

# EXPLANATORY STATEMENT

## Select Legislative Instrument No. 171, 2015

### Issued by authority of the Minister for Communications

*Telecommunications Act 1997*

*Telecommunications Regulations 2001*

### **Telecommunications Amendment (Next-Generation Broadband Interference Management) Regulation 2015**

#### **Authority**

Subsection 594(1) of the *Telecommunications Act 1997* (the Act) provides that the Governor-General may make regulations prescribing matters required or permitted by the Act to be prescribed, or necessary or convenient to be prescribed for carrying out or giving effect to the Act. The Act does not specify any conditions that need to be satisfied before the power to make the Regulation may be exercised.

Under subsection 33 (3) of the *Acts Interpretation Act 1901*, where an Act confers a power to make, grant or issue any instrument of a legislative character (including rules, regulations or by-laws), the power shall be construed as including a power exercisable in the like manner and subject to the like conditions (if any) to repeal, rescind, revoke, amend, or vary any such instrument.

Subsection 115(1) of the Act provides that an industry code or an industry standard under Part 6 of the Act has no effect to the extent compliance with the code or standard is likely to have the:

- indirect effect of requiring customer equipment, customer cabling, a telecommunications network or a facility to have particular design features; or
- indirect or direct effect of requiring customer equipment, customer cabling, a telecommunications network or a facility to meet particular performance requirements.

#### **Purpose**

The *Telecommunications Amendment (Next-Generation Broadband Interference Management) Regulation 2015 (No. 1)* (the Amending Regulation) inserts a new Regulation 4.2 into the *Telecommunications Regulations 2001*, which overrides the default rule set out in subsection 115(1) of the Act. This change will enable:

- a body or industry association representing the telecommunications industry, to develop an industry code that is enforceable by the Australian Communications Media Authority (ACMA); or
- if industry cannot agree to a code or the ACMA refuses to register the code, the ACMA to make an industry standard.

The code or standard will deal with both the design features and performance requirements of customer cabling, customer equipment, networks or facilities relating to certain subject matters. These are:

- interference between telecommunications systems being operated to supply:
  - o next-generation broadband services;
  - o legacy services;
  - o any other carriage services supplied over a twisted pair cable; or
- the health and safety of a person operating or working on such equipment, cabling, network or facility incorporated or used with a next generation broadband service; or
- the integrity of such equipment, cabling, network or facility used with, a next generation broadband service.

The Government's intention is to provide industry with appropriate scope to develop an industry code (which would be submitted for registration by the ACMA under Part 6 of the Act) which facilitates the rollout of next-generation broadband services and which, by extension, contributes to the Government's overall objective in the telecommunications sector to provide all Australians with access to faster broadband, sooner and at less cost. It is the Government's view that industry is best placed to develop the code as it has the technical expertise required to ensure that the code will operate effectively.

While it will be a matter for the telecommunications industry to consider the specific contents of an industry code for the purposes of Part 6 of the Act, it is envisaged that the Minister for Communications will set out high-level principles that the Government expects would, at a minimum, be reflected within any code or standard, should one be developed. The Government's key concern is that any future industry code or industry standard should optimise broadband performance and infrastructure competition to the greatest extent possible.

In addition to inserting a new Regulation 4.2, the Amending Regulation makes two minor changes to existing Regulation 4.1 to update outdated references to the industry peak body and one minor change to update the title of an Act.

### **Background**

The Amending Regulation will assist in implementing the Government's response to Recommendation 9 of the *Statutory Review under section 152EOA of the Competition and Consumer Act 2010*. This review formed part of the independent cost-benefit analysis and review of regulatory arrangements for the National Broadband Network undertaken by the panel of experts headed by Dr Michael Vertigan AC (the Vertigan Review).

In its submission to the Vertigan Review, the telecommunications industry peak body, Communications Alliance, highlighted interference issues that could impact on the performance of VDSL2 services provided over a single cable bundle. VDSL2 is a recent generation of digital subscriber line (DSL) technology which is capable of delivering up to 100 Megabits per second (Mbps) in download speeds over a short length of copper. Accordingly, VDSL2 is considered a 'next-generation' DSL technology. Other next-generation DSL technologies include vectored VDSL2 and G.fast (a DSL standard for local loops shorter than 500m).

Competing service providers can supply services over lines in the same cable bundle. However, all services create noise that can interfere with services in the same cable bundle. This interference degrades the quality of end-user services.

The problem identified by the Communications Alliance was that existing industry codes and standards do not, and currently cannot, address interference in relation to

telecommunications systems that do not use the ULLS (including in-building cabling) arising in connection with the implementation of next-generation DSL systems unless there is a change in the head of power in Part 6 of the *Telecommunications Act 1997* enabling such codes.

Currently, interference between competing DSL systems, typically provided from exchanges, is managed by industry through an industry code registered by the ACMA under Part 6 of the Act, the *Unconditioned Local Loop Service (ULLS) Network Deployment Code* (C559:2012). Existing Regulation 4.1 of the Regulations only authorises industry to make codes relating to the ULLS, and not in relation to telecommunications systems that do not use the ULLS. As next-generation networks tend to operate from a street-based node, or a building basement node, they do not operate over the ULLS and therefore cannot be covered by codes under existing Regulation 4.1.

The Government, in its response to the Vertigan Review, set out in the *Telecommunications Regulatory and Structural Reform* paper, published on 11 December 2014, agreed that the issue should be dealt with through existing industry mechanisms to the greatest extent possible. However, the response noted that if it was difficult for existing arrangements to resolve the issue, then the Government would enable the Communications Alliance to put in place appropriate mechanisms, including interim arrangements, to deal with interference. It concluded by stating that the Government would consider additional rules as needed for managing interference and co-existence between VDSL2 networks.

Since issuing its response, the Government has discussed the requirements for a new regulation with industry. Communications Alliance confirmed that a code would be needed to manage interference between competing next-generation systems supplied over the same cable bundle, as well as interference between competing next-generation and legacy systems using the same cable bundle. These are systems that all operate over twisted pair cables within a cable bundle.

To allow for an industry code to be developed to address this issue, a new regulation is required to modify the default rule set out in subsection 115(1) of the Act which provides that an industry code or an industry standard under Part 6 of the Act has no effect to the extent compliance with the code or standard is likely to have the:

- indirect effect of requiring customer equipment, customer cabling, a telecommunications network or a facility to have particular design features; or
- indirect or direct effect of requiring customer equipment, customer cabling, a telecommunications network or a facility to meet particular performance requirements.

The Amending Regulation creates a head of power which enables industry to develop a code or the ACMA to develop a standard to manage interference between next-generation systems (and between those systems and legacy systems) as they are rolled out. Any industry code may be submitted to the ACMA for registration, and if registered, will be enforceable by the ACMA. The Amending Regulation therefore provides industry with the certainty that any rules it develops will need to be complied with by industry members.

## Regulation Impact Statement

### *Introduction and overview*

Very high-speed Digital Subscriber Line technology (VDSL) is a recent generation of digital subscriber line (DSL) technology. The second generation of this technology, VDSL2, is capable of delivering up to 100 Mbps in both directions simultaneously over a short length of copper. VDSL2 services are typically provided in fibre-to-the-node (FTTN) and fibre-to-the-basement (FTTB) networks.

The maximum data rate which can be achieved over a line supplying a VDSL2 service depends on two factors:

- The length of the copper cable between the VDSL2 enabled digital subscriber line access multiplexer (DSLAM) (which could be housed in a street cabinet or apartment complex basement) and end-user premises, as there is signal loss or attenuation as the length of the copper cable increases.
- Interference, which is also known as ‘crosstalk’ between the different copper lines in a cable sheath. Vectoring technology however can be used by an access provider to minimise interference. It does this by cancelling out the crosstalk between copper pairs. In order for vectoring to deliver optimum performance, however, a single provider must operate vectoring over all active lines within a cable sheath or multiple providers must cooperate, using similar equipment to vector from the same point on the network.

Currently, interference between competing DSL systems, typically provided from exchanges, is managed by industry through codes. The industry representative body, Communications Alliance (CA), drafts those codes through its working groups which are open to participation by all CA members.

The Act and the *Telecommunications Regulations 2001* (the Regulations) together provide a head of power for industry to make codes dealing with technical issues. Once such codes are made, they may be registered by the Australian Communications and Media Authority (ACMA). Compliance with a code is voluntary unless the ACMA directs a service provider to comply; once such a direction is made the ACMA can then enforce compliance with the code. Industry can of course make its own codes independently, but if those do not match the head of power in the Regulations then they cannot be enforced by the ACMA.

Industry has advised the Government that existing codes and standards do not address interference caused by next-generation DSL systems, such as VDSL2, in particular when those systems are used with vectoring. Industry further advises that these existing codes cannot be amended to manage interference caused by next-generation broadband systems without an initial change to the Regulations. Such systems are now being rolled out in cities by providers such as NBN Co, LBN Co, OPENetworks, TPG and iiNet, and there are anecdotal reports of interference between the new and legacy telephony and DSL systems (in this context, Asymmetric Digital Subscriber Line or ADSL systems, and a variant of that technology known as ADSL2+). The Government is therefore proposing to amend the Regulations to enable industry to make codes or the ACMA to make a standard to manage interference caused by the operation of next-generation broadband systems with a view to optimising performance and potentially, competition, to the extent possible.

### *Policy background*

The Government, in December 2014, set out its framework for regulatory reform in the telecommunications sector. This included the Government's response to the 53 recommendations made by the Vertigan panel's Independent Cost-Benefit Analysis and Review of Regulation, and included a number of measures to promote a more competitively neutral market place. Against this backdrop the Government made a series of observations in relation to the regulatory treatment of VDSL2. It noted:

- The Australian Consumer and Competition Commission (ACCC) was conducting a declaration inquiry in relation to VDSL2 services.
- The Communications Alliance is currently considering the technical issues posed where there are competing providers of VDSL2 technology in a single multi-tenant building.
- The Government will consider additional rules as needed for managing interference and co-existence between competing VDSL2 networks.

In the Government's response to the recommendations of the review, the issue was treated in greater specificity. Recommendation 9 of the Statutory Review under s.152EOA of the *Competition and Consumer Act 2010* stated that interference between competing vectored VDSL2 systems should be managed by Communications Alliance and the regulators. The Government responded that the issue should be dealt with through existing industry mechanisms to the greatest extent possible, and if these arrangements cannot resolve the issue, then the Government should enable Communications Alliance to put in place appropriate mechanisms, including interim arrangements, to deal with interference.<sup>1</sup>

### *The next-generation DSL market in Australia*

VDSL2 networks using vectoring technology are relatively new, and have only begun to be rolled out in scale around the world in the last few years. In Australia, five providers are known to have rolled out FTTB/N networks which are used to supply carriage services to residential customers (currently without vectoring, although service providers have plans to introduce vectoring in the future). They are:

- iiNet, through its TransACT subsidiary, which has a FTTB/N network serving parts of the Australian Capital Territory,
- LBN Co, which has built FTTB connections to multi-dwelling units in new developments in Sydney and Melbourne,
- NBN Co, which intends to roll-out VDSL2 on a national scale and began design and construction work in January 2015 for around 6000 premises in Sydney, Melbourne and Canberra,<sup>2</sup>
- OPENetworks, which has deployed FTTB/N technology in a small number of apartment buildings in Queensland and New South Wales<sup>3</sup>, and
- TPG, which has commenced building a FTTB network in Sydney, Melbourne, Brisbane, Adelaide and Perth, with the intention of providing services to up to 500,000 customers.<sup>4</sup>

<sup>1</sup> *Telecommunications Regulatory and Structural Reform Paper*, December 2014, p 15

<sup>2</sup> IT News, *NBN Co begins FTTB rollout*, 19 January 2015

<sup>3</sup> OPENetworks Pty Ltd, Network locations, viewed 12 May 2015, <http://www.opennetworks.com.au/network-locations>

The Government is not aware of any other carriers currently supplying FTTB/N services, but notes that there are a number of carriers competing to service new developments and therefore the number of carriers with competing FTTB/N networks may increase.

***Problem definition***

Interference between competing next-generation networks or between legacy networks and next-generation networks can result in serious degradation to an end-user's service and prevent carriers from being able to offer optimised services to customers. There are three main scenarios in which interference is likely to occur:

1. Where a carrier installs a new next-generation system in a building and supplies that service to end-users using the same cable bundle that is used to supply existing legacy services to residents of the building.
2. Where two or more carriers supply a next-generation service over a cable bundle within a building and do not coordinate the spectrum band over which those services operate.
3. Where two or more carriers supply a vectored next-generation service over a cable bundle within a building and do not coordinate the spectrum band over which those services operate.

To some extent, the issue of interference management is most problematic in the context of apartment buildings (otherwise known as multi-dwelling units or 'MDUs') where more than one carrier may wish to install a DSLAM with next-generation capabilities in the building basement or from a node in the street that connects to the building's internal cabling. In MDUs, it is usually the building owner or manager who owns the internal cabling, and that building owner or manager can decide whether a single provider can access the cabling or whether there will be competing providers. Given that the building owner or manager has the ultimate choice, this means that there may be situations where there are competing providers accessing the same internal customer cabling in a MDU.<sup>5</sup>

Consequently, where there are competing providers using the same cabling, there is potential for services provided by those providers to interfere with each other and degrade each other's services. Where one provider is at a node, that provider's services will experience greater degradation than a provider whose DSLAM is in the basement. There may therefore be some incentives for a provider whose systems are located closer to end-users not to cooperate in order to gain a competitive advantage over providers located further from end-users. If such actions were to occur, then some end-users' services may be severely impaired. This highlights the consumer protection element of this issue – in essence, a consumer should be guaranteed to receive the service they have paid for. As a result, the Government needs to ensure that industry can make rules to manage interference so that the performance of existing end-users' services are optimised.

At present, competing VDSL2 networks do not overlap, but inevitably as carriers seek to rollout new and improved systems, competing next-generation networks will overlap with other networks and in some cases may serve the same buildings. Some

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<sup>4</sup> Australian Financial Review, *TPG fibre plan challenges NBN*, 17 September 2013

<sup>5</sup> In some cases, a service provider may seek to install its own customer cabling (i.e. by overbuilding existing cabling), but this is generally rare.

VDSL2 rollouts currently serve buildings that are already served by legacy ADSL or ADSL2+ services.

Currently, interference between competing systems, whether telephony, ADSL or ADSL2+, is managed by industry through a code, the *Unconditioned Local Loop Service (ULLS) Network Deployment Code (C559:2012)*.<sup>6</sup> This code was developed after the Regulations were made to allow codes to set out indirect network design features, and direct and indirect performance requirements, relating to interference between telecommunications systems using the ULLS. However, the Regulations only authorise industry to make codes relating to the ULLS, and not in relation to telecommunications systems that do not use the ULLS. In-building cabling, for example, is generally not a part of the ULLS as it is located on the customer side of the boundary of the network.

As VDSL2 systems are being installed at the building basement or a node, they do not use the ULLS and therefore industry cannot develop an enforceable code to manage interference caused by VDSL2 systems. It should be noted that CA, in its submission to the Vertigan panel's Independent Cost-Benefit Analysis and Review of Regulation, suggested that Government intervention was required to enable it to make a new code for the purposes set out in this regulation impact statement.<sup>7</sup>

### ***The case for action***

The need for industry to be able to manage interference is required because VDSL2 deployments are proceeding without coordination. As advised by CA in its submission to the Vertigan review, there is scope for significant interference problems to arise if appropriate measures are not put in place to manage it. The deployment of VDSL2 is the precursor to other, faster, copper-based DSL services such as G.fast. Coordination of VDSL2 services is the most effective way to ensure that competing providers can provide optimal services and operate their networks in a manner that delivers the best outcomes for consumers. Services that interfere with each other are likely to have a significant impact on the ability of individuals to access online services and obtain the benefits that result from that access. Furthermore, if the market is left unregulated for too long, attempting to correct the problems created by the unregulated marketplace is likely to be complex, costly and result in additional detriment to the end-user.

Government intervention would be focussed on ensuring that the appropriate head of power is written into the Regulations to enable industry to develop a code that provides it with the ability to effectively manage interference while supporting competition in the market for next-generation broadband services to the extent possible.

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<sup>6</sup> In a practical sense, this means the line that runs from the exchange building to the customer premises. For completeness, the unconditioned local loop service is defined by the ACCC as the use of unconditioned communications wire between the boundary of a telecommunications network at an end-user's premises and a point on a telecommunications network that is a potential point of interconnection located at or associated with a customer access module and located on the end user side of the customer access module. See <http://registers.accc.gov.au/content/index.phtml/itemId/885818>.

<sup>7</sup> Communications Alliance, *Vertigan Review Panel: Regulatory Issues Framing Paper*, March 2014, p 2, "While some of the necessary technical features of VDSL2 can be enabled by updating existing industry codes and customer equipment standards, the existing codes and standards cannot on their own provide the necessary regulation for the proper technical performance of a vectored VDSL2 rollout."

Additionally, continued uncertainty regarding a Government decision on appropriate measures to manage next-generation broadband interference could result in reduced investment in those technologies, or delay network design and construction of FTTB/N networks where they are required. This will result in worse outcomes for consumers who may have to wait longer before next generation broadband technologies are available to them and the subsequent benefits can be experienced.

A clear framework for the deployment of next generation networks is also required to provide NBN Co with certainty regarding its investment in next-generation networks and the design of those networks.

### ***Overview of options***

In addition to the status quo, there are two main alternatives to respond to the problem of managing next-generation broadband interference.

#### *Option 1 – Status quo*

Under this option, the Government would not intervene in the market for supply of VDSL2 or other next-generation broadband services. This scenario may result in industry deciding to coordinate their networks to reduce interference. Conversely, there is the risk that they will not choose to coordinate and that legacy services and new services will be affected by interference caused by new entrants with new technologies.

It is too early to determine whether carriers are likely to cooperate to limit interference. Advice from industry is that competing providers are installing FTTB systems in multi-dwelling units without coordinating with the providers of services from the exchange and, as a result, legacy ADSL or ADSL2+ services may be being degraded. The limited scale of FTTB rollouts in Australia to date may explain why the problem is not more widespread. Given the incentives for new entrants not to cooperate, however, it can be argued that there will always be some situations in which a new entrant refuses to cooperate with an existing provider.

#### *Option 2 – Amend the Regulations to enable industry to create a code to manage interference*

This option proposes that the Government make an amendment to the Regulations that enables industry to create a code to deal with interference caused by next-generation broadband services.

The Regulations would set out a head of power for the industry to make a code. The Government could, at the same time, issue a policy statement setting out principles that it would anticipate being covered in the code. The code would need to be registered by the ACMA.



*Option 3 – Amend the Regulations and the ACMA makes an industry standard*

If industry is unwilling to revise its code, the ACMA could ultimately make its own standard, as permitted under Part 6 of the *Telecommunications Act 1997*. Accordingly, under this option the Minister could expedite this process by directing the ACMA to make a standard.

***Regulatory impacts of options***

The following criteria have generally been considered in assessing the costs and benefits of the different options:

- Does the option provide for the effective (including enforceable) and efficient management of next-generation broadband interference by industry?
- Does the option provide regulatory certainty for carriers with existing network investments, or for carriers seeking to deploy next-generation broadband networks?
- Does the option impose burdensome compliance costs on industry, whether one-off or ongoing?
- Is the option asymmetrical, in that it imposes a greater financial impact on some industry participants and not on others?
- Does the option provide for flexibility in the deployment of future technologies or will it result in costly remediation?
- What will be the impact of the option on end-users?
- What will be the impact on investment?
- Does the option leverage industry expertise and experience?

*Option 1 – Status quo*

The option represents the status quo approach. Option 1 has the following advantages:

- Without any regulatory requirements to slow or prevent the rollout of services, carriers may be in a position to roll out services faster than they otherwise would if they were required to test and adjust equipment for interference. In this instance, consumers may be able to access next-generation broadband services sooner than they otherwise would if there were a requirement for carriers to comply with an industry code or other regulation.
- Compliance costs would be nil because there are no requirements for carriers to comply with an industry code or Government imposed requirements.
- Competition and coordination between carriers may develop organically if a second carrier's system has significant impacts on existing services. Ultimately, a first mover may be compelled to cooperate with a second carrier if the only alternative is that the second carrier installs equipment that causes significant detriment to the first provider's services.
- To avoid the interference issues associated with VDSL2, carriers may decide to invest in alternative superfast technologies. Carriers may decide there is too much risk associated in deploying VDSL2 systems and build or take advantage of existing HFC or FTTP networks. However, it is costly and time-consuming to deploy new networks and industry has to date shown little appetite for installing such networks on a large scale. In the case of NBN Co, its acquisition of existing

Telstra and Optus HFC networks may enable it to compete using HFC in some instances.

Option 1 has the following disadvantages:

- A carrier installing new VDSL2 infrastructure would have no obligation to ensure that its services do not interfere with existing services (including legacy services such as ADSL2+ and telephony) which are provided over the same cable bundle. A carrier installing its systems closer to end-users could have incentives not to cooperate with existing service providers because its systems would significantly degrade those providers' services, which could encourage end-users to migrate to the new carrier's services. Such an outcome would limit end-users' ability to choose their own preferred fixed-line service (noting that a new fixed-line provider would be required, under other Government regulation, to offer wholesale services). It would also mean that, for the period of time from when services begin to be degraded until service providers can migrate customers to wholesale services provided over the new network, end-users are exposed to poor quality services.
- Carriers whose services are affected by new entrants would have the option of negating interference from those entrants by installing new cabling in the building, but this would be expensive<sup>8</sup> and reduce the existing carriers' ability to compete on price. They may also choose to resell the new carrier's services, which may provide a more cost-effective option.
- Carriers are not afforded any certainty in relation to their investment in VDSL2 technology. A first mover carrier could conceivably be held hostage by a second mover that wants to install services. The first mover would have a choice between accepting the costs of coordinating the second mover's services or having its services severely degraded.
- Carriers would face difficulties in being able to guarantee achievable speeds to potential and actual customers; any guarantees would need to be subject to the possibility of another carrier installing a new system that used the same cable bundle. This could in turn deter some first mover investments in VDSL2 technology where carriers consider the risk from second movers is too great.
- A first mover may also seek an injunction against a second mover to prevent degradation of services, however, unless the first mover can identify specific legal rights that have been breached by the second mover, the injunction may not be granted.
- Consumers are likely to be frustrated if VDSL2 services start to experience poor quality of service due to other providers entering a building and causing interference.

*Option 2 – Amend the Regulations to enable industry to create a code and issue guidance to industry*

Option 2 has the following advantages:

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<sup>8</sup> For example, the costs of deploying new cabling within apartment buildings are between \$450 and \$500 more per apartment than deploying fibre to the basement and using the existing in-building cabling. NBN Co (2013), *Strategic Review December 2013*, p.87.

- The option sets clear parameters for industry to develop rules. One of the concerns with option 1, which preserves the status quo, is that it will allow interference between carriers' services if no rules are developed, but even if rules are developed, that will not be enforceable by the ACMA. This could result in an opportunistic player causing severe degradation to existing services. By enabling industry to develop rules in relation to the supply of next-generation services, the Government would provide the telecommunications industry with an enforceable framework in which it can manage interference.
- Carriers' investments in next-generation networks are protected under this approach. If a carrier rolls out a network, the code could prevent another provider coming in at a later date and unreasonably degrading the service being provided by the first mover. This provides carriers with confidence that the value of their investments will not be diminished by opportunistic behaviour by other carriers.
- A requirement in a code for carriers to cooperate will mean that competition will be able to occur over the cable bundle where it is feasible to do so. Where competition occurs, this would lead to more choice for consumers and potentially, permit the normal benefits of competition such as lower prices and earlier deployment of new services.
- A requirement in a code to cooperate also leaves open the opportunity for technological breakthroughs to advance competition outcomes. For example, if technologies such as cross-DSLAM level vectoring become more established, multiple next generation broadband services would be able to coexist with little or no degradation of services. A requirement for cooperation would preserve that opportunity.
- Industry is best placed to develop a code. Through familiarity with the existing ULLS code (C559:2012) to manage interference, industry is already in a position to develop with a code to manage interference involving next-generation broadband and legacy services. This should mean that the cost of code development will be relatively low and that industry will have an incentive to contain its own compliance costs.

Option 2 has the following disadvantages:

- Carriers may not be able to offer optimised services under this option if a second or subsequent provider is granted access to a cable and a code allows for some service degradation. This may result in some users experiencing a degradation—albeit minor—in the speed of their services once the second carrier begins to supply services over the cable bundle.
- There may be additional costs on second or subsequent providers to ensure that their services do not interfere with those of the first mover. While cooperation by the first mover can be assured under this option, the costs of managing interference would most likely fall to the second or subsequent provider who creates interference (however, costs are dependent on the requirements of the code).
- Some industry members have indicated that a register of cable bundle owners would be useful to help it track ownership and make it easier for carriers to determine if in-building cabling is already in use. If industry considers that such a

register is necessary, it would have to implement it. The development and maintenance of such a register will create costs for industry, although these would not be regulatory costs as the Government would not impose such a requirement.

- Building owners may become confused or concerned about interference once carriers who wish to compete in a building supply information. As a result, they could refuse to grant new carriers access to their in-building cabling. Were this to occur, some residents at least would be denied the potential benefits of infrastructure competition (noting that current regulation provides for carriers providing superfast services to residential customers to provide open access, supporting retail competition).
- If it takes too long for industry to draft the code (because of disagreement over its contents) or the ACMA finds reason not to register the code, the deployment of next generation services could be delayed.

### *Option 3 – Amend the Regulations and the ACMA makes an industry standard*

The advantages and disadvantages of this option are similar to option 2. The main difference between the options would be that the ACMA develops a standard, rather than requiring industry to attempt to first develop a code and then seek to have it registered by the ACMA. The Minister would most likely direct the ACMA to make the standard and in doing so, could set out the principles that he or she would expect to be included in the standard. The ACMA would still need to consult industry in developing the standard and would be expected to engage with industry extensively. This option may be timelier than having industry first develop a code, and then seek ACMA registration; however, there is the risk that it could take the ACMA more time because it is less intimately involved in the technologies and issues than industry.

The main benefit of this approach is that a standard would be automatically binding upon all industry members who operate next-generation broadband systems. Consequently, it would be more straightforward to enforce than a code. (As noted above, compliance with a code, even if registered by the ACMA, is voluntary until a service provider is directed by the ACMA to comply with a code). If the ACMA makes a standard and observes non-compliance, it would be able to take enforcement action directly.

An ACMA standard may also be appropriate in situations where an individual carrier or carriers cannot agree to finalise a code for consideration by the ACMA. There are a number of reasons why a carrier may not want a code to be registered, including the possibility that a carrier may obtain some commercial advantage by delaying a code's registration. In this particular scenario, the ability for the ACMA to make a standard is an important safeguard, both for consumers and industry.

The main disadvantage of the option is that it removes industry control of the regulatory process. There is considerable technical expertise within industry, which should be leveraged to the greatest extent possible in developing a code. This may lead to the inclusion of unnecessary requirements and costs, and the regulator may be less driven than industry to eliminate such costs. There is a risk that the standard may reflect the outcome the regulator considers in best, even though the industry disagrees. As a result, it has the potential to impose greater compliance costs than option 2, although these are impossible to quantify at this stage because they are potential

rather than actual. There is also the risk, as noted above, that it could be more time consuming as the regulator may not have the expertise and incentives available in industry.

### ***Consultation on RIS***

The Government has closely consulted CA, and in particular, Working Group WC58, on the development of rules to manage VDSL2 interference since August 2014. The Department has also held discussions with the industry regulators, the ACMA and the Australian Competition and Consumer Commission.

This consultation follows earlier consultation by the Vertigan review, and the subsequent Government response to the review. That review considered the question of VDSL2 interference management as part of the review process and CA members were consulted during this period. The Government has been encouraged by affected parties to assist in the development of a solution to the problem.

The Department has also sought comment on the draft regulation from the Australian Communications Consumers Action Network (ACCAN) and the Property Council of Australia. ACCAN noted that the substantive issues will be the content of the code itself.

The Department will undertake an additional two weeks of consultation on the Regulation and the regulation impact statement. This will enable all carriers to provide comment, including carriers who have VDSL2 infrastructure in place but are not members of CA.

### ***Selecting the best option***

Option 2 is the Department's preferred option. By establishing a regulation to allow industry to develop a code, the Government is facilitating an effective and efficient means of providing for the rollout of such services, and managing the associated interference issues that arise as a result of competing carriers sharing a cable bundle. In particular, the regulation will create an environment in which industry can develop cooperative arrangements, but ones which can be enforced by the regulator if required. This option may have higher compliance costs than option 1, but as industry already manages interference between competing ADSL services under a code, those costs are expected to be incremental costs rather than significant. For example, there may be some initial costs in developing the code and in training workforce and disseminating information about a new code. Ultimately, however, the cost that the code causes for carriers will be determined by industry. Additionally, this option leverages existing industry expertise to develop a solution to a technical and highly complex problem, driven by industry's incentive to minimise cost.

Option 1 does not address the problem that carriers rolling out VDSL2 technology can significantly degrade existing services, resulting in end-users receiving poorer services until they migrate over to the new network. It also increases the risks and costs of investment for carriers, potentially limiting access to next-generation broadband for consumers. Accordingly, option 1 may result in suboptimal outcomes for end-users and industry, even though it does not give rise to any regulatory compliance burdens. It is therefore not a preferred option.

Option 3, while similar to option 2, could potentially result in an industry standard being created by the ACMA sooner than industry would be able to develop a code, therefore enabling carriers to rollout next-generation services faster and with more

certainty than they otherwise would. On the other hand, the standard, not being created by the industry body, would be less able to leverage industry expertise and be less driven by industry cost concerns. There is also a risk that if industry does not have 'buy in', the standard could take longer. It is therefore not a preferred option.

### ***Implementation and evaluation***

Option 2 would be implemented amending the Regulations. Once the Regulations are amended, CA would prepare a code. It is envisaged that the Minister could also set out the Government's expectations about the code, which would go to optimising broadband performance and competition to the greatest extent possible. Industry itself would consult on the content of a draft code prior to submitting it to the ACMA for registration, and the ACMA would prepare a regulatory impact statement on the code before registration.

The Government would evaluate the effectiveness of the Code and the proposed regulation, including the nature of any impacts on carriers or end-users, through the ACMA's monitoring of industry performance (for example, through section 105 of *the Telecommunications Act 1997*) and its ongoing engagement with carriers and regulators.

### **Consultation on Regulation**

From October 2014 to July 2015, the Department of Communications (the Department) consulted on the policy and subsequent draft Amending Regulation with Communications Alliance Working Committee 58 (CA WC58). CA WC58 is the working committee that is most likely to be responsible for developing the industry code dealing with interference. The Department also liaised closely with the ACMA and ACCC throughout the policy and regulation development process.

In July 2015, the draft regulation, explanatory note, and regulation impact statement was emailed to all carriers to obtain views on the proposal. The proposal was also published on the Department's website to enable members of the general public to comment on the regulation. Importantly, as the regulation effects a number of groups outside of the telecommunications industry, particularly owners of in-building cabling and end-users, the package was sent the Property Council of Australia (PCA) and the Australian Communications Consumer Action Network (ACCAN).

The Department received three submissions in response to the consultation package. These were received from Communications Alliance, NBN Co and Telstra. The majority of submissions recognised the need for a Code to manage interference between next-generation systems and noted that the Regulation largely achieved this purpose. For the sake of clarity however, some changes were proposed. In response, the following amendments were made to the consultation version of the regulation:

- Based on comments made during consultation, we have made two changes to the Amending Regulation. References to the Australian Communications Industry Forum / Communications Alliance in both Regulation 4.1 and 4.2 of the Telecommunications Regulations have been removed and will be replaced with a generic reference to 'industry'. This is because there could be an industry body other than Communications Alliance that may develop an industry code in future, and ultimately it will be a matter for the ACMA to be satisfied that the body submitting a code for registration under Part 6 represents a section of the telecommunications industry for the purposes of registering a code.

- The consultation draft specified two categories of services that an industry code could protect from interference: next-generation services and legacy services. The draft Amending Regulation aimed to ensure that any pre-existing carriage service – whether legacy or next-generation – was protected from interference from a new carriage service. This approach resulted in a prescriptive and somewhat complex drafting that raised questions about the ability of the Amending Regulation to provide enable industry to develop a code to effectively manage the issue. As a consequence, and following additional consultation with industry, the consultation draft was subsequently amended further to provide industry with the power to develop a code to manage interference between systems being operated to supply next-generation broadband services and legacy services. This provides it with flexibility to develop a code that manages interference between:
  - competing next-generation services; and
  - competing next-generation services and legacy services.

### **Other details**

Details of the Regulation are set out in Attachment A. A statement of the Regulation’s compatibility with human rights is set out in Attachment B.

The Regulation is a legislative instrument for the purposes of the *Legislative Instruments Act 2003*.

## ATTACHMENT A

**Details of the Telecommunications Amendment (Next-Generation Broadband Interference Management) Regulation 2015**

**Section 1 – Name of Regulation**

This section specifies the name of the amending regulation as the *Telecommunications Amendment (Next-Generation Broadband Interference Management) Regulation 2015* (the Amending Regulation).

**Section 2 – Commencement**

Subsection 2(1) specifies that each provision of the Amending Regulation specified in column 1 of the table commences, or is taken to have commenced, in accordance with column 2 of the table. In turn, the table provides that the whole of the Amending Regulation commences on the day after it is registered. The note accompanying the subsection clarifies that the table relates only to the provisions of the Amending Regulation as originally made and will not be amended to deal with any later amendments.

Subsection 2(2) provides that any information in column 3 of the table (which deals with dates and details) is not part of the Amending Regulation. The table does not specify anything at column 3.

**Section 3 – Authority**

This section provides that the authority for making the Amending Regulation is the *Telecommunications Act 1997* (the Act).

**Section 4 – Schedule(s)**

This section provides that each instrument specified in a Schedule to the Amending Regulation is amended or repealed as set out in that Schedule and that any other item in a Schedule to this instrument has effect according to its terms. The Amending Regulation has only one Schedule which sets out the amendments to the *Telecommunications Regulations 2001* (the Principal Regulation).

**Schedule 1 – Amendments**

**Item 1 – Section 4.1 (heading)**

**Item 2 – Subregulation 4.1(1)**

Items 1 and 2 make two minor amendments to existing Section 4.1 of the Principal Regulation. The changes replace outdated references to the Australian Communications Industry Forum (ACIF) with a generic reference to ‘industry’. This generic reference recognises that a body or industry association representing the sector, other than ACIF, may submit a code to the Australian Communications and Media Authority (ACMA) for registration. In practice however, it is envisaged that ACIF’s successor body, Communications Alliance, will develop a code made under regulation 4.2.

**Item 3 – At the end of subregulation 4.1(2)**

Item 3 adds a note at the end of subregulation 4.1(2) to assist the reader in recognising that the *Trade Practices Act 1974* was renamed the *Competition and*



*Consumer Act 2010* in 2010. The renaming of that statute was effected by the *Trade Practices Amendment (Australian Consumer Law) Act (No. 2) 2010*.

#### **Item 4 – At the end of Part 4**

Item 4 inserts at the end of Part 4 of the Principal Regulation a new regulation 4.2 titled, “Industry codes and industry standards—next-generation broadband services and interference between certain services”.

Broadly, the new regulation 4.2 provides a head of power to a body or association representing the telecommunications industry to develop codes, or standards to manage interference between specified systems. If industry makes a code and the ACMA registers that code, then the ACMA can also enforce it.

#### ***Subregulation 4.2(1)***

Subregulation 4.2(1) states that the rule in subsection 115(1) of the Act does not apply to an industry code or industry standard made under Part 6 of the Act to the extent to which compliance with the code or standard is likely to have the indirect effect of requiring:

- customer equipment;
- customer cabling;
- a telecommunications network; or
- a facility;

to have particular design features in relation to three specified matters. Those specified matters are set out at new regulation 4.2(1)(a)-(c).

The purpose of subsection 115(1) of the Act is to ensure that if an industry body develops a code or the ACMA makes a standard, which has the indirect effect of imposing requirements on industry members to design facilities or equipment in a certain way, then that code or standard has no legal effect. However, the Act provides that subsection 115(1) need not apply in certain circumstances, including where matters are specified in the *Telecommunications Regulations 2001*. This acknowledges that there may be circumstances where intervention in relation to the aforementioned design features is required. The management of interference caused by next-generation broadband systems is one of those circumstances.

The effect of regulation 4.2(1) is that an industry code or ACMA standard may, for example, indirectly require facilities or equipment to have design features (such as the capability to operate within certain frequency bands) with a view to managing interference between competing systems.

#### ***(a) Interference between telecommunications systems being operated to supply next-generation services or legacy services***

The first matter that a code may deal with under this regulation, specified at paragraph 4.2(1)(a), is interference between telecommunications systems being operated to supply:

- next-generation broadband services,
- legacy services, or
- any other carriage service supplied over a twisted pair cable.

Definitions of “next-generation broadband services” and “legacy services” are at subregulations 4.2(3) and (4).

The third class of services, set out at paragraph 4.2(1)(a)(iii), are “any other services supplied over a twisted pair cable”. This provides scope for a code to regulate the design features of technologies which do not fall within the definition of legacy or next-generation services. The category is intended to ensure that a code can manage interference between existing in-building systems which may not be classified as a next-generation broadband services or legacy services, such as Ethernet services.

For the avoidance of doubt, the third class of services at sub-paragraph 4.2(1)(a)(iii) is to be read as being exclusive of those classes of services at sub-paragraphs 4.2(1)(a)(i) and 4.2(1)(a)(ii). This means that the services which may be supplied under each of three categories do not overlap with the other categories.

In order for a code to be registered and enforced by the ACMA, the Act requires that the ACMA must be satisfied that the code meets a number of criteria, including that it deals with the matters covered in an appropriate matter (refer sub-paragraph 117(1)(d)(ii)).

A note is included at the end of subregulation 4.2(1) to give an example of what an industry code or industry standard could cover in respect of this matter. The note is explained more fully below.

***(b) Health and safety of persons working with next-generation broadband services***

The second matter, at paragraph 4.2(1)(c), is the health and safety of a person operating or working on customer equipment, customer cabling, a telecommunications network or a facility that incorporates, or is used with, a next-generation broadband service.

A similar provision, covering legacy services, is set out in regulation 4.1 of the *Telecommunications Regulations 2001*.

***(c) Integrity of next-generation broadband services***

The third matter, at paragraph 4.2(1)(d), is the integrity of customer equipment, customer cabling, a telecommunications network or a facility that incorporates, or is used with, a next-generation broadband service.

A similar provision, covering legacy services, is set out in regulation 4.1 of the *Telecommunications Regulations 2001*.

***Note***

A note is added at the end of subregulation 4.2(1) to help illustrate the purpose of paragraph 4.2(1)(a). It provides an example of how an industry code or industry standard may be drafted to address the issue. Specifically, the code or standard could have the indirect effect of requiring a facility to have particular design features that relate to interference between competing next-generation broadband systems that use the same cable bundle.

The term “cable bundle” is not defined in new Regulation 4.2, but is intended to have its ordinary meaning within the telecommunications industry. A cable is typically a bundle of twisted wire pairs gathered in a single sheath for protection and ease of handling, for example, when deployed in underground ducts or in in-building risers. A “cable bundle” is a collection of these cables, gathered together for ease of handling and management. Cables split off from the cable bundle and twisted pairs split off from the cable to connect individual end-user premises.

An industry code that is made using the head of power established by 4.2 should address interference caused between services operating over the twisted pair cables within a cable and within a cable bundle.

***Subregulation 4.2(2)***

Proposed subregulation 4.2(2) provides that an industry code or ACMA standard may have the *direct* or *indirect* effect of requiring customer equipment, customer cabling, a telecommunications network or a facility to meet particular performance requirements. It largely mirrors subregulation 4.2(1). The three specified matters listed in paragraph 4.2(2)(a)-(c) are identical to the matters listed at paragraphs 4.2(1)(a)-(c).

Subregulation 4.2(2) overrides the rule in subsection 115(1) of the Act in respect of those prescribed matters.

The effect of subregulation 4.2(2) is that an industry code or ACMA standard may, for example, set out performance requirements relating to the management of interference between competing next-generation or legacy services in a cable or cable bundle. This could include, for example, requirements for affected systems to operate within certain frequency bands. By enabling the code to include performance requirements of this kind, the amendment will ensure that the industry can effectively manage interference between the specified competing systems with a view to them operating at optimal performance levels. For example, a code may deal with interference caused by two systems providing VDSL2 services over the same cable bundle within a building such that each service operates at lower levels of performance than might otherwise be the case. That is, it could allow for competing systems but at the expense of performance. Conversely, the code could allow for optimal performance where there is a single system operating on a cable bundle.

A note is added at the end of subregulation 4.2(2) to assist the reader with interpreting paragraph (2)(a) by providing an example of how a code or standard may be drafted to reflect the provision. This is intended to have the same effect as the note in subregulation 4.2(1), which relates to paragraph (1)(a). It states that an industry code or industry standard may, for example, have the direct or indirect effect of requiring a facility to meet performance requirements that relate to interference between competing next-generation broadband service that use the same cable bundle.

***Subregulation 4.2(3)***

***Subregulation 4.2(4)***

Subregulations 4.2(3) and 4.2(4) set out two definitions which assist the operation of the new regulation.

Subregulation 4.2(3) defines the term ‘legacy service’ with specific reference to types of services that would generally be considered legacy services. Those services are:

- public switched telephone network (PSTN);
- asymmetric digital subscriber line (ADSL);
- ADSL2;
- ADSL2+;
- single pair high-speed digital subscriber line (SHDSL);
- integrated services digital network (ISDN); and

- another service (other than VDSL (very high-speed digital subscriber line) covered by the Communications Alliance Industry Code C559:2012 “Unconditioned Local Loop Service (ULLS) Network Deployment”, as registered by the ACMA on 16 May 2012.

Subregulation 4.2(3) is intended to capture telephony or broadband carriage services that use twisted pair cables, that operate over the ULLS and that operate at speeds below 25 Mbps. The ULLS typically operates between a telephone exchange and the end-user premises in the case of a single-dwelling unit, or the telephone exchange and the building basement in the case of a multi-dwelling unit.

The purpose of sub-paragraph 4.2(3)(g) is to clarify that systems covered by the current industry code, which manages interference over the ULLS, are covered by the definition of “legacy services” in this regulation. This code (Communications Alliance Industry Code C559:2012 “Unconditioned Local Loop Service (ULLS) Network Deployment”), sets out requirements for a range of systems which are variants of the technologies listed at 4.2(2)(a) – 4.2(2)(f), but which should, for the avoidance of doubt, be covered by this regulation so that they can be managed in the case of interference caused to or by next-generation systems. While VDSL is referenced in the code, it is considered a next-generation broadband service on the basis that:

- it is capable of supplying services over 25 Mbps, and
- it is commonly supplied from nodes (which may be located on a street or in a building basement), rather than telephone exchanges (and would therefore not generally operate over the ULLS).

VDSL is therefore explicitly excluded from the definition of legacy services in this regulation.

Subregulation 4.2(4) defines the term ‘next-generation service’ with specific reference to types of services that would generally be considered next-generation services. Those services are: VDSL, VDSL2, VDSL2 with vectoring, G.fast, and a service that uses a successor technology to any other next-generation broadband service. Such services provide, or would be expected to provide download speeds above 25 Mbps. These services are typically operated over the ULLS as they are generally supplied from nodes on the street, or in building basements.<sup>9</sup>

Broadly, subregulation 4.2(4) aims to cover the next-generation of broadband services that operate over twisted pair cables to supply services to end-users.

A successor technology to a next-generation service would be likely to have similar or better technical characteristics in terms of performance and would have to operate over a twisted pair cable.

The Government’s expectation is that once the Amending Regulation takes effect, Communications Alliance will continue work on developing an industry code for the purposes of Part 6 of the Act which would deal with all of the matters covered in new Regulation 4.2.

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<sup>9</sup> The ULLS declaration sets out the definition of the ULLS. See “Extension of declaration expiry date under section 152ALA(4), Variation of declaration in accordance with section 152AO”, 16 April 2014, <http://registers.accc.gov.au/content/item.phtml?itemId=1170326&nodeId=fde949de31234922cdfcd3ccd8fc68a2&fn=Extension%20instrument%20for%20Unconditioned%20Local%20Loop%20Service%20-%20August%202014.PDF>

The third class of services, which are referenced at sub-paragraphs 4.2(1)(a)(iii) and 4.2(2)(b)(iii), are not specifically defined in the regulation. This is to provide scope to industry to include in its code, those services which operate over a twisted pair cable but which may not be classified as legacy or next-generation broadband services. This may, for example, include Ethernet services. This third class of service is exclusive of legacy and next-generation broadband services.

## ATTACHMENT B

**Statement of Compatibility with Human Rights**

*Prepared in accordance with Part 3 of the Human Rights (Parliamentary Scrutiny) Act 2011*

**Telecommunications Amendment (Next-Generation Broadband Interference Management) Regulation 2015**

This Legislative Instrument is compatible with the human rights and freedoms recognised or declared in the international instruments listed in section 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.

**Overview of the Regulation**

The rollout of next-generation broadband technology can present unique competition and service quality issues, in that next-generation networks, such as very high-speed digital subscriber line (VDSL2) systems can interfere with other next-generation networks or older technology systems that use the same cable-bundle as part of delivering services to end-users. Interference occurs when the signals travelling over the individual copper pairs in a cable bundle escape the copper pair and interfere with other copper pairs.

Currently, the deployment of next-generation broadband systems is proceeding without coordination.

The *Telecommunications Amendment (Next-Generation Broadband Interference Management) Regulation 2015* (the Amending Regulation) will, once in place, allow the telecommunications peak body to develop an industry code (or the Australian Communications Media Authority (ACMA) to make an industry standard) under Part 6 of the Act dealing with the design features and performance requirements of customer cabling, customer equipment, networks or facilities relating to three prescribed matters.

The Amending Regulation achieves this result by modifying the rule under subsection 115(1) of the *Telecommunications Act 1997* (the Act) and specifying the following three matters:

- interference between telecommunications systems being operated to supply:
  - o next-generation broadband services;
  - o legacy services;
  - o any other carriage services supplied over twisted pair cables; and
- the health and safety of a person operating or working on such equipment, cabling, network or facility used with a next generation broadband service; and
- the integrity of such equipment, cabling, network or facility used with, a next generation broadband service.

The need for industry to be able to manage interference through an industry code was recommended by the Communications Alliance in its submission to the *Independent cost-benefit analysis of broadband and review of regulation*.

Coordination of VDSL2 services is the most effective way to ensure that competing providers can provide optimal services and operate their networks in a manner that delivers the best outcomes for consumers. Services supplied using network systems

which use the same cable bundling and which can interfere with each other are likely to have a significant impact on the ability of individuals to access quality online services and obtain the benefits that result from that access. Furthermore, if the market is left unregulated for too long, attempting to correct the problems created by the unregulated marketplace is likely to be complex and costly.

No human rights issues were raised during the consultation undertaken in developing the draft Amending Regulation.

### **Human rights implications**

The Amending Regulation does not engage any of the applicable rights or freedoms.

### **Conclusion**

This Amending Regulation is compatible with human rights as it does not raise any human rights issues.