



SUBMISSION:

Inquiry into Broadband Speed Claims

Australian Competition and Consumer
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Executive summary

In submitting a response to the ACCC's Inquiry into Broadband Speed Claims, Enex TestLab (Enex) has chosen to respond to the key challenge of "how can consumers make informed and meaningful choices and decisions about the purchase of a broadband plan".

We acknowledge the Inquiry asks a range of questions of Retail Service Providers (RSPs) however Enex will focus its response on the challenges of providing accurate information for consumers and a possible remedy for this.

Enex thanks the ACCC for the opportunity to provide feedback.

The challenges to providing consistent information

The key challenge of the ACCC's Inquiry is how to enable consumers to make informed choices about their broadband services. The context from the ACCC is that "an improvement in the quality of information provided will assist consumers to make confident purchasing decisions", with a subsequent benefit being improved competition in the marketplace.

We understand the ACCC is seeking "to promote better industry practices in the evolving broadband market, including the provision of accurate, meaningful information to consumers about broadband speed."

Furthermore, we understand the ACCC is also "seeking to better understand the factors that inhibit RSPs from informing consumers of the speeds that their retail fixed broadband services support in practice and seeking views on how these factors could potentially be overcome."

In addressing the key challenge of providing accurate information to consumers, Enex acknowledges the critical importance of providing regional, rural and city price and performance comparability as well.

The ACCC holds the view that RSPs have been slow to provide information that readily identifies characteristics of their fixed or mobile broadband services, restricting their information to prices and download quotas. Our insight into why this is the case is presented below.

In addition to an increase in TIO complaints (*ACCC reference paper*), Enex notes ongoing and consistent chatter regarding broadband service quality on public fora including CHOICE Community and Whirlpool.

Based on what is being discussed amongst consumers on these forums and noting the views held by ACCAN, Australians find it difficult, confusing and time-consuming to research and choose a broadband plan suitable for their needs. There is a demand for more accurate and transparent information on broadband plan attributes.

Enex holds the view that "empowering consumers to make informed choices" is an impossible task, unless you have parity and consistency across the information being collected on network performance and application use.

As we highlight in this submission, RSPs are concerned to ensure the appropriate running of their own networks and for a multitude of reasons have been disinclined to measure end-to-end customer experience.

Each user's online experience is influenced by the entire network performance, from the servers delivering content and applications, to the consumer's device making the content or service request. [Appendix 1](#) comprehensively addresses the key factors that affect a consumer's broadband experience, the nature of the problems for RSPs, and addresses some of the current mechanisms RSPs use to manage their networks.

In an increasingly complex world, consumers will seek out and rely on different resources to assist them in making purchasing decisions and these often include social networks, publicly available comparator tools, community forums such as Whirlpool, or independent consumer testing such as CHOICE. In addition, sophisticated users may form complex core criteria to assist them in their research.

Either way, whilst RSPs have in recent years, focused almost exclusively on price and download quotas, (and more recently speed), consumers factor in a range of criteria when researching and selecting a broadband plan:

- Price
- Upload and download speeds
- Mobility and fixed options
- Usage quotas
- Customer service
- Locality
- Brand
- Content caching or peering services
- Application quality such as latency for gaming, stream quality for TV

The last two points remind us of the need amongst consumers to understand application experience on their broadband service.

CHOICE confirms through their ISP and NBN satisfaction surveys that current market information about broadband plans is simply not enough for consumers to make decisions and there is demand for more accurate information regarding real world speeds, peak speeds, type of access technology, and customer service.

The solution – independent measurement and reporting

Enex suggests the most efficient and productive way to enable consumers to make informed decisions about broadband services is for them to have access to consistent, verifiable, independent and trustworthy data that measures the network as a whole, across differing access technologies, and across a consumer's total end-to-end experience.

We therefore recommend an independent national measurement system.

To ensure a holistic view of broadband service quality, measurement (in data terms) would be conducted across the entire end-to-end customer experience; from devices used in consumers' premises through to their RSP, through to the points of interconnect, and ultimately to the end server from whom the consumer is requesting services.

As a practical example, for people using Netflix, measurement should start with physically replicating the consumer device and application (a TV, mobile or other such device in the home), through the home gateway to the RSP, through points of interconnect and to the servers streaming the Netflix content. Importantly, data captured would also identify the access mechanism (mobile, DSL, fibre, fixed wireless, etc) used by the consumer.

The measurement program would be run by an independent testing organisation which over time, captures and presents the data. Trust in the data, consistency and continuity is key and as such Enex recommends an independent 3rd party be responsible for capture, co-ordination and presentation.

Whilst it is at the discretion of the ACCC, Enex proposes a program that benefits all stakeholders in the eco-system: industry, government and consumers, and that this program could become Australia's definitive source of consumer broadband measurement data.

Benefits of independent measurement

The major advantage of a scientific, independent and ongoing approach to measurement is that over time, trust is built in the data.

Collective or platform benefits

Acknowledging it is within the discretion of the ACCC as to how such a program could be run, there are collective benefits when an initiative such as this allows network performance to be seen as a whole. Opportunities, unknown today, will materialise when data is captured end-to-end.

The data sets could create benefit for all stakeholders:

- Consumers could have an authoritative data source enabling them to make informed choices, in Plain-English
- 3rd parties could have access to the data enabling them to produce innovative new tools, such as comparators
- RSPs could implement a broadband label format, similar to what the FCC has mandated in the US (*source: <https://www.fcc.gov/document/fcc-unveils-consumer-broadband-labels>*)
- RSP and network operators could interrogate the data in ways that help improve the performance of their networks

- Data could assist RSPs in avoiding potentially false, deceptive or misleading representations
- “Premium” claims can be validated
- Content providers could use the data to gain insight into the delivery of their services
- Ombudsman could use the data to mediate issues
- Regulators could use the data for ACL compliance
- Government could use the data to develop policy, project needs, etc.

Similar to what the FCC has mandated in the US with broadband labels,

Over time, there is the potential for a national measurement system or program to become Australia’s premier Internet Consumer Experience Index.

But perhaps the greatest advantage is the ability to see the network as a whole and the myriad benefits that arise from this.

Consumer benefits

Most of the benefit could come in the form of easing research efforts but importantly, as trust builds in the data and consumers have access to transparent independent data, the industry could come to expect a reduction in complaints and potential improvement in customer satisfaction:

- Consumers could access comprehensive, consistent and usable data
- A common lexicon could emerge easing research efforts
- An authoritative voice would be established to assist consumers in engaging with their RSPs
- 3rd parties could produce simple and effective tools for research or purchasing efforts

Retail Service Provider benefits

Industry, through an independent platform, could improve compliance with Australian Consumer Law (ACL), along with other benefits:

- Marketing efforts improve due to the independent nature of the data. In particular, it enables RSPs to provide validated information in their headline or product disclosures
- Enables RSPs to move beyond “theoretical speed claims” and “qualitative statements”
- It captures and presents factors outside of the control of the RSP, providing invaluable insight into end-to-end customer experience
- Customer empathy is at the heart of product development and is now a critical success factor for RSPs and telecommunication companies. This data gives RSPs a truly empathetic view of what a customer is experiencing, in real-time. This provides potential for improvement in the way RSPs relate, engage and interact with their customers, and vice-versa
- There’s an emerging view that whilst there are factors outside the control of the RSP, customers only care about the totality of their experience. RSPs need to respond to this need
- When issues arise, opportunities for remediation become easier
- The information enables both industry and consumers to understand how applications perform across each internet delivery technology.

Requirements for a measurement program

Trust

To build trust in the data, the program should conform with the following:

- Be independently managed by a neutral 3rd party
- Preferably include the key stakeholders across the eco-system
- Include agreed data attributes for capture and presentation
- Data collected should be statistically valid
- Continuous data collection to enable a robust benchmark and baseline to emerge.

Enex notes the Communications Alliance have publicly stated a “need to ensure that if a monitoring program is introduced, it is cost-effective, produces reliable data and takes account of the fact that there are factors beyond the control of service providers that can influence the results,” (*John Stanton, 11 September 2015, <http://www.commsalliance.com.au/about-us/newsroom/Proposed-Broadband-Monitoring-Must-Pass-the-Red-Tape-Test>*).

In addition to the Communications Alliance statement, Enex recommends the program should:

- Be resource (infrastructure and people) effective
- Be access technology agnostic e.g. fibre variations, cable, DSL, wireless, mobile and satellite
- Measure across metropolitan, regional and rural access points
- Control or remove variables from the live environment, particularly at consumer end-points where impacts on accurate data collection are more likely.

Ideally the measurement program would probe across each internet access/delivery technology, evaluating popular customer applications, identifying key performance test attributes, and delivering comprehensive testing, monitoring and reporting.

End-to-end customer experience

The way to ensure data captured and presented is consistent and represents the complete end-to-end customer experience is to use the same measurement solution across all participating stakeholders.

Whilst speed is an important factor, it is but one in determining broadband plan quality. Any program must be able to measure customer experience of common customer applications (gaming, streaming, etc) and the way those applications are delivered should be considered, e.g. latency (for gaming), Mean Opinion Score (MOS) and jitter (for VOIP) along with various traffic classes if used (i.e. TC1, TC2, TC3) and various protocols such as TCP and UDP. Single-threaded and Multi-threaded download performance are also factors to take into consideration with web browsers.

Engagement with industry to determine tests and discuss results could yield great benefit, namely by establishing mutually agreed baseline “thresholds” of customer experience. These can then be used for on-going benchmarking.

The program could identify points where there are faults (in any segment of the end-to-end delivery) and enable those responsible to remediate. It would also enable the identification of providers who may be deliberately under-delivering when compared to others or, over time, pickup networks in decline.

Many RSPs use their own tools for monitoring and measurement of their respective networks and justifiably, focus these program on the segments of the system they own and control. Given performance is outside their control, it is rare for an RSP to monitor downstream experience in a customer or subscriber premise or even upstream quality of back-haul services.

The market is saturated with products and services for RSPs; achieving parity between these would be time consuming, expensive and difficult.

An independent measurement system that probes end-to-end internet application delivery to consumers could achieve the requirements outlined above and importantly, round out market perspectives that capture and present limited or parochial views of network performance (e.g Google's *YouTube Video Quality Report*, Netflix ISP speed index, Ookla speedtest, or Akamai's *State of the Internet*).

Statistically valid data

A key concern is to ensure the program creates statistically valid data. Agreement should be reached about expected use of the data (for example, the number of participating end-points in the program to enable statistically valid marketing claims would be significantly higher than the number of participating end-points) in order to make "average claims". Upfront agreement for how the data is used will be essential.

The program should be run continuously over years so results can be analysed month-to-month and historical baseline views established to enable comparisons. Test capture and results should be handled by the neutral entity, ensuring independence in the results and trust in the data.

Finally, whilst the owners of the data would determine the use and availability of the datasets, Enex recommends transparency for consumers as one of the key outcomes of a national measurement program.

How a measurement program could work?

There are a number of ways a measurement program could be implemented, including, but not limited to:

- Industry enters into a voluntary measurement program
- Government implements and maintains a measurement program
- Consumers participate in a program
- Industry and government work together on a program.

The opportunity to increase quantitative data by including consumers is significant, so consumer advocates such as ACAAN or Whirlpool could potentially work with consumers to facilitate participation, perhaps through a crowd-sourcing initiative. Alternatively, this could be handled by the independent party.

At the core of the program is trust and transparency; as such the program should be run by a neutral 3rd party. Having an independent 3rd party administer a measurement system is a critical success factor because it acknowledges:

- No one player in the eco-system can do it on their own

- The parties need to form trust in the entity; the potential for this is greater when you have the stakeholders in the eco-system participating on neutral ground.

Implementing a measurement system requires a staged approach, one that captures and agrees key principles and requirements. A suggested framework for such an approach is detailed below.

Stage 1 – Eco-system formulation and consultation

Involved parties discuss and agree to specific factors and formulate the requirements of a program, which can typically include:

- Objectives and outcomes
- Participant numbers, contacts and privacy
- Probe deployment
- Testing type and testing frequency
- Indicative bandwidth consumption (server and premises)
- Data collection, collation and analysis
- Data availability and accessibility
- Use of the data
- Data ownership
- Reporting requirements, reporting frequency.

Stage 2 – Deployment

Participant environments are identified and qualified. Probes are prepared, configured and dispatched. Participants plug-in with their probes automatically coming online.

The devices in the field are all centrally managed. Test frequency, probe and network status can be managed individually or wholly.

Stage 3 – Program Execution

Agreed tests are scheduled and run. Collection, analysis, and presentation of participant data is carried out. Maintenance and monitoring of the solution is undertaken.

Stage 4 – Reporting

Reports and/or datasets are provided and made available at agreed intervals.

Previous programs

The Australian government has a history of measuring broadband network performance.

Between 2004 and 2011, Enex TestLab, using eMetric, delivered network performance monitoring services for the Department of Communications and the Arts (formerly DBCDE and DCITA) broadband programs, HiBIS, BC, MBC, ABG-TP and ABG, providing monthly monitoring and compliance testing for all internet service technologies deployed across Australia. The extent of this program included availability of 24x7 monitoring to over 350,000 premises and 50+ ISPs.

From 2010 to present, eMetric has been used by Enex to operate network monitoring, customer experience, performance testing and reporting of consumer services across NBN network delivery technologies including FTTP, Fixed Wireless, Interim Satellite, Long Term Satellite and Subsidised Satellite, and is currently working with FTTN and HFC teams on technical trials.

In 2014 the ACCC ran a pilot broadband performance measurement trial.

Over the past decade, eMetric has also been deployed by Enex in the delivery of bespoke independent testing services for agencies such as ACMA, ACCC and the AGS. Including mobile broadband service testing.

Conclusion

Choosing a broadband plan is complex for many Australian consumers and in today's market, information on just price, download quotas and qualitative claims on speed is inadequate to make informed purchasing choices. There is insatiable demand from consumers for more comprehensive information on the attributes of a broadband plan and how their particular application and experience may be enhanced.

RSPs on average, do a good job to manage their networks but have been disinclined to measure and report on components of the network that they do not control. Yet they are under increasing pressure to be more transparent and accountable to existing and potential customers and to provide a broader range of information so consumers can compare products and make purchasing decisions.

The key issue is that there is currently no standardised mechanism for the industry to provide comprehensive, comparable and authoritative information to consumers.

An ongoing national measurement program, managed by a neutral 3rd party, will create benefits for all stakeholders in the eco system, improving accountability and transparency and providing much needed independent and comparable information to consumers so they can make informed purchasing decisions.

Appendix 1 – Challenges for RSPs in measuring networks

Note on terminology: the NBN company provides Layer 2 Ethernet transport services and a VOIP access service. NBN refers specifically to its wholesale customers as Retail Service Providers or RSPs whereas the general term for Internet Service Providers is ISPs.

As well as being retailers of Internet and Telecommunications services, RSPs can be wholesale service providers to other ISPs.

Factors affecting end user broadband experience

Between each consumer on the Internet and the sites and services they access are numerous technical elements. Some of these elements are under the direct control of the retail ISP that supplies the service the customer is using. However, there may also be no direct relationship between the ISP and the consumer and the expectations and requirements of these two parties may be at odds.

Customer premises issues

The device being used by an Internet subscriber may generate network traffic they are unaware of. Typically, this can be in the form of application and Operating System (OS) updates where traffic is benign, to more extreme cases where malignant trojan bots may be at play. In some environments such as satellite broadband, software updates can have undesirable effects on performance, due to the limited/controlled bandwidth and data caps. The release earlier this year of Windows 10 for example, produced an OS that showed no consistency in the timing and delivery of software updates, causing frustrating circumstances and detrimental impacts on network performance for certain customers.

The connection between the consumer device and the Internet gateway is crucial to a good quality online experience. Wireless connections can suffer interference from other networks and other users of the same class licensed spectrum such as cordless phones. Often interference arises from devices the user doesn't consider as "network connected" including Internet Protocol (IP) phones or surround sound speakers. And finally, there is always the possibility that someone nearby has broken the security of a user's wireless network and is stealing their Internet access.

The cable between the consumer's device or the wireless access point to the Internet gateway is another element that is often neglected; even a slightly bad connection can leave Internet services working poorly.

Users connected via the same gateway device can affect each other's online experience with each user having little interest or regard for the impact their activity has on other users. In increasingly common examples, one of the users on the home network may unknowingly consume a large amount of network capacity due to the activity of streaming content, a bot or a peer-to-peer sharing node.

The Internet gateway device, often a cable or ADSL modem with an integral router and wireless access point contributes to the Internet experience. Age is unkind to these devices, initially because components, particularly capacitors in the power supply, degrade and secondly, older devices may have been fast enough for an ADSL service but if recycled for NBN FTTP may not have sufficient throughput. This will vary by line protocol. Most older

consumer devices can handle “Layer 3” routed IP connected more quickly than “Layer 2” PPP because the device has to work harder translating between IP and PPP.

The configuration of the Internet gateway device is often user or RSP configurable and choice of DNS server can affect the Internet experience. Recent examples with the Census indicate the ABS blocked access to offshore DNS, rendering Australians who used OpenDNS or Google DNS unable to access the Census. A poorly chosen DNS can have a negative impact on broadband experience.

The cable between the Internet gateway and the network boundary point, whether it is twisted pair, coax or fibre can have significant impact on Internet experience, particularly if it is of poor quality, poorly routed by interference, poorly terminated or not attached correctly.

Customer Access Network issues

The network between the customer premise and the service provider equipment is subject to Radio Frequency (RF) interference if they are wireless or copper based, and all technologies can suffer from bad joints and plugged connections.

Interference can be caused by other services delivered nearby or over the same cable bundles or from radio and radar transmitters, cordless phones, baby monitors, garage door openers, swimming pool controllers and microwave ovens. Switch contacts such as thermostats and heavy loads like motors in refrigerators and air-conditioners can also cause interference.

Access multiplexers and backhaul

DSLAMS and FTTP Optical Line Terminals (OLT) are shared elements, with a modularity of 8, 12, 16, 32 and even 64 users sharing some common path the next layer up in the network. These often have a capacity limit of 100Mb or 1,000Mb or 2,400Mb raising the contention for limited resources.

For example, 12 DSLAM ports may share a single 100Mb uplink resulting in only 8Mb of upstream for each port if all the ports are transmitting data at full speed. Likewise, for GPON FTTP, 32 users sharing 2,400Mb have only 75Mb in the (admittedly unlikely) event all 32 are attempting to use their ports at full speed.

Individual DSLAM ports and FTTP ONT's at customer premises fail from time to time. Unless monitored closely, the network operator may not know the port has failed and for a wholesale customer it can be frustrating and expensive to get the operator to move the customer to a working port. It is often cheaper to abandon the port and provision a service on a new port with the faulty port being returned to the available pool for the next unsuspecting end user.

Retail ISPs face similar issues with wholesale ADSL access products. They cannot see the utilisation of aggregation links between their wholesaler and the DSLAM sites.

As the network extends away from the end user towards the “content” of the Internet, the service provider's infrastructure becomes more shared, more contended and less specific to serving end users.

For users connected via the NBN, traffic must pass through the NBN “transit” network that links the OLTs serving FTTP areas to the Point of Interconnect (POI) and there may be many of these linked back to a single POI. If the allocation of capacity is wrong at this Layer, end user experience is impacted yet the RSP has no information to indicate there is a problem

other than potential reports of slow Internet access from a group of NBN connected customers.

With limited or no visibility of the “transit” network between the OLTs and the POIs, RSPs have no information about traffic, latency, headroom or direct control over packet priority and must take it on trust and face value that the NBN hasn’t oversubscribed the transit network.

Where a Retail ISP is a directly connected NBN RSP, they have their own Network to Network Interconnect (NNI) with the NBN at a POI providing visibility of and control over the delivery of traffic. If they are a wholesale customer, they have little to no visibility of that port.

Aggregation

Aggregation can add additional complexity in internet traffic management across sites and prospective bottlenecks in applications. In Australia RSPs usually bring all traffic for a group of their customers to one place. This facilitates volume based billing and lawful interception and it also makes connecting to wholesale access networks easier. The rollout of the NBN has led to more of these aggregation points for some operators who have built their network out to the POI.

The “Internet” itself

The Internet isn’t a commodity like steel or corn, and unfortunately it is not like a utility service such as electricity or even telephony. The Internet is the sum total of connecting all the world’s public Internet Protocol (IP) networks together.

As such, there are no enforced standards for “quality”, speed or capacity of those links. There are theoretical maximum levels of performance for each separate component of technology that is combined to deliver an Internet service. There is then the measured performance reality below that, which is affected by many factors, including other components of the system.

There are usually two or more paths between most places on the Internet, even between end users on different parts of the same RSP network. The selection of these paths is not something that consumers have any say in and it is common for them to have different online experiences at the same time accessing the same content on what they believe is the “same” network.

Network operators in the “core” of the Internet have competing priorities. Packet loss and latency are high on the list but cost is also a major factor, with bandwidth on some paths so expensive there simply isn’t enough provisioned.

In summary, each consumer’s online experience is influenced by the entire network. The end user and their ISP have limited to no control over some or even most of these factors making it problematic for RSPs to provide accurate information to consumers regarding network performance.

Tools to measure and monitor

ISPs and RSPs can and should monitor their own network equipment, actively looking for faults, overloaded links and under-performance. Of particular interest for example, would be DSLAM environments and faults and error counters on links. The level of quality applied to monitoring and measurement varies dramatically across the service provider space.

Beyond monitoring their own network elements there are other services available to ISPs and RSPs to monitor end user experience.

3rd party measurements

The Content Distribution Network Akamai monitors performance from their servers to end users and reports regularly and publicly on how well networks around the world perform at carrying web and streaming media. Equally, Netflix and Google publish video streaming performance data on a regular basis.

These reports provide relatively detailed insight into global Internet performance, but are often parochial or limited in coverage. The reports are intended as macro views and whilst they would be inappropriate for an Australian measurement system, they could be used as complements.

Speedtest.net provides a visual speedometer display with other dials and read-outs showing important information about users' Internet connections. Whilst speedtest is often cited as a useful tool to understand the performance of an Internet connection, two issues make it inappropriate for use in a scientific-based measurement system:

1. It focuses on speed only
2. Results are aggregated/averaged and the data is manipulated. Sample data is sorted by speed with the two fastest results and the bottom quarter results removed (the bottom quarter is approximately 22% of the total). The remaining data is then averaged (*source: <https://support.speedtest.net/hc/en-us/articles/203845400-How-does-the-test-itself-work-How-is-the-result-calculated->*).

Customer-premise monitors

Some ISPs control a router at the customer premise that can provide a view of customer experience. This, however, does not show all the problems that may exist on the customer network or end user device as it only measures the performance from the router to the ISP, missing the critical end customer device (TV, laptop, games console etc).

Importantly with customers allowed to BYO a modem on some networks, running software to gather intelligence on customer experience on these myriad gateways would be extremely difficult if not impossible for ISPs.

These tools are useful for diagnostics but are difficult to retrofit over an existing network and impossible to operate independently of the ISP or RSP.

Other ISPs and NBN RSPs have deployed network connected devices such as the Enex *eMetric test probe*. These devices act like a consumer device on the end-user's local network and give the closest to "real-life" customer experience of all the measurement tools.

These tools can test services like DNS resolution and ISP mail and local hosting, as well as:

- Throughput, jitter and packet loss on the customer's link from premises to Internet connected devices beyond their ISPs aggregation point
- Web browsing experience in terms of page load time and file download speed

They can act as a source or target for tests run from other locations on the Internet.

They can, within reason, probe the end user's local network for other devices and monitor for signs of bot infections, for example.

Why RSPs avoid customer-premise monitoring

There are many reasons why ISPs and RSPs don't use end user monitoring or measurement tools.

Foremost, there is no industry standard for online experience and industry has had little incentive to establish one.

Methodologies and business rules for monitoring and measuring can vary widely across those companies that do measure their networks. The frequency of tests and the period over which tests are done have a dramatic impact upon the data received, quality of that data, and the ensuing claims that can be extrapolated from the data.

Historically, ISPs and RSPs have not considered upstream or downstream experiences to be their problem and consequently have not attempted to measure beyond their own networks or inside a customer premise.

Inside an ISP or RSP, the cost of end user experience monitoring is often seen as a "customer service" cost by the network operations team and a "network operations" cost by the customer service team making responsibility and budget allocation difficult.

If cost and responsibility can be resolved there remains the issue that the relationship with the end users is maintained by the customer service team and communications between them and network operations can be slow and cumbersome particularly if they are located in different geographic regions.

Using an independent 3rd party to establish and maintain an industry-wide program of measurement using standardised tools and enabling a "network wide view of performance" will offer all stakeholders, consumers, industry and government, myriad benefits. The potential of such a program to assist the eco-system outweighs the contribution each stakeholder would be required to make for such a program to be successful.

Appendix 2 - About Enex TestLab

Enex Pty Ltd was founded at RMIT University in 1989 and commercialised as Enex TestLab in 2005. Enex is an Australian owned and operated enterprise.

Enex has delivered scientific, independent testing, evaluation, reporting and advisory services for 27 years, across for over 90 industry sectors globally.

Enex maintains ISO 9001 quality management certification as well as ISO 17025 laboratory specific accreditation.

The majority of Enex's clients are Government Departments and Agencies. Enex understands the public process well and is on a number of Australian Federal and State Government procurement panels.

Enex TestLab, using eMetric, has over twelve years direct, continual and relevant experience in the provision of independent end-to-end consumer broadband performance testing, monitoring, evaluation, analysis and reporting.