6.5 billion (raised from previous FCC spectrum auctions) over the next five years to support the network buildout.
- AT&T will spend about US$40 billion over the life of the contract to build, deploy, operate and maintain the network, with a focus on ensuring robust coverage for public safety.
- Additionally, AT&T will connect FirstNet users to the company's telecommunications network assets, valued at more than $180 billion.

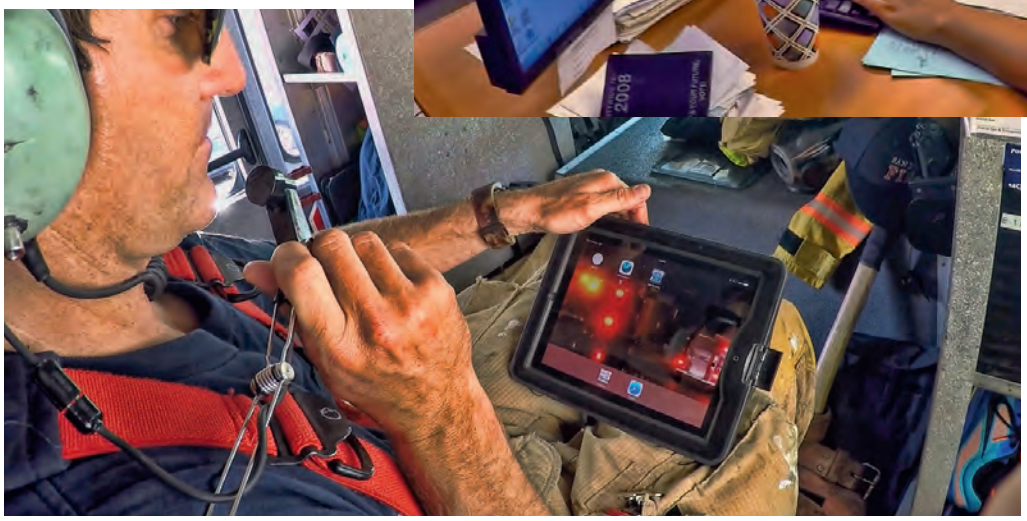
AT&T can use FirstNet's spectrum when it is not being used by public safety for other, commercial purposes. The company will prioritise first responders over any other commercial users on the network.

"This public–private partnership is a major step forward for the public safety community as we begin building the broadband network they fought for and deserve," said FirstNet Chair Sue Swenson.

"FirstNet and AT&T will deliver high-speed connectivity to help millions of first responders operate faster, safer and more effectively when lives are on the line."

An urgent need

FirstNet has resulted from a key recommendation of the 9/11 Commission regarding communications used by police, fire and emergency medical personnel. During the terror attacks on New York and Washington,



first responders had enormous difficulty communicating with one another, and particularly between different agencies and units.

The US public safety community strongly advocated for the wireless broadband network.

At present, first responders across the US use more than 10,000 different networks for voice communications. These networks often do not interoperate, which severely limits their ability to communicate with each other when responding to a situation.

"This unique partnership brings together FirstNet as the voice of public safety and a global technology team with a proven track record and commitment to public safety," said FirstNet CEO Mike Poth.

"Together, FirstNet and AT&T will move with precision and urgency to deliver this much-needed infrastructure to those who need it the most: our first responders."

According to AT&T, in addition to providing a nationwide, seamless, IP-based, high-speed mobile communications network that will give first responders priority access, the network will help:

- further the development of public safety-focused IoT and smart city solutions such as providing near real-time information on traffic conditions to determine the fastest route to an emergency
- enable advanced capabilities such as wearable sensors and cameras for police and firefighters, and camera-equipped drones and robots that can deliver near real-time images of events such as fires, floods or crimes.

The company said in a statement that it will innovate and evolve the network to keep the public safety community at the forefront of technology advances. For example, as 5G network capabilities develop in the coming years, FirstNet and AT&T will work together to provide exponential increases in the speed with which video and data travel across the FirstNet network.

AT&T has assembled a team that includes Motorola Solutions, General Dynamics, Sapient Consulting and Inmarsat Government.

The public–private partnership is expected to create more than 10,000 new jobs.

Next steps

According to FirstNet documentation, the authority and AT&T will now focus on building the core network and delivering 'State Plans'. The FirstNet team will "develop and deliver an individualised State Plan to each of the 50 states, five territories, and District of Columbia detailing the proposed network deployment in their jurisdictions". Legislation stipulates that once a governor receives a State Plan, he or she will have 90 days to either opt in or opt out.

If a state opts in or takes no action on the State Plan within 90 days of receiving it, FirstNet will issue a task order to begin deployment of the radio access network (RAN) portion of the FirstNet network in the state at no cost to the state. States do not have to wait the full 90 days to make an opt-in decision; they can opt in at any point after receiving their State Plans. The opt-in path is a low-risk option that will support faster delivery of services to the state's public safety community and help create an interoperable, highly secure, sustainable nationwide network for public safety. According to FirstNet, the earlier a state opts in, the sooner work can begin.

If the state elects not to participate in the FirstNet RAN deployment, it must provide notice to FirstNet within 90 days of receiving the State Plan and, within 180 days of such notice, it must develop and complete an RFP. Following that, it must submit an alternative plan to the FCC for the construction, maintenance, operation and improvement of the RAN in the state. The RAN must be interoperable with the nationwide network. Before the state's RAN deployment can begin, the FCC must approve the alternative plan and, if approved, the state must then apply to the NTIA to enter into a spectrum capacity lease with FirstNet. Opt-out states will assume all technical, operational and financial risks and responsibilities related to building their own RAN for the next 25 years.

FirstNet has said that it expects to deliver the final State Plans simultaneously to each governor through an online portal as soon as the third quarter of 2017. Once the State Plans are delivered to the governors, the 90-day review and decision period will start.

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News

Image courtesy of NASA

TRACKING STATION TURNS 50

The Honeysuckle Creek Tracking Station, which played an instrumental role in broadcasting the first TV images of the moon landing, has celebrated its 50th anniversary. The tracking station was established by NASA as part of the Manned Space Flight Network to support the Apollo mission. Though the tracking station closed its doors for good in 1981, the dish from the site has been relocated to the CSIRO-managed Canberra Deep Space Communication Complex at Tidbinbilla, where it can still be viewed today. "It placed the nation's capital on the world stage and brought great economic success, infrastructure and, most importantly, strong friendships that remain today," said Minister for the Environment and Heritage Mick Gentleman.

More info: bit.ly/2oWSFFm

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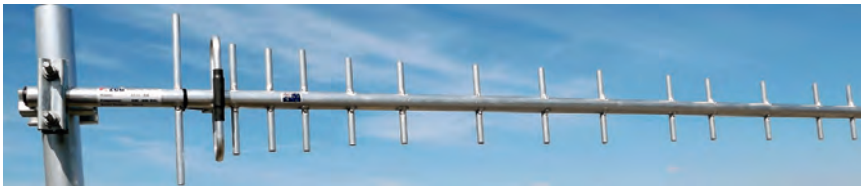
HYTERA RESPONDS TO MOTOROLA LAWSUIT

Hytera has released a statement about the lawsuits brought against it by Motorola Solutions. Hytera said it is disappointed that the company has chosen to raise a lawsuit rather than compete in the marketplace and that it will respond to Motorola's allegations and believes it will be vindicated in the US federal court. Hytera said it believes that by choosing the courtroom over the marketplace, Motorola Solutions is running from legitimate competition and attempting to use its size and market position to intimidate and prevent other radiocommunications companies like Hytera from achieving the same level of success in the United States that it currently has around the world.

More info: bit.ly/2okujq7



Wideband cellular yagi

ZCG Scalar's Y715-RW wideband cellular yagi is designed to work between 698 and 890 MHz.

The antenna is a high gain design that combines good patterning with wideband performance for use on 4GX, 4G and NextG services.

The product has a wide range of potential applications including remote telemetry, point to point and signal boosting products.

It uses a fully welded round boom and dipole for strength and longevity, and also offers mounting hardware and supplemental strut kits for support. An N-Type female connector is supplied.

The all-marine-grade aluminium design makes it a high-performance, lightweight product that resists the effects of corrosion.

Designed with a DC short for lightning protection, the antenna also provides low noise and low PIM.

Other features include wideband coverage from 698 to 890 MHz for 4GX, 4G; all welded construction for reliability; good front-to-back ratio; designed to minimise the generation of PIM; marine-grade aluminium; and lightning protection.

ZCG Scalar

www.zcg.com.au

Combination vehicle antenna

The Panorama GPSD antenna series is a multifunction combination vehicle antenna designed to tackle the challenges installers and users face with the increased requirement for both voice and data communications in and around a vehicle.

Designed in a sleek and stylish OEM automotive-style SharkFin housing, the product can accommodate up to six different antennas. 2 x 2 MiMo LTE covering wideband 698–2700 MHz comes as standard throughout the product series, enabling the user to access any of the cellular carriers in Australia or New Zealand. There are also the options for an active 26 dB GPS module, 2 x 2 MiMo dual band 2.4/5 GHz Wi-Fi and external VHF or UHF whip position, making the product suitable for those looking at offering both technologies within a critical or non-critical communication vehicle.

Supplied with low loss extension cables that can be customised with a range of connectors and the option of a magnetic mount solution, this is the next generation in mobile antennas that allow users to combine different technologies into a single housing. This reduces the antenna footprint on the vehicle, as well as reducing installation lead time and cost and improving vehicle resale.

Panorama Antennas Pty Ltd

www.panorama-antennas.com

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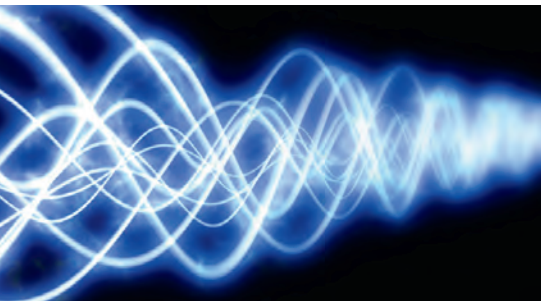
News



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EU APPROVES 700 MHZ BROADBAND

Mobile broadband in the 700 MHz band has been approved by the EU Parliament Plenary. The TCCA has welcomed this approval. "Harmonised frequency across the EU can only be a good thing; however, we continue to lobby governments to reserve dedicated spectrum within the 700 MHz band to prevent mission-critical services having to compete with consumer services for bandwidth," said Phil Kidner, TCCA CEO. The EPP decision means that all provisions, technical as well as legal, are now in place for the gradual implementation of a pan-European mission-critical mobile broadband network according to member states' national circumstances.

More info: bit.ly/2pbtEqo

CB BAND CHANGES DROPPED

CB radio users will no longer have to replace their older-style 40-channel equipment, following a review by the ACMA of a prohibition that was to have taken effect from 1 July this year. In a statement, the ACMA said that following extensive national consultation, it has decided to allow continued use of 40-channel equipment alongside the newer 80-channel equipment. In 2011, a number of changes were made to regulatory arrangements for the CB Radio Service to reduce and prevent congestion and interference in the 400 MHz band. The ACMA said it has also identified the potential for interlinking of CB repeaters to provide significant benefit to users, particularly in regional and remote areas.

More info: bit.ly/2q5tHBl

Videoscope

The GE Mentor Visual iQ Inspect videoscope allows the user to make informed decisions about critical assets and improve overall inspection productivity. It is available to rent from TechRentals.

With this device, users can capture both video and still images using a high-intensity LED light and advanced processing for enhanced image brightness. The product is easy to operate as it features an ergonomic joystick and hard keys for use.

Powered by rechargeable lithium-ion batteries, the product eliminates the need for a charging cradle as batteries have an in-built charging circuit. These lithium-ion batteries are compliant with air travel regulations, making it even easier to travel with this light-weight, handheld device.

Other features include 5 x digital zoom SUPER HAD CCD video camera; comparison measurement; 440,000 pixel count; and 6.5″ active matrix XGA colour LCD.

TechRentals

www.techrentals.com.au

Point-to-multipoint and point-to-point SCADA radios

The Aprisa SR point-to-multipoint and point-to-point SCADA radios provide high-speed communication with no compromise to the coverage area, helping you get more out of your network. The product has a good MAC, as well as an adaptive coding and modulation (ACM) feature.

The product comes with a comprehensive security suit, advanced IP capabilities and QoS. It has fully integrated leading NMS options to make managing a network easier.

The radios are now available in the 50 kHz channel, providing a higher over-the-air speed of more than 200 Kbps. This helps the user get more information where it needs to go and when it needs to get there. Enhanced security features include RF CCM authentication, preventing man-in-the-middle attacks, so information is safer than ever.

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COMMS CONNECT SYDNEY 2017

7–8 JUNE

SYDNEY SHOWGROUND, OLYMPIC PARK

Sydney's premier critical communications event — don't miss it!

Comms Connect will return to Sydney in June 2017, following on from the highly successful events held every year since 2014. The venue, at Sydney Olympic Park in the geographic and demographic heart of the greater Sydney region, is well served by public transport, plus there's plenty of on-site parking. The conference and exhibition is a great opportunity for everyone in the business- and mission-critical communications sector in Sydney and beyond to come together and share and learn from one another.

Speaker sessions

The Sydney event always attracts a first-class list of speakers from industry, government and academia. This year's line-up will be no exception, with experts from home and abroad coming together to share their knowledge and insights.

The first day will begin with two very high-profile speakers. Giving the opening keynote address will be TJ Kennedy, President of the USA's First Responder Network Authority, who will speak on 'FirstNet — leading the way for Nationwide Public Safety Broadband Network'. He will be followed by the plenary presentation by Shane Fitzsimmons, Commissioner of the NSW Rural Fire Service, who will speak on 'Working together to keep New South Wales safe: Air Services communications and information management'.

The second day will commence with a keynote presentation by Kate Foy, Managing Director of the NSW Telco Authority, who will speak about 'Wireless communications in NSW: today and tomorrow'.

The other speaker sessions will be broken into two simultaneous streams across the two days. In the public safety stream, the following presentations will bring us up to date with the latest developments:

- An evolving path towards Public Safety Mobile Broadband in Australia (Luke Brown, Emergency Management Australia)
- In-vehicle communications technology convergence in the health context (Geoff Waterhouse and Tim Blake, NSW Ambulance)
- Body worn cameras and digital evidence management: Queensland Police experience (Senior Sergeant Wayne Hutchings, Queensland Police Service)
- Out of the ashes — Victoria's operational communications pathway to the future (Laura Sexton, Emergency Management Victoria)
- Mobile broadband — some lessons from around the world (Ian Miller, ARCIA)
- Drones, robots and public safety mobile broadband — the future of firefighting (Superintendent Warwick Kidd and Station Officer Graham Tait, Fire & Rescue NSW)
- Mission-critical communications in Queensland: a success story (Craig Anderson, Public Safety Business Agency)
- Yarra Ranges emergency rebroadcast case study (Chris Stevens, Cart GiS)
- Is satellite able to fill the gap? (Neil Jamieson, Wireless Innovation)
- Terrorism, natural disasters and lessons from Europe — how technology must support change (Matt Wroughton, Excelerate Technology)
- Defending critical communications network infrastructure against cyber attacks (Bilal Javed, Nokia)

The technology stream will include the following presentations:

- The changing landscape of land mobile radio — threats and opportunities (Hamish Duff, ARCIA)
- Spectrum for private LTE networks — picking over the bones (Andrew May, Spectrum Engineering Australia)
- Trends in LTE (Justin Wyatt, Titan ICT)
- How digital radio is transforming NSW health (Robert Glover, Mastercom and Mathivanan Sakthivel, Westmead Hospital)
- Australian and global insights to rail, metro and light rail — plus case studies (Doug Bowden, Sepura)

Comms Connect Sydney

Conference:	7 June (9.00 am–5.00 pm), 8 June (9.30 am–4.30 pm)
Exhibition:	7 June (9.00 am–5.00 pm), 8 June (9.00 am–3.30 pm)
Where:	Sydney Showground, Sydney Olympic Park
Who:	More than 500 delegates and 50-plus exhibitors
Web:	sydney.comms-connect.com.au

- Broadband PTT: Standards based or propriety, why do you care? (Peter Fritz, Motorola Solutions)
- PTT integration user case study — more than just critical communications (Ben Cosier, Impulse Wireless)
- Integrated operations using smart connected networks (Stuart Zerbe, Harris)
- The digital wireless evolution in railway communications and signalling (Kevin Graham, Global Digital Solutions)
- Tackling interference issues in the field with real-time spectrum analysis (Steve Karandais, Keysight Technologies)
- Radio-based SCADA telemetry solutions for utilities, deployment and testing (John Yaldwyn, 4RF Australia)

The full list of speakers and workshops is available at sydney.comms-connect.com.au.

Workshops and panel session

There will be three workshops, covering a variety of topics:

- LTE 101 — Its strengths, weaknesses and application (Simon Lardner, Challenge Networks)
- Public safety information management: challenges and opportunities (panel discussion led by Inspector (Ret.) Lance Valcour O.O.M.)
- Building a radio network from the ground up. An independent workshop on planning components required to deliver a private land mobile network (Chris Stevens, Surf Life Saving Australia)

The second day of Comms Connect Sydney will conclude with a panel session that will be of great interest to everyone in the critical communications sector. The topic will be 'Public safety mobile broadband — the way forward for critical communications in Australia', and it will bring together experts who will assess the status of public safety mobile broadband and the development of a national strategy for Australia.

Exhibition

One of the best parts of Comms Connect is the opportunity to meet and greet with exhibitors. In particular, it's a great chance for equipment users and suppliers/manufacturers to compare notes, give feedback, get up-to-date information on the latest technologies (including, often, pre-release or developmental details) and generally build connections within the industry. More than 50 companies, large and small, are booked in as exhibitors… so make sure you come along to meet and greet and create some sales opportunities.

Networking

One of the best parts of events such as these is the opportunity to catch up with colleagues old and new, from near and far, and share knowledge and experiences. While this can be done all throughout the event, there will be two special opportunities for networking and socialising. First will be the networking drinks, held in the exhibition hall at 5.00 pm on the first day. And this will be followed by the ARCIA Industry Networking Dinner, to be held at 6.30pm that same day at the Freshwater Novotel at Sydney Olympic Park, just a short stroll from the Comms Connect venue. Make sure you book for the ARCIA event, at arcia.org.au/news-events/industry-events.html.

Comms Connect Sydney is a golden opportunity for you to hear from the experts, discuss your requirements with leading vendors and suppliers, and share the challenges faced by industry colleagues and professionals who use communications technology in their working environments. See you there!

Comms Connect (WFevents)
www.comms-connect.com.au

COMMS 2017 CONNECT

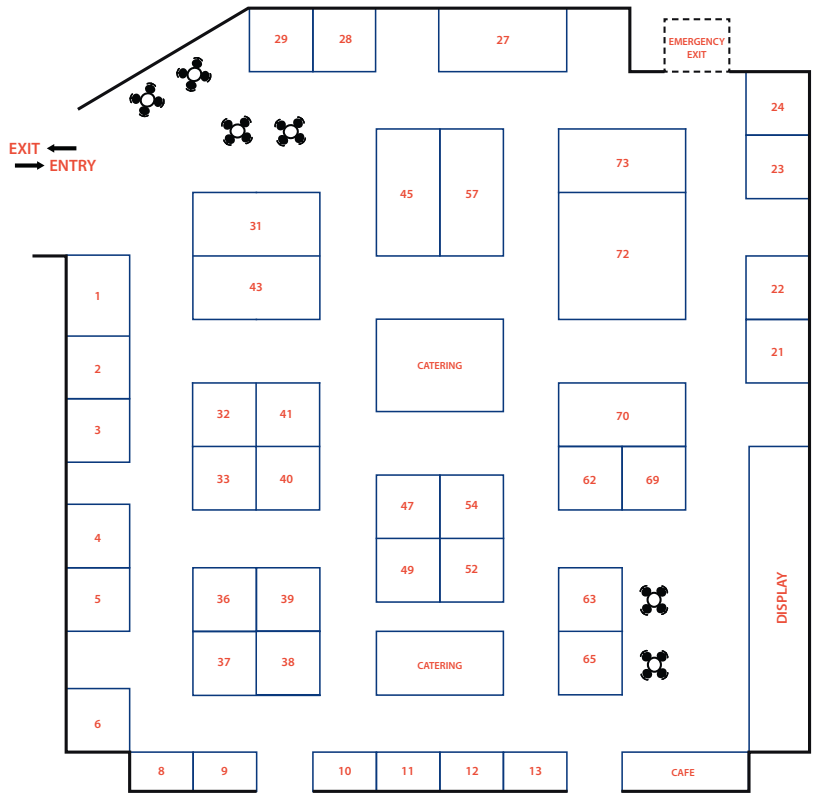
7-8 JUNE 2017 |
SOUTHEE COMPLEX, SYDNEY SHOWGROUND, SYDNEY, AUSTRALIA

Exhibitor List*

Stand No	Exhibiting Name
38	4RF Australia
3	ARCIA
72	Auria Wireless Pty Ltd
23	Australasian TETRA and Critical Communications Forum
43	Benelec
6	Critical Comms
22	CRS Accessories
39	Emona Instruments
57	Gencom
21	GME
33	Helios Power Solutions
62	Hytera
45	IPMobileNet
72	JVCKENWOOD
29	Keysight Technologies
27	Mastercom
69	Metwide Communications Pty Ltd
11	Midland
70	Powerbox Pacific
45	RF Technology
41	RFI
12	Signal Space
49	Silvertone Electronics
27	Sonim Technologies
13	Spectrum Engineering Australia

Stand No	Exhibiting Name
10	TPL Systems
47	UNICOM
4	Vertel
54	Vicom
40	Wireless Data Solutions
1	Wireless Innovation
9	Wireless Tech
36	ZCG Scalar
31	Zetron

FLOOR PLAN



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Industry Talking

During March, I was fortunate to be able to travel to Perth for Comms Connect and then the ARCIA WA dinner event. Both events were well attended and I congratulate the members from ARCIA WA for putting in the time and effort to make this happen.

This year at Comms Connects around Australia and New Zealand, I will be presenting on the theme of 'Threats and opportunities for the LMR industry as technology evolves towards LTE'. The point of this discussion is to raise issues surrounding our industry and in particular how spectrum, regulation and technology are all changing. While technology may change, the people in our industry have experience and skills that will be required in the long term, and we think it is important that our industry engages with and learns from the new technology options that will be in the marketplace.

With this in mind, I also had the opportunity to travel to IWCE in Las Vegas. Moving around the very large convention centre, you can certainly see how technology is changing rapidly. Of course all the usual products are there — radios, accessories, towers — however, the rise and rise of applications, Android-based solutions, dual-mode LMR/LTE products and cloud services is stark evidence of how quickly new products are coming to market. And it was very pleasing to see so many Australian companies showcasing their solutions at IWCE. Across a range of technologies areas, you will find an Australian company selling to the world — well done to all.

Our next major event is the Industry Dinner on 7 June at the Novotel Homebush in conjunction with Comms Connect Sydney. ARCIA is delighted to be hosting TJ Kennedy, the president of FirstNet, for these events. As the public safety community comes to grips with LTE technology, we believe that our peak industry body is in an ideal position to advocate on behalf of public safety organisations and bring independent advice into the discussions. By engaging with international leaders and organisations bringing LTE to public safety, ARCIA hopes that Australia can learn quickly what it will take to ensure the needs of our public safety community can be meet.

The ARCIA committee continues to work on a number of items and we expect very soon to be reviewing the new Radiocommunications Act. The relationship that ARCIA has developed with the ACMA over the last few years continues to grow and we appreciate the time that the ACMA provides to our association. The new Act will be very important for our industry and we will be drawing on the experience of many ARCIA members to help understand what the potential impact of changes may be.

A quick note to mark a date in your diaries — Thursday, 27 July — for the Brisbane events, with Comms Connect during the day and the industry dinner that evening, both to be held once again at Rydges in South Brisbane. Nominations will be needed for the Industry Professional for Queensland, too, so get your thinking caps on. See you 'on the air'.

Hamish Duff, President
Australian Radio Communications Industry Association

Dispatch console application

The Omnitronics RediTALK-Flex is an advanced Windows-based dispatch console application. It is quick to install and easy to use and does not require a central server. This makes it suitable for small to medium-sized organisations.

RediTALK-Flex has been developed in collaboration with major radio manufacturers to ensure it delivers full functionality, from call management and text messaging to GPS. Because it works with both conventional and trunked systems, it can be used in a broad range of applications.

It also works with analog radio and supports traditional signalling schemes such as Selcall, MDC and 2-tone paging. RediTALK-Flex provides a user interface (UI) that is easy to use, and is consistent across different radio systems. Regardless of whether the system uses DMR, P25 or both, RediTALK-Flex strives to make the operator's job easy.

RediTALK-Flex is suitable for digital and analog networks.

Omnitronics Pty Ltd
www.omnitronics.com.au

Rugged Android LTE smartphones

Logic Wireless has partnered with Sonim Technologies to distribute its ultrarugged Android LTE Smartphones, which partner with Logic's push-to-talk service ChatterPTT.

Sonim devices include a 3-year comprehensive warranty; a minimum of IP68 waterproofing/dustproofing; Gorilla glass to protect against drops; glove touch and wet touch capability; powerful audio and noise cancelling microphones; long battery life — 40 h talk time, side PTT button and extra function buttons; 4G LTE and Wi-Fi support along with a comprehensive range of accessories. Sonim also supports intrinsically safe devices with its XP6 and XP7 ranges.

The range is suitable for a large range of industry types, including critical communications, mining, oil and gas, industrial, manufacturing, construction and transport operations.

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From radio to broadband — the fundamental needs for mission critical performance

First responders have long relied on land mobile radio (LMR) communication to manage their daily responsibilities safely and efficiently. Today, digital technologies driven by the power of mobile broadband are helping to change the public safety landscape. However, that does not mean that essential voice communications are about to be replaced.

Unlike other industries, public safety agencies operate each day in an environment that is described as 'mission-critical' — in other words, first responders sometimes find themselves in the most extreme circumstances, where any disruption to their daily operations, however small, can potentially have significant consequences.

This principle extends to the communications technology used by public safety and explains why these organisations require levels of service and performance that typically exceed those needed by enterprises and consumers. In public safety, these non-negotiable needs include the ability to:

- communicate clearly and without delay;
- withstand the impact of natural disasters and emergencies;
- uphold the highest levels of security; and
- 'interoperate' and share information between other public safety organisations.

Without question, broadband technology is transforming public safety — from the ability to send and receive high resolution images and video to the use of sophisticated software applications to streamline daily work or even predict and prevent crime.

However, public safety will always be a 'voice' centred environment where clear verbal commands are absolutely essential to ensuring the right outcomes.

We only need to imagine the potential impact of a police officer mishearing a critical instruction in a high pressure situation to understand how much our first responders depend on reliable voice communication. Broadband-based communication will eventually provide the reliability needed to ensure the right outcome in every situation, but not before technology and technology standards mature to the same levels that public safety radio communications provide today.

That is why there is continued investment in LMR technology in Australia and globally. Most Australian states and territories plan to use radio communication for at least the next decade, while in Europe, some public safety radio contracts have been extended to 2040 and beyond.

Investment in radio communication also extends to research and development to improve the communication experience for radio users as well as the capability of radio networks, devices and applications.

Among Australian government organisations investing in both voice and broadband communications is the New South Wales Telecommunications Authority (NSW TA).

As an industry, we have an important role to play in guiding public safety agencies through a time of significant change, and ensuring that any new technology introduced does not compromise the operational outcomes first responders deliver each day. That is why for the foreseeable future, only radio communications can provide the mission-critical performance that our agencies required.

We are working with NSW TA to upgrade New South Wales' 150 existing radio sites used by public safety organisations, as well as expanding the network to 23 new sites in the north west of the state.

Recognising the growing importance of smart devices as a communications tool for public safety officials, NSW TA is also deploying a software application within its network to extend radio network access to team members carrying smart phones, tablets and other mobile devices.

The continuing evolution of public safety mobile broadband is a very positive development. It will enable public safety agencies to combat more complex threats to safety, overcome constraints on their budgets and resources and provide them with new capabilities in response to growing community expectations. We developed our vision for smart public safety, Next Generation Mobile Intelligence (NGMI), to help public safety agencies make the right technology investments to achieve their goals. As an industry, we have an important role to play in guiding public safety agencies through a time of significant change, and ensuring that any new technology introduced does not compromise the operational outcomes first responders deliver each day. That is why today and for the foreseeable future, only radio communication can provide the mission-critical performance that our agencies require.

Regardless of whether we place radio or broadband based communications into the hands of public safety officials, we must ensure those who protect our communities have the best available tools and resources to do their jobs.

Motorola Solutions Australia Pty Ltd
www.motorolasolutions.com.au

Image Courtesy TasRail

TRACKING DATA ON THE TRACKS

TasRail has deployed a Tait DMR Tier 3 data solution to deliver improved services and safety.

Tasmanian Rail (TasRail) is a fully integrated short-haul rail freight business that owns and operates the fixed track, infrastructure and rolling stock in Australia's southernmost state. Owned by the Tasmanian Government, it employs 260 staff and is committed to delivering transport and logistics solutions that are safe, reliable and sustainable.

TasRail was implementing a new Siemens train control system (TCS) that required a data communications network to transport data between the TCS servers and the onboard computers fitted to locomotives and track vehicles, and portable units used by track work gangs.

The existing TaitNet analog mobile radio network could not do this, but the company was keen to continue working with Tait Communications and enthusiastic about using Tait's open standards-based digital technology.

"We wanted to work with an experienced partner to deliver another critical communications system we could rely on to help us provide improved services to our customers and increased worker safety," said TasRail CEO Damien White.

After considering different options, TasRail contracted Tait and local partner Tasmanian Electronic & Communications Services (TECS) to design, deliver and install a complete VHF DMR Tier 3 packet data solution across 10 sites statewide. Data is transferred across the TCS interfaces using Tait mobile radios and radio network infrastructure via linking units supplied by sister company MiMOMax.

The DMR radio data network comprises four subsystems:

1. A DMR Tier 3 radio system (with dual-node controllers for redundancy).
2. A backhaul system with MiMOMax UHF and SAF microwave links for 1+1 redundancy.
3. A power system with a mix of battery banks, mains AC, solar and generator power for redundancy.
4. Local network management, monitoring via SNMP Traps such as Tait EnableMonitor.

> THE DIGITAL DATA NETWORK OPERATES IN PARALLEL WITH THE ANALOG VOICE NETWORK FOR ADDED REDUNDANCY.

The solution signals where trains are at designated points on the track, and enables TasRail to increase the number and frequency of trains and freight through more efficient use of the track. In addition to these gains, the DMR network, in conjunction with the TCS, has the capability to provide full automation of work orders — for instance, requesting and granting permissions to move to another section of track — further improving worker and asset safety.

The digital data network operates in parallel with the analog voice network for added redundancy.

TasRail selected the Tait DMR radio data network because it is open standards-based, provides data capability, location information and spectral efficiency. Should TasRail's requirements change, the DMR network is easily expandable.

"We chose DMR Tier 3 because the data capability matched our requirements and would allow us to migrate our existing analog voice traffic in the future," said White.

Tait Communications
www.taitradio.com

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INTELLIGENT POWER SOLUTIONS

Blair Clements, Director, Sales

Radio system designers are adopting intelligent DC power infrastructure to improve the reliability of their networks.

Even the most robust, well-designed land mobile radio (LMR) networks can experience problems with network devices such as digital radios, base station repeaters, RF amplifiers and network switches. External events such as power surges or lightning strikes can cause network devices to lock up and, with the transition of radio network equipment from analog to digital within the last decade, onboard firmware in these devices can also occasionally freeze. While these instances are infrequent, they do occur.

A well-designed radio network will often allow for these events to occur without affecting the overall operation. However, such events often require a site visit to resolve the problem, which can be sometimes as simple as cycling power to the troublesome device. Sending a technician to do this can be both costly and time-consuming. And if the affected devices are non-operational, this can occasionally cause disruptions to the radio network.

Within the last decade there has been a technology shift in LMR network devices. The IT world has merged with the RF world. The ability to remotely monitor RF devices within a radio network is becoming the standard. GPS-enabled devices enable location tracking of portable and mobile radios, which can provide geo-fencing capabilities and help manage employee and vehicle fleet movement tracking, for example.

This change in technology is also occurring with DC power plant products, with some DC power conversion equipment manufacturers leading the way in providing, via Ethernet, remote power monitoring and remote power control capabilities for their DC products such as rectifiers, power supplies, distribution panels and inverters.

Virtually all radio network designs incorporate DC power plant infrastructure to power various network devices. This infrastructure is critical in maintaining reliable power. Being able to remotely monitor and control DC power plant devices, such as rectifiers, power supplies, distribution panels, batteries and inverters, provides substantial benefits.

Radio network operators can monitor power conditions for each RF device that is connected to the DC plant, enabling the monitoring of parameters such as power consumption of individual devices; fault conditions; system voltage levels; AC mains status; and backup battery conditions, including voltage, state of charge and run time remaining.

Although DC power plants vary based on each site, a typical site comprises a primary and secondary power source. The primary is typically 230 VAC, which is provided by the electric utility company. In very remote areas where AC mains is not available, solar power is sometimes used to supplement the battery bank.

The secondary source is typically a battery bank which is sized to provide the required amount of backup time should the AC mains fail. These banks are typically 12 VDC for LMR networks, although 48 VDC battery banks are becoming more prevalent as network device manufactures change the input power requirements for their equipment. Some sites will utilise multiple DC voltages; in these cases, a DC-DC converter is used to convert from 48 VDC to 12 VDC, for example.

©polkir/Shutterstock

Most devices within a radio network will operate from DC, so converting from AC mains power to DC is required. Depending on the number of devices (loads) that are at the site, the DC from the rectifier is distributed to the loads using a distribution panel. (While most devices are DC-powered, some require AC; in this case, an inverter is used to convert the DC to the AC.)

Many rectifiers developed specifically for LMR applications incorporate circuitry to power the load(s) and charge the battery bank simultaneously to keep the battery in optimal condition. In the event of an AC mains failure, the energy stored in the battery bank is diverted to the loads to provide continuous, uninterruptable power to these devices.

This functionality is important: a failure of the AC mains should not cause a network to shut down, and having a seamless transition to battery power in the event of a mains failure is crucial to maintaining network operation. A low-voltage disconnect device can also be installed, which will automatically disconnect the battery bank should the battery voltage become too low. Over-discharging a battery bank can permanently damage the batteries.

By using intelligent DC rectifiers and DC distribution panels with Ethernet monitoring and control, radio network operators can remotely cycle DC power to individual devices, often resolving issues without having to physically visit the site. The ability to remotely disconnect, or load shed, non-critical loads while maintaining critical loads online enables longer preservation and run time of the backup battery bank in the event of an AC mains failure. The ability to monitor battery voltage at a site and determine how much run time remains on a battery bank enables technicians to schedule their visits to the site for corrective action.

> **RADIO NETWORK OPERATORS CAN REMOTELY CYCLE POWER TO INDIVIDUAL DEVICES, RESOLVING ISSUES WITHOUT HAVING TO VISIT THE SITE.**

Innovative Circuit Technology (ICT) recognised early the advantages that remote monitoring and control of DC power infrastructure at a radio communications site could provide. ICT released its first intelligent DC distribution panel with remote monitoring in 2010, and has since added DC rectifier systems, DC power supplies and inverters, all with remote monitoring and control, to its product portfolio. No additional software is required — a PC, tablet or smartphone using a standard web browser is all that is needed to access the graphical user interface.

Radio communications network designers are adopting this technology at a rapid pace. It enables them to provide more robust network designs with more monitoring and control capabilities. It provides benefits not only to the network operators themselves, but also to the users of the network and ultimately the general public, particularly in the public safety arena. The ability to have comprehensive monitoring and control of the DC power plant at radio communication sites ultimately enhances the effectiveness of LMR networks.

Innovative Circuit Technology Ltd
www.ict-power.com

Images courtesy Vic SES

SILVER LINING FOR VIC SES

Jonathan Nally

The safety agency has adopted Microsoft Azure cloud services to keep staff and volunteers connected.

The Victoria State Emergency Service (Vic SES) is a not-for-profit, volunteer-based emergency service with 5000 volunteers operating out of 142 localities to help people facing floods, storms, landslides and road accidents across the state. Aiding the volunteers are 180 SES staff who provide support to those in the field.

When a major weather event occurs, the organisation can receive several thousand calls for assistance each day.

"Our role is to keep the community alerted, informed. Help them with keeping the water out of their homes, trees off their rooves, saving and looking after people generally," said Andrew Ferrarese, manager of information services at Vic SES.

Given the nature of the job, Vic SES's information systems need to be entirely reliable and always accessible.

In the past the organisation managed its own IT infrastructure, but Ferrarese recognised that by moving to a trusted public cloud he could not only support the organisation's current needs, but better position it for the future.

Working with Microsoft partner Data#3, Vic SES has migrated 90% of its operational systems to Microsoft's Azure cloud, with the balance to follow soon.

The local Microsoft data centres have been certified by the Australian Signals Directorate, delivering peace of mind regarding security and the privacy of stored data, and with latency and data sovereignty concerns no longer an issue.

Previously, staff needed a dedicated device and login details to access the Vic SES system. If they were in the field and attempted to log in from a Country Fire Association site or Department of Water and Environment office, only limited access was possible.

Now, the cloud and Office 365 enables anywhere, anytime access. Any staff member, any volunteer with internet access and the appropriate authority can access any application.

"What we've tried to do with this recent move is to just keep it as seamless as possible, so people still see their email and it looks the same, but it's on Office 365," said Ferrarese.

"The key for me is that I have that comfort knowing that it's local, it's accessible, there's a business continuity component to it," said Ferrarese.

"The business need is really around a dynamic organisation that has a lot of staff and volunteers out on the road attending to community needs when there's a disaster or a declared operation, so we need to be flexible enough to be able to drive a lot of those needs through remote working or a BYOD type of solution," added enterprise architect Paul Jones.

"We wanted something that was simple and easy to use and obviously cost was a key consideration," said Ferrarese, adding that the service is saving 20–25% on its IT costs.

"Azure provided that ability where we didn't need to worry about infrastructure or manage anything at a high cost and be worried about when it expires and licensing. We're getting a better service for less money."

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Images courtesy Motorola Solutions

LANES MILESTONE ACHIEVED

The first LTE Broadcast-enabled PTT call has been made on Telstra's commercial LANES solution.

A consortium comprising Motorola Solutions, Ericsson, Telstra and Qualcomm Technologies has announced that it has achieved the first LTE Broadcast-enabled PTT call on Telstra's commercial LANES solution.

The group claims the LTE Broadcast capability enables PTT group calls to be delivered simultaneously to all members of a group call with high assurance and low latency, and separated from regular mobile traffic.

The enabling technology is based on the 3GPP release 13 standard, known as 'MC-PTT over LTE'.

In a statement, the companies said the technology is complementary to extant mission-critical LMR services and can "cost-effectively extend assured PTT service to a greater number of users via mobile devices".

The companies said the technology will enable public safety agencies (PSAs) and enterprises to extend PTT capabilities to more users via both hardened devices and regular smartphones, and provide complementary coverage and capacity to LMR networks.

The successful LTE Broadcast-enabled PTT call was made possible through Motorola Solutions' depth of experience in mission-critical communications for public safety, Ericsson's flexible and efficient network infrastructure, Qualcomm Technologies' LTE Broadcast enabled Snapdragon platform and Telstra's vast network resources and expertise in defining and deploying next-generation communications standards and capabilities.

"While mission-critical LMR systems will continue to provide the critical means of frontline communication for many years to come, this new 3GPP-based technology provides an excellent way of extending the reach of LMR networks to many more technology users, regardless of whether they communicate with a smartphone, hardened device or a desktop computer," Motorola Solutions Executive Vice President Products and Services Bruce Brda said.

"Telstra has been providing PTT services to PSAs and business for many years. As our customers' needs change, we are working to ensure they have prioritised access and preferential treatment for voice and data services to help them keep the community safe," Telstra Group Managing Director, Networks Mike Wright said.

"With this world first LTE Broadcast enabled PTT call, we have shown that our LANES network can provide reliable prioritised communications to both PSAs and business customers with critical communications needs.

"PTT is part of Telstra's LANES roadmap for our public safety customers and complements the data and VoLTE services already available using this world-leading technology."

Motorola Solutions, Telstra and Ericsson will undertake further network trials this year with the aim of providing commercial services from 2018.

The solution combines Telstra's prioritised-access LANES solution with Ericsson's LTE Broadcast solution, Motorola Solutions' WAVE 7000 PTT technology and its LEX L10 mission-critical LTE handsets, powered by a Qualcomm Snapdragon processor with LTE modem.

The companies claim the solution delivers optimised PTT latency, flexible talk group management and call pre-emption for LTE devices such as smartphones, tablets and desktop computers. The use of LTE Broadcast allows faster call set-up times and reduced PTT latency, and uses efficient downlink bandwidths for group PTT calls.

Telstra launched its LANES Emergency solution in 2016, which included VoLTE for public safety capability.

The group said it will continue to develop the full 3GPP Mission Critical Push-to-Talk Release 13 and 14 capabilities and undertake network testing to optimise solution performance and measure key metrics such as coverage, latency and capacity.

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www.kenwood.com/au

Wireless microphone

Available through RFI, the X10DR Elite is the latest version of the field-proven wireless microphone solution for critical communication applications.

X10DR Elite has been developed specifically for mobile public safety and critical communicators including remote utility teams. It delivers louder audio, greater operational range of up to 500 m and is also IP67 rated.

New system features of the X10DR Elite include dual microphones from a single gateway for up to two vehicles; voice security with ADE Advanced Digital Encryption; Find Me function that enables an alert to be sent from the vehicle to find the device or even the wearer; talk around chat mode and also dual radio capability, eg, primary radio could be UHF and secondary radio can be satellite, LTE, VHF, airband or marine.

X10DR has become the professional critical communicators wearable wireless option delivering users greater safety, improved wearer comfort and still maintaining vital instant PTT communications to control rooms or teams from the host network.

RFI Technology Solutions

www.rfi.com.au

Surge protector

The Novaris RJ45-CAT6 surge protector is designed to provide the highest levels of protection for shielded twisted pair (STP) and unshielded twisted pair (UTP). The unit offers 10,000 A protection and has the ability to have one device used for both applications.

The product is designed for protection of and to be fully compatible with 10/100 Gb and RJ45-1PoE for use with PoE, 802.3 at high power profile and non-standard powered applications such as high-power PoE and Ultra PoE, PTZ+, with up to 1 A per two pairs for a total of 100+ W applications utilising all pairs for power.

Flying lead and DIN rail options come standard; EC90 option for field end STP installations must be ordered as an extra. The curved design with adaptable base slot enables ease of mounting in any application. The unit is also available in 19″ rack 2RU 8-, 16- and 24-way, RJ45-8CAT6, RJ45-16CAT6 and RJ45-24CAT6.

Novaris Pty Ltd

www.novaris.com.au

Spectrum analyser

The Rohde & Schwarz FPC1000 spectrum analyser delivers good performance.

Engineered in Germany, the product is designed to the same quality standards as high-end instruments. It has solid RF performance and benefits from a future-ready, software-upgradeable feature set.

The base instrument has a frequency range of 5 kHz to 1 GHz. Keycode options unlock higher frequency ranges up to 3 GHz or enable other features when required.

A low noise floor and high maximum input power combine to provide good dynamic range. According to the company, resolution bandwidth settings to 1 Hz resolve finer spectral details than any other spectrum analyser in this class.

The product is said to feature the largest and most detailed display in its class at 10.1″, WXGA (1366x768 pixel) resolution. The display is 26% larger and has a 160% higher resolution than other instruments, according to the company.

The product can be controlled via smart wireless remote control software.

Rohde & Schwarz (Australia) Pty Ltd

www.rohde-schwarz.com.au

Lone worker man-down unit

The Twig Ex Intrinsically Safe lone worker man-down unit is now IECEx compliant for Australia/NZ.

The mobile lone worker communicator is loaded with features including: duress button, man down and GPS; contact up to 10 numbers with SMS and dialled two-way voice calls; multiple man-down alert triggers (tilt, no motion, free fall and impact); IP67 waterproof and shock-resistant; location map sent to smartphone; amber alert; 4 speed-dial buttons; option of short-range device card for Bluetooth link to wrist button, Twig check-in tag and Twig indoor location beacon (also available in intrinsically safe); long battery life (4 days at 1 x GPS report/10 min); and remote configuration from a web dashboard.

Wired & Wireless Solutions International

www.wwsinternational.com.au

Intrinsically safe two-way radio

Hytera has released the PT790Ex, an intrinsically safe two-way radio that also complies with the highest explosion-proof standard 'ia'. This device has passed ATEX, FM, IECEX certifications and complies with IP67 rating as well as MILSTD 810 C/D/E.

The two-way TETRA radio is operable in places that contain explosive gases, including mine methane, such as coalmines, gas stations, oil platforms, chemical plants, airports and other inflammable or explosive conditions. It can also be used in Zone 0/1/2 and complies with M1.

The rugged device features an antistatic shell made of light metal to avoid mechanical spark and reduce the possibility of static discharge. The 1.8″ LCD screen is also crack-proof and provides users a clear display even under bright sunlight. Separated by the antenna, the radio's channel knob and volume knob stand apart from each other, while large textured keys provide good tactile feeling. These features combined are designed to help offer ease of use and accuracy when users wear gloves or operate the device in dark environments.

The product supports GNSS positioning, man down and lone worker functions for worker safety. It also provides a 1800/2400 mAh large capacity Li-ion battery, which lasts over 20 h under 5-5-90 duty cycle. A strict overcharge and over-discharge protection design ensures the battery against instability caused by overheating.

Hytera Communications Co. Ltd
www.hytera.com.au

Broadband PTT integration

The Zetron broadband PTT integration now offers an interface option that integrates telco-provided enhanced push-to-talk service with Zetron's console systems.

This enables dispatchers to communicate with broadband PTT users just as they would with users of land mobile radio (LMR) systems. Currently, the interface option enables the integration of its AcomNOVUS and MAX Dispatch systems with US-based AT&T enhanced push-to-talk (AT&T EPTT).

The network-based solution is built on P25 open standards and integrates with the console subsystem interface (CSSI) primarily used by the LMR industry in the public safety market. With this integration, dispatchers are able to communicate with AT&T EPTT users just as they would an LMR system. The direct communications afforded by CSSI enable dispatcher-controlled patching between broadband PTT users and any type of analog or digital LMR network connected to the radio console system.

The direct communications also make dispatch and resource coordination easier as dispatchers can use both group and one-to-one calls to communicate directly with broadband PTT users. In addition, interoperability makes the dispatch systems the hub for all push-to-talk communications, from LMR to LTE.

Zetron Australasia Pty Ltd
www.zetron.com

Cable and antenna analyser

The handheld R&S Cable Rider ZPH cable and antenna analyser helps infrastructure manufacturers and network operators efficiently install and maintain the steadily increasing number of mobile communications antenna systems.

With a measurement speed of 0.3 ms per data point, the R&S Cable Rider ZPH is said to be significantly faster than other instruments. Featuring the fastest boot and warm-up time on the market, according to the company, the analyser allows users to start taking fast measurements just over a minute after switching on the R&S Cable Rider ZPH.

Another time-saving feature is the use of the wizard function that guides users through measurements in easy-to-follow steps. All settings and measurement steps can be preconfigured. Field technicians only need to execute the test sequences as shown on the display. The wizard helps inexperienced field technicians to avoid operating mistakes when performing antenna and cable measurements. Since there is no need to change settings manually for different measurements, the analyser reduces test time during installation and maintenance.

Additionally, the R&S Cable Rider ZPH base unit covers a frequency range from 2 MHz to 3 GHz. Extending the frequency range to 4 GHz is straightforward with the R&S ZPH-B4 option, which is enabled via a key code.

Rohde & Schwarz (Australia) Pty Ltd
www.rohde-schwarz.com.au

Land mobile radios

The new generation of IDAS brings together refinements and enhancements in design and usability. Icom's products are high quality, with features such as Bluetooth, OTAP and GPS receiver.

The range is designed to look smart and work smart. Digital voice recording, motion/stationary detection sensors, active noise cancelling and vibration alert ensures premium performance is achieved in any situation.

Multiple controller configuration is available with the mobile transceivers, allowing dual head controllers or COMMANDMIC options.

Icom Australia Pty Ltd

www.icom.net.au

Frequency counter

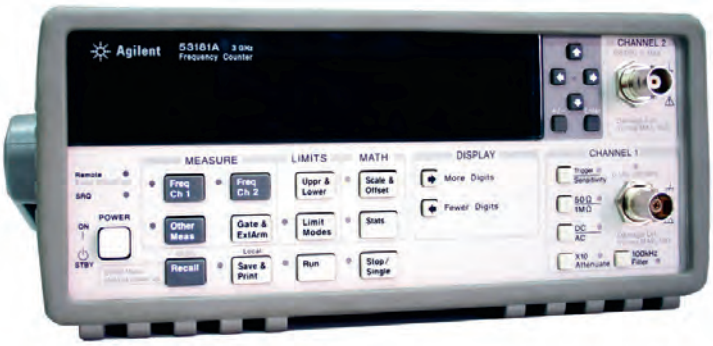
The Keysight N3181A high-performance counter records time measurement and frequency. The product has the ability to transfer data at a rate of up to 200 fully formatted measurements per second whilst simultaneously taking new readings. It is available to rent from TechRentals.

The frequency counter is designed with mathematical and statistical technology that can scale the quantitative data and measure the mean, range and standard deviation. The smart user interface creates one-button access to repeatedly used functions, allowing for easy access to efficient measurements.

Features include: 3 GHz bandwidth; -27 to +19 dBm; time interval 100 μs to 10 s; and external, free run or manual measurement arming.

TechRentals

www.techrentals.com.au



IIoT radio

The Cambium Networks cnReach N500 450 MHz 900 MHz IIoT radio is designed for outdoor critical infrastructure operations. The radio transports process monitoring and control data from the remote sensor back to the operations centre supporting real-time automated decision-making and ongoing analytics.

Covering large geographic areas, hard-to-reach terrain and challenging spectrum environments, the product delivers reliable, secure connectivity to the petrochemical, electric utility, water/wastewater/stormwater and transportation industries. It eases the migration to modern networks by combining legacy serial and analog/digital I/O with TCP/IP and Ethernet connectivity.

Fully integrated into a 'single pane-of-glass' management platform (cnMaestro), the product helps bridge the IT/OT sides of complex organisations. Features include licensed and unlicensed 900 MHz and 450 MHz; AES 128/256-bit encryption with password authentication and remote update; access point synchronisation and adaptive modulation; single and dual radio configurations; I/O capabilities that ease the transition from serial to all-IP networks with multiple serial ports, Ethernet ports and analog/digital I/O built in; network planning with LINKPlanner; and cnMaestro, which monitors the status of entire networks carrying traffic across sensors.

Cambium Networks LTD
www.cambiumnetworks.com

Handheld 100G tester

Anritsu introduces a 100G Multirate Module for its Network Master Pro MT1000A all-in-one tester that supports interface rates from 10 Mbps to 100 Gbps and technologies including Ethernet, Optical Transport Networks (OTN), SDH/SONET, Fibre Channel and CPRI/OBSAI. Integrating the new 100G module, along with existing OTDR and CPRI RF modules, into the MT1000A mainframe provides field engineers and technicians with a handheld solution that covers all current testing needs associated with data centre, core, metro, access, mobile backhaul and mobile fronthaul networks.

With the 100G Multirate Module installed, the Network Master Pro MT1000A supports more interface standards than any other handheld transport tester on the market. The all-in-one tester meets requirements for CFP4/QSFP28, (100GbE/OTU4), QSFP+ (40GbE/OTU3), SFP28 (25GbE), SFP+/SFP (GbE-10GbE, OTU1/2, STM1-64, 1GFC-16GFC, CPRI1-8, OBSAI1x-8x) and RJ45 (10 Mbps to 1 Gbps). Its flexible design provides single- and dual-port configurations with field upgradability across testing technologies to provide a simple upgrade path, when necessary, for a future-proof investment.

Among the technologies supported with the 100G Multirate Module is 25G Ethernet. It also provides the largest depth of OTN mappings to client signals, including three levels of ODU Multi-Stage mappings. The comprehensive test capability allows engineers and technicians to keep pace with emerging networking requirements.

In addition to the 100G Multirate Module, other enhancements have been made including a new auto-focus Video Inspection Probe (VIP), Cat 6/6a cable test support, Fibre Channel buffer credit analysis and an in-band network discovery capability that identifies other Anritsu Network Master products on the network and automates testing between them.

Anritsu Pty Ltd
www.anritsu.com

A Sharkee combination antenna mounted on a US police car.

Images courtesy Panorama Antennas Ltd/Getty

A WINNING COMBINATION

Robert Jesman, Sales Director, Panorama Antennas UK

Antenna manufacturers are finding new ways to accommodate the need for simultaneous voice, data, GPS and more.

The critical communications industry is evolving, and the era of traditional two-way voice being the only means of communication between a control room and a user in the field is over. Vehicles are being fitted with more technology, from onboard computers to equipment to fight crime and manage medical and fire situations.

These solutions are powered by the 4G LTE revolution, which is providing a high-speed wireless data stream from the network carriers alongside more secure, wireless local area networks.

However, such advances require innovation in many types of hardware, including antennas. This article explores the importance of using a combination mobile antenna to achieve best performance and utilisation on a public safety vehicle.

Changing environment

For many years, supplying the critical communications industry with mobile antennas was relatively straightforward. The customer selected a mobile radio, had a specific frequency designated for its use and simply sourced all the appropriate accessories, including mobile antennas tuned to suit.

This all changed with the need to transmit large packets of data wirelessly via cellular networks. The number of antennas required on a vehicle drastically increased to keep up with the data throughput, and this brought with it a number of challenges. Combination antennas have become more important and widespread as a way to tackle this growing challenge.

Modern vehicles have much smaller roof spaces, as well as styling that is dominated by a central light bar. A good example of this came with the discontinuation of the Crown Victoria vehicle by Ford in the USA in 2011, after which many police forces switched to the Dodge Challenger as their preferred new patrol vehicle.

With the addition of a few antennas for conventional radio, space becomes increasingly restricted, making it difficult to install auxiliary antenna equipment — especially for those that have a large ground plane and need to be as elevated as possible.

Furthermore, there is a push for police vehicles to appear more stealthy and less like standard law enforcement vehicles. So fitting standard antenna products is not always an option.

More recently, the challenge has become even harder with vehicles such as the Ford Explorer, with its ribbed roof line, becoming increasingly popular. This has meant that only certain shapes will fit on the roof, bringing with it additional complications for antenna product design, especially if larger-footprint combination antennas are desired.

continued

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www.zcg.com.au

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Australian Made Antennas for All Conditions

> WITH THE NEED TO BOOST DATA RATES SO THAT USERS CAN SEND LARGE FILES, MIMO ANTENNAS HAVE BECOME INCREASINGLY NECESSARY.

Combining antennas

Some of the ways to get around the issue of restricted space include combining different-frequency antennas together in a single housing or developing a multiband antenna. These techniques have become more sophisticated and customers now expect that auxiliary antennas will very closely resemble the OEM car antenna.

This brings its own difficulties, as the antenna has to look aesthetically pleasing while maintaining a small and correct shape. With vehicles potentially fitted with cellular and Wi-Fi capable devices, as well as conventional radio, this expectation becomes a bit of a dilemma.

Furthermore, there is the potential to run into interference issues if the antennas are placed too close to one another. 700 MHz, a commonly used band in certain areas of the world, adds further complexity, as a standard ¼ wave at this frequency is approximately 10 cm in length. Disguising such an antenna is challenging.

In addition, as these antennas are used for mission-critical deployment, they must be good quality and correctly tuned before they are installed to ensure a reliable and high-performance connection is maintained at all times.

Enter MIMO

With the need to boost data rates so that users can send large files, multiple-input, multiple-output (MIMO) antennas have become increasingly necessary. This brings its own complexities as MIMO requires multiple, same-frequency antennas to operate simultaneously in the designated frequency band.

Given that MIMO antennas need to be spaced appropriately to avoid interference, and there is restricted roof space and tight budgets, antenna manufacturers are under pressure to come up with innovative designs while also meeting customers' performance expectations.

This is even more challenging as LTE 700/800 MHz networks are rolled out, with potentially patchy coverage.

Public safety authorities worldwide are also looking at all possible ways to reduce costs and remain within shrinking budgets, while meeting expectations to have the latest technology. This has placed added pressure on component manufacturers to come up with cheaper, more cost-effective, more efficient and better designs.

Combining antennas into a single housing is one way of getting around this issue, as they reduce the cost and time for installation and can potentially help retain the resale value of the vehicle.

They also can futureproof the vehicle. For example, a combination antenna may have GPS, cellular or Wi-Fi capability even if the user currently does not need such functionality. However, given its ubiquity it is likely that such a user will adopt GPS, cellular and/or Wi-Fi within the next few years, in which case they will not need to add any further external equipment as it will be already installed.

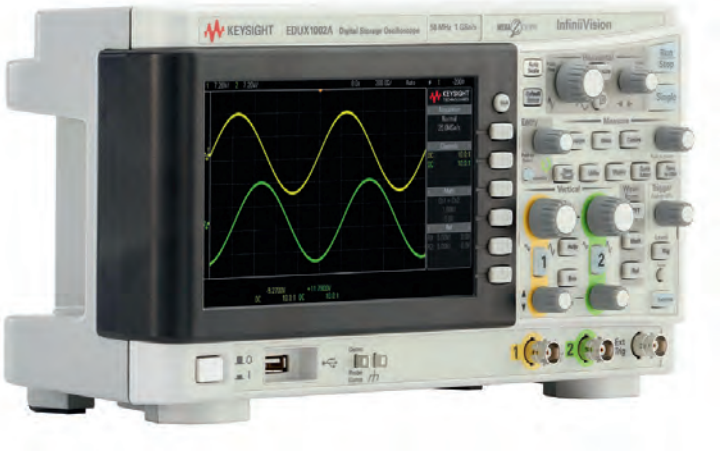
It's for these reasons that Panorama has invested heavily in the development of the MIMO Sharkee vehicle antenna unit. This shark fin-style, semi-covert unit accommodates up to six antennas in a single product, designed to fit within a vehicle's ribbed roof line. With two wideband 700–3800 MHz antennas offering the MIMO performance desired by the public safety industry, it covers all the standard cellular frequencies. Two dual-band 2.4 and 5.8 GHz Wi-Fi antennas offer MIMO capability for high-speed data transmission in and around the vehicle, and an active 26 dB GPS module means the vehicle's location is known at all times when data is being transmitted. A whip placement enables the customer to adopt their VHF, UHF, dual-band or even tri-band antenna.

Antennas such as this address the transition between traditional conventional radio and advanced wireless technology, while meeting the key challenges and demands of the public safety industry in the 21st century.

Panorama Antennas Pty Ltd
www.panorama-antennas.com

Antennas, including a Sharkee, mounted on a US police car.

Oscilloscopes



The Keysight Technologies InfiniiVision 1000 X-Series oscilloscopes have 50 to 100 MHz models and deliver professional-level functionality with software analysis and 6-in-1 instrument integration.

The product uses MegaZoom IV custom ASIC technology, which enables 50,000 wfps update rate. This makes it easier to see random and infrequent glitches and anomalies. The product also has a high sampling rate of up to 2 GSa/s and comes standard with two probes. The oscilloscopes use segmented memory capability to maximise memory depth while helping the scope test faster.

The oscilloscopes are suitable for new users and students. The industry-standard front panel is easy to use and features built-in help so new users can quickly analyse signals to deliver results. The educator's resource kit comes standard. The kit includes built-in training signals, a comprehensive oscilloscope lab guide written specifically for undergraduate students and an oscilloscope fundamentals slide set for professors and lab assistants.

In addition to being an oscilloscope, the product is also a serial protocol analyser, digital voltmeter and frequency counter. The EDUX1002G and DSOX1102G models include a frequency response analyser and WaveGen function generator. Bode plot fundamentals are easy to teach with the built-in WaveGen and frequency response analysis.

The product provides professional-quality measurement and software analysis capability. The scope features 24 typical oscilloscope measurements to quickly analyse signals and determine signal parameters. Additional signal analysis is provided by the gated FFT function, which allows users to correlate time and frequency domain phenomenon on a single screen. Mask limit testing is also available to help users easily detect signal errors. The product supports decoding and analysis of a wide range of popular embedded and automotive serial bus applications, which include I2C, SPI, UART/RS232, CAN and LIN.

Keysight Technologies Australia Pty Ltd
www.keysight.com

Push-to-talk capability

Tait UnifyVoice push-to-talk capability provides operational and administrative staff with enhanced access to instant communication and information.

It does this by providing seamless instant communication or PTT capability over any available communications network, including LMR, cellular and Wi-Fi. It provides a choice of end-user devices that are familiar and are aligned to the user's job function.

The product unifies the narrowband private radio with public or private broadband networks to increase coverage, improving the ability to communicate when beyond the edges of coverage or when in coverage black spots, such as in buildings, car parks or tunnels.

According to the company, radio coverage typically exceeds 96% of a geographic region. While broadband might cover 96% of the population, it might only cover 60% of a geographic region.

The product includes the ability to add extra capacity to the system as an organisation grows, as work groups are expanded or as agencies' communication systems are consolidated. It will automatically balance the load across network types.

Administrative staff are given the ability to listen and talk straight into emergency communications without a radio — they can maintain incident awareness wherever they are located. Covert/undercover users can stay discreet when talking to the critical communications network.

Frontline users have one single user interface that they are already familiar with. Communication requires a single button push, and the system automatically determines which device and which network to communicate over. This ensures the message gets through.

Tait Communications

www.taitradio.com

Parameterisable power supply

The Phoenix Contact QUINT POWER IV parameterisable power supply ensures the supply of continuous power to suit the exact needs of users, as it is fully configurable.

Its output characteristics, signalling and voltage can be easily adjusted to the user's exact requirements.

Components such as the output characteristic curve can be individually altered due to parameterisation via the integrated NFC interface using a smartphone or PC. This ensures good system availability.

In addition, users can tailor signalling thresholds to suit the requirements of applications to save time and minimise default errors. The current, voltage and power can be set differently depending on use and needs.

Integrated Selective Fuse Breaking (SFB) technology delivers six times the nominal current in up to 15 ms and thereby selectively trips standard circuit breakers safely and quickly. Loads in parallel are unaffected and continue working.

A bar graph visually indicates output power, and the system can be easily extended as the static boost continuously provides up to 125% of the nominal current. To start heavy loads, the dynamic boost provides up to 200% of the nominal current for up to 5 s.

The product's comprehensive and sophisticated diagnostics constantly monitor system-specific, critical operating states and report errors before faults occur. Because of the integrated gas-filled surge arrester, the single- and three-phase 24 V power supplies ensure a high degree of immunity, as well as a mains failure buffer time of more than 20 ms.

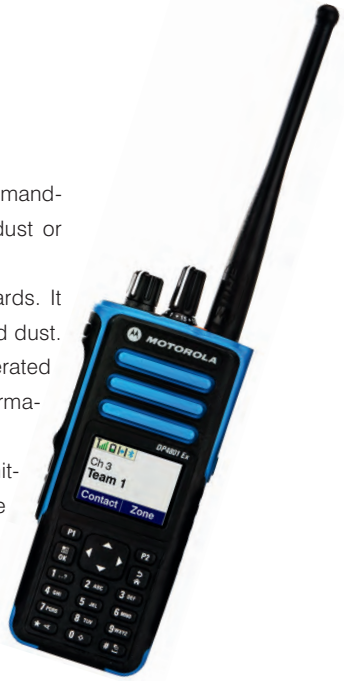
In addition to providing no-load losses, the devices can be switched to an energy-saving sleep mode via the integrated remote input, saving both energy and money.

Robust under extreme conditions, the product has a low start-up at -40°C and operates effectively in environments up to +70°C. It is suitable for usage in the process industry, machine building, and energy and water industries.

Phoenix Contact Pty Ltd

www.phoenixcontact.com.au

Two-way radio



The Motorola MOTOTRBO DP4801 Ex two-way radio is designed for workers in hazardous and demanding environments. Workers who face environmental threats such as explosive gas, combustible dust or chemical vapours need reliable communications. This radio is available to rent from TR Hirecom.

The ruggedness and durability of the DP4801 Ex enables it to meet the most stringent standards. It has one of the highest ATEX/IECEx ratings and is IP67 waterproof, keeping out damaging water and dust.

This radio is easy to operate as it is equipped with large buttons and knobs that can be operated even while wearing gloves. Additionally, buttons with bright colours and lights display status information, which is suitable in environments with low visibility.

Features including intelligent audio and transmit interrupt assist in ensuring messages are transmitted clearly in the noisiest environments. This device offers integrated voice and data, clearer voice communications and, according to Motorola, it has up to 40% longer battery life than analog. This extends coverage, enabling workers to connect across various locations, clearly and for a longer period of time.

TR Hirecom

www.trhirecom.com.au/

DECT platform handsets

The Wavelink COBS SMART1 Spectralink DECT platform handsets offer a dual-mode, Android-based smartphone for on-premises use, with DECT technology delivering HD voice combined with Wi-Fi to enable high-speed data and applications integration.

The product allows workers in markets such as hospitals, aged care facilities, retail, manufacturing and hotels to stay connected. It is designed for mobile workers who want to work smarter, providing applications such as smart alarms and messaging integration. Users can leverage the device on their existing platforms.

The product has a dedicated duress button, built-in location, top display for alarm and message display, ruggedised design and push-to-talk capability.

Wavelink

www.wavelink.com.au

Jammer detector

The GPSJD-100 from Signal Space is a low-cost, portable and easy-to-use unit that allows jamming and interference to the GPS signal to be identified and located. GPS jammers work by transmitting radio noise around the GPS L1 signal at 1575.42 MHz. As the GPS signal is extremely weak, not much jammer power is required to completely swamp the legitimate signal in noise and render the GPS receiver inoperable.

Apart from the obvious problem of interference to employer equipment, GPS jammers interfere with critical services that rely on GPS, for example, navigation, network timing and network synchronisation. Motivation for jammer use is typically evasion of tracking by an employer or unauthorised use of a vehicle, while unintentional interference is usually caused by malfunctioning or poorly designed equipment.

The GPSJD-100 incorporates an antenna, low noise amplifier and receiver into a single unit which is much more cost effective than comparable solutions. The wide spectrum display enables unintentional interference to be isolated from deliberate jamming, while the directional antenna and sensitive receiver allow interference to be identified and located from large distances.

Signal Space

www.signal-space.com

PLANNING FOR TOMORROW

by Ian Miller

ARCIA's priorities for 2017 and the years ahead will help all industry participants capitalise on technological change.

During the second week of February the ARCIA committee, plus a couple of other supporters and representatives from RFUANZ in New Zealand, met in Melbourne for its annual planning day. The main emphasis of the planning day is to map out the priorities for the year ahead, an exercise that has seen the ARCIA committee set and meet targets for growth over the past four years.

Some 18 people sat around the table at the Airport Parkroyal Hotel and a wide range of issues was discussed. This year the association will review the membership benefits offered and try to put together a strategy document that will show the way ahead for the industry and members. The aim is to show that, with some planning and flexibility, most of the present industry participants have a future looking two, five and 10 years into the future. There is no doubt that the strategy has to include wireless technologies outside of the historical radio market; however, with our knowledge of spectrum, and our client needs, we should be able to move into those areas without too much difficulty.

During the past year our website committee has been working on a major review of the ARCIA site (www.arcia.org.au) and the draft layout was discussed at the meeting. The next stage will be to coordinate the content, which each of the subcommittees has been charged with preparing. Although it is a 'reach-out' target we are hoping to have much of the work completed by mid-year, so all committee members will be busy.

In addition, we are still working our way through training issues and it is quite frustrating when we seem to make progress but people in the industry don't support us with input on future apprentice hirings or training needs.

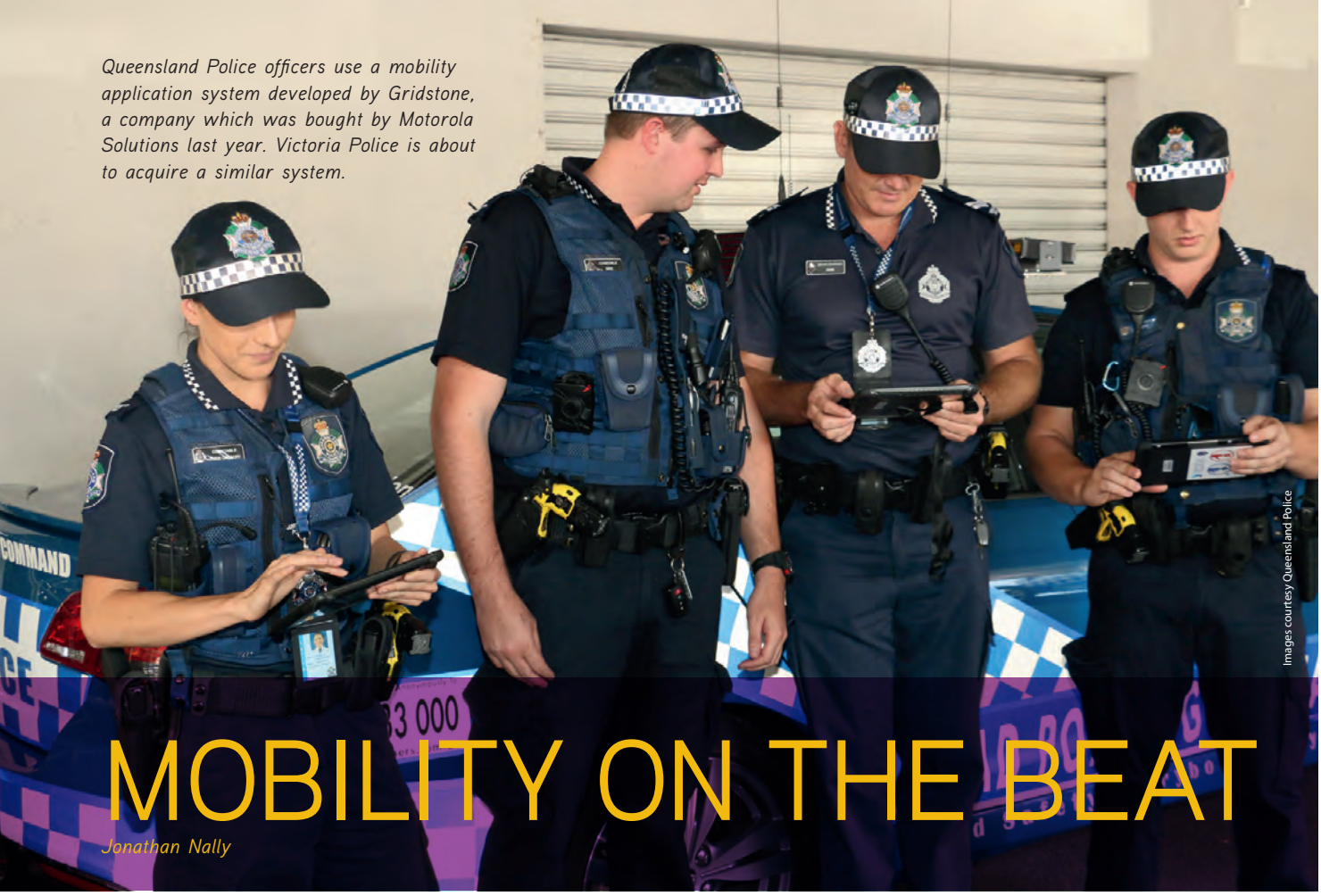
This year is the 10th anniversary of the formation of ARCIA; our predecessor, the Radio Site Operators & Users Association (RSOUA) operated for some 20 years prior to that. We do feel that the association has become a valuable part of the radio industry over the past 10 years. The committee is looking at some exciting ways to recognise the milestone and they will be announced later on in the year.

There was also some discussion on our events and the committee is asking all of our members and industry personnel to support the events run between ARCIA and Comms Connect, especially the Perth (16 March) and Adelaide events. The numbers at these are small and to keep them going means we need to have a higher level of participation.

The day after the committee planning day we met with our 'Partners' or sponsors, with around 16 people at the meeting. It is very comforting to see the level of support shown by the industry suppliers towards ARCIA, and the general consensus is that ARCIA is doing good things for the industry and they are happy to keep supporting us. The Partners supported the initiatives set by the committee the previous day and are keen to see ARCIA develop a strategy document to lead the industry forward for the future. Obviously the suppliers need the industry to be in a healthy state for their benefit as well.

On behalf of the ARCIA executive team, we sincerely thank our Partners for their support, and also give thanks to the volunteer committee members who gave up a day of their lives to sit and talk about the industry's future. We also thank those employers who allowed their staff to head to Melbourne for the day; it is very sincerely appreciated. If you know a committee member, thank them for their efforts, and then thank their employer for also supporting our industry.

ARCIA and industry leaders met in Melbourne in February.



Queensland Police officers use a mobility application system developed by Gridstone, a company which was bought by Motorola Solutions last year. Victoria Police is about to acquire a similar system.

Images courtesy Queensland Police

MOBILITY ON THE BEAT

Jonathan Nally

A $50m investment in mobility devices and applications will see Victorian police spend more time on the frontline.

Motorola Solutions Australia has chosen to supply more than 10,000 iPhones and iPad minis to Victoria Police, along with associated mobile applications, and network and support services.

The contract is valued at more than $50 million and will run for a minimum of five years, with potential to extend to 11 years.

The solution includes mPol, a mobile app developed by Australian firm Gridstone, which Motorola Solutions acquired in November 2016.

mPol has already been successfully implemented by Queensland Police and will be tailored to meet the specific needs of Victoria Police.

The mobile devices will be used to capture evidence, perform identity checks and report crime and other happenings such as traffic incidents.

The aim is to enable officers to spend more time in the community and less time being station-bound, filling out paperwork.

The solution will also help reduce data entry duplication while increasing workforce collaboration by sharing information between frontline personnel and their colleagues in command and control centres.

Shifting these tasks to the mobile devices will help to preserve Victoria Police's mission-critical radio system for essential communications by removing lower priority traffic from the radio network.

And importantly, the solution will help to increase the situational awareness, safety and productivity for frontline officers.

General duties officers, railway protective service officers, transit safety division officers, family violence units and highway patrol units will have access to the devices.

The first devices will be issued in the middle of 2017, with 8500 to be deployed by the end of 2019 based on operational need — and more than 10,000 within five years.

Motorola Solutions will lead a consortium of service providers to deliver the contract, including Optus — which will provide the carrier network solution — and CompNow, which will supply the Apple mobile devices, logistics and repair services.

"Many public safety and enterprise businesses today are looking to improve the way they manage their daily workflows through the use of mobile applications that can simplify their most complex work challenges," Motorola Solutions Vice President and Australian Managing Director Steve Crutchfield said.

"We will provide Victoria Police with a mobility managed service that is highly secure, reliable and helps to free up more time for frontline police to work in their communities where they are needed most."

"Providing reliable and efficient mobile connectivity opens up a gateway of new capabilities for public safety agencies," Optus Business Managing Director John Paitaridis added.

"Optus is pleased to collaborate with Victoria Police and Motorola Solutions to support digital connectivity and improved productivity of Victorian police while on the go."

Technology plan

The Mobile Technology Project is part of the state government's $227 million investment in police technology and represents a major goal within Victoria Police's Capability Plan 2016–2025, which outlines the way the force aims to transform its service delivery to be more "agile, responsive, people-focused and connected".

It's also a key plank in the organisation's Blue Paper: A Vision for Victoria Police in 2025, which outlines how the force is "improving capability through workforce reform and technology".

The Capability Plan has as one of its goals, the implementation of an "encrypted digital police radio service to regional Victoria to provide for improved security and safety of police operations

continued

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News

RAIL PROJECT TO FIX BLACKSPOTS

Mobile blackspots will be fixed along Victoria's five busiest regional rail corridors. The Victorian Government will partner with Telstra, Optus and Vodafone to carry out the $18 million regional rail connectivity project. Victoria will be the first state in Australia to implement in-train technology used to boost the signal from mobile towers outside the rail carriage to devices used inside. Work has already begun to pilot the installation of mobile reception repeaters in VLocity trains, designed to boost in-train coverage from less than 50% to almost full network coverage. If successful, the repeaters will be rolled out on the entire VLocity fleet in 2018.

More info: bit.ly/2pVmlUi

NEW SAGRN SITE OPERATIONAL

The SA Government Radio Network (SAGRN) site in Waterloo is now operational, part of a $154.5 million upgrade that will provide significantly improved voice radio coverage to the Gilbert Valley. It will be used by a range of emergency services providers including the state's fire services, SA Ambulance, SA Police, State Emergency Services and SA Water. The creation of this new site in the Gilbert Valley has been given priority due to it being identified as an area of unusually poor communications coverage. "The Gilbert Valley is a high fire risk area, and the new tower will improve safety for both local residents and our emergency services volunteers," said Member for Frome Geoff Brock.

More info: bit.ly/2pVvmgj

Queensland Police and Gridstone

Victoria Police will roll out out a mobility device system similar to that used by Queensland Police, shown here.

> THE AIM IS TO ENABLE OFFICERS TO SPEND MORE TIME IN THE COMMUNITY AND LESS TIME BEING STATION-BOUND, FILLING OUT PAPERWORK.

continued ➔

and service to the community", as well as a program (called BlueConnect) that aims to strengthen intelligence and investigative responses through the implementation of technology such as body-worn cameras, mobile technology and an intelligence analytical tool.

The Capability Plan has a focus on securing "operational communications methods and systems, especially in country areas through mobility, with timely and efficient processing of information that increases frontline policing availability for patrol and tasking, employee safety and organisational/situational awareness".

The $50 million mobility solution will achieve one of the main aims of the technology side of the Capability Plan, namely to equip police officers with a "mobile device that receives a real-time feed of information from a monitoring and assessment centre… and with tasks that focus on preventative activities and community priorities, such as patrolling crime hotspots, and responding to incidents as and when they occur."

This will eventually include providing "video feeds from mobile and fixed sensor platforms and live-view beamed from aerial-view available for individual police and the monitoring assessment centre to track offenders and suspects, monitor public order issues and provide other operational intelligence", along with "audio/video capture by individual police officers enabling supervisors to monitor the on-ground situation through clever use of voice, video and data analytics".

The use of such technology will help achieve a situation where technology "is leveraged to improve quality and availability of information captured by in-field police", with mobile devices "in police hands, providing single-point access and secure log-on to integrated information systems. Further, interactive electronic access to police social media, complementing face-to-face engagement in public safety partnerships with the community and other organisations."

"We're helping Victoria Police build a smarter, more modern force," said Minister for Police Lisa Neville.

"We're investing in technology, recruiting more officers and making sure our police can spend more time doing what they do best — protecting Victorians."

Spectrum monitoring for TETRA and satellite operators

Anritsu has released SpectraVision, a suite of software tools that creates a new generation of spectrum monitoring solutions to provide signal detection and quality analysis for TETRA and satellite signals. Also featured is a channel scanner designed to rapidly measure power levels in various frequency bands. Featuring standard as well as application-specific packages, SpectraVision provides government regulators, satellite operators and TETRA operators with the necessary tools to monitor signal quality and identify problem signals as they occur in real time before they adversely affect network operation.

TETRA operators can locate and test over-the-air performance of their network by combining a signal analyser and scanner. Users can select a frequency band to scan for any TETRA signals that exceed a user-settable power threshold. A signal can be further demodulated showing various signal quality parameters, such as RSSI, channel power, C/N ratio, Eb/No, data rates, EVM, MER and modulation/coding schemes. A summary screen provides information on the mobile and base colour codes, network codes and location area code.

Satellite operators can find, demodulate and display satellite signals using the DVB-S1, DVB-S2 or IESS standards. Once a communications link is established, SpectraVision will constantly monitor the satellite signal for quality parameters, such as MER, EVM and C/N. Alarms can be emailed in real time for remedial action.

Government regulators can use the channel scanner to examine occupancy usage in each frequency band. Real-time alarms notify regulators when violations occur and allow threshold violations to be recorded along with the date/time of their occurrence.

An innovative feature for SpectraVision's satellite monitoring system is the ability to perform moving averages of signal quality over time. These measurements allow the operator to observe trends in signal performance to discover problems before they cause major system failures.

Anritsu Pty Ltd

www.anritsu.com

Image courtesy ANZDMC

EMERGENCY CONFERENCE A SUCCESS

Preparedness topped the agenda at the 2017 Australian and New Zealand Disaster and Emergency Management Conference.

Now into its sixth year, the Australian and New Zealand Disaster and Emergency Management Conference returned to the Gold Coast on 22 and 23 May to provide an educational experience and the opportunity for disaster and emergency professionals to network.

Bringing together over 500 leading representatives from fire, police, ambulance, emergency, rescue, volunteer, defence and health sectors, the conference deliberated and discussed disaster and emergency management issues confronting Australia, New Zealand and other countries.

The event was held back to back with the Search and Rescue Conference (24 May), which enabled delegates to learn more about search and rescue concepts, techniques and information within the land, sea and air sectors.

The event was thrilled to welcome Quintiq as Gold Sponsor and Edith Cowan University, Volvo Group Government Sales Oceania and FTS as Silver Sponsors for 2017. The exhibition featured over 30 exhibitors displaying the latest products and services in the disaster and emergency management sector.

With the ever-increasing nature of large-scale disasters and emergencies affecting our communities, and a renewed focus on catastrophic planning, the Australian and New Zealand Disaster Management Conference has become one of the most significant calendar events for the disaster and emergency community. The conference featured over 100 presentations covering all phases of emergency and disaster management — prevention, preparedness, response and recovery.

The conference is a joint initiative of four not-for-profit organisations: Bushfire and Natural Hazards CRC, Australian Institute of Emergency Services, Australian & New Zealand Mental Health Association and the Association for Sustainability in Business. It will return to the Gold Coast in 2018.

For more information, please contact the conference secretariat at anzdmc.com.au, by emailing conference@anzdmc.com.au or by calling (07) 5502 2068.

Australian and New Zealand Disaster and Emergency Management Conference
http://anzdmc.com.au

Cloud-based mobile enterprise messaging suite platform

The Soprano RapidAlert cloud-based mobile enterprise messaging suite platform enables logistics companies to provide real-time communications during threats and monitors their safety.

The product allows organisations to manage business continuity by deploying SMS alerts within seconds to incident first responders and standby teams.

Key features include quick access to business continuity plan (BCP) templates and contact lists; SMS delivery for rapid response; real-time acknowledgement and follow-up; and real-time reporting to enable live monitoring of who has and has not responded.

The product has wide application in a range of sectors that require reliable business continuity planning or incident management and response solutions, including security and event staff, healthcare workers providing in-home care to patients, IT teams responsible for system availability and outages, and remote workers such as mining technicians, repairmen, construction workers and labourers.

Other apps on the platform include Authenticator, StaffMatch, StaffSafe, GAMMA, Reminder, Reports, WebSMS and Campaign Manager.

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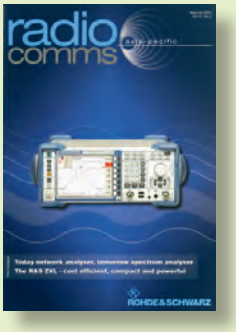
Backhaul

Backhaul takes you on a trip down memory lane as we look at what was happening in the comms field of yesteryear.

25 YEARS AGO. The cover of the June/July 1992 issue of *What's New in Radio Communications* featured the Hewlett-Packard HP 8920A portable test unit which, among other things, could test AM, FM and PM radios and cellular phones, supporting EAMPS, ETACS, ITACS, MPT1327 and NMT-450/900 cellular phones. We previewed the Professional & Commercial Radio Communications Show, which was held in conjunction with PMR'92 (organised by the AEEMA Radio Communications Product Division); some familiar names were there (Icom, Kenwood, Tech Rentals), plus some you don't hear about anymore (OTC, Philips, Marconi). Looking at some of the gear advertised in this issue, we had the Midlander LMR from Exicom, the Icom IC-H10 and IC-U10, the Sawtron KG 109 from Imark, the TX4000 from GME, the Eclipse UHF base station from RF Technology, the mobiSCRIPT digital data dispatch unit from Signalling Technology and the DNA 007 telephone interconnect from DNA Technologies.



10 YEARS AGO. The cover of the May/June 2007 issue of *Radio Comms Asia-Pacific* featured the Rohde & Schwarz ZVL vector network analyser that featured full spectrum analysis. Inside the magazine we reported on research in the UK into possible health effects from exposure to signals from TETRA radio masts and the ACMA reducing reserve prices on 35 MHz of the 3.4 GHz band by up to 75% in order to encourage take-up (with this parcel of spectrum having been passed in at auction in 2000). The ACMA's Chris Chapman contributed an article on the wide uses of spectrum in all facets of life, noting that — compared to the situation in the UK — Australia was well placed to efficiently plan its spectrum allocations. Finally, we also reported on the first meeting of the Australian Radio Industry Association (ARIA). Newly appointed president, Craig Ross, called for all industry participants to build support and lay down the foundations for the long-term growth of the industry in Australia.

Spectrum

ARCIA participates in global talks

Earlier this year ARCIA received an invitation from FirstNet, the USA public safety mobile broadband organisation, to attend an international forum in Washington. FirstNet is an authority within the US federal government, established following reviews of public safety operations after the 9/11 terrorist attacks. In the 10 years since the recommendation was made to establish FirstNet, the organisation has surveyed all jurisdictions and public safety agencies, including first responders, to establish a set of requirements for a nationwide dedicated mobile broadband network.

With interest being shown from many international organisations, and with other nations also planning for public safety mobile broadband systems, FirstNet thought that a forum would provide an opportunity to share knowledge and establish networking opportunities. ARCIA's executive team felt that this was an opportunity that should not be missed, and so I was asked to attend. We also suggested representatives from within various Australian government agencies who might benefit from attending. We were joined by representatives from the UK, Korea, Canada, Finland, Norway and Sweden.

Several members of the FirstNet team outlined progress, including how they determined requirements and options for the network. These presentations were quite detailed and gave attendees pointers on how to develop plans for mobile broadband.

FirstNet will be a public–private partnership, with the private partner (AT&T) basically building the system and then having access to the network for commercial purposes for a 25-year period, with public safety agencies having priority and pre-emption. An interesting facet of the plan is that a small portion of the network access fees will be returned to FirstNet to cover ongoing maintenance and upgrades. FirstNet will lease spectrum to AT&T but will retain control of it — that way, if there are any problems in the future, FirstNet will have the resources available.

Each of the other nations' representatives gave an overview of their own progress to date, with the UK apparently well down the track towards a system operating as a mobile virtual network operator on EE's mobile network. Korea is almost at the stage of conducting pilot trials with its government-owned network, with full operational trials to take place in conjunction with the Winter Olympics later this year. The Scandinavian countries are all still contemplating staying with their TETRA LMR networks for some time yet, but are planning for mobile broadband as they move ahead. And, of course, Australia is presently looking into options following on from the ministerial statements of November 2016.

The invitation to Washington indicates the respect that ARCIA enjoys, not just in Australia but in other countries as well. It was an excellent opportunity to gather information and to become a resource for governments and first responders here in Australia, as the planning and development of requirements for our local PSMB systems takes place. We were pleased to open discussions with FirstNet and, in conjunction with Comms Connect, are working to bring some key FirstNet personnel to Australia later in the year.

Ian Miller is a founding member and executive officer of ARCIA, and a leading independent radio communications consultant. With a long history in the industry in Victoria, he is strong supporter of Australian business and works towards improving professionalism and skill levels in the sector. Don't miss his presentation on mobile broadband at Comms Connect Sydney on Thursday, 8 June.

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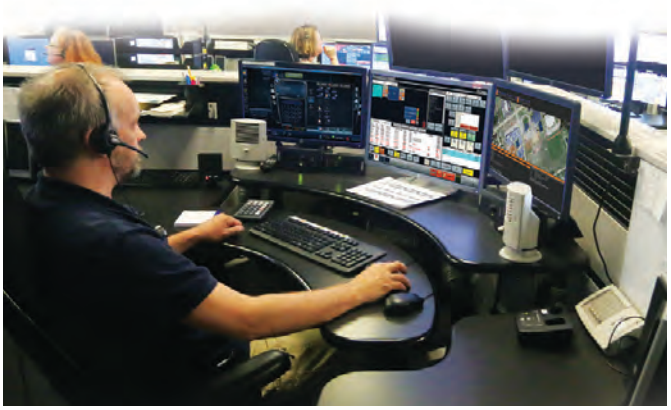

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