JAN/FEB 2021 Vol.8 No.2

critical comms

PUBLIC SAFETY | UTILITIES | MINING | TRANSPORT | DEFENCE

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The new BF07

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TIPRO

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comms critical

Inside

Jan/Feb 2021

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ON THE COVER

The TIPRO BF07 Compact Integrated Intercom features an integrated 7-inch touchscreen computer with gooseneck microphone, loudspeaker, PTT, volume control, handset with PTT and six programmable function keys, providing all the functions needed for a console operator.

The BF07 is designed in the same fashion as TIPRO's larger consoles (BF10/BF20/BF22). The BF07 is fan-less, silent and has hidden and secured cable management. The unit is bridging the gap between standalone USB intercom/handset devices and full consoles, with a compact footprint (332 × 278 mm) and sufficient resources to run dispatching applications.

Available options are memory expansion (from standard 4 GB to 8 GB), dial pad, larger SSD (64 GB instead standard 32 GB), echo cancellation and inclination mechanism for adjusting the viewing angle.

Supported are any Windows or Linux operating systems as the device uses generic operating system drivers. HID API is available for both OSes, enabling set-up or change of settings from the application. The unit has one USB audio and switching between the handset and hands-free is automatic within the built-in TIPRO controller.

Programmable signal processing includes ambient noise suppression (noise gating), signal compression and limiting, and HID telephony. The set-up utility 'Change-Me' enables set-up of PTT, function keys and hook switch, as well as handset sidetone, microphone sensitivity, luminance of the screen, min/max volume for the loudspeakers and more. The six function keys are programmable and can be used for any function that is supported in the application by hot keys.

GMG Solutions
www.tipro.net

Transmit

It's a new year, and I'm sure we all want to put 2020 behind us and get on with our lives and businesses again. And it's looking like we're going to be able to, with Australia and New Zealand's marvellous success in containing COVID-19 and the fairly imminent rollout of one or more vaccines. Let's hope that the maximum number of workers and businesses can either return to full speed, pick up where they left off or successfully start again from scratch. The pandemic has affected many in the communications community, so we wish everyone the best of success in capitalising on the opportunities the new year is bringing.

Did you tune in to the Comms Connect Virtual conference sessions? If you didn't, you missed some great content from some great presenters. The conference covered a wide range of interesting and important topics, and it was wonderful to have presenters participating from the US, South Korea, Europe and New Zealand. It was especially good to get an update on the latter's new Next Generation Critical Communications system — New Zealand is showing the way, and not for the first time.

We're all looking forward to the resumption of face-to-face conferences and exhibitions again, with plans well advanced for Comms Connect New Zealand 2021 as well as the return of Comms Connect events in Australia. Keep an eye on the Critical Comms (criticalcomms.com.au) and Comms Connect (comms-connect.com.au) websites for announcements.

Jonathan Nally, Editor
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Calendar

February
Microwave Radio Masterclass
15–19 February 2021
Online sessions
comms-connect.com.au

April
Digital Mines 2021
20–22 April 2021
Online
claridenglobal.com/conference/digitalmines

May
Comms Connect New Zealand 2021
12–13 May 2021
LHEC, Wellington
comms-connect.com.au

June
Critical Communications World 2021
8–10 June 2021
IFEMA, Spain
critical-communications-world.com

August
AFAC21
17–20 August 2021
Sydney
afacconference.com.au

October
EENA Conference & Exhibition 2021
6–8 October 2021
Riga, Latvia
eenaconference.org

November
Comms Connect Melbourne 2021
16–18 November
comms-connect.com.au

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

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connecting industry

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30 Day Network Activity

DISHES FOR DISASTERS

Jonathan Nally

Hundreds of new satellite dishes will provide better connectivity for first responders and the community.

Hundreds of Disaster Satellite Service communications dishes will be installed around Australia on buildings such as Rural Fire Service depots as part of the federal government's $37.1 million Strengthening Telecommunications Against Natural Disaster (STAND) program.

The service provides a back-up communications connection that will be switched to 'disaster mode' during an emergency event, providing free full satellite broadband functionality, including Wi-Fi and video streaming.

Also part of the STAND program are five new satellite dish-equipped NBN Road Muster trucks and 12 satellite dishes in travel kits.

Almost 100 of the satellite dishes will have been installed, and all of the Road Muster trucks and satellite dish travel kits will have been delivered by the end of 2020.

The trucks and satellite travel kits can be deployed to provide temporary broadband connectivity for communities that have their normal communications disrupted by natural disasters.

The trucks connect to the internet via the NBN Co satellites and provide Wi-Fi internet connectivity within 20 metres of the vehicle. The satellite travel kits come in large briefcases, which can be delivered to remote locations to provide access to high-speed broadband.

"By offering broadband connectivity powered by the National Broadband Network's Sky Muster satellites — which have coverage of all 7.7 million square kilometres of Australia and operate even when terrestrial mobile or fixed line networks have ceased operating — these dishes will help people in disaster-affected locations stay in contact before, during and after a bushfire or other disaster," said the Minister for Communications, Cyber Safety and the Arts, Paul Fletcher.

Satellite service

The first of the new Disaster Satellite Service installations was unveiled at Namadgi in the ACT on 9 December, following the awarding of a grant of $7 million to NBN Co to install units at designated emergency management sites and evacuation centres. Around 95 will have been installed by the end of 2020, with the remaining locations to be equipped in 2021 as agreed between the federal, state and territory governments.

The locations slated to have received the installations by the end of 2020 are as follows:

Australian Capital Territory: Namadgi National Park Visitors Centre, Tidbinbilla National Park Visitors Centre, Hall RFS Base, Guises Creek RFS Base, Southern Districts RFS Base, Tidbinbilla RFS Base, Rivers RFS Base, ESA Training Centre, Murrumbidgee Parks & Conservation Service Depot, Bendora Dam Parks & Conservation Service Depot, Glendale Parks & Conservation Service Depot, Gudgenby Homestead Parks & Conservation Service Depot.

Tasmania: Lilydale Memorial Hall, Wynyard Sports Centre, Swansea Town Hall, Mathinna Recreation Ground, Karoola, Miena Community Hall, Huon Valley PCYC Building, Elma Fagan Community Centre Waratah, Pyengana Hall, Town Hall – Currie, Sorell Memorial Hall, Sheffield Kentish Town Hall, Alonnah Hall, Redpa Recreation Centre, Queenstown Sports Stadium, Nubeena Recreational Ground.

South Australia: Victor Group Base, Kangaroo Island Group Base, Tatiara Group Base, Gambier Group Base, Kingscote Station, Loxton SES, Mallee Group Control Centre, Netley SES.

Western Australia: Wapole Community Hall. DFES Broome, Jurien Bay Football Oval, LG Shire Office, Private, Bremer Bay Sports Club, Leeman Sports Oval, Peaceful Bay.

Victoria: Bairnsdale City Oval, Cann River Rec Res, Paynesville Rec Res, Mallacoota Main Hall, Omeo Rec Res, Buchan Rec Res, Lakes Entrance Mechanics Hall, Cudgewa Temporary Community Support Hub, Licola Wilderness Village, Towong Temporary Community Support Hub, Tintaldra Temporary Community Support Hub, Myrtleford Sports Stadium, Orbost Cricket Club Oval, Myrtleford Senior Citizens Centre, Ovens DELWP Office, Mitta Valley ERC, Lucyvale/Berringama Temporary Community Support Hub, Eskdale ERC.

Queensland: Biloela Civic Centre, Collinsville Community Centre, Gloucester Sport and Recreation Building, Mackay Entertainment and Convention Centre, Bob Wood Hall, Sarina, Kianga Hall Moura, Robert Schwarten Pavilion, Taroom Town Hall, Cooktown Event Centre, Bundaberg Multiplex Sport and Convention Centre, Bundaberg Recreational Precinct, Ingham Showgrounds Pavilion, Townsville Stadium.

Road Muster trucks

"The devastation of last summer's bushfire emergency reinforced the importance of connectivity in disaster situations and the important role NBN Co can play with the retail service providers in supporting communities when they are most in need," said NBN Co Chief Development Officer Regional and Remote Gavin Williams.

"While, of course, we hope never to see a repeat of last summer's events, we welcome the opportunity to further increase our capabilities to support retail service providers, emergency services personnel and the communities impacted by these devastating events."

The NBN Road Muster trucks provide a range of capabilities, including:

- a secure Wi-Fi hotspot surrounding the truck, whilst simultaneously supporting public access Wi-Fi in a nearby building through a deployable access point
- industrial-grade computer equipment designed to better withstand heat, dust and vibration
- mobile phone access via VoIP apps where normal reception or infrastructure is not available
- a built-in mobile repeater designed to boost mobile phone signal strength for emergency workers in areas of poor reception
- a large LCD screen and loud speakers mounted on the outside to communicate crucial information to the public
- up to 15 people to plug in and charge their mobile phones.

"Last summer, we worked with retail service providers to install temporary emergency satellite infrastructure to more than 30 evacuation centres and 10 emergency response centres across New South Wales, Victoria and South Australia to support more than 5000 residents, business owners and support staff during the bushfire crisis.

"By providing free satellite Wi-Fi services and mobile device charging facilities during the emergency we were able to help keep families and loved ones connected and provide vital communication services into areas that otherwise might not have had them.

"Our priority is to support communities and emergency services with connectivity when they need it most," Williams said.

> OUR PRIORITY IS TO SUPPORT COMMUNITIES AND EMERGENCY SERVICES WITH CONNECTIVITY WHEN THEY NEED IT MOST.
> GAVIN WILLIAMS, NBN CO

Building resilience

The federal government announced the STAND program in May 2020 as part of a $650 million funding package for recovery following last summer's devastating bushfires and floods.

The program features four measures:

- Strengthening the resilience of regional and remote telco networks through mobile network hardening ($18 million).
- More temporary telco infrastructure deployments, such as the Road Muster trucks and satellite kits ($10 million).
- Better telecommunications for rural and country fire service depots and evacuation centres ($7 million).
- Improved coordination and communication for communities regarding access to telecommunications in emergencies ($2.1 million).

The $18 million hardening effort — which includes $10 million from the Mobile Black Spot Program — will be spent on providing backup power sources for mobile phone towers, to be known as the Mobile Network Hardening Program. Loss of mains power was the primary cause of base station outages during the recent bushfires.

The money will provide for batteries and diesel generators for base stations built under Rounds 1 and 2 of the Mobile Black Spot Program, to increase backup power duration from between 3 and 8 hours to up to at least 12 hours where possible.

There will also be a competitive grants process that will fund up to 50% of the capital cost for upgrades for other, high-priority mobile phone base stations. These upgrades will include improving backup power, infrastructure hardening measures and providing backhaul redundancy.

nbn co ltd
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Images courtesy NBN Co.

HITACHI ABB

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The industrial-grade Tropos portfolio is specifically designed for mission-critical applications in harsh environments such as mining, oil & gas, utilities and smart cities. Products supported include Tropos 6420-XA for extreme outdoor environments including salt fog resistance and ATEX Zone 2 for explosive atmospheres, Tropos 6420 and 1420 for external mounting, and Tropos 2420 for mounting inside a vehicle. All are dualband routers operating at 2.4 and 5GHz, providing an extremely reliable and secure self-healing broadband mesh network.

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WirelessTech

CONFERENCE

VIRTUAL CONFERENCE BRINGS THE INDUSTRY TOGETHER

Jonathan Nally

The Comms Connect Virtual conference series covered a wide range of topics and attracted speakers from around the globe.

Following the imposition of COVID-19-related restrictions on gatherings and events in 2020, all in-person Comms Connect events had to be cancelled. But the WFevents team very quickly pivoted to an online model, culminating in the successful Comms Connect Virtual (CCV) conference series in November. Online attendances were excellent, no doubt attracted by the great line-up of local and international speakers the team had put together.

The first session, on 5 November, tackled the important topic of cybersecurity and the protection of critical infrastructure such as communications systems. NSW Chief Data Scientist Dr Ian Oppermann spoke about the future of society and accelerating technological change. John Beltz and Bill Fisher from NIST spoke about identity systems in the context of the interoperability of communications systems.

Nokia's Steve Hwang gave a very interesting overview of how South Korea plans to keep its new public safety mobile broadband communications network secure. And SGS ECL's Peter Jackson spoke about maintaining the security of industrial operational technology.

The second session, 12 November, covered private LTE. Simon Lardner spoke of how his company, Challenge Networks, has helped 17 clients deploy private LTE around the world. Randy Richmond (Zetron) outlined the sorts of things that customers and systems providers need to consider as they contemplate the switch from LMR to MCPTT command and control systems.

Rui Chen (Commtel Network Solutions) gave an interesting insight into some practical considerations for private LTE system design, using as a case study the installation of communications for remote pump sites in dense tropical forest.

Roger Kane (Vicom Australia) looked at various aspects of deploying private LTE systems, emphasising the need for complete end-to-end planning, from design to deployment to ongoing use and maintenance. And finally, Rodney Nebe from mining company Gold Fields presented a case study of the company's impressive deployment and use of private LTE at several of its mines.

The third session, 19 November, was all about location and positioning services. Chris Stevens (CartGIS) spoke about GIS technology and how it is being used in real-world scenarios. Station Officer Graham Tait (NSW Fire & Rescue) outlined some of the technological changes happening in the first responder sector, including trials of positioning systems for tunnels, where GPS signals are generally not available.

Hamish Duff (Mastercom and Orion Networks) spoke about the capabilities of LMR systems to provide and use positioning information. And Benoit Vivier from the European Emergency Number Association gave an eye-opening look into automatic mobile location (AML) technology, which is enabling emergency services to pinpoint citizens in distress with accuracies as good as five metres.

The final session, 26 November, focused on the future of LMR and how it will survive and even thrive in a world of broadband technologies. Kevin Graham (ACCF) spoke about the convergence of voice and data services, and how industry and governments are moving to shared-platform models.

Simon Riesen and Dave Thuringer (DAMM Cellular Systems) provided a very interesting insight into frequency sharing within TETRA systems and how careful planning can vastly reduce frequency usage while enhancing redundancy. And Neal Richardson (Public Safety Network New Zealand) provided an overview of New Zealand's recently announced next-generation public safety communications system. Once again, New Zealand is showing other countries how it should be done.

Peter Scarlata (Simoco) presented insights into the steady rise of digital systems worldwide, and how new business models are helping the LMR industry stay relevant. And finally, Lawrence McKenna (Cumarsáid) presented some very practical advice and feedback from the world of technical project management, outlining some of the pitfalls that unwary players can encounter.

It would not have been possible to present Comms Connect Virtual without the support of its sponsors, Zetron, DAMM Australia, Nokia, Vicom and Simoco Wireless Solutions, and association partners ARCIA, RFUANZ, TCCA, Critical Comms, GovTech Review, Radio China, RadioResource International and The Critical Communications Review. Their support was greatly appreciated.

Face-to-face Comms Connect conferences will return in 2021, with the first one kicking off in New Zealand in May and followed by Australian events on yet-to-be-announced dates. Keep an eye on the Critical Comms website (criticalcomms.com.au) for updates.

Comms Connect (WFevents)
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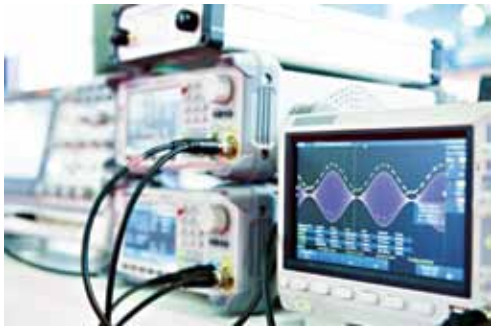

ARPANSA ADDS $350K TO WHO RADIO WAVE RESEARCH

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is to contribute $350,000 to the World Health Organization's (WHO) research into the health impacts of radio waves, including those used in mobile telecommunications. The contribution is ARPANSA's first research commitment under the federal government's enhanced Electromagnetic Energy (EME) program. "As Australia's national radiation protection and nuclear safety authority, ARPANSA is proud to support this gold-standard research project that will evaluate scientific evidence relating to radio wave safety," said ARPANSA's Chief Executive Officer, Dr Carl-Magnus Larsson. "The project is an important input into ARPANSA's EME Action Plan, and will ensure that ARPANSA continues to deliver on its vision for a safe radiation environment for the Australian community."

More info: bit.ly/3gPgRCC

$13.2M TO BOOST BATTERY BACKUP FOR MOBILE PHONE TOWERS

The federal government has announced it is providing $13.2 million to Telstra, Optus and TPG to extend battery backup at 467 mobile phone towers in regional and remote communities to provide a minimum of 12 hours of backup power. The investment is part of the $650 million bushfire recovery relief package announced by the Prime Minister and the Minister for Emergency Management in May 2020. The funding will go towards upgrades at specific sites funded under Round 1 and 2 of the Mobile Black Spot Program.

More info: bit.ly/3ajrGM3

DC power supplies

The Platinum Series from Helios Power Solutions provides a suitable DC power solution for wireless communications professionals who require Ethernet-enabled, high-efficiency, space-saving DC power supplies for LMR, broadband and network communications equipment.

Available for 12, 24 or 48 V systems, and two power levels of 800 or 1600 W in a 1RU rackmount chassis with 90 to 93% efficiency, the units come with TCP/IP Ethernet standard on every model and remote monitoring and control using a built-in web server.

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Helios Power Solutions

www.heliosps.com.au

Base station

The Teltronic MCBS outdoor TETRA base station uses software-defined radio techniques to provide up to four carriers in a single compact unit. It has 40 W of RF power and is therefore able to offer the features of an indoor fixed base station in a single compact device that can be operated outdoors without requiring civil works for its installation. It also enables different configurations to adapt flexibly to any number of subscribers and system traffic load.

Operation and maintenance tasks are simplified as the MCBS is configured and monitored completely remotely from the NEBULA infrastructure Network Management System, which incorporates a set of tools that allow supervising its status in real time, monitoring the activity of the network users, having access to statistics and alarm troubleshooting.

Teltronic SA Unipersonal

www.teltronic.es

5W Portable UHF Radio

The CP50 is an Australian designed and manufactured Professional 5 watt UHF radio. Encompassing cutting-edge Digital Signal Processing circuitry, the CP50 delivers a future-proof platform for advanced features and value-added software functionality.

The CP50's unique selectable 5W, 1W and 100mW low power transmit mode coupled with the 2600mAh Lithium-ion battery pack offers extended operational hours.

The CP50 provides a range of features including MDC1200 Compatibility, RSSI and Busy Voting and Man Down and Lone Worker alerts to meet the needs of any work site.

Encased in a compact and rugged design which meets both IP67 and MIL-STD-810G ratings the CP50 provides exceptional durability and coupled with loud and clear 1500mW of Audio Output it ensures reliable communication, even under the harshest conditions.

GME

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AUSTRALIAN MADE

2020 INDUSTRY EXCELLENCE AWARDS

The recipients of the national awards for the Australian business- and mission-critical communications industry have been announced.

This year's ARCIA Industry Excellence Awards ceremony was on online affair, as have been most gatherings and celebrations in the age of COVID-19. But despite the absence of the usual gala dinner and presentation ceremony, more than 200 people logged in from around Australia to watch the online event and take part in recognising and acknowledging the efforts of their peers.

Here are each of the award recipients and the citations that accompanied the presentations.

Professional Sales Award

The recipient of this year's award is Elisha McCann of Karera Communications. According to the citation, Elisha is a person "of remarkable ability" and "an outstanding sales person" who has won Karera several tenders exceeding the $100,000 mark, while also taking on the role as project manager for a few of these projects. Elisha "is a role model to anyone, female or male" who wishes to strive to be the best in their chosen field of endeavour.

Customer Service Award

The recipient of this year's award is Alex Dalgliesh of Impulse Wireless. Alex "displays excellence every single day in both his customer-facing support and general technical support to the business" and has designed and written multiple pieces of software that have improved business processes. Adam Maclean from Maclean's Waste said: "I don't know where you found Alex, but be sure to keep him, he's fantastic!"

Engineering Elegance Award

The recipient of this year's award is Wei Gong from Simoco Wireless. The Simoco DMR Coverage Extender is a new mobile radio application that extends the coverage of DMR networks into weak signal areas. Wei, as Simoco's solution architect, was instrumental in leading the development

of the coverage extender feature, which is now available in all Simoco DMR devices.

The Peter Wallace Industry Advancement Award

Each year, ARCIA's state committee representatives are asked to select someone who has contributed to the overall benefit of their state's industry — this can be someone from within the industry or even a client or communications user. The award is named after Peter Wallace, a long-term industry member in Victoria who worked with every industry organisation to support them and help make communications better.

The recipient of this year's award is Michael Clarke from Radlink Communications. Michael was originally employed in a technical role within Radlink to service local clients on new radio systems. However, over time he showed initiative and has since been appointed as the State Manager for Radlink in South Australia. He has grown the business in Adelaide from just himself to a now-thriving business with multiple employees and is well respected by his clients and industry peers.

Technical Excellence Award

The recipient of this year's award is Brayden Hall from Radlink Communications. Brayden's technical ability can be seen in every project and bespoke product he delivers. His attention to detail and the engineering and technical ability he brings to the table is what sets him apart. "Working under pressure and tight timelines, while also mentoring graduate engineers, he delivers to the high quality our customers appreciate," according to Radlink.

New Talent Award

The recipient of this year's award is Kevin Vo from Simoco Wireless. Kevin joined Simoco a year ago, and with a good understanding of radio systems, as well as IT systems, he has been able to provide the missing puzzle piece that joins these two worlds together, able to solve several customer problems that would have taken much longer without his ideas. Kevin has a valuable skill set, which helps Simoco seamlessly integrate these two worlds.

Community Service Award

The recipient of this year's award is Tony McTackett from Simoco Wireless. After serving in the Royal Australian Air Force for seven years, Tony joined Simoco in 1997 and has contributed significantly to the Australian radio industry. He is a Scout leader, fundraiser and regularly volunteers his time to help program radio networks for scout functions.

Industry Apprentices

Over recent years ARCIA has decided not to try and select a single 'Apprentice of the year', as it believes this should not be seen as a competition but rather as a chance to recognise all apprentices who are brought to our attention. This year the following two apprentices have been recognised: Jai Gibson from Karera Communications and Trung Tran from Radlink Communications. Both of these young men will receive a technical gift from ARCIA.

ARCIA knows that there are many other worthy apprentices working in the industry, and has reminded businesses to put their names forward for recognition next year.

The Jonathan Livingston Seagull Award

The prestigious Jonathan Livingstone Seagull award is given in recognition of personal achievement and excellence in the radiocommunications industry. The recipient of the 2020 award is Mark Mezzapica, Chief Technology Officer at RFI.

Mark completed an electronics degree at Sydney University and spent 10 years with the NSW Maritime Services Board where he worked across VHF and 27 MHz marine, and VHF mobile at the network level.

He came into contact with RFI when faced with the task of incorporating VHF simplex and duplex channels in the impossible marine allocations. He designed a system that would actually work, and was promptly offered a job with the company.

When he joined RFI in 1991 he started in the systems business and very soon moved to take up a leadership position in engineering within the RFI group.

Mark led the team that developed new antennas and systems including a PIM-hardened antenna for cellular and LMR and, for Telstra, the first extend-a-cells in Australia and New Zealand. In 2005 he led the team that developed antennas which RFI marketed directly to Motorola North America, where his work with Scott Alford and others at RFI developed into a world-class export business.

Mark has given countless seminars and helped with industry training, including the ARCIA Professional Development program over the past two years. He is happiest when sharing his knowledge with his peers and young people.

Mark has co-authored patents for six different Australian and international products and has trained dozens of engineers. He is considered the peak expert on interference tracking and remediation and is universally acknowledged as an expert without peer in the fields of antenna systems, RF transmission in any media, multi coupling and lightning protection.

Critical Comms joins with everyone in the Australian business- and mission-critical communications industry in congratulating all of these worthy recipients.

Australian Radio Communications Industry Association
www.arcia.org.au

PUBLIC SAFETY MOBILE BROADBAND TO BE EXPEDITED

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Jonathan Nally

Australia's governments seem to have finally gotten the message regarding rolling out a national Public Safety Mobile Broadband capability.

A "review of the path to expeditiously deliver the [nation's] Public Safety Mobile Broadband" (PSMB) capability is on the agenda of a new National Emergency Management Ministers' Meeting (NEMMM) structure.

In a statement released on 11 November, following the inaugural meeting of the National Federation Reform Council (NFRC), the Prime Minister said that expediting PSMB would be part of one of five key priority areas for attention by governments in 2021.

The 11 November meeting of the NFRC — comprising the Prime Minister, Premiers, Chief Ministers, Treasurers and President of the Australian Local Government Association — reviewed Australia's position at the end of a very difficult year, and considered the responses delivered by the Commonwealth, state and territory governments working together through the National Cabinet.

"National Cabinet has met 32 times since it was established on 13 March 2020, and has worked hand in glove with the Australian Health Protection Principal Committee (AHPPC) to steer the country safely and successfully through the pandemic," said Prime Minister Scott Morrison in a statement.

The Prime Minister said that the National Cabinet has reformed and rationalised the intergovernmental architecture to follow this model, and it has established:

- National Cabinet Reform Committees to support National Cabinet's job creation agenda
- the NFRC and NFRC Taskforces to deal with priority federation issues that fall outside National Cabinet's job creation remit
- Ministers' Meetings that are more agile and responsive, significantly reducing bureaucracy and red tape.

"Following on from this year's success, there is a big program of work to continue next year through the Council on Federal Financial Relations (CFFR) and the National Cabinet Reform Committees," the Prime Minister said.

"National Cabinet has stood up and identified reform priorities for five of the six National Cabinet Reform Committees, and each of these committees will bring forward reform proposals to National Cabinet in 2021.

"National Cabinet will also receive reform proposals from CFFR next year, and identify reform priorities for the final National Cabinet Reform Committee — on Population and Migration."

One of those priority areas is emergency management, with the NFRC reaffirming that all jurisdictions will collaborate to implement the recommendations of the Royal Commission into National Natural Disaster Arrangements (the Royal Commission), through the NEMMM.

Ahead of the 2020–21 high-risk weather season, NEMMM will focus on:

- the Australian Warning System
- the Australian Fire Danger Rating System
- nationally consistent pre-agreed disaster recovery funding arrangements
- a review of the path to expeditiously deliver the Public Safety Mobile Broadband.

"Emergency Management Ministers will work with other members of their governments to implement the Royal Commission recommendations, ensuring the recommendations are comprehensively addressed in a whole-of-governments manner," the Prime Minister said.

The NSW Bushfire Inquiry noted in August 2020 that the PSMB National Project Management Office (NPMO), hosted by NSW and responsible for delivering work streams under the national PSMB Strategic Roadmap, "is in transition to centralised coordination under the Commonwealth".

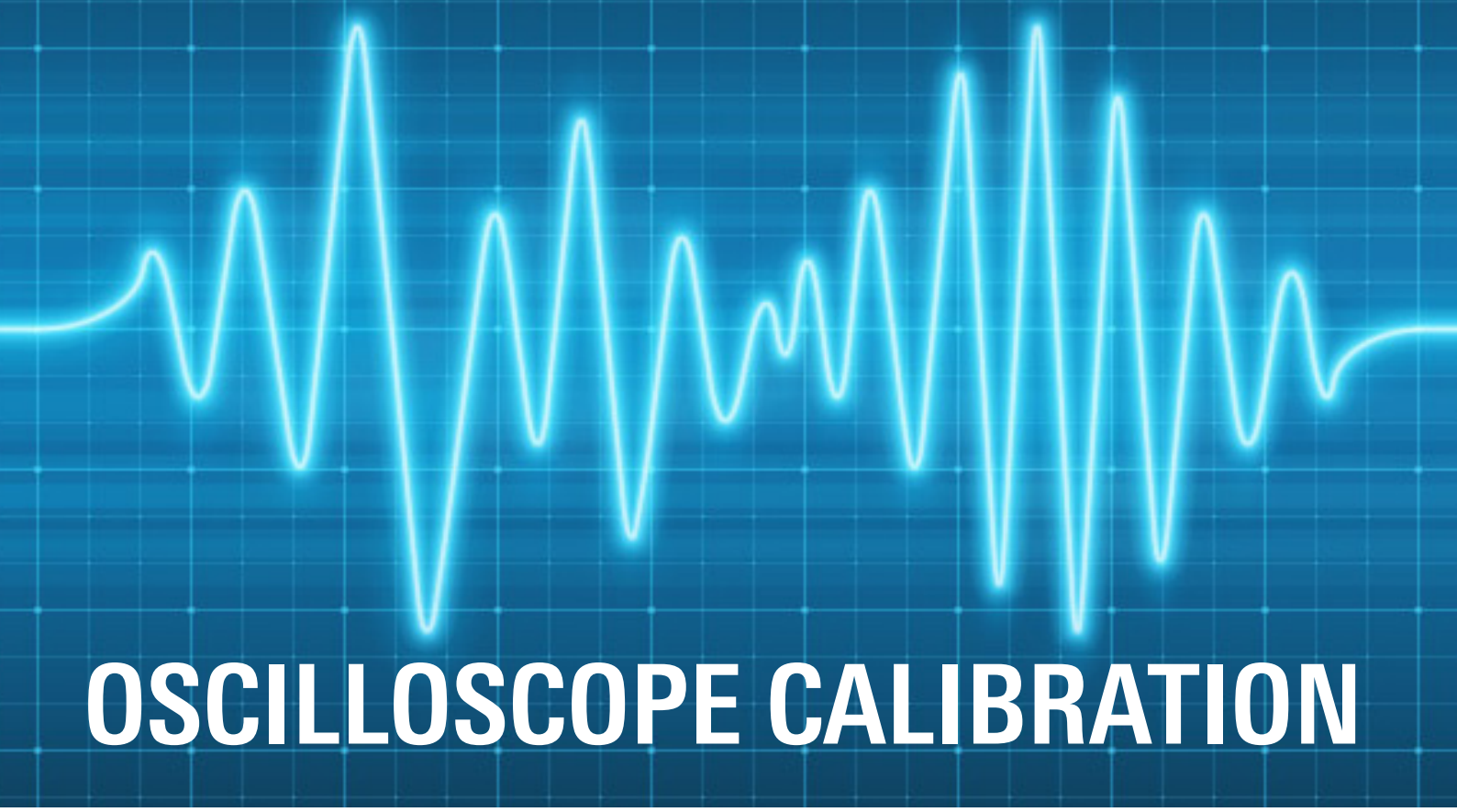
"The Inquiry understands that funding arrangements for the NPMO and the proof of concept are not resolved between the jurisdictions, and that this is required for the national PSMB program to proceed."

The Inquiry also noted that the Commonwealth "has set aside 5 + 5 MHZ of spectrum for PSMB and offered this allocation to states and territories at below market value. However, NSW agencies advised the Inquiry that this allocation is only sufficient for business-as-usual public safety activities and would require heavy reliance on supplementation from commercial spectrum.

"NSW agencies support provision of 10 + 10 MHz of dedicated spectrum to reduce reliance on carrier spectrum and allow for streaming of real-time data from multiple, concurrent sources," the Inquiry report stated.

"In addition, given that the PSMB is solely for communications that support community protection and safety, the dedicated spectrum should be provided at no cost to states and territories," the report added.

Thus, the recommendation is that "in order to ensure emergency response agencies can communicate across state and territory borders, the Commonwealth Government [should] allocate 10 + 10 MHz as a dedicated spectrum for Public Safety Mobile Broadband (PSMB) at no cost to states and territories".



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Industry Talking

Welcome to 2021! Let's hope that this year we can reach some kind of new normal with the vaccines rolling out, and that we can begin to work on getting all of our communities back on an even keel.

To finish off 2020, ARCIA held an online event to celebrate the end of the year and recognise industry members nominated by their peers through our annual awards. The intent of the event was to get people together in their respective workplaces and have a relatively quick celebration. It was awesome to see over 200 people from 60 different locations around Australia log in and participate. A full list of winners has been published, and I would particularly like to thank Andrew Wyborn, who ran the event and showed off his excellent presentation skills.

The Jonathan Livingston Seagull award, the top gong from our industry, was presented to Mark Mezzapica from RF Industries. This is a very well deserved award; congratulations Mark. Thanks, too, to the team of people involved in keeping this a huge surprise until Ian Hyde, the originator of the award, made the presentation to Mark at RFI's Sydney office.

In November ARCIA was invited by the Department of Infrastructure Transport Regional Development and Communications to participate in an online discussion about using 5G as a tool for innovation and productivity. There is a growing recognition within government that private LTE networks will have a part to play in the future of communications, and government is progressing through a number of programs. More information can be found at https://minister.infrastructure.gov.au/fletcher/media-release/supporting-australias-5g-future.

At the start of every year, ARCIA commences with planning days to set the program for the coming 12 months. Obviously 2020 didn't quite go to plan. However, in February, ARCIA will run a series of online planning sessions for committee members, partners and anyone else interested to set the scene for 2021. This will be done from local hubs connected via Zoom, with the aim of getting great local conversations going without interstate travel being required.

In my view we really need to move on with training. I think we have now proven there is demand for online and in-person training. I am hoping that 2021 will be the year that ARCIA can make more content and courses available for members. More information on this will be released following those planning days in February.

Finally, we are delighted to announce that the annual gala dinner will return to Melbourne on 17 November 2021 at an exciting new venue. Given that this might be the first time industry will have had the chance to be all together again, ARCIA is planning to make this a year worth remembering. We are also hoping that we will be able to return with our usual functions throughout the year to help bring each of our groups of state members back into local networks again. It is important that we renew those networks to provide mutual support to all members.

Hamish Duff, President
Australian Radio Communications Industry Association

Mini-rack range

METCASE has added 5U as a standard height to its TECHNOMET 19″ range of mini-racks for tabletop instrumentation. They are now available in all heights from 3U to 6U.

The mini-racks are designed for mounting standard 19″ subracks, chassis and front panels. Applications include test and measurement equipment, networking and communications devices, sound and studio systems, laboratory instruments, industrial computers and control systems.

The elegant enclosures consist of two diecast aluminium front and rear bezels, the case body with internal chassis and a removable rear panel. Four snap-on cover trims create a flush-fitting cohesive design with no visible fixing screws.

The front and rear bezels include standard 19″ panel mounts with caged nut apertures for fixing the equipment. The four standard case sizes (3U, 4U, 5U and 6U) are all 400 mm deep. Custom heights and depths can be supplied on request.

The rear and base panels are ventilated to aid cooling. Inside there are two subrack/chassis support rails. All case panels are fitted with M4 threaded pillars for earth connections. ABS side handles are recessed for easy portability. Moulded ABS non-slip feet are also included.

TECHNOMET 19″ is available in two standard colours: anthracite (RAL 7016) and light grey (RAL 7035). Custom colours are available on request. Accessories include (unvented and vented) 19″ front panels and M6 caged nuts and fixing screws.

METCASE can supply the enclosures fully customised. Services include: custom front panels; CNC punching, folding, milling, drilling and tapping; fixings and inserts; painting and finishing; and digital printing of legends and logos.

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Australia Zoo's digital comms put safety first

When Queensland's world-famous Australia Zoo needed a new radio system, it was Hytera to the rescue with a state-of-the-art digital trunking solution.

While many zoos strive to present their attractions through scientific objectivity, Australia Zoo takes a different approach. Yes, science is important, even paramount, but there's no attempt at objectivity. The people at Australia Zoo absolutely love animals, and they want you to love them, too.

In reality, you're experiencing the animals and their habitats through a personal lens, the infectious enthusiasm of the great Steve Irwin and his family. Animals are named, you can pet kangaroos, you can even cuddle with a koala. Where many zoos seem designed around separation and observation from a distance, the animal enclosures at Australia Zoo are open and sprawling. The point is to forge a personal connection to the animals as individuals, to develop the passion Steve Irwin was known for, and experience the environment not only with your eyes, but with your body and your heart.

When it comes to communications systems, Australia Zoo has some fairly unique requirements and characteristics — a complex and extensive physical environment and a large volume of public visitors. It's vitally important for the public, staff and animals that reliable communications are available at all times. " We are honored to work with our local partner Mobile Communications who has provided Hytera radio system to improve communication across the zoo,"said Enzo Dellafiori National Sales Manager of Hytera Australia.

Australia Zoo was keen to upgrade from its outdated communications system, which was a mix of analog and digital technology.

The list of requirements for the new comms system might seem pretty standard, but each individual requirement is absolutely critical for deployment in such a dynamic environment. The list included:

- Consistently clear communications
- Long battery life for portable radio usage during operation times
- Large coverage area
- Secure channels for private conversations within the zoo to ensure no eavesdropping from the public
- Reliable, robust and waterproof radio design
- Emergency ALL CALL channels

After evaluating a number of options, the Zoo selected a digital solution from Hytera.

"We chose the Hytera XPT digital trunking solution using five RD982S repeaters," said Australia Zoo's Operations Manager, Brian Dore. "The trunking system accommodates our large quantity of radios using a small number of repeaters while the IP-based radios allow for system monitoring, remote configuration and diagnostics.

"We trialled Hytera PD462s with our old system and found them suitable for the application," he added. "System tests using a loan system from Hytera reinforced the decision."

For portable radios, the PD662 was chosen. The units were trialled prior to purchase and the Zoo found them to be simple, robust and suitable for

> The trunking system accommodates our large quantity of radios using a small number of repeaters while the IP-based radios allow for system monitoring, remote configuration and diagnostics.
> Brian Dore, Operations Manager at Australia Zoo.

zoo operation riggers. The MD652 model was chosen for the base/mobile radios, with their low cost and simple operation via the handheld controller microphone making them attractive.

The scope of the project was quite large, bearing in mind that the zoo covers 44 hectares (110 acres) and that 210 radios would be needed to accommodate all staff members during the busiest periods. Dore says the new system "easily" covers all of the zoo's environs and, in fact, coverage extends to the Beerwah shopping district a couple of kilometres away.

The deployment required the acquisition of new ACMA private frequency licences; installation of the base/mobile radios in cars and trucks; a new antenna system with multi-coupler; a new control cabinet containing repeaters, a backup battery and associated equipment; and system configuration, IT assistance, training and document provision.

"Mobile Communications have done an excellent job with the installation and commissioning of all the equipment," said Dore, adding that all of the radios and repeaters were programmed and tested at Mobile Communications' headquarters in Brisbane. The company also took care of training zoo staff in the operation of the new radios.

Earthing and IT connections were supplied by Australia Zoo and the existing aerial mast was used. "We could not have any radio down time during the implementation, so the new system was installed and commissioned in parallel with the old system. This negated any issues during testing and commissioning," said Dore.

The Zoo does not have a dedicated operations room, so the cabinet containing the repeaters was installed in a construction shed, with base and mobile radios stationed at reception and information desks.

There is scope for growth of the comms system should it be needed. The repeater cabinet has room for expansion if required, and Mobile Communications continually monitors usage rates to see how the repeaters are coping with traffic.

According to Dore, feedback from the staff has been very good, with users not reporting any communication issues. "Clips, antennas and buttons are heavy duty and fit for purpose," he added.

Finally, an unexpected benefit of moving to the new system has been that the radio channel system has reduced the excess radio communications experienced on the old main zoo channel, making the office environment much quieter.

Hytera

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

SOLVING WIRELESS CONNECTIVITY ISSUES IN MINING

John Yelland

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How to build a reliable and secure network that is flexible enough to suit the changing conditions of the mining sector.

Mining is a critical operation that requires massive efforts at various levels to make the process efficient, but operational costs can be reduced significantly with the help of modern technology.

One of the key areas of streamlining that many mining companies concentrate on is fleet management, as both manned and autonomous systems are now being used in mines. These systems use modern applications to communicate with each other and thus need a robust wireless communication channel. Vehicles used in various tasks around the mines can thus operate with real-time updates, which enables them to, for instance, decide between different routes.

Other critical applications supported by wireless communication include production and control, geographic information systems, video monitoring and intrusion detection systems.

A robust wireless network serving a mining pit offers many advantages, from checking the health of machinery in real time to communicating the status of the sites, thus contributing to site safety, security and surveillance. Additionally, the use of real-time video feeds for operations and surveillance is a rising requirement for modern mining sites.

With all these needs and a growing range of applications, the communication network needs to be both time critical and bandwidth intensive.

Challenges in network implementation

Implementing wireless communication channels around any mine is challenging. The network needs to be reliable, scalable, flexible and secure, and have multi-application capabilities. The coverage must also be strong enough around the various terrain levels of the mines — any lapse or failure in communication during the operation could turn out to be fatal.

Mining companies have the option to go with public or private cellular networks; each of these has its pros and cons. Public networks can be installed with minimal investment; however, they are prone to congestion due to the shared architecture and network coverage can be poor if the mining site is remotely located.

In the case of private LTE networks, mining companies can benefit from an ad-

> THE USE OF LICENSED SPECTRUM CAN RESULT IN SIGNIFICANT CAPITAL EXPENDITURE, WHEREAS UNLICENSED SPECTRUM IS SUBJECT TO CONTENTION AND POWER RESTRICTION.

vanced dedicated infrastructure; however, the use of licensed spectrum can result in significant capital expenditure, whereas unlicensed spectrum is subject to contention and power restriction.

These challenges are today being addressed through the use of a hybrid architecture, where a dedicated and private network maintains both wireless and wired connections to maintain a high-bandwidth and low-latency backhaul option.

Such a hybrid architecture also eliminates the need for installing communication towers around the mines. The simple placement of routers at strategic points establishes an efficient network that enables all entities to communicate with each other.

In addition to a cost-efficient architecture, the communication network also needs to have high availability, which is a critical requirement for fleet management applications.

Advanced wireless solutions achieve this with a hybrid architecture that integrates cellular connectivity with a self-healing mesh topology that ensures multiple paths for data packets, dynamic operating frequencies and redundancy in the radios. With such a network architecture, operators can ensure 99.99% up-time for the network without any failure.

Furthermore, to overcome transmission challenges such as delays and packet loss, the network could use innovative wireless routing protocols to improve data packet hand-offs proactively, in case of certain path degradation.

External threats

Along with these infrastructural challenges, a communication network is also vulnerable to other external interferences. Cybersecurity threats are common in critical mining operations as perpetrators may attempt to hijack the control unit or even the field networks. Thus the network not only has to be robust enough for the challenges around the mines but also has to be secure enough to endure attacks.

With the use of comprehensive options for encryption and authentication, combined with secure storage of keys, credentials and device certificates, wireless networks today can provide the robustness needed to withstand hostile attempts to cripple or attack the entire system. Such wireless networks must also be capable of hosting third-party applications that can provide an additional layer of security.

A robust communication network is the backbone of any modern mining site. Despite many challenges, it is possible to build a reliable and secure network that is flexible enough to suit the changing conditions of the mining sector.

John Yelland is Vice President and head of International Wireless Sales at Hitachi ABB Power Grids.

Hitachi Australia Ltd
www.hitachi.com.au

Image courtesy GSA.

PSCE AND GSA SIGN BROADGNSS AGREEMENT

Public Safety Communications Europe (PSCE) has signed a grant agreement with the European GNSS Agency (GSA) to coordinate the BroadGNSS Pre-Commercial Procurement program.

BroadGNSS will procure innovative solutions for applications, synchronisation and monitoring of critical mobile broadband communication infrastructure and information assets for public protection and disaster recovery (PPDR) operations.

The project brings together three members of a joint procurement team — the French Ministry of Interior (lead procurer), the Estonian Infocommunication Foundation and Finland's Erillisverkot — supported by PSCE and Austrian GNSS experts, OHB Digital.

The agreement provides for a total budget of €3.6 million over 40 months, commencing from 1 December 2020. Of that amount, €2.5 million is reserved for pre-commercial procurement of innovation solutions.

The challenge to industry is to seek solutions to apply EGNSS to further improve the overall capability of trustworthy information exchange, enabled by new broadband mobile communication.

BroadGNSS will consult government stakeholders across Europe in order to scope the specific objectives of the PCP procurement. A Prior Information Notice will be released to initiate consultation with industry to contribute knowledge and capabilities to help prepare a formal RFT to be released later next year.

BroadGNSS will build on the success of the BroadWay PCP, which is currently in the prototyping phase. Three prototypes are now in development to address the challenge to enable a pan-European mobile broadband system for PPDR. Prototypes are due to be evaluated in April, with interim demonstrations to the BroadWay group of procurers this month (November).

The prototypes are being developed under the leadership of Airbus, Frequentis and Leonardo.

Base station

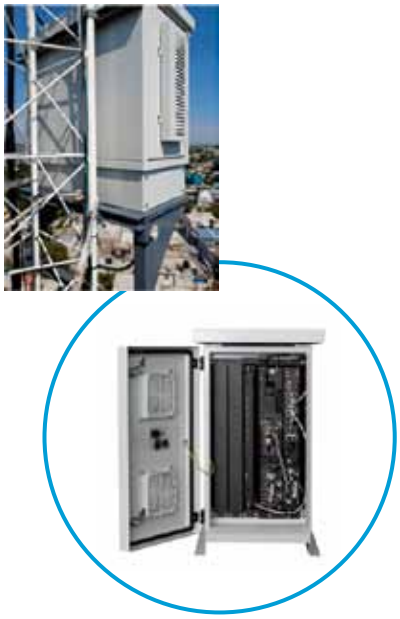
The Airbus outdoor Multi-carrier Base Station compact (MBSc) completes the company's Tetrapol base station portfolio with a mobile solution that provides various possibilities such as multi-standard compatibility, and benefits such as energy saving and infrastructure cost saving without any installation work.

The MBSc is designed for outdoor use and can therefore withstand high environmental temperatures.

It provides radio capacity to critical-communication users, even when located in remote or barely accessible areas.

This space-, power- and cost-saving network element is fully compliant with public safety requirements and compatible with the existing Tetrapol technology.

Airbus/Secure Land Communications
www.securelandcommunications.com



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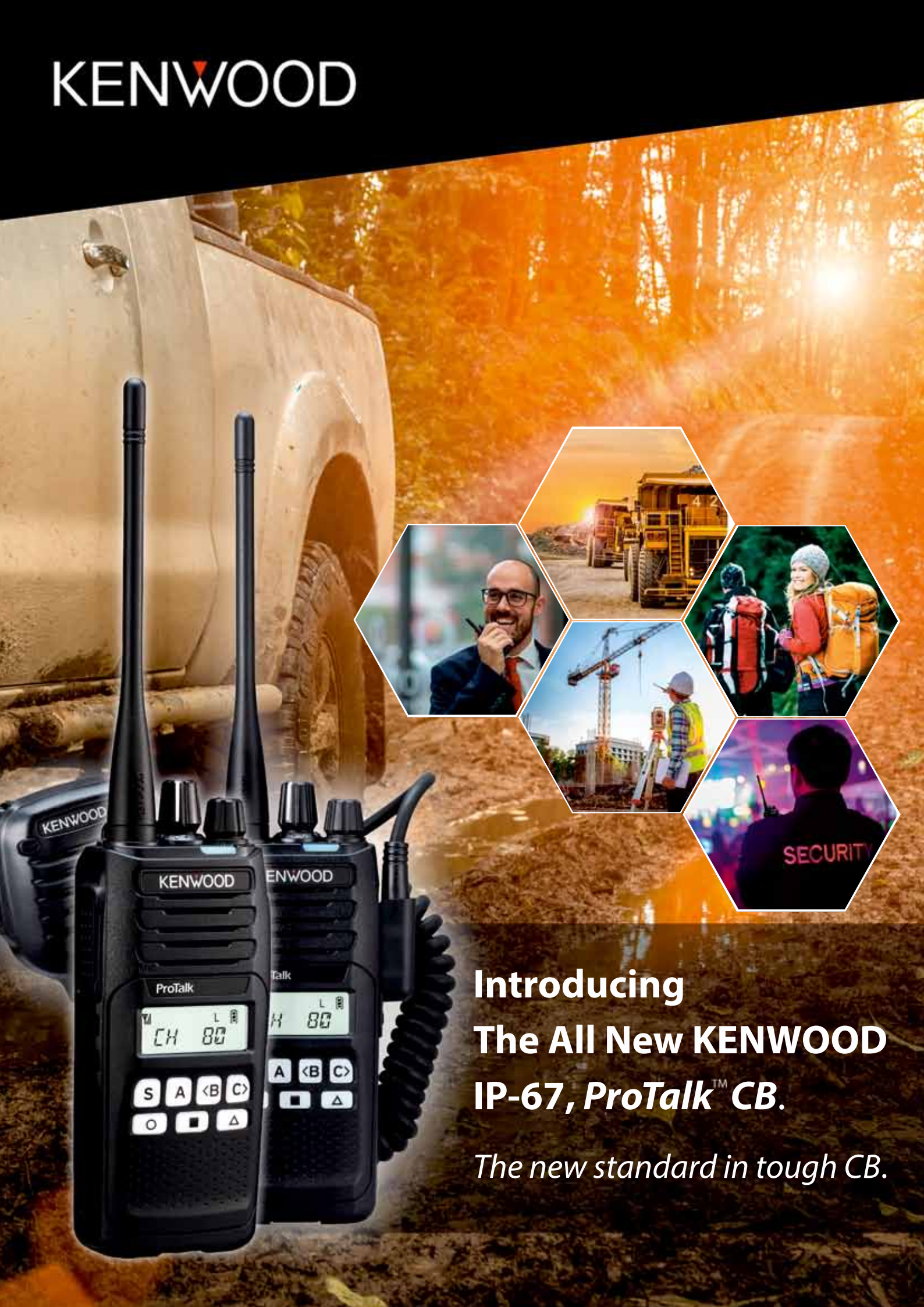

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Radio Matters

I am pleased to report the Annual General Meeting of the RFUANZ was held on 11 November via Zoom. The remit to change our Rules to include 'electronic' mailing of all AGM notices, ballot voting and termination of membership was passed. This is another step forward with technology and ensures efficiencies can be made going forward.

The election of the 2021 committee saw four newcomers, Justin Wonderlick (Vital), Steffan Kennerley (CSE-Genesis), Carl Garner (Ashley Communications) and Daniel Erickson (Amateur Radio Emergency Communications), joining myself as Chairman, David Johnson as Vice Chairman, Mike Head as Treasurer, Dale Roberts and John Laughton as committee members, and Debby Morgan as Secretary. Although the committee now numbers 10 in total, often throughout the year for various reasons some members are unable to continue. The additional number will allow the business of the organisation to continue without any further glitches, which is why the chair accepted all 10 members.

Training continues to be the main focus for 2020–21 for RFUANZ, with David Johnstone leading the initiative for the potential to establish a Level 4 qualification. This qualification would be more specific to the industry, but will require outside funding to develop. David has reached out to WISPA, TUANZ and RSM, with a broad agreement from them that training needs to be developed at this level. The seeking of financial assistance to do so is ongoing.

Finally, below is an interesting article that has been supplied to us, and approved for circulation, dealing with a new technology on the New Zealand landscape.

What is Terragraph?

Gigabit fibre-like speeds are becoming an industry norm as global IP traffic looks to increase threefold over the next five years. The number of devices connected to the Internet is expected to double and physical fibre deployments will not always an option.

Terragraph is a technology that operates on the 60 GHz unlicensed band delivering fibre-like speeds. The resilient mesh technology enables a multi-node mesh network, allowing for built in signal re-routing to ensure high availability and reliability.

In markets where fibre access to consumers is cost prohibitive and slow to deploy due to factors such as permitting, trenching etc, Terragraph can be a better alternative to provide fibre-like connectivity at a significantly lower cost. It is also much faster to deploy and can be brought to market in a matter of weeks.

Using street-level mmWave radios, Terragraph leverages existing street furniture to create a wireless distribution network ideally suited for last-mile fixed access.

One benefit of Terragraph is faster time to market, with it being faster to deploy than wireline service because it mounts on existing Street Furniture and does not require costly Right of Way Permissions. Another benefit is that it can be easily scaled as demand grows, greatly reducing the upfront investment needed.

Terragraph is suitable for: high-capacity Wi-Fi; mobile backhaul; dense urban and suburban areas; smart cities; subdivisions and retirement villages; bandwidth-hungry carrier-grade projects; and smart security.

Corey Weir
Chairman, Radio Frequency Users Association of New Zealand

RFUANZ
Radio Frequency Users Association of New Zealand

Network tester

The Anritsu Network Master Pro MT1040A is a portable 400G network tester for evaluating the transmission quality of networks operating at speeds ranging from 10 Mbps to 400 Gbps. Featuring a compact design, ease of use and broad test capabilities, the MT1040A can be used to efficiently and confidently install, maintain and troubleshoot communications devices, transceivers, cables, networks and data centres up to 400 Gbps.

Directly inserted next-generation QSFP-DD and OSFP multi-rate modules and break-out cables up to 400G with native SFP+/SFP28, QSFP and OSFP interfaces enable the Network Master Pro MT1040A to perform forward error correction (FEC) verification, Bit Error Rate, throughput and latency measurements. These tests verify performance of high-speed network cables and devices; private and distributive networks; access, metro and core network segments; mobile edge computing, and data centre TOR/COR equipment addressing new 5G application services. Communications carriers, network installation and maintenance companies, and back office and data centre personnel can use the tester to ensure the transmission quality of 400G Ethernet, OTN, eCPRI/RoE/CPRI/OBSAI, and Fibre Channel networks and elements.

The Network Master Pro MT1040A has a built-in 400G Ethernet FEC analysis function for quality evaluations of QSFP-DD and OSFP optical modules and 400G devices and equipment. Additionally, the MT1040A can be configured with compatible OTDR modules to simultaneously conduct optical line measurements to troubleshoot optical fibre faults.

Throughput and latency measurements between two remote points using GPS can be achieved by linking dual MT1040A instruments — one as a local and another as a remote. Using this functionality, uplink communications speed can be measured by the local tester while simultaneous and accurate analysis of the downlink communications speed is done by the remote unit.

Designed for today's installation and maintenance (I&M) environments, the battery-powered MT1040A has a large 9″ touch panel for operability. Measurements are simplified by a built-in remote control over network capability, as well as automatic test functions and multiple pass/fail evaluations that can be performed by pressing a single button.

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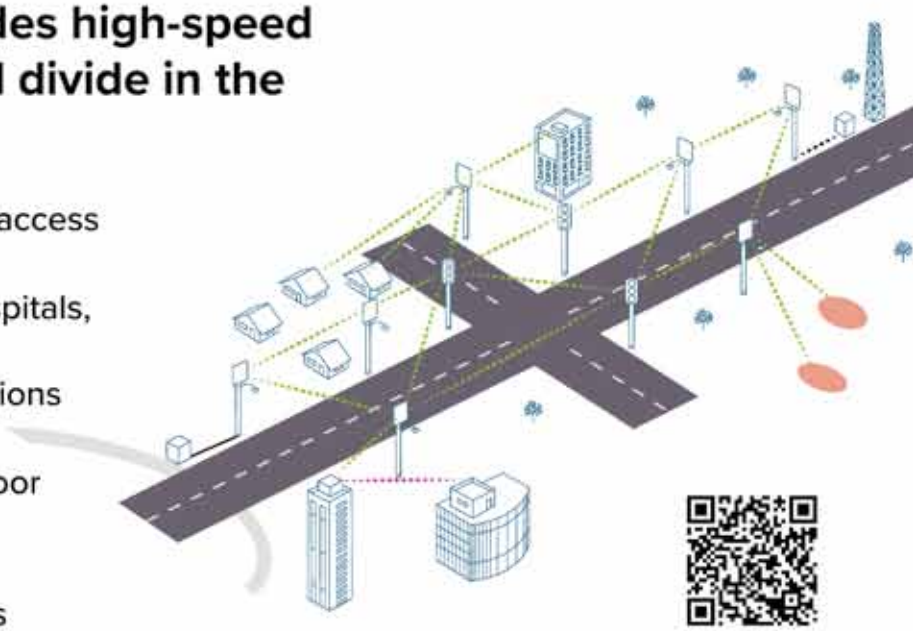

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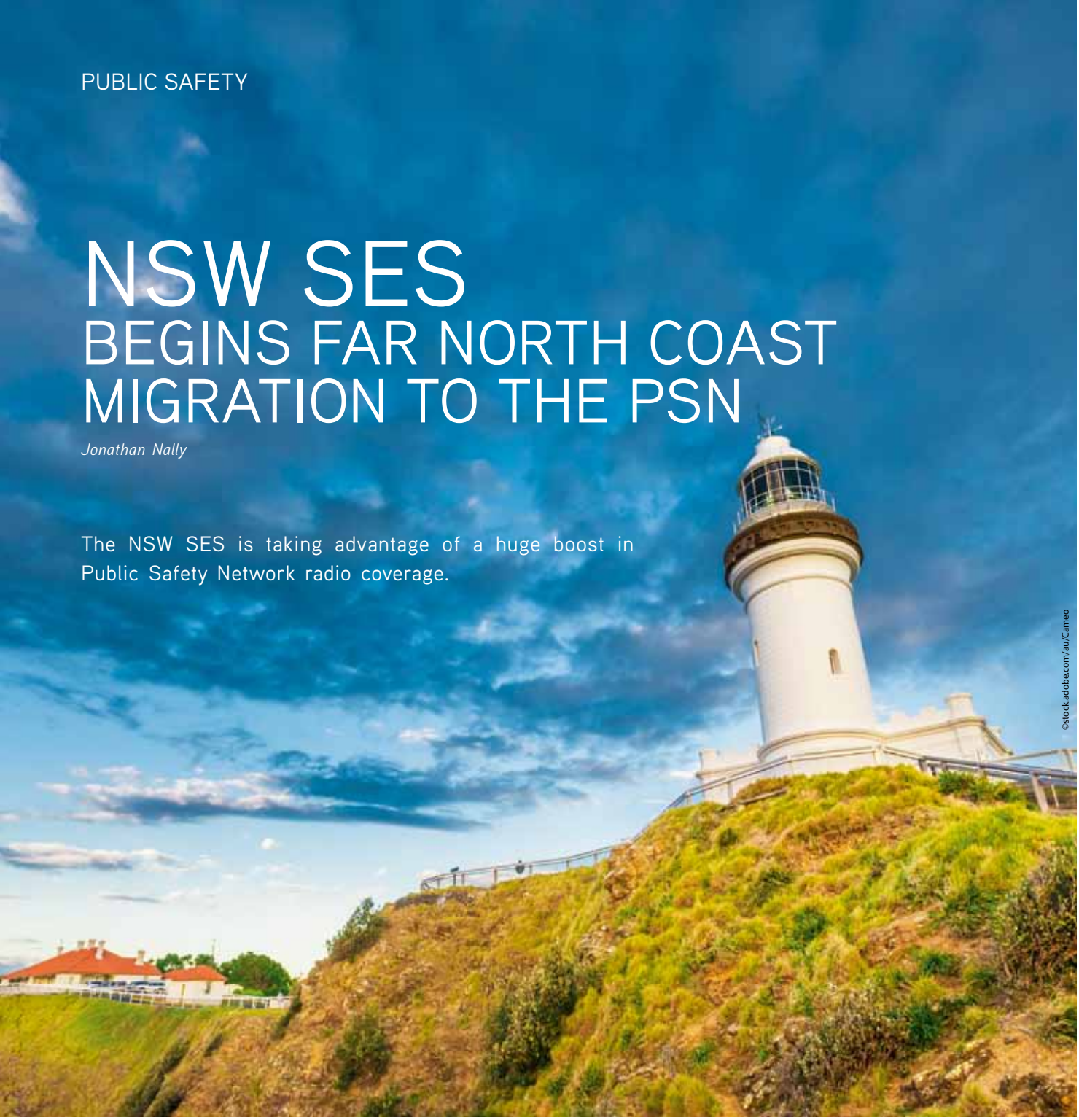
NSW SES BEGINS FAR NORTH COAST MIGRATION TO THE PSN

Jonathan Nally

The NSW SES is taking advantage of a huge boost in Public Safety Network radio coverage.



The NSW State Emergency Service (SES) has begun migrating to the Public Safety Network (PSN, also known as the Government Radio Network) on the state's Far North Coast following the network's expansion by the NSW Telco Authority through the Critical Communications Enhancement Program (CCEP).

The Far North Coast has been one of the focal points for the CCEP. The rollout, which has included the construction of new radio sites, means in-vehicle coverage from Byron Bay to Tweed Heads and Murwillumbah is now sitting at 91%, whereas previously there was no PSN coverage.

"Prior to the PSN, NSW SES relied upon its own separate network which provided approximately 69% radio coverage," said the NSW Minister for Customer Service, Victor Dominello.

"The PSN has enhanced the network with new features and functionality, such as improved voice clarity and interoperability, which enables emergency services to communicate on a single network, rather than on multiple separate networks."

The Minister for Police and Emergency Services, David Elliott, said the network expansion would give all emergency services organisations (ESOs) a boost, particularly during the upcoming summer storm season.

"The network's northern NSW rollout extends from Dungog in the Hunter to the Queensland border and will allow ESOs to migrate from ageing, analog networks to the PSN," Minister Elliott said.

"Emergencies can happen at any time and our frontline responders need every support possible as they work to protect communities," added the NSW SES Commissioner, Carlene York.

"The expansion of the network required extensive input, training and development and is a tremendous boost in helping NSW SES volunteers to save lives and protect communities."

The migration of NSW SES to the PSN in the Byron–Tweed area follows a $217 million increase for the program announced by the NSW Government in March 2020.

Overall, the NSW Government is spending more than $600 million to expand the PSN across the state.

HIGH SUCCESS RATE IN FIFTH MCX PLUGTESTS

Based on 3GPP Release-15, the tests included rail-specific features for the first time.

The fifth ETSI MCX Plugtests sessions resulted in a highly successful interoperability rate of 95%, giving industry a reliable set of standards for successful future implementations.

The results of the event, which took place from 21 September to 2 October 2020, are detailed in a report issued by ETSI.

The tests — which were based on the 3GPP Release 15 specifications — "are essential to ensure seamless access to mission critical services over 4G networks across different vendors' products and implementations", according to ETSI.

Highlights of the event included initial railway-orientated capabilities in 3GPP Release-15, such as functional aliases and multi-talker, helping to pave the way for the Future Railway Mobile Communication System (FRMCS). This was the first time that rail-specific features had been included in the Plugtests series.

More than 170 delegates from across the world executed around 1350 test cases during 169 test sessions, with interoperability results reported via the ETSI Test reporting tool.

The primary test scenario included MCX application server(s) — both controlling and participating — and MCX clients deployed over a generic SIP/IMS core, and an LTE access network with and without MCPTT required Policy and Charging Control (PCC) capabilities with native multicast support (Release-14 and higher eMBMS) and user equipment.

The tests included connectivity, floor controlling, registration and authorisation, affiliation, security, MCVideo Transmission Control and server-to-server communications. Around 50 new test cases were developed for the event and will be added to ETSI TS 103 564.

The tests were designed for the following equipment:

- MCS application servers (MCPTT, MCDATA, MCVIDEO)
- MCS clients (MCPTT, MCDATA, MCVIDEO)
- eMBMS components
- IMS/SIP cores
- Railways communications systems
- Consoles and control rooms
- MCS test equipment

According to the report, 5% of the tests failed "for various reasons".

"The detailed results of the tests are available for the involved vendors in these test sessions, but are not disclosed to the other vendors or to the public. All participants had to sign a Non-Disclosure Agreement and Rules of Engagement before joining the Plugtests event...," the report said.

"The failed tests give the vendors valuable information to improve their implementations. They also help to discover ambiguities in the standards and to clarify and improve the specifications."

A parallel, two-day online observer program brought together user organisations, public safety operators, government organisations and associations from Europe and the US who provided progress on mission-critical services deployment in various countries.

The program also covered the status of FRMCS standards, an update on 3GPP MCX Conformance and the Broadway Project and the status of IWF standardisation and TCCA testing and certification activities.

The full report can be downloaded via the ETSI portal at https://portal.etsi.org/Portals/0/TBpages/CTI/Docs/5th_ETSI_MCX_Plugtests_Report_v.1.0.0.pdf.

BAI AWARDED CONTRACT TO OPERATE NSW'S PSN

The NSW Telco Authority has awarded a five-year contract to manage the Public Safety Network (PSN) to BAI Communications (BAI).

The PSN, formerly known as the Government Radio Network, aims to provide emergency services organisations (ESOs) with a single, integrated platform to communicate rather than separate networks.

"To support state-wide mission-critical communications during disasters, the network covers an area of around 325,000 square kilometres, handles an average of 1.47 million calls per month and maintains 99.95% reliability," said the Authority's Managing Director, Kylie De Courteney.

"It's technology that saves lives and we are working to ensure that frontline responders have the critical infrastructure they need to protect communities.

"We look forward to working with BAI to operate and maintain one of the largest critical communications networks in the world."

De Courteney said the contract is based on a new service delivery model, developed in collaboration with NSW Police Force, NSW Ambulance, Fire and Rescue NSW, NSW Rural Fire Service and NSW State Emergency Service.

"The new model focuses on building a scalable, shared network, able to adapt to new technology and meet our customers' operational requirements now and in the future," she said.

"NSW Telco Authority will manage the contract to ensure BAI delivers improved services as part of our continued growth and transformation to meet the needs of our customers.

"As we expand the PSN through the Critical Communications Enhancement Program, we will work together to deliver world-class customer service to support emergency services organisations."

Next to Australia's triple zero emergency hotline, the PSN is the most critical communications network in NSW.

Through the Critical Communications Enhancement Program, the NSW Government is expanding the footprint of the PSN to cover 85% of state and deliver 98% population coverage.

BAI will operate from the NSW Telco Authority Network Operations Control Centre, recently upgraded to meet expanded PSN capacity and provide a hub to coordinate critical communications responses to emergencies.

BAI Communications
www.baicommunications.com

Router

The Peplink SDX Pro router is capable of up to 24 Gbps of throughput to handle demanding office situations. It comes with two module slots, giving it the flexibility to be customised to the user's specific needs and to adapt to new challenges. It also has a built-in SSD for edge computing needs.

The unit is designed to improve work efficiency by reducing latency and providing the ability to access all critical data even when the user is offline.

Wireless Tech (Australia) Pty Ltd
www.wirelesstech.com.au

WA ANNOUNCES PLANS FOR NEW EMERGENCY RADIO NETWORK

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The first phase of the project will see more than 11,000 radio devices replaced with newer technology.

The Western Australian Government has announced a $60 million plan for part one of a multistage project to build a dedicated, secure, statewide emergency services radio network to be used and shared by all first responder agencies.

Presently, emergency services agencies such as police, fire and ambulance, along with other organisations such as the prison system, all use their own dedicated radio systems. This means there is no ability for, for instance, police officers to communicate over the same channels as firefighters at an emergency scene.

The first phase of the project — for which tenders will be released in early 2021 — is expected to include the replacement of more than 11,000 end-of-life and outdated radio devices used by WA Police, Fire and Emergency Services, and Justice.

Once the project in its entirety is complete, it will provide a new network that could be used by WA Police, the Department of Fire and Emergency Services (DFES), the Department of Justice and other frontline agencies.

"Our frontline responders take enormous risks on behalf of us all and in turn we must do our best to make sure they are protected," said WA Premier Mark McGowan.

"With our summers getting hotter; we know there is an increased risk of fire. We have to be more efficient in dealing with that and part of it means ensuring that our agencies can talk to each other.

"This measure is designed to ensure that responses to crises and emergencies are swift and seamless."

WA Police Minister Michelle Roberts said, "This new shared radio network will ensure coordinated communications between police, emergency services and corrective services in a way that has not been possible before.

"It reflects our government's ongoing determination to ensure that our police and other frontline responders are safe and have the best possible equipment.

WA Emergency Services Minister Francis Logan said, "Effective communication is vital during an emergency event and whatever we can do to make that a more straightforward and less complicated process, the better it will be for our emergency services and first responders.

"The Department of Fire and Emergency Services already spends a great deal of time and effort trying to achieve the best radio and communications network for the state's many different volunteer and career emergency services.

"This new shared radio network will lessen that burden considerably and give our emergency services and those on the frontline one less thing to worry about."

In other WA news, Omnitronics has been awarded a contract by the DFES for the supply of an omnicore radio dispatch system for critical and other communications across the statewide radio network.

The system will be installed at the DFES Communication Centre in Perth.

According to Omnitronics, DFES is the second WA government department to select omnicore as its radio dispatch system in just a two-month time span.

ZETRON CELEBRATES 40 YEARS

Command and control room solutions provider Zetron has celebrated the 40th anniversary of its founding in the US in November of 1980, by Milt Zeutschel and John Reece, as a small regional paging business.

The company has since become renowned for its mission-critical communications systems and services, building a worldwide customer base and a wide portfolio of solutions used to serve hundreds of millions of people.

Zetron has led with a number of firsts, including launching paging products for volunteer fire departments in 1981; bringing the first user-programmable microprocessor-based radio dispatch console to market in 1987; the first public safety company to manufacture both radio dispatch and 911 call taking solutions in 1996; and being the first vendor to support the P25 CSSI in 2007.

"Zetron was founded in 1980 as a small business committed to providing high-quality solutions and extraordinary customer service," said Brent Dippie, President and CEO of Zetron.

"After 40 years our most significant accomplishment and sincere privilege has been relentlessly serving and earning the enduring trust of customer organisations where coordinated communications are the heartbeat of critical operations and services."

Locally, Zetron opened its Australia office in 2000 to manage APAC region business and quickly established a reputation for providing reliable mission-critical telecommunications quality, innovation and service for public safety, transportation, utilities and the resources market in the region.

"One of our keys to business longevity is that we have always done the hard stuff well," said Zetron Asia-Pacific Vice President and General Manager Ranjan Bhagat.

"It's our ability to provide simple but elegant solutions to meet complex customer requirements in the mission-critical space that sets us apart from our competition.

"We pride ourselves on ensuring the highest level of customer satisfaction and it's no surprise that many of our clients are now using the 4th or 5th generation of Zetron console systems."

Zetron Australasia Pty Ltd
www.zetron.com

Mobile MIMO antennas

The Step Global LTM and LTMG Series of mobile antennas employs MIMO (multiple-input-multiple-output) technology to accommodate a range of options from 3-cable antennas to a 9-cable antenna, the LTMG-944, that contains 4 x LTE for dual-carrier Cellular MIMO, along with 4xWiFi and 1xGNSS internal elements.

All antennas come with integrated ground plane and have a very low correlation coefficient. They are built for harsh environments.

The range of elements that can be specified are: Global 5G/LTE: 617–960 MHz and 1710–6000 MHz, Global LTE: 694–4200 MHz, Wi-Fi & DSRC: 2.4–2.5 and 4.9–6.0 GHz, UHF: 450–470 MHz, GNSS: 1561, 1575 and 1602 MHz, Iridium: 1616–1626.5 MHz.

The "G" after LTM specifies GNSS — Global Navigation Satellite System. GNSS operates on GPS, Galileo, Glonass, QZSS or Beidou at 1561, 1575 and 1602 MHz. All antennas come in thru-hole or mag-mount enclosures and thru-hole can be supplied with pole mounts. All cable lengths and connector types can be customer specified.

Step Global Pty Ltd
www.stepglobal.com.au

Network bridge

The DAMM Cellular Systems TetraFlex Network Bridge enables extension of existing TETRA networks from other suppliers, supporting individual and group communication across networks. With the network bridge, users can move between the existing TETRA network and the expansion provided by DAMM in what feels like one network. This means that terminal users will have access to the same features and services in the extension as they do in their network of origin.

The application supports the following communication features between the existing network and the expansion provided by DAMM: group calls and SDS messages; individual calls and SDS messages; and free roaming between the networks.

Damm Australia

www.damm-aus.com.au

PTP and PTMP radios

The RAD Airmux family of scalable broadband radios provides high-performance point-to-point or point-to-multipoint connectivity. Operating in the sub-6 GHz unlicensed/licensed bands, Airmux offers benefits such as up to 750 Mbps (BS aggregate) and up to 250 Mbps (SU) with beamforming technology for guaranteed bandwidth per subscriber; scalability up to 64 subscriber units; advanced MIMO, OFDM and diversity technologies for interference immunity; robustness for operations in harsh conditions, extreme temperatures and nLOS/N-LOS conditions; extended range of up to 120 (point-to-point) and 40 km (point-to-multipoint); and a web-based radio planner and built-in GPS/Wi-Fi for set-up.

The family is suitable for enterprise and over-subscription services for residential customers (in a single device); reduced interference and direct connection of video surveillance cameras; resilient and secure communications for public safety; secure connectivity and extended range backhaul for utilities; and high bandwidth for high-speed vehicles such as railways, subways and buses, and for border control and perimeter defence.

Wireless Tech (Australia) Pty Ltd

www.wirelesstech.com.au

Managing to succeed with a TPM

Technical project management has both advantages and disadvantages, a few of which I will cover in this article. But first, what is a technical project manager (TPM)? A TPM is a project manager who has the skills and training of professional project management but who is also an expert in the particular field in which they are engaged.

Project management courses train project managers to ask good questions rather than suggesting answers, and how to align big, important goals with clear deadlines. This is important because organisations have realised that in technology fields, the ability to ask good questions is dependent on strong knowledge… and so are the abilities to determine goals, deadlines and risks.

Consequently we are seeing growth in demand for TPMs for IT, data centre, smart building, telecommunications and radiocommunication projects. TPMs are insurance, used as a protection from financial loss and managing risk; primarily against contingent or uncertain loss.

What are the advantages of using a TPM? Efficient goal setting, improved communication, higher organisational satisfaction, increase of expertise and accurate risk assessment.

What are the disadvantages? Primarily higher initial project costs, although in saying that, organisations are seeing a reduction in TCO and a reduction in project contingency.

This generates an important question — why don't all technology projects use a TPM? It comes down to organisation project maturity, size, complexity and risk.

The key factor is organisation project maturity. TPMs will usually be found involved in projects for organisations that deliver technical projects frequently and have developed a project culture that is focused on the lowest cost delivery and maximum return.

So that's what a TPM is and why they are utilised. But what is the actual role of a TPM? A TPM is there to: discuss, determine and capture the organisational requirements; discuss, determine, test and capture the engineering requirements; and determine the feasibility of the project and look after costings and cost management.

A TPM is there also to determine the project program and program management; develop either a detailed brief, concept design or a reference design; and conduct a design review and provide overall management.

In addition, a TPM will conduct overall management of a construction and installation review, as well as overall management of a testing review.

Finally, a TPM will be intimately involved with acceptance — does the delivered solution meet or exceed the organisation's requirements?

TPMs are not the only 'technical' managers present on a project. On large projects there may be up to three sub-managers, each focusing on a specific phase of the project, in which case the supervision of these sub-managers is the responsibility of the TPM. But in most cases, these roles and responsibilities reside with the TPM.

A final word. I suggest that if you are involved in construction or delivery, it would assist you to update your processes and procedures to include a Construction Manager and a Testing Manager. You already do this work, but in an ad-hoc way. Just improve the process. The technology is becoming complicated and integrated, and projects are becoming less forgiving with cost and schedule overruns. So this kind of improvement is something to consider.

In conclusion, TPMs are an asset of any technical project, and more organisations are using them to deliver projects. Expect to see one on a project near you.

Lawrence McKenna is Principal Engineer (Manager) with Cumarsáid. He has extensive ICT/telecommunication experience acquired from working 16 years with Queensland Rail, three years with Project Services (Qld) and five years with SKM. He is a member of the Standards Australia (Standards development) CT-001 (Communications Cabling) and CT-002 (Broadcasting and related services).

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