

Australasian Railway Association

ACMA Submission

Expiring spectrum licences (stage 2)
– information gathering, and views
on uses of frequency bands and
alternative licence conditions

Reply to comments

30 June 2024

ABN: 64 217 302 489



**Australasian
Railway
Association**



The ARA

The Australasian Railway Association (ARA) is the peak body for the rail sector in Australia and New Zealand, and advocates for more than 220 member organisations across the industry.

Our membership covers every aspect of the rail industry, including the:

- passenger and freight operators that keep essential rail services moving;
- track owners, managers, and contractors that deliver a safe and efficient rail infrastructure network; and
- suppliers, manufacturers, and consultants that drive innovation, productivity, and efficiency in the rail industry.

Our members are driven to support vibrant, sustainable and connected communities through greater use of rail across Australia and New Zealand. We bring together industry and government to help achieve this ambition.

Our advocacy is informed by an extensive research program to ensure we offer solutions that are grounded in evidence and focused on delivering tangible value in our daily lives.

The rail industry has a crucial role to play in the region's sustainable development and growth, and offers meaningful and rewarding careers for tens of thousands of people in the regions.

Our significant program of work is focused on supporting a strong advocacy agenda, and creating opportunities for the rail industry to network, collaborate and share information, and maximise the benefits we have to offer the wider community.

The ARA thanks the Australian Communications and Media Authority for the opportunity to make this submission, which has been developed in consultation with ARA member organisations.

Any questions regarding this submission should be directed to Jesse Baker, General Manager Passenger Rail and Safety via jbaker@ara.net.au

Australia's Rail Industry

Rail is a significant industry in Australia, creating economic activity through its operations and capital investments. It is an industry with activities across every major metropolitan and regional area and is supported by the full spectrum of skills in the Australian workforce.

In 2019, the rail industry contributed around \$30 billion to the Australian economy and employed more than 165,000 workers (directly and indirectly in full-time equivalent terms, FTE). The industry is made up of around 900 businesses that are located in approximately 20 major hubs.



Introduction

ARA welcomes invitation to make a submission during 'reply to comment' period of Expiring Spectrum Licences (ESL) stage 2.

This submission incorporates comments from Queensland, New South Wales, Victoria, South Australia, and Western Australia 1800 MHz spectrum licencees.

Reply to Comment

ARA wishes to highlight parts of other (stage 2) submissions where they support our views on rail spectrum use or raise concerns prompted by other submissions that ARA did not include in its submission.

TPG

"Renewal of the ESL for the maximum 20-year licence term would best advance the public interest criteria.

...renewal fees should be low given ongoing sustainability challenges faced by the industry; fees should be paid on an annual basis rather than in lump sum payments, ..."

ARA supports TPG's views on 20-year licence renewal period and annual payment as this would provide greatest certainty to state rail operators and would simplify budgeting for spectrum licence fees.

"The ESL process is an opportunity to consider alternative fee structures such as scaling licence fees according to a licensee's relevant service revenue or market share."

ARA supports consideration of alternate fee structures as rail operator use of spectrum is not commercial and there is no direct relationship between population covered by spectrum licence, use of spectrum licence, and passenger fares or freight charges.

"TPG's use case for [Low Earth Orbit Satellite (LEOSat) and Direct to Device(D2D)] technology is focused on:

- providing in-fill coverage to address mobile blackspots that currently frustrate end-users; and*
- extending the reach of its mobile network to 100% geographic coverage."*

ARA notes that TPG considers that LEOSat and D2D can provide coverage to virtually all of Australia - demonstrating technical solutions can solve regional and remote access to telecommunication services.

ARA suggests that these technical solutions will also provide passengers on rural rail services access to telecommunication services including emergency services.

“Over the next 5 years, TPG expects [Mobile Network Operators] MNOs to adopt D2D technologies by partnering with LEOSat operators. To maximise the use of this rapidly maturing technology, TPG will need access to national spectrum that has 100% geographic coverage. Therefore, it is vital TPG is offered long-term access to the 700 MHz and 850 MHz spectrum, as this would enable TPG to provide a consumer service with 100% geographic coverage, while addressing blackspot issues by providing in-fill coverage at network edges. TPG anticipates the regionalised 1800 MHz and 2100 MHz spectrum will be used to provide in-fill coverage.”

ARA highlights TPG’s concern over being forced to share or lose access to parts of its spectrum licences which would make it difficult to expand network coverage and make it difficult to deploy LEOSat technology that can effectively provide 100% licence area coverage at minimal cost.

“TPG urges the ACMA to consider whether an alternative progressive licence fee structure could better advance the public interest criteria.”

ARA is also concerned with method of calculating spectrum licence fees based on population. This works for MNOs – although TPG argues it could be fairer – but it doesn’t work for private networks such as rail. The scenario of rail operators providing commercial services to the general public is not considered nor planned.

ARA considers that current licence fee structure assumes spectrum benefit is solely proportional to population within spectrum licence area. If we are to argue that spectrum has other public interest benefits, such as operating trains and metro and trams more efficiently, then a different fee mechanism should be considered.

“... given the clear examples of successful secondary trading, TPG considers the secondary market is facilitating the movement of spectrum to the most economically efficient and productive ends, supported by regulatory oversight.”

ARA agrees that there is sufficient evidence that secondary trading market is operating as designed. Indeed, metropolitan rail operators in 5 states successfully acquired 1800 MHz spectrum through this mechanism, without which they could not have deployed any new standards-based voice, emergency, and train control systems that are being deployed or considered in all 5 states.

NSW Telco Authority

“The NSW Government broadly agrees with the continued use of the identified bands for wireless broadband use and asserts that the 1800 MHz licences currently used for rail should be reallocated for that purpose at a minimum.”



The ACMA should note that the 1800 MHz band is vital for critical communications for transport operations. In simple terms, if the spectrum was not reallocated to Transport for NSW, and to other transport agencies across Australia, there would be a huge risk to rail operations and to public safety because government transport agencies would not have sufficient time to procure alternative solutions through standard government processes.

The long-term affordable re-allocation of the 1800 MHz spectrum band is critical for the continued safe and efficient operation of rail services in Australia, as well as achieving national interoperability, productivity and decarbonisation objectives. The failure to renew all or part of the spectrum will have a whole of operations impact on passenger and freight services within NSW metro area.

In addition to the above regarding 1800 MHz, Transport for NSW is aligned in its approach to 1900 MHz spectrum with other state transport agencies as they seek to gain additional spectrum to enable interoperability of the Future Rail Communication System (FRMCS) across Australia.”

The ARA, in its submission to the ACMA on the ‘Replanning of the 1880-1920 MHz Band: Options Paper Consultation’ advocated for preservation of existing allocations and the 1900 MHz band to be made available for rail purposes in line with the EU’s allocation. The rationale included:

- The Global System for Mobile Communications – Railway (GSM-R) is unlikely to be supported beyond 2030.
- Compared to GSM-R, the FRMCS offers a higher quality of service and is more cost effective. The system is also planned to deliver more in terms of applications such as Automatic Train Operation (ATO) or the Connected Driver Advisory System (C-DAS).
- To enable the parallel operation of GSM-R and FRMCS during an approximately 10-year migration phase, and to benefit from new railway critical applications during and beyond migration, access to a sufficient harmonised spectrum for railway mobile radio is essential.

“The NSW Government supports the allocation of spectrum within the 1900 MHz band along with the existing 1800 MHz allocation to Australian rail agencies to enable implementation of the FRMCS and the improved capability capacity that it will bring.”

ARA welcomes NSW Government strong support for renewal of all 1800 MHz rail spectrum licences for rail safety and control communications. NSW Government provides an excellent summary of probable consequences should spectrum not be reissued by highlighting criticality of 1800 MHz spectrum to rail operations, interoperability goals, public safety, and impact on both passenger and freight services.

NBN

“The significant disruption to those end users and potential loss of those economic and social benefits, must be a primary matter for consideration by the ACMA in reaching a position regarding the renewal of nbn’s ESLs. “

ARA agrees with NBN's view that significant disruption to existing networks including rail "... must be a primary matter for consideration by the ACMA in reaching a position regarding the renewal of [all] ESLs."

"nbn's experience has been that the secondary market has been successful in enabling spectrum to be used in a manner that promotes the long-term public interest derived from the spectrum."

ARA agrees with NBN's view that secondary market is successful.

Victorian Government

"As the incumbent licensee to an existing 2 x 15 MHz allocation in the 1800 MHz band, the Victorian Rail Corporation's (VicTrack) licences must be renewed if Victoria's state rail network is to continue operations."

ARA agrees with Victorian Government that access to 1800 MHz spectrum is necessary for current or future rail networks.

"The DTRS depends on the remainder of the spectrum covered by the two licences for use as guard bands to mitigate interference from Mobile Network Operator (MNO) as they deploy high-power sites near rail corridors."

ARA understands that rail operators have engineered high-quality networks for train operations and rail emergency calls. These networks have lower tolerance for interference as guided by UIC design guidelines and therefore must allocate unused spectrum as guard bands to mitigate interference from high-power commercial carriers near rail corridors.

"Victoria notes that ACMA's consultation paper indicates that [European Train Control System] ETCS is becoming increasingly out of date, however Victoria disagrees with this assessment... While the GSM-R standards are approaching obsolescence, ETCS remains mandatory for all EU-funded projects that include new or upgraded signalling and it is the intention of the Victorian Government to transition from conventional signalling systems to ETCS."

ARA highlights Victorian Government's clarification regarding obsolescence of ETCS: that ETCS is an application that currently relies on GSM-R and will operate as designed on any 3GPP radiocommunication network including 5G-based FRMCS.

"Victoria also notes that the European Union is targeting the retention of their 900 MHz spectrum in addition to their 1900 MHz spectrum to support FRMCS."

Considering this, the Victorian Government may require more than the 10 MHz in the 1900 MHz spectrum to operate the FRMCS.”

ARA wishes to bring attention to this important point that Victorian Government has mentioned: 1900 MHz spectrum in EU – and elsewhere – is in addition to their 900 MHz allocation. This enables construction of a parallel network in 1900 MHz while operating GSM-R and then to be able to upgrade GSM-R to FRMCS (or a later generation of equipment) – mirroring standard practice for virtually all commercial carriers.

Optus

“Optus reiterates its request that the ACMA issue a very clear and robust preliminary view (Stage 3) on whether or not it is disposed to renew all ESLs and on what terms, particularly in relation to price and licensing, at its earliest opportunity. To this end, Optus urges the ACMA to consider how its new administrative powers may enable the ACMA to reduce uncertainty in the lead up to the application window. “

ARA wishes to highlight that many submissions mirror Optus’ desire to understand ACMA’s view, with some certainty, concerning spectrum licence renewal at earliest opportunity.

“Existing mechanisms of access to spectrum via the secondary market remain fit for the purpose of promoting efficient use of ESL spectrum, while minimising the risk of harmful interference. Any reduction in the geographic extent and amount of spectrum available to MNOs will limit options to innovate. For example, fragmentation of national FDD spectrum licences would undermine the potential of LEOSat direct to mobile services”.

ARA agrees that there is sufficient evidence that secondary trading market is operating as designed. Indeed, metropolitan rail operators in 5 states successfully acquired 1800 MHz spectrum through this mechanism, without which they could not have deployed any new standards-based voice, emergency, and train control systems that are being deployed or considered in all 5 states.

ARA highlights Optus’s concern over being forced to share or lose access to parts of its spectrum licenses which would make it difficult to expand network coverage and make it difficult to deploy LEOSat technology that can effectively provide 100% licence area coverage at minimal cost.

“Optus therefore strongly opposes the introduction of [use it or lose it] UIOLI or [use it or share it] UIOSI provisions in any ESLs as they represent the gateway to the application of retrospective spectrum licence boundaries, with their incumbent inefficiencies for spectrum use and potential to cause harmful interference into established networks, undermining the public benefit derived from them.”

ARA wishes to acknowledge and support Optus’ concern on UIOLI or UIOSI provisions. Carving up spectrum licences for multiple use cases introduces interference and possible spectrum dead zones.

Should a licensee be inclined, or should it be approached by an interested third party, access to spectrum can be negotiated in a manner that does not penalize licence holder.

“We note that both rail licensees and MNOs have similar requirements of providing coverage along rail corridors. Deutsche Bahn (DB), Ericsson, O2 Telefónica and Vantage Towers are working together in Germany to establish extensive 5G mobile communications along train tracks and develop proposals and cooperation models for the rail and mobile communications industries and tower operators where towers could be shared for 5G and FRMCS (with its dedicated 1900MHz band) without distorting competition.”

ARA welcomes suggestions on infrastructure sharing along railway corridors. ARA members would consider proposals to optimise delivery costs and ongoing maintenance for future 4G/5G based rail safety and control communication networks.

“Optus has indicated previously that it does not oppose the expansion of the band arrangements in regard to the use of railway mobile radio (RMR) (between 1900-1910MHz). Optus reiterates that any new assignment in the 1.9GHz band should not cause interference with the adjacent bands, nor should it mandate any new deployment restrictions in the adjacent bands. Ultimately, Optus considers that the spectrum would be better utilised if the 1800MHz band was harmonised for 5G mobile services. “

ARA welcomes and appreciates Optus qualified support for RMR in 1900 MHz.

ARA notes that 1900 MHz has been made available for RMR use in both metropolitan, regional, and remote areas. ARA understands Optus' concerns and expects ACMA to address issues of interoperability when 1900 MHz band technical framework is developed.

ARA agrees with Optus' desire to see whole 1800 MHz band using 5G in all licences, and Optus may be pleased to know that this is the direction rail international standards are moving towards. However, rail will need to continue using GSM-R, and possibly other generations of networks, until it can re-farm 1800 MHz for 5G-based FRMCS.

“Dr Doyle finds that holding spectrum auctions for ESLs is not appropriate as the spectrum is already efficiently allocated as all spectrum bands have been allocated by spectrum auction and/or previous renewal and subsequently have been exposed to the spectrum secondary market.”

ARA supports this view noting that most ESL are in place to enable extensive mobile communication networks. As such, ARA expects that ESL will be renewed to permit these networks to continue to operate and grow to meet emerging needs.

Boeing

“Boeing Australia notes the request from ACMA for advice of the intentions of rail safety authorities on a possible transition of their services to the 1 900 MHz frequency band. Given the 1 800 MHz frequency band is currently allocated for rail and public travel safety there is a reasonable corollary to consider the frequency band for [Uncrewed Aircraft Systems] UAS. It is understood the rail system uses a mix of fixed and [Wireless Broadband] WBB (3G and 4G) applications. The future service moving to 1 900 MHz is expected to be a 5G vertical operation.”

ARA wishes to reiterate that 1800 MHz will be required for some time even if 1900 MHz spectrum becomes available. This mirrors rail spectrum allocations and migration plans in EU and UK where two spectrum bands have been assigned for rail use.

ARA is unaware of any 3G applications or networks using 1800 MHz spectrum deployed by rail licence holders, and ARA is only aware of one project deploying 4G in 1800 MHz. Perhaps Boeing is referring to general use of commercial 3G and 4G networks to carry administrative and maintenance data that might be using 1800 MHz spectrum licenced by commercial carriers.

ARA is aware that ARTC uses commercial carriers to provide voice and data communications, but this is not using 1800 MHz spectrum licenced by rail operators.

“Should rail remain in the 1 800 MHz frequency band UAS may well coexist as the two services are complementary and without significant interference potential. In the event of rail transitioning out of the frequency band there would be enough spectrum (up to 30 MHz) to consider elements of [command and control] C2 UAS aviation allocations country wide. When referencing C2 applications the most bandwidth and frequency intensive is currently video, but other applications such as sense and avoid capabilities use far less spectrum and be separated from more spectrum intensive applications.”

ARA reiterates that 1800 MHz will be required for some time even if 1900 MHz spectrum becomes available. This mirrors rail spectrum allocations and migration plans in EU and UK where two spectrum bands have been assigned for rail use.

ARA doubts that 1800 MHz spectrum licenced by rail operators would be of much use for UAS given it is restricted to 5 metropolitan areas. Boeing or UAS operators would need to negotiate with other 1800 MHz licence holders in regional areas since 1800 MHz licences are not Australia-wide.

ARA considers that any interference exceeding licence conditions is unacceptable. Therefore technically, any use of 1800 MHz in metropolitan areas would be unlikely given high-altitude of UAS during operation.

“In the event of WBB retained in the frequency band Boeing Australia requests consideration of the proposal aligned to the railway allocations or a reduction of the amount of spectrum for WBB given that



MNOs have 3G and 4G services in the frequency range of which 3G will sunset and be redundant at the time of the ESL in 1 800 MHz.”

ARA has a view that secondary use of rail 1800 MHz spectrum is unlikely to be useful for UAS given limited geographic area and requirement to not interfere with rail safety and control communications.

Telstra

“Finally, in setting renewal prices, the Government must take a holistic approach to all the requests it makes of the telco industry, including improving cyber-security, network resilience, supply-chain security in response to geopolitics, coverage and service quality, and regarding spectrum renewal as a source of revenue for the Commonwealth. The government must also consider that spectrum renewal costs are ultimately borne by the consumer and businesses.”

ARA wishes to acknowledge Telstra’s comment that spectrum renewal costs are ultimately borne by the consumers and businesses in one form or another and prices must be set conservatively considering all challenges faced by telco industry more broadly.

“Early certainty of renewal is required. Spectrum licensees must have the ability to request renewal at the start of the Renewal Application Period, which means they must have the necessary information well in advance. “

ARA also welcomes early certainty of renewal conditions and ACMA’s views on renewal to make informed business and investment decisions.

“We provide here a short summary of matters that are relevant to the ESL process and may impede efficient use of spectrum. Most of the examples in the list below are historic, but they provide important examples of the types of changes or constraints that can easily result in a reduction in the efficient use of spectrum.

These are also important examples to consider when developing licence conditions to attach to renewed licences. We discuss conditions on renewed licences, including alternative conditions, in section 7. The matters that impede efficiency are:

- *Allocating spectrum for specific, bespoke use cases such as rail safety, public safety mobile broadband or to a neutral host provider.”*

ARA understands Telstra point of view that allocating spectrum to specific applications does not appear to be efficient. ARA notes that rail operators have licenced about 2.5% of metropolitan spectrum available that is under 4 GHz. Australian rail operators are limited to international standards and practice, and due to unavailability of spectrum in 900 MHz band, Australian rail operators agreed to purchase 1800 MHz from secondary market to be able to migrate rail safety and control communications to modern telecommunication platforms.

“In Australia, the 1800 MHz band has been highly utilised by MNOs for the last three decades. Originally, the band-plan was developed for GSM technologies, however since 2011, all MNOs have re-farmed the spectrum for 4G (LTE) services. Given the current and future needs of IMT, along with the desire for wider bandwidths and contiguous spectrum blocks, there may be a case to consider re-farming the spectrum currently used by rail operators for rail safety (GSM-R in 1880-1900 MHz) for mobile.

Re-farming of GSM-R spectrum could be facilitated by the consistent adoption of FRMCS technology in the 1.9 GHz band by Australia's rail industry. The 1.9 GHz band has almost identical propagation characteristics to the adjacent 1.8 GHz band and has the advantage of a national footprint. This spectrum could then be shared by rail operators in both metropolitan and regional areas and would offer seamless coverage across each jurisdiction. It would also release the spectrum currently being used for GSM-R for use by IMT operators.”

ARA notes that Telstra probably meant to refer to GSM-R in 1865-1880 MHz.

ARA reiterates that 1800 MHz will be required for some time even if 1900 MHz spectrum becomes available. This mirrors rail spectrum allocations and migration plans in EU and UK where two spectrum bands have been assigned for rail use.

AMTA

“Use cases that remain on older technologies, for example, GSM-R, result in spectrum being used inefficiently, thereby denying the spectrum from reaching its maximum productive efficiency and hence, utility. If the amount of traffic passed through spectrum can be considered a proxy for socio-economic value generated from spectrum, then mobile services are the most productively efficient users of spectrum.”

ARA is aware that GSM-R is inefficient compared to impressive efficiencies that Australian mobile networks are able to deliver presently. ARA has explained that internationally, rail industry has been working towards migrating rail telecommunication standards to current state-of-art 5G-based standards. This process will take time to develop equipment and to plan and deploy replacement networks.

Rail industry has a similar problem to MNOs in that it must construct a next generation network in vacant spectrum, upgrade all rolling stock, staff equipment, and freight safety and control communication systems. This ‘walking’ strategy mirrors MNO strategy of migrating networks in different bands at different times to ensure service continuity.

ARA suggests that productive efficiency is a relative measure for a given industry and - in case of rail transport - should be determined by comparing previous traditional signalling systems to spectrum dependent, modern, signalling and train control systems. By engineering a highly reliable and secure rail communications network, public and freight transport networks can operate more trains without constructing more lines.

ACCC

“The ACCC considers that there is merit in assessing whether some form of use-it-or-lose-it provisions could be practically implemented in Australia.”

ARA disagrees with the ACCC position on UIOLI provisions. Carving up spectrum licences for multiple use cases introduces interference and possible spectrum dead zones. Should a licensee be inclined, or should it be approached by an interested third party, access to spectrum can be negotiated in a manner that does not penalize licence holder.

“The ACCC considers the advent of low-earth orbit satellite direct-to-mobile services in Australia has the potential to impact the competitive dynamics in the mobile services market by allowing mobile network operators to extend service coverage beyond their terrestrial network. As the technology is at its infancy, it is unclear to what extent it can provide a viable alternative to terrestrial mobile coverage and bridge the geographic coverage gap between the mobile network operators. It may have the potential to reinvigorate infrastructure-based competition and create incentives to invest in improving terrestrial mobile network in areas where terrestrial coverage is poor.”

ARA notes ACCC considers that LEOSat have the potential to extend coverage to areas of Australia currently unserved by terrestrial mobile networks - demonstrating technical solutions can solve regional and remote access to telecommunication services.

ARA suggests that these technical solutions will also provide passengers on rural rail services access to telecommunication services including emergency services.

ACCAN

“ACCAN recommends that the ACMA ... continue to maintain no presumption of licence renewal”

ARA members would greatly benefit from a presumption of licence renewal. Rail operators have to participate in government processes to obtain funding for maintaining and upgrading their radio networks using spectrum licences. These government processes take time and require assurance that investments will have a long-term benefit to the public. Uncertainty of the likelihood of a spectrum licence to be renewed undermines the business case for investment which is competing for budget with other public services.

“ACCAN supports the consideration of a wide range of alternative licencing arrangements including rollout obligations, UIOLI and UIOSI licence conditions in addition to other licencing arrangements developed by the ACMA which support a public interest focussed and competitive spectrum Market.”

ARA does not support UIOLI and UIOSI licence conditions. Carving up spectrum licences for multiple use cases introduces interference and possible spectrum dead zones. Should a licensee be inclined, or should it be approached by an interested third party, access to spectrum can be negotiated in a manner that does not penalize licence holder.

Ericsson

“Ericsson supports:

- *Recognition that spectrum is a significant input cost to mobile network operators.*
- *Prioritising long-term sustainability of mobile network investments over short term fiscal gains.*
- *Promoting spectrum license conditions that combine the predictability needed to incentivise investment with the flexibility to drive innovation.*
- *Renewals that are automatic and free from additional fees.*
- *Commercial, operational, and technological flexibility to maximise spectrum utilisation.”*

ARA agrees with Ericsson’s opinion and given that rail standards have aligned with 3GPP, these same ideals also apply to rail networks.

“When deciding whether 4G and 5G use in ESL bands promotes the long-term public interest, the SLTF must also align with those technology standards.(i.e., 3GPP).

- *When the SLTF is not aligned to 3GPP there will be significant cost and time implications for Australian mobile operators managing tens of thousands of deployed cells, serving millions of customers. This includes the need to develop bespoke equipment for the Australian market.”*

ARA understands the ACMA’s approach to not favor a particular technology, but we agree with Ericsson’s view that where a particular technology or suite of technologies is likely to be deployed, that consideration is given to aligning SLTF with published standards to avoid bespoke equipment. In case of 1800 MHz band, some consideration was given to existing GSM-R services as well as future 5G and ARA members appreciate the ACMA’s efforts in establishing SLTF that supports both rail and MNO networks. ARA notes that SLTFs are by mutual agreement of all licencees and current state of technical frameworks are a compromise agreed to by all parties.

OneWiFi

“The ACMA should consider shorter licence duration (e.g. 5 years with renewal options) as an instrument to ensure the licensees deliver on the desired spectrum efficiency and Public Interest outcomes.

Spectrum is an essential asset for the MNOs and will preserve value even at shorter expiration duration Competitive tension will contribute to the preservation of the value of spectrum to the Government, despite shorter licensing terms”

ARA disagrees with OneWiFi that shorter licence terms will provide the same value to licencees. Shorter licence terms will exacerbate uncertainty that state rail operators experience when making investment decisions for private radio networks.

ARA members have been working towards migrating rail telecommunication standards to current state-of-art 5G-based standards. This process will take time to develop equipment and to plan and deploy

replacement networks. Longer-term licence periods are necessary to develop business cases to justify investments of billions for provision of safe and efficient rail services.

Rail industry has a similar problem to MNOs in that it must construct a next generation network in vacant spectrum, and upgrade all rolling stock, staff equipment, and safety and control communication systems. This 'walking' strategy mirrors MNO strategy of migrating networks in different bands at different times to ensure service continuity.

"[UIOSI] should be strongly considered if such authorisation lends itself towards meeting conditions which would deliver the desired outcomes"

"Use UIOSI to enable others (such as multi-carrier active neutral host) to deliver services with participation in the downstream service by MNOs"

ARA understands that the OneWiFi position on UIOSI provisions is focussed on gaining access to unused spectrum in regional and remote Victoria. ARA does not support UIOLI and UIOSI licence conditions. ARA is of the view that LEOSat can be used by current licence holders to use their existing spectrum in regional and remote areas. ARA suggests that this will also provide passengers on rural rail services access to telecommunication services including emergency services.

Individual

"I'm strongly in favour of a Use-It-Or-Share-It licensing framework."

ARA understands that the Individual's position on UIOSI provisions is focussed on gaining access to unused spectrum in regional and remote Victoria. ARA does not support UIOLI and UIOSI licence conditions. ARA is of the view that LEOSat can be used by current licence holders to use their existing spectrum in regional and remote areas. ARA suggests that this will also provide passengers on rural rail services access to telecommunication services including emergency services.

Pivotel

"Where the spectrum is not being utilised and it is subject to long term licence conditions it should be made available to alternative users under either the 'Use it or Lose it' (UIOLI) or 'Use it or Share it' (UIOSI) principles. Where spectrum is not being utilised and is the subject of an expiring spectrum licence it should be made available under and AWL or AL process"

ARA understands that the Pivotel position on UIOSI provisions is focussed on gaining access to unused spectrum in regional and remote Victoria. ARA does not support UIOLI and UIOSI licence conditions. ARA is of the view that LEOSat can be used by current licence holders to use their existing spectrum in regional and remote areas. ARA suggests that this will also provide passengers on rural rail services access to telecommunication services including emergency services.

Omnitouch

“ONS advocates for the ‘secondary use’ of spectrum in scenarios where the primary Spectrum License holder is not currently utilizing the spectrum. Two potential avenues for spectrum changes are in the form of a use-it-or-share-it (UIOSI) or use-it-or-lose-it (UIOLI) approach to the expiring spectrum licenses.

The introduction of a UIOSI/UIOLI system would mean that holders of spectrum licenses over a given area who are currently utilizing their spectrum holdings to service that area, can continue to serve the area with no change. Critically, however, this new approach would open the door to allow industry to utilize unused spectrum in a given area, and allow a competitive market for other licensees to utilize that previously unused spectrum to provide services.

Spectrum that is held, but not used in an area is currently wasted. This is spectrum that has the potential to carry a Triple Zero call, enable telehealth appointments, allow for access to digital support services, support remote schooling and allow access for those with minimal connection to engage with the world. With a UIOSI/UIOLI approach, this spectrum would be better utilized to support the connectivity and self-sufficiency of these communities, decreasing the digital divide between urban and rural communities.”

ARA understands that the Omnitouch position on UIOSI provisions is focussed on gaining access to unused spectrum in regional and remote Victoria. ARA does not support UIOLI and UIOSI licence conditions. ARA is of the view that LEOSat can be used by current licence holders to use their existing spectrum in regional and remote areas. ARA suggests that this will also provide passengers on rural rail services access to telecommunication services including emergency services.

ARA notes Omnitel has focussed on ‘place-based’ networks to provide connectivity to regional and remote areas while not discussing the introduction of LEOSat which may provide a better solution.