



Vodafone Aotearoa response to the Commerce Commission's review of the Measuring Broadband New Zealand programme

16 March 2022

Executive summary

1. We welcome the Commerce Commission's (**the Commission**) review of the Measuring Broadband New Zealand (**MBNZ**) programme. The programme has played an important role as an independent source of information on broadband performance for consumers. However, as rightly noted in the consultation document, the current programme has a number of limitations.
2. As the Commission is aware, the recently published guidelines on marketing of alternative broadband services, and the subsequent industry code that is currently in development, have significantly increased industry's reliance on MBNZ testing results and reporting. It is therefore critical that improvements to the programme are made as soon as possible to ensure that it is fair and equitable to all broadband network access technologies.
3. Below we set out responses to the questions as part of the consultation and can provide further feedback if required.

Response to consultation questions

Q1. What providers, broadband plans, performance metrics and services should we consider removing or adding to the testing programme?

4. Technologies such as 5G FWA and satellite should be added to the testing programme as a priority. 5G FWA product was launched in New Zealand over a year ago and it is still



not being measured by MBNZ. Other new technologies should also be tested as soon as practicably possible as they are made available.

5. The programme should avoid measuring products delivering speeds over 1Gbps at this stage, as it is currently not meaningful for consumers – consumer applications that would require such speeds are non-existent and it would therefore be more beneficial for the programme to focus on testing technologies that are more widely used.
6. We note that the consultation document posed a question on whether the Commission should consider eventual removal of HFC services from testing. We do not support this proposal. HFC is Vodafone's access technology that competes directly with Fibre 300 services in Wellington and Christchurch. Vodafone has no plans to stop providing services using this technology. Continuing to measure HFC's performance is therefore important.

Q2. How should we approach onboarding or adding new providers, products and technologies?

7. The programme would benefit from more flexibility in how volunteer recruitment campaigns are run. As the Commission will be aware, Vodafone recently ran a campaign aimed at recruiting 5G FWA volunteers. However, the campaign was not successful in reaching the required number of sign-ups in order for the technology to be reported on by MBNZ. Our view is that this was in large part due to the fact that we were unable to offer incentives for customers to take part in the programme. It is common for market research practices to use a small token gesture to ensure sufficient sample sizes are obtained to barely compensate for the hassle factor of participating in a campaign such as the MBNZ programme. Where volunteer numbers required to test a particular technology are persistently low, taking steps to enable effective testing matters more than any perception that volunteers may be subject to influence (which is a remote risk given volunteers' only decision is whether or not to accept placement of testing devices – they cannot themselves influence data collected).
8. We support greater collaboration between the testing provider and network operators ahead of any launches of new products. This would allow the network operator to work with the testing provider to start recruitment of testers within pre-launch triallists and early adoption of the new products. Recruitment and installation of speed testing equipment could then occur prior to the full commercial launch of the new products.
9. We should also be allowed to target existing Vodafone testers who are testing technologies that are well represented within MBNZ samples (e.g. Fibre testers) with attractive offers (e.g. free service) to encourage them to move to equivalent alternative



services that are less well represented in the programme. These customers are already set up with the testing gear and would then automatically become a part of the sample group for the new technology without bias created by the offer (as they are already a tester). This would help to increase the number of volunteers for new products/technologies in particular.

10. Lastly, other providers should be proactively invited to deliver testing if MBNZ is unable to expand the scope of its own testing to other technologies emerging, such as 5G FWA and satellite.

Q3. Should we encourage greater collaboration between the testing provider and the broadband providers to facilitate the testing of new products?

11. We strongly agree that greater collaboration between the testing provider and the broadband provider should be encouraged to both facilitate the testing of new products and ensure continued fair and equitable testing of existing products. One way to improve the accuracy of test results through collaboration would be to enable the MBNZ testing provider to cross check testing results with network-wide testing carried out by network operators. If there are large variants in the test results of the MBNZ testing provider and network-wide testing, those variants should be further explored. This is particularly important because under the current system of volunteers, there is a bias towards customers who have poor broadband experience. When customers are offered to participate in the testing programme, they have a much higher chance to sign up if they are experiencing issues with their service as a way to air their frustrations. A network based random sample is a good counter cross-check against independent testing results, as the results of those tests are derived from a purely random sample.
12. While fibre and HFC have more consistent speed performance, current wireless broadband technologies don't have the same consistency attributes in all areas where it is provided. It is important that the testing programme draws statistically valid representative samples from a range of customers to ensure an accurate picture of the performance of the product overall. Another way to mitigate this is to increase the overall sample of volunteers. We discuss how this could be done in response to Q4 and Q5.

Q4. What options should we consider, to recruit and maintain volunteers to support greater coverage of products, providers and plans?



Q5. What level of support should providers offer to the programme and to volunteers to promote the programme?

13. As outlined in response to Q2, we would support the use of incentives as a way to encourage volunteers to sign up to the programme.
14. The Commission should also encourage better information sharing between testing providers and network operators to enable network operators – who ultimately hold the relationship with their customers – to have more flexibility when implementing volunteer recruitment campaigns. While we understand the reasons behind the current reluctance to share information such as on individual customers who have signed up to the programme as volunteers (i.e. to avoid network operators tweaking performance for those customers, according to the Commission), the Commission should look at ways to prevent this while allowing greater information sharing.
15. We note the consultation document suggests a potential introduction of ‘a regulated requirement to support the programme, including volunteer recruitment and support, potentially via a Commission RSQ code.’ There is no case for regulation at this point: there is ample scope to implement and observe the impact of voluntary improvements by the Commission, MBNZ and industry before arriving at this point. The marketing code means the industry must place increased reliance on MBNZ for marketing of broadband purposes and industry is therefore incentivised to do everything it can to make this single-provider model work.
16. The key issue currently is that the programme is not flexible enough, making it difficult for industry to support recruitment of volunteers. We experienced this first hand when trying to run a campaign to increase the number of 5G FWA volunteers, as outlined above. There is no evidence of a lack of engagement from the industry side. What is required is flexibility to adjust the model in light of valid feedback.
17. If making the programme more flexible and easier to engage with does not work, or evidence emerges of industry’s lack of willingness to participate or support MBNZ functions, the Commission could look at the regulation route at this time.
18. We also note the Commission’s suggestion for ‘providers sourcing their own volunteers, carrying out their own testing with the MBNZ provider, and providing their results to the Commission’s programme for reporting of the results.’ This option could potentially include the current ‘in-home probe’ physical method or providers embedding appropriate testing software in their end user equipment.’ We outline our view on embedding software into modems below.
19. In relation to ability to source own volunteers, we support this idea, particularly where there are gaps in MBNZ reporting.



Q6. Should we consider applying different reporting thresholds for some testing, for example smaller sample sizes, where it has been difficult to get enough volunteers?

20. Allowing smaller sample sizes in some cases may be helpful, particularly for new technologies that simply don't have enough customers to build up the currently required base of volunteers or for localised speed reporting. However, as the Commission rightly notes, 'this approach would need to be carefully managed when reporting the results to ensure indicative performance does not mislead consumers.'

Q7. How often do you think we should report test results? Why?

21. We do not oppose the idea of MBNZ reporting test results more frequently. However, even if the Commission moves to twice a month or monthly reporting of test results, we think the full and official MBNZ report should still be published once per quarter, which sets out a table for what speed numbers broadband service providers should use for their marketing.
22. It should also be considered what outcomes the increased frequency of speed test reporting would look to achieve and whether it would deliver value for money (assuming that more frequent reporting would cost the Commission more). For example, investing more into increasing the number of volunteers, speeding up the reporting of performance of new technologies, adding end-to-end testing that includes Wi-Fi performance, or increasing the use of regional breakdowns would achieve more beneficial outcomes for both industry and consumers rather than more frequent reporting.
23. Most importantly, industry needs to be provided with certainty on the dates when MBNZ reports will be published. Industry's reliance on MBNZ reporting has increased significantly since the Commission issued guidance for marketing of alternative broadband services. Information on the scheduled publication dates of MBNZ reports needs to be provided to industry in advance to enable planning of existing and new marketing collateral that uses speed indications.

Q8. What changes should we make to our current testing and reporting to better support consumer choice?

24. MBNZ reporting should give more consideration to other performance metrics – speed is not the only thing that matters to consumers. While MBNZ programme focuses on measuring and reporting performance metrics such as speed and latency, the Commission's reports should ensure that these metrics are framed up in a way that recognises that other factors, such as price, service availability, time to provision and the



customer's usage requirements, are also important when choosing a broadband product.

25. Almost all end users in New Zealand connect to broadband using Wi-Fi. Receiving a good Wi-Fi router free of charge is part of the overall broadband service that almost all end users expect from a broadband provider. The provision of a high performing broadband router with Wi-Fi, and/or mesh Wi-Fi devices, is an area where there is significant variation and differentiation in the broadband performance end users will experience from their broadband service.
26. The programme should start measuring in-home Wi-Fi performance. Currently, MBNZ testing is carried out using hard-wired connections and measures performance to the router/modem. This does not reflect the typical experience of most end users, who experience broadband services via Wi-Fi connection. As such, the performance of the retail broadband service as reported by MBNZ may differ materially from what consumers actually experience due to Wi-Fi quality.
27. We propose that the MBNZ testing provider develop a mobile app that can be used to augment the white box results with more typical speeds that are usually experienced over Wi-Fi. To reduce variability that could be created by using multiple end user devices, testers with just one or two popular devices (e.g. currently this could include the iPhone 11 and the Samsung S20) could be targeted to use the app. The app could notify the tester to perform the speed test at different times of the day and the app could provide small rewards for completion of speed tests when asked. The app would ensure the user is connected to their home broadband when running the test and could show the user (for their benefit) how their speed is tracking and compares to other users. Wi-Fi performance measurements (by device type) could then be reported in addition to the existing hard-wired broadband measures.
28. In the meantime, and at a minimum, MBNZ reporting should carry a health warning that testing results may not reflect actual in-home performance and end-user experience, which is affected by a range of factors that MBNZ testing currently does not take into account. This principal is a requirement for advertising under the Commission's guidelines for marketing of broadband services – MBNZ reporting should align with this principle to avoid confusion.
29. MBNZ should aim to increase volunteer sample size for existing products and encourage greater collaboration between the testing provider and network operators, as outlined in response to Q3. This would help achieve more accurate speed test reporting, in turn improving broadband performance information provided to consumers.
30. Reporting on geographic splits (e.g. splitting out FWA by urban and rural performance) would also be very beneficial for consumers. Consumers can currently only access



national peak time average speed information for most products. As the Commission will be aware, performance can vary across regions and it would therefore be beneficial for consumers to be able to access more localised speed performance information.

Q9. What are the practical, technical or commercial implications for providers of moving to an embedded software-based testing approach?

Q10. What implications would an embedded software-based testing approach have for licensing for modems/third party firmware, warranties, network load and modem capability?

Q11. What implications does this approach have for privacy and trust for consumers and providers? What safeguards would need to be in place to ensure the privacy of consumer data including cybersecurity and privacy of consumer details?

31. Software-based testing is an interesting approach and we agree that it would enable a more widespread testing of speeds.
32. The biggest challenge with moving an embedded software-based testing approach is that it relies on having software installed in particular modems. Encouraging modem manufacturers to create this software for modems would be a challenge, particularly given that New Zealand is a small market. It would further disadvantage smaller industry players who will have even less bargaining power due to the low operational scale. In addition, it would have significant cost implications to all network operators.
33. Another key factor is that the spectrum range allocated for wireless broadband in New Zealand uses different combinations of radio carrier channels to the US & European markets. This means that wireless broadband modems manufactured for the New Zealand market already must have different technical specifications to those produced for larger markets around the world. Getting manufacturers to add another requirement for a specific software to be embedded into wireless modems on top of the existing technical spectrum specifications would be extremely challenging, particularly considering the small market size in New Zealand compared to the rest of the world.
34. Vodafone has tried adding firmware to modems for Vodafone services including “Fon” and “Buddyguard”, along with Vodafone end-to-end network monitoring tools. However, all of these attempts have failed for a number of reasons:
 - a. Every modem model is built on a different operating kernel (e.g. Busybox, OpenWrt, Linux), different release of kernel, and will each have different software libraries. The third party firmware, such as what is proposed for Sam Knows or similar testing providers’ testing, therefore needs to be re-written, coded and tested for each model of modem.



- b. The implementation time and cost are substantial, especially the testing and re-testing required with every modem firmware update. As an example, the Vodafone Group Vox1.5 and Ultrahub modem firmware adaptations took over 1 year each to build and test before being ready for commercial release. These costs would ultimately accrue to consumers for no discernible benefit.
- c. To run third party firmware, especially firmware that runs Central Processing Unit¹ (CPU) intensive routines like a speed test, the modem has to have sufficient CPU processing power and memory. However, to reduce costs, most modem manufacturers only include the minimum specification of CPU and memory on board to run the modem operations. Some of Vodafone's existing modems already have speed test functions available via the modem administration portal that runs on the modem CPU, however the results are not representative due to CPU limitations. For example, the TP-Link x80 5G modem router (with the most powerful CPU of all our modems) speed test tops out at 840Mbps, despite the modem being able to deliver 1.2Gbps 5G and 2.5Gbps via ethernet.
- d. We have also had issues created by third party firmware upgrades and faults, with liability unclear when something goes wrong with the modem firmware.

Contact

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¹ Central Processing Unit is the main processor chip that runs the modem/computer/mobile etc.