Broadband Speed Claims – **nbn** submission in response to ACCC discussion paper

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Executive Summary

nbn welcomes the opportunity to respond to the ACCC's discussion paper on broadband speed claims.

The conversation between RSPs and end users is currently heavily focused on price and download quotas. While price and download quotas are important product attributes that should inform end user decisions when purchasing broadband, **nbn** believes that RSPs and the industry also need to start having a conversation about broadband speed and why speed matters. For this reason we strongly agree with the ACCC that end users should be provided with better information about broadband speeds.

The research suggests that providing consumers with clear and accurate information about broadband speeds will result in a win-win for consumers and industry. End users will benefit as they will be able to make more informed purchasing decisions to better suit their current and future broadband needs. For RSPs and industry, providing clear and accurate information about speed will result in greater customer satisfaction, lower churn and reduced cost in dealing with dissatisfied customers. It is also an investment which will likely increase brand loyalty and arguably mitigate regulatory risk.

Importantly, increasing convergence means that the importance of broadband performance information should not be limited to fixed line networks. Accurate and transparent information about broadband speeds will be beneficial to consumers regardless of whether that broadband service is delivered via a mobile or fixed line network.

nbn believes that the whole of industry needs to play a role in educating end users about the role that speed plays in the service that the end user will ultimately receive. However, given the complexity of next generation networks it is important that end users are given access to the information in a way that accurately reflects the nature of the telecommunications market, where network operators and RSPs often perform distinct roles, particularly in a structurally separated context. Network operators are responsible for the performance of their part(s) of the underlying network, and provide relevant information about that network to RSPs. The RSP is then best placed to provide end users with performance information, including service speed, regarding their retail products.

It is also important to recognise the impact that overly prescriptive requirements may have on the information that RSPs elect to supply. If marketing requirements are too restrictive they may have the unintended consequence of end users receiving less information. For example, RSPs may hesitate to supply specific information due to concern about breaching their consumer obligations.

Given **nbn**'s role, we have sought to frame our contribution to this consultation process by:

1. Outlining the principles that **nbn** considers are central to ensuring end users receive effective broadband performance information; and

2. Responding to the ACCC's specific questions (providing information specific to the **nbn** network, and the information made available to **nbn**'s customers, as appropriate).

1 Principles informing broadband performance information

In responding to the ACCC's discussion paper, **nbn** has identified 5 key principles that we consider should inform the broadband performance information provided to end users. These are:

1. End users require clear and accurate information regarding RSP product performance to inform their choice of broadband service.

2. Broadband speed/bandwidth is an important component of this performance information, but not the only relevant factor.

3. In a structurally separated context, both RSPs and the relevant network operator have a role to play in ensuring end users receive appropriate information regarding broadband performance.

4. The ACCC should not introduce overly prescriptive requirements, but should supplement competitive market forces with guidance on relevant aspects of Australia's consumer and competition law.

5. Performance information is important for both fixed line networks *and* mobile networks (particularly where end users are relying on mobile based products as a substitute for fixed line services).

Each of these principles is explained in further detail below.

1.1 Clear and accurate information for end users

The importance of clear and accurate information for end users is self-evident. By implementing the *Telecommunications Consumer Protection Code* (**TCP Code**)*,* industry has already recognised the importance of making complex telecommunication service information accessible for end users. The critical information summaries and associated RSP obligations captured in the TCP Code have been established to ensure end users have a simple overview of RSP phone and internet products from the outset of the sales/ordering process.

The need to translate service characteristics into more easily understood concepts is particularly important for broadband services. Compared to standard telephone services (or early internet services) there is an increase in the number and complexity of inputs affecting service performance. This complexity not only highlights the need for RSPs to assist end user understanding, but poses a significant challenge for RSPs seeking to provide standardised and useful performance information to end users.

nbn considers that in order for consumers to receive clear information about broadband products, RSPs need to take positive steps to educate consumers regarding all of the relevant attributes of their retail broadband services, including the speeds they can expect to receive and what this speed means in practice for their online experience. **nbn** notes that its views are shared by other industry stakeholders both in Australia and overseas.

nbn's own experience reveals that higher levels of dissatisfaction are associated with unmet speed expectations, creating cost and churn in the industry. Helping end users match their broadband speed to their current and future needs will not only increase end user satisfaction, but also decrease churn and reduce operational cost. Accordingly, **nbn** believes that educating and informing end users about broadband speeds is a win-win for both end users and the industry.

From an international perspective, after conducting a nationwide survey that found 8 out of 10 American broadband users did not know their broadband speed, as long ago as 2010, the Chairman of the United States Federal Communications Commission (**FCC**) expressed the view that:

> *Speed matters. The more broadband subscribers know about what speeds they need and what speeds they get, the more they can make the market work and push faster speeds over broadband networks.*[1]

Similarly, last year the Chief Executive Officer of Ofcom noted that there are four key areas that require attention in the UK telecommunications industry, one of which is:

> *…making available clear and accurate information in advertising and at point of sale, so that consumers can genuinely compare offers and make effective choices.*[2]

Perhaps the first step in this respect is clarifying that RSP's bandwidth descriptions (eg. 25Mbps) are generally not a minimum guaranteed speed. Broadband networks, including next generation networks, are generally configured to achieve maximum possible speeds within a given speed tier. While it is possible for network operators and RSPs to sell guaranteed bandwidth in certain circumstances (e.g. Traffic Class 1 and Traffic Class 2 based services on the **nbn** network), to guarantee and manage this minimum capacity increases the cost of delivering broadband products. If RSPs were required to reflect minimum speeds in their marketing to end users, and therefore guarantee these service speeds, end users would likely see an increase in the cost of basic broadband products.

1.2 Speed/bandwidth is important but not the only performance factor

The download and upload speed – or bandwidth - of a service is a key factor that end users consider when selecting a broadband service. Measured in megabits per second (Mbps), the speeds attainable over a connection will not only impact how quickly end users can access data, but also the types of content that an end user can access in a satisfactory manner. A key example of this is video on demand content – if the available bandwidth is insufficient, the end user may not be able to stream video at the desired quality.

Download speeds are significant to both legacy and next generation networks. The variable speeds available on ADSL networks has meant that end users have developed a strong awareness of this aspect of their service – and its impact on their internet experience. As next generation networks offer greater potential speeds, it is important that end users understand the distinction between legacy and next generation network speeds.

However, as is apparent from the work the ACCC has done in relation to the proposed broadband performance monitoring program, there are a range of factors that contribute to broadband performance rather than bandwidth alone. When ascertaining the performance of a particular service, latency also plays an important role. Where bandwidth establishes the maximum amount of data that may be transferred over an end user's service at a point in time, latency describes the time taken for an individual packet to travel between points on the network.

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[1] FCC, *FCC SURVEY FINDS 4 OUT OF 5 AMERICANS DON'T KNOW THEIR BROADBAND SPEEDS: Agency Announces Plans for National Speed Testing, Starts Recruitment for 10,000 volunteers,* 1 June 2010

[2] Ofcom Chief Executive Sharon White's speech to industry 11 June 2015, available at http://media.ofcom.org.uk/news/2015/communications-industry-serve-customers/

A low latency service is preferable to ensure data travels efficiently to its destination; a high latency network will have the opposite effect, slowing the movement of individual data packets notwithstanding the available bandwidth.

Related to the latency of a service is the degree of jitter. Jitter refers to the variation in the time of arrival of individual packets across the network – where packets are delayed this can result in interruptions of the content being consumed (ie. skipping of video or gaming content).

Packet loss also plays a role in broadband performance. The loss of individual packets of data will mean that the end user misses part of the content being received or downloaded. This is most relevant to real time applications such as VOIP where there is minimal opportunity for data that falls behind to return to its place in the traffic queue. [3]

Each of these factors contributes to the end user experience and each factor may vary in importance depending on the predominant use of a service.

1.3 Role of RSPs and network operators

Ultimately, it is only the RSP who is in a position to advise the end user regarding the performance of retail products operating over a particular network. Not only do they have the direct relationship with end users but they are the sole party who has a complete view of the end to end product. RSPs should combine the knowledge of their product performance with information available from the network operator to present clear and accurate performance information to end users. This performance information may be in marketing materials or point of sale descriptions. To the extent that marketing materials do not allow RSPs the opportunity to include extensive details of a product, RSPs should make relevant additional information easily accessible and prominent for end users, for example on their website.

nbn considers that network operators have two roles to play in relation to end user understanding of the speeds and performance available on their networks. The first of these is to provide appropriate network performance information to access seekers to ensure that RSPs can utilise this information when describing their retail product performance. For examples of this information please refer to sections 2.1.3 and 2.1.4 below.

The second role of network operators is to help improve and promote end user understanding of the speeds and performance available on their networks. The network operator can assist the public by making available clear and accurate information regarding the range of wholesale products available on its network. This information should be presented in a manner that assists end users to engage with RSPs and have the appropriate conversation when ordering a service.

In recognition of this, **nbn** has a series of initiatives to make available relevant wholesale product information to the public that supplements the information provided by RSPs. These initiatives seek to educate end-users that:

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[3] Service levels in respect of each of these broadband characteristics on the **nbn** network (at the Layer 2 level) are set out in the WBA: latency is referred to as 'frame delay' – the time elapsed since the start of transmission of the frame at the source until the complete reception of the frame at its destination, jitter as 'frame delay variation' - the average variation in delay between the arrival of pair of frames and packet loss as 'frame loss' - the ratio of the number of frames not delivered, divided by the total number of frames transmitted.

- services over the network give end users a choice of broadband speeds;

- end users should choose a speed plan with their RSP that is based on their current and future online behaviour; and

- end users should talk to their preferred RSP about which broadband speed best meets their needs (including budget).

As part of these initiatives, **nbn** has developed an online speed calculator, established **nbn** kiosks at designated locations and developed in-store education initiatives (eg. Australia Post and Harvey Norman). **[Commercial-In-Confidence]**

1.4 Role of ACCC

nbn considers the ACCC has an important ongoing role in ensuring that end users receive appropriate broadband performance information from RSPs. The ACCC's role includes providing guidance (in consultation with industry) on broadband descriptions, monitoring and reporting on RSP product performance, and enforcement of consumer protections.

Industry has had significant time to consider how the ACCC's 2011 Information Paper *HFC and Optical Fibre Broadband "Speed" Claims and the Competition and Consumer Act 2010* (**2011 Information Paper**) has impacted end user awareness. We note that some RSPs claim that it is difficult to provide concise and meaningful information that addresses all of the concerns set out in the current guideline. If this leads to a reticence by some RSPs to provide specific speed information, end users are presumably receiving less information than would be desirable and, consequentially, acquiring services that may not suit their needs.

To address this, **nbn** considers that the ACCC should work closely with industry participants to update broadband performance guidance for industry - either through an update to the ACCC's guideline or a Comms Alliance guideline. A benefit of Comms Alliance developing guidance is that this will provide industry with a clear opportunity to take leadership on the issue, and Comms Alliance is a forum that has been successfully used to improve industry processes and end user outcomes in the past. Comms Alliance would also be well placed to integrate broadband performance guidelines with any existing RSP requirements regarding end user information (eg. TCP Code). To the extent that this guidance did not lead to beneficial outcomes for end users, the ACCC would still have the opportunity to update its existing guideline.

With respect to its monitoring role, **nbn** supports in principle the ACCC's proposed broadband monitoring and reporting program. As noted in our submission to the ACCC's initial consultation in 2013, we believe the ability to compare the relative performance of retail broadband services delivered over different types of network infrastructure would enable end users to make more informed choices about what broadband services are most appropriate for their needs.[4]

The ACCC will presumably continue to play an enforcement role, where it is identified that RSPs or network operators are providing misleading information to end users in relation to product performance.

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[4] **nbn** response to ACCC Consultation Paper *Broadband performance monitoring and reporting in the Australian context*, available at https://www.accc.gov.au/system/files/NBN%20Co%20submission%20-%2024%20September%202013.pdf

At this point in time, **nbn** does not believe that implementing additional prescriptive measures would be beneficial. For example, requiring RSPs to advertise minimum broadband speed criteria, and meet these minimum criteria or else incur financial penalties, would be premature. The Australian Consumer Law already provides appropriate protections for end users. Where an RSP makes a false or misleading representation in the marketing of a superfast broadband service, this will be captured under section 18 of the ACL.[5]

1.5 Application to mobile networks

The importance of broadband performance information is not limited to fixed line networks. Accurate and transparent information is equally vital in relation to mobile broadband networks. This is particularly the case given:

- **Fixed to mobile substitution:** While home broadband services have traditionally been served by fixed line access technology, there are a range of RSPs now providing in home solutions based on mobile or fixed wireless technology. These end users will therefore be using mobile networks for the same purposes that they would use an ADSL or FTTP service. The broadband speed/performance of products delivered over these networks will be just as important for the end user who will need this information to make effective comparisons with products provided over fixed line networks.

- **Network convergence:** Convergence means that there is an increasing demand from end users to carry out online tasks across multiple devices and networks, and switch between platforms as they move between home, public areas and the workplace. End users will need to understand broadband speed/ performance in this context also.

2 ACCC questions

2.1 Network management and monitoring services delivered on NGNs

2.1.1 Monitoring and managing of **nbn** network performance

nbn supplies Layer 2 bitstream services between a premises and a point-of-interconnect and, accordingly, cannot be responsible for the end-to-end product received by the end user. While the Layer 2 service is a fundamental input into RSP products, the decisions that RSPs make in the design and dimensioning of their networks will impact directly on the performance of retail services.[6]

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[5] In its 2011 Information Paper, the ACCC details the enforcement avenues for criminal and civil penalty provisions of the ACL.

[6] In some cases **nbn**'s customer may not be the RSP who provides the service to the end user. In that instance, the intermediary service provider's network decisions will also impact directly on the performance of the retail service and it is their responsibility to ensure that RSPs receive relevant network performance information.

nbn does, however, undertake appropriate network management and monitoring activities at the network level. The network management and monitoring activities that **nbn** undertakes and enables are set out in its Wholesale Broadband Agreement (**WBA**) and include:

Shared resource utilisation management by nbn

A feature of many broadband networks, including the **nbn** network, is that certain network components are shared between RSPs. A key component of **nbn**'s network management therefore is managing utilisation of those parts of the network where bandwidth is shared between RSPs. To provide RSPs with access to sufficient bandwidth, **nbn** monitors shared network resources and increases the bandwidth of the relevant network resource(s) in accordance with the arrangements in the WBA.[7]

CVC management by RSPs

Connectivity Virtual Circuit (**CVC**) capacity is dedicated bandwidth acquired by RSPs to carry network traffic between each **nbn** Connectivity Serving Area and the relevant RSP network. If RSPs have insufficient bandwidth in this part of the network, this will affect the performance of their end users' broadband services.

Similar to **nbn**'s utilisation management of shared network resources, it is important that RSPs are able to monitor the utilisation of their CVC bandwidth and manage this accordingly. To enable this, **nbn** makes monitoring tools available to RSPs to enable near-real time monitoring of CVC and NNI utilisation. If an RSP identifies that an increase in CVC capacity is required, the RSP can order a modification of their CVC.[8]

2.1.2 Move to next generation access networks

nbn considers that the Layer 2 access model it has established (and the information it makes available to access seekers) gives RSPs appropriate flexibility to monitor and manage their Layer 2 inputs to ensure they have sufficient bandwidth to support the performance of retail products.

This is particularly evident in RSPs' ability to:

- monitor CVC utilisation and manage CVC capacity; and

- monitor the maximum sync rates and associated line characteristics of an individual service and adjust the speed tier and traffic class of a particular service accordingly.

Next generation networks do not provide a solution to all of the traditional challenges of broadband performance. As discussed in section 2.2.1, there continue to be factors outside the network operator and RSP's control which influence an end-user's experience. Additionally, the physical characteristics of the network operator's infrastructure will continue to play a role in the performance of the end user service. In recognition of this, **nbn** ensures that RSPs have access to appropriate line data (see section 2.1.4 below).

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[7] See section 14.3 of the WBA Service Levels Schedule. Note that the utilisation management performance objective does not apply with respect to non **nbn** transit backhaul networks.

[8] **nbn** commits to implementing this modification within 5 business days. See section 10.2 of the WBA Service Levels Schedule.

2.1.3 Information available to RSPs

RSP data regarding the performance of their retail products on a given network (in both trials and live services) is the best basis that an RSP has for providing accurate descriptions of broadband performance to end users. However, network operators play a fundamental role in ensuring RSPs have sufficient knowledge regarding the ongoing performance of the network that supports their retail services. In relation to the **nbn** network this information is made available to service providers pursuant to the WBA. Key information that is available to RSPs includes:

Speed Tier information

Access seekers are aware of the wholesale speed tiers available on the **nbn** network. In order to match a retail product with an end user's needs it is important that RSPs delineate between Layer 2 bandwidth (made available by **nbn** to access seekers) and the Layer 3 bandwidth that it provides to the end user- the latter will be impacted by the RSPs own network configuration.

Traffic Class information

As discussed in section 2.5 below, the traffic class will determine whether the service is subject to a Peak Information Rate (ie. maximum achievable speed) or Committed Information Rate (guaranteed amount of bandwidth). The traffic class will also impact the latency, jitter and packet loss performance objectives attached to a particular service.[9] RSPs make the traffic class selection when ordering a service on the **nbn** network to support their retail product.

Network utilisation information

nbn's management of shared network resources and RSPs' ability to manage CVC capacity (discussed in section 2.1.1 above) provide RSPs with transparency regarding the capacity of the network to handle an RSP's end user traffic. **nbn** understands that its shared resource utilisation performance objective is a significant improvement on traditional network capacity commitments, and not necessarily available to RSPs on non-**nbn** networks.

2.1.4 Service performance of individual services

When an RSP is ordering a service, a key piece of data that **nbn** can make available is information regarding the maximum bandwidth of a line or estimates of the maximum bandwidth. To assist RSPs at the time of ordering an FTTN/B service, **nbn** makes available site qualification information. When an RSP places an order for an FTTN/B service, the **nbn** site qualification tool will return an estimated line speed where available. This is an estimate of the maximum Layer 2 bandwidth on the line and is based on certain assumptions including:

- accuracy of cable data (length and gauge);

- no outside electrical interference;

- quality of copper; and

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[9] See section 14.5 of the WBA Service Levels Schedule.

- in home wiring correctly configured.

nbn also provides access seekers with continued access to Layer 1 VDSL line speed information (ie. the transmission speed of raw bit streams over the physical connection) for each of their active FTTB/N services. **nbn** provides a weekly summary to customers which sets out key information for each of the access seeker's active services. This report includes:

- the actual Layer 1 bitrate downstream and upstream of each active service (affected by the service speed tier); and

- the attainable Layer 1 bitrate downstream and upstream of each active service (which does not take into account the ordered speed tier).

In addition to the weekly summary (which is a point in time snapshot of access seeker services), **nbn** provides customers with test and diagnostic tools that allows RSPs to view this information in near real time.

2.2 Presentation of speed information to end users

2.2.1 Impediments to speed claims

In its 2011 Information Paper, the ACCC recognised a range of factors outside the RSPs' control, being:

- the number of individual end-users at a residence using the service at the same time;

- the end-user's hardware, software and software configuration;

- the connection method within the premises (wireless or fixed);

- the type of content being downloaded by the end-user; and

- the source of the content being downloaded (including any content server limitations).

nbn agrees that these are relevant factors and that they have an impact on an RSP's ability to control the end user's broadband performance. However, it is also important to consider those factors over which an RSP has some control, such as the traffic class selected. For example, while it may be possible to guarantee minimum bandwidth on particular **nbn** traffic classes (TC 1 and 2), this is not feasible on TC4 services which are supplied by **nbn** on the basis that they are managed on a 'best efforts' basis.

The complexity of broadband networks, the variables that affect both network and individual service performance, and the current level of end user understanding of these matters, all inhibit the ability of RSPs to make headline descriptions that are *concise, accurate and effective*. While **nbn** acknowledges this challenge we do not consider it to be insurmountable with concerted industry effort. In this regard we note **nbn**'s online speed calculator **[Commercial-In-Confidence]**

2.2.2 Product template

There may be a danger in a one size fits all approach – given the number and complexity of variables that impact broadband services. If a retail product template were considered, key differences in the products being compared would need to be appropriately acknowledged. For instance, average download speeds may differ between carrier networks, access technologies (eg. FTTP vs FTTN) and products (25Mbps TC4 service vs 50Mbps TC2 service on the **nbn** network) – so these variables would need to be accounted for.

nbn considers that the effectiveness of such a product template would be best considered via an industry forum. Under the TCP Code, RSPs are already required to make available critical information summaries in relation to telephone and internet services. In order to ensure that the obligations under that Code are not duplicated, and industry has the opportunity to collectively assess the value of such a template, Comms Alliance may provide an appropriate forum for this issue to be reviewed further.

2.2.3 Performance measures

nbn agrees that speed or bandwidth is a vital component of broadband service performance, and a significant factor in end users' service choice. However, as is apparent from the work the ACCC has done in relation to its proposed broadband performance monitoring program, there are a range of additional factors relevant to broadband service performance. As discussed in section 1.2 latency, jitter and packet loss are three key factors that may be relevant to end users – depending on the intended use of their broadband service.

2.2.4 Co-ordinating RSP implementation of changes

To the extent that changes are proposed in the way that RSPs present speed and other performance information, this may well be best managed via an industry developed guideline. Comms Alliance may provide an effective forum for industry to further consider these issues and ensure that any agreed practices can be implemented in a coordinated manner.

2.3 Peak period demand

2.3.1 Managing peak period demand

nbn takes appropriate steps to ensure that the performance of the network meets committed levels during peak periods. The network is dimensioned to provide average throughput minimums based on the peak period. Additionally, the shared resource utilisation metric discussed at section 2.1.1 above will necessarily cover both peak and off-peak periods. A 30 minute period where more than 70% of shared network resources are utilised could occur at any time of day, though is most likely to occur during standard peak periods.

The tools that **nbn** makes available to RSPs, specifically CVC and line speed diagnostic tools, are available in near real time. As such, RSPs should be able to effectively monitor **nbn** network inputs to their services during peak and off peak periods.

2.4 Premium speed products

2.4.1 Traffic class is relevant to performance management

From a network operator perspective, traffic is prioritised by **nbn** according to the traffic class attached to an individual service rather than the applicable speed tier (which determines maximum bandwidth) – refer section 2.5.1 below.

2.5 Prioritisation of network traffic

2.5.1 Traffic classes on the nbn network

nbn offers the following traffic classes (as set out in more detail in the WBA):

- **TC1:** This is the highest priority traffic class. It is delivered as a guaranteed bandwidth with defined latency, jitter and loss characteristics. It is suitable for applications that require highly deterministic traffic parameters such as voice.

- **TC2:** This traffic class provides support for latency sensitive, interactive applications such as video conferencing, converged business collaboration, IPTV or gaming. It is delivered as a guaranteed bandwidth with defined latency, jitter and loss characteristics.

- **TC4:** This is a 'best efforts' traffic class designed for browser based applications such as the internet and web browsing.

2.5.2 Communicating traffic prioritisation to end users

nbn considers that RSPs are best placed to consider what traffic prioritisation information is relevant to their end users. The key role of the network operator in this area is to ensure RSPs have sufficient information regarding any traffic class options available to them, and how network traffic is managed in practice. Given the complexity of traffic prioritisation, and the fact that RSPs will employ their own traffic management practices, it is difficult for network operators to provide end users with information that is relevant to their service or proposed service.

As the WBA is a public document, end users are able to review the traffic class options that **nbn** supplies to RSPs.

2.6 Data intensive applications and services

2.6.1 nbn network management agnostic as to data type

Data is generally managed / prioritised on the **nbn** network according to the traffic class associated to a particular broadband service – rather than the types of data moving across the network. As a result, the questions relating to data intensive applications and services are best answered by RSPs.

2.7 Managing isolated cases of poor service performance

2.7.1 Reasonable performance claim thresholds

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2.7.2 Factors in determining response to individual instances of failure to meet advertised performance levels

In responding to individual instances of broadband services failing to meet advertised levels of performance, **nbn** considers that the ACCC should not, at this stage, seek to implement a prescriptive response (refer section 1.4 above).

2.8 Mobile broadband speeds and representations

2.8.1 Mobile broadband performance information equally important

The importance of broadband performance information is not limited to fixed line networks. Accuracy of performance descriptions, and transparency of network information, is equally vital in relation to mobile broadband networks (refer to section 1.5 above).

[Commercial-In-Confidence]