

Internet Access Services: Status as of June 30, 2022

Industry Analysis Division
Office of Economics & Analytics
May 2024



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INTRODUCTION

This report summarizes information about Internet access in the United States as of June 30, 2022, as collected by FCC Form 477 and the Broadband Data Collection (BDC). For purposes of this report, Internet access is defined as a service that allows information to be sent to or received from the Internet with a speed of at least 200 kilobits per second. See the Technical Notes at the end of this report for more-detailed information about these data collections and the meaning of terms used in this report.

Section 1 of this report presents an overview of the information collected by FCC Form 477 and the BDC. Section 2 of this report presents statistics on Internet access availability and the remainder of the report includes data on total and residential Internet access connections by downstream and upstream speed, by technology, by geography, and over time. Section 3 of the report presents nationwide statistics, Section 4 provides state-level data, and Section 5 includes data on the subscribership differences among counties and census tracts.¹ In addition, Section 6 of the report includes an analysis of the correlations between subscribership ratios and various demographic measures.

The National Broadband Map displays where internet access services are available across the United States and can be viewed online at broadbandmap.fcc.gov. Additional maps depicting the number of fixed connections per 1,000 households by census tract are available online at fcc.gov/internet-access-services-reports. Other publicly-available data that are too voluminous to include in this report are available online at fcc.gov/general/fcc-form-477-additional-data.

¹ The Commission began collecting census tract-level data for data as of December 31, 2008. See *High-Speed Services for Internet Access: Status as of December 31, 2008* (February 2010) at 1-4, available at fcc.gov/encyclopedia/high-speed-services-internet-access-reports (December 2008 High-Speed Report).

**SECTION 1
OVERVIEW & HIGHLIGHTS**

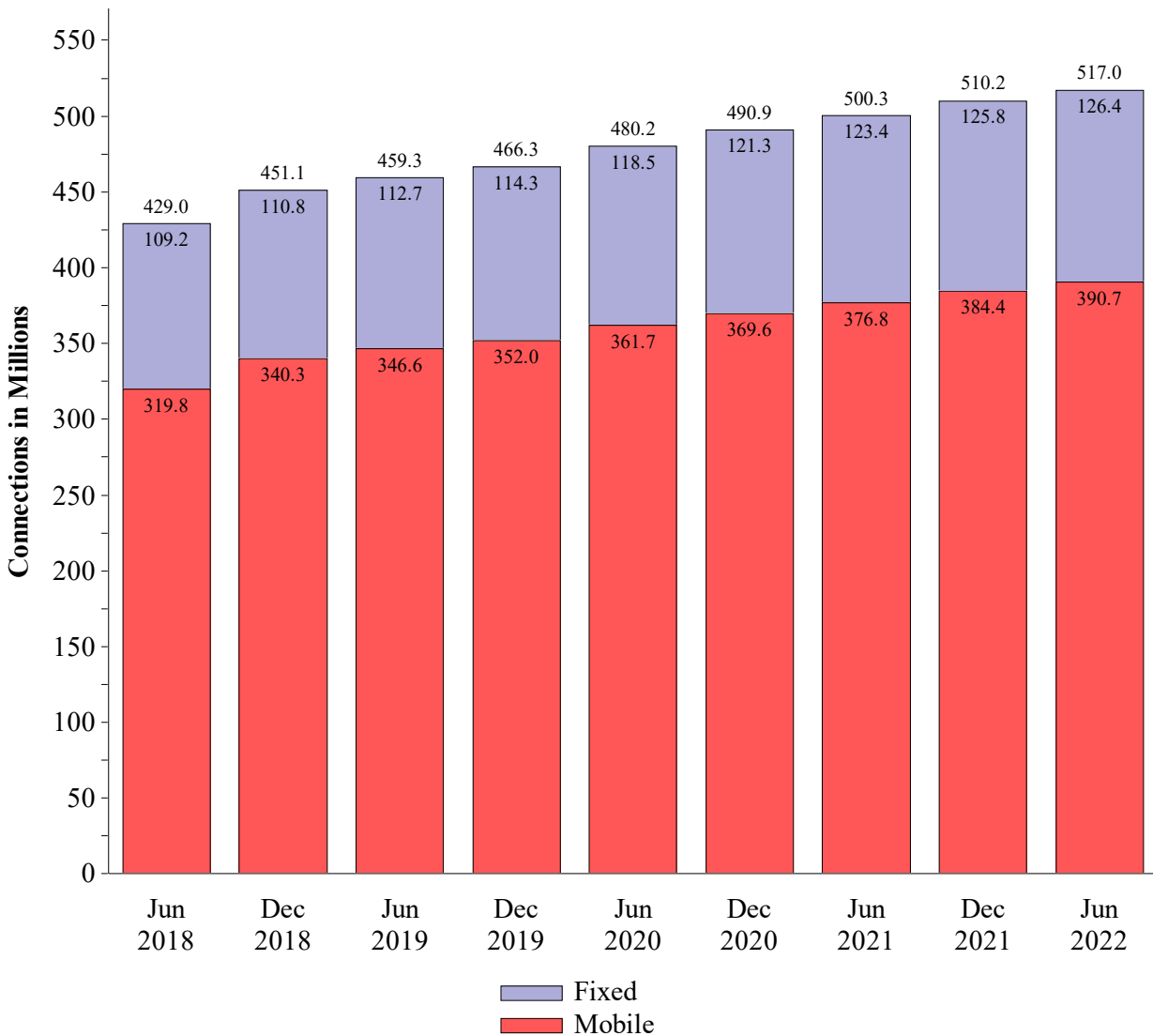
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Total Connections

As shown in Figure 1, total connections increased by about 3.4% between June 2021 and June 2022 to 517 million. Mobile connections increased 3.7% year-over-year to 391 million in June 2022, while fixed connections grew to 126 million – up about 2.4% from June 2021.

Figure 1
Fixed and Mobile Connections 2018-2022

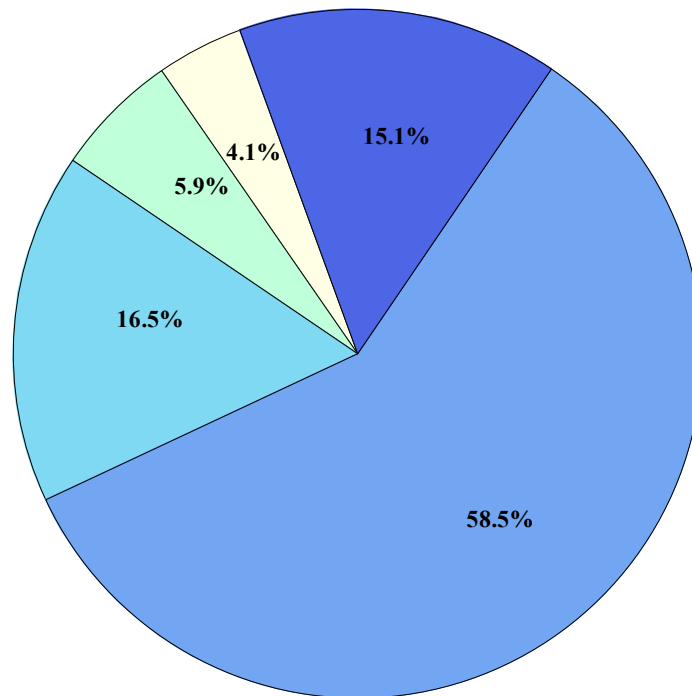


Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding. Connections include both residential and business connections. We believe mobile connections remain underreported by as much as 2% through June 2018 due to inadequate accounting of connections sold by mobile virtual network operators (MVNOs). Source: FCC Form 477.

Fixed Connections - Downstream Speeds

Figure 2(a) illustrates how the 126 million fixed connections reported for June 2022 were distributed across five groups of downstream speeds defined by breakpoints at 10 Mbps, 25 Mbps, 100 Mbps, and 940 Mbps. See Figure 14 for more detail.

Figure 2(a)
Distribution of Fixed Connections by Downstream Speed
as of June 30, 2022



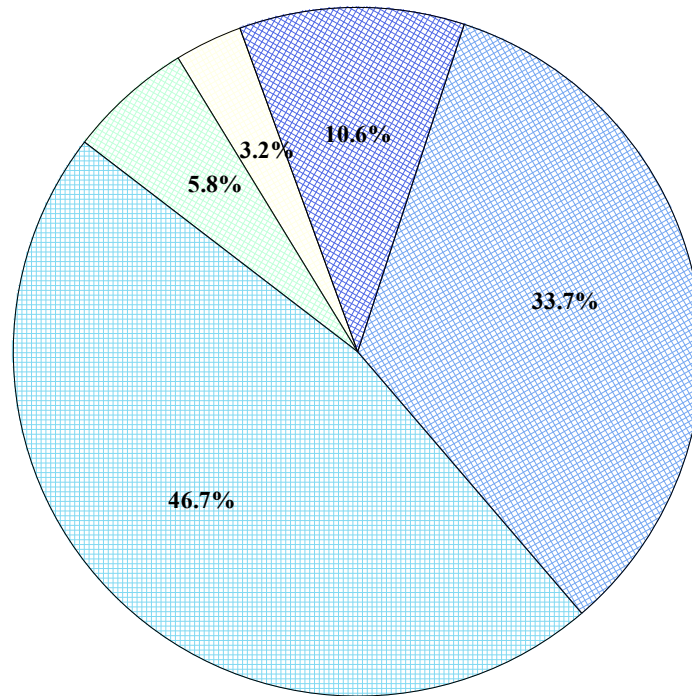
Downstream Speed	Percentage
Less than 10 Mbps (5.2 million)	4.1%
At least 10 Mbps & less than 25 Mbps (7.4 million)	5.9%
At least 25 Mbps & less than 100 Mbps (20.8 million)	16.5%
At least 100 Mbps & less than 940 Mbps (73.9 million)	58.5%
At least 940 Mbps (19.0 million)	15.1%

Note: Numbers may not sum to total due to rounding.
Source: FCC Form 477.

Fixed Connections - Upstream Speeds

Figure 2(b) illustrates how the 126 million fixed connections reported for June 2022 were distributed across five groups of upstream speeds defined by breakpoints at 1 Mbps, 3 Mbps, 20 Mbps, and 500 Mbps. See Figure 14 for more detail.

Figure 2(b)
Distribution of Fixed Connections by Upstream Speed
as of June 30, 2022

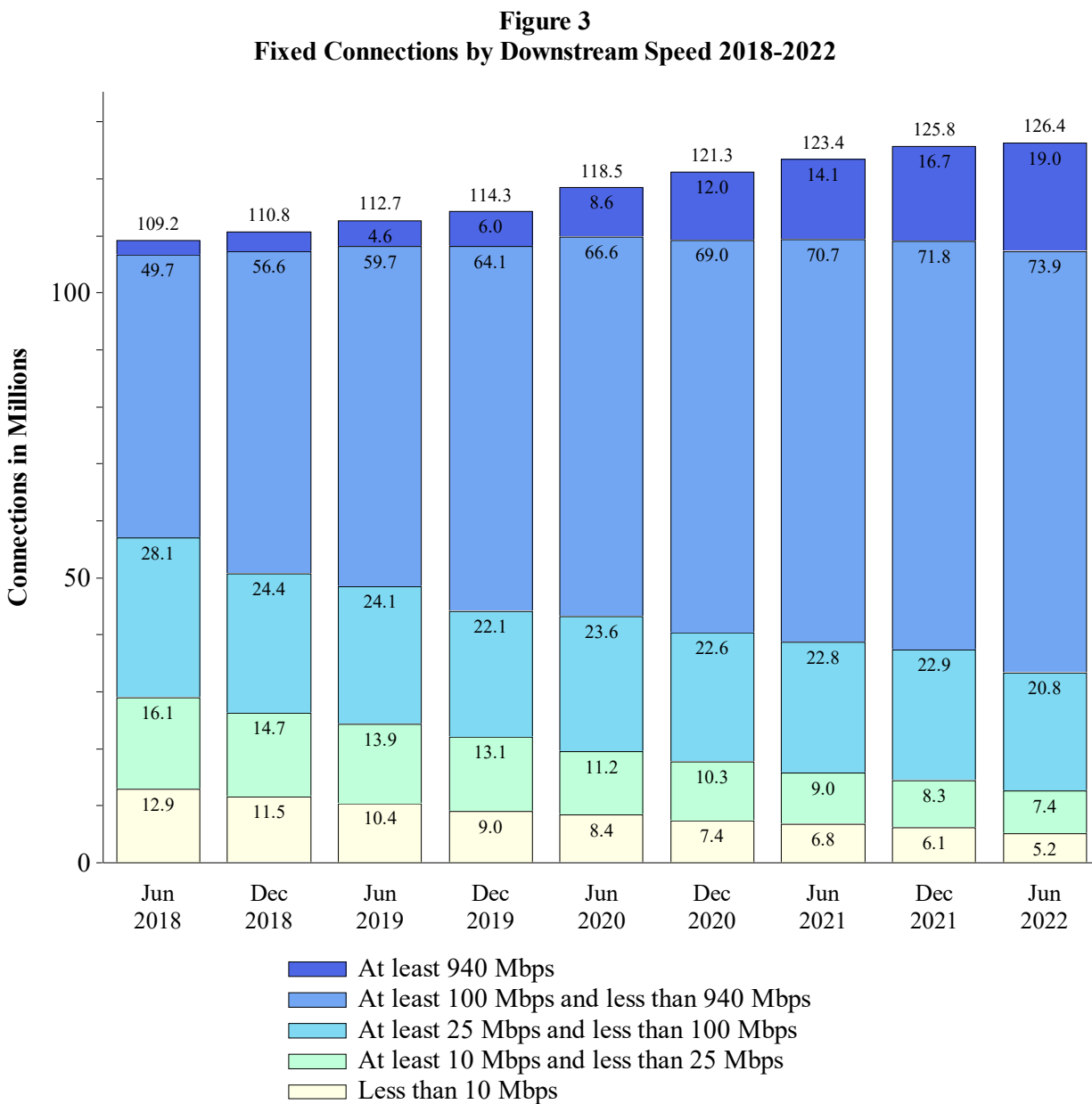


Upstream Speed	
Less than 1 Mbps (4.0 million)	
At least 1 Mbps & less than 3 Mbps (7.4 million)	
At least 3 Mbps & less than 20 Mbps (59.0 million)	
At least 20 Mbps & less than 500 Mbps (42.6 million)	
At least 500 Mbps (13.4 million)	

Note: Numbers may not sum to total due to rounding.
Source: FCC Form 477.

Fixed Connections - Downstream Speed Over Time

Figure 3 illustrates how the composition of total fixed connections by different downstream speed groups has changed from 2018 to 2022.



Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.
Source: FCC Form 477.

The percentage of fixed connections with a downstream speed of at least 100 Mbps has grown from 48% (or 52 million connections) in June 2018 to 74% (or 93 million connections) in June 2022. Over the same period, the percentage of fixed connections with downstream speeds of less than 10 Mbps has decreased from 12% (or 13 million connections) in June 2018 to about 4% (or about 5 million connections) in June 2022.

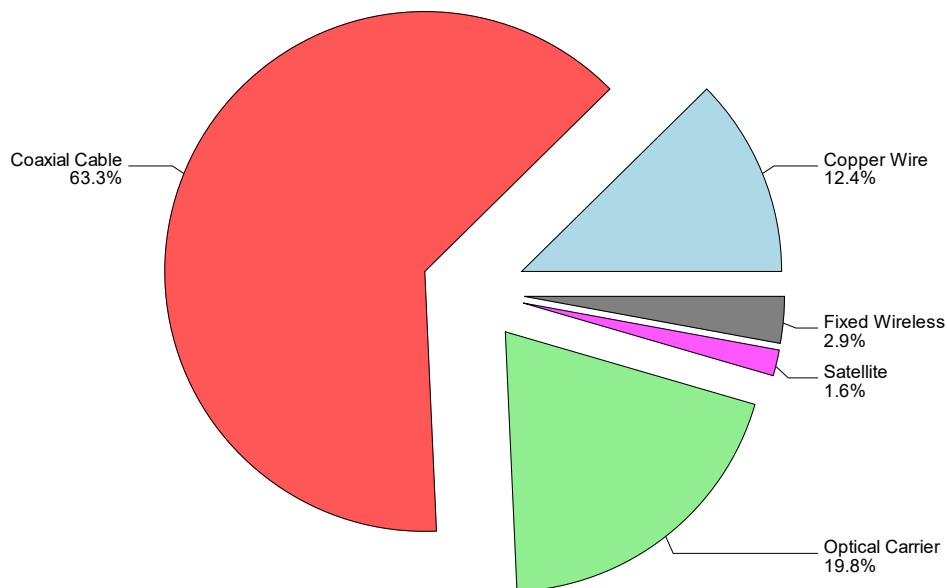
Fixed Connections by Technology

In addition to bandwidths, Form 477 also collects the technology used to deliver services to the end-user's location. Beginning with data as of June 30, 2022, Form 477 classifies all fixed connections into six mutually exclusive technology categories:

- Copper Wire
- Coaxial Cable (hybrid fiber-coaxial)
- Optical Carrier (fiber to the premises)
- Satellite
- Fixed Wireless
- Other

Figure 4 illustrates how fixed connections are distributed across technologies for data as of June 2022. Throughout this report, connections reported as 'Other' are aggregated with the 'Copper Wire' category for confidentiality reasons and for ease of reporting. See Technical Notes at the end of this report for a description of each technology and how these categories have changed over time.

Figure 4
Fixed Connections by Technology as of June 30, 2022

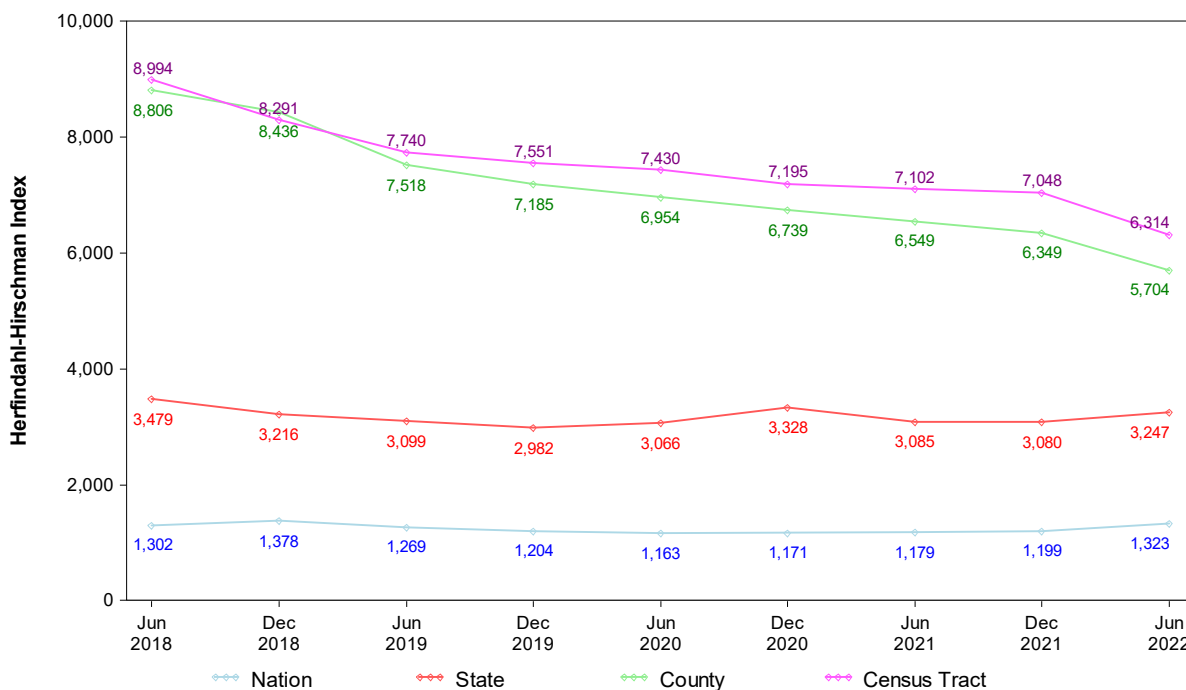


Source: FCC Form 477.

Concentration by Geography

Figure 5 presents the national, median state-, median county-, and median tract-level Herfindahl-Hirschman Index (HHI) for residential fixed connections of at least 100 Mbps downstream and 20 Mbps upstream from 2018 to 2022. To calculate the HHI for a specific geographic area, we take the share of fixed connections reported by each provider in that area, square those shares, and then sum the resulting value over all providers in the area.¹

Figure 5
Median Herfindahl-Hirschman Index by Geography 2018-2022
 (residential fixed connections of at least 100 Mbps downstream and 20 Mbps upstream)



Note: Areas without at least one connection are excluded from this analysis. Some previously-published data may have been revised.
 Source: FCC Form 477.

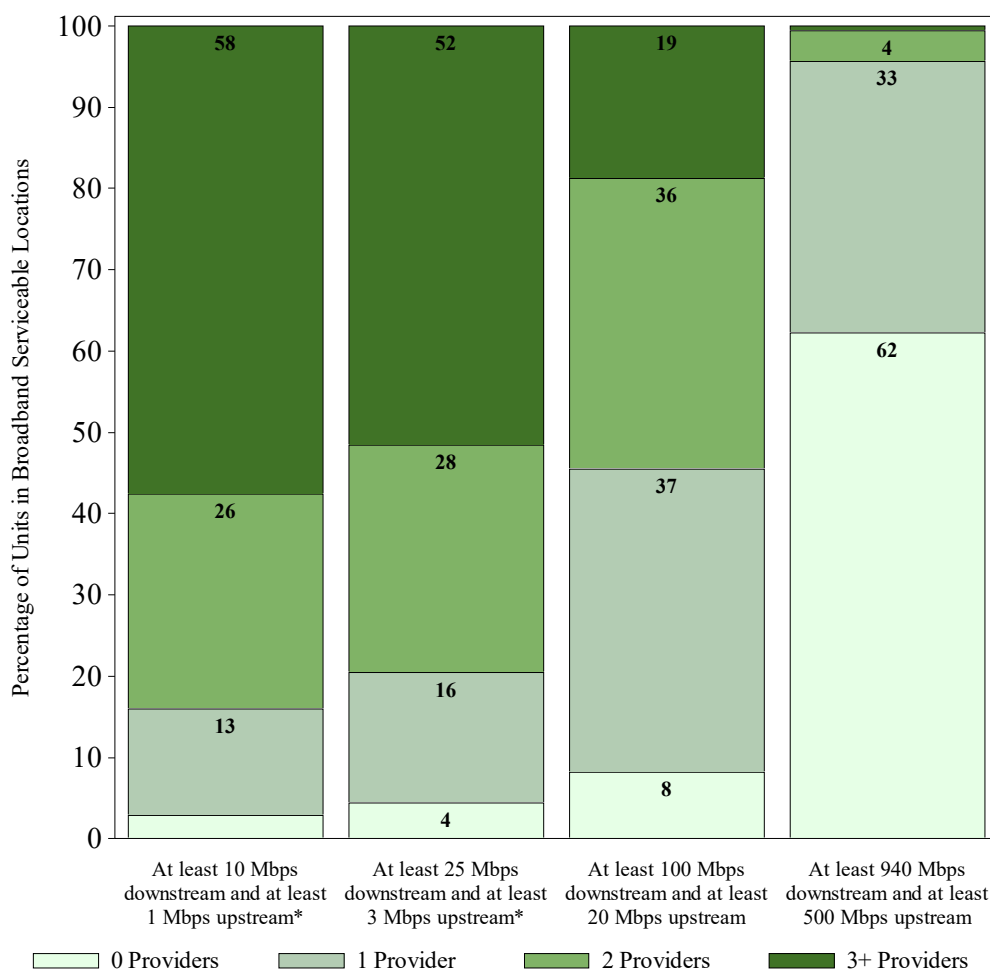
For the period shown above, the median HHI for census tracts has declined by almost 30% and a similar decline is observed for counties. In June 2022, the median HHI for census tracts is about 11% larger than that of counties and 94% larger than that of states. These differences suggest that many providers are regional and serve relatively small geographic areas. The nationwide HHI and the median state HHI have been relatively constant, reflecting a relative stability in the distribution of market shares across broad geographic areas.

¹ HHIs can range from 0 to 10,000 with larger HHIs implying higher levels of concentration and smaller HHIs implying lower levels of concentration.

Number of Providers by Location

In Figure 6, we show the percentage of units in Broadband Serviceable Locations (BSLs) with zero, one, two, or three or more fixed broadband providers offering Internet access services at different speeds in June 2022. This figure is based on fixed broadband availability data reported to the FCC through the Broadband Data Collection (BDC). Additional information about the BDC can be found in the Technical Notes section of this report. Individuals can download the underlying data and explore the National Broadband Map here: <http://broadbandmap.fcc.gov>.

Figure 6
Percentages of Broadband Serviceable Locations in which Providers Reported Availability of Terrestrial Fixed Broadband as of June 30, 2022



* Satellite service providers are excluded from this analysis. Satellite service providers report offering Internet access at bandwidths of at least 25 Mbps downstream and 3 Mbps upstream in 100.0% of Broadband Serviceable Locations. Note: Numbers may not sum to totals due to rounding. Source: FCC Broadband Data Collection.

As of June 2022, approximately 92% of units in BSLs had at least one provider report the availability of a terrestrial fixed broadband service with speeds of at least 100 Mbps downstream and 20 Mbps upstream. Alternatively, about 4% of units did not have any provider report offering terrestrial fixed broadband with speeds of at least 25 Mbps downstream and 3 Mbps upstream.

Other Highlights Include:

Typical Speeds

- The median downstream speed of all reported fixed connections was 300 Mbps and the median upstream speed was 10 Mbps. For residential fixed connections, the median downstream speed was 300 Mbps and the median upstream speed was 10 Mbps. See Figures 35 and 36.
- The median downstream speed of all reported mobile connections was 14 Mbps and the median upstream speed was 2 Mbps. For residential mobile connections, the median downstream speed was 16 Mbps and the median upstream speed was 2 Mbps. See Figures 37 and 38.

Residential Connections

- Residential fixed connections increased by about 2.7% between June 2021 and June 2022, to about 117 million. See Figure 12.
- Residential (non-business) mobile connections on mobile devices with data plans for full Internet access increased by about 7.7%, to 325 million, between June 2021 and June 2022. See Figure 12.
- Approximately 96% of residential fixed connections had a speed of at least 10 Mbps downstream and 1 Mbps upstream in June 2022, while 90% had a speed of at least 25 Mbps downstream and 3 Mbps upstream. About 42% of all residential fixed connections had a speed of at least 100 Mbps downstream and 20 Mbps upstream. See Figure 15.
- As a national average in June 2022, there were about 89 residential fixed connections with speeds of at least 10 Mbps downstream and 1 Mbps upstream per 100 households; 84 residential fixed connections with speeds of at least 25 Mbps downstream and 3 Mbps upstream per 100 households; and 39 residential fixed connections with speeds of at least 100 Mbps downstream and 20 Mbps upstream per 100 households. See Figure 43.

Census tract and county shares of households with residential fixed connections

- We estimate the share of households with residential fixed connections in individual census tracts and counties as of June 30, 2022, and continue to observe substantial variation among these estimates. See Figures 48 and 51.

Household subscribership rates and demographics

- The report includes charts that illustrate correlations between household subscribership rates and demographic measures. We update charts based on income, household density, education and age. The data indicate that some demographic variables are correlated with Internet access subscribership rates. See Figures 54-59.

SECTION 2
SUMMARY STATISTICS: BROADBAND AVAILABILITY

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Figure 7
Fixed Broadband Availability Measured by Location and Block as of June 30, 2022
 (Units in thousands. Includes services of at least 100 Mbps downstream and 20 Mbps upstream)

<i>Technology</i>	<i>Total Units</i>	<i>Aggregation By Location</i>		<i>Aggregation By Block</i>		<i>Difference</i>	
		<i>Units Covered</i>	<i>Ratio</i>	<i>Units Covered</i>	<i>Ratio</i>	<i>Difference</i>	<i>Ratio</i>
Any Technology	159,463	149,161	0.94	153,670	0.96	4,510	0.03
Satellite	159,463	47,108	0.30	47,549	0.30	441	0.00
Terrestrial	159,463	146,381	0.92	151,903	0.95	5,522	0.03
Fixed Wireless	159,463	47,840	0.30	70,109	0.44	22,269	0.14
Licensed	159,463	35,754	0.22	57,086	0.36	21,331	0.13
Unlicensed	159,463	18,429	0.12	23,748	0.15	5,318	0.03
Wireline	159,463	142,859	0.90	148,572	0.93	5,713	0.04
Copper Wire ¹	159,463	7,510	0.05	29,504	0.19	21,994	0.14
Cable Modem	159,463	134,836	0.85	140,802	0.88	5,965	0.04
Optical Carrier	159,463	62,154	0.39	85,469	0.54	23,316	0.15

¹ Other is summarized with Copper Wire.

Note: The Aggregation by Location columns sum the number of units reported with terrestrial fixed broadband service of at least 100 Mbps downstream and 20 Mbps upstream. The Aggregation by Block columns attempt to replicate the methodology used prior to the BDC where an entire block was counted as served if at least one location in that block was reported as served. The Difference column shows the number of locations without service that would have been counted as served using the block-level methodology. Numbers may not sum due to rounding.

Source: FCC Broadband Data Collection.

Figure 8
Availability of Fixed Broadband by Speed and Technology as of June 30, 2022

<i>Technology</i>	<i>Share of units in Broadband Serviceable Locations with speeds of at least</i>				
	<i>200 kbps in at least One Direction</i>	<i>10 Mbps Down and 1 Mbps Up</i>	<i>25 Mbps Down and 3 Mbps Up</i>	<i>100 Mbps Down and 20 Mbps Up</i>	<i>940 Mbps Down and 500 Mbps Up</i>
Any Technology	100.0	100.0	100.0	93.5	37.7
Satellite	100.0	100.0	100.0	29.5	0.0
Terrestrial	99.7	97.1	95.6	91.8	37.7
Fixed Wireless	99.0	70.6	68.1	30.0	1.9
Licensed	98.4	63.9	61.0	22.4	0.3
Unlicensed	25.0	24.3	22.6	11.6	1.6
Wireline	94.6	93.1	91.1	89.6	36.4
Copper Wire ¹	58.8	40.6	23.9	4.7	0.0
Cable Modem	85.2	85.2	85.1	84.6	0.0
Optical Carrier	39.1	39.1	39.1	39.0	36.3

¹ Other is summarized with Copper Wire.
Source: FCC Broadband Data Collection.

Figure 9
Availability of Terrestrial Fixed Broadband by State as of June 30, 2022
 (Units in thousands)

State	Units	At least 200 kbps in at least One Direction		At least 10 Mbps Down and 1 Mbps Up		At least 25 Mbps Down and 3 Mbps Up		At least 100 Mbps Down and 20 Mbps Up		At least 940 Mbps Down and 500 Mbps Up	
		Units	Ratio	Units	Ratio	Units	Ratio	Units	Ratio	Units	Ratio
Alabama	2,698	2,687	1.00	2,423	0.90	2,353	0.87	2,197	0.81	805	0.30
Alaska	352	324	0.92	310	0.88	288	0.82	265	0.75	11	0.03
American Samoa	4	4	1.00	4	1.00	4	1.00	1	0.36	0	0.00
Arizona	3,358	3,343	1.00	3,280	0.98	3,253	0.97	3,048	0.91	962	0.29
Arkansas	1,671	1,663	1.00	1,510	0.90	1,449	0.87	1,282	0.77	543	0.33
California	15,611	15,579	1.00	15,458	0.99	15,411	0.99	15,157	0.97	4,798	0.31
Colorado	2,741	2,723	0.99	2,680	0.98	2,664	0.97	2,492	0.91	746	0.27
Connecticut	1,653	1,652	1.00	1,642	0.99	1,639	0.99	1,625	0.98	750	0.45
Delaware	507	507	1.00	503	0.99	502	0.99	474	0.94	238	0.47
District of Columbia	365	365	1.00	364	1.00	364	1.00	362	0.99	204	0.56
Florida	11,045	11,040	1.00	10,754	0.97	10,649	0.96	10,363	0.94	3,658	0.33
Georgia	4,908	4,893	1.00	4,672	0.95	4,543	0.93	4,428	0.90	1,810	0.37
Guam	16	16	1.00	16	1.00	16	1.00	13	0.85	2	0.14
Hawaii	596	595	1.00	579	0.97	578	0.97	575	0.96	212	0.36
Idaho	878	870	0.99	852	0.97	842	0.96	731	0.83	253	0.29
Illinois	6,152	6,145	1.00	6,090	0.99	6,039	0.98	5,781	0.94	1,603	0.26
Indiana	3,321	3,317	1.00	3,212	0.97	3,156	0.95	2,966	0.89	1,276	0.38
Iowa	1,695	1,695	1.00	1,694	1.00	1,673	0.99	1,543	0.91	621	0.37
Kansas	1,480	1,478	1.00	1,472	0.99	1,457	0.98	1,340	0.91	619	0.42
Kentucky	2,326	2,311	0.99	2,142	0.92	2,022	0.87	1,944	0.84	1,054	0.45
Louisiana	2,363	2,348	0.99	2,117	0.90	2,071	0.88	1,948	0.82	561	0.24
Maine	823	818	0.99	809	0.98	786	0.96	692	0.84	120	0.15
Maryland	2,731	2,730	1.00	2,689	0.98	2,681	0.98	2,628	0.96	1,466	0.54
Massachusetts	3,279	3,276	1.00	3,257	0.99	3,256	0.99	3,241	0.99	1,396	0.43
Michigan	5,171	5,154	1.00	4,881	0.94	4,762	0.92	4,582	0.89	1,196	0.23
Minnesota	2,807	2,801	1.00	2,744	0.98	2,696	0.96	2,611	0.93	1,709	0.61
Mississippi	1,585	1,578	1.00	1,335	0.84	1,272	0.80	1,196	0.75	629	0.40
Missouri	3,144	3,134	1.00	3,063	0.97	2,945	0.94	2,672	0.85	1,198	0.38
Montana	620	607	0.98	554	0.89	526	0.85	445	0.72	105	0.17
Nebraska	1,014	1,007	0.99	1,003	0.99	976	0.96	932	0.92	532	0.52

Figure 9 - Continued
Availability of Terrestrial Fixed Broadband by State as of June 30, 2022
 (Units in thousands)

State	Units	At least 200 kbps in at least One Direction		At least 10 Mbps Down and 1 Mbps Up		At least 25 Mbps Down and 3 Mbps Up		At least 100 Mbps Down and 20 Mbps Up		At least 940 Mbps Down and 500 Mbps Up	
		Units	Ratio	Units	Ratio	Units	Ratio	Units	Ratio	Units	Ratio
Nevada	1,381	1,379	1.00	1,368	0.99	1,364	0.99	1,342	0.97	454	0.33
New Hampshire	708	706	1.00	699	0.99	682	0.96	668	0.94	299	0.42
New Jersey	4,230	4,230	1.00	4,210	1.00	4,209	0.99	4,198	0.99	2,626	0.62
New Mexico	1,058	1,050	0.99	990	0.94	966	0.91	866	0.82	206	0.19
New York	9,169	9,144	1.00	9,033	0.99	9,010	0.98	8,987	0.98	5,349	0.58
North Carolina	5,377	5,367	1.00	5,299	0.99	5,110	0.95	4,808	0.89	1,645	0.31
North Dakota	478	476	1.00	468	0.98	467	0.98	464	0.97	256	0.54
Northern Mariana Isl	9	9	0.98	9	0.98	9	0.98	1	0.16	#	0.01
Ohio	5,881	5,875	1.00	5,783	0.98	5,726	0.97	5,516	0.94	1,999	0.34
Oklahoma	2,087	2,085	1.00	2,054	0.98	1,978	0.95	1,797	0.86	723	0.35
Oregon	2,008	1,995	0.99	1,970	0.98	1,937	0.96	1,827	0.91	755	0.38
Pennsylvania	6,389	6,372	1.00	6,154	0.96	6,071	0.95	5,993	0.94	3,004	0.47
Puerto Rico	1,604	1,600	1.00	1,591	0.99	1,587	0.99	1,558	0.97	664	0.41
Rhode Island	532	532	1.00	529	0.99	529	0.99	528	0.99	420	0.79
South Carolina	2,700	2,697	1.00	2,571	0.95	2,531	0.94	2,430	0.90	830	0.31
South Dakota	501	499	1.00	481	0.96	472	0.94	451	0.90	101	0.20
Tennessee	3,402	3,390	1.00	3,282	0.96	3,220	0.95	3,104	0.91	1,690	0.50
Texas	13,245	13,224	1.00	12,891	0.97	12,773	0.96	12,224	0.92	5,416	0.41
Utah	1,297	1,292	1.00	1,279	0.99	1,268	0.98	1,229	0.95	575	0.44
Vermont	374	374	1.00	348	0.93	331	0.88	294	0.79	103	0.27
Virgin Islands	30	29	0.99	29	0.99	29	0.99	29	0.99	0	0.00
Virginia	4,115	4,098	1.00	3,930	0.95	3,841	0.93	3,765	0.91	1,963	0.48
Washington	3,493	3,478	1.00	3,417	0.98	3,347	0.96	3,145	0.90	953	0.27
West Virginia	1,034	1,006	0.97	958	0.93	851	0.82	753	0.73	146	0.14
Wisconsin	3,134	3,126	1.00	3,067	0.98	2,961	0.94	2,602	0.83	866	0.28
Wyoming	319	314	0.98	304	0.95	299	0.94	268	0.84	51	0.16
Total	159,463	159,007	1.00	154,821	0.97	152,440	0.96	146,381	0.92	60,171	0.38

= Rounds to Zero.

Note: Satellite services are excluded from this analysis. Numbers may not sum to totals due to rounding.

Source: FCC Broadband Data Collection.

Figure 10
Availability of Mobile Broadband by State as of June 30, 2022
 (Units in thousands)

State	Units	At least 3G (200 Kbps Down and 50 Kbps Up)		At least 4G LTE (5 Mbps Down and 1 Mbps Up)		At least 5G-NR (7 Mbps Down and 1 Mbps Up)		At least 5G-NR (35 Mbps Down and 3 Mbps Up)	
		Units	Ratio	Units	Ratio	Units	Ratio	Units	Ratio
Alabama	2,698	2,687	1.00	2,687	1.00	2,526	0.94	2,193	0.81
Alaska	352	341	0.97	331	0.94	275	0.78	205	0.58
American Samoa	4	4	0.99	4	0.99	0	0.00	0	0.00
Arizona	3,358	3,350	1.00	3,348	1.00	3,213	0.96	3,144	0.94
Arkansas	1,671	1,647	0.99	1,645	0.98	1,522	0.91	1,259	0.75
California	15,611	15,536	1.00	15,536	1.00	15,368	0.98	14,855	0.95
Colorado	2,741	2,721	0.99	2,719	0.99	2,597	0.95	2,473	0.90
Connecticut	1,653	1,644	1.00	1,644	1.00	1,599	0.97	1,416	0.86
Delaware	507	504	1.00	504	1.00	501	0.99	468	0.92
District of Columbia	365	365	1.00	365	1.00	365	1.00	365	1.00
Florida	11,045	10,959	0.99	10,959	0.99	10,861	0.98	10,001	0.91
Georgia	4,908	4,893	1.00	4,893	1.00	4,624	0.94	4,095	0.83
Guam	16	16	0.99	16	0.99	1	0.08	1	0.04
Hawaii	596	587	0.98	587	0.98	576	0.97	545	0.91
Idaho	878	862	0.98	861	0.98	809	0.92	715	0.81
Illinois	6,152	6,146	1.00	6,145	1.00	6,014	0.98	5,645	0.92
Indiana	3,321	3,316	1.00	3,316	1.00	3,175	0.96	2,807	0.85
Iowa	1,695	1,694	1.00	1,690	1.00	1,499	0.88	1,255	0.74
Kansas	1,480	1,479	1.00	1,479	1.00	1,373	0.93	1,199	0.81
Kentucky	2,326	2,262	0.97	2,256	0.97	1,954	0.84	1,623	0.70
Louisiana	2,363	2,359	1.00	2,359	1.00	2,259	0.96	1,976	0.84
Maine	823	804	0.98	794	0.97	697	0.85	514	0.62
Maryland	2,731	2,708	0.99	2,708	0.99	2,683	0.98	2,498	0.91
Massachusetts	3,279	3,256	0.99	3,256	0.99	3,183	0.97	2,876	0.88
Michigan	5,171	5,121	0.99	5,120	0.99	4,852	0.94	4,261	0.82
Minnesota	2,807	2,792	0.99	2,791	0.99	2,677	0.95	2,329	0.83
Mississippi	1,585	1,581	1.00	1,578	1.00	1,266	0.80	994	0.63
Missouri	3,144	3,129	1.00	3,125	0.99	2,973	0.95	2,661	0.85
Montana	620	596	0.96	595	0.96	552	0.89	461	0.74
Nebraska	1,014	1,013	1.00	1,010	1.00	666	0.66	612	0.60

Figure 10 - Continued
Availability of Mobile Broadband by State as of June 30, 2022
 (Units in thousands)

State	Units	At least 3G (200 Kbps Down and 50 Kbps Up)		At least 4G LTE (5 Mbps Down and 1 Mbps Up)		At least 5G-NR (7 Mbps Down and 1 Mbps Up)		At least 5G-NR (35 Mbps Down and 3 Mbps Up)	
		Units	Ratio	Units	Ratio	Units	Ratio	Units	Ratio
Nevada	1,381	1,379	1.00	1,379	1.00	1,368	0.99	1,341	0.97
New Hampshire	708	704	0.99	703	0.99	559	0.79	444	0.63
New Jersey	4,230	4,213	1.00	4,213	1.00	4,193	0.99	4,032	0.95
New Mexico	1,058	1,044	0.99	1,041	0.98	998	0.94	906	0.86
New York	9,169	9,095	0.99	9,094	0.99	8,836	0.96	8,340	0.91
North Carolina	5,377	5,338	0.99	5,316	0.99	5,014	0.93	4,390	0.82
North Dakota	478	476	1.00	475	1.00	428	0.90	342	0.72
Northern Mariana Isl	9	9	0.99	9	0.98	#	0.05	#	0.01
Ohio	5,881	5,843	0.99	5,843	0.99	5,719	0.97	5,204	0.88
Oklahoma	2,087	2,083	1.00	2,082	1.00	1,980	0.95	1,792	0.86
Oregon	2,008	1,980	0.99	1,979	0.99	1,894	0.94	1,742	0.87
Pennsylvania	6,389	6,328	0.99	6,327	0.99	6,117	0.96	5,531	0.87
Puerto Rico	1,604	1,601	1.00	1,601	1.00	1,578	0.98	1,567	0.98
Rhode Island	532	527	0.99	527	0.99	522	0.98	467	0.88
South Carolina	2,700	2,691	1.00	2,691	1.00	2,530	0.94	2,247	0.83
South Dakota	501	496	0.99	496	0.99	462	0.92	392	0.78
Tennessee	3,402	3,350	0.98	3,350	0.98	3,107	0.91	2,762	0.81
Texas	13,245	13,213	1.00	13,210	1.00	12,901	0.97	12,039	0.91
Utah	1,297	1,291	1.00	1,291	1.00	1,279	0.99	1,254	0.97
Vermont	374	352	0.94	351	0.94	216	0.58	163	0.43
Virgin Islands	30	30	1.00	30	1.00	26	0.89	26	0.89
Virginia	4,115	4,065	0.99	4,056	0.99	3,702	0.90	3,214	0.78
Washington	3,493	3,446	0.99	3,445	0.99	3,345	0.96	3,095	0.89
West Virginia	1,034	905	0.88	905	0.87	792	0.77	553	0.54
Wisconsin	3,134	3,107	0.99	3,098	0.99	2,748	0.88	2,363	0.75
Wyoming	319	316	0.99	316	0.99	264	0.83	217	0.68
Total	159,463	158,253	0.99	158,147	0.99	151,236	0.95	137,869	0.86

= Rounds to Zero.

Note: Numbers may not sum to totals due to rounding.

Source: FCC Broadband Data Collection.

**SECTION 3
SUMMARY STATISTICS: THE NATION**

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Figure 11
Connections over 200 kbps in at Least One Direction 2018-2022
(in thousands)

<i>Technology</i>	<i>2018</i>		<i>2019</i>		<i>2020</i>		<i>2021</i>		<i>2022</i>
	<i>Jun</i>	<i>Dec</i>	<i>Jun</i>	<i>Dec</i>	<i>Jun</i>	<i>Dec</i>	<i>Jun</i>	<i>Dec</i>	<i>Jun</i>
Total	428,980	451,060	459,350	466,320	480,200	490,890	500,260	510,200	517,046
Mobile	319,780	340,280	346,600	352,010	361,740	369,640	376,840	384,420	390,684
Fixed	109,210	110,780	112,740	114,310	118,460	121,250	123,430	125,780	126,362

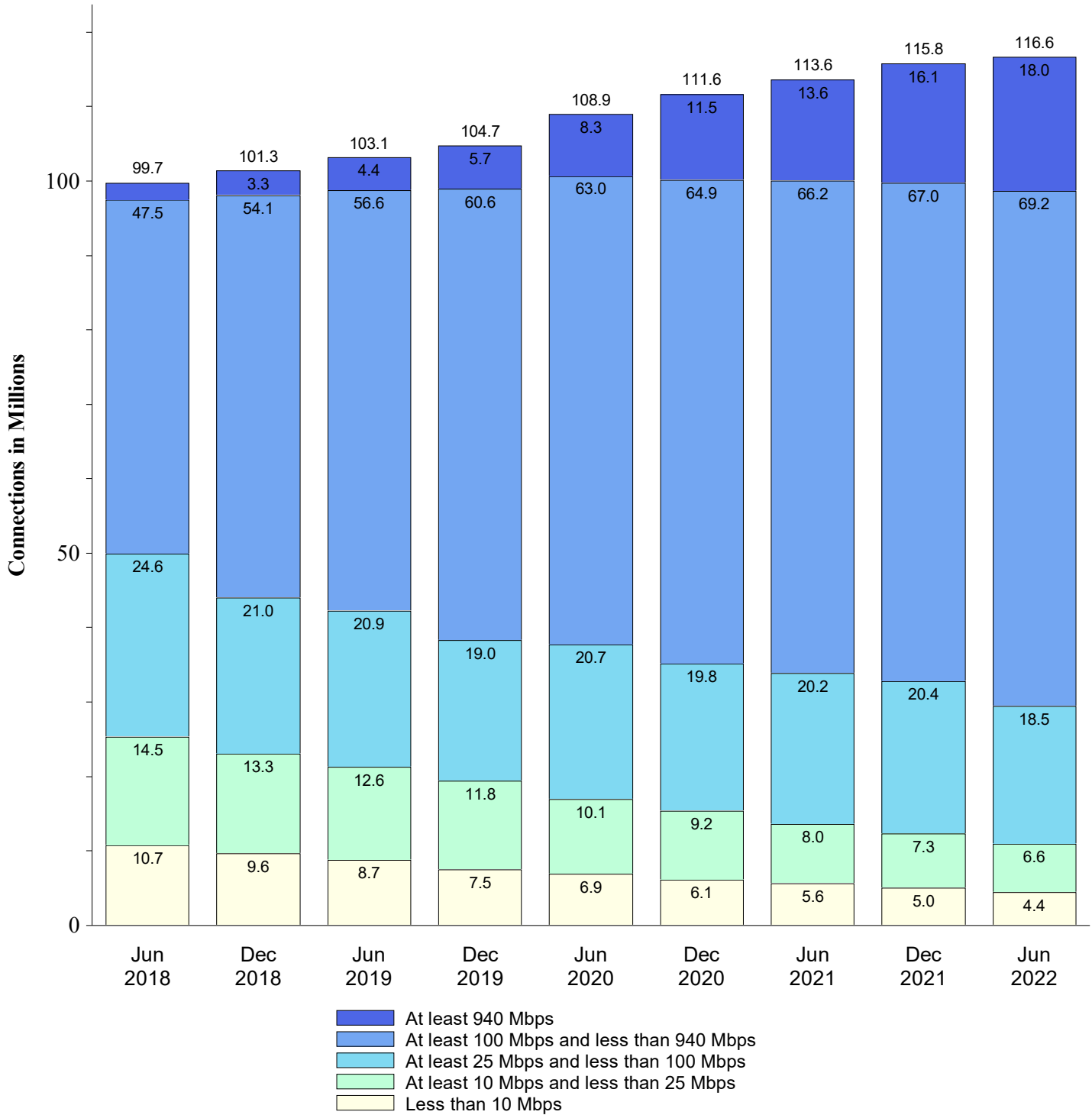
Note: We believe mobile connections remain underreported by as much as 2% through June 2018 due to inadequate accounting of connections sold by mobile virtual network operators (MVNOs). Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.
Source: FCC Form 477.

Figure 12
Residential Connections over 200 kbps in at Least One Direction 2018-2022
(in thousands)

<i>Technology</i>	<i>2018</i>		<i>2019</i>		<i>2020</i>		<i>2021</i>		<i>2022</i>
	<i>Jun</i>	<i>Dec</i>	<i>Jun</i>	<i>Dec</i>	<i>Jun</i>	<i>Dec</i>	<i>Jun</i>	<i>Dec</i>	<i>Jun</i>
Total	358,850	378,290	383,620	388,360	403,230	407,650	415,260	436,580	441,672
Mobile	259,110	276,940	280,490	283,640	294,300	296,030	301,680	320,780	325,057
Fixed	99,742	101,350	103,130	104,720	108,920	111,620	113,580	115,790	116,615

Note: We believe mobile connections remain underreported by as much as 2% through June 2018 due to inadequate accounting of connections sold by mobile virtual network operators (MVNOs). Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.
Source: FCC Form 477.

Figure 13
Residential Fixed Connections by Downstream Speed 2018-2022



Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.
 Source: FCC Form 477.

Figure 14
Distribution of Fixed Connections over 200 kbps in at Least One Direction as of June 30, 2022

<i>Upstream Speed</i>	<i>Downstream Speed</i>					<i>Total</i>
	<i>Less than 10 Mbps</i>	<i>At least 10 Mbps and less than 25 Mbps</i>	<i>At least 25 Mbps and less than 100 Mbps</i>	<i>At least 100 Mbps and less than 940 Mbps</i>	<i>At least 940 Mbps</i>	
Less than 1 Mbps	3,194	819	1	#	#	4,014
At least 1 Mbps & Less than 3 Mbps	1,813	4,853	723	1	#	7,390
At least 3 Mbps & Less than 20 Mbps	153	1,689	17,028	40,017	117	59,004
At least 20 Mbps & Less than 500 Mbps	3	53	3,051	31,449	8,047	42,603
At least 500 Mbps	#	0	#	2,478	10,873	13,351
Total	5,163	7,414	20,803	73,945	19,037	126,362

	<i>Percentages</i>					
Less than 1 Mbps	2.5	0.6	0.0	0.0	0.0	3.2
At least 1 Mbps & Less than 3 Mbps	1.4	3.8	0.6	0.0	0.0	5.8
At least 3 Mbps & Less than 20 Mbps	0.1	1.3	13.5	31.7	0.1	46.7
At least 20 Mbps & Less than 500 Mbps	0.0	0.0	2.4	24.9	6.4	33.7
At least 500 Mbps	0.0	0.0	0.0	2.0	8.6	10.6
Total	4.1	5.9	16.5	58.5	15.1	100.0

= Rounds to zero.

Note: Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 15

Distribution of Residential Fixed Connections over 200 kbps in at Least One Direction as of June 30, 2022

<i>Upstream Speed</i>	<i>Downstream Speed</i>					<i>Total</i>
	<i>Less than 10 Mbps</i>	<i>At least 10 Mbps and less than 25 Mbps</i>	<i>At least 25 Mbps and less than 100 Mbps</i>	<i>At least 100 Mbps and less than 940 Mbps</i>	<i>At least 940 Mbps</i>	
Less than 1 Mbps	2,590	751	#	#	#	3,342
At least 1 Mbps & Less than 3 Mbps	1,634	4,299	667	1	#	6,601
At least 3 Mbps & Less than 20 Mbps	130	1,510	15,217	38,031	114	55,002
At least 20 Mbps & Less than 500 Mbps	3	24	2,623	28,724	7,774	39,147
At least 500 Mbps	0	0	#	2,396	10,126	12,522
Total	4,357	6,584	18,507	69,152	18,014	116,615

<i>Percentages</i>						
Less than 1 Mbps	2.2	0.6	0.0	0.0	0.0	2.9
At least 1 Mbps & Less than 3 Mbps	1.4	3.7	0.6	0.0	0.0	5.7
At least 3 Mbps & Less than 20 Mbps	0.1	1.3	13.0	32.6	0.1	47.2
At least 20 Mbps & Less than 500 Mbps	0.0	0.0	2.2	24.6	6.7	33.6
At least 500 Mbps	0.0	0.0	0.0	2.1	8.7	10.7
Total	3.7	5.6	15.9	59.3	15.4	100.0

= Rounds to zero.

Note: Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 16
Connections over 200 kbps in at Least One Direction by Technology 2018-2022
(in thousands)

Technology	2018		2019		2020		2021		2022	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	
Total	428,980	451,060	459,350	466,320	480,200	490,890	500,260	510,200	517,046	
Mobile	319,780	340,280	346,600	352,010	361,740	369,640	376,840	384,420	390,684	
Fixed	109,210	110,780	112,740	114,310	118,460	121,250	123,430	125,780	126,362	
Copper Wire ¹	23,710	22,953	21,681	20,755	20,174	19,327	18,620	17,412	15,652	
Coaxial Cable	67,163	68,882	70,750	72,516	75,986	77,909	79,330	80,232	80,022	
Optical Carrier	14,982	15,492	16,748	17,376	18,459	19,945	21,120	23,338	24,997	
Satellite	1,939	1,971	1,984	1,975	1,993	1,931	1,910	1,873	2,031	
Fixed Wireless	1,414	1,485	1,580	1,687	1,853	2,140	2,445	2,923	3,659	
Licensed	-	-	-	-	-	-	-	-	-	1,953
Unlicensed	-	-	-	-	-	-	-	-	-	1,707

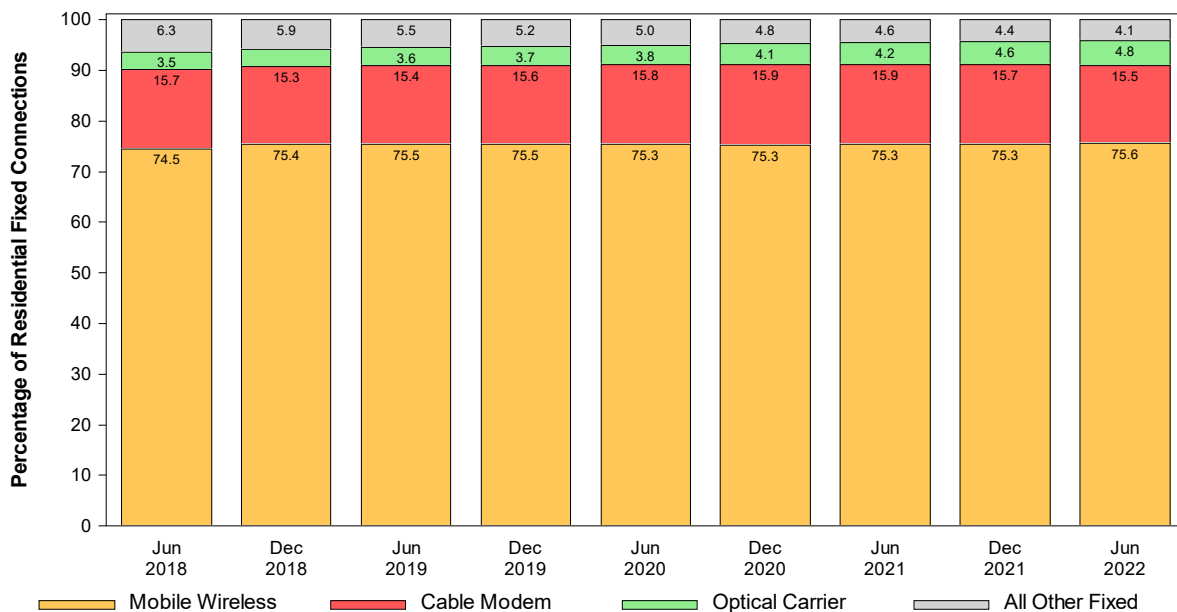
¹ Power Line and Other are summarized with Copper Wire for confidentiality reasons. See Technical Notes at the end of the report for a description of FCC Form 477 technology categories and other reporting requirements.

* = Data withheld for confidentiality reasons. # = Rounds to zero. - = Data was not collected.

Note: We believe mobile connections remain underreported by as much as 2% through June 2018 due to inadequate accounting of connections sold by mobile virtual network operators (MVNOs). Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 17
Connections over 200 kbps in at Least One Direction 2018-2022
(Shares of selected technologies)



Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 18
Residential Connections over 200 kbps in at Least One Direction by Technology 2018-2022
(in thousands)

Technology	2018		2019		2020		2021		2022	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	
Total	358,850	378,290	383,620	388,360	403,230	407,650	415,260	436,580	441,672	
Mobile	259,110	276,940	280,490	283,640	294,300	296,030	301,680	320,780	325,057	
Fixed	99,742	101,350	103,130	104,720	108,920	111,620	113,580	115,790	116,615	
Copper Wire ¹	20,753	20,206	19,041	18,237	17,718	16,983	16,344	15,269	13,985	
Coaxial Cable	62,318	63,813	65,457	67,141	70,710	72,543	73,844	74,599	74,441	
Optical Carrier	13,661	14,205	15,410	16,011	16,986	18,384	19,414	21,531	22,952	
Satellite	1,751	1,787	1,805	1,795	1,815	1,752	1,728	1,692	1,841	
Fixed Wireless	1,260	1,338	1,421	1,535	1,694	1,959	2,251	2,701	3,395	
Licensed	-	-	-	-	-	-	-	-	-	1,839
Unlicensed	-	-	-	-	-	-	-	-	-	1,555

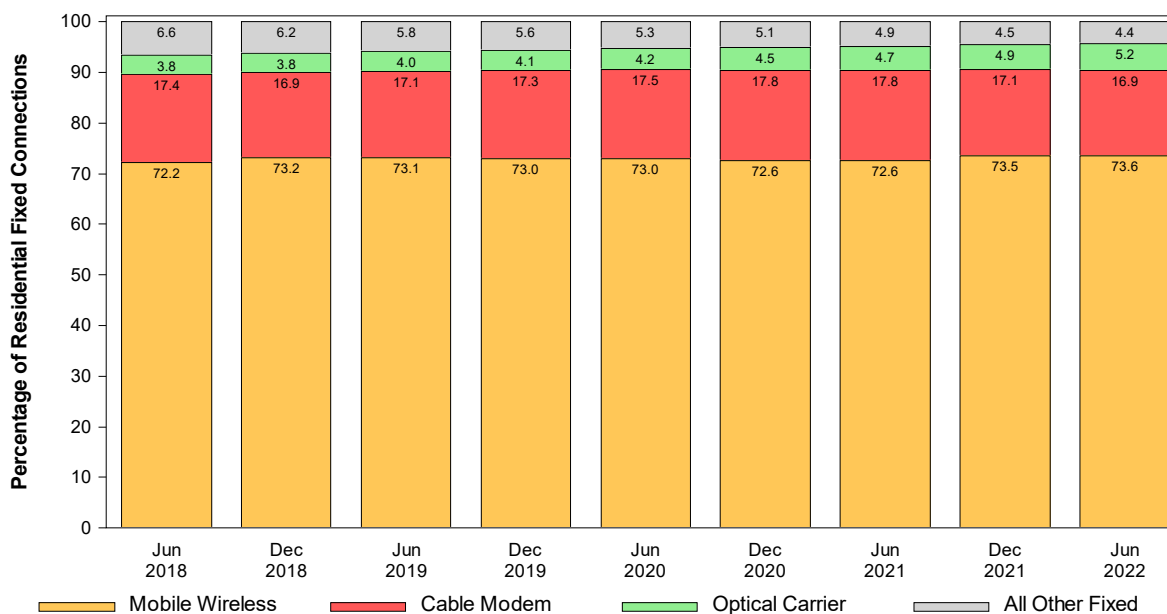
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Note: We believe mobile connections remain underreported by as much as 2% through June 2018 due to inadequate accounting of connections sold by mobile virtual network operators (MVNOs). Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 19
Residential Connections over 200 kbps in at Least One Direction 2018-2022
(Shares of selected technologies)



Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 20
Fixed Connections at Least 10 Mbps Downstream and 1 Mbps Upstream by Technology 2018-2022
(in thousands)

Technology	2018		2019		2020		2021		2022
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun
Total	94,148	97,302	100,480	103,610	109,180	112,450	115,770	118,770	120,380
Copper Wire ¹	12,110	12,335	12,094	12,011	12,735	12,086	12,347	11,681	10,690
Coaxial Cable	65,807	67,716	69,704	71,934	75,391	77,513	79,035	79,956	79,676
Optical Carrier	13,988	14,815	16,078	16,854	18,008	19,555	20,813	23,058	24,833
Satellite	1,595	1,677	1,726	1,737	1,778	1,727	1,717	1,700	1,863
Fixed Wireless	649	759	879	1,078	1,263	1,564	1,860	2,379	3,318
Licensed	-	-	-	-	-	-	-	-	1,906
Unlicensed	-	-	-	-	-	-	-	-	1,411

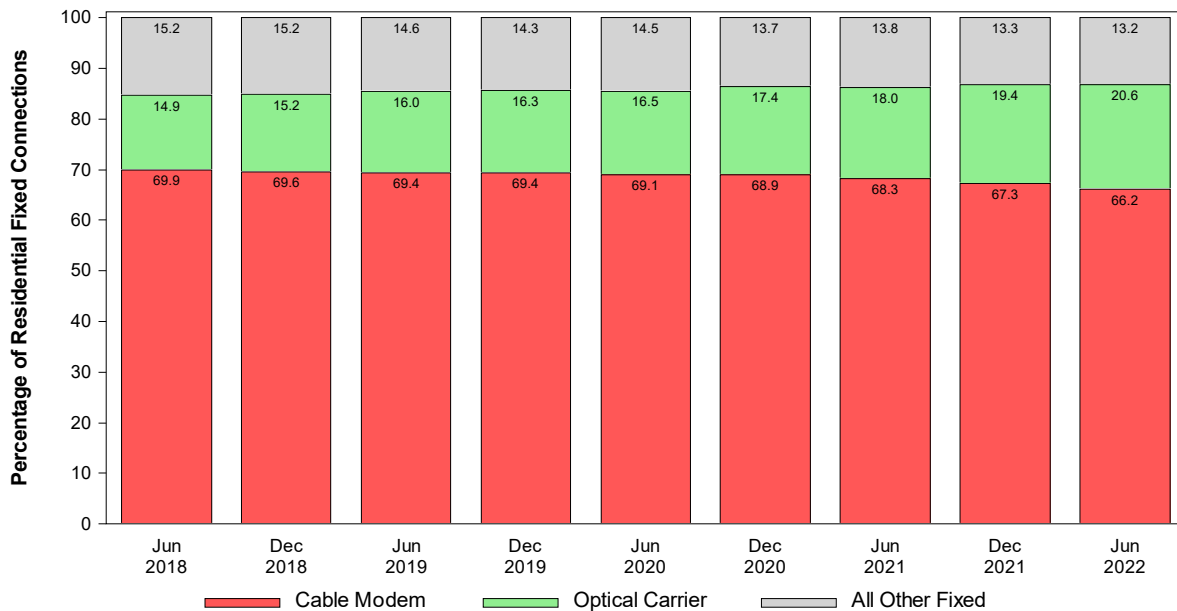
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Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 21
Fixed Connections at Least 10 Mbps Downstream and 1 Mbps Upstream 2018-2022
(Shares of selected technologies)



Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 22

Residential Fixed Connections at Least 10 Mbps Downstream and 1 Mbps Upstream by Technology 2018-2022
(in thousands)

Technology	2018		2019		2020		2021		2022
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun
Total	86,959	89,873	92,714	95,665	101,220	104,200	107,210	109,980	111,506
Copper Wire ¹	10,930	11,143	10,871	10,754	11,440	10,818	11,066	10,441	9,658
Coaxial Cable	61,141	62,810	64,556	66,691	70,299	72,215	73,611	74,386	74,147
Optical Carrier	12,739	13,589	14,800	15,536	16,581	18,042	19,145	21,286	22,815
Satellite	1,575	1,655	1,702	1,708	1,745	1,691	1,676	1,656	1,806
Fixed Wireless	574	676	784	975	1,151	1,434	1,714	2,206	3,080
Licensed	-	-	-	-	-	-	-	-	1,797
Unlicensed	-	-	-	-	-	-	-	-	1,283

¹ Power Line and Other are summarized with Copper Wire for confidentiality reasons. See Technical Notes at the end of the report for a description of FCC Form 477 technology categories and other reporting requirements.

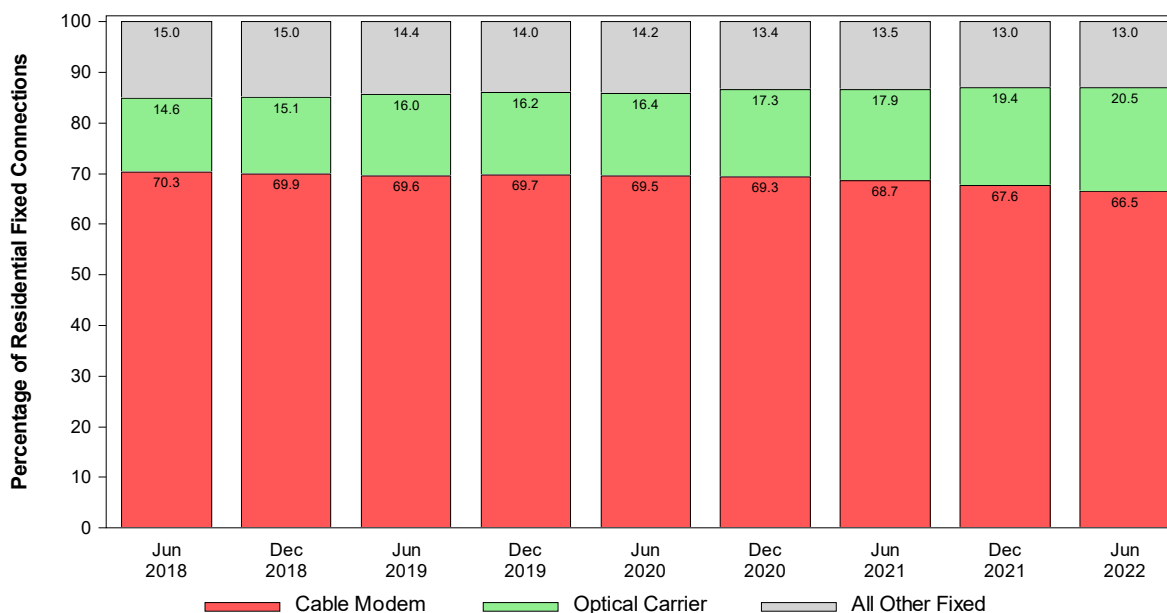
* = Data withheld for confidentiality reasons. # = Rounds to zero. - = Data was not collected.

Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 23

Residential Fixed Connections at Least 10 Mbps Downstream and 1 Mbps Upstream 2018-2022
(Shares of selected technologies)



Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 24
Fixed Connections at Least 25 Mbps Downstream and 3 Mbps Upstream by Technology 2018-2022
(in thousands)

Technology	2018		2019		2020		2021		2022
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun
Total	78,995	82,965	86,763	90,490	97,000	101,630	106,790	110,630	113,060
Copper Wire ¹	*	*	*	*	*	*	6,688	6,538	6,014
Coaxial Cable	60,858	62,880	64,938	67,171	71,856	74,169	77,502	78,656	78,598
Optical Carrier	12,609	13,605	14,902	15,866	17,091	18,840	20,171	22,459	24,295
Satellite	*	*	*	*	*	*	1,328	1,353	1,552
Fixed Wireless	222	267	343	468	571	805	1,105	1,620	2,601
Licensed	-	-	-	-	-	-	-	-	1,796
Unlicensed	-	-	-	-	-	-	-	-	805

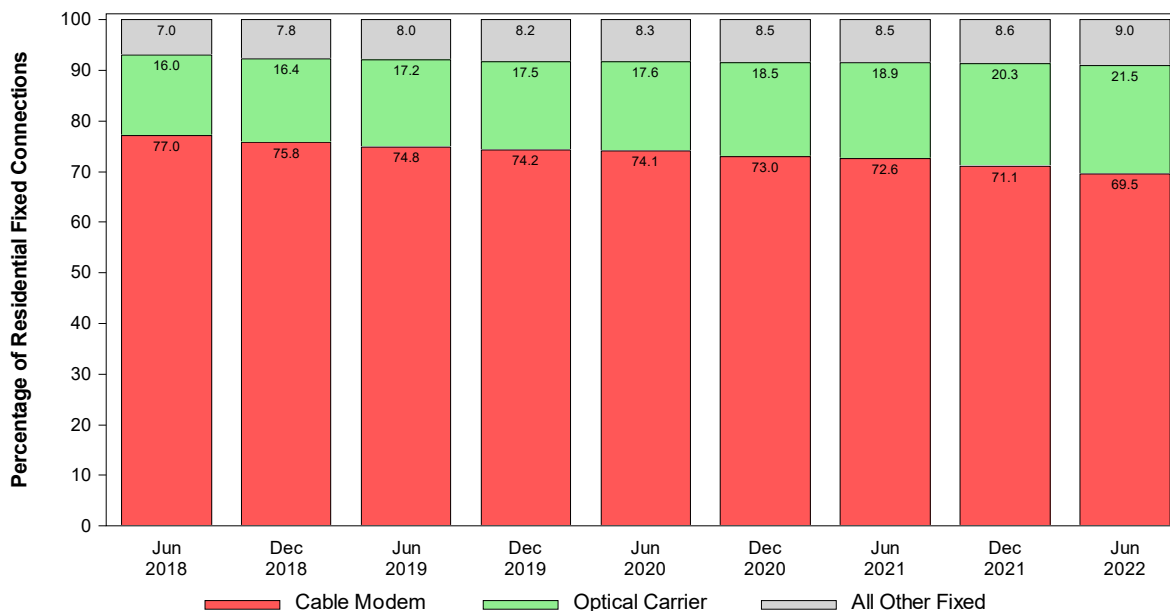
¹ Power Line and Other are summarized with Copper Wire for confidentiality reasons. See Technical Notes at the end of the report for a description of FCC Form 477 technology categories and other reporting requirements.

* = Data withheld for confidentiality reasons. # = Rounds to zero. - = Data was not collected.

Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 25
Fixed Connections at Least 25 Mbps Downstream and 3 Mbps Upstream 2018-2022
(Shares of selected technologies)



Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 26

Residential Fixed Connections at Least 25 Mbps Downstream and 3 Mbps Upstream by Technology 2018-2022
(in thousands)

Technology	2018		2019		2020		2021		2022
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun
Total	73,283	76,873	80,272	83,740	90,185	94,451	99,254	102,800	105,005
Copper Wire ¹	*	*	*	*	*	*	6,068	5,930	5,515
Coaxial Cable	56,619	58,342	60,125	62,231	67,017	69,098	72,268	73,262	73,213
Optical Carrier	11,569	12,546	13,780	14,690	15,796	17,445	18,615	20,795	22,365
Satellite	*	*	*	*	*	*	1,288	1,311	1,497
Fixed Wireless	192	234	299	415	512	727	1,015	1,506	2,414
Licensed	-	-	-	-	-	-	-	-	1,697
Unlicensed	-	-	-	-	-	-	-	-	717

¹ Power Line and Other are summarized with Copper Wire for confidentiality reasons. See Technical Notes at the end of the report for a description of FCC Form 477 technology categories and other reporting requirements.

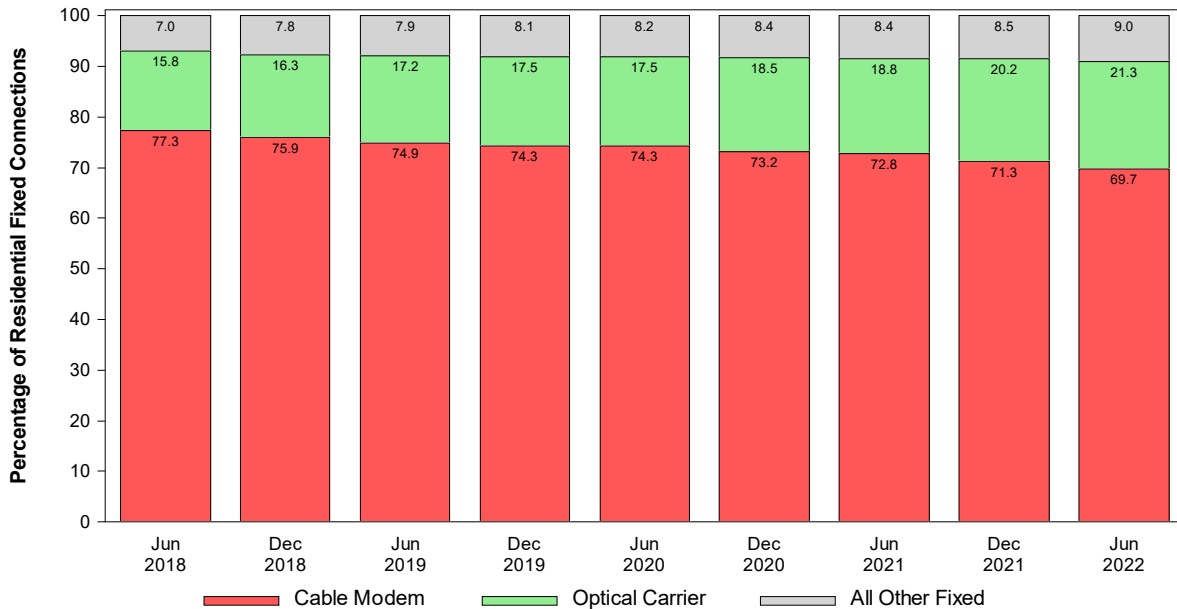
* = Data withheld for confidentiality reasons. # = Rounds to zero. - = Data was not collected.

Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 27

Residential Fixed Connections at Least 25 Mbps Downstream and 3 Mbps Upstream 2018-2022
(Shares of selected technologies)



Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 28
Fixed Connections at Least 100 Mbps Downstream and 20 Mbps Upstream by Technology 2018-2022
(in thousands)

Technology	2018		2019		2020		2021		2022	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	
Total	14,646	18,750	22,236	25,621	29,570	34,493	38,563	43,352	52,848	
Copper Wire ¹	238	404	566	*	*	*	*	*	*	
Coaxial Cable	8,352	9,466	11,426	13,088	15,496	18,420	20,924	23,298	29,955	
Optical Carrier	6,000	8,815	10,146	11,634	13,086	14,933	16,373	18,705	20,993	
Satellite	0	0	0	*	*	*	*	*	*	
Fixed Wireless	56	65	97	119	116	143	180	239	499	
Licensed	-	-	-	-	-	-	-	-	-	301
Unlicensed	-	-	-	-	-	-	-	-	-	198

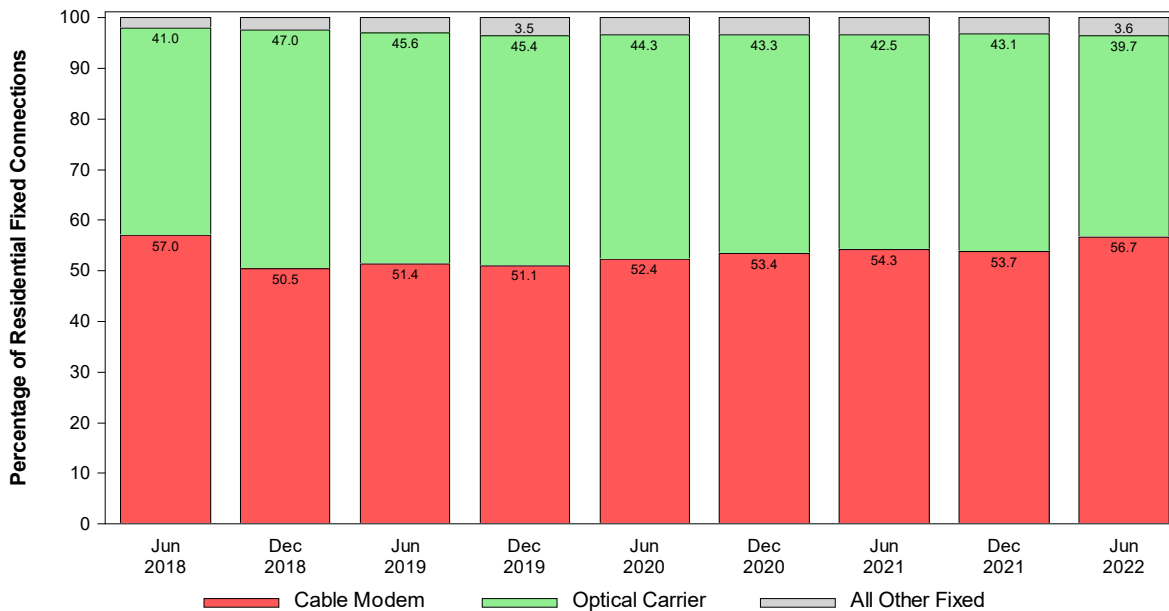
¹ Power Line and Other are summarized with Copper Wire for confidentiality reasons. See Technical Notes at the end of the report for a description of FCC Form 477 technology categories and other reporting requirements.

* = Data withheld for confidentiality reasons. # = Rounds to zero. - = Data was not collected.

Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 29
Fixed Connections at Least 100 Mbps Downstream and 20 Mbps Upstream 2018-2022
(Shares of selected technologies)



Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 30
Residential Fixed Connections at Least 100 Mbps Downstream and 20 Mbps Upstream by Technology 2018-2022
(in thousands)

Technology	2018		2019		2020		2021		2022	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	
Total	13,170	17,101	20,338	23,485	27,179	31,773	35,456	39,921	49,020	
Copper Wire ¹	99	241	371	*	*	*	*	*	*	
Coaxial Cable	7,491	8,512	10,312	11,883	14,157	16,843	19,128	21,298	27,829	
Optical Carrier	5,533	8,292	9,574	10,952	12,303	14,055	15,329	17,537	19,517	
Satellite	0	0	0	*	*	*	*	*	*	
Fixed Wireless	47	56	80	102	98	118	158	215	450	
Licensed	-	-	-	-	-	-	-	-	-	276
Unlicensed	-	-	-	-	-	-	-	-	-	173

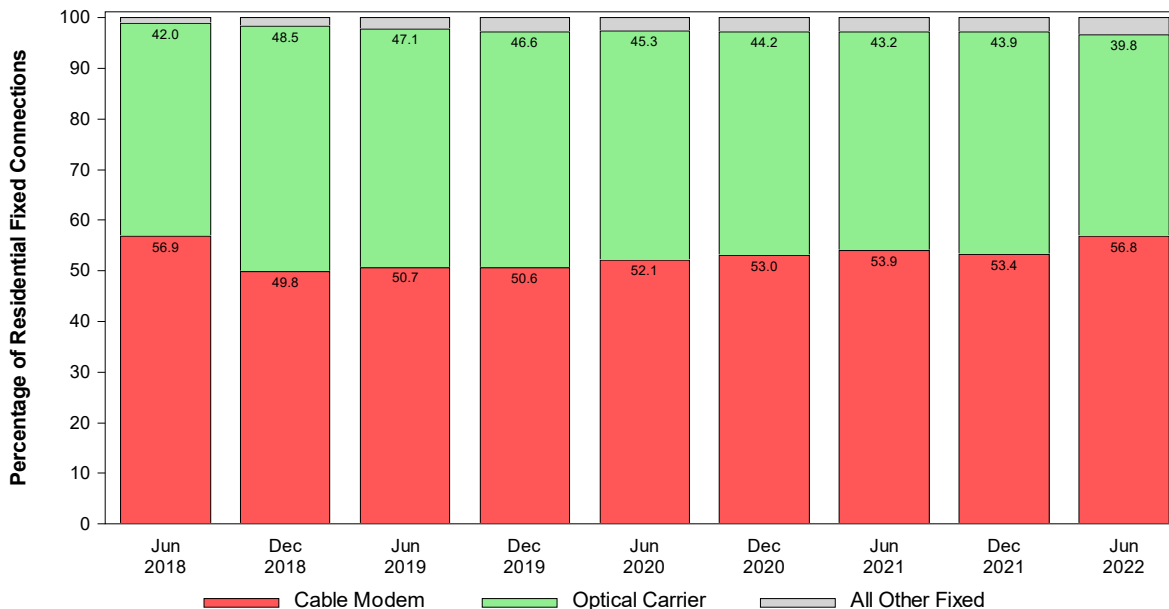
¹ Power Line and Other are summarized with Copper Wire for confidentiality reasons. See Technical Notes at the end of the report for a description of FCC Form 477 technology categories and other reporting requirements.

* = Data withheld for confidentiality reasons. # = Rounds to zero. - = Data was not collected.

Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

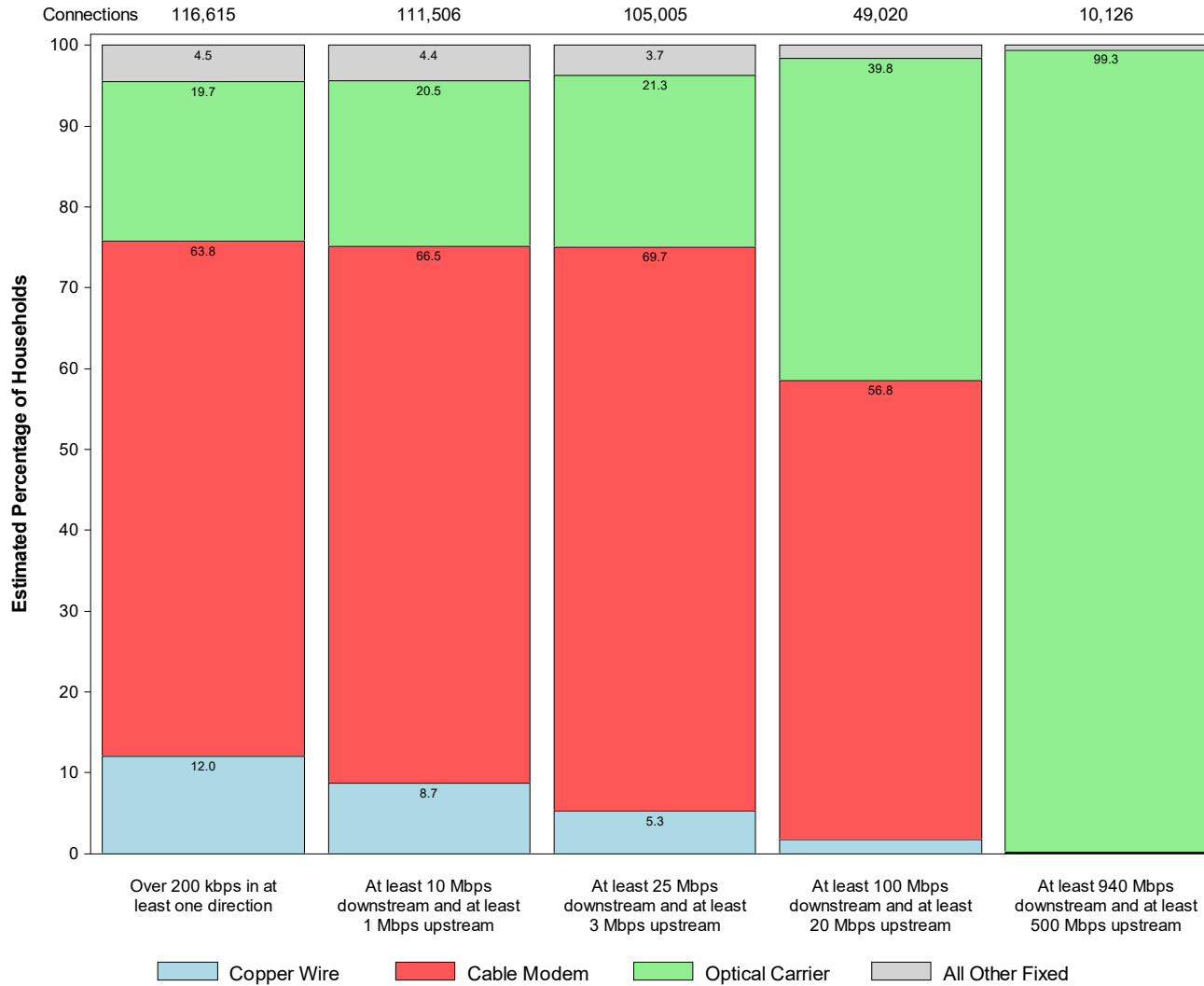
Figure 31
Residential Fixed Connections at Least 100 Mbps Downstream and 20 Mbps Upstream 2018-2022
(Shares of selected technologies)



Note: Some previously-published data may have been revised. Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 32
Residential Fixed Connections by Technology as of June 30, 2022
 (Shares of selected technologies for selected speeds, connections in thousands)



Note: Numbers may not sum to totals due to rounding.
 Source: FCC Form 477.

Figure 33
Fixed Connections by Downstream Speed Tier and Technology as of June 30, 2022
(in thousands)

<i>Technology</i>	<i>Downstream Speed</i>					<i>Total</i>
	<i>Less than 10 Mbps</i>	<i>At least 10 Mbps and less than 25 Mbps</i>	<i>At least 25 Mbps and less than 100 Mbps</i>	<i>At least 100 Mbps and less than 940 Mbps</i>	<i>At least 940 Mbps</i>	
Copper Wire	4,158	4,897	5,322	1,167	108	15,652
Cable Modem	339	975	9,115	61,628	7,965	80,022
Optical Carrier	155	523	3,130	10,324	10,864	24,997
Satellite	*	*	*	*	0	2,031
Fixed Wireless	*	*	*	*	100	3,659
Total	5,163	7,414	20,803	73,945	19,037	126,362

<i>Percentages</i>						
Copper Wire	3.3	3.9	4.2	0.9	0.1	12.4
Cable Modem	0.3	0.8	7.2	48.8	6.3	63.3
Optical Carrier	0.1	0.4	2.5	8.2	8.6	19.8
Satellite	*	*	*	*	0.0	1.6
Fixed Wireless	*	*	*	*	0.1	2.9
Total	4.1	5.9	16.5	58.5	15.1	100.0

* = Data withheld for confidentiality reasons. # = Rounds to Zero.
Note: Numbers may not sum to totals due to rounding.
Source: FCC Form 477.

Figure 34
Residential Fixed Connections by Downstream Speed Tier and Technology as of June 30, 2022
(in thousands)

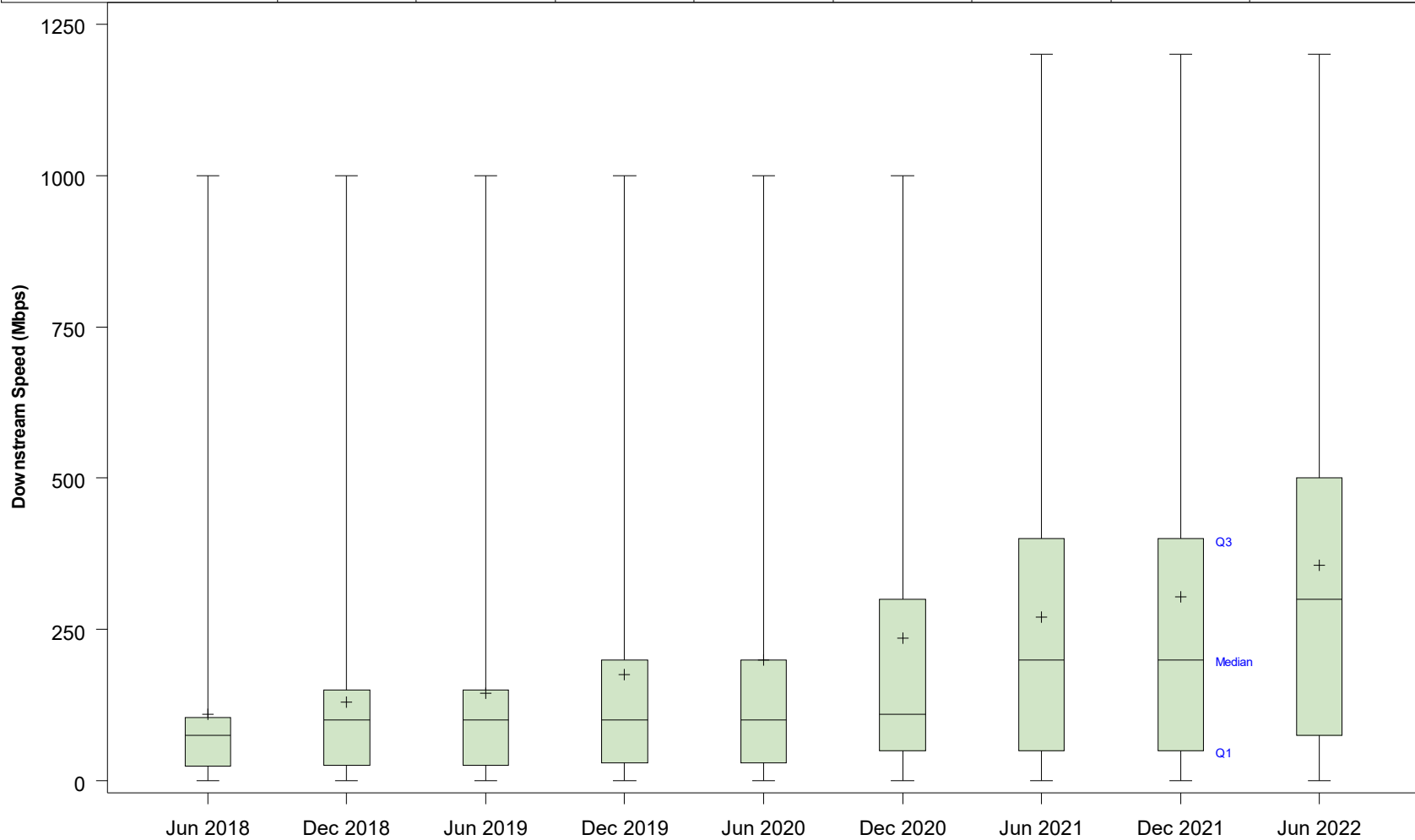
<i>Technology</i>	<i>Downstream Speed</i>					<i>Total</i>
	<i>Less than 10 Mbps</i>	<i>At least 10 Mbps and less than 25 Mbps</i>	<i>At least 25 Mbps and less than 100 Mbps</i>	<i>At least 100 Mbps and less than 940 Mbps</i>	<i>At least 940 Mbps</i>	
Copper Wire	3,589	4,347	4,963	1,059	28	13,985
Cable Modem	289	836	7,806	57,805	7,706	74,441
Optical Carrier	130	434	2,690	9,511	10,187	22,952
Satellite	*	*	*	*	0	1,841
Fixed Wireless	*	*	*	*	93	3,395
Total	4,357	6,584	18,507	69,152	18,014	116,615

<i>Percentages</i>						
Copper Wire	3.1	3.7	4.3	0.9	0.0	12.0
Cable Modem	0.2	0.7	6.7	49.6	6.6	63.8
Optical Carrier	0.1	0.4	2.3	8.2	8.7	19.7
Satellite	*	*	*	*	0.0	1.6
Fixed Wireless	*	*	*	*	0.1	2.9
Total	3.7	5.6	15.9	59.3	15.4	100.0

* = Data withheld for confidentiality reasons. # = Rounds to Zero.
Note: Numbers may not sum to totals due to rounding.
Source: FCC Form 477.

Figure 35
Distribution of Downstream Speeds of Fixed Connections 2018-2022

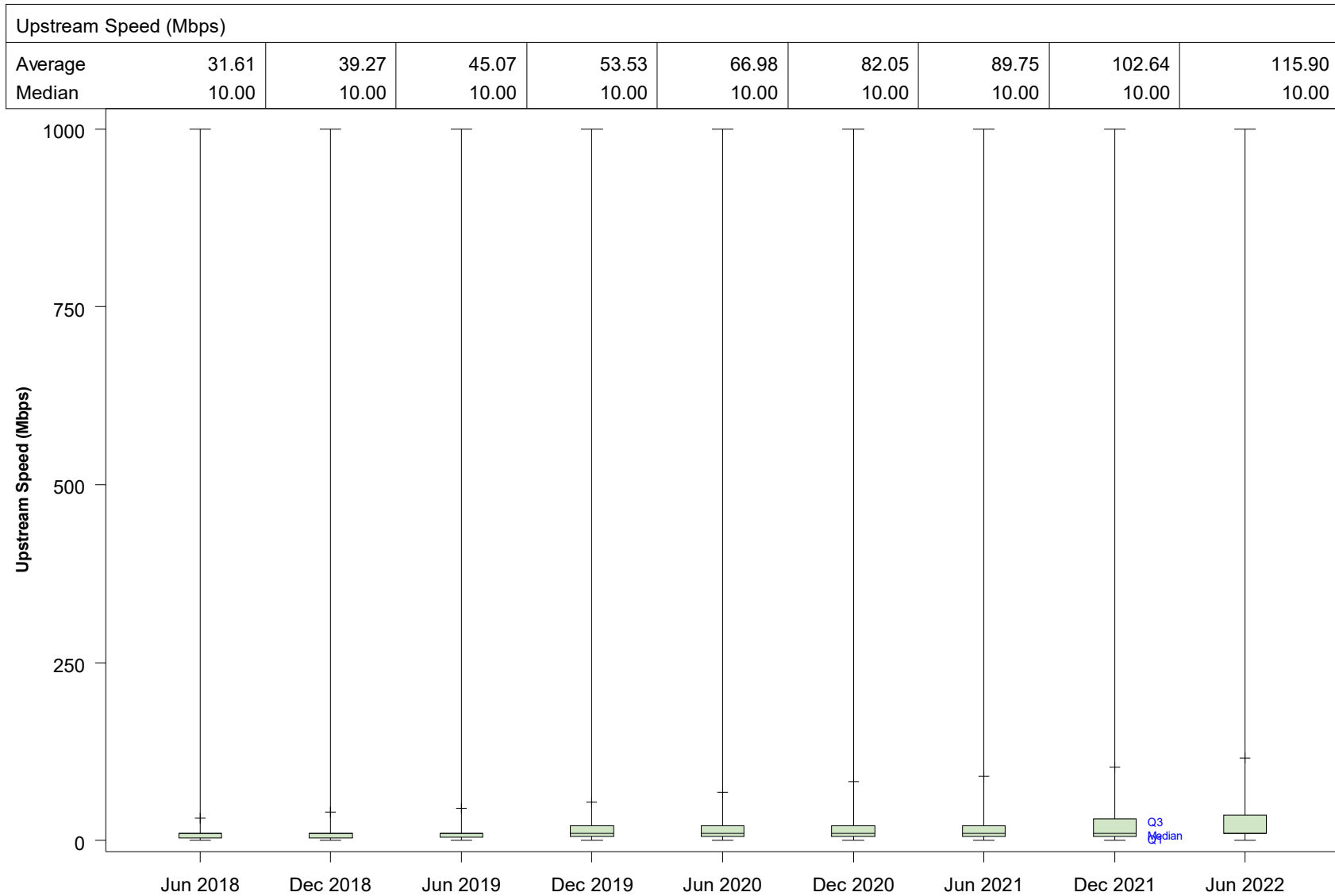
Downstream Speed (Mbps)									
Average	109.85	129.63	144.49	175.11	199.40	234.97	269.73	304.37	355.41
Median	75.00	100.00	100.00	100.00	100.00	110.00	200.00	200.00	300.00



Note: Each box plot shows the distribution of downstream speeds for a particular time period. Some of the features are labeled, but also note that + denotes the position of the average downstream speed across all connections; ⊥ is the minimum observation; and T is the maximum observation.

Source: FCC Form 477.

Figure 36
Distribution of Upstream Speeds of Fixed Connections 2018-2022

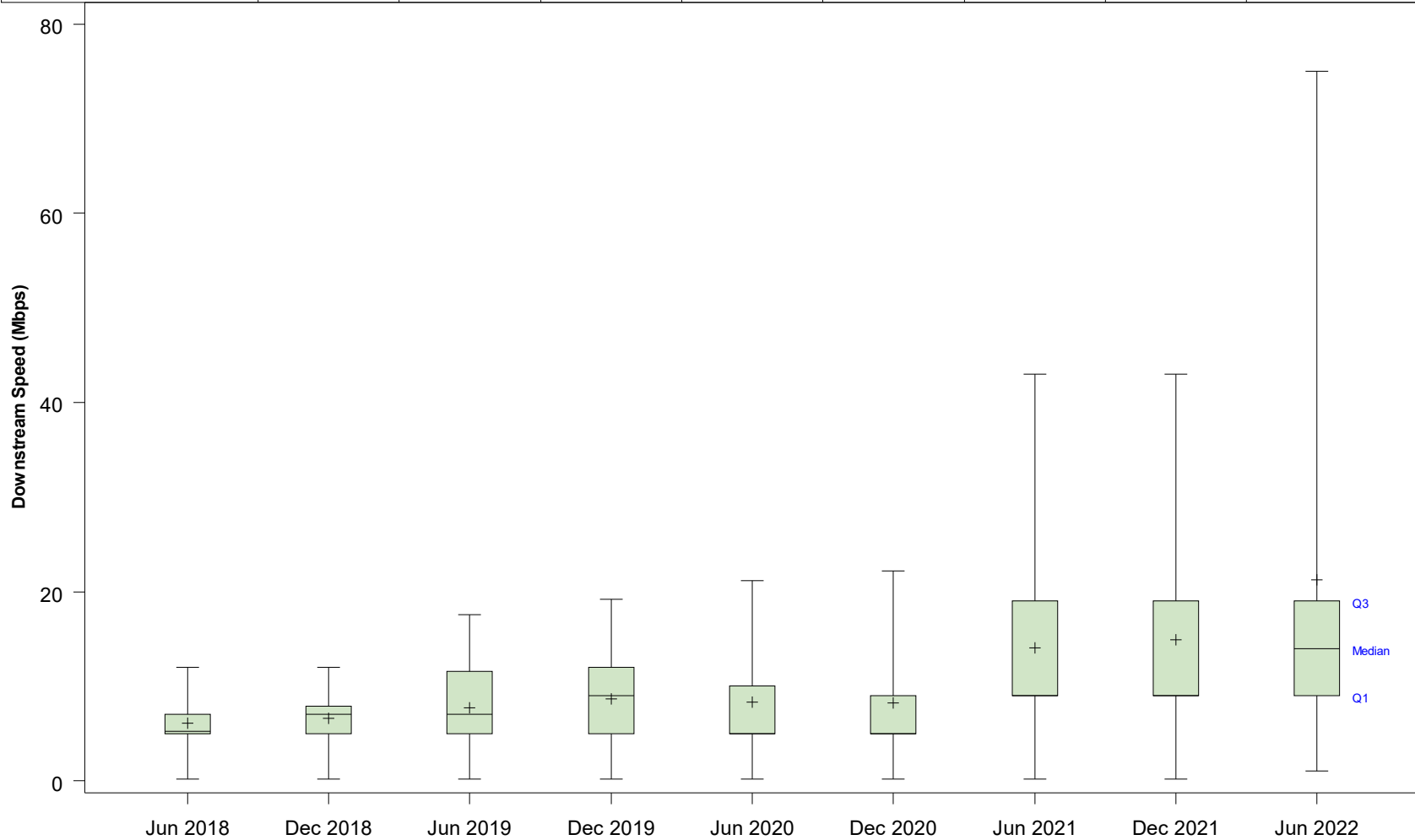


Note: Each box plot shows the distribution of upstream speeds for a particular time period. Some of the features are labeled, but also note that + denotes the position of the average upstream speed across all connections; ⊥ is the minimum observation; and T is the maximum observation.

Source: FCC Form 477.

Figure 37
Distribution of Downstream Speeds of Mobile Connections 2018-2022

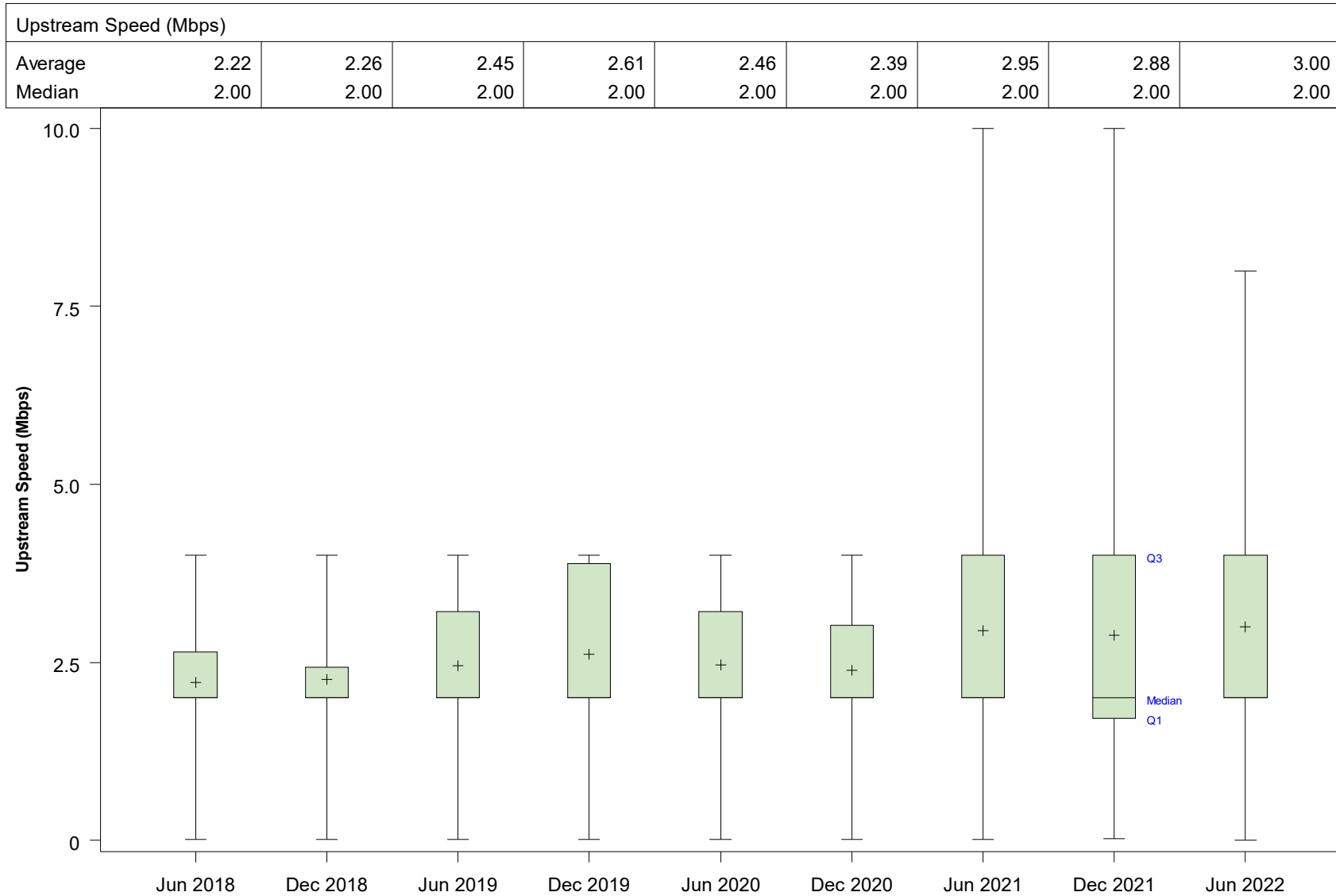
Downstream Speed (Mbps)									
Average	6.06	6.61	7.75	8.65	8.31	8.20	14.06	14.92	21.26
Median	5.21	7.00	7.00	9.00	5.00	5.00	9.00	9.00	14.00



Note: Each box plot shows the distribution of downstream speeds for a particular time period. Some of the features are labeled, but also note that + denotes the position of the average downstream speed across all connections; ⊥ is the minimum observation; and T is the maximum observation.

Source: FCC Form 477.

Figure 38
Distribution of Upstream Speeds of Mobile Connections 2018-2022

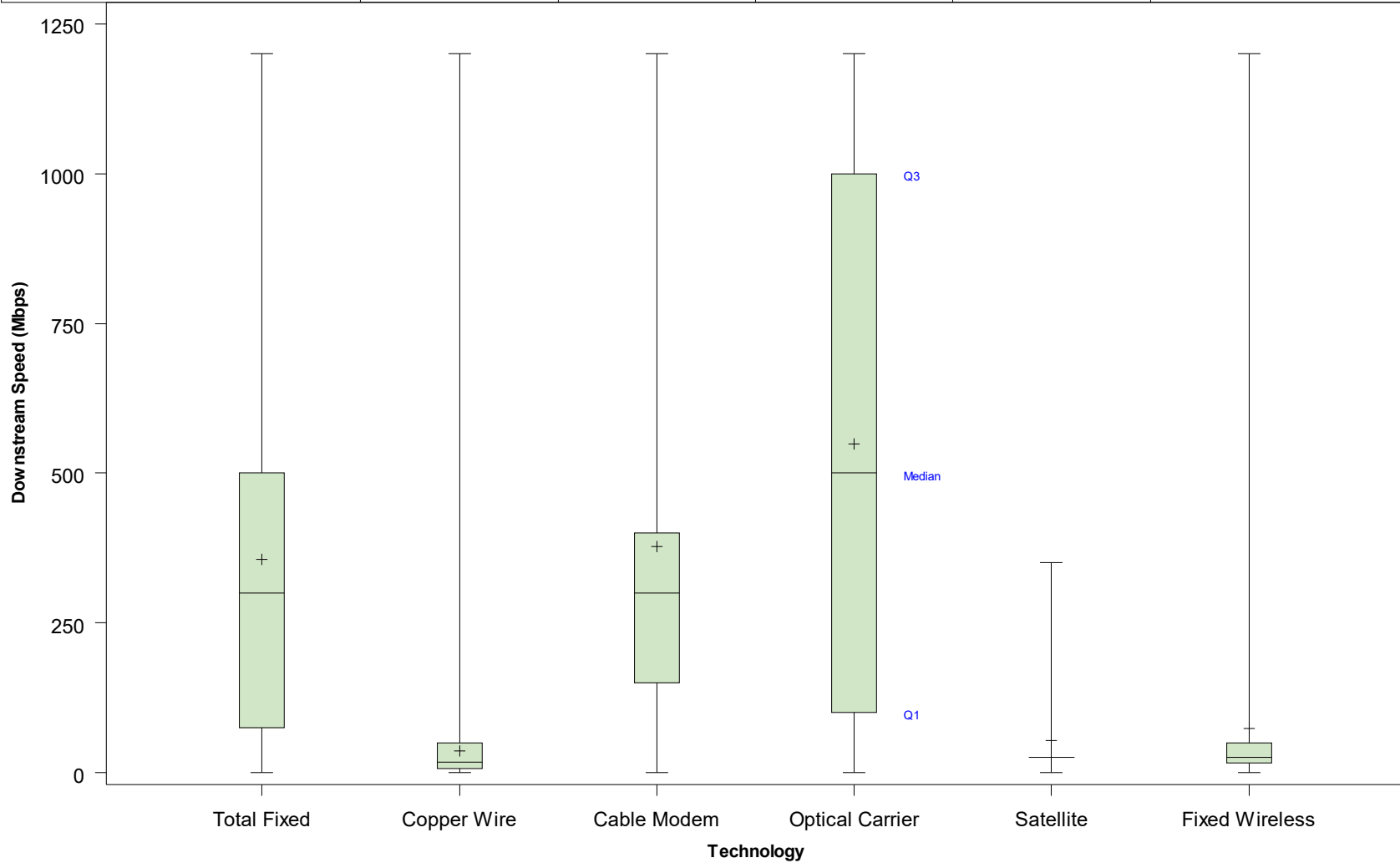


Note: Each box plot shows the distribution of upstream speeds for a particular time period. Some of the features are labeled, but also note that + denotes the position of the average upstream speed across all connections; ⊥ is the minimum observation; and T is the maximum observation.

Source: FCC Form 477.

Figure 39
Distribution of Downstream Speeds of Fixed Connections by Technology as of June 30, 2022

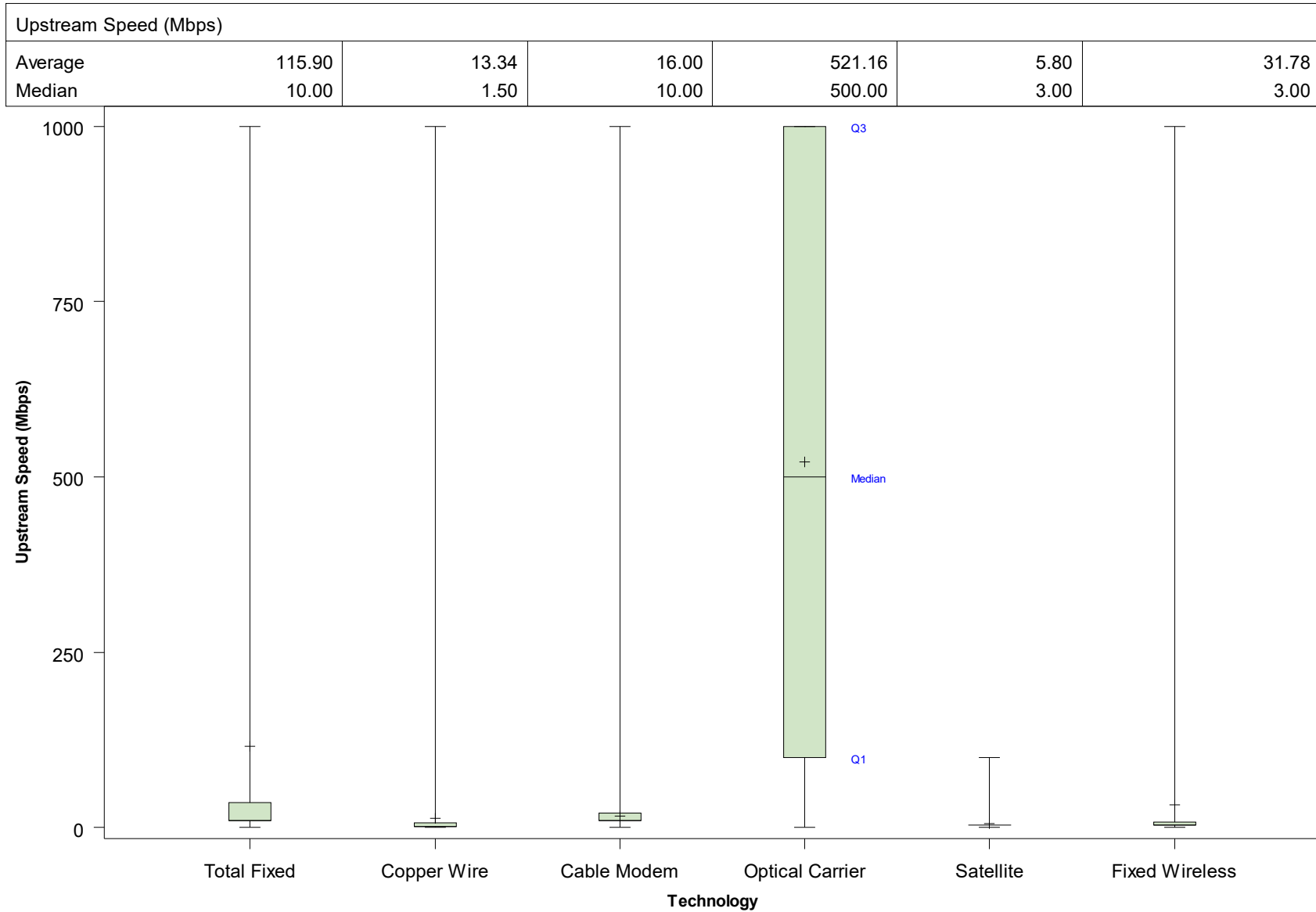
Downstream Speed (Mbps)						
Average	355.41	36.82	377.86	548.75	53.92	73.94
Median	300.00	18.00	300.00	500.00	25.00	25.00



Note: Each box plot shows the distribution of downstream speeds for a particular group of technologies. Some of the features are labeled, but also note that + denotes the position of the average downstream speed across all connections delivered using that technology; ⊥ is the minimum observation; and T is the maximum observation.

Source: FCC Form 477.

Figure 40
Distribution of Upstream Speeds of Fixed Connections by Technology as of June 30, 2022



Note: Each box plot shows the distribution of downstream speeds for a particular group of technologies. Some of the features are labeled, but also note that + denotes the position of the average upstream speed across all connections delivered using that technology; ⊥ is the minimum observation; and T is the maximum observation.

Source: FCC Form 477.

Figure 41
Nationwide Number of Providers of Connections over 200 kbps in at Least One Direction
by Technology 2018-2022

Technology	2018		2019		2020		2021		2022
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun
Total	2,113	2,215	2,224	2,248	2,281	2,382	2,392	2,384	2,242
Mobile	73	71	70	67	64	64	63	62	48
Fixed	2,094	2,195	2,203	2,230	2,266	2,371	2,378	2,371	2,236
Copper Wire ¹	868	852	827	803	797	773	755	743	593
Coaxial Cable	371	381	381	373	365	368	362	352	311
Optical Carrier	1,176	1,269	1,310	1,331	1,380	1,442	1,477	1,505	1,473
Satellite	5	5	5	5	5	6	6	5	4
Fixed Wireless	1,176	1,239	1,249	1,281	1,313	1,397	1,383	1,359	1,231
Licensed	-	-	-	-	-	-	-	-	298
Unlicensed	-	-	-	-	-	-	-	-	1,127

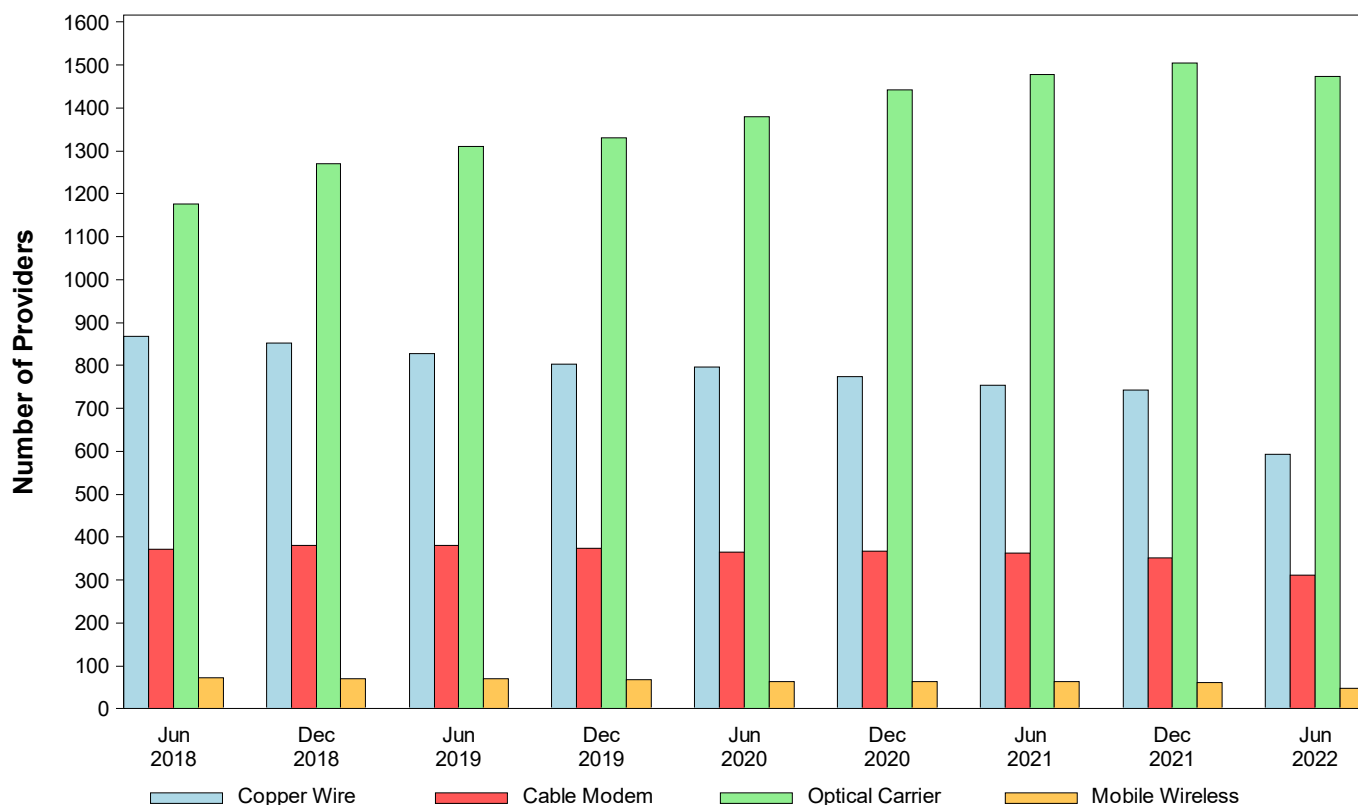
¹ Prior to June 2022, Power Line is summarized with Other for confidentiality reasons.

* = 1 - 3 providers. - = Data not collected.

Note: Multiple FCC Form 477 filers within a holding company structure count as one provider. Some previously-published data may have been revised.

Source: FCC Form 477.

Figure 42
Nationwide Number of Providers of Connections over 200 kbps in at Least One Direction
Selected Technologies 2018-2022



Source: FCC Form 477.

SECTION 4
SUMMARY STATISTICS: THE STATES

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Figure 43
Residential Fixed Connections and Households by State as of June 30, 2022
(Connections and households, in thousands)

State	Households	At least 200 kbps in at least One Direction		At least 10 Mbps Down and 1 Mbps Up		At least 25 Mbps Down and 3 Mbps Up		At least 100 Mbps Down and 20 Mbps Up		At least 940 Mbps Down and 500 Mbps Up	
		Connections	Subscribership Ratio	Connections	Subscribership Ratio	Connections	Subscribership Ratio	Connections	Subscribership Ratio	Connections	Subscribership Ratio
Alabama	1,903	1,664	0.87	1,539	0.81	1,415	0.74	617	0.32	149	0.08
Alaska	261	231	0.89	217	0.83	170	0.65	*	*	*	*
American Samoa	10	*	*	*	*	*	*	0	0.00	0	0.00
Arizona	2,684	2,522	0.94	2,385	0.89	2,200	0.82	636	0.24	96	0.04
Arkansas	1,158	966	0.83	866	0.75	758	0.65	348	0.30	67	0.06
California	13,218	12,661	0.96	12,319	0.93	11,695	0.88	4,603	0.35	701	0.05
Colorado	2,228	2,233	1.00	2,147	0.96	2,005	0.90	699	0.31	155	0.07
Connecticut	1,397	1,292	0.92	1,263	0.90	1,186	0.85	656	0.47	36	0.03
Delaware	381	404	1.06	398	1.04	396	1.04	238	0.62	*	*
District of Columbia	310	275	0.89	271	0.87	269	0.87	170	0.55	*	*
Florida	8,157	8,456	1.04	8,116	0.99	7,826	0.96	3,514	0.43	547	0.07
Georgia	3,885	3,652	0.94	3,469	0.89	3,249	0.84	1,710	0.44	429	0.11
Guam	42	37	0.89	35	0.83	27	0.64	*	*	0	0.00
Hawaii	478	488	1.02	479	1.00	*	*	*	*	*	*
Idaho	657	621	0.94	560	0.85	455	0.69	280	0.43	38	0.06
Illinois	4,930	4,325	0.88	4,138	0.84	3,871	0.79	1,763	0.36	173	0.04
Indiana	2,623	2,325	0.89	2,181	0.83	2,015	0.77	947	0.36	181	0.07
Iowa	1,276	1,083	0.85	1,000	0.78	891	0.70	431	0.34	57	0.04
Kansas	1,140	998	0.88	944	0.83	869	0.76	404	0.35	134	0.12
Kentucky	1,748	1,557	0.89	1,445	0.83	1,316	0.75	602	0.34	108	0.06
Louisiana	1,749	1,472	0.84	1,373	0.78	1,249	0.71	489	0.28	103	0.06
Maine	571	592	1.04	555	0.97	487	0.85	104	0.18	2	0.00
Maryland	2,294	2,205	0.96	2,167	0.94	2,142	0.93	1,374	0.60	*	*
Massachusetts	2,714	2,644	0.97	2,598	0.96	2,583	0.95	1,461	0.54	322	0.12
Michigan	3,977	3,591	0.90	3,426	0.86	3,228	0.81	1,159	0.29	84	0.02
Minnesota	2,229	2,023	0.91	1,918	0.86	1,761	0.79	600	0.27	76	0.03
Mississippi	1,109	893	0.81	805	0.73	678	0.61	370	0.33	126	0.11
Missouri	2,434	2,122	0.87	1,953	0.80	1,758	0.72	864	0.35	228	0.09
Montana	436	410	0.94	376	0.86	328	0.75	82	0.19	9	0.02
Nebraska	767	683	0.89	651	0.85	603	0.79	246	0.32	44	0.06

Figure 43 - Continued
Residential Fixed Connections and Households by State as of June 30, 2022
(Connections and households, in thousands)

State	Households	At least 200 kbps in at least One Direction		At least 10 Mbps Down and 1 Mbps Up		At least 25 Mbps Down and 3 Mbps Up		At least 100 Mbps Down and 20 Mbps Up		At least 940 Mbps Down and 500 Mbps Up	
		Connections	Subscribership Ratio	Connections	Subscribership Ratio	Connections	Subscribership Ratio	Connections	Subscribership Ratio	Connections	Subscribership Ratio
Nevada	1,142	1,104	0.97	1,060	0.93	1,011	0.89	308	0.27	49	0.04
New Hampshire	540	561	1.04	541	1.00	517	0.96	281	0.52	5	0.01
New Jersey	3,397	3,157	0.93	3,115	0.92	3,092	0.91	2,310	0.68	*	*
New Mexico	798	702	0.88	638	0.80	554	0.69	140	0.18	12	0.01
New York	7,530	6,877	0.91	6,795	0.90	6,582	0.87	3,953	0.52	*	*
North Carolina	4,035	4,021	1.00	3,754	0.93	3,567	0.88	1,550	0.38	367	0.09
North Dakota	317	288	0.91	282	0.89	274	0.87	238	0.75	8	0.02
Northern Mariana Isl	16	*	*	*	*	*	*	0	0.00	0	0.00
Ohio	4,754	4,281	0.90	4,082	0.86	3,792	0.80	1,256	0.26	114	0.02
Oklahoma	1,504	1,261	0.84	1,173	0.78	1,055	0.70	462	0.31	116	0.08
Oregon	1,658	1,575	0.95	1,492	0.90	1,406	0.85	470	0.28	89	0.05
Pennsylvania	5,148	4,645	0.90	4,422	0.86	4,340	0.84	2,453	0.48	*	*
Puerto Rico	1,197	737	0.62	667	0.56	506	0.42	154	0.13	7	0.01
Rhode Island	427	409	0.96	406	0.95	405	0.95	210	0.49	*	*
South Carolina	1,976	1,941	0.98	1,857	0.94	1,732	0.88	798	0.40	113	0.06
South Dakota	346	313	0.91	307	0.89	288	0.83	204	0.59	4	0.01
Tennessee	2,665	2,450	0.92	2,347	0.88	2,230	0.84	1,183	0.44	344	0.13
Texas	10,239	9,725	0.95	9,409	0.92	8,813	0.86	4,658	0.45	1,257	0.12
Utah	1,034	1,015	0.98	983	0.95	920	0.89	400	0.39	133	0.13
Vermont	263	289	1.10	263	1.00	221	0.84	111	0.42	15	0.06
Virgin Islands	43	*	*	*	*	*	*	*	*	0	0.00
Virginia	3,249	2,964	0.91	2,833	0.87	2,769	0.85	1,516	0.47	603	0.19
Washington	2,932	2,848	0.97	2,689	0.92	2,542	0.87	839	0.29	133	0.05
West Virginia	711	565	0.79	503	0.71	440	0.62	229	0.32	7	0.01
Wisconsin	2,402	2,201	0.92	2,055	0.86	1,839	0.77	538	0.22	60	0.02
Wyoming	231	217	0.94	201	0.87	186	0.80	49	0.21	2	0.01
Total	125,319	116,615	0.93	111,506	0.89	105,005	0.84	49,020	0.39	10,126	0.08

= Rounds to Zero; * = Data withheld for confidentiality reasons.

Note: Numbers may not sum to totals due to rounding.

Sources: FCC Form 477 (Connections); 2017-2021 ACS 5-year estimates; Census 2010.

Figure 44
Connections by Type of End User by State as of June 30, 2022
 (Connections over 200 kbps in at least one direction, in thousands)

State	Connections		Percentages		Total
	Residential	Business	Residential	Business	
Alabama	6,449	1,002	86.6	13.4	7,451
Alaska	892	147	85.9	14.1	1,038
American Samoa	*	*	*	*	*
Arizona	9,362	1,384	87.1	12.9	10,747
Arkansas	3,823	533	87.8	12.2	4,356
California	53,181	9,486	84.9	15.1	62,667
Colorado	7,530	1,472	83.6	16.4	9,002
Connecticut	4,880	891	84.6	15.4	5,772
Delaware	1,378	233	85.6	14.4	1,610
District of Columbia	1,156	697	62.4	37.6	1,853
Florida	30,781	4,709	86.7	13.3	35,490
Georgia	14,459	2,442	85.6	14.4	16,901
Guam	140	61	69.8	30.2	201
Hawaii	1,904	327	85.3	14.7	2,232
Idaho	2,269	334	87.2	12.8	2,603
Illinois	16,743	3,186	84.0	16.0	19,929
Indiana	8,453	1,267	87.0	13.0	9,720
Iowa	3,905	624	86.2	13.8	4,529
Kansas	3,637	546	87.0	13.0	4,183
Kentucky	5,523	835	86.9	13.1	6,358
Louisiana	6,197	862	87.8	12.2	7,059
Maine	1,735	317	84.6	15.4	2,052
Maryland	8,340	1,353	86.0	14.0	9,693
Massachusetts	9,293	1,780	83.9	16.1	11,073
Michigan	12,845	2,208	85.3	14.7	15,053
Minnesota	7,165	1,273	84.9	15.1	8,438
Mississippi	3,822	458	89.3	10.7	4,280
Missouri	7,813	1,306	85.7	14.3	9,119
Montana	1,352	237	85.1	14.9	1,589
Nebraska	2,415	477	83.5	16.5	2,893
Nevada	4,270	571	88.2	11.8	4,842
New Hampshire	1,771	358	83.2	16.8	2,129
New Jersey	12,566	2,255	84.8	15.2	14,820
New Mexico	2,705	396	87.2	12.8	3,101
New York	27,496	5,172	84.2	15.8	32,668
North Carolina	13,652	2,407	85.0	15.0	16,059
North Dakota	986	157	86.3	13.7	1,143
Northern Mariana Isl	*	*	*	*	*
Ohio	15,192	2,653	85.1	14.9	17,844
Oklahoma	5,030	749	87.0	13.0	5,779
Oregon	5,415	0	84.4	15.6	6,415
Pennsylvania	16,800	2,927	85.2	14.8	19,726
Puerto Rico	4,018	333	92.3	7.7	4,351
Rhode Island	1,461	289	83.5	16.5	1,751
South Carolina	6,641	1,056	86.3	13.7	7,697
South Dakota	1,105	161	87.3	12.7	1,266
Tennessee	9,076	1,427	86.4	13.6	10,502
Texas	40,094	6,198	86.6	13.4	46,292
Utah	3,807	768	83.2	16.8	4,575
Vermont	798	192	80.6	19.4	989
Virgin Islands	118	17	87.4	12.6	135
Virginia	11,184	2,189	83.6	16.4	13,373
Washington	9,994	1,875	84.2	15.8	11,869
West Virginia	2,087	305	87.3	12.7	2,391
Wisconsin	7,183	1,332	84.4	15.6	8,515
Wyoming	728	121	85.8	14.2	849
Total	441,672	75,375	85.4	14.6	517,046

* = Data withheld for confidentiality reasons. # = Rounds to Zero.

Note: Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 45
Connections by Technology by State as of June 30, 2022
(Connections over 200 kbps in at least one direction, in thousands)

<i>State</i>	<i>Copper Wire¹</i>	<i>Cable Modem</i>	<i>Optical Carrier</i>	<i>Other Fixed²</i>	<i>Mobile Wireless</i>	<i>Total</i>
Alabama	333	1,000	362	101	5,654	7,451
Alaska	68	*	15	*	770	1,038
American Samoa	0	*	*	*	*	*
Arizona	477	1,829	193	186	8,061	10,747
Arkansas	285	465	222	74	3,309	4,356
California	1,901	9,573	1,819	525	48,849	62,667
Colorado	*	1,626	263	*	6,610	9,002
Connecticut	*	1,165	96	*	4,371	5,772
Delaware	*	*	*	9	*	1,610
District of Columbia	*	*	*	12	1,550	1,853
Florida	945	6,318	1,642	211	26,375	35,490
Georgia	681	2,291	864	130	12,936	16,901
Guam	*	*	2	*	*	201
Hawaii	*	*	*	5	1,694	2,232
Idaho	185	289	93	105	1,931	2,603
Illinois	762	3,199	439	250	15,279	19,929
Indiana	408	1,422	527	140	7,223	9,720
Iowa	242	492	351	88	3,355	4,529
Kansas	147	525	320	87	3,104	4,183
Kentucky	306	904	396	76	4,676	6,358
Louisiana	296	929	275	97	5,462	7,059
Maine	90	503	30	27	1,401	2,052
Maryland	*	1,346	*	46	7,334	9,693
Massachusetts	*	2,136	624	*	8,220	11,073
Michigan	569	2,835	265	197	11,187	15,053
Minnesota	368	1,366	328	112	6,264	8,438
Mississippi	275	391	240	78	3,296	4,280
Missouri	457	1,133	537	168	6,824	9,119
Montana	84	257	55	60	1,133	1,589
Nebraska	115	394	180	54	2,150	2,893

Figure 45 - Continued
Connections by Technology by State as of June 30, 2022
 (Connections over 200 kbps in at least one direction, in thousands)

<i>State</i>	<i>Copper Wire¹</i>	<i>Cable Modem</i>	<i>Optical Carrier</i>	<i>Other Fixed²</i>	<i>Mobile Wireless</i>	<i>Total</i>
Nevada	135	*	113	*	3,651	4,842
New Hampshire	51	*	58	*	1,496	2,129
New Jersey	65	2,090	*	*	11,402	14,820
New Mexico	197	438	60	60	2,346	3,101
New York	155	5,024	2,192	115	25,184	32,668
North Carolina	536	2,848	834	148	11,694	16,059
North Dakota	16	174	124	7	823	1,143
Northern Mariana Isl	*	*	*	0	*	*
Ohio	645	3,193	579	179	13,249	17,844
Oklahoma	273	666	296	134	4,411	5,779
Oregon	188	1,159	263	93	4,712	6,415
Pennsylvania	336	3,402	1,146	111	14,732	19,726
Puerto Rico	*	*	126	83	3,558	4,351
Rhode Island	*	*	*	6	*	1,751
South Carolina	287	1,296	486	70	5,558	7,697
South Dakota	29	201	97	17	922	1,266
Tennessee	309	1,451	784	104	7,854	10,502
Texas	1,271	5,682	2,829	707	35,803	46,292
Utah	129	625	243	88	3,490	4,575
Vermont	79	*	63	*	652	989
Virgin Islands	0	*	0	*	103	135
Virginia	180	1,770	1,258	139	10,026	13,373
Washington	383	2,228	284	155	8,818	11,869
West Virginia	*	423	67	*	1,738	2,391
Wisconsin	443	*	308	*	6,138	8,515
Wyoming	38	132	21	51	607	849
Total	15,652	80,022	24,997	5,691	390,684	517,046

* = Data withheld for confidentiality reasons. # = Rounds to Zero.

¹ Other is summarized with Copper Wire for confidentiality reasons.

² Other Fixed consists of Fixed Wireless and Satellite services.

Note: Numbers may not sum to totals due to rounding.

Source: FCC Form 477.

Figure 46
Percentage of Fixed Connections by Downstream Speed by State as of June 30, 2022

State	% over 200 kbps Downstream	% at least 10 Mbps Downstream	Over 200 kbps Upstream and		
			% at least 25 Mbps Downstream	% at least 100 Mbps Downstream	% at least 940 Mbps Downstream
Alabama	99.9	93.7	85.3	67.9	11.5
Alaska	99.8	92.8	73.9	*	*
American Samoa	*	*	*	*	*
Arizona	99.9	95.4	88.5	71.9	14.1
Arkansas	99.9	91.5	78.9	55.1	12.2
California	99.9	96.8	91.6	76.1	13.2
Colorado	99.9	96.9	90.4	70.3	18.1
Connecticut	100.0	97.4	92.1	83.0	13.0
Delaware	100.0	98.1	97.5	84.0	26.1
District of Columbia	100.0	97.1	96.1	84.3	25.7
Florida	99.9	96.7	92.7	74.4	11.0
Georgia	99.6	94.8	88.8	69.4	17.6
Guam	100.0	87.2	75.3	6.4	*
Hawaii	100.0	97.0	*	*	*
Idaho	99.9	92.0	75.5	54.7	10.3
Illinois	100.0	95.5	89.3	65.9	11.4
Indiana	99.8	94.5	86.7	63.8	12.4
Iowa	100.0	93.9	83.7	61.5	12.7
Kansas	100.0	95.3	86.6	67.3	20.0
Kentucky	99.7	92.9	85.2	68.9	8.6
Louisiana	99.8	93.7	85.0	66.2	13.2
Maine	99.7	92.6	82.9	71.3	2.8
Maryland	100.0	97.8	96.6	82.2	29.8
Massachusetts	100.0	97.9	97.3	87.0	22.2
Michigan	99.7	95.3	89.6	68.9	7.7
Minnesota	100.0	96.0	88.2	66.6	13.6
Mississippi	99.8	90.2	76.4	53.3	18.8
Missouri	99.9	94.1	83.7	66.4	13.5
Montana	99.9	93.7	81.1	60.4	3.1
Nebraska	99.9	95.8	88.4	67.2	10.3

Figure 46 - Continued
Percentage of Fixed Connections by Downstream Speed by State as of June 30, 2022

State	% over 200 kbps Downstream	% at least 10 Mbps Downstream	Over 200 kbps Upstream and		
			% at least 25 Mbps Downstream	% at least 100 Mbps Downstream	% at least 940 Mbps Downstream
Nevada	100.0	97.0	92.3	79.0	15.1
New Hampshire	99.5	94.8	91.2	81.8	13.4
New Jersey	99.8	98.4	97.5	88.6	27.1
New Mexico	99.9	93.0	81.0	53.6	8.0
New York	99.8	98.4	95.3	87.7	17.0
North Carolina	99.7	95.0	88.9	77.4	11.6
North Dakota	99.9	98.1	95.0	83.7	51.9
Northern Mariana Isl	*	*	*	*	*
Ohio	100.0	95.7	88.5	73.1	5.0
Oklahoma	99.9	93.1	82.8	64.4	15.6
Oregon	99.9	95.9	89.6	70.6	14.0
Pennsylvania	99.9	95.7	93.3	78.1	19.7
Puerto Rico	100.0	89.8	71.7	30.7	1.1
Rhode Island	99.6	99.0	98.3	90.0	31.0
South Carolina	99.9	96.1	89.5	75.8	10.4
South Dakota	99.8	98.2	94.8	*	*
Tennessee	99.8	95.9	90.7	72.6	18.2
Texas	99.9	96.8	90.4	72.9	18.1
Utah	100.0	97.2	91.3	71.3	23.3
Vermont	99.7	90.3	78.2	64.0	10.7
Virgin Islands	*	*	*	*	*
Virginia	99.7	96.0	93.1	80.5	29.9
Washington	99.7	95.5	89.4	72.8	16.6
West Virginia	99.5	89.3	79.7	64.5	15.9
Wisconsin	99.7	94.8	84.1	68.6	3.8
Wyoming	99.9	94.2	86.2	63.3	2.3
Total	99.9	95.9	90.0	73.6	15.1

* = Data withheld for confidentiality reasons.

Source: FCC Form 477.

Figure 47
Providers of Connections by Technology by State as of June 30, 2022
 (Connections over 200 kbps in at least one direction)

<i>State</i>	<i>Copper Wire¹</i>	<i>Cable Modem</i>	<i>Optical Carrier</i>	<i>Satellite</i>	<i>Fixed Wireless</i>	<i>Mobile Wireless</i>	<i>Unduplicated Total</i>
Alabama	20	15	45	*	23	6	76
Alaska	13	*	17	*	15	11	33
American Samoa	0	*	*	0	*	*	*
Arizona	21	12	38	*	43	5	81
Arkansas	20	13	52	*	29	5	83
California	30	22	65	*	120	5	176
Colorado	27	10	71	*	64	8	116
Connecticut	5	5	13	*	4	4	23
Delaware	*	*	11	*	4	*	22
District of Columbia	7	4	17	*	8	4	29
Florida	19	15	50	*	35	6	84
Georgia	26	21	77	*	25	5	104
Guam	*	*	4	0	*	*	4
Hawaii	5	*	10	*	4	4	17
Idaho	23	13	37	*	39	6	67
Illinois	46	13	86	*	68	6	140
Indiana	33	9	81	*	61	4	121
Iowa	54	31	181	*	77	6	223
Kansas	24	18	63	*	44	8	93
Kentucky	17	24	58	*	27	5	94
Louisiana	13	14	31	*	26	4	63
Maine	11	4	20	*	12	5	37
Maryland	11	13	35	*	19	5	61
Massachusetts	10	6	25	*	13	4	46
Michigan	29	19	69	*	49	6	117
Minnesota	36	17	81	*	49	5	120
Mississippi	16	10	39	*	14	5	65
Missouri	33	12	80	*	65	6	131
Montana	18	5	33	*	30	6	55
Nebraska	22	16	50	*	42	6	81

Figure 47 - Continued
Providers of Connections by Technology by State as of June 30, 2022
 (Connections over 200 kbps in at least one direction)

<i>State</i>	<i>Copper Wire¹</i>	<i>Cable Modem</i>	<i>Optical Carrier</i>	<i>Satellite</i>	<i>Fixed Wireless</i>	<i>Mobile Wireless</i>	<i>Unduplicated Total</i>
Nevada	18	7	28	*	26	5	58
New Hampshire	8	*	17	*	7	5	28
New Jersey	13	5	27	*	7	4	38
New Mexico	19	6	36	*	43	6	70
New York	32	11	50	*	23	4	79
North Carolina	22	20	49	*	22	6	78
North Dakota	16	5	29	*	10	6	42
Northern Mariana Isl	*	*	*	0	0	*	*
Ohio	35	23	76	*	63	4	138
Oklahoma	36	8	64	*	46	9	106
Oregon	35	11	58	*	44	6	93
Pennsylvania	24	23	60	*	33	7	105
Puerto Rico	*	*	17	*	37	4	44
Rhode Island	*	*	6	*	*	*	13
South Carolina	18	12	35	*	10	5	51
South Dakota	16	7	39	*	22	8	65
Tennessee	19	14	66	*	29	5	94
Texas	64	22	132	4	147	8	232
Utah	14	7	31	*	35	6	55
Vermont	9	*	17	*	11	4	32
Virgin Islands	0	*	0	*	*	4	6
Virginia	26	14	56	*	28	5	84
Washington	26	20	63	*	49	6	100
West Virginia	8	14	24	*	23	5	57
Wisconsin	35	15	72	*	44	6	107
Wyoming	11	5	22	*	22	6	42
Total	593	311	1,473	4	1,231	48	2,242

* = 1 to 3 providers.

¹ Other is summarized with Copper Wire for confidentiality reasons.

Note: Numbers may not sum to totals due to rounding.

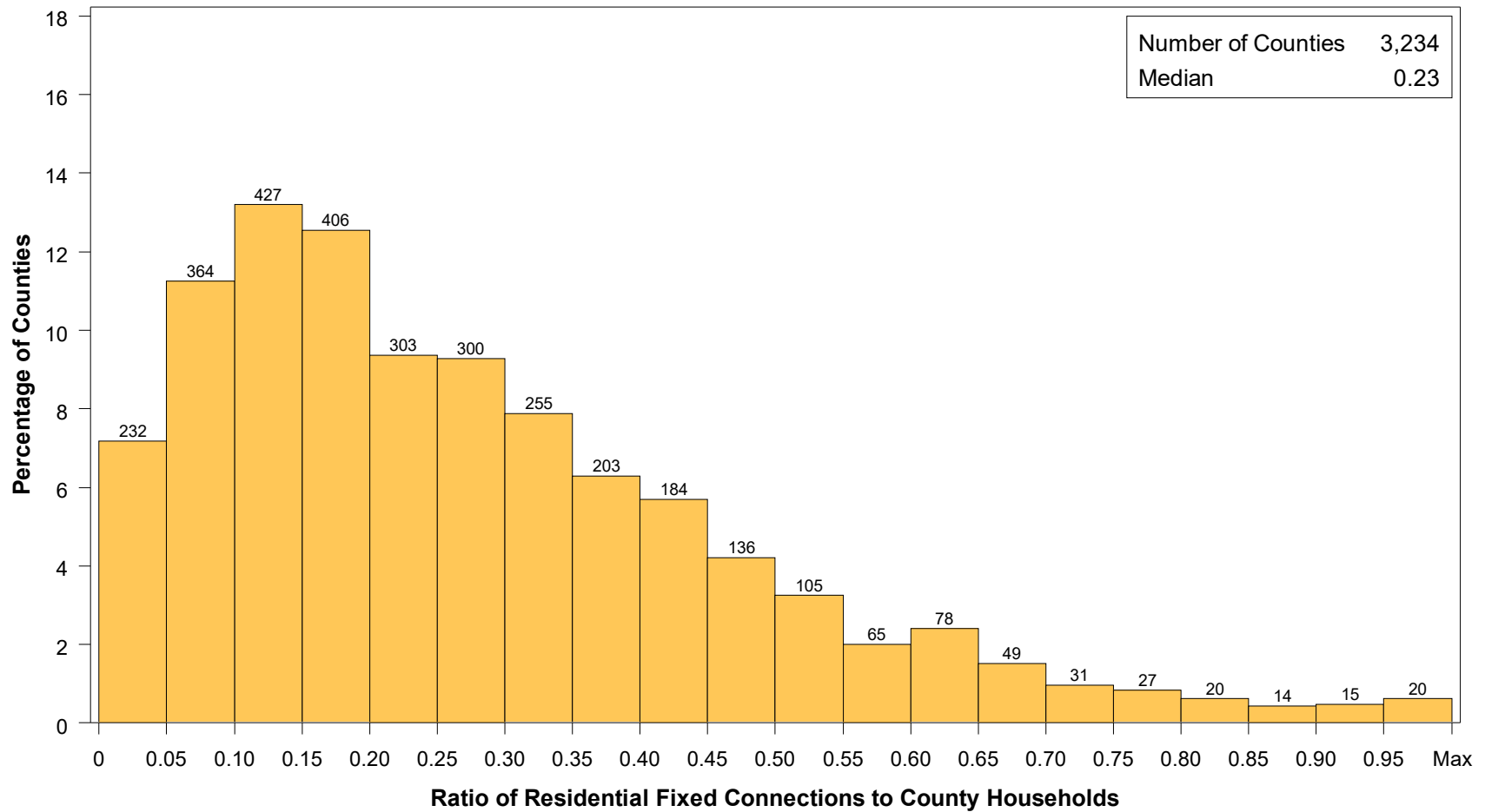
Source: FCC Form 477.

SECTION 5
SUMMARY STATISTICS: COUNTIES AND CENSUS TRACTS

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Figure 48
Distribution of Counties by Ratio of Residential Fixed Connections to County Households as of June 30, 2022
 (Connections at least 100 Mbps downstream and 20 Mbps upstream)



Note: Ratios over 1 were set to 1. See Technical Notes at the end of the report.
 Sources: FCC Form 477; 2017-2021 ACS 5-year estimates; and Census 2010.

Figure 49
Distribution of Counties by Ratio of Residential Fixed Connections to Households by Technology as of June 30, 2022
 (Connections at least 100 Mbps downstream and 20 Mbps upstream)

<i>Technology</i>	<i>Ratio of Residential Fixed Connections to County Households</i>										
	<i>Zero</i>	<i>Greater than 0 and no more than 5%</i>	<i>Greater than 5 and no more than 10%</i>	<i>Greater than 10 and no more than 20%</i>	<i>Greater than 20 and no more than 30%</i>	<i>Greater than 30 and no more than 40%</i>	<i>Greater than 40 and no more than 50%</i>	<i>Greater than 50 and no more than 60%</i>	<i>Greater than 60 and no more than 80%</i>	<i>Greater than 80 and no more than 100%</i>	<i>100% or more</i>
Total	0.6	6.6	11.3	25.7	18.6	14.2	9.9	5.2	5.7	1.8	0.4
Copper Wire ¹	59.0	34.7	4.0	2.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Coaxial Cable	16.4	15.7	19.2	23.7	13.7	6.6	3.0	0.8	0.6	0.2	0.1
Optical Carrier	10.9	38.5	14.3	16.1	7.9	5.2	2.9	1.5	1.5	1.1	0.2
Satellite	5.2	91.6	2.4	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Fixed Wireless	56.6	42.3	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Licensed	73.8	25.9	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unlicensed	72.3	27.0	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0

¹ Other is summarized with Copper Wire for confidentiality reasons.

Note: Numbers may not sum to totals due to rounding.

Sources: FCC Form 477; 2017-2021 ACS 5-year estimates; and Census 2010.

Figure 50
Distribution of Counties by Ratio of Residential Fixed Connections to Households by State as of June 30, 2022
 (Connections at least 100 Mbps downstream and 20 Mbps upstream)

State	Counties	Ratio of Residential Fixed Connections to County Households										
		Zero	Greater than 0 and no more than 5%	Greater than 5 and no more than 10%	Greater than 10 and no more than 20%	Greater than 20 and no more than 30%	Greater than 30 and no more than 40%	Greater than 40 and no more than 50%	Greater than 50 and no more than 60%	Greater than 60 and no more than 80%	Greater than 80 and no more than 100%	100% or more
Alabama	67	0	6	15	16	11	10	6	1	2	0	0
Alaska	30	9	4	3	1	4	1	2	2	4	0	0
American Samoa	5	5	0	0	0	0	0	0	0	0	0	0
Arizona	15	0	0	3	4	3	1	4	0	0	0	0
Arkansas	75	0	9	6	18	19	10	5	5	2	1	0
California	58	0	3	4	8	12	20	9	1	0	1	0
Colorado	64	0	5	6	23	11	13	6	0	0	0	0
Connecticut	8	0	0	0	0	1	2	4	0	1	0	0
Delaware	3	0	0	0	0	0	0	0	1	2	0	0
District of Columbia	1	0	0	0	0	0	0	0	1	0	0	0
Florida	67	0	7	7	12	7	11	13	6	4	0	0
Georgia	159	0	10	25	46	20	15	25	11	7	0	0
Guam	1	0	1	0	0	0	0	0	0	0	0	0
Hawaii	5	0	0	1	0	1	1	1	1	0	0	0
Idaho	44	0	3	6	10	11	4	7	0	2	1	0
Illinois	102	0	4	4	26	31	25	9	1	2	0	0
Indiana	92	0	2	4	23	17	29	7	7	3	0	0
Iowa	99	0	1	4	22	36	19	9	7	1	0	0
Kansas	105	0	5	21	35	19	15	3	3	4	0	0
Kentucky	120	0	5	16	32	24	19	9	10	3	2	0
Louisiana	64	0	11	14	15	9	7	6	1	1	0	0
Maine	16	0	0	0	14	1	1	0	0	0	0	0
Maryland	24	0	0	0	0	3	4	4	4	9	0	0
Massachusetts	14	0	0	0	0	1	2	2	3	4	0	2
Michigan	83	0	2	14	40	16	6	3	2	0	0	0
Minnesota	87	0	2	11	22	22	14	5	7	3	1	0
Mississippi	82	0	16	9	13	13	14	12	5	0	0	0
Missouri	115	0	20	12	23	23	12	9	5	10	1	0
Montana	56	0	5	15	20	3	1	1	2	6	3	0
Nebraska	93	0	10	7	16	17	21	14	4	2	2	0

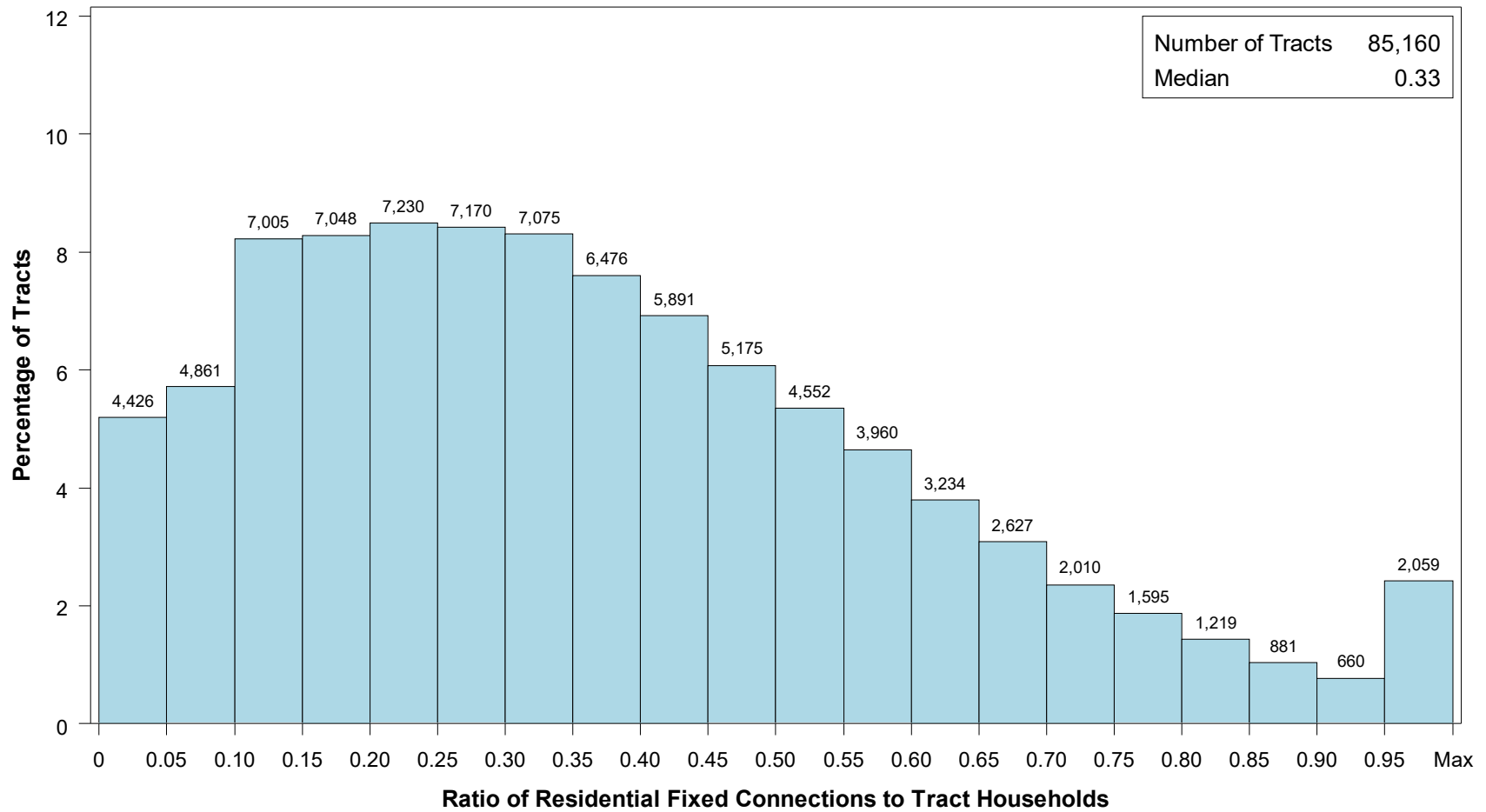
Figure 50 - Continued
Distribution of Counties by Ratio of Residential Fixed Connections to Households by State as of June 30, 2022
(Connections at least 100 Mbps downstream and 20 Mbps upstream)

State	Counties	Ratio of Residential Fixed Connections to County Households										
		Zero	Greater than 0 and no more than 5%	Greater than 5 and no more than 10%	Greater than 10 and no more than 20%	Greater than 20 and no more than 30%	Greater than 30 and no more than 40%	Greater than 40 and no more than 50%	Greater than 50 and no more than 60%	Greater than 60 and no more than 80%	Greater than 80 and no more than 100%	100% or more
Nevada	17	0	2	3	6	5	1	0	0	0	0	0
New Hampshire	10	0	0	0	1	1	2	2	2	1	0	1
New Jersey	21	0	0	0	0	0	1	3	2	13	1	1
New Mexico	33	0	5	3	13	2	4	0	0	3	3	0
New York	62	0	0	2	28	16	2	2	2	7	2	1
North Carolina	100	0	1	11	30	20	19	10	5	3	1	0
North Dakota	53	0	0	0	0	2	2	1	4	17	24	3
Northern Mariana Isl	4	4	0	0	0	0	0	0	0	0	0	0
Ohio	88	0	6	19	34	18	6	5	0	0	0	0
Oklahoma	77	0	2	4	25	8	17	11	7	3	0	0
Oregon	36	0	0	4	12	16	3	1	0	0	0	0
Pennsylvania	67	0	0	1	12	13	19	9	7	6	0	0
Puerto Rico	78	0	12	33	26	7	0	0	0	0	0	0
Rhode Island	5	0	0	0	1	0	0	1	2	1	0	0
South Carolina	46	0	2	7	10	7	4	8	4	1	2	1
South Dakota	66	0	4	4	14	4	9	7	7	13	4	0
Tennessee	95	0	0	6	13	21	17	15	8	12	2	1
Texas	254	0	18	30	78	47	23	26	13	18	1	0
Utah	29	0	0	2	3	5	4	6	1	4	3	1
Vermont	14	0	0	0	2	4	3	2	1	1	0	1
Virgin Islands	3	1	2	0	0	0	0	0	0	0	0	0
Virginia	133	0	12	8	17	27	23	27	9	8	2	0
Washington	39	0	0	1	16	13	5	1	2	1	0	0
West Virginia	55	1	13	4	10	11	9	6	1	0	0	0
Wisconsin	72	0	2	15	30	16	6	0	2	1	0	0
Wyoming	23	0	0	2	12	4	2	3	0	0	0	0
Total	3,234	20	212	366	832	602	458	321	169	185	57	12

Note: Numbers may not sum to totals due to rounding. See Technical Notes at the end of the report.

Sources: FCC Form 477; 2017-2021 ACS 5-year estimates (Households for U.S. and District of Columbia); Census 2010 (Households for Puerto Rico, American Samoa, Guam, Northern Mariana Islands and U.S. Virgin Islands).

Figure 51
Distribution of Census Tracts by Ratio of Residential Fixed Connections to Households as of June 30, 2022
 (Connections at least 100 Mbps downstream and 20 Mbps upstream)



Note: Ratios over 1 were set to 1. See Technical Notes at the end of the report.
 Sources: FCC Form 477; 2017-2021 ACS 5-year estimates; and Census 2010.

Figure 52
Distribution of Census Tracts by Ratio of Residential Fixed Connections to Households by Technology as of June 30, 2022
 (Connections at least 100 Mbps downstream and 20 Mbps upstream)

Technology	Ratio of Residential Fixed Connections to Tract Households										
	Zero	Greater than 0 and no more than 5%	Greater than 5 and no more than 10%	Greater than 10 and no more than 20%	Greater than 20 and no more than 30%	Greater than 30 and no more than 40%	Greater than 40 and no more than 50%	Greater than 50 and no more than 60%	Greater than 60 and no more than 80%	Greater than 80 and no more than 100%	100% or more
Total	1.3	3.9	5.7	16.5	16.9	15.9	13.0	10.0	11.1	3.7	2.0
Copper Wire ¹	62.9	34.2	2.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coaxial Cable	7.1	6.1	10.2	30.4	23.7	11.6	5.4	2.7	2.0	0.5	0.3
Optical Carrier	29.0	19.5	9.5	14.0	10.2	7.1	4.5	2.5	2.3	0.8	0.6
Satellite	54.4	44.4	0.8	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Fixed Wireless	69.6	29.2	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Licensed	74.0	25.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unlicensed	93.6	5.7	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0

¹ Other is summarized with Copper Wire for confidentiality reasons. See Technical Notes at the end of the report for a description of FCC Form 477 technology categories and other reporting requirements.
 Note: Numbers may not sum to totals due to rounding.
 Sources: FCC Form 477; 2017-2021 ACS 5-year estimates; and Census 2010.

Figure 53
Distribution of Census Tracts by Ratio of Residential Fixed Connections to Households by State as of June 30, 2022
 (Connections at least 100 Mbps downstream and 20 Mbps upstream)

State	Tracts	Ratio of Residential Fixed Connections to Tract Households										
		Zero	Greater than 0 and no more than 5%	Greater than 5 and no more than 10%	Greater than 10 and no more than 20%	Greater than 20 and no more than 30%	Greater than 30 and no more than 40%	Greater than 40 and no more than 50%	Greater than 50 and no more than 60%	Greater than 60 and no more than 80%	Greater than 80 and no more than 100%	100% or more
Alabama	1,435	8	128	134	274	287	190	144	124	106	29	11
Alaska	177	29	17	7	5	7	15	18	30	39	6	4
American Samoa	18	18	0	0	0	0	0	0	0	0	0	0
Arizona	1,765	34	151	231	555	362	172	85	58	79	24	14
Arkansas	823	6	111	89	165	132	95	77	56	70	18	4
California	9,107	67	110	190	1,278	2,309	2,289	1,531	767	425	81	60
Colorado	1,447	18	40	65	287	426	307	161	65	51	15	12
Connecticut	879	7	2	6	106	131	108	139	141	136	89	14
Delaware	259	3	0	1	3	13	23	48	57	66	27	18
District of Columbia	206	2	0	0	1	19	39	36	33	55	11	10
Florida	5,114	48	137	176	517	836	978	861	621	566	211	163
Georgia	2,791	11	94	151	293	365	396	417	404	488	139	33
Guam	56	18	35	1	1	0	0	0	0	0	0	1
Hawaii	436	22	2	5	23	67	85	79	54	63	17	19
Idaho	456	0	17	25	56	47	57	91	70	70	11	12
Illinois	3,263	7	83	84	365	786	832	612	332	143	15	4
Indiana	1,693	10	51	84	214	358	409	286	137	119	16	9
Iowa	896	4	27	60	142	248	173	87	70	71	14	0
Kansas	829	15	42	145	143	119	67	66	66	114	42	10
Kentucky	1,306	11	72	129	233	211	206	164	141	106	23	10
Louisiana	1,376	16	177	193	282	201	205	128	89	66	14	5
Maine	400	0	1	42	253	52	23	15	10	4	0	0
Maryland	1,463	8	7	5	33	112	205	259	248	369	136	81
Massachusetts	1,613	22	4	10	144	101	196	267	319	387	101	62
Michigan	2,971	82	88	218	644	631	672	433	134	58	9	2
Minnesota	1,502	4	52	103	528	351	178	114	60	88	19	5
Mississippi	875	8	129	55	135	129	107	98	83	103	20	8
Missouri	1,654	14	172	111	216	250	258	204	177	185	43	24
Montana	319	3	22	63	147	38	7	8	11	14	5	1
Nebraska	553	2	20	55	128	105	70	59	66	38	8	2

Figure 53 - Continued
Distribution of Census Tracts by Ratio of Residential Fixed Connections to Tract Households by State as of June 30, 2022
 (Connections at least 100 Mbps downstream and 20 Mbps upstream)

State	Tracts	Ratio of Residential Fixed Connections to Tract Households										
		Zero	Greater than 0 and no more than 5%	Greater than 5 and no more than 10%	Greater than 10 and no more than 20%	Greater than 20 and no more than 30%	Greater than 30 and no more than 40%	Greater than 40 and no more than 50%	Greater than 50 and no more than 60%	Greater than 60 and no more than 80%	Greater than 80 and no more than 100%	100% or more
Nevada	775	5	23	56	252	211	106	50	29	25	8	10
New Hampshire	349	2	3	8	25	24	38	67	95	54	13	20
New Jersey	2,175	14	15	9	38	101	114	220	411	810	285	158
New Mexico	612	17	78	151	221	62	33	20	8	13	6	3
New York	5,393	140	30	248	931	443	402	427	657	1,336	541	238
North Carolina	2,660	22	87	166	550	454	371	303	248	284	100	75
North Dakota	228	1	0	0	7	9	7	16	20	71	74	23
Northern Mariana Isl	23	23	0	0	0	0	0	0	0	0	0	0
Ohio	3,162	44	189	354	872	618	483	285	178	119	16	4
Oklahoma	1,205	22	114	111	225	224	196	121	86	71	24	11
Oregon	994	2	7	56	324	216	171	147	45	17	7	2
Pennsylvania	3,445	64	81	92	262	364	587	647	490	566	200	92
Puerto Rico	939	38	202	236	284	108	43	13	11	1	1	2
Rhode Island	247	1	0	2	24	6	32	82	48	41	6	5
South Carolina	1,317	15	62	121	226	222	198	140	100	121	51	61
South Dakota	242	0	11	6	31	21	10	18	23	78	36	8
Tennessee	1,701	24	36	54	271	257	260	267	214	223	69	26
Texas	6,883	63	292	329	871	847	1,029	1,012	841	1,036	370	193
Utah	716	7	8	25	92	150	152	92	66	78	36	10
Vermont	193	1	4	13	22	35	43	30	21	12	3	9
Virgin Islands	29	25	4	0	0	0	0	0	0	0	0	0
Virginia	2,186	35	117	61	294	273	280	288	272	314	155	97
Washington	1,772	5	29	88	408	551	357	210	80	28	7	9
West Virginia	546	15	80	32	56	80	97	75	63	46	2	0
Wisconsin	1,526	4	81	204	516	395	171	78	42	24	4	7
Wyoming	160	1	1	14	86	32	10	5	7	3	1	0
Total	85,160	1,087	3,345	4,874	14,059	14,396	13,552	11,100	8,478	9,450	3,158	1,661

Note: Numbers may not sum to totals due to rounding. See Technical Notes at the end of the report.

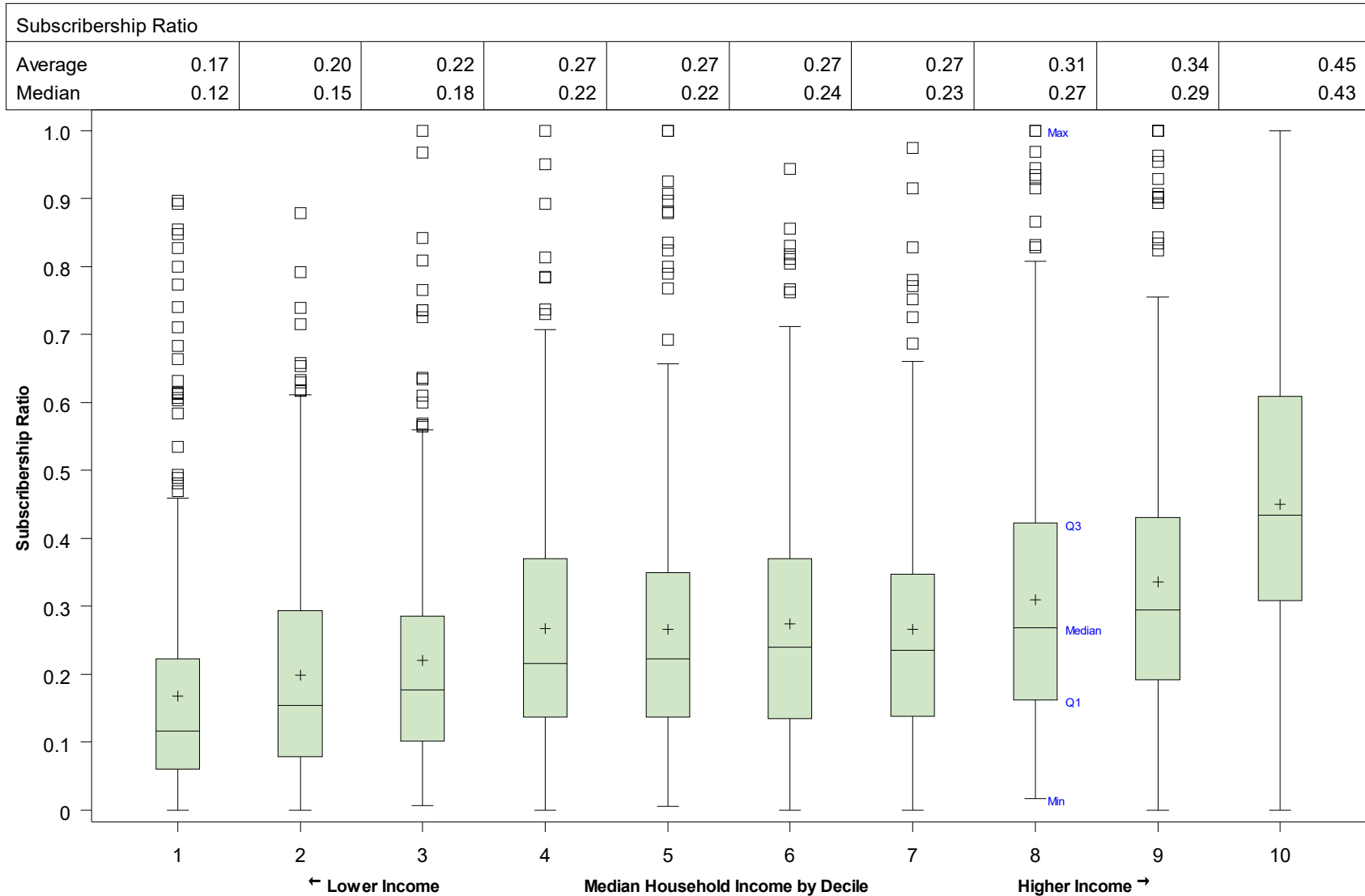
Sources: FCC Form 477; 2017-2021 ACS 5-year estimates (Households for U.S. and District of Columbia); Census 2010 (Households for Puerto Rico, American Samoa, Guam, Northern Mariana Islands and U.S. Virgin Islands).

SECTION 6
CORRELATED RESULTS: DEMOGRAPHIC MEASURES

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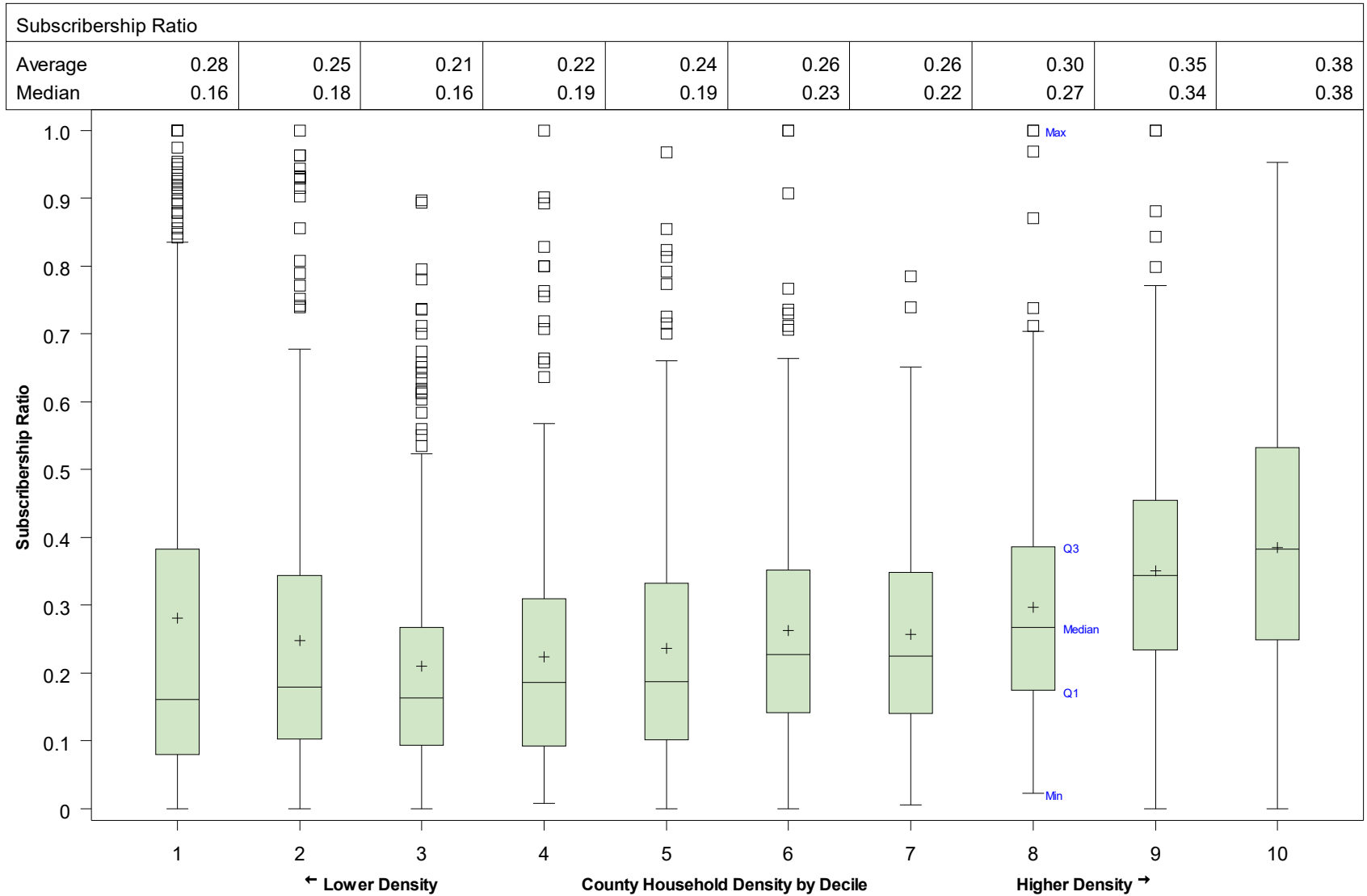
Figure 54
County Subscribership Ratio Distributions by Income Deciles as of June 30, 2022
 (Residential fixed connections at least 100 Mbps downstream and 20 Mbps upstream)



Note: Each box plot shows the distribution of residential subscribership to connections at least 100 Mbps downstream and 20 Mbps upstream for counties in the income decile. Some of the features are labeled, but note also that + denotes the position of the average residential subscribership ratio taken across all counties in the decile; ⊥ is the minimum observation above Q1-1.5(Q3-Q1); T is the maximum observation below Q3+1.5(Q3-Q1); and □ is any data point beyond Q1-1.5(Q3-Q1) or Q3+1.5(Q3-Q1). Ratios greater than 1 were set to 1.

Sources: FCC Form 477; 2017-2021 ACS 5-year Estimates; Census 2010.

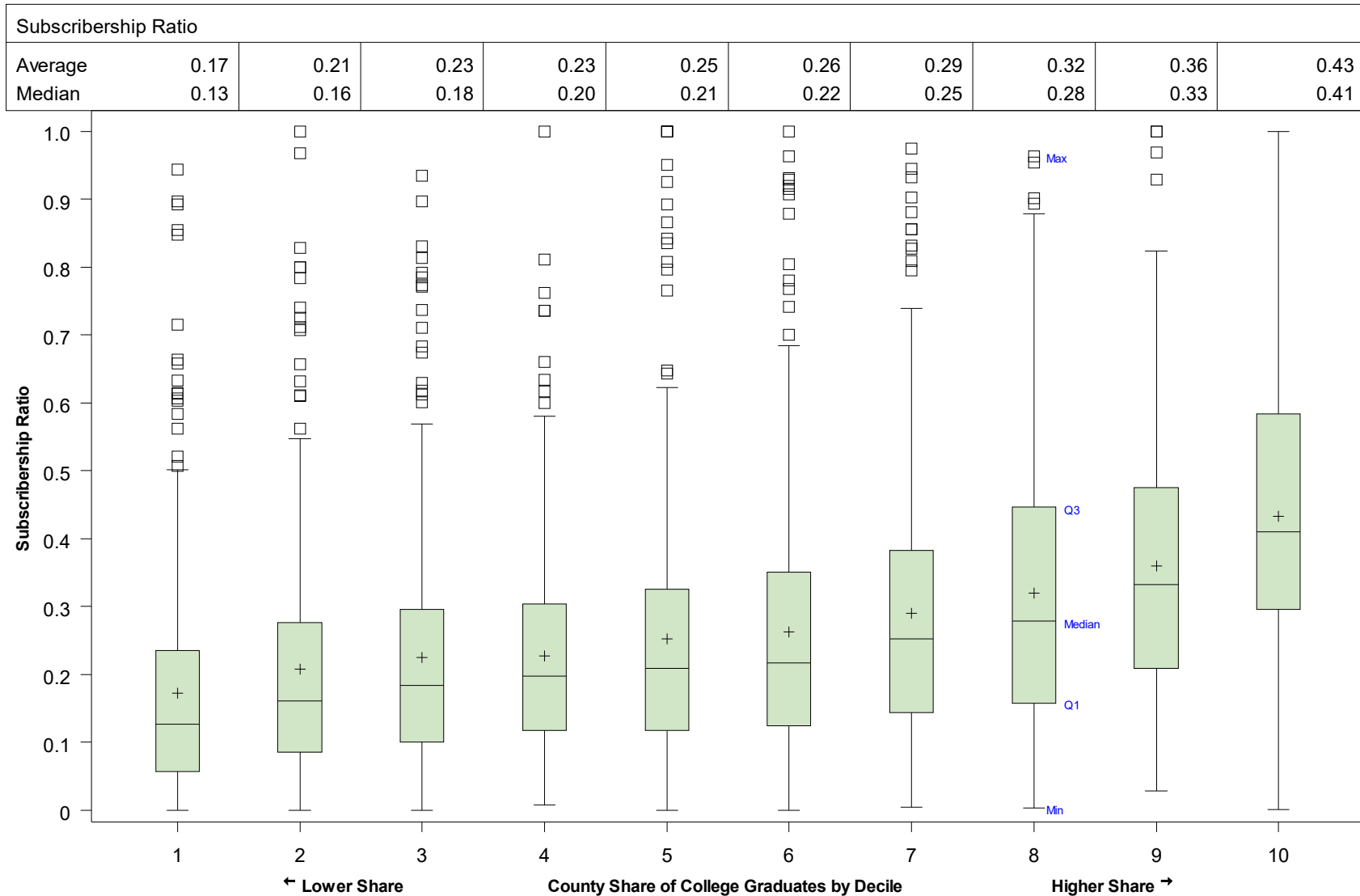
Figure 55
County Subscribership Ratio Distributions by Density Deciles as of June 30, 2022
 (Residential fixed connections at least 100 Mbps downstream and 20 Mbps upstream)



Note: Each box plot shows the distribution of residential subscriptions to connections at least 100 Mbps downstream and 20 Mbps upstream for counties in the density decile. Some of the features are labeled, but note also that + denotes the position of the average residential subscriber ratio taken across all counties in the decile; ⊥ is the minimum observation above Q1-1.5(Q3-Q1); T is the maximum observation below Q3+1.5(Q3-Q1); and □ is any data point beyond Q1-1.5(Q3-Q1) or Q3+1.5(Q3-Q1). Ratios greater than 1 were set to 1.

Sources: FCC Form 477; 2017-2021 ACS 5-year Estimates; Census 2010.

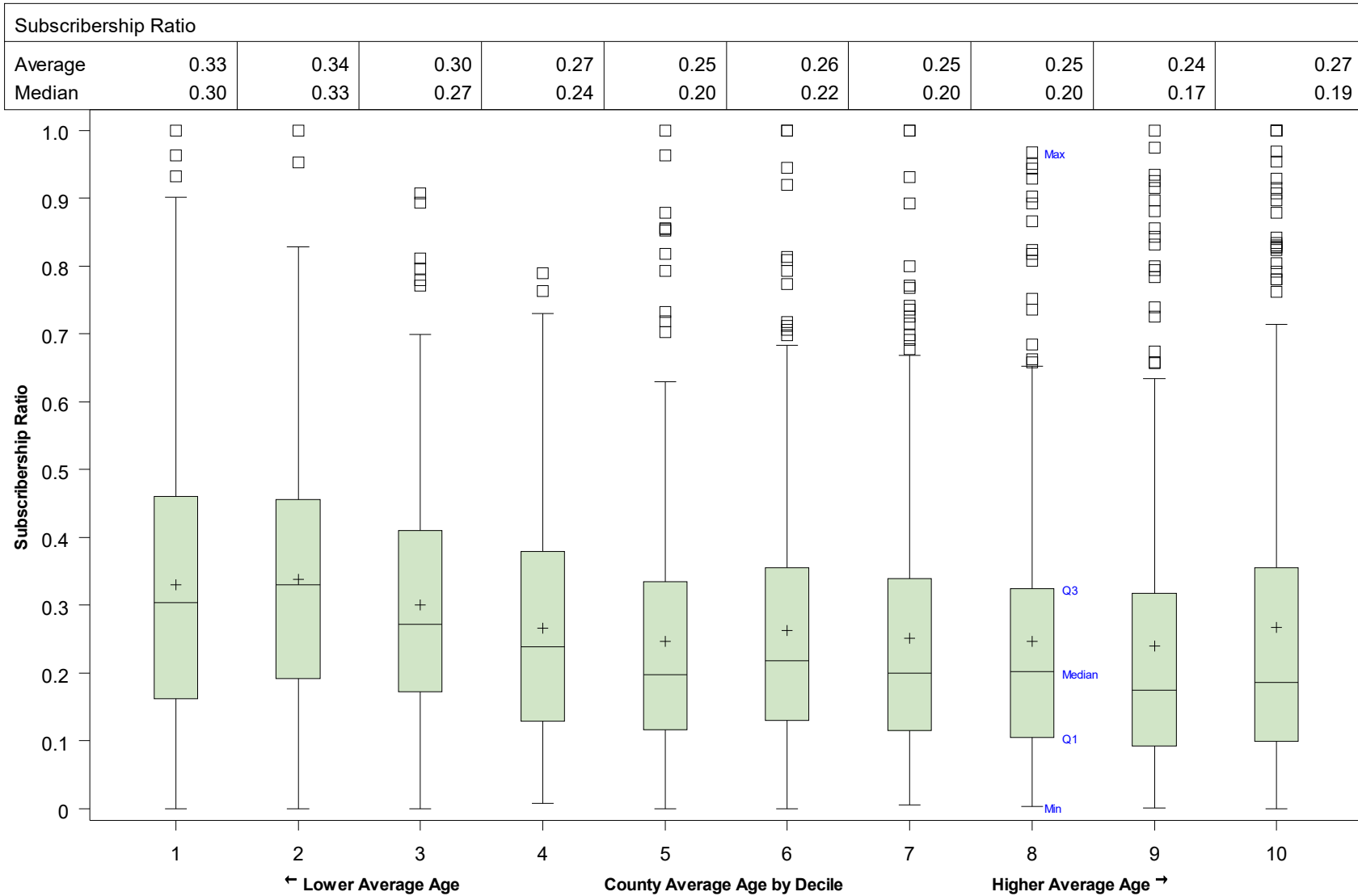
Figure 56
County Subscribership Ratio Distributions by Share of Population with a College Degree (in Deciles) as of June 30, 2022
 (Residential fixed connections at least 100 Mbps downstream and 20 Mbps upstream)



Note: Each box plot shows the distribution of residential subscribership to connections at least 100 Mbps downstream and 20 Mbps upstream for counties in the share decile. Some of the features are labeled, but note also that + denotes the position of the average residential subscribership ratio taken across all counties in the decile; ⊥ is the minimum observation above Q1-1.5(Q3-Q1); T is the maximum observation below Q3+1.5(Q3-Q1); and □ is a data point beyond Q1-1.5(Q3-Q1) or Q3+1.5(Q3-Q1). Ratios greater than 1 were set to 1.

Sources: FCC Form 477; 2017-2021 ACS 5-year Estimates; Census 2010.

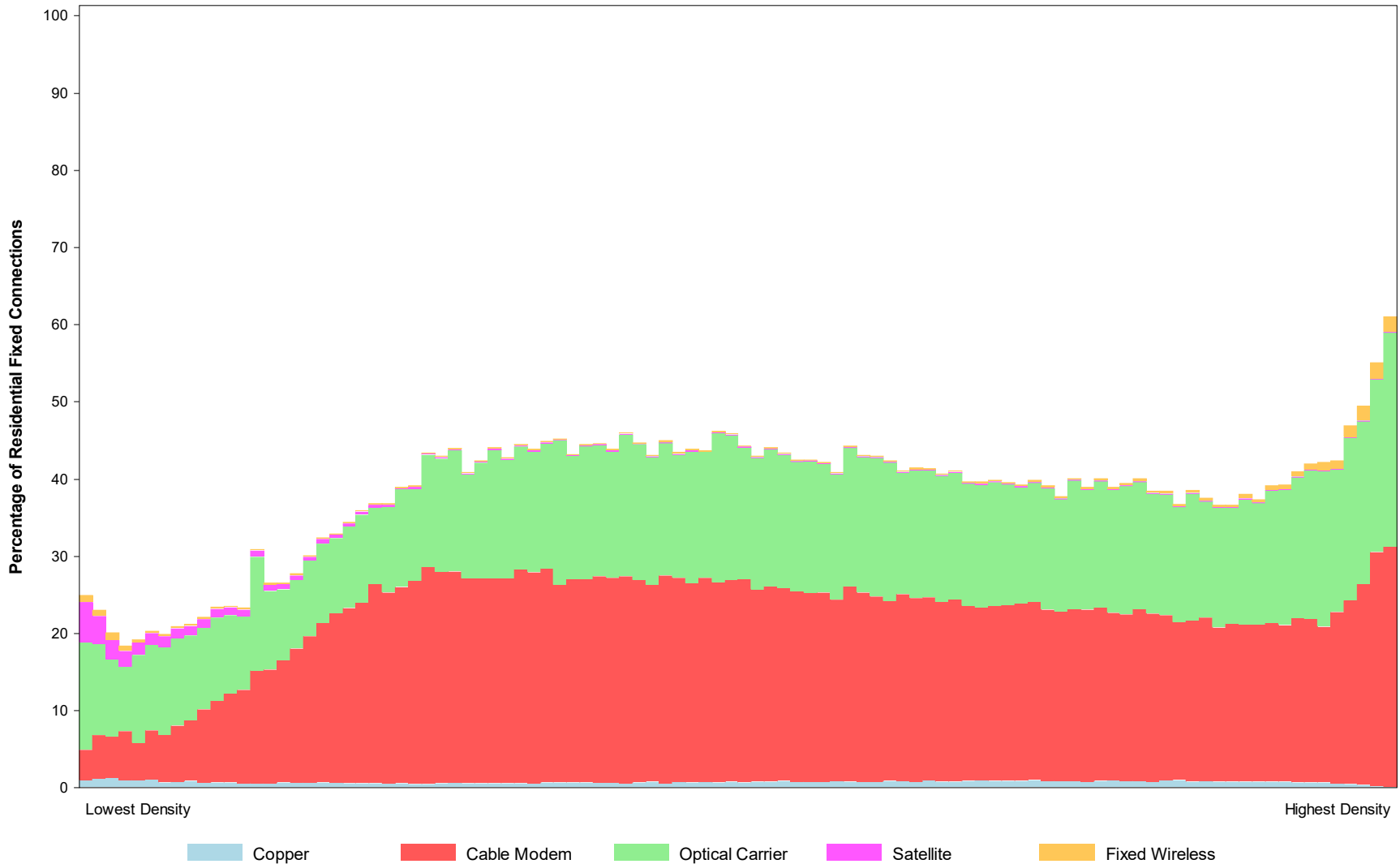
Figure 57
County Subscriberhip Ratio Distributions by Average Age of Population (in Deciles) as of June 30, 2022
 (Residential fixed connections at least 100 Mbps downstream and 20 Mbps upstream)



Note: Each box plot shows the distribution of residential subscriberhip to connections at least 100 Mbps downstream and 20 Mbps upstream for counties in the average age decile. Some of the features are labeled, but note also that + denotes the position of the average residential subscriberhip ratio taken across all counties in the decile; ⊥ is the minimum observation above Q1-1.5(Q3-Q1); T is the maximum observation below Q3+1.5(Q3-Q1); and □ is a data point beyond Q1-1.5(Q3-Q1) or Q3+1.5(Q3-Q1). Ratios greater than 1 were set to 1.

Sources: FCC Form 477; 2017-2021 ACS 5-year Estimates; Census 2010.

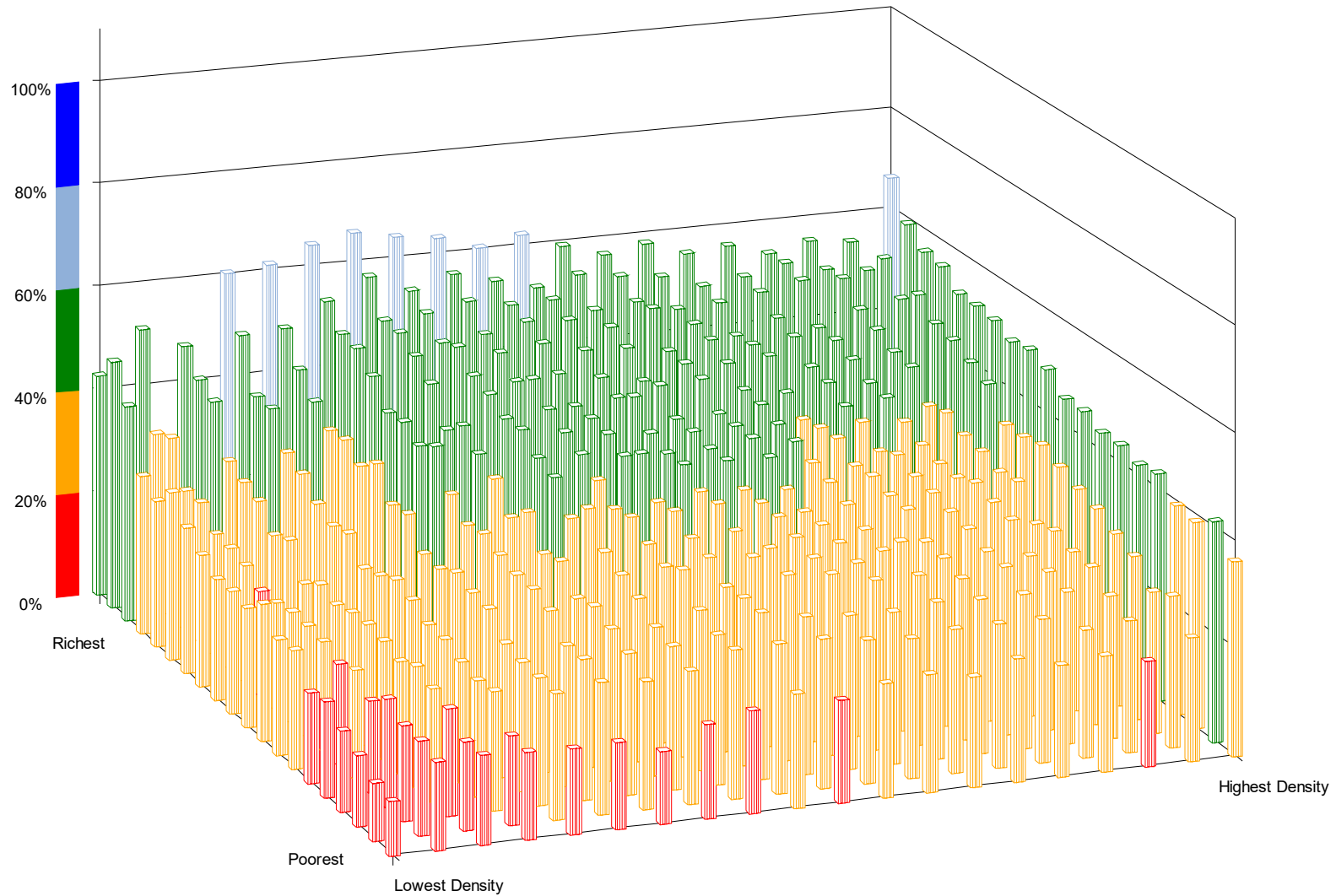
Figure 58
Tract Subscriberhip Ratios by Technology and Household Density as of June 30, 2022
 (Residential fixed connections at least 100 Mbps downstream and 20 Mbps upstream)



This chart shows subscribership ratios by technology and household density. Tracts were grouped into 100 density percentiles based on households per square mile, calculated as the ratio of estimated tract households to tract land area from the Census Bureau. For each percentile, the height of the bar represents the household-weighted average ratio of residential fixed connections at least 100 Mbps downstream and 20 Mbps upstream to households across tracts in the percentile.

Sources: FCC Form 477; 2017-2021 ACS 5-year estimates; and Census 2010.

Figure 59
Tract Subscribership Ratios by Income and Household Density as of June 30, 2022
 (Residential fixed connections at least 100 Mbps downstream and 20 Mbps upstream by Tract)



This chart shows subscribership ratios by household density and income quantiles. Tracts were grouped into 400 density/income quantiles based on households per square mile, calculated as the ratio of estimated tract households to tract land area, and median household income. For each quantile, the height of the grid represents the household-weighted average ratio of residential fixed connections at least 100 Mbps downstream and 20 Mbps upstream to households across tracts in the decile.
 Sources: FCC Form 477; 2017-2021 ACS 5-year estimates; and Census 2010.

TECHNICAL NOTES

General

The information presented in this report is based on data from FCC Form 477 and the Broadband Data Collection (BDC). Through these data collections, facilities-based broadband providers submit information to the FCC about where they offer and have subscribers to Internet access services over 200 kilobits per second (kbps) in at least one direction. In June 2013, the Commission adopted several changes to FCC Form 477.¹ Detailed information about those changes and about the FCC Form 477 reporting requirements in general is available at www.fcc.gov/form477.

FCC Form 477 collects information about *Internet access connections in service* to end-user locations that are advertised to deliver information to and/or from the end user – that is, in at least one direction – at transfer rates (speeds) above 200 kilobits per second (kbps). Information is collected about the number of connections by the advertised speeds associated with each service to which end users have subscribed in the relevant geographic area: census tracts for fixed and states for mobile. Providers report connections by the advertised upload and download speeds, and the technology employed by the part of the connection that terminates at the end-user location.

Through the BDC, the FCC collects information about the *availability* of Internet access services. In March 2020, Congress passed the Broadband Data Act which required the Commission to collect broadband availability data at a more granular level than what was historically reported through FCC Form 477.² As a result, starting in June 2022, broadband availability data have been collected through the BDC while subscription data continues to be collected through FCC Form 477. To ensure consistency across the two data collections, several minor changes were made to the FCC Form 477 reporting requirements beginning with filings as of June 30, 2022. Complete reporting requirements for both, the BDC and FCC Form 477, can be found here: www.fcc.gov/BroadbandData/filers. The inaugural BDC filing window for data as of June 30, 2022 was closed on September 1, 2022.

“End users” are residential, business, institutional, or government entities who use services for their own purposes and who do not resell such services to other entities. *Facilities-based providers* report information about connections they provide directly to their own end-user customers and also connections that they provide to Internet Service Providers for resale to end users. For the purposes of these collections, the facilities-based provider of a connection is the entity that owns the portion of the physical facility that terminates at the end-user location, obtains an unbundled network element (UNE), special access line, or other leased facility that terminates at the end-user location and provisions/equips it as a connection that transfers information at rates over 200 kbps in at least one direction, or provisions/equips a wireless channel that transfers information at rates over 200 kbps in at least one direction to the end-user location over licensed spectrum or over spectrum that the provider uses on an unlicensed basis.

Beginning with data as of June 30, 2022, the ten mutually exclusive *technology categories* are: copper wire; coaxial cable; optical carrier; geostationary satellite; non-geostationary satellite; unlicensed terrestrial fixed wireless; licensed terrestrial fixed wireless; licensed-by-rule terrestrial fixed wireless; mobile wireless; and other (which is included to capture deployment of additional technologies over

¹ *Modernizing the FCC Form 477 Data Program*, WC Docket No. 11-10, Report and Order, 28 FCC Rcd 9887 (2013). See also *High-Speed Services for Internet Access: Status as of December 31, 2014* (March 2016) at 1-2, available at <https://www.fcc.gov/reports-research/reports/internet-access-services-reports/internet-access-services-reports>.

² Broadband Deployment Accuracy and Technological Availability Act, Pub. L. No. 116-130, 134 Stat. 228 (2020) (codified at 47 U.S.C. §§ 641-646) (Broadband DATA Act or Act).

time). Connections deployed over hybrid fiber-coax (HFC) architecture are reported in the coaxial cable category. Wireless ISPs (WISPs) report in the fixed wireless category if providing service to dispersed, fixed end-user locations and report in the mobile wireless category if providing a commercial service that can be received at any location within a service footprint. Wireless local area networks (such as Wi-Fi hotspots) that only enable local distribution and sharing of a premises connection are not included, although the shared premises connection is included. For confidentiality reasons and for ease of reporting, the report aggregates several of these categories. Geostationary Satellite and Non-Geostationary Satellite are reported as a single category: ‘Satellite’; Licensed-by-Rule Terrestrial Fixed Wireless is aggregated with Licensed Fixed Wireless; and Other is reported with Copper Wireline.

Numbers of connections presented in this report are not adjusted for the number of persons at a single end-user location who have access to, or who use, the Internet access services delivered over the connection to that location.

Census tracts

Since the collection of data as of December 31, 2008, facilities-based providers of reportable fixed connections have been reporting connection counts at the census tract level of detail. Facilities-based mobile wireless providers report connection counts by state rather than census tract.

The census tract-level data summarized in this report were collected for tracts in the 2020 decennial census. For the purposes of this report, there are 85,160 census tracts because we exclude census tracts delineated specifically to cover large bodies of water.

Ratios of residential fixed connections to households that exceed 100%

We estimate the share of households with fixed connections in individual census tracts by taking the ratio of the reported number of residential fixed connections to the estimated number of households. We continue to find “outlier” estimates at or above 100% and to find that the number of outliers is substantially reduced when estimates are made for individual counties rather than for individual census tracts.

Possible explanations of ratios at or above 100% include: (1) geocoding misallocations of service locations to census tracts; (2) proper allocation of connections to the county level by some filers, but improper allocation of all connections to a single tract in the county; (3) possible overestimation of residential connections in service plans for which the customer base is primarily residential; and (4) connections at seasonally or occasionally occupied housing units, such as vacation homes, while the household is counted elsewhere. The numbers of households in census tracts that were used to generate the estimated ratios are themselves estimates by the United States Census Bureau, which could have an independent effect.

Maps showing residential subscribership rates by census tract

The two maps based on connections over 200 kbps in at least one direction per 1,000 households (that is, estimated household subscribership rates) exclude all connections identified as business connections and necessarily exclude residential mobile wireless connections (which are reported for the state but not for individual census tracts).

GLOSSARY

Term	Definition
aDSL	Asymmetric Digital Subscriber Line: A digital local loop typically using copper facilities and providing greater bandwidth in one direction than the other.
BSL	Broadband Serviceable Location: A business or residential location in the United States at which mass-market fixed broadband Internet access service is, or can be, installed.
Coaxial cable	A fixed wireline service which offers customers access to the Internet using coaxial cable or hybrid fiber-coaxial.
Copper wire	A fixed wireline service using copper wire (e.g., Asymmetric or Symmetric DSL, ethernet over copper, T-1, etc.)
Fabric	Broadband Serviceable Location Fabric: A dataset of all locations in the United States and its Territories where fixed broadband internet access service is or could be installed
Downstream speed	Speed of transmission from the Internet to the end user.
End users	Residential, business, institutional, or government entities who use services for their own purposes and who do not resell such services to other entities.
Facilities-based provider	Entity that owns the portion of the physical facility that terminates at the end-user location, obtains an unbundled network element (UNE), special access line, or other leased facility that terminates at the end-user location and provisions/equips it as a connection that transfers information at rates over 200 kbps in at least one direction, or provisions/equips a wireless channel that transfers information at rates over 200 kbps in at least one direction to the end-user location over licensed spectrum or over spectrum that the provider uses on an unlicensed basis.
Fixed technologies	All technologies other than terrestrial mobile wireless.
Fixed wireless	A radio communication service between specified fixed points.
Geostationary satellite	Fixed non-terrestrial wireless service using satellites in geostationary orbit.
Internet access service	Service that provides end users access to the Internet.
ISPs	Internet Service Providers: Companies or organizations that provide Internet access service (see above).
Licensed fixed wireless	Fixed terrestrial wireless service using entirely licensed spectrum (including priority access licenses in the 3.5 GHz band) or a hybrid of licensed, unlicensed, and licensed-by-rule spectrum connections to make last-mile connections to fixed locations.
Licensed-by-rule fixed wireless	Fixed terrestrial wireless services using entirely licensed-by-rule spectrum or a hybrid of licensed-by-rule and unlicensed spectrum to make last-mile connections to fixed locations.
Mobile wireless service	A radio communication service between mobile and fixed stations, or between mobile stations.

Mobile wireless provider	Provider of mobile wireless service (see above).
Non-geostationary satellite	Fixed non-terrestrial wireless service using satellites in non-geostationary orbit (e.g., Low Earth Orbit or Medium Earth Orbit)
Optical carrier	Fixed wireline service using fiber to the home or business end user, but does not include “fiber to the curb”.
Other wireline	All copper-wire based technologies other than DSL technologies; Ethernet over copper and T-1 are examples.
Power line	Internet access service delivered over electric power transmission lines.
Satellite communications	A telecommunications service provided via one or more satellite relays and their associated uplinks and downlinks.
sDSL	Symmetric Digital Subscriber Line: DSL technology that provides equal bandwidth for both uploads and downloads.
Speed tiers	Sub-groupings defined by ranges of upstream speeds and downstream speeds.
Units	The number of residential housing units or business establishments located within a BSL.
Unlicensed fixed wireless	Fixed terrestrial wireless service using entirely unlicensed spectrum, including service provided over Wi-Fi as a fixed solution, to make last-mile connections to fixed locations.
Upstream speed	Speed of transmission from the end user to the Internet.
Wi-Fi hotspot	Wireless Fidelity: Generic term referring to any type of IEEE 802.11 wireless network. A hotspot is a small geographic area in which users can gain access to a Wi-Fi network which in turn connects to the Internet.
Wireless service	Telephone, Internet, data, and other services provided to customers through the transmission of signals over networks of radio towers.
Wireless service provider	Provider of wireless service (see above).
WISP	Wireless ISP: A company that provides end users with wireless access to the Internet, most commonly by using radio spectrum designated for unlicensed use.