Measuring Broadband Australia Program

ACCC — AUSTRALIAN COMPETITION & CONSUMER COMMISSION

Report 24 Appendix, March 2024

Report 24 is based on data measurements taken from 1 to 31 December 2023.

NBN fixed-line services tables

NBN video streaming tables

The following tables show information on the proportion of NBN services on the main NBN fixed-line plans which would be able to reliably stream (with a low chance of stopping and starting) a varying number of videos from Netflix simultaneously during busy hours. Data from underperforming and impaired services is included.

A Full High Definition stream from Netflix takes up around 5 Mbps data rate on average. For consumers with premium Ultra High Definition (4K) video stream, an Ultra High Definition stream from Netflix takes up 15 Mbps data rate on average. The actual data rate will vary during video streaming: for example Netflix would use a higher data rate during a fast-paced action scene. The actual data rate will also depend on how many other users are using Netflix.

The Whitebox measures the total downstream data rate available from Netflix's servers. Therefore, by using multiples of 5 Mbps (for Full High Definition) and 15 Mbps (for Ultra High Definition) it allows us to infer whether a NBN fixed-line service would be able to support different numbers of simultaneous streams. This assumes no other use of the connection at the time, i.e. that Netflix is the only application running.

By plan download speed

Download plan	1 FHD (5 Mbps)	2 FHD (10 Mbps)	3 FHD (15 Mbps)	4 FHD (20 Mbps)	5 FHD (25 Mbps)	Panel size
NBN25	100%	97%	95%	95%	77%	94
NBN50	100%	100%	99%	98%	98%	529
NBN100	100%	100%	100%	100%	99%	492
Download plan	1 UHD (15 Mbps)	2 UHD (30 Mbps)	3 UHD (45 Mbps)	4 UHD (60 Mbps)	5 UHD (75 Mbps)	Panel size
NBN25	95%	0%	0%	0%	0%	94
NBN50	99%	95%	74%	0%	0%	529
NBN100	100%	99%	96%	92%	86%	492

By RSP[1]

RSP	Download plan	1 UHD	2 UHD	3 UHD	4 UHD	Panel size
Aussie Broadband	50	100%	94%	71%	0%	52
Dodo & iPrimus	50	100%	98%	83%	0%	60
Exetel	50	100%	96%	64%	0%	45
iiNet	50	100%	98%	81%	0%	57
Optus	50	100%	98%	85%	0%	59
Telstra	50	100%	97%	82%	0%	66
TPG	50	99%	96%	81%	0%	68
RSP	Download plan	1 UHD	2 UHD	3 UHD	4 UHD	Panel size
Aussie Broadband	100	100%	100%	99%	93%	73
Exetel	100	100%	92%	87%	77%	62
Optus	100	100%	100%	100%	98%	40
Telstra	100	100%	100%	99%	99%	79
Superloop	100	100%	100%	98%	95%	66

[1] These tables only show data for RSPs having at least 40 units on the respective download speed tier reporting measurements.

NBN RSP tables

The following tables show statistical information on download speeds, upload speeds, and outages for each RSP across all NBN plans, and for individual NBN plans in instances where at least 40 Whiteboxes reported successfully during the test period.

- The overall speed is the average speed (download or upload) for the RSP, measured as a percentage of plan speed.

- Standard deviation is a measure of how widely or narrowly test speeds are distributed in the data set.

- The 95% confidence interval is a range in which the 'true' average value is estimated to lie and is a function of the sample size (i.e. number of Whiteboxes online) and standard deviation.

If the standard deviation is larger then the confidence interval will be wider, reflecting greater variability in the underlying data. If the sample size is larger then the confidence interval will be narrower, reflecting more certainty in the underlying data.

For example: during testing, we measured an average download performance of 101.3% of plan speed for Dodo & iPrimus across all NBN plans with a 95% confidence interval of ±2.0%. If we were to repeat our sampling 100 times, we expect that this average would fall between 99.3% and 103.4% in at least 95 cases.

Period	RSP	Download average % of plan speed (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	Aussie Broadband	99.1%	14.5%	96.9% - 101.3%	167	56,683
All hours	Dodo & iPrimus	101.3%	11.8%	99.3% - 103.4%	131	49,655
All hours	Exetel	102.8%	12.7%	100.7% - 104.9%	145	46,882
All hours	iiNet	99.7%	12.5%	97.2% - 102.1%	101	36,921
All hours	Launtel	100.6%	14.1%	96.5% - 104.7%	45	14,021
All hours	Leaptel	99.6%	12.2%	96.1% - 103.2%	45	14,011
All hours	Optus	102.5%	11.6%	100.4% - 104.7%	112	38,545
All hours	Telstra	102.8%	12.1%	101.0% - 104.5%	175	66,225
All hours	TPG	100.0%	15.1%	97.4% - 102.6%	127	45,534
All hours	Superloop	99.4%	10.5%	97.5% - 101.3%	116	39,139
All hours	Vodafone	98.0%	13.7%	94.1% - 101.8%	49	16,764

Period	RSP	Download average % of plan speed (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	Aussie Broadband	98.3%	14.5%	96.1% - 100.5%	167	9,244
Busy hours	Dodo & iPrimus	100.2%	12.7%	98.0% - 102.4%	131	8,265
Busy hours	Exetel	101.8%	12.7%	99.7% - 103.9%	144	7,619
Busy hours	iiNet	98.9%	12.6%	96.4% - 101.3%	101	6,039
Busy hours	Launtel	99.1%	14.8%	94.8% - 103.4%	45	2,252
Busy hours	Leaptel	98.4%	12.3%	94.8% - 102.0%	45	2,325
Busy hours	Optus	101.4%	11.4%	99.3% - 103.5%	112	6,294
Busy hours	Telstra	101.7%	12.3%	99.9% - 103.6%	175	11,190
Busy hours	TPG	99.0%	15.2%	96.3% - 101.6%	127	7,496
Busy hours	Superloop	98.6%	10.6%	96.6% - 100.5%	116	6,470
Busy hours	Vodafone	96.3%	14.5%	92.3% - 100.4%	49	2,801

Period	RSP	Upload average % of plan speed (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	Aussie Broadband	85.2%	18.9%	82.3% - 88.1%	167	46,127
All hours	Dodo & iPrimus	89.9%	14.3%	87.4% - 92.4%	131	40,261
All hours	Exetel	91.3%	12.7%	89.3% - 93.4%	145	38,270
All hours	iiNet	88.5%	17.8%	85.0% - 92.0%	101	30,002
All hours	Launtel	89.9%	10.9%	86.7% - 93.1%	45	11,457
All hours	Leaptel	85.3%	17.6%	80.1% - 90.4%	45	11,379
All hours	Optus	88.1%	13.9%	85.5% - 90.7%	112	31,559
All hours	Telstra	88.6%	14.5%	86.4% - 90.8%	175	53,609
All hours	TPG	85.4%	20.1%	81.9% - 88.9%	127	37,155
All hours	Superloop	88.9%	12.8%	86.6% - 91.2%	116	31,952
All hours	Vodafone	87.2%	17.8%	82.3% - 92.2%	49	13,348

Period	RSP	Upload average % of plan speed (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	Aussie Broadband	84.9%	19.0%	82.0% - 87.8%	165	4,786
Busy hours	Dodo & iPrimus	89.6%	14.3%	87.2% - 92.1%	131	4,236
Busy hours	Exetel	91.0%	12.8%	88.9% - 93.1%	144	3,924
Busy hours	iiNet	88.3%	17.7%	84.9% - 91.8%	101	3,106
Busy hours	Launtel	89.4%	10.8%	86.2% - 92.6%	45	1,136
Busy hours	Leaptel	84.9%	17.6%	79.7% - 90.0%	45	1,189
Busy hours	Optus	87.9%	13.9%	85.3% - 90.5%	112	3,183
Busy hours	Telstra	88.2%	14.6%	86.0% - 90.3%	175	5,691
Busy hours	TPG	85.1%	20.2%	81.6% - 88.6%	127	3,841
Busy hours	Superloop	88.7%	12.8%	86.4% - 91.0%	116	3,256
Busy hours	Vodafone	86.5%	18.4%	81.4% - 91.7%	49	1,377

Period	RSP	Download plan	Download average % of plan speed (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	Aussie Broadband	50	95.8%	16.8%	91.3% - 100.3%	53	18,040
All hours	Aussie Broadband	100	100.0%	14.2%	96.8% - 103.3%	73	23,967
All hours	Dodo & iPrimus	50	101.6%	10.6%	98.9% - 104.3%	60	23,291
All hours	Exetel	50	104.8%	8.1%	102.5% - 107.1%	46	15,287
All hours	Exetel	100	100.2%	16.0%	96.2% - 104.2%	62	19,695
All hours	iiNet	50	99.4%	12.6%	96.1% - 102.6%	58	21,729
All hours	Optus	50	103.1%	10.2%	100.5% - 105.6%	60	21,282
All hours	Optus	100	101.0%	14.6%	96.4% - 105.5%	40	13,426
All hours	Telstra	50	101.3%	14.8%	97.8% - 104.8%	67	25,610
All hours	Telstra	100	103.0%	10.0%	100.8% - 105.2%	79	29,234
All hours	TPG	50	99.5%	16.0%	95.7% - 103.3%	69	25,230
All hours	Superloop	100	99.9%	11.3%	97.2% - 102.7%	67	22,661

Period	RSP	Download plan	Download average % of plan speed (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	Aussie Broadband	50	94.9%	16.7%	90.4% - 99.4%	53	2,917
Busy hours	Aussie Broadband	100	99.4%	14.3%	96.1% - 102.7%	73	3,879
Busy hours	Dodo & iPrimus	50	100.7%	11.1%	97.9% - 103.5%	60	3,955
Busy hours	Exetel	50	103.6%	8.2%	101.2% - 106.0%	46	2,548
Busy hours	Exetel	100	98.9%	16.2%	94.9% - 103.0%	61	3,131
Busy hours	iiNet	50	98.6%	12.6%	95.3% - 101.8%	58	3,528
Busy hours	Optus	50	101.3%	10.0%	98.8% - 103.9%	60	3,455
Busy hours	Optus	100	100.2%	14.4%	95.8% - 104.7%	40	2,161
Busy hours	Telstra	50	100.2%	14.8%	96.7% - 103.8%	67	4,205
Busy hours	Telstra	100	102.0%	10.3%	99.7% - 104.2%	79	4,989
Busy hours	TPG	50	98.5%	16.2%	94.7% - 102.4%	69	4,097
Busy hours	Superloop	100	99.0%	11.6%	96.3% - 101.8%	67	3,731

Period	RSP	Upload plan	Upload average % of plan speed (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	Aussie Broadband	20	85.1%	20.5%	81.2% - 89.0%	104	28,359
All hours	Dodo & iPrimus	20	89.3%	16.3%	85.8% - 92.8%	84	26,553
All hours	Exetel	20	92.1%	12.5%	89.4% - 94.8%	80	20,951
All hours	iiNet	20	85.2%	19.9%	80.5% - 89.9%	70	20,992
All hours	Leaptel	20	84.7%	18.4%	79.1% - 90.3%	41	10,490
All hours	Optus	20	87.7%	15.7%	84.2% - 91.1%	78	22,467
All hours	Telstra	20	88.6%	14.4%	86.2% - 91.0%	139	42,800
All hours	TPG	20	84.6%	18.9%	80.8% - 88.5%	94	26,939
All hours	Superloop	20	87.2%	16.2%	83.0% - 91.4%	57	15,813
All hours	Superloop	40	90.4%	8.8%	87.8% - 93.0%	44	12,172
All hours	Vodafone	20	88.3%	15.7%	83.7% - 92.9%	44	11,593

Period	RSP	Upload plan	Upload average % of plan speed (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	Aussie Broadband	20	84.9%	20.5%	80.9% - 88.9%	103	2,921
Busy hours	Dodo & iPrimus	20	89.1%	16.3%	85.6% - 92.6%	84	2,812
Busy hours	Exetel	20	91.8%	12.5%	89.1% - 94.5%	80	2,146
Busy hours	iiNet	20	85.0%	19.9%	80.4% - 89.7%	70	2,107
Busy hours	Leaptel	20	84.3%	18.4%	78.7% - 90.0%	41	1,090
Busy hours	Optus	20	87.5%	15.6%	84.0% - 90.9%	78	2,241
Busy hours	Telstra	20	88.2%	14.5%	85.8% - 90.7%	139	4,507
Busy hours	TPG	20	84.3%	19.1%	80.4% - 88.1%	94	2,782
Busy hours	Superloop	20	87.1%	16.2%	82.9% - 91.3%	57	1,619
Busy hours	Superloop	40	90.1%	9.0%	87.4% - 92.7%	44	1,234
Busy hours	Vodafone	20	87.5%	16.5%	82.7% - 92.4%	44	1,175

RSP	Percentage of units having no outages	Percentage of units having outages at most every other day	Percentage of units having outages on most days	Percentage of units having outages at least once a day
Aussie Broadband	31.3%	57.8%	6.0%	4.8%
Dodo & iPrimus	15.3%	73.3%	7.6%	3.8%
Exetel	34.5%	54.5%	3.4%	7.6%
Launtel	8.9%	73.3%	11.1%	6.7%
Leaptel	40.0%	44.4%	8.9%	6.7%
Optus	37.5%	50.9%	6.2%	5.4%
Superloop	37.7%	56.1%	0.9%	5.3%
TPG	23.6%	61.4%	7.9%	7.1%
Telstra	36.2%	56.9%	5.2%	1.7%
Vodafone	34.7%	51.0%	4.1%	10.2%
iiNet	39.6%	51.5%	5.0%	4.0%

RSP	Percentage of outages lasting 30-60 sec	Percentage of outages lasting 1-3 min	Percentage of outages lasting 3-10 min	Percentage of outages lasting 10 min or more
Aussie Broadband	37.6%	24.6%	30.3%	7.6%
Dodo & iPrimus	28.1%	29.1%	30.3%	12.4%
Exetel	32.5%	29.9%	27.9%	9.7%
Launtel	20.6%	24.5%	38.9%	16.0%
Leaptel	18.7%	29.1%	23.3%	28.8%
Optus	28.0%	27.4%	33.6%	11.0%
Superloop	18.5%	37.5%	36.9%	7.2%
TPG	28.7%	26.8%	35.8%	8.7%
Telstra	23.1%	30.9%	19.3%	26.8%
Vodafone	20.6%	34.4%	20.8%	24.2%
iiNet	15.0%	14.5%	60.5%	10.0%

NBN plan tables

The following tables show statistical information on download and upload speeds for each NBN plan, including all tested RSPs.

Period	Download plan	Download average % of plan speed (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	25	103.4%	8.6%	101.7% - 105.1%	98	36,447
All hours	50	100.1%	13.3%	99.0% - 101.2%	535	193,122
All hours	100	99.8%	13.8%	98.6% - 101.1%	496	167,425
All hours	250	102.8%	10.1%	101.0% - 104.6%	122	40,876
Period	Download plan	Download average % of plan speed (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	25	101.9%	10.5%	99.8% - 103.9%	98	6,240
Busy hours	50	98.9%	13.5%	97.8% - 100.0%	535	31,765
Busy hours	100	98.8%	14.0%	97.5% - 100.0%	495	27,432
Busy hours	250	102.1%	10.5%	100.3% - 104.0%	122	6,778

Period	Upload plan	Upload average % of plan speed (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	5	89.3%	20.2%	84.0% - 94.6%	55	17,169
All hours	20	87.5%	16.8%	86.4% - 88.6%	865	248,164
All hours	25	90.3%	5.8%	89.2% - 91.3%	115	31,777
All hours	40	89.4%	12.0%	87.6% - 91.2%	172	46,665
Period	Upload plan	Upload average % of plan speed (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	5	88.8%	20.0%	83.6% - 94.1%	55	1,862
Busy hours	20	87.2%	16.9%	86.1% - 88.3%	864	25,544
Busy hours	25	90.0%	5.9%	88.9% - 91.1%	115	3,324
Busy hours	40	89.1%	12.2%	87.3% - 91.0%	170	4,755

NBN technology tables

The following tables show statistical information on download speeds, upload speeds, and outages on a per-technology basis.

Period	Technology	Download average % of plan speed (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	Fibre to the premises - FTTP	104.0%	8.2%	103.2% - 104.8%	446	154,735
All hours	Fibre to the curb - FTTC	103.1%	9.1%	101.1% - 105.1%	79	28,747
All hours	Hybrid fibre-coaxial - HFC	103.6%	8.3%	102.7% - 104.6%	307	103,599
All hours	Fibre to the node - FTTN	94.3%	17.3%	92.7% - 95.9%	447	160,173
Period	Technology	Download average % of plan speed (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	Fibre to the premises - FTTP	102.9%	8.7%	102.1% - 103.7%	446	25,649
Busy hours	Fibre to the curb - FTTC	101.9%	9.5%	99.8% - 104.0%	79	4,701
Busy hours	Hybrid fibre-coaxial - HFC	102.5%	8.9%	101.5% - 103.5%	306	17,248
Busy hours	Fibre to the node - FTTN	93.2%	17.5%	91.6% - 94.8%	447	26,130
Period	Technology	Upload average % of plan speed (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	Fibre to the premises - FTTP	92.8%	7.2%	92.1% - 93.4%	446	126,018
All hours	Fibre to the curb - FTTC	91.8%	8.8%	89.9% - 93.8%	79	23,310
All hours	Hybrid fibre-coaxial - HFC	91.9%	5.1%	91.3% - 92.4%	307	84,425
All hours	Fibre to the node - FTTN	80.1%	23.3%	77.9% - 82.3%	447	130,037

Period	Technology	Upload average % of plan speed (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	Fibre to the premises - FTTP	92.5%	7.1%	91.9% - 93.2%	444	13,125
Busy hours	Fibre to the curb - FTTC	91.5%	8.8%	89.5% - 93.4%	79	2,396
Busy hours	Hybrid fibre-coaxial - HFC	91.4%	5.3%	90.8% - 92.0%	306	8,692
Busy hours	Fibre to the node - FTTN	79.8%	23.4%	77.7% - 82.0%	447	13,399

Technology	Percentage of units having no outages	Percentage of units having outages at most every other day	Percentage of units having outages on most days	Percentage of units having outages at least once a day
Fibre to the curb - FTTC	34.2%	54.4%	5.1%	6.3%
Fibre to the node - FTTN	29.7%	57.8%	6.3%	6.3%
Fibre to the premises - FTTP	37.9%	55.4%	3.1%	3.6%
Hybrid fibre-coaxial - HFC	19.3%	62.6%	9.2%	8.9%

Technology	Percentage of outages lasting 30-60 sec	Percentage of outages lasting 1-3 min	Percentage of outages lasting 3-10 min	Percentage of outages lasting 10 min or more
Fibre to the curb - FTTC	53.8%	27.4%	14.1%	4.6%
Fibre to the node - FTTN	21.5%	27.3%	35.7%	15.5%
Fibre to the premises - FTTP	33.4%	30.6%	29.0%	6.9%
Hybrid fibre-coaxial - HFC	28.9%	33.0%	24.1%	13.9%

NBN state tables

This table shows statistical information on download speeds on a per-state basis. In this report, we have been able to draw upon all of the test results from a range of locations.

Period	State or Territory	Download average % of plan speed (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	NSW	101.2%	12.2%	100.0% - 102.3%	415	145,082
All hours	ACT	95.7%	16.2%	91.3% - 100.1%	53	17,328
All hours	VIC	101.1%	12.6%	99.8% - 102.5%	337	117,282
All hours	QLD	100.4%	13.4%	98.6% - 102.2%	211	73,005
All hours	WA	98.7%	14.4%	96.0% - 101.3%	116	41,185
All hours	TAS	99.3%	14.4%	95.4% - 103.2%	53	19,637
All hours	NT + SA	100.6%	12.7%	98.1% - 103.2%	94	33,735
Period	State or Territory	Download average % of plan speed (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	NSW	100.1%	12.3%	98.9% - 101.3%	415	24,376
Busy hours	ACT	94.9%	16.8%	90.4% - 99.4%	53	2,811
Busy hours	VIC	99.9%	13.1%	98.5% - 101.3%	336	19,609
Busy hours	QLD	99.3%	13.7%	97.5% - 101.2%	211	12,068
Busy hours	WA	97.5%	14.6%	94.8% - 100.1%	116	6,152
Busy hours	TAS	97.8%	14.7%	93.9% - 101.7%	53	3,147
Busy hours	NT + SA	99.6%	13.0%	96.9% - 102.2%	94	5,565

NBN50 and NBN100 advertised speed tables

The figures in the following table are based on the typical evening hour speeds that were the predominant speed advertised by RSPs during the measurement period. The single weighted average speed claim is calculated based on the number of Whiteboxes online for each RSP for each plan (excluding underperforming and impaired services).

RSP	NBN50 advertised % of plan speed	NBN100 advertised % of plan speed	Number of NBN50 Whiteboxes (excluding underperforming and impaired services)	Number of NBN100 Whiteboxes (excluding underperforming and impaired services)	Weighted advertised % of plan speed
Aussie Broadband	96.0%	100.0%	41	62	98.4%
Dodo & iPrimus	100.0%	100.0%	55	34	100.0%
Exetel	100.0%	100.0%	44	59	100.0%
Optus	100.0%	100.0%	53	33	100.0%
Superloop	96.0%	95.0%	32	62	95.3%
TPG	100.0%	95.0%	60	27	98.4%
Telstra	100.0%	100.0%	57	75	100.0%
Vodafone	100.0%	90.0%	26	15	96.3%
iiNet	100.0%	95.0%	49	19	98.6%

There were 124 busy hours (Monday–Sunday) across the 31 day period from 1st December to 31st December 2023. The following table shows the proportion of busy hours in which each RSP's average speed for each plan met the advertised claims above.

RSP	% of busy hours in which advertised download speed met or exceeded	% of busy hours in which advertised download speed met or exceeded (excluding underperforming and impaired services)
Aussie Broadband	50%	98%
Dodo & iPrimus	62%	93%
Exetel	58%	90%
Optus	69%	100%
Superloop	99%	100%
TPG	44%	98%
Telstra	89%	98%
Vodafone	51%	75%
iiNet	40%	96%

NBN Whiteboxes connected to underperforming services

The following table shows the number of Whiteboxes on NBN services for each RSP, alongside the number of Whiteboxes connected to underperforming services.

RSP	NBN Whiteboxes	NBN Whiteboxes on underperforming services	% NBN Whiteboxes on underperforming services
Aussie Broadband	167	14	8%
Dodo & iPrimus	131	4	3%
Exetel	145	4	3%
Launtel	45	2	4%
Leaptel	45	2	4%
Optus	112	3	3%
Other RSPs	66	5	8%
Superloop	116	4	3%
TPG	127	6	5%
Telstra	175	7	4%
Vodafone	49	2	4%
iiNet	101	5	5%
Total	1,279	58	5%

As highlighted earlier in the report, the majority of underperforming services are connected to fibre to the node infrastructure. The following table shows the number of Whiteboxes on fibre to the node services for each plan, alongside the number of underperforming services.

Technology	Plan	NBN Whiteboxes	NBN Whiteboxes on underperforming services	% NBN Whiteboxes on underperforming services
Fibre to the node - FTTN	12	5	0	0%
Fibre to the node - FTTN	25	63	1	2%
Fibre to the node - FTTN	50	266	30	11%
Fibre to the node - FTTN	100	109	19	17%
Fibre to the node - FTTN	Other NBN plans	4	1	25%
Fibre to the node - FTTN	All NBN Plans	447	51	11%

NBN very high speed services tables

The figures in the following table are based on very high speed services, where the underlying wholesale product sold by NBN Co has a download/upload speed range of 500-990/50 Mbps.

Period	Plan	Download average Mbps (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	Very High Speed	844.5 Mbps	177.6 Mbps	821.8 Mbps - 867.2 Mbps	236	77,980

Period	Plan	Download average Mbps (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	Very High Speed	830.5 Mbps	182.4 Mbps	807.2 Mbps - 853.9 Mbps	235	12,631

Period	Plan	Upload average Mbps (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	Very High Speed	46.2 Mbps	2 Mbps	45.9 Mbps - 46.4 Mbps	236	63,906

Period	Plan	Upload average Mbps (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	Very High Speed	46 Mbps	2.1 Mbps	45.8 Mbps - 46.3 Mbps	234	6,462

Technology	Percentage of units having no outages	Percentage of units having outages at most every other day	Percentage of units having outages on most days	Percentage of units having outages at least once a day
Very High Speed	24.2%	64.0%	3.0%	8.9%

Plan	Percentage of outages lasting 30-60 sec	Percentage of outages lasting 1-3 min	Percentage of outages lasting 3-10 min	Percentage of outages lasting 10 min or more
Very High Speed	19.5%	21.8%	33.0%	25.7%

NBN fixed wireless services tables

The figures in the following table are based on both the 25/5Mbps fixed wireless plan and the Fixed Wireless Plus plan.

Period	Technology	Download average % of plan speed (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	Fixed Wireless	113.6%	27.4%	108.2% - 119.0%	99	35,940
Period	Technology	Download average % of plan speed (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	Fixed Wireless	97.9%	31.5%	91.7% - 104.1%	99	6,018
Period	Technology	Upload average % of plan speed (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	Fixed Wireless	79.0%	35.1%	72.1% - 85.9%	99	29,293
Period	Technology	Upload average % of plan speed (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	Fixed Wireless	68.1%	33.4%	61.4% - 74.7%	98	3,006

Technology	Percentage of units having no outages	Percentage of units having outages at most every other day	Percentage of units having outages on most days	Percentage of units having outages at least once a day
Fixed Wireless	19.2%	68.7%	7.1%	5.1%

Technology	Percentage of outages lasting 30-60 sec	Percentage of outages lasting 1-3 min	Percentage of outages lasting 3-10 min	Percentage of outages lasting 10 min or more
Fixed Wireless	25.9%	22.0%	28.8%	23.3%

Other superfast access networks

The figures in the following table show results for services on other superfast access networks (all plans).

Period	Download average % of plan speed (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	100%	18%	96% - 104%	71	24,652

Period	Download average % of plan speed (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	97%	21%	92% - 102%	71	4,008

Period	Upload average % of plan speed (all hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
All hours	91%	6%	90% - 92%	71	20,032

Period	Upload average % of plan speed (busy hours)	Standard deviation	95% confidence interval of the mean	Panel size	Number of tests
Busy hours	90%	6%	89% - 92%	71	2,063

Technology	Percentage of units having no outages	Percentage of units having outages at most every other day	Percentage of units having outages on most days	Percentage of units having outages at least once a day
Other superfast access networks	21.1%	64.8%	7.0%	7.0%

Technology	Percentage of outages lasting 30-60 sec	Percentage of outages lasting 1-3 min	Percentage of outages lasting 3-10 min	Percentage of outages lasting 10 min or more
Other superfast access networks	47.0%	25.6%	14.0%	13.5%

Test Definitions & Glossary

Test definitions

	Test	Definition
	Download	The speed at which data can be transferred from the SamKnows test server to your computer, measured in megabits per second (Mbps).
	Upload	The speed at which information is transferred from your computer to the SamKnows test server, measured in megabits per second (Mbps).
	Latency	How long it takes a data packet to go from your device to our test server and back to your device, measured in milliseconds (ms). The shorter the latency, the better.
	Jitter	The variation in the delay of received packets, measured in milliseconds (ms). Essentially it is a measure of the stability of latency.
	Packet loss	Packet loss counts packets that are sent over a network and don't make it to their destination, measured as a percentage of packets lost out of all packets sent.
	Webpage loading time	The time it takes for a specific webpage to fully load. This is a combination test that includes download, latency and DNS in one test that accurately mimics real-world usage.
	Outages	The outages metric tracks how many times per day your broadband connection goes offline for at least 30 seconds. Outages between 12am and 5am are excluded from this metric as this is when network maintenance typically occurs.
	Video streaming	Measures the highest bitrate (in Mbps), and therefore quality level, you can reliably stream from real content servers.

Glossary

Term	Definition
Advertised speed	The speed claim made by an RSP for a given plan during a Measuring Broadband Australia reporting period. May be the same as or lower than plan speed.
All hours	Refers to tests conducted at any time of the day.
Busiest hour	Fifth lowest hourly average speed out of all busy hours in the month (including weekends cf. 'busy hours').
Busy hours	Refers to tests conducted between 19:00:00 and 22:59:59, Monday to Friday. For calculating the busiest hour and for determining the % of busy hours where the speed claim was attained, "busy hours" include 19:00:00 and 22:59:59, Monday to Sunday
Customer-premises equipment (CPE)	Network equipment provided by an RSP (generally including a home router/gateway).
Download performance	Measured download speed expressed as a percentage of plan speed. e.g. for an NBN50 service, 100% download performance would be 50 Mbps. Prior to overprovisioning this was capped at 100%. Since NBN has begun overprovisioning services, results above 100% are common.
FTTN / Fibre to the node	Measuring Broadband Australia treats the FTTN / Fibre to the Node and FTTB / Fibre to the Building access technologies as identical for reporting.
Fixed-Line	For reporting, fixed-line encompasses the FTTP (Fibre to the Premises), FTTB (Fibre to the Building), HFC (Hybrid Fibre-Coaxial), FTTC (Fibre to the Curb), and FTTN (Fibre to the Node) access technologies.
Impaired service	FTTN / Fibre to the Node services where the maximum attainable line speed measured by NBN Co is below plan speed.
NBN service	A proxy for a single household which accesses the internet through the NBN.
Plan and plan speed	Plan refers to the retail broadband product. Each plan has an associated download and upload speed. For example, a 100/20 Mbps plan includes a 100 Mbps download plan speed and a 20 Mbps upload plan speed. The term "NBN100" refers to a download plan speed of 100 Mbps, but the upload plan speed may vary.
SamKnows	The independent testing provider appointed to conduct testing for Measuring Broadband Australia. https://samknows.com/
Testing infrastructure	SamKnows-maintained test servers hosted within Australia.
Underperforming service	Services which reach above 75% of plan speed in no more than 5% of download tests. These are services which rarely or never attain plan speed.
Very high speed service	Services where the underlying wholesale product sold by NBN Co has a download/upload speed range of 500-990/50 Mbps (referred to by NBN Co as 'Home Ultrafast').
Whitebox	A purpose-built hardware measurement agent manufactured by SamKnows, installed in volunteers' homes.