AMTA

Australian Mobile Telecommunications Association

ANNUAL REPORT • 2017

AMTA Members

Carriage Service Providers
Optus, Telstra, Vodafone Hutchison Australia Pty Ltd, Virgin Mobile, Amaysim, Lebara Mobile, Lycamobile, Pivotel Mobile

Handset Manufacturers
HTC (Aust & NZ), Motorola Mobility Australia, Samsung Australia, Sony Mobile, ZTE Australia

Infrastructure Suppliers
Ericsson Australia, Huawei Technologies, Nokia Solutions & Networks Australia Pty Ltd, Qualcomm International

Retailers
Mobile Monster, Mobile Network

Support Industries
Acquirecomm, Axicom, Brightstar Logistics, Evans Planning, ParadigmOne, Risk Insure, RF Industries, Urbis Pty Ltd, VicTrack, Warren & Brown Technologies

AMTA Contacts

Membership
For information about AMTA or membership inquiries phone (02) 6232 4488 or see website: www.amta.org.au

MobileMuster
To contact MobileMuster phone (02) 8920 3555 or email mobilemuster@amta.org.au. For more information about MobileMuster see www.mobilemuster.com.au

Mobile Carriers Forum
To contact the Mobile Carriers Forum (MCF) phone (02) 6232 4055 or view www.mcf.amta.org.au

AMTA's Vision

The Australian Mobile Telecommunications Association (AMTA) is the peak national body representing Australia's mobile telecommunications industry.

AMTA's vision is to promote an environmentally, socially and economically responsible, successful and sustainable mobile telecommunications industry in Australia.

AMTA aims to achieve its vision by:

- Effective industry representation and leadership.
- Generating consensus on whole-of-industry issues.
- Improving the level of trust between the industry, related industries, key stakeholders and the wider community.
- Promoting an improved understanding of its contribution to the Australian Community.

Unit 7, 17 Napier Close, Deakin ACT 2600 Australia | PO Box is 103 Deakin West ACT 2600 Australia
P: (02) 6232 4488 F: (02) 6232 4677 www.amta.org.au | ABN 98 065 814 315

TABLE OF CONTENTS

CHAIR'S REPORT

The mobile telecommunications industry continues to play a vital role in Australian society.

Its contribution is set to expand further as the relevance of mobile technologies demonstrates significant value and utility across sectors, industries and communities. As a result, AMTA is both expanding membership and diversifying our engagement given the increasing influence of mobile.

Our industry, in partnership with government, business and the community, demonstrates how responsible prosperity, social value and sustainable development can work in unison to meet community expectations.

This was further confirmed by the 2016 GSMA Global Mobile Connectivity Index which placed Australia as the leading performer out of 134 countries accounting for more than 95% of the world's population against the key parameters of mobile connectivity – infrastructure, affordability, consumer readiness and content.

AMTA's focus on priority issues continued through 2017 with strong and effective advocacy related to: network infrastructure and deployment; the need for additional spectrum; social responsibility and sustainable development in all three primary contexts – economic, social and environmental - a classic triple bottom line contribution.

Our MobileMuster program retains its status as a leading government accredited product stewardship program – one of the very few voluntary industry self-regulatory schemes, and our consumer education initiatives are a cornerstone of accessible public information covering key issues such as public health, driver safety, online safety and mobile device security.

The industry has invested considerably during 2017 to ensure high levels of customer service resulting from innovative products and services based increasingly on 4G / LTE and the mobile broadband experience as well as introducing the 'industrial internet' that will be further enabled by 5G the next generation of mobile evolution.

AMTA Chair Stuart MacIntrye in discussions with Minister Fifield.

The fabric beneath a radical new ecosystem

5G - the next-generation mobile network technology - is perhaps the most significant technological shift we will see since computers replaced typewriters. 5G isn't just a network - it will become the underlying fabric of an entire ecosystem of fully connected intelligent sensors and devices. It will capable of overhaul economic and business policies, which will further blur geographical and economic borders.

Commercial availability is expected as soon as 2020. While the official standards for 5G are still being developed by international standardisation bodies such as 3GPP, at this stage the exact key performance requirements for 5G are being reviewed and finalised by the International Telecommunications Union and industry to ensure 5G is successfully rolled out in Australia.

Based on a draft report from ITU members, including key industry players, national and regional standards development organisations, regulators, network operators, equipment manufacturers, and academia, we will likely see the following from 5G:

Super-Fast Wireless Broadband

5G network technology is poised to push the performance envelope, with expected peak data up to 20 Gbps for download speeds, and an uplink peak data rate of up to 10Gbps – around 20 times faster than current 4G download speeds, and upwards of 60 times faster than current 4G upload speeds. 5G will be underpinned by a high bandwidth spectrum.

These improvements to the network are expected to deliver more efficient data transmission, resulting in lower cost-per-bit for data, which will be an important driver for increased use of broadband applications on mobile networks. This is likely to allow wireless technology to provide an ultra-reliable connection that is indistinguishable from wireless to support applications such as autonomous vehicles and AR/VR experiences.

Massive Machine connectivity - IoT at the heart of design

5G is likely to build upon existing investments in traditional machine-to-machine (M2M) and IoT applications, moving from millions of devices to billions of things.

Ultra-reliable and low latency

Proposed 5G use cases require high reliability and ultra-low latency connectivity with strong security and availability. Lower latency means faster application response times with Edge computing – having the applications near the edge of the network.

Greener

5G should support a 1000-fold traffic increase over the next decade, with an energy consumption expected to be roughly half of that typically consumed by today's network technology. 5G's improved low-power requirements, the ability to operate in the licensed and unlicensed spectrum, and its ability to provide deeper and more flexible coverage will drive significantly lower costs.

Secure by design

It is anticipated that 5G will support a wide range of applications and environments, from human-based to machine-based communication. As such, it must protect large volumes of sensitive data from unauthorised access.

How 5G could change business

5G will allow cities, transportation, and infrastructure to transmit real-time data for improved maintenance, safety and greater operational efficiency. It will potentially expand business opportunities and business models through monitoring, tracking and automation capabilities on a large scale. With 5G, industries will have connectivity that is customised for their requirements, and the ability to move quickly to meet customer needs and stay ahead of the competition.

5G will support cloud-native attributes like network slicing and on-demand scalable resource provisioning, enabling agility of product and service innovation for all market segments. Improved capacity and speed means fewer constraints on data transmissions, providing the bandwidth needed for streaming high definition content, such as ultra-high definition 360º virtual reality videos.

5G will undoubtedly impact all industry verticals - from retail to education, farming, transport, health and financial services - bringing both innovation and disruption. 5G will link infrastructure, people, machines, robotics, AI, and nanotechnology into a single ecosystem. A single network that can support IoT devices, as well as large scale mobile broadband, presents a huge opportunity and threat for businesses on the horizon.

Conclusion

As always, it is an exciting time to be in the mobile industry and during my first year as Chair, AMTA has continued to be an effective advocate on behalf of its members and for this I am very grateful to my fellow directors, AMTA's CEO and all the staff for their efforts to effectively pursue the priority issues on behalf of members.

AMTA Chair speaking in parliament house Canberra.

CEO'S REPORT

2017 – like every year in the mobile sector was dynamic and challenging. Clearly 5G was a dominant theme as we all discussed looming impacts, opportunities with increasing anticipation.

2017 was also notable in that a 4th mobile network operator signalled plans to enter the market – adding to the already significant competitive tension.

As always AMTA was focussed heavily on the policy and regulatory environment needed to support the central role of mobile plays in our economy and society. In 2017 several key reform agendas continued to unfold – particularly in relation to key mobile infrastructure such as radiofrequency spectrum and networks.

The Government has progressed its Spectrum Review - with no real surprise that a re-build of the Radiocommunications Act has turned out to be a more complex and time consuming task. Importantly the Review process has not delayed the ACMA with preparations for bringing more spectrum in several key bands to market – a process that is ongoing and reflects the demand pressures faced by the industry as customers' appetite for mobile data applications and services continues to grow strongly.

In parallel the Government is also looking at updating key regulatory settings in relation to mobile network deployment.

In further reform news the Government accepted all the recommendations of the 2015 ACMA Review process run by the Dept of Communications and in October of 2017 appointed a new Chair in Nerida O'Loughlin. This outcome should be a much needed catalyst for the implementation of the Review's many recommendations.

5G

AMTA began 2017 by forming a 5G Group and agreeing a strategy to raise the awareness of 5G working with members and stakeholders with specific policy and regulatory targets.

While 4G and its own evolutionary path will continue to evolve to meet market needs, the integration of 5G technology will further enhance the role of mobile telecommunications as a driver and enabler of productivity and connectivity throughout the Australian economy.

5G will be a core element of increasing connectivity that will enable innovations such as the Internet of Things, enhanced mobile broadband, massive and critical machine communications - all essential to a successful digital economy and networked society.

To explain the basics - AMTA's 5G Mobile Minute provided an informative outline of the benefits, future potential and how the 4G / 5G ecosystem of mobile telecommunications will connect the community beyond current services and applications.

The performance characteristics of 5G will enable further significant productivity gains by supporting innovations such as driverless vehicles, smart homes, smart cities and highly automated industrial processes across all sectors of the economy.

AMTA CEO Chris Althaus speaking at UTS 5G Forum.

In particular 5G will represent a step-change transformation across most industries and sectors including:

- Manufacturing and industry
- Vehicles, mobility, transport, and logistics
- Smart cities and homes
- Agriculture, mining, energy and the environment
- Emergency services and public safety
- Healthcare and telemedicine
- Media, entertainment and immersive experiences

While the mobile industry will lead the roll out of 5G networks across Australia, there is an imperative role for Government to support 5G through policy and regulatory settings.

Against this background AMTA worked with the Department of Communications on a 5G Directions Paper which sets out the Government's policy approach to 5G and identifies "immediate actions" such as:

- *making spectrum available in a timely manner;*
- *actively engaging in the international standardisation process;*
- *streamlining arrangements to allow mobile carriers to deploy infrastructure more quickly and at lower cost;*
- *reviewing existing telecommunications regulatory arrangements to ensure they are fit-for-purpose in the 5G era and*
- *establishment of a 5G Working Group to facilitate an ongoing collaborative dialogue with industry.*

These priorities within the 5G Directions Paper very much align with AMTA's priorities for this stage of the 5G evolution.

With commercial deployment of 5G anticipated around 2020, AMTA members are already testing 5G technologies as well as investing and expanding 4G applications and services.

AMTA looks forward to ongoing dialogue with Government on 5G to identify and remove regulatory barriers and maximise the innovation and opportunity it will enable throughout our economy and society.

(L-R): Minister Fifield launches Deloitte Access Economics report L to R: Stuart MacIntrye, Minister Fifield, Chris Althaus, John O'Mahony, Deloitte Access Economics.

Deloitte Access Economics report "5G Mobile – Enabling Businesses and Economic Growth"

To add to the 5G discourse AMTA commissioned an important Deloitte Access Economics analysis of next generation mobile telecommunications entitled; 5G Mobile – Enabling Businesses and Economic Growth, which was released in Parliament House, Canberra, by the Hon Mitch Fifield, Minister for Communications.

The report highlights key details such as:

- *facilitation and roll out of 5th generation mobile telecommunications (5G) is expected to further drive Australia's digital economy and add to the already significant (and growing) $34 billion in long-term productivity benefits from mobile*
- *annual network spend from mobile providers would reach up to $5.7 billion and likely to grow in FY2017-18*
- *examples of sectors and industries that will benefit from 5G such as manufacturing, energy and utilities, automotive and transport, financial services, health, education and media / entertainment*
- *the expansion of products and applications expected to accelerate under 5G – for both large industry, small to medium enterprises and*

consumers – based on new opportunities arising from applications such as artificial intelligence, robotics, drones, Internet of Things, self-driving cars, plus virtual and augmented reality.

"Every generation of mobile technology has generated very real economic and social benefits for Australia, across public and private sectors and individuals and communities across in urban, regional and rural areas across the country," said Deloitte Access Economics partner and lead report author, John O'Mahony.

"This will certainly be the case with 5G – if it is rolled out and harnessed in the right way," he said.

"5G will require significant investment, but this investment will also deliver significant returns in areas as diverse as time savings, enhanced opportunities for businesses and governments to develop new products and services that go to the very core of the way we do things."

AMTA will continue to focus on the evolution of the 4G / 5G mobile ecosystem and the benefits and opportunities it will enable.

Outreach and Collaboration

In 2017 AMTA also expanded its program of reaching out to other industry associations, research institutions, government departments and NGOs in anticipation of growing interest in 5G, the Internet of Things and related mobile-enabled technologies. Association staff are using this opportunity to inform, educate and engage key sectors and industries in the ongoing development and implementation of leading-edge mobile technologies.

For example, AMTA partnered with UTS and Nokia to host a networking forum in Sydney featuring an insightful presentation from Marcus Weldon - the President and Corporate Chief Technology Officer of Nokia Bell Labs. Forum participants included AMTA members, UTS academics, government officials, members and other stakeholders from the broader telecommunications industry.

A follow up seminar in Melbourne discussed the latest on the international EMF (Electromagnetic fields) exposure and compliance testing standards for 5G. Inherent in the discussion was an overview on how the Australian industry is preparing; the latest research perspectives; and the general importance of 5G to Australia. The event was organised by AMTA and the Mobile Wireless Forum and was fully subscribed.

Conclusion

The mobile sector continues to expand its contribution and influence. In representing the industry, AMTA continues to enjoy close and productive relationships with members and key stakeholder organisations.

To those individuals and organisations we work with - thank you for your engagement with AMTA in 2017. In particular, I note the very constructive engagement with the Department of Communications, the ACMA and our industry colleagues at Communications Alliance.

In closing, I want to thank the Chair and Board and all AMTA committee members for their engagement, advice and commitment of time to AMTA in 2017. On behalf of the AMTA team, we look forward to continuing the journey with you in 2018.

Finally, I acknowledge and sincerely thank the AMTA staff for their hard work and professionalism.

AMTA CEO speaks at Unwired Revolution Conference.

2016 Global Mobile Connectivity Index - Australia Ranks #1

The GSMA Mobile Connectivity Index is an analytical tool that measures the performance of 150 countries, representing 98% of the World's population, against the four key enablers of mobile internet adoption – infrastructure, affordability, consumer readiness and content.

Scores for each of these four key enablers are combined to produce a single composite measure for a given country of the strength of the foundations to support widespread adoption of the mobile internet.

The enablers of mobile internet connectivity that inform the indicators selected for the Index are:

- Infrastructure: availability of high-performance mobile internet network coverage
  (Australia's score: 73.2)
- Affordability: availability of mobile services and devices at price points that reflect the level of income across a national population
  (Australia's score: 82.4)
- Consumer: citizens with the awareness and skills needed to value and use the readiness internet, and a cultural environment that promotes gender equality
  (Australia's score: 94.9)
- Content: availability of online content and services accessible and relevant to the local population
  (Australia's score: 89.9)

TOP 10 PERFORMERS	Index	Infrastructure	Affordability	Consumer Readiness	Content
Australia	84.7	73.2	82.4	94.9	89.9
Netherlands	84.4	78.9	79.2	89.1	91.2
Denmark	83.9	81.7	76.0	93.9	85.1
Sweden	83.9	78.9	80.1	90.6	86.4
Norway	83.2	72.5	83.5	92.5	85.7
New Zealand	82.7	73.9	77.8	92.2	88.3
Finland	82.6	76.0	80.9	92.6	81.9
USA	82.6	80.7	72.5	92.3	86.4
Iceland	81.8	73.6	81.0	91.7	81.8
United Kingdom	81.7	72.7	77.1	88.1	90.3

AMTA POLICY PROGRAM

AMTA's Policy Committee and 5G Group focus on identifying policy issues that could impact on the mobile industry's ability to roll-out the next generation of mobile services and technology.

AMTA aims to influence policy makers in order to achieve policy settings that enable and encourage continued investment by the mobile industry in order to deliver 5G and its associated social and economic benefits.Our objective is to encourage policy settings that:

- Promote public trust and confidence in mobile services, devices and technology;
- Build consumer awareness and deliver robust consumer safeguards;
- Encourage ongoing innovation and continued investment in infrastructure; and
- Result in a regulatory and legislative framework that is reasonable, flexible and proportionate.

In 2017 AMTA's Policy Committee and 5G Group have had a strong focus on promoting awareness of the anticipated economic and social benefits of 5G and mobile broadband; as well as policy issues related to network infrastructure and radiofrequency spectrum.

Shadow Communications Minister Michelle Rowland and Warren Lemmens (Nokia) at Deloitte Access Economics Report Launch.

The Policy Committee also maintains a strong commitment in the area of social responsibility. This involves a focus on community engagement, consumer education and awareness, including issues relating to mobile device security and illegal or prohibited devices. It also involves engagement with policy makers in relation to issues of law enforcement and national security priorities as well as co-operation and engagement with law enforcement, national security agencies and emergency service organisations.

So far in 2017 we have made 18 submissions to Government and/or regulatory authorities in relation to various policy issues and proposals for regulatory reform.

Regulatory Reform to Support 5G

As industry prepares for the evolution from 4G to 5G mobile technology; the need for legislative and regulatory reform in the key areas of spectrum allocation and management and network infrastructure deployment is increasingly urgent.

Throughout 2017, the Policy Committee has remained focussed on its engagement with the Government's agenda for spectrum reform and ongoing consultation on the proposed Radiocommunications (Radcomms) Bill 2017 and associated legislative and regulatory reforms.

The Department of Communications and the Arts has indicated that a revised Radcomms Bill is likely to be tabled in Parliament in early 2018. The Department is also planning a second round of consultation at the end of December 2017 which will include consultation on the Transitional and Consequential Amendments Bill (T&C Bill) and the Radiocommunications Licence Tax Bill. The revised Radcomms Bill is also expected to include broadcasting spectrum.

5G will also require the roll-out of network infrastructure and the Mobile Carrier's Forum (MCF) is also engaged with Government regarding proposals for legislative and regulatory reform in the area of deployment. The Government's reform agenda on deployment needs to be broadened to meet the requirements for 5G. While this reform agenda has the potential to streamline deployment activities for mobile carriers; our proposals are always balanced with AMTA's long-standing commitment to address community concerns around deployment activities as well as any perceived health and safety issues.

AMTA directors at Deloitte Access Economics Report launch at parliament house, Canberra. L to R: Anthony Flannery, Chris Althaus, Jane van Beelen, Stuart MacIntrye, Warren Lemmens, Emilio Romeo and Matthew Lobb.

ECONOMICS AND INFRASTRUCTURE

Radiofrequency Spectrum

While the Government's spectrum reform agenda has been a strong focus, AMTA has also participated in the Australian Communications and Media Authority's (ACMA) consultations on specific spectrum bands including 3.6 GHz, 890-915/935-960 MHz, 26 GHz and other mmWave bands.

AMTA also partnered with the ACMA to produce a consumer fact-sheet and notice on Interference to Mobile Networks that can be used by mobile network operators to inform property owners about the potential causes of interference and how they can co-operate with network operators in resolving issues of interference.

AMTA again partnered with Deloitte Access Economics and commissioned them to produce a report – 5G mobile – enabling businesses and economic growth - which was released in October. The Report looks at the impact of 5G and its associated anticipated benefits for Australia's economy, particularly the transformative effect it will have on other industries and sectors.

AMTA CEO with Nerida O'Loughlin, incoming Chair Australian Communications Media Authority.

Lisa Brown (Manager, Policy), Chris Althaus, Stuart MacIntyre and Minster for Infrastructure, Paul Fletcher at Deloitte Access Economics Report Launch.

SOCIAL RESPONSIBILITY

The Policy Committee maintains a strong commitment to providing reliable consumer information and raising awareness on topics of concern including mobile device security, affordability, accessibility, cyber-safety and bullying, safe driving practices as well as general health and safety.

MobileTips and Consumer awareness

The MobileTips website is the public face of AMTA's social responsibility program and in 2017 MobileTips provided accessible and consumer friendly tips on topics ranging from direct carrier billing and how to manage content purchases to information updates on 2G network shut-downs and cyber-safety issues including the sharing of images online and by SMS/MMS. AMTA is working with the office of the eSafety Commissioner to ensure our tips reflect their advice on online safety and remedies available to anyone affected by online abuse or bullying.

AMTA also maintains a regular engagement with the Australian Communications Consumer Action Network (ACCAN) and continues to participate in the ACMA's Consumer Consultative Forum (CCF).

AMTA believes that such regular engagement, collaboration and co-operation between industry, government, regulators and consumers provides the foundation for a socially and economically responsible mobile telecommunications industry in Australia.

Prepaid ID Checks

In 2017, the ACMA made the *Telecommunications (Service Provider – Identity Checks for Pre-paid Mobile Carriage Services) Determination 2017* (the Determination). This revision of the Determination included amendments that enable several improvements to the ID check processes and streamlined the regulation by removing some legacy concepts and processes.

We are now working with the ACMA on a joint compliance plan for AMTA members which will further expand the number of credit cards that are acceptable as forms of ID for verification purposes, under the financial transactions method. This will enable an improved process for customers and mobile service providers. AMTA is also working with members and other stakeholders to understand how digital identity can be managed in the longer-term, including how planned Government digital identity management systems for customers of Government services can be leveraged by the mobile industry.

Notifiable Data Breach Scheme

The Office of the Australian Information Commissioner (OAIC) will have responsibility for managing the Government's Notifiable Data Breach Scheme from Feb 2018. The Scheme will mean that organisations will be required to notify the OAIC of breaches involving customer data and personal information where the breach could result in 'serious harm' to the individual. This will impact not only on AMTA members but potentially also MobileMuster. AMTA's policy program and MobileMuster are working with respective committee members to develop and implement an appropriate compliance framework for the program.

James Cameron Acting Deputy Chair ACMA with Sam Stephens, Nokia Head of Mobile Networks, Oceania at Nokia 5G demo.

Law Enforcement and Emergency Services

The Policy Committee is committed to strengthening and facilitating the well-founded partnership that exists between law enforcement and national security agencies, emergency service organisations and the mobile industry.

In 2016, AMTA started working with the Australian Maritime Search & Rescue Authority (AMSA) and mobile carriers to develop arrangements for AMSA's capability to locate missing persons using their mobile outside of mobile network coverage areas. The project was then put on hold until early 2017 when AMSA revised the capability. Implementation of the capability and protocols for its use, including finalising the technical arrangements with mobile network operators, is now being rolled out in a staged process.

Mobile Jamming in Correctional Facilities

There are now two approved mobile jamming trials managed by NSW Corrective Services at the Lithgow and Goulburn correctional facilities. The trial in Lithgow is operational but the Goulburn trial has not yet commenced. NSW Corrective Services has also announced plans to significantly expand the 'super-max' facility at Goulburn.

While all stakeholders appreciate the usefulness of mobile jamming in correctional facilities; there is also agreement that such use must not interfere with surrounding mobile networks or prevent access to emergency services. AMTA has advocated for an approach that includes managed access and/or detect and locate systems, as well as jamming where appropriate and where interference can be adequately and safely managed.

Communications Minister Mitch Fifield meets with AMTA Board.

MOBILEMUSTER

The MobileMuster program continues to play a leadership role in product stewardship and mobile phone recycling in Australia. Members of the program are constantly working to reduce the environmental and human impacts at each stage of the product life cycle. The industry also invests in design for environment and recyclability, energy efficiency, and reducing the use of hazardous substances.

Our members are playing a more active role in extending the life of the product through repair and reuse initiatives. The industry is committed to responsible recycling, increasing recycling rates and improving the resource recovery of materials in the recycling process. Our members support the development of a circular economy through their investment in recycling programs, like MobileMuster, which reduces the pressure on non-renewable resources. Some members are even looking at using recycled materials, such as plastics, into the production of new products.

The industry has invested over $42 million into the MobileMuster program which has recycled over 11 million handsets and batteries since the program started in 1998. In the past year the program has increased collections for the third consecutive year, this has been driven by the commitment of our members and partners who help spread the message and provide accessible collation points to their customers and community.

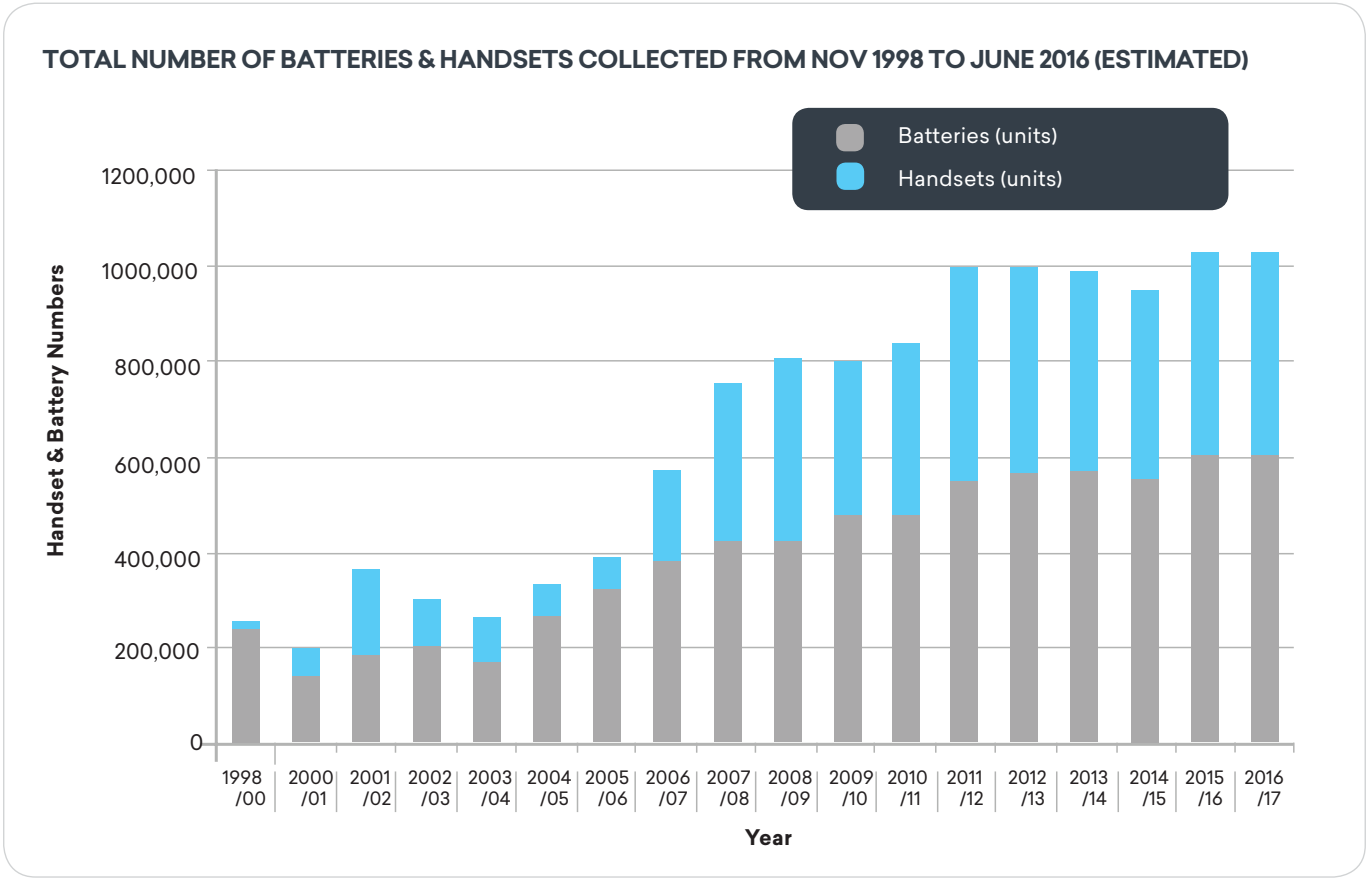


Figure 1: Total number of handsets and batteries collected.

New Industry Members

MobileMuster continues to grow its membership base and welcomed HMD Global (Nokia) and Google to the program. They joined the contributing members Microsoft, Samsung, Motorola, HTC, Huawei, ZTE, Alcatel, OPPO, Telstra, Optus, Vodafone, and Virgin Mobile. These brands are committed to working together to ensure that the promotion, collection, transportation and recycling of mobiles and accessories is undertaken with transparency and accountability.

Kieron Wogan (Head of Marketing, HMD Global), Spyro Kalos (Manager Recycling, AMTA), Mark Trundle (Managing Director AU & NZ, HMD Global), Chris Althaus (CEO, AMTA).

Public Education Raises Awareness

MobileMuster is committed to raising awareness about product stewardship and mobile phone recycling. Whilst the majority of Australians are aware that they can recycle their mobile phone, MobileMuster continues to invest in educating the community on how, why and where they can recycle.[1] This year MobileMuster partnered with OzHarvest, Australia's leading food rescue agency, to raise awareness of the program and provide an incentive to drive collections over summer. Using a multi-media and public relations campaign, MobileMuster promised to deliver the value of a meal to an Australian in need for every mobile recycled during the campaign. MobileMuster recycled over 60,000 mobiles and donated the value of 60,000 meals to OzHarvest over January and February.

Stuart MacIntyre presenting MobileMuster cheque to Henrietta Ardlie, Head of Fundraising OzHarvest.

1 IPSOS, Consumer insights into mobile phone use and recycling (February 2017). It was based on a used sample size of 1001 people Australia-wide. Respondents were randomly selected from an online panel and were over the age of 16 with a mobile phone.

Federal Minister Recognises Recycling Efforts

In June, the Federal Minister for the Environment and Energy, the Hon Josh Frydenberg showed his support for the program as he congratulated MobileMuster's top performing council collectors at Parliament House.

"Electronic waste is one of the fastest growing waste issues in Australia and it's great to see MobileMuster bringing industry and local government together to make it easy to recycle and deliver important environmental benefits to our communities."

The Hon. Josh Frydenberg MP (Minister for the Environment and Energy) and Spyro Kalos (Manager, Recycling).

Improved Recycling

MobileMuster continues to partner with TES, a global leader in electronic waste recycling, to maximise recovery rates and ensure components are recycled to the highest environmental standards. All mobiles, batteries and accessories collected by the program are dismantled into their core components and put through further processing with TES downstream recycling partners. Our resource recovery rate has remained high with the program recycling 99% of components collected.

This year TES has started using Envirostream to process the mobile phone batteries within Australia. Through new facilities in Melbourne the batteries are granulated and sorted into materials for recycling. The process recovers copper, aluminum, cobalt, nickel, lithium and plastics which can be reused. Envirostream has developed an in-country solution, reducing the need to transport the batteries overseas, utilising skills and innovation within Australia plus at the same time creating local employment opportunities.

Commitment to Voluntary Accreditation

The program is committed to the accreditation of MobileMuster as a voluntary product stewardship scheme under the Federal Government's Product Stewardship Act. The Association has welcomed the review of the Product Stewardship Act 2011 and looks forward to working with the Department on continuing to deliver a robust and voluntary program which continues to provide enhanced environmental, social and economic outcomes to Australia.

This year MobileMuster has successfully achieved its key performance indicators for the program established under our voluntary accreditation which covers collections, recycling rates, diversion from landfill and industry participation. MobileMuster will continue work with the industry to increase participation and invest in education and communication initiatives to increase and maintain awareness of mobile phone recycling.

Key Performance Indicators

Collections	Target	Actual
Mobile Phone Collections (weight – tonnes)	75.0	79.1
Annual Collection Rate, Available Phones (%)	57.5%	68.5%
Annual Collection Rate, Net Imports (%)	8.6%	10.3%
Estimated Number Handsets & Batteries (units – millions)	1.01	1.06%
Recycling		
Diversion from Landfill	97%	99%
Recycling Rate	>90%	99%
Consumer Behaviour		
Personal Storage Rate (% users with 2 or more handsets at home)	37%	34%
Disposal to Landfill Rate	2%	2%
Awareness of Mobile Phone Recycling	>80%	77%
Industry Participation		
Manufacturers	60%	40%
Mobile Network Carriers	91%	86%

The table above highlights the program's performance against its key performance indicators. MobileMuster has grown collections for the third consecutive year. This year the program collected and recycled 79.1 tonnes of mobile phone components. Now more than ever there are multiple options for how mobile phone users can better manage their old devices, including repair, passing them onto family and friends, selling them, trading them in or leasing, and when they do reach their end of life recycling them with MobileMuster.

MobileMuster's extensive collection network provides consumers as well as retailers, workplaces, schools, government organisations and local councils within Australia a free and accessible recycling service. There are over 3,500 public drop off points around Australia including over 2,000 retail stores to ensure the community has access to the program.

MOBILE CARRIERS FORUM

Throughout a very busy 2017, the MCF has continued to work with the industry, government and community to anticipate and respond to community concerns regarding the deployment of mobile telecommunications networks and balance community expectations with the demand from Australia's 32.5 million mobile phone services. The MCF continues to seek a better regulatory environment for planning, building and operating mobile telecommunications networks at federal, state and local government levels.

More Flexible, Efficient and Effective Regulation

In 2017 the MCF has continued to progress a substantial suite of reforms with the Federal Department of Communications and the Arts, seeking in particular to reform and update legislation and regulation related to the Low Impact Facilities Determination (LIFD).

The LIFD regulation permits deployment of mobile network infrastructure without undergoing full local or state planning processes where the infrastructure meets the definitions of 'Low Impact' in the Determination (meaning low visual or other amenity impact). The LIFD plays a crucial role in facilitating the upgrading and growth of Australia's mobile network to meet ever increasing customer demand for mobile telecommunications services.

The suite of reforms proposed by the MCF includes a range of amendments to permit modern technologies associated with 4G and 5G (such as 'small cells') to be included in the Determination, and to more readily allow deployments in mobile hungry areas of the community such as commercial and industrial zones.

The Department of Communications and the Arts issued a consultation paper on the proposed reforms in late June 2017, and the MCF worked with colleagues from the AMTA Policy team and its sister organisation in Communications Alliance to make a joint submission supporting the reforms. The reform package has drawn comment from a wide range of stakeholders including state and local government, property and building owner organisations, utility and infrastructure departments and others.

The Department is working its way through the submissions to address any concerns expressed, with a view to resolving a package of supported reforms to be recommended to the Minister for adoption. The MCF understands that this may happen as early as the end of 2017 and is encouraged by mention of the intention to implement a first tranche of reforms in the directions paper on 5G recently released by the Federal government.

It remains vital that the reforms proceed to implementation as soon as possible. With the imminent evolution from 4G to 5G mobile networks, and the quantum leap in expansion of speed and range of services which such networks will supply to communities and businesses, the potential gains to the community, government and industry from these amendments will only increase.

Likewise, the evolution to 5G networks will place additional demands on deployment regulation and processes, so that not only is it important that these amendments be adopted as soon as possible, but that further regulatory flexibility remain a goal that both industry and government work towards in the near and medium term.

Providing Confidence in the Safety of Mobile Network Infrastructure

When designing and deploying mobile network infrastructure, mobile carriers comply with strict science based safety standards limiting exposure of the public to radiofrequency fields from their equipment. The industry complies with all limits and is audited to ensure its processes meet the requirements of the regulators.

The carriers must also provide an Environmental EME Report, produced following a protocol specified by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) for every mobile base

station. The report estimates the RF fields in the vicinity surrounding a site, and is available to the general public via the industry's Radio Frequency National Site Archive (RFNSA) website at www.rfnsa.com.au and its mobile friendly app www.mobilesitesafety.com.au.

In 2017 the MCF has continued the measurement program it instituted in 2015 which aims to confirm that the fields actually measured at selected points near the base station site do compare with the maximum field calculated in the Environmental EME Report. The measurements are undertaken by an independent and accredited RF measurement expert using calibrated equipment to provide the utmost confidence in the results from the measurement program.

The number of sites measured continues to grow, allowing more accurate analysis of the overall data. The results show that the measured fields from base stations are many times below the maximum fields calculated in the Environmental EME Report, and on average by a factor of 10 or more, even when adjusted for maximum operating conditions which almost never occur in normal operation. Table 1 shows a summary of the results, including state by state.

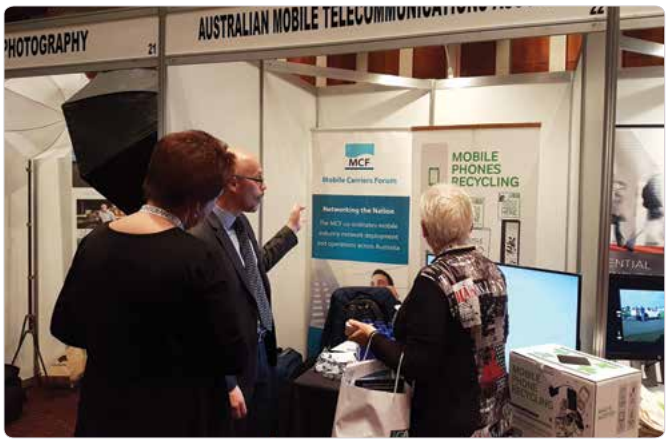
State	No. Sites	Measured	Reported	Ratio
All	69	1.4	8.9	13.0
NSW	20	1.7	9.6	10.6
VIC	18	1.0	6.6	15.0
QLD	14	1.2	9.5	17.1
SA	6	1.6	10.0	7.9
WA	11	1.6	10.1	11.8

Table 1: A comparison of measured and modelled EME levels for a selection of mobile base station sites throughout Australia showing measured levels many times lower than officially reported.

This result is not unexpected with the ARPANSA protocol deliberately overestimating a number of factors to provide additional confidence to the public that the levels provided in the Environmental EME Report will never be exceeded under any foreseeable conditions. Overall, the MCF considers the measurement program is providing results within expectations and which can provide the public with even more confidence that RF fields from mobile networks remain far below the safety limits in places where they are typically exposed.

The MCF has also analysed how EME levels from mobile network infrastructure compares with background levels of EME from all radio sources in the environment. This work remains ongoing, but surveys at sites which are typical of a capital city suburban location show that mobile networks produce only about 40% of the fields, while broadcast radio and TV produce more than half of the fields present (as related to the overall limits in the Australian safety standards specified by ARPANSA).

In late 2016 ARPANSA also published its own work measuring EME in the environment. Although the focus of the work was exposure of children to Wi-Fi in school environments the work also showed that fields from mobile networks was not only very low, but comparable to other sources of radio signals in the environment such as broadcast radio and TV (see Health & Safety).



MCF answers questions about regional mobile coverage at LGAT Local Government conference.

Ray McKenzie (MCF) along with Spyro Kalos and Larissa Shashkof from MobileMuster speaking with a local councillor at ALGA in Canberra.

The MCF will publish all the results from its own measurement program along with supporting explanatory information on a new website page to be launched later this year. The measurement program will continue in 2018 with the website to be updated with the new information and analyses as the results become available.

Improved State and Local Planning Arrangements

A key objective of the MCF is to avoid the inefficiencies of significant variations in local governments' approaches to mobile network deployment, which can significantly impact on the local communities' access to the important benefits of up to date mobile communications. To this end, the MCF works with state governments to provide regulatory consistency and certainty in the planning process and in particular encourage the adoption of state-wide telecommunications infrastructure planning policies and codes.

Typically, the MCF seeks to establish planning codes that provide for facilitated approvals of network infrastructure proposals that fall within certain height, planning zone and other amenity impact considerations.

After a lengthy process, the Tasmanian Planning Commission (TPC) gazetted its new state-wide planning policy incorporating a telecommunications code in March this year. The MCF had engaged in many rounds of negotiations and stakeholder feedback with the TPC over previous years (including previous governments) and is pleased that much of its input has been reflected in the new code.

However, some variations from MCF proposals have appeared in the new code, in particular some unnecessarily restrictive height limitations and lack of flexibility that may pose concerns for Carriers. It remains to be seen how local governments will adopt the new planning policy into their town planning schemes, with activity on this matter only just starting in local governments in Tasmania. The MCF will continue to monitor progress of the introduction of the code and assist in achieving sensible planning provisions where possible.

Planning harmonization in other states also continues to be an active challenge. In NSW, the State Environment Planning Policy (Infrastructure) has undergone a major review, with the implications for mobile networks yet to be resolved. In Queensland, the MCF is just embarking on a new effort to establish a state-wide planning policy for mobile networks, in the face of a significant planning review in that state which ignored this important (we would say essential) infrastructure.

MCF presents to industry representatives at various locations throughout Australia during their roadshow in November.

As part of its regular participation in local government events, this year the MCF attended both the Australian Local Government Association (ALGA) national conference in Canberra in June, and the Local Government Association of Tasmania conference (LGAT 2017) in Hobart in July. The challenge of meeting the demand for mobile services across the far reaches of Australia remained the topic of most discussion.

The MCF also presented to a number of local government meetings and seminars, including at Adelaide Hills in South Australia, where it provided a seminar on the significant planning and design effort that goes into selecting the best possible location for new mobile network sites before local councils are asked to consider them for approval, and how unwarranted concerns around health impacts or other matters can significantly compromise service outcomes with no benefits to the community. Our members have reported improved progress with their planning applications for new network facilities in these locations since the MCF presentations.

As the challenge to Carriers to meet new deployment deadlines to evolve their networks to be 5G ready in just a few short years begins apace, and the ever-increasing appetite of Australians for new and more advanced services delivered by our members shows no sign of letting up, 2018 looks to be another year which will keep the MCF on its toes!

5G: Key Enabler Across Industries

HEALTH AND SAFETY

The AMTA Health and Safety Committee, under the chairmanship of Mike Wood (Telstra), meets monthly to consider issues related to industry compliance with scientific safety standards and consumer access to independent expert information allowing them to make informed choices about their use of mobile telecommunications technology.

EME safety standards review

Throughout 2017, the H&S Committee has continued to monitor the ongoing review of international safety standards for radio frequency electromagnetic energy (RF EME) emissions from mobile telecommunications devices, television and radio, which is being undertaken by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). The review is now much delayed and although there had been some prospect for its completion during 2017 it now appears unlikely for there to be any confirmed standard before 2018.

Once completed, it is expected that the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), the federal regulator setting EME safety standards in Australia, will adopt the revised ICNIRP standard into its local version, thereby keeping Australia harmonised with the rest of the world. To alleviate some of the delays being experienced in the process, ARPANSA has already commenced a review of its standard, concentrating on those parts, such as safe work practices and medical monitoring, which are not dependent on the limit values coming out of the ICNIRP process. This will speed up the adoption of a new Australian standard once the ICNIRP process is finalised.

AMTA supports periodic review of safety standards to ensure they remain relevant and based on the latest scientific evidence. Industry is required to comply with official safety standards via regulations on the sale of devices and on the operation of radiocommunications infrastructure.

ARPANSA-AMTA Liaison Forum

AMTA met with ARPANSA in Melbourne in June for its regular annual formal meeting with the Federal Government's radiation safety authority. The standards review remained a key topic of discussion, in particular the timeline for ARPANSA's adoption of the revised standard. Also, the industry support for credible independent scientific EME research in Australia was discussed. The agenda and minutes can be viewed at: http://www.arpansa.gov.au/AboutUs/collaboration/amta.cfm

ARPANSA Wi-Fi in Schools Study

In December 2016, AMTA's H&S Committee welcomed the publication of the ARPANSA study investigating exposure of children to Wi-Fi in school environments. Although concentrating on exposure to RF EME from the Wi-Fi access points installed in schools, ARPANSA also took the opportunity to compare this exposure to other sources of RF EME in the environment including mobile phone networks.

Melbourne Seminar on 5G and EMF L to R - Dr Ken Joyner - Chair Mobile Wireless Forum, Davide Colombi - Ericsson's Senior Scientific Researcher from Sweden, AMTA CEO Chris Althaus, AMTA Chair of Health and Safety Committee and Chair of IEC TC106 Mike Wood.

Wi-fi and other common sources	School yard measurement
Wi-fi	0.000001% - 100 000 000 times below the limit
Radio broadcast	0.002% - 50 000 times below the limit
Mobile phone base station	0.0002% - 500 000 times below the limit
TV broadcast	0.00003% - 3 333 333 times below the limit
Other	0.000004% - 25 000 000 times below the limit

Table 2: Exposure from typical RF sources in the environment compared to ARPANSA safety standard. (Source: ARPANSA Wi-fi in schools measurement study https://www.arpansa.gov.au/research/surveys/wi-fi-in-schools-measurement-study)

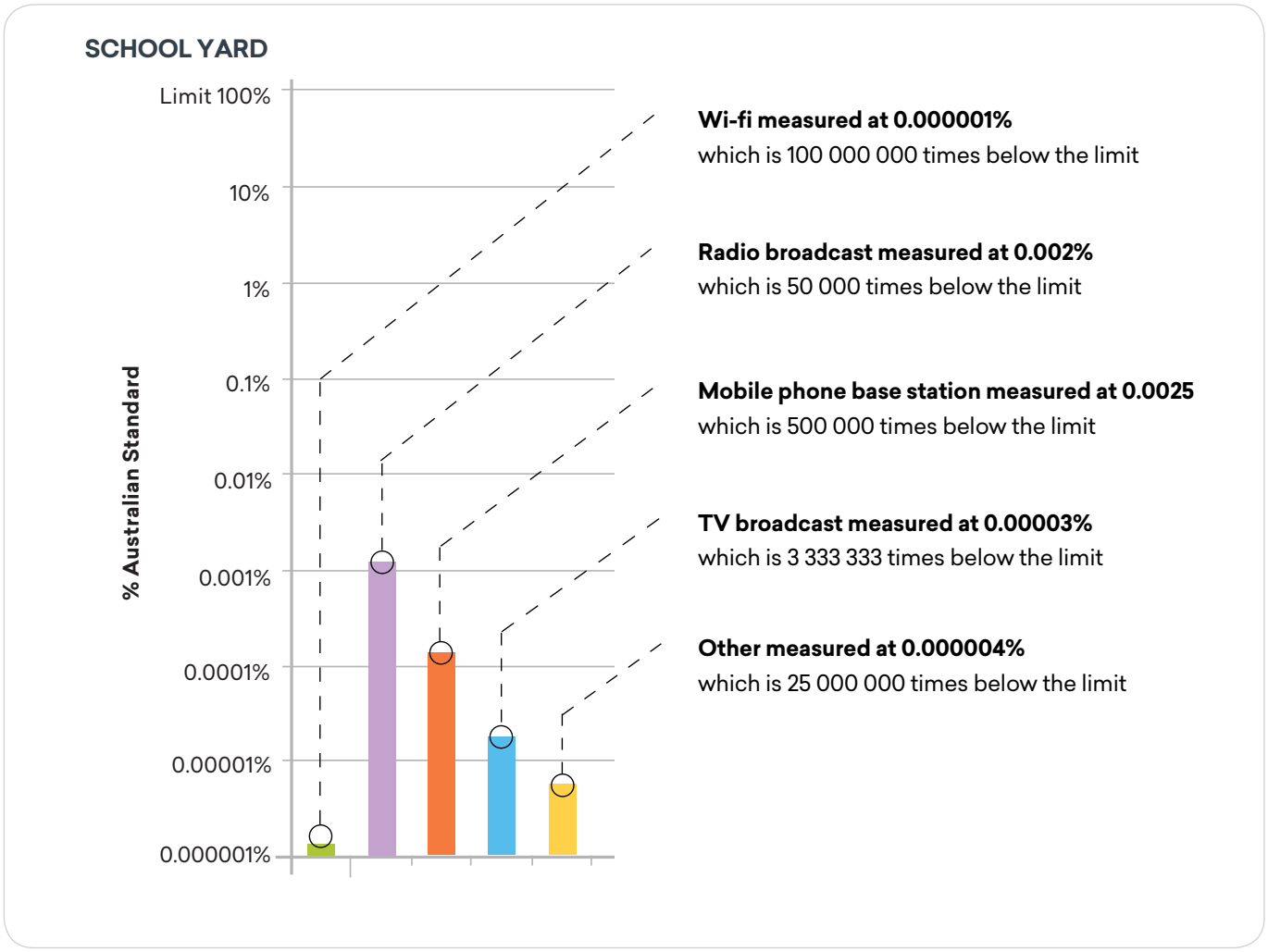


Figure 1: Typical exposure from Wi-fi and other common RF sources in the School Yard (Source: ARPANSA Wi-fi in schools measurement study https://www.arpansa.gov.au/research/surveys/wi-fi-in-schools-measurement-stud).

In a media release, ARPANSA commented "It is the assessment of ARPANSA and other national and international health authorities, including the World Health Organization (WHO), that there is no established scientific evidence of adverse health effects below current exposure limits."

The study was published in the peer reviewed scientific journal Radiation Protection Dosimetry and is freely available, with a summary of the results also appearing on ARPANSA's website (see links above).

MOBILE DEVICE SECURITY (IMEI BLOCKING)

Mobile device security remains a high priority for the mobile telecommunications industry.

The continued rise in smartphone penetration has significantly changed the usage behaviour of consumers. The mobile phone is no longer just for voice calling, but rather a data enabled device for consuming more – content, entertainment, mobile purchases and data applications.

In Australia, smartphone ownership is now around 84%, resulting in most customers demanding higher levels of security to protect their confidential data in the event of device loss or theft. Smartphones are generally more expensive than previous feature phones, and retailers also seek industry assistance as they experience increased levels of fraudulent purchasing activity.

When launched in 2003, the IMEI blocking program provided the ability to block voice and SMS access across all Australian mobile network operators for lost or stolen mobile handsets. This World leading initiative was governed by a set of Business Rules to ensure integrity and consistency within program.

During 2016-17, AMTA has worked with the mobile network operators to identify enhancements to the IMEI blocking program that address the new challenges of smartphone security and fraud. The outcome of this work has resulted in:

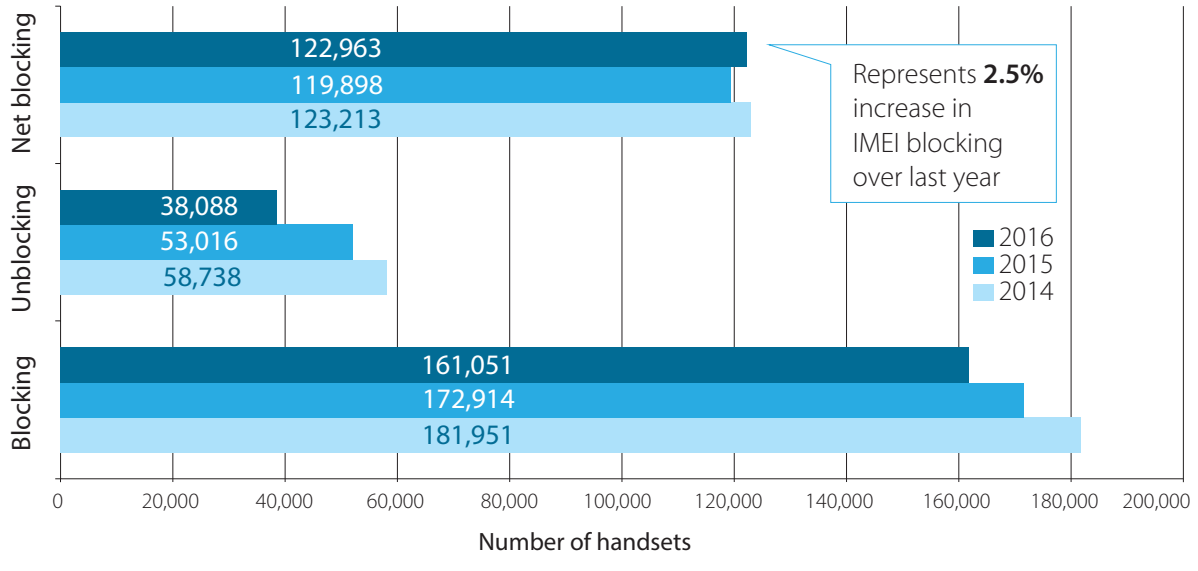
- Expanding the scope of the Business Rules to enable IMEI blocking for Fraud, Unwanted Calls Code, Rogue devices, and Law Enforcement purposes.
- Network enabled data blocking.
- Widen the scope of the blocking program to include tablets and other devices with an IMEI number.
- Offer access for second-hand market dealers to check IMEI status of devices.

Our aim is to ensure the program continues to offer community benefits such as:

- Prevention of theft and assaults related to thefts;
- Reduction in fraud related activity; and
- Protection from the black market in smartphones and tablets.

To find out more about Mobile Device Security see: www.lost.amta.org.au

Comparison IMEI Blocking Activity



AMTA BOARD AND STAFF

Chair:
Stuart MacIntyre
Optus
Director since 8 September 2016

Emilio Romeo
Ericsson Australia
Director since 16 March 2016

Danny Adamopoulos
Motorola Mobility Australia
Director since 2 May 2013

Jane van Beelen
Telstra
Director since 19 March 2015

Marc Dunn
Samsung Australia
Director since 31 August 2017

Matthew Lobb
Vodafone Hutchison Australia
Director since 15 September 2011

Sean O'Halloran
Axicom
Director since 8 September 2016

Ray Owen
Nokia Solutions & Networks Australia
Director since 2 July 2015

Daniel Zhao
ZTE Australia
Director since 8 September 2016

Retired Officeholders

Josh Delgado
Director since: 8 September 2016
Resigned: 31 August 2017

Finance & Audit Committee

Emilio Romeo (Chair)
Jane Van Beelen
Matthew Lobb

Remuneration Committee

Stuart MacIntyre (Chair)
Sean O'Halloran

AMTA Staff

Chief Executive Officer
Chris Althaus

Manager, Finance & Business Development
Glenn Brown

Manager, Policy
Lisa Brown

Manager, Office & Member Services
Renae White

MobileMuster

Manager, Recycling
Spyro Kalos

Education & Communications Officer
Larissa Shashkof

Mobile Carriers Forum

Program Manager
Ray McKenzie

Manager, Office / Executive Assistant
Renae White

Chair, Stuart MacIntyre
(Optus)

Emilio Romeo (Ericsson)

Danny Adamopoulos
(Motorola Mobility Australia)

Jane van Beelen
(Telstra)

Mark Dunn
(Samsung Australia)

Matthew Lobb
(Vodafone Hutchison Australia)

Sean O'Halloran
(Axicom)

Ray Owen
(Nokia Solutions & Networks Australia)

Daniel Zhao
(ZTE Australia)

This page left intentionally blank.

AMTA OFFICE

Unit 7, 17 Napier Close
Deakin ACT
p 02 6232 4488
amta.org.au